RENAULT

# 0 General vehicle information


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01C VEHICLE BODYWORK SPECIFICATIONS

01D MECHANICAL INTRODUCTION

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03B COLLISION

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04E PAINT



*X45*

**JANUARY 2009** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# KOLEOS - Section 0

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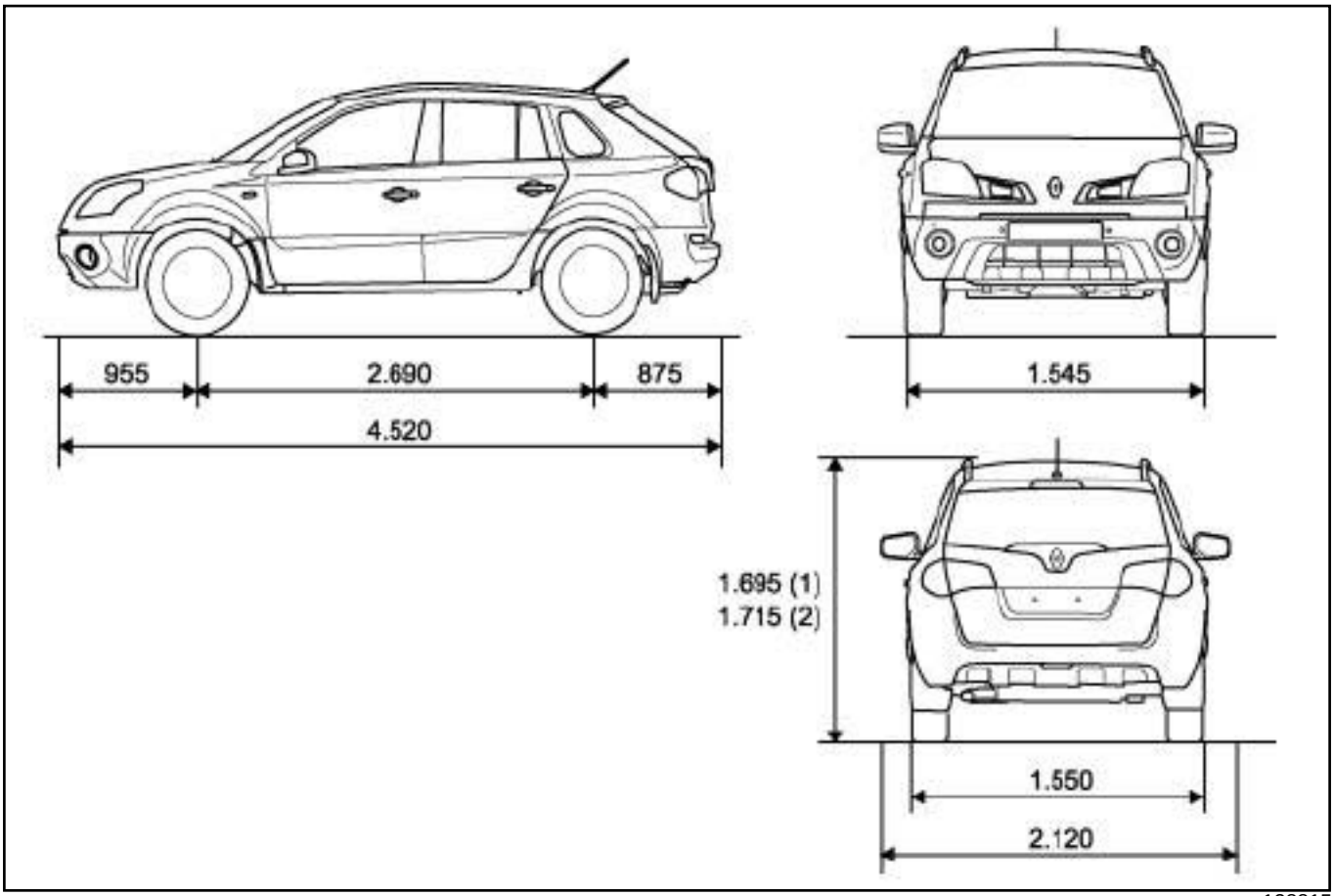


128815

**Dimensions in metres:**

*No load

**(1) Sans galerie de toit**

**(2) Avec galerie de toit**

| Vehicle type | Engine | | Transmission type | Gearbox type |
|---|---|---|---|---|
| | Type | Capacity ($cm^3$) | | |
| LHD | M9R | 1995 | 4x2 | ND5 |
| | | | | AJ0 |
| | | | 4x4 | ND8 |
| | | | | AJ8 |
| | M9RH | 1995 | 4x4 | AJ8 |
| | TR2 | 2488 | 4x2 | ND5 |
| | | | | FK0 |
| | | | 4x4 | ND8 |
| | | | | FK8 |


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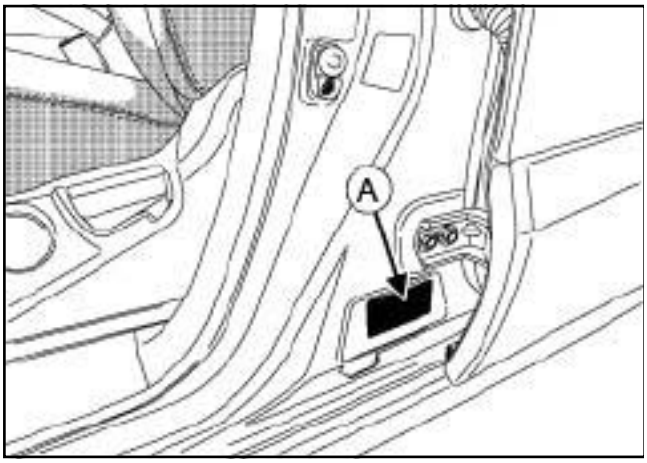
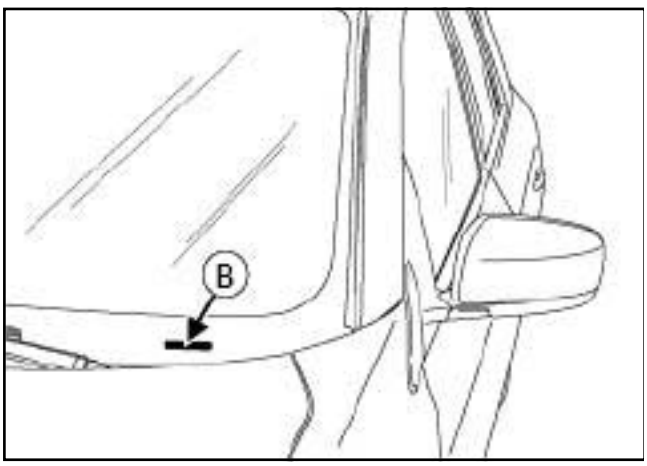
### I - LOCATION OF VEHICLE IDENTIFICATION PLATE (A)




128816

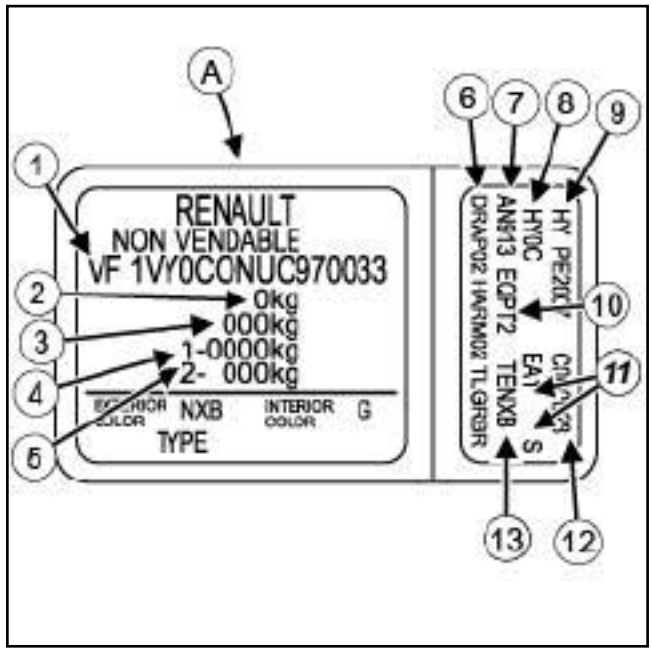
### II - LOCATION OF THE VEHICLE IDENTIFICATION NUMBER (B)




128817

### III - DETAILED VIEW OF THE VEHICLE IDENTIFICATION PLATE

**Plate (A)**




128818

| | |
|---|---|
| (**1**) | Vehicle type mine and type number; this information also appears on marking (B) |
| (**2**) | Maximum Gross Vehicle Weight |
| (**3**) | Gross train weight, vehicle under load with trailer |
| (**4**) | Maximum gross weight on front axle |
| (**5**) | Maximum gross weight on rear axle |
| (**6**) | Vehicle technical specifications |
| (**7**) | Vehicle paint reference |
| (**8**) | Equipment level |
| (**9**) | Vehicle type |
| (**10**) | Upholstery code |
| (**11**) | Additional equipment details |
| (**12**) | Fabrication number |
| (**13**) | Interior trim code |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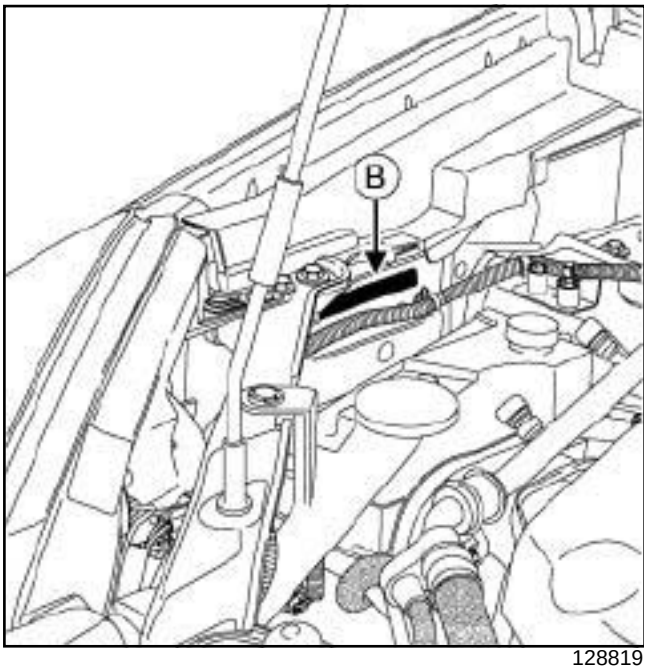
**IV - COLD-MARKING OF THE BODY**




128819

Note:

If the complete body is being replaced, it must be marked in compliance with the current regulations.



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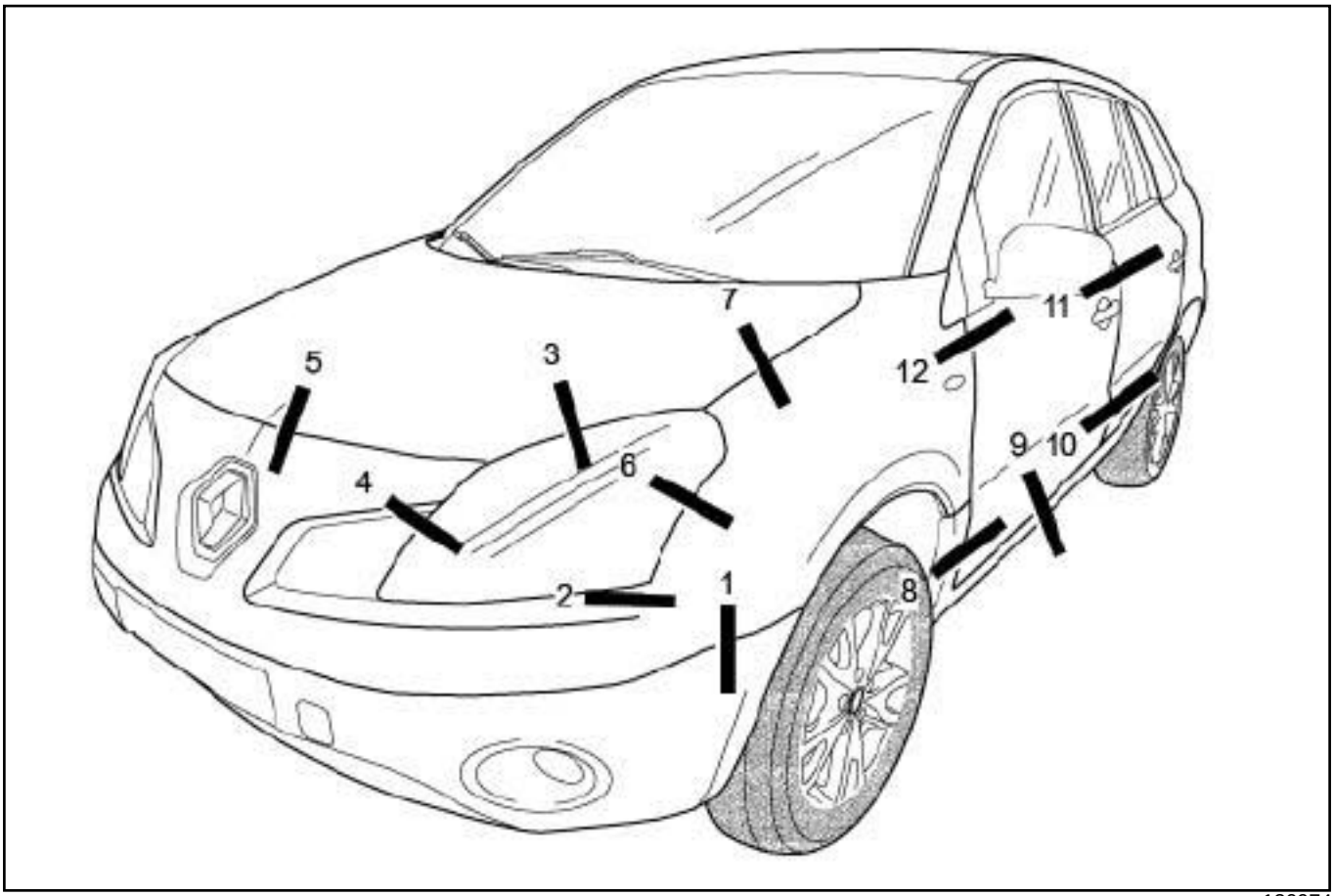



130974

**WARNING**

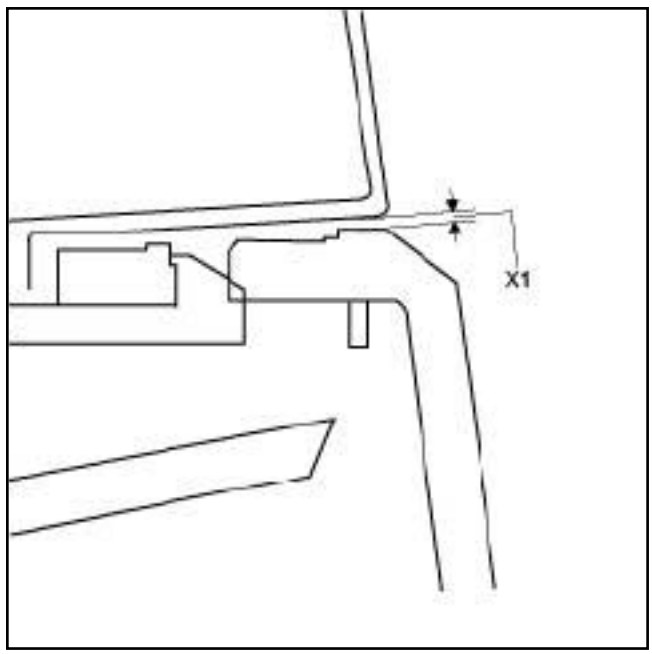
The clearance values are given for information purposes.

When adjusting clearances, certain rules have to be followed:

- maintain symmetry with respect to the opposite side,
- ensure the flush fitting is correct,
- check correct operation of the opening, and water/ air-tightness.

All values are given in millimetres.

**Section 1**




130975

(**X1**) = 0 mm +1/-0



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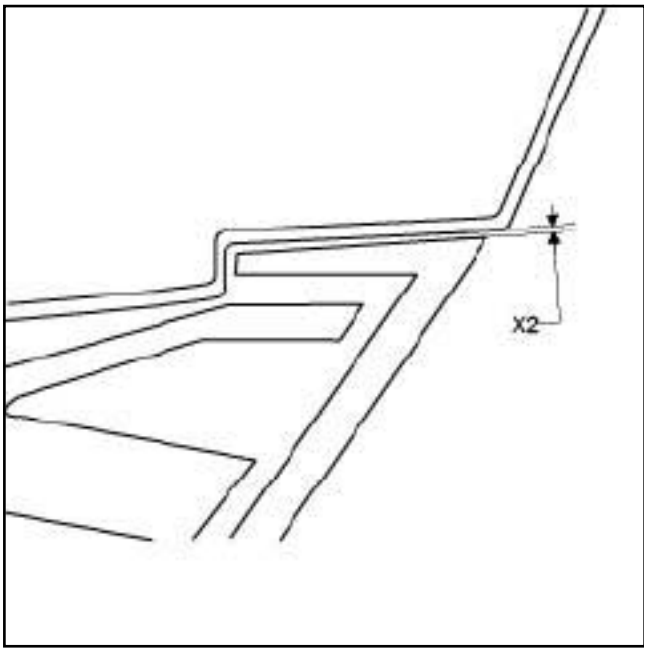
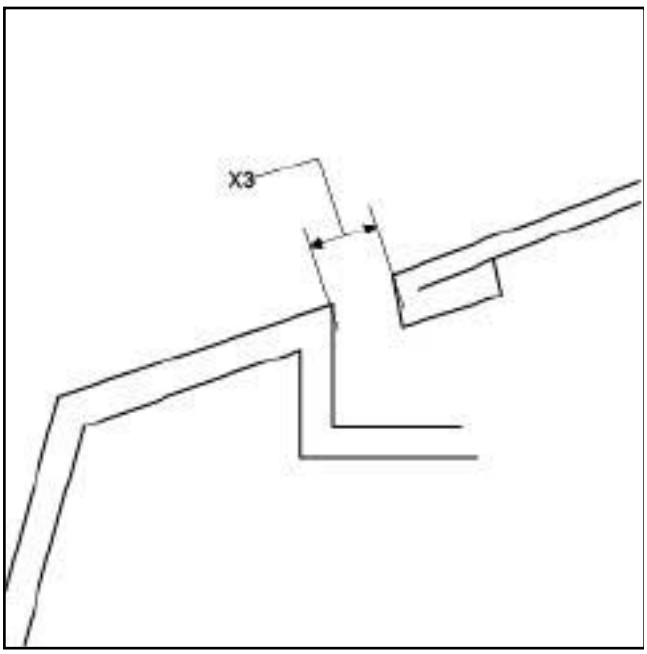
**Section 2**




130976

(**X2**) = 0 mm +1/-0

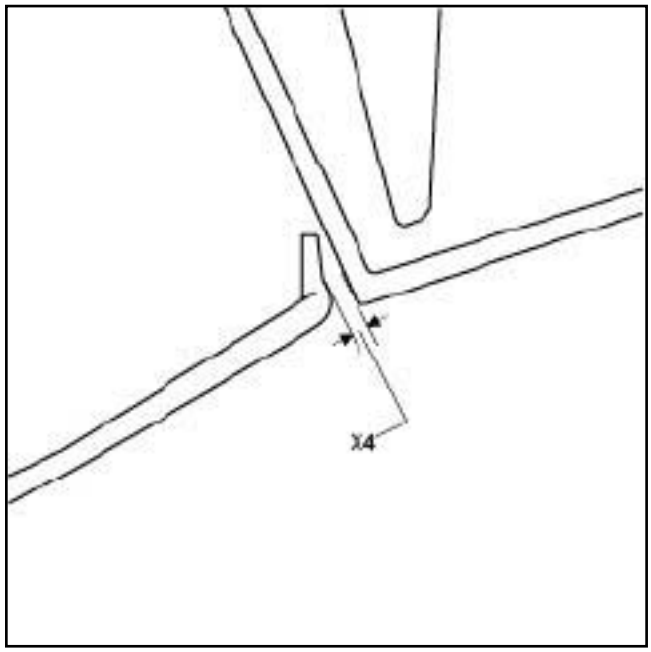
**Section 3**




130977

(**X3**) = 4 mm ± 2.5

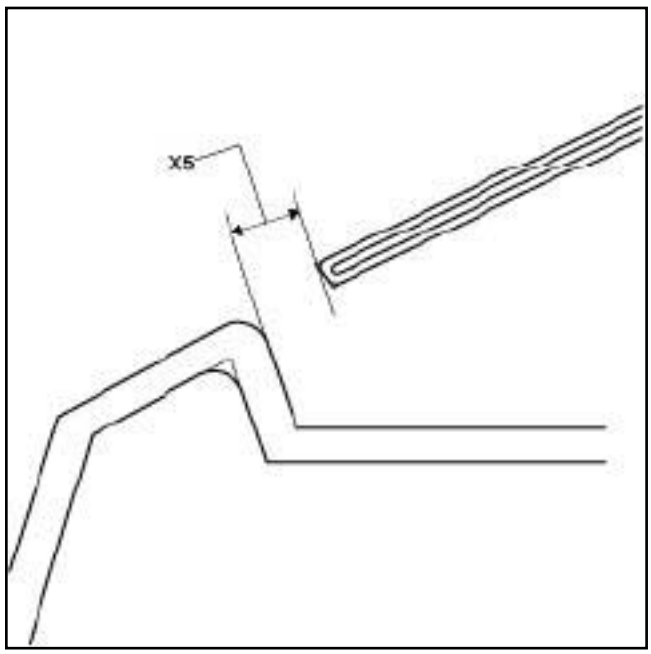
**Section 4**




130978

(**X4**) = 3 mm ± 1

**Section 5**




130979

(**X5**) = 4.5 mm ± 2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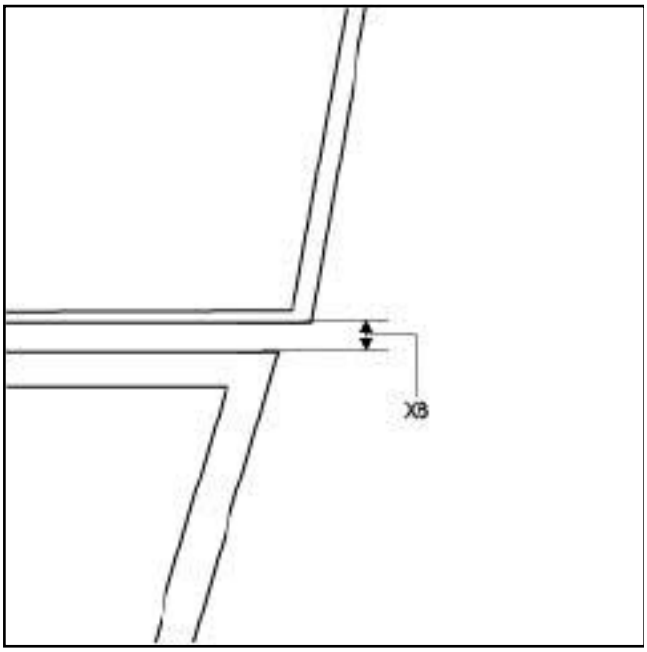
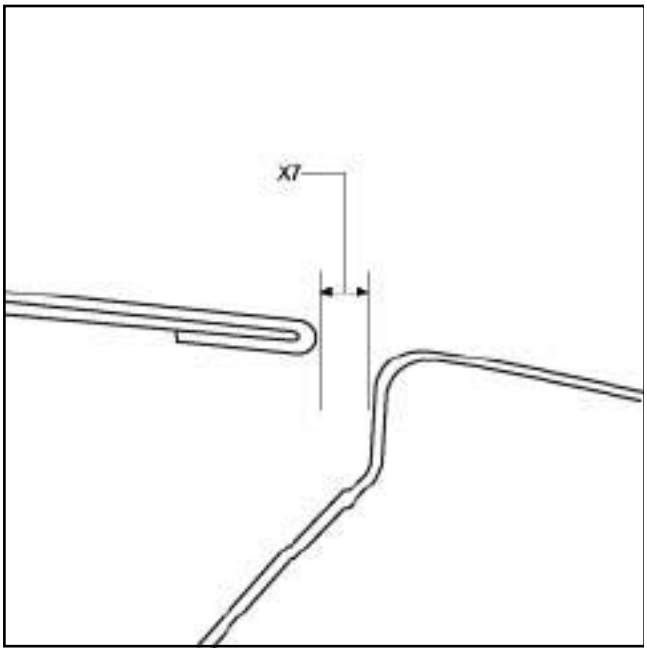
**Section 6**




130980

(**X6**) = 1.5 mm ± 1.4

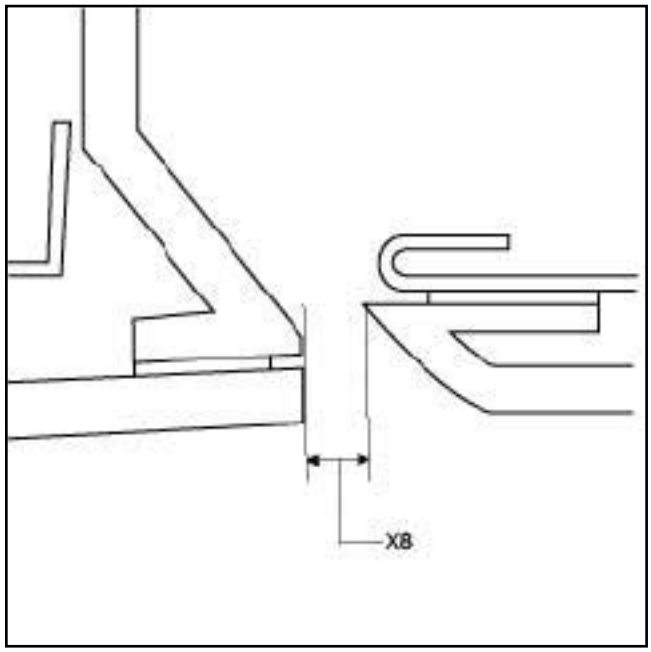
**Section 7**




130981

(**X7**) = 3.5 mm ± 1

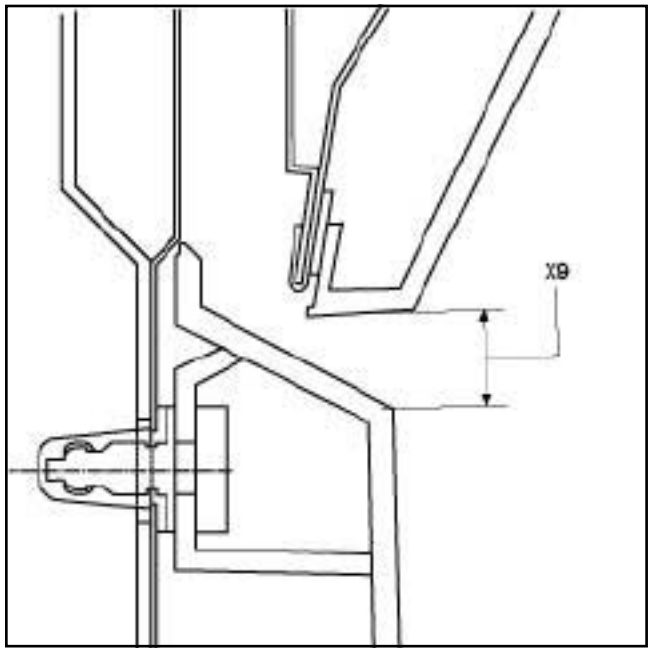
**Section 8**




130982

(**X8**) = 6.5 mm ± 2.2

**Section 9**




130983

(**X9**) = 8 mm ± 2.5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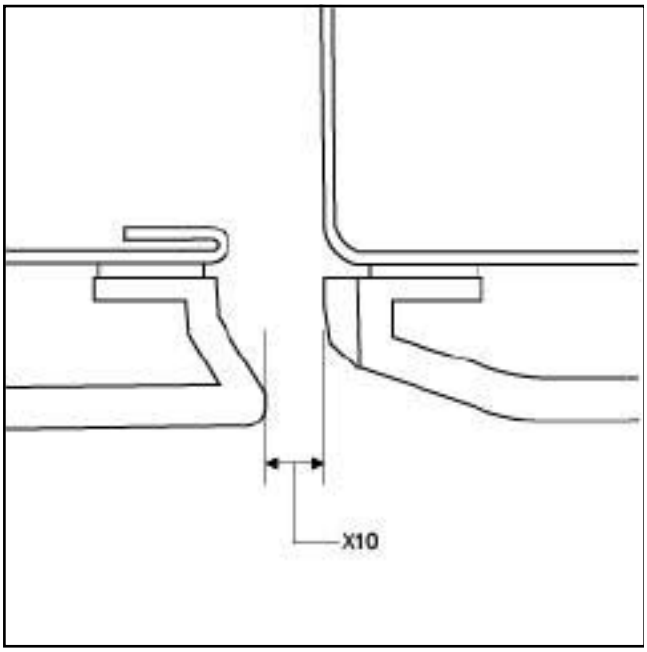
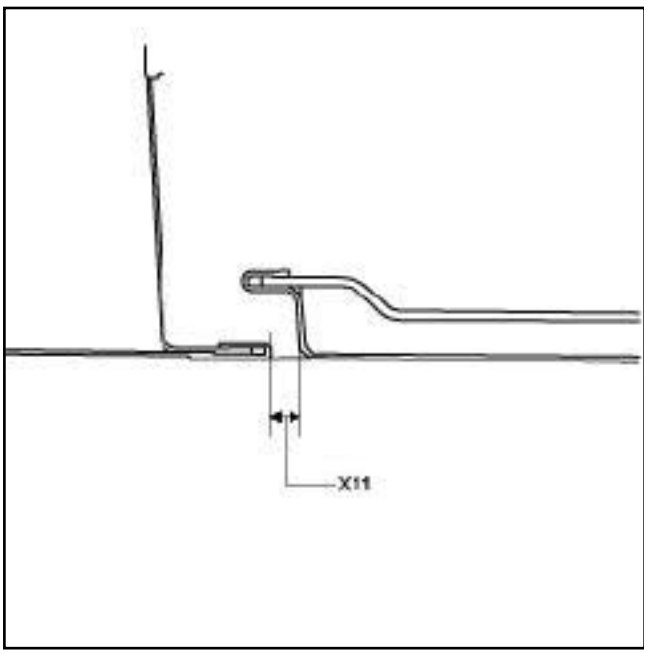
**Section 10**




130984

(**X10**) = 4.5 mm ± 2

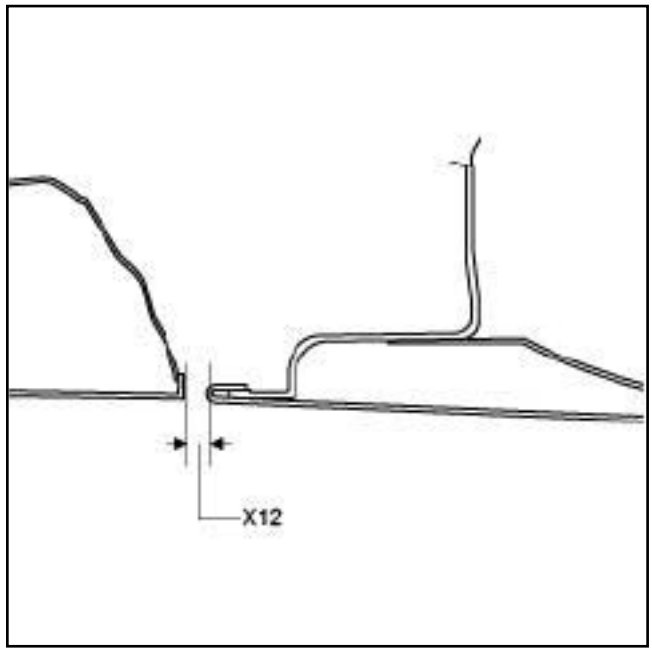
**Section 11**




130985

(**X11**) = 4.4 mm ± 1

**Section 12**




130986

(**X12**) = 4.4 mm ± 1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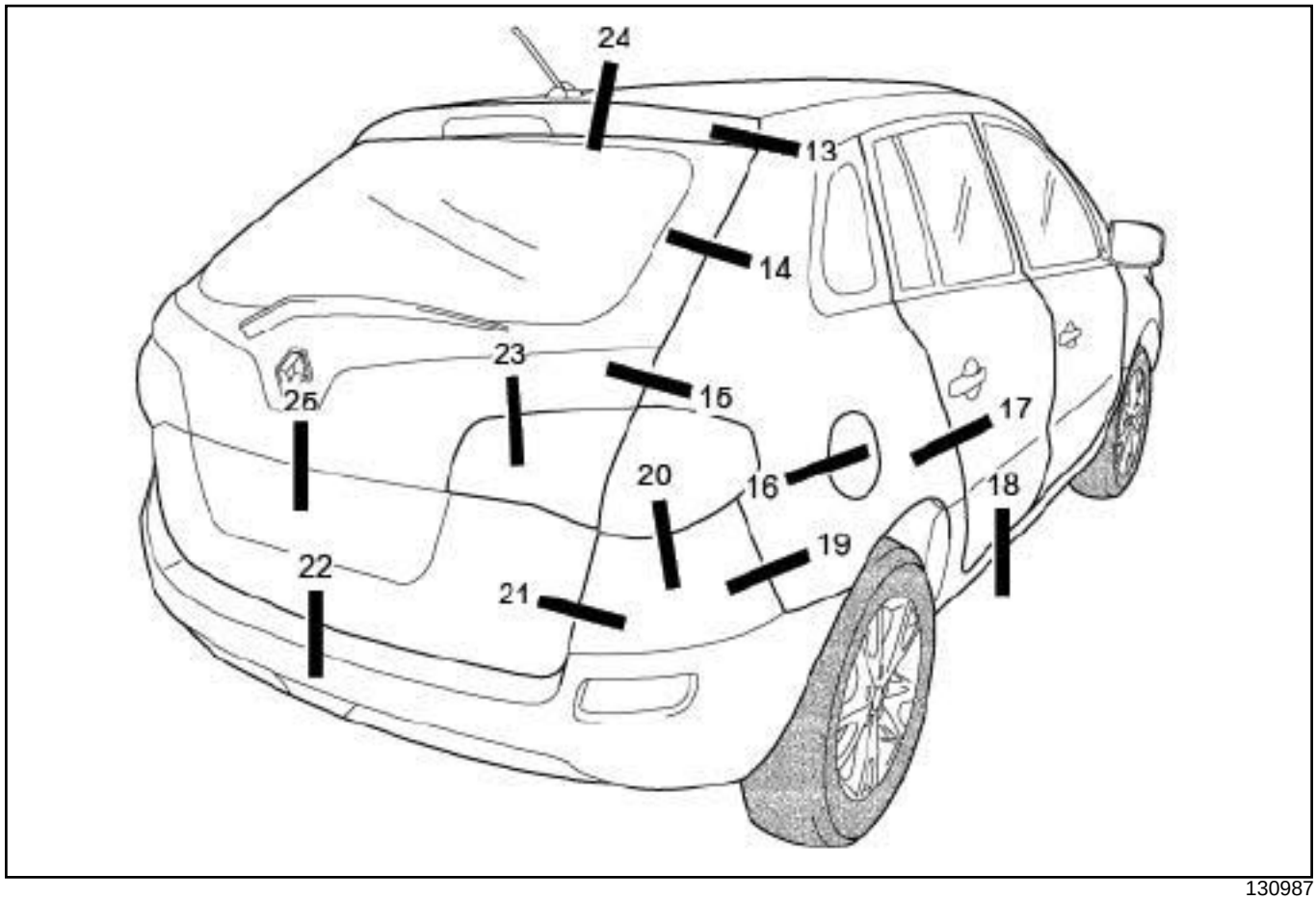


130987

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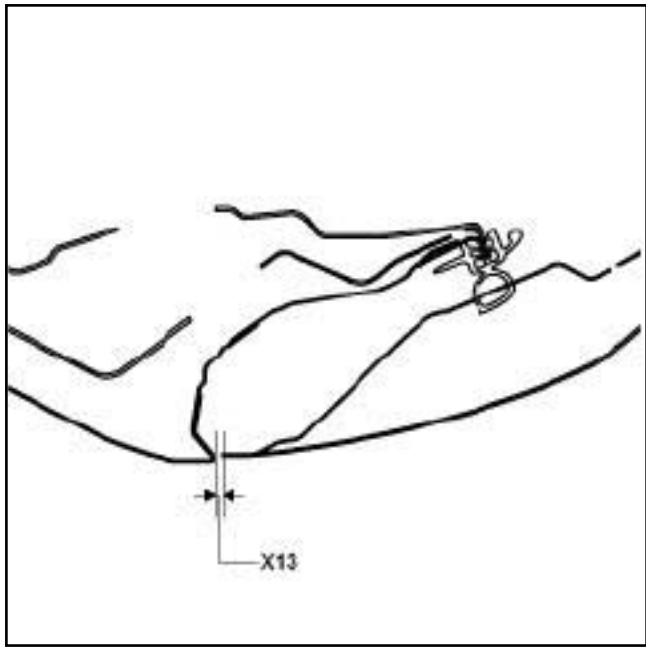
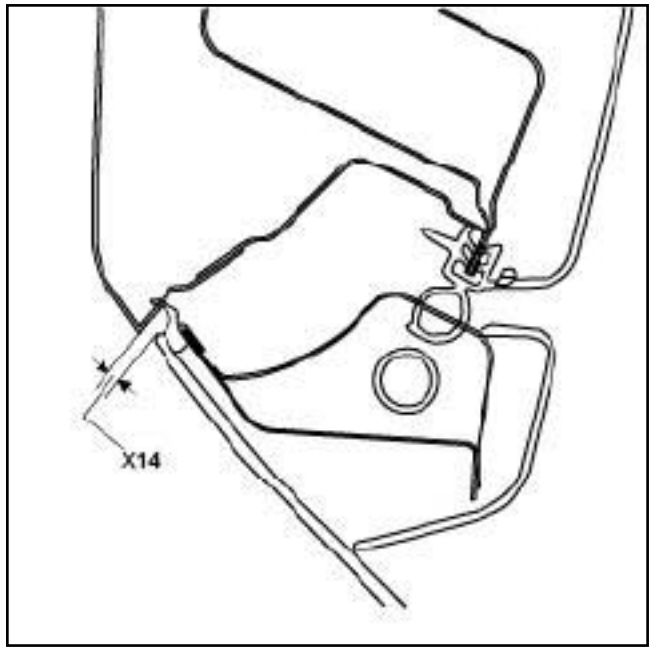



130988

(**X13**) = 3.6 mm ± 1

**Section 14**




130989

(**X14**) = 4 mm ± 2.3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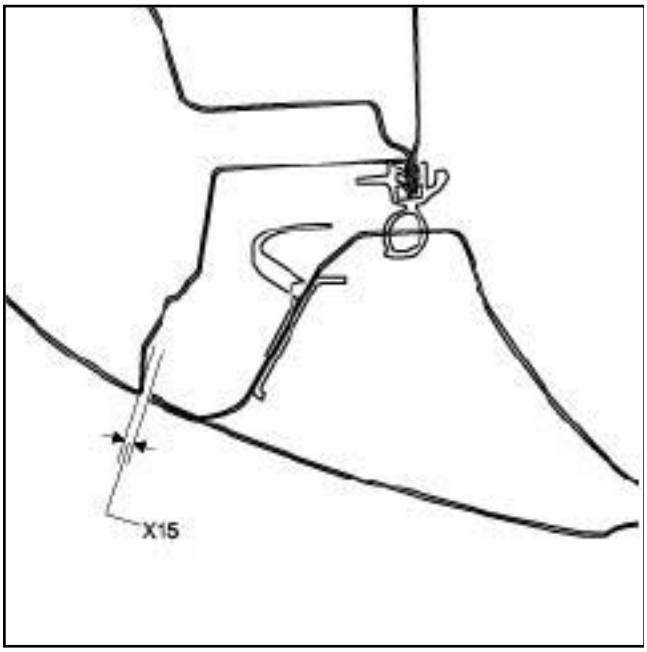
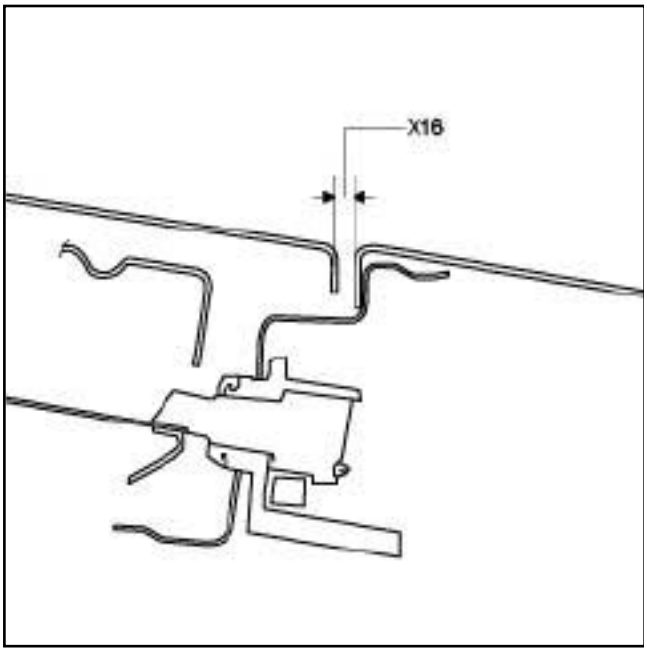
**Section 15**




130990

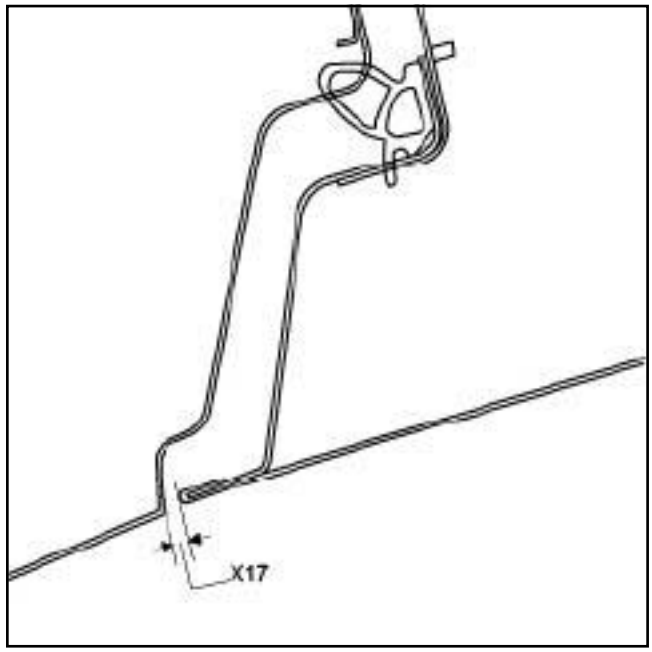
(**X15**) = 4 mm ± 1

**Section 16**




130991

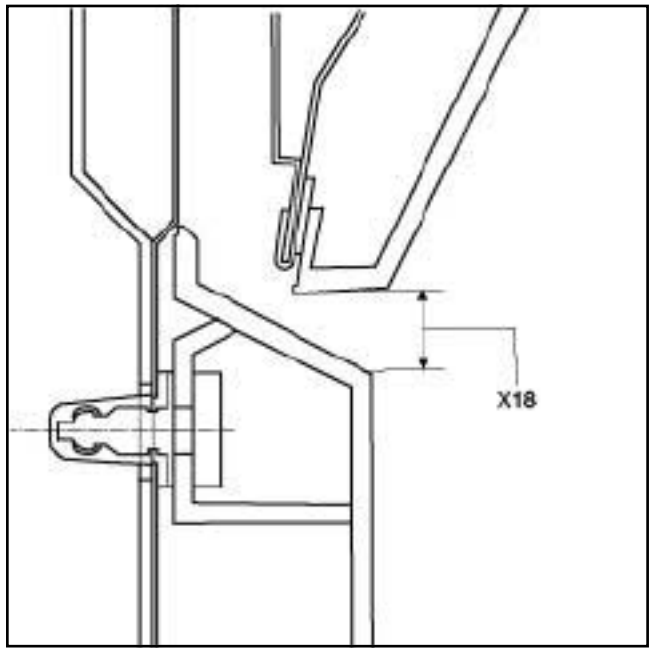
(**X16**) = 3.2 mm ± 1




130992

(**X17**) = 4.5 mm ±1

**Section 18**




130993

(**X18**) = 8 mm ± 2.5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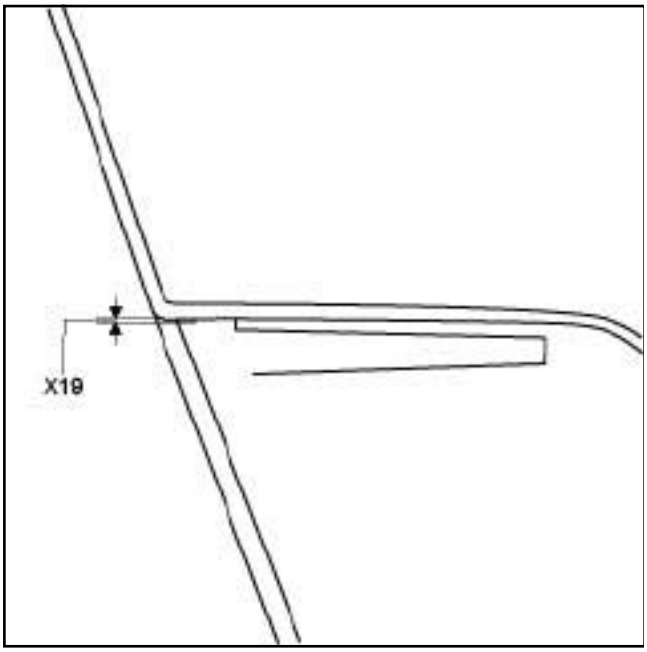
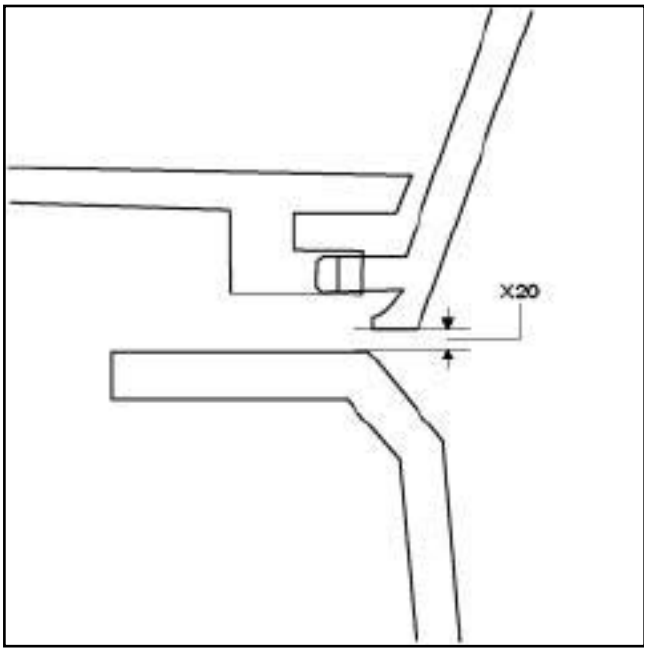
**Section 19**




130994

(**X19**) = 0 mm +1/-0)

**Section 20**




130995

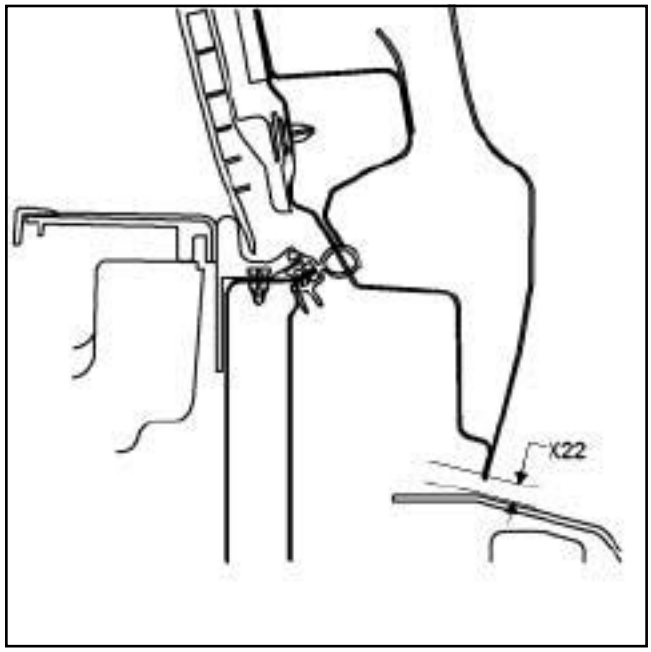
(**X20**) = 1.5 mm ± 1.5

**Section 21**

130996

(**X21**) = 4 mm ± 2

**Section 22**




130997

(**X22**) = 8 mm ± 2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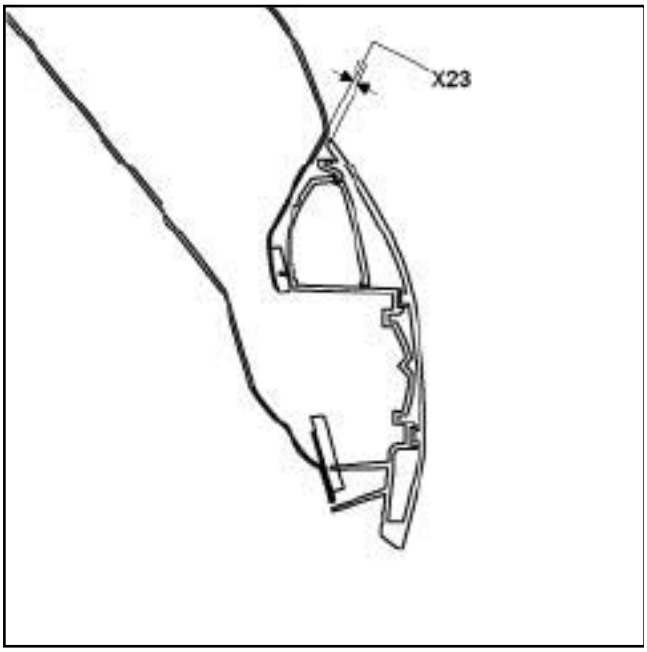
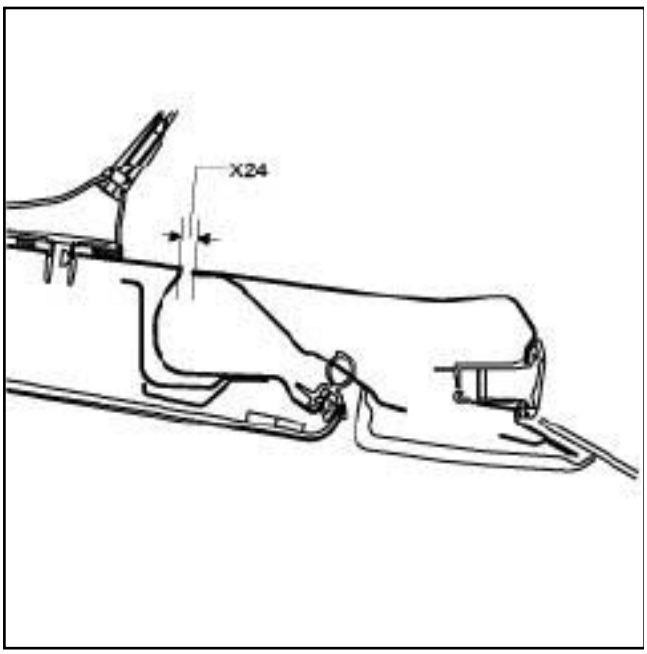
**Section 23**




130998

(**X23**) = 1.5 mm ± 1

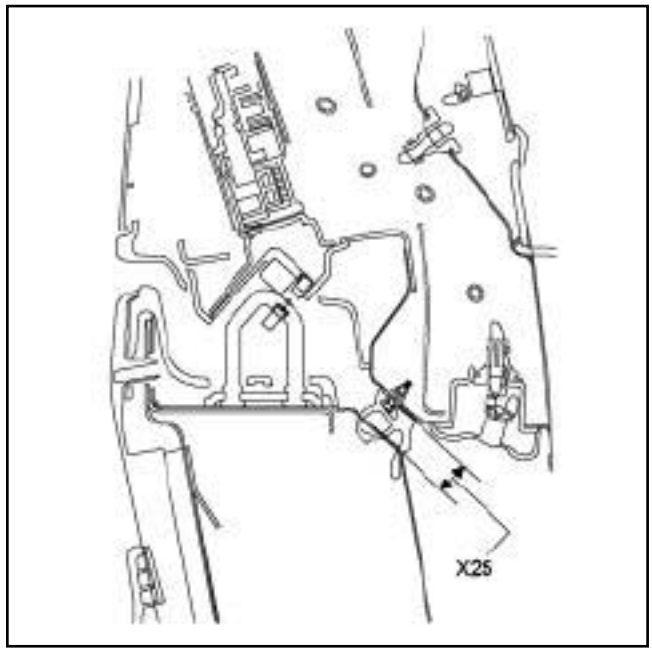
**Section 24**




130999

(**X24**) = 6 mm ± 1

**Section 25**




131000

(**X25**) = 3 mm ± 1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## GENERAL INFORMATION

All information contained in these manuals is intended exclusively for automotive industry professionals.

The documentation is intended to cover all vehicles in the **RENAULT** range throughout the world, but may not cover equipment designed for use in specific countries.

The procedures and fault finding procedures recommended and described in this manual have been designed by automotive industry repair professionals.

### 1 - General recommendations

Observe basic principles of vehicle repair.

The quality of repair depends first and foremost on the care exercised by the person in carrying it out.

To ensure good repair:

- protect the sensitive areas of the vehicle (seats, steering wheel, wings, etc.),
- disconnect the battery wherever possible (prevents short circuits, erratic starting of the windscreen wiper motor, etc.),
- when welding on the vehicle, it is advisable to remove or disconnect components near the repair area that could be affected by the heat,
- use recommended professional products and original parts,
- observe the tightening torques,
- replace roll pins, self-locking or bonded nuts or bolts every time they are removed,
- take care with electrical and electronic components which cannot withstand excess voltage and improper handling; replace any electrical and electronic components which have experienced a voltage drop,
- make sure that the connectors are correctly clipped,
- do not pull on the wiring,
- check for the sealing plugs on the connectors,
- do not splash any liquid on the electrical and electronic components (computers, sensors, etc.),
- do not just replace parts one after the other, carry out detailed fault finding beforehand,
- carry out a final check before returning the vehicle to the customer (set the clock, check the alarm operation, check the lights and indicators etc.),
- clean and degrease the sections to be bonded (threads, stub axle splines) to ensure proper adherence,
- protect the accessories and timing belts, the electrical accessories (starter, blanking cover, electric power assisted steering pump) and the mating face to prevent diesel fuel spilling onto the clutch friction plate.

The design quality of our vehicles demands that nothing is left to chance in making a good repair, and it is essential to refit parts or components exactly as they were originally (for instance: heat shields, wiring routing, pipe routing, particularly in the area of the exhaust pipe).

Do not blow away asbestos particles or dust (brakes, clutch, etc.), vacuum them up or clean the component with a cleaning agent (such as a brake cleaning product).

Use professional products and apply them with care, for example do not apply too much sealing paste to the sealing surface.

Exhaust gases (petrol and diesel) are pollutants. Operate engines with care and always use exhaust gas extractors.

Ensure that there is no risk of a short circuit occurring when the electrical connections are reconnected (e.g. starter, alternator, etc.). Some points need greasing, others do not, therefore particular attention should be paid during refitting operations to ensure that they work properly under all conditions.

### 2 - Special tooling - ease of use

The repair procedures have been designed using special tools; they must therefore be carried out using these tools to ensure a high degree of working safety and quality of repair.

The equipment we have approved has undergone careful research and testing, and must be used and maintained with care.

### 3 - Reliability - updating

New repair procedures are constantly being developed in the interests of repair quality, either with new products (emission control, injection, electronics, etc.), or in fault finding. Be sure to consult the Workshop Repair Manuals or Technical Notes or fault finding summaries before any servicing operation.

Since vehicle specifications are subject to change during their commercial life, it is essential to check whether there are any updated Technical Notes when seeking information.


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**4 - Safety**

Operations on certain equipment and certain parts (for instance: spring-shock absorber assembly, automatic transmission, brake system, ABS, airbag, common rail diesel injection, LPG, etc.) require particular attention to be paid to safety, cleanliness and care.

The safety symbol used in this manual indicates that special attention must be paid to the procedure or the tightening torque values.

Working safely:

- use suitable tools which are in good condition (use of « multi-purpose» tools, such as adjustable pliers, etc., should be avoided wherever possible),
- use supports and adopt a correct posture when performing heavy work or raising loads,
- make sure that the procedure used is not dangerous,
- Do not wear any jewellery or other small objects during an operation,
- use personal protection (gloves, safety glasses, work shoes, masks, skin barrier creams, etc.),
- always follow the safety instructions associated with the operation to be performed,
- do not smoke when working on vehicles,
- use smoke extractors (welding, exhaust gases, etc.),
- do not use harmful products in unventilated rooms,
- do not overstrain yourself or attempt inappropriate work operations,
- use axle stands when working under a vehicle raised on a jack,
- do not ingest any chemicals (brake fluid, coolant, etc.),
- do not open the cooling circuit when it is hot and pressurised,
- take care with components that are liable to start up suddenly (engine cooling fan, etc.).

Respecting the environment:

- do not allow waste refrigerants to escape into the atmosphere,
- do not dispose of waste vehicle fluids (oil, brake fluid, etc.) in drains,
- do not burn discarded products (tyres, etc.).

**5 - Conclusion**

The procedures contained in this document merit your attention. Please read them carefully in order to reduce the risk of injury, and avoid using incorrect procedures that could damage the vehicle or make it dangerous in use.

Following the recommended procedures will help you to provide a quality of service which will ensure the vehicles achieve the highest levels of performance and reliability.

Maintenance and repair operations must be carried out under the proper conditions to ensure that our vehicles run safely and reliably.


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| Essential equipment |
| --- |
| safety strap(s) |

## I - TOWING

4X4 TRANSMISSION

Note:

A 4-wheel drive vehicle must not be towed if one of its wheels touches the ground, regardless of the gearbox type.

For towing a 4-wheel drive vehicle, it is essential to use either a platform or a tow dolly positioned under the front or rear wheels.

AJ0 or AJ8 or FK0 or FK8, and 4X2 TRANSMISSION

Note:

A 2-wheel drive vehicle equipped with an automatic gearbox or a continuously variable gearbox should not be towed if its front wheels touch the ground.

For towing, it is essential to use a platform or a tow dolly positioned under the front wheels, or tow with the rear wheels only on the ground.

**WARNING**

See the current towing regulations in each country.

Never use the driveshafts, axle assembly components or suspension components as attachment points.

The towing points may only be used for towing the vehicle on roads.

Never use the towing points for removing the vehicle from a ditch or to lift the vehicle, either directly or indirectly.

Screw in and lock the towing ring before towing.

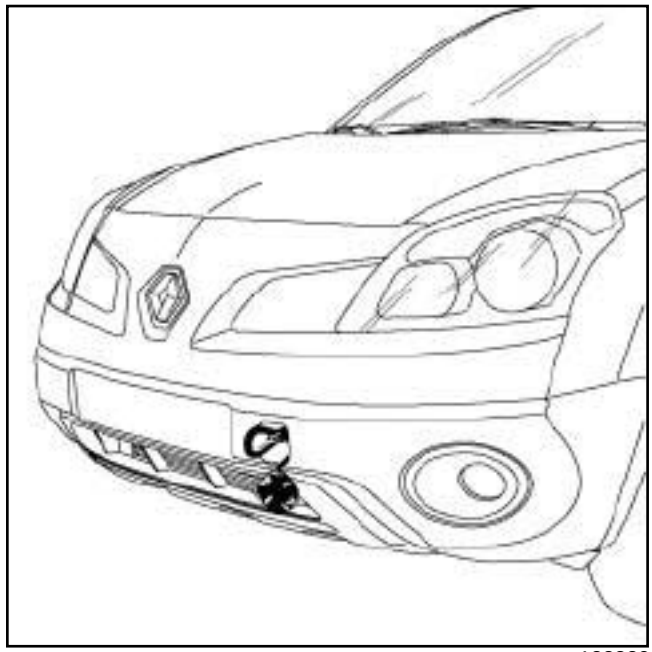
Vehicles fitted with automatic transmission:

- It is preferable to transport the vehicle on a flatbed or tow it by lifting the front wheels. As an exception the vehicle may be towed with the wheels on the ground but at a speed below 12 mph (20 km/h) and over a maximum distance of **18 miles (30 km)** (with the gear lever in neutral).

Vehicles fitted with Renault Card:

- If the vehicle battery is flat, the steering column remains locked. In this case, refit a battery or electrical supply and switch on the ignition to unlock the steering column.

### 1 - Position of front attachment point



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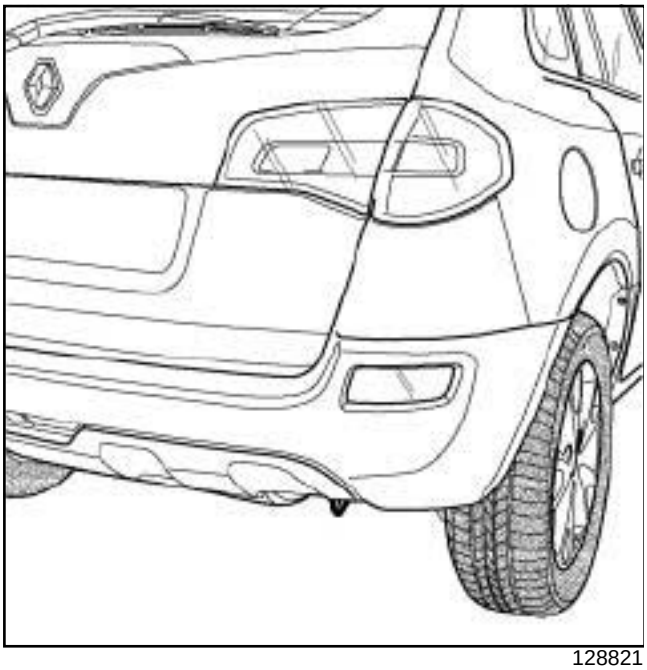
**2 - Position of rear attachment point**



128821

**II - LIFTING POINT USING A TROLLEY JACK**

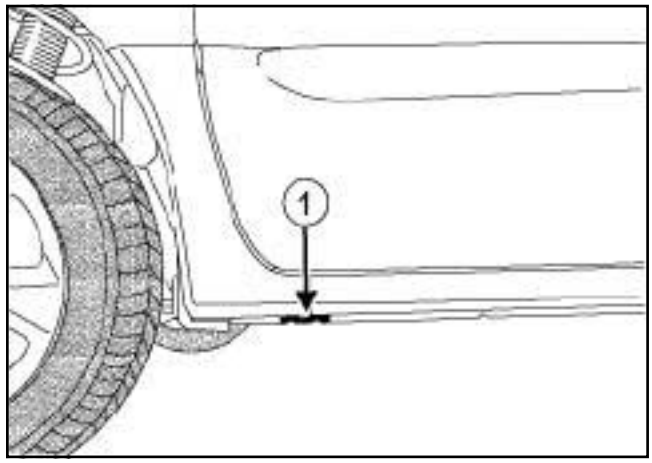
**IMPORTANT**

To prevent any accidents, the trolley jack must only be used to lift and/or move the vehicle. The vehicle height must be maintained with axle stands which are strong enough to support the weight of the vehicle.

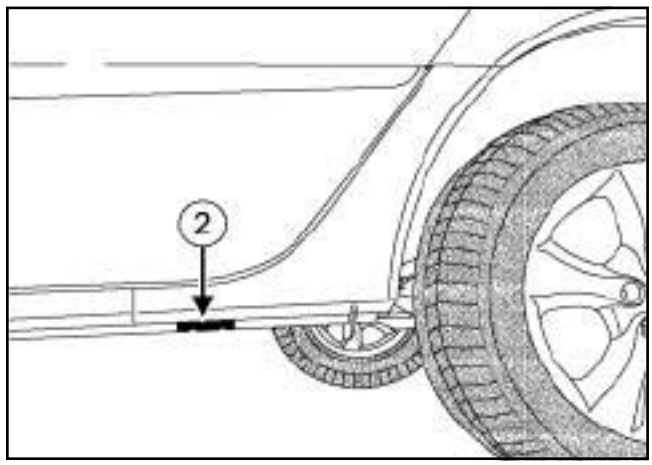
**WARNING**

To avoid any damage to the original protection, use equipment fitted with rubber pads to prevent the equipment coming into direct contact with the vehicle.

To avoid any damage to the axle assemblies, the vehicle must not be raised using the front suspension arms for support or under the rear axle.




128822




128823

To mount the vehicle on axle stands, the entire vehicle must be lifted on one side and axle stands must be placed under the body reinforcements which are used as jacking points at (**1**) or (**2**) .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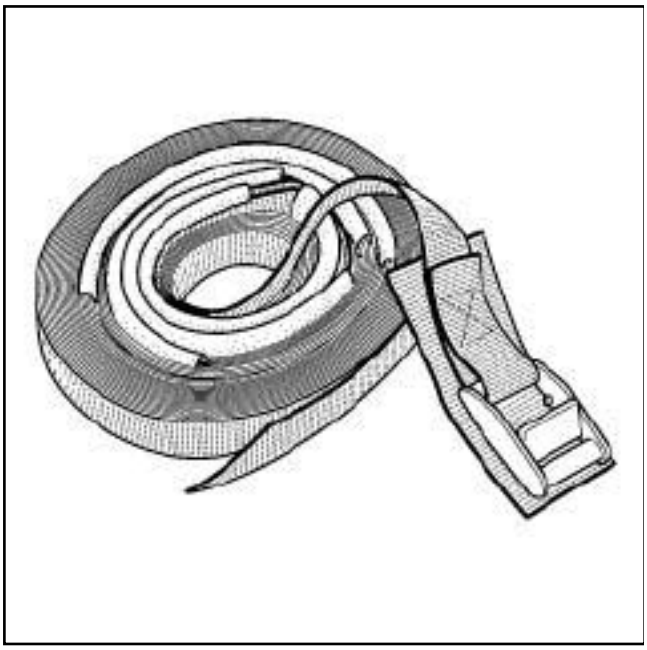
## III - LIFTING POINT USING A VEHICLE LIFT

### 1 - Safety advice reminder



128824

If it is necessary to remove heavy components from the vehicle, it is preferable to use a four-post lift.

There is a danger that the vehicle will tilt on a two-post lift after certain components have been removed (e.g. engine and transmission assembly, rear axle, gear-box). Fit the **safety strap(s)** available from the Parts Department.

### 2 - Fitting the straps

128825

Fitting the **safety strap(s)** :

For safety reasons, the **safety strap(s)** must always be in perfect condition; replace them if they show signs of wear.

When fitting the **safety strap(s)**, check that the seats and fragile parts of the vehicle are correctly protected.

***a - Tilting towards the front***

Place the **safety strap(s)** under the rear right-hand arm of the lift.

Pass the **safety strap(s)** through the vehicle interior.

Pass the **safety strap(s)** under the rear left-hand arm of the lift.

Pass the **safety strap(s)** through the vehicle interior again.

Tighten the strap.

***b - Tilting towards the rear***

Place the **safety strap(s)** under the front right-hand arm of the lift.

Pass the **safety strap(s)** through the vehicle interior.

Pass the **safety strap(s)** under the front left-hand arm of the lift.

Pass the **safety strap(s)** through the vehicle interior again.

Tighten the **safety strap(s)**.

### 3 - Permitted jacking points

To raise the vehicle, position the lifting arm pads as indicated below, taking care not to damage the underside of the sill paneland.

**IMPORTANT**

Only the jacking points described in this section allow the vehicle to be raised in complete safety.

Do not raise the vehicle using points other than those described in this section.

**Front lifting points**



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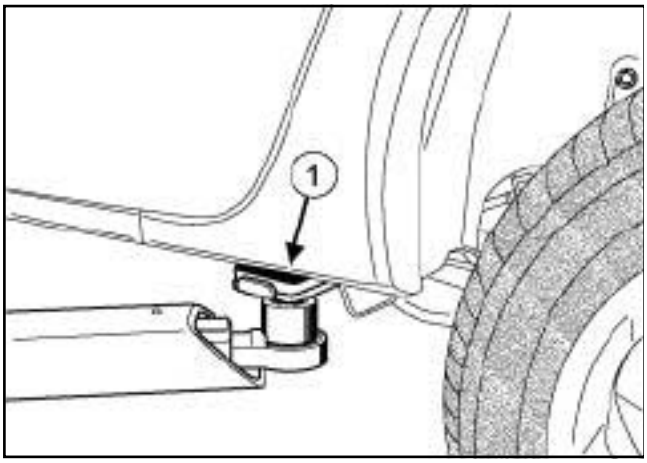
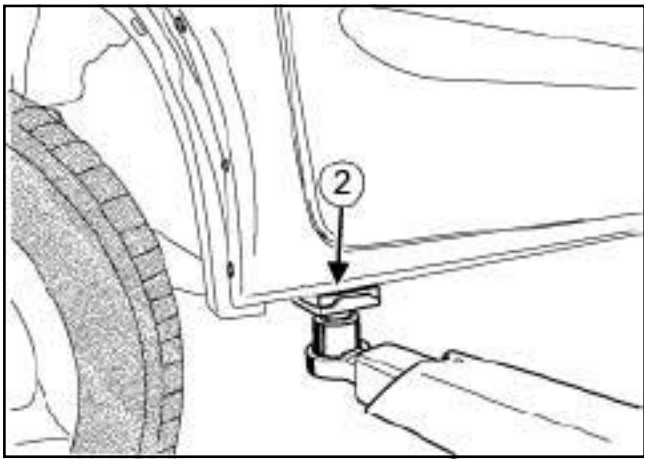



128826

Place the lifting arms under the sill panel body flanges at the front jacking point (**1**) .

**Rear lifting points**




128827

Place the lifting arms under the sill panel body flanges at the rear jacking point (**2**) .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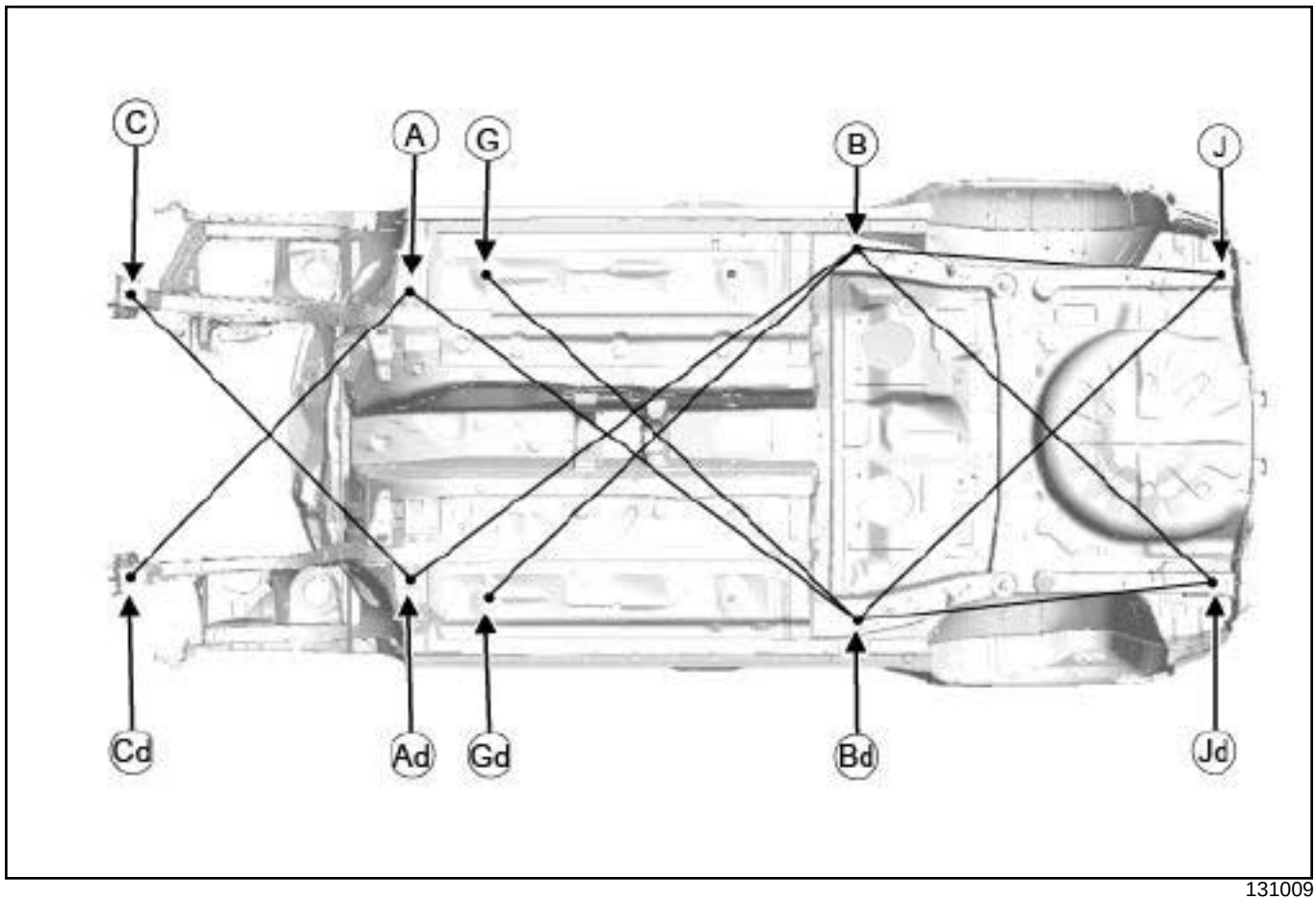
## I - CHECKING THE SUBFRAME




131009

❑ Chronological order of checks:

- Frontal impact:
  - (**B**) - (**Ad**) = (**Bd**) - (**A**)
  - (**B**) - (**Gd**) = (**Bd**) - (**G**)
- Rear impact:
  - (**A**) - (**Bd**) = (**Ad**) - (**B**)
  - (**G**) - (**Bd**) = (**Gd**) - (**B**)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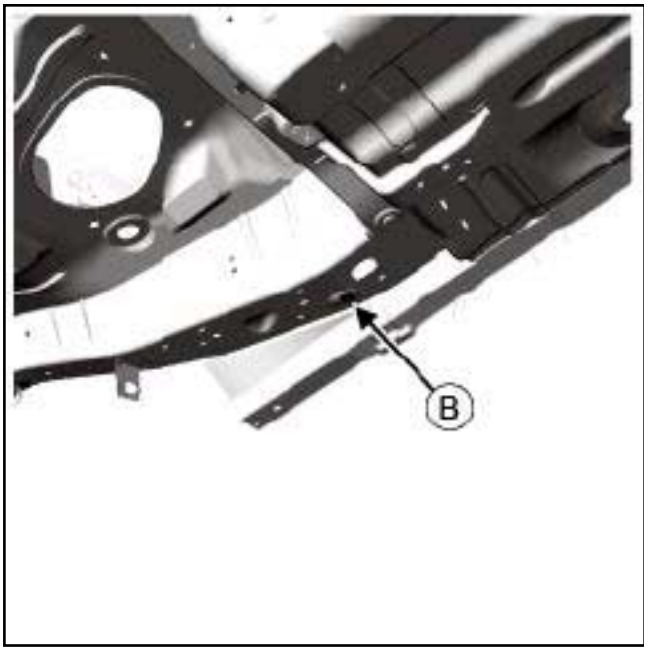
## II - DETAILED VIEW OF INSPECTION POINTS

**Points A, Ad: centre floor front side cross member leader pin**

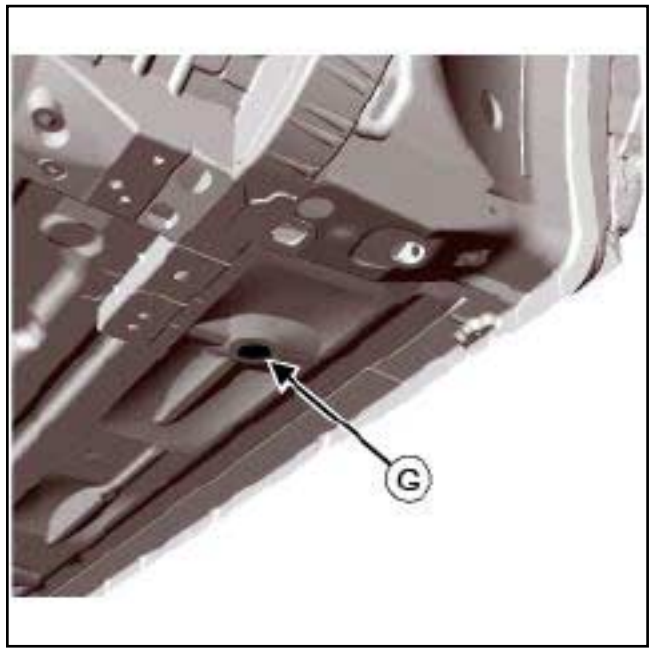
131010

**Points B, Bd: rear side member front mounting**




131011

**Points G, Gd: front floor front leader pin**




131012

**Points C, Cd: front side member front mounting**

131013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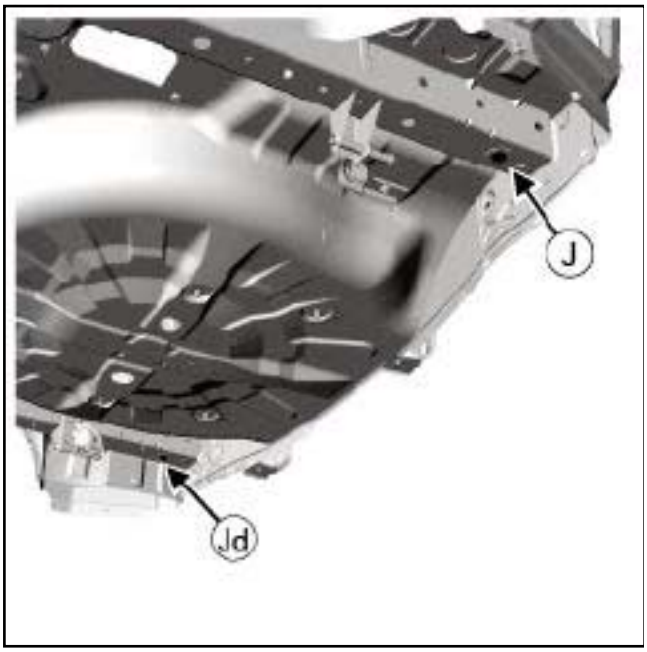
**Points J, Jd: rear side member rear leader pin**




131014

❑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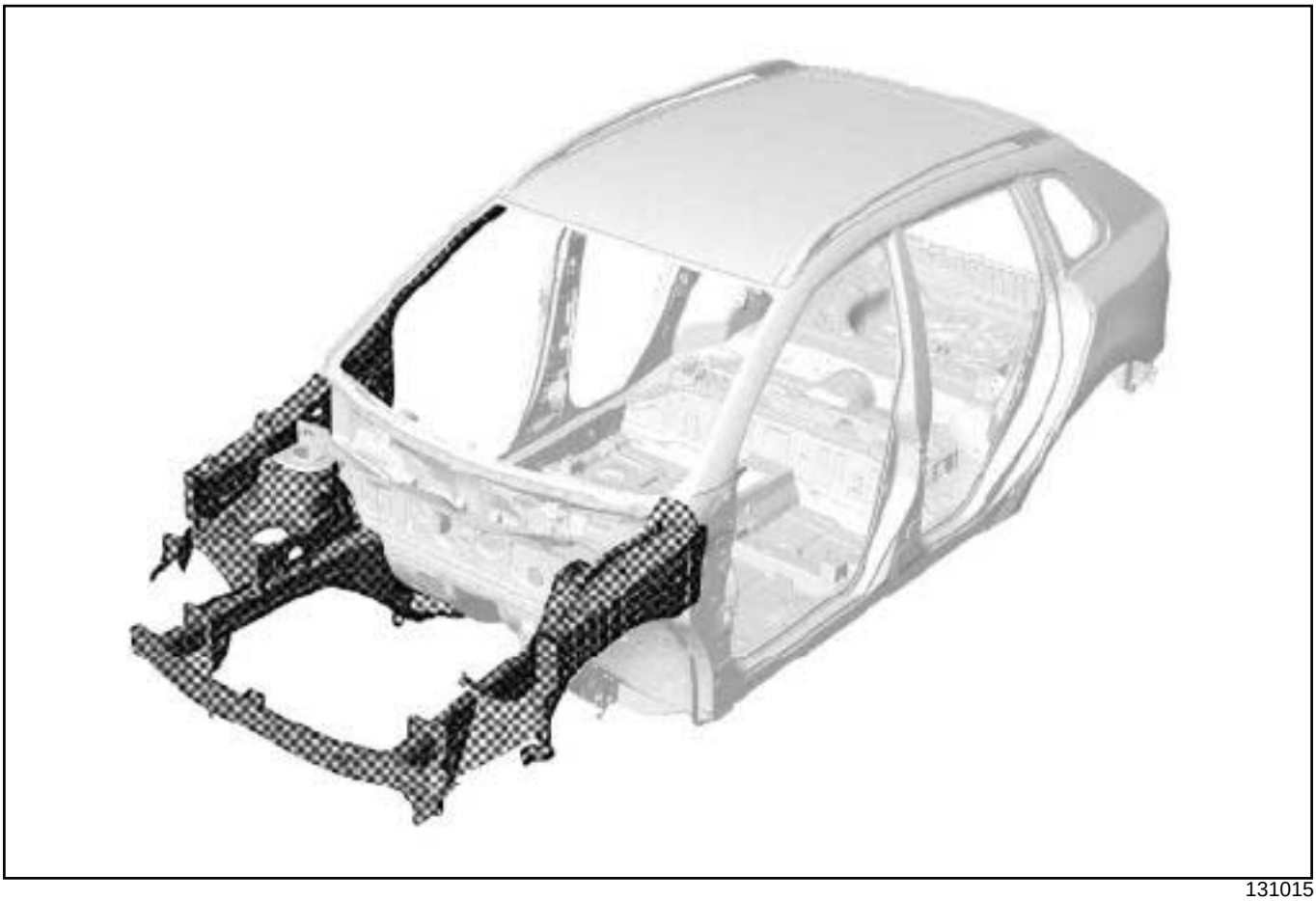
**COMBINATIONS FOR REPLACING WELDED STRUCTURAL PARTS IN ACCORDANCE WITH IMPACT SUSTAINED**



131015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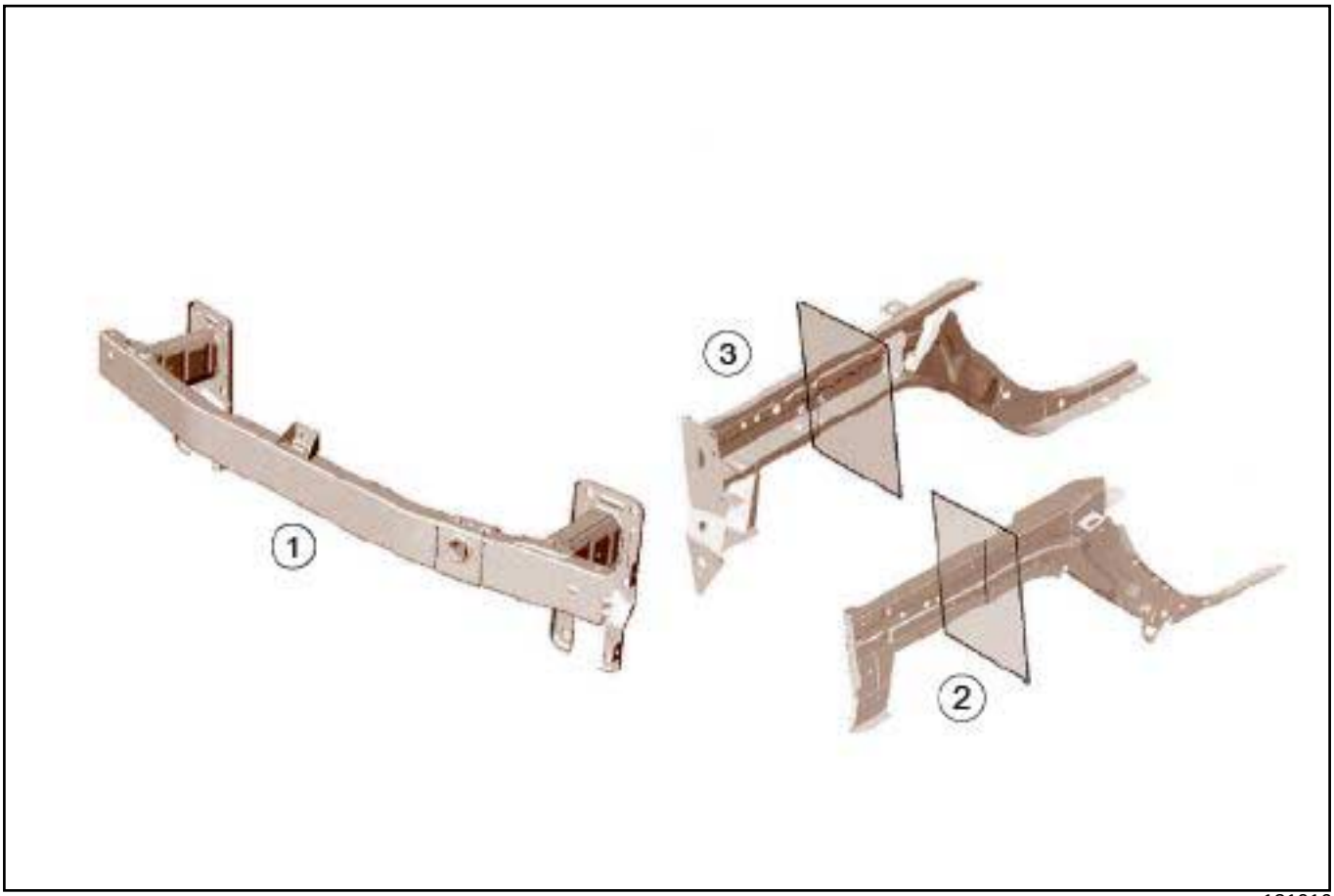
**1st Degree**




131016

- (**1**) front end cross member
- (**2**) front side member closure panel
- (**3**) front section of front side member (partial)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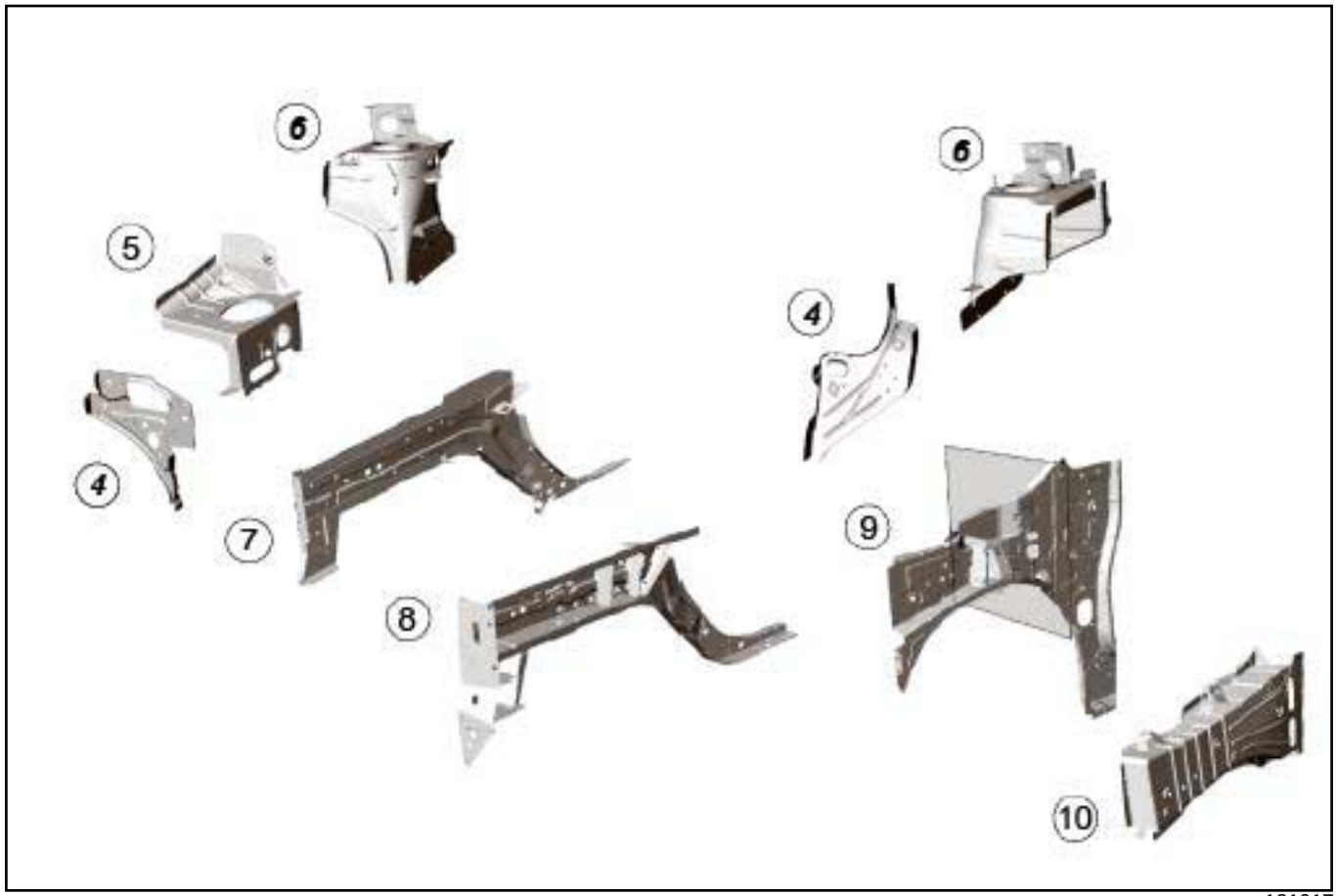
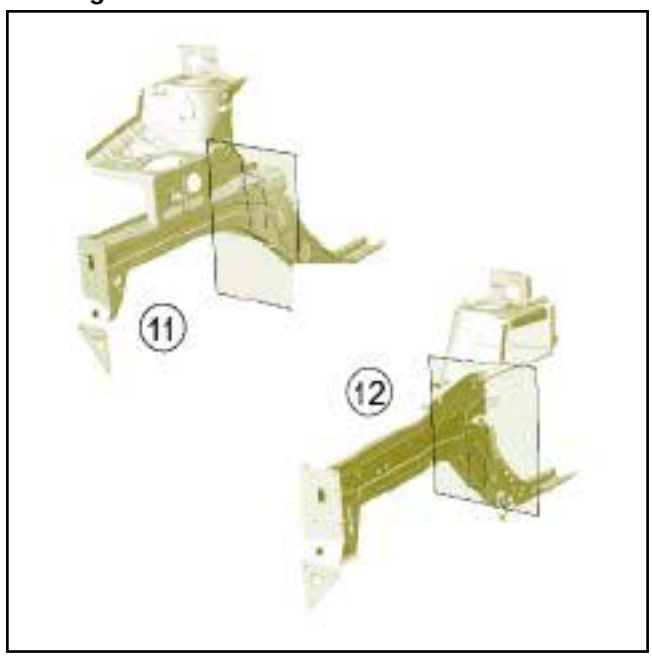
**2nd Degree**




131017

- (**4**) front side end cross member
- (**5**) engine support
- (**6**) front wheel arch
- (**7**) front side member closure panel, front section
- (**8**) front side member front section
- (**9**) scuttle side panel
- (**10**) scuttle side panel upper reinforcement

**3rd Degree**




131018

- (**11**) front right-hand half unit
- (**12**) front left-hand half unit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131019



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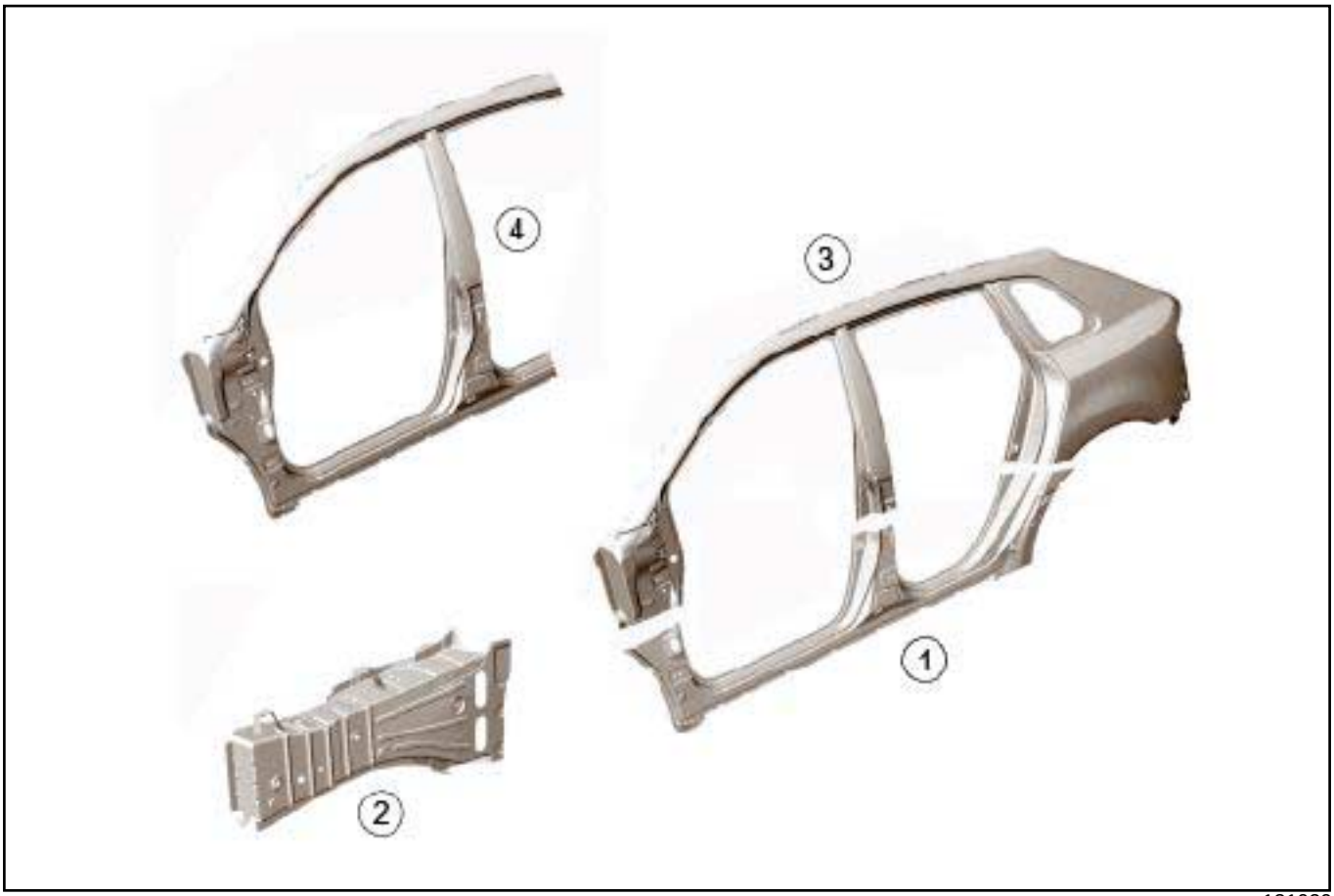
**1st Degree**




131020

- (**1**) sill panel
- (**2**) scuttle side panel reinforcement
- (**3**) upper body
- (**4**) body side, front section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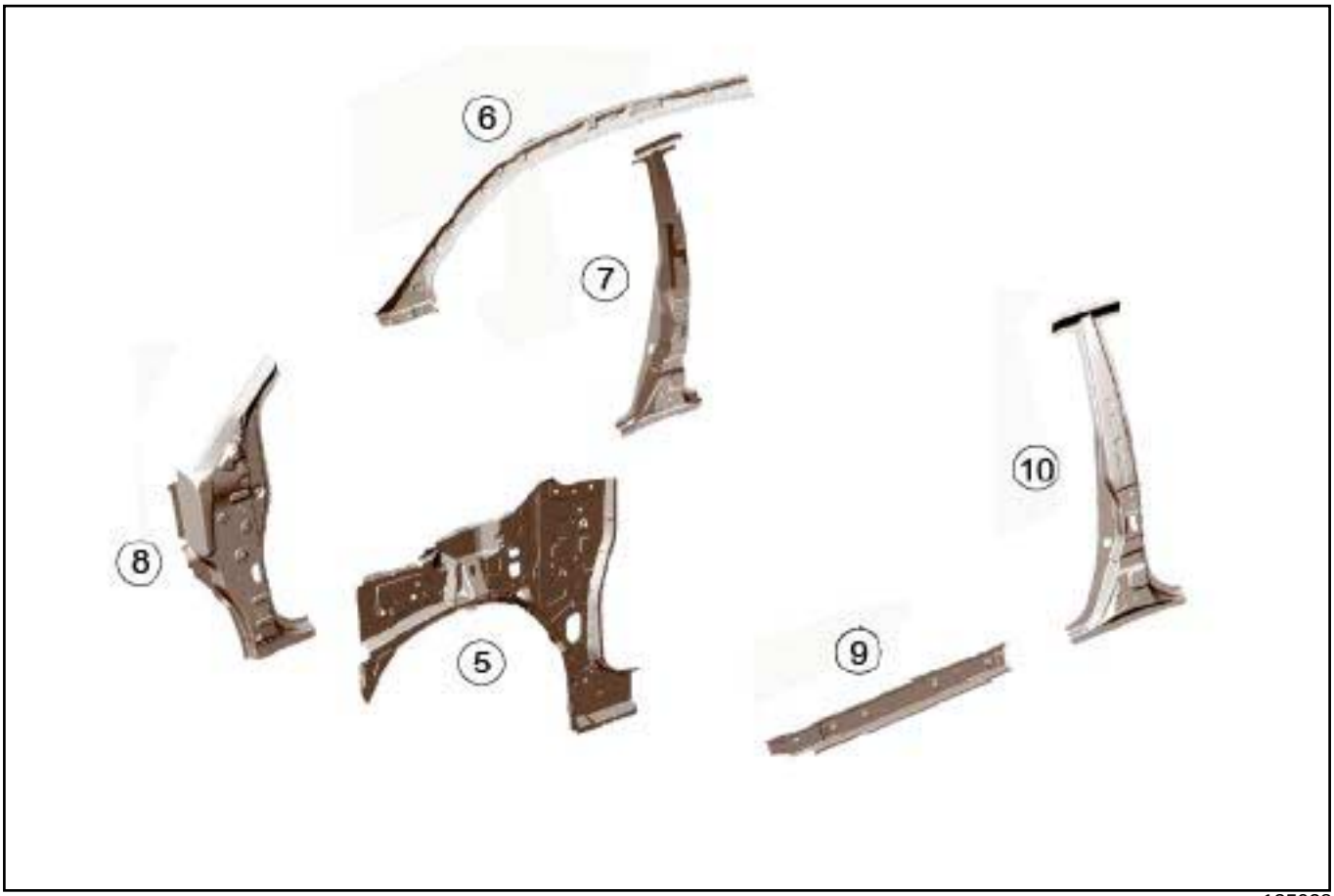
**2nd Degree**




135028

- (**5**) scuttle side panel
- (**6**) windscreen pillar lining
- (**7**) B-pillar lining
- (**8**) A-pillar reinforcement
- (**9**) inner sill panel
- (**10**) B-pillar reinforcement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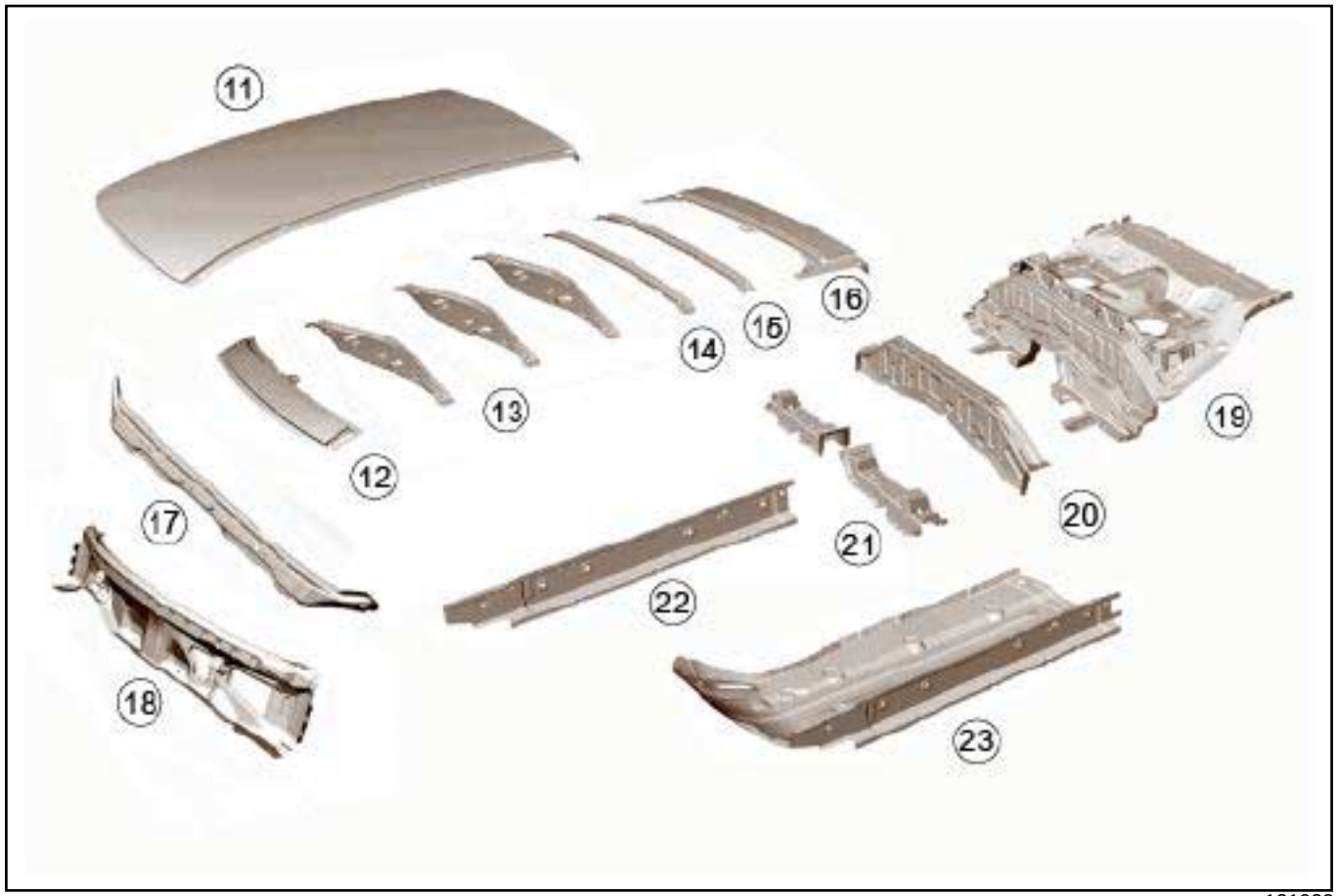


131022

- (**11**) roof
- (**12**) roof front section
- (**13**) roof front cross member
- (**14**) roof centre cross member
- (**15**) roof rear cross member
- (**16**) roof rear section
- (**17**) bulkhead lower cross member
- (**18**) windscreen pillar lower cross member closure panel
- (**19**) rear floor
- (**20**) rear cross member under front seat
- (**21**) front cross member under front seat
- (**22**) inner sill panel
- (**23**) centre floor side section


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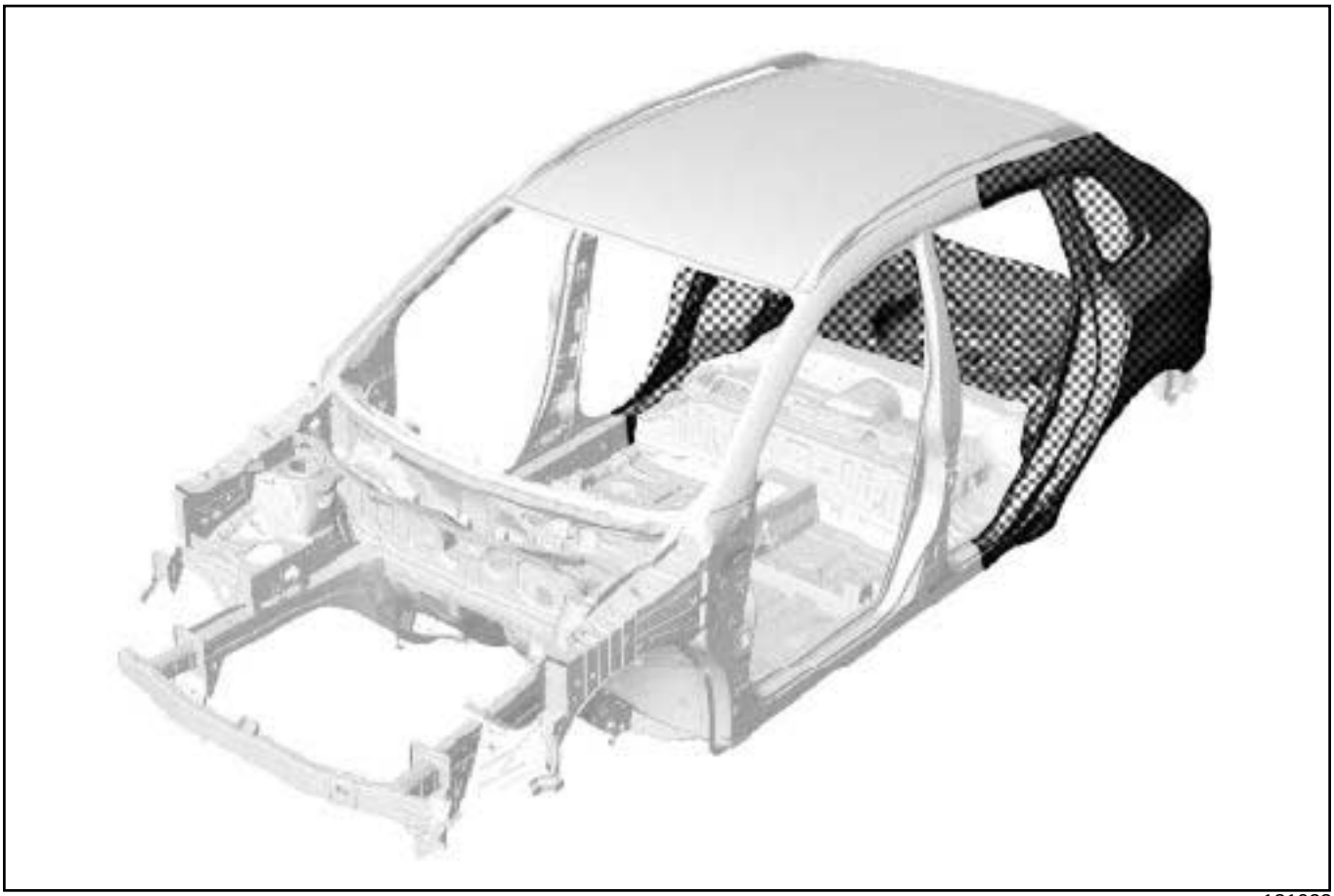

131023



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**I - FIRST DEGREE REAR IMPACT**

135029

(**1**) Rear wing panel
(**2**) Rear end panel


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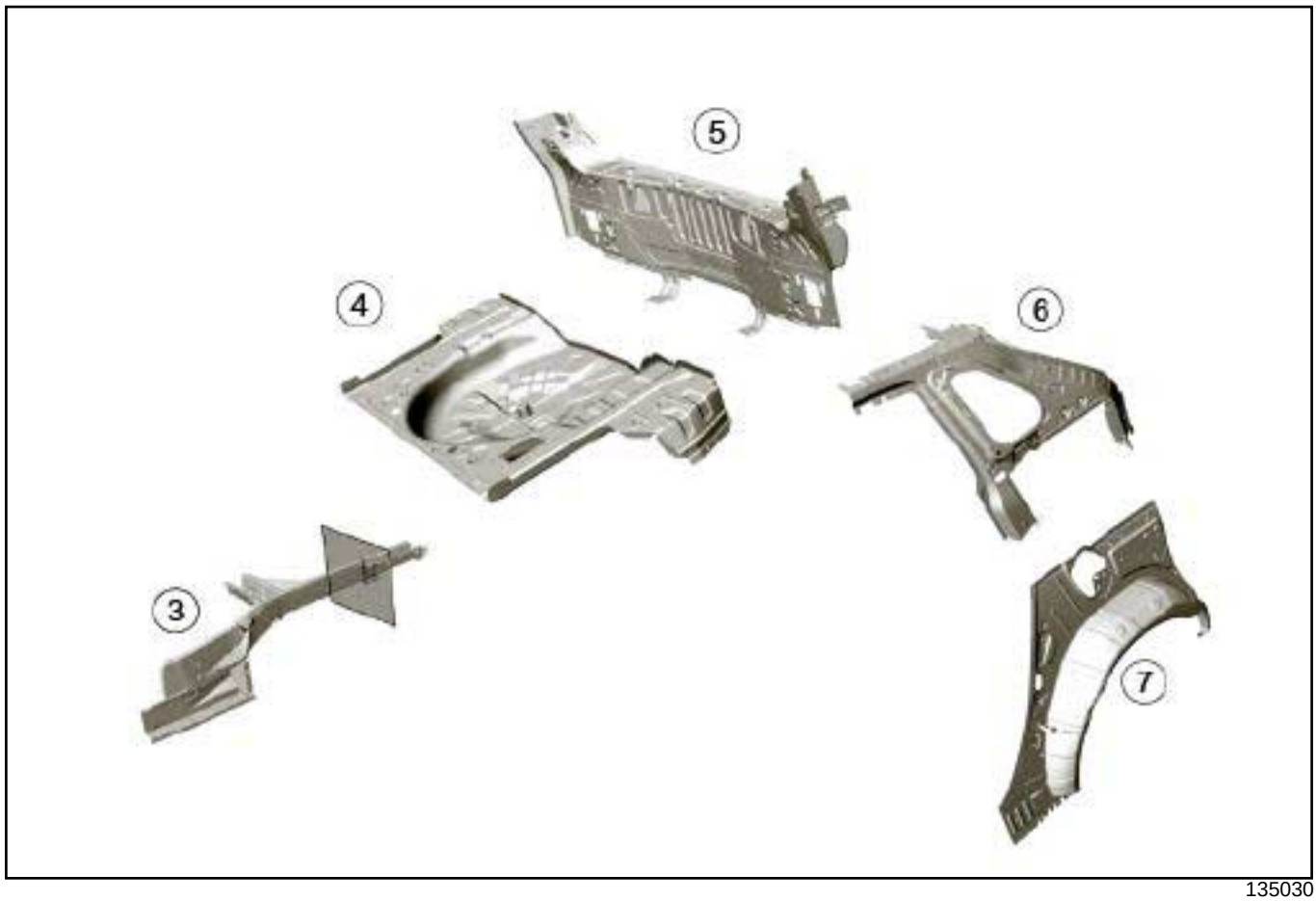
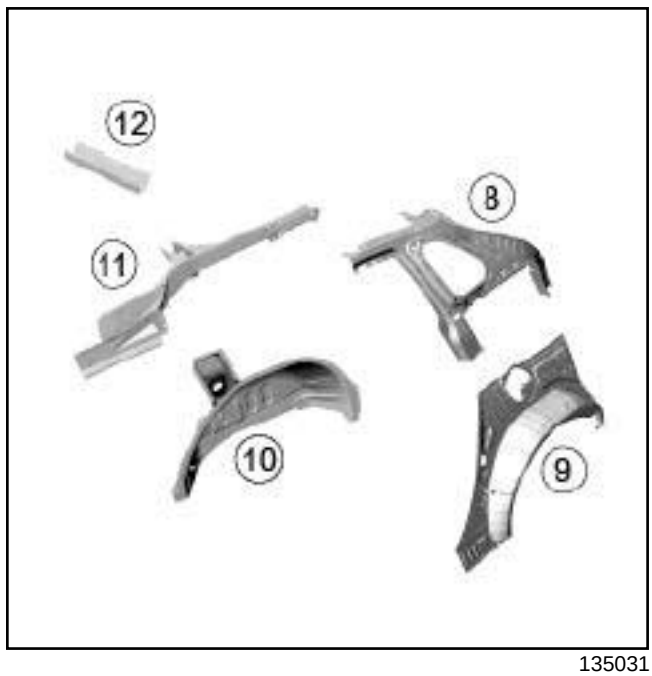
**II - SECOND DEGREE REAR IMPACT**




135030

(**3**) rear side member (partial)
(**4**) rear section of rear floor
(**5**) rear end panel
(**6**) quarter panel lining
(**7**) outer rear wheel arch

**III - THIRD DEGREE REAR IMPACT**




135031

(**8**) quarter panel lining
(**9**) outer rear wheel arch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| | |
|---|---|
| (**10**) | inner rear wheel arch |
| (**11**) | rear side member |
| (**12**) | rear centre cross member |


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**Consumables for mechanical repair:**

| DEFINITION | PACKAGING | PART NUMBER |
|---|---|---|
| MECHANICAL SEALANTS | | |
| **SILICOR**<br>sealing paste | **85 g** tube | **77 11 236 470** |
| **MASTIXO**<br>Joint face seal | **100 g** tube | **77 11 236 172** |
| **BEARING SEALING KIT**<br>For crankshaft bearing cap side sealing | Kit | **77 11 237 896** |
| **SILICONE ADHESIVE SEAL**<br>Engine and gearbox sealing paste | **100 g** cartridge | **77 11 227 484** |
| **TRANSPARENT SEALING MASTIC** | **45 g** tube | **77 11 223 369** |
| **SILICOJOINT** | **90 g** tube | **77 11 236 469** |
| **LOCTITE ADHESIVE 597**<br>Sealing paste forPXXgearboxes | Cartridge | **77 11 219 705** |
| **RESIN ADHESIVE** or **SEALING RESIN**<br>Sealing resin for engine and gearbox covers | **25 ml** tube | **77 11 237 640** |
| **EXHAUST MASTIC**<br>For exhaust pipe union seals | **1.5 kg** tin | **77 01 421 161** |
| **LEAK DETECTOR** | **400 ml** aerosol | **77 11 236 176** |
| ADHESIVES | | |
| **FRENETANCHE**<br>Sealing the threading at low and medium pressure | **50 ml** bottle | **77 11 236 471** |
| **HIGH-STRENGTH THREADLOCK**<br>For locking bolts | **50 ml** bottle | **77 11 230 112** |
| **SEALING RESIN**<br>For locking the bearings | **50 ml** bottle | **77 11 236 472** |
| LUBRICANT CLEANERS | | |
| **NÉTELEC**<br>Avoid bad contacts in electrical circuits | **150 ml** aerosol | **77 11 225 871** |


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| | | |
|---|---|---|
| **INJECTOR CLEANER** | **355 ml** container | **77 11 224 188** or **77 11 225 539** |
| **CLOTH FOR INJECTION SYSTEM** | | **77 11 211 707** |
| **SUPER RELEASING AGENT** | **500 ml** aerosol | **77 11 236 166** |
| **SUPER RELEASING AGENT** | **250 ml** aerosol | **77 11 420 439** |
| **SUPER CLEANER FOR JOINT FACES**<br>For cleaning joint faces | **300 ml** aerosol | **77 11 238 181** |
| **SURFACE CLEANER** | **5 L** container | **77 01 404 178** |
| **SILICONE LUBRICANT** | **400 ml** aerosol | **77 11 236 168** |
| **SILICONE-FREE LUBRICANT** | **400 ml** aerosol | **77 11 236 167** |
| **BRAKE CLEANER** | **600 ml** aerosol | **77 11 422 413** |
| | **150 ml** aerosol | **77 11 422 414** |
| **AIR CONDITIONING CLEANER** | **250 ml** aerosol | **77 11 230 498** |
| **CARBURETTOR CLEANER** | Aerosol | **77 11 236 177** |
| GREASE | | |
| **BR2+ GREASE**<br>For:<br>- the lower arm bearings,<br>- the anti-roll bar grooves,<br>- the driveshaft splines. | **1 kg** pack | **77 01 421 145** |
| **SILICONE GREASE**<br>For:<br>- the tubular rear axle bushes,<br>- the anti-roll bar bushes. | **100 g** tube | **77 11 419 216** |
| **COPPER ANTI-SEIZE GREASE**<br>Grease for turbochargers (high temperature) | **85 g** tube | **77 11 236 173** |
| **COPPER-ALUMINIUM LUBRICANT**<br>Grease for turbochargers (high temperature) | **500 ml** aerosol | **77 11 236 169** |
| **GREASE**<br>For driveshaft seals | **180 g** sachets | **77 11 420 011** |
| **WHITE GREASE**<br>For wheel sensors | **400 ml** aerosol | **77 11 236 174** |


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|---|---|---|
| **MULTIPURPOSE GREASE** | **500 ml** aerosol | **77 11 236 170** |
| | **250 ml** aerosol | **77 11 236 171** |
| **FLUORSTAR 2L**<br>Silicone-free electric sealing grease | **100 g** tube | **82 00 168 855** |
| LACQUER | | |
| **JELT ARGENT**<br>Varnish for repairing heated rear screens | **5 g** bottle | **77 11 230 111** |
| BRAKE | | |
| **DOT 4, ISO CLASS 6, RENAULT STANDARD: 03-50-006,**<br>For vehicles with and without electronic stability program (ESP) | **0.5 L** container | **77 11 218 589** |
| | **5 L** container | **77 11 238 318** |
| | **25 L** container | **77 11 238 319** |
| **DOT 4, ISO CLASS 4, RENAULT STANDARD: 03-50-005**<br>Authorised for vehicles without ESP | **0.5 L** container | **77 11 172 381** |
| | **5 L** container | **77 01 395 503** |
| | **25 L** container | **77 11 171 926** |
| **DOT 4**<br>Authorised for vehicles without ESP, without clutch with hydraulic tappet | **0.5 L** container | **86 71 000 000** |
| | **5 L** container | **86 71 014 277** |
| | **25 L** container | **86 71 014 278** |
| COOLING SYSTEM | | |
| **ANTIFREEZE (TYPE D)** | **1 L** container | **77 11 170 548** |
| **COOLANT (TYPE D)** | **1 L** container | **77 11 171 589** |
| | **2 L** container | **77 11 170 545** |
| | **5 L** container | **77 11 170 546** |
| OIL | | |
| **ENGINE OIL** | (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants) | |
| **GEARBOX OIL** | (see **Manual gearbox oil: Specifications**) (Technical Note 6012A, 04A, Lubricants) | |
| | (see **Automatic gearbox oil: Specifications**) (Technical Note 6012A, 04A, Lubricants) | |
| | (see **Sequential gearbox oil: Specifications**) (Technical Note 6012A, 04A, Lubricants) | |
| **AXLE OIL** | (see **Rear axle oil: Specifications**) (Technical Note 6012A, 04A, Lubricants) | |


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|---|---|---|
| **ELF RENAULT MATIC D2**<br>Oil for power-assisted steering: Pump connected, pump assembly (except Laguna III) | **2 L** container | **77 01 402 037** |
| **TOTAL POWER-ASSISTED STEERING FLUID**<br>Oil for power-assisted steering: Pump assembly (Laguna III) | **1 L** container | |
| **PLANETELF PAG 488** | **250 ml** container | **77 11 172 668** |
| **SANDEN SP 10**<br>Oil for air conditioning compressor | | **77 01 419 313** |
| TYRES | | |
| **TYRE PASTE** | **1 kg** pack | **77 11 223 052** |
| | **5 kg** pack | **77 11 223 053** |
| **TYRE REPAIR AGENT** | **400 ml** tube | **77 11 221 296** |
| | **300 ml** tube | **77 11 222 802** |
| BLANKING PLUG | | |
| Engine type | Injection type | Part no. |
| **F5R** | | **77 01 206 382** |
| **F8Q** | | **77 01 206 340** |
| **F9Q** | | **77 01 208 229** |
| **G9T AND G9U** | | **77 01 208 229** |
| **K9K** | **DELPHI** | **77 01 206 804** |
| **K9K** | **SIEMENS** | **77 01 476 857** |
| **M9R** | | **77 01 209 062** |
| **P9X** | | **77 01 474 730** |
| **ZD3** | | **77 01 208 229** |
| MISCELLANEOUS | | |
| **GREY ABRASIVE PAD** | | **77 01 405 943** |

**Consumables for bodywork repair:**

| | | |
|---|---|---|
| HOLLOW SECTION WAX | | |
| **SPR CC** | **1 L** container | **77 11 172 672** |
| **SPR CC SPRAY** | **500 ml** aerosol | **77 11 211 654** |


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|---|---|---|
| STRUCTURAL ADHESIVE | | |
| **STRUCTURAL ADHESIVE** | Kit =2 **80 ml** cartridges | **77 11 219 885** |
| **HIGH PERFORMANCE STRUCTURAL ADHESIVE** | 1 **195 ml** cartridge | **77 11 419 113** |
| GLAZING PRODUCTS AND ADHESIVES | | |
| **MONOPAC EVOLUTION ADHESIVE KIT** | **310 ml** cartridge | **77 11 421 430** |
| **MONOPAC EVOLUTION ADDITIONAL CARTRIDGE + NOZZLE** | **310 ml** cartridge | **77 11 421 431** |
| **S-P KIT ADHESIVE KIT** | **310 ml** cartridge | **77 11 421 432** |
| **ADDITIONAL S-P KIT CARTRIDGE + NOZZLE** | **310 ml** cartridge | **77 11 421 433** |
| **BIPAC EVOLUTION ADHESIVE KIT** | 2 **225 ml** cartridges | **77 11 421 434** |
| **LINT-FREE CLOTH** | Box of **340** cloths | **77 11 237 262** |
| **METAL PRIMER** | Bottle | **77 11 419 599** |
| **WINDOW SEALING MASTIC** | **310 ml** cartridge | **77 11 170 222** |
| **SPECIAL ADHESIVE FOR WINDOWS** | | **77 11 425 759** |
| **ADHESION PROMOTER**<br>For bonding double-sided adhesive tape to windows | Cloth | **77 11 423 222** |
| MISCELLANEOUS | | |
| **DOUBLE-SIDED ADHESIVE** | **20 m** roll | **77 11 226 308** |
| **FRENETANCHE** | **50 ml** bottle | **77 11 236 471** |
| **ADHESIVE PATCH** | | **82 00 043 181** |
| **ADHESIVE PAD** | | **77 05 042 163** |
| SEALS | | |
| **BLACK MJ PRO** (Electroweldable) | **310 ml** cartridge | **77 11 172 676** |
| **WHITE MJ PRO** (Electroweldable) | **310 ml** cartridge | **77 11 172 677** |
| **PREFORMED SEALING MASTIC BEAD** | **2.6 m** roll | **77 01 423 330** |
| **BRUSH MASTIC** | **1 kg** pack | **77 11 228 113** |
| **FILLER MASTIC** | 60 beads **Ø 6 mm by 0.3 m** | **77 11 170 230** |
| GREASE | | |


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| | | |
|---|---|---|
| **CLEAN GREASE** | **300 ml** aerosol | **77 11 236 174** |
| **OPENING ELEMENT MECHANISM GREASE** | **20 g** sachets | **77 11 419 865** |
| SOUNDPROOFING | | |
| **SPR GREY EVOLUTION** | **1 l** cartridge | **77 11 419 114** |
| **SPR GREY EVOLUTION SPRAY** | **400 ml** aerosol | **77 11 419 116** |
| **SPR BLACK EVOLUTION II** | **1 l** cartridge | **77 11 419 115** |
| **SOUNDPROOFING PAD** (3.5 Kg/m²) | Pack of **10** | **77 01 423 546** |
| **SOUNDPROOFING PAD** (6.5 Kg/m²) | Pack of **5** | **77 01 423 269** |
| POLISHING | | |
| **POLISHING LIQUID** | **1 L** container | **77 11 420 288** |
| **FINISHING LIQUID** | **1 L** container | **77 11 420 289** |
| MASTIC | | |
| **Universal mastic** | | |
| **GALAXI** | **2.5 kg** pack | **77 11 172 238** |
| **OPTIMAX** | **1.23 l** cartridge | **77 11 172 239** |
| **EXCELLENCE +** | **960 g** cartridge | **77 11 423 539** |
| For finishing plastic repair | **1 kg** pack | **77 11 423 540** |
| **Plugging mastic** | | |
| **XFIBRE FIBREGLASS MASTIC** | **975 kg** pack | **77 11 172 235** |
| **STANDARD BASIX POLYESTER MASTIC** | **1.975 kg** pack | **77 11 172 234** |
| **ALUX ALUMINIUM MASTIC** | **975 kg** pack | **77 11 172 236** |
| **Sprayable mastic** | | |
| **PIXTO SPRAYABLE POLYESTER MASTIC** | **1.5 kg** tin | **77 11 172 237** |
| **Finishing mastic** | | |
| **IXTRA POLYESTER MASTIC** | **1.625 kg** pack | **77 11 172 233** |
| **Anti-grit mastic** | | |
| **MAG PRO 1** | **310 ml** cartridge | **77 11 172 679** |
| **MAG PRO 3** (Dual component) | **1.5 kg** tin | **77 11 218 364** |
| SURFACE CLEANER | | |


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| | | |
|---|---|---|
| **HEPTANE** | **500 ml** container | **77 11 170 064** |
| **SOLVENT SURFACE CLEANER** | **5 L** container | **77 01 404 178** |
| **WATER-BASED SURFACE CLEANER** | **5 L** container | **77 11 421 337** |
| **ANTISTATIC THINNER** (for plastic materials) | **400 ml** aerosol | **77 01 408 493** |
| COMPOSITE MATERIAL REPAIR BY BONDING | | |
| **PLASTIC REPAIR KIT** | | **77 11 170 064** |
| **NOZZLE FOR PLASTIC REPAIR KIT** | | **77 11 423 523** |
| **PLASTIC REPAIR CLEANER** | **1 L** container | **77 11 423 517** |
| **PLASTIC REPAIR PRIMER** | **150 ml** bottle | **77 11 423 518** |
| **PLASTIC REPAIR ADHESIVE** | **2 x 25 ml** bicomponent cartridge | **77 11 423 519** |
| **PLASTIC REPAIR CLOTH** | **90 m** roller | **77 11 423 520** |
| **PLASTIC REPAIR NOZZLES** | **12** nozzles | **77 11 423 522** |
| COMPOSITE MATERIAL REPAIR BY WELDING | | |
| **PLASTIC WELD REPAIR SET** | | **77 11 425 742** |
| **PROTECTIVE STRIPS** | Bag of **10** protective strips | **77 11 425 744** |
| **STAINLESS STEEL MESH** | Bag of **2** meshes | **77 11 425 743** |
| **COOLER** | **400 ml** aerosol | **77 11 425 745** |
| **BRUSH** | Box of **10** brushes | **77 11 237 793** |
| WINDOW MASKING TAPE | | |
| **10 MM WINDSCREEN TAPE** | | **77 11 171 708** |
| **20 MM WINDSCREEN TAPE** | | **77 11 171 709** |
| PROTECTIVE WELDING | | |
| **ANTI-SPLASH SPRAY** | **400 ml** aerosol | **77 11 218 270** |
| SPECIFIED UNDERCOAT | | |
| **PRE-TREATMENT PRIMER WITHOUT ZINC CHROMATE** (I-Alpha) + **THINNER** | **1 L** container | **77 11 420 027** (Primer)<br>**77 11 420 028** (Thinner) |
| **I-PREMIA REACTIVE PRIMER** (do not use on aluminium) | **3.5 l** container | **77 11 239 243** (Primer)<br>**77 11 228 654** (Thinner) |
| **I-PREMIA REACTIVE PRIMER** (do not use on aluminium) | **400 ml** aerosol | **77 11 419 416** |


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| | | |
|---|---|---|
| **ADHÉRA SPRAY** (adhesion promoter for thermoplastics) | **400 ml** aerosol | **77 11 423 734** |
| **PRIMARA BLACK** (adhesion promoter/primer for thermoplastics) | **1 L** container | **77 11 423 735** |
| | | **77 11 171 514** (Activator) |
| **PRIMARA** (adhesion promoter/primer for thermoplastics) | **1 L** container | **77 11 171 513** |
| | | **77 11 171 514** (Activator) |
| UNDERCOAT | | |
| **LEVIA** | **3.5 l** container | **77 11 228 651** |
| **FORTIA** | **3.5 l** container | **77 11 228 650** |


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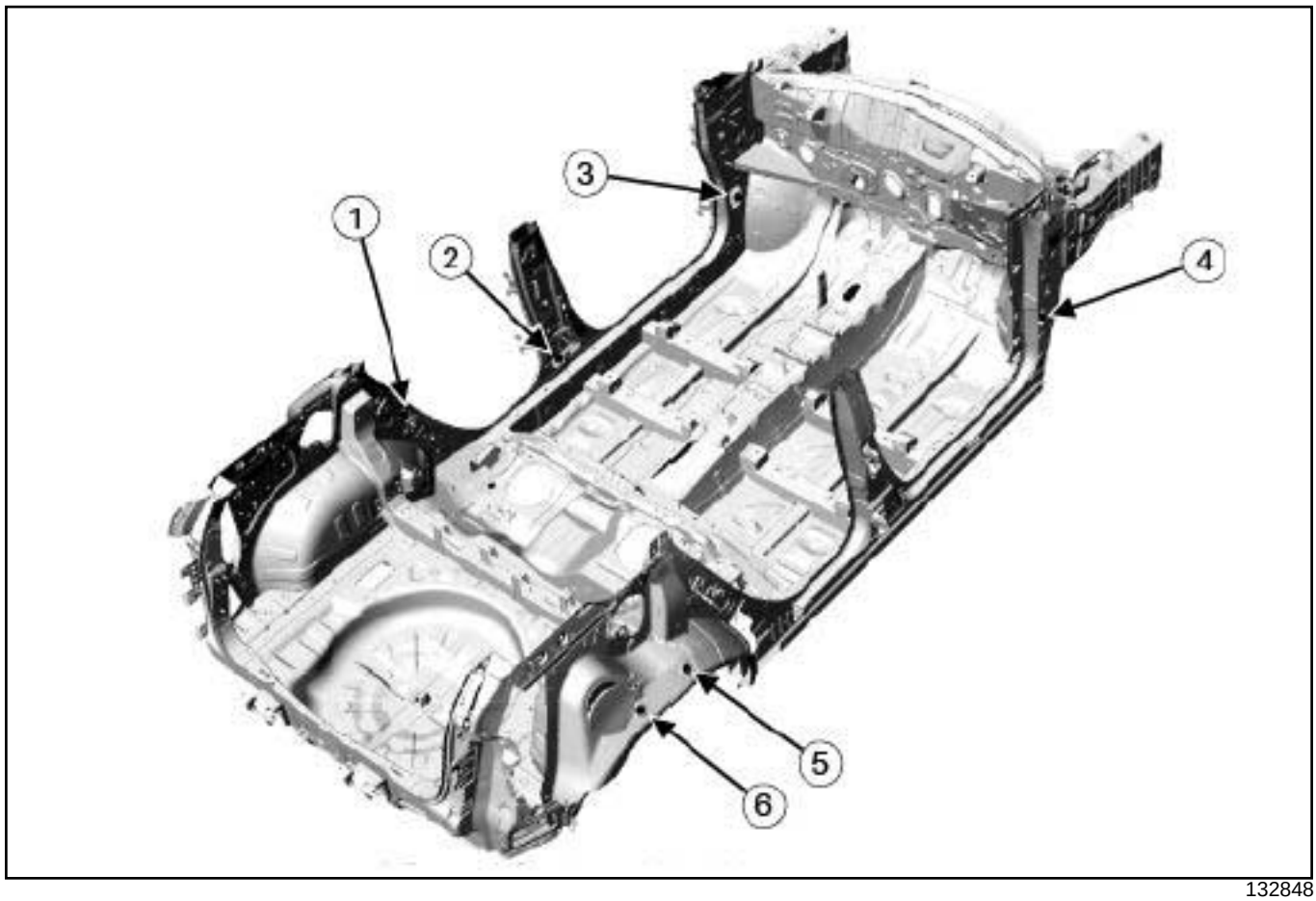
**POINTS LOCATED INSIDE THE VEHICLE**




132848

Note:

Hollow body parts must be treated from inside the vehicle after painting and before retrimming.

Side impact:

- replacing or repairing the sill panel:

  *Protection of the join between the inner sill panel and the sill panel reinforcement: injection of wax through point ***(2)*** .

  *Protection of the join between the inner sill panel and the inner sill panel: injection of wax through points ***(3)*** and ***(4)*** .

- replacing the quarter panel lining:

  *Injection of wax in points ***(5)*** , ***(6)*** and ***(1)*** .

- replacing the centre side member under the floor:

  *Injection of wax in points ***(15)*** , ***(16)*** , ***(17)*** and ***(18)*** .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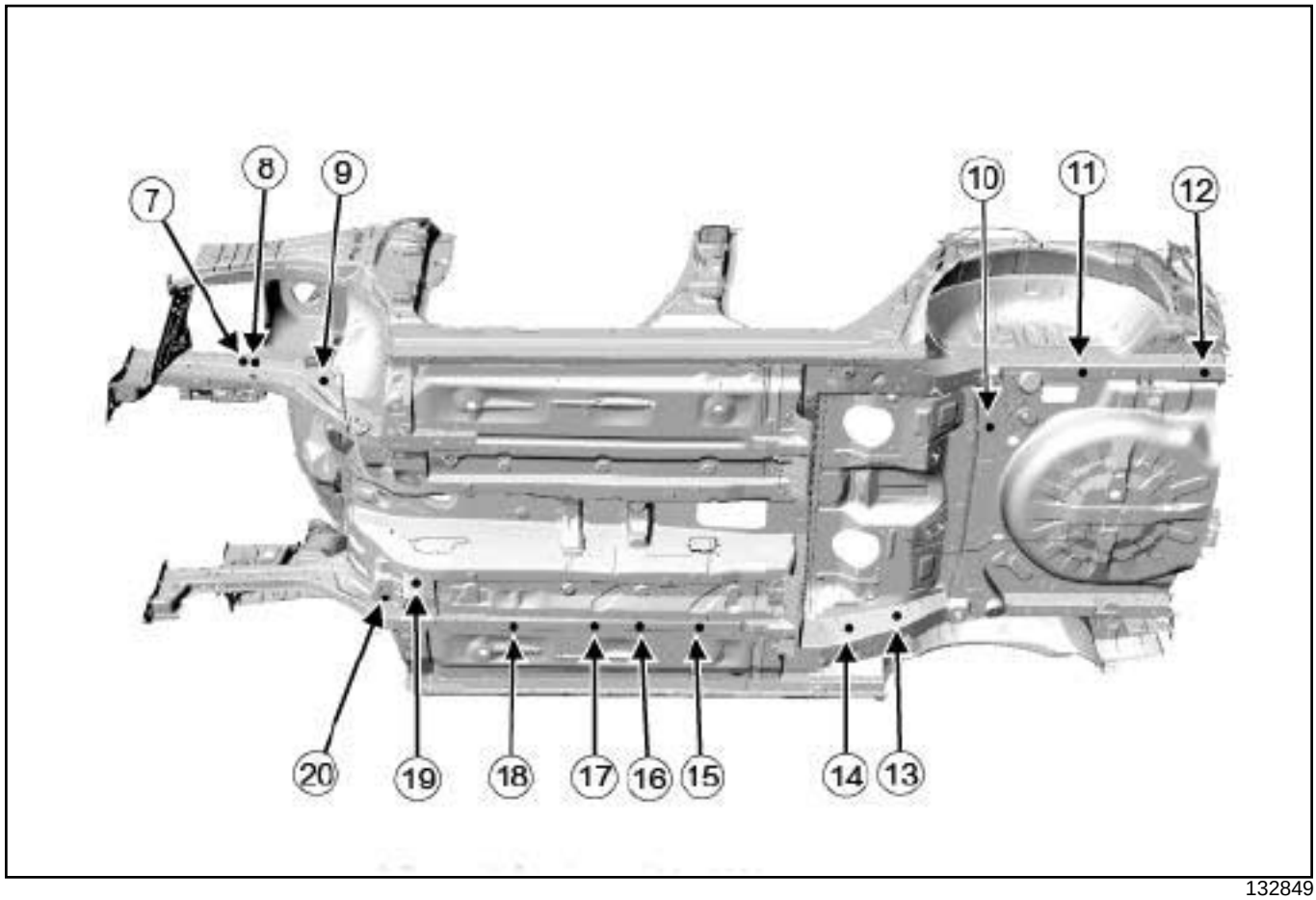



132849

Note:

Hollow body parts must be treated from inside the vehicle after painting and before retrimming.

Frontal impact:

- replacing or repairing the front side member, the front side member closure panel and the front sub-frame mounting unit:

*Injection of wax through points ***(7)*** , ***(8)*** and ***(9)*** .

- replacing the front side cross member:

*Injection of wax in points ***(19)*** and ***(20)*** .

Rear impact:

- complete replacement of the rear side cross member:

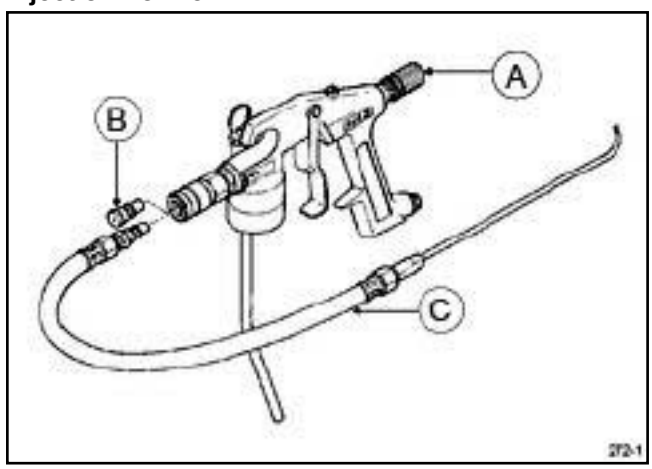
*Injection of wax through points ***(11)*** , ***(12)*** , ***(13)*** and ***(14)*** .

- replacing the rear floor centre cross member:

*Injection of wax through point ***(10)*** .

**1 - Equipment required**

**Injection nozzle**




272-1

| | |
|---|---|
| (**A**) | Wax flow adjustment control |
| (**B**) | Quick-release union end piece |
| (**C**) | Interchangeable injection pipe |

Note:

Choose the pipe most suitable for the operation.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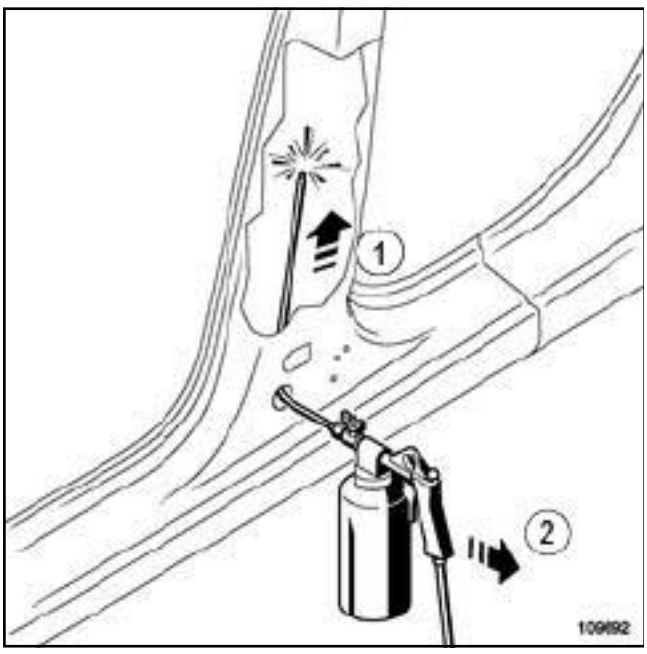
**Can of wax**

272

Apply the wax (see **04B**, **Consumables - products**, **Vehicle: Parts and ingredients for the repairwork**, page **04B-1**) (04B, Parts and consumables for the repair).

**2 - Method of use**




109692

(**1**) Let the end piece of the nozzle penetrate to the bottom of the hollow section

(**2**) Inject the wax by retracting the end piece of the nozzle.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RENAULT

# 1 Engine and peripherals


10A ENGINE AND CYLINDER BLOCK ASSEMBLY

11A TOP AND FRONT OF ENGINE

12A FUEL MIXTURE

12B TURBOCHARGING

13A FUEL SUPPLY

13B DIESEL INJECTION

14A ANTIPOLLUTION

16A STARTING - CHARGING

17A IGNITION

17B PETROL INJECTION

19A COOLING



*X45*

**FEBRUARY 2009** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# 19B EXHAUST

# 19C TANK

# 19D ENGINE MOUNTING

***X45***

**FEBRUARY 2009** **Edition Anglaise**

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

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M9R

| Tightening torques ▽ | |
|---|---|
| timing end crankshaft seal | 47 N.m |

## REMOVAL

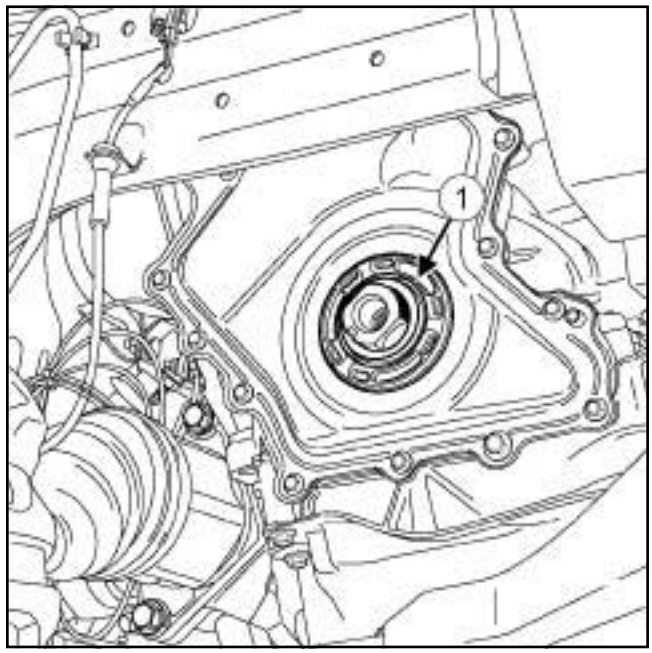
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

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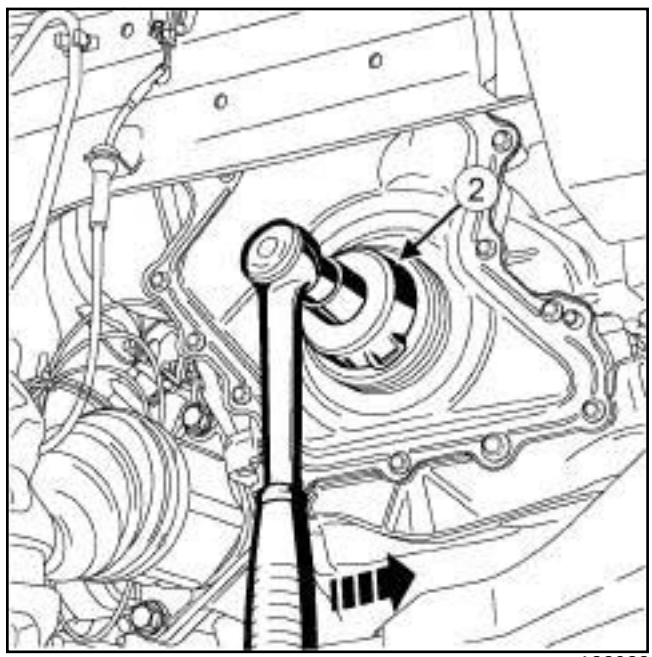


128988

❏ Remove the crankshaft seal (**1**) using the tool (**2**) supplied in the spare parts kit for the new seal.


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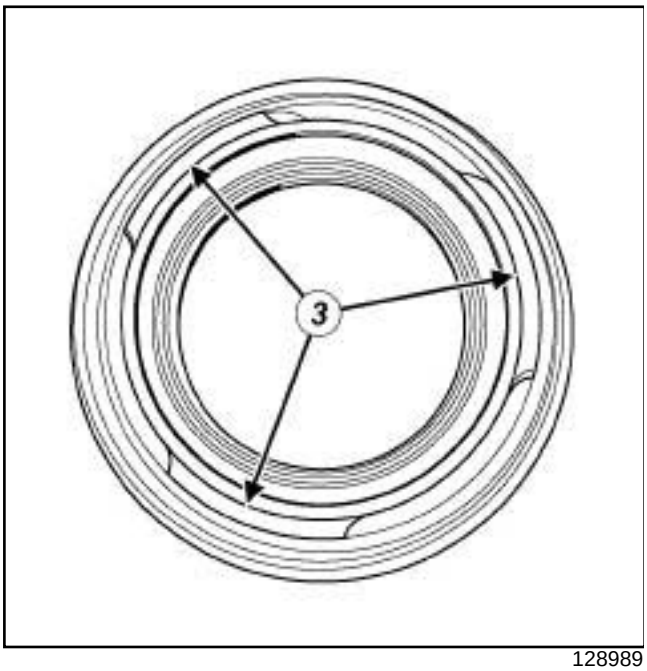
M9R

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

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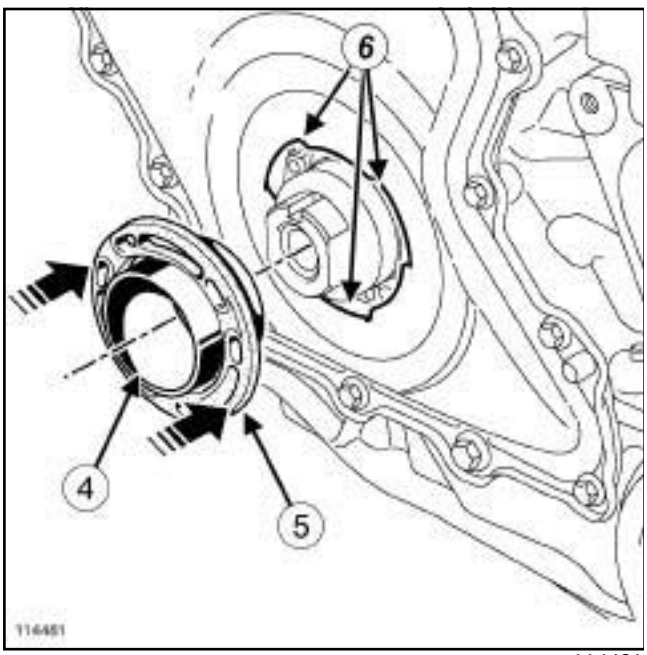



114481

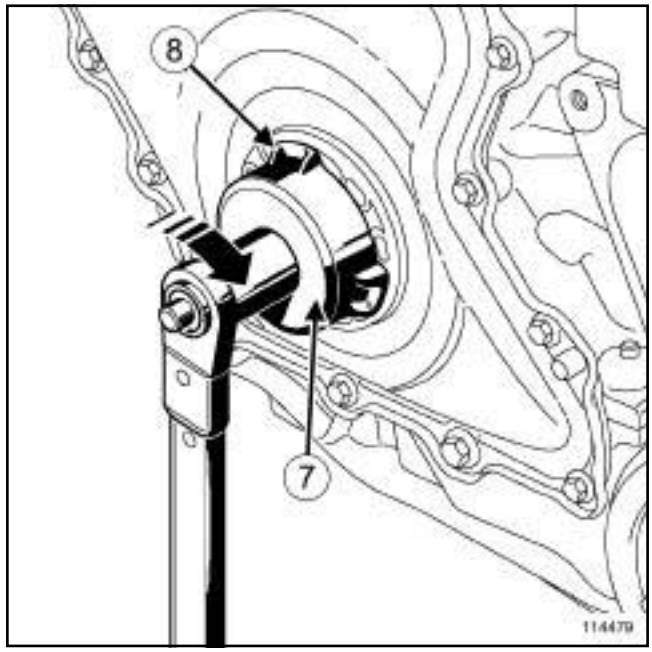
❑

**WARNING**

The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Refit the new "seal (**5**) - protector (**4**) " assembly on the crankshaft.

❑ Align the seal notches (**3**) with the notches on the timing cover (**6**) .




114479

❑

Note:

The (**7**) is supplied in the new seal parts kit.

❑ Position the lugs of the (**7**) into the notches of the seal (**8**) .

❑ Move the "tool - seal" assembly by hand until it comes into contact with the timing cover (check that the seal notches fit correctly into the timing cover notches).

❑ Finger tighten the seal (**8**) clockwise using the (**7**) .

❑ Torque tighten the **timing end crankshaft seal (47 N.m)** using the (**7**) supplied in the new spare parts kit.



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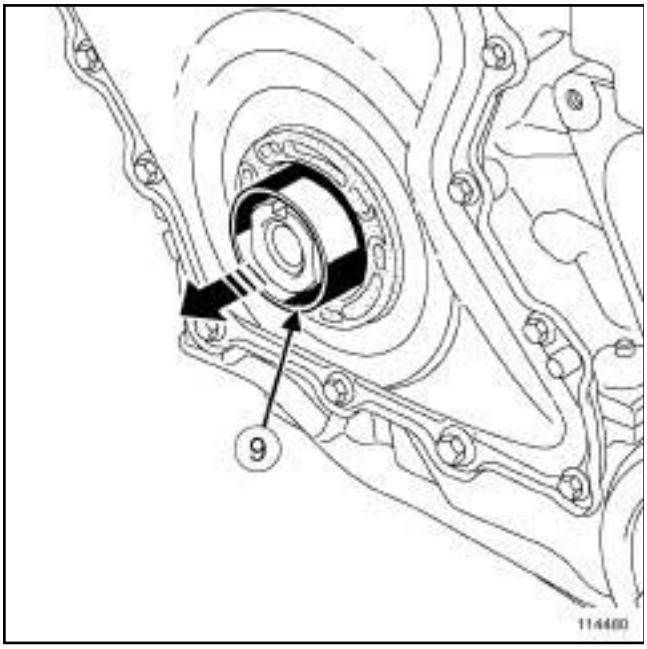


114480

❑ Remove the seal fitting protector (**9**) .

**II - FINAL OPERATION**

❑ Refit:

- the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1867** | Crankshaft seal fitting tool (timing end) |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **Engine: Precautions for repair**) .

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

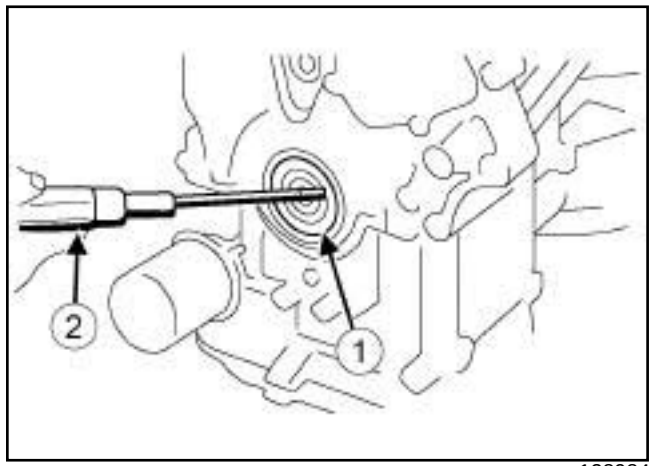
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) .
- the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



128984

❑ Remove the crankshaft seal (**1**) on the timing end using an appropriate tool (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the crankshaft seal on the timing end,
- the crankshaft accessories pulley bolt.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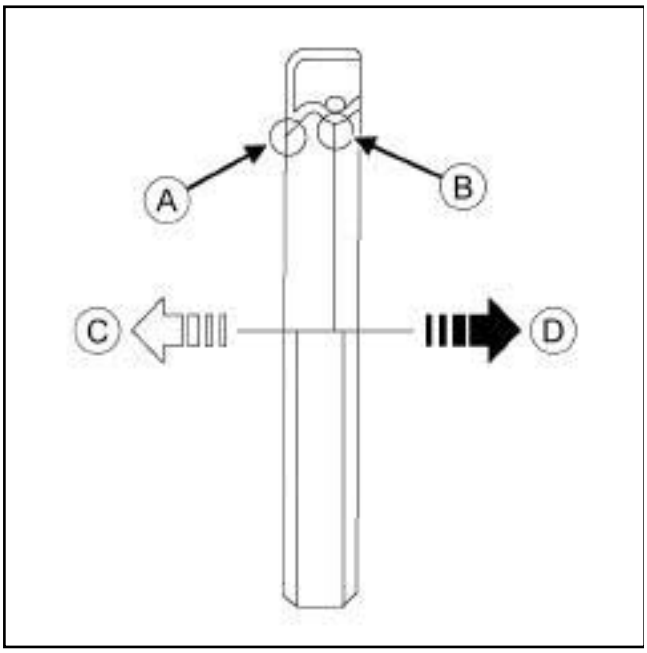
2TR

**II - REFITTING OPERATION FOR PART CONCERNED**




128985

(**A**) Dust seal lip

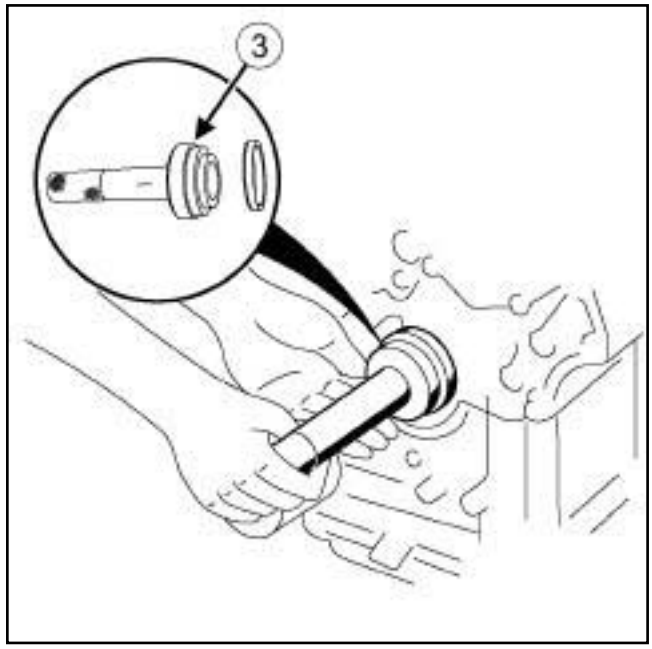
(**B**) Seal lip

(**C**) Engine exterior

(**D**) Engine interior

❏ Apply fresh engine oil to the joint face and to the seal lips (**A**) and (**B**) .

❏ Refit the crankshaft seal on the timing end, observing the direction of fitting.




128986

❏ Refit the new crankshaft seal on the timing end using the tool **(Mot. 1867)** (**3**) until the tool is resting on the surface of the cylinder block.

**III - FINAL OPERATION.**

❏ Refit:

- the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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M9R

| Tightening torques ▽ | |
|---|---|
| crankshaft cover bolts (initial torque) | **5 N.m** |
| crankshaft cover bolts | **12 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair operation (see **Vehicle: Precautions for repair**) (01D, Mechanical introduction).

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

6 SPEED MANUAL GBOX

❏ Remove:

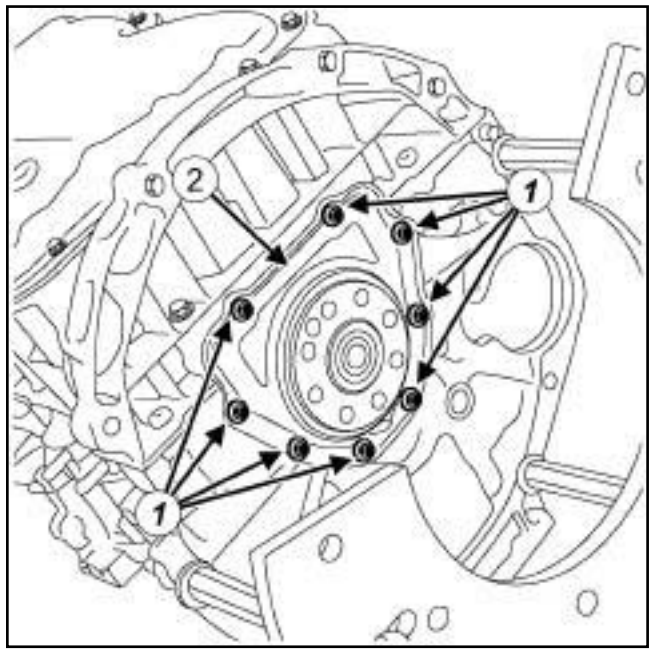
- the manual gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).
- the clutch (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the flywheel (see **10A**, **Engine and cylinder block assembly**, **Flywheel: Removal - Refitting**, page **10A-86**) .

6 SPEED AUTO GBOX

❏ Remove:

- the automatic transmission (see **Automatic gearbox: Removal - Refitting**) (23A, Automatic transmission),
- the drive plate (see **Drive plate: Removal - Refitting**) (23A, Automatic transmission).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



128997

❏

Note:
The crankshaft seal on the gearbox side cannot be separated from the crankshaft sealing cover.

Remove:

- the crankshaft sealing cover bolts (**1**) ,
- the crankshaft seal - crankshaft sealing cover assembly (**2**) .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M9R

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

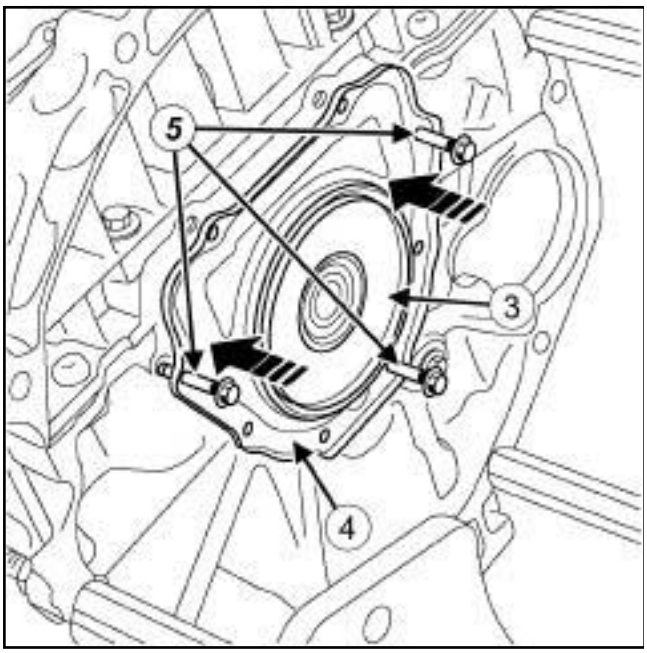
**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

Degrease:

- the joint face of the crankshaft sealing cover on the cylinder block,
- the crankshaft seal mating face.

❑ Always replace the crankshaft seal - crankshaft sealing cover assembly.

### II - REFITTING OPERATION FOR PART CONCERNED



128998

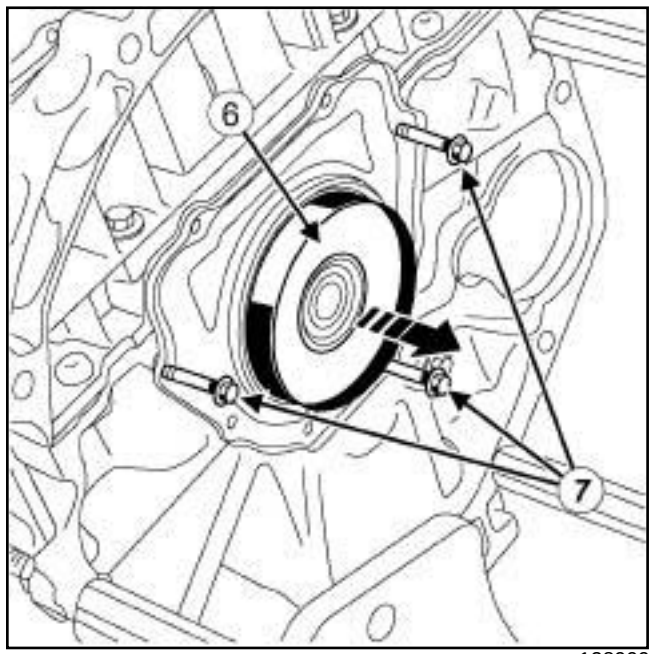
❑

Note:
Touching the lip of the seal is strictly forbidden. Any contact with it will result in the lip being permanently damaged, which will cause an oil leak.

❑ Fit:

- the new seal protector (**3**) - seal - cover (**4**) assembly on the crankshaft,
- the bolts (**5**) (**M6 - 90 mm long**) to guide the crankshaft "seal - cover" assembly.

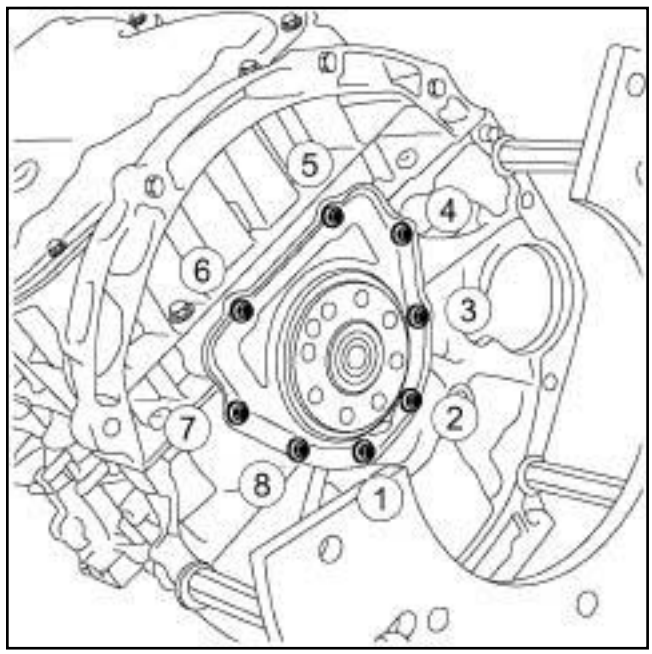
❑ Move the "seal - cover" assembly evenly by hand until it makes contact with the cylinder block.



128999

❑ Remove:

- the crankshaft seal protector (**6**) ,
- the crankshaft sealing cover bolts (**7**) .



128997

❑ Refit the crankshaft sealing cover bolts.

❑ Pretighten in order and to torque the **crankshaft cover bolts (initial torque) (5 N.m)** ***(1)*** and ***(5)*** .

❑ Torque tighten in order the **crankshaft cover bolts (12 N.m)**.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M9R

**III - FINAL OPERATION**

6 SPEED MANUAL GBOX

❑ Refit:

- the flywheel (see **10A**, **Engine and cylinder block assembly**, **Flywheel: Removal - Refitting**, page **10A-86**) ,
- the clutch (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the manual gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).

6 SPEED AUTO GBOX

❑ Refit:

- the drive plate (see **Drive plate: Removal - Refitting**) (23A, Automatic transmission).
- the automatic transmission (see **Automatic gearbox: Removal - Refitting**) (23A, Automatic transmission).

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Top up the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1868** | Crankshaft seal fitting tool (flywheel end) |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair operation (see **Engine: Precautions for repair**) (02A, Lifting equipment).

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

**IMPORTANT**
Wear gloves during this operation.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

ND5 or ND8

❑ Remove:

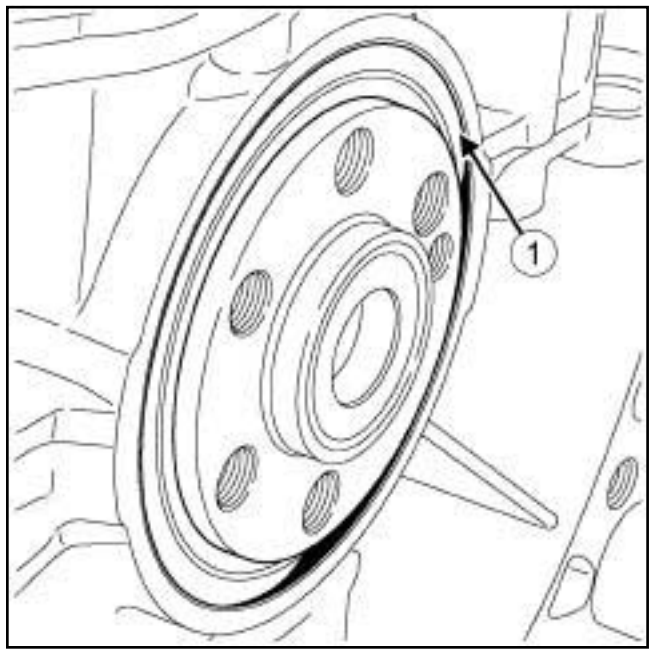
- the manual gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).
- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the flywheel (see **10A**, **Engine and cylinder block assembly**, **Flywheel: Removal - Refitting**, page **10A-86**) (20A, Clutch).

FK0 or FK8

❑ Remove:

- the automatic transmission (see **Automatic gearbox: Removal - Refitting**) (23A, Automatic transmission),
- the drive plate (see **Drive plate: Removal - Refitting**) (23A, Automatic transmission).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



128993

❑ Remove the seal (**1**) from the crankshaft on the gearbox side.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the crankshaft seal on the gearbox side.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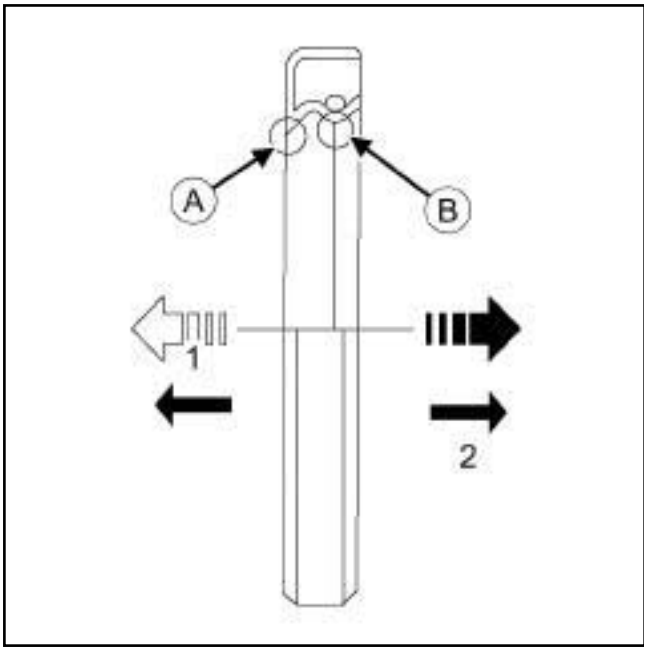
2TR

**II - REFITTING OPERATION FOR PART CONCERNED**




128994

(**A**) Dust seal lip

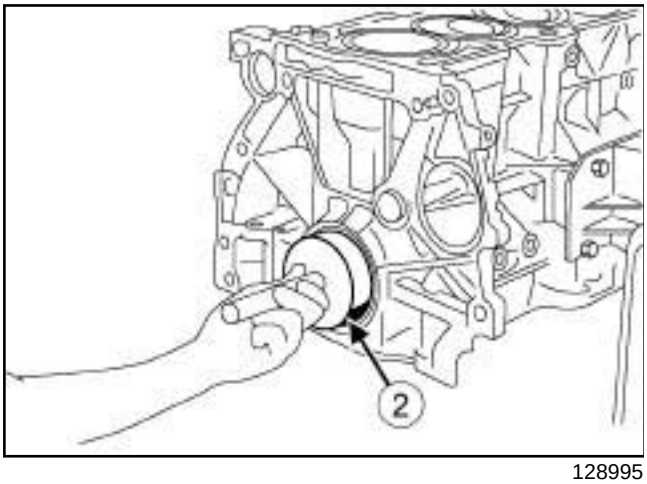
(**B**) Seal lip

⇨ (**1**) Engine exterior

⇨ (**2**) Engine interior

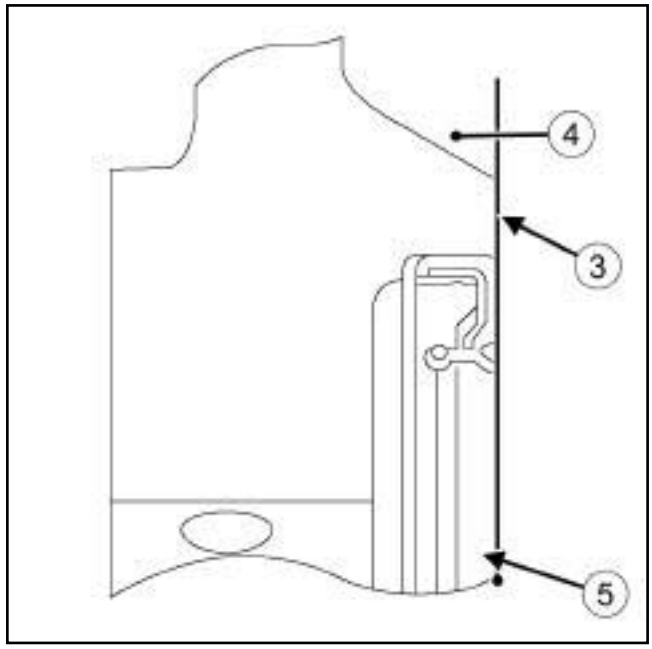
❑ Apply fresh engine oil to the new crankshaft seal on the gearbox side on the mating face and on the seal lip (**A**) , (**B**) .

❑ Refit the crankshaft seal ***(1)*** on the gearbox side, checking the direction of fitting is observed.




128995

❑ Push the crankshaft seal on the gearbox side using the tool (**2**) **(Mot. 1868)**.




128996

(**4**) Gap: 0 ~ 0.5 mm

❑ Check the gap between the crankshaft seal (**5**) on the gearbox side and the cylinder surface (**3**) .

**III - FINAL OPERATION**

ND5 or ND8

❑ Refit:

- the flywheel (see **10A**, **Engine and cylinder block assembly**, **Flywheel: Removal - Refitting**, page **10A-86**) (20A, Clutch),
- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the manual gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).

FK0 or FK8

❑ Refit:

- the drive plate (see **Drive plate: Removal - Refitting**) (23A, Automatic transmission),
- the automatic transmission (see **Automatic gearbox: Removal - Refitting**) (23A, Automatic transmission).



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2TR

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1716** | Removes housing with silicone seals. |

| Tightening torques ▽ | |
|---|---|
| sump bolts | **5 N.m** |
| sump bolts | **16 N.m** |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear protective gloves during the operation.

**WARNING**
Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

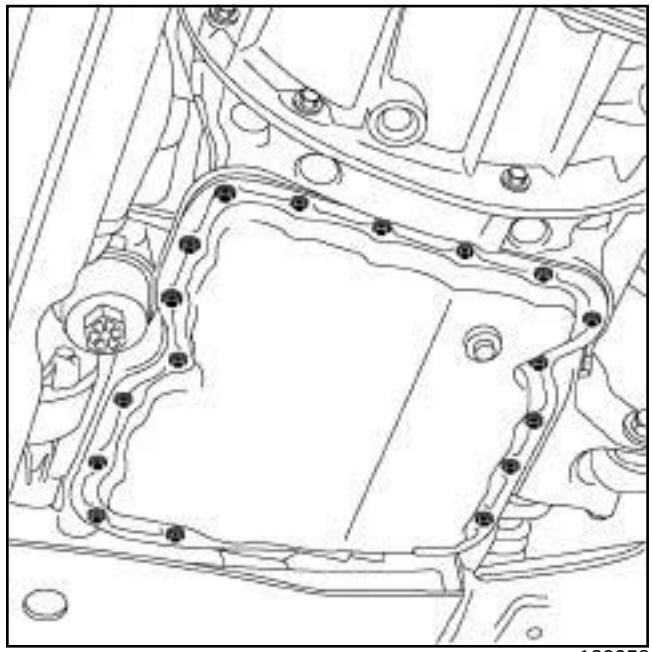
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the oil filler cap equipped with the dipstick,
- the engine undertray.

❏ Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) (10A, Engine and peripherals),

### II - OPERATION FOR REMOVAL OF PART CONCERNED


129058

❏ Remove the sump bolts.

❏ Detach the sump using the **(Mot. 1716)**.

❏ Remove the sump.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**WARNING**
Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

❏ Clean the sump.

❏ Check that the sump is not:

- scratched,
- deformed.

Note:
Always replace the sump if it is scratched or deformed.

❏ Check that the base plate is not scratched.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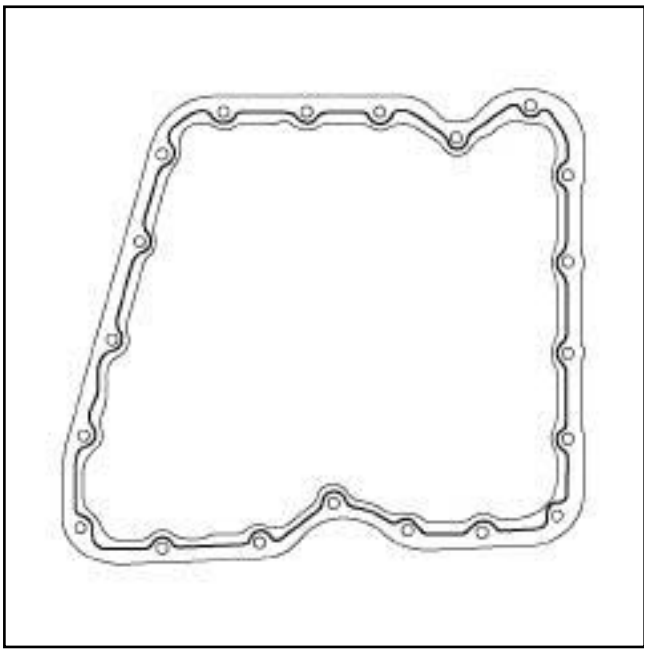
M9R

**II - REFITTING OPERATION FOR PART CONCERNED**



129059

❑

**WARNING**

The joint faces must be clean, dry and free from grease (avoid finger marks).

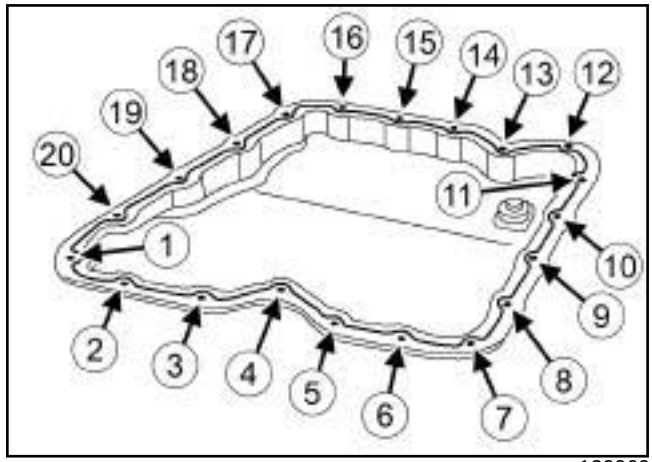
**WARNING**

Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).

❑ Apply a bead of **SILICONE ADHESIVE SEAL** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) with a diameter of **5 mm ± 2 mm** to the sump in order to ensure a good seal.

❑ Fit the lower cover.

❑ Refit the sump bolts.




129060

❑ Pretighten to torque in order the **sump bolts (5 N.m)**.

❑ Torque tighten in order the **sump bolts (16 N.m)**.

**III - FINAL OPERATION.**

❑ Fill up with engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) (10A, Engine and peripherals).

❑ Refit:

- the engine undertray,
- the oil filler cap equipped with the dipstick.

❑ Start the engine and wait until the engine oil warning light goes out.



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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1716** | Removes housing with silicone seals. |

| Tightening torques ▽ | |
|---|---|
| sump bolts | **7 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

Note:

Take care not to burn yourself; engine oil can be very hot.

Prolonged and repeated contact with used engine oil may cause skin cancer.

Avoid all direct skin contact with used engine oil. In the event of contact with the skin, carefully wash the affected area with soap or hand cleaner.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

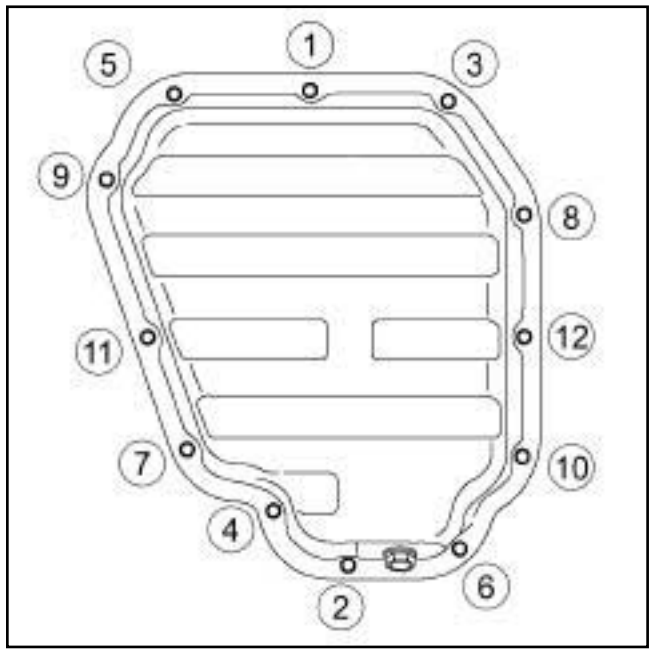
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the engine undertray.

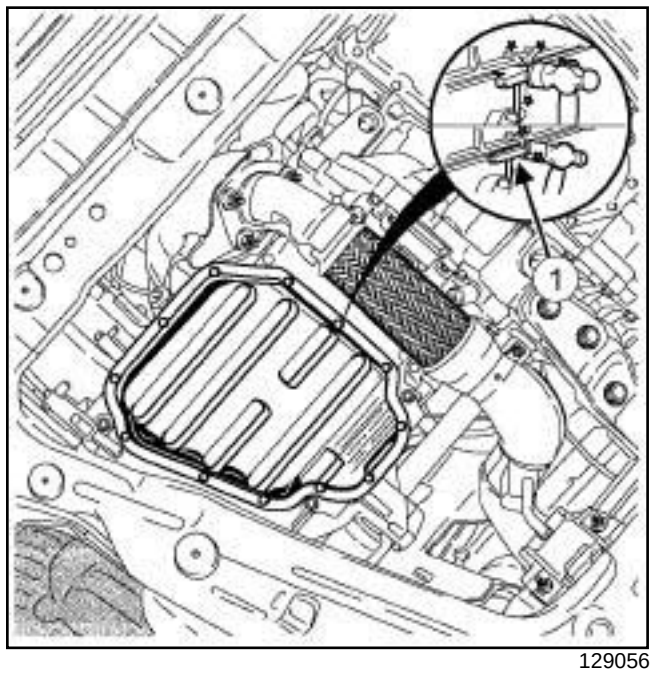
❑ Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129055

❑ Remove the sump bolts in order.




129056

❑ Remove the sump using tool **(Mot. 1716)** (**1**) and a hammer.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2TR

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**IMPORTANT**
Wear goggles with side protectors for this operation.

**WARNING**
Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Clean the sealing surface using the product **SUPER CLEANING AGENT FOR JOINT FACES** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

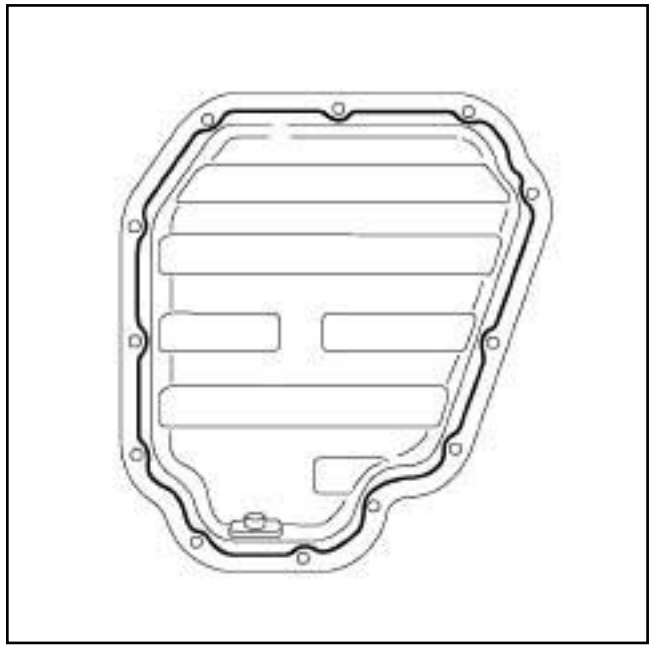
❑ Check that the sump is not:

- scratched,
- deformed.

If this is the case, replace the sump.

❑ Check that the base plate is not scratched.

**WARNING**
Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).



129057

❑ Apply a bead of **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and ingredients for the repairwork**) with a diameter of approximately **5 mm**, approximately **8 mm** away from the inner edge of the sump to ensure a good seal.

Note:
The fitting operation must be performed within 5 minutes following the application of the seal.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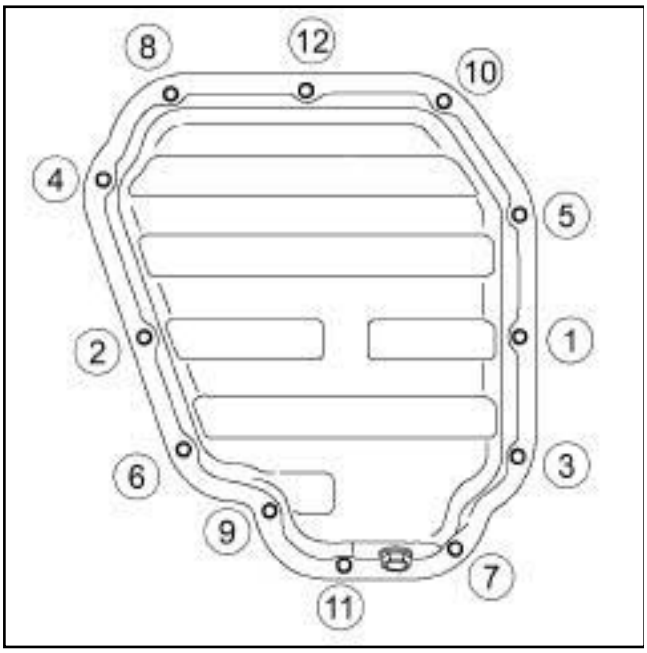
**II - REFITTING OPERATION FOR PART CONCERNED**




129055

- ❏ Refit the sump.
- ❏ Finger tighten in order the sump bolts until contact is made.
- ❏ Torque tighten in order the **sump bolts (7 N.m)**.

**III - FINAL OPERATION**

- ❏

> Note:
>
> Top up the engine oil at least **30 minutes** after the sump has been refitted.

- ❏ Refit the engine undertray.
- ❏ Fill up the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1018** | Sump plug tool. |

| Essential equipment |
|---|
| oil recovery container |
| oil draining wrench |
| torque wrench |
| 8 mm square drain plug socket |

| Tightening torques ▽ | |
|---|---|
| engine oil sump drain plug | **44 N.m** |

| Engine | Average oil capacity (adjust using dipstick) (L) | |
|---|---|---|
| | **Oil change without filter replacement** | **Oil change with filter replacement** |
| M9R | 7.0 | 7.4 |

## I - PRECAUTIONS FOR REPAIR

❑

**WARNING**

Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

## II - PARTS AND CONSUMABLES FOR REPAIR

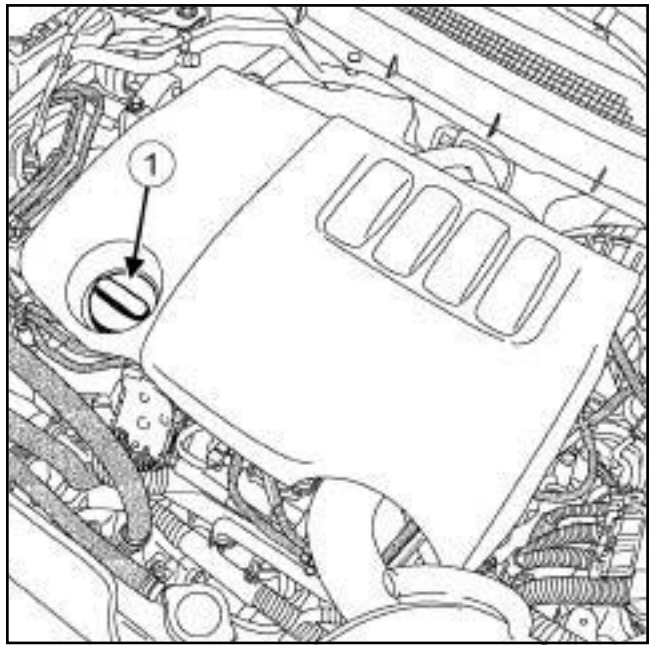
❑ **parts always to be replaced: Engine oil sump drain plug seal (10,03,01,04)**

❑ Consumables:

- engine oil (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

## III - OIL SERVICE

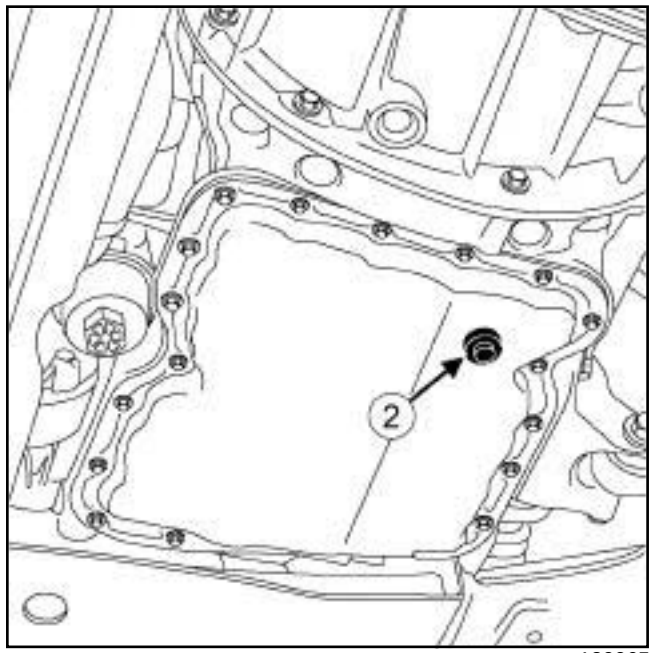
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).




129064

❑ Remove:

- the oil filler cap (**1**) fitted with the dipstick,
- the engine undertray.




129065

❑ Place the **oil recovery container** under the engine oil drain plug (**2**) .

❑ Remove the drain plug ***(2)*** from the engine oil sump using tool **(Mot. 1018)** or an **oil draining wrench**.

❑ Let the engine oil run into the **oil recovery container**.

❑ Remove the drain plug seal.



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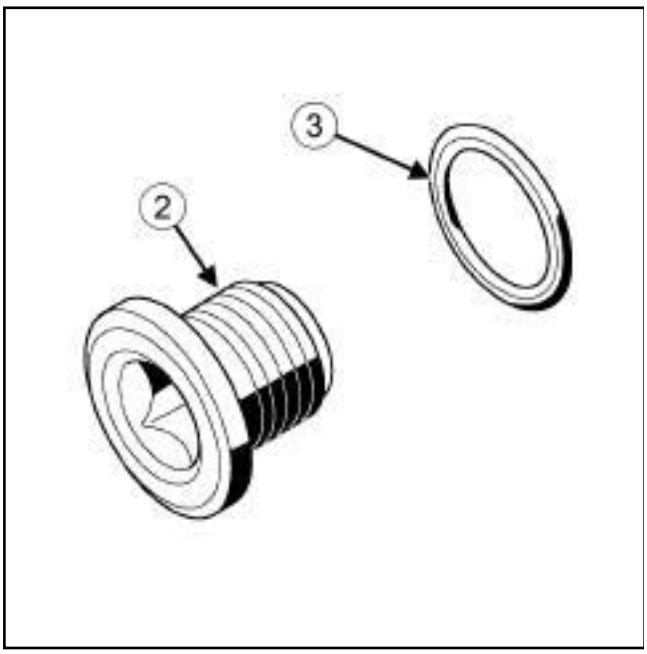
M9R

❑ Clean:

- the drain plug,
- the engine oil sump.




129066

❑ Refit:

- a new seal on the drain plug (**2**) (position the groove (**3**) towards the drain plug),
- the drain plug on the engine oil sump.

❑ Torque tighten the **engine oil sump drain plug (44 N.m)** using a **torque wrench** and a **8 mm square drain plug socket**.

❑ Remove the **oil recovery container**.

❑ Refit the engine undertray.

**IV - FILLING**

❑ Fill up with engine oil, respecting the recommended quantity.

> Note:
>
> When filling up the engine oil, always leave at least **10 minutes** for the oil to drain down before checking the level on the dipstick.

❑ Check the oil level with the dipstick.

❑ Refit the oil filler cap equipped with the dipstick.



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2TR

| Essential equipment |
|---|
| oil recovery container |

| Tightening torques ▽ | |
|---|---|
| drain plug | **34 N.m** |

| **Replacing the engine oil** | **Average oil capacity (check and adjust with dipstick) (l)** |
|---|---|
| With oil filter replacement | 5.1 |
| Without oil filter replacement | 4.8 |
| Dry engine (return to good condition) | 5.9 |

**I - PRECAUTIONS FOR REPAIR**

❑

**IMPORTANT**
Wear heat protective gloves during the operation.

**WARNING**
Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

Note:

Take care not to burn yourself; engine oil can be very hot.

Prolonged and repeated contact with used engine oil may cause skin cancer.

Avoid all direct skin contact with used engine oil. In the event of contact with the skin, carefully wash the affected area with soap or hand cleaner.

**II - PARTS AND CONSUMABLES FOR THE REPAIR**

❑ **parts always to be replaced: Engine oil sump drain plug seal (10,03,01,04)**

❑ Consumables:

- engine oil (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

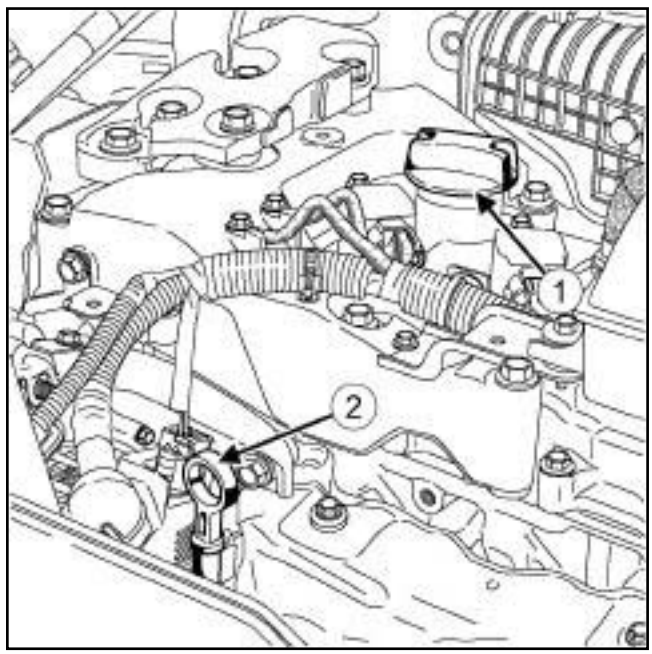
**III - OIL SERVICE**

❑

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the engine cover.



129061

❑ Remove:

- the oil filler cap (**1**) ,
- the dipstick (**2**) .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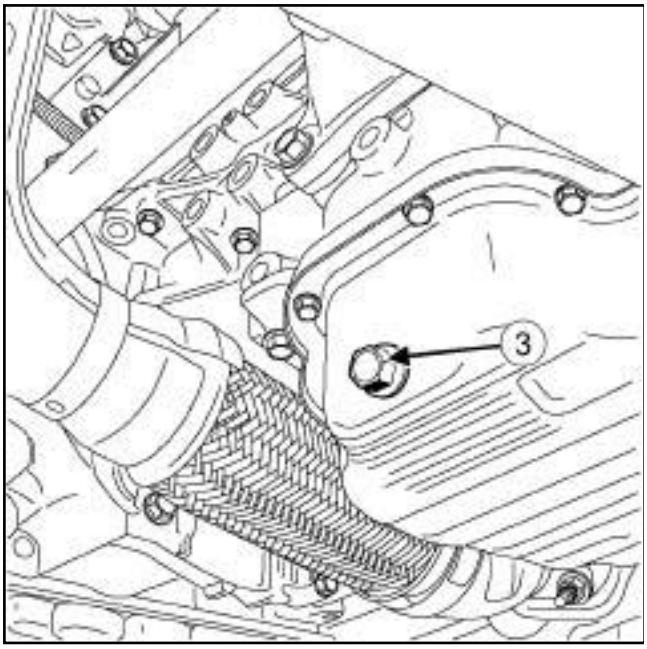
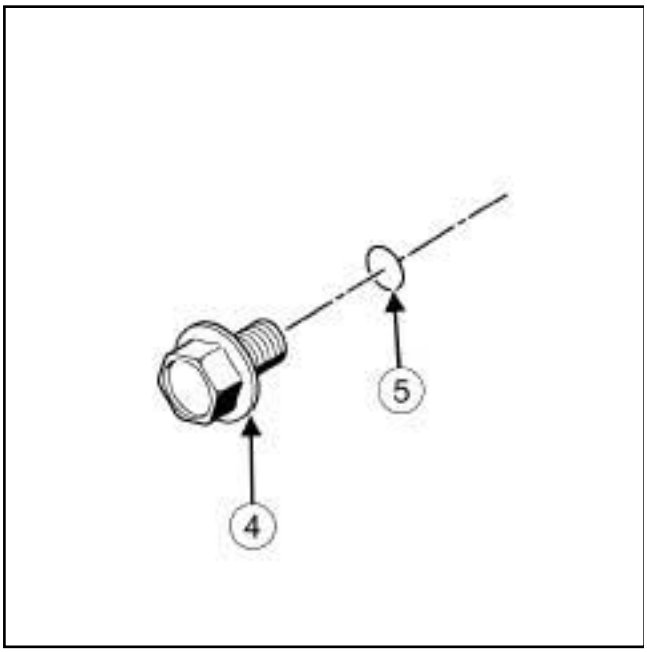
2TR




129062

❑ Remove the drain plug (**3**) .

❑ Let the oil run into a **oil recovery container**.




129063

❑ Refit:

- the new seal (**5**) on the drain plug, observing the direction indicated on the diagram,
- the drain plug (**4**) .

❑ Torque tighten the **drain plug (34 N.m)**.

❑ Wipe the traces of oil around the drain plug in order to be able to detect possible leaks.

**IV - FILLING**

❑ Fill the engine with oil, respecting the recommended quantity.

> Note:
>
> When filling up the engine oil, always allow at least **10 minutes** for the oil to drain down before checking the level with the dipstick.

❑ Check the engine oil level with the dipstick.

❑ Refit:

- the dipstick,
- the oil filler cap,
- the engine cover.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M9R

| Essential equipment |
|---|
| oil recovery container |

| Tightening torques ▽ | |
|---|---|
| oil filter unit cover | **25 N.m** |

**WARNING**

Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

Note:

When filling up the engine oil, always allow at least **10 minutes** for the oil to drain down before checking with a dipstick.

## REMOVAL

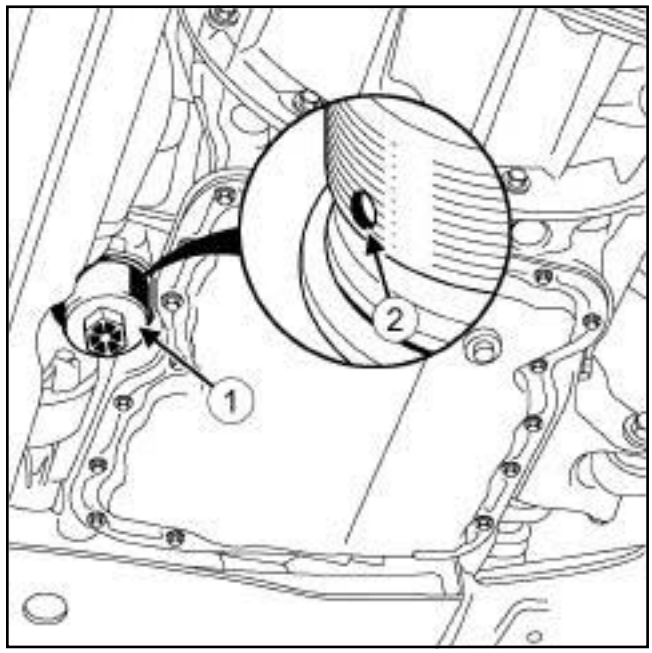
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the engine undertray.

❏ Place the **oil recovery container** under the oil filter.

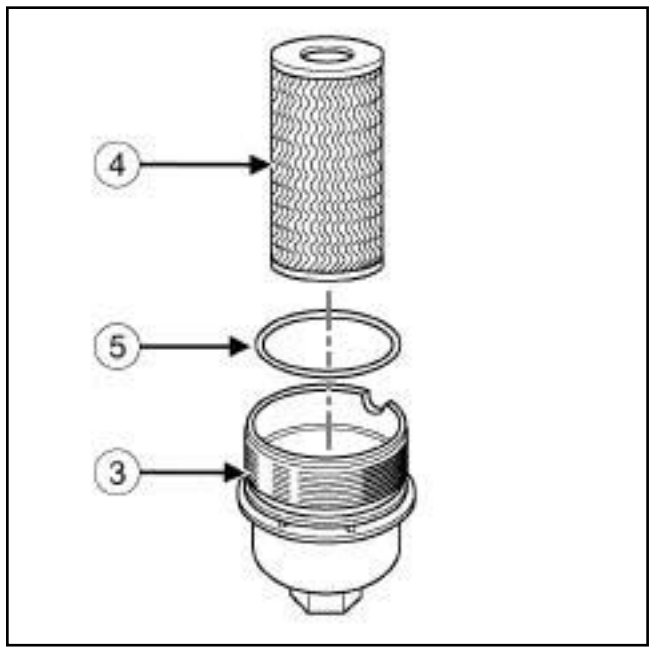
### II - OPERATION FOR REMOVAL OF PART CONCERNED




129070

❏ Undo the oil filter unit cover (**1**) until oil flows through the opening (**2**) .

❏ Allow the oil contained in the oil filter unit to flow.




129071

❏ Remove:

- the cover (**3**) - oil filter (**4**) assembly,
- the cover seal (**5**) .



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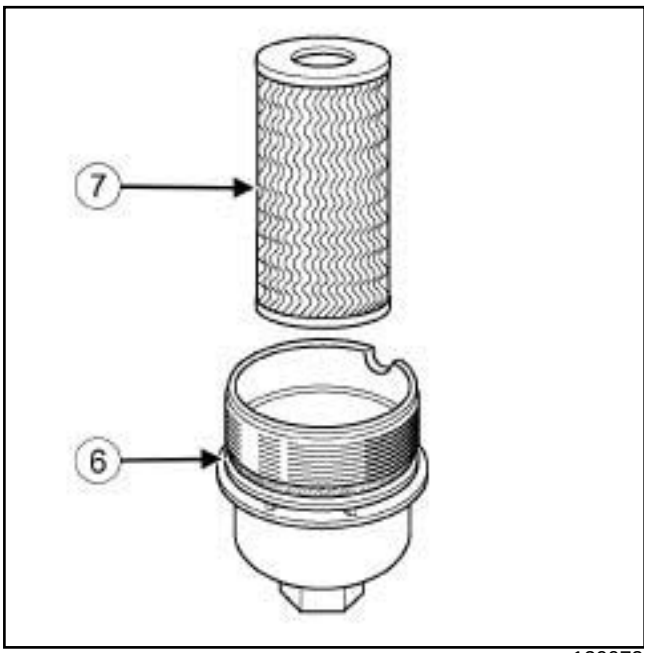
## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ **parts always to be replaced: Oil filter cartridge (10,05,05,04)** thick, to the alternator rotor.

**parts always to be replaced: Oil filter cover seal (10,05,05,10)** thick, to the alternator rotor.

❑ Clean the oil filter unit cover.



129072

❑ Fit:

- a new cover seal (**6**) ,

- a new filter element (**7**) in the cover.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Manually tighten the “cover - oil filter” assembly.

❑ Torque tighten the **oil filter unit cover (25 N.m)**.

### III - FINAL OPERATION.

❑ Refit the engine undertray.

❑ Start the engine and let it run until the oil pressure warning light goes off.

❑ Adjust the engine oil level (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

❑ Refit the "filler cap - dipstick" assembly.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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1654** | Oil filter removing tool, 64 mm diameter. |

| Tightening torques ▽ | |
|---|---|
| oil filter | **18 N.m** |

## REMOVAL

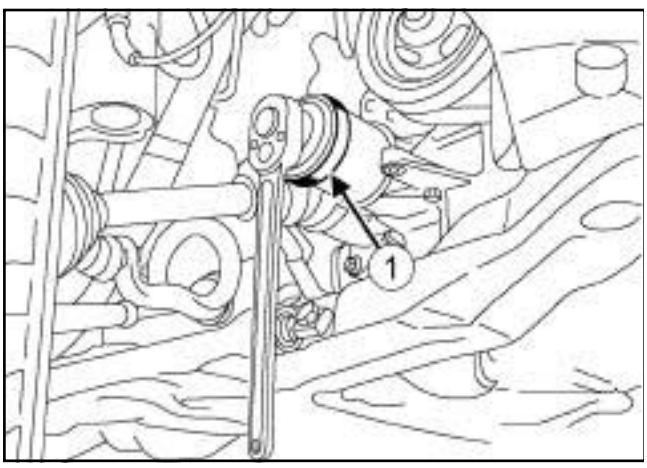
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129067

❏ Fit the **(Mot. 1654)** (**1**) on the oil filter using a ratchet.

❏ Remove the oil filter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

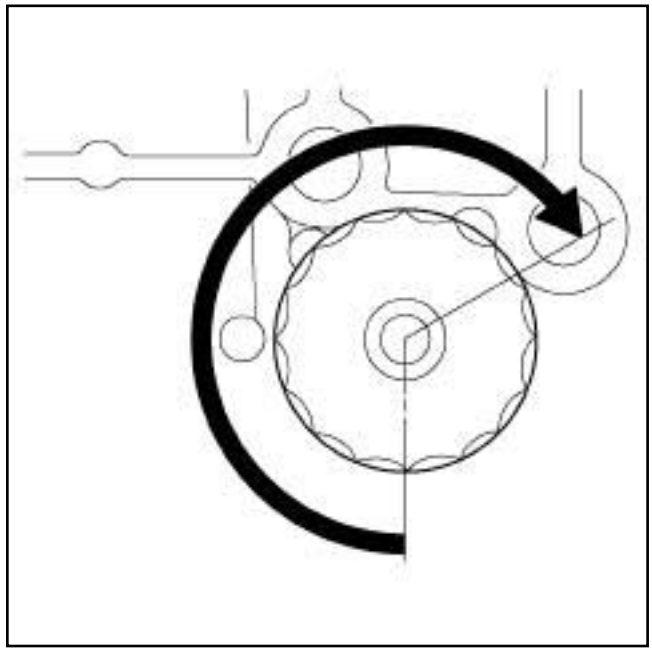
❏ **parts always to be replaced: Oil filter (10,05,05, 03)**

❏ Wipe the oil traces around the oil filter in order to be able to detect possible leaks.

❏ Lubricate the oil filter seal with new engine oil.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Screw on the oil filter until it makes contact.



129069

❏ Torque tighten the **oil filter (18 N.m)**.

### III - FINAL OPERATION

❏ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.

❏ Top up the engine oil if necessary (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .



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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| oil filter unit bolts (initial torque) | **5 N.m** |
| oil filter unit bolts | **25 N.m** |
| alternator positive terminal nut | **10 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

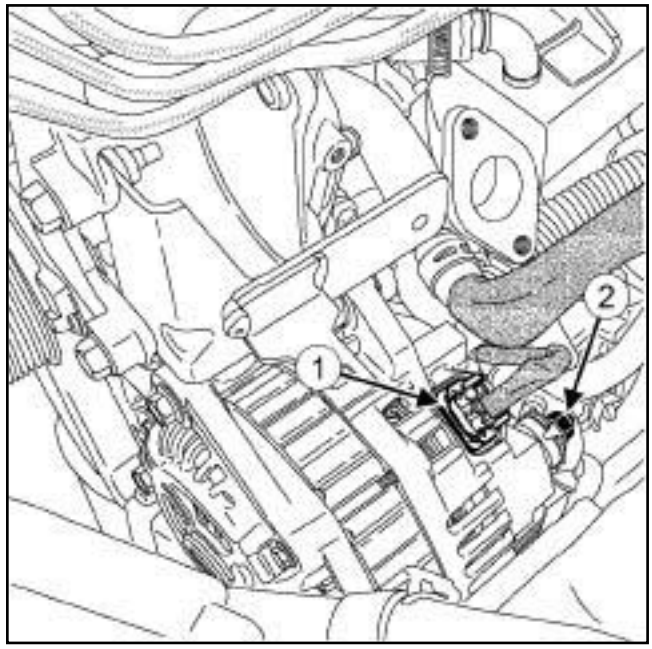
❏ Remove:

- the engine cover,
- the engine undertray.

❏ Drain the engine cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove the engine cooling fan assembly (see **19A**, **Cooling**, **Engine cooling fan assembly: Removal - Refitting**, page **19A-39**) .

❏ Disconnect the oil pressure sensor connector.



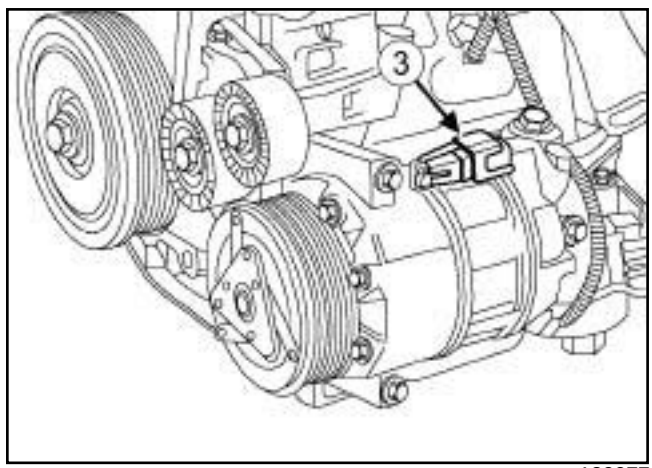

129076

❏ Disconnect the alternator connector (**1**) .

❏ Remove:

- the nut (**2**) from the alternator positive terminal.
- the alternator positive terminal wiring.

AIR CON 01 or AIR CON 02




129077

❏ Disconnect the connector (**3**) from the air conditioning compressor.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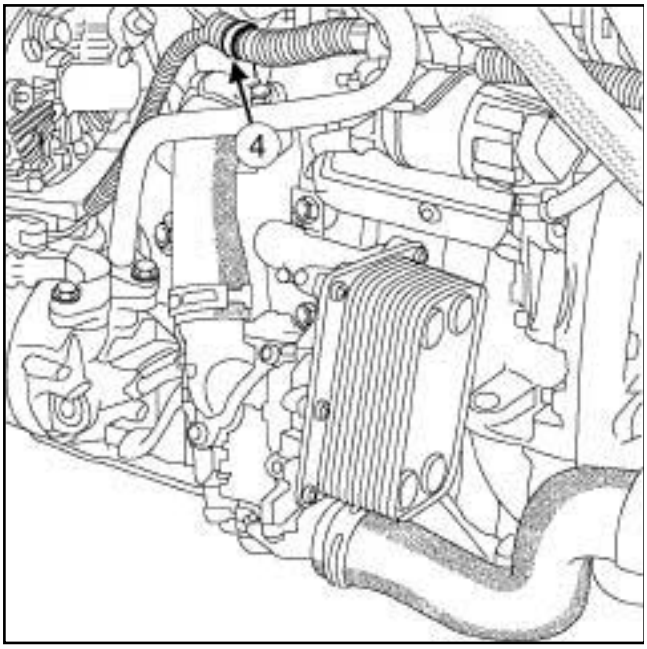
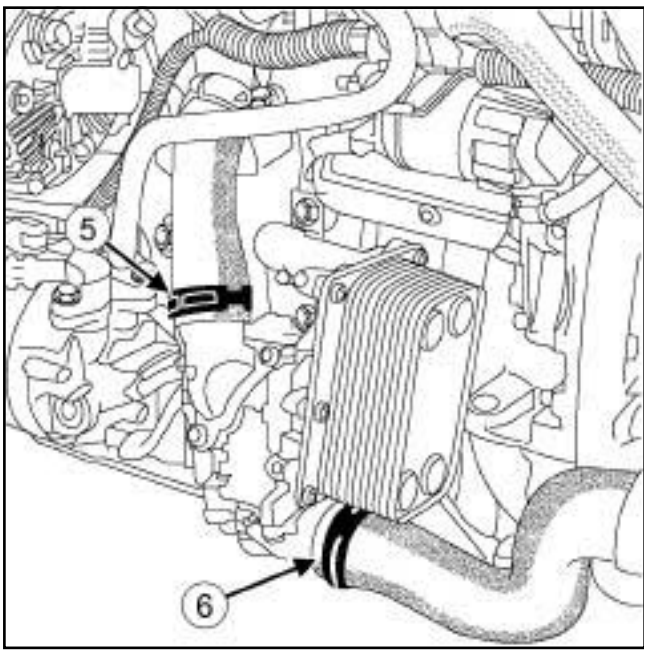


129078

❏ Unclip the wiring at (**4**) .

❏ Move aside the wiring.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

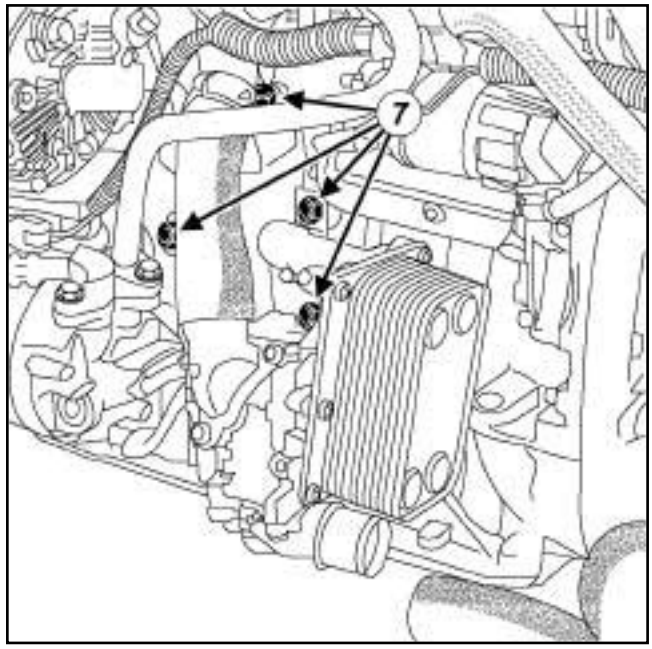


129073

❏ Remove:

- the clamp (**5**) from the oil filter unit coolant outlet union using the **(Mot. 1448)**,
- the clamp (**6**) from the oil filter unit coolant inlet union using the **(Mot. 1448)**.

❏ Disconnect the oil filter unit coolant inlet union hose.



129074

❏ Remove the bolts (**7**) from the oil filter unit.

❏ Disconnect the oil filter unit coolant outlet union hose.

❏ Remove the oil filter unit.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace the oil filter unit seal.

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

Note:
The oil pressure sensor must be replaced if it is removed.

❏ Clean:

- the cylinder block gasket face,
- the oil filter unit seal housing if being reused.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit a new oil filter unit seal.

❏ Connect the coolant outlet union hose to the oil filter unit.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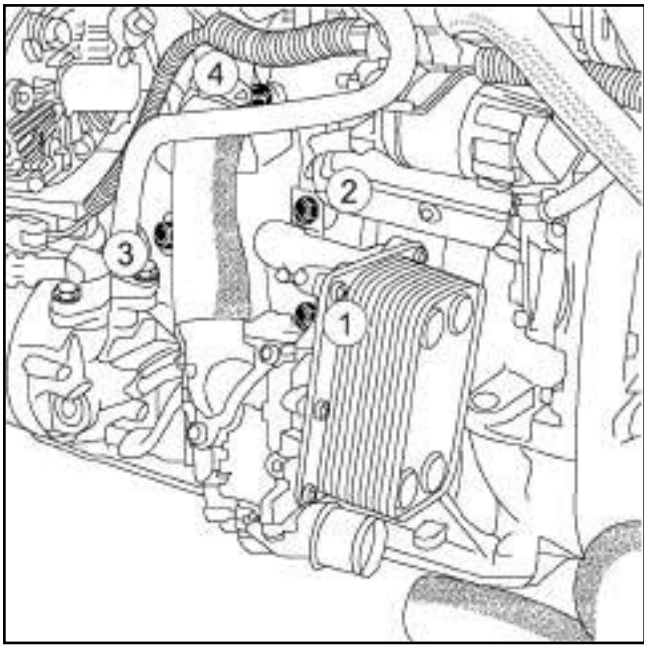
M9R



129074

❑ Refit:

- the oil filter unit,
- the oil filter unit bolts.

❑ Torque tighten in order:

- the **oil filter unit bolts (initial torque) (5 N.m)** ***(2)*** and ***(4)*** ,
- the **oil filter unit bolts (25 N.m)**.

❑ Connect the coolant inlet union hose to the oil filter unit.

❑ Refit:

- the clamp from the oil filter unit coolant outlet union using the **(Mot. 1448)**,
- the clamp from the oil filter unit coolant inlet union using the **(Mot. 1448)**.

**III - FINAL OPERATION**

❑ Clip on the wiring at ***(4)*** .

AIR CON 01 or AIR CON 02

❑ Connect the air conditioning compressor connector.

❑ Refit:

- the alternator positive terminal wiring,
- the alternator positive terminal nut.

❑ Torque tighten the **alternator positive terminal nut (10 N.m)**.

❑ Connect:

- the alternator connector,
- the oil pressure sensor connector.

❑ Refit the engine cooling fan assembly (see **19A**, **Cooling**, **Engine cooling fan assembly: Removal - Refitting**, page **19A-39**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine undertray,
- the engine cover.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# Exchanger: Removal - Refitting

M9R

The oil-water heat exchanger is not sold separately by the Parts Department. To replace it, it is necessary to replace the oil filter unit (see **10A**, **Engine and cylinder block assembly**, **Oil filter unit: Removal - Refitting**, page **10A-24**) .


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2TR

| Tightening torques ▽ | |
|---|---|
| oil-water heat exchanger bolts | **22 N.m** |
| oil pressure sensor | **15 N.m** |
| engine drain plug | **10 N.m** |
| radiator drain plug | **2 N.m** |

**IMPORTANT**
Wear heat protective gloves during the operation.

Note:
Be careful not to burn yourself; the engine oil and coolant can be very hot.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

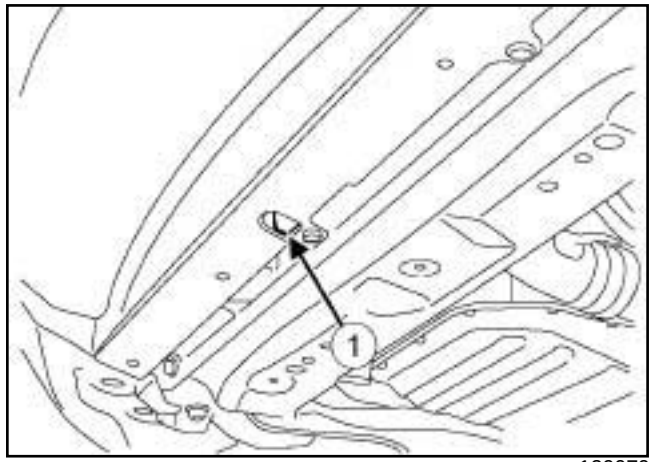
❏

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the engine undertray.

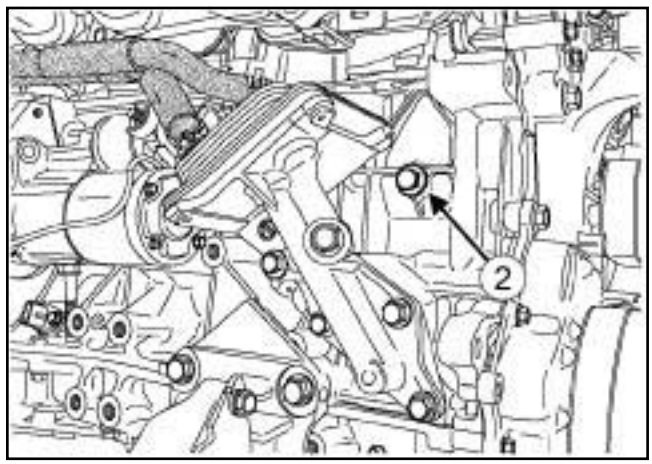


129079

❏ Drain the coolant:

- Open the radiator drain plug (**1**) located at the bottom of the radiator, then remove the radiator cap.

Note:
Let the coolant run into a drain tray.



129080

❏ Remove the engine coolant drain plug (**2**) .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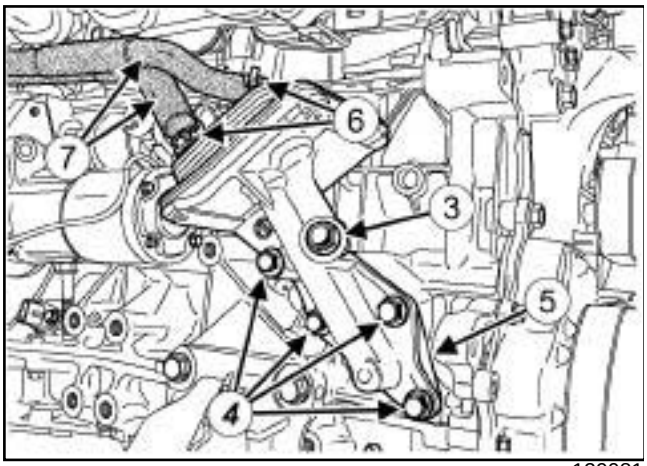
2TR

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129081

❏ Disconnect the oil pressure sensor connector.

❏ Remove:

- the oil pressure sensor ***(3)*** ,
- the bolts ***(4)*** of the oil-water heat exchanger,
- the seal ***(5)*** of the oil-water heat exchanger,
- the hose clips ***(6)*** .

❏ Disconnect the hoses ***(7)*** of the oil-water heat exchanger.

❏ Remove the oil-water heat exchanger.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace the seal of the oil-water heat exchanger.

❏ Use **SUPER RELEASING AGENT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) to clean:

- the threading of the engine coolant drain plug,
- the threading of the oil pressure sensor.

❏ Apply a **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) to:

- the threading of the engine coolant drain plug ***(2)*** ,
- the threading of the oil pressure sensor ***(3)*** .

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Connect the hoses to the oil-water heat exchanger.

❏ Refit:

- the hose clips,
- the new oil-water heat exchanger seal,
- the oil-water heat exchanger,
- the bolts of the oil-water heat exchanger,
- the oil pressure sensor.

❏ Torque tighten:

- the **oil-water heat exchanger bolts (22 N.m)**,
- the **oil pressure sensor (15 N.m)**.

❏ Connect the oil pressure sensor connector.

**III - FINAL OPERATION**

❏ Refit:

- the engine drain plug ***(2)*** ,
- the radiator drain plug ***(1)*** .

❏ Torque tighten:

- the **engine drain plug (10 N.m)**,
- the **radiator drain plug (2 N.m)**.

❏ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Check the engine oil level.

❏ Top up the engine oil if necessary (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❏ Fill the cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

❏ Bleed the cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

❏ Refit the engine undertray.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M9R

| Tightening torques ▽ | |
|---|---|
| oil pressure sensor | **40 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the engine cover,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

129084

❏ Disconnect the oil pressure sensor connector.

❏ Remove the oil pressure sensor (**1**) using a long socket with a diameter of **22 mm**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the oil pressure sensor.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the oil pressure sensor.

❏ Torque tighten the **oil pressure sensor (40 N.m)** using a long socket with a diameter of **22 mm**.

❏ Connect the oil pressure sensor connector.

### III - FINAL OPERATION

❏ Refit:

- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the engine cover.


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2TR

| Tightening torques ▽ | |
|---|---|
| oil pressure sensor | **15 N.m** |

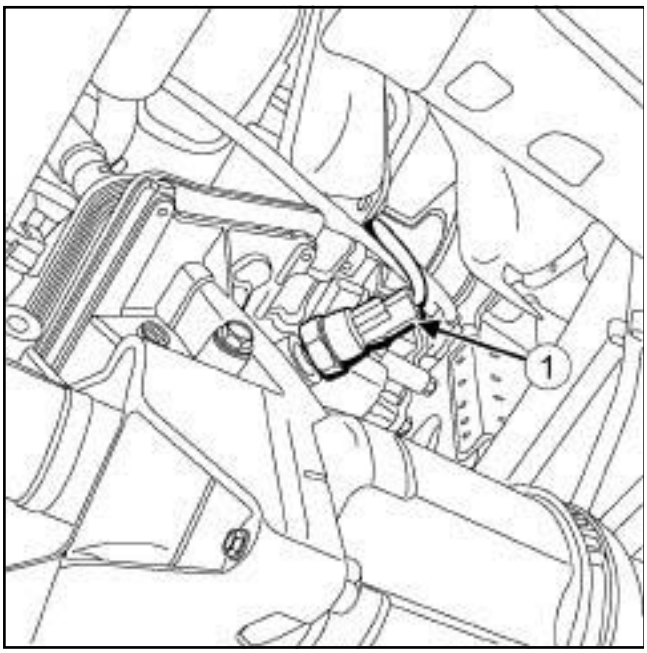
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

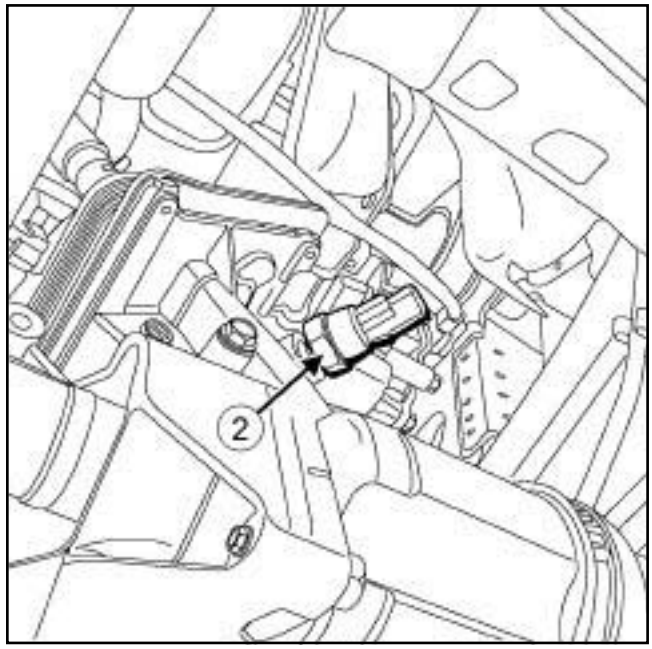
❏ Remove the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129082

❏ Disconnect the oil pressure sensor connector (**1**) .



129083

❏ Remove the oil pressure sensor (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean the threading of the oil pressure sensor using a **SUPER RELEASING AGENT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables Products).

❏ Coat the threading of the oil pressure sensor with **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the oil pressure sensor.

❏ Tighten to torque the **oil pressure sensor (15 N.m)**.

❏ Connect the oil pressure sensor connector.

### III - FINAL OPERATION

❏ Refit the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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M9R

| Tightening torques ▽ | |
|---|---|
| oil level sensor | **20 N.m** |

## REMOVAL

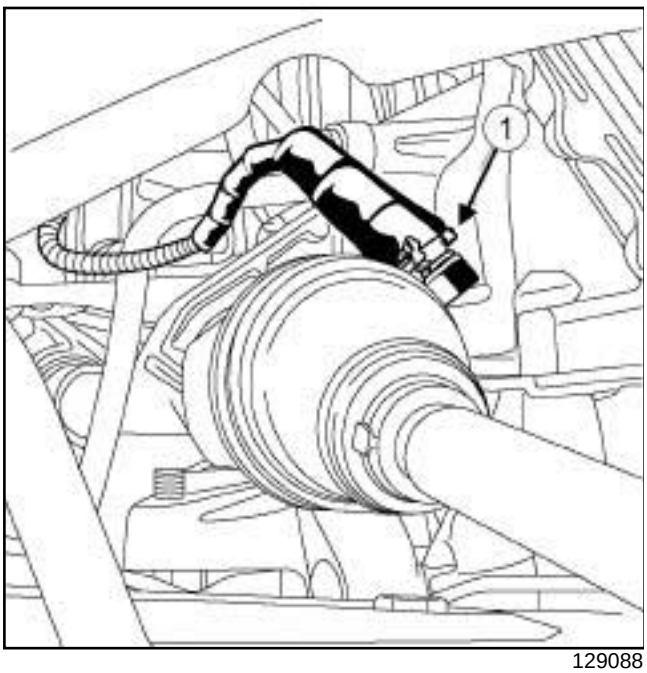
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129088

❏ Disconnect the oil level sensor connector (**1**) .

❏ Remove the oil level sensor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the oil level sensor.

❏ Torque tighten the **oil level sensor (20 N.m)**.

❏ Connect the oil level sensor connector.

### II - FINAL OPERATION.

❏ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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2TR

| Tightening torques ▽ | |
|---|---|
| oil level sensor bolt | **6 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

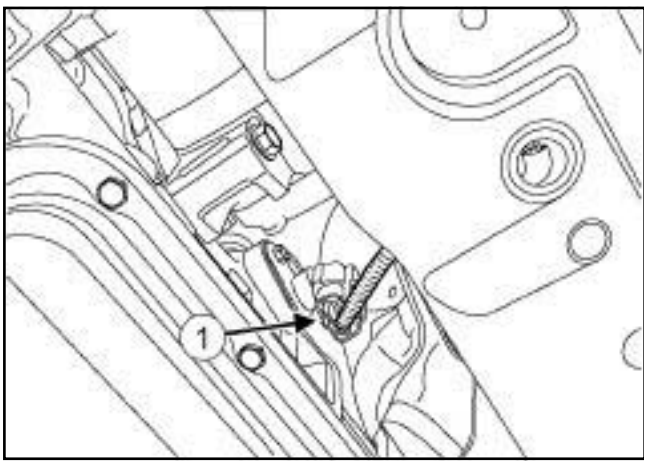
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

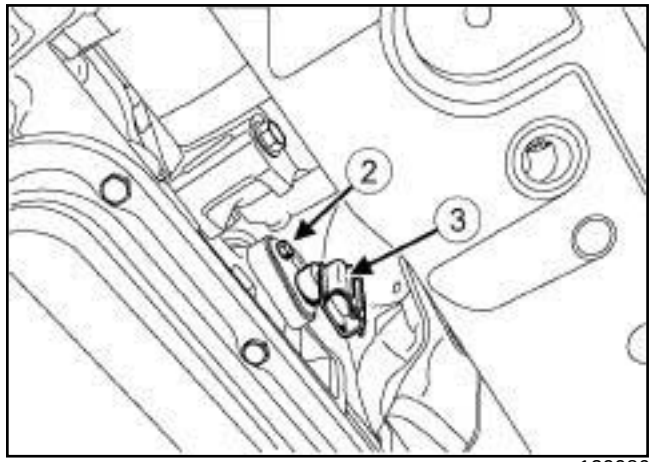
❏ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129085

❏ Disconnect the oil level sensor connector (**1**) .




129086

❏ Remove:

- the oil level sensor bolt (**2**) ,
- the oil level sensor (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the oil level sensor,
- the oil level sensor bolt.

❏ Torque tighten the **oil level sensor bolt (6 N.m)**.

❏ Connect the oil level sensor connector.

### II - FINAL OPERATION

❏ Refit the engine undertray.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M9R

| Tightening torques ▽ | |
|---|---|
| oil pump bolts on the cylinder block | **25 N.m** |
| oil splash plate bolt on the oil pump | **10 N.m** |
| bolts of the oil strainer | **10 N.m** |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear latex gloves during the operation.

**WARNING**
Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

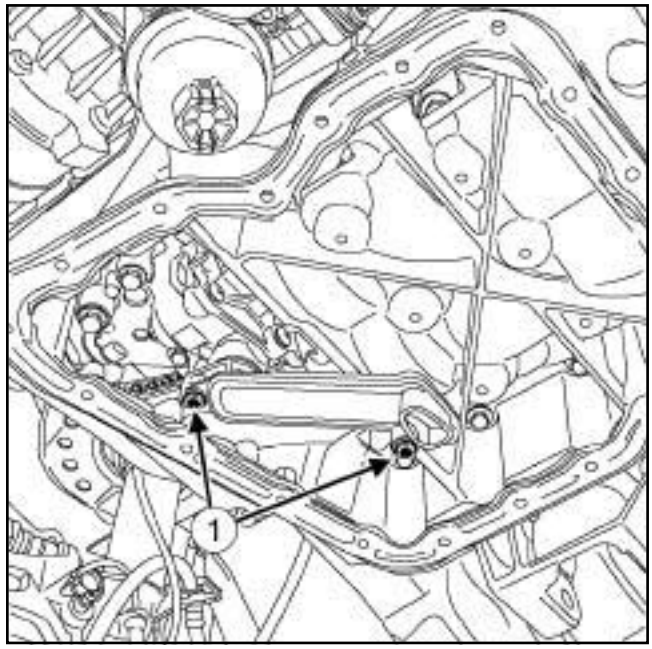
❑ Remove:

- the oil filler cap equipped with the dipstick,
- the engine undertray.

❑ Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❑ Remove:

- the sump (see **10A**, **Engine and cylinder block assembly**, **Sump: Removal - Refitting**, page **10A-12**) ,
- the oil level sensor (see **10A**, **Engine and cylinder block assembly**, **Oil level sensor: Removal - Refitting**, page **10A-32**) .

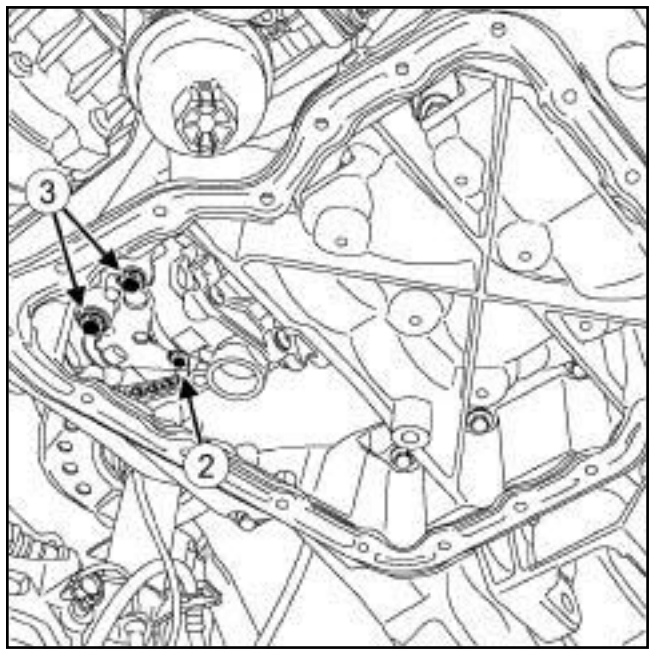


129092

❑ Remove:

- the bolts (**1**) from the oil strainer,
- the oil strainer,
- the seal of the oil strainer.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129093

❑ Remove:

- the oil splash plate bolt (**2**) on the oil pump,
- the oil pump bolts (**3**) from the cylinder block,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- the oil pump.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

❑ Clean the sump.

Note:
Always replace the sump if it is scratched or deformed.

❑ Check that the sump is not:

- scratched,
- deformed.

❑ Check that the base plate is not scratched.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the oil pump.

Note:
If necessary, use a locally produced hook to fit the oil pump chain to the oil pump pinion.

❑ Refit:

- the oil pump bolts on the cylinder block,
- the oil splash plate bolt on the oil pump.

❑ Torque tighten:

- the **oil pump bolts on the cylinder block (25 N.m)**,
- the **oil splash plate bolt on the oil pump (10 N.m)**.

### III - FINAL OPERATION.

❑ Refit:

- the new oil strainer seal,
- the oil strainer,
- the bolts of the oil strainer.

❑ Torque tighten the **bolts of the oil strainer (10 N.m)**.

❑ Refit:

- the oil level sensor (see **10A**, **Engine and cylinder block assembly**, **Oil level sensor: Removal - Refitting**, page **10A-32**) ,
- the sump (see **10A**, **Engine and cylinder block assembly**, **Sump: Removal - Refitting**, page **10A-12**) .

❑ Top up the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❑ Refit:

- the engine undertray,
- the oil filler cap equipped with the dipstick.

❑ Start the engine and wait until the engine oil warning light goes out.


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2TR

| Tightening torques ▽ | |
|---|---|
| coolant pump cover bolts | **7 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

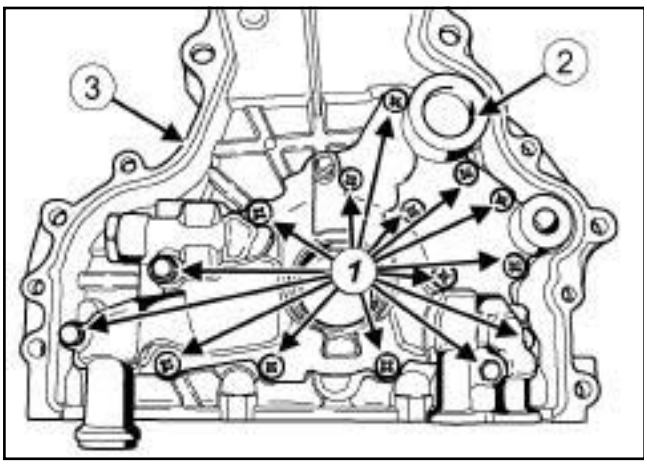
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Place the engine on a support (see **Engine: Dismantling**) (Technical Note 6045A, 10A, Engine and peripherals).

❑ Remove the timing cover (see **Timing chain: Removal**) (Technical Note 6045A, 10A, Engine and peripherals).

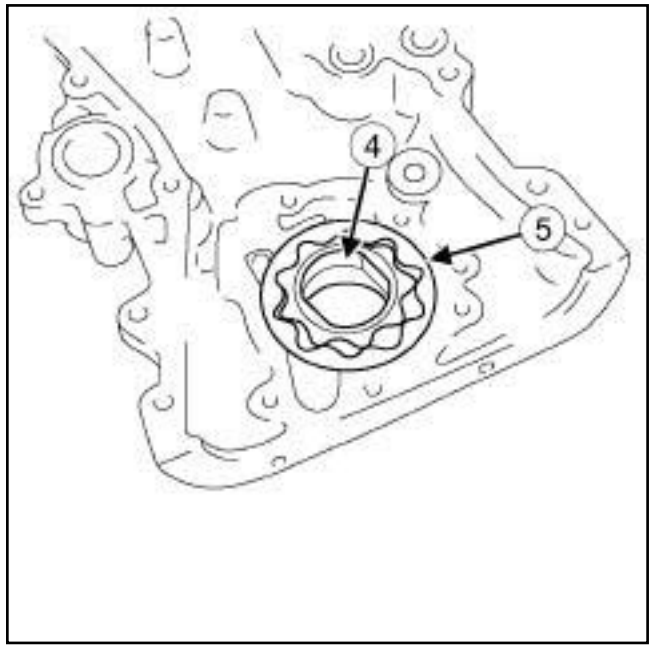
### II - OPERATION FOR REMOVAL OF PART CONCERNED




129089

❑ Remove:

- the oil pump cover bolts (**1**) ,
- the oil pump cover (**2**) from the timing cover (**3**) .



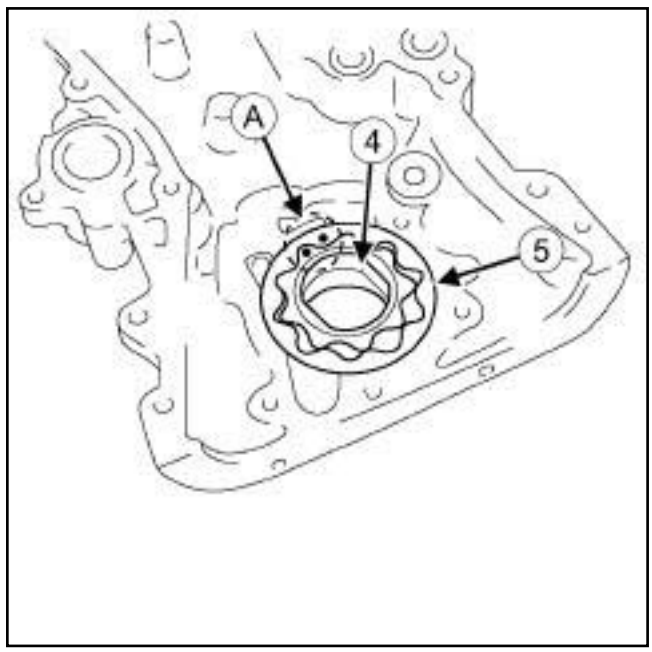

129090

❑ Remove:

- the internal rotor (**4**) ,
- the external rotor (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




129091

❑ Refit:

- the external rotor (**5**) ,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- the internal rotor (**4**) with the punched marks (**A**) as illustrated,
- the oil pump cover ***(2)*** on the timing cover ***(3)*** .

❑ Torque tighten the **coolant pump cover bolts (7 N.m)**.

**II - FINAL OPERATION.**

❑ Refit the timing cover (see **Timing chain: Refitting**) (Technical Note 6045A, 10A, Engine and peripherals).


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 836-05** | Oil pressure gauge kit. |
| **Mot. 1495-01** | 22 mm socket for removing/ refitting oxygen sensors. |

**WARNING**

Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

Note:

When topping up the engine oil, always leave at least **10 minutes** before checking the level with a dipstick.

It is essential to monitor the engine oil pressure as the engine oil temperature rises (approximately **80°C** or the first time the engine cooling fan is activated).

**I - PARTS AND CONSUMABLES FOR THE REPAIR**

❑ Always replace:

- the drain plug seal (in the event of an oil change),
- oil filter (if removed).

❑ Consumables:

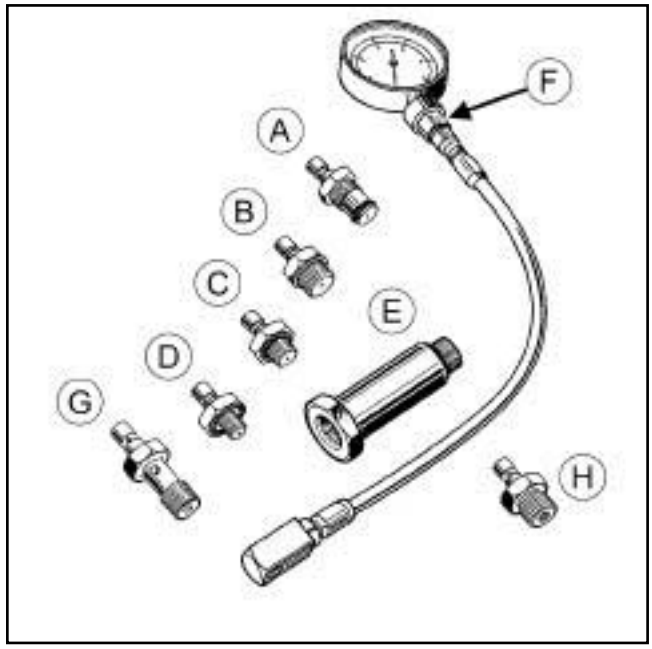
- the engine oil (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

**II - CHECKING**

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the engine cover,
- the engine undertray,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the oil pressure sensor (see **10A**, **Engine and cylinder block assembly**, **Oil pressure sensor: Removal - Refitting**, page **10A-30**) .

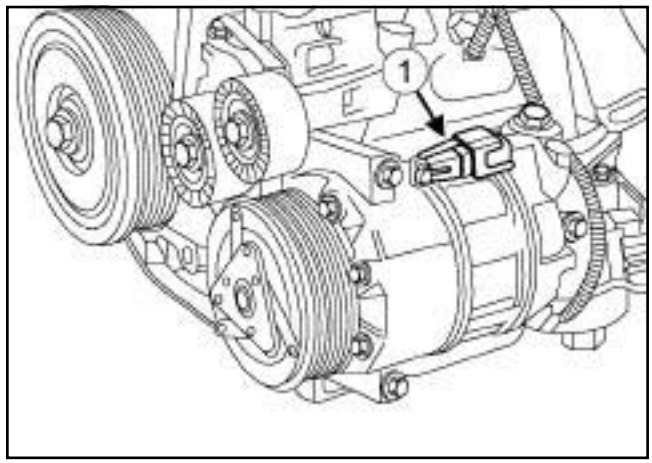



129096

❑ Place the oil pressure measurement tool **(Mot. 836-05)** with the correct end pieces in place of the oil pressure sensor using the tool **(Mot. 1495-01)** or a **22 mm** long socket.

❑ End pieces: (**C**) + (**F**) .

AIR CON 01 or AIR CON 02




129097

❑ Disconnect the connector from the air conditioning compressor (**1**) .

❑ Refit the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .

❑ Start the engine.



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M9R

❑ Monitor the engine oil pressure as the oil temperature rises (approximately **80°C** or the first time the engine cooling fan is activated); it should not be less than the pressure at idle speed.

❑ Measure the pressure which should be:

- at idle speed: **1.4 bar**,
- at 3000 rpm: **4.7** to **6.4 bar**.

❑ Switch off the ignition.

❑ Remove the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .

AIR CON 01 or AIR CON 02

❑ Connect the air conditioning compressor connector.

❑ Remove the tool **(Mot. 836-05)** with the end parts.

❑ Refit the oil pressure sensor (see **10A**, **Engine and cylinder block assembly**, **Oil pressure sensor: Removal - Refitting**, page **10A-30**) .

❑ Wipe any oil run-off with a cloth.

❑ Wait for at least **10 minutes**.

❑ Check the engine oil level using the dipstick.

❑ Top up the engine oil if necessary (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❑ Refit the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .

❑ Start the engine and check that there are no oil leaks at the oil pressure sensor.

❑ Refit:

- the engine undertray,
- the engine cover.


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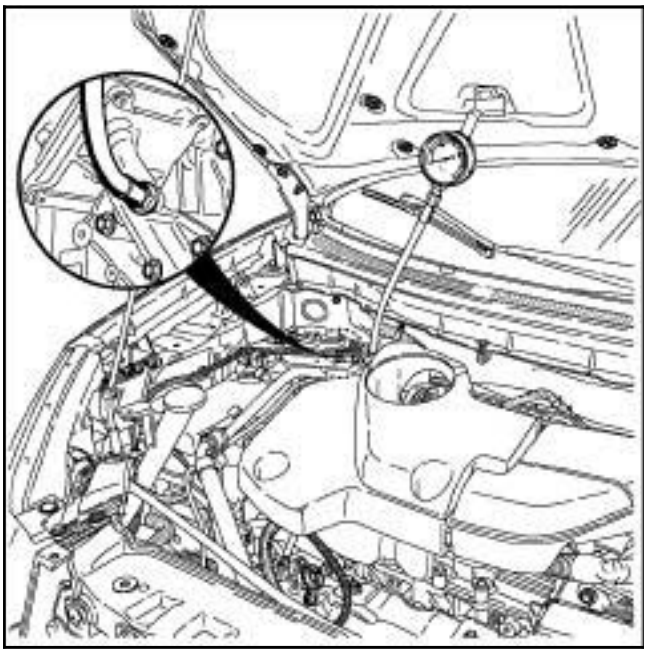
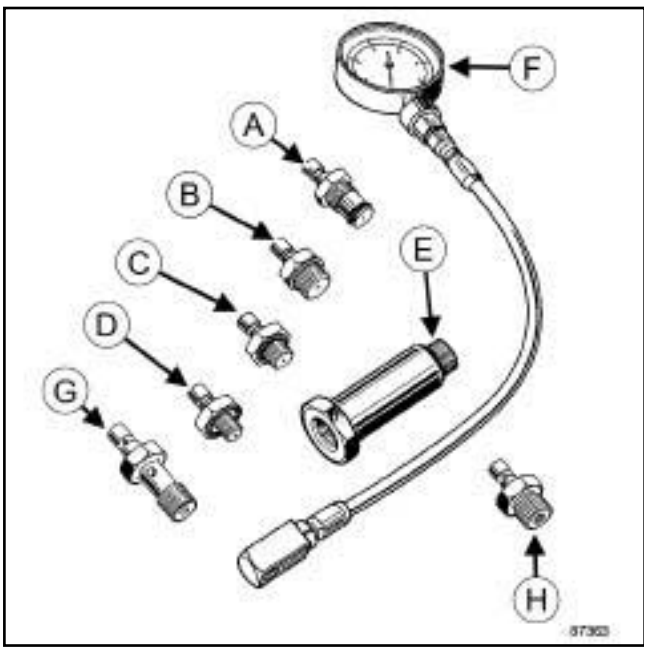
2TR

| Essential special tooling | |
|---|---|
| **Mot. 836-05** | Oil pressure gauge kit. |

**CHECKING**



129094




87363

❏ Use the tool **(Mot. 836-05)** and a **27 mm** long socket.

❏ Check the oil pressure when the engine is warm (approximately **80°C**).

❏ Remove the oil pressure sensor (see **10A**, **Engine and cylinder block assembly**, **Oil pressure sensor: Removal - Refitting**, page **10A-30**) .

❏ Fit the end piece ***(D)*** of tool **(Mot. 836-05)** in place of the oil pressure sensor.

❏ End pieces: ***(D)*** + ***(F)***

❏ 2TR engine:

- Idle speed: more than **0.98 bar**

- 2000 rpm: more than **2.94 bar**.

❏ Remove the end piece ***(D)*** of tool **(Mot. 836-05)** from the position of the oil pressure sensor.

❏ Refit the oil pressure sensor (see **10A**, **Engine and cylinder block assembly**, **Oil pressure sensor: Removal - Refitting**, page **10A-30**) .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M9R

| Tightening torques ▽ | |
|---|---|
| bolts of the multifunction support | **44 N.m** |
| air conditioning compressor bolts | **25 N.m** |
| bolts of the expansion bottle pipe support | **25 N.m** |
| clip of the intercooler air outlet pipe | **6 N.m** |
| bolt of the intercooler air outlet pipe | **8 N.m** |

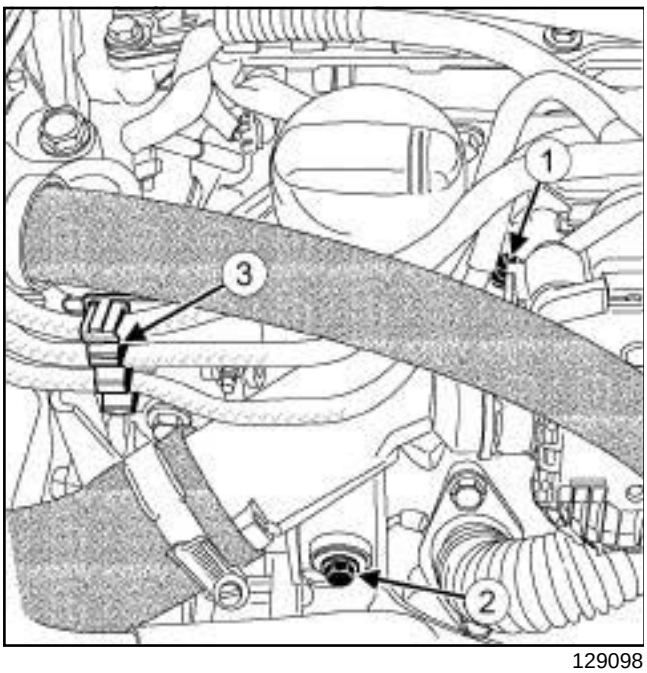
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine cover.




129098

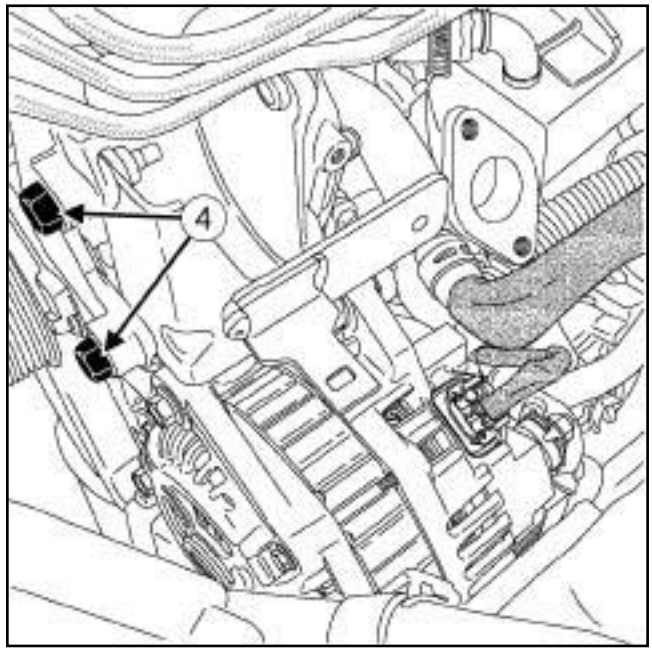
❏ Loosen the clip (**1**) on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt ***(2)*** .

❏ Disconnect the intercooler air outlet pipe from the damper valve.

❏ Move the intercooler air outlet pipe to one side.

❏ Unclip the fuel pipe from the support ***(3)*** .




129099

❏ Remove:

- the bolts (**4**) of the expansion bottle pipe support,
- the support of the expansion bottle pipe,
- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .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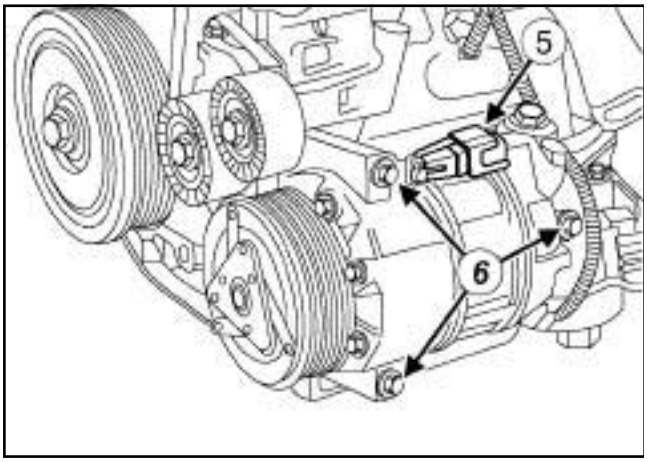
AIR CON 01 or AIR CON 02



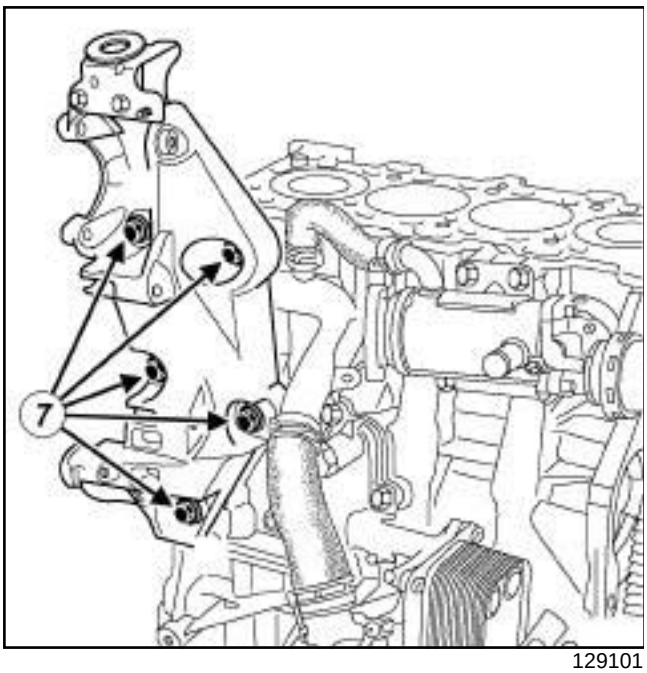

129077

❏ Disconnect the connector (**5**) from the air conditioning compressor.

❏ Remove the bolts (**6**) from the air conditioning compressor.

❏ Move aside the air conditioning compressor.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



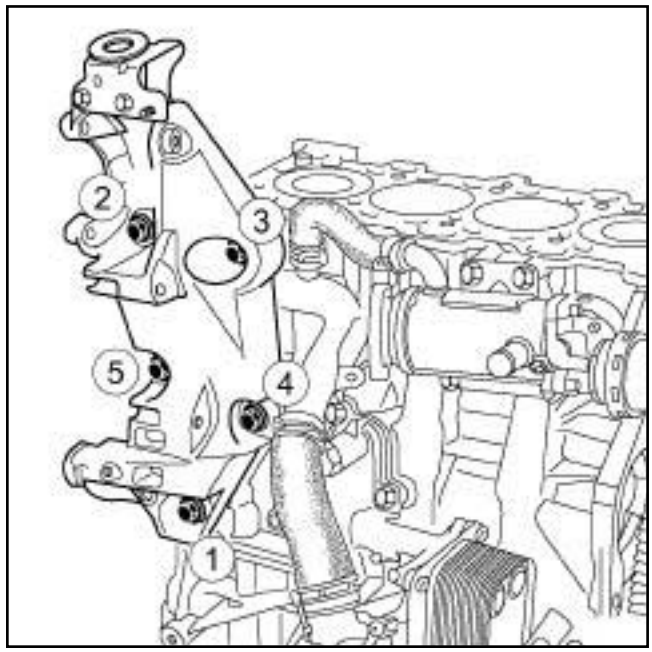

129101

❏ Remove:

- the multifunction support bolts (**7**) ,
- the multifunction support.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**




129101

❏ Position the multifunction support.

❏ Without tightening, refit in order the bolts of the multifunction support.

❏ Torque tighten in order the **bolts of the multifunction support (44 N.m)**.

**II - FINAL OPERATION**

AIR CON 01 or AIR CON 02

❏ Fit the air conditioning compressor.

❏ Refit the air conditioning compressor bolts.

❏ Torque tighten the **air conditioning compressor bolts (25 N.m)**.

❏ Connect the air conditioning compressor connector.

❏ Refit:

- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,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- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray,
- the support of the expansion bottle pipe,
- the bolts of the expansion bottle pipe support.

❏ Torque tighten the **bolts of the expansion bottle pipe support (25 N.m)**.

❏ Clip the fuel pipe onto the support.

❏ Connect the intercooler air outlet pipe to the damper valve.

❏ Torque tighten the **clip of the intercooler air outlet pipe (6 N.m)**.

❏ Refit the intercooler air outlet pipe bolt.

❏ Torque tighten the **bolt of the intercooler air outlet pipe (8 N.m)**.

❏ Refit the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1390** | Support for removing/refitting the engine - gearbox assembly. |
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Essential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| left-hand suspended engine mounting bolts | **110 N.m** |
| left-hand suspended engine mounting bolts | **110 N.m** |
| right-hand suspended engine mounting bolts | **55 N.m** |
| upper engine tie-bar bolt | **120 N.m** |
| upper engine tie-bar bolt | **120 N.m** |
| earth strap bolt | **14 N.m** |
| automatic gearbox coolant pipes | **25 N.m** |
| earth strap bolt | **14 N.m** |
| air filter unit support bolts | **10 N.m** |
| heater matrix coolant outlet pipe bolt | **25 N.m** |
| automatic gearbox control cable nut | **14 N.m** |
| heater matrix inlet pipe bolt | **25 N.m** |
| heater matrix coolant outlet pipe bolt | **25 N.m** |
| automatic gearbox computer mounting bolts | **27 N.m** |
| wiring bracket bolts | **10 N.m** |

| Tightening torques ▽ | |
|---|---|
| air filter unit air outlet pipe clips | **5 N.m** |
| bolt on the turbocharging pressure regulation actuating solenoid valve support | **10 N.m** |
| support bolt of the manual priming pump | **12 N.m** |
| intercooler air outlet pipe bolt | **8 N.m** |
| clip of the intercooler air outlet pipe clip | **6 N.m** |
| fuel pipe support bolt | **10 N.m** |
| compressor pipe union bolts | **4 N.m** |
| intercooler air inlet pipe clip | **6 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Vehicle: Precautions for repair**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the engine cover,
- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit.


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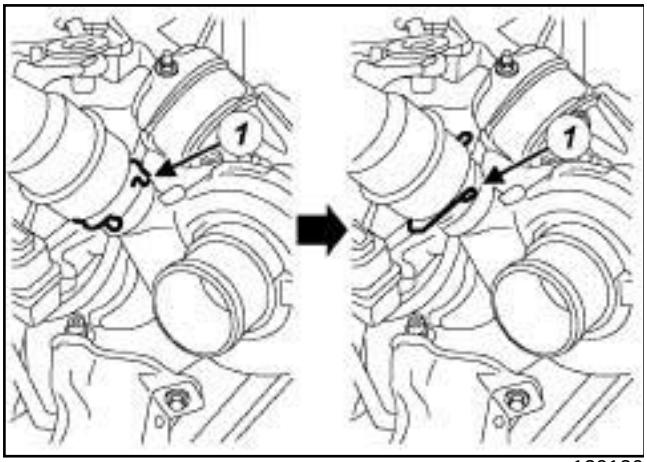
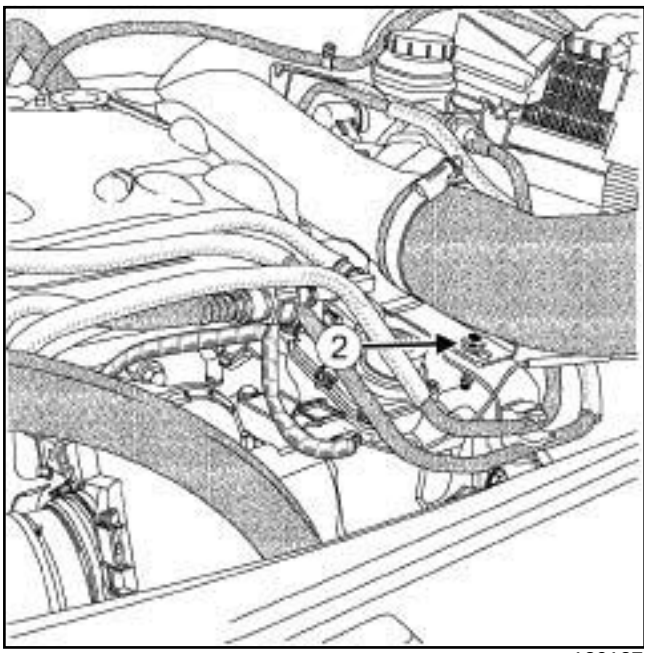


129126

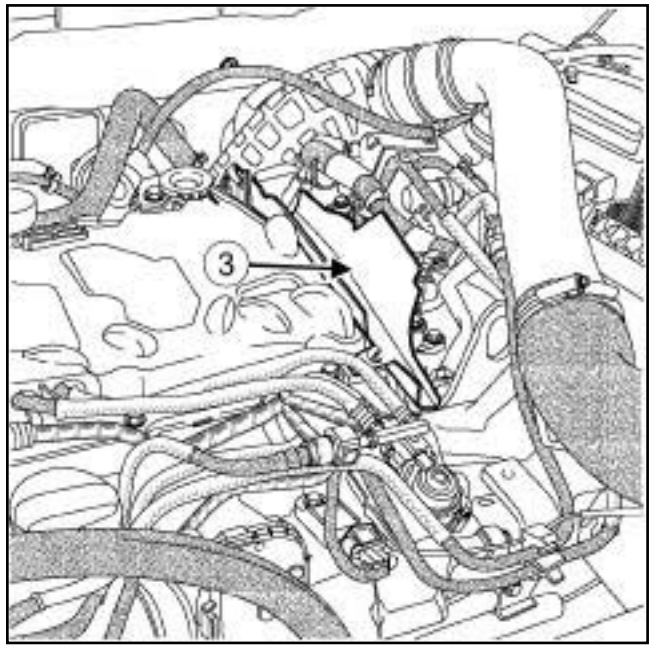
❏ Rotate the intercooler air inlet pipe clip (**1**) .



129127

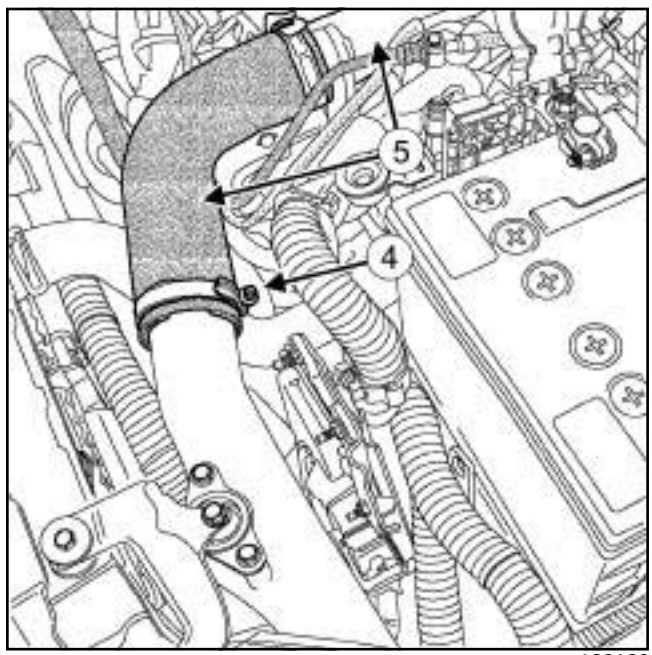
❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel supply pipe bracket.

❏ Move the intercooler air inlet pipe to one side.



129128

❏ Remove the protective plate (**3**) from the injector rail protector.



129129

❏ Loosen the clip (**4**) on the intercooler air inlet pipe.

❏ Disconnect the « intercooler air inlet pipe - duct » assembly (**5**) .

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).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M9R

AIR CON 01 or AIR CON 02

❑ Drain the refrigerant circuit (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❑ Remove the engine undertray.

❑ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

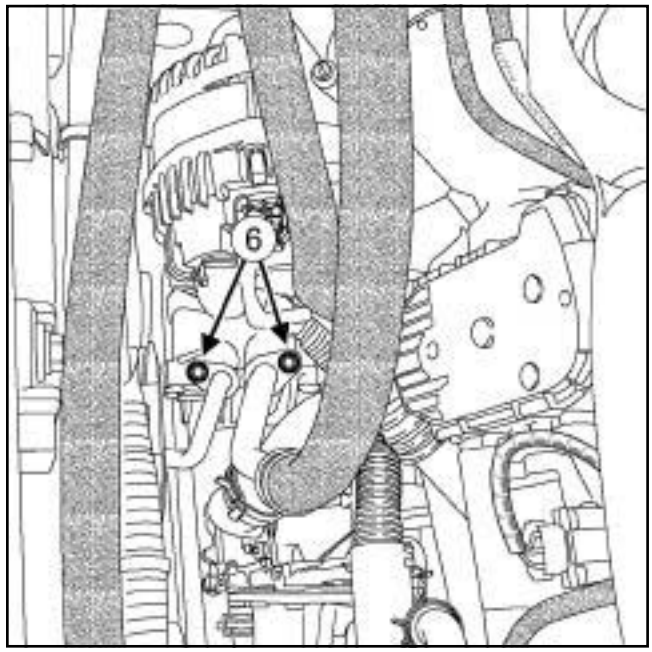
6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).

6 SPEED AUTO GBOX

❑ Drain the automatic transmission (see **Automatic gearbox oil: Draining - Refilling**) (23A, Automatic transmission).

AIR CON 01 or AIR CON 02




129130

❑ Remove the compressor pipe union bolts (**6**) .

❑ Disconnect the compressor pipe unions.

❑ Plug the openings.



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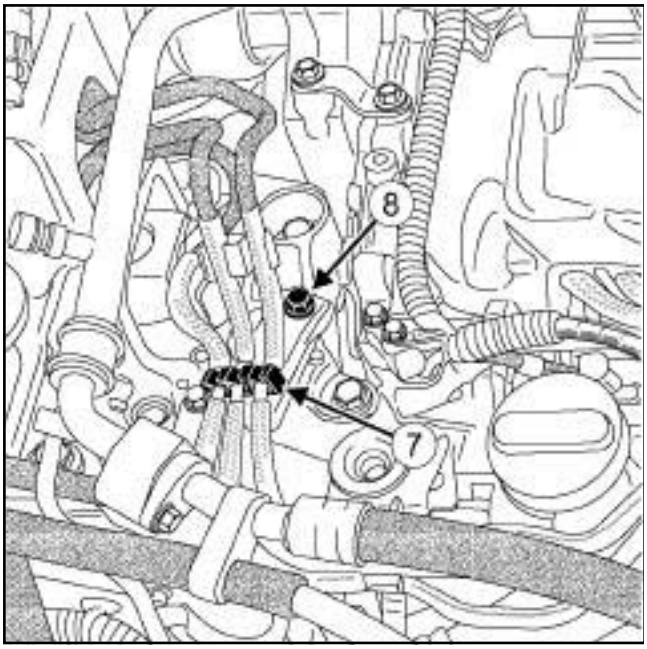
M9R



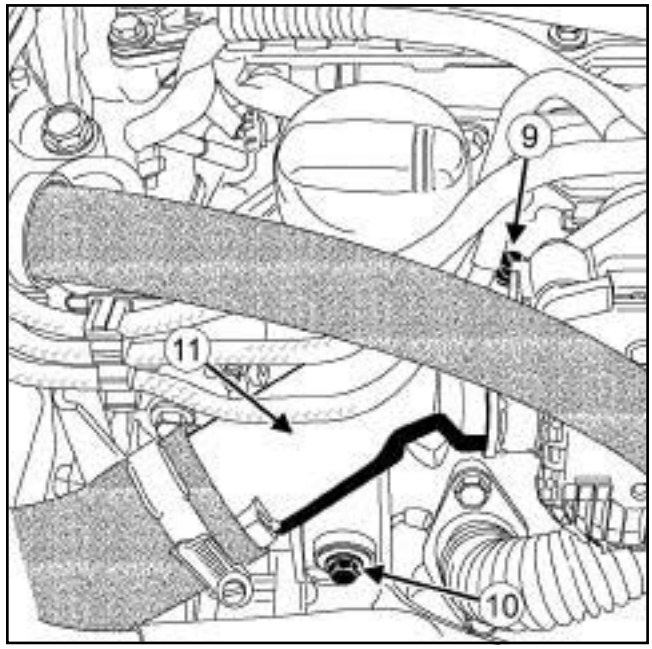

129131

❏ Unclip the fuel pipes from their mounting support (**7**) .

❏ Move the fuel pipes aside.

❏ Remove:

- the fuel pipe bolt (**8**) ,
- the fuel pipe support.



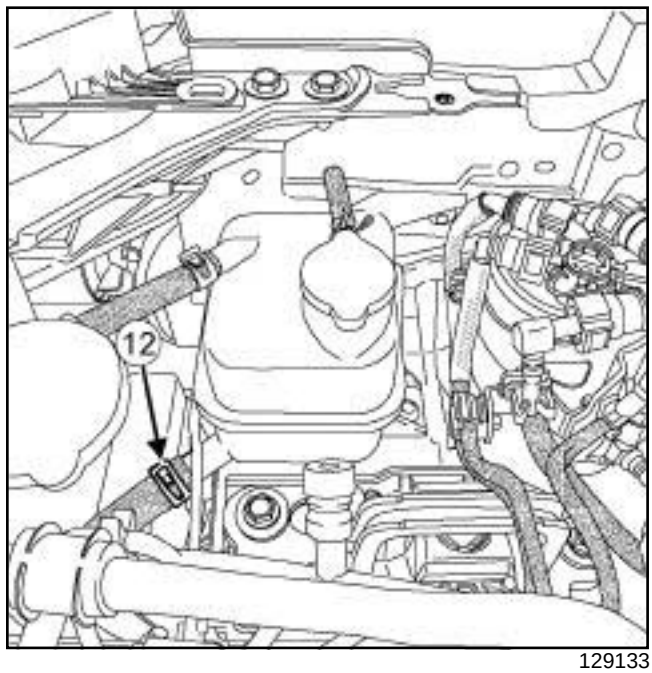

129132

❏ Loosen the clip (**9**) on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt (**10**) .

❏ Disconnect the intercooler air outlet pipe (**11**) from the damper valve.

❏ Move the intercooler air outlet pipe to one side.




129133

❏ Remove the clip (**12**) from the expansion bottle hose using the tool **(Mot. 1448)**.

❏ Disconnect the hose from the expansion bottle.



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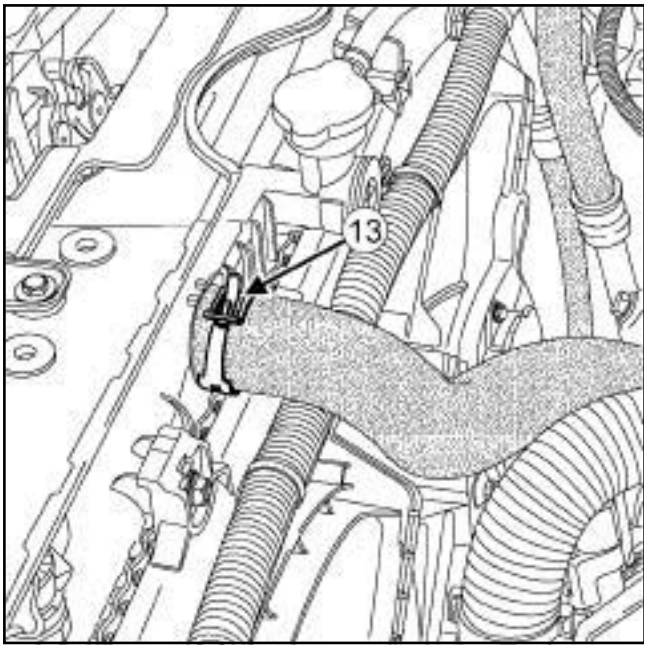


129134

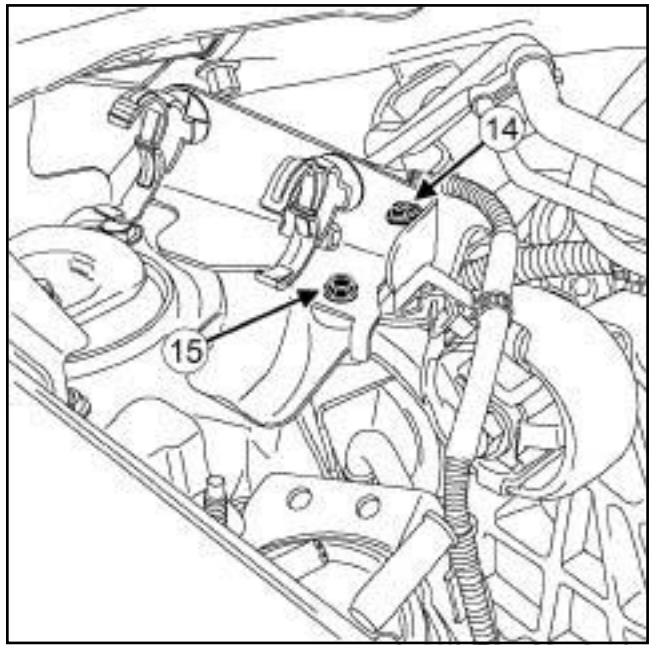
❏ Remove the cooling radiator top hose clip (**13**) using the **(Mot. 1448)**.

❏ Disconnect the cooling radiator top hose.

❏ Remove:

- the fuel filter (see **13A**, **Fuel supply**, **Fuel filter: Removal - Refitting**, page **13A-3**) ,
- the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❏ Disconnect the fuel return quick-release union leading to the tank.



129135

❏ Unclip the wiring (**14**) from the manual priming pump support.

❏ Remove:

- the support bolt (**15**) of the manual priming pump,
- the manual priming pump support.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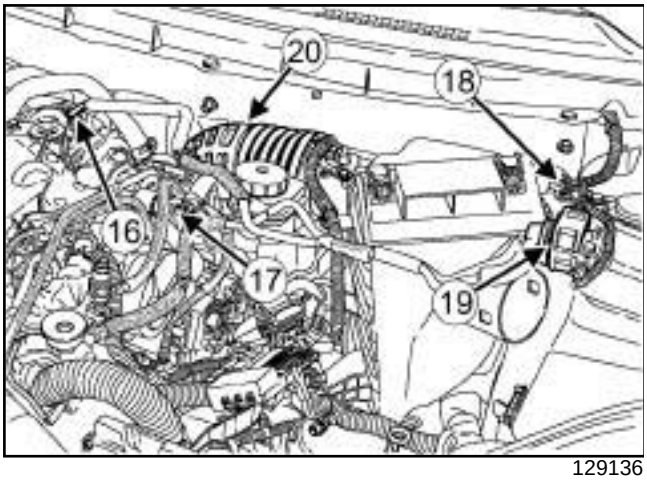
M9R



129136

❏ Disconnect:

- the turbocharging pressure regulation valve actuating hose (**16**) ,
- the brake servo hose (**17**) from the non-return valve.

❏ Remove the bolt (**18**) from the turbocharging pressure regulation actuating solenoid valve support.

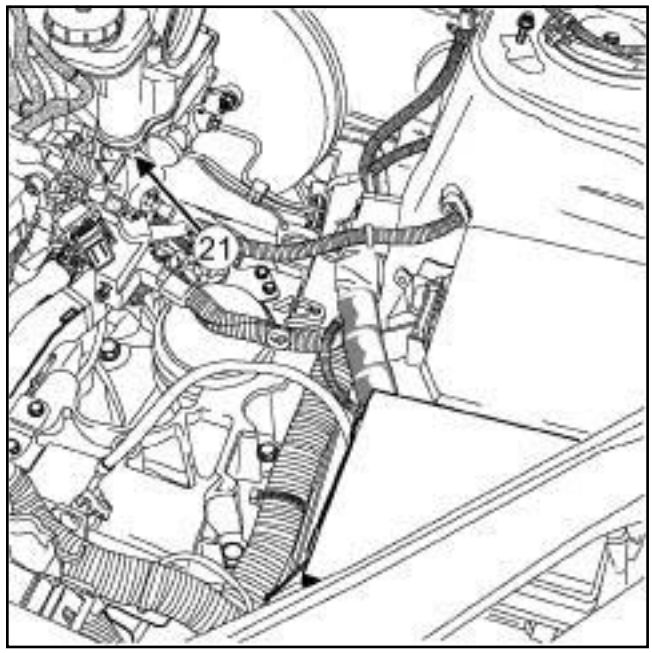
❏ Move aside the turbocharging pressure regulation actuating solenoid valve (**19**) and the turbocharging pressure regulation valve actuating hoses (**16**) .

❏ Remove the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Loosen the air filter unit air outlet pipe clip located on the turbocharger side.

❏ Disconnect the air filter unit air outlet pipe (**20**) from the turbocharger.

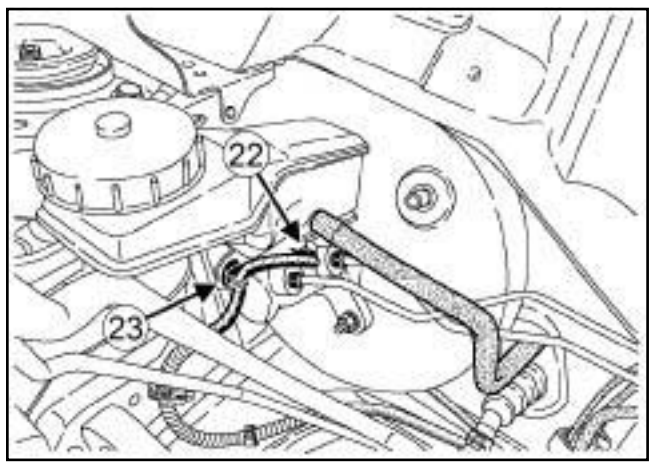
LEFT-HAND DRIVE



129137

❏ Disconnect the brake fluid level sensor connector (**21**) .

RIGHT-HAND DRIVE



131248

❏ Disconnect the brake fluid level sensor connector (**22**) .

❏ Unclip the brake fluid level sensor wiring harness at (**23**) .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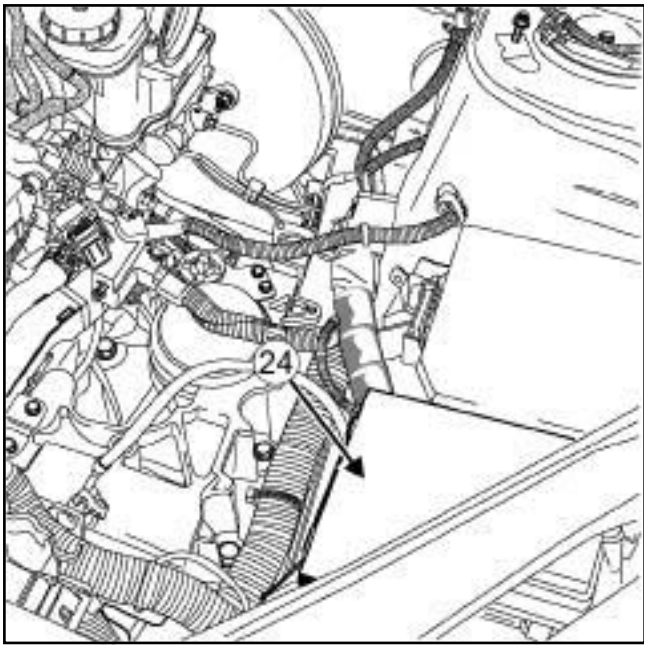
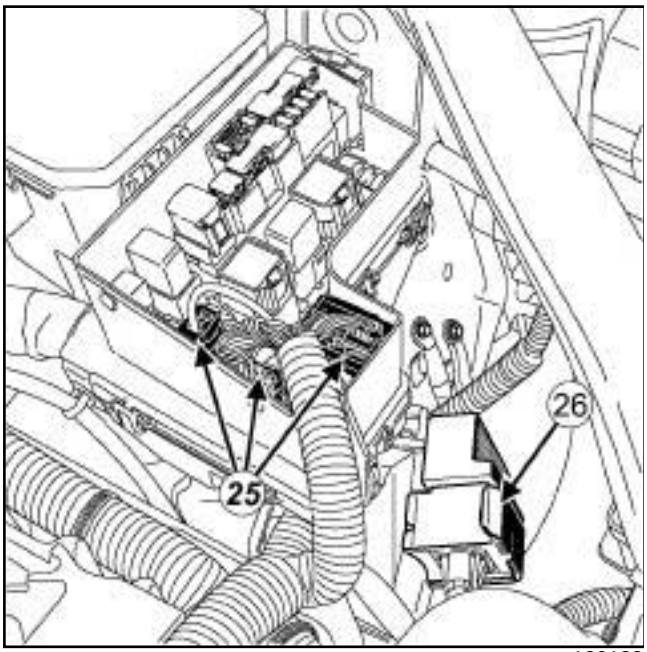
M9R




129137

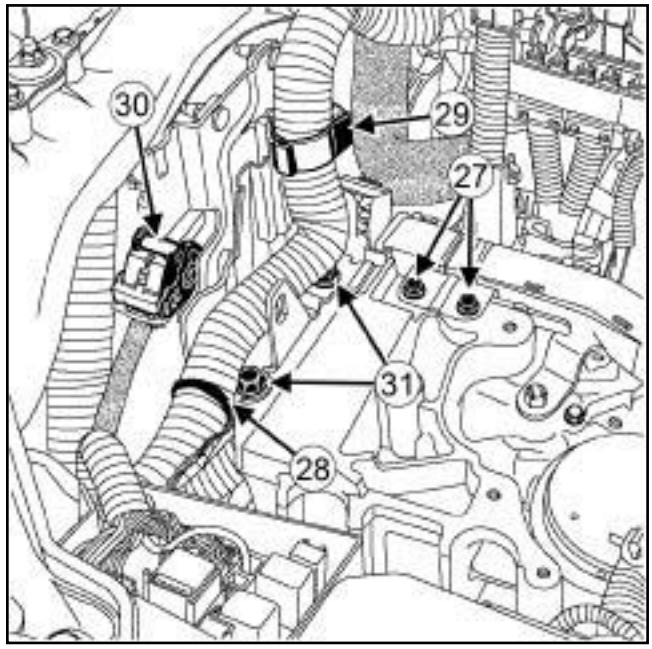
❏ Remove the fuse box cover (**24**) .




129138

❏ Disconnect:

- the fuse box wiring connectors (**25**) ,
- the pre-postheating unit connector (**26**) .




129139

❏ Remove the bolts (**27**) from the wiring bracket.

❏ Unclip:

- the wiring at (**28**) ,
- the wiring at (**29**) .

6 SPEED AUTO GBOX

❏ Disconnect the connector (**30**) from the automatic transmission computer.

❏ Remove:

- the automatic transmission computer mounting bolts (**31**) ,
- the earth cable,
- the « automatic transmission computer - mounting support » assembly.

6 SPEED MANUAL GBOX

❏ Remove the automatic transmission computer mounting.



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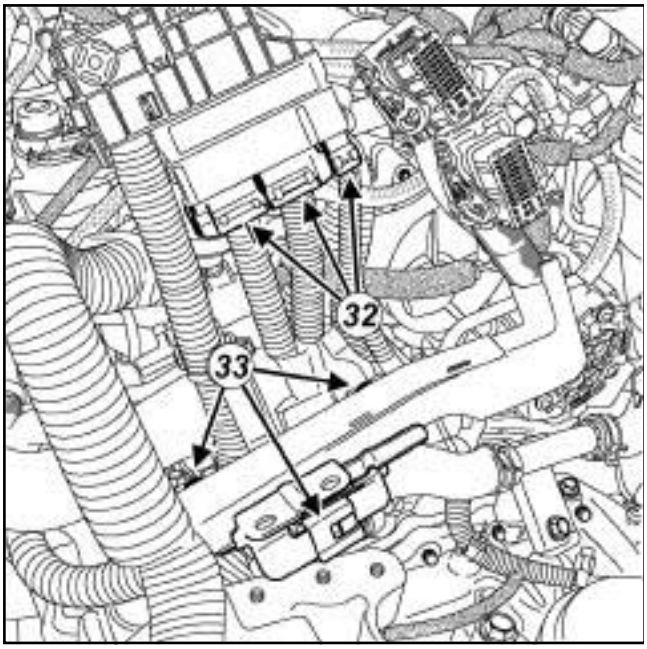
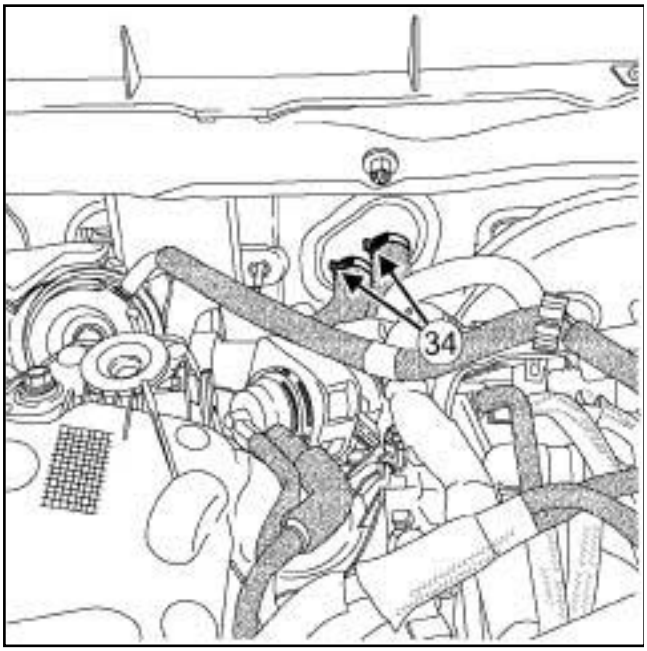
M9R




129140

❏ Disconnect the battery protection fuse wiring connectors (**32**) .

❏ Unclip the wiring harness from the brackets at (**33**) .

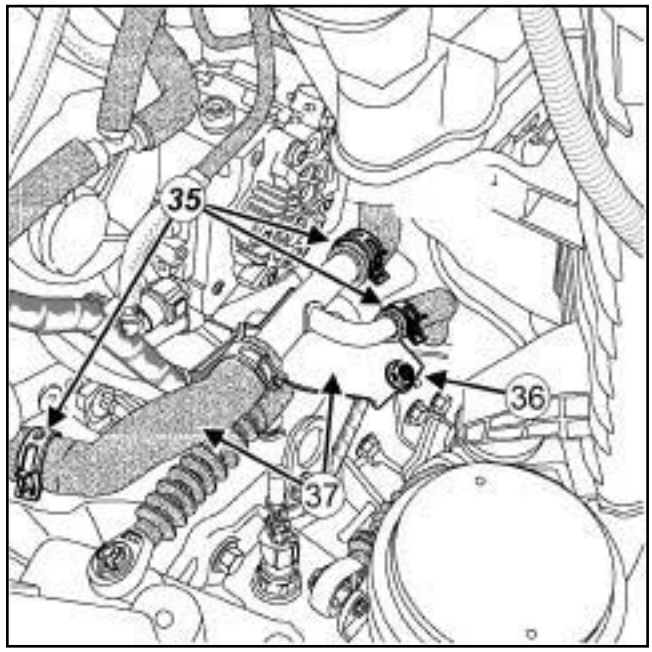



129141

❏ Remove the heater matrix pipe clips (**34**) using the **(Mot. 1448)**.

❏ Disconnect the heater matrix pipes.

6 SPEED MANUAL GBOX




129154

❏ Remove:

- the heater matrix coolant outlet pipe clips (**35**) using the tool **(Mot. 1448)**,
- the heater matrix water outlet pipe bolt (**36**) .

❏ Disconnect the « heater matrix coolant outlet duct - pipe » assembly (**37**) from the inlet distributor and the heater matrix coolant outlet pipe.

❏ Unclip:

- the selector cable and the gear selector lever cable from the manual gearbox (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).
- the gear shift cable and the gear shift lever cable from the manual gearbox (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).



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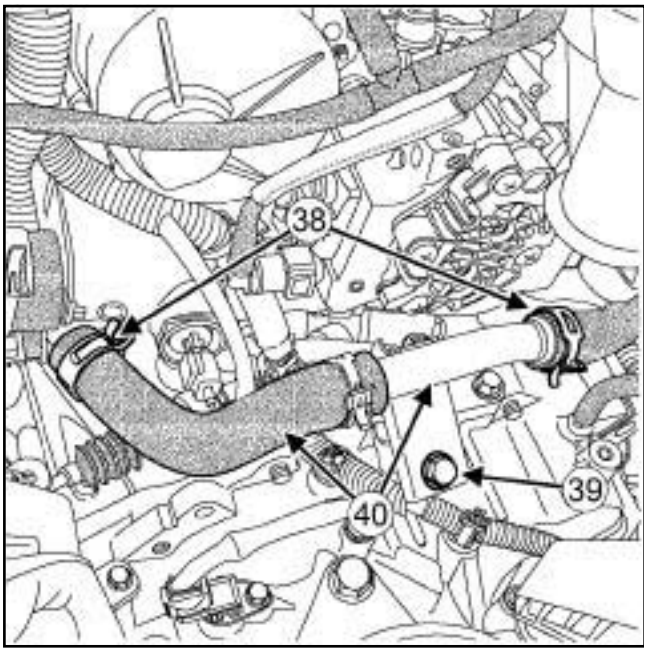
6 SPEED AUTO GBOX

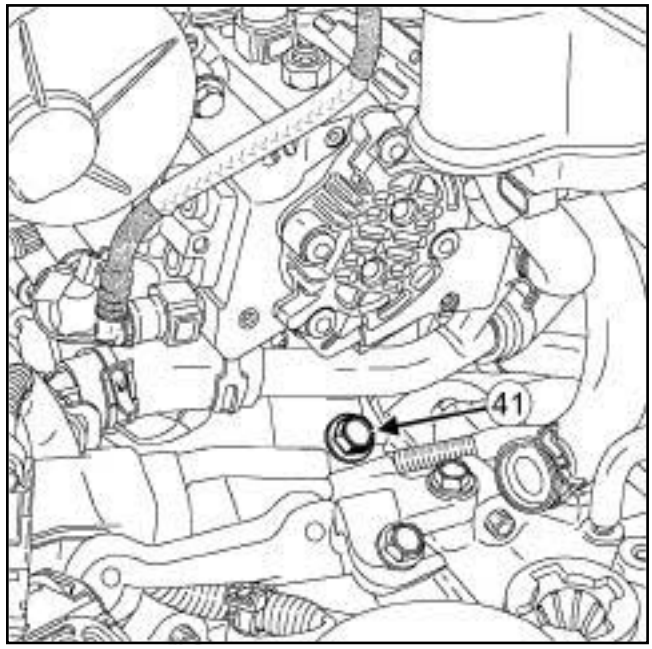



129142

❏ Remove:

- the heater matrix coolant outlet pipe clips (**38**) using the **(Mot. 1448)**.
- the heater matrix coolant outlet pipe bolt (**39**) .

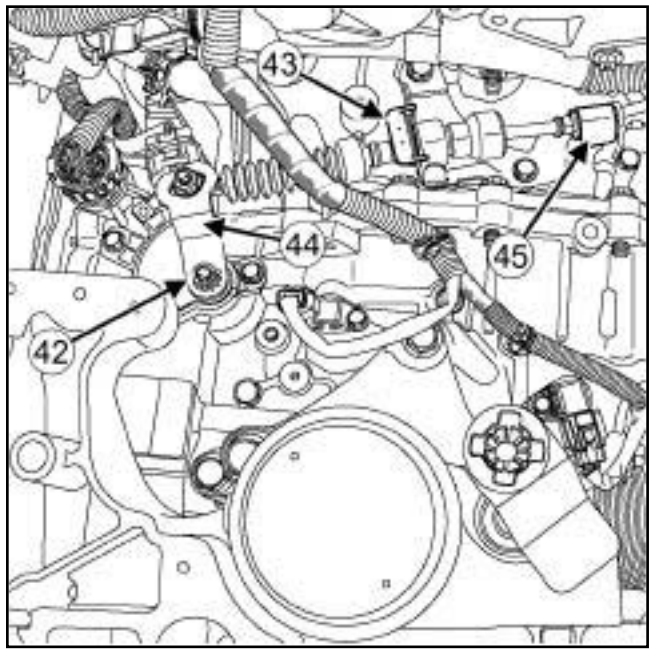
❏ Disconnect the « heater matrix coolant outlet pipe - duct » assembly (**40**) from the inlet distributor and the heater matrix coolant outlet pipe.




129143

❏ Remove the heater matrix coolant inlet pipe bolt (**41**) .

❏ Separate the coolant inlet hose from the heater matrix.




129155

❏ Remove:

- the nut (**42**) of the automatic gearbox control cable,
- the stop (**43**) from the control cable of the automatic gearbox.

❏ Unclip:

- the automatic gearbox control cable from the multi-function switch lever (**44**) .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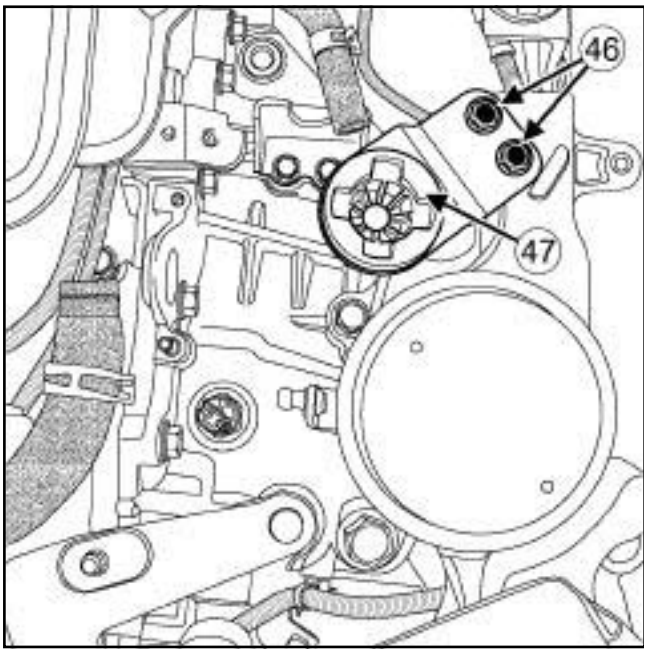
M9R

- the automatic gearbox control cable from the control cable upper bracket (**45**) .

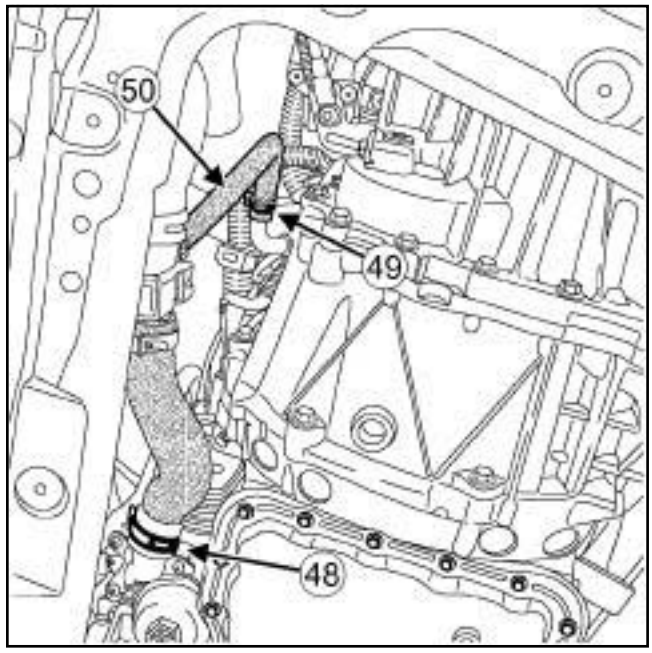



129144

❑ Remove:

- the bolts (**46**) from the air filter unit support,
- the air filter unit support (**47**) .

6 SPEED MANUAL GBOX




129156

❑ Remove:

- the oil filter unit coolant inlet pipe clip (**48**) using the **(Mot. 1448)**,
- the clip (**49**) from the coolant hose using the tool **(Mot. 1448)**.

❑ Disconnect:

- the oil filter unit coolant inlet pipe,
- the coolant hose (**50**) .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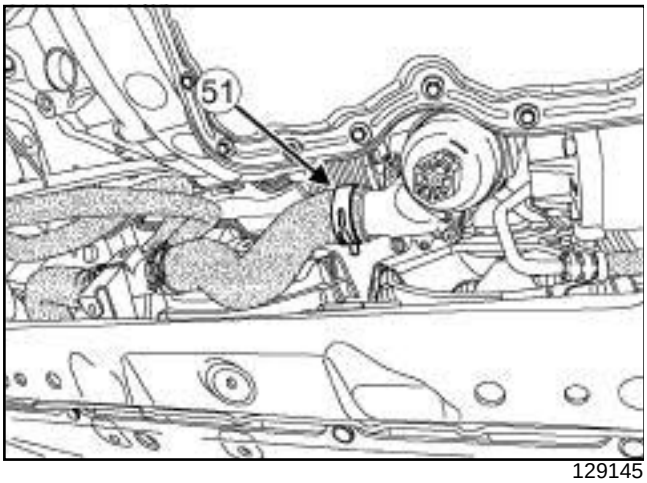
## 6 SPEED AUTO GBOX




129145

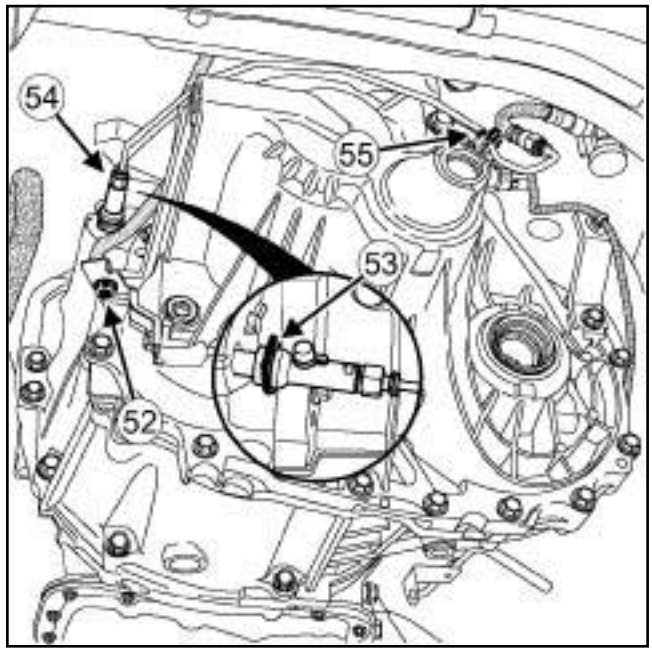
❏ Remove the oil filter unit coolant inlet pipe clip (**51**) using the tool **(Mot. 1448)**.

❏ Disconnect the oil filter unit coolant inlet pipe.

❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the front splash guards (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the front left-hand wheel driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the electric coolant pump (see **19A**, **Cooling**, **Electric water pump: Removal - Refitting**, page **19A-57**)
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

## 6 SPEED MANUAL GBOX




129157

❏ Remove:

- the earth strap bolt (**52**) ,
- the earth strap,
- the clutch control pipe clip (**53**) .

❏ Disconnect the clutch control pipe (**54**) from the manual gearbox.

❏ Unclip the clutch control pipe from its clip (**55**) .

❏ Drain the oil from the clutch control pipe.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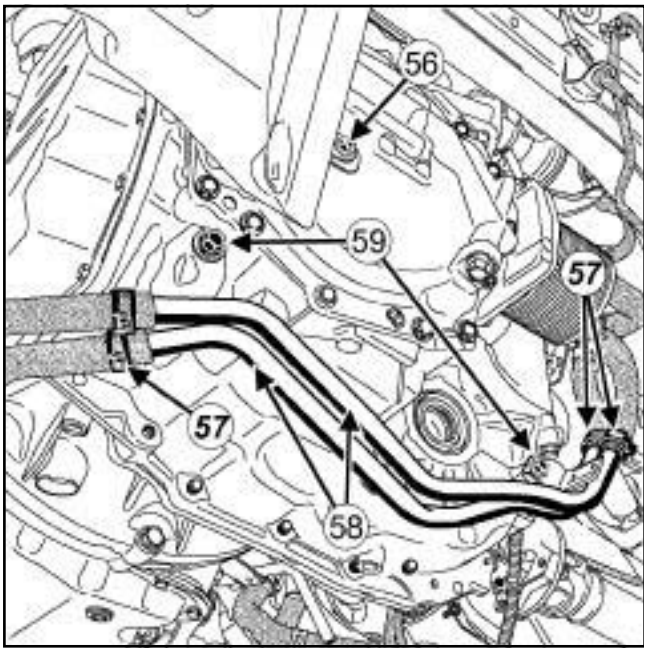
6 SPEED AUTO GBOX



129146

❏ Remove:

- the earth strap bolt (**56**) ,
- the earth strap.

❏ Remove the automatic gearbox coolant hose clips (**57**) using the tool.

❏ Disconnect the automatic gearbox coolant hoses from the automatic gearbox coolant pipe (**58**) .

❏ Remove:

- the automatic gearbox coolant pipe bolts (**59**) ,
- the automatic gearbox coolant pipe.

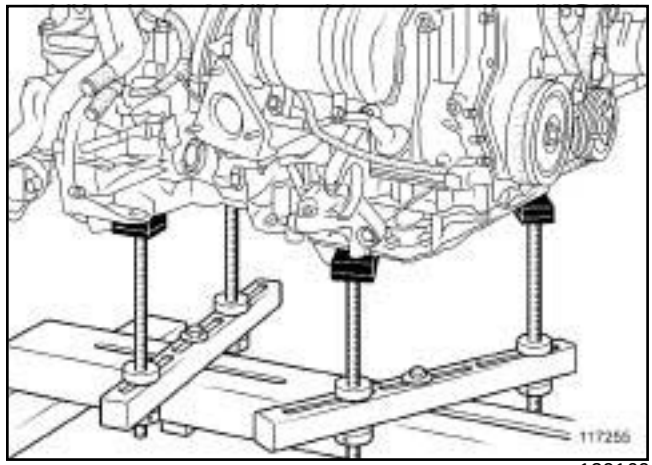
❏ Remove the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**)

4X4 TRANSMISSION

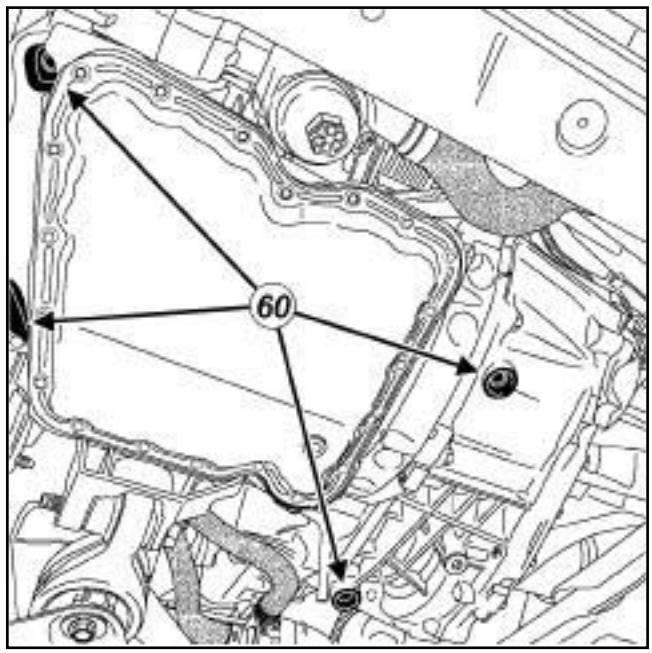
❏ Remove the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

6 SPEED MANUAL GBOX



129160



129158

❏ Place the engine and the gearbox on the rubber pads of the tool **(Mot. 1390)** at points (**60**) .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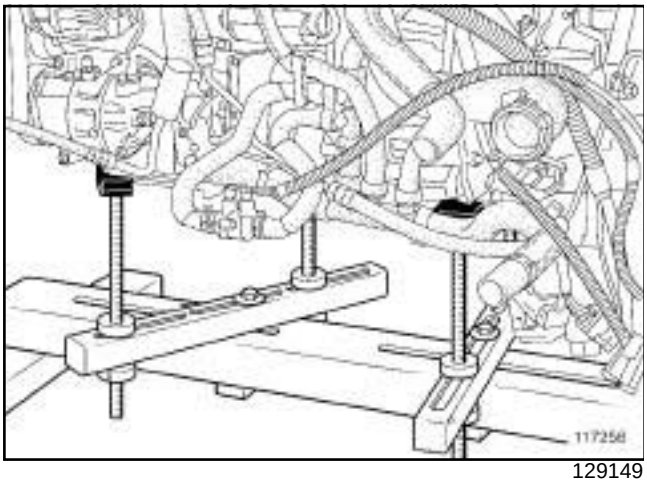
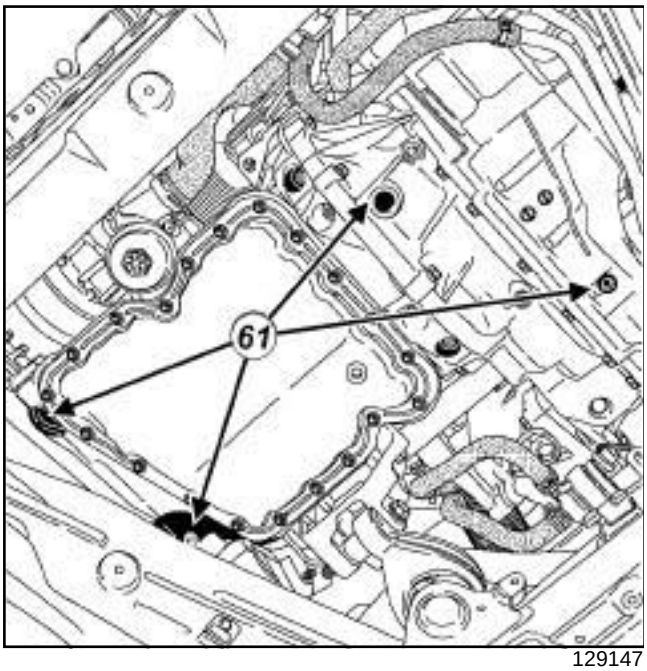
6 SPEED AUTO GBOX

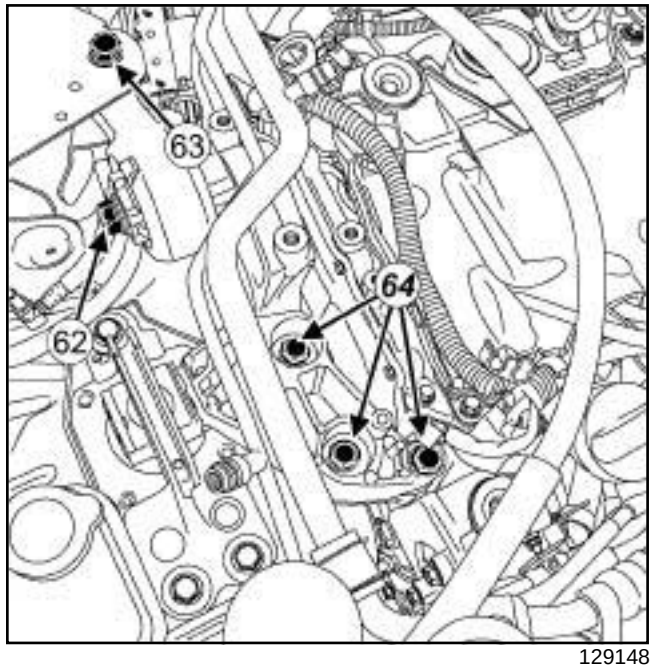



129149




129147

❑ Place the engine and the gearbox on the rubber pads of the tool **(Mot. 1390)** at points (**61**) .




129148

❑ Remove:

- the upper engine tie-bar bolt and washer (**62**) ,
- the upper engine tie-bar bolt (**63**) from the body,
- the upper engine tie-bar,
- the right-hand suspended engine mounting bolts (**64**) .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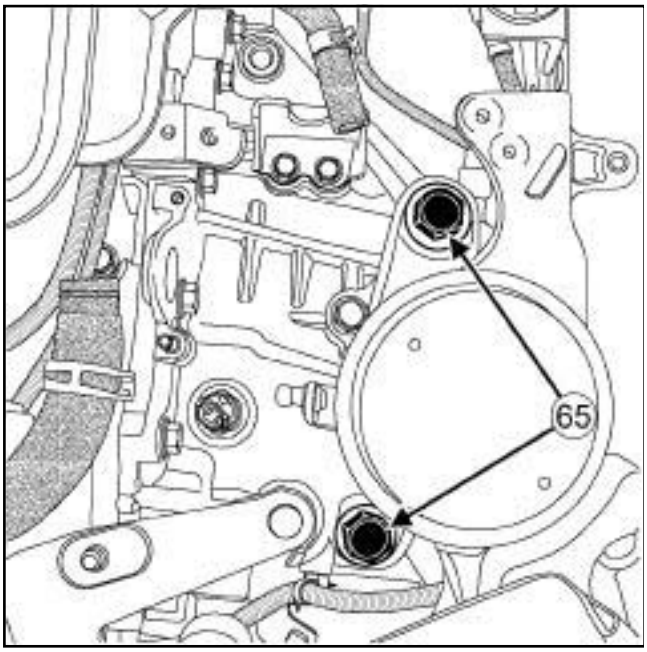
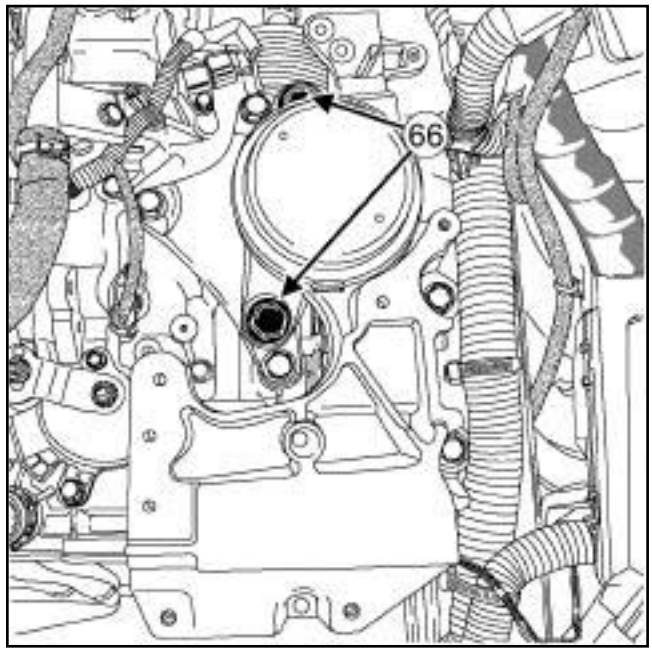
6 SPEED MANUAL GBOX




129162

❑ Remove the left-hand suspended engine mounting bolts (**65**) from the manual gearbox.

6 SPEED AUTO GBOX




129163

❑ Remove the left-hand suspended engine mounting bolts (**66**) from the automatic gearbox.

❑ Remove the « engine - gearbox assembly » .

❑ Raise the vehicle.

❑ Move the « engine - gearbox assembly » aside.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the intercooler air inlet pipe seal,
- the compressor pipe union seals,
- the engine tie-bar washer,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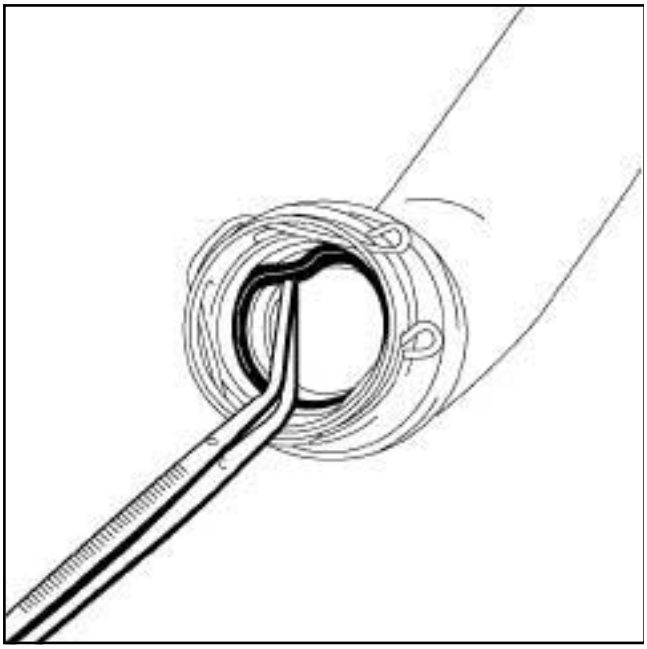
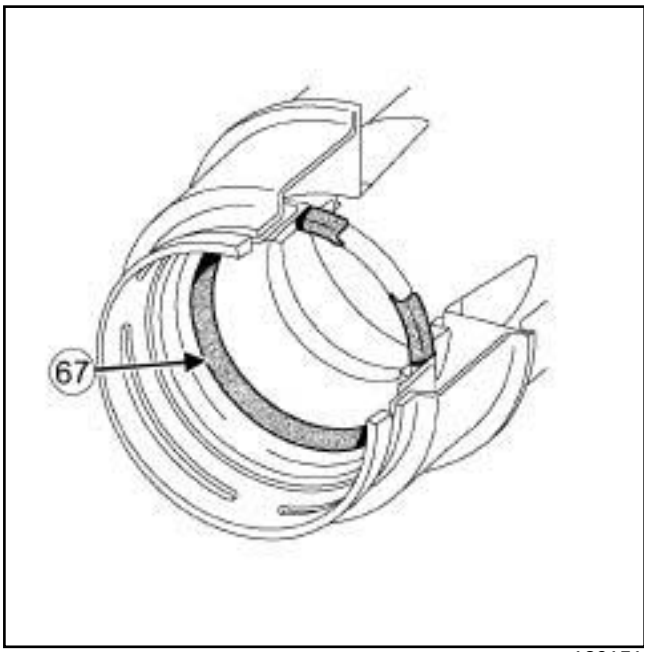


129150

❑ Remove the intercooler air inlet pipe seal using a .




129151

❑ Refit the new intercooler air inlet pipe seal (**67**) .

Note:

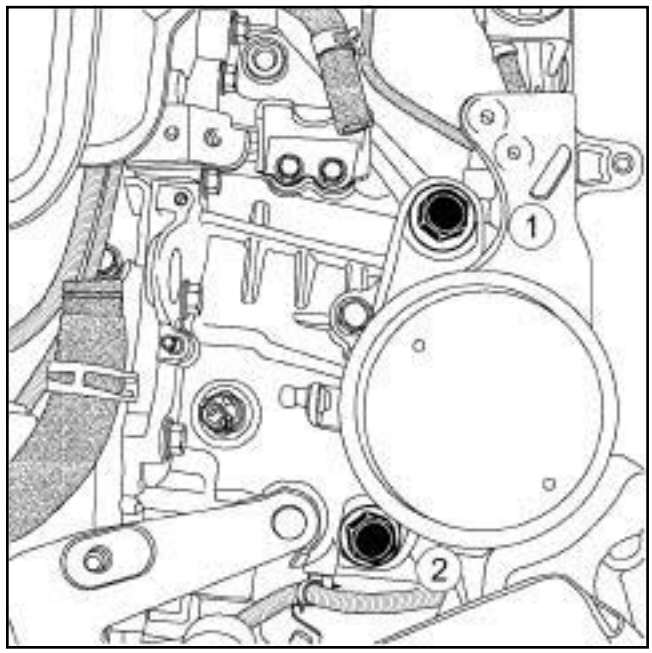
Check that the seal on the intercooler air inlet pipe is fitted the correct way round.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Place the « engine-gearbox » assembly in the vehicle.

❑ Lower the vehicle.

6 SPEED MANUAL GBOX




129162

❑ Refit the left-hand suspended engine bolts located on the manual gearbox.

❑ Torque tighten in order the **left-hand suspended engine mounting bolts (110 N.m)**.



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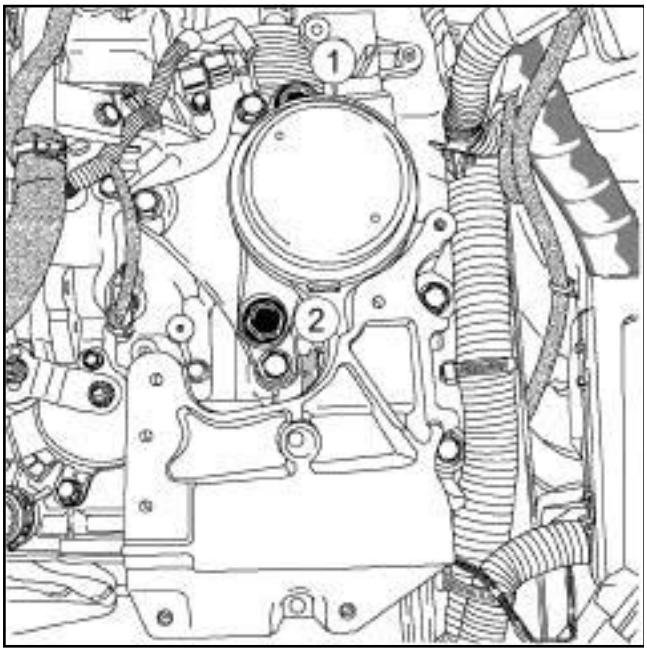
M9R

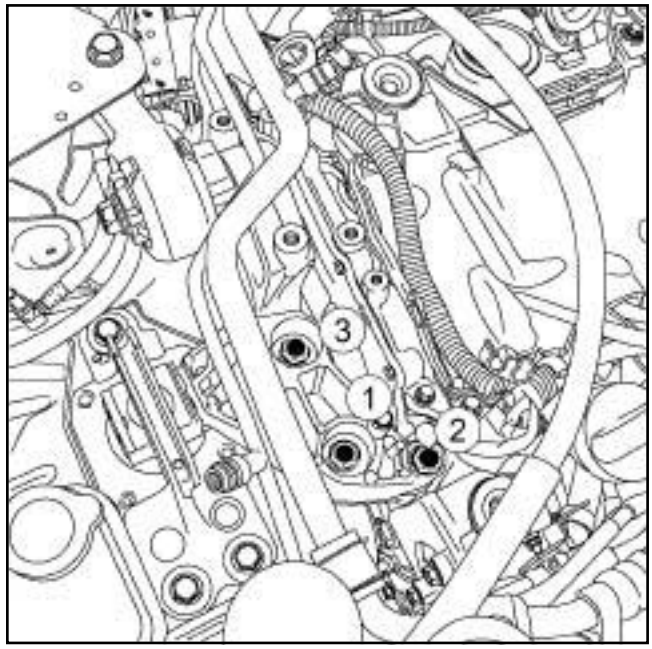
6 SPEED AUTO GBOX




129163

❏ Refit the left-hand suspended engine bolts located on the automatic gearbox.

❏ Torque tighten in order the **left-hand suspended engine mounting bolts (110 N.m)** located on the automatic gearbox.




129153

❏ Refit the right-hand suspended engine mounting bolts located on the engine.

❏ Torque tighten in order the **right-hand suspended engine mounting bolts (55 N.m)** located on the engine.

❏ Refit:

- the upper engine tie-bar,
- the upper engine tie-bar bolt on the body,
- the new upper engine tie-bar washer,
- the upper engine tie-bar bolt on the engine.

❏ Tighten to torque and in order:

- the **upper engine tie-bar bolt (120 N.m)** on the engine,
- the **upper engine tie-bar bolt (120 N.m)** on the body.

❏ Remove the tool **(Mot. 1390)**.

**III - FINAL OPERATION**

4X4 TRANSMISSION

❏ Refit the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts).

❏ Refit the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .



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6 SPEED MANUAL GBOX

❑ Clip the clutch control pipe onto its clip ***(55)*** .

❑ Connect the clutch control pipe onto the manual gearbox.

❑ Refit

- the clutch control pipe clip ***(53)***
- the earth strap,
- the earth strap bolt ***(52)*** .

❑ Torque tighten the **earth strap bolt (14 N.m)**.

6 SPEED AUTO GBOX

❑ Refit:

- the automatic gearbox coolant pipe,
- the automatic gearbox coolant pipe bolts ***(59)*** .

❑ Torque tighten the **automatic gearbox coolant pipes (25 N.m)**.

❑ Connect the automatic gearbox coolant hoses onto the automatic gearbox coolant pipes ***(58)*** .

❑ Refit the automatic gearbox coolant hose clips using the **(Mot. 1448)**.

❑ Refit:

- the earth strap,
- the earth strap bolt ***(56)*** .

❑ Torque tighten the **earth strap bolt (14 N.m)**.

❑ Refit:

- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the electric coolant pump (see **19A**, **Cooling**, **Electric water pump: Removal - Refitting**, page **19A-57**) ,
- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the front left-hand wheel driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the front splash guards (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

6 SPEED MANUAL GBOX

❑ Connect:

- the coolant hose ***(50)*** ,
- the oil filter unit coolant inlet pipe onto the oil filter unit.

❑ Refit:

- the coolant hose clip ***(49)*** using the **(Mot. 1448)**,
- the clip ***(48)*** on the oil filter unit coolant inlet pipe using the **(Mot. 1448)**.

6 SPEED AUTO GBOX

❑ Connect the oil filter unit coolant inlet pipe onto the oil filter unit.

❑ Refit the clip ***(51)*** on the oil filter unit coolant inlet pipe using the **(Mot. 1448)**.

❑ Refit:

- the air filter unit support ***(47)*** ,
- the air filter unit mounting bolts ***(46)*** .

❑ Torque tighten the **air filter unit support bolts (10 N.m)**.


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6 SPEED MANUAL GBOX

❑ Clip on:

- the selector cable and the gear selector lever cable from the manual gearbox (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls),
- the selector cable and the gear selector lever cable from the manual gearbox (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).

❑ Connect the « heater matrix coolant outlet pipe - duct assembly » ***(37)*** onto the inlet distributor and the heater matrix coolant outlet pipe.

❑ Refit the heater matrix coolant outlet pipe bolt ***(36)*** .

❑ Torque tighten the **heater matrix coolant outlet pipe bolt (25 N.m)**.

❑ Refit the heater matrix coolant outlet pipe clips ***(35)*** using the **(Mot. 1448)**.

6 SPEED AUTO GBOX

❑ Clip on:

- the automatic gearbox control cable onto the control cable upper bracket,
- the automatic gearbox control cable onto the multifunction switch lever.

❑ Refit:

- the automatic gearbox control cable nut,
- the automatic gearbox control cable stop.

❑ Torque tighten the **automatic gearbox control cable nut (14 N.m)**.

❑ Refit the heater matrix coolant inlet pipe bolt ***(41)*** .

❑ Torque tighten the **heater matrix inlet pipe bolt (25 N.m)**.

❑ Connect the « heater matrix coolant outlet pipe - duct » ***(40)*** assembly onto the inlet distributor and the heater matrix coolant outlet hose.

❑ Refit the heater matrix coolant outlet pipe bolt ***(39)*** .

❑ Torque tighten the **heater matrix coolant outlet pipe bolt (25 N.m)**.

❑ Refit the heater matrix water outlet hose clips ***(38)*** using the tool **(Mot. 1448)**.

❑ Connect the heater matrix pipes.

❑ Refit the heater matrix pipe clips ***(34)*** using the **(Mot. 1448)**.

❑ Clip the wiring onto the brackets ***(33)*** .

❑ Connect the wiring connectors ***(32)*** to the battery protection fuse.

6 SPEED MANUAL GBOX

❑ Refit the automatic gearbox computer mounting.


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M9R

6 SPEED AUTO GBOX

❑ Fit:

- the « automatic gearbox computer - mounting support » assembly,
- the earth cable.

❑ Refit the automatic gearbox computer mounting bolts ***(31)*** .

❑ Torque tighten the **automatic gearbox computer mounting bolts (27 N.m)**.

❑ Connect the automatic gearbox computer connector.

❑ Clip on:

- the wiring at ***(30)*** ,
- the wiring at ***(29)*** .

❑ Refit the wiring bracket bolts ***(28)*** .

❑ Torque tighten the **wiring bracket bolts (10 N.m)**.

❑ Connect:

- the pre-postheating unit connector ***(26)*** ,
- the wiring connectors ***(25)*** in the fuse box.

❑ Refit the fuse box cover.

LEFT-HAND DRIVE

❑ Connect the brake fluid level sensor connector ***(21)*** .

RIGHT-HAND DRIVE

❑ Clip on the brake fluid level sensor wiring at ***(23)*** .

❑ Connect the brake fluid level sensor connector ***(22)*** .

❑ Refit the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Connect the air filter unit air outlet pipe to the turbocharger and the air filter unit.

❑ Torque tighten the **air filter unit air outlet pipe clips (5 N.m)** using the tool **(Mot. 1608)**.

❑ Place the turbocharging pressure regulation actuating solenoid valve support on the air filter unit.

❑ Refit the bolt on the turbocharging pressure regulation actuating solenoid valve support.

❑ Torque tighten the **bolt on the turbocharging pressure regulation actuating solenoid valve support (10 N.m)**

❑ Connect:

- the brake servo pipe to the non-return valve,
- the turbocharging pressure regulation valve actuating hose ***(16)*** .

❑ Refit:

- the manual priming pump support,
- the support bolt of the manual priming pump.

❑ Torque tighten the **support bolt of the manual priming pump (12 N.m)**.

❑ Clip the wiring on the manual priming pump support ***(14)*** .

❑ Connect the fuel return quick-release union of the fuel pipe leading to the tank.

❑ Refit:

- the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) ,
- the fuel filter.

❑ Connect the cooling radiator top hose.

❑ Refit the cooling radiator top hose clip using the tool **(Mot. 1448)**.

❑ Connect the expansion bottle hose.

❑ Refit the expansion bottle clip ***(12)*** using the **(Mot. 1448)**.

❑ Connect the intercooler air outlet pipe ***(11)*** to the damper valve.

❑ Refit the intercooler air outlet pipe bolt ***(10)*** .

❑ Torque tighten:

- the **intercooler air outlet pipe bolt (8 N.m)**,
- the **clip of the intercooler air outlet pipe clip (6 N.m)** using the tool **(Mot. 1608)**.

❑ Refit the fuel pipe support.

❑ Refit the fuel pipe support bolt ***(8)*** .

❑ Torque tighten the **fuel pipe support bolt (10 N.m)**.

❑ Clip the fuel pipes onto the fuel pipe support ***(7)*** .


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M9R

AIR CON 01 or AIR CON 02

❑ Remove the blanking plugs from the compressor and the compressor pipe unions.

❑ Refit the new compressor pipe union seals.

❑ Connect the compressor pipe unions onto the compressor.

❑ Refit the compressor pipe union bolts.

❑ Torque tighten the **compressor pipe union bolts (4 N.m)**.

❑ Connect the « intercooler air inlet pipe-duct » assembly ***(5)*** .

❑ Torque tighten the **intercooler air inlet pipe clip (6 N.m)** using the tool **(Mot. 1608)**.

❑ Refit the protector plate on the injector rail protector.

❑ Rotate the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt to the fuel supply pipe bracket.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

6 SPEED MANUAL GBOX

❑ Fill with oil:

- the manual gearbox (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).
- the brake fluid reservoir.

❑ Bleed the hydraulic clutch control (see **Clutch circuit: Bleeding**) (37A, Mechanical component controls).

6 SPEED AUTO GBOX

❑ Fill the automatic gearbox oil (see **Automatic gearbox oil: Draining - Refilling**) (23A, Automatic transmission)

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit the engine undertray.

AIR CON 01 or AIR CON 02

❑ Fill the refrigerant circuit using a **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the air inlet sleeve to the air filter unit,
- the air inlet sleeve clips,
- the engine cover.


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2TR, and FK0 or FK8

| Essential special tooling | |
|---|---|
| **Mot. 1869** | Pliers for disconnecting the fuel circuit |
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1390** | Support for removing/refitting the engine - gearbox assembly. |

| Essential equipment |
|---|
| refrigerant charging station |
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| left-hand suspended engine mounting bolts | **50 N.m** |
| right-hand suspended engine mounting bolts | **55 N.m** |
| earth cable bolt on the automatic gearbox | **21 N.m** |
| air conditioning pipe bolt | **4 N.m** |
| air conditioning pipe nut | **4 N.m** |
| earth cable bolt on the alternator support | **7 N.m** |
| bracket bolts | **21 N.m** |
| engine wiring support bolts | **21 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **Engine: Precautions for repair**) .

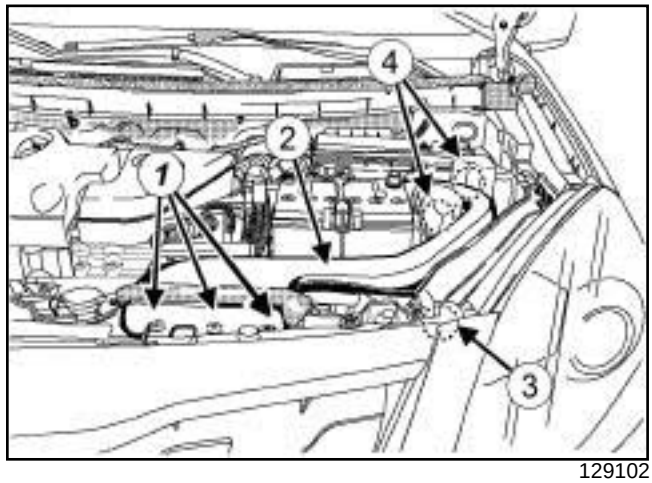
**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

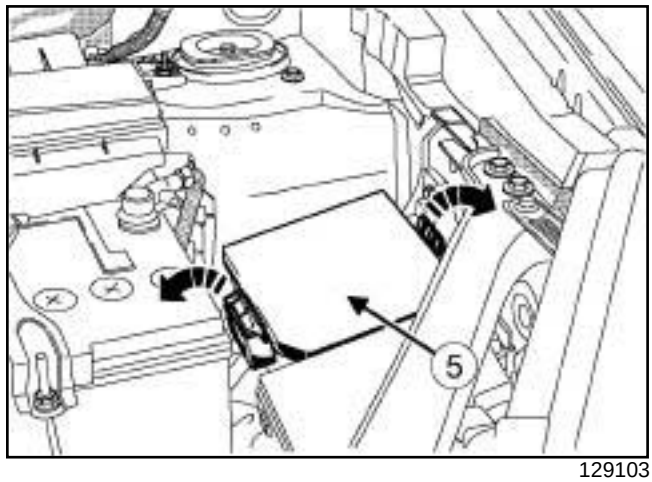
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.



129102

❑ To release the fuel pressure, remove:

- the air inlet sleeve clips (**1**) ,
- the air inlet sleeve (**2**) from the air resonator (**3**) and the air filter unit (**4**) .



129103

❑ Remove the cover (**5**) from the Protection and Switching Unit.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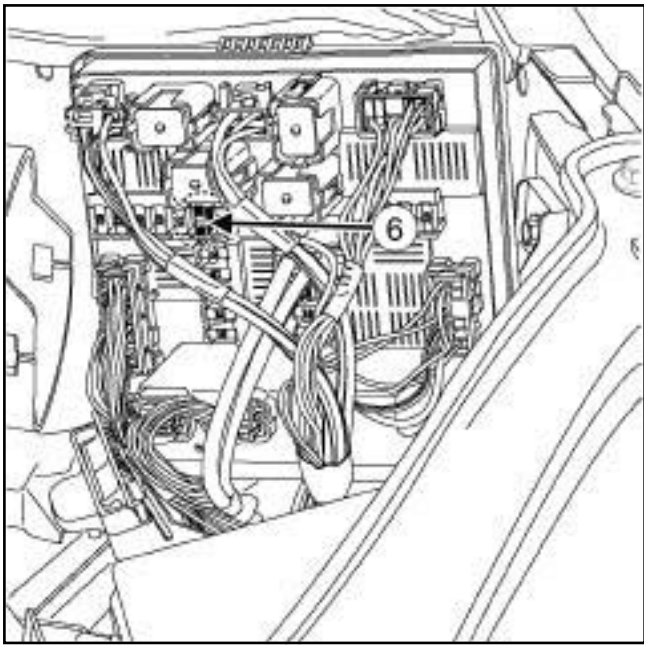
2TR, and FK0 or FK8




129104

❏ Remove the fuse (**6**) of the fuel pump(**F13**) (**15A**).

❏ Release the fuel pressure of the fuel supply pipe.

Note:

After switching the engine off, start it again two or three times to fully release the fuel pressure.

❏ Drain:

- the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) ,
- the automatic gearbox oil (see **Automatic gearbox oil: Draining - Refilling**) (23A, Automatic transmission),
- the refrigerant circuit using a **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

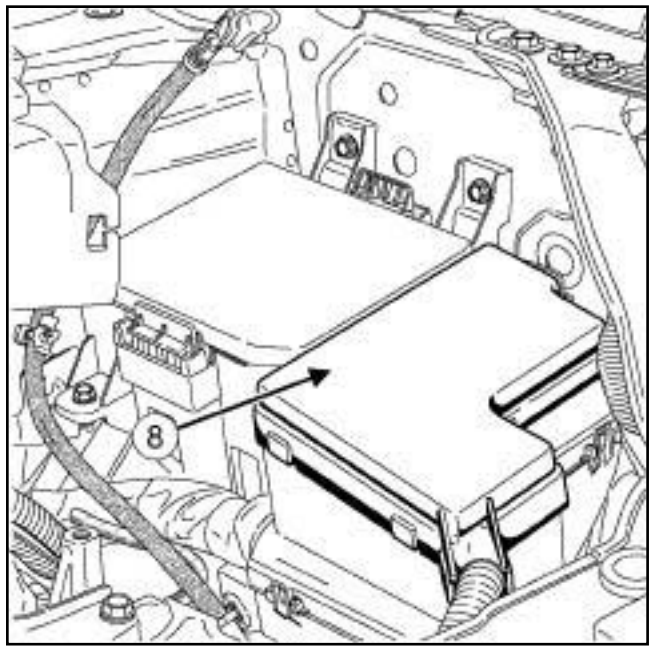
❏ Remove:

- the engine cover,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

129105

❏ Disconnect the battery positive terminal wiring connectors (**7**) .

❏ Remove the battery tray (see **Battery : Removal - Refitting**) (80A, Battery).




129106

❏ Remove the engine fuse and relay box cover (**8**) .



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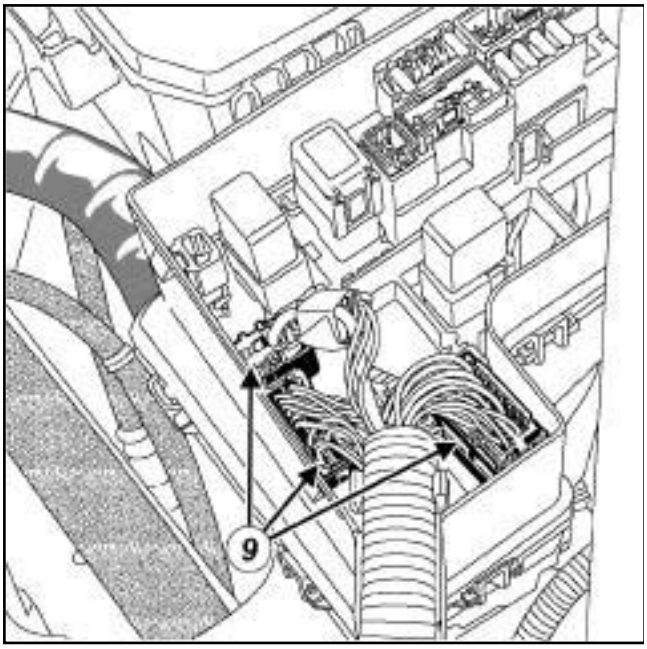
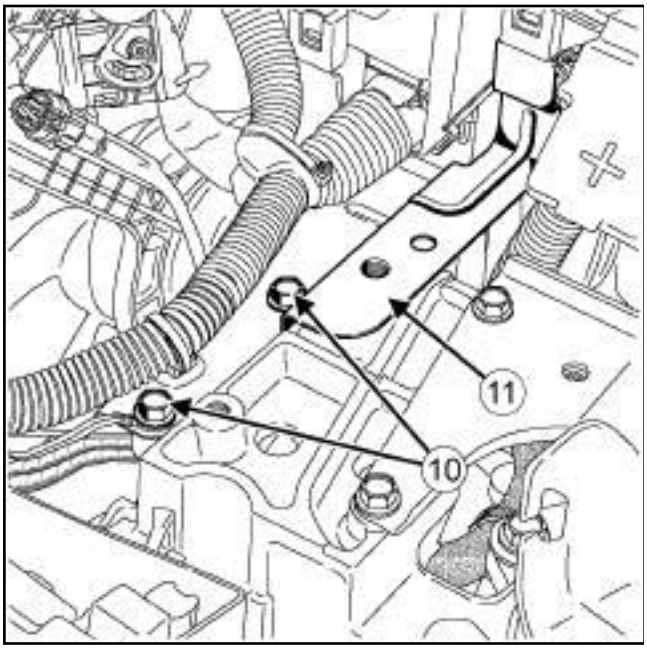
2TR, and FK0 or FK8




129107

❏ Disconnect the engine fuse and relay box wiring connectors (**9**) .



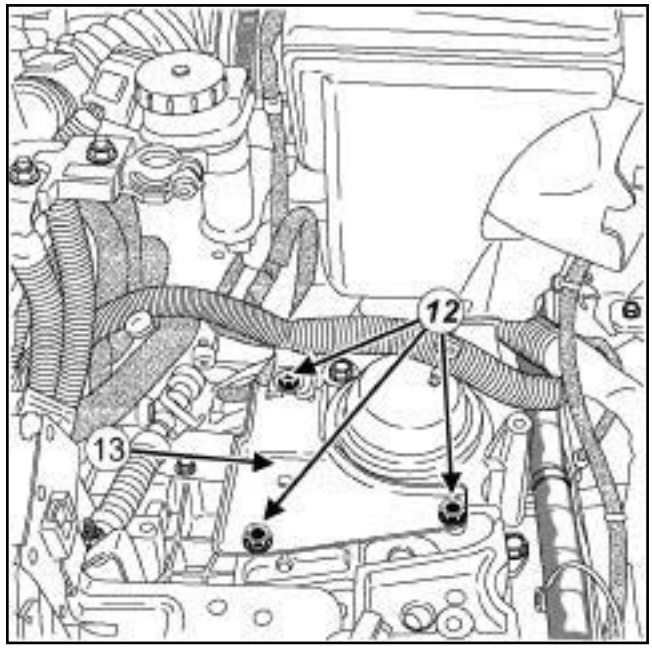

129108

❏ Remove:

- the engine wiring support bolts (**10**) ,
- the engine wiring support (**11**) .

Note:

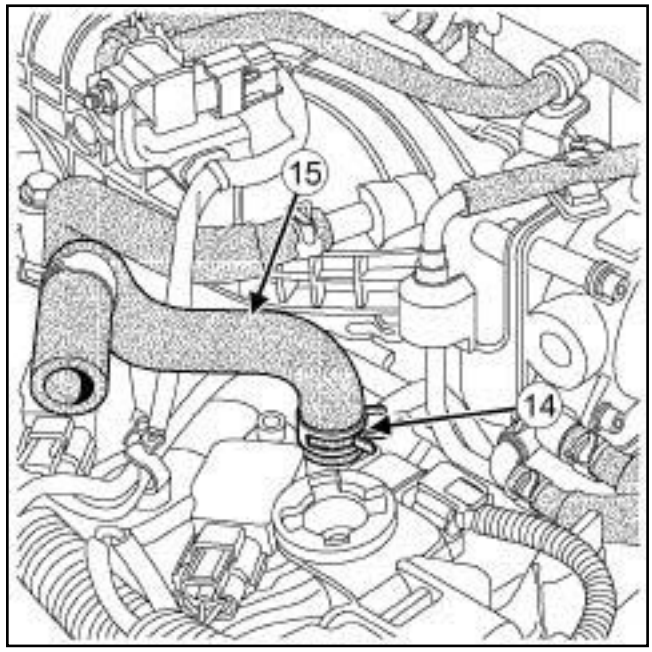
Attach the engine wiring temporarily on the engine side.




129109

❏ Remove:

- the bolts (**12**) from the bracket,
- the bracket (**13**) ,
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the rocker cover air resonator (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .




129110

❏ Remove:

- the breather hose clip (**14**) ,



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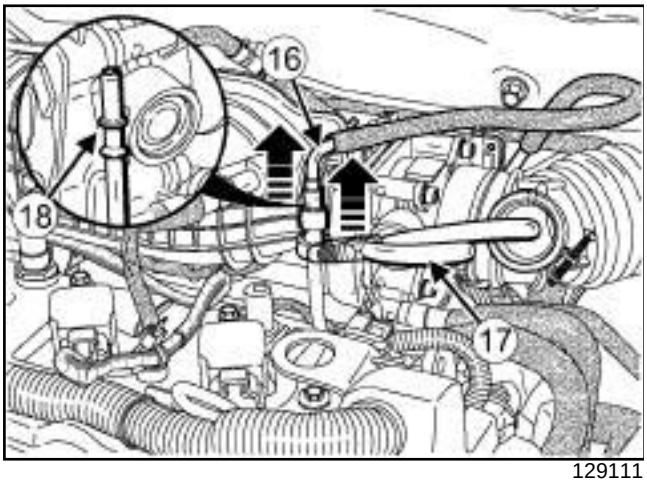
2TR, and FK0 or FK8

- the breather hose (**15**) ,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) .



129111

❏ Remove the plug of the fuel supply union.

**IMPORTANT**

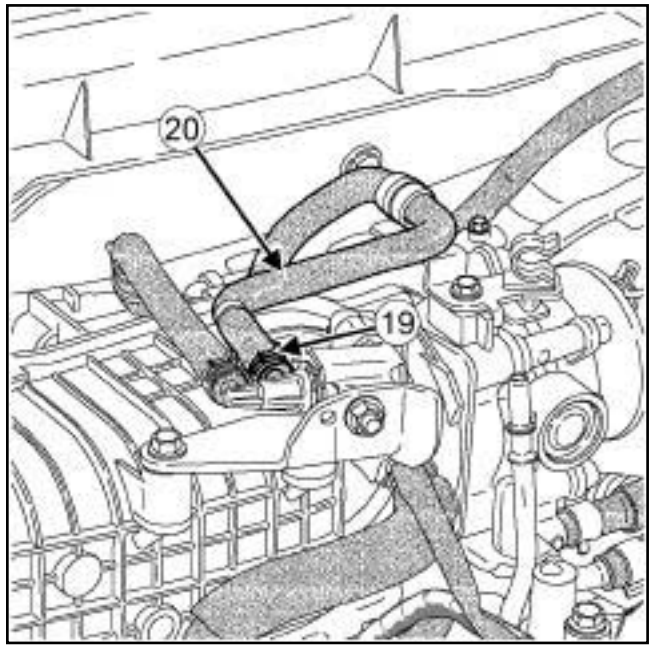
During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

❏ Disconnect the quick-release union (**16**) using the tool **(Mot. 1869)** (**17**) .

Note:

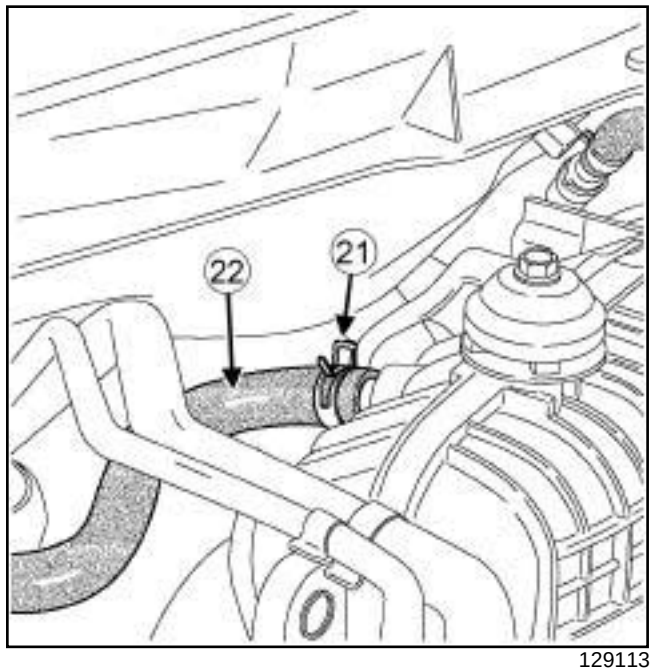
Insert the tool **(Mot. 1869)** on the second retainer (**18**) .



129112

❏ Disconnect:

- the fuel vapour rebreathing hose clip (**19**) ,
- the fuel vapour rebreathing hose (**20**) .



129113

❏ Disconnect:

- the clip (**21**) from the brake servo vacuum pipe,
- the vacuum pipe (**22**) from the brake servo.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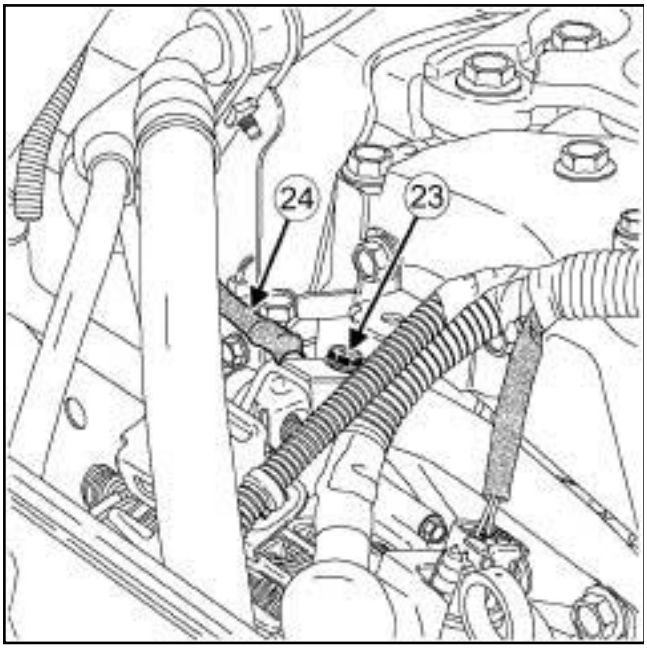
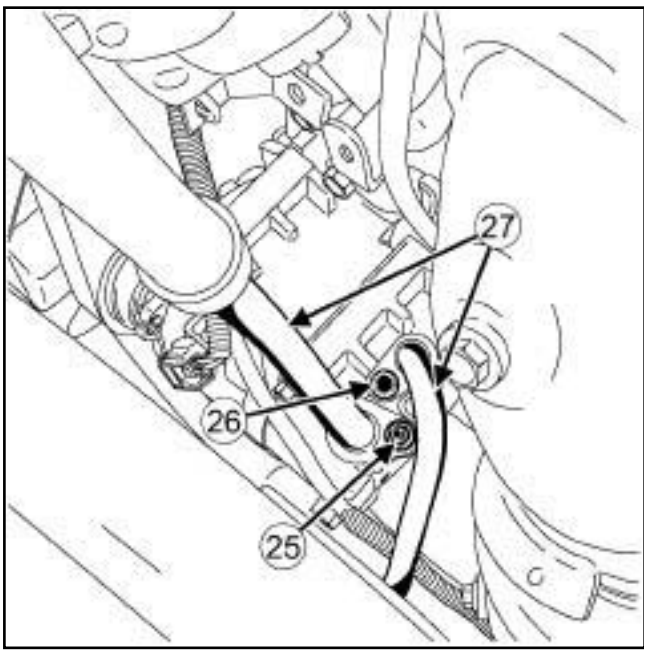
2TR, and FK0 or FK8




129114

❏ Remove the alternator support earth cable bolt (**23**) .

❏ Disconnect the earth cable ***(24)*** from the alternator support.



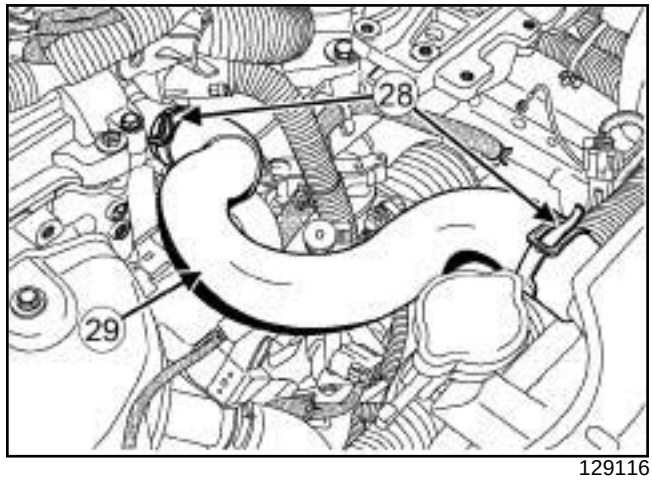

129115

❏ Remove:

- the air conditioning pipe nut (**25**) ,
- the air conditioning pipe bolt (**26**) .

❏ Disconnect the air conditioning pipes ***(27)*** from the air conditioning compressor.

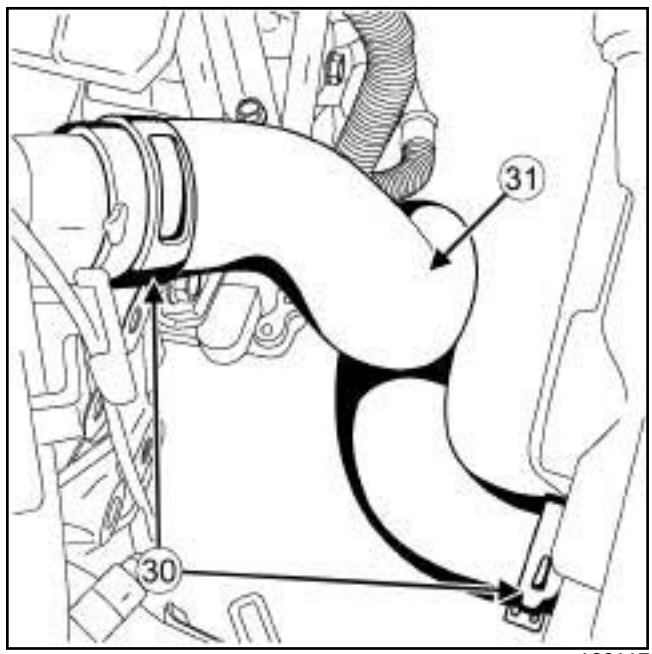
❏ Fit plugs into the openings.




129116

❏ Remove:

- the radiator upper hose clips (**28**) using the tool **(Mot. 1448)**
- the radiator upper hose (**29**) .




129117

❏

Note:

Take care with the remaining coolant.

❏ Remove:

- the radiator lower hose clips ***(30)*** using the tool **(Mot. 1448)**,
- the radiator lower hose ***(31)*** .



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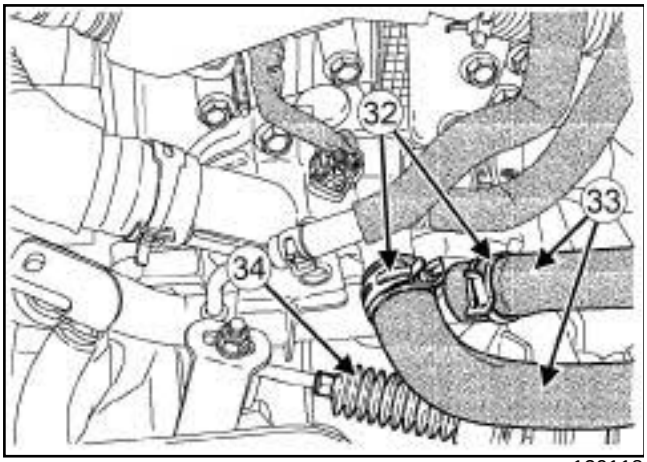
2TR, and FK0 or FK8



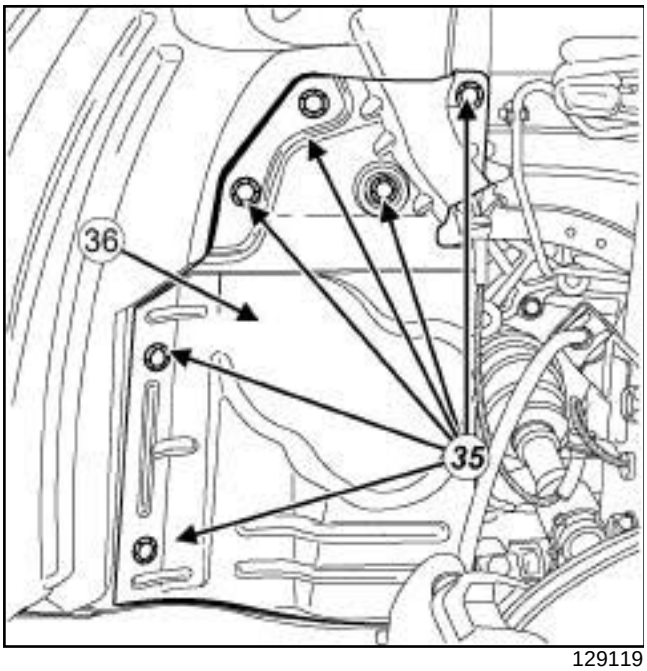
129118

❏ Remove the clips (**32**) from the heater hoses.

❏ Disconnect:

- the heater hoses ***(33)*** ,
- the automatic gearbox control cable ***(34)*** (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls).

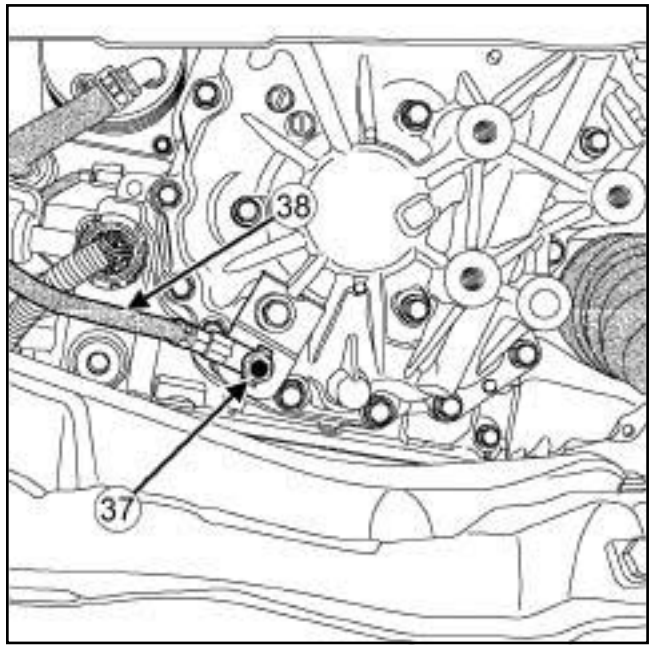
❏ Remove the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



129119

❏ Unclip the left-hand splash guard clips (**35**) .

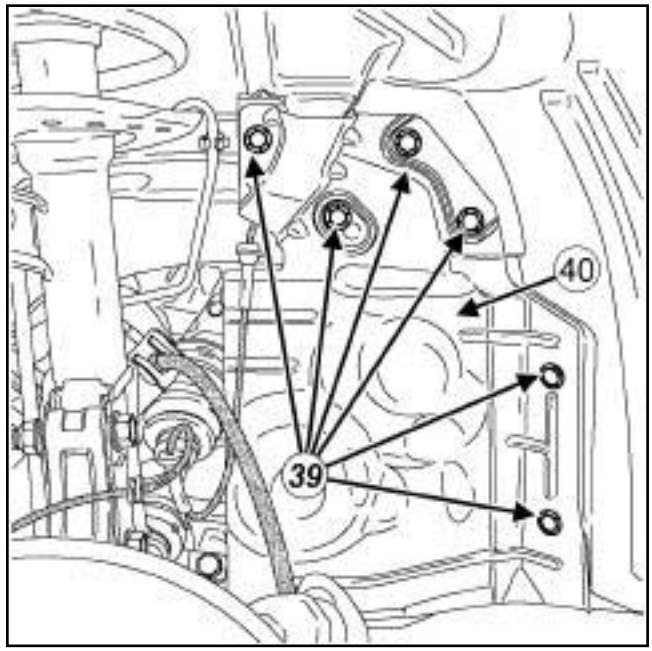
❏ Remove the left-hand splash guard ***(36)*** .



129120

❏ Remove the automatic gearbox earth cable bolt (**37**) .

❏ Disconnect the automatic gearbox earth wire ***(38)*** .



129121

❏ Unclip the right-hand splash guard clips (**39**) .

❏ Remove:

- the right-hand splash guard ***(40)*** ,
- the connector pipe (see **19B**, **Exhaust**, **Connector pipe: Removal - Refitting**, page **19B-16**) ,
- the front left-hand driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),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2TR, and FK0 or FK8

- the front right-hand driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshaft),
- the rear suspended engine mounting (see **19D**, **Engine mounting**, **Lower engine tie-bar: Removal - Refitting**, page **19D-26**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

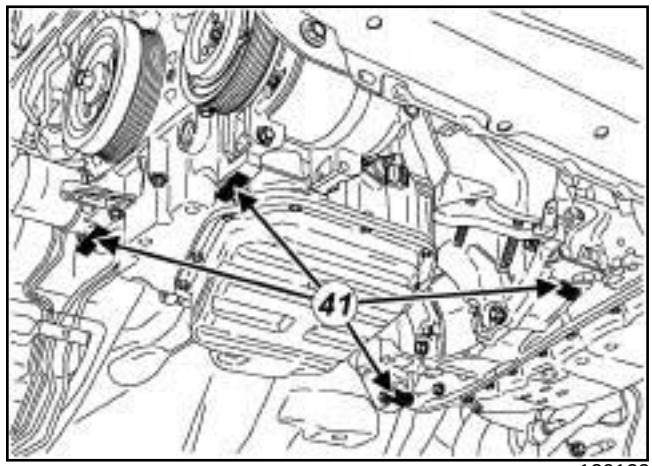
FK8

❏ Uncouple the longitudinal driveshaft from the transfer box (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

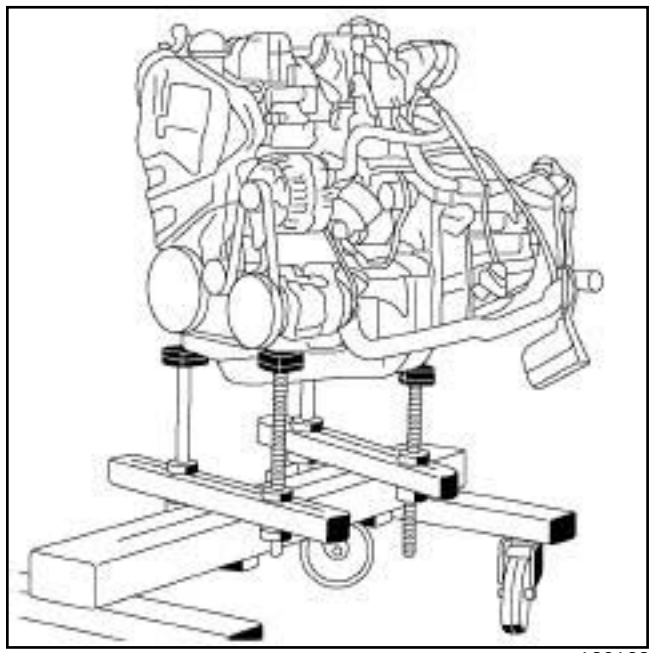
❏ Secure the longitudinal driveshaft to the control cable bracket using a cord.

❏ Remove the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129122


129123

❏ Support the « engine-gearbox» assembly on the tool **(Mot. 1390)** at (**41**) .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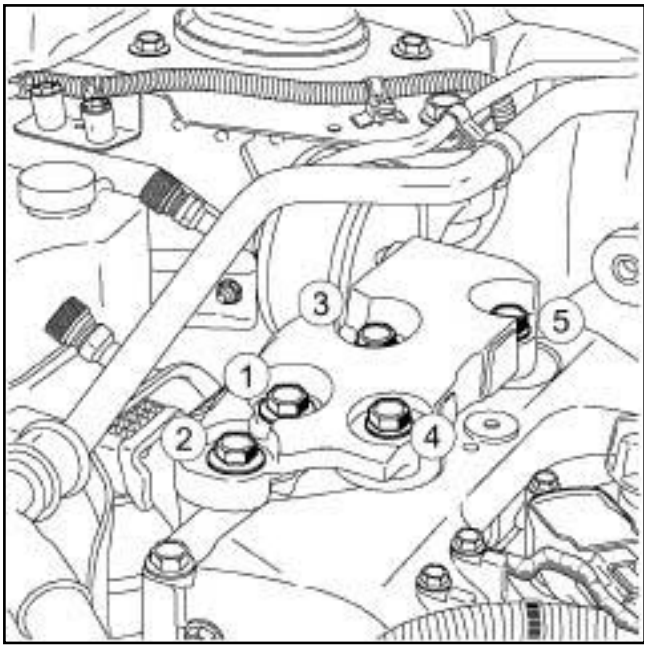
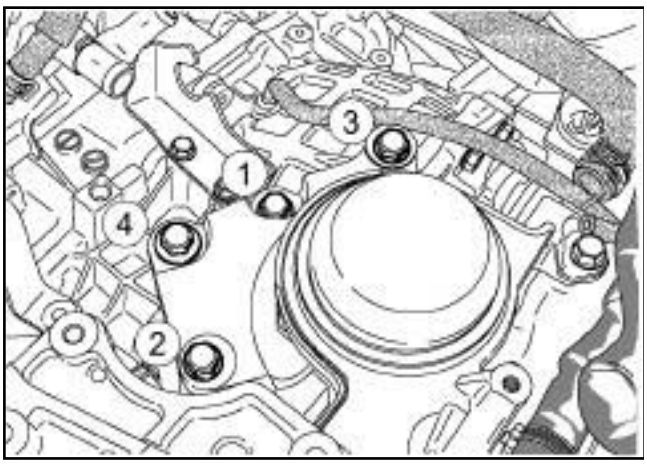
2TR, and FK0 or FK8



129124

❑ Remove in order the right-hand suspended engine mounting bolts.



129125

❑ Remove in order the left-hand suspended engine mounting bolts.

Note:

Check that no part is interfering with the vehicle side.

Before and during lifting, always check that the wiring remains connected.

During removal, always take care to prevent the vehicle from falling off the lift because of changes in its centre of gravity.

❑ Raise the lift to remove the « engine-gearbox » assembly.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ For standard engine replacements (see **Engine: Parts and consumables for the repair work**) (Technical Note 6045A, 10A, Engine and peripherals).

❑ Always replace the O-rings on the air conditioning pipes.

### II - REFITTING OPERATION FOR PART CONCERNED

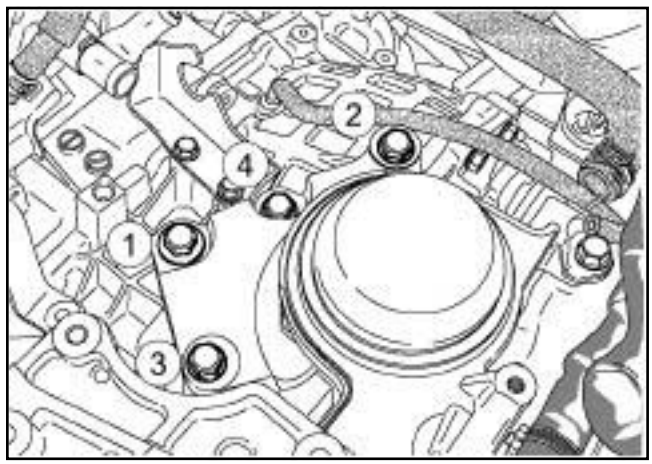
❑

Note:

Never allow engine oil to come into contact with the suspended engine mounting. Do not damage the suspended engine mountings.

Check that every suspended engine mounting is fitted correctly and tighten the nuts and bolts.

❑ Fit the « engine - gearbox » assembly into the engine compartment using the tool **(Mot. 1390)**.



129125

❑ Refit in order the left-hand suspended engine mounting bolts.

❑ Torque tighten in order the **left-hand suspended engine mounting bolts (50 N.m)**.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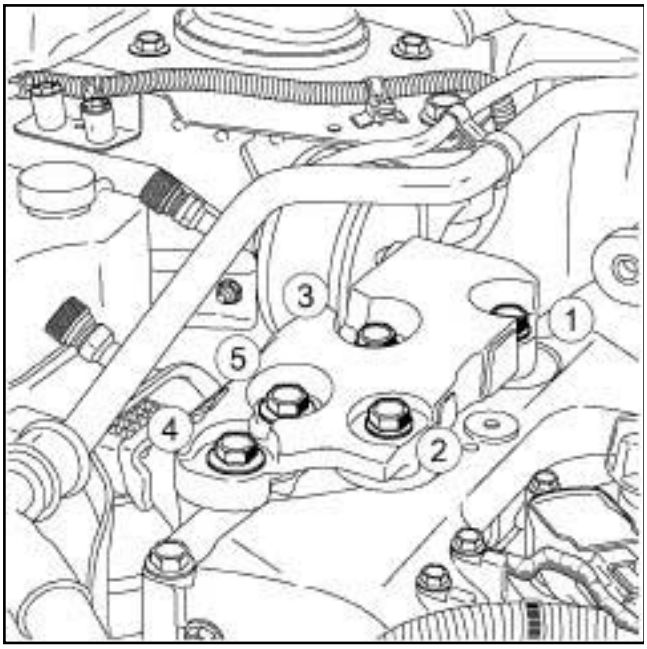
2TR, and FK0 or FK8



129124

❏ Refit in order the right-hand suspended engine mounting bolts.

❏ Torque tighten in order the **right-hand suspended engine mounting bolts (55 N.m)**.

**III - FINAL OPERATION.**

FK8

❏ Refit:

- the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts),
- the longitudinal driveshaft on the transfer box (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❏ Refit:

- the front right-hand driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the front left-hand driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the connector pipe (see **19B**, **Exhaust**, **Connector pipe: Removal - Refitting**, page **19B-16**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the rear suspended engine mounting (see **19D**, **Engine mounting**, **Lower engine tie-bar: Removal - Refitting**, page **19D-26**) ,
- the right-hand splash guard.

❏ Clip on the right-hand splash guard clips.

❏ Connect the earth cable on the automatic gearbox.

❏ Refit the earth cable bolt on the automatic gearbox.

❏ Torque tighten the **earth cable bolt on the automatic gearbox (21 N.m)**.

❏ Refit the left-hand splash guard.

❏ Clip on the left-hand splash guard clips.

❏ Refit the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Connect:

- the automatic gearbox control cable (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls)
- the heater hoses.

❏ Refit:

- the heater hose clips,
- the radiator lower hose,
- the radiator lower hose clips,
- the radiator upper hose,
- the radiator upper hose clips.

❏ Remove the caps from the apertures.

❏ Connect the air conditioning pipes on the air conditioning compressor.

❏ Refit:

- the bolt from the air conditioning pipe,
- the air conditioning pipe nut.

❏ Torque tighten:

- the **air conditioning pipe bolt (4 N.m)**.
- the **air conditioning pipe nut (4 N.m)**.

❏ Connect the earth cable on the alternator support.

❏ Refit the earth cable bolt on the alternator support.

❏ Torque tighten the **earth cable bolt on the alternator support (7 N.m)**.

❏ Refit:

- brake servo vacuum pipe ,
- the clip on the brake servo vacuum pipe,
- the fuel vapour rebreathing pipe,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2TR, and FK0 or FK8

- the fuel vapour rebreathing hose clip.

❑ Connect the quick-release union on the fuel supply pipe.

Note:

Check the connection of the quick-release union by pulling on the part.

❑ Refit:

- the plug of the fuel supply union,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the breather hose,
- the breather hose clip,
- The air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the bracket ***(13)*** ,
- the bracket bolts.

❑ Torque tighten the **bracket bolts (21 N.m)**.

❑ Refit:

- the engine wiring support,
- the engine wiring support bolts.

❑ Torque tighten the **engine wiring support bolts (21 N.m)**.

❑ Connect the engine fuse and relay box wiring connectors.

❑ Refit:

- the fuse and relay box cover,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

❑ Connect the battery positive terminal wiring connectors.

❑ Refit:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the engine cover,
- the fuel pump fuse,
- the Protection and Switching Unit cover,
- the air inlet sleeve on the air filter unit and on the air resonator,
- the air inlet sleeve clips.

❑ Refill:

- the refrigerant circuit using a **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).
- the automatic gearbox oil (see **Automatic gearbox oil: Draining - Refilling**) (23A, Automatic transmission),
- the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

Note:

When replacing the engine, carry out the programming using the **diagnostic tool** (see **Fault finding - Replacement of components**) (17B, Petrol injection).


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| Essential special tooling | |
|---|---|
| **Mot. 1869** | Pliers for disconnecting the fuel circuit |
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1390** | Support for removing/refitting the engine - gearbox assembly. |

| Essential equipment |
|---|
| refrigerant charging station |
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| bolts and nuts of the left-hand suspended engine mounting | **105 N.m** |
| left-hand suspended engine mounting nut | **65 N.m** |
| right-hand suspended engine mounting bolts | **55 N.m** |
| earth cable bolt on the manual gearbox | **14 N.m** |
| air conditioning pipe bolt | **4 N.m** |
| air conditioning pipe nut | **4 N.m** |
| earth cable bolt on the alternator support | **7 N.m** |
| bracket bolts | **21 N.m** |
| engine wiring support bolts | **21 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **Engine: Precautions for repair**) .

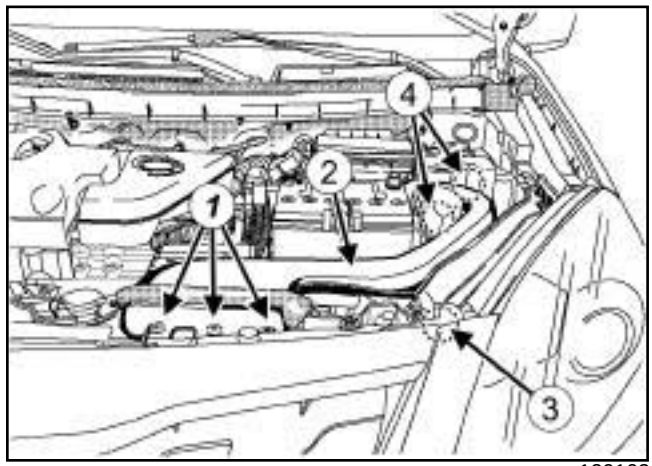
**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

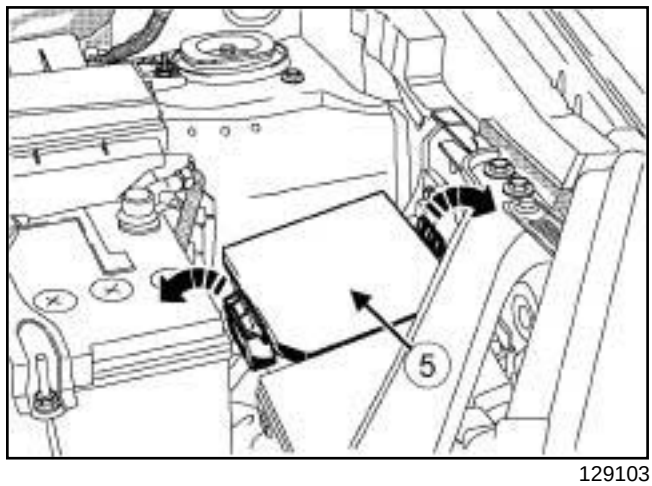
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.



129102

❑ To release the fuel pressure, remove:

- the air inlet sleeve clips (**1**) ,
- the air inlet sleeve (**2**) from the air resonator (**3**) and the air filter unit (**4**) .



129103

❑ Remove the cover (**5**) from the Protection and Switching Unit.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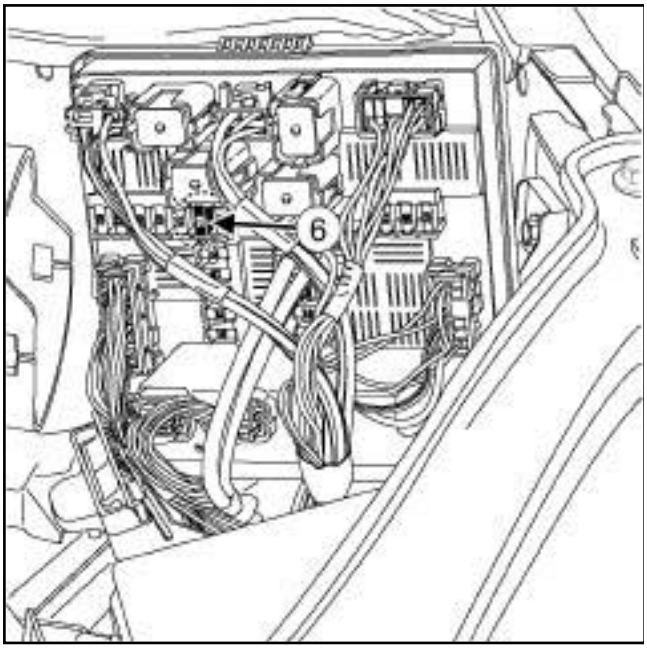
2TR, and ND5 or ND8




129104

❏ Remove the fuse (**6**) of the fuel pump(**F13**) (**15A**).

❏ Release the fuel pressure of the fuel supply pipe.

> Note:
>
> After switching the engine off, start it again two or three times to fully release the fuel pressure.

❏ Drain:

- the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) ,
- the manual gearbox oil (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox),
- the refrigerant circuit using a **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

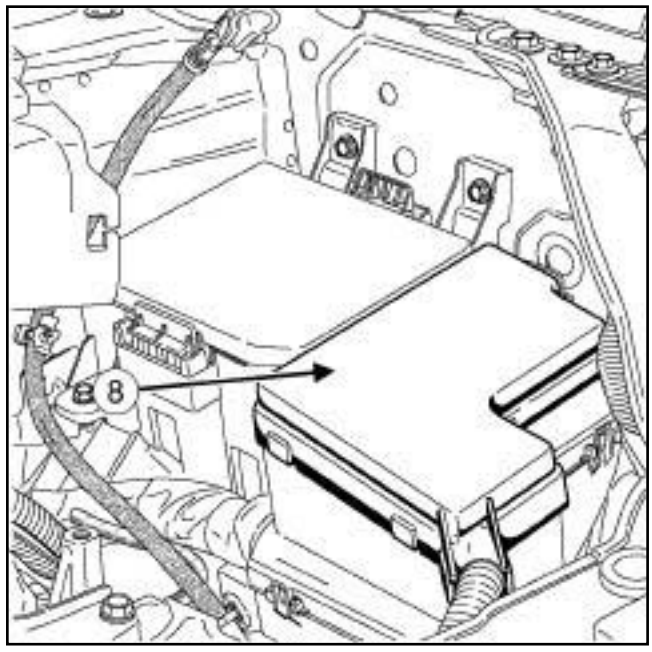
❏ Remove:

- the engine cover,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

129105

❏ Disconnect the battery positive terminal wiring connectors (**7**) .

❏ Remove the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).




129106

❏ Remove the engine fuse and relay box cover (**8**) .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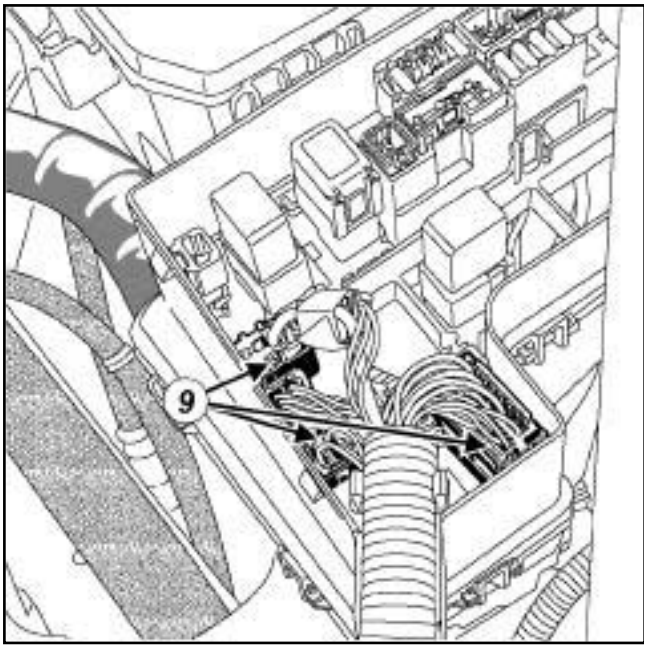
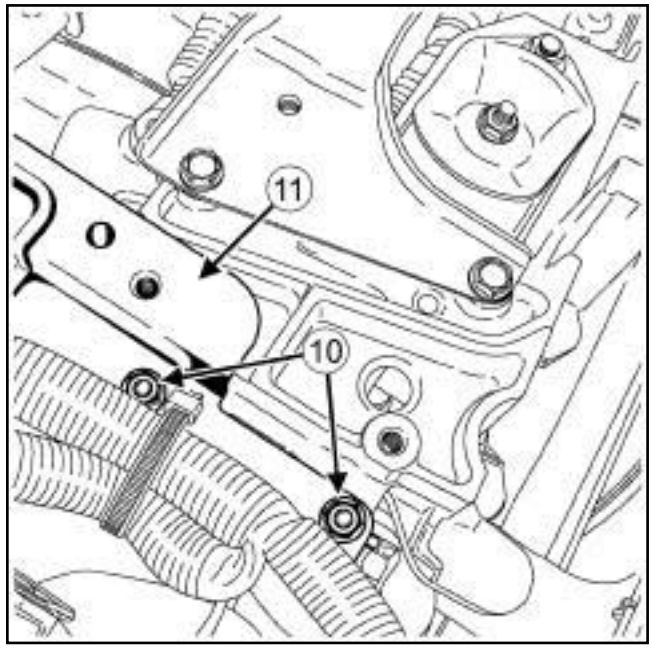
2TR, and ND5 or ND8




129107

❑ Disconnect the engine fuse and relay box wiring connectors (**9**) .




131126

❑ Remove:

- the engine wiring support bolts (**10**) ,
- the engine wiring support (**11**) .
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

Note:

Attach the engine wiring temporarily on the engine side.



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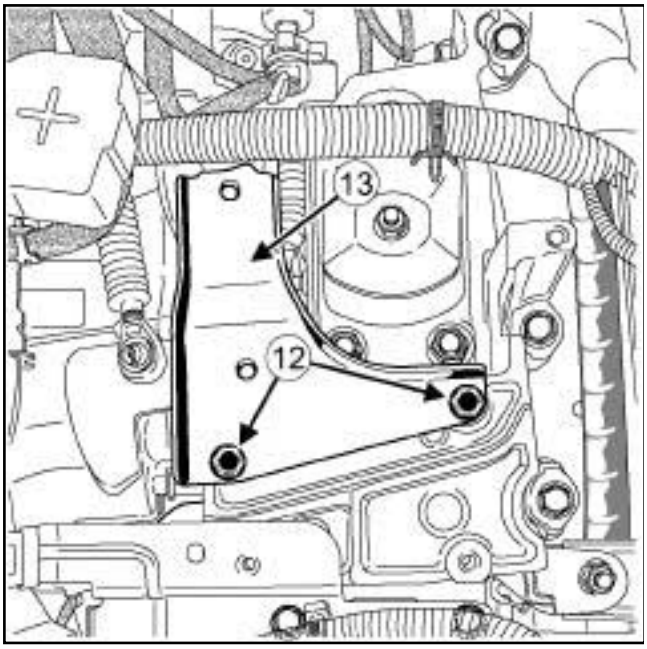
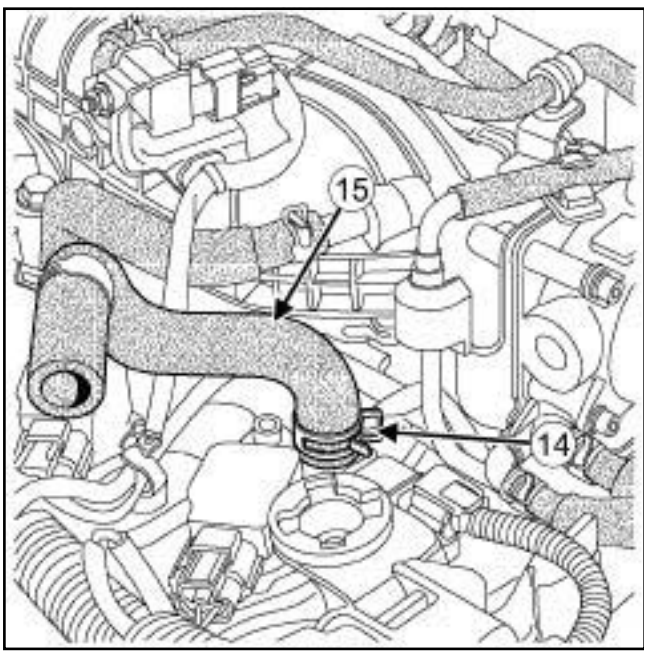
2TR, and ND5 or ND8




131127

❑ Remove:

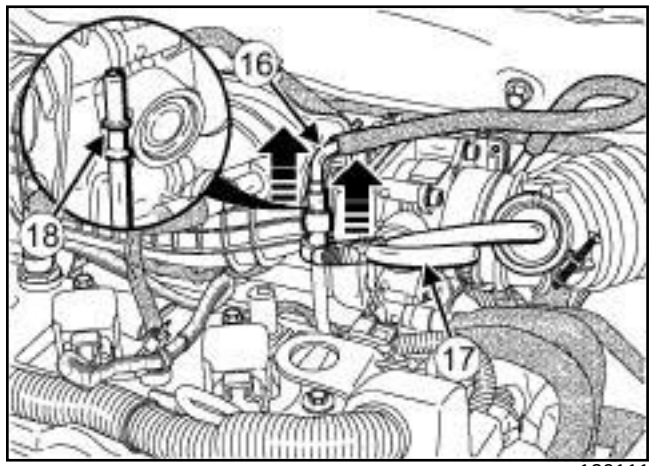
- the bolts (**12**) from the bracket,
- the bracket (**13**) ,
- the rocker cover air resonator (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**)




129110

❑ Remove:

- the breather hose clip (**14**) ,
- the breather hose (**15**) ,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) .




129111

❑ Remove the plug of the fuel supply union.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

❑ Disconnect the quick-release union (**16**) from the fuel supply pipe using the tool **(Mot. 1869)** (**17**) .

Note:

Insert the tool **(Mot. 1869)** on the second retainer (**18**) .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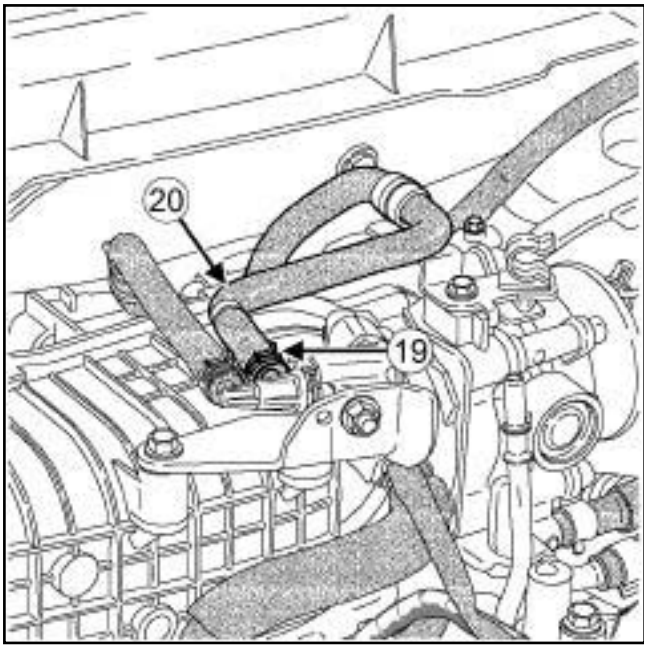
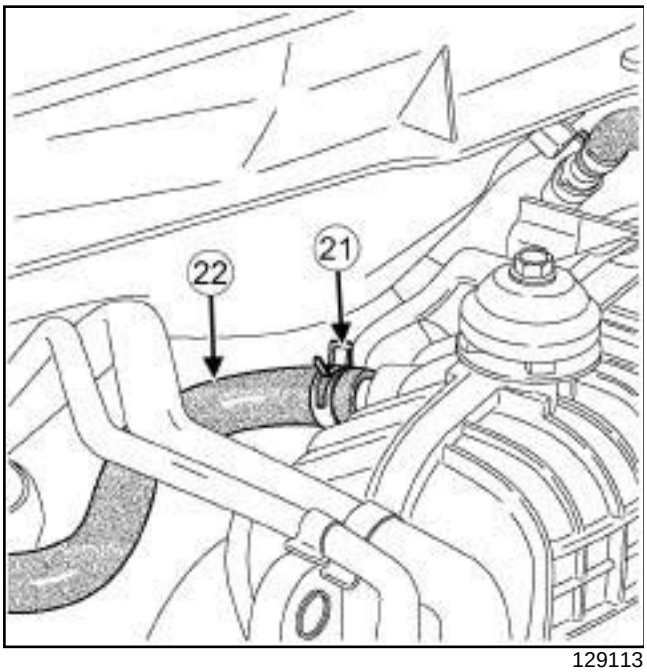



129112

❏ Disconnect:

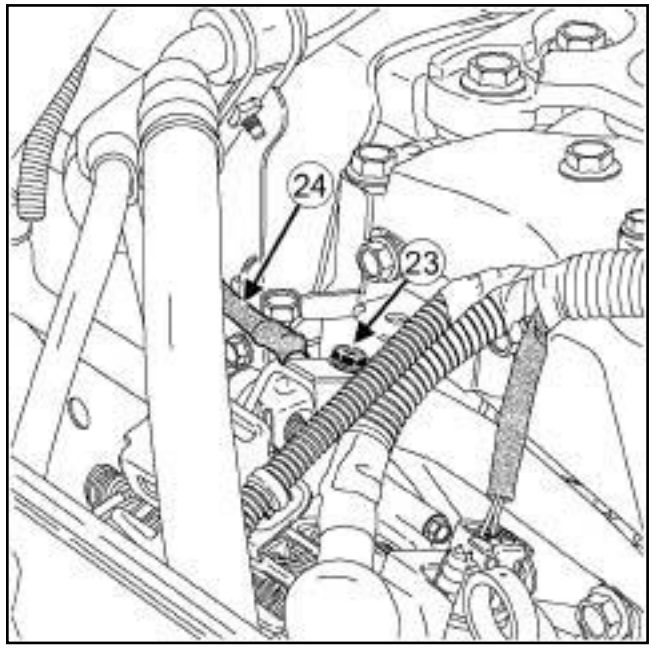
- the fuel vapour rebreathing hose clip (**19**) ,
- the fuel vapour rebreathing hose (**20**) .




129113

❏ Disconnect:

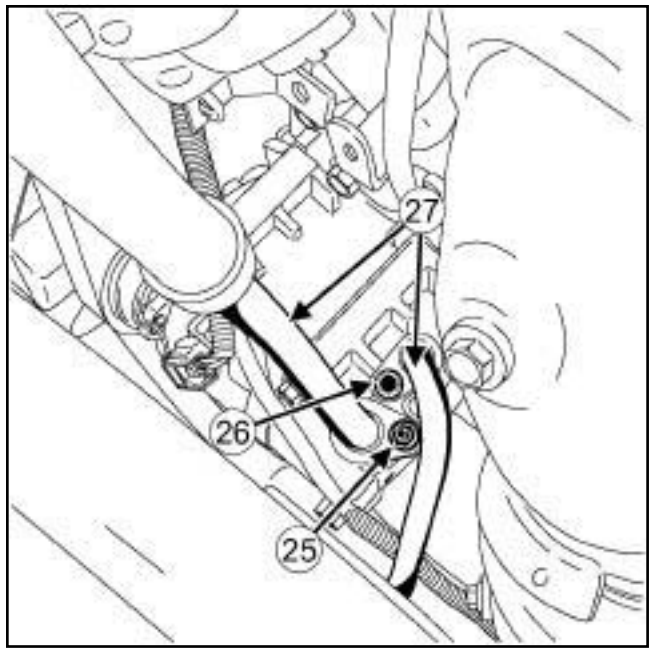
- the clip (**21**) from the brake servo vacuum pipe,
- the vacuum pipe (**22**) from the brake servo.




129114

❏ Remove the alternator support earth cable bolt (**23**) .

❏ Disconnect the alternator support cable ***(24)*** .




129115

❏ Remove:

- the air conditioning pipe nut (**25**) ,
- the air conditioning pipe bolt (**26**) .

❏ Disconnect the air conditioning pipes ***(27)*** from the air conditioning compressor.

❏ Fit plugs into the openings.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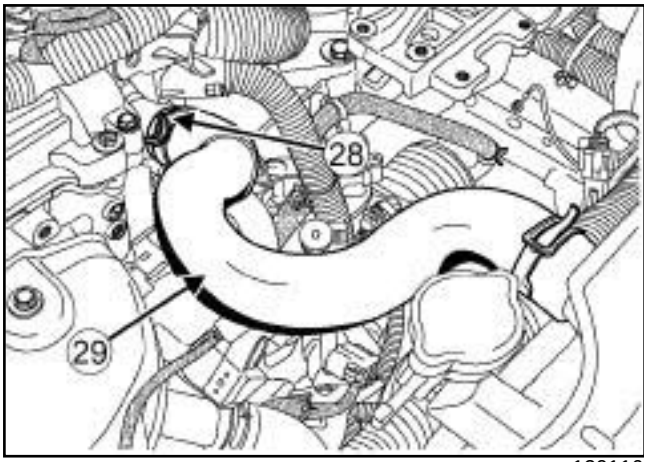
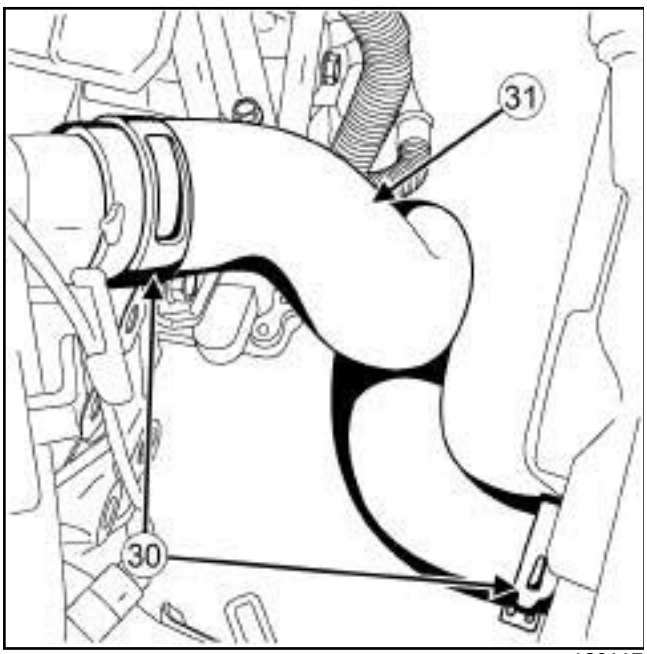



129116

❏ Remove:

- the radiator upper hose clips (**28**) using the tool **(Mot. 1448)**
- the radiator upper hose (**29**) .




129117

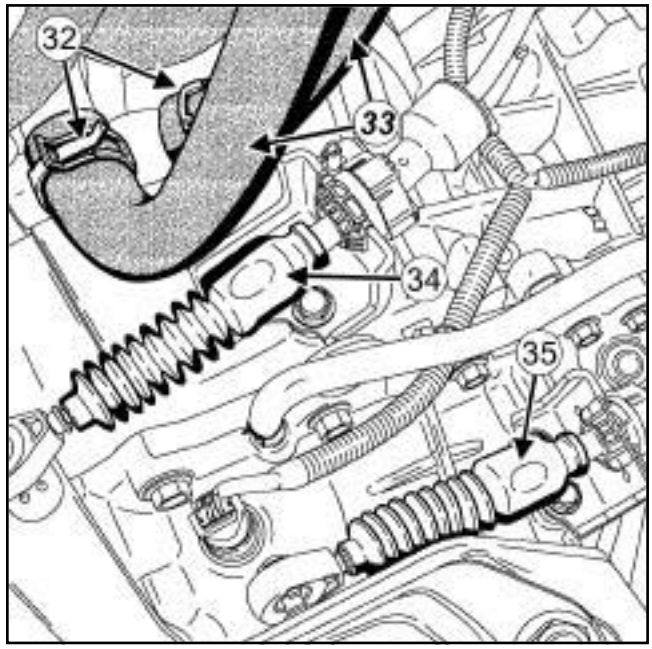
❏

Note:

Take care with the remaining coolant.

❏ Remove:

- the radiator lower hose clips ***(30)*** using the tool **(Mot. 1448)**,
- the radiator lower hose ***(31)*** .




132485

❏ Remove the clips (**32**) from the heater hoses.

❏ Disconnect:

- the heater hoses ***(33)*** ,
- the gear lever cable ***(34)*** (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls).
- the selector lever cable ***(35)*** (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls).

❏ Remove the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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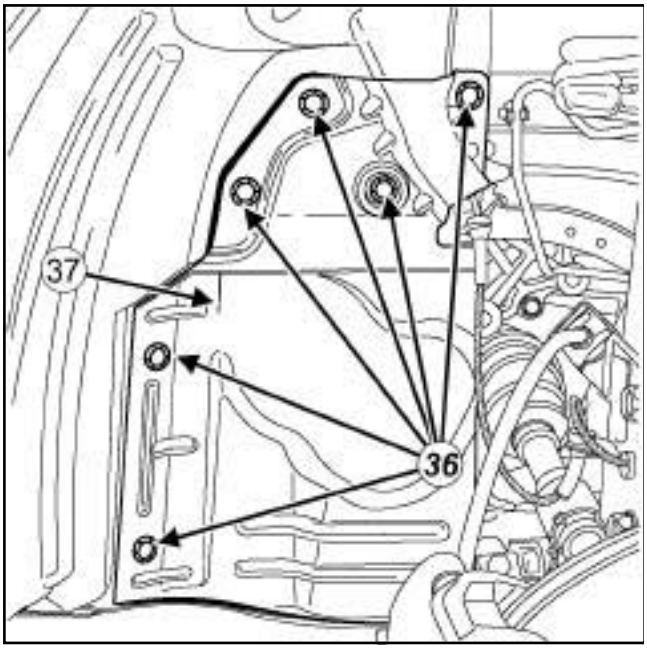
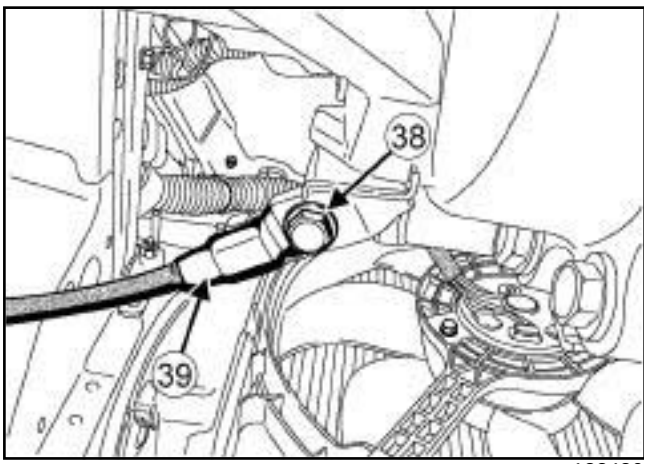
2TR, and ND5 or ND8




129119

❏ Unclip the left-hand splash guard clips (**36**) .

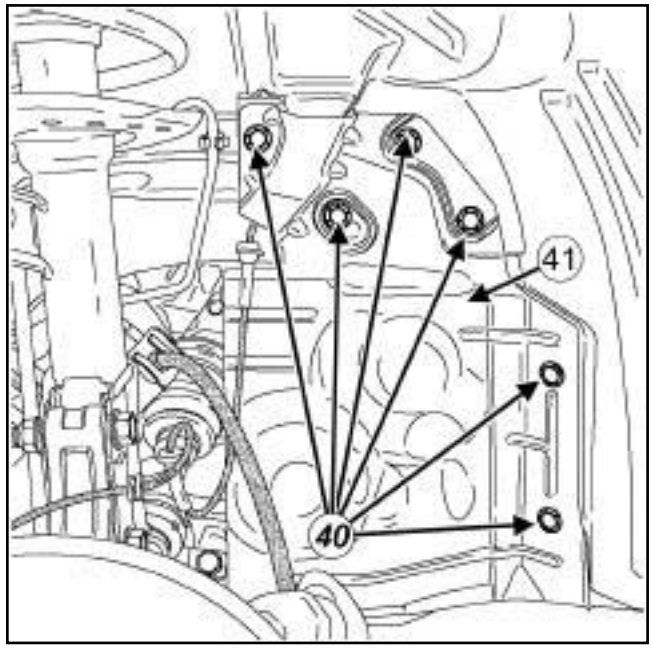
❏ Remove the left-hand splash guard ***(37)*** .




132486

❏ Remove the manual gearbox earth cable bolt (**38**) .

❏ Disconnect the manual gearbox earth cable ***(39)*** .




129121

❏ Unclip the right-hand splash guard clips (**40**) .

❏ Remove:

- the right-hand splash guard ***(41)*** ,
- the connector pipe (see **19B**, **Exhaust**, **Connector pipe: Removal - Refitting**, page **19B-16**) ,
- the front left-hand driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the front right-hand driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the rear suspended engine mounting (see **19D**, **Engine mounting**, **Lower engine tie-bar: Removal - Refitting**, page **19D-26**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

ND5

❏ Disconnect the longitudinal driveshaft from the transfer box (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❏ Secure the longitudinal driveshaft to the control cable bracket using a cord.

❏ Remove the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts).



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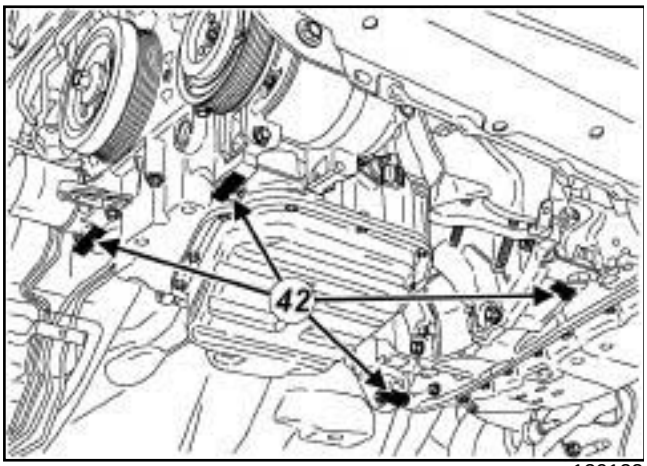
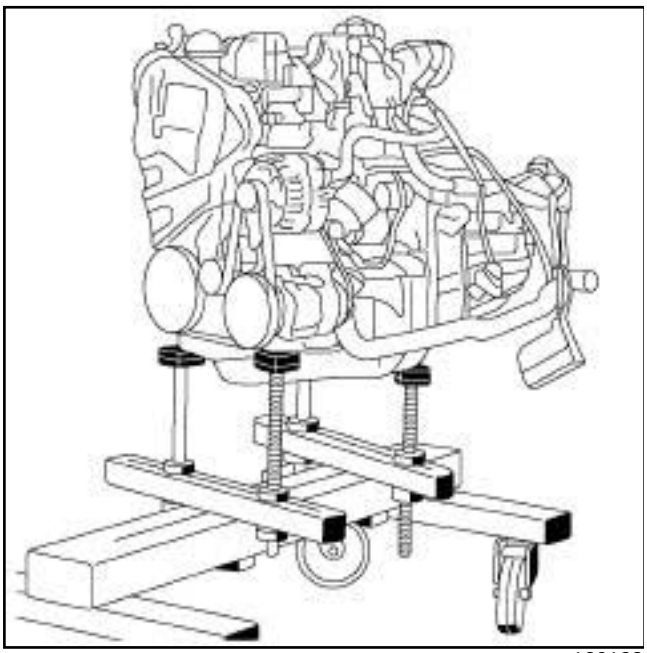
2TR, and ND5 or ND8

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

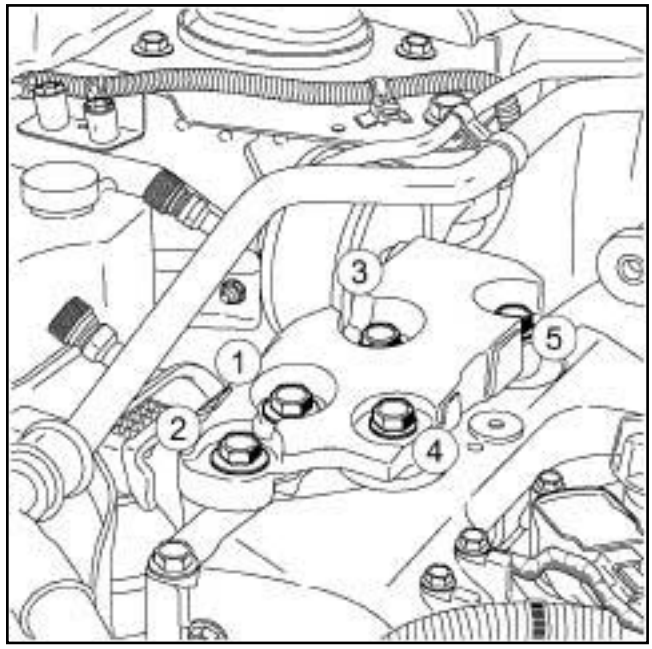



129122



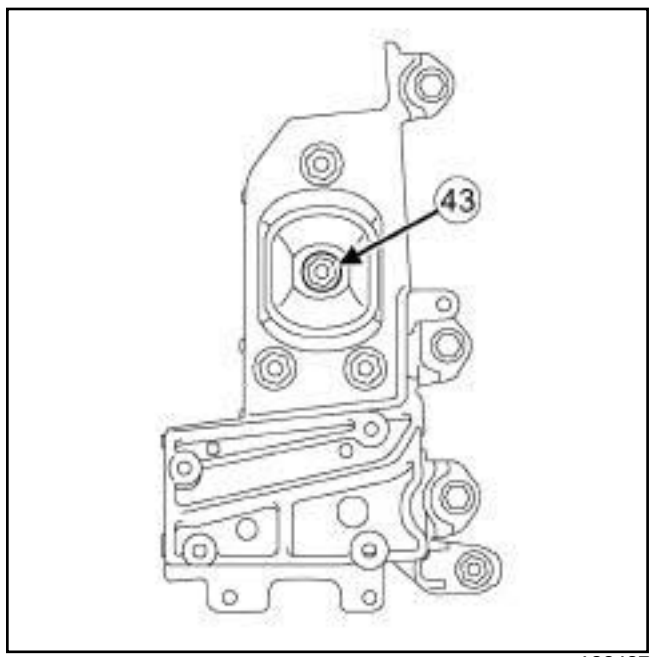
129123

❑ Support the « engine-gearbox» assembly on the **(Mot. 1390)** at (**42**) .




129124

❑ Remove in order the right-hand suspended engine mounting bolts.




132487

❑ Remove the left-hand suspended engine mounting nut (**43**) from the gearbox.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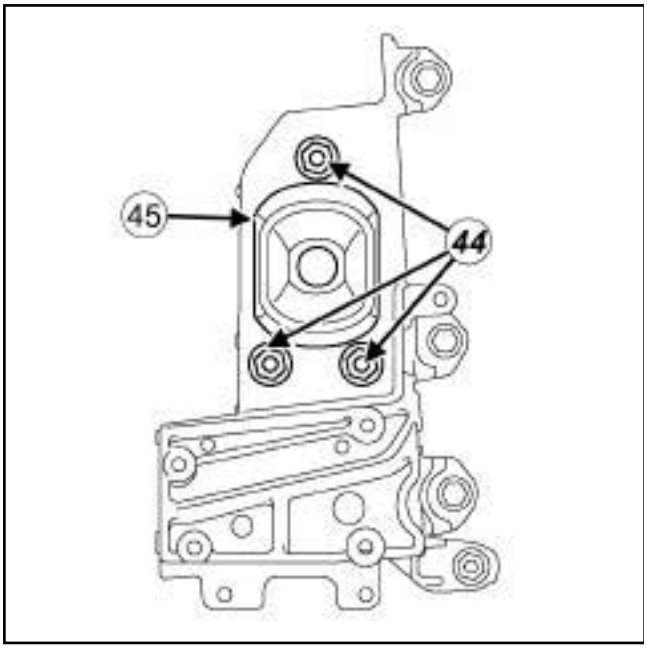



131131

❑ Remove:

- the nuts (**44**) and bolts from the left-hand suspended engine mounting,
- the rubber pad (**45**) from the left-hand suspended engine mounting.

Note:

Check that no part is interfering with the vehicle side.

Before and during lifting, always check that the wiring remains connected.

During removal, always take care to prevent the vehicle from falling off the lift because of changes in its centre of gravity.

❑ Raise the lift to remove the « engine-gearbox » assembly.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ For standard engine replacement (see **Engine: Parts and consumables for the repair work**) .

❑ Always replace the O-rings on the air conditioning pipes.

### II - REFITTING OPERATION FOR PART CONCERNED

❑

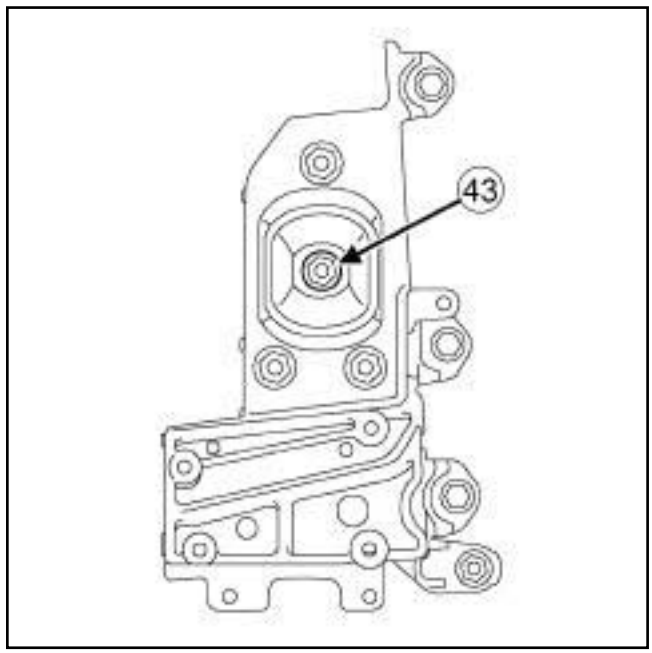
Note:

Never allow engine oil to come into contact with the suspended engine mounting. Do not damage the suspended engine mountings.

Check that every suspended engine mounting is fitted correctly and tighten the nuts and bolts.

❑ Fit the « engine - gearbox » assembly into the engine compartment using the tool **(Mot. 1390)**.

❑ Refit the rubber pad on the left-hand suspended engine mounting.




132487

❑ Refit:

- the left-hand suspended engine mounting nut (**43**) on the gearbox.
- the bolts and the nuts of the left-hand suspended engine mounting.

❑ Torque tighten:

- the **bolts and nuts of the left-hand suspended engine mounting (105 N.m)**,
- the **left-hand suspended engine mounting nut (65 N.m)**.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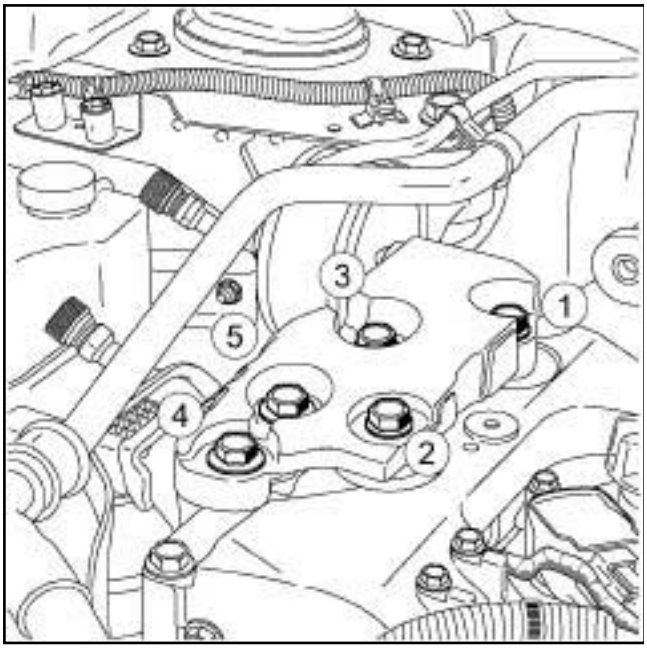

129124

❏ Refit in order the right-hand suspended engine mounting bolts.

❏ Torque tighten in order the **right-hand suspended engine mounting bolts (55 N.m)**.

**III - FINAL OPERATION.**

ND5

❏ Refit:

- the transfer box (see **Transfer box: Removal - Refitting**) (29A, Driveshafts),
- the longitudinal driveshaft on the transfer box (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❏ Refit:

- the front right-hand driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the front left-hand driveshaft (see **Front left-hand wheel driveshaft: Removal - Refitting**) (29A, Driveshafts),
- the connector pipe (see **19B**, **Exhaust**, **Connector pipe: Removal - Refitting**, page **19B-16**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the rear suspended engine mounting (see **19D**, **Engine mounting**, **Lower engine tie-bar: Removal - Refitting**, page **19D-26**) ,
- the right-hand splash guard.

❏ Clip on the right-hand splash guard clips.

❏ Connect the earth cable on the manual gearbox.

❏ Refit the earth cable bolt on the manual gearbox.

❏ Torque tighten the **earth cable bolt on the manual gearbox (14 N.m)**.

❏ Refit the left-hand splash guard.

❏ Clip on the left-hand splash guard clips.

❏ Refit the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Connect:

- the selector lever cable (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls)
- the gear lever cable (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls)
- the heater hoses.

❏ Refit:

- the heater hose clips,
- the radiator lower hose,
- the radiator lower hose clips,
- the radiator upper hose,
- the radiator upper hose clips.

❏ Remove the caps from the apertures.

❏ Connect the air conditioning pipes on the air conditioning compressor.

❏ Refit:

- the bolt from the air conditioning pipe,
- the air conditioning pipe nut.

❏ Torque tighten:

- the **air conditioning pipe bolt (4 N.m)**.
- the **air conditioning pipe nut (4 N.m)**.

❏ Connect the earth cable on the alternator support.

❏ Refit the earth cable bolt on the alternator support.

❏ Torque tighten the **earth cable bolt on the alternator support (7 N.m)**.

❏ Refit:

- brake servo vacuum pipe ,


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- the clip on the brake servo vacuum pipe,
- the fuel vapour rebreathing hose.
- the fuel vapour rebreathing hose clip.

❏ Connect the quick-release union on the fuel supply pipe.

Note:

Check the connection of the quick-release union by pulling on the part.

❏ Refit:

- the plug of the fuel supply union,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the breather hose,
- the breather hose clip,
- The air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the bracket ***(13)*** ,
- the bracket bolts.

❏ Torque tighten the **bracket bolts (21 N.m)**.

❏ Refit:

- the engine wiring support,
- the engine wiring support bolts.

❏ Torque tighten the **engine wiring support bolts (21 N.m)**.

❏ Connect the engine fuse and relay box wiring connectors.

❏ Refit:

- the engine fuse and relay box cover,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

❏ Connect the battery positive terminal wiring connectors.

❏ Refit:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the engine cover,
- the fuel pump fuse,
- the Protection and Switching Unit cover,
- the air inlet sleeve on the air filter unit and on the air resonator.

❏ Clip on the air inlet sleeve clips.

❏ Refill:

- the refrigerant circuit using a **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).
- the manual gearbox oil (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox),
- the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

Note:

When replacing the engine, carry out the programming using the **diagnostic tool** (see **Fault finding - Replacement of components**) (17B, Petrol injection).


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2TR, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |

| Tightening torques ▽ | |
|---|---|
| flywheel bolts | **108 Nm** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Clutch: Precautions for repair**) .

Note:
The engine flywheel is of the dual-mass type.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

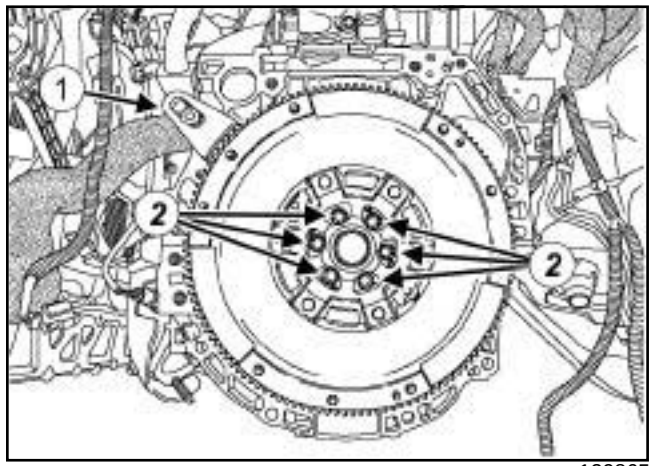
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox),
- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129865

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- the flywheel bolt ***(2)*** ,
- the flywheel,
- the **(Mot. 1431)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the flywheel bolts.

❏ Clean the engine flywheel bolt thread holes on the crankshaft using **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Degrease the pressure face of the flywheel on the crankshaft.

❏ Check the condition of the flywheel.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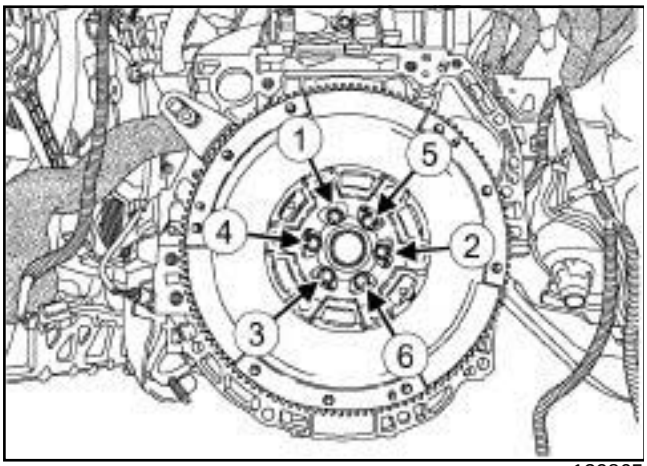
**II - REFITTING OPERATION FOR PART CONCERNED**



129865

❏ Refit:

- the flywheel,
- the new flywheel bolts,
- the **(Mot. 1431)**.

❏ Tighten to torque and in order the **flywheel bolts (108 Nm)**.

**III - FINAL OPERATION.**

❏ Remove the **(Mot. 1431)**.

❏ Refit:

- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).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M9R, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |

| Tightening torques ▽ | |
|---|---|
| flywheel bolts | **25 N.m + 45° ± 6°** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Clutch: Precautions for repair**) .

Note:
The engine flywheel is of the dual-mass type.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

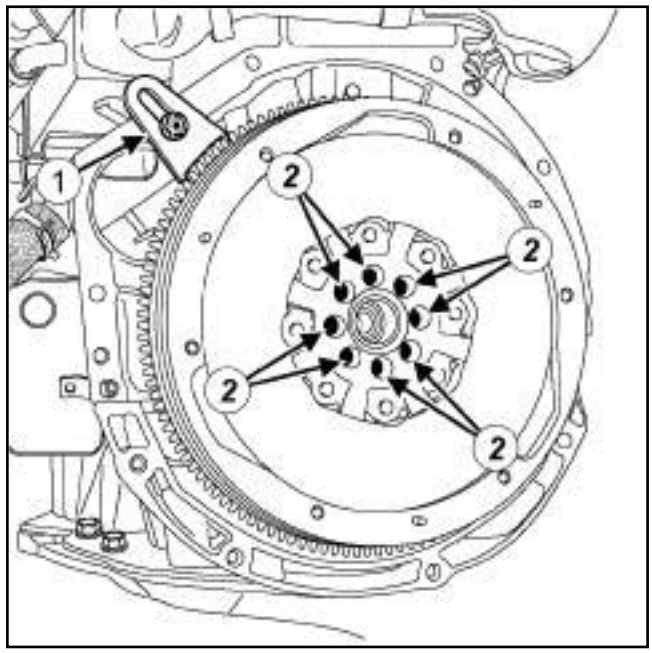
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox),
- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129864

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- the flywheel bolts ***(2)*** ,
- the flywheel,
- the **(Mot. 1431)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the flywheel bolts.

❏ Clean the engine flywheel bolt thread holes on the crankshaft using **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Degrease the flywheel bearing face on the crankshaft with **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Check the condition of the flywheel.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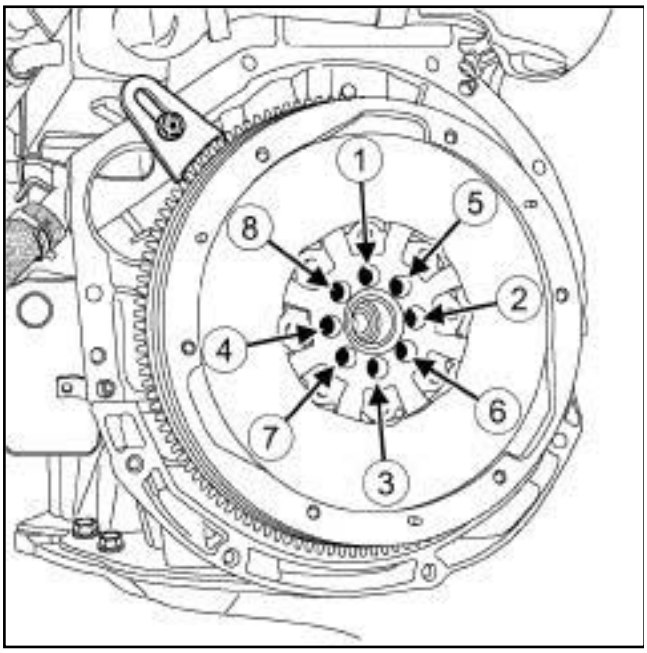
**II - REFITTING OPERATION FOR PART CONCERNED**




129864

❑ Refit:

- the flywheel,
- the new flywheel bolts,
- the **(Mot. 1431)**.

❑ Torque tighten in order the **flywheel bolts (25 N.m + 45° ± 6°)**.

**III - FINAL OPERATION.**

❑ Remove the **(Mot. 1431)**.

❑ Refit:

- the clutch disc and pressure plate (see **Mechanism / Disk: Removal - Refitting**) (20A, Clutch),
- the gearbox (see **Manual gearbox: Removal - Refitting**) (21A, Manual gearbox).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**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **Engine: Precautions for repair**) .

**I - PREPARATION OPERATION FOR ADJUSTING VALVE CLEARANCES**

❑

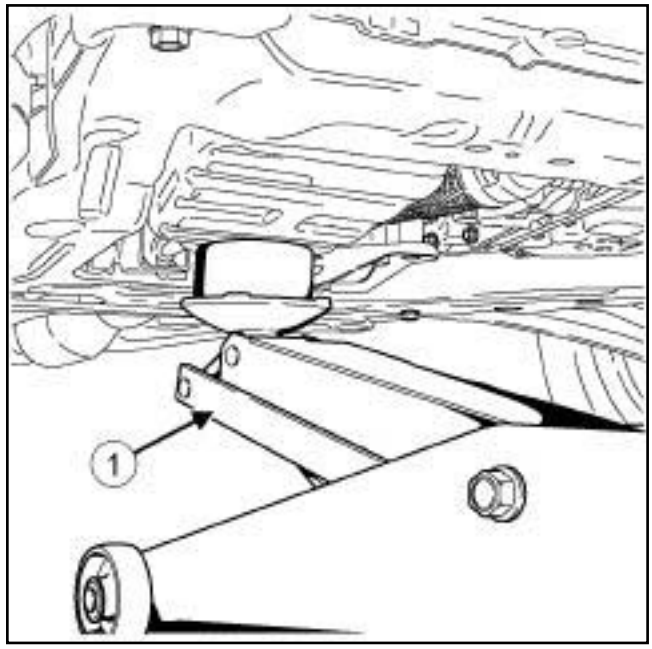
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

**IMPORTANT**
Wear protective gloves during the operation.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the intake duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery : Removal - Refitting**) (80A, Battery),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the engine cover,
- The air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the inlet manifold (see **Inlet manifold: Removal - Refitting**) ,
- the engine undertray.



129165

❑ Place the trolley jack (**1**) or an equivalent engine supporting tool under the cylinder block.

Note:
Place a wooden block or equivalent on the support surface to ensure stability.

**IMPORTANT**
To prevent any accidents, the trolley jack must only be used to lift and/or move the vehicle. The vehicle height must be maintained with axle stands which are strong enough to support the weight of the vehicle.

❑ Remove the right-hand suspended engine mounting (see **19D**, **Engine mounting**, **Right-hand suspended engine mounting: Removal - Refitting**, page **19D-19**) .

❑ Disconnect:

- the wiring on the right-hand engine mounting bracket,
- the ignition coil connectors.

❑ Remove:

- the right-hand engine mounting bracket (see **Timing - cylinder head: Removal**) (Technical Note 6045A, 10A, Engine and peripherals),
- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) (17A, Ignition),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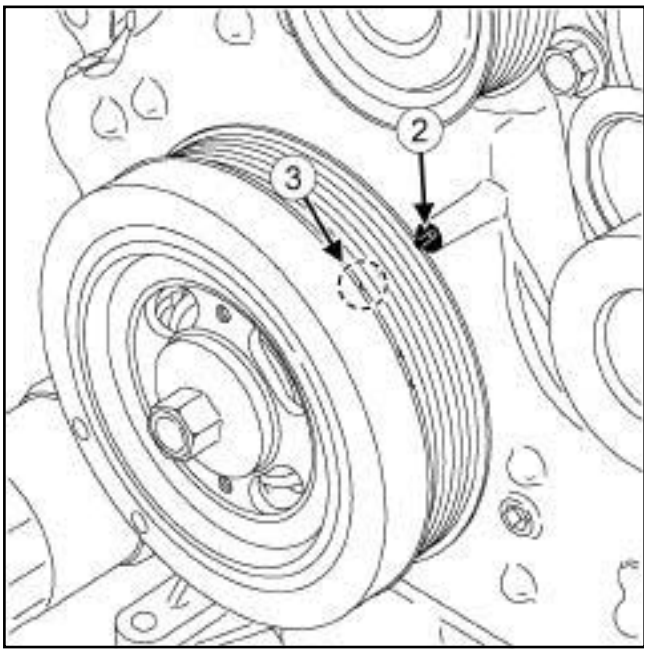
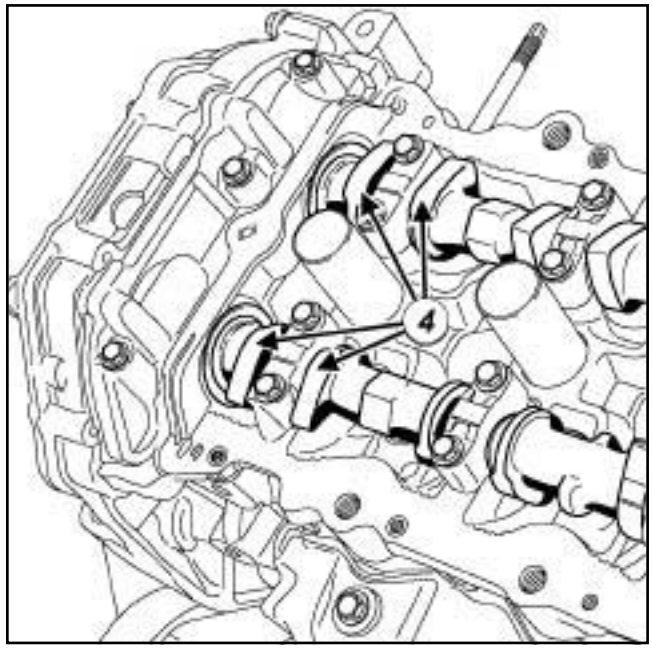
- the rocker cover (see **11A**, **Top and front of engine**, **Rocker cover: Removal - Refitting**, page **11A-17**) (11A, Top and front of engine),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

**II - VALVE CLEARANCE MEASUREMENT OPERATION**




129166

❏ Turn the crankshaft accessories pulley clockwise and align the TDC mark (**3**) and the mark (**2**) located on the timing cover.




129167

❏ Check if the nose of the inlet and exhaust cams (**4**) of cylinder no. 1 are pointing outwards as illustrated. If they are not pointing outwards, turn the crankshaft accessories pulley an additional turn (360 degrees).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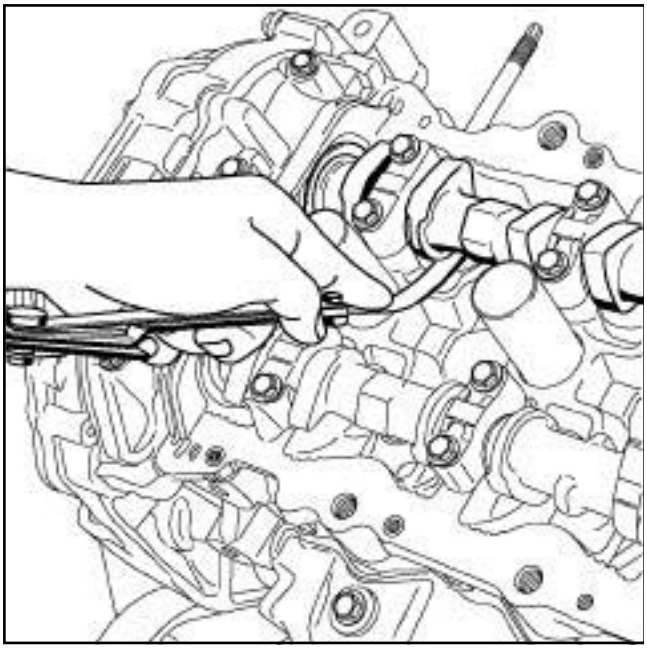


129168

❑ Use a feeler gauge to measure the clearance between the valve tappet and the camshaft.

Note:

Valve clearance:

- inlet:

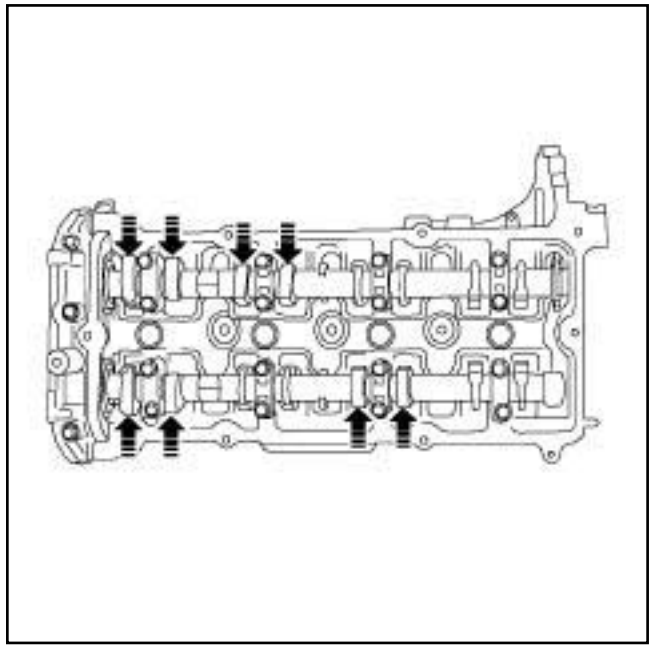
  0.24~0.32 mm (cold),

  0.304~0.416 mm (hot: 80˚C).

- exhaust:

  0.26~0.34 mm (cold),

  0.308~0.432 mm (hot: 80˚C).

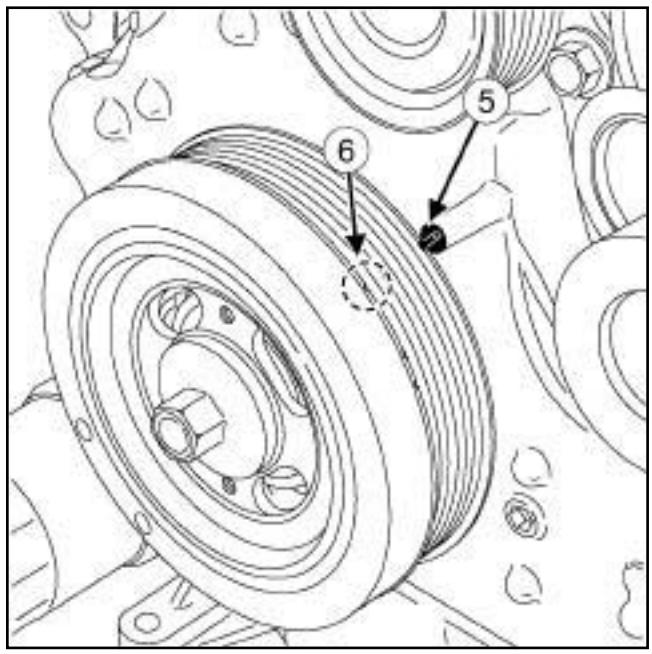


129169

❑ Measurement positions (cylinder no. 1 at TDC):

- Cylinder no. 1: inlet and exhaust,
- Cylinder no. 2: inlet,
- Cylinder no. 3: exhaust.

❑ Measure the valve clearance in the locations indicated by a black arrow on the diagram using a feeler gauge.




129170

❑ Turn the crankshaft accessories pulley one turn (**360˚**) to align the TDC mark (**6**) and the mark (**5**) located on the timing cover.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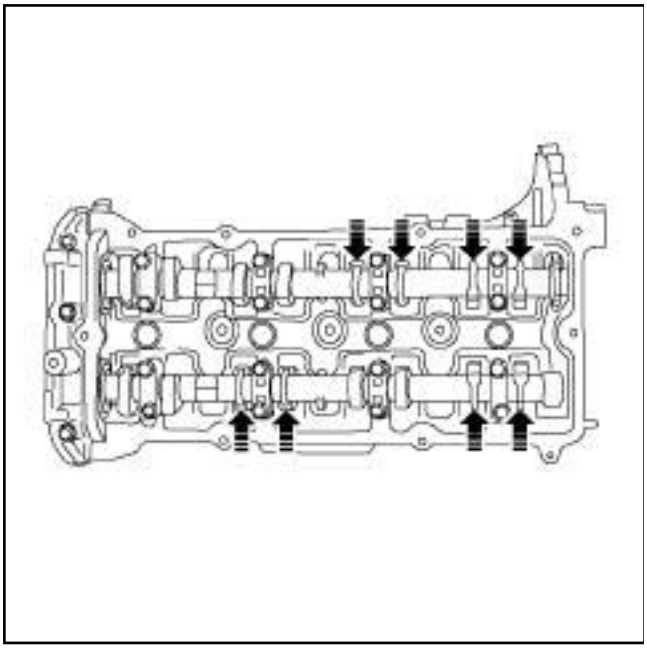

129171

❑ Referring to the diagram, measure the valve clearance in the locations indicated by a black arrow in the diagram using a feeler gauge

❑ Measurement positions (cylinder no. 4 at TDC):

- Cylinder no. 2: exhaust,
- Cylinder no. 3: inlet,
- Cylinder no. 4: inlet and exhaust.

**III - VALVE CLEARANCE ADJUSTMENT OPERATION**

❑ Remove the engine - gearbox assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/ gearbox assembly: Removal - Refitting**, page **10A-44**) .

❑ Strip down the engine (see **Engine: Dismantling**) .

❑ Remove the timing - cylinder head (see **Timing - cylinder head: Removal**) .

❑ Adjust the valve clearance (see **Upper engine: Checking**) .

❑ Refit the timing - cylinder head (see **Timing - cylinder head: Refitting**) .

❑ Rebuild the engine (see **Engine: Refitting**) .

**IV - FINAL OPERATION**

❑ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the rocker cover (see **11A**, **Top and front of engine**, **Rocker cover: Removal - Refitting**, page **11A-17**) ,
- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) ,
- the right-hand engine mounting bracket (see **Timing - cylinder head: Refitting**) (Technical Note 6045A, 10A, Engine and peripherals).

❑ Connect:

- the ignition coil connectors,
- the wiring on the right-hand engine mounting bracket.

❑ Refit the right-hand suspended engine mounting (see **19D**, **Engine mounting**, **Right-hand suspended engine mounting: Removal - Refitting**, page **19D-19**) .

❑ Remove the trolley jack (**1**) or equivalent engine support tool from under the cylinder block.

❑ Refit:

- the engine undertray.
- the inlet manifold (see **Inlet manifold: Removal - Refitting**) ,
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- The air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the engine cover,
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) .


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M9R

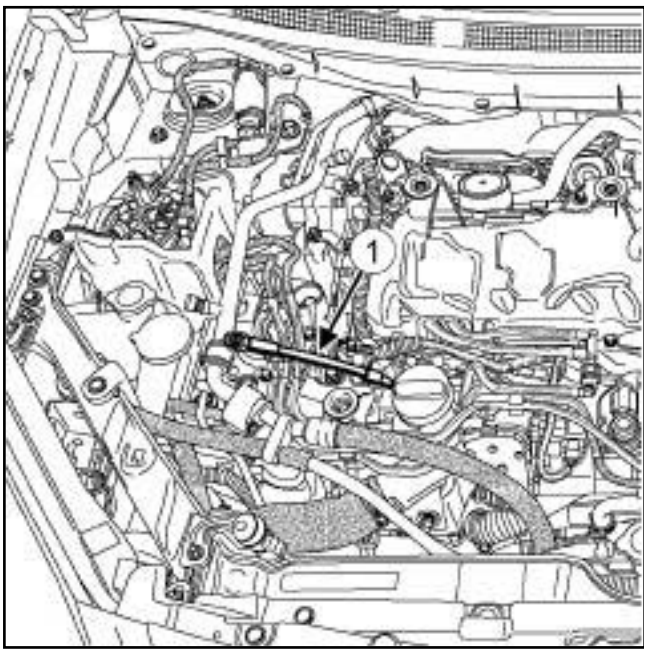
| Essential special tooling | |
|---|---|
| **Mot. 1772** | Compression end pressure test end piece-hose. |

| Essential equipment |
|---|
| diesel compression gauge |
| diagnostic tool |

## I - CHECK PREPARATION OPERATION

❑ Remove:

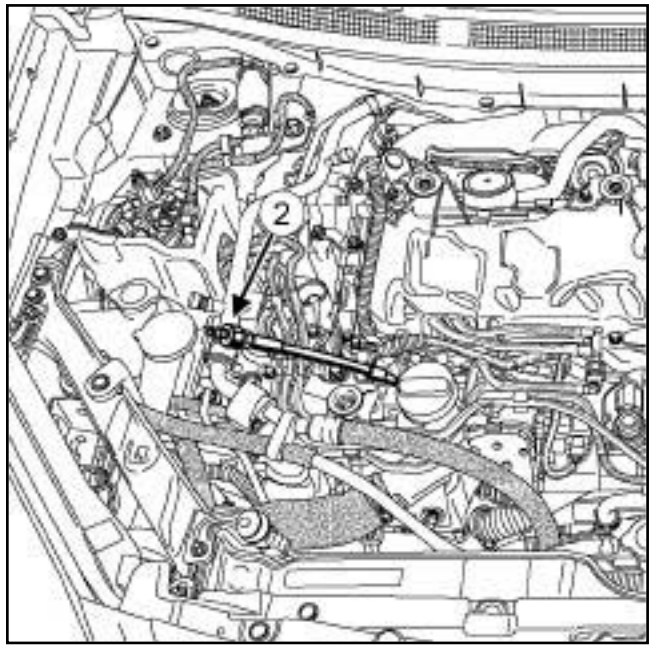
- the engine cover,
- the heater plugs (see **Heater plugs Removal - Refitting**) .




129273

❑ Fit the hose **(Mot. 1772)** in place of one of the removed plugs.

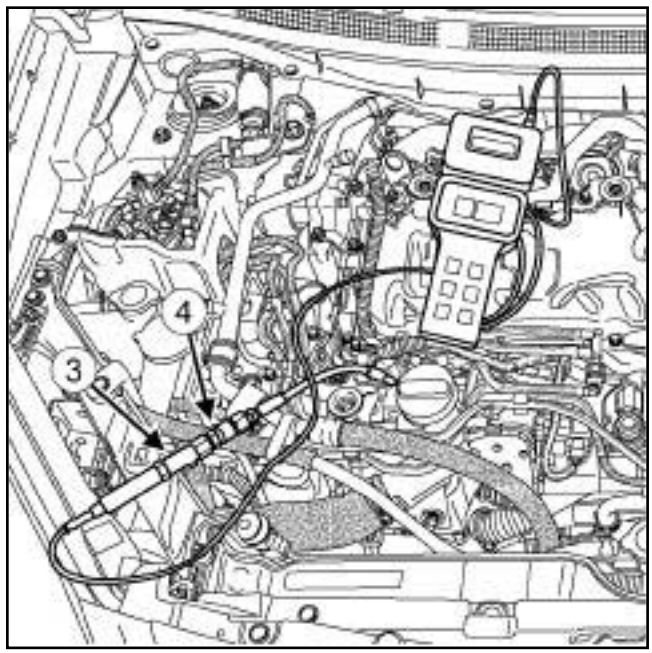
❑ Moderately tighten the hose **(Mot. 1772)** ***(1)*** using an open-jawed spanner.




129274

❑ Screw the conversion hose end piece **(Mot. 1772)** (**2**) of the **diesel compression gauge** onto the hose.

❑ Moderately tighten the end piece onto the hose **(Mot. 1772)**.




129275

❑ Connect the **diesel compression gauge** (**3**) on the **(Mot. 1772)**.

❑ Open the discharge valve ***(4)*** of the **diesel compression gauge** to release the pressure.

❑ Close the discharge valve ***(4)*** of the **diesel compression gauge**.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M9R

❑ Run the command **VP 036: «INHIBITION D'ALIMENTATION DE CARBURANT»** using the **diagnostic tool**.

❑ Put the vehicle under starting conditions:

- manual gearbox in neutral,
- brake pedal released.

**II - CHECKING OPERATION**

❑ Connect a self-contained starter or an automatic battery charger.

Note:

The engine will be turned by the starter for **20 s**, without starting.

❑ Press the vehicle start button to trigger the engine starting phase.

Note:

It is necessary to wait for at least **10 seconds** before starting the engine each time (the starter will not run due to its thermal protection).

❑ Open the discharge valve to release all of the pressure from the **diesel compression gauge**.

❑ Make progress with the diagram sheet.

❑ Repeat this process for other cylinders.

❑ Compare the values obtained.

**III - FINAL OPERATION.**

❑ Remove:

- the **diesel compression gauge**,
- the hose end piece **(Mot. 1772)**.

❑ Refit:

- the heater plugs (see **Heater plugs Removal - Refitting**) ,
- the engine cover.

❑ Run the command **VP 037: « ARRÊTER L'INHIBITION D'ALIMENTATION EN CARBURANT»** using the **diagnostic tool**.

Note:

If the engine does not start, run the command **VP 037: « ARRÊTER L'INHIBITION D'ALIMENTATION EN CARBURANT »** using the **diagnostic tool** or switch off the ignition and wait for **3 minutes** and restart the engine.


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| Essential equipment |
| --- |
| petrol compression gauge |

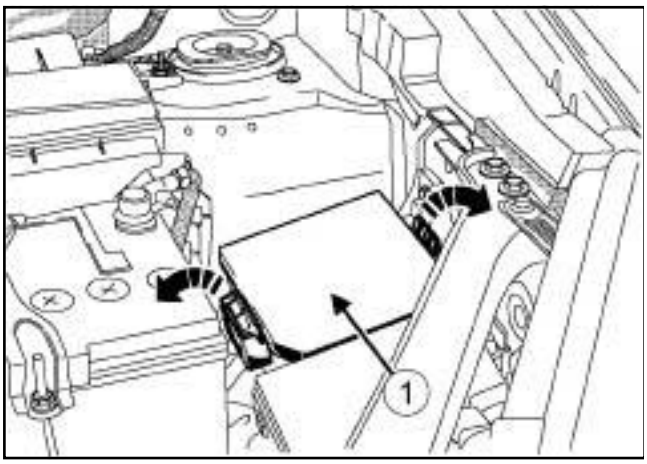
## CHECKING

### I - PREPARATION OPERATION FOR CHECK

❑

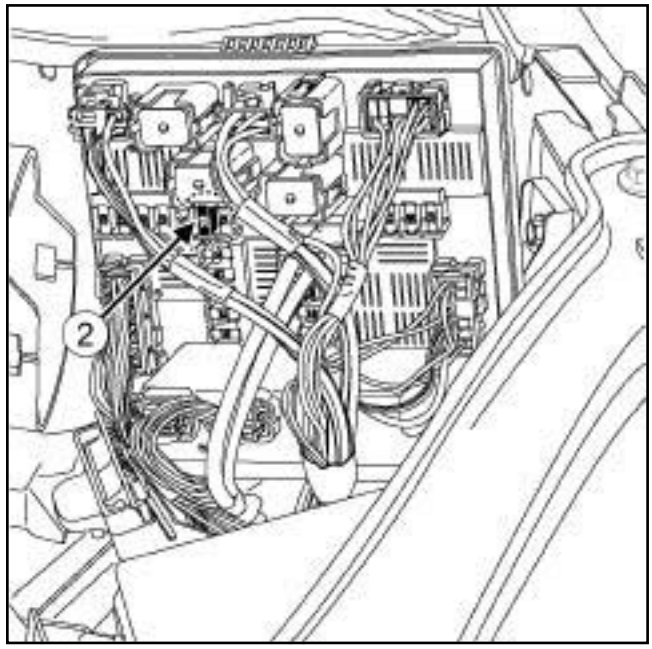
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).




131096

❑ Remove the cover (**1**) from the Protection and Switching Unit.




131097

❑ Remove the fuse (**2**) of the fuel pump(**F13**) (**15A**).

❑ Release the fuel pressure in the fuel supply pipe after the engine has started.

Note:
After switching the engine off, start it again two or three times to fully relieve the fuel pressure.

❑ Remove:

- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .

❑ Disconnect the ignition coil connectors.

Note:
Remove all the engine spark plugs.

❑ Remove:

- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) ,
- the spark plugs (see **17A**, **Ignition**, **Spark plugs: Removal - Refitting**, page **17A-4**) .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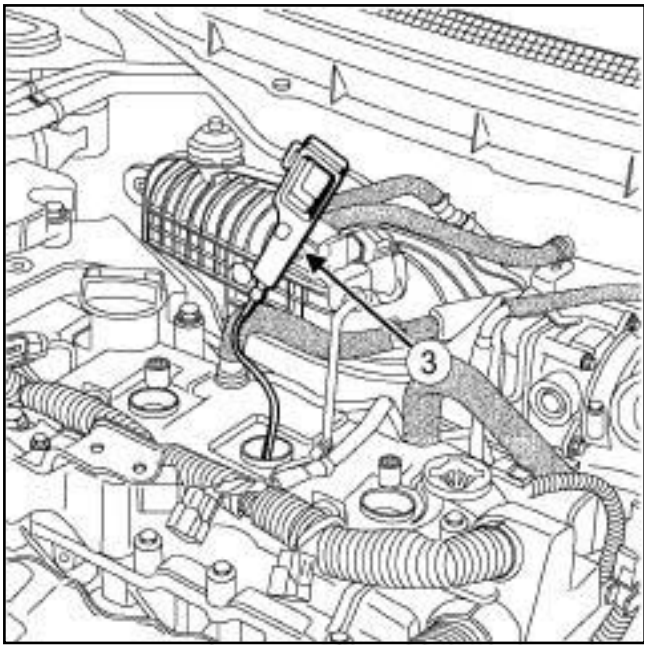
2TR




131098

❏ Connect a **petrol compression gauge** (**3**) .

ND5 or ND8

❏ Put the vehicle under starting conditions:

- gear lever in neutral for manual gearbox,
- brake pedal depressed.

FK0 or FK8

❏ Put the vehicle under starting conditions:

- gear lever in neutral for automatic gearbox,
- brake pedal depressed.

**II - TEST OPERATION**

❏ Press the vehicle start button to trigger the engine starting phase.

Note:

The engine will be driven by the starter for **20 s**, without starting.

❏ Measure the engine compressions, cylinder by cylinder, at an engine speed of **250 rpm**.

❏ Check the compression pressure value:

- standard compression pressure: **14.4 kg/cm²**,
- minimum compression pressure: **12.1 kg/cm²**,
- compression pressure differential limit between the cylinders: **1 kg/cm²**.

**III - FINAL OPERATION**

❏ Disconnect the **petrol compression gauge**.

❏ Refit:

- the spark plugs (see **17A**, **Ignition**, **Spark plugs: Removal - Refitting**, page **17A-4**) ,
- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) .

❏ Connect the ignition coil connectors.

❏ Refit:

- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover,
- the fuel pump fuse (**F13**) (**15A**),
- the Protection and Switching Unit cover.

❏ Press the vehicle start button to start the engine.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M9R

| Essential equipment |
|---|
| brush with non abrasive bristles |

| Tightening torques ▽ | |
|---|---|
| fixed roller bolt | **44 N.m** |
| tensioning roller bolts | **25 Nm** |

**IMPORTANT**
Wear protective gloves during the operation.

**WARNING**
Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

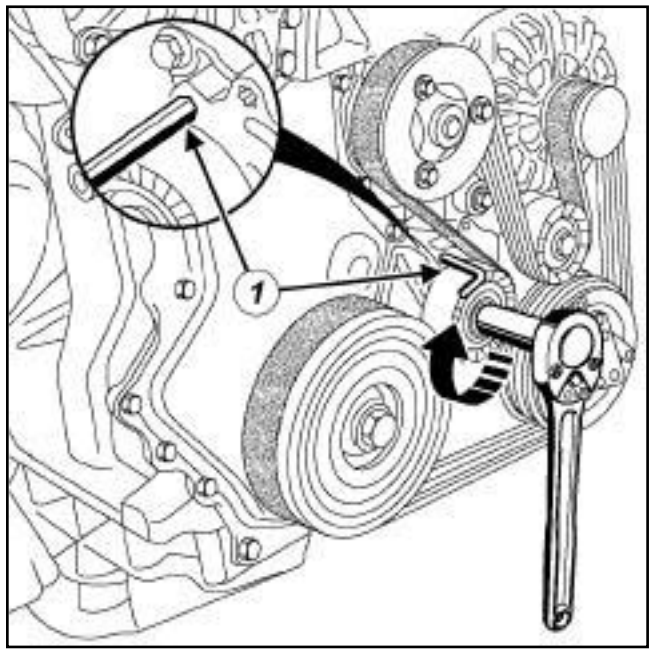
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



135145

❑ Place a **3 mm** Allen key (**1**) in the tensioning roller hole.

❑ Rotate the tensioning roller clockwise and push on the key at the same time until the tensioning roller locks.

❑ Remove the accessories belt.

❑ Turn the tensioning roller slightly in a clockwise direction.

❑ Remove the **3 mm** Allen key.

❑ Turn the tensioning roller anti-clockwise until it locks.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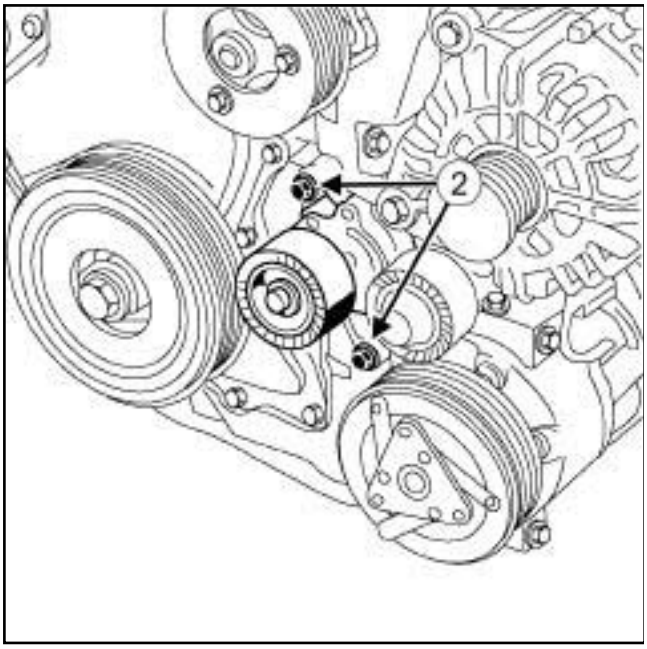
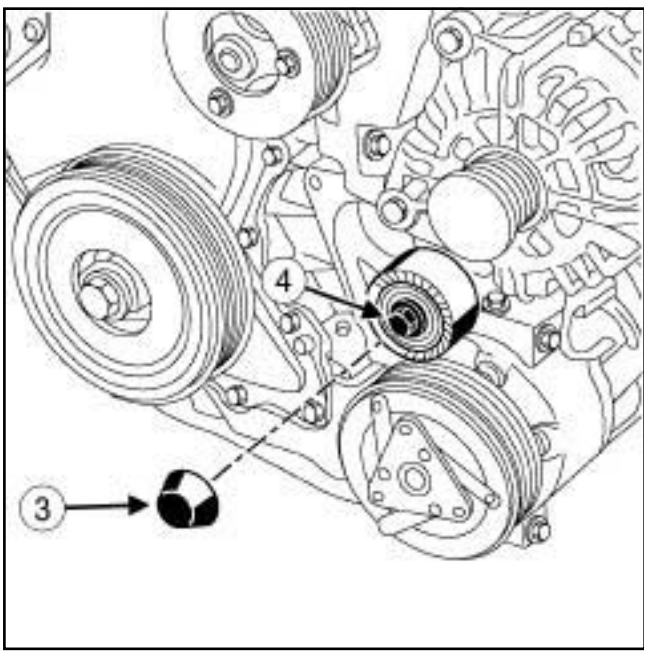



129285

❑ Remove:

- the tensioning roller bolts (**2**) ,
- the tensioning roller.




129286

❑ Remove:

- the fixed roller bolt protector (**3**) ,
- the fixed roller bolt (**4**) ,
- the fixed roller.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ **parts always to be replaced: Accessories belt (10,10,01,03)**

**parts always to be replaced: Accessories belt tensioning roller (10,10,01,04)**

**parts always to be replaced: Accessories fixed roller (10,10,01,06)**

**WARNING**
Only use brushes with plastic or non-corrosive metal (brass) bristles.

Note:
Clean the V-grooves on all accessories pulleys using a **brush with non abrasive bristles**.

Note:
The Parts Department supplies the tensioning roller with a pin in the locked position.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the new fixed roller,
- the fixed roller bolt.

❑ Torque tighten the **fixed roller bolt (44 N.m)**.

❑ Refit:

- the fixed roller bolt protector,
- the new tensioning roller,
- the tensioning roller bolts.

❑ Torque tighten the **tensioning roller bolts (25 Nm)**.

❑ Refit the new accessories belt.

❑ Turn the tensioning roller slightly in a clockwise direction.

❑ Remove the tensioning roller locking pin.

❑ Turn the crankshaft twice.

❑ Check that the accessories belt V-grooves are correctly fitted in the accessories pulley V-grooves.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M9R

**III - FINAL OPERATION**

❑ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



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2TR, and AIR CON 01 or AIR CON 02

| Tightening torques ▽ | |
|---|---|
| new auto-tensioner bolts | **25 N.m** |
| fixed roller bolts | **28 N.m** |
| right-hand side suspended mounting bolts on the engine | **55 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

**WARNING**
Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏

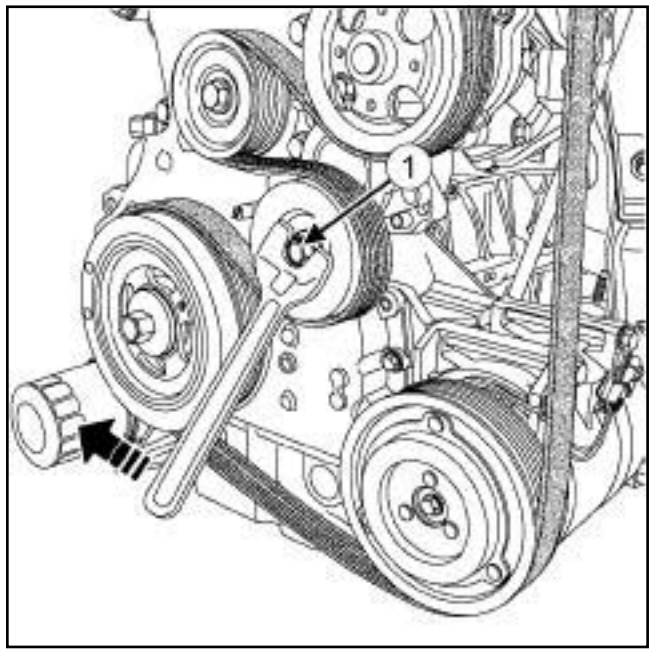
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand flap (see **Flap: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129276

❏ Carefully rotate the tensioning roller bolt (**1**) clockwise, to release the accessories belt.

Note:
Do not rotate the tensioning roller bolt anticlockwise. If the tensioning roller bolt is turned anticlockwise, replace the auto tensioner and tensioning roller at the same time.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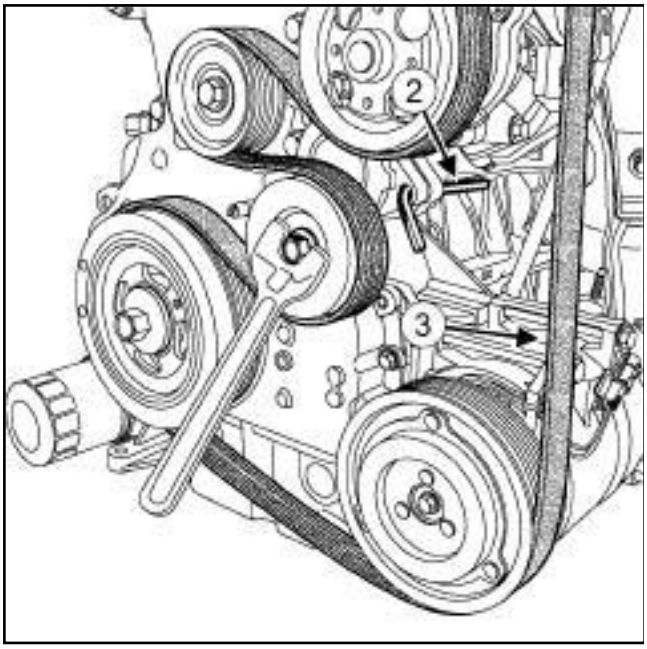
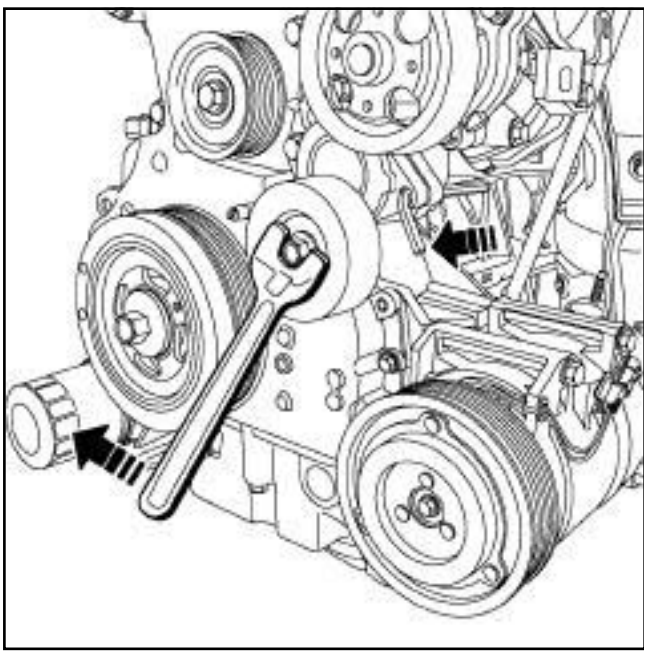
2TR, and AIR CON 01 or AIR CON 02




129277

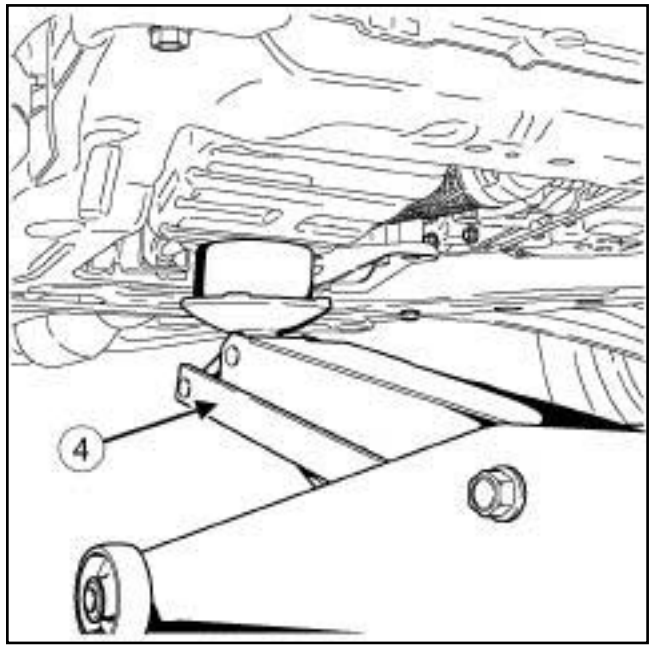
❏ Insert an Allen key (**2**) in the auto tensioner to maintain the play in the accessories belt.

❏ Remove the accessories belt (**3**) .



129278

❏ Remove the Allen key whilst carefully rotating the tensioning roller bolt clockwise.




129279

❏ Place the trolley jack (**4**) or an equivalent engine support tool under the lower section of the engine.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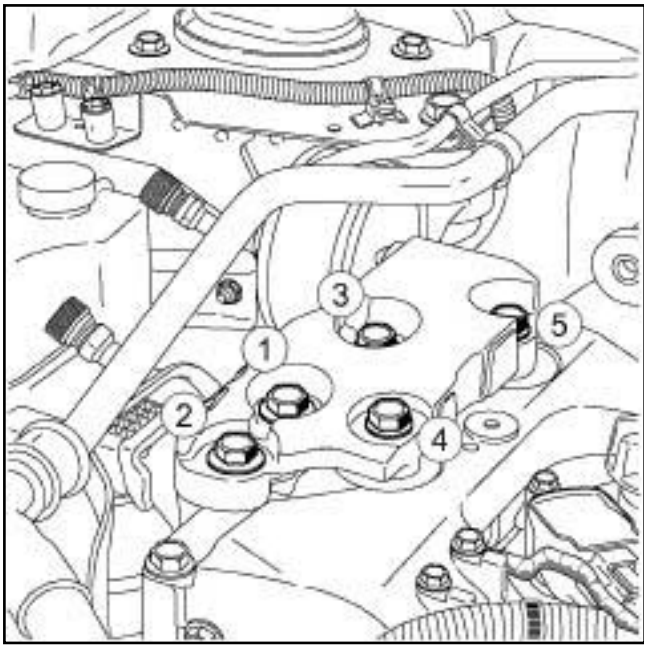
2TR, and AIR CON 01 or AIR CON 02



129280

❏

Note:

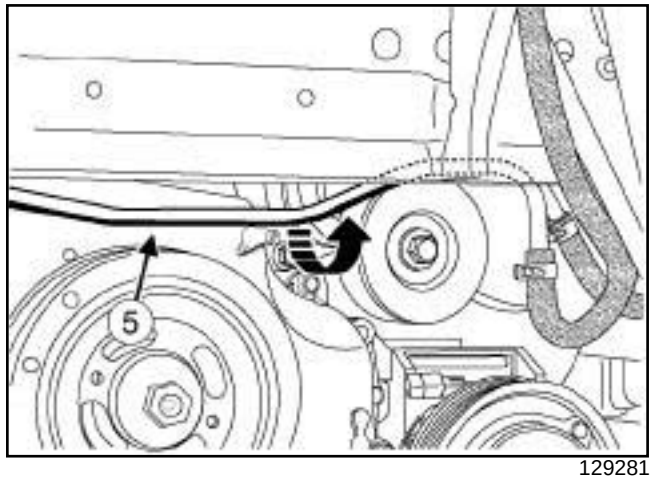
Do not remove bolt N **1** or **2** from the right-hand side suspended mounting on the engine.

❏ Loosen in order the N **1** and **2** bolts of the right-hand side suspended mounting on the engine.

❏ Remove the remaining bolts from the right-hand side suspended mounting on the engine in order.

Note:

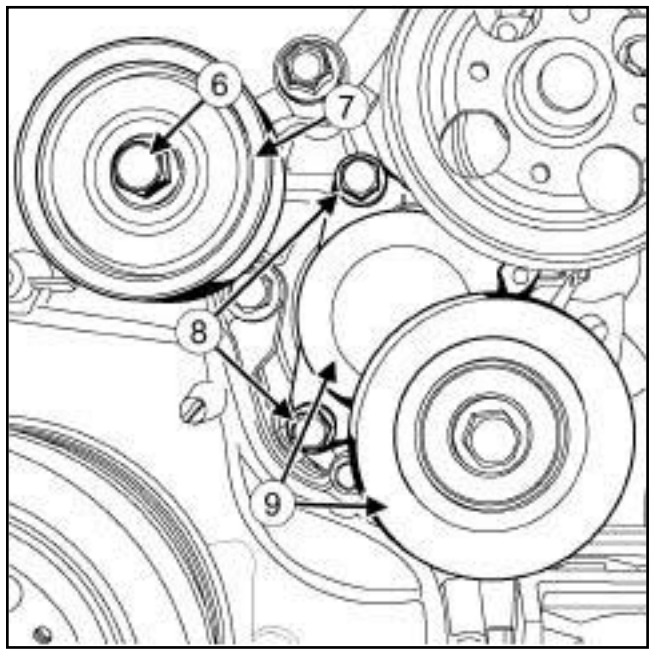
Carefully lower the jack to perform the following operation.



129281

❏ Unclip the petrol vapour breathing pipe (**5**) .

❏ Separate the petrol vapour breathing pipe on one side.



129282

❏ Remove:

- the fixed roller bolt (**6**) ,
- the fixed roller (**7**) ,
- the auto tensioner bolts (**8**) ,
- the auto tensioner and the tensioning roller (**9**) at the same time.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2TR, and AIR CON 01 or AIR CON 02

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ **parts always to be replaced: Accessories belt (10,10,01,03)**

**parts always to be replaced: Accessories belt tensioning roller (10,10,01,04)**

**parts always to be replaced: Accessories fixed roller (10,10,01,06)**

**parts always to be replaced: Accessories tensioning roller bolt (10,10,01,09)**

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Use a brush to remove any deposits from the crankshaft accessories pulley V-grooves.

❑ Refit:

- the new auto tensioner and the tensioning roller ***(9)*** at the same time,
- the new auto tensioner bolts ***(8)*** .

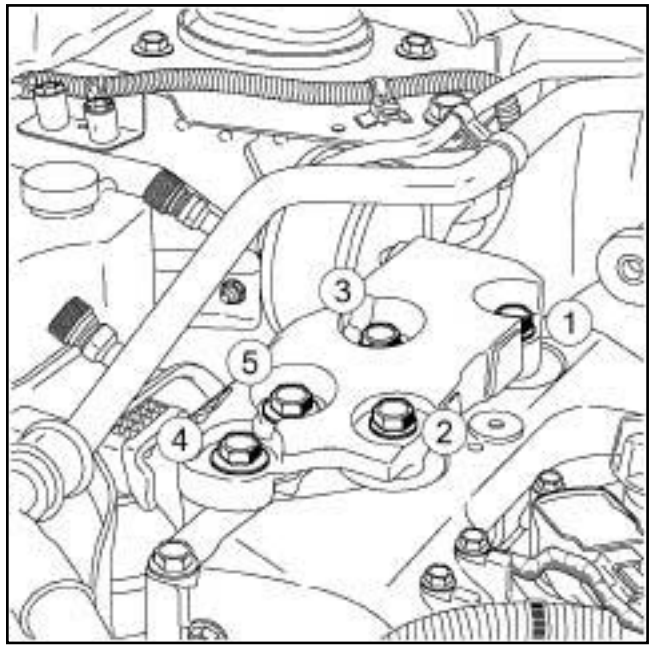
❑ Torque tighten the **new auto-tensioner bolts (25 N.m)** ***(8)*** .

❑ Refit:

- the fixed roller ***(7)*** ,
- the fixed roller bolt ***(6)***

❑ Torque tighten the **fixed roller bolts (28 N.m)** ***(6)*** .

❑ Clip on the petrol vapour rebreathing pipe ***(5)***



129280

❑

Note:

Carefully lower the jack to perfom the following operation.

❑ Refit the right-hand side suspended mounting bolts on the engine.

❑ Torque tighten the **right-hand side suspended mounting bolts on the engine (55 N.m)**.

❑ Place the trolley jack (**4**) or an equivalent engine support tool under the lower section of the engine.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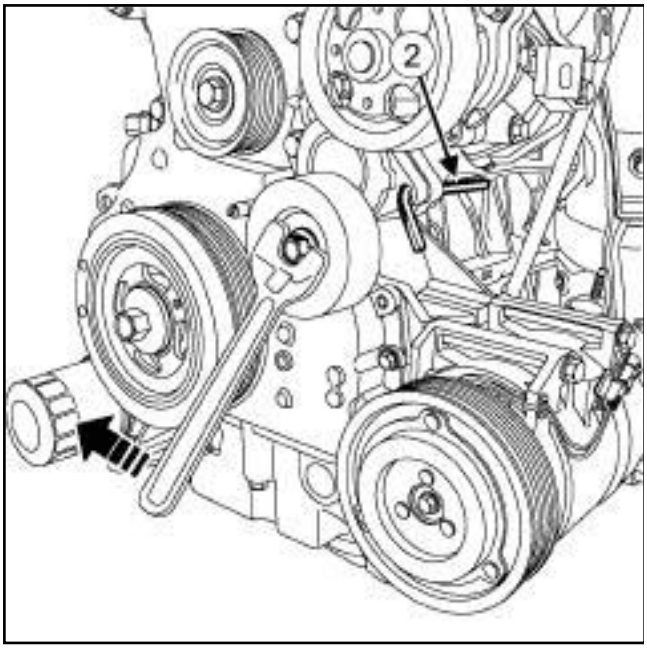
2TR, and AIR CON 01 or AIR CON 02




129283

❏ Carefully rotate the tensioning roller bolt clockwise, to insert an Allen key ***(2)*** in the auto tensioner.

> Note:
>
> Do not rotate the tensioning roller bolt anticlockwise. If the tensioning roller bolt is turned anticlockwise, replace the auto tensioner and tensioning roller at the same time.

❏ Refit the new accessories belt ***(3)*** .

❏ Remove the Allen key ***(2)*** , whilst carefully rotating the tensioning roller bolt ***(1)*** clockwise.

❏ Turn the camshaft around twice to fit the accessories belt correctly.

**III - FINAL OPERATION**

❏ Refit:

- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand flap (see **Flap: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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# Crankshaft accessories pulley: Removal - Refitting

M9R

| Essential special tooling | |
|---|---|
| **Mot. 1770** | Crankshaft pulley locking tool. |

| Tightening torques ▽ | |
|---|---|
| crankshaft accessories pulley bolt | **50 N.m + 85° ± 6°** |

## REMOVAL

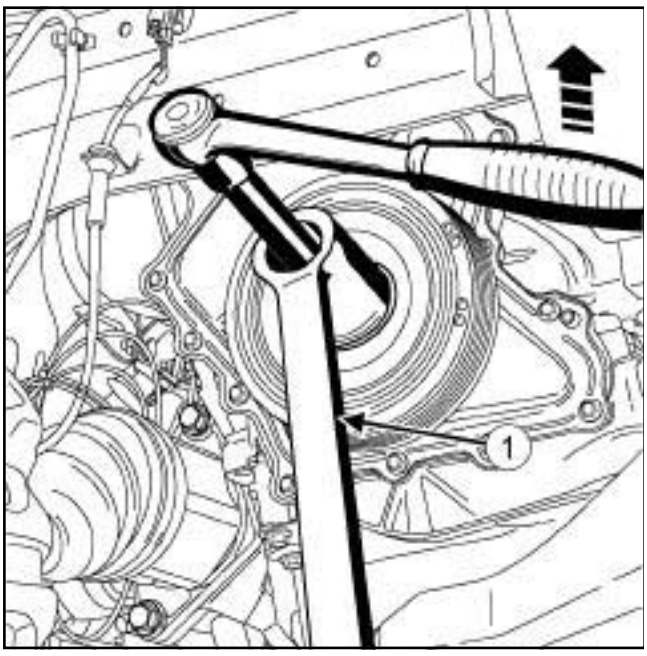
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129288

❑ Remove:

- the crankshaft accessories pulley bolt using the **(Mot. 1770)** (**1**) ,
- the spacer,
- the crankshaft accessories pulley.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
Only use brushes with plastic or non-corrosive metal (brass) bristles.

**WARNING**
Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

❑ In case of reuse, clean the crankshaft accessories pulley V-grooves using a brush to get rid of any deposits.

❑ The crankshaft accessories pulley bolt must always be replaced with a new one.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the crankshaft accessories pulley by inserting it into the two crankshaft flat surfaces,
- the spacer,
- the new crankshaft accessories pulley bolt fitted with a washer.

❑ Position the **(Mot. 1770)**.

❑ Torque tighten the **crankshaft accessories pulley bolt (50 N.m + 85° ± 6°)**.

### III - FINAL OPERATION.

❑ Refit:

- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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M9R



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# Crankshaft accessories pulley: Removal - Refitting

2TR

| Essential special tooling | |
|---|---|
| **Mot. 1878** | Crankshaft pulley locking tool |

| Tightening torques ▽ | |
|---|---|
| crankshaft accessories pulley bolt | **42 N.m + 60°** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

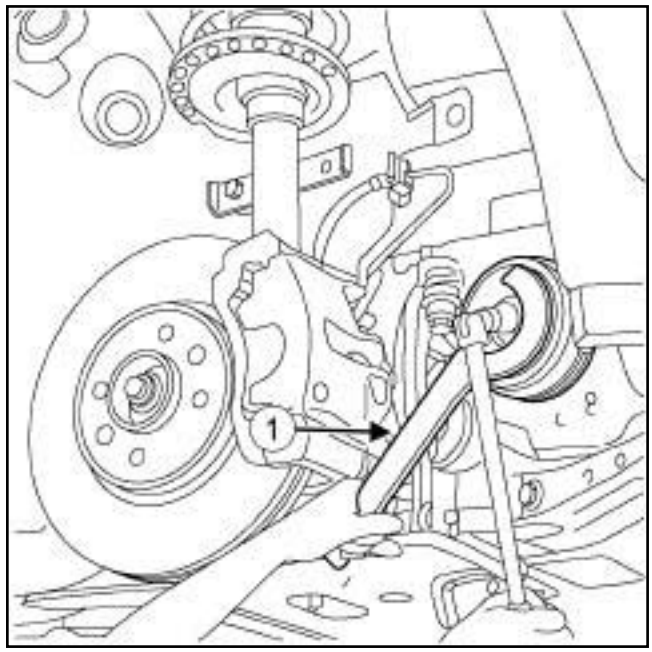
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131099

❑

Note:
This operation requires two people.

❑ Loosen the crankshaft accessories pulley bolt using the tool **(Mot. 1878)** ***(1)***

❑ Remove the crankshaft accessories pulley using a two-claw extractor for inside grip.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ The crankshaft accessories pulley bolt must always be replaced with a new one.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the crankshaft accessories pulley,
- the new crankshaft accessories pulley bolt.

Note:
This operation requires two people.

❑ Torque and angle tighten the **crankshaft accessories pulley bolt (42 N.m + 60°)** using the tool **(Mot. 1878)**.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2TR

**III - FINAL OPERATION.**

❑ Refit:

- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).


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2TR

| Essential equipment |
|---|
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| rocker cover bolts (initial torque) | **2 N.m** |
| rocker cover bolts | **8 N.m** |
| engine mounting bolts on the right-hand side | **48 N.m** |
| front resonator support bolts | **10 N.m** |
| earth cable bolts | **7 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

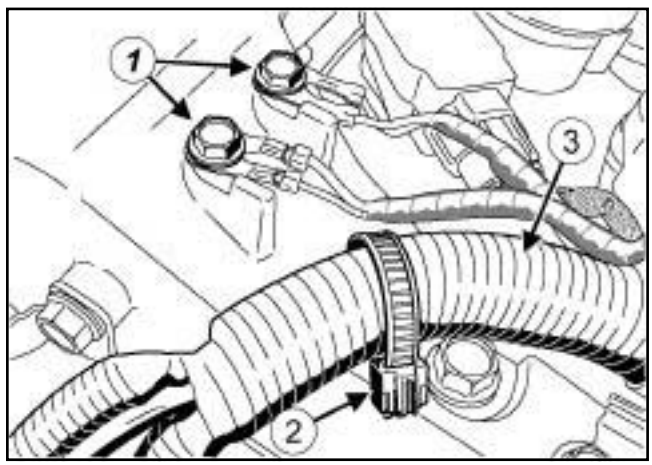
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the motorised throttle valve without disconnecting the cooling hoses (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**)
- the intake distributor (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) .



135174

❏ Remove:

- the earth cable bolts (**1**) ,
- the wiring clip (**2**) .

❏ Disconnect the ignition coil connectors.

❏ Move aside the wiring ***(3)*** .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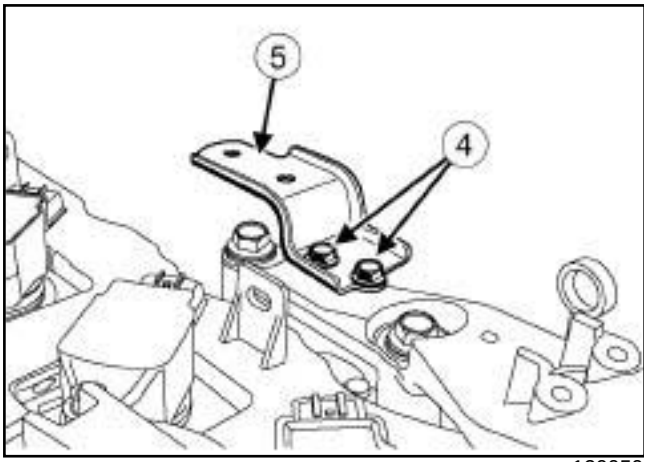
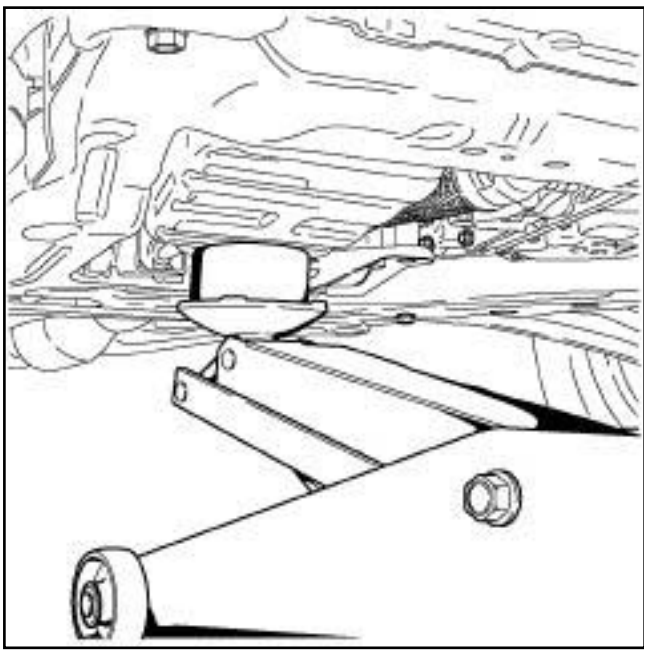
2TR




129050

❑ Remove:

- the front resonator support bolts (**4**) ,
- the front resonator support (**5**) ,
- the pipes on the rocker cover,
- the engine undertray.



129291

❑

Note:

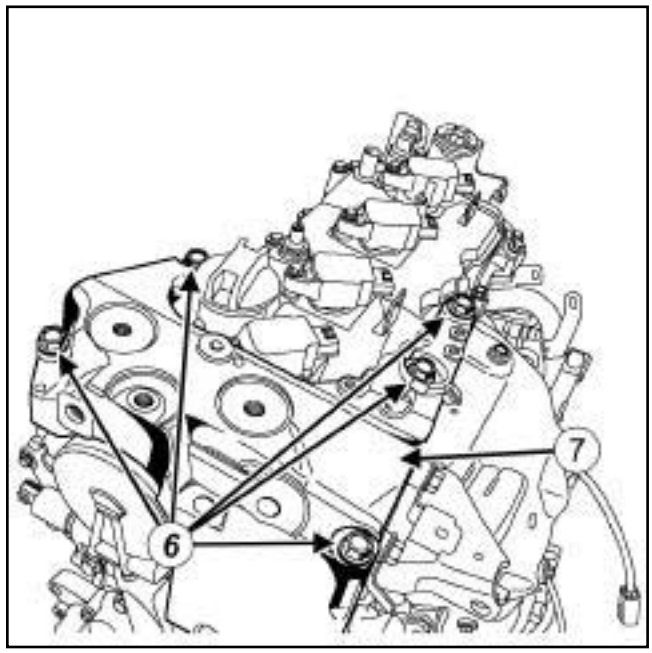
To ensure stability, place a wooden block or equivalent on the support surface.

Note:

To ensure stability, place an object behind the trolley jack or equivalent to provide support.

❑ Fit the **trolley jack** or an equivalent engine support tool under the cylinder block.

❑ Remove the right-hand suspended engine mounting (see **19D**, **Engine mounting**, **Right-hand suspended engine mounting: Removal - Refitting**, page **19D-19**) .




129292

❑ Remove:

- the engine mounting bolts (**6**) on the right-hand side,
- the engine mounting on the right-hand side (**7**) ,
- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) .



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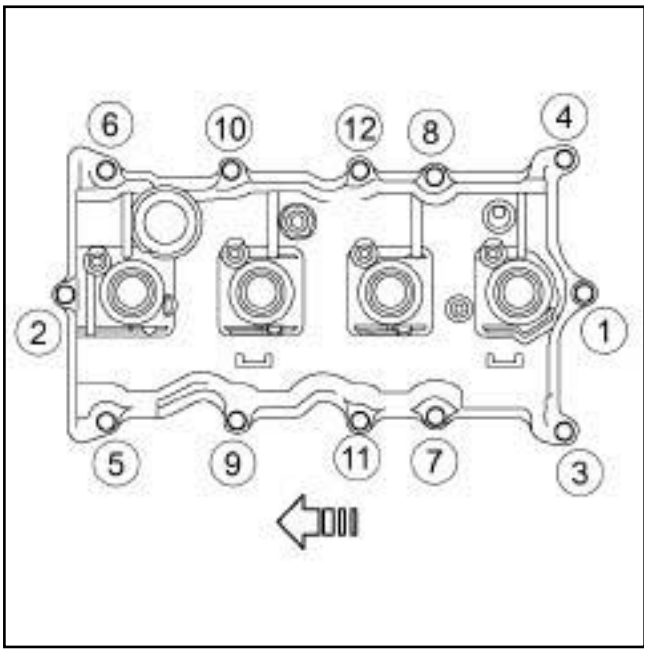
2TR

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129293

❑ Remove:

- the rocker cover bolts in order,
- the rocker cover,
- the rocker cover gasket.

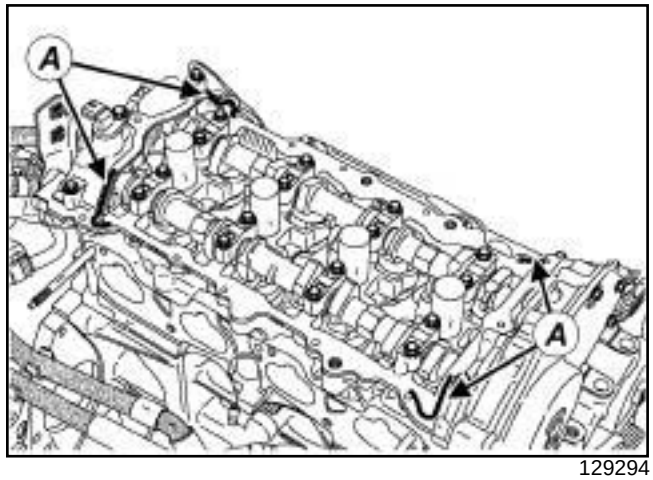
## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace the rocker cover seal.

> **WARNING**
> The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Use **SUPER CLEANER FOR JOINT FACES** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) to clean the sealing surfaces.




129294

❑

> **WARNING**
> Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).

❑ Apply a beading (**A**) of **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) approximately **3 mm** in diameter.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the new seal on the rocker cover,
- the rocker cover.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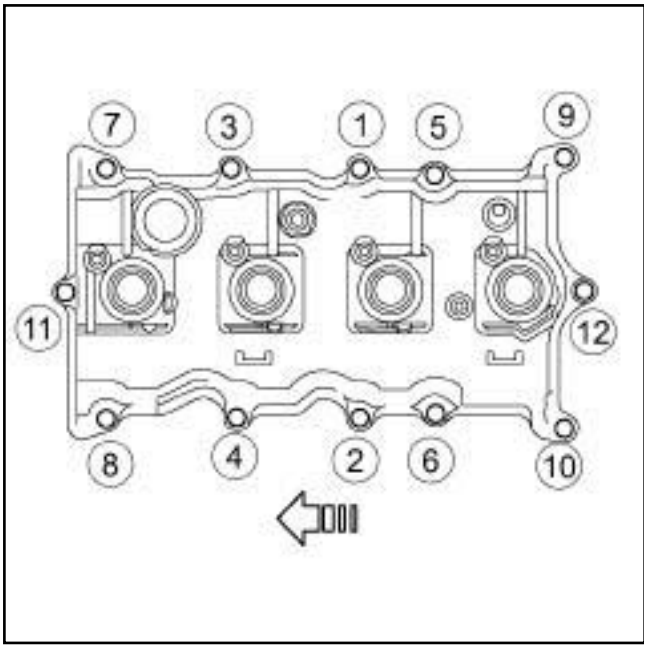
2TR




129293

❑ Torque tighten in order:

- **rocker cover bolts (initial torque) (2 N.m)**,
- **rocker cover bolts (8 N.m)**.

**III - FINAL OPERATION**

❑ Refit:

- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) .
- the engine mounting on the right-hand side,
- the engine mounting bolts on the right-hand side.

❑ Torque tighten the **engine mounting bolts on the right-hand side (48 N.m)**.

❑ Refit the right-hand suspended engine mounting (see **19D**, **Engine mounting**, **Right-hand suspended engine mounting: Removal - Refitting**, page **19D-19**) .

❑ Remove the trolley jack or equivalent engine supporting tool from the cylinder block.

❑ Refit:

- the engine undertray,
- the pipes on the rocker cover,
- the front resonator support,
- the front resonator support bolts.

❑ Torque tighten the **front resonator support bolts (10 N.m)**.

❑ Connect the ignition coil connectors.

❑ Refit:

- the wiring clip,
- the earth cable bolts.

❑ Torque tighten the **earth cable bolts (7 N.m)**.

❑ Refit:

- the inlet manifold (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,
- the motorised throttle valve (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**) ,
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover,
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |
| **Mot. 1766** | TDC locating pin. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**WARNING**

It is strictly forbidden to apply any pressure to the engine oil sump. Damage to the sump may also damage the engine by:

- blocking the strainer,
- raising the oil level above maximum, with a risk of engine racing.

Note:

Consult the safety and cleanliness advice and operation recommendations before carrying out any operation (see **Engine: Precautions for repair**) .

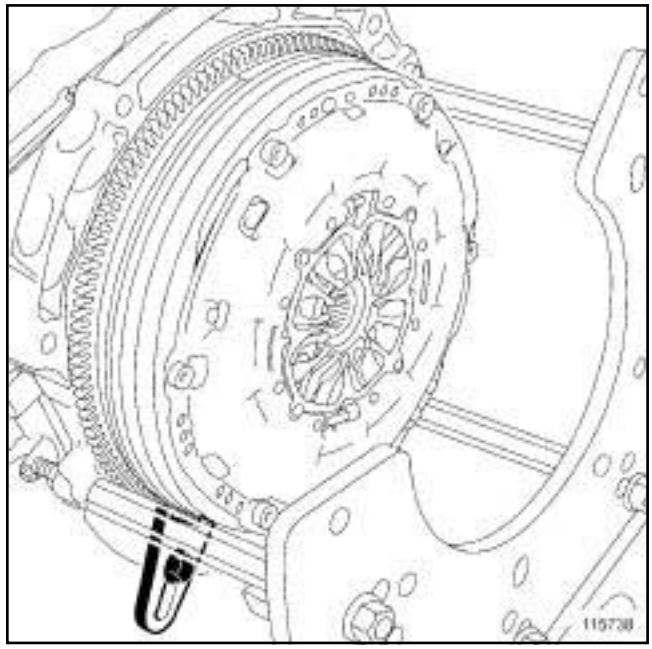
❑ Remove the engine - gearbox assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/ gearbox assembly: Removal - Refitting**, page **10A-44**) .

❑ Place the engine on the component support (see **Engine support equipment: Use**) .

❑ Drain the engine (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❑ Remove:

- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the coolant pump (see **19A**, **Cooling**, **Water pump: Removal - Refitting**, page **19A-22**) .


115738

❑ Fit the flywheel locking tool **(Mot. 1431)** onto the cylinder block.

❑ Remove:

- the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) ,
- the flywheel locking tool **(Mot. 1431)**,
- the crankshaft seal on the timing side (see **10A**, **Engine and cylinder block assembly**, **Crankshaft seal at timing end Removal - Refitting**, page **10A-1**) ,
- the timing chain (see **Timing chain: Removal - Refitting**) ,

❑ Remove the exhaust gas pressure sensor (see **Exhaust gas pressure sensor: Removal - Refitting**) .

❑ Remove:

- the vacuum pump (see **Vacuum pump: Removal - Refitting**) ,
- the high pressure pipe between the pump and the rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the diesel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,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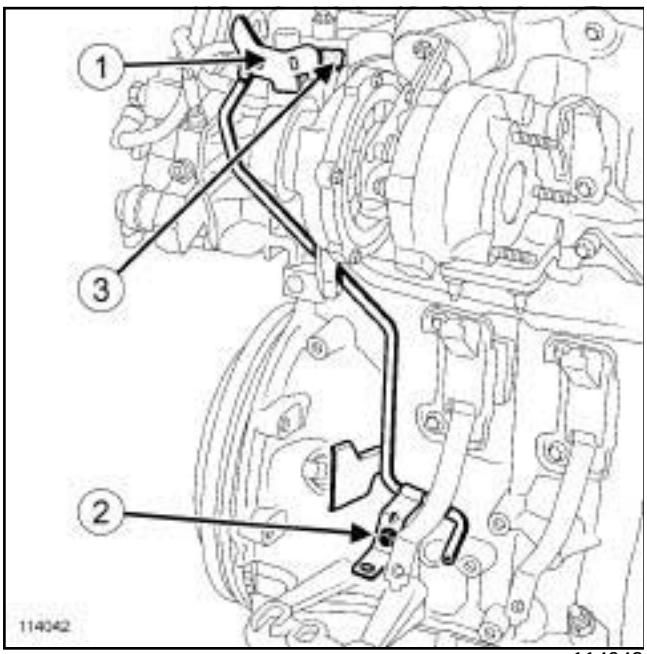
- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) ,
- the diesel injectors (see **13B**, **Diesel injection**, **Diesel injector: Removal - Refitting**, page **13B-65**) .



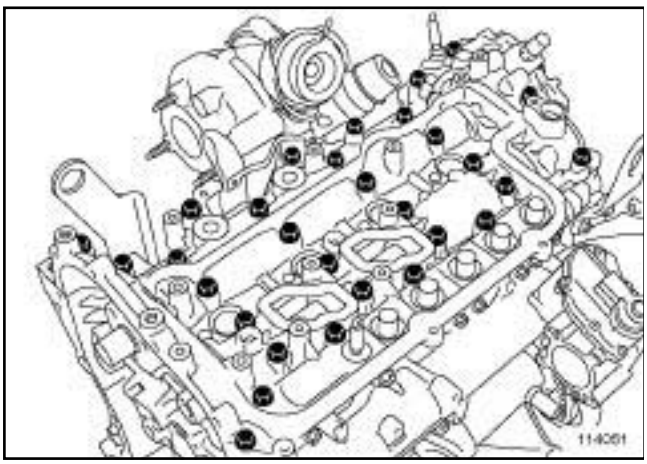
114042

❏ Remove the bolts (**1**) and (**2**) of the fuel collector outlet pipe of the cylinder head.

❏ Disconnect the fuel collector outlet pipe from the cylinder head at (**3**) .

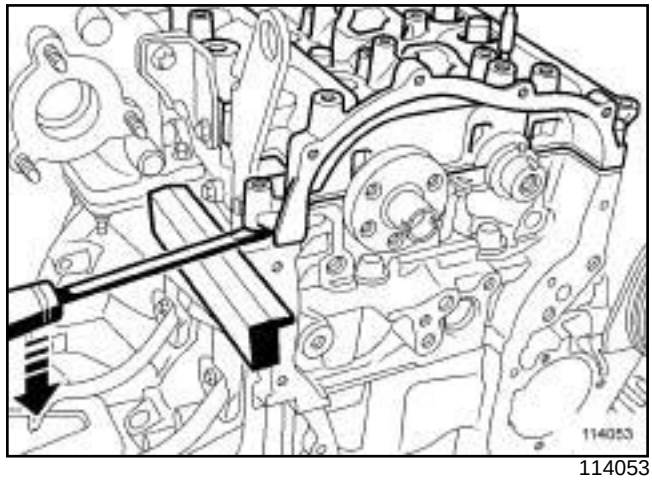
❏ Move aside the fuel collector outlet pipe from the cylinder head.

### II - REMOVAL OF THE ROCKER COVER



114051

❏ Remove the rocker cover bolts.



114053

❏ Position a protective shim on the cylinder head.

❏ Detach the rocker cover using a flat-blade screwdriver, using the shim for leverage

❏ Remove the rocker cover - camshafts assembly

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean using **SUPER CLEANING AGENT FOR JOINT FACES** (see **Vehicle: Parts and ingredients for the repairwork**) :

- the joint face on the rocker cover,
- the joint face on the cylinder head.

**WARNING**
Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

**WARNING**
Clean the cylinder head carefully to avoid any foreign bodies entering the oil return and supply pipes.

Failure to follow this advice could lead to the blocking of the various oil inlet galleries, which would quickly result in engine damage.

❏ Remove the residue using a plastic spatula.

❏ Finish cleaning the joint faces using a **GREY ABRASIVE PAD** part number **77 01 405 943**.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❑ Use **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) to clean:

- the joint face on the rocker cover,
- the joint face on the cylinder head.

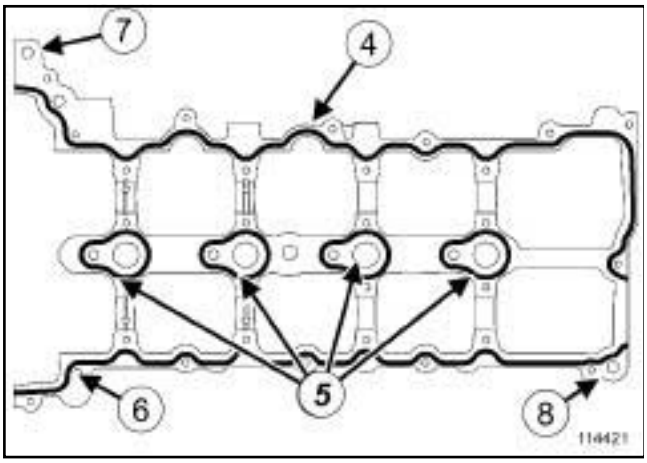
**WARNING**

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).

**WARNING**

Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).

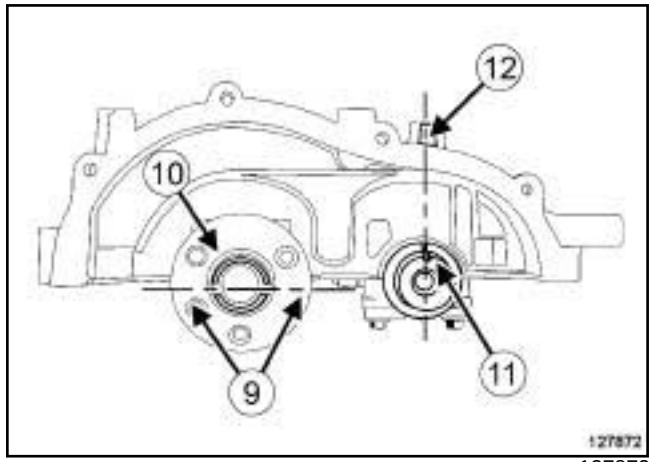
**II - REFITTING THE ROCKER COVER**




114421

❑ Apply a bead of **SILICONE ADHESIVE SEALANT** (see **Vehicle: Parts and consumables for repair**) with a diameter of **1.5 ± 1 mm** to the cylinder head at (**4**) , (**5**) and (**6**) .

❑ Fit two studs (M6 - length 60 mm) into the holes (**7**) and (**8**) on the cylinder head to guide the rocker cover.




127872

❑ Position:

- the groove on the exhaust side of the camshaft (**9**) horizontally (large clearance (**10**) facing upwards),
- the groove on the inlet side of the camshaft (**11**) facing towards the rocker cover boss (**12**) .

❑ Check that cylinders 1 and 4 are at Top Dead Centre using the **(Mot. 1766)** (see **Timing chain: Removal - Refitting**) .

❑ Refit the rocker cover - camshafts assembly.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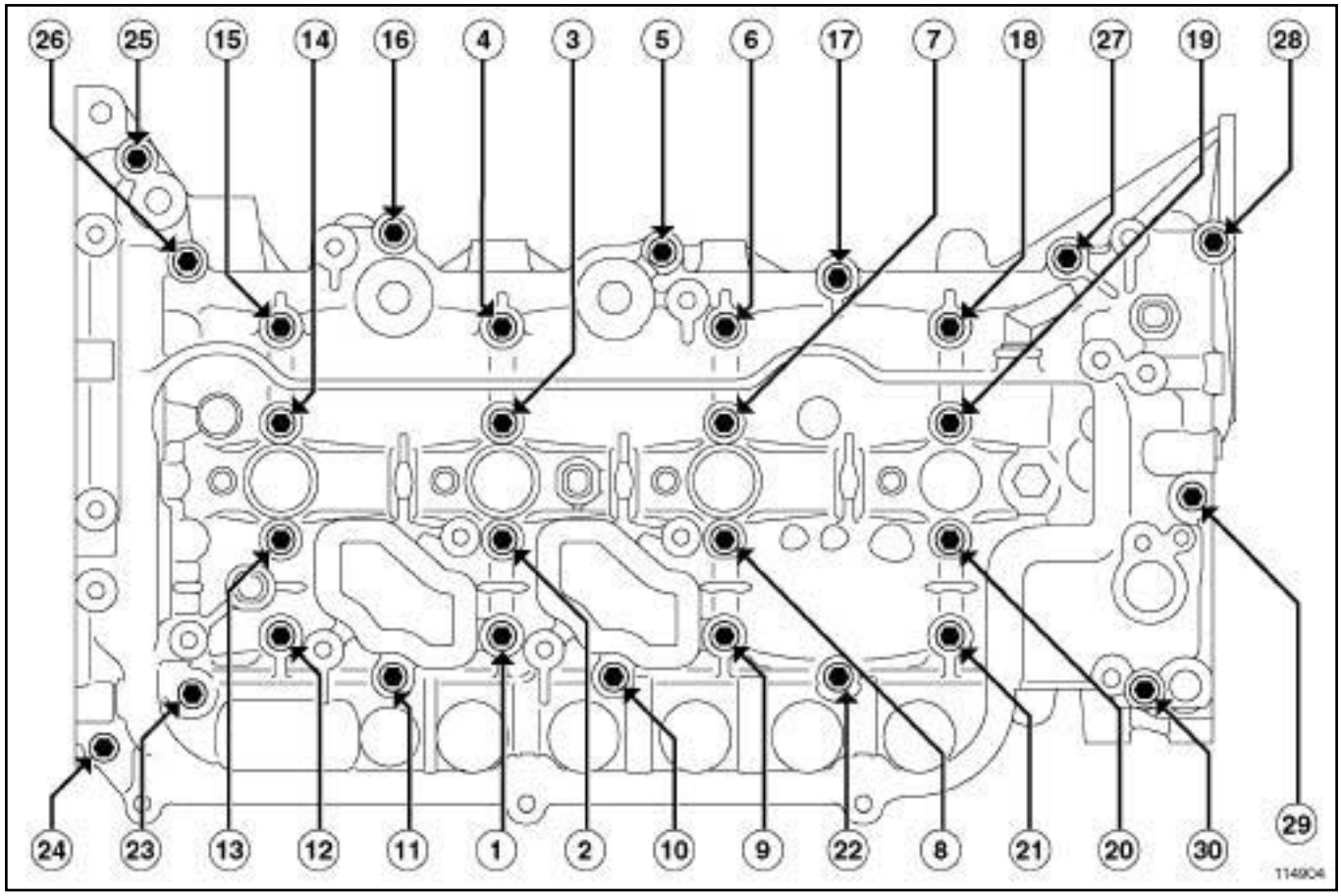


114904

❑ Tighten in order and successively, the rocker cover bolts **(12), (15),(18)** and **(21)** to gradually fit the rocker cover on the cylinder head.

❑ Remove the two rocker cover guide studs.

❑ Fit without tightening the remaining rocker cover bolts.

❑ Loosen bolts **(12), (15), (18)** and **(21)**.

❑ Fit without tightening bolts **(12), (15), (18)** and **(21)**.

❑ Tighten the rocker cover bolts in order.

❑ Clean the excess silicone adhesive sealant on the timing and coupling faces using a plastic spatula.

**III - FINAL OPERATION**

❑ Connect the fuel collector outlet pipe of the cylinder head.

❑ Tighten the bolts of the fuel collector outlet pipe of the cylinder head.

❑ Refit:

- the diesel injectors (see **13B**, **Diesel injection**, **Diesel injector: Removal - Refitting**, page **13B-65**) ,

- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) ,

- the diesel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,

- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,

- the high pressure pipe between the pump and the rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) ,

- the vacuum pump (see **Vacuum pump: Removal - Refitting**) .

❑ Refit the exhaust gas pressure sensor (see **Exhaust gas pressure sensor: Removal - Refitting**) .

❑ Refit:

- the timing chain (see **Timing chain: Removal - Refitting**) ,


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- the new crankshaft seal on the timing end (see **10A**, **Engine and cylinder block assembly**, **Crankshaft seal at timing end Removal - Refitting**, page **10A-1**) .

❑ Fit the flywheel locking tool **(Mot. 1431)** onto the cylinder block.

❑ Refit the crankshaft accessories pulley (see **11A**, **Top and front of engine**, **Crankshaft accessories pulley: Removal - Refitting**, page **11A-13**) .

❑ Remove the flywheel locking tool **(Mot. 1431)**.

❑ Refit:

- the coolant pump (see **19A**, **Cooling**, **Water pump: Removal - Refitting**, page **19A-22**) ,
- the new accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) .

❑ Remove the engine from the component support (see **Engine support equipment: Use**) .

❑ Refit the engine - gearbox assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/gearbox assembly: Removal - Refitting**, page **10A-44**) .

❑ Top up the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .


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2TR

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the engine and gearbox assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/gearbox assembly: Removal - Refitting**, page **10A-44**) (10A, Engine and peripherals).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the camshaft dephaser (see **Timing - cylinder head: Removal**) (Technical Note 6045A, 10A, Engine and peripherals).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the camshaft dephaser (see **Timing - cylinder head: Refitting**) (Technical Note 6045A, 10A, Engine and peripherals).

### II - FINAL OPERATION.

❑ Refit the engine and gearbox assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/gearbox assembly: Removal - Refitting**, page **10A-44**) (10A, Engine and peripherals).


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| Tightening torques ▽ | |
|---|---|
| camshaft dephaser solenoid valve bolt | **6 N.m** |
| upper engine tie-bar bolts | **130 N.m** |

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

**IMPORTANT**
Wear protective gloves during the operation.

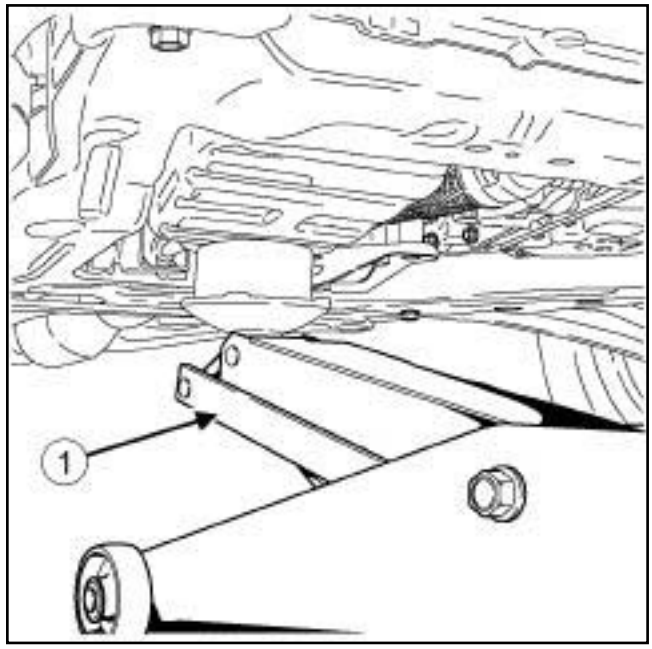
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

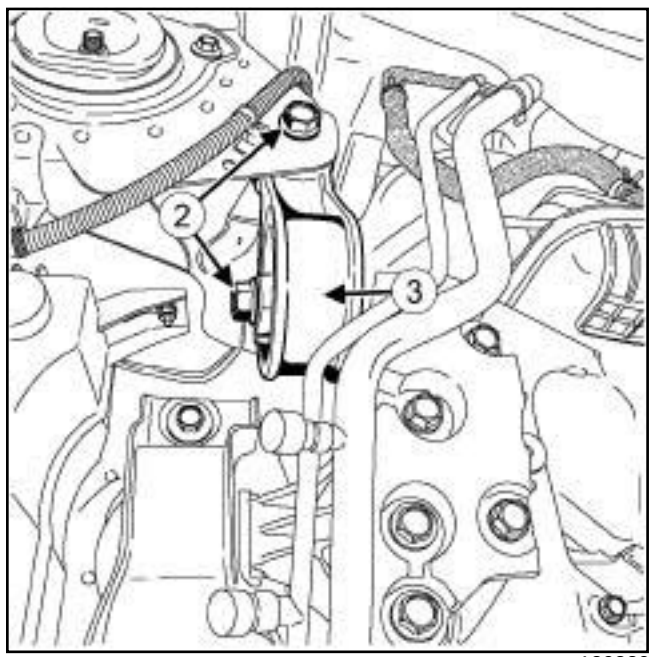
Note:
Place a piece of wood or equivalent on the bearing surface to ensure complete stability.

Note:
Place an object behind the trolley jack or equivalent equipment as a support to ensure complete stability.



129319

❏ Place the trolley jack (**1**) or an equivalent engine supporting tool under the cylinder block.



129320

❏ Remove:

- the upper engine tie-bar bolts (**2**) ,
- the upper engine tie-bar (**3**) .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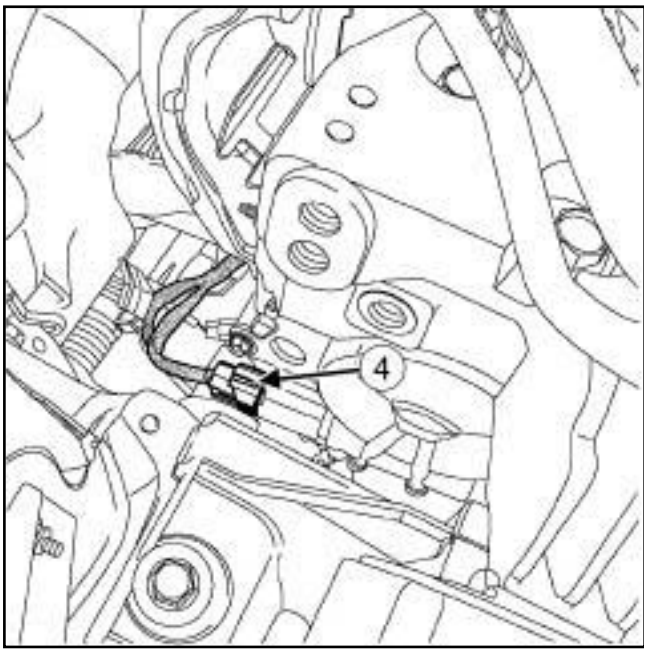
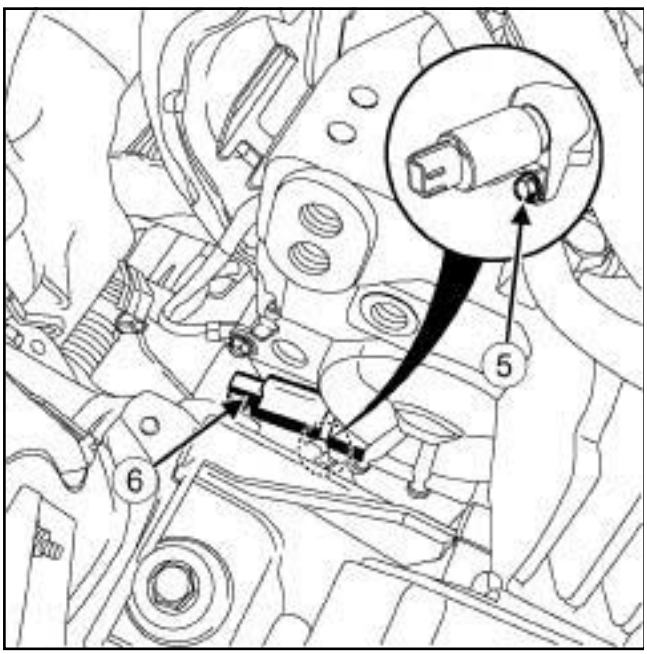
2TR

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129321

❏ Remove the solenoid valve connector (**4**) from the camshaft dephaser.

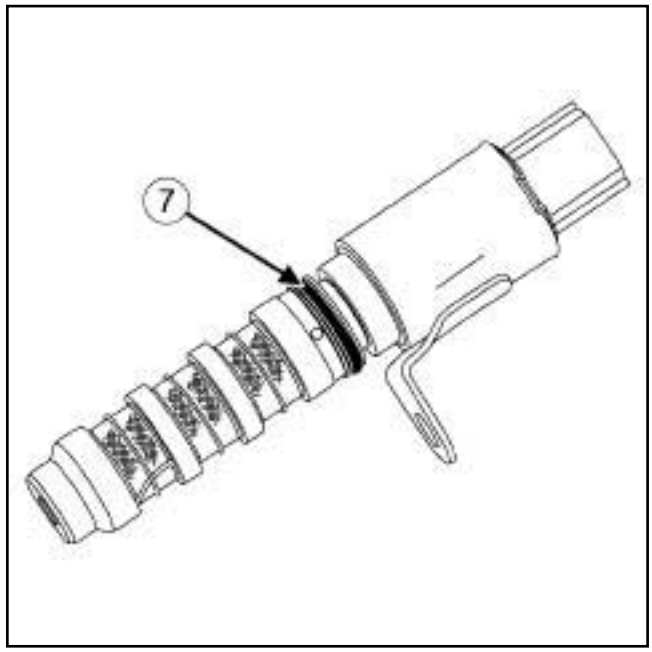



129322

❏ Remove:

- the camshaft dephaser solenoid valve bolt (**5**) ,
- the camshaft dephaser solenoid valve (**6**) .

## REFITTING




129323

❏ Always replace:

- the new O-ring (**7**) on the camshaft dephaser solenoid valve ***(6)*** ,
- the new washers on the upper engine tie-bar bolt ***(2)*** .

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the camshaft dephaser solenoid valve (**6**) ,
- the camshaft dephaser solenoid valve bolt (**5**) .

❏ Torque tighten the **camshaft dephaser solenoid valve bolt (6 N.m)**.

❏ Refit the camshaft dephaser solenoid valve connector (**4**) .

**II - FINAL OPERATION**

❏ Refit:

- the upper engine tie-bar (**3**) ,
- the upper engine tie-bar bolts (**2**) .

❏ Torque tighten the **upper engine tie-bar bolts (130 N.m)** ***(2)*** .

❏ Remove the trolley jack (**1**) or equivalent engine supporting tool from under the cylinder block.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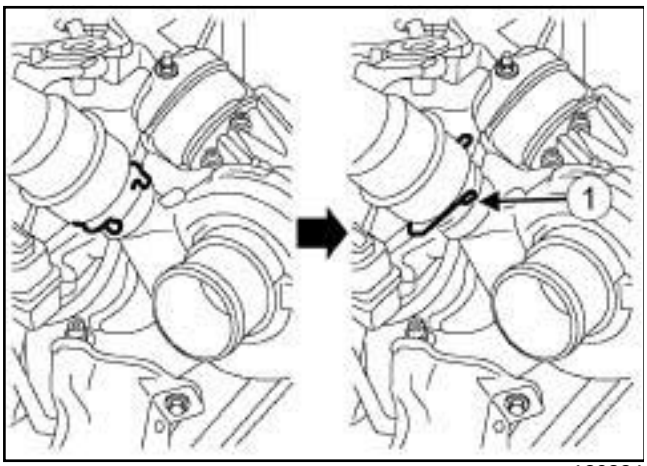
| Tightening torques ▽ | |
|---|---|
| heat shield bolts | **7 Nm** |
| oil decanter bolts (initial torque) | **5 N.m** |
| oil decanter bolts | **10 Nm** |
| intercooler air inlet pipe bolt | **8 N.m** |

## REMOVAL

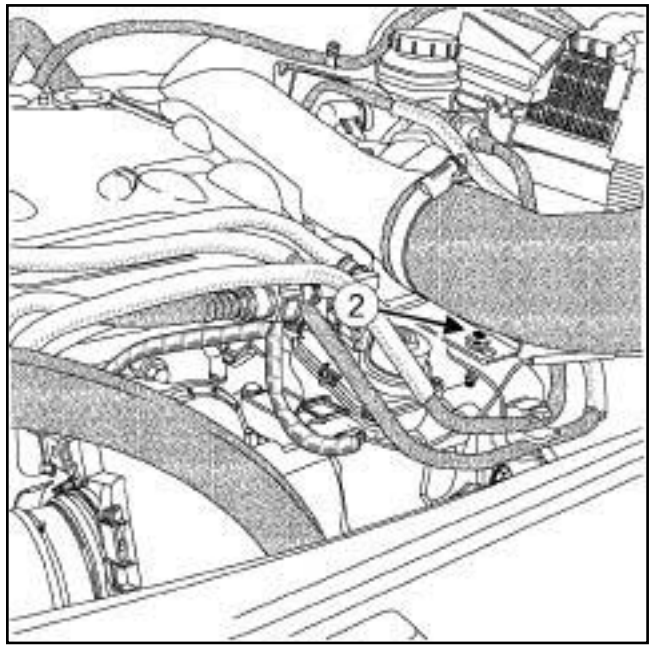
### I - REMOVAL PREPARATION OPERATION

❏ Remove the engine cover.




129324

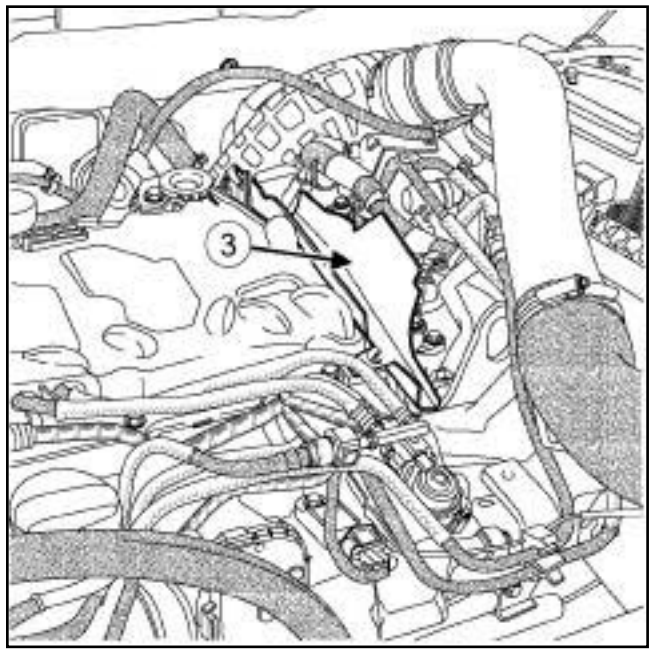
❏ Turn the clip (**1**) on the intercooler air inlet pipe.




129325

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❏ Move the intercooler air inlet pipe to one side.




129326

❏ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .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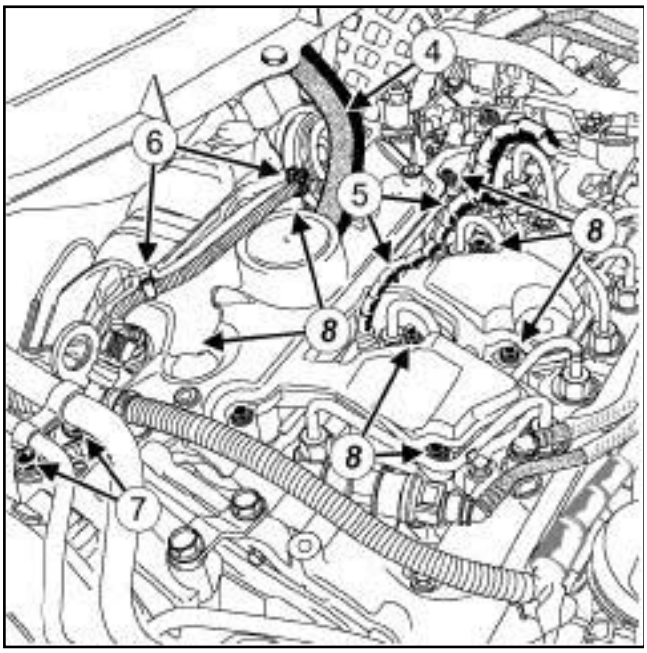
### II - OPERATION FOR REMOVAL OF PART CONCERNED




129327

❑ Disconnect:

- the oil vapour rebreathing hose (**4**) from the oil decanter,
- The **cylinder 1** injector connector on the timing end.

❑ Unclip:

- the injector wiring from the oil decanter at ***(5)*** ,
- the wiring from the heat shield at ***(6)*** .

❑ Remove:

- the wiring mounting bolts ***(7)*** ,
- the wiring harness support,
- the bolts ***(8)*** from the oil decanter,
- the oil decanter - heat shield assembly,
- the oil decanter seals,
- the heat shield bolts,
- the heat shield,
- the oil separator.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Degrease the joint faces of the cylinder head and the oil decanter.

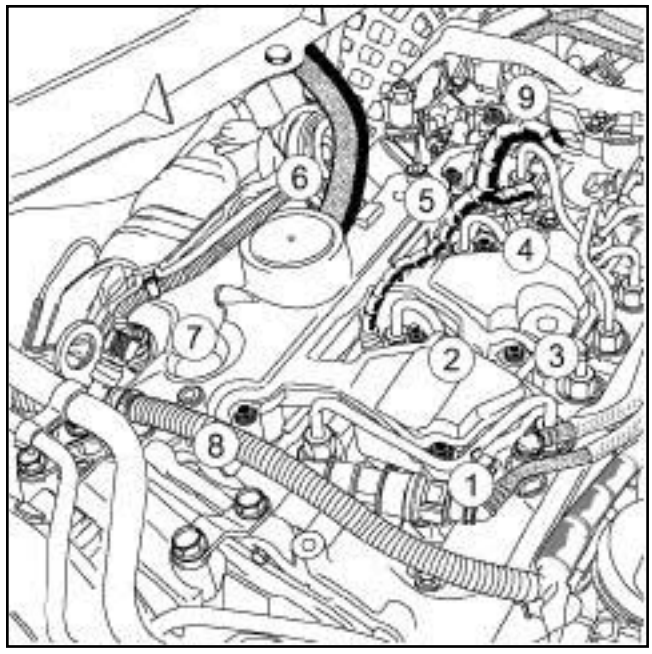
❑ Always replace:

- the oil decanter seals,
- the intercooler air inlet pipe seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the heat shield on the oil decanter.

❑ Torque tighten the **heat shield bolts (7 Nm)**.




129328

❑ Refit:

- the oil decanter seals,
- the oil decanter - heat shield assembly,
- the oil decanter bolts.

❑ Torque tighten in turn:

- the **oil decanter bolts (initial torque) (5 N.m)**,
- the **oil decanter bolts (10 Nm)**.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M9R

❑ Refit:

- the wiring harness support,
- the wiring mounting bolts ***(7)*** .

❑ Clip:

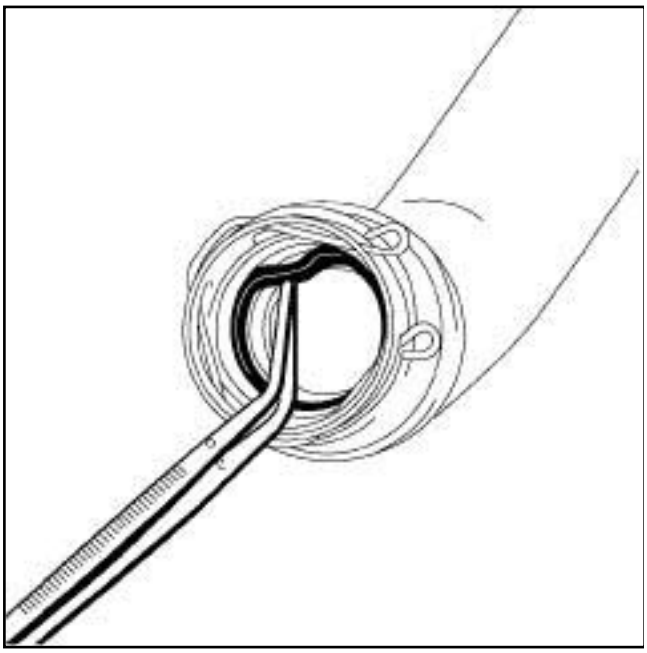
- the wiring onto the heat shield at ***(6)*** .
- the injector wiring onto the oil decanter at ***(5)*** .

❑ Connect:

- the **cylinder 1** injector connector,
- the oil vapour rebreathing hose to the oil separator.

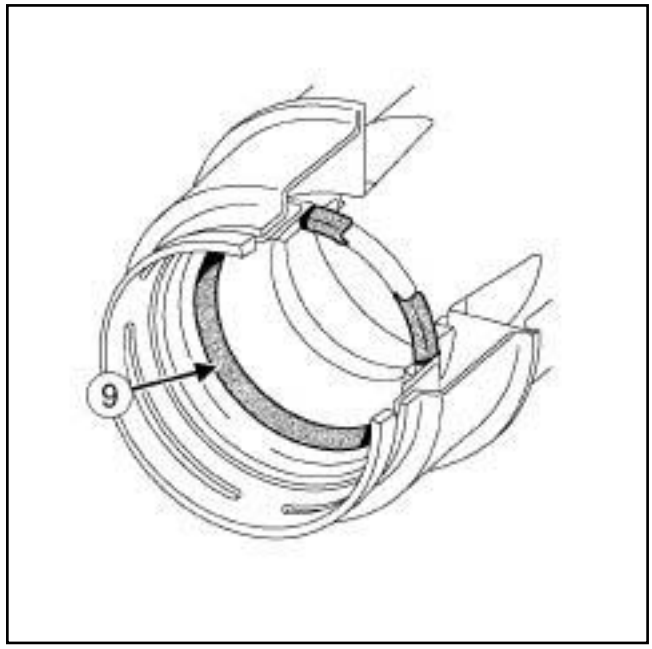
**III - FINAL OPERATION.**

❑ Refit the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129329

❑ Remove the intercooler air inlet pipe seal using a .




129330

❑

Note:

Check whether the intercooler air inlet pipe seal (**9**) is correctly positioned.

❑ Refit the new intercooler air inlet pipe seal.

❑ Refit the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to fit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt onto the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit the engine cover.



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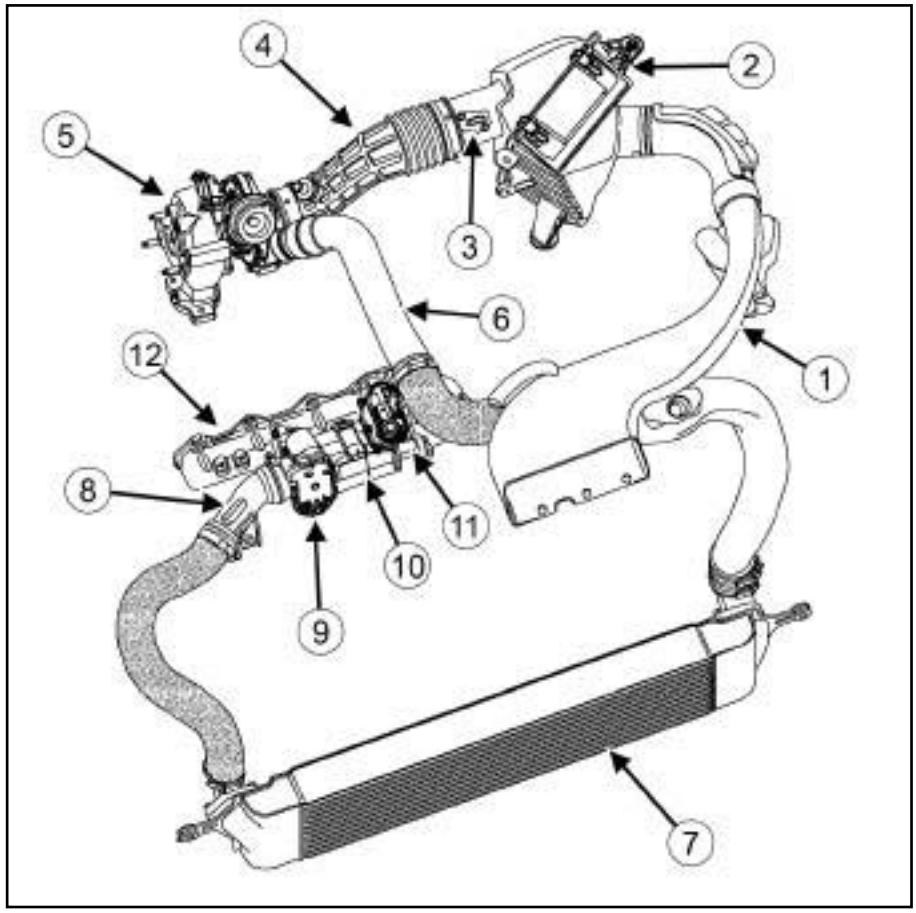
**AIR INLET CIRCUIT DIAGRAM**




129332

| | |
|---|---|
| (**1**) | Air inlet sleeve |
| (**2**) | Air filter unit |
| (**3**) | Airflow meter |
| (**4**) | Air filter unit air outlet pipe |
| (**5**) | Turbocharger |
| (**6**) | Intercooler air inlet pipe |
| (**7**) | Exchanger |
| (**8**) | Intercooler air outlet pipe |
| (**9**) | Air inlet valve |
| (**10**) | Turbocharger pressure sensor unit |
| (**11**) | Exhaust gas recirculation solenoid valve |
| (**12**) | Inlet manifold |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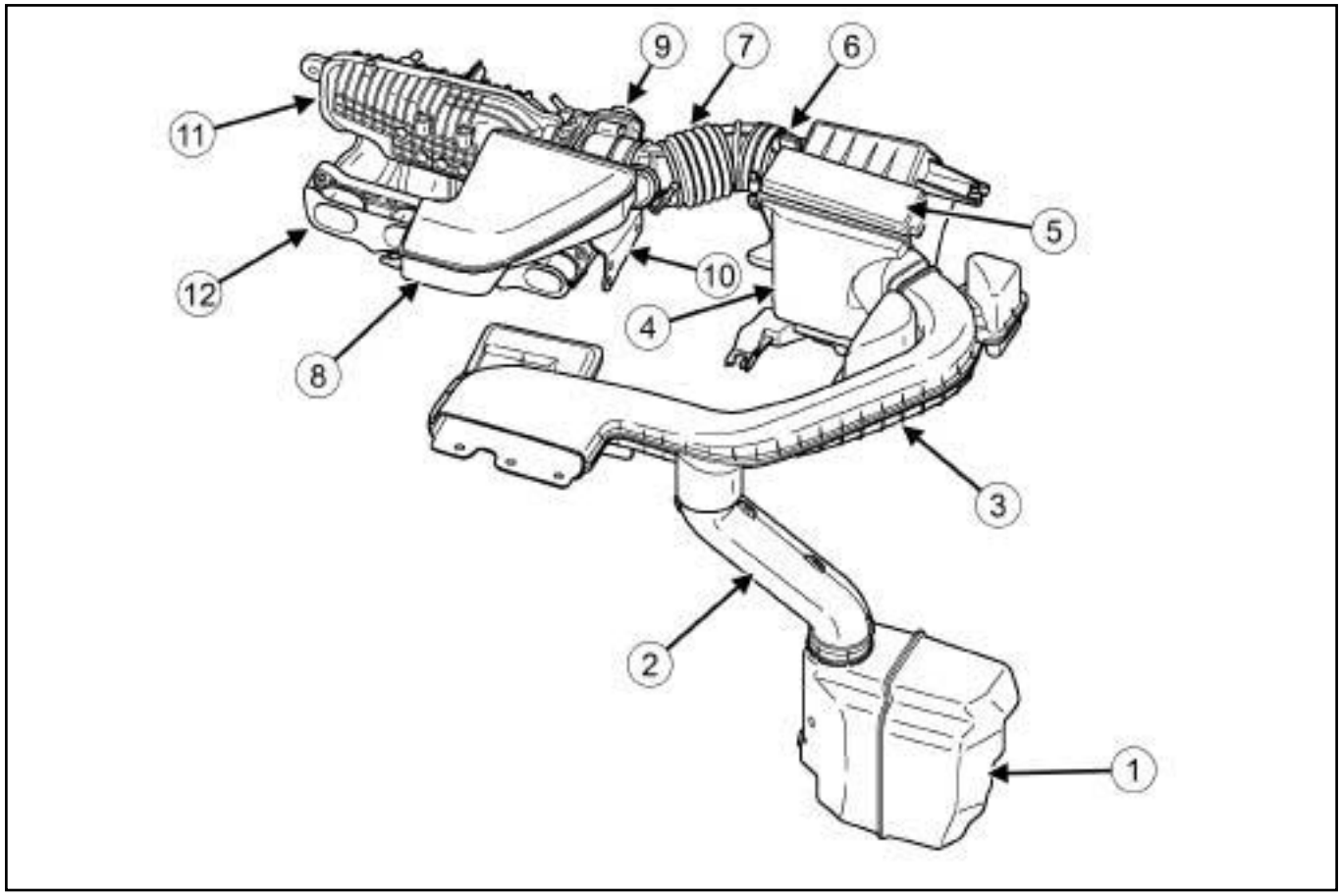
**AIR INLET CIRCUIT DIAGRAM**




129331

(**1**) Air resonator on front end panel
(**2**) Air resonator sleeve
(**3**) Air inlet sleeve
(**4**) Air filter unit
(**5**) Air filter cover
(**6**) Air flowmeter
(**7**) Air inlet duct
(**8**) Air resonator on the rocker cover
(**9**) Motorised throttle valve
(**10**) Motorised throttle valve support
(**11**) Inlet manifold
(**12**) Inlet manifold adapter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| Tightening torques ▽ | |
|---|---|
| front end panel air resonator bolts | **6 N.m** |
| air resonator bolt on the rocker cover | **6 N.m** |

Note:

This vehicle is fitted with two air resonators.

## I - REMOVING THE AIR RESONATOR IN THE FRONT END PANEL

### 1 - REMOVAL PREPARATION OPERATION

❏

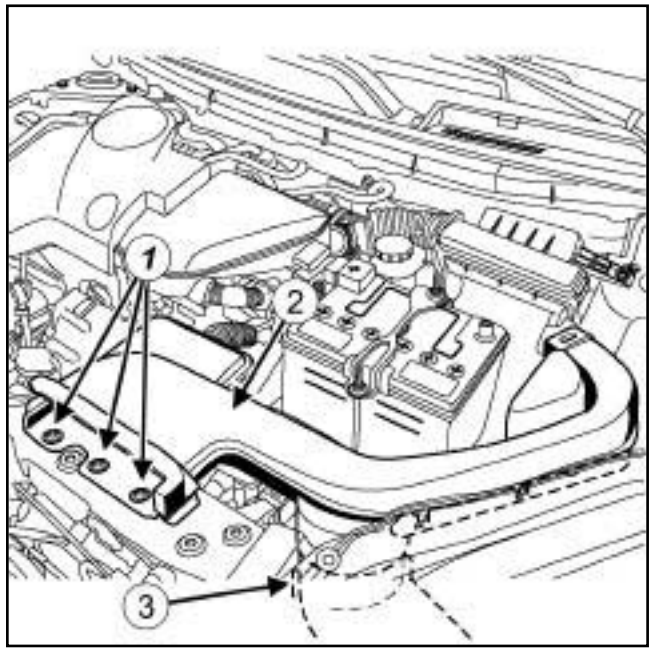
**IMPORTANT**
Wear protective gloves during the operation.

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment)

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED

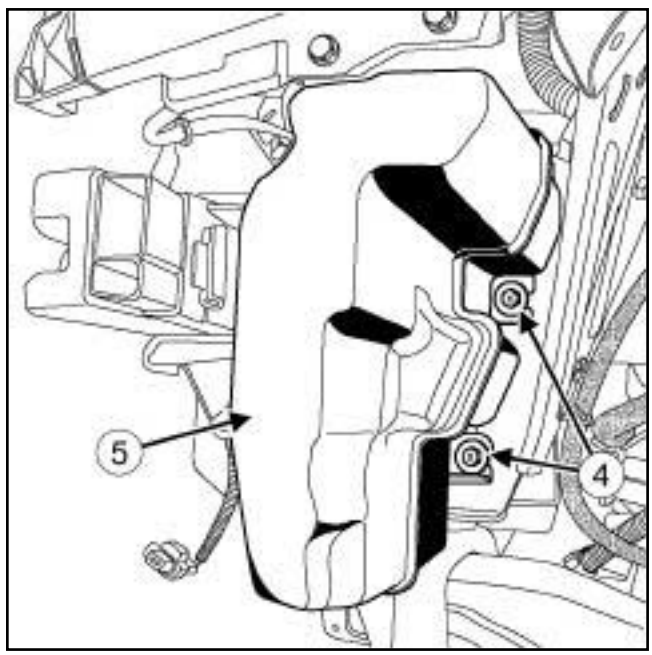



129333

❏ Unclip the air inlet sleeve clips (**1**) .

❏ Remove:

- the air inlet sleeve (**2**) ,
- the air resonator sleeve (**3**) .




129334

❏ Remove:

- the front end panel air resonator bolts (**4**) ,
- the front end panel air resonator (**5**) .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## II - REFITTING THE AIR RESONATOR IN THE FRONT END PANEL

### 1 - OPERATION FOR REFITTING PART CONCERNED

❑ Refit:

- the front end panel air resonator ***(5)*** ,
- the front end panel air resonator bolts ***(4)*** .

❑ Torque tighten the **front end panel air resonator bolts (6 N.m)**.

❑ Refit:

- the air resonator sleeve ***(3)*** ,
- the air inlet sleeve ***(2)*** .

❑ Clip on the air inlet sleeve clips.

### 2 - FINAL OPERATION

❑ Refit:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

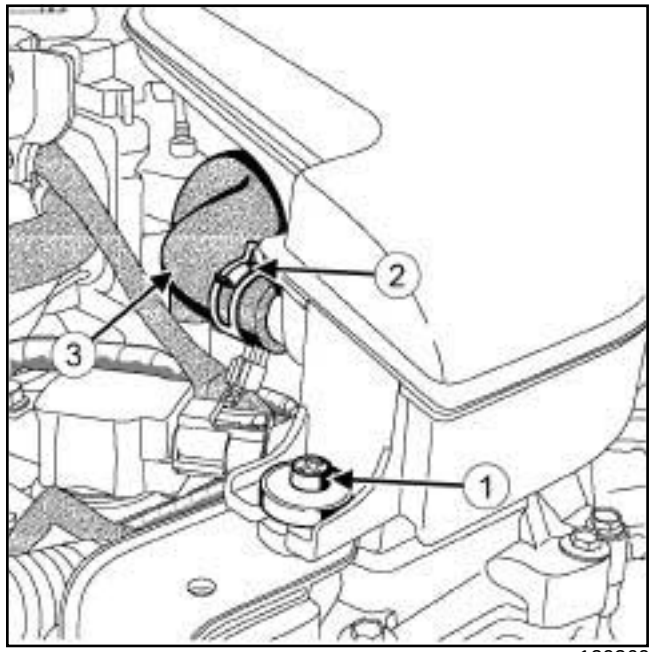
## III - REMOVING THE AIR RESONATOR ON THE ROCKER COVER

### 1 - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment)

❑ Remove the engine cover.

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED

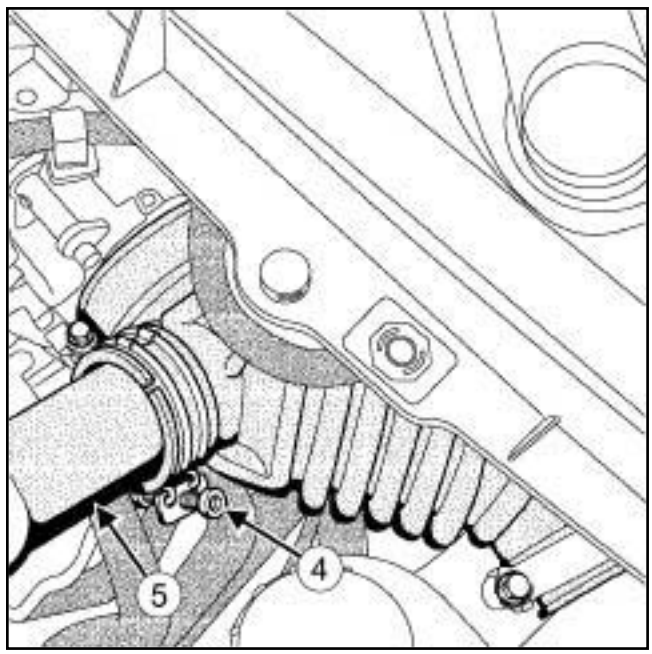


129360

❑ Remove:

- the air resonator bolt on the rocker cover (**1**) ,
- the oil vapour rebreathing pipe clip (**2**) .

❑ Disconnect the oil vapour rebreathing pipe (**3**) from the air resonator.



129336

❑ Loosen the air resonator clip ***(4)*** .

❑ Remove the air resonator ***(5)*** from the air inlet sleeve.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## IV - REFITTING THE AIR RESONATOR ON THE ROCKER COVER

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit the air resonator ***(5)*** on the rocker cover.

❏ Tighten the air resonator clip ***(4)*** .

❏ Connect the oil vapour rebreathing pipe ***(3)*** .

❏ Refit:

- the oil vapour rebreathing pipe clip ***(2)*** ,
- the air resonator bolt on the rocker cover ***(1)*** .

❏ Torque tighten the **air resonator bolt on the rocker cover (6 N.m)**.

### 2 - FINAL OPERATION

❏ Refit the engine cover.


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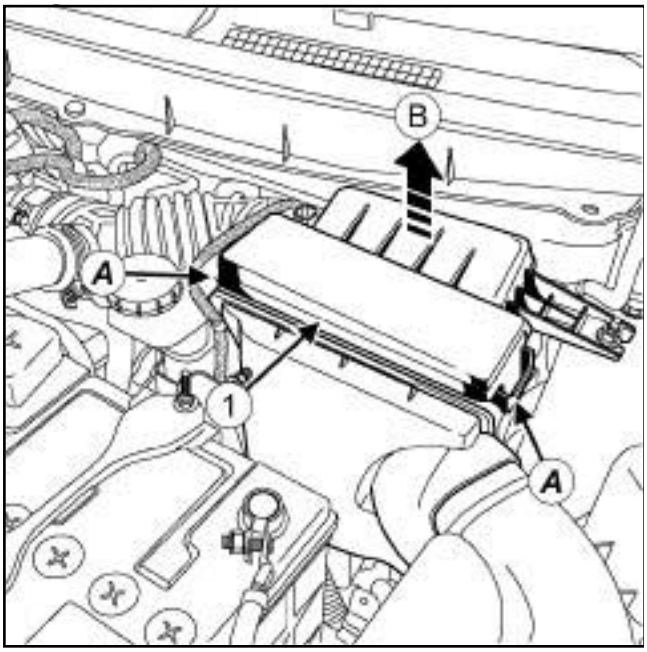
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

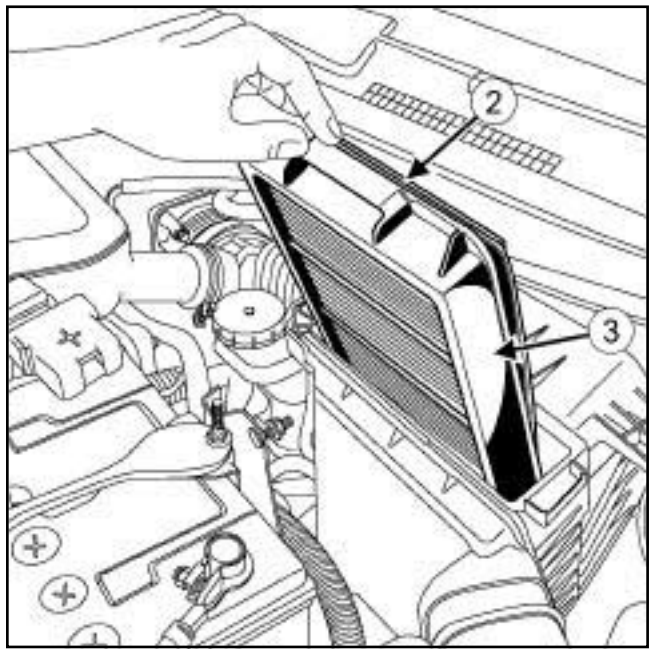



129337

❑ Press the tabs (**A**) on both sides of the air filter cover.

❑ Pull upwards on the air filter cover (**1**) and remove it (**B**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129338

❑ Remove:

- the filter element (**2**) and the support (**3**) from the air filter unit,
- the filter element (**2**) from the support (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Clean the air filter unit if necessary.

❑ Always replace the filter element ***(2)*** .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the filter element ***(2)*** on the support ***(3)*** ,
- the support ***(3)*** on the air filter unit.

### III - FINAL OPERATION

❑ Refit the air filter cover ***(1)*** .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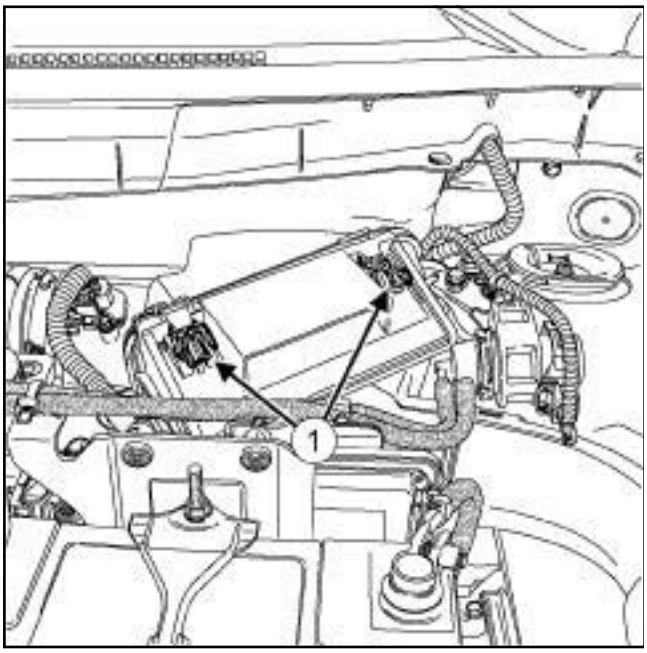
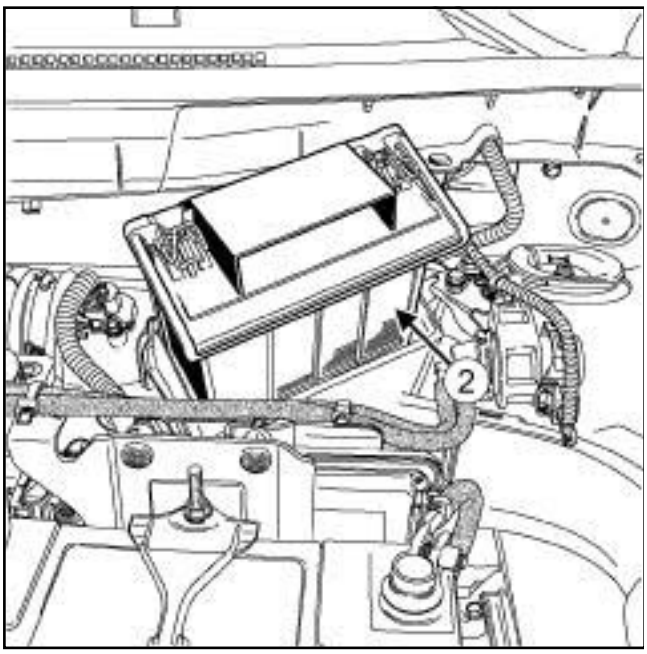
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




129339

❑ Unclip the air filter unit cover at (**1**) .




129340

❑ Remove:

- the filter element - cover assembly (**2**) from the air filter unit,
- the filter element from the air filter unit cover.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Clean the air filter unit.

**WARNING**
If the air filter is fitted incorrectly in the air filter unit, unfiltered air may enter the engine.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the filter element on the air filter unit cover,
- the filter element - cover assembly on the air filter unit.

❑ Clip on the air filter unit cover.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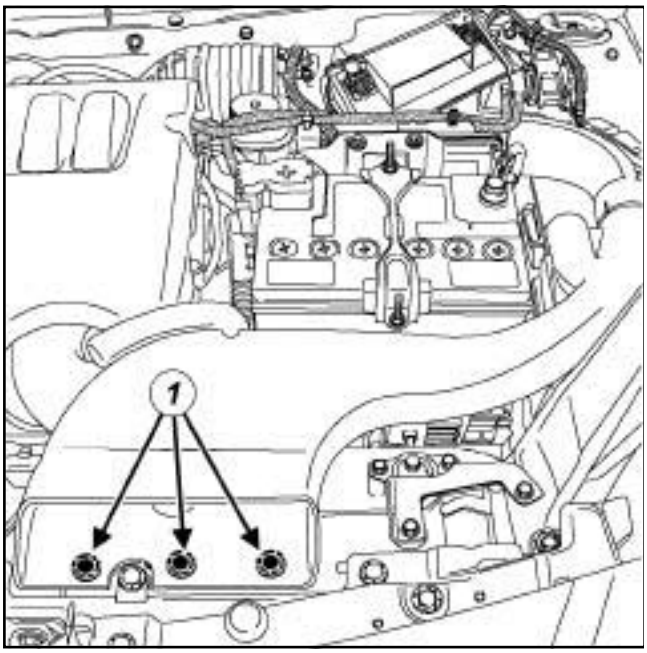
| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| air filter unit nut | **10 N.m** |
| wiring clip bolt | **10 N.m** |
| air filter unit air outlet duct clip | **5 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

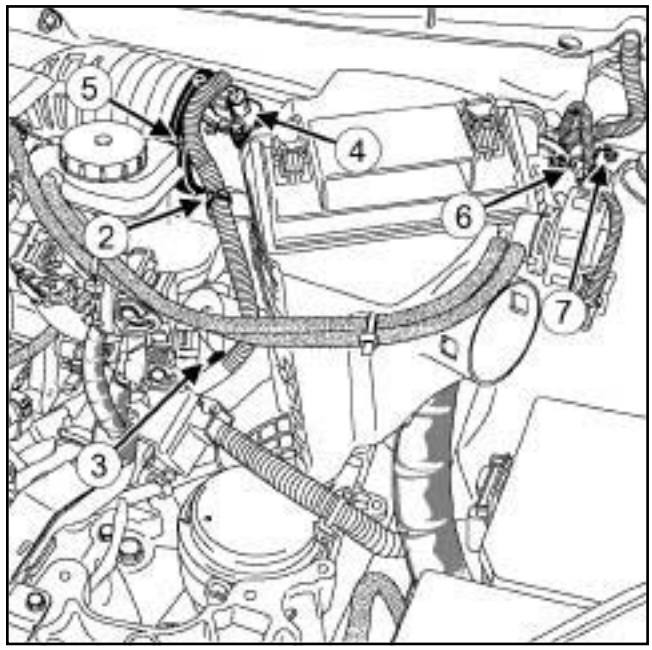



129344

❑ Remove:

- the air inlet sleeve clips (**1**) ,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129345

❑ Unclip:

- the air filter unit wiring clip (**2**) ,
- the gearbox breather hose clip (**3**) from the air filter unit.

❑ Remove the air flowmeter (**4**) (see **12A**, **Fuel mixture**, **Air flowmeter: Removal - Refitting**, page **12A-12**) .

❑ Loosen the air filter unit air outlet duct clip (**5**) on the air filter unit side.

❑ Disconnect the air outlet duct from the air filter unit.

❑ Remove:

- the wiring clip bolt (**6**) ,
- the air filter unit nut (**7**) ,
- the air filter unit.

## REFITTING

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Refit:

- the air filter unit,
- the air filter unit nut,
- the wiring clip bolt.

❑ Tighten to torque:

- the **air filter unit nut (10 N.m)**,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- the **wiring clip bolt (10 N.m)**.

❑ Connect the air outlet duct to the air filter unit.

❑ Torque tighten the **air filter unit air outlet duct clip (5 N.m)** using the tool **(Mot. 1608)**.

❑ Refit the air flowmeter (see **12A**, **Fuel mixture**, **Air flowmeter: Removal - Refitting**, page **12A-12**) .

❑ Clip:

- the gearbox breather hose clip on the air filter unit,
- the air filter unit wiring clip.

**II - FINAL OPERATION**

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve on the air filter unit,
- the air inlet sleeve clips.


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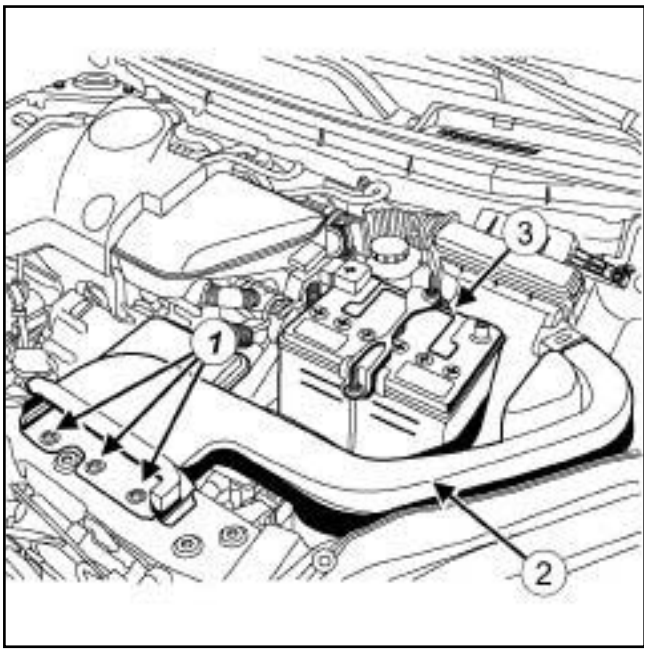
| Tightening torques ▽ | |
|---|---|
| air filter unit nut | **10 N.m** |
| air filter unit bolt | **6 N.m** |
| air inlet duct clip | **6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).



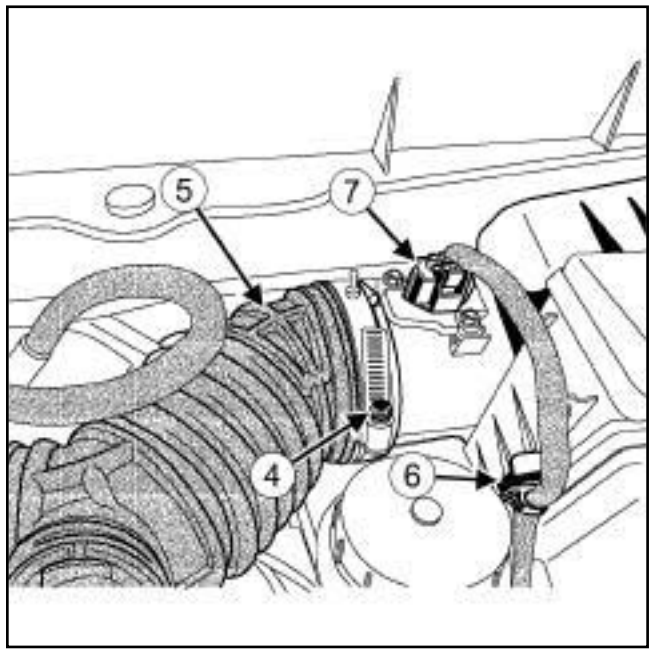

129341

❏ Unclip the air inlet sleeve clips (**1**) .

❏ Remove:

- the air inlet sleeve (**2**) ,
- the battery (**3**) (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129343

❏ Loosen the air inlet duct clip (**4**) .

❏ Disconnect the air inlet duct (**5**) from the air filter unit.

❏ Unclip the wiring clip at (**6**) .

❏ Disconnect the air flowmeter connector (**7**) .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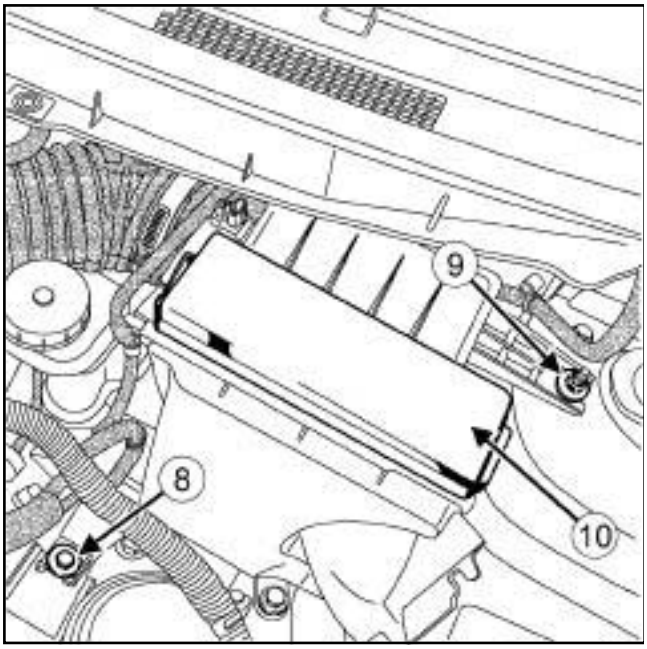

129342

❑ Remove:

- the air filter unit bolt (**8**) ,
- the air filter unit nut (**9**) ,
- the air filter unit (**10**) .

Note:

If necessary, remove the air flowmeter (see **12A**, **Fuel mixture**, **Air flowmeter: Removal - Refitting**, page **12A-12**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

Note:

If replacing the air filter unit, refit the air flowmeter (see **12A**, **Fuel mixture**, **Air flowmeter: Removal - Refitting**, page **12A-12**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the air filter unit,
- the air filter unit nut,
- the air filter unit bolt.

❑ Torque tighten:

- the **air filter unit nut (10 N.m)**,
- the **air filter unit bolt (6 N.m)**

❑ Connect the air flowmeter connector.

❑ Clip on the wiring clip.

❑ Connect the air inlet duct to the air filter unit.

❑ Torque tighten the **air inlet duct clip (6 N.m)**.

### III - FINAL OPERATION.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve.

❑ Clip on the air inlet sleeve clips.


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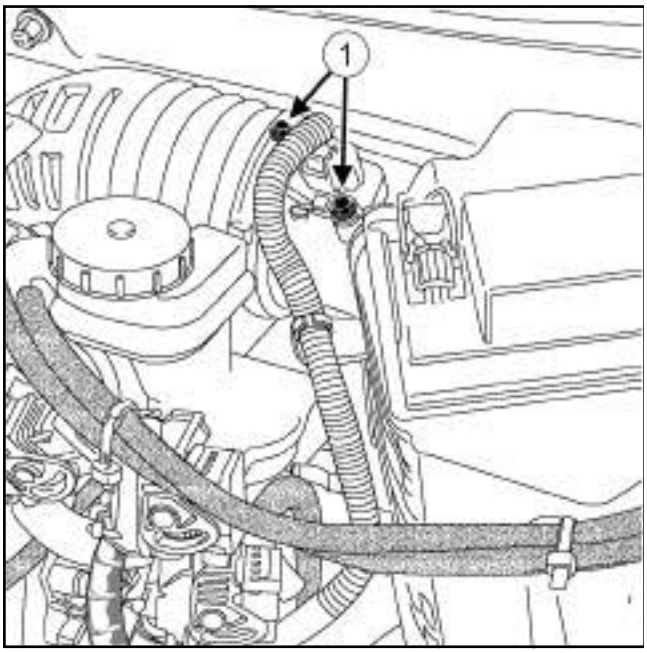
| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| air flowmeter bolts | **2 N.m** |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




129348

❏ Disconnect the connector from the air flowmeter.

❏ Remove:

- the air filter unit air flowmeter bolts (**1**) ,
- the air flowmeter,
- the air flowmeter seal.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the air flowmeter seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the air flowmeter seal,
- the air flowmeter,
- the air filter unit air flowmeter bolts ***(1)*** .

❏ Torque tighten the **air flowmeter bolts (2 N.m)** on the air filter unit using the tool **(Mot. 1608)**.

❏ Connect the air flowmeter connector.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| Tightening torques ▽ | |
|---|---|
| air flowmeter bolts | **2 N.m** |

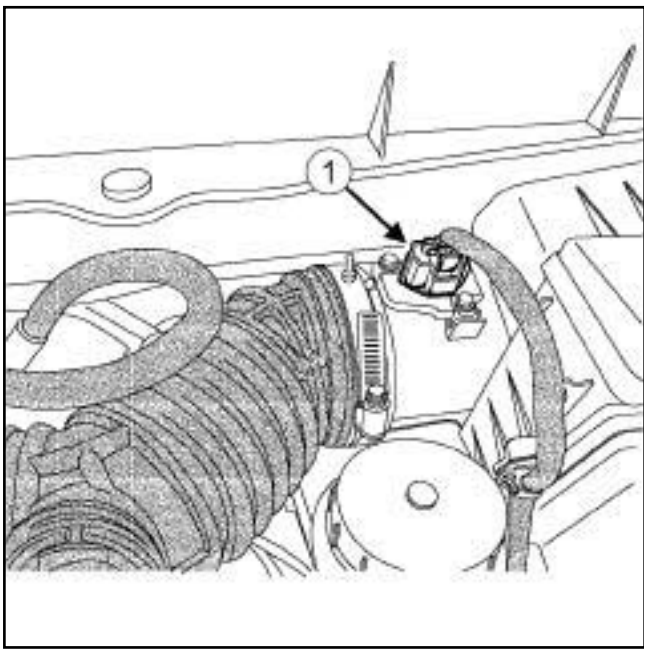
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

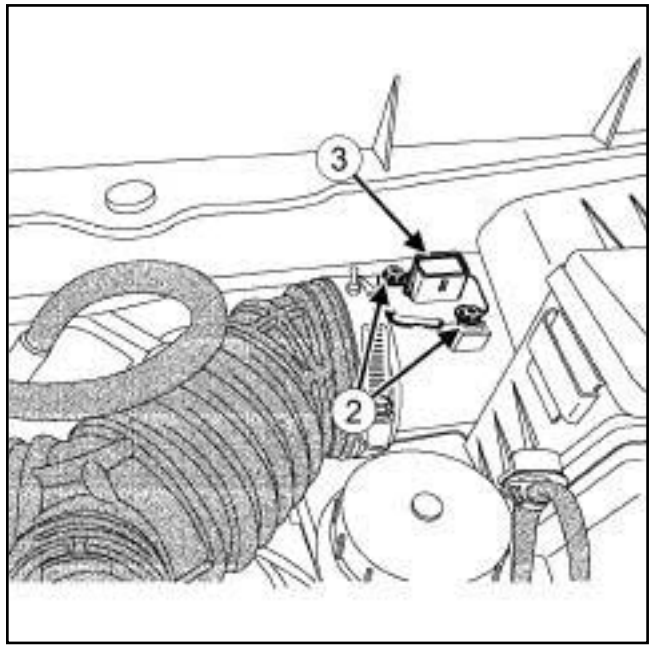
### II - OPERATION FOR REMOVAL OF PART CONCERNED




129346

❏ Disconnect the air flowmeter connector (**1**) .

❏ Move aside the air flowmeter connector (**1**) .




129347

❏ Remove:

- the bolts (**2**) from the air flowmeter,
- the air flowmeter (**3**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the air flowmeter ***(3)*** ,
- the air flowmeter bolts ***(2)*** .

❏ Torque tighten the **air flowmeter bolts (2 N.m)** ***(2)*** .

❏ Connect:

- the air flow sensor connector ***(1)*** ,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery).



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| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

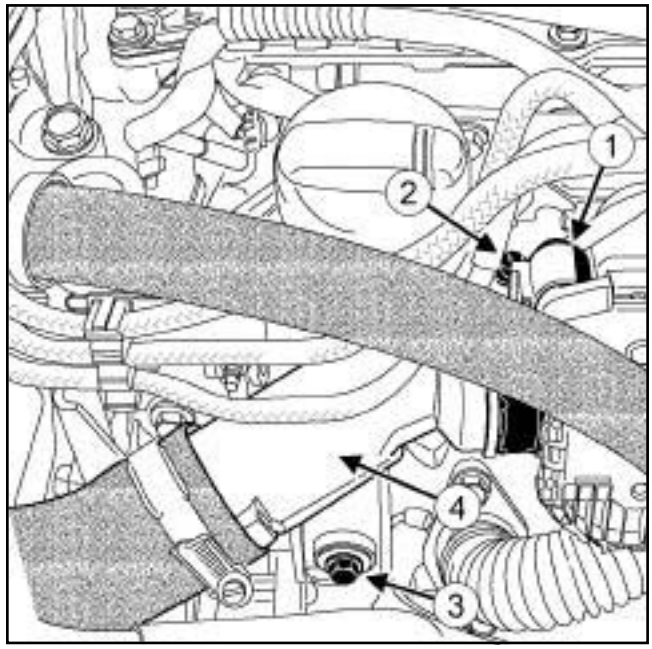
| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| strut bolts and nuts on the damper valve | **10 N.m** |
| strut bolts on the inlet manifold | **10 N.m** |
| dipstick guide tube bolts | **10 N.m** |
| intercooler air outlet pipe bolt | **8 N.m** |
| intercooler air outlet pipe clip | **6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the engine cover.




129349

❏ Disconnect the connector from the damper valve wiring (**1**) .

❏ Loosen the clip (**2**) on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt (**3**) .

❏ Disconnect the intercooler air outlet pipe (**4**) from the damper valve.

❏ Move the intercooler air outlet pipe to one side.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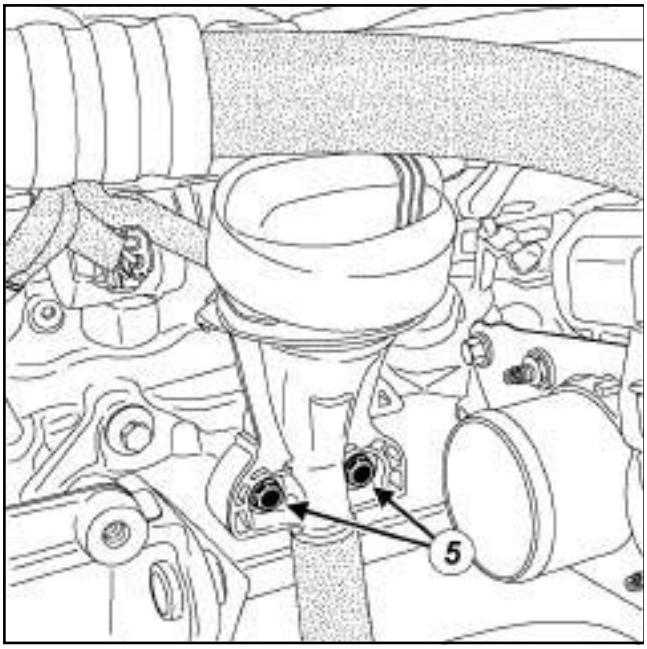


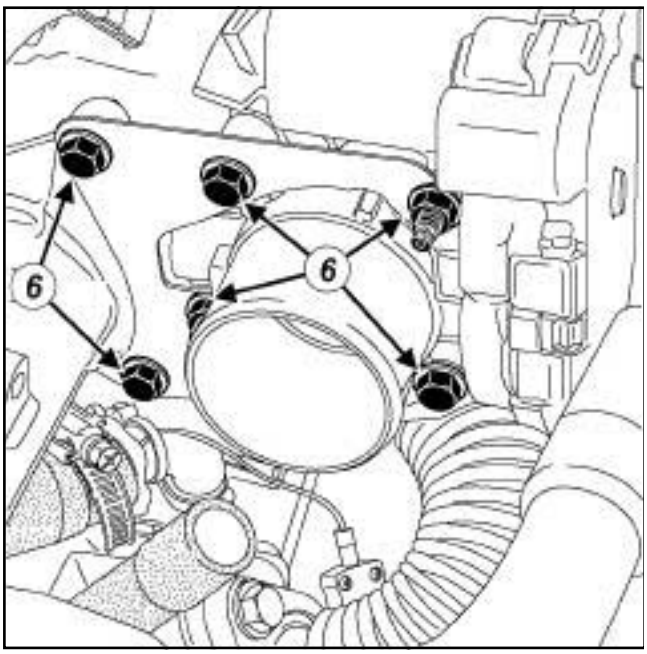
129350

❏ Remove:

- the dipstick guide tube bolts (**5**) .
- the dipstick guide tube.

❏ Plug the opening of the dipstick guide tube on the cylinder block.

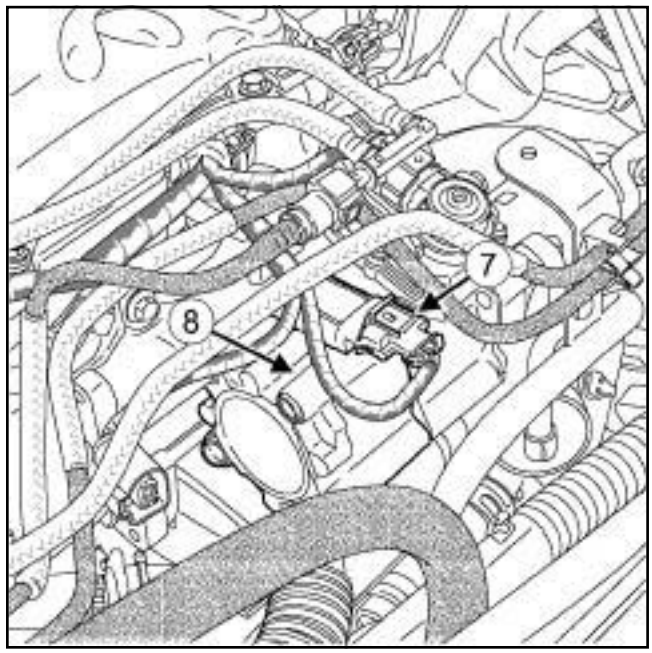
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129351

❏ Remove:

- the strut bolts and nuts (**6**) ,
- the damper valve strut,
- the damper valve,
- the seal between the damper valve and the turbocharger pressure sensor housing.



129352

❏ Disconnect the connector (**7**) from the turbocharger pressure sensor.

❏ Remove:

- the turbocharger pressure sensor housing (**8**) ,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Clean and degrease the bearing faces:

- between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- between the damper valve and the turbocharger pressure sensor housing.

❏ Always replace:

- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the seal between the damper valve and the turbocharger pressure sensor housing.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**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the turbocharger pressure sensor housing.

❑ Connect the turbocharger pressure sensor connector.

❑ Refit:

- the seal between the damper valve and the turbocharger pressure sensor housing,
- the damper valve,
- the damper valve strut,
- the strut bolts and nuts.

❑ Torque tighten in turn:

- the **strut bolts and nuts on the damper valve (10 N.m)**.
- the **strut bolts on the inlet manifold (10 N.m)**.

**III - FINAL OPERATION.**

❑ Remove the plug from the opening of the dipstick guide tube on the cylinder block.

❑ Refit:

- the dipstick guide tube,
- the dipstick guide tube bolts.

❑ Torque tighten the **dipstick guide tube bolts (10 N.m)**.

❑ Connect the intercooler air outlet pipe to the damper valve.

❑ Refit the intercooler air outlet pipe bolt.

❑ Torque tighten:

- the **intercooler air outlet pipe bolt (8 N.m)**,
- the **intercooler air outlet pipe clip (6 N.m)** using the tool **(Mot. 1608)**.

❑ Connect the damper valve wiring connector.

❑ Refit the engine cover.

❑ Connect the **diagnostic tool**.

❑ Reinitialise the programming in accordance with the procedure for command **SC036** when replacing the damper valve (see **Fault finding - Replacement of components**) (13B, Diesel injection).


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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| motorised throttle valve bolts | **8 N.m** |
| air inlet pipe clips | **6 N.m** |
| the air resonator bolt | **6 N.m.** |

## REMOVAL

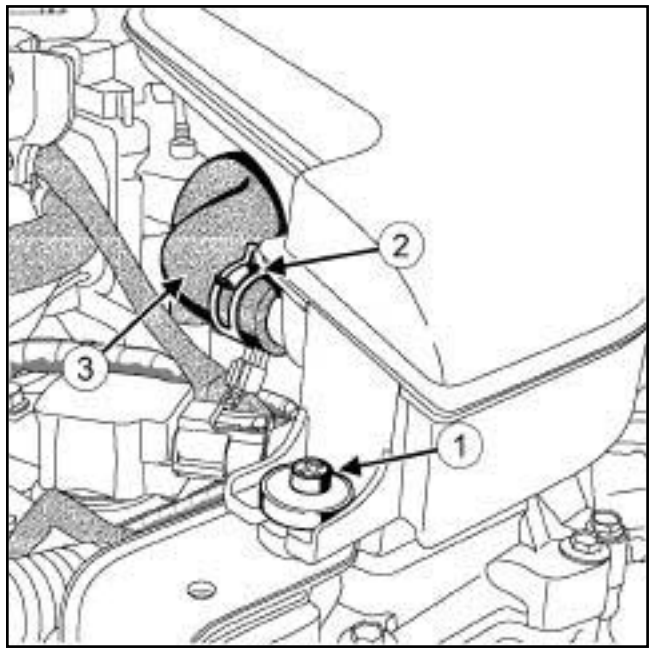
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

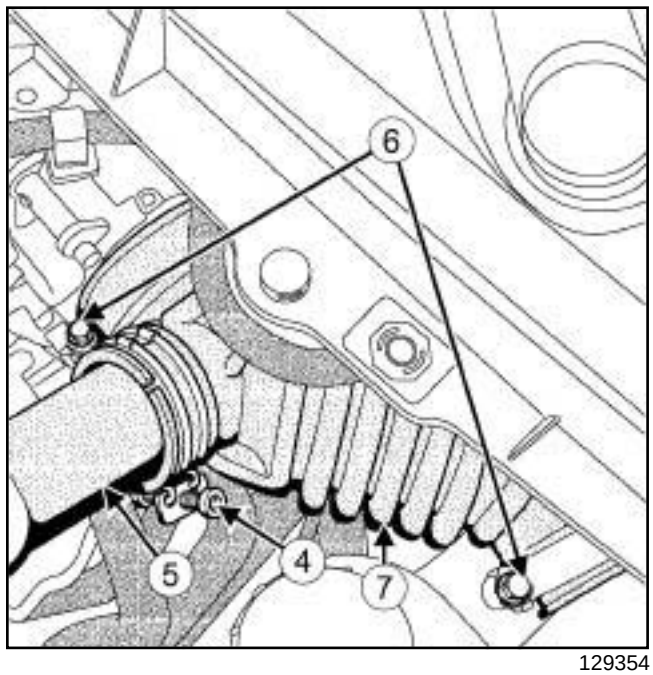


129360

❏ Remove:

- the bolt (**1**) from the air resonator,
- the breather hose clip (**2**) .

❏ Disconnect the breather hose ***(3)*** .



129354

❏ Loosen the clip (**4**) .

❏ Remove the air resonator ***(5)*** on the rocker cover.

❏ Loosen the air inlet pipe clips ***(6)*** .

❏ Remove the air inlet pipe ***(7)*** .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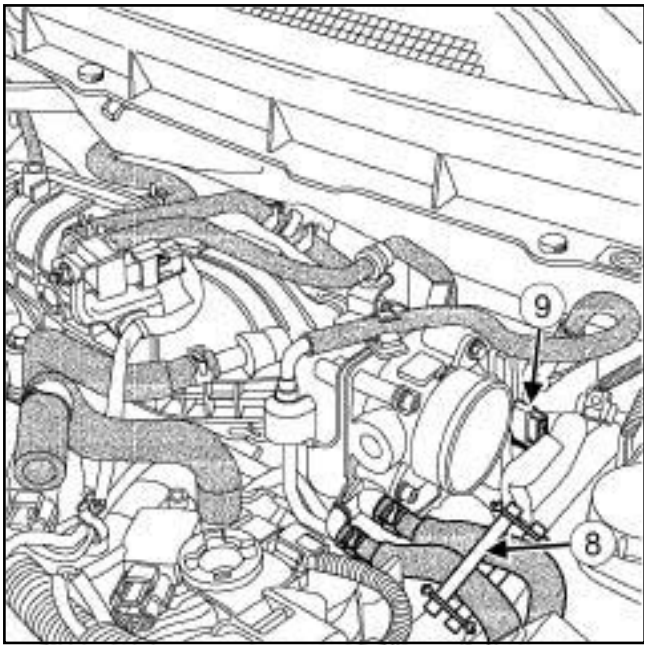


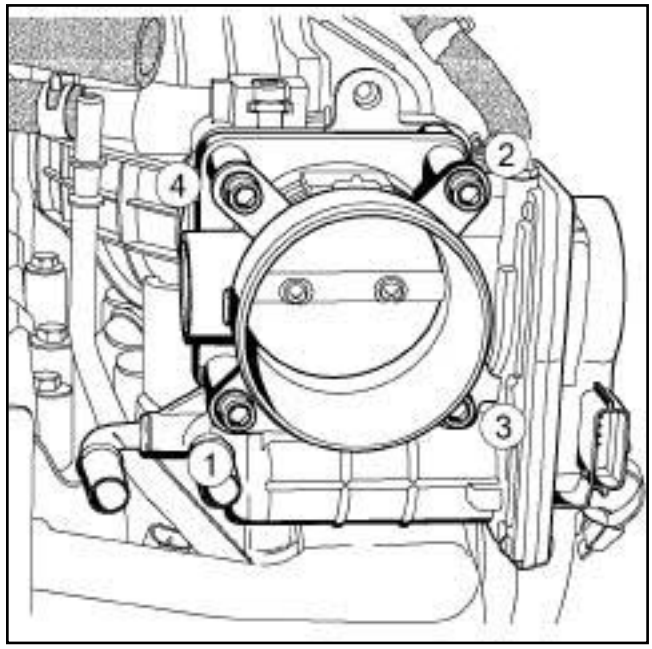
129355

❏ Fit the hose clamp (**8**) on the motorised throttle valve coolant pipes.

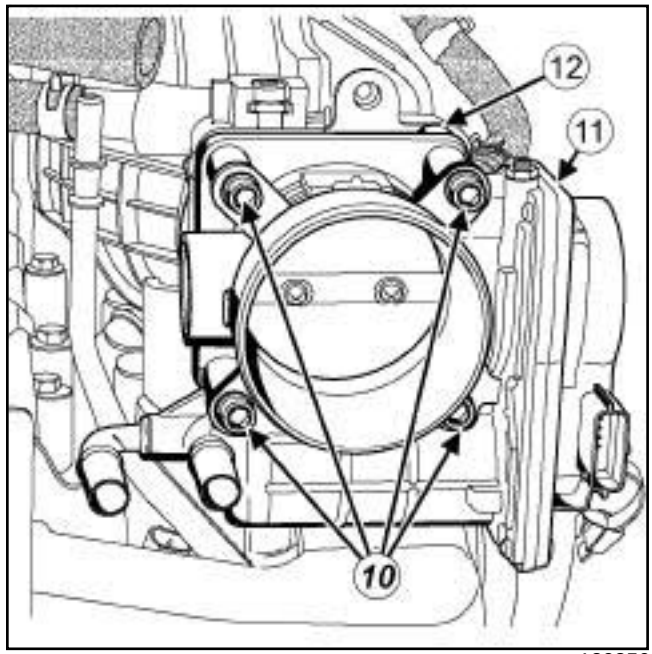
❏ Remove the motorised throttle valve coolant pipe clips using the tool **(Mot. 1448)**.

❏ Disconnect:

- the motorised throttle valve coolant pipes,
- the motorised throttle valve connector ***(9)*** .



129356



129356

❏ Remove:

- in order the motorised throttle valve bolts (**10**) ,
- the motorised throttle valve (**11**) ,
- the motorised throttle valve seal (**12**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the motorised throttle valve seal.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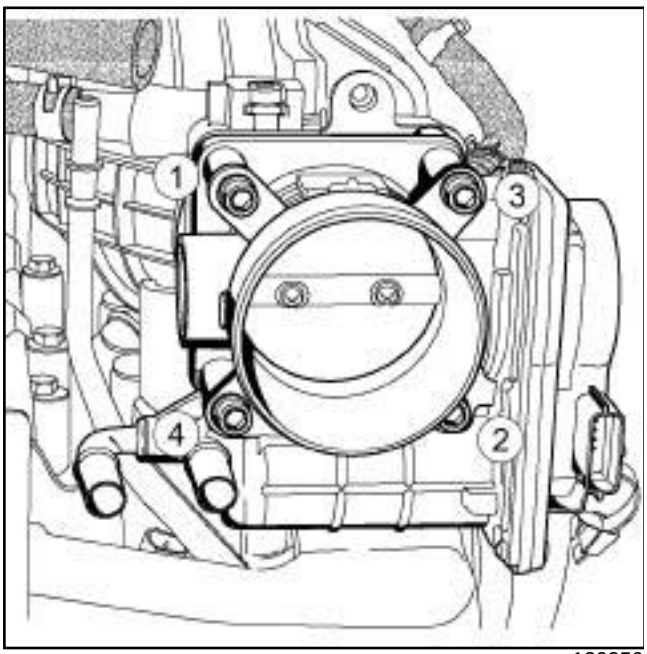
**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the motorised throttle valve seal,
- the motorised throttle valve,
- the motorised throttle valve bolts.




129356

❏ Torque tighten in order the **motorised throttle valve bolts (8 N.m)**.

❏ Connect:

- the motorised throttle valve connector ,
- the motorised throttle valve coolant pipes.

❏ Refit the motorised throttle valve coolant pipe clips using the tool **(Mot. 1448)**.

❏ Remove the hose clamp from the motorised throttle valve coolant pipes.

❏ Refit the air inlet pipe.

❏ Tighten the **air inlet pipe clips (6 N.m)**.

❏ Refit the air resonator on the rocker cover.

❏ Tighten the clip ***(4)*** .

❏ Connect the breather hose ***(3)*** .

❏ Refit:

- the breather hose clip,
- the air resonator bolt on the rocker cover.

❏ Torque tighten **the air resonator bolt (6 N.m.)**

**III - FINAL OPERATION**

❏ Refit the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Carry out the programming of the motorised throttle valve using the **diagnostic tool** (see **Fault finding - Replacement of components**) (17B, Petrol injection).

❏ Carry out the following if necessary:

- top up the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) ,
- bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .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**IMPORTANT**
Wear leaktight gloves (Nitrile type) for this operation.

**IMPORTANT**
Wear goggles with side protectors for this operation.

Note:
Be sure to work in a clean environment so as not to allow any contamination of the throttle valve.

## PARTS AND INGREDIENTS FOR THE REPAIRWORK

❏ Consumables (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):

- CARBURETTOR CLEANER,
- Lint-free cleaning cloths.

## CLEANING

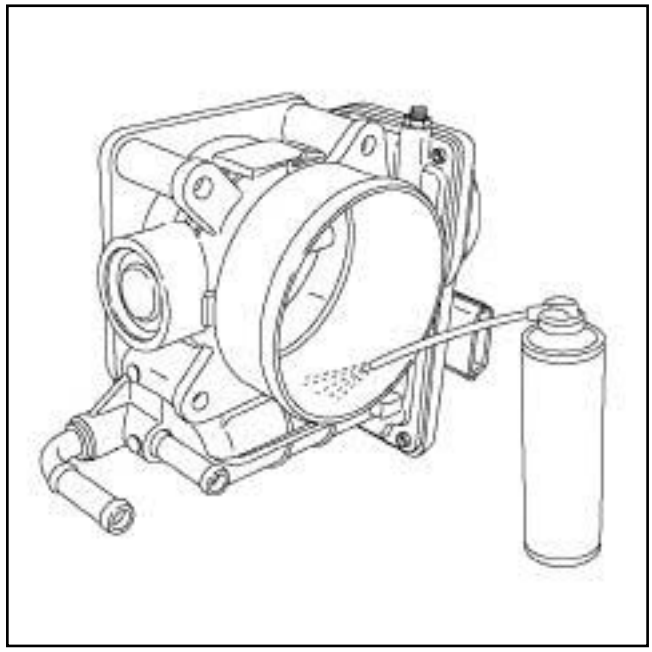
### I - CLEANING PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the throttle valve (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**) .

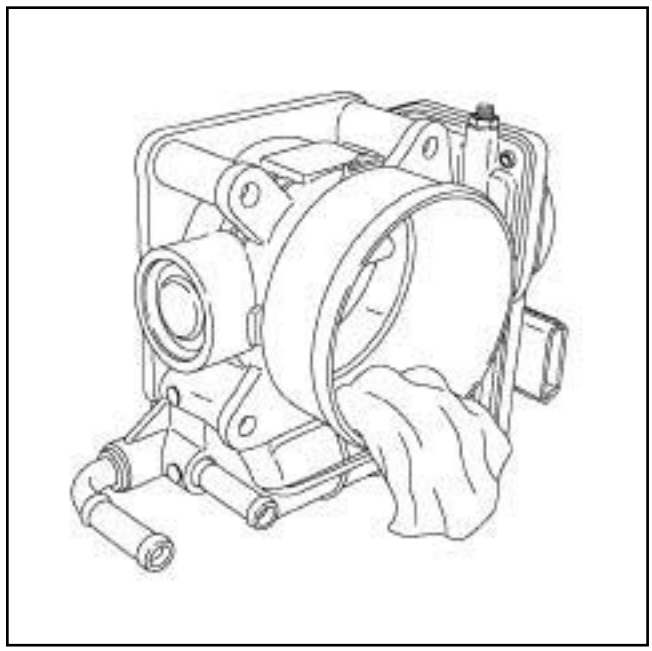
### II - CLEANING THE PART CONCERNED



129357

❏ Hold the throttle valve flap open manually.

❏ Spray the CARBURETTOR CLEANER product in the air vent until all traces of clogging have disappeared.



129358

❏ Remove the cleaning product residue and residue of the dirt using lint-free cleaning cloths.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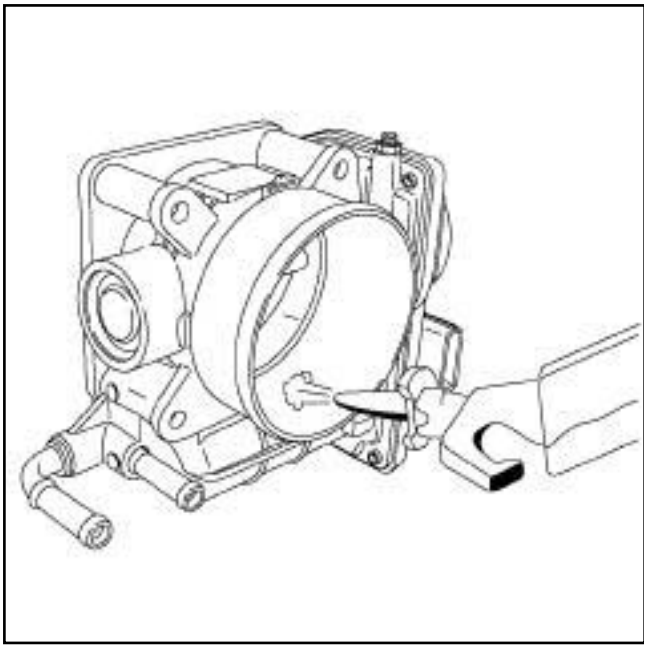

129359

❑ Use a hot air gun along the edge of the throttle valve and then on the air vent.

Note:

If the throttle valve is dropped or is subject to any other impact, it must be replaced.

**III - FINAL OPERATION.**

❑ Refit the throttle valve, fitted with a new seal (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ When refitting the throttle valve, carry out the necessary programming (see **Fault finding - Replacement of components**) (17B, Petrol injection).


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| Tightening torques ▽ | |
|---|---|
| air inlet duct clips | **6 N.m** |
| air resonator bolt | **6 N.m** |

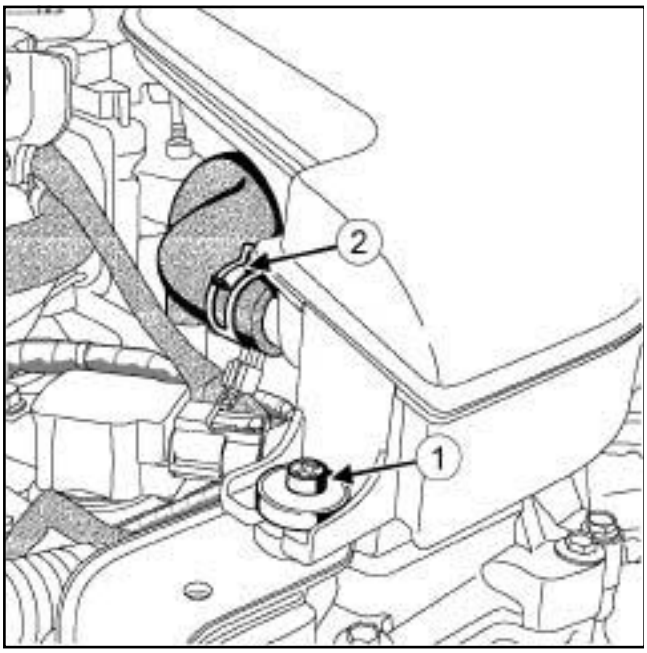
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the engine cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

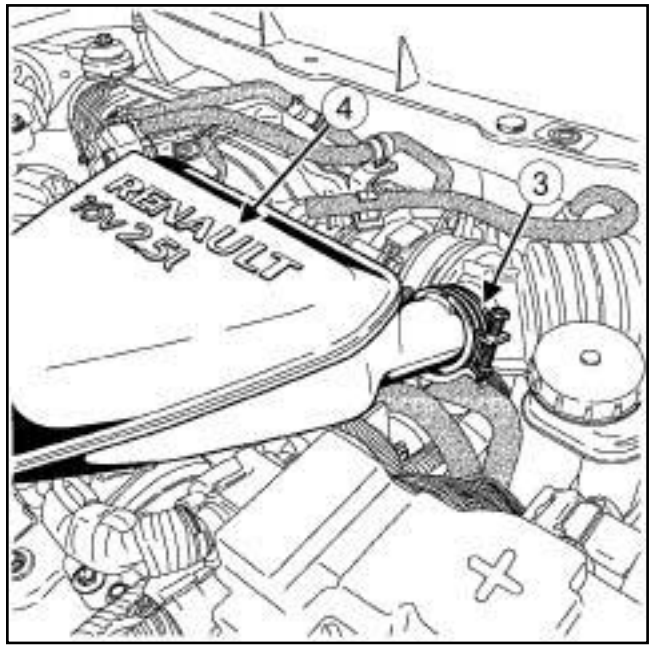



129360

❏ Remove:

- the bolt (**1**) from the air resonator,
- the oil vapour rebreathing pipe clip (**2**) .

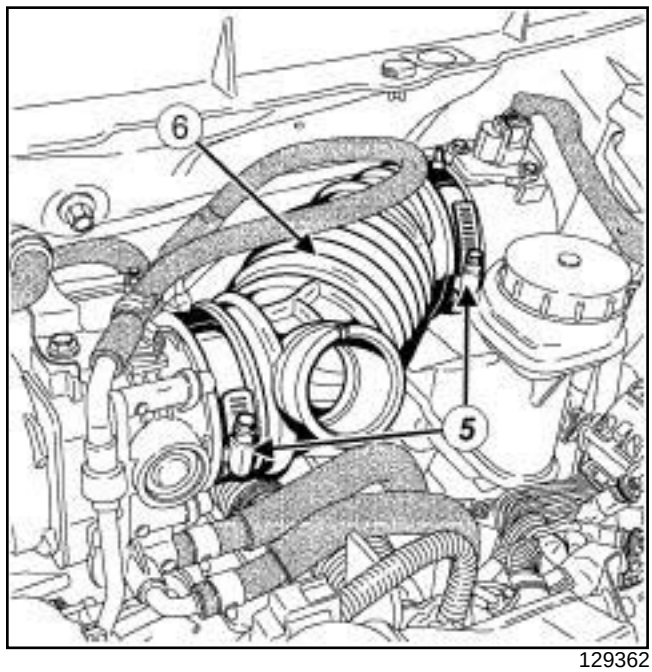
❏ Disconnect the oil vapour rebreathing pipe.




129361

❏ Loosen the air resonator clip (**3**) on the air inlet duct.

❏ Remove the air resonator (**4**) on the rocker cover.




129362

❏ Loosen the clips (**5**) of the air inlet duct on the air filter unit and on the throttle valve.

❏ Remove the air inlet duct (**6**) .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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the air inlet duct ***(6)*** ,
- the air inlet duct clips ***(5)*** .

❏ Torque tighten the **air inlet duct clips (6 N.m)** on the air filter unit and on the throttle valve.

❏ Refit the air resonator on the rocker cover.

❏ Tighten the air resonator clip (**3**) on the air inlet duct.

❏ Connect the oil vapour rebreathing pipe.

❏ Refit:

- the oil vapour rebreathing pipe clip (**2**) ,
- the air resonator bolt (**1**) .

❏ Torque tighten the **air resonator bolt (6 N.m)**.

### II - FINAL OPERATION.

❏ Refit the engine cover.


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| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| inlet manifold nuts and bolts | **15 N.m** |
| inlet manifold nuts and bolts | **25 N.m** |
| dipstick guide tube bolts | **10 N.m** |
| intercooler air outlet duct bolt | **8 N.m** |
| intercooler air outlet duct clip | **6 N.m** |
| EGR bypass solenoid valve bolts | **10 N.m** |
| air filter unit air outlet duct clips | **5 N.m** |
| intercooler air inlet hose clip | **6 N.m** |
| intercooler air inlet duct bolt | **8 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

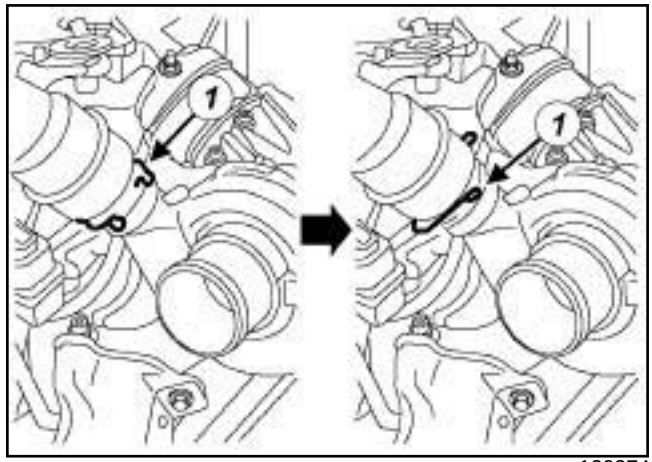
❏ Remove:

- the engine cover,
- the engine undertray.

❏ Drain the engine cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

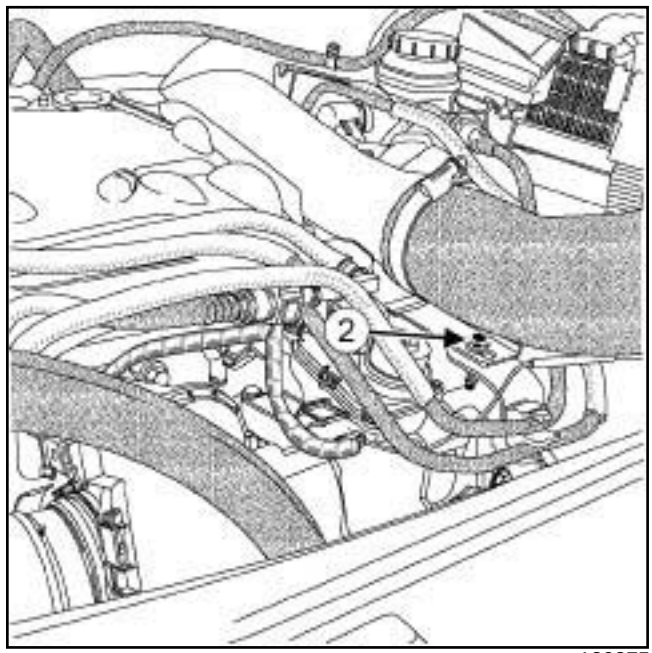
❏ Remove:

- the clips from the air inlet sleeve,
- the air intake sleeve on the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).




129374

❏ Turn the clip (**1**) on the intercooler air inlet duct.




129375

❏ Remove the intercooler air inlet duct bolt (**2**) from the fuel pipe support.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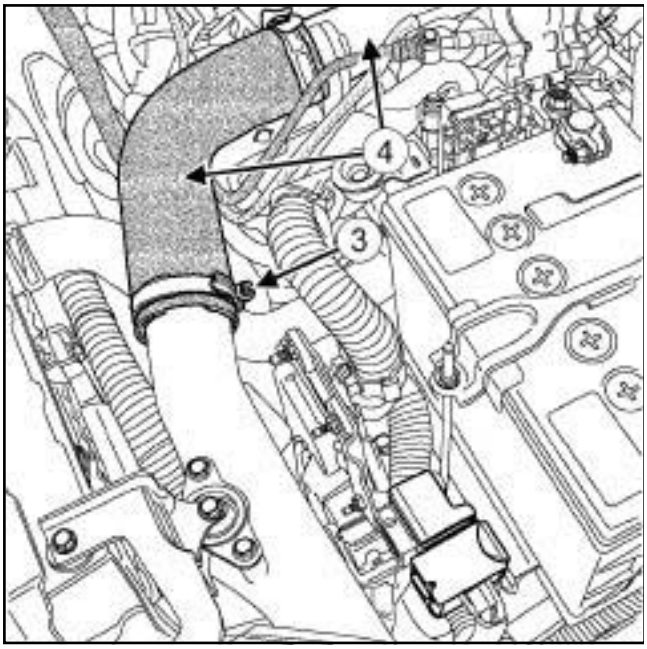


129376

❏ Loosen the clip (**3**) on the intercooler air inlet duct.

❏ Remove:

- the air inlet duct assembly ***(4)*** from the intercooler,
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Loosen the air filter unit air outlet duct clip on the turbocharger.

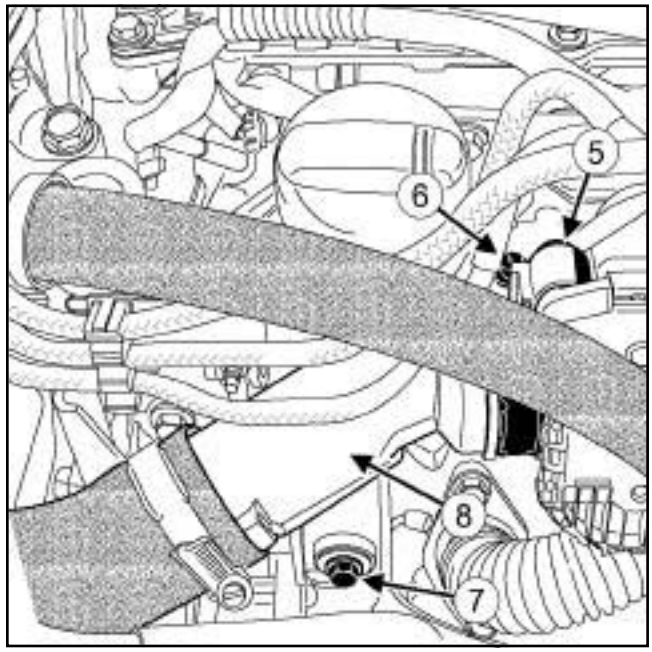
❏ Disconnect:

- the oil vapour rebreathing pipe from the oil separator,
- the air filter unit air outlet duct from the turbocharger.

❏ Fit a blanking plug in the opening of the oil separator.

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the water chamber (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) ,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) .



129377

❏ Disconnect the connector from the damper valve wiring (**5**) .

❏ Loosen the clip (**6**) on the intercooler air inlet duct.

❏ Remove the bolt (**7**) from the intercooler air outlet duct.

❏ Disconnect the intercooler air outlet duct (**8**) from the damper valve.

❏ Move the intercooler air outlet duct to one side.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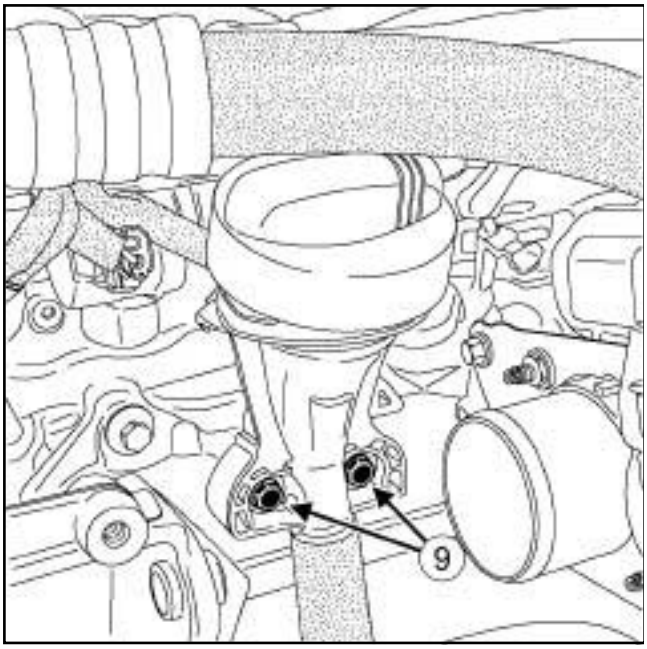


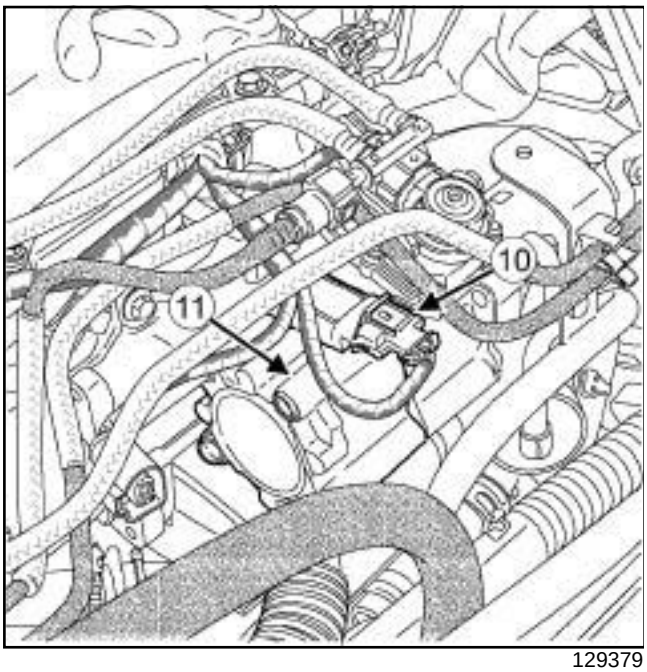

129378

❏ Remove:

- the dipstick guide tube bolts (**9**) ,
- the dipstick guide tube.

❏ Plug the opening of the dipstick guide tube on the cylinder block.

❏ Remove the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .



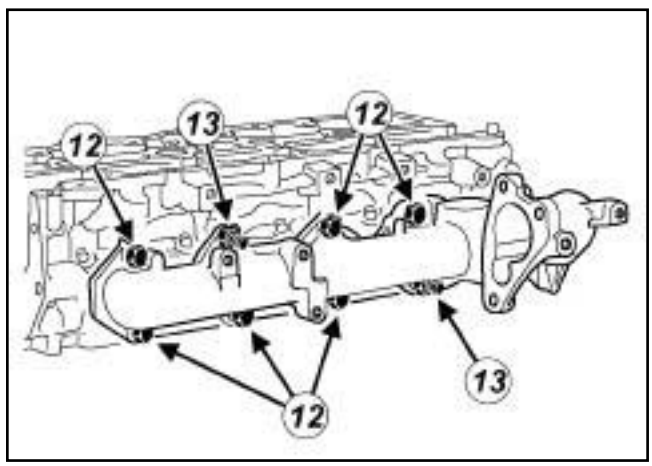

129379

❏ Disconnect the connector (**10**) from the turbocharger pressure sensor.

❏ Remove:

- the turbocharger pressure sensor housing ***(11)*** ,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the EGR solenoid valve (see **14A**, **Antipollution**, **Exhaust gas recirculation solenoid valve: Removal - Refitting**, page **14A-8**) ,
- the starter (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**) ,
- the intercooler (see **14A**, **Antipollution**, **Intercooler: Removal - Refitting**, page **14A-14**) ,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the multifunction support (see **10A**, **Engine and cylinder block assembly**, **Multifunction support: Removal - Refitting**, page **10A-41**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129380

❏ Remove:

- the intake distributor bolts (**12**) ,
- the intake distributor nuts (**13**) ,
- the inlet manifold,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- the inlet manifold gasket.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

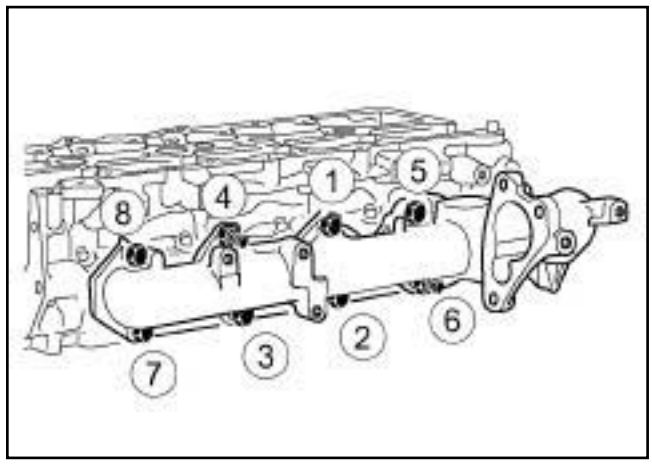
❑ Clean:

- the cylinder head joint face,
- the intake distributor joint face,
- the exhaust gas recirculation rigid pipe joint faces,
- the turbocharger pressure sensor housing joint faces,
- the damper valve seal face.

❑ Always replace:

- the inlet manifold gasket,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler,
- the exhaust gas recirculation rigid pipe seal on the exhaust manifold,
- the exhaust gas recirculation rigid pipe seals,
- the exhaust gas recirculation rigid pipe clip,
- the rigid exhaust gas recirculation pipe bolts,
- the coolant outlet unit seal,
- the gasket between the intake distributor and the EGR solenoid valve.
- the seal between the turbocharger pressure sensor housing and the EGR solenoid valve,
- the seal between the damper valve and the turbocharger pressure sensor housing,
- the intercooler air inlet duct seal.

### II - REFITTING OPERATION FOR PART CONCERNED



129380

❑ Refit:

- the new intake distributor seal,
- the inlet manifold,
- the inlet manifold nuts and bolts.

❑ Pretighten to torque and in order the **inlet manifold nuts and bolts (15 N.m)**.

❑ Torque tighten in order the **inlet manifold nuts and bolts (25 N.m)**.

### III - FINAL OPERATION.

❑ Refit:

- the multifunction support (see **10A**, **Engine and cylinder block assembly**, **Multifunction support: Removal - Refitting**, page **10A-41**) ,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the intercooler (see **14A**, **Antipollution**, **Intercooler: Removal - Refitting**, page **14A-14**) ,
- the starter (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**) ,
- the new seal between the EGR solenoid valve and the intake distributor,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- the EGR solenoid valve (see **14A**, **Antipollution**, **Exhaust gas recirculation solenoid valve: Removal - Refitting**, page **14A-8**) ,
- the new exhaust gas recirculation rigid pipe seals,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the new seal between the turbocharger pressure sensor housing and the EGR solenoid valve,
- the turbocharger pressure sensor housing.

❏ Connect the turbocharger pressure sensor connector.

❏ Refit:

- the seal between the damper valve and the turbocharger pressure sensor housing,
- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .

❏ Remove the plug from the opening of the dipstick guide tube on the cylinder block.

❏ Torque tighten the **dipstick guide tube bolts (10 N.m)**.

❏ Connect the intercooler air outlet duct to the damper valve.

❏ Refit the intercooler air outlet duct bolt.

❏ Torque tighten:

- the **intercooler air outlet duct bolt (8 N.m)**,
- the **intercooler air outlet duct clip (6 N.m)** using the tool **(Mot. 1608)**.

❏ Connect the damper valve wiring connector.

❏ Refit:

- the exhaust gas recirculation rigid pipe seal on the exhaust manifold,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) .
- the coolant outlet unit seal,
- the water chamber (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) ,
- the water chamber hoses and pipes (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) .

❏ Fit the EGR bypass solenoid valve.

❏ Refit the EGR bypass solenoid valve bolts.

❏ Torque tighten the **EGR bypass solenoid valve bolts (10 N.m)**.

❏ Connect:

- the vacuum hoses on the EGR bypass solenoid valve and on the exhaust gas cooler,
- the EGR bypass solenoid valve connector.

❏ Refit the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Connect the air filter unit air outlet duct to the turbocharger and to the air filter unit.

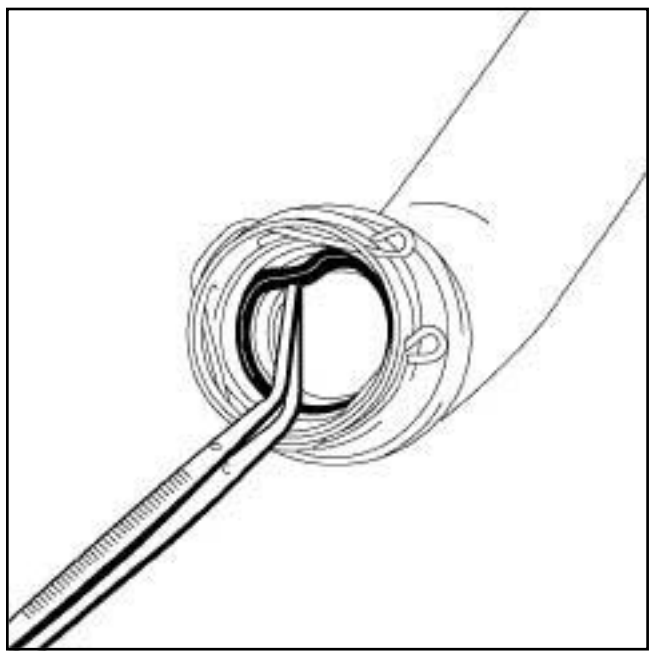
❏ Torque tighten the **air filter unit air outlet duct clips (5 N.m)** using the tool **(Mot. 1608)**.

❏ Remove the blanking plug from the opening of the oil separator.

❏ Connect the oil vapour rebreathing hose to the oil separator.

❏ Fit the intercooler air inlet duct assembly onto the intercooler air inlet pipe.

❏ Torque tighten the **intercooler air inlet hose clip (6 N.m)** using the tool **(Mot. 1608)**.



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❏ Remove the intercooler air inlet duct seal using a .



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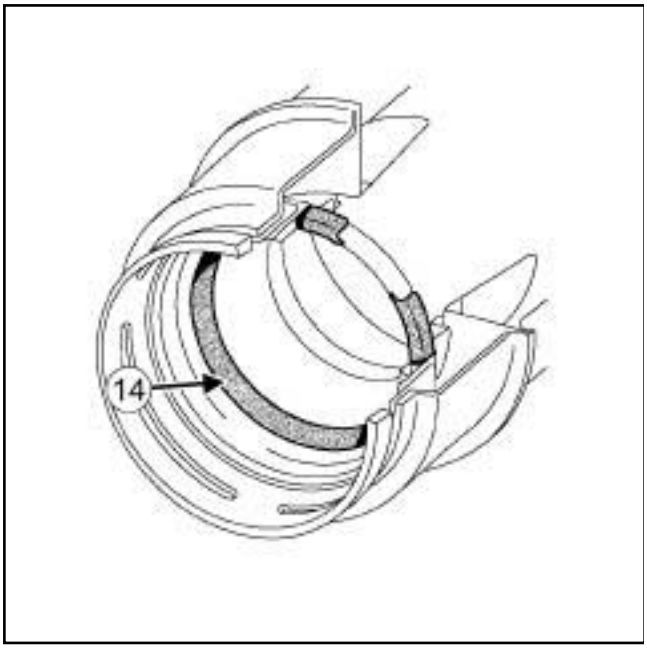


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❑

Note:

Check whether the intercooler air inlet duct seal (**14**) is correctly positioned.

❑ Refit the new intercooler air inlet duct seal.

❑ Turn the intercooler air inlet duct to fit the clip in its housing.

❑ Clip the intercooler air inlet duct onto the turbocharger.

❑ Refit the intercooler air inlet duct bolt to the fuel pipe support.

❑ Torque tighten the **intercooler air inlet duct bolt (8 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air intake sleeve on the air filter unit,
- the clips of the air inlet sleeve.

❑ Fill the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine undertray,
- the engine cover.


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1869** | Pliers for disconnecting the fuel circuit |

| Tightening torques ▽ | |
|---|---|
| intake distributor nuts and bolts | **20 N.m** |
| intake distributor support bolts | **20 N.m** |
| motorised throttle valve bolts | **8 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

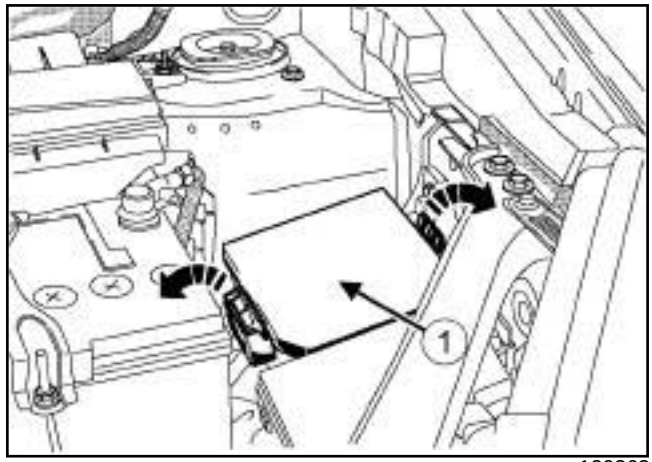
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

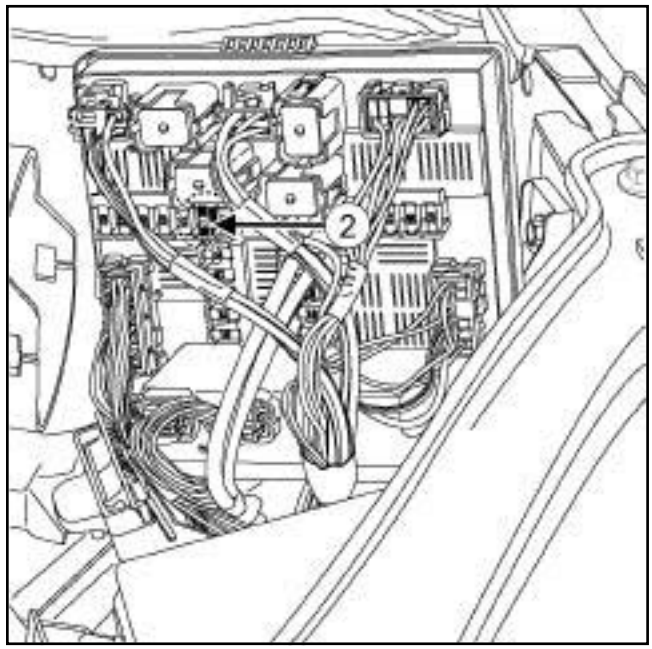
❏ Remove the engine cover.

❏ Remove the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .



129363

❏ Disconnect the cover (**1**) from the Protection and Switching Unit.



129364

❏ Remove the fuse (**2**) of the fuel pump(**F13**) (**15A**).

❏ Release the fuel pressure in the fuel pipe after starting the engine.

Note:
After switching the engine off, start it again two or three times to fully relieve the fuel pressure.

❏ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),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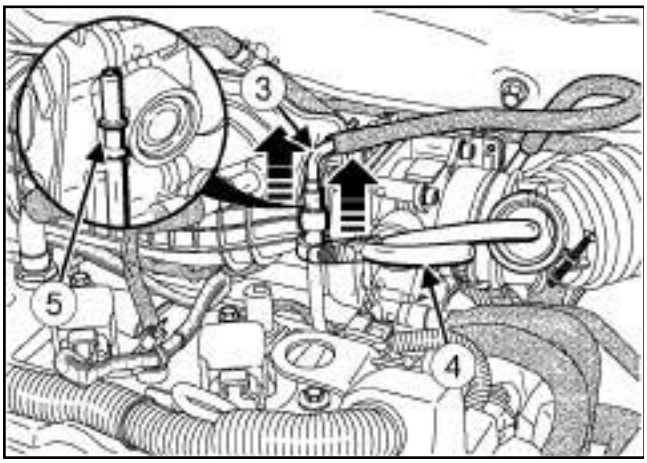
2TR

- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) .



129365

❏ Remove the plug of the fuel supply union.

**IMPORTANT**

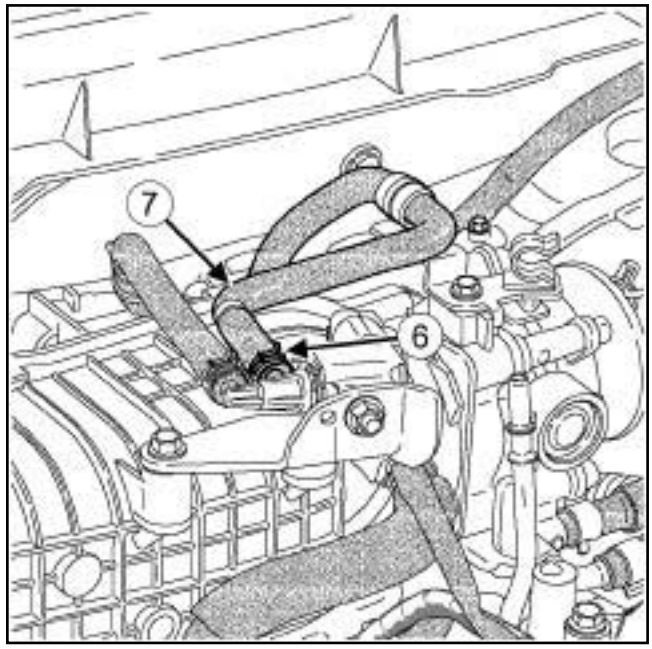
During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

❏ Disconnect the quick-release union ***(3)*** using the tool **(Mot. 1869)** ***(4)*** as illustrated.

Note:

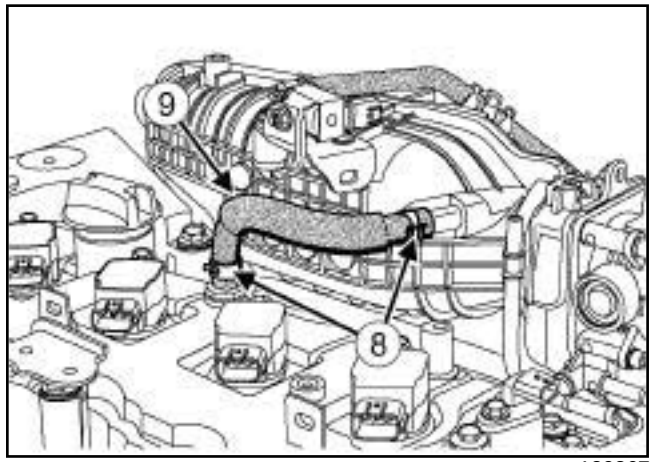
Insert the tool **(Mot. 1869)** ***(4)*** into the second retaining part ***(5)*** .



129366

❏ Remove the petrol vapour rebreathing pipe clip (**6**) .

❏ Disconnect the petrol vapour rebreathing pipe ***(7)*** .



129367

❏ Remove the clips (**8**) of the oil vapour rebreathing hose.

❏ Disconnect the oil vapour rebreathing hose ***(9)*** .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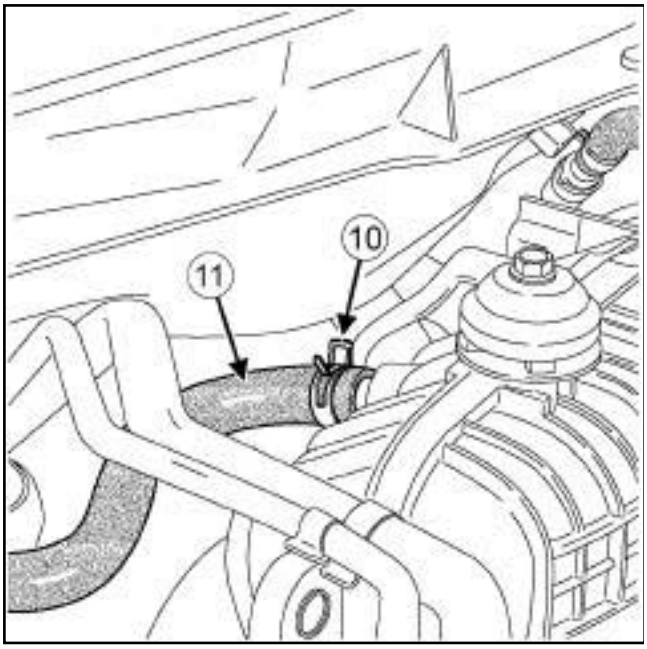



129368

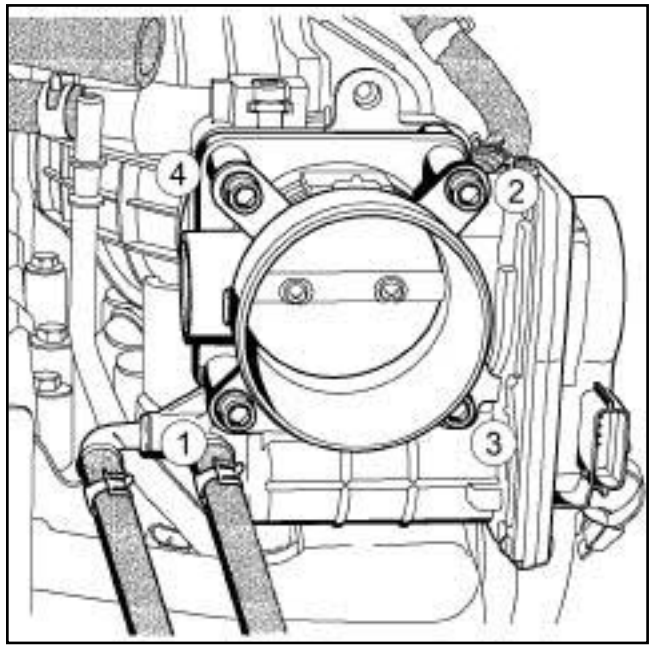
❏ Remove the clip (**10**) from the vacuum pipe of the brake servo.

❏ Disconnect the vacuum pipe ***(11)*** from the brake servo.

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

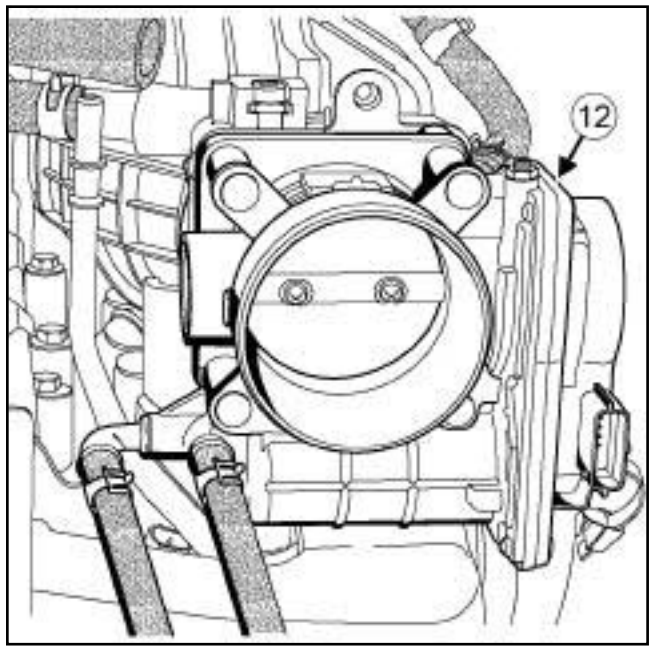
❏ Disconnect the motorised throttle valve connector.




129369

❏ Remove:

- in order the motorised throttle valve bolts,
- the motorised throttle valve without disconnecting the coolant pipes.




129370

❏ Move aside the throttle valve (**12**) .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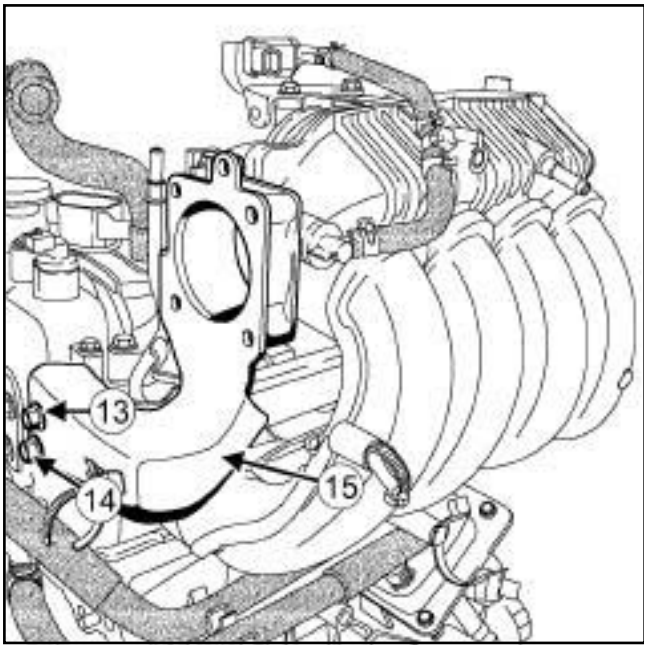
2TR

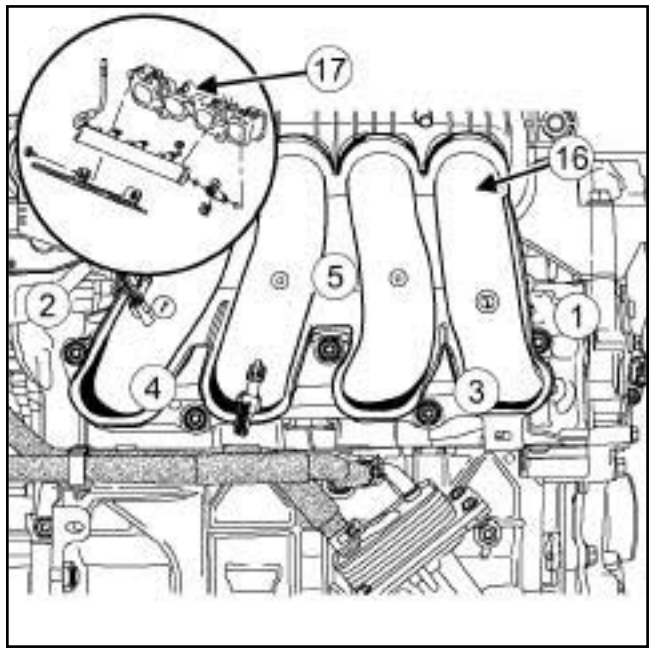



129371

❑ Remove:

- the intake distributor support bolts (**13**) and (**14**) ,
- the intake distributor support (**15**) ,
- the seal.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129372

❑ Remove:

- in order, the intake distributor bolts and nuts,
- the inlet manifold (**16**) ,
- the intake distributor seal,
- the intake distributor adapter (**17**) ,
- the intake distributor adapter seal.

Note:

The engine must remain covered to prevent impurities from entering inside.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the intake distributor seal,
- the intake distributor adapter seal,
- the motorised throttle valve seal.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the new intake distributor adapter seal,
- the intake distributor adapter,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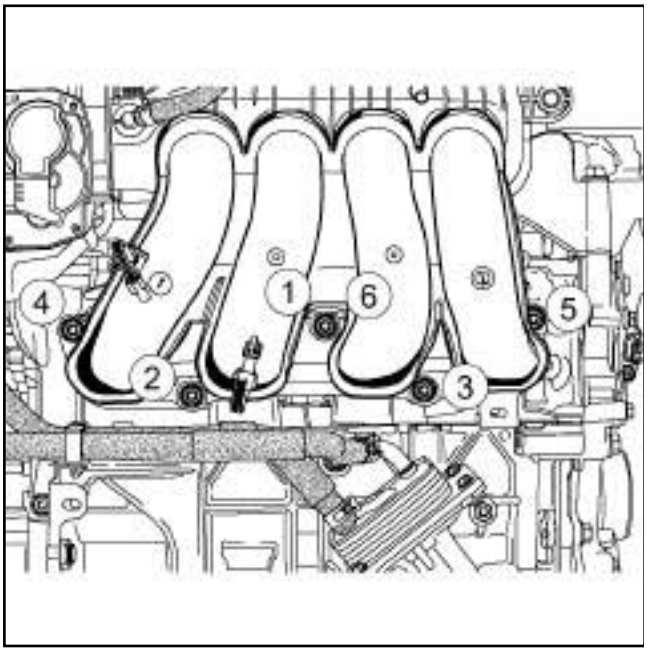
- the new intake distributor seal,
- the inlet manifold,
- the intake distributor nuts and bolts.



129373

❏ Torque tighten in order the **intake distributor nuts and bolts (20 N.m)**.

Note:

Mark (**6**) indicates retightening of the bolt to a torque of **20 N.m**.

**III - FINAL OPERATION**

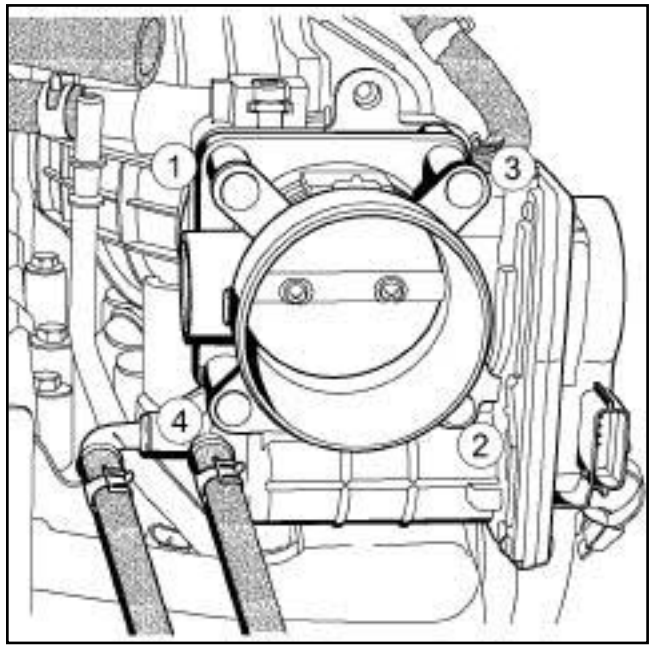
❏ Refit:

- the new intake distributor support seal,
- the intake distributor support,
- the intake distributor support bolts.

❏ Torque tighten the **intake distributor support bolts (20 N.m)**.

❏ Refit:

- the new motorised throttle valve seal,
- the motorised throttle valve bolts.



129370

❏ Torque tighten in order the **motorised throttle valve bolts (8 N.m)**.

❏ Connect the motorised throttle valve connector.

❏ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❏ Connect the brake servo vacuum pipe.

❏ Refit the clip of the vacuum pipe of the brake servo.

❏ Connect the oil vapour rebreathing hoses.

❏ Refit the clips of the oil vapour rebreathing hose.

❏ Disconnect the petrol vapour rebreathing pipe.

❏ Refit the petrol vapour rebreathing pipe clip.

❏ Connect the quick-release union of the fuel supply.

Note:

Check the condition of the quick-release union connection again.

❏ Remove the fuel supply union plug.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2TR

❑ Refit:

- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover,
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the fuel pump fuse,
- the Protection and Switching Unit cover.

❑ Refit the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Essential equipment |
|---|
| roller-type stud removal tool |

| Tightening torques ▽ | |
|---|---|
| exhaust manifold studs | **9 N.m** |
| exhaust manifold nuts | **18 N.m** |
| exhaust manifold nuts | **30 N.m** |
| exhaust gas cooler coolant inlet pipe support bolts | **10 N.m** |
| intercooler water inlet pipe bolts | **10 N.m** |
| exhaust gas recirculation rigid pipe heat shield bolts | **10 N.m** |
| EGR bypass solenoid valve bolts | **10 N.m** |
| air filter unit air outlet pipe clips | **5 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the engine cover,
- the engine undertray,
- the clips from the air inlet sleeve,
- the air intake sleeve on the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Loosen the air filter unit air outlet duct clip on the turbocharger.

❏ Disconnect:

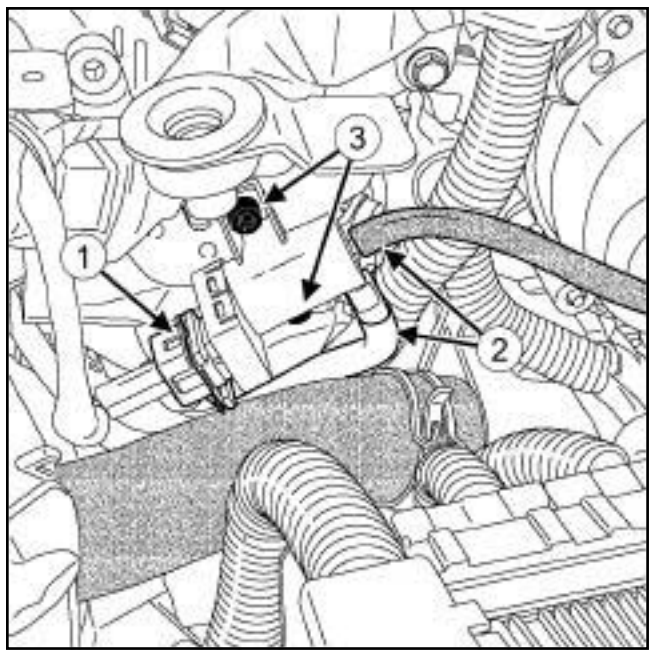
- the oil vapour rebreathing pipe from the oil separator,
- the air filter unit air outlet duct from the turbocharger.

❏ Fit a blanking plug in the opening of the oil separator.

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

❏ Drain the engine cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .




129389

❏ Disconnect:

- the connector (**1**) from the EGR bypass solenoid valve,
- the vacuum hoses (**2**) from the EGR bypass solenoid valve.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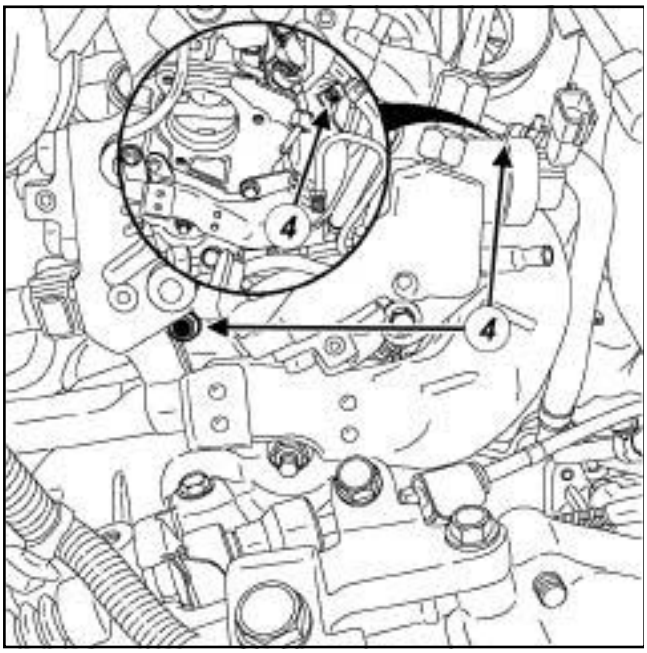
M9R

❏ Remove:

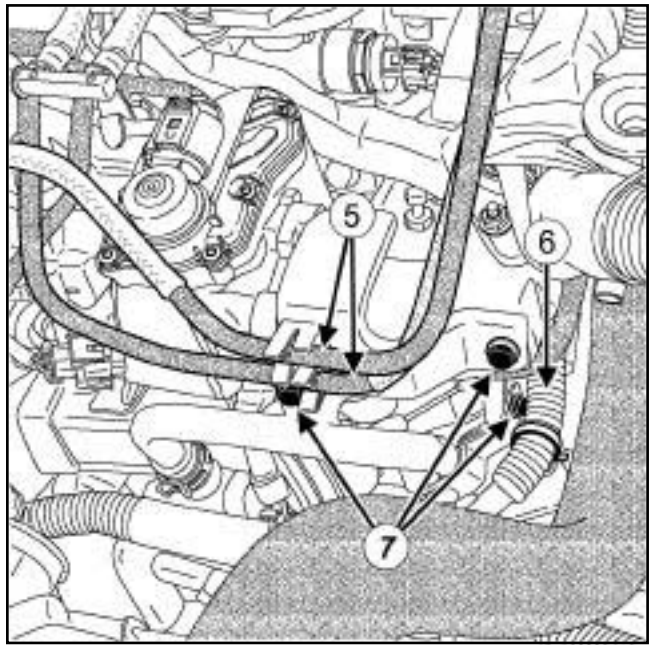
- the EGR bypass solenoid valve bolts ***(3)*** ,
- the EGR bypass solenoid valve,
- the coolant outlet unit (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) .




129390

❏ Remove:

- the bolts (**4**) from the exhaust gas recirculation rigid pipe heat shield on the exhaust manifold and on the cylinder head,
- the heat shield from the exhaust gas recirculation solenoid valve.



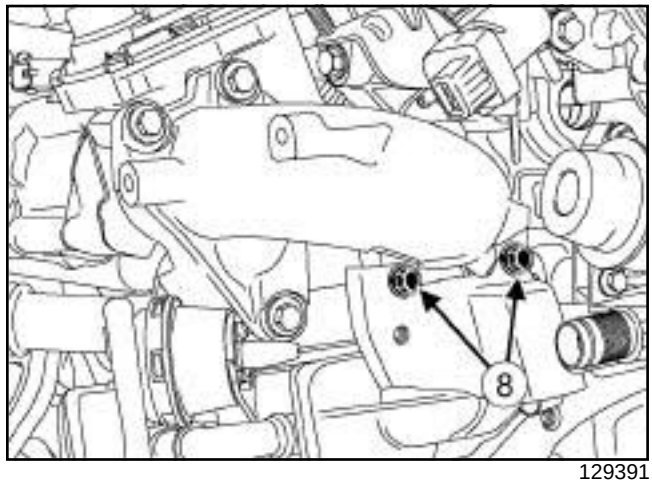

129576

❏ Unclip:

- the fuel pipes (**5**) ,
- the electrical wiring (**6**) .

❏ Remove the bolts ***(7)*** from the intercooler water inlet pipe.

❏ Move the intercooler water inlet pipe to one side.




129391

❏ Remove:

- the bolts (**8**) of the exhaust gas cooler coolant inlet pipe support from the intake distributor,
- the exhaust gas cooler coolant inlet pipe support.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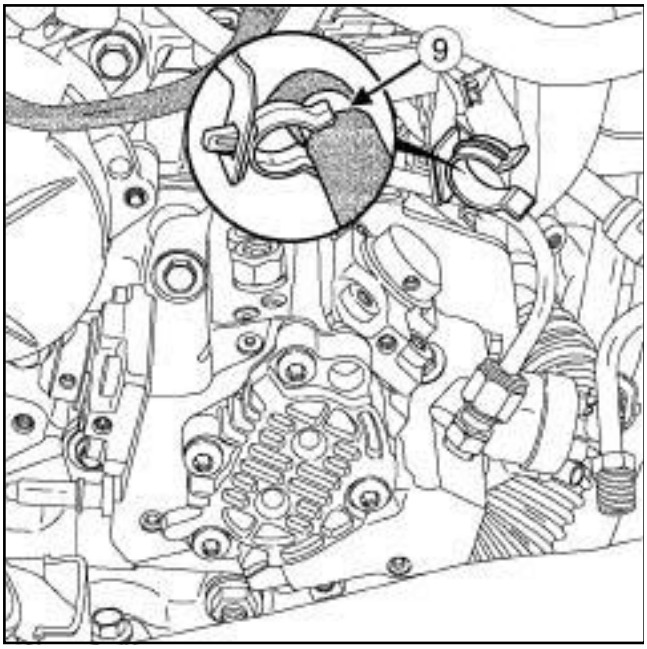


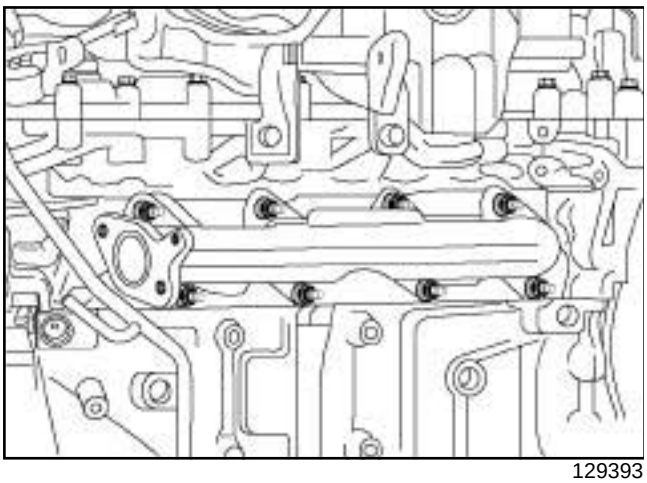
129392

❑ Unclip the cooling hose (**9**) from the turbocharger.

❑ Remove:

- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) ,
- the turbocharger (see **12B**, **Turbocharging**, **Turbocharger: Removal - Refitting**, page **12B-4**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED


129393

❑ Remove:

- the nuts and spacers from the exhaust manifold,
- the exhaust manifold,
- the exhaust manifold gasket.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Always replace:

- the exhaust manifold studs, if they have been loosened during the removal operation,
- the exhaust manifold nuts,
- the exhaust manifold gasket.

❑ Clean and degrease the bearing faces:

- of the exhaust manifold, if it is to be reused,
- of the cylinder head,
- of the exhaust gas recirculation rigid pipe heat shield.

❑ Check if the exhaust manifold studs are torque tightened to **9 N.m**. Otherwise replace the exhaust manifold studs which are loosened.

❑ Torque tighten the **exhaust manifold studs (9 N.m)** using a **roller-type stud removal tool**.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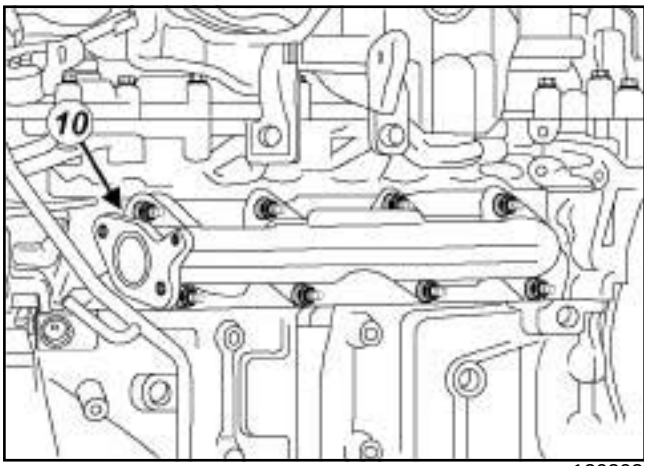
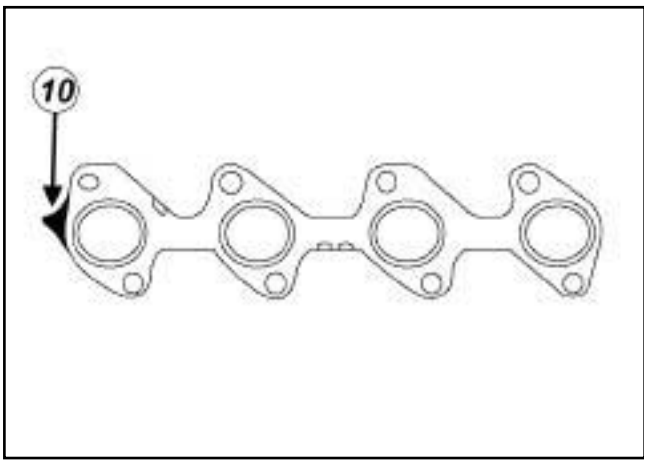
**II - REFITTING OPERATION FOR PART CONCERNED**



129393



129394

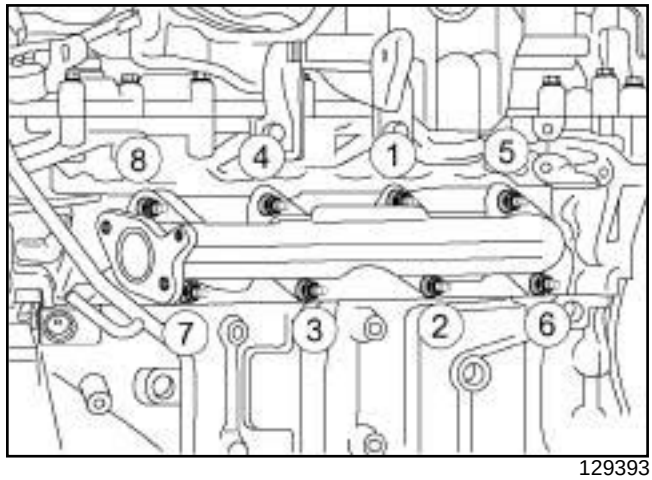
❑

Note:
Check if the manifold seal is correctly positioned.
The tab must be positioned at (**10**) .

❑ Refit:

- the new exhaust manifold gasket,
- the exhaust manifold,
- the spacers.

❑ Finger tighten the new exhaust manifold nuts until they are in contact.



129393

❑ Pretighten to torque and in order the **exhaust manifold nuts (18 N.m)**.

❑ Torque tighten in order the **exhaust manifold nuts (30 N.m)**.

**III - FINAL OPERATION**

❑ Refit:

- the turbocharger (see **12B**, **Turbocharging**, **Turbocharger: Removal - Refitting**, page **12B-4**) ,
- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) ,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) .

❑ Clip the cooling hose ***(9)*** onto the turbocharger.

❑ Fit the exhaust gas cooler coolant inlet pipe support onto the intake distributor.

❑ Refit the exhaust gas cooler coolant inlet pipe support bolts.

❑ Torque tighten the **exhaust gas cooler coolant inlet pipe support bolts (10 N.m)**.

❑ Position the intercooler water inlet pipe.

❑ Refit the intercooler water inlet pipe bolts.

❑ Torque tighten the **intercooler water inlet pipe bolts (10 N.m)**.

❑ Clip:

- the electrical wiring ***(6)*** ,
- the fuel pipes ***(5)*** .

❑ Position the heat shield for the exhaust gas recirculation rigid pipe.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M9R

❑ Refit the EGR rigid pipe heat shield bolts

❑ Torque tighten the **exhaust gas recirculation rigid pipe heat shield bolts (10 N.m)**.

❑ Refit:

- the coolant outlet unit (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) ,
- the water chamber hoses and pipes (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) .

❑ Fit the EGR bypass solenoid valve.

❑ Refit the EGR bypass solenoid valve bolts.

❑ Torque tighten the **EGR bypass solenoid valve bolts (10 N.m)**.

❑ Connect:

- the vacuum hoses on the EGR bypass solenoid valve and on the exhaust gas cooler,
- the EGR bypass solenoid valve connector.

❑ Remove:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Connect the air filter unit air outlet duct to the turbocharger and to the air filter unit.

❑ Torque tighten the **air filter unit air outlet pipe clips (5 N.m)** using the tool **(Mot. 1608)**.

❑ Remove the blanking plug from the opening of the oil separator.

❑ Connect the oil vapour rebreathing pipe to the oil decanter.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air intake sleeve on the air filter unit.
- the clips of the air inlet sleeve.

❑ Fill the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine undertray,
- the engine cover.


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2TR

| Tightening torques ▽ | |
|---|---|
| catalytic pre-converter heat shield bolts | **6 N.m** |
| exhaust manifold lower heat shield bolts | **6 N.m** |
| exhaust manifold nuts (initial torque) | **15 N.m** |
| exhaust manifold nuts | **42 N.m** |
| exhaust manifold upper heat shield bolts | **6 N.m** |
| dipstick guide tube bolt | **22 N.m** |
| exhaust connecting pipe nuts | **65 N.m** |
| exhaust connecting pipe rubber mounting bush support nuts | **14 N.m** |

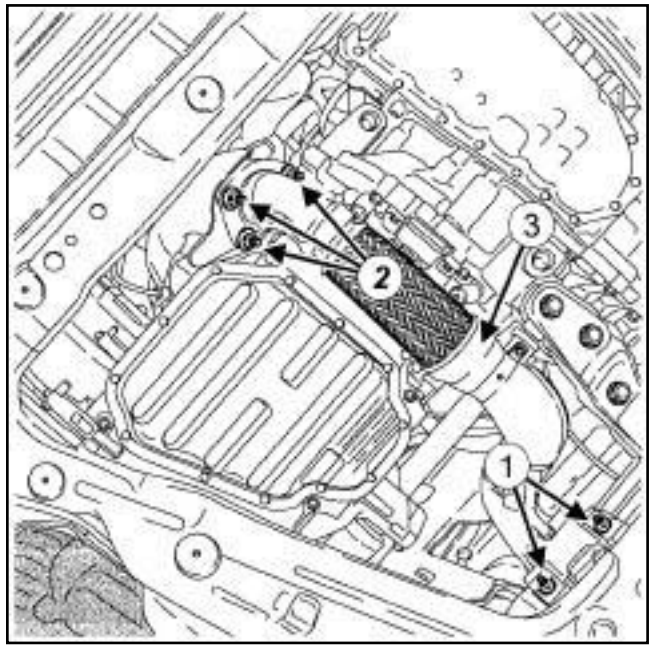
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

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❏ Remove:

- the exhaust connecting pipe rubber mounting bush support nuts (**1**) ,
- the exhaust connecting pipe nuts (**2**) ,
- the connector pipe (**3**) ,
- the seal,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres)
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),


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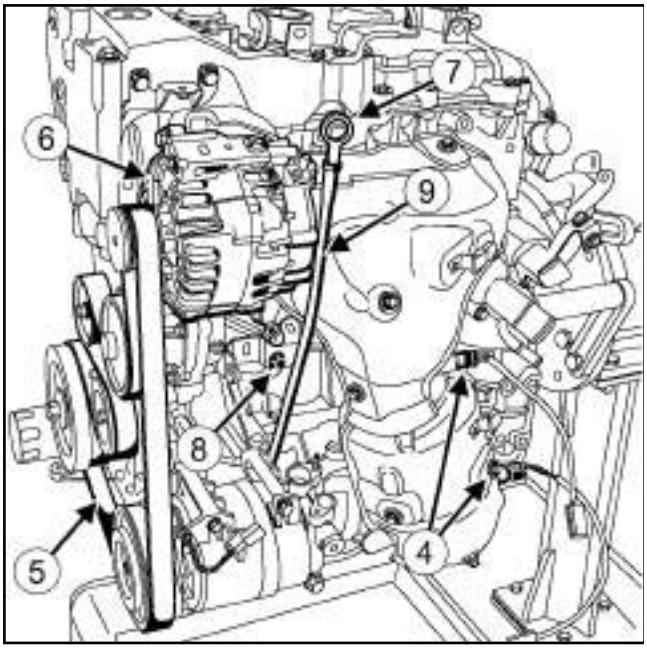


129384

❏ Disconnect the oxygen sensor connectors .

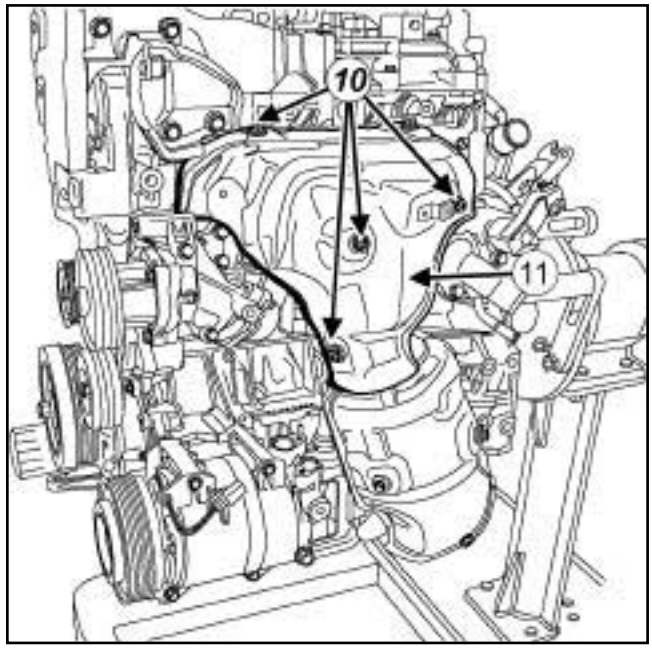
Note:

Do not damage the oxygen sensor.

If the oxygen sensor falls on hard ground, for example concrete, replace the sensor.

❏ Remove:

- the oxygen sensors ***(4)*** (see **17B**, **Petrol injection**, **Oxygen sensors: Removal - Refitting**, page **17B-4**) ,
- the accessories belt ***(5)*** (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Wiping - washing),
- the alternator ***(6)*** (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the dipstick ***(7)*** ,
- the dipstick guide tube bolt ***(8)*** ,
- the dipstick guide tube ***(9)*** ,
- the O-ring.



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❏

Note:

The engine must remain covered to prevent impurities from entering inside.

❏ Remove:

- the bolts ***(10)*** from the exhaust manifold upper heat shield,
- the upper heat shield ***(11)*** from the exhaust manifold.


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**II - OPERATION FOR REMOVAL OF PART CONCERNED**

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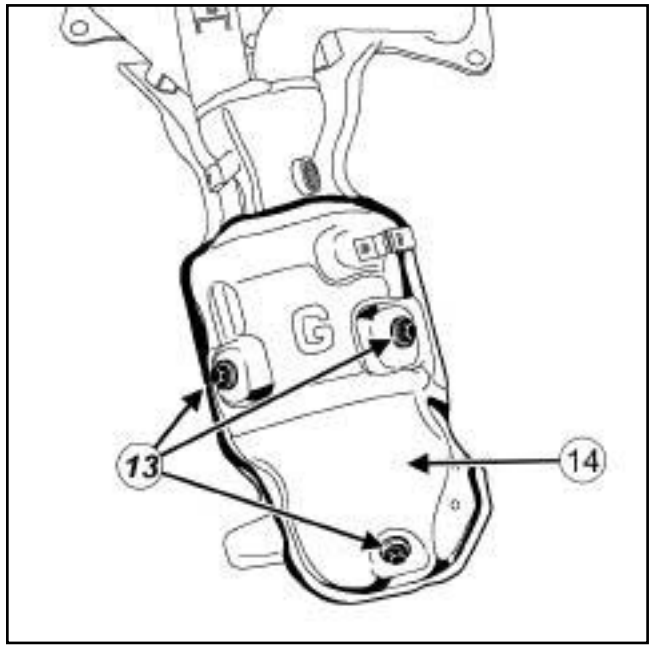
❑

Note:

The engine must remain covered to prevent impurities from entering inside.

❑ Remove:

- the exhaust manifold nuts in order,
- the exhaust manifold ***(12)*** .

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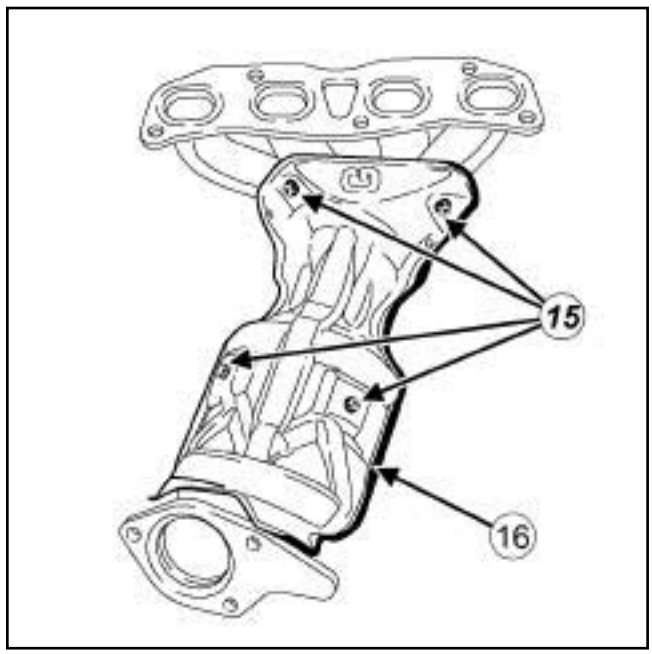
❑ Remove:

- the bolts (**13**) from the exhaust manifold lower heat shield,
- the lower heat shield (**14**) from the exhaust manifold.

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❑ Remove:

- the bolts (**15**) from the catalytic pre-converter heat shield,
- the catalytic pre-converter heat shield (**16**) .



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## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the seals,
- the O-ring.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the catalytic pre-converter heat shield,
- the catalytic pre-converter heat shield bolts.

❑ Torque tighten the **catalytic pre-converter heat shield bolts (6 N.m)**.

❑ Refit:

- the exhaust manifold lower heat shield,
- the exhaust manifold lower heat shield bolts.

❑ Torque tighten the **exhaust manifold lower heat shield bolts (6 N.m)**.

❑ Refit:

- the new exhaust manifold gasket,
- the exhaust manifold,
- the exhaust manifold nuts.

129386

❑ Torque tighten in order:

- the **exhaust manifold nuts (initial torque) (15 N.m)**,
- the **exhaust manifold nuts (42 N.m)**.

### III - FINAL OPERATION

❑ Refit:

- the exhaust manifold upper heat shield,
- the exhaust manifold upper heat shield bolts.

❑ Torque tighten the **exhaust manifold upper heat shield bolts (6 N.m)**.

❑ Refit:

- the new O-ring,
- the dipstick guide tube,
- the dipstick guide tube bolt,
- the dipstick.

❑ Torque tighten the **dipstick guide tube bolt (22 N.m)**.

❑ Refit:

- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Wiping - washing),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the oxygen sensors (see **17B**, **Petrol injection**, **Oxygen sensors: Removal - Refitting**, page **17B-4**) .

❑ Connect the oxygen sensor connectors.

❑ Refit:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the new seal,
- the connector pipe,
- the exhaust connecting pipe nuts,
- the exhaust connecting pipe rubber mounting bush support nuts.

❑ Torque tighten:

- the **exhaust connecting pipe nuts (65 N.m)**,
- the **exhaust connecting pipe rubber mounting bush support nuts (14 N.m)**.

❑ Refit the engine undertray.


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❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Essential equipment |
| --- |
| parts washer |

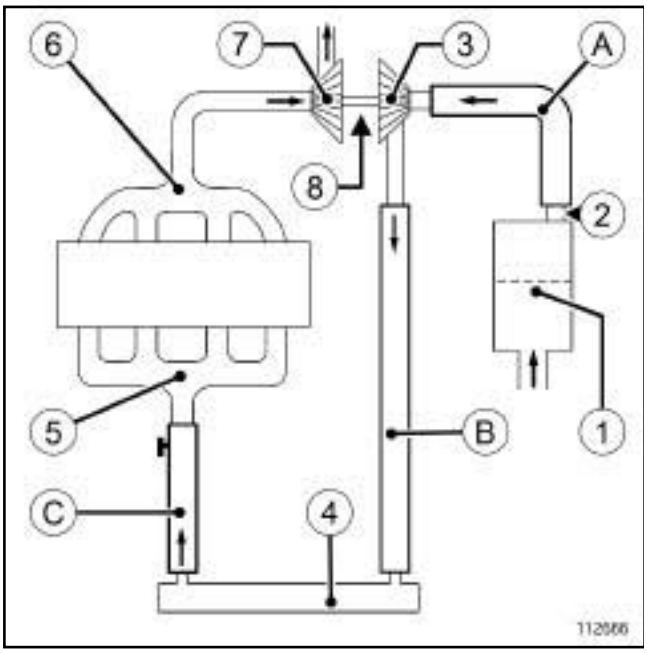
## I - TURBOCHARGER: GENERAL INSTRUCTIONS

For the turbocharging pressure regulator check (see **Fault finding - Tests**) (Technical Note 3419A, 12B, Turbocharging).

**WARNING**

The turbocharger pressure regulator rod must not be adjusted.

## II - TURBOCHARGER CIRCUIT DIAGRAM

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(**1**) Air filter unit
(**2**) Air flowmeter
(**3**) Compressor wheel
(**4**) Intercooler
(**5**) Inlet manifold
(**6**) Exhaust manifold
(**7**) Turbine wheel
(**8**) Bearing system (bearing + wheel shaft)
(**A**) Air filter box air outlet pipe
(**B**) Turbocharger air outlet pipe
(**C**) Intercooler air outlet pipe

## III - APPLICATION CONDITIONS OF INSTRUCTIONS

The instructions below must be followed when replacing a turbocharger due to mechanical damage:

- damage to the bearing system,
- broken shaft or turbine wheel,
- compressor wheel rubbing against the turbocharger casing,
- broken or damaged compressor wheel,
- extensive clogging of the turbine wheel casing (hard deposits).

FOR THE AIR CIRCUIT:

- Consequences:
  - swarf or metal objects in the turbocharger inlet and outlet pipes,
  - oil in the air circuit (collected in the intercooler).
- Risks (after replacing the turbocharger):
  - metal objects sucked in by the compressor wheel (destruction of the turbocharger).

FOR THE LUBRICATION CIRCUIT:

- Consequences:
  - swarf found in the engine oil circuit,
  - circulation of swarf within the circuit.
- Risks (after replacing the turbocharger):
  - premature wear on the bearing system (destruction of turbocharger).

**WARNING**

Metal objects may enter the oil and air circuits as a result of a broken turbocharger.

Failure to follow the INSTRUCTIONS listed will lead to the turbocharger breaking again.

INSTRUCTIONS:

- Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**)
- Replace the oil filter (see **10A**, **Engine and cylinder block assembly**, **Oil filter: Removal - Refitting**, page **10A-21**) .
- Replace the seals and fittings,
- Carry out the following only if the compressor wheel is broken or rubbing against the turbocharger casing:
  - Drain the intercooler,


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• Clean the turbocharger air pipes.

Note:

When carrying out an operation on the air or lubrication circuit, it is necessary to plug the open holes to prevent any risk of foreign bodies entering the system.

**IV - AIR CIRCUIT*: INSTRUCTIONS FOLLOWING MECHANICAL DAMAGE TO THE TURBOCHARGER**

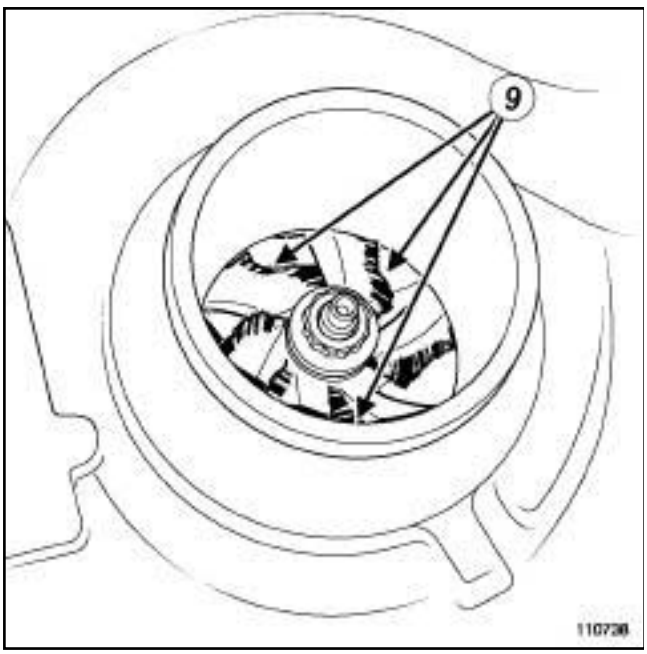
Note:

(*) These instructions for the air circuit are only to be followed in the case of:

- broken compressor wheel,
- compressor wheel rubbing against the turbocharger casing.

Remove the intercooler if fitted to the vehicle (see **12B**, **Turbocharging**, **Intercooler: Removal - Refitting**, page **12B-13**) .

Turn the intercooler over and allow the oil inside to drain out.

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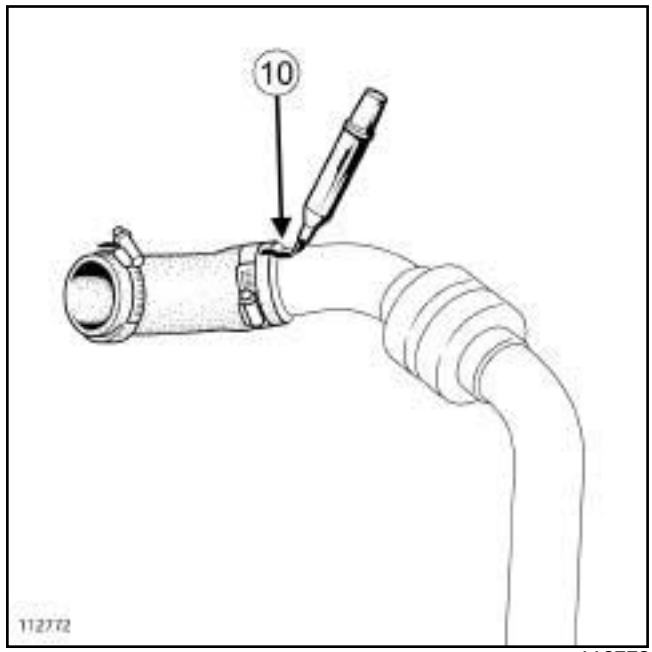
Note:

If the compressor wheel (**9**) is damaged, metal objects are ejected inside the air pipes.

Check that there are no metal objects inside the air flowmeter ***(2)*** .

Remove:

- the air pipe(between the air filter unit and the turbocharger) ***(A)*** ,
- the air pipe ***(B)*** (between the turbocharger and the intercooler).

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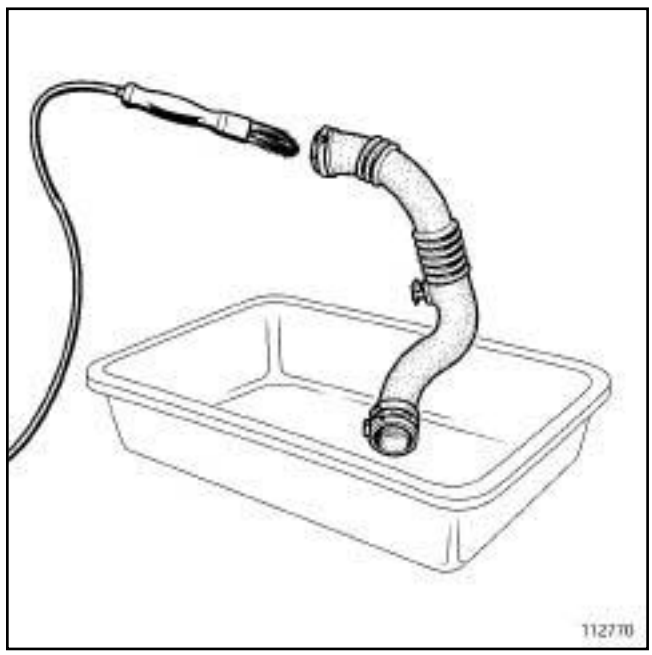
For air pipes comprising several components:

- mark (**10**) the fitting position of each component,
- separate all the components.

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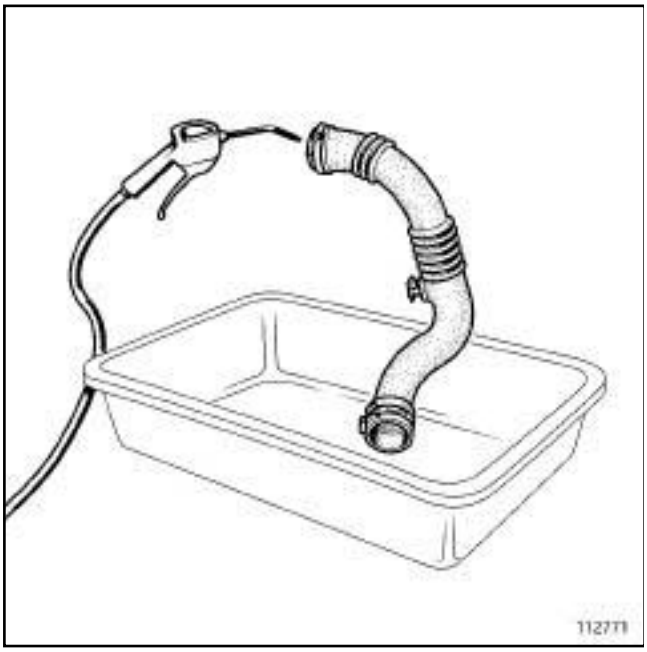
One by one, clean the pipes removed with the **parts washer** :

- brush as much of the inside of the pipe as possible (only use brushes with plastic bristles),
- wash plenty of cleaning product from the cleaning station through the pipe,
- allow the cleaned pipe to drain by standing it upright,
- ensure the cleaning product has drained out completely (check areas where liquid may be retained, e.g. gaiters, resonators etc.).



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Dry the pipes one by one using a compressed air spray gun.

For pipes comprising several components:

- assemble the components, taking note of their correct fitting position ***(10)*** .

Refit:

- the air pipe(between the air filter unit and the turbocharger) ***(A)*** ,
- the air pipe ***(B)*** (between the turbocharger and the intercooler).

Refit the intercooler, if fitted to the vehicle (see **12B**, **Turbocharging**, **Intercooler: Removal - Refitting**, page **12B-13**) .

**V - LUBRICATION CIRCUIT**: INSTRUCTIONS FOLLOWING MECHANICAL DAMAGE TO THE TURBOCHARGER**

Note:

(**) These instructions relating to the lubrication circuit must always be followed in all cases of mechanical damage as listed above.

Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

Replace the oil filter (see **10A**, **Engine and cylinder block assembly**, **Oil filter: Removal - Refitting**, page **10A-21**) .

Only fill the engine with a suitable oil type (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

**VI - GENERAL INSTRUCTIONS TO BE FOLLOWED WHEN REMOVING A TURBOCHARGER**

Always replace:

- the oil supply pipe:
  - if the pipe is blocked, even partially (due to scale, carbonised oil etc.),
  - if the pipe is fitted with self-retaining seals.
- the oil return pipe:
  - if the pipe is blocked, even partially (due to scale, carbonised oil etc.),
  - if the pipe is fitted with self-retaining seals.
- all seals that have been removed,
- all fittings that have been removed.

**WARNING**
Failure to observe the following procedure may lead to destruction of the turbocharger.

When starting the engine:

- do not accelerate,
- allow the engine to run for **1 minute**,the time taken for the oil circuit pressure to increase (until the oil pressure warning light on the instrument panel goes out),
- accelerate several times at no load,
- check the air circuit and the oil circuit for leaks.


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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Essential equipment |
|---|
| roller-type stud removal tool |

| Tightening torques ▽ | |
|---|---|
| turbocharger cooling pipe bolts | **10 N.m** |
| turbocharger cooling pipe retaining bracket bolt | **10 N.m** |
| turbocharger studs | **15 N.m** |
| turbocharger strut bolt on the flywheel end | **25 N.m** |
| turbocharger lower nuts | **15 N.m** |
| turbocharger upper nut | **15 N.m** |
| turbocharger lower nuts | **28 N.m** |
| turbocharger upper nut | **28 N.m** |
| turbocharger bolt | **25 N.m** |
| turbocharger strut bolt on the timing end | **25 N.m** |
| exhaust gas pressure sensor pipe assembly bolt | **10 N.m** |
| exhaust gas pressure sensor hollow bolt | **16 N.m** |
| exhaust gas temperature sensor | **44 N.m** |
| turbocharger heat shield bolts | **7 N.m** |
| intercooler air inlet duct bolt | **8 N.m** |
| air filter unit air outlet duct clips | **5 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **12B**, **Turbocharging**, **Turbocharging: Precautions for repair**, page **12B-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the engine cover,
- the engine undertray.

❑ Drain the engine cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Remove:

- the clips from the air inlet sleeve,
- the air intake sleeve from the air filter unit,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Undo the air filter unit air outlet duct clip on the turbocharger.

❑ Disconnect:

- the oil vapour rebreathing hose on the oil separator,
- the air filter unit air outlet duct from the turbocharger.

❑ Fit a blanking plug in the opening of the oil separator.

❑ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),


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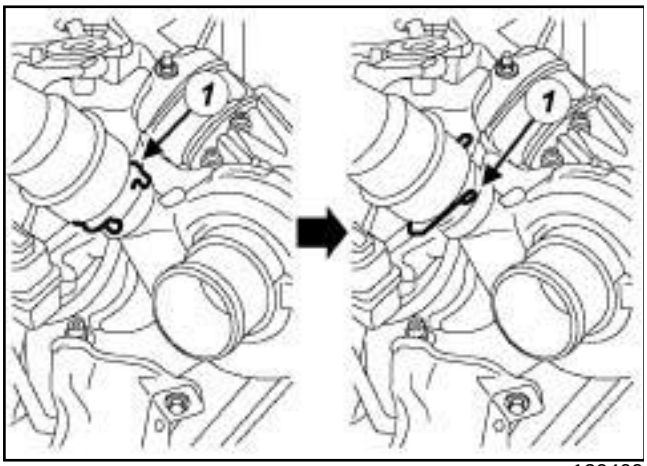
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



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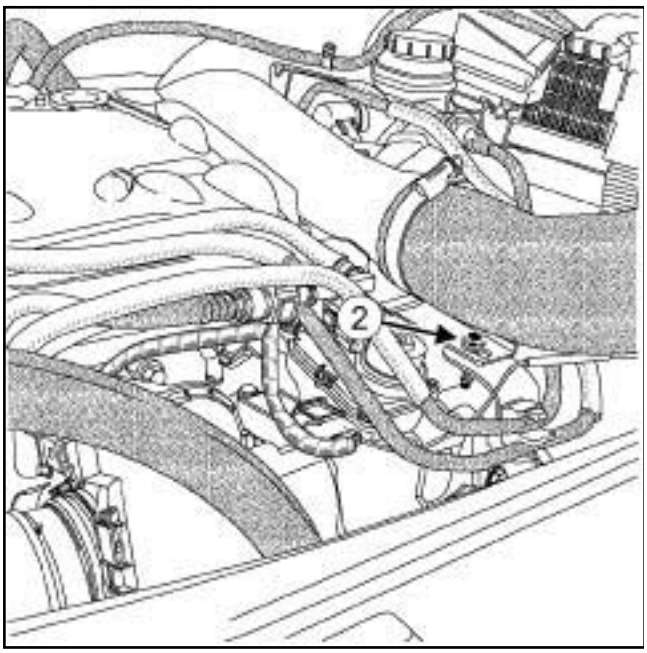
❏ Turn the clip (**1**) on the intercooler air inlet duct.



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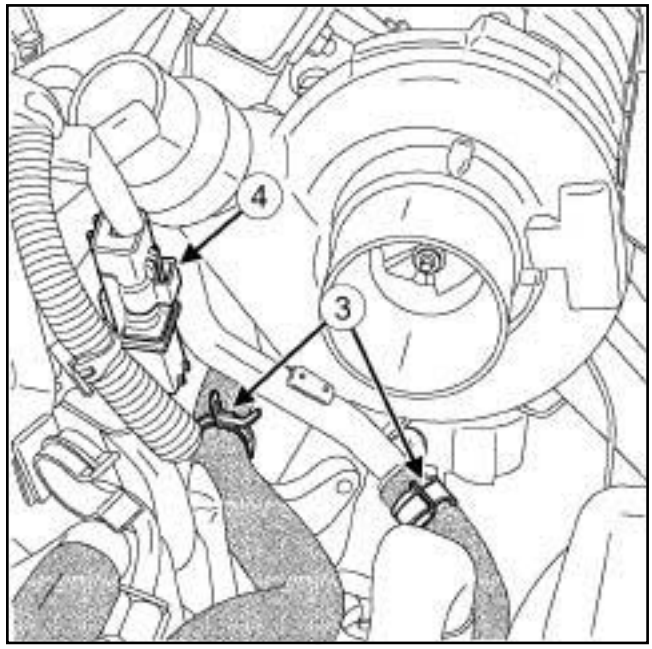
❏ Remove the intercooler air inlet duct bolt (**2**) from the fuel pipe support.

❏ Move aside the intercooler air inlet duct.

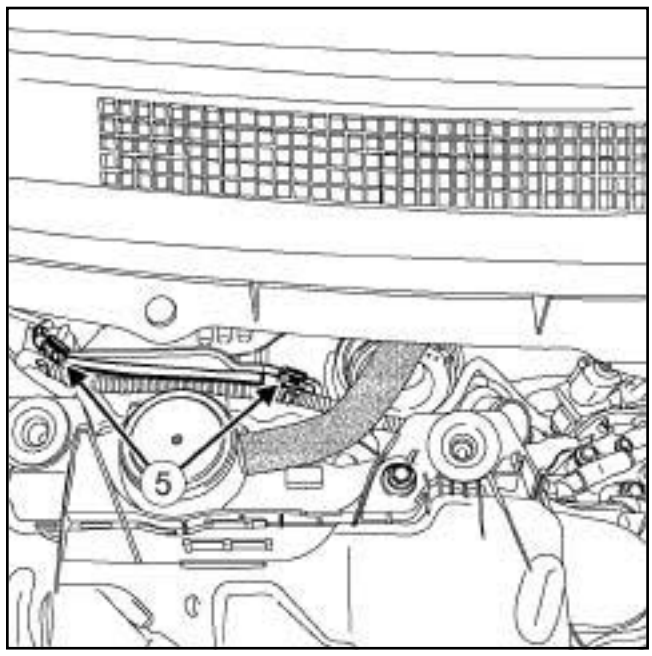


129402

❏ Remove the turbocharger cooling pipe clips (**3**) using the tool **(Mot. 1448)**.

❏ Disconnect:

- the turbocharger cooling pipes,
- the connector ***(4)*** from the exhaust gas temperature sensor.



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❏ Unclip the exhaust gas temperature sensor wiring (**5**) from the heat shield.


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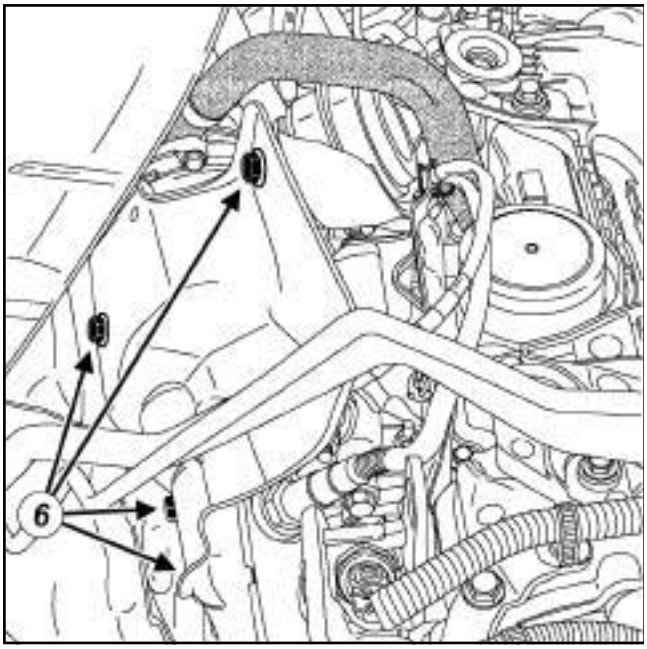


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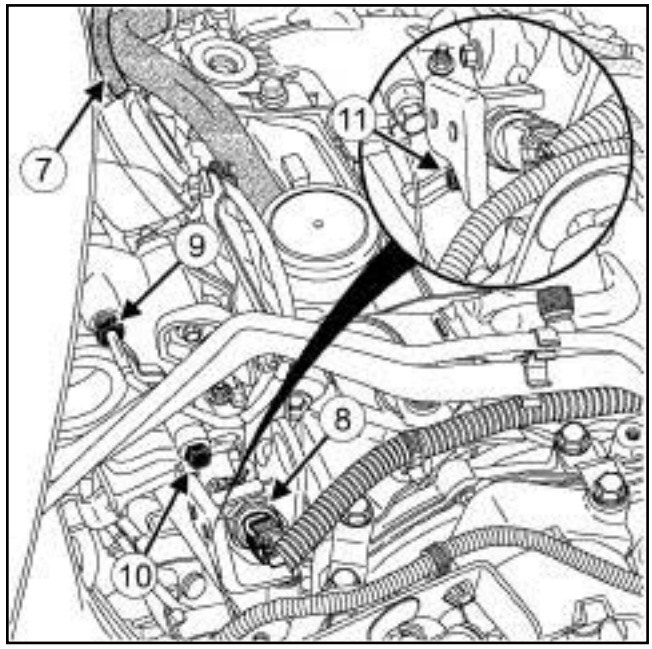
❑ Remove:

- the bolts (**6**) from the turbocharger heat shield,
- the turbocharger heat shield,
- the oxygen sensors (see **13B**, **Diesel injection**, **Oxygen sensor: Removal - Refitting**, page **13B-59**) ,
- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) ,
- the turbocharger oil pipe (see **12B**, **Turbocharging**, **Turbocharger oil pipe: Removal - Refitting**, page **12B-11**) .




129405

❑ Disconnect:

- the turbocharging pressure regulator hose (**7**) from the turbocharger,
- the connector (**8**) from the exhaust gas pressure sensor.

❑ Remove:

- the exhaust gas temperature sensor (**9**) from the turbocharger,
- the exhaust gas pressure sensor bolt (**10**) .
- the bolt (**11**) from the exhaust gas pressure sensor pipe assembly,
- the exhaust gas pressure sensor pipe assembly from the lifting eye.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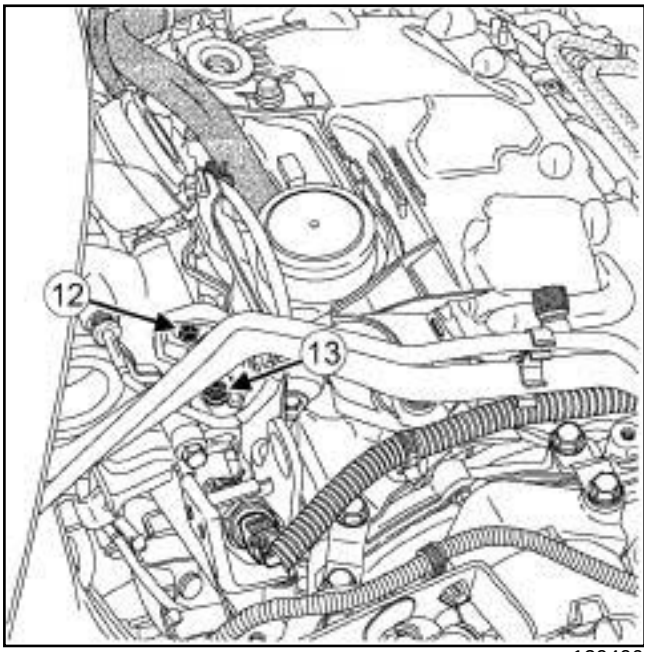
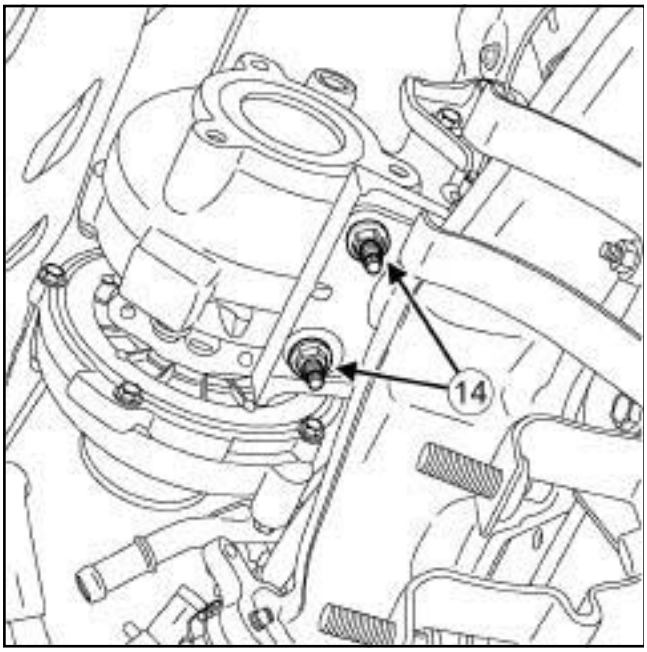
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129406

❏ Remove:

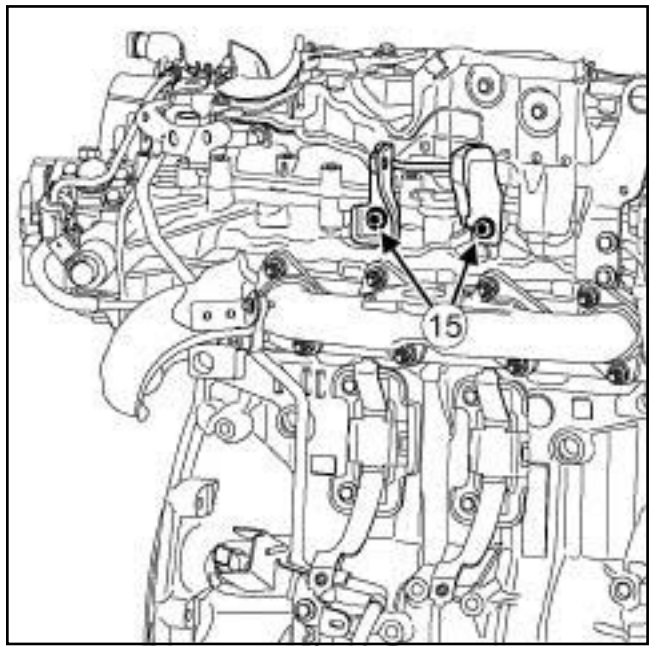
- the turbocharger bolt (**12**) ,
- the upper turbocharger nut (**13**) from the exhaust manifold.




129407

❏ Remove:

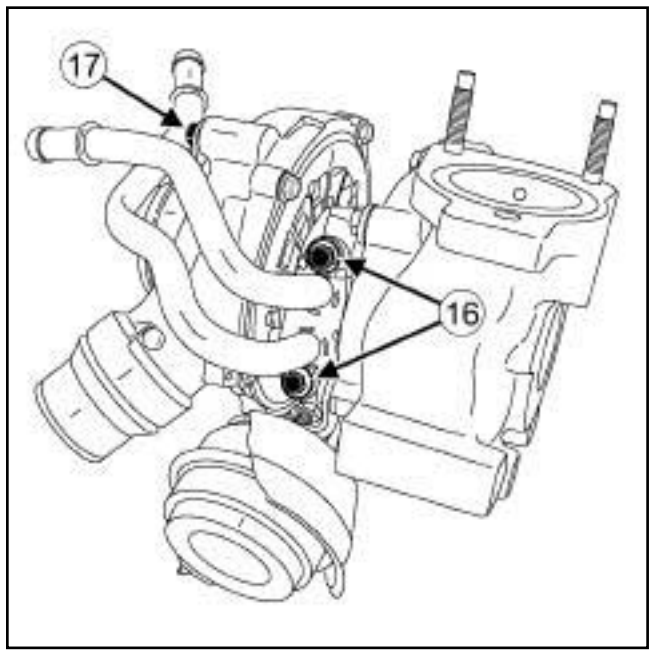
- the lower turbocharger nuts (**14**) from the exhaust manifold,
- the turbocharger upwards,
- the gasket between the turbocharger and the exhaust manifold.




129408

❏ Remove:

- the bolts (**15**) from the turbocharger strut,
- the turbocharger strut.

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❏ Remove:

- the turbocharger cooling pipe bolts (**16**) from the turbocharger,
- the turbocharger cooling pipe retaining bracket bolt from the turbocharger,
- the turbocharger cooling pipe,


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- the seal between the turbocharger and the turbocharger cooling pipe,
- the turbocharger studs from the turbocharger using a **roller-type stud removal tool**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean and degrease the bearing faces:

- the exhaust manifold,
- of the turbocharger (if being reused),
- of the cooling pipe (if being reused).

❏ Always replace:

- the intercooler air inlet duct seal,
- the seal between the turbocharger and the exhaust manifold,
- the seal between the turbocharger and the catalytic converter,
- the seal between the turbocharger and the turbocharger cooling pipe,
- the seal between the catalytic converter and the particle filter,
- the nuts between the turbocharger and the catalytic converter,
- the upper turbocharger nut,
- the lower turbocharger nuts,
- the turbocharger studs,
- the exhaust gas temperature sensor.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

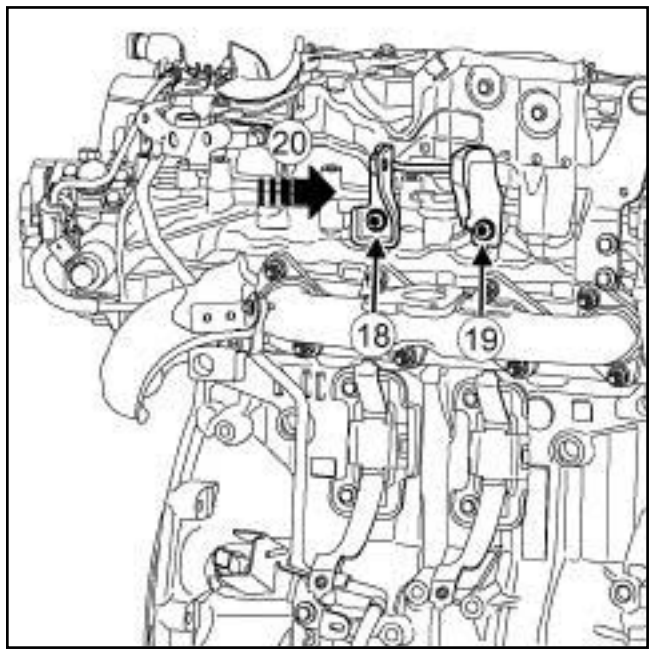
- the new turbocharger cooling pipe seal,
- the turbocharger cooling pipe,
- the turbocharger cooling pipe bolts,
- the turbocharger cooling pipe retaining bracket bolt on the turbocharger.

❏ Torque tighten:

- the **turbocharger cooling pipe bolts (10 N.m)**,
- the **turbocharger cooling pipe retaining bracket bolt (10 N.m)**.

❏ Refit the new turbocharger studs.

❏ Torque tighten the **turbocharger studs (15 N.m)** using the flat surfaces of the studs or a **roller-type stud removal tool**.



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❏

Note:

The turbocharger strut must move freely.

❏ Fit the turbocharger strut.

❏ Finger-tighten the bolts ***(18)*** and ***(19)*** of the turbocharger strut.

❏ Fit the turbocharger without its seal and hold the turbocharger flat against the exhaust manifold.

❏ Push the turbocharger strut according to the arrow ***(20)*** so that it is resting against the turbocharger on the flywheel end.

Note:

Do not tighten the bolt too quickly to prevent the turbocharger strut from rotating.

❏ Tighten the turbocharger strut bolt ***(19)*** on the timing end slightly.

❏ Remove the turbocharger.

❏ Tighten to torque the **turbocharger strut bolt on the flywheel end (25 N.m)** ***(18)*** .

❏ Position the seal between the turbocharger and the exhaust manifold.

❏ Refit the turbocharger.

❏ Tighten the turbocharger bolt ***(12)*** by a few turns.


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❑ Refit without tightening:

- the upper turbocharger nut,
- the lower turbocharger nuts.

❑ Pretighten to torque:

- the **turbocharger lower nuts (15 N.m)**,
- the **turbocharger upper nut (15 N.m)**.

❑ Torque tighten:

- the **turbocharger lower nuts (28 N.m)**,
- the **turbocharger upper nut (28 N.m)**.

❑ Tighten the turbocharger strut bolt ***(19)*** on the timing end slightly.

❑ Torque tighten:

- the **turbocharger bolt (25 N.m)** ***(12)*** ,
- the **turbocharger strut bolt on the timing end (25 N.m)**.

**III - FINAL OPERATION.**

❑ Fit the exhaust gas pressure sensor pipe assembly.

❑ Refit:

- the exhaust gas pressure sensor pipe assembly bolt,
- the exhaust gas pressure sensor bolt.

❑ Torque tighten:

- the **exhaust gas pressure sensor pipe assembly bolt (10 N.m)**,
- the **exhaust gas pressure sensor hollow bolt (16 N.m)**.

❑ Refit the exhaust gas temperature sensor on the turbocharger.

❑ Torque tighten the **exhaust gas temperature sensor (44 N.m)**.

❑ Clip the exhaust gas temperature sensor wiring onto the heat shield.

❑ Connect:

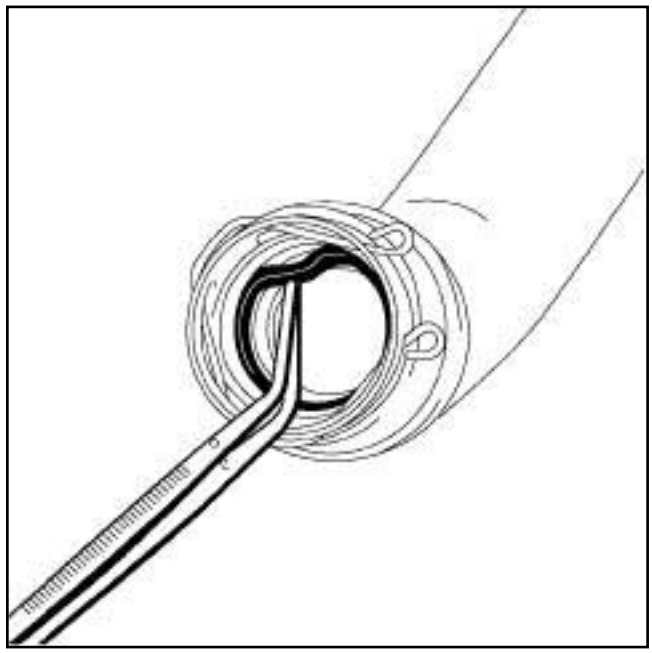
- the exhaust gas pressure sensor connector,
- the turbocharging pressure regulator hose on the turbocharger,
- the exhaust gas temperature sensor connector,
- the turbocharger cooling pipes.

❑ Refit the turbocharger cooling pipe clips using the tool **(Mot. 1448)**.

❑ Refit:

- the turbocharger oil pipe (see **12B**, **Turbocharging**, **Turbocharger oil pipe: Removal - Refitting**, page **12B-11**) ,
- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) ,
- the oxygen sensors (see **13B**, **Diesel injection**, **Oxygen sensor: Removal - Refitting**, page **13B-59**) ,
- the turbocharger heat shield,
- the turbocharger heat shield bolts.

❑ Torque tighten the **turbocharger heat shield bolts (7 N.m)**.



129411

❑ Remove the intercooler air inlet duct seal using a .



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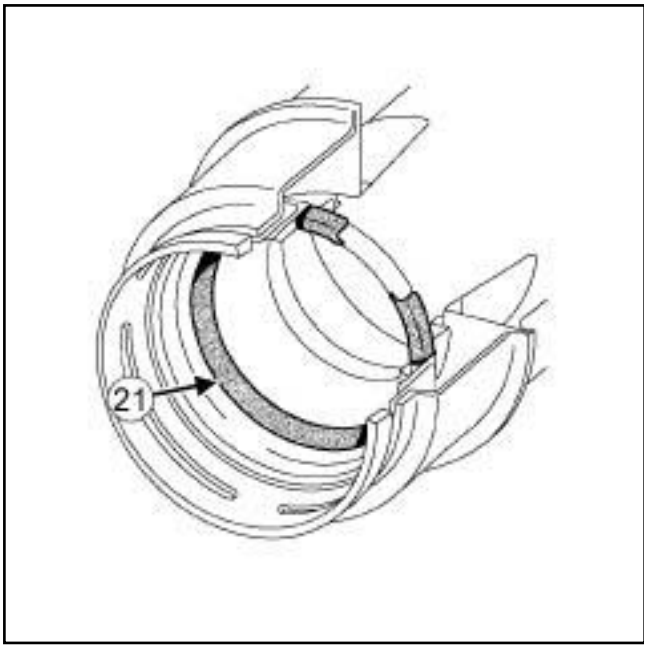


129412

❑

Note:

Check whether the intercooler air inlet duct seal (**21**) is correctly positioned.

❑ Refit the new intercooler air inlet duct seal.

❑ Turb the intercooler air inlet duct to fit the clip in its housing.

❑ Clip the intercooler air inlet duct onto the turbocharger.

❑ Refit the intercooler air inlet duct bolt to the fuel pipe support.

❑ Torque tighten the **intercooler air inlet duct bolt (8 N.m)**.

❑ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Connect the air filter unit air outlet duct to the turbocharger and to the air filter unit.

❑ Torque tighten the **air filter unit air outlet duct clips (5 N.m)** using the tool **(Mot. 1608)**.

❑ Remove the blanking plug from the oil separator opening.

❑ Connect the oil vapour rebreathing hose to the oil separator.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air intake sleeve of the air filter unit,
- the clips of the air inlet sleeve.

❑ Fill the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the engine cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine undertray,
- the engine cover.


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| Tightening torques ▽ | |
|---|---|
| turbocharger oil pipe bolts on the turbocharger | **10 N.m** |
| turbocharger oil pipe hollow bolt on the cylinder block | **16 N.m** |
| turbocharger oil pipe bolt on the cylinder block | **25 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **12B**, **Turbocharging**, **Turbocharging: Precautions for repair**, page **12B-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

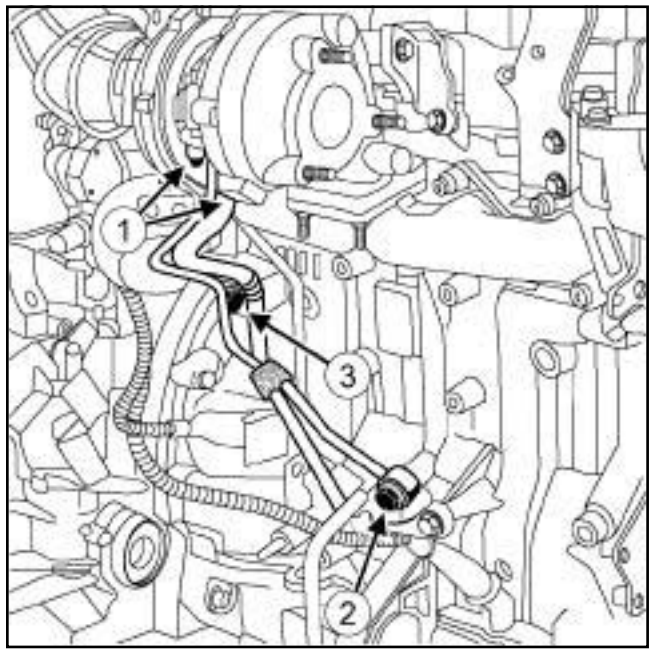
❑ Remove the engine cover.

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the engine undertray,
- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129413

❑ Remove:

- the turbocharger oil pipe bolts (**1**) on the turbocharger,
- the hollow bolt (**2**) mounting the turbocharger oil pipe on the cylinder block,
- the turbocharger oil pipe bolt (**3**) on the cylinder block,
- the turbocharger oil pipe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the seal between the turbocharger and the turbocharger oil pipe,
- the oil pipe O-ring on the cylinder block end,
- the two copper seals on the oil supply union side on the cylinder block end.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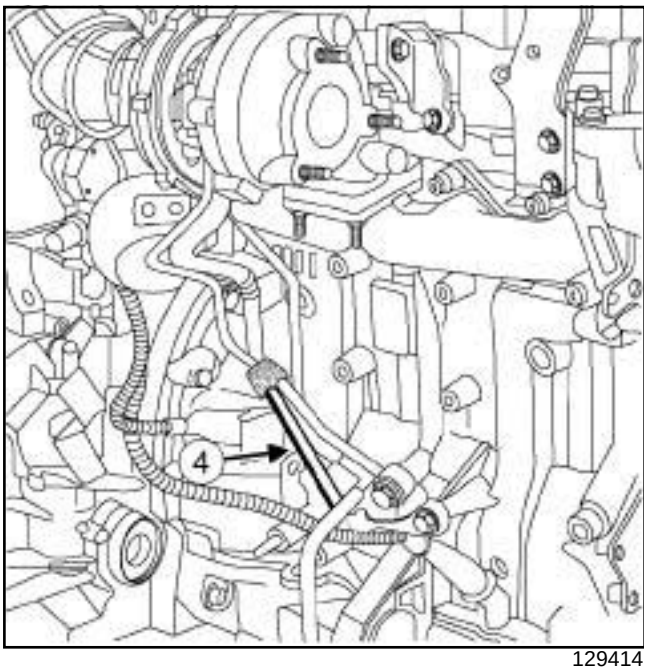
**II - REFITTING OPERATION FOR PART CONCERNED**




129414

❑

Note:

Do not rotate the turbocharger oil pipe O-ring at the cylinder block end when fitting.

After fitting, check that the turbocharger oil pipe O-ring has not come out of its housing.

Check the two copper seals on the oil supply union on the cylinder block end.

❑ Lubricate the new oil pipe O-ring on the cylinder block end.

❑ Fit:

- the seal between the turbocharger and the turbocharger oil pipe,
- the oil pipe O-ring on the cylinder block end,
- the two copper seals on the oil supply union side on the cylinder block end,
- the turbocharger oil pipe, first fitting it inside the cylinder block ***(4)*** .

❑ Refit in order and without tightening:

- the turbocharger oil pipe bolts ***(1)*** on the turbocharger,
- the hollow bolt ***(2)*** mounting the turbocharger oil pipe on the cylinder block,
- the turbocharger oil pipe bolt ***(3)*** on the cylinder block.

❑ Torque tighten in order:

- the **turbocharger oil pipe bolts on the turbocharger (10 N.m)**,
- the **turbocharger oil pipe hollow bolt on the cylinder block (16 N.m)**.
- the **turbocharger oil pipe bolt on the cylinder block (25 N.m)**.

**III - FINAL OPERATION**

❑ Refit:

- the catalytic converter (see **19B**, **Exhaust**, **Catalytic converter: Removal - Refitting**, page **19B-8**) ,
- the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Refit the engine cover.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| Tightening torques ▽ | |
|---|---|
| intercooler air outlet duct nuts | **25 N.m** |
| intercooler bolts | **17 N.m** |
| intercooler air inlet duct nuts | **25 N.m** |
| clip for the intercooler air outlet hose | **5 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **12B**, **Turbocharging**, **Turbocharging: Precautions for repair**, page **12B-1**) .

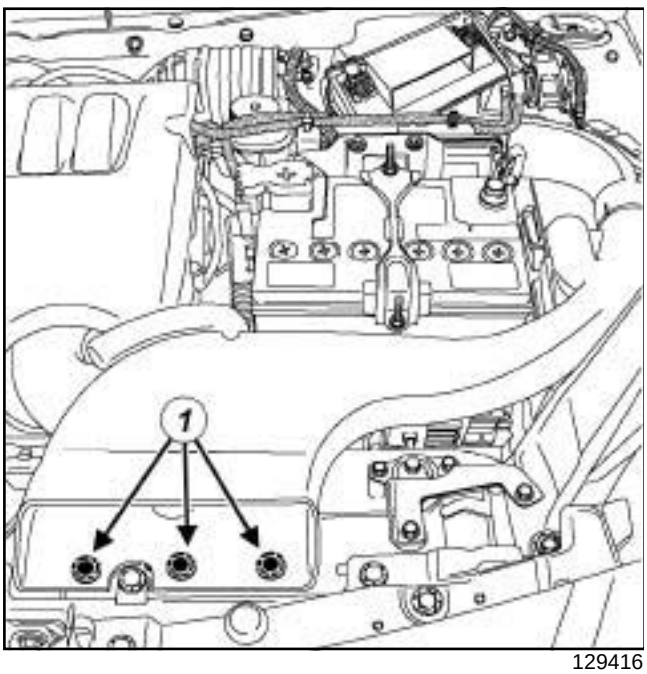
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

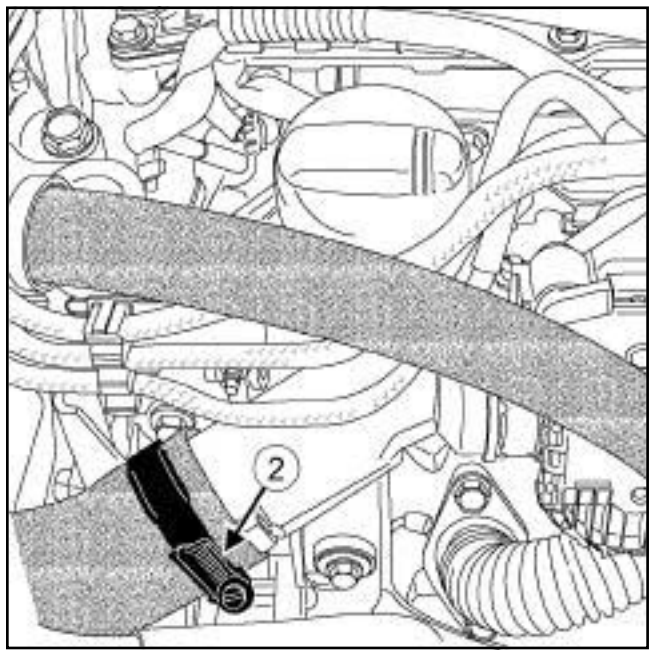
- the engine cover,
- the engine undertray.



129416

❏ Remove:

- the air inlet sleeve clips,
- the air intake sleeve on the air filter unit,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).



129417

❏ Loosen the clip (**2**) of the intercooler air outlet hose.

❏ Disconnect the intercooler air outlet hose from the intercooler air outlet duct.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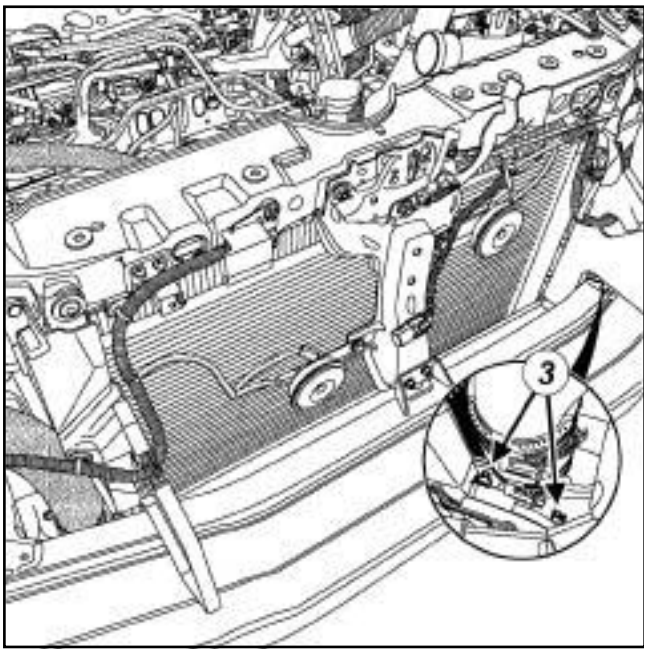
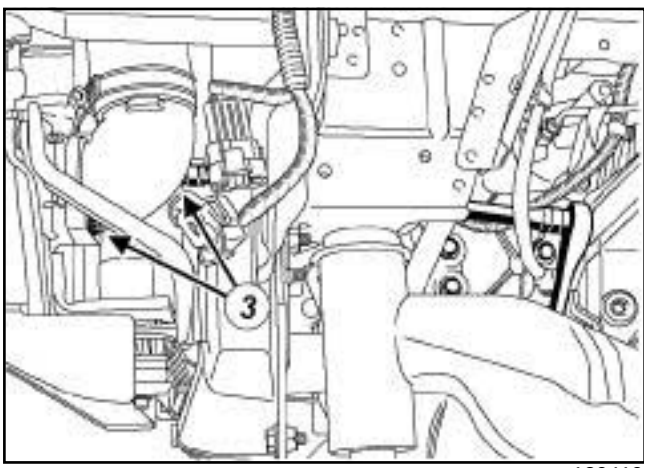
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



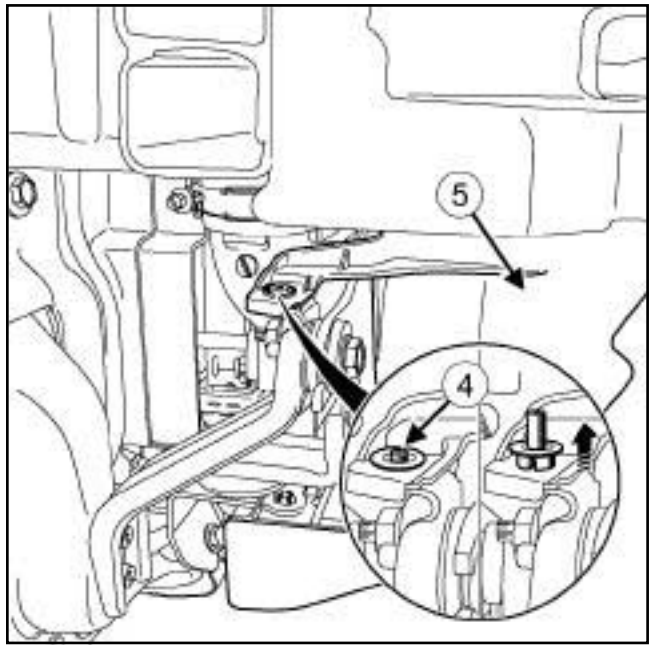

129418




129419

❏ Remove:

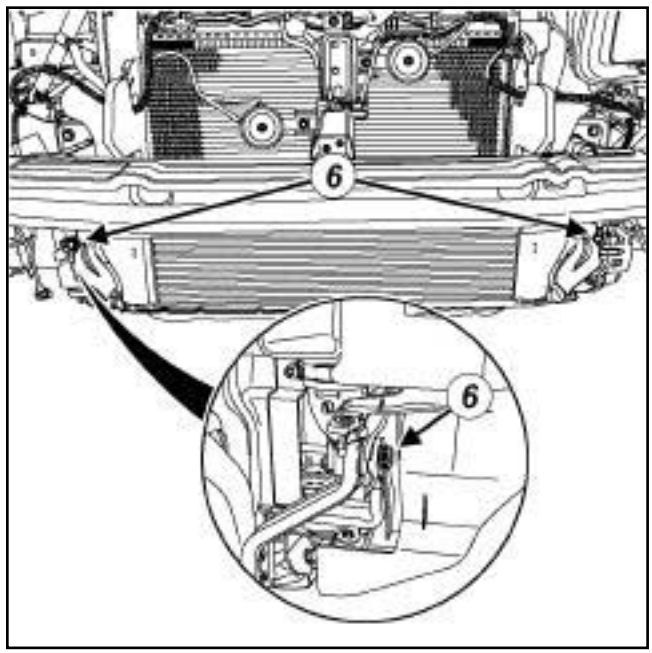
- the intercooler air inlet duct nuts (**3**) from the intercooler,
- the seal from the intercooler air inlet duct.




129420

❏ Unclip the clip (**4**) from the intercooler side protector plate on the right-hand side.

❏ Separate the intercooler side protection plate on the right-hand side ***(5)*** .




129421

❏ Remove the intercooler bolts (**6**) .

❏ Detach the intercooler from the rubber mounting component by lifting it.

❏ Remove the intercooler/intercooler air outlet duct assembly from the cooling circuit.



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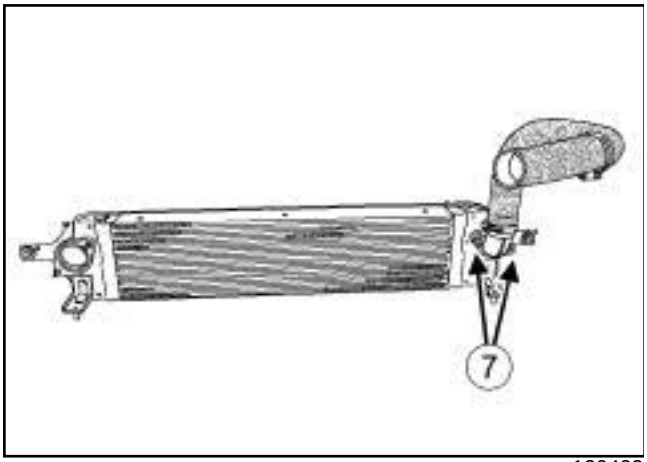

129422

❑ Remove:

- the intercooler air outlet duct nuts (**7**) from the intercooler,
- the intercooler air outlet hose/duct assembly from the intercooler,
- the intercooler air outlet duct seal.

❑ Plug the openings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals of the intercooler air inlet and outlet ducts.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Remove the blanking plugs from the openings.

❑ Refit:

- the new intercooler air outlet duct seal on the intercooler,
- the intercooler air outlet hose/duct assembly on the intercooler,
- the intercooler air outlet duct nuts on the intercooler.

❑ Torque tighten the **intercooler air outlet duct nuts (25 N.m)**.

❑ Fit the intercooler air outlet duct/intercooler assembly on the rubber mounting component.

❑ Refit the intercooler bolts.

❑ Torque tighten the **intercooler bolts (17 N.m)**.

❑ Fit the intercooler side protection plate on the right-hand side.

❑ Clip the intercooler side protection plate clip on the right-hand side.

❑ Refit:

- the new air inlet duct seal on the intercooler,
- the intercooler air inlet duct on the intercooler,
- the intercooler air inlet duct nuts on the intercooler.

❑ Torque tighten the **intercooler air inlet duct nuts (25 N.m)**.

### III - FINAL OPERATION

❑ Connect the intercooler air outlet hose to the intercooler air outlet duct.

❑ Torque tighten the **clip for the intercooler air outlet hose (5 N.m)**.

❑ Refit:

- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the air intake sleeve on the air filter unit.
- the air inlet sleeve clips,
- the engine undertray,
- the engine cover.


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**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

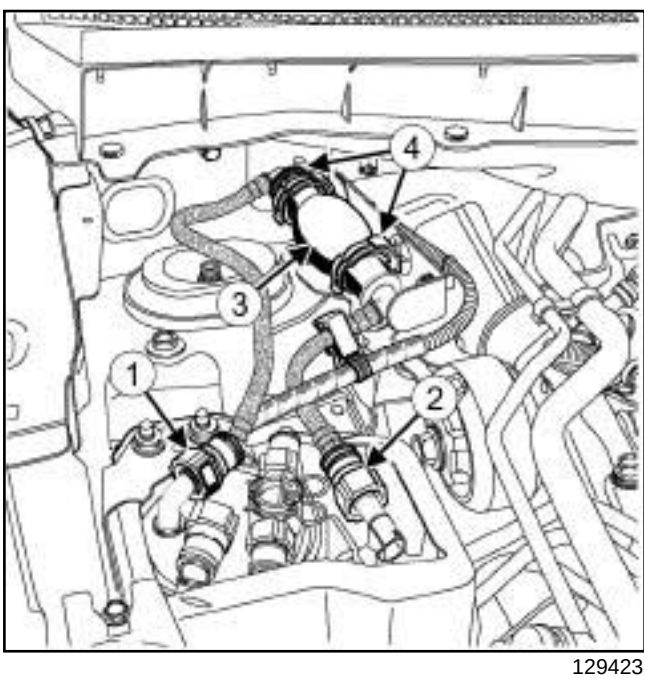
During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



129423

❑ Unclip the fuel supply pipe of the manual priming pump from the support.

❑ Disconnect:

- the manual priming pump quick-release union ***(1)*** from the fuel filter,
- the manual priming pump quick-release union ***(2)*** from the fuel supply pipe.

❑ Remove the manual priming pump ***(3)*** from the mounting clips ***(4)*** .

❑ Insert the blanking plugs.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the manual priming pump on the mounting clips.

❑ Remove the blanking plugs.

❑ Connect:

- the manual priming pump quick-release union to the fuel supply pipe,
- the manual priming pump quick-release union to the fuel filter.

❑ Clip the fuel supply pipe of the manual priming pump onto the support.

### III - FINAL OPERATION.

❑ Prime the fuel circuit using the manual priming pump.

❑ Turn the engine over several times until it starts.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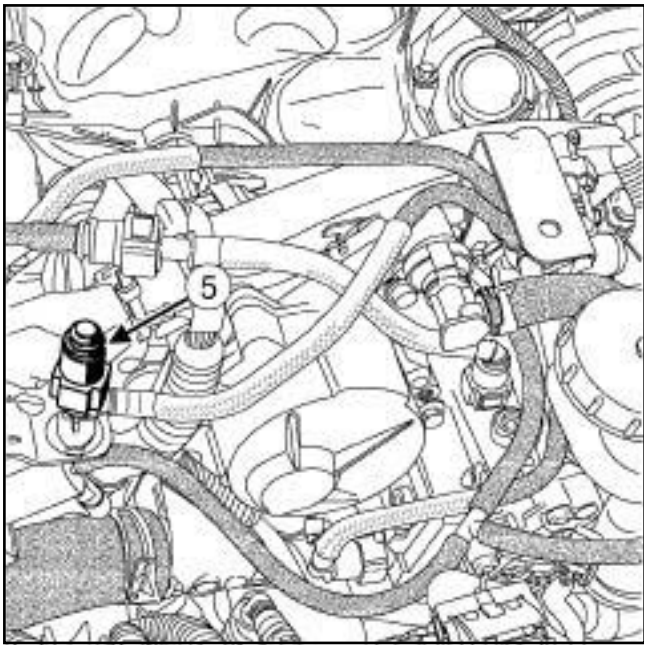


129424

❑

Note:

Check for fuel leaks at the air bleed connection.

❑ If the engine does not start:

- disconnect the quick-release union ***(5)*** from the fuel supply pipe,
- Activate the manual priming pump until the fuel runs without air bubbles,
- prime the fuel circuit once more using the manual priming pump.



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M9R

| Tightening torques ▽ | |
|---|---|
| fuel filter mounting support bolt | **9 N.m** |
| fuel filter protector bolt | **10 N.m** |
| fuel filter protector nuts | **25 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

During this operation, be sure to:

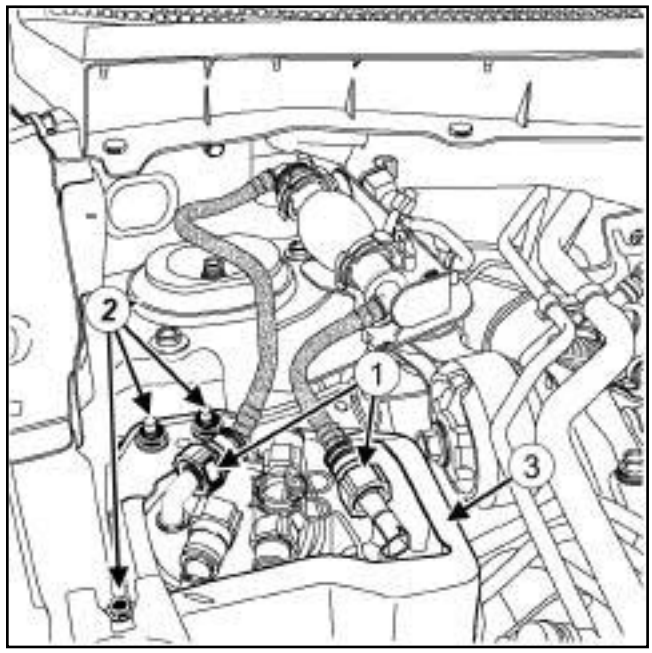
- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION



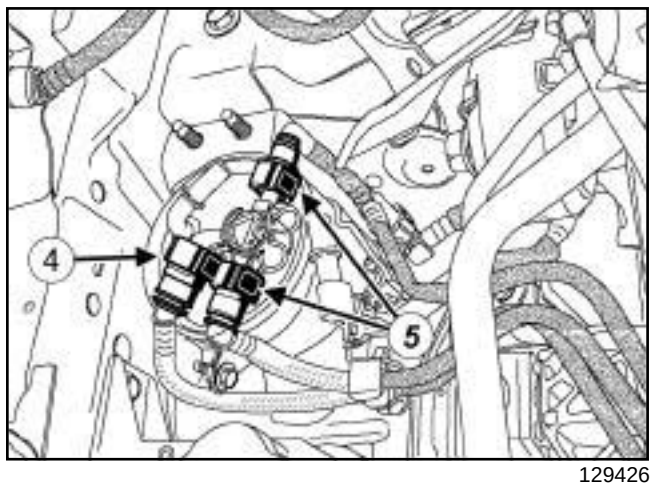

129425

❏ Disconnect the quick-release unions (**1**) of the manual priming pump.

❏ Insert the blanking plugs.

❏ Remove:

- the mountings ***(2)*** of the fuel filter protector,
- the fuel filter protector ***(3)*** .




129426

❏ Disconnect:

- the fuel supply quick-release union (**4**) from the high pressure pump of the fuel filter,
- the fuel return quick-release unions (**5**) from the fuel filter.

❏ Insert the blanking plugs.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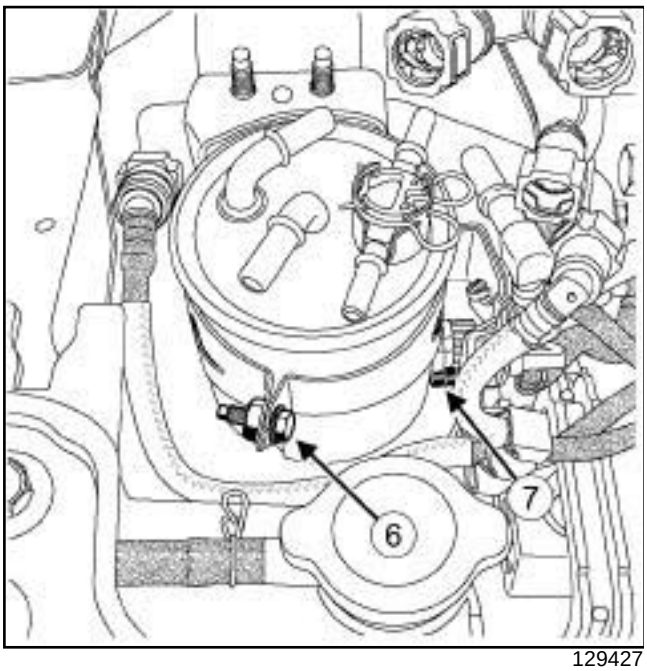
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129427

❏ Remove the bolt (**6**) of the mounting support of the fuel filter.

❏ Disconnect the water detection sensor connector (**7**) .

❏ Remove the fuel filter.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏

> **WARNING**
> Do not remove the blanking plugs from each component until the last moment.
>
> Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Fit the fuel filter on the mounting support.

❏ Connect the coolant detection sensor connector.

❏ Refit the bolt in the mounting support of the fuel filter.

❏ Torque tighten the **fuel filter mounting support bolt (9 N.m)**.

❏

❏ Remove the blanking plugs from the inlet and outlet unions of the fuel filter.

❏ Connect the inlet and outlet unions of the fuel filter to the fuel filter.

❏ Open the bleed screw on top of the diesel filter.

❏ Prime the fuel circuit using the manual priming pump until the pipes are filled with fuel.

❏ Close the bleed screw on top of the fuel filter.

❏ Check that there are no fuel leaks.

❏ Start the engine.

❏ Check that there are no fuel leaks.

**III - FINAL OPERATION.**

❏

> Note:
> Be careful not to pinch or damage the fuel pipes.

❏ Remove the blanking plugs.

❏ Connect:

- the fuel return quick-release unions of the fuel filter.
- the fuel supply quick-release union of the high pressure pump of the fuel filter,

❏ Refit:

- the fuel filter guard.
- the mountings of the fuel filter protector,

❏ Torque tighten:

- the **fuel filter protector bolt (10 N.m)**,
- the **fuel filter protector nuts (25 N.m)**.

❏ Connect the quick-release unions of the manual priming pump.

❏ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .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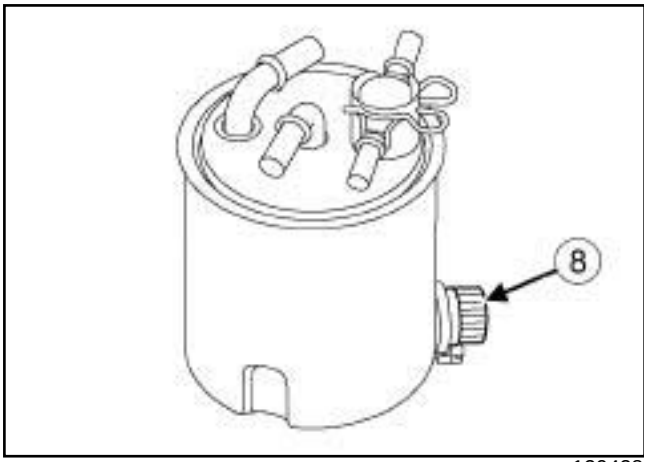


129428

❑

Note:

Regularly bleed the water that has collected in the fuel filter through the bleed plug (**8**) .

Prime the fuel circuit using the manual priming pump after the water purge.

Check for fuel leaks after starting the engine.


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1869** | Pliers for disconnecting the fuel circuit |

| Tightening torques ▽ | |
|---|---|
| injector rail bolts | **22 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

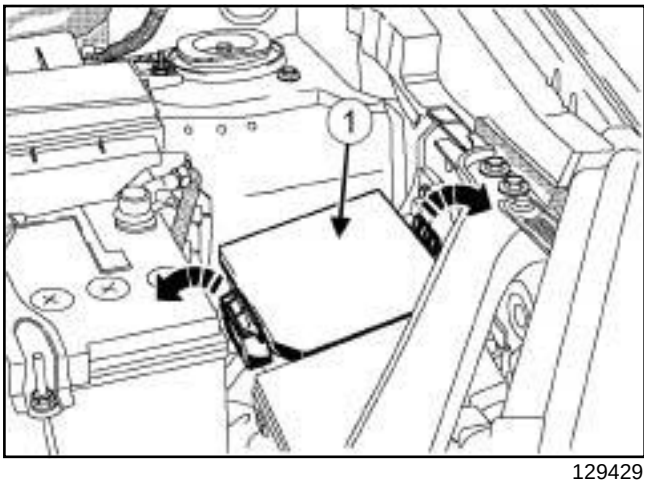
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

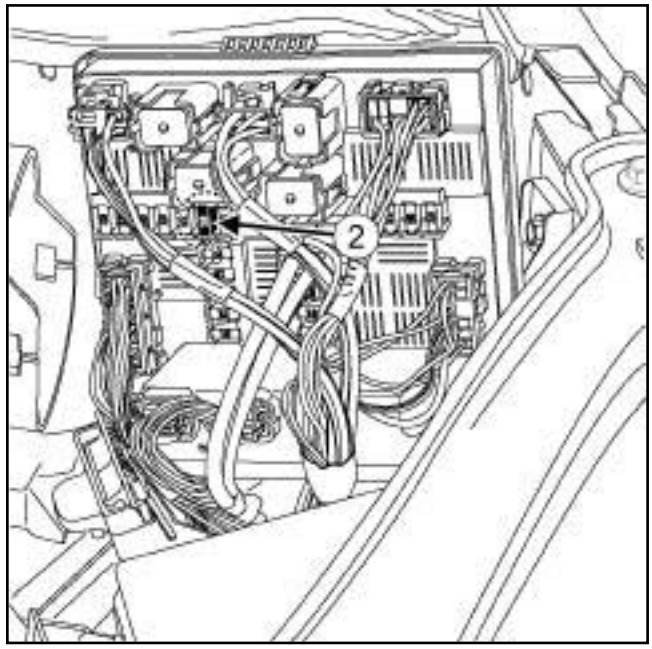
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .



129429

❏ Unclip the cover (**1**) of the engine interconnection unit.



129430

❏ Remove the fuse (**2**) of the fuel pump(**F13**) (**15A**).

❏ Start the engine to relieve the fuel pressure.

Note:
After switching the engine off, start it again two or three times to fully relieve the fuel pressure.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) .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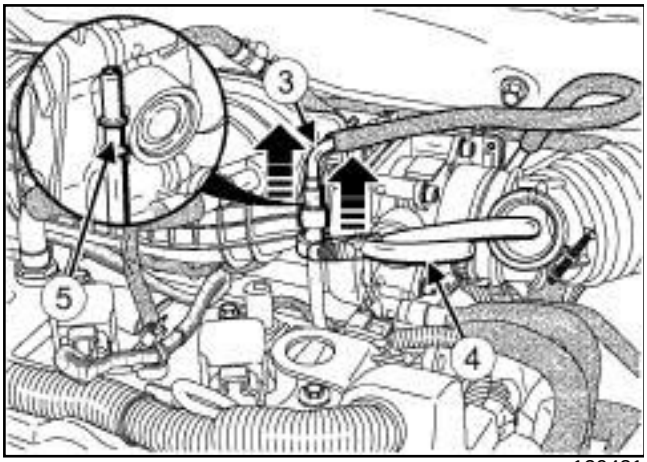


129431

❏ Remove the plug of the fuel supply union.

**IMPORTANT**

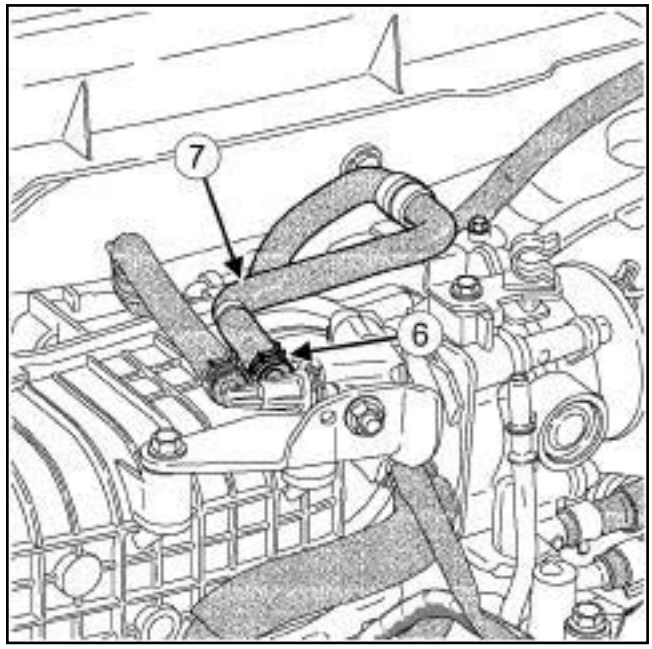
During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

❏ Disconnect the quick-release union of the fuel supply (**3**) using the tool **(Mot. 1869)** (**4**) .

Note:

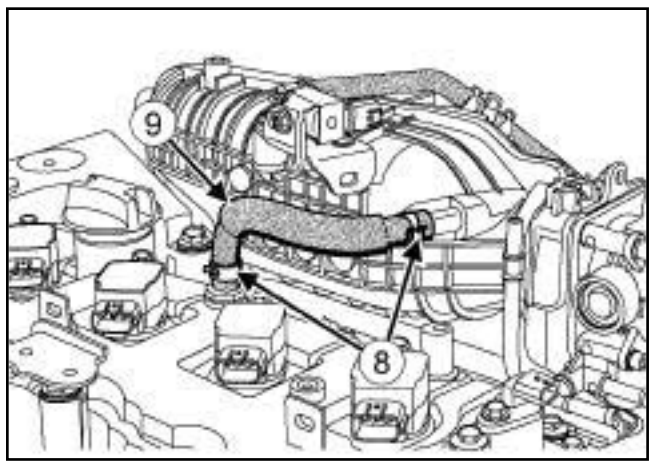
Insert the tool **(Mot. 1869)** (**4**) on the second retainer (**5**) .



129432

❏ Remove the clips (**6**) of the petrol vapour rebreathing pipe.

❏ Disconnect the petrol vapour rebreathing pipe (**7**) .



129433

❏ Remove the clips (**8**) of the oil vapour rebreathing hose.

❏ Disconnect the oil vapour rebreathing hose (**9**) .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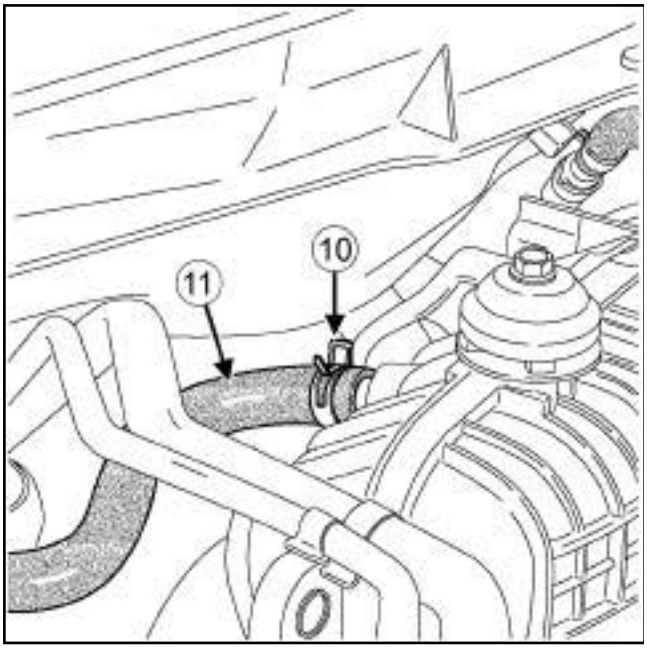


129434

❏ Remove the clip (**10**) from the vacuum pipe of the brake servo.

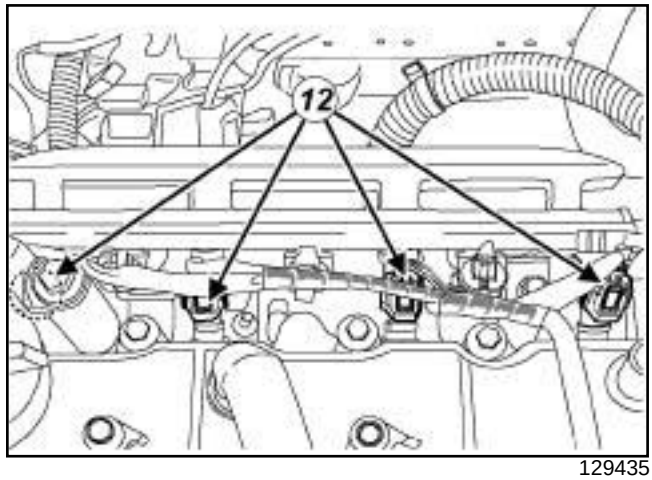
❏ Disconnect the vacuum pipe (**11**) from the brake servo.

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment)

❏ Disconnect the motorised throttle valve connector.

❏ Remove the motorised throttle valve without disconnecting the coolant pipes (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**) .



129435

❏ Disconnect the injector connectors (**12**) .

❏ Remove the intake distributor (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❏

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**IMPORTANT**

Wear protective gloves during the operation.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.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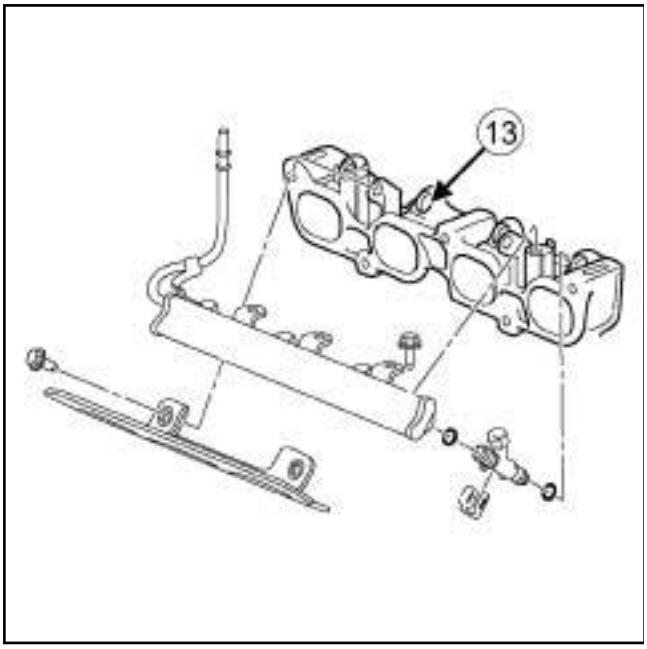
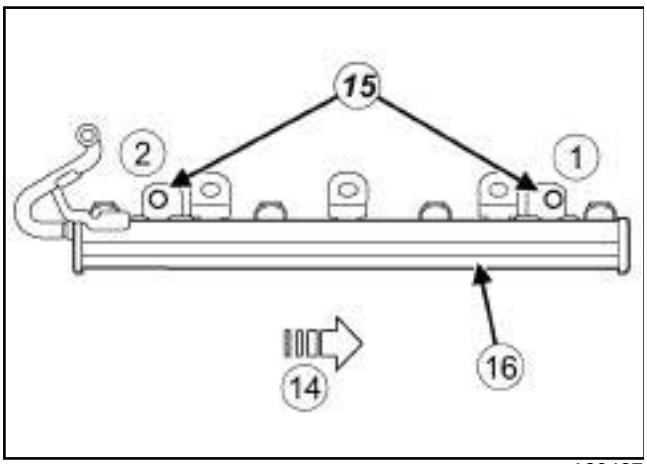



129436

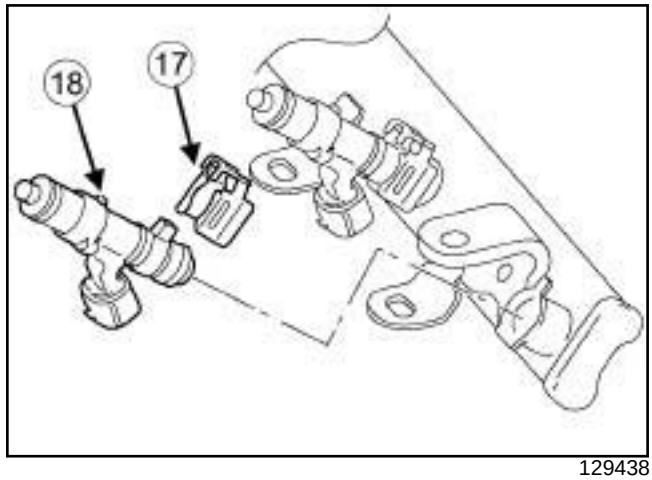



129437

(**14**) Front of engine

❑ From the adapter (**13**) of the intake distributor, remove:

- in order,the injector rail - injector bolts (**15**) ,
- the injector rail (**16**) .




129438

❑ From the injector rail guard remove:

- the clips (**17**) from the injectors,
- the injectors (**18**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the injectors' O-rings,
- the injector clips,

❑ Clean the injectors using the **INJECTOR CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❑ Lubricate the new O-rings with fresh engine oil.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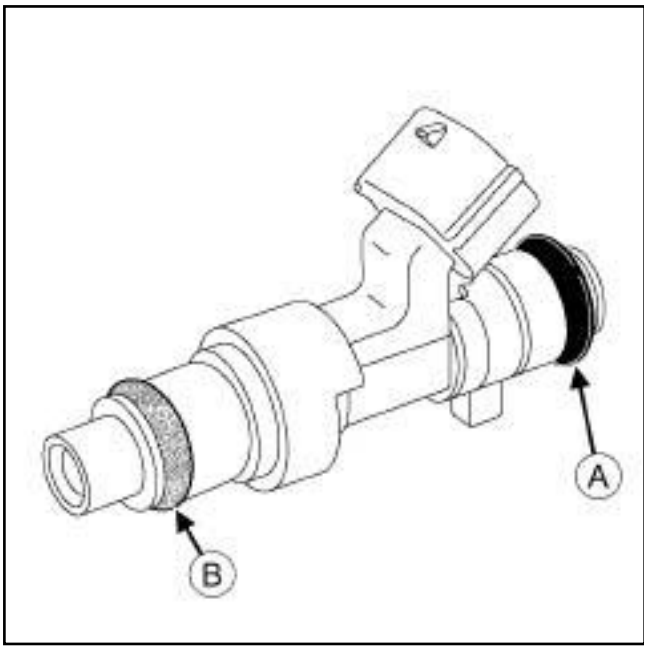
2TR

**II - REFITTING OPERATION FOR PART CONCERNED**



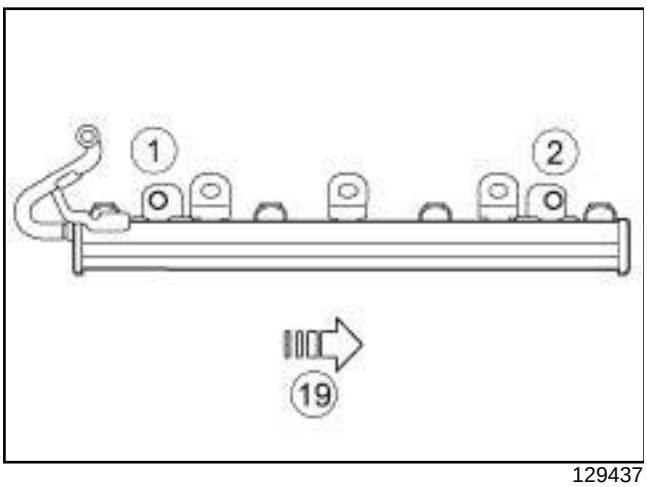

129439

❑ On the injectors, refit:

- the blue O-rings (**A**) ,
- The brown O-rings (**B**) .

❑ On the injector rail, refit:

- the injectors ,
- the new injector clips.




129437

(**19**) Front of engine

❑ On the inlet manifold adapter, refit:

- the injector rail,
- the injector rail bolts.

❑ Torque tighten in order the **injector rail bolts (22 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the intake distributor (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) .

❑ Connect the injector connectors.

❑ Refit the motorised throttle valve (see **12A**, **Fuel mixture**, **Throttle valve: Removal - Refitting**, page **12A-17**) .

❑ Connect the motorised throttle valve connector.

❑ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❑ Connect the brake servo vacuum pipe.

❑ Refit the clip of the vacuum pipe of the brake servo.

❑ Connect the oil vapour rebreathing hose.

❑ Refit the clips of the oil vapour rebreathing hose.

❑ Disconnect the petrol vapour rebreathing pipe.

❑ Refit the clips of the petrol vapour rebreathing pipe.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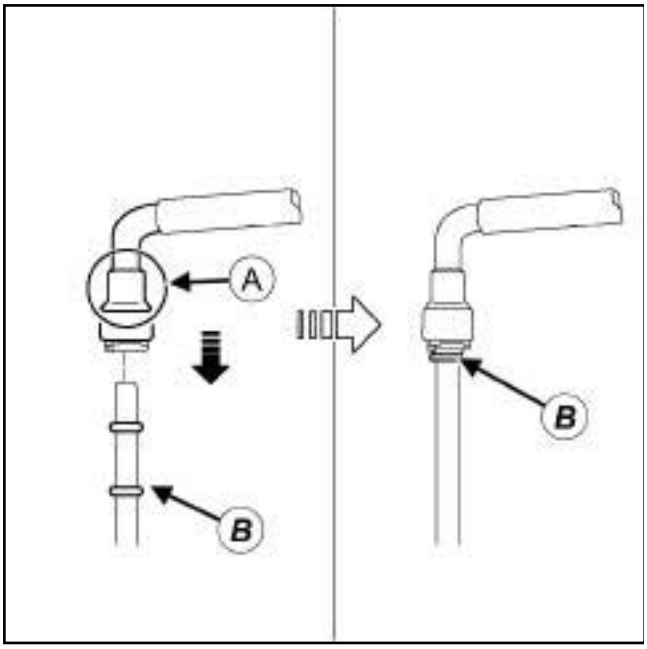
2TR

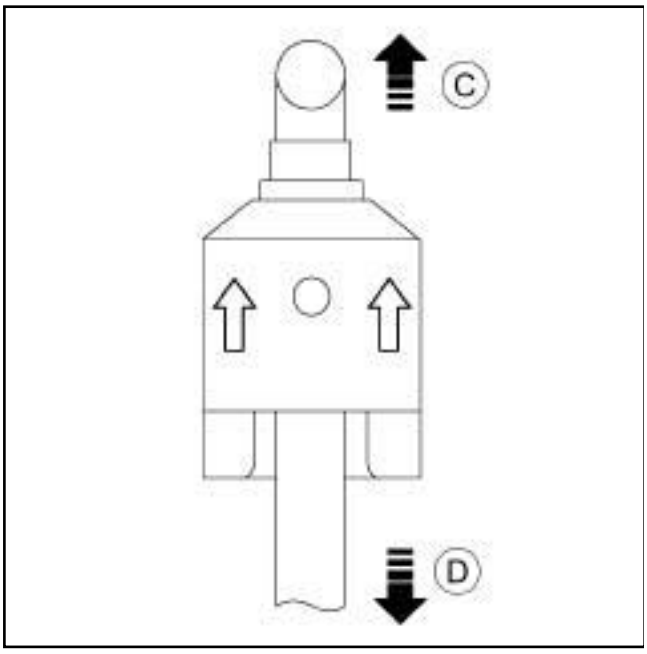



129440

❑ Connect the quick-release union of the fuel supply.

Note:

Connect the quick-release union (**A**) on part (**B**) . Then check the connection by pulling on part (**A**) .




129441

(**C**) Direction of the fuel supply pipe

(**D**) Direction of the injector rail

❑ Refit:

- the plug of the fuel supply union,
- the air inlet duct (see **12A**, **Fuel mixture**, **Air inlet duct: Removal - Refitting**, page **12A-22**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**)
- the engine cover,
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the fuel pump fuse.

❑ Clip the cover on the engine interconnection unit.

❑ Refit the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1869** | Pliers for disconnecting the fuel circuit |
| **Mot. 1863** | Set of unions for measuring fuel pressure |
| **Mot. 1311-01** | Fuel pressure test kit. |

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**IMPORTANT**
Wear goggles with side protectors for this operation.

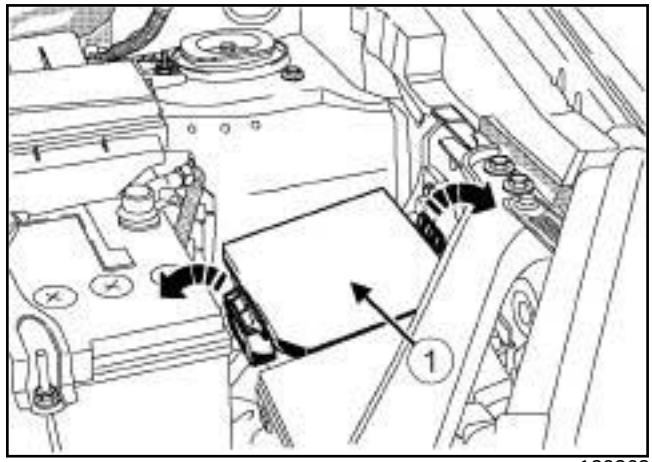
**IMPORTANT**
Wear leaktight gloves (Nitrile type) for this operation.

## CHECKING

### I - CHECK PREPARATION OPERATION

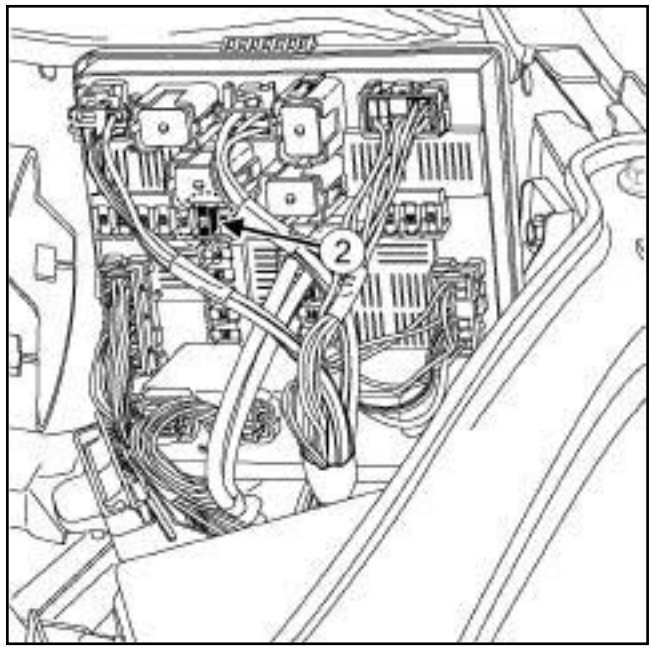
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .




129363

❏ Remove the cover (**1**) from the Protection and Switching Unit.




129364

❏ Remove the fuse (**2**) of the fuel pump (**F13**) (**15A**).

❏ Relieve the pressure of the fuel on the fuel supply pipe after the engine has started.

Note:

After switching the engine off, start it again two or three times to fully relieve the fuel pressure.

❏ Remove:

- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .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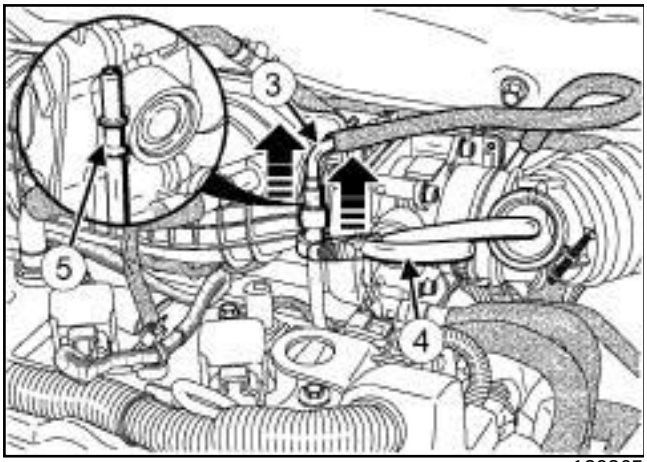
2TR



129365

❏ Remove the plug of the fuel supply union.

❏ Disconnect the quick-release union ***(3)*** using the tool **(Mot. 1869)** ***(4)*** .

Note:

Insert the **(Mot. 1869)** ***(4)*** on the second retainer ***(5)*** .

**II - FUEL PRESSURE CHECKING STAGE**

❏ Connect:

- the fuel pressure checking kit (Adapter D) **(Mot. 1863)**,
- the fuel pressure checking kit **(Mot. 1311-01)**.

❏ Refit the fuse ***(2)*** of the fuel pump (**F13**) (**15A**).

Note:

It may take a few seconds to obtain a correct injector rail pressure reading.

❏ Note the fuel pressure after the engine has started. The fuel pressure must be constant (**3.5 bar**)

Note:

If the result is unsatisfactory, check that the hoses and the fuel supply pipes are not obstructed.

If there is no fault in the hoses and the tubes, replace the fuel filter assembly.

**III - FINAL OPERATION.**

❏ Remove the fuse of the fuel pump (**F13**) (**15A**).

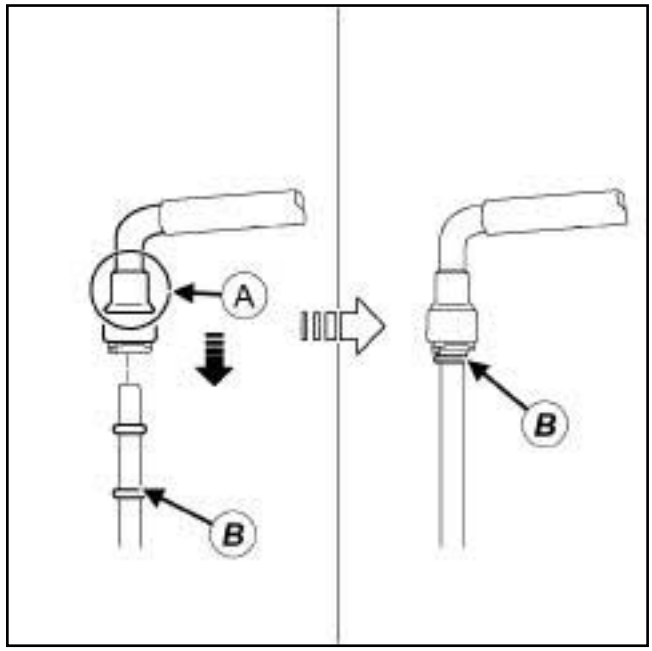
❏ Relieve the pressure of the fuel on the fuel supply pipe after the engine has started.

Note:

After switching the engine off, start it again two or three times to fully relieve the fuel pressure.

❏ Disconnect:

- the fuel pressure checking kit **(Mot. 1311-01)**,
- the fuel pressure checking kit (Adapter D) **(Mot. 1863)**.



129440

❏ Connect the quick-release union (**A**) .

Note:

Connect the quick-release union (**A**) on part (**B**) .

Then check the connection by pulling on part (**A**) .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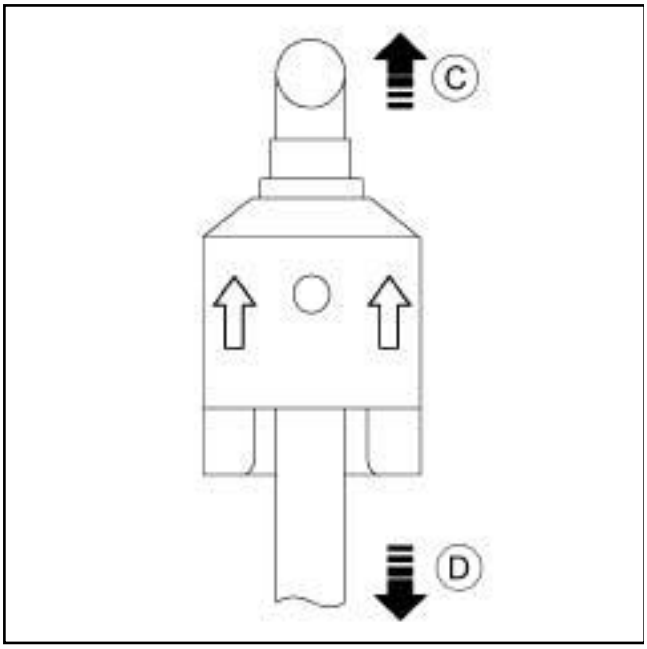


129441

(**C**) Direction of the fuel supply pipe

(**D**) Direction of the injector rail

❑ Refit:

- the plug of the fuel supply union,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the engine cover,
- the fuse ***(2)*** of the fuel pump (**F13**)(**15A**),
- the Protection and Switching Unit cover.

❑ Refit the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1311-01** | Fuel pressure test kit. |
| **Mot. 1863** | Set of unions for measuring fuel pressure |

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**IMPORTANT**

Wear goggles with side protectors for this operation.

**IMPORTANT**

Wear leaktight gloves (Nitrile type) for this operation.

Note:

This procedure must be carried out with the ignition off.

### I - PREPARATION OPERATION FOR CHECK

❏ Ensure you have a checking tool **(Mot. 1311-01)** and a " **T** " union for the tool **(Mot. 1863)**.

❏ Disconnect the quick-release union of the supply pipe of the injector rail (see **13A**, **Fuel supply**, **Fuel pressure: check**, page **13A-12**) .

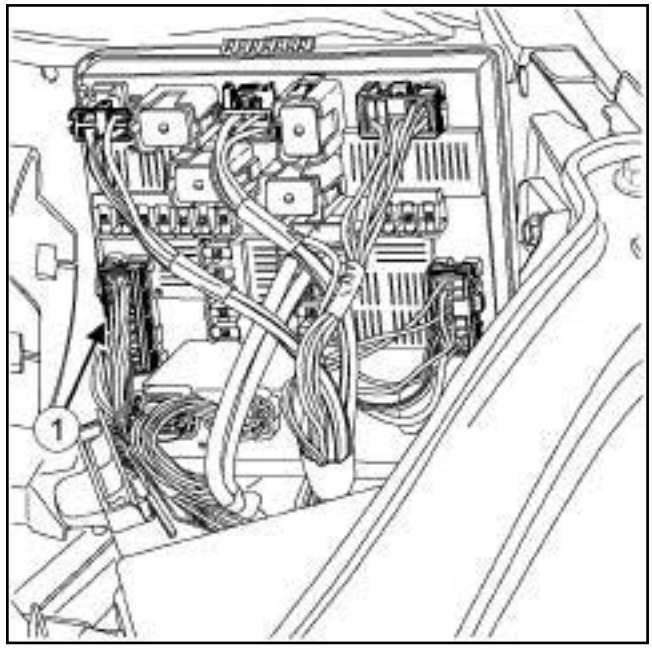
❏ Put the " **T** " union between the fuel supply union and the injector rail.

❏ Take a pipe which is long enough to drain the pump into a container and fit it to the " **T** " outlet union.

### II - FUEL FLOW CHECKING OPERATION

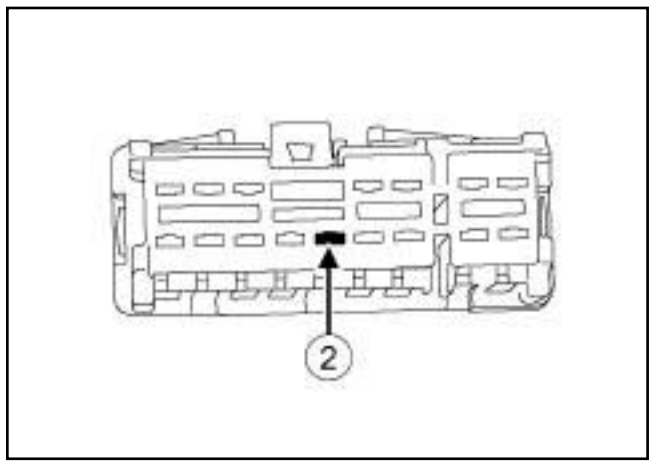
❏ Insert the pipe into a graduated measuring cylinder (**2000 ml**).

❏ Remove the Protection and Switching Unit cover.




131407

❏ Disconnect the white **16-track** connector (**1**) .




131408

❏ Connect the terminal (**2**) of the white connector to the **(+)** battery supply to operate the fuel pump.

Note:

The flow reading should be between **80 and 120 l/h**.

❏ Disconnect the **(+)** battery supply from the terminal ***(2)*** of the white connector.

### III - FINAL OPERATION.

❏ Connect thewhite (**1**) **16-track** connector.

❏ Refit the Protection and Switching Unit cover.



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2TR

❏ Disconnect:

- the union of the fuel supply pipe from the " **T** " union,
- the " **T** " union from the injector rail,
- the discharge pipe,

❏ Connect the quick-release union of the fuel supply pipe to the injector rail (see **13A**, **Fuel supply**, **Fuel pressure: check**, page **13A-12**) .


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M9R

## I - RISKS RELATING TO CONTAMINATION

The high-pressure direct injection system is highly sensitive to contamination. The risks caused by contamination are:

- damage to or destruction of the high pressure injection system,
- a component seizing,
- a component not being properly sealed.

All After-Sales operations must be performed under very clean conditions. Having carried out an operation in good conditions means that no impurities (particles a few microns in size) have penetrated the system during dismantling.

The cleanliness principle must be applied from the filter to the injectors.

What are the sources of contamination?

- metal or plastic swarf,
- paint,
- fibres:
  - cardboard,
  - brushes,
  - paper,
  - clothing,
  - cloth,
- foreign bodies such as hair,
- ambient air,
- etc.

**WARNING**
Do not clean the engine with a high pressure cleaner to prevent damaging the connections.

### 1 - Cleaning cloths

Use lint-free cleaning cloths (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

It is prohibited to use cloths or ordinary paper towels: these produce lint and lose fibres, which then contaminate the fuel circuit.

Each cloth must only be used once.

### 2 - Blanking plugs

The blanking plugs are used to cap the fuel circuit once it is opened and to therefore prevent contaminants from entering.

A set of blanking plugs should be used once only and used plugs must be discarded after use: once used, the plugs are soiled and cleaning them is not sufficient to make them reusable.

Unused plugs must also be discarded and must not be used when carrying out work on an injection system.

Part number for set of blanking plugs: (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

Note:
There is no specific set of blanking plugs for S9U and S9W engines. In order to comply with the cleanliness recommendations, use plugs that are compatible with the blanking plug sets for F9Q, G9U, G9T or ZD3 engines.

### 3 - Protective bags

Use hermetically-resealable plastic bags, using adhesive tape, for example, to store components which will be refitted and reused. Stored parts will therefore be less subject to the risk of contamination.

These are single-use bags: after use they must be discarded.

### 4 - Cleaning products

Two cleaning products can be used:

- an injector cleaner (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products),
- an aerosol spray brake cleaner (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

To use the injector cleaner, be sure to have a clean brush in good condition (the brush must not lose any bristles) as well as a clean container which has no impurities in it.

Note:
Use a new injector cleaner each time work is carried out (a used cleaning agent will contain impurities).


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**II - ADVICE TO BE FOLLOWED BEFORE ANY OPERATION**

1) Carry out the work in a clean working area and take care to protect removed components from dust using plastic bags which are hermetically-resealable, for example.

2) Always order the following from the Parts Department before carrying out work:

- **a new set of blanking plugs**, specific to the engine,
- enough lint-free **cleaning cloths**.
- one of the two **cleaning products** for fuel pipe unions,
- **the parts that are always to be replaced** after each removal operation, mentioned in the operational procedures specific to the vehicle (see related Workshop Repair Manual).

3) Wear safety goggles fitted with side shields to prevent the cleaning product from splashing the eyes.

4) Wear leaktight protective gloves (Nitrile type) to avoid prolonged contact with the skin.

Note:

When using leather protective gloves, wear a pair of leaktight protective gloves (Nitrile type) over the top.

5) Before carrying out work on the injection system, use plastic bags or clean rags, for example, to protect:

- the accessories and timing belts,
- the electrical accessories (starter, alternator, power-assisted steering pump, sensors and electrical connectors),
- the flywheel face.

**III - INSTRUCTIONS TO BE FOLLOWED DURING THE OPERATION**

Wash your hands before and while carrying out the work.

Replace leaktight protective gloves (Nitrile type) when they are soiled or damaged.

All components removed from the injection system must be stored in a hermetically sealed plastic bag once they have been capped.

Reseal the bag hermetically, for example using adhesive tape, even if the bag must be opened shortly afterwards: ambient air can be a source of impurities.

After opening the fuel circuit, the use of brushes, cleaning agents, air blow guns, rifle-type brushes or standard cloths is strictly prohibited: these items are likely to allow impurities to enter the system.

When replacing a component with a new one or when refitting it after storing it in a plastic bag, do not unpack it until it is time to fit it on the vehicle.

**IV - CLEANING**

There are currently two procedures for cleaning the fuel circuit before opening it in order to carry out work in the workshop.

These procedures enable the fuel circuit to be cleaned to prevent contamination from entering: they both have the same end result and neither is preferred over the other.

**1 - Cleaning using injector cleaner**

Clear the access to the unions that need opening, following the work procedures specific to the vehicle (see the relevant Workshop Repair Manual).

Protect sections which are sensitive to fuel leaks.

Pour the injector cleaning agent into a container which is free from impurities.

**IMPORTANT**

Wear leaktight gloves (Nitrile type) for this operation.

Dip a clean brush, which is not shedding bristles, into the container of injector cleaning agent.

**IMPORTANT**

Wear goggles with side protectors for this operation.

Clean the unions carefully using the brush and the injector cleaning agent.

Blast the components that have been cleaned with compressed air (tools, workbench, and also parts, unions and around the injection system). Check that no bristles from the brush have come away and that the area is clean.

Wipe the sections that were cleaned with fresh cleaning cloths.

Open the circuit at the unions and immediately fit the relevant blanking plugs.


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**WARNING**
To prevent impurities from entering, once the fuel circuit is opened, it must not be blasted with compressed air. Use cleaning cloths only, if necessary.

**2 - Using the brake cleaner**

Clear the access to the unions that need opening, following the work procedures specific to the vehicle (see the relevant Workshop Repair Manual).

Protect sections which are sensitive to fuel leaks.

**IMPORTANT**
Wear leaktight gloves (Nitrile type) for this operation.

**IMPORTANT**
Wear goggles with side protectors for this operation.

Spray the brake cleaner onto the unions to be opened.

Clean the unions carefully using fresh cleaning cloths.

Blast the components that have been cleaned with compressed air (tools, workbench, and also parts, unions and around the injection system). Check that no bristles from the brush have come away and that the area is clean.

Open the circuit at the unions and immediately fit the relevant blanking plugs.

**WARNING**
To prevent impurities from entering, once the fuel circuit is opened, it must not be blasted with compressed air. Use cleaning cloths only, if necessary.


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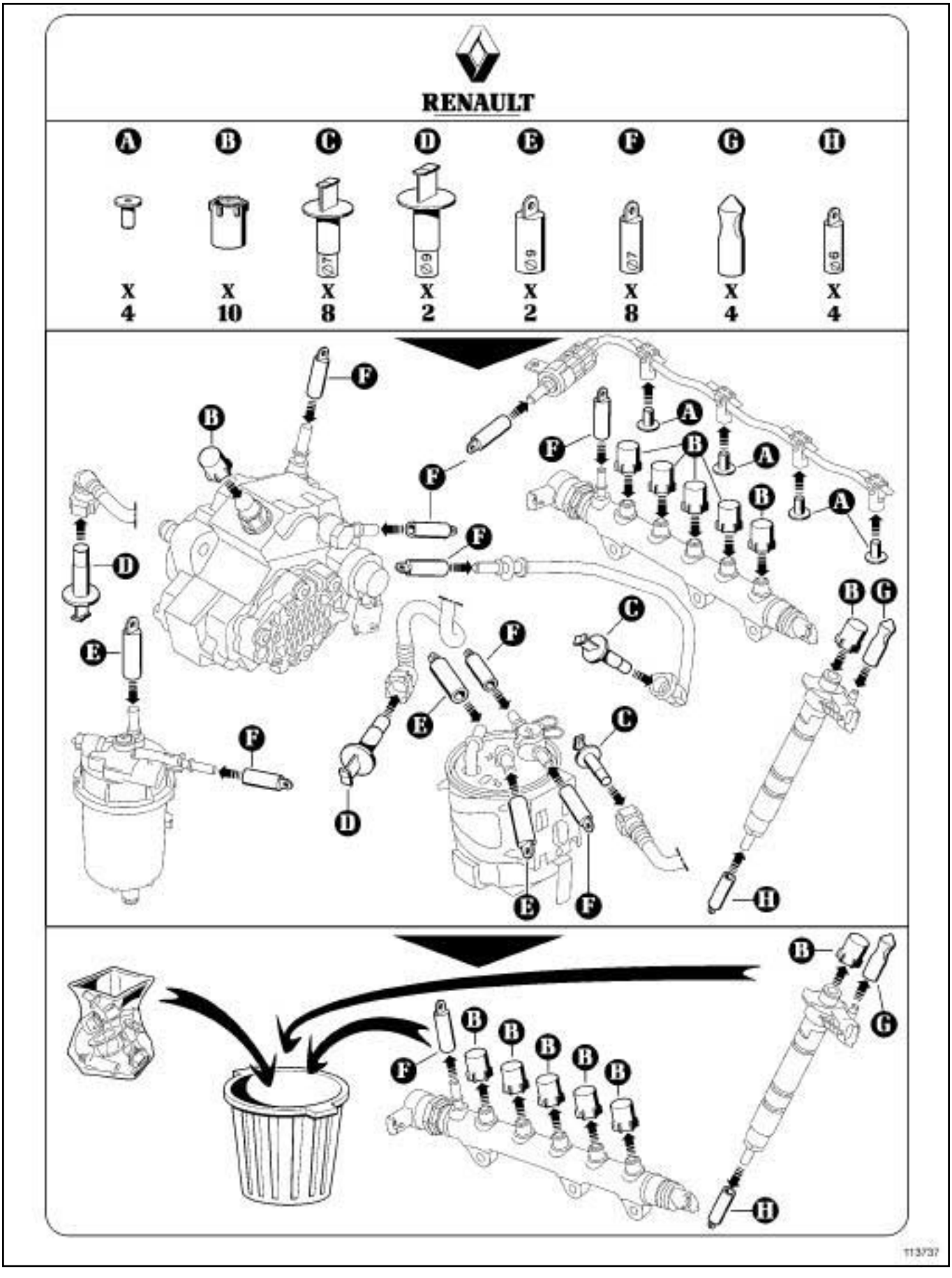
M9R

**Set of plugs:**



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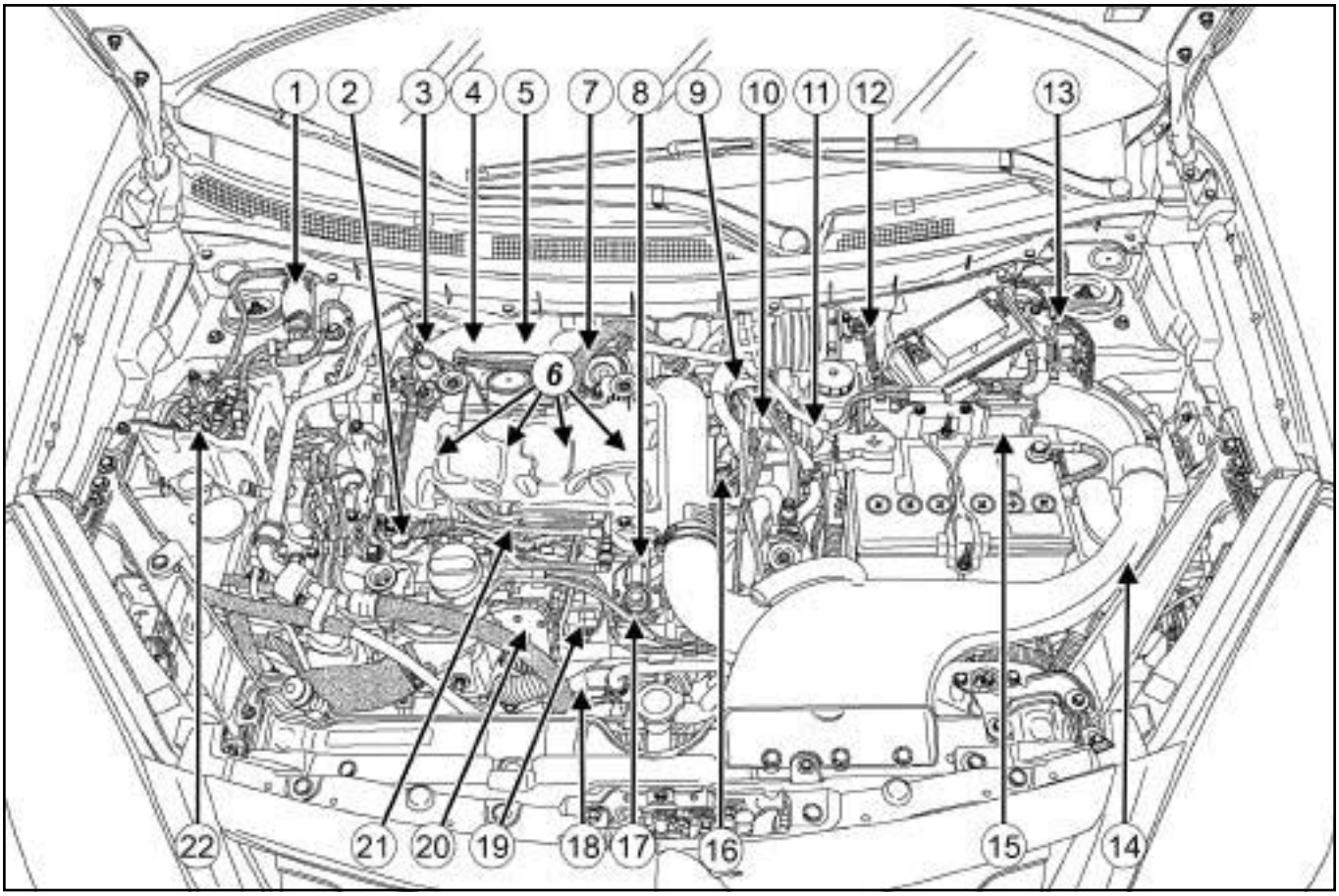
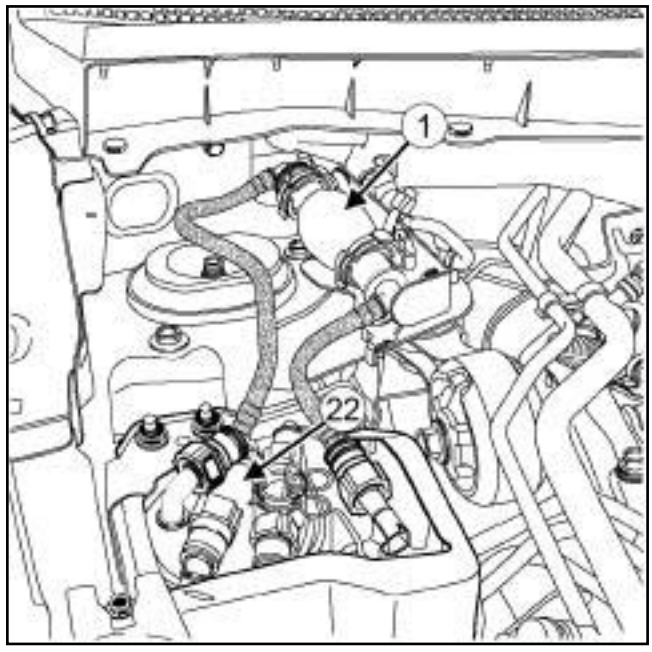
M9R




129447

(**1**) Manual priming pump
(**2**) Injection rail pressure regulator
(**3**) Exhaust gas pressure sensor
(**4**) Oxygen sensor
(**5**) Exhaust gas temperature sensor
(**6**) Injectors
(**7**) Turbocharger
(**8**) Injector rail pressure sensor
(**9**) Fuel temperature sensor
(**10**) Fuel pressure regulator on the high pressure pump
(**11**) High-pressure pump
(**12**) Airflow meter
(**13**) Turbocharging pressure regulator control solenoid valve
(**14**) Pre/postheating unit
(**15**) Diesel injection computer
(**16**) Camshaft position sensor
(**17**) Exhaust gas recirculation solenoid valve control
(**18**) Intercooler
(**19**) Turbocharger pressure sensor
(**20**) Air inlet valve
(**21**) Injector rail
(**22**) Fuel filter




129448



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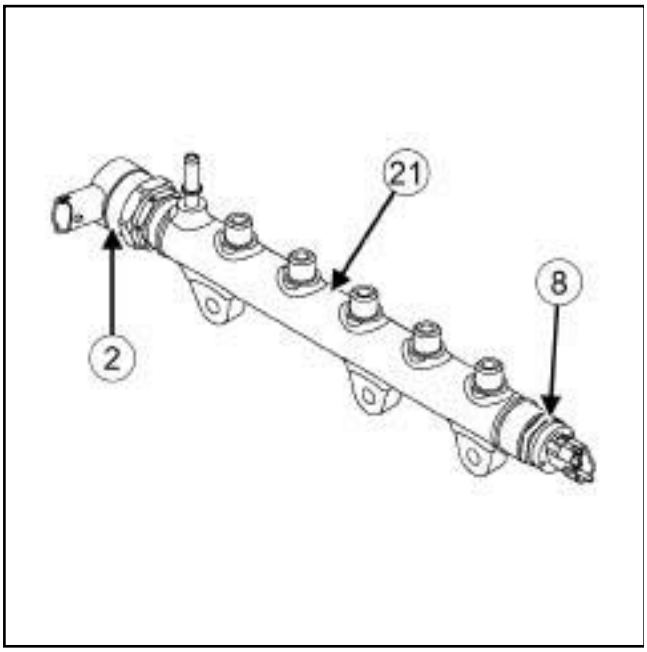
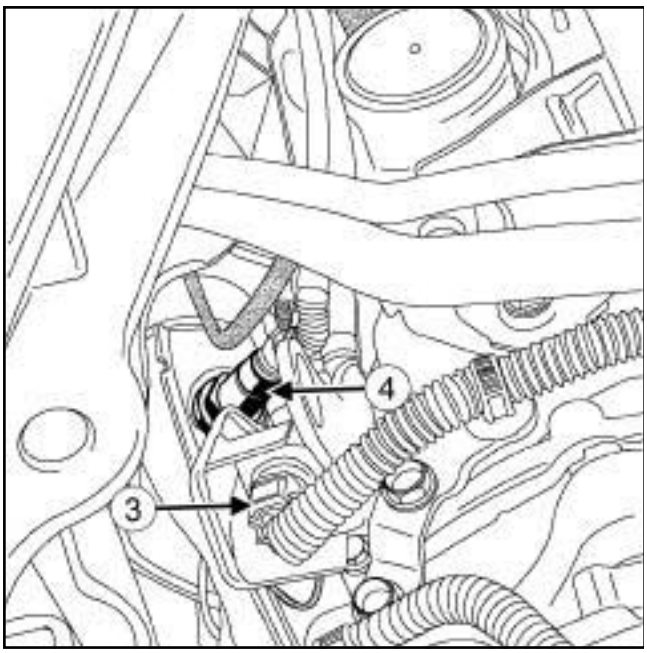
(**1**) Manual priming pump
(**22**) Fuel filter



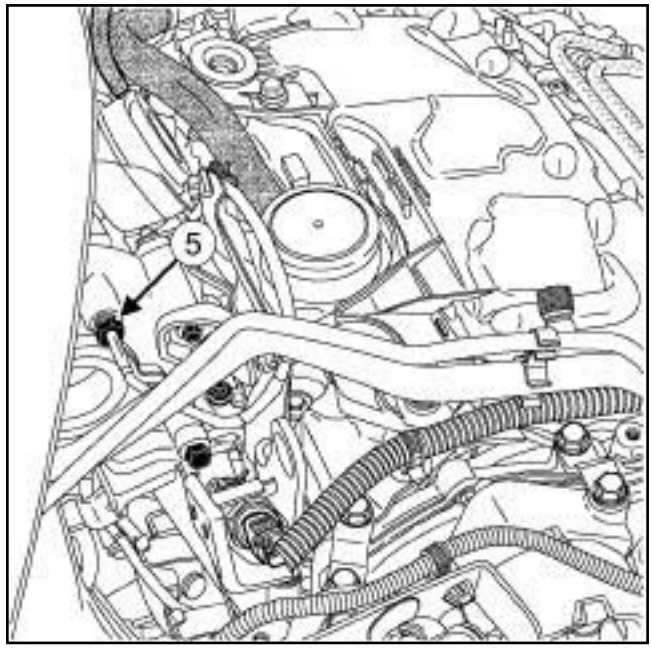
129449

(**2**) Injection rail pressure regulator
(**8**) Injector rail pressure sensor
(**21**) Injector rail



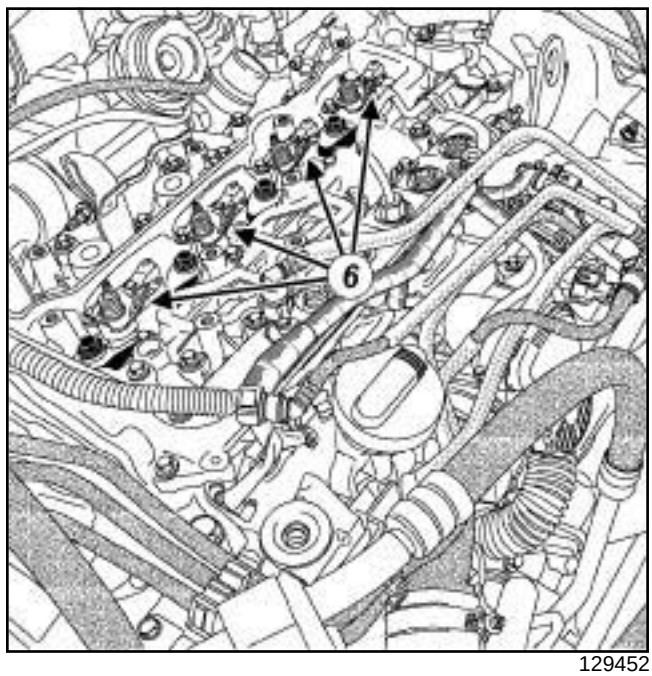
129450

(**3**) Exhaust gas pressure sensor
(**4**) Oxygen sensor



129451

(**5**) Exhaust gas temperature sensor



129452

(**6**) Injectors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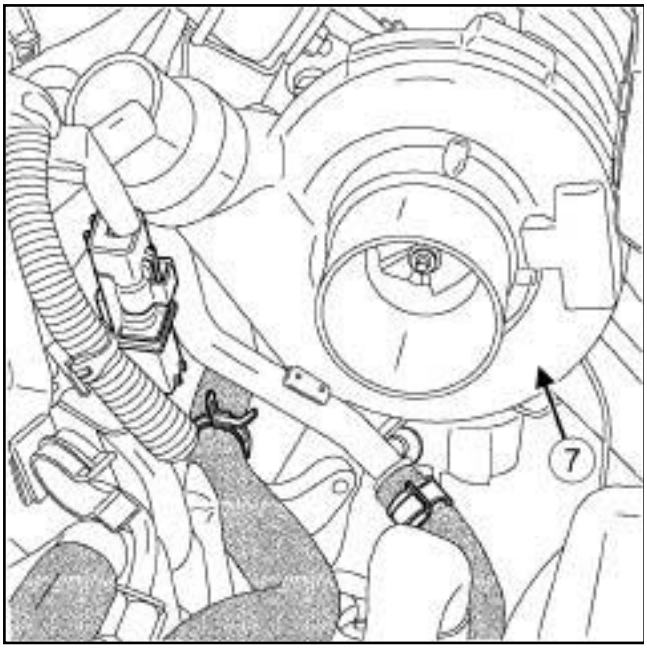
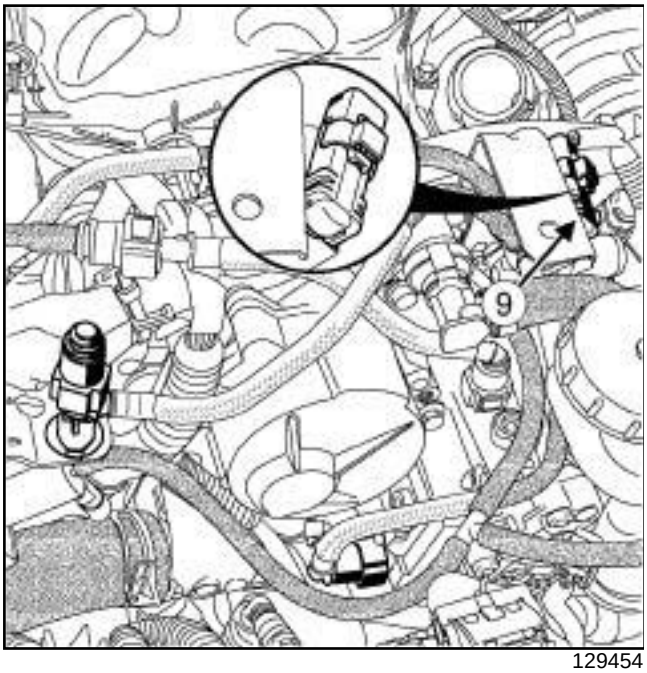


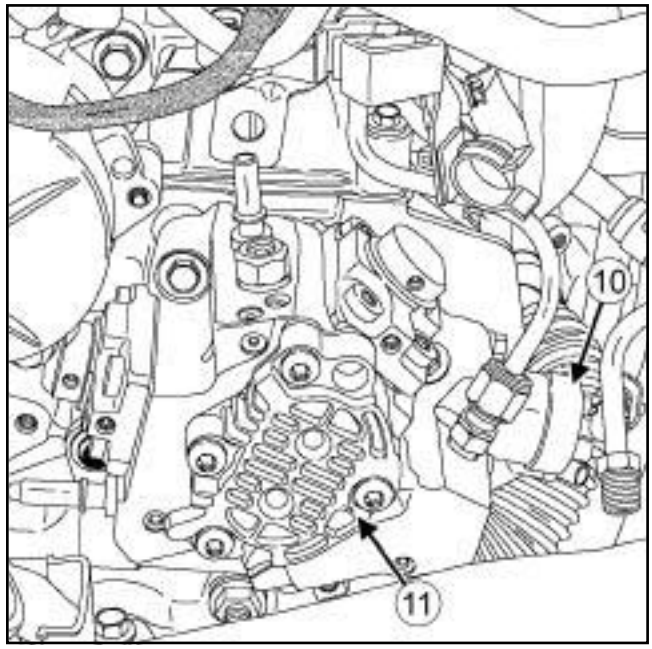

129453

(**7**) Turbocharger




129454

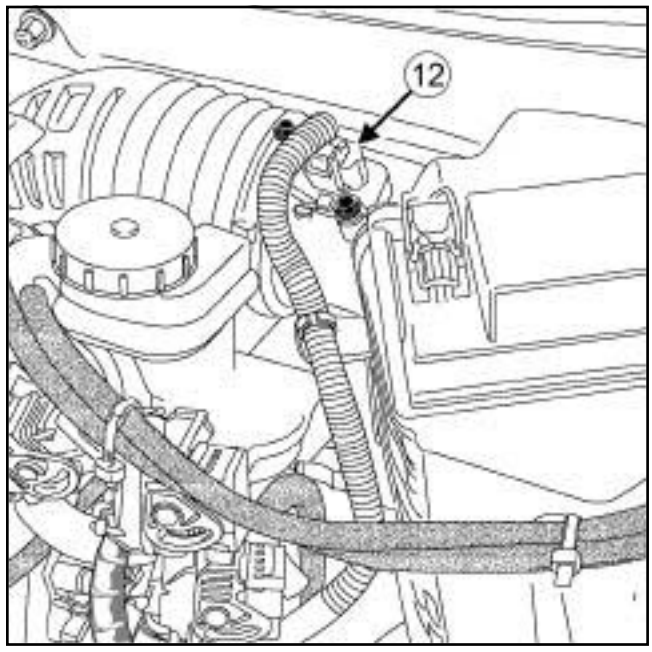
(**9**) Fuel temperature sensor




129455

(**10**) Fuel pressure regulator on the high pressure pump

(**11**) High-pressure pump




129456

(**12**) Airflow meter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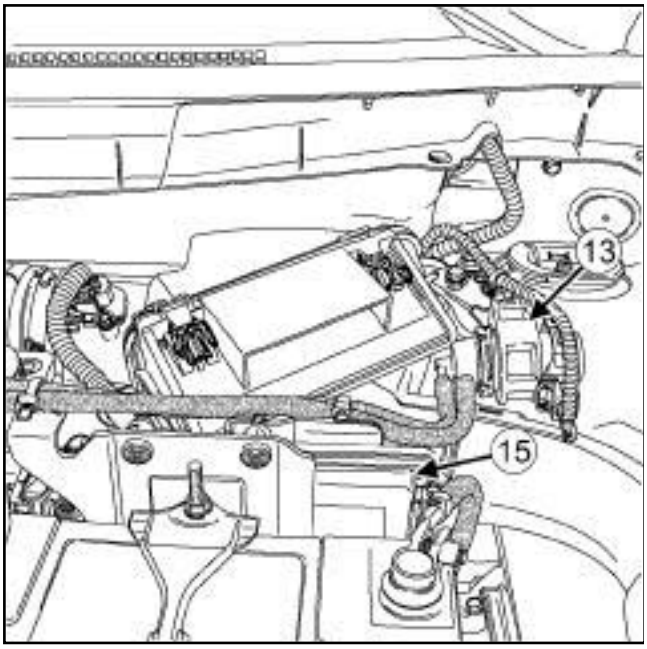
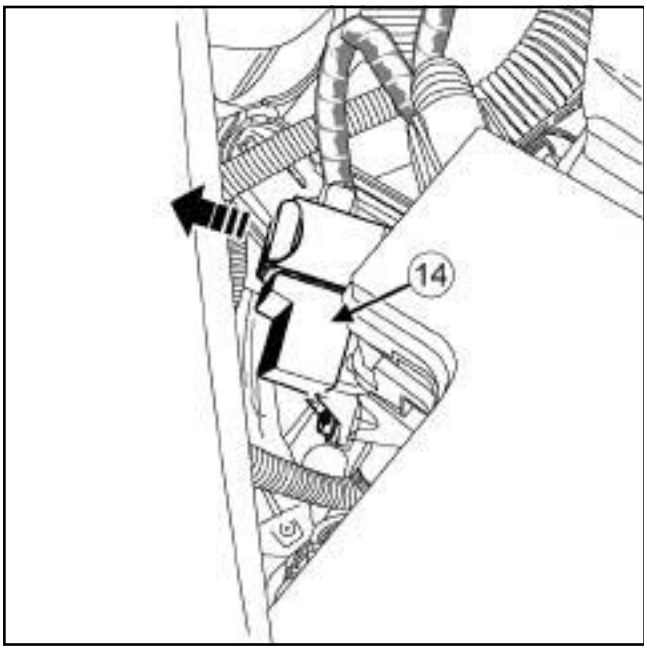



129339

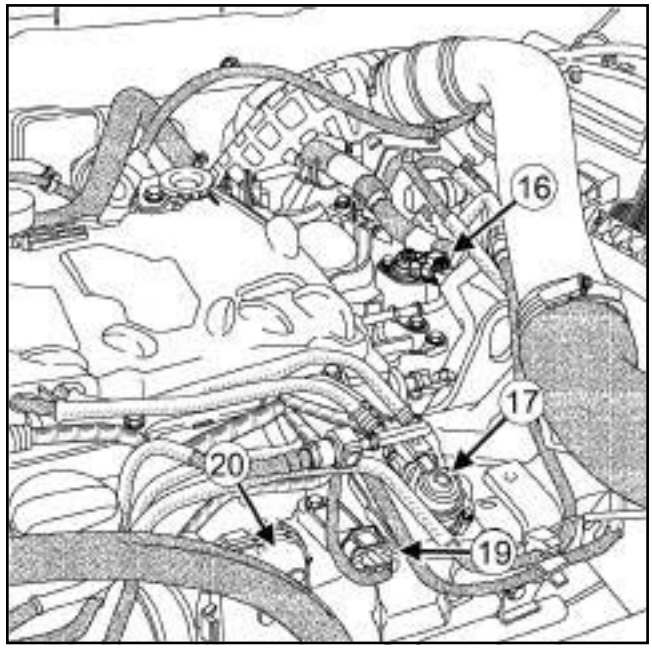
(**13**) Turbocharging pressure regulator control solenoid valve

(**15**) Diesel injection computer




129458

(**14**) Pre/postheating unit



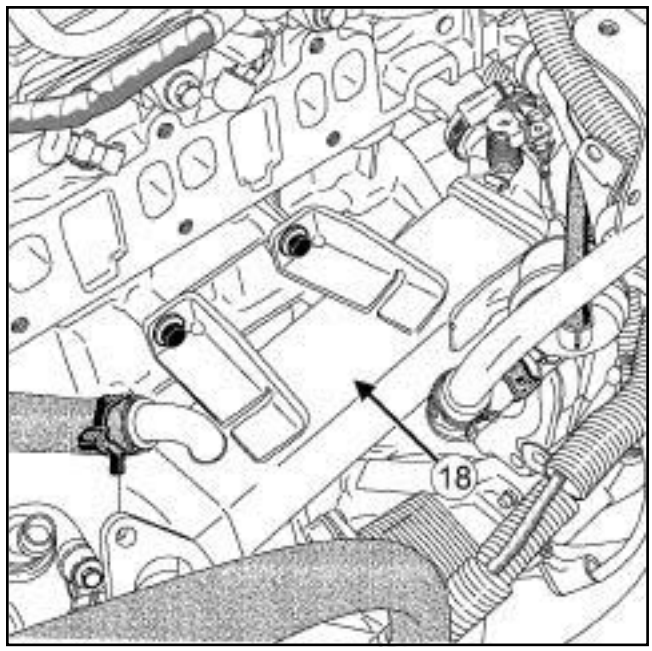

129459

(**16**) Camshaft position sensor

(**17**) Exhaust gas recirculation solenoid valve control

(**19**) Turbocharger pressure sensor

(**20**) Air inlet valve




129460

(**18**) Intercooler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| Essential equipment |
|---|
| diagnostic tool |

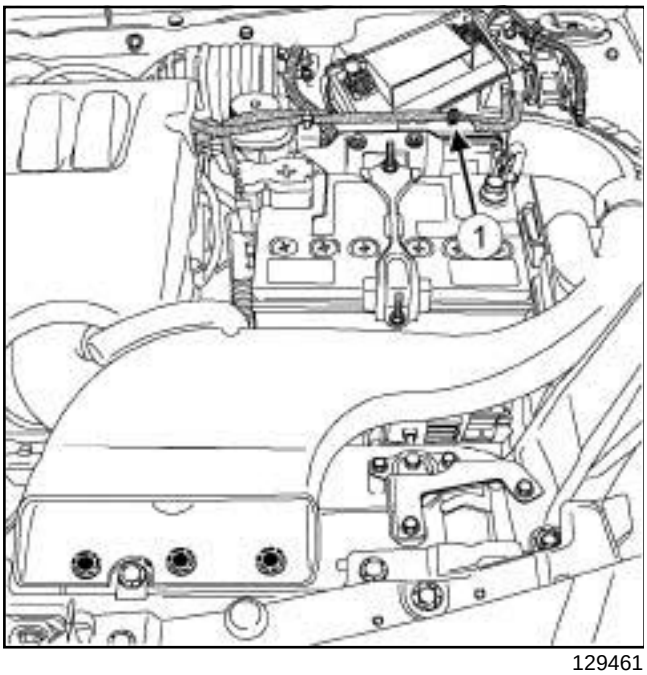
| Tightening torques ▽ | |
|---|---|
| diesel injection computer nuts | **12 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

## REMOVAL

### I - REFITTING PREPARATION OPERATION

❏ Before replacing the diesel injection computer, save the injection computer data using the **diagnostic tool** according to command scenario **SC003** (see **Fault finding - Replacement of components**) (13B, Diesel injection).



129461

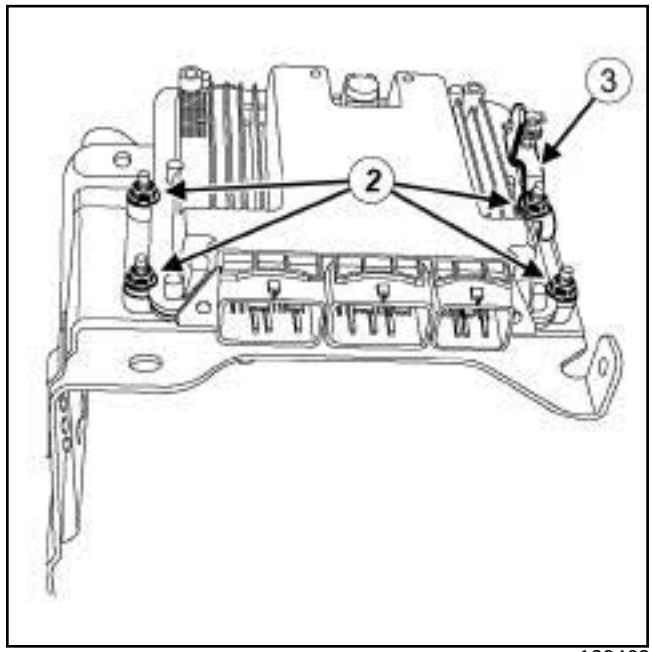
❏ Unclip the control pipe (**1**) of the turbocharger pressure regulator valve on the diesel injection computer.

❏ Remove the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Disconnect the injection computer connector.

❏ Remove the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129462

❏ Remove:

- the diesel injection computer nuts (**2**) ,
- the support (**3**) from the control pipe of the turbocharger pressure regulator valve on the diesel injection computer,
- the diesel injection computer.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the diesel injection computer,
- the support of the turbocharger pressure regulator valve control pipe on the diesel injection computer,
- the diesel injection computer nuts.

❏ Torque tighten the **diesel injection computer nuts (12 N.m)**.

### II - FINAL OPERATION.

❏ Refit the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).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M9R

- ❑ Connect the diesel injection computer connector.
- ❑ Refit the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❑ Clip the control pipe of the turbocharger pressure regulator valve on the support.
- ❑ Connect the **diagnostic tool**
- ❑ After replacing the diesel injection computer, save the injection computer data using the **diagnostic tool** according to command scenario **SC001** (see **Fault finding - Replacement of components**) (13B, Diesel injection).


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M9R

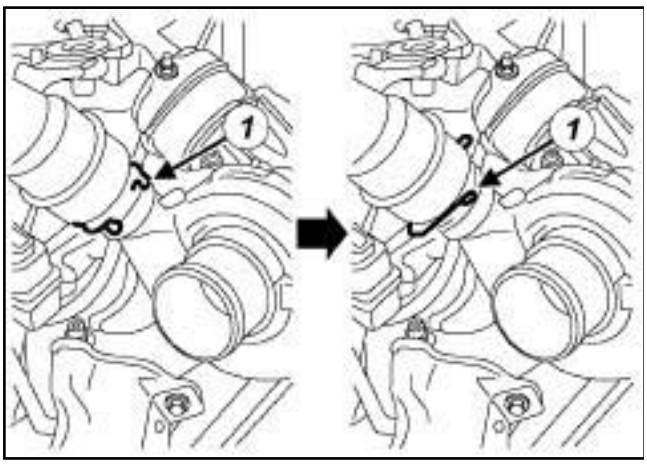
| Tightening torques ▽ | |
|---|---|
| camshaft position sensor bolt | **10 Nm** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

## REMOVAL

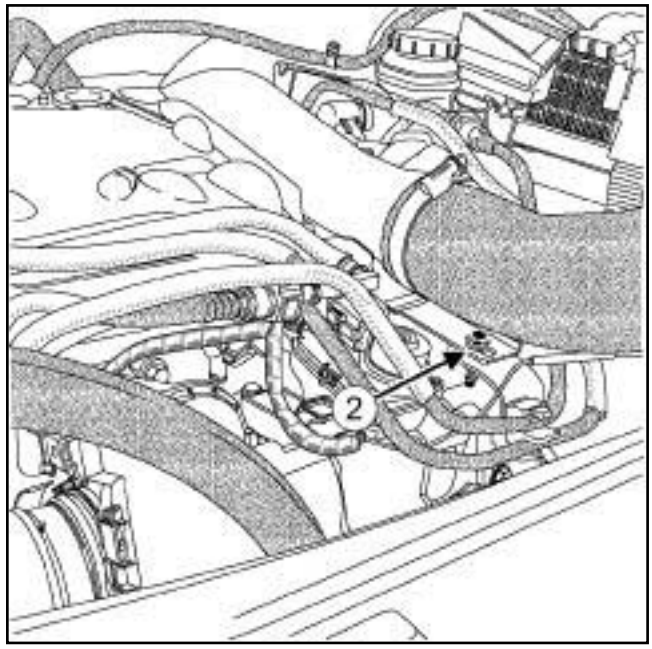
### I - REMOVAL PREPARATION OPERATION

❏ Remove the front engine cover.



129463

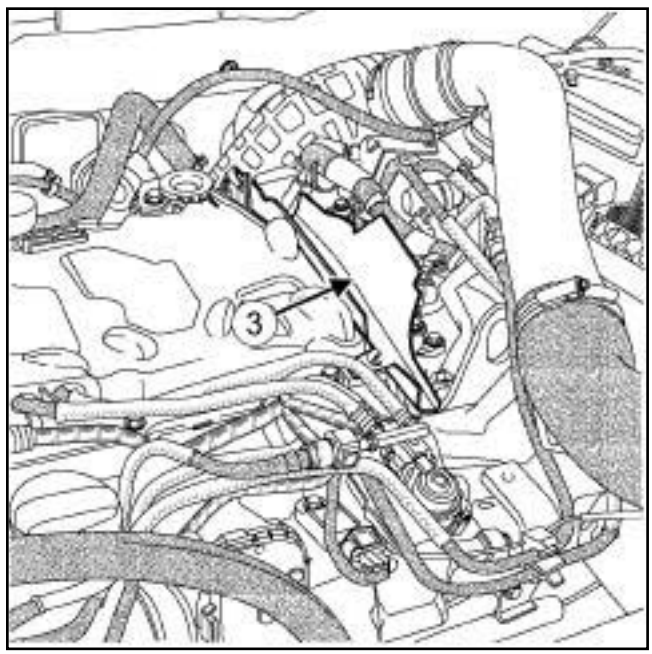
❏ Turn the clip (**1**) on the intercooler air inlet pipe.



129464

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❏ Move the intercooler air inlet pipe to one side.



129465

❏ Remove the protector plate (**3**) from the injector rail protector.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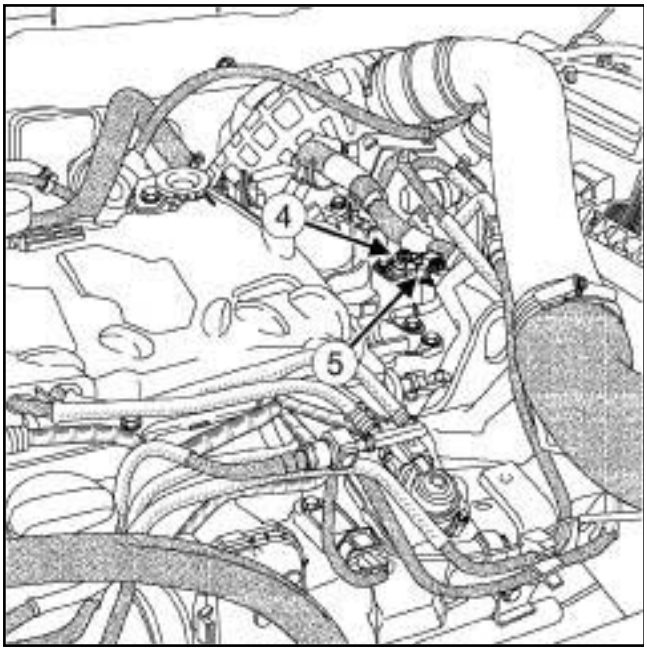
### II - OPERATION FOR REMOVAL OF PART CONCERNED



129466

❏ Disconnect the camshaft position sensor connector.

❏ Remove:

- the bolt (**4**) from the camshaft position sensor,
- the camshaft position sensor (**5**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seal of the intercooler air inlet pipe.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the new camshaft position sensor seal.

❏ Lubricate the camshaft position sensor seal with engine oil.

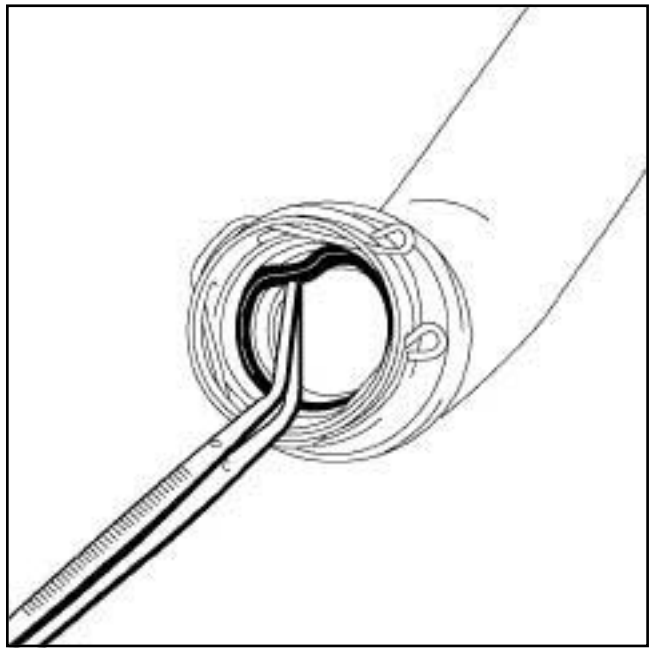
❏ Refit:

- the camshaft position sensor,
- the camshaft position sensor bolt.

❏ Tighten to torque the **camshaft position sensor bolt (10 Nm)**.

❏ Connect the camshaft position sensor connector.

### III - FINAL OPERATION


129467

❏ Remove the intercooler air inlet pipe seal using a .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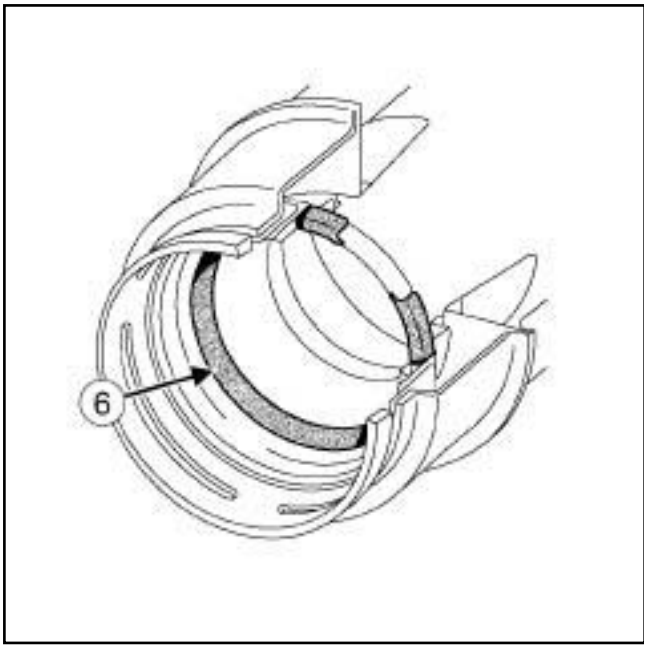


129468

❑

Note:

Check that the seal (**6**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit:

- the new intercooler air inlet pipe seal,
- the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit the engine cover.


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M9R

| Tightening torques ▽ | |
|---|---|
| crankshaft position sensor bolt | **10 N.m** |
| bolts of the diesel fuel drain pipe | **25 N.m** |
| catalytic converter support bracket bolts on the cylinder block | **50 N.m** |
| turbocharger cooling pipe bolts | **10 N.m** |
| transfer box mounting support bolts on the transfer | **48 N.m** |
| transfer box mounting support bolts on the cylinder block | **50 N.m** |
| turbocharger cooling pipe bolts | **10 N.m** |
| catalytic converter mounting support nut | **51 N.m** |
| catalytic converter | **mounting support bolts51 N.m** |
| catalytic converter heat shield bolts | **6 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

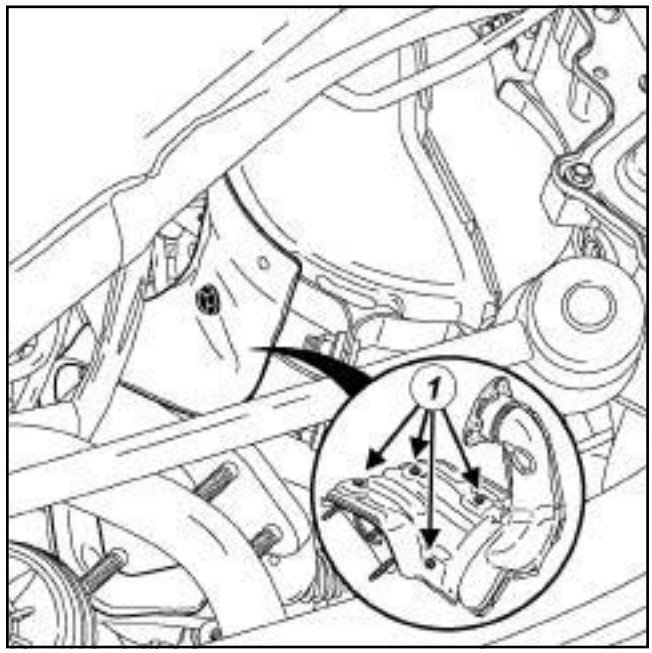
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) (19B, Cooling).



129469

❏ Remove:

- the catalytic converter heat shield bolts (**1**) ,
- the catalytic converter heat shield.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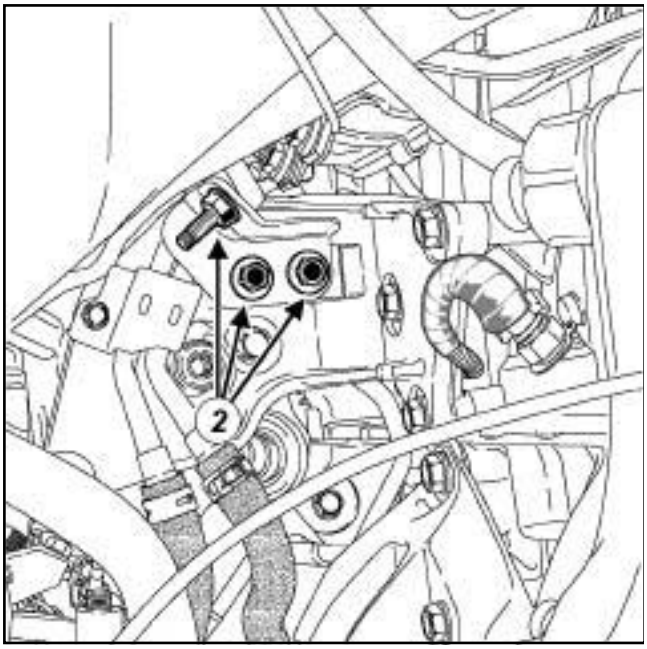
M9R

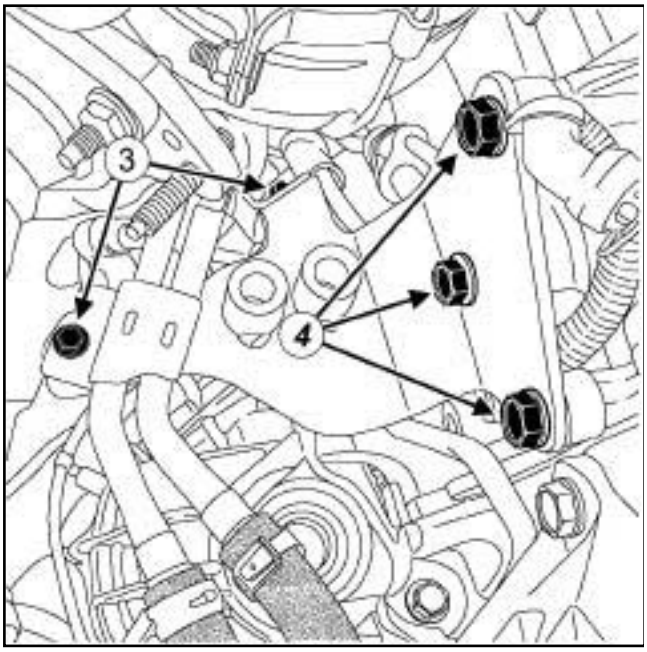



129470

❏ Remove:

- the nut and the bolts (**2**) of the catalytic converter mounting support,
- the catalytic converter mounting support.

4X2 TRANSMISSION




129471

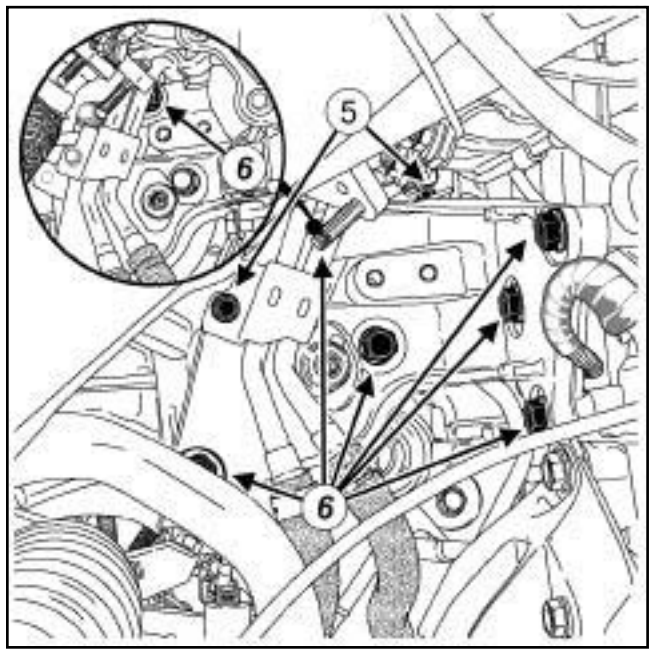
❏ Remove the bolts (**3**) from the turbocharger cooling pipe.

❏ Move aside the turbocharger cooling pipe.

❏ Remove:

- the bolts ***(4)*** from the mounting support of the catalytic converter,
- the catalytic converter mounting support.

4X4 TRANSMISSION




129472

❏ Remove the bolts (**5**) from the turbocharger cooling pipe.

❏ Move aside the turbocharger cooling pipe.

❏ Remove:

- the bolts (**6**) from the mounting support of the transfer box,
- the mounting support from the transfer box.



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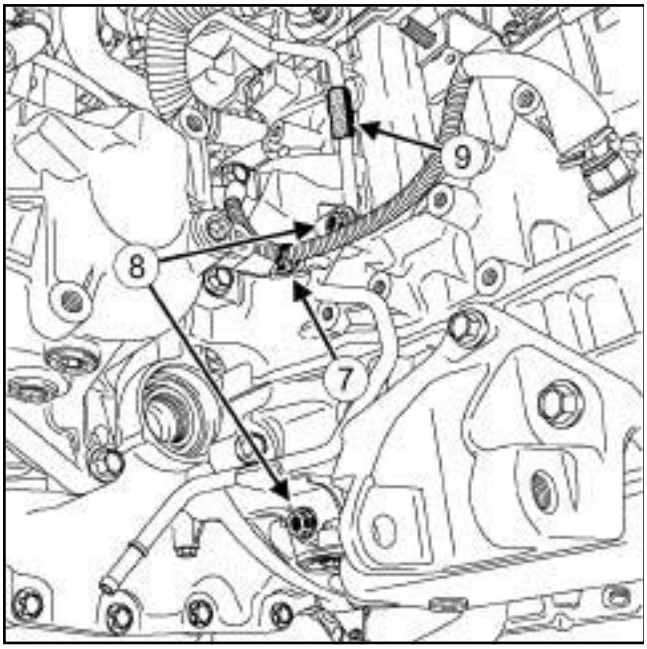


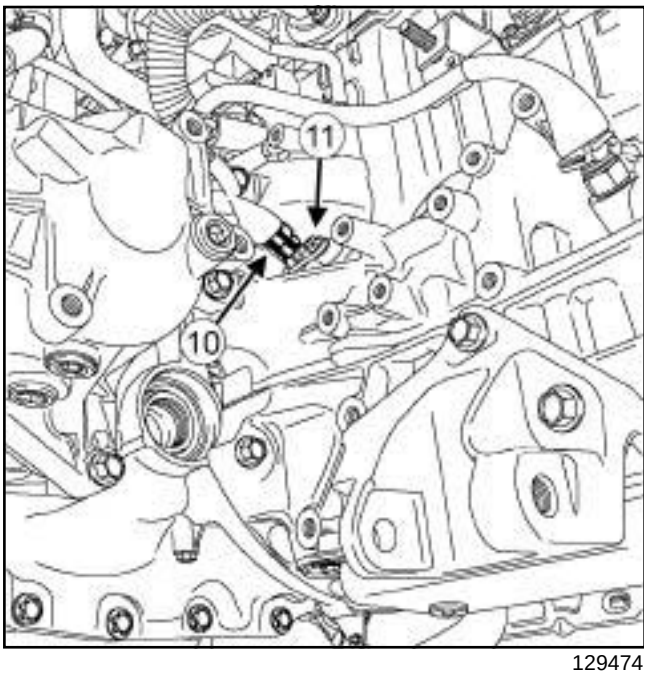
129473

❏ Unclip the wiring of the diesel fuel drain pipe at (**7**) .

❏ Remove the bolts (**8**) from the turbocharger cooling pipe.

❏ Disconnect the diesel fuel drain pipe from the rubber connecting part (**9**) of the diesel fuel drain pipe.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129474

❏ Move the crankshaft position sensor heat insulation to one side.

❏ Disconnect the connector ***(10)*** from the crankshaft position sensor.

❏ Remove:

- the bolt ***(11)*** from the crankshaft position sensor,
- the crankshaft position sensor.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace:

- the crankshaft sensor O-ring if the crankshaft position sensor is to be re-used,
- the seal between the catalytic converter and the particle filter,
- the seal between the particle filter and the silencer,
- the catalytic converter mounting support.

❏ Clean and degrease the bearing faces:

- on the catalytic converter,
- of the particle filter,
- of the silencer.

❏ Lubricate the O-ring of the crankshaft position sensor with engine oil.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the crankshaft position sensor.

❏ Position the crankshaft position sensor so it is pressing against the cylinder block.

❏ Refit the crankshaft position sensor bolt.

❏ Torque tighten the **crankshaft position sensor bolt (10 N.m)**.

❏ Connect the crankshaft position sensor connector.

❏ Fit the crankshaft position sensor heat insulation.

**III - FINAL OPERATION.**

❏ Connect the diesel fuel drain pipe to the rubber connecting part of the diesel fuel drain pipe.

❏ Refit the diesel fuel drain pipe bolts.

❏ Torque tighten the **bolts of the diesel fuel drain pipe (25 N.m)**.

❏ Clip on the wiring of the diesel fuel drain pipe.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M9R

4X2 TRANSMISSION

❑ Refit:

- the mounting support of the catalytic converter,
- the catalytic converter support bracket bolts.

❑ Torque tighten the **catalytic converter support bracket bolts on the cylinder block (50 N.m)**.

❑ Refit the turbocharger cooling pipe bolts.

❑ Torque tighten the **turbocharger cooling pipe bolts (10 N.m)**.

4X4 TRANSMISSION

❑ Refit:

- the mounting support of the transfer box,
- the mounting support bolts of the transfer box.

❑ Torque tighten:

- the **transfer box mounting support bolts on the transfer (48 N.m)**,
- the **transfer box mounting support bolts on the cylinder block (50 N.m)**.

❑ Refit the turbocharger cooling pipe bolts.

❑ Torque tighten the **turbocharger cooling pipe bolts (10 N.m)**.

❑ Refit:

- the mounting support of the catalytic converter,
- the catalytic converter mounting support nut,
- the catalytic converter mounting support bolts.

❑ Torque tighten:

- the **catalytic converter mounting support nut (51 N.m)**,
- the **catalytic converter (mounting support bolts51 N.m)**.

❑ Refit:

- the catalytic converter heat shield,
- the catalytic converter heat shield bolts.

❑ Torque tighten the **catalytic converter heat shield bolts (6 N.m)**.

❑ Refit:

- the seal between the catalytic converter and the particle filter,
- the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) (19B, Cooling),
- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1906** | High pressure pump pinion locking tool |

| Tightening torques ▽ | |
|---|---|
| high pressure pump pinion nut | **90 N.m** |
| high pressure pump bolts (initial torque) | **5 N.m** |
| high pressure pump bolts | **25 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

**WARNING**
Dismantling the interior of the high pressure pump and the injectors is prohibited.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the engine cover,

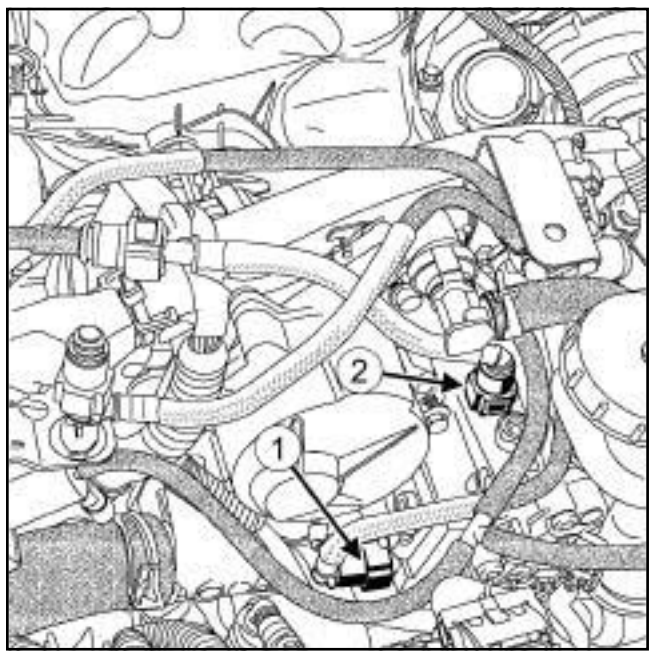
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),

- the battery tray (see **Battery tray: Removal - Refitting**) ,

- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the high pressure pipe between the pump and the rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) .



129475

❑ Remove:

- the quick-release union (**1**) from the high pressure pump supply pipe,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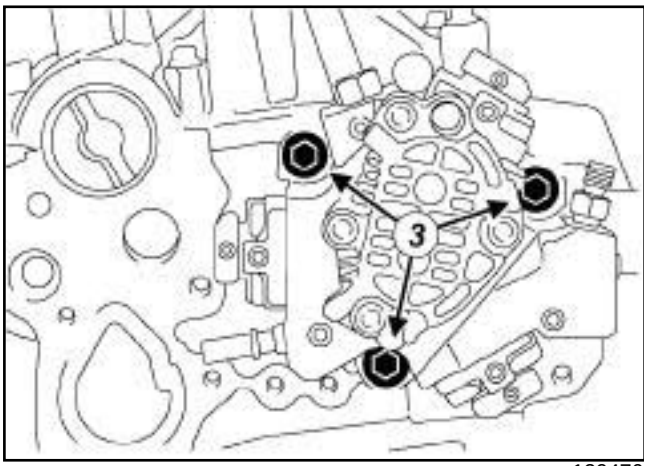
- the quick-release union (**2**) from the high pressure pump return pipe.

❏ Insert the blanking plugs.

❏ Disconnect the high pressure pump pressure regulator connector.



129476

❏ Remove:

- the high pressure pump bolts (**3**) ,
- the high pressure pump.

## REFITTING

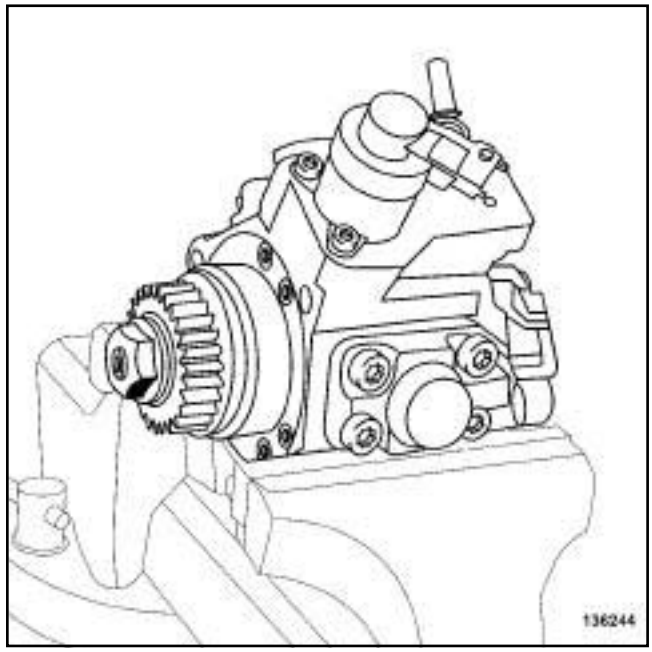
### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the high pressure pump O-ring,
- the high pressure pump bolts,
- the high pressure pipe between the high pressure pump and the injector rail,
- the intercooler air inlet pipe seal.

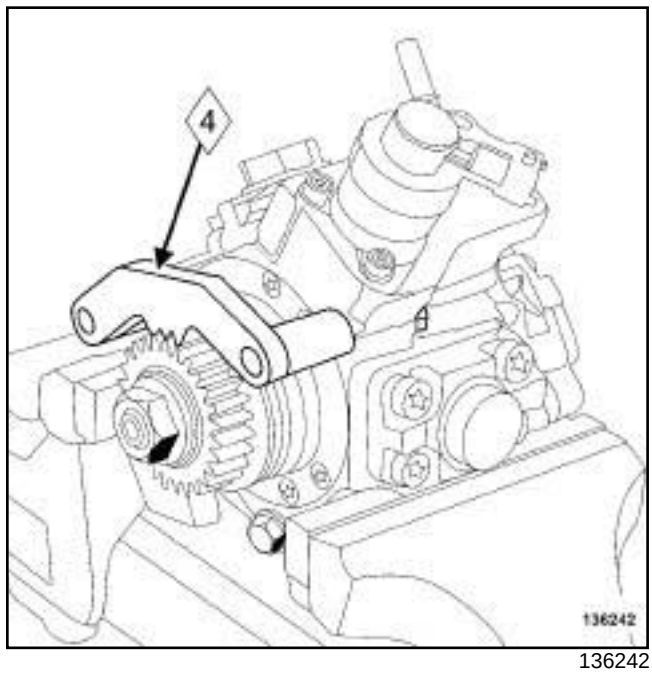
❏ Lubricate the new O-ring using engine oil.

**If replacing the high pressure pump**



136244

❏ Secure the high pressure pump pinion in a vice's protective jaws.



136242

❏ Fit the **(Mot. 1906)** (**4**) on the high pressure pump pinion.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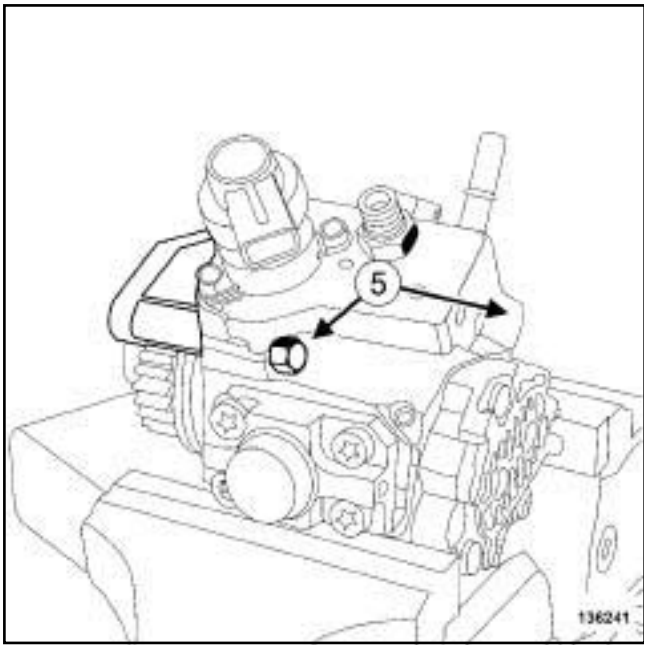
M9R

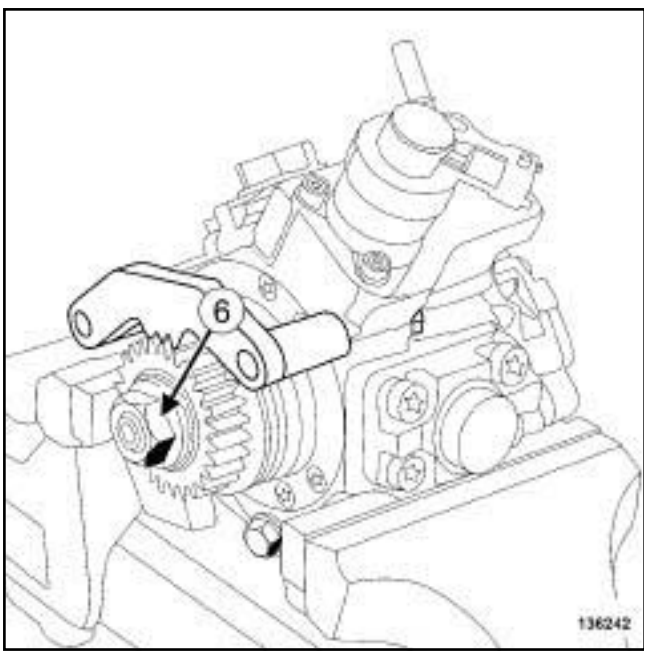



136241

❏ Fit:

- the washers of the **(Mot. 1906)** on the high pressure pump,
- the nuts (**5**) of the **(Mot. 1906)** on the high pressure pump.

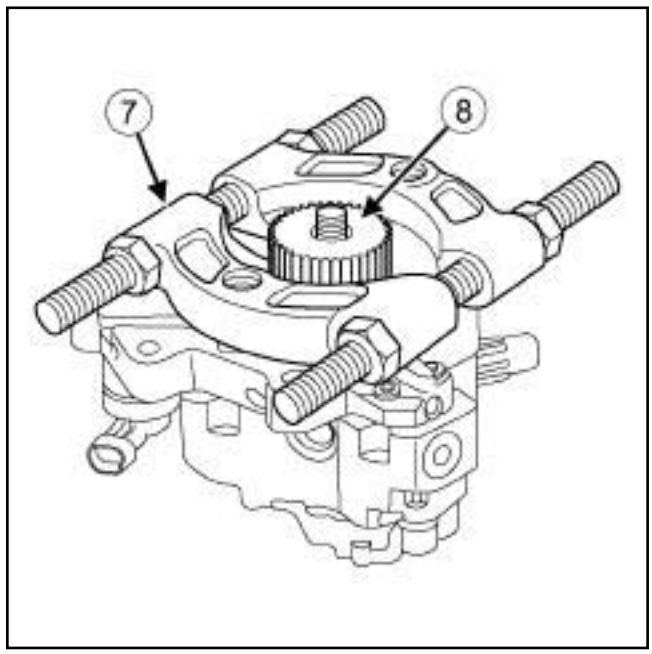
❏ Tighten the nuts (**5**) on the high pressure pump.




136242

❏ Remove:

- the high pressure pump pinion nut (**6**) ,
- the nuts of the **(Mot. 1906)** from the high pressure pump,
- the washers of the **(Mot. 1906)** from the high pressure pump,
- the **(Mot. 1906)**.




❏ Fit a separator (**7**) under the high pressure pump pinion (**8**) .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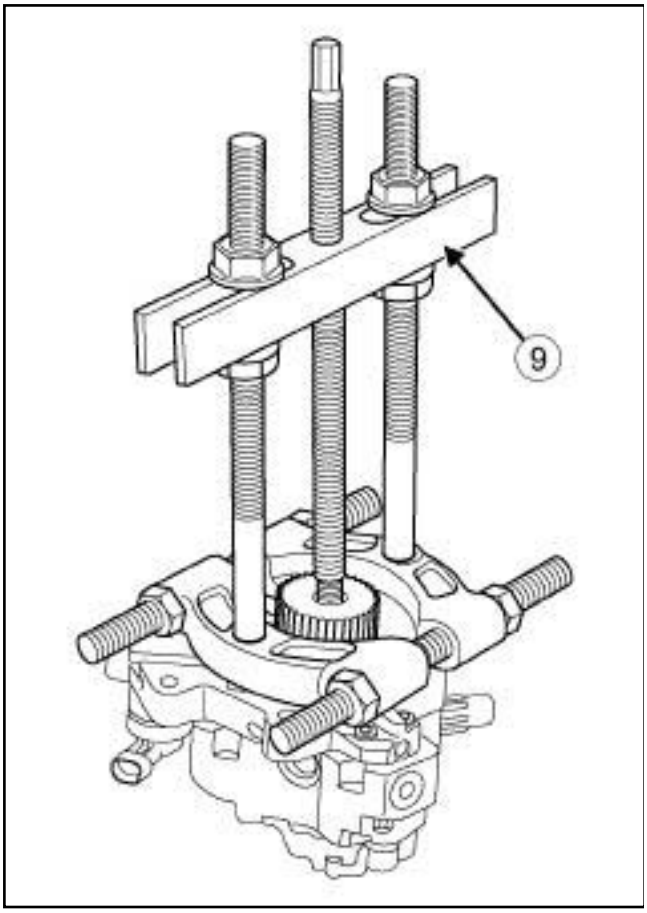



129478

❑ Fit an arm (**9**) on the separator.

❑ Remove:

- the high pressure pump pinion,
- the separator and the arm.

❑ Refit:

- the pinion to the new high pressure pump,
- the high pressure pump nut,

❑ Put the high pressure pump in a vice with jaws.

❑ Fit:

- the **(Mot. 1906)**,
- the washers of the **(Mot. 1906)** on the high pressure pump,
- the nuts of the **(Mot. 1906)** on the high pressure pump.

❑ Tighten the nuts on the high pressure pump.

❑ Torque tighten the **high pressure pump pinion nut (90 N.m)**.

❑ Remove:

- the nuts of the **(Mot. 1906)** from the high pressure pump,
- the washers of the **(Mot. 1906)** from the high pressure pump,
- the **(Mot. 1906)**.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑

**WARNING**
Do not remove the blanking plugs from each component until the last moment.

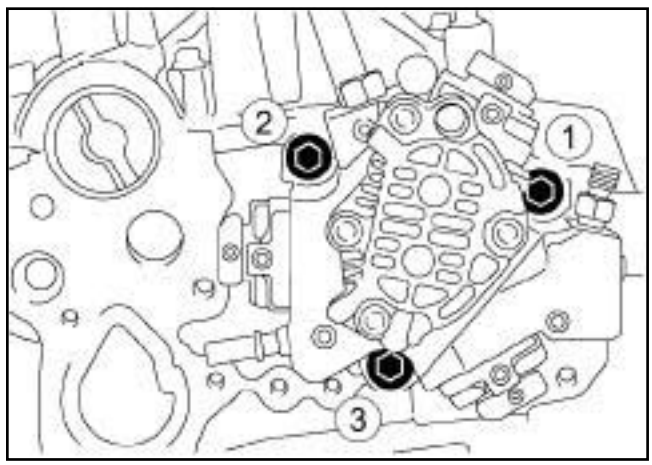
Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

Note:

Do not apply pressure to the high pressure pump pinion teeth.

Check that the high pressure pump is in contact with the cylinder head before positioning the bolts.

❑ Refit the high pressure pump.




129479

❑ Refit the high pressure pump bolts.

❑ Torque tighten the **high pressure pump bolts (initial torque) (5 N.m)**.

❑ Torque tighten the **high pressure pump bolts (25 N.m)**.

❑ Remove the blanking plugs.

❑ Refit the high pressure pipe between the pump and the injector rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) .

❑ Connect the fuel pressure regulator connector.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❑ Connect:

- the high pressure pump return pipe quick-release union,
- the high pressure pump supply pipe quick-release union.

**III - FINAL OPERATION**

❑ Fit the wiring.

❑ Refit:

- the seal of the intercooler air inlet pipe temporarily,
- the battery tray (see **Battery tray: Removal - Refitting**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

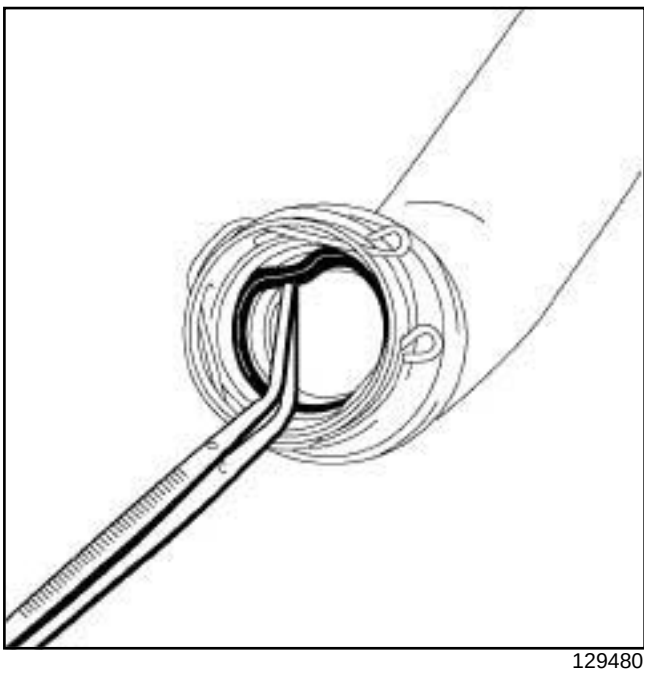
❑ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❑ Check for leaks.

❑ Disconnect the intercooler air inlet pipe.

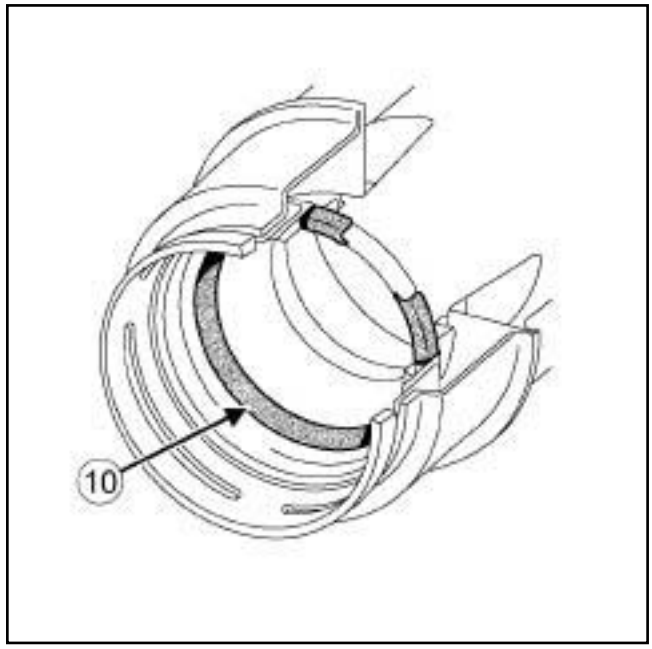
❑ Move the intercooler air inlet pipe to one side.

❑ Refit the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129480

❑ Remove the intercooler air inlet pipe seal using a .




129481

❑

Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

❑ Refit:

- the new seal (**10**) of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit the engine cover.



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**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - FUEL PRESSURE REGULATOR ON THE INJECTOR RAIL

❑

**WARNING**

Once the warranty period for the injector rail has expired, only the pressure sensor can be replaced.

During the injector rail warranty period, the injector rail should be completely replaced if the pressure sensor fails.

#### 1 - REMOVAL PREPARATION OPERATION

❑ Remove the injector rail (see **13B**, **Diesel injection**, **Injector rail: Removal - Refitting**, page **13B-50**) .

#### 2 - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the pressure regulator from the injector rail.

### II - FUEL PRESSURE REGULATOR ON THE HIGH PRESSURE PUMP

❑

**WARNING**

Once the warranty period for the high pressure pump has expired, only the pressure regulator can be replaced separately.

Whilst the warranty period for the high pressure pump is still running, the high pressure pump should be replaced as a whole if the pressure regulator displays a fault.

#### 1 - REMOVAL PREPARATION OPERATION

❑ Remove the high pressure pump (see **13B**, **Diesel injection**, **High pressure pump: Removal - Refitting**, page **13B-20**) .

#### 2 - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the high pressure pump pressure regulator.

## REFITTING

### I - FUEL PRESSURE REGULATOR ON THE INJECTOR RAIL

#### 1 - OPERATION FOR REFITTING PART CONCERNED

❑ Refit the pressure regulator on the injector rail.

#### 2 - FINAL OPERATION

❑ Refit the injector rail (see **13B**, **Diesel injection**, **Injector rail: Removal - Refitting**, page **13B-50**) .



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## II - FUEL PRESSURE REGULATOR ON THE HIGH PRESSURE PUMP

### 1 - OPERATION FOR REFITTING PART CONCERNED

❑ Refit the pressure regulator on the high pressure pump.

### 2 - FINAL OPERATION

❑ Refit the high pressure pump (see **13B**, **Diesel injection**, **High pressure pump: Removal - Refitting**, page **13B-20**) .


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| Tightening torques ▽ | |
|---|---|
| fuel filter protector bolt | **10 N.m** |
| fuel filter protector nuts | **25 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

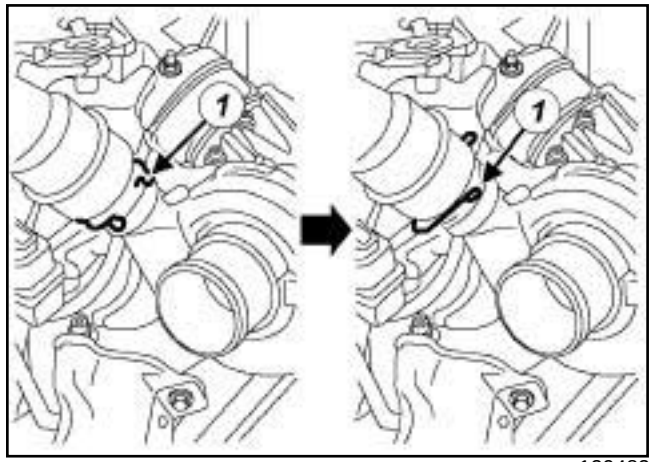
**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

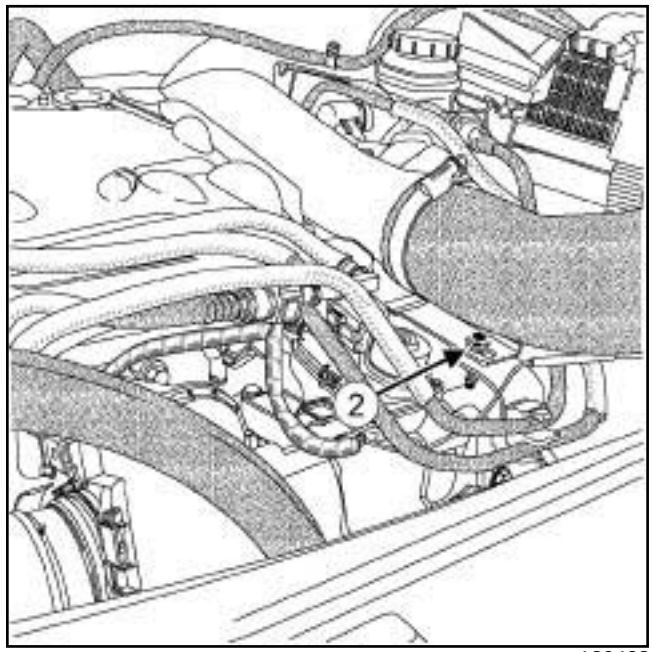
### I - REMOVAL PREPARATION OPERATION

❑ Remove the front engine cover.




129482

❑ Rotate the clip (**1**) of the intercooler air inlet pipe on the turbocharger.




129483

❑ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❑ Move aside the intercooler air inlet pipe.



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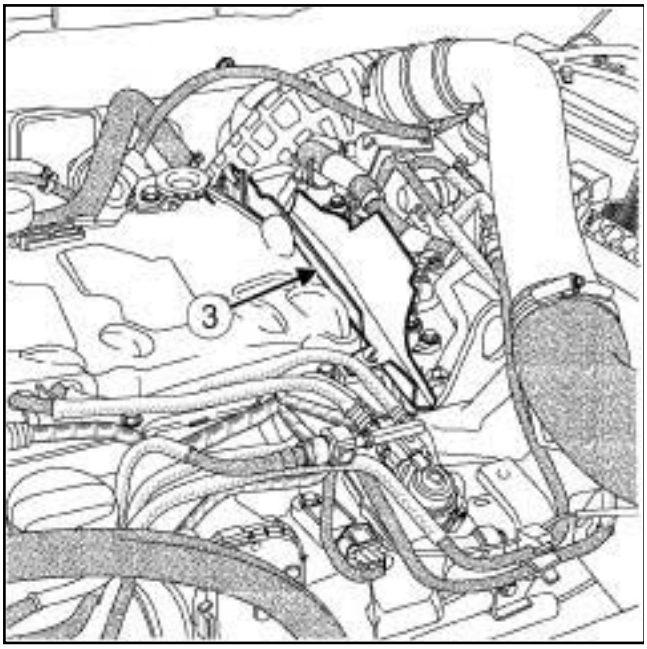
M9R

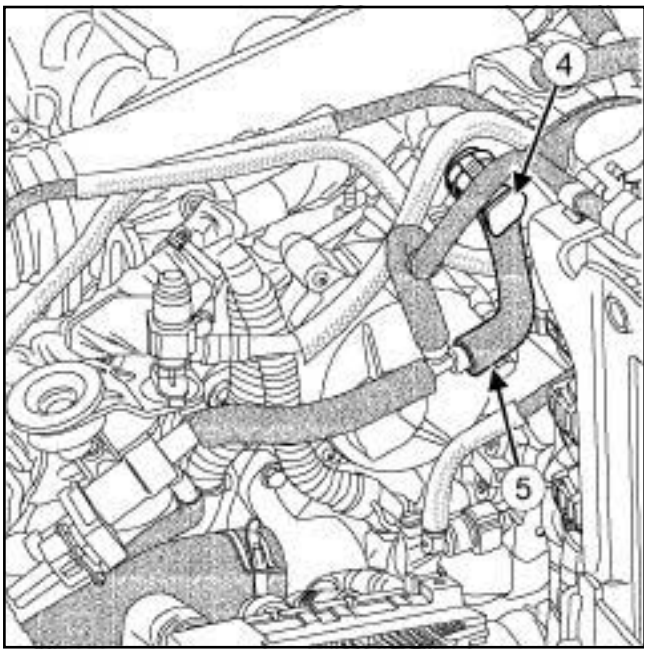



129484

❑ Remove the protector plate (**3**) from the injector rail protector.

❑ Remove:

- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .




129485

❑ Disconnect:

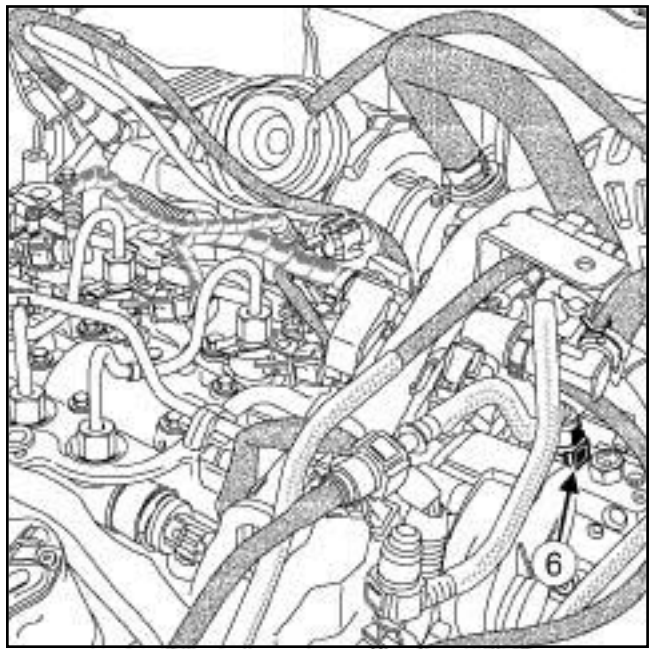
- the brake servo pipe (**4**) of the non-return valve,
- the vacuum pipe (**5**) of the non-return valve.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❑

Note:

During this operation, mark the routing of the diesel return pipe before removing it.




129486

❑ Disconnect the quick-release union (**6**) from the diesel return pipe on the high pressure pump.

❑ Insert the blanking plugs.



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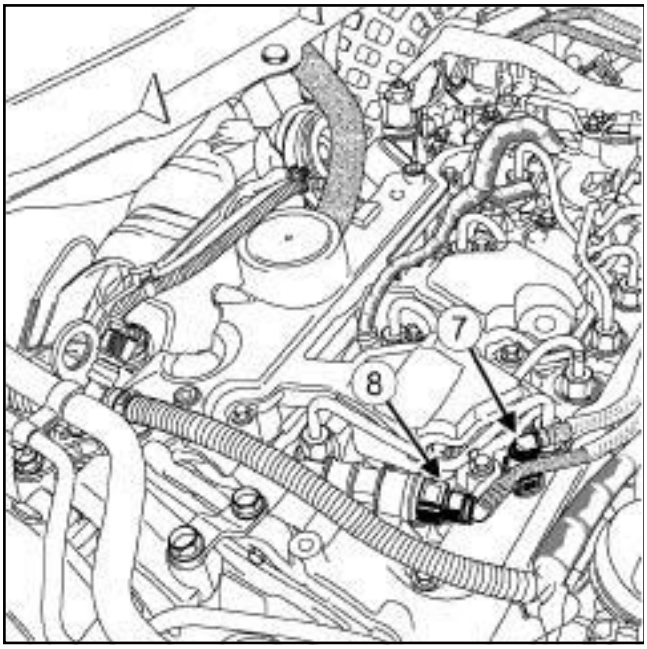
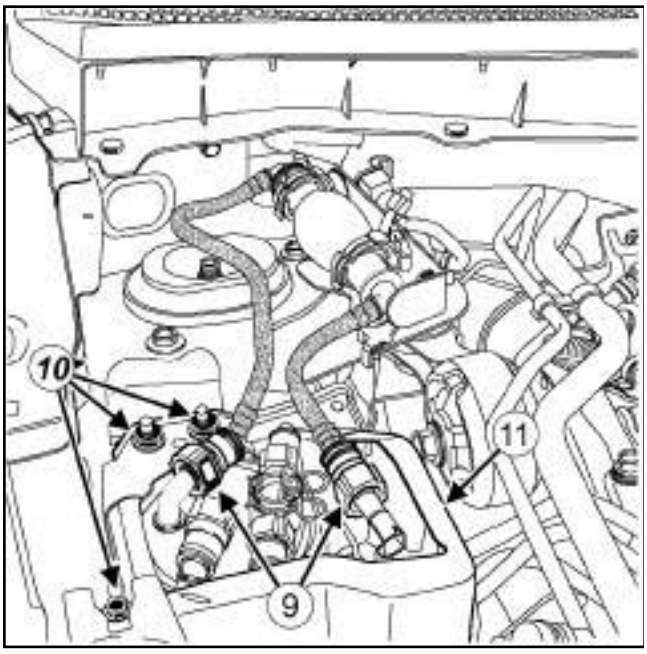


129487

❏ Disconnect:

- the diesel return pipe quick-release union (**7**) on the injector rail,
- the diesel return pipe quick-release union (**8**) from the diesel injector fuel rail.

❏ Insert the blanking plugs.



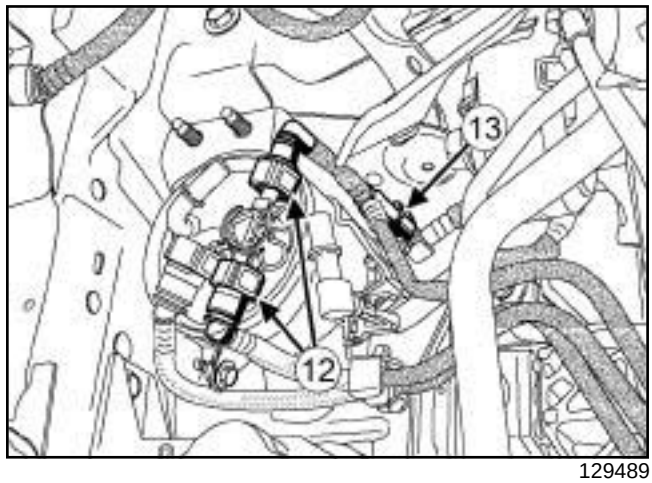
129488

❏ Disconnect the quick-release unions (**9**) from the manual priming pump.

❏ Insert the blanking plugs.

❏ Remove:

- the nuts and the bolt ***(10)*** from the fuel filter protector,
- the fuel filter protector ***(11)*** .



129489

❏ Remove:

- the fuel return quick-release unions (**12**) from the fuel filter,
- the fuel return quick-release union (**13**) from the fuel pipe to the tank.

❏ Insert the blanking plugs.

❏ Unclip the diesel return pipe from the mounting clips.

❏ Remove the diesel return pipe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seal of the intercooler air inlet pipe.

**WARNING**
Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❏

Note:

During this operation it is essential to correctly position the diesel return pipe.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M9R

❏ Fit the fuel return pipe.

❏ Remove the blanking plugs.

❏ Connect the fuel return quick-release unions:

- to the high pressure pump,
- to the injector rail,
- to the diesel injector fuel return rail,
- to the fuel pipe going to the tank,
- to the fuel filter.

❏ Unclip the diesel return pipe from the mounting clips.

❏ Refit:

- the fuel filter protector.
- the fuel filter protector nuts,
- the fuel filter protector bolt,

❏ Torque tighten:

- the **fuel filter protector bolt (10 N.m)**,
- the **fuel filter protector nuts (25 N.m)**.

❏ Connect the quick-release unions of the manual priming pump.

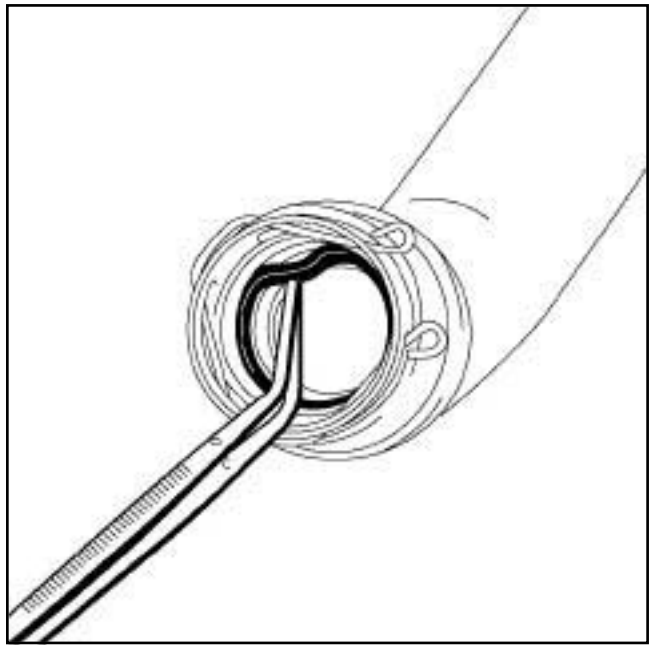
**III - FINAL OPERATION.**

❏ Connect:

- the vacuum pipe to the non-return valve,
- the brake servo pipe to the non-return valve.

❏ Refit:

- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129490

❏ Remove the intercooler air inlet pipe seal using a .



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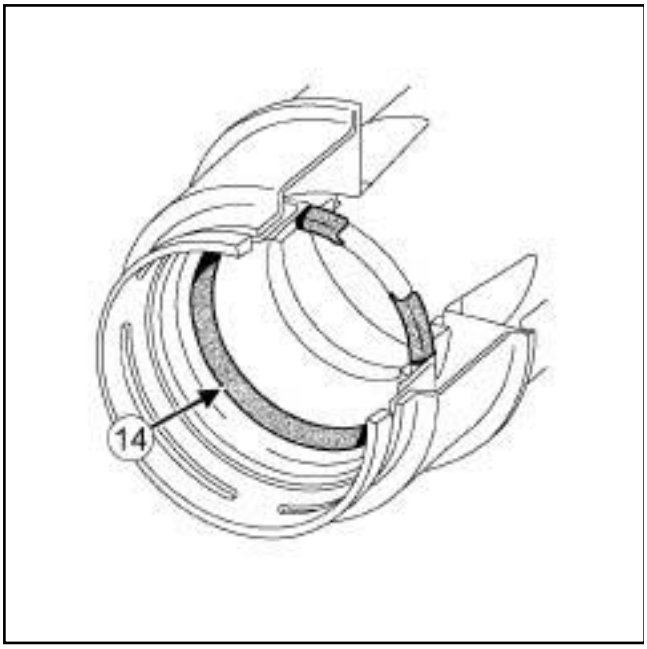


129491

❑

Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

❑ Refit:

- the new seal (**14**) of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe on the turbocharger.

❑ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❑ Refit the engine cover.


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M9R

| Tightening torques ▽ | |
|---|---|
| diesel injector fuel return rail bolt on the rocker cover | **10 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

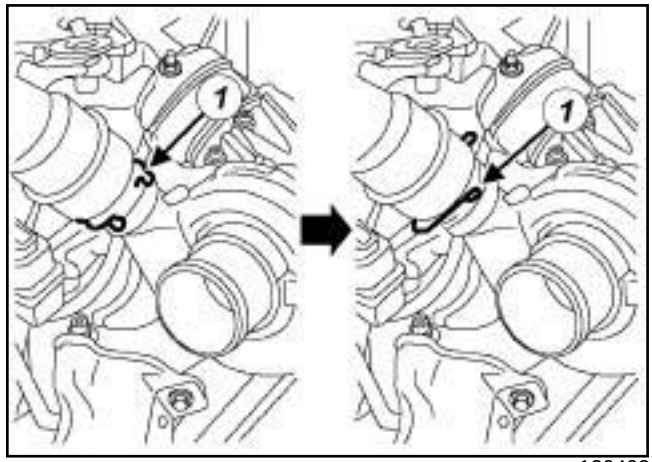
**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

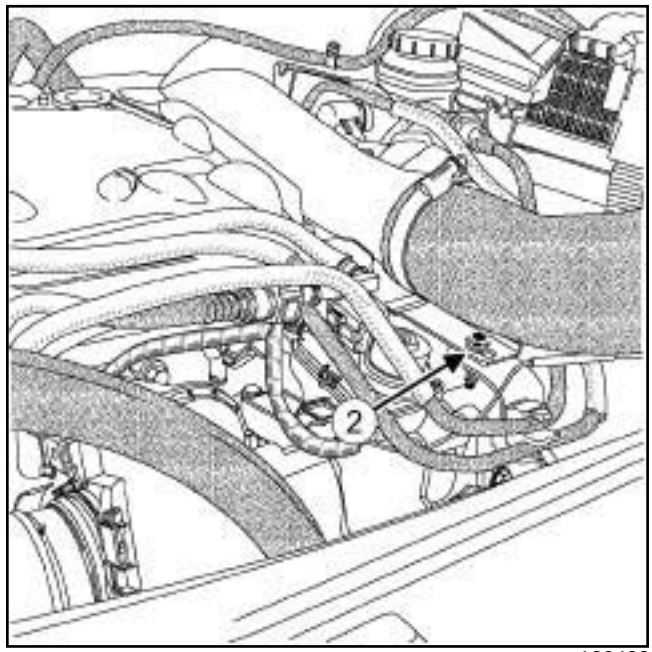
### I - REMOVAL PREPARATION OPERATION

❑ Remove the front engine cover.




129492

❑ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.




129493

❑ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❑ Move the intercooler air inlet pipe to one side.



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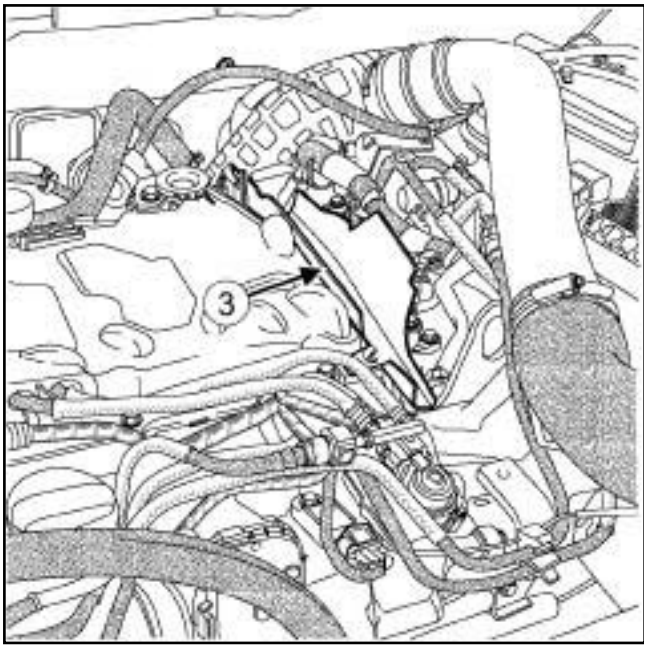
M9R



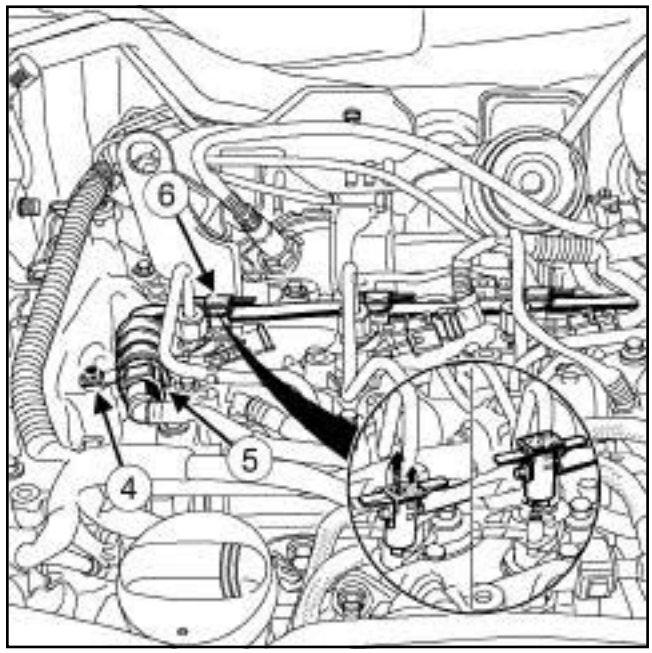

129494

❑ Remove the protector plate (**3**) from the injector rail protector.

❑ Remove:

- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129495

❑ Remove the diesel injector fuel return rail bolt (**4**) from the rocker cover.

Note:

Do not allow any diesel fuel to enter the engine via the rocker cover opening during this operation.

❑ Disconnect the quick-release union ***(5)*** , located on the diesel injector fuel return rail, from the diesel return pipe.

❑ Raise the mobile section ***(6)*** of the injector union on the diesel injector fuel return rail.

❑ Remove:

- the diesel injector fuel return rail,
- the seal between the diesel injector and the diesel injector fuel return rail, from each injector.

❑ Insert the blanking plugs.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M9R

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the seal between the diesel injector and the diesel injector fuel return rail,
- the intercooler air inlet pipe seal.

**WARNING**
Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Remove the blanking plugs from the inlet and outlet unions of the fuel filter.

❑ Refit:

- the seal between the diesel injector and the diesel injector fuel return rail, from each injector,
- the diesel injector fuel return rail.

❑ Clip on the diesel injector fuel return rail unions.

❑ Connect the diesel injector fuel return rail unions.

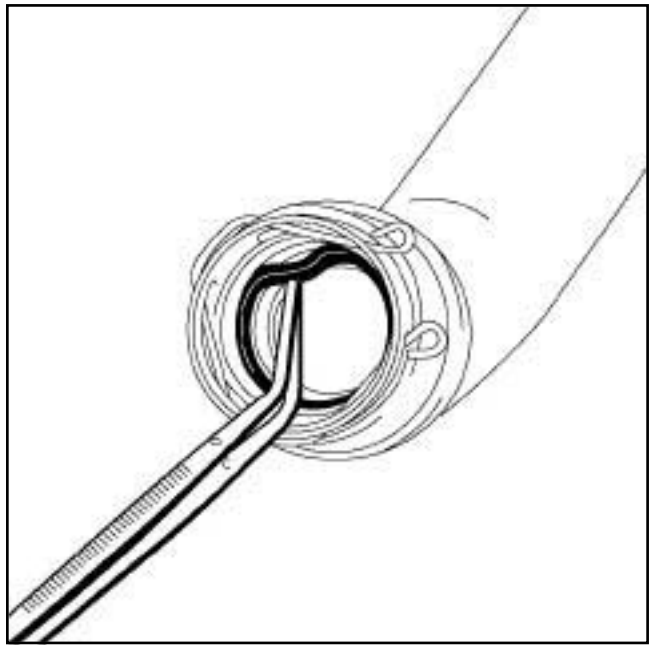
❑ Refit the diesel injector fuel return rail bolt on the rocker cover.

❑ Torque tighten the **diesel injector fuel return rail bolt on the rocker cover (10 N.m)**.

### III - FINAL OPERATION

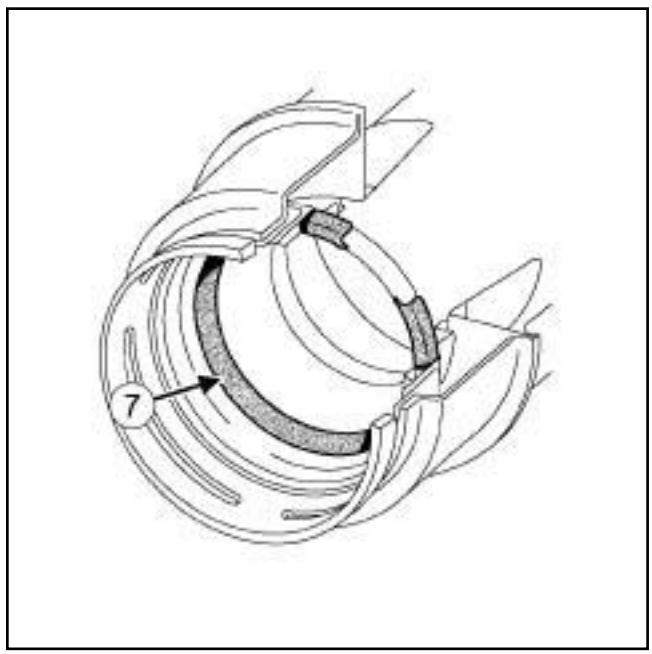
❑ Refit:

- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129496

❑ Remove the intercooler air inlet pipe seal using a .




129497

❑

Note:
Check that the seal (**7**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.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- ❏ Turn the intercooler air inlet pipe to refit the clip in its housing.
- ❏ Clip the intercooler air inlet pipe onto the turbocharger.
- ❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.
- ❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.
- ❏ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .
- ❏ Refit the engine cover.


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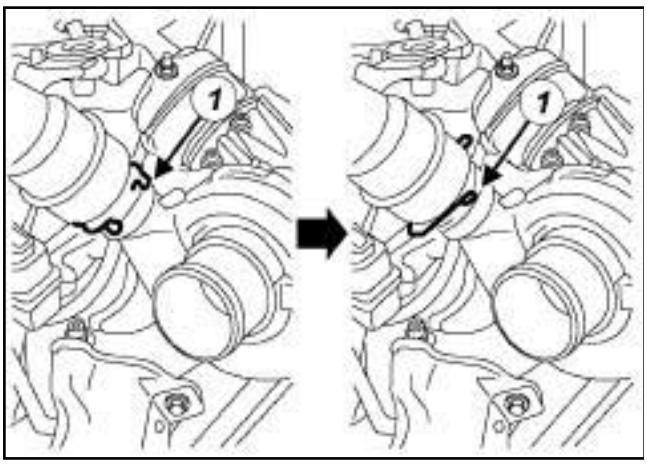
| Tightening torques ▽ | |
|---|---|
| injector rail protector bolts | **8 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

## REMOVAL

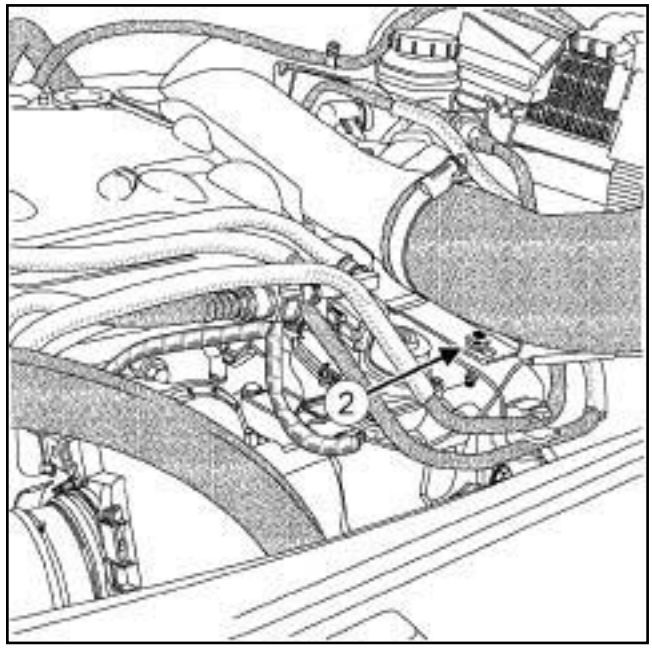
### I - REMOVAL PREPARATION OPERATION

❏ Remove the front engine cover.



129498

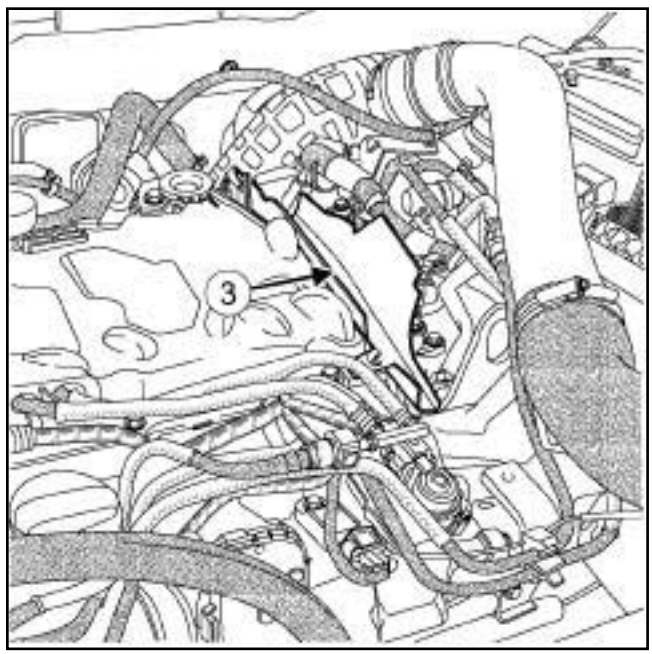
❏ Rotate the clip (**1**) of the intercooler air inlet pipe on the turbocharger.



129499

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❏ Move aside the intercooler air inlet pipe.



129500

❏ Remove the protector plate (**3**) from the injector rail protector.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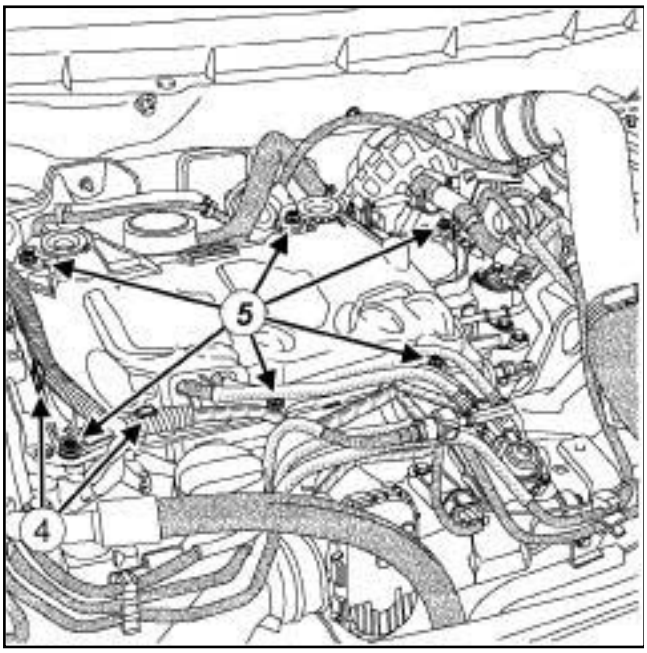
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129501

❏ Unclip the electrical wiring from the injector rail protector at (**4**) .

❏ Remove:

- the bolts (**5**) from the injector rail protector,
- the injector rail protector.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace the seal of the intercooler air inlet pipe.

**II - REFITTING OPERATION FOR PART CONCERNED**

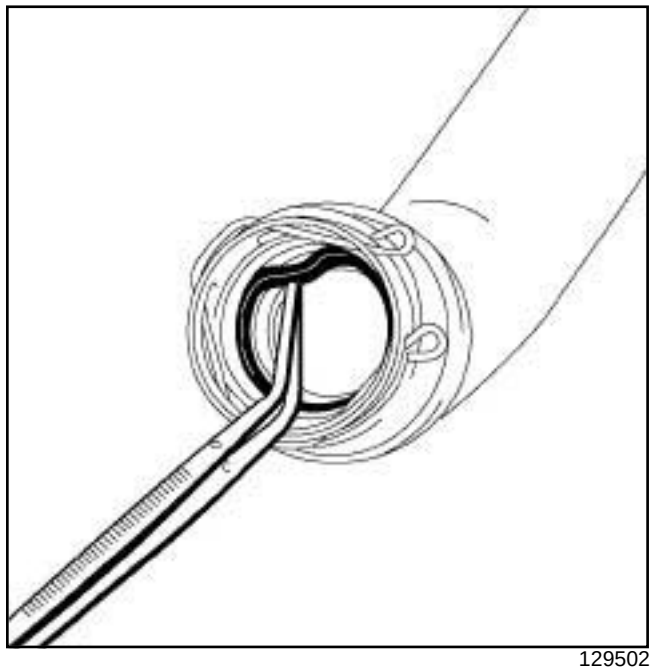
❏ Refit:

- the injector rail protector,
- the injector rail protector bolts.

❏ Torque tighten the **injector rail protector bolts (8 N.m)**.

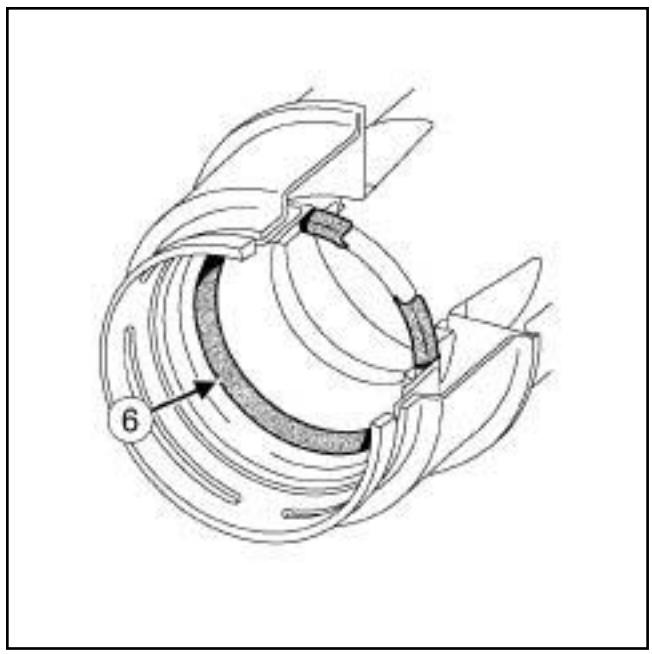
❏ Clip the electrical wiring onto the injector rail protector.

**III - FINAL OPERATION.**



129502

❏ Remove the intercooler air inlet pipe seal using a .




129503

❏

Note:

Check that the seal (**6**) on the intercooler air inlet pipe is fitted the correct way round.

❏ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.



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- ❏ Turn the intercooler air inlet pipe to refit the clip in its housing.
- ❏ Clip the intercooler air inlet pipe onto the turbocharger.
- ❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.
- ❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.
- ❏ Refit the engine cover.


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# High-pressure pipe between the pump and rail: Removal - Refitting

M9R

| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| high pressure pipe nut on the high pressure pump | **32 N.m** |
| high pressure pipe nut on the injector rail | **32 N.m** |
| high pressure pipe bolts between the high pressure pump and the injector rail | **10 N.m** |
| air filter unit air outlet pipe clips | **5 N.m** |
| wiring channel bolt | **8 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

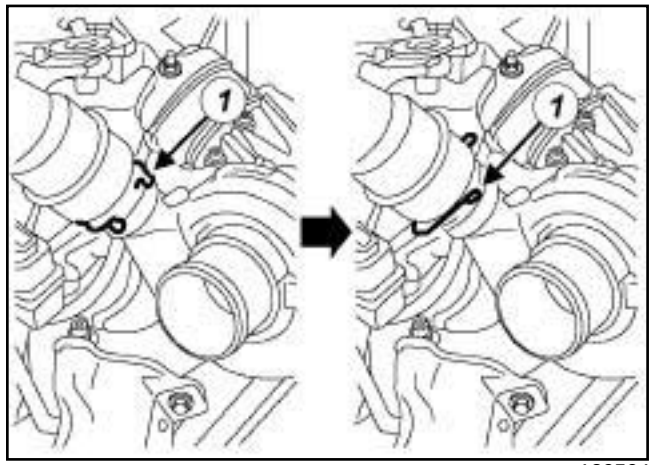
❑ Remove:

- the engine cover,

- the clips from the air intake sleeve,

- the air intake sleeve from the air filter unit.

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).




129504

❑ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.



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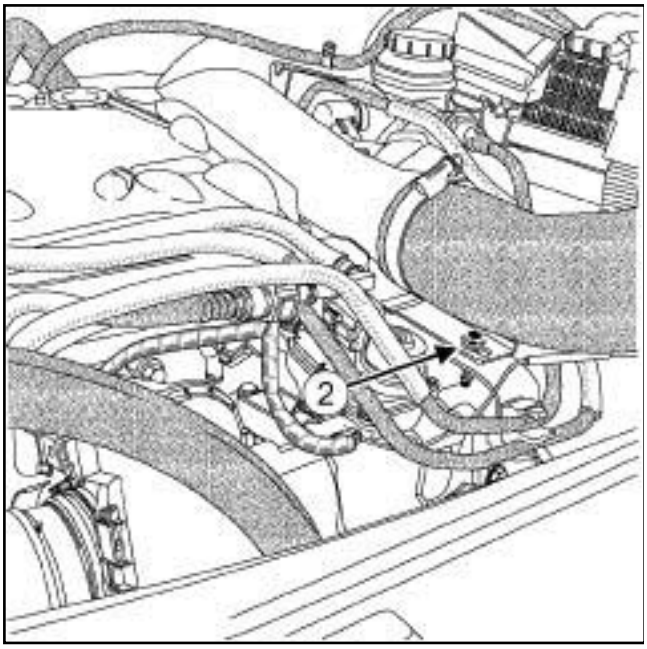
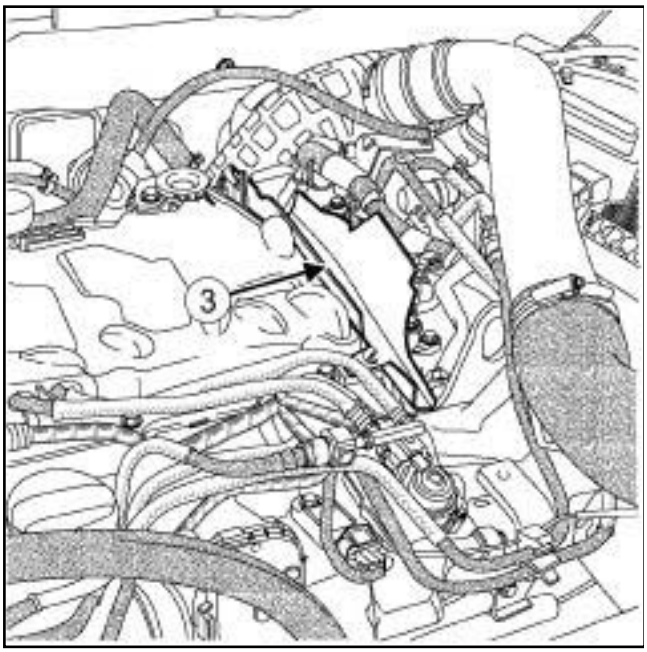
M9R




129505

❏ Remove the bolt (**2**) from the intercooler air inlet pipe from the fuel pipe support.

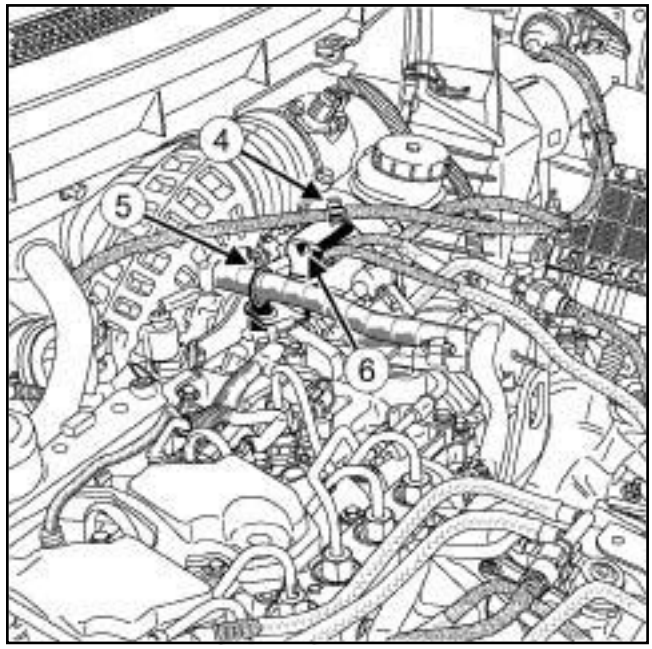
❏ Move the intercooler air inlet pipe to one side.




129506

❏ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .

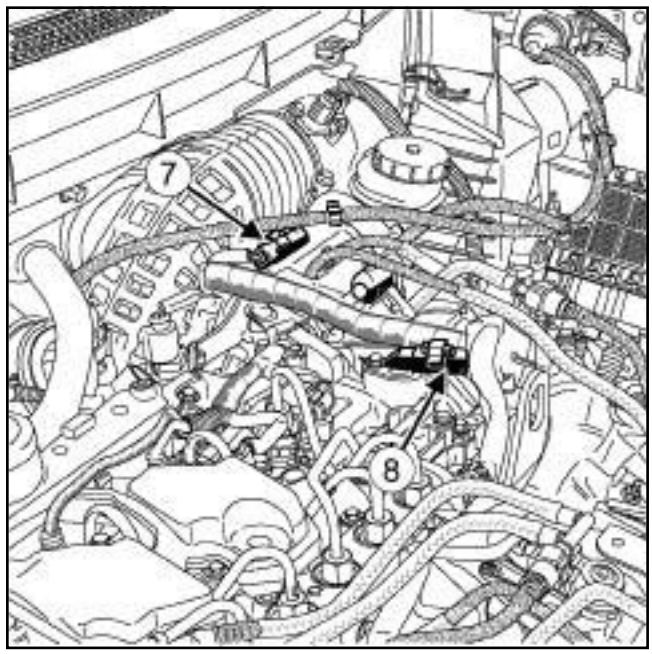



129507

❏ Unclip:

- the control pipe from the turbocharger pressure regulator valve at (**4**) ,
- the wiring at (**5**) .

❏ Remove the mounting ***(6)*** .




129508

❏ Disconnect:

- the fuel temperature sensor connector (**7**) ,
- the connector (**8**) from the camshaft position sensor.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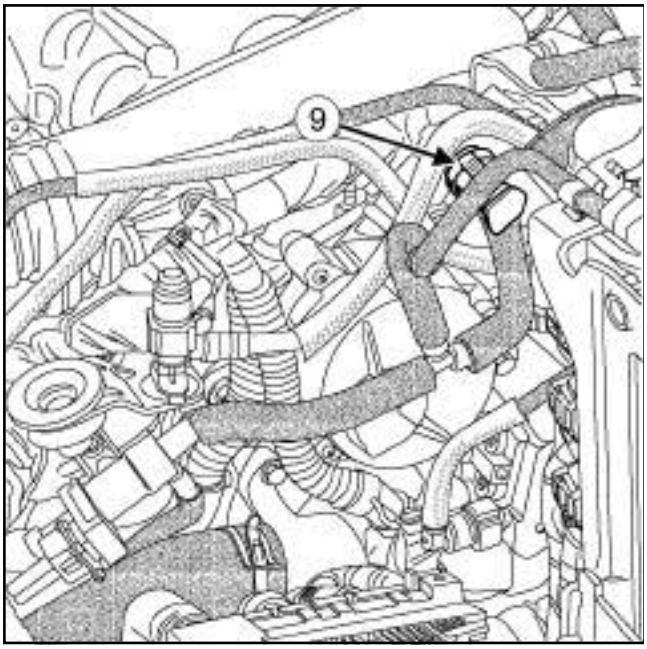
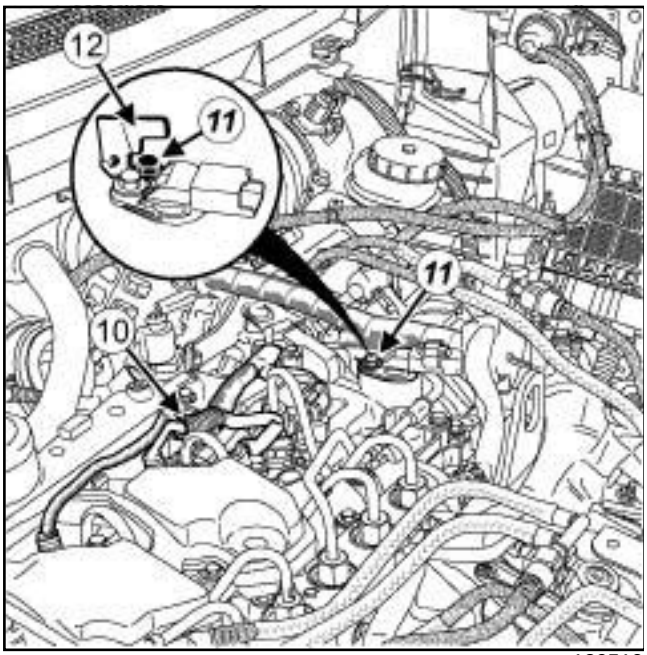



129509

❏ Disconnect the brake servo pipe (**9**) from the non-return valve.

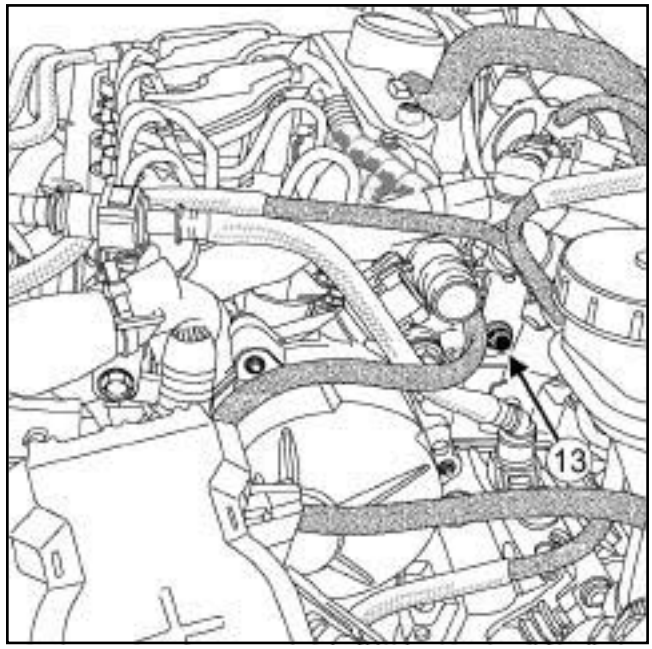



129510

❏ Unclip the injector wiring from the oil separator at (**10**) .

❏ Remove:

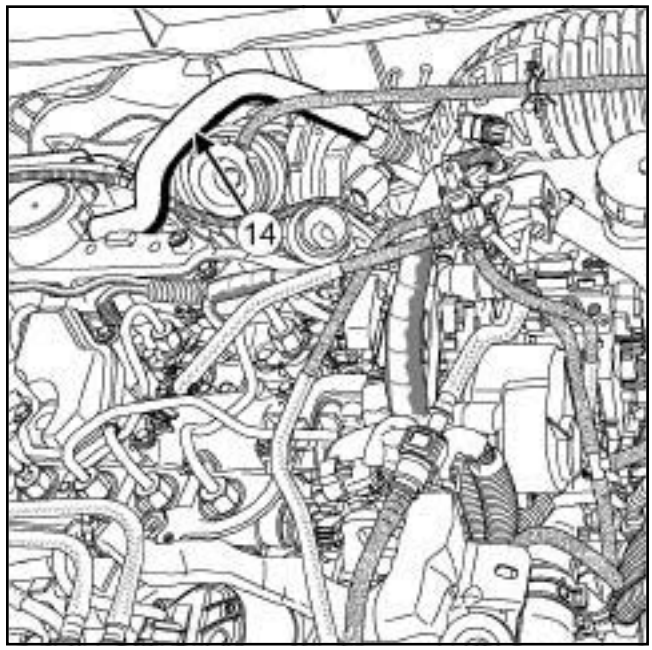
- the wiring channel bolt ***(11)*** ,
- the wiring ***(12)*** .




129511

❏ Remove the bolt (**13**) from the high pressure pipe between the high pressure pump and the injector rail.

❏ Move aside the wiring.




129512

❏ Remove the oil vapour rebreathing pipe (**14**) from the oil separator.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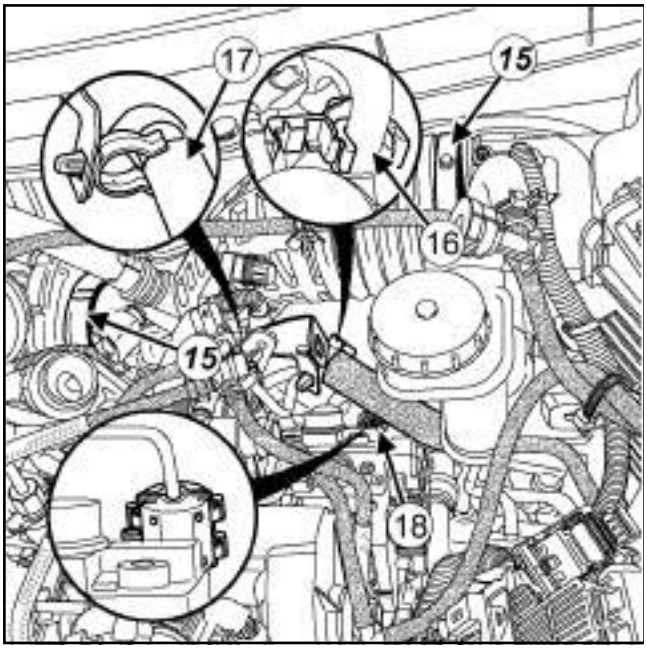
M9R




129513

❏ Loosen the air outlet pipe clips (**15**) of the air filter unit.

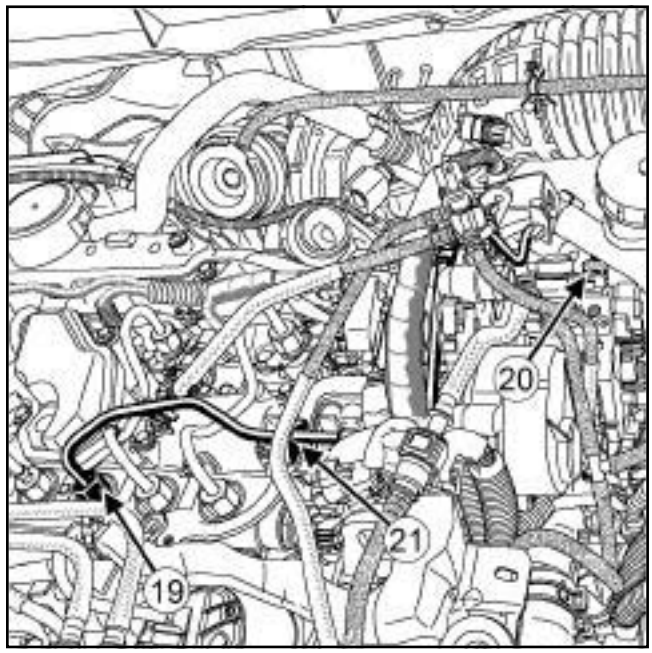
❏ Disconnect the air outlet pipe from the air filter unit.

❏ Unclip:

- the brake servo pipe ***(16)*** ,
- the turbocharger cooling pipe ***(17)*** ,
- the high pressure pipe nut protector ***(18)*** on the high pressure pump.

❏ Move aside the high pressure pipe nut protector.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129514

❏ Undo:

- the nut (**19**) from the high pressure pipe on the injector rail using a **19 mm long lever spanner**, part number **77 11 223 721**,
- the nut (**20**) from the high pressure pipe on the high pressure pump using a **17 mm long lever spanner**, part number **77 11 223 720**.

❏ Mark the position of the pad ***(21)*** between the high pressure pipe and the lower cover.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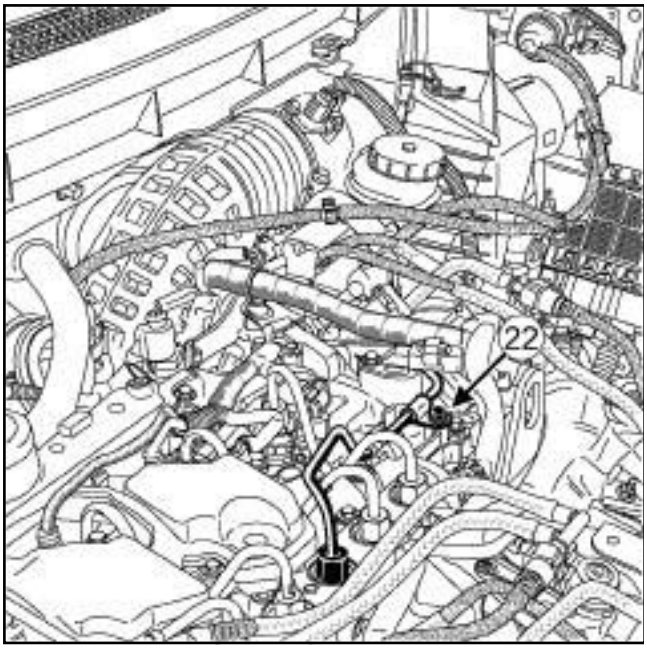
M9R




129515

❑

Note:

Do not allow any diesel fuel to enter the engine via the rocker cover opening during this operation.

❑ Remove:

- the high pressure pipe bolt ***(22)*** on the lower cover.
- the high pressure pipe between the high pressure pump and the injector rail.

❑ Insert the blanking plugs.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the high pressure pipes between the high pressure pump and the injector rail,
- the intercooler air inlet pipe seal.

**WARNING**

Before fitting a new high pressure pipe, lightly lubricate the nut threads with the oil from the applicator provided in the new parts kit.

Be careful not to allow oil into the high pressure pipe.

Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Remove the blanking plugs.

❑ Position:

- the high pressure pipe olive in the injector rail taper.
- the high pressure pipe olive in the high pressure pump outlet taper.

❑ Correctly position the pad between the high pressure pipe and the rocker cover.

❑ Fit the high pressure pipe nuts without tightening them, starting with the nut at the injector rail end.

❑ Torque tighten:

- the **high pressure pipe nut on the high pressure pump (32 N.m)** using a **17mm long lever spanner**, part number **77 11 223 720**,
- the **high pressure pipe nut on the injector rail (32 N.m)** using a **19mm long lever spanner**, part number **77 11 223 721**.

❑ Refit the high pressure pipe bolts between the high pressure pump and the injector rail.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M9R

❑ Torque tighten the **high pressure pipe bolts between the high pressure pump and the injector rail (10 N.m)**

**III - FINAL OPERATION**

❑ Clip:

- the high pressure pipe nut protector on the high pressure pump,
- the turbocharger cooling pipe,
- the brake servo pipe .

❑ Connect the air filter unit air outlet pipe to the air filter unit and to the turbocharger.

❑ Torque tighten the **air filter unit air outlet pipe clips (5 N.m)** using the tool **(Mot. 1608)**.

❑ Connect the oil vapour rebreathing pipe to the oil separator.

❑ Fit the wiring channel.

❑ Refit the wiring channel bolt.

❑ Torque tighten the **wiring channel bolt (8 N.m)**.

❑ Clip the injector wiring onto the oil separator.

❑ Connect:

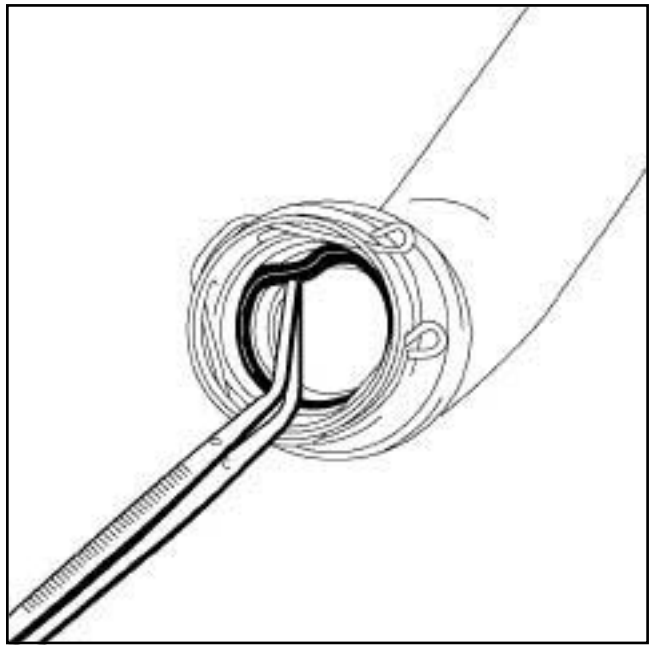
- the camshaft position sensor connector,
- the fuel temperature sensor connector,
- the brake servo pipe to the non-return valve.

❑ Refit the support.

❑ Clip:

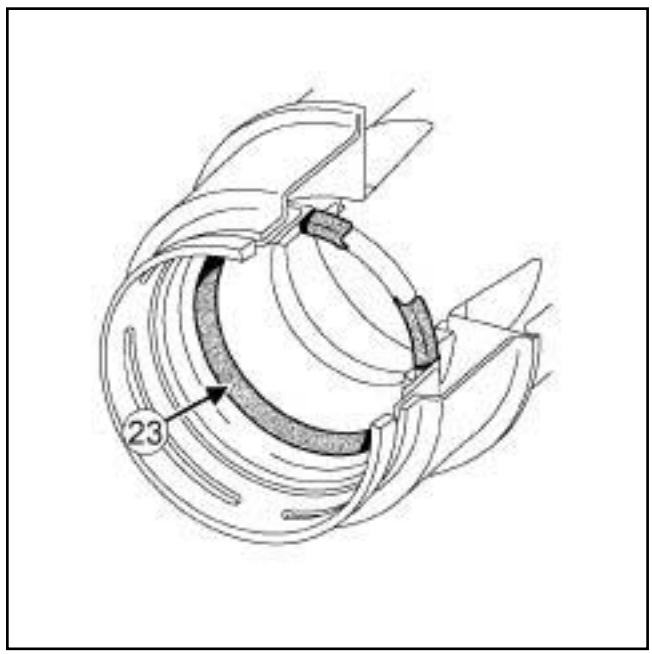
- the wiring,
- the turbocharger pressure regulator valve control pipe.

❑ Refit the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129516

❑ Remove the intercooler air inlet pipe seal using a .




129517

❑

Note:

Check that the seal (**23**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.



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- ❏ Turn the intercooler air inlet pipe to refit the clip in its housing.
- ❏ Clip the intercooler air inlet pipe onto the turbocharger.
- ❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.
- ❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.
- ❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❏ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .
- ❏ Refit:
  - the air intake sleeve on the air filter unit,
  - the clips of the air intake sleeve,
  - the engine cover.



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| Tightening torques ▽ | |
|---|---|
| high pressure pipe nuts on the injectors | **32 N.m** |
| high pressure pipe nuts on the injector rail | **32 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

**WARNING**

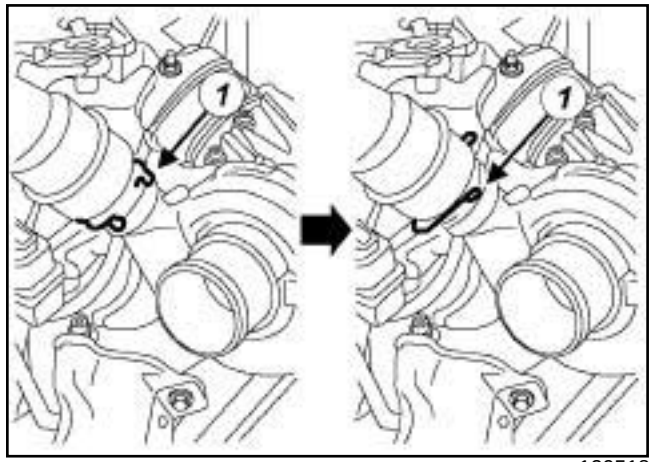
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

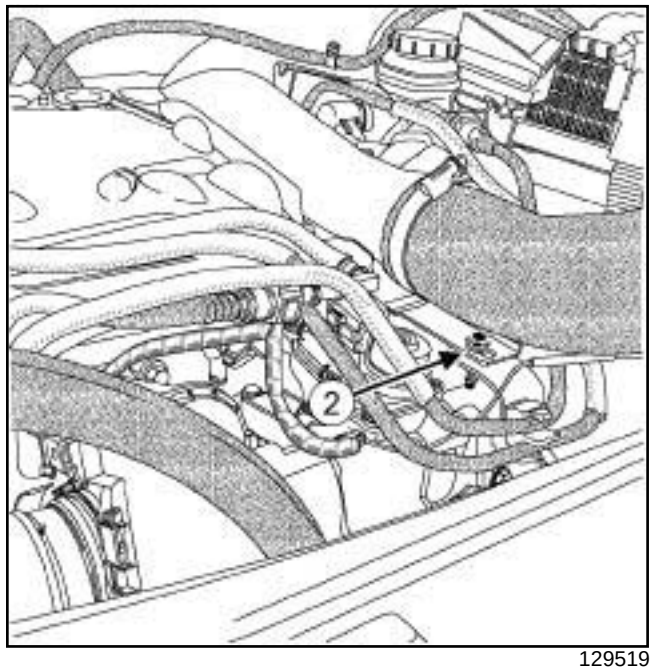
❏ Remove the front engine cover.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).




129518

❏ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.




129519

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❏ Move the intercooler air inlet pipe to one side.



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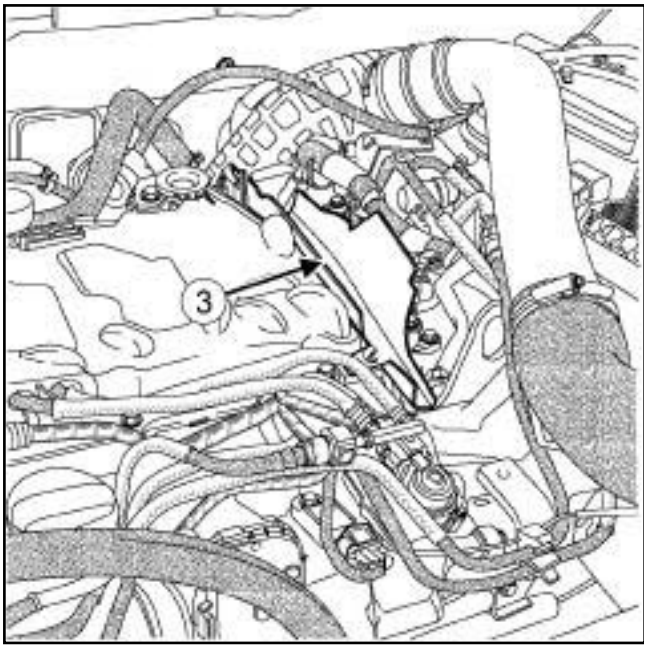
M9R

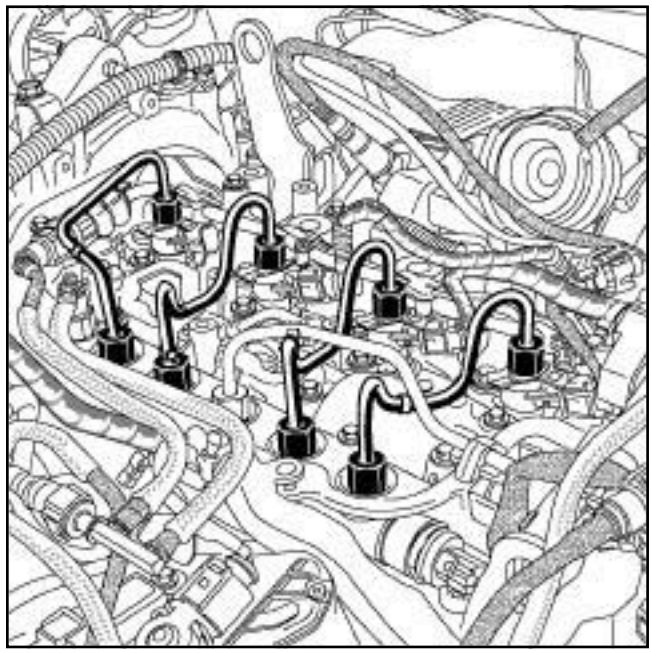



129520

❑ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129521

❑

Note:

Loosen the pipe nuts one by one.

Note:

Do not allow any diesel fuel to enter the engine via the rocker cover opening during this operation.

❑ Undo:

- the high pressure pipe nuts on the injectors using a **17 mm long lever spanner**, part number **77 11 223 720**,
- the high pressure pipe nuts on the injector rail using a **19 mm long lever spanner**, part number **77 11 223 721**.

❑ Remove the high pressure pipes between the rail and the injectors one by one.

❑ Insert the blanking plugs.



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## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the high pressure pipes between the injector rail and the injectors,
- the intercooler air inlet pipe seal.

**WARNING**

Before fitting a new high pressure pipe, lightly lubricate the nut threads with the oil from the applicator provided in the new parts kit.

Be careful not to allow oil into the high pressure pipe.

Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Remove the blanking plugs.

Note:

Tighten the high pressure pipes between the rail and the injectors one by one.

❑ Fit:

- the high pressure pipe olives between the rail and the injectors in the injector rail tapers,
- the high pressure pipe olives between the rail and the injectors in the injector tapers.

❑ Manually tighten the high pressure pipe nuts between the rail and the injectors, starting with the nuts on the injector rail side.

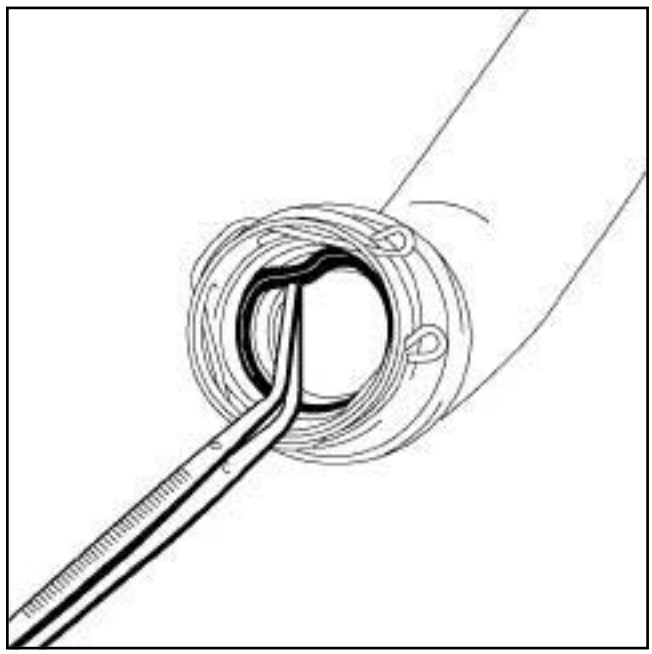
❑ Torque tighten:

- the **high pressure pipe nuts on the injectors (32 N.m)** using a **17 mm long lever spanner**, part number **77 11 223 720**,
- the **high pressure pipe nuts on the injector rail (32 N.m)** using a **19 mm long lever spanner**, part number **77 11 223 721**.

### III - FINAL OPERATION

❑ Refit:

- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) .
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) ,



129522

❑ Remove the intercooler air inlet pipe seal using a .



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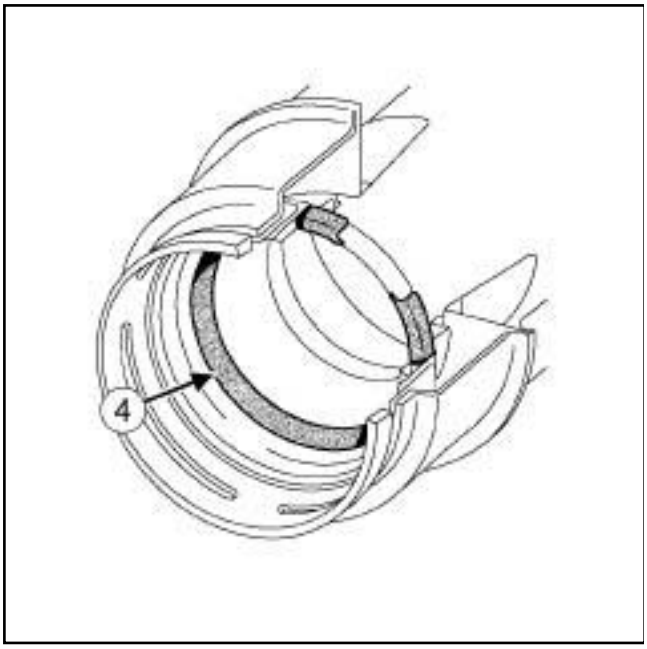


129523

❑

Note:

Check that the seal (**4**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❑ Refit the engine cover.



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M9R

| Tightening torques ▽ | |
|---|---|
| injector rail bolts | **25 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

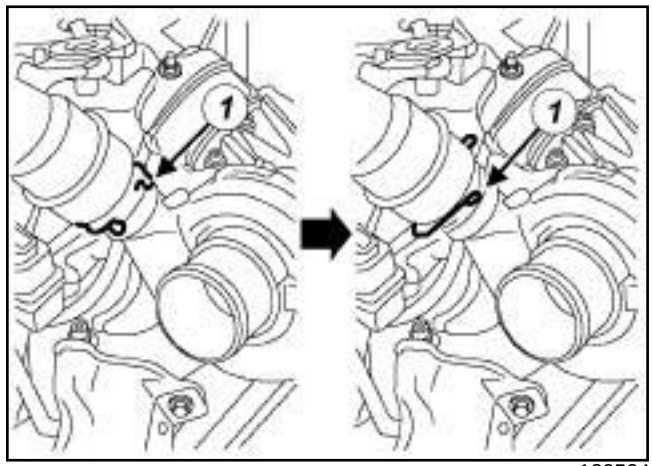
❑ Remove:

- the engine cover,

- the clips from the air intake sleeve,

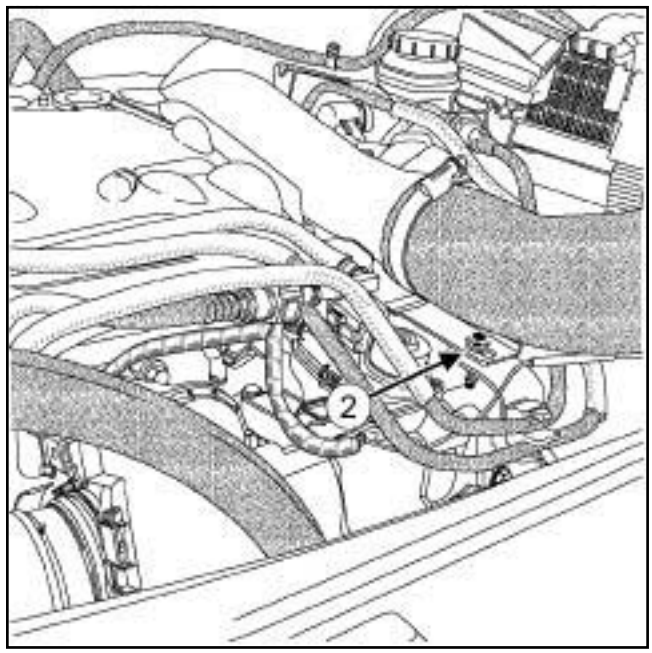
- the air intake sleeve from the air filter unit.

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).




129524

❑ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.




129525

❑ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

❑ Move the intercooler air inlet pipe to one side.



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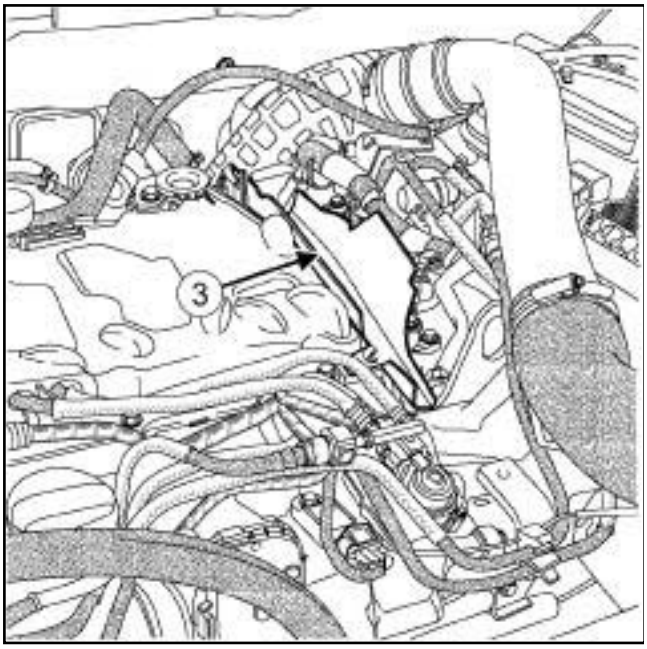
M9R




129526

❑ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) ,
- the air inlet flap (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) ,
- the turbocharger pressure sensor unit (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) ,
- the exhaust gas recirculation solenoid valve (see **14A**, **Antipollution**, **Exhaust gas recirculation solenoid valve: Removal - Refitting**, page **14A-8**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,
- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) ,
- the high pressure pipes between the high pressure pump and the injector rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) .

129527

❑

Note:

Do not allow any diesel fuel to enter the engine via the rocker cover opening during this operation.

❑ Disconnect the diesel return pipe quick-release union ***(4)*** from the injector rail.

❑ Insert the blanking plugs.



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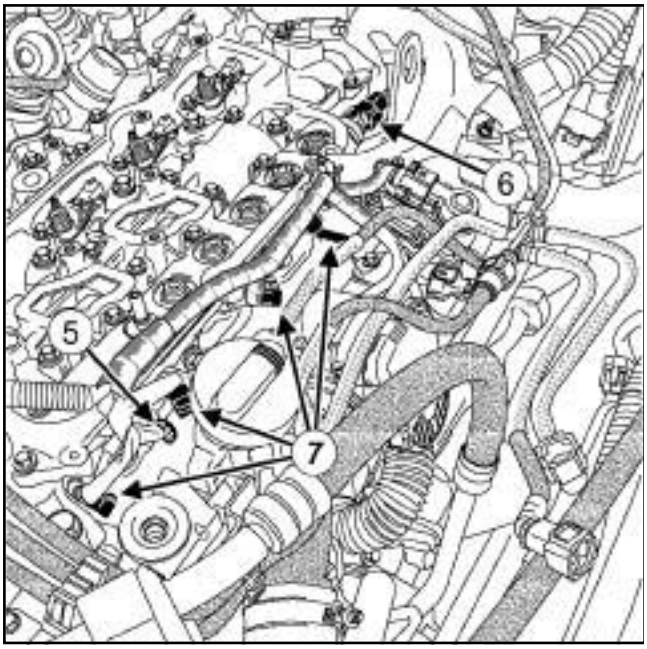


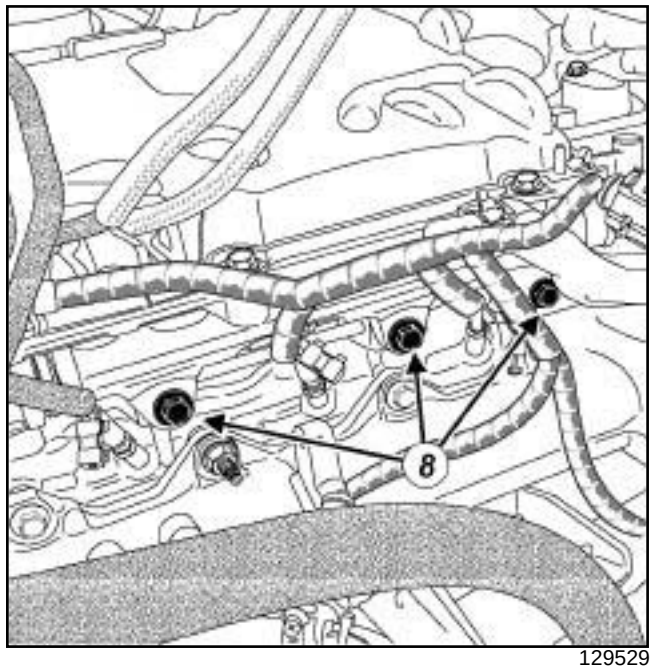
129528

❏ Disconnect:

- the pressure regulator connector (**5**) on the injector rail,
- the connector (**6**) from the rail pressure sensor (see **13B**, **Diesel injection**, **Rail pressure sensor: Removal - Refitting**, page **13B-55**) ,
- the heater plug connectors (**7**) .

❏ Move the fuel pipes aside.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129529

❏ Remove:

- the injector rail bolts (**8**) ,
- the injector rail,
- the injector rail seal.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace:

- the injector rail seal,
- the intercooler air inlet pipe seal.

> **WARNING**
> Do not remove the blanking plugs from each component until the last moment.
>
> Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Remove the blanking plugs.

❏ Refit:

- the injector rail along with its seal,
- the injector rail bolts.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M9R

❏ Torque tighten the **injector rail bolts (25 N.m)**.

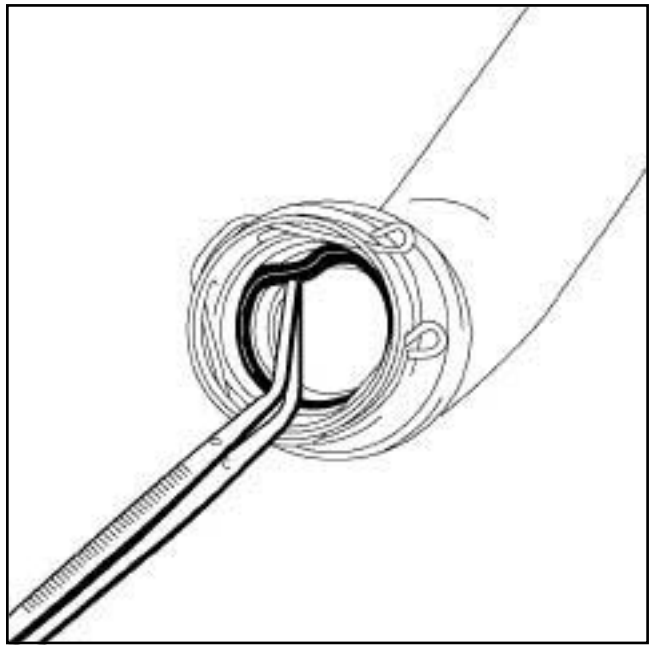
**III - FINAL OPERATION**

❏ Connect:

- the heater plug connectors ,
- the rail pressure sensor connector,
- the pressure regulator connector on the injector rail,
- the diesel return pipe quick-release union on the injector rail.

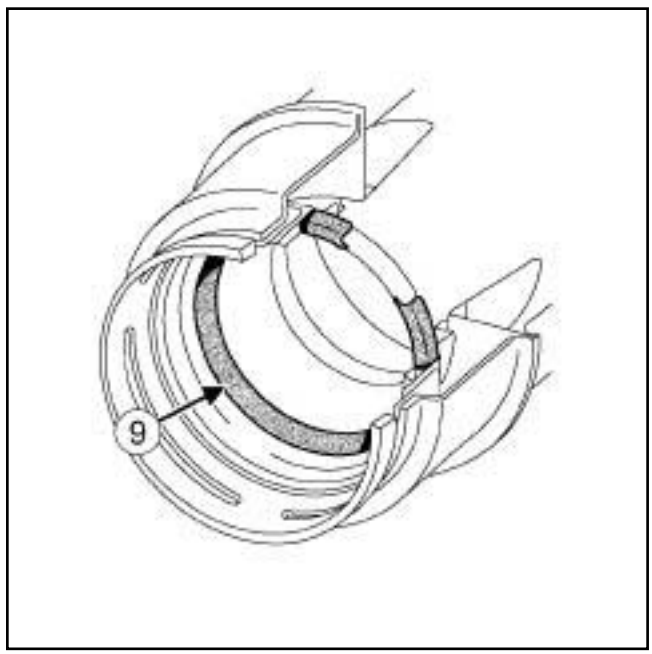
❏ Refit:

- the high pressure pipes between the high pressure pump and the injector rail (see **13B**, **Diesel injection**, **High-pressure pipe between the pump and rail: Removal - Refitting**, page **13B-39**) ,
- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) ,
- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the exhaust gas recirculation solenoid valve (see **14A**, **Antipollution**, **Exhaust gas recirculation solenoid valve: Removal - Refitting**, page **14A-8**) ,
- the turbocharger pressure sensor unit (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) ,
- the air inlet flap (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) ,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .



129530

❏ Remove the intercooler air inlet pipe seal using a .




129531

❏

Note:

Check that the seal (**9**) on the intercooler air inlet pipe is fitted the correct way round.

❏ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.



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M9R

- ❏ Turn the intercooler air inlet pipe to refit the clip in its housing.
- ❏ Clip the intercooler air inlet pipe onto the turbocharger.
- ❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.
- ❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.
- ❏ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .
- ❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❏ Refit:
  - the air intake sleeve on the air filter unit.
  - the clips of the air intake sleeve,
  - the engine cover.


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| Tightening torques ▽ | |
|---|---|
| rail pressure sensor | **80 N.m** |
| injector rail protector bolt | **8 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,
- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**

Once the warranty period for the high pressure pump has expired, only the pressure regulator can be replaced separately.

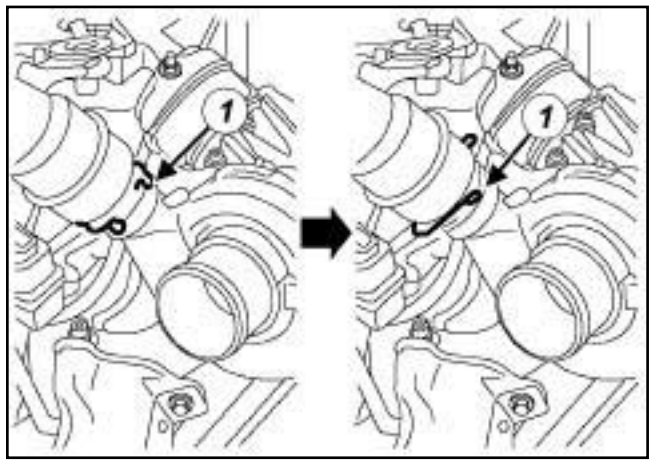
Whilst the warranty period for the high pressure pump is still running, the high pressure pump should be replaced as a whole if the pressure regulator displays a fault.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the engine cover,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).




129532

❑ Rotate the clip (**1**) of the intercooler air inlet pipe on the turbocharger.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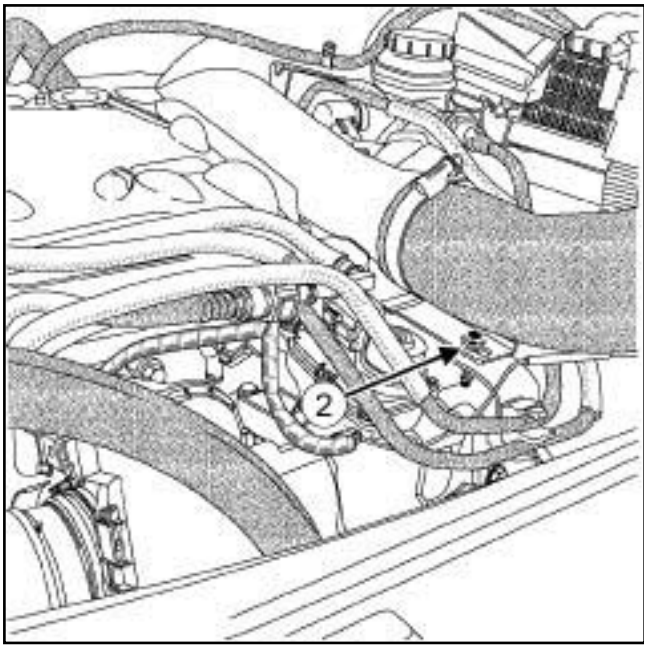
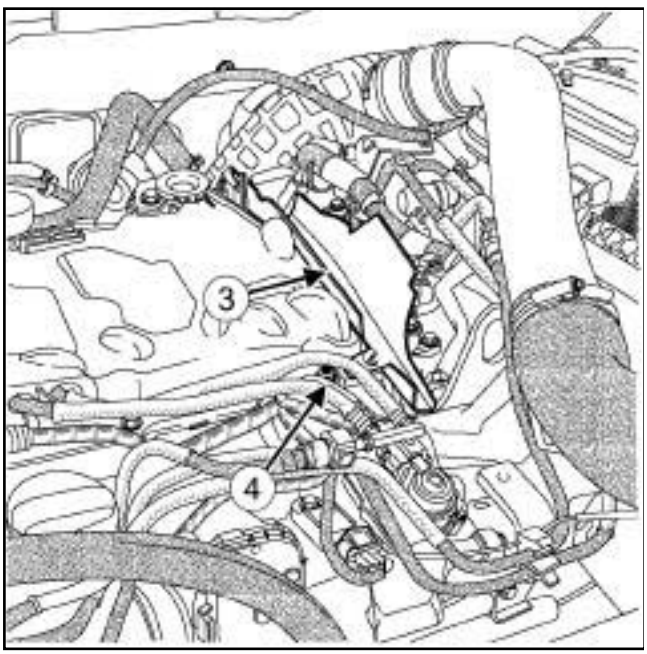


129533

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel pipe support.

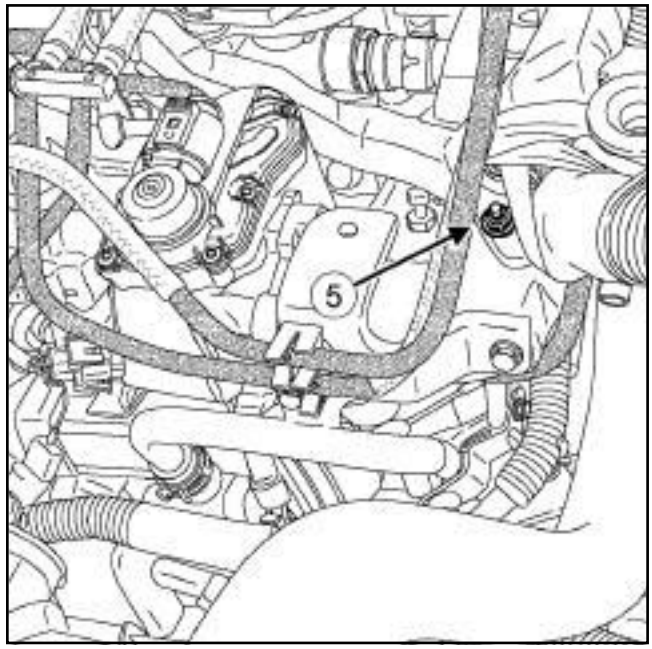
❏ Move aside the intercooler air inlet pipe.



129534

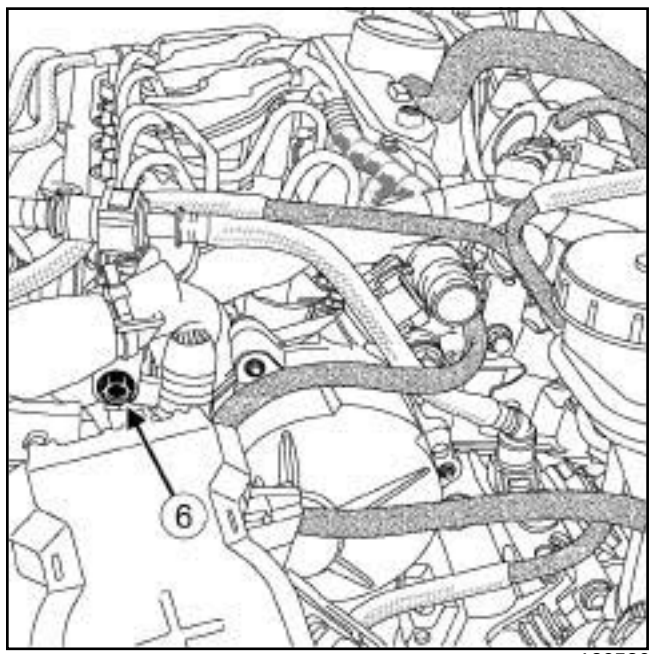
❏ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector bolt (**4**) .



129535

❏ Remove the wiring nut (**5**) .



129536

❏ Remove the wiring bolt (**6**) .

❏ Move aside the wiring.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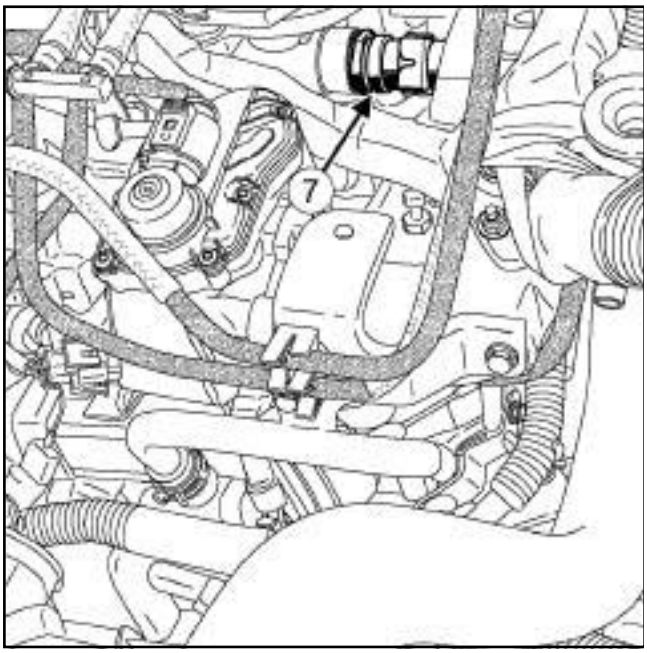
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129537

❑ Disconnect the rail pressure sensor connector.

❑ Remove the rail pressure sensor ***(7)*** .

❑ Insert the blanking plugs.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace the seal of the intercooler air inlet pipe.

> **WARNING**
> Do not remove the blanking plugs from each component until the last moment.
>
> Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Remove the blanking plugs.

> Note:
>
> The rail pressure sensor has no seal.

> Note:
>
> Use a torque wrench with an adapter for an open-ended spanner **(27 mm)** to tighten the rail pressure sensor.

❑ Refit the rail pressure sensor.

❑ Torque tighten the **rail pressure sensor (80 N.m)**.

❑ Connect the rail pressure sensor connector.

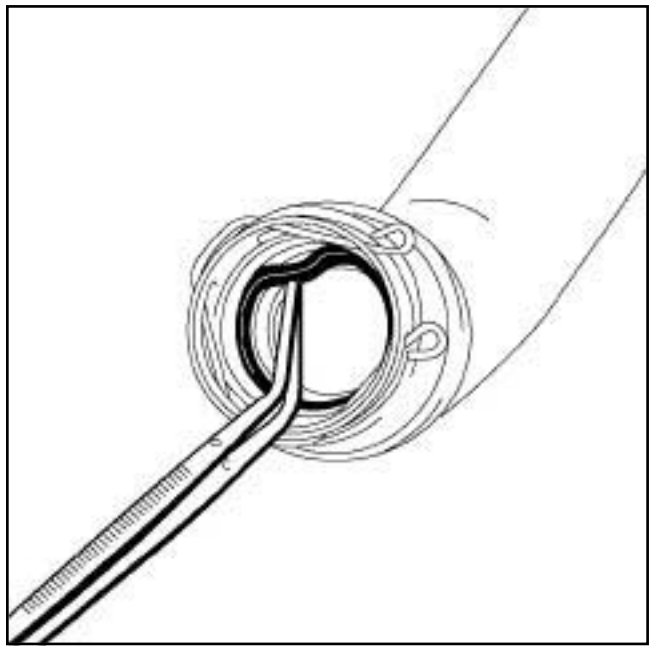
**III - FINAL OPERATION.**

❑ Fit the wiring.

❑ Refit:

- the wiring bolt,
- the wiring nut,
- the injector rail protector bolt.

❑ Torque tighten the **injector rail protector bolt (8 N.m)**.



129538

❑ Remove the intercooler air inlet pipe seal using a .



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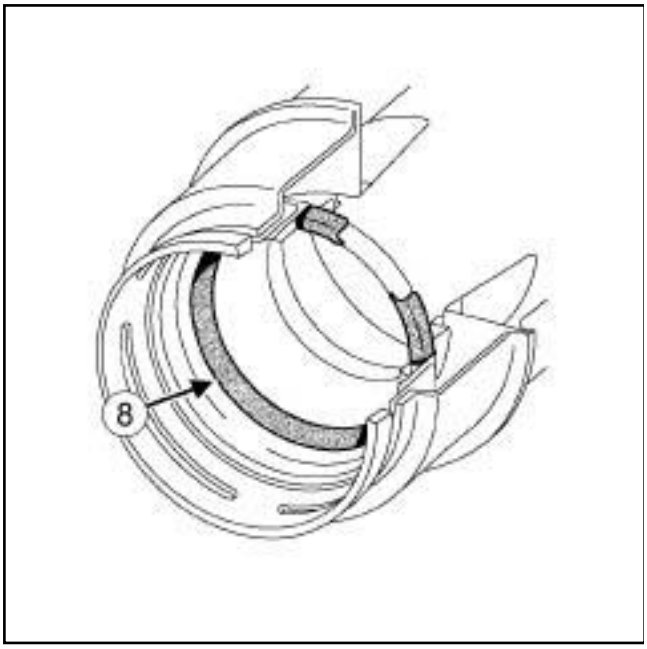


129539

❑

Note:

Check that the seal (**8**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.

❑ Turn the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Prime the fuel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❑ Refit the engine cover.


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1495-01** | 22 mm socket for removing/ refitting oxygen sensors. |

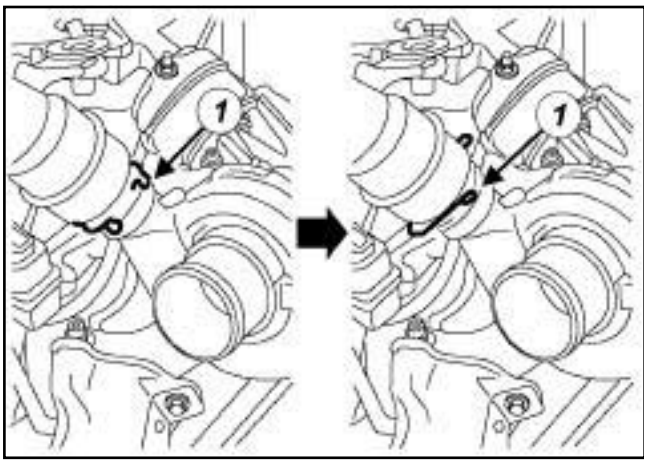
| Tightening torques ▽ | |
|---|---|
| oxygen sensor | **50 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

## REMOVAL

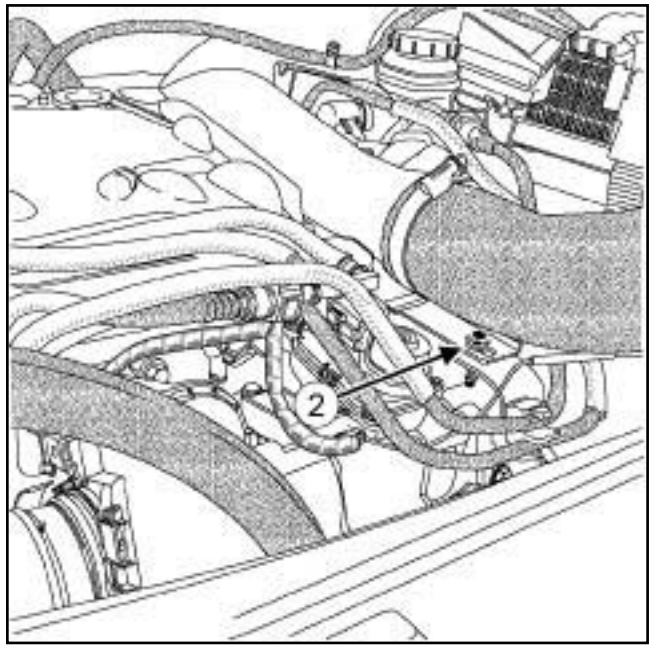
### I - REMOVAL PREPARATION OPERATION

❏ Remove the front engine cover.




129540

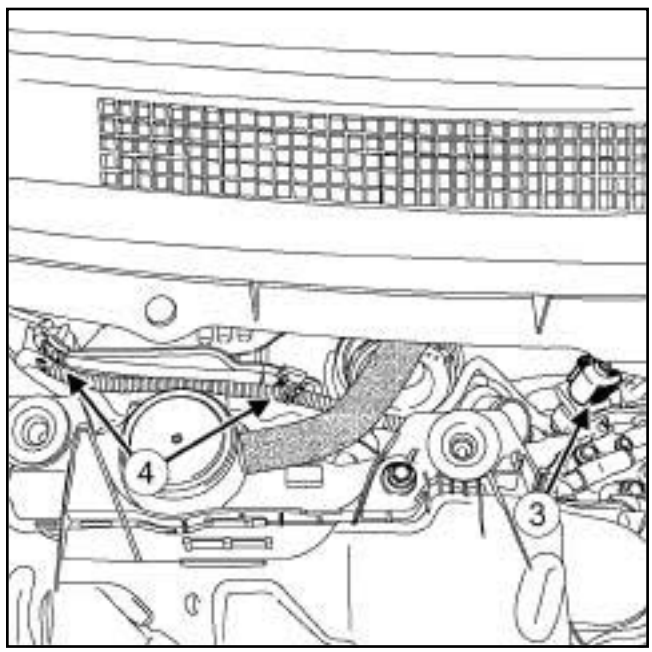
❏ Rotate the clip (**1**) of the intercooler air inlet pipe on the turbocharger.




129541

❏ Remove the bolt (**2**) from the intercooler air inlet pipe from the fuel pipe support.

❏ Move aside the auxiliary air cooler air inlet pipe.




129542

❏ Disconnect the connector (**3**) from the oxygen sensor wiring.

❏ Remove the connector from the oxygen sensor wiring.

❏ Unclip the oxygen sensor wiring from the heat shield at ***(4)*** .

❏ Move the oxygen sensor wiring aside.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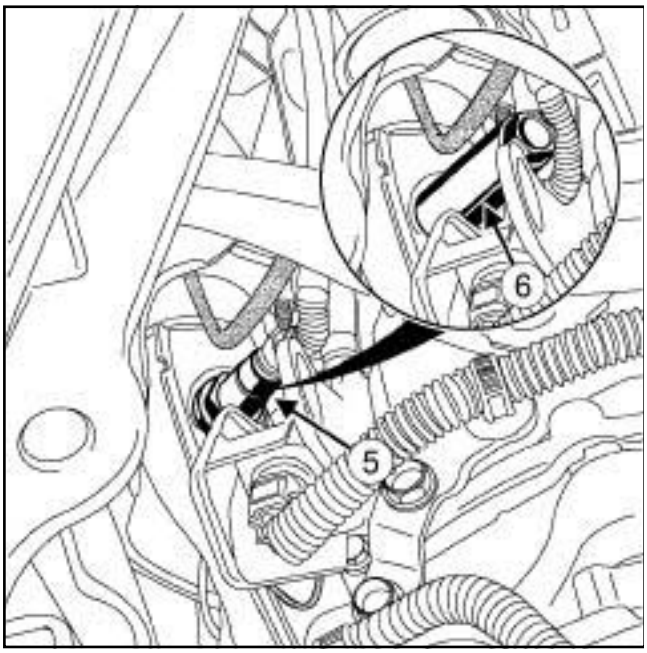
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129543

❏ Remove the oxygen sensor (**5**) using the **(Mot. 1495-01)** (**6**) .

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace the seal of the intercooler air inlet pipe.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the oxygen sensor.

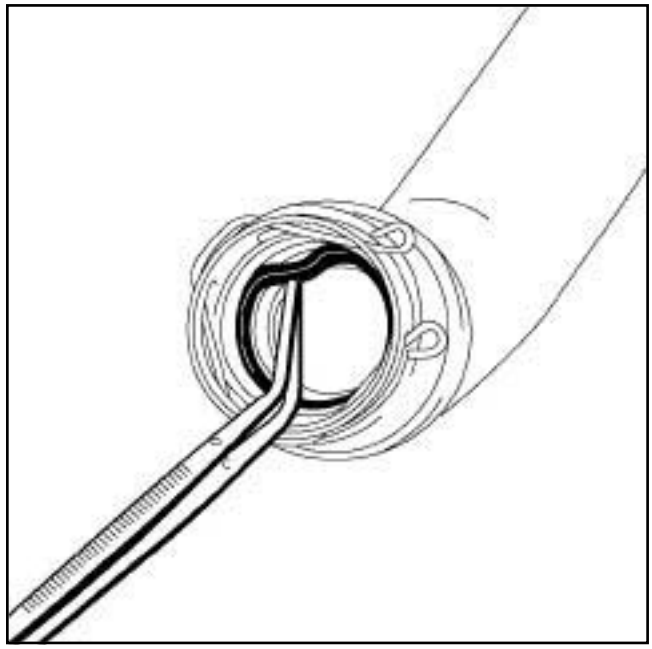
❏ Torque tighten the **oxygen sensor (50 N.m)** using the tool **(Mot. 1495-01)**.

**III - FINAL OPERATION.**

❏ Clip the oxygen sensor wiring onto the heat shield.

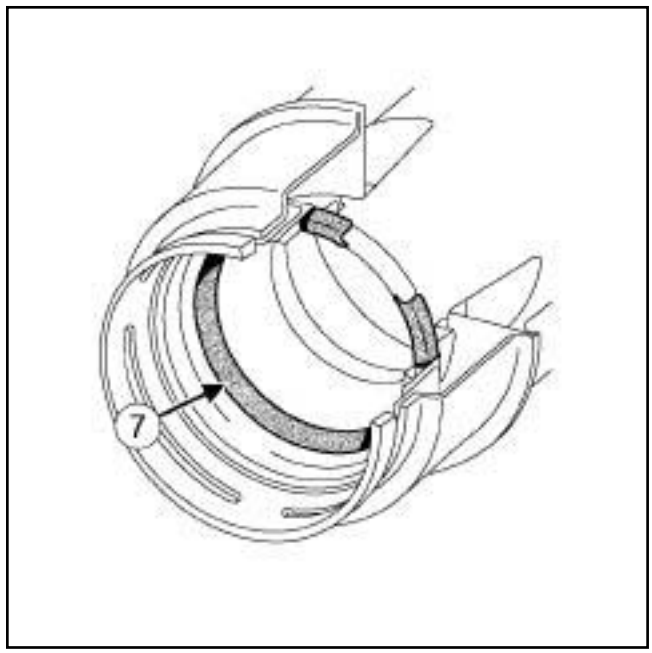
❏ Refit the oxygen sensor wiring connector to the support.

❏ Connect the oxygen sensor wiring connector.



129544

❏ Remove the intercooler air inlet pipe seal using a .




129545

❏

Note:

Check that the seal (**7**) on the intercooler air inlet pipe is fitted the correct way round.

❏ Refit the new intercooler air inlet pipe seal.

❏ Rotate the intercooler air inlet clip pipe to refit the clip in its housing.

❏ Clip the intercooler air inlet pipe onto the turbocharger.



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M9R

- ❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.
- ❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.
- ❏ Refit the engine cover.


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M9R

| Tightening torques ▽ | |
|---|---|
| fuel filter protector nuts | **10 N.m** |
| fuel filter protector bolt | **25 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,

- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,

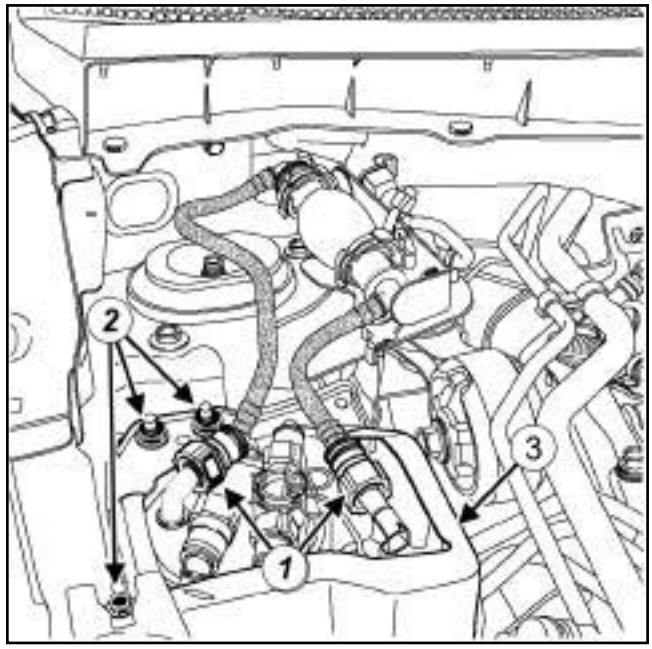
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front engine cover.



129546

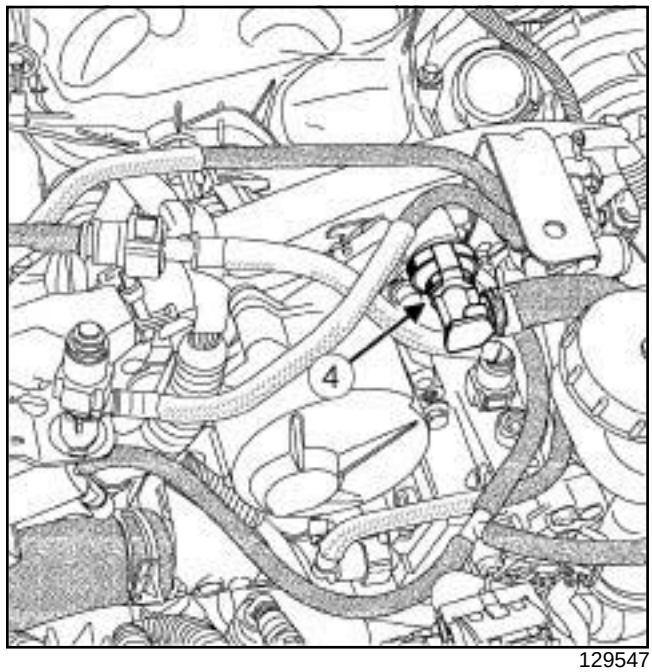
❏ Disconnect the quick-release unions (**1**) from the manual priming pump.

❏ Insert the blanking plugs.

❏ Remove:

- the nuts and the bolt ***(2)*** from the fuel filter protector,

- the fuel filter protector ***(3)*** .



129547

❏ Disconnect the brake servo pipe (**4**) from the non-return valve.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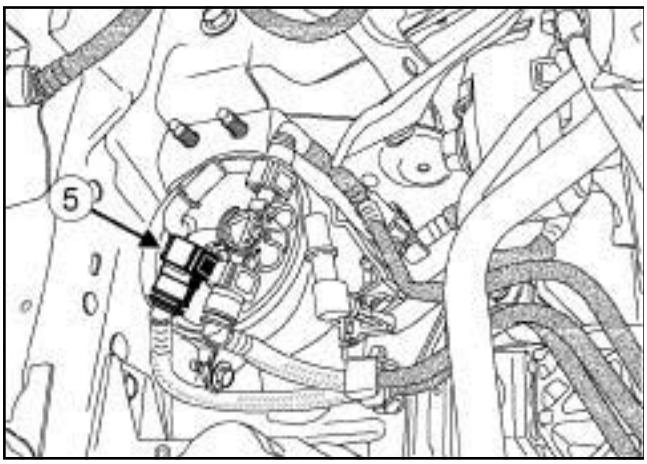
### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

Note:

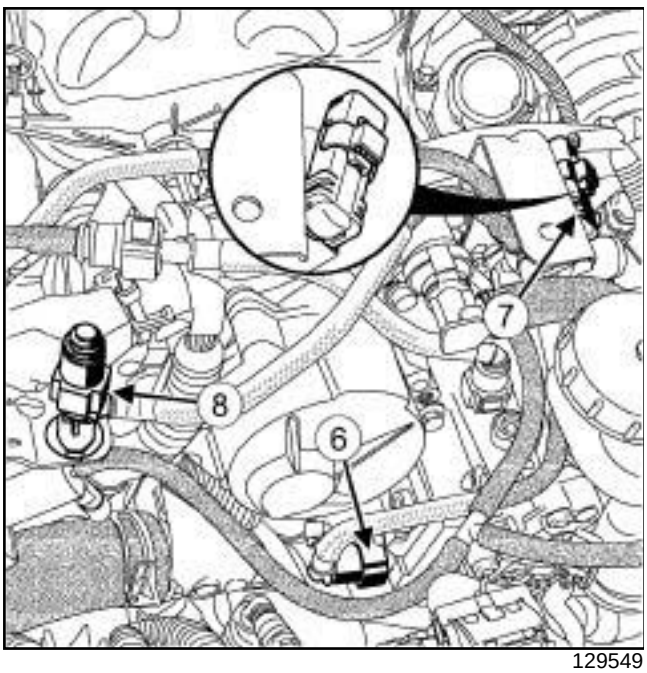
The fuel temperature sensor is integrated into the fuel return pipe and these two components cannot be removed separately.




129548

❑ Disconnect the fuel supply quick-release union (**5**) from the high pressure pump of the fuel filter.

❑ Insert the blanking plugs.




129549

❑ Disconnect:

- the fuel supply quick-release union (**6**) from the high pressure pump,
- the fuel temperature sensor connector (**7**) .

❑ Unclip:

- the fuel temperature sensor,
- the air bleed quick-release union ***(8)*** ,
- the high pressure pump fuel supply pipe.

❑ Remove fuel temperature sensor and fuel supply pipe assembly from the high pressure pump.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the fuel temperature sensor and fuel supply pipe assembly of the high pressure pump.

❑ Clip:

- the high pressure pump fuel supply pipe,
- the air bleed quick-release union,
- the fuel temperature sensor.

❑ Remove the blanking plugs from the openings.

Note:

Be careful not to pinch or damage the fuel pipes.

❑ Connect:

- the fuel temperature sensor connector,
- the fuel supply quick-release union of the high pressure pump,
- the high pressure pump fuel supply quick-release union to the fuel filter.

### III - FINAL OPERATION.

❑ Connect the brake servo pipe of the non-return valve.

❑ Refit:

- the fuel filter protector,
- the nuts and the bolt of the fuel filter protector.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M9R

❑ Torque tighten:

- the **fuel filter protector nuts (10 N.m)**,
- the **fuel filter protector bolt (25 N.m)**.

❑ Remove the blanking plugs from the openings.

❑ Connect the quick-release unions of the manual priming pump.

❑ Prime the circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❑ Refit the engine cover.


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| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| injector clamp bolts | **35 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**IMPORTANT**

Use the diagnostic tool before any operation is carried out on the injection circuit to check:

- that the rail is not under pressure,
- that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**

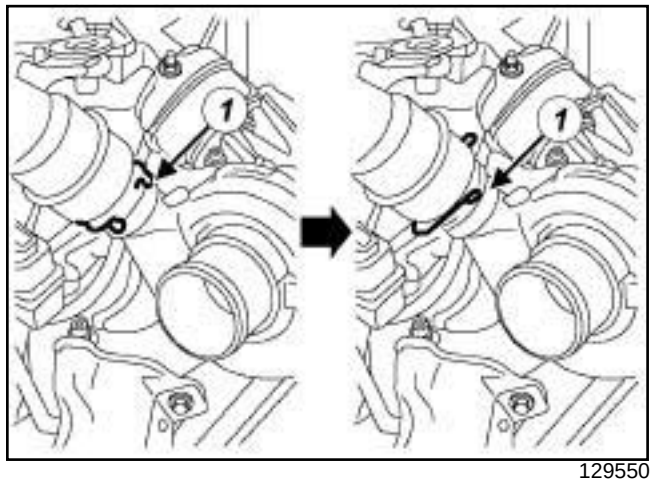
Dismantling the interior of the high pressure pump and the injectors is prohibited.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

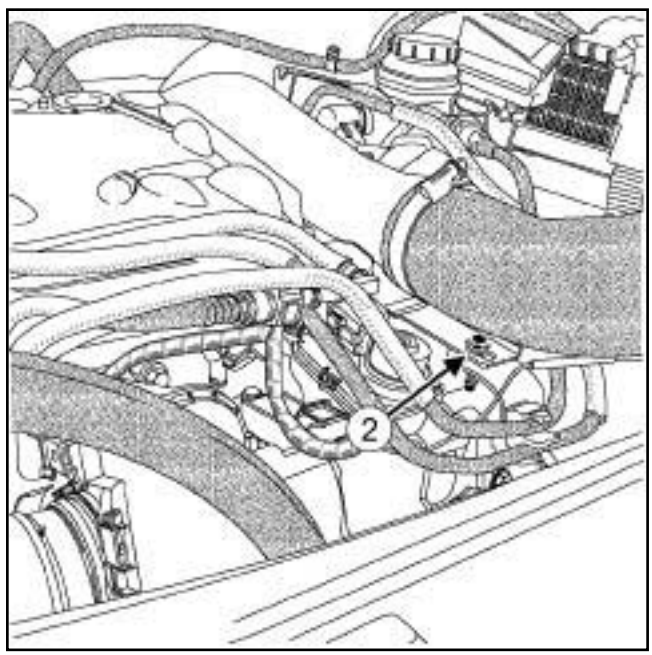
❑ Remove the front engine cover.

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).




129550

❑ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.




129551

❑ Remove the bolt (**2**) from the intercooler air inlet pipe from the fuel pipe support.

❑ Move aside the intercooler air inlet pipe.



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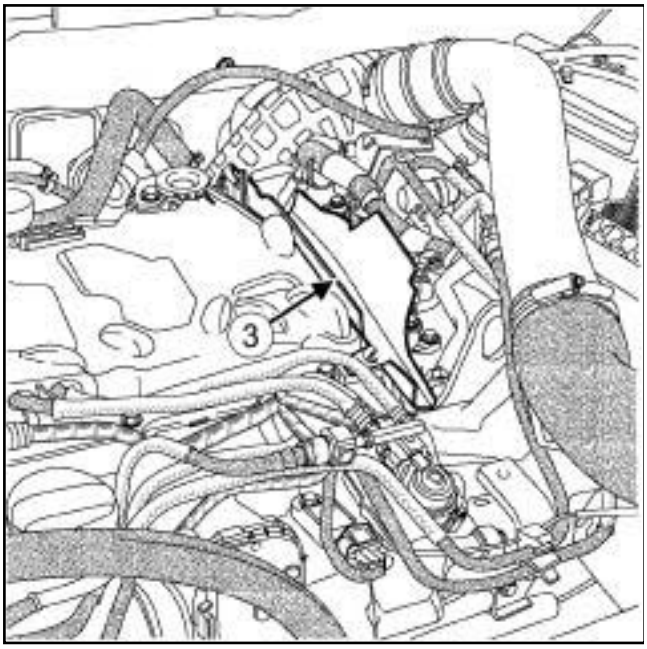


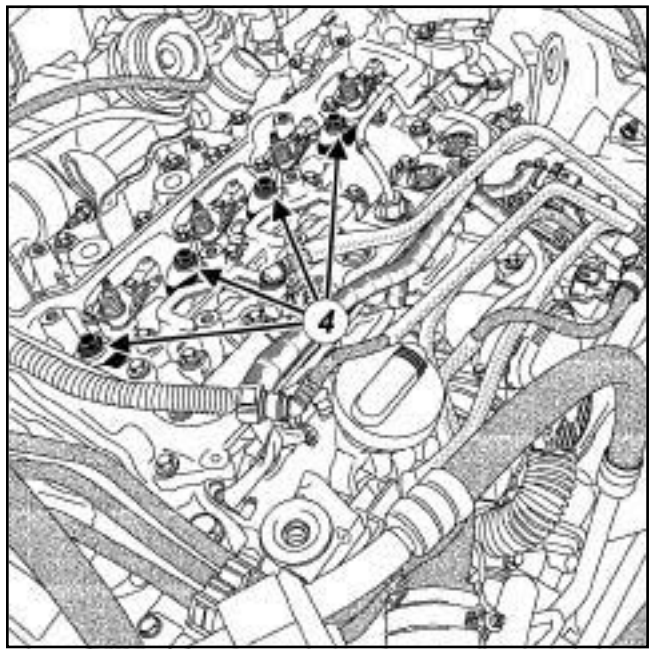

129552

❑ Remove:

- the protector plate (**3**) from the injector rail protector,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,
- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) .

❑ Disconnect the injector connectors.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129553

❑

Note:

Cylinder **No. 1** is located on the timing end.

Remove:

- the injector clamp bolts (**4**) ,
- the injector clamps.
- the injectors one by one, noting the **IMA codes** for each injector,
- the injector copper sealing washer,
- the seal between the diesel injector and the diesel injector fuel return rail from each injector.



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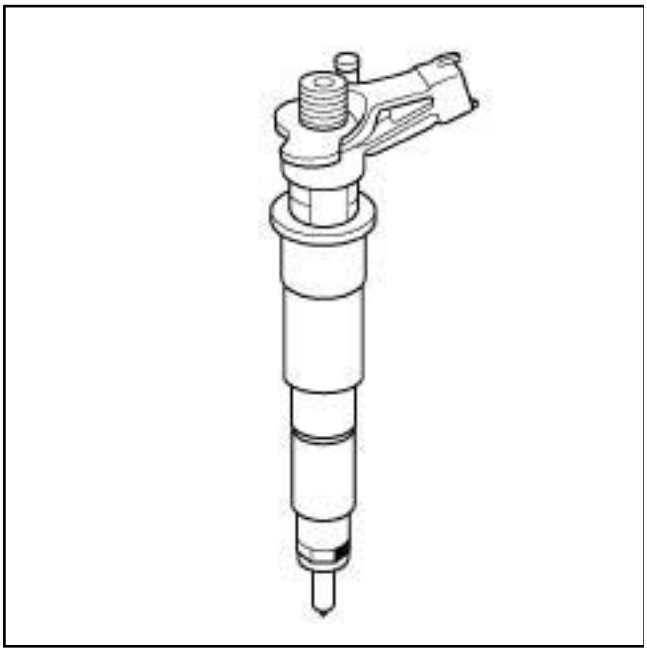
## REFITTING

### I - REFITTING PREPARATION OPERATION



129554

❑

**WARNING**

It is strictly forbidden to clean the injectors with:

- a wire brush,
- an emery cloth,
- an ultrasonic cleaner.

Note:

Use new cloths, part no. **77 11 211 707** soaked in new degreaser to clean:

- the injector holes,
- the injector covers,
- the injector clamps.

Note:

Use a new cloth to dry components that have been cleaned.

❑ Always replace:

- the copper sealing washer,
- the seal between the diesel injector and the diesel injector fuel return rail,
- the intercooler air inlet pipe seal.

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Clean the diesel injector.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the seal between the diesel injector and the diesel injector fuel return rail on each injector,
- the new copper sealing washer on the injectors,
- the copper sealing washer - injector assembly,
- the injector clamps.
- the injector clamp bolts.

❑ Torque tighten the **injector clamp bolts (35 N.m)**.

### III - FINAL OPERATION.

❑ Connect the connectors for injector numbers **2, 3 and 4**.

❑ Refit:

- the high pressure pipes between the rail and the injectors (see **13B**, **Diesel injection**, **High-pressure pipe between the rail and injector: Removal - Refitting**, page **13B-46**) ,
- the diesel injector fuel return rail (see **13B**, **Diesel injection**, **Diesel injector fuel return rail: Removal - Refitting**, page **13B-32**) ,
- the oil separator (see **11A**, **Top and front of engine**, **Oil decanter: Removal - Refitting**, page **11A-29**) ,
- the injector rail protector (see **13B**, **Diesel injection**, **Injector rail protector: Removal - Refitting**, page **13B-36**) .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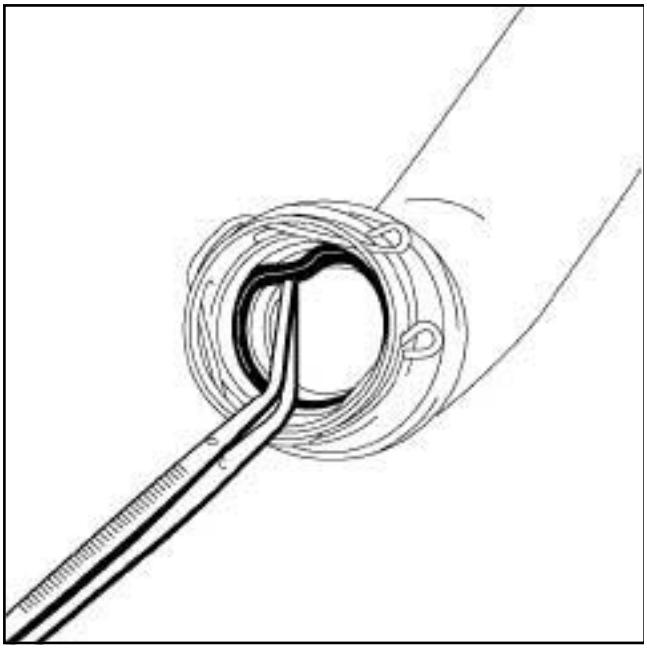
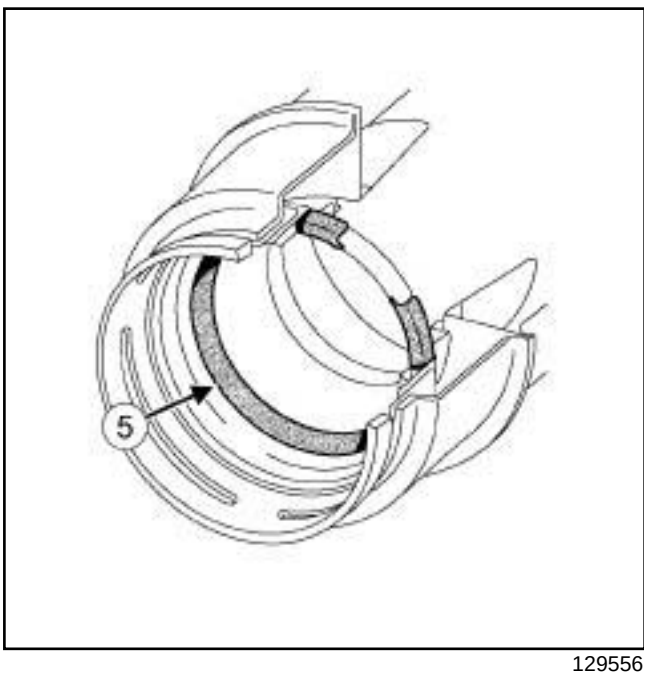


129555

❏ Remove the intercooler air inlet pipe seal using a .




129556

❏

Note:

Check whether the intercooler air inlet pipe seal (**5**) is correctly positioned.

❏ Refit:

- the new seal of the intercooler air inlet pipe,
- the protector plate on the injector rail protector.

❏ Turn the intercooler air inlet pipe to refit the clip in its housing.

❏ Clip the intercooler air inlet pipe onto the turbocharger.

❏ Refit the intercooler air inlet pipe bolt on the fuel pipe support.

❏ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❏ Connect

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- **diagnostic tool** thick, to the alternator rotor.

❏ Enter the injector codes in the diesel injection computer in accordance with command scenario **SC002** and reinitialise the program using command scenario **SC036** replacing the diesel injector (see **Fault finding - Replacement of components**) (13B, Diesel injection).

❏ Prime the circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

❏ Refit the engine cover.



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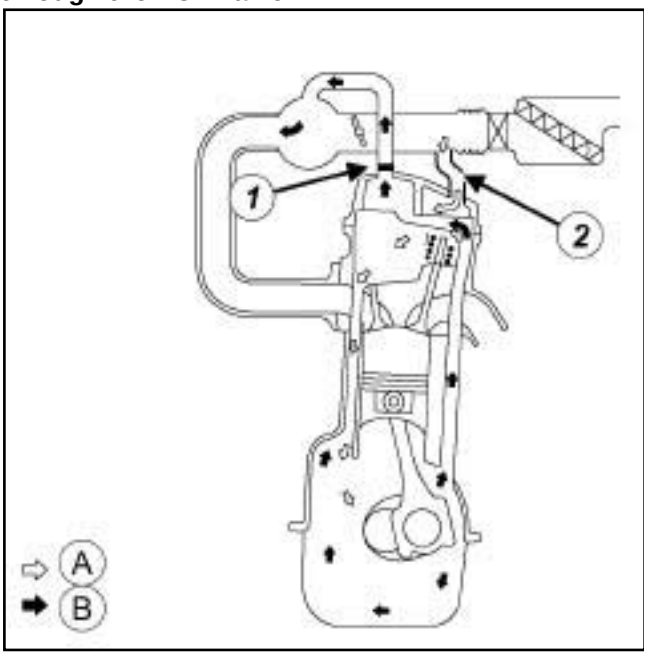
# Oil vapour rebreathing system: Operating diagram



2TR

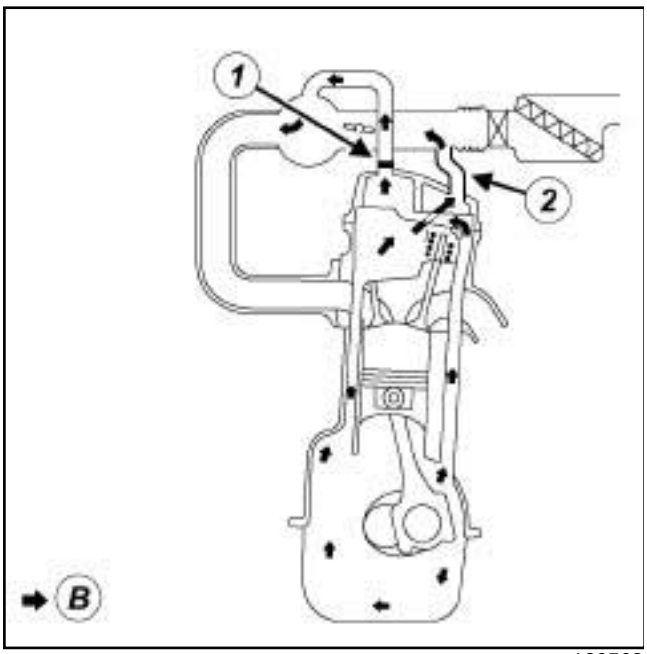
**I – Under low loads, the oil vapour is rebreathed through the PCV valve**




129561

(**A**) Fresh air
(**B**) Oil vapour
(**1**) PCV valve
(**2**) Fresh air hose

**II – Under medium and heavy loads, the oil vapour is rebreathed through the PCV valve and the fresh air hose**




129562

(**A**) Oil vapour
(**1**) PCV valve
(**2**) Fresh air hose



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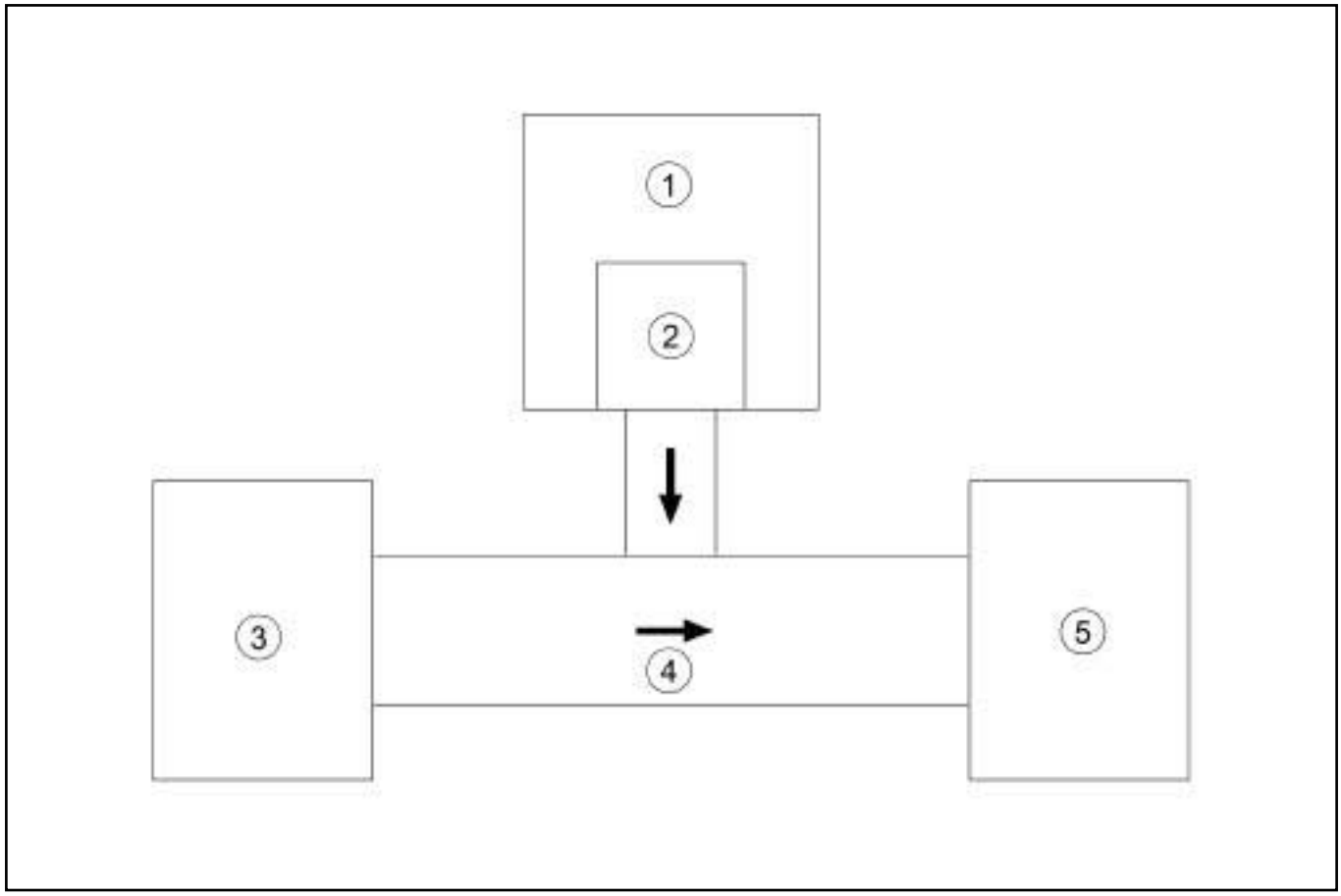


129563

(**1**) Engine
(**2**) Oil separator
(**3**) Air filter unit
(**4**) Air filter unit air outlet duct
(**5**) Turbocharger


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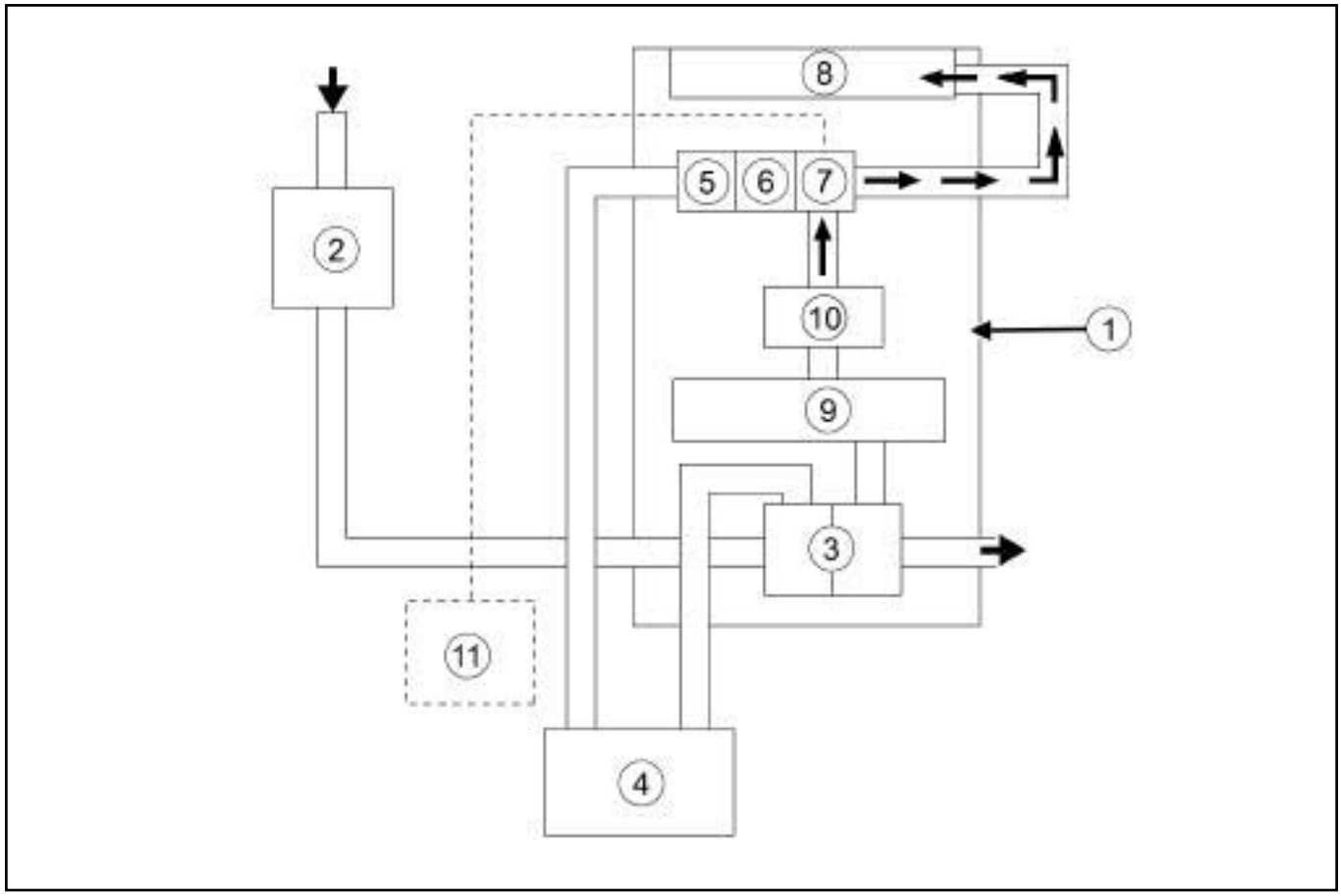


129564

| | |
|---|---|
| (**1**) | Engine |
| (**2**) | Air filter unit |
| (**3**) | Turbocharger |
| (**4**) | Intercooler |
| (**5**) | Air inlet valve |
| (**6**) | Turbocharging pressure sensor housing |
| (**7**) | Exhaust gas recirculation solenoid valve control |
| (**8**) | Intake distributor |
| (**9**) | Exhaust manifold |
| (**10**) | Exhaust gas cooler |
| (**11**) | Diesel injection computer |


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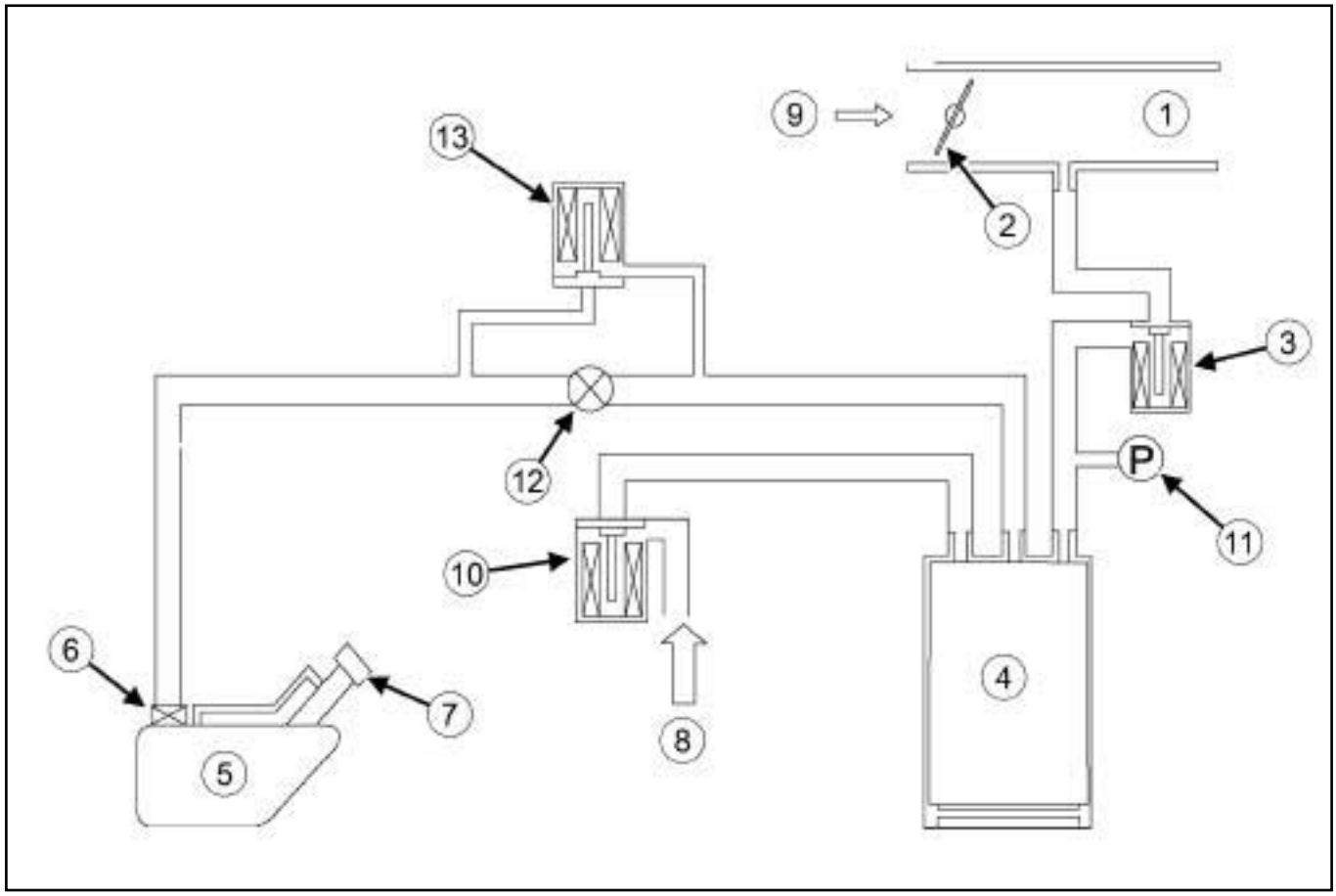
# Fuel vapour recirculation circuit: Operating diagram

2TR

**OPERATING DIAGRAM OF THE CIRCUIT**




132450

| | |
|---|---|
| (**1**) | Inlet manifold |
| (**2**) | Throttle valve |
| (**3**) | Fuel vapour absorber bleed solenoid valve |
| (**4**) | Fuel vapour absorber |
| (**5**) | Fuel tank |
| (**6**) | Fuel anti-return valve |
| (**7**) | Fuel filler cap |
| (**8**) | Fresh air vent |
| (**9**) | Fresh air |
| (**10**) | Fuel vapour absorber drain stop solenoid valve |
| (**11**) | Fuel vapour pressure sensor |
| (**12**) | Anti-return valve |
| (**13**) | Anti-return valve bypass solenoid valve |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**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**IMPORTANT**

Wear leaktight gloves (Nitrile type) for this operation.

## REMOVAL

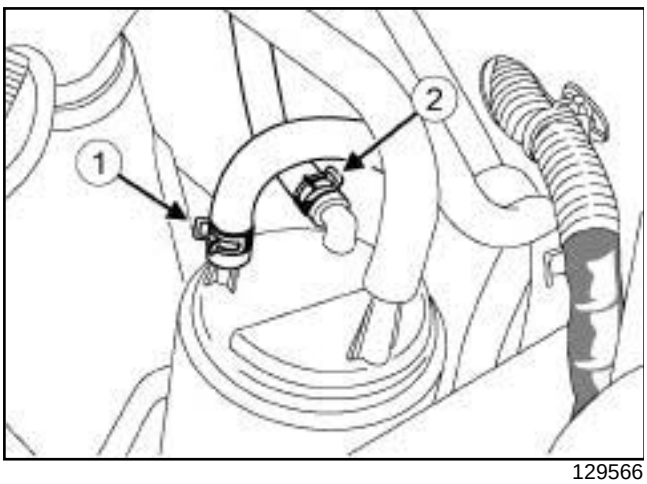
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping).

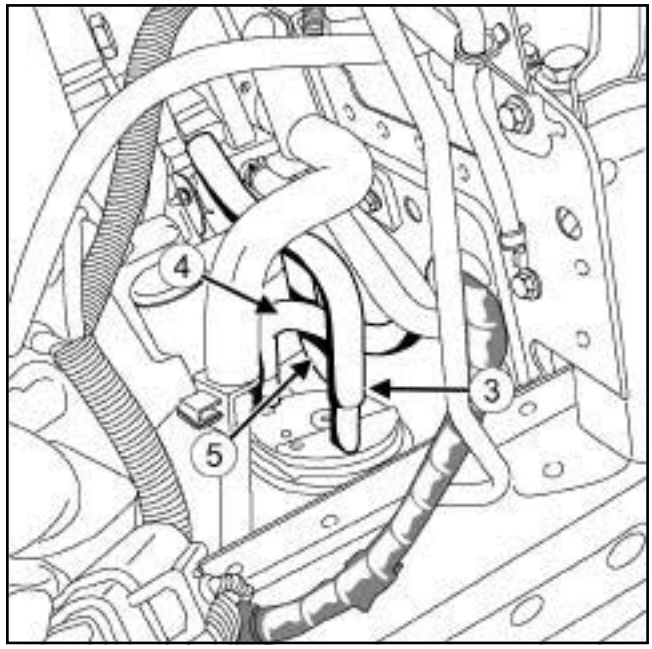
### II - OPERATION FOR REMOVAL OF PART CONCERNED




129566

❏ Remove:

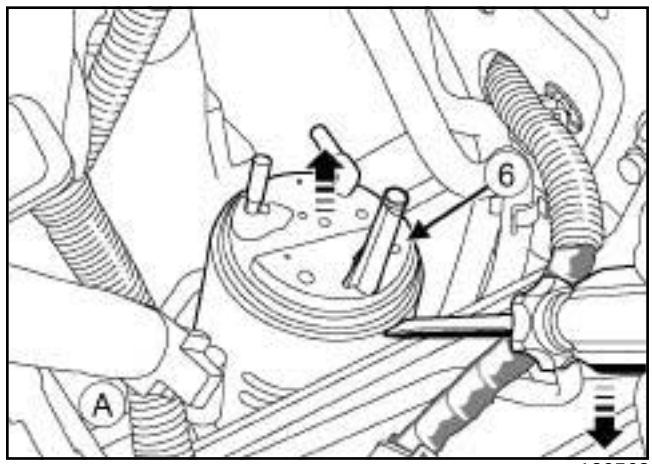
- the clip (**1**) from the fuel tank fuel vapour inlet hose,
- the clip (**2**) from the fuel vapour circulation hose leading to the solenoid valve.




129567

❏ Disconnect:

- the breather hose (**3**) ,
- the fuel tank fuel vapour inlet hose (**4**) ,
- the fuel vapour circulation hose (**5**) leading to the solenoid valve.




129568

❏ Remove the fuel vapour absorber (**6**) from the fuel tank retaining notch by pushing it in the direction of the arrow.

(**A**) : inside of the right-hand headlight.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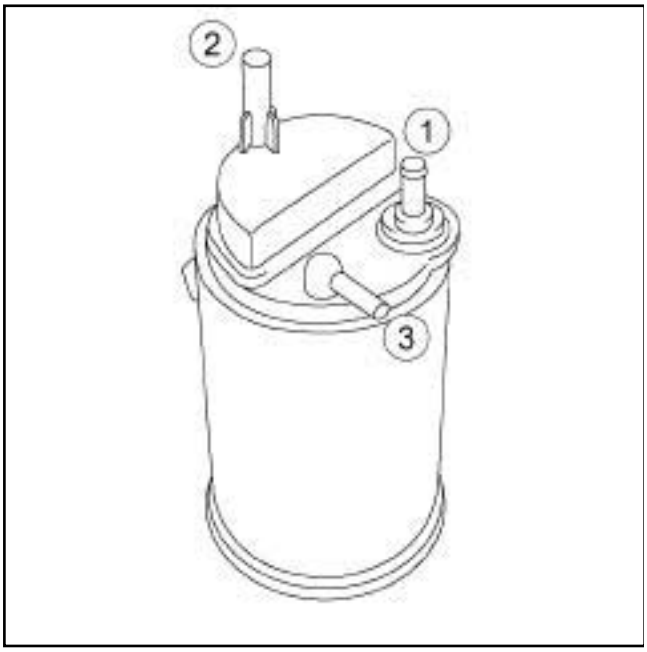
2TR

## REFITTING

### I - REFITTING PREPARATION OPERATION




129569

❑

**WARNING**
The breather should not be blocked during normal engine operation.

❑ Refit the fuel vapour absorber ***(6)*** :

- if there are cracks and damage visible,
- if a fault arises during the following checking procedure:

a) block the take-off pipe (**2**) . Blow in the take-off pipe (**1**) . Check that air circulates freely through the take-off pipe (**3**) .

b) block the take-off pipe (**1**) . Blow in the take-off pipe (**2**) . Check that air circulates freely through the take-off pipe (**3**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the fuel vapour absorber in the retaining notch.

❑ Connect:

- the fuel vapour circulation hose leading to the solenoid valve,
- the fuel tank fuel vapour inlet hose,
- the breather hose.

❑ Refit:

- the clip of the fuel vapour circulation hose leading to the solenoid valve,
- the clip of the fuel tank fuel vapour inlet hose.

### III - FINAL OPERATION.

❑ Refit the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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| Tightening torques ▽ | |
|---|---|
| fuel vapour absorber bleed solenoid valve nut | **5 N.m** |

## REMOVAL

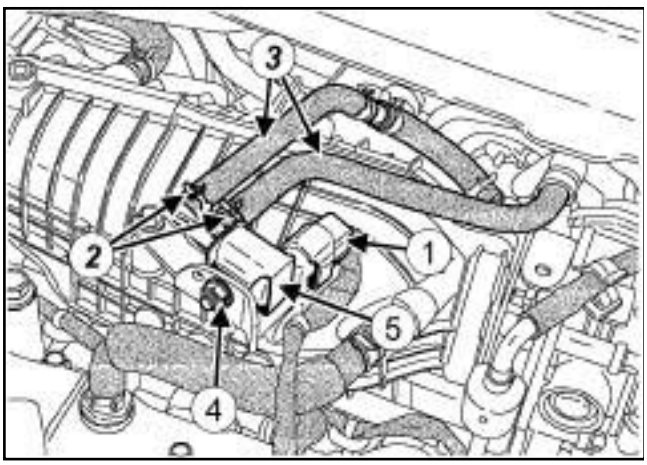
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129570

❏ Disconnect the fuel vapour absorber bleed solenoid valve connector (**1**) .

❏ Remove the clips (**2**) from the fuel vapour absorber bleed pipes.

❏ Disconnect the fuel vapour absorber bleed pipes (**3**) .

❏ Remove:

- the fuel vapour absorber bleed solenoid valve nut (**4**) ,
- the bleed solenoid valve (**5**) from the fuel vapour absorber.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the fuel vapour absorber bleed solenoid valve,
- the fuel vapour absorber bleed solenoid valve nut.

❏ Torque tighten the **fuel vapour absorber bleed solenoid valve nut (5 N.m)**.

❏ Connect the fuel vapour absorber bleed pipes.

❏ Refit the fuel vapour absorber bleed pipe clips.

❏ Connect the fuel vapour absorber bleed solenoid valve connector.

### II - FINAL OPERATION.

❏ Refit the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).



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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| exhaust gas recirculation solenoid valve bolts | **21 N.m** |
| exhaust gas recirculation exchanger water inlet pipe bracket bolts | **10 N.m** |
| exhaust gas recirculation cooling bypass solenoid valve bolts | **10 N.m** |
| intercooler water inlet pipe bolts | **10 N.m** |
| exhaust gas recirculation rigid pipe bolts | **25 N.m** |
| intercooler air inlet hose clip | **6 N.m.** |
| intercooler air inlet pipe bolt | **8 N.m** |

## REMOVAL

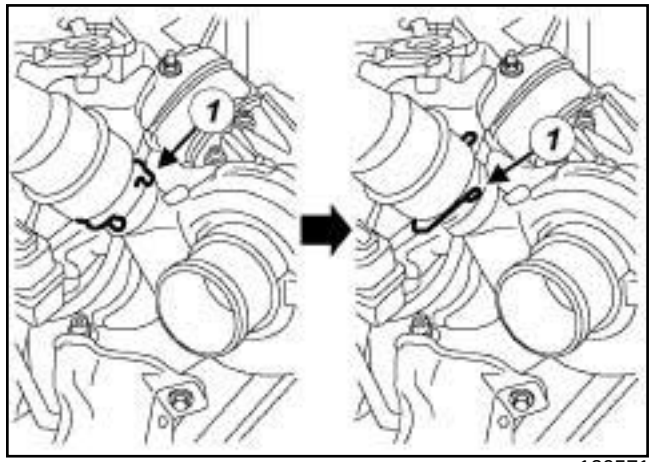
### I - REMOVAL PREPARATION OPERATION

❏ Remove the front engine cover.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

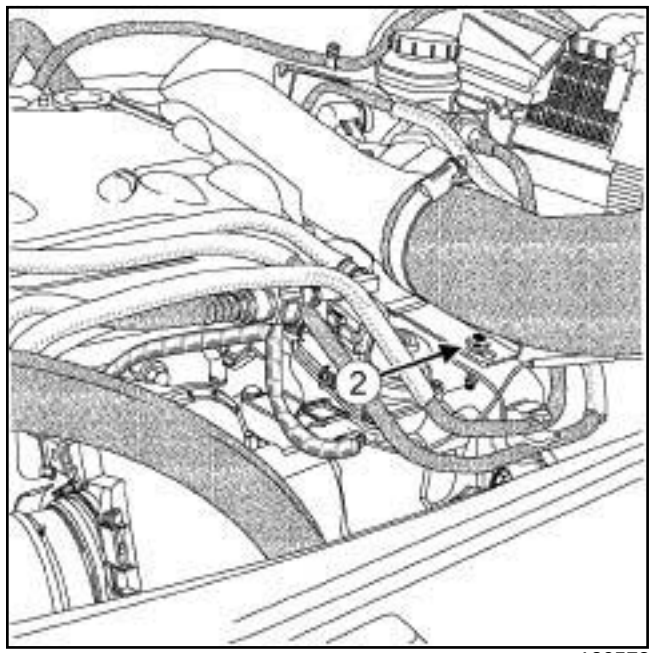
❏ Remove:

- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit.




129571

❏ Rotate the intercooler air inlet pipe clip (**1**) .




129572

❏ Remove the intercooler air inlet pipe bolts (**2**) from the fuel supply pipe bracket.

❏ Move the intercooler air inlet pipe to one side.



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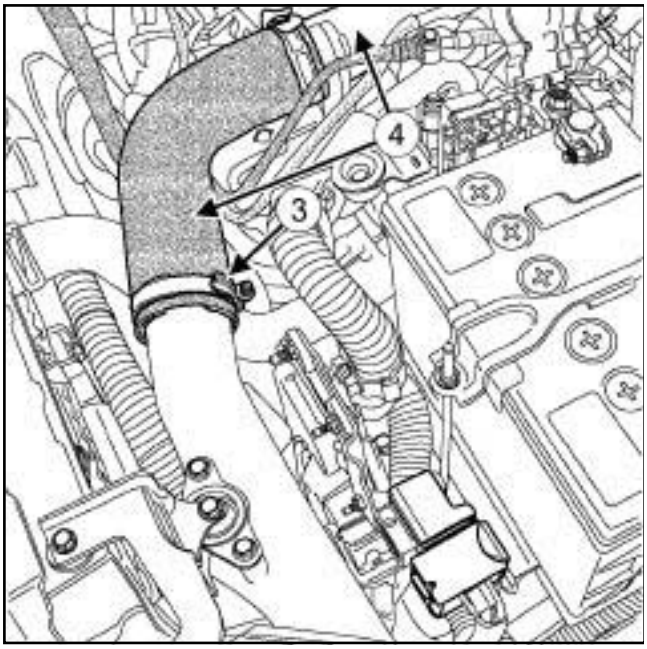


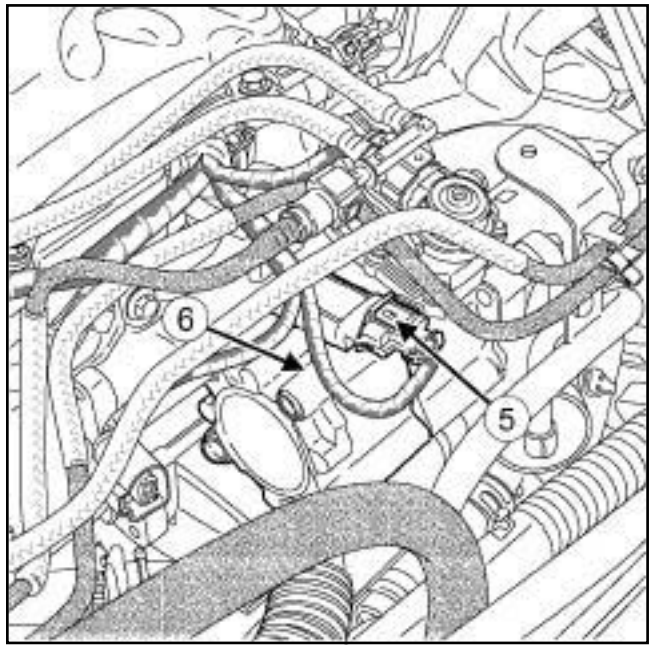

129573

❑ Loosen the clip (**3**) from the air inlet hose on the intercooler.

❑ Disconnect the intercooler air inlet pipe - hose assembly (**4**) from the intercooler air inlet pipe.

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) (12A, Fuel mixture).

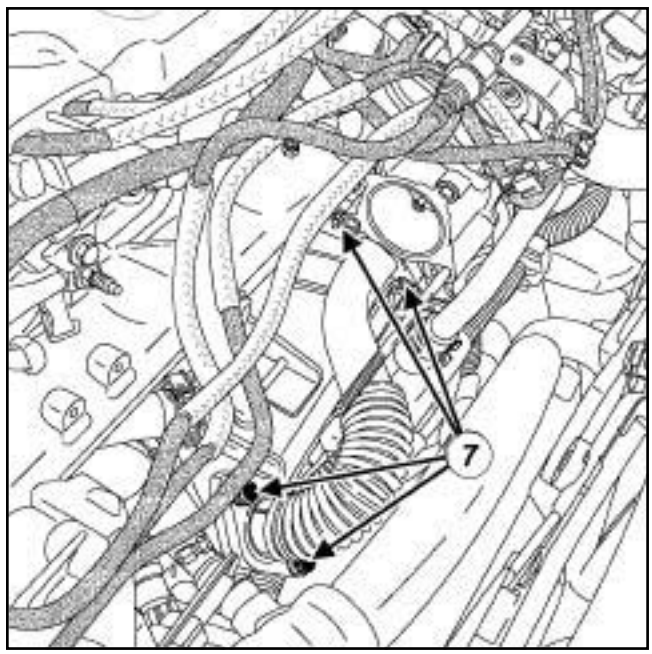



129574

❑ Disconnect the turbocharger pressure sensor connector (**5**) .

❑ Remove:

- the turbocharger pressure sensor housing (**6**) ,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve.




129575

❑ Remove:

- the bolts (**7**) from the EGR rigid pipe,
- the exhaust gas recirculation rigid pipe,



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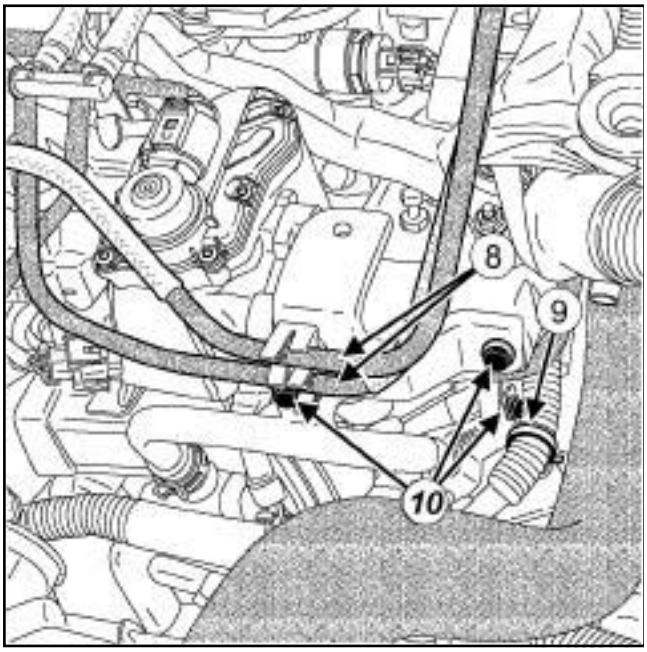
- the exhaust gas recirculation rigid pipe seal.



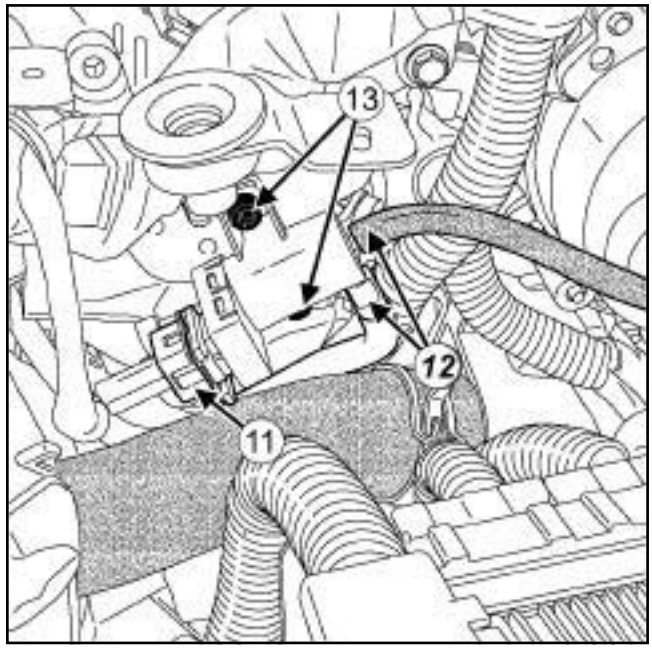

129576

❏ Unclip:

- the fuel pipes (**8**) ,
- the wiring (**9**) .

❏ Remove the bolts (**10**) from the intercooler water inlet pipe.

❏ Move the intercooler water inlet pipe to one side.




129580

❏ Disconnect:

- the exhaust gas recirculation cooling bypass solenoid valve connector (**11**) ,
- the vacuum hoses (**12**) from the exhaust gas recirculation cooling bypass solenoid valve.

❏ Remove:

- the exhaust gas recirculation cooling bypass solenoid valve bolts (**13**) ,
- the exhaust gas recirculation cooling bypass solenoid valve.



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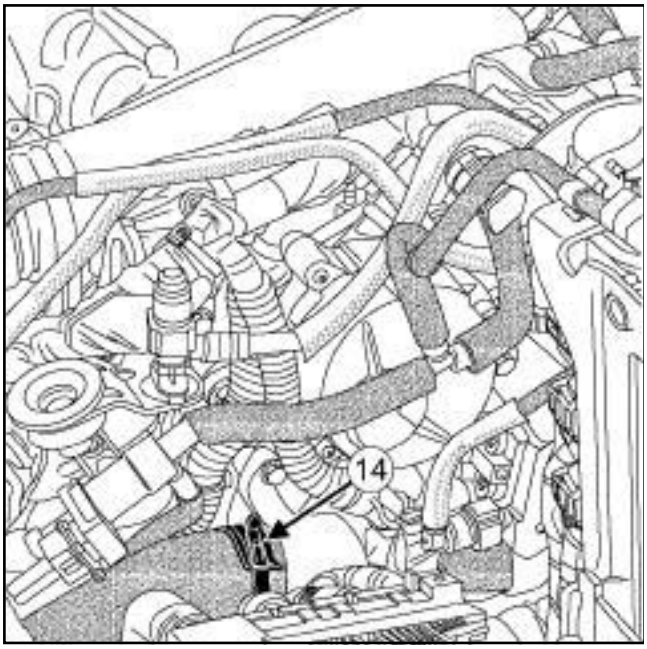
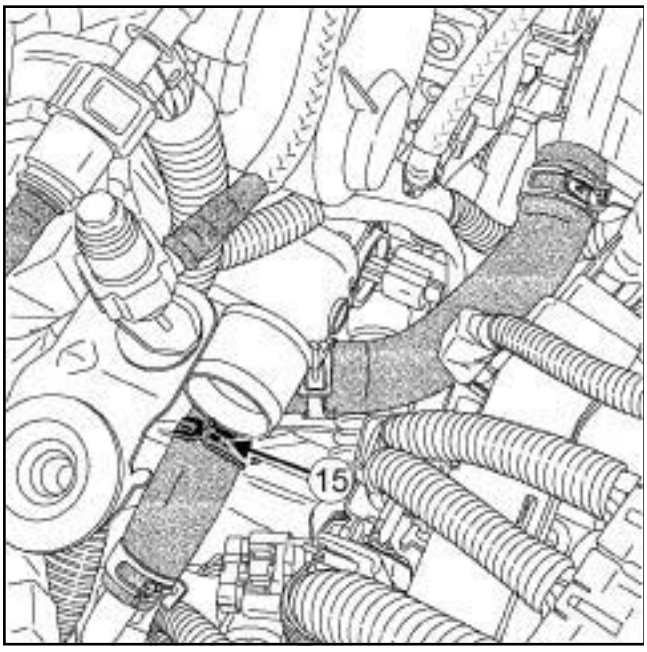



129581

❏ Remove the clip (**14**) from the radiator water inlet hose using the tool **(Mot. 1448)**.

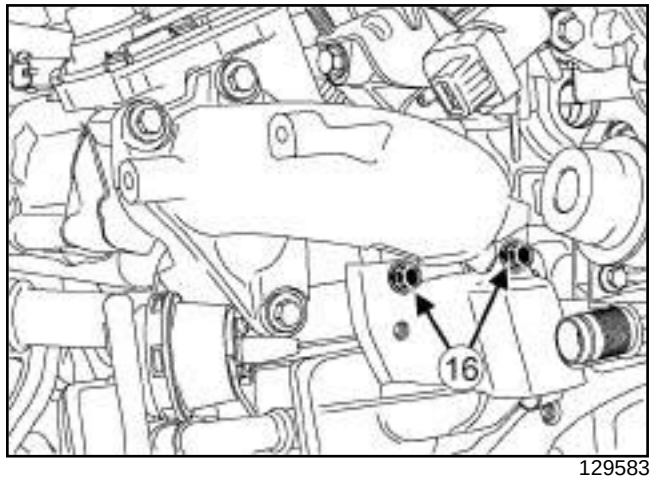
❏ Disconnect the radiator water inlet hose from the inlet manifold.




129582

❏ Remove the exhaust gas recirculation exchanger water inlet pipe clip (**15**) using the tool **(Mot. 1448)**.

❏ Disconnect the exhaust gas recirculation exchanger water inlet pipe from the inlet manifold.



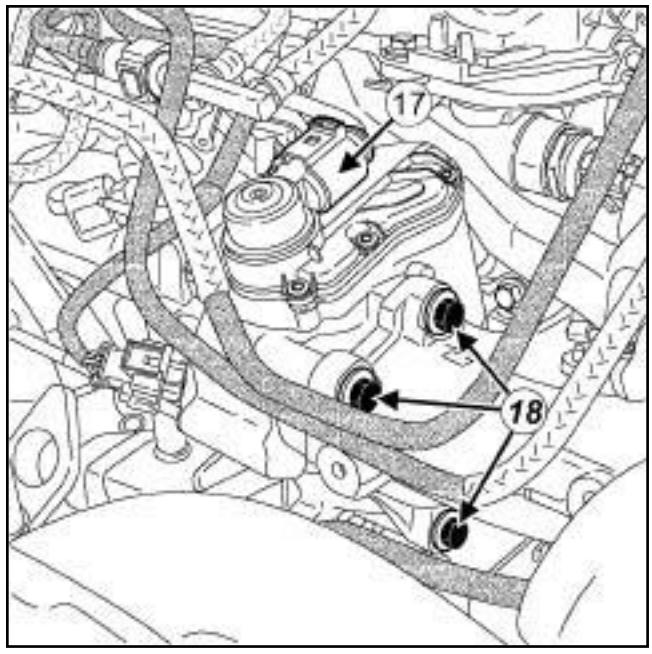

129583

❏ Remove:

- the bolts (**16**) from the exhaust gas recirculation exchanger water inlet pipe bracket on the inlet manifold,

- the exhaust gas recirculation exchanger water inlet pipe bracket.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129577

❏ Disconnect the connector (**17**) from the exhaust gas recirculation solenoid valve.

❏ Remove:

- the exhaust gas recirculation solenoid valve bolts (**18**) from the inlet manifold,

- the exhaust gas recirculation solenoid valve,



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- the seal between the exhaust gas recirculation solenoid valve and the inlet manifold.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean the gasket faces.

❏ Always replace:

- the seal between the exhaust gas recirculation solenoid valve and the inlet manifold,
- the exhaust gas recirculation rigid pipe seal,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the intercooler air inlet pipe seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the seal between the exhaust gas recirculation solenoid valve and the inlet manifold,
- the exhaust gas recirculation solenoid valve,
- the exhaust gas recirculation solenoid valve bolts on the inlet manifold.

❏ Torque tighten the **exhaust gas recirculation solenoid valve bolts (21 N.m)**.

❏ Connect the exhaust gas recirculation solenoid valve connector.

### III - FINAL OPERATION.

❏ Position the exhaust gas recirculation exchanger water inlet pipe bracket on the inlet manifold.

❏ Refit the exhaust gas recirculation exchanger water inlet pipe bracket bolts.

❏ Torque tighten the **exhaust gas recirculation exchanger water inlet pipe bracket bolts (10 N.m)**.

❏ Connect the exhaust gas recirculation exchanger water inlet pipe to the inlet manifold.

❏ Refit the exhaust gas recirculation exchanger water inlet pipe clip using the tool **(Mot. 1448)**.

❏ Connect the radiator water inlet hose to the inlet manifold.

❏ Remove the radiator water inlet hose clip using the tool **(Mot. 1448)**.

❏ Position the exhaust gas recirculation cooling bypass solenoid valve.

❏ Refit the exhaust gas recirculation cooling bypass solenoid valve bolts.

❏ Torque tighten the **exhaust gas recirculation cooling bypass solenoid valve bolts (10 N.m)**.

❏ Connect:

- the vacuum hoses to the exhaust gas recirculation cooling bypass solenoid valve,
- the exhaust gas recirculation cooling bypass solenoid valve connector.

❏ Position the intercooler water inlet pipe.

❏ Refit the intercooler water inlet pipe bolts.

❏ Torque tighten the **intercooler water inlet pipe bolts (10 N.m)**.

❏ Clip:

- the wiring,
- the fuel pipes.

❏ Refit:

- the new exhaust gas recirculation rigid pipe seals,
- the exhaust gas recirculation rigid pipe,
- the EGR rigid pipe bolts.

❏ Torque tighten the **exhaust gas recirculation rigid pipe bolts (25 N.m)**.

❏ Refit:

- the new seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the turbocharger pressure sensor housing.

❏ Connect the turbocharger pressure sensor connector.

❏ Refit:

- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Connect the intercooler air inlet pipe - hose assembly to the intercooler air inlet pipe.

❏ Torque tighten the **intercooler air inlet hose clip (6 N.m.)** using the tool **(Mot. 1608)**.



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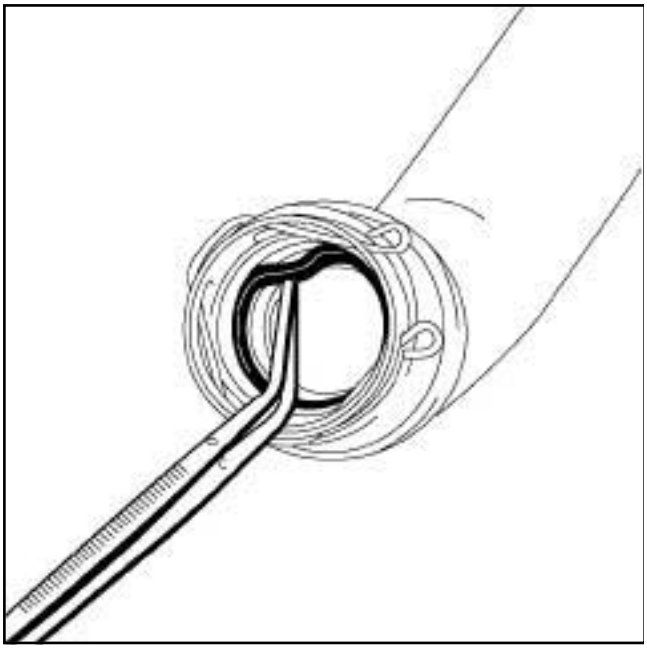
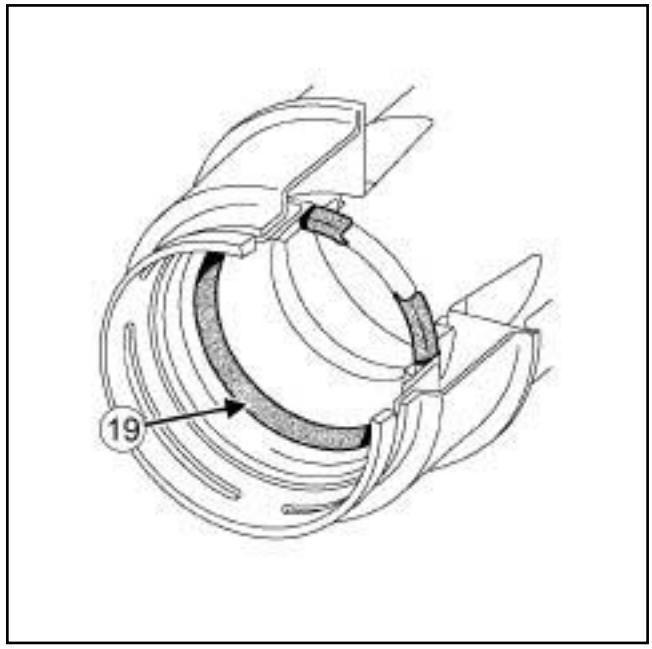


129578

❑ Remove the intercooler inlet pipe seal using .




129579

❑

Note:

Check that the seal (**19**) on the intercooler air inlet pipe is fitted the right way round.

❑ Refit the new intercooler inlet pipe seal.

❑ Rotate the intercooler inlet pipe to refit the clip in its housing.

❑ Clip the intercooler inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt to the fuel supply pipe bracket.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit:

- the air inlet sleeve to the air filter unit,

- the air inlet sleeve clips.

❑ Fill the cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

❑ Refit the engine cover.

❑ Connect thediagnostic tool.

❑ Reinitialise the programming following command scenario **SC036** when replacing the exhaust gas recirculation solenoid valve **diagnostic tool** (see **Fault finding - Replacement of components** 13B, Diesel injection).



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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| exhaust gas cooler bolts | **25 N.m** |
| dipstick guide tube bolts | **10 N.m** |
| intercooler air outlet pipe bolt | **8 N.m** |
| intercooler air outlet pipe clip | **6 N.m** |
| air filter unit air outlet pipe clips | **5 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

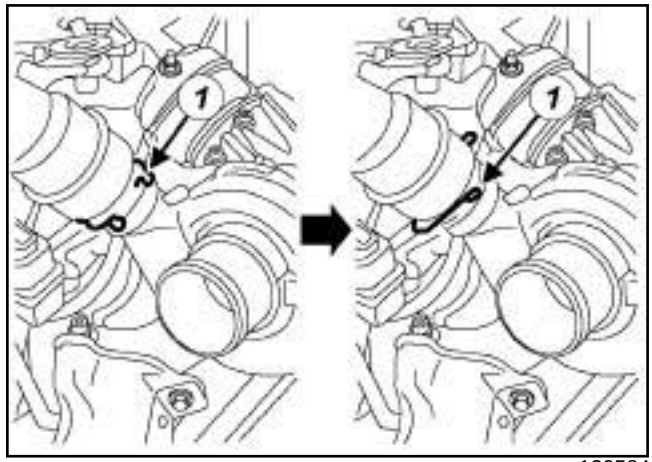
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

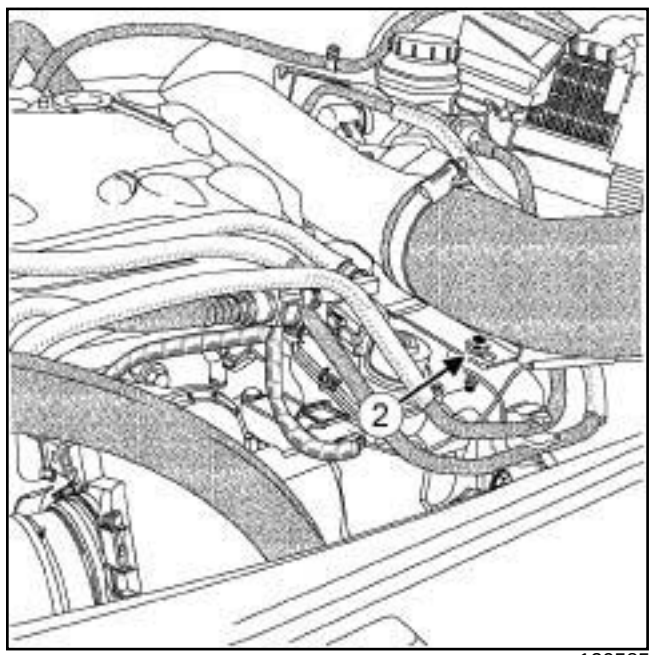
❏ Remove:

- the engine cover,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



129584

❏ Rotate the intercooler air inlet pipe clip (**1**) on the turbocharger.



129585

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel supply pipe bracket.

❏ Move the intercooler air inlet pipe to one side.

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),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- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Loosen the air filter unit air outlet pipe clip on the turbocharger.

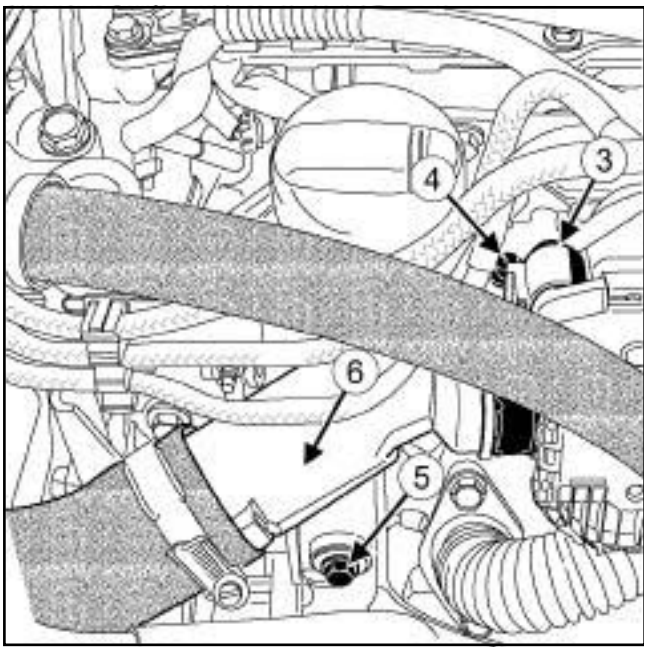
❏ Disconnect:

- the oil vapour rebreathing pipe from the oil separator,
- the air filter unit air outlet pipe from the turbocharger.

❏ Fit a blanking plug into the oil separator opening.

❏ Remove:

- the intake distributor (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) .



129586

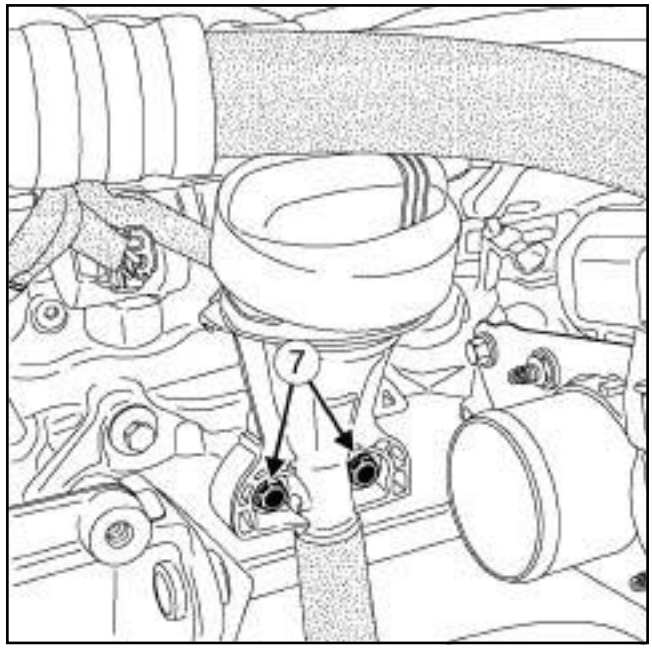
❏ Disconnect the connector (**3**) from the damper valve wiring.

❏ Loosen the clip ***(4)*** on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt ***(5)*** .

❏ Disconnect the intercooler air outlet pipe ***(6)*** from the damper valve.

❏ Move the intercooler air outlet pipe to one side.



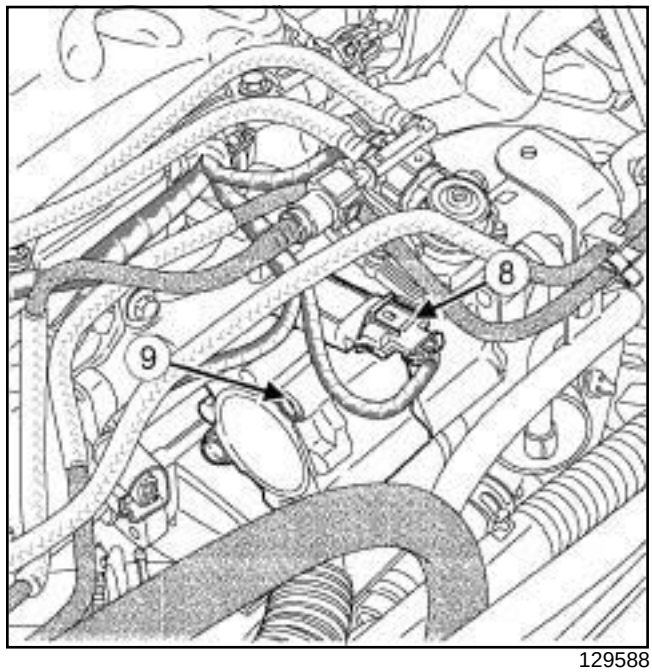
129587

❏ Remove:

- the bolts (**7**) from the dipstick tube,
- the dipstick tube.

❏ Fit a blanking plug on the opening of the dipstick guide tube on the cylinder block.

❏ Remove the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .



129588

❏ Disconnect the turbocharger pressure sensor connector (**8**) .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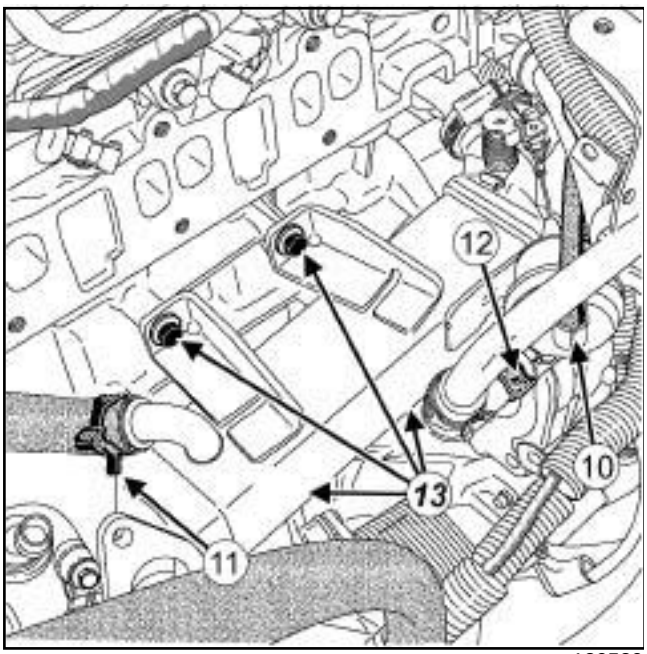
M9R

❑ Remove:

- the turbocharger pressure sensor housing ***(9)*** ,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the starter motor (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129589

❑ Remove:

- the vacuum hose (**10**) from the exhaust gas cooler,
- the clip (**11**) from the exhaust gas cooler water outlet pipe using the tool **(Mot. 1448)**,
- the clip (**12**) from the exhaust gas cooler water inlet hose using the tool **(Mot. 1448)**.

❑ Disconnect:

- the exhaust gas cooler water outlet pipe from the exhaust gas cooler,
- the exhaust gas cooler water inlet hose from the exhaust gas cooler.

❑ Remove:

- the bolts ***(13)*** from the exhaust gas cooler,
- the exhaust gas intercooler.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Clean:

- the exhaust gas recirculation rigid pipe joint faces,
- the exhaust gas recirculation solenoid valve seal face,
- the turbocharger pressure sensor housing seal faces,
- the damper valve seal face.

❑ Always replace:

- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler,
- the exhaust gas recirculation rigid pipe seals,
- the exhaust gas recirculation rigid pipe clip,
- the bolts securing the exhaust gas recirculation rigid pipe on the exhaust manifold,
- the inlet manifold gasket,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the seal between the damper valve and the turbocharger pressure sensor housing.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the exhaust gas cooler,
- the exhaust gas cooler bolts.

❑ Torque tighten the **exhaust gas cooler bolts (25 N.m)**.

❑ Connect:

- the exhaust gas cooler water inlet pipe to the exhaust gas cooler,
- the exhaust gas cooler water outlet pipe to the exhaust gas cooler.

❑ Refit:

- the clip on the exhaust gas cooler water inlet pipe using the tool **(Mot. 1448)**,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- the clip on the exhaust gas cooler water outlet pipe using the tool **(Mot. 1448)**,
- the vacuum hose on the exhaust gas cooler.

**III - FINAL OPERATION.**

❏ Refit:

- the starter (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**) ,
- the new seals on the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas cooler,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the new seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the turbocharger pressure sensor housing.

❏ Refit:

- the new seal between the damper valve and the turbocharger pressure sensor housing,
- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .

❏ Remove the blanking plug from the opening of the dipstick guide tube on the cylinder block.

❏ Refit:

- dipstick guide ,
- the dipstick guide tube bolts.

❏ Torque tighten the **dipstick guide tube bolts (10 N.m)**.

❏ Connect the intercooler air outlet pipe to the damper valve.

❏ Torque tighten:

- the **intercooler air outlet pipe bolt (8 N.m)**,
- the **intercooler air outlet pipe clip (6 N.m)** using the tool **(Mot. 1608)**.

❏ Connect the damper valve wiring connector.

❏ Refit:

- the new exhaust gas recirculation rigid pipe seal on the exhaust manifold,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas cooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the new seal on the inlet manifold,
- the inlet manifold (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,
- the inlet manifold hoses and pipes.

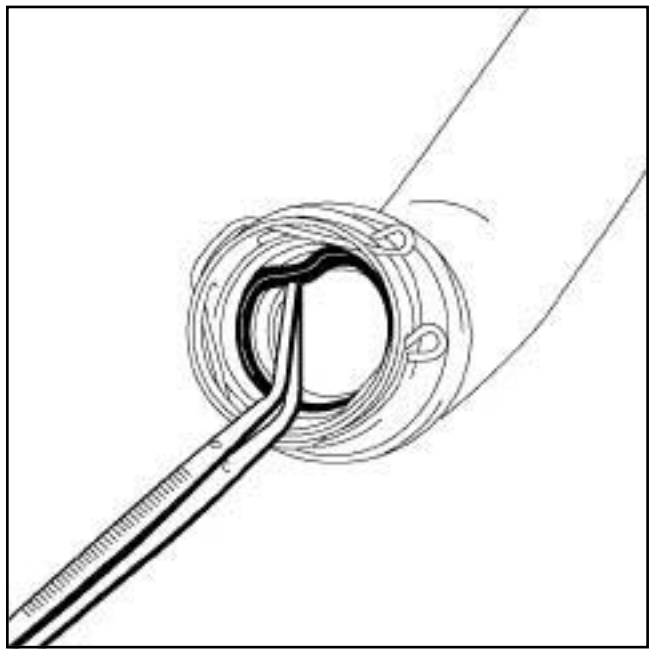
❏ Refit the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Connect the air filter unit air outlet pipe to the turbocharger and to the air filter unit.

❏ Torque tighten the **air filter unit air outlet pipe clips (5 N.m)** using the tool **(Mot. 1608)**.

❏ Remove the blanking plug from the opening of the oil separator.

❏ Connect the oil vapour rebreathing pipe to the oil decanter.



129590

❏ Remove the intercooler air inlet pipe seal using a .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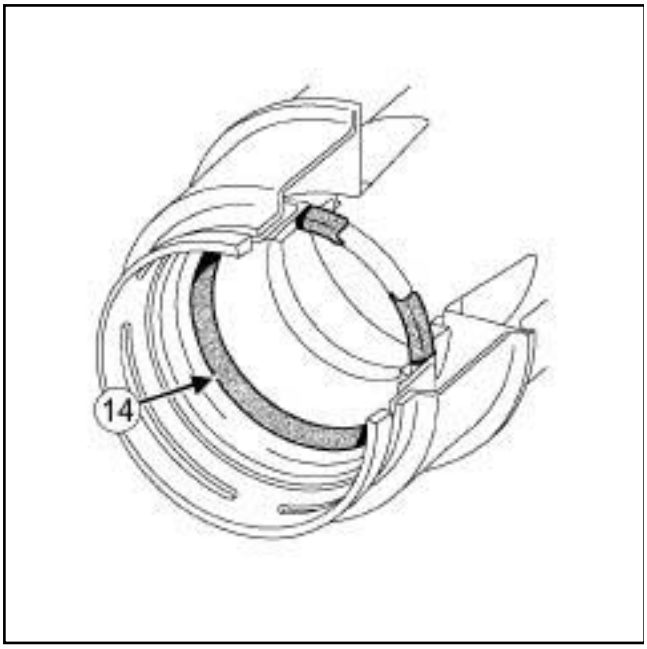


129591

❑

Note:

Check that the new seal (**14**) on the intercooler air inlet pipe is fitted the right way round.

❑ Refit the new intercooler inlet pipe seal.

❑ Rotate the intercooler inlet pipe to refit the clip in its housing.

❑ Clip the intercooler inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt to the fuel supply pipe bracket.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air inlet sleeve to the air filter unit,
- the air inlet sleeve clips.

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine cover,
- the engine undertray.


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| exhaust gas recirculation rigid pipe clip | **5 N.m** |
| exhaust gas recirculation rigid pipe bolts on the exhaust manifold | **35 N.m** |
| bolt securing the EGR rigid pipe on the cylinder head | **10 N.m** |
| EGR rigid pipe bolts | **25 N.m** |
| exhaust gas recirculation exchanger water inlet pipe bracket bolts | **10 N.m** |
| intercooler water inlet pipe bolts | **10 N.m** |
| exhaust gas recirculation rigid pipe heat shield bolts | **10 N.m** |
| exhaust gas recirculation cooling bypass solenoid valve bolts | **10 N.m** |
| air filter unit air outlet pipe clip | **s5 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

## REMOVAL

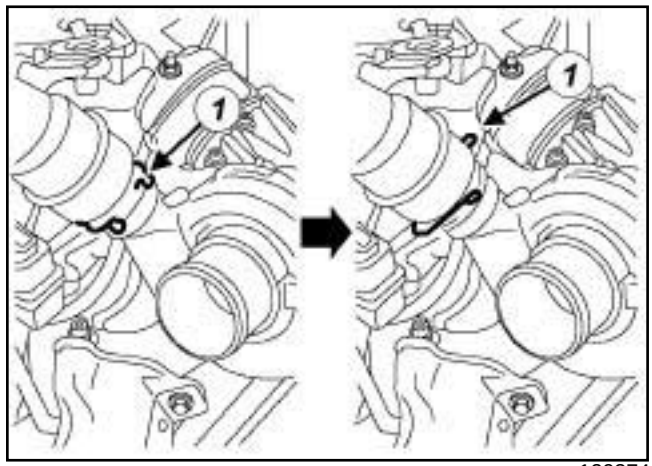
### I - REMOVAL PREPARATION OPERATION

**1 - Exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger**

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the engine cover,
- the engine undertray,
- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit.



129374

❑ Rotate the intercooler air inlet pipe clip (**1**) .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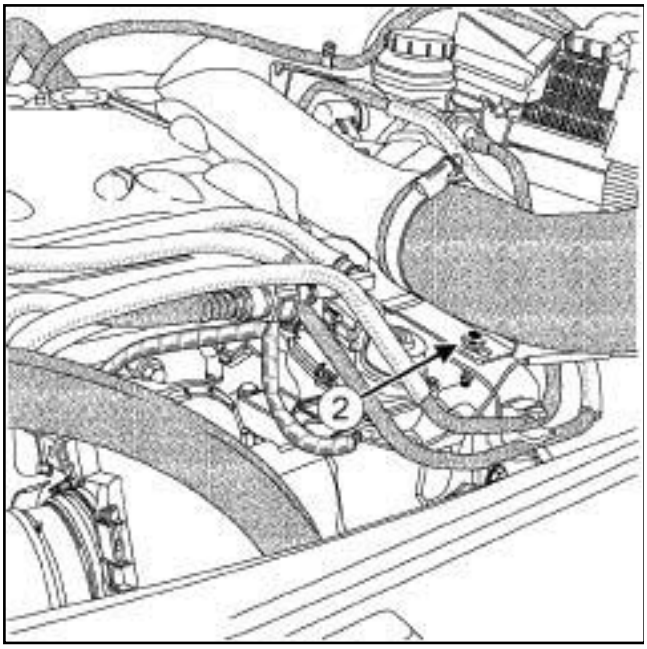



129375

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel supply pipe bracket.

❏ Move the intercooler air inlet pipe to one side.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) (12A, Fuel mixture).

❏ Loosen the air filter unit air outlet pipe clip on the turbocharger.

❏ Disconnect:

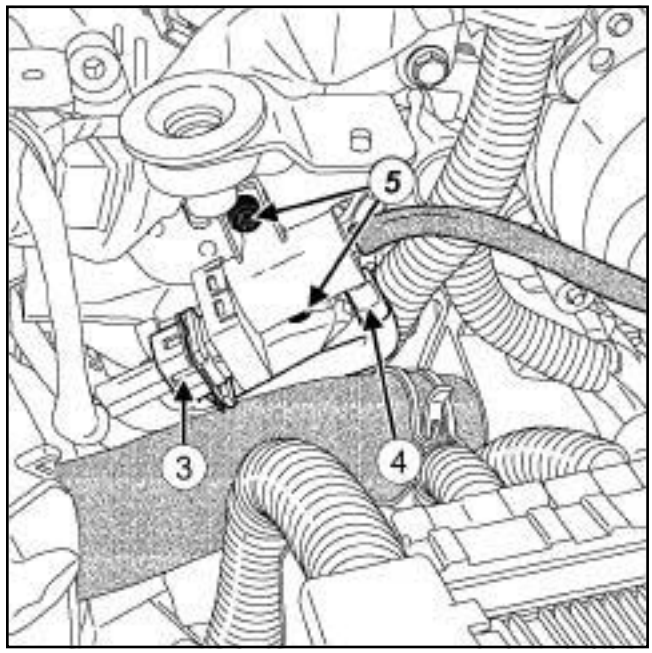
- the oil vapour rebreathing pipe from the oil separator,
- the air filter unit air outlet pipe from the turbocharger.

❏ Fit a blanking plug into the oil separator opening.

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).




129592

❏ Disconnect:

- the connector (**3**) from the EGR cooling bypass solenoid valve,
- the vacuum hoses (**4**) from the EGR cooling bypass solenoid valve.

❏ Remove:

- the EGR cooling bypass solenoid valve bolts (**5**) ,
- the EGR cooling bypass solenoid valve,
- the water chamber (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) (19A, Fuel mixture).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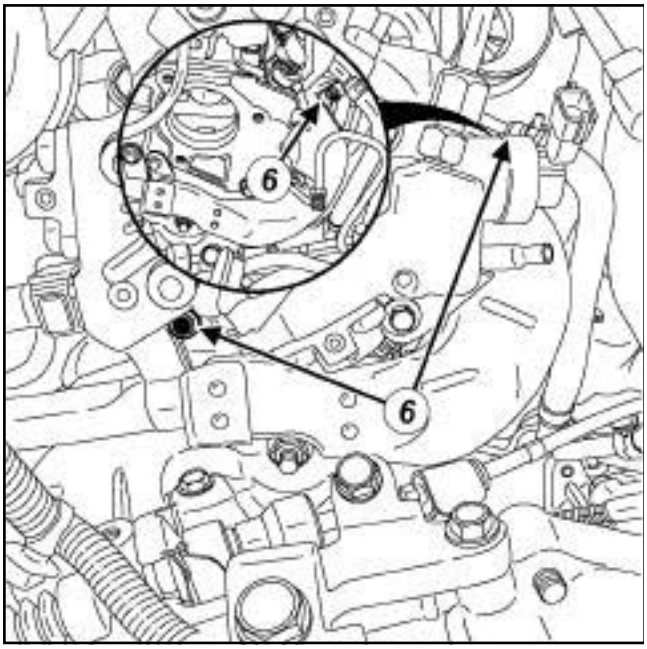
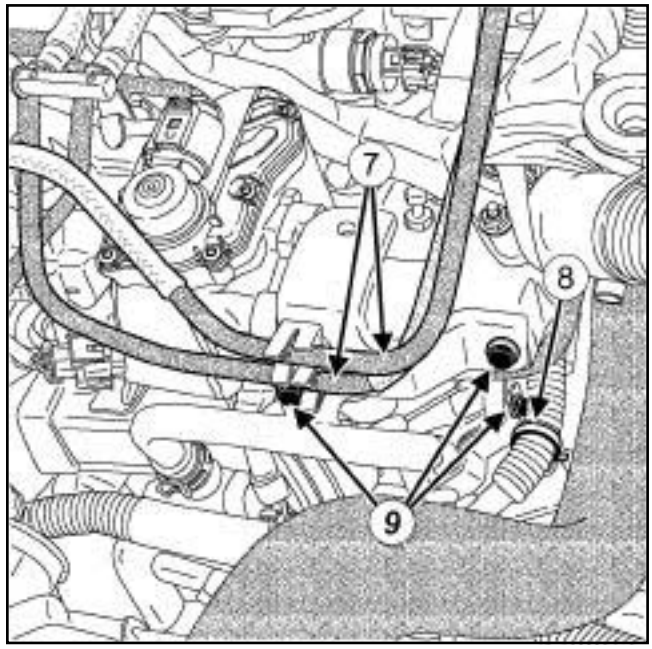
M9R




129593

❏ Remove:

- the bolts (**6**) from the exhaust gas recirculation rigid pipe heat shield on the exhaust manifold and the cylinder head,
- the heat shield from the rigid exhaust gas recirculation pipe.



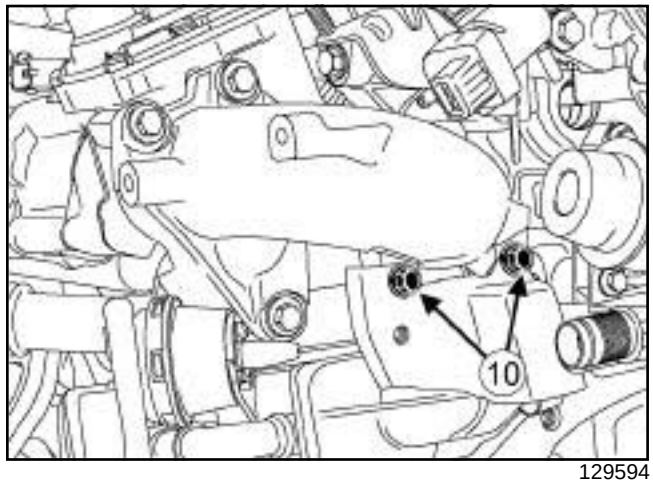

129604

❏ Unclip:

- the fuel pipes (**7**) ,
- the wiring (**8**) .

❏ Remove the bolt (**9**) from the intercooler water inlet pipe.

❏ Move the intercooler water inlet pipe to one side.




129594

❏ Remove:

- the exhaust gas recirculation exchanger water inlet pipe bracket bolts (**10**) from the inlet manifold,
- the exhaust gas recirculation exchanger water inlet pipe bracket.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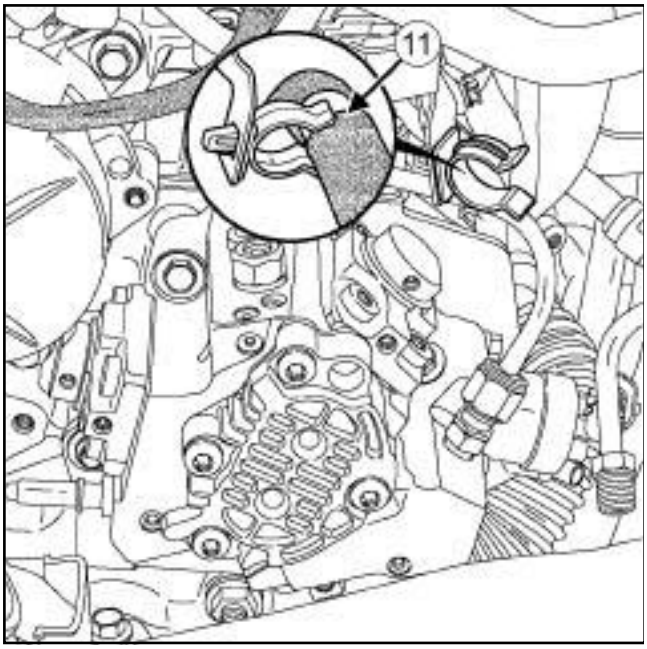



129595

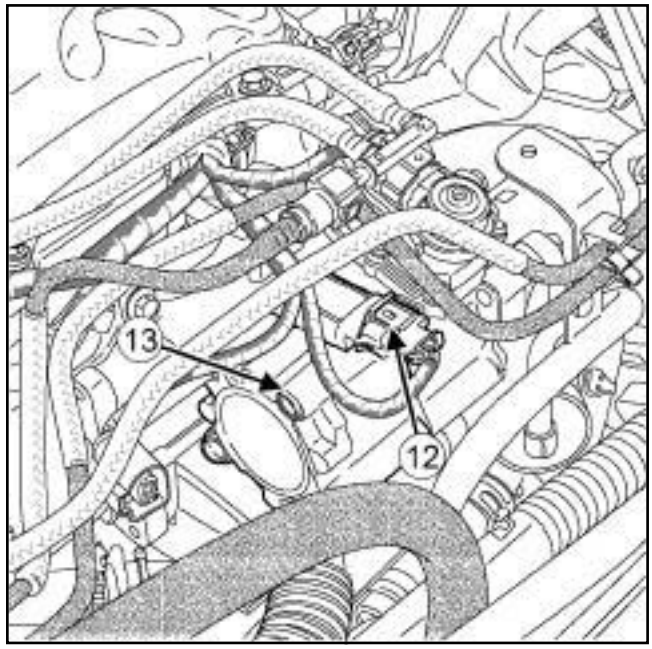
❏ Unclip the turbocharger cooling hose (**11**) .

**2 - Exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.**

❏ Remove the front engine cover.

❏ Remove the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Remove the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) (12A, Fuel mixture).




129598

❏ Disconnect the turbocharger pressure sensor connector (**12**) .

❏ Remove:

- the turbocharger pressure sensor housing (**13**) ,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve.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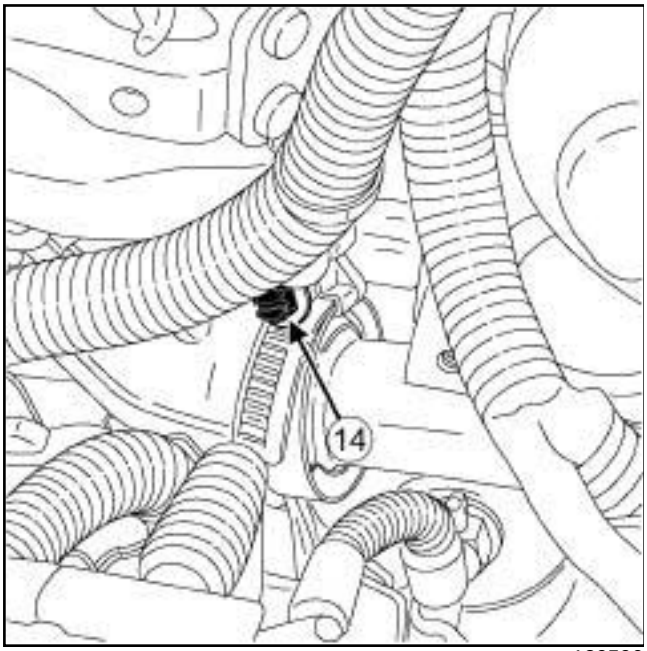
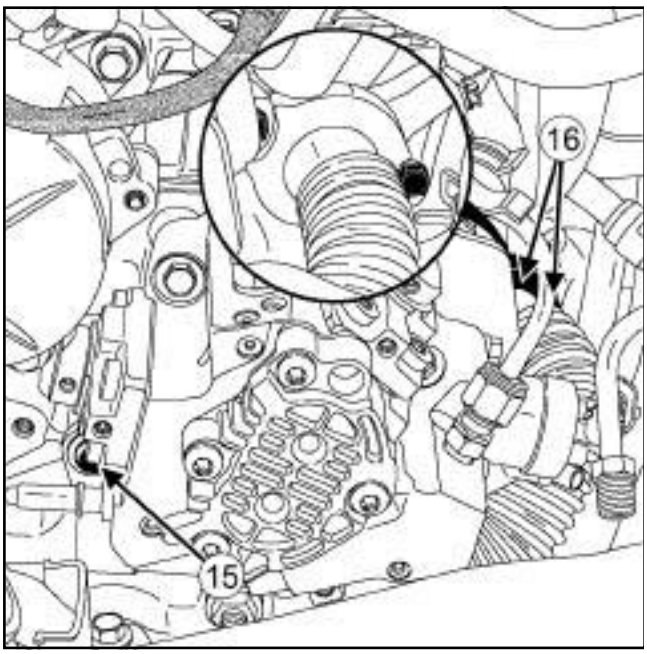
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

**1 - Exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger**




129596

❏ Remove the clip (**14**) from the exhaust gas recirculation rigid pipe.

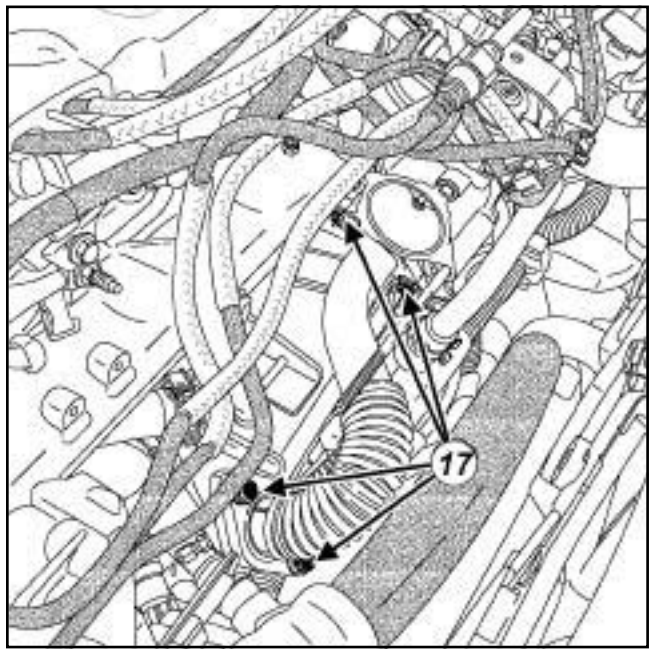



129605

❏ Remove:

- the bolt (**15**) securing the exhaust gas recirculation rigid pipe on the cylinder head,
- the bolts (**16**) securing the exhaust gas recirculation rigid pipe on the exhaust manifold,
- the exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger,
- the exhaust gas recirculation exchanger rigid pipe seal.

**2 - Exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.**




129599

❏ Remove:

- the bolts (**17**) from the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger,
- the exhaust gas recirculation exchanger rigid pipe seals.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M9R

## REFITTING

### I - REFITTING PREPARATION OPERATION

**1 - Exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger**

❑

> **WARNING**
> The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Clean the gasket faces.

❑ Always replace:

- the exhaust gas recirculation exchanger rigid pipe,
- the exhaust gas recirculation exchanger rigid pipe seal,
- the exhaust gas recirculation exchanger rigid pipe clip,
- the bolts securing the exhaust gas recirculation rigid pipe on the exhaust manifold,
- the intercooler inlet pipe seal.

**2 - Exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.**

❑

> **WARNING**
> The joint faces must be clean, dry and free from grease (avoid finger marks).

❑ Clean the gasket faces.

❑ Always replace:

- the exhaust gas recirculation exchanger rigid pipe seals,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the seal between the damper valve and the turbocharger pressure sensor housing.

### II - REFITTING OPERATION FOR PART CONCERNED

**1 - Exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger**

❑ Refit:

- the new exhaust gas recirculation rigid pipe with the new seal,
- the exhaust gas recirculation exchanger rigid pipe clip,
- the new bolts securing the exhaust gas recirculation rigid pipe on the exhaust manifold,
- the bolt securing the exhaust gas recirculation rigid pipe on the cylinder head.

❑ Tighten to torque:

- the **exhaust gas recirculation rigid pipe clip (5 N.m)** using tool **(Mot. 1608)**,
- the **exhaust gas recirculation rigid pipe bolts on the exhaust manifold (35 N.m)**,
- the **bolt securing the EGR rigid pipe on the cylinder head (10 N.m)**.

**2 - Exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.**

❑ Refit:

- the exhaust gas recirculation rigid pipe with the new seals,
- the EGR rigid pipe bolts.

❑ Torque tighten the **EGR rigid pipe bolts (25 N.m)**.

### III - FINAL OPERATION.

**1 - Exhaust gas recirculation exchanger rigid pipe between the exhaust manifold and the exhaust gas recirculation exchanger**

❑ Unclip the turbocharger cooling hose.

❑ Position the exhaust gas recirculation exchanger water inlet pipe bracket on the inlet manifold.

❑ Refit the exhaust gas recirculation exchanger water inlet pipe bracket bolts.

❑ Torque tighten the **exhaust gas recirculation exchanger water inlet pipe bracket bolts (10 N.m)**.

❑ Position the intercooler water inlet pipe.

❑ Refit the intercooler water inlet pipe bolts.


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M9R

❏ Torque tighten the **intercooler water inlet pipe bolts (10 N.m)**.

❏ Refit:

- the wiring harness,
- the fuel pipes.

❏ Position the heat shield for the exhaust gas recirculation rigid pipe.

❏ Refit the rigid EGR pipe heat shield bolts.

❏ Torque tighten the **exhaust gas recirculation rigid pipe heat shield bolts (10 N.m)**.

❏ Refit:

- the water chamber (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) (19A, Fuel mixture),
- the water chamber hoses and pipes (see **19A**, **Cooling**, **Plenum chamber: Removal - Refitting**, page **19A-27**) (19A, Fuel mixture).

❏ Position the exhaust gas recirculation cooling bypass solenoid valve.

❏ Refit the exhaust gas recirculation cooling bypass solenoid valve bolts.

❏ Torque tighten the **exhaust gas recirculation cooling bypass solenoid valve bolts (10 N.m)**.

❏ Connect:

- the vacuum hoses to the exhaust gas recirculation cooling bypass solenoid valve,
- the exhaust gas recirculation cooling bypass solenoid valve connector.

❏ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle panel grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) (12A, Fuel mixture).

❏ Connect the air filter unit air outlet pipe to the turbocharger and the air filter unit.

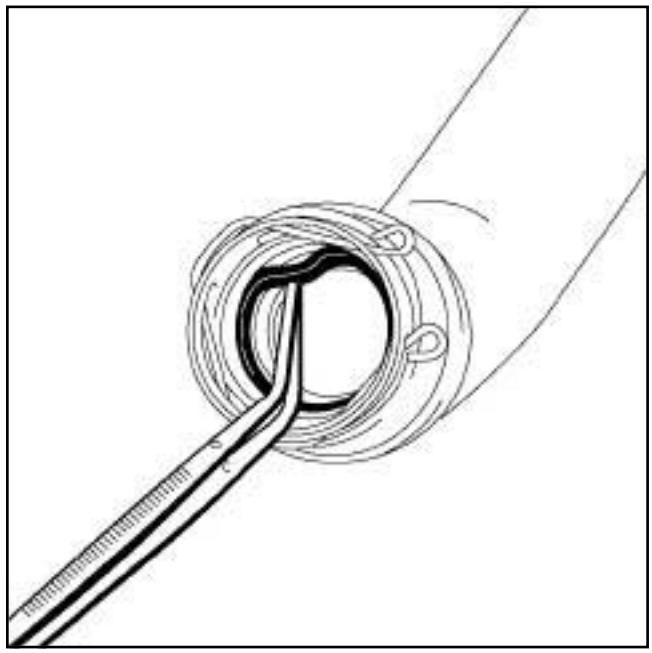
❏ Torque tighten the **air filter unit air outlet pipe clip (s5 N.m)** using the tool **(Mot. 1608)**.

❏ Remove the blanking plug from the opening of the oil separator.

❏ Connect the oil vapour rebreathing pipe to the oil decanter.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).



129601

❏ Remove the intercooler inlet pipe seal using .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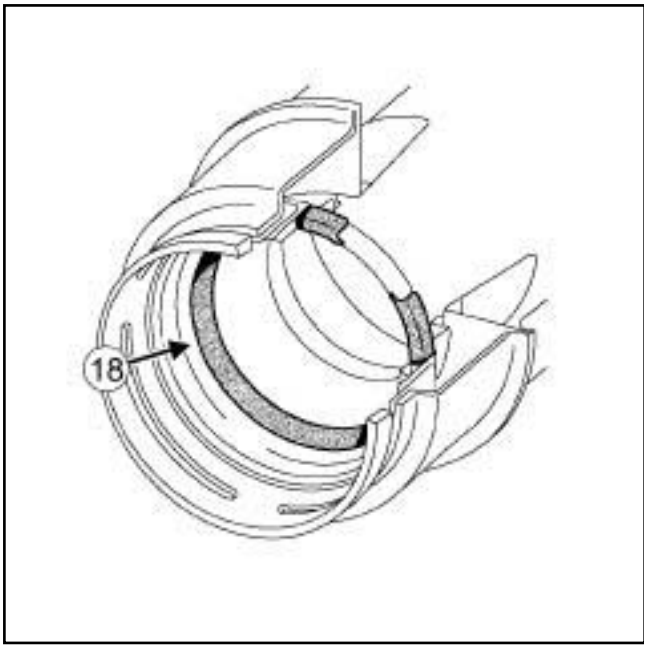


129602

❑

Note:

Check that the seal (**18**) on the intercooler inlet pipe is fitted the right way round.

❑ Refit the new intercooler inlet pipe seal.

❑ Rotate the intercooler inlet pipe to refit the clip in its housing.

❑ Refit:

- the intercooler inlet pipe on the turbocharger,
- the intercooler air inlet pipe bolt on the fuel supply pipe bracket.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit:

- the air inlet sleeve to the air filter unit,
- the air inlet sleeve clips,
- the engine cover.

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

❑ Bleed the cooling circuit (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) (19A, Cooling).

❑ Refit the engine undertray.

**2 - Exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation exchanger.**

❑ Refit:

- the new seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the turbocharger pressure sensor housing.

❑ Connect the turbocharger pressure sensor connector.

❑ Refit:

- the new seal between the damper valve and the turbocharger pressure sensor housing,
- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) (12A, Fuel mixture).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Refit the engine cover.


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## I - OPERATION

These vehicles are fitted with an alternator with internal ventilation and an integrated regulator, and an indicator light on the dashboard which operates as follows:

- when the ignition is switched on, the warning light comes on,
- when the engine is started, the warning light goes out,
- if the warning light comes on while the engine is running, it indicates a « charging » fault.

## II - IDENTIFICATION

| Engine | Alternator | Current intensity |
|---|---|---|
| 2TR | HITACHI: LR1110-713C | 110 A |
| M9R | MITSUBISHI : A3TJ2481 | 150 A |


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**STARTER IDENTIFICATION**

| Engine | Gearbox type | Starter |
|---|---|---|
| M9R | | VALEO 194262 |
| 2TR | Manual gearbox | MITSUBISHI M000T22271 |
| | Continuously variable automatic transmission | MITSUBISHI M000TA0271 |


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| alternator lower bolt | **25 N.m** |
| alternator upper bolt | **25 Nm** |
| alternator positive terminal nut | **10 N.m** |
| bolts of the expansion bottle hose support | **25 N.m** |
| bolt of the intercooler air outlet pipe | **8 N.m** |
| clip of the intercooler air outlet pipe clip | **6 N.m** |

## REMOVAL

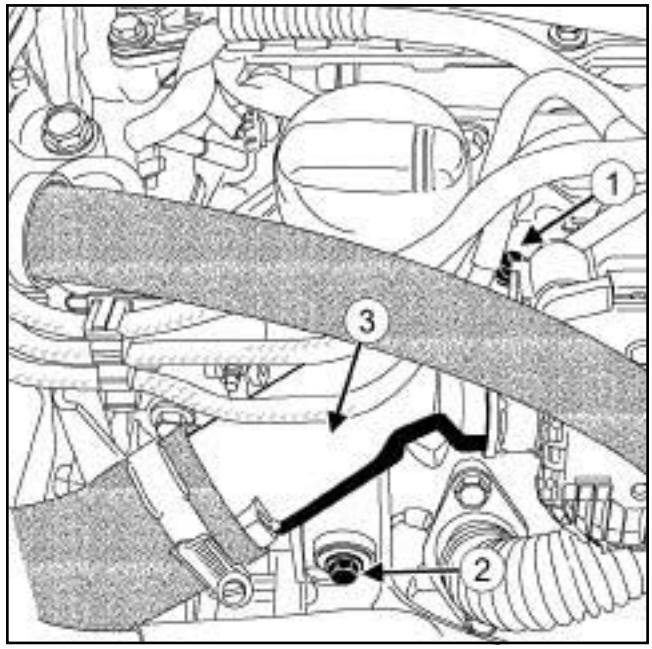
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine cover,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection)
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) (11A, Top and front of engine).



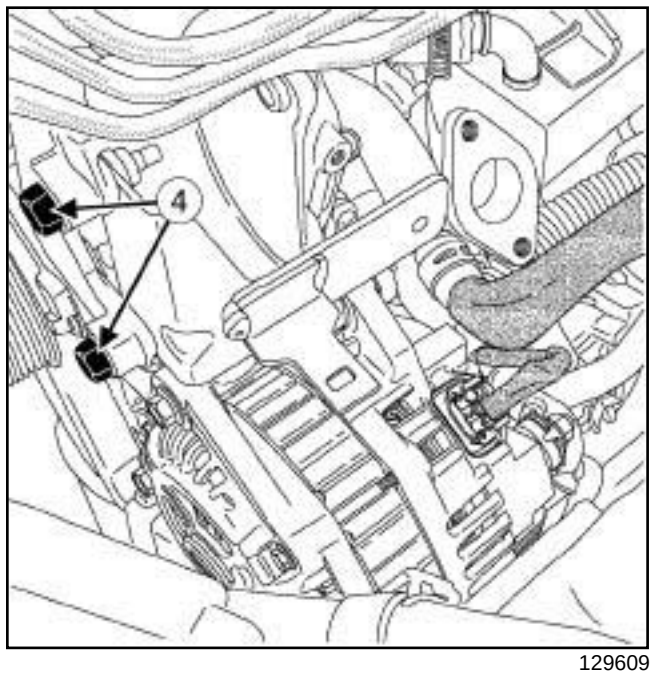

129608

❏ Loosen the clip (**1**) on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt (**2**) .

❏ Disconnect the intercooler air outlet pipe (**3**) from the damper valve.

❏ Move the intercooler air outlet pipe to one side.




129609

❏ Remove:

- the bolts of the support (**4**) of the expansion bottle hose,
- the support of the expansion bottle hose.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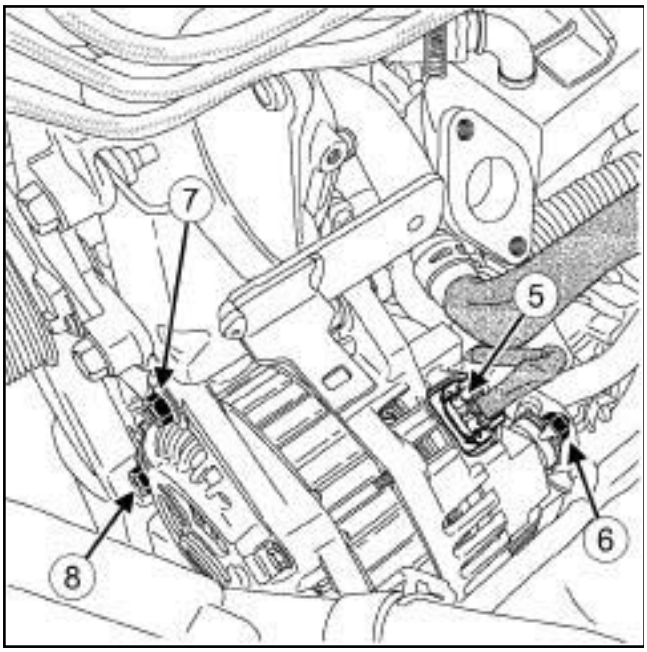
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129610

❏ Disconnect the alternator connector (**5**) .

❏ Remove:

- the nut (**6**) from the alternator positive terminal.
- the alternator positive terminal cable,
- the alternator upper bolt (**7**) .

❏ Loosen the alternator lower bolt (**8**) .

❏ Slowly remove the lower bolt of the alternator until the bolt head comes into contact with the side member.

❏ Pull the alternator towards the front of the vehicle.

❏ Lift the alternator to remove it with its lower bolt.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the alternator with its lower bolt on the support,
- the alternator upper bolt,
- the alternator positive terminal cable,
- the alternator positive terminal nut.

❏ Torque tighten:

- the **alternator lower bolt (25 N.m)**,
- the **alternator upper bolt (25 Nm)**,
- the **alternator positive terminal nut (10 N.m)**.

❏ Connect the alternator connector of the intercooler to the damper valve

**II - FINAL OPERATION.**

❏ Fit the support of the expansion bottle hose.

❏ Refit the bolts of the expansion bottle hose support.

❏ Torque tighten the **bolts of the expansion bottle hose support (25 N.m)**.

❏ Connect the intercooler air outlet pipe to the damper valve.

❏ Refit the bolt of the intercooler air outlet pipe on the damper valve.

❏ Torque tighten:

- the **bolt of the intercooler air outlet pipe (8 N.m)**,
- the **clip of the intercooler air outlet pipe clip (6 N.m)** using the tool **(Mot. 1608)**.

❏ Refit:

- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) (11A, Top and front of engine),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine cover,

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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2TR

| Tightening torques ▽ | |
|---|---|
| alternator bolts | **65 N.m** |
| nut of terminal B10 | **N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

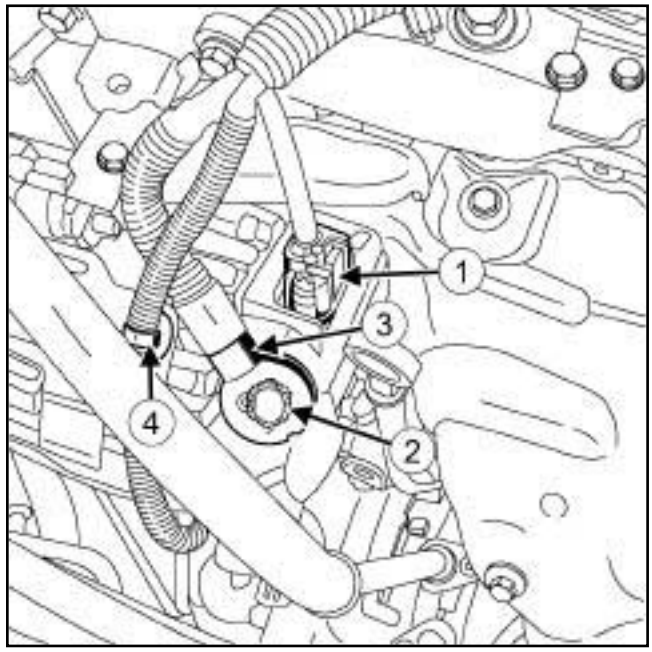
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Wiping - washing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



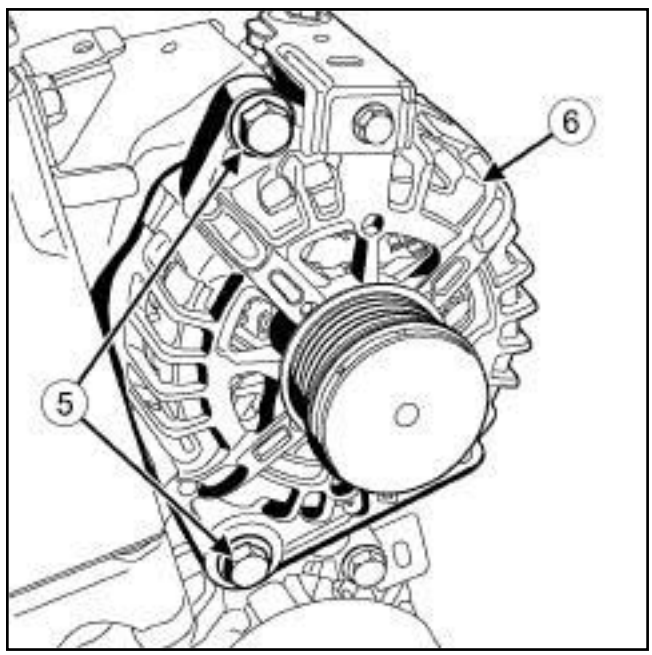
129606

❏ Disconnect the alternator connector (**1**) .

❏ Remove the nut ***(2)*** from terminal B.

❏ Disconnect the wiring ***(3)*** .

❏ Remove the clip ***(4)*** from the wiring.



129607

❏ Remove:

- the alternator bolts (**5**) ,
- the alternator (**6**) .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2TR

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the alternator,
- the alternator bolts.

❏ Torque tighten the **alternator bolts (65 N.m)**.

❏ Refit the wiring clip ***(4)*** .

❏ Connect the wiring ***(3)*** .

❏ Torque tighten the **nut of terminal B10 (N.m)**.

❏ Connect the alternator connector.

### II - FINAL OPERATION.

❏ Refit:

- the windscreen washer bottle neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Wiping - washing),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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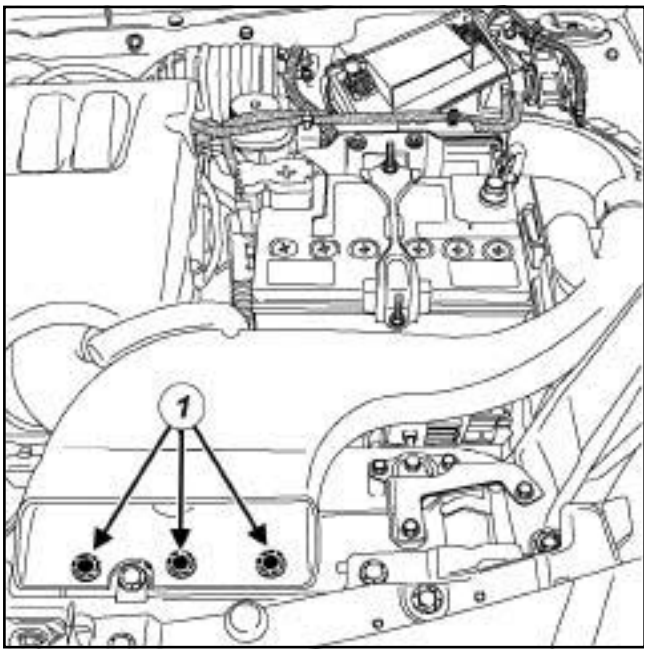
M9R

| Essential special tooling | |
|---|---|
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| starter bolts | **48 N.m** |
| nut of terminal B | **8 N.m** |
| nut of terminal S5 | **N.m** |
| clip of the intercooler air inlet hose | **6 N.m** |

## REMOVAL

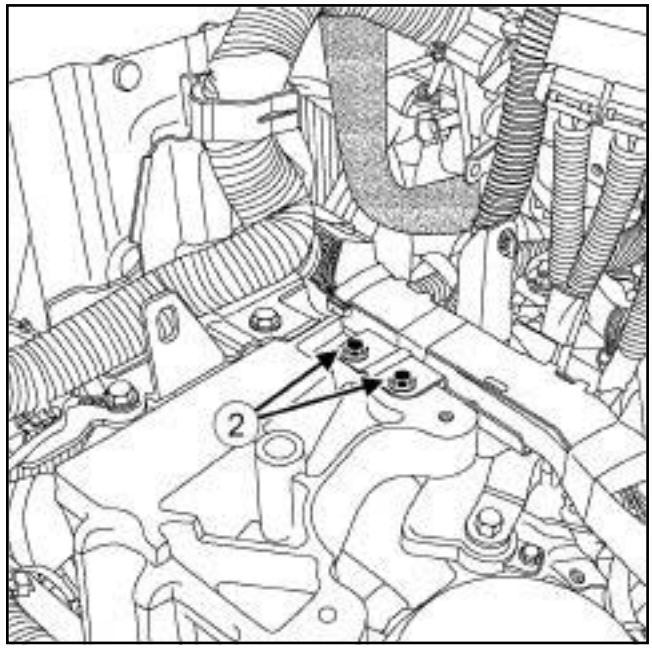
### I - REMOVAL PREPARATION OPERATION




129615

❏ Remove:

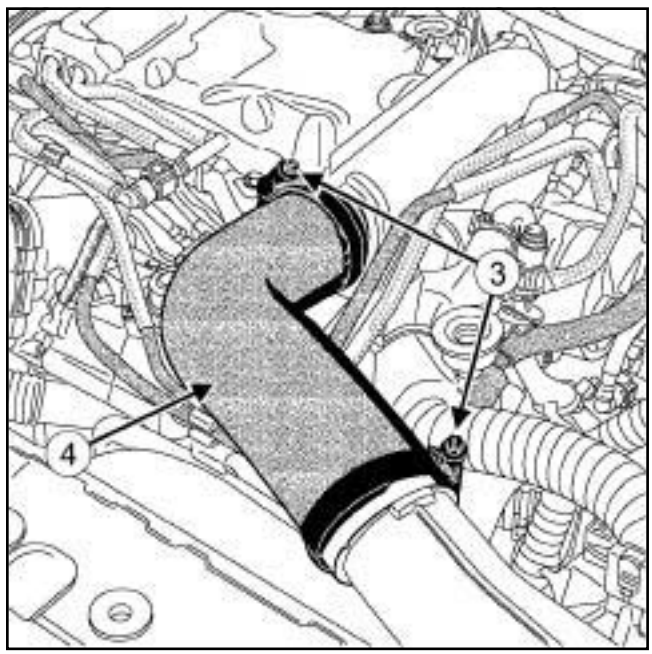
- the engine cover,
- the air inlet sleeve clips (**1**) ,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).




129616

❏ Remove the bolts (**2**) from the engine wiring harness channel.

❏ Move aside the wiring.




129617

❏ Loosen the clips (**3**) from the air inlet hose on the intercooler.

❏ Disconnect the intercooler air inlet hose (**4**) from the air inlet pipes of the intercooler.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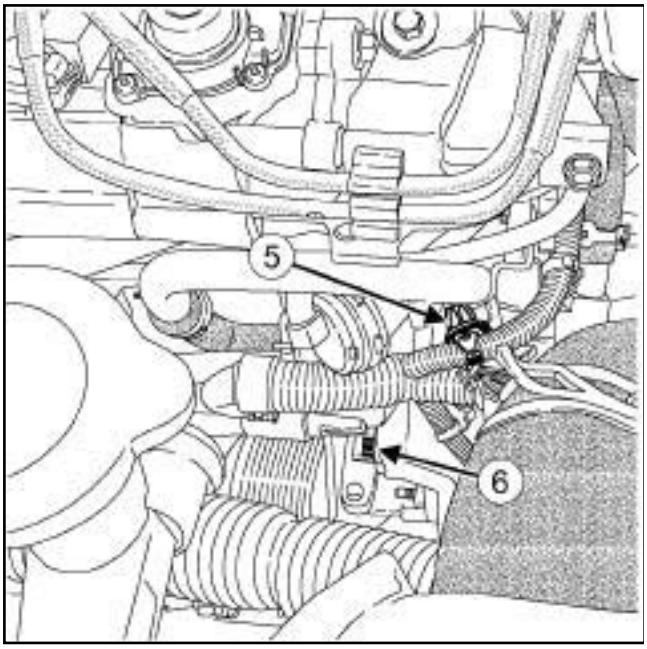
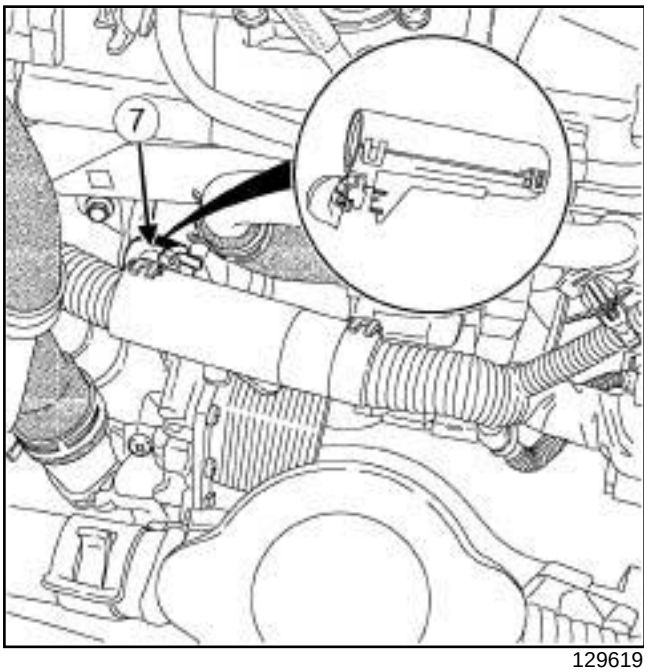


129618

❏ Unclip the wiring at (**5**) .

❏ Remove the bolt (**6**) from the wiring bracket.

❏ Separate the « wiring bracket - wiring » assembly.

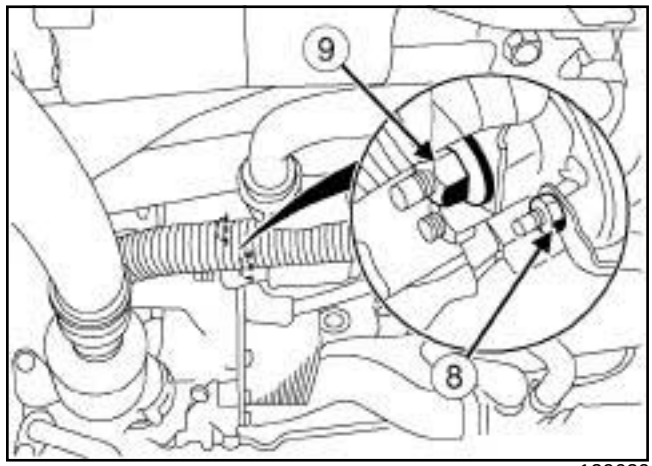


129619

❏ Unclip the cap from terminal B (**7**) .

❏ Remove the cap from terminal B.

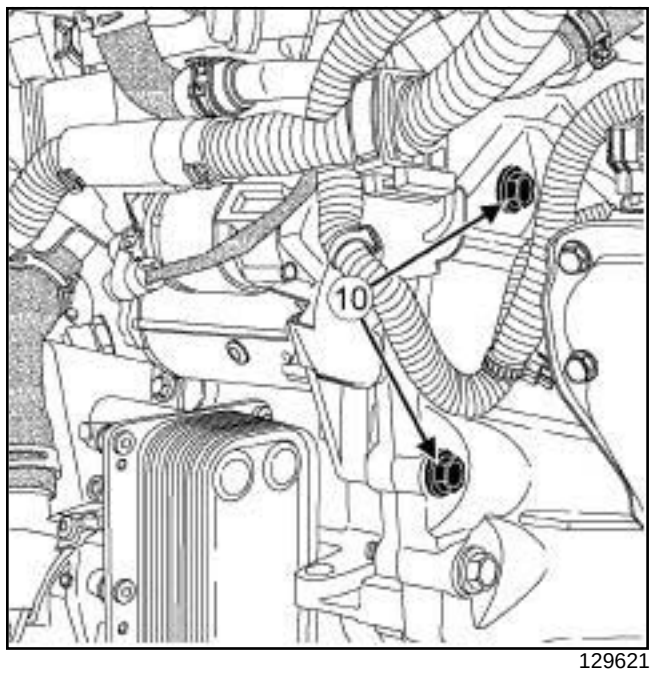
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129620

❏ Remove:

- the nut of terminal S (**8**) ,
- the nut of terminal B (**9**) ,
- the cable of terminal S,
- the cable of terminal B.



129621

❏ Remove:

- the starter bolts (**10**) ,
- the starter by raising the vehicle.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M9R

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the starter,
- the starter bolts.

❏ Torque tighten the **starter bolts (48 N.m)**.

❏ Refit:

- the cable of terminal B,
- the cable of terminal S,
- the nut of terminal B,
- the nut of terminal S.

❏ Torque tighten:

- the **nut of terminal B (8 N.m)**,
- the **nut of terminal S5 (N.m)**,

**II - FINAL OPERATION.**

❏ Clip on the cap of terminal B.

❏ Fit the « wiring bracket - wiring » assembly.

❏ Refit the bolt ***(6)*** of the wiring bracket.

❏ Clip the wiring onto its mounting ***(5)*** .

❏ Connect the air inlet hose to the air inlet pipes of the intercooler

❏ Torque tighten the **clip of the intercooler air inlet hose (6 N.m)** using the tool **(Mot. 1608)**.

❏ Position the wiring.

❏ Refit the wiring bolts ***(2)*** .

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve from the air filter unit,
- the air inlet sleeve clips,
- the engine cover.


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| Tightening torques ▽ | |
|---|---|
| starter bolts | **113 N.m** |
| nut of terminal B9 | **N.m** |
| nut of terminal S4 | **N.m** |
| wiring bracket bolts | **28 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

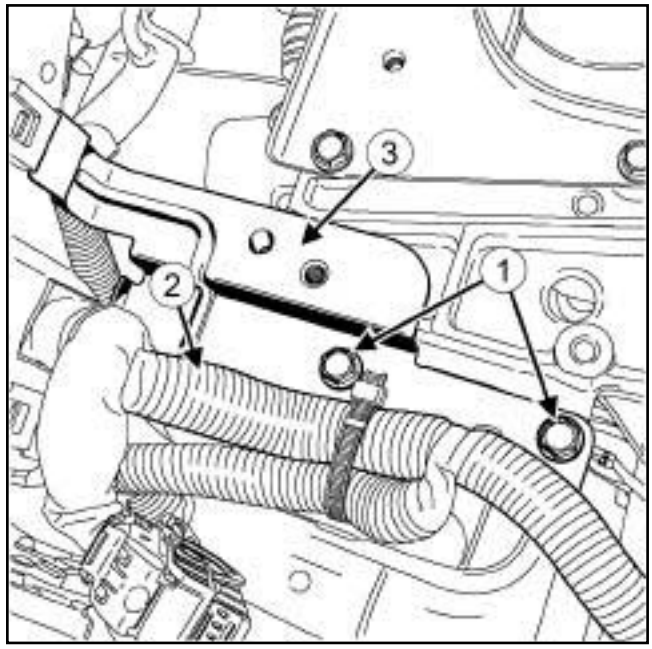
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the engine undertray.

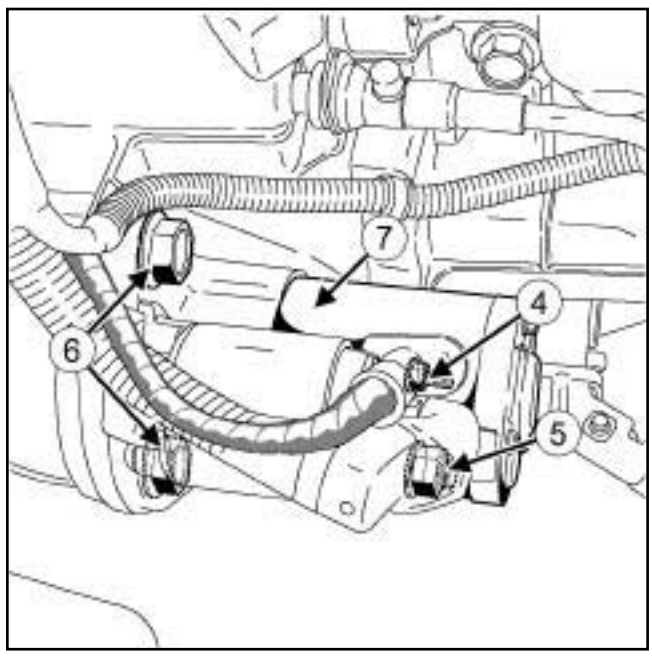


129611

❏ Remove the bolts (**1**) from the wiring bracket.

❏ Separate the wiring (**2**) and its bracket (**3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129612

❏ Remove:

- the nut (**4**) of terminal **S**,
- the nut (**5**) of terminal **B**,
- the starter bolts (**6**) ,
- the starter (**7**) .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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the starter,
- the starter bolts.

❏ Torque tighten the **starter bolts (113 N.m)**.

❏ Refit:

- the nut of terminal **B**,
- the nut of terminal **S**.

❏ Torque tighten:

- the **nut of terminal B9 (N.m)**,
- the **nut of terminal S4 (N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the wiring ***(2)*** and its bracket ***(3)*** .
- the wiring bracket bolts.

❏ Torque tighten the **wiring bracket bolts (28 N.m)**.

❏ Refit:

- the engine undertray,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .


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2TR, and FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| starter bolts | **50 N.m** |
| nut of terminal B9 | **N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

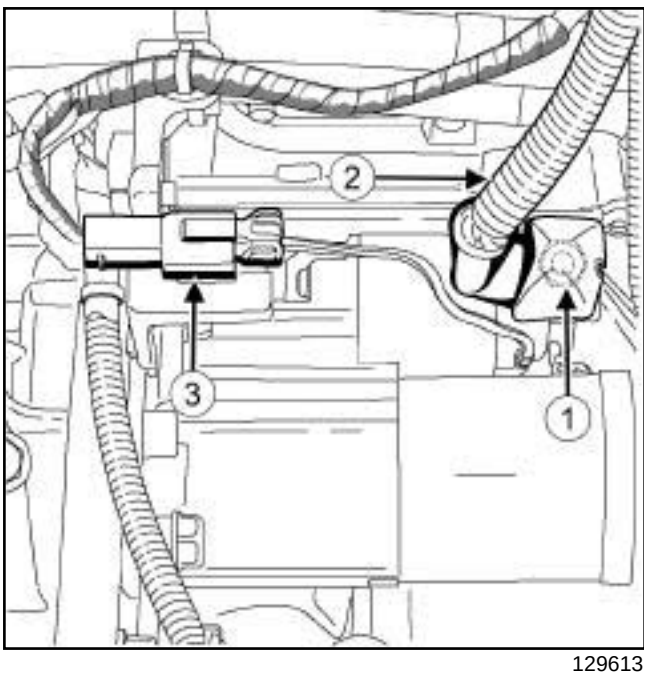
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

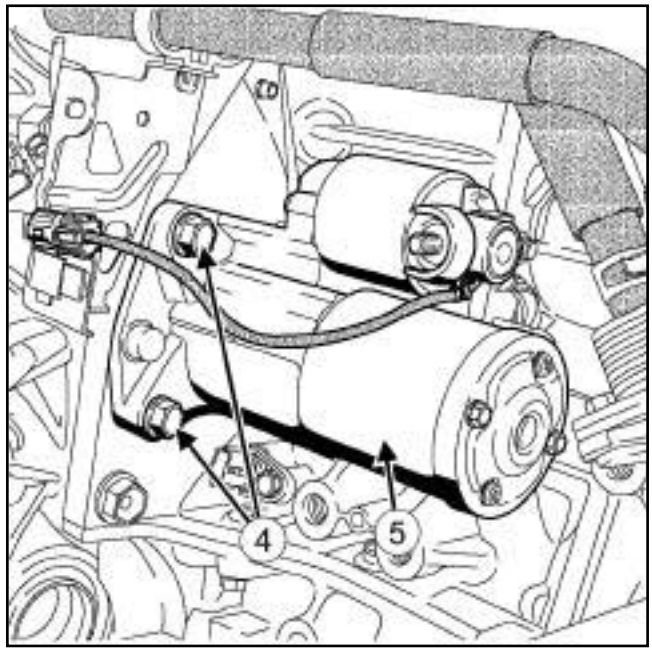


129613

❏ Remove the nut of terminal **B** (**1**) .

❏ Disconnect:

- the wiring of terminal **B** (**2**) ,
- the connector **S** (**3**) .



129614

❏ Remove:

- the starter bolts (**4**) ,
- the starter (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the starter,
- the starter bolts.

❏ Torque tighten the **starter bolts (50 N.m)**.

❏ Connect:

- the connector **S**,
- the wiring of terminal **B**.

❏ Torque tighten the **nut of terminal B9 (N.m)**.

### II - FINAL OPERATION.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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# Ignition: Specifications

2TR

| Engine type | Brand | Spark plug type |
|---|---|---|
| 2TR | NGK | DILKAR6A-11 |
| Gap:1.1 mm | | |



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2TR

| Tightening torques ▽ | |
|---|---|
| ignition coil bolts | **7 Nm** |

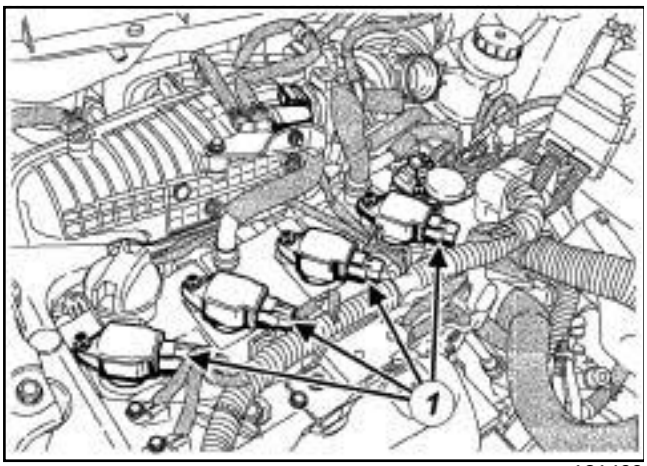
## REMOVAL

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

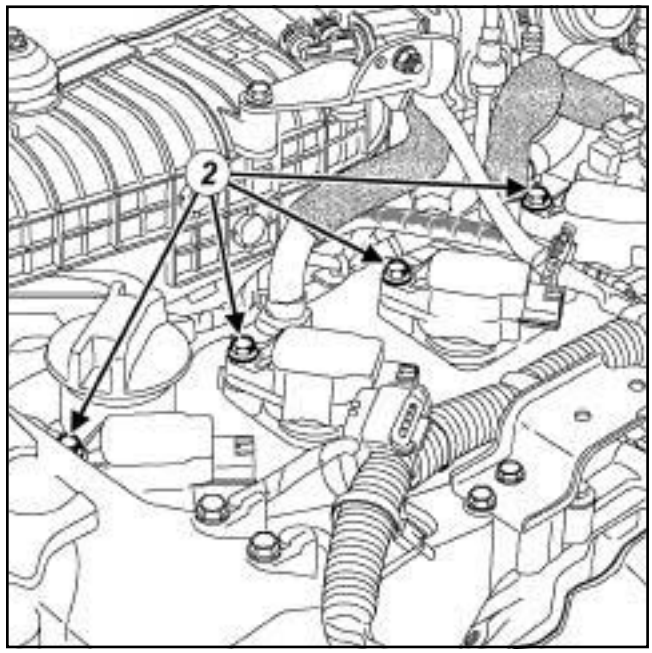
- the engine cover,
- The air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .




131409

❏ Disconnect the connectors (**1**) from the ignition coils.

**OPERATION FOR REMOVAL OF PART CONCERNED**




131410

❏

Note:
Never drop or bang an ignition coil.
Never remove an ignition coil.

❏ Remove:

- the ignition coil bolts ***(2)*** ,
- the ignition coils.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ If necessary, replace:

- the ignition coils,
- the ignition coil bolts.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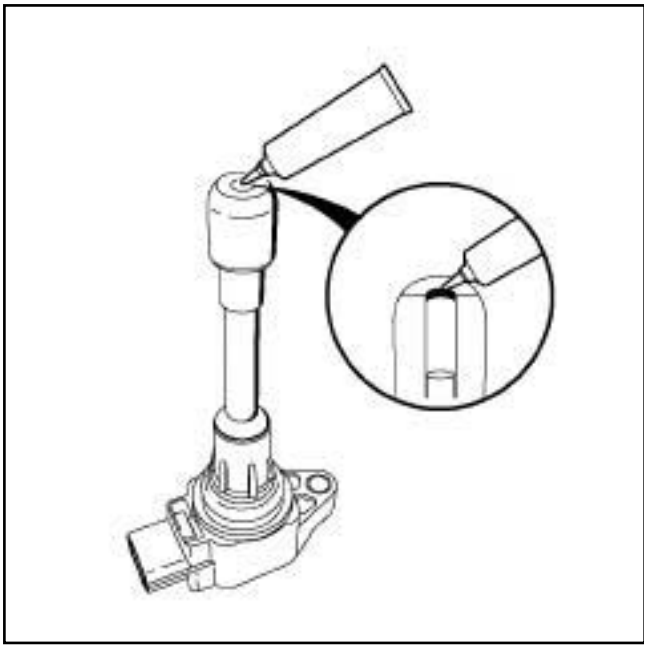

131411

❏ Put a bead of **FLUORSTAR 2L** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) **2 mm** in diameter on the internal perimeter of the high-tension caps of the ignition coils.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the ignition coils,
- the ignition coil bolts.

❏ Torque tighten the **ignition coil bolts (7 Nm)**.

**III - FINAL OPERATION.**

❏ Connect the ignition coil connectors.

❏ Refit:

- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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2TR

| Essential special tooling | |
|---|---|
| **Ele. 1382** | Set of plug wrenches 16 & 21 mm torque 17.5 & 28 N.m + square adapter 9-9.52 for wrench Ele. 1086 |
| **Ele. 1382-01** | 14 mm Plug spanner. |

| Tightening torques ▽ | |
|---|---|
| spark plugs | **20 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

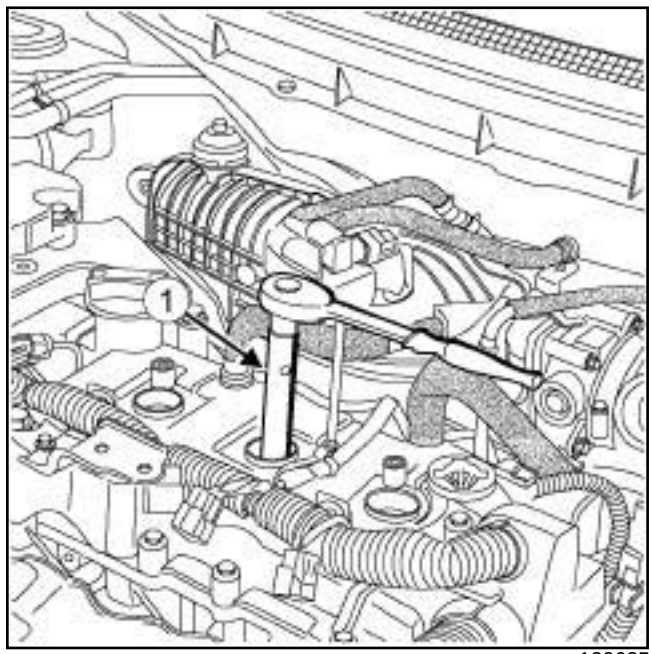
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129625

❏ Remove the spark plugs using the **(Ele. 1382)** (**1**) equipped with the **(Ele. 1382-01)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the spark plugs (if necessary).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the spark plugs.

❏ Torque tighten the **spark plugs (20 N.m)** using the tool **(Ele. 1382)** with the tool **(Ele. 1382-01)** attached.

### III - FINAL OPERATION

❏ Refit:

- the ignition coils (see **17A**, **Ignition**, **Coils Removal - Refitting**, page **17A-2**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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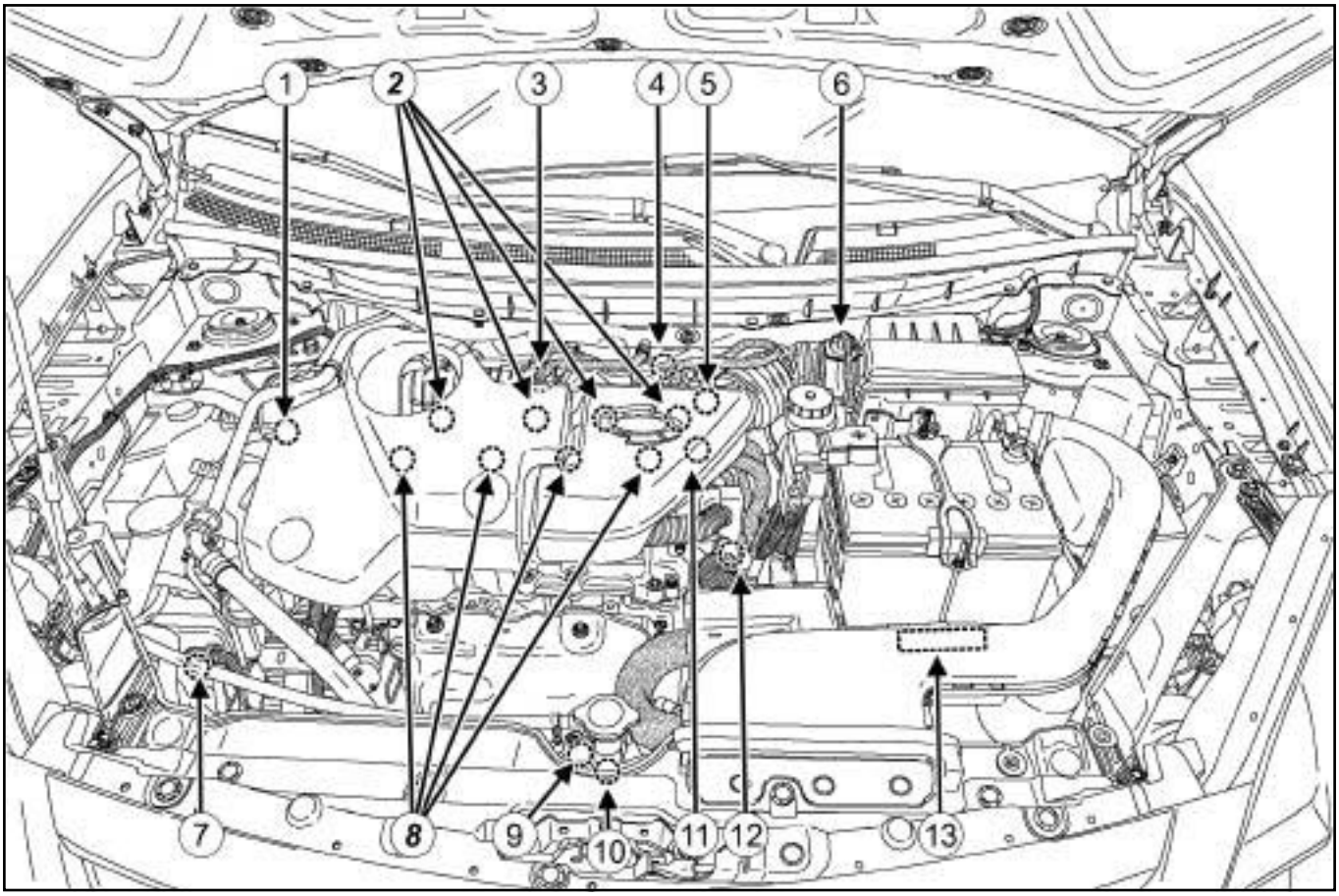
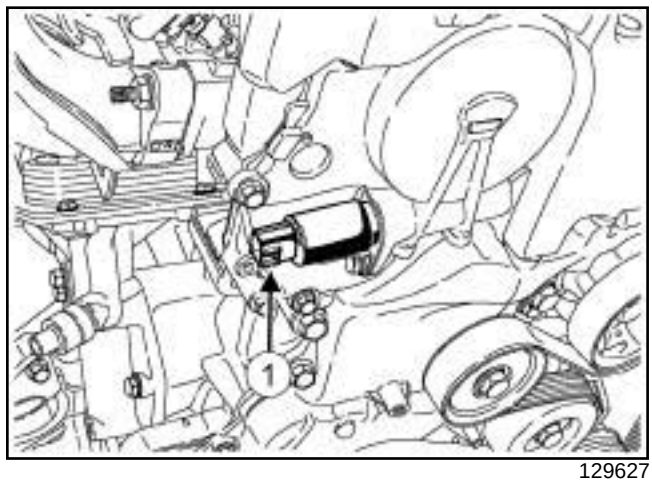
2TR




129626

(**1**) Camshaft dephaser solenoid valve
(**2**) Injectors
(**3**) Fuel vapour absorber bleed solenoid valve
(**4**) Motorised throttle body
(**5**) Crankshaft position sensor
(**6**) Airflow meter
(**7**) Petrol vapour absorber
(**8**) Ignition coils
(**9**) Upstream oxygen sensor
(**10**) Downstream oxygen sensor
(**11**) Camshaft position sensor
(**12**) Coolant temperature sensor
(**13**) Injection computer




129627

(**1**) Camshaft dephaser solenoid valve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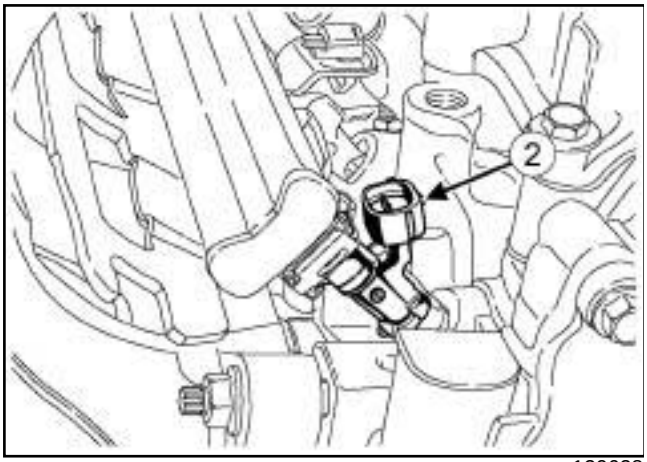
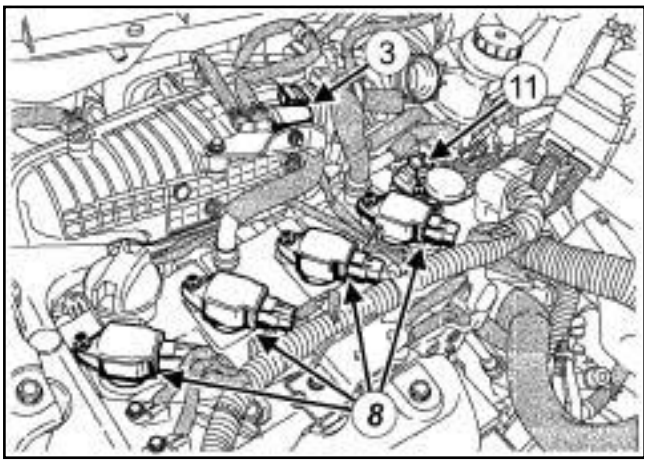
2TR




129628

(**2**) Injector

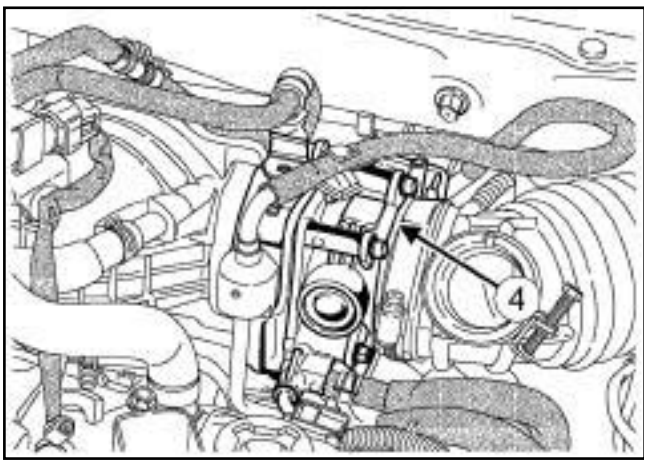



129629

(**3**) Fuel vapour absorber bleed solenoid valve

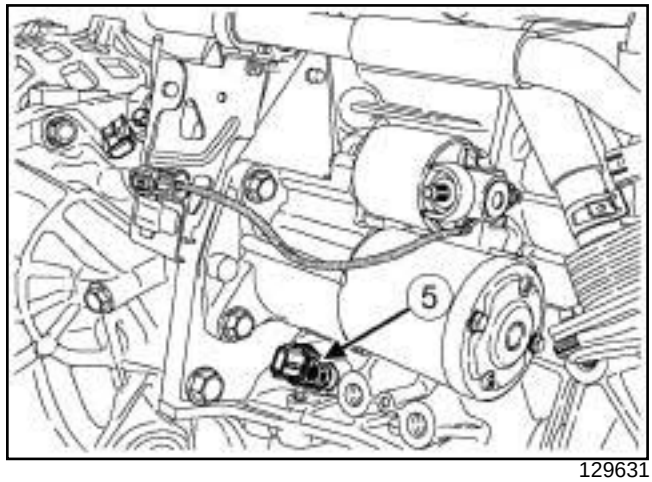
(**8**) Ignition coils

(**11**) Camshaft position sensor



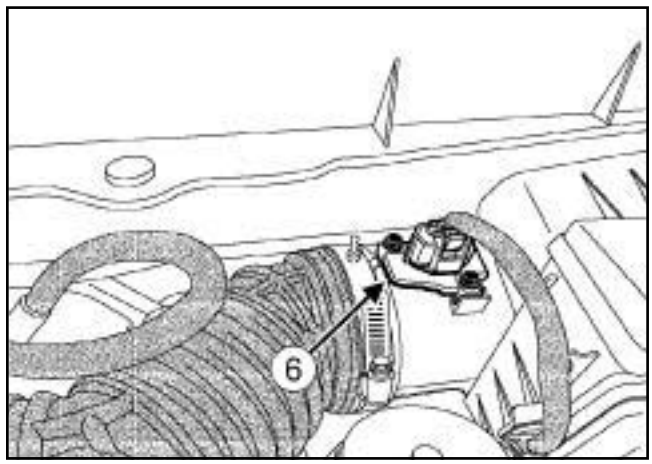

129630

(**4**) Motorised throttle body




129631

(**5**) Crankshaft position sensor




129632

(**6**) Airflow meter



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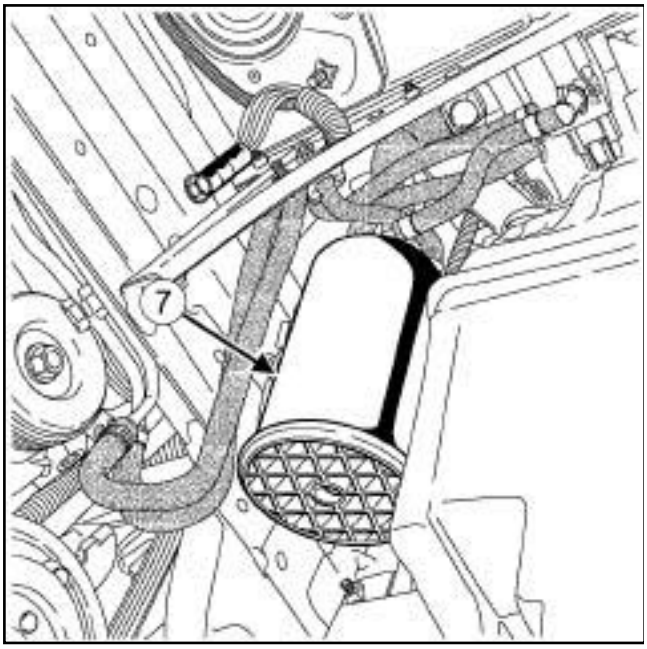
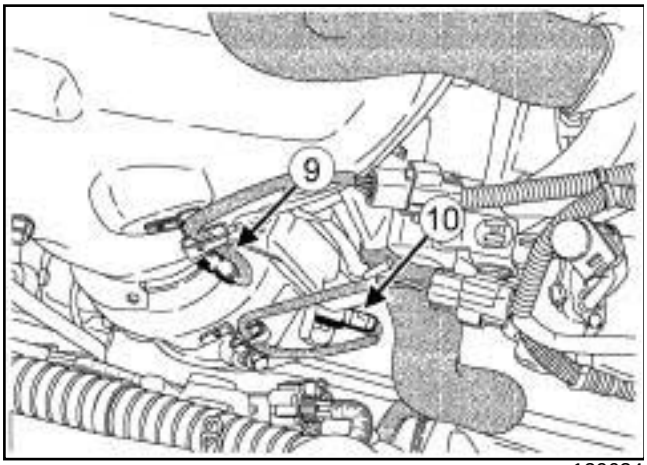



129633

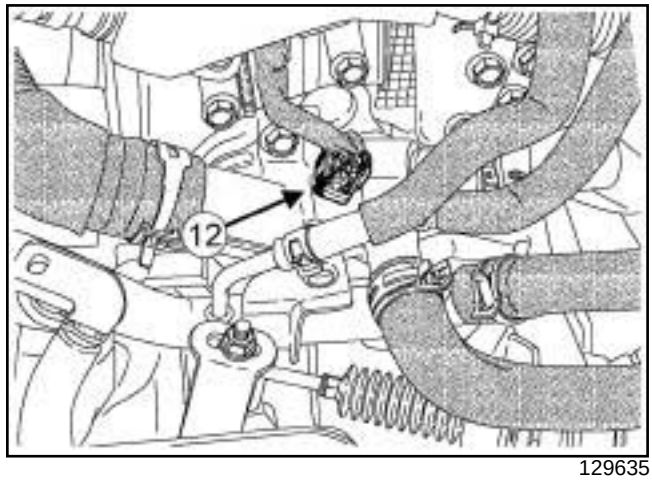
(**7**) Petrol vapour absorber




129634

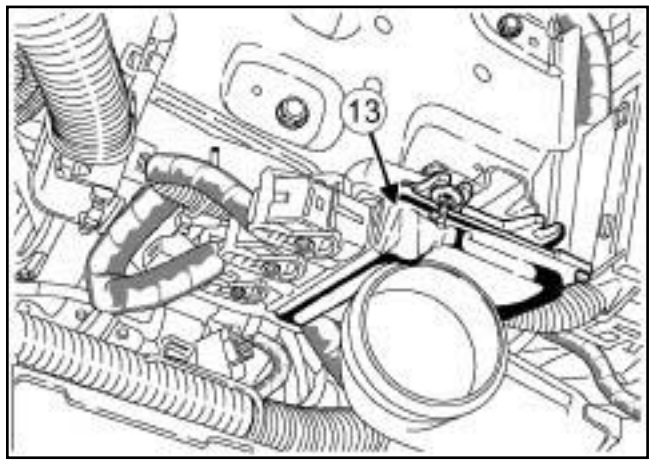
(**9**) Upstream oxygen sensor

(**10**) Downstream oxygen sensor




129635

(**12**) Coolant temperature sensor




129636

(**13**) Injection computer



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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1495-01** | 22 mm socket for removing/ refitting oxygen sensors. |

| Tightening torques ▽ | |
|---|---|
| upstream oxygen sensor | **50 Nm** |
| downstream oxygen sensor | **50 Nm** |

Note:

Take care not to damage the heated oxygen sensor.

Scrap any heated oxygen sensors that may have fallen on a hard surface such as a concrete floor. Replace the oxygen sensor if necessary.

Note:

Before fitting a new heated oxygen sensor, clean the threading on the exhaust pipe using the cleaner for heated oxygen sensor threading and apply anti-seize lubricant (standard maintenance product).

Never exceed the tightening torque of the heated oxygen sensors.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

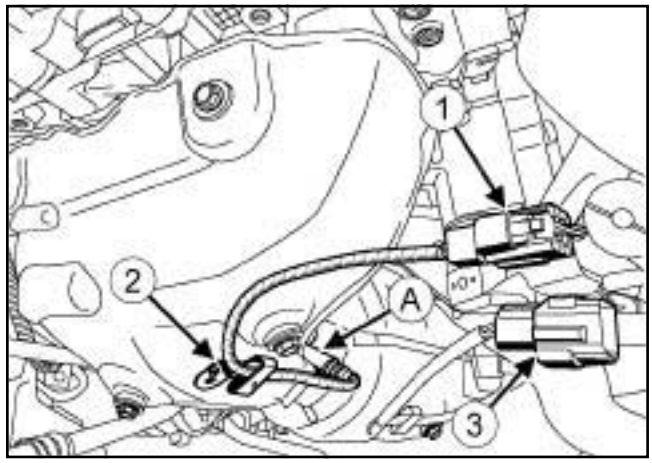
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - UPSTREAM OXYGEN SENSOR (A)



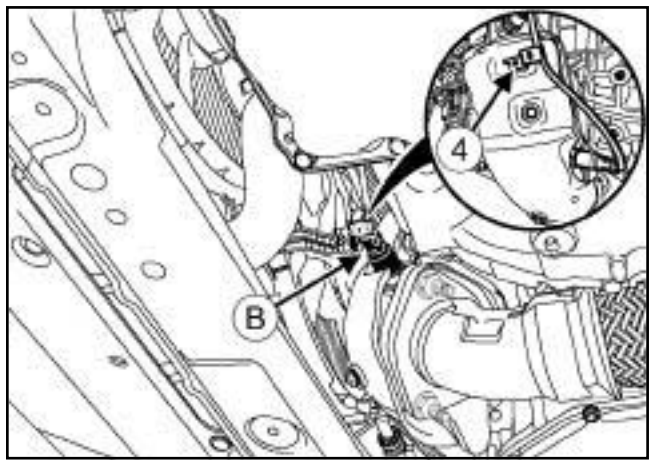
129637

❏ Disconnect the upstream oxygen sensor connector (**1**) .

❏ Unclip the wiring of the upstream oxygen sensor from the heat shield at ***(2)*** .

❏ Remove the upstream oxygen sensor ***(A)*** using the **(Mot. 1495-01)**.

#### 2 - DOWNSTREAM OXYGEN SENSOR (B)



129638

❏ Disconnect the downstream oxygen sensor connector ***(3)*** .

❏ Unclip the wiring of the oxygen sensor from the heat shield at ***(4)*** .

❏ Remove the upstream oxygen sensor ***(B)*** using the **(Mot. 1495-01)**.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2TR

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Upstream oxygen sensor (A)**

- ❏ Refit the upstream oxygen sensor.
- ❏ Torque tighten the **upstream oxygen sensor (50 Nm)** using the tool **(Mot. 1495-01)**.
- ❏ Clip the wiring of the upstream oxygen sensor onto the heat shield at ***(2)*** .
- ❏ Connect the upstream oxygen sensor connector.

**2 - Downstream oxygen sensor (B)**

- ❏ Refit the downstream oxygen sensor.
- ❏ Torque tighten the **downstream oxygen sensor (50 Nm)** using the tool **(Mot. 1495-01)**.
- ❏ Clip the wiring of the downstream oxygen sensor onto the heat shield at ***(4)*** .
- ❏ Connect the downstream oxygen sensor connector.

### II - FINAL OPERATION.

- ❏ Refit the engine undertray.
- ❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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2TR

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| bolt of the injection computer | **7 N.m** |
| nut of the injection computer | **7 N.m** |

## REMOVAL

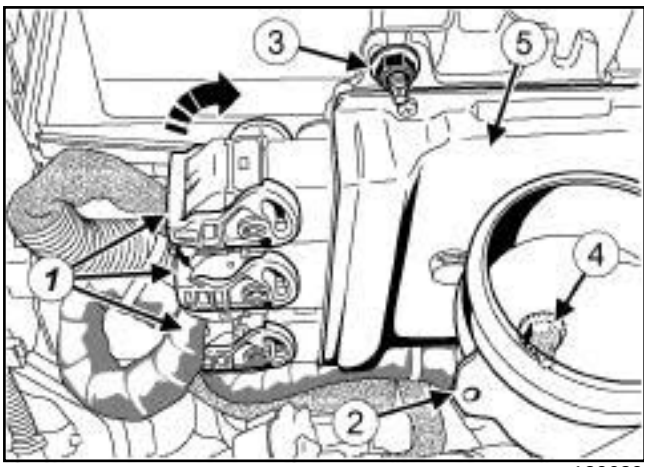
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129639

❑ Disconnect the injection computer connectors (**1**) .

❑ Remove:

- the air resonator sleeve ***(2)*** ,
- the nut ***(3)*** of the injection computer,
- the bolt ***(4)*** of the injection computer,
- the injection computer ***(5)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the injection computer,
- the bolt of the injection computer,
- the nut of the injection computer.

❑ Torque tighten:

- the **bolt of the injection computer (7 N.m)**,
- the **nut of the injection computer (7 N.m)**.

❑ Refit the air resonator sleeve.

❑ Connect the injection computer connectors.

### II - FINAL OPERATION.

❑ Refit the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Perform the programming of the injection computer using the **diagnostic tool** (see **Fault finding - Replacement of components) (17B, Petrol injection).**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2TR

| Tightening torques ▽ | |
|---|---|
| camshaft position sensor bolt | 7 Nm |

## REMOVAL

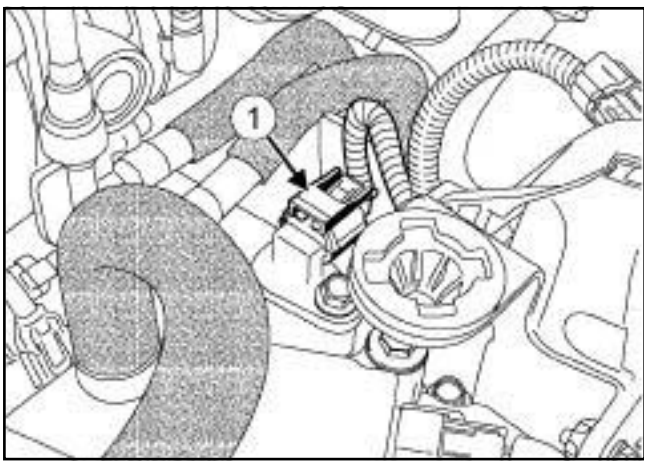
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

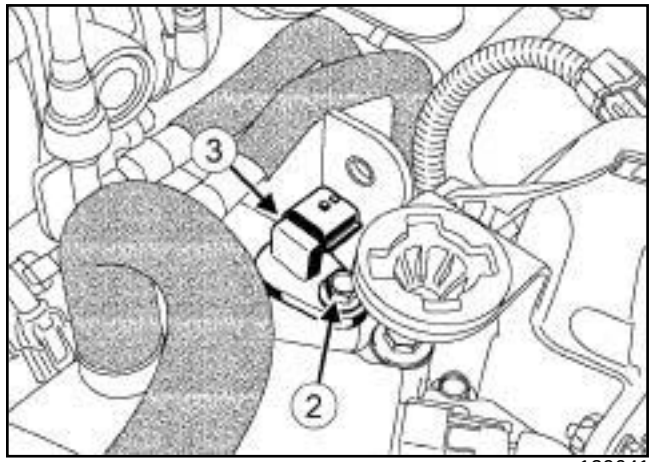
- the engine cover,
- the air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129640

❏ Disconnect the connector (**1**) from the camshaft position sensor.




129641

❏

Note:

Handle the sensor carefully to avoid dropping or hitting it.

❏ Remove:

- the camshaft position sensor bolt (**2**) ,
- the camshaft position sensor (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the O-ring on the position sensor of the camshaft.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the camshaft position sensor,
- the camshaft position sensor bolt.

❏ Torque tighten the **camshaft position sensor bolt (7 Nm)**.

❏ Connect the connector of the camshaft position sensor.

### III - FINAL OPERATION

❏ Refit:

- The air resonator on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .
- the engine cover.



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2TR

| Tightening torques ▽ | |
|---|---|
| crankshaft position sensor bolt | 7 N.m |

Note:

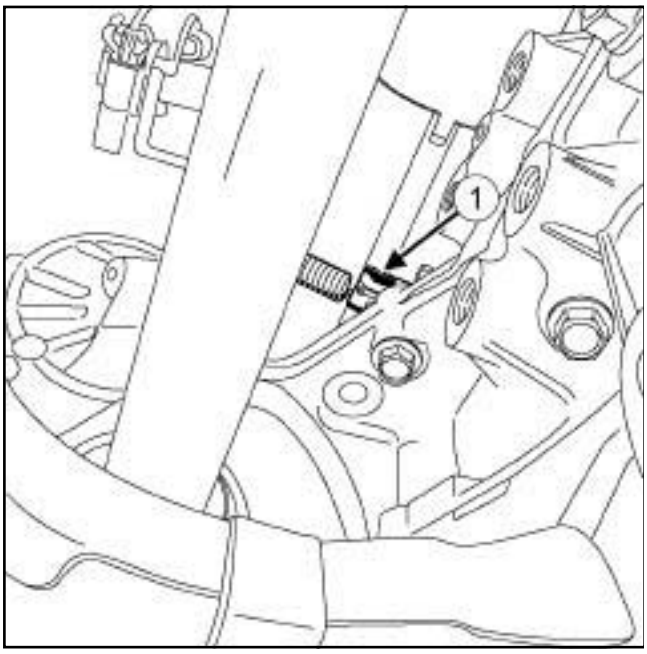
Take care not to burn yourself. The exhaust manifold may be hot.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

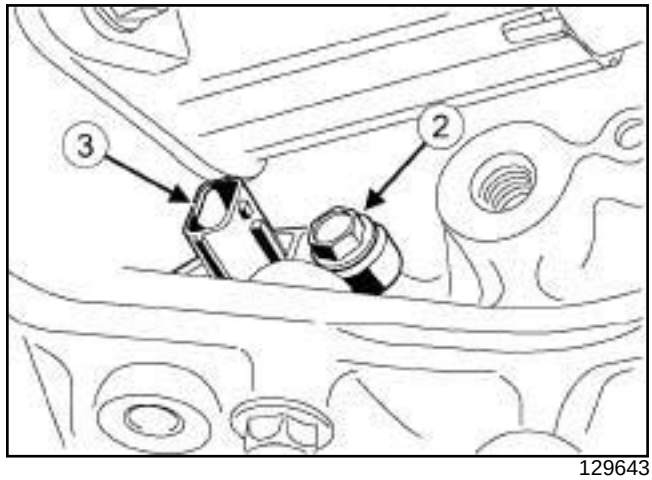
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129642

❑ Disconnect the crankshaft position sensor connector (**1**) .




129643

❑

Note:

Handle the sensor carefully to avoid dropping or hitting it.

❑ Remove:

- the crankshaft position sensor bolt (**2**) ,
- the crankshaft position sensor (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the O-ring on the position sensor of the crankshaft.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the crankshaft position sensor,
- the crankshaft position sensor bolt.

❑ Torque tighten the **crankshaft position sensor bolt (7 N.m)**.

❑ Connect the crankshaft position sensor connector.



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**CONSUMABLES**

Use **GLACEOL RX (TYPE D)** coolant or **L255** coolant.

Note:

Ready-to-use coolant or antifreeze must be diluted with distilled water in accordance with the guidelines marked on the container.


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**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

Only use **GLACEOL RX (TYPE D)** coolant.

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

**WARNING**

Drain with the engine warm.

Flush and refill with the engine cold or warm.

Never flush a hot engine (risk of major thermal shock).

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,
- protection down to **-40°C ± 2** for "extreme cold" countries.

**WARNING**

If the coolant is leaking from the expansion bottle cap, replace the valve.

Note:

Refer to the vehicle's Maintenance Booklet for information on cooling system service intervals.

For any further information, refer to the workshop repair manual of the vehicle concerned.

When a faulty vehicle arrives, check:

- the condition and tension of the water pump drive belt,
- that the fan, the radiator and the radiator grille are not obstructed by an object which may impede the flow of air.

Vehicles in the current range have cooling systems with the following specifications:

- hermetically-sealed pressurised circuit (expansion bottle valve).

Note:

Ready-to-use coolant or antifreeze must be diluted with distilled water in accordance with the guidelines marked on the container.


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Vehicles in the current range have cooling systems with the following specifications:

- hermetically-sealed pressurised circuit (expansion chamber valve),
- circuit using type D coolant,
- passenger compartment heating system equipped with a "heater matrix" type radiator located under the dashboard, which helps to cool the engine.

**Volume of coolant**

| Engine | Gearbox | Quantity (L) | Grade |
|---|---|---|---|
| 2TR | Manual gearbox | 6.9 | GLACEOL RX type D<br>Only use coolant |
| | Continuously variable automatic transmission | 7.2 | |
| M9R | Manual gearbox | 8.0 | |
| | Automatic gearbox | 8.5 | |

Special notes:

- protection down to **- 25°C ± 2** for cold and temperate countries,
- protection down to **- 40°C ± 2** "extreme cold" countries.

**Thermostat opening temperatures**

| Engine | Start of opening (°C) | End of opening (°C) |
|---|---|---|
| 2TR | 93.5 - 96.5 | 108 |


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**IMPORTANT**

To avoid any risk of damaging the systems, follow the instructions regarding safety and cleanliness and operation recommendations before carrying out the repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

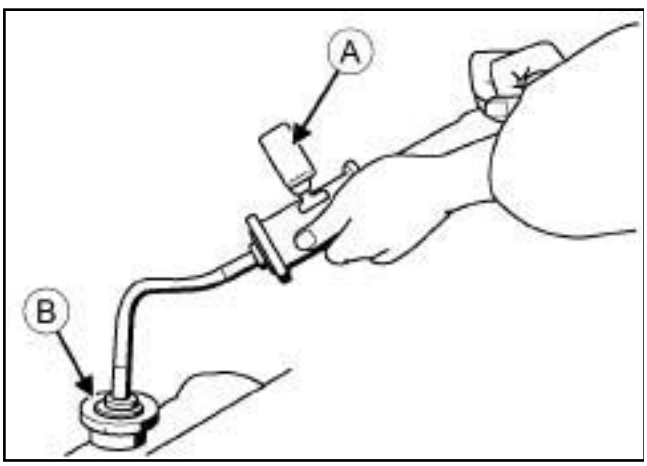
**IMPORTANT**

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

To avoid any risk of serious burns when the engine is hot:

- do not open the expansion bottle cap,
- do not drain the cooling system,
- do not open the bleed screw(s).

## I - CHECKING THE SEALING OF THE COOLING SYSTEM




131591

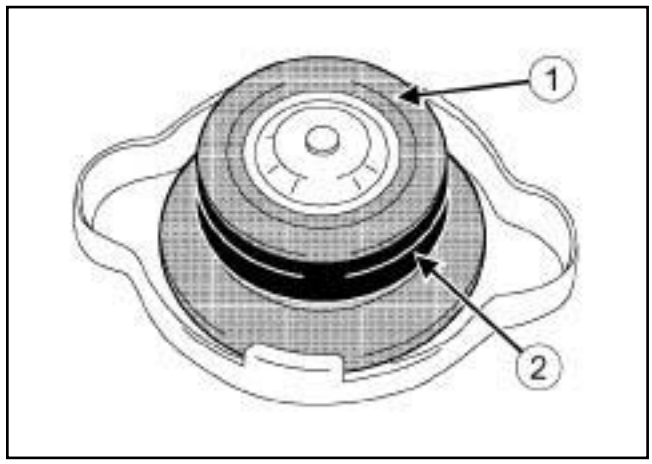
❏ Pressurise the system using the radiator cap checking device (**A**) and an adapter (**B**) .

❏ Test pressure:

- 2TR: **0.88 bar**
- M9R: **1.37 bar**

❏ Check that there are no leaks.

## II - CHECKING THE RADIATOR CAP VALVE SEAT

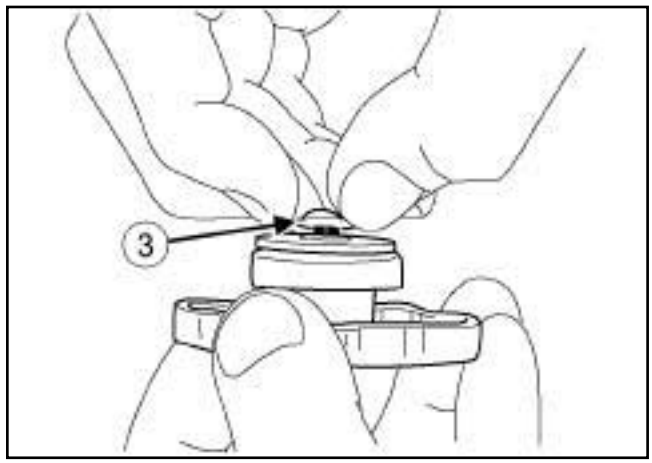



131592

❏ Check:

- that the valve seat (**1**) is inflated at the point that the edge of the metal tappet (**2**) is not visible when viewed from above,
- that the valve seat is not dirty or damaged.

## III - CHECKING THE VACUUM VALVE




131593

❏ Pull on the vacuum valve (**3**) to open it.

❏ Check:

- that the vacuum valve closes completely when it is released,
- that the vacuum valve is not dirty or damaged,
- that there are no abnormalities in the opened or closed statuses of the vacuum valve.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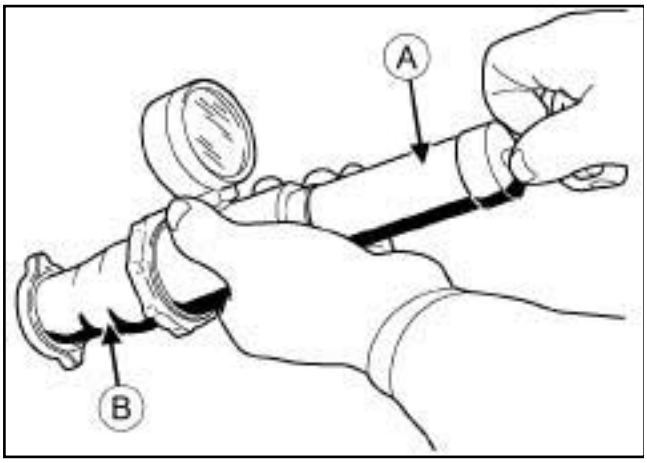
### IV - CHECKING THE DISCHARGE PRESSURE OF THE RADIATOR CAP




131594

❏ Apply engine coolant to the surface of the cap seal.

❏ Refit:

- the radiator cap checking device ***(A)*** using an adapter ***(B)*** ,
- the radiator cap on the adapter.

> Note:
>
> The pressure should not drop; if it does, look for the leak.

❏ Pump with the radiator cap checking device.

❏ Discharge pressure:

- 2TR: **0.784 - 0.98 bar** (limit **0.59 bar**)
- M9R: **1.27 - 1.47 bar** (limit **1.08 bar**)

❏ Replace the radiator cap if there are any irregularities relating to the three components above.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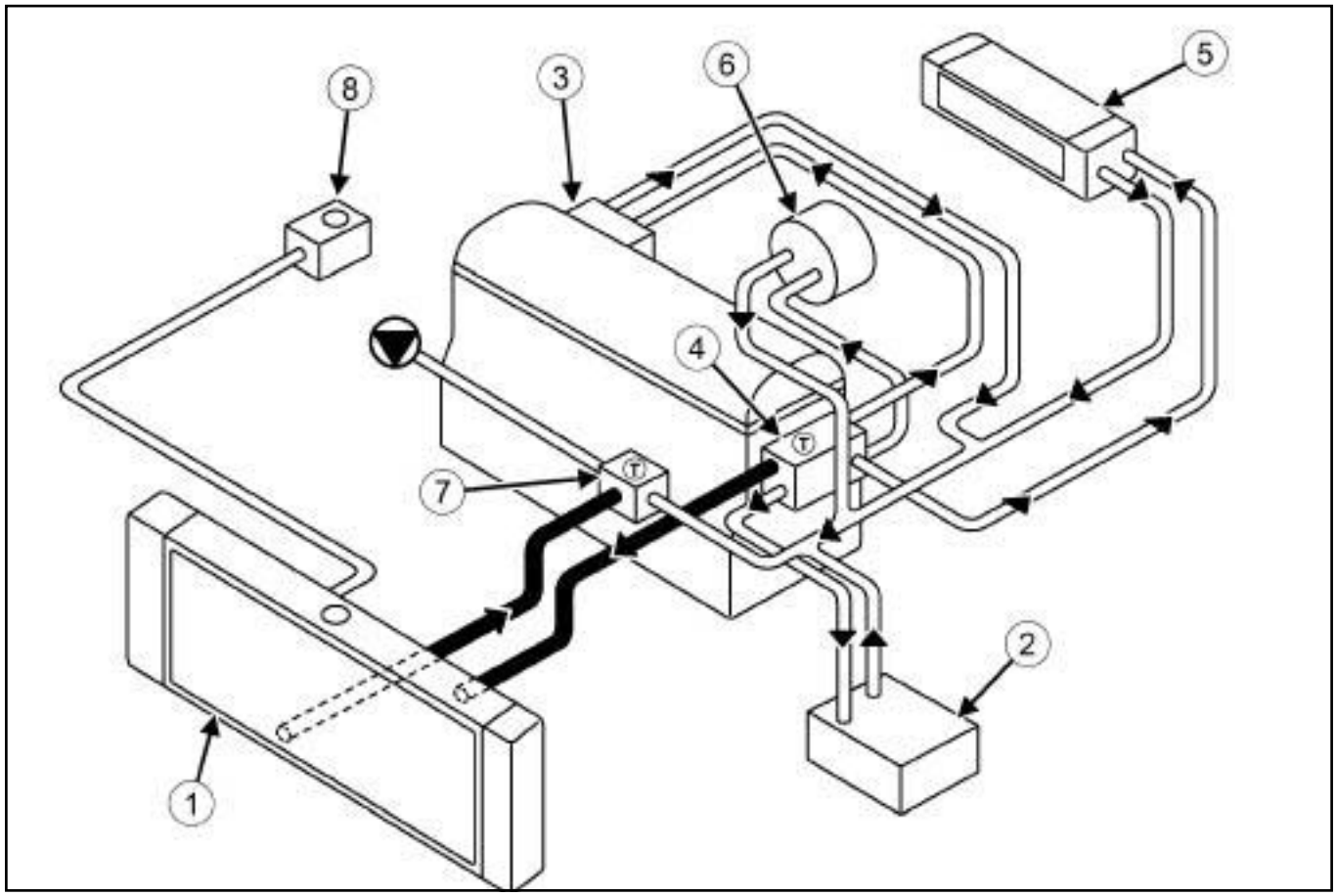
2TR, and FK0 or FK8 – 2TR, and ND5 or ND8

2TR, and FK0 or FK8




129646

(**1**) Cooling radiator
(**2**) Gearbox oil cooler
(**3**) Coolant - oil heat exchanger
(**4**) Cylinder head thermostat
(**5**) Heater matrix
(**6**) Throttle valve
(**7**) Cylinder block thermostat
(**8**) Expansion bottle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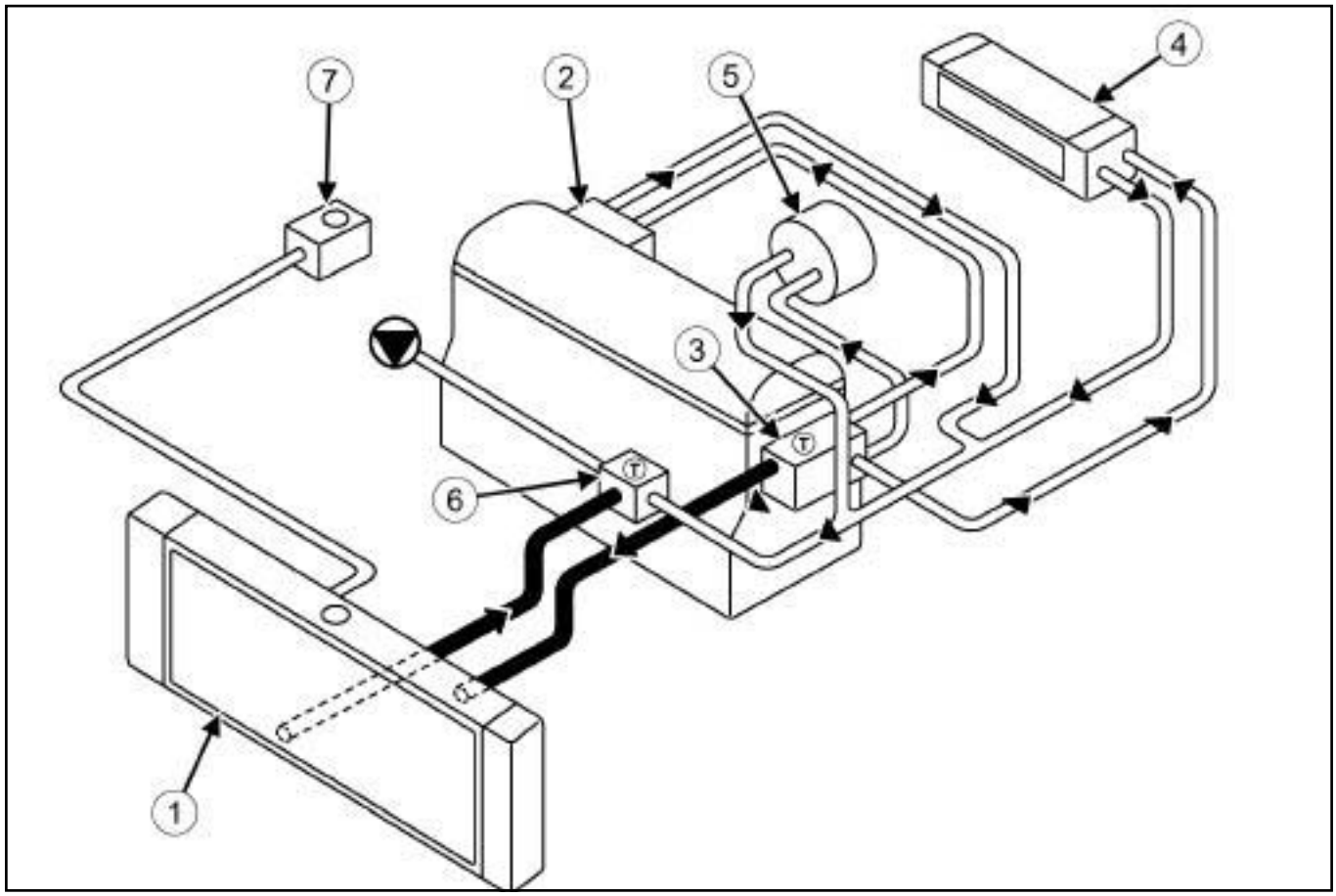
2TR, and FK0 or FK8 – 2TR, and ND5 or ND8

2TR, and ND5 or ND8




129645

(**1**) Cooling radiator
(**2**) Coolant - oil heat exchanger
(**3**) Cylinder head thermostat
(**4**) Heater matrix
(**5**) Throttle valve
(**6**) Cylinder block thermostat
(**7**) Expansion bottle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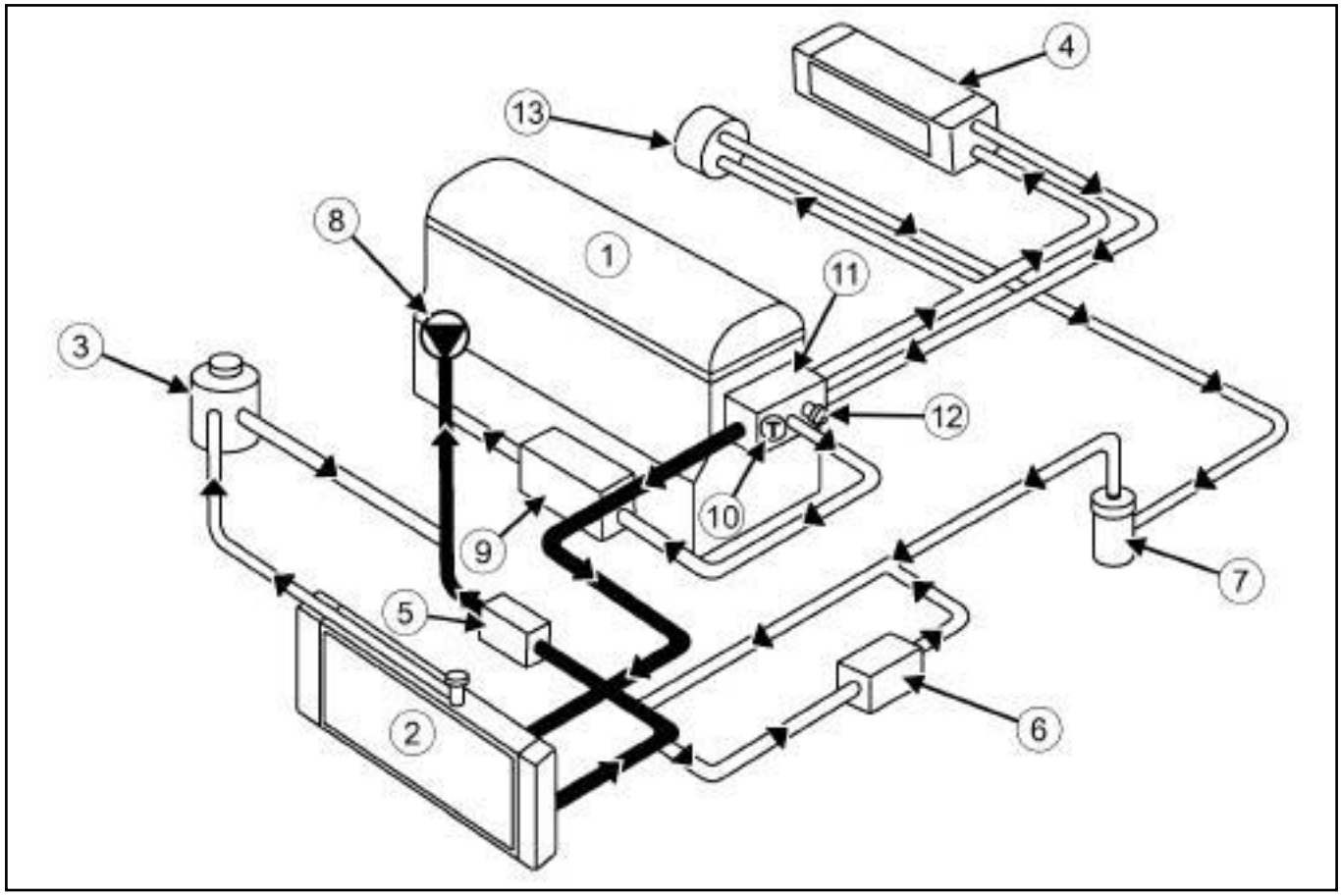
M9R, and 6 SPEED AUTO GBOX




129648

| | |
|---|---|
| (**1**) | Engine |
| (**2**) | Cooling radiator |
| (**3**) | Expansion bottle |
| (**4**) | Heater matrix |
| (**5**) | Coolant - oil heat exchanger |
| (**6**) | Automatic gearbox oil cooler |
| (**7**) | Electric coolant pump |
| (**8**) | Water pump |
| (**9**) | Exhaust gas cooler |
| (**10**) | Thermostat |
| (**11**) | Thermostat support |
| (**12**) | Bleed screw |
| (**13**) | Turbocharger |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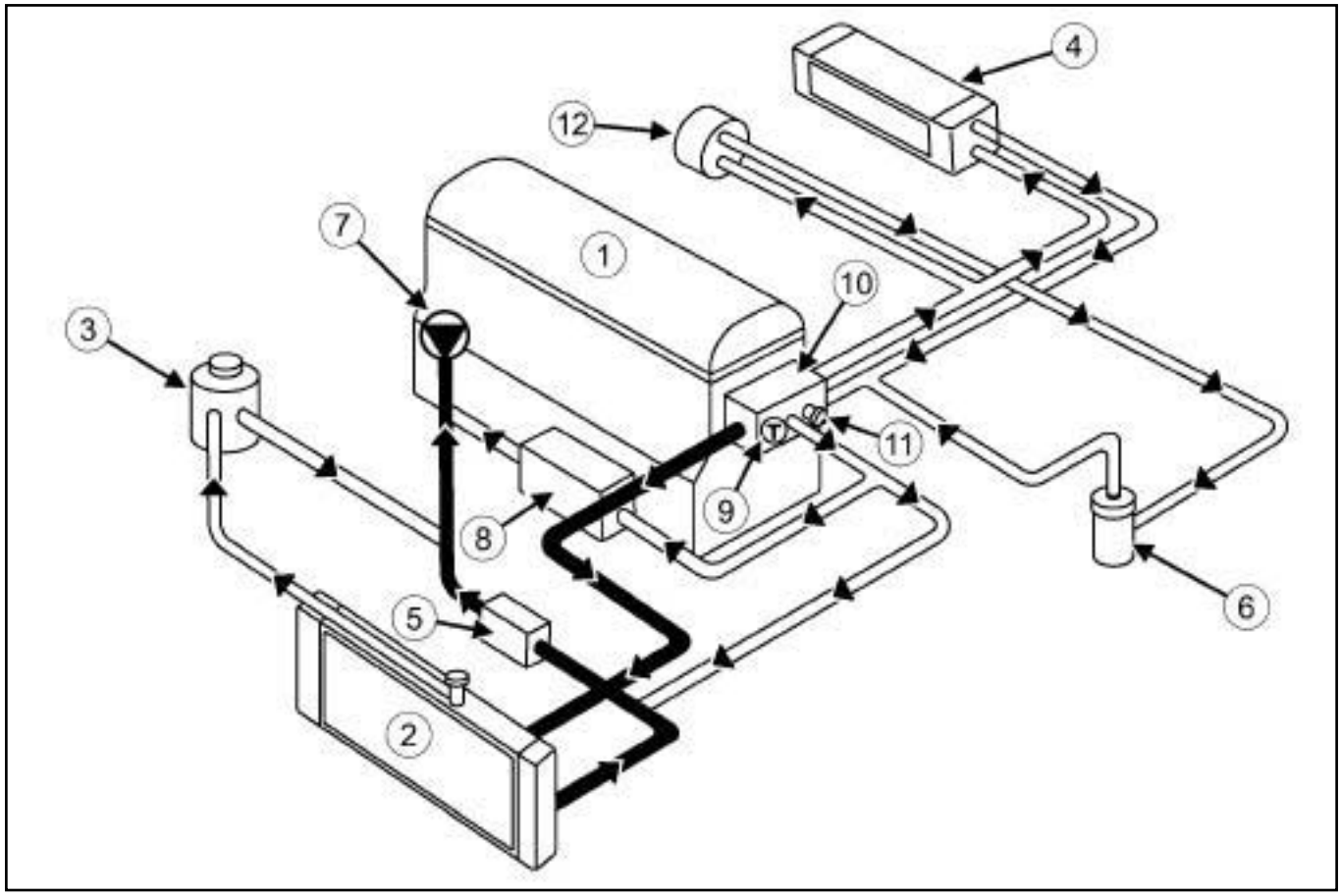


131100

| | |
|---|---|
| (**1**) | Engine |
| (**2**) | Cooling radiator |
| (**3**) | Expansion bottle |
| (**4**) | Heater matrix |
| (**5**) | Coolant - oil heat exchanger |
| (**6**) | Electric coolant pump |
| (**7**) | Water pump |
| (**8**) | Exhaust gas cooler |
| (**9**) | Thermostat |
| (**10**) | Thermostat support |
| (**11**) | Bleed screw |
| (**12**) | Turbocharger |


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| Essential equipment |
| --- |
| coolant draining tray |
| compressed air nozzle |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

To avoid any risk of serious burns when the engine is hot:

- do not open the expansion bottle cap,

- do not drain the cooling system,

- do not open the bleed screw(s).

**WARNING**

Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

**I - OIL SERVICE**

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

**WARNING**

Drain with the engine warm.

Flush and refill with the engine cold or warm.

Never flush a hot engine (risk of major thermal shock).

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,

- protection down to **-40°C ± 2** for "extreme cold" countries.

❑ Remove the engine undertray.

❑ Position the **coolant draining tray** under the vehicle.


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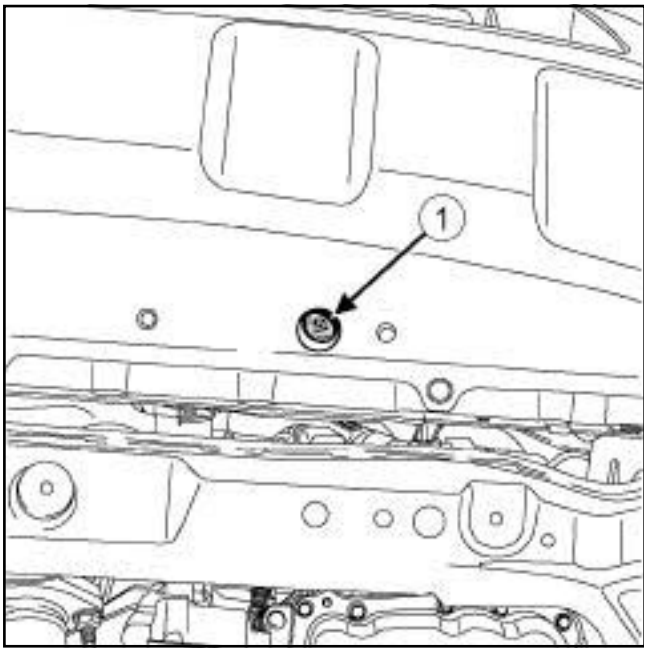
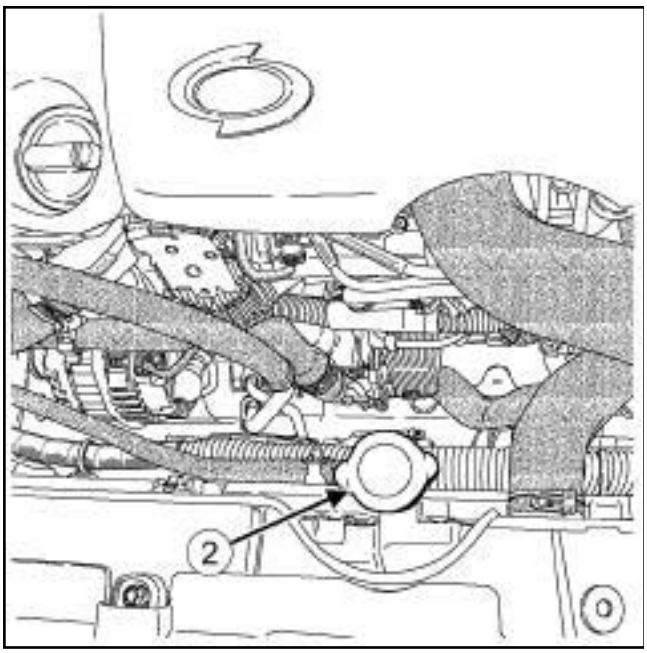



131189

❏ Remove the drain plug (**1**) .

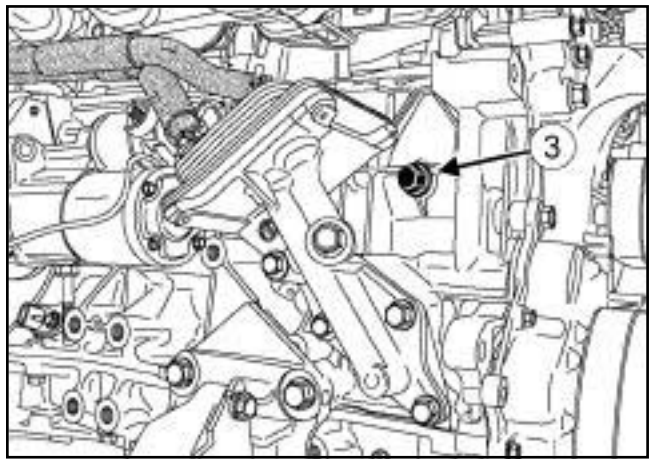



131190

❏ Remove the radiator cap (**2**) .

❏ Use a **compressed air nozzle** to blow air into the circuit through the radiator opening to remove as much coolant as possible.

2TR




131191

❏ Remove the coolant drain plug (**3**) from the cylinder block and drain all of the engine coolant from the circuit.

❏ Remove the expansion bottle (see **19A**, **Cooling**, **Expansion bottle: Removal - Refitting**, page **19A-53**) .

❏ Drain the expansion bottle.

**II - CLEANING**

❏ Fill the cooling system with water through the radiator opening.

❏ Let the water run until the water collected by the cooling radiator bottom hose runs clear.

❏ Use a **compressed air nozzle** to blow air into the circuit through the radiator opening to remove as much coolant as possible.



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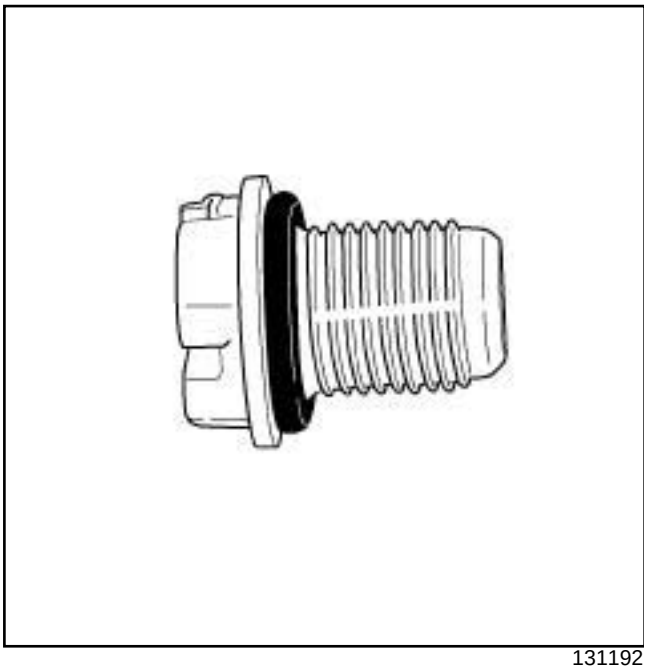
**III - FILLING**



131192

❑

Note:

Carefully clean the drain plug and refit a new O-ring.

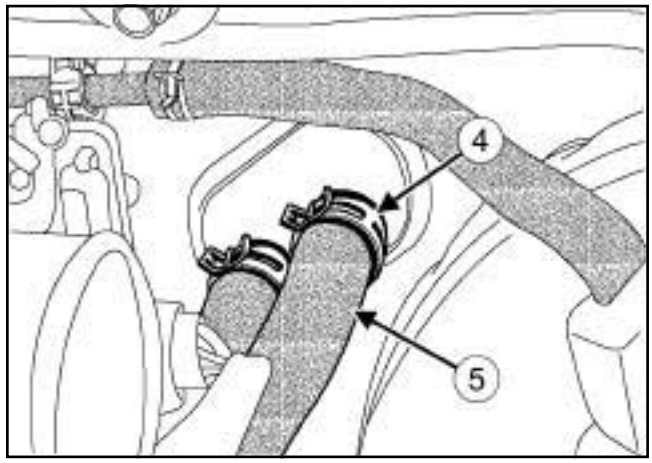
❑ Refit the expansion bottle (see **19A**, **Cooling**, **Expansion bottle: Removal - Refitting**, page **19A-53**) .

2TR

❑ Refit the coolant drain plug ***(3)*** on the cylinder block.

❑ Refit the drain plug ***(1)*** .

❑ Remove the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .




131270

❑ Remove:

- the clip (**4**) ,
- the heater hose (**5**) .

❑ Lift the heater hose ***(5)*** as high as possible.

Note:

Capacity of the engine coolant:

- 2TR - BVV (CVT): **7.2 l**,
- M9R - BVM: **8.0 l**,
- M9R - BVA: **8.5 l**.

❑ Pour the coolant slowly, at less than **2 l/min**, so that the air escapes from the cooling system.

❑ When the coolant starts to go out of the heater matrix, connect the heater hose to the heater matrix and continue to pour coolant until the radiator is full.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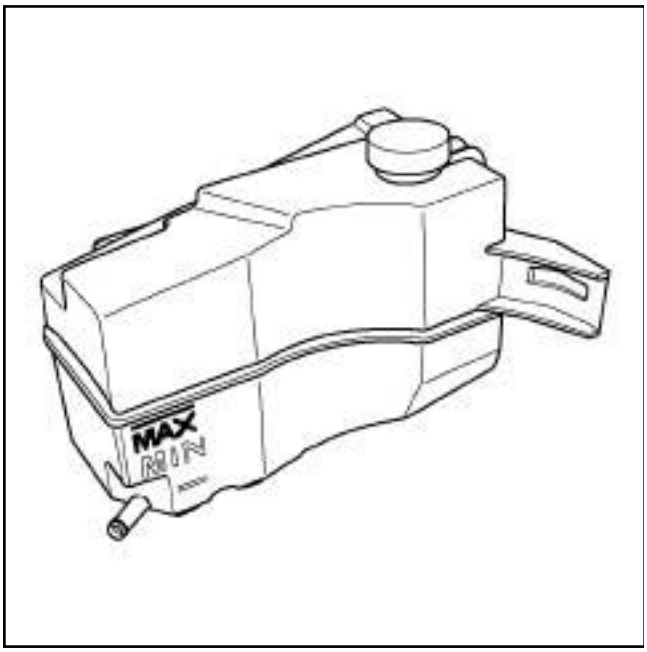
2TR




131193

❑ Fill with coolant up to the « MAX » mark on the expansion bottle.

M9R

131194

❑

Note:

The coolant level rises approximately **15 mm** when the engine stops.

❑ Fill with coolant up to **15 mm** below the « MAX » mark on the expansion bottle.

❑ Refit the radiator cap.

❑ Refit the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Clean any surfaces soiled by the coolant.

**IV - BLEEDING**

❑ Start the engine.

❑ Maintain the engine speed at **3000 rpm**, until the engine cooling fan assembly is triggered a third time (time required for automatic degassing).

❑ Check that the heating is operating correctly.

❑ Allow the engine to cool until the engine coolant temperature is less than **50°C**.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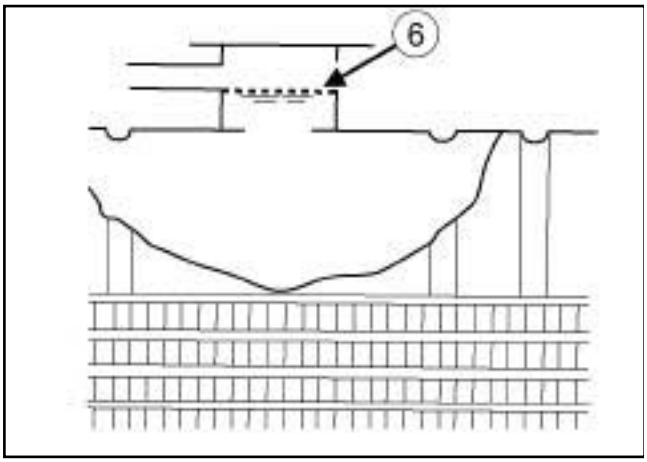


131195

❏ Remove the radiator cap.

❏ Top up the coolant level ***(6)*** .

❏ Refit the radiator cap.

**V - FINAL OPERATION**

❏ Remove the **coolant draining tray**.

❏ Refit the engine undertray.



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# Cooling radiator: Removal - Refitting



M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

**IMPORTANT**

To avoid any risk of damaging the systems, follow the instructions regarding safety and cleanliness and operation recommendations before carrying out the repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

To avoid any risk of serious burns when the engine is hot:

- do not open the expansion bottle cap,
- do not drain the cooling system,
- do not open the bleed screw(s).

**WARNING**

Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,
- protection down to **-40°C ± 2** for "extreme cold" countries.

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

## REMOVAL

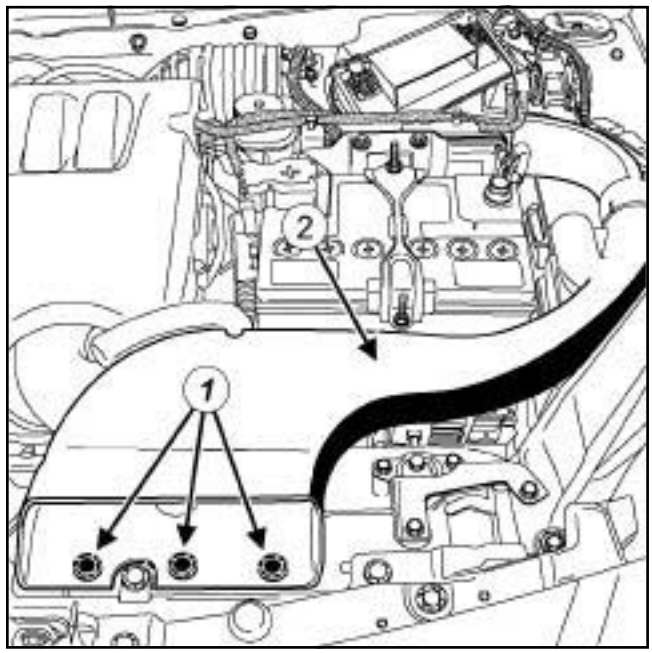
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Remove the engine undertray.

❑ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .




131102

❑ Unclip the clips (**1**) .

❑ Remove the air inlet sleeve ***(2)*** .



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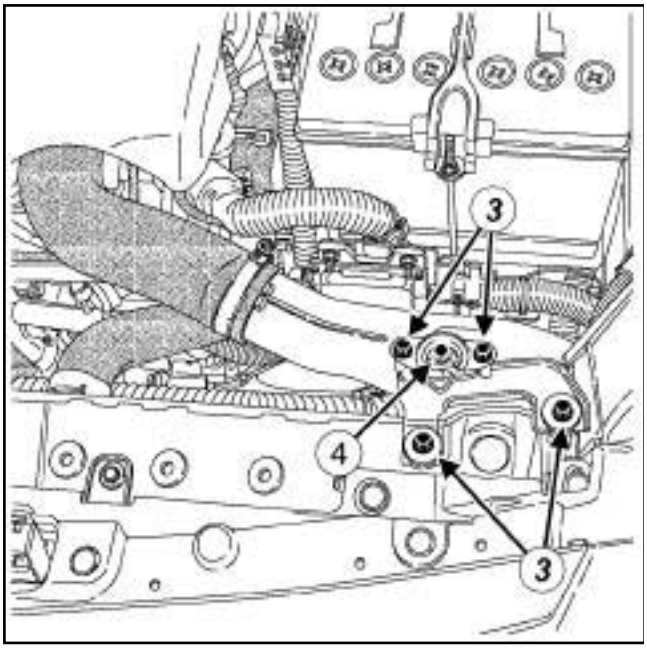
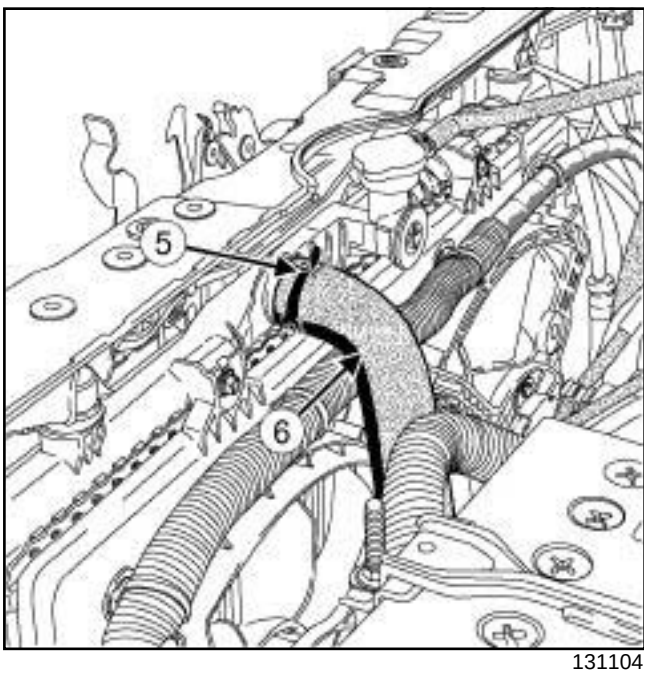


131103

❏ Remove:

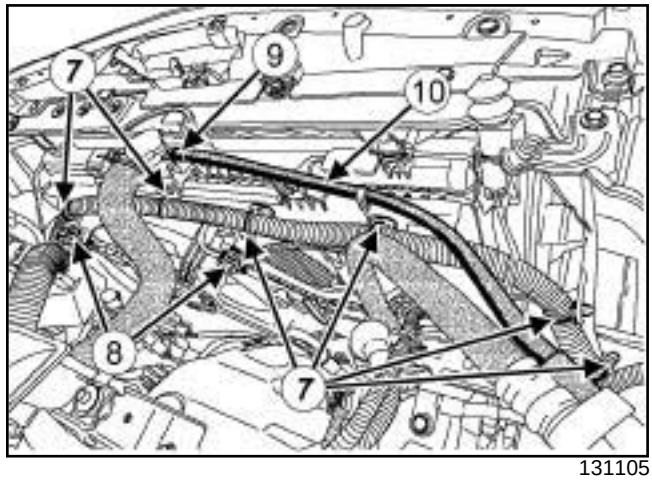
- the bolts (**3**) of the air inlet pipe support,
- the air inlet pipe support (**4**) .



131104

❏ Remove the cooling radiator top hose clip (**5**) using the **(Mot. 1448)**.

❏ Disconnect the radiator top hose ***(6)*** .



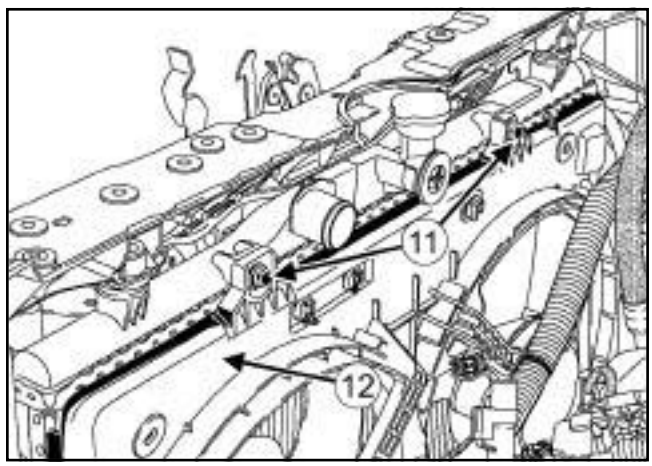
131105

❏ Unclip the wiring clips (**7**) .

❏ Disconnect the connectors ***(8)*** from the motor-driven fan assembly.

❏ Remove the clip ***(9)*** .

❏ Disconnect the hose ***(10)*** .



131106

❏ Remove:

- the bolt (**11**) from the motor-driven fan assembly,
- the engine cooling fan assembly (**12**) .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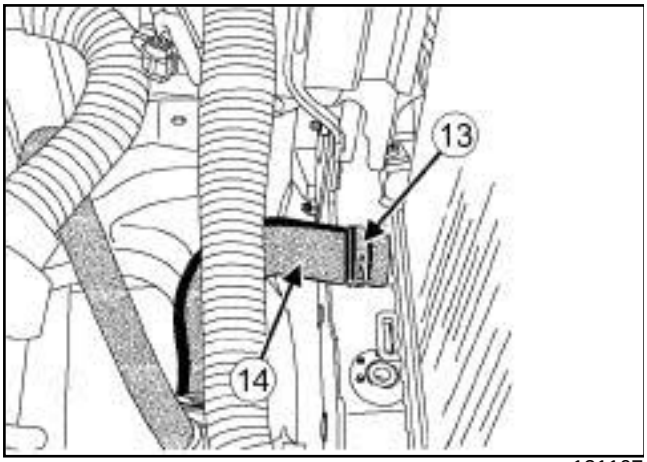
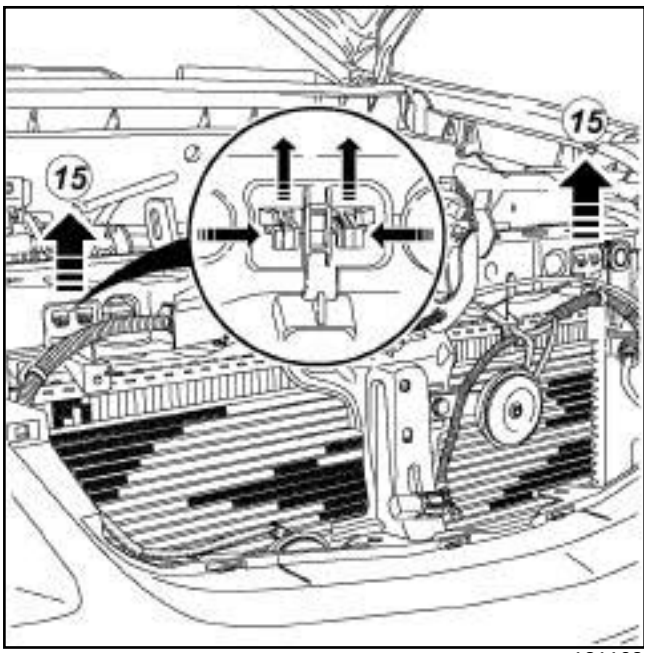


131107

❑ Remove the cooling radiator bottom hose clip (**13**) using the **(Mot. 1448)**.

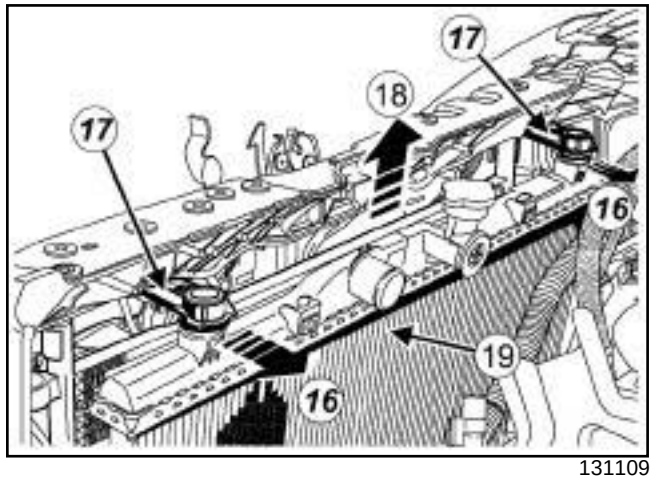
❑ Disconnect the radiator bottom hose ***(14)*** .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131108

❑ Move the radiator supports in the direction (**15**)



131109

❑ Remove:

- the supports (**17**) in the direction of (**16**) ,
- the radiator (**19**) in the direction of (**18**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the cooling radiator,
- the radiator supports.

❑ Place the supports in their original positions.

**II - FINAL OPERATION.**

❑ Connect the radiator bottom hose.

❑ Refit:

- the clip of the radiator bottom hose using the tool **(Mot. 1448)**.
- the engine cooling fan assembly,
- The bolt from the motor-driven fan assembly.

❑ Connect the hose ***(10)*** .

❑ Refit the clip ***(9)*** .

❑ Connect the motor-driven fan assembly connectors.

❑ Clip on the wiring clips ***(7)*** .

❑ Connect the radiator top hose.

❑ Refit:

- the clip of the radiator top hose using the tool **(Mot. 1448)**,
- the air inlet pipe support,
- the bolts of the air inlet pipe support,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- the air intake sleeve.

❑ Refit the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill and bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Check that there are no leaks.


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

**IMPORTANT**

To avoid any risk of damaging the systems, follow the instructions regarding safety and cleanliness and operation recommendations before carrying out the repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

To avoid any risk of serious burns when the engine is hot:

- do not open the expansion bottle cap,
- do not drain the cooling system,
- do not open the bleed screw(s).

**WARNING**

Take care not to damage the bearing faces to prevent any risk of coolant leaks.

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,
- protection down to **-40°C ± 2** for "extreme cold" countries.

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

## REMOVAL

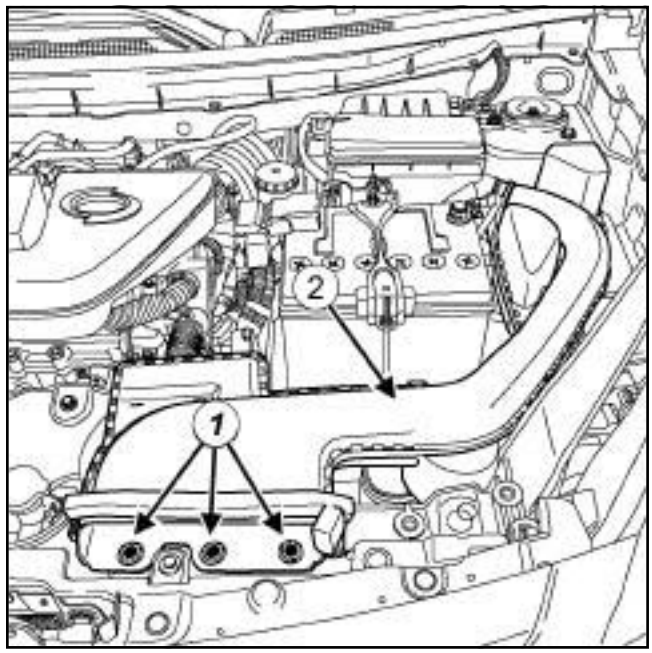
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .




129655

❏ Unclip the clips (**1**) .

❏ Remove the air inlet sleeve ***(2)*** .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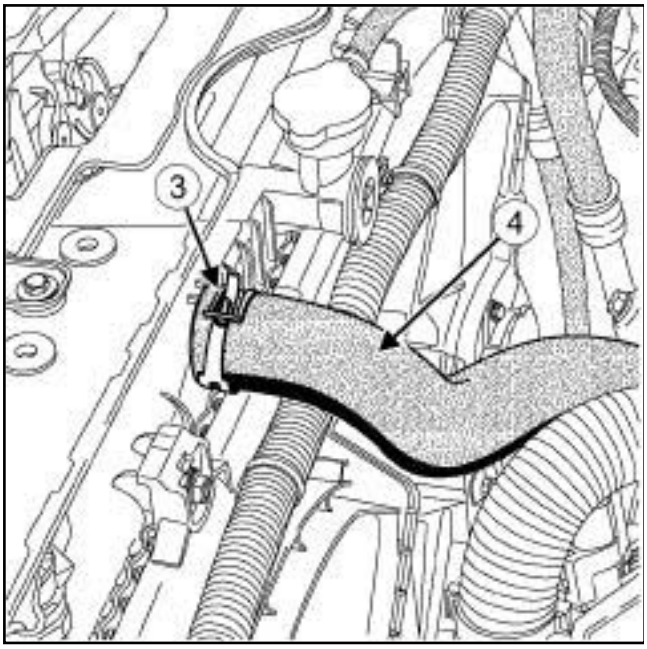
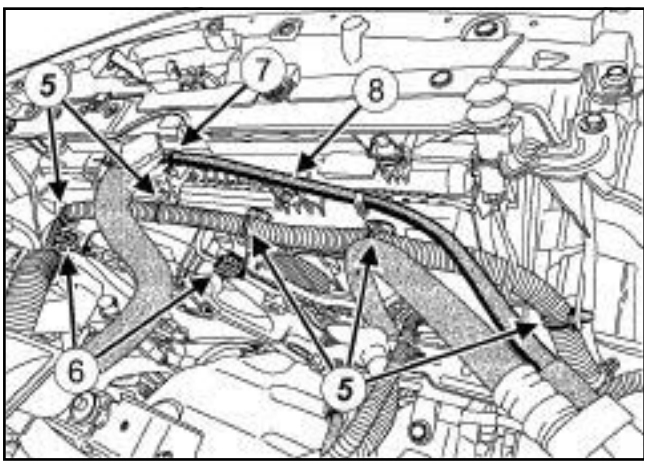



129656

❏ Remove the clip (**3**) from the radiator top hose using the tool **(Mot. 1448)**.

❏ Disconnect the radiator top hose (**4**) .



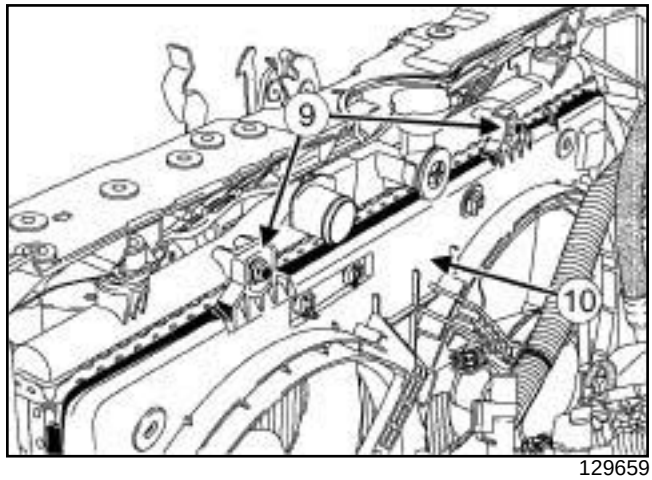

129658

❏ Unclip the clips (**5**) from the wiring

❏ Disconnect the connectors ***(6)*** from the motor-driven fan assembly.

❏ Remove the clip ***(7)*** from the expansion bottle degassing hose using the tool **(Mot. 1448)**

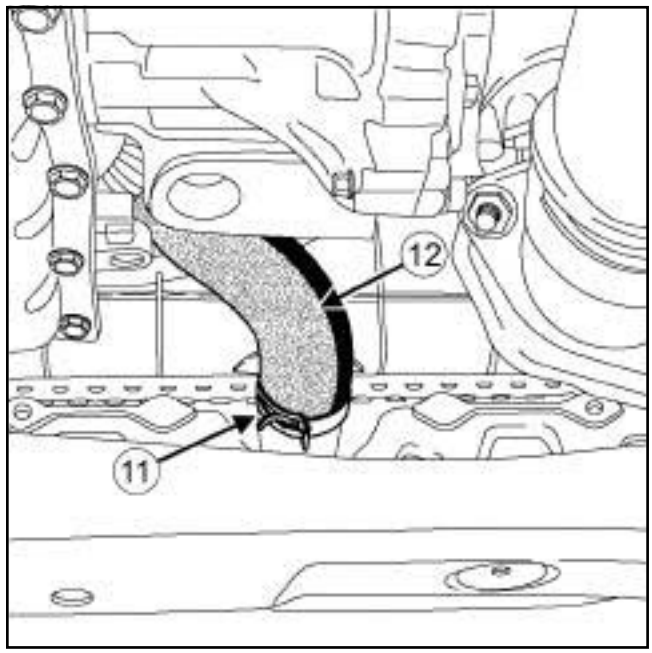
❏ Disconnect the degassing hose ***(8)*** from the expansion bottle.




129659

❏ Remove:

- the bolts (**9**) ,
- the engine cooling fan assembly (**10**) .




129657

❏ Remove the clip (**11**) from the radiator bottom hose using the tool **(Mot. 1448)**.

❏ Disconnect the radiator bottom hose ***(12)*** .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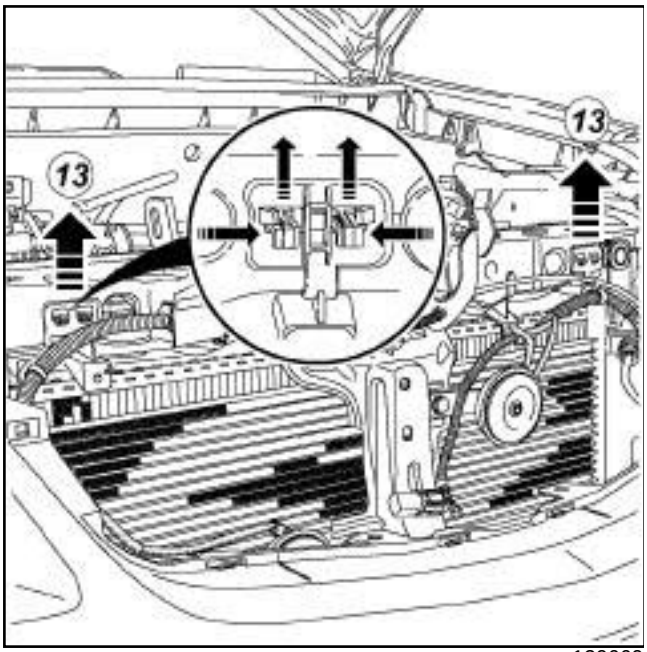
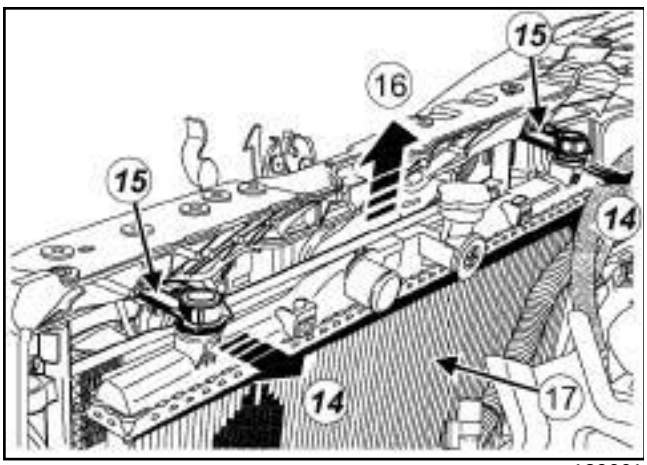
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129660

❏ Move the radiator supports in the direction of (**13**) .




129661

❏ Remove:

- the supports (**15**) in the direction of (**14**) ,
- the radiator (**17**) in the direction of (**16**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the cooling radiator,
- the radiator supports.

❏ Place the supports in their original positions.

**II - FINAL OPERATION.**

❏ Connect the radiator bottom hose.

❏ Refit:

- the clip of the radiator bottom hose using the tool **(Mot. 1448)**,
- the engine cooling fan assembly,
- the fan assembly bolt.

❏ Connect the degassing hose to the expansion bottle.

❏ Refit the clip of the expansion bottle degassing hose using the tool **(Mot. 1448)**.

❏ Connect the motor-driven fan assembly connectors.

❏ Clip on the wiring clips ***(5)*** .

❏ Connect the radiator top hose.

❏ Refit the radiator top hose clip using the tool **(Mot. 1448)**.

❏ Refit the air intake sleeve.

❏ Clip on the air inlet sleeve clips.

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Fill and bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Check that there are no leaks.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**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Parts and consumables for the repair work**, page **19A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the « engine - gearbox assembly » (see **10A**, **Engine and cylinder block assembly**, **Engine/gearbox assembly: Removal - Refitting**, page **10A-44**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the coolant pump (see **Timing - cylinder head: Removal**) (Technical Note 6017A, 10A, Engine and peripherals).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the coolant pump (see **Timing - cylinder head: Refitting**) (Technical Note 6017A, 10A, Engine and peripherals).

### II - FINAL OPERATION.

❑ Refit the « engine and gearbox» assembly (see **10A**, **Engine and cylinder block assembly**, **Engine/gearbox assembly: Removal - Refitting**, page **10A-44**) .


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2TR

| Tightening torques ▽ | |
|---|---|
| coolant pump bolts | **25 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

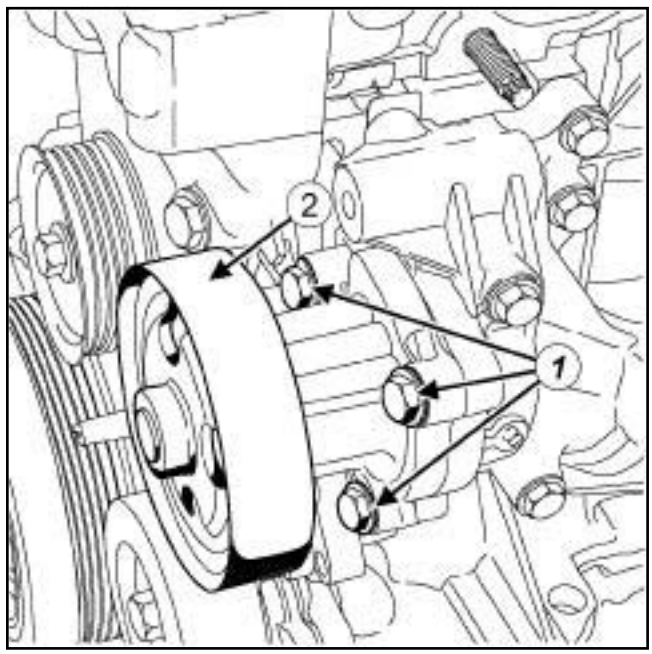
❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the fixed roller (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the auto tensioner (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the screen washer bottle filler neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping),
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131415

❏ Remove:

- the coolant pump bolts (**1**) ,
- the coolant pump (**2**) ,
- the coolant pump seal.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seals.

❏ Clean the surface of the coolant pump seal using **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Apply **RESIN ADHESIVE** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) to the surface of the coolant pump seal.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2TR

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the new seal on the coolant pump,
- the coolant pump,
- the coolant pump bolts.

❏ Torque tighten the **coolant pump bolts (25 N.m)**.

**III - FINAL OPERATION.**

❏ Refit:

- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the screen washer bottle filler neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping),
- the auto tensioner (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the fixed roller (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| thermostat unit bolts | **22 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

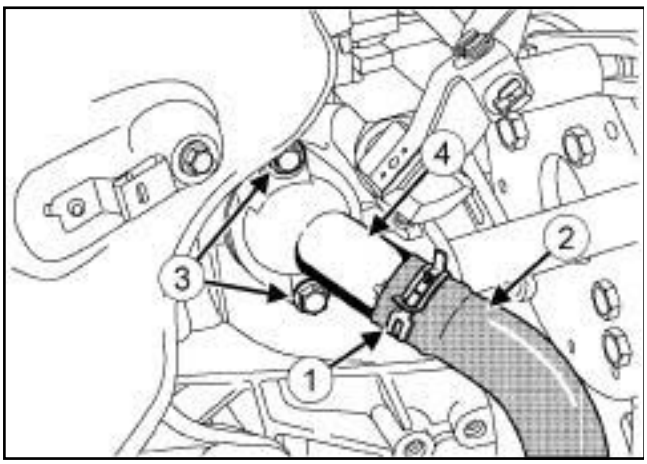
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129704

❏ Remove the clip (**1**) from the lower pipe of the cooling radiator using the tool **(Mot. 1448)**.

❏ Disconnect the lower pipe ***(2)*** from the cooling radiator.

❏ Remove:

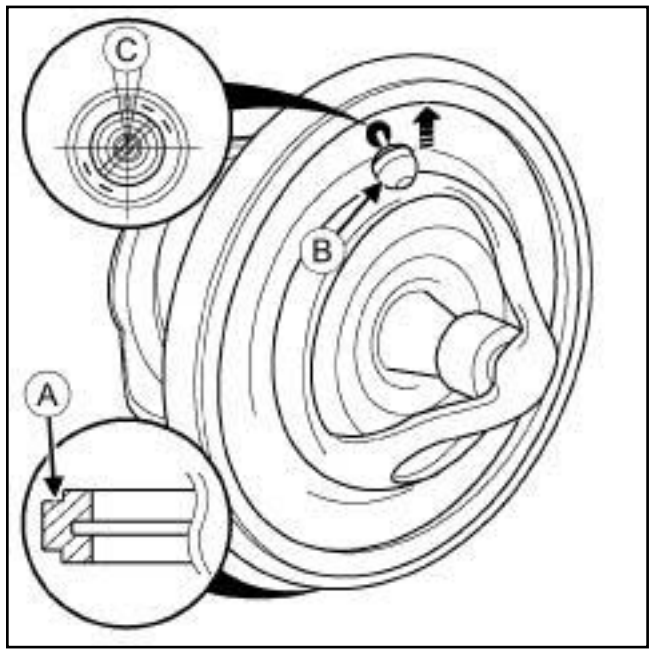
- the thermostat unit bolts ***(3)*** ,
- the thermostat unit ***(4)*** ,
- the seal of the thermostat unit,
- the thermostat,
- the seal.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seal.

### II - REFITTING OPERATION FOR PART CONCERNED



129673

❏

Note:
The deviation position of the discharge valve may be within a range of **20 degrees** as shown at (**C**) .

Refit:

- the new seal (**A**) to the thermostat,
- the thermostat with the discharge valve (**B**) facing upwards,
- the seal of the thermostat unit,
- the thermostat unit,
- the thermostat unit bolts.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2TR

- ❏ Torque tighten the **thermostat unit bolts (22 N.m)**.
- ❏ Connect the lower pipe of the cooling radiator.
- ❏ Refit the clip on the lower pipe of the cooling radiator using the tool **(Mot. 1448)**.

**III - FINAL OPERATION**

- ❏ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .
- ❏ Refit the engine undertray.
- ❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .


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# Plenum chamber: Removal - Refitting



M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| water chamber bolts | **11 N.m** |
| wiring bracket bolts | **10 N.m** |
| heater matrix water inlet pipe bolt | **25 N.m** |
| heater matrix water outlet pipe bolt | **25 N.m** |
| heater matrix inlet pipe bolt | **25 N.m** |
| heater matrix water outlet pipe bolt | **25 N.m** |
| EGR cooling bypass solenoid valve bolts | **10 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The criteria to be met are:

- protection down to **-25°C ± 2** for cold and temperate countries,
- protection down to **-40°C ± 2** for "extreme cold" countries.

**WARNING**

Before disconnecting the battery:

- wait for the motor-driven fan assembly to stop,
- wait for the computer to finish saving (**1 minute**).

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the engine cover,
- the engine undertray.

❑ Remove:

- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery tray),
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .



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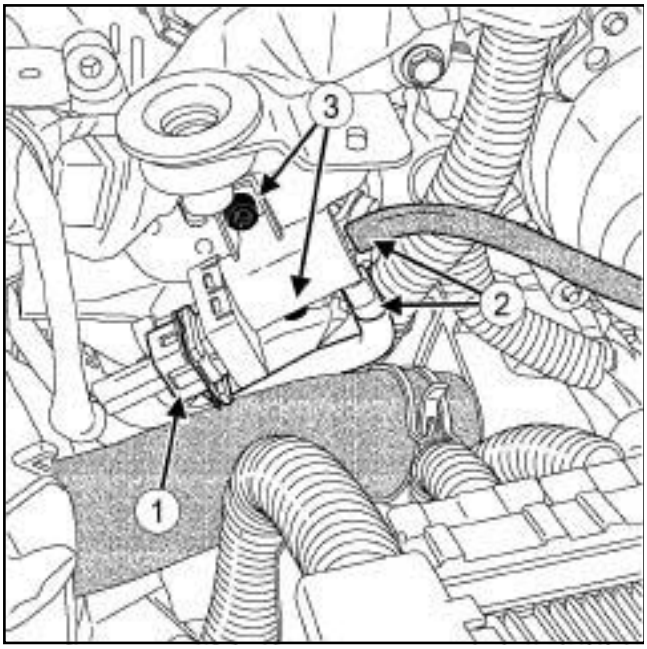
M9R



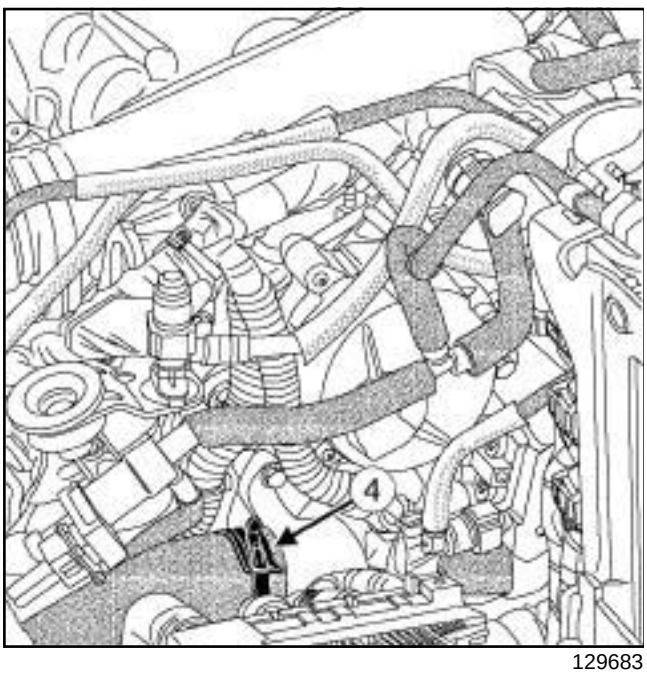

129682

❏ Disconnect:

- the connector (**1**) from the EGR cooling bypass solenoid valve
- the underpressure hoses (**2**) from the EGR cooling bypass solenoid valve.

❏ Remove:

- the EGR cooling bypass solenoid valve bolts ***(3)*** ,
- the EGR cooling bypass solenoid valve.

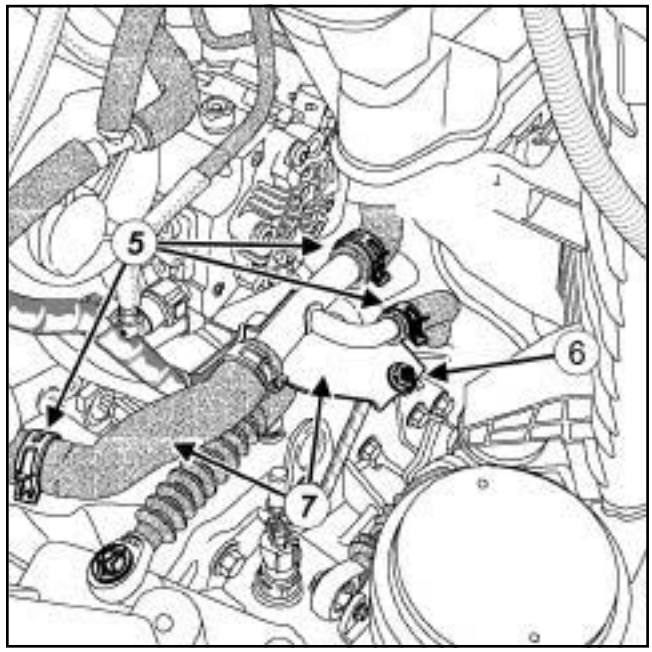



129683

❏ Remove the clip from the coolant radiator inlet hose (**4**) using the tool **(Mot. 1448)**.

❏ Disconnect the coolant radiator inlet hose.

6 SPEED MANUAL GBOX




129684

❏ Remove:

- the clips (**5**) from the heater matrix water outlet hose using the tool **(Mot. 1448)**,
- the bolt (**6**) from the heater matrix water outlet hose.

❏ Disconnect the « heater matrix water outlet pipe - hose assembly » ***(7)*** from the water chamber and heater matrix water outlet hose.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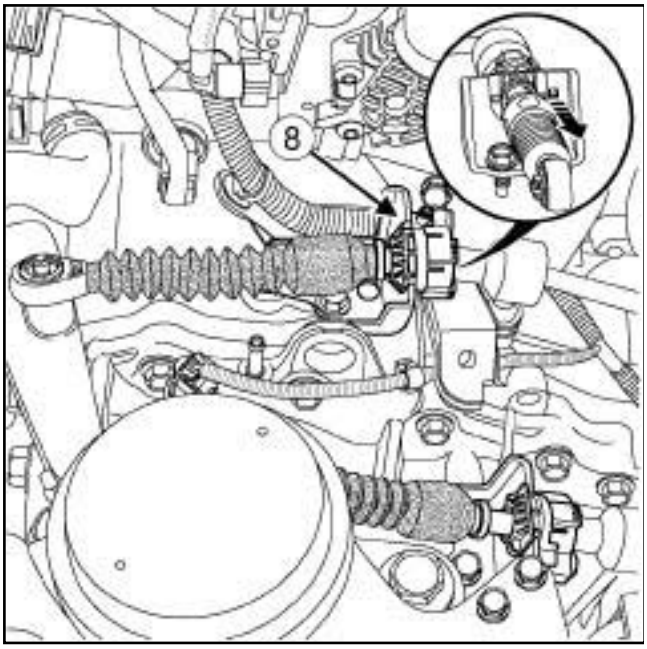
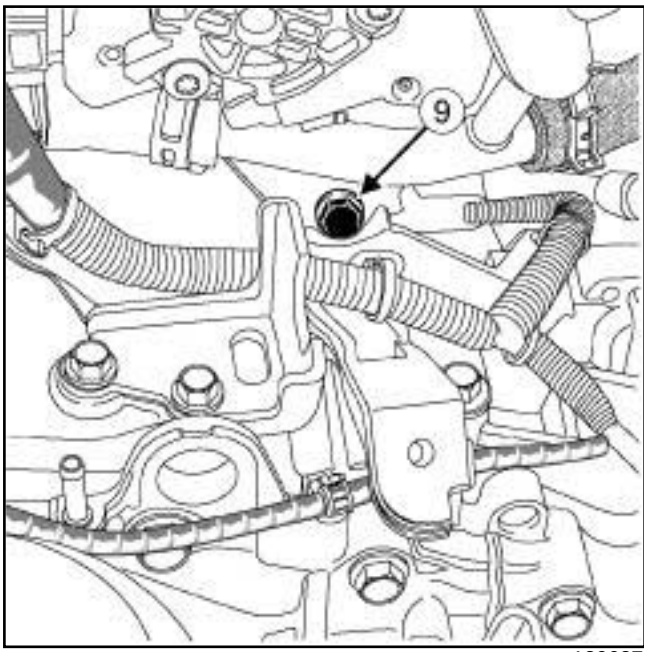
M9R




129685

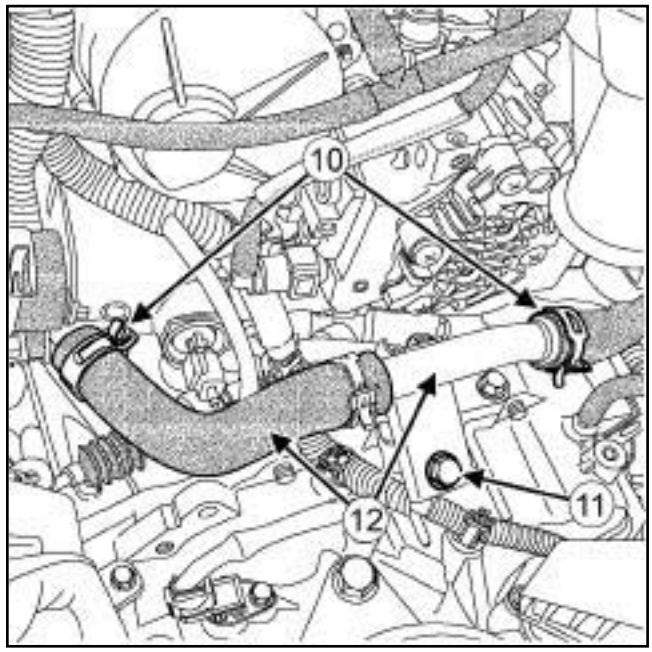
❏ Unclip the gear shift cable (**8**) .




129687

❏ Remove the bolt (**9**) from the heater matrix inlet pipe.

6 SPEED AUTO GBOX




129142

❏ Remove:

- the heater matrix water outlet hose clips (**10**) using the tool **(Mot. 1448)**
- the bolt (**11**) from the heater matrix water outlet hose.

❏ Disconnect the « heater matrix water outlet pipe - hose assembly » ***(12)*** from the water chamber and heater matrix water outlet hose.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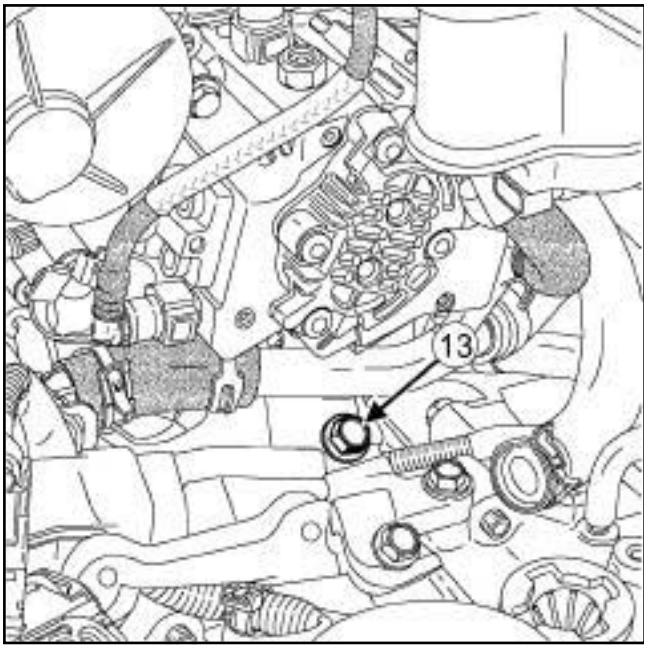
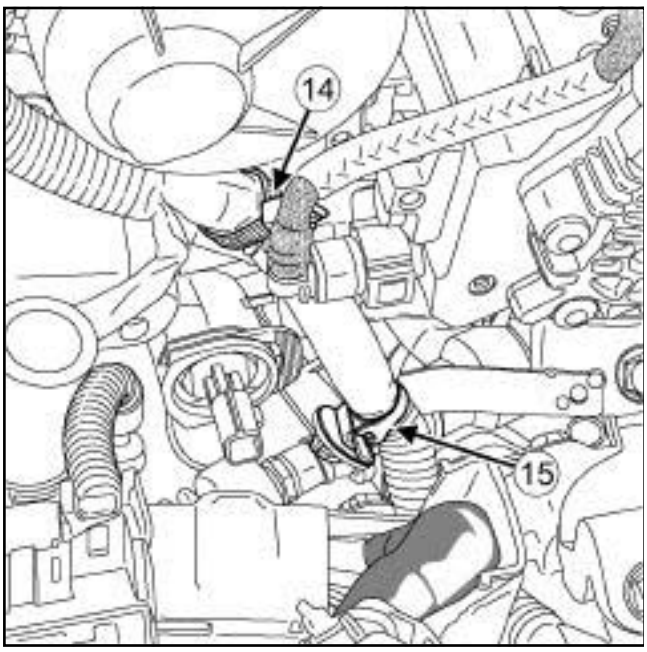



129690

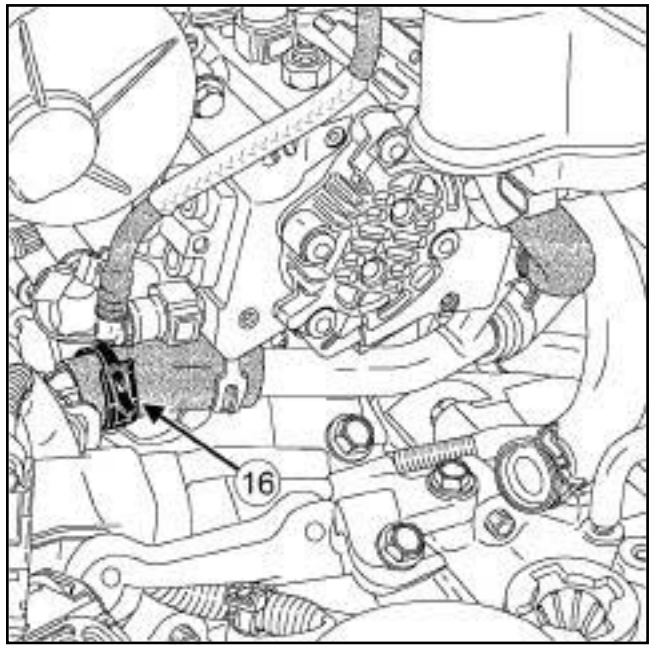
❏ Remove the bolt (**13**) from the heater matrix inlet pipe.




129686

❏ Unclip:

- the wiring at (**14**) ,
- the wiring at (**15**) .



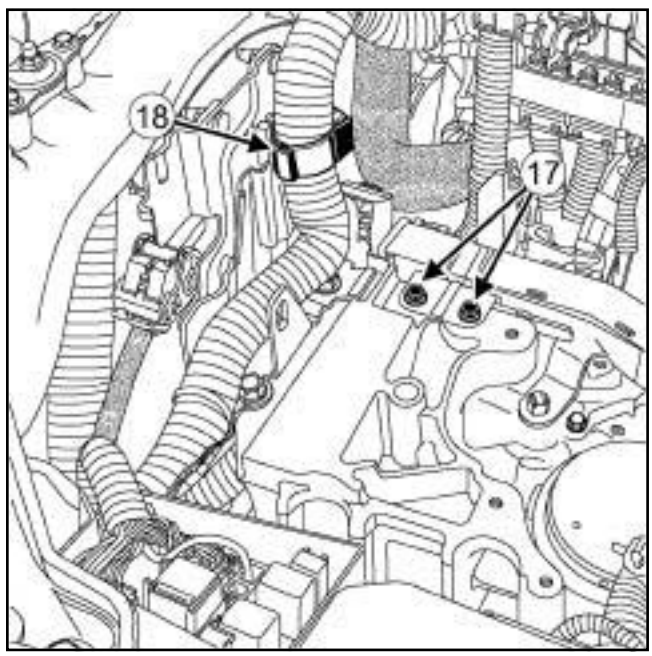

129691

❏ Remove the clip from the heater matrix water inlet hose (**16**) using the tool **(Mot. 1448)**.

❏ Disconnect the heater matrix water inlet hose from the water chamber.

❏ Move aside the water matrix water inlet hose.

❏ Disconnect the coolant temperature sensor connector.




132451

❏ Remove the bolts (**17**) from the wiring bracket.

❏ Unclip the wiring at (**18**) .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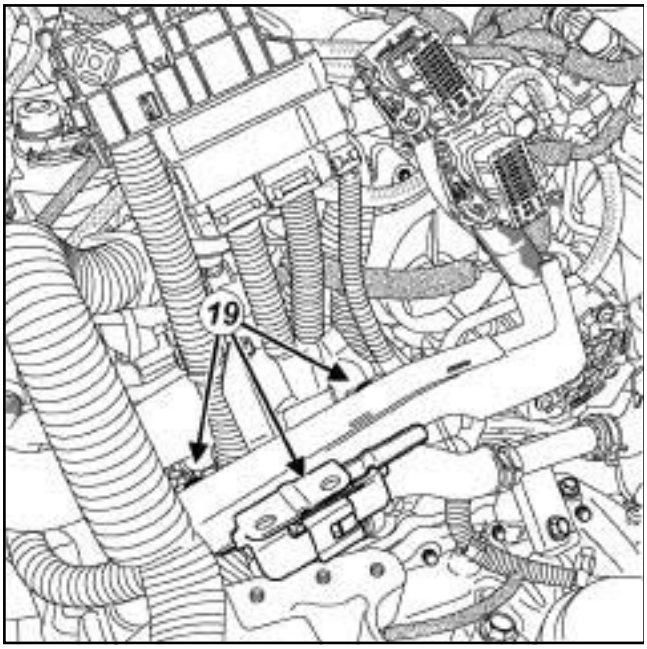
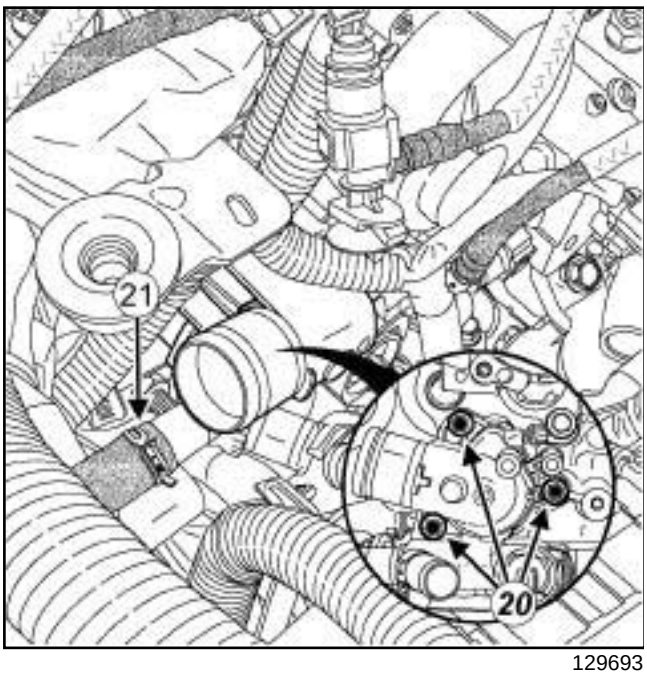


129692

❑ Unclip the wiring brackets (**19**) .

❑ Move aside the wiring.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129693

❑ Remove:

- the water chamber bolts (**20**) ,
- the exhaust gas recirculation intercooler water inlet hose clip (**21**) using the tool **(Mot. 1448)**.

❑ Disconnect the water chamber from the exhaust gas recirculation intercooler water inlet hose.

❑ Remove the water chamber seal.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace the water chamber seal.

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

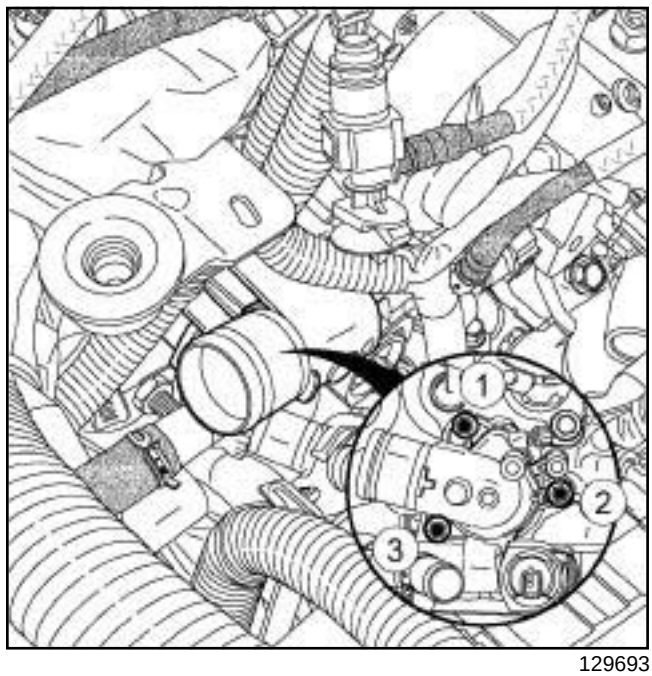
❑ Replace the coolant temperature sensor if necessary (see **19A**, **Cooling**, **Coolant temperature sensor: Removal - Refitting**, page **19A-59**) .

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit the new water chamber seal on the water chamber.

❑ Connect the water chamber to the exhaust gas recirculation intercooler water inlet hose.

❑ Refit the exhaust gas recirculation intercooler water inlet hose clip using the tool **(Mot. 1448)**.



129693

❑ Refit the water chamber bolts.

❑ Torque tighten in order the **water chamber bolts (11 N.m)**.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M9R

**III - FINAL OPERATION.**

❑ Clip:

- the wiring on to the brackets ***(19)*** ,
- the wiring at ***(18)*** .

❑ Refit the wiring bracket bolts ***(17)*** .

❑ Torque tighten the **wiring bracket bolts (10 N.m)**.

❑ Connect:

- the coolant temperature sensor connector,
- the heater matrix water inlet hose to the water chamber.

❑ Refit the heater matrix water inlet hose clip using the tool **(Mot. 1448)**.

❑ Clip:

- the wiring at ***(15)*** ,
- the wiring at ***(14)*** .

6 SPEED MANUAL GBOX

❑ Refit the bolt to the heater matrix inlet pipe.

❑ Torque tighten the **heater matrix water inlet pipe bolt (25 N.m)**.

❑ Clip the gear shift cable.

❑ Connect the «heater matrix water outlet pipe - hose » assembly to the water chamber and the heater matrix water outlet hose.

❑ Refit the heater matrix water outlet pipe bolt ***(6)*** .

❑ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.

❑ Refit the heater matrix water outlet hose clips ***(5)*** using the tool **(Mot. 1448)**.

6 SPEED AUTO GBOX

❑ Refit the heater matrix water outlet hose bolt ***(11)*** .

❑ Torque tighten the **heater matrix inlet pipe bolt (25 N.m)**.

❑ Connect the « heater matrix water outlet pipe - hose » assembly to the water chamber and the heater matrix water outlet hose.

❑ Refit the heater matrix water outlet hose bolt.

❑ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.

❑ Refit the heater matrix water outlet hose clips ***(10)*** using the tool **(Mot. 1448)**.

❑ Connect the coolant radiator hose.

❑ Refit the coolant radiator inlet hose clip using the tool **(Mot. 1448)**.

❑ Refit the EGR cooling bypass solenoid valve.

❑ Refit the EGR cooling bypass solenoid valve bolts.

❑ Torque tighten the **EGR cooling bypass solenoid valve bolts (10 N.m)**.

❑ Connect:

- the vacuum hoses to the EGR cooling bypass solenoid valve,
- the exhaust gas recirculation cooling bypass solenoid valve connector.

❑ Refit:

- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve to the air filter unit,
- the air inlet sleeve clips,
- the engine cover.

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit the engine undertray.


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2TR, and FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| coolant outlet unit bolts | **22 N.m** |
| bolts on the coolant inlet housing | **22 N.m** |
| coolant temperature sensor | **25 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

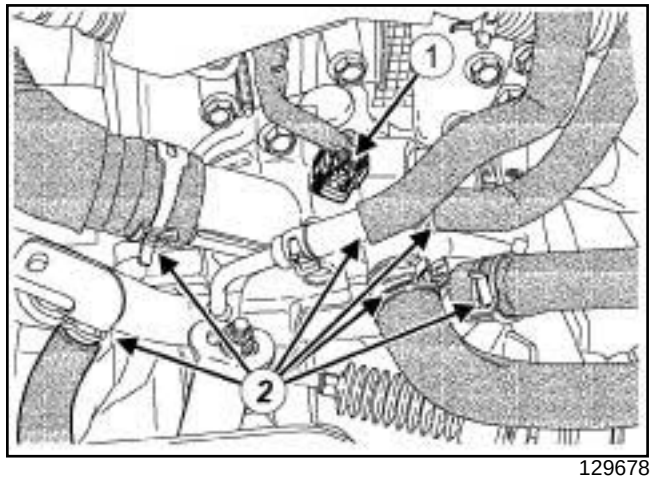
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



129678

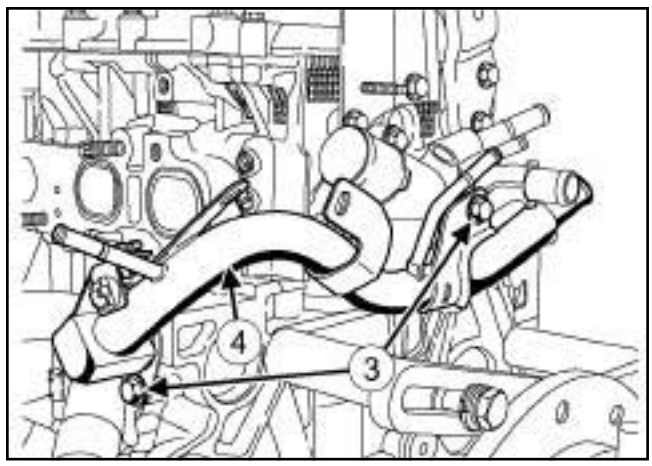
❏ Disconnect the coolant temperature sensor connector (**1**) .

❏ Remove the clips ***(2)*** from the cooling hoses.

❏ Disconnect all the cooling hoses from the coolant inlet housing and the coolant outlet unit.

❏ Remove:

- the clips from the wiring of the coolant inlet housing,
- the coolant temperature sensor,
- the coolant temperature sensor seal,



129679

❏ Remove:

- the bolts (**3**) from the coolant inlet housing,
- the coolant inlet housing,
- the O-ring from the coolant inlet housing.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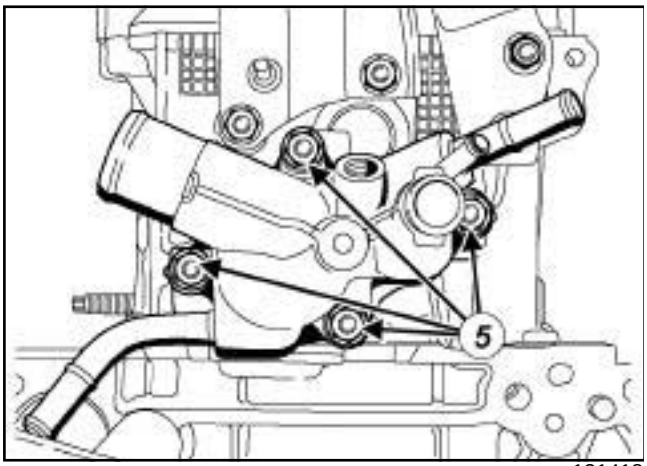
2TR, and FK0 or FK8

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131418

❑ Remove:

- the coolant outlet unit bolts,
- the coolant outlet unit,
- the coolant outlet unit seal,
- the thermostat,
- the thermostat seal.

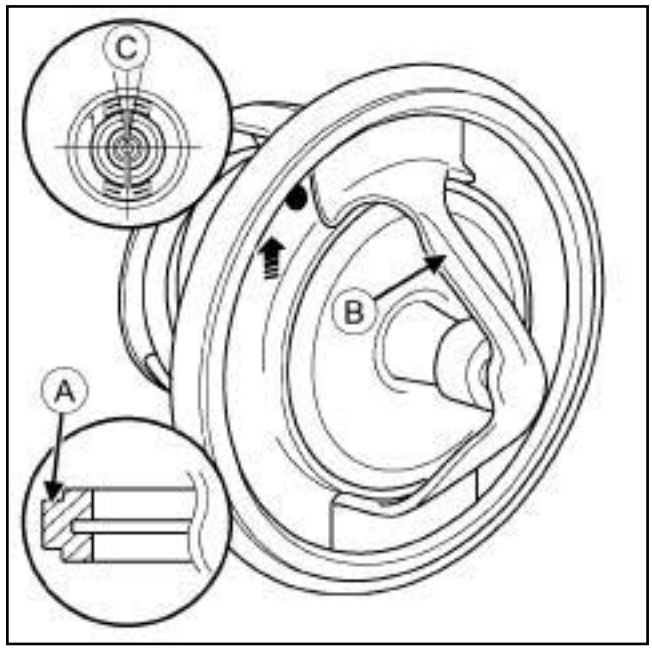
## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the seals,
- the O-ring.

**II - REFITTING OPERATION FOR PART CONCERNED**



131419

❑

Note:

The position deviation of (**C**) the mobile valve may be within the region of **20°** as illustrated.

Refit:

- the new seal (**A**) to the thermostat,
- the thermostat with the mobile valve (**B**) facing upwards,
- the new coolant outlet unit seal,
- the coolant outlet unit,
- the coolant outlet unit bolts.

❑ Torque tighten the **coolant outlet unit bolts (22 N.m)**

**III - FINAL OPERATION**

❑ Apply new engine oil to the new O-ring.

❑ Refit:

- the new O-ring on the coolant inlet housing,
- the coolant inlet housing,
- the coolant inlet housing bolts.

❑ Torque tighten the **bolts on the coolant inlet housing (22 N.m)**.

❑ Refit:

- the clips on the wiring of the coolant inlet housing,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2TR, and FK0 or FK8

- the new coolant temperature sensor seal,
- the coolant temperature sensor.

❏ Torque tighten the **coolant temperature sensor (25 N.m)**.

❏ Connect all the cooling hoses on the coolant inlet housing and the water chamber.

❏ Refit the clips on the hoses.

❏ Connect the coolant temperature sensor connector.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .

❏ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .


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| Tightening torques ▽ | |
|---|---|
| water chamber bolts | **22 N.m** |
| bolts on the coolant inlet housing | **22 N.m** |
| coolant temperature sensor | **25 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

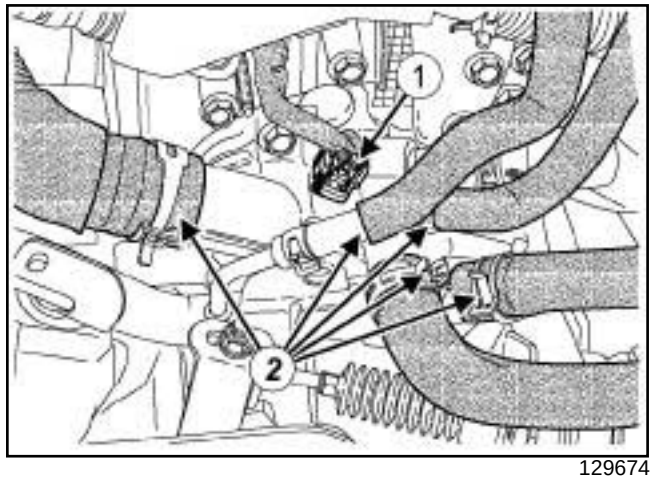
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



129674

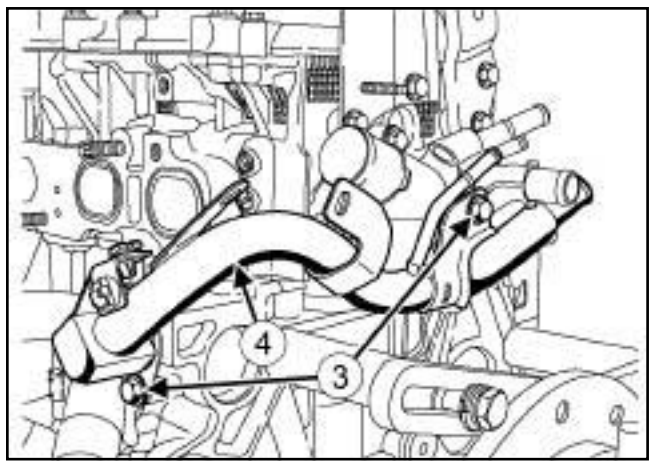
❏ Disconnect the coolant temperature sensor connector (**1**) .

❏ Remove the clips ***(2)*** from the cooling hoses.

❏ Disconnect all the cooling hoses from the coolant inlet housing and the water chamber.

❏ Remove:

- the clips from the wiring of the coolant inlet housing,
- the coolant temperature sensor,
- the coolant temperature sensor seal,



129675

❏ Remove:

- the bolts (**3**) from the coolant inlet housing,
- the coolant inlet housing,
- the O-ring from the coolant inlet housing.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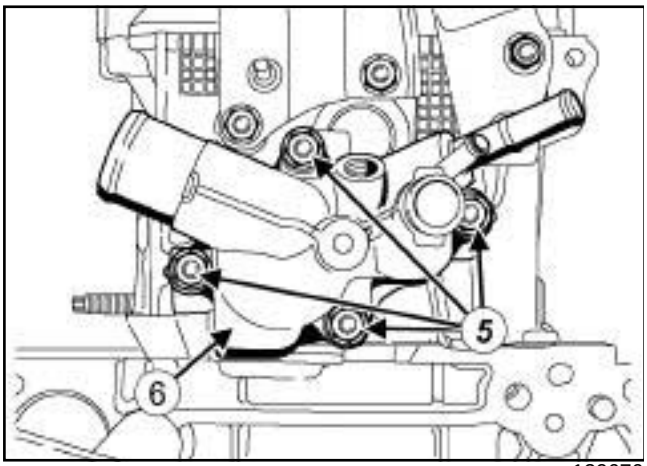
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129676

❑ Remove:

- the coolant outlet unit bolts,
- the coolant outlet unit,
- the coolant outlet unit seal,
- the thermostat,
- the thermostat seal.

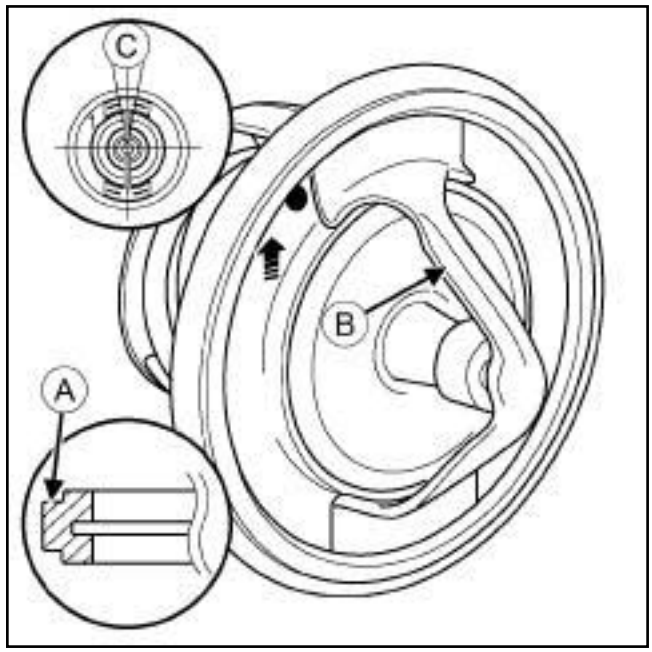
## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the seals,
- the O-ring.

**II - REFITTING OPERATION FOR PART CONCERNED**



131419

❑

Note:

The position deviation of (**C**) the mobile valve may be within the region of **20°** as illustrated.

Refit:

- the new seal (**A**) to the thermostat,
- the thermostat with the mobile valve (**B**) facing upwards,
- the new water chamber seal,
- the coolant outlet unit,
- the water chamber bolts.

❑ Torque tighten the **water chamber bolts (22 N.m)**.

**III - FINAL OPERATION**

❑ Apply new engine oil to the new O-ring.

❑ Refit:

- the new O-ring on the coolant inlet housing,
- the coolant inlet housing,
- the coolant inlet housing bolts.

❑ Torque tighten the **bolts on the coolant inlet housing (22 N.m)**.

❑ Refit:

- the wiring clips on the coolant inlet housing,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- the new coolant temperature sensor seal,
- the coolant temperature sensor.

❏ Torque tighten the **coolant temperature sensor (25 N.m)**.

❏ Connect all the cooling hoses on the coolant inlet housing and the water chamber.

❏ Refit the clips on the cooling hoses.

❏ Connect the coolant temperature sensor connector.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .

❏ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .


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# Engine cooling fan assembly: Removal - Refitting

M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

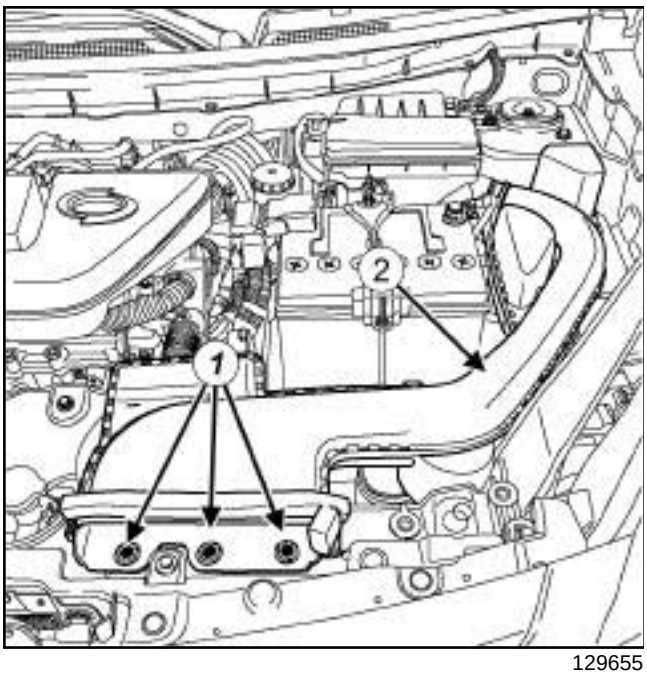
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

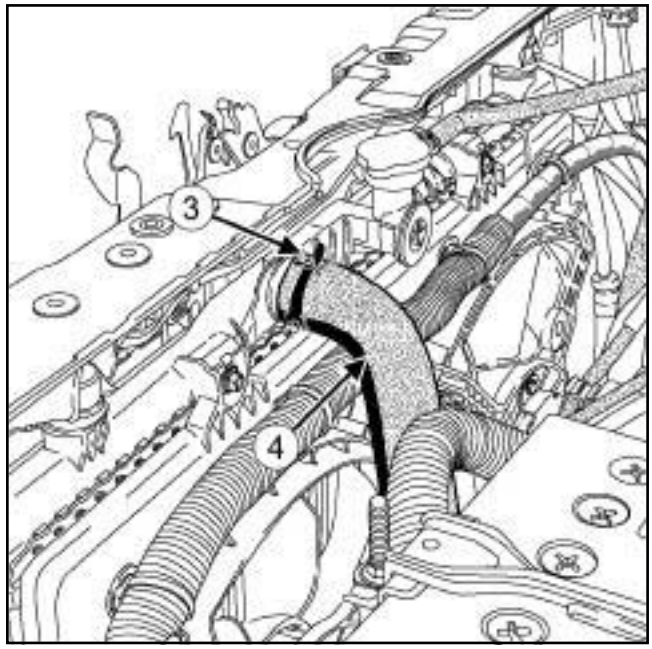
❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .




129655

❏ Unclip the clips (**1**) .

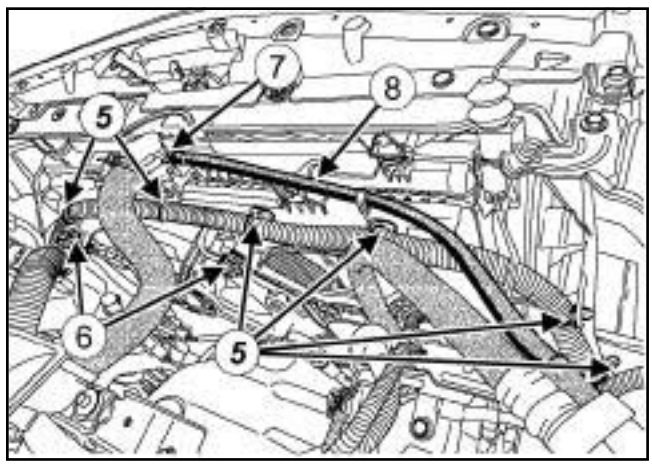
❏ Remove the air inlet sleeve ***(2)*** .




131604

❏ Remove the radiator top hose clip (**3**) using the tool **(Mot. 1448)**.

❏ Disconnect the cooling radiator top hose ***(4)*** .




131605

❏ Unclip the wiring clips (**5**) .

❏ Disconnect the connectors ***(6)*** from the motor-driven fan assembly.

❏ Remove the clip ***(7)*** .

❏ Disconnect the expansion bottle degassing hose ***(8)*** .

❏ Move aside the expansion bottle degassing hose.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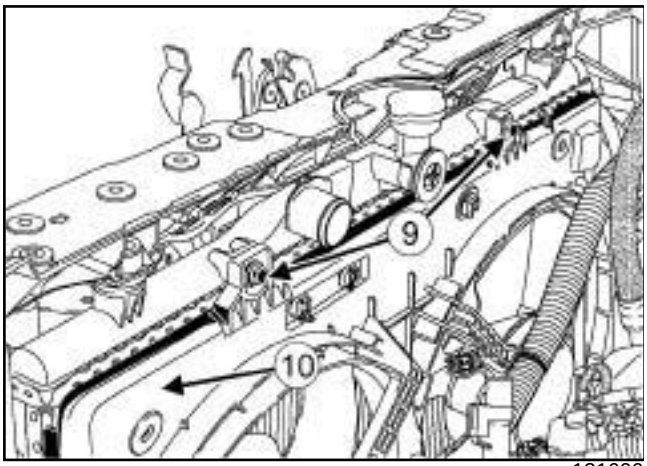
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131606

❑ Remove:

- the bolts (**9**) ,
- the engine cooling fan assembly (**10**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the engine cooling fan assembly,
- the bolts (**9**) on the fan assembly.

**II - FINAL OPERATION.**

❑ Refit the expansion bottle degassing hose in its original position.

❑ Connect the degassing hose to the expansion bottle.

❑ Refit the degassing hose clip.

❑ Connect the motor-driven fan assembly connectors.

❑ Clip on the wiring clips.

❑ Connect the radiator top hose.

❑ Refit:

- the radiator top hose clip using the tool **(Mot. 1448)**,
- the air intake sleeve.

❑ Clip on the air inlet sleeve clips.

❑ Refit the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill and bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Check that there are no leaks.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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

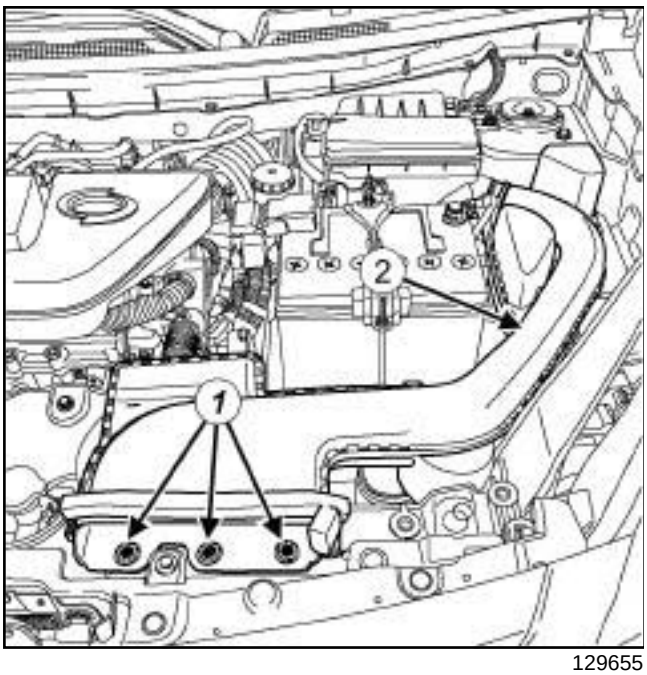
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

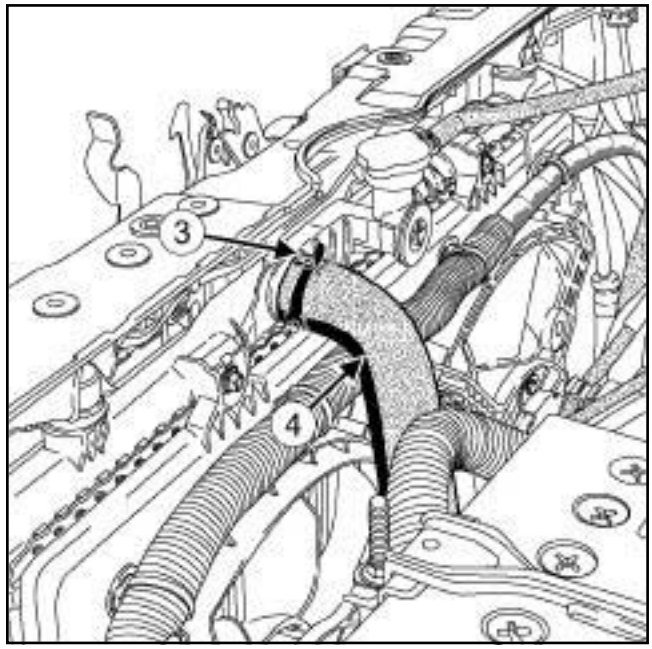
❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .




129655

❏ Unclip the clips (**1**) .

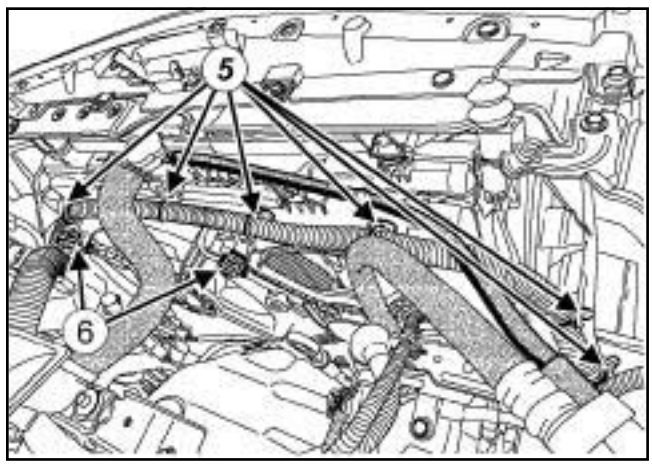
❏ Remove the air inlet sleeve ***(2)*** .




131604

❏ Remove the radiator top hose clip (**3**) using the tool **(Mot. 1448)**.

❏ Disconnect the radiator top hose ***(4)*** .




131605

❏ Unclip the wiring clips (**5**) .

❏ Disconnect the connectors ***(6)*** from the motor-driven fan assembly.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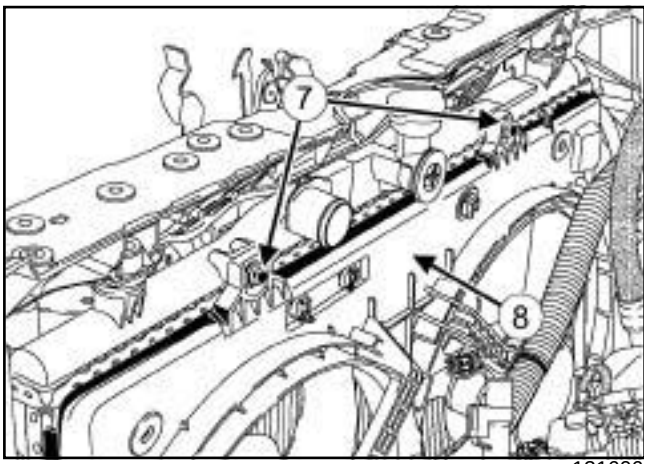
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131606

❏ Remove:

- the bolt (**7**) from the motor-driven fan assembly,
- the engine cooling fan assembly (**8**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the engine cooling fan assembly,
- The bolt from the motor-driven fan assembly.

**II - FINAL OPERATION.**

❏ Connect the motor-driven fan assembly connectors.

❏ Clip on the wiring clips.

❏ Connect the radiator top hose.

❏ Refit:

- the radiator top hose clip using the tool **(Mot. 1448)**,
- the air intake sleeve.

❏ Clip on the air inlet sleeve clips.

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Fill and bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Check that there are no leaks.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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |
| **Mot. 1608** | Torque screwdriver 1 to 6.6 N.m. |

| Tightening torques ▽ | |
|---|---|
| coolant pump inlet pipe bolt | **10 N.m** |
| dipstick guide tube bolts | **10 N.m** |
| intercooler air outlet pipe bolt | **8 N.m** |
| intercooler air outlet pipe clip | **8 N.m** |
| air filter unit air outlet pipe clips | **5 N.m** |
| intercooler air inlet pipe bolt | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Parts and consumables for the repair work**, page **19A-1**) .

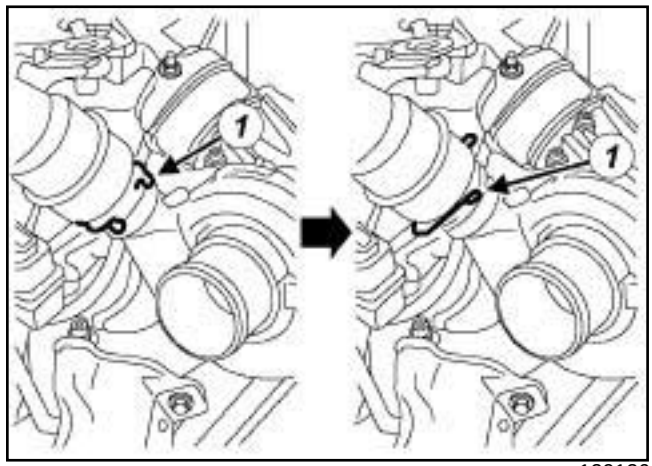
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**)

❏ Remove:

- the engine cover,
- the windscreen wiper arms (see **Wiper arms: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (85A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



129126

❏ Pivot the intercooler air inlet pipe clip (**1**) .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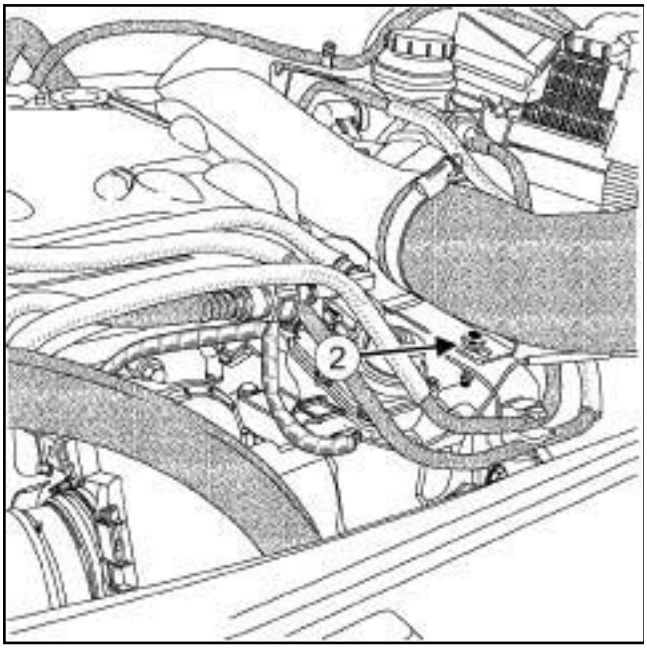



129707

❏ Remove the intercooler air inlet pipe bolt (**2**) from the fuel supply pipe bracket.

❏ Move aside the intercooler air inlet pipe

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Loosen the air filter unit air outlet pipe clip on the turbocharger.

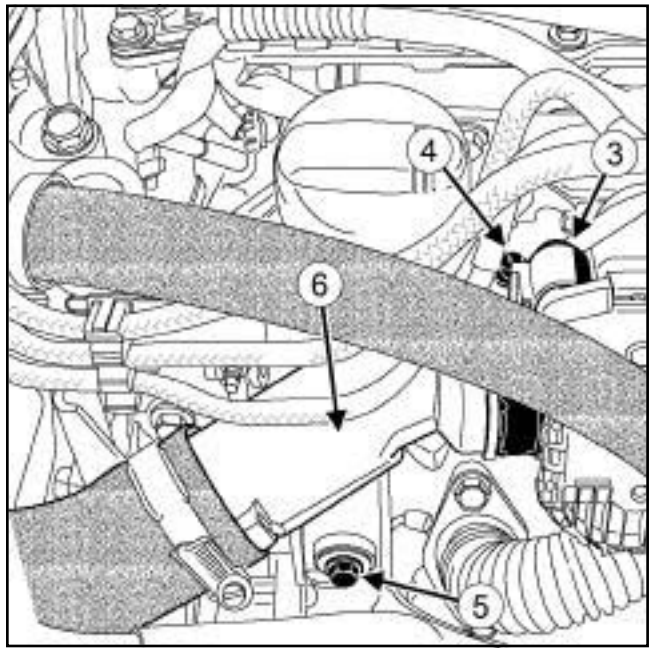
❏ Disconnect:

- the oil vapour rebreathing pipe from the oil separator,
- the air filter unit air outlet pipe from the turbocharger.

❏ Fit a blanking plug into the oil separator opening.

❏ Remove:

- the inlet manifold (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas recirculation intercooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) .




129708

❏ Disconnect the connector (**3**) from the damper valve wiring.

❏ Loosen the clip (**4**) on the intercooler air outlet pipe.

❏ Remove the intercooler air outlet pipe bolt (**5**) .

❏ Disconnect the intercooler air outlet pipe (**6**) from the air inlet flap.

❏ Move the intercooler air outlet pipe to one side.



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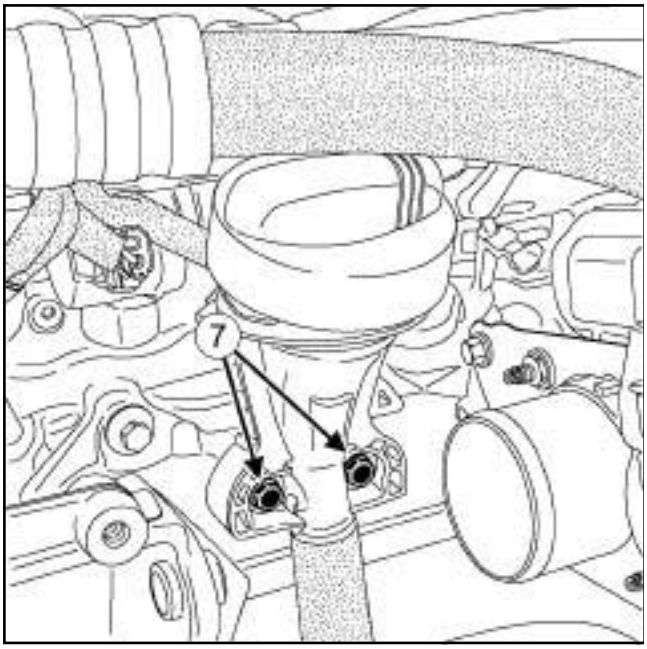


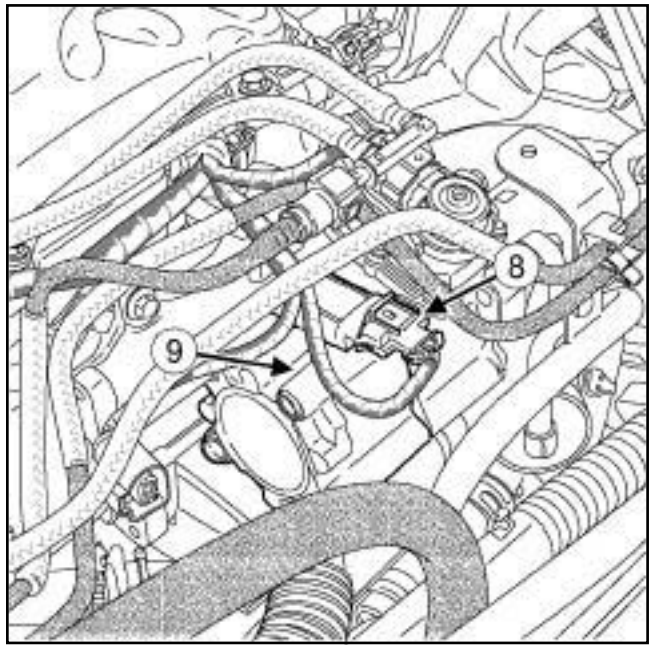

129709

❏ Remove:

- the dipstick guide tube bolt (**7**) ,
- the dipstick tube.

❏ Fit a blanking plug on the opening of the dipstick guide tube on the cylinder block.

❏ Remove the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .




129710

❏ Disconnect the turbocharger pressure sensor connector (**8**) .

❏ Remove:

- the housing from the turbocharging pressure sensor (**9**) ,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation intercooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the starter (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**) ,
- the exhaust gas recirculation intercooler (see **12B**, **Turbocharging**, **Intercooler: Removal - Refitting**, page **12B-13**) .

❏ Unclip the wiring harness from the coolant pump inlet pipe.



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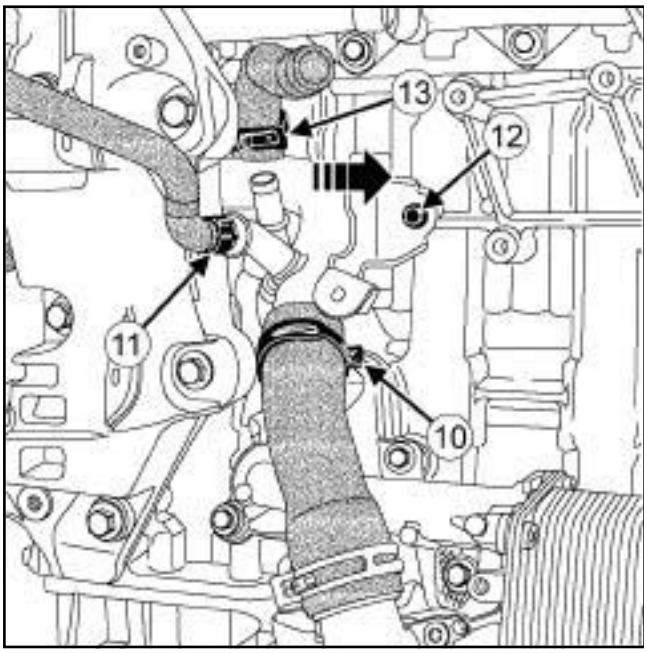
### II - OPERATION FOR REMOVAL OF PART CONCERNED



129711

❏ Remove:

- the clip (**10**) from the coolant pump inlet pipe coming from the oil filter unit using the tool **(Mot. 1448)**.
- the clip (**11**) from the coolant pump inlet pipe coming from the expansion bottle using the tool **(Mot. 1448)**.

❏ Remove the coolant pump inlet pipe bolt (**12**) .

❏ Pull the coolant pump inlet pipe in the direction of the arrow.

❏ Move aside the coolant pump inlet pipe.

❏ Remove the clip (**13**) from the coolant pump inlet pipe coming from the exhaust gas recirculation intercooler using the tool **(Mot. 1448)**.

❏ Disconnect:

- the hose coming from the exhaust gas recirculation intercooler from the coolant pump inlet pipe,
- the hose coming from the oil filter unit from the coolant pump inlet pipe,
- the hose coming from the expansion bottle from the coolant pump inlet pipe.

❏ Remove the coolant pump inlet pipe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean:

- the exhaust gas recirculation intercooler joint face,
- the exhaust gas recirculation solenoid valve joint face,

**WARNING**
The joint faces must be clean, dry and free from grease (avoid finger marks).

❏ Always replace:

- the coolant pump inlet pipe seal,
- the seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve
- the seal between the air inlet flap and the turbocharger pressure sensor housing.

❏ Refit the new coolant pump inlet pipe seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the hose coming from the exhaust gas recirculation intercooler onto the coolant pump inlet pipe.

❏ Refit the clip ***(13)*** on the coolant pump inlet pipe coming from the exhaust gas recirculation intercooler using the tool **(Mot. 1448)**.

❏ Connect the coolant pump inlet pipe to the hose coming from the oil filter unit.

Note:
Check that the coolant pump inlet pipe is correctly installed. The coolant may leak if it is incorrectly installed.

❏ Refit:

- the coolant pump inlet pipe,
- the coolant pump inlet pipe bolt.

❏ Torque tighten the **coolant pump inlet pipe bolt (10 N.m)**.

❏ Connect the hose coming from the expansion bottle to the coolant pump inlet pipe.

❏ Refit:

- the clip on the coolant pump inlet pipe coming from the oil filter unit using the tool **(Mot. 1448)**,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M9R

- the clip on the coolant pump inlet pipe coming from the expansion bottle using the tool **(Mot. 1448)**.


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**III - FINAL OPERATION.**

❏ Clip on the wiring of the coolant pump inlet pipe.

❏ Refit the exhaust gas recirculation intercooler (see **12B**, **Turbocharging**, **Intercooler: Removal - Refitting**, page **12B-13**) .

❏ Refit:

- the starter (see **16A**, **Starting - Charging**, **Starter: Removal - Refitting**, page **16A-7**)
- the new exhaust gas recirculation rigid pipe seals between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation intercooler,
- the exhaust gas recirculation rigid pipe between the exhaust gas recirculation solenoid valve and the exhaust gas recirculation intercooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the new seal between the turbocharger pressure sensor housing and the exhaust gas recirculation solenoid valve,
- the housing of the turbocharging pressure sensor.

❏ Connect the turbocharger pressure sensor connector.

❏ Refit:

- the new seal between the air inlet flap and the turbocharger pressure sensor housing,
- the damper valve (see **12A**, **Fuel mixture**, **Air inlet flap: Removal - Refitting**, page **12A-14**) .

❏ Remove the blanking plug from the dipstick guide tube on the cylinder block.

❏ Refit:

- dipstick guide ,
- the dipstick guide tube bolts.

❏ Torque tighten the **dipstick guide tube bolts (10 N.m)**.

❏ Connect the intercooler air outlet pipe to the damper valve.

❏ Refit the intercooler air outlet pipe bolt.

❏ Tighten:

- the **intercooler air outlet pipe bolt (8 N.m)**,
- the **intercooler air outlet pipe clip (8 N.m)** using the tool **(Mot. 1608)**.

❏ Connect the damper valve wiring connector.

❏ Refit:

- the new exhaust gas recirculation rigid pipe seal on the exhaust manifold,
- the exhaust gas recirculation rigid pipe between the exhaust manifold and the exhaust gas recirculation intercooler (see **14A**, **Antipollution**, **Exhaust gas recirculation rigid pipe: Removal - Refitting**, page **14A-19**) ,
- the new inlet manifold seal,
- the inlet manifold (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,
- the inlet manifold hoses and pipes (see **12A**, **Fuel mixture**, **Inlet manifold: Removal - Refitting**, page **12A-24**) ,

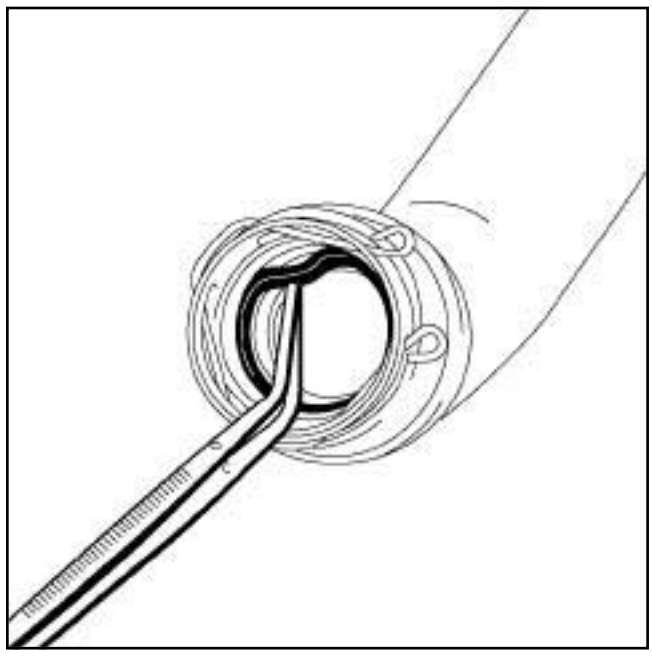
❏ Refit the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❏ Connect the air filter unit air outlet pipe to the turbocharger and the air filter unit.

❏ Torque tighten the **air filter unit air outlet pipe clips (5 N.m)** using the tool **(Mot. 1608)**.

❏ Remove the blanking plug from the opening of the oil separator.

❏ Connect the oil vapour rebreathing pipe to the oil decanter.



129712

❏ Remove the intercooler air inlet pipe seal using the tool .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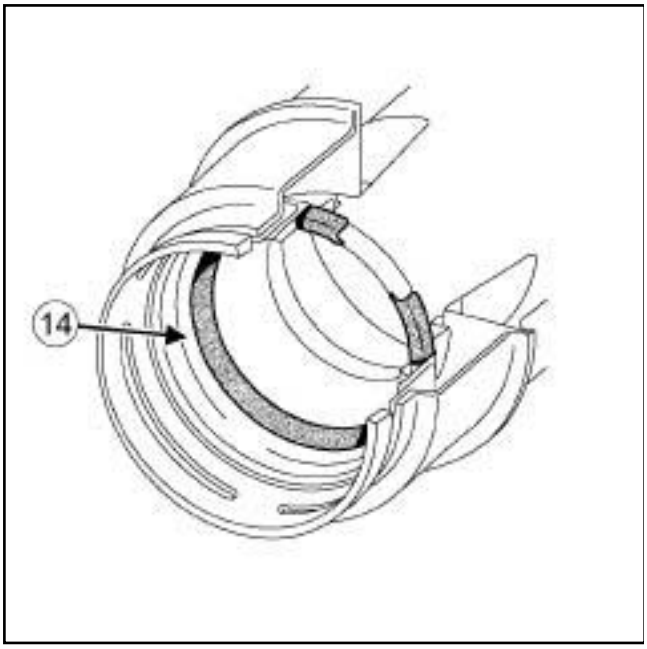


129713

❑

Note:

Check that the seal (**14**) on the intercooler air inlet pipe is fitted the correct way round.

❑ Refit the new intercooler air inlet pipe seal.

❑ Rotate the intercooler air inlet pipe to refit the clip in its housing.

❑ Clip the intercooler air inlet pipe onto the turbocharger.

❑ Refit the intercooler air inlet pipe bolt to the fuel supply pipe bracket.

❑ Torque tighten the **intercooler air inlet pipe bolt (8 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (85A, Exterior equipment),
- the windscreen wiper arms (see **Wiper arms: Removal - Refitting**) (85A, Wiping - Washing),
- the air inlet sleeve to the air filter unit,
- the air inlet sleeve clips.

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Refit:

- the engine cover,
- the engine undertray.


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| Tightening torques ▽ | |
|---|---|
| coolant pump housing bolts | **22 N.m** |
| coolant pump inlet pipe bolts | **22 N.m** |
| dipstick guide tube bolt | **22 Nm** |
| exhaust manifold upper heat shield bolts | **6 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

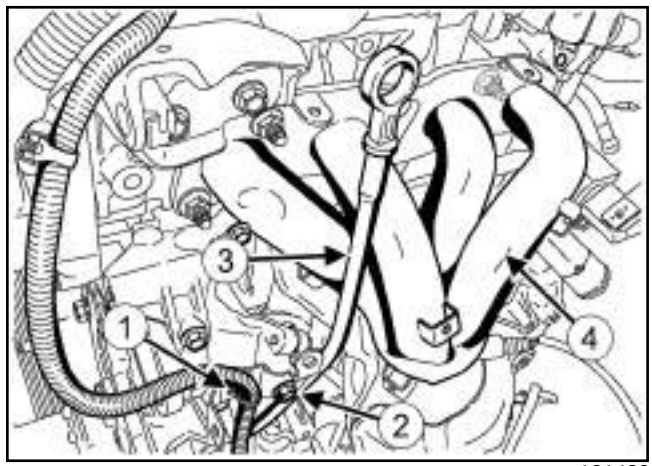
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) ,
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the fixed roller (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the auto tensioner (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the windscreen washer bottle filler neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping),
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the coolant pump (see **19A**, **Cooling**, **Water pump: Removal - Refitting**, page **19A-22**) .



131422

❏ Remove:

- the exhaust manifold upper heat shield bolts,
- the exhaust manifold upper heat shield,
- the clip (**1**) ,
- the dipstick guide tube bolt (**2**) ,
- the dipstick (**3**) and the dipstick guide tube,
- the exhaust manifold (**4**) (see **12A**, **Fuel mixture**, **Exhaust manifold: Removal - Refitting**, page **12A-36**) .

Note:
The engine must remain covered to prevent impurities from entering inside.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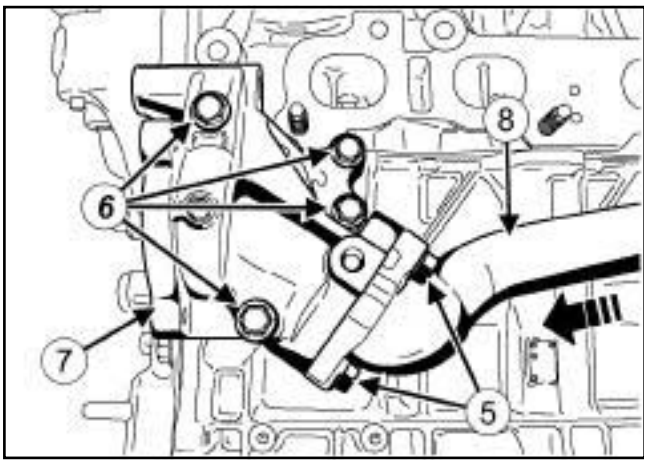
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131423

❑ Remove:

- the bolts (**5**) from the coolant pump inlet pipe,
- the coolant pump housing bolts (**6**) ,
- the coolant pump housing (**7**) ,
- the coolant pump housing seal,
- the coolant pump inlet pipe seal,
- the coolant pump inlet pipe (**8**) as shown on the diagram,
- the coolant pump inlet pipe O-ring at the thermostat.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the seals,
- the O-ring.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the coolant pump inlet pipe,
- the coolant pump inlet pipe seal,
- the coolant pump housing seal,
- the coolant pump housing,
- the coolant pump housing bolts,
- the coolant pump inlet pipe bolts.

❑ Torque tighten:

- the **coolant pump housing bolts (22 N.m)**,
- the **coolant pump inlet pipe bolts (22 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the exhaust manifold (see **12A**, **Fuel mixture**, **Exhaust manifold: Removal - Refitting**, page **12A-36**) ,
- the dipstick and the dipstick guide tube,
- the dipstick guide tube bolt.

❑ Torque tighten the **dipstick guide tube bolt (22 Nm)**.

❑ Refit:

- the clip ***(1)*** ,
- the exhaust manifold upper heat shield,
- the exhaust manifold upper heat shield bolts.

❑ Torque tighten the **exhaust manifold upper heat shield bolts (6 N.m)**.

❑ Refit:

- the coolant pump (see **19A**, **Cooling**, **Water pump: Removal - Refitting**, page **19A-22**) ,
- the alternator (see **16A**, **Starting - Charging**, **Alternator: Removal - Refitting**, page **16A-3**) ,
- the windscreen washer bottle filler neck (see **Windscreen washer bottle funnel: Removal - Refitting**) (85A, Washing - Wiping),
- the auto tensioner (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the fixed roller (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the accessories belt (see **11A**, **Top and front of engine**, **Accessories belt: Removal - Refitting**, page **11A-5**) ,
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) .

❑ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .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2TR

- ❑ Refit the engine undertray.
- ❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .


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2TR

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| expansion bottle nut4 | **N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

**WARNING**

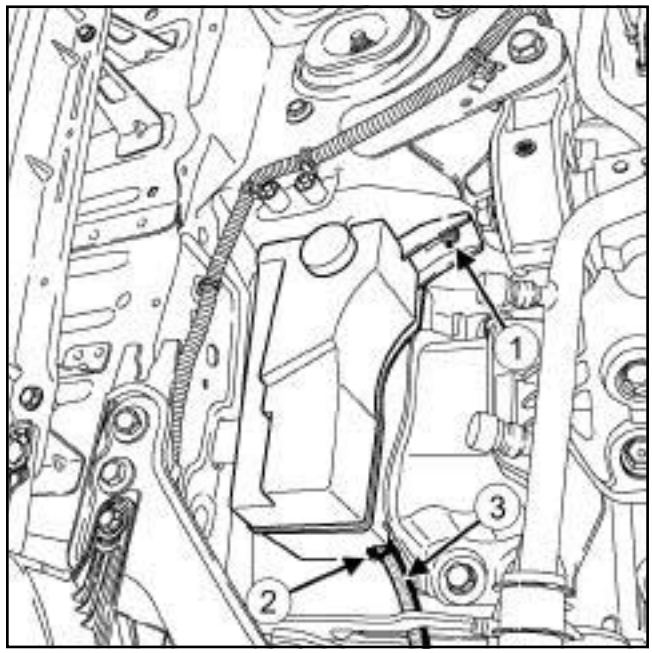
Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Drain the expansion bottle.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



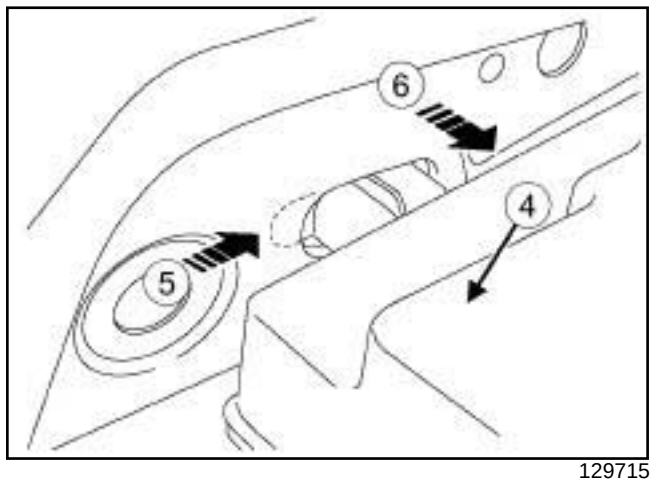

129714

❑ Remove:

- the expansion bottle nut (**1**) ,
- the clip (**2**) from the expansion bottle hose using the tool **(Mot. 1448)**.

❑ Disconnect the expansion bottle hose ***(3)*** .

### III - OPERATION FOR REMOVAL OF PART CONCERNED




129715

❑ Remove the expansion bottle (**4**) in the direction of (**6**) pushing it in the direction of (**5**) .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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the expansion bottle.

❏ Connect the hose onto the expansion bottle.

❏ Refit:

- the clip on the expansion bottle hose using the tool **(Mot. 1448)**,
- the expansion bottle nut.

❏ Torque tighten the **expansion bottle nut4 (N.m)**.

### II - FINAL OPERATION.

❏ Fill the expansion bottle to the « MAXIMUM » level.

❏ Check that there are no leaks.


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# Expansion bottle: Removal - Refitting



M9R

| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| expansion bottle bolts | **4 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

**WARNING**

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.

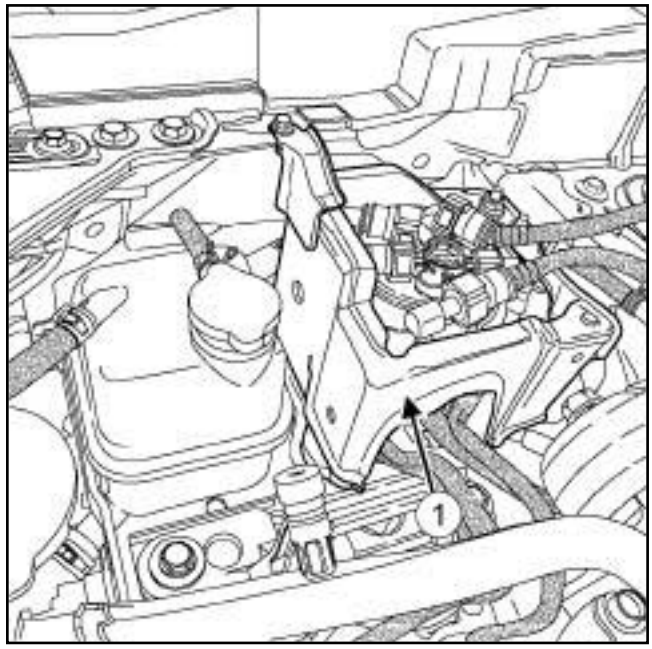
**WARNING**

Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

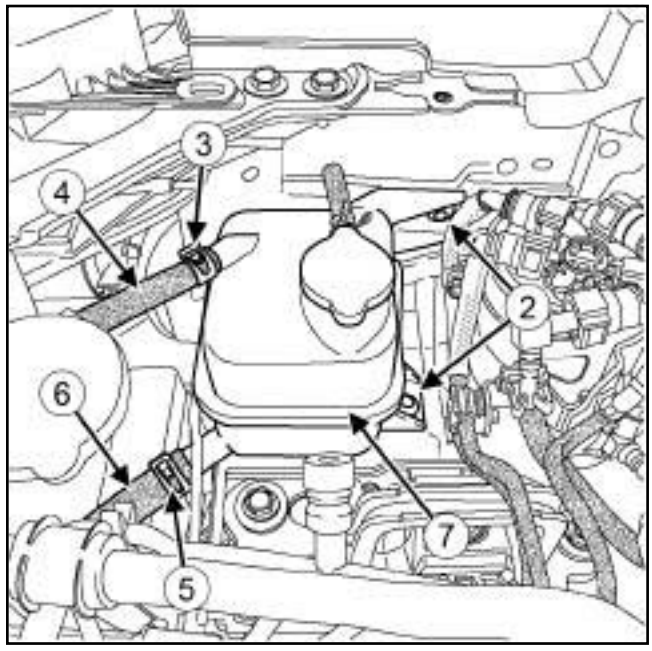
❑ Drain the expansion bottle.




129716

❑ Remove the fuel filter (see **13A**, **Fuel supply**, **Fuel filter: Removal - Refitting**, page **13A-3**) guard (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129717

❑ Remove:

- the expansion bottle bolts (**2**) ,
- the clip (**3**) from the expansion bottle hose using the tool **(Mot. 1448)**.

❑ Disconnect the expansion bottle hose ***(4)*** .



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❏ Remove the clip ***(5)*** from the expansion bottle hose using the tool **(Mot. 1448)**.

❏ Disconnect the expansion bottle hose ***(6)*** .

❏ Remove the expansion bottle ***(7)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the expansion bottle.

❏ Connect the expansion bottle hoses.

❏ Refit:

- the expansion bottle hose clips using the tool **(Mot. 1448)**,
- the expansion bottle bolts.

❏ Torque tighten the **expansion bottle bolts (4 N.m)**.

### II - FINAL OPERATION.

❏ Refit the fuel filter guard (see **13A**, **Fuel supply**, **Fuel filter: Removal - Refitting**, page **13A-3**) .

> Note:
>
> The coolant level rises approximately **15 mm** when the engine stops.

❏ Fill the expansion bottle approximately **15 mm** below the « MAXIMUM » level of engine coolant.

❏ Check that there are no leaks.


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| Essential special tooling | |
|---|---|
| **Mot. 1448** | Long nose pliers for hose clips. |

| Tightening torques ▽ | |
|---|---|
| electric coolant pump bracket bolt | **85 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

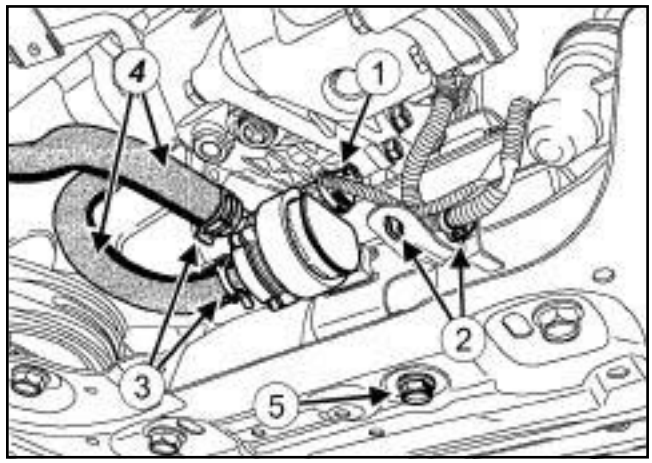
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131617

❏ Disconnect the electric coolant pump (**1**) connector.

❏ Unclip the wiring clips (**2**) .

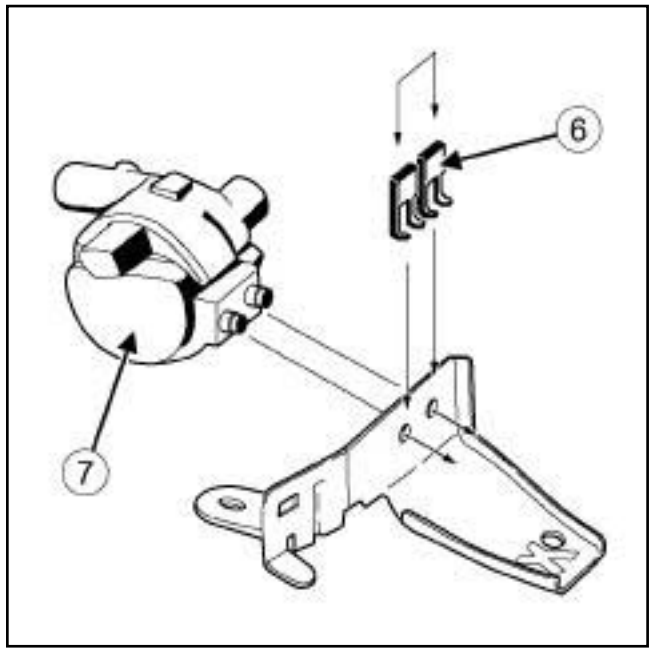
❏ Tighten the clips ***(3)*** using the tool **(Mot. 1448)**.

Note:

Watch out for splashes of coolant from the electric coolant pump during this operation.

❏ Disconnect the electric coolant pump cooling hoses ***(4)*** .

❏ Remove the bolt ***(5)*** from the bracket of the electric coolant pump.




131618

❏ Remove:

- the clips (**6**) ,



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- the electric coolant pump (**7**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the electric coolant pump,
- the clips,
- the bolt of the electric coolant pump bracket.

❑ Torque tighten the **electric coolant pump bracket bolt (85 N.m)**.

❑ Connect the electric coolant pump cooling hoses.

❑ Refit the clips on to the hoses using the tool **(Mot. 1448)**.

❑ Clip on the wiring clips.

❑ Connect the electric coolant pump connector.

### II - FINAL OPERATION.

❑ Refit the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill and bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Check that there are no leaks.


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# Coolant temperature sensor: Removal - Refitting



M9R

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) . thick, to the alternator rotor.

**IMPORTANT**

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).

Do not remove the cap from the expansion bottle while the engine is hot. Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without waming.

Do not open the bleed screw(s) with the engine running.

**WARNING**

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

The parameters to be observed are:

- Protection down to **-25°C ± 2** for cold and temperate climates,
- Protection down to **-40°C ± 2** for very cold climates.

**WARNING**

Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

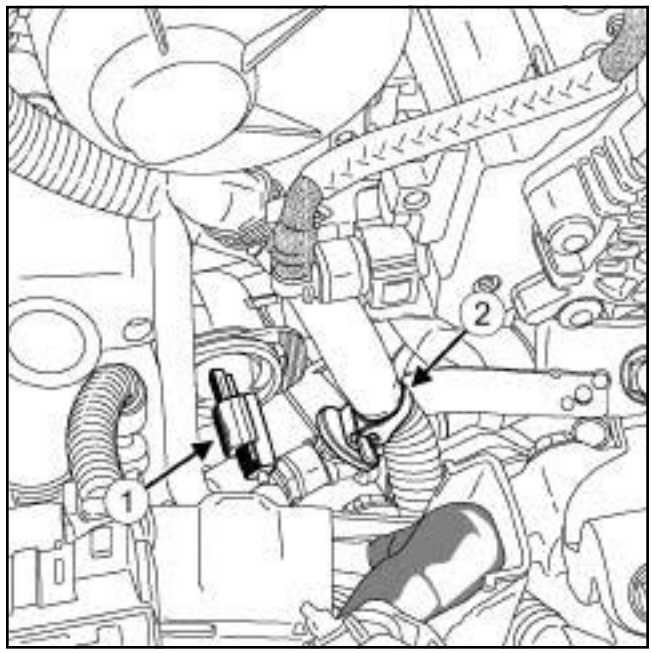
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment.

❏ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the engine undertray.

❏ Drain the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129735

❏ Disconnect the coolant temperature sensor (**1**) .

❏ Unclip the wiring at (**2**) .

❏ Move aside the wiring.

129736

❏ Unclip the retaining clip (**3**) of the coolant temperature sensor in the direction of the arrow.

❏ Remove the coolant temperature sensor (**4**) .



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## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the coolant temperature sensor seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the new coolant temperature sensor seal,
- the coolant temperature sensor into its housing.

❏ Clip on the coolant temperature sensor mounting clip.

❏ Attach the wiring.

❏ Connect the coolant temperature sensor connector.

### III - FINAL OPERATION.

❏ Refit the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Fill the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❏ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**)

❏ Refit the engine undertray.


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# Coolant temperature sensor: Removal - Refitting



2TR

| Tightening torques ▽ | |
|---|---|
| coolant temperature sensor | 25 N.m |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **19A**, **Cooling**, **Engine cooling: Precautions for repair**, page **19A-2**) .

## REMOVAL

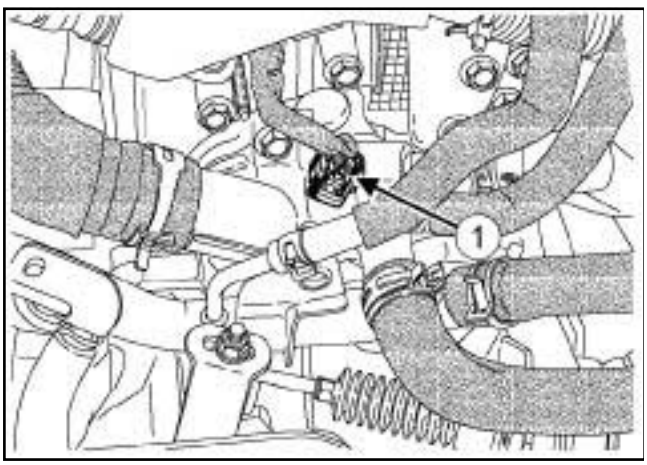
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129734

❑ Disconnect the coolant temperature sensor connector (**1**) .

❑ Remove the coolant temperature sensor.

## REMOVAL

### I - REFITTING PREPARATION OPERATION

❑ Always replace the coolant temperature sensor seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the new coolant temperature sensor seal,
- the coolant temperature sensor.

❑ Torque tighten the **coolant temperature sensor (25 N.m)**.

❑ Connect the coolant temperature sensor connector.

### III - FINAL OPERATION.

❑ Refit:

- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the air intake sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

❑ Top up the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .

❑ Bleed the cooling system (see **19A**, **Cooling**, **Cooling circuit: Draining - Refilling**, page **19A-10**) .



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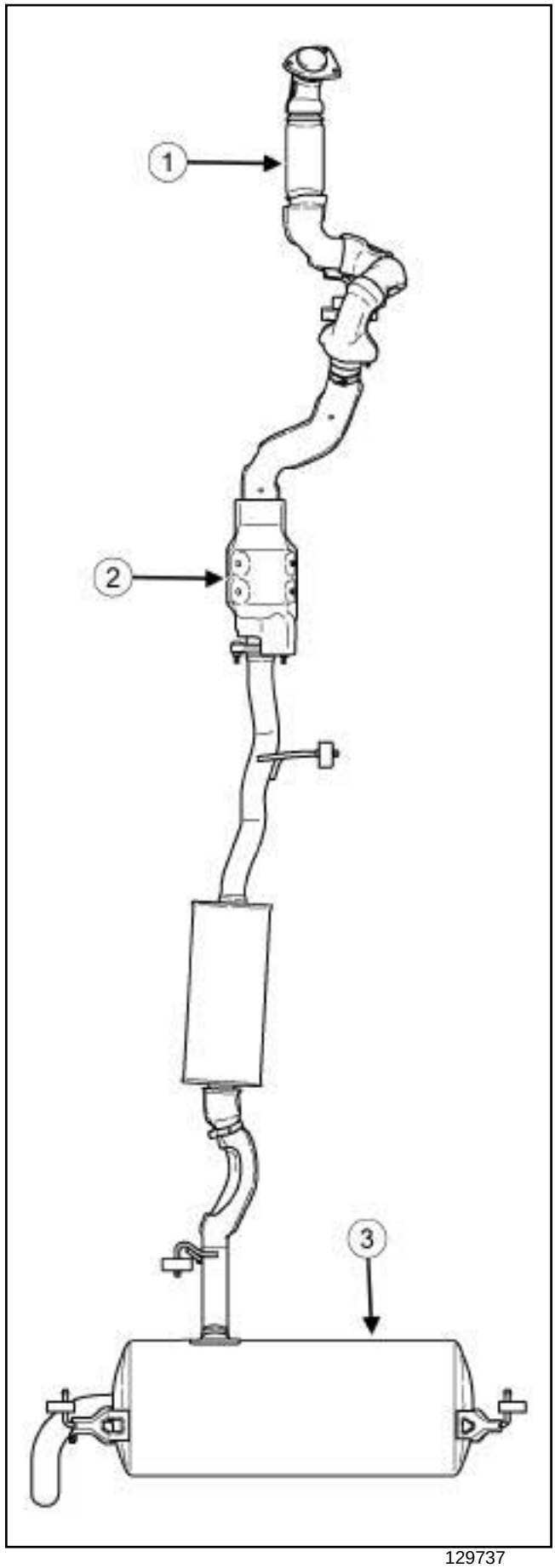


129737



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(**1**) Connecting pipe
(**2**) Catalytic converter
(**3**) Silencer

Always replace the seals and the sealing rings after any removal.


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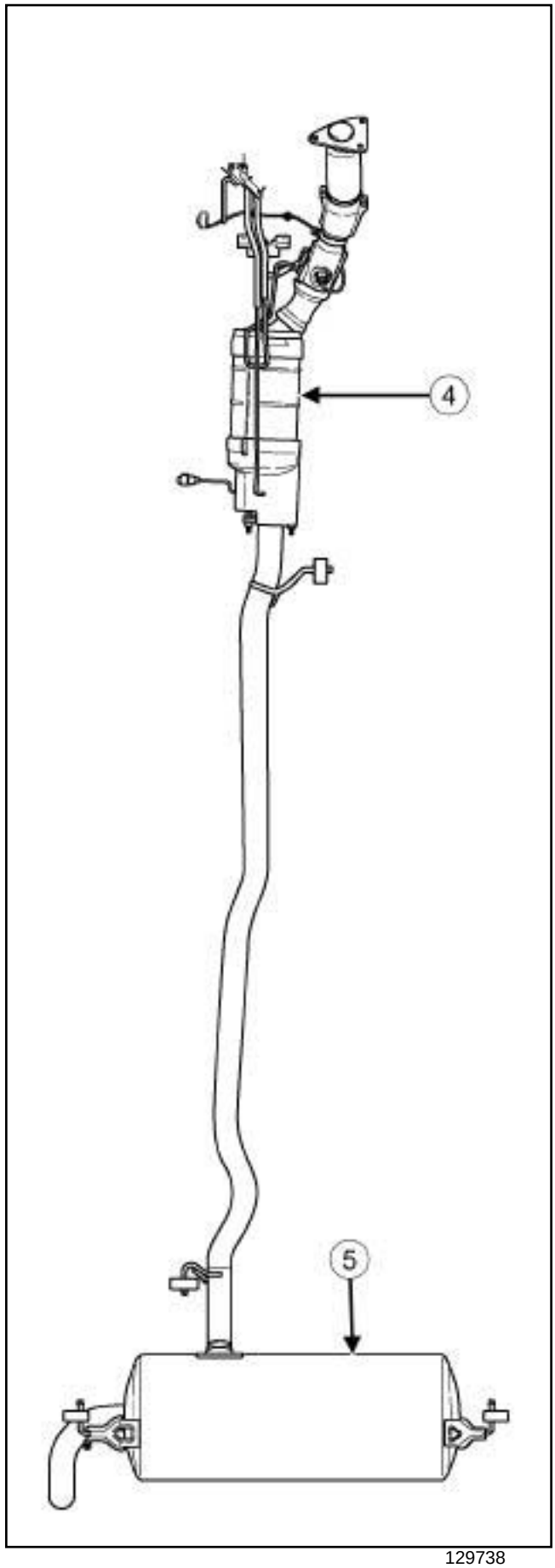


129738



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(**4**) Particle filter

(**5**) Silencer

Always replace the seals after any removal.


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## I - PARTS AND CONSUMABLES FOR THE REPAIR

### 1 - Parts always to be replaced:

- the seal or sealing ring on the connection between the catalytic converter or catalytic pre-converter and the rest of the exhaust system

### 2 - Consumables:

(see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products)

- surface cleaner

- abrasive pads

## II - ADVICE TO OBSERVE

**IMPORTANT**
Do not park and run the engine in a place where combustible substances and materials such as grass or leaves can come into contact with the hot exhaust system.

**IMPORTANT**
Catalytic converters contain ceramic fibres; these are contained within a closed unit, and cannot disperse. Cutting or drilling catalytic converters is prohibited.

1 - During removal and refitting, the catalytic converter or catalytic pre-converter must not receive any knocks or impacts as this could damage it.

2 - The whole exhaust pipe is made of stainless steel.

3 - After working on the bracket between the catalytic converter or catalytic pre-converter and the rest of the exhaust system, ensure that the connection is perfectly sealed.

To do this:

- clean the pressure faces of the connection using the **ABRASIVE PADS**,
- degrease the pressure faces of the connection using **SURFACE CLEANER** and clean cloths,
- always replace the seal or sealing ring on the connection.

Check the following and deal with if necessary:

- no underbody contact between the exhaust system and the heat shields,
- all of the heat shields are present and secure.

Note:
All damaged heat shields must be replaced.

Start the engine.

Check that there are no leaks: deal with any leaks.


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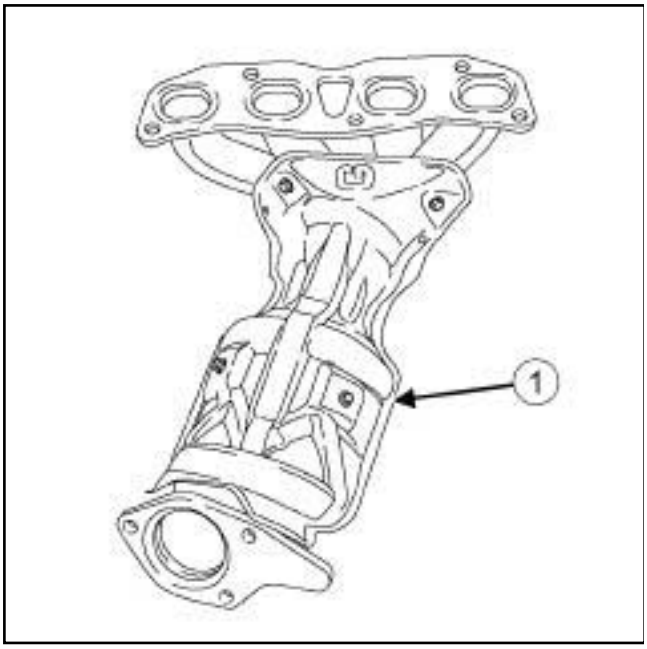


129739

❑

Note:

The catalytic pre-converter (**1**) is integrated into the exhaust manifold.

❑ For removal or replacement of the catalytic pre-converter (see **12A**, **Fuel mixture**, **Exhaust manifold: Removal - Refitting**, page **12A-36**) .



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| Essential equipment |
|---|
| roller-type stud removal tool |

| Tightening torques ▽ | |
|---|---|
| studs of the catalytic converter on the turbo-charger | **15 N.m** |
| catalytic converter nuts on the turbocharger | **21 N.m** |
| catalytic converter bracket nuts | **21 N.m** |
| catalytic converter mounting bracket bolts on the cylinder block | **50 N.m** |
| turbocharger cooling pipe bolts | **10 N.m** |
| transfer box bracket bolts on the transfer box | **48 N.m** |
| transfer box bracket bolts on the cylinder block | **50 N.m** |
| turbocharger cooling pipe bolts | **10 N.m** |
| catalytic converter mounting nut | **51 N.m** |
| catalytic converter | **mounting bolts51 N.m** |
| catalytic converter heat shield bolts | **6 N.m** |
| front right-hand wheel driveshaft relay bearing bolts | **44 N.m** |
| turbocharger heat shield bolts7 | **N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

## REMOVAL

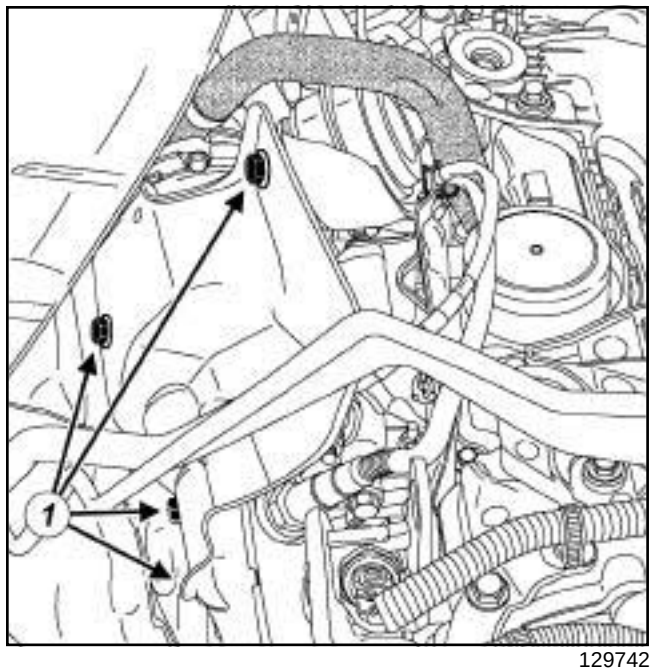
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Remove:

- the engine cover,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



129742

❑ Remove:

- the bolts (**1**) from the turbocharger heat shield,
- the turbocharger heat shield,
- the oxygen sensors (see **13B**, **Diesel injection**, **Oxygen sensor: Removal - Refitting**, page **13B-59**) ,
- the engine undertray,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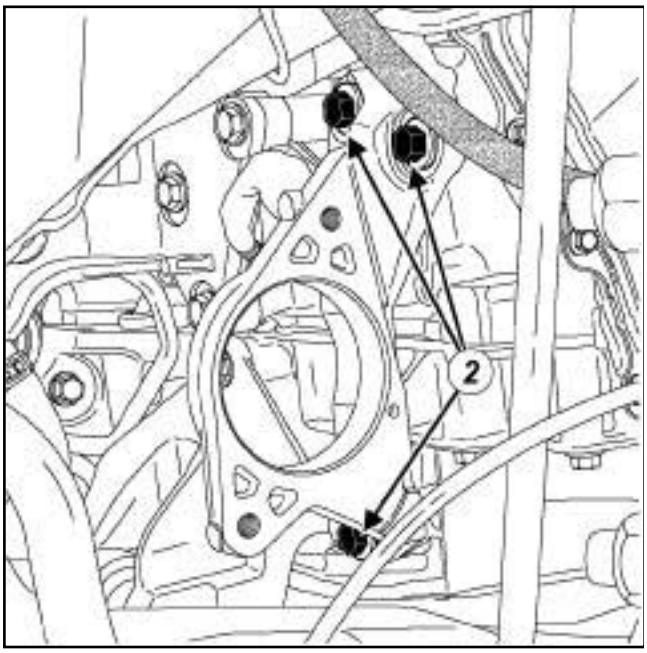
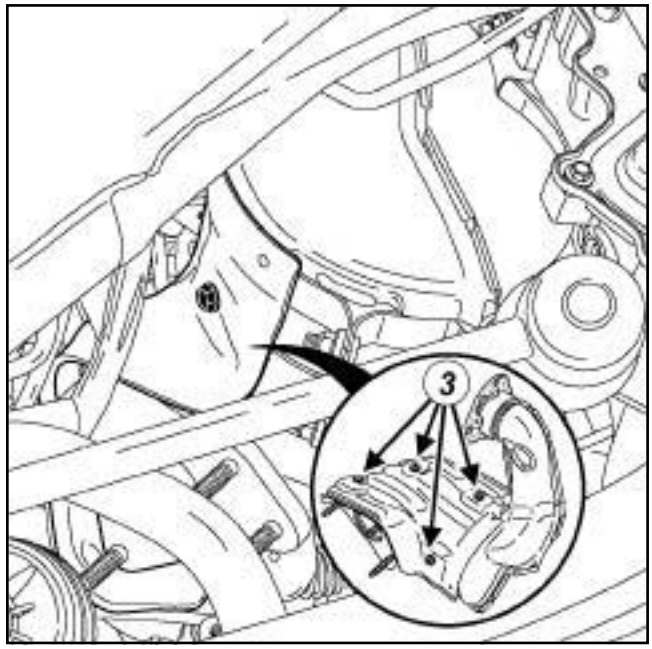
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).




129743

❑ Remove:

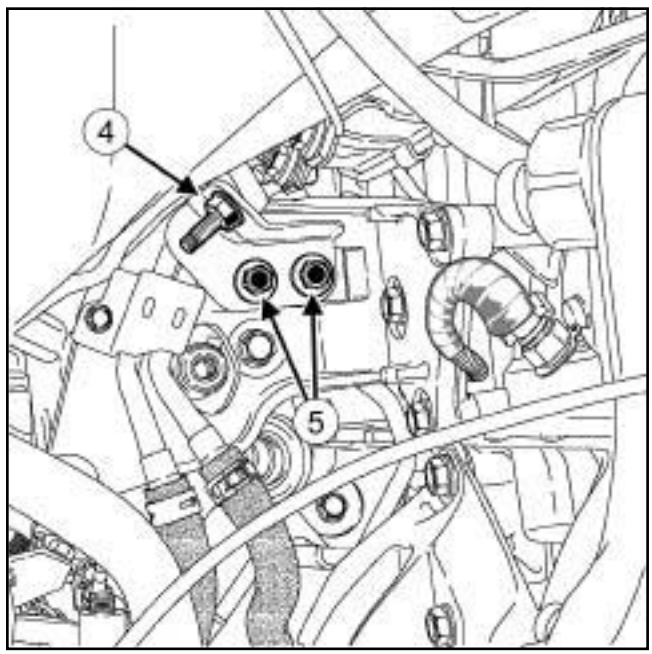
- the bolts (**2**) from the front right-hand wheel driveshaft relay bearing,
- the front right-hand wheel driveshaft relay bearing,
- the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .




129744

❑ Remove:

- the catalytic converter heat shield bolts (**3**) ,
- the catalytic converter heat shield.




129745

❑ Remove:

- the nut (**4**) and the bolts (**5**) of the catalytic converter mounting,
- the catalytic converter mounting.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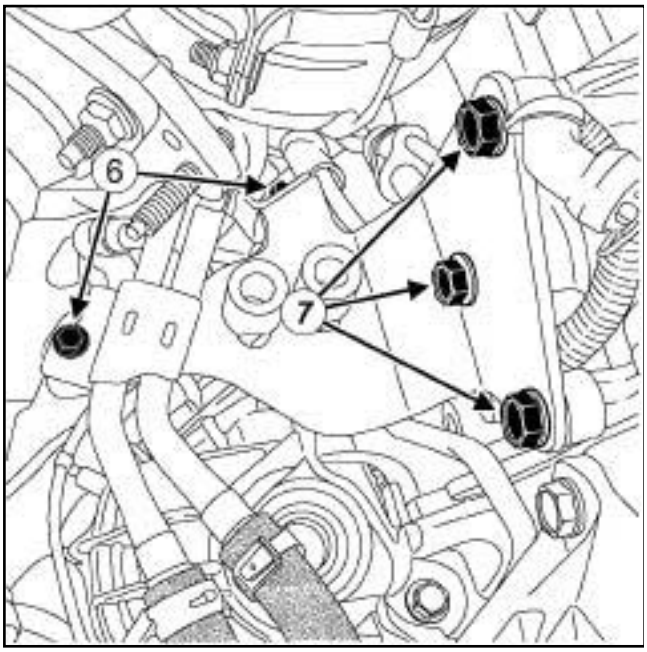
## 4X2 TRANSMISSION




129747

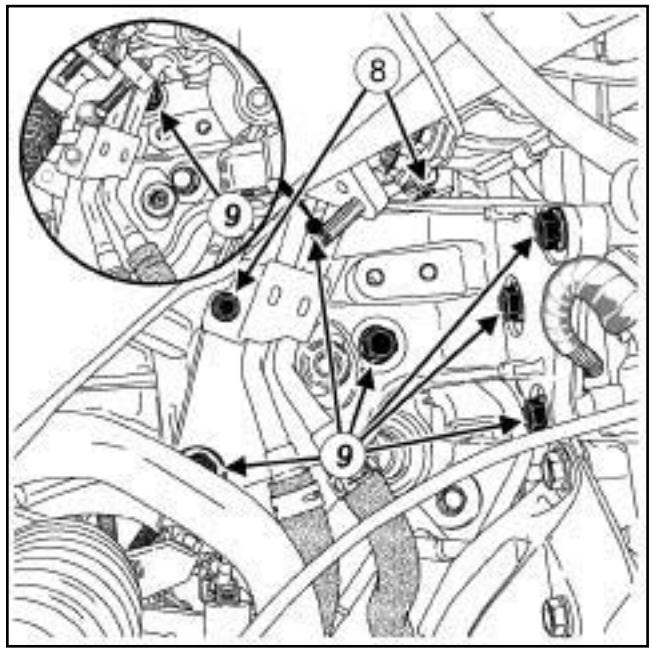
❏ Remove the bolts (**6**) from the turbocharger cooling pipe.

❏ Move aside the turbocharger cooling pipe.

❏ Remove:

- the catalytic converter mounting bracket bolts (**7**) from the cylinder block,
- the catalytic converter mounting bracket bolts.

## 4X4 TRANSMISSION




129746

❏ Remove the bolts (**8**) from the turbocharger cooling pipe.

❏ Move aside the turbocharger cooling pipe.

❏ Remove:

- the bracket bolts (**9**) of the cylinder block transfer box and the transfer box,
- the transfer box bracket.



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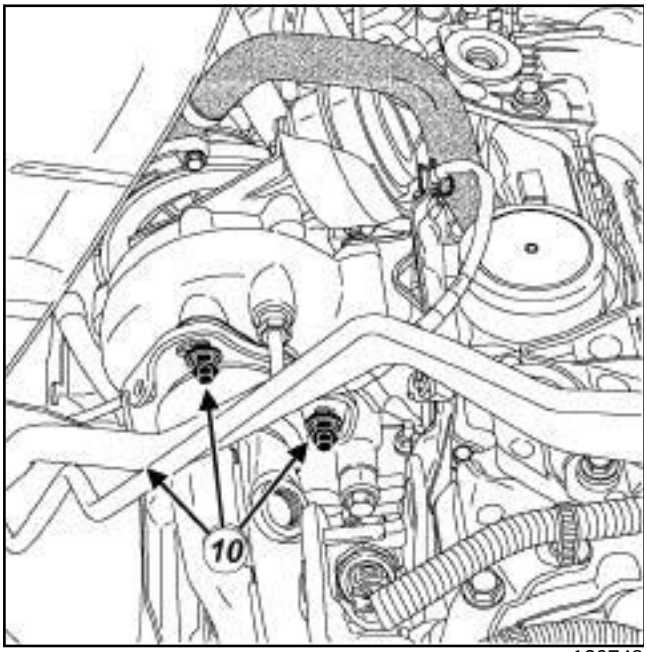
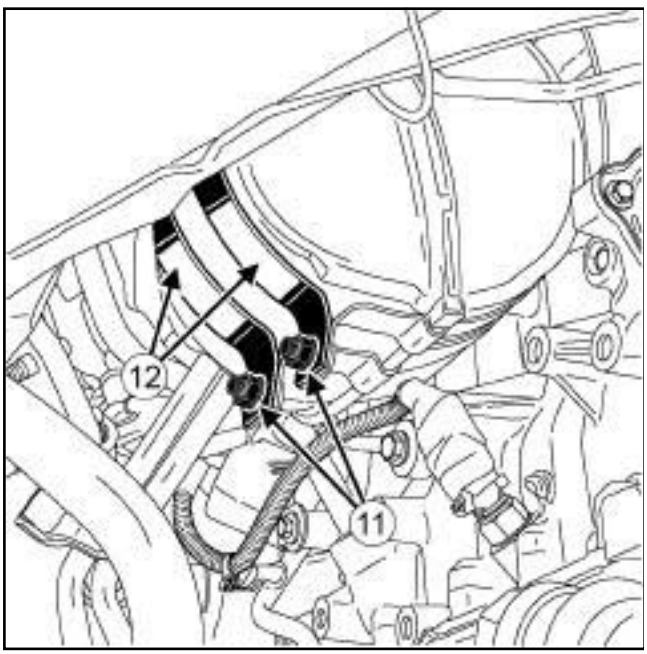
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129748

❏ Loosen the catalytic converter nuts (**10**) .

❏ Remove the catalytic converter studs of the turbocharger using a **roller-type stud removal tool**.

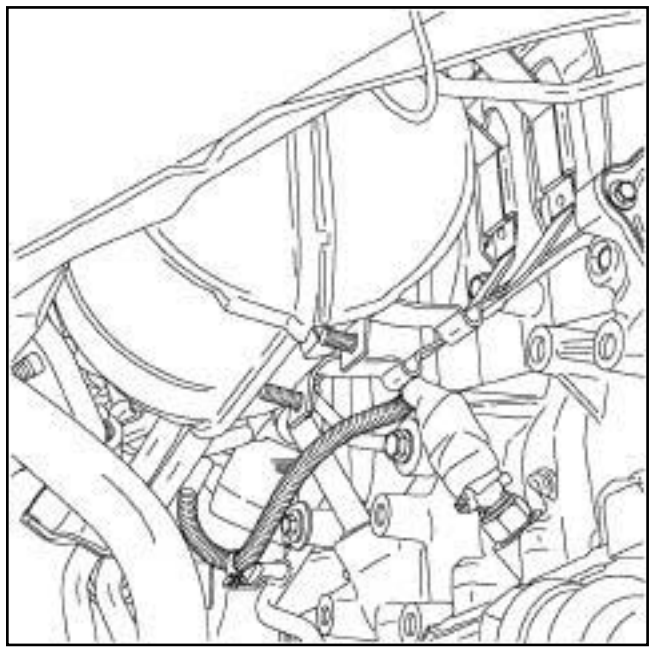



132649

❏ Remove:

- the catalytic converter bracket nuts (**11**) ,
- the catalytic converter half-clips (**12**) .

❏ Move the catalytic converter towards the rear of the vehicle.



129749

❏ Remove:

- the catalytic converter on the right-hand side of the vehicle,
- the seal between the catalytic converter and the turbocharger.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Clean and degrease the bearing faces of:

- on the turbocharger,
- on the catalytic converter in case of reuse,
- of the particle filter,
- of the silencer.

❏ Always replace:

- the catalytic converter studs,
- the catalytic converter nuts,
- the seal between the catalytic converter and the turbocharger,
- the seal between the catalytic converter and the particle filter,
- the seal between the particle filter and the silencer,
- the catalytic converter mounting nut.



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**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the catalytic converter on the brackets,
- the new seal between the turbocharger and the catalytic converter,
- the new catalytic converter studs onto the turbocharger.

❑ Torque tighten the **studs of the catalytic converter on the turbocharger (15 N.m)** using a **roller-type stud removal tool**.

❑ Refit the new catalytic converter nuts on the turbocharger.

❑ Torque tighten the **catalytic converter nuts on the turbocharger (21 N.m)**.

❑ Refit:

- the catalytic converter half-clamps on the catalytic converter,
- the catalytic converter bracket nuts.

❑ Torque tighten the **catalytic converter bracket nuts (21 N.m)**.

4X2 TRANSMISSION

❑ Refit:

- the catalytic converter mounting bracket,
- the catalytic converter mounting bracket bolts on the cylinder blocks.

❑ Torque tighten the **catalytic converter mounting bracket bolts on the cylinder block (50 N.m)**.

❑ Refit the turbocharger cooling pipe bolts.

❑ Torque tighten the **turbocharger cooling pipe bolts (10 N.m)**.

4X4 TRANSMISSION

❑ Refit:

- the transfer box bracket,
- the transfer box bracket bolts on the cylinder block and the transfer box.

❑ Torque tighten:

- the **transfer box bracket bolts on the transfer box (48 N.m)**.
- The **transfer box bracket bolts on the cylinder block (50 N.m)**.

❑ Refit the turbocharger cooling pipe bolts.

❑ Torque tighten the **turbocharger cooling pipe bolts (10 N.m)**.

❑ Refit:

- the catalytic converter mounting,
- the new catalytic converter mounting nut,
- the bolts of the catalytic converter mounting.

❑ Torque tighten:

- the **catalytic converter mounting nut (51 N.m)**,
- the **catalytic converter (mounting bolts51 N.m)**.

❑ Refit:

- the catalytic converter heat shield,
- the catalytic converter heat shield bolts.

❑ Torque tighten the **catalytic converter heat shield bolts (6 N.m)**.

❑ Refit:

- the seal between the catalytic converter and the particle filter,
- the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) ,
- the front right-hand wheel driveshaft relay bearing,
- the front right-hand wheel driveshaft relay bearing bolts.

❑ Torque tighten the **front right-hand wheel driveshaft relay bearing bolts (44 N.m)**.

❑ Refit:

- the front right-hand wheel driveshaft (see **Front right-hand wheel driveshaft: Removal - Refitting**) (29A, Transmission).


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- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray,
- the oxygen sensors (see **13B**, **Diesel injection**, **Oxygen sensor: Removal - Refitting**, page **13B-59**) ,
- the turbocharger heat shield,
- the turbocharger heat shield bolts.

❏ Torque tighten the **turbocharger heat shield bolts7 (N.m)**.

❏ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the engine cover.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Tightening torques ▽ | |
|---|---|
| catalytic converter bracket nuts on the connector pipe | **45 N.m** |
| silencer bracket nuts on the catalytic converter | **45 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

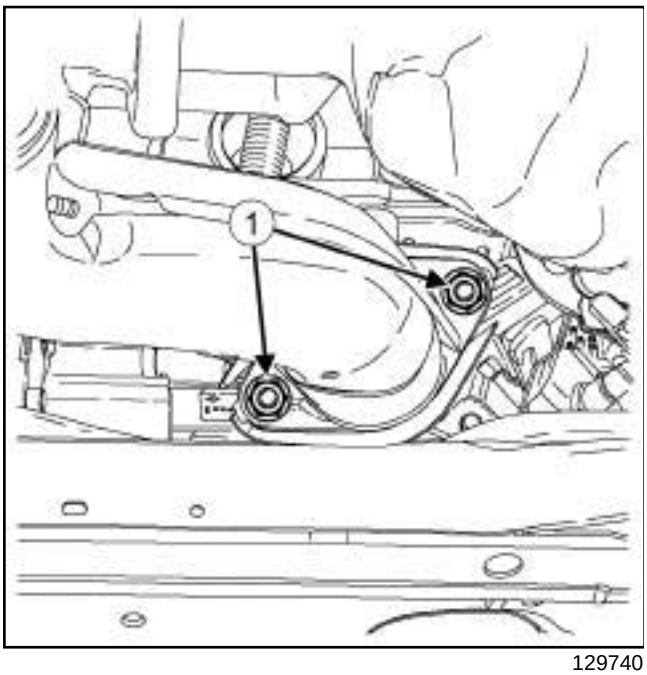
## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

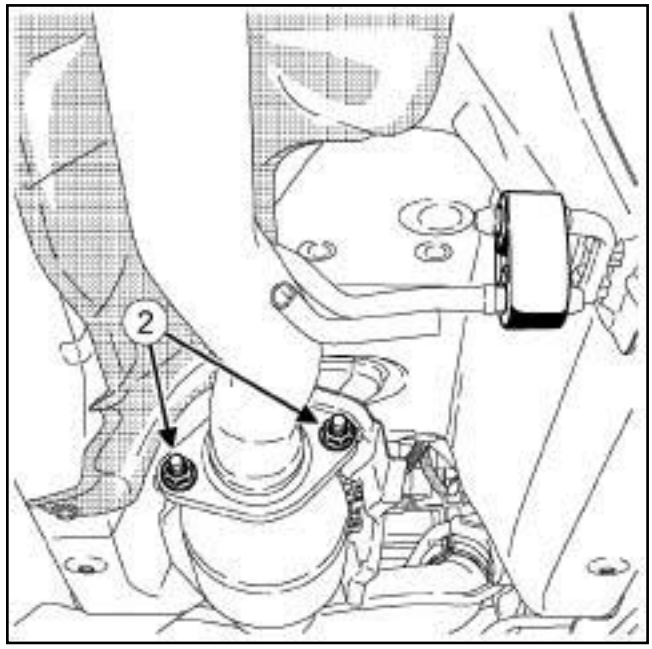
❏ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129740

❏ Remove the catalytic converter bracket nuts (**1**) on the connector pipe.




129741

❏ Remove:

- the silencer bracket nuts (**2**) on the catalytic converter,
- the catalytic converter,
- the seal between the connector pipe and the catalytic converter,
- the seal between the catalytic converter and the silencer.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seals.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the catalytic converter on the connector pipe with a new seal,
- the catalytic converter bracket nuts on the connector pipe.
- the catalytic converter on the silencer with a new seal,
- the silencer bracket nuts on the catalytic converter.

❏ Torque tighten:

- the **catalytic converter bracket nuts on the connector pipe (45 N.m)**,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2TR

- the **silencer bracket nuts on the catalytic converter (45 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the engine undertray.



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| Tightening torques ▽ | |
|---|---|
| connector pipe bracket nuts on the catalytic pre-converter | **65 N.m** |
| catalytic converter bracket nuts on the connector pipe | **45 N.m** |
| connector pipe rubber mounting bush support nuts | **14 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

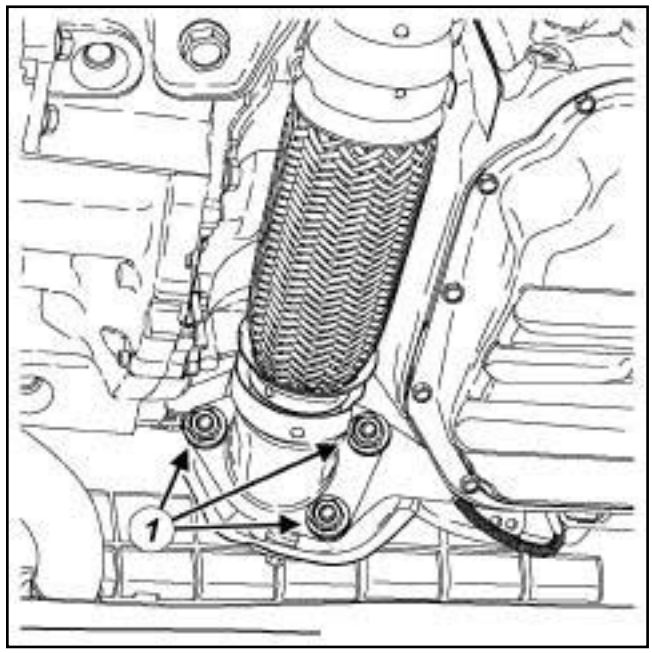
## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

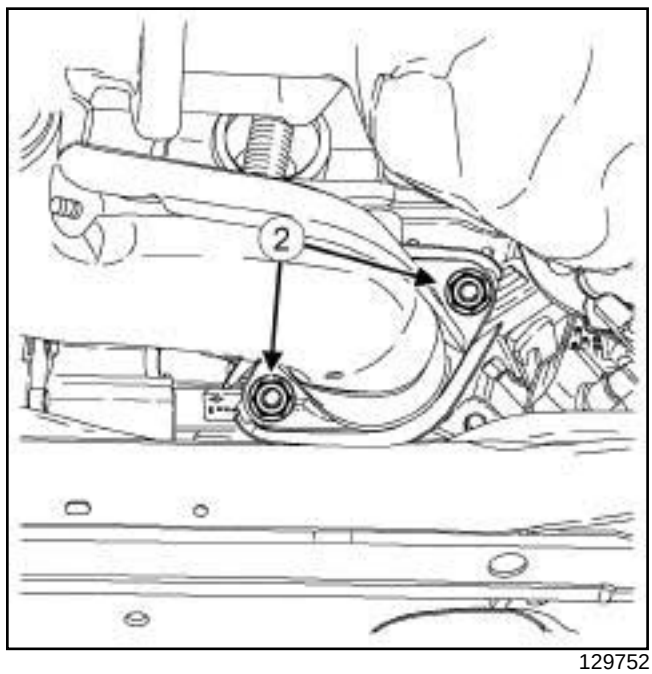
❏ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129751

❏ Remove the connector pipe nuts (**1**) on the catalytic pre-converter.




129752

❏ Remove the catalytic converter bracket nuts (**2**) on the connector pipe.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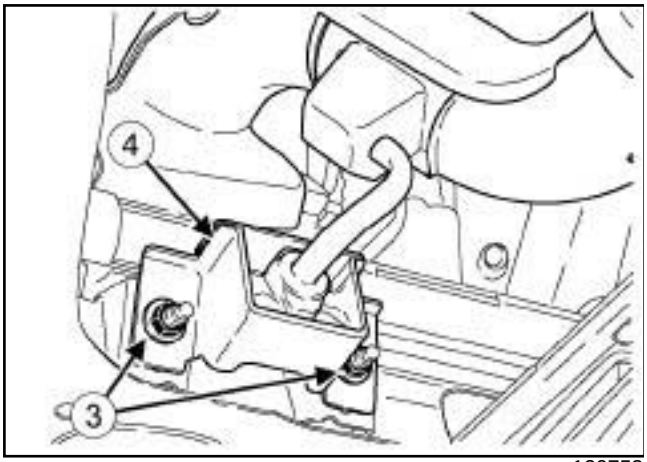

129753

❏ Remove:

- the connector pipe rubber mounting bush support nuts (**3**) ,
- the connector pipe,
- the connector pipe rubber mounting bush support (**4**) ,
- the seal between the catalytic converter and the connector pipe,
- the seal between the connector pipe and the catalytic converter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the seal between the catalytic converter and the connector pipe,
- the seal between the connector pipe and the catalytic converter.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the connector pipe rubber mounting bush support on to the connector pipe,
- the connector pipe on to the catalytic pre-converter with a new seal,
- the connector pipe bracket nuts on the catalytic pre-converter,
- the connector pipe on to the catalytic converter with a new seal,
- the catalytic converter bracket nuts on the connector pipe,
- the connector pipe rubber mounting bush support nuts.

❏ Torque tighten:

- the **connector pipe bracket nuts on the catalytic pre-converter (65 N.m)**,
- the **catalytic converter bracket nuts on the connector pipe (45 N.m)**,
- The **connector pipe rubber mounting bush support nuts (14 N.m)**.

### III - FINAL OPERATION.

❏ Refit the engine undertray.


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| Essential special tooling | |
|---|---|
| **Mot. 1857** | Pliers for removing exhaust pipe rubber mounting bushes |

| Tightening torques ▽ | |
|---|---|
| silencer bracket nuts on the catalytic converter | **45 N.m** |
| silencer bracket nuts on the particle filter | **45 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

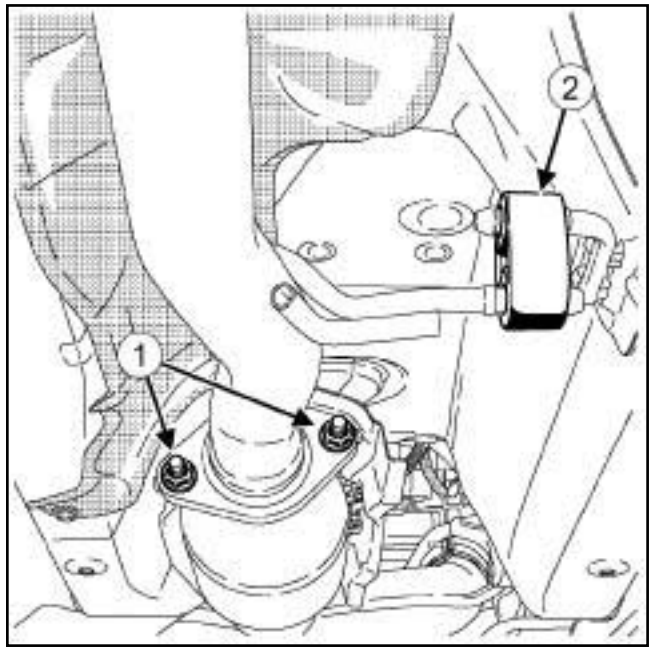
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

2TR



129754

❏ Remove the silencer bracket nuts (**1**) on the catalytic converter.

❏ Separate the silencer rubber mounting bush (**2**) using the tool **(Mot. 1857)**.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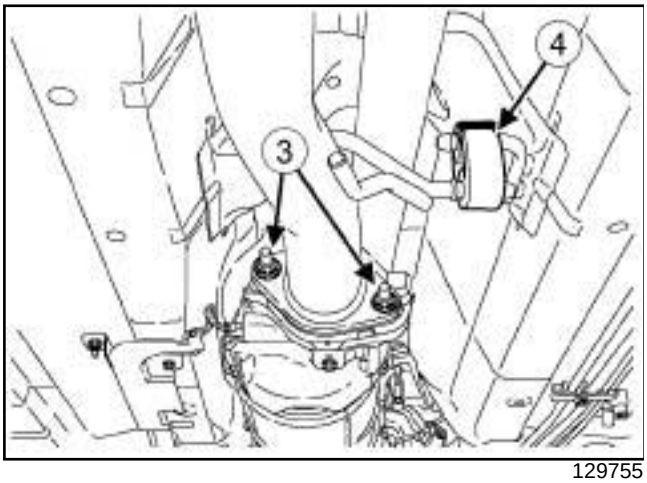
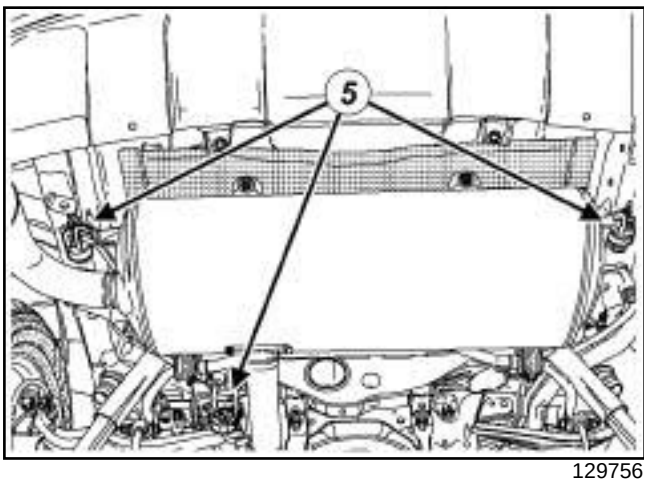
M9R




129755

❏ Remove the silencer bracket nuts (**3**) on the particle filter.

❏ Separate the silencer from the rubber mounting bush (**4**) using the tool **(Mot. 1857)**.




129756

❏

Note:

This operation requires two people.

❏ Separate the silencer from the rear rubber mounting bush (**5**) using the tool **(Mot. 1857)**.

❏ Remove:

- the silencer,
- the seal between the silencer and the catalytic converter,
- the seal between the silencer and the particle filter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seals.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the silencer on the rubber mounting bushes.

2TR

❏ Refit:

- the silencer on the catalytic converter with a new seal,
- the silencer bracket nuts on the catalytic converter.

❏ Torque tighten the **silencer bracket nuts on the catalytic converter (45 N.m)**.

M9R

❏ Refit:

- the silencer to the particle filter with a new seal,
- the silencer bracket nuts on the particle filter.

❏ Torque tighten the **silencer bracket nuts on the particle filter (45 N.m)**.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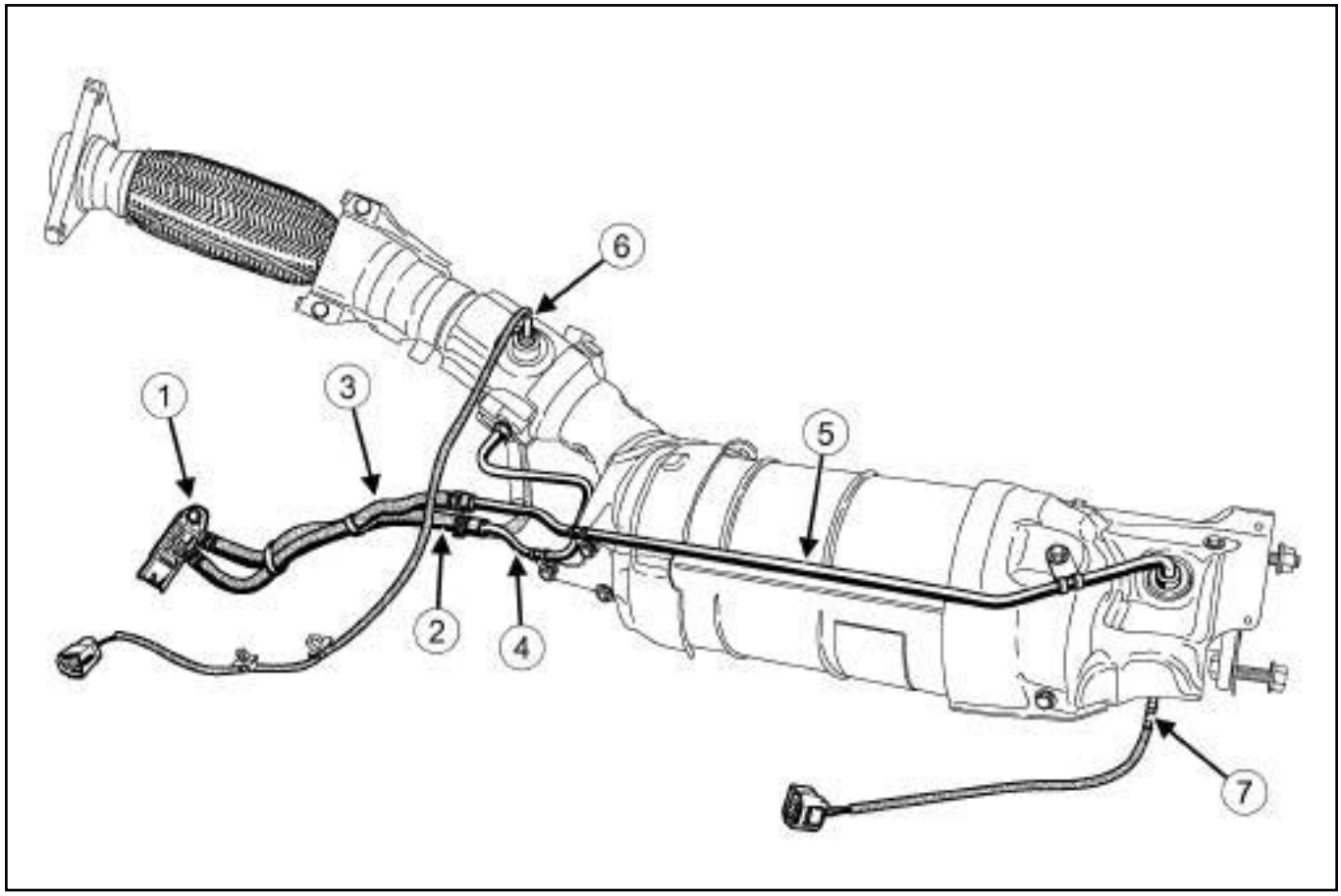


129757

| | |
|---|---|
| (**1**) | Particle filter pressure sensor |
| (**2**) | Upstream pressure measurement hose |
| (**3**) | Downstream pressure measurement hose |
| (**4**) | Upstream pressure measurement connection |
| (**5**) | Downstream pressure measurement connection |
| (**6**) | Temperature sensor upstream of the particle filter |
| (**7**) | Temperature sensor downstream of the particle filter |


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| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| upstream/downstream pressure measurement pipe unions | **33 N.m** |
| upstream/downstream pressure measurement pipe bolts | **6 N.m** |
| temperature sensor mounting bolt | **4 N.m** |
| particle filter bracket nuts on the catalytic converter | **65 N.m** |
| silencer bracket nuts on the particle filter | **45 N.m** |
| rubber mounting bush nuts on the particle filter | **14 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

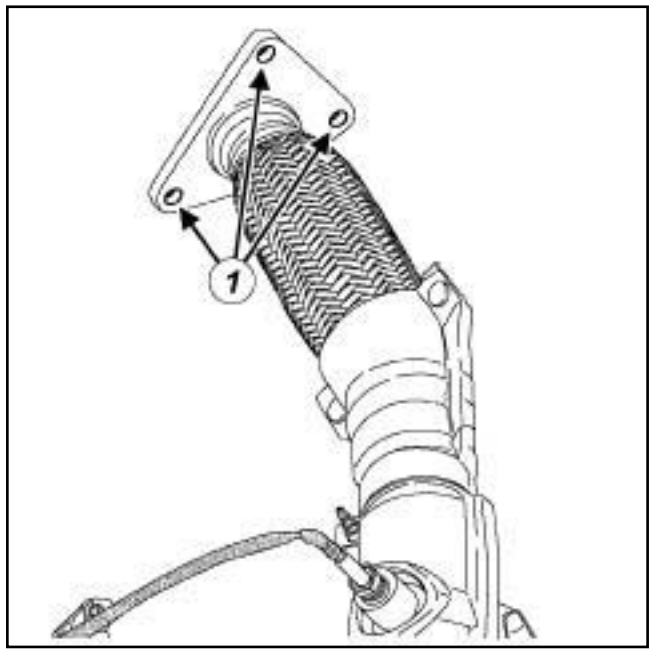
## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

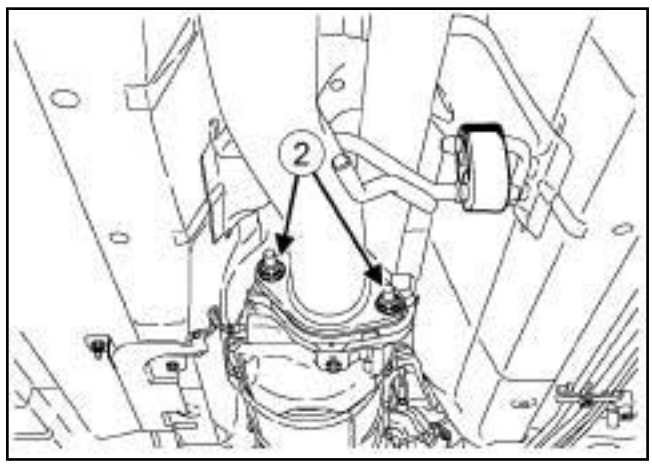
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129758

❏ Remove the nuts (**1**) from particle filter bracket on the catalytic converter.




129759

❏ Remove the nuts (**2**) from the silencer bracket on the particle filter assembly.



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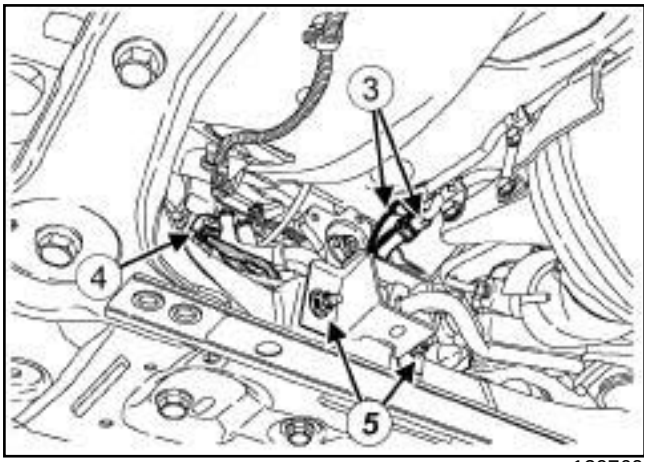
M9R



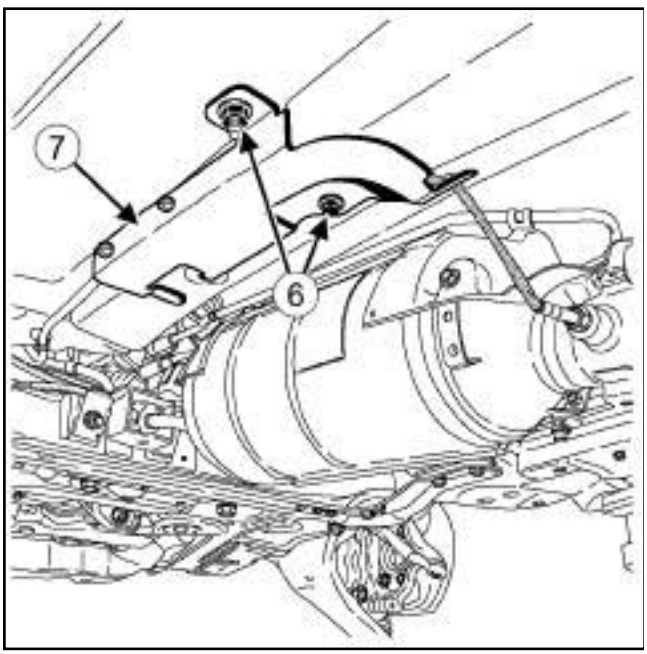

129760

❏ Disconnect:

- the particle filter pressure measurement hoses (**3**) ,
- the particle filter upstream temperature sensor connector (**4**) .

❏ Unclip the wiring from the upstream temperature sensor.

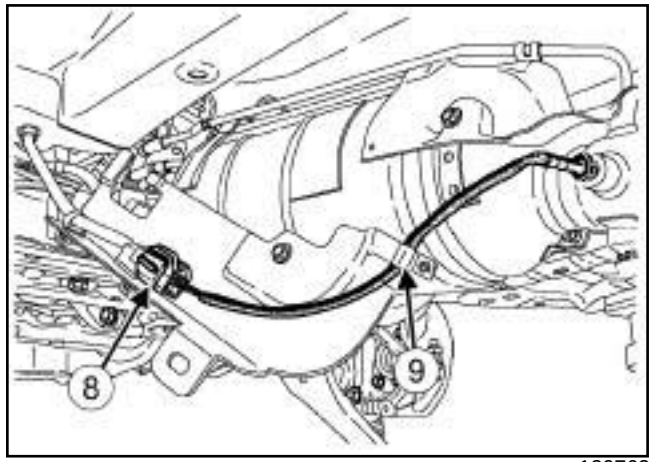
❏ Remove the rubber mounting bush support nuts ***(5)*** from the particle filter.




129761

❏ Remove:

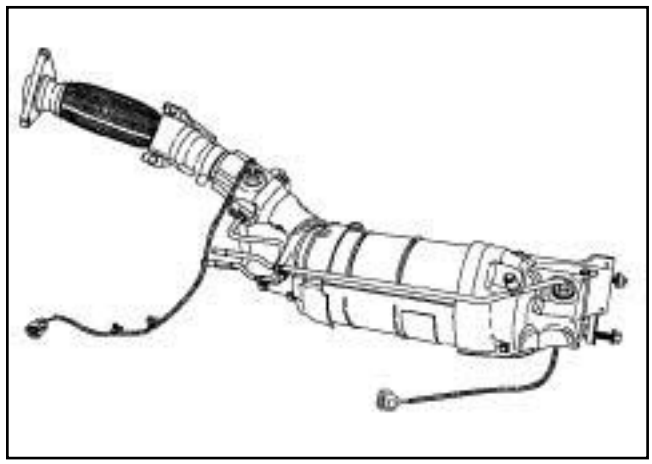
- the bolt and the nut (**6**) from the downstream temperature sensor support,
- the downstream temperature sensor support (**7**) .




129762

❏ Disconnect the particle filter downstream temperature sensor connector (**8**) .

❏ Unclip the downstream temperature sensor wiring at ***(9)*** .



129763

❏ Remove:

- the « particle filter - flexible connection pipe - upstream/downstream pressure measurement pipes - upstream/downstream temperature sensors » assembly,
- the seal between the catalytic converter and the particle filter,
- the seal between the particle filter and the silencer,
- the rubber mounting bush support from the particle filter support.



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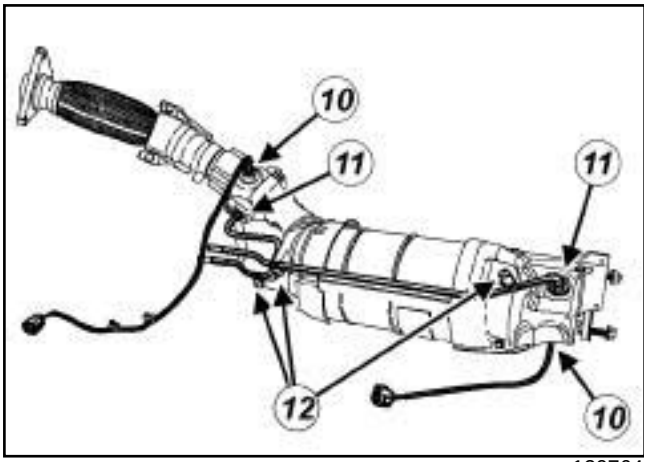
M9R



129764

❑ Remove:

- the upstream and downstream temperature sensors (**10**) from their adapters,
- the upstream and downstream pressure measurement pipes (**11**) ,
- the bolts of the upstream and downstream pressure measurement pipes (**12**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals.

❑ Using **abrasive pads** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products), clean the mating faces:

- of the catalytic converter and the particle filter,
- of the particle filer and the silencer.

❑ Degrease the mating faces using **surface cleaner** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) and clean cloths.

**WARNING**

To prevent the surrounding components from overheating, do not damage (tear, pierce bend etc.) a heat shield.

All damaged heat shields must be replaced.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ With particle filter removed, refit:

- the upstream/downstream temperature sensors of the particle filter assembly (see **19B**, **Exhaust**, **Particle filter temperature sensors: Removal - Refitting**, page **19B-29**) ,
- the upstream/downstream pressure measurement pipes onto their adapters.

❑ Torque tighten:

- the **upstream/downstream pressure measurement pipe unions (33 N.m)**,
- The **upstream/downstream pressure measurement pipe bolts (6 N.m)**.

❑ Refit:

- the rubber mounting bush support of the particle filter support,
- the « particle filter - flexible connection pipe - upstream/downstream pressure measurement pipes - upstream/downstream temperature sensors » assembly with new seals.

❑ Connect the downstream temperature sensor connector.

❑ Clip on the downstream temperature sensor wiring at ***(9)*** .

❑ Refit the downstream temperature sensor mounting.

❑ Torque tighten the **temperature sensor mounting bolt (4 N.m)**.

❑ Clip on the wiring of the upstream temperature sensor.

❑ Connect the particle filter pressure measurement hoses.

❑ Refit:

- the particle filter bracket nuts on the catalytic converter,
- the silencer bracket nuts on the particle filter.

❑ Torque tighten:

- the **particle filter bracket nuts on the catalytic converter (65 N.m)**,
- the **silencer bracket nuts on the particle filter (45 N.m)**,
- the **rubber mounting bush nuts on the particle filter (14 N.m)**.

❑ Make sure that there is no contact with the underbody.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**III - FINAL OPERATION.**

- ❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❑ Reinitialise the particle filter parameters using the **diagnostic tool** (see **Fault finding - Replacement of components) (13B, Diesel injection).**


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M9R

| Essential equipment |
|---|
| kit for particle filter |
| kit for twin exhaust |
| diagnostic tool |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .

Note:

A forced regeneration is only possible after the « SERVICE » warning light comes on with the message « Regenerate particle filter » or the orange warning light « Check emission control » comes on (see **Driver's Handbook of the vehicle concerned**).

## I - INSTRUCTIONS FOR CARRYING OUT A FORCED REGENERATION OF THE PARTICLE FILTER

### Precautions to be taken for particle filter forced regeneration

❑ There are currently two additional kits for extracting exhaust gases in the workshop (see **Garage equipment catalogue 2005**), both of which are approved for the high temperatures produced during particle filter forced regeneration.

The two kits approved for particle filter regeneration are:

- the **kit for particle filter** for use with vehicles fitted with a single exit silencer,
- the **kit for twin exhaust** for use with vehicles equipped with a twin exhaust pipe on the silencer.

**IMPORTANT**
During forced regeneration of the particle filter, the temperature of the exhaust pipe rises significantly.

Always use one of the two kits approved for the high temperatures reached during forced regeneration, whether the operation is carried out in the workshop using an exhaust gas extractor, or outside the workshop.

Ensure that when in use, the kit is not touching the rear bumper when carrying out forced regeneration of the particle filter.


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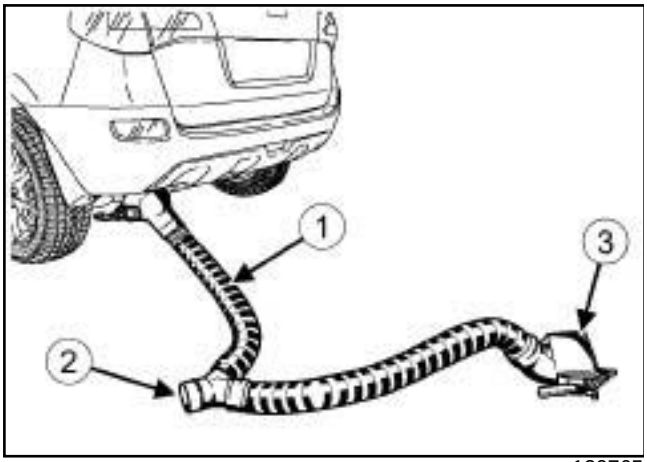
**Twin exhaust pipe kit special features**




129765

❑

Note:

When using a kit for a twin exhaust pipe (**1**) on a single exhaust pipe, be sure to:

- place an exhaust gas extractor over the openings (**2**) and (**3**) if the forced regeneration is carried out in the workshop,

- that the openings (**2**) and (**3**) , are positioned to direct the hot exhaust gases away from another vehicle or person, if the operation is carried out outside the workshop.

**II - PARTICLE FILTER FORCED REGENERATION PROCEDURE USING THE DIAGNOSTIC TOOL**

❑ Connect the **diagnostic tool** to the vehicle.

**IMPORTANT**

During forced regeneration of the particle filter, the temperature of the exhaust pipe rises significantly.

Always use one of the two kits approved for the high temperatures reached during forced regeneration, whether the operation is carried out in the workshop using an exhaust gas extractor, or outside the workshop.

Ensure that when in use, the kit is not touching the rear bumper when carrying out forced regeneration of the particle filter.

Note:

To prevent engine racing, check the engine oil level using the dipstick before running the forced regeneration command.

The engine oil level must be between the « MIN » and « MAX » marks on the dipstick.

Note:

If required, the forced regeneration procedure may be stopped by pressing the engine Start button twice in succession.

Note:

Strong odours and thick smoke are to be expected during forced regeneration of the particle filter.

❑ For the particle filter forced regeneration procedure (see **Fault finding - Interpretation of commands**) (13B, Diesel injection).

❑ When forced regeneration of the particle filter has finished, and using the **diagnostic tool** :

- deal with the present faults,

- clear the stored faults.

❑ Drain the engine oil (see **10A**, **Engine and cylinder block assembly**, **Engine oil: Draining - Refilling**, page **10A-17**) .

❑ Replace the oil filter (see **10A**, **Engine and cylinder block assembly**, **Oil filter: Removal - Refitting**, page **10A-21**) .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# Particle filter pressure sensor: Removal - Refitting

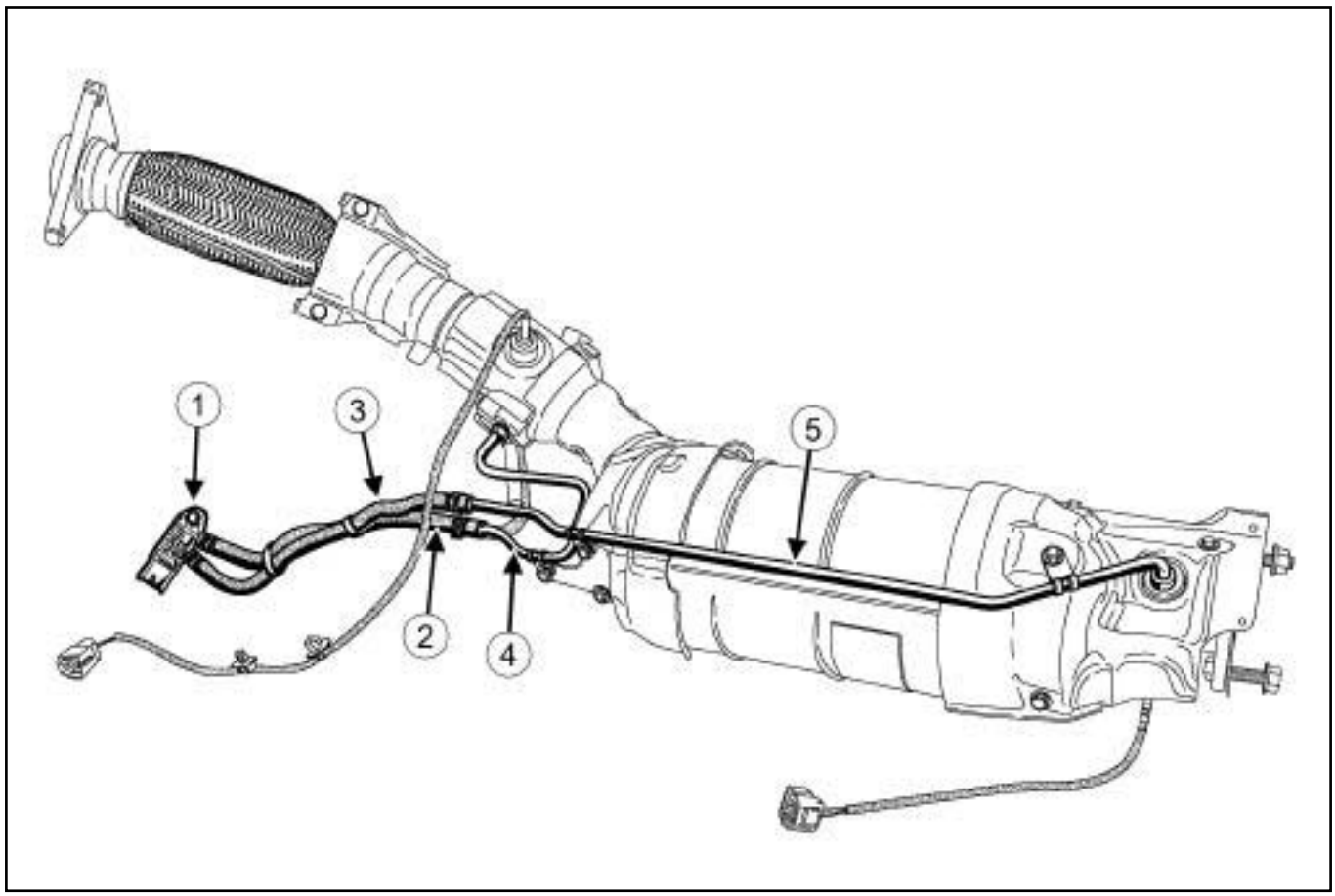


M9R

| Tightening torques ▽ | |
|---|---|
| particle filter pressure sensor bolt | **10 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .




129766

(**1**) Particle filter pressure sensor

(**2**) Upstream pressure measurement hose

(**3**) Downstream pressure measurement hose

(**4**) Upstream pressure measurement connection

(**5**) Downstream pressure measurement connection

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Remove the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .



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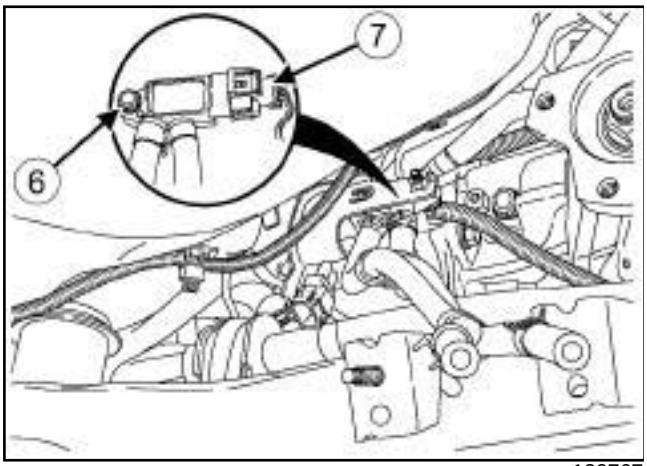
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



129767

- ❏ Remove the particle filter pressure sensor bolt (**6**) .
- ❏ Disconnect the particle filter pressure sensor connector (**7**) .
- ❏ Remove the particle filter pressure sensor.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

- ❏ Refit the particle filter pressure sensor.
- ❏ Connect the particle filter pressure sensor connector.
- ❏ Torque tighten the **particle filter pressure sensor bolt (10 N.m)**.

**II - FINAL OPERATION.**

- ❏ Refit the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .
- ❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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# Particle filter temperature sensors: Removal - Refitting



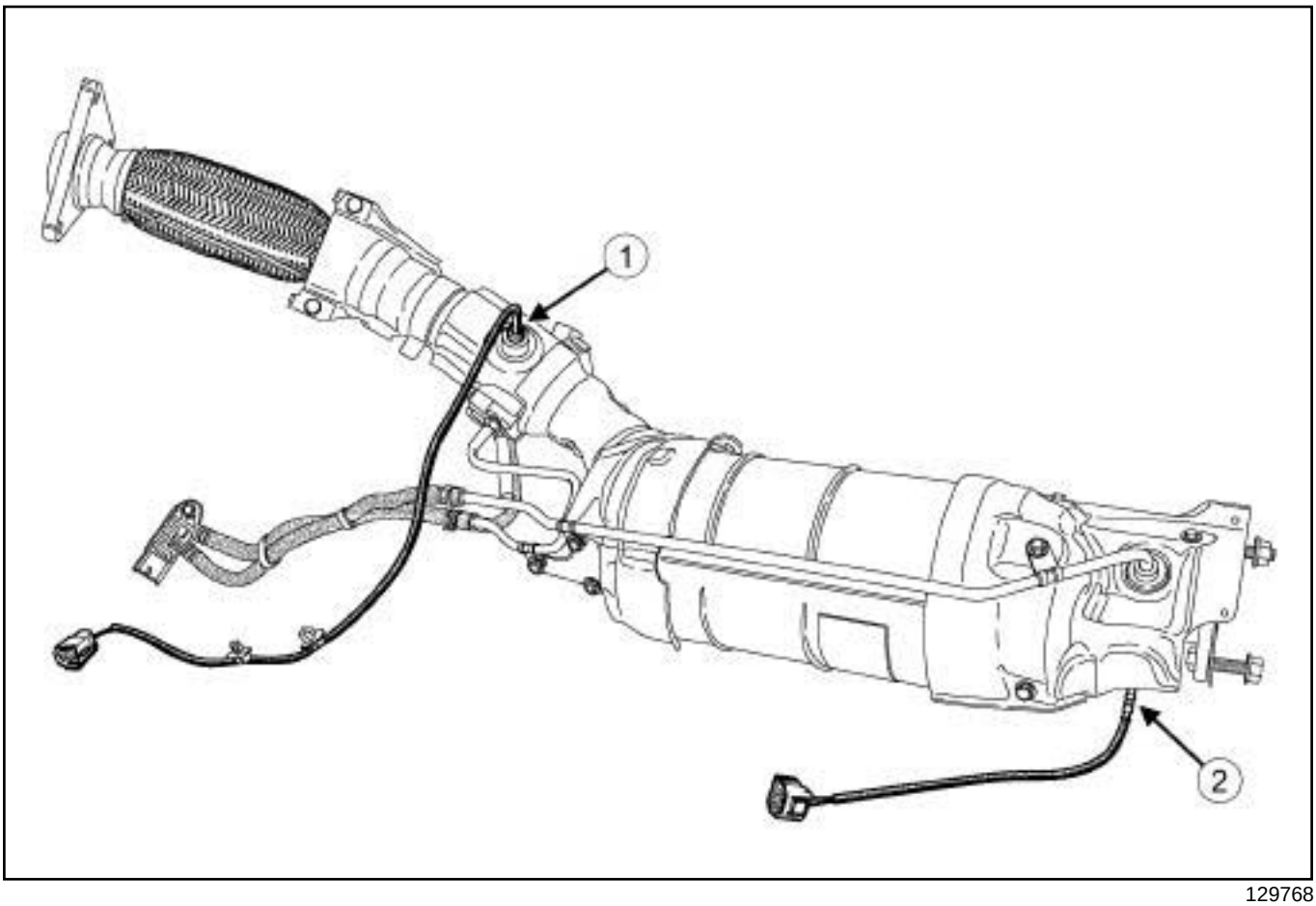
M9R

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| particle filter upstream temperature sensor union | **30 N.m** |
| particle filter downstream temperature sensor union | **30 N.m** |
| downstream temperature sensor mounting bolt | **4 N.m** |
| downstream temperature sensor insulation bolts | **6 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **19B**, **Exhaust**, **Exhaust: Precautions for repair**, page **19B-6**) .




129768



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(**1**) Temperature sensor upstream of the particle filter

(**2**) Temperature sensor downstream of the particle filter

## REFITTING

## REMOVAL

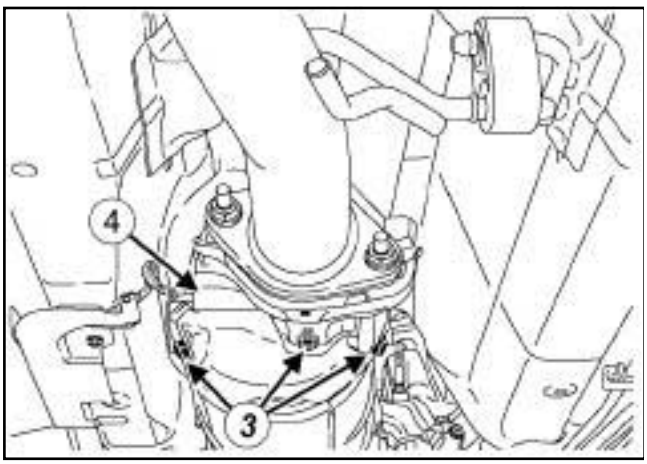
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

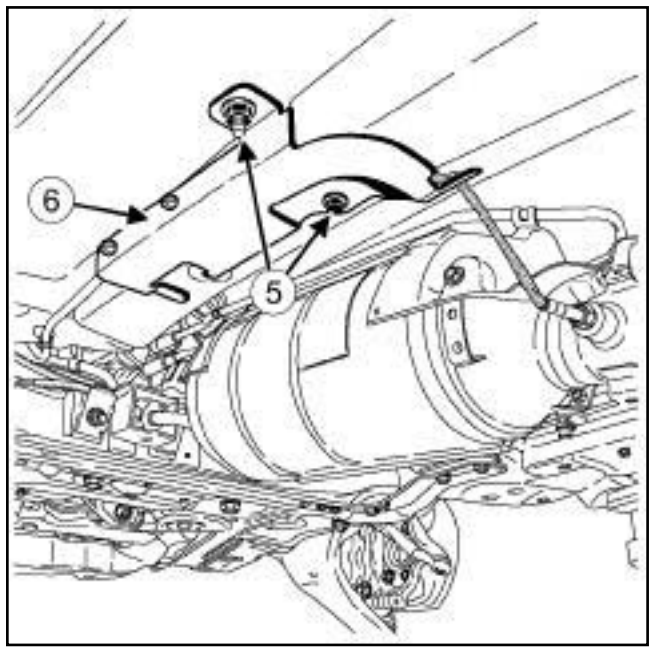
#### 1 - Downstream temperature sensor




129769

❑ Remove:

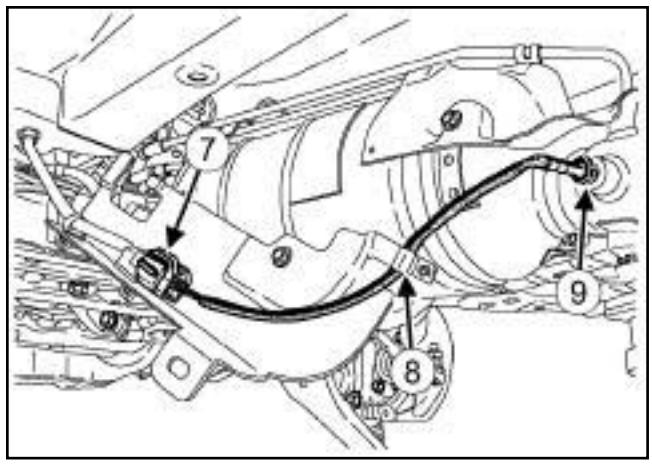
- the downstream temperature sensor insulation bolts (**3**) ,
- the downstream temperature sensor insulation (**4**) .




129770

❑ Remove the bolt and the nut (**5**) of the downstream temperature sensor mounting.

❑ Unclip the downstream temperature sensor mounting (**6**) .




129771

❑ Disconnect the particle filter downstream temperature sensor connector (**7**) .

❑ Unclip the wiring at (**8**) .

❑ Remove the particle filter downstream temperature sensor union (**9**) from its adapter welded to the particle filter.

#### 2 - Upstream temperature sensor.

❑ Remove the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .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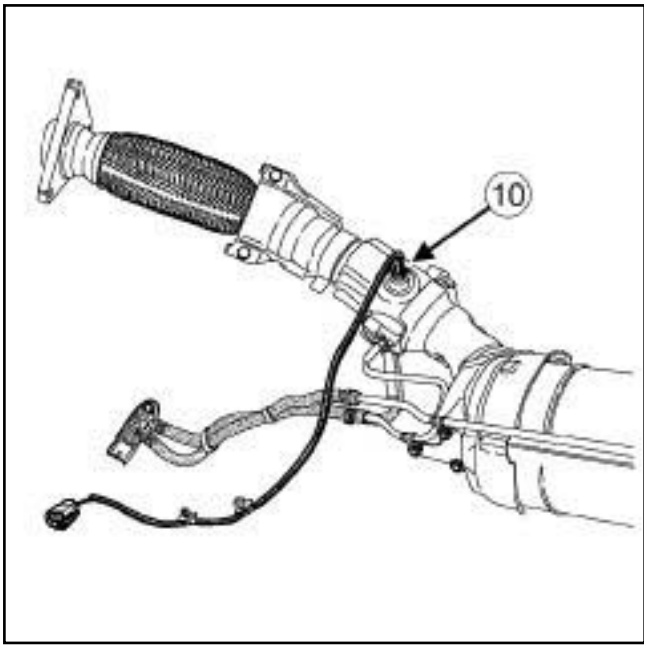

129772

❑ Remove the particle filter upstream temperature sensor union (**10**) from its adapter welded to the particle filter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Check the condition of the temperature sensor wiring.

> Note:
>
> If necessary, replace the particle filter temperature sensor wiring.

❑ Coat the particle filter downstream temperature sensor bolt union with **COPPER-ALUMINIUM LUBRICANT** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

### II - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Upstream temperature sensor.

❑ Refit the upstream temperature sensor to its adapter.

❑ Torque tighten the **particle filter upstream temperature sensor union (30 N.m)**.

❑ Refit the particle filter (see **19B**, **Exhaust**, **Particle filter: Removal - Refitting**, page **19B-21**) .

#### 2 - Downstream temperature sensor

❑ Refit the downstream temperature sensor to its adapter.

❑ Torque tighten the **particle filter downstream temperature sensor union (30 N.m)**.

❑ Connect the downstream temperature sensor connector.

❑ Clip on the downstream temperature sensor wiring at ***(8)*** .

❑ Refit the downstream temperature sensor mounting.

❑ Torque tighten the **downstream temperature sensor mounting bolt (4 N.m)**.

❑ Refit the downstream temperature sensor insulator.

❑ Torque tighten the **downstream temperature sensor insulation bolts (6 N.m)**.

### III - FINAL OPERATION.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Check that there are no faults using the **diagnostic tool**.


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| Essential equipment |
| --- |
| pneumatic transfer pump for fuels |

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**IMPORTANT**

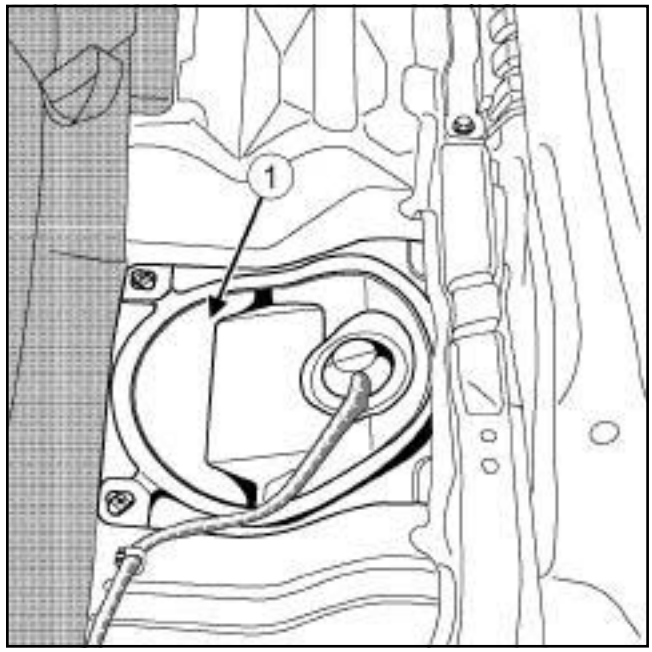
Wear leaktight gloves (Nitrile type) for this operation.

**I - OIL SERVICE**

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Lift up:

- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- partially, the floor carpet under the rear bench seat base (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim).




131619

❑ Partially remove the blanking cover (**1**) from the inspection flap.



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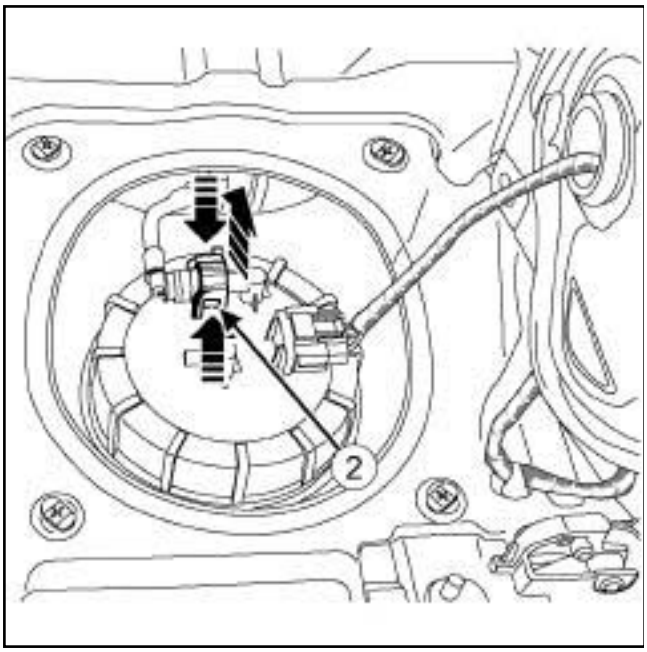
2TR




131620

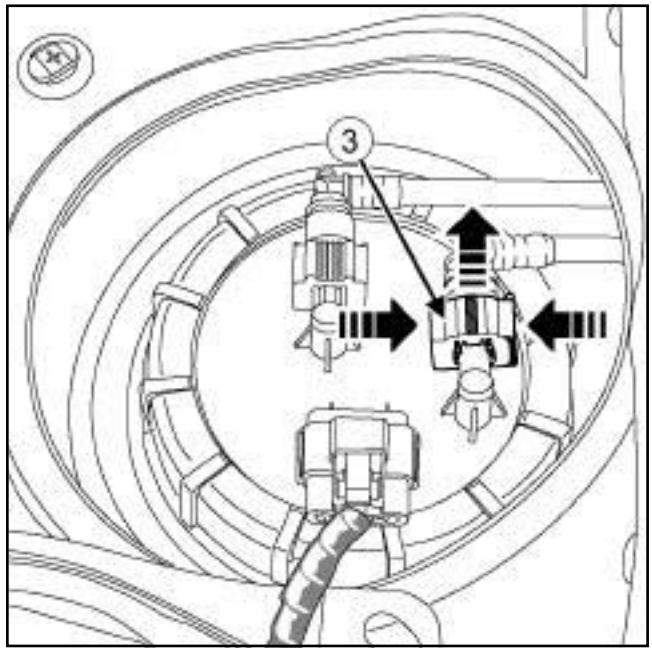
❑

Note:

Make preparations for fuel outflow from the supply and return pipes.

❑ Disconnect the quick-release union (**2**) from the fuel supply pipe.

M9R




131621

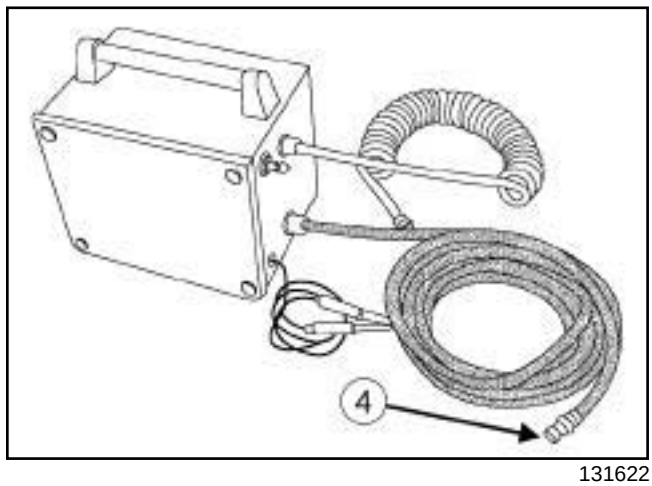
❑

Note:

Make preparations for fuel outflow from the supply and return pipes.

❑ Disconnect the quick-release union (**3**) from the fuel supply pipe.

❑ Fit blanking plugs on the unions using the blanking plug kit (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .




131622

❑ Connect the **pneumatic transfer pump for fuels** (**4**) to the fuel supply pipe quick-release union.



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❏ Place the discharge pipe of the **pneumatic transfer pump for fuels** in a container.

❏ Activate the pneumatic pump.

❏ Let the fuel flow out until it the flow is intermittent.

**II - REFITTING**

❏ Remove:

- the **pneumatic transfer pump for fuels**,
- the blanking plugs.

❏ Connect the fuel supply quick-release union to the fuel sender.

❏ Refit the blanking cover on the inspection flap.

❏ Fit:

- the floor carpet under the rear bench seat base (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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M9R

| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| fuel tank retaining strap bolts | **31 N.m** |
| rear axle bolts | **63 N.m** |
| rear axle nut | **78 N.m** |
| rear final drive sub-frame strut bolts | **53 N.m** |
| breather pipe bolt | **9 N.m** |
| fuel filler neck bolts | **9 N.m** |
| silencer bracket bolts on the particle filter | **45 N.m** |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear protective gloves during the operation.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**
Keep the pipe unions away from contaminated areas.

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

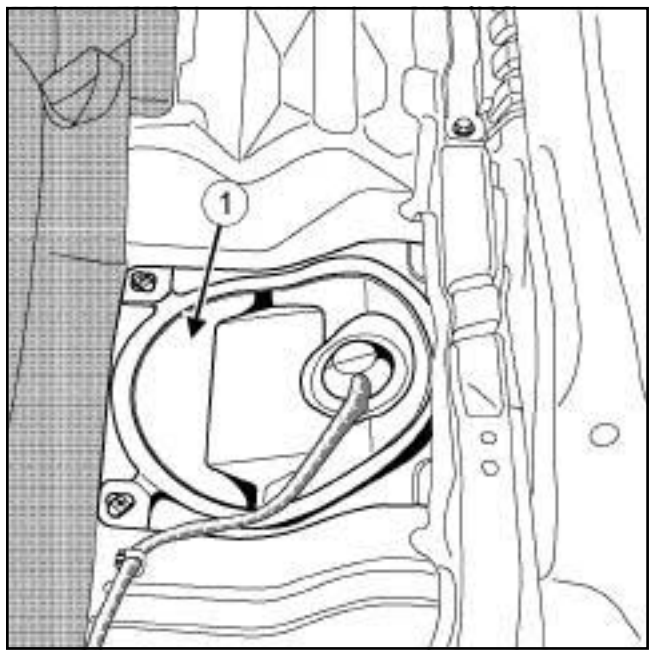
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Lift up:

- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- partially, the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim).

❑ Drain the fuel tank (see **19C**, **Tank**, **Fuel tank: Draining**, page **19C-1**) .



131176

❑ Remove the inspection flap blanking cover (**1**) .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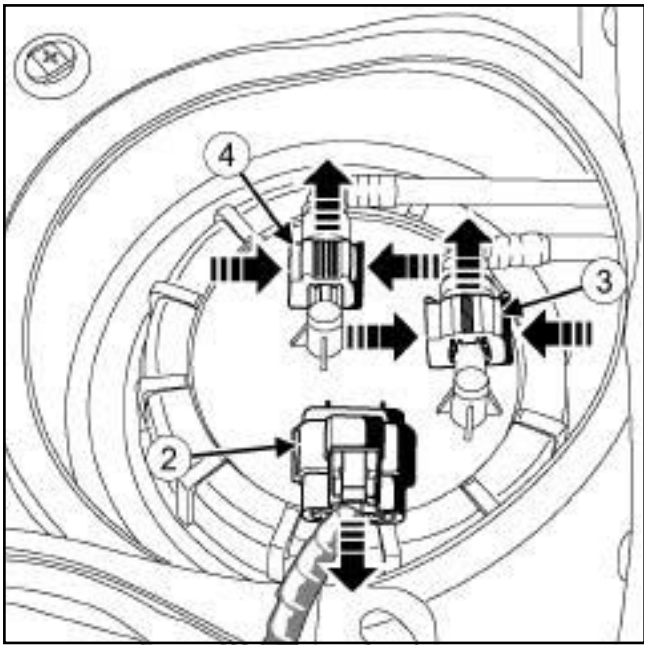
M9R



131177

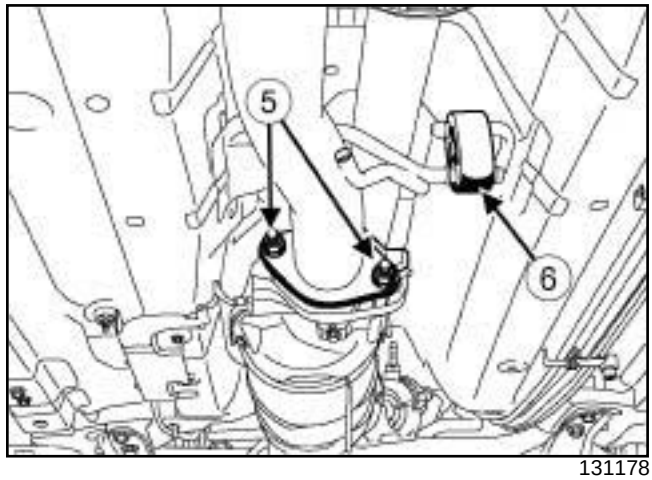
❏ Disconnect:

- the fuel sender connector (**2**) ,
- the quick-release union (**3**) from the fuel supply pipe,
- the quick-release union (**4**) from the fuel return pipe.

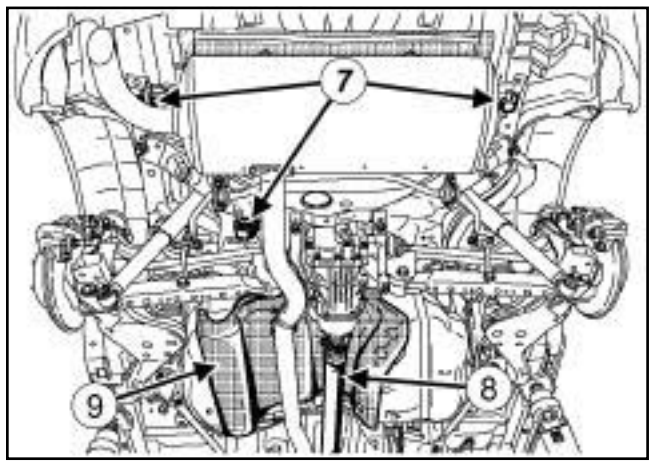
Note:

Make preparations for fuel outflow from the supply and return pipes.

❏ Fit blanking plugs on the unions (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .



131178



131179

❏ Remove:

- the silencer bracket bolts (**5**) on the particle filter,
- the silencer from the rubber mounting bushes (**6**) and (**7**) .

4X4 TRANSMISSION

❏ Remove the longitudinal driveshaft ***(8)*** (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❏ Remove:

- the fuel tank heat shield ***(9)*** ,
- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).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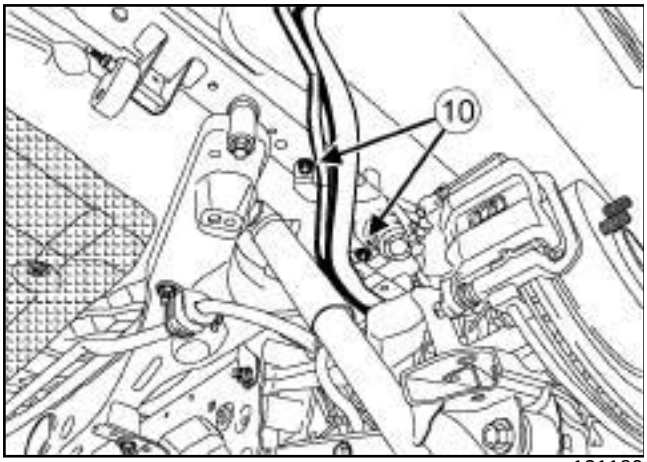
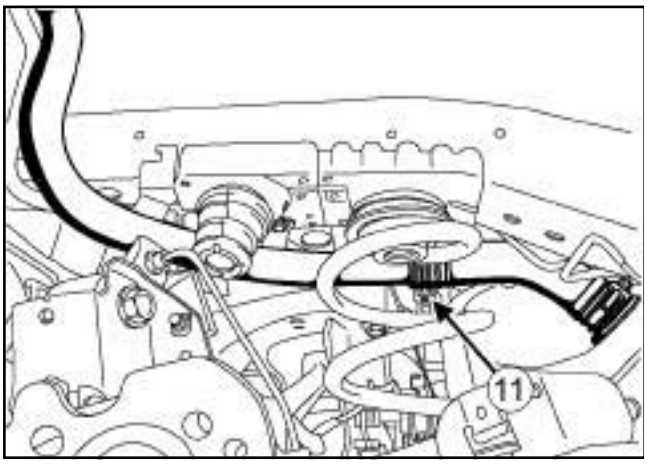
M9R




131180

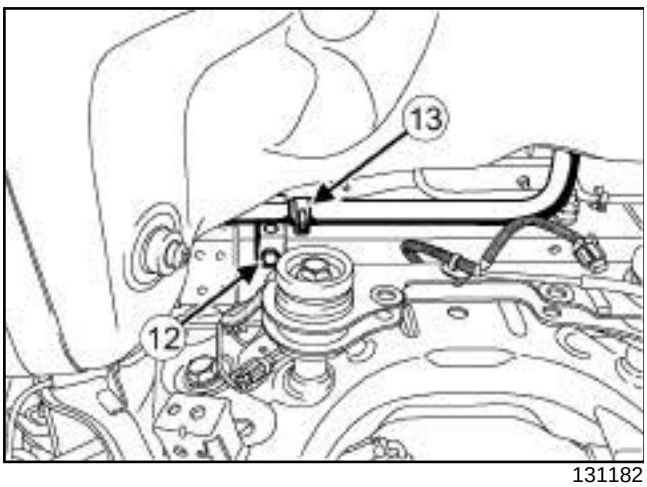
❏ Remove the fuel filler neck bolts (**10**) .




131181

❏ Remove the fuel filler neck bracket (**11**) .

❏ Disconnect the filler neck from the fuel tank.

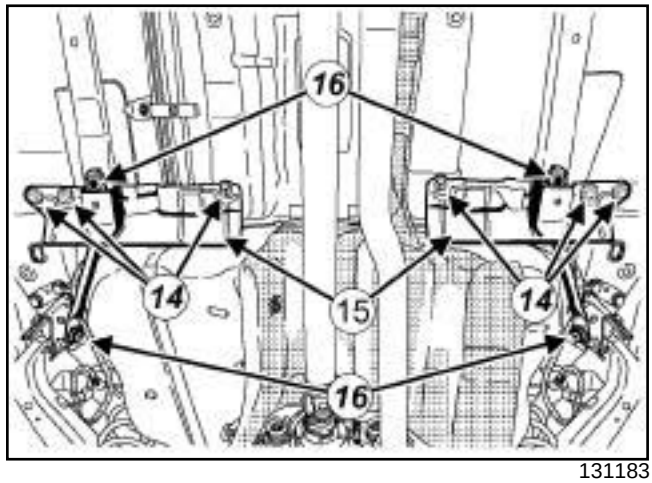



131182

❏ Remove:

- the breather pipe bolt (**12**) ,
- the breather pipe bracket (**13**) .

❏ Disconnect the breather pipe.

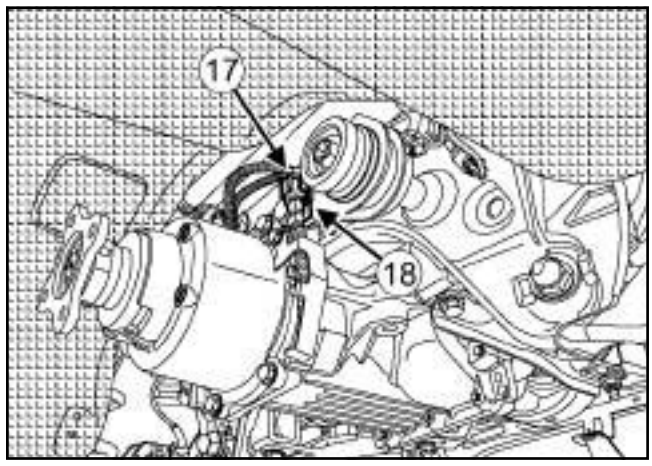



131183

❏ Remove:

- the clips (**14**) ,
- the covers (**15**) ,
- the rear final drive subframe strut bolts (**16**) ,
- the rear final drive subframe struts,
- the parking brake cable (see **Parking brake cables: Removal - Refitting**) (37A, Mechanical component controls).

4X4 TRANSMISSION




131184

❏ Disconnect the connector (**17**) from the electric coupler.

❏ Unclip the wiring clip (**18**) .



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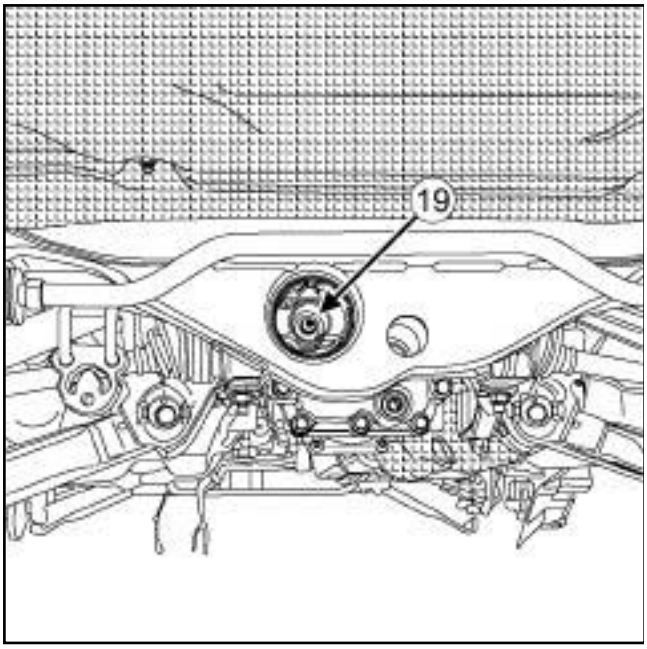
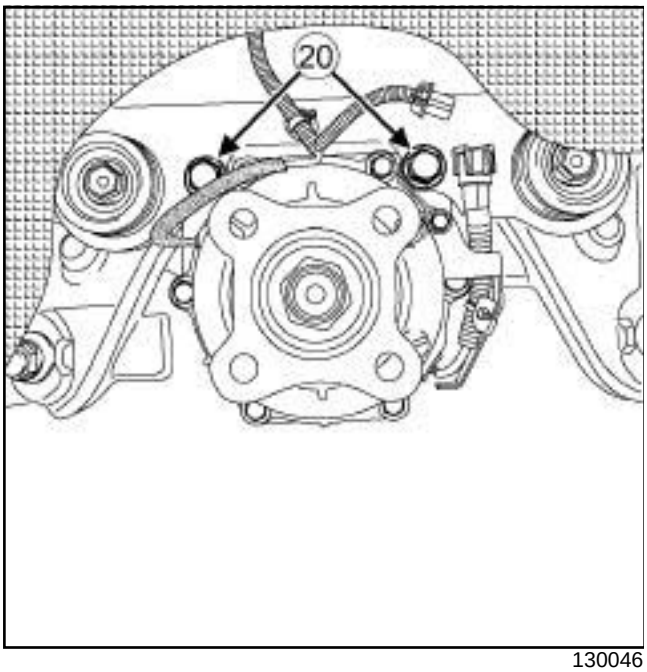
M9R




131185

❏ Loosen the rear final drive nut (**19**) .




130046

❏ Remove the rear final drive bolts (**20**) .

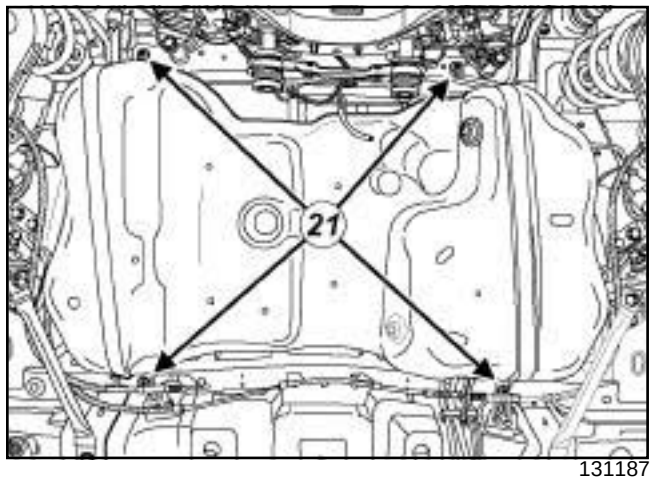
Note:

Do not remove the rear final drive from the vehicle.

❏ Tilt the rear final drive downwards.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❏ Place a **component jack** beneath the fuel tank.




131187

❏ Remove:

- the fuel tank retaining strap bolts (**21**) ,
- the fuel tank retaining straps,
- the fuel tank.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace:

- the clips,
- the fuel filler neck bracket,
- the breather pipe bracket.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the fuel tank,
- the fuel tank retaining straps,
- the fuel tank retaining strap bolts.

❏ Torque tighten the **fuel tank retaining strap bolts (31 N.m)**

❏ Remove the **component jack**.



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M9R

**III - FINAL OPERATION**

4X4 TRANSMISSION

❑ Refit the rear axle in its original position.

❑ Torque tighten:

- the **rear axle bolts (63 N.m)**,
- the **rear axle nut (78 N.m)**.

❑ Clip on the wiring clip.

❑ Connect the electric coupler connector.

❑ Refit:

- the parking brake cable (see **Parking brake cables: Removal - Refitting**) (37A, Mechanical component controls).
- the rear final drive subframe struts,
- the rear final drive subframe strut bolts,
- the covers ***(15)*** ,
- the new clips ***(14)*** .

❑ Torque tighten the **rear final drive subframe strut bolts (53 N.m)**.

❑ Connect the breather pipe.

❑ Refit:

- the new breather pipe bracket,
- the breather pipe bolt.

❑ Torque tighten the **breather pipe bolt (9 N.m)**.

❑ Connect the fuel filler neck onto the fuel tank.

❑ Refit:

- the new fuel filler neck bracket,
- the fuel filler neck bolts.

❑ Torque tighten the **fuel filler neck bolts (9 N.m)**.

❑ Refit:

- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the fuel tank heat shield.

4X4 TRANSMISSION

❑ Refit the longitudinal driveshaft (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❑ Refit:

- the silencer on the rubber mounting bushes,
- the silencer bracket bolts on the particle filter.

❑ Torque tighten the **silencer bracket bolts on the particle filter (45 N.m)**.

❑ Remove the blanking plugs.

❑ Connect:

- the fuel return pipe quick-release union,
- the fuel supply pipe quick-release union,
- the fuel tank sender unit connector.

❑ Refit the blanking cover on the inspection flap.

❑ Refit:

- the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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2TR

| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| fuel tank retaining strap bolts | **31 N.m** |
| rear axle bolts | **63 N.m** |
| rear axle nut | **78 N.m** |
| rear axle subframe bolts | **53 N.m** |
| fuel filler neck bolts | **9 N.m** |
| silencer bracket bolts on the catalytic converter | **45 N.m** |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear protective gloves during the operation.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**
Keep the pipe unions away from contaminated areas.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

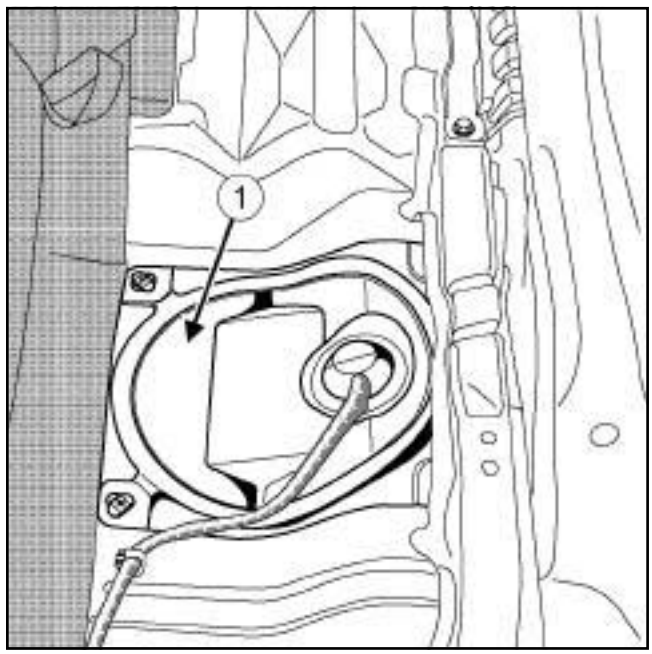
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Lift up:

- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- partially, the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim).

❏ Drain the fuel tank (see **19C**, **Tank**, **Fuel tank: Draining**, page **19C-1**) (19C, Tank).



131176

❏ Remove the inspection flap blanking cover (**1**) .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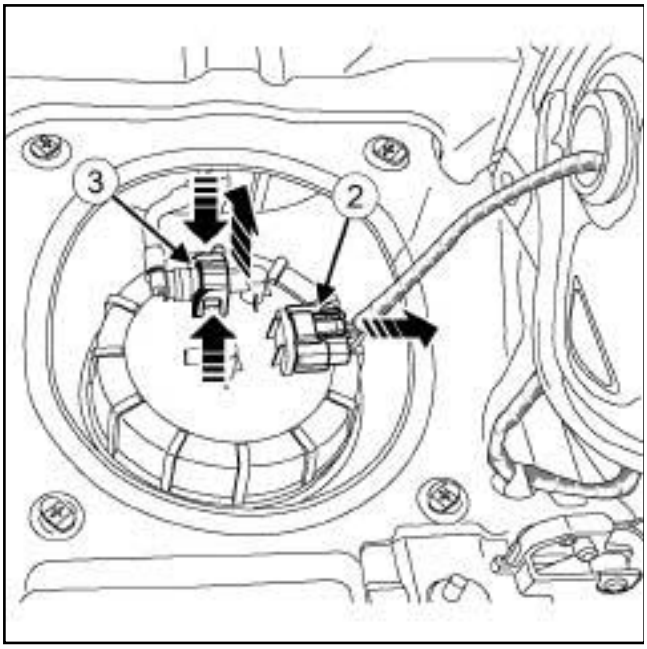
2TR




131168

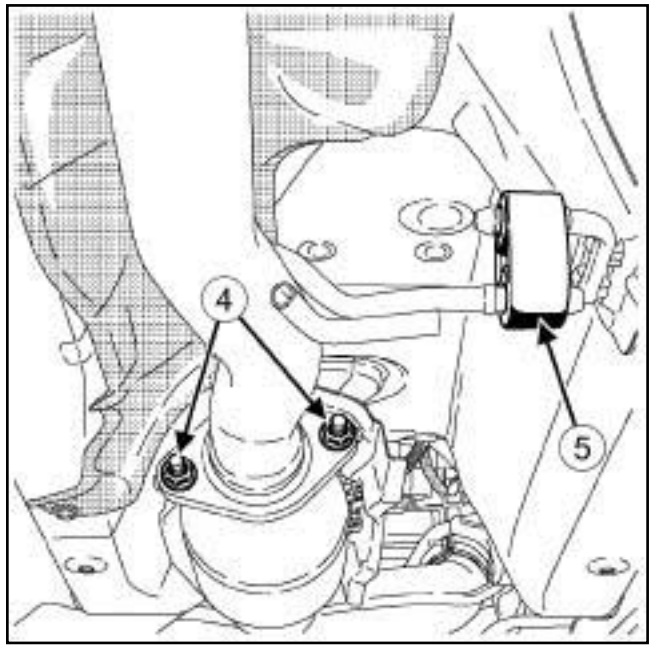
❏ Disconnect:

- the fuel sender connector (**2**) ,
- the quick-release union (**3**) from the fuel supply pipe.

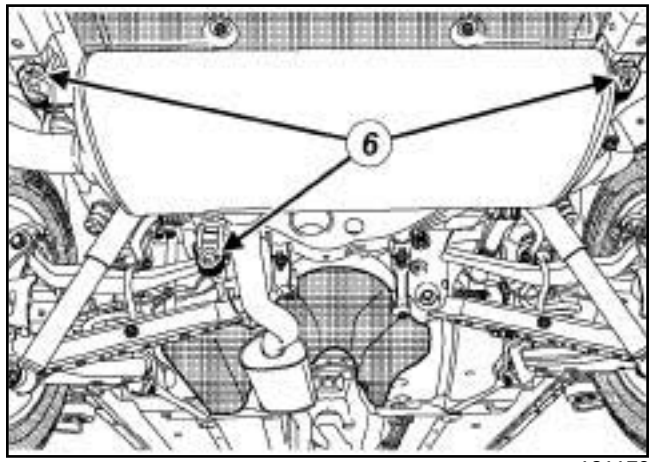
Note:

Make preparations for fuel outflow from the supply and return pipes.

❏ Fit blanking plugs on the unions (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .




131169




131170

❏ Remove:

- the silencer bracket bolts (**4**) on the catalytic converter,
- the silencer from the rubber mounting bushes (**5**) and (**6**) .



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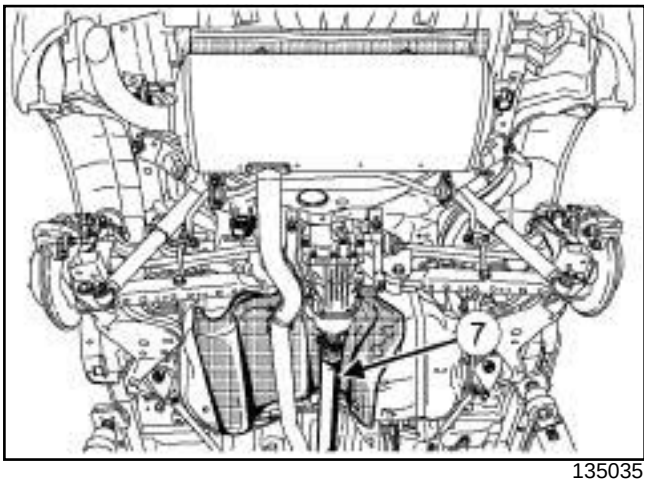
4X4 TRANSMISSION

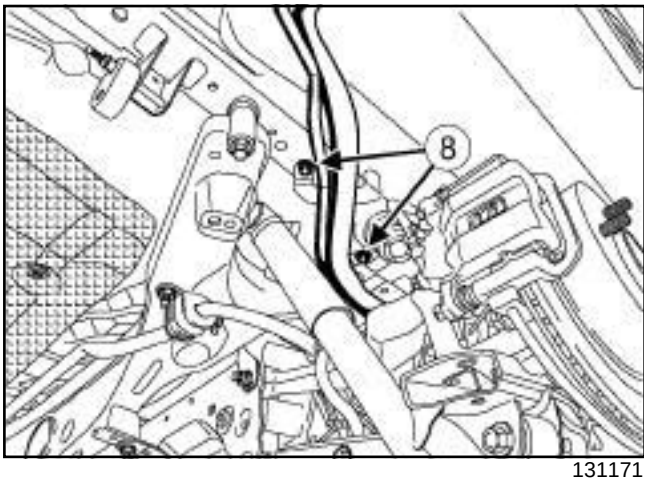



135035

❏ Remove the longitudinal driveshaft (**7**) (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

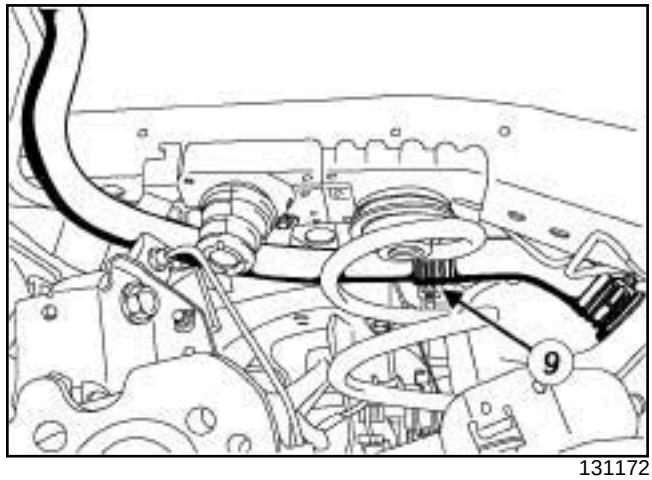
❏ Remove:

- the fuel tank heat shield,
- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).




131171

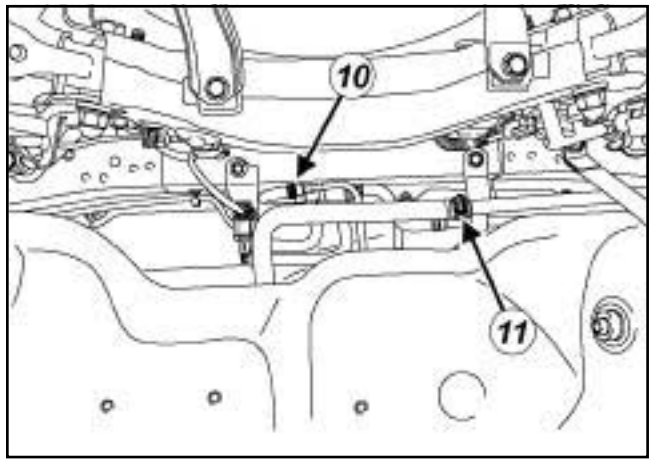
❏ Remove the fuel filler neck bolts (**8**) .




131172

❏ Remove the fuel filler neck bracket (**9**) .

❏ Disconnect the filler neck from the fuel tank.




131173

❏ Remove:

- the breather pipe bracket (**10**) ,
- the fuel vapour rebreather pipe bracket (**11**) .

❏ Disconnect:

- the breather pipe,
- the petrol vapour rebreather pipe.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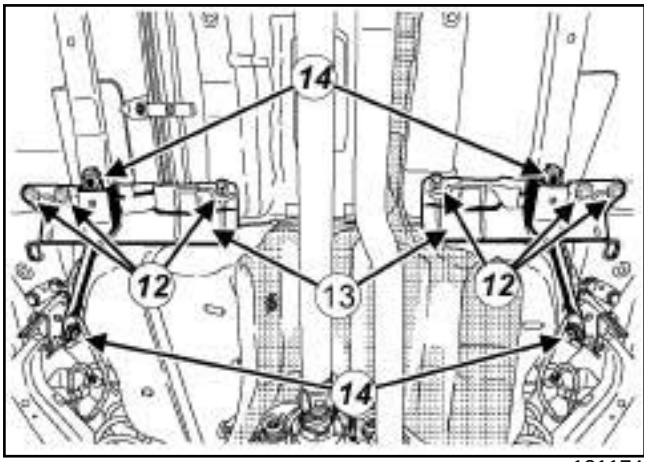
2TR

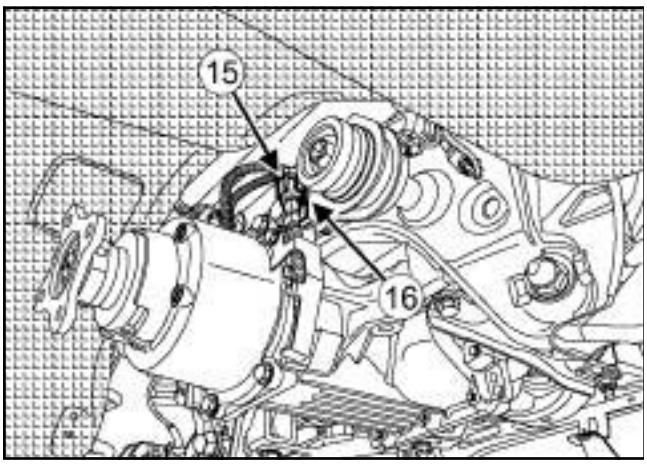



131174

❏ Remove:

- the clips (**12**) ,
- the covers (**13**) ,
- the rear axle subframe strut bolts (**14**) ,
- the rear axle subframe struts,
- the parking brake cable (see **Parking brake cables: Removal - Refitting**) (37A, Mechanical component controls).

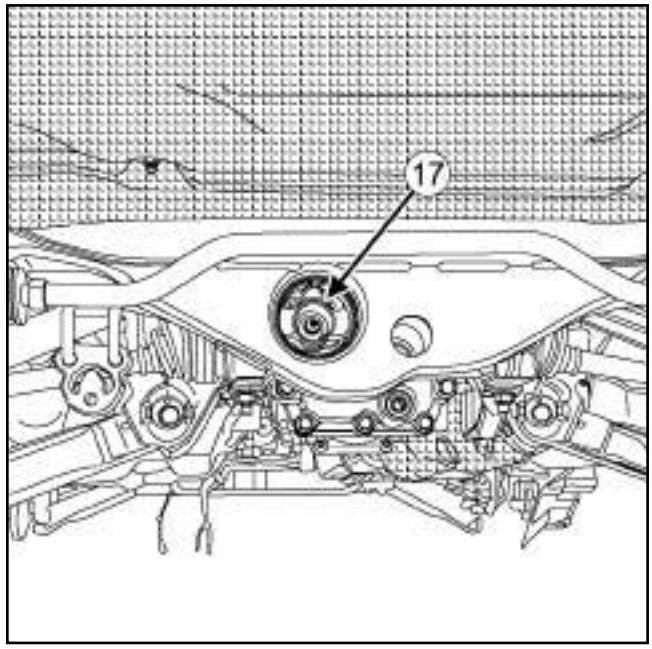
4X4 TRANSMISSION




135036

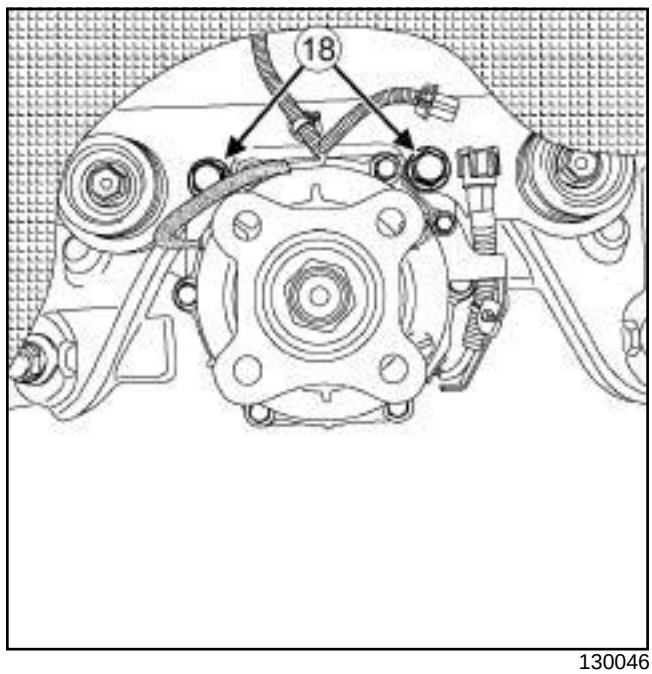
❏ Disconnect the connector (**15**) from the electric coupler.

❏ Unclip the wiring clip ***(16)*** .




135037

❏ Loosen the nut (**17**) on the rear axle.




130046

❏ Remove the rear axle bolts (**18**) .

Note:

Do not remove the final drive from the vehicle.

❏ Tilt the rear axle downwards.



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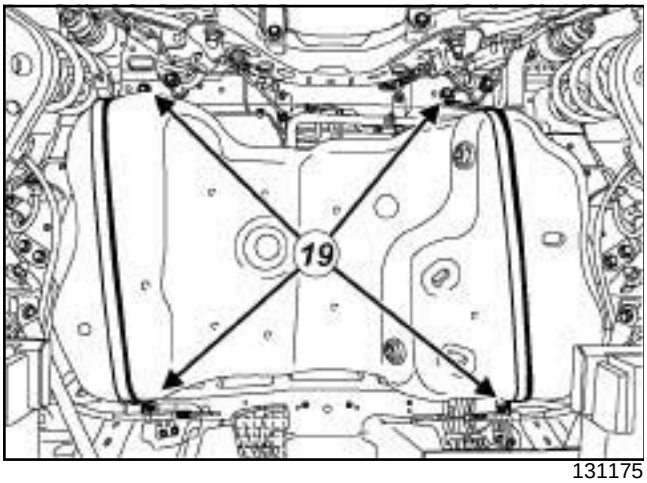
2TR

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❑ Fit a **component jack** under the fuel tank.



131175

❑ Remove:

- the fuel tank retaining strap bolts (**19**) ,
- the fuel tank retaining straps,
- the fuel tank.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the fuel filler neck bracket,
- the clips,
- the breather pipe bracket,
- the petrol vapour rebreathing pipe bracket.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the fuel tank,
- the fuel tank retaining straps,
- the fuel tank retaining strap bolts.

❑ Torque tighten the **fuel tank retaining strap bolts (31 N.m)**

❑ Remove the **component jack**.

**III - FINAL OPERATION**

4X4 TRANSMISSION

❑ Refit the rear axle in its original position.

❑ Torque tighten:

- the **rear axle bolts (63 N.m)**,
- the **rear axle nut (78 N.m)**.

❑ Clip on the wiring clip.

❑ Connect the electric coupler connector.

❑ Refit:

- the parking brake cable (see **Parking brake cables: Removal - Refitting**) (37A, Mechanical component controls).
- the rear axle subframe struts,
- the rear axle subframe bolts,
- the covers ***(13)*** ,
- the new clips ***(12)*** .

❑ Torque tighten the **rear axle subframe bolts (53 N.m)**.

❑ Connect:

- the petrol vapour rebreathing pipe,
- the breather pipe.

❑ Refit:

- the new petrol vapour rebreathing pipe bracket,
- the new breather pipe bracket.

❑ Connect the fuel filler neck onto the fuel tank.

❑ Refit:

- the new fuel filler neck bracket,
- the fuel filler neck bolts.

❑ Torque tighten the **fuel filler neck bolts (9 N.m)**.

❑ Refit:

- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the fuel tank heat shield.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4X4 TRANSMISSION

❑ Refit the longitudinal driveshaft (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❑ Refit:

- the silencer on the rubber mounting bushes,
- the silencer bracket bolts on the catalytic converter.

❑ Torque tighten the **silencer bracket bolts on the catalytic converter (45 N.m)**.

❑ Remove the blanking plugs.

❑ Connect:

- the fuel supply pipe quick-release union,
- the fuel tank sender unit connector.

❑ Refit the blanking cover on the inspection flap.

❑ Refit:

- the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Tightening torques ▽ | |
|---|---|
| breather pipe bolt | **9 N.m** |
| retaining bracket bolt | **81 N.m** |
| fuel filler neck bolts | **9 N.m** |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear protective gloves during the operation.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**
Keep the pipe unions away from contaminated areas.

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

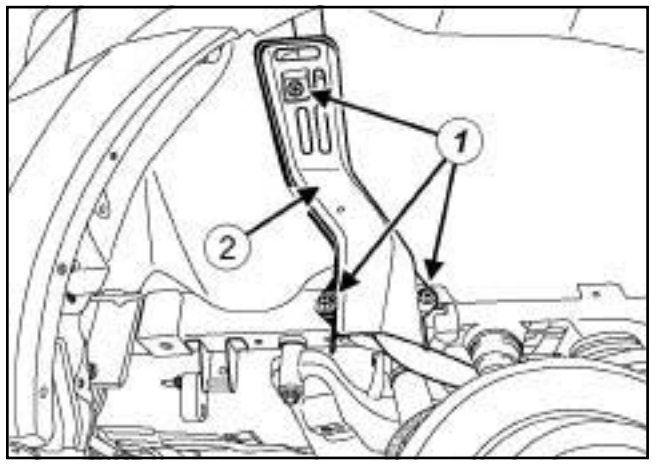
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Drain the fuel tank (see **19C**, **Tank**, **Fuel tank: Draining**, page **19C-1**) .

❏ Remove:

- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

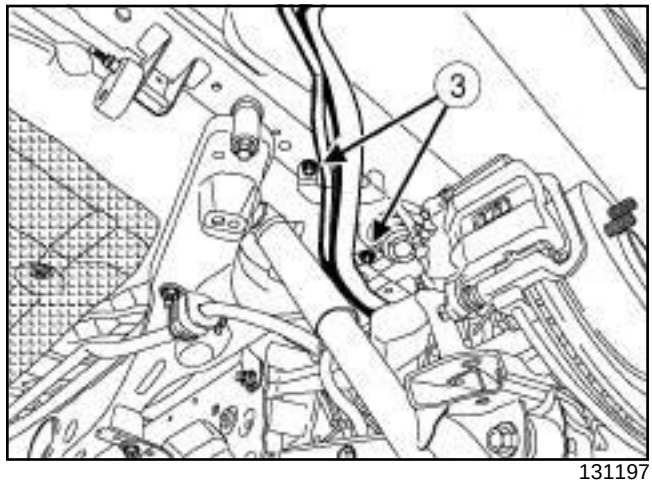


131196

❏ Remove:

- the clips (**1**)
- the fuel filler neck protector (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131197

❏ Remove the fuel filler neck bolts (**3**) .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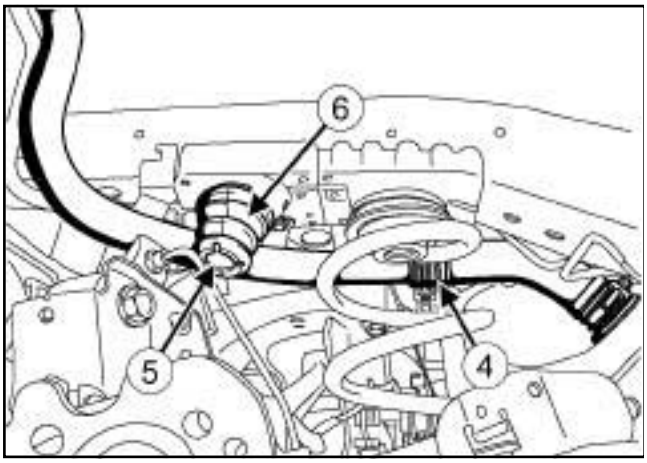
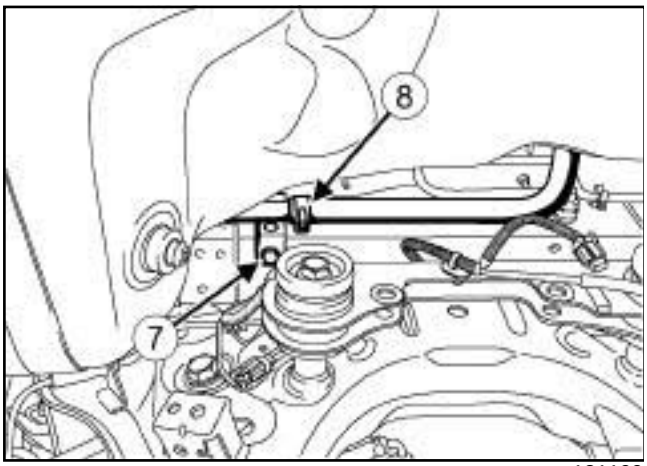


131198

❏ Remove:

- the fuel filler neck bracket (**4**) ,
- the retaining bracket bolt (**5**) ,
- the retaining bracket (**6**) .

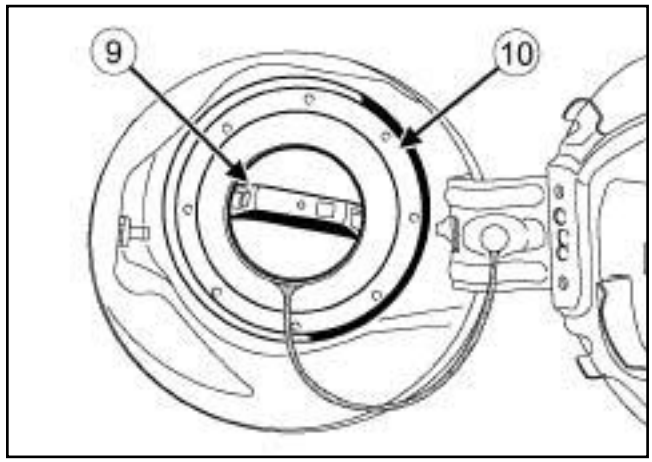


131199

❏ Remove:

- the breather pipe bolt (**7**) ,
- the breather pipe bracket (**8**) .

❏ Disconnect the breather pipe.



131200

❏ Remove:

- the cap (**9**) ,
- the filler neck flange (**10**) ,
- the filler neck.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the clips,
- the fuel filler neck bracket,
- the breather pipe bracket.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the filler neck,
- the filler neck flange,
- the filler neck plug.

❏ Connect the breather pipe.

❏ Refit:

- the new breather pipe bracket,
- the breather pipe bolt.

❏ Torque tighten the **breather pipe bolt (9 N.m)**.

❏ Refit:

- the retaining bracket ***(6)*** ,
- the retaining bracket bolt.

❏ Torque tighten the **retaining bracket bolt (81 N.m)**.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❏ Refit:

- the new fuel filler neck bracket,
- the fuel filler neck bolts.

❏ Torque tighten the **fuel filler neck bolts (9 N.m)**.

**III - FINAL OPERATION.**

❏ Refit:

- the fuel filler neck protector,
- the new clips,
- the rear right-hand wheel arch liner (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the rear right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Essential special tooling | |
|---|---|
| **Mot. 1397** | Universal petrol tank gauge nut wrench. |

**IMPORTANT**
Wear goggles with side protectors for this operation.

**IMPORTANT**
Wear protective gloves during the operation.

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

**WARNING**
Keep the pipe unions away from contaminated areas.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

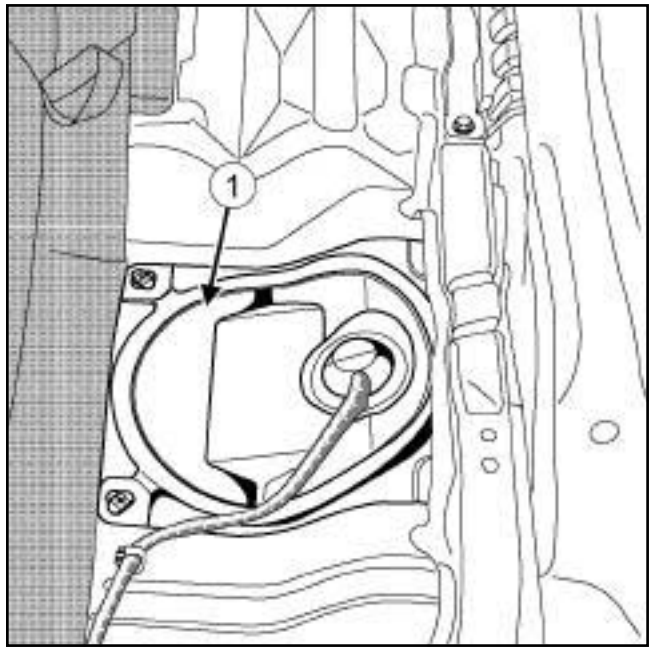
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Lift up:

- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- partially, the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim).

### 1 - Pump-sender-filter assembly

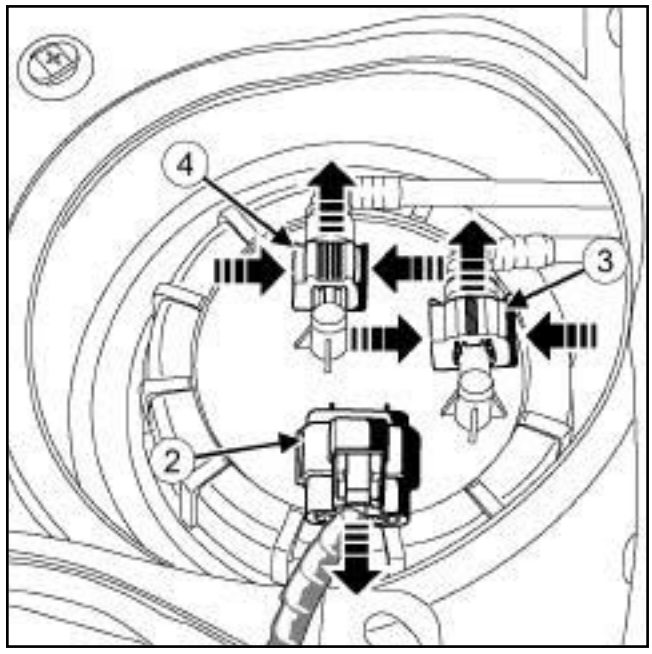


131110

❏ Remove the inspection flap blanking cover (**1**) .

Note:
Make preparations for fuel outflow from the supply and return pipes.

M9R



131111

❏ Disconnect:

- the fuel sender connector (**2**) ,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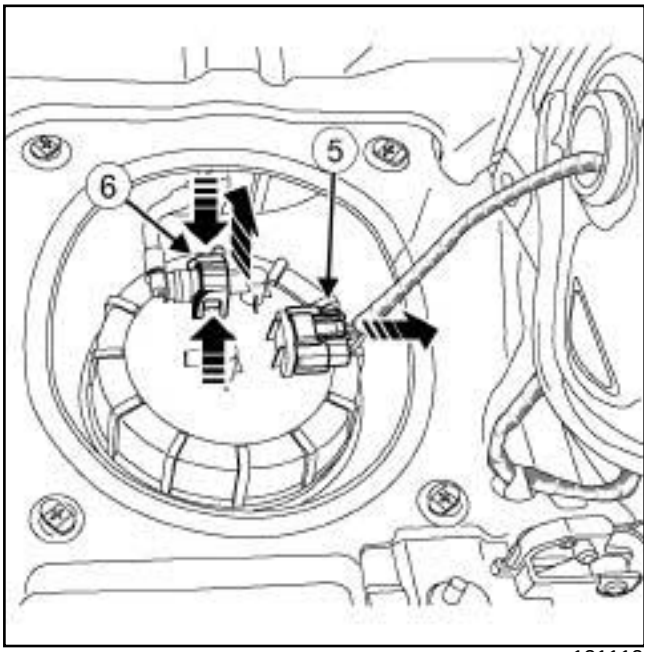
- the quick-release union (**3**) from the fuel supply pipe,
- the quick-release union (**4**) from the fuel return pipe.

2TR



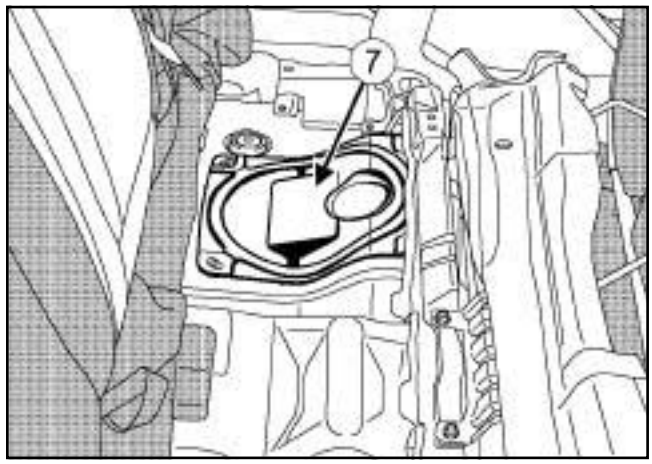

131112

❏ Disconnect:

- the fuel sender connector (**5**) ,
- the quick-release union (**6**) from the fuel supply pipe.

❏ Fit blanking plugs on the unions (see **13B**, **Diesel injection**, **Diesel injection: Precautions for repair**, page **13B-1**) .

**2 - Sender**

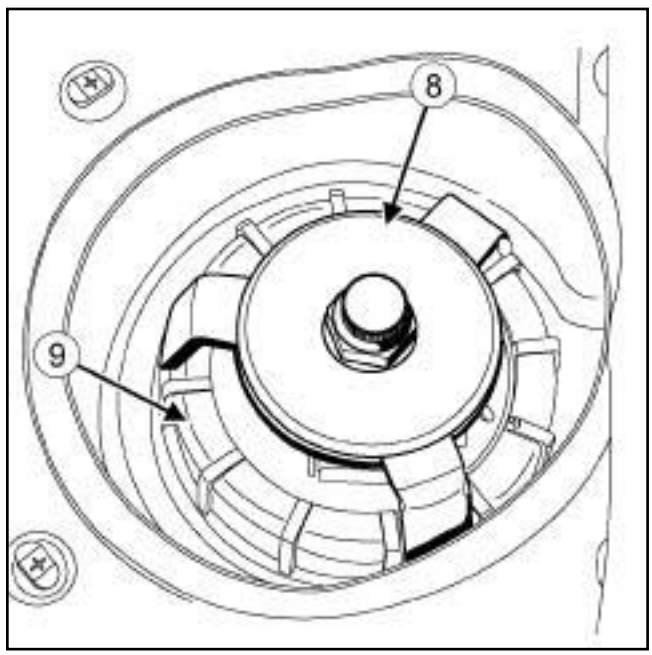



131113

❏ Remove the inspection flap blanking cover (**7**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

**1 - Pump-sender-filter assembly**




131114

❏ Remove the nut (**9**) from the « pump-sender-filter » assembly using the tool **(Mot. 1397)** (**8**) .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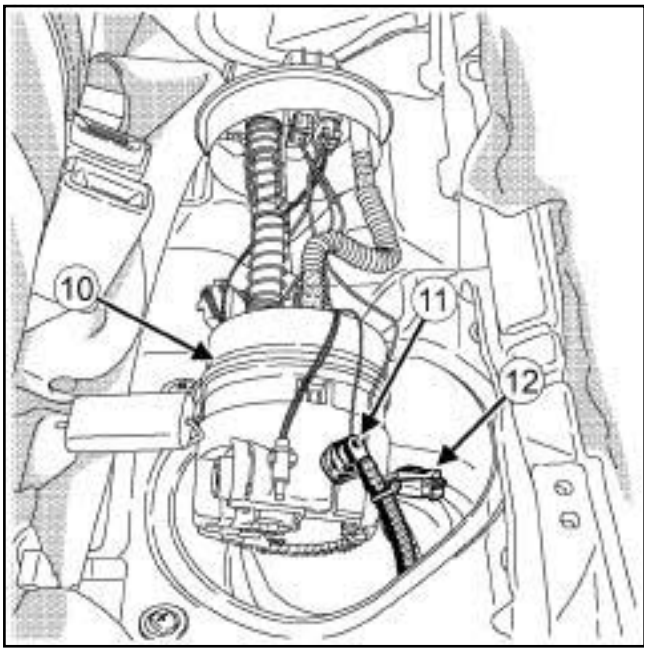


131115

❑

Note:

Take care to ensure that the float is not damaged during the operation.

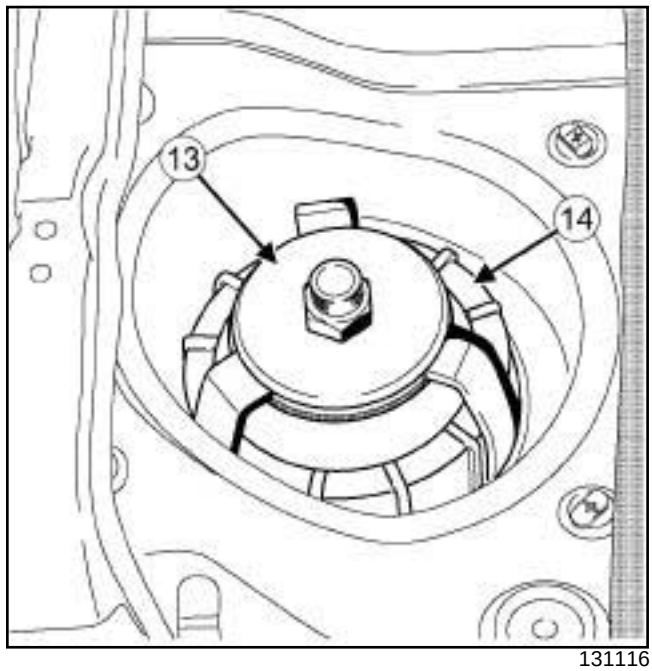
Make preparations for the fuel outflow, for example using cloths.

❑ Remove the « pump-sender-filter » assembly ***(10)*** .

❑ Disconnect:

- the fuel pipe ***(11)*** ,
- the connector ***(12)*** .

**2 - Sender**



131116

❑ Remove the nut (**14**) from the sender using the tool **(Mot. 1397)** (**13**) .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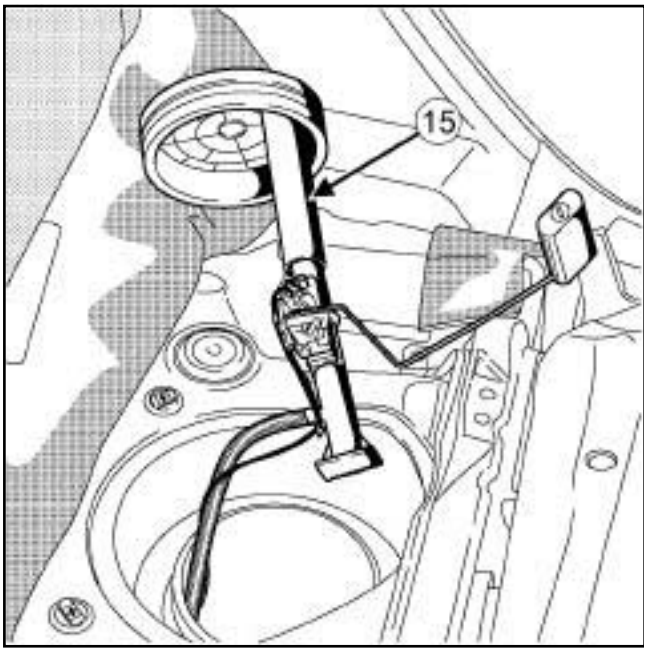

131117

❑

**WARNING**
To prevent the tank from being deformed, refit the fuel sender unit nut to the tank well immediately.

Note:
Take care to ensure that the float is not damaged during the operation. Make preparations for the fuel outflow, for example using cloths.

❑ Remove the sender (**15**)

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the « pump-sender-filter » assembly O-ring and the sender O-ring.

### II - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Pump-sender-filter assembly

❑ Connect:

- the connector ***(12)*** ,
- the fuel pipe ***(11)*** .

❑ Refit:

- the new O-ring,
- the pump-sender-filter assembly,
- the « pump-sender-filter » assembly nut using the tool **(Mot. 1397)**.

#### 2 - Sender

❑ Refit:

- the new O-ring,
- the sender,
- the nut on the sender using the tool **(Mot. 1397)**.

### III - FINAL OPERATION

#### 1 - Pump-sender-filter assembly

❑ Remove the blanking plugs.

M9R

❑ Connect:

- the fuel return pipe quick-release union,
- the fuel supply pipe quick-release union,
- the fuel tank sender unit connector.

2TR

❑ Connect:

- the fuel supply pipe quick-release union,
- the fuel tank sender unit connector.

❑ Refit the blanking cover on the inspection flap.

❑ Refit:

- the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

#### 2 - Sender

❑ Refit the blanking cover on the inspection flap.


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❏ Refit:

- the floor carpet under the rear bench seat base (see **Floor carpet: Removal**) (71A, Body internal trim),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |
| **Mot. 1453-01** | Additional winder nut on engine lift support Mot. 1453. |

| Essential equipment |
|---|
| safety strap(s) |

| Tightening torques ▽ | |
|---|---|
| left-hand suspended engine bolts on the upper body | **80 N.m** |
| left-hand suspended engine mounting bolts on the body side | **80 N.m** |
| left-hand suspended engine mounting bolts on the manual gearbox | **110 N.m** |
| left-hand suspended engine mounting bolts on the automatic gearbox110 | **N.m** |
| air filter unit bracket bolts | **10 N.m** |
| automatic transmission computer mounting bolts | **27 N.m** |
| wiring bracket bolts | **10 N.m** |

## REMOVAL

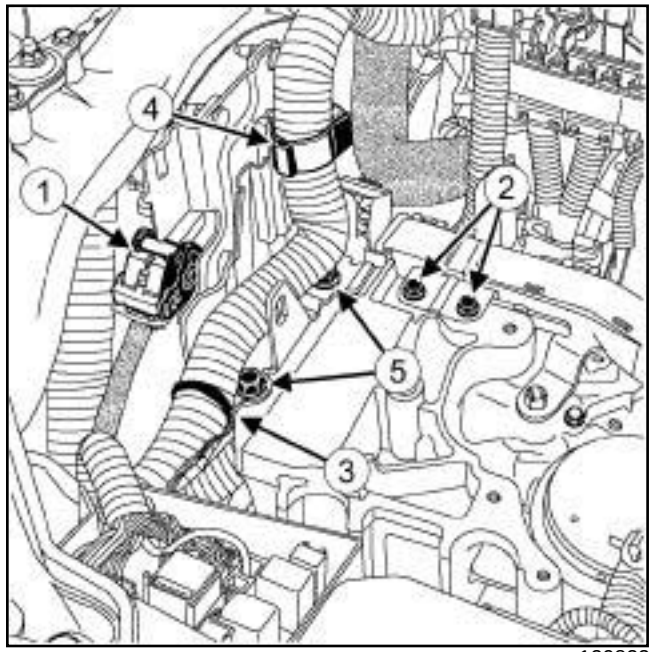
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the air inlet sleeve clips,
- the air inlet sleeve from the air filter unit,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery tray),
- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .

6 SPEED AUTO GBOX



129822

❑ Disconnect the automatic transmission computer connector (**1**) .

❑ Remove the bolts ***(2)*** from the wiring bracket.

❑ Unclip:

- the wiring at ***(3)*** ,
- the wiring at ***(4)*** .

❑ Remove:

- the automatic transmission computer mounting bolts ***(5)*** ,
- the earth cable.

6 SPEED MANUAL GBOX

❑ Remove the automatic transmission computer mounting.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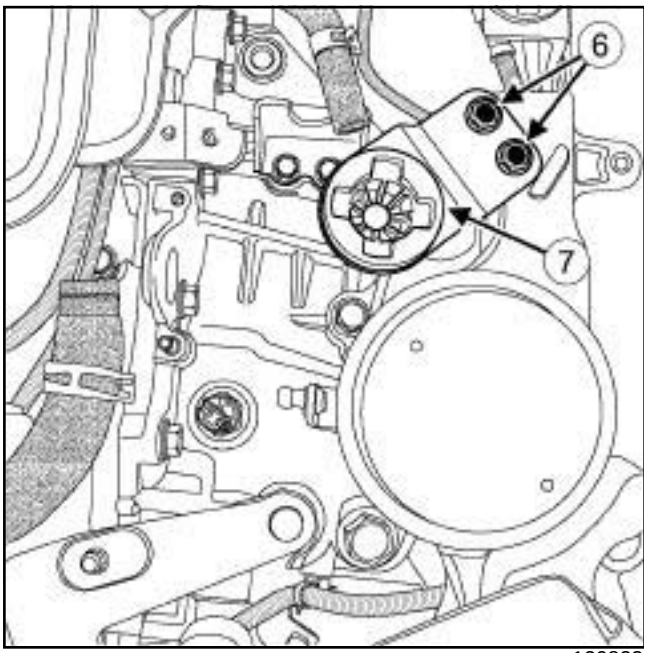
M9R

## 6 SPEED AUTO GBOX

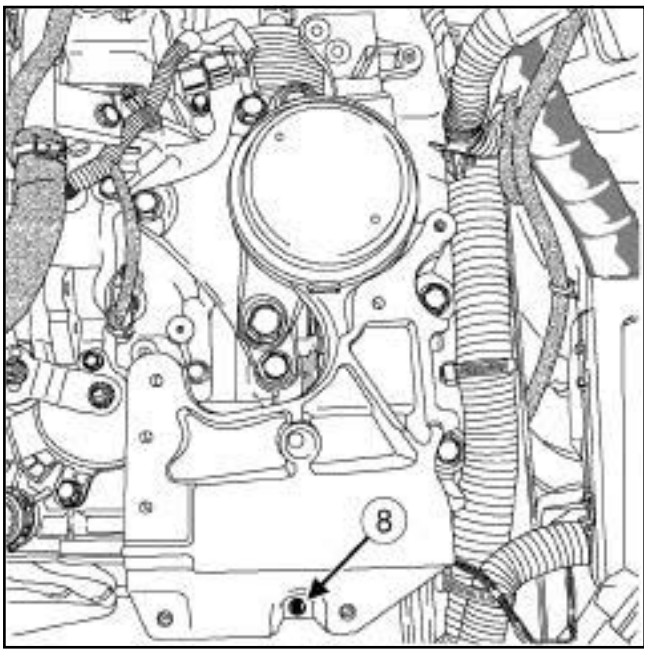
❑ Remove the « automatic transmission computer - mounting » assembly.




129823

❑ Remove:

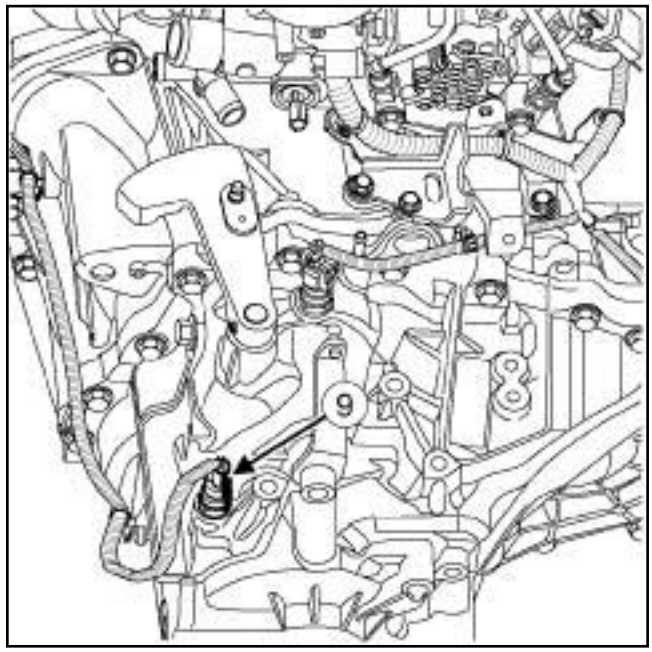
- the bolts (**6**) from the air filter unit support,
- the air filter unit support (**7**) .




129824

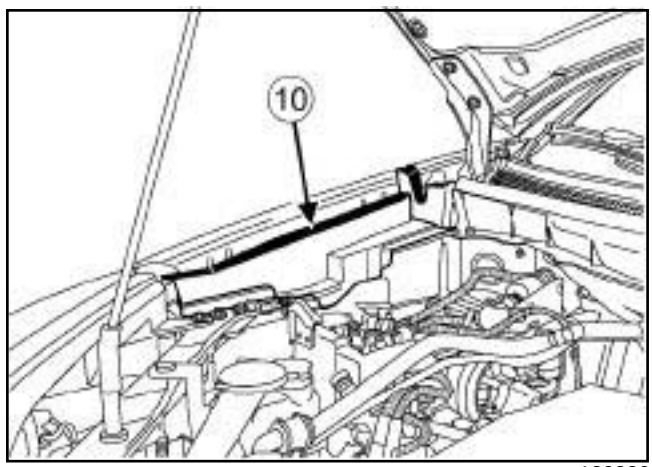
❑ Unclip the wiring at (**8**) .

## 6 SPEED MANUAL GBOX




129825

❑ Disconnect the reverse gear position switch connector (**9**) .




129826

❑ Remove the left-hand and right-hand bonnet seals (**10**) .



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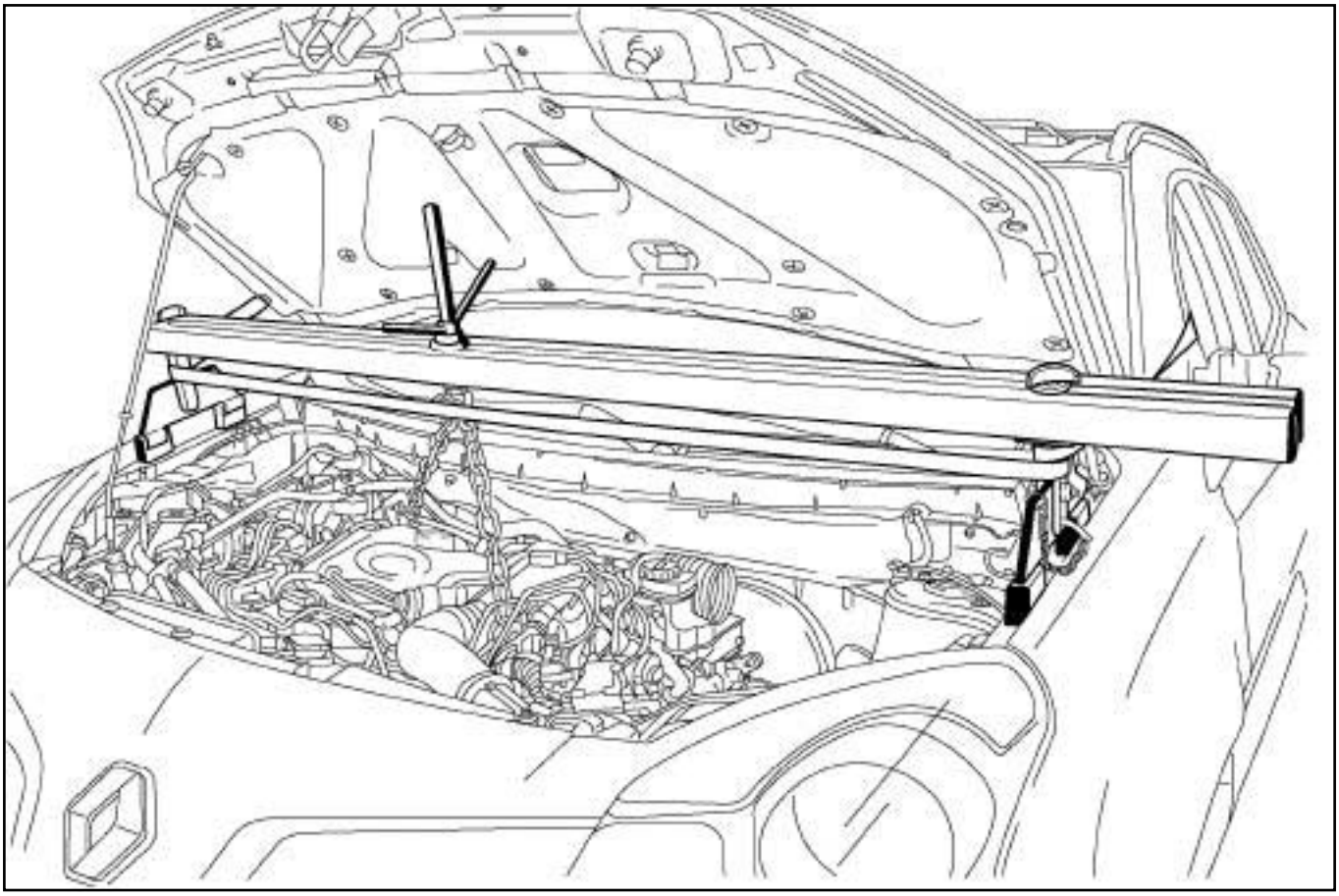
M9R



129827

❑ Fit the **(Mot. 1453)** and the **(Mot. 1453-01)** using **safety strap(s)**.

❑ Remove:

- the engine undertray,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).



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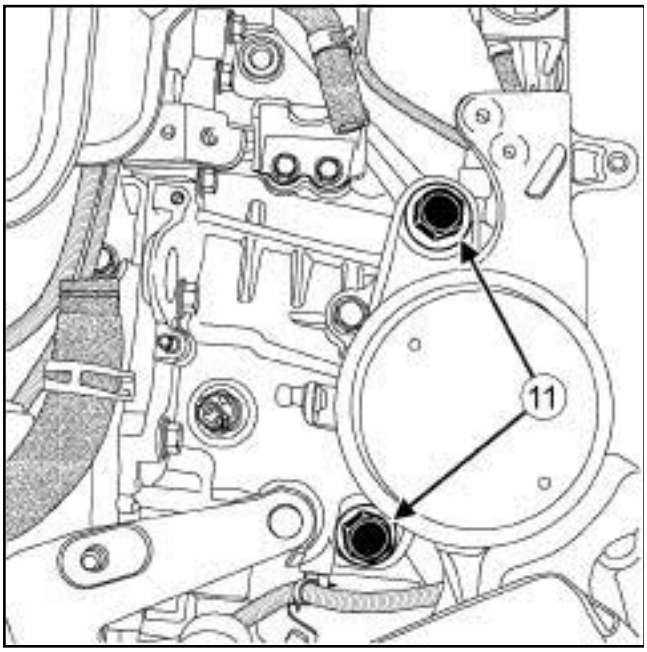
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

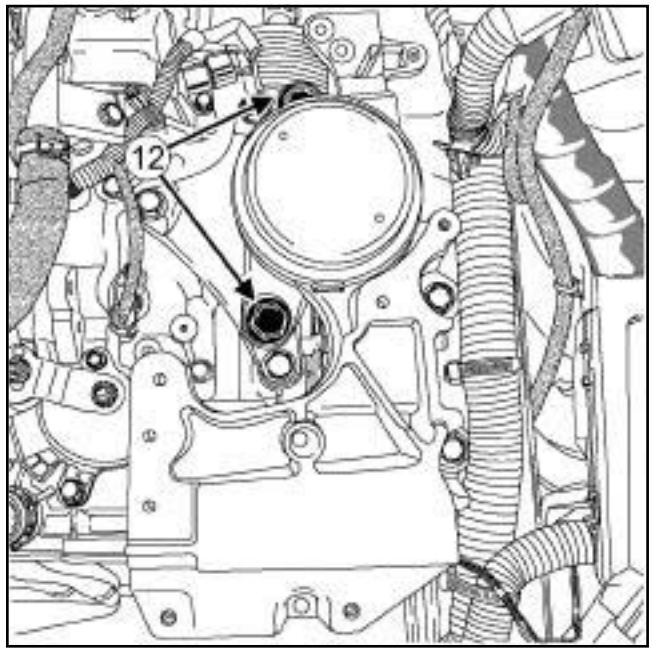
6 SPEED MANUAL GBOX




129828

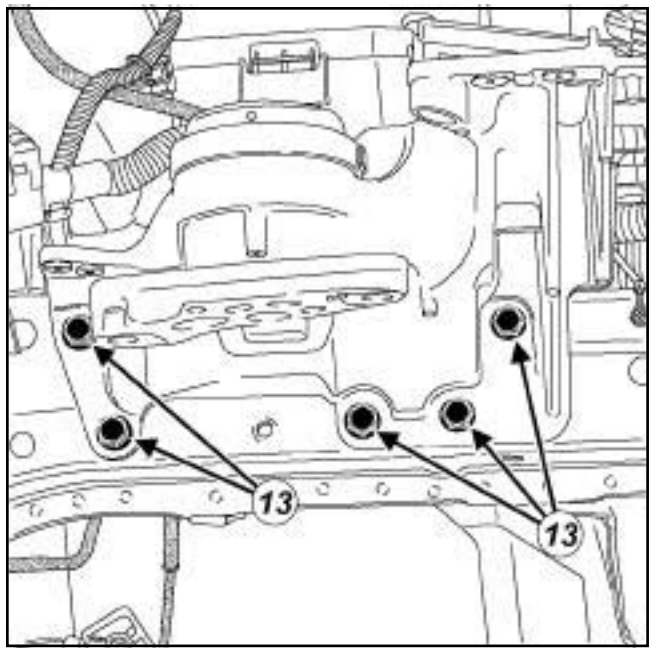
❑ Remove the left-hand suspended engine bolts (**11**) on the manual gearbox.

6 SPEED AUTO GBOX




129829

❑ Remove the left-hand suspended engine bolts (**12**) on the automatic gearbox.




129830

❑ Remove the left-hand suspended engine bolts (**13**) on the body side.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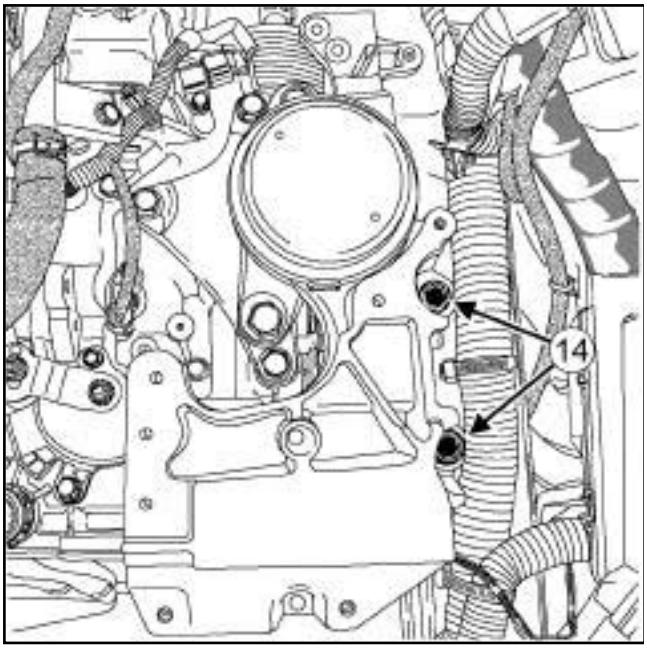
M9R




129831

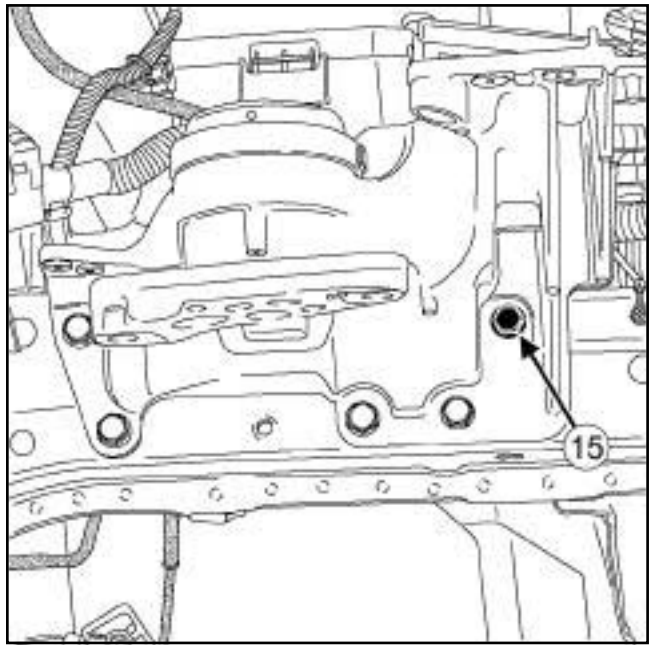
❏ Remove:

- the left-hand suspended engine bolts (**14**) on the upper body,
- the left-hand suspended engine mounting.

## REFITTING

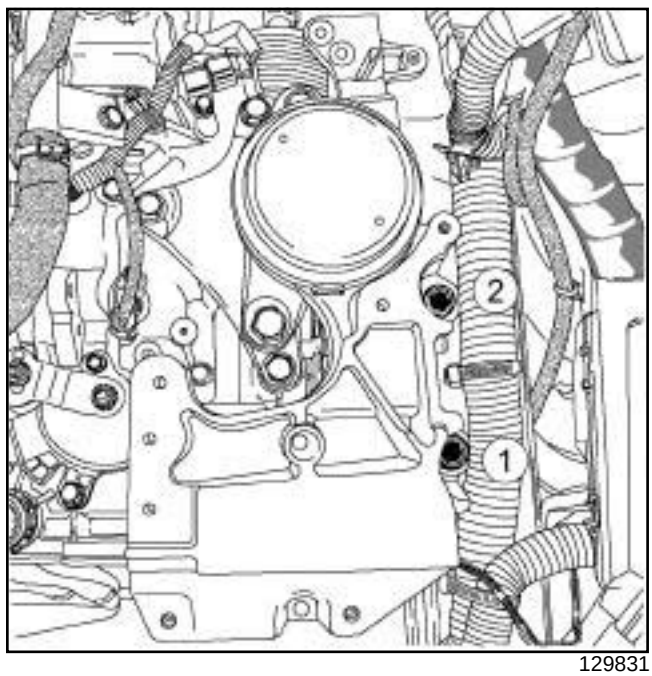
### I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the left-hand suspended engine mounting.




129832

❏ Refit without tightening the left-hand suspended engine bolt (**15**) on the body side.




129831

❏ Refit the left-hand suspended engine bolts on the upper body.

❏ Torque tighten in order the **left-hand suspended engine bolts on the upper body (80 N.m)**.



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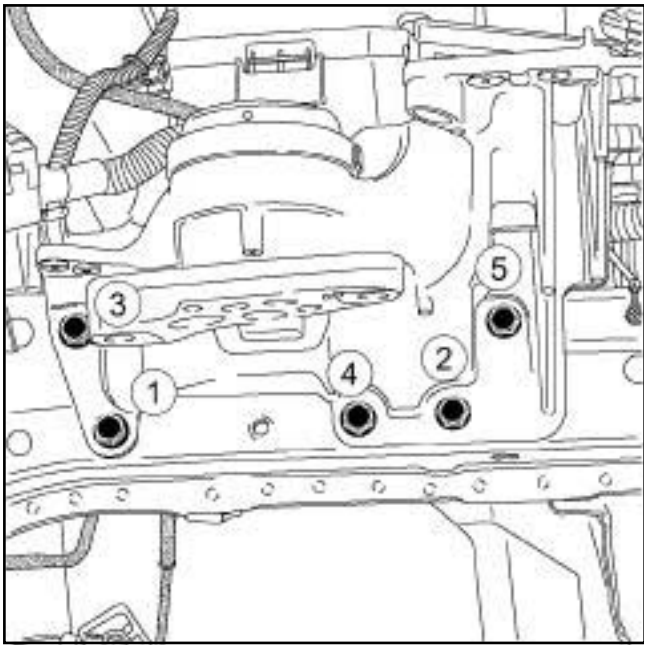
M9R




129830

❑

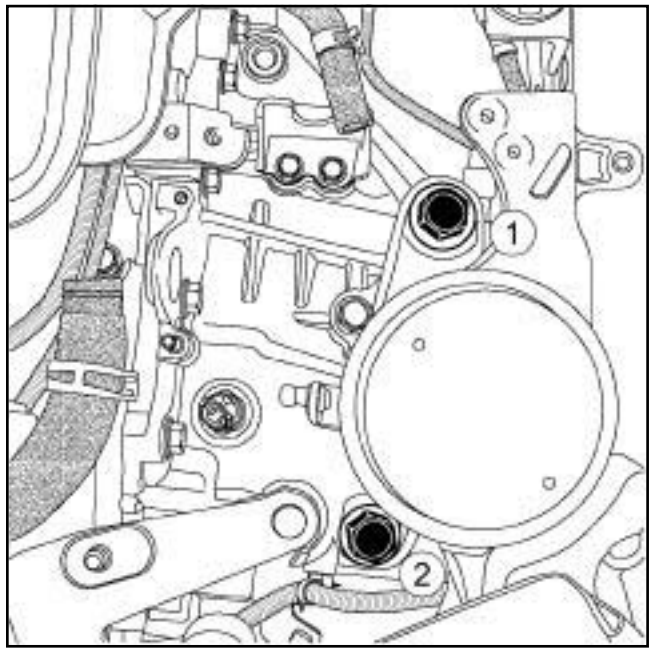
Note:

Use a torque wrench and an open-end wrench adapter to torque tighten bolts (**1**) and (**4**) .

❑ Refit the left-hand suspended engine mounting bolts on the body side.

❑ Torque tighten in order the **left-hand suspended engine mounting bolts on the body side (80 N.m)**.

6 SPEED MANUAL GBOX




129828

❑ Refit the left-hand suspended engine bolts on the manual gearbox.

❑ Torque tighten in order the **left-hand suspended engine mounting bolts on the manual gearbox (110 N.m)**.



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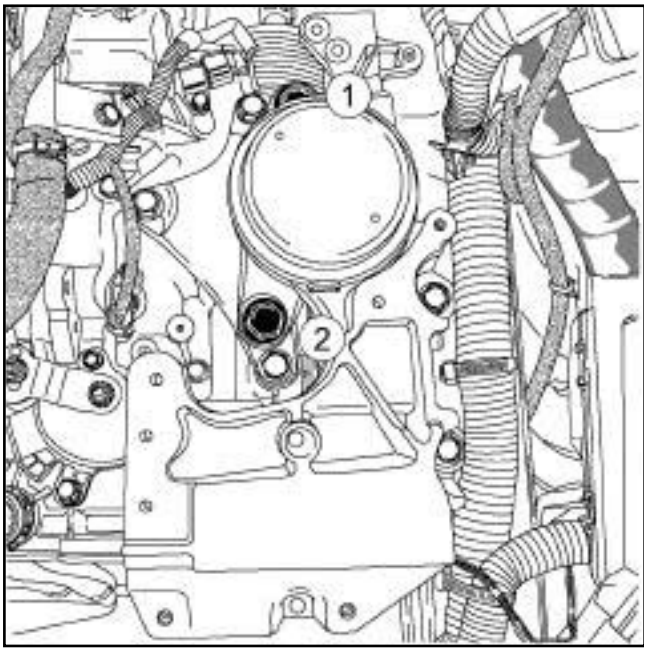
M9R

6 SPEED AUTO GBOX



129829

❏ Refit the left-hand suspended engine bolts on the automatic gearbox.

❏ Torque tighten in order the **left-hand suspended engine mounting bolts on the automatic gearbox110 (N.m)**.

**II - FINAL OPERATION**

❏ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.

❏ Remove **(Mot. 1453)** and the **(Mot. 1453-01)** and the **safety strap(s)**.

❏ Refit the left-hand and the right-hand bonnet seals.

6 SPEED MANUAL GBOX

❏ Disconnect the reverse gear switch connector.

❏ Clip on the wiring at ***(8)*** .

❏ Refit:

- the air filter box mounting,
- the air filter box support bolts.

❏ Torque tighten the **air filter unit bracket bolts (10 N.m)**.

6 SPEED MANUAL GBOX

❏ Position the automatic transmission computer mounting.

6 SPEED AUTO GBOX

❏ Position the « automatic transmission computer-mounting » assembly.

❏ Refit:

- the earth cable,
- the automatic transmission computer mounting bolts.

❏ Torque tighten the **automatic transmission computer mounting bolts (27 N.m)**.

❏ Clip:

- the wiring at ***(4)*** ,
- the wiring at ***(3)*** .

❏ Refit the wiring bracket bolts.

❏ Torque tighten the **wiring bracket bolts (10 N.m)**.

6 SPEED AUTO GBOX

❏ Connect the automatic transmission computer connector.

❏ Refit:

- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery tray),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve from the air filter unit,
- the air inlet sleeve clips.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2TR, and FK0 or FK8

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |

| Tightening torques ▽ | |
|---|---|
| lifting eye bolts | **28 N.m** |
| left-hand suspended mounting bolts (1-7) on the body80 | **N.m** |
| left-hand suspended engine mounting nut (8) | **14 N.m** |
| left-hand suspended engine mounting bolt (9) on the gearbox | **50 N.m** |
| left-hand suspended engine mounting bolt (10) on the gearbox | **50 N.m** |
| left-hand suspended engine mounting bolt (11) on the gearbox | **50 N.m** |
| left-hand suspended engine mounting bolt (12) on the gearbox | **50 N.m** |
| engine wiring bracket bolt | **10 N.m** |
| engine wiring bracket | **nuts10 N.m** |
| bracket bolts | **28 N.m** |
| wiring harness bracket bolts | **28 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

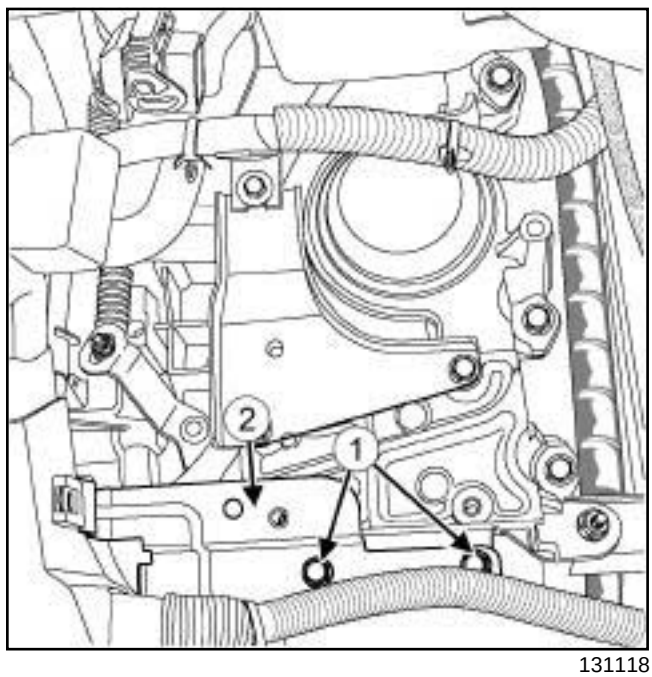
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery: Removal - Refitting**) (80A, Battery).



131118

❑ Remove the bolts (**1**) from the wiring bracket.

❑ Move aside the wiring and bracket (**2**) .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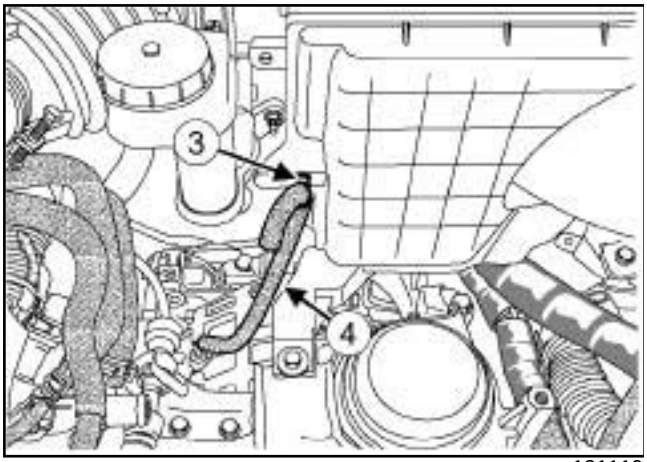
2TR, and FK0 or FK8

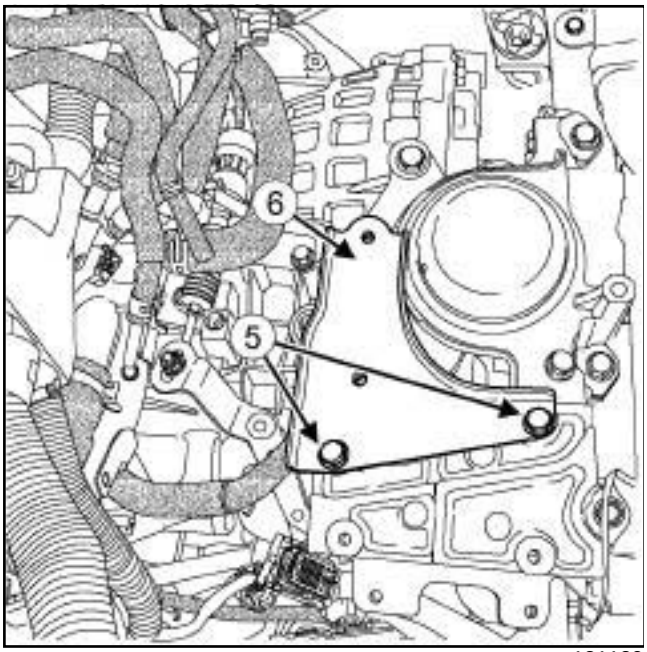



131119

❏ Unclip the breather hose clip (**3**) .

❏ Remove:

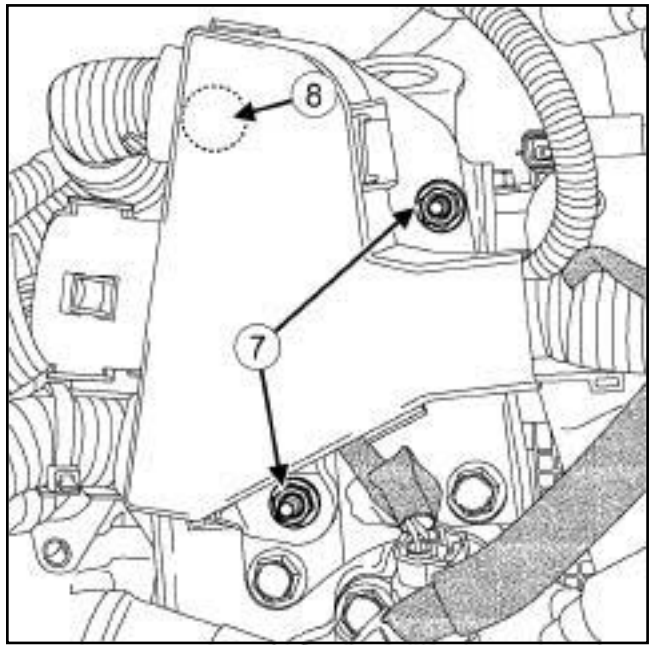
- the breather hose ***(4)*** ,
- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .




131120

❏ Remove:

- the bolts (**5**) from the bracket,
- the bracket (**6**) .

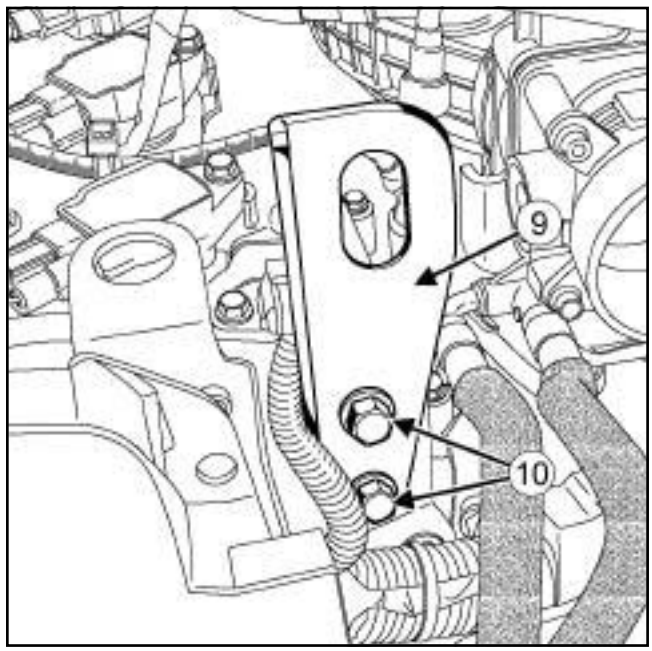



131128

❏ Remove:

- the engine wiring bracket nuts (**7**) ,
- the engine wiring bracket bolt (**8**) .

❏ Move the engine wiring to one side.




131122

❏ Refit:

- the lifting eye (**9**) ,
- the lifting eye bolts (**10**) .

❏ Torque tighten the **lifting eye bolts (28 N.m)**.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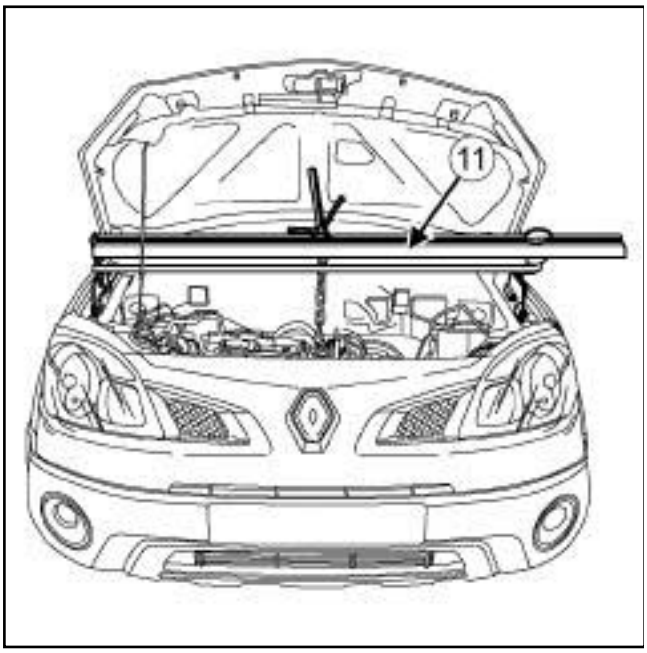
2TR, and FK0 or FK8

❑ Remove the scuttle half-grilles (see **Scuttle half-grille: Removal - Refitting**) (56, Exterior equipment).



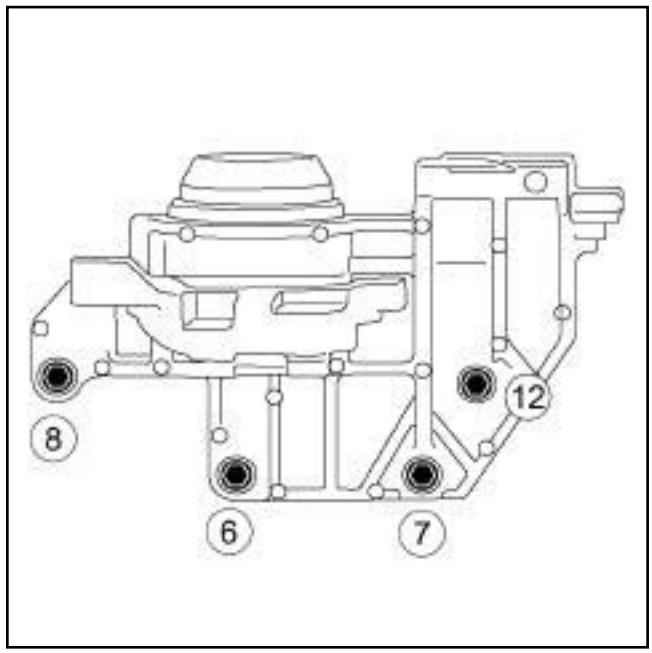

131123

❑ Position the **(Mot. 1453)** (**11**) .

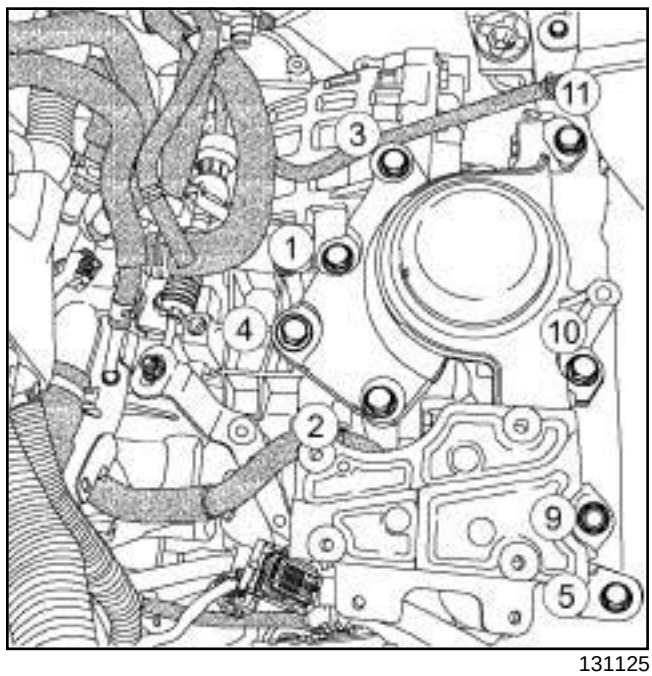
❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131124




131125

❑ Remove in the following order:

- the left-hand suspended engine mounting bolt (**1**) from the gearbox,
- the left-hand suspended engine mounting bolt (**2**) from the gearbox,
- the left-hand suspended engine mounting bolt (**3**) from the gearbox,
- the left-hand suspended engine mounting bolt (**4**) from the gearbox,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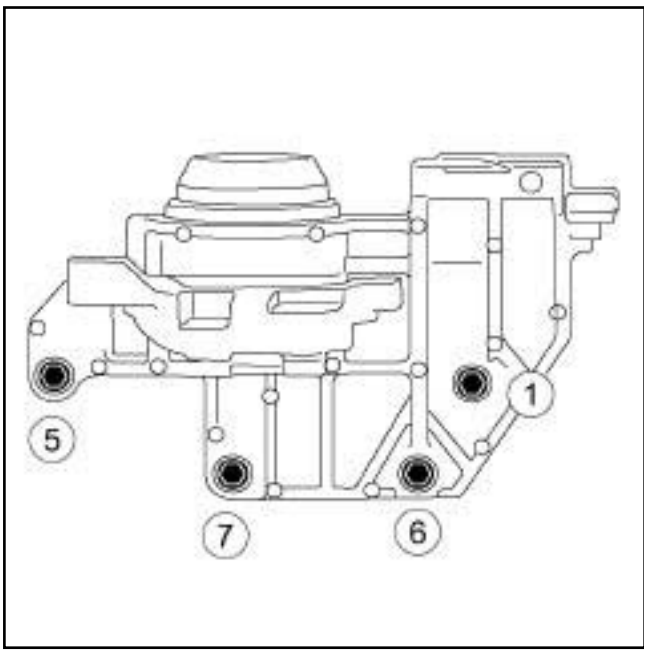
2TR, and FK0 or FK8

- the left-hand suspended engine mounting nut (**5**) ,
- bolts **(6-12)** from the left-hand suspended engine mounting on the body.

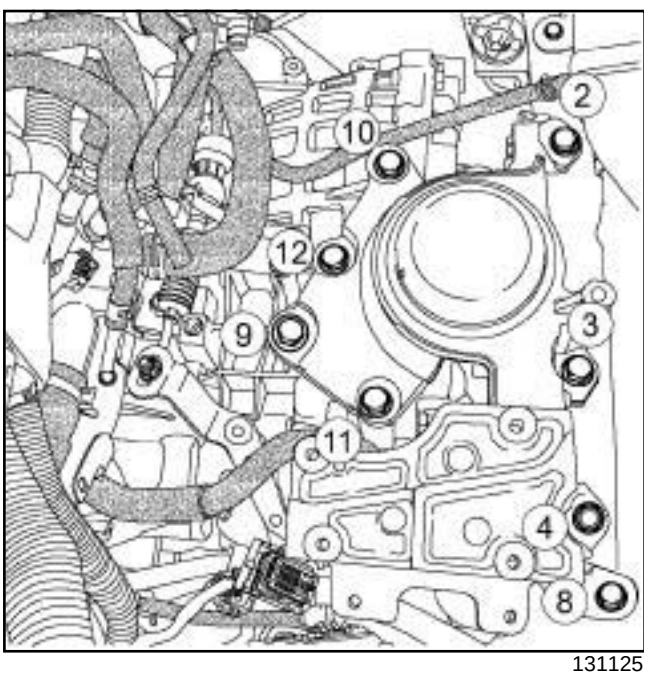
❏ Remove the left-hand suspended engine mounting .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131124




131125

❏ Refit the left-hand suspended engine mounting on the body.

❏ Refit the bolts of the left-hand suspended engine mounting on the body and on the gearbox.

❏ Torque tighten in turn:

- the **left-hand suspended mounting bolts (1-7) on the body80 (N.m)**,
- the **left-hand suspended engine mounting nut (8) (14 N.m)**,
- the **left-hand suspended engine mounting bolt (9) on the gearbox (50 N.m)**,
- the **left-hand suspended engine mounting bolt (10) on the gearbox (50 N.m)**,
- the **left-hand suspended engine mounting bolt (11) on the gearbox (50 N.m)**,
- the **left-hand suspended engine mounting bolt (12) on the gearbox (50 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Remove:

- tool **(Mot. 1453)**
- the lifting eye bolts,
- the lifting eye.

❏ Refit:

- the engine wiring bracket bolt,
- the engine wiring bracket nuts,
- the scuttle half-grilles (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the bracket ***(6)*** ,
- the bracket bolts ***(6)*** .

❏ Torque tighten:

- the **engine wiring bracket bolt (10 N.m)**,
- The **engine wiring bracket (nuts10 N.m)**,
- the **bracket bolts (28 N.m)**.

❏ Refit:

- the air filter box (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,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2TR, and FK0 or FK8

- the breather hose.

❏ Clip on the breather hose clip.

❏ Refit:

- the wiring harness bracket,
- the wiring harness bracket bolts.

❏ Torque tighten the **wiring harness bracket bolts (28 N.m)**.

❏ Refit:

- the battery tray (see **Battery: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover.


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2TR, and ND5 or ND8

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |

| Essential equipment |
|---|
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| lifting eye bolts | **28 N.m** |
| left-hand suspended engine mounting support bolts on the gearbox | **45 N.m** |
| left-hand suspended engine mounting bolt (1) on the body | **80 N.m** |
| left-hand suspended engine mounting bolts (2), (3) and (4) on the body | **80 N.m** |
| left-hand suspended engine mounting bolts (5), (6) and (7) on the body | **80 N.m** |
| left-hand suspended engine mounting bolt (1) on the body | **80 N.m** |
| left-hand suspended engine mounting bolt (8) on the body | **14 N.m** |
| bolts and the nuts (12) of the left-hand suspended engine mounting | **105 N.m** |
| rubber pad nut on the gearbox | **65 N.m** |
| engine wiring bracket bolt | **10 N.m** |
| engine wiring bracket | **nuts10 N.m** |
| bracket bolts | **28 N.m** |
| wiring harness bracket bolts | **28 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine cover,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery: Removal - Refitting**) (80A, Battery).


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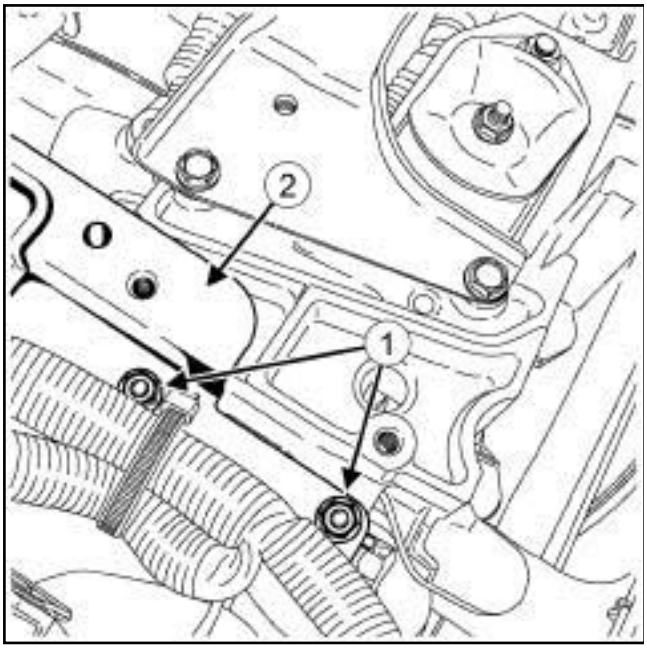
2TR, and ND5 or ND8

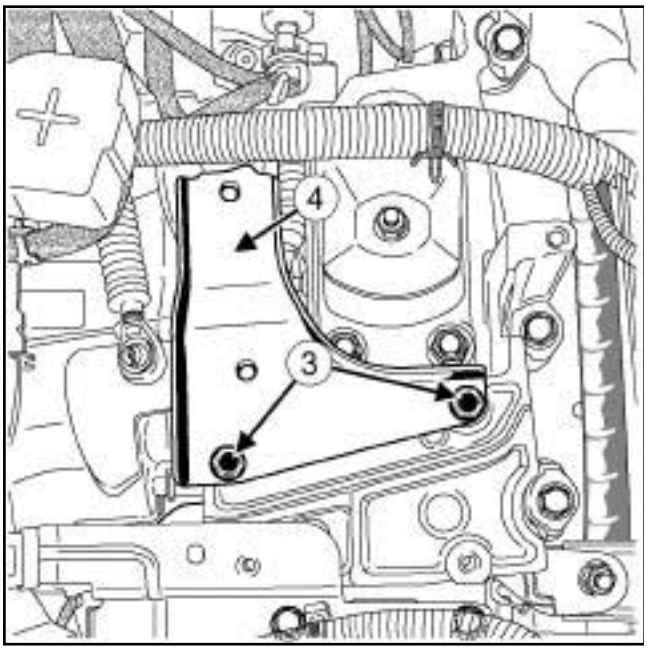



131126

❏ Remove the bolts (**1**) from the wiring bracket.

❏ Move aside the wiring and bracket (**2**) .

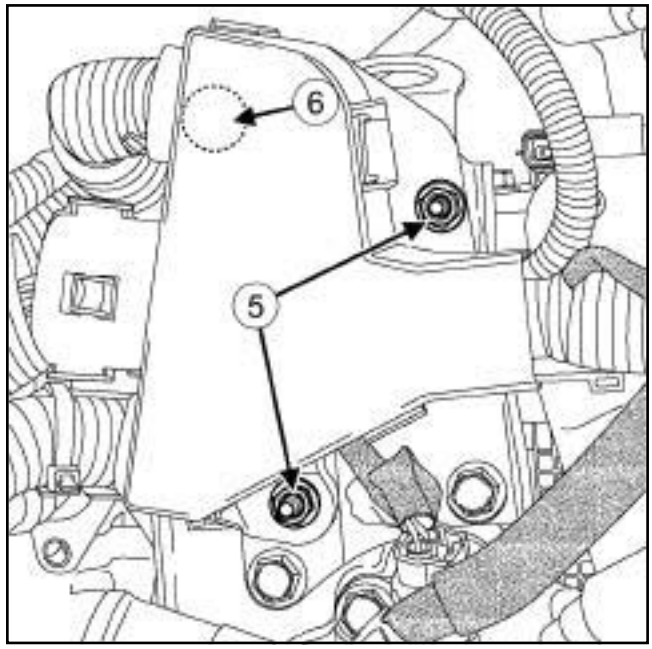
❏ Remove the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) .




131127

❏ Remove:

- the bolts (**3**) from the bracket,
- the bracket (**4**) .

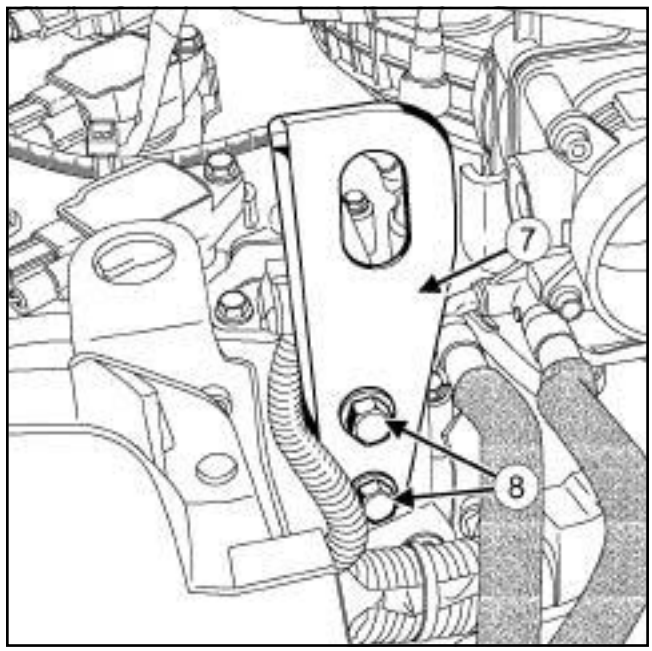



131128

❏ Remove:

- the engine wiring bracket nuts (**5**) ,
- the engine wiring bracket bolt (**6**) .

❏ Move the engine wiring bracket to one side.




131122

❏ Refit:

- the lifting eye (**7**) ,
- the lifting eye bolts (**8**) .

❏ Torque tighten the **lifting eye bolts (28 N.m)**.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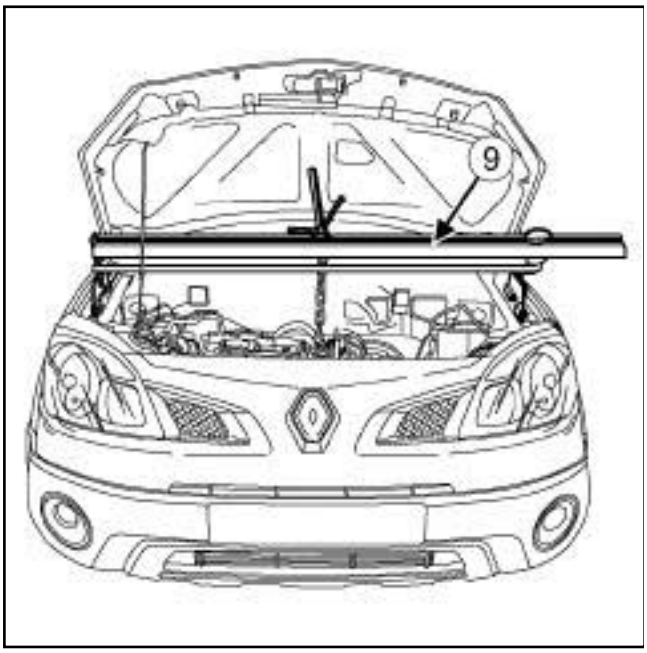
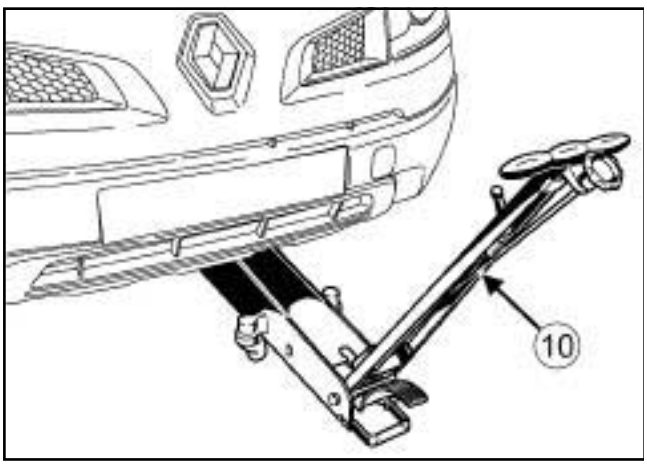
2TR, and ND5 or ND8

❑ Remove the scuttle half-grilles (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment).




131123

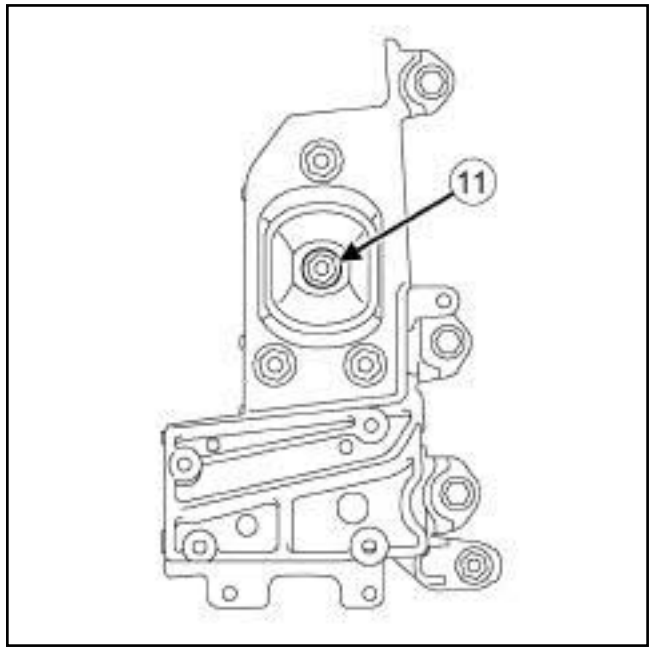
❑ Position the **(Mot. 1453)** (**9**) .




131129

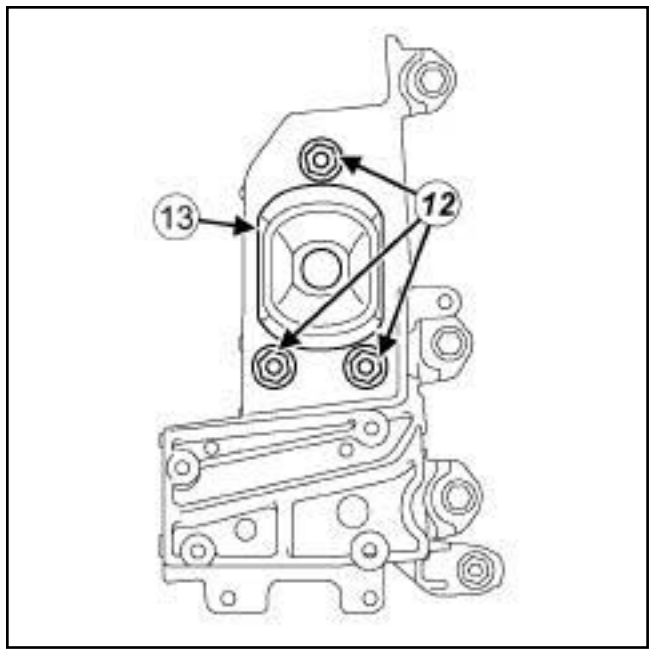
❑ Position the **trolley jack** (**10**) under the gearbox

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




132487

❑ Remove rubber pad nut (**11**) on the gearbox.




131131

❑ Remove:

- the nuts (**12**) and bolts from the left-hand suspended engine mounting,
- the rubber pad (**13**) from the left-hand suspended engine mounting.

❑ Separate the gearbox from the left-hand suspended engine mounting.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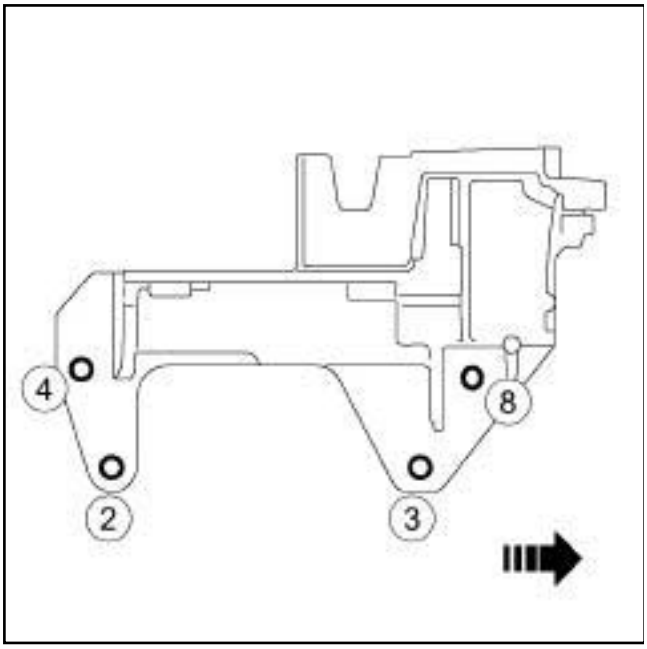
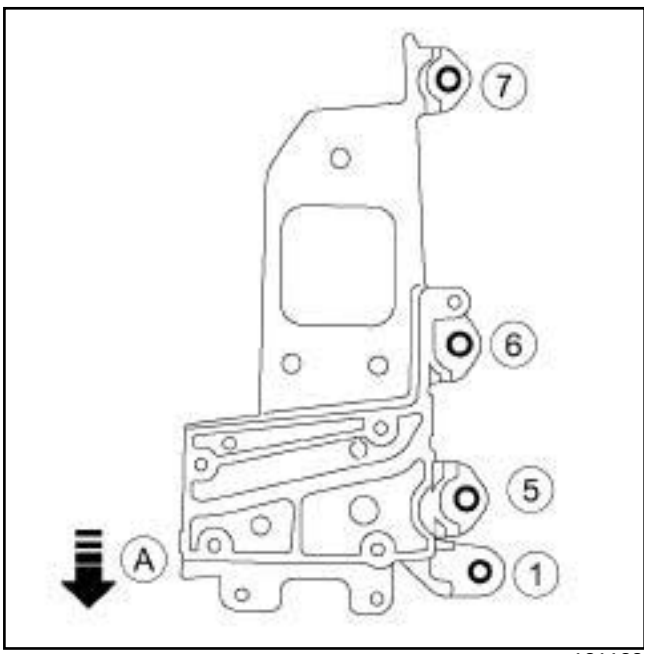
2TR, and ND5 or ND8




131132



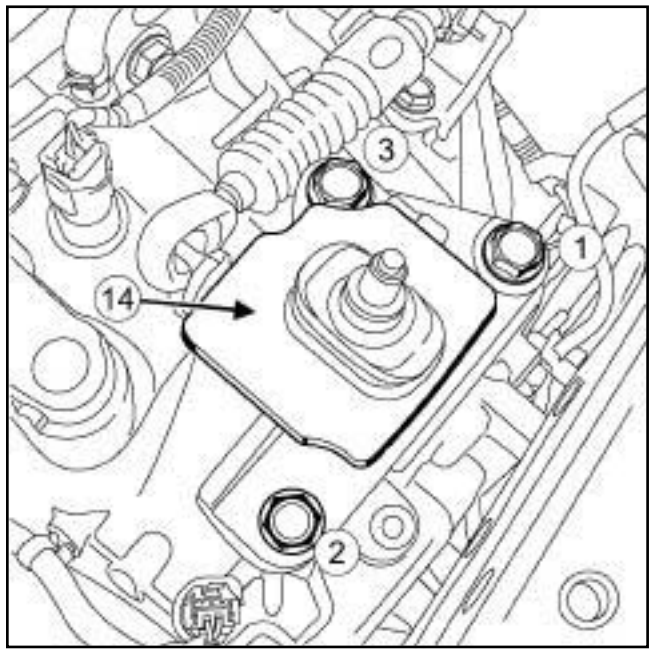

131133

(**A**) Front of the vehicle

❏ Remove in the following order:

- the left-hand suspended engine mounting bolt (**1**) on the body,
- the left-hand suspended engine mounting bolt (**8**) on the body,
- the left-hand suspended engine mounting bolts (**2**) , (**3**) and (**4**) on the body,
- the left-hand suspended engine mounting bolts (**5**) , (**6**) and (**7**) on the body.

❏ Remove the left-hand suspended engine mounting on the body.




131134

❏ Remove:

- in order the left-hand suspended engine mounting support bolts (**14**) on the gearbox,
- the left-hand suspended engine mounting support (**14**) on the gearbox.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the left-hand suspended engine mounting support on the gearbox.

❏ Refit the bolts to the left-hand suspended engine mounting bracket on the gearbox.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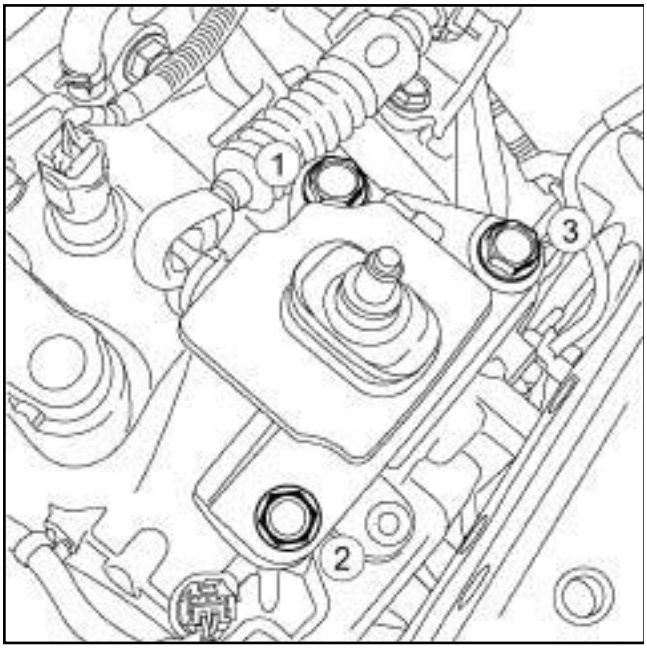
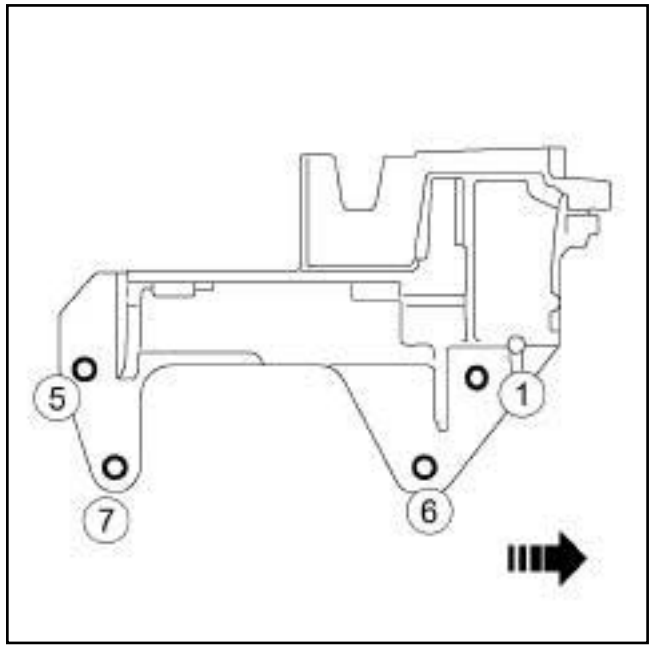
2TR, and ND5 or ND8



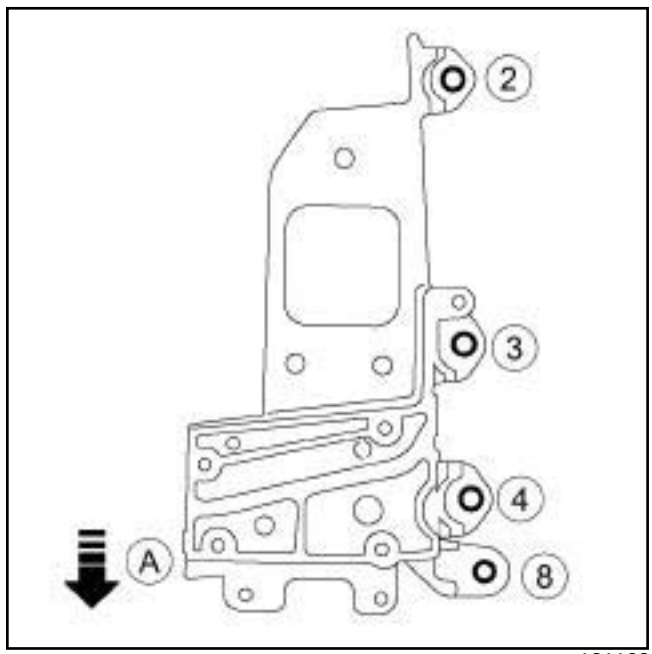

131135

❏ Torque tighten in order the **left-hand suspended engine mounting support bolts on the gearbox (45 N.m)**.

❏ Refit the left-hand suspended engine mounting on the body.




131132




131133

(**A**) Front of the vehicle

❏ Refit the left-hand suspended engine mounting bolts on the body.

❏ Torque tighten in turn:

- the **left-hand suspended engine mounting bolt (1) on the body (80 N.m)**,
- the **left-hand suspended engine mounting bolts (2), (3) and (4) on the body (80 N.m)**,
- the **left-hand suspended engine mounting bolts (5), (6) and (7) on the body (80 N.m)**,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2TR, and ND5 or ND8

- the **left-hand suspended engine mounting bolt (1) on the body (80 N.m)**,
- the **left-hand suspended engine mounting bolt (8) on the body (14 N.m)**.

❏ Place the gearbox on the left-hand suspended engine mounting using the tool **(Mot. 1453)** or using the **trolley jack**.

❏ Refit:

- the rubber pad on the left-hand suspended engine mounting,
- the rubber pad nut ***(11)*** on the gearbox,
- the bolts and the nuts ***(12)*** of the left-hand suspended engine mounting.

❏ Torque tighten:

- the **bolts and the nuts (12) of the left-hand suspended engine mounting (105 N.m)**,
- the **rubber pad nut on the gearbox (65 N.m)**.

**II - FINAL OPERATION.**

❏ Remove the **trolley jack**.

❏ Remove:

- tool **(Mot. 1453)**
- the lifting eye bolts,
- the lifting eye.

❏ Refit:

- the scuttle half-grilles (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the engine wiring bracket bolt,
- the engine wiring bracket nuts.

❏ Torque tighten:

- the **engine wiring bracket bolt (10 N.m)**,
- The **engine wiring bracket (nuts10 N.m)**.

❏ Refit:

- the bracket ***(4)***
- the bracket bolts.

❏ Torque tighten the **bracket bolts (28 N.m)**.

❏ Refit:

- the air filter unit (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**)
- the wiring harness bracket
- the wiring harness bracket bolts

❏ Torque tighten the **wiring harness bracket bolts (28 N.m)**.

❏ Refit:

- the battery tray (see **Battery: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **12A**, **Fuel mixture**, **Air filter unit: Removal - Refitting**, page **12A-8**) ,
- the air resonator located on the rocker cover (see **12A**, **Fuel mixture**, **Air resonator: Removal - Refitting**, page **12A-3**) ,
- the engine cover.


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M9R

| Essential special tooling | |
|---|---|
| **Mot. 1390** | Support for removing/refitting the engine - gearbox assembly. |

| Tightening torques ▽ | |
|---|---|
| right-hand suspended engine mounting bolts on the engine | **55 N.m** |
| right-hand suspended engine mounting bolts on the body | **55 N.m** |
| upper engine tie-bar bolt on the engine | **120 N.m** |
| upper engine tie-bar bolt on the body | **120 N.m** |
| fuel pipe support bolt | **12 N.m** |
| support bolt of the manual priming pump | **12 N.m** |

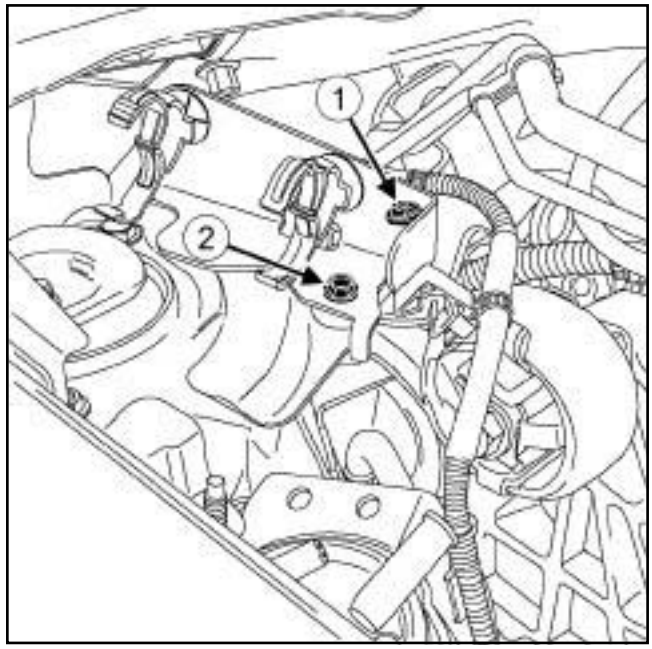
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the engine cover,
- the fuel filter (see **13A**, **Fuel supply**, **Fuel filter: Removal - Refitting**, page **13A-3**) ,
- the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .

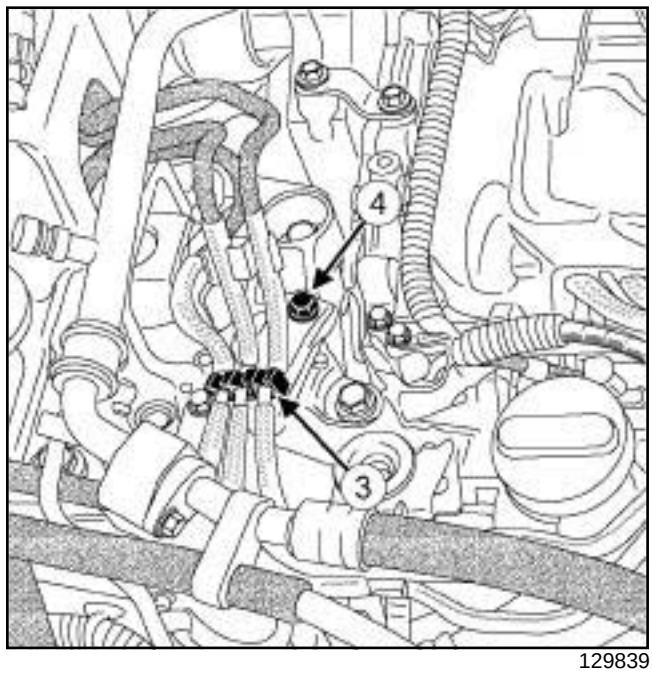


129838

❏ Unclip the wiring of the manual priming pump support at (**1**) .

❏ Remove:

- the support bolt (**2**) of the manual priming pump,
- the manual priming pump support.



129839

❏ Unclip the fuel pipes from the fuel pipe support at (**3**) .

❏ Move aside the fuel pipes.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M9R

❑ Remove:

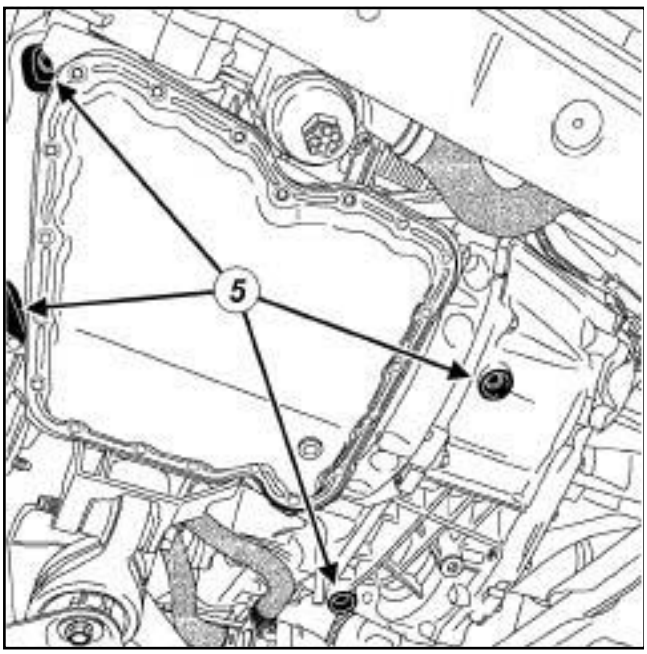
- the fuel pipe support bolt ***(4)*** ,
- the fuel pipe support,
- the engine undertray,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

**WARNING**

It is strictly forbidden to apply any pressure to the engine oil sump. Damage to the sump will irreparably damage the engine by:

- blocking the strainer,
- raising the oil level above maximum, with a risk of engine racing.

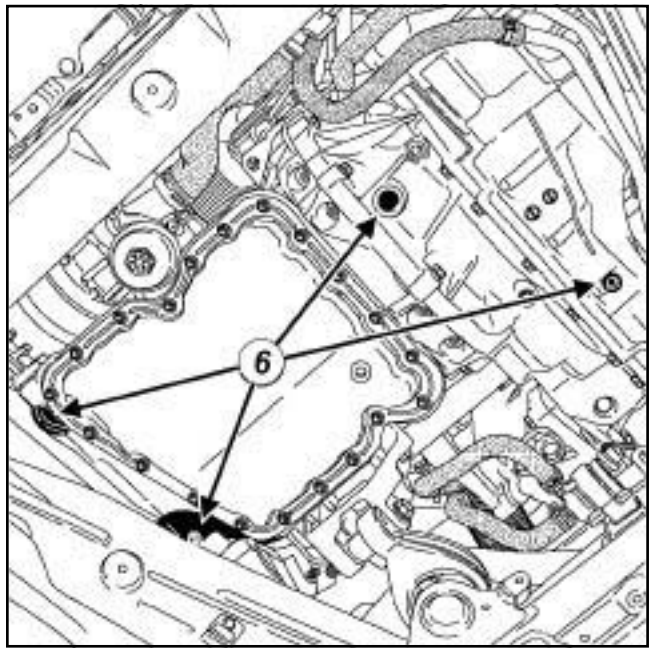
6 SPEED MANUAL GBOX




129840

❑ Support the engine on the tool **(Mot. 1390)** at (**5**) .

6 SPEED AUTO GBOX




129841

❑ Support the engine on the tool **(Mot. 1390)** at (**6**) .

❑ Lower the vehicle slightly to relieve the pressure on the right-hand suspended engine mounting rubber pad.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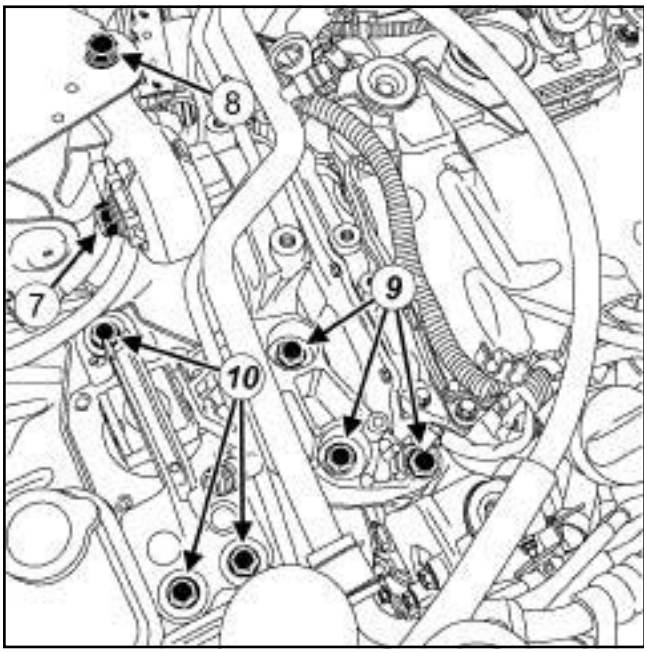
M9R

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129842

❏ Remove:

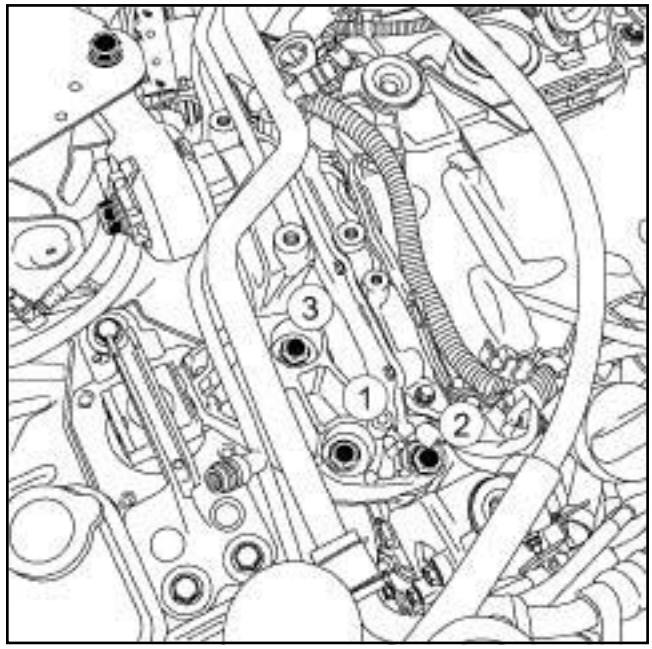
- the bolt (**7**) from the upper engine tie-bar and the rubber mounting bush,
- the bolt (**8**) from the upper engine tie-bar on the body,
- the bolts (**9**) from the right-hand suspended engine mounting on the engine,
- the right-hand suspended engine mounting bolts (**10**) on the body,
- the right-hand suspended engine mounting.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Fit the right-hand suspended engine mounting.

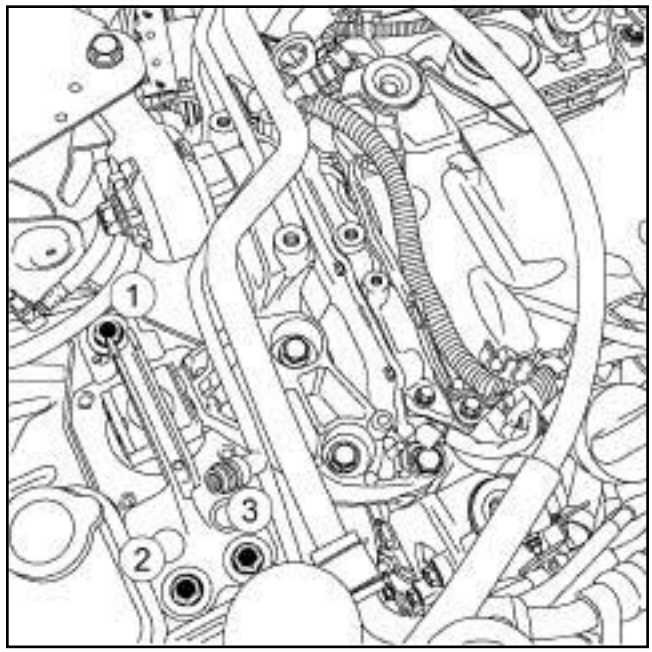
❏ Refit the right-hand suspended engine mounting bolts on the body.




129148

❏ Refit and manually tighten the right-hand suspended engine mounting bolts on the engine (**3**) .

❏ Torque tighten in order the **right-hand suspended engine mounting bolts on the engine (55 N.m)**.




129844

❏ Torque tighten in order the **right-hand suspended engine mounting bolts on the body (55 N.m)**.

❏ Refit:

- the upper engine tie-bar,
- the upper engine tie-bar bolt on the body.

❏ Manually tighten the upper engine tie-bar bolt on the body.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M9R

❏ Remove the tool **(Mot. 1390)**.

❏ Refit:

- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).
- the upper engine tie-bar with the rubber mounting bush,
- the upper engine tie-bar bolt on the engine.

❏ Manually tighten the upper engine tie-bar bolt on the engine.

❏ Torque tighten in order:

- the **upper engine tie-bar bolt on the engine (120 N.m)**,
- the **upper engine tie-bar bolt on the body (120 N.m)**.

**II - FINAL OPERATION**

❏ Refit the engine undertray.

❏ Refit the fuel pipe support.

❏ Refit the fuel pipe support bolt.

❏ Torque tighten the **fuel pipe support bolt (12 N.m)**.

❏ Clip on the fuel pipes on the fuel pipe support.

❏ Refit:

- the manual priming pump support,
- the support bolt of the manual priming pump.

❏ Torque tighten the **support bolt of the manual priming pump (12 N.m)**.

❏ Clip the wiring on the manual priming pump support.

❏ Refit:

- the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) ,
- the fuel filter (see **13A**, **Fuel supply**, **Fuel filter: Removal - Refitting**, page **13A-3**) ,
- the engine cover.

❏ Prime the diesel circuit using the manual priming pump (see **13A**, **Fuel supply**, **Manual priming pump: Removal - Refitting**, page **13A-1**) .


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2TR

| Tightening torques ▽ | |
|---|---|
| expansion bottle nut4 | **N.m** |
| right-hand suspended engine mounting bolts | **55 N.m** |
| upper engine tie-bar bolts | **120 N.m** |

**IMPORTANT**

To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

**IMPORTANT**

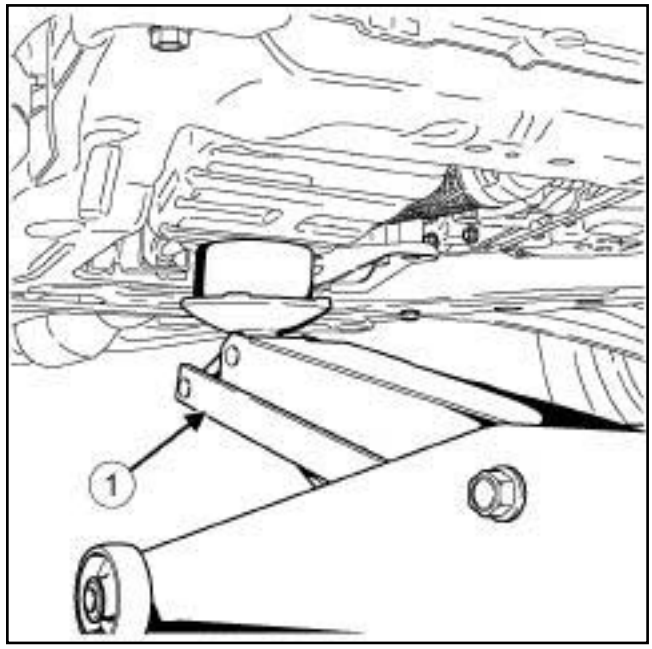
Wear protective gloves during the operation.

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the engine cover.




129165

❑

Note:

To ensure complete stability, place a piece of wood or equivalent on the bearing surface.

Note:

To ensure complete stability, place an object behind the trolley jack or an equivalent piece of equipment to provide support.

❑ Place the **trolley jack** ***(1)*** or an equivalent engine supporting tool under the cylinder block.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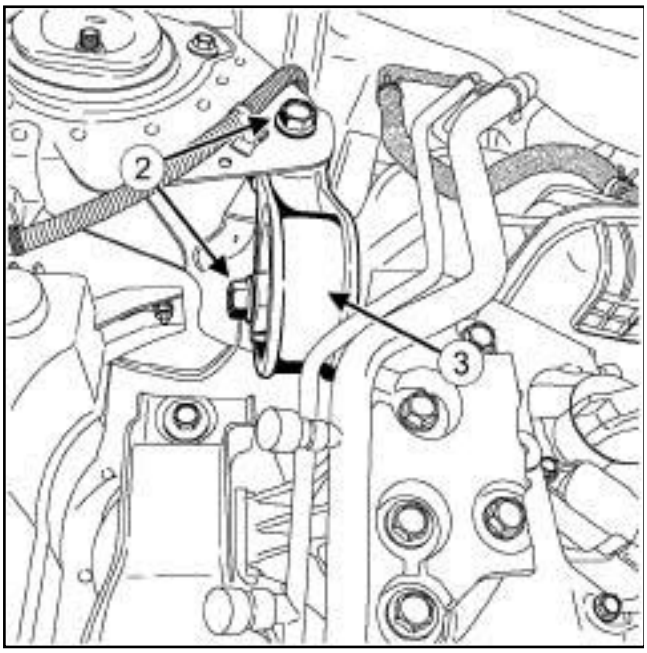
2TR

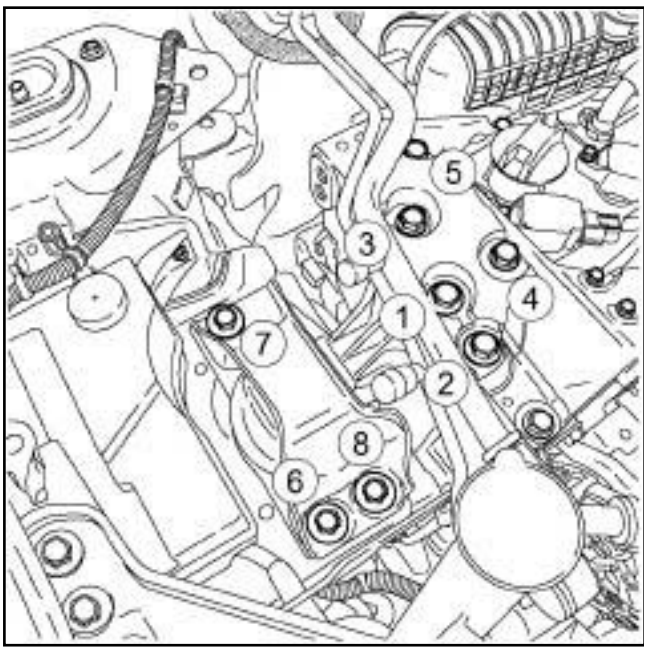
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129834

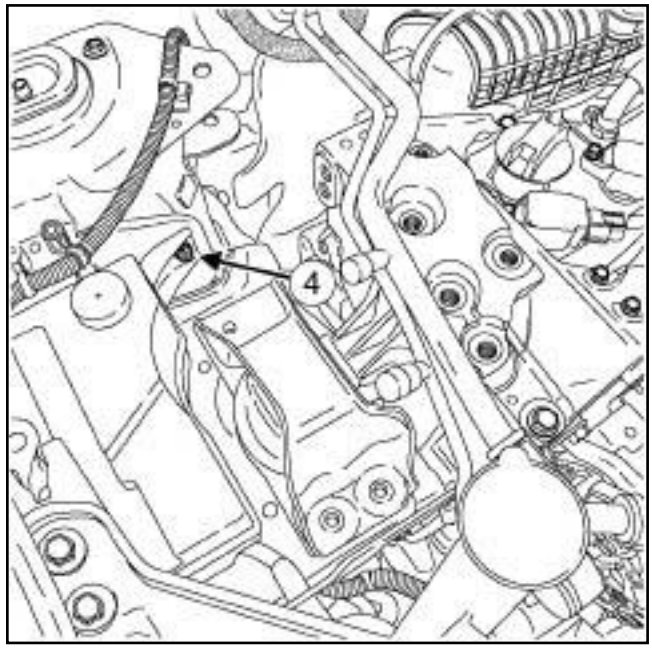
❑ Remove:

- the upper engine tie-bar bolts (**2**) ,
- the upper engine tie-bar (**3**) .




129835

❑ Remove in order the right-hand suspended engine mounting bolts.




129836

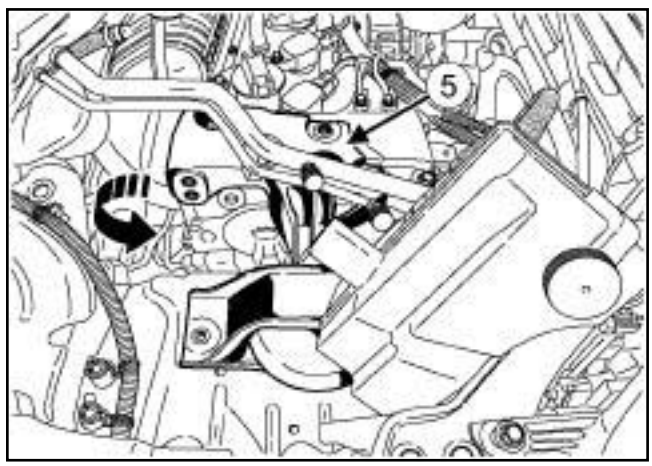
❑ Remove the nut (**4**) from the expansion bottle.

Note:

Do not disconnect the lower coolant pipe from the expansion bottle.

Note:

Temporarily secure the expansion bottle to the side of the engine.




129837

❑ Rotate a quarter-turn anticlockwise the right-hand suspended engine mounting (**5**) as shown on the diagram.

❑ Remove the right-hand suspended engine mounting.



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2TR

## REFITTING

### I - REFITTING PREPARATION OPERATION

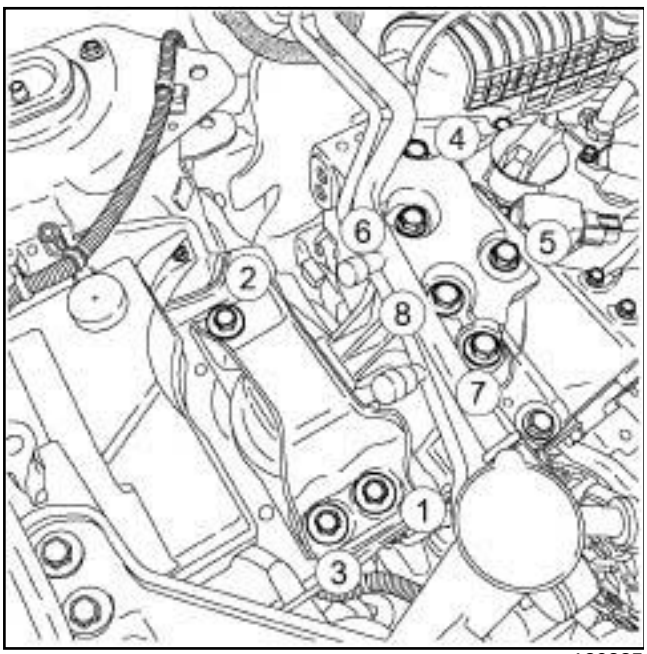
❏ Always replace the upper engine tie-bar bolt washer.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the right-hand suspended engine mounting,
- the expansion bottle nut,
- the right-hand suspended engine mounting bolts.

❏ Torque tighten the **expansion bottle nut4 (N.m)**.




129835

❏ Torque tighten in order the **right-hand suspended engine mounting bolts (55 N.m)**.

❏ Refit:

- the upper engine tie-bar,
- the upper engine tie-bar bolts.

❏ Torque tighten the **upper engine tie-bar bolts (120 N.m)**.

### III - FINAL OPERATION

❏ Remove the **trolley jack** or equivalent engine supporting tool from underneath the cylinder block.

❏ Refit the engine cover.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M9R

| Tightening torques ▽ | |
|---|---|
| lower engine tie-bar bolt on the front axle sub-frame | **110 N.m** |
| lower engine tie-bar bolt on the lower engine tie-bar support | **155 N.m** |

## REMOVAL

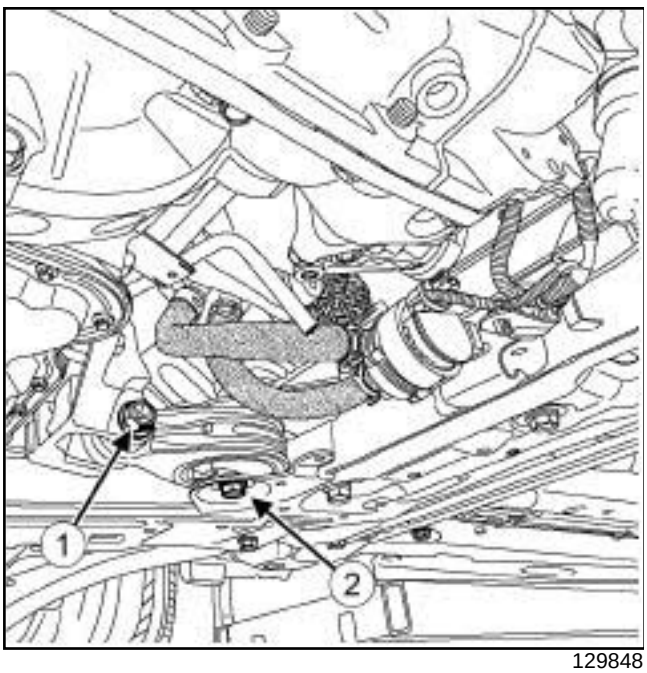
### I - REMOVAL PREPARATION OPERATION

❑

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129848

❑ Remove:

- the lower engine tie-bar bolt (**1**) from the lower engine tie-bar support,
- the bolt (**2**) of the lower engine tie-bar from the front axle subframe,
- the lower engine tie-bar.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the lower engine tie-bar,
- the lower engine tie-bar bolt on the front axle sub-frame,
- the lower engine tie-bar bolt on the lower engine tie-bar support.

❑ Torque tighten in order:

- the **lower engine tie-bar bolt on the front axle sub-frame (110 N.m)**,
- the **lower engine tie-bar bolt on the lower engine tie-bar support (155 N.m)**.

### II - FINAL OPERATION

❑ Refit the engine undertray.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2TR

| Tightening torques ▽ | |
|---|---|
| engine tie-bar bolt on the subframe | **110 N.m** |
| engine tie-bar bolts on the gearbox | **110 N.m** |
| engine tie-bar bolt on its support | **110 N.m** |

**IMPORTANT**
Wear protective gloves during the operation.

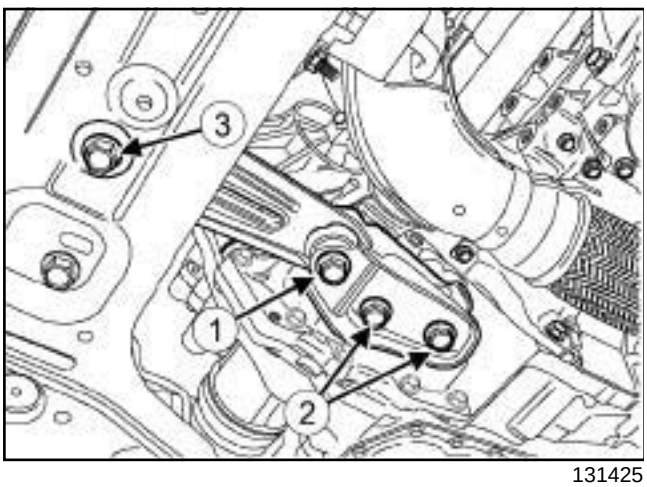
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131425

❑ Remove:

- the engine tie-bar bolt (**1**) on its support.
- the bolts (**2**) from the engine tie-bar on the gearbox,
- the rear support of the engine,
- the engine tie-bar bolt (**3**) from the subframe,
- the engine tie-bar .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the engine tie-bar,
- the engine tie-bar bolt from the subframe,
- the rear support of the engine,
- the engine tie-bar bolts on the gearbox,
- the engine tie-bar bolt from its mounting,

❑ Torque tighten:

- the **engine tie-bar bolt on the subframe (110 N.m)**,
- the **engine tie-bar bolts on the gearbox (110 N.m)**,
- the **engine tie-bar bolt on its support (110 N.m)**.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RENAULT

# 2 Transmission


20A CLUTCH

21A MANUAL GEARBOX

23A AUTOMATIC GEARBOX

26A REAR AXLE

29A DRIVESHAFTS



*X45*

**JANUARY 2009** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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| Essential special tooling | |
|---|---|
| **Emb. 1780** | Set of clutch disc centring mandrels. |

**Before removing the clutch, check:**

- The direction of fitting for the clutch plate.

**Before refitting the clutch, check:**

- The flywheel friction track (no scratches or blue stains),
- The crankshaft bearing (no sticking),
- The engine and gearbox seals (replace if necessary),
- The sliding action of the clutch plate on the output shaft,
- The thrust bearing guide and the clutch fork (no wear or scratches).

**WARNING**
To prevent the clutch from juddering or slipping, do not grease the output shaft or the clutch plate hub.

**During refitting check the following:**

Check the direction of the clutch plate.

Centre the clutch plate using the tool **(Emb. 1780)**

Gradually torque tighten the clutch pressure plate bolts.

**After refitting, check:**

- The clutch play (for a cable operated vehicle),
- Bleeding of the hydraulic circuit (for vehicles with hydraulic controls).


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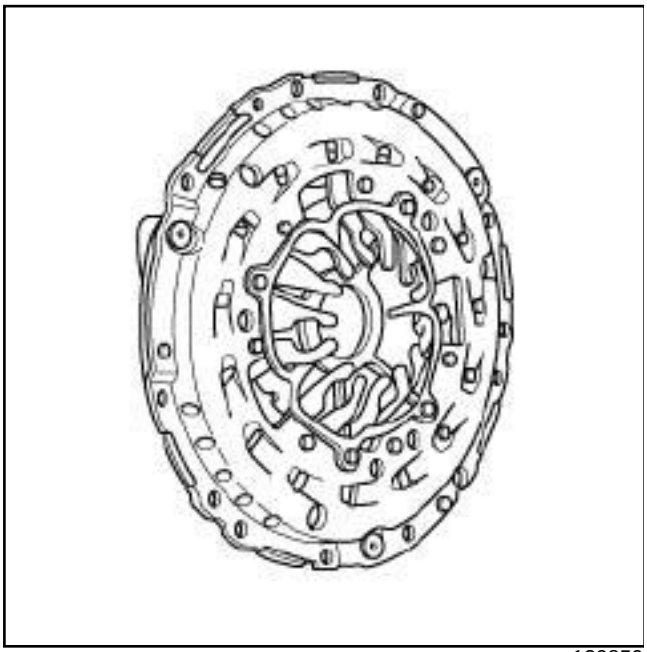
6 SPEED MANUAL GBOX

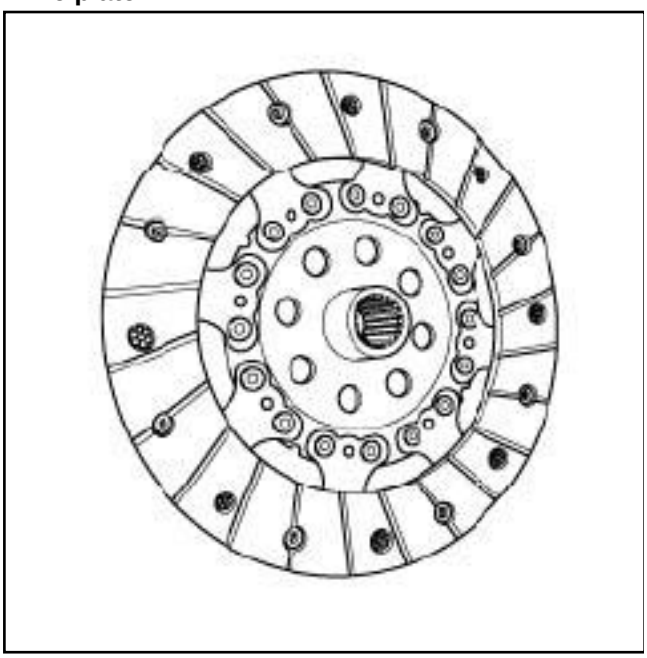
M9R

**Pressure plate**



129850

**Drive plate**



129851

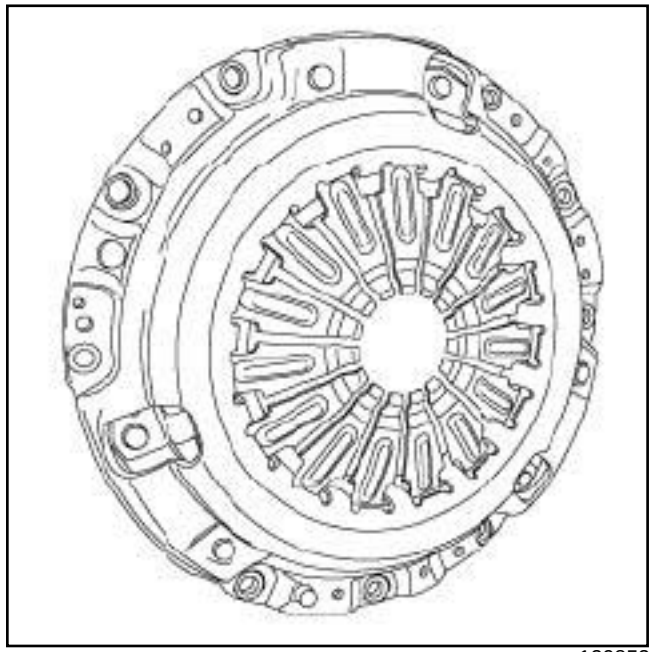
Outer diameter of plate: **250 mm**

Plate thickness: **7.8 mm**

Number of splines: **21**

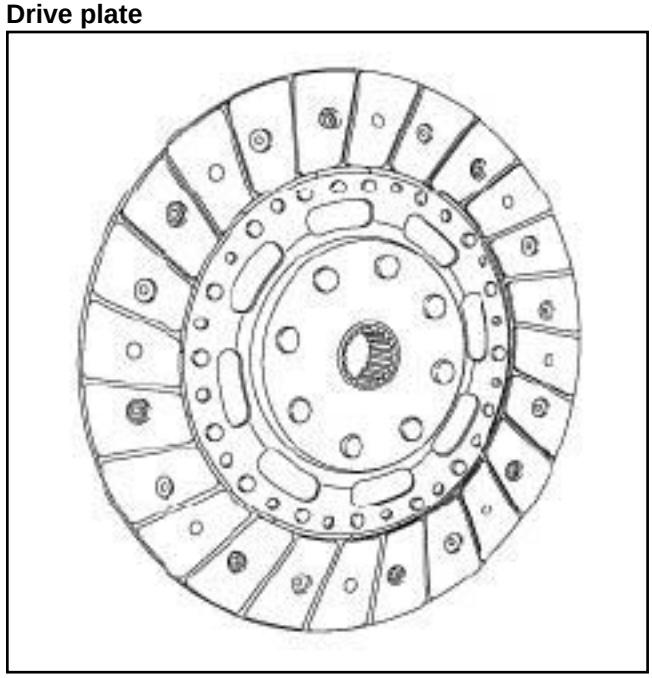
2TR

**Pressure plate**



129852

**Drive plate**



129853

Outer diameter of plate: **240 mm**

Plate thickness: **6.7 mm**

Number of splines: **21**



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M9R, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Emb. 1604** | Clutch compression tool for resetting retrofit system. |
| **Mot. 1431** | Flywheel locking tool. |
| **Emb. 1780** | Set of clutch disc centring mandrels. |

| Tightening torques ▽ | |
|---|---|
| pressure plate bolts | **25 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **20A**, **Clutch**, **Clutch: Precautions for repair**, page **20A-1**) .

Note:
For automatic wear compensation mechanisms, compress the clutch pressure plate using the tool **(Emb. 1604)**.

## REMOVAL

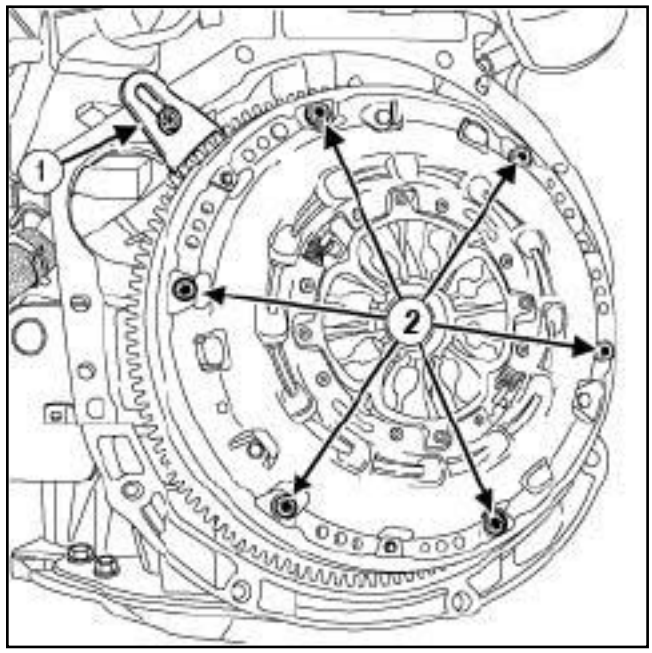
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129854

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- The mechanism bolts ***(2)*** ,
- the clutch plate and pressure plate.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Degrease the flywheel friction face with **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Clean the clutch plate splines.

❏ Apply grease to the splines of the clutch plate hub and to the splines of the input shaft.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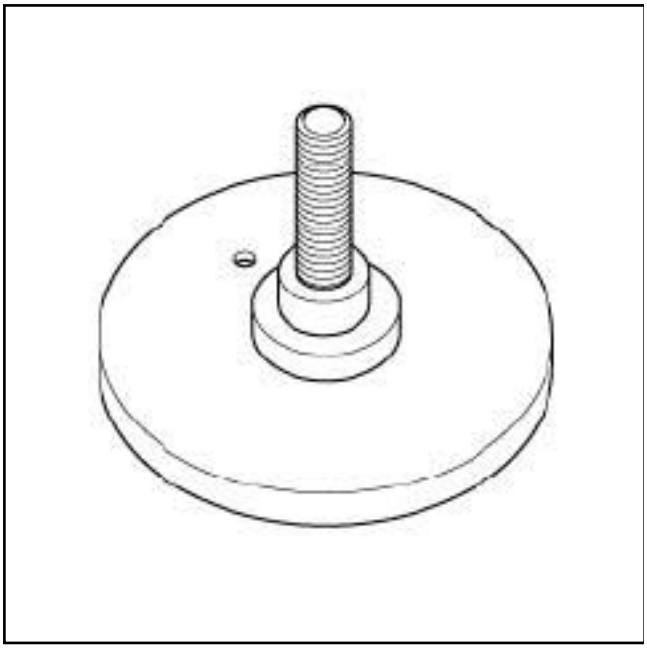
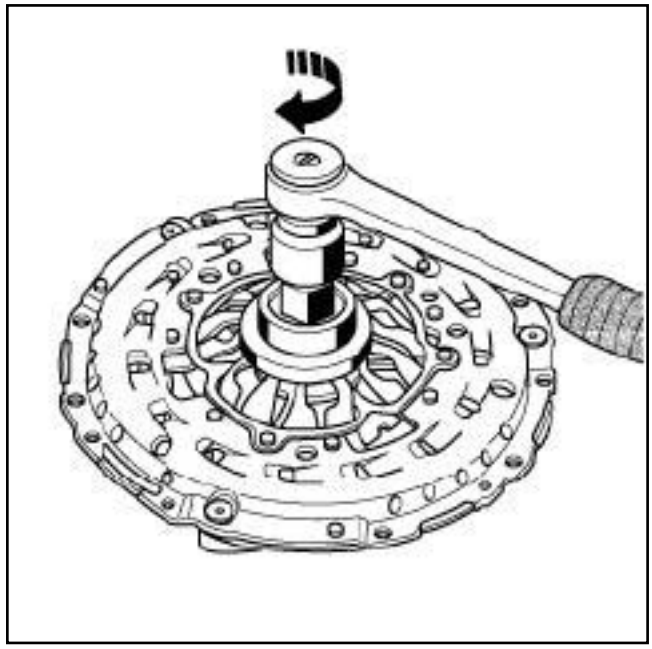


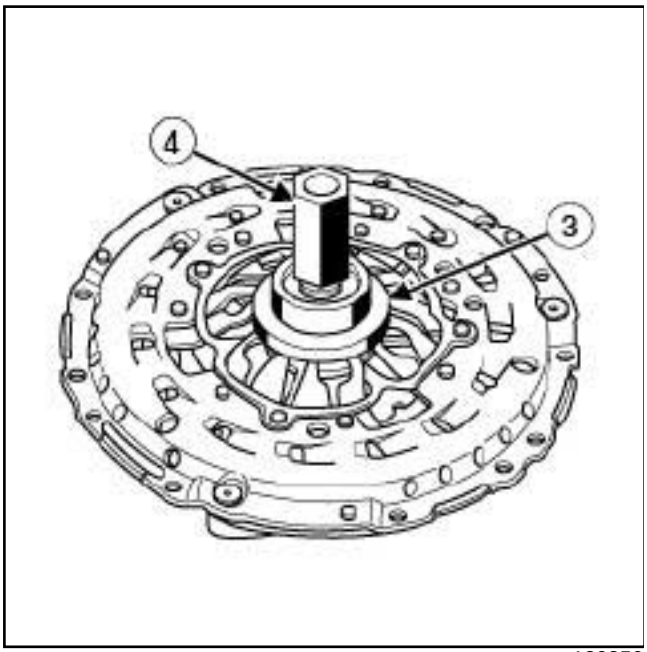
129855

❏ Place the base of tool **(Emb. 1604)** in a vice.



129857

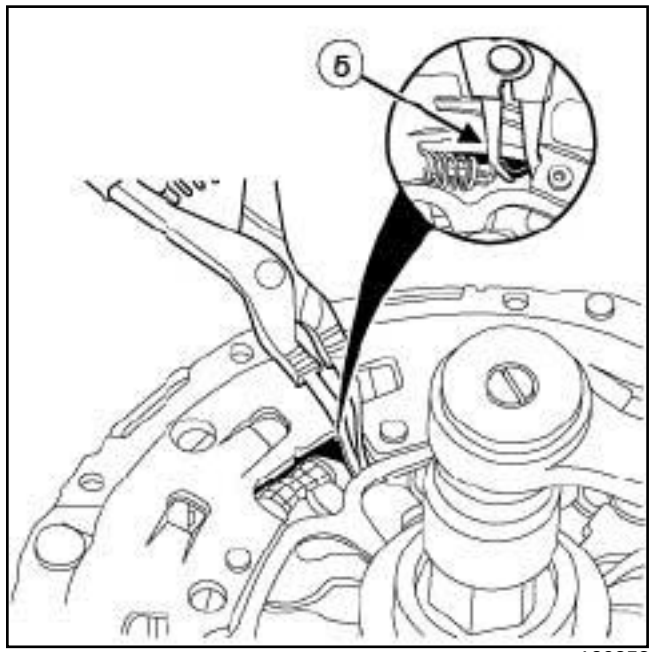
❏ Tighten the nut ***(4)*** until it locks.




129856

❏ Fit:

- the pressure plate on the base plate,
- the clutch thrust bearing (**3**) ,
- the nut (**4**) .




129858

❏ Fit a circlip clamp at (**5**) .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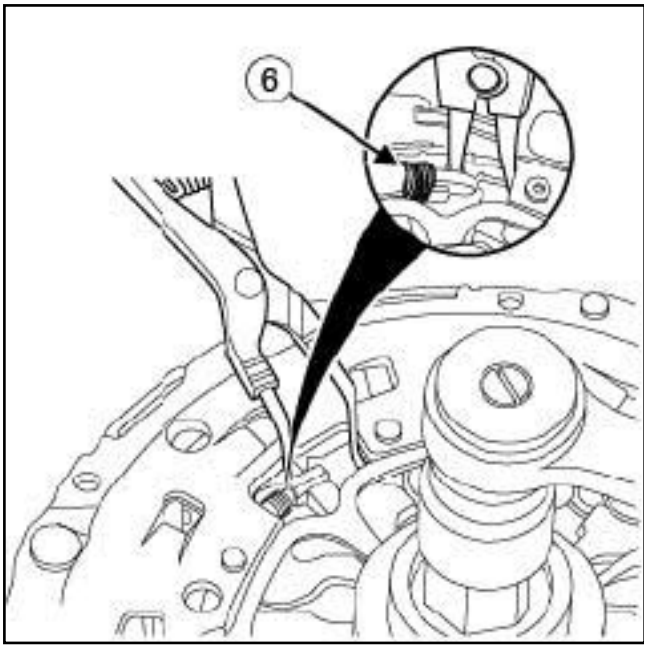


129859

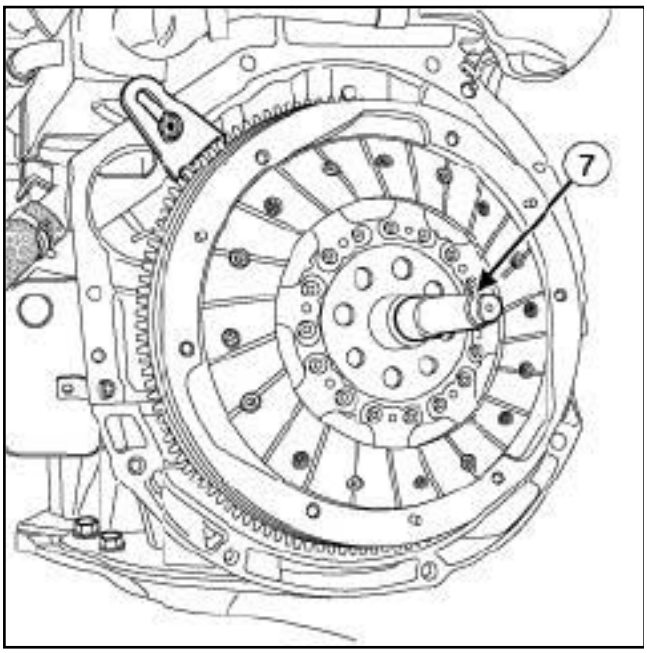
❏ Compress the spring (**6**) with circlip pliers.

❏ Remove:

- the nut ***(4)*** ,
- the clutch thrust bearing ***(3)*** ,
- the base plate pressure plate.

❏ Check that the springs are correctly compressed.

**II - REFITTING OPERATION FOR PART CONCERNED**



129860

❏ Position the clutch driven plate.

❏ Centre the clutch plate using the **(Emb. 1780)** ***(7)*** .

❏ Refit:

- the pressure plate,
- the pressure plate bolts.

❏ Gradually tighten the new pressure plate mounting bolts.

❏ Torque tighten the **pressure plate bolts (25 N.m)**.

**III - FINAL OPERATION.**

❏ Remove the **(Mot. 1431)** then the **(Emb. 1780)**.

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .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2TR, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |
| **Emb. 1780** | Set of clutch disc centring mandrels. |

| Tightening torques ▽ | |
|---|---|
| new pressure plate bolts | **25 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **20A**, **Clutch**, **Clutch: Precautions for repair**, page **20A-1**) .

## REMOVAL

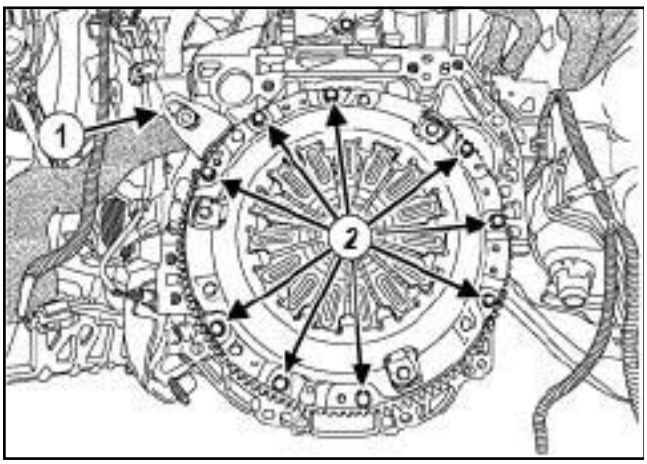
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129862

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- The mechanism bolts ***(2)*** ,
- the clutch plate and pressure plate.

## REFITTING

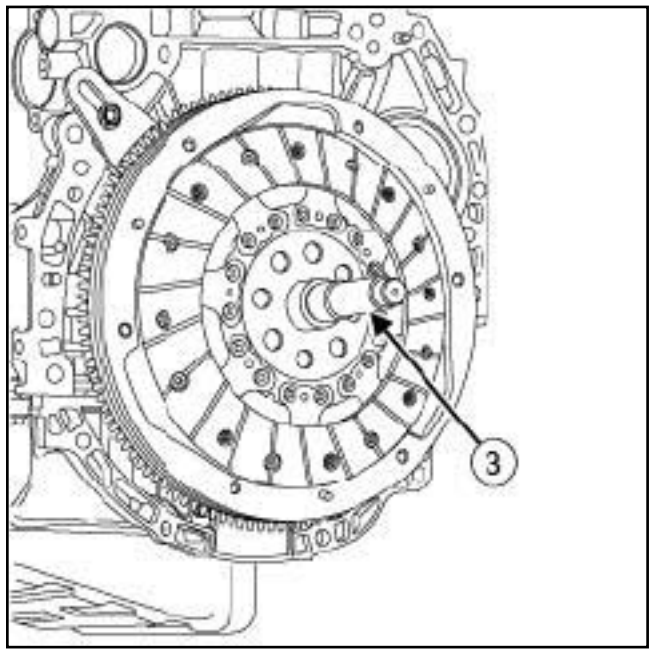
### I - REFITTING PREPARATION OPERATION

❏ Degrease the flywheel friction face with **SURFACE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

❏ Clean the clutch plate splines.

❏ Apply grease to the splines of the clutch plate hub and to the splines of the input shaft.

### II - REFITTING OPERATION FOR PART CONCERNED



129861

❏ Position the clutch driven plate.

❏ Centre the clutch drive plate using the **(Emb. 1780)** ***(3)*** .

❏ Refit:

- the pressure plate,
- the pressure plate bolts.

❏ Torque tighten the **new pressure plate bolts (25 N.m)** gradually in a radial pattern.

### III - FINAL OPERATION.

❏ Remove the **(Mot. 1431)** then the **(Emb. 1780)**.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2TR, and 6 SPEED MANUAL GBOX

❑ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .


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| Tightening torques ▽ | |
|---|---|
| clutch thrust bearing bolts | **21 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **20A**, **Clutch**, **Clutch: Precautions for repair**, page **20A-1**) .

## REFITTING

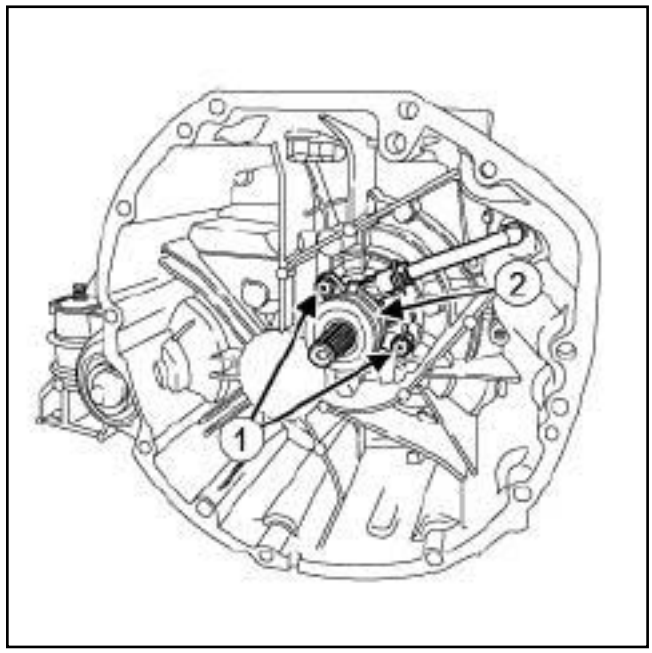
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129863

❏ Remove:

- the bolts (**1**) from the clutch thrust bearing,
- the clutch thrust bearing (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the clutch thrust bearing bolts.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the new clutch thrust bearing,
- the new clutch thrust bearing bolts.

❏ Torque tighten the **clutch thrust bearing bolts (21 N.m)**.

### III - FINAL OPERATION.

❏ Refit the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox: Removal - Refitting**, page **21A-9**) .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## SAFETY

### General information

This method provides information which will allow you to:

- acquire good knowledge of the component on which you will be working,
- benefit from the best repair conditions,
- obtain optimum component operation and meet customer requirements,
- optimise component repair time.

It is worth taking the time to read this method as you will gain time later on during the repairs.

#### *a - General recommendations*

Observe basic principles of vehicle repair.

The quality of repair depends first and foremost on the care exercised by the person in carrying it out.

Carry out the operation on the component on a clean working area.

To ensure good repair:

- use the recommended consumables (see **Vehicle: Parts and ingredients for the repairwork**) ,
- use the recommended tools,
- observe the tightening torques,
- observe the recommendations for parts that should always be replaced after removal, refitting or replacement operations,
- clean and degrease the sections to be bonded, to ensure they bond correctly.

**WARNING**
To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).

**WARNING**
Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

Use professional products and apply them with care, for example do not apply too much sealing paste to the sealing surface to prevent damaging the component.

**WARNING**
Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid may cause damage to some components.

Observe the chronological order of the steps:

- remove the component,
- clean the component before repairing,
- remove the part(s) concerned
- check the part(s) removed,
- replace faulty part(s) with new part(s),
- perform the necessary adjustments and/or settings so that the component operates correctly,
- observe the tightening torques.

Note:
Ensure you use the correct type of bearing for the gearbox. There are three types of bearing for different gearbox suffixes (**NTN - SNR - TIMKEN**). They are not interchangeable.

Note:
Ensure sure that the parts removed match up and ensure that they are refitted in the correct order.

#### *b - Special tooling*

Use suitable tools which are in good condition (use of « multi-purpose » tools, such as adjustable pliers, etc., should be avoided wherever possible).

For good quality repairs and for working in safe conditions, use only special tooling.

#### *c - Safety*

Equipment risks:

- The "Note" heading used in the description of the method indicates that particular care should be taken for the operation described.
- The "Important" heading used in the description of the method indicates that there is a risk of damage to the component.


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Working safely:

- The "Warning" heading used in the description of the method indicates that particular care should be taken for the operation described and that there is a human risk,
- use supports and adopt a correct posture when performing heavy work or raising loads,
- check that the working area is clean and tidy during the operation,
- use personal protection (gloves, goggles, work shoes, masks, skin protection, etc.),
- do not use harmful products in unventilated rooms,
- do not ingest any chemicals (brake fluid, coolant, etc.).

Respecting the environment:

- sort waste according to its particular qualities,
- do not burn discarded products (tyres, etc.).

***d - Conclusion***

Respecting the recommended methods will guarantee the best performance and reliability of the component.


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6 SPEED MANUAL GBOX

| Type | Packaging | Part no. | Component |
|---|---|---|---|
| **GEARBOX OIL** | | | Immerse all parts |
| **SILICONE ADHESIVE SEAL** | 100g cartridge | **77 11 236 172** | Housing assembly |
| **SEALING RESIN** | 25g cartridge | **77 11 237 640** | Switch threading |

Parts always to be replaced when they have been removed:

- lock rings,
- differential outlet seals,
- input shaft inlet seal,
- pins.
- the engagement clips,
- the clutch thrust bearing,
- the gear lever seal,
- the gear selector lever seal,
- the blanking cover,
- the seal,
- the guide bolts.


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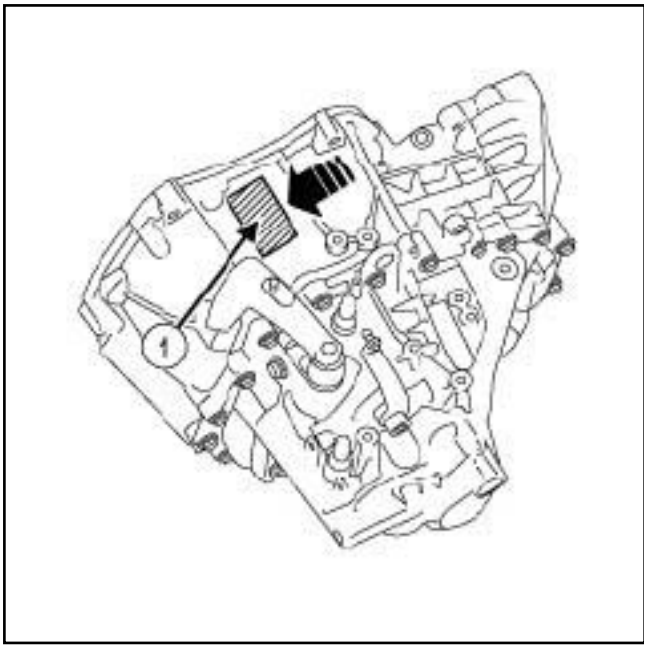


131201

The gearbox is identified by a mark (**1**) engraved on the top of the gearbox.


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| Tightening torques ▽ | |
|---|---|
| drain plug | **35 N.m** |
| filler cap | **35 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## DRAINING

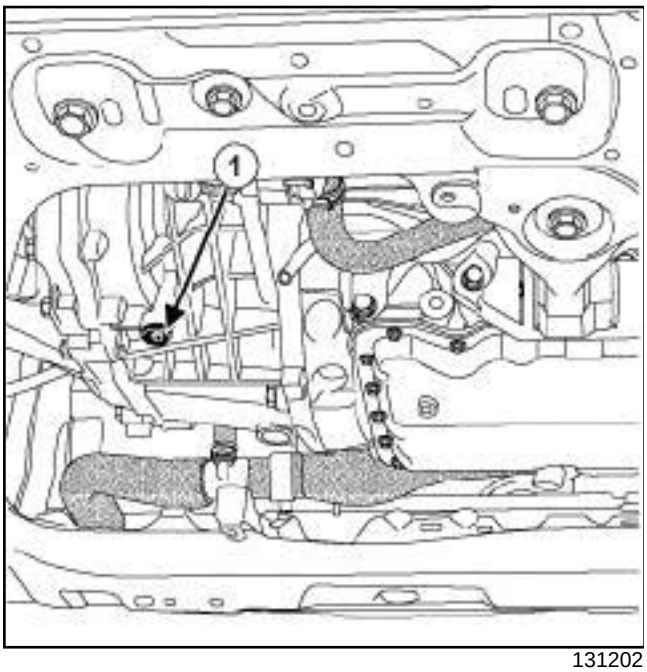
### I - DRAINING PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.

### II - DRAINING OPERATION



131202

❏ Remove:

- the drain plug (**1**) ,
- the drain plug seal.

❏ Drain the manual gearbox.

## FILLING

### I - FILLING PREPARATION OPERATION

❏ Always replace the seal.

### II - FILLING OPERATION

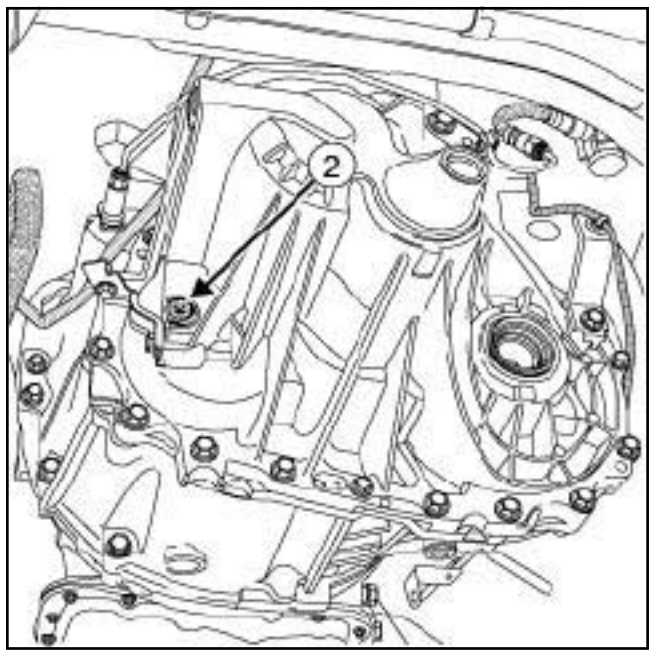
❏ Refit:

- the new drain plug seal,
- the drain plug.

❏ Torque tighten the **drain plug (35 N.m)**.

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior Protection).



131203

❏ Remove:

- the filler cap (**2**) ,
- the filler cap seal.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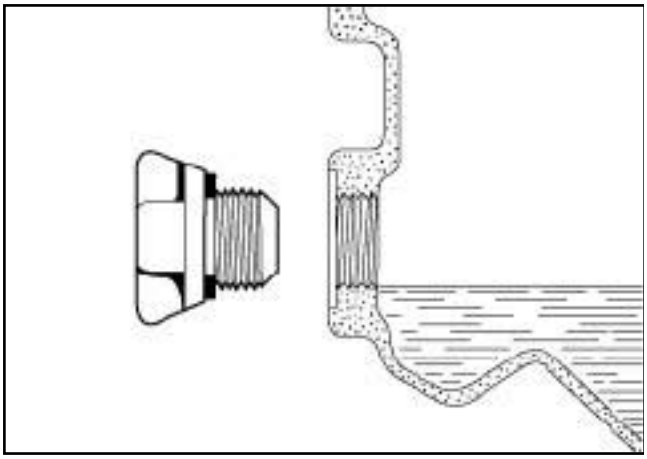

131204

❑ Fill up to the level of the opening.

❑ Refit:

- the new filler cap seal,
- the filler cap.

❑ Torque tighten the **filler cap (35 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the engine undertray.


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| Essential special tooling | |
|---|---|
| **Bvi. 1689** | Differential output seal fitting tool. |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

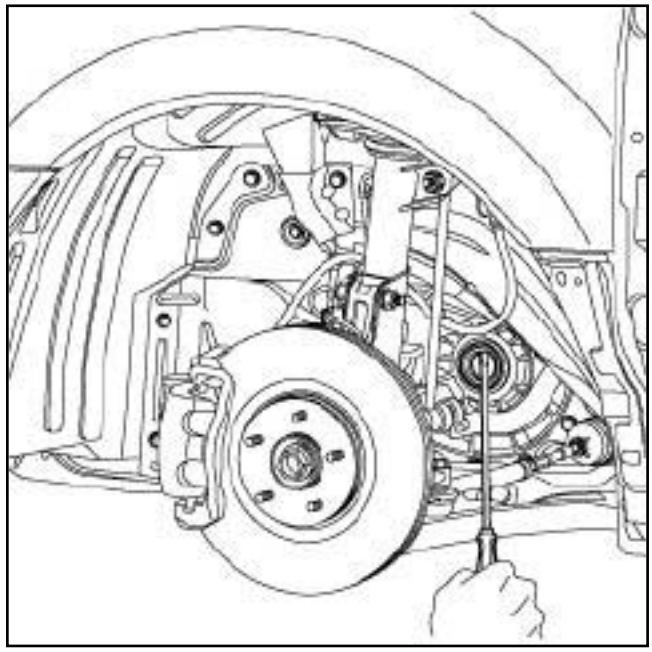
❏ Remove the engine undertray.

❏ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Remove:

- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

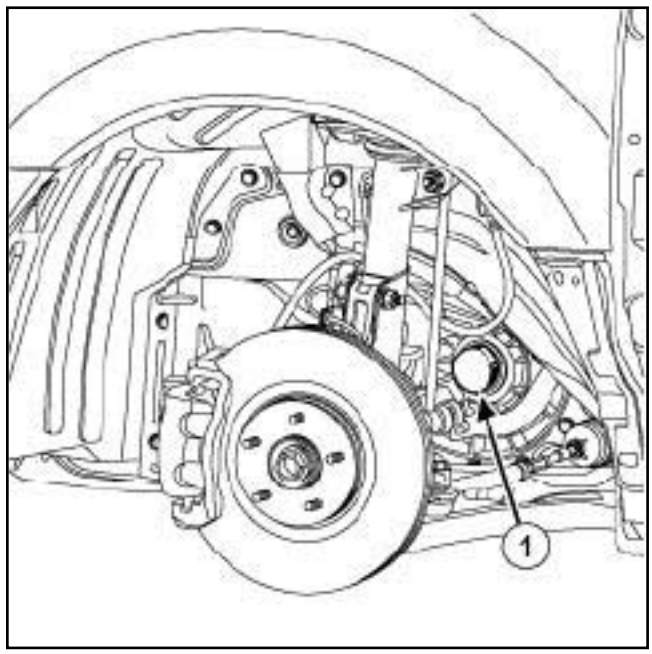


131205

❏ Remove the differential output seal on the side concerned using a screwdriver.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131206

❏ Refit the differential output seal on the side concerned using the tool **(Bvi. 1689)** (**1**) .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**II - FINAL OPERATION**

❏ Refit the driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

❏ Fill the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Refit:

- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.


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M9R, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |

| Tightening torques ▽ | |
|---|---|
| clutch pipe bracket bolt | **14 N.m** |
| heater matrix coolant pipe bracket bolts | **25 N.m** |
| gear lever cable bracket bolts | **17 N.m** |
| gear selector cable bracket bolts | **17 N.m** |
| left-hand suspended engine mounting bolts | **45 N.m** |
| earth strap bracket bolt | **25 N.m** |
| switch wiring bracket bolt14 | **N.m** |
| gearbox lower bolts | **48 N.m** |
| gearbox side bolts | **48 N.m** |
| gearbox mounting studs | **20 N.m** |
| gearbox nuts | **48 Nm** |
| left-hand suspended engine mounting bolt A | **110 N.m** |
| left-hand suspended engine mounting bolt B | **110 N.m** |
| air filter unit bracket bolts | **10 N.m** |
| diesel fuel drainage pipe bolts | **25 N.m** |
| earth strap bolt | **14 N.m** |
| heater matrix water inlet pipe bolt | **25 N.m** |
| heater matrix water outlet pipe bolt | **25 N.m** |
| wiring harness channel bolts | **5 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove the engine undertray.

❑ Drain:

- the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system),
- the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Remove:

- the engine cover,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).


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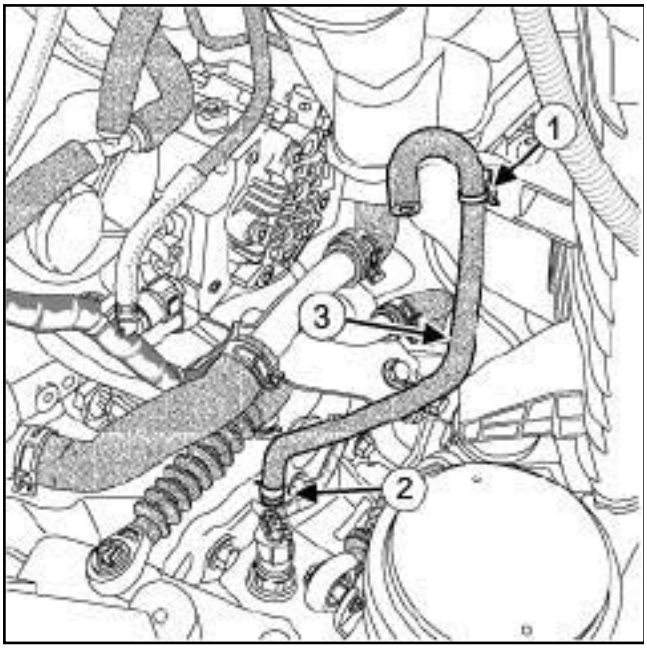
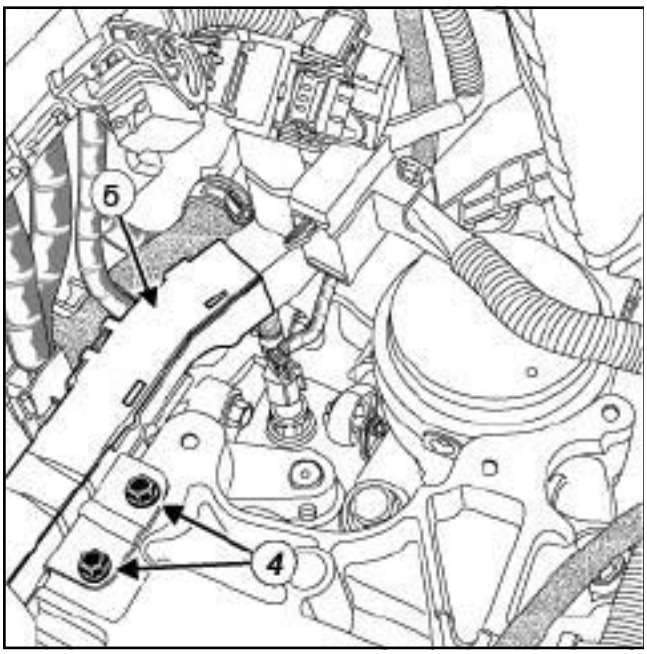


131207

❏ Unclip the breather hose clip (**1**) from the air filter.

❏ Remove:

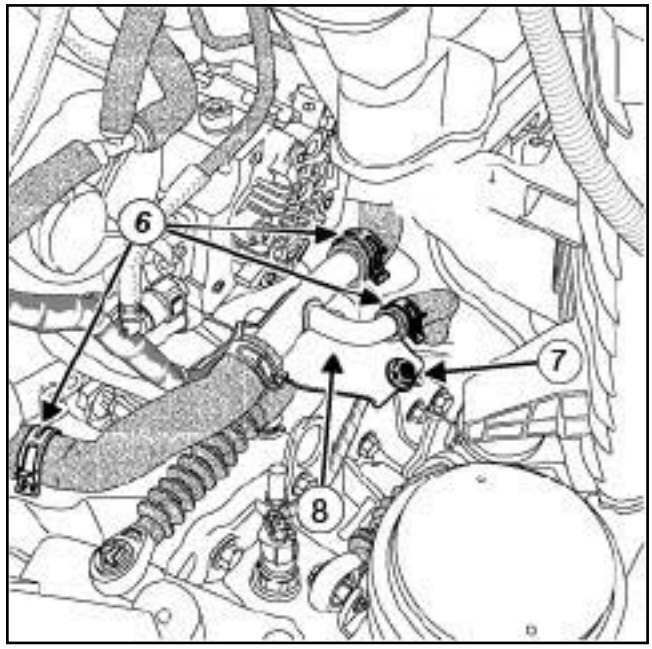
- the breather hose clip (**2**) ,
- the breather hose (**3**) ,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).



131208

❏ Remove the bolts (**4**) from the engine wiring harness channel.

❏ Remove the wiring harness channel (**5**) .



131209

❏ Remove:

- the heater matrix coolant hose clips (**6**) ,
- the bolt (**7**) from the heater matrix water outlet pipe,
- the heater matrix coolant outlet pipe (**8**) .

❏ Disconnect:

- the selector cable (see **Mechanical gear control cable: Adjustment**) (37A, Mechanical component controls),
- the gear lever cable (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).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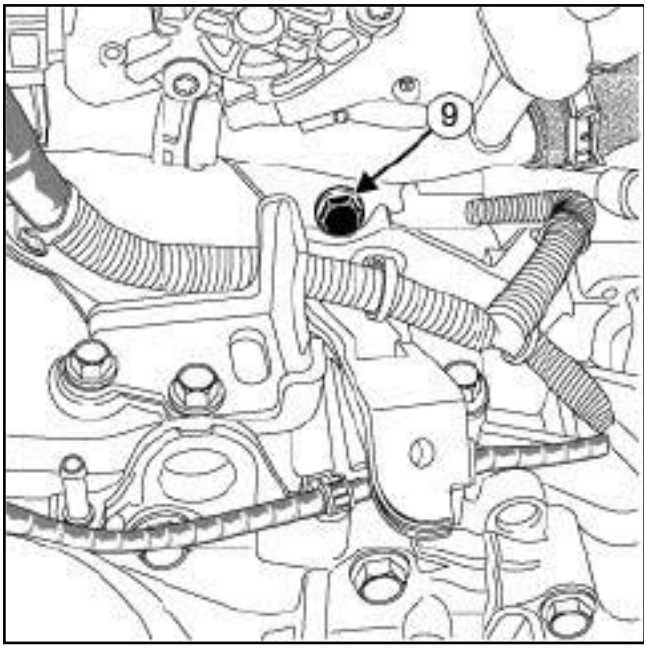
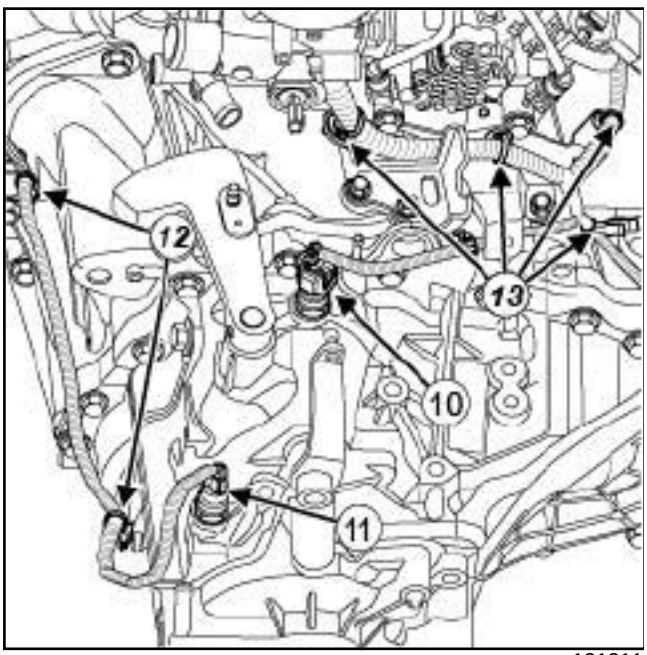
M9R, and 6 SPEED MANUAL GBOX




131210

❏ Remove the bolt (**9**) from the heater matrix inlet pipe.




131211

❏ Disconnect:

- the neutral switch (**10**) ,
- the reverse gear switch (**11**) .

❏ Unclip:

- the reverse gear switch wiring clips (**12**) ,
- the gearbox wiring clips (**13**) .

❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the particle filter (see **Particle filter: Removal - Refitting**) (19A, Exhaust),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) 31A, Front axle components).

4X4 TRANSMISSION

❏ Disconnect the propshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Secure the longitudinal driveshaft to the control cable bracket using a cord.

❏ Remove the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) .



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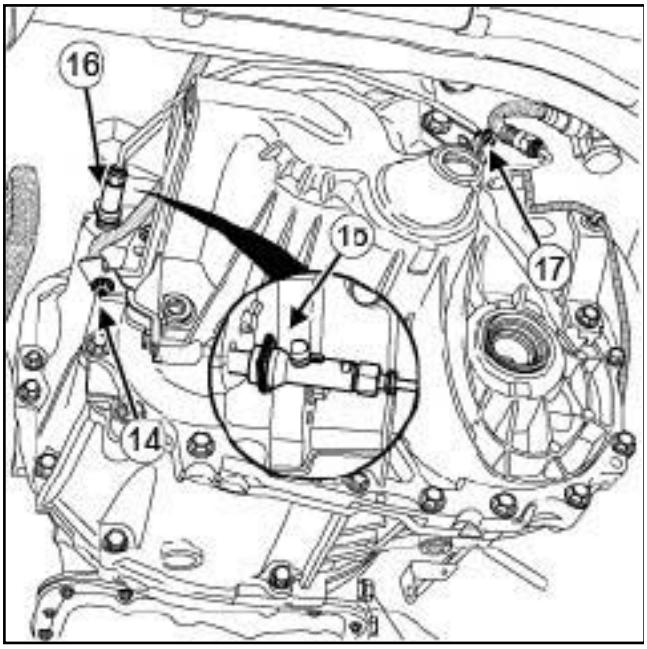
M9R, and 6 SPEED MANUAL GBOX




131212

❏ Remove:

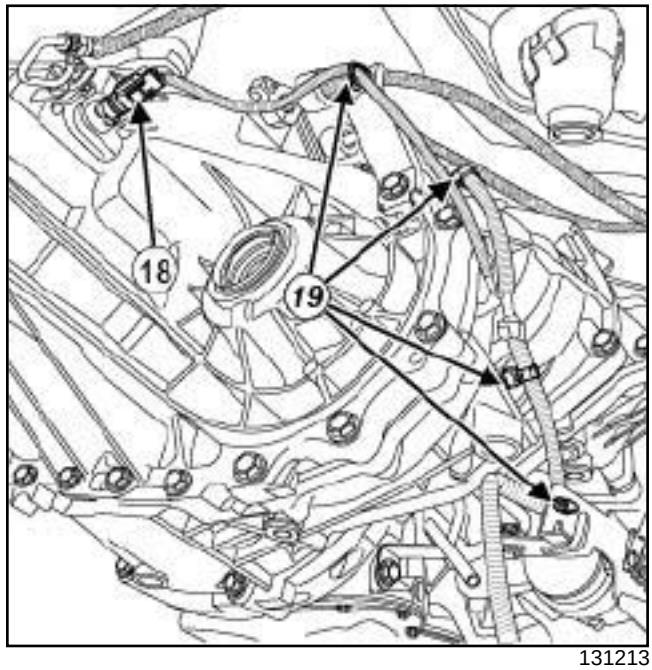
- the earth strap bolt (**14**) ,
- the clip (**15**) from the clutch pipe.

❏ Disconnect:

- the clutch control pipe (**16**) from the manual gearbox,
- the clutch control pipe (**16**) from the clip (**17**) .

❏ Drain the clutch oil.

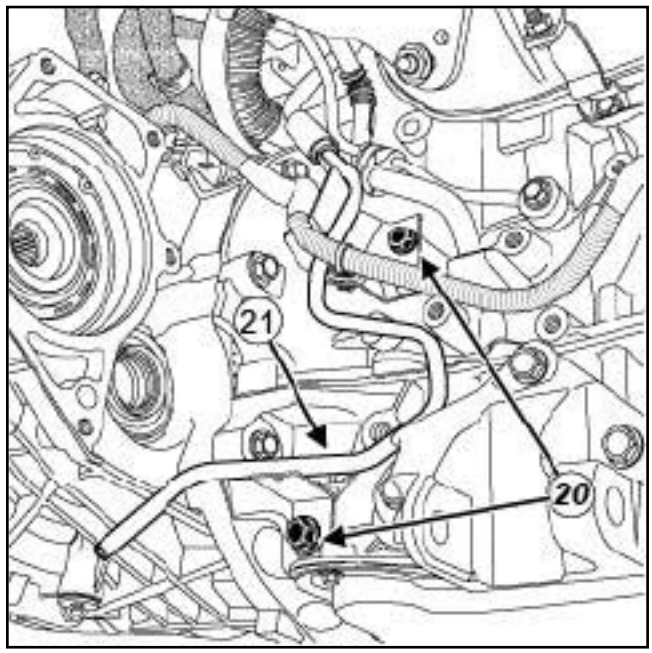
4X4 TRANSMISSION




131213

❏ Unclip:

- the 1st gear switch (**18**) ,
- the 1st gear switch wiring clips (**19**) .




131214

❏ Remove:

- the diesel fuel drainage pipe bolts (**20**) ,
- the diesel fuel drainage pipe (**21**) .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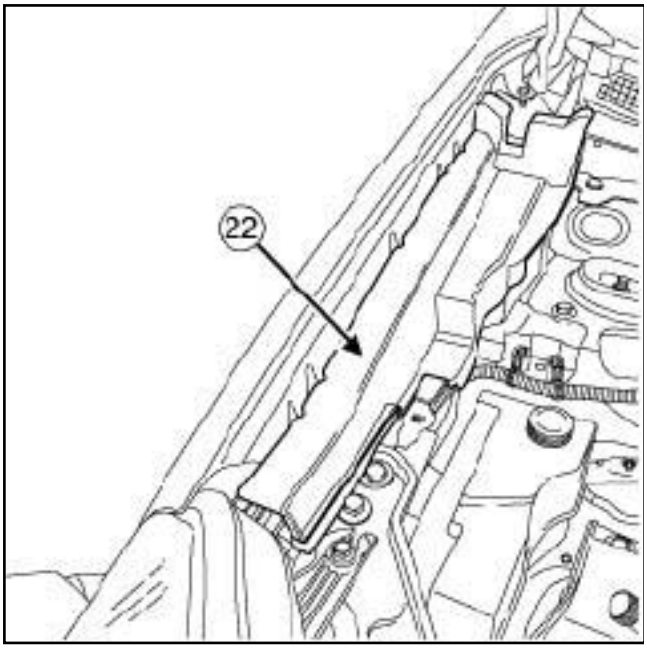
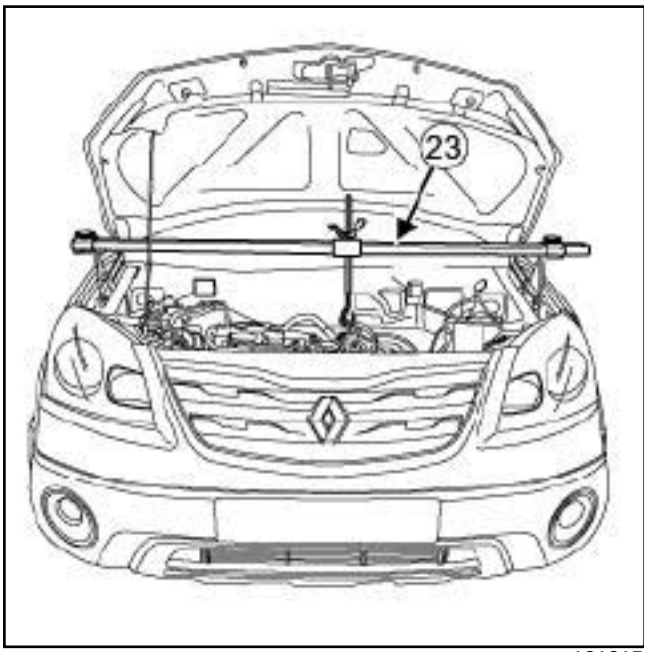


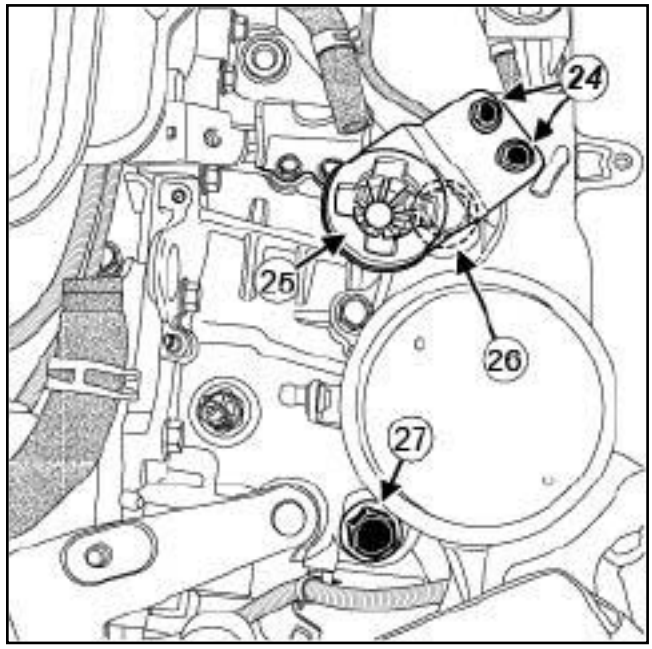

131231

❏ Remove the hood seals (**22**) .




131215

❏ Fit the **(Mot. 1453)** (**23**) .




131216

❏ Remove:

- the air filter unit bracket bolts (**24**) ,
- the air filter unit support (**25**) ,
- the left-hand suspended engine mounting bolt A (**26**) ,
- the left-hand suspended engine mounting bolt B (**27**) ,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),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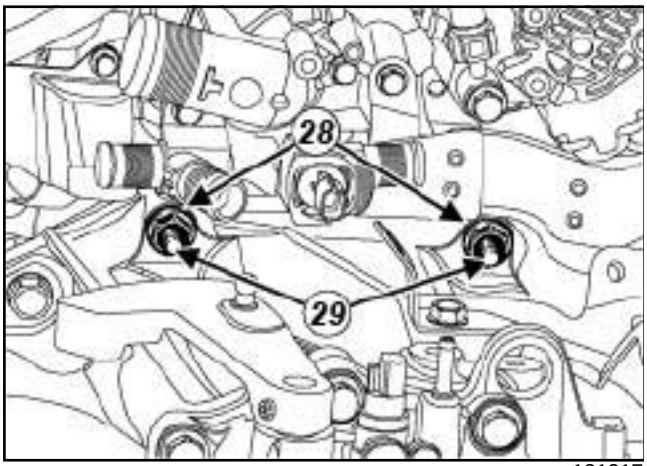
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

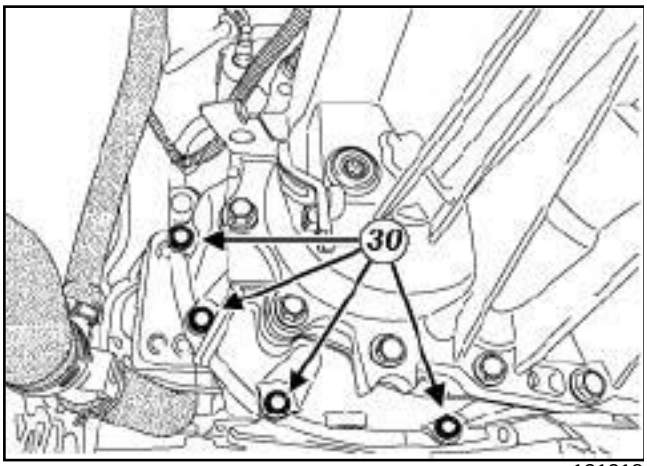


131217

❏ Remove:

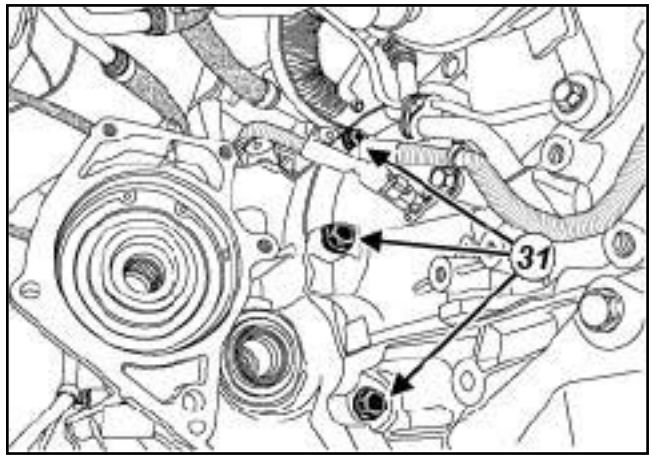
- the gearbox nuts (**28**) ,
- the gearbox support studs (**29**) .

❏ Fit the component jack underneath the gearbox.



131218

❏ Remove the lower bolts (**30**) from the gearbox.



131219

❏ Remove:

- the gearbox side bolts (**31**) ,
- the manual gearbox.

**III - FINAL REMOVAL OPERATION**

❏ Remove the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-8**) .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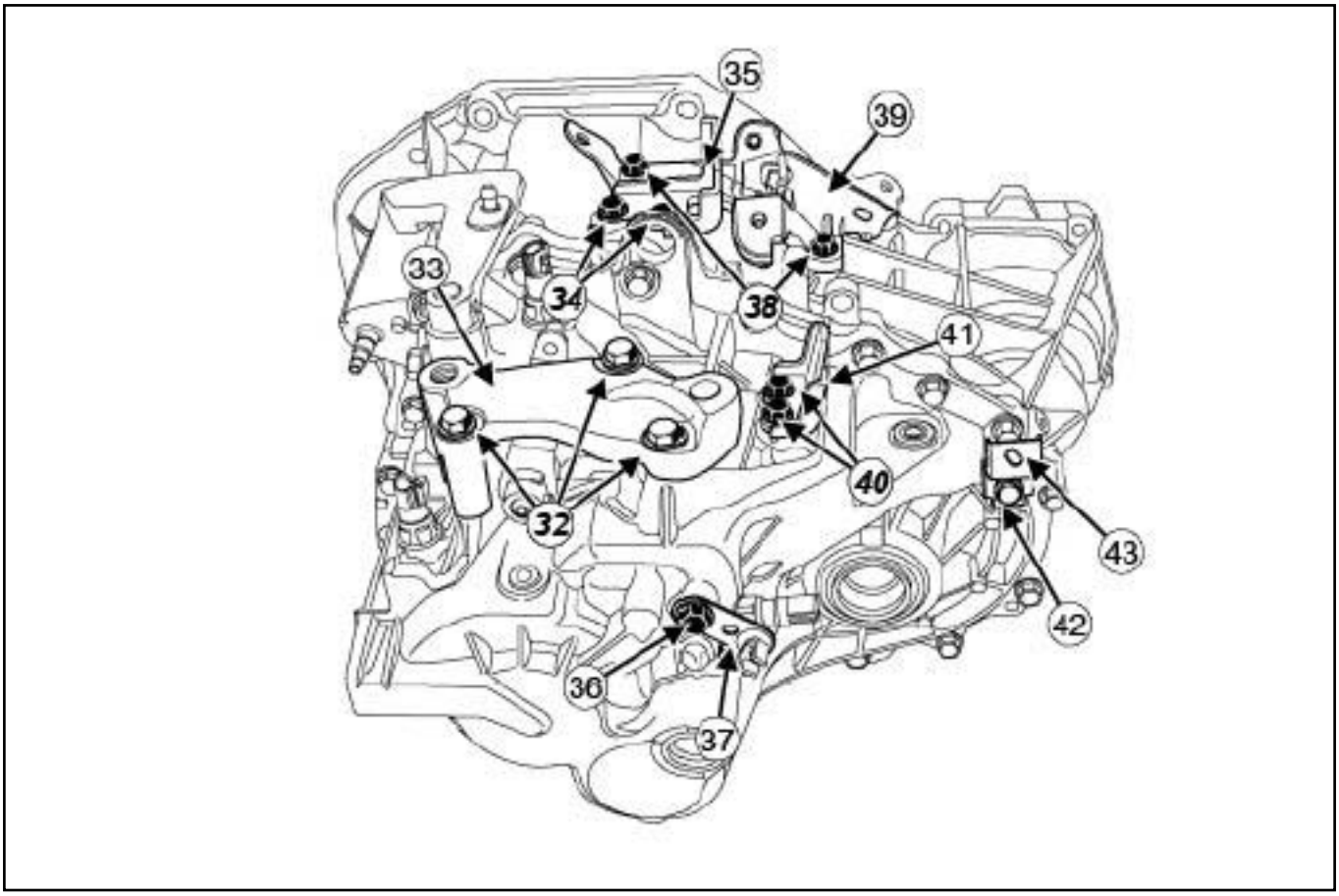
M9R, and 6 SPEED MANUAL GBOX




131220

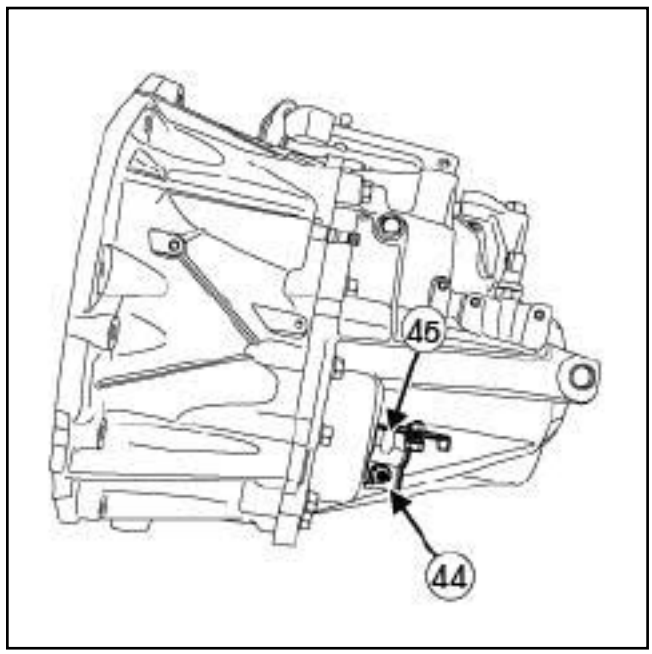
❏ Remove:

- the left-hand suspended engine mounting bolts (**32**) ,
- the left-hand suspended engine mounting (**33**)
- the selector cable bracket bolts (**34**) ,
- the selector cable bracket (**35**) ,
- the gear lever cable bracket bolts (**36**) ,
- the gear lever cable bracket (**37**) ,
- the heater matrix coolant pipe bracket bolts (**38**) ,
- the heater matrix coolant pipe bracket (**39**) ,
- the clutch pipe bracket bolt (**40**) ,
- the clutch pipe bracket (**41**) .

4X4 TRANSMISSION

❏ Remove:

- the switch wiring bracket bolt ***(42)*** ,
- the switch wiring bracket ***(43)*** .




131236

❏ Remove:

- the earth strap bracket bolt (**44**) ,
- the earth strap bracket (**45**) .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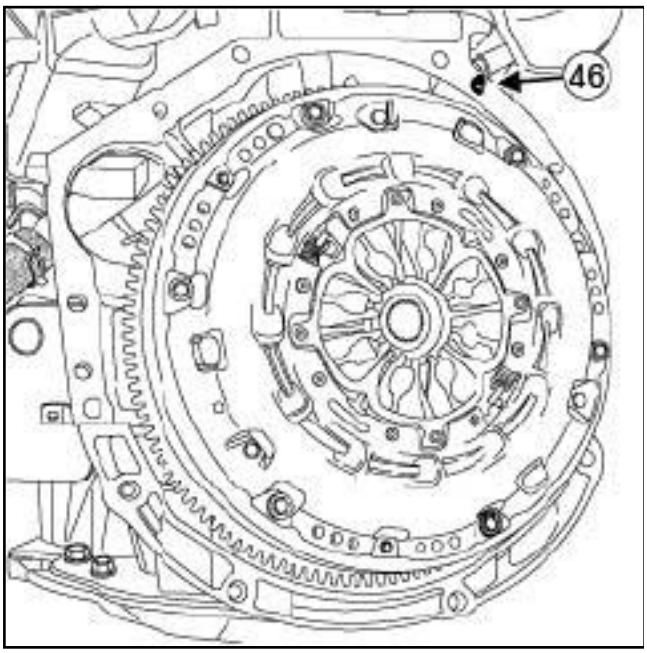
M9R, and 6 SPEED MANUAL GBOX

## REFITTING

### I - REFITTING PREPARATION OPERATION

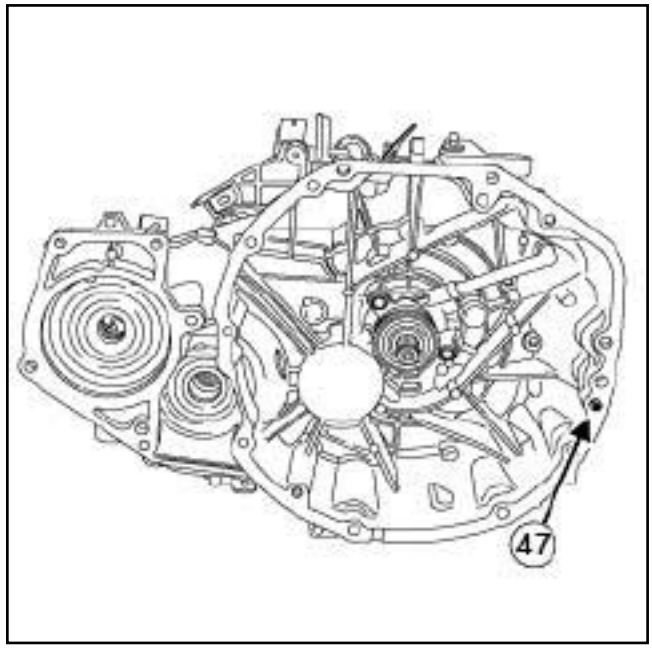
❏ Always replace the clutch thrust bearing.

❏ Refit the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-8**) .




131222

❏ Check that the centring dowel (**46**) is in position.




131223

❏ Check that the centring dowel (**47**) is in position.

❏ Refit:

- the clutch pipe bracket,
- the clutch pipe bracket bolt,
- the heater matrix coolant pipe bracket,
- the heater matrix coolant pipe bracket bolts,
- the gear lever cable bracket,
- the gear lever cable bracket bolts,
- the selector cable bracket,
- the selector cable bracket bolts,
- the left-hand suspended engine mounting,
- the left-hand suspended engine mounting bolts,
- the earth bracket,
- the earth strap bolt.

❏ Torque tighten:

- the **clutch pipe bracket bolt (14 N.m)**,
- the **heater matrix coolant pipe bracket bolts (25 N.m)**,
- the **gear lever cable bracket bolts (17 N.m)**,
- the **gear selector cable bracket bolts (17 N.m)**,
- the **left-hand suspended engine mounting bolts (45 N.m)**,
- the **earth strap bracket bolt (25 N.m)**.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M9R, and 6 SPEED MANUAL GBOX

4X4 TRANSMISSION

❑ Refit:

- the switch wiring bracket,
- the switch wiring bracket bolt.

❑ Torque tighten the **switch wiring bracket bolt14 (N.m)**.

**II - REFITTING OPERATION FOR THE PART CONCERNED**

❑ Refit:

- the manual gearbox,
- the gearbox lower bolts,
- the gearbox side bolts,
- the gearbox mounting studs,
- the gearbox nuts.

❑ Torque tighten:

- the **gearbox lower bolts (48 N.m)**,
- the **gearbox side bolts (48 N.m)**,
- the **gearbox mounting studs (20 N.m)**,
- the **gearbox nuts (48 Nm)**.

**III - FINAL OPERATION**

❑ Refit and tighten to torque:

- the **left-hand suspended engine mounting bolt A (110 N.m)**,
- the **left-hand suspended engine mounting bolt B (110 N.m)**,

❑ Refit:

- the air filter box mounting,
- the air filter unit bracket bolts.

❑ Torque tighten the **air filter unit bracket bolts (10 N.m)**.

❑ Refit the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging).

❑ Remove the tool **(Mot. 1453)**.

❑ Refit:

- the hood seals,
- the diesel drain pipe,
- the diesel fuel drainage pipe bolts.

❑ Torque tighten the **diesel fuel drainage pipe bolts (25 N.m)**.

❑ Connect:

- the neutral switch,
- the reverse gear switch.

❑ Clip:

- the reverse gear switch wiring clips,
- the gearbox wiring clips.

4X4 TRANSMISSION

❑ Connect the 1st gear switch.

❑ Clip on the 1st gear switch wiring clips.

❑ Refit:

- the earth strap,
- the earth strap bolt.

❑ Torque tighten the **earth strap bolt (14 N.m)**.

❑ Connect:

- the clutch control pipe to the manual gearbox,
- the clutch control pipe onto the clip.

❑ Refit the clutch control pipe clip.


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4X4 TRANSMISSION

❑ Refit:

- the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) ,
- the propshaft (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .


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M9R, and 6 SPEED MANUAL GBOX

❏ Refit:

- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) 31A, Front axle components),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the particle filter (see **Particle filter: Removal - Refitting**) (19A, Exhaust).

❏ Torque tighten the **heater matrix water inlet pipe bolt (25 N.m)**.

❏ Connect:

- the selector cable (see **Mechanical gear control cable: Adjustment**) (37A, Mechanical component controls),
- the gear lever cable (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).

❏ Refit:

- the heater matrix water outlet pipe,
- the heater matrix coolant outlet pipe bolt,
- the heater matrix coolant hose clip.

❏ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the breather hose,
- the breather hose clip.

❏ Clip on the breather hose clip.

❏ Refit:

- the wiring channel,
- the wiring channel bolts.

❏ Torque tighten the **wiring harness channel bolts (5 N.m)**.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the engine cover.

❏ Refill:

- the brake fluid,
- the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .
- the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system),

❏ Bleed the hydraulic clutch control (see **Clutch circuit: Bleeding**) (37A, Mechanical component controls).

❏ Refit:

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.


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2TR, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |

| Tightening torques ▽ | |
|---|---|
| lifting eye bolts | **28 N.m** |
| clutch pipe bracket bolt | **14 N.m** |
| gear lever cable bracket bolts | **17 N.m** |
| selector cable bracket bolts | **17 N.m** |
| earth strap bracket bolt | **25 N.m** |
| switch wiring bracket bolt14 | **N.m** |
| gearbox mounting bolt A | **35 N.m** |
| gearbox mounting bolt B | **75 N.m** |
| gearbox mounting bolt C | **75 N.m** |
| gearbox bolt D | **43 N.m** |
| gearbox bolt E | **43 N.m** |
| engine wiring harness nuts | **10 N.m** |
| earth strap bolt | **14 N.m** |
| battery tray bracket bolts | **28 N.m** |
| wiring bracket bolts28 | **N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

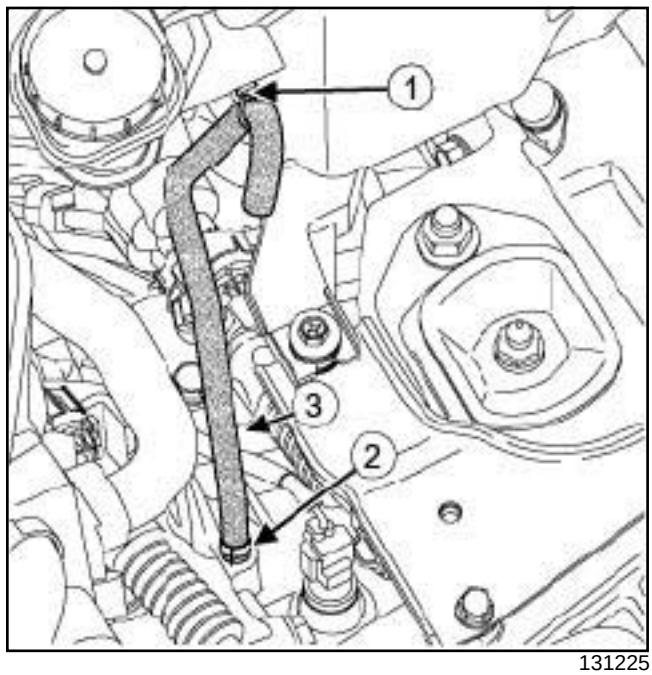
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove the engine undertray.

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



131225

❑ Unclip the breather hose clip (**1**) .

❑ Remove:

- the breather hose clip (**2**) ,
- the breather hose (**3**) ,
- the engine cover,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air resonator,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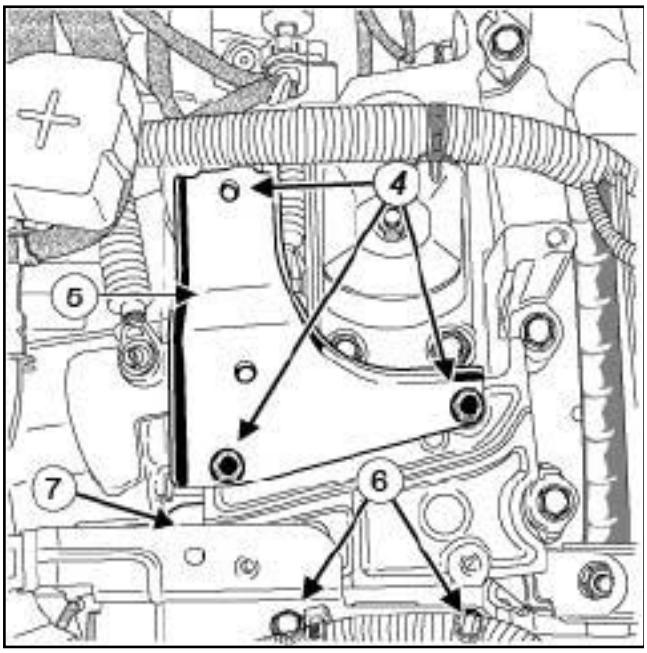
2TR, and 6 SPEED MANUAL GBOX

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).



131226

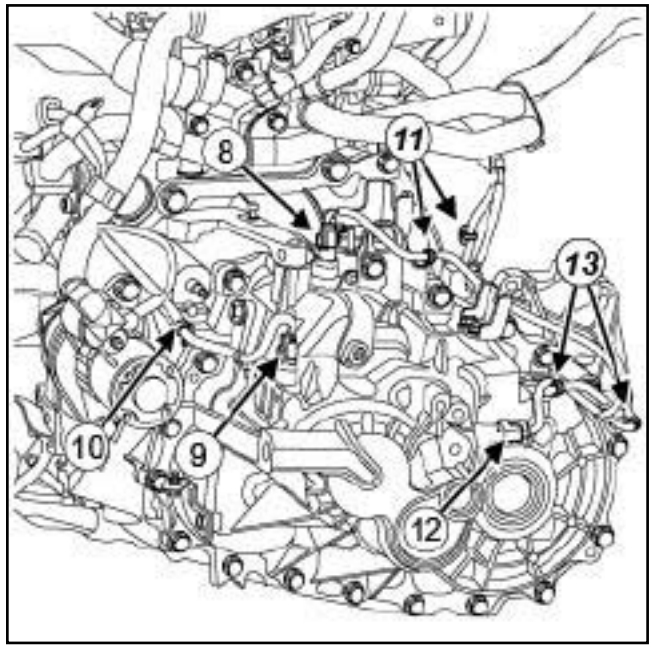
❏ Remove:

- the bolts (**4**) from the battery tray bracket,
- the battery tray bracket (**5**) ,
- the bolts (**5**) from the wiring harness channel.

❏ Remove the wiring harness channel (**7**) .

❏ Disconnect:

- the selector cable (see **Mechanical gear control cable: Adjustment**) (37A, Mechanical component controls),
- the gear lever cable (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls).



131227

❏ Disconnect:

- the neutral switch (**8**) ,
- the reverse gear switch (**9**) .

❏ Unclip:

- the clip (**10**) from the reverse gear switch wiring,
- the gearbox wiring clips (**11**) .

ESP 2 or ESP

❏ Disconnect the 1st gear position switch ***(12)*** .

❏ Unclip the clips from the 1st gear position switch wiring ***(13)*** .

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the intermediate pipe (see **Connector pipe: Removal - Refitting**) (19A, Exhaust),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2TR, and 6 SPEED MANUAL GBOX

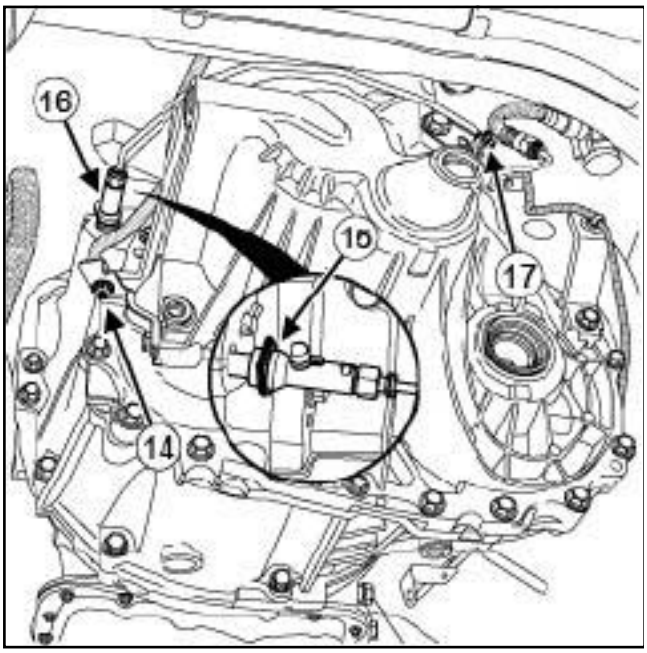
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) 31A, Front axle components).

4X4 TRANSMISSION

❏ Disconnect the propshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Secure the propshaft to the control cable bracket using a strap.

❏ Remove the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) .



131212

❏ Remove:

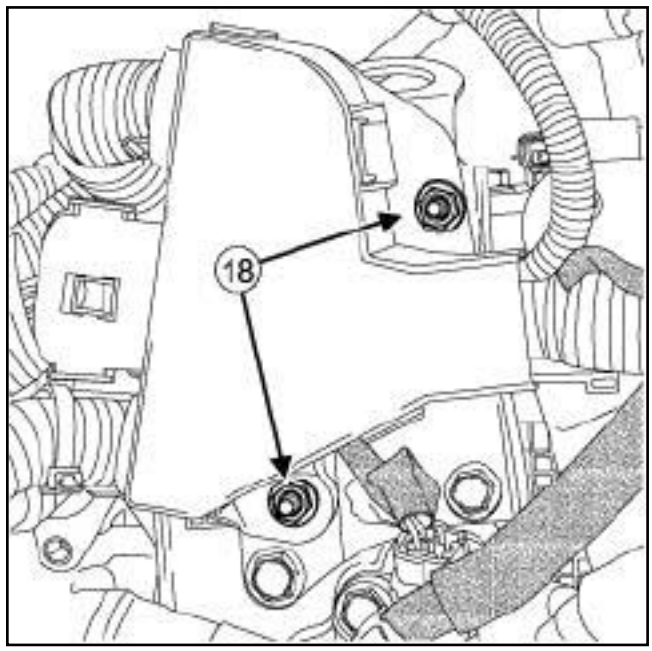
- the earth strap bolt (**14**) ,
- the clip (**15**) from the clutch pipe.

❏ Disconnect:

- the clutch control pipe (**16**) from the manual gearbox,
- the clutch control pipe (**16**) from the clip (**17**) .

❏ Drain the clutch oil.

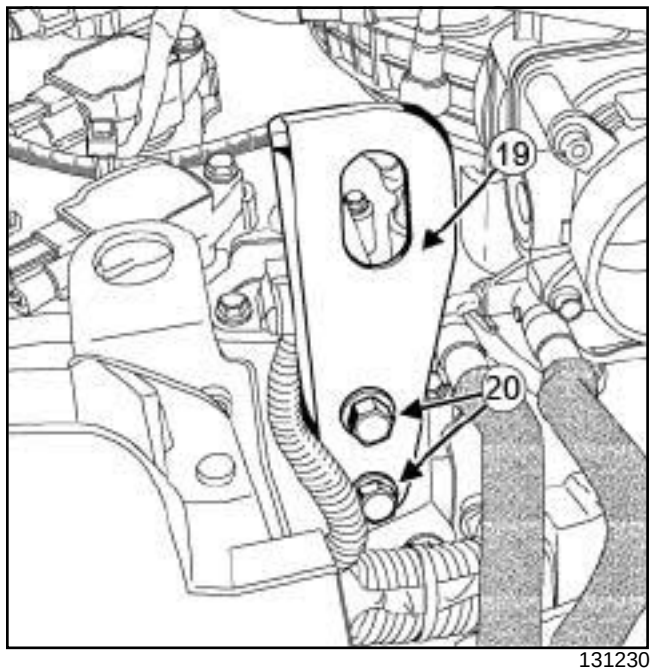
❏ Remove the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging).



131229

❏ Remove the engine wiring harness nuts (**18**) .

❏ Move the engine wiring to one side.



131230

❏ Fit:

- the lifting eye (**19**) ,
- the lifting eye bolts (**20**) .

❏ Torque tighten the **lifting eye bolts (28 N.m)**.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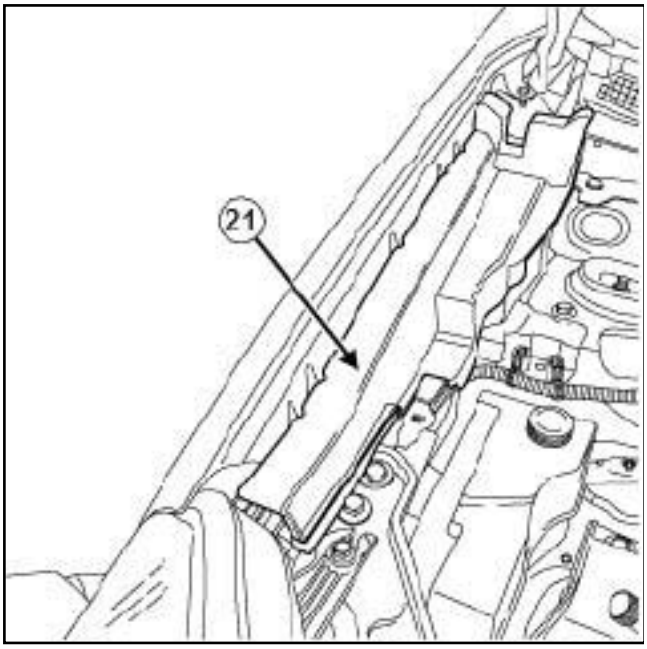
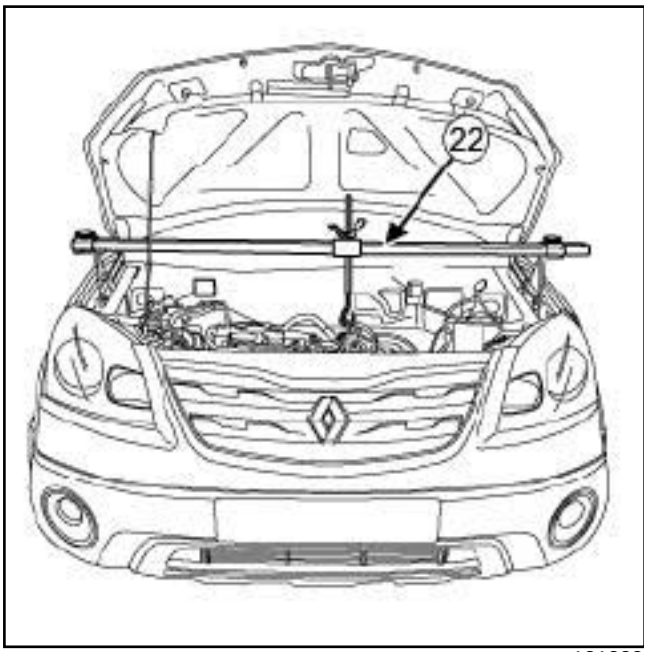



131231

❏ Remove the hood seals (**21**) .

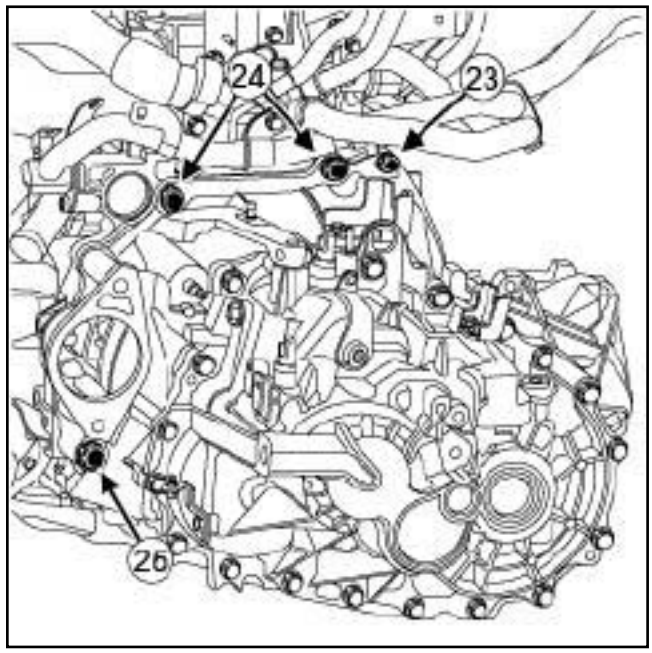



131232

❏ Fit the **(Mot. 1453)** (**22**) .

❏ Remove the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131233

❏ Remove:

- the gearbox mounting bolt A (**23**) ,
- the gearbox mounting bolts B (**24**) ,
- the gearbox mounting bolt C (**25**) .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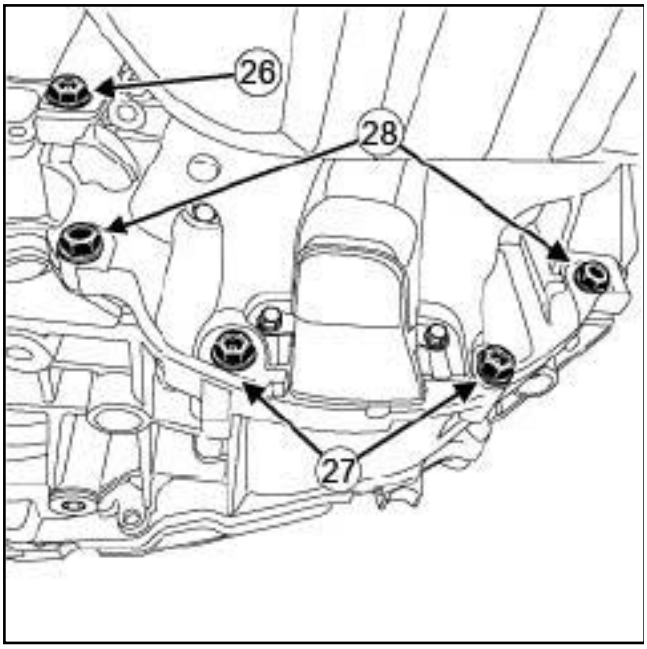



131234

❏ Remove:

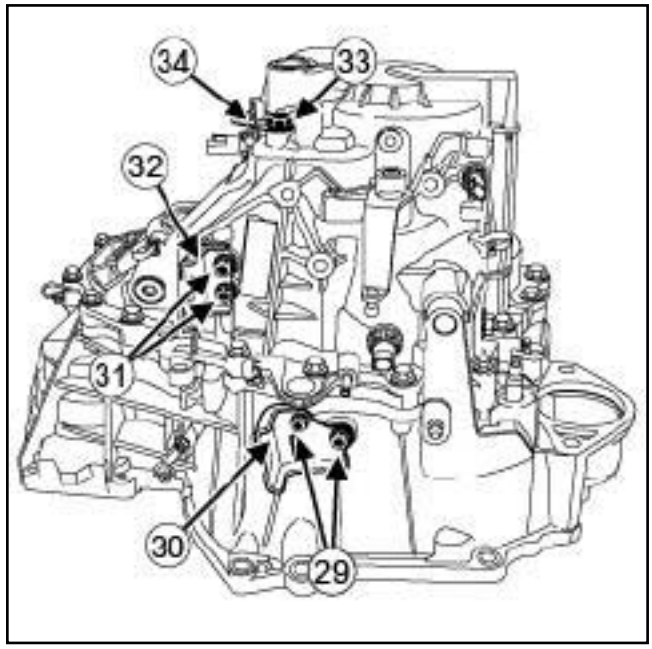
- the gearbox mounting bolt B (**26**) ,
- the gearbox mounting bolts D (**27**) ,
- the gearbox mounting bolts E (**28**) .

❏ Fit the component jack underneath the manual gearbox.

❏ Remove the manual gearbox.

**III - FINAL OPERATION**

❏ Remove the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-8**) .




131235

❏ Remove:

- the selector cable bracket bolts (**29**) ,
- the selector cable bracket (**30**) ,
- the gear lever cable bracket bolts (**31**) ,
- the gear lever cable bracket (**32**) ,
- the clutch pipe bracket bolt (**33**) ,
- the clutch pipe bracket (**34**) .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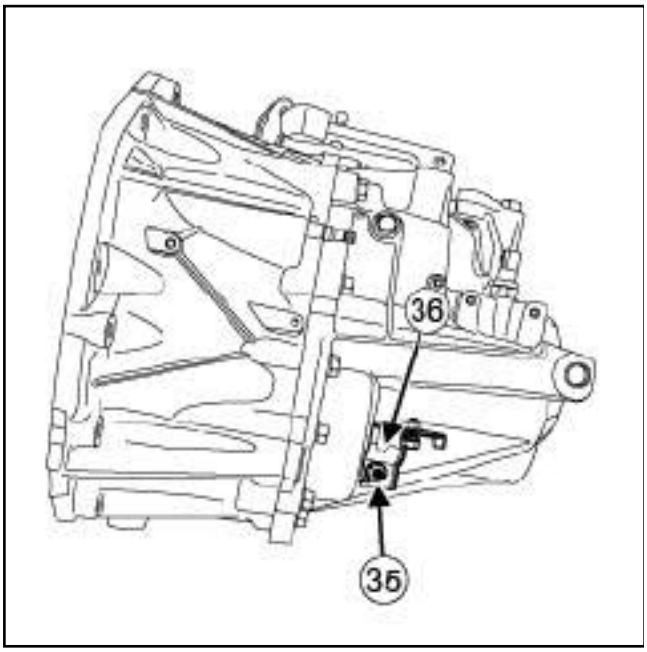
ESP 2 or ESP




131236

❏ Remove:

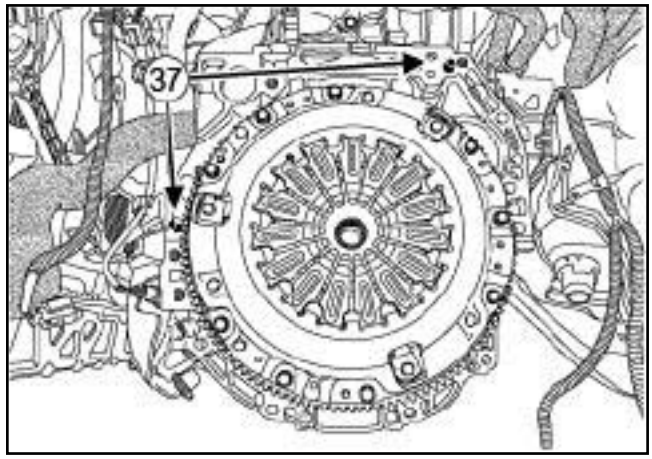
- the switch wiring bolt (**35**) ,
- the switch wiring bracket (**36**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the clutch thrust bearing.

❏ Refit the clutch thrust bearing (see **20A**, **Clutch**, **Clutch thrust bearing: Removal - Refitting**, page **20A-8**) .




131237

❏ Check that the centring dowels (**37**) are in place.

❏ Refit:

- the clutch pipe bracket,
- the clutch pipe bracket bolt,
- the gear lever cable bracket,
- the gear lever cable bracket bolts,
- the selector cable bracket,
- the selector cable bracket bolts,
- the earth bracket,
- the earth strap bolt.

❏ Torque tighten:

- the **clutch pipe bracket bolt (14 N.m)**,
- the **gear lever cable bracket bolts (17 N.m)**,

the **selector cable bracket bolts (17 N.m)**,

the **earth strap bracket bolt (25 N.m)**.

ESP 2 or ESP

❏ Refit:

- the switch wiring bracket,
- the switch wiring bracket bolt.

❏ Torque tighten the **switch wiring bracket bolt14 (N.m)**.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the manual gearbox,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2TR, and 6 SPEED MANUAL GBOX

- the gearbox mounting bolt A,
- the gearbox mounting bolt B,
- the gearbox mounting bolt C,
- the gearbox mounting bolt D,
- the gearbox mounting bolt E.

❏ Torque tighten:

- the **gearbox mounting bolt A (35 N.m)**,
- the **gearbox mounting bolt B (75 N.m)**,
- the **gearbox mounting bolt C (75 N.m)**,
- the **gearbox bolt D (43 N.m)**,
- the **gearbox bolt E (43 N.m)**.

**III - FINAL OPERATION**

❏ Refit the left-hand suspended engine mounting (see **Left-hand suspended engine mounting: Removal - Refitting**) .

❏ Remove:

- tool **(Mot. 1453)**
- the lifting eye bolts,
- the lifting eye.

❏ Torque tighten the **engine wiring harness nuts (10 N.m)**.

❏ Refit the bonnet seals.

4X4 TRANSMISSION

❏ Refit:

- the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) ,
- the propshaft (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Refit:

- the earth strap,
- the earth strap bolt.

❏ Torque tighten the **earth strap bolt (14 N.m)**.

❏ Refit:

- the clutch control pipe,
- the clutch control pipe clip,
- the starter (see **Starter: Removal - Refitting**) .

❏ Connect:

- the neutral switch,
- the reverse gear position switch.

❏ Clip:

- the reverse gear position switch wiring clip,
- the neutral switch wiring clips.

4X4 TRANSMISSION

❏ Connect the 1st gear position switch.

❏ Clip on the 1st gear position switch wiring clips.


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2TR, and 6 SPEED MANUAL GBOX

❏ Refit:

- the intermediate pipe (see **Connector pipe: Removal - Refitting**) (19A, Exhaust).
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) 31A, Front axle components),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),

❏ Connect:

- the selector cable (see **Mechanical gear control cable: Adjustment**) (37A, Mechanical component controls),
- the gear lever cable (see **Manual gearbox selector cable: Removal - Refitting**) (37A, Mechanical component controls)

❏ Refit:

- the battery tray bracket,
- the battery tray bracket bolts,
- the wiring bracket,
- the wiring bracket bolts.

❏ Torque tighten:

- the **battery tray bracket bolts (28 N.m)**,
- the **wiring bracket bolts28 (N.m)**.

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air resonator,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the engine cover,
- the breather hose,
- the breather hose clip.

❏ Clip on the breather hose clip.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Refill:

- the brake fluid,
- the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Bleed the hydraulic clutch control (see **Clutch circuit: Bleeding**) (37A, Mechanical component controls).

❏ Refit:

- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.


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| Tightening torques ▽ | |
|---|---|
| reverse gear switch | **28 N.m** |
| wiring bracket bolts | **28 N.m** |

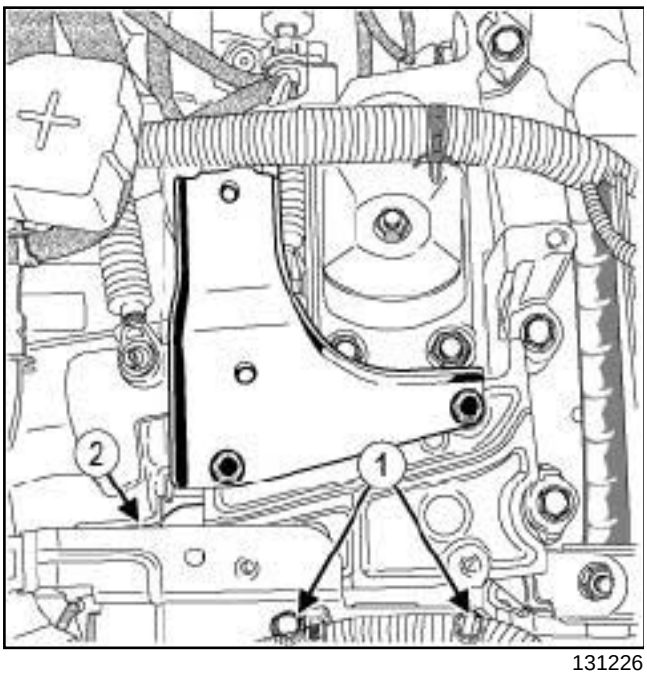
**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

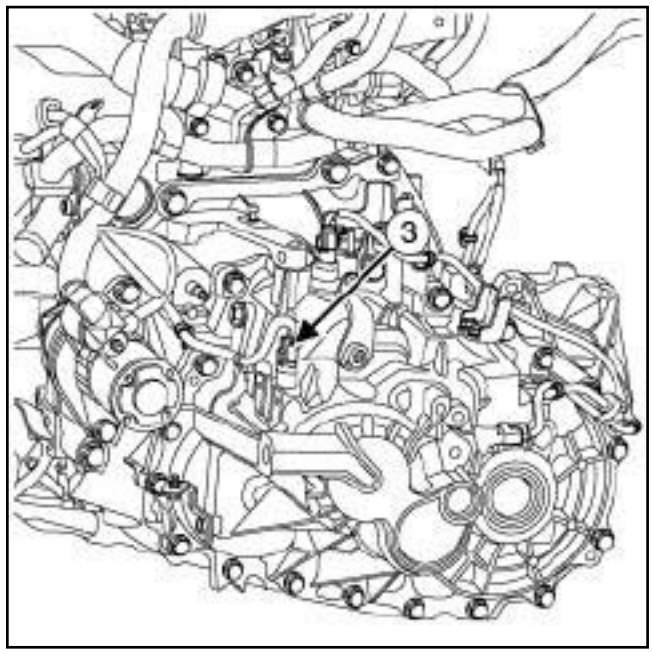


131226

❏ Remove the bolts (**1**) from the wiring bracket.

❏ Move aside the wiring bracket (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131227

❏ Disconnect the connector (**3**) from the reverse gear switch.

❏ Remove the reverse gear switch.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the reverse gear switch **(blue)** coated with **RESIN ADHESIVE** (see **Vehicle: Parts and consumables for repair**) 04B, Consumables - Products).

❏ Torque tighten the **reverse gear switch (28 N.m)**.

❏ Connect the reverse gear switch connector.

### II - FINAL OPERATION.

❏ Refit:

- the wiring bracket,
- the wiring bracket bolts.

❏ Torque tighten the **wiring bracket bolts (28 N.m)**.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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M9R, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| reverse gear switch | **28 N.m** |
| wiring harness channel bolts | **5 N.m** |

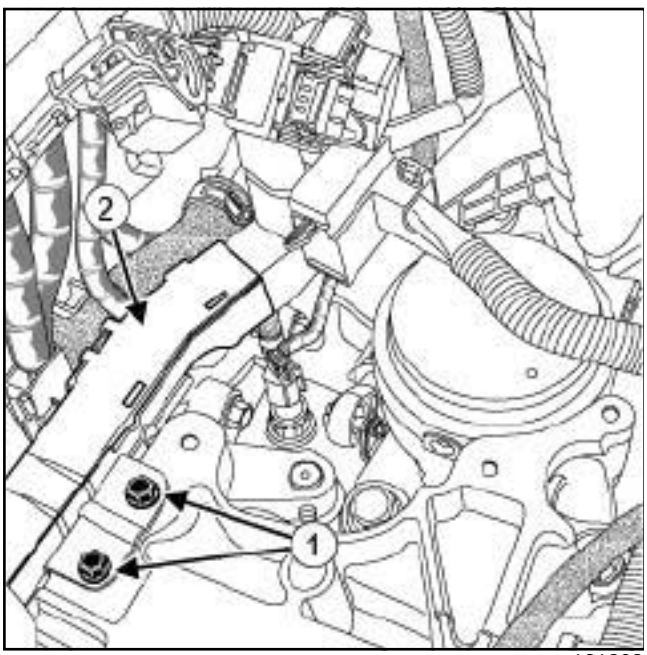
**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

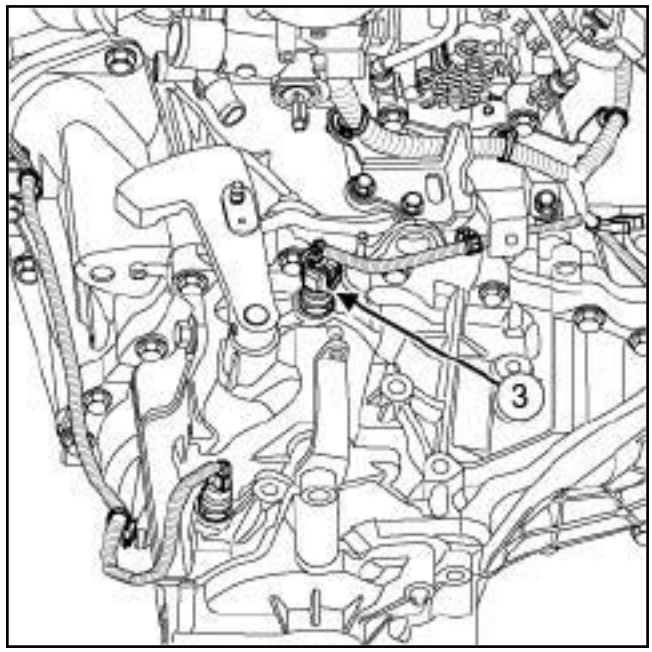


131208

❑ Remove the bolts (**1**) from the engine wiring harness channel.

❑ Move aside the wiring harness channel (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131211

❑ Disconnect the connector (**3**) from the reverse gear switch.

❑ Remove the reverse gear switch.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the reverse gear switch **(blue)** smeared with **RESIN ADHESIVE** (see **Vehicle: Parts and consumables for repair**) 04B, Consumables - Products).

❑ Torque tighten the **reverse gear switch (28 N.m)**.

❑ Connect the reverse gear switch connector.

### II - FINAL OPERATION.

❑ Refit:

- the engine wiring harness channel,
- the engine wiring harness channel bolts.

❑ Torque tighten the **wiring harness channel bolts (5 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)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- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).


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2TR, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| neutral switch | **28 N.m** |
| battery tray bracket mounting bolts | **28 N.m** |

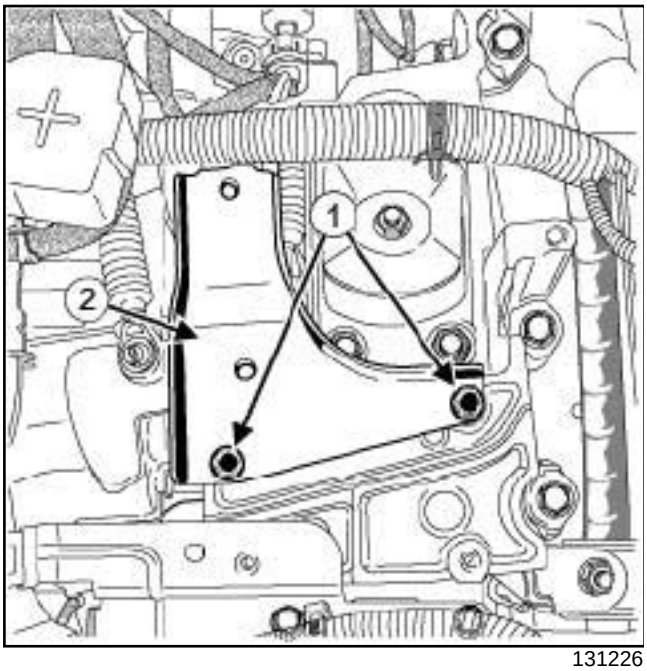
**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

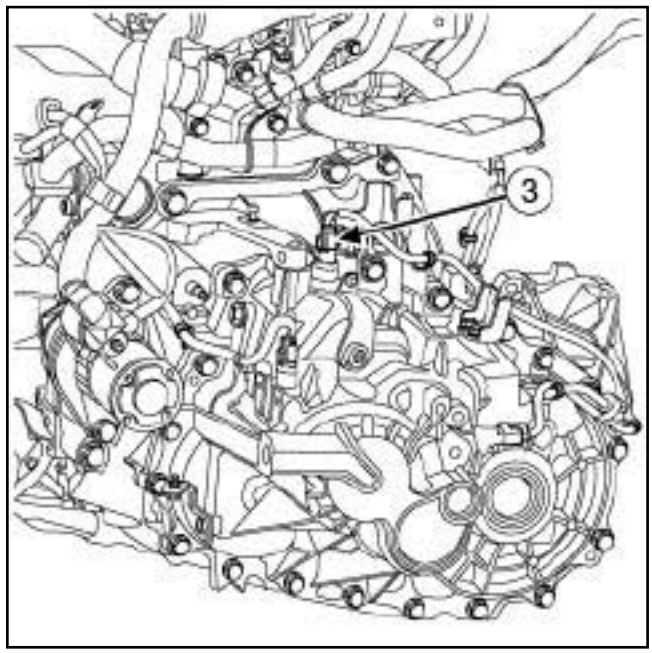


131226

❑ Remove:

- the bolts (**1**) from the battery tray mounting.
- the battery tray mounting (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131227

❑ Disconnect the connector (**3**) for the neutral switch.

❑ Remove the neutral switch.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the neutral switch **(black)** coated with **RESIN ADHESIVE** (see **Vehicle: Parts and consumables for repair**) (04B, Consumables - Products).

❑ Torque tighten the **neutral switch (28 N.m)**.

❑ Connect the connector for the neutral switch.

### II - FINAL OPERATION.

❑ Refit:

- the battery tray bracket,
- the battery tray bracket bolts.

❑ Tighten to torque the **battery tray bracket mounting bolts (28 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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M9R, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| neutral switch | **28 N.m** |
| wiring harness channel bolts | **5 N.m** |

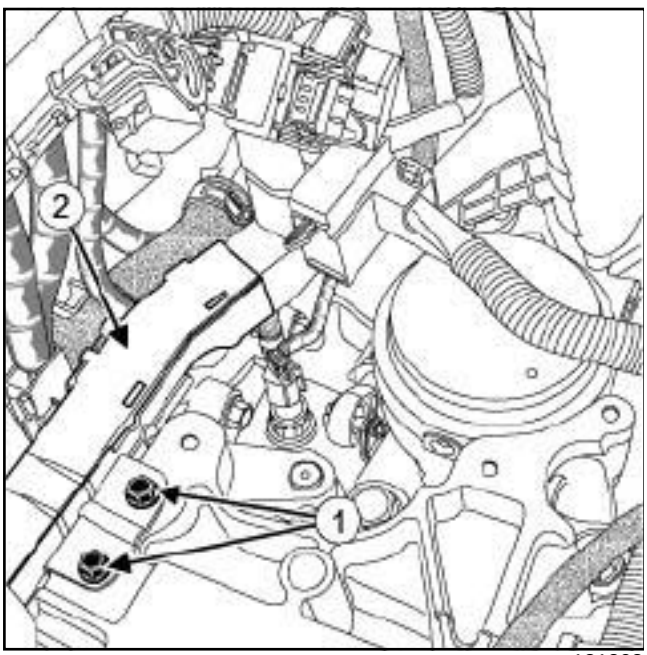
**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

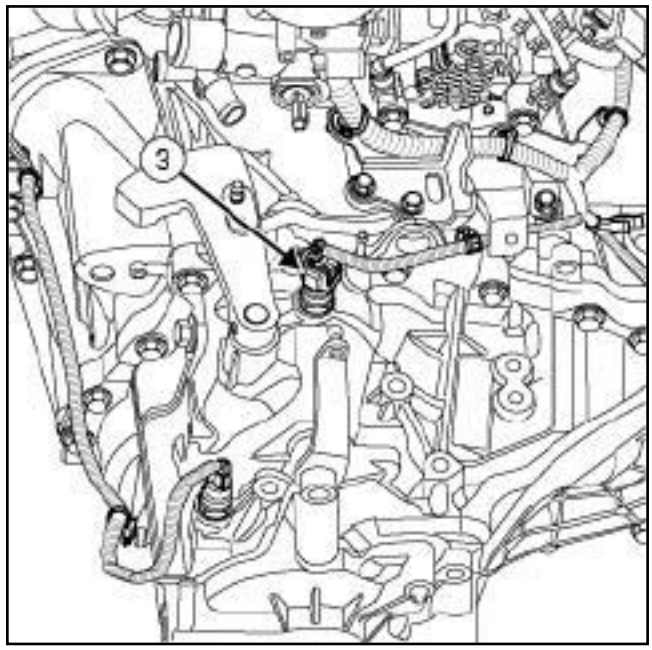


131208

❑ Remove the bolts (**1**) from the engine wiring harness channel.

❑ Remove the wiring harness channel (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131211

❑ Disconnect the connector (**3**) for the neutral switch.

❑ Remove the neutral switch.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the neutral switch **(black)** smeared with **RESIN ADHESIVE** (see **Vehicle: Parts and consumables for repair**) (04B, Consumables - Products).

❑ Torque tighten the **neutral switch (28 N.m)**.

❑ Connect the connector for the neutral switch.

### II - FINAL OPERATION.

❑ Refit:

- the engine wiring harness channel,
- the engine wiring harness channel bolts.

❑ Torque tighten the **wiring harness channel bolts (5 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).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| Tightening torques ▽ | |
|---|---|
| first gear switch | **28 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **21A**, **Manual gearbox**, **Manual gearbox: Precautions for repair**, page **21A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift and tie the vehicle down (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

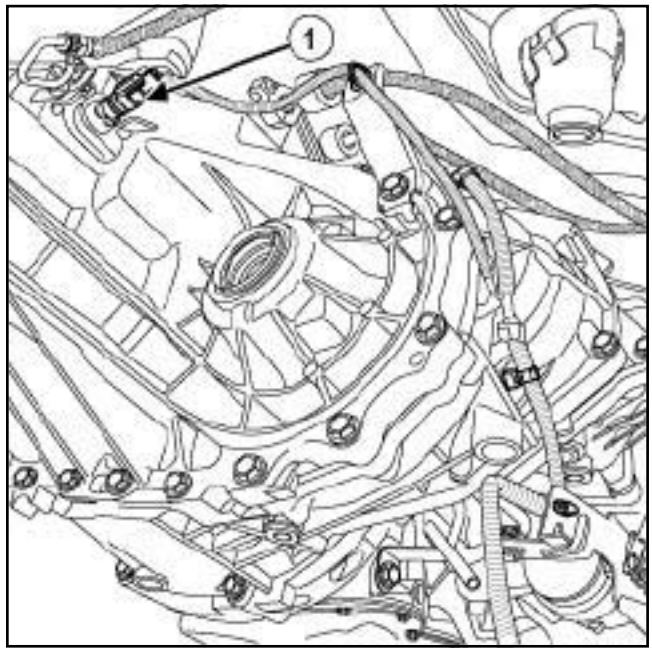
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior Protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131213

❏ Disconnect the connector (**1**) for the first gear switch.

❏ Remove the first gear switch.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the first gear switch coated with **RESIN ADHESIVE** (see **Vehicle: Parts and consumables for repair**) (04B, Consumables - Products).

❏ Torque tighten the **first gear switch (28 N.m)**.

❏ Connect the connector for the first gear switch.

### II - FINAL OPERATION.

❏ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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6 SPEED AUTO GBOX

| Gearbox type | Gear ratio | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1st | 2nd | 3rd | 4th | 5th | 6th | Reverse gear |
| AJ0<br>AJ8 | 4.199 | 2.405 | 1.583 | 1.161 | 0.855 | 0.685 | 3.457 |


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**PARTS ALWAYS TO BE REPLACED**

Parts to be replaced with new ones if removed:

- differential outlet seals,
- the converter seal,
- the converter nuts,
- O-rings,
- the hydraulic distributor metal housing seal.



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FK0 or FK8

**PARTS ALWAYS TO BE REPLACED**

Parts to be replaced with new ones if removed:

- differential outlet seals,
- the converter seal,
- the converter nuts,
- the seal.



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6 SPEED AUTO GBOX

## I - SPECIFICATIONS

Weight:

- AJ0: **100 kg**,

- AJ8: **106.8 kg**.

The **AJ0** and **AJ8** gearboxes are equipped with "Shift Lock" and "Lock Up" systems.

"Shift Lock" inhibits movement of the gear selector lever unless the brake pedal is depressed simultaneously. **To unlock the lever when the battery is faulty and carry out repair operations, refer to the Driver's Handbook.**

The aim of converter Lock Up is to connect the automatic gearbox directly to the engine. This function is carried out by a "mini clutch" in the converter. Lock Up is controlled by the automatic gearbox computer.

As the automatic gearbox is lubricated under pressure, lubrication is only provided when the engine is running.

As a result of this fact, and to avoid serious damage, it is essential to comply with the following instructions:

- never allow the vehicle to coast with the ignition switched off (e.g. when going down a hill). We cannot stress enough the harm that this may cause,

- never push the vehicle (e.g. to get to a petrol station, unless the recommended precautions have been taken (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

In addition, the vehicle is only under traction if the engine is running. It is therefore impossible to start the engine of a vehicle with an automatic gearbox by pushing the vehicle.

## II - STORING REMOVED PARTS

116357

Store removed parts in storage containers so as not to damage or misplace them.


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FK0 or FK8

Note:

Do not overhaul the automatic gearbox.

As the automatic gearbox is lubricated under pressure, lubrication is only provided when the engine is running.

As a result of this fact, and to avoid serious damage, it is essential to comply with the following instructions:

- never allow the vehicle to coast with the ignition switched off (e.g. when going down a hill). We cannot stress enough the harm that this may cause,
- never push the vehicle (e.g. to get to a petrol station, unless the recommended precautions have been taken (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

In addition, the vehicle is only under traction if the engine is running. It is therefore impossible to start the engine of a vehicle with an automatic gearbox by pushing the vehicle.


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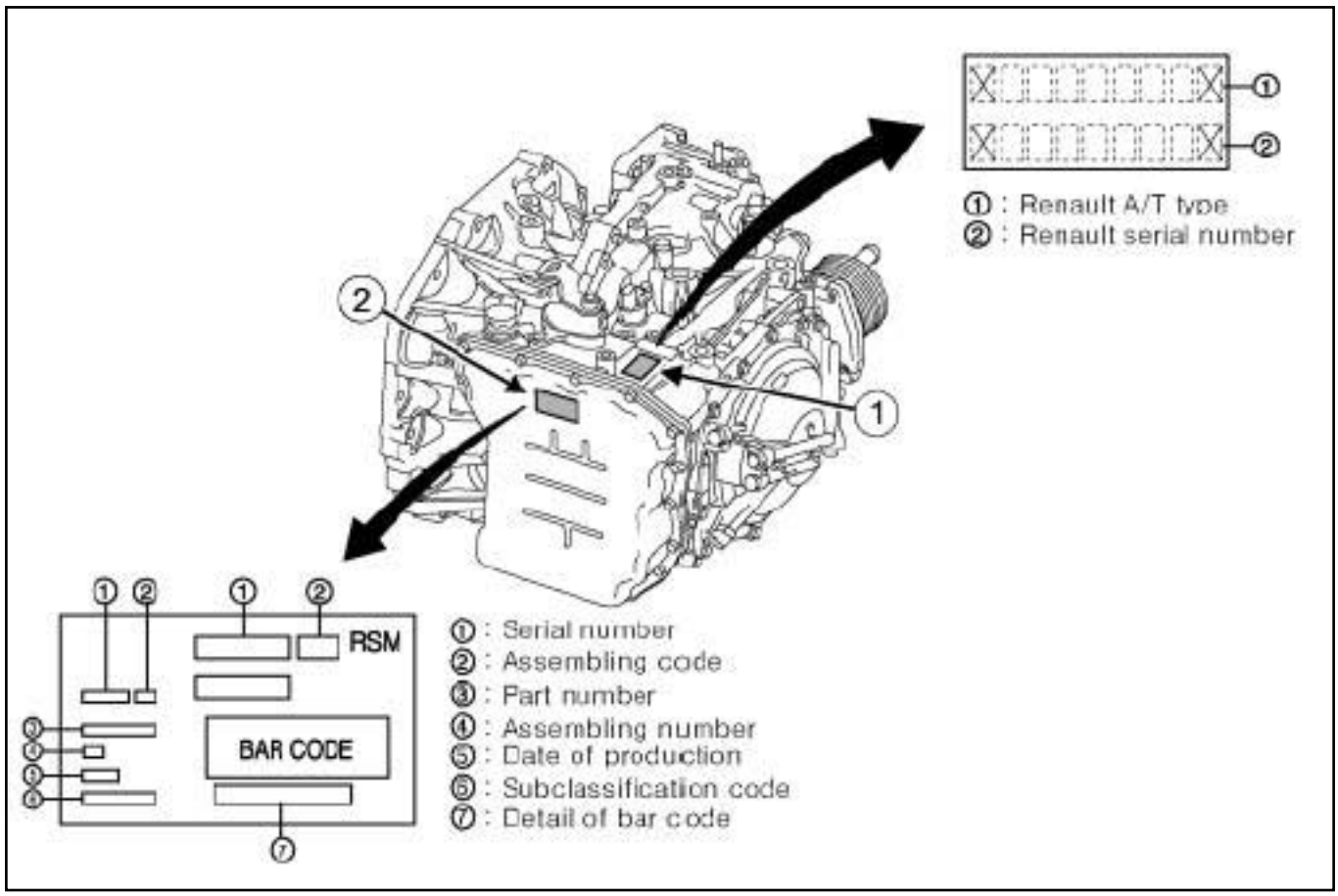


129974

The gearbox is identified by an engraved marking (**1**) located on the top of the gearbox and by a self-adhesive label (**2**) on the hydraulic distributor housing.


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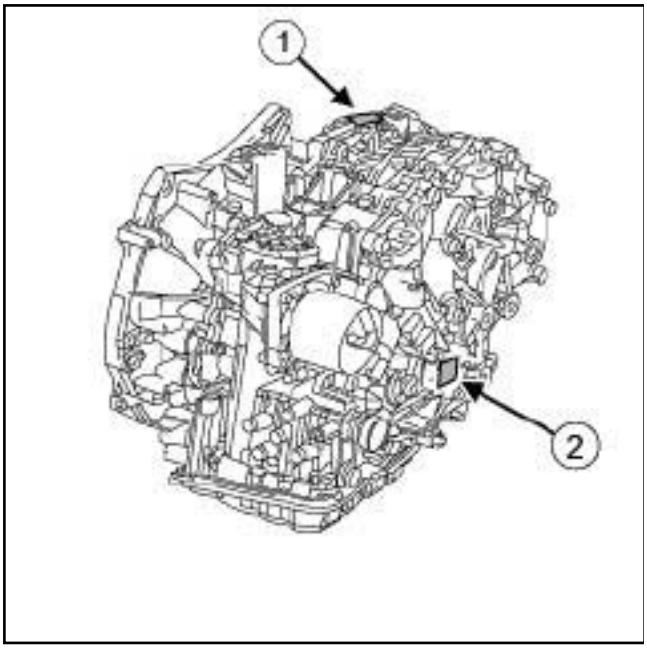
FK0 or FK8




129975

The gearbox is identified by an engraved marking (**1**) located on the top of the gearbox and by a self-adhesive label (**2**) affixed to the side of the gearbox.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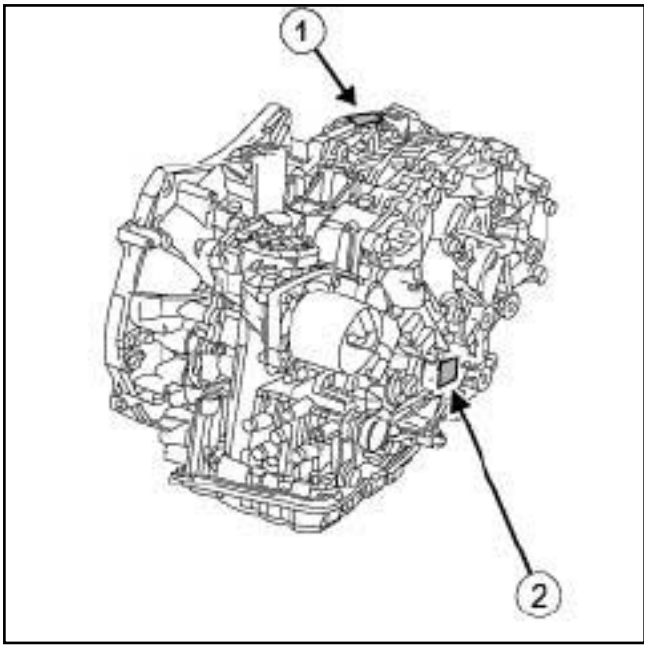
FK0 or FK8




129975

The gearbox is identified by an engraved marking (**1**) located on the top of the gearbox and by a self-adhesive label (**2**) affixed to the side of the gearbox.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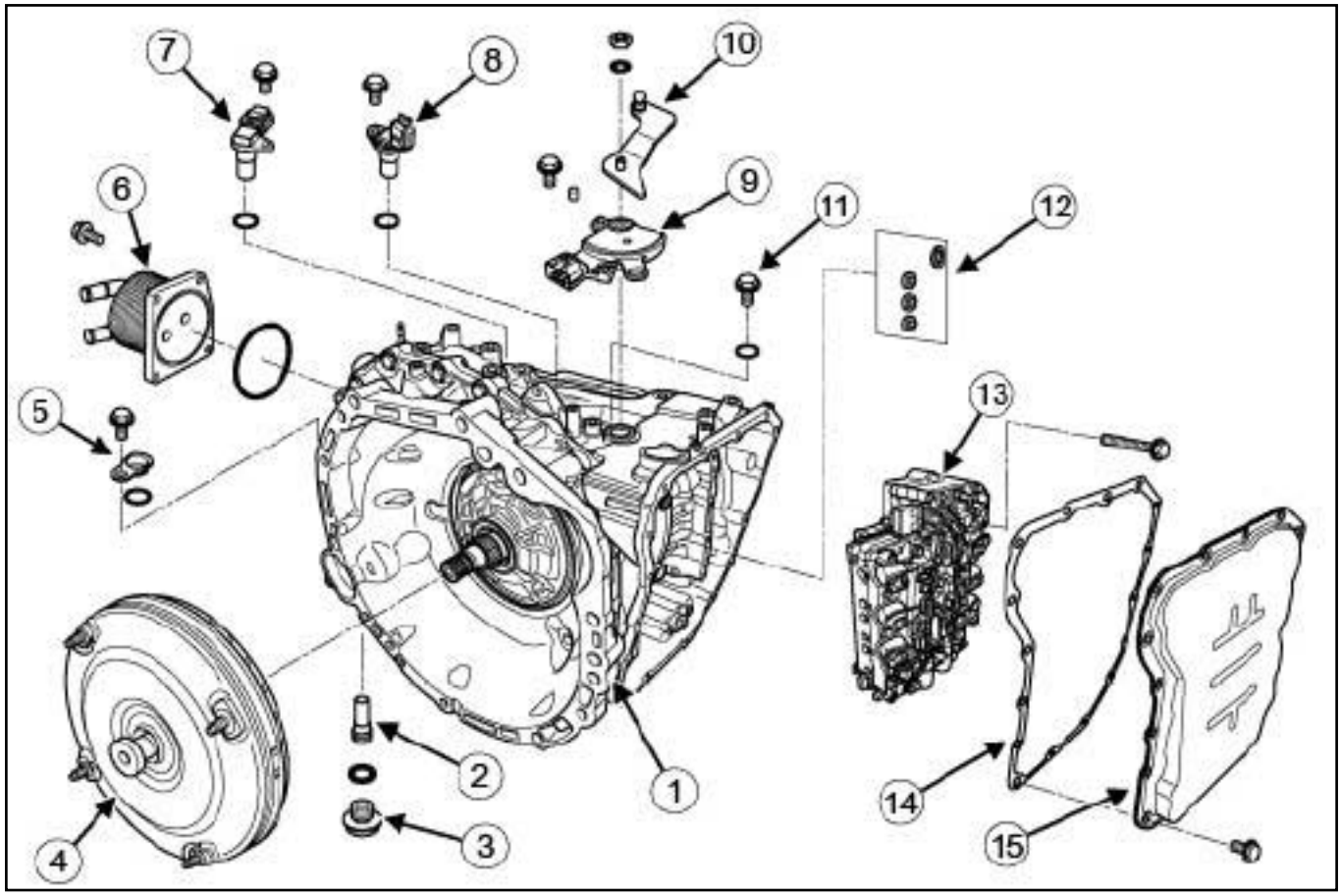


129976

| | |
|---|---|
| (**1**) | Automatic gearbox |
| (**2**) | Oil overflow pipe (8 N.m) |
| (**3**) | Level-setting plug (8 N.m) |
| (**4**) | Converter |
| (**5**) | Filler pipe closure panel (6 N.m) |
| (**6**) | Oil cooler (4.5 N.m) |
| (**7**) | Output speed sensor (6 N.m) |
| (**8**) | Input speed sensor (6 N.m) |
| (**9**) | Multifunction switch (6 N.m) |
| (**10**) | Control lever (17 N.m) |
| (**11**) | Hydraulic pressure measurement plug (8 N.m) |
| (**12**) | Hydraulic distributor O-rings |
| (**13**) | Hydraulic distributor (8 N.m) |
| (**14**) | Hydraulic distributor casing seal |
| (**15**) | Hydraulic distributor housing (8 N.m) |


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6 SPEED AUTO GBOX orVARIABLE GEARBOX

**I - GEARBOX TYPE/OIL TYPE CORRELATIONS:**

| GEARBOX TYPE | TYPE OF OIL FOR GEARBOX |
|---|---|
| DP0/RWX | ELF RENAULTMATIC D3 SYN |
| MBX/AD4/AD8/AR4 | ELF RENAULTMATIC D2 |
| LM0 | ESSO ATF LT 71141 |
| SU0/SU1/SU4 | CLIP oil |
| AJX | ELF MATIC S6 |
| FKX CKX | ELF MATIC CVT |

Note:

ELF RENAULTMATIC D3 SYN oil is not a substitute for ELF RENAULTMATIC D2.

**II - STANDARDS AND PART NUMBERS OF THE VARIOUS RECOMMENDED OILS:**

| DESIGNATION | STANDARD | PART NUMBER |
|---|---|---|
| ELF RENAULTMA-TIC D2 | DEXRON II D | **77 01 402 037** (2 litres) |
| ELF RENAULTMA-TIC D3 SYN | DEXRON III | May be ordered from ELF |
| CLIP oil | - | **77 11 218 368** (2 litres) |
| ELF MATIC S6 | - | May be ordered from ELF (7.6 litres) |
| ELF MATIC CVT | - | May be ordered from ELF (1 litre) |
| ESSO ATF LT 71141 | - | **77 11 172 226** (2 litres) |


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| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| oil overflow pipe | **8 N.m** |
| level-setting plug | **8 N.m** |
| level-setting plug | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

Note:
When draining, filling or checking the oil level, always shift the gear lever to the **Park** position.

Note:
The oil level must be checked at a temperature of **40˚C ± 2**.

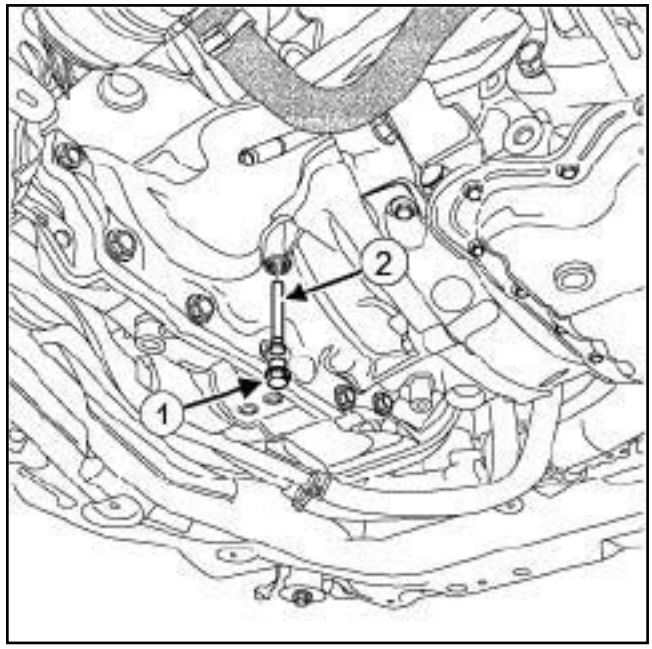
Note:
The automatic transmission oil should preferably be changed when the oil is warm (approximately **60˚C** maximum) in order to remove as many impurities as possible.

## DRAINING

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.



129977

❏ Remove:
- the level-setting plug (**1**) ,
- the oil overflow pipe (**2**) .

❏ Drain the automatic gearbox.

❏ Refit the oil overflow pipe.

❏ Torque tighten the **oil overflow pipe (8 N.m)**.

❏ Refit the level-setting plug.

❏ Torque tighten the **level-setting plug (8 N.m)**.

## FILLING

❏ Remove:
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery tray),
- the input speed sensor (see **23A**, **Automatic gearbox**, **Speed sensor: Removal - Refitting**, page **23A-24**) .

❏ Top up the automatic gearbox with **3.2 litres** of new oil in the input speed sensor mounting hole.

❏ Refit:
- the input speed sensor (see **23A**, **Automatic gearbox**, **Speed sensor: Removal - Refitting**, page **23A-24**) ,
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery tray),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- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Run the engine at idle speed.

❑ Connect the **diagnostic tool**.

❑ Establish dialogue with the automatic transmission computer.

❑ Monitor the automatic transmission oil temperature parameter.

❑ Wait for the temperature to reach **40°C ± 2**.

❑ Place a container under the level-setting plug.

❑ Remove only the level-setting plug, leaving the engine running.

❑ If the oil does not flow out or the quantity collected is below **0.1 litres** :

- Switch off the engine,
- refit the level-setting plug,
- add **0.5 litre** of oil,
- allow the automatic gearbox oil to cool to **30°C**,
- run the engine at idle speed,
- wait for the automatic gearbox oil temperature to reach **40°C ± 2**,
- place a container under the level-setting plug,
- remove the level-setting plug.

❑ Repeat these operations until more than **0.1 litres** of oil is recovered in the container.

❑ Remove the O-ring from the level-setting plug.

❑ Refit:

- the new O-ring on the level-setting plug,
- the level-setting plug.

❑ Torque tighten the **level-setting plug (8 N.m)**.

❑ Refit the engine undertray.


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FK0 or FK8

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| drain plug | **34 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

Note:
When draining, filling or checking the oil level, always shift the gear lever to the **Park** position.

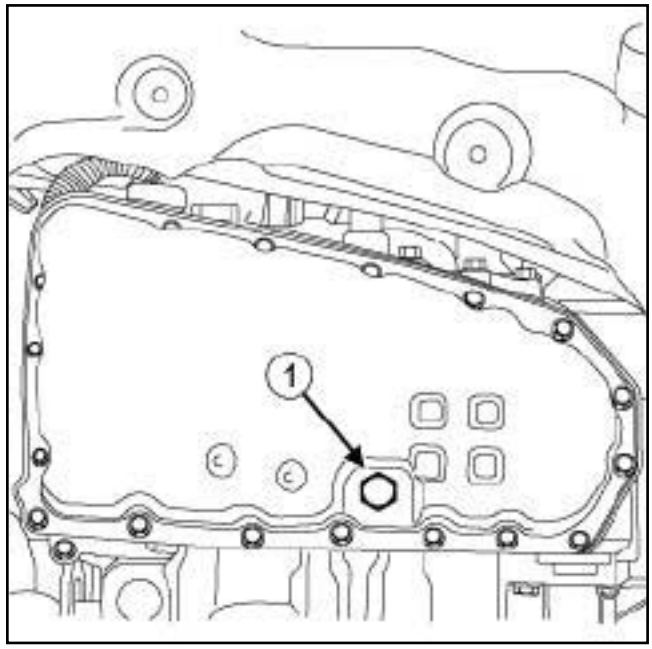
Note:
The oil level must be checked at a temperature between **50°C** and **80°C**.

## DRAINING

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.



129978

❏ Remove:
- the drain plug (**1**) ,
- the O-ring from the drain plug.

❏ Drain the automatic gearbox .

❏ Refit:
- the new O-ring on the drain plug,
- the drain plug.

❏ Torque tighten the **drain plug (34 N.m)**.

## FILLING

❏ Remove the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).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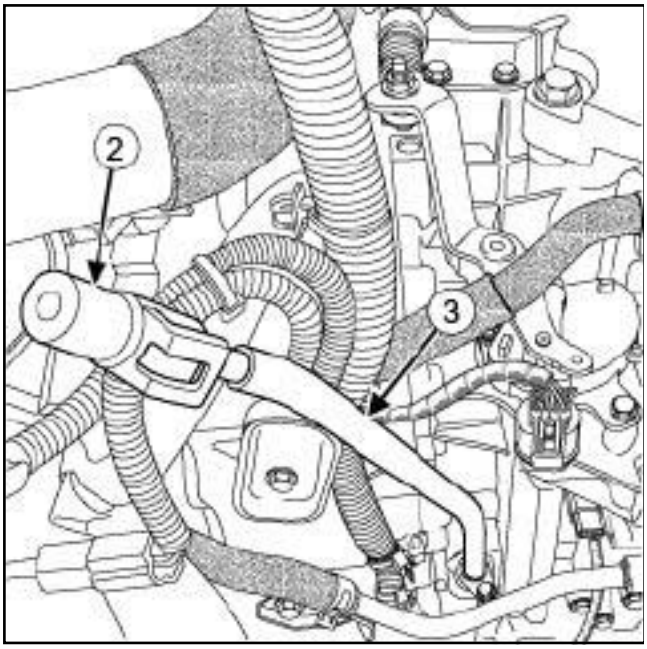
FK0 or FK8




129979

❏ Remove the oil level gauge (**2**) from the automatic variable gearbox.

❏ Top up the automatic gearbox oil to the specified level using the oil charging pipe ***(3)*** .

❏ Check the oil level using the automatic gearbox oil level gauge ***(2)*** after heating the automatic gearbox oil to a temperature between **50˚C** and **80˚C**.

❏ Refit:

- the oil level gauge,
- the engine undertray.

❏ Connect the **diagnostic tool**. For programming procedures (see **Fault finding - Replacement of components** (23A, Automatic gearbox).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| Tightening torques ▽ | |
|---|---|
| hydraulic distributor bolts | **8 Nm** |
| hydraulic distributor housing bolts | **8 Nm** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

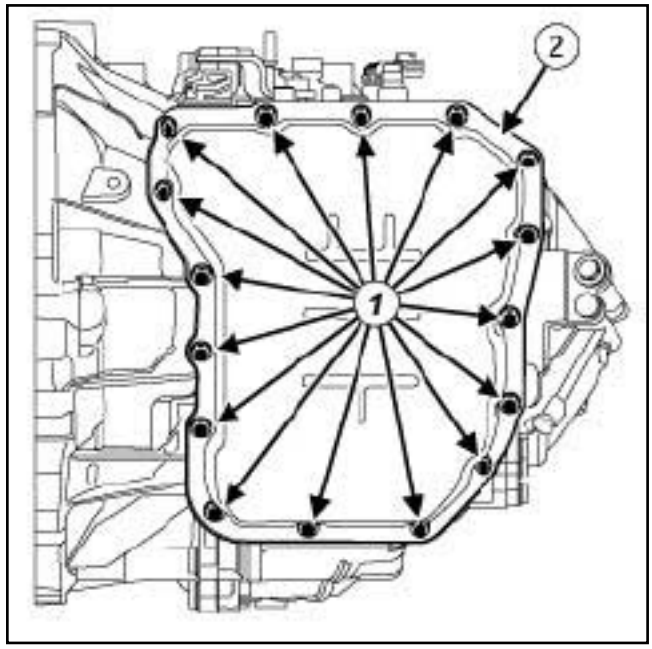
## REMOVAL

### REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

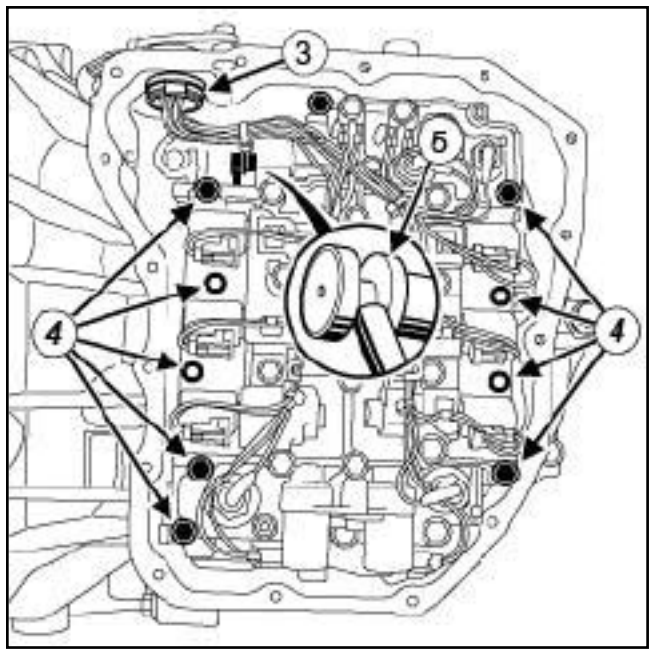
❏ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**)



129980

❏ Remove:

- the hydraulic distributor housing bolts (**1**) ,
- the hydraulic distributor housing (**2**) ,
- the hydraulic distributor housing seal.



129981

❏ Unclip the internal wiring connector (**3**) .

❏ Remove the hydraulic distributor bolts ***(4)*** .

❏ Disconnect the automatic gear lever ***(5)*** by tilting the hydraulic distributor slightly.

❏ Remove the hydraulic distributor.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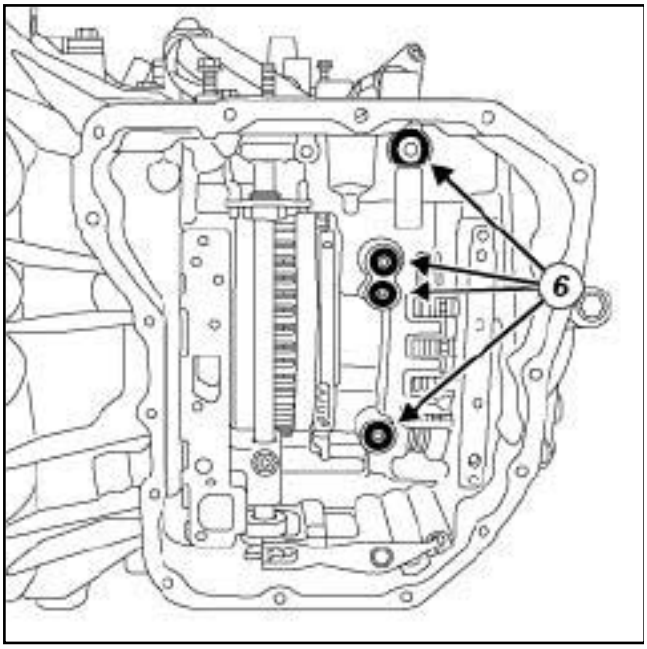


129982

❏ Remove the O-rings (**6**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the hydraulic distributor housing seal.
- the O-ring.

❏ Clean the joint faces usingsurface cleaner (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products) on the automatic gearbox and on the hydraulic distributor housing, taking care not to damage the contact surfaces.

❏ Refit the new O-rings.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the hydraulic distributor.

❏ Connect the automatic gear lever by tilting the hydraulic distributor slightly.

❏ Refit the hydraulic distributor bolts.

❏ Torque tighten the **hydraulic distributor bolts (8 Nm)**.

❏ Clip the internal wiring connector.

❏ Refit:

- the hydraulic distributor housing seal on the hydraulic distributor housing,
- the hydraulic distributor housing,
- the hydraulic distributor casing bolts.

❏ Torque tighten the **hydraulic distributor housing bolts (8 Nm)**.

### III - FINAL OPERATION.

❏ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .


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| Essential special tooling | |
|---|---|
| **Bvi. 1804** | Kit for fitting differential and converter seals (AJ0). |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

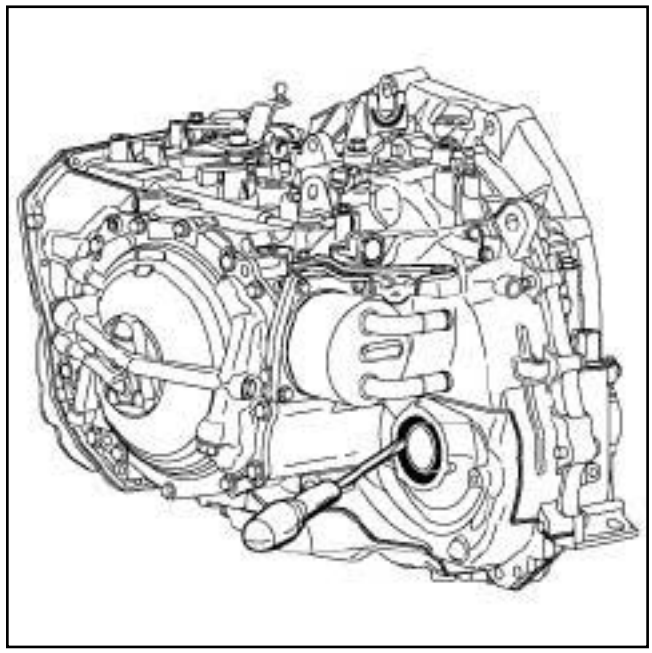
❏ Remove the engine undertray.

❏ Drain the automatic transmission oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Remove:

- the wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129983

❏ Remove the differential output seal on the side concerned using a screwdriver, without scratching the contact surfaces.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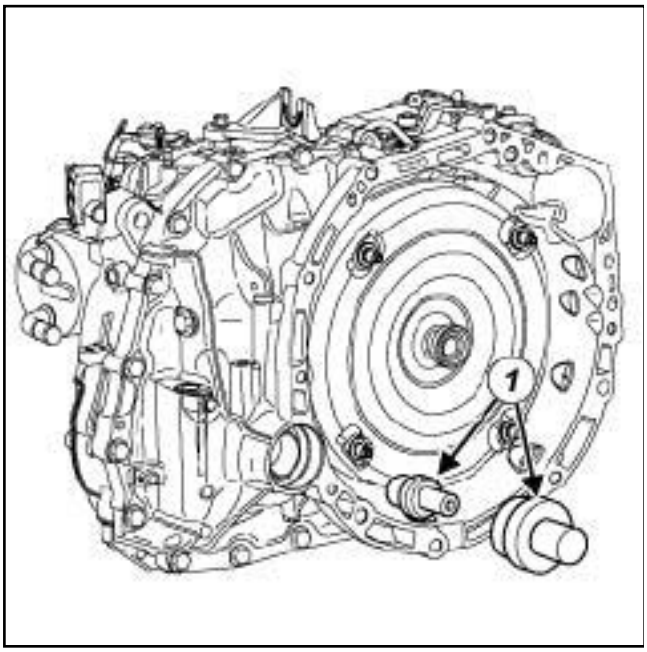
## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

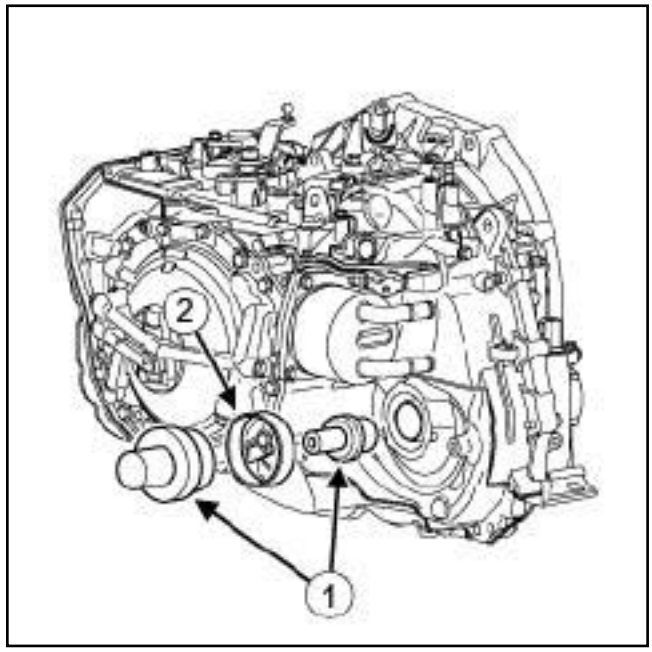
#### 1 - Right-hand differential output seal




129984

❏ Refit the right-hand differential output seal using the tool **(Bvi. 1804)** (**1**) .

#### 2 - Left-hand differential output seal




129985

❏ Refit the left-hand differential output seal using the tool **(Bvi. 1804)** (**1**) and spacer (**2**) .

### II - FINAL OPERATION.

❏ Refit:

- the front wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .
- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Top up the automatic transmission oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Refit the engine undertray.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FK0 or FK8

| Essential special tooling | |
|---|---|
| **Bvi. 1856** | Tool for fitting CVT converter and differential seals |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

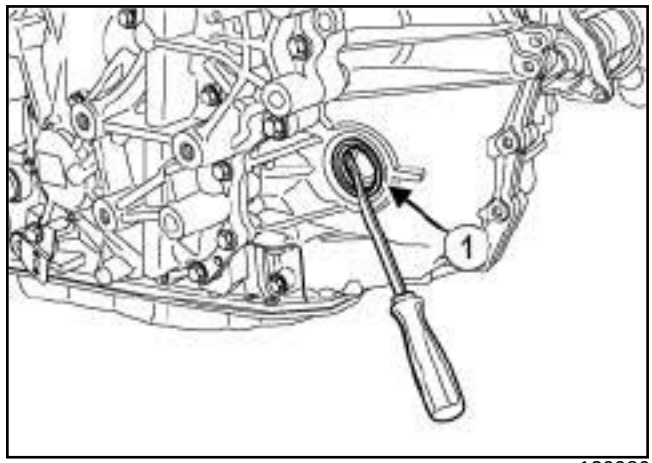
❏ Remove the engine undertray.

❏ Drain the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Remove:

- the wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

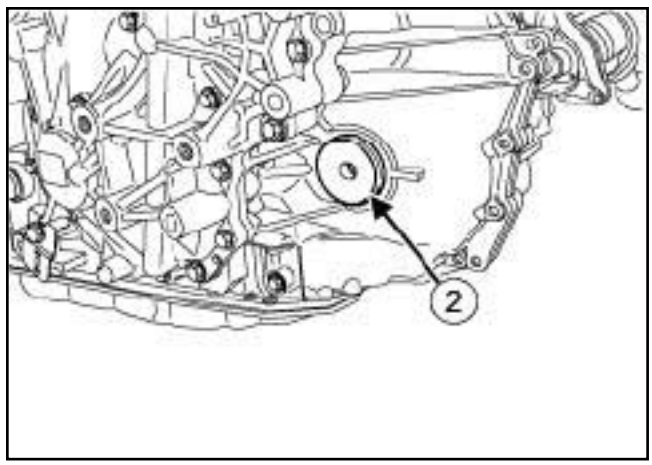


129986

❏ Remove the differential output seal (**1**) on the side concerned using a screwdriver, without scratching the contact surfaces.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED



129987

❏ Refit the differential output seal on the side concerned using the tool **(Bvi. 1856)** (**2**) .

### II - FINAL OPERATION

❏ Refit:

- the front wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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FK0 or FK8

- ❏ Top up the automatic transmission oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .
- ❏ Refit the engine undertray.


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| Tightening torques ▽ | |
|---|---|
| multifunction switch bolts | **6 Nm** |
| control cable nut | **14 N.m** |
| wiring harness channel bolts | **5 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

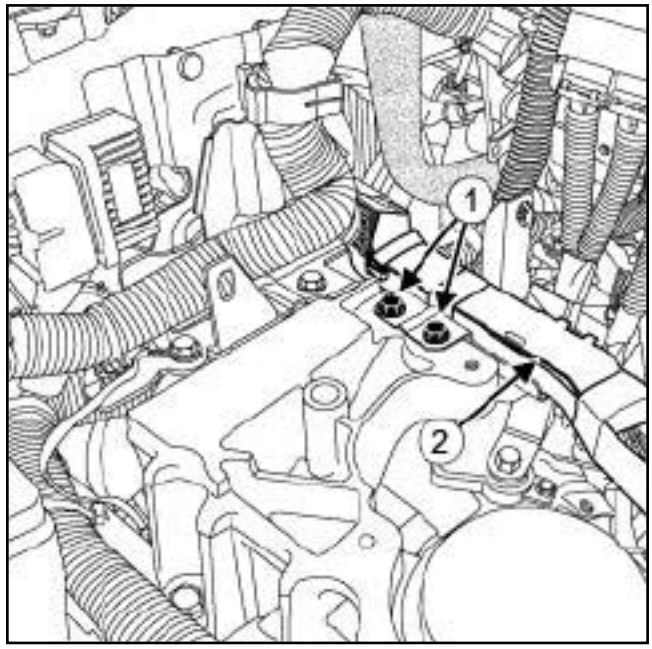
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Shift the gear lever to **Neutral**.

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

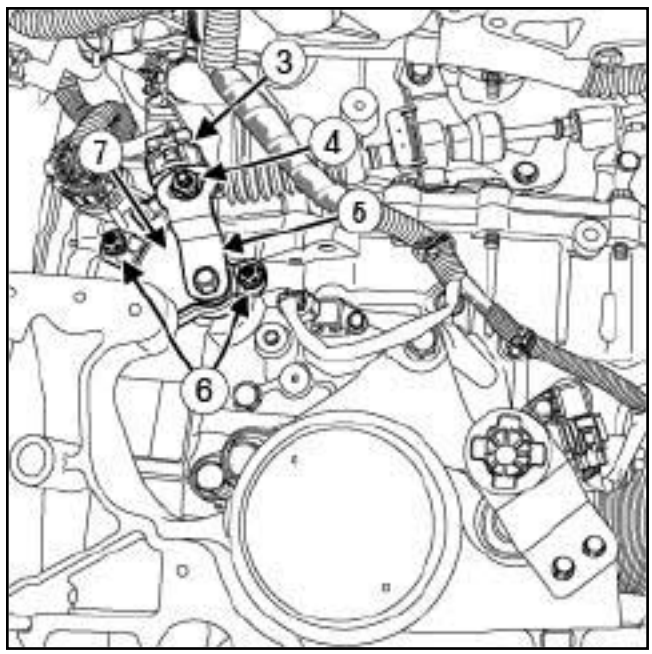



129988

❏ Remove the bolts (**1**) from the engine wiring harness channel.

❏ Remove the wiring harness channel ***(2)*** .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129989

❏ Disconnect the multifunction switch connector (**3**) .

❏ Remove the nut ***(4)*** from the control cable.

❏ Disconnect the control cable from the multifunction switch control lever ***(5)*** .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❏ Remove:

- the multifunction switch bolts ***(6)*** ,
- the multifunction switch ***(7)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the multifunction switch,
- the multifunction switch bolts.

❏ Adjust the multifunction switch (see **23A**, **Automatic gearbox**, **Multifunction switch: Adjusting**, page **23A-54**) .

❏ Torque tighten the **multifunction switch bolts (6 Nm)**.

❏ Connect the multifunction switch connector.

❏ Refit:

- the control cable on the multifunction switch control lever,
- the control cable nut.

❏ Torque tighten the **control cable nut (14 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the engine wiring harness channel,
- the engine wiring harness channel bolts.

❏ Torque tighten the **wiring harness channel bolts (5 N.m)**.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).


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FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| multifunction switch bolts | **6 Nm** |
| control cable nut | **14 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

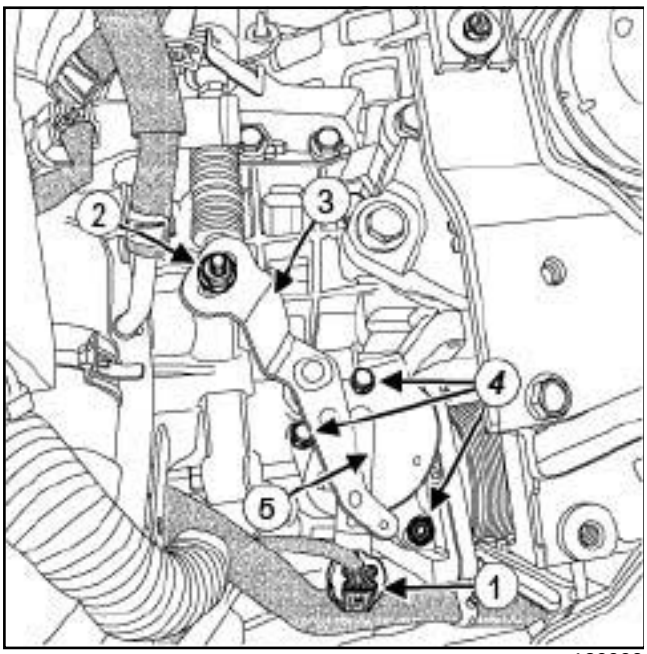
### I - REMOVAL PREPARATION OPERATION

❏ Shift the gear lever to **Neutral**.

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



129990

❏ Disconnect the multifunction switch connector (**1**) .

❏ Remove the nut ***(2)*** from the control cable.

❏ Disconnect the control cable from the multifunction switch control lever ***(3)*** .

❏ Remove:

- the multifunction switch bolts ***(4)*** ,
- the multifunction switch ***(5)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the multifunction switch,
- the multifunction switch bolts.

❏ Adjust the multifunction switch (see **23A**, **Automatic gearbox**, **Multifunction switch: Adjusting**, page **23A-54**) .

❏ Torque tighten the **multifunction switch bolts (6 Nm)**.

❏ Connect the multifunction switch connector.

❏ Refit:

- the control cable on the multifunction switch control lever,
- the control cable nut.

❏ Torque tighten the **control cable nut (14 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).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| Tightening torques ▽ | |
|---|---|
| input speed sensor bolt | **6 N.m** |
| output speed sensor bolt | **6 N.m** |
| wiring harness channel bolts | **5 N.m** |

**IMPORTANT**

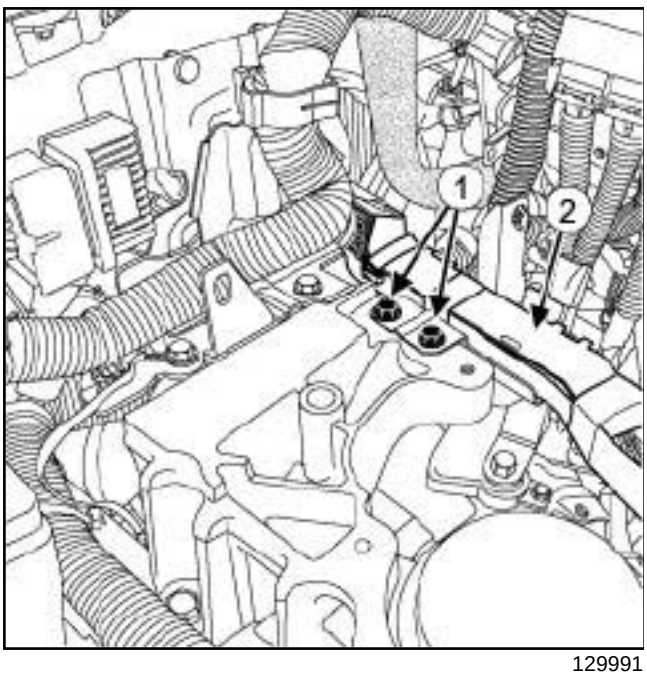
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



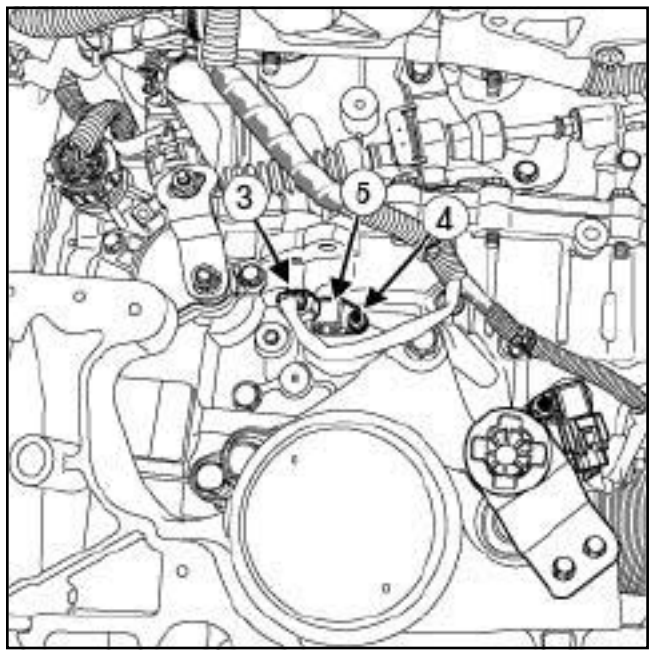

129991

❏ Remove the bolts (**1**) from the engine wiring harness channel.

❏ Remove the wiring harness channel ***(2)*** .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Input speed sensor




129992

❏ Disconnect the input speed sensor connector (**3**) .

❏ Remove:

- the input speed sensor bolt ***(4)*** ,
- the input speed sensor ***(5)*** ,
- the O-ring from the input speed sensor.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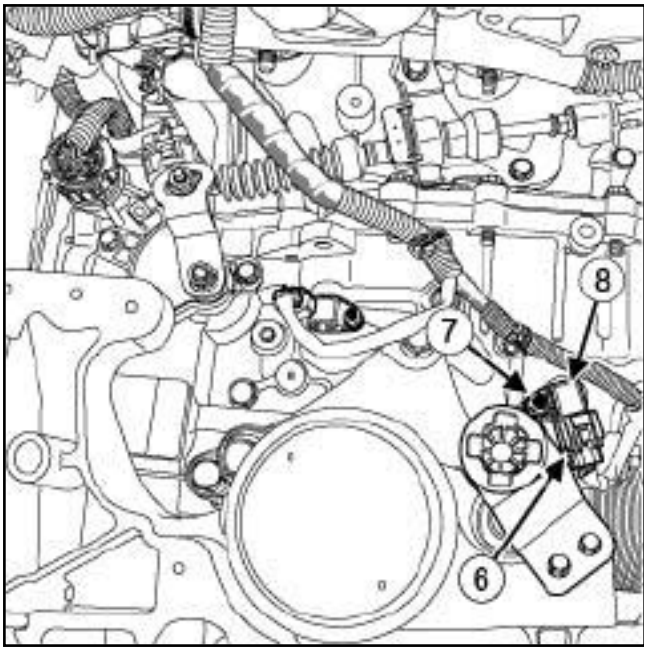
**2 - Output speed sensor**



129992

❏ Disconnect the output speed sensor connector (**6**) .

❏ Remove:

- the output speed sensor bolt ***(7)*** ,
- the output speed sensor ***(8)*** ,
- the O-ring from the output speed sensor.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the O-ring.

### II - REFITTING OPERATION FOR PART CONCERNED

**1 - Input speed sensor**

❏ Refit:

- the new O-ring on the input speed sensor,
- the input speed sensor,
- the input speed sensor bolt.

❏ Torque tighten the **input speed sensor bolt (6 N.m)**.

❏ Connect the input speed sensor connector.

**2 - Output speed sensor**

❏ Refit:

- the new O-ring on the output speed sensor,
- the output speed sensor,
- the output speed sensor bolt.

❏ Torque tighten the **output speed sensor bolt (6 N.m)**.

❏ Connect the output speed sensor connector.

### III - FINAL OPERATION.

❏ Refit:

- the engine wiring harness channel,
- the engine wiring harness channel bolts.

❏ Torque tighten the **wiring harness channel bolts (5 N.m)**.

❏ Remove:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).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FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| input speed sensor bolt | **6 N.m** |
| output speed sensor bolt | **6 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

**1 - Input speed sensor**

❏ Remove the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

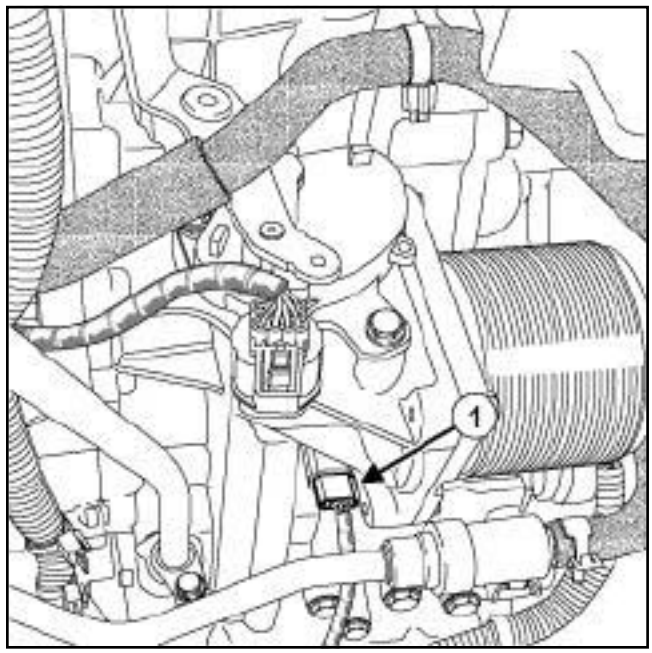
**2 - Output speed sensor**

❏ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery: Removal - Refitting**) (80A, Battery).

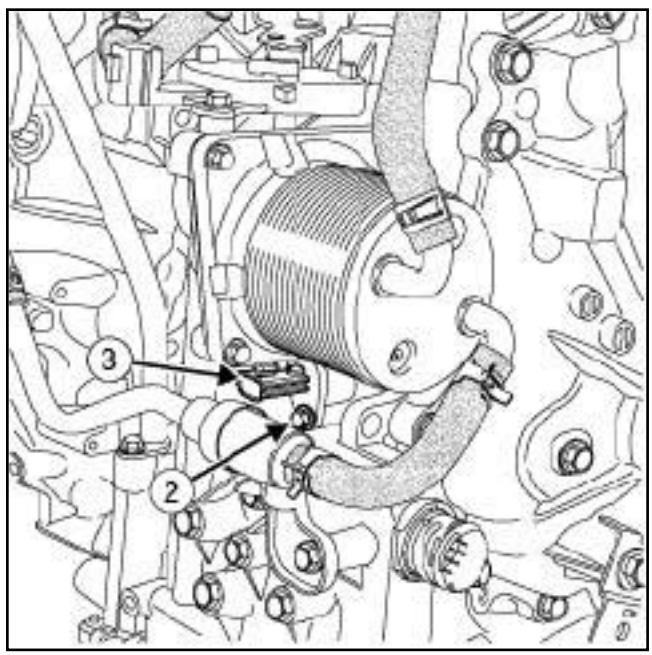
### II - OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Input speed sensor**



129993

❏ Disconnect the input speed sensor connector (**1**) .



129994

❏ Remove:

- the input speed sensor bolt (**2**) ,
- the input speed sensor (**3**) ,
- the O-ring from the input speed sensor.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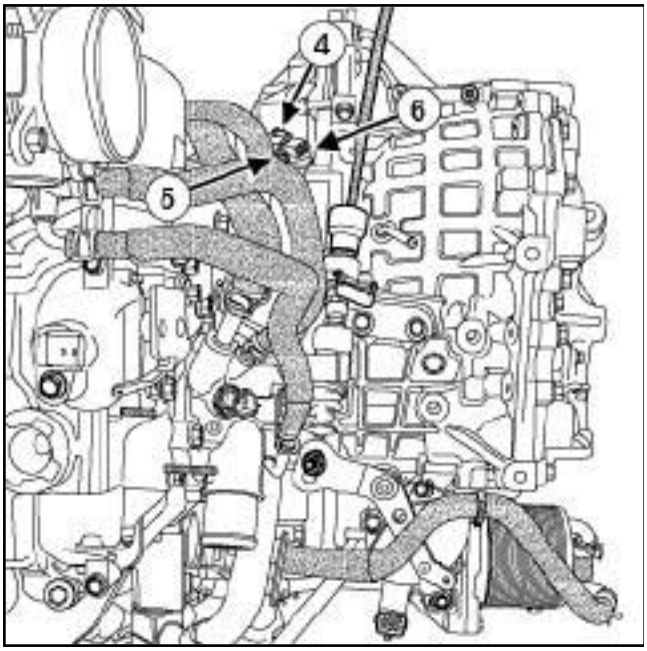
FK0 or FK8

**2 - Output speed sensor**




129995

❏ Disconnect the output speed sensor connector (**4**) .

❏ Remove:

- the output speed sensor bolt ***(5)*** ,
- the output speed sensor ***(6)*** ,
- the O-ring from the output speed sensor.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the O-ring.

### II - REFITTING OPERATION FOR PART CONCERNED

**1 - Input speed sensor**

❏ Refit:

- the new O-ring on the input speed sensor,
- the input speed sensor,
- the input speed sensor bolt.

❏ Torque tighten the **input speed sensor bolt (6 N.m)**.

❏ Connect the input speed sensor connector.

**2 - Output speed sensor**

❏ Refit:

- the new O-ring on the output speed sensor,
- the output speed sensor,
- the output speed sensor bolt.

❏ Torque tighten the **output speed sensor bolt (6 N.m)**.

❏ Connect the output speed sensor connector.

### III - FINAL OPERATION.

**1 - Input speed sensor**

❏ Refit the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

**2 - Output speed sensor**

❏ Refit:

- the battery tray (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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| Tightening torques ▽ | |
|---|---|
| oil temperature sensor bolt | **8 N.m** |
| earth bolts | **8 N.m** |
| hydraulic distributor housing bolts | **8 Nm** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

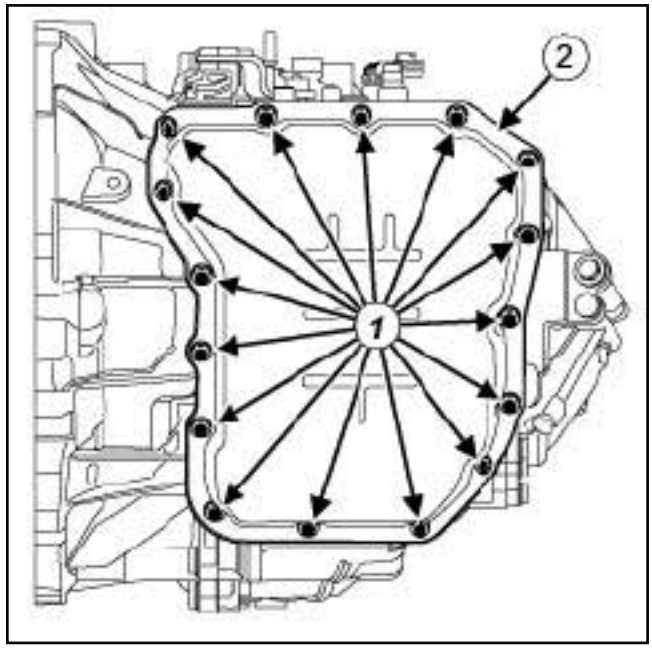
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**

To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .

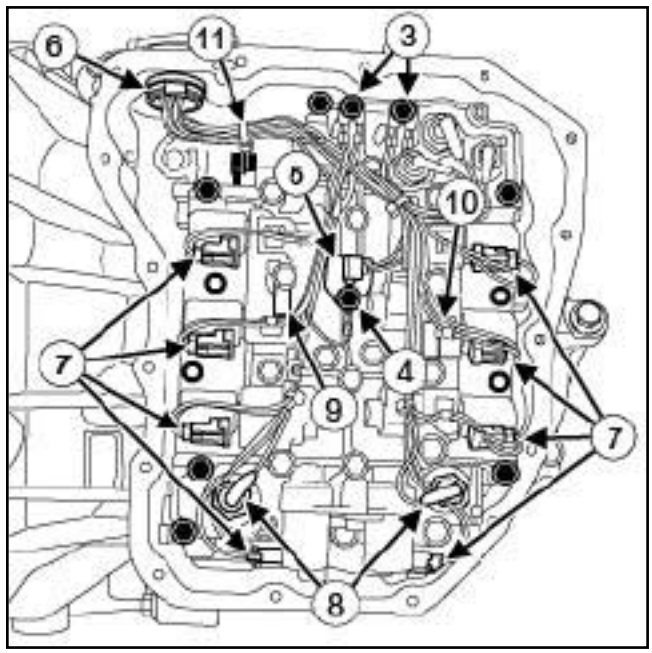



129996

❏ Remove:

- the hydraulic distributor housing bolts (**1**) ,
- the hydraulic distributor housing (**2**) ,
- the hydraulic distributor housing seal.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




129997

❏ Remove:

- the earth bolts (**3**) ,
- the bolt (**4**) from the oil temperature sensor,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- the oil temperature sensor bracket (**5**) .

❏ Disconnect:

- the internal wiring connector ***(6)*** ,
- the solenoid connectors ***(7)*** ,
- the hydraulic distributor wiring connectors ***(8)*** ,
- The hydraulic distributor oil temperature sensor ***(9)*** .

❏ Unclip the hydraulic distributor wiring from the wiring retainer ***(10)*** .

❏ Remove the wiring from the hydraulic distributor ***(11)*** .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the hydraulic distributor housing seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the hydraulic distributor wiring.

❏ Connect:

- the oil temperature sensor on the hydraulic distributor,
- the hydraulic distributor wiring connectors.
- the solenoid connectors,
- the internal wiring connector.

❏ Clip the hydraulic distributor wiring on the wiring retainer.

❏ Refit:

- the oil temperature sensor bracket,
- the bolt on the oil temperature sensor,
- the earth bolts.

❏ Torque tighten:

- the **oil temperature sensor bolt (8 N.m)**,
- the **earth bolts (8 N.m)**.

### III - FINAL OPERATION.

❏ Refit:

- the new hydraulic distributor housing seal on the hydraulic distributor housing,
- the hydraulic distributor housing,
- the hydraulic distributor casing bolts.

❏ Torque tighten the **hydraulic distributor housing bolts (8 Nm)**.

❏ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .


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6 SPEED AUTO GBOX

| Essential special tooling | |
|---|---|
| **Mot. 1390** | Support for removing/refitting the engine - gearbox assembly. |

| Essential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| left-hand suspended engine mounting bolts | **75 N.m** |
| earth strap bracket bolt | **25 N.m** |
| control cable bracket bolts | **14 N.m** |
| gearbox side bolts | **48 N.m** |
| gearbox lower bolts | **48 N.m** |
| gearbox studs | **20 N.m** |
| gearbox nuts | **48 Nm** |
| converter nuts | **57 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❏ Remove the engine undertray.

❏ Drain:

- the cooling circuit (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

4X4 TRANSMISSION

❏ Disconnect the propshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Secure the propshaft to the control cable using a string.

❏ Remove the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) .

❏ Remove:

- the engine - gearbox assembly (see **Engine/gearbox assembly: Removal - Refitting**) (10A, Engine and peripherals),


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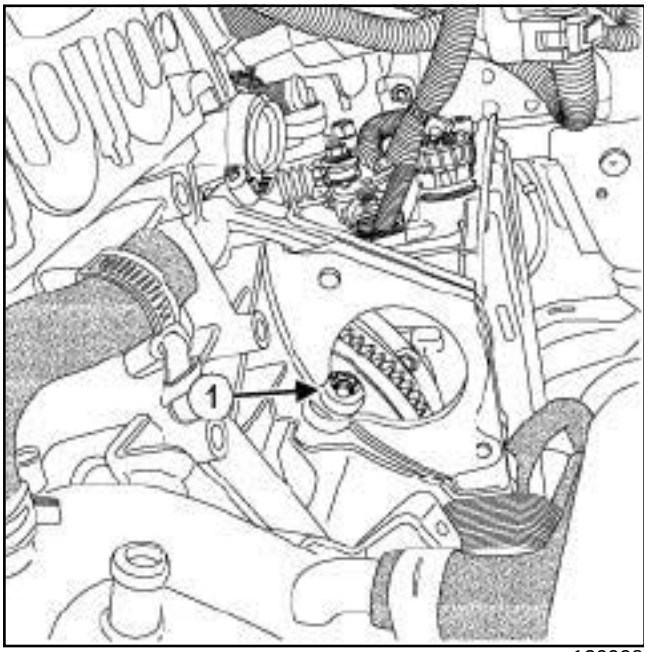
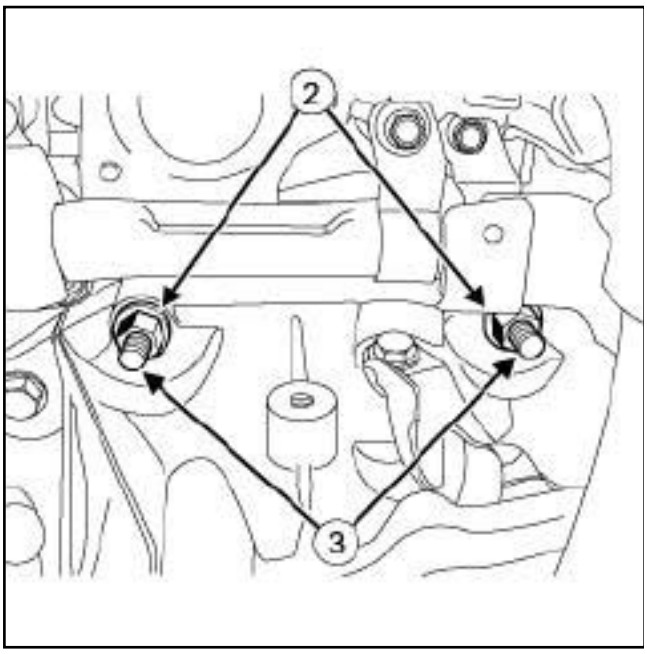
- the engine - gearbox assembly from the tool **(Mot. 1390)** using a **workshop hoist**,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




129998

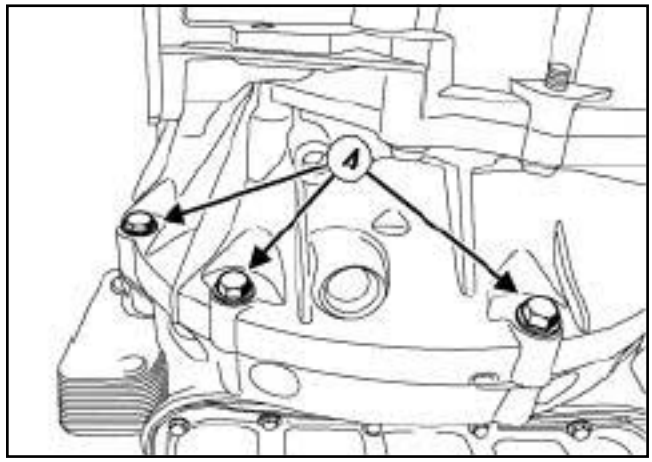
❏ Remove the four nuts (**1**) from the torque converter by rotating the crankshaft clockwise.




129999

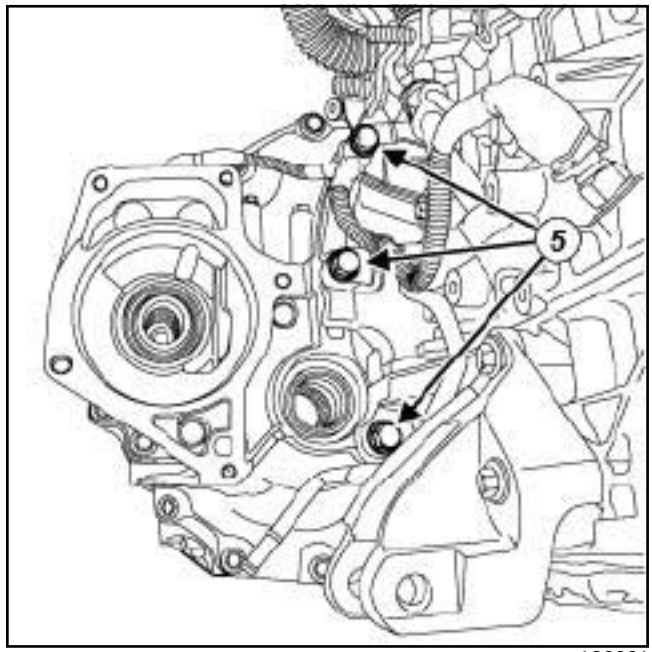
❏ Remove:

- the gearbox nuts (**2**) ,
- the gearbox studs (**3**) .




130000

❏ Remove the gearbox lower bolts (**4**) .




130001

❏ Remove:

- the gearbox side bolts (**5**) ,
- the automatic gearbox.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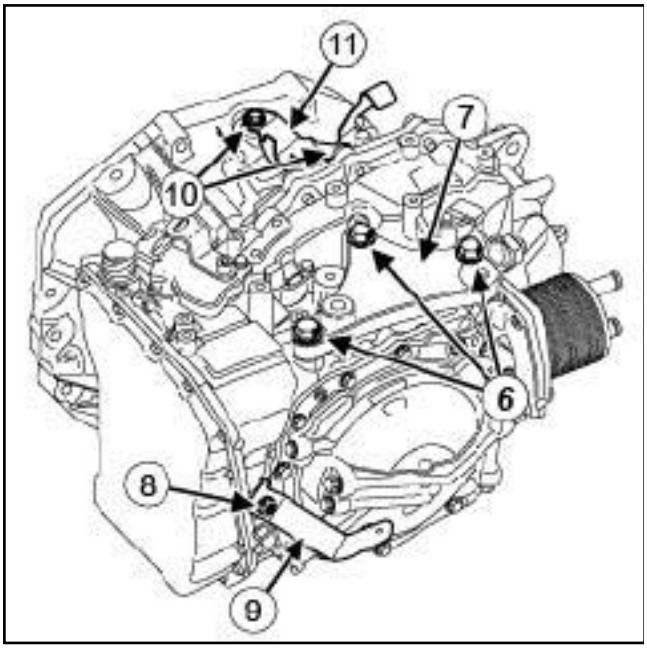
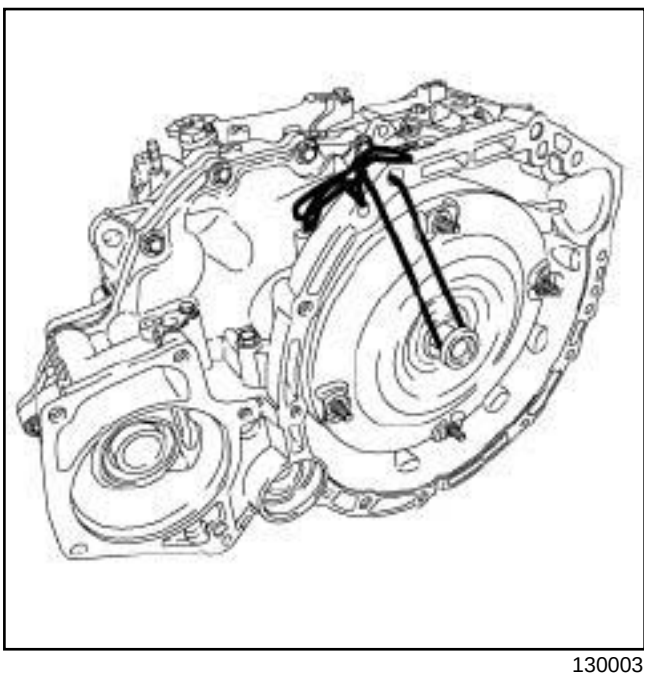



130002

❏ Remove:

- the left-hand suspended engine mounting bolts (**6**) ,
- the left-hand suspended engine mounting (**7**) ,
- the earth strap bracket bolt (**8**) ,
- the earth strap bracket (**9**) ,
- the control cable bracket bolts (**10**) ,
- - the control cable bracket (**11**) .



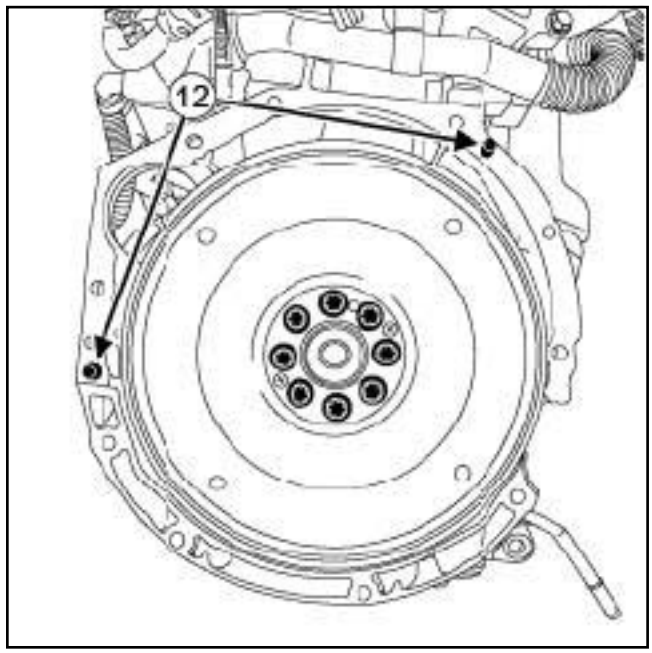
130003

❏ Secure the converter with string to prevent it from being dislodged.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the converter nuts.




130004

❏ Check:

- that the centring dowels are in place (**12**) ,
- that the drive plate is not damaged (run-out tolerance of **0.2 mm** on the outer diameter).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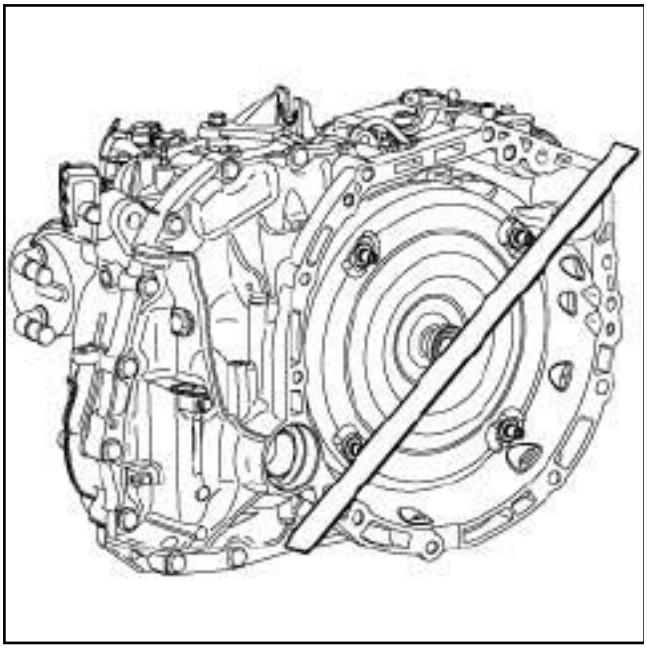
6 SPEED AUTO GBOX



130005

❑ Check that the converter is correctly coupled to the automatic gearbox using a rule and a straightedge. The distance (**X**) between the converter retaining bolt bead and the housing must be at least **20.4 mm**.

❑ Refit:

- the left-hand suspended engine mounting bracket on the automatic gearbox,
- the left-hand suspended engine mounting bolts,
- the earth strap bolt on the automatic transmission,
- the earth strap bracket bolt,
- the control cable bracket,
- the control cable bracket bolts.

❑ Torque tighten:

- the **left-hand suspended engine mounting bolts (75 N.m)**,
- the **earth strap bracket bolt (25 N.m)**,
- the **control cable bracket bolts (14 N.m)**.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the automatic gearbox,
- the gearbox side bolts,
- the gearbox lower bolts,
- the gearbox studs ***(3)*** ,
- the gearbox nuts ***(2)*** .

❑ Torque tighten:

- the **gearbox side bolts (48 N.m)**,
- the **gearbox lower bolts (48 N.m)**,
- the **gearbox studs (20 N.m)**,
- the **gearbox nuts (48 Nm)**.

❑ Refit the new converter nuts by rotating the crankshaft clockwise.

❑ Torque tighten the **converter nuts (57 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the engine - gearbox assembly on the **(Mot. 1390)** using a **workshop hoist**,
- the engine - gearbox assembly (see **Engine/gearbox assembly: Removal - Refitting**) (10A, Engine and peripherals).

4X4 TRANSMISSION

❑ Refit:

- the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) ,
- the propshaft on the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❑ Refit:

- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting).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6 SPEED AUTO GBOX

❏ Perform the following operations:

- top up and bleed the cooling circuit (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- top up the oil in the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) (23A, Automatic gearbox),
- top up the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❏ Refit:

- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).


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FK0 or FK8

| Essential special tooling | |
|---|---|
| **Mot. 1453** | Multiple-adjusting engine mounting support with retaining straps. |

| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| lifting eye bolts | **28 N.m** |
| control cable bracket bolts | **14 N.m** |
| gearbox mounting bolts D | **60 N.m** |
| gearbox mounting bolts C | **43 N.m** |
| gearbox mounting bolts B | **75 N.m** |
| gearbox mounting bolt A | **35 N.m** |
| converter nuts | **51 N.m** |
| converter cover bolts | **7 N.m** |
| left-hand suspended engine mounting bolt D | **50 N.m** |
| left-hand suspended engine mounting bolt C | **50 N.m** |
| left-hand suspended engine mounting bolt B | **50 N.m** |
| left-hand suspended engine mounting bolt A | **50 N.m** |
| engine wiring harness nuts | **10 N.m** |
| battery tray bracket mounting bolts | **28 N.m** |
| earth strap bolt | **25 N.m** |
| automatic gearbox oil charging pipe bolt | **10 N.m** |
| wiring harness channel bolts | **28 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

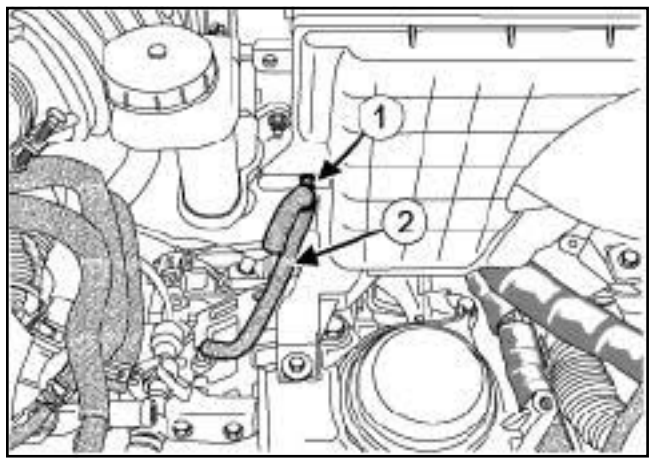
❑ Remove the engine undertray.

❑ Drain:

- the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).
- the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



130006

❑ Unclip the breather hose clip (**1**) .

❑ Remove the breather hose ***(2)*** .

❑ Remove:

- the engine cover,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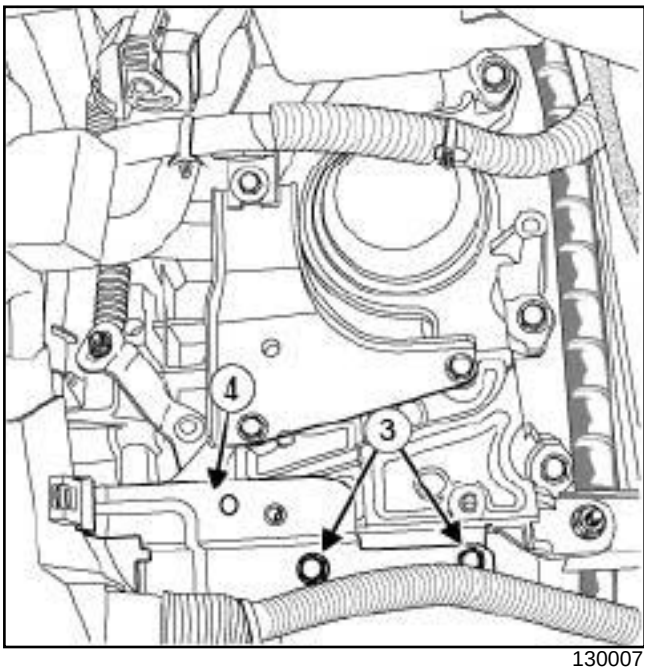
FK0 or FK8

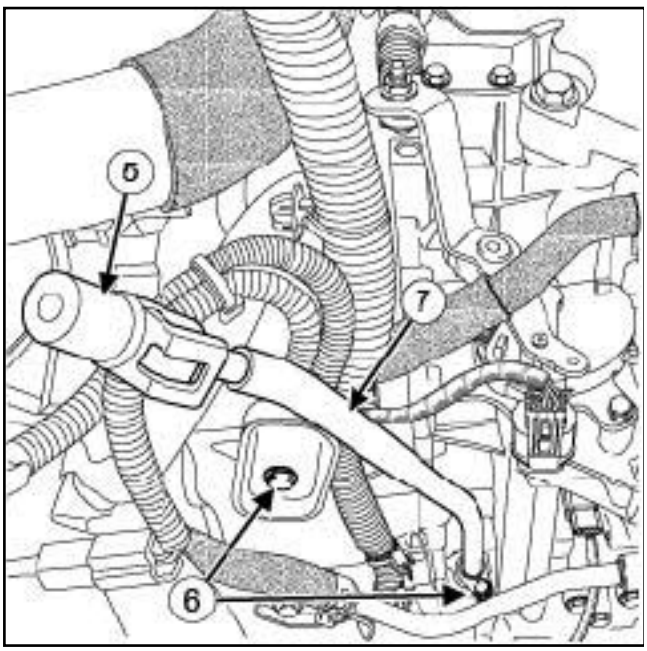
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air resonator (see **Air resonator: Removal - Refitting**) (12A, Fuel mixture),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).



130007

❏ Remove the bolts (**3**) from the engine wiring harness channel.

❏ Remove the wiring harness channel ***(4)*** .



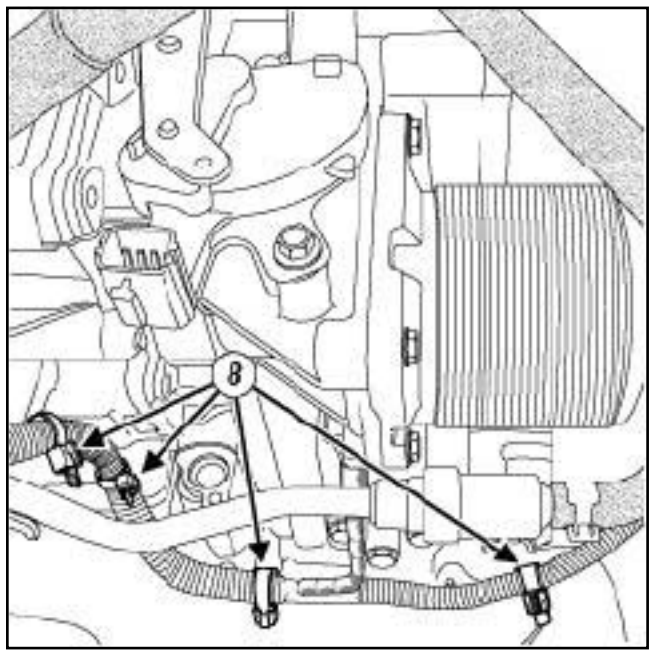
130008

❏ Remove:

- the oil level gauge (**5**) from the automatic gearbox,
- the automatic gearbox oil charging pipe bolts (**6**) ,
- the automatic gearbox oil charging pipe (**7**) ,
- the O-ring from the automatic gearbox oil charging pipe.

❏ Disconnect:

- the speed sensor connectors (see **23A**, **Automatic gearbox**, **Speed sensor: Removal - Refitting**, page **23A-24**) ,
- the multifunction switch connector (see **23A**, **Automatic gearbox**, **Multifunction switch: Removal - Refitting**, page **23A-21**) ,
- the automatic gearbox control cable (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls).



130009

❏ Unclip the automatic gearbox wiring clips (**8**) .

❏ Remove:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).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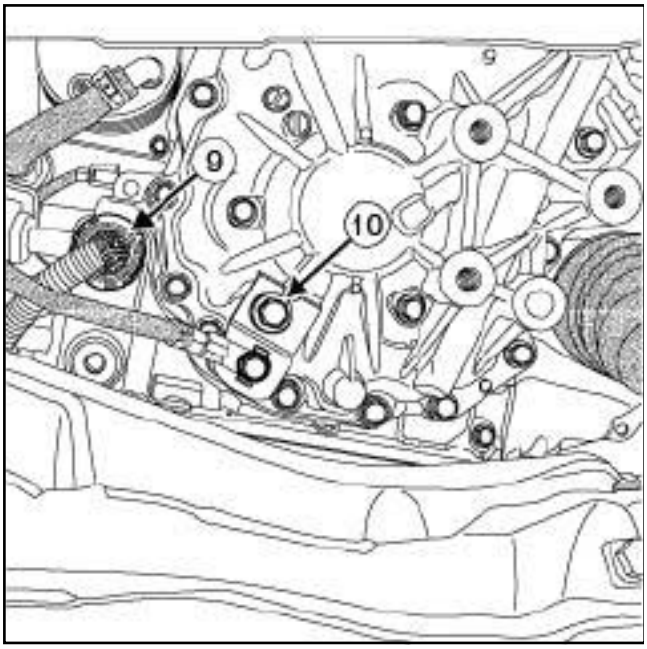
FK0 or FK8




130010

❑ Disconnect the automatic transmission connector (**9**) .

❑ Remove:

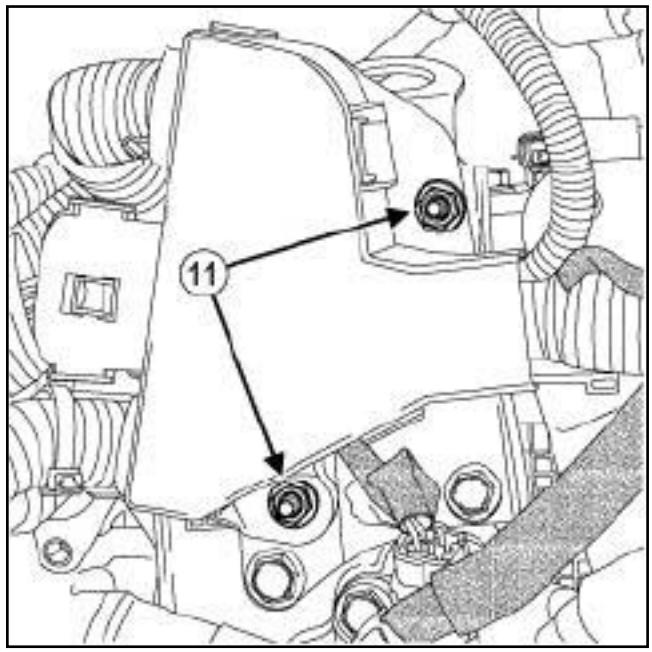
- the earth strap bolt ***(10)*** ,
- the automatic gearbox cooling hoses (see **23A**, **Automatic gearbox**, **Gearbox oil coolant pipe: Removal - Refitting**, page **23A-56**) ,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the connector pipe (see **Connector pipe: Removal - Refitting**) (19B, Exhaust).

FK8

❑ Remove the propshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❑ Secure the propshaft to the control cable bracket using a string.

❑ Remove the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) .




130011

❑ Remove the engine wiring harness nuts (**11**) .

❑ Move the wiring harness to one side.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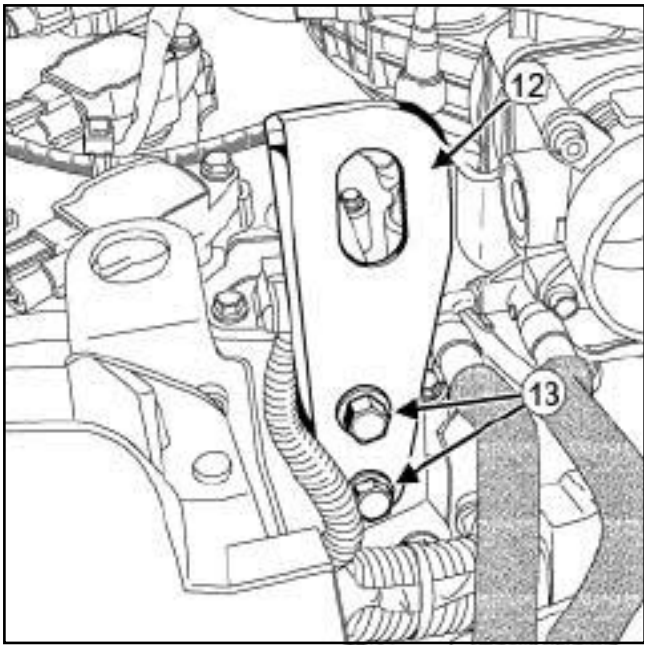
FK0 or FK8

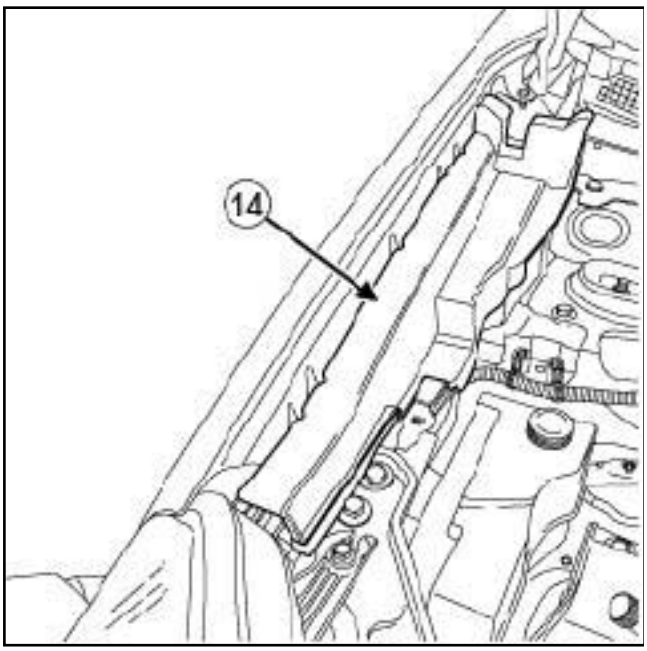



129808

❏ Fit:

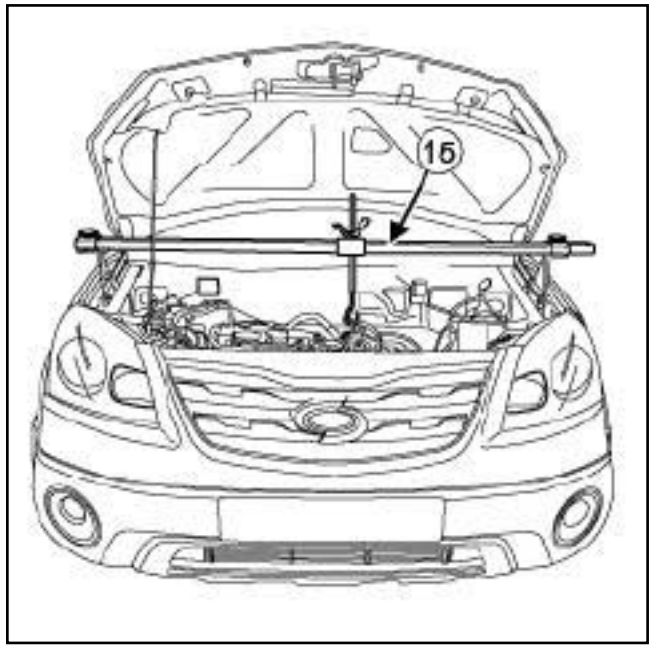
- the lifting eye (**12**) ,
- the lifting eye bolts (**13**) .

❏ Torque tighten the **lifting eye bolts (28 N.m)**.



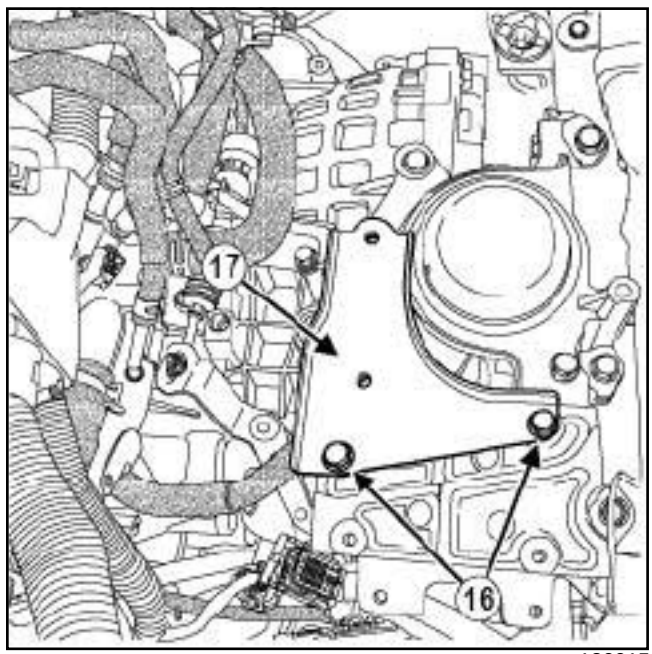

130013

❏ Remove the hood seals (**14**) .




130014

❏ Position the **(Mot. 1453)** (**15**) .




130015

❏ Remove:

- the bolts (**16**) from the battery tray bracket,
- the battery tray bracket (**17**) .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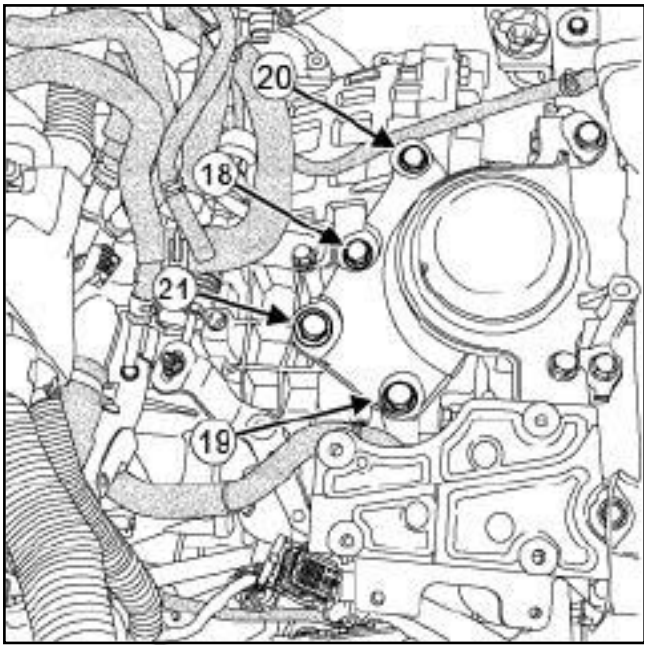
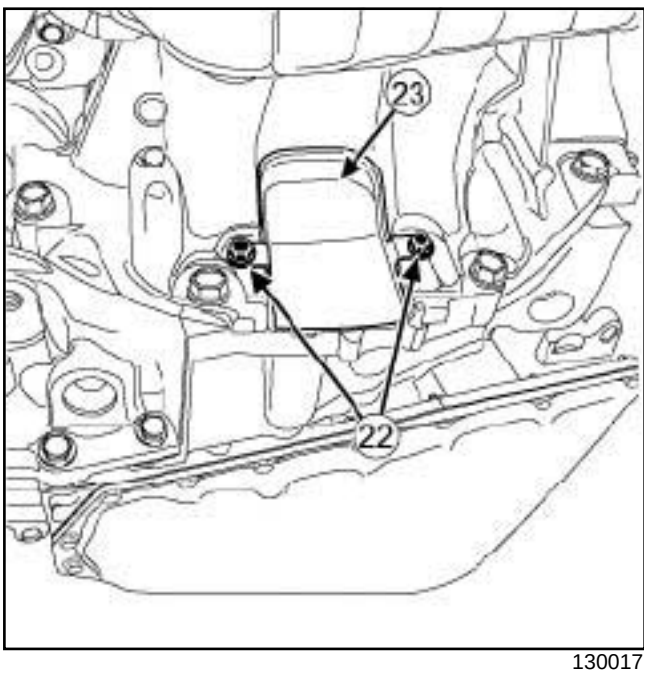
FK0 or FK8




130016

❏ Remove in the following order:

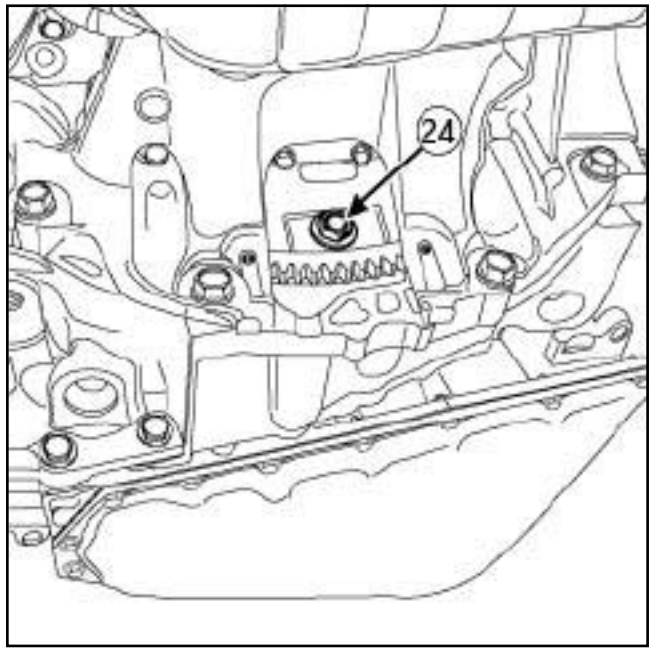
- the left-hand suspended engine mounting bolt A (**18**) ,
- the left-hand suspended engine mounting bolt B (**19**) ,
- the left-hand suspended engine mounting bolt C (**20**) ,
- the left-hand suspended engine mounting bolt D (**21**) .




130017

❏ Remove:

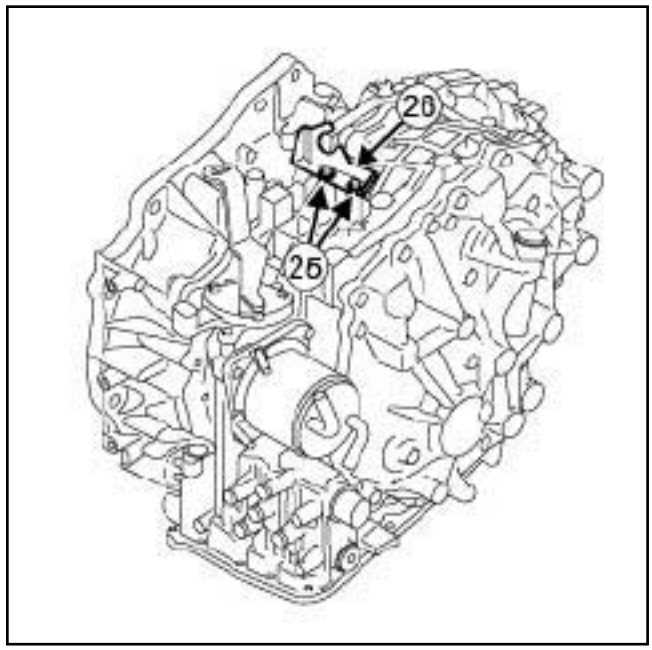
- the converter cover bolts (**22**) ,
- the converter cover (**23**) .




130018

❏ Remove the four nuts (**24**) from the torque converter by rotating the crankshaft clockwise.

❏ Place the **component jack** underneath the gearbox.




130019

❏ Remove:

- the control cable bracket bolts (**25**) ,
- - the control cable bracket (**26**) .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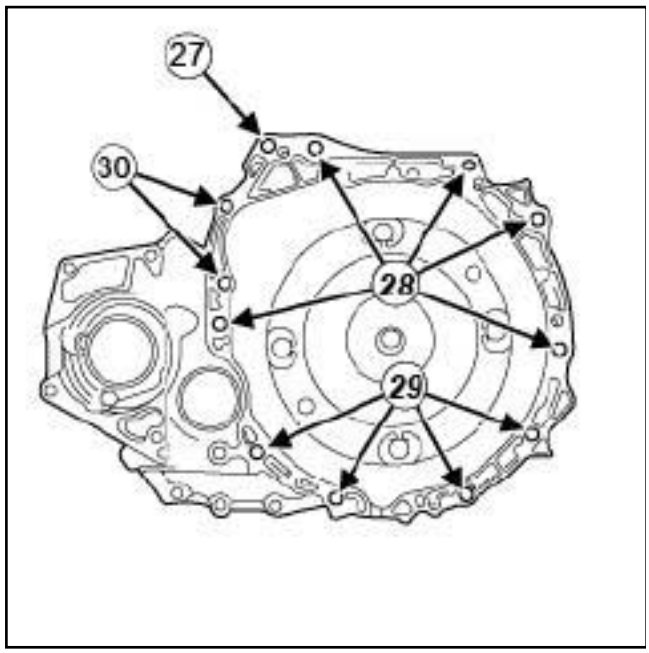
FK0 or FK8

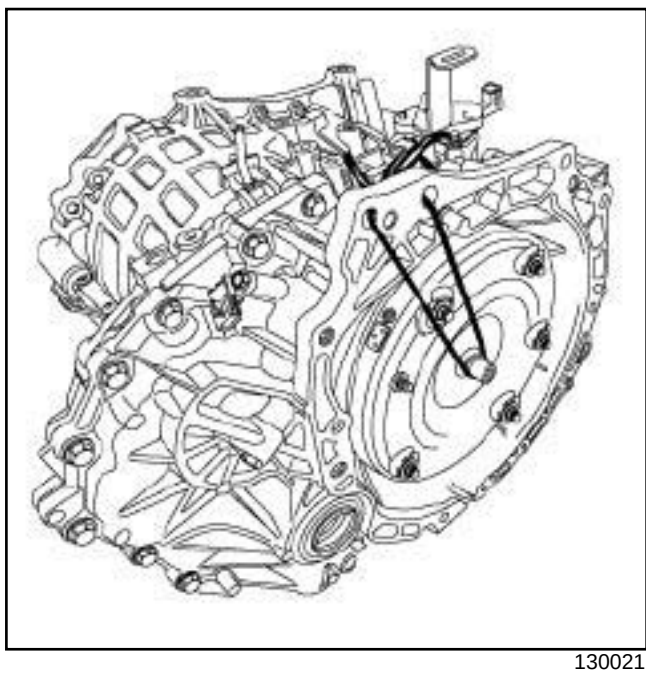
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130020

❑ Remove:

- the gearbox mounting bolt A (**27**) ,
- the gearbox mounting bolts B (**28**) ,
- the gearbox mounting bolts C (**29**) ,
- the gearbox mounting bolts D (**30**) ,
- the automatic gearbox.



130021

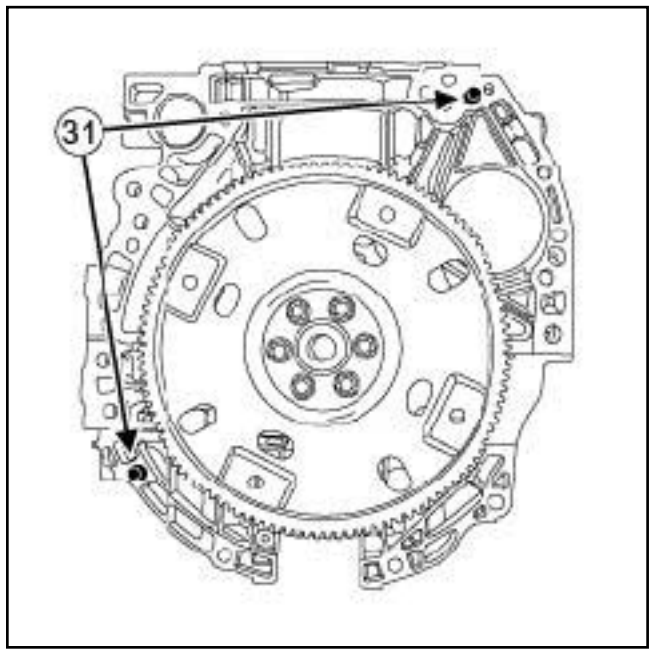
❑ Secure the converter with string to prevent it from being dislodged.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the converter nuts,
- the O-ring.




130022

❑ Check that the centring dowels (**31**) are in place.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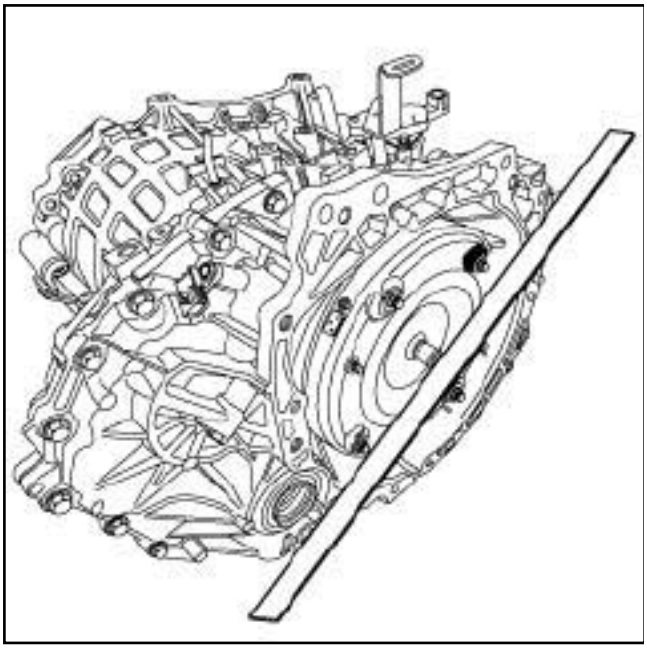

130023

❑ Check that torque converter is correctly coupled to the continuously variable gearbox using a rule and a straightedge. The distance (**X**) between the converter retaining bolt bead and the housing must be at least **14.4 mm**.

❑ Refit:

- the control cable bracket,
- the control cable bracket bolts.

❑ Torque tighten the **control cable bracket bolts (14 N.m)**.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the automatic gearbox,
- the gearbox mounting bolts D,
- the gearbox mounting bolts C,
- the gearbox mounting bolts B,
- the gearbox mounting bolt A,

❑ Torque tighten:

- the **gearbox mounting bolts D (60 N.m)**,
- the **gearbox mounting bolts C (43 N.m)**,
- the **gearbox mounting bolts B (75 N.m)**,
- the **gearbox mounting bolt A (35 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the new converter nuts by rotating the crankshaft clockwise.

❑ Torque tighten the **converter nuts (51 N.m)**.

❑ Refit:

- the converter cover,
- the converter cover bolts.

❑ Torque tighten the **converter cover bolts (7 N.m)**.

❑ Refit and tighten to torque and in order:

- the **left-hand suspended engine mounting bolt D (50 N.m)**,
- the **left-hand suspended engine mounting bolt C (50 N.m)**,
- the **left-hand suspended engine mounting bolt B (50 N.m)**,
- the **left-hand suspended engine mounting bolt A (50 N.m)**.

❑ Remove:

- the **(Mot. 1453)**,
- the lifting eye bolts,
- the lifting eye.

❑ Refit:

- the hood seals,
- the engine wiring harness,
- the engine wiring harness nuts.

❑ Torque tighten the **engine wiring harness nuts (10 N.m)**.

❑ Refit:

- the battery tray bracket,
- the battery tray bracket bolts.

❑ Tighten to torque the **battery tray bracket mounting bolts (28 N.m)**.

❑ Refit:

- the automatic gearbox cooling hoses (see **23A**, **Automatic gearbox**, **Gearbox oil coolant pipe: Removal - Refitting**, page **23A-56**) ,
- the starter (see **Starter: Removal - Refitting**) (16A, Starting - Charging),
- the connector pipe (see **Connector pipe: Removal - Refitting**) (19B, Exhaust),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),


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FK0 or FK8

- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .
- the earth strap bolt.

❏ Torque tighten the **earth strap bolt (25 N.m)**.

FK8

❏ Refit the transfer box (see **29A**, **Driveshafts**, **Transfer box: Removal - Refitting**, page **29A-41**) .

❏ Refit the propshaft on the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Connect:

- the automatic gearbox connector,
- the speed sensor connectors (see **23A**, **Automatic gearbox**, **Speed sensor: Removal - Refitting**, page **23A-24**) ,
- the multifunction switch connector (see **23A**, **Automatic gearbox**, **Multifunction switch: Removal - Refitting**, page **23A-21**) ,
- the automatic gearbox control cable (see **Automatic gear control cable: Removal - Refitting**) (37A, Mechanical component controls).

❏ Clip the automatic gearbox wiring clips.

❏ Refit:

- the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❏ Refit:

- the new O-ring on the automatic gearbox oil charging pipe,
- the automatic gearbox oil charging pipe,
- the automatic gearbox oil charging pipe bolts,
- the oil level gauge on the automatic gearbox.

❏ Torque tighten the **automatic gearbox oil charging pipe bolt (10 N.m)**.

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air resonator (see **Air resonator: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the engine cover,
- the breather hose,
- the engine wiring harness channel,
- the engine wiring harness channel bolts.

❏ Torque tighten the **wiring harness channel bolts (28 N.m)**.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Refill:

- the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) ,
- the cooling circuit (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❏ Bleed the cooling circuit (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❏ Refit the engine undertray.


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| Essential special tooling | |
|---|---|
| **Bvi. 1856** | Tool for fitting CVT converter and differential seals |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

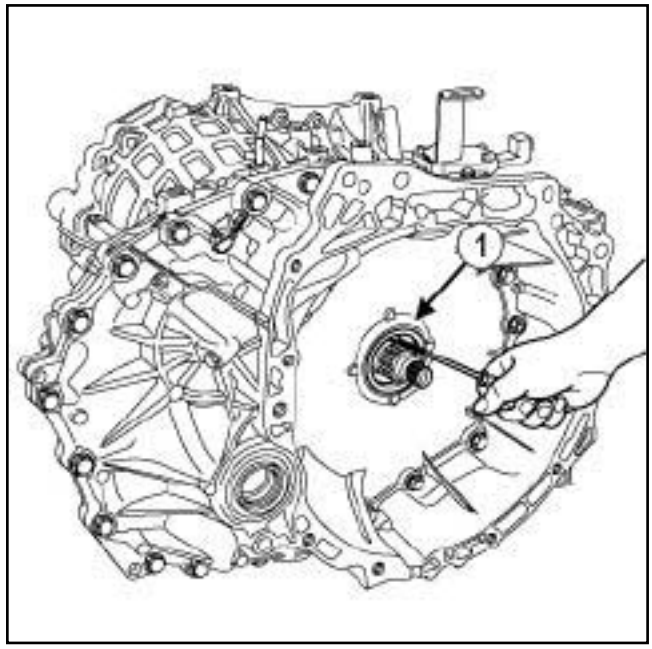
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❏ Remove the converter.

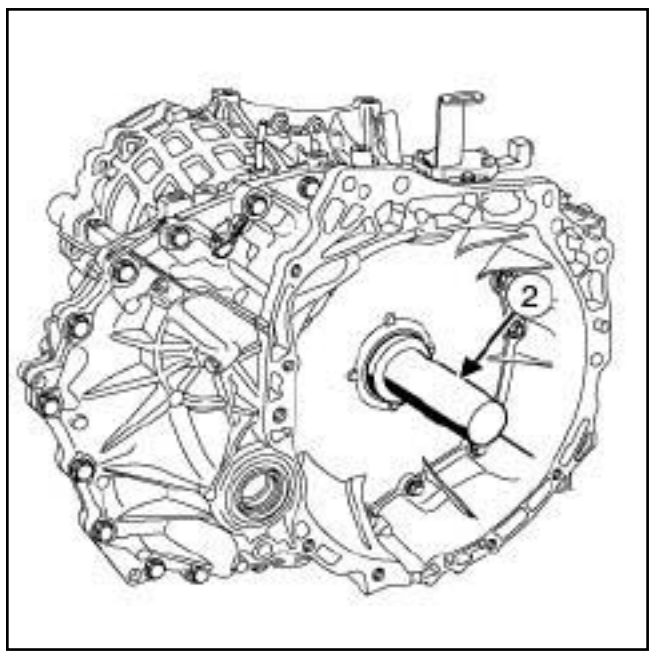



130027

❏ Remove the converter seal (**1**) using a screwdriver, taking care not to scratch the contact surfaces.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




130028

❏ Refit the converter seal using the tool **(Bvi. 1856)** (**2**) .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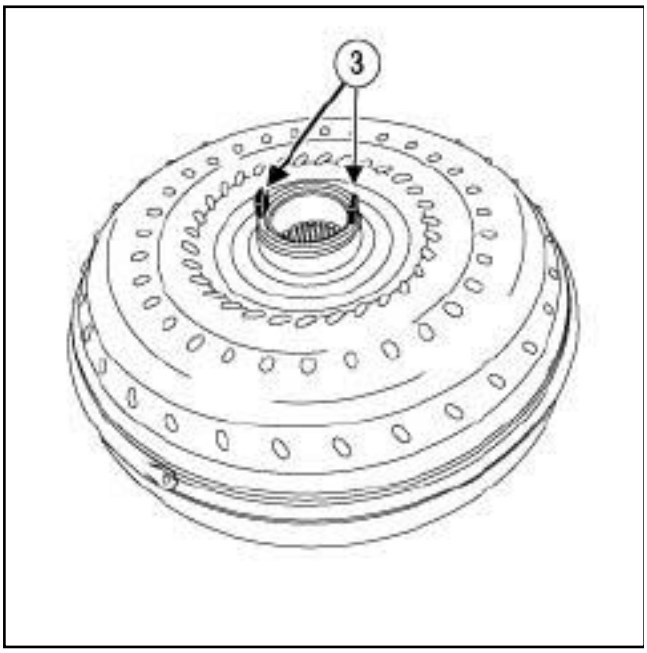
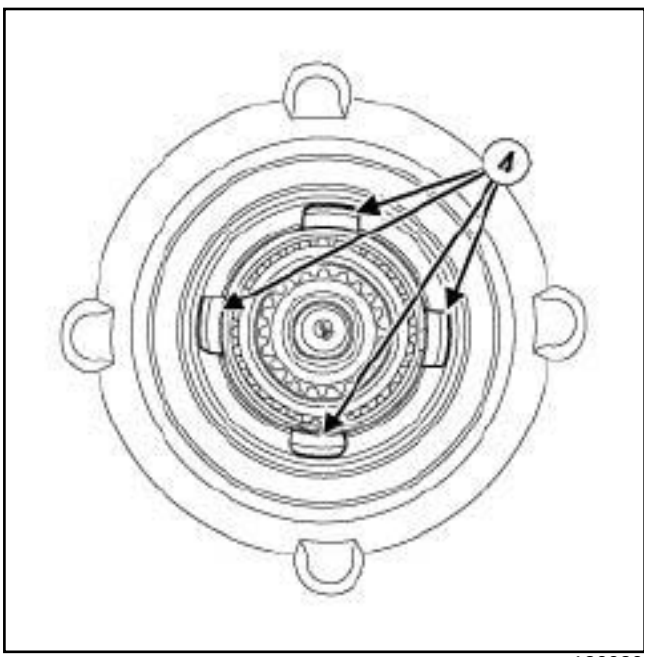
FK0 or FK8

**II - FINAL OPERATION.**

❑ Refit the converter.




130029




130030

❑ Check that the converter lugs (**3**) are engaged in the drive sprocket holes (**4**) .

❑ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .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| Essential special tooling | |
|---|---|
| **Bvi. 1804** | Kit for fitting differential and converter seals (AJ0). |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

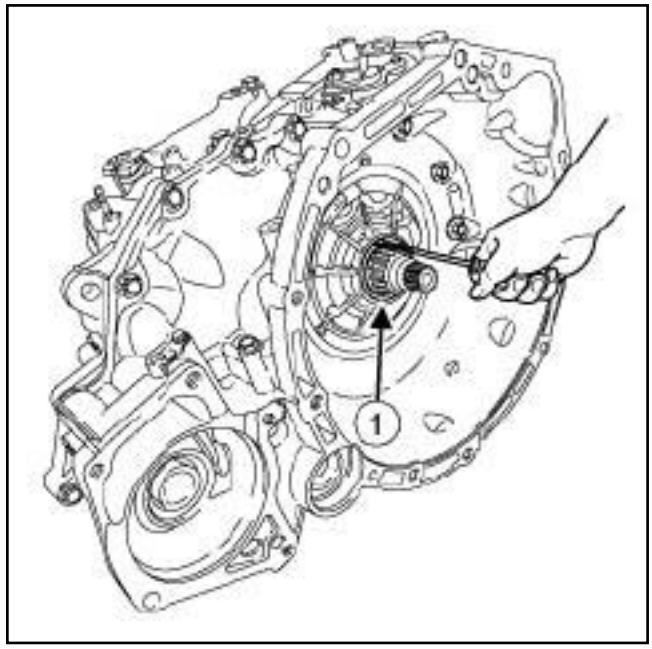
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the converter.

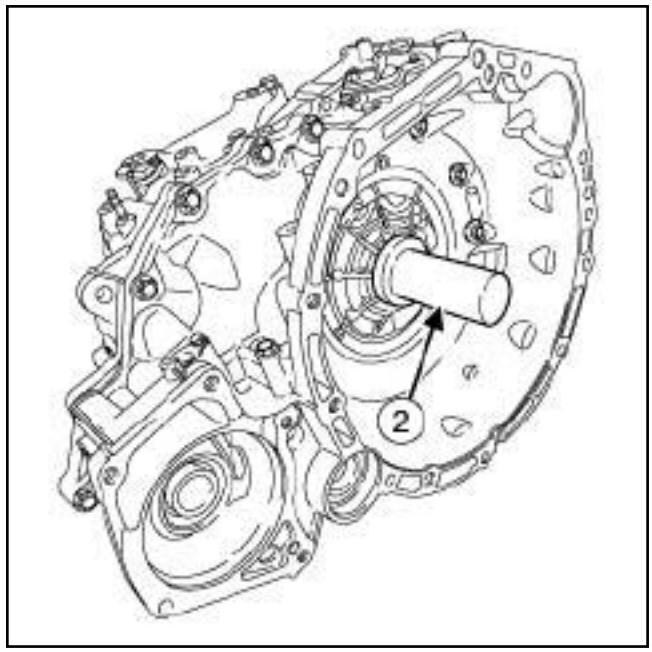



130024

❑ Remove the converter seal (**1**) using a screwdriver, taking care not to scratch the contact surfaces.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




130025

❑ Refit the converter seal using tool **(Bvi. 1804)** (**2**) .

### II - FINAL OPERATION.

❑ Refit the converter.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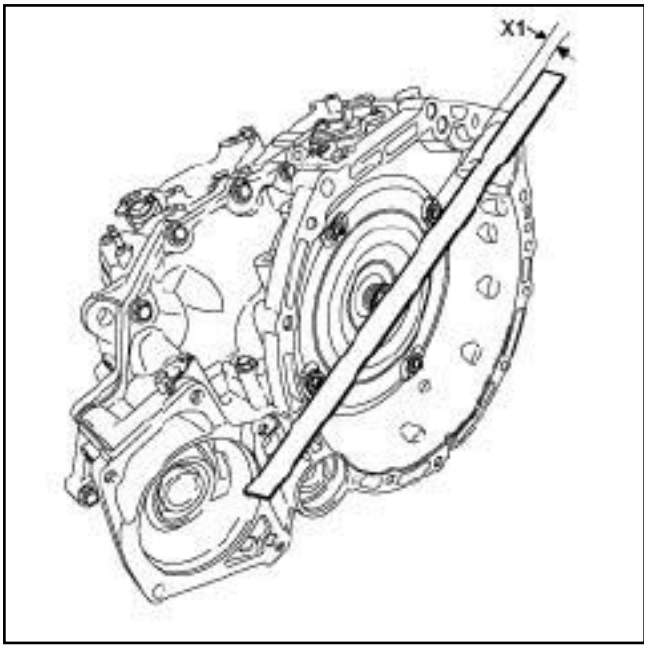


130026

❏ Check:

- that the converter correctly is inserted using a rule and a straightedge,
- that the distance (**X1**) between the mating face and the rule is at least **20.4 mm**.

❏ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .


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| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |

| Tightening torques ▽ | |
|---|---|
| drive plate bolts | **35 N.m + 40° ± 5°** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

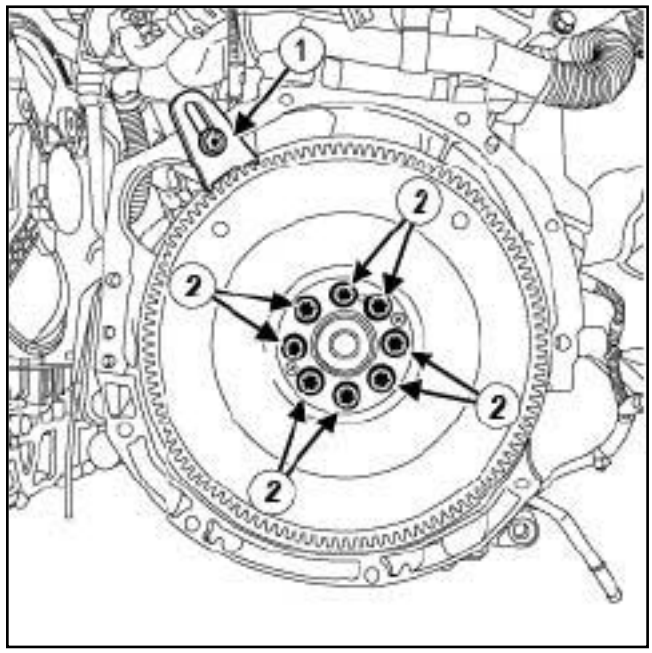
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130031

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- the drive plate bolts ***(2)*** ,
- the drive plate,
- the **(Mot. 1431)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Systematically replace the drive plate bolts.

❏ Check that the drive plate is not damaged (run-out tolerance of **0.2 mm** on the outer diameter).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the drive plate, ensuring it is correctly positioned in relation to the centring pins.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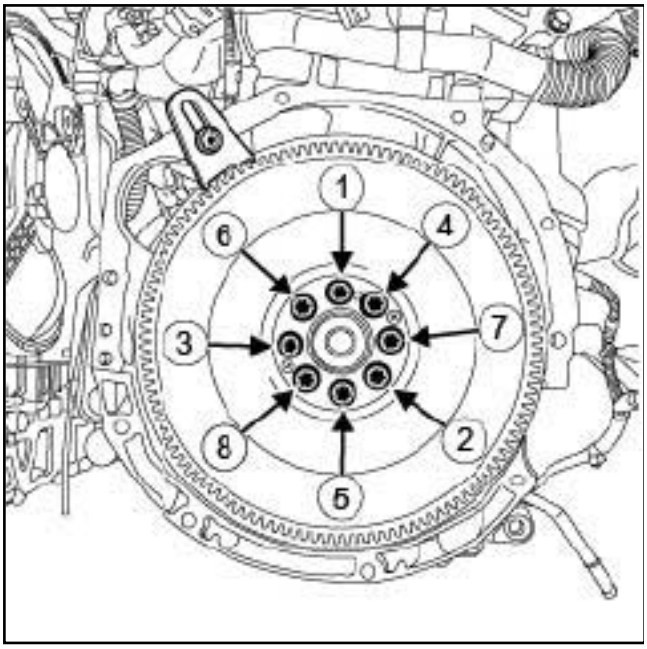


130031

- ❑ Refit the new drive plate bolts.
- ❑ Position the **(Mot. 1431)**.
- ❑ Tighten to torque, to angle and in order the **drive plate bolts (35 N.m + 40° ± 5°)**.
- ❑ Remove the **(Mot. 1431)**.

**III - FINAL OPERATION.**

- ❑ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .


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FK0 or FK8

| Essential special tooling | |
|---|---|
| **Mot. 1431** | Flywheel locking tool. |

| Tightening torques ▽ | |
|---|---|
| drive plate bolts | **108 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

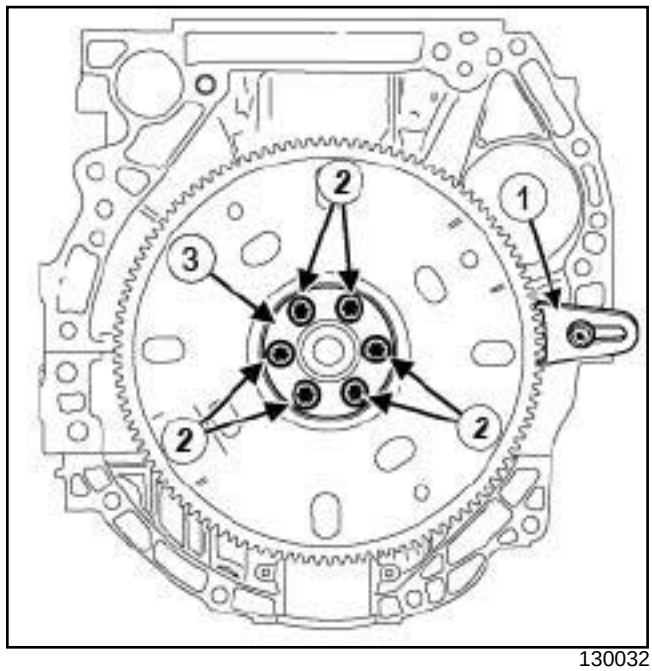
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130032

❏ Position the **(Mot. 1431)** (**1**) .

❏ Remove:

- the drive plate bolts ***(2)*** ,
- the **(Mot. 1431)**,
- the stiffener plate ***(3)*** ,
- the drive plate.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Systematically replace the drive plate bolts.

❏ Check that the drive plate is not damaged (run-out tolerance of **0.2 mm** on the outer diameter).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the drive plate,
- the stiffener plate,
- the drive plate bolts,
- the **(Mot. 1431)**.

❏ Torque tighten the **drive plate bolts (108 N.m)**.

❏ Remove the **(Mot. 1431)**.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FK0 or FK8

**III - FINAL OPERATION.**

❑ Refit the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox: Removal - Refitting**, page **23A-30**) .


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| Tightening torques ▽ | |
|---|---|
| automatic transmission computer nuts | 6 N.m |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

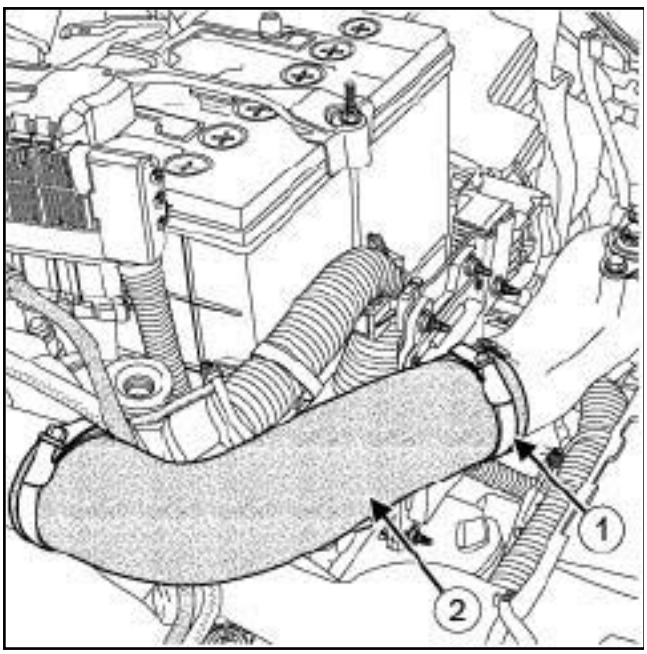
### I - REMOVAL PREPARATION OPERATION

❏ Shift the gear lever to **Neutral**.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) ,
- the engine cover.

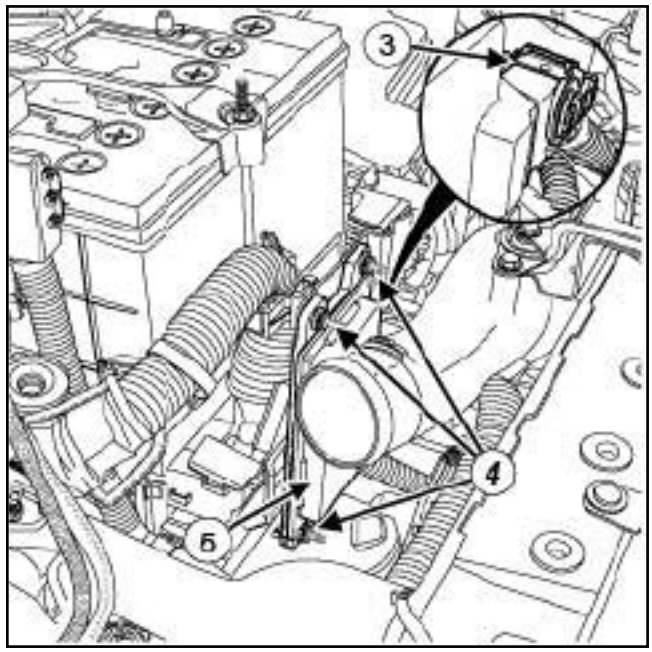


130033

❏ Remove the turbocharger hose clip (**1**) .

❏ Disconnect the turbocharger hose (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130034

❏ Disconnect the automatic transmission computer connector (**3**) .

❏ Remove:

- the automatic transmission computer nuts ***(4)*** ,
- the automatic transmission computer ***(5)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the automatic transmission computer,
- the automatic transmission computer nuts.

❏ Torque tighten the **automatic transmission computer nuts (6 N.m)**.

❏ Connect the automatic transmission computer connector.

### II - FINAL OPERATION

❏ Refit:

- the turbocharger hose,
- the turbocharger hose clip,
- the engine cover,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) .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6 SPEED AUTO GBOX

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| automatic transmission computer bolt | **6 N.m** |
| automatic transmission computer nut | **6 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

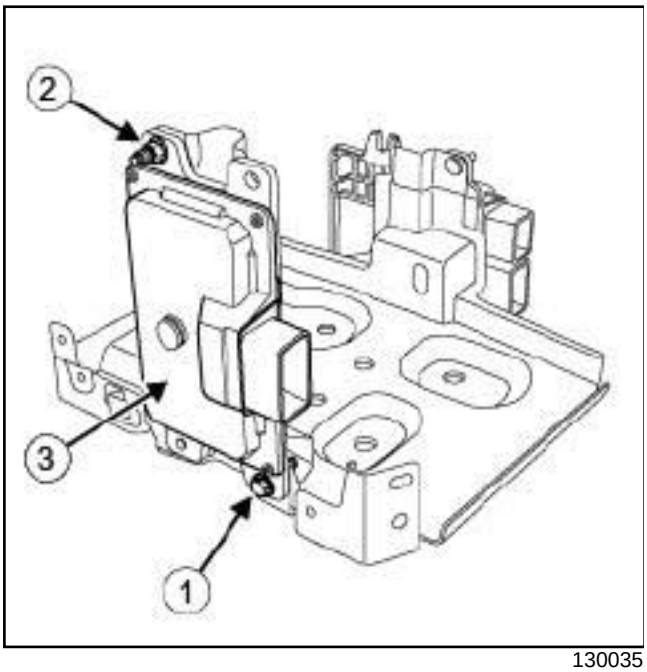
### I - REMOVAL PREPARATION OPERATION

❏ Shift the gear lever to **Neutral**.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130035

❏ Remove:

- the automatic transmission computer bolt (**1**) ,
- the automatic transmission computer nut (**2**) ,
- the automatic transmission computer (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the automatic transmission computer,
- the automatic transmission computer bolt,
- the automatic transmission computer nut.

❏ Torque tighten:

- the **automatic transmission computer bolt (6 N.m)**,
- the **automatic transmission computer nut (6 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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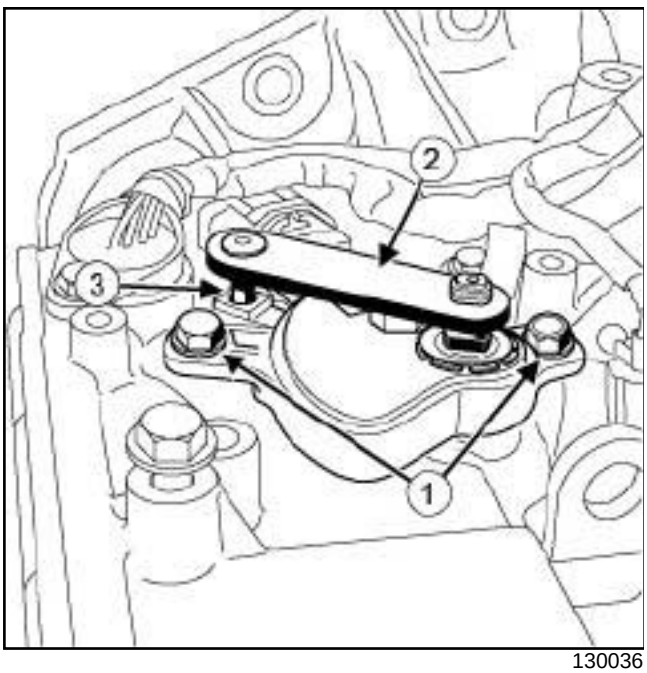
| Essential special tooling | |
|---|---|
| **Bvi. 1805** | Multifunction switch adjustment lever (AJ0) |

| Tightening torques ▽ | |
|---|---|
| multifunction switch bolts | **6 Nm** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

Adjust the multifunction switch using the **(Bvi. 1805)** when removing and refitting the multifunction switch (see **23A**, **Automatic gearbox**, **Multifunction switch: Removal - Refitting**, page **23A-21**) or during fault finding.

## ADJUSTMENT



130036

- ❏ Loosen the multifunction switch bolts (**1**) .
- ❏ Position the tool **(Bvi. 1805)** ***(2)*** on the control lever and align the shaft of the tool opposite the relevant hole on the multifunction switch ***(3)*** .
- ❏ Torque tighten the **multifunction switch bolts (6 Nm)**.
- ❏ Remove the **(Bvi. 1805)**.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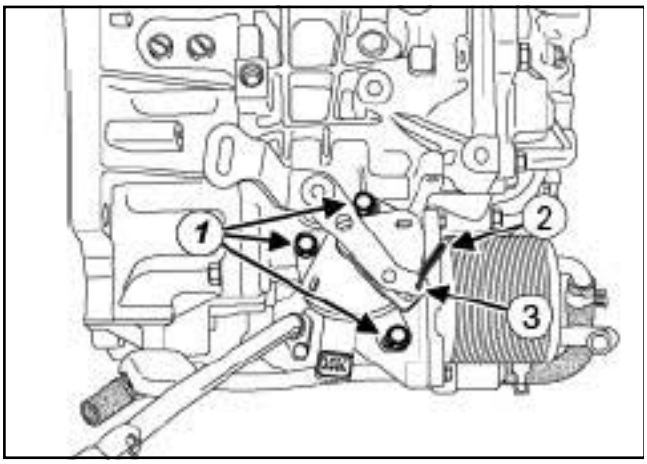
FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| multifunction switch bolts | **6 Nm** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

Adjust the multifunction switch using a **3 mm** offset wrench when removing and refitting the multifunction switch (see **23A**, **Automatic gearbox**, **Multifunction switch: Removal - Refitting**, page **23A-21**) or during fault finding.

## ADJUSTMENT



130037

- ❏ Loosen the multifunction switch bolts (**1**) .
- ❏ Position a **3 mm** ***(2)*** Allen key on the control lever and align the shaft of the tool opposite the relevant hole on the multifunction switch ***(3)*** .
- ❏ Torque tighten the **multifunction switch bolts (6 Nm)**.
- ❏ Remove the Allen key ***(2)*** .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FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| cooling hose bolts | **25 N.m** |
| wiring harness channel bolts | **28 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Engine cooling: Precautions for repair**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

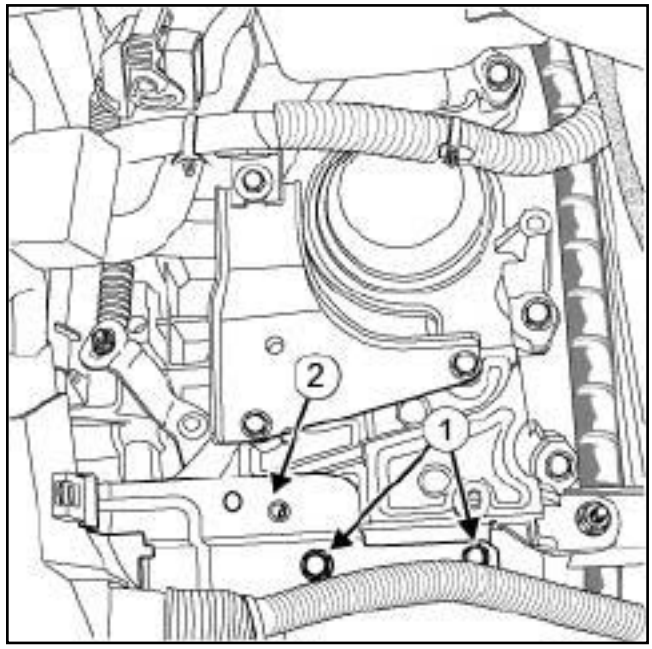
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.

❏ Drain the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

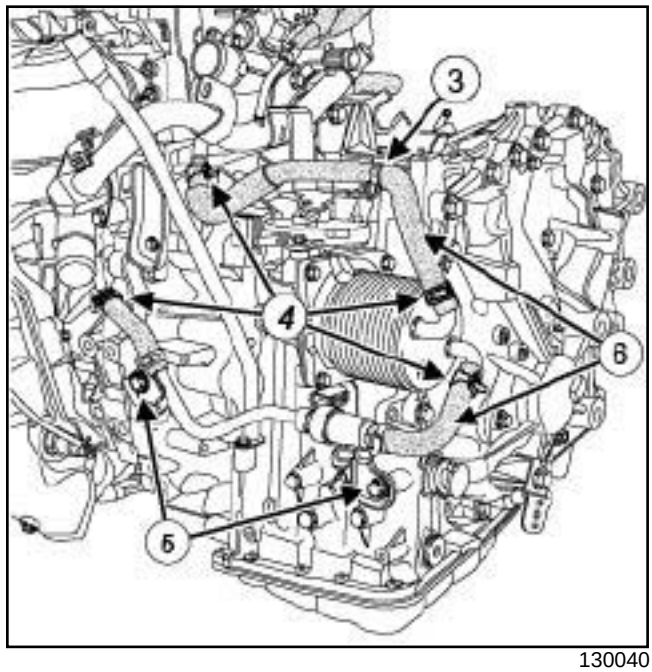


130039

❏ Remove the bolts (**1**) from the engine wiring harness channel.

❏ Remove the wiring harness channel ***(2)*** .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130040

❏ Unclip the cooling hose (**3**) .

❏ Remove:

- the cooling hose clips ***(4)*** ,
- the cooling hose bolts ***(5)*** ,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FK0 or FK8

- the cooling hoses ***(6)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the cooling hoses,
- the cooling hose bolts,
- the cooling hose clips.

❑ Torque tighten the **cooling hose bolts (25 N.m)**.

❑ Clip the cooling hose at ***(3)*** .

### II - FINAL OPERATION.

❑ Refit:

- the wiring harness channel,
- the engine wiring harness channel bolts.

❑ Torque tighten the **wiring harness channel bolts (28 N.m)**.

❑ Refit:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill the cooling circuit (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❑ Refit the engine undertray.


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FK0 or FK8

| Tightening torques ▽ | |
|---|---|
| oil sump bolts | **8 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **23A**, **Automatic gearbox**, **Automatic gearbox: Precautions for repair**, page **23A-4**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

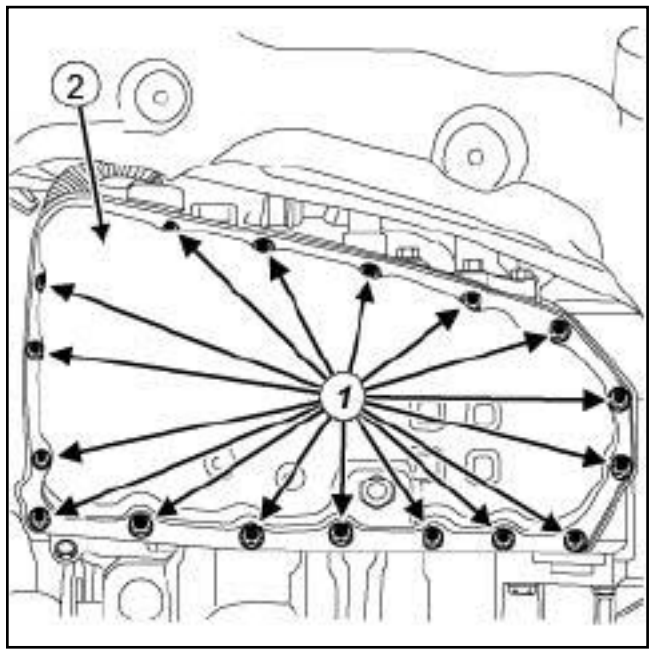
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.

❏ Drain the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130041

❏ Remove:

- the sump bolts (**1**) ,
- the sump (**2**) ,
- the sump seal,
- the sump magnets.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the sump bolts,
- the sump seal.

❏ Clean the magnets.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the sump magnets,
- the new seal on the sump,
- the sump,
- the sump bolts,

❏ Torque tighten the **oil sump bolts (8 N.m)**.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FK0 or FK8

**III - FINAL OPERATION.**

- ❑ Top up the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .
- ❑ Refit the engine undertray.


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# Rear axle assembly: Precautions for repair



4X4 TRANSMISSION

Check the condition of the installation before removal or dismantling. If position marks are required, check that they do not interfere with the operation of the parts where they are applied.

Check the appearance of the components removed, looking for any deformation and unusual wear. Replace the components as required.

The static seals, sealing rings and "O" rings must be replaced every time the unit is disassembled.

As a rule, tighten the bolts or the nuts gradually several times, working in a diagonal pattern from the inside outwards.

Do not damage the sliding faces or the mating faces.

During assembly, observe the recommended tightening torque and apply oil for new gears or universal grease in accordance with the recommendations for the vehicle being reassembled, as required.



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4X4 TRANSMISSION

| Type of final drive | Gear ratio | Type of drive pinion adjusting spacer | Pinion gear number |
|---|---|---|---|
| R145 (Origin: Nissan) | 37:15 | Telescopic | 2 |


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| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| rear final drive nut | **78 N.m** |
| rear final drive bolts | **63 N.m** |

**IMPORTANT**

Consult the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **26A**, **Rear axle**, **Rear axle assembly: Precautions for repair**, page **26A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**

To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

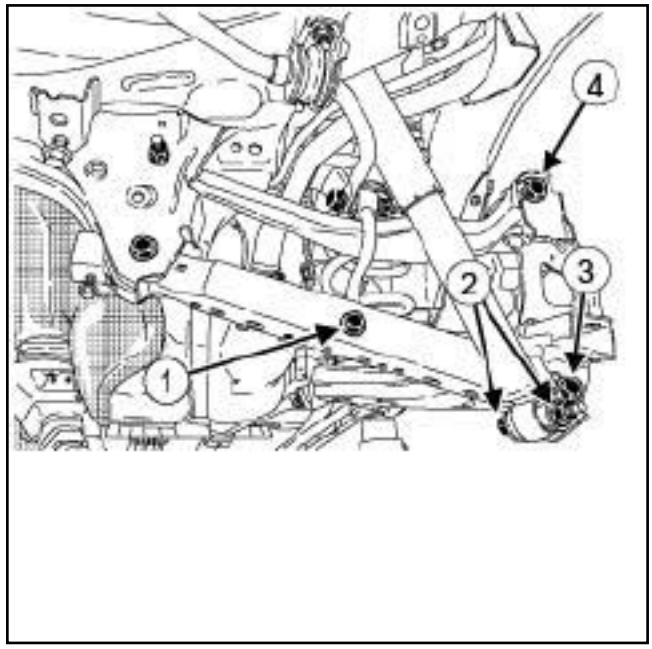
❏ Drain the oil from the rear final drive (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .

❏ Remove:

- the rear wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the rear wheel driveshafts (see **29A**, **Driveshafts**, **Rear wheel driveshaft: Removal - Refitting**, page **29A-9**) .

❏ Disconnect the longitudinal driveshaft from the rear final drive (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

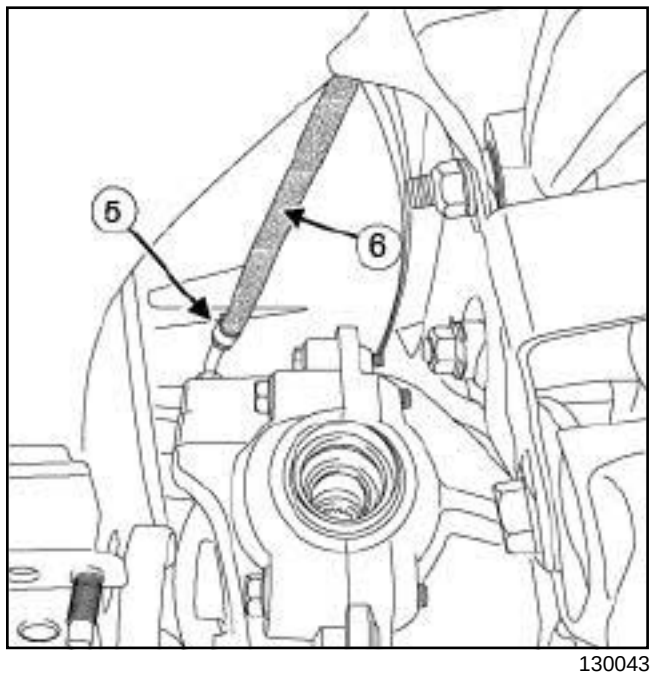
❏ Use a strap to attach the longitudinal driveshaft to the parking brake cable.




130042

❏ Remove:

- the rear anti-roll bar tie rod lower bolt and nut (**1**) ,
- the rear shock absorber lower bolt and nut (**2**) ,
- the rear stub axle carrier lower trailing link bolt and nut (**3**) ,
- the upper arm bolt and nut (**4**) of the rear stub axle carrier.




130043

❏ Remove the breather hose clip (**5**) from the rear final drive.

❏ Disconnect the breather hose (**6**) from the rear final drive.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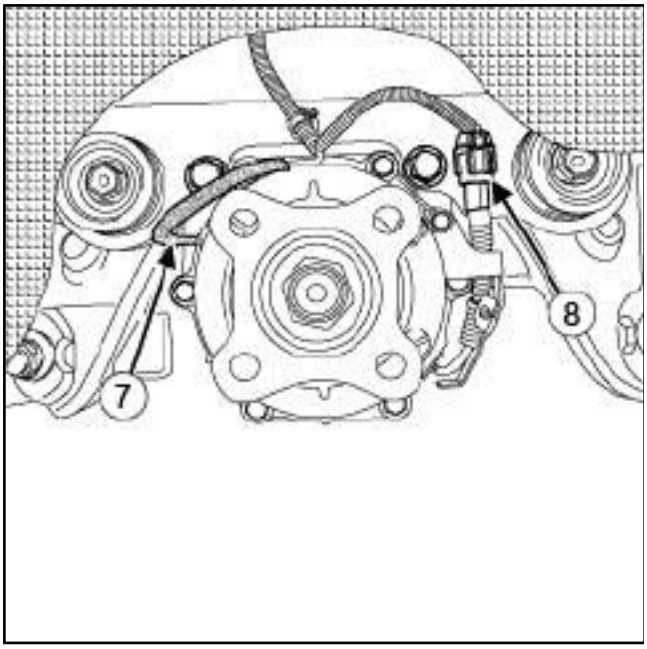


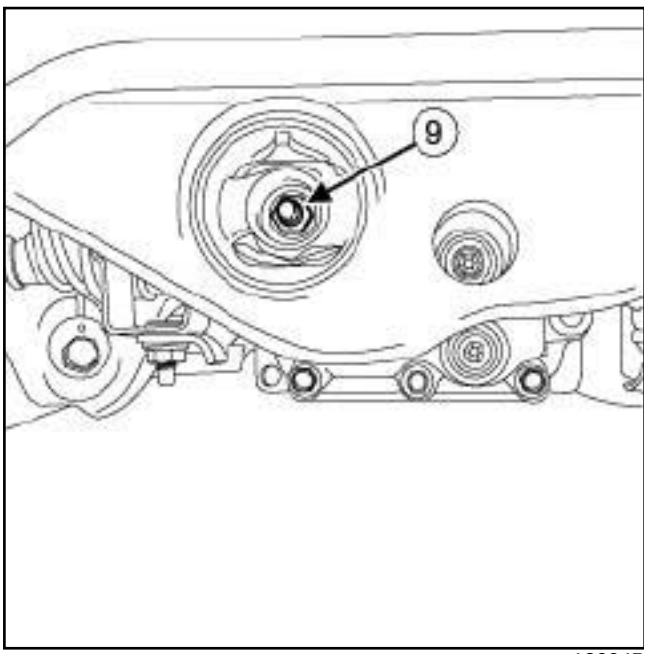

130044

❏ Disconnect:

- the rear final drive breather hose (**7**) from the electric coupler,
- the electric coupler connector (**8**) .

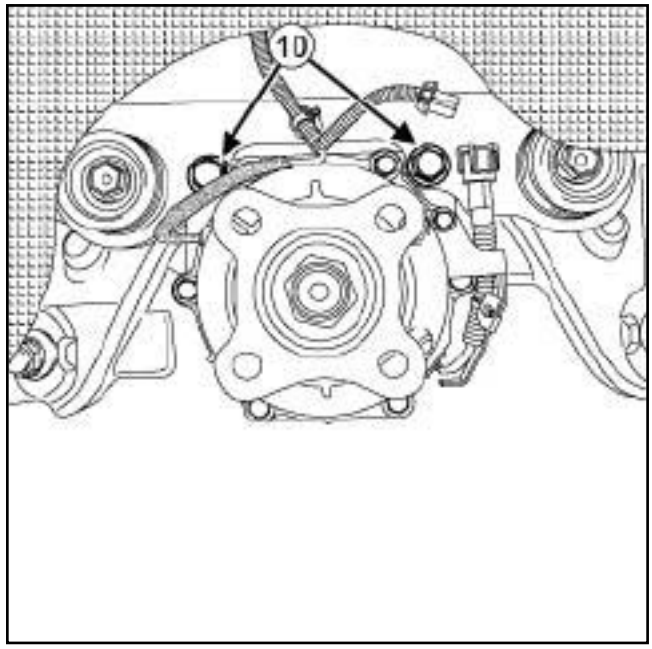
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❏ Fit the **component jack** under the rear final drive.




130045

❏ Remove the nut (**9**) from the rear final drive.




130046

❏ Remove:

- the bolts and the nut (**10**) from the rear final drive,
- the rear final drive.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the rear final drive,
- the rear final drive nut,
- the rear final drive bolts and nut.

❏ Torque tighten:

- the **rear final drive nut (78 N.m)**,
- the **rear final drive bolts (63 N.m)**.

**II - FINAL OPERATION.**

❏ Connect:

- the electric coupler connector,
- the rear final drive breather hose to the electric coupler,
- the rear final drive breather hose to the rear final drive.

❏ Refit the rear final drive breather hose clip.

❏ Refit:

- the rear anti-roll bar tie rod lower bolt and nut,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4X4 TRANSMISSION

- the rear shock absorber lower bolt and nut,
- the rear stub axle carrier lower trailing link bolt and nut,
- the rear stub axle carrier upper arm bolt and nut.

❑ Refit:

- the rear wheel driveshafts (see **29A**, **Driveshafts**, **Rear wheel driveshaft: Removal - Refitting**, page **29A-9**) ,
- the rear wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❑ Fill the rear final drive with oil (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .

XENON BULBS

❑ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights).
- the headlight beam adjustment rear sensor (see **Fault Finding - Programming**) (80C, Xenon bulbs).

❑ Adjust:

- the rear axle geometry (see **Rear axle: Adjusting**) (30A, General information)
- the neutral steering wheel position (see **Fault finding - Programming**)(80B, Headlights).


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Bvi. 1855** | Tools for fitting H45 rear final drive and transfer box seals |

| Tightening torques ▽ | |
|---|---|
| rear final drive flange nut | **140 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **26A**, **Rear axle**, **Rear axle assembly: Precautions for repair**, page **26A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

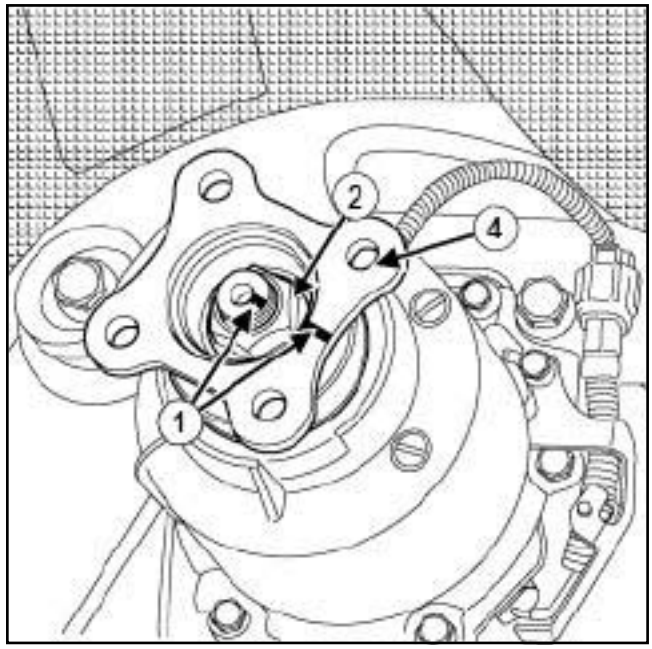
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

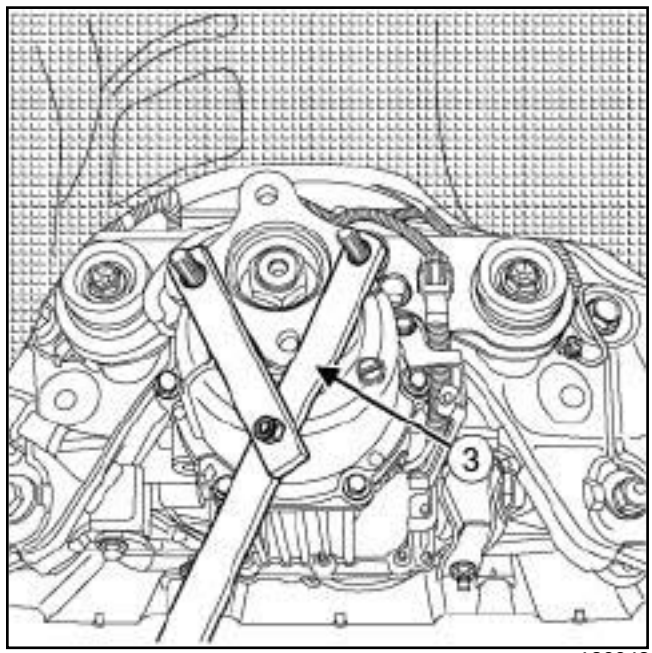
❏ Drain the rear final drive oil (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) (26A, Rear final drive).

❏ Disconnect the longitudinal driveshaft from the rear final drive (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❏ Use a strap to attach the longitudinal driveshaft to the parking brake cable.



130047



130048

❏ Mark the position (**1**) of the rear final drive flange in relation to the rear final drive primary shaft.

❏ Remove:

- the nut (**2**) from the rear final drive flange using the tool **(Rou. 604-01)** (**3**) ,
- the flange (**4**) from the rear final drive.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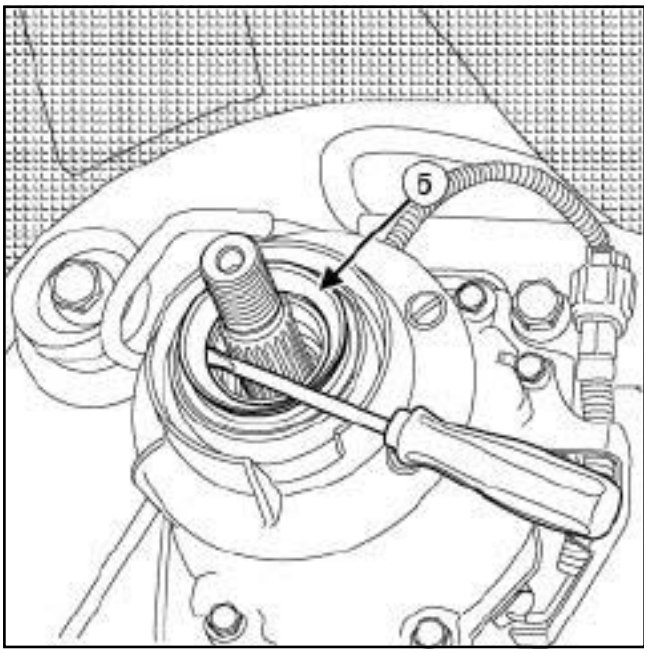
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130049

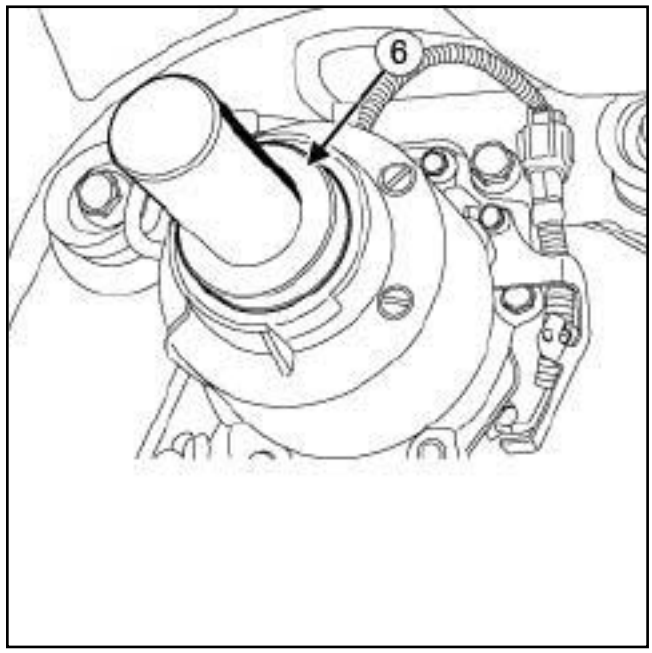
❑ Remove the longitudinal driveshaft input seal (**5**) using a screwdriver, without scratching the mating surface.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace the rear final drive flange nut.

**II - REFITTING OPERATION FOR PART CONCERNED**




130050

❑ Refit the longitudinal driveshaft input seal using the tool **(Bvi. 1855)** (**6**) .

**III - FINAL OPERATION.**

❑ Refit:

- the rear final drive flange at the position marked during removal,
- the new rear final drive flange nut.

❑ Torque tighten the **rear final drive flange nut (140 N.m)** using the tool **(Rou. 604-01)**.

❑ Refit the longitudinal driveshaft (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) .

❑ Fill the rear final drive with oil (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .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| Essential special tooling | |
|---|---|
| **Bvi. 1855** | Tools for fitting H45 rear final drive and transfer box seals |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **26A**, **Rear axle**, **Rear axle assembly: Precautions for repair**, page **26A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) .

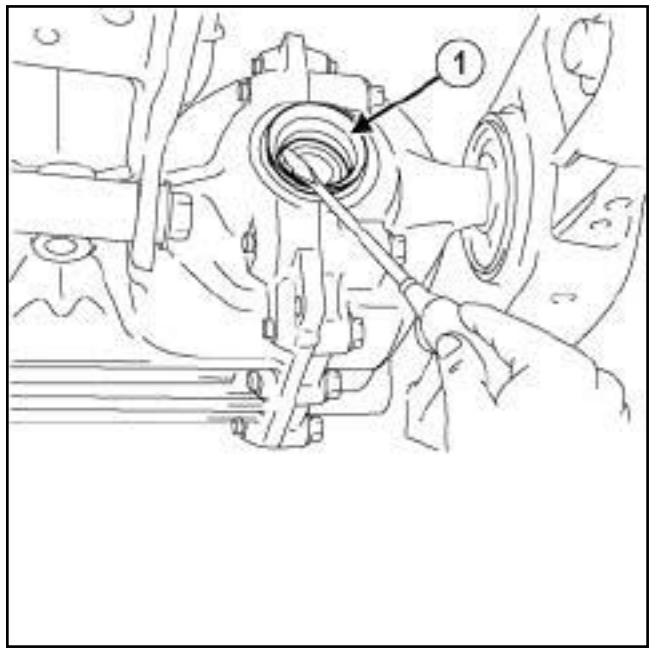
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Drain the oil from the rear final drive (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .

❏ Remove:

- the rear wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the rear wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Rear wheel driveshaft: Removal - Refitting**, page **29A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

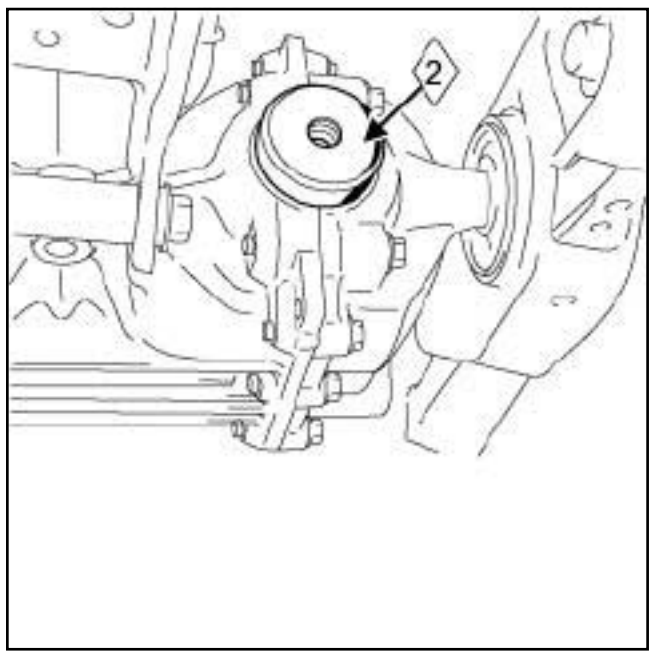



130051

❏ Remove the differential output seal (**1**) from the side concerned using a screwdriver, without scratching the mating surface.

## REFITTING

### I - REFITTING OPERATION FOR THE PART CONCERNED




130052

❏ Refit the differential output seal using the tool **(Bvi. 1855)** (**2**) .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**II - FINAL OPERATION.**

❑ Refit:

- the rear wheel driveshaft on the side concerned (see **29A**, **Driveshafts**, **Rear wheel driveshaft: Removal - Refitting**, page **29A-9**) ,
- the rear wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❑ Fill the rear final drive with oil (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .


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**I - FINAL DRIVE TYPE/OIL TYPE CORRELATIONS:**

| TYPE OF FINAL DRIVE | TYPE OF FINAL DRIVE OIL |
|---|---|
| AD4<br>AD8<br>AR4<br>OT2 | TRANSELF TRX<br>75W80<br>or<br>TRANSELF NFP 75W80 |
| OH1<br>SD1<br>OT1<br>R145<br>DANA final drive | TRANSELF<br>UNIVERSAL<br>FE 80W90 |

Note: DANA final drive:

FE 80W90 oil is equivalent to 75W90 oil (100% compatible)

**II - STANDARDS AND PART NUMBERS OF THE VARIOUS RECOMMENDED OILS:**

| DESIGNA-TION | STANDARD | PART NUMBER |
|---|---|---|
| TRANSELF<br>TRX 75W80<br>or<br>TRANSELF<br>NFP 75W80 | APIGL4,<br>MIL-L-2105<br>C or D | **77 11 143 534**<br>(5 litres) |
| TRANSELF<br>UNIVERSAL<br>FE 80W90 | APIGL5,<br>MIL-L-2105<br>C or D | May be ordered from ELF |


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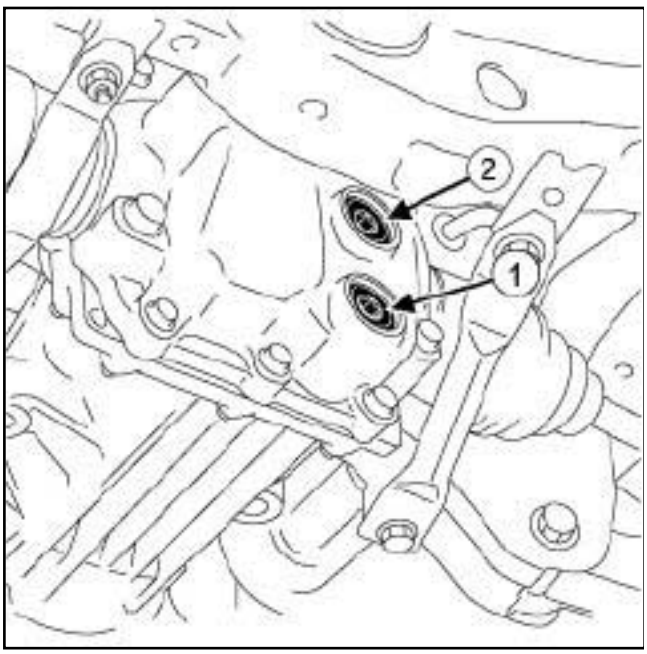
| Tightening torques ▽ | |
|---|---|
| drain plug | **35 N.m** |
| filler cap | **35 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **26A**, **Rear axle**, **Rear axle assembly: Precautions for repair**, page **26A-1**) .

**I - DRAINING**

❏ Position the vehicle on a two-post lift (see **Position of the attachment points**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.



130053

❏ Remove the drain plug (**1**) .

❏ Drain the oil.

❏ Remove the drain plug seal.

**II - FILLING**

❏ Always replace the seals of the drain plug and filler cap.

❏ Clean the drain plug.

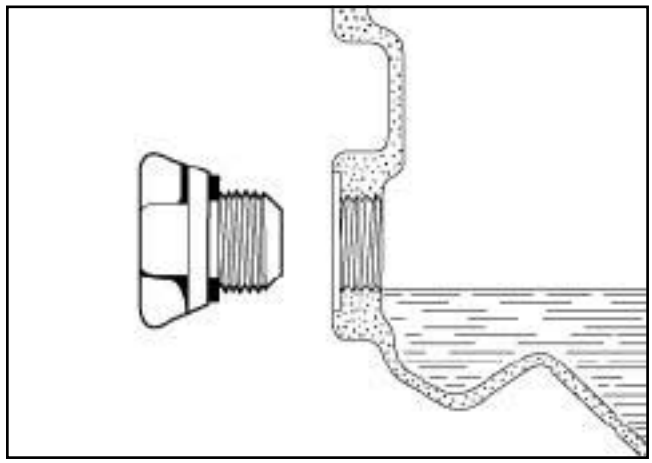
❏ Refit:

- the new drain plug seal,
- the drain plug.

❏ Torque tighten the **drain plug (35 N.m)**.

❏ Remove:

- the filler cap ***(2)*** ,
- the filler cap seal.


131204

❏ Fill the rear final drive with oil up to the level of the opening.

❏ Refit:

- the new filler cap seal,
- the filler cap.

❏ Torque tighten the **filler cap (35 N.m)**.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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Bvi. 1855** | Tools for fitting H45 rear final drive and transfer box seals |

| Tightening torques ▽ | |
|---|---|
| electric coupler cover centring bolts | **16 N.m** |
| electric coupler cover bolts | **16 N.m** |
| electric coupler connector bracket bolt | **6 N.m** |
| rear final drive flange nut | **140 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

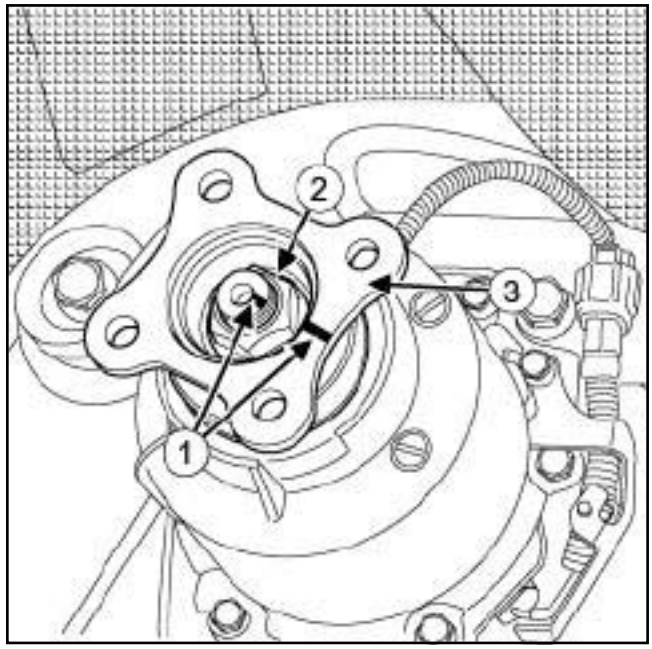
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

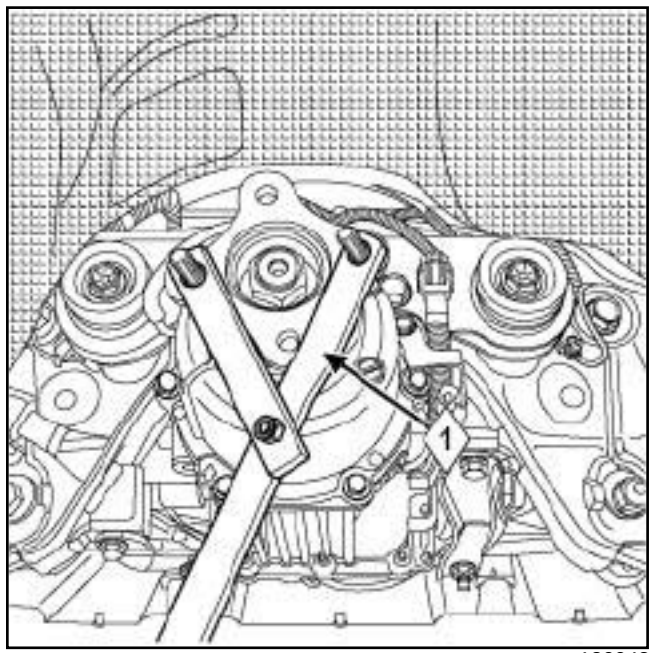
❏ Drain the oil from the rear final drive (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .

❏ Disconnect the longitudinal driveshaft from the rear final drive (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) (29A, Driveshafts).

❏ Use a strap to attach the longitudinal driveshaft to the parking brake cable.



130047



130048

❏ Mark the position (**1**) of the rear final drive flange in relation to the rear final drive primary shaft.

❏ Remove:

- the nut ***(2)*** from the rear final drive flange using the tool **(Rou. 604-01)** ***(1)*** ,
- the rear final drive flange ***(3)*** .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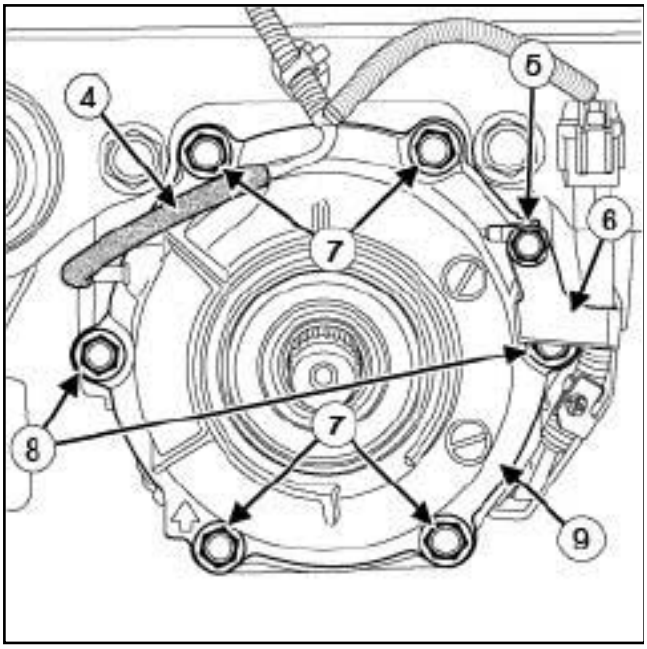



130056

❏ Disconnect the breather hose (**4**) from the electric coupler.

❏ Remove the bolt (**5**) from the electric coupler connector bracket.

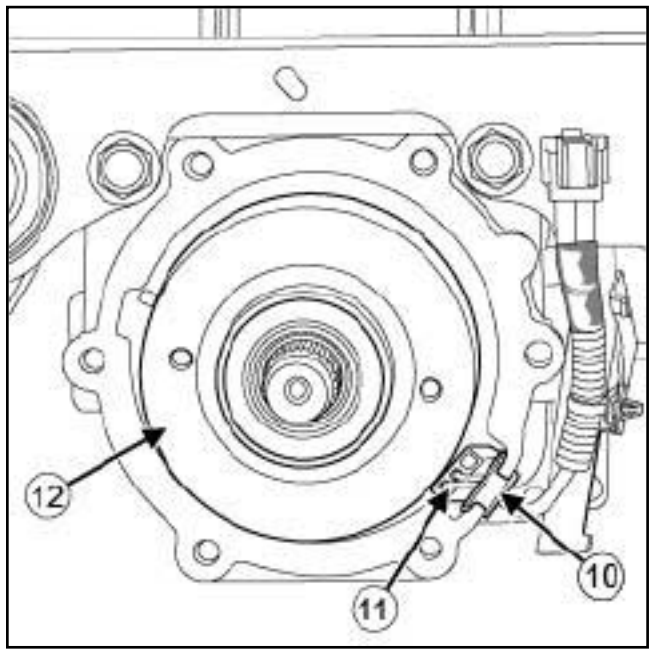
❏ Remove the electric coupler connector bracket (**6**) .

❏ Remove:

- the electric coupler cover bolts (**7**) ,
- the centring bolts (**8**) of the electric coupler cover,
- the cover (**9**) from the electric coupler.

❏ Clean the electric coupler cover and the body of the rear final drive.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



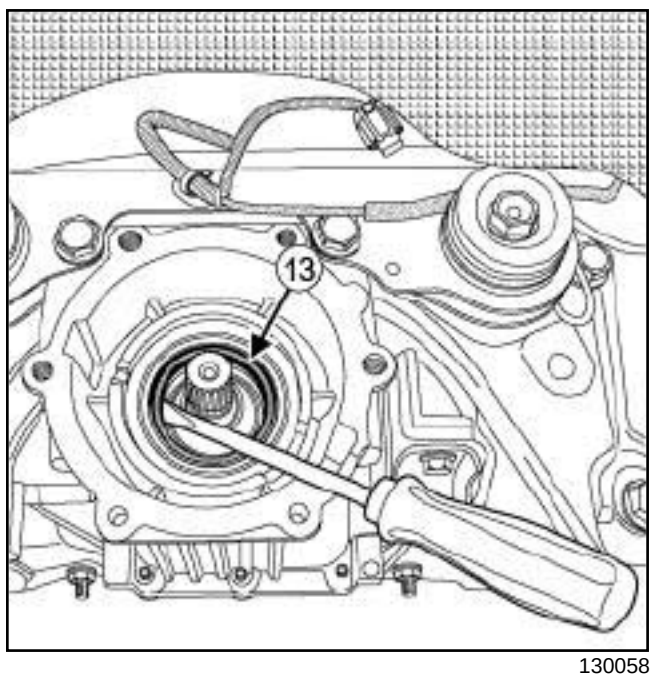

130057

❏ Unclip the clip (**10**) of the electric coupler wiring.

❏ Disconnect the connector (**11**) from the electric coupler.

❏ Remove the electric coupler (**12**) .

❏ Remove the longitudinal driveshaft input seal (see **26A**, **Rear axle**, **Longitudinal driveshaft input seal: Removal - Refitting**, page **26A-6**) .




130058

❏ Remove the differential cover seal (**13**) from the final drive using a screwdriver.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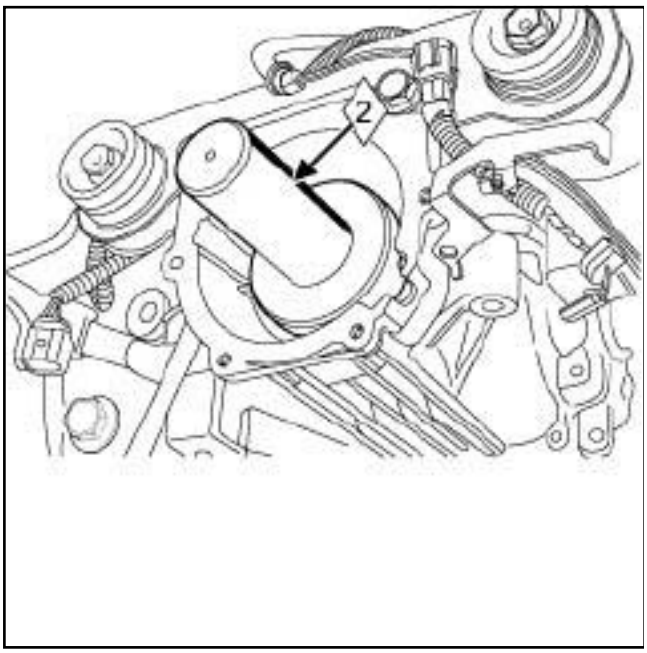
## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the longitudinal driveshaft input seal,
- the final drive differential cover seal,
- the rear final drive flange nut.




130059

❏ Refit the new seal of the final drive differential cover using the tool **(Bvi. 1855)** (**2**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the electric coupler.

❏ Clip:

- the electric coupler connector,
- the electric coupler wiring clip.

### III - FINAL OPERATION.

❏ Coat the mating face of the electric coupler cover with a liquid sealing product.

❏ Refit:

- the electric coupler cover,
- the electric coupler cover centring bolts,
- the electric coupler cover bolts.

❏ Torque tighten:

- the **electric coupler cover centring bolts (16 N.m)**,
- the **electric coupler cover bolts (16 N.m)**.

❏ Refit:

- the electric coupler connector bracket,
- the bolt for the electric coupler connector bracket.

❏ Torque tighten the **electric coupler connector bracket bolt (6 N.m)**.

❏ Clip on the electric coupler breather hose.

❏ Refit:

- the new longitudinal driveshaft input seal (see **26A**, **Rear axle**, **Longitudinal driveshaft input seal: Removal - Refitting**, page **26A-6**) ,
- the rear final drive flange at the position marked during removal,
- the new rear final drive flange nut.

❏ Torque tighten the **rear final drive flange nut (140 N.m)** using the tool **(Rou. 604-01)**.

❏ Refit the longitudinal driveshaft (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) (29A, Driveshafts).

❏ Fill the rear final drive with oil (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .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| Tightening torques ▽ | |
|---|---|
| electric coupler computer bolts | **10N.m** |

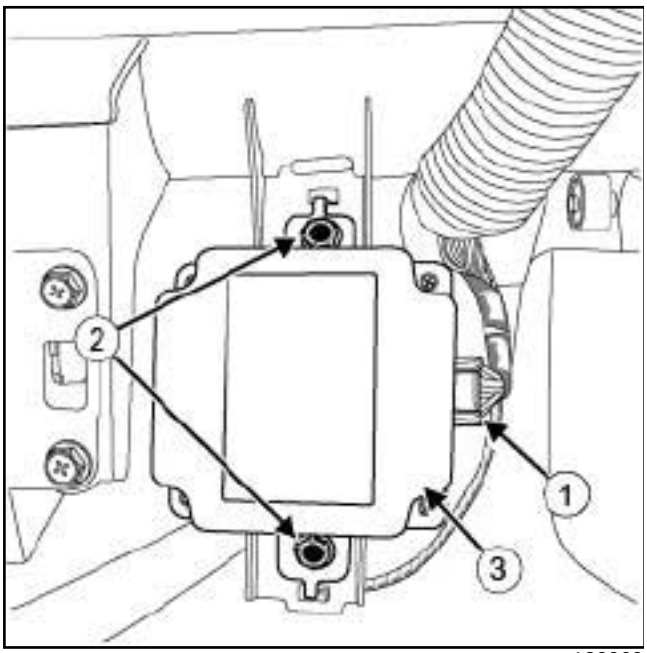
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130060

❏ Disconnect the connector (**1**) from the electric coupler computer.

❏ Remove:

- the bolts (**2**) from the electric coupler computer,
- the electric coupler computer (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the electric coupler computer,
- the bolts of the electric coupler computer.

❏ Torque tighten the **electric coupler computer bolts (10N.m)**.

❏ Connect the connector to the electric coupler computer.

### II - FINAL OPERATION.

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Tav. 476** | Ball joint extractor. |
| **Tav. 1420-01** | Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850. |
| **Tav. 1050-04** | Universal driveshaft pusher tool (back-plate and claws, without jack). |
| **Tav. 1862** | Tool for removing clipped driveshafts |

| Tightening torques ▽ | |
|---|---|
| lower arm ball joint nut | **63 N.m** |
| hub nut | **125 N.m** |
| track rod ball joint nut | **34 N.m** |
| anti-roll tie-rod nut | **84 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove the engine undertray.

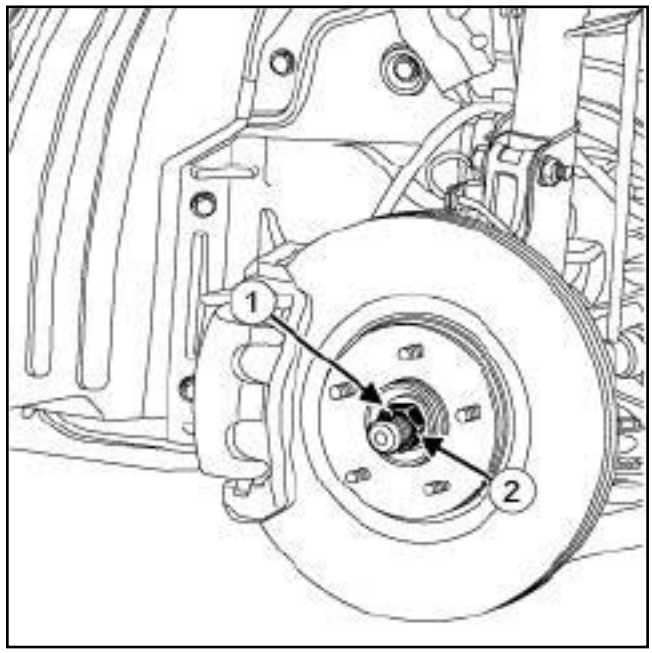
6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8

❑ Drain the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❑ Remove the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



130061

❑ Remove:

- the cotter pin (**1**) ,
- the hub nut (**2**) using the **(Rou. 604-01)**.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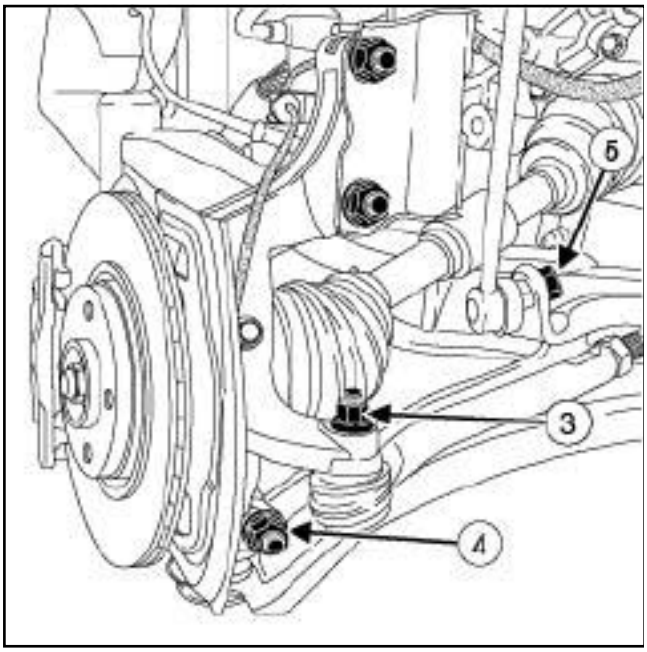
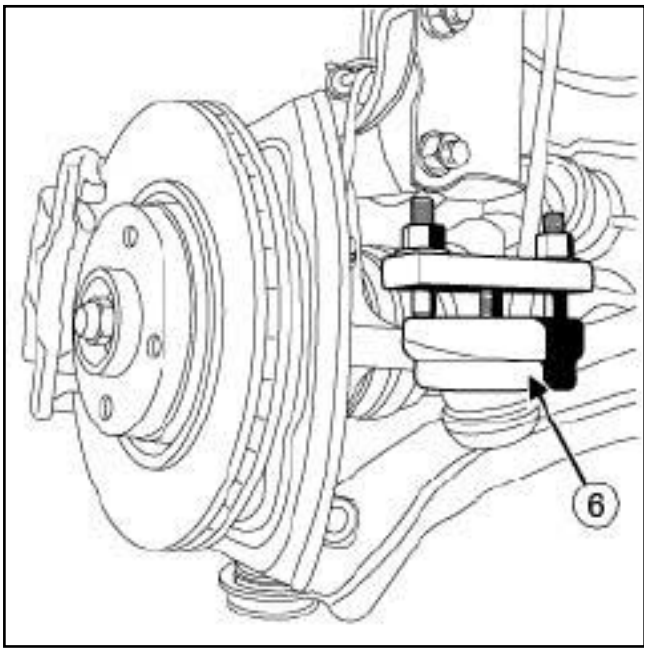



130062

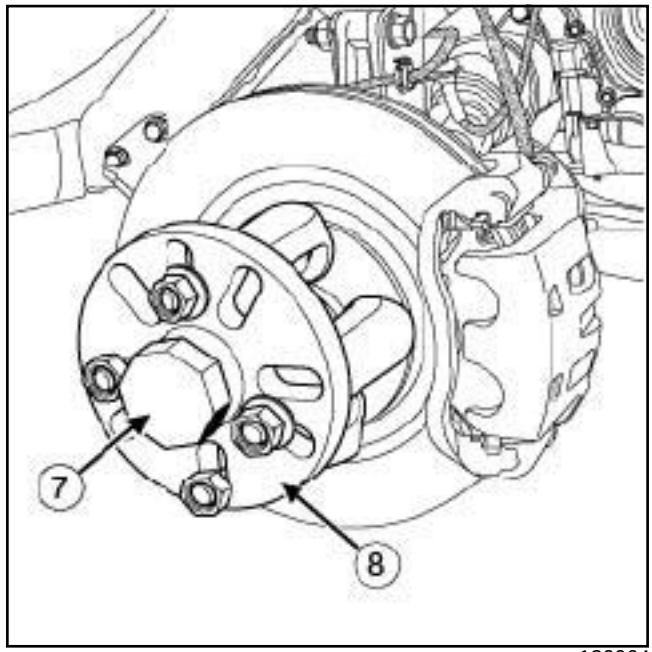



130063

❑ Remove:

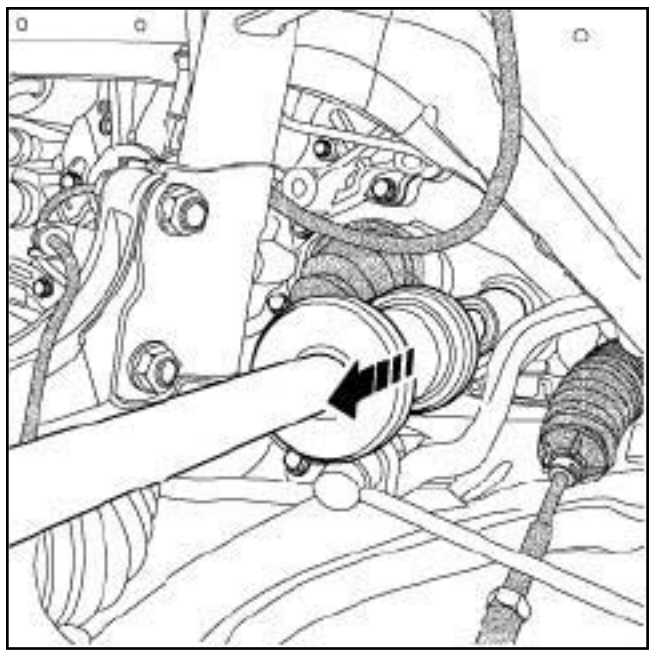
- the track rod nut (**3**) ,
- the ball joint from the left-hand track rod using the tool **(Tav. 476)** (**6**) .
- the lower arm ball joint nut (**4**) ,
- the anti-roll tie-rod nut (**5**) ,
- the lower arm ball joint.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130064

❑ Separate the front left-hand driveshaft from the hub carrier using the tools **(Tav. 1420-01)** (**7**) and **(Tav. 1050-04)** (**8**) .



130065

❑ Remove the front left-hand driveshaft using the tool **(Tav. 1862)** and the inertia extractor.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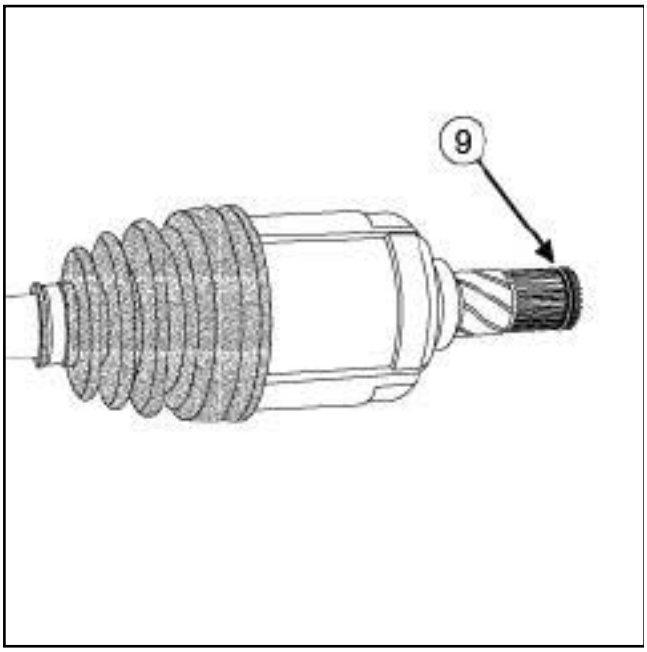

130066

❑ Remove the locking ring (**9**) from the driveshaft.

6 SPEED MANUAL GBOX

❑ Remove the differential output seal on the left-hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Remove the differential output seal on the left-hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the differential output seal,
- the driveshaft locking ring.
- the cotter pin.

❑ Refit the new driveshaft locking ring.

6 SPEED MANUAL GBOX

❑ Refit the differential output seal on the left-hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Refit the differential output seal on the left-hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Insert:

- the driveshaft splines into the differential grooves,
- the driveshaft splines in the hub carrier grooves.

### III - FINAL OPERATION

❑ Refit:

- the lower arm ball joint,
- the lower arm ball joint nut,
- the left-hand track rod ball joint nut,
- the anti-roll tie-rod nut,
- the hub nut,
- the new cotter pin.

❑ Torque tighten:

- the **lower arm ball joint nut (63 N.m)**,
- the **hub nut (125 N.m)**, using the tool **(Rou. 604-01)**,
- the **track rod ball joint nut (34 N.m)**,
- the **anti-roll tie-rod nut (84 N.m)**.


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6 SPEED MANUAL GBOX

❏ Remove the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❏ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Refit the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

FK0 or FK8

❏ Fill the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❏ Refit:

- the engine undertray,
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Tav. 476** | Ball joint extractor. |
| **Tav. 1420-01** | Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850. |
| **Tav. 1050-04** | Universal driveshaft pusher tool (back-plate and claws, without jack). |

| Tightening torques ▽ | |
|---|---|
| driveshaft relay bearing plate bolts | **25 N.m** |
| driveshaft relay bearing support bolts | **48 N.m** |
| lower arm ball joint nut | **63 N.m** |
| hub nut | **125 N.m** |
| track rod ball joint nut | **34 N.m** |
| anti-roll tie-rod nut | **84 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.

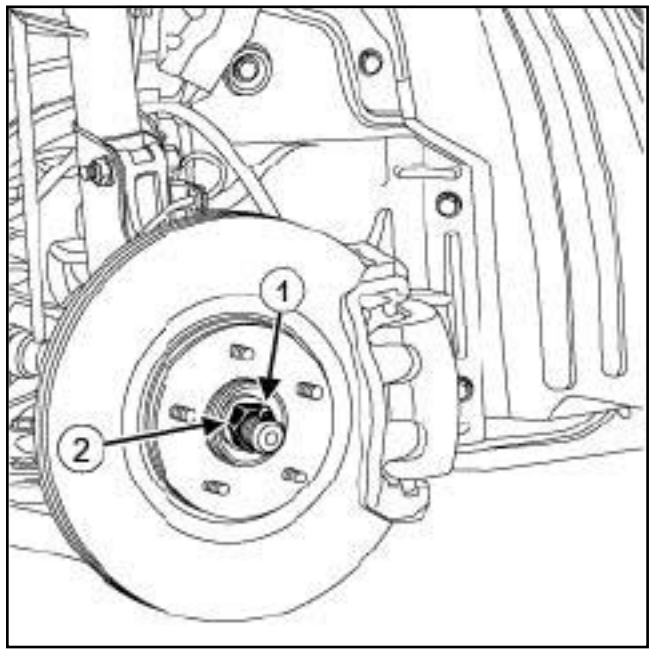
6 SPEED MANUAL GBOX

❏ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8

❏ Drain the automatic gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❏ Remove the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



130067

❏ Remove:

- the cotter pin (**1**) ,
- the hub nut (**2**) using the **(Rou. 604-01)**.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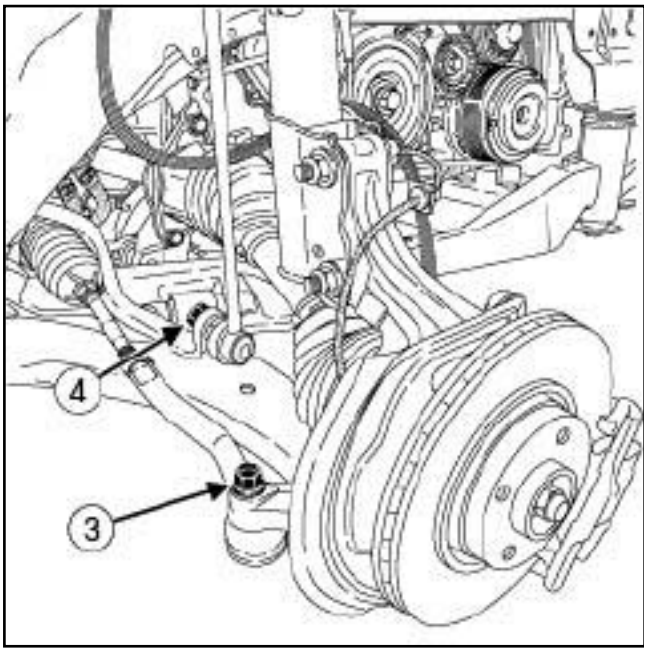
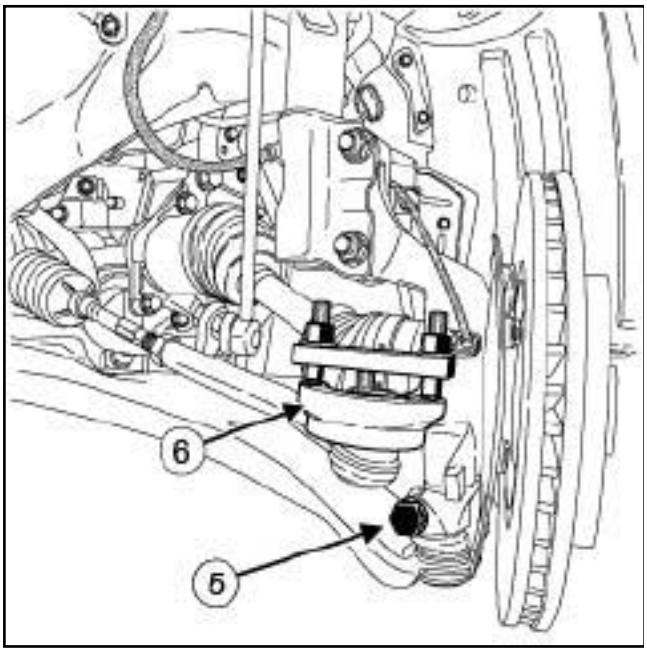



130068

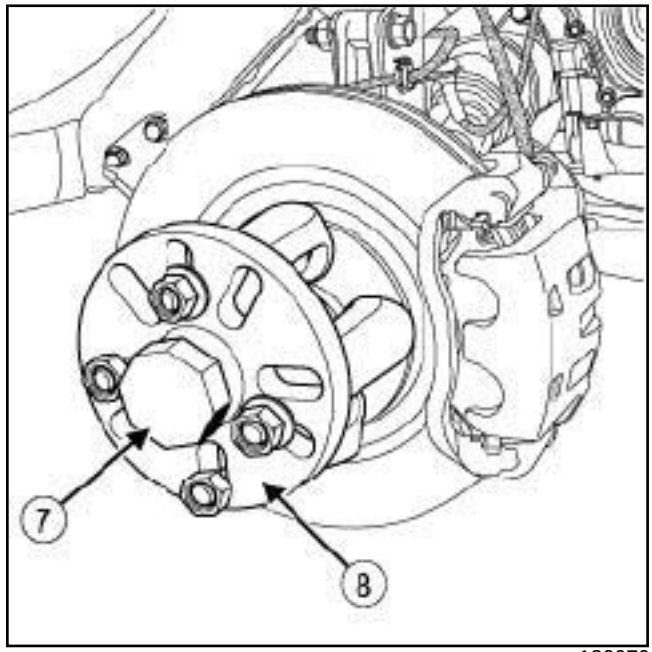



130069

❑ Remove:

- the lower arm ball joint bolt (**5**) ,
- the anti-roll bar tie-rod nut (**4**) ,
- the right-hand track rod ball joint nut (**3**) ,
- the ball joint from the right-hand track rod using the tool **(Tav. 476)** (**6**) .

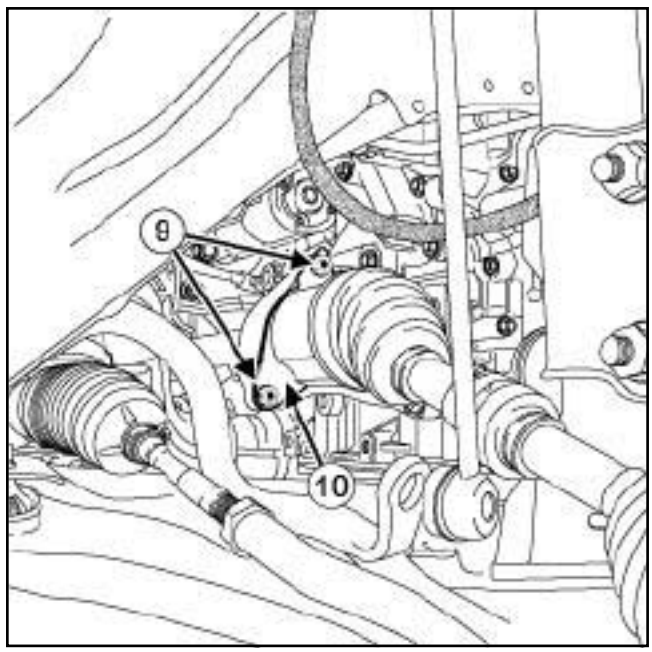
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130070

❑ Separate the front right-hand driveshaft from the hub carrier using the tools **(Tav. 1420-01)** (**7**) and **(Tav. 1050-04)** (**8**) .

2TR




130071

❑ Remove:

- the front right-hand driveshaft relay bearing bracket bolts (**9**) ,
- the front right-hand driveshaft relay bearing bracket (**10**) ,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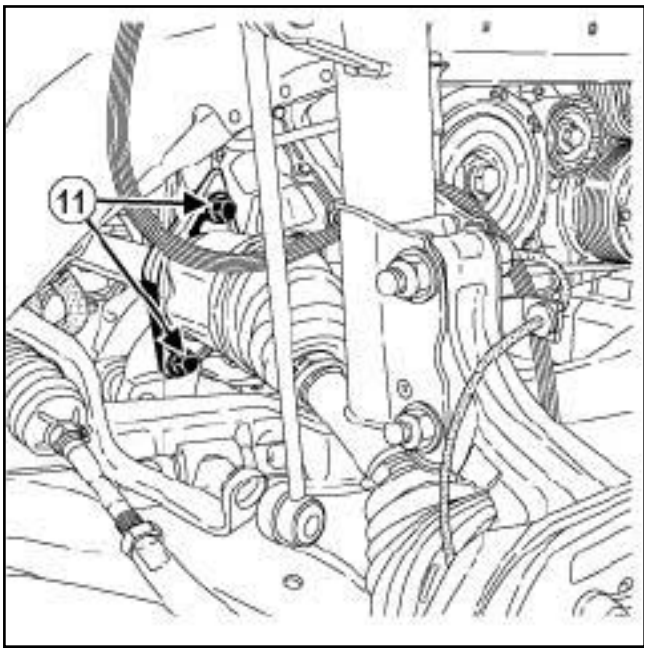
- the front right-hand driveshaft.

M9R




130072

❑ Remove:

- the bolts (**11**) from the front right-hand driveshaft relay bearing support,
- the front right-hand driveshaft.

6 SPEED MANUAL GBOX

❑ Remove the differential output seal on the right hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Remove the differential output seal on the right hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the differential output seal,
- the front right-hand driveshaft relay bearing bracket bolts,
- the front right-hand driveshaft relay bearing support bolts,
- the cotter pin.

6 SPEED MANUAL GBOX

❑ Refit the differential output seal on the right hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Refit the differential output seal on the right hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Insert:

- the driveshaft splines into the differential grooves,
- the driveshaft splines in the hub carrier grooves.

2TR

❑ Refit:

- the driveshaft relay bearing bracket,
- the driveshaft relay bearing bracket new bolts.

❑ Torque tighten the **driveshaft relay bearing plate bolts (25 N.m)**.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M9R

❑ Refit the new driveshaft relay bearing support bolts.

❑ Torque tighten the **driveshaft relay bearing support bolts (48 N.m)**.

**III - FINAL OPERATION**

❑ Refit:

- the lower arm ball joint,
- the lower arm ball joint bolt,
- the right-hand track rod ball joint nut,
- the anti-roll tie-rod nut,
- the hub nut,
- the new cotter pin.

❑ Torque tighten:

- the **lower arm ball joint nut (63 N.m)**,
- the **hub nut (125 N.m)**, using the tool **(Rou. 604-01)**,
- the **track rod ball joint nut (34 N.m)**,
- the **anti-roll tie-rod nut (84 N.m)**.

❑ Refit the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

6 SPEED MANUAL GBOX

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❑ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

FK0 or FK8

❑ Fill the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❑ Refit the engine undertray.


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Tar. 1879** | Fork for extracting rear final drive shafts |

| Tightening torques ▽ | |
|---|---|
| rear axle subframe engine tie-bar bolt on the right-hand side | **50 N.m** |
| rear axle subframe engine tie-bar nut on the right-hand side | **50 N.m** |
| rear axle subframe engine tie-bar bolt on the left-hand side | **50 N.m** |
| rear axle subframe engine tie-bar nut on the left-hand side | **50 N.m** |
| hub nut | **125 N.m** |

## REMOVAL

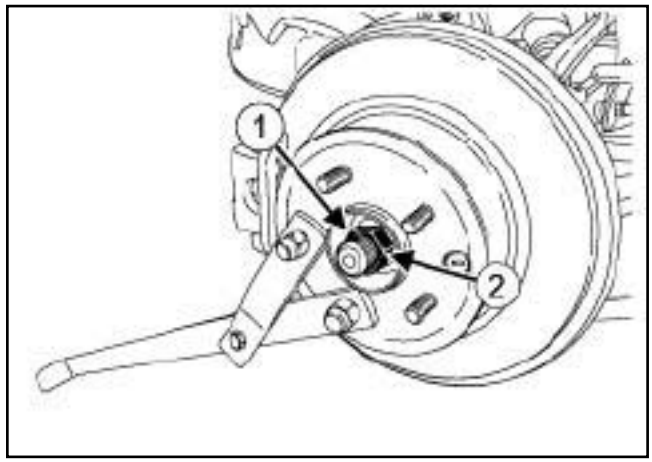
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

> **IMPORTANT**
> To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Drain the oil from the rear final drive (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**) .

❏ Remove the rear wheels on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



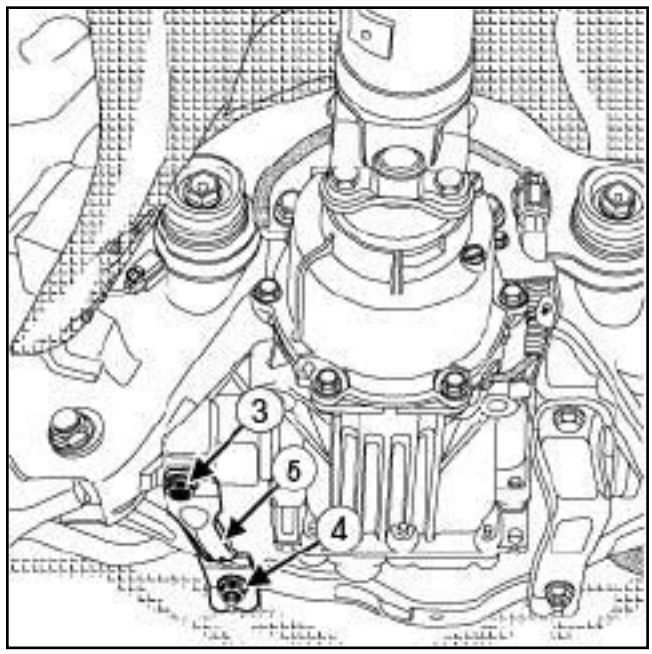
130073

❏ Remove:

- the cotter pin (**1**) ,
- the nut (**2**) from the hub carrier using the tool **(Rou. 604-01)**.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Rear right-hand driveshaft



130074

❏ Remove:

- the engine tie-bar bolt (**3**) from the rear axle subframe on the right-hand side,
- the engine tie-bar nut (**4**) from the rear axle subframe on the right-hand side,
- the engine tie-bar (**5**) from the rear axle subframe on the right-hand side.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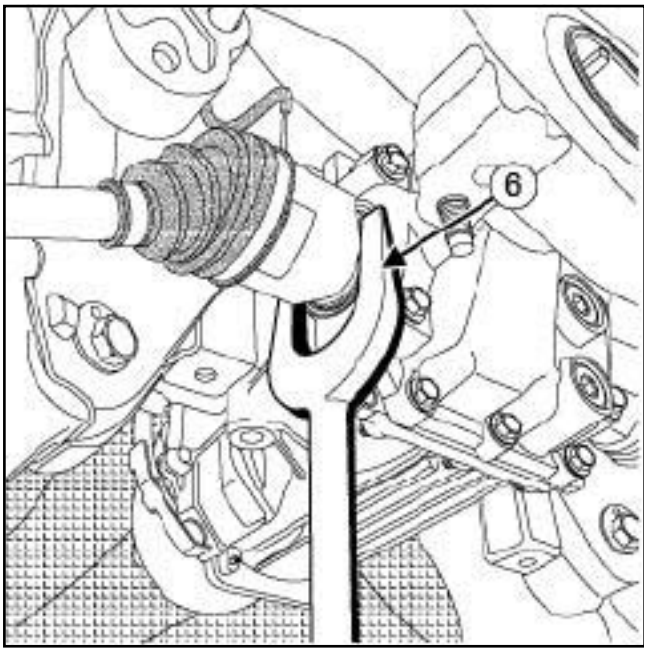
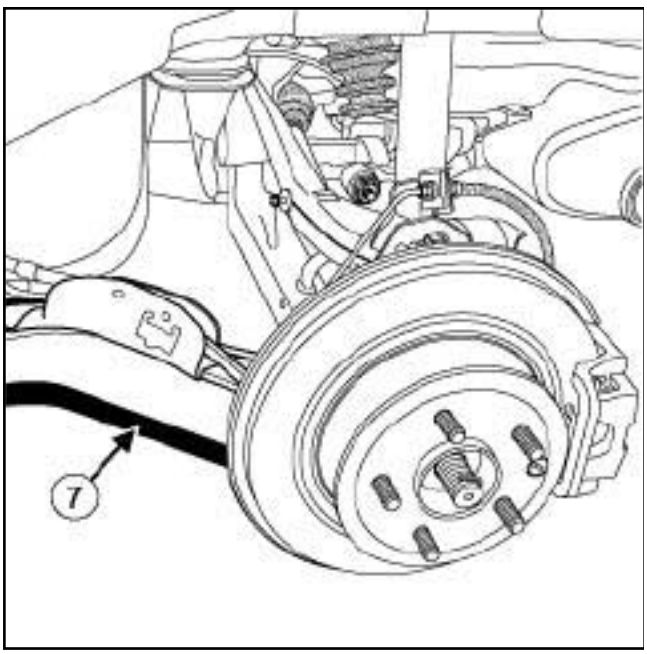



130075

❏ Disconnect the rear right-hand driveshaft using the tool **(Tar. 1879)** (**6**) .

❏ Remove the rear right-hand suspension spring (see **Rear suspension spring: Removal - Refitting**) (33A, Rear axle components).

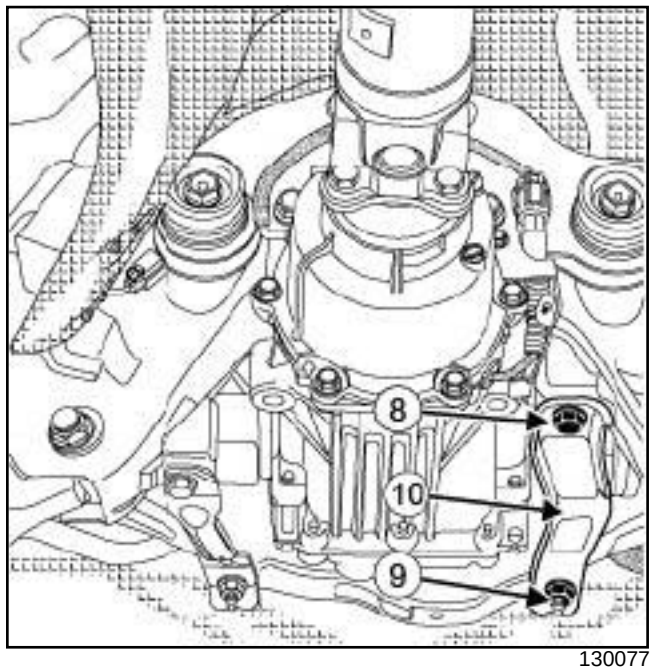



130076

❏ Move aside the rear stub axle carrier (**7**) .

❏ Remove the rear right-hand driveshaft.

**2 - Rear left-hand driveshaft**




130077

❏ Remove:

- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).
- the engine tie-bar bolt (**8**) from the rear axle subframe on the left-hand side,
- the engine tie-bar nut (**9**) from the rear axle subframe on the left-hand side,
- the engine tie-bar (**10**) from the rear axle subframe on the left-hand side.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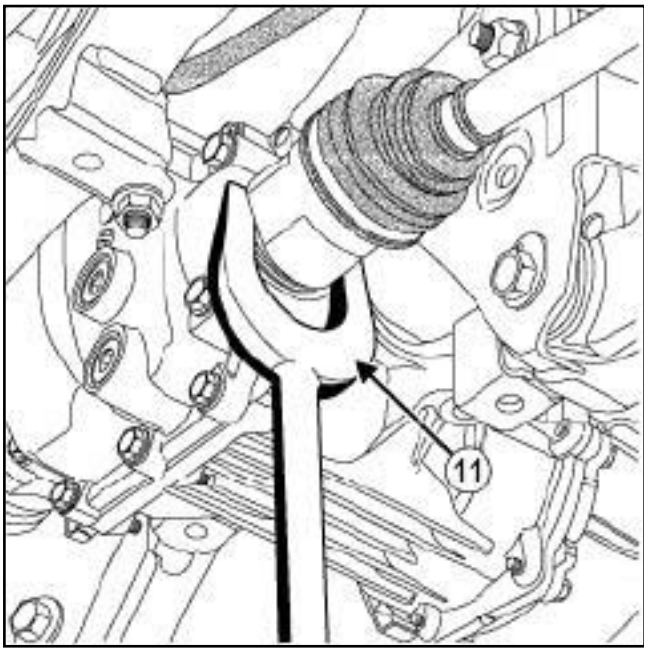
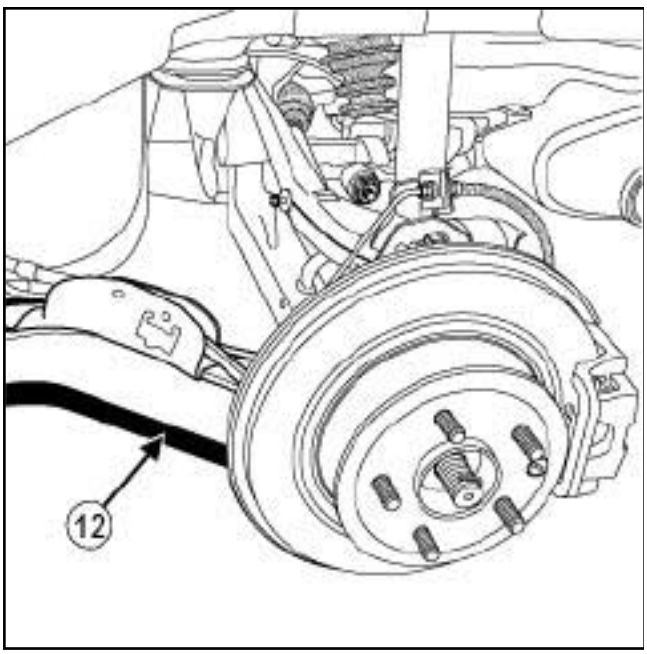



130078

❏ Disconnect the rear left-hand driveshaft using the tool **(Tar. 1879)** (**11**) .

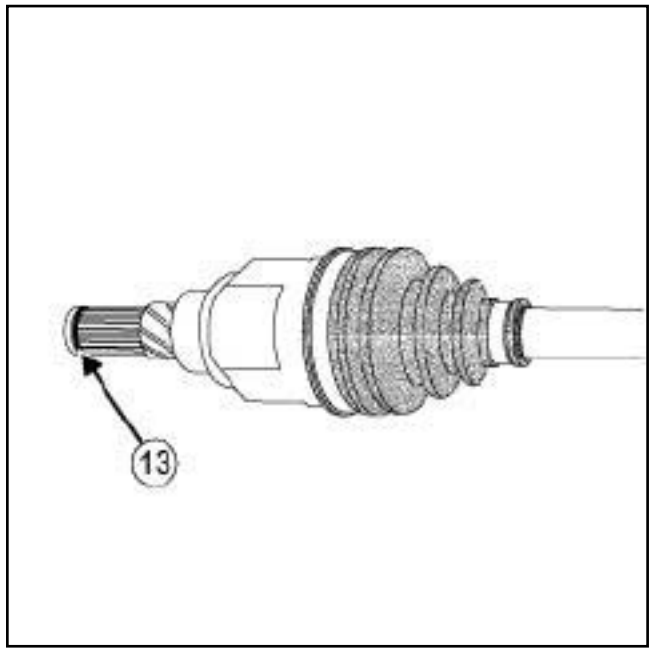
❏ Remove the rear left-hand suspension spring (see **Rear suspension spring: Removal - Refitting**) (33A, Rear axle components).




130076

❏ Move aside the rear stub axle carrier (**12**) .

❏ Remove the rear left-hand driveshaft.




130079

❏ Remove the rear left-hand driveshaft locking ring (**13**) .

6 SPEED MANUAL GBOX

❏ Remove the differential output seal on the right-hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ Remove the differential output seal on the right-hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the rear left-hand driveshaft locking ring,
- the differential output seal,
- the cotter pin.

❏ Refit the new rear driveshaft locking ring.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6 SPEED MANUAL GBOX

❑ Refit the differential output seal on the right-hand side (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Refit the differential output seal on the right-hand side (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

**II - REFITTING OPERATION FOR PART CONCERNED**

**1 - Rear right-hand driveshaft**

❑ Refit:

- the rear right-hand driveshaft,
- the engine tie-bar on the rear axle subframe on the right-hand side,
- the engine tie-bar bolt on the rear axle subframe on the right-hand side,
- the engine tie-bar nut on the rear axle subframe on the right-hand side

❑ Torque tighten:

- the **rear axle subframe engine tie-bar bolt on the right-hand side (50 N.m)**,
- the **rear axle subframe engine tie-bar nut on the right-hand side (50 N.m)**.

❑ Refit the rear right-hand suspension spring (see **Rear suspension spring: Removal - Refitting**) (33A, Rear axle components).

**2 - Rear left-hand driveshaft**

❑ Refit:

- the rear left-hand driveshaft,
- the engine tie-bar on the rear axle subframe on the left-hand side,
- the engine tie-bar bolt on the rear axle subframe on the left-hand side,
- the engine tie-bar nut on the rear axle subframe on the left-hand side.

❑ Torque tighten:

- the **rear axle subframe engine tie-bar bolt on the left-hand side (50 N.m)**,
- the **rear axle subframe engine tie-bar nut on the left-hand side (50 N.m)**.

❑ Refit:

- the rear left-hand suspension spring (see **Rear suspension spring: Removal - Refitting**) (33A, Rear axle components).
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

**III - FINAL OPERATION.**

❑ Refit the hub nut on the side concerned.

❑ Torque tighten the **hub nut (125 N.m)** using the tool **(Rou. 604-01)** on the side concerned.

❑ Refit:

- the new cotter pin,
- the wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

❑ Fill the rear final drive (see **26A**, **Rear axle**, **Rear axle oil: Draining - Refilling**, page **26A-11**)

XENON BULBS

❑ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights).
- the headlight beam adjustment rear sensor (see **Fault Finding - Programming**) (80C, Discharge bulbs).

❑ Adjust:

- the wheel geometry (see **Rear axle: Adjusting**) (30A, General information).
- the neutral position of the steering wheel sensor (see **Fault finding - Programming**) (80B, Headlights).


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4X4 TRANSMISSION

| Tightening torques ▽ | |
|---|---|
| relay bearing nuts | **45 N.m** |
| rear final drive | **- longitudinal driveshaft connection bolts50N.m** |
| bolts between the transfer box and the longitudinal driveshaft | **49N.m** |
| bolts between the transfer box and the longitudinal driveshaft | **49 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Release the parking brake.

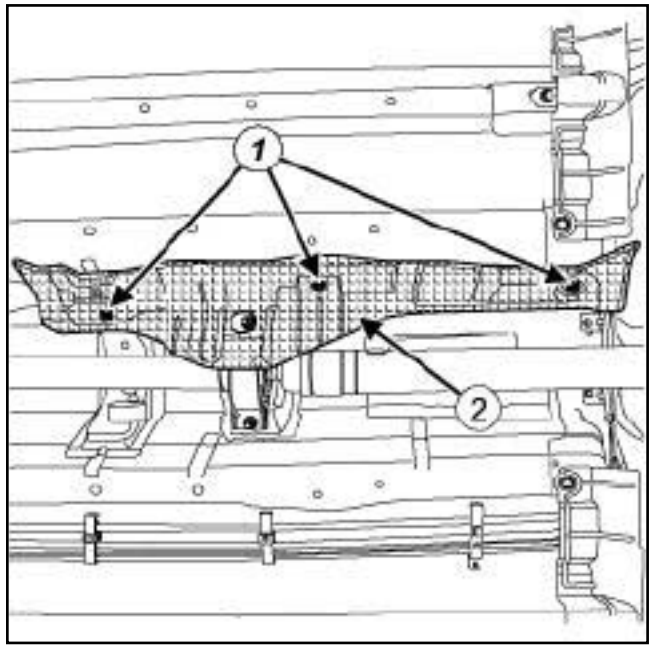
M9R

❏ Remove the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust).

2TR

❏ Remove the catalytic converter (see **Catalytic converter: Removal - Refitting**) (19B, Exhaust).

❏ Remove the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

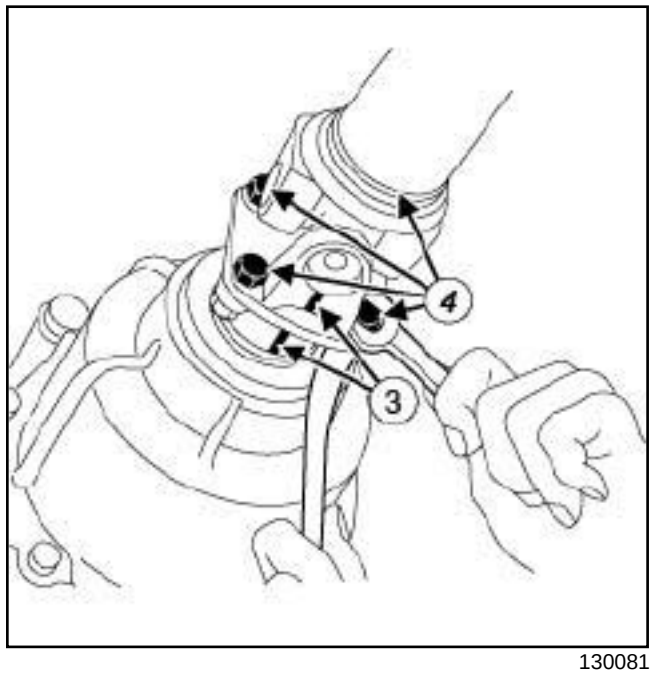



130080

❏ Remove:

- the nuts (**1**) from the heat shield,
- the heat shield (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130081

❏ Mark the position (**3**) of the rear final drive and longitudinal driveshaft in relation to the flange.

❏ Remove the bolts and the nuts (**4**) from the rear final drive - longitudinal driveshaft connection.

❏ Uncouple the rear final drive longitudinal driveshaft.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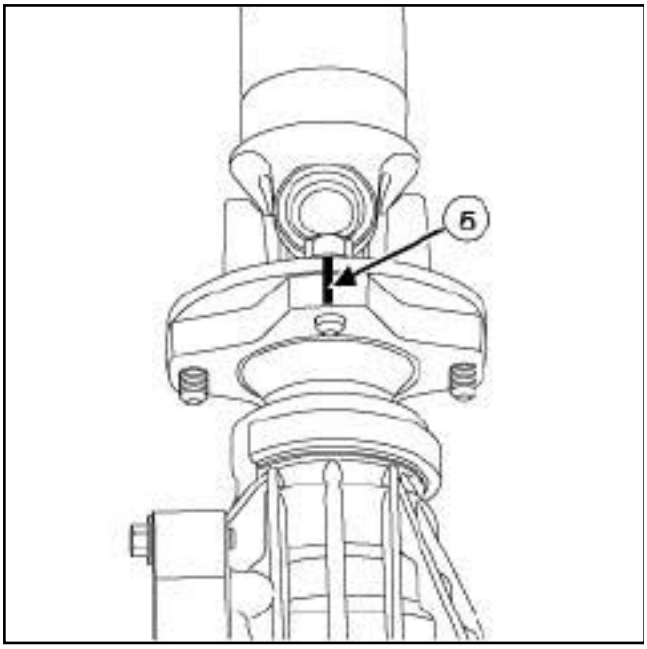
4X4 TRANSMISSION




130082

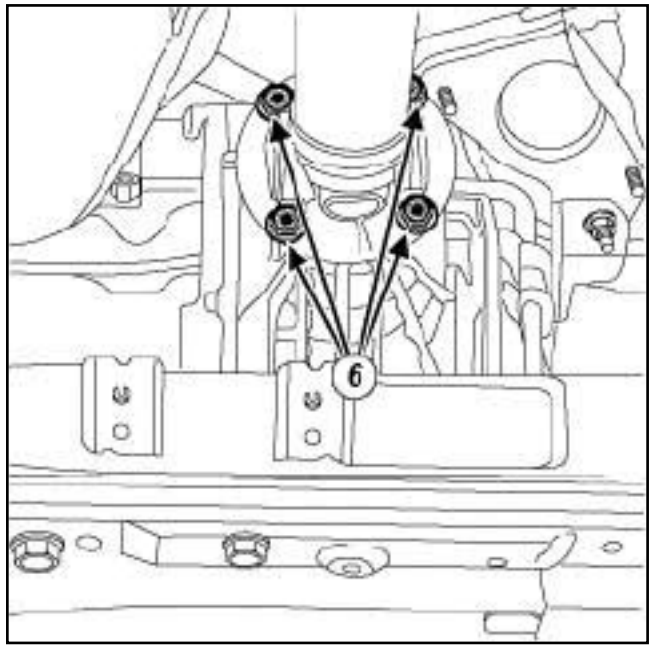
❏ Mark the position (**5**) of the transfer box and longitudinal driveshaft in relation to the flange.

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ On the automatic gearbox, put the gear lever in position **P**.

6 SPEED MANUAL GBOX

❏ On the manual gearbox, put the gear lever in **1st**.




130083

❏ Remove the bolts (**6**) between the transfer box and the longitudinal driveshaft.

6 SPEED MANUAL GBOX

❏ On the manual gearbox, put the gear lever in **neutral**.

❏ Rotate the longitudinal driveshaft **$180^0$** clockwise.

❏ On the manual gearbox, put the gear lever in **1st**.

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ On the automatic gearbox, put the gear lever in **neutral**.

❏ Rotate the longitudinal driveshaft **$180^0$** clockwise.

❏ On the automatic gearbox, put the gear lever in position **P**.

❏ Remove the bolts between the transfer box and the longitudinal driveshaft.

❏ Disconnect the longitudinal driveshaft from the transfer box.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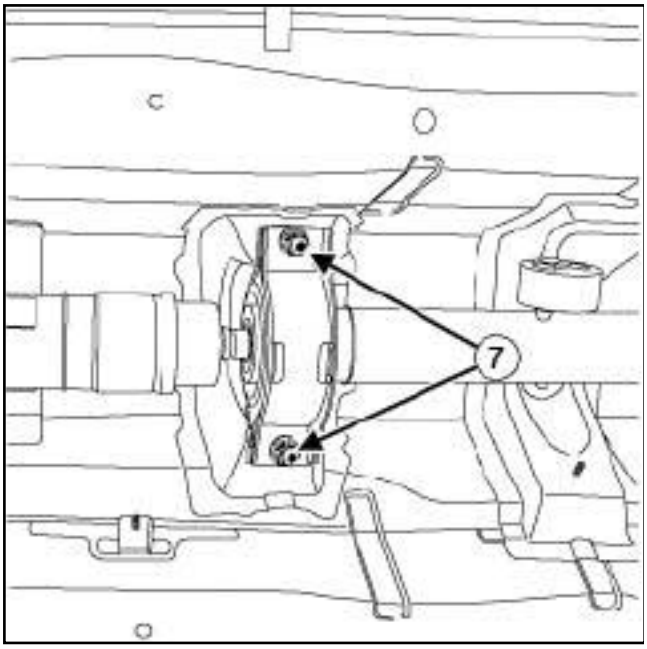
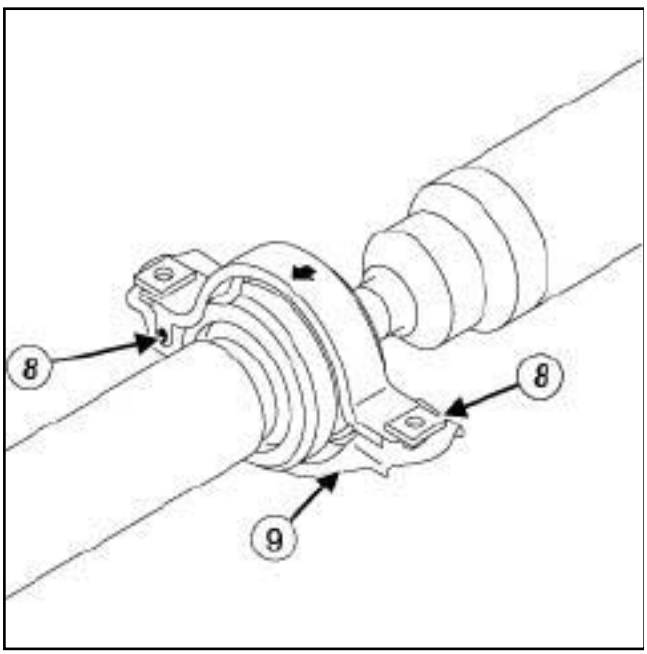



130084

❑ Remove:

- the nuts (**7**) from the longitudinal driveshaft relay bearing,
- the longitudinal driveshaft using an operator.




130085

❑ Refit:

- the clips (**8**) from the longitudinal driveshaft relay bearing,
- the longitudinal driveshaft relay bearing (**9**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the longitudinal driveshaft relay bearing clips,
- the longitudinal driveshaft relay bearing nuts,
- the bolts between the transfer box and the longitudinal driveshaft.
- the rear final drive - longitudinal driveshaft connection bolts and nuts.

❑ Refit:

- the longitudinal driveshaft relay bearing,
- the longitudinal driveshaft relay bearing clips.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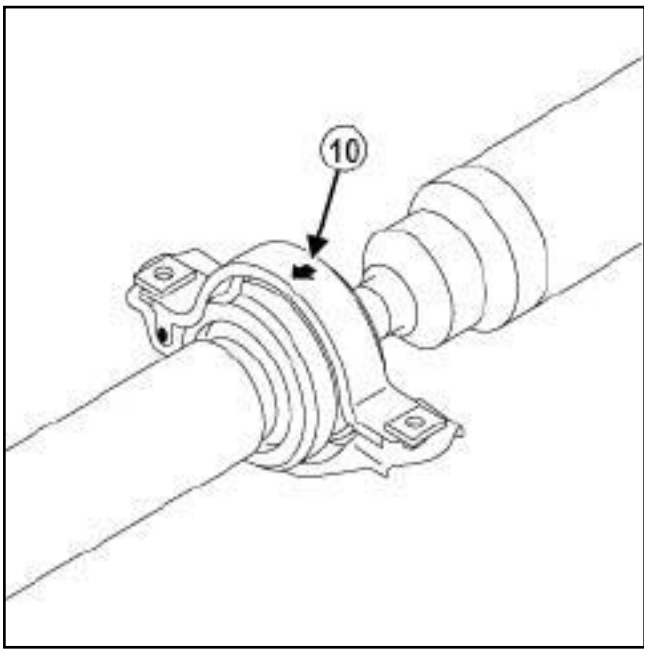
**II - REMOVAL OPERATION FOR PART CONCERNED**




130085

❏ Refit:

- the longitudinal driveshaft using an operator,with the arrow facing upwards (**10**) .
- the new longitudinal driveshaft relay bearing nuts,

❏ Torque tighten the **relay bearing nuts (45 N.m)** of the longitudinal driveshaft.

❏ Refit:

- the bolts between the transfer box and the longitudinal driveshaft.
- the bolts and nuts of the rear final drive - longitudinal driveshaft connection

❏ Torque tighten

- the **rear final drive (- longitudinal driveshaft connection bolts50N.m)**,
- the **bolts between the transfer box and the longitudinal driveshaft (49N.m)**.

6 SPEED MANUAL GBOX

❏ On the manual gearbox, put the gear lever in **neutral**.

❏ Rotate the longitudinal driveshaft **$180^0$** clockwise.

❏ On the manual gearbox, put the gear lever in **1st**.

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ On the automatic gearbox, put the gear lever in **neutral**.

❏ Rotate the longitudinal driveshaft **$180^0$** clockwise.

❏ On the automatic gearbox, put the gear lever in position **P**.

❏ Torque tighten the **bolts between the transfer box and the longitudinal driveshaft (49 N.m)**.

**III - FINAL OPERATION.**

❏ Refit:

- the heat shield,
- the heat shield nuts,
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust),

M9R

❏ the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust).

2TR

❏ Refit the catalytic converter (see **Catalytic converter: Removal - Refitting**) (19B, Exhaust).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M9R

| Essential special tooling | |
|---|---|
| **Tav. 1168** | Thermoplastic driveshaft gaiter clip fitting tool. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine undertray bolts,
- the engine undertray.

6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

6 SPEED AUTO GBOX

❑ Drain the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

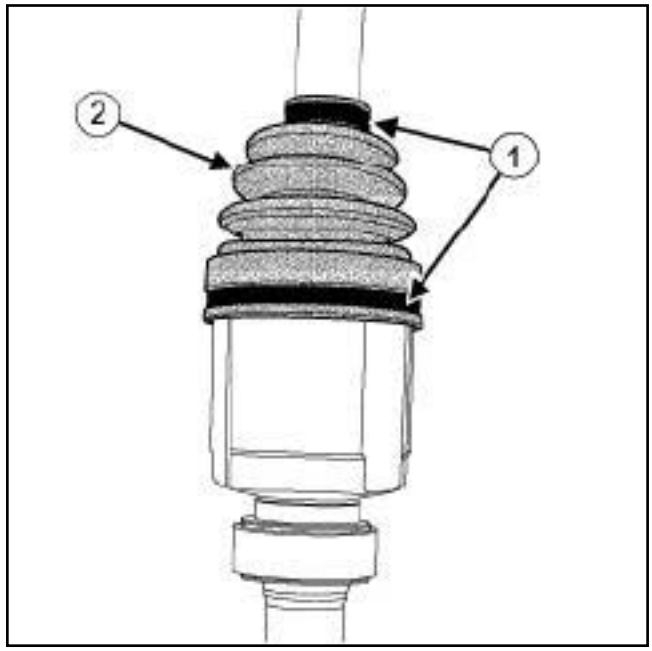
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .

6 SPEED MANUAL GBOX

❑ Remove the right-hand side differential outlet seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

6 SPEED AUTO GBOX

❑ Remove the right-hand side differential outlet seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .



130589

❑ Cut the clips (**1**) .

❑ Move aside the front right-hand driveshaft gaiter (**2**) .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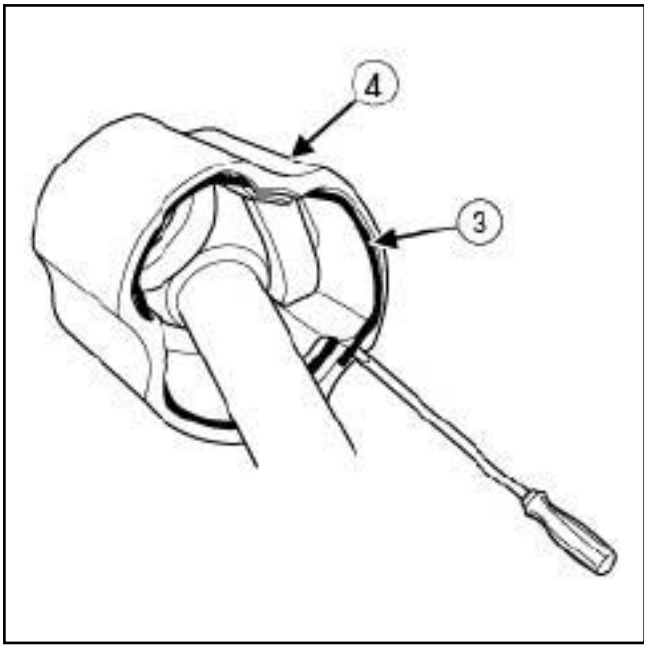
M9R

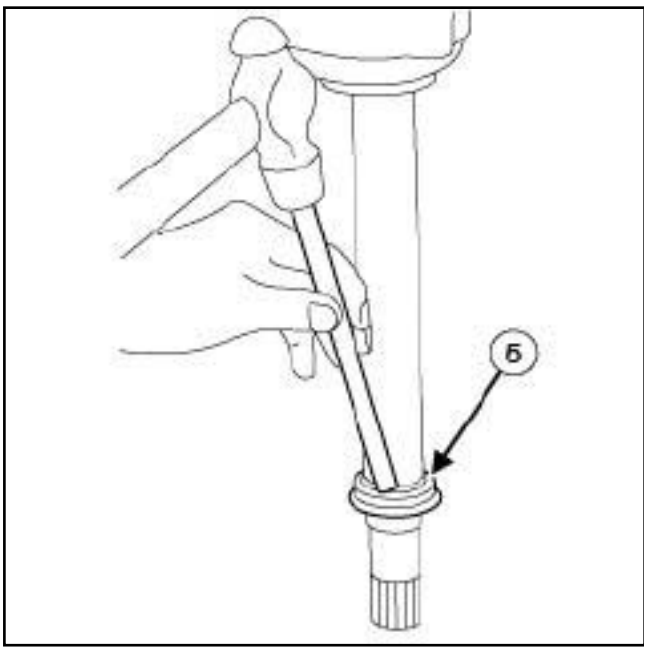



130590

❑ Remove:

- the locking spring ring (**3**) using a screwdriver,
- the yoke sleeve (**4**) .

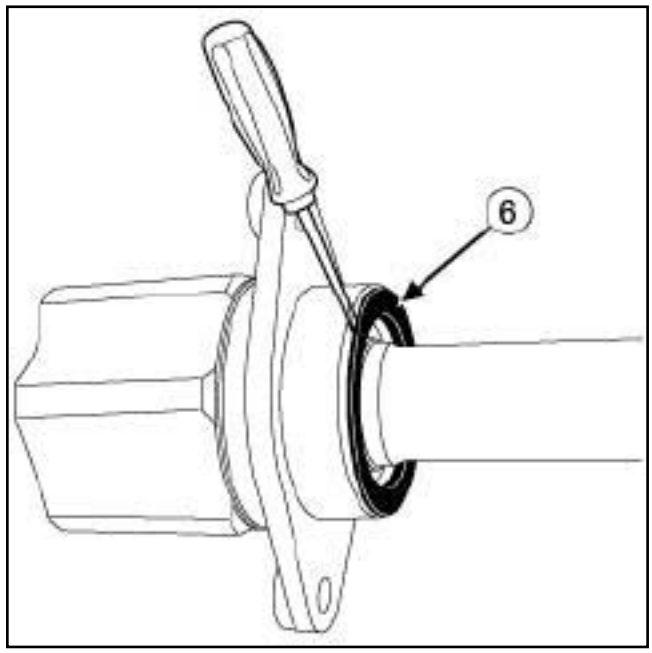
❑ Remove as much grease as possible.




130591

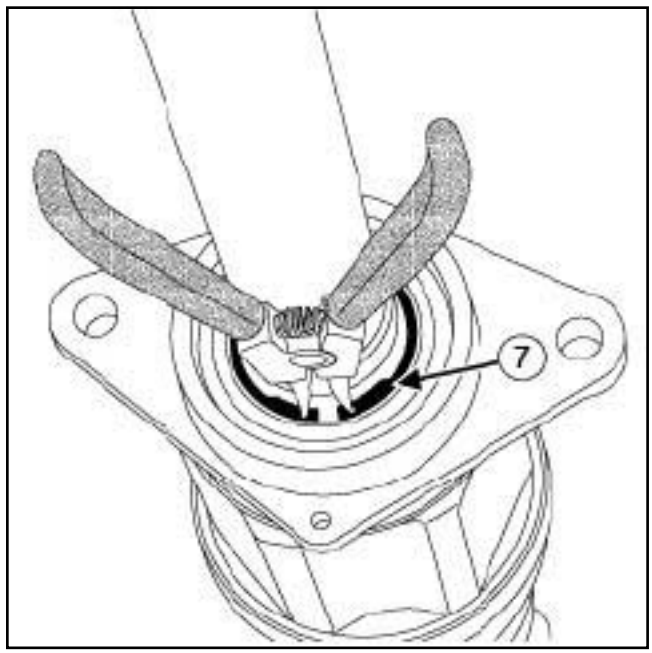
❑ Remove the deflector (**5**) using a screwdriver and a hammer.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130596

❑ Remove the deflector (**6**) using a screwdriver.




130599

❑ Remove the circlip (**7**) using circlip pliers.



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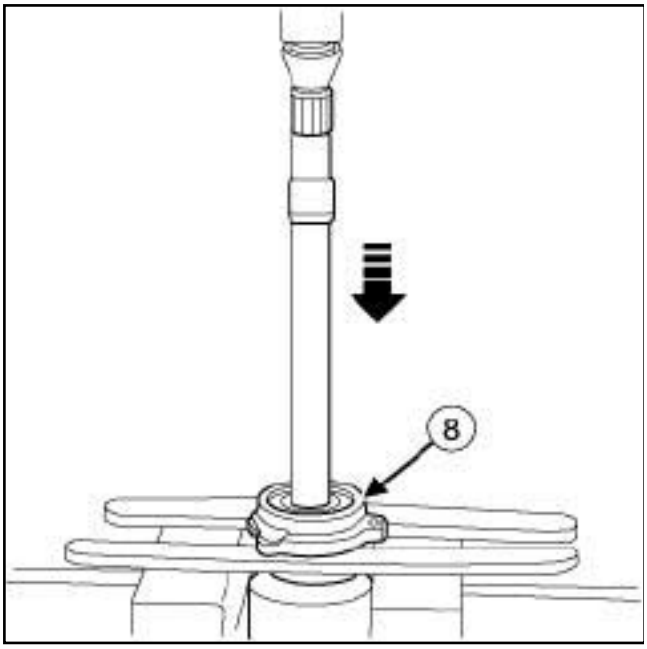
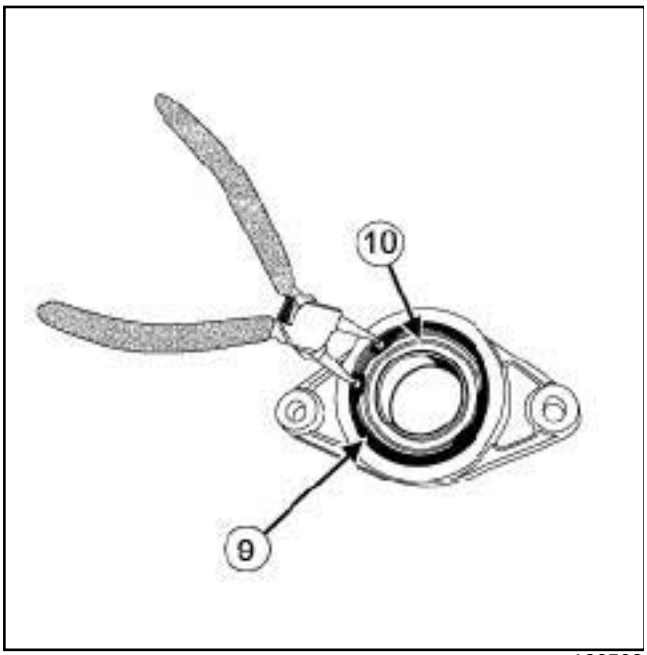
M9R




130597

❑ Remove the relay shaft bearing bracket (**8**) and the deflector using a press.




130598

❑ Remove:

- the circlip (**9**) using circlip pliers,
- the relay shaft bearing (**10**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the driveshaft gaiter,
- the differential output seal,
- clips,
- the locking spring ring,
- the circlip,
- the deflectors.

❑ Lubricate the relay shaft mating face into which the bearing is inserted.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the relay shaft bearing on the relay shaft bearing bracket,
- the new circlip on the relay shaft bearing bracket,
- the new deflector,
- the relay shaft bearing bracket using a press,
- the circlip,

### III - FINAL OPERATION.

6 SPEED MANUAL GBOX

❑ Refit the new right-hand side differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

6 SPEED AUTO GBOX

❑ Refit the new right-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

❑ Refit:

- the driveshaft yoke sleeve,
- the new locking spring ring,
- the new front right-hand driveshaft gaiter on the gearbox side,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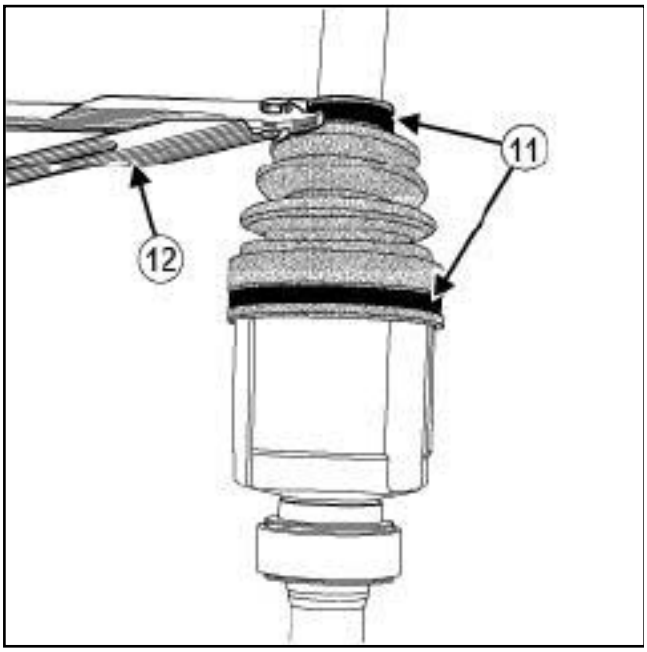
M9R

❑ Divide the quantity of grease between the gaiter and the driveshaft yoke sleeve.




130606

❑ Place the gaiter lips in the grooves of the driveshaft yoke sleeve and the driveshaft.

❑ Refit new clips on the front driveshaft gaiter on the gearbox side.

❑ Tighten the clips (**11**) using the tool **(Tav. 1168)** (**12**) .

❑ Refit the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .

6 SPEED MANUAL GBOX

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❑ Fill the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

6 SPEED AUTO GBOX

❑ Fill the automatic transmission with oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❑ Refit:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the engine undertray,
- the engine undertray bolts.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2TR

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine undertray bolts,
- the engine undertray.

6 SPEED MANUAL GBOX

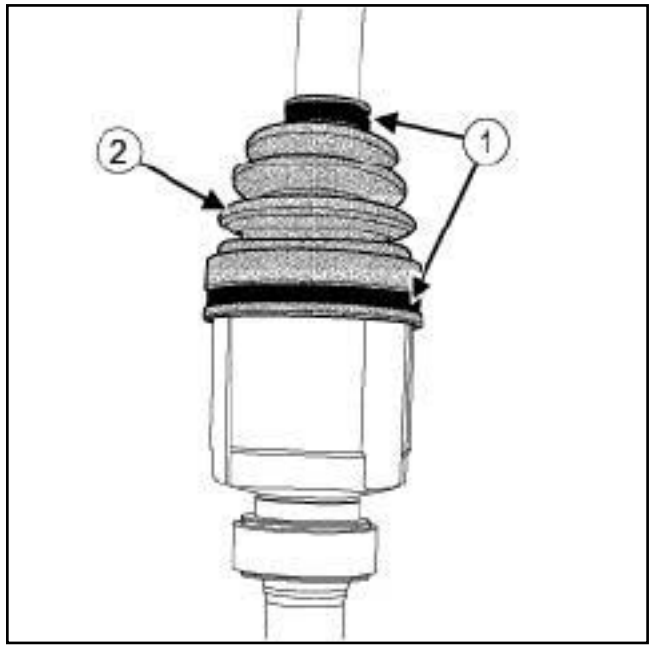
❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

6 SPEED AUTO GBOX

❑ Drain the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

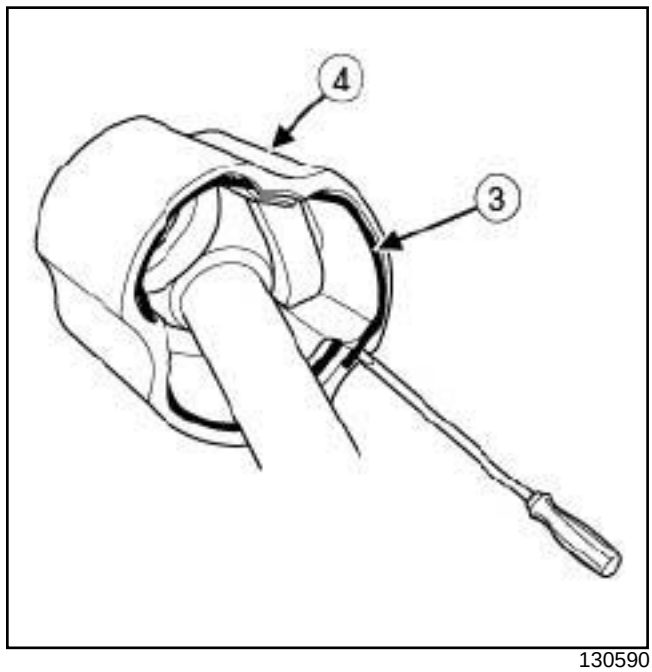
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .
- the right-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**)




130589

❑ Cut the clips (**1**) .

❑ Move aside the front right-hand driveshaft gaiter (**2**) .




130590

❑ Remove:

- the locking spring ring (**3**) using a screwdriver,
- the front right-hand driveshaft yoke sleeve (**4**) .

❑ Remove as much grease as possible.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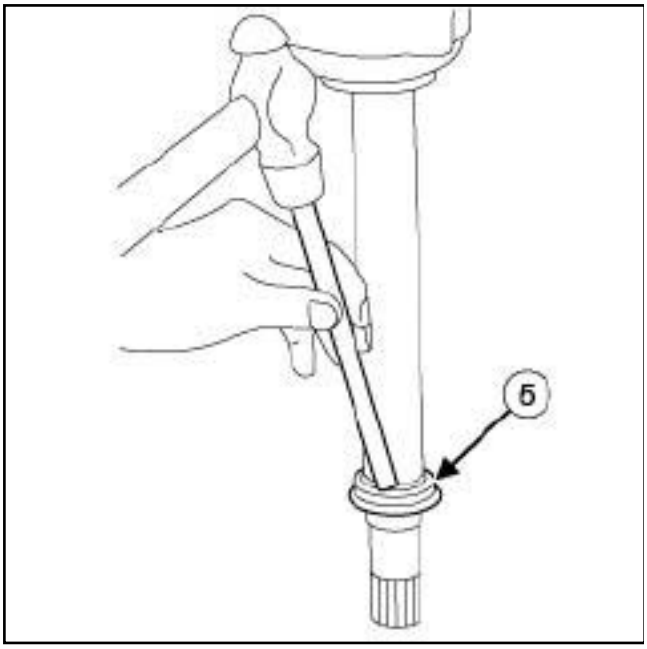
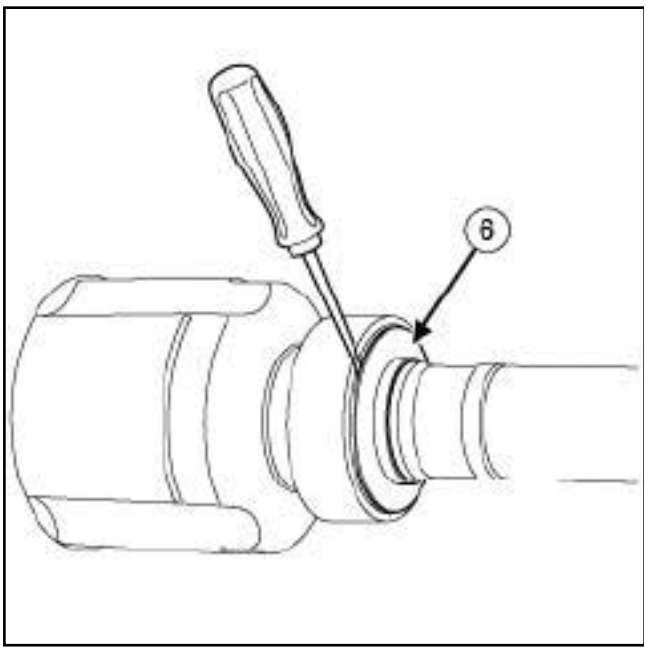



130591

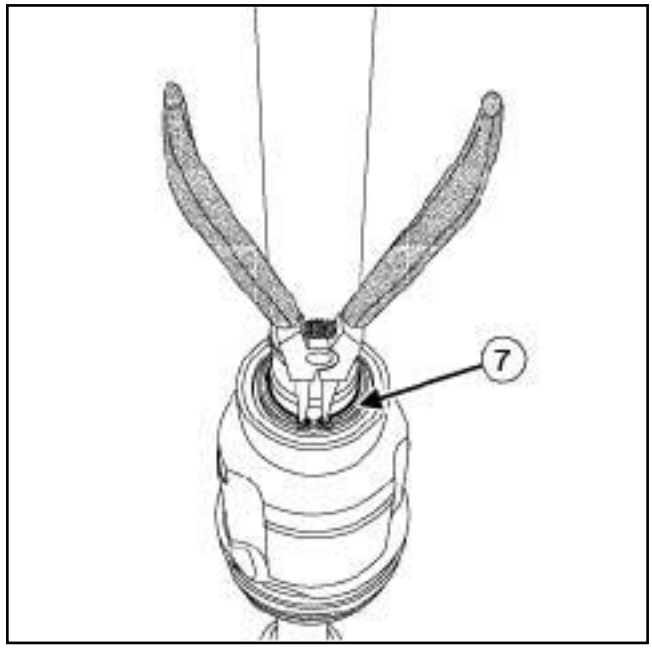
❏ Remove the deflector (**5**) using a screwdriver and a hammer.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



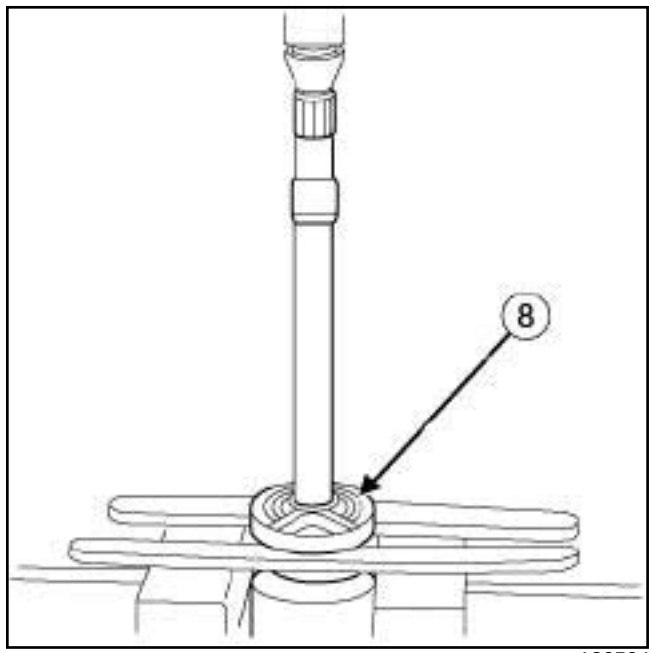

130592

❏ Remove the deflector (**6**) using a screwdriver.




130593

❏ Remove the circlip (**7**) using circlip pliers.




130594

❏ Using a press, remove:

- the relay shaft bearing (**8**) ,
- the relay shaft bearing deflector.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace:

- the driveshaft gaiter,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2TR

- clips,
- the locking spring ring,
- the circlip,
- the deflectors.

❏ Lubricate the relay shaft mating face into which the bearing is inserted.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the new deflectors,
- the relay shaft bearing using a press,
- the circlip.

**III - FINAL OPERATION.**

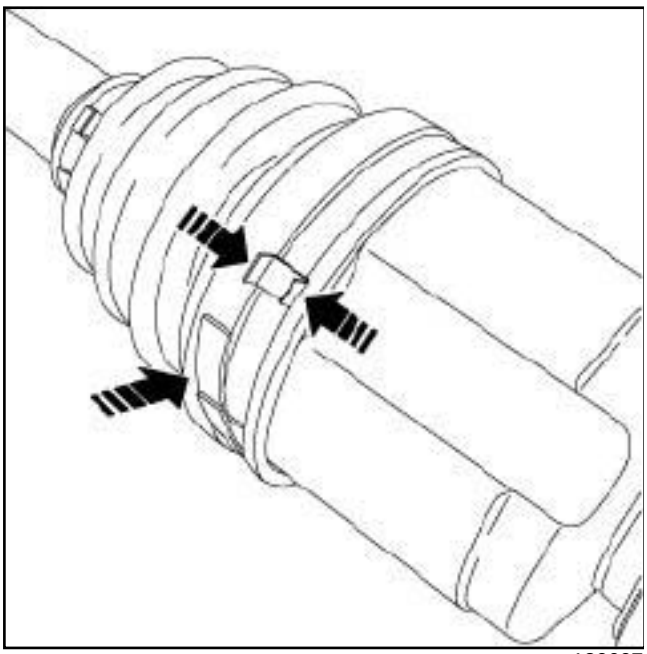
❏ Refit:

- the driveshaft yoke sleeve,
- the new locking spring ring,
- the new front right-hand driveshaft gaiter on the gearbox side.

❏ Divide the quantity of grease between the gaiter and the driveshaft yoke sleeve.

❏ Place the gaiter lips in the grooves of the yoke sleeve and the driveshaft.

❏ Refit new clips on the front driveshaft gaiter on the gearbox side.



130607

❏ Tighten the clips using a screwdriver.

❏ Refit:

- the right-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) ,
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**)
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

6 SPEED MANUAL GBOX

❏ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❏ Fill the gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior Protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

FK0 or FK8

❏ Fill the automatic transmission with oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Refit:

- the engine undertray,
- the engine undertray bolts.



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| Essential special tooling | |
|---|---|
| **Tav. 1168** | Thermoplastic driveshaft gaiter clip fitting tool. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine undertray bolts,
- the engine undertray.

6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

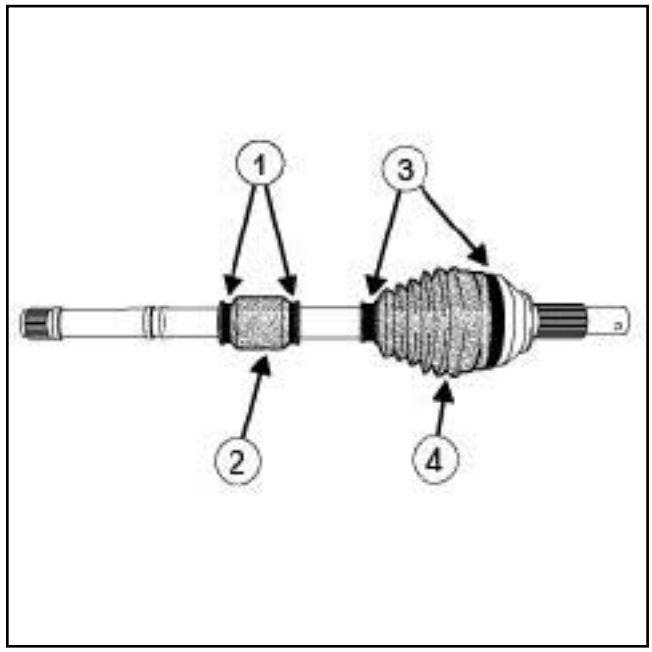
❑ Drain the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .
- the front right-hand driveshaft gaiter on the gearbox side (see **29A**, **Driveshafts**, **Front right-hand driveshaft gaiter on gearbox side: Removal - Refitting**, page **29A-27**) or the front left-hand driveshaft gaiter on the gearbox side (see **29A**, **Driveshafts**, **Front left-hand driveshaft gaiter on gearbox side: Removal - Refitting**, page **29A-31**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Front left-hand driveshaft**



130600

❑ Cut the clips (**1**) .

❑ Remove the driveshaft shock absorber (**2**) .

❑ Cut the clips (**3**) .

❑ Remove the front left-hand driveshaft gaiter (**4**) on the wheel side.

❑ Remove as much grease as possible.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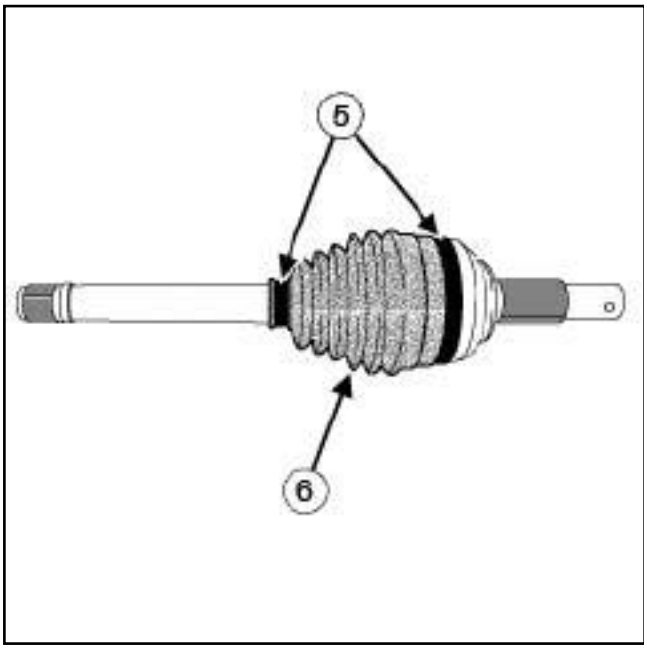
**2 - Front right-hand driveshaft**




130602

❑ Cut the clips (**5**) .

❑ Remove the front left-hand driveshaft gaiter ***(6)*** on the wheel side.

❑ Remove as much grease as possible.

6 SPEED MANUAL GBOX

❑ Remove the differential output seal on the side concerned (see **Differential output seal: Removal - Refitting**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Remove the differential output seal on the side concerned (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the differential output seal,
- the clips.

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Refit the differential output seal on the side concerned (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

6 SPEED MANUAL GBOX

❑ Refit the differential output seal on the side concerned (see **Differential output seal: Removal - Refitting**) .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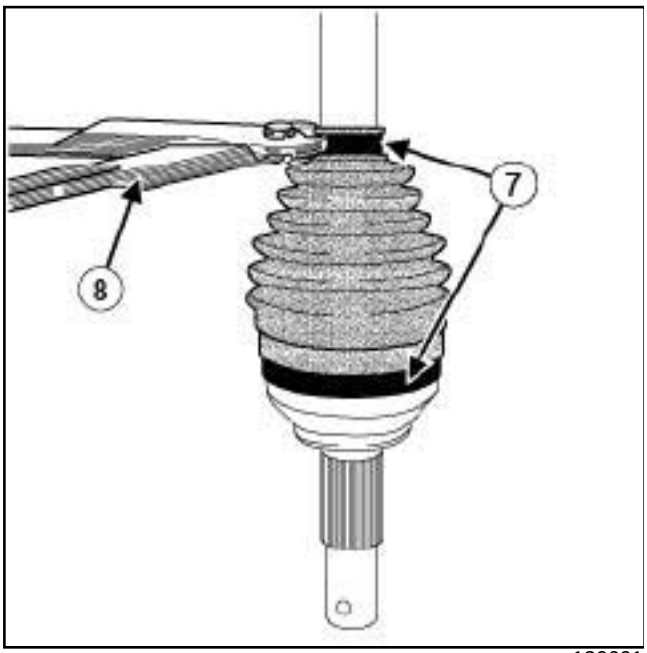
**II - REFITTING OPERATION FOR PART CONCERNED**

**1 - Front left-hand driveshaft**




130601

❑ Refit the front driveshaft gaiter on the wheel side.

❑ Spread the quantity of grease around the gaiter and the stub axle bowl.

❑ Insert the lips of the gaiter into the grooves of the stub axle bowl and driveshaft.

❑ Refit new clips (**7**) to the front driveshaft gaiter on the wheel side.

❑ Tighten the clips (**7**) using the tool **(Tav. 1168)** (**8**) .

❑ Refit:

- the shock absorber ***(2)*** ,
- new clips ***(1)*** on the shock absorber.

M9R

❑ Tighten the clips ***(1)*** using the tool **(Tav. 1168)**.

2TR

❑ Tighten the clips ***(1)*** using a screwdriver.

**2 - Front right-hand driveshaft**

❑ Refit the front driveshaft gaiter on the wheel side.

❑ Spread the quantity of grease around the gaiter and the stub axle bowl.

❑ Insert the lip of the gaiter into the grooves of the stub axle bowl and driveshaft.

❑ Refit the clips on the gaiter of the stub axle bowl and on the driveshaft.

❑ Refit new clips ***(7)*** to the front driveshaft gaiter on the wheel side.

❑ Tighten the clips ***(7)*** using the tool **(Tav. 1168)** ***(8)*** .

**III - FINAL OPERATION.**

❑ Refit:

- the front right-hand driveshaft gaiter on the gearbox side (see **29A**, **Driveshafts**, **Front right-hand driveshaft gaiter on gearbox side: Removal - Refitting**, page **29A-27**) or the front left-hand driveshaft gaiter on the gearbox side (see **29A**, **Driveshafts**, **Front left-hand driveshaft gaiter on gearbox side: Removal - Refitting**, page **29A-31**)
- the front driveshaft on the side concerned (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) or the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

M9R

❑

❑ Fill the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Fill the automatic gearbox with oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Refit:

- the front wheel on the side concerned (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray,
- the engine undertray bolts.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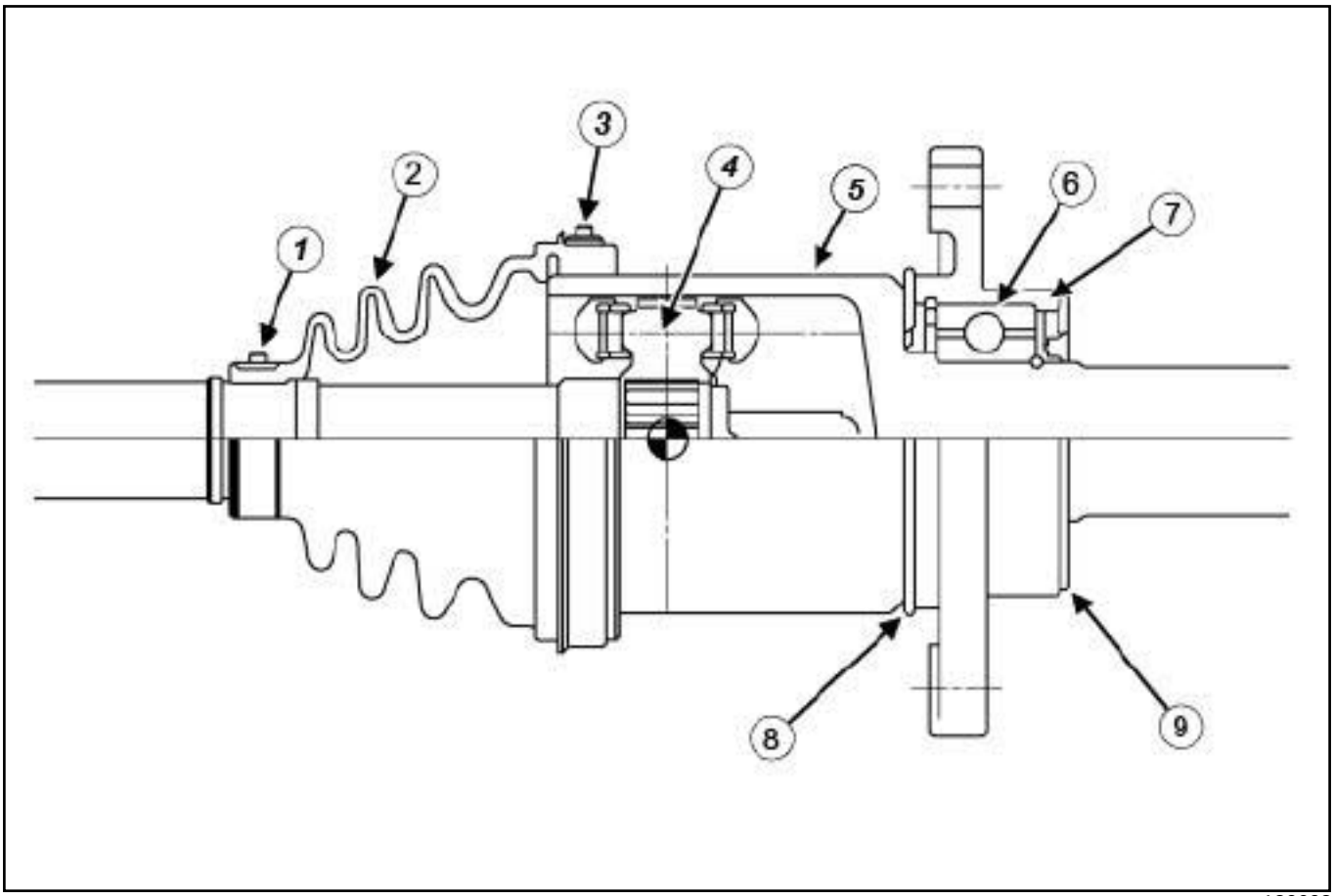
# Front right-hand driveshaft gaiter on gearbox side: Removal - Refitting

| Essential special tooling | |
|---|---|
| **Tav. 1168** | Thermoplastic driveshaft gaiter clip fitting tool. |




130603

(**1**) Small clip
(**2**) Driveshaft gaiter
(**3**) Big clip
(**4**) Spider
(**5**) Driveshaft yoke sleeve
(**6**) Relay shaft bearing
(**7**) Relay shaft bearing bracket
(**8**) Deflector
(**9**) Deflector

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine undertray bolts,
- the engine undertray.



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6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Drain the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

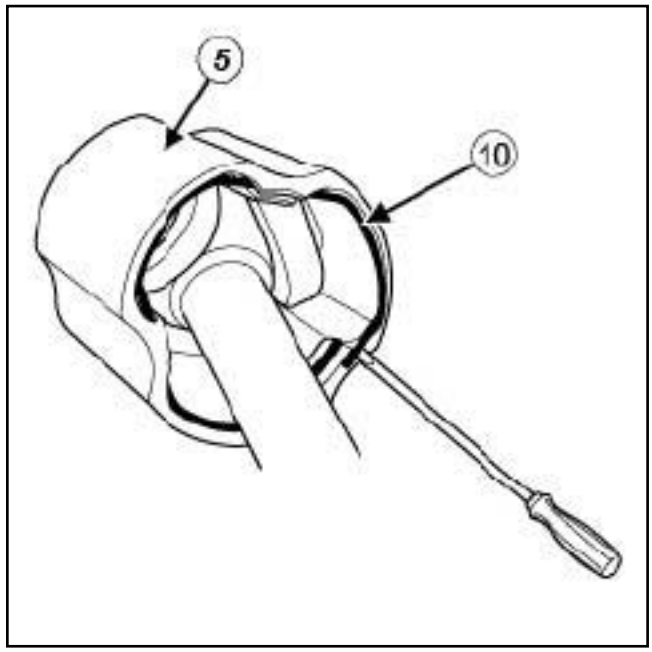
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❑ Cut:

- the small clip,
- the big clip.

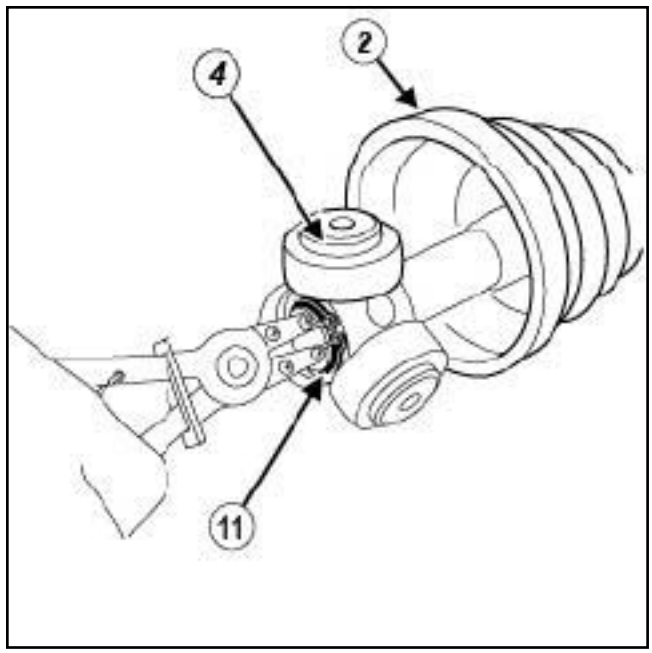
❑ Move aside the front right-hand driveshaft gaiter on the gearbox side.




130604

❑ Remove:

- the locking spring ring (**10**) using a screwdriver,
- the driveshaft yoke sleeve (**5**) .




130605

❑ Remove:

- the circlip (**11**) using circlip pliers,
- the spider (**4**) ,
- the driveshaft gaiter (**2**) .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❏

Note:

Mark the position of the spider and driveshaft before extracting the spider.

❏ Remove as much grease as possible.

6 SPEED MANUAL GBOX

❏ Remove the right-hand side differential output seal (see **Differential output seal: Removal - Refitting**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ Remove the right-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- clips,
- the circlip,
- the locking spring ring,
- the differential output seal.

6 SPEED MANUAL GBOX

❏ Refit the right-hand side differential output seal (see **Differential output seal: Removal - Refitting**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❏ Refit the right-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

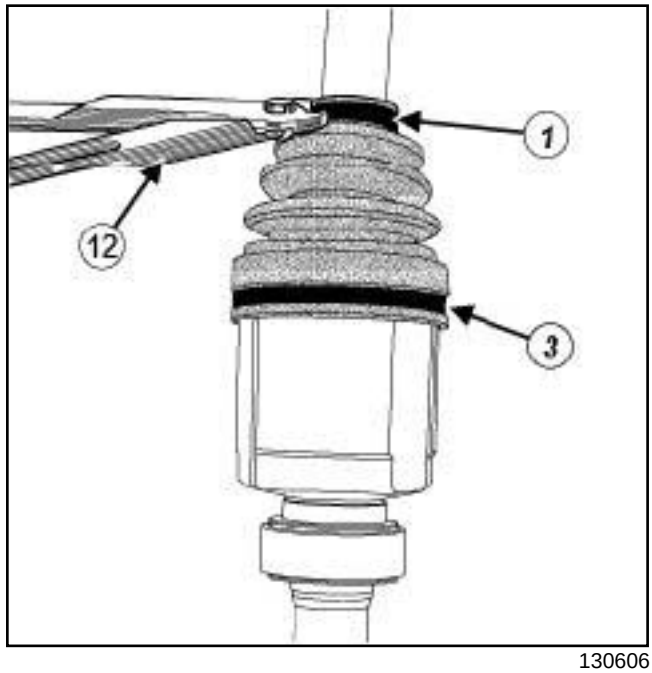
- the small new clip,
- the driveshaft gaiter,
- the spider in the position marked during removal,
- the circlip,
- the driveshaft yoke sleeve,
- the big clip,
- the locking spring ring.

❏ Divide the quantity of grease between the gaiter and the yoke sleeve.

❏ Position the lips of the gaiter in the grooves of the yoke sleeve and the driveshaft.

❏ Refit the big clip.

M9R




130606

❏ Tighten:

- the small clip (**1**) using the tool **(Tav. 1168)** (**12**) ,
- the big clip (**3**) using the tool **(Tav. 1168)** (**12**) .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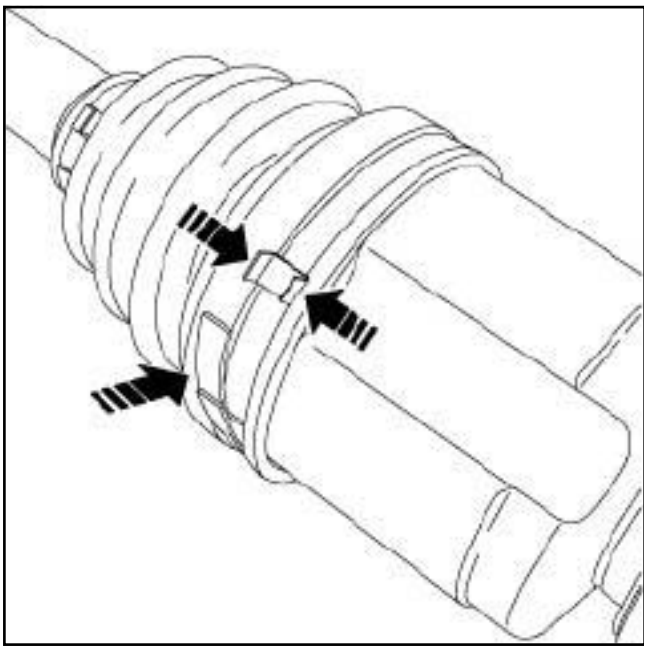
6 SPEED MANUAL GBOX



130607

❑ Tighten:

- the small clip using a screwdriver,
- the big clip using a screwdriver.

**III - FINAL OPERATION.**

6 SPEED MANUAL GBOX

❑ Remove:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior Protection).

❑ Fill the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Refit:

- the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Fill the automatic transmission with oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Refit:

- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .
- the front right-hand wheel (see **Wheel: Removal - Refitting**) , (35A, Wheels and tyres),
- the engine undertray.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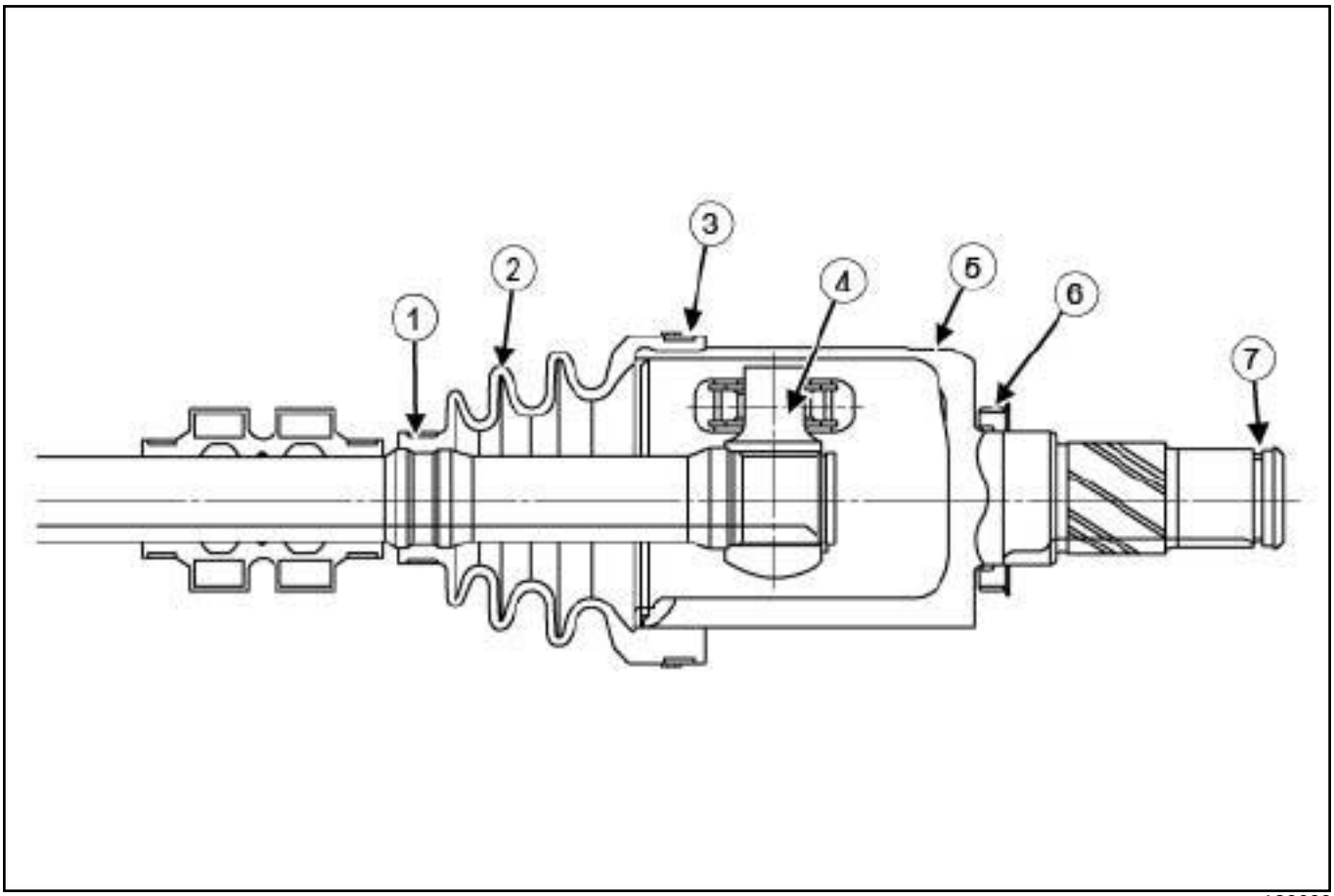
| Essential special tooling | |
|---|---|
| **Tav. 1168** | Thermoplastic driveshaft gaiter clip fitting tool. |




130609

(**1**) Small clip
(**2**) Driveshaft gaiter
(**3**) Big clip
(**4**) Spider
(**5**) Driveshaft yoke sleeve
(**6**) Deflector
(**7**) Lock ring

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove:

- the engine undertray bolts,
- the engine undertray.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6 SPEED MANUAL GBOX

❑ Drain the manual gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Drain the automatic gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❑ Remove:

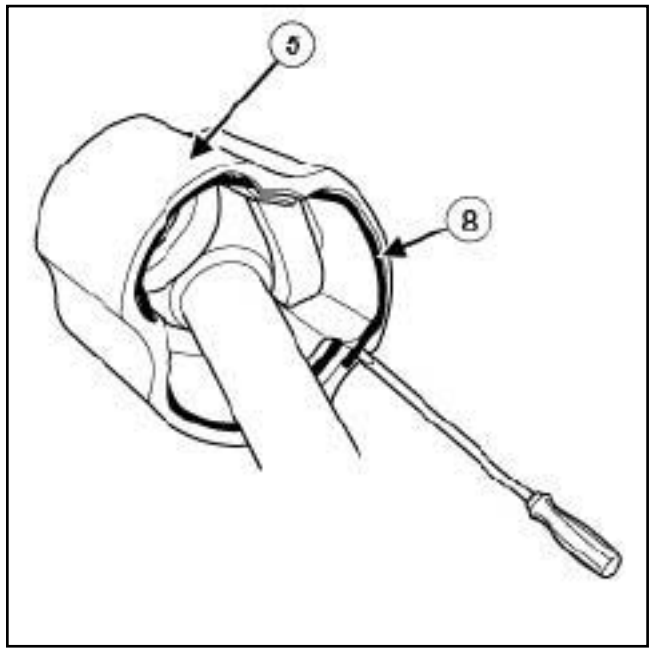
- the front left-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) .

**II - REMOVAL OPERATION FOR PART CONCERNED**

❑ Cut:

- the small clip (**1**) ,
- the big clip (**3**) .

❑ Move aside the front left-hand driveshaft gaiter (**2**) on the gearbox side.



130610

❑ Remove:

- the locking spring ring (**8**) using a screwdriver,
- the driveshaft yoke sleeve (**5**) .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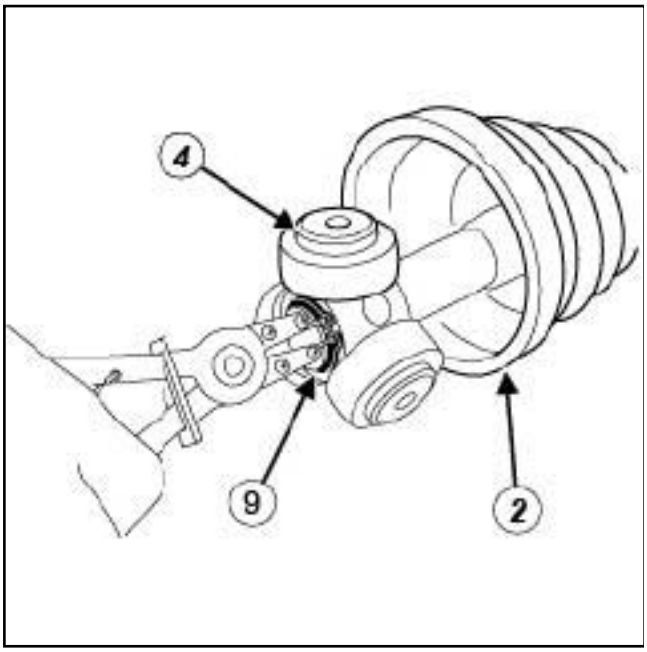



130611

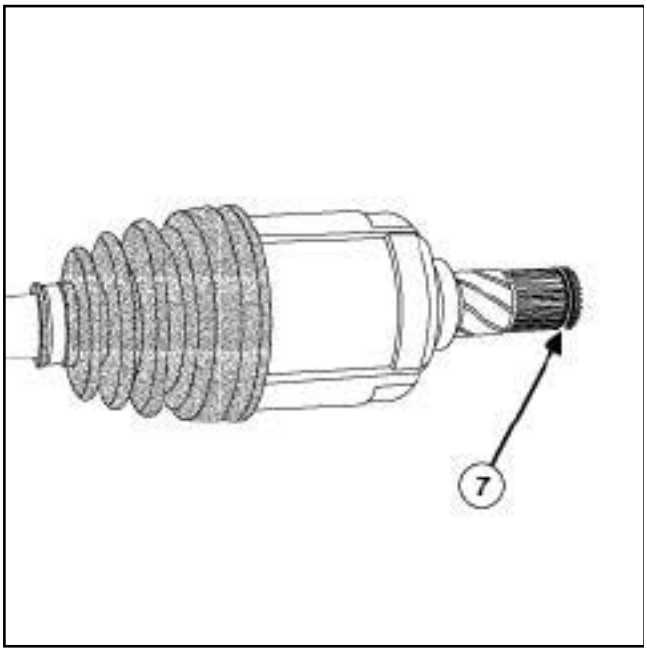
❑ Remove:

- the circlip (**9**) using circlip pliers,
- the spider (**4**) ,
- the driveshaft gaiter (**2**) .

Note:

Mark the position of the spider and driveshaft before extracting the spider.

❑ Remove as much grease as possible.




130612

❑ Remove the lock ring (**7**) .

6 SPEED MANUAL GBOX

❑ Remove the left-hand side differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Remove the left-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- clips,
- the locking ring,
- the locking spring ring,
- the differential output seal.

6 SPEED MANUAL GBOX

❑ Refit the left-hand side differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) .

FK0 or FK8, and 6 SPEED AUTO GBOX

❑ Refit the left-hand side differential output seal (see **23A**, **Automatic gearbox**, **Differential output seal: Removal - Refitting**, page **23A-17**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the new small clip;
- the driveshaft gaiter,
- the spider in the position marked during removal,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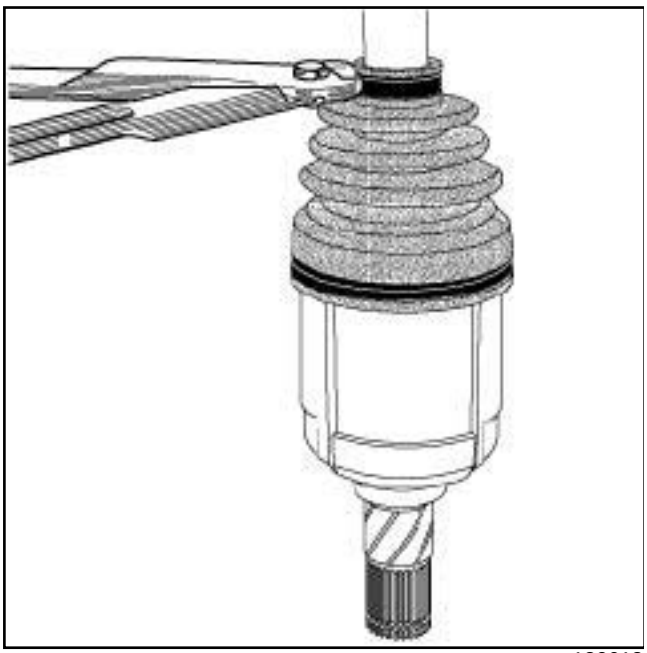
- the new circlip,
- the driveshaft sleeve,
- the locking spring ring.

❏ Divide the quantity of grease between the gaiter and the yoke sleeve.

❏ Position the lips of the gaiter in the grooves of the yoke sleeve and the driveshaft.

❏ Refit the big clip.

M9R

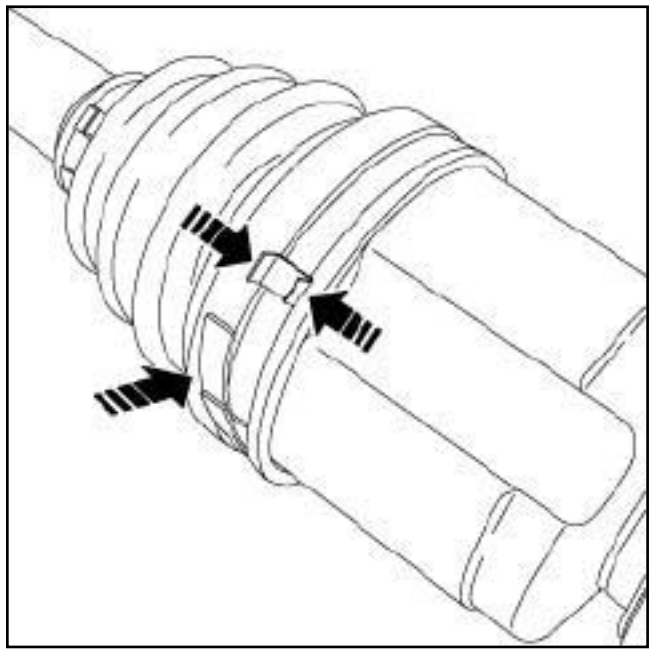


130613

❏ Tighten:

- the small clip using the tool **(Tav. 1168)**,
- the big clip using the tool **(Tav. 1168)**.

4X2 TRANSMISSION



130608

❏ Tighten:

- the small clip using a screwdriver,
- the big clip using a screwdriver.

**III - FINAL OPERATION.**

❏ Refit the front left-hand driveshaft (see **29A**, **Driveshafts**, **Front left-hand wheel driveshaft: Removal - Refitting**, page **29A-1**) .

6 SPEED MANUAL GBOX

❏ Remove the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection)

❏ Fill the manual gearbox with oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❏ Refit the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection)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FK0 or FK8, and 6 SPEED AUTO GBOX

❏ Fill the automatic transmission (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**) .

❏ Refit:

- the front left-hand wheel (see **Wheel: Removal - Refitting**) , (35A, Wheels and tyres),
- the engine undertray,
- the engine undertray bolts.


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Check the oil level or replace the oil only when the vehicle is parked on a flat surface.

When removing or refitting, protect the interior of the transfer box from dust or contamination.

Check the installation status before removal. If position marks are required, check that they do not interfere with part operation where they are applied.

Check the appearance of the removed components by looking for damage, deformation and unusual wear; replace them with new components if necessary.

As a rule, torque tighten the bolts or the nuts gradually (in several stages), progressively and diagonally from the interior towards the exterior.

If a tightening order is specified, make sure that it is followed.


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| Tightening torques ▽ | |
|---|---|
| drain plug | **35 N.m** |
| electric coolant pump bracket bolt | **85 N.m** |
| filler cap | **35 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **29A**, **Driveshafts**, **Transfer box: Precautions for repair**, page **29A-36**) .

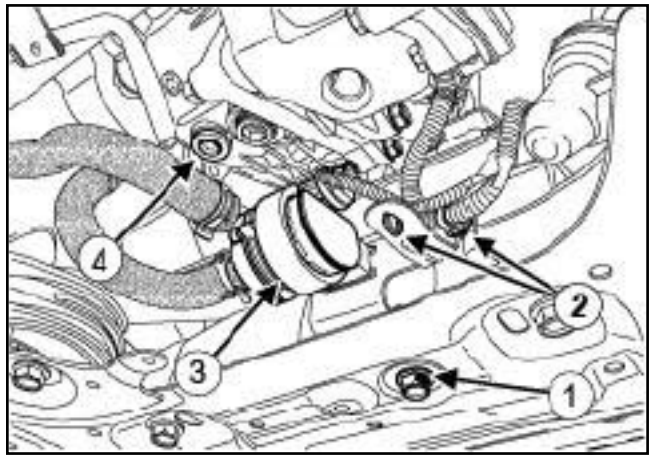
## DRAINING

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



131385

❏ Remove the bolt (**1**) from the bracket of the electric coolant pump.

❏ Unclip the wiring clips (**2**) .

❏ Move aside the electric coolant pump (**3**) .

❏ Remove:

- the drain plug (**4**) ,
- the drain plug seal.

❏ Drain the oil from the transfer box.

## FILLING

❏ Always replace the drain plug seal.

❏ Refit:

- the new drain plug seal,
- the drain plug.

❏ Torque tighten the **drain plug (35 N.m)**.

❏ Refit:

- the electric water pump,
- the bolt of the electric coolant pump bracket.

❏ Torque tighten the **electric coolant pump bracket bolt (85 N.m)**.

❏ Clip on the wiring clips.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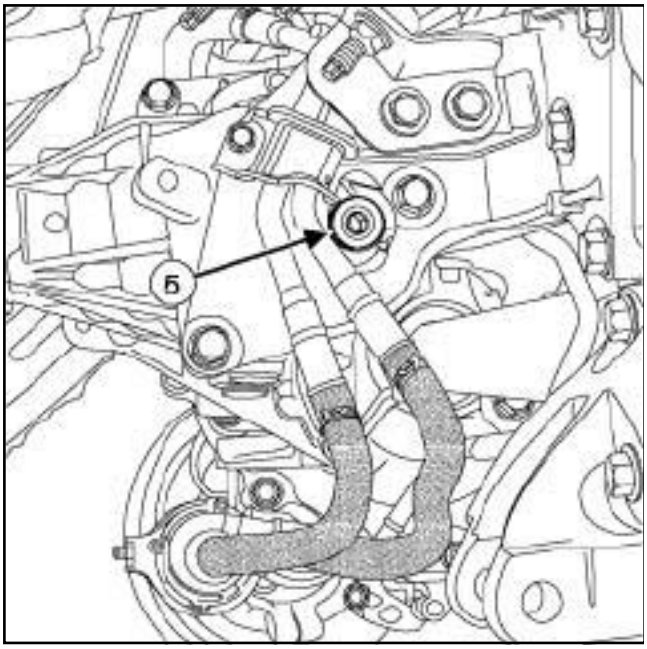
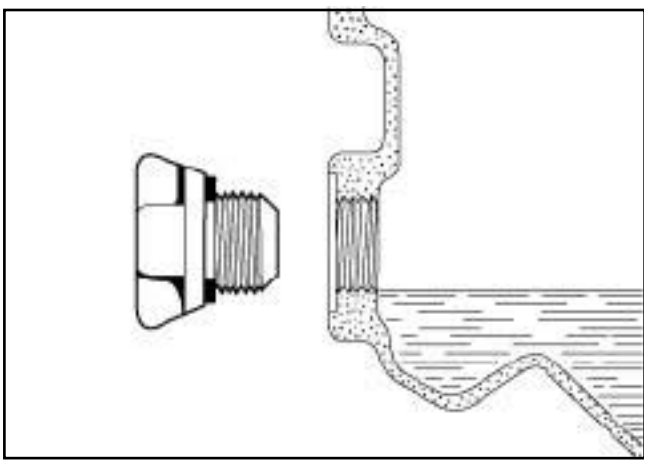


131386

❑ Remove:

- the filler cap (**5**) ,
- the filler cap seal.


131390

❑ Fill the transfer box with oil to the level of the opening.

❑ Refit:

- the new filler cap seal,
- the filler cap.

❑ Torque tighten the **filler cap (35 N.m)**.

❑ Refit:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.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| Tightening torques ▽ | |
|---|---|
| drain plug | **35 N.m** |
| filler cap | **35 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **29A**, **Driveshafts**, **Transfer box: Precautions for repair**, page **29A-36**) .

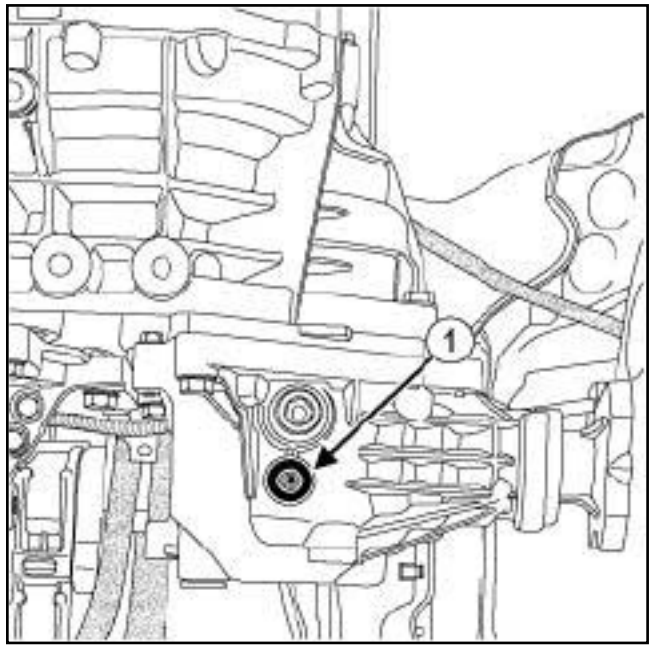
## DRAINING

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the engine undertray,
- the connector pipe (see **Connector pipe: Removal - Refitting**) (19B, Exhaust).



131388

❏ Remove:

- the drain plug (**1**) ,
- the drain plug seal.

❏ Drain the oil from the transfer box.

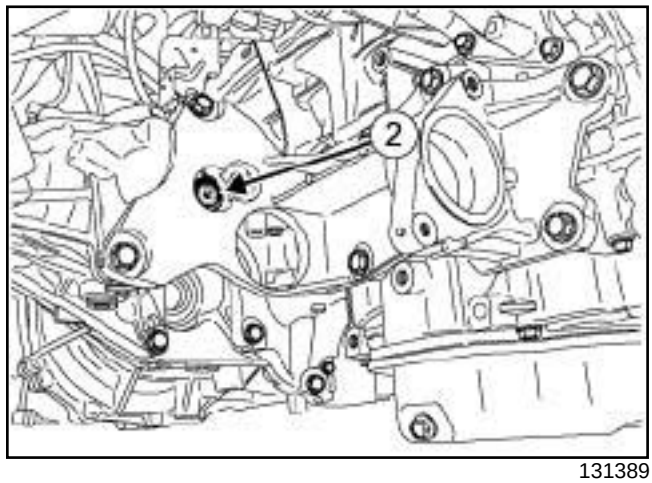
## FILLING

❏ Always replace the drain plug seal.

❏ Refit:

- the new drain plug seal,
- the drain plug.

❏ Torque tighten the **drain plug (35 N.m)**.



131389

❏ Remove:

- the filler cap (**2**) ,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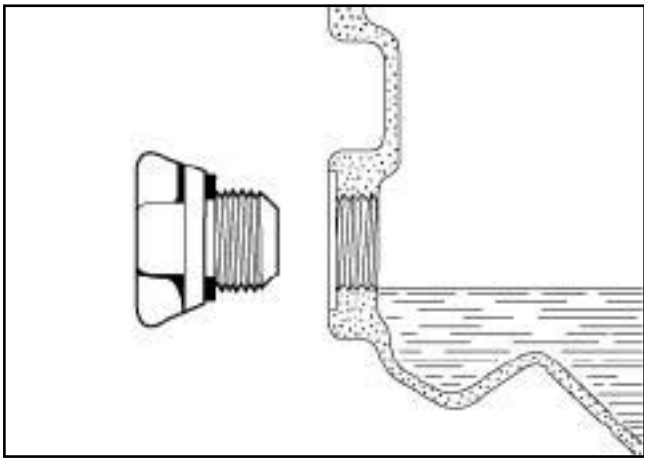
- the filler cap seal.



131390

❑ Fill the transfer box with oil to the level of the opening.

❑ Refit:

- the new filler cap seal,
- the filler cap.

❑ Torque tighten the **filler cap (35 N.m)**.

❑ Refit:

- the connector pipe (see **Connector pipe: Removal - Refitting**) (19B, Exhaust),
- the engine undertray.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| Tightening torques ▽ | |
|---|---|
| transfer box bolts | **44 N.m** |
| transfer box mounting bolts A | **48 N.m** |
| transfer box mounting bolts | **B50 N.m** |
| turbocharger cooling pipe bolts | **10 N.m** |
| catalytic converter insulation bolts | **6 N.m** |
| catalytic converter bracket bolts | **50 N.m** |
| catalytic converter bracket nut | **50 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **29A**, **Driveshafts**, **Transfer box: Precautions for repair**, page **29A-36**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove the engine undertray.

6 SPEED MANUAL GBOX

❏ Drain the gearbox oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**)

6 SPEED AUTO GBOX

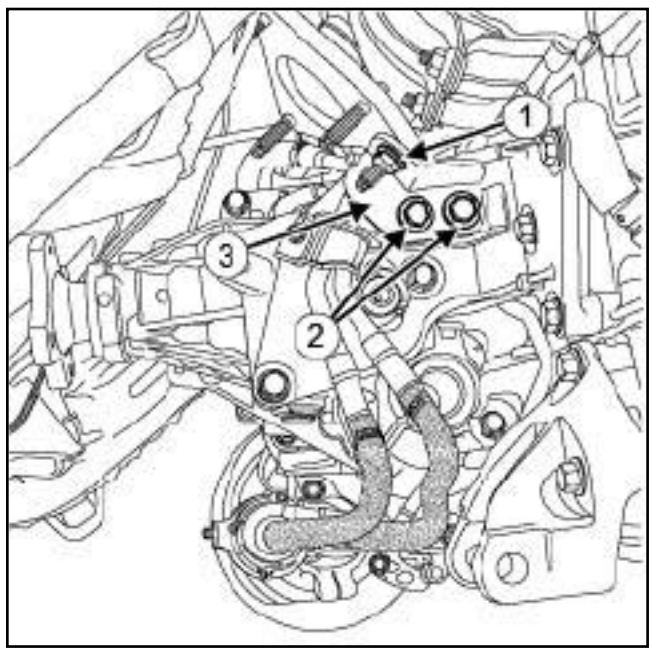
❏ Drain the gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❏ Remove:

- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting).
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

❏ Uncouple the longitudinal driveshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) (29A, Driveshafts).

❏ Secure the longitudinal driveshaft to the bracket of the control cable using a strap.



131391

❏ Remove:

- the catalytic converter bracket nut (**1**) ,
- the catalytic converter bracket bolts (**2**) ,
- the catalytic converter bracket (**3**) .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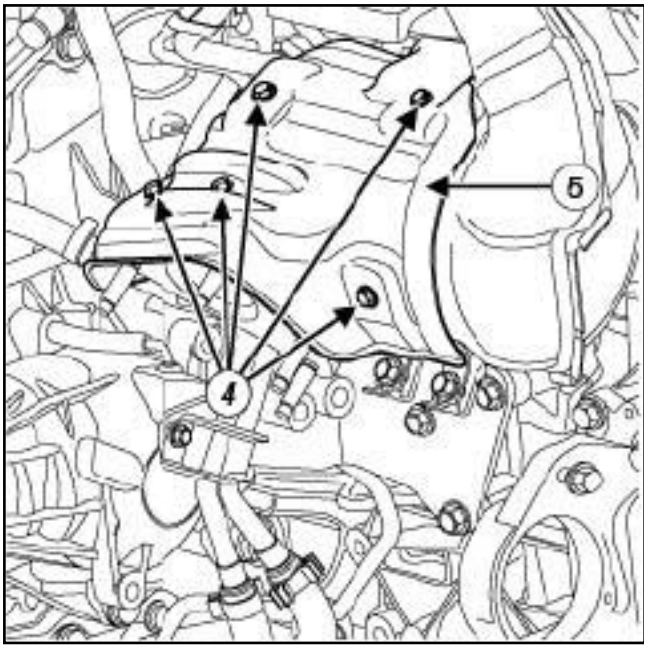
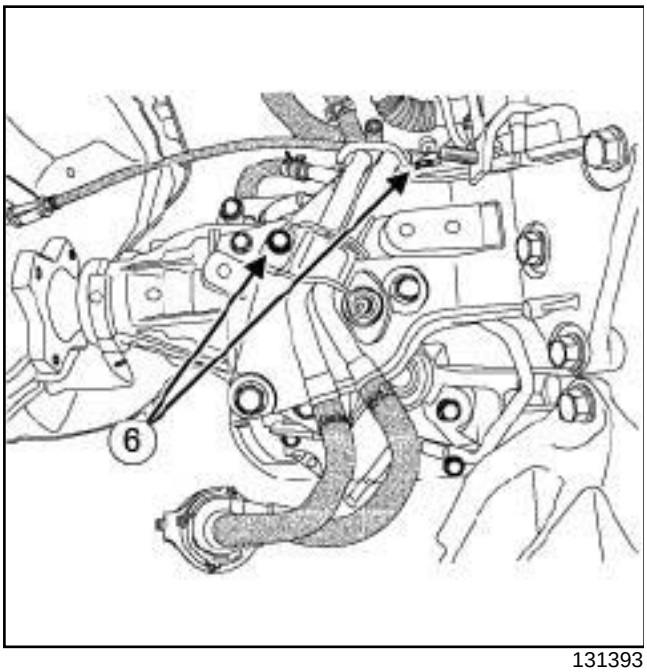



131392

❏ Remove:

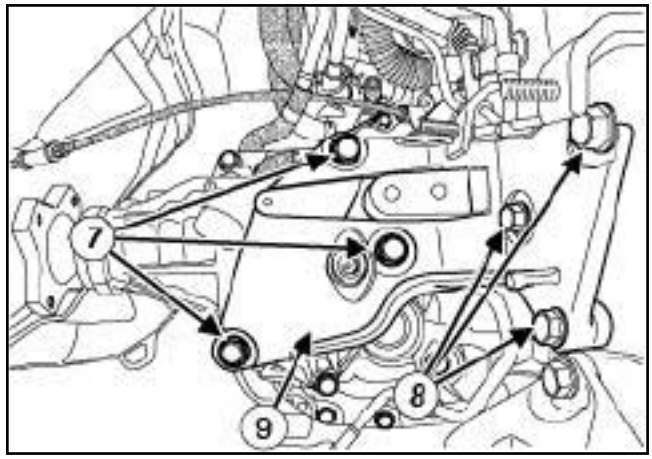
- the catalytic converter insulation bolts (**4**) ,
- the catalytic converter insulation (**5**) .




131393

❏ Remove the bolts (**6**) from the turbocharger cooling pipe.

❏ Move aside the turbocharger cooling pipe.

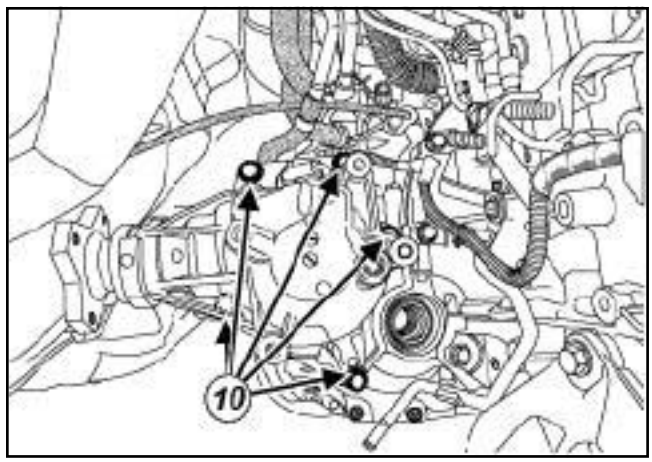



131394

❏ Remove:

- the transfer box support bolts A (**7**) ,
- the transfer box support bolts B (**8**) ,
- the transfer box support (**9**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131395

❏ Remove:

- the transfer box bolts (**10**) ,
- the transfer box.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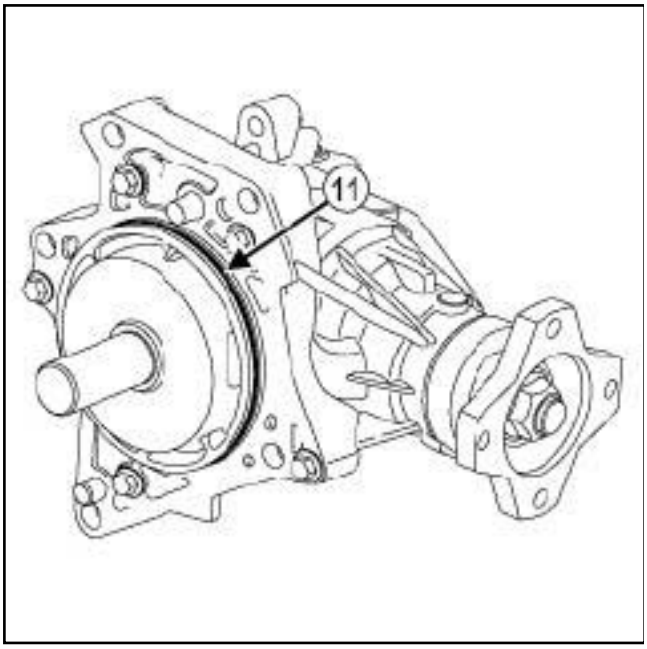


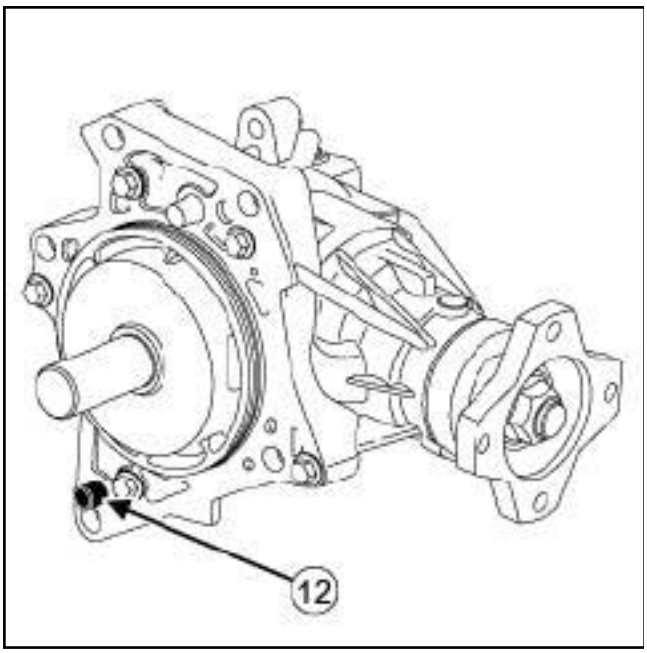

131396

❏ Remove the O-ring (**11**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the O-ring.




131397

❏ Check that the centring dowel (**12**) is in position.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the transfer box,
- the transfer box bolts.

❏ Torque tighten the **transfer box bolts (44 N.m)**.

### III - FINAL OPERATION.

❏ Refit:

- the transfer box support.
- the transfer box support bolts A,
- the transfer box support bolts B,

❏ Torque tighten:

- the **transfer box mounting bolts A (48 N.m)**,
- the **transfer box mounting bolts (B50 N.m)**,

❏ Refit:

- the turbocharger cooling pipe,
- the turbocharger cooling pipe bolts.

❏ Torque tighten the **turbocharger cooling pipe bolts (10 N.m)**.

❏ Refit:

- the catalytic converter insulation.
- the catalytic converter insulation bolts.

❏ Torque tighten the **catalytic converter insulation bolts (6 N.m)**.

❏ Refit:

- the catalytic converter bracket,
- the catalytic converter bracket bolts,
- the catalytic converter bracket nut.

❏ Torque tighten:

- the **catalytic converter bracket bolts (50 N.m)**,
- the **catalytic converter bracket nut (50 N.m)**.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6 SPEED MANUAL GBOX

❑ Remove the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❑ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**)

❑ Refit the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

6 SPEED AUTO GBOX

❑ Fill the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❑ Refit:

- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust),
- the engine undertray.


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2TR, and 4X4 TRANSMISSION

| Tightening torques ▽ | |
|---|---|
| transfer box bolts | **44 N.m** |
| transfer box support bolts | **48 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **29A**, **Driveshafts**, **Transfer box: Precautions for repair**, page **29A-36**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❑ Remove the engine undertray.

6 SPEED MANUAL GBOX

❑ Drain the gearbox oil (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**)

FK0 or FK8

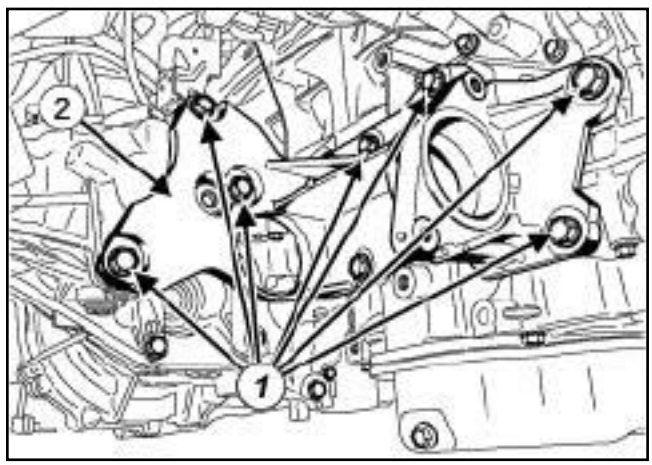
❑ Drain the gearbox oil (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)

❑ Remove:

- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the connector pipe (see **Connector pipe: Removal - Refitting**) ,
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting).
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components).

❑ Disconnect the longitudinal driveshaft from the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) (29A, Driveshafts).

❑ Secure the longitudinal driveshaft to the bracket of the control cable using a strap.



131398

❑ Remove:

- the bolts (**1**) from the transfer box support,
- the transfer box support (**2**) .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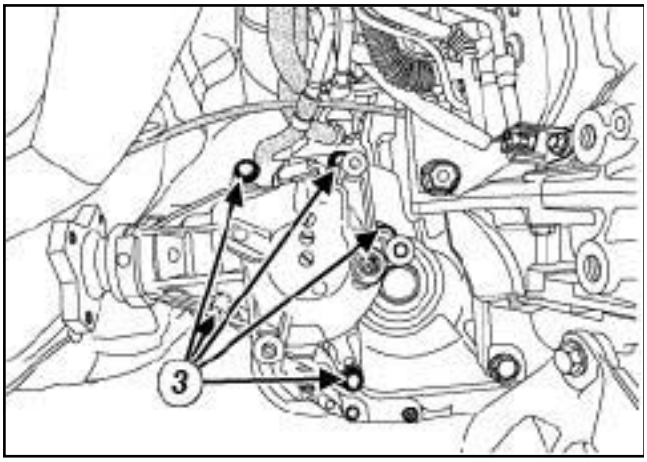
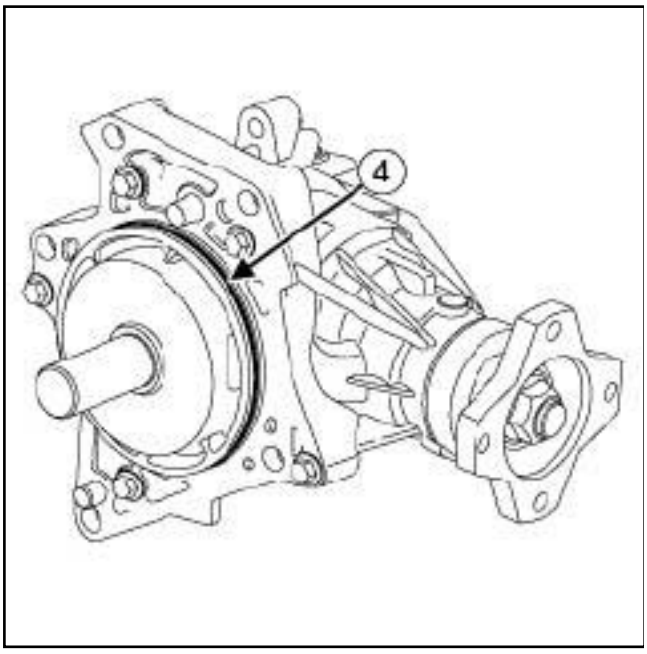
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131399

❑ Remove:

- the transfer box bolts (**3**) ,
- the transfer box.



131400

❑ Remove the O-ring (**4**) .

6 SPEED MANUAL GBOX

❑ Remove the right-hand differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) (21A, Manual gearbox).

FK0 or FK8

❑ Remove the right-hand differential output seal (see **Differential seal Removal - Refitting**) (23A, Automatic gearbox).

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the O-ring,
- the differential output seal.

6 SPEED MANUAL GBOX

❑ Refit the right-hand differential output seal (see **21A**, **Manual gearbox**, **Differential output seal: Removal - Refitting**, page **21A-7**) (21A, Manual gearbox).

FK0 or FK8

❑ Refit the right-hand differential output seal (see **Differential seal Removal - Refitting**) (23A, Automatic gearbox).

❑ Refit the new O-ring.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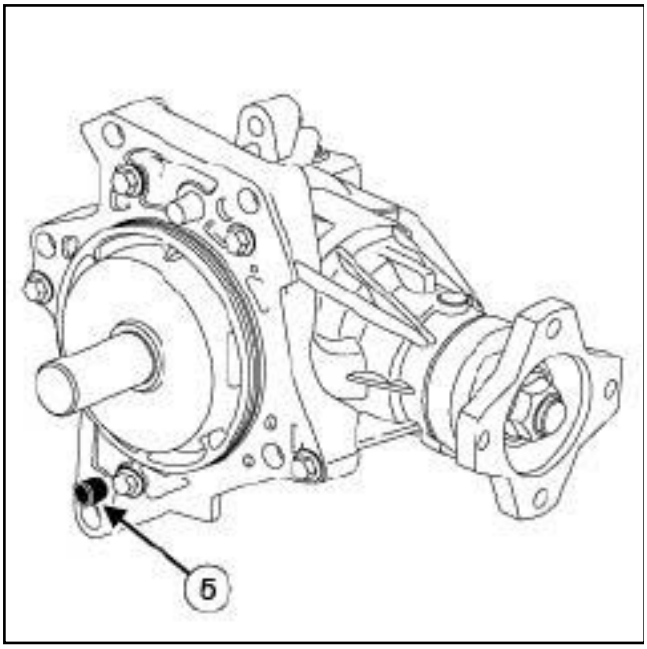
2TR, and 4X4 TRANSMISSION




131401

❑ Check that the centring dowel (**5**) is in position.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the transfer box,
- the transfer box bolts.

❑ Torque tighten the **transfer box bolts (44 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the transfer box support.
- the transfer box support bolts.

❑ Torque tighten the **transfer box support bolts (48 N.m)**.

❑ Refit:

- the longitudinal driveshaft to the transfer box (see **29A**, **Driveshafts**, **Propshaft: Removal - Refitting**, page **29A-13**) (29A, Driveshafts),
- the front axle subframe (see **Front axle sub-frame: Removal - Refitting**) (31A, Front axle components),
- the connector pipe (see **Connector pipe: Removal - Refitting**) ,
- the rear suspended engine mounting (see **Lower engine tie-bar: Removal - Refitting**) (19D, Engine mounting),
- the front right-hand driveshaft (see **29A**, **Driveshafts**, **Front right-hand wheel driveshaft: Removal - Refitting**, page **29A-5**) ,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

6 SPEED MANUAL GBOX

❑ Remove the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

❑ Fill the gearbox (see **21A**, **Manual gearbox**, **Manual gearbox oil: Draining - Refilling**, page **21A-5**) .

❑ Refit the front left-hand splash guard (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

FK0 or FK8

❑ Fill the gearbox (see **23A**, **Automatic gearbox**, **Automatic gearbox oil: Draining - Refilling**, page **23A-11**)



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RENAULT

# 3 Chassis


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38C ANTI-LOCK BRAKING SYSTEM



*X45*

**FEBRUARY 2009** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# KOLEOS - Section 3

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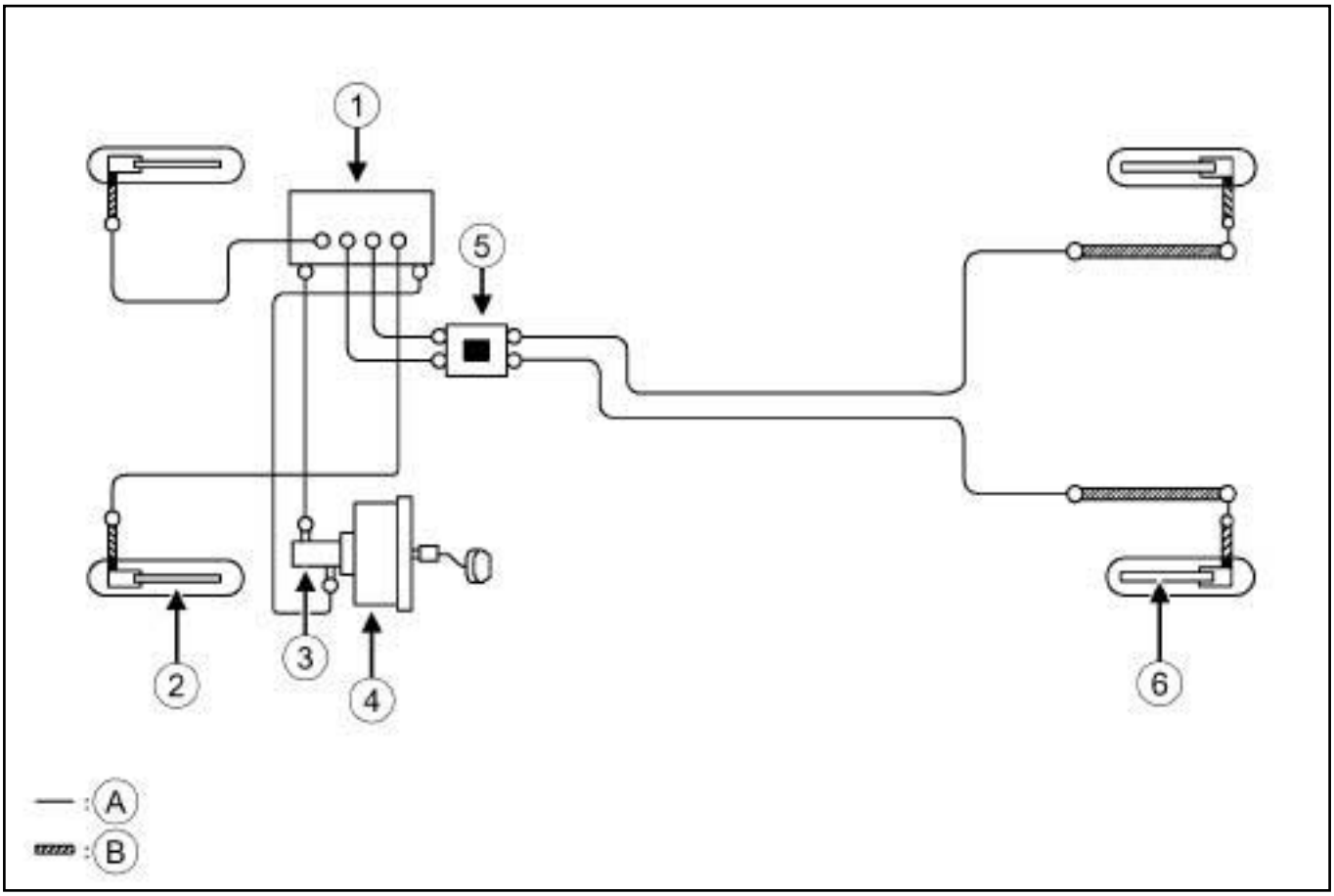


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| | |
|---|---|
| (**1**) | ABS hydraulic unit |
| (**2**) | Front brake disc |
| (**3**) | Master cylinder |
| (**4**) | Brake servo |
| (**5**) | Underbody connection |
| (**6**) | Rear brake disc |
| (**A**) | Rigid brake pipes |
| (**B**) | Brake hoses |

**IMPORTANT**

This is a diagram of the general principle, do not use it as a reference for take-off points or circuit allocation. When replacing components in a vehicle's braking circuit, always mark the pipes before removing them.


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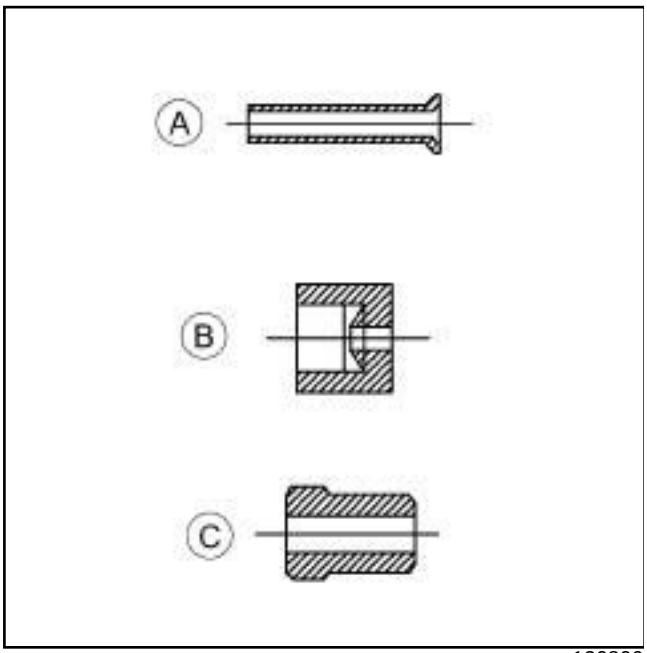
Reminder:

- The pipes between the master cylinder, callipers and the hydraulic assembly are connected using threaded unions with a metric thread.
- Therefore, only parts specified in the Parts Catalogue for this vehicle should be used.

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Parts identification:

- shape of steel or copper pipe end piece (**A**) ,
- shape of threaded housing on components (**B**) ,
- shape of unions (**C**) .


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| Essential equipment |
|---|
| pedal press |
| brake circuit bleeding device |

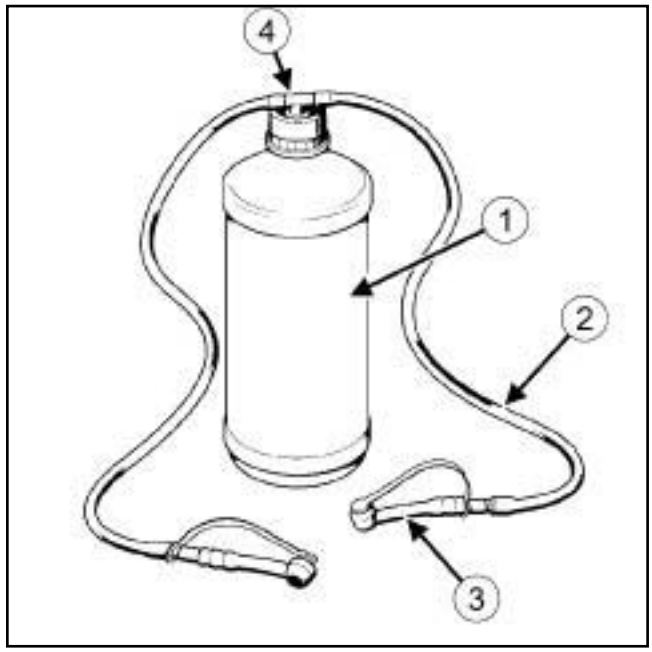
| Tightening torques ▽ | |
|---|---|
| front bleed screws | **10 Nm** |
| rear bleed screws | **10 Nm** |

Precautions to be taken before and during the brake circuit bleeding operation:

- The ignition must be switched off to ensure that the hydraulic unit solenoid valves do not operate.
- use brake fluid which conforms to the Renault standard (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products),
- check the brake fluid levels in the brake circuit and the bleeding device,
- the braking regulation circuit must be free of all hydraulic and electrical faults,
- check that the pressure of the bleeding device is between **1.5 bar** and **2 bar**.

This procedure must be applied after one of the following components has been removed or replaced:

- the master cylinder,
- the brake fluid,
- the hydraulic unit,
- a rigid pipe,
- a hose,
- the reservoir,
- a calliper.



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❑ Use locally produced containers to collect the used brake fluid.

Front and rear callipers:

- 2 washer fluid containers (**1**) (1 litre),
- **4 mm** diameter transparent pipes (**2**) ,
- 4 pipettes (**3**) (part no: 00 00 081 501),
- 2 T-unions (**4**) .

Note:

The new hydraulic unit is pre-filled.

When working on one of the following components, position a **pedal press** to limit the outflow of brake fluid and prevent any air from entering the master cylinder and the circuits downstream of the master cylinder:

- hydraulic unit,
- pipes between the hydraulic unit and brake callipers,
- brake hoses,
- brake calliper.

Remove the **pedal press** before carrying out the braking system bleeding procedure.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Switch off the vehicle ignition.


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❏ Connect the **brake circuit bleeding device** (after having received Renault approval) to the master cylinder reservoir (see the instructions for the equipment).

❏ Pressurise the brake circuit.

❏ Adjust the pressure to between **1.5 bar** < P < **2 bar** for **3 minutes** to stabilise it in the braking circuit.

❏ Close the circuit between the bleed screw and the brake fluid reservoir without letting the pressure fall.

> Note:
>
> The circuit between the bleed screw and brake fluid reservoir is closed in different ways depending on the type of equipment used:
>
> - valve,
> - switch.

❏ Fit the bleed containers to the four bleed screws of the callipers.

❏ Undo the calliper bleed screws:

- front left,
- front right,
- rear left-hand,
- rear right.

❏ Open the circuit between the bleed screw and brake fluid reservoir and allow the liquid to run until all the air bubbles have been released.

❏ Tighten the bleed screws in the following order:

- front left,
- front right,
- rear left-hand,
- rear right.

❏ Undo the calliper bleed screw:

- front left,
- allow the fluid to run until all the air bubbles have been released,
- tighten the bleed screw on the calliper.

❏ Carry out the previous operation on the callipers:

- front right,
- rear left-hand,
- rear right.

❏ Close the bleed screw to dump the pressure in the brake circuit.

❏ Remove the **brake circuit bleeding device** from the master cylinder reservoir.

❏ Check pedal travel and resistance. If it is not correct, finish bleeding the brake circuit with the help of a second operator. Start the bleed operation by bleeding the calliper that is the furthest away from the master cylinder:

- hold down the brake pedal,
- open the circuit bleed screw to release the air from the brake circuit,
- close the circuit bleed screw,
- release the brake pedal.

❏ Top up the brake fluid level in the reservoir, if necessary. Check the tightness of the **front bleed screws (10 Nm)** and the **rear bleed screws (10 Nm)** and make sure that the sealing caps are fitted.

❏ During a road test, trigger braking regulation to confirm that the brake pedal travel is correct.

❏ Clean any traces of brake fluid present on the vehicle with **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).


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**BRAKE FLUID REPLACEMENT INTERVAL**

Our braking technology, and in particular the disc brakes (hollow pistons which conduct little heat, have a low volume of fluid in the cylinder, sliding callipers avoiding the need for a fluid reserve in the least cooled area of the wheel), has allowed us to prevent the risk of « vapour lock » as far as possible, even with heavy braking (mountainous area). However, current brake fluids are subject to minor deterioration during the first months of use due to slight humidity intake. This is why it is recommended that you change the brake fluid: see **maintenance booklet for the vehicle**.

**1 - Topping up the level**

Wear of the brake pads will result in a gradual drop in the fluid level in the reservoir.

Do not top up the fluid, as the level will rise again when the pads are next changed. The brake fluid level must not fall below the minimum mark.

**2 - Approved brake fluid**

Using a mixture of two incompatible brake fluids in the brake circuit may give rise to:

- significant risk of leaks mainly due deterioration of the cups,
- impaired operation of the ESP system.

To prevent such risks, it is essential to use only brake fluids that comply with the RENAULT standard (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).


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| FRONT BRAKE (mm) | |
|---|---|
| Piston diameter | 45 x 2 |
| Disc diameter | 320 |
| Disc thickness | 28 |
| Minimum disc thickness (1) | 26 |
| Maximum disc run-out | 0.035 |
| Brake pad thickness | 10.0 |
| Wear limit of brake pad thickness | 2 |
| **Rear brake (mm)** | |
| Piston diameter | 42.86 |
| Disc diameter | 292 |
| Drum diameter | 172 |
| Maximum drum diameter | 173 |
| Disc thickness | 16 |
| Minimum disc thickness (1) | 14.0 |
| Maximum disc run-out | 0.070 |
| Brake pad thickness | 8.5 |
| Wear limit of brake pad thickness | 1.5 |
| Brake pad thickness | 3.25 |
| Minimum thickness of disc lining | 1.5 |
| **Master cylinder** | |
| Diameter | 23.81 |

(1) Brake discs cannot be reground. The brake discs must be replaced if they are excessively scratched or worn.


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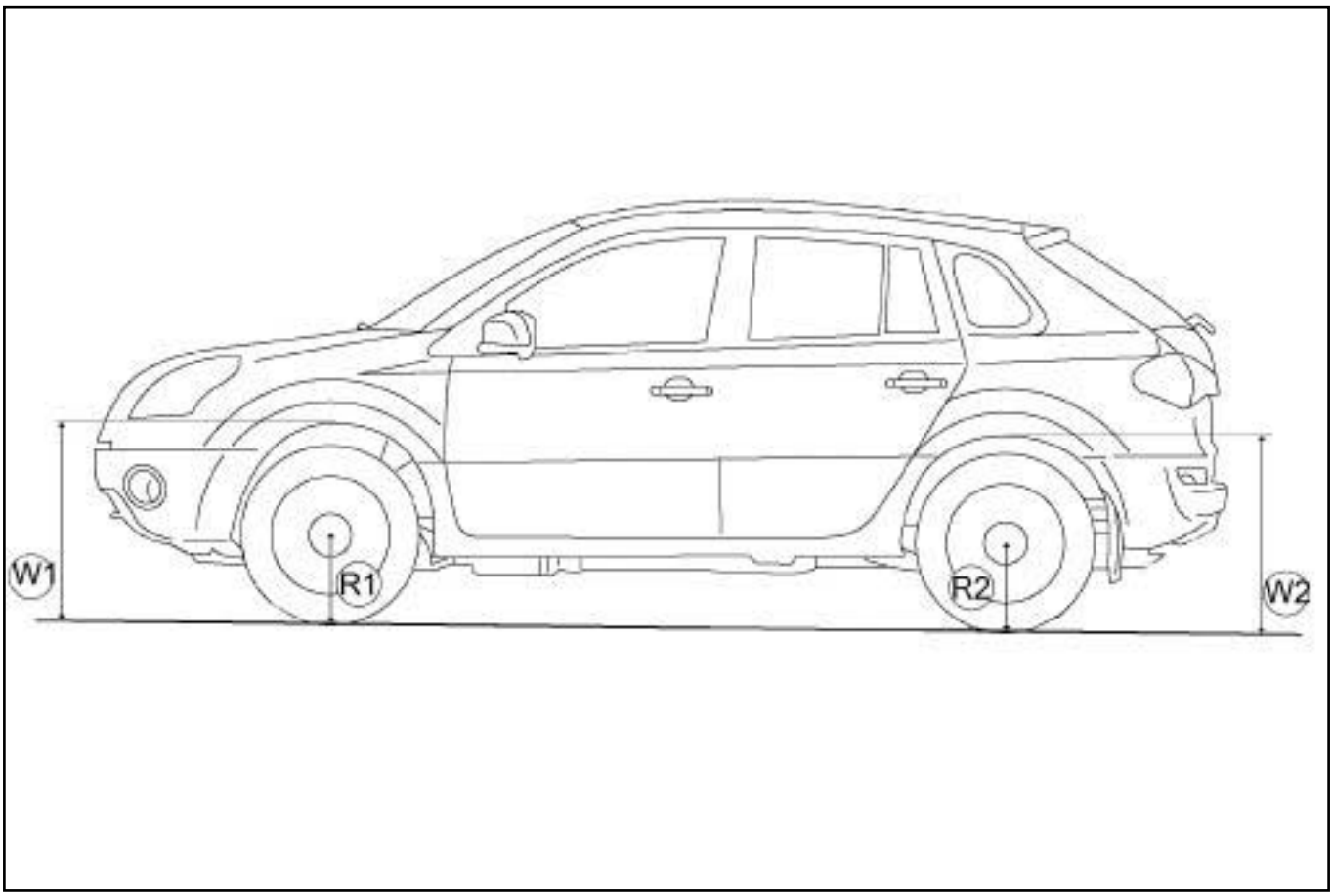
**I - MEASURING POINTS**

Note:

Measure the value unladen. Unladen means that the fuel tank and engine coolant and oil reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.




131428

(**R1**) Distance between the ground and the front wheel axis.

(**R2**) Distance between the ground and the rear wheel axis.

(**W1**) Distance between the ground and the top of the front wheel arch.

(**W2**) Distance between the ground and the top of the rear wheel arch.

W1 = **779 mm ± 5 mm**

W2 = **785 mm ± 5 mm**

**II - VEHICLE IN WORKING CONDITION**

Position VODM (Vehicle in working condition):

- Tank full,
- Empty vehicle (without luggage, etc.).



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Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and lubricant coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

## I - WHEEL ALIGNMENT: MEANING OF SYMBOLS

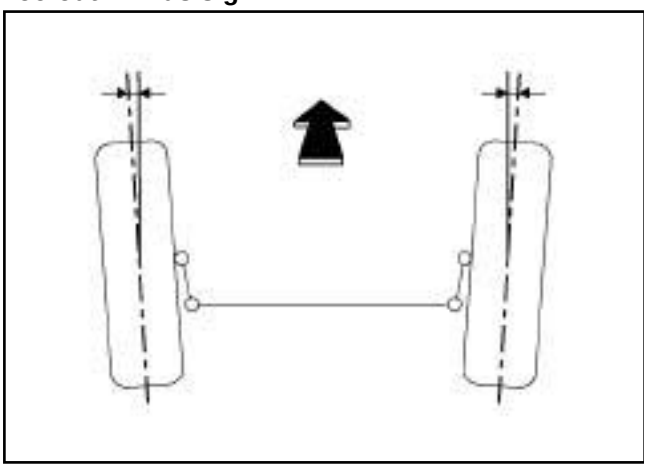
**WARNING**

Symbols used by RENAULT:

-: toe-out,

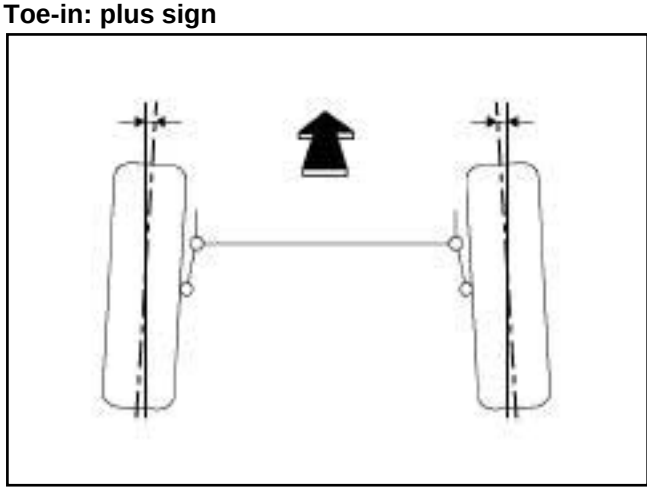
+: toe-in.

**Toe-out: minus sign**



131429

**Toe-in: plus sign**



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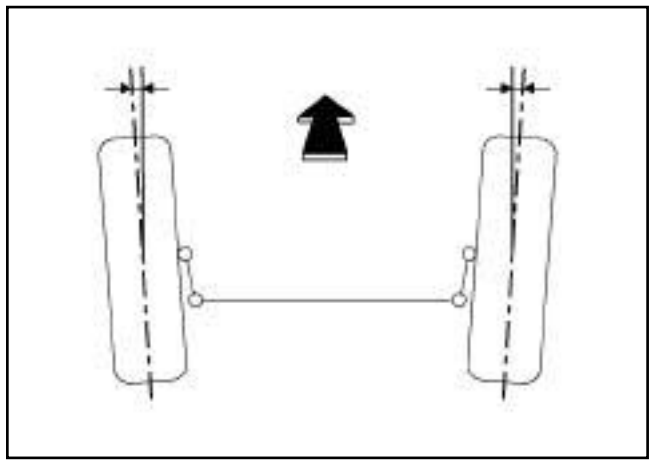
## II - WHEEL ALIGNMENT

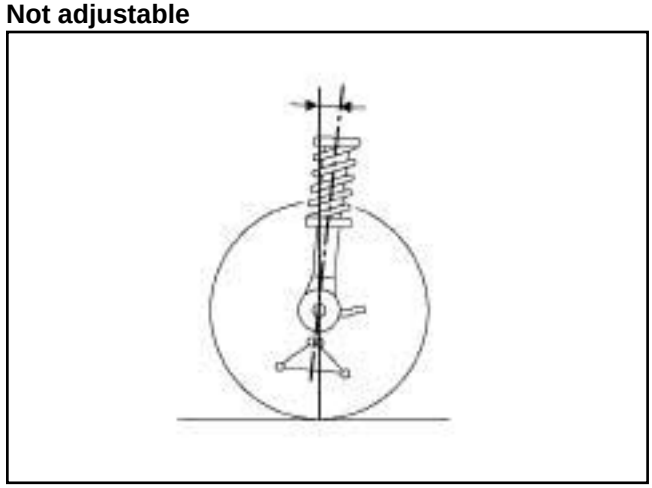


131429

| Value | |
|---|---|
| 2TR | M9R |
| **0°05' ± 0°10'** | **0°05' ± 0°10'** |

## III - CASTOR ANGLE

**Not adjustable**



131432

| Value | |
|---|---|
| 2TR | M9R |
| **4°40' ± 0°45'** | **4°35' ± 0°45'** |
| Maximum right-left difference = **0°36'** | |



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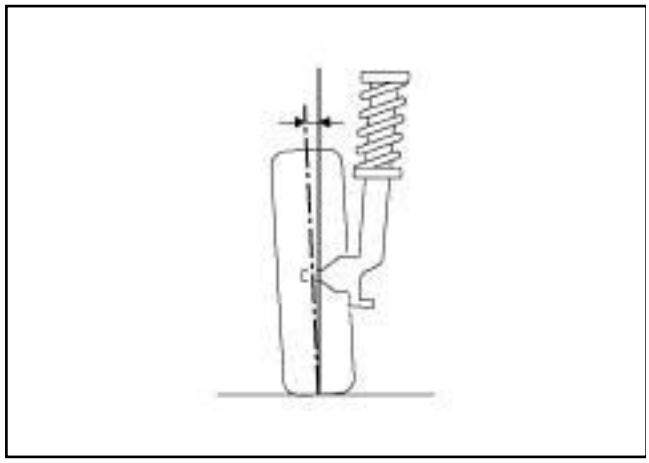
**IV - CAMBER**

**Not adjustable**

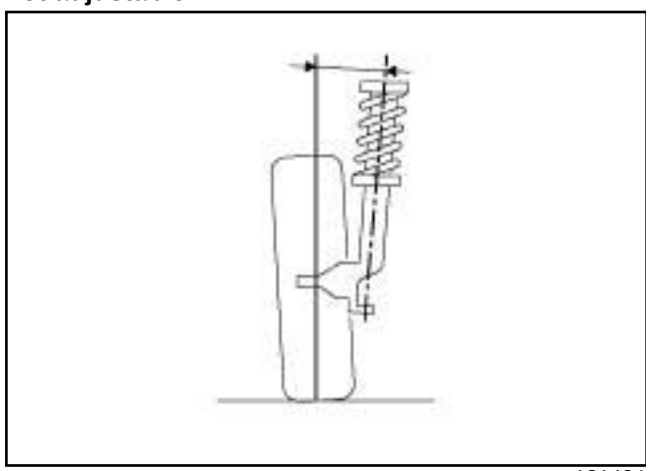


131433

| Value |
|---|
| **-0˚30' ± 0˚45'** |
| Maximum right-left difference = **0˚33'** |

**V - PIVOT**

**Not adjustable**



131434

| Value | |
|---|---|
| 2TR | M9R |
| **10˚30' ± 0˚45'** | **10˚35' ± 0˚45'** |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| Essential equipment |
| --- |
| steering wheel lock |

| Tightening torques ▽ | |
| --- | --- |
| wheel alignment adjustment lock nut | **88 N.m** |

**I - ADJUSTMENT VALUES**

❑

Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

(see **30A**, **General information**, **Front axle: Adjustment values**, page **30A-8**) .

**II - ADJUSTMENT**

❑ Before checking the axle assemblies on the test bench, check the tyre inflation pressure (see **35A**, **Wheels and tyres**, **Tyre inflation pressure: Identification**, page **35A-8**) (35A, Wheels and tyres).

**1 - Castor angle**

❑ Not adjustable.

**2 - Camber**

❑ Not adjustable.

**3 - Pivot**

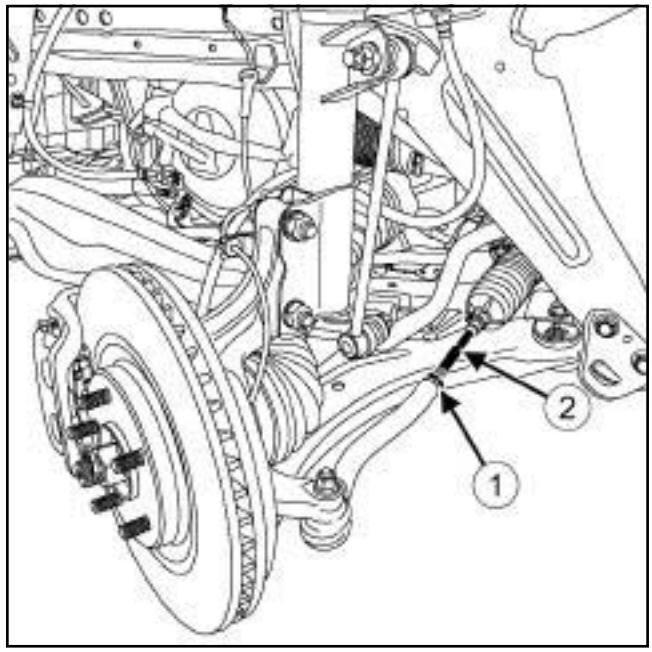
❑ Not adjustable.

**4 - Wheel alignment**

❑ Set the wheels straight ahead.

❑ Lock the steering wheel using the **steering wheel lock**.

❑ Adjust the wheel alignment by rotating the track rod sleeves.




131435

❑ Loosen the wheel alignment adjustment lock nut (**1**) .

❑ Turn the track rod sleeve (**2**) to obtain the required value.

❑ After adjustment, torque tighten the **wheel alignment adjustment lock nut (88 N.m)**.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Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

**I - WHEEL ALIGNMENT: MEANING OF SYMBOLS**

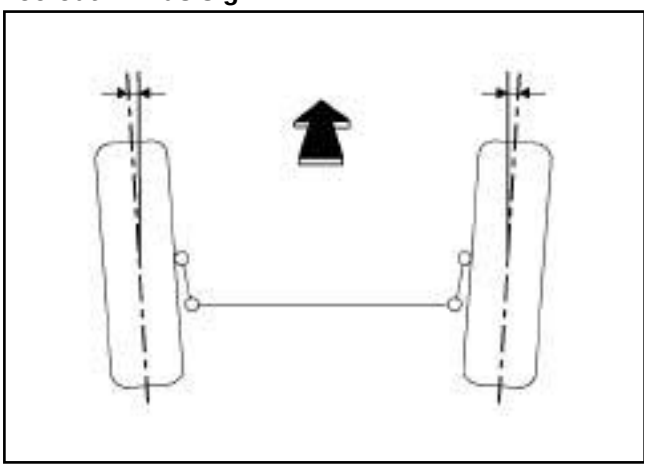
**WARNING**

Symbols used by RENAULT:

-: toe-out,

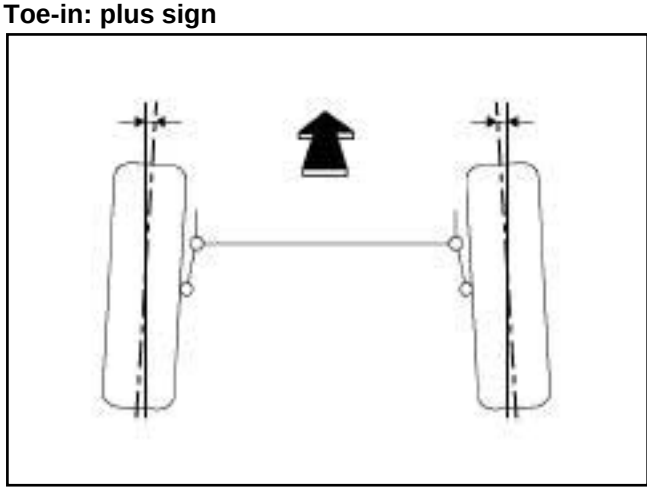
+: toe-in.

**Toe-out: minus sign**



131429

**Toe-in: plus sign**



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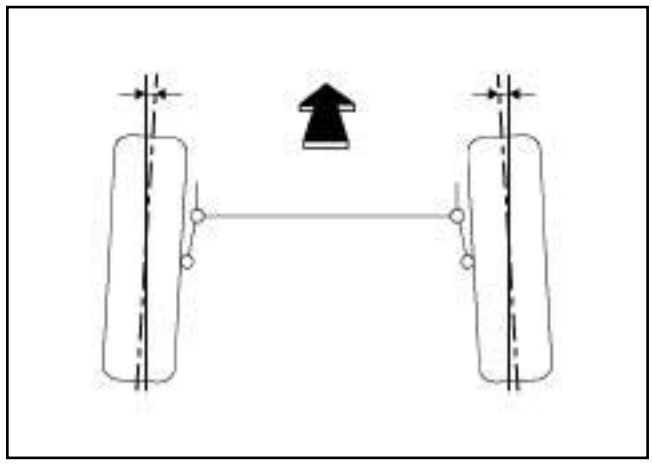
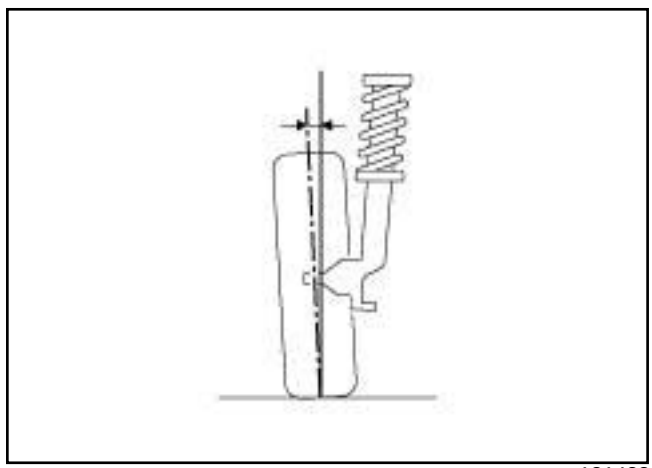
**II - WHEEL ALIGNMENT**



131430

| Value |
|---|
| **0°05'±0.10'** |

**III - CAMBER**



131433

| Value |
|---|
| **0°50'±0.30'** |



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| Tightening torques ▽ | |
|---|---|
| nut on the lower trailing link on the rear axle subframe | **130N.m** |
| nut of the rear stub axle carrier | **150N.m** |

**I - ADJUSTMENT VALUES**

❏

Note:

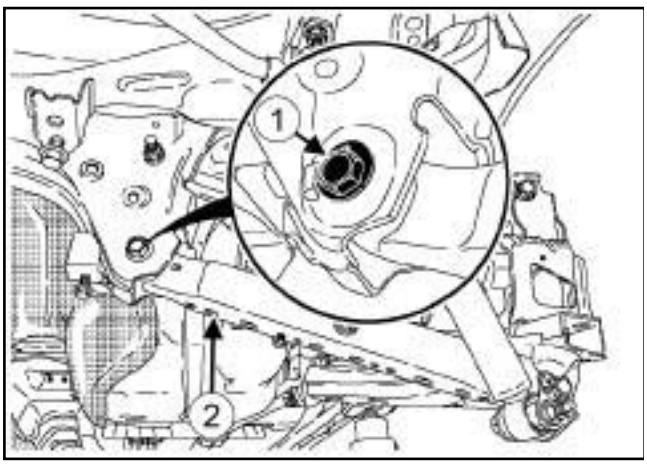
Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

(see **30A**, **General information**, **Rear axle: Adjustment values**, page **30A-11**) .

**II - ADJUSTMENT**

❏ Before checking the axle assemblies on the test bench, check the tyre inflation pressure (see **35A**, **Wheels and tyres**, **Tyre inflation pressure: Identification**, page **35A-8**) (35A, Wheels and tyres).

**1 - Camber**

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❏ If the camber exceeds the adjustment value, adjust it using the adjusting screw (**1**) on the lower trailing link (**2**) .

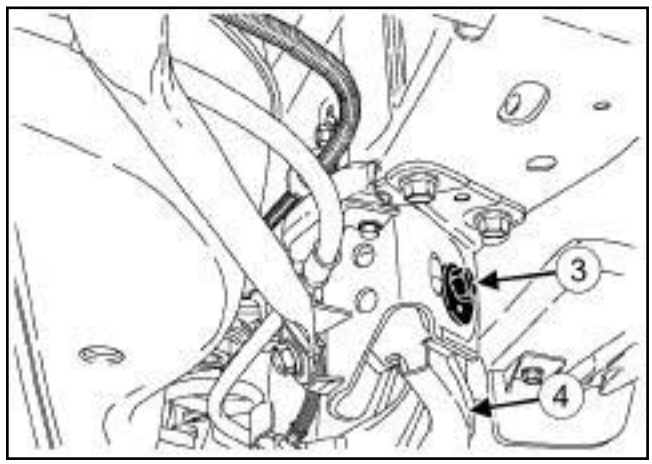
❏ After adjusting, torque tighten the **nut on the lower trailing link on the rear axle subframe (130N.m)**.

❏

Note:

After the adjustment, remember to check the toe-in.

**2 - Toe-in**




131441

❏ If the toe-in exceeds the adjustment value, adjust it using the adjusting screw (**3**) on the rear stub axle carrier (**4**) .

❏ After the adjustment, torque tighten the **nut of the rear stub axle carrier (150N.m)**.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| Essential special tooling | |
|---|---|
| **Fre. 1190-01** | Brake calliper piston return tool. |

| Tightening torques ▽ | |
|---|---|
| guide pin bolt | **29 N.m** |

Note:

When replacing a brake pad, it is essential to replace the brake pad on the opposite side as well.

## REMOVAL

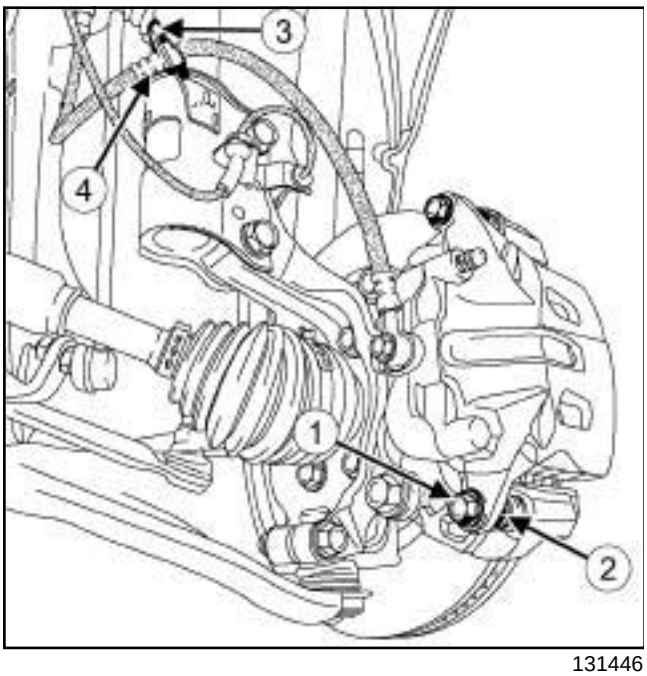
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Unlock the steering column.

❏ Remove the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131446

❏ Remove the lower guide pin bolt (**1**) while holding the nut (**2**) .

❏ Unclip:

- the clip (**3**) ,
- the brake hose (**4**) from the shock absorber.

❏ Rotate the calliper upwards.

❏ Remove the brake pad.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the guide pin bolt.

❏ Check the brake pad thickness (see **30A**, **General information**, **Brake: Specifications**, page **30A-6**) (30A, General information).

❏ Replace any faulty parts.

❏ Clean:

- the calliper,
- the calliper mounting,
- the calliper mounting bolts.

❏ Push the piston fully into its housing using tool **(Fre. 1190-01)** part no. **77 11 223 715**.

**WARNING**

In order not to damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the brake pad, starting from the inside.

❏ Rotate the calliper downwards to return it to its original position.

❏ Refit the new guide pin bolt.

❏ Torque tighten the **guide pin bolt (29 N.m)**.

❏ Clip:

- the brake hose to the shock absorber,
- the clip.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**III - FINAL OPERATION.**

❑ Refit the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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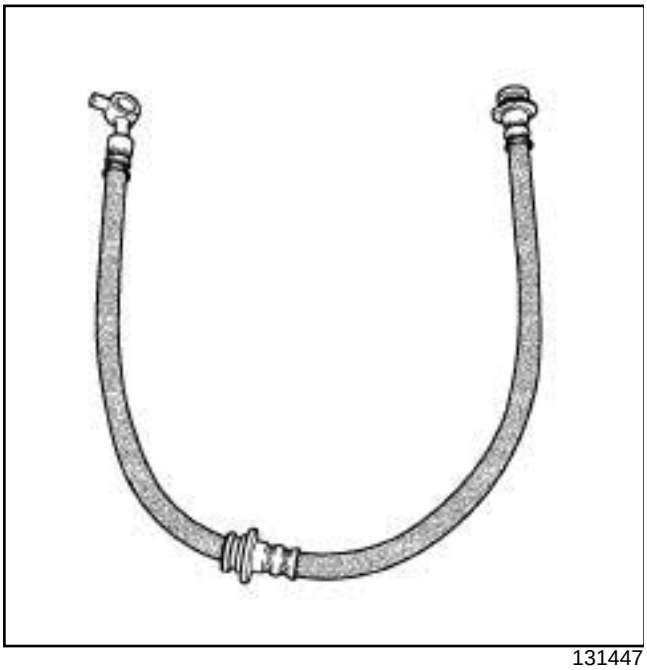
| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake hose on the calliper | **18 N.m** |
| brake hose on the union | **16 N.m** |



131447

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

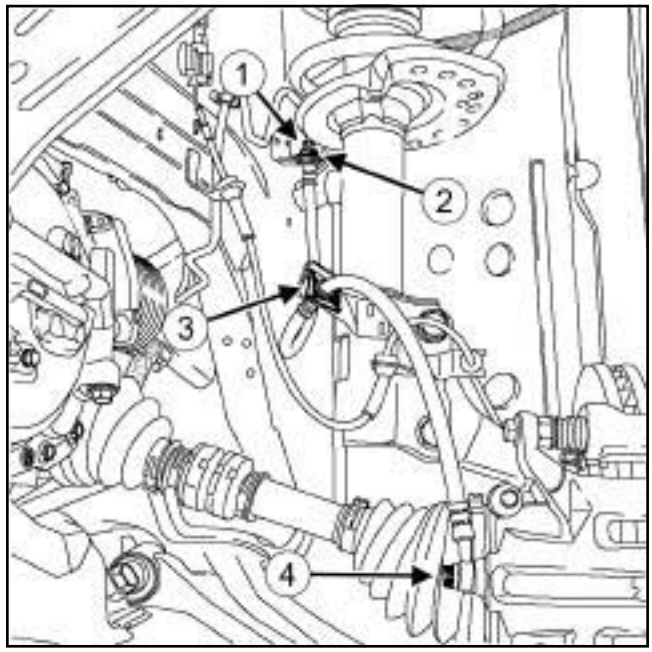
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Set the wheels straight ahead.

❏ Remove the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131448

❏ Undo the brake hose (**1**) at the union.

❏ Unclip:

- the union clip ***(2)*** ,
- the shock absorber clip ***(3)*** ,
- the brake hose.

❏ Remove:

- the brake hose bolt ***(4)*** on the calliper,
- the brake hose.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**WARNING**

In order to not damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

Note:
The hoses supplied as replacement parts are encased in a spring to prevent them from being twisted during the refitting operation.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**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the brake hose bolt on the calliper side.

❏ Manually pretighten the brake hose bolt on the calliper.

❏ Clip on:

- the brake hose,
- the clip on the shock absorber,
- the clip on the union.

❏ Refit the brake hose on the union side.

❏ Tighten to torque:

- the **brake hose on the calliper (18 N.m)**,
- the **brake hose on the union (16 N.m)**.

**III - FINAL OPERATION.**

❏ Remove the **pedal press** from the brake pedal.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) (see 30A, General information).

❏ Refit the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).


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| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| guide pin bolts | **29 N.m** |
| brake hose on the calliper | **18 N.m** |
| brake calliper bolts | **165 N.m** |

Note:

The callipers supplied as replacement parts are pre-filled with brake fluid.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**WARNING**

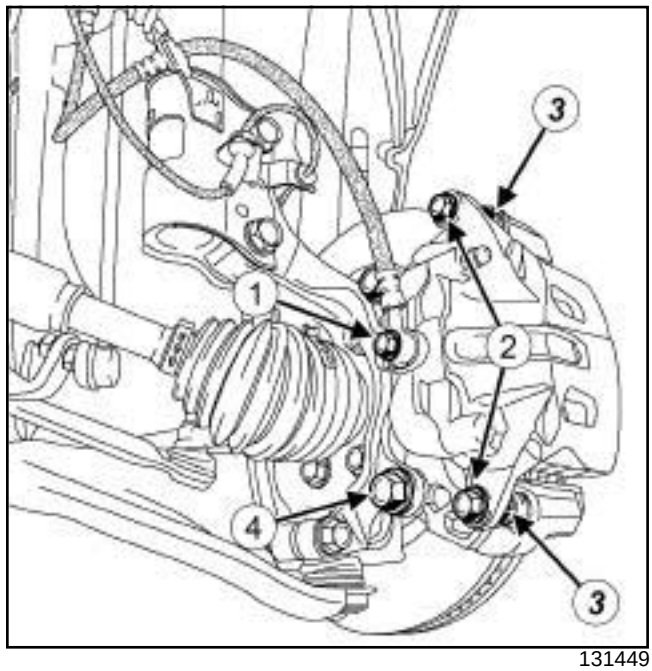
Prepare for the flow of fluid, and protect the surrounding components.

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

❏ Unlock the steering column.

❏ Remove the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131449

❏ Remove:

- the brake hose (**1**) from the calliper,
- the guide pin bolt (**2**) while holding the nut (**3**) ,
- the brake pad,
- the brake calliper bolts (**4**) ,
- the front brake calliper.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the guide pin bolt.

❏ Check the condition of the gaiter and the calliper piston (replace defective parts).

❏ Clean the backplate and the calliper.

❏ Push the piston back until it is at the end of its bore.

**WARNING**

In order to not damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.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**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Set the front wheels straight.

❏ Without using a tool, screw the brake hose onto the calliper as tightly as possible.

❏ Refit:

- the front brake calliper,
- the brake calliper bolts,
- the pads starting from the inside,
- the new guide pin bolts.

❏ Torque tighten

- the **guide pin bolts (29 N.m)**,
- the **brake hose on the calliper (18 N.m)**,
- the **brake calliper bolts (165 N.m)**.

**III - FINAL OPERATION.**

❏ Partially bleed the brake circuit if the compensation reservoir was not completely emptied during the operation.

❏ If necessary, bleed the circuit completely (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) (30A, General information).

❏ Check the brake fluid level.

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

❏ Refit the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).


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| Essential special tooling | |
|---|---|
| **Fre. 1190-01** | Brake calliper piston return tool. |

| Essential equipment |
|---|
| pedal press |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REPAIR PREPARATION OPERATION

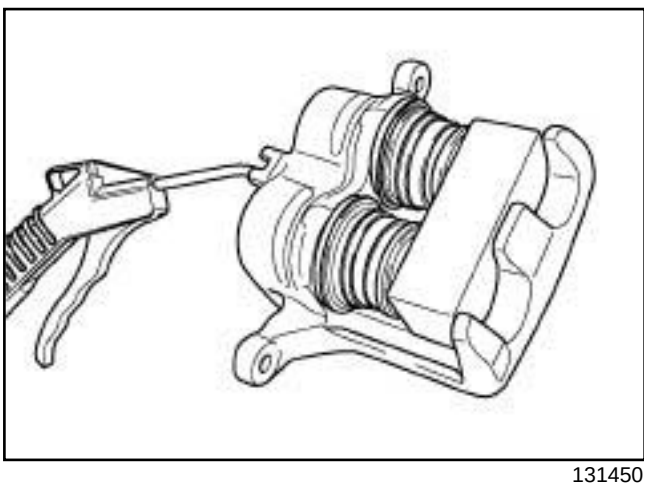
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) .

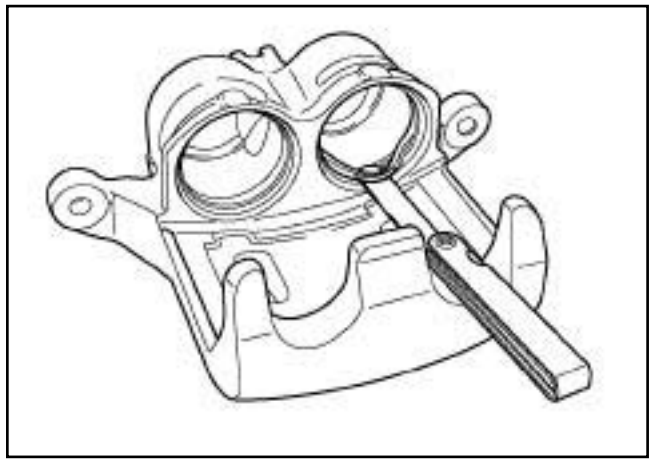
### II - REPAIR OPERATION FOR PART CONCERNED



131450

❏ Remove:

- the piston using compressed air and taking care to place a wooden block between the calliper and the piston to avoid damaging it. Any sign of impact on the piston skirt makes it unfit for use,
- the dust seal.



131451

❏ Remove the rectangular section seal from the calliper groove using a round edged spring blade (feeler gauge).

Note:
The whole calliper must systematically be replaced if there are any scratches in the calliper bore.

❏ Clean the parts using methylated spirit.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rectangular section seal in the calliper groove,
- the piston (after having coated it with the grease supplied in the repair kit) using tool **(Fre. 1190-01)**,
- the dust seal.

### II - FINAL OPERATION.

❏ Refit the brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) .

❏ Remove the **pedal press** from the brake pedal.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) (see 30A, General information ).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❑ Refit the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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| Tightening torques ▽ | |
|---|---|
| calliper mounting bolts | **165 N.m** |
| guide pin bolt | **29 N.m** |

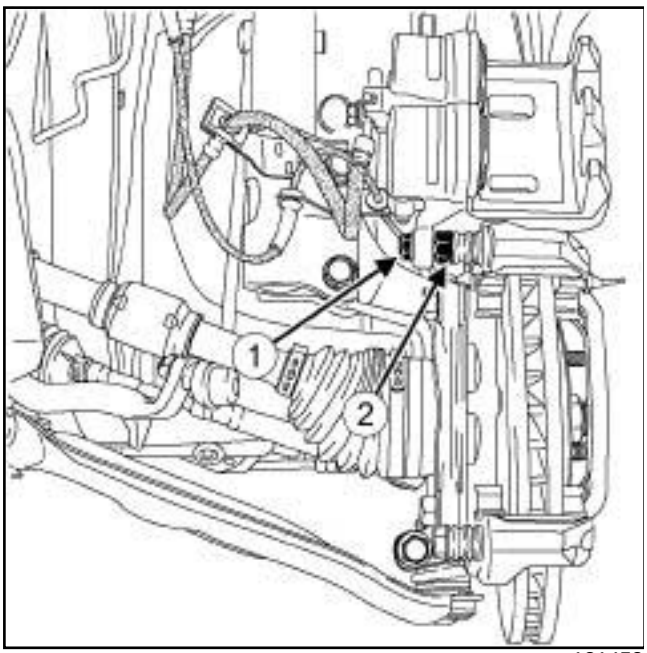
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) .



131452

❏ Remove the upper guide pin bolt (**1**) while holding the nut (**2**) .

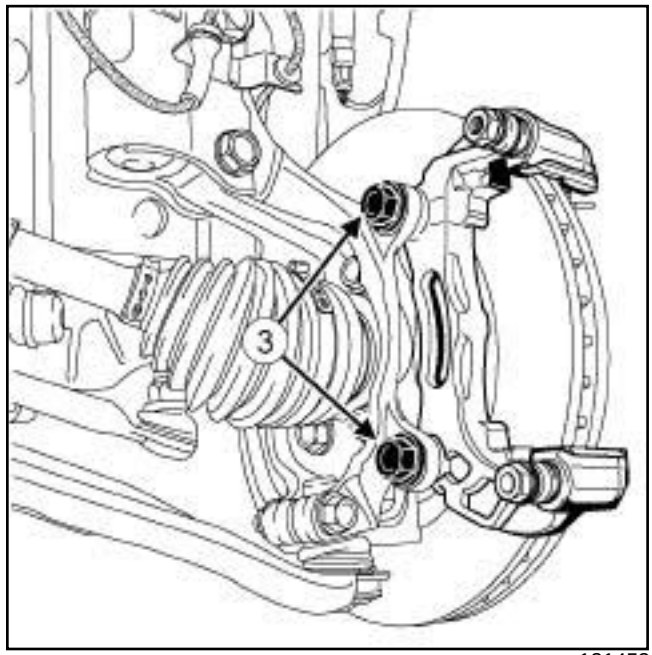
**WARNING**

In order to not damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

❏ Suspend the brake calliper from the suspension spring.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131453

❏ Remove:

- the calliper mounting bolts (**3**) ,
- the calliper mounting.

### I - REFITTING PREPARATION OPERATION

❏ Always replace the upper guide pin bolt.

❏ Clean:

- the calliper mounting,
- the hub carrier.

❏ Coat the calliper mounting bolt with **HIGH STRENGTH THREAD LOCK** (see **Vehicle: Parts and ingredients for the repairwork**) or a similar product before refitting.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the calliper mounting,
- the calliper mounting bolts.

❏ Torque tighten the **calliper mounting bolts (165 N.m)**.

❏ Refit:

- the calliper,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- the new upper guide pin bolt.

❑ Torque tighten the **guide pin bolt (29 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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| Tightening torques ▽ | |
|---|---|
| bolts of the front hub carrier bearing | **88 N.m** |

## REMOVAL

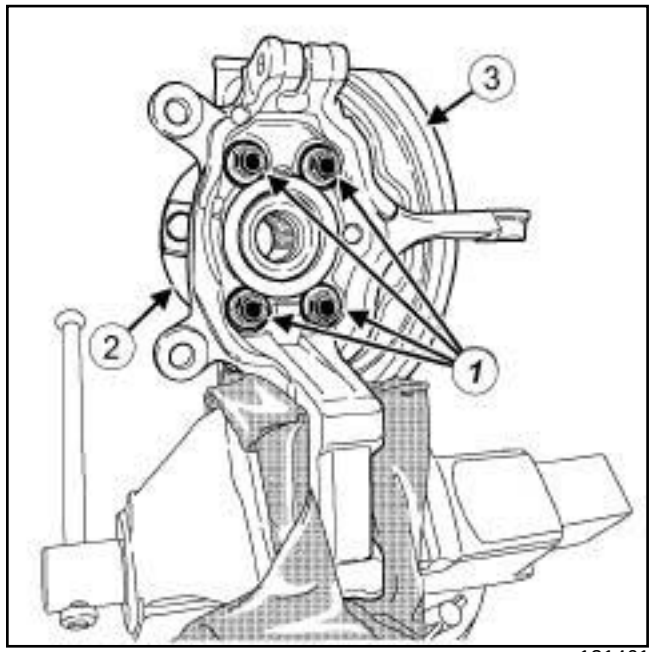
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front driveshaft hub carrier (see **31A**, **Front axle components**, **Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131461

❏ Remove:

- the bolts (**1**) of the front hub carrier bearing,
- the front hub carrier bearing (**2**) ,
- the front brake disc guard (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the bearing whenever a hub is removed.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the front brake disc guard,
- the front hub carrier bearing,
- the bolts of the front hub carrier bearing.

❏ Torque tighten the **bolts of the front hub carrier bearing (88 N.m)**.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**III - FINAL OPERATION.**

❑ Refit:

- the front driveshaft hub carrier (see **31A**, **Front axle components**, **Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) .
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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Note:

Brake discs cannot be reground. If there is excessive scoring or wear, they will need to be replaced (see **30A**, **General information**, **Brake: Specifications**, page **30A-6**) (30A, General information).

When replacing a brake disc, be sure to replace the disc on the opposite side.

When replacing brake discs, you must replace the brake pads.

## REMOVAL

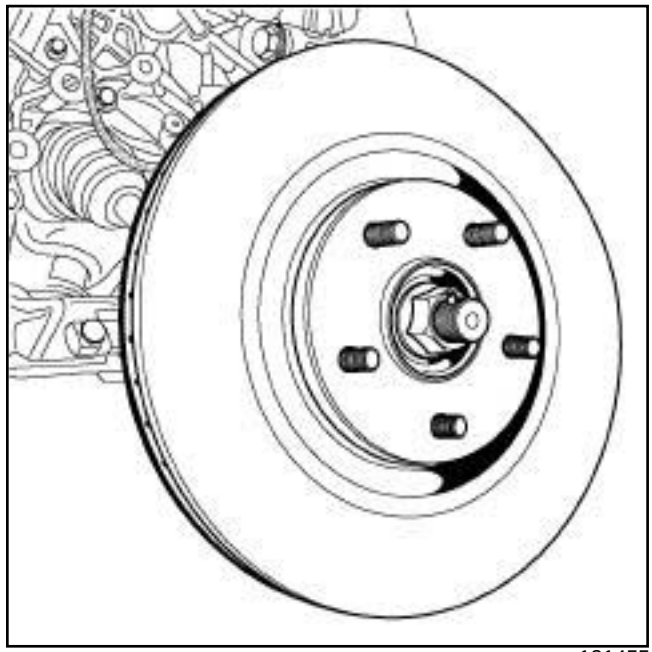
### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131455

❑ Remove the brake disc.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Clean the brake disc using brake cleaner.

### II - REFITTING PART CONCERNED

❑ Refit the brake disc.



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**III - FINAL OPERATION.**

❑ Refit:

- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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### I - PREPARATION OPERATION FOR CHECK

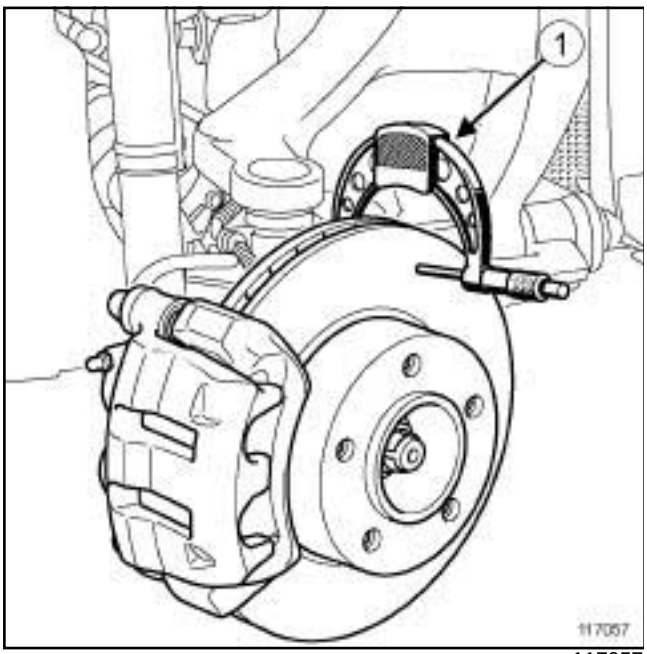
Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

Remove the wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

### II - CHECKING OPERATION FOR PART CONCERNED

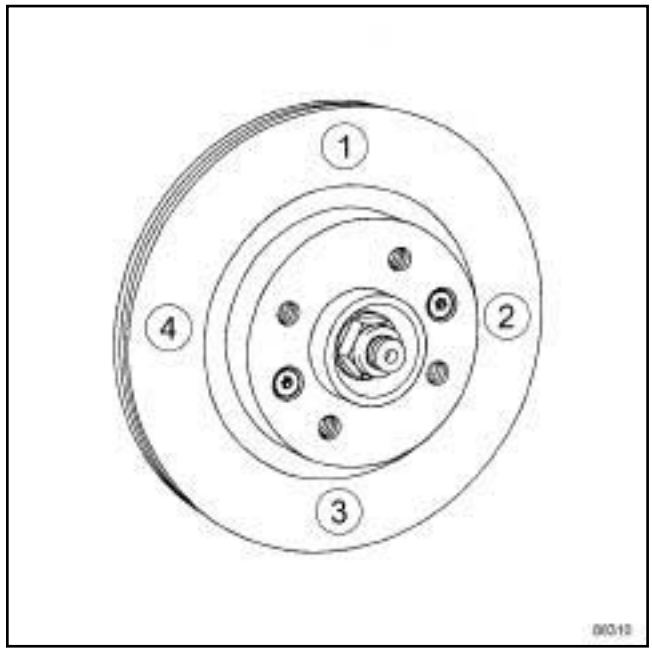
Note:

Use a Palmer type tool to check the thickness of the disc.




117057

Position the Palmer tool (**1**) to measure the disc thickness.




88310

Measure the thickness of the disc at 4 points in order (90˚ apart).

Compare the values with those recommended by the manufacturer (see **30A**, **General information**, **Brake: Specifications**, page **30A-6**) .

### III - FINAL OPERATION

Replace the discs if necessary (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) .

Refit the wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .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LEFT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions on the hydraulic unit | **16 N.m** |
| brake pipe unions on the master cylinder | **16 N.m** |
| brake pipe unions on the hydraulic unit | **18 N.m** |
| brake pipe unions on the master cylinder | **18 N.m** |

**WARNING**

Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

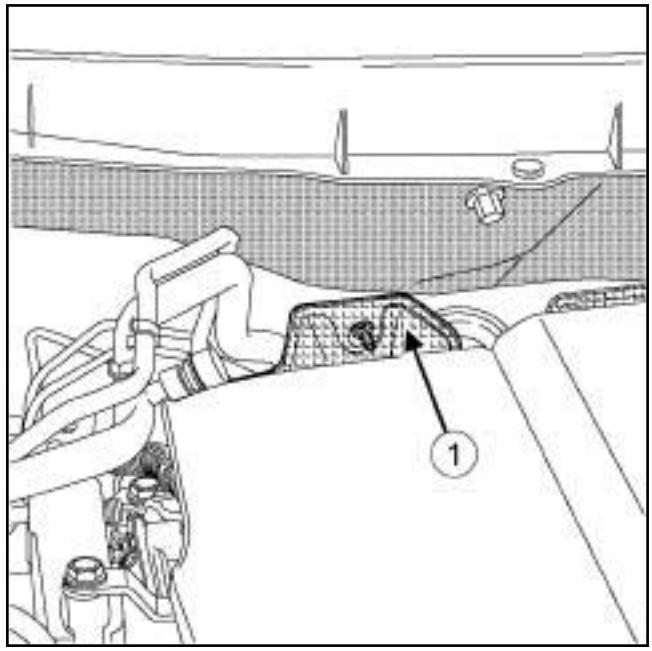
❏ Remove the engine undertray.

❏ Drain the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

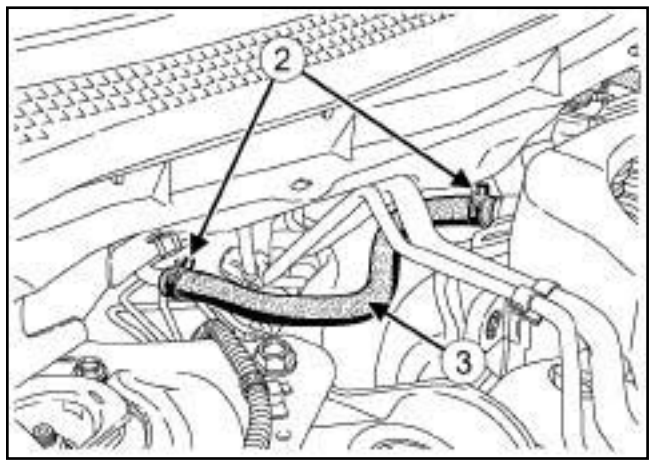
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR




131552

❏ Remove:

- the clips (**2**) ,
- the vacuum hose (**3**) .



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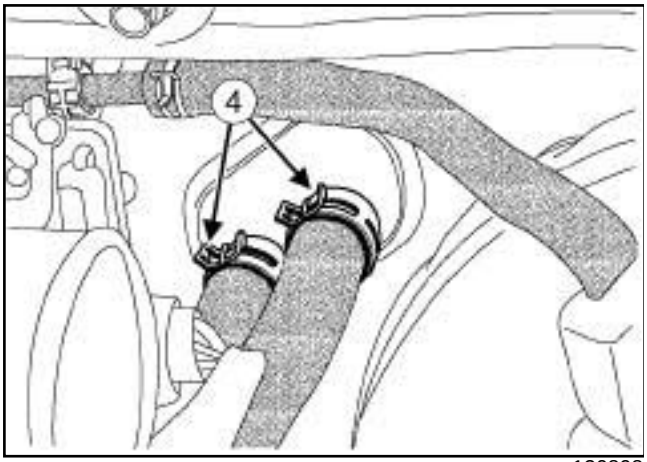
LEFT-HAND DRIVE



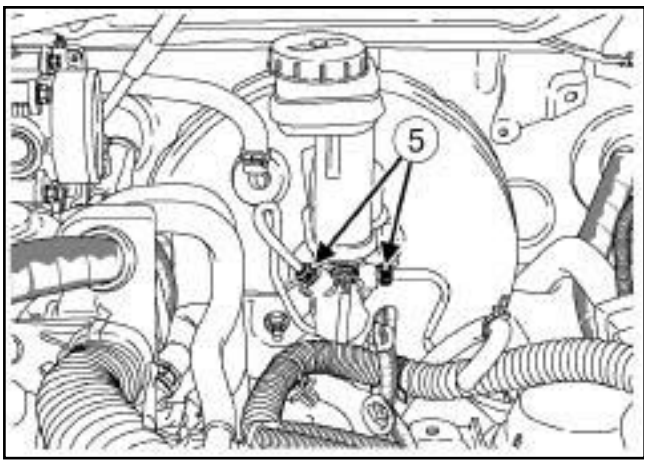

130898

❏ Remove the clips (**4**) .

❏ Disconnect the heater matrix hoses.

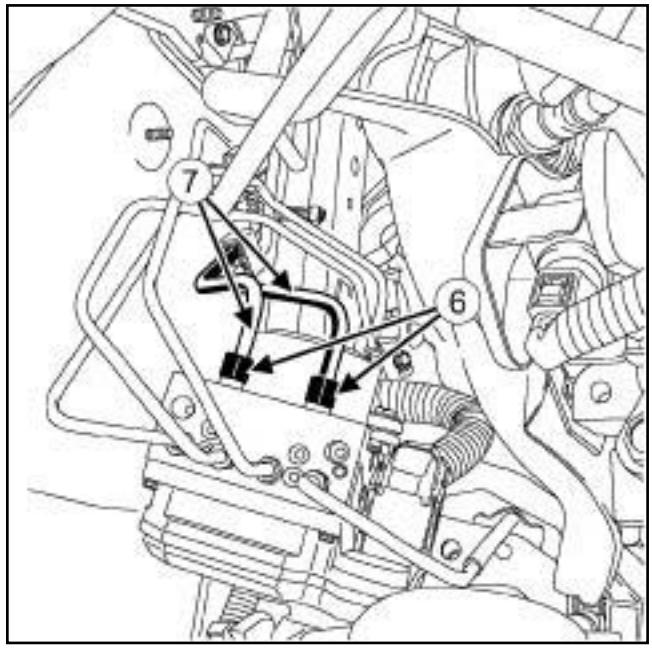
❏ Remove the brake pipe between the hydraulic unit and the underbody union (see **31A**, **Front axle components**, **Hydraulic unit - underbody union brake pipe: Removal - Refitting**, page **31A-22**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130899

❏ Loosen the master cylinder brake pipe unions (**5**) .




130900

❏ Loosen the brake pipe unions (**6**) on the hydraulic unit.

❏ Remove the brake pipes (**7**) between the hydraulic unit and the master cylinder.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the brake pipes between the hydraulic unit and the master cylinder,
- the brake pipe unions on the hydraulic unit,
- the brake pipe unions on the master cylinder.

WITHOUT ESP

❏ Torque tighten:

- the **brake pipe unions on the hydraulic unit (16 N.m)**,
- the **brake pipe unions on the master cylinder (16 N.m)**,



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LEFT-HAND DRIVE

ESP 2 or ESP

❑ Torque tighten:

- the **brake pipe unions on the hydraulic unit (18 N.m)**,
- the **brake pipe unions on the master cylinder (18 N.m)**.

**II - FINAL OPERATION**

❑ Refit the brake pipe between the hydraulic unit and the underbody union (see **31A**, **Front axle components**, **Hydraulic unit - underbody union brake pipe: Removal - Refitting**, page **31A-22**) .

❑ Connect the heater matrix hoses.

❑ Refit the clips.

2TR

❑ Refit:

- the vacuum hose,
- the clips.

❑ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❑ Remove the **pedal press**.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Fill and bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Refit the engine undertray.



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RIGHT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions on the hydraulic unit | **16 N.m** |
| brake pipe unions on the master cylinder | **16 N.m** |
| brake pipe unions on the hydraulic unit | **18 N.m** |
| brake pipe unions on the master cylinder | **18 N.m** |

**WARNING**

Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

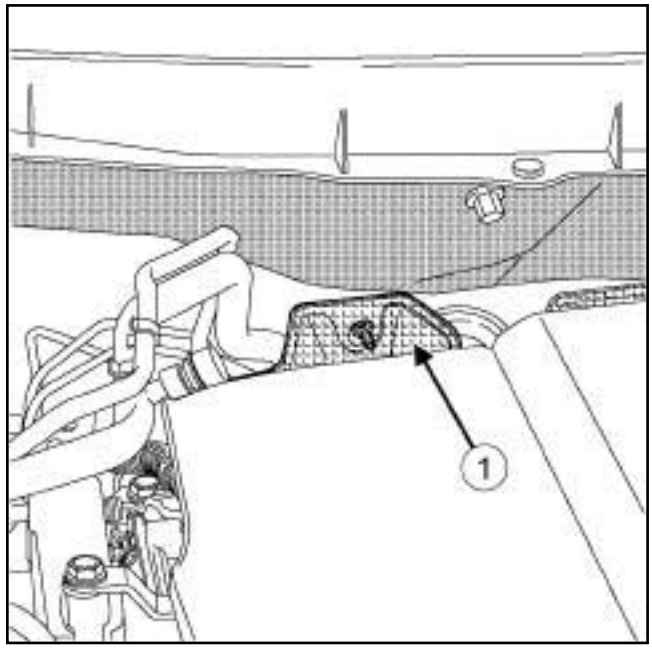
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

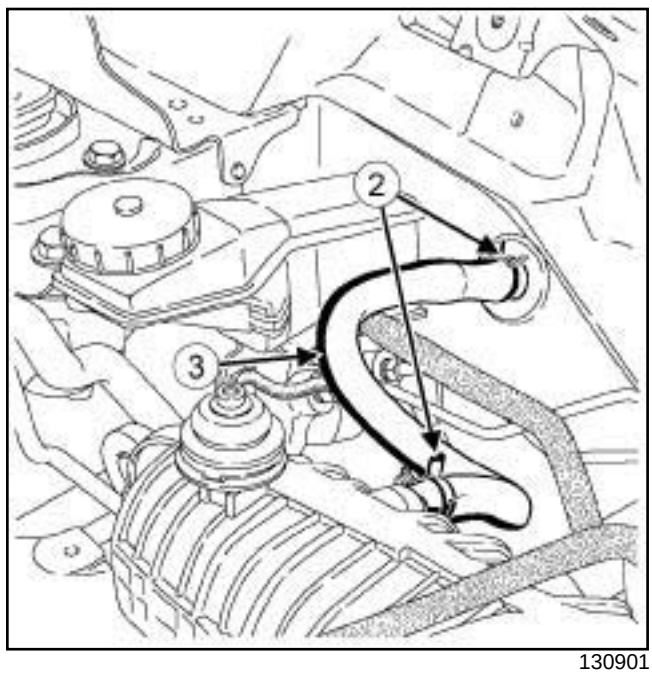
- the engine cover,
- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR




130901

❏ Remove:

- the clips (**2**) ,
- the vacuum hose (**3**) .



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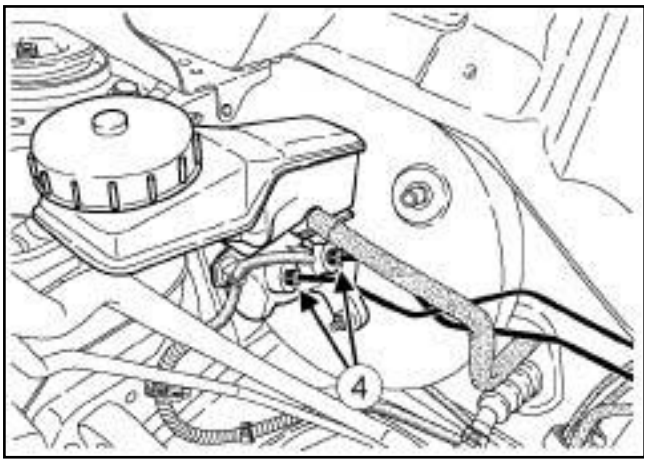
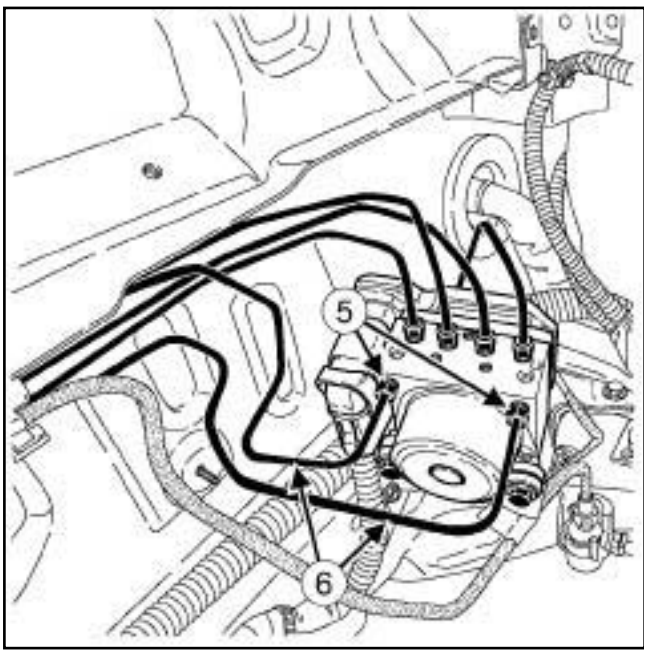
RIGHT-HAND DRIVE

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130902

❏ Undo the brake pipe unions (**4**) on the master cylinder.




130903

❏ Undo the brake pipe unions (**5**) on the hydraulic unit.

❏ Remove the brake pipes (**6**) between the hydraulic unit and the master cylinder.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the brake pipes ***(6)*** between the hydraulic unit and the master cylinder,
- the brake pipe unions ***(5)*** on the hydraulic unit,
- the brake pipe unions ***(4)*** on the master cylinder.

WITHOUT ESP

❏ Torque tighten:

- the **brake pipe unions on the hydraulic unit (16 N.m)**,
- the **brake pipe unions on the master cylinder (16 N.m)**,

ESP 2 or ESP

❏ Torque tighten:

- the **brake pipe unions on the hydraulic unit (18 N.m)**,
- the **brake pipe unions on the master cylinder (18 N.m)**.

**II - FINAL OPERATION**

2TR

❏ Refit:

- the vacuum hose ***(3)*** ,
- the clips ***(2)*** .



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RIGHT-HAND DRIVE

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover.

❏ Remove the **pedal press**.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions on the hydraulic unit | **16 N.m** |
| underbody brake pipe unions | **16 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

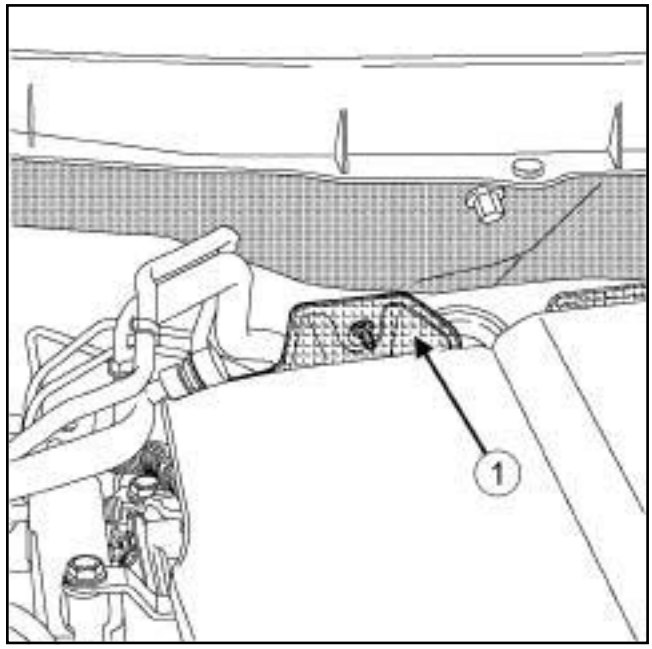
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

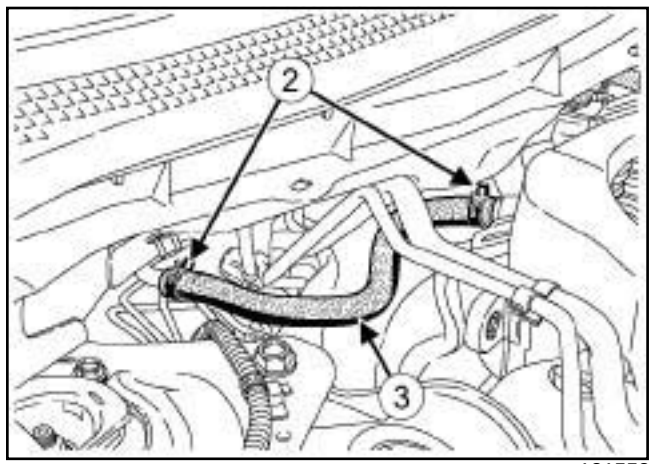
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR



131552

❏ Remove:

- the clips (**3**) ,
- the vacuum hose (**2**) .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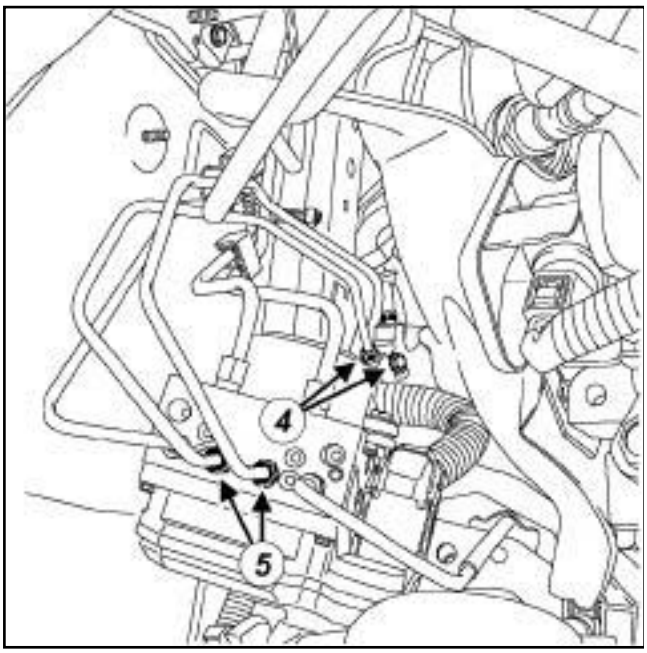
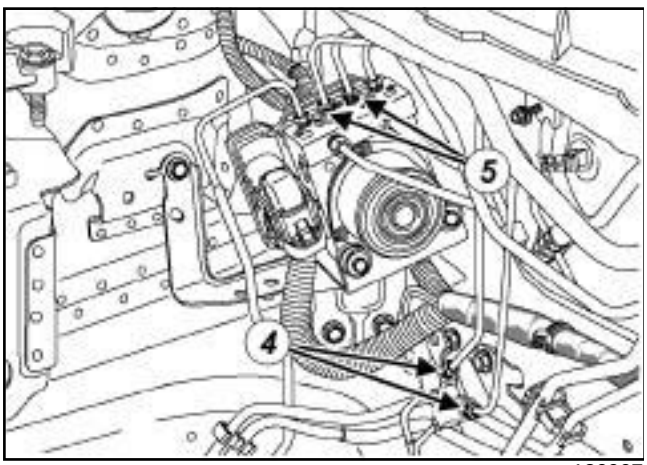
LEFT-HAND DRIVE

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



130906



130907

❑ Undo:

- the underbody brake pipe unions (**4**) ,
- the brake pipe unions (**5**) on the hydraulic unit.

❑ Remove the brake pipes between the hydraulic unit and the underbody brake pipe unions.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit:

- the brake pipes between the hydraulic unit and the underbody unions,
- the brake pipe unions on the hydraulic unit,
- the underbody brake pipe unions.

❑ Torque tighten:

- the **brake pipe unions on the hydraulic unit (16 N.m)**,
- the **underbody brake pipe unions (16 N.m)**.

**II - FINAL OPERATION**

2TR

❑ Refit:

- the vacuum hose ***(3)*** ,
- the clips ***(2)*** .

❑ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❑ Remove **pedal press**.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RIGHT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions on the hydraulic unit | **16 N.m** |
| underbody brake pipe unions | **16 N.m** |

**WARNING**

Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

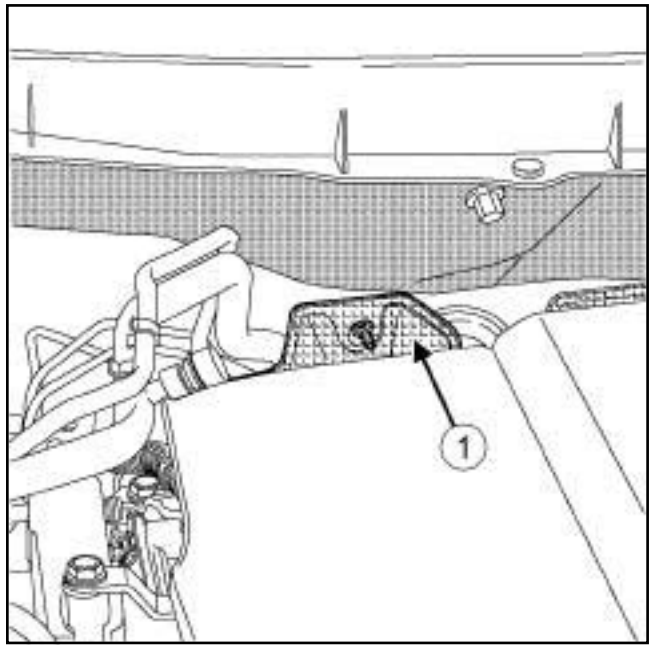
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

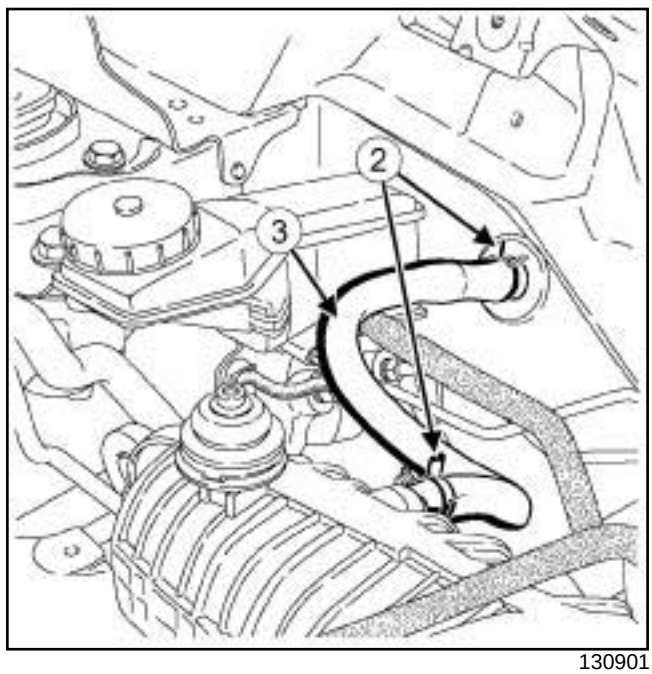
- the engine cover,
- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR




130901

❏ Remove:

- the clips (**2**) ,
- the vacuum hose (**3**) .



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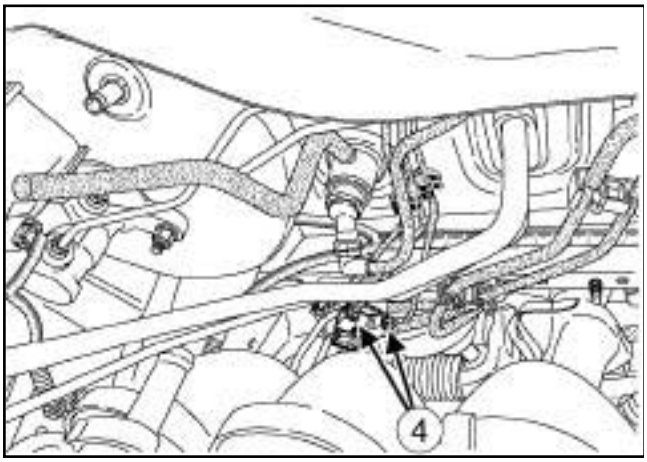
RIGHT-HAND DRIVE

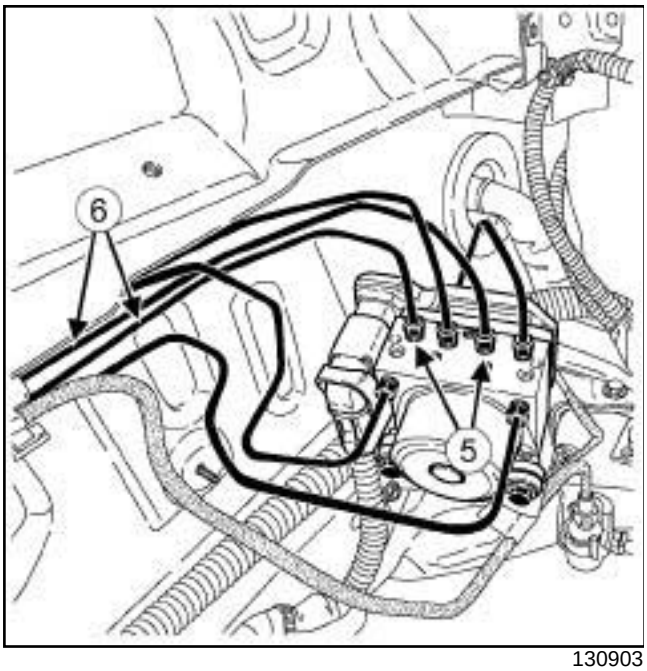
❏ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130909

❏ Remove the underbody brake pipe unions (**4**) .




130903

❏

- the brake pipe unions (**5**) on the hydraulic unit,
- the brake pipes (**6**) between the hydraulic unit and the underbody brake pipe unions.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the brake pipes between the hydraulic unit and the underbody unions,
- the brake pipe unions on the hydraulic unit,
- the underbody brake pipe unions.

❏ Torque tighten:

- the **brake pipe unions on the hydraulic unit (16 N.m)**,
- the **underbody brake pipe unions (16 N.m)**.

### II - FINAL OPERATION

❏ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).

2TR

❏ Refit:

- the vacuum hose,
- the clips.

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- the air intake sleeve,



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RIGHT-HAND DRIVE

- the engine cover.

❏ Remove the **pedal press**.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe union on the hydraulic unit | **16 N.m** |
| brake pipe union on the brake hose | **16 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

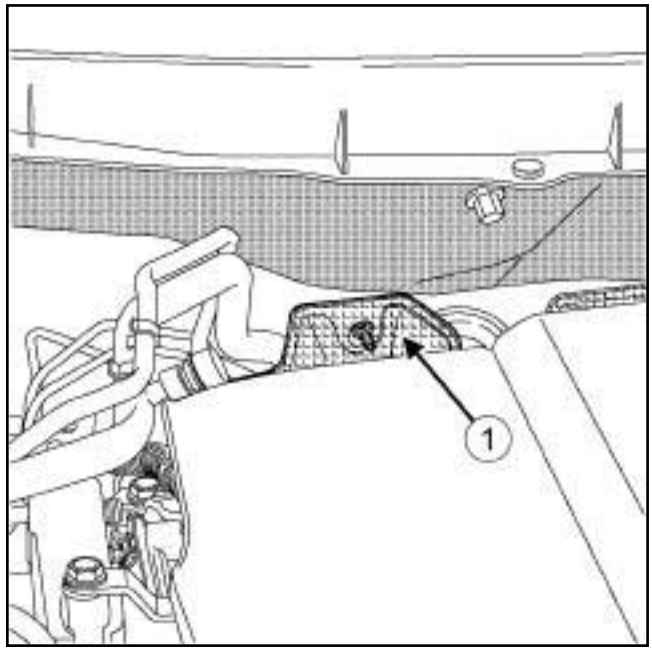
❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove the engine undertray.

❏ Drain the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

❏ Remove:

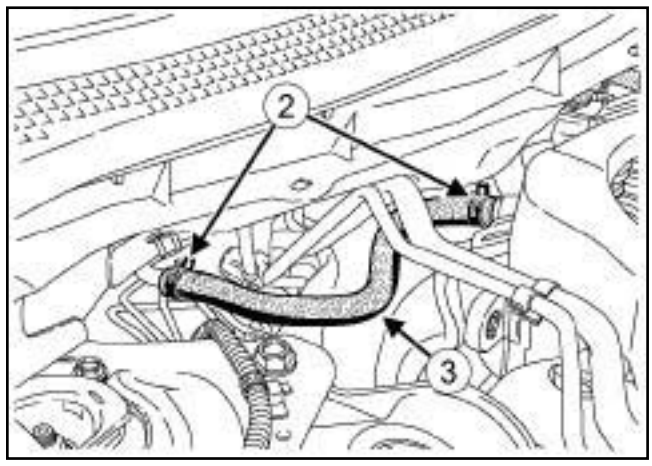
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the engine cover,
- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR



131552

❏ Remove:

- the clips (**2**) ,
- the vacuum hose (**3**) .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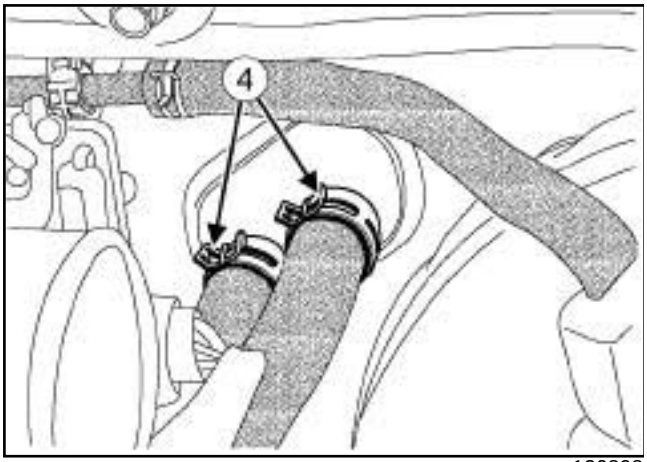
LEFT-HAND DRIVE



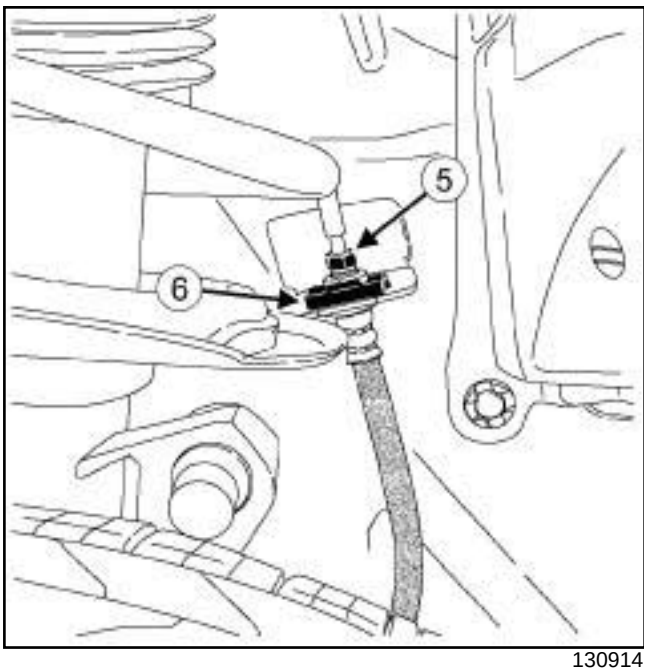

130898

❏ Remove the clips (**4**) .

❏ Disconnect the heater matrix hoses.

❏ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).

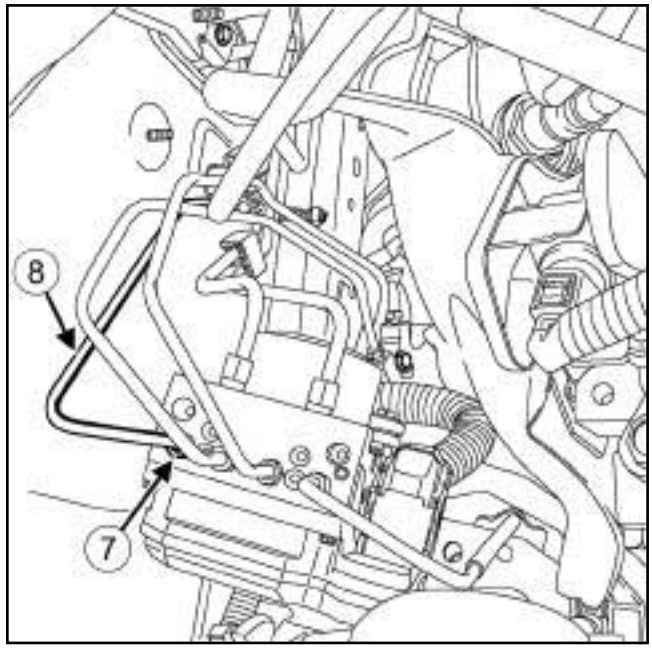
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130914

❏ Undo the brake pipe union (**5**) .

❏ Remove the retaining clip (**6**) .




130915

❏ Undo the brake pipe union (**7**) on the hydraulic unit.

❏ Remove the brake pipe (**8**) between the hydraulic unit and the front left-hand brake hose.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the brake pipe between the hydraulic unit and the front left-hand brake hose,
- the brake pipe union on the hydraulic unit,
- the retaining clip,
- the brake pipe union on the brake hose.

❏ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

**II - FINAL OPERATION**

❏ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).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LEFT-HAND DRIVE

2TR

❏ Refit:

- the vacuum hose,
- the clips.

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover,
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),

❏ Remove the **pedal press**.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Fill and bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

❏ Refit the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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RIGHT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe union on the hydraulic unit | **16 N.m** |
| brake pipe union on the brake hose | **16 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Position of the attachment points**) (02A, Lifting equipment).

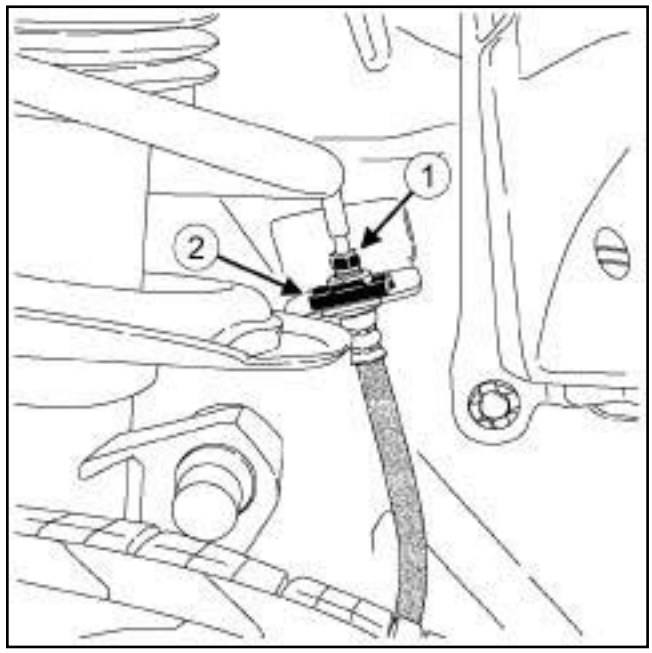
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

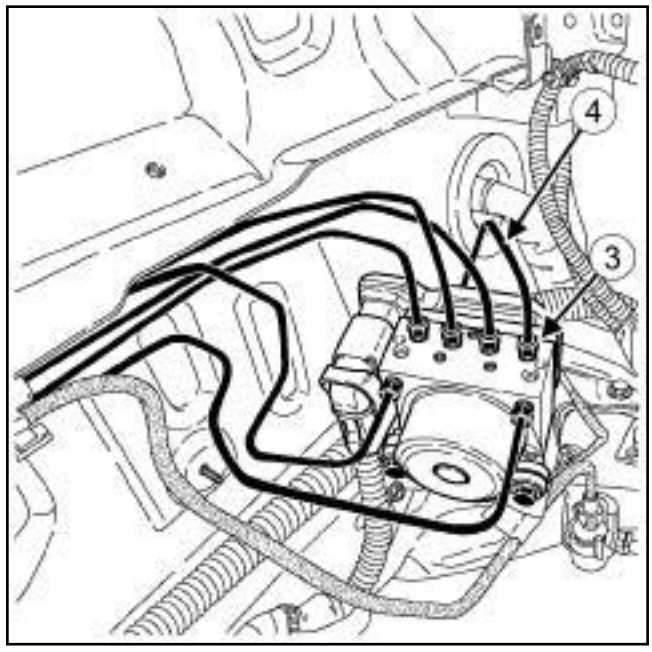
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130914

❏ Undo the brake pipe union (**1**) .

❏ Remove the retaining clip (**2**) .



130916

❏ Undo the brake pipe union (**3**) on the hydraulic unit.

❏ Remove the brake pipe (**4**) between the hydraulic unit and the front left-hand brake hose.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RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake pipe between the hydraulic unit and the front left-hand brake hose,
- the brake pipe union on the hydraulic unit,
- the retaining clip,
- the brake pipe union on the brake hose.

❑ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

### II - FINAL OPERATION

❑ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),

❑ Remove the **pedal press**.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe union on the hydraulic unit | **16 N.m** |
| brake pipe union on the brake hose | **16 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

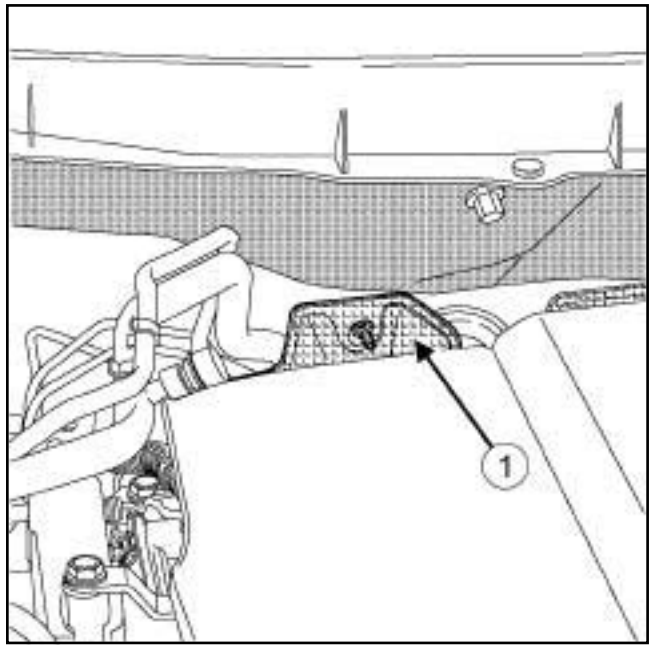
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

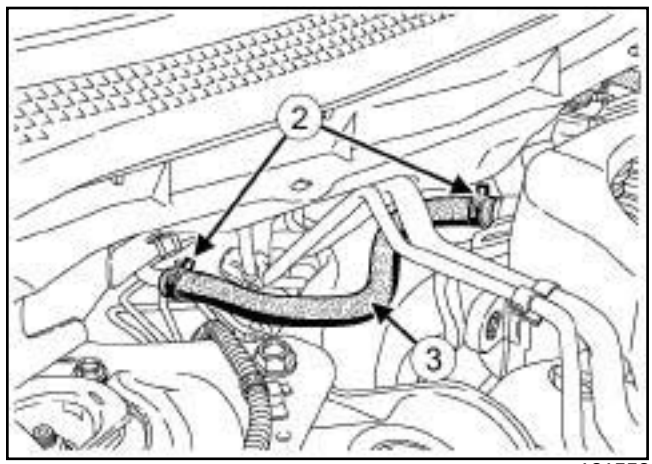
- the front right-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR



131552

❏ Remove:

- clips (**2**) ,
- the vacuum hose (**3**) .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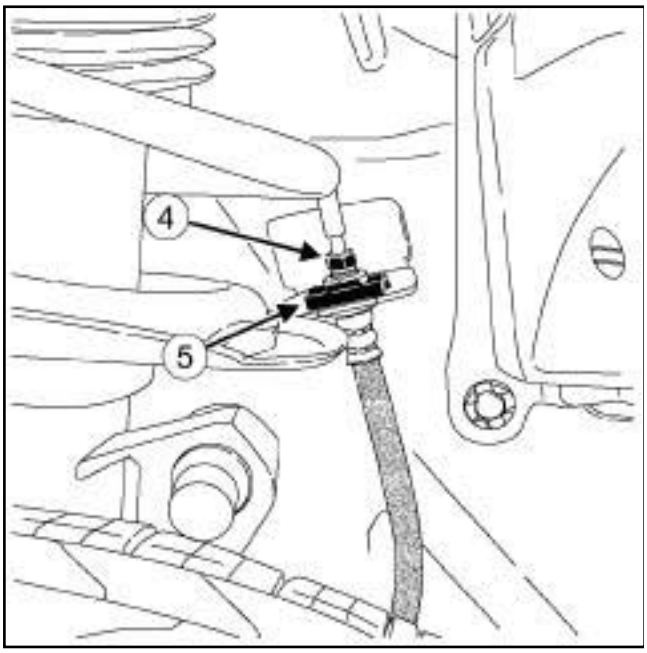
LEFT-HAND DRIVE

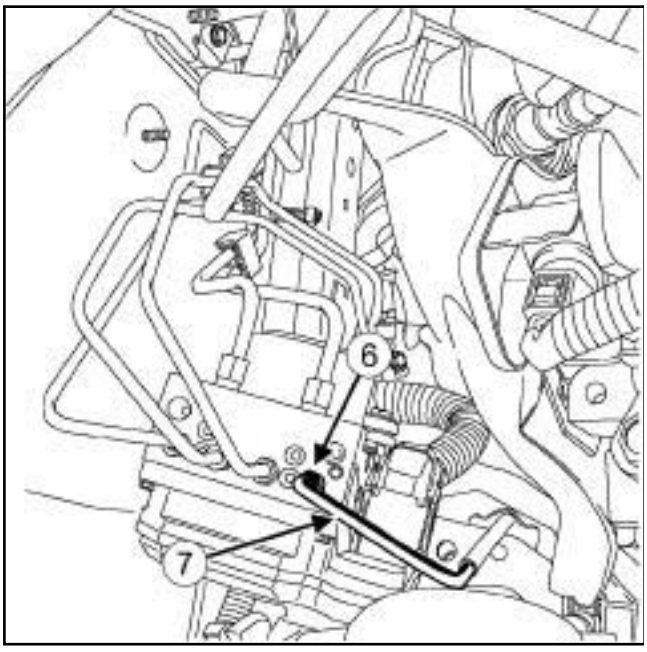
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130914

❑ Undo the brake pipe union (**4**) .

❑ Remove the retaining clip (**5**) .




130920

❑ Undo the brake pipe union (**6**) on the hydraulic unit.

❑ Remove the brake pipe (**7**) between the hydraulic unit and the front right-hand brake hose.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake pipe between the hydraulic unit and the front right-hand brake hose,
- the brake pipe union on the hydraulic unit,
- the retaining clip,
- the brake pipe union on the brake hose.

❑ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

### II - FINAL OPERATION

2TR

❑ Refit:

- the vacuum hose,
- the clips.



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LEFT-HAND DRIVE

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (86A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the front right-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),

❏ Remove the **pedal press**.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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RIGHT-HAND DRIVE

| Essential equipment |
|---|
| refrigerant charging station |
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe union on the hydraulic unit | **16 N.m** |
| brake pipe union on the brake hose | **16 N.m** |
| pipe union bolt | **4 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Position of the attachment points**) (02A, Lifting equipment).

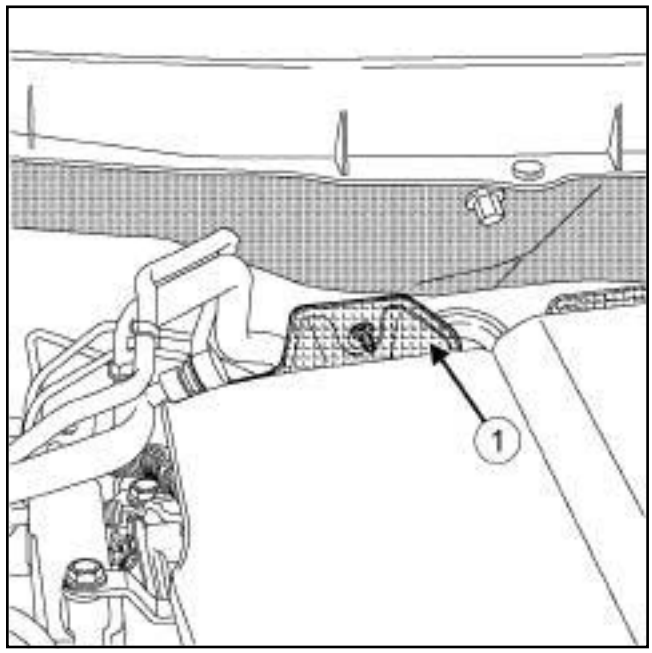
❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) 62A, Air conditioning).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

❏ Remove:

- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the engine cover,
- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture)
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




130896

❏ Remove the insulation (**1**) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

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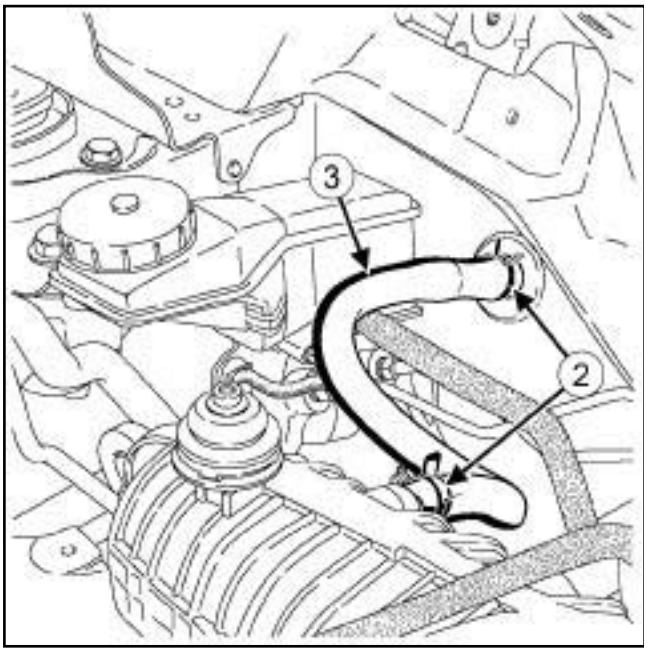
RIGHT-HAND DRIVE

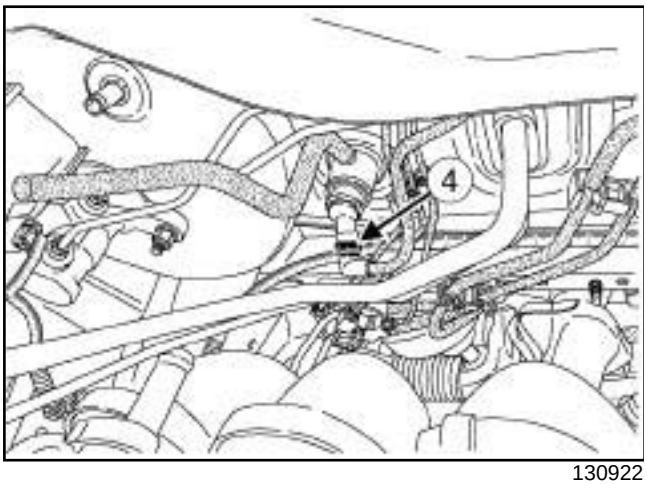
2TR




130901

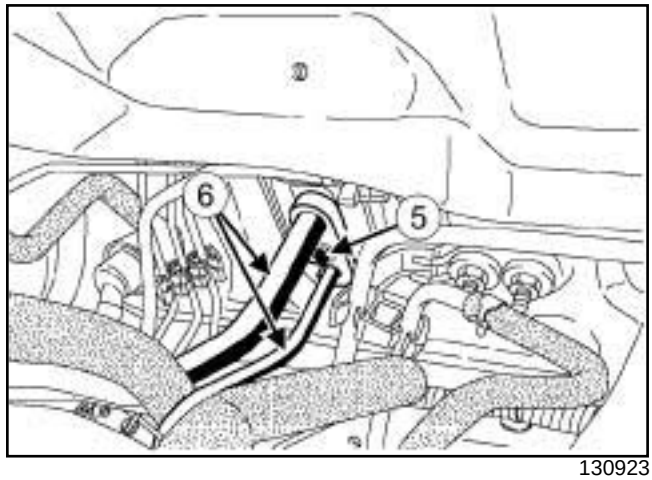
❏ Remove:

- clips (**2**) ,
- the vacuum hose (**3**) .




130922

❏ Disconnect the clutch pipe (**4**) .




130923

❏ Remove the bolt (**5**) from the pipe union.

❏ Disconnect the pipes (**6**) .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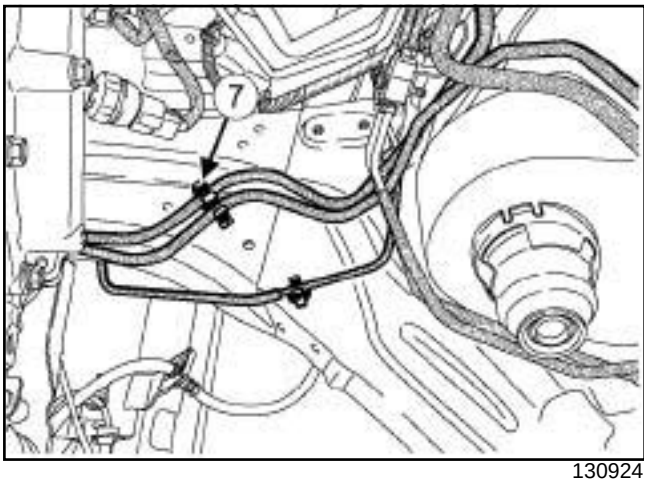
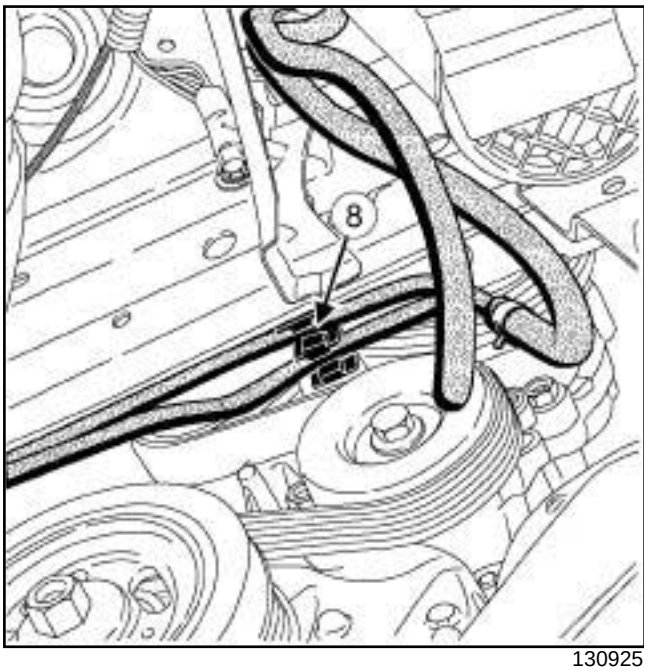
RIGHT-HAND DRIVE

2TR




130924



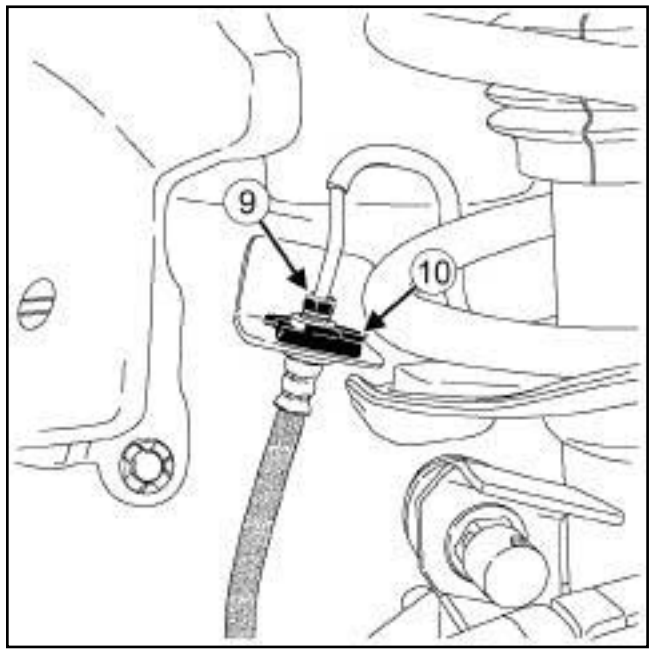

130925

❏ Unclip the petrol vapour absorber pipe at (**7**) .

❏ Unclip the petrol vapour absorber pipe at (**8**) .

❏ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

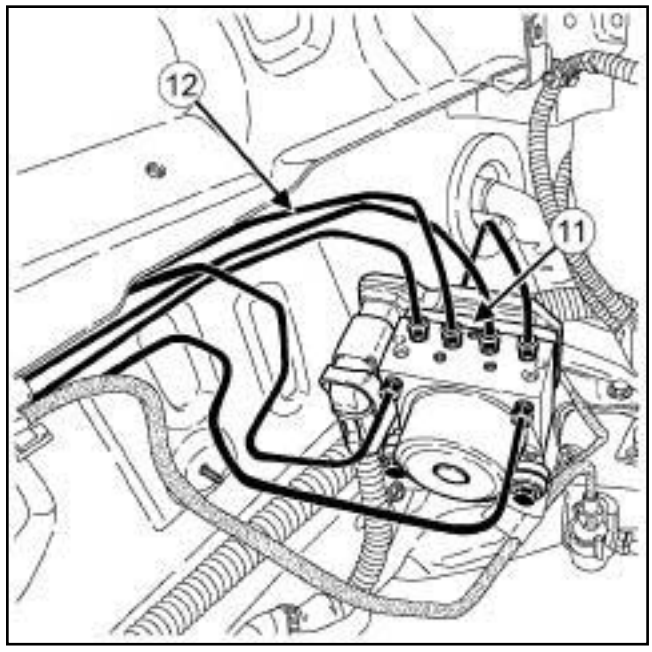
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130919

❏ Undo the brake pipe union (**9**) .

❏ Remove the retaining clip (**10**) .




130927

❏ Undo the brake pipe union (**11**) on the hydraulic unit.

❏ Remove the brake pipe (**12**) between the hydraulic unit and the front right-hand brake hose.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RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake pipe ***(12)*** between the hydraulic unit and the front right-hand brake hose,
- the brake pipe union ***(11)*** on the hydraulic unit,
- the retaining clip ***(10)*** ,
- the brake pipe union ***(9)*** on the brake hose.

❑ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

### II - FINAL OPERATION

❑ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

2TR

❑ Clip:

- the petrol vapour absorber pipe at ***(8)*** ,
- the petrol vapour absorber pipe at ***(7)***

❑ Connect the pipes ***(6)*** .

❑ Refit the pipe union bolt ***(5)*** .

❑ Torque tighten the **pipe union bolt (4 N.m)**.

❑ Connect the clutch pipe ***(4)*** .

2TR

❑ Refit:

- the vacuum hose ***(3)*** ,
- the clips ***(2)*** .

❑ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (86A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover,
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❑ Remove the **pedal press**.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) 62A, Air conditioning).

❑ Check the sealing of the cooling system (see **Air conditioning: Check**) (62A, Air conditioning).


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |
| **Tav. 1420-01** | Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850. |
| **Tav. 1050-04** | Universal driveshaft pusher tool (back-plate and claws, without jack). |
| **Tav. 476** | Ball joint extractor. |

| Tightening torques ▽ | |
|---|---|
| wheel speed sensor bolt | **10 N.m** |
| shock absorber lower nuts | **142 N.m** |
| lower arm ball joint nut | **63 N.m** |
| track rod ball joint nut | **34 N.m** |
| hub nut | **125 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) .

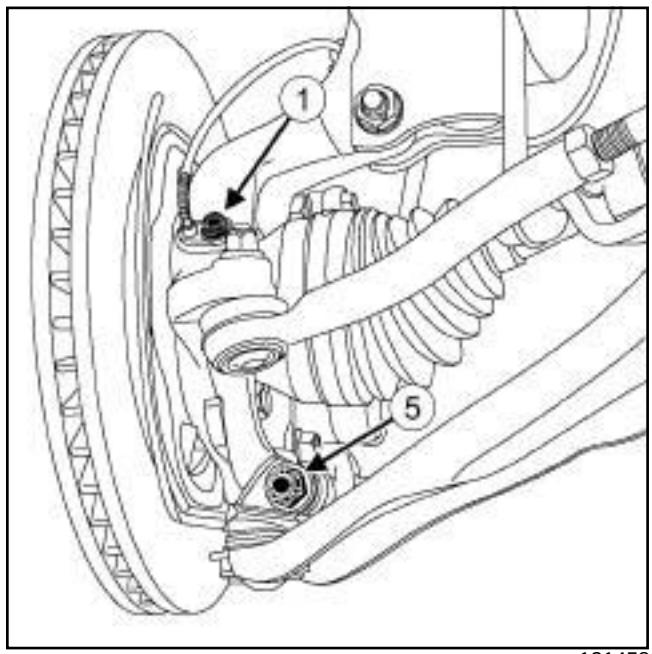
### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

**WARNING**

In order to prevent irreversible damage to the front hub bearing:

- Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
- Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.



131458

❑ Remove:

- the wheel speed sensor bolt (**1**) ,
- the wheel speed sensor.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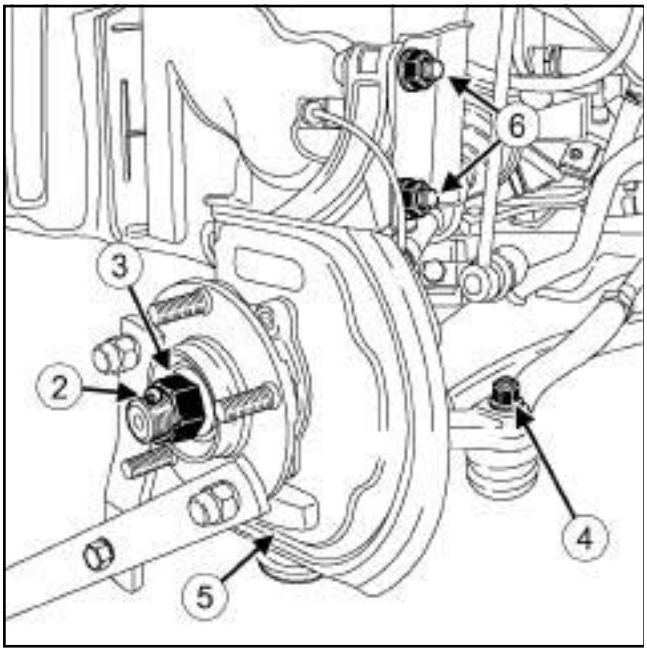
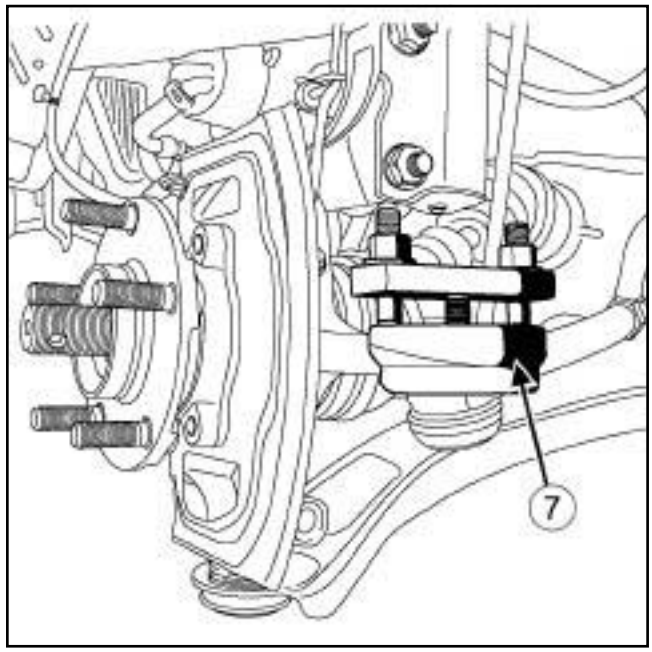


131459

❏ Remove:

- the driveshaft cotter pin (**2**) ,
- the nut (**3**) from the hub using the **(Rou. 604-01)**,
- the track rod ball joint nut (**4**) ,
- the lower arm ball joint nut (**5**) ,
- the shock absorber lower nuts (**6**) .

❏ Remove the driveshaft from the hub carrier using the **(Tav. 1420-01)** and **(Tav. 1050-04)**, if necessary.



131460

❏ Extract the track rod end using the **(Tav. 476)** (**7**) .

❏ Remove:

- the lower arm ball joint,
- the front driveshaft hub carrier.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Refit:

- the driveshaft on the hub carrier,
- the lower arm ball joint on the hub carrier,
- the track rod on the hub carrier,
- the shock absorber lower bolts and nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the hub nut,
- the driveshaft cotter pin,
- the wheel speed sensor,
- the wheel speed sensor bolt.

❏ Torque tighten:

- the **wheel speed sensor bolt (10 N.m)**,
- the **shock absorber lower nuts (142 N.m)**,
- the **lower arm ball joint nut (63 N.m)**,
- the **track rod ball joint nut (34 N.m)**,
- the **hub nut (125 N.m)**, using the **(Rou. 604-01)**.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**II - FINAL OPERATION.**

❑ Refit:

- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) .
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❑ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) (30A, General information).


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| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Tightening torques ▽ | |
|---|---|
| driveshaft bearing bracket bolts [2TR] | **30 N.m** |
| driveshaft bearing bracket bolts [M9R] | **25 N.m** |
| shock absorber lower nuts | **142 N.m** |
| lower arm ball joint nut | **63 N.m** |
| track rod ball joint nut | **34 N.m** |
| wheel speed sensor bolt | **10 N.m** |
| guide pin bolts | **29 N.m** |

## REMOVING - REFITTING

### I - REMOVAL PREPARATION OPERATION

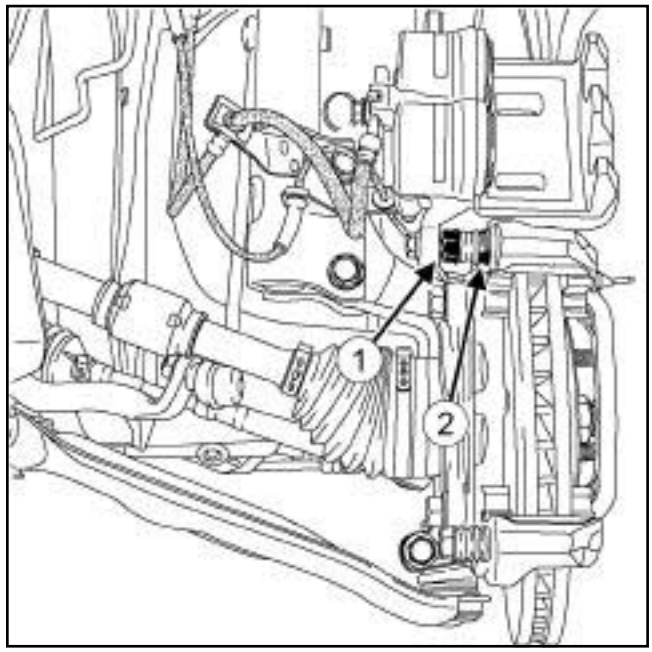
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Drain the gearbox (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the front brake pads (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) .



132612

❏ Remove the guide pin bolt (**1**) while holding the nut (**2**) .

❏ Suspend the brake calliper from the suspension spring.

❏ Remove:

- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) .

❏ Repeat the operation on the opposite side.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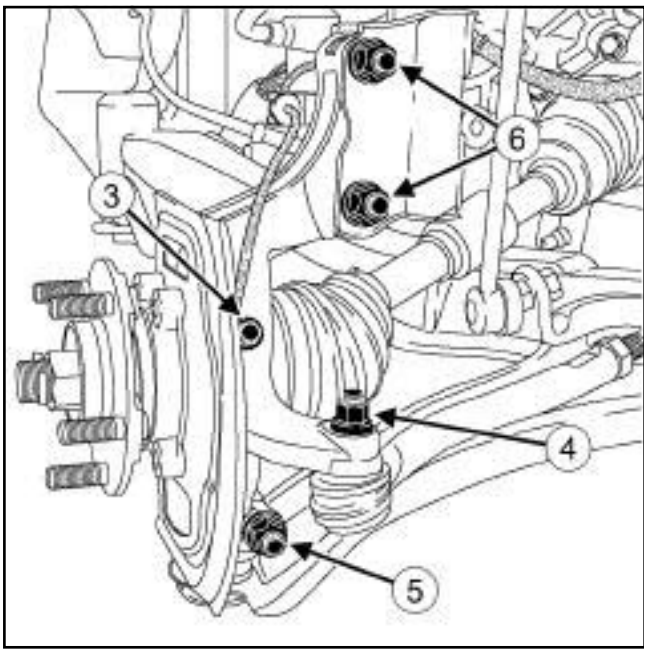
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

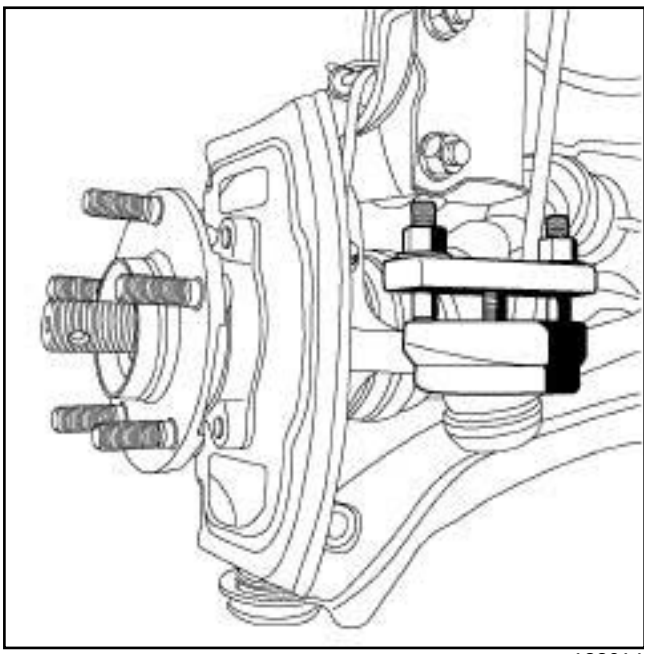
**1 - Left-hand side of the vehicle**




132613

❏ Remove:

- the wheel speed sensor bolt (**3**) ,
- the wheel speed sensor,
- the track rod ball joint nut (**4**) ,
- the lower arm ball joint nut (**5**) ,
- the shock absorber lower nuts (**6**) .



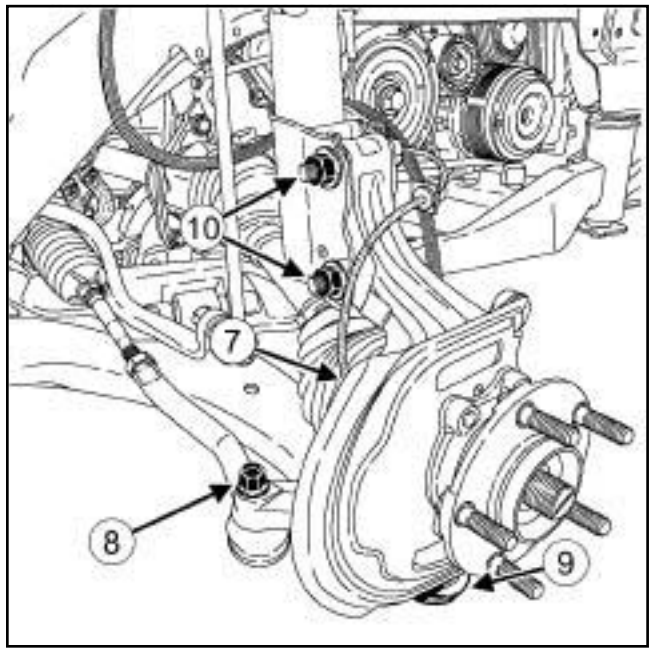
132614

❏ Extract the track rod end using the **(Tav. 476)**.

❏ Remove:

- the lower arm ball joint,
- the hub carrier with its driveshaft.

**2 - Right-hand side of the vehicle**




132615

❏ Remove:

- the wheel speed sensor bolt (**7**) ,
- the wheel speed sensor,
- the track rod ball joint nut (**8**) ,
- the lower arm ball joint nut (**9**) ,
- the shock absorber lower nuts (**10**) .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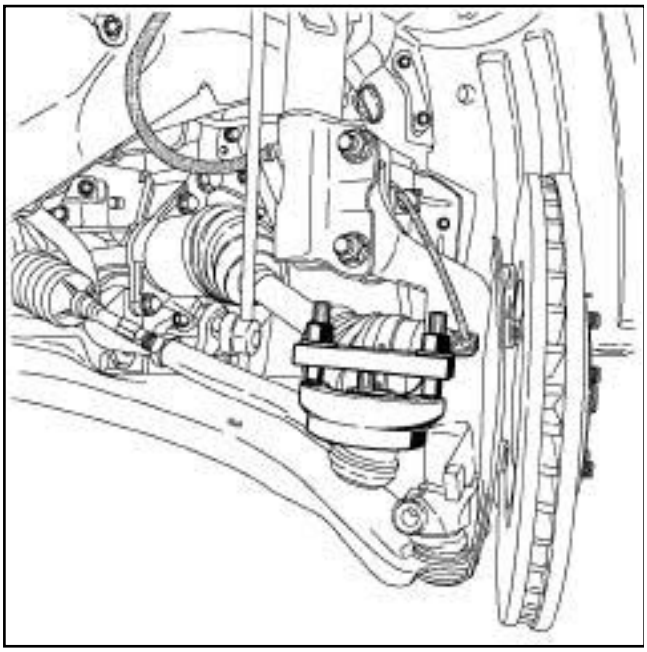
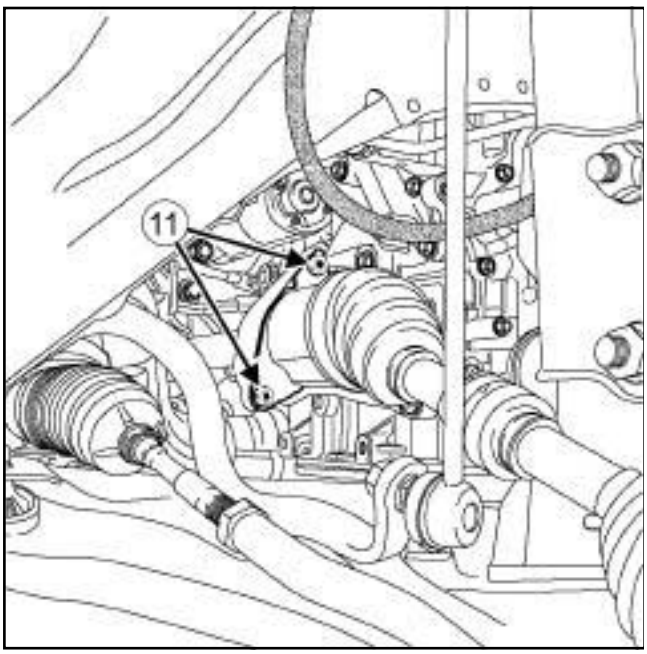


132616

❏ Extract the track rod end using the **(Tav. 476)**.

❏ Remove the lower arm ball joint.

2TR

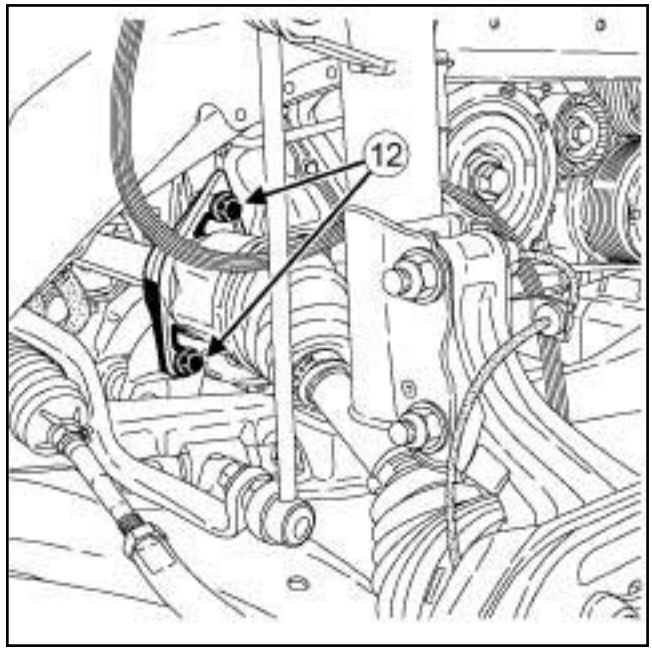



132617

❏ Remove:

- the driveshaft bearing bracket bolts (**11**) ,
- the driveshaft bearing bracket.

M9R




132618

❏ Remove the driveshaft bearing bracket bolts (**12**) .

❏ Remove the hub carrier with its driveshaft.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean and lubricate the driveshaft bearing bore into which the bearing is inserted.

❏ Replace the O-ring at the bottom of the driveshaft bearing if it is worn.

❏ Always replace:

- the differential output lip seals,
- the driveshaft bearing ring on the left-hand side if fitted to the vehicle,
- the guide pin bolts.

### II - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Right-hand side of the vehicle

❏ Refit the hub carrier with its driveshaft.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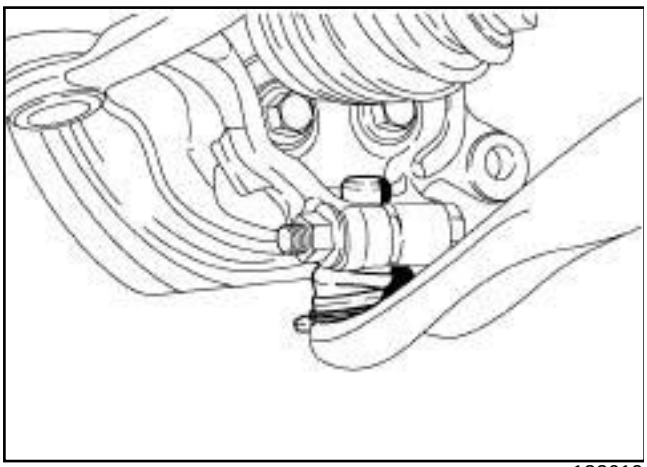
2TR

❑ Refit the driveshaft bearing bracket.

❑ Refit:

- the driveshaft bearing bracket bolts,
- the shock absorber lower nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the wheel speed sensor,
- the wheel speed sensor bolt.



132619

❑

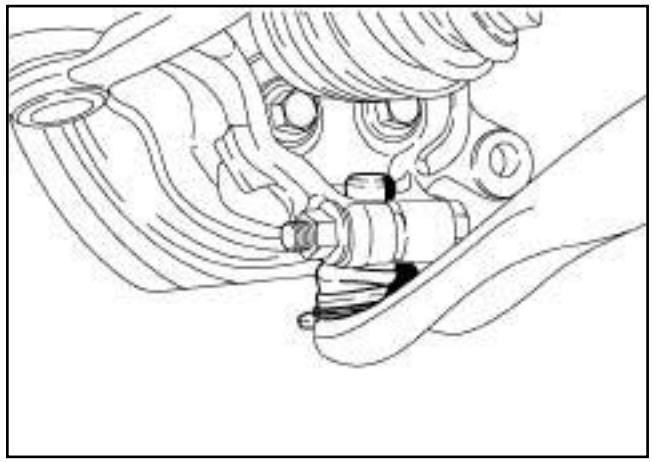
Note:

Check that the ring is correctly positioned on the lower arm ball joint.

**2 - Left-hand side of the vehicle**

❑ Refit:

- the hub carrier with its driveshaft,
- the shock absorber lower nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the wheel speed sensor,
- the wheel speed sensor bolt.



132619

❑

Note:

Check that the ring is correctly positioned on the lower arm ball joint.

2TR

❑ Torque tighten the **driveshaft bearing bracket bolts [2TR] (30 N.m)**.

M9R

❑ Torque tighten the **driveshaft bearing bracket bolts [M9R] (25 N.m)**.

❑ Torque tighten:

- the **shock absorber lower nuts (142 N.m)**,
- the **lower arm ball joint nut (63 N.m)**,
- the **track rod ball joint nut (34 N.m)**,
- the **wheel speed sensor bolt (10 N.m)**.

**III - FINAL OPERATION**

❑ Refit:

- the callipers to their supports,
- the guide pin bolts.

❑ Torque tighten the **guide pin bolts (29 N.m)**.

❑ Refit:

- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,



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- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake pads (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Fill up the gearbox oil and check the level (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .


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| Tightening torques ▽ | |
|---|---|
| bolt of the front hub carrier bearing | 88 N.m |

**WARNING**

In order to prevent irreversible damage to the front hub bearing:

- Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
- Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.

## REMOVAL

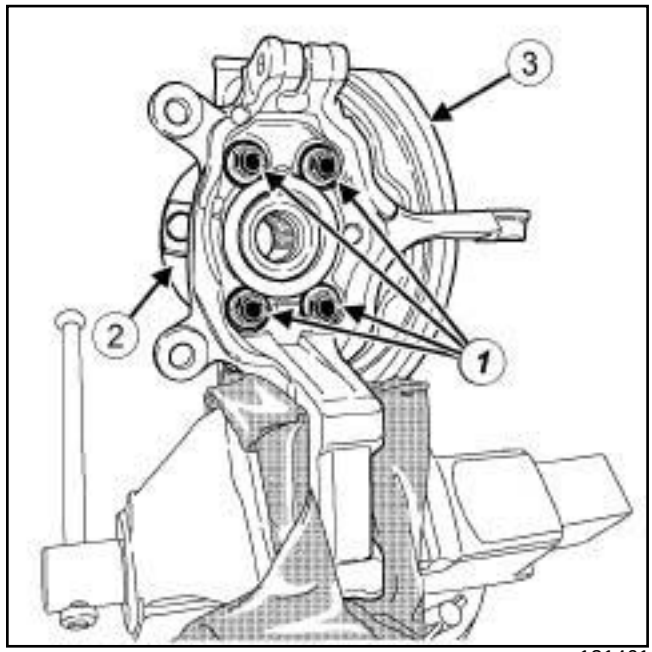
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

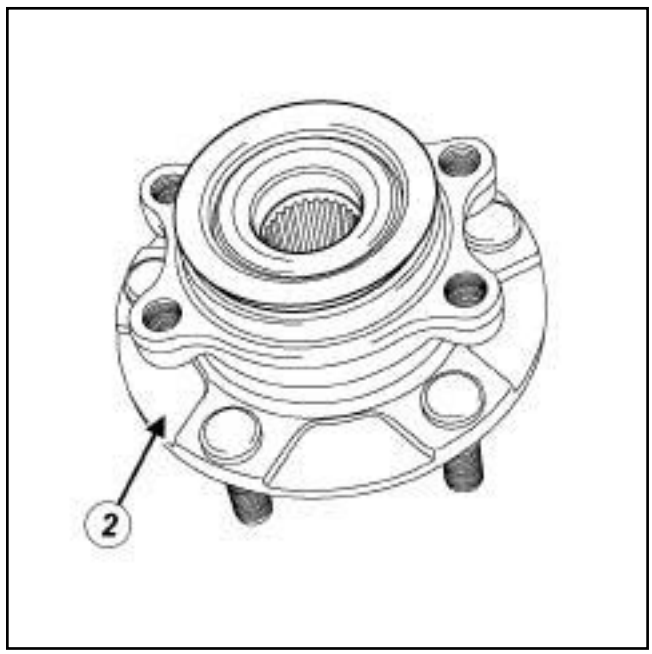
❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel speed sensor (see **38C**, **Anti-lock braking system**, **Front wheel speed sensor: Removal - Refitting**, page **38C-8**) (38C, Anti-lock braking system),
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front driveshaft hub carrier (see **31A**, **Front axle components**, **Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131461



131462

❏ Remove:

- the bolts (**1**) of the front hub carrier bearing,
- the hub carrier bearing (**2**) ,
- the front brake disc guard (**3**) .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## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Clean:

- the inner and outer surfaces of the new bearing in contact with the stub-axle carrier and the hub,
- the stub axle carrier surfaces in contact with the new bearing,
- the hub surfaces in contact with the new bearing.

**WARNING**
To ensure that the wheel speed sensor works properly, do not mark the sensor target on the bearing.

**WARNING**
Do not press the bearing's internal bush so as to avoid damaging the bearing (very high shrink-fitting force).

Note:
It is essential to check the condition of the hub surface and the hub carrier bore before refitting the bearing. Replace the hub carrier if it is faulty.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the front brake disc guard,
- the hub carrier bearing,
- the bolts of the front hub carrier bearing.

❏ Torque tighten the **bolt of the front hub carrier bearing (88 N.m)**.

### III - FINAL OPERATION.

❏ Refit:

- the front driveshaft hub carrier (see **31A**, **Front axle components**, **Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) ,
- the brake disc (see **31A**, **Front axle components**, **Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A**, **Front axle components**, **Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake calliper (see **31A**, **Front axle components**, **Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A**, **Front axle components**, **Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front wheel speed sensor (see **38C**, **Anti-lock braking system**, **Front wheel speed sensor: Removal - Refitting**, page **38C-8**) (38C, Anti-lock braking system),
- the front brake hose (see **31A**, **Front axle components**, **Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).


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| Essential equipment |
|---|
| spring compressor |
| spanner for shock absorber rod nut |

| Tightening torques ▽ | |
|---|---|
| shock absorber rod nut | **79 N.m** |
| upper shock absorber bolts | **19 N.m** |
| shock absorber lower nuts | **142 N.m** |
| new nut on the anti-roll bar tie rod | **84 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Front axle assemblies: Precautions for repair**) .

## REMOVAL

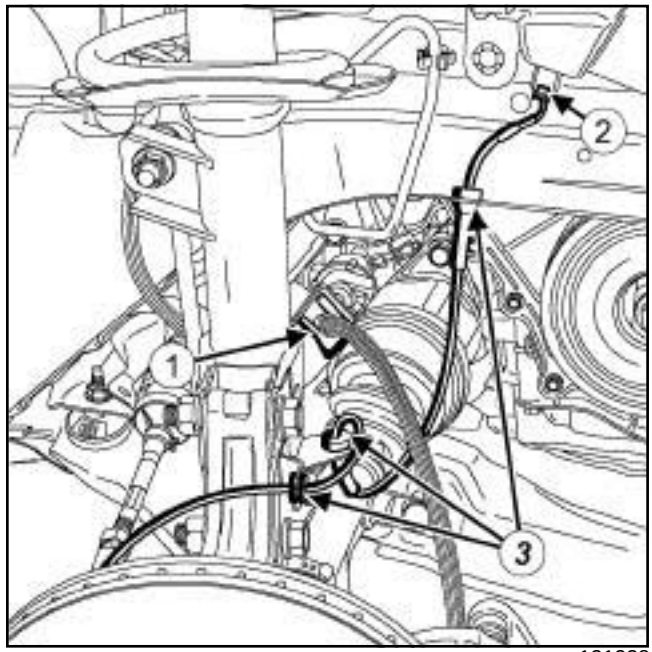
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Unlock the steering column.

❏ Remove the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131238

❏ Remove the clip (**1**) from the brake hose.

❏ Unclip the brake hose.

❏ Disconnect the connector (**2**) from the front wheel speed sensor.

❏ Unclip the wiring from the front wheel speed sensor at (**3**) .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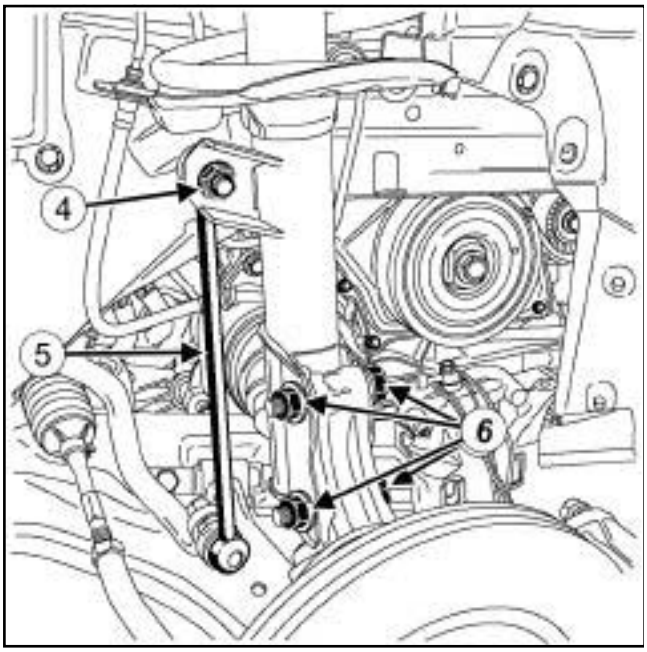



131239

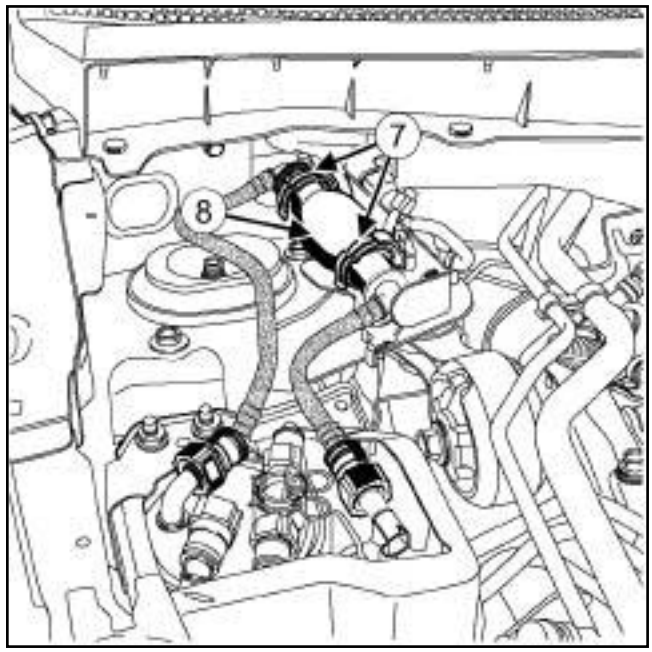
❏ Remove the upper nut (**4**) from the anti-roll bar tie rod.

❏ Separate the anti-roll bar tie rod (**5**) from the shock absorber.

❏ Remove the lower bolts and nuts (**6**) from the shock absorber.

❏ Suspend the hub carrier.

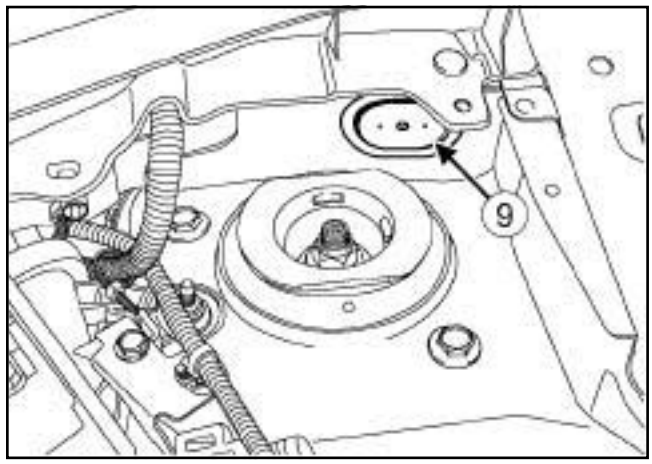
M9R




131240

❏ Unclip the clips (**7**) .

❏ Move aside the manual priming pump (**8**) in order to access the upper shock absorber bolts (see **Manual priming pump: Removal - Refitting**) (13A, Fuel supply).




131241

❏ Remove cap (**9**) .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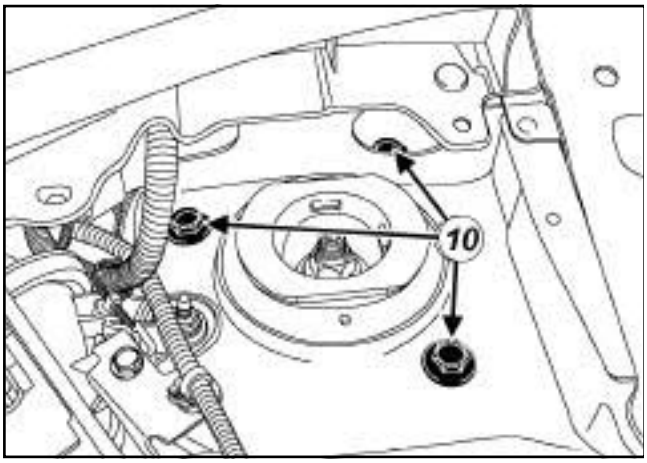
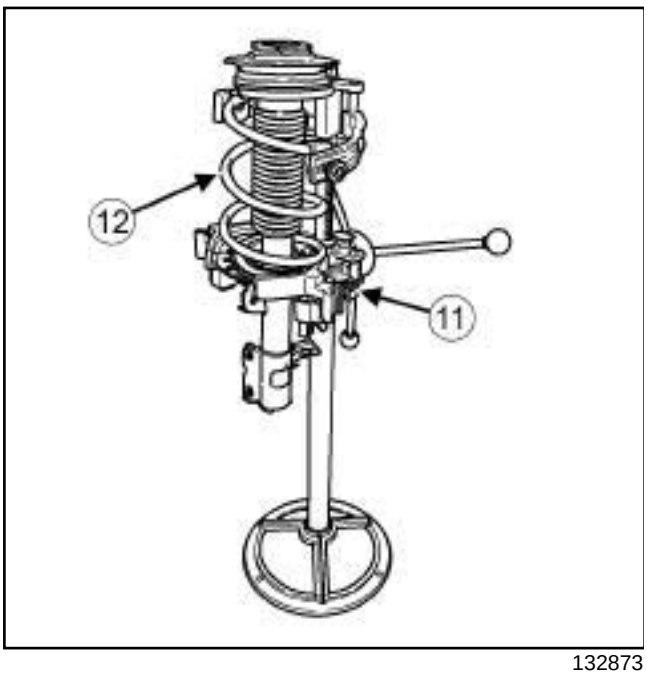



132872

❏ Remove:

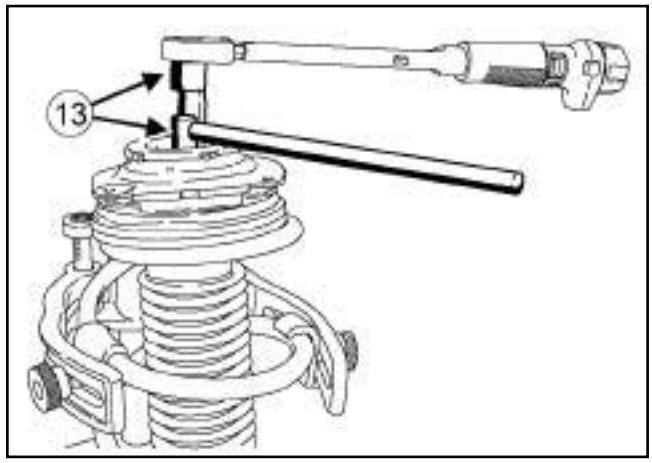
- the upper shock absorber bolts (**10**) ,
- the spring-shock absorber assembly.




132873

❏ Position the spring on the **spring compressor** (**11**) .

❏ Compress the spring (**12**) until it is released.




132874

❏ Remove the shock absorber rod nut using the **spanner for shock absorber rod nut** (**13**) .

❏ Separate the components which make up the "spring-shock absorber" unit.

❏ Decompress the spring.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**WARNING**
To prevent any suspension asymmetry, replace both of the shock absorbers on the same axle.

❏ Always replace:

- the shock absorber rod nut,
- the anti-roll bar tie-rod nut.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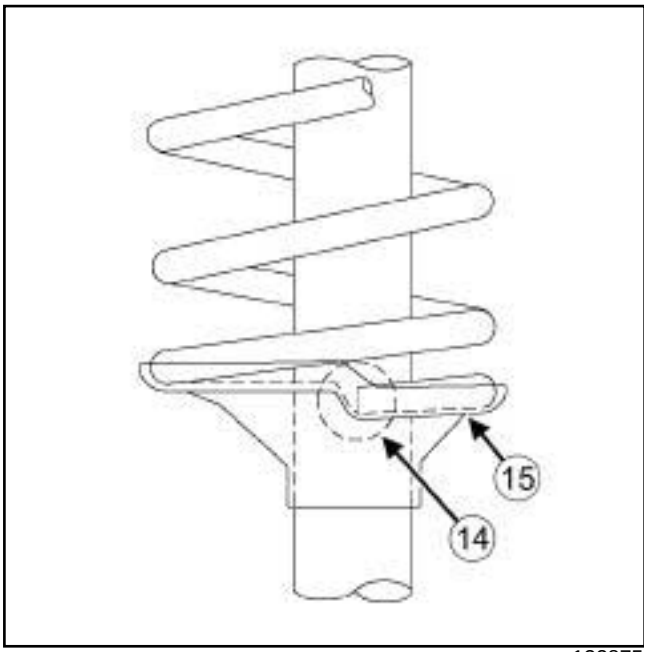
**II - REFITTING OPERATION FOR PART CONCERNED**




132875

❏ Insert the spring in the neck of the cup.

❏ Align the lower end (**14**) of the spring on the cup of the tool (**15**) .

❏ Compress the spring.

132876

❏ Respect the order and direction of fitting for the constituent parts.

❏ Refit the shock absorber rod nut using the **spanner for shock absorber rod nut**.

❏ Torque tighten the **shock absorber rod nut (79 N.m)**.

❏ Decompress the spring.

❏ Remove the spring compressor.

❏ Refit:

- the "spring - shock absorber" assembly,
- the upper shock absorber bolts,
- the cap.

❏ Torque tighten the **upper shock absorber bolts (19 N.m)**.

M9R

❏ Position the manual priming pump.

❏ Attach the clips.

❏ Refit:

- the lower shock absorber bolts and nuts,
- the new nut on the anti-roll bar tie rod.

❏ Torque tighten:

- the **shock absorber lower nuts (142 N.m)**,
- the **new nut on the anti-roll bar tie rod (84 N.m)**.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❏ Connect the front wheel speed sensor connector.

❏ Refit:

- the wiring of the front wheel speed sensor,
- the brake hose,
- the clip.

**III - FINAL OPERATION.**

❏ Refit the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Adjust the axle assemblies (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .


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| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| lower arm bolts | **171 N.m** |
| lower arm nut | **142 N.m** |
| lower arm ball joint nut | **63 N.m** |
| anti-roll bar tie-rod lower nut | **84 N.m** |

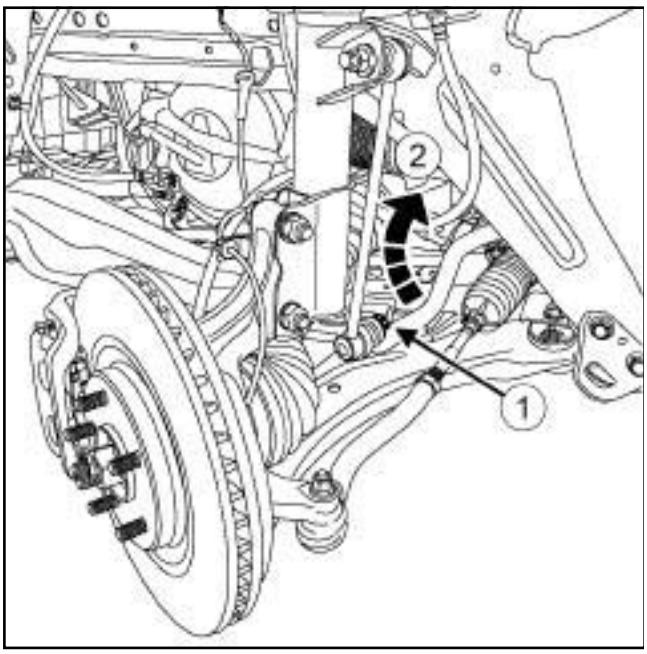
**WARNING**
To prevent any damage, do not use the lower arm as support for the lifting system.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

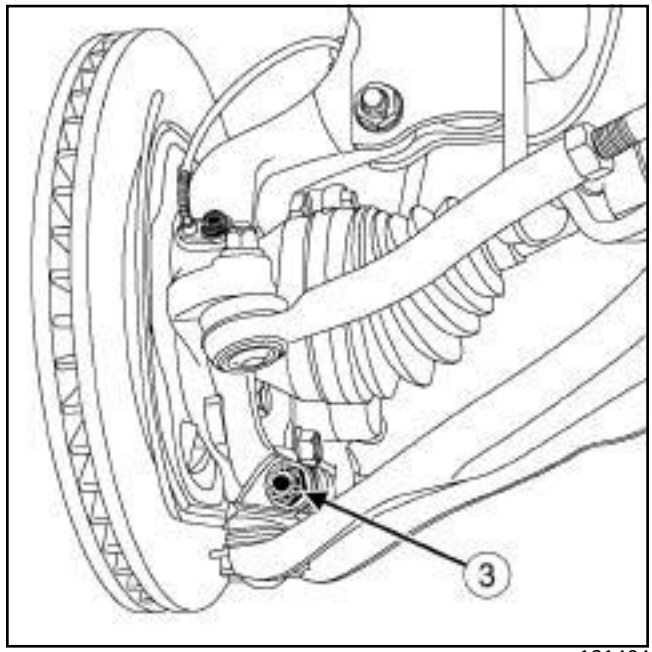



131463

❏ Remove the lower nut (**1**) from the anti-roll bar tie rod.

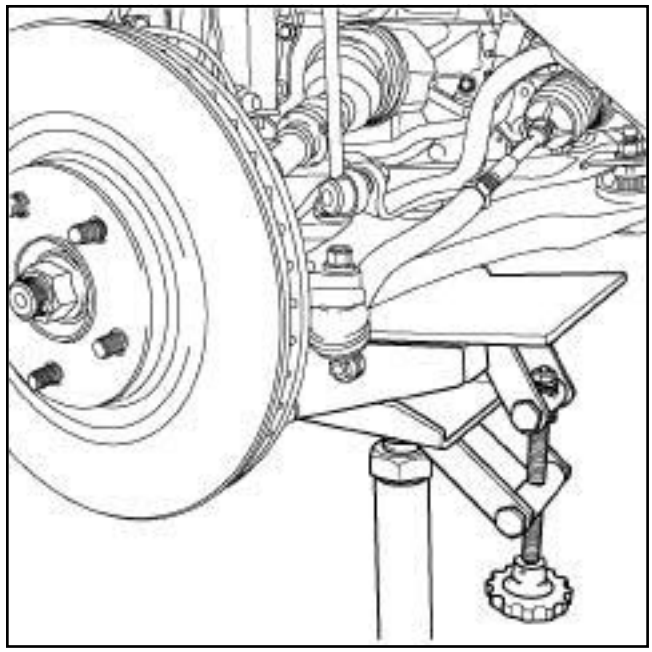
❏ Position the anti-roll bar behind the vehicle.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131464

❏ Remove the nut (**3**) from the lower arm ball joint.



131465

❏ Place the **component jack** under the subframe.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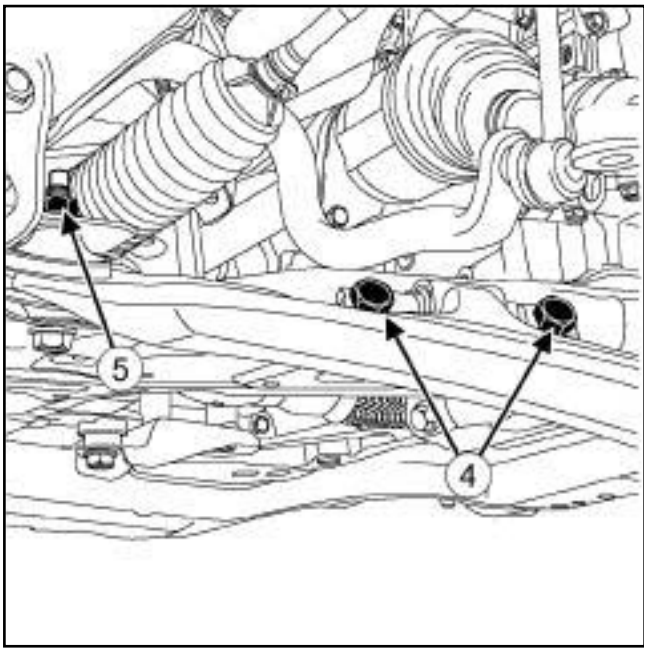


131466

❑ Remove:

- the bolts (**4**) from the lower arm,
- the nut (**5**) from the lower arm,
- the lower arm.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the lower arm bolts.

❑ Leave the **component jack** under the subframe.

❑ Position the lower arm ball joint bolt head so that it faces the front of the vehicle.

### II - REFITTING PART CONCERNED

❑ Refit:

- the lower arm,
- the lower arm nut,
- the lower arm bolts,
- the lower arm ball joint in its housing,
- the lower arm ball joint nut.

❑ Remove the **component jack**.

> Note:
>
> When torque tightening the lower arm bolt and nut, make sure that the wheel is placed on the ground and that the vehicle is unladen.

❑ Torque tighten:

- the **lower arm bolts (171 N.m)**,
- the **lower arm nut (142 N.m)**,
- the **lower arm ball joint nut (63 N.m)**.

### III - FINAL OPERATION.

❑ Place the anti-roll bar in its original position.

❑ Refit the anti-roll bar tie rod lower nut.

❑ Torque tighten the **anti-roll bar tie-rod lower nut (84 N.m)**.

❑ Refit the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❑ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) (30A, General information).


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## CHECKING

### I - CHECKING PREPARATION OPERATION

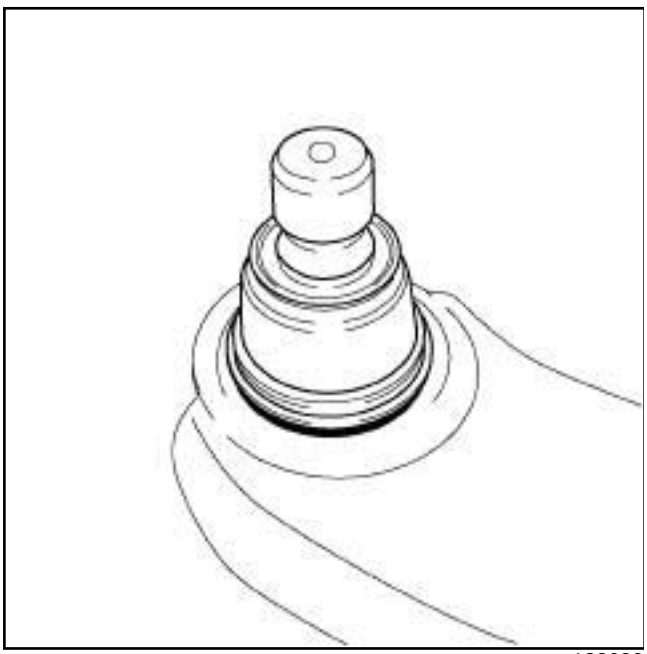
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the lower arm ball joint (see **31A**, **Front axle components**, **Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) .

### II - CHECKING THE PART CONCERNED

#### 1 - Checking the condition of the front driveshaft lower arm ball joint gaiter



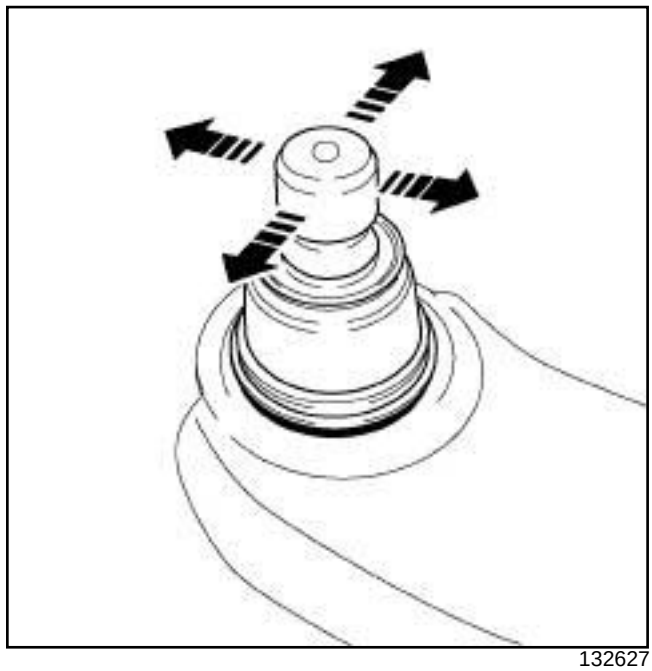
132626

❏ Check:

- the gaiter crimping on the front driveshaft lower arm ball joint,
- that the gaiter of the lower arm ball joint gaiter of the front driveshaft is not torn.
- that the grease starts to flow.

If the lower arm ball joint gaiter of the front driveshaft is in poor condition or not crimped, replace the lower arm of the front driveshaft (see **31A**, **Front axle components**, **Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) .

#### 2 - Check the fitting of the lower arm ball joint



132627

❏ Manually check that the ball joint stud moves easily and does not get jammed.

If the ball joint stud does not move easily, replace the front driveshaft lower arm (see **31A**, **Front axle components**, **Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) .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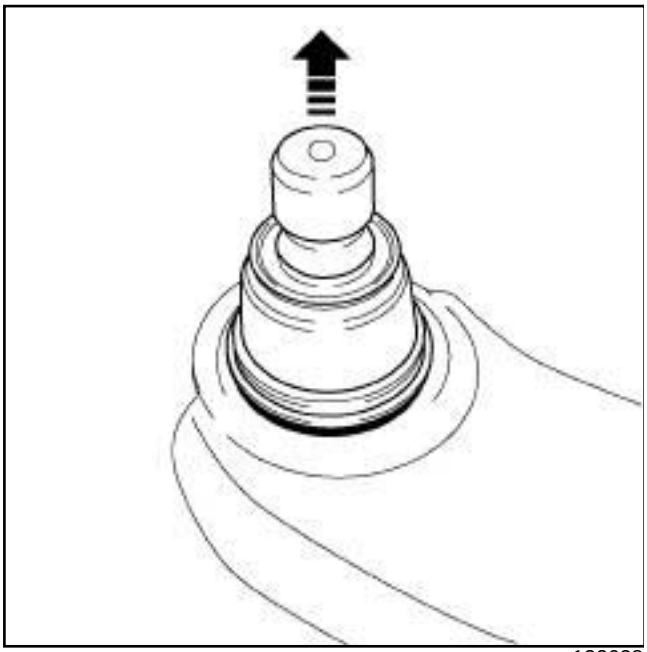
**3 - Checking the longitudinal play of the lower arm ball joint**



132628

❏ Check the longitudinal play by pulling on the stud manually.

If the longitudinal play values (axle side) at the ball joint stud are incorrect, replace the front driveshaft lower arm (see **31A**, **Front axle components**, **Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) .

The longitudinal play value of the lower arm ball joint is **0 mm**.

**III - FINAL OPERATION**

❏ Refit:

- the lower arm ball joint (see **31A**, **Front axle components**, **Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) ,
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .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M9R

| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| subframe bolts | **94 N.m** |
| acoustic tie-rod bolts | **73 N.m** |
| exhaust pipe rubber mounting bush nuts | **14 N.m** |
| lower engine tie-bar bolt on the engine | **155 N.m** |
| lower arm ball joint nut | **63 N.m** |
| track rod ball joint nut | **34 N.m** |
| lower nut of the anti-roll bar tie rod84 | **N.m** |
| universal joint bolt on the steering box | **39 N.m** |

## REMOVING - REFITTING

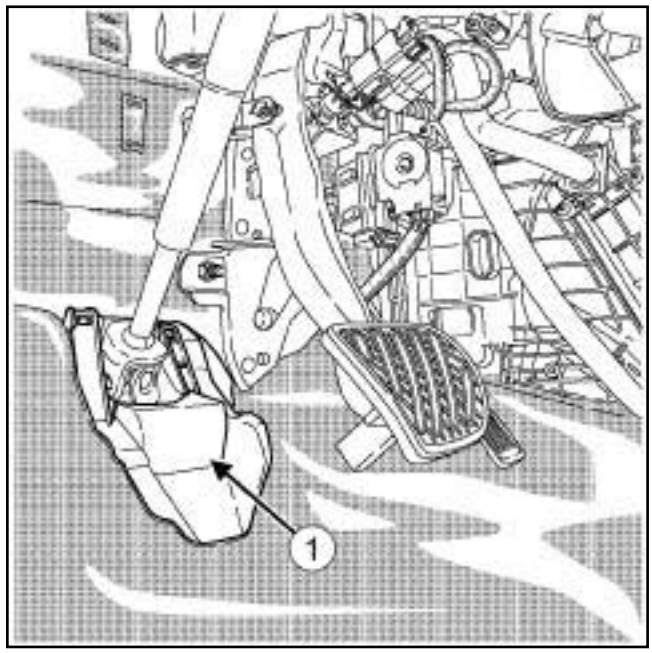
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

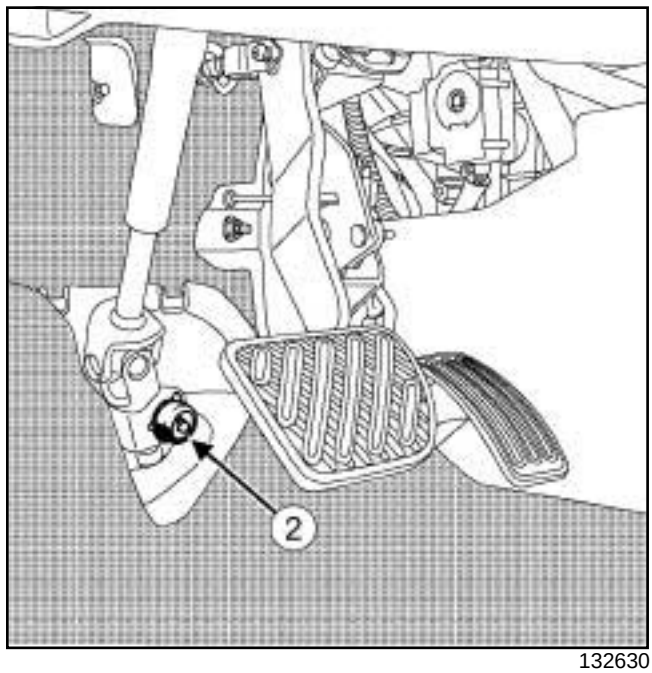
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132629

❏ Remove the steering cover (**1**) .




132630

❏ Remove the cover (**2**) from the universal joint (do not keep).

❏ Set the wheels straight ahead.

❏ Lock the steering column.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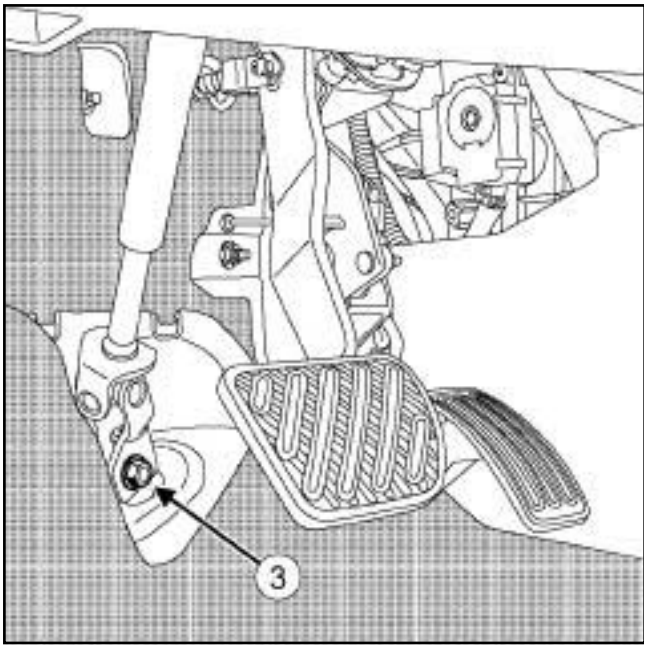
M9R



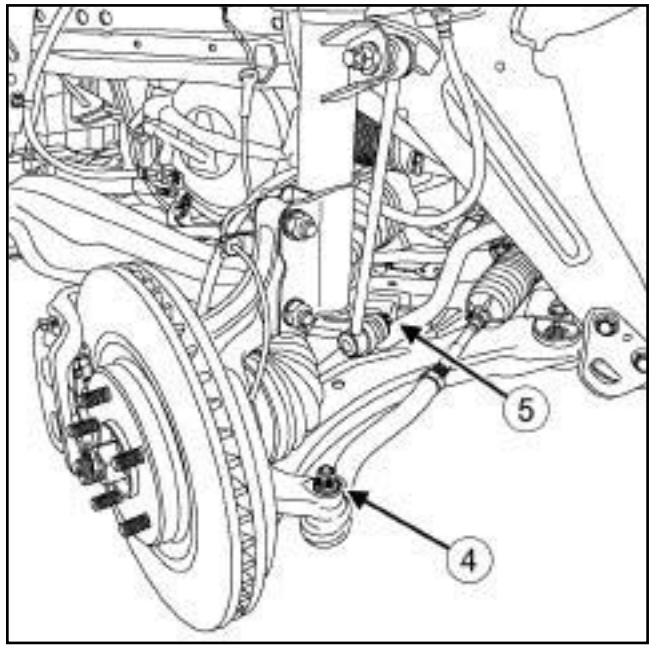

132631

❑ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut,
- the universal joint.

Note:

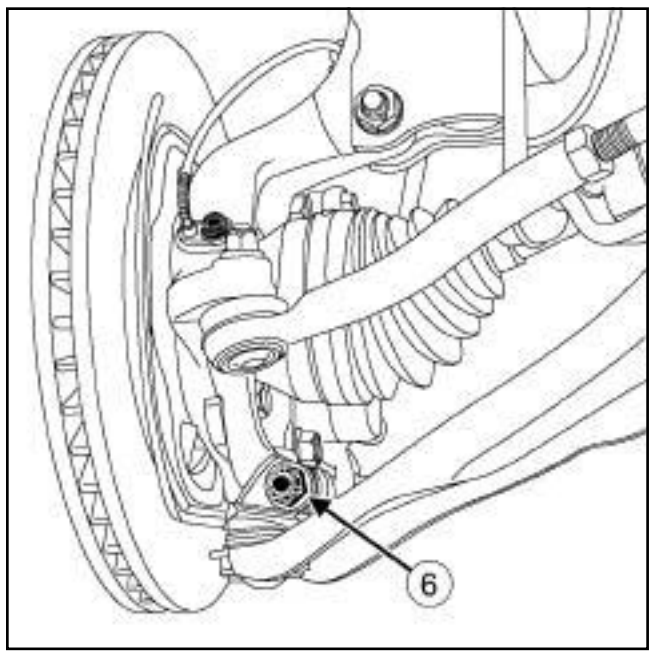
Swivel the universal joint to detach it from the pinion; do not retract the intermediate shaft.




132632

❑ Remove:

- the track rod ball joint nut (**4**) ,
- the lower nut (**5**) from the anti-roll bar tie rod.




132633

❑ Remove the lower arm ball joint nut (**6**) .



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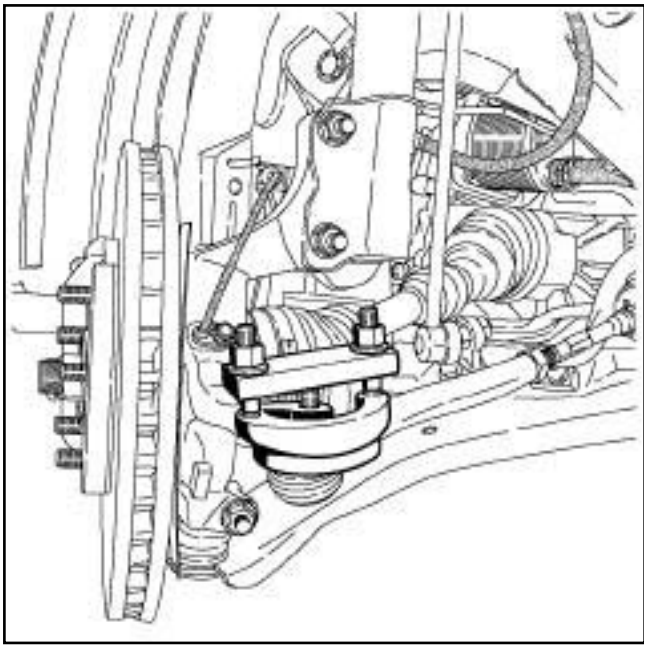
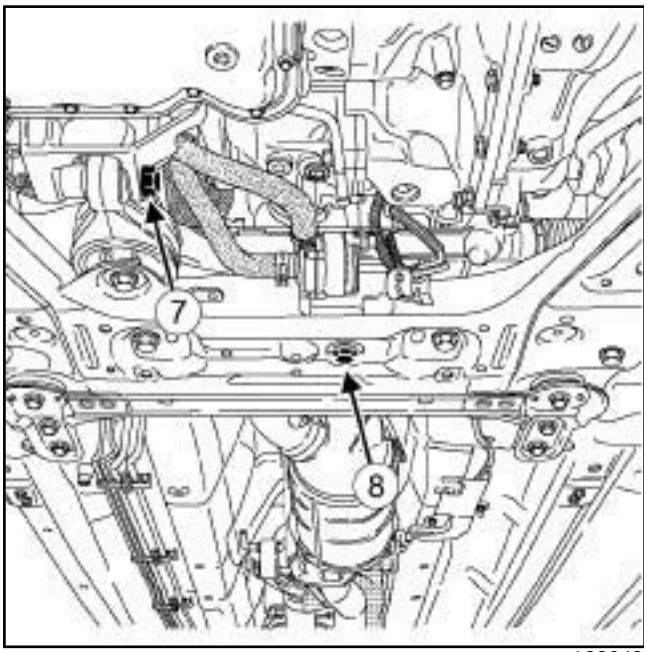
M9R



132634

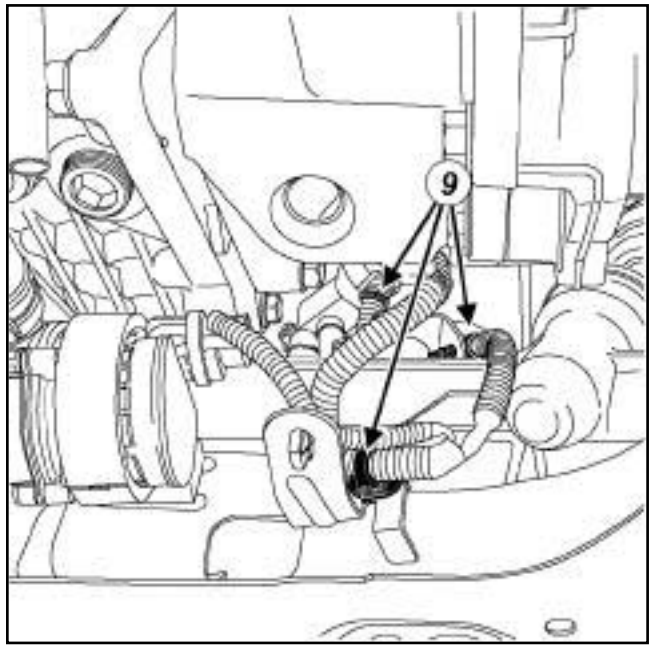
❏ Extract the track rod end using the **(Tav. 476)**.




132640

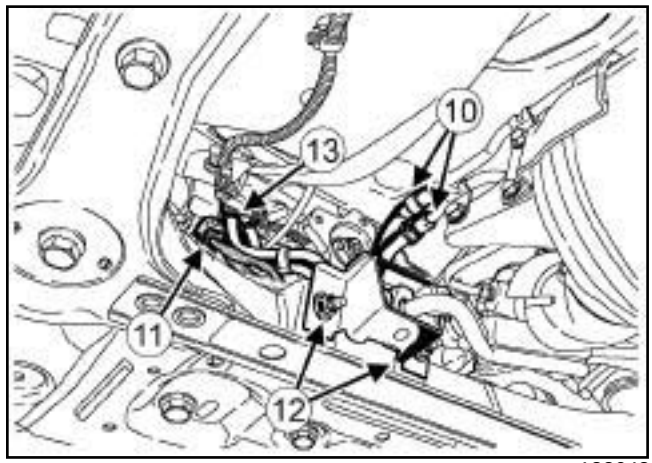
❏ Remove:

- the bolt (**7**) from the lower engine tie-bar on the engine,
- the bolt (**8**) from the turbocharger cooling pump.




132641

❏ Unclip the wiring clips (**9**) .




132642

❏ Remove the clips (**10**) .

❏ Disconnect:

- the hose from the particle filter,
- the particle filter upstream temperature sensor connector ***(11)*** .

❏ Remove the rubber mounting bush nuts ***(12)*** from the exhaust pipe.

❏ Unclip the clip ***(13)*** from the wiring.



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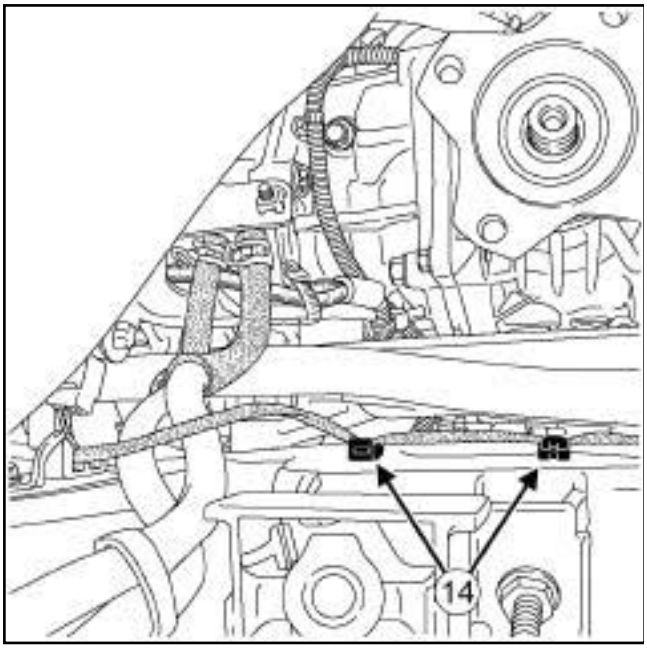
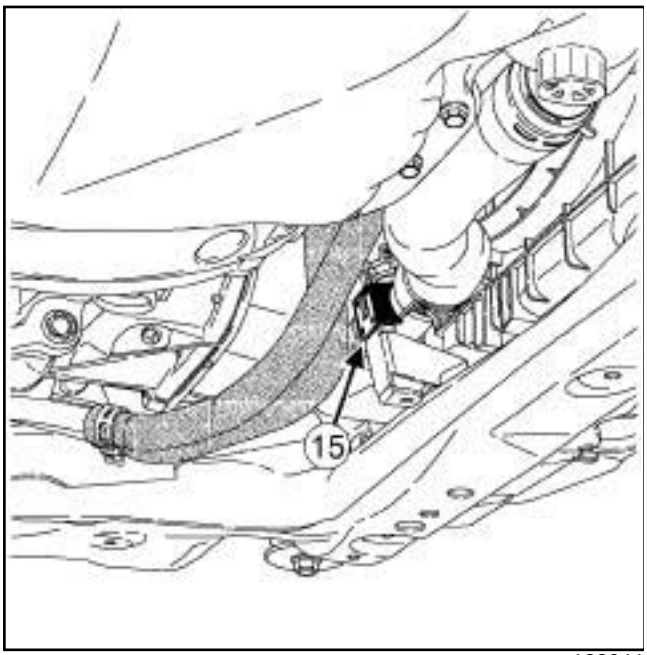



132643

❏ Unclip the clips (**14**) from the particle filter upstream temperature sensor wiring.

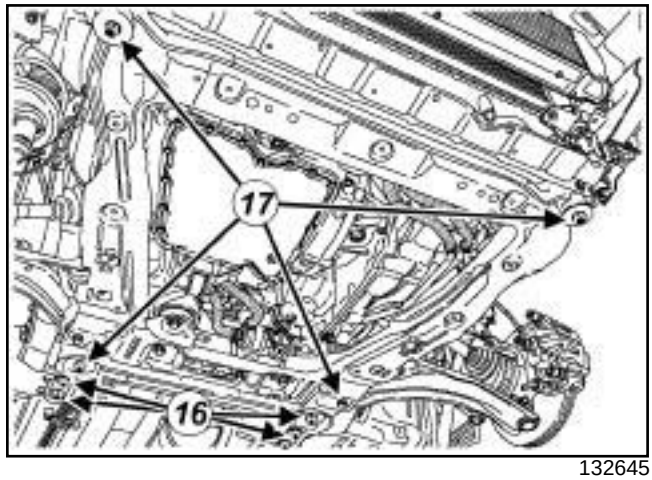



132644

❏ Unclip the hose clip (**15**) from the radiator hose.

❏ Place the **component jack** under the subframe.

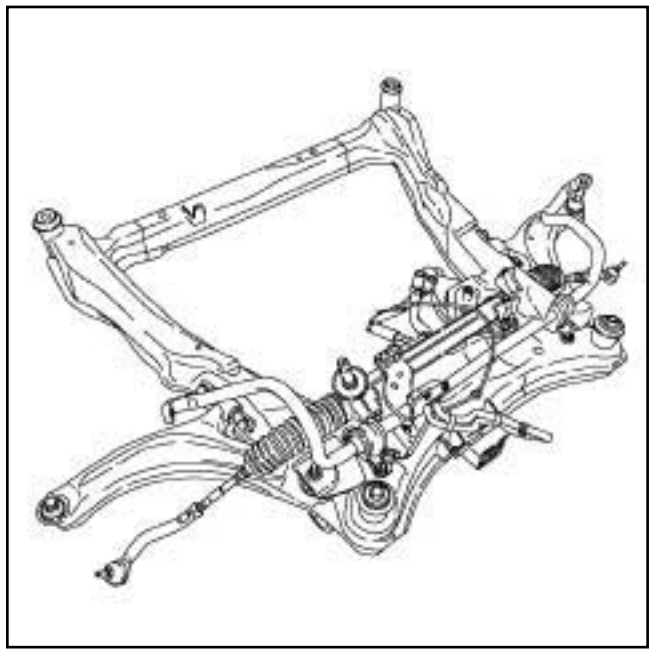
❏ Extract the lower arm ball joints.




132645

❏ Remove:

- the acoustic tie-rod bolts (**16**) ,
- the acoustic tie-rod,
- the subframe bolts (**17**) ,
- the subframe, slowly.



132646

❏ Remove the subframe mountings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the anti-roll bar tie rod lower nuts,
- the bolt from the universal joint.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M9R

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the subframe mountings.

❏ Degrease the surfaces of the body which are in contact with the subframe and the cross member using surface cleaner.

❏ Position the subframe using the **component jack**.

❏ Refit:

- the subframe bolts,
- the acoustic tie-rod,
- the acoustic tie-rod bolts.

> Note:
> Make sure that the tightening order of the subframe bolts is respected (rear left-hand - rear right-hand - front left-hand - front right-hand).

❏ Torque tighten:

- the **subframe bolts (94 N.m)**,
- the **acoustic tie-rod bolts (73 N.m)**.

❏ Refit the lower arm ball joint.

❏ Remove the **component jack**.

❏ Clip:

- the hose clip on the radiator hose,
- the clips of the particle filter upstream temperature sensor wiring,
- the wiring clip.

❏ Refit the rubber mounting bush nuts on the exhaust pipe.

❏ Torque tighten the **exhaust pipe rubber mounting bush nuts (14 N.m)**.

❏ Connect:

- the particle filter upstream temperature sensor connector,
- the particle filter hose.

❏ Clip on the wiring clips.

❏ Refit:

- the turbocharger cooling pump bolts,
- the lower engine tie-bar bolt on the engine.

❏ Torque tighten the **lower engine tie-bar bolt on the engine (155 N.m)**.

❏ Refit the lower arm ball joint nut.

❏ Torque tighten the **lower arm ball joint nut (63 N.m)**.

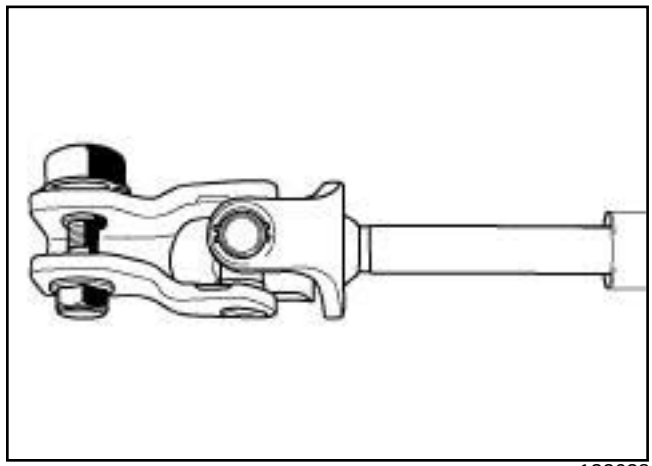
❏ Refit:

- the anti-roll bar linkage lower nut,
- the track rod ball joint nut.

❏ Torque tighten:

- the **track rod ball joint nut (34 N.m)**,
- the **lower nut of the anti-roll bar tie rod84 (N.m)**.

❏ Set the wheels straight ahead.



132638

❏ Observe the direction of fitting for the universal joint cam nut and bolt.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the cam nut from the universal joint.



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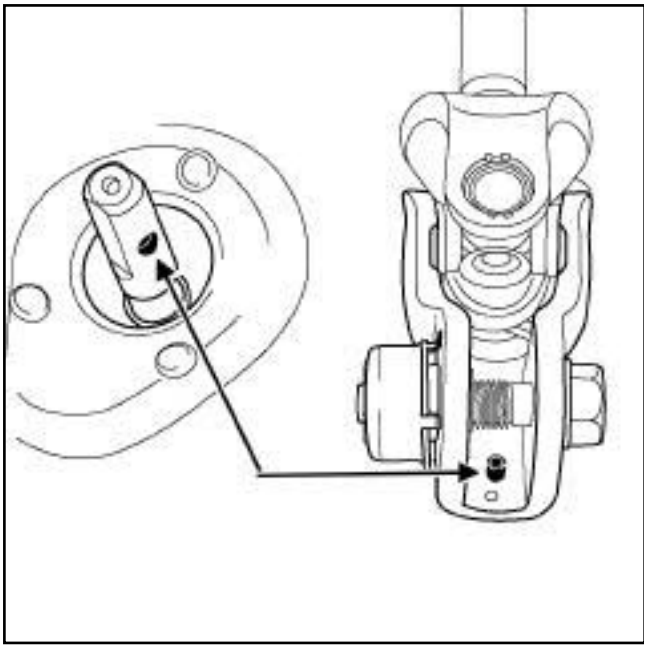

132639

❑ Check that the universal joint is in the correct position.

❑ Torque tighten the **universal joint bolt on the steering box (39 N.m)**.

❑ Refit the steering cover.

**III - FINAL OPERATION**

❑ Refit:

- the engine undertray,
- the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .


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2TR

| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Essential equipment |
|---|
| component jack |

| Tightening torques ▽ | |
|---|---|
| subframe bolts | **94 N.m** |
| acoustic tie-rod bolts | **73 N.m** |
| nuts of the exhaust pipe | **rubber mounting bush14 N.m** |
| lower engine tie-bar retaining bracket bolt | **110 N.m** |
| lower engine tie-bar bolts on the gearbox | **110 N.m** |
| lower arm ball joint nut | **63 N.m** |
| track rod ball joint nut | **34 N.m** |
| lower nut of the anti-roll bar tie rod84 | **N.m** |
| universal joint bolt on the steering box | **39 N.m** |

## REMOVING - REFITTING

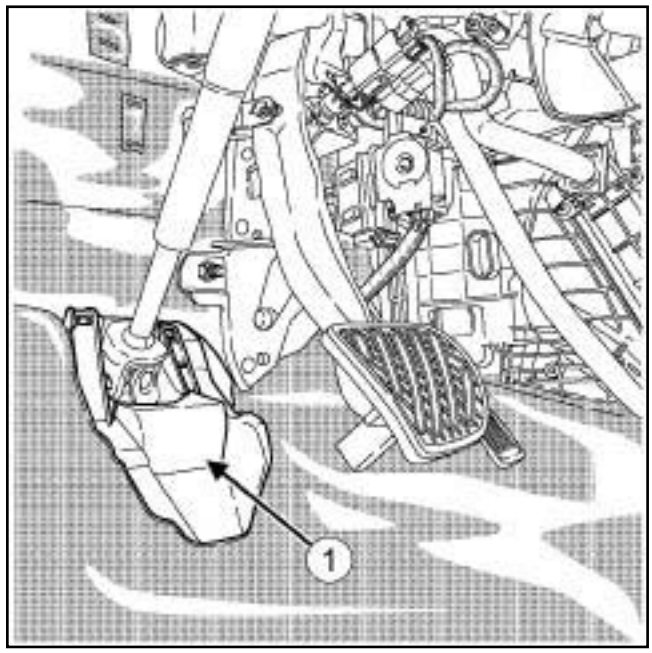
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

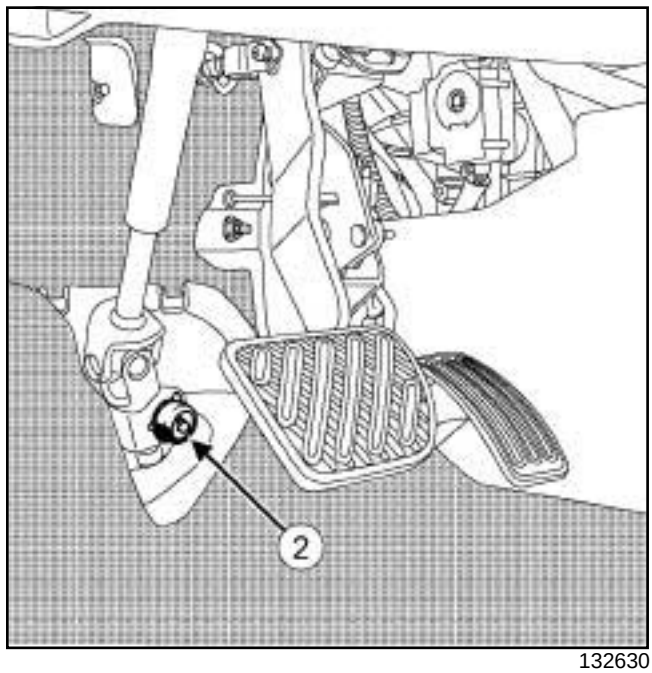
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the engine undertray.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132629

❏ Remove the steering cover (**1**) .




132630

❏ Remove the cover (**2**) from the universal joint (do not keep).

❏ Set the wheels straight ahead.

❏ Lock the steering column.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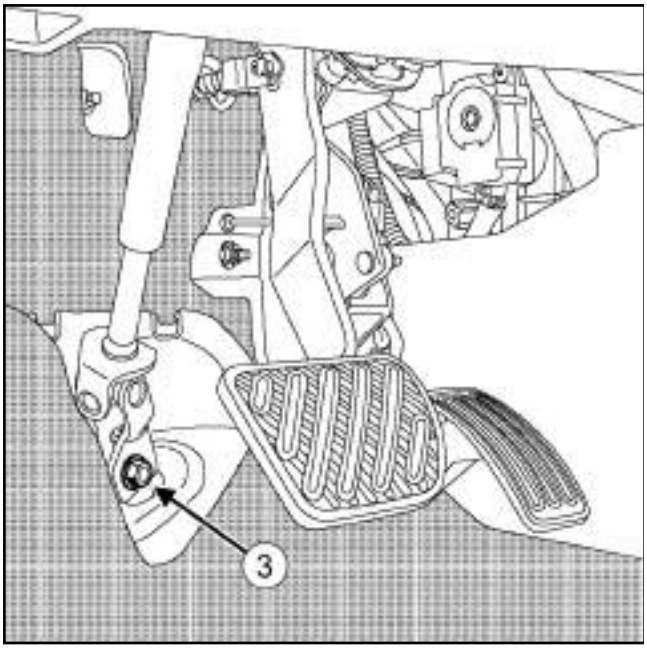


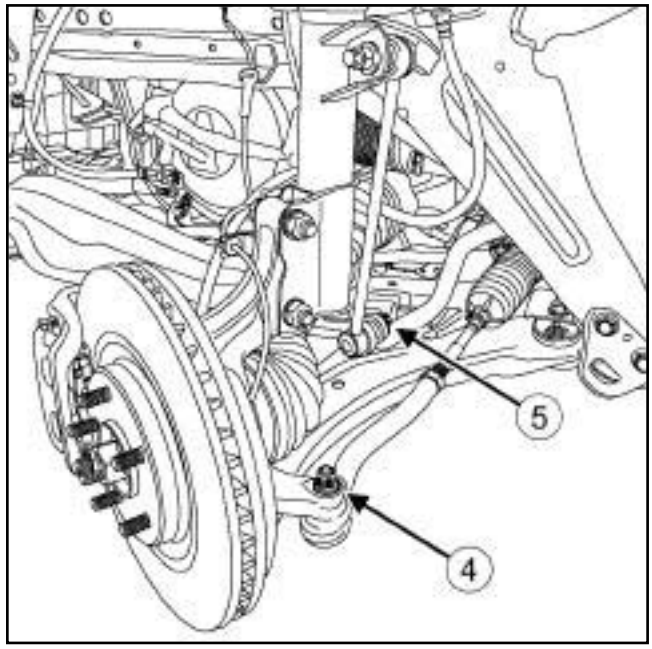

132631

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut,
- the universal joint.

Note:

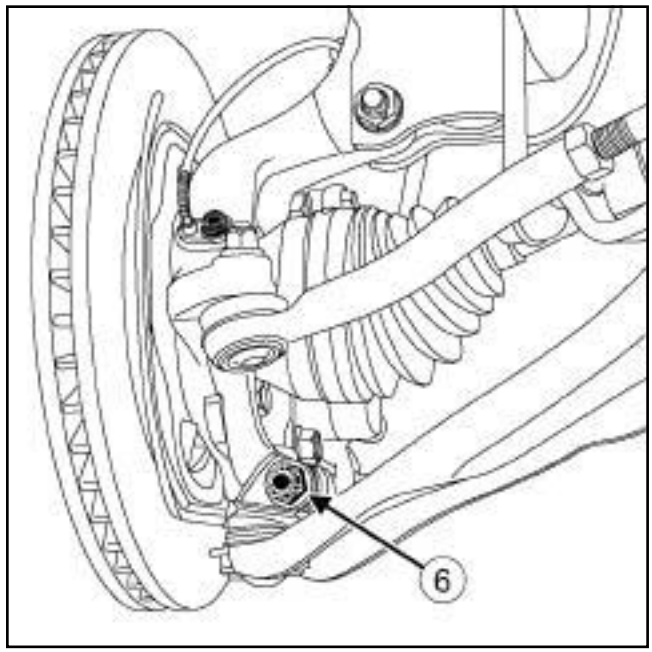
Swivel the universal joint to detach it from the pinion; do not retract the intermediate shaft.




132632

❏ Remove:

- the track rod ball joint nut (**4**) ,
- the lower nut (**5**) from the anti-roll bar tie rod.




132633

❏ Remove the lower arm ball joint nut (**6**) .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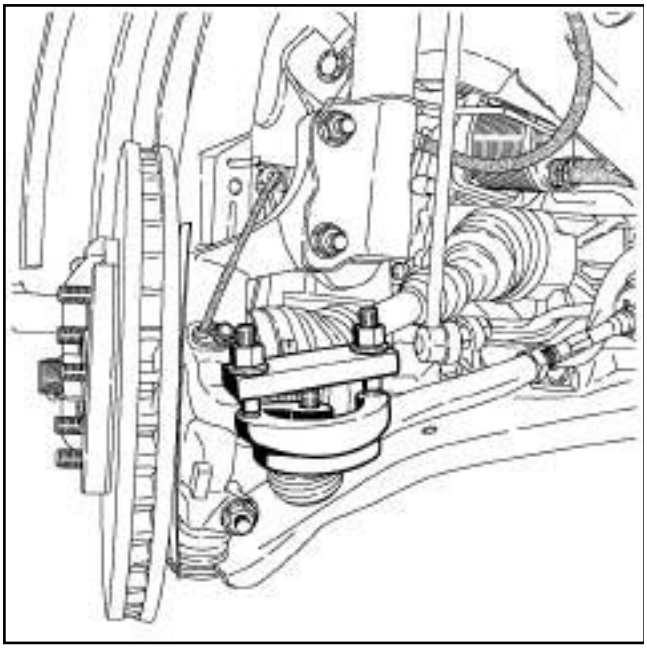
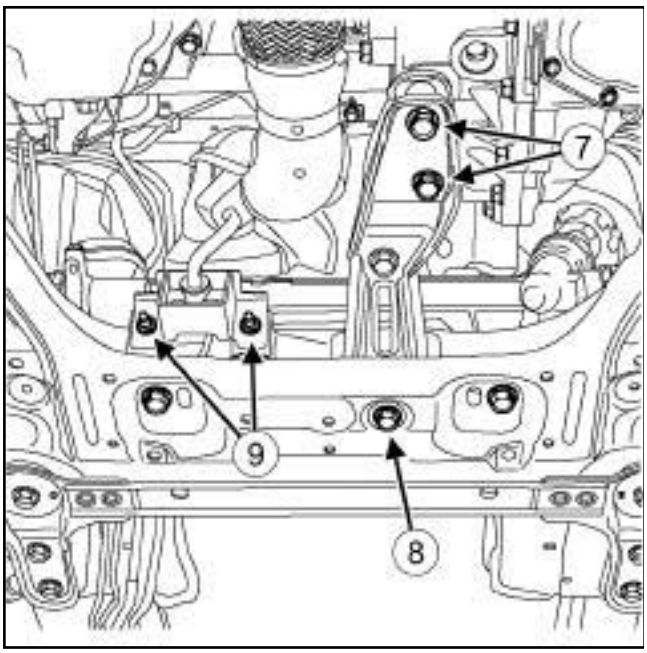


132634

❏ Extract the track rod end using the **(Tav. 476)**.



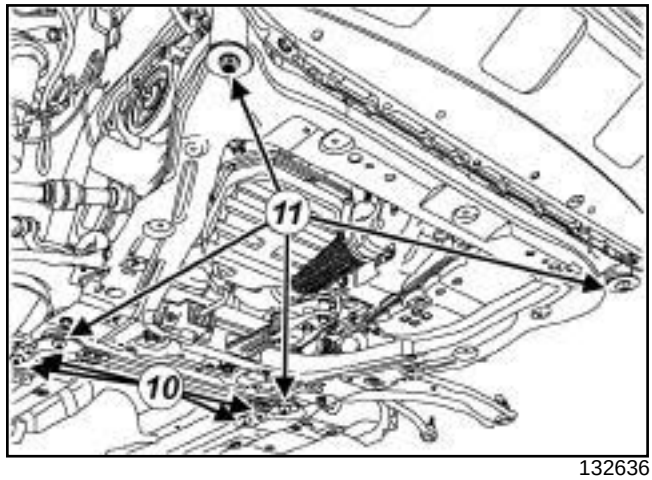

132635

❏ Remove:

- the bolt (**7**) from the lower engine tie-bar on the engine,
- the lower engine tie-bar retaining bracket bolt (**8**) ,
- the lower engine tie-bar retaining bracket,
- the nuts (**9**) from the exhaust pipe rubber mounting bush.

❏ Place the **component jack** under the subframe.

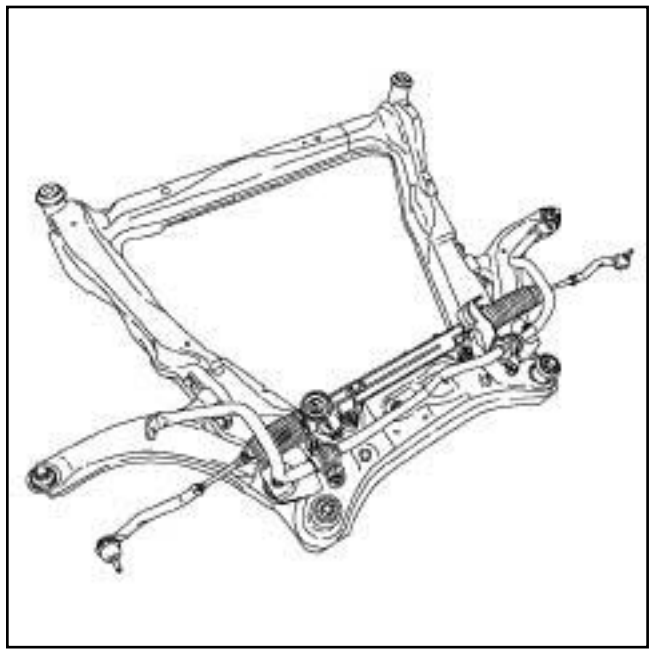
❏ Extract the lower arm ball joints.




132636

❏ Remove:

- the acoustic tie-rod bolts (**10**) ,
- the acoustic tie-rod,
- the subframe bolts (**11**) ,
- the subframe, slowly.



132637

❏ Remove the subframe mountings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the anti-roll bar tie rod lower nuts,
- the bolt from the universal joint.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2TR

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the subframe mountings.

❏ Degrease the surfaces of the body which are in contact with the subframe and the cross member using surface cleaner.

❏ Position the subframe using the **component jack**.

❏ Refit:

- the subframe bolts,
- the acoustic tie-rod,
- the acoustic tie-rod bolts.

Note:

Make sure that the tightening order of the subframe bolts is respected (rear left-hand - rear right-hand - front left-hand - front right-hand).

❏ Torque tighten:

- the **subframe bolts (94 N.m)**,
- the **acoustic tie-rod bolts (73 N.m)**.

❏ Refit the lower arm ball joint.

❏ Remove the **component jack**.

❏ Refit:

- the nuts on the exhaust pipe rubber mounting bush,
- the lower engine tie-bar retaining bracket,
- the lower engine tie-bar retaining bracket bolts,
- the lower engine tie-bar bolt on the gearbox.

❏ Torque tighten:

- the **nuts of the exhaust pipe (rubber mounting bush14 N.m)**,
- the **lower engine tie-bar retaining bracket bolt (110 N.m)**,
- the **lower engine tie-bar bolts on the gearbox (110 N.m)**.

❏ Refit the lower arm ball joint nut.

❏ Torque tighten the **lower arm ball joint nut (63 N.m)**.

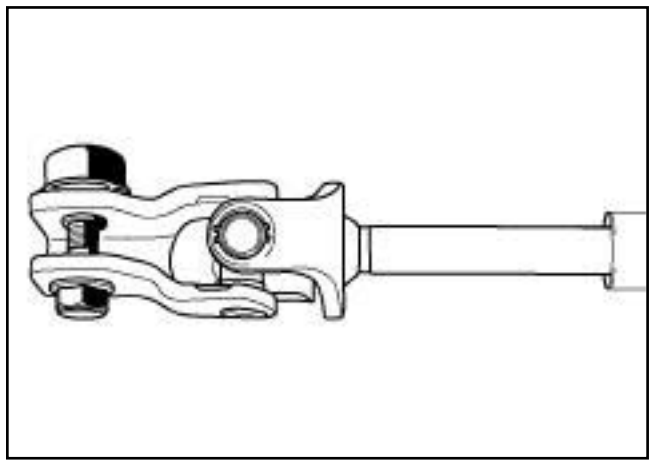
❏ Refit:

- the anti-roll bar linkage lower nut,
- the track rod ball joint nut.

❏ Torque tighten:

- the **track rod ball joint nut (34 N.m)**,
- the **lower nut of the anti-roll bar tie rod84 (N.m)**.

❏ Set the wheels straight ahead.

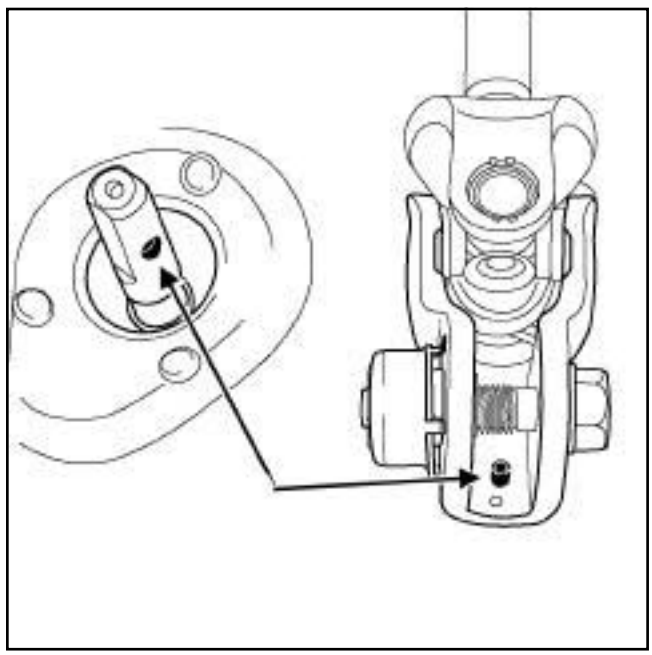


132638

❏ Observe the direction of fitting for the universal joint cam nut and bolt.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the cam nut from the universal joint.



132639

❏ Check that the universal joint is in the correct position.

❏ Torque tighten the **universal joint bolt on the steering box (39 N.m)**.

❏ Refit the steering cover.



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**III - FINAL OPERATION**

❑ Refit:

- the engine undertray,
- the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Check the front axle geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .


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M9R

| Tightening torques ▽ | |
|---|---|
| anti-roll bar bolts | **24 N.m** |

## REMOVAL

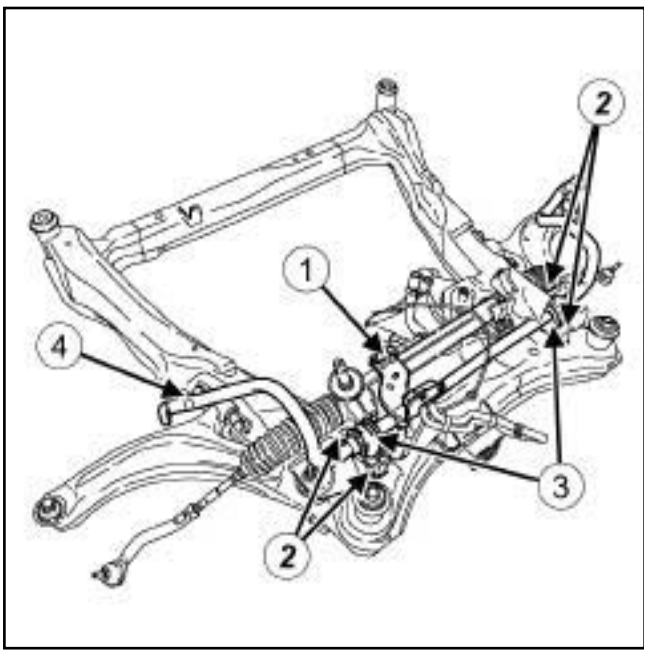
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the engine undertray,
- the front axle subframe (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

### II - REMOVAL OF PART CONCERNED




131468

❏ Remove:

- the particle filter pressure sensor support (**1**) ,
- the anti-roll bar bolts (**2**) ,
- the anti-roll bar bearings (**3**) ,
- the anti-roll bar (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the anti-roll bar,
- the anti-roll bar bearings,
- the anti-roll bar bolts,
- the particle filter pressure sensor support.

❏ Torque tighten the **anti-roll bar bolts (24 N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the front axle sub-frame (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
- the engine undertray,
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).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2TR

| Tightening torques ▽ | |
|---|---|
| anti-roll bar bolts | **24 N.m** |

## REMOVAL

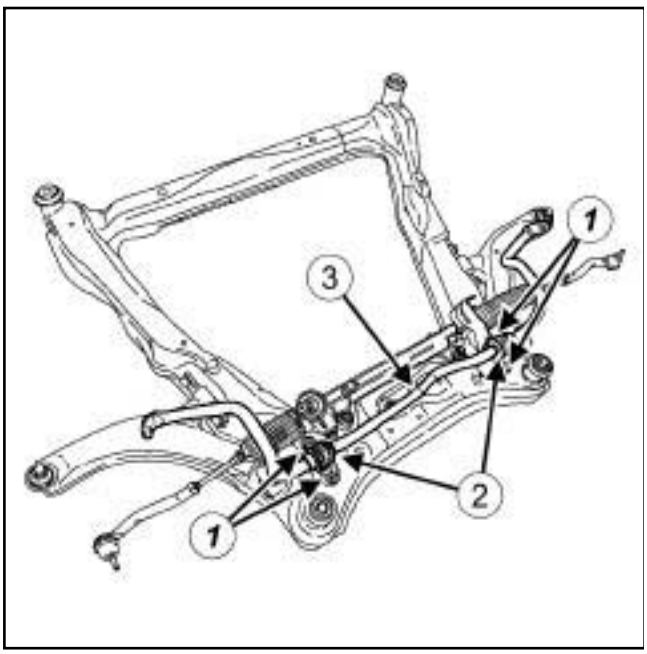
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the engine undertray,
- the front axle subframe (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

### II - REMOVAL OF PART CONCERNED




131467

❏ Remove:

- the anti-roll bar bolts (**1**) ,
- the anti-roll bar bearings (**2**) ,
- the anti-roll bar (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the anti-roll bar,
- the anti-roll bar bearings,
- the anti-roll bar bolts.

❏ Torque tighten the **anti-roll bar bolts (24 N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the front axle sub-frame (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
- the engine undertray,
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).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| Essential special tooling | |
|---|---|
| **Fre. 1190-01** | Brake calliper piston return tool. |

| Tightening torques ▽ | |
|---|---|
| calliper guide pin bolt | **43 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

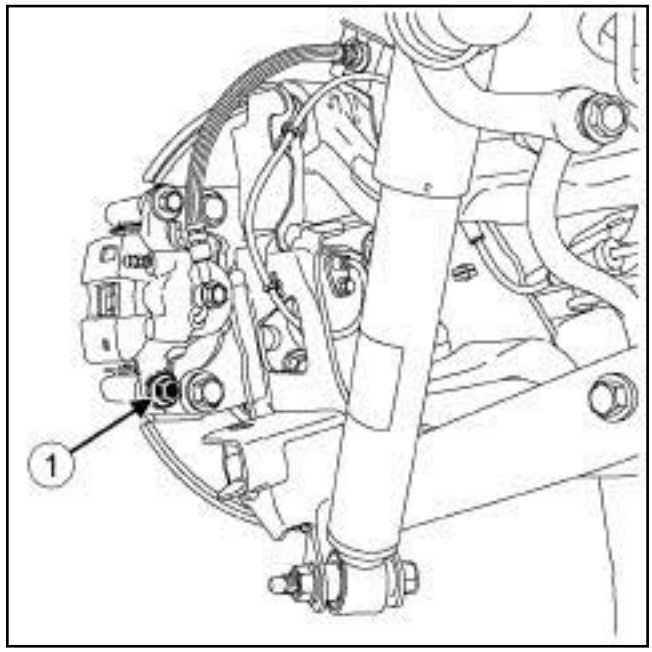
**WARNING**

In order to not damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

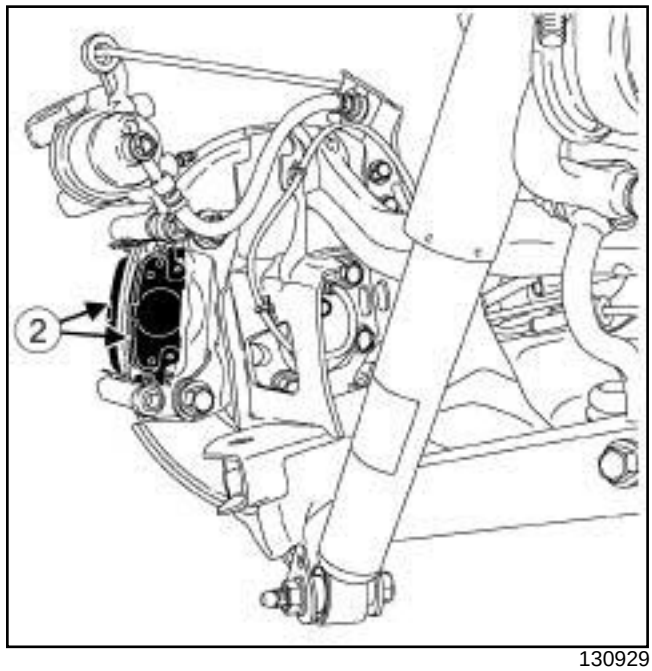
Note:

When replacing brake pads, it is essential to replace the pads on the opposite side.




130928

❑ Remove the lower guide pin bolt (**1**) of the brake calliper.




130929

❑ Rotate the rear brake calliper upwards.

❑ Suspend the rear brake calliper.

❑ Remove the brake pads (**2**) from the brake calliper mountings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the guide pin bolts.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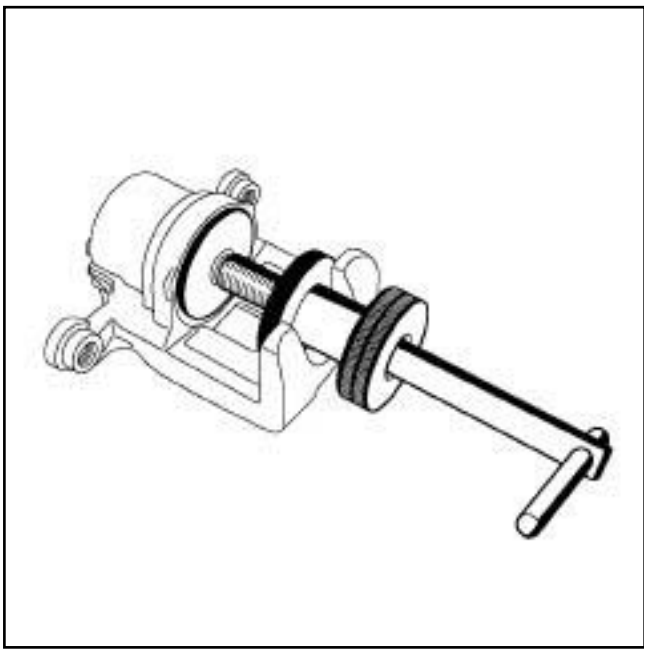
❏ Check the thickness of the brake pads (see **30A**, **General information**, **Brake: Specifications**, page **30A-6**) .

❏ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):

- the calliper supports,
- the callipers,
- the guide pin bolts.



130930

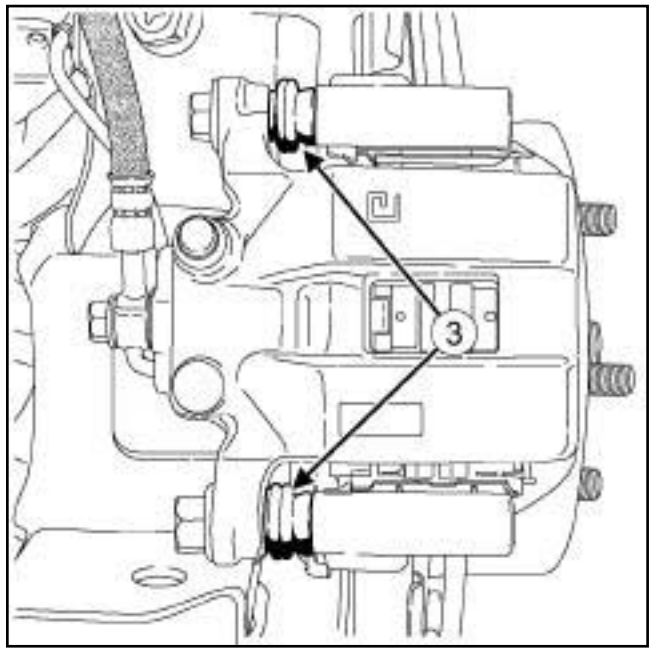
❏ Push the calliper piston back using the tool **(Fre. 1190-01)** until it is at the end of its bore.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the rear brake pads.

❏ Rotate the rear brake calliper downwards.

❏ Refit the new lower guide pin bolt.




130931

❏ The guide pin bolt rubber boots (**3**) must be correctly positioned.

❏ Torque tighten the **calliper guide pin bolt (43 N.m)**.

**III - FINAL OPERATION.**

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



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| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake hose on the union | **16 N.m** |
| brake hose on the calliper | **18 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Rear axle assemblies: Precautions for repair**) .

**WARNING**

Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

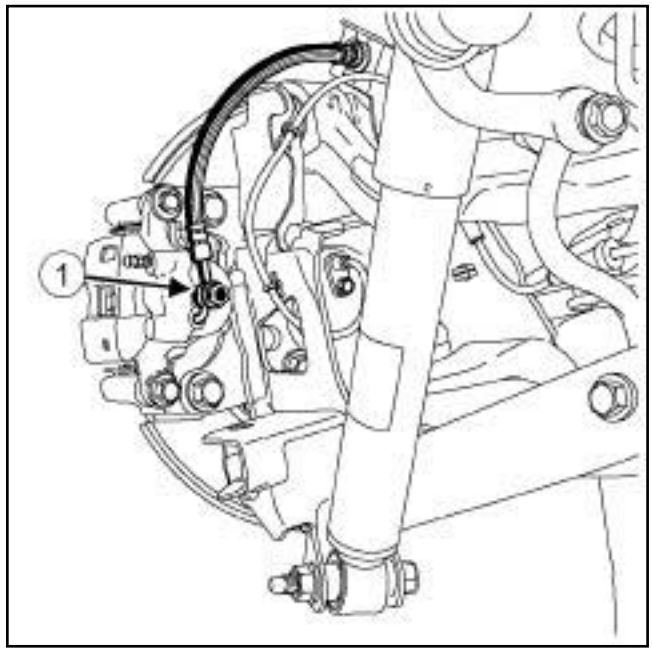
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

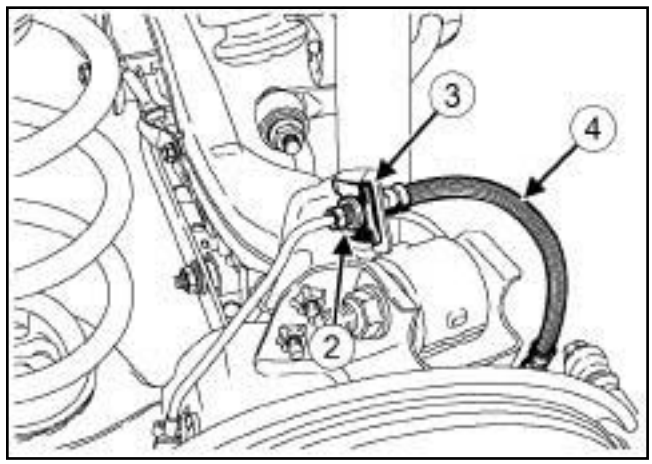
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130808

❏ Undo the rear brake hose at the rear brake calliper union (**1**) .

❏ Disconnect the rear brake hose from the rear brake calliper.




130809

❏ Undo the rear brake hose at the pipe connection (**2**) .

❏ Remove:

- the brake hose clip (**3**) ,
- the brake hose (**4**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the brake hose copper washers on the calliper.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❏

**WARNING**

In order to not damage the brake hose:

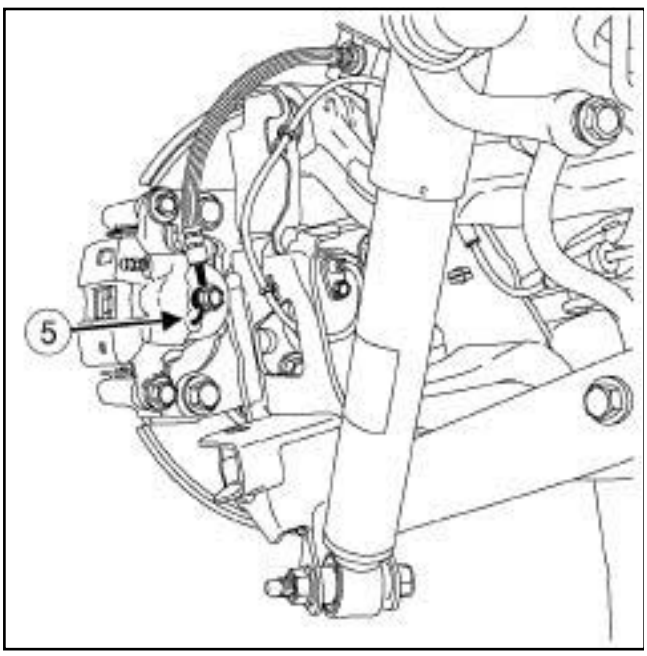
- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the rear brake hose ***(4)*** ,
- the rear brake hose on the union ***(2)*** ,
- the brake hose clip ***(3)*** on the union,

❏ Torque tighten the **brake hose on the union (16 N.m)**.




130810

❏

Note:

Put the brake hose retaining pin (**5**) in the calliper hole.

❏ Refit the brake hose on the calliper with the new copper washers.

❏ Torque tighten the **brake hose on the calliper (18 N.m)**.

**III - FINAL OPERATION.**

❏ Remove the **pedal press** from the brake pedal.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Check the brake fluid level.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| Essential special tooling | |
|---|---|
| **Fre. 1190-01** | Brake calliper piston return tool. |

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| bolts on the brake calliper guide pins | **43 N.m** |
| brake hose union on the calliper | **18 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

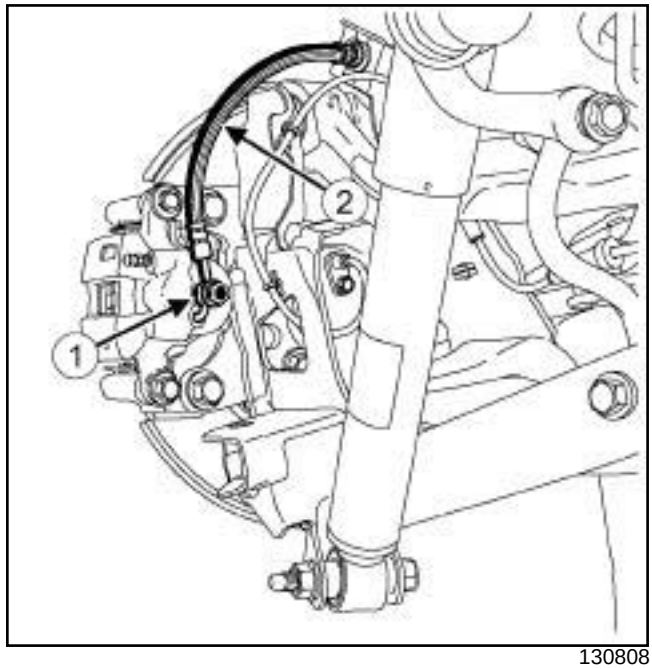
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❏ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

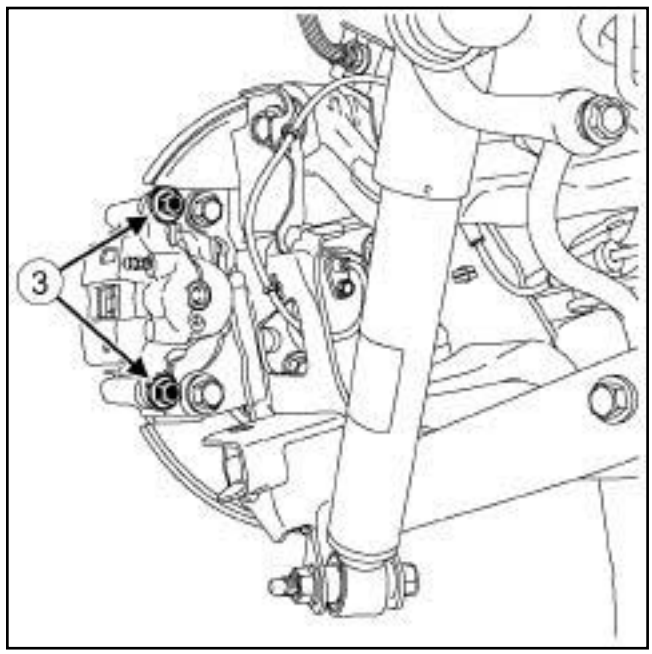
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130808

❏ Undo the brake hose on the calliper at (**1**) .

❏ Disconnect the rear brake hose (**2**) from the rear brake calliper.



130812

❏ Remove:

- the rear brake calliper guide pin bolts (**3**) ,
- the rear brake calliper from the mounting,
- the rear brake pads.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## REFITTING

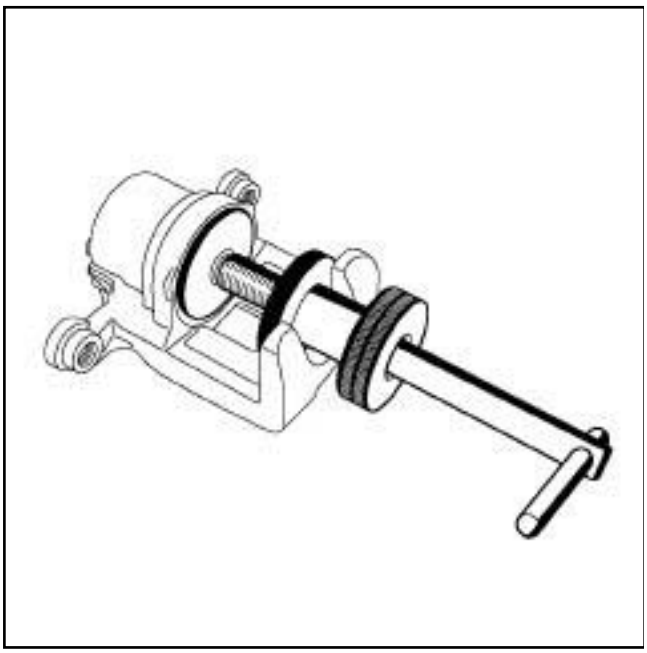
### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the calliper guide pin bolts,
- the copper washers on the brake hose on the calliper.

❑ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):

- the calliper supports,
- the callipers.



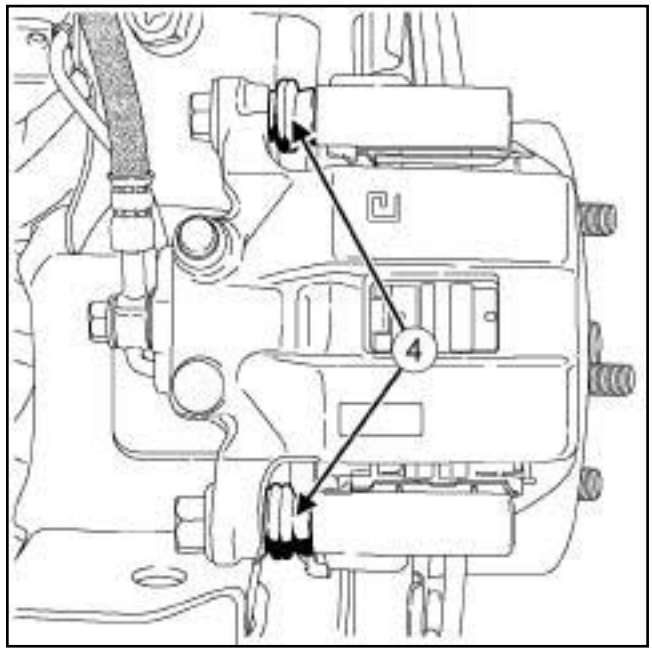
130930

❑ Push the piston to the bottom of its housing using the **(Fre. 1190-01)**.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear brake pads,
- the rear brake calliper,
- the new guide pin bolts,
- the brake hose to the calliper, with new copper washers.




130931

❑ Ensure that the guide pin bolt rubber boots (**4**) are correctly positioned.

❑ Tighten to torque:

- the **bolts on the brake calliper guide pins (43 N.m)**,
- the **brake hose union on the calliper (18 N.m)**.

### III - FINAL OPERATION.

❑ Remove the **pedal press** from the brake pedal.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Check the brake fluid level.

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



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| Tightening torques ▽ | |
|---|---|
| brake calliper mounting bolts | 84 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

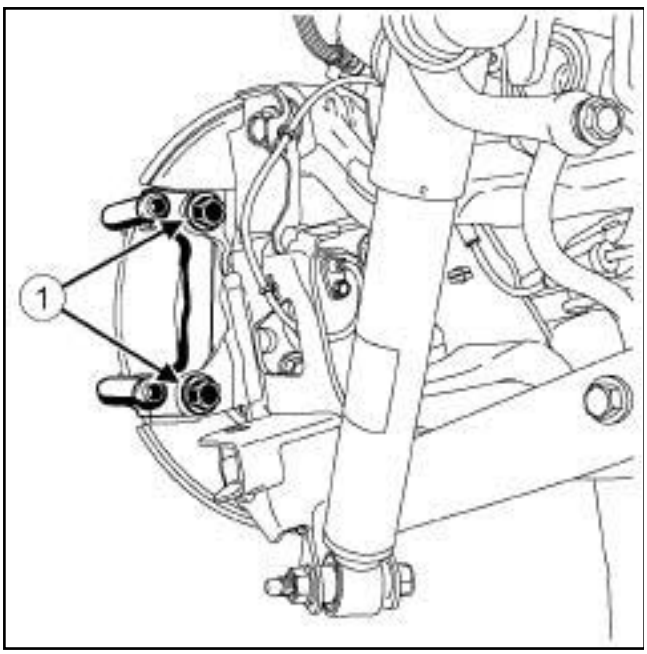
❑ Remove:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❑ Suspend the rear brake calliper.

❑ Remove the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130815

❑ Remove:

- the rear brake calliper mounting bolts (**1**) ,
- the rear brake calliper mounting.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the brake calliper guide pin bolts.

❑ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):

- the calliper brackets,
- the callipers.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the calliper mounting,
- the calliper mounting bolts.

❑ Torque tighten the **brake calliper mounting bolts (84 N.m)**.

### III - FINAL OPERATION.

❑ Refit:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) .
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑

**IMPORTANT**
To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.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| Tightening torques ▽ | |
|---|---|
| rear wheel hub bolts | **88 N.m** |
| rear wheel speed sensor bolt | **10 N.m** |
| parking brake cable bolt | **13 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

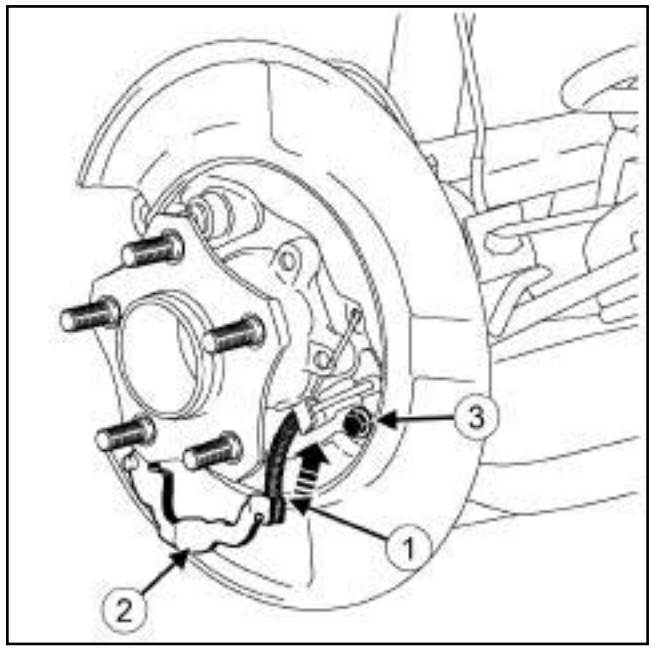
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) .

❏ Suspend the rear brake calliper.

❏ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**)

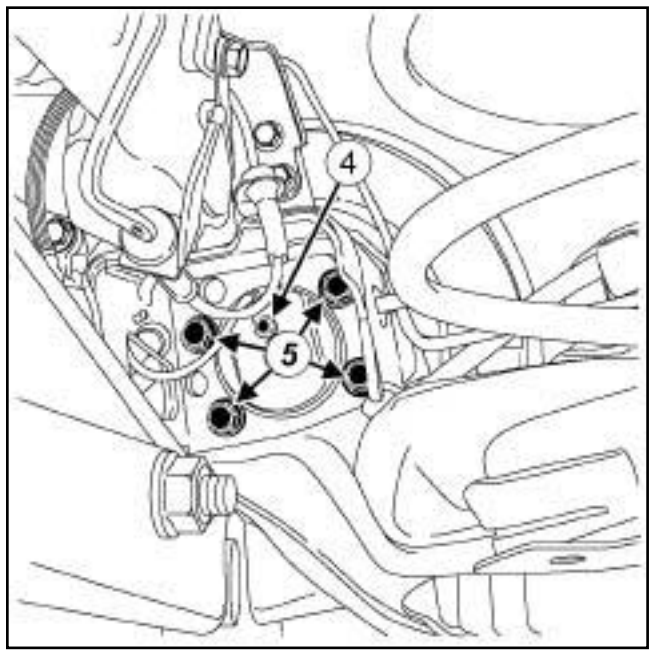
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130816

❏ Unhook the parking brake cable (**1**) from the parking brake lever (**2**) .

❏ Remove the bolt (**3**) of the parking brake cable from the rear brake disc shield.




130817

❏ Remove:

- the rear wheel speed sensor bolt (**4**) ,
- the rear wheel speed sensor of the rear wheel hub,
- the rear wheel hub bolts (**5**) ,
- the rear wheel hub,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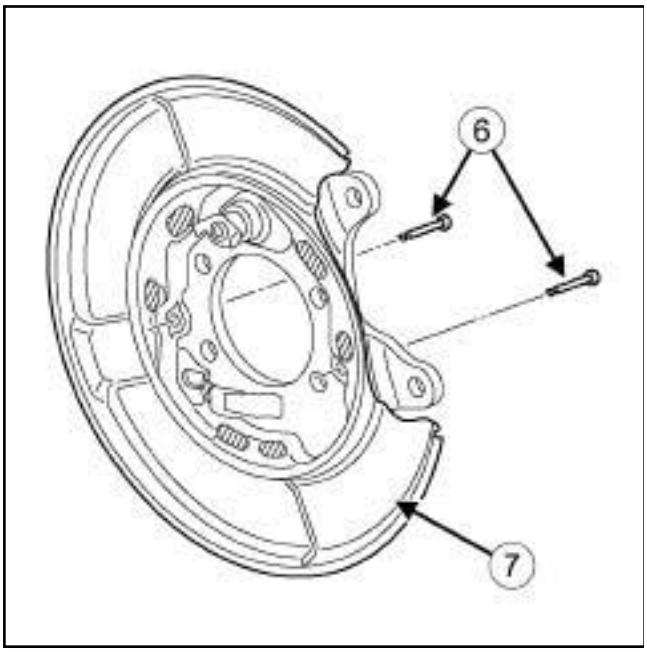
- the rear brake disc shield.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




130818

❑ Refit:

- the rear brake lining connecting rods (**6**) on the rear brake disc shield,
- the rear brake disc shield (**7**) ,
- the rear wheel hub,
- the rear wheel hub bolts,
- the rear wheel speed sensor on the rear wheel hub,
- the rear wheel speed sensor bolt.

❑ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.

❑ Refit:

- the parking brake cable to the parking brake lever,
- the parking brake cable bolt on to the rear brake disc shield,

❑ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.

### II - FINAL OPERATION.

❑ Refit:

- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**IMPORTANT**
To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) .

FOOT BRAKE AUTO CONTROL

❑ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle, so that automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |

| Tightening torques ▽ | |
|---|---|
| rear wheel hub bolts | **88 N.m** |
| rear wheel speed sensor bolt | **10 N.m** |
| parking brake cable bolt | **13 N.m** |
| parking brake cable bolt | **13 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

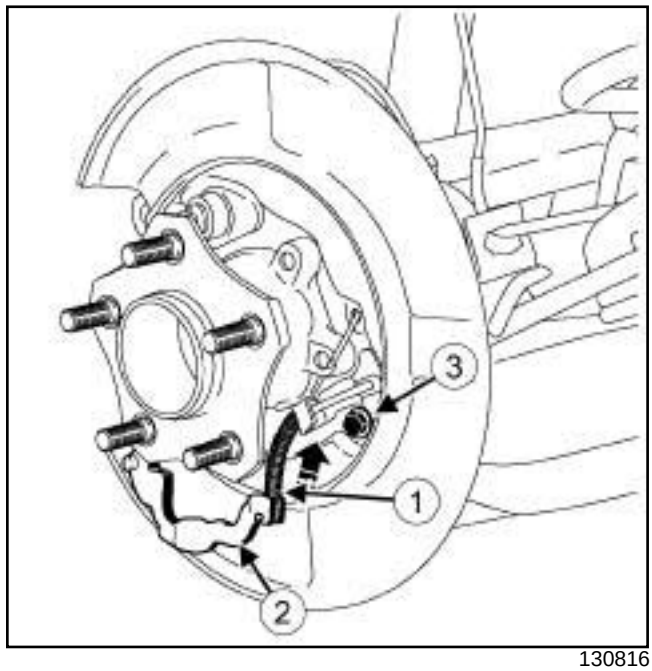
- the rear wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) .

❏ Suspend the rear brake calliper.

❏ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**)

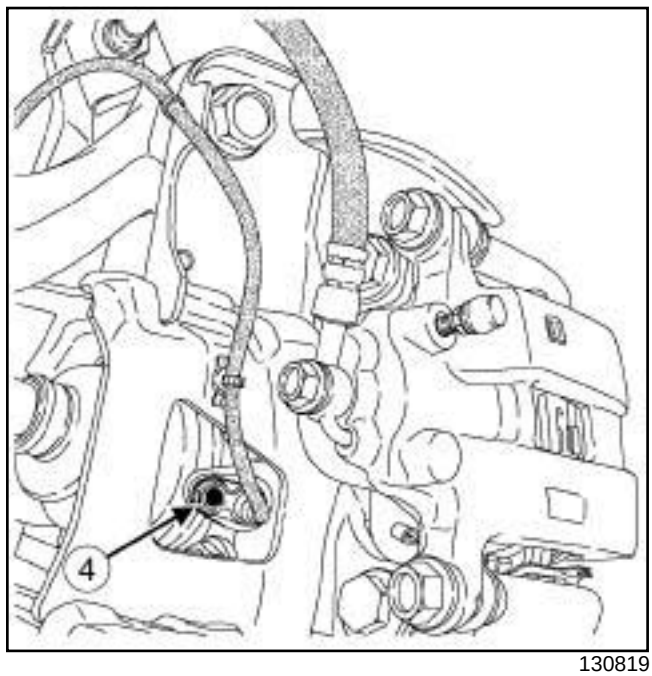
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130816

❏ Unhook the parking brake cable (**1**) from the parking brake lever (**2**) .

❏ Remove the parking brake cable bolt (**3**) from the rear brake disc shield.



130819

❏ Remove:

- the rear wheel speed sensor bolt (**4**) ,
- the rear wheel speed sensor of the rear wheel hub.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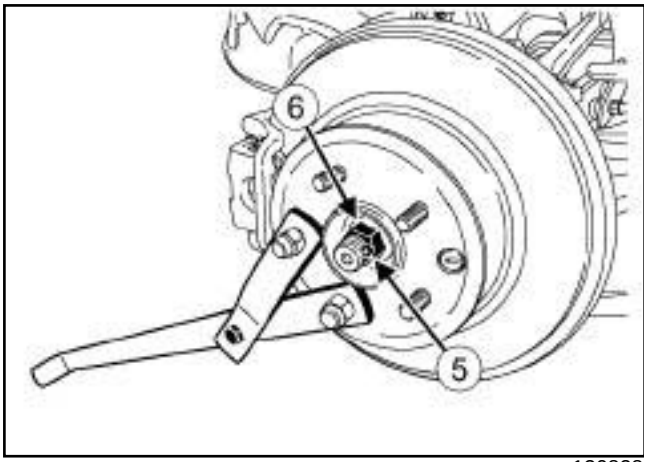


130828

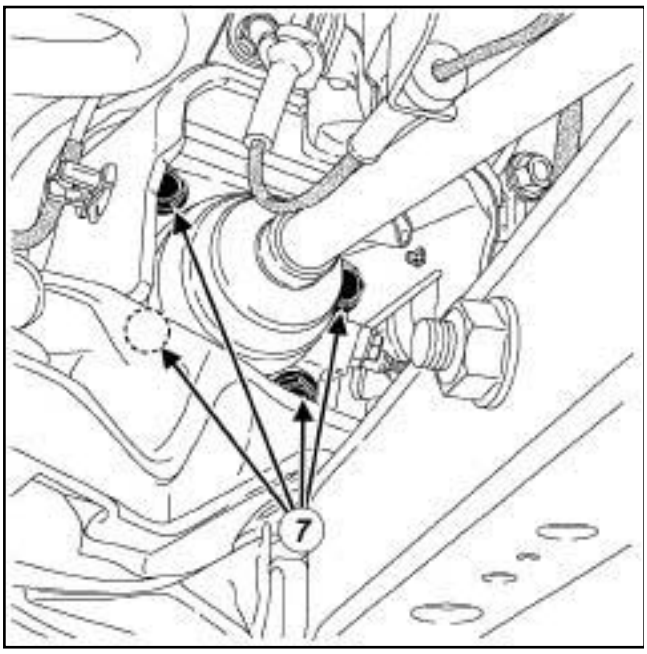
❑ Position the tool **(Rou. 604-01)** on the rear wheel hub.

❑ Remove:

- the cotter pin (**5**) ,
- the rear wheel hub nut (**6**) .

Note:

To avoid damaging the « rear brake lining - brake disc shield » assembly, carefully remove the rear wheel hub.



130829

❑ Remove:

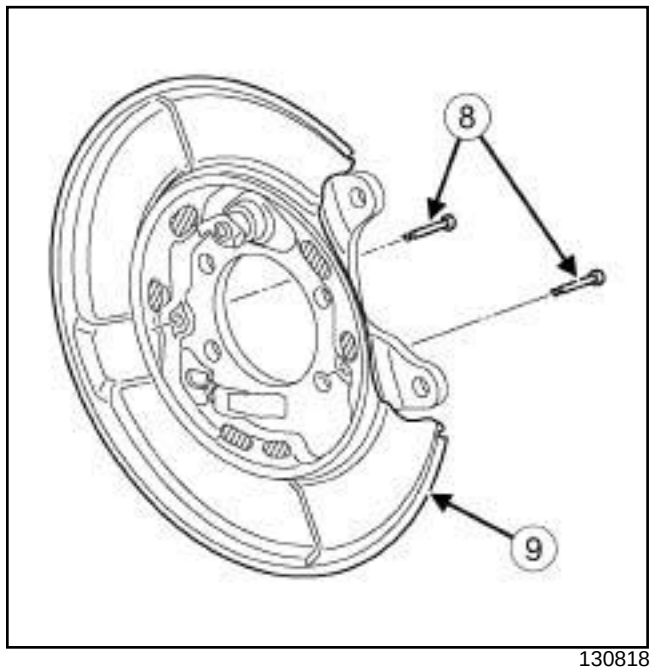
- the rear wheel hub bolts (**7**) ,
- the rear wheel hub,
- the rear brake disc protector.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the cotter pin.

### II - REFITTING OPERATION FOR PART CONCERNED



130818

❑ Refit:

- the rear brake lining connecting rods (**8**) on to the rear brake disc shield (**9**) ,
- the rear brake disc shield,
- the rear wheel hub,
- the rear wheel hub bolts,
- the rear wheel speed sensor on the rear wheel hub,
- the rear wheel speed sensor bolt.

❑ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.

❑ Refit the rear wheel hub nut using the tool **(Rou. 604-01)**.

❑ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.

❑ Refit the new cotter pin.

❑ Refit:

- the parking brake cable to the parking brake lever,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4X4 TRANSMISSION

- the parking brake cable bolt on to the rear brake disc shield,

❑ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.

**III - FINAL OPERATION.**

❑ Refit:

- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) ,
- the brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) .

FOOT BRAKE AUTO CONTROL

❑ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle, so that automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

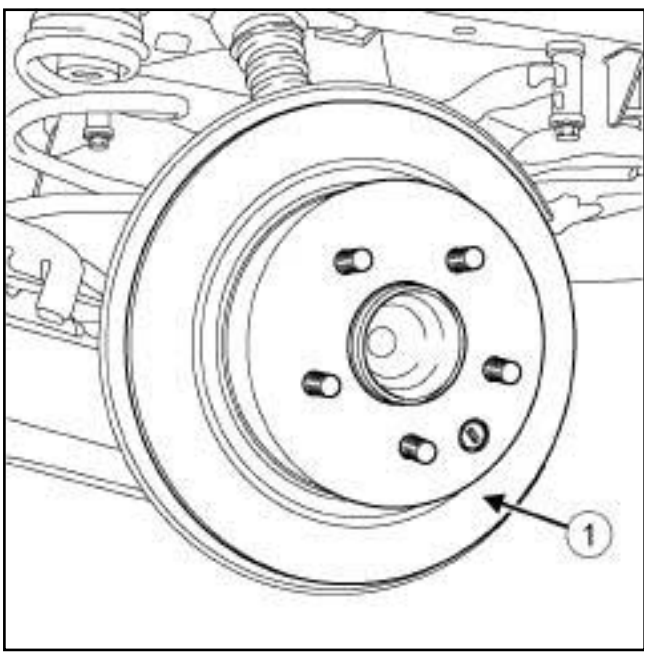
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❑ Suspend the rear brake calliper.

❑ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130932

❑ Remove the rear brake disc (**1**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

Note:

Brake discs cannot be reground.

If there is excessive wear or scoring, the brake discs must be replaced.

When replacing a brake disc, it is essential to replace the following:

- the rear brake disc on the opposite side,
- the brake pads.

❑ Use a cleaning fountain to clean the discs.

❑ Dry the disc surfaces.

❑ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):

- the calliper supports,
- the callipers,
- the guide pin bolts.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the rear brake disc.

### III - FINAL OPERATION.

❑ Refit:

- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑

**IMPORTANT**
To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.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### I - PREPARATION OPERATION FOR CHECK

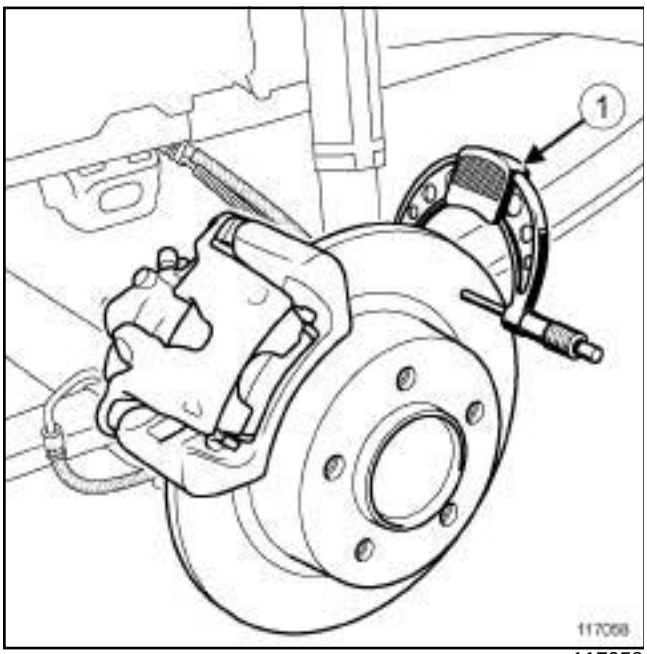
Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

Remove the rear wheel concerned (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

### II - CHECKING OPERATION FOR PART CONCERNED

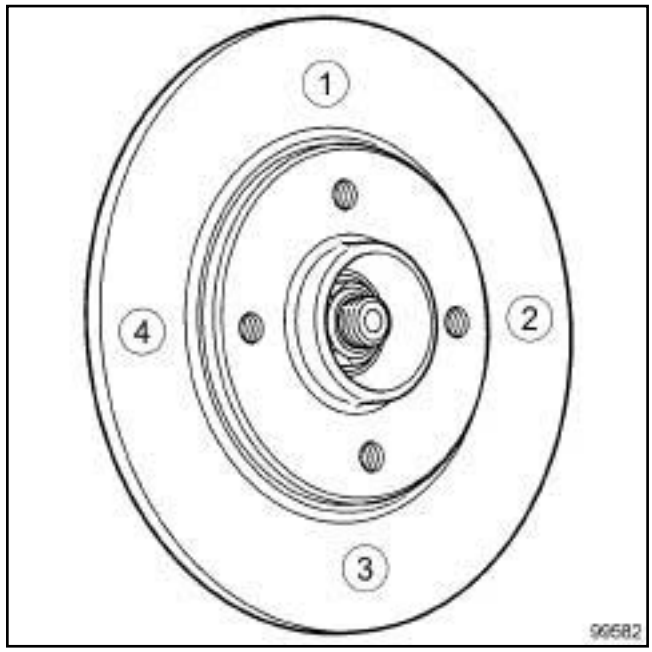
Note:

Use a Palmer type tool to check the thickness of the disc.




117058

Position the Palmer tool (**1**) to measure the disc thickness.




99582

Measure the thickness of the disc at 4 points in order (90° apart).

Compare the values with those recommended by the manufacturer (see **30A**, **General information**, **Brake: Specifications**, page **30A-6**) .

### III - FINAL OPERATION

Replace the discs if necessary (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) .

Refit the rear wheel concerned (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .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| Essential equipment |
| --- |
| diagnostic tool |

❑

Note:

After replacing the rear brake linings, it is ABSOLUTELY ESSENTIAL to run in the linings. Perform this running in operation by driving the vehicle. Refer to the end of this procedure for a more detailed explanation.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Release the parking brake.

❑ Remove:

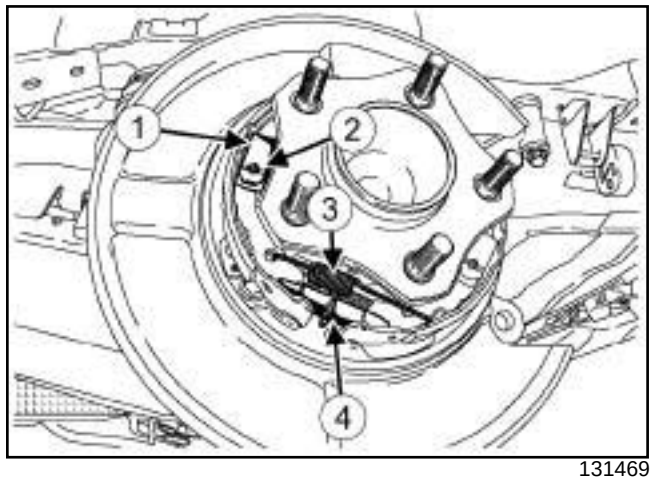
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❑ Suspend the rear brake calliper.

❑ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) .

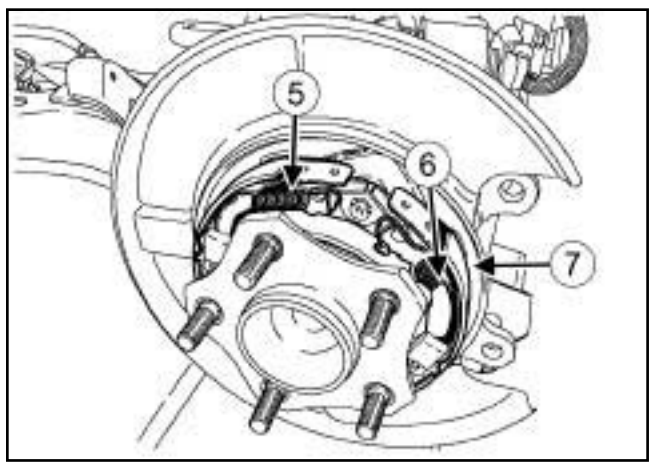
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131469

❑ Remove:

- the side retainers (**1**) by rotating the connecting rods (**2**) while pressing against the rear brake disc shield on both sides,
- the lower return spring (**3**) ,
- the lower return spring adjuster (**4**) .



131470

❑ Remove:

- the upper return springs, (**5**)
- the upper return spring bracket (**6**) ,
- the brake linings (**7**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Clean the parking brake linings and the rear brake disc.

❑ Lightly lubricate the lower return spring adjuster ***(4)*** .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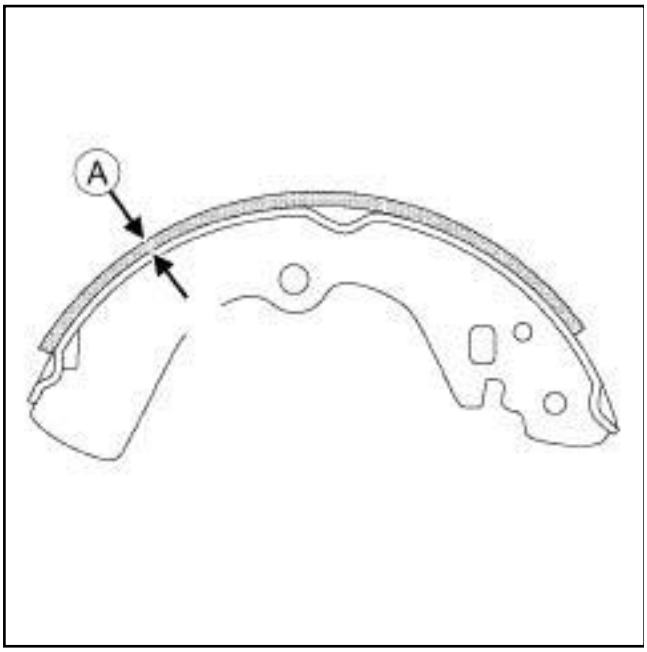
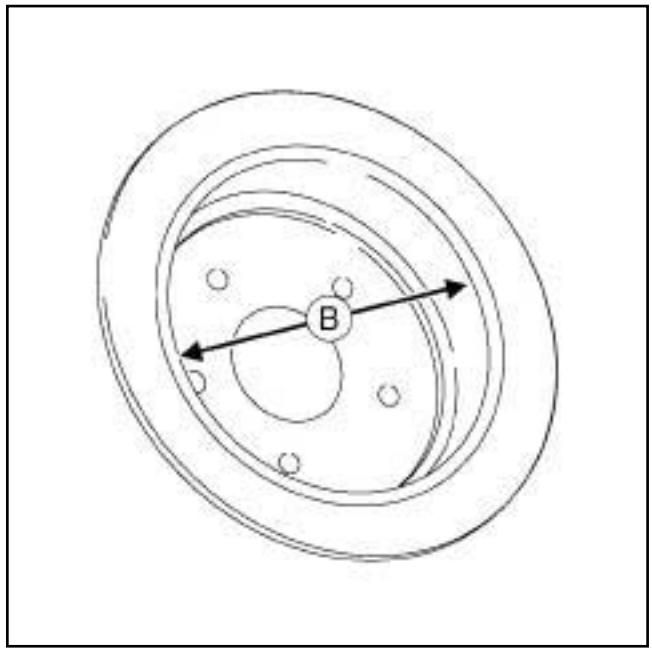



131471

❑ Check the thickness (**A**) of the rear brake lining:

- thickness of the disc lining: **3.25 mm**,
- minimum thickness of the disc **lining:1.5 mm**.



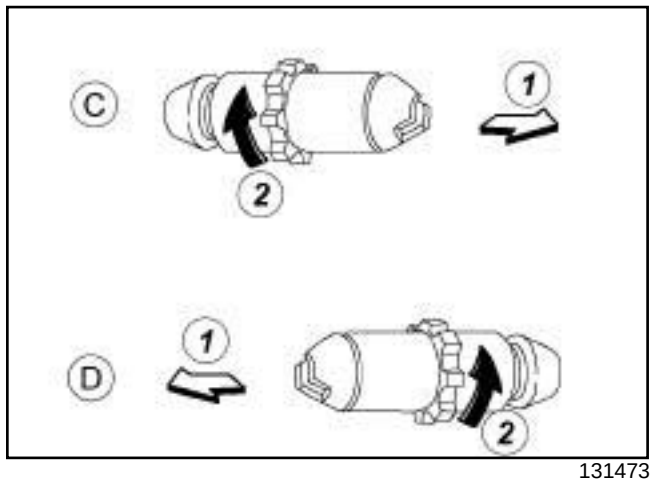

131472

❑ Check the diameter (**B**) of the rear brake drum:

- drum diameter: **172 mm**,
- maximum diameter of drum wear: **173 mm**.

Note:

The parking brake linings for the front side are made out of different materials from those at the rear. Do not mix them up when removing and refitting.




131473

| | |
|---|---|
| (**C**) | For the right-hand side brake |
| (**D**) | For the left-hand side brake |
| (**1**) | Front of the vehicle |
| (**2**) | Expanding the adjuster |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❑ Assemble the adjuster so that the threaded part is expanded when rotating the adjuster in the direction shown by the arrow.

**II - REFITTING PART CONCERNED**

❑ Refit:

- the brake linings ***(7)*** ,
- the upper return spring bracket ***(6)*** ,
- the upper return springs, ***(5)***
- the lower return spring adjuster ***(3)*** ,
- the side retainers ***(1)*** by rotating the connecting rods ***(2)*** while pressing against the rear brake disc shield.

**III - FINAL OPERATION**

❑ Refit:

- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❑

Note:

For safety reasons, it is strongly recommended:

- to run in the brake linings with the help of two people: a driver and a passenger who uses the diagnostic tool,

- to perform the driving test on a road that is closed if possible, or as clear as possible.

FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls).

❑ After replacing the parking brake linings, perform the brake-in operation as follows:

- adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls),
- perform the parking brake break-in operation using **diagnostic tool** by driving the vehicle under the following conditions:
  - Vehicle speed: 25 mph (40 km/h),
  - Parking brake lever operating force: 130N (5 notches),
  - Distance: 200~233m,
  - Braking time: 18~21sec.

Note:

To prevent the lining from overheating, allow a cool-off period of approximately 5 minutes after every break-in operation.

❑ After the break-in procedure, check the lever stroke of the parking brake. If it does not conform to the specifications, adjust again (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls),

FOOT BRAKE AUTO CONTROL

❑ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

❑ After replacement of the parking brake linings, perform the break-in operation as follows **diagnostic tool** (see **Fault finding: Programming**)(37B, Electronic parking brake).


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| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| rear brake hose on the union | **16 N.m** |

The pipes have a rigid and a flexible section.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

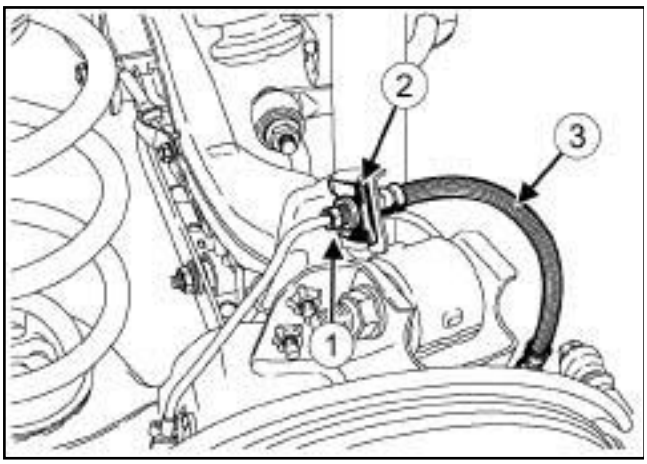
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 388, 02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❏ Fit the **pedal press** to the brake pedal to limit the amount of brake fluid running out.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

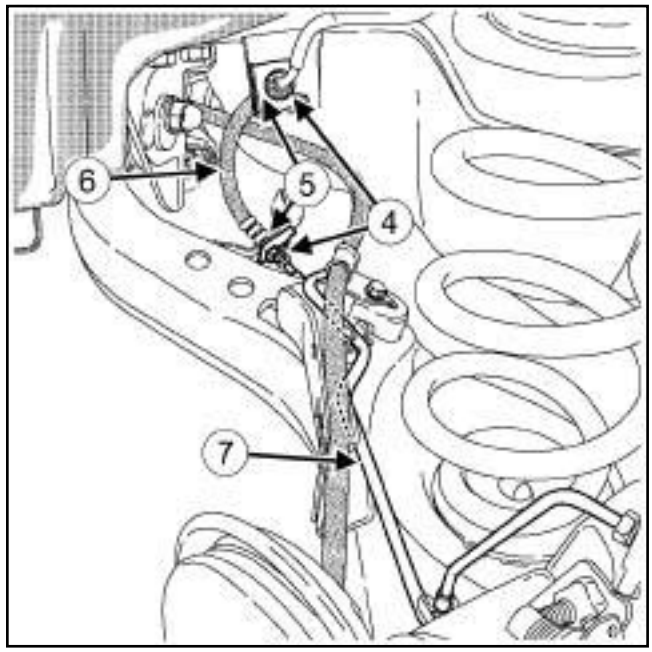


130809

❏ Undo the rear brake hose at the pipe connection (**1**) .

❏ Remove the rear brake hose clip (**2**) .

❏ Disconnect the rear brake hose (**3**) .



130825

❏ Undo the rear brake hose at the pipe connection (**4**) .

❏ Remove:

- the clips (**5**) from the rear brake hose (**6**) ,
- the rear brake hose.

❏ Detach the rigid brake pipe (**7**) from the rear stub axle carrier.

❏ Remove the rigid brake pipe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**WARNING**

To avoid damaging the wheel speed sensor cable:

- Do not tension the cable,
- Do not twist the cable,
- Check that there is no contact with the surrounding components,
- Do not use tools that may damage the cable.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rigid brake pipe in its initial position.
- the rear brake hose ***(6)*** ,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- the rear brake hose on the union ***(4)*** ,
- the clips ***(5)*** on the rear brake hose.

❏ Torque tighten the **rear brake hose on the union (16 N.m)**.

❏ Refit:

- the rear brake hose ***(3)*** ,
- the rear brake hose on the union ***(1)*** ,
- the clip ***(2)*** on the rear brake hose.

**III - FINAL OPERATION.**

❏ Remove the **pedal press**.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .


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| Essential equipment |
|---|
| trolley jack |
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| bolt of the shock absorber | **120N.m** |
| nut of the shock absorber | **120N.m** |

**WARNING**
To prevent any suspension asymmetry, replace both of the shock absorbers on the same axle.

**WARNING**
To prevent the components of the rear axle from deteriorating (rubber bushes, brake hoses, etc.) do not remove the two shock absorbers at the same time. Proceed one side at a time.

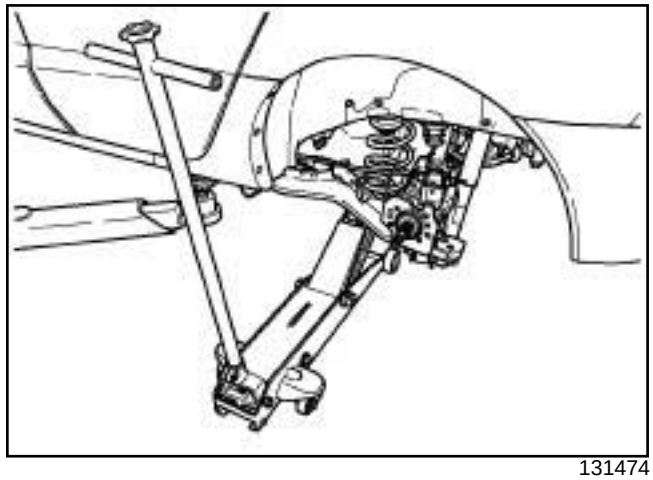
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

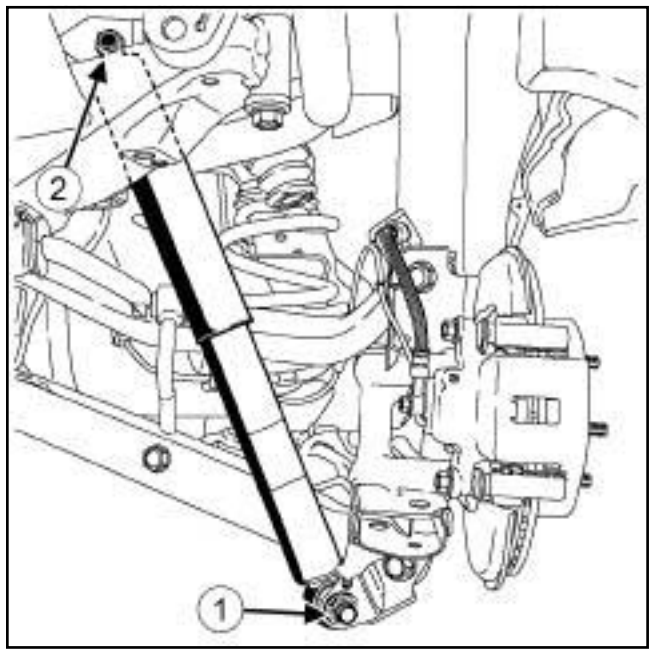
❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

### II - REMOVAL OF PART CONCERNED



131474

❏ Position the **trolley jack** with a shim under the lower seat of the spring.




131475

❏ Remove the lower bolt and nut (**1**) of the rear shock absorber.

❏ Lower the **trolley jack**.

❏ Remove:

- the upper bolt and nut (**2**) of the rear shock absorber,
- the rear shock absorber.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the shock absorber nuts.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**II - REFITTING PART CONCERNED**

❏ Refit:

- the rear shock absorber,
- the new upper bolt and nut of the rear shock absorber.

❏ Torque tighten the upper **bolt of the shock absorber (120N.m)**.

❏ Position the **trolley jack** under the lower seat of spring.

❏ Fit the new lower bolt and nut of the rear shock absorber.

> Note:
>
> Tighten the lower nut of the shock absorber with the wheels on the ground.

**III - FINAL OPERATION.**

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❏ Torque tighten the lower **nut of the shock absorber (120N.m)**.

❏ Adjust:

- the alignment (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) (30A, General information),
- the neutral position of the steering wheel angle sensor using the **diagnostic tool** (see **Fault finding - Programming**)(80B, Headlights)


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| Essential equipment |
|---|
| pedal press |
| trolley jack |
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| bolt of the upper arm on the rear stub axle carrier | **150N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the tie rod of the rear anti-roll bar | **110N.m** |
| upper nut of the tie rod of the rear anti-roll bar | **110N.m** |
| nut of the lower trailing link on the rear axle subframe | **130N.m** |
| upper arm bolt on the rear axle subframe | **130N.m** |
| bolts on the rear brake hose bracket | **25N.m** |
| brake hose on the union | **16 N.m** |
| bolt and the lower nut of the rear shock absorber | **120N.m** |

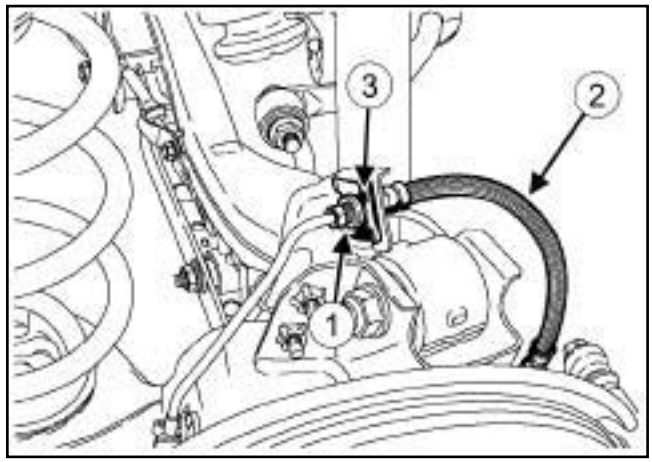
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❏ Place the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

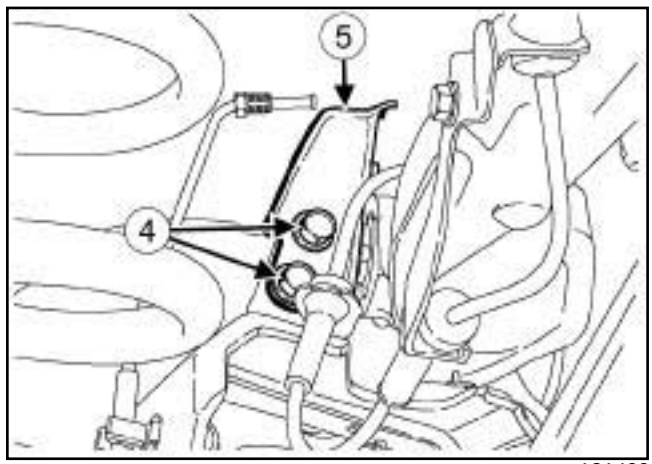


131498

❏ Unscrew the rear brake hose at the union (**1**) .

❏ Remove the clip (**3**) from the rear brake hose.

❏ Disconnect the rear brake hose (**2**) .



131499

❏ Remove:

- the bolts (**4**) from the rear brake hose bracket,
- the rear brake hose bracket (**5**) ,
- the rear wheel speed sensor of the rear stub axle carrier (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) (38C, Anti-lock braking system).

XENON BULBS

❏ Remove the rear sensor of the headlight beam adjustment (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).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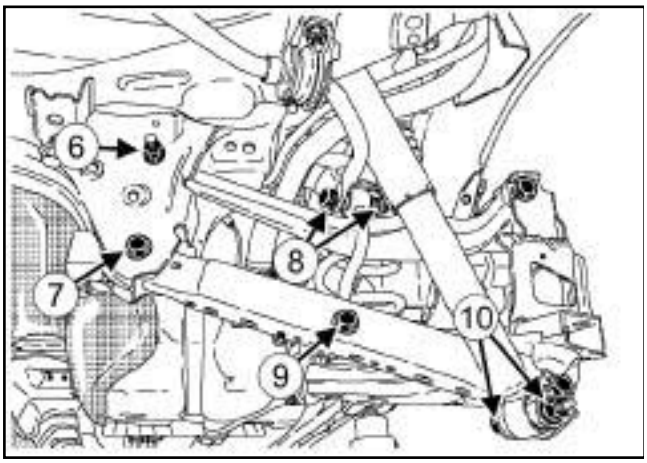
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❑

Note:

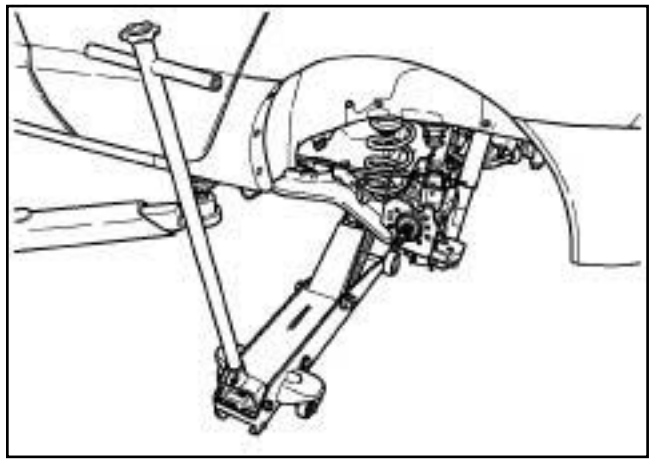
Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.




131500

❑ Undo:

- the bolt and nut (**6**) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (**7**) of the rear axle subframe,
- the upper bolt and nut (**8**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**9**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**10**) of the rear shock absorber.

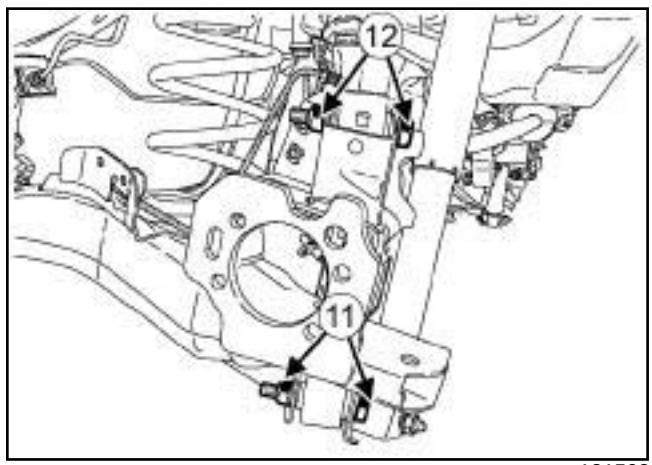


131501

❑ Position the **trolley jack** with a shim under the lower seat of the spring.

❑ Remove:

- the lower bolt and nut ***(9)*** of the tie rod of the rear anti-roll bar,
- the lower bolt and nut ***(10)*** of the rear shock absorber.




131502

❑ Remove:

- the bolt and nut of the lower trailing link (**11**) ,
- the bolt and nut (**12**) of the upper arm.

❑ Lower the **trolley jack**.

❑ Remove the rear suspension spring.

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❑ Always replace:

- the upper arm nut,
- the lower trailing link nut,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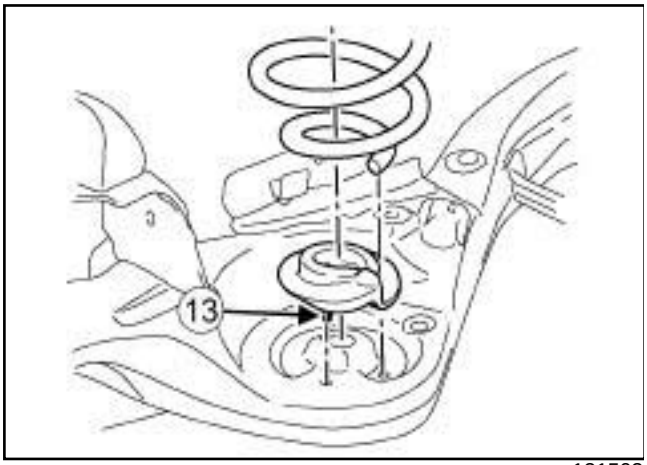
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,

**II - REFITTING OPERATION FOR PART CONCERNED**



131503

❑

Note:

The lower elastic bearing (**13**) of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

❑ Refit the rear suspension spring by aligning the lower end of widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two technicians.

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut ***(12)*** on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut ***(11)*** of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❑ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

❑ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130N.m)**,
- the **upper arm bolt on the rear axle subframe (130N.m)**.

XENON BULBS

❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❑ Refit:

- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) (38C, Anti-lock Braking System),
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.

❑ Torque tighten:

- the **bolts on the rear brake hose bracket (25N.m)**,
- the **brake hose on the union (16 N.m)**.

**III - FINAL OPERATION.**

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) (see 30A, General information ).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❑ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

❑ Torque tighten the **bolt and the lower nut of the rear shock absorber (120N.m)**.

XENON BULBS

❑ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
- the headlight beam adjustment rear sensor (see **fault Finding - Programming**)(80B, Headlights).

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) (30A, General information),
- the neutral position of the steering wheel angle sensor using the **diagnostic tool** (see **Fault finding - Programming**) (80B, Headlights)


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| Tightening torques ▽ | |
|---|---|
| rear wheel hub bolts | **88 N.m** |
| rear wheel speed sensor bolt | **10 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

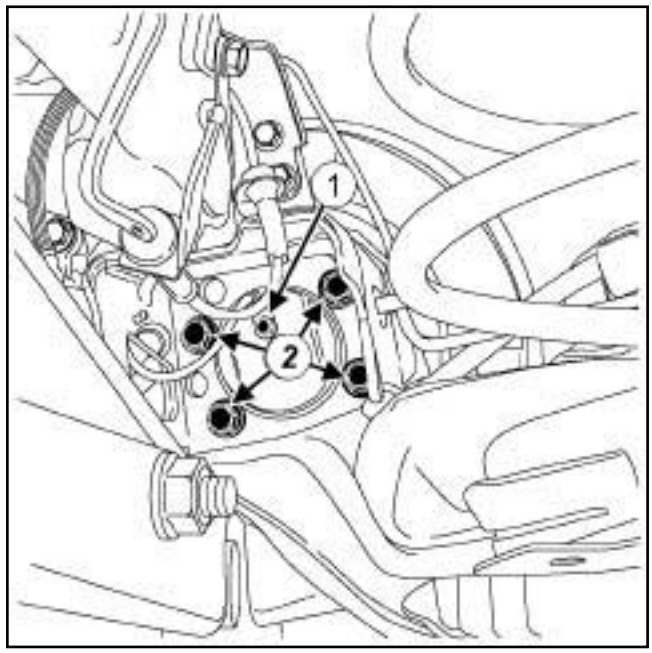
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❏ Suspend the rear brake calliper.

❏ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**)
- the brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130817

❏ Remove:

- the rear wheel speed sensor bolt (**1**) ,
- the rear wheel speed sensor of the rear wheel hub,
- the rear wheel hub bolts (**2**) ,
- the rear wheel hub from the rear stub-axle carrier.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear wheel hub to the rear stub-axle carrier,
- the rear wheel hub bolts,
- the rear wheel speed sensor on to the rear wheel hub,
- the rear wheel speed sensor bolt.

❏ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.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**II - FINAL OPERATION.**

❑ Refit:

- the brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**IMPORTANT**

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |

| Tightening torques ▽ | |
|---|---|
| rear wheel hub bolts | **88 N.m** |
| rear wheel speed sensor bolt | **10 N.m** |
| wheel hub nut | **125 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

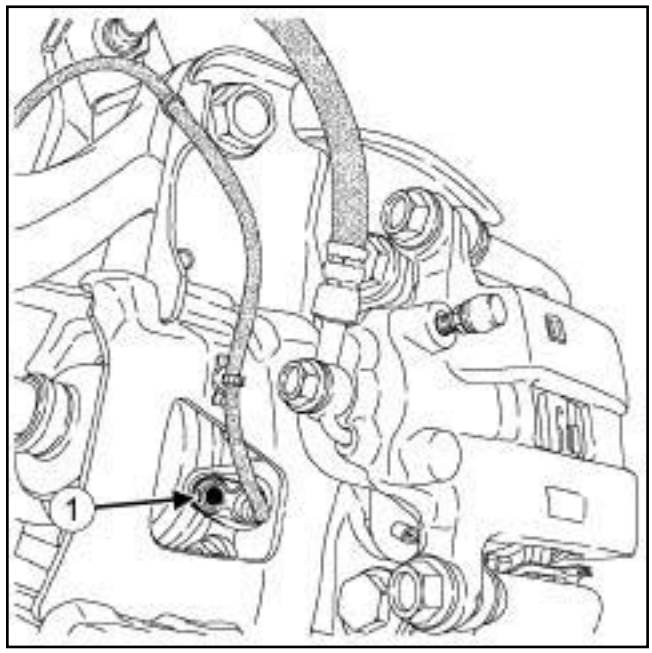
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❏ Suspend the rear brake calliper.

❏ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**)
- the brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) .

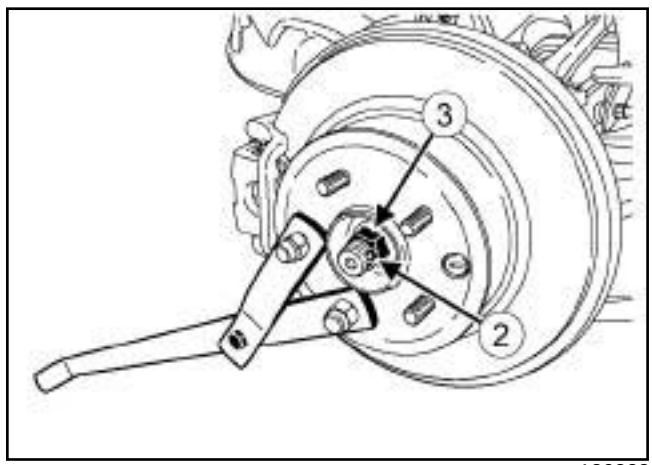
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130819

❏ Remove:

- the rear wheel speed sensor bolt (**1**) ,
- the rear wheel speed sensor from the rear wheel hub.




130828

❏ Place the tool **(Rou. 604-01)** on the rear hub,

❏ Remove:

- the cotter pin (**2**) ,
- the rear hub nut (**3**) ,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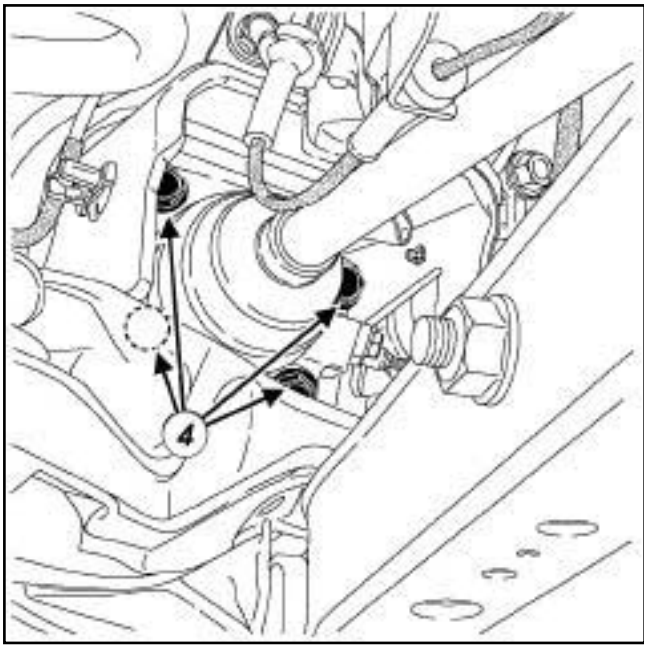

130829

❑ Remove:

- the rear wheel hub bolts (**4**) ,
- the rear wheel hub from the rear stub-axle carrier.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the cotter pin.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear wheel hub to the rear stub-axle carrier,
- the rear wheel hub nuts,
- the rear wheel speed sensor on to the rear wheel hub,
- the rear wheel speed sensor bolt.

❑ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.

❑ Refit the rear wheel hub nut using tool **(Rou. 604-01)**.

❑ Torque tighten the **wheel hub nut (125 N.m)**.

❑ Refit the new cotter pin.

### III - FINAL OPERATION.

❑ Refit:

- the brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**)
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**)
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

**IMPORTANT**
To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.


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| Essential equipment |
|---|
| pedal press |
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| rear stub axle carrier nut | **150 N.m** |
| bolt of the upper arm on the rear stub axle carrier | **150 N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| upper nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| nut of the lower trailing link on the rear axle subframe | **130 N.m** |
| upper arm bolt on the rear axle subframe | **130 N.m** |
| bolts on the rear brake hose bracket | **25 N.m** |
| brake hose on the union | **16 N.m** |
| rear shock absorber lower nut120 | **N.m** |

## REMOVAL

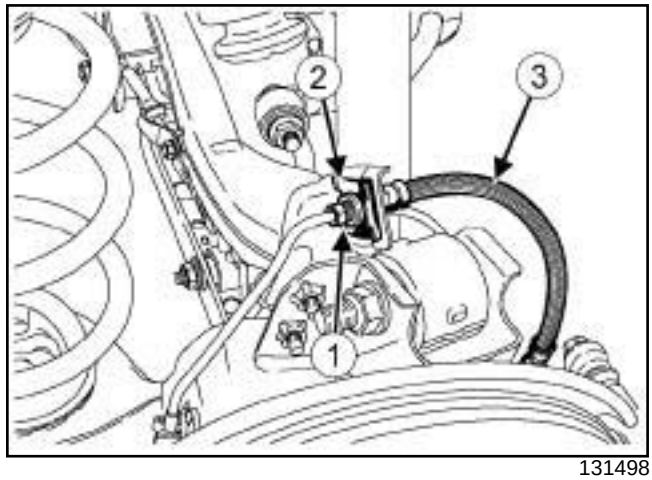
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

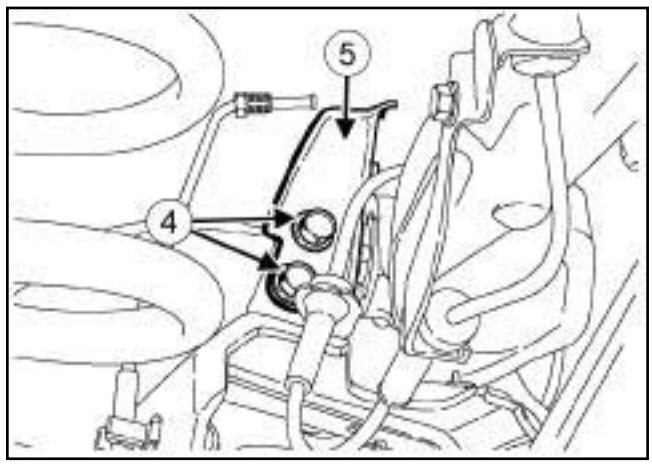


131498

❏ Undo the rear brake hose at the union (**1**)

❏ Remove the mounting clip ***(2)*** from the rear brake hose ***(3)*** .

❏ Disconnect the rear brake hose.



131499

❏ Remove:

- the bolts (**4**) from the rear brake hose bracket,
- the rear brake hose bracket (**5**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,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- the rear wheel speed sensor of the rear stub axle carrier (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake pipe (see **33A**, **Rear axle components**, **Brake pipe: Removal - Refitting**, page **33A-18**) ,

XENON BULBS

❏ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❏ Remove the parking brake cables from the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

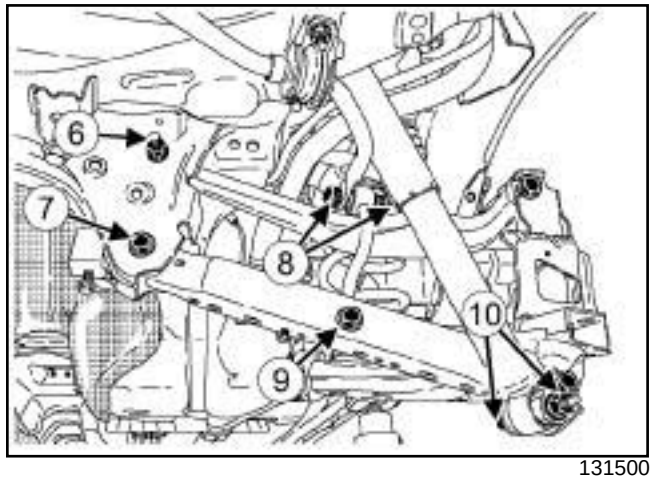
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❏ Remove:

- the rear wheel hub (see **33A**, **Rear axle components**, **Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
- the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



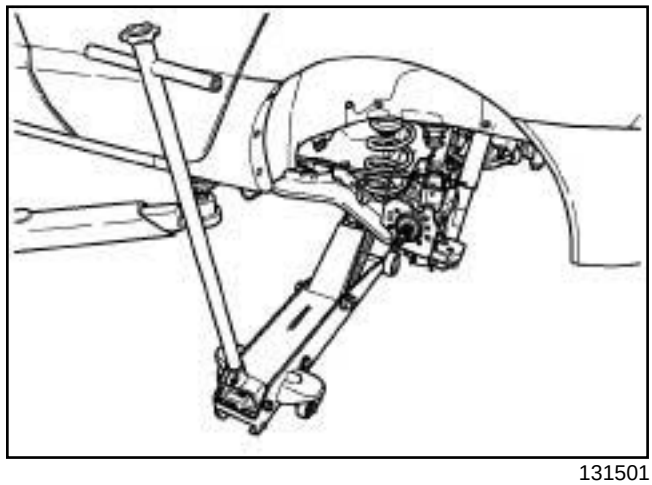
131500

❏ Undo:

- the bolt and nut (**6**) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (**7**) on the rear axle subframe,
- the upper bolt and nut (**8**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**9**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**10**) of the rear shock absorber.

**WARNING**

To prevent any damage, do not use the rear axle as support for the lifting system.


131501

❏ Position the **trolley jack** with a shim under the lower seat of the spring.

❏ Remove:

- the lower bolt and nut of the tie rod of the rear anti-roll bar ***(9)*** ,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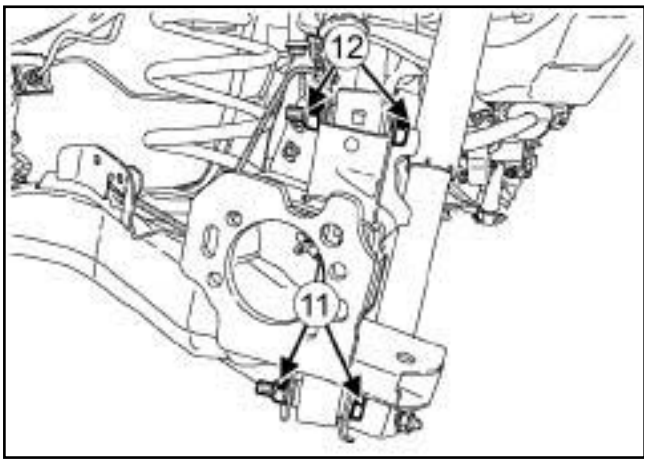
- the lower bolt and nut ***(10)*** of the rear shock absorber.



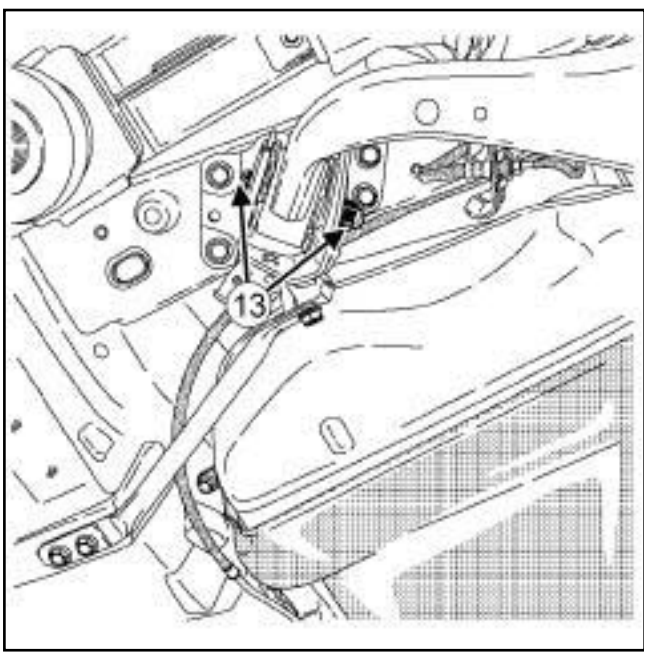

131502

❏ Remove:

- the lower trailing link bolt and nut (**11**) of the rear stub axle carrier,
- the upper arm bolt and nut (**12**) of the rear stub axle carrier.

❏ Lower the **trolley jack**.

❏ Remove the rear suspension spring.




131628

❏ Remove:

- the bolt and nut (**13**) of the rear stub axle carrier,
- the rear stub axle carrier.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

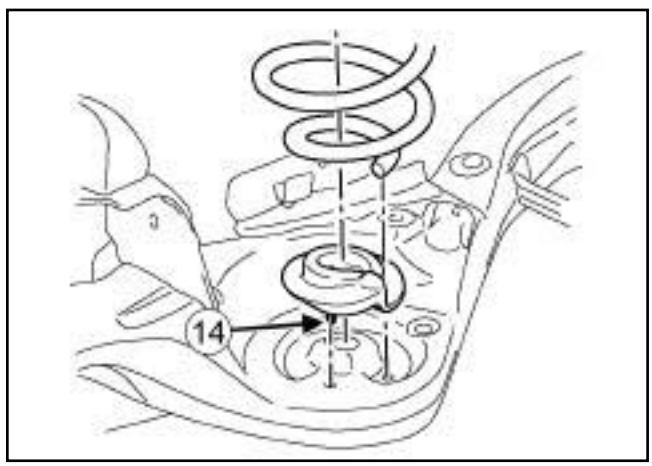
- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,
- the rear stub axle carrier nut.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear stub axle carrier,
- the bolt and nut of the rear stub axle carrier.

❏ Tighten to torque the **rear stub axle carrier nut (150 N.m)**.




131503

❏

Note:

The lower elastic bearing (**14**) of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

❏ Refit the rear suspension spring by aligning the lower end of widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❏ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.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4X2 TRANSMISSION

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❑ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

❑ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**,
- The **upper arm bolt on the rear axle subframe (130 N.m)**.

❑ Refit:

- the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier,
- the rear wheel arch (see **33A**, **Rear axle components**, **Rear wheel hub: Removal - Refitting**, page **33A-26**) .

**III - FINAL OPERATION.**

❑ Refit the parking brake cables on to the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❑ Refit:

- the rear brake pipe (see **33A**, **Rear axle components**, **Brake pipe: Removal - Refitting**, page **33A-18**) ,
- the rear wheel speed sensor of the rear stub axle carrier (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the mounting clip on the rear brake hose.

❑ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,
- the **brake hose on the union (16 N.m)**.

❑ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Torque tighten ther **rear shock absorber lower nut120 (N.m)**.

XENON BULBS

❑ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),


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4X2 TRANSMISSION

- the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

❏ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

❏ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Removal - Refitting**, page **37A-37**) .

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).


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4X4 TRANSMISSION

| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |

| Essential equipment |
|---|
| pedal press |
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| rear stub axle carrier nut | **150 N.m** |
| bolt of the upper arm on the rear stub axle carrier | **150 N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| upper nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| nut of the lower trailing link on the rear axle subframe | **130 N.m** |
| upper arm bolt on the rear axle subframe | **130 N.m** |
| wheel hub nut | **125 N.m** |
| bolts on the rear brake hose bracket | **25 N.m** |
| brake hose on the union | **16 N.m** |
| shock absorber lower nut1 | **20 N.m** |

## REMOVAL

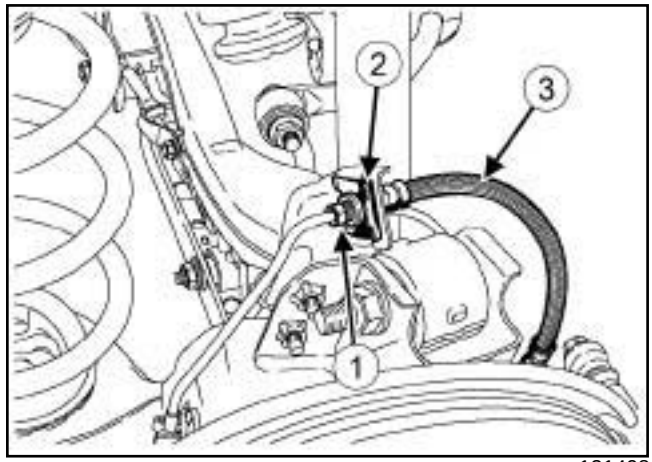
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

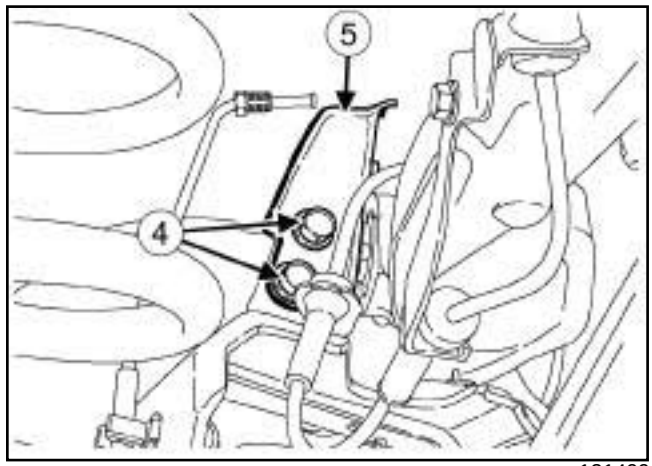


131498

❏ Undo the rear brake hose (**1**) at the union.

❏ Remove the clip ***(2)*** from the rear brake hose ***(3)*** .

❏ Disconnect the rear brake hose.



131499

❏ Remove:

- the bolts (**4**) from the rear brake hose bracket,
- the rear brake hose bracket (**5**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,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4X4 TRANSMISSION

- the rear wheel speed sensor of the rear stub axle carrier (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake pipe (see **33A**, **Rear axle components**, **Brake pipe: Removal - Refitting**, page **33A-18**) ,

XENON BULBS

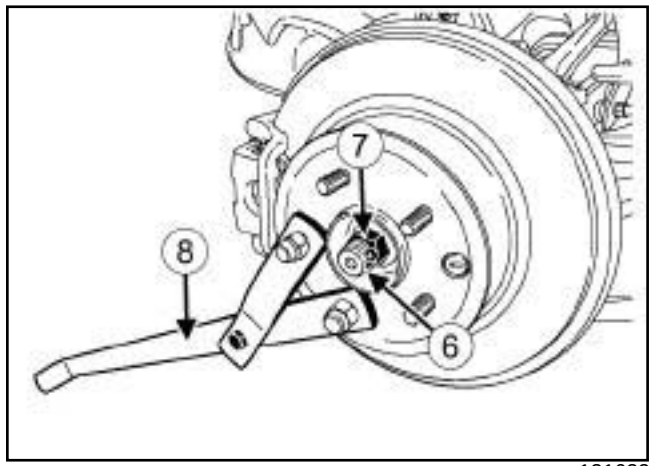
❏ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❏ Remove the parking brake cables from the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131632

❏ Remove:

- the cotter pin (**6**)
- the wheel hub nut (**7**) using the tool **(Rou. 604-01)** (**8**) ,
- the rear wheel hub (see **33A**, **Rear axle components**, **Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
- the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.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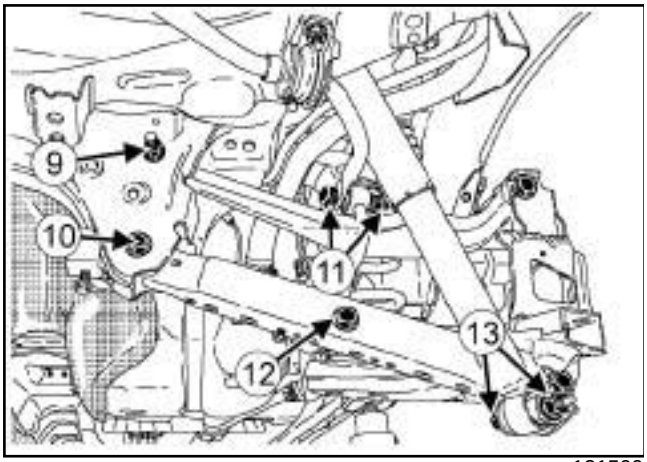
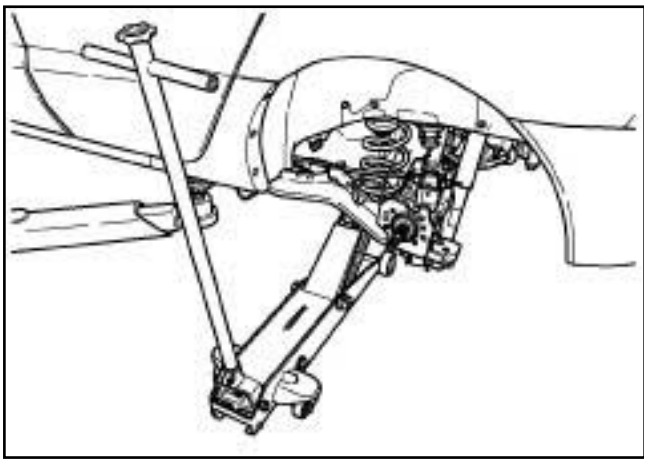



131500

❏ Undo:

- the bolt and nut (**9**) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (**10**) on the rear axle subframe,
- the upper bolt and nut (**11**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**12**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**13**) of the rear shock absorber.

**WARNING**
To prevent any damage, do not use the rear axle as support for the lifting system.

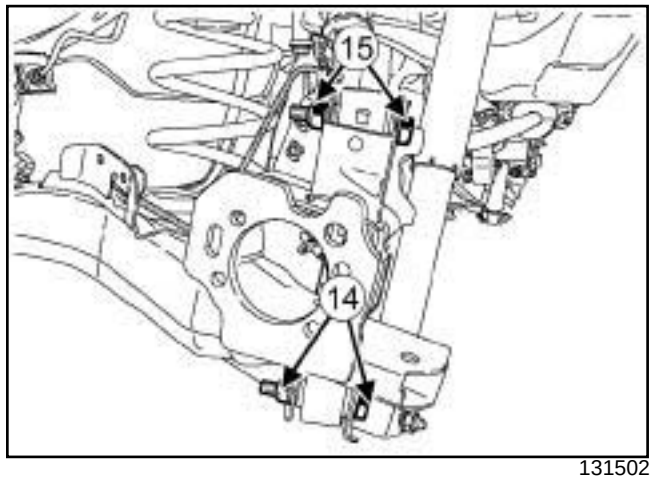


131501

❏ Position the **trolley jack** with a shim under the lower seat of the spring.

❏ Remove:

- the lower bolt and nut ***(12)*** of the tie rod of the rear anti-roll bar,
- the lower bolt and nut ***(13)*** of the rear shock absorber.



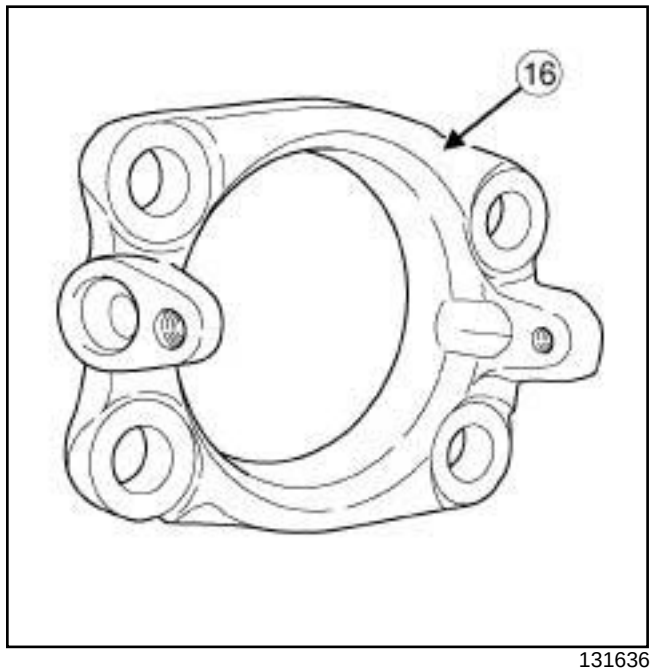

131502

❏ Remove:

- the lower trailing link bolt and nut (**14**) of the rear stub axle carrier,
- the upper arm bolt and nut (**15**) of the rear stub axle carrier.

❏ Lower the **trolley jack**.

❏ Remove the rear suspension spring.




131636

❏ Remove:

- the rear driveshaft of the rear stub axle carrier,
- the rear axle bearing (**16**) of the rear stub axle carrier.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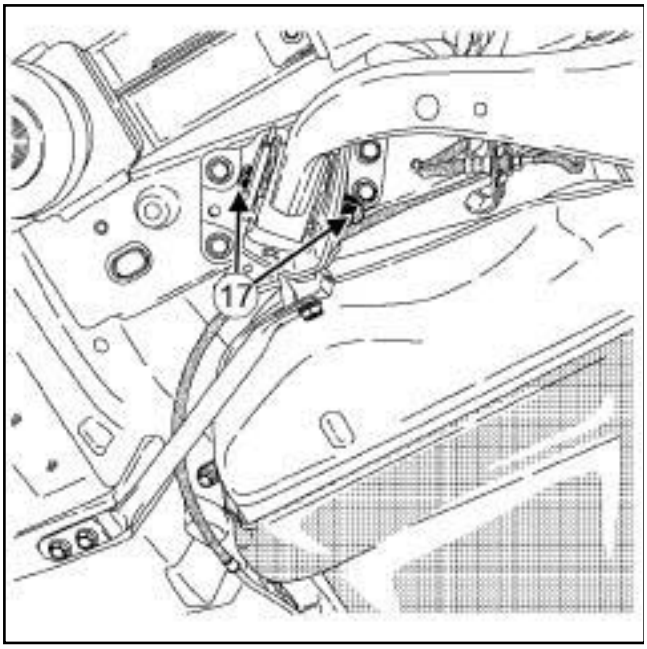



131628

❏ Remove:

- the bolt and nut (**17**) of the rear stub axle carrier,
- the rear stub axle carrier.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,
- the rear stub axle carrier nut,
- the cotter pin.

### II - REFITTING OPERATION FOR PART CONCERNED

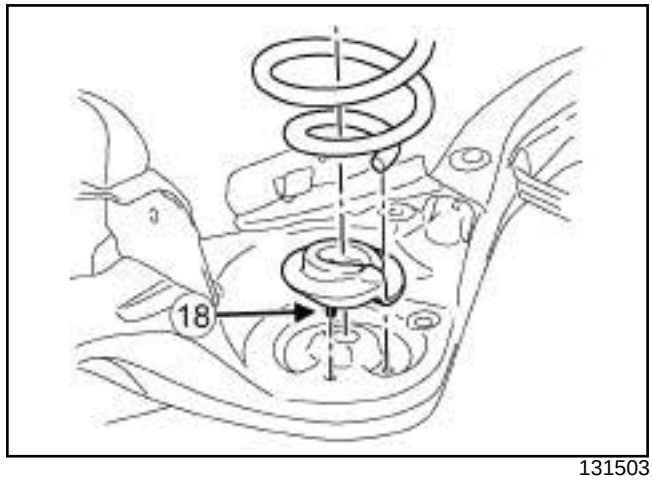
❏ Refit:

- the rear stub axle carrier,
- the bolt and nut of the rear stub axle carrier.

❏ Torque tighten the **rear stub axle carrier nut (150 N.m)**.

❏ Refit:

- the rear axle bearing on to the rear stub axle carrier,
- the rear driveshaft on to the rear stub axle carrier.




131503

❏

Note:

The lower elastic bearing of the rear suspension spring (**18**) must be firmly inserted into the opening of the rear stub axle carrier.

❏ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❏ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

❏ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❏ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.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4X4 TRANSMISSION

❏ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**,
- the **upper arm bolt on the rear axle subframe (130 N.m)**.

❏ Refit:

- the "rear brake disc shield - rear brake lining - parking brake cable" assembly to the rear stub-axle carrier,
- the rear wheel hub (see **33A**, **Rear axle components**, **Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
- the wheel hub nut using the tool **(Rou. 604-01)**.

❏ Torque tighten the **wheel hub nut (125 N.m)**.

❏ Refit the new cotter pin.

**III - FINAL OPERATION.**

❏ Refit the parking brake cables on to the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

❏ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❏ Refit:

- the rear brake pipe (see **33A**, **Rear axle components**, **Brake pipe: Removal - Refitting**, page **33A-18**) ,
- the rear wheel speed sensor on to the rear stub axle carrier (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.

❏ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,
- the **brake hose on the union (16 N.m)**.

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Torque tighten the **shock absorber lower nut1 (20 N.m)**.

XENON BULBS

❏ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
- the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

❏ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.


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FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Removal - Refitting**, page **37A-37**) .

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).


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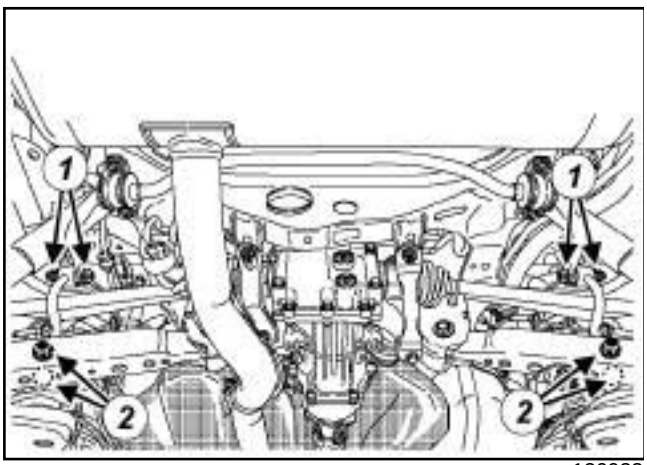
| Tightening torques ▽ | |
|---|---|
| rear anti-roll bar tie rod upper bolts and nuts | **110 N.m** |
| rear anti-roll bar tie rod lower bolts and nuts | **110 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130933

❏ Undo:

- the rear anti-roll bar tie rod upper bolts and nuts (**1**) on both sides,
- the rear anti-roll bar tie rod lower bolts and nuts (**2**) on both sides.

❏ Remove:

- the rear anti-roll bar tie rod upper bolts and nuts (**1**) on both sides,
- the rear anti-roll bar tie rod lower bolts and nuts (**2**) on both sides.
- the rear anti-roll bar tie-rod.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the tie rod nuts of the rear anti-roll bar.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the anti-roll bar tie-rod,
- the rear anti-roll bar tie rod upper bolts and nuts on both sides,
- the rear anti-roll bar tie rod lower bolts and nuts on both sides.

❏ Torque tighten:

- the **rear anti-roll bar tie rod upper bolts and nuts (110 N.m)**,
- the **rear anti-roll bar tie rod lower bolts and nuts (110 N.m)**.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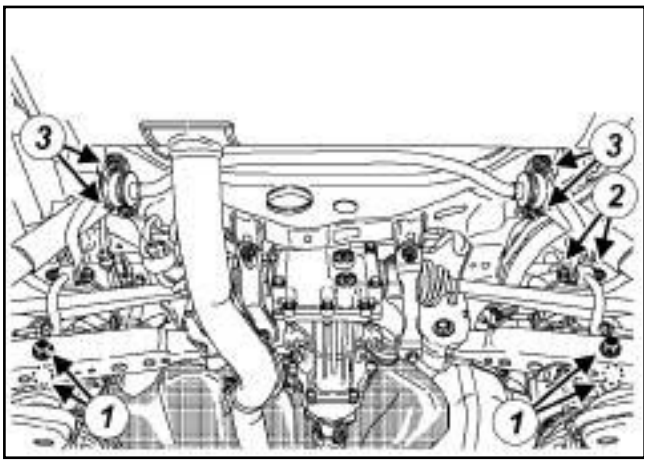
| Tightening torques ▽ | |
|---|---|
| rear anti-roll bar nuts36 | **N.m** |
| upper nuts of the anti-roll bar tie rod | **110 N.m** |
| lower nuts of the anti-roll bar tie rod110 | **N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

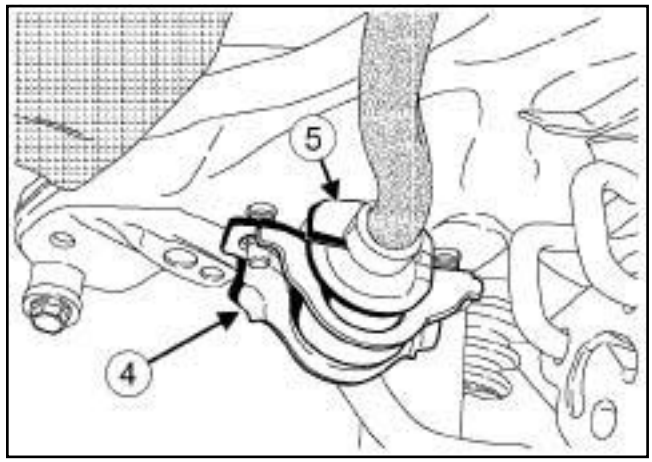


130933

❏ Loosen the rear anti-roll bar tie rod lower bolts and nuts (**1**) on both sides.

❏ Remove:

- the upper bolts and nuts of the rear anti-roll bar tie rod (**2**) ,
- the rear anti-roll bar nuts (**3**) .



130935

❏ Remove:

- the rear anti-roll bar mounting (**4**) ,
- the rear anti-roll bar,
- the rubber bush (**5**) of the rear anti-roll bar.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the nuts of the rear anti-roll bar.

❏ Check the condition of the rubber bushes.

❏ Replace the rubber bushes if they are damaged.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rubber bushes of the rear anti-roll bar,
- the rear anti-roll bar,
- the rear anti-roll bar mounting,
- the rear anti-roll bar nuts.

❏ Torque tighten the **rear anti-roll bar nuts36 (N.m)**.

❏ Refit the upper bolts and nuts of the rear anti-roll bar tie rod.

❏ Torque tighten:

- the **upper nuts of the anti-roll bar tie rod (110 N.m)**,
- the **lower nuts of the anti-roll bar tie rod110 (N.m)**.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| Essential equipment |
|---|
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| nut of the lower trailing link on the rear axle subframe | **130N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the anti-roll bar tie rod110 | **N.m** |
| upper nut of the anti-roll bar tie rod110 | **N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

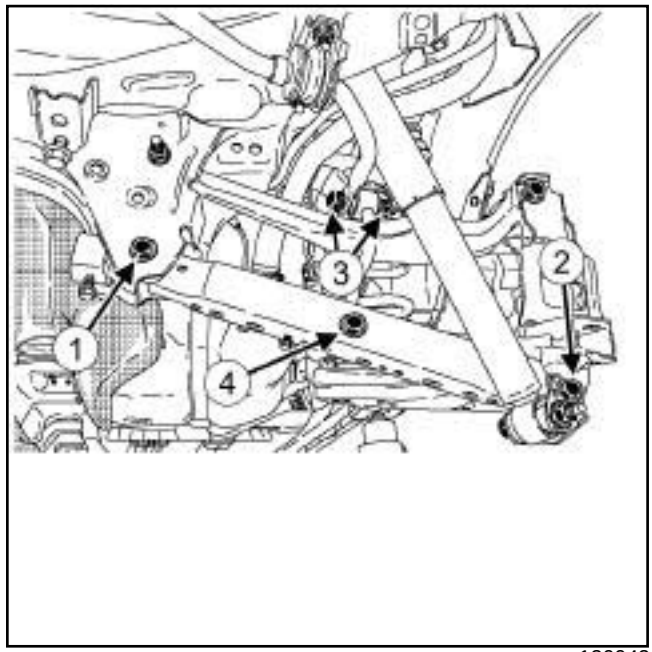
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

XENON BULBS

❏ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

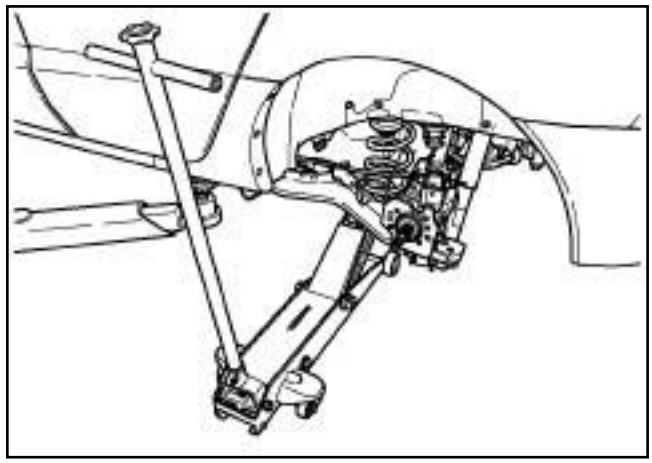
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130042

❏ Loosen:

- the lower trailing link bolt and nut on the rear axle subframe (**1**) ,
- the lower trailing link bolt and nut (**2**) on the rear stub axle carrier,
- the rear anti-roll bar tie-rod upper bolt and nut (**3**) of the rear anti-roll bar on both sides,
- the lower bolt and nut (**4**) of the rear anti-roll bar tie rod.



130937

❏ Position the **trolley jack** with a shim under the lower seat of the spring.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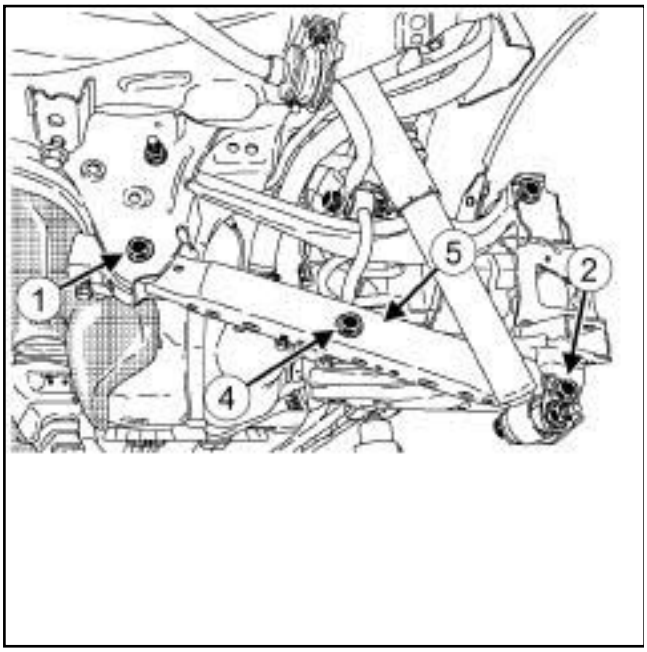

130042

❑ Remove:

- the lower bolt and nut (**4**) of the rear anti-roll bar tie rod,
- the lower trailing link bolt and nut (**2**) of the rear stub axle carrier,
- the lower trailing link bolt and nut (**1**) of the rear axle subframe,
- the lower trailing link (**5**) .

(This operation requires two technicians).

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the lower trailing link nuts,
- the rear anti-roll bar tie rod lower nut.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the **trolley jack** with a shim under the lower seat of the spring;

❑ Refit:

- the lower trailing link ***(5)*** ,
- the new lower trailing link bolt and nut ***(1)*** on to the rear axle subframe,
- the new lower trailing link bolt and nut ***(2)*** on to the rear stub axle carrier,
- the new lower bolt and nut ***(4)*** of the rear anti-roll bar tie rod.

❑ Lower the **trolley jack**.

❑ Torque tighten:

- the **nut of the lower trailing link on the rear axle subframe (130N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the anti-roll bar tie rod110 (N.m)**.
- the **upper nut of the anti-roll bar tie rod110 (N.m)**.

### III - FINAL OPERATION.

XENON BULBS

❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❑ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

XENON BULBS

❑ Adjust:

- the headlight wiring (see **Front headlight: Adjusting**) (80 B, Headlights)
- the headlight beam adjustment rear sensor **Fault finding - Programming** (80C, Xenon bulbs).

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor **Fault Finding- Programming** (80B, Headlights).


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| Essential equipment |
|---|
| pedal press |
| trolley jack |

| Tightening torques ▽ | |
|---|---|
| upper arm bolt on the rear axle sub-frame | **130 N.m** |
| upper arm bolt on the rear stub-axle carrier | **150 N.m** |
| rear brake hose mounting bolts | **25 N.m** |
| rigid pipe union on to the rear brake hose | **16 N.m** |

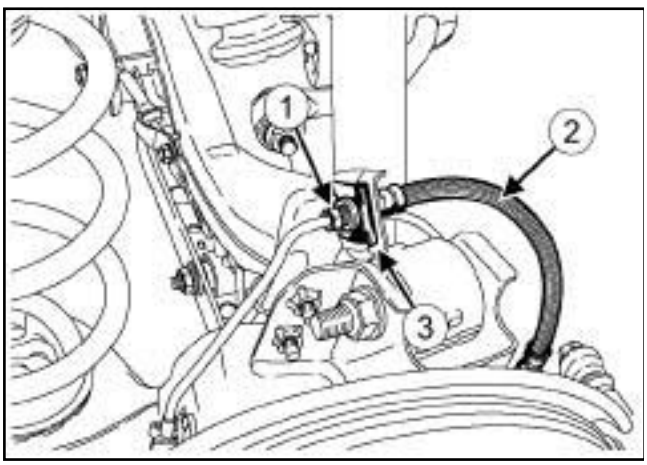
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Fit the **pedal press** to the brake pedal to limit the outflow of brake fluid.

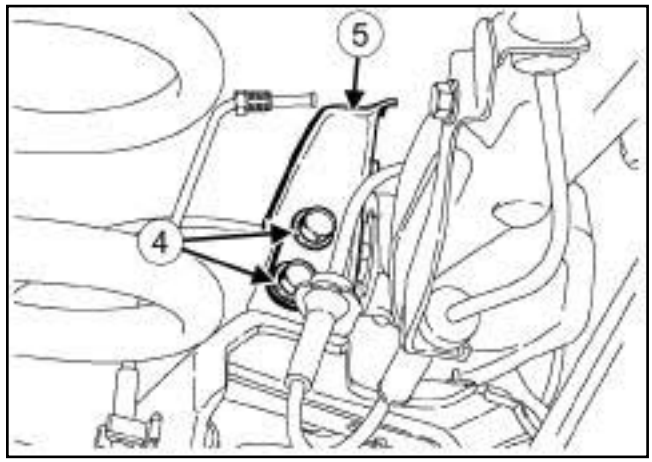



130809

❏ Undo the rigid pipe union (**1**) on the rear brake hose.

❏ Remove the clip (**3**) from the rear brake hose.

❏ Disconnect the rear brake hose (**2**) .

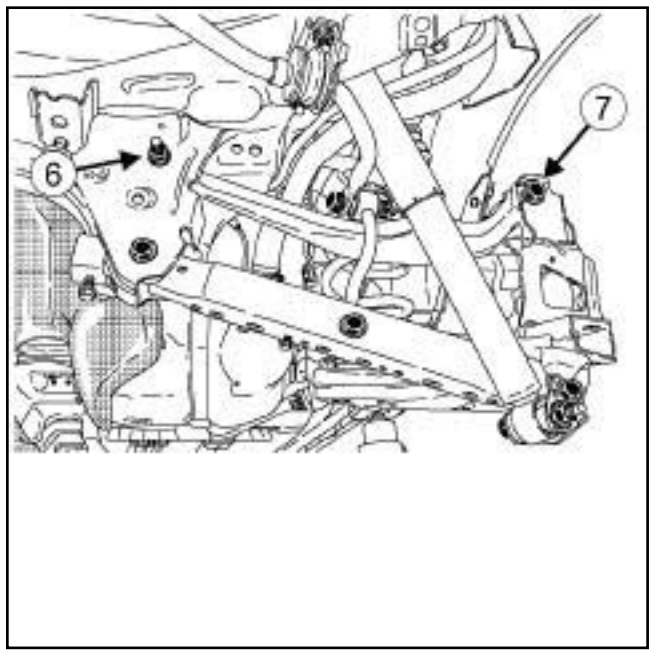



130940

❏ Remove:

- the bolts (**4**) from the rear brake hose mounting,
- the rear brake hose mounting (**5**) ,
- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130042

❏ Loosen:

- the bolt and nut (**6**) of the upper arm of the rear axle subframe,
- the upper arm bolt and nut (**7**) of the rear stub axle carrier.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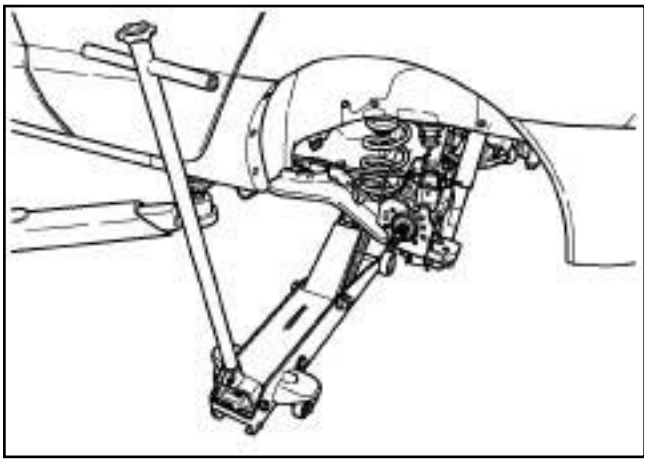
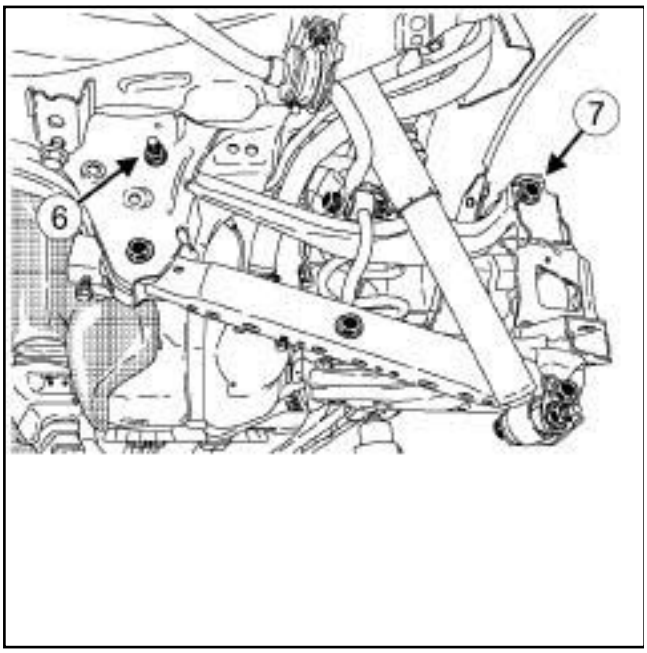


130937

❑ Position the **trolley jack** with a shim under the lower seat of the spring.




130042

❑ Remove:

- the bolt and nut (**6**) of the upper arm of the rear axle subframe,
- the upper arm bolt and nut (**7**) of the rear stub axle carrier,
- the upper arm.

(This operation requires two technicians).

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the upper arm nuts.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Position the **trolley jack** with a shim under the lower seat of the spring.

❑ Refit:

- the upper arm,
- the bolt and nut ***(6)*** of the upper arm of the rear axle subframe,
- the upper arm bolt and nut ***(7)*** of the rear stub axle carrier.

❑ Lower the **trolley jack**.

❑ Torque tighten:

- the **upper arm bolt on the rear axle sub-frame (130 N.m)**,
- the **upper arm bolt on the rear stub-axle carrier (150 N.m)**,

### III - FINAL OPERATION.

❑ Refit:

- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake hose mounting ***(5)*** ,
- the rear brake hose mounting bolts ***(4)*** ,
- the rear brake hose ***(2)*** ,
- the rigid pipe union ***(1)*** on to the rear brake hose,
- the clip ***(3)*** on the rear brake hose.

❑ Torque tighten:

- the **rear brake hose mounting bolts (25 N.m)**,
- the **rigid pipe union on to the rear brake hose (16 N.m)**.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see: **Fault finding - Programming**) (80B, Headlights).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4X2 TRANSMISSION

| Essential equipment |
|---|
| pedal press |
| trolley jack |
| component jack |

| Tightening torques ▽ | |
|---|---|
| upper bolt of the rear shock absorber | **120 N.m** |
| rear axle subframe bolts | **100 N.m** |
| upper arm bolt on the rear axle subframe | **130 N.m** |
| nut of the lower trailing link on the rear axle subframe | **130 N.m** |
| bolt and the nut of the rear stub axle carrier | **150 N.m** |
| bolt of the upper arm on the rear stub axle carrier | **150 N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| upper nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| brake hose on the union | **16 N.m** |
| bolts on the rear brake hose bracket | **25 N.m** |
| brake hose on the union | **16 N.m** |
| shock absorber lower nut1 | **20 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

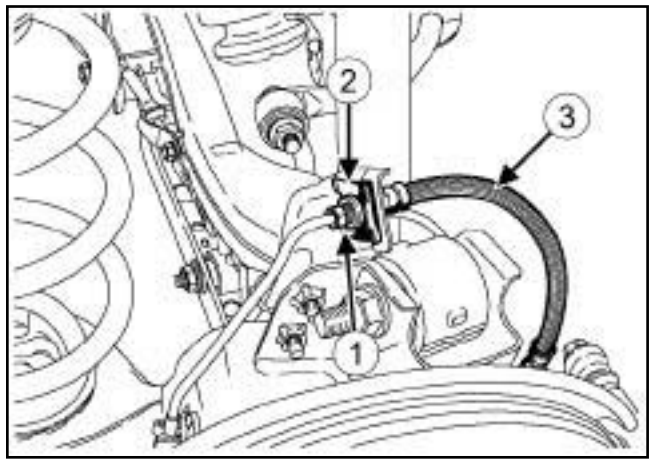
❏ Release the parking brake.

❏ Remove:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,

- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

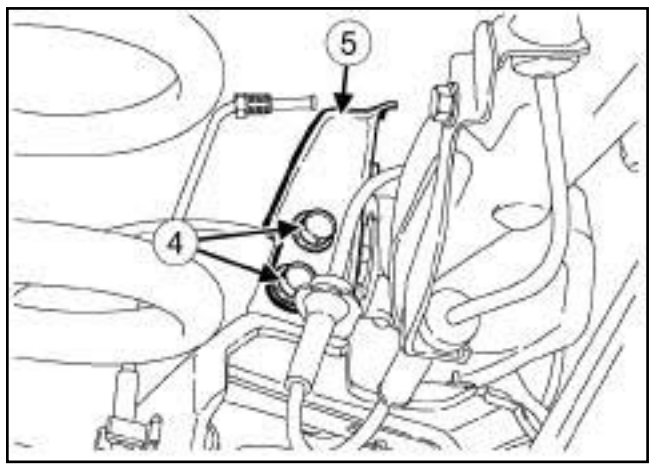


131498

❏ Undo the rear brake hose at the pipe connection (**1**) .

❏ Remove the clip ***(2)*** from the rear brake hose ***(3)*** .

❏ Disconnect the rear brake hose.



131499

❏ Remove:

- the bolts (**4**) from the rear brake hose bracket,

- the rear brake hose bracket,

- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) .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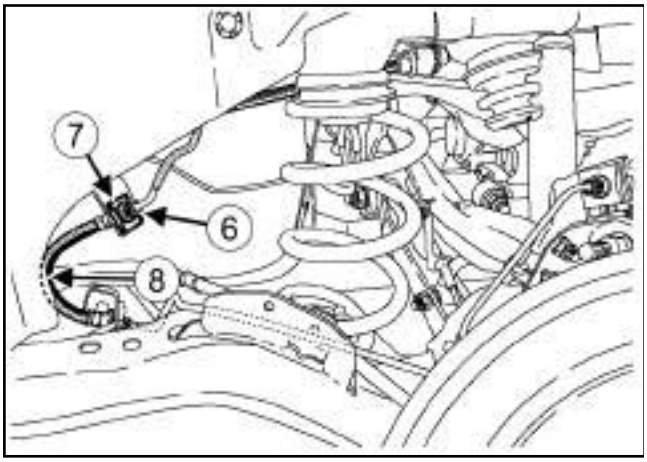
XENON BULBS

❑ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).




131641

❑ Undo the rear brake hose at the pipe connection (**6**) .

❑ Remove clip ***(7)*** .

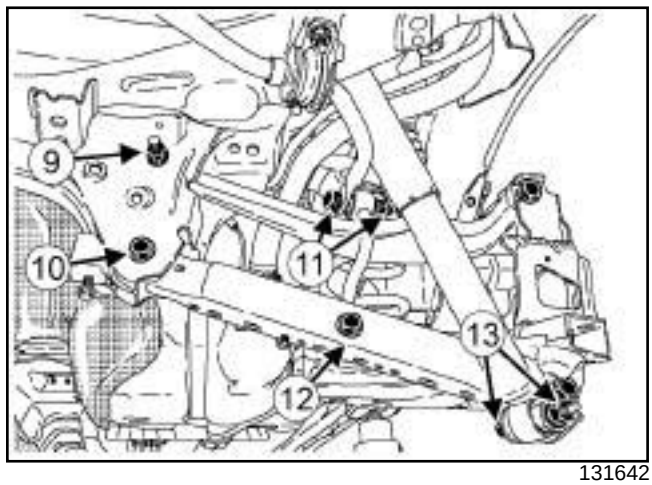
❑ Disconnect the brake hose ***(8)*** .

❑ Remove the parking brake cables from the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



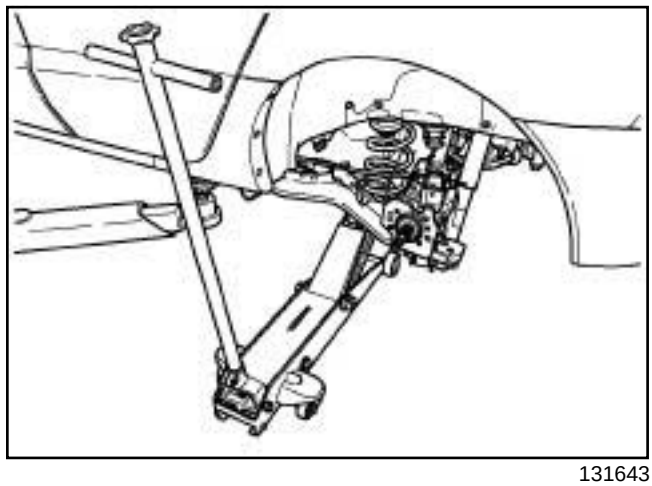

131642

❑ Undo:

- the bolt and the nut (**9**) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and the nut (**10**) on the rear axle subframe,
- the upper bolt and nut (**11**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**12**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**13**) of the rear shock absorber.

**WARNING**

To prevent any damage, do not use the rear axle as support for the lifting system.



131643

❑ Position the **trolley jack** with a shim under the lower seat of the spring.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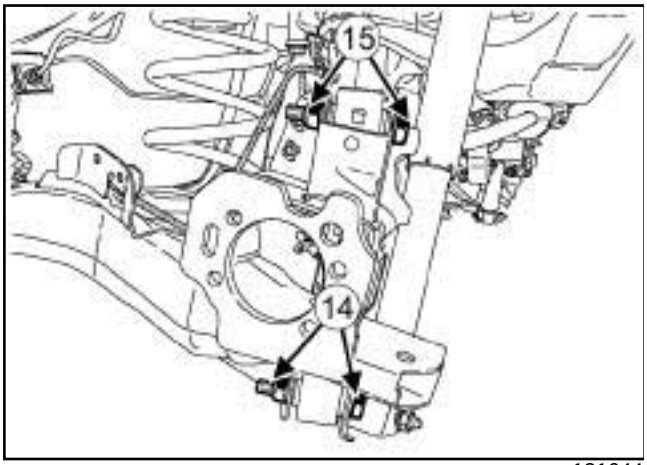
4X2 TRANSMISSION

❏ Remove:

- the lower bolt and nut of the tie rod of the rear anti-roll bar ***(12)*** ,
- the lower bolt and nut ***(13)*** of the rear shock absorber.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



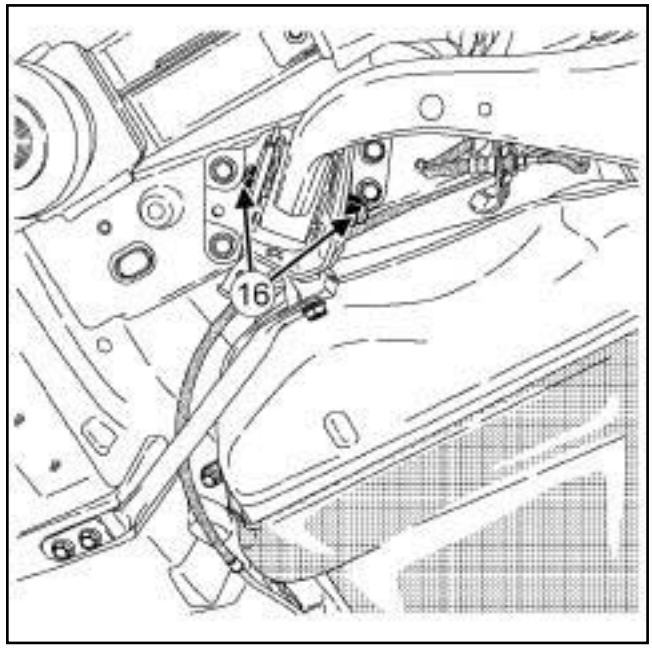

131644

❏ Remove:

- the lower trailing link bolt and the nut (**14**) of the rear stub axle carrier,
- the upper arm bolt and the nut (**15**) of the rear stub axle carrier.

❏ Lower the **trolley jack**.

❏ Remove the rear suspension spring.




131645

❏ Remove the bolt and the nut (**16**) from the rear stub axle carrier.

❏ Position the **component jack** under the rear stub axle carrier.

Note:

This operation requires two people.

❏ Remove:

- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,
- the "rear anti-roll bar - rear anti-roll bar tie rod" assembly.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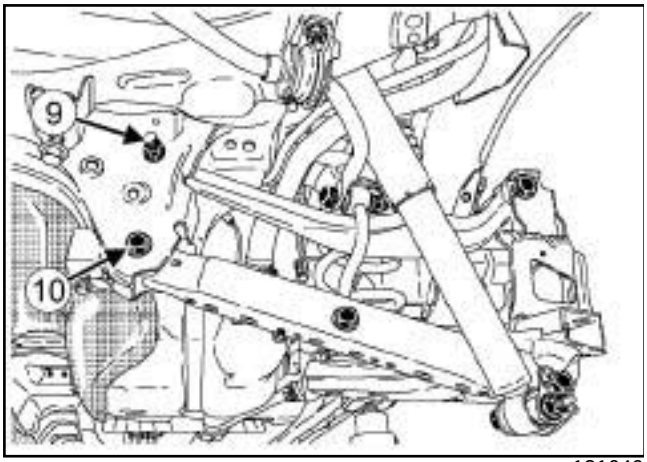
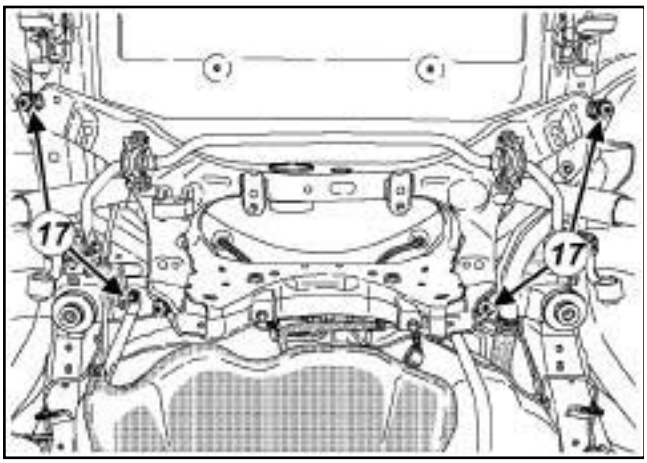


131646

❑ Remove:

- the lower trailing link bolt and the nut (**10**) from the rear axle subframe,
- the lower trailing link,
- the bolt and the nut (**9**) of the upper arm of the rear axle subframe,
- the upper arm.



131647

❑ Position the **component jack** under the rear axle subframe.

Note:
This operation requires two people.

❑ Remove:

- the rear axle subframe bolts ***(17)*** ,
- the rear axle sub-frame with the rear shock absorber,
- the upper bolt and nut of the rear shock absorber,
- the rear shock absorber of the rear axle subframe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber nut,
- the rear stub axle carrier nut.

### II - REFITTING OPERATION FOR PART CONCERNED

❑

Note:
This operation requires two people.

❑ Refit:

- the rear shock absorber on the rear axle subframe,
- the new upper bolt and nut of the rear shock absorber,
- the rear axle sub-frame with the rear shock absorber,
- the rear axle subframe bolts.

❑ Torque tighten:

- the **upper bolt of the rear shock absorber (120 N.m)**,
- the **rear axle subframe bolts (100 N.m)**.

❑ Refit:

- the rear anti-roll bar - rear anti-roll bar tie rod assembly,
- the upper arm,
- the new arm upper bolt and nut on the rear axle subframe,
- the lower trailing link,
- the new lower trailing link bolt and nut on the rear axle subframe.

Note:
This operation requires two people.

❑ Refit:

- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,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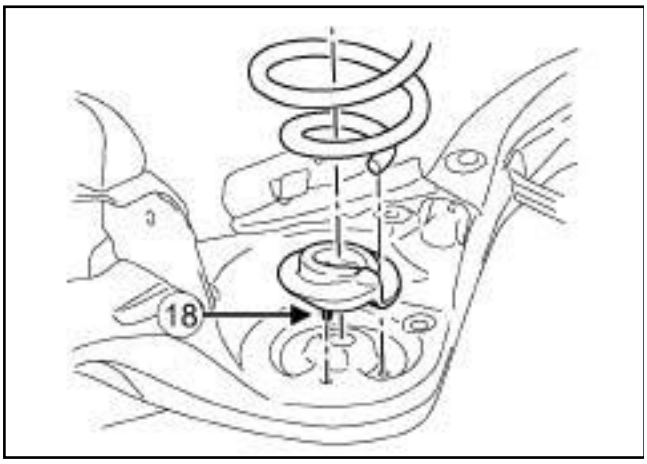
4X2 TRANSMISSION

- the new bolt and nut of the rear stub axle carrier.




131503

❑

Note:

The lower elastic bearing of the rear suspension spring (**18**) must be firmly inserted into the opening of the rear stub axle carrier.

❑ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❑ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

❑ Torque tighten:

- The **upper arm bolt on the rear axle subframe (130 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**
- the **bolt and the nut of the rear stub axle carrier (150 N.m)**,
- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the parking brake cables on to the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) or (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❑ Remove the brake hose.

❑ Refit:

- the brake hose on the union,
- the clip.

❑ Torque tighten the **brake hose on the union (16 N.m)**.

❑ Refit:

- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.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4X2 TRANSMISSION

❑ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,
- the **brake hose on the union (16 N.m)**.

❑ Refit:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

❑ Torque tighten the **shock absorber lower nut1 (20 N.m)**.

XENON BULBS

❑ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
- the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

❑ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Removal - Refitting**, page **37A-37**) .

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).


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| Essential special tooling | |
|---|---|
| **Rou. 604-01** | Hub locking tool. |

| Essential equipment |
|---|
| pedal press |
| trolley jack |
| component jack |

| Tightening torques ▽ | |
|---|---|
| upper bolt of the rear shock absorber | **120 N.m** |
| rear axle subframe bolts | **100 N.m** |
| upper arm bolt on the rear axle subframe | **130 N.m** |
| nut of the lower trailing link on the rear axle subframe | **130 N.m** |
| bolt and nut of the rear stub axle carrier | **150 N.m** |
| bolt of the upper arm on the rear stub axle carrier | **150 N.m** |
| lower trailing link bolt on the rear stub axle carrier | **150 N.m** |
| lower nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| upper nut of the tie rod of the rear anti-roll bar | **110 N.m** |
| wheel hub nut | **125 N.m** |
| brake hose on the union | **16 N.m** |
| bolts on the rear brake hose bracket | **25 N.m** |
| brake hose on the union | **16 N.m** |
| shock absorber lower nut1 | **20 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

❏ Drain the rear final drive oil (see **Rear axle oil: Draining - Refilling**) (26A, Rear final drive).

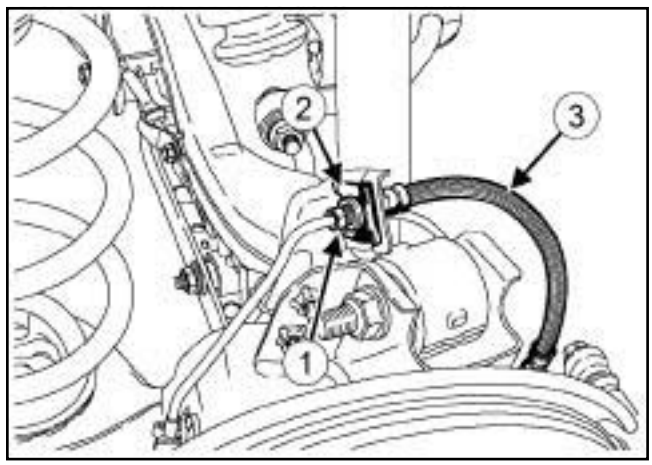
❏ Remove:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

❏ Uncouple the rear final drive propshaft (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).

❏ Secure the propshaft with string.

❏ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.



131498

❏ Undo the rear brake hose at the pipe connection (**1**) .

❏ Remove the clip ***(2)*** from the rear brake hose ***(3)*** .

❏ Disconnect the rear brake hose.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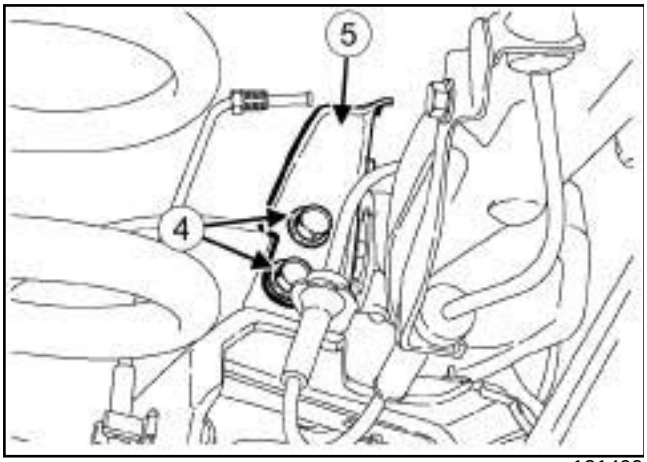
4X4 TRANSMISSION



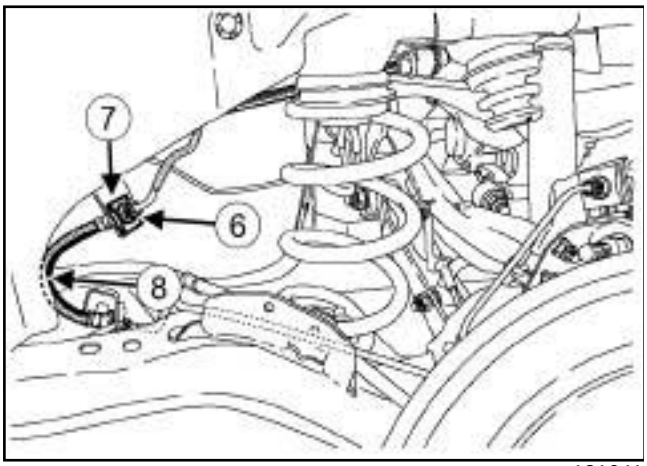
131499

❑ Remove:

- the bolts (**4**) from the rear brake hose bracket,
- the rear brake hose bracket (**5**) ,
- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) .

XENON BULBS

❑ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).



131641

❑ Undo the rear brake hose at the pipe connection (**6**) .

❑ Remove clip ***(7)*** .

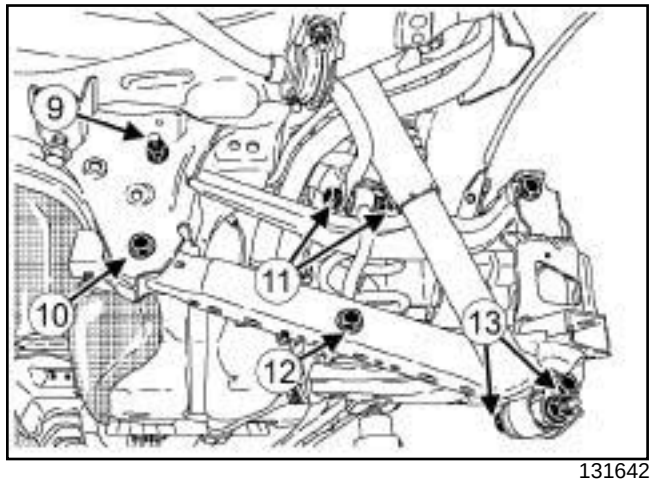
❑ Disconnect the brake hose ***(8)*** .

❑ Remove the parking brake cables from the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131642

❑ Undo:

- the bolt and the nut (**9**) of the upper arm on the rear axle subframe,
- the lower trailing link bolt and the nut (**10**) on the rear axle subframe,
- the upper bolt and nut (**11**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**12**) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (**13**) of the rear shock absorber.

**WARNING**

To prevent any damage, do not use the rear axle as support for the lifting system.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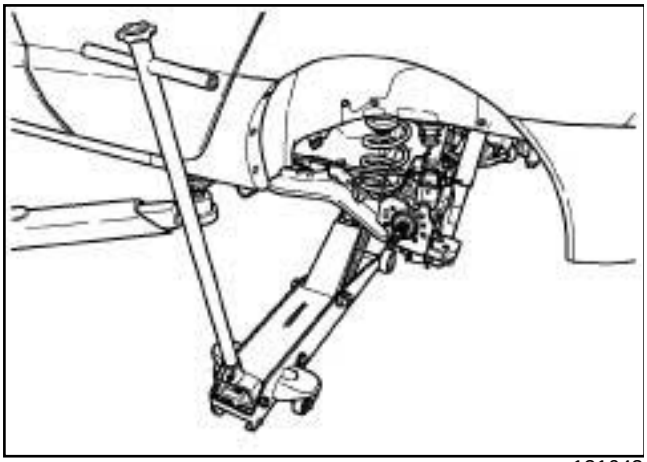
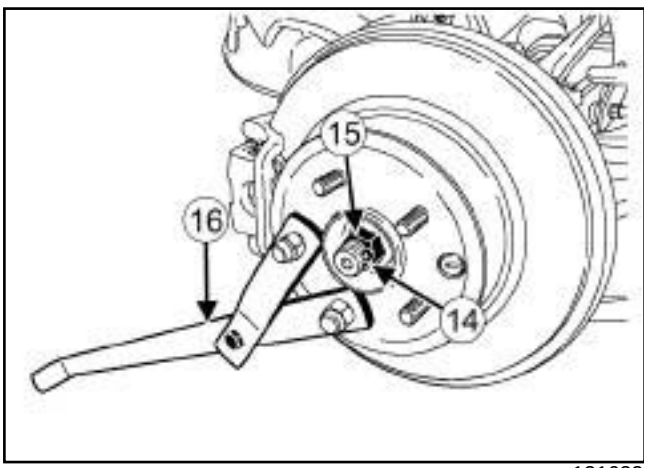


131643

❏ Position the **trolley jack** with a shim under the lower seat of the spring.




131632

❏ Remove:

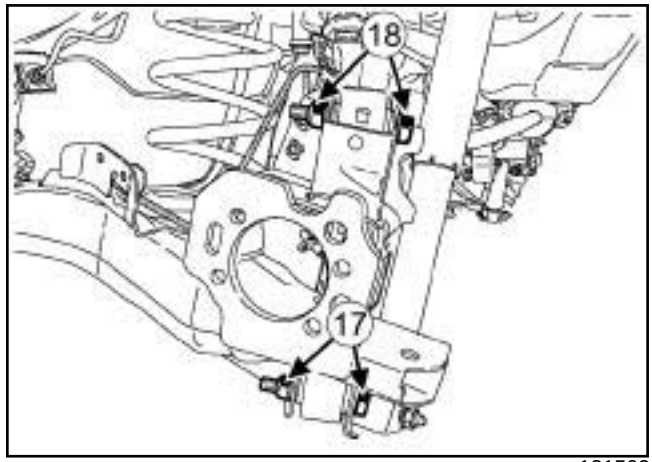
- the cotter pin (**14**) ,
- the wheel hub nut (**15**) using the tool **(Rou. 604-01)** (**16**) .

❏ Remove:

- the lower bolt and nut ***(12)*** of the tie rod of the rear anti-roll bar,
- the lower bolt and nut ***(13)*** of the rear shock absorber.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.




131502

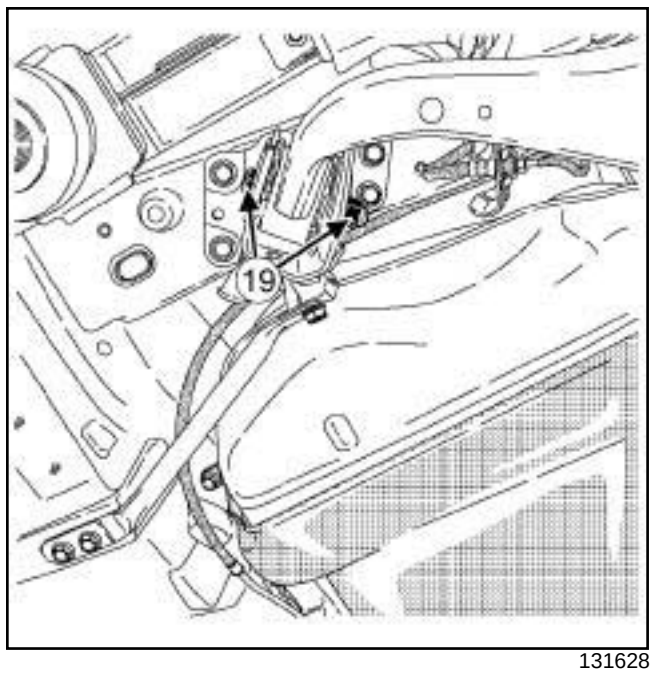
❏ Remove:

- the lower trailing link bolt and nut (**17**) of the rear stub axle carrier,
- the upper arm bolt and nut (**18**) of the rear stub axle carrier.

❏ Lower the **trolley jack**.

❏ Remove:

- the rear suspension spring,
- the rear driveshaft of the rear stub axle carrier.




131628

❏ Remove the bolt and nut (**19**) from the rear stub axle carrier.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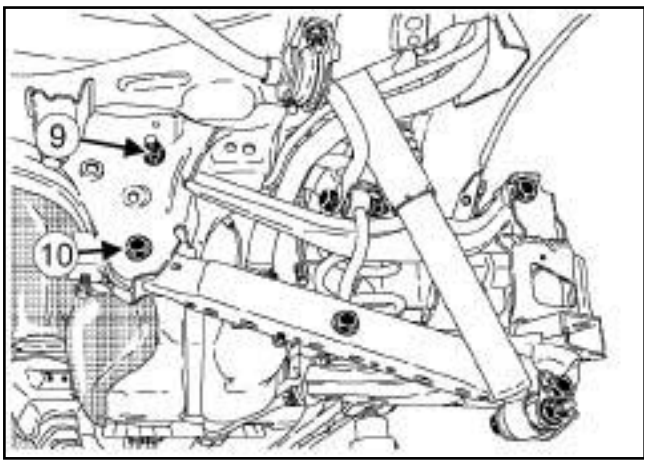
4X4 TRANSMISSION

❑ Position the **component jack** under the rear stub axle carrier.

Note:
This operation requires two people.

❑ Remove:

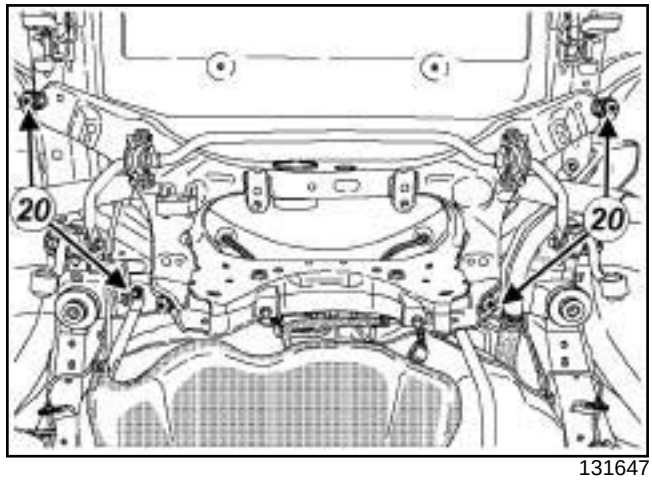
- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,
- the rear final drive (see **Rear axle assembly: Removing - Refitting**) ,
- the "rear anti-roll bar - rear anti-roll bar tie rod" assembly.



131642

❑ Remove:

- the lower trailing link bolt and nut ***(10)*** from the rear axle subframe,
- the lower trailing link,
- the bolt and nut ***(9)*** of the upper arm of the rear axle subframe,
- the upper arm.



131647

❑ Position the **component jack** under the rear axle subframe.

Note:
This operation requires two people.

❑ Remove:

- the rear axle subframe bolts ***(20)*** ,
- the rear axle sub-frame with the rear shock absorber,
- the bolt and the upper nut of the rear shock absorber,
- the rear shock absorber of the rear axle subframe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber nut,
- the rear stub axle carrier nut,
- the cotter pin.

### II - REFITTING OPERATION FOR PART CONCERNED

❑

Note:
This operation requires two people.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4X4 TRANSMISSION

❏ Refit:

- the rear shock absorber on the rear axle subframe,
- the new upper bolt and nut of the rear shock absorber,
- the rear axle sub-frame with the rear shock absorber,
- the rear axle subframe bolts.

❏ Torque tighten:

- the **upper bolt of the rear shock absorber (120 N.m)**,
- the **rear axle subframe bolts (100 N.m)**.

❏ Refit:

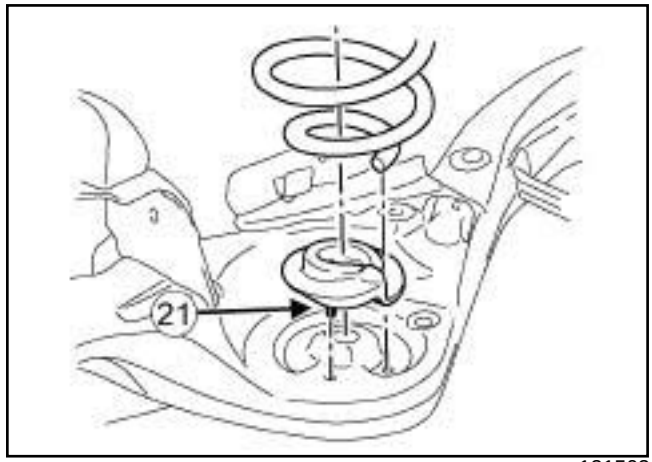
- the rear anti-roll bar - rear anti-roll bar tie rod assembly,
- the rear final drive (see **Rear axle assembly: Removing - Refitting**) (26A, Rear final drive),
- the upper arm,
- the new arm upper bolt and nut on the rear axle subframe,
- the lower trailing link,
- the new lower trailing link bolt and nut on the rear axle subframe.

Note:

This operation requires two people.

❏ Refit:

- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake caliper - parking brake cable" assembly,
- the new bolt and nut of the rear stub axle carrier.
- the rear driveshaft on to the rear stub axle carrier.




131503

❏

Note:

The lower elastic bearing (**21**) of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

❏ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❏ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

❏ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❏ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.



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4X4 TRANSMISSION

❏ Torque tighten:

- The **upper arm bolt on the rear axle subframe (130 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**
- the **bolt and nut of the rear stub axle carrier (150 N.m)**,
- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**.

❏ Refit the wheel hub nut using the tool **(Rou. 604-01)**.

❏ Torque tighten the **wheel hub nut (125 N.m)**.

❏ Refit the new cotter pin.

**III - FINAL OPERATION.**

❏ Refit the parking brake cables on to the underbody (see **37A**, **Mechanical component controls**, **Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

❏ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❏ Remove the brake hose.

❏ Refit:

- the brake hose on the union,
- the clip.

❏ Torque tighten the **brake hose on the union (16 N.m)**.

❏ Refit:

- the rear wheel speed sensor (see **38C**, **Anti-lock braking system**, **Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.

❏ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,
- the **brake hose on the union (16 N.m)**.

❏ Refit the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Torque tighten the **shock absorber lower nut1 (20 N.m)**.

❏ Refit:

- the propshaft on the rear final drive (see **Propshaft: Removal - Refitting**) (29A, Driveshafts),
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

❏ Top up the rear final drive with oil (see **Rear axle oil: Draining - Refilling**) (26A, Rear final drive).

XENON BULBS

❏ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
- the headlight beam adjustment rear sensor(see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

❏ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

❏ Adjust the parking brake cables (see **37A**, **Mechanical component controls**, **Parking brake lever: Removal - Refitting**, page **37A-37**) .

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .


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4X4 TRANSMISSION

❑ Adjust:

- the alignment (see **30A**, **General information**, **Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).



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| Tightening torques ▽ | |
|---|---|
| wheel nuts | **108 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

❏ Remove the trim (depending on equipment level).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❏

> Note:
>
> Use sockets with protective sheaths in order to avoid scratching the alloy wheel rims.

❏ Undo the wheel nuts, with the wheels on the ground.

❏ Raise the lift.

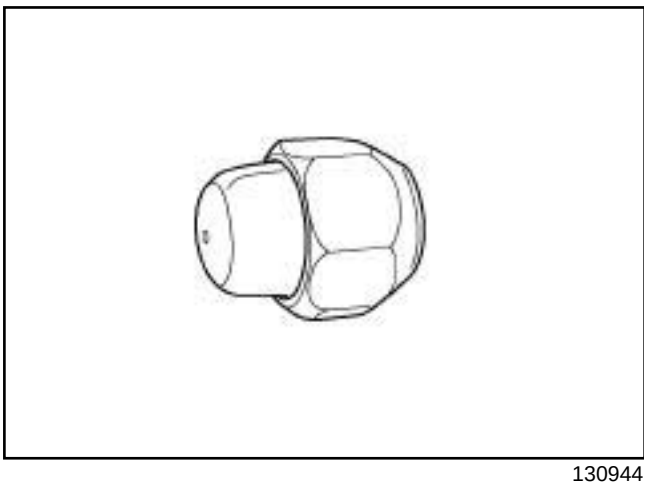
❏ Position the wheel valve at the top.

❏ Remove:

- the wheel nuts,
- the wheel.

## REFITTING

### I - REFITTING PREPARATION OPERATION



130944

❏ Clean the mating surfaces between the wheel and the hub carrier using a wire brush.

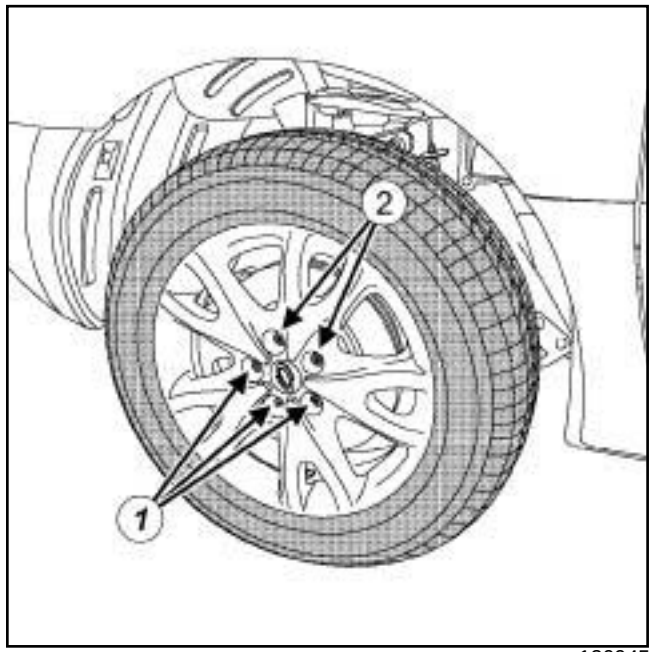
❏ Check the condition of the tyre.

❏ Do not move or remove the balance weights.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the wheel to the vehicle, positioning the valve at the top.

❏ Insert the wheel bolts.




130945

❏ Tighten the wheel bolts to bring all the bolt heads into contact with the wheel.

❏ Pretighten the wheel bolts to **30 N.m**, with the wheel suspended, starting with the lower nuts (**1**) and finishing with the upper nuts (**2**) .

❏ Rotate the wheel through **180°** to bring the valve into the bottom position.

❏ Position the vehicle on its wheels.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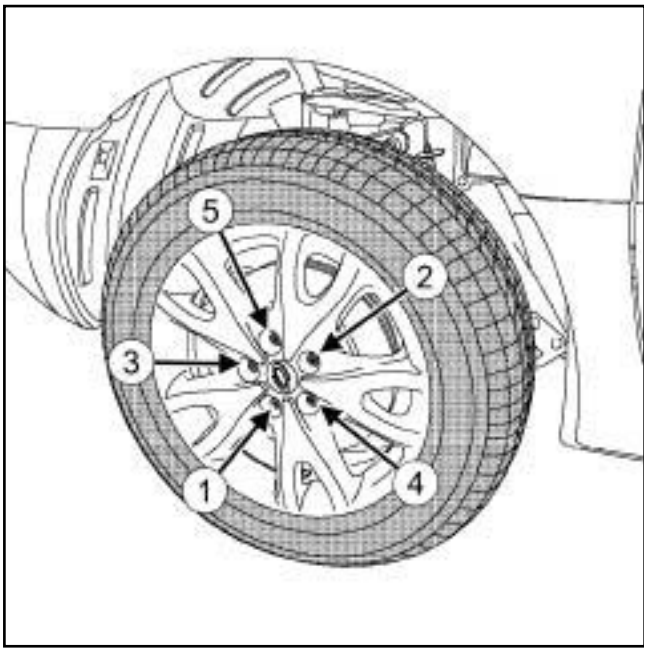


130945

❑ Torque tighten in order the **wheel nuts (108 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the trim (depending on equipment level).


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| Essential equipment |
| --- |
| pedal press |

## I - PREREQUISITES FOR WHEEL BALANCING

❏ Wheel balancing is a measurement operation.

Several conditions must be met to achieve a reliable result in a single operation.

The wheel balancer must be installed in accordance with the manufacturer's instructions.

It is essential that the machine is recalibrated at the intervals specified by the manufacturer.

Never grease the threaded shaft.

Check the condition of the supports, centring components and mountings.

Replace any faulty parts (see manufacturer's instructions).

The wheel and the wheel balancer must be clean.

### Driver's perception

❏ If the wheels are not correctly balanced this causes the steering wheel and/or the vehicle floor to vibrate.

These vibrations appear between **54 mph (90 km/h)** and **90 mph (150 km/h)**.

## II - BALANCING PREPARATION OPERATION

❏ Adjust the tyre pressures (see **35A**, **Wheels and tyres**, **Tyre inflation pressure: Identification**, page **35A-8**) .

❏ Always carry out a road test for a minimum distance of **1 mile (2 km)** before balancing the wheels, in order to remove any flat spots on the tread caused by the vehicle being immobilised.

❏ After the road test:

- raise the vehicle immediately,
- leave the four wheels hanging free,
- release the parking brake.

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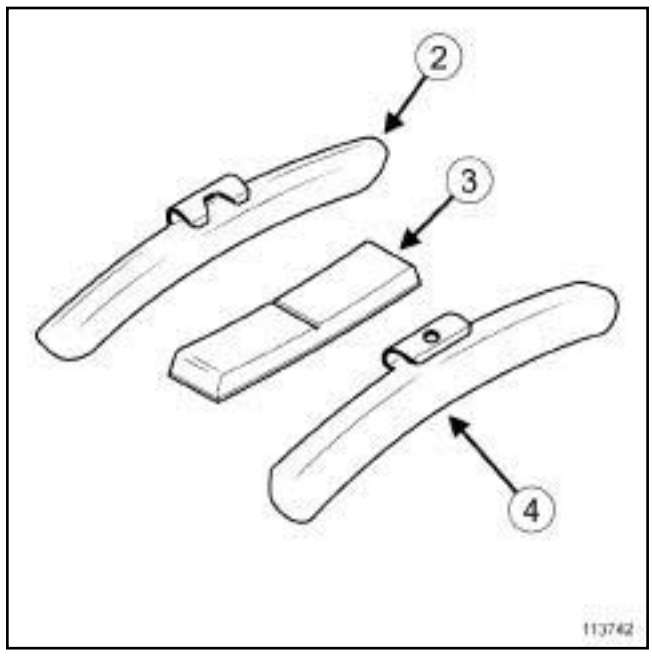
❏ To reproduce the exact vehicle wheel assembly, it is essential to fit a ring (**1**) with a diameter of **66 mm** on the wheel balancer.

❏ There are three types of weight:




113742

(**2**) Steel wheel with flange

(**3**) Alloy wheel with flange

(**4**) Alloy wheel without flange

❏ In some countries, the use of lead weights is forbidden; in this case it is recommended to use **ZAMAK** weights instead.

Only use weights provided by the Parts Department.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❏ Position the vehicle on a two-post lift immediately after the road test (see **Vehicle: Towing and lifting**) (MR 415, 02A, Lifting equipment).

❏ Fit a **pedal press**.

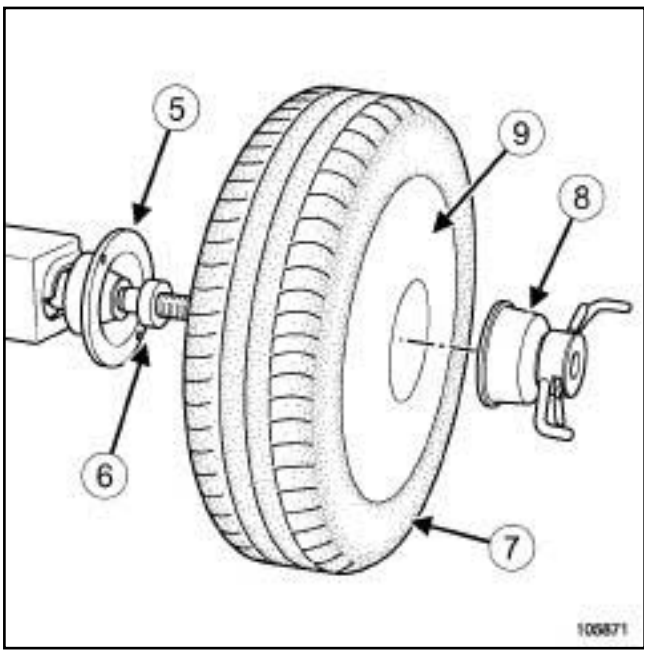
❏ Remove the wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Always clean the wheel, disc, and hub bearing surfaces.

**III - PROCEDURE FOR BALANCING THE WHEEL IN QUESTION**

❏ Make sure that the wheel balancer bearing surface and all the centring equipment (ring, thrust plate, etc.) are kept clean.

❏ Try not to scratch the (alloy) wheel rim with the wheel tightening device.



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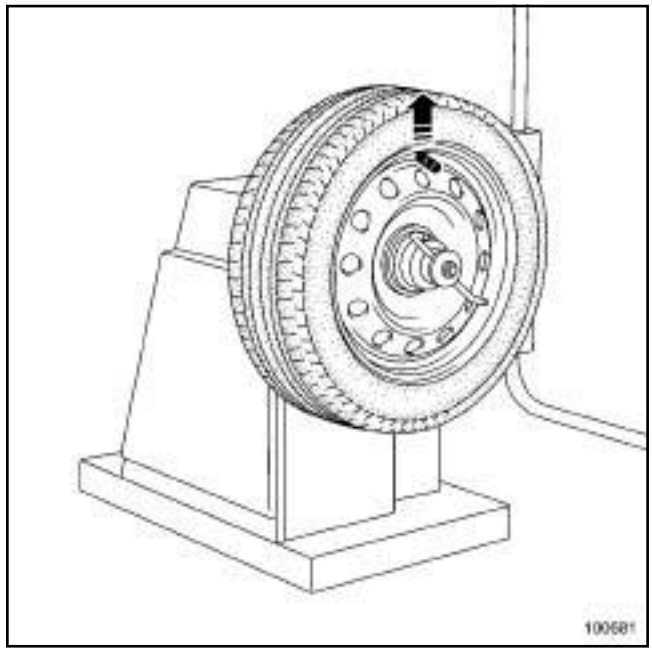
❏ The wheel is fitted on the wheel balancer as follows:

- (**5**) wheel balancer back-plate,
- (**6**) ring **66 mm** in diameter,
- (**7**) wheel,
- (**8**) wheel tightening device (certain alloy wheels require a device 200 mm in diameter to ensure that the wheel has been correctly tightened),
- outer wheel plane (**9**) .



100681

❏ Place the wheel on the wheel balancer, with the valve at the top, then lock the wheel in place.

❏ Remove any stones trapped in the tyre tread.

❏ Enter the specific wheel parameters into the wheel balancer.

❏ Start the wheel balancer and check the wheel balance, which should be **0 g** on each plane of the wheel.

❏ If this is not the case:

- remove the old balance weights,
- repeat the balancing procedure.

❏ Repeat the operation until the wheel balance is **0** on each plane of the wheel.

❏ Repeat this operation on the other vehicle wheels.

**WARNING**
To avoid detachment of the balance weights, use only weights which correspond to the vehicle wheel rims

**IV - FINAL OPERATION.**

❏ Refit the wheel on the vehicle in the position noted during removal (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Remove the **pedal press**.

❏ Carry out a road test to confirm the customer complaint is resolved.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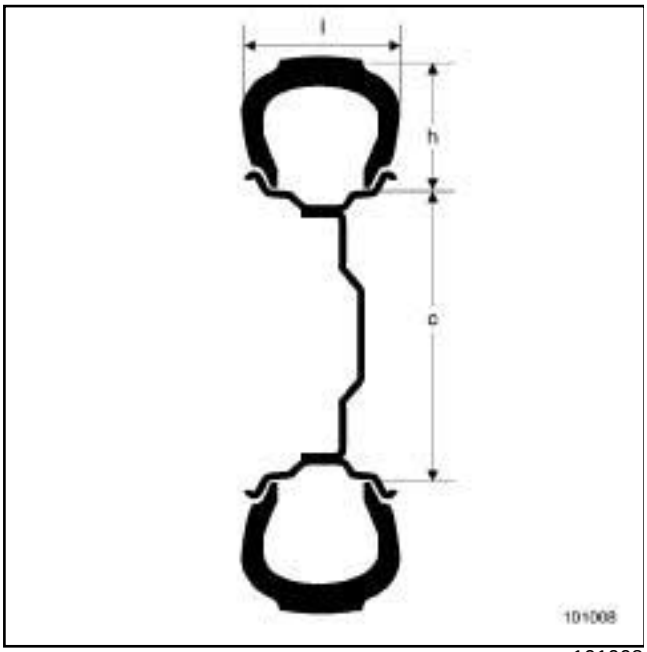
Example of tyre identification marking: **185/60 R 15 84 H**.

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| | |
|---|---|
| 185 | Tyre width in mm ***(l)*** |
| 60 | Ratio(**h/w**) |
| R | Radial structure |
| 15 | Internal diameter in inches |
| 84 | Load index |
| H | Speed code |

**Speed code table:**

| **Maximum speed** | **mph (km/h)** |
|---|---|
| R | **170** |
| S | **180** |
| T | **190** |
| U | **200** |
| H | **210** |
| V | **240** |
| ZR | above **240** |


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

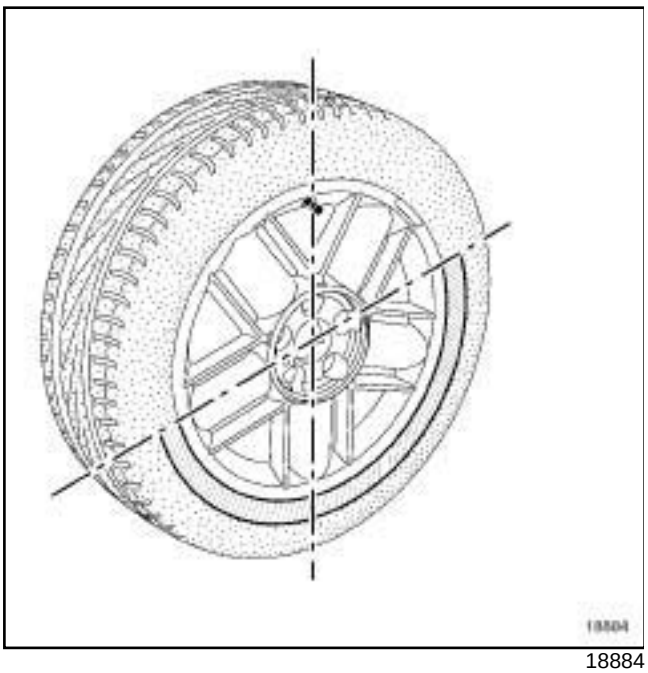
- the wheel in question (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the balance weights,
- the valve mechanism.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

TYRE PRESSURE SENS.

❑

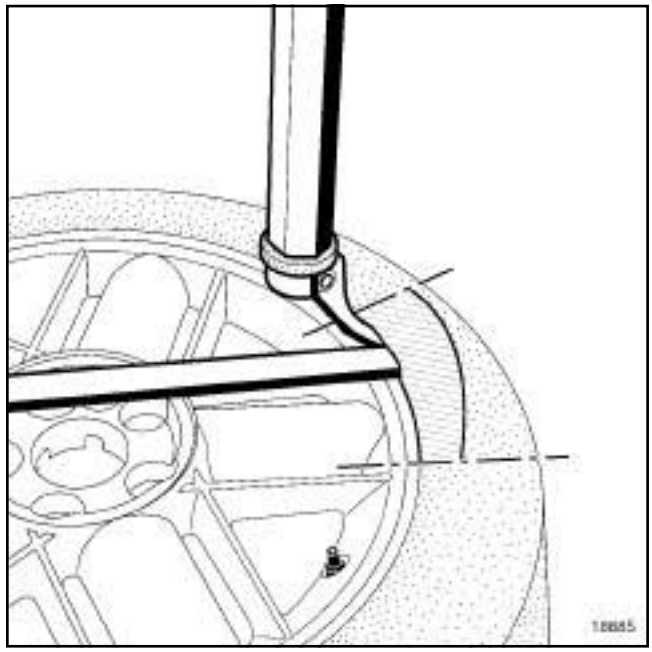
**WARNING**
To avoid any damage to the sensor, make sure the tyre bead never presses on the sensor.



18884

❑ Detach:

- the bead from the outside of the tyre, starting with the side opposite the valve,
- the bead from the inside of the tyre.



18885

❑ Position the tyre lever approximately **15 cm** from the valve on the outside of the wheel rim in order to remove the exterior bead from the tyre.

❑ Remove the exterior bead of the tyre, finishing at the valve.

❑ Position the tyre lever approximately **15 cm** from the valve on the outside of the wheel rim in order to remove the bead from inside the tyre.

❑ Remove the interior bead of the tyre, finishing at the valve.

## REFITTING

### I - REFITTING PREPARATION OPERATION

WITHOUT TYRE PRESSURE SENS.

❑ **parts always to be replaced: Tyre valve (13,05, 02,02)**

❑ Lubricate the two tyre beads correctly using the **TYRE PASTE** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Engage the lower tyre bead approximately **15 cm** after the valve.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❏ Finish fitting the tyre at the valve.

❏ Fit the exterior bead approximately **15 cm** after the valve using the tyre lever.

❏ Inflate the tyre to **3.5 bar** to press the tyre beads against the wheel rim.

**III - FINAL OPERATION**

❏ Refit the valve mechanism.

❏ Inflate the tyre to the recommended pressure (see **35A**, **Wheels and tyres**, **Tyre inflation pressure: Identification**, page **35A-8**) .

Note:

It is not necessary to drive the vehicle before and after a new wheel is balanced.

❏ Balance the wheel (see **35A**, **Wheels and tyres**, **Wheel: Balancing**, page **35A-3**) .

❏ Refit the wheel in question (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .


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| Essential equipment |
| --- |
| diagnostic tool |

## I - INFLATION

**WARNING**
If checking the pressure when hot, increase the tyre inflation pressure by **0.2** to **0.3** bar above the recommended pressure.

| Tyre | Wheel rim | Tyre inflation pressure when cold (bar) | |
| --- | --- | --- | --- |
| | | Front | Rear |
| 225/60 R 17 99H | 6 1/2 J | 2.3 | 2.1 |

| Emergency spare wheel | Wheel rim | Tyre inflation pressure when cold (bar) | |
| --- | --- | --- | --- |
| | | Front | Rear |
| 225/60 R 17 99H | 6 1/2 J | 2.3 | 2.1 |
| T155/80 R 17 100M | 6 1/2 J | 2.3 | 2.3 |

The specified pressure values assume that the tyres are cold.

## II - CONFORMITY CHECK AND ADJUSTMENT

If the tyre size is changed, calibrate the electric power assisted steering computer using the tool **diagnostic tool** (see **Replacement of components**) (36B, Electric power steering).

Wheel offset:

- 17-inch alloy wheel rim: **40 mm**,
- emergency spare wheel 17 x 4T: **30 mm**.

For fitting chains (see Driver's handbook).


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**IDENTIFICATION**

**1 - Marking**

There are two types of identification marking on the wheel rims:

- engraved marking for steel wheel rims,

- cast marking for alloy wheel rims.

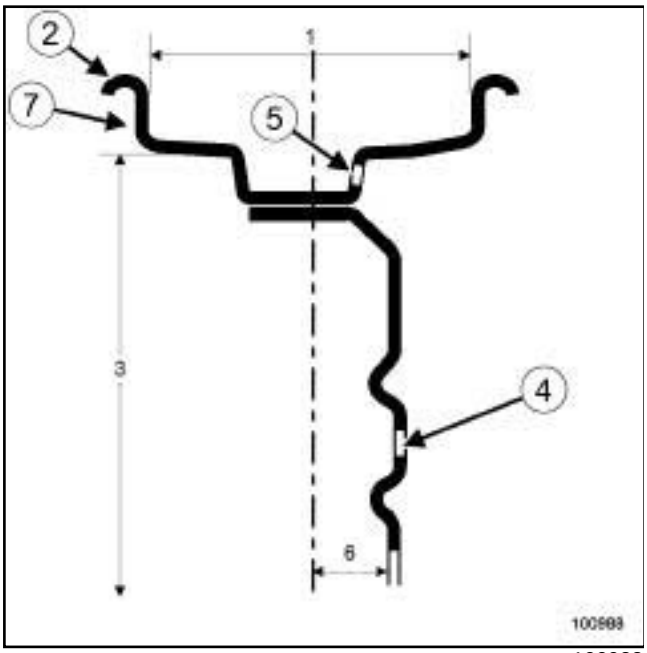
The marking gives the main dimensional specifications of the wheel rim.

This marking may be:

- complete, for example **6 J 15 5 CH 36,**

- simplified, for example **6 J 15**.

| | **Wheel type** | **6 J 15** |
|---|---|---|
| 1 | Width (in inches) | 6 |
| 2 | Rim edge profile | J |
| 3 | Nominal diameter (in inches) | 15 |
| 4 | Number of holes | 5 |
| 5 | Anchorage profile of the tyre | CH |
| 6 | Offset (in mm) | 36 |



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There are 3 types of wheel rim edges (**2**) :

- those with two flat edges,

- those with two raised edges,

- those with one flat edge and one raised edge.

**2 - Installation diameter for the wheel bolts**

The wheel bolts are positioned with a pitch circle diameter of **114.3 mm** (5 holes).

**3 - Rim run-out**

The maximum run-out is measured at the wheel rim edge ***(7)*** .

**0.3 mm**

**4 - Out-of-roundness**

The maximum out-of-round value is measured on the tyre bead bearing surface.

**0.3 mm**


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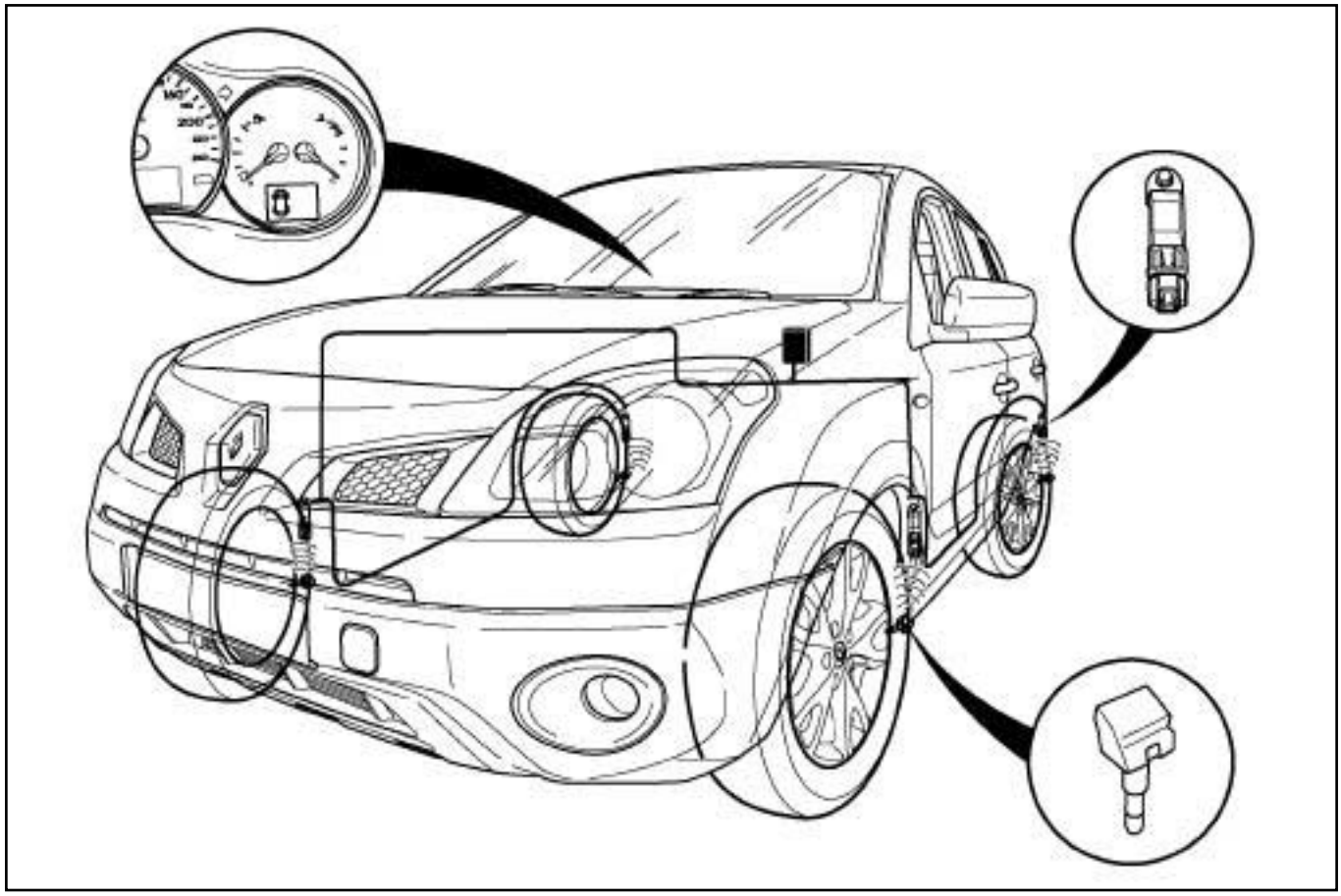
TYRE PRESSURE SENS.



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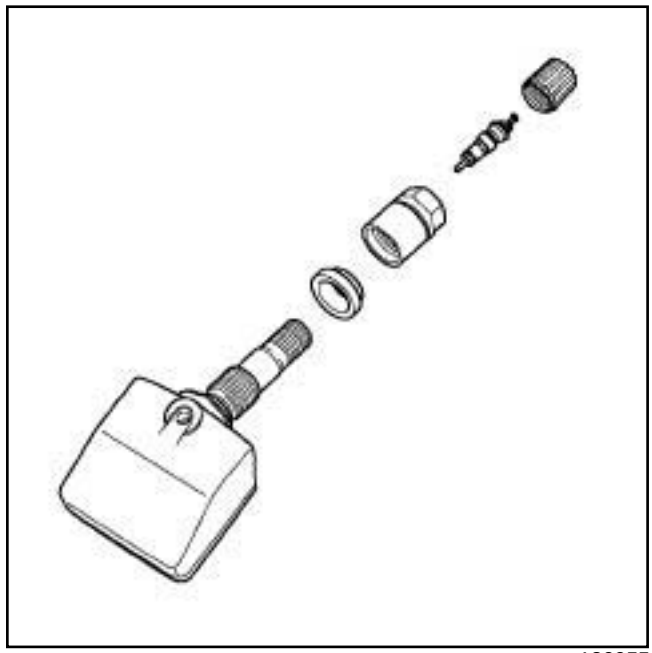
The system is made up of:

- four pressure sensors built into the valves (one per wheel); they transmit a radio frequency signal,
- four tyre pressure monitor receivers, for the purpose of receiving and decoding the sensor signals and transmitting them to the UCH,
- a computer that receives, decodes and processes information from the receivers, and then determines which message to display,
- a display integrated into the instrument panel.

Note:

The position of the sensor on each wheel is automatically identified by the UCH computer.



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Composition of the pressure sensor:

- a conventional valve,
- a pressure sensor,



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TYRE PRESSURE SENS.

- a specific radio frequency transmitter,
- a non-removable battery.


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TYRE PRESSURE SENS.

**I - CLEANLINESS**

Clean the bearing faces on the tyre pressure monitor valve.

**II - GENERAL RECOMMENDATIONS**

Do not swap the wheels if they have been removed.

**WARNING**
Hold the sensor in position on the wheel to prevent it from turning during tightening.

**WARNING**
To avoid any damage to the sensor, make sure the tyre bead never presses on the sensor.


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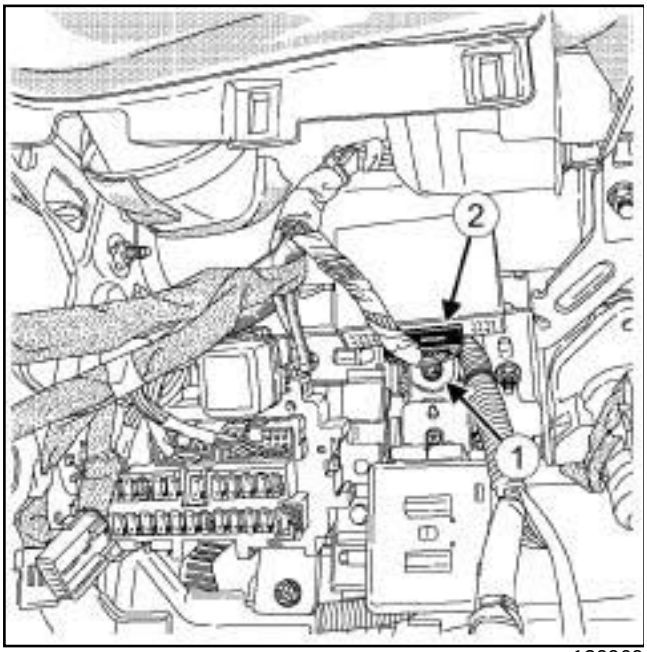
TYRE PRESSURE SENS.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the lower cover of the driver's side dashboard (see **Dashboard: Removal - Refitting**) (MR 393, 57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



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❑ Remove the bolt (**1**) .

❑ Disconnect the connector (**2**) .

❑ Remove the tyre pressure monitor computer.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the tyre pressure monitor computer.

❑ Connect the connector.

❑ Refit the tyre pressure monitor computer bolt.

### II - FINAL OPERATION.

❑ Refit the lower cover of the driver's side dashboard (see **Dashboard: Removal - Refitting**) (MR 393, 57A, Interior equipment).


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TYRE PRESSURE SENS.

| Tightening torques ▽ | |
|---|---|
| tyre pressure sensor retaining nut | 8 N.m |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operating recommendations before carrying out any repair (see **35B**, **Tyre pressure monitor**, **SSPP: Precautions for repair**, page **35B-3**) (35B, Tyre pressure monitor system).

## REMOVAL

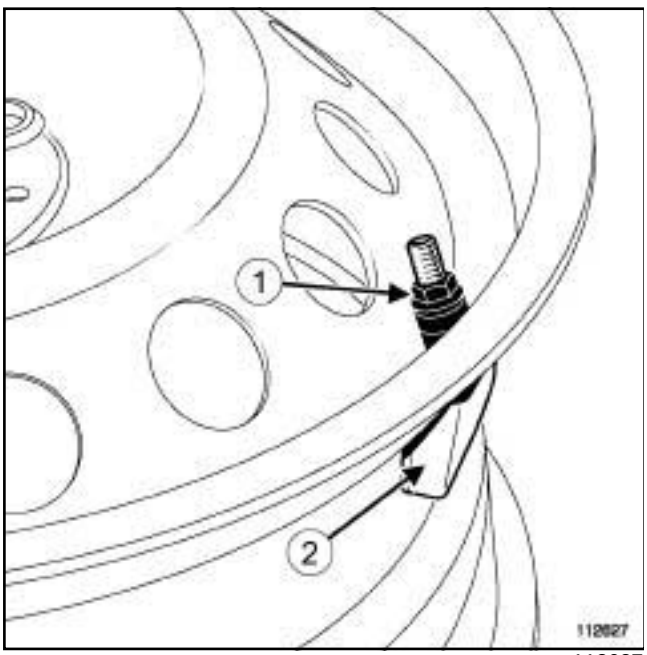
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the tyres (see **35A**, **Wheels and tyres**, **Tyres: Removal - Refitting**, page **35A-6**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



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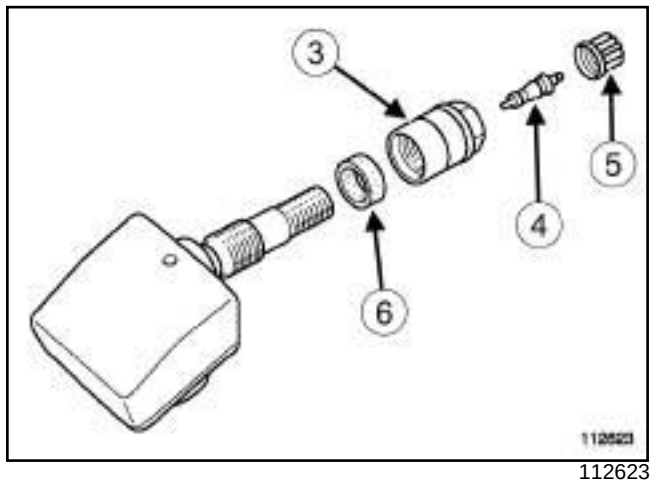
❏ Remove:

- the tyre pressure sensor nut (**1**) ,
- the tyre pressure sensor (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION



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❏ If necessary, replace the tyre pressure sensor nut (**3**) .

❏ Always replace the following parts:

- the mechanism (**4**) ,
- the cap (**5**) ,
- the seal (**6**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Position the sensor in the valve opening, checking that the seal is attached all around the edge of the opening.

❏ Refit the tyre pressure sensor nut.


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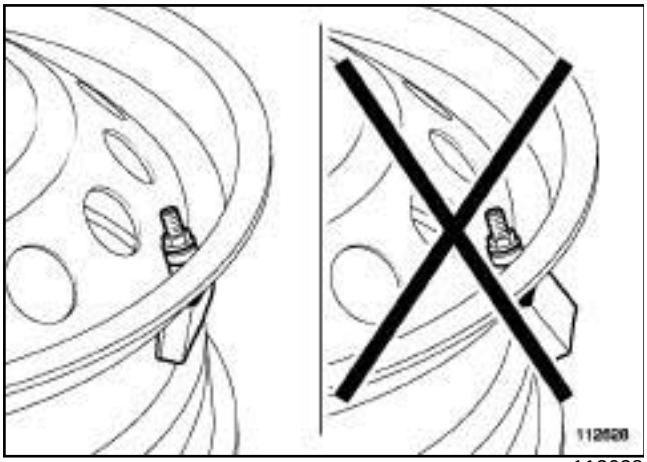
TYRE PRESSURE SENS.

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❑

**WARNING**

Hold the sensor in position on the wheel to prevent it from turning during tightening.

❑ Torque tighten the **tyre pressure sensor retaining nut (8 N.m)**.

Note:

After using a tyre repair aerosol, remove the product residue from the valve with a dry cloth or air gun before refitting it on the wheel rim.

**III - FINAL OPERATION**

❑ Refit:

- the tyres (see **35A**, **Wheels and tyres**, **Tyres: Removal - Refitting**, page **35A-6**) ,
- the wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .



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TYRE PRESSURE SENS.

| Tightening torques ▽ | |
|---|---|
| tyre pressure monitor receiver bolt | **11 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

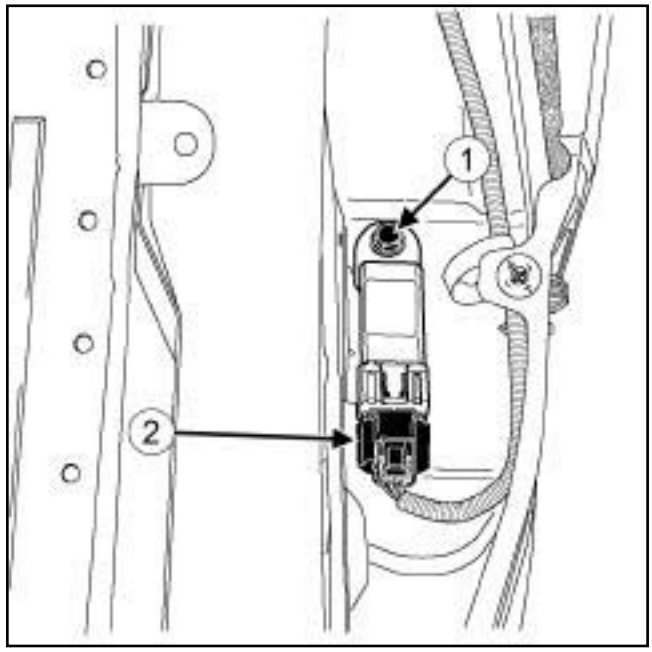
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front or rear wheel (on the side concerned) (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the front wheel arch liner (side concerned) (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection) or the rear wheel arch liner (side concerned) (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Front left-hand tyre pressure monitor receiver**




130956

❏ Remove the bolt (**1**) from the front left-hand tyre pressure monitor receiver.

❏ Disconnect the connector (**2**) from the front left-hand tyre pressure monitor receiver.

❏ Remove the front left-hand tyre pressure monitor receiver.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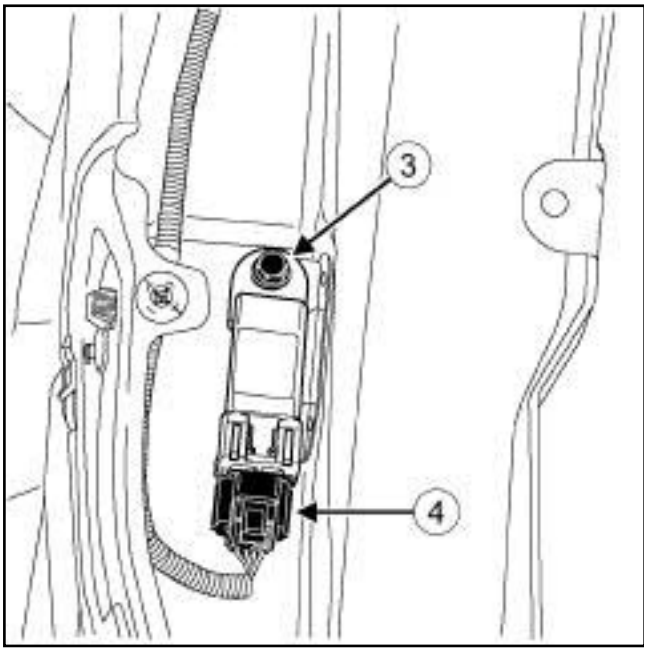
TYRE PRESSURE SENS.

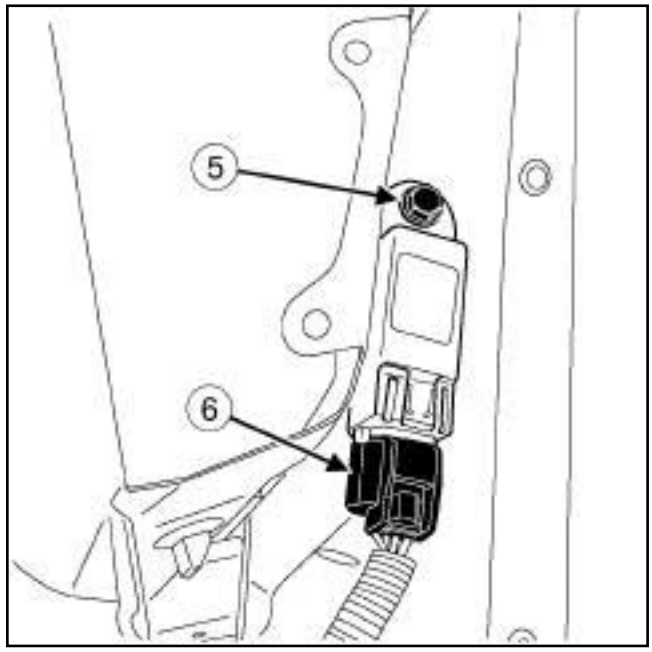
**2 - Front right-hand tyre pressure monitor receiver**




130957

- ❏ Remove the front right-hand tyre pressure monitor receiver bolt (**3**) .
- ❏ Disconnect the connector (**4**) from the front right-hand tyre pressure monitor receiver.
- ❏ Remove the front right-hand tyre pressure monitor receiver.

**3 - Rear left-hand tyre pressure monitor receiver**




130958

- ❏ Remove the bolt (**5**) from the rear left-hand tyre pressure monitor receiver.
- ❏ Disconnect the connector (**6**) from the rear left-hand tyre pressure monitor receiver.
- ❏ Remove the rear left-hand tyre pressure monitor receiver.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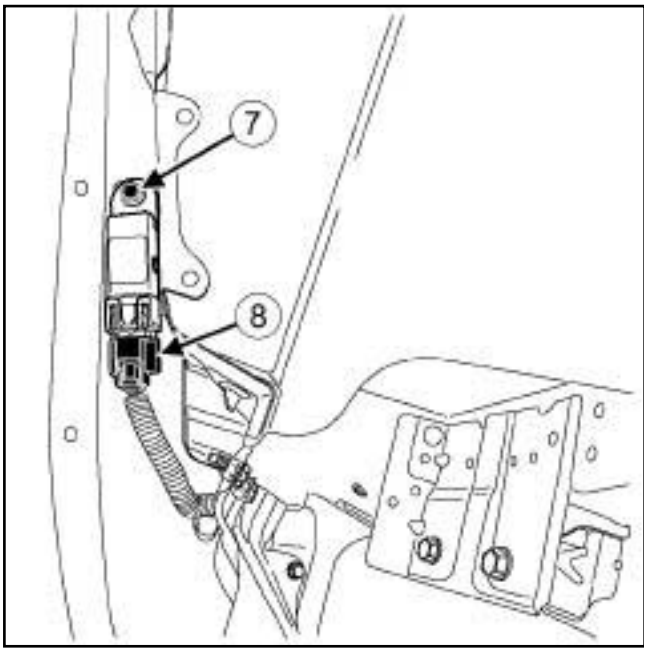
TYRE PRESSURE SENS.

**4 - Rear right-hand tyre pressure monitor receiver**




130959

❏ Remove the bolt (**7**) from the rear right-hand tyre pressure monitor receiver.

❏ Disconnect the connector (**8**) from the rear right-hand tyre pressure monitor receiver.

❏ Remove the rear right-hand tyre pressure monitor receiver.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the tyre pressure monitor receiver (on the side concerned).

❏ Connect the connector of the tyre pressure monitor receiver (on the side concerned).

❏ Refit the bolt on the tyre pressure monitor receiver (on the side concerned).

❏ Torque tighten the **tyre pressure monitor receiver bolt (11 N.m)** (on the side concerned).

### II - FINAL OPERATION.

❏ Refit:

- the front wheel arch liner (side concerned) (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection) or the rear wheel arch liner (side concerned) (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front or rear wheel (on the side concerned) (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .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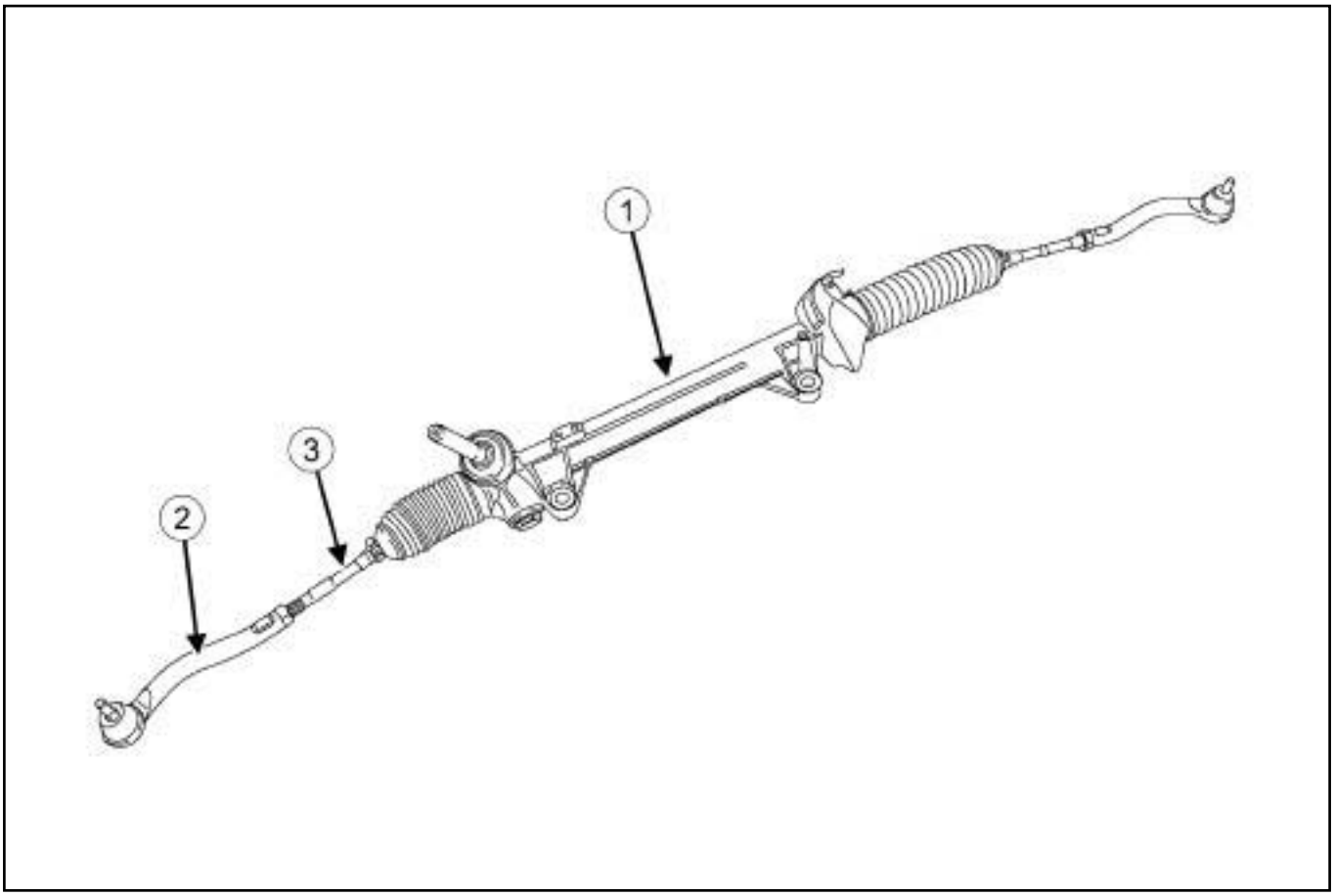


130964

| | |
|---|---|
| (**1**) | Steering box |
| (**2**) | Track rod |
| (**3**) | Axial ball joint linkage |


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M9R, and LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| steering box nuts | **148 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

## REMOVAL

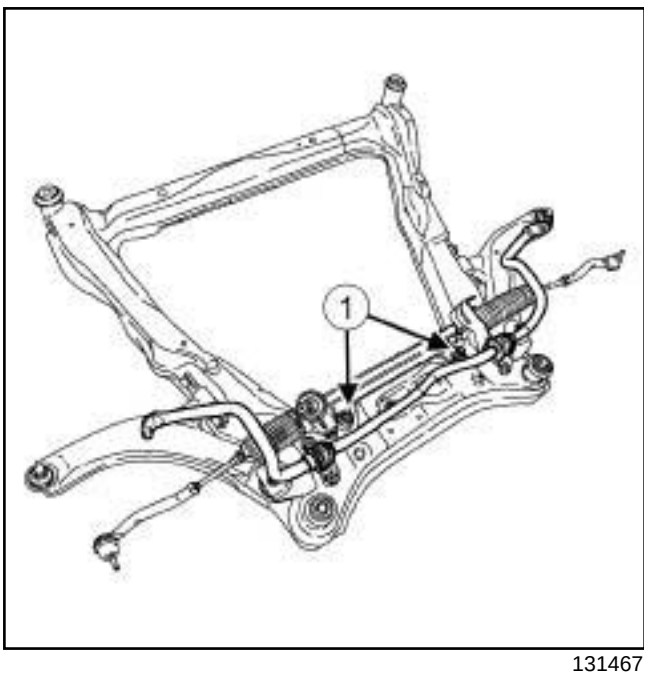
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the front axle subframe (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131467

❏ Remove:

- the steering box nuts (**1**) ,
- the steering box.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the universal joint bolt

❏ Set the wheels straight ahead.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the steering box,
- the steering box nuts.

❏ Torque tighten the **steering box nuts (148 N.m)**.

### III - FINAL OPERATION

❏ Refit:

- the front axle sub-frame (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Adjust the front axle (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .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M9R, and RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| steering box nuts | **148 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

## REMOVAL

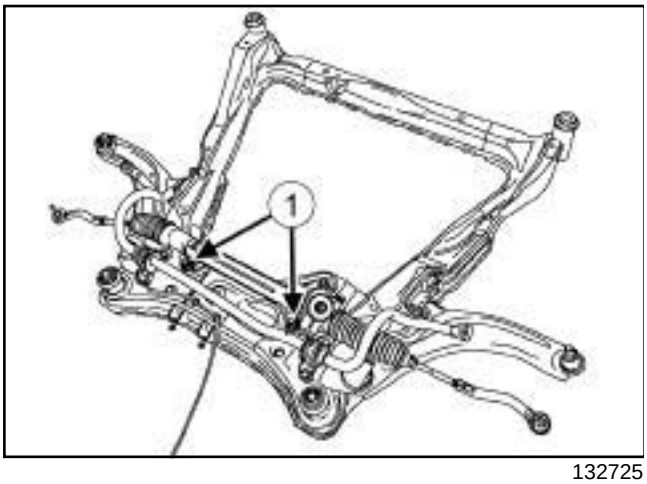
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the front axle subframe (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132725

❏ Remove:

- the steering box nuts (**1**) ,
- the steering box.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the universal joint bolt.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the steering box,
- the steering box nuts.

❏ Torque tighten the **steering box nuts (148 N.m)**.

### III - FINAL OPERATION

❏ Refit:

- the front axle sub-frame (see **31A**, **Front axle components**, **Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Adjust the front axle (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .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2TR, and LEFT-HAND DRIVE

| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Tightening torques ▽ | |
|---|---|
| nuts of the steering box | **148 N.m** |
| heat shield bolts | **4 N.m** |
| lower nuts of the anti-roll bar tie rod | **84 N.m** |
| track rod ball joint nuts | **34 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

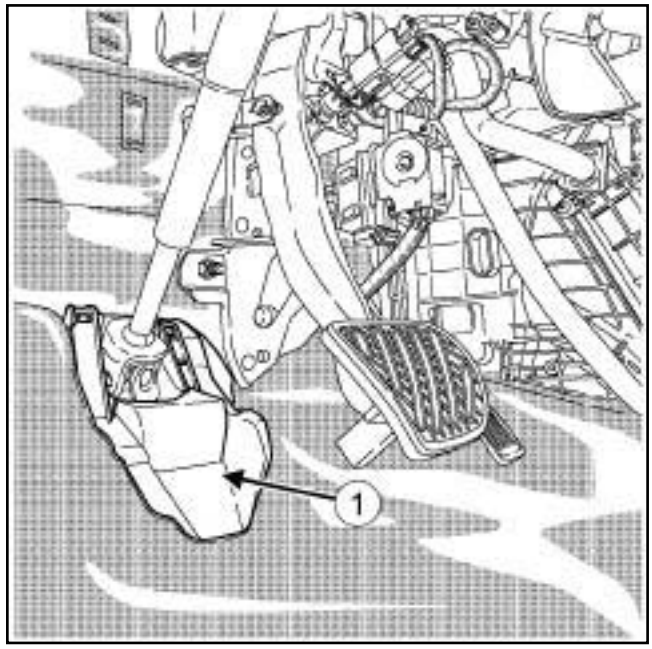
**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

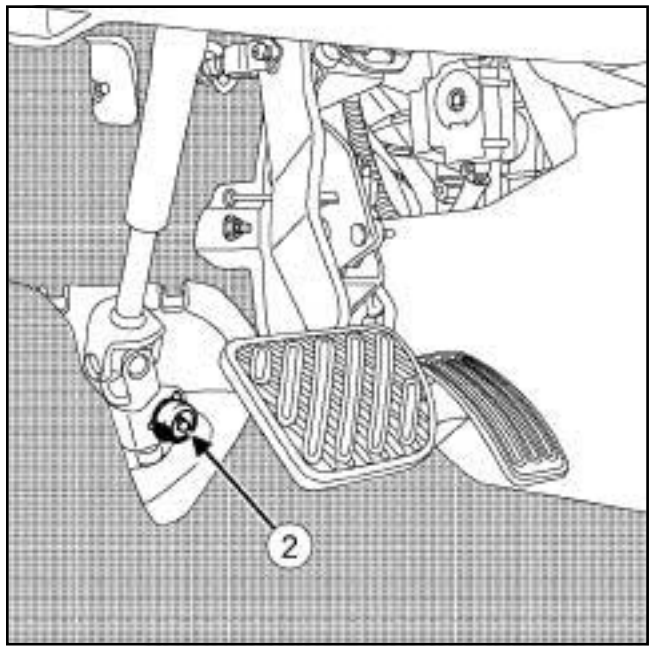
❏ Remove the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .



131514

❏ Remove the steering cover (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131515

❏ Remove the cover (**2**) from the universal joint (do not keep).

❏ Set the wheels straight ahead.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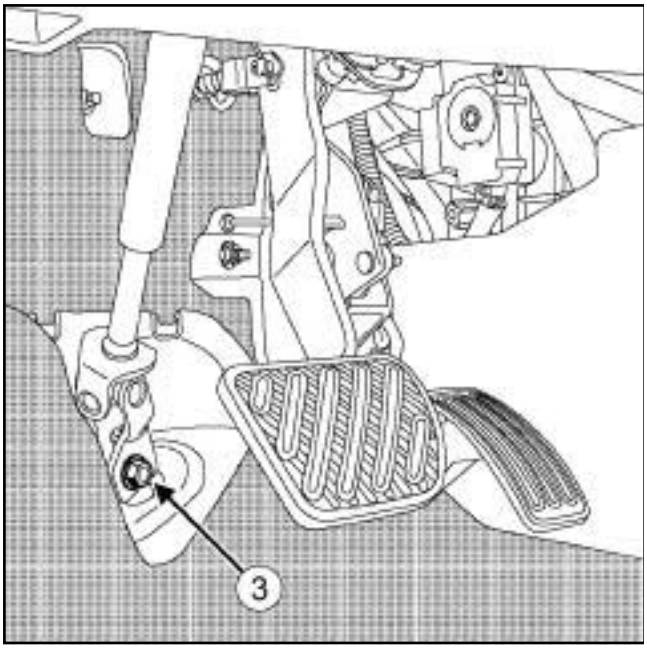
2TR, and LEFT-HAND DRIVE

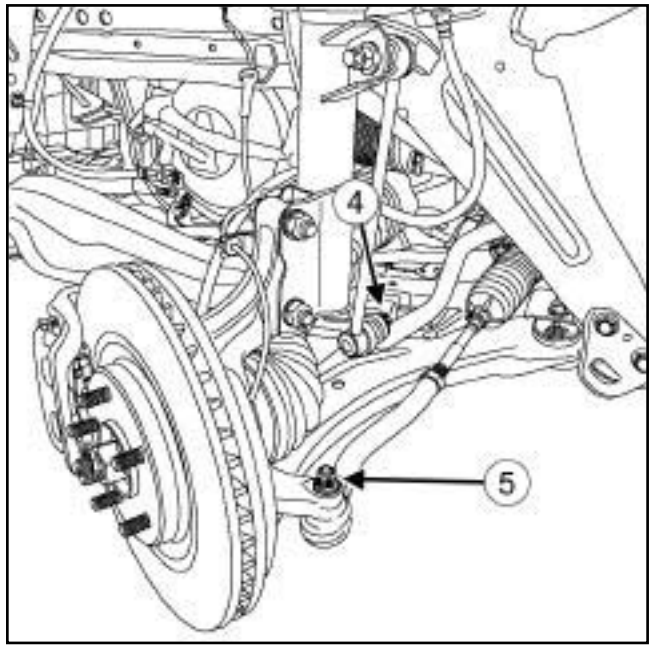



131516

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut (do not keep),
- the universal joint from the steering box.

❏ Remove the bulkhead seal (see **36A**, **Steering assembly**, **Bulkhead seal: Removal - Refitting**, page **36A-27**) .



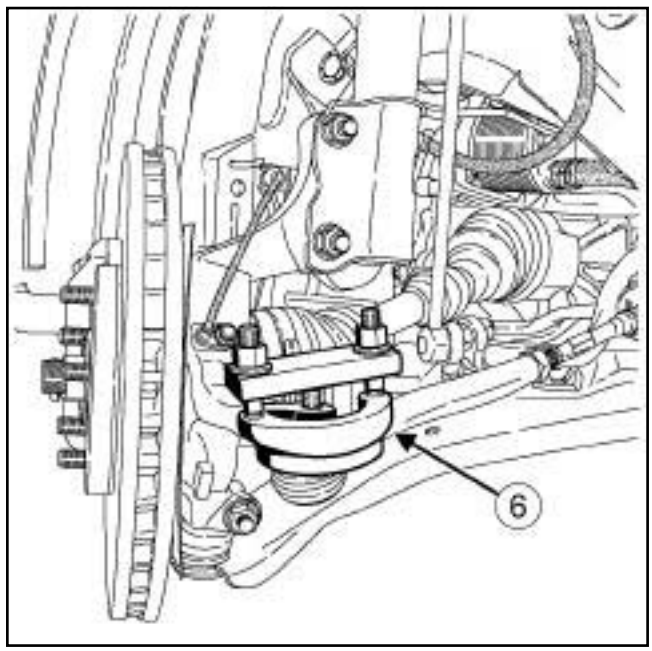

132632

❏ Remove:

- the track rod ball joint nuts (**5**) ,
- the lower nuts (**4**) from the anti-roll bar tie rod.

Note:

It is necessary to rotate the anti-roll bar on itself in order to make it easier to position the steering box on the sub-frame cross member.




132713

❏ Extract the track rod end using the **(Tav. 476)** (**6**) .

❏ Tilt the anti-roll bar towards the rear of the vehicle.



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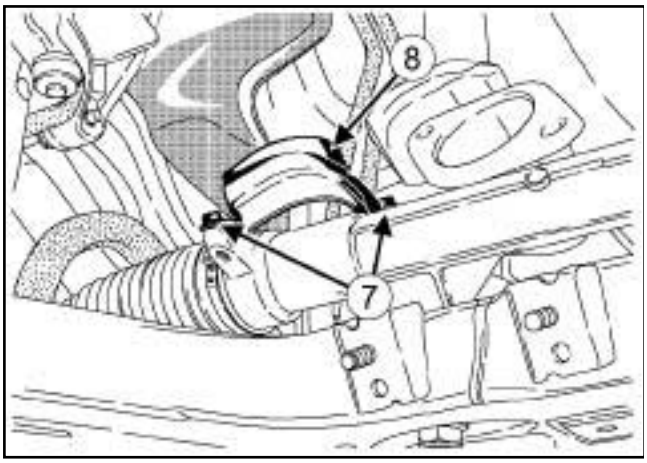
2TR, and LEFT-HAND DRIVE

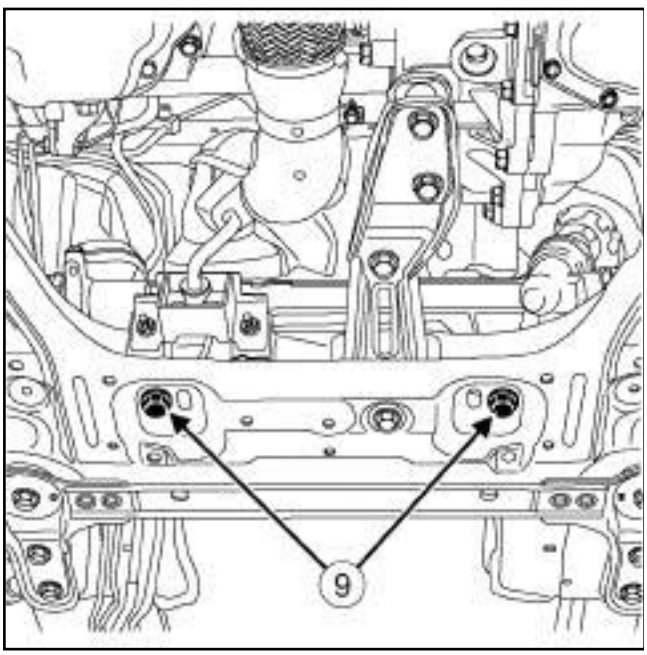
❏ Remove the intermediate pipe (see **Connector pipe: Removal - Refitting**) .




132718

❏ Remove:

- the bolts (**7**) ,
- the heat shield (**8**) .




132724

❏ Remove:

- the steering box bolts (**9**) ,
- the steering box towards the left-hand side of the vehicle.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the universal joint cam nut and bolt,
- the lower nuts of the anti-roll bar tie rod.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the steering box, inserting it from the left-hand side of the vehicle,
- the steering box nuts,
- the heat shield,
- the heat shield bolts.

❏ Torque tighten

- the **nuts of the steering box (148 N.m)**,
- the **heat shield bolts (4 N.m)**.

❏ Refit the intermediate pipe (see **Connector pipe: Removal - Refitting**) .

❏ Tilt the anti-roll bar back into its original position.

❏ Fit the track rod end in the hub carrier.

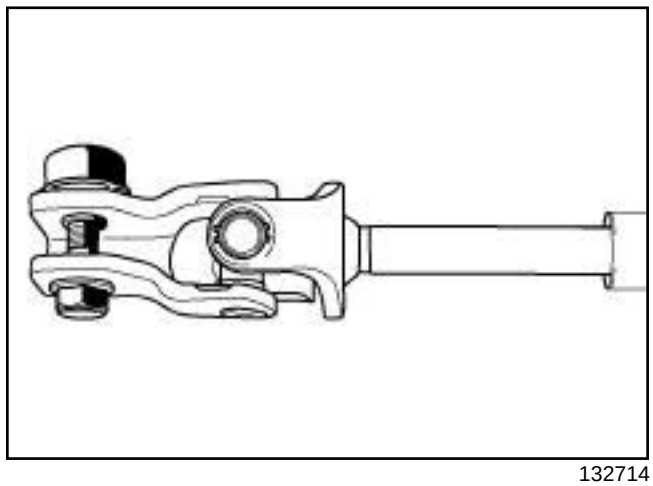
❏ Refit:

- the lower nuts of the anti-roll bar tie rod.
- the track rod ball joint nuts.

❏ Torque tighten:

- the **lower nuts of the anti-roll bar tie rod (84 N.m)**,
- the **track rod ball joint nuts (34 N.m)**.

❏ Refit the bulkhead seal (see **36A**, **Steering assembly**, **Bulkhead seal: Removal - Refitting**, page **36A-27**) .



132714

❏ Observe the direction of fitting for the universal joint cam nut and bolt.



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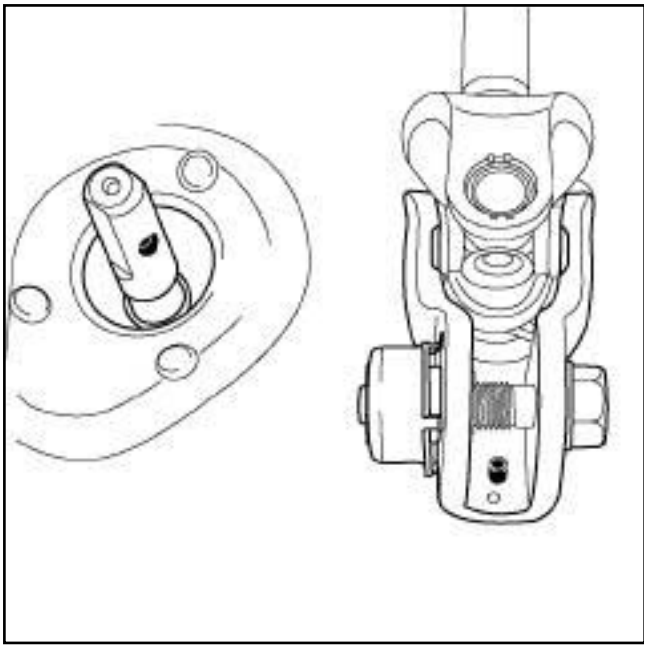
2TR, and LEFT-HAND DRIVE



132715

❑ Check that the universal joint is in the correct position.

❑ Refit:

- the universal joint on the steering box,
- the new universal joint bolt,
- the new cam nut on the universal joint.

❑ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

**III - FINAL OPERATION.**

❑ Refit:

- the steering cover,
- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Adjust the front axle (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .



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2TR, and RIGHT-HAND DRIVE

| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Tightening torques ▽ | |
|---|---|
| steering box bolts | **148 N.m** |
| heat shield bolts | **4 N.m** |
| lower nuts of the anti-roll bar tie rod | **84 N.m** |
| track rod ball joint nuts | **34 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

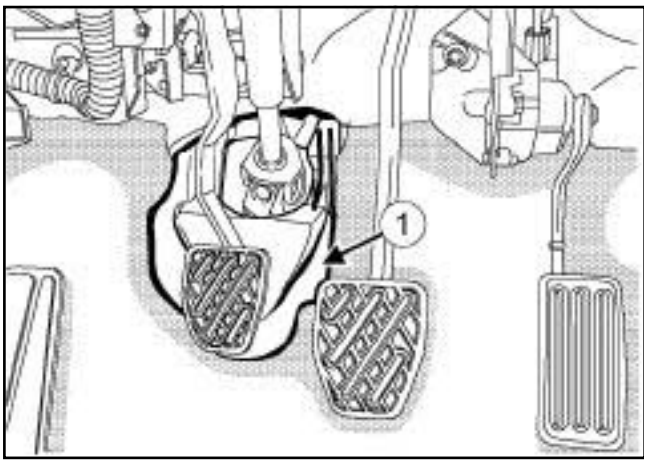
**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

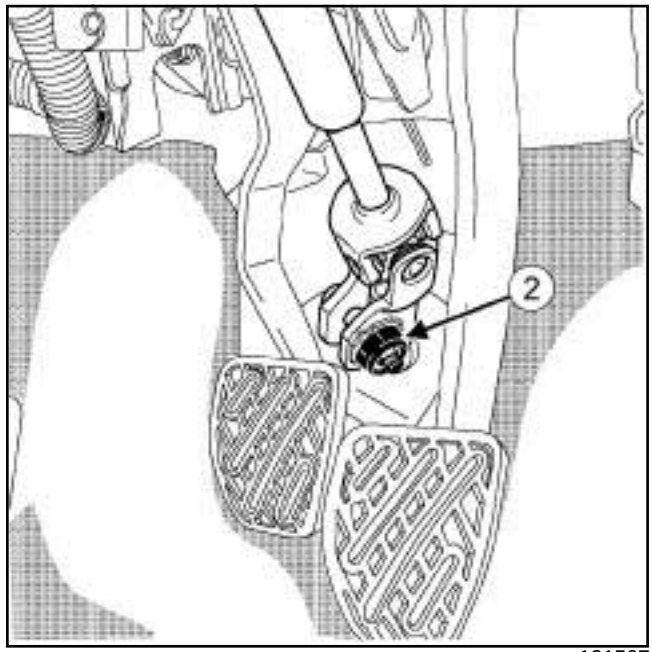
❏ Remove the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .



131506

❏ Remove the steering cover (**1**) .

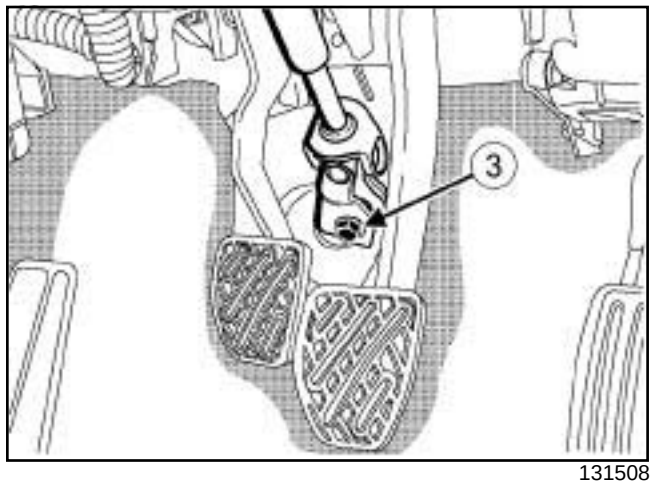
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131507

❏ Remove the cover (**2**) from the universal joint (do not keep).

❏ Set the wheels straight ahead.



131508

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut (do not keep),
- the universal joint from the steering box.

❏ Remove the bulkhead seal (see **36A**, **Steering assembly**, **Bulkhead seal: Removal - Refitting**, page **36A-27**) .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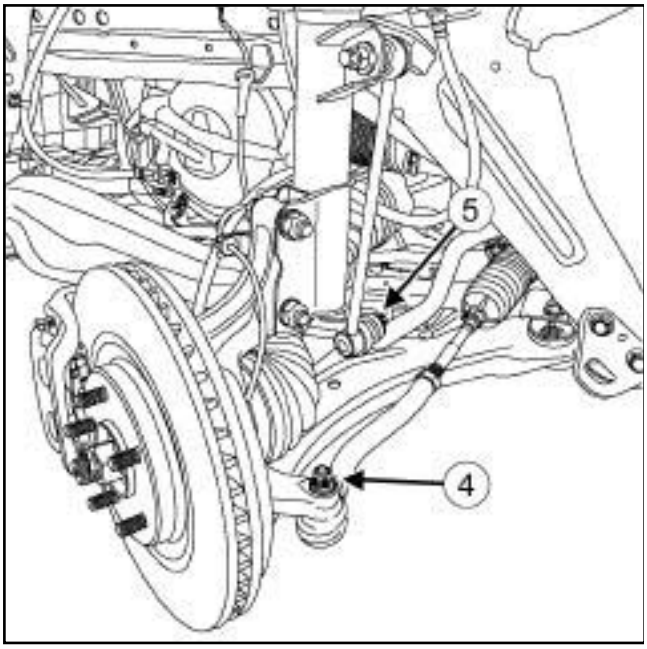
2TR, and RIGHT-HAND DRIVE



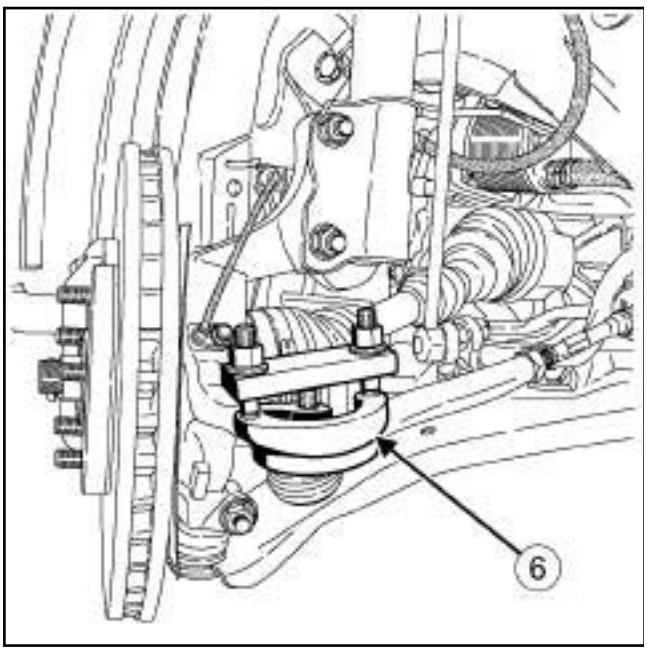

132632

❏ Remove:

- the track rod ball joint nuts (**4**) ,
- the lower nuts (**5**) of the anti-roll bar tie rod.

Note:

It is necessary to rotate the anti-roll bar on itself in order to make it easier to position the steering box on the sub-frame cross member.

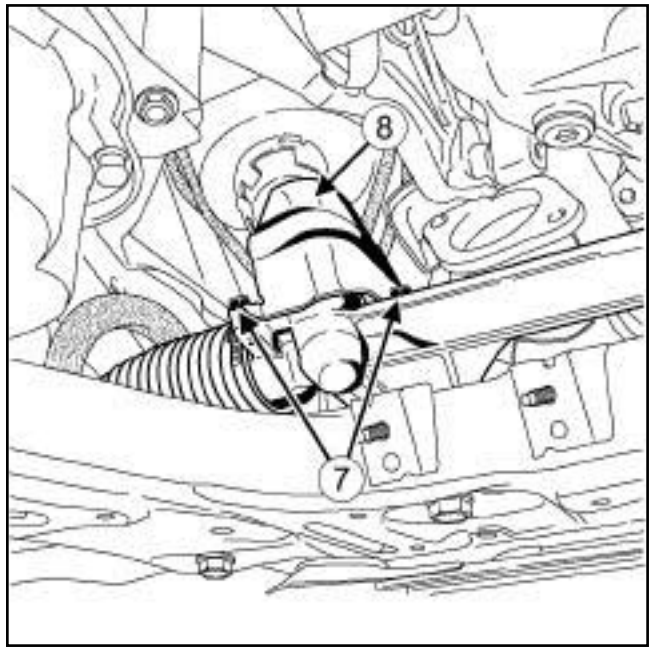



131478

❏ Extract the track rod end using the **(Tav. 476)** (**6**) .

❏ Tilt the anti-roll bar towards the rear of the vehicle.

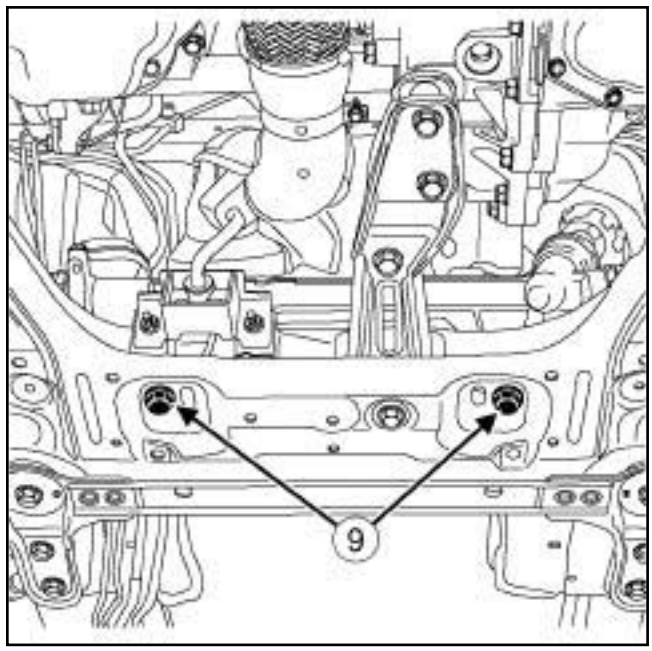
❏ Remove the intermediate pipe (see **Connector pipe: Removal - Refitting**) .




132723

❏ Remove:

- the bolts (**7**) ,
- the heat shield (**8**) .




132724

❏ Remove:

- the steering box bolts (**9**) ,
- the steering box towards the right-hand side of the vehicle.



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2TR, and RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the universal joint cam nut and bolt,
- the lower nuts of the anti-roll bar tie rod.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the steering box, inserting it from the right-hand side of the vehicle,
- the steering box nuts,
- the heat shield,
- the heat shield bolts.

❑ Torque tighten

- the **steering box bolts (148 N.m)**,
- the **heat shield bolts (4 N.m)**.

❑ Refit the intermediate pipe (see **Connector pipe: Removal - Refitting**) .

❑ Tilt the anti-roll bar back into its original position.

❑ Fit the track rod end in the hub carrier.

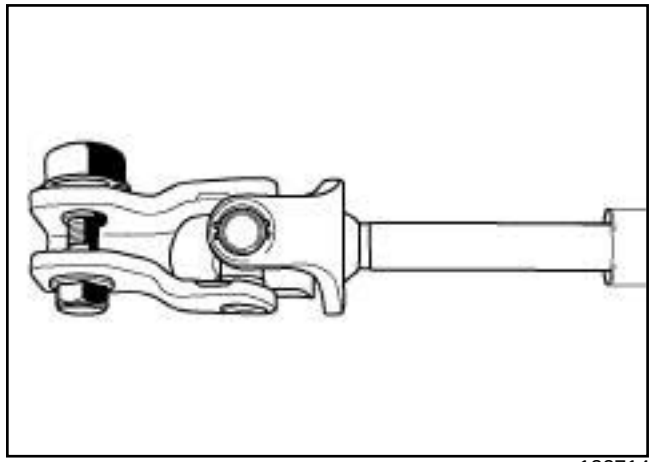
❑ Refit:

- the lower nuts of the anti-roll bar tie rod,
- the track rod ball joint nuts.

❑ Torque tighten:

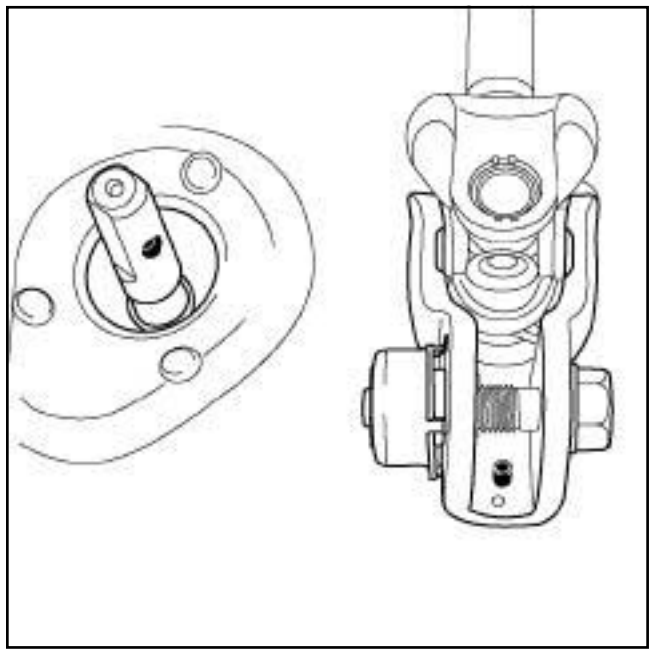
- the **lower nuts of the anti-roll bar tie rod (84 N.m)**,
- the **track rod ball joint nuts (34 N.m)**.

❑ Refit the bulkhead seal (see **36A**, **Steering assembly**, **Bulkhead seal: Removal - Refitting**, page **36A-27**) .



132714

❑ Observe the direction of fitting for the universal joint cam nut and bolt.



132715

❑ Check that the universal joint is in the correct position.

❑ Refit:

- the universal joint on the steering box,
- the new universal joint bolt,
- the new cam nut on the universal joint.

❑ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

### III - FINAL OPERATION.

❑ Refit:

- the steering cover,



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2TR, and RIGHT-HAND DRIVE

- the front wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑ Adjust the front axle (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .


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| Essential special tooling | |
|---|---|
| **Tav. 476** | Ball joint extractor. |

| Tightening torques ▽ | |
|---|---|
| track rod ball joint nut | **35 N.m** |
| wheel alignment adjustment lock nut | **88 N.m** |

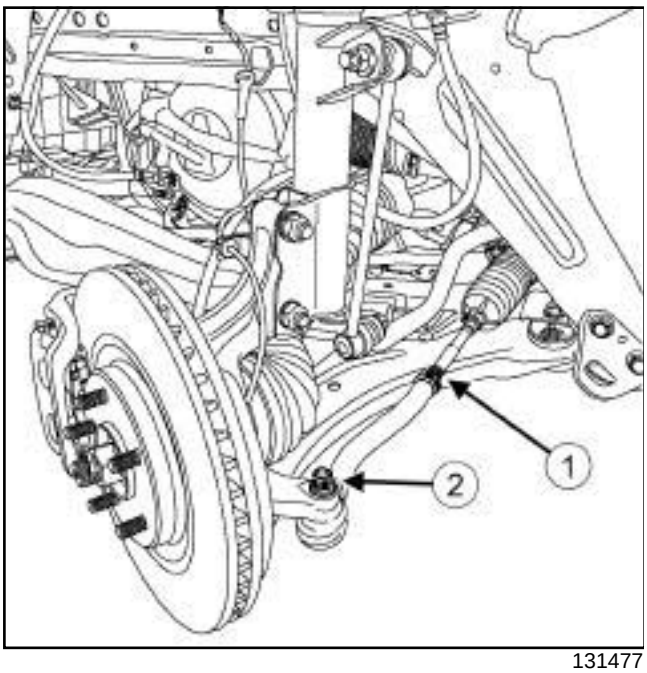
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front wheel on the side concerned (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

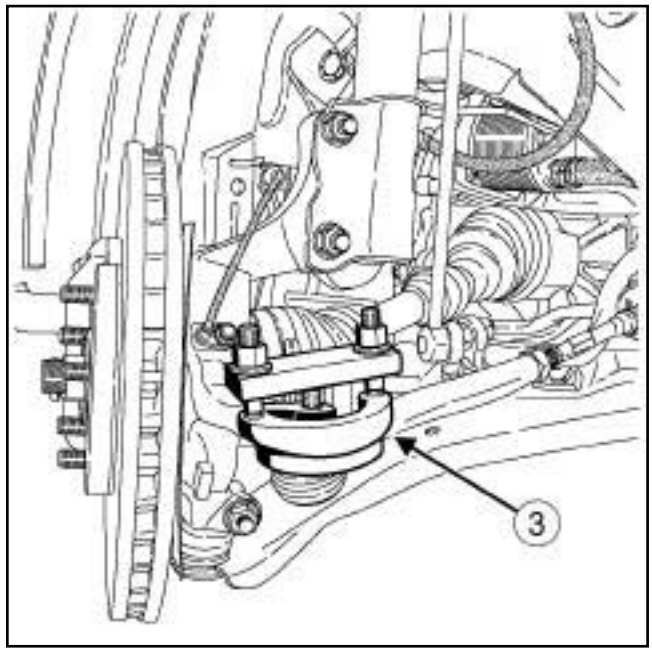
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131477

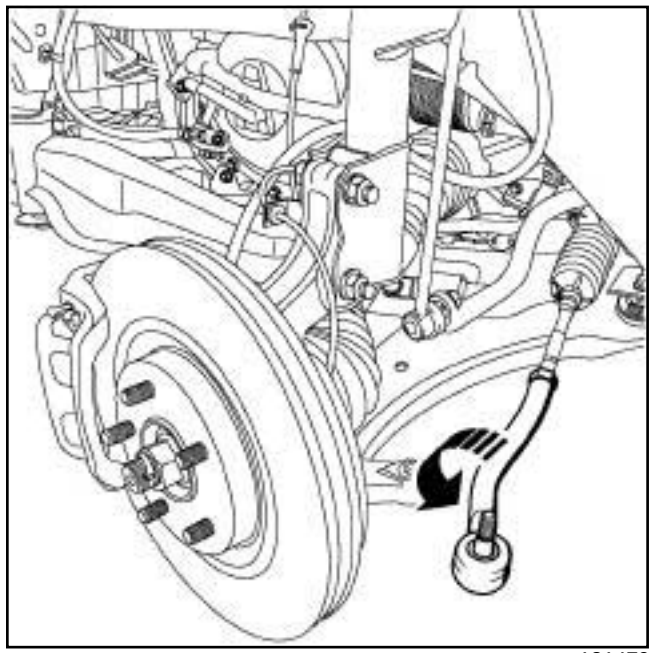
❏ Loosen the wheel alignment adjustment lock nut (**1**) .

❏ Remove the track rod ball joint nut (**2**) .




131478

❏ Extract the ball joint using **(Tav. 476)** (**3**) .



131479

❏ Unscrew the track rod anti-clockwise and note the number of turns for refitting.

❏ Remove the track rod.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Screw the track rod back in place by the number of turns noted during removal.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❑ refit:

- the track rod end in the hub carrier,
- the track rod end nut.

❑ Torque tighten:

- the **track rod ball joint nut (35 N.m)**,
- the **wheel alignment adjustment lock nut (88 N.m)**.

**II - FINAL OPERATION.**

❑ Refit the front wheel on the side concerned (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**)

❑

Note:

Always check the front axle geometry (adjust if necessary) (see **30A**, **General information**, **Front axle: Adjustment values**, page **30A-8**) .


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| Essential special tooling | |
|---|---|
| **Dir. 1741** | Tool for locking steering rack. |
| **Dir. 1305-01** | Tool for removing/refitting 35 mm to 41 mm diameter axial ball joints. |

| Tightening torques ▽ | |
|---|---|
| axial ball joint | **89 N.m** |

## REMOVING - REFITTING

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

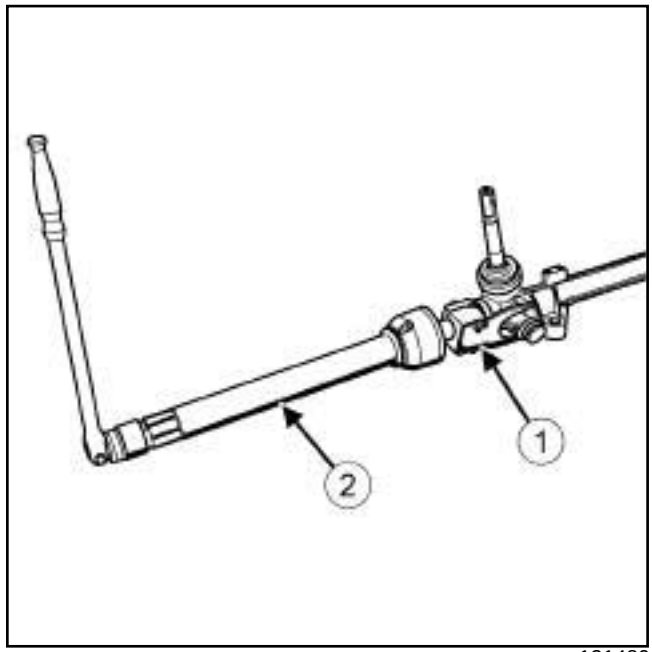
- the front wheel on the side in question (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the track rod, (see **36A**, **Steering assembly**, **Track rod: Removal - Refitting**, page **36A-12**)
- the steering box gaiter (see **36A**, **Steering assembly**, **Steering rack gaiter: Removal - Refitting**, page **36A-26**)

❑ Unlock the steering column.

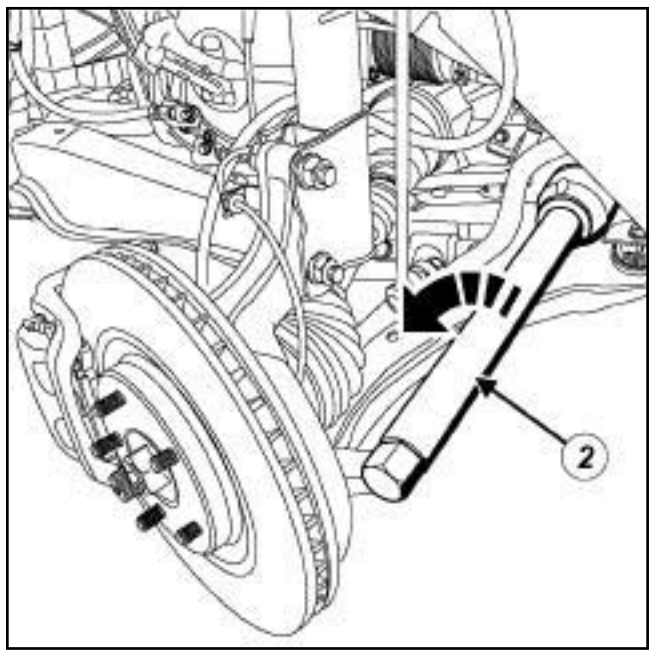
Note:

During this operation, the steering unit must be in place on the vehicle.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131480




131481

❑ Set up the (**1**) **(Dir. 1741)** on the steering rack, at the pinion end.

❑ Unlock the axial ball joint using tool ***(2)*** **(Dir. 1305-01)**.

❑ Remove the axial ball joint.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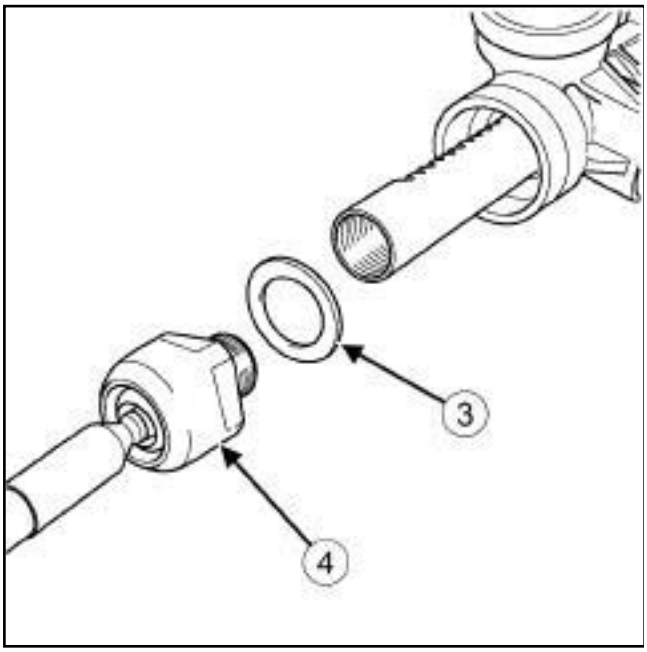
## REFITTING

### I - REFITTING PREPARATION OPERATION



131482

❑ Always replace:

- the washer (**3**) ,
- the gaiter.

❑

> Note:
>
> Take care not to deform the gaiters: they could be irreparably damaged.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the washer ***(3)*** ,
- the axial ball joint ***(4)*** .

❑ Torque tighten the **axial ball joint (89 N.m)** using the tool **(Dir. 1305-01)**.

❑ Remove the **(Dir. 1741)**.

❑ Coat the following parts with lithium grease:

- the steering rack,
- the axial ball joint.

### III - FINAL OPERATION.

❑ Refit:

- the steering box gaiter (see **36A**, **Steering assembly**, **Steering rack gaiter: Removal - Refitting**, page **36A-26**) ,
- the track rod, (see **36A**, **Steering assembly**, **Track rod: Removal - Refitting**, page **36A-12**)
- the front wheel on the side concerned (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**)

❑

> Note:
>
> Always check the front axle geometry (adjust if necessary) (see **30A**, **General information**, **Front axle: Adjustment values**, page **30A-8**) .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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| bolt connecting the steering column to the intermediate shaft | **31 N.m** |
| steering column nuts and bolts | **17 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Unlock the steering column.

**IMPORTANT**
To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

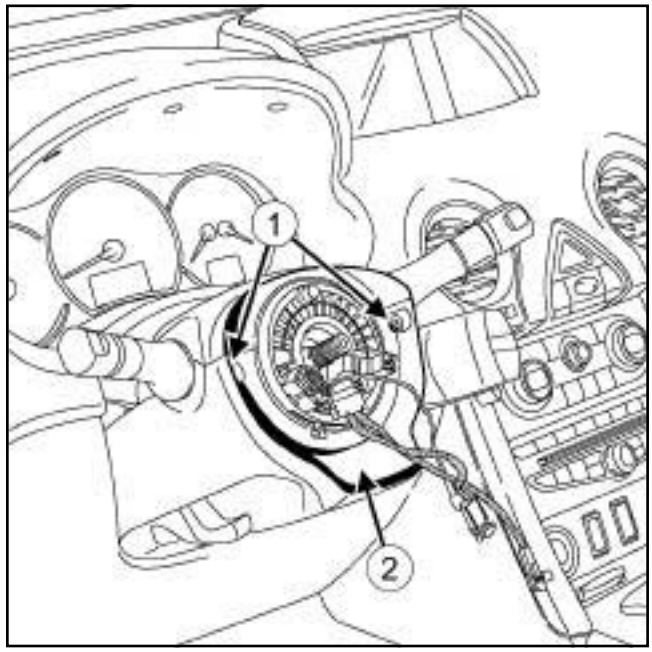
When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Set the wheels straight ahead.

❏ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) .



132750

❏ Remove:

- the bolts (**1**) ,
- the half shell (**2**) ,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) .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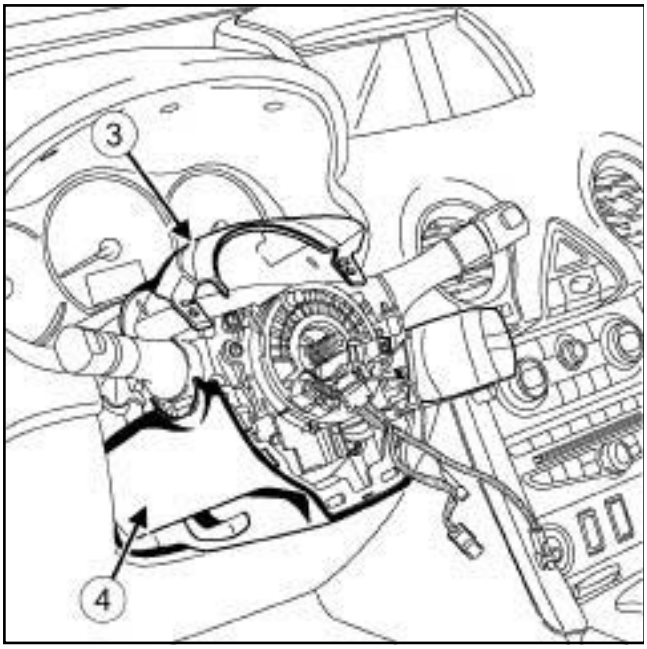
LEFT-HAND DRIVE

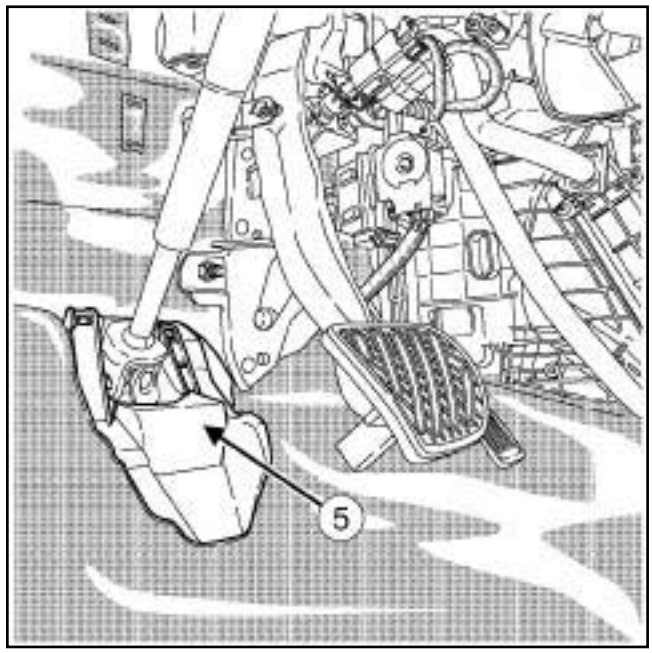



132751

❏ Remove:

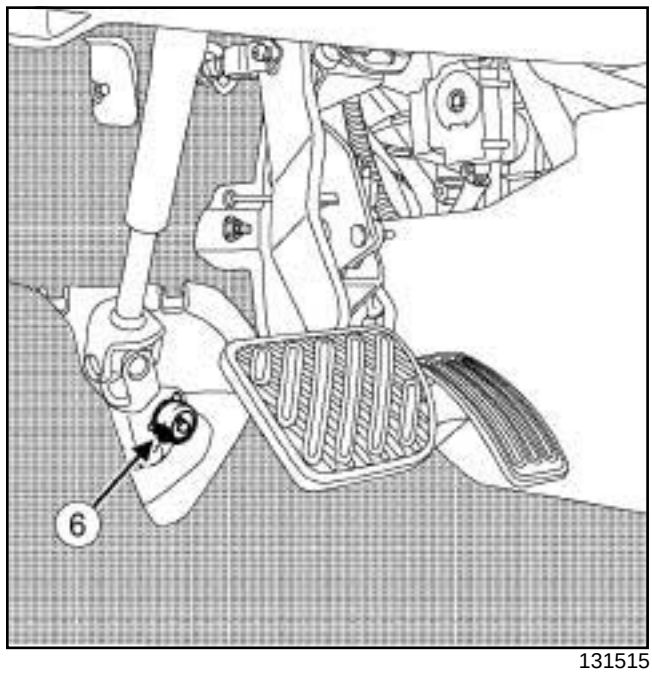
- the upper half shell (**3**) ,
- the lower half shell (**4**) ,
- the rotary switch (see **Rotary switch: Removal - Refitting**) ,
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131514

❏ Remove the steering cover (**5**) .




131515

❏ Remove the cover (**6**) from the universal joint (do not keep).



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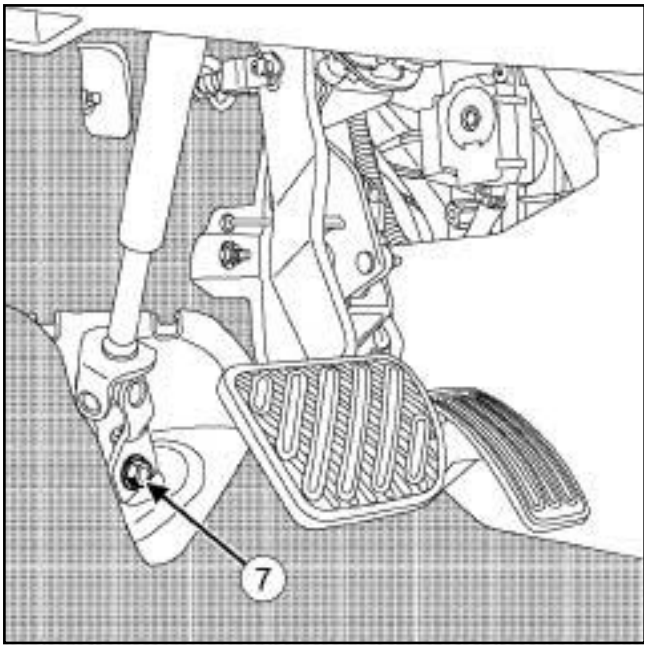
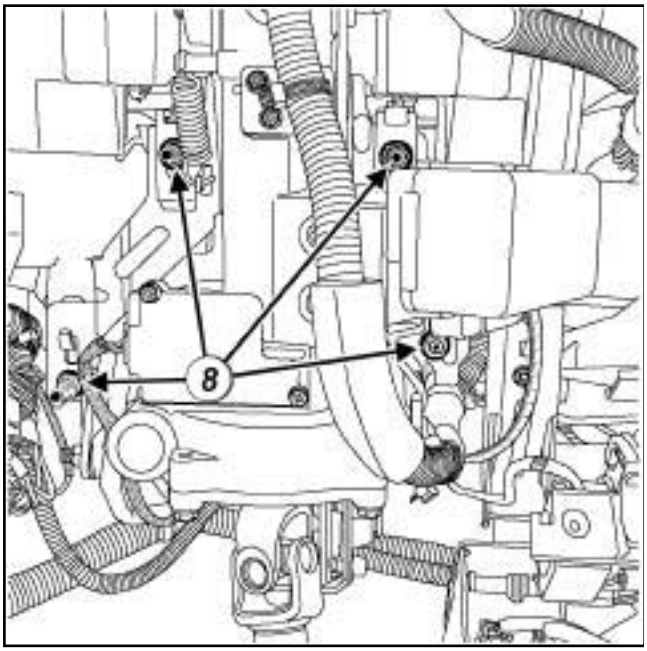
LEFT-HAND DRIVE




131516

❏ Remove:

- the universal joint bolt (**7**) (do not keep),
- the universal joint nut (do not keep).

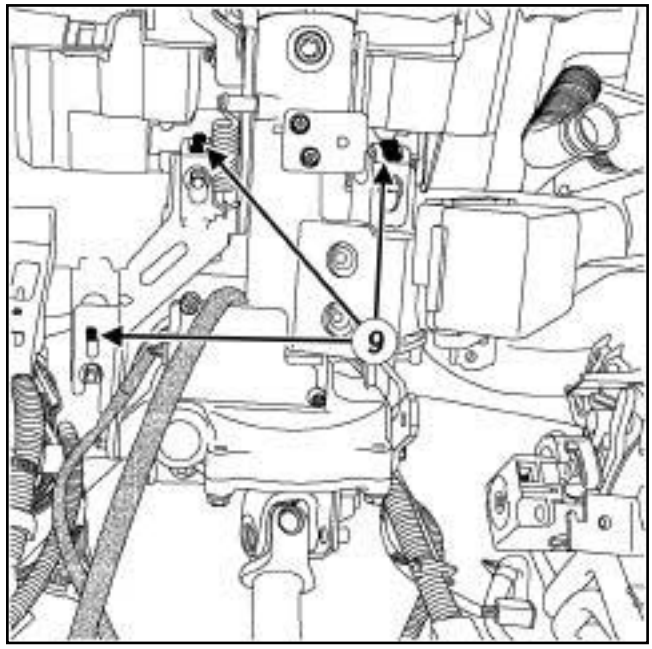



132752

❏ Remove the steering column bolts and nuts (**8**) from the cross member.

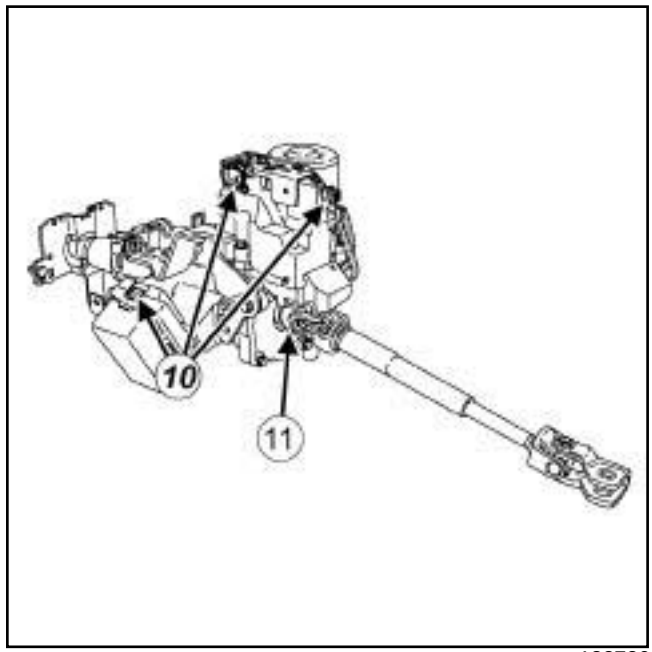
Note:

The column cannot be set down directly on the floor since the cable is not long enough.




132753

❏ Remove the steering column from the retainers (**9**) .




132726

❏ Disconnect the connectors (**10**) .

❏ Remove:

- the steering column,
- the bolt (**11**) ,
- the intermediate shaft.



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LEFT-HAND DRIVE

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the steering wheel nut,
- the steering wheel nut and bolt,
- the universal joint cam nut and bolt.

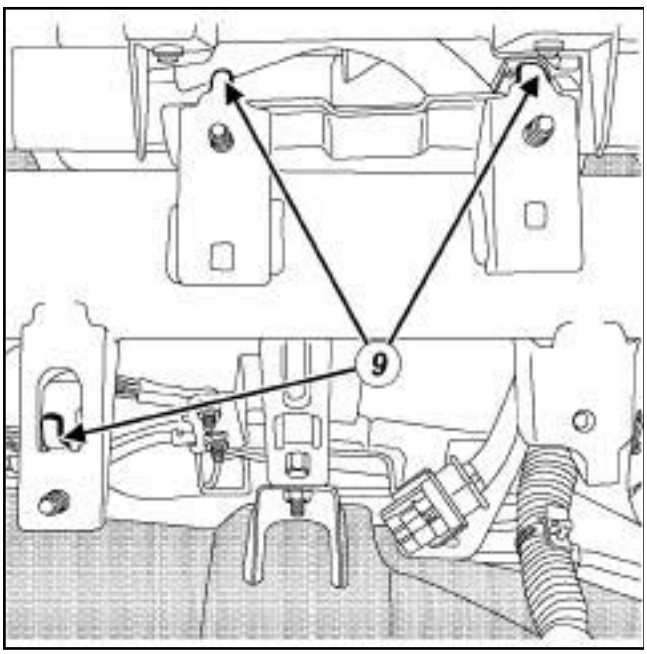
### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the intermediate shaft,
- the bolt.

❏ Torque tighten the **bolt connecting the steering column to the intermediate shaft (31 N.m)**.

❏ Connect the connector.




132754

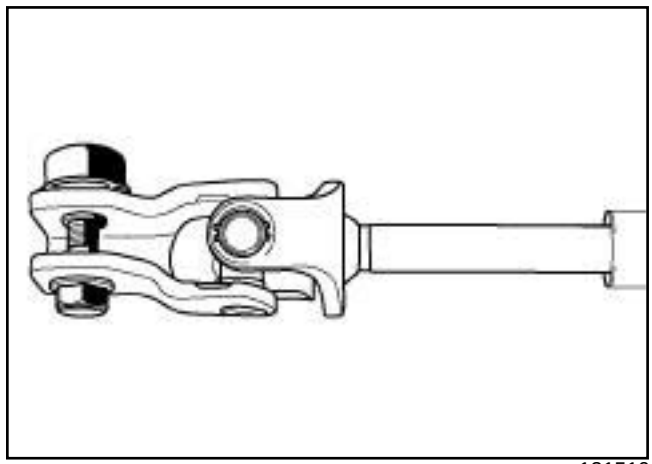
❏ Refit:

- the steering column,
- the steering column bolts and nuts.

Note:

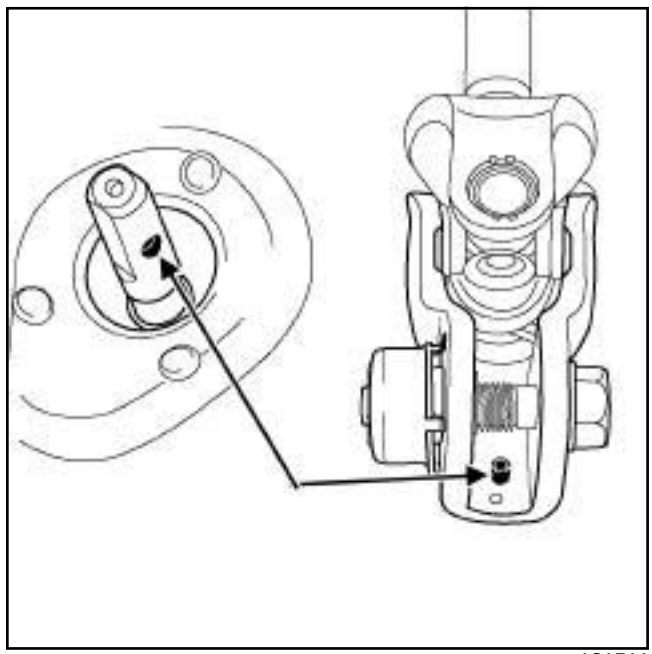
Check that the steering column is held on the cross member using the front and rear retainers (**9**) before tightening it.

❏ Torque tighten the **steering column nuts and bolts (17 N.m)**.



131510

❏ Observe the direction of fitting for the universal joint cam nut and bolt.



131511

❏ Check that the universal joint is in the correct position.

❏ Fit the universal joint.

❏ Refit the universal joint new bolt and cam nut.

❏ Position the universal joint cam nut and bolt.

❏ Lock the cam nut in its housing (on the universal joint).

❏ Pretighten the universal joint bolt.

❏ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.



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LEFT-HAND DRIVE

**III - FINAL OPERATION.**

❑ Refit:

- the steering cover,
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signals),
- the lower cover,
- the upper cover,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) ,
- the half shell,
- the bolts,
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) ,
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and seat belt pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Configure the steering wheel angle sensor (see **Fault finding - Configurations and programming** (38C, Anti-lock braking system).


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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| bolt connecting the steering column to the intermediate shaft | **31 N.m** |
| steering column nuts and bolts | **17 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Unlock the steering column.

**IMPORTANT**
To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

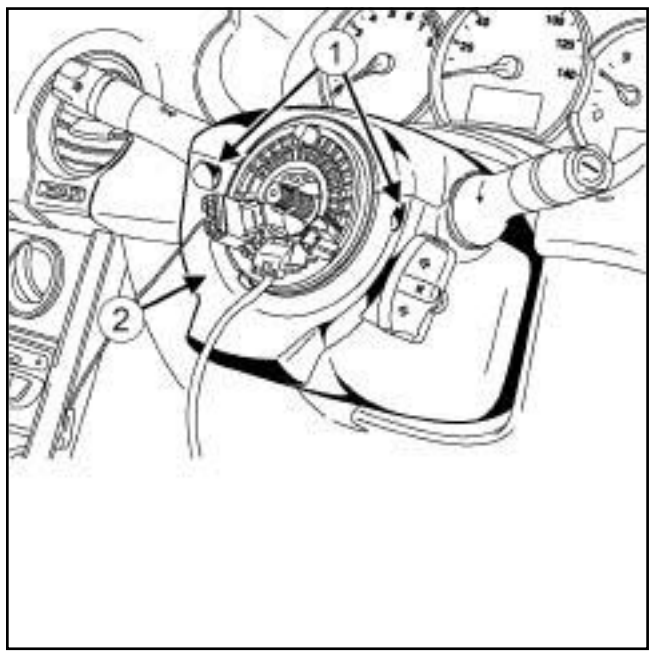
❏ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:
If the airbag has been triggered, the steering column must be replaced.

❏ Set the wheels straight ahead.

❏ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) .



132729

❏ Remove:

- the bolts (**1**) ,
- the half shell (**2**) ,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) .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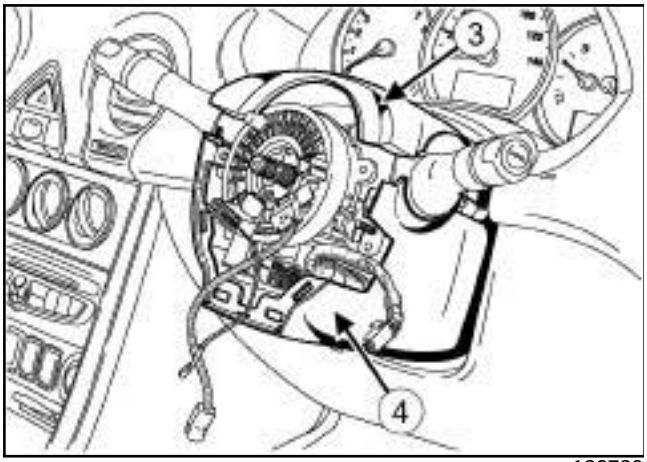
RIGHT-HAND DRIVE




132730

❏ Remove:

- the upper half shell,

- the upper half shell,

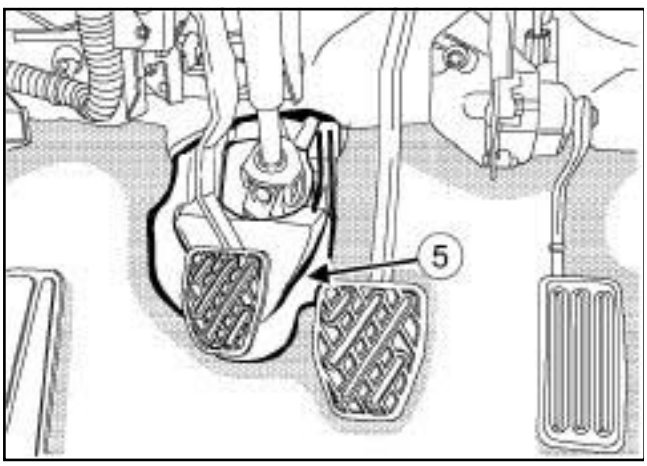
- the rotary switch (see **Rotary switch: Removal - Refitting**) ,

- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),

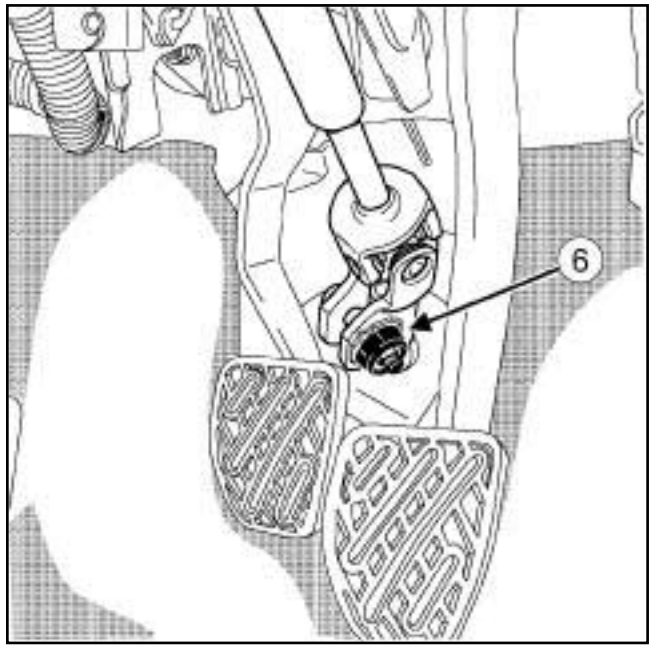
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



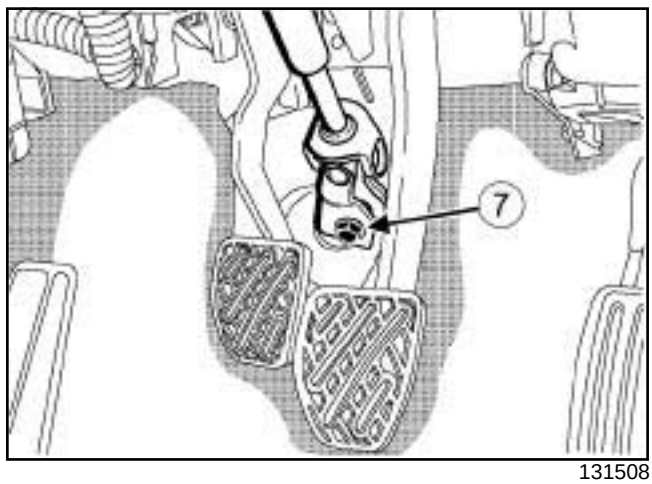

131506

❏ Remove the steering cover (**5**) .




131507

❏ Remove the universal joint cover (**6**) (do not keep).




131508

❏ Remove:

- the universal joint bolt (**7**) (do not keep),

- the universal joint nut (do not keep).



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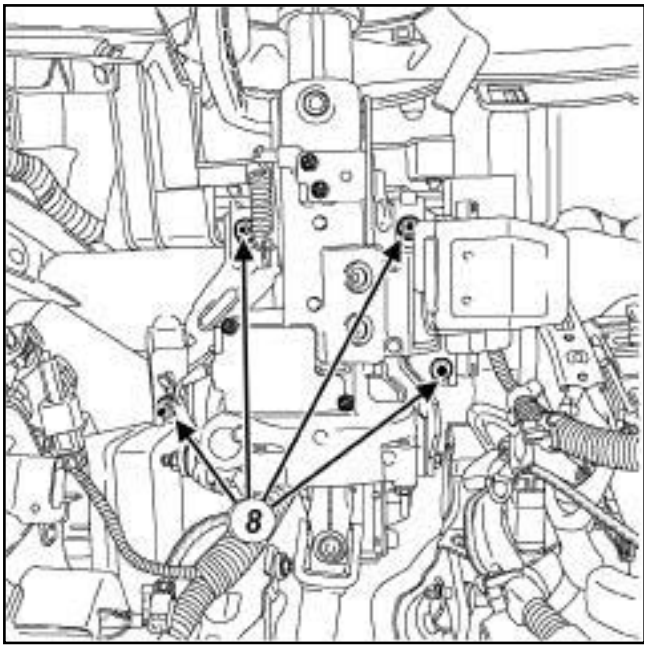
RIGHT-HAND DRIVE

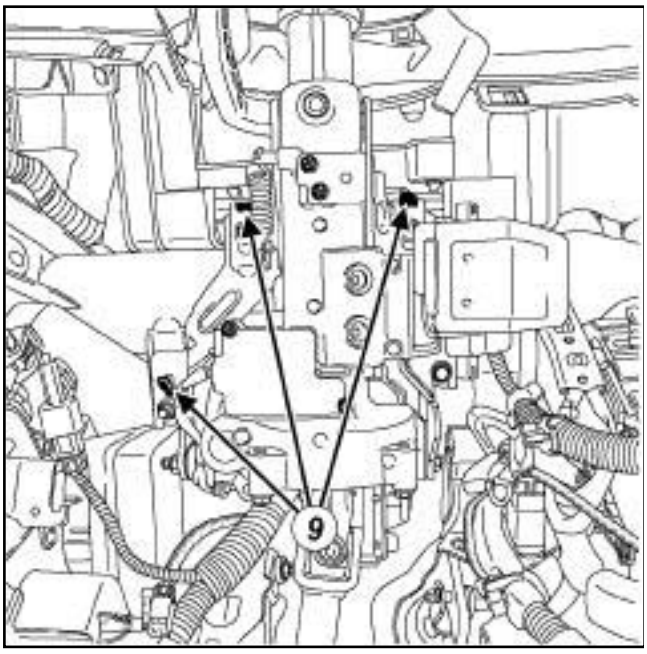



132734

❏ Remove the steering column bolts and nuts (**8**) from the cross member.

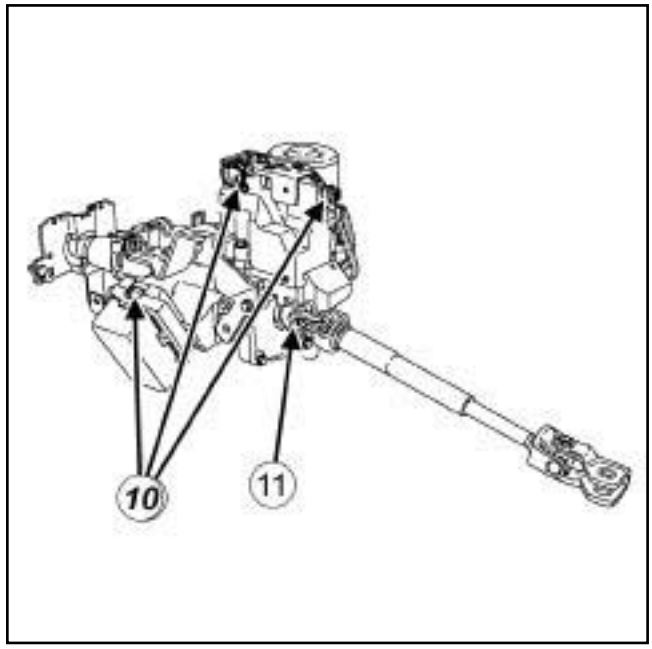
Note:

The column cannot be set down directly on the floor since the cable is not long enough.




132735

❏ Remove the steering column from the retainers (**9**) .




132726

❏ Disconnect the connectors (**10**) .

❏ Remove:

- the steering column,
- the bolt (**11**) ,
- the intermediate shaft.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace:

- the steering wheel nut,
- the steering column nut and bolt,
- the universal joint cam nut and bolt.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the intermediate shaft,
- the bolt.

❏ Torque tighten the **bolt connecting the steering column to the intermediate shaft (31 N.m)**.

❏ Connect the connectors.



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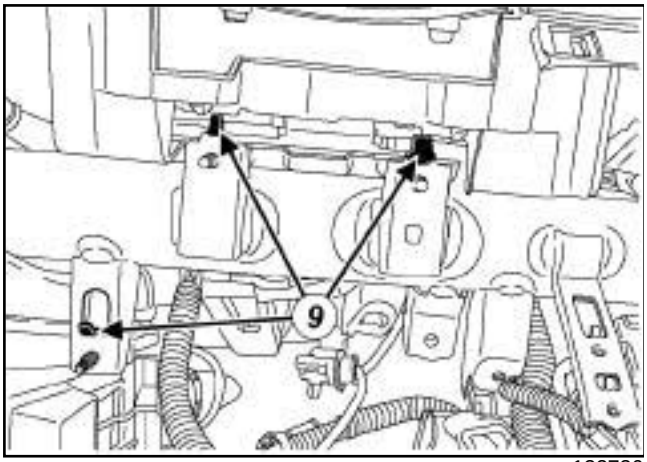
RIGHT-HAND DRIVE




132736

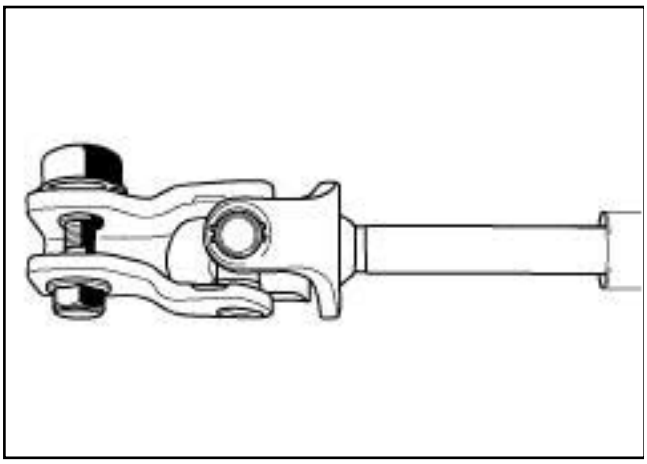
❏ Refit:

- the steering column,
- the steering column nuts and bolts.

Note:

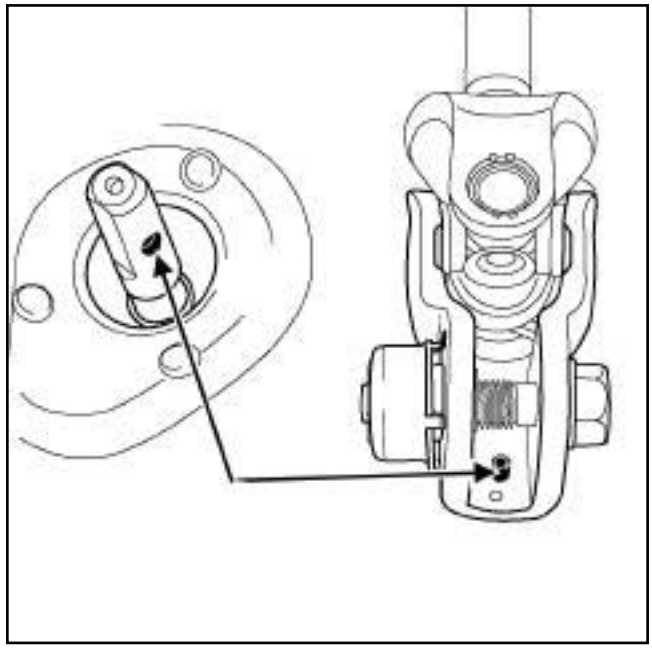
Check that the steering column is held on the cross member using the front and rear retainers (**9**) before tightening it.

❏ Torque tighten the **steering column nuts and bolts (17 N.m)**.



131510

❏ Observe the direction of fitting for the universal joint cam nut and bolt.




131511

❏ Check that the universal joint is in the correct position.

❏ Fit the universal joint.

❏ Refit the universal joint new bolt and cam nut.

❏ Position the universal joint cam nut and bolt.

❏ Lock the cam nut in its housing (on the universal joint).

❏ Pretighten the universal joint bolt.

❏ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

**III - FINAL OPERATION.**

❏ Refit:

- the steering cover,
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signals),
- the lower cover,
- the upper cover,



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RIGHT-HAND DRIVE

- the radio control satellite (see **Radio control satellite: Removal - Refitting**) ,
- the half shell,
- the bolts,
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) ,
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and seat belt pretensioners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Configure the steering wheel angle sensor (see **Fault finding - Configurations and programming** (38C, Anti-lock braking system).


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## REMOVAL

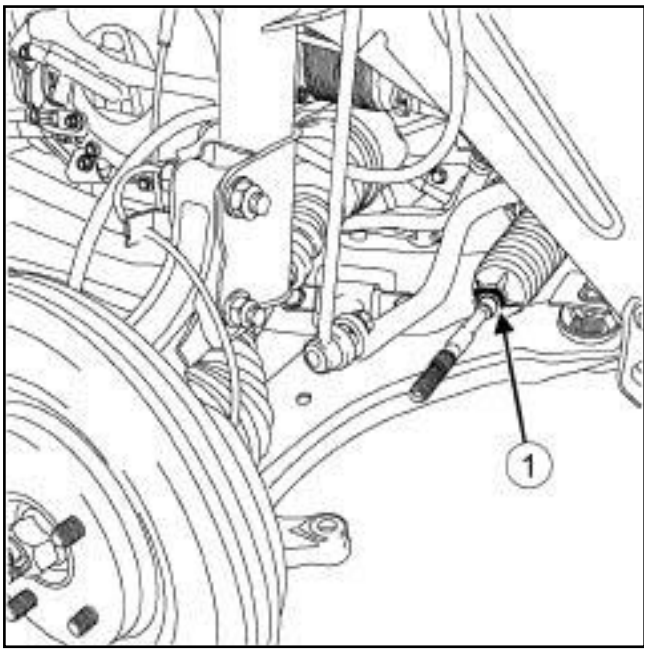
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

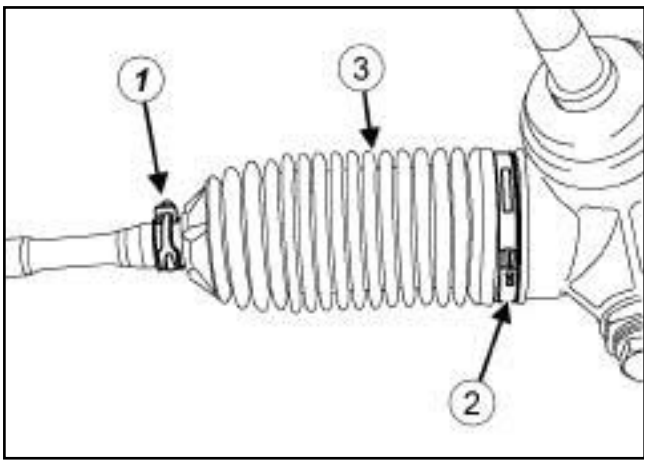
❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the track rod, (see **36A**, **Steering assembly**, **Track rod: Removal - Refitting**, page **36A-12**)
- the wheel alignment adjustment lock nut.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131483




131484

❏ Cut:

- the small gaiter retaining clip (**1**) ,
- the large gaiter retaining clip (**2**) .

❏ Remove the gaiter (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the steering box gaiter.

❏ Coat the bearing face of the gaiter on the axial ball joint with grease to prevent the gaiter from twisting.

> Note:
>
> During this operation, the steering box must be in place on the vehicle.

> Note:
>
> Take care not to deform the gaiter: risk of irreversible damage.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gaiter in its original position,
- the gaiter retaining clips.

### III - FINAL OPERATION.

❏ Refit:

- the wheel alignment adjustment lock nut,
- the track rod, (see **36A**, **Steering assembly**, **Track rod: Removal - Refitting**, page **36A-12**)
- the wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Check the axle geometry (see **Axle assemblies: Check**) .

❏ If necessary, adjust the axle assemblies' geometry (see **30A**, **General information**, **Front axle: Adjusting**, page **30A-10**) .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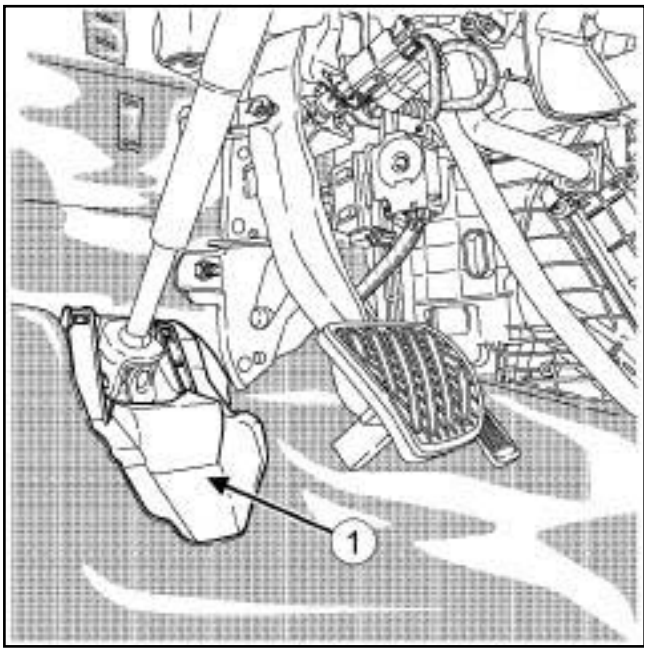
LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| universal joint bolt on the steering box | 39 N.m |

## REMOVAL

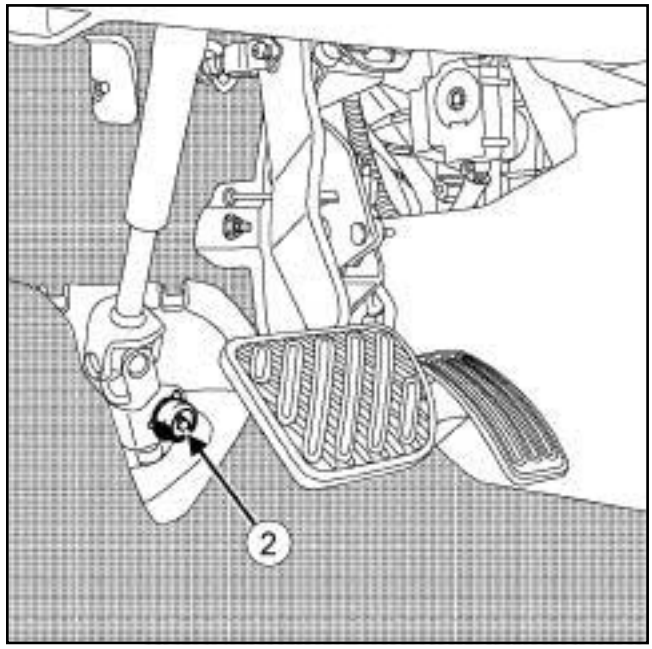
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).




131514

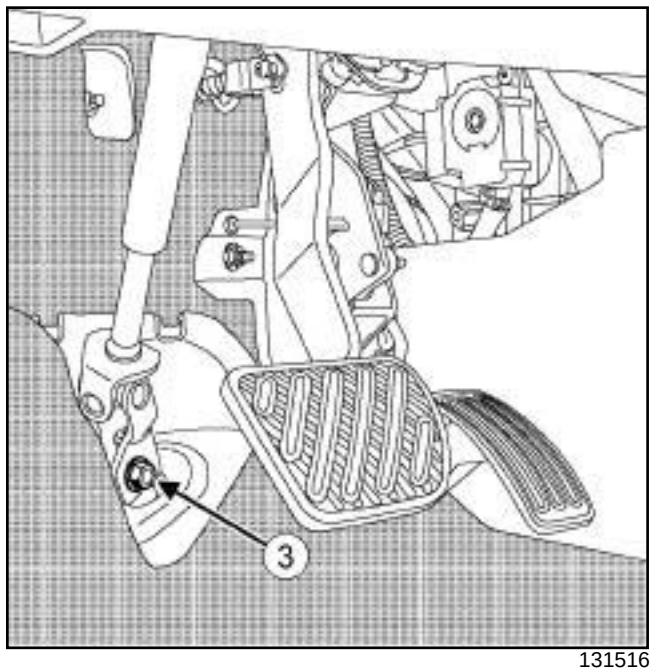
❏ Remove the cover (**1**) from the steering column.




131515

❏ Remove the universal joint cover (**2**) (do not keep).

❏ Set the wheels straight ahead.




131516

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut (do not keep),
- the universal joint from the steering box.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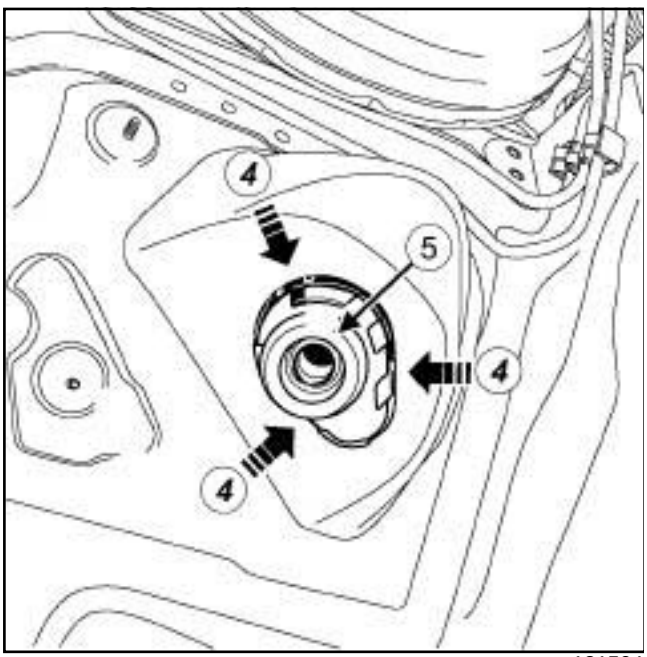
LEFT-HAND DRIVE

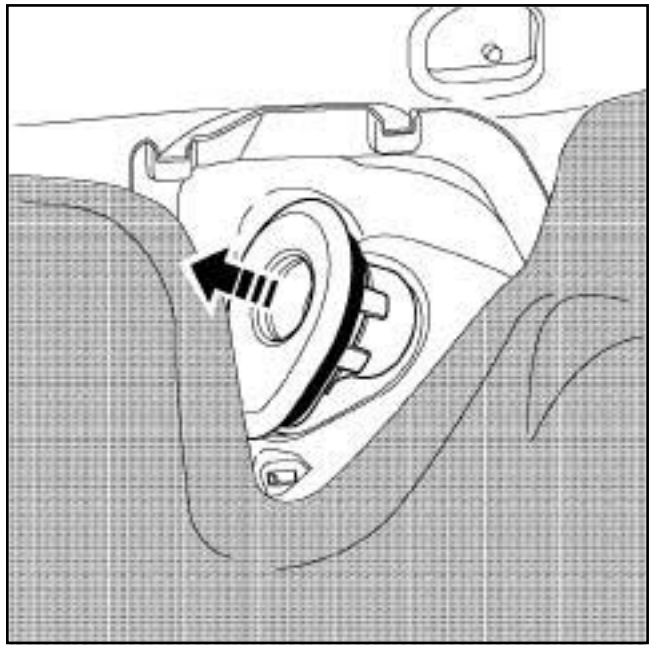
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

131517




131504

❑ Unclip the bulkhead seal (**5**) at (**4**) using a flat-blade screwdriver.



131505

❑ Remove the bulkhead seal.

## REFITTING

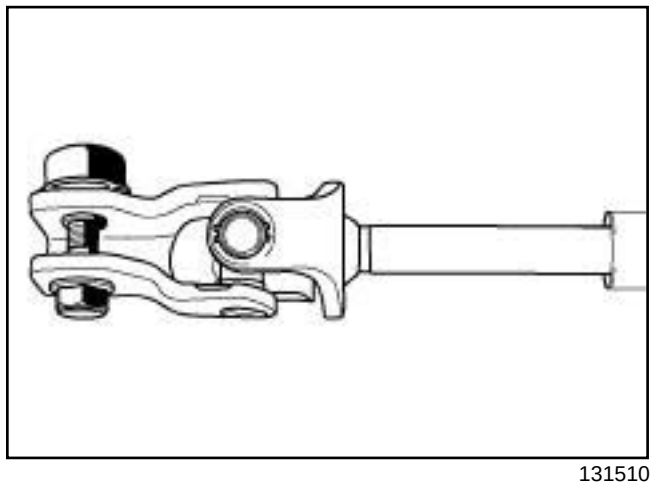
**I - REFITTING PREPARATION OPERATION**

❑ Always refit the universal joint bolt and cam nut.

**II - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit the bulkhead seal.

**III - FINAL OPERATION.**



131510

❑ Observe the direction of fitting for the universal joint cam nut and bolt.



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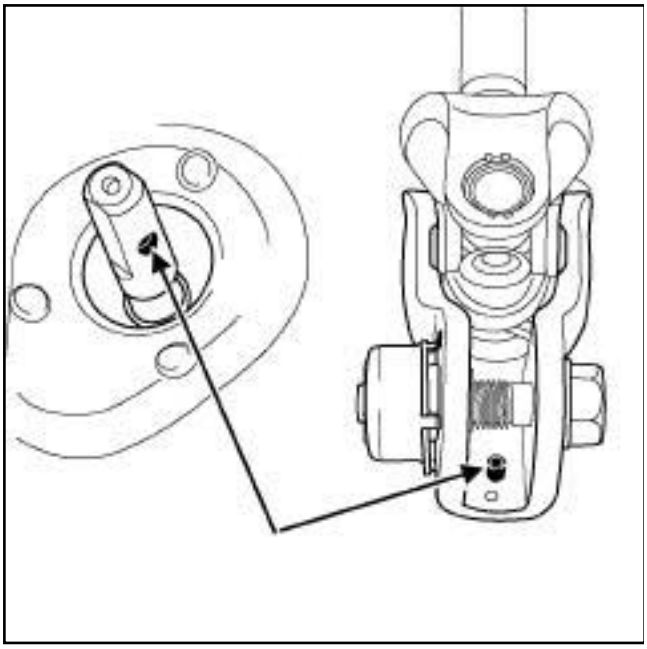
LEFT-HAND DRIVE



131511

❏ Check that the universal joint is in the correct position.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the new universal joint nut.

❏ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

❏ Refit the steering column cover.



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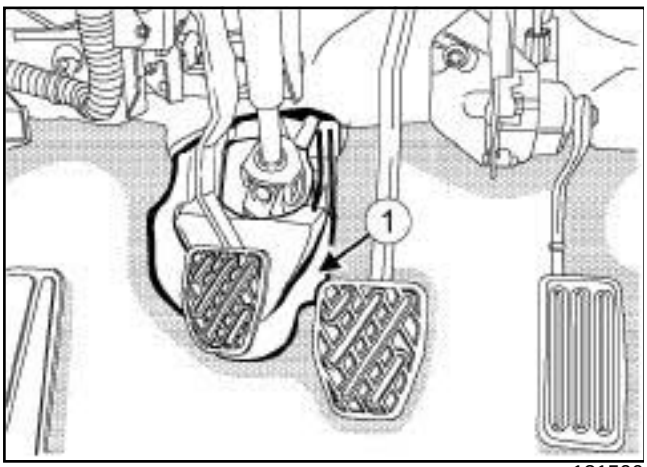
RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| universal joint bolt on the steering box | 39 N.m |

## REMOVAL

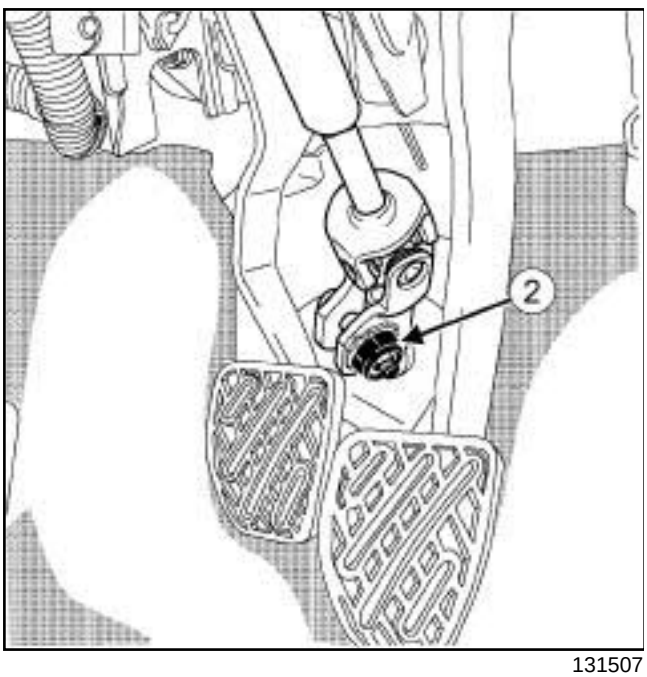
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).



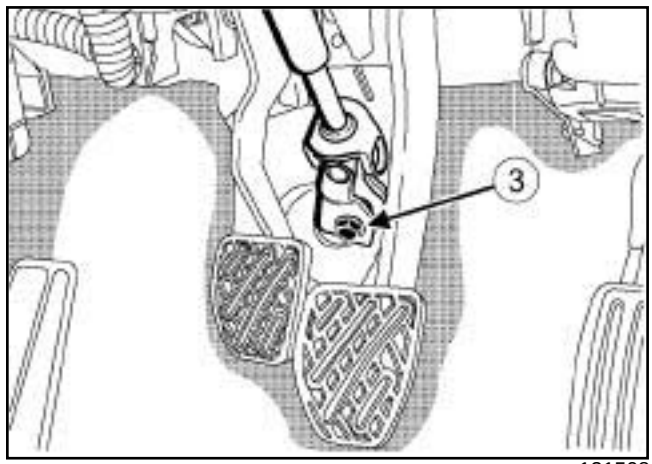

131506

❏ Remove the cover (**1**) from the steering column.




131507

❏ Remove the cover (**2**) from the universal joint (do not keep).




131508

❏ Remove:

- the universal joint bolt (**3**) (do not keep).
- the universal joint nut (do not keep),
- the universal joint from the steering box.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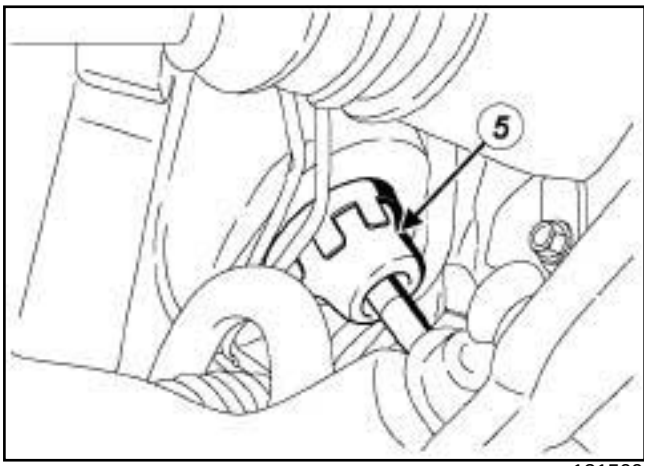
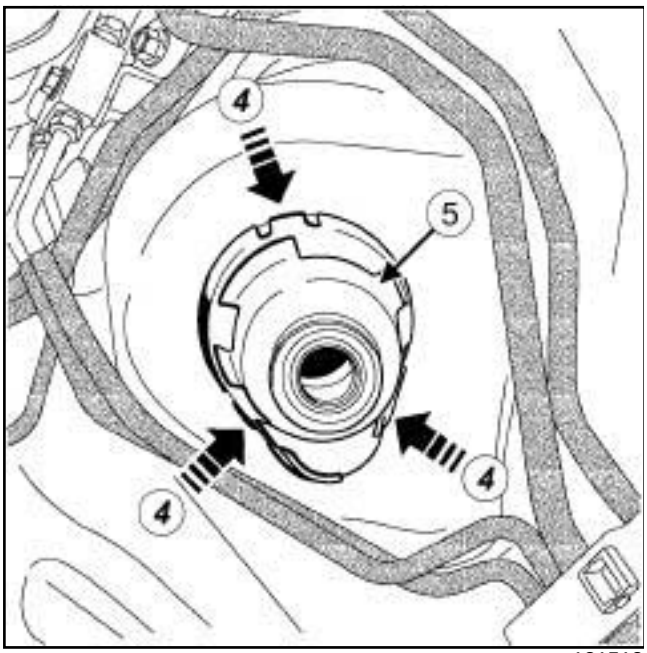
RIGHT-HAND DRIVE

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

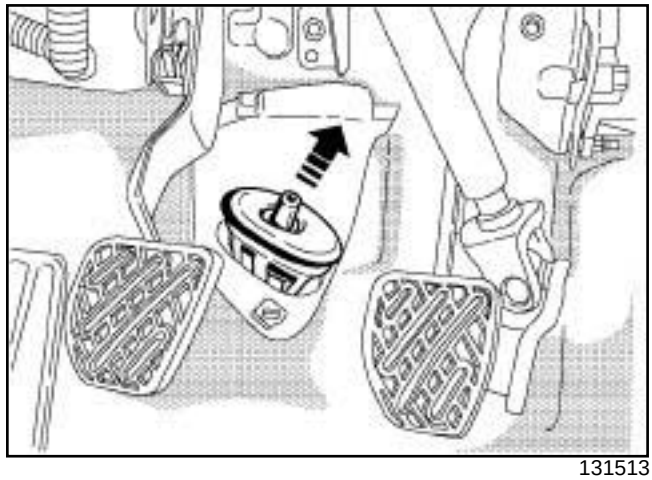



131509




131512

❏ Unclip the bulkhead seal (**5**) at (**4**) using a flat-blade screwdriver.



131513

❏ Remove the bulkhead seal.

## REFITTING

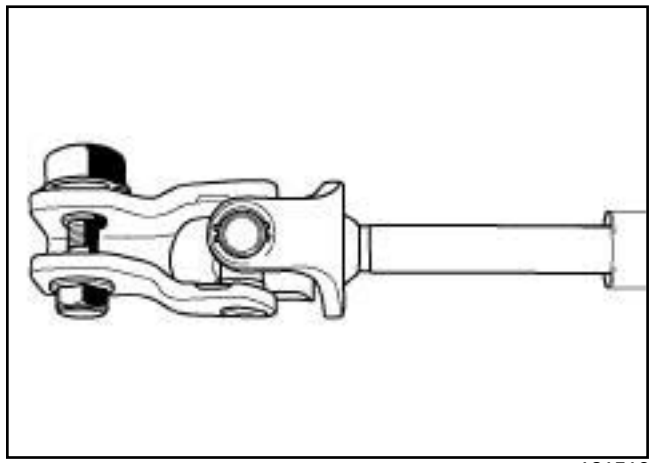
**I - REFITTING PREPARATION OPERATION**

❏ Always replace the universal joint bolt and cam nut.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the bulkhead seal.

**III - FINAL OPERATION.**



131510

❏ Observe the direction of fitting for the universal joint cam nut and bolt.



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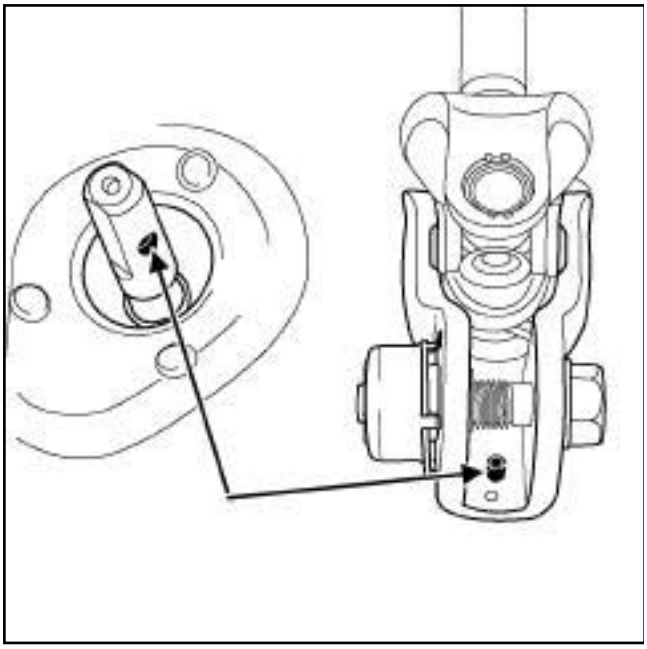
RIGHT-HAND DRIVE



131511

❏ Check that the universal joint is in the correct position.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the new universal joint nut.

❏ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

❏ Refit the steering column cover.



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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| bolt connecting the steering column to the intermediate shaft | **31 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

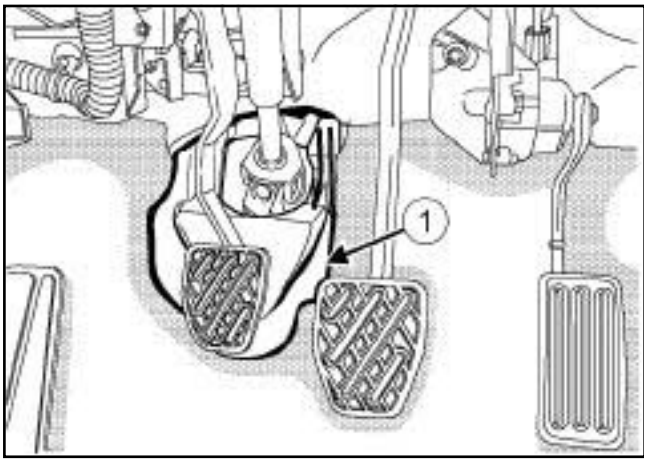
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

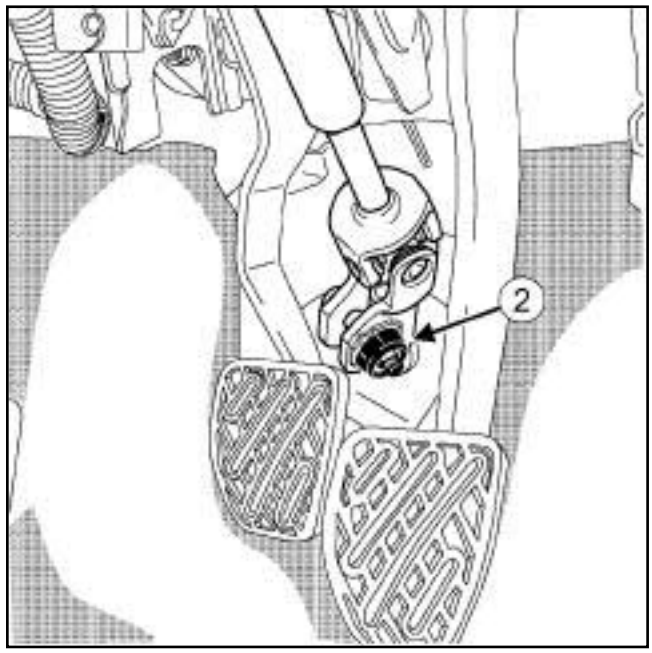
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),




131506

❏ Remove the steering cover (**1**) .

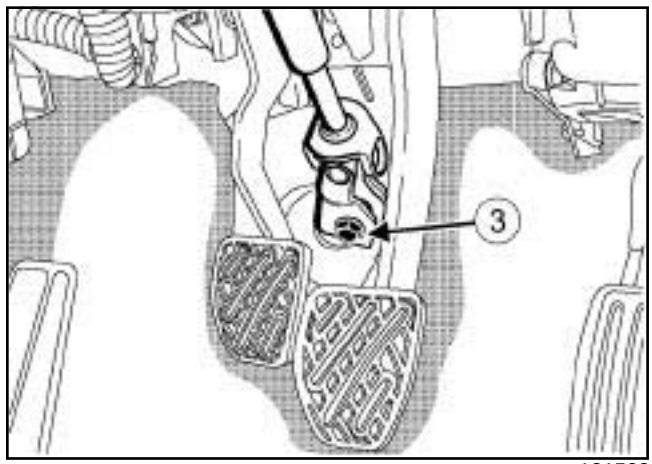
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131507

❏ Remove the cover (**2**) from the universal joint (do not keep).

❏ Set the wheels straight ahead.




131508

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut,
- the universal joint.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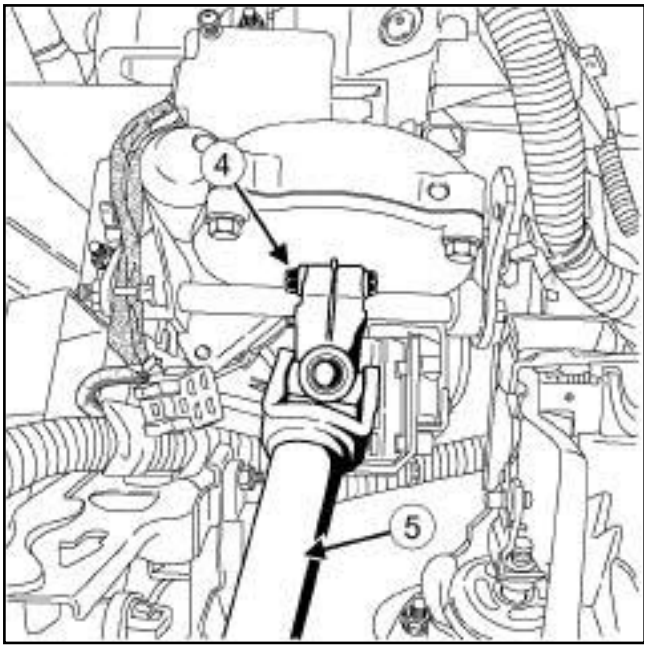
RIGHT-HAND DRIVE




132746

❏ Remove:

- the bolt (**4**) connecting the steering column to the intermediate shaft,
- the intermediate shaft (**5**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the universal joint bolt.

### II - REFITTING OPERATION FOR PART CONCERNED

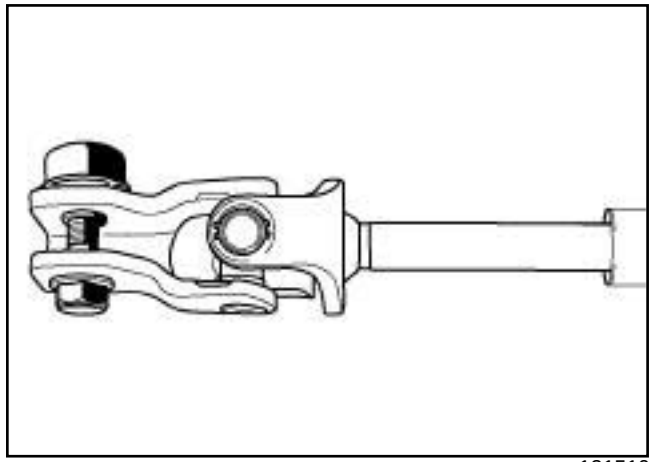
❏ Place the intermediate shaft in its initial position.

> Note:
>
> Take care not to separate the two sliding parts of the intermediate shaft.

> Note:
>
> On a new intermediate shaft, the universal joint cam nut is prefitted; do not remove the cover.

❏ Refit:

- the bolt from the universal joint,
- the intermediate shaft on the steering column.

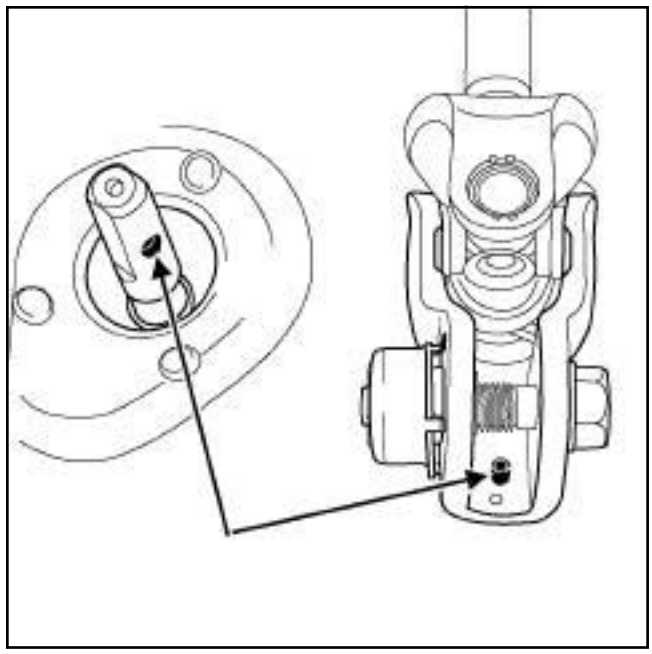


131510

❏ Observe the direction of fitting for the universal joint cam nut and bolt.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the cam nut from the universal joint.



131511

❏ Check that the universal joint is in the correct position.

❏ Torque tighten:

- the **bolt connecting the steering column to the intermediate shaft (31 N.m)**,
- the **universal joint bolt on the steering box (39 N.m)**.



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RIGHT-HAND DRIVE

**III - FINAL OPERATION**

❑ Refit:

- the steering column cover,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| bolt connecting the steering column to the intermediate shaft | **31 N.m** |
| universal joint bolt on the steering box | **39 N.m** |

## REMOVAL

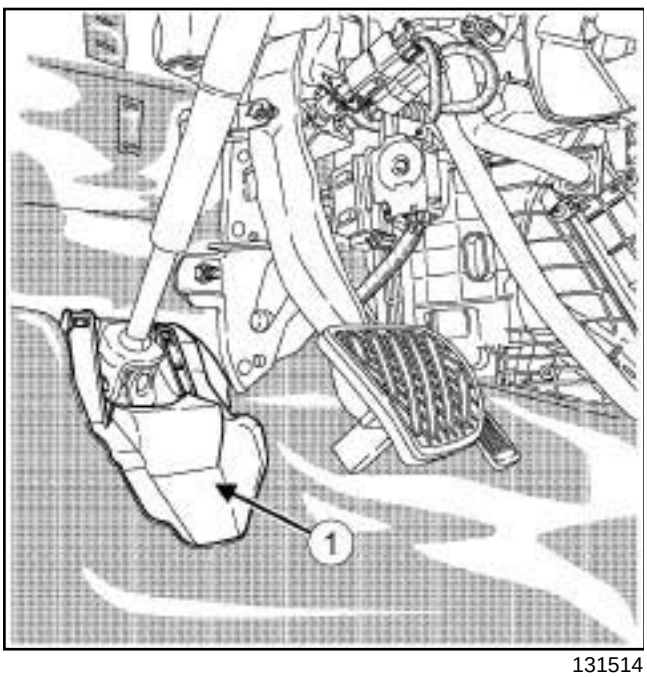
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

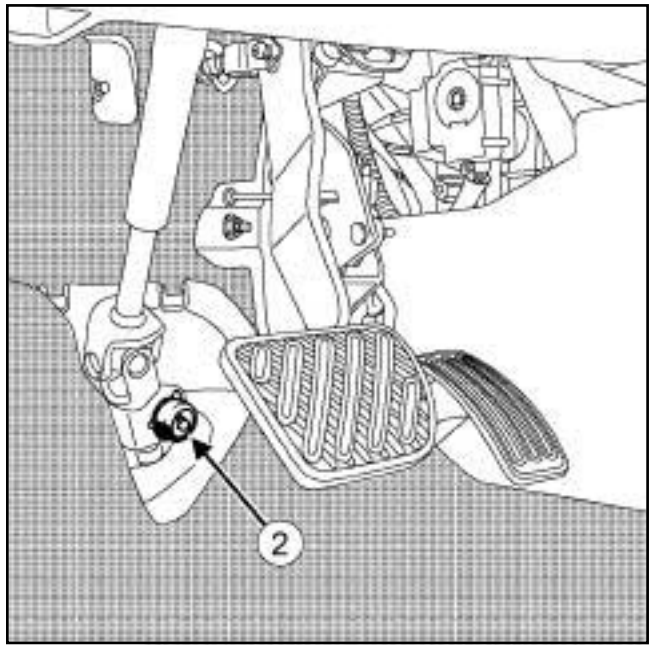
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131514

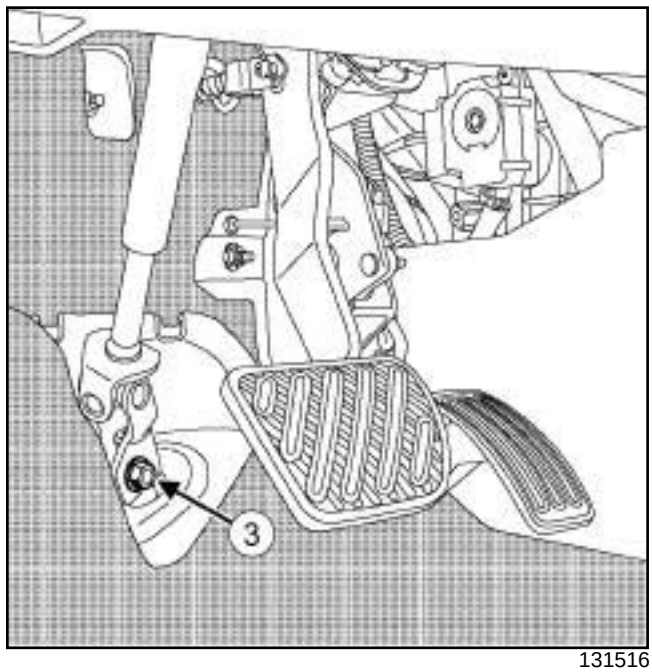
❏ Remove the steering cover (**1**) .




131515

❏ Remove the universal joint cover (**2**) (do not keep).

❏ Set the wheels straight ahead.




131516

❏ Remove:

- the universal joint bolt (**3**) (do not keep),
- the universal joint nut (do not keep),
- the universal joint.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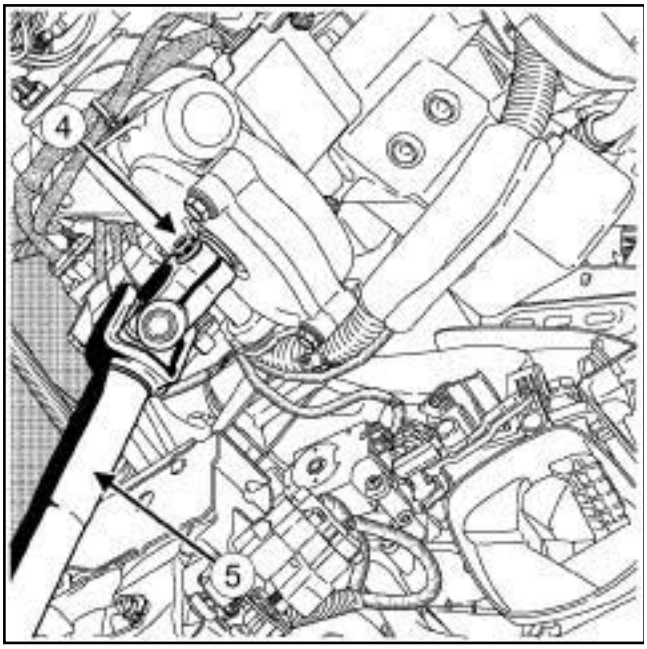
LEFT-HAND DRIVE




132740

❏ Remove:

- the bolt (**4**) connecting the steering column to the intermediate shaft,
- the intermediate shaft.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the universal joint bolt and nut after each removal.

### II - REFITTING OPERATION FOR PART CONCERNED

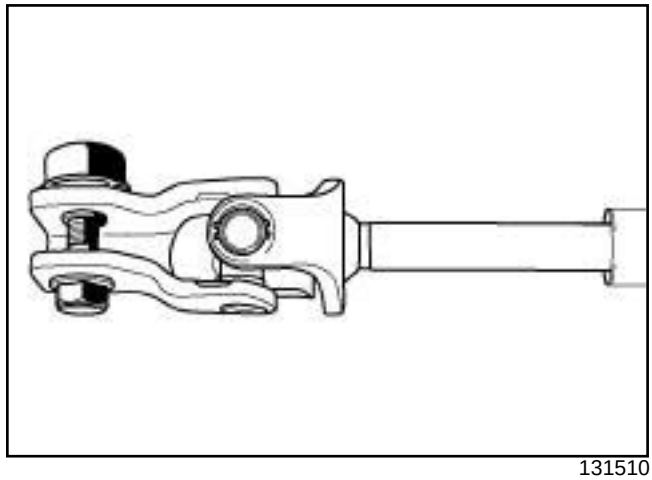
❏ Place the intermediate shaft in its initial position.

> Note:
>
> Take care not to separate the two sliding parts of the intermediate shaft.

> Note:
>
> On a new intermediate shaft, the universal joint cam nut is prefitted; do not remove the cover.

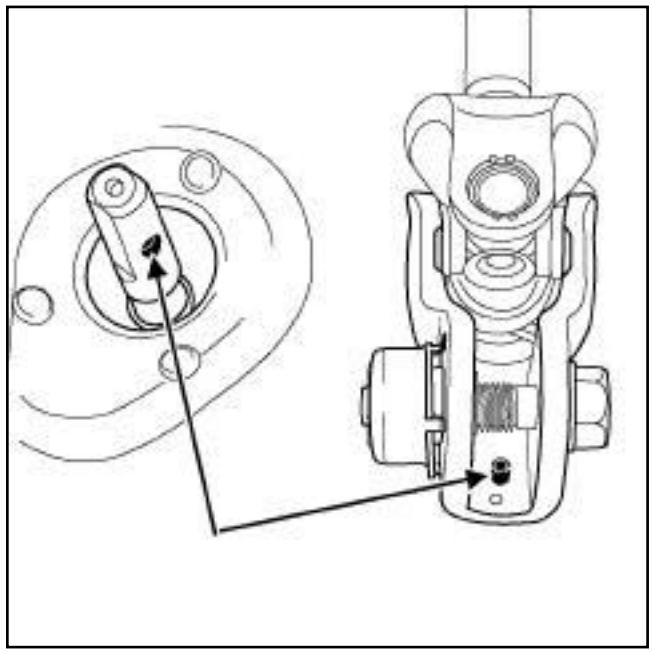
❏ Refit:

- the intermediate shaft ***(5)*** on the steering column,
- the bolt from the universal joint.



131510

❏ Observe the direction of fitting for the universal joint cam nut and bolt.



131511

❏ Check that the universal joint is in the correct position.

❏ Refit:

- the universal joint,
- the new universal joint bolt,
- the new cam nut on the universal joint.

❏ Torque tighten:

- the **bolt connecting the steering column to the intermediate shaft (31 N.m)**,
- the **universal joint bolt on the steering box (39 N.m)**.



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LEFT-HAND DRIVE

**III - FINAL OPERATION.**

❑ Refit:

- the steering column cover,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Tightening torques ▽ | |
|---|---|
| steering wheel nut | **34 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

**IMPORTANT**
To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

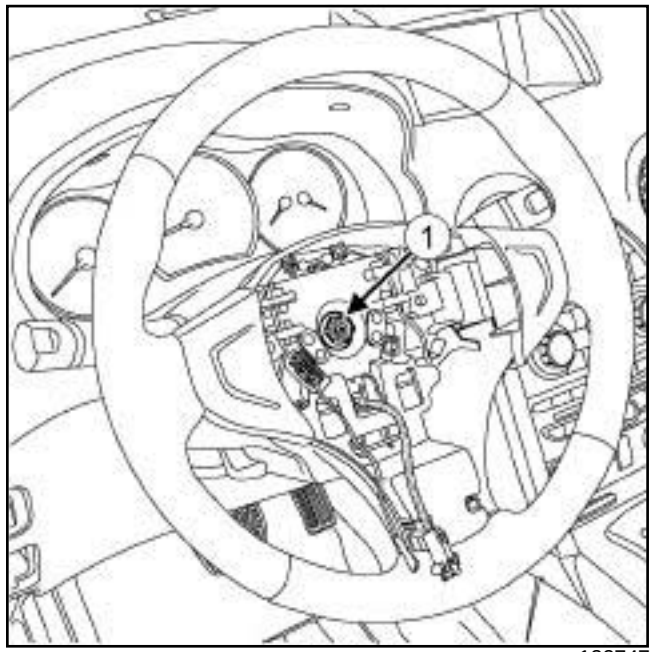
❏ Unlock the steering column.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❏ Set the wheels straight ahead.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132747

❏ Remove:

- the steering wheel nut (**1**) ,
- the steering wheel.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the steering wheel nut.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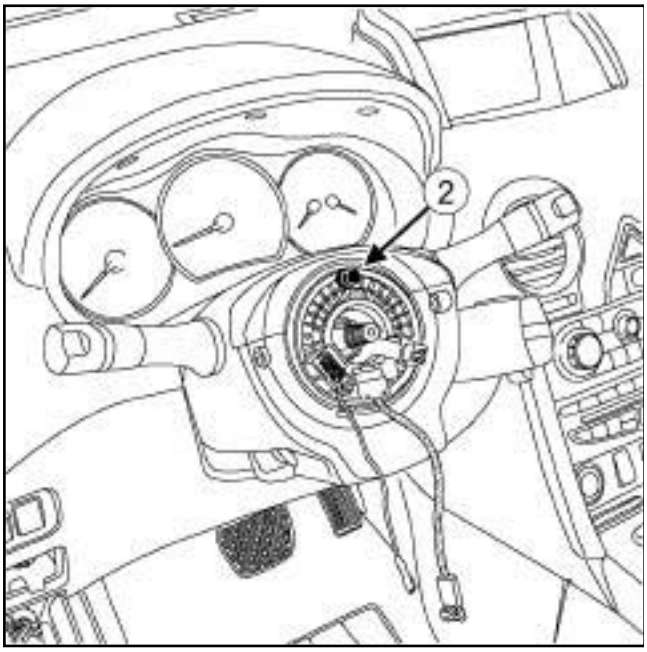
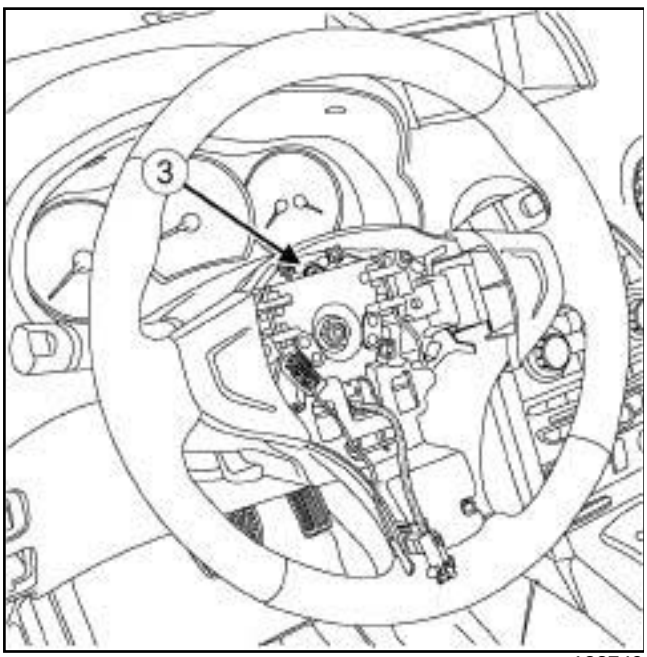
**II - REFITTING OPERATION FOR PART CONCERNED**




132748




132749

❑

Note:

When refitting the steering wheel, align the (**2**) of the rotary switch with the opening (**3**) in the steering wheel.

❑ Pass the wiring connectors through the opening in the steering wheel.

❑ Move the steering wheel to its original position.

❑ Refit the new steering wheel nut.

❑ Torque tighten the **steering wheel nut (34 N.m)**.

**III - FINAL OPERATION.**

❑ Refit the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (MR 415, 88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Configure the steering wheel angle sensor (see **Configurations and Programming** (38C, Anti-lock braking system).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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| master cylinder nuts | **18 N.m** |
| brake pipe unions on the master cylinder | **16 N.m** |

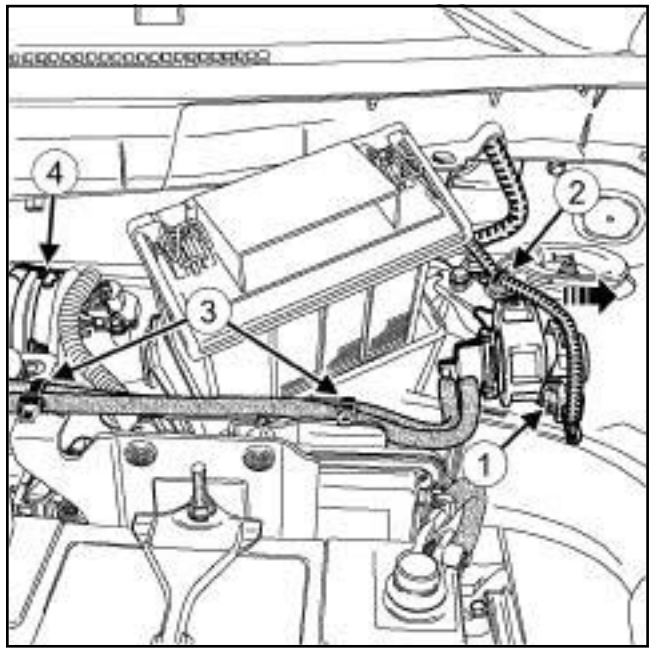
**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

M9R




131242

❑ Disconnect the connector (**1**) from the turbocharging pressure regulation solenoid valve.

❑ Unclip:

- the turbocharging pressure regulation solenoid valve (**2**) from its support,
- the hoses of the turbocharging pressure regulation solenoid valve from the battery tray (**3**) .

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air outlet pipe (**4**) from the air filter unit.

❑ Remove partially the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).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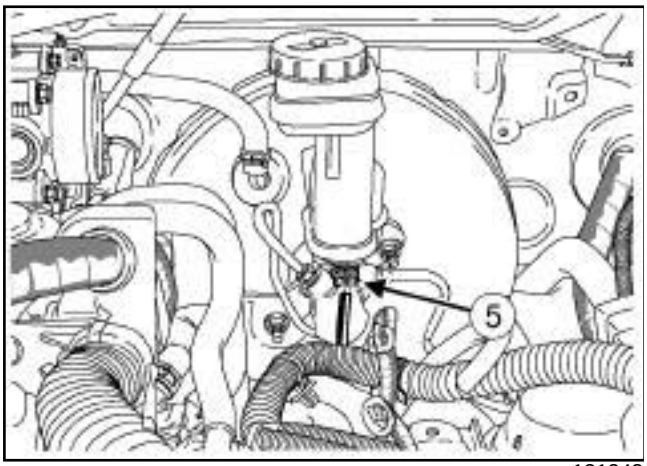
LEFT-HAND DRIVE

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

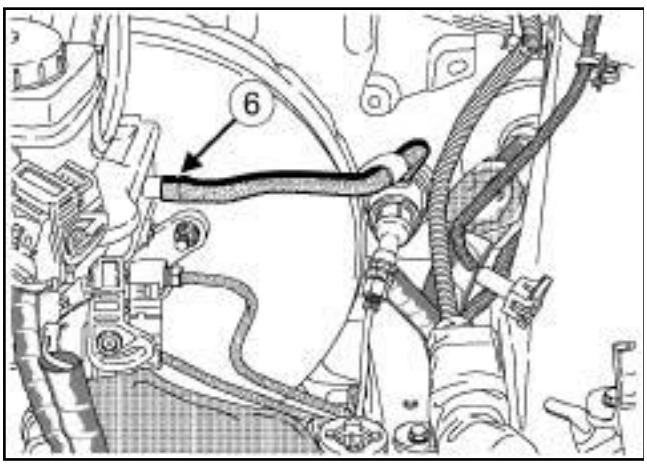



131243

❏ Disconnect the brake fluid level sensor connector (**5**) .

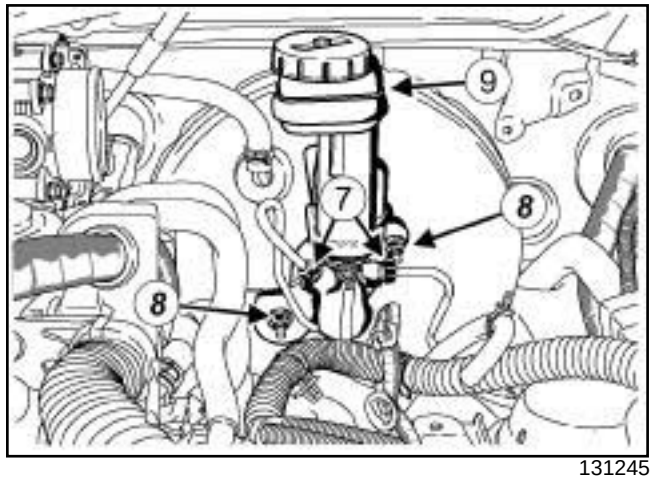
❏ Drain the brake fluid reservoir with a syringe.

6 SPEED MANUAL GBOX




131244

❏ Disconnect the clutch master cylinder supply hose (**6**) from the brake fluid reservoir.



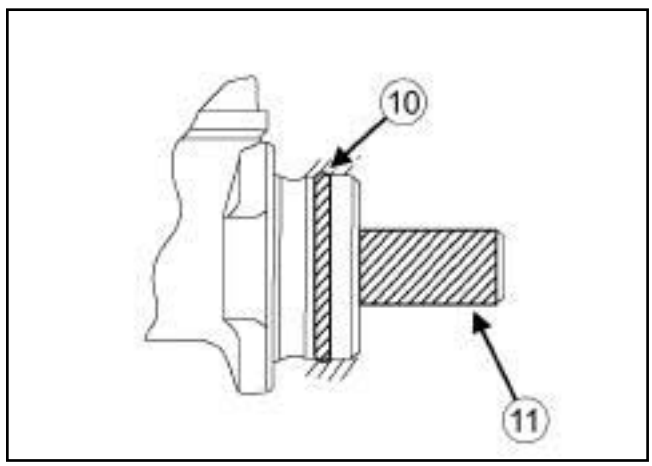

131245

❏ Remove:

- the brake pipe unions (**7**) on the master cylinder after having marked them,
- the master cylinder nuts (**8**) on the brake servo,
- the master cylinder with the brake fluid reservoir (**9**) .

## REFITTING

**I - REFITTING PREPARATION OPERATION**




131246

❏ Always replace the master cylinder seal (**10**) .

❏ Coat the seal and the shaft (**11**) of the master cylinder with **SILICONE** grease (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).



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LEFT-HAND DRIVE

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Line up the master cylinder with the brake servo so that the pushrod goes into the master cylinder housing.

❏ Refit:

- the master cylinder with a new seal,
- the master cylinder nuts.

❏ Torque tighten the **master cylinder nuts (18 N.m)** on the brake servo.

❏ Refit the brake pipe unions on the master cylinder.

❏ Torque tighten the **brake pipe unions on the master cylinder (16 N.m)**.

❏ Connect the connector on the brake fluid reservoir.

6 SPEED MANUAL GBOX

❏ Connect the clutch master cylinder supply hose on the brake fluid reservoir.

**III - FINAL OPERATION**

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).
- the air filter box air outlet pipe,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

M9R

❏ Clip:

- the hoses of the turbocharging pressure regulation solenoid valve on the battery tray,
- the turbocharging pressure regulation solenoid valve on its support.

❏ Connect the turbocharging pressure regulation solenoid valve connector.

❏ Fill up the brake fluid reservoir.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

6 SPEED MANUAL GBOX

❏ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .


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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| master cylinder nuts | **18 N.m** |
| the brake pipe unions on the master cylinder | **16 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

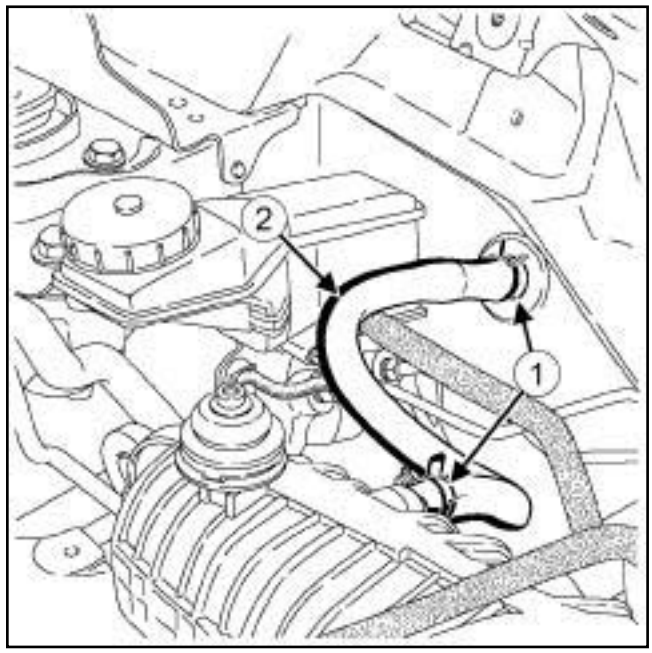
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery),

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior accessories),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

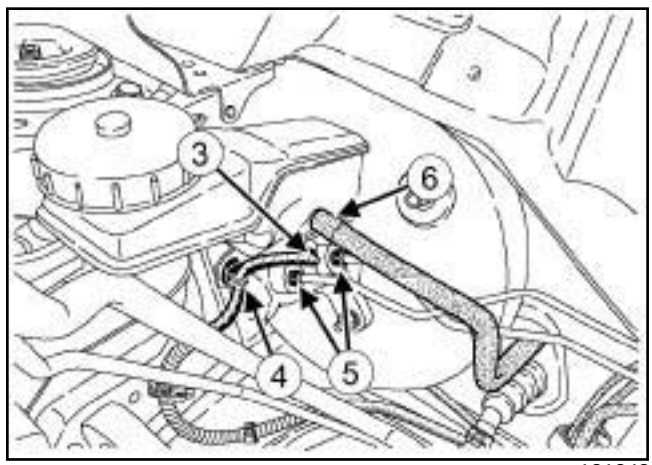
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131247

❏ Unfasten clips (**1**) .

❏ Remove the vacuum pipe (**2**) from the brake servo.



131248

❏ Disconnect the brake fluid level sensor connector (**3**) .

❏ Unclip the clip (**4**) from the wiring of the brake fluid reservoir

❏ Drain the brake fluid reservoir with a syringe.

❏ Remove the master cylinder brake pipe unions (**5**) .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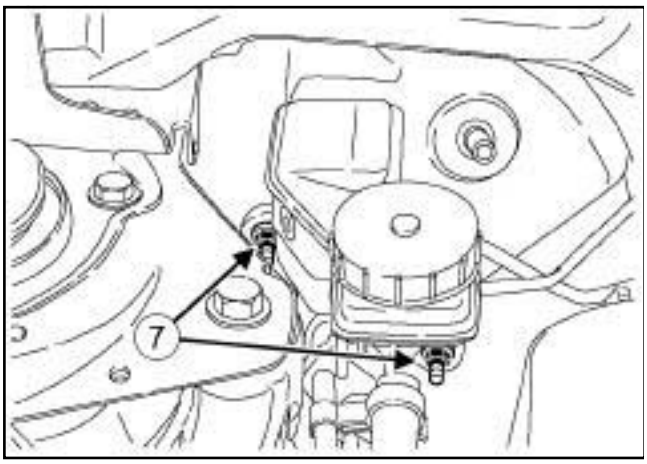
RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

❏ Disconnect the clutch master cylinder supply hose ***(6)*** from the brake fluid reservoir.



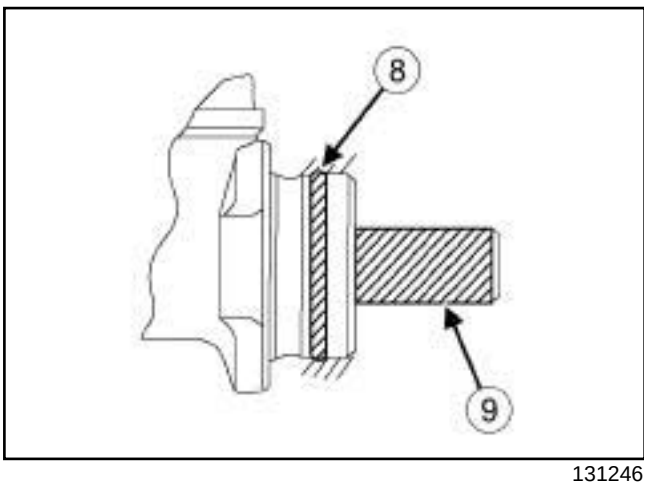

131249

❏ Remove:

- the master cylinder nuts (**7**) ,
- the master cylinder with the brake fluid reservoir.

## REFITTING

### I - REFITTING PREPARATION OPERATION




131246

❏ Always replace the master cylinder seal (**8**) .

❏ Coat the seal and the master cylinder shaft (**9**) with **SILICONE** grease (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Line up the master cylinder with the brake servo so that the pushrod goes into the master cylinder housing.

❏ Refit:

- the master cylinder with a new seal,
- the master cylinder nuts.

❏ Torque tighten the **master cylinder nuts (18 N.m)** on the brake servo.

❏ Refit the brake pipe unions on the master cylinder.

❏ Torque tighten **the brake pipe unions on the master cylinder (16 N.m)**.

❏ Connect the brake fluid level sensor connector.

❏ Clip the wiring clip to the brake fluid reservoir.

6 SPEED MANUAL GBOX

❏ Connect the clutch master cylinder supply hose on the brake fluid reservoir.

❏ Refit the vacuum pipe on the brake servo.

❏ Tighten the clips.

### III - FINAL OPERATION.

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior accessories),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Fill up the brake fluid reservoir.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .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RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

❑ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .



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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| lock nut of the brake servo pushrod | **19 N.m** |
| brake servo bracket nuts | **14 N.m** |
| brake servo nut | **14 N.m** |

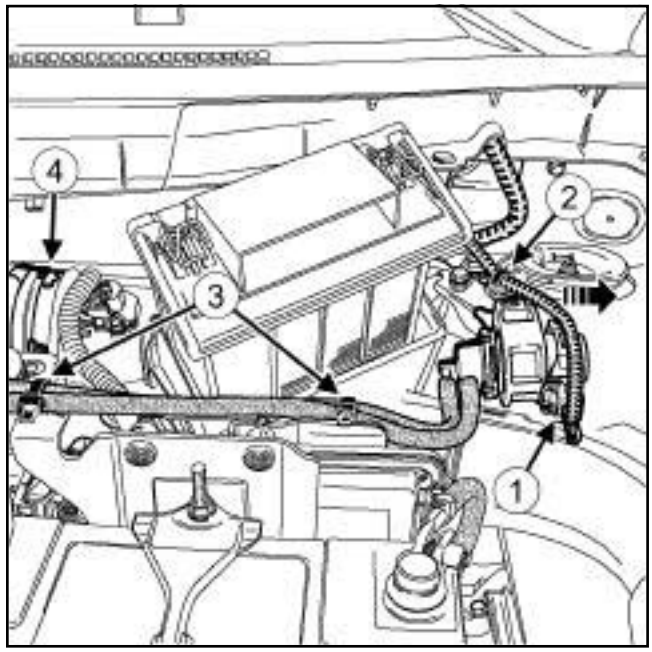
**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

M9R




131242

❏ Disconnect the turbocharging pressure regulation solenoid valve connector (**1**) .

❏ Unclip:

- the turbocharging pressure regulation solenoid valve from its support (**2**) ,
- the hoses of the turbocharging pressure regulation solenoid valve at (**3**) from the battery tray.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air filter box air outlet pipe,
- the brake master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) .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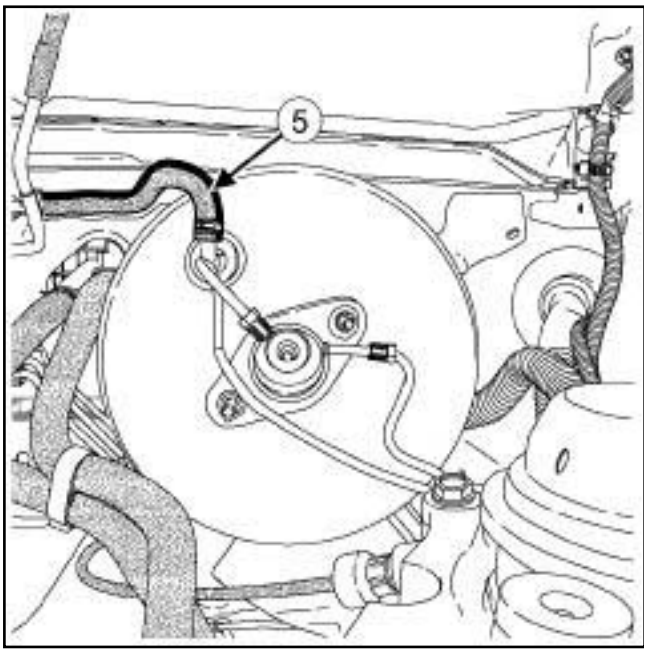
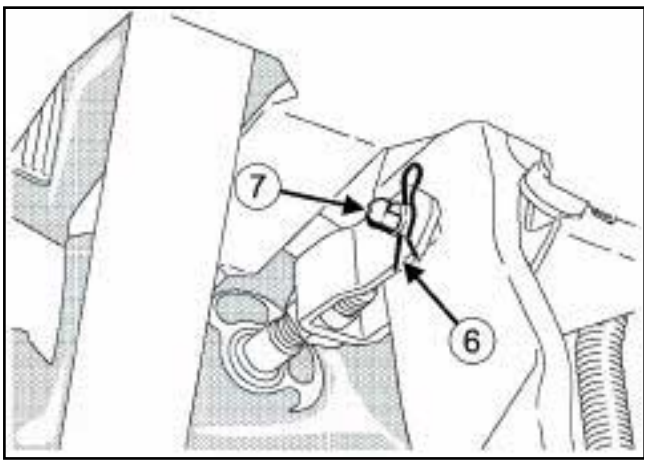
LEFT-HAND DRIVE

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131519

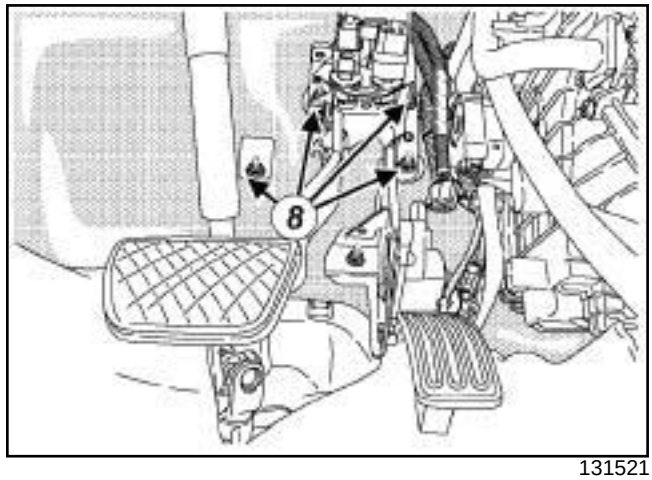
❏ Disconnect the hose (**5**) from the brake servo.




131520

❏ Remove:

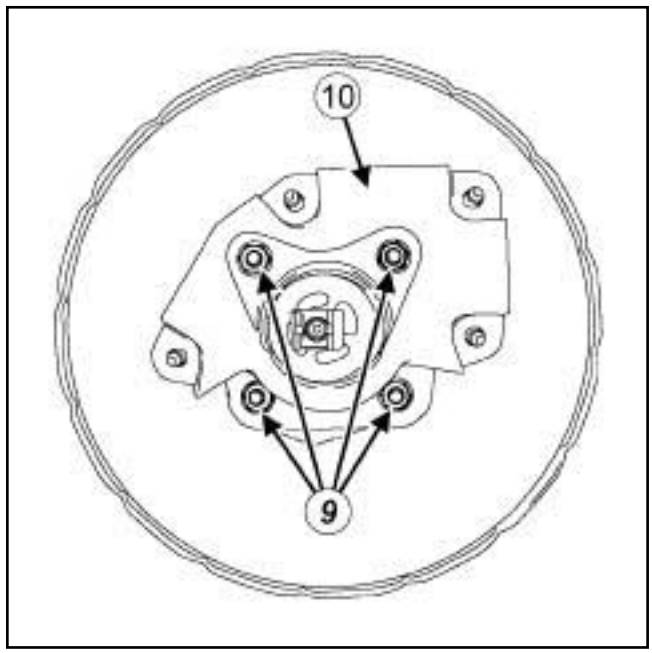
- the brake pedal circlip (**6**) ,
- the connector shaft (**7**) between the brake pedal and the brake servo pushrod.




131521

❏ Remove:

- the brake servo nuts (**8**) ,
- the brake servo.




131522

❏ Remove:

- the nuts (**9**) from the brake servo bracket,
- the bracket (**10**) from the brake servo.



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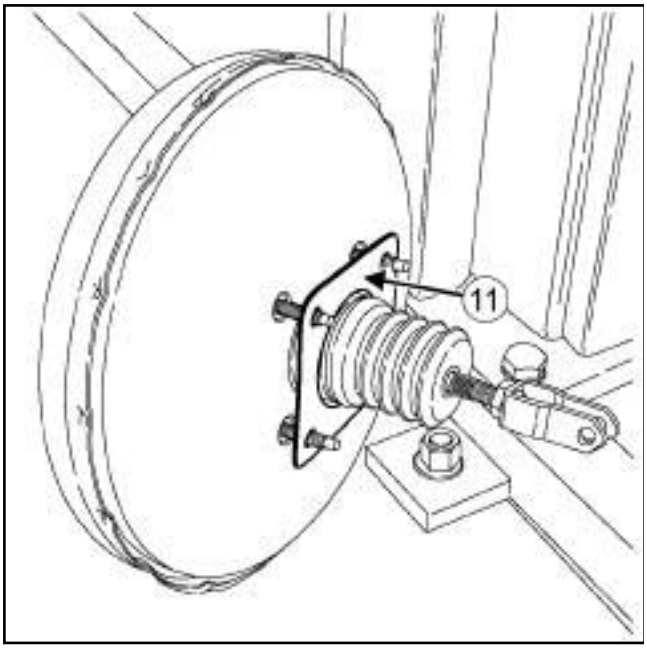
LEFT-HAND DRIVE



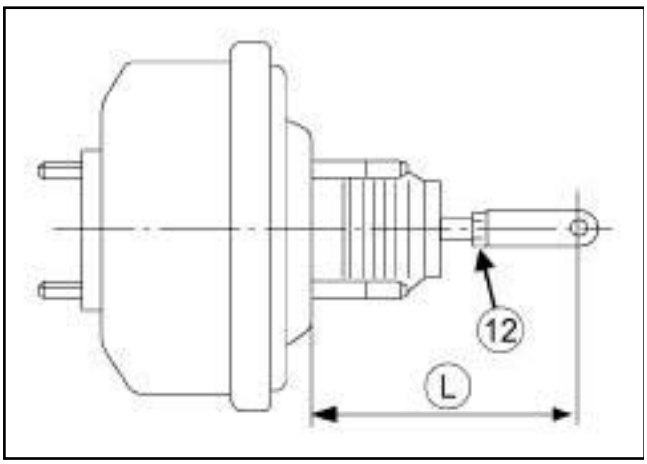

131523

❑ Remove the seal (**11**) from the brake servo.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the brake servo seal.




131524

❑ Undo the lock nut (**12**) of the brake servo pushrod.

❑ Check that dimension **L** is between **150.7** and **157.7 mm**.

❑ If dimension **L** is not correct, adjust the pushrod.

❑ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the new seal of the brake servo,
- the brake servo bracket,
- the brake servo bracket nuts.

❑ Torque tighten the **brake servo bracket nuts (14 N.m)**.

**IMPORTANT**

To avoid breaking the connection between the brake servo pushrod and the brake pedal, check that the safety clevis pin is locked onto the brake servo pushrod by tilting it from the top downwards.

❑ Refit:

- the brake servo on the vehicle,
- the brake servo nuts (**8**) ,

❑ Torque tighten the **brake servo nut (14 N.m)**.

❑ Refit:

- the connector shaft (**7**) between the brake pedal and the brake servo pushrod,
- the brake pedal circlip (**6**) .

AIR CON 01

❑ Connect the vacuum pipe on the brake servo.

### III - FINAL OPERATION

❑ Refit:

- the brake master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) ,
- the air filter box air outlet pipe,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).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LEFT-HAND DRIVE

M9R

❑ Clip:

- the hoses of the turbocharging pressure regulation solenoid valve on the battery tray,
- the turbocharging pressure regulation solenoid valve on its support.

❑ Connect the turbocharging pressure regulation solenoid valve connector.

❑ Refit the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

6 SPEED MANUAL GBOX

❑ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .


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M9R, and RIGHT-HAND DRIVE

| Essential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| lock nut of the brake servo pushrod | **19 N.m** |
| brake servo nuts | **14 N.m** |
| electrical wiring bracket bolts of the exhaust gas pressure sensor | **10 N.m** |
| lifting eye bolts | **25 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

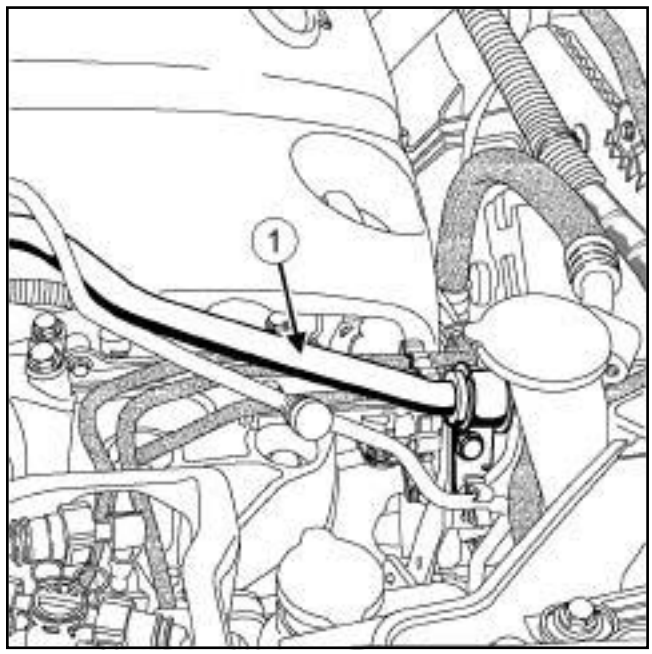
❏ Drain the refrigerant fluid circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine cover,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) (37A, Mechanical component controls),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (Fuel mixture),
- the air filter box (see **Air filter unit: Removal - Refitting**) (Fuel mixture),
- the brake pipes between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

AIR CON 01 or AIR CON 02



131525

❏ Remove the connecting pipe (**1**) (see **Condenser - compressor connecting pipe: Removal - Refitting**) .

❏ Remove:

- the heat shield from the turbocharger (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging),
- the oxygen sensor (see **Oxygen sensor: Removal - Refitting**) (13B, Diesel injection).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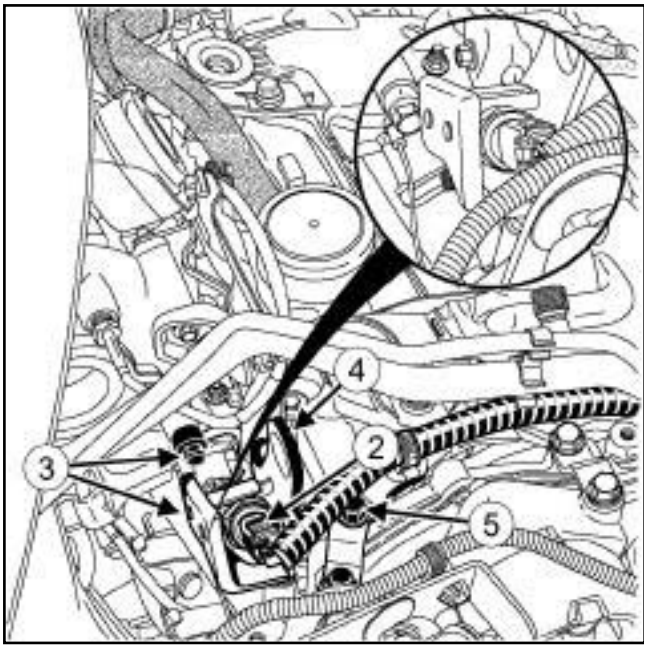
M9R, and RIGHT-HAND DRIVE



131526

❏ Disconnect the exhaust gas pressure sensor connector (**2**) .

❏ Remove:

- the pipe (**3**) of the exhaust gas pressure sensor from the lifting eye (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging),
- the lifting eye (**4**) ,
- the bolt (**5**) from the wiring bracket.

❏ Move aside the electrical wiring with the bracket.

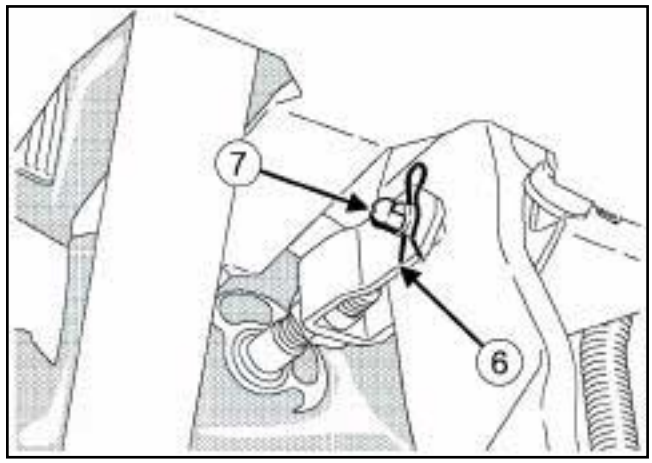
6 SPEED MANUAL GBOX

❏ Remove the clutch master cylinder (see **37A**, **Mechanical component controls**, **Clutch master cylinder: Removal - Refitting**, page **37A-55**) .

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

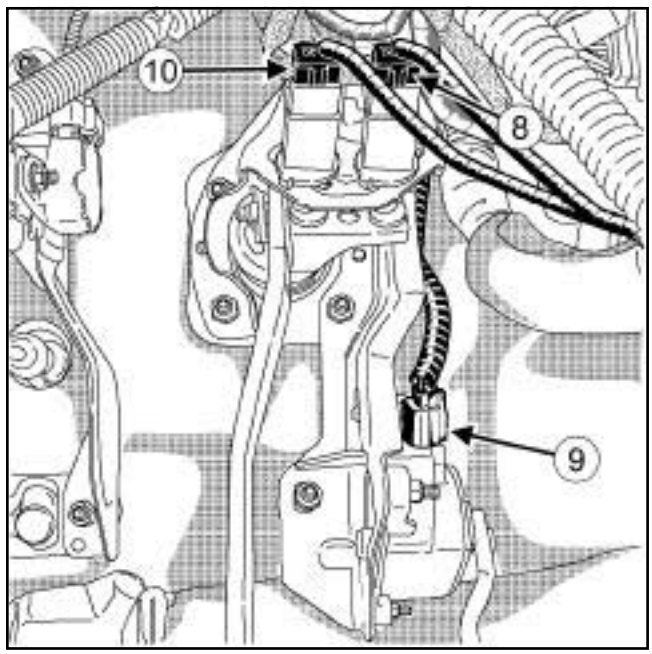
**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131520

❏ Remove:

- the brake pedal circlip (**6**) ,
- the connector shaft (**7**) between the brake pedal and the brake servo pushrod.



131528

❏ Disconnect:

- the connector (**8**) from the brake light switch,
- the accelerator position sensor connector (**9**) .

AIR CON 01

❏ Disconnect the connector ***(10)*** from the brake switch.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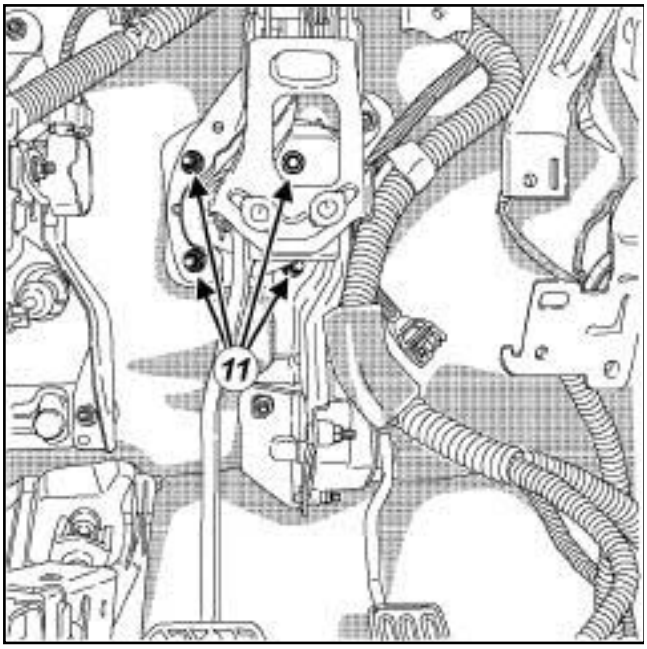
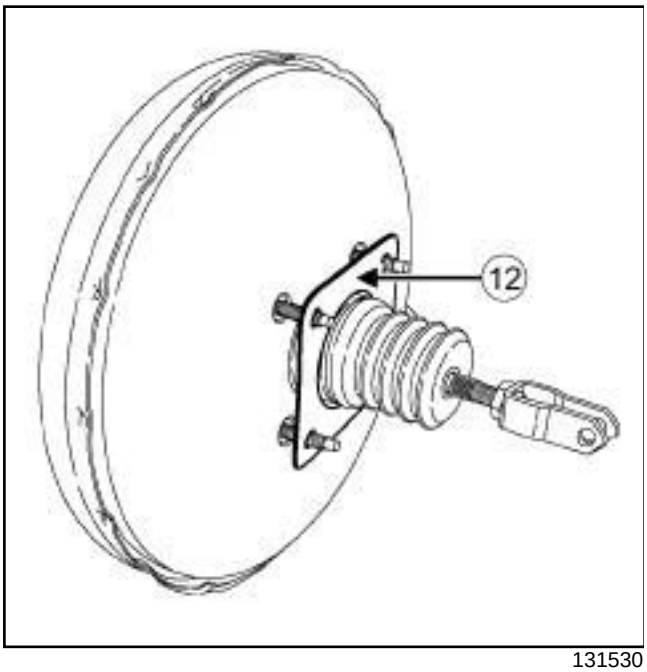
M9R, and RIGHT-HAND DRIVE




131529

❏ Remove:

- the brake servo nuts (**11**) ,
- the brake servo.




131530

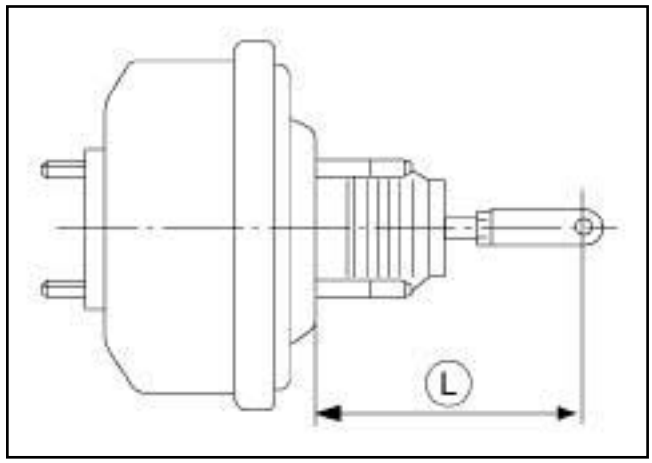
❏ Remove the seal (**12**) from the brake servo.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the brake servo seal.

❏ Check the condition of the connecting shaft and replace it if it is damaged.




131524

❏ Loosen the lock nut of the brake servo pushrod.

❏ Check that dimension **L** is between **150.7** and **157.7 mm**.

❏ If dimension **L** is not correct, adjust the pushrod.

❏ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**.

### II - REFITTING OPERATION FOR PART CONCERNED

❏

Note:
This operation requires two people.

Refit:

- the brake servo with a new seal,
- the brake servo nuts.

❏ Torque tighten the **brake servo nuts (14 N.m)**.

❏ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip.

❏ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.



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M9R, and RIGHT-HAND DRIVE

AIR CON 01

❑ Connect the brake switch connector.

**III - FINAL OPERATION.**

❑ Refit:

- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

6 SPEED MANUAL GBOX

❑ Refit the clutch master cylinder (see **37A**, **Mechanical component controls**, **Clutch master cylinder: Removal - Refitting**, page **37A-55**) .

❑ Refit:

- the wiring bracket bolts,
- the lifting eye.

❑ Torque tighten:

- the **electrical wiring bracket bolts of the exhaust gas pressure sensor (10 N.m)**,
- the **lifting eye bolts (25 N.m)**.

❑ Refit the exhaust gas pressure sensor pipe on the lifting eye (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging).

❑ Connect the exhaust gas pressure sensor connector.

❑ Refit:

- the oxygen sensor (see **Oxygen sensor: Removal - Refitting**) (13B, Diesel injection),
- the heat shield on the turbocharger (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging).

AIR CON 01 or AIR CON 02

❑ Refit the expansion valve connecting pipe (see **Expansion valve: Removal - Refitting**) (62A, Air conditioning).

❑ Refit:

- the brake pipes between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) ,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the brake master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) ,
- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the engine cover.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

AIR CON 01 or AIR CON 02

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .


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M9R, and RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

❑ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .


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2TR, and RIGHT-HAND DRIVE

| Essential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| lock nut of the brake servo pushrod | **19 N.m** |
| brake servo nuts | **14 N.m** |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant fluid circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

6 SPEED MANUAL GBOX

❏ Remove the supply hose from the clutch master cylinder (see **37A**, **Mechanical component controls**, **Clutch master cylinder: Removal - Refitting**, page **37A-55**) .

❏ Remove:

- the brake master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) ,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the brake pipes between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

AIR CON 01 or AIR CON 02

❏ Disconnect the connecting pipes from the expansion valve (see **Expansion valve: Removal - Refitting**) (62A, Air Conditioning).

❏ Remove:

- the upper engine tie-bar (see **Right-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).


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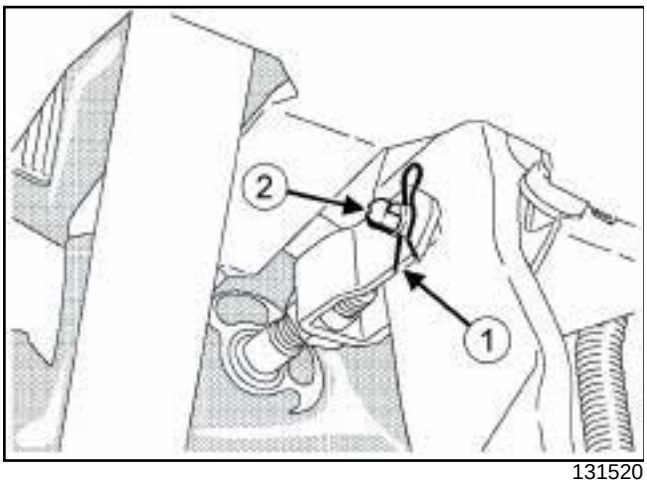
2TR, and RIGHT-HAND DRIVE

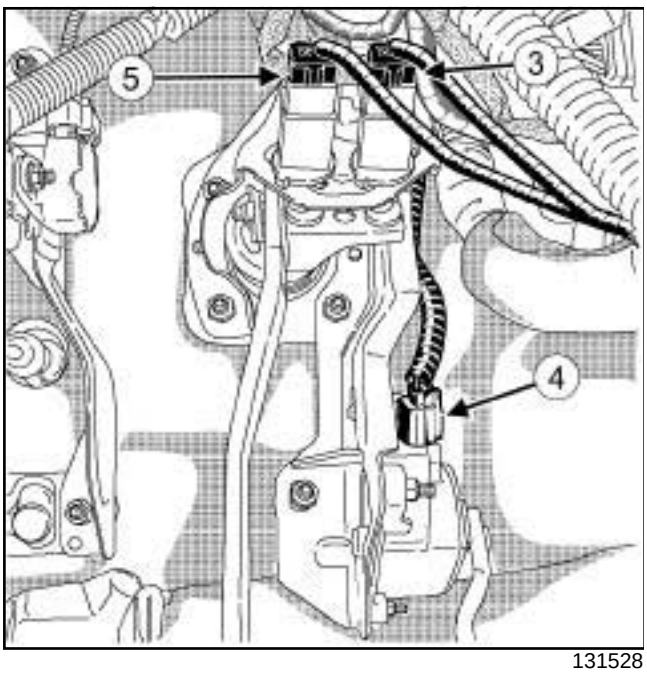
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131520

❏ Remove:

- the brake pedal circlip (**1**) ,
- the connector shaft (**2**) between the brake pedal and the brake servo pushrod.



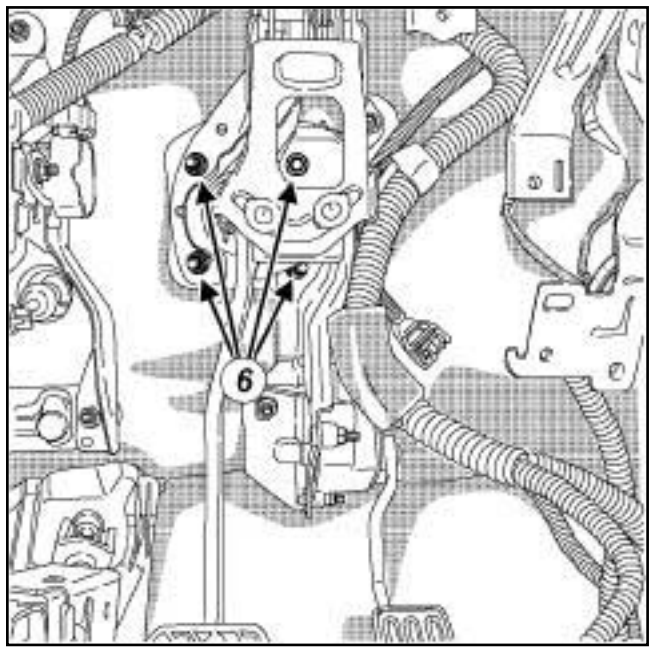

131528

❏ Remove:

- the connector (**3**) from the brake light switch,
- the accelerator position sensor connector (**4**) .

AIR CON 01

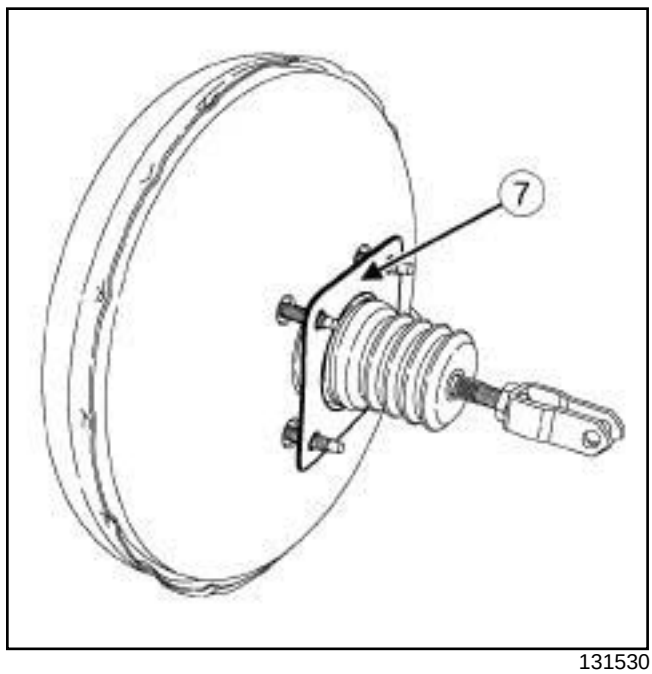
❏ Disconnect the connector ***(5)*** from the brake switch.




131529

❏ Remove:

- the brake servo nuts (**6**) ,
- the brake servo.




131530

❏ Remove the seal (**7**) from the brake servo



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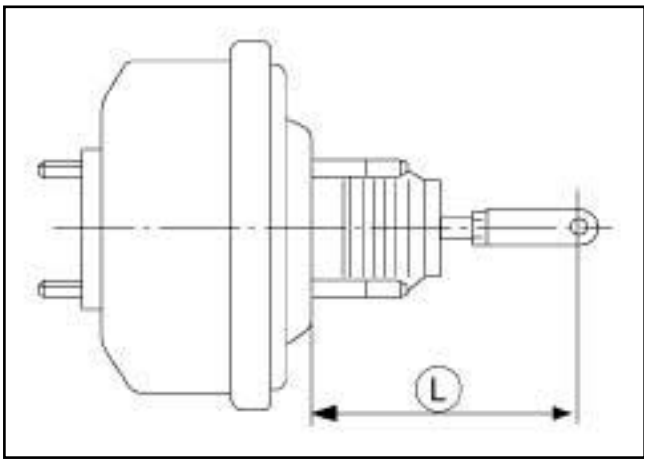
2TR, and RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the brake servo seal.

❑ Check the condition of the connecting shaft and replace it if it is damaged.




131531

❑ Loosen the lock nut of the brake servo pushrod.

❑ Check that dimension **L** is between **150.7** and **157.7 mm**.

❑ If dimension **L** is not correct, adjust the pushrod.

❑ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake servo with a new seal,
- the brake servo nuts.

❑ Torque tighten the **brake servo nuts (14 N.m)**.

❑ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip.

❑ Connect:

- the accelerator position sensor connector,
- the brake light switch connector.

AIR CON 01

❑ Connect the brake switch connector.

### III - FINAL OPERATION.

❑ Refit:

- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the upper engine tie-bar (see **Right-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

AIR CON 01 or AIR CON 02

❑ Connect the expansion valve connector pipes (see **Expansion valve: Removal - Refitting**) (62A, Air Conditioning).

❑ Refit:

- the brake pipes between the hydraulic unit and the master cylinder (see **31A**, **Front axle components**, **Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) ,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the brake master cylinder (see **37A**, **Mechanical component controls**, **Master cylinder: Removal - Refitting**, page **37A-1**) .

6 SPEED MANUAL GBOX

❑ Refit the supply hose on the clutch master cylinder (see **37A**, **Mechanical component controls**, **Clutch master cylinder: Removal - Refitting**, page **37A-55**) .

❑ Refit:

- the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),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2TR, and RIGHT-HAND DRIVE

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

AIR CON 01 or AIR CON 02

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

6 SPEED MANUAL GBOX

❏ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .


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M9R

| Tightening torques ▽ | |
|---|---|
| vacuum pump bolts | **15 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair work (see **Diesel injection: Precautions for repair**) (13B, Diesel injection).

**IMPORTANT**

During this operation, be sure to:

- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

**WARNING**

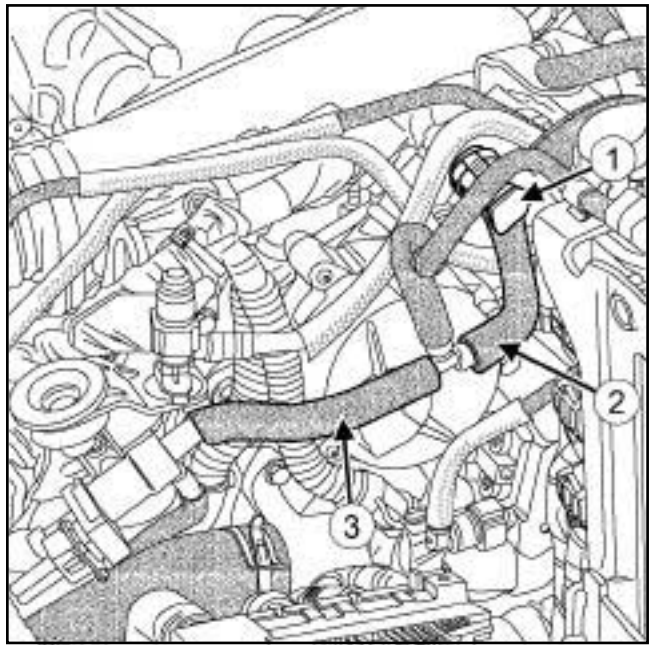
To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the engine cover,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).




130263

❑ Disconnect:

- the vacuum pipe at (**1**) from the non-return valve,
- the vacuum pipe (**2**) from the non-return valve,
- the vacuum pipe (**3**) from the EGR cooler bypass solenoid valve.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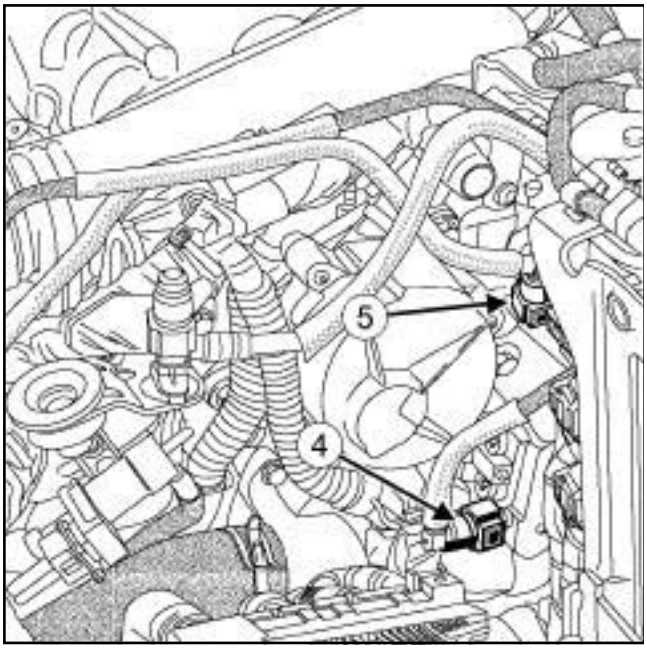


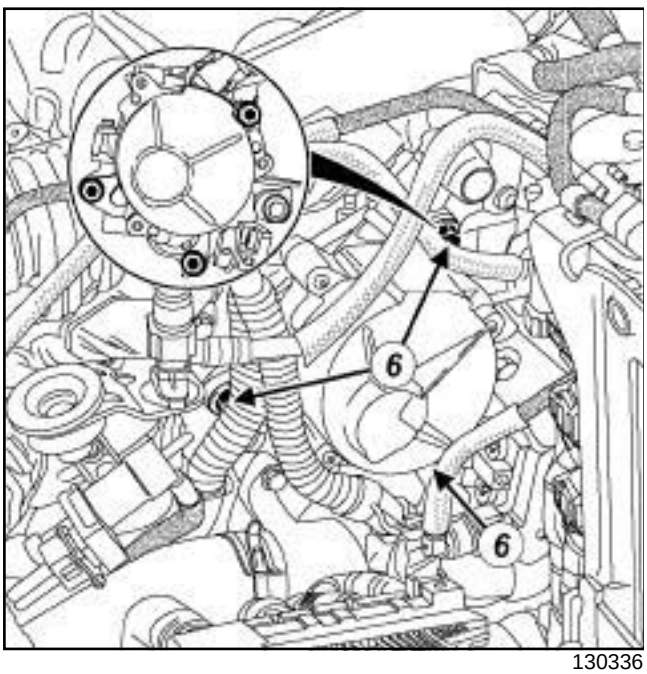
130335

❑ Disconnect:

- the quick-release union (**4**) from the high pressure pump diesel supply pipe,
- the quick-release union (**5**) from the diesel return pipe on the high pressure pump.

❑ Put blanking plugs in the openings.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130336

❑ Remove:

- the vacuum pump bolts (**6**) ,
- the vacuum pump.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Be sure to replace the vacuum pump seal.

**WARNING**

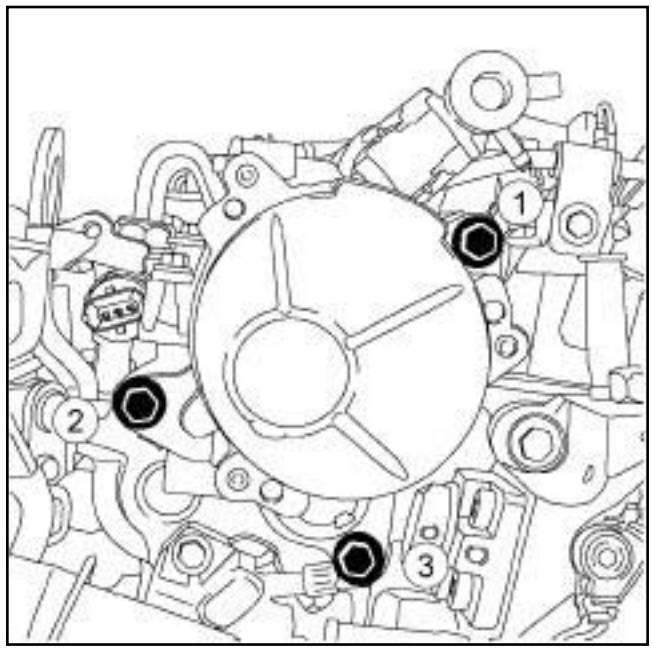
Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the vacuum pump new seal,
- the vacuum pump,
- the vacuum pump bolts.



130337

❑ Torque tighten in order the **vacuum pump bolts (15 N.m)**.

### III - FINAL OPERATION.

❑ Remove the blanking plugs from the openings.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M9R

❑ Connect:

- the diesel return pipe quick release union to the high pressure pump,
- the diesel supply pipe quick-release union to the high pressure pump,
- the vacuum pipe on the EGR cooler by-pass solenoid valve,
- the vacuum pipe on the non-return valve,
- the non-return valve vacuum pipe on the brake servo.

❑ Refit:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the engine cover.

❑ Prime the diesel circuit using the manual priming pump (see **Manual priming pump: Removal - Refitting**) .


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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| nuts of the brake-accelerator pedal assembly | **14 N.m** |
| brake pedal protector bolts | **10 N.m** |

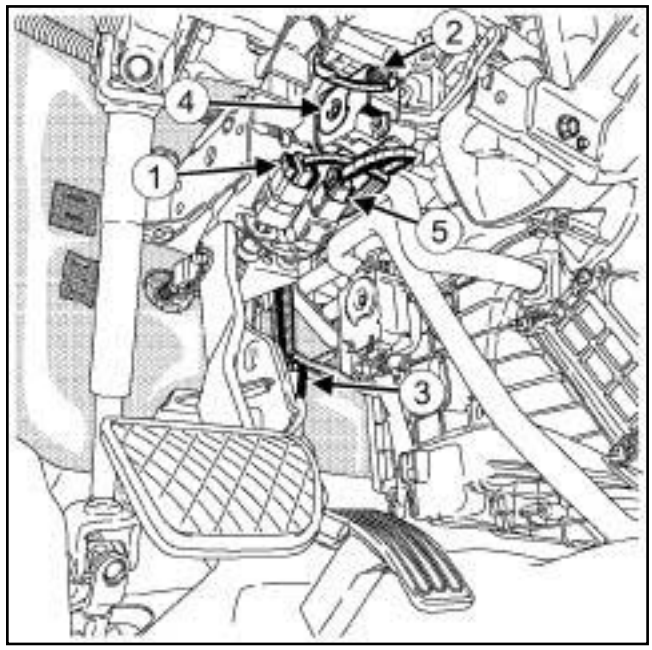
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the left-hand trim on the centre panel (see **Centre front panel: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131142

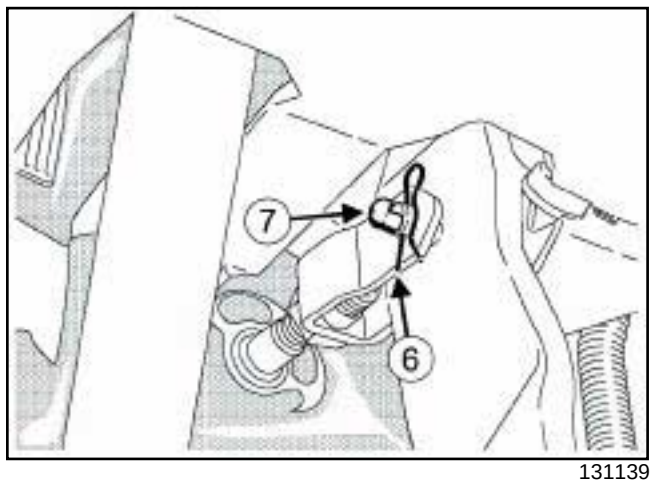
❏ Remove:

- the connector (**5**) from the brake light switch,
- the connector (**2**) from the mode flap motor,
- the connector (**3**) from the accelerator pedal position sensor.

❏ Remove the mode flap motor (**4**) .

CRUISE CONTROL

❏ Disconnect the connector ***(1)*** from the brake switch.




131139

❏ Remove:

- the brake pedal circlip (**6**) ,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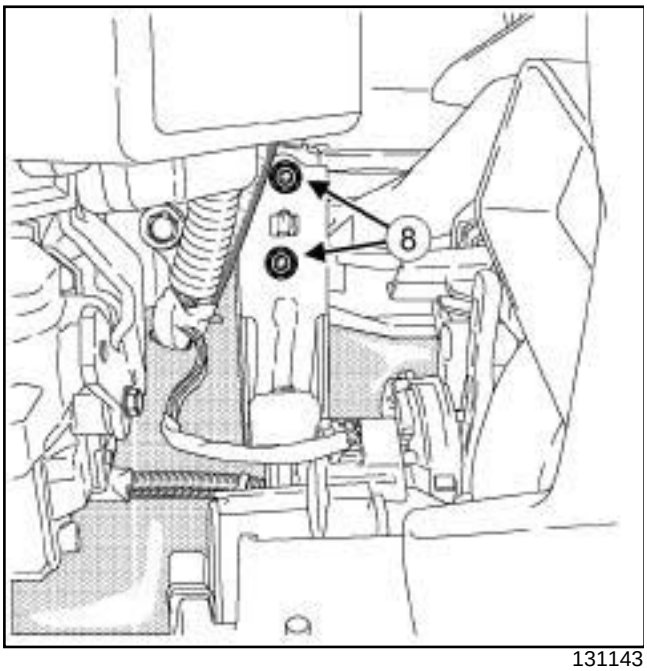
LEFT-HAND DRIVE

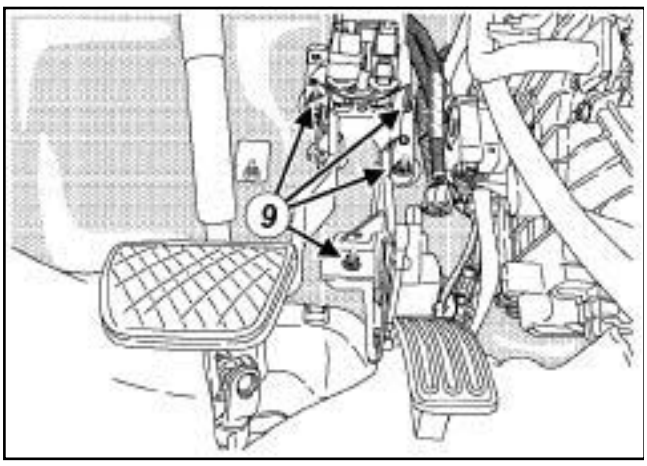
- the connector shaft (**7**) between the brake pedal and the brake servo pushrod.




131143

❑ Remove:

- the brake pedal protector bolts (**8**) ,
- the brake pedal protector.




131144

❑ Remove:

- the nuts (**9**) from the brake - accelerator pedal assembly,
- the brake - accelerator pedal assembly,
- the brake pedal switch from the brake-accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Brake pedal switch: Removal - Refitting**, page **37A-34**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Check the condition of the connecting shaft and replace it if it is damaged.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake pedal switch on the brake-accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Brake pedal switch: Removal - Refitting**, page **37A-34**) ,
- the brake - accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

❑ Torque tighten the **nuts of the brake-accelerator pedal assembly (14 N.m)**.

❑ Refit:

- the brake pedal protector,
- the brake pedal protector bolts.

❑ Torque tighten the **brake pedal protector bolts (10 N.m)**.

❑

**IMPORTANT**
To avoid breaking the connection between the brake servo pushrod and the brake pedal, check that the safety clevis pin is locked onto the brake servo pushrod by tilting it from the top downwards.

Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip,
- the mode flap motor.

❑ Connect:

- the connector on the accelerator pedal position sensor,
- the connector on the mode flap motor,
- the brake light switch connector.

CRUISE CONTROL

❑ Connect the brake switch connector.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LEFT-HAND DRIVE

**III - FINAL OPERATION**

❑ Refit:

- the left-hand trim on the centre panel (see **Centre front panel: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the lower cover of the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| brake-accelerator pedal assembly nuts | **14 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

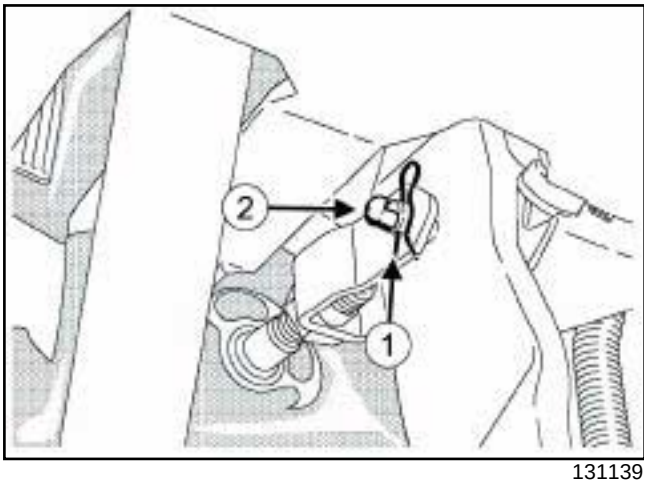
When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure).

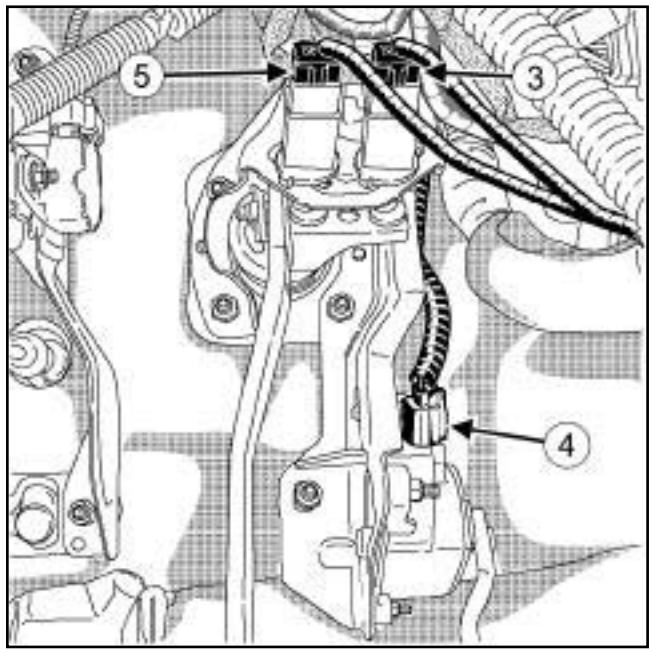
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131139

❏ Remove:

- the brake pedal circlip (**1**) ,
- the connector shaft (**2**) between the brake pedal and the brake servo pushrod.



131140

❏ Disconnect:

- the connector (**3**) from the brake light switch,
- the position sensor connector (**4**) from the accelerator pedal.

CRUISE CONTROL

❏ Disconnect the brake switch connector ***(5)*** .

❏ Remove the brake pedal switch from the brake-accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Brake pedal switch: Removal - Refitting**, page **37A-34**) .

❏ Unclip the electrical wiring from the brake-accelerator pedal assembly.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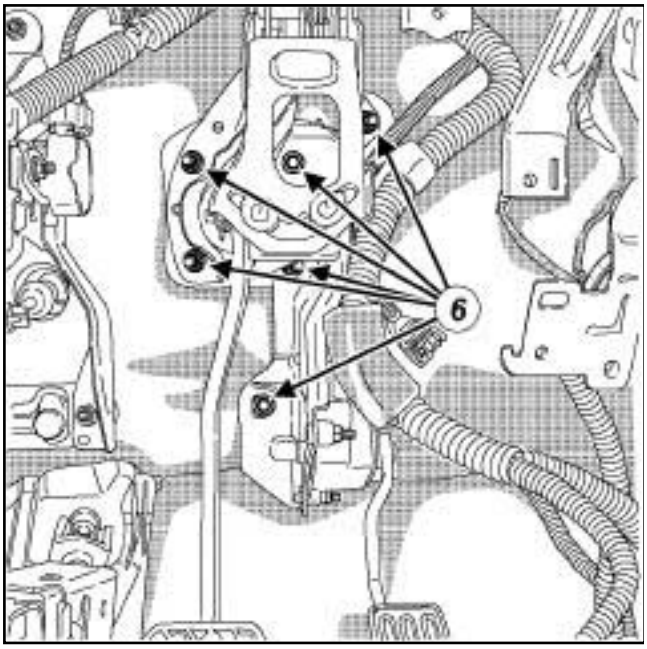
RIGHT-HAND DRIVE



131141

❑ Remove:

- the nuts (**6**) from the brake-accelerator pedal assembly,
- the brake-accelerator pedal assembly.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Check the condition of the connecting shaft and replace it if it is damaged.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake-accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

❑ Torque tighten the **brake-accelerator pedal assembly nuts (14 N.m)**.

❑ Refit the brake pedal switch on the brake-accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Brake pedal switch: Removal - Refitting**, page **37A-34**)

❑ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.

CRUISE CONTROL

❑ Connect the brake switch connector.

❑ Clip the electrical wiring on the brake-accelerator pedal assembly.

**IMPORTANT**
To avoid breaking the connection between the brake servo pushrod and the brake pedal, check that the safety clevis pin is locked onto the brake servo pushrod by tilting it from the top downwards.

❑ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip,

### III - FINAL OPERATION.

❑ Refit:

- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure).
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| accelerator pedal nuts | **5 N.m** |

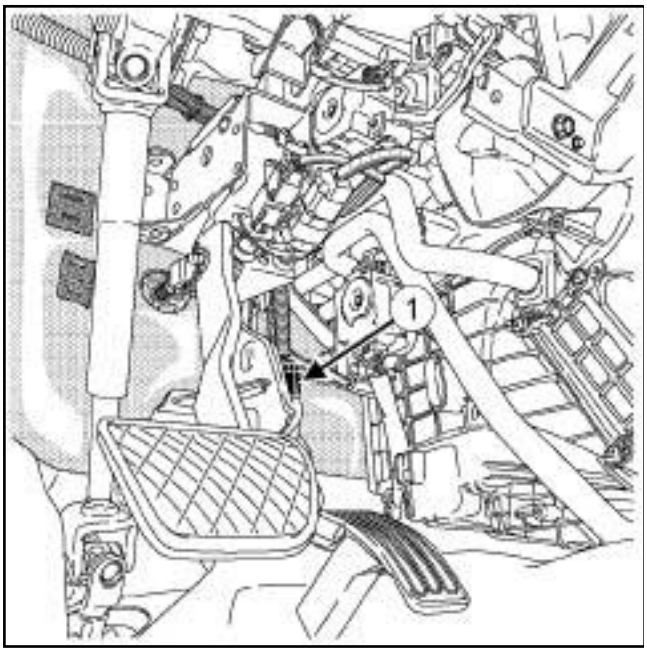
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

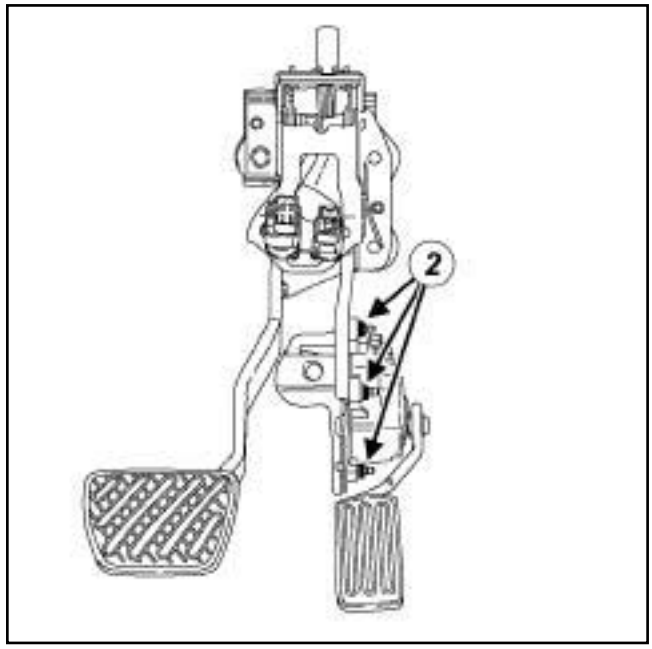
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower trim on the driver's side (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system),
- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131149

❏ Disconnect the accelerator pedal position sensor connector (**1**) .




131147

❏ Remove:

- the accelerator pedal nuts (**2**) ,
- the accelerator pedal from the brake-accelerator pedal assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the accelerator pedal on the brake-accelerator pedal assembly.
- the accelerator pedal nuts.

❏ Torque tighten the **accelerator pedal nuts (5 N.m)**.

❏ Connect the accelerator pedal position sensor connector.

### II - FINAL OPERATION.

❏ Refit:

- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower trim on the driver's side (see **Front air distribution duct: Removal - Refitting**) (61A, Heating System),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| brake-accelerator pedal assembly nuts | **14 N.m** |
| accelerator pedal nuts | **5 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

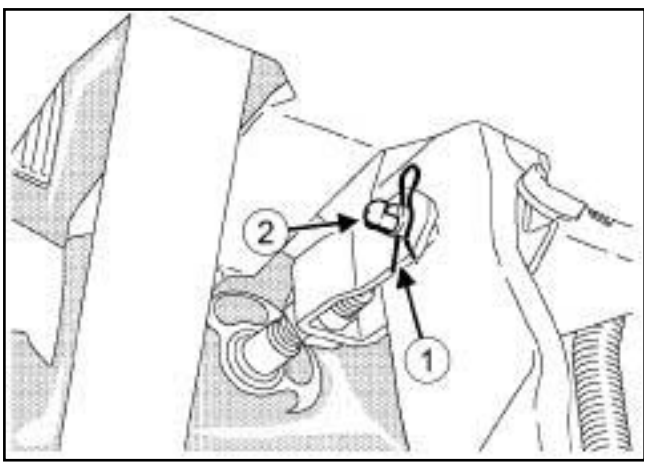
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).

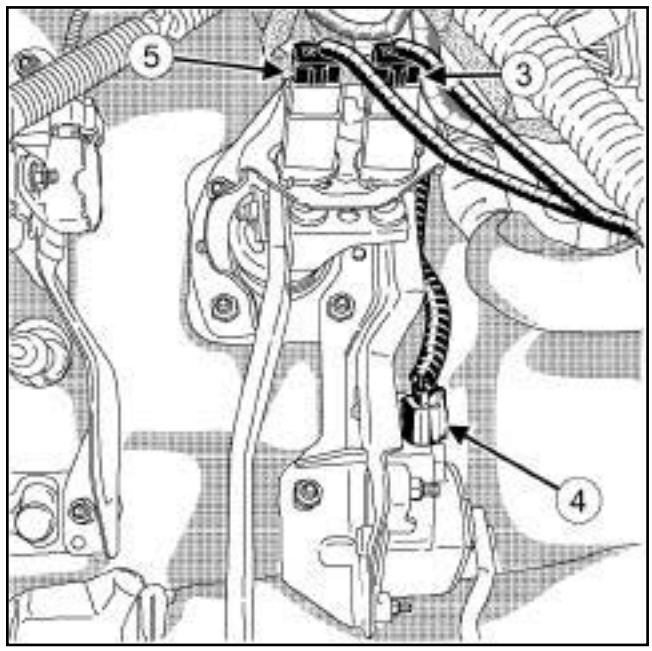
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131145

❏ Remove:

- the brake pedal circlip (**1**) ,
- the connector shaft (**2**) between the brake pedal and the brake servo pushrod.



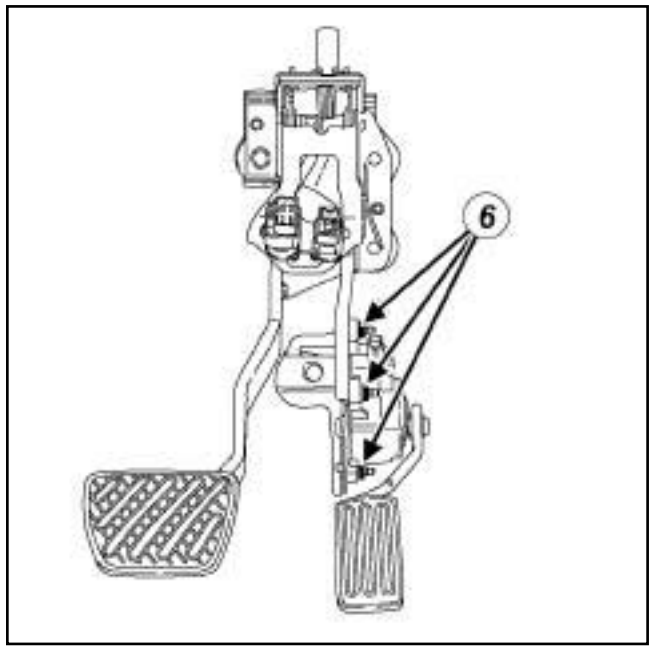

131146

❏ Disconnect:

- the brake light switch connector (**3**) ,
- the accelerator pedal sensor connector (**4**) .

CRUISE CONTROL

❏ Disconnect the connector ***(5)*** from the brake switch.




131147

❏ Remove the accelerator pedal nuts (**6**) .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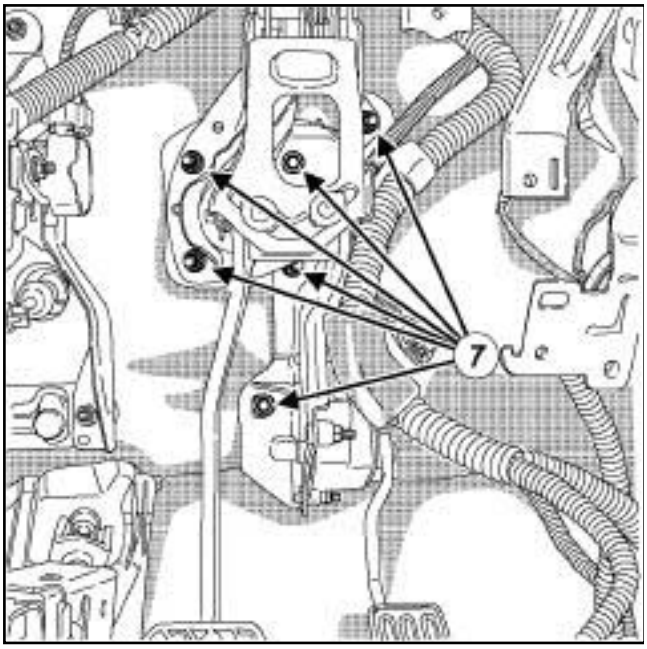
RIGHT-HAND DRIVE




131148

❑ Remove:

- the nuts (**7**) from the brake-accelerator pedal assembly,
- the accelerator pedal from the brake-accelerator pedal assembly.

Note:

It is not necessary to remove the brake-accelerator pedal assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the accelerator pedal on the brake-accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

❑ Torque tighten the **brake-accelerator pedal assembly nuts (14 N.m)**.

❑ Refit the accelerator pedal nuts.

❑ Torque tighten the **accelerator pedal nuts (5 N.m)**.

❑ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip.

❑ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.

CRUISE CONTROL

❑ Connect the accelerator pedal position sensor connector.

### II - FINAL OPERATION.

❑ Refit:

- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).



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LEFT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| accelerator pedal nuts | **5 N.m** |

## REMOVAL

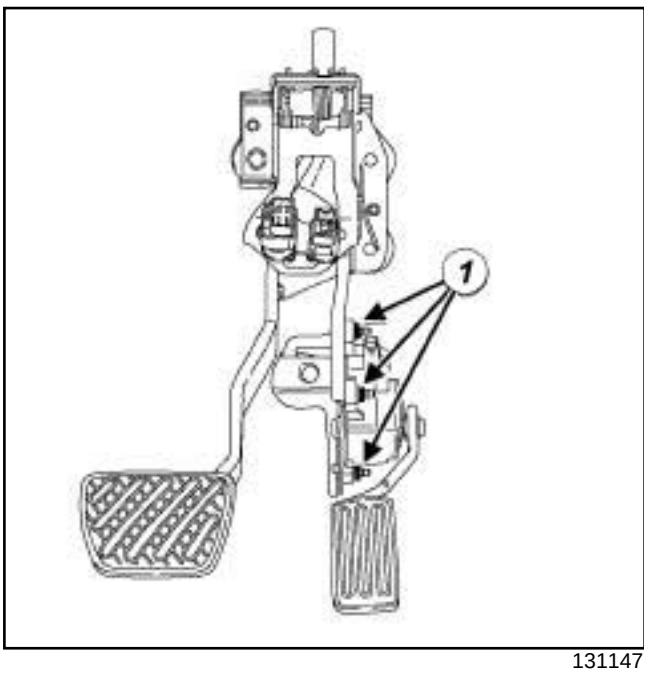
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) ,(61A, Heating),
- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131147

❏ Remove:

- the accelerator pedal nuts (**1**) ,
- the accelerator pedal of the brake-accelerator pedal assembly,
- the brake pedal.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the brake pedal,
- the accelerator pedal on the brake-accelerator pedal assembly,
- the accelerator pedal nuts.

❏ Torque tighten the **accelerator pedal nuts (5 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) ,
- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
- the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) ,(61A, Heating),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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RIGHT-HAND DRIVE

| Tightening torques ▽ | |
|---|---|
| accelerator pedal nuts | **5 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

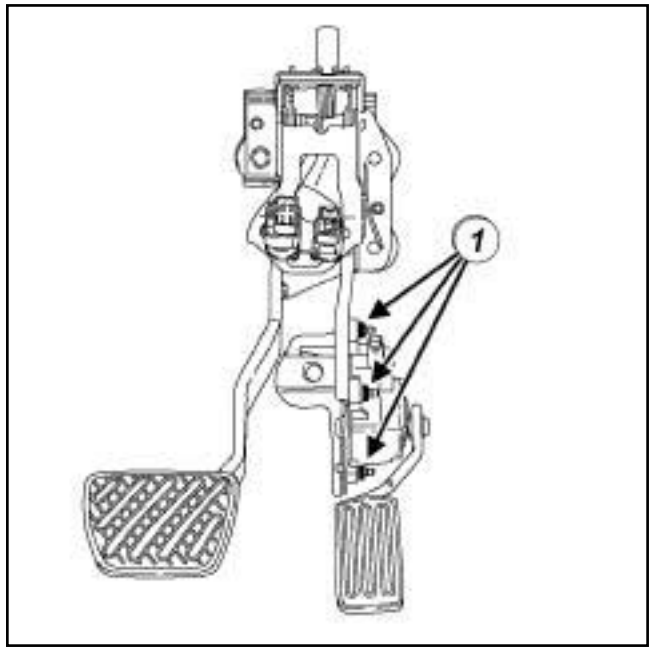
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131147

❏ Remove:

- the accelerator pedal nuts (**1**) ,
- the accelerator pedal from the brake-accelerator pedal assembly,
- the brake pedal.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the brake pedal,
- the accelerator pedal on the brake-accelerator pedal assembly,
- the accelerator pedal nuts.

❏ Torque tighten the **accelerator pedal nuts (5 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) .
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),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RIGHT-HAND DRIVE

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) ,(61A, Heating).

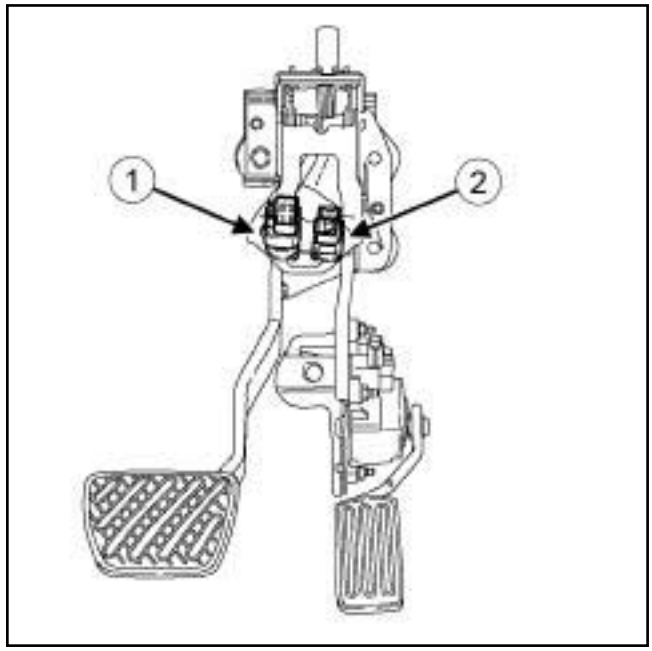
LEFT-HAND DRIVE

❏

- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (59A, Interior equipment),
- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

CRUISE CONTROL




131250

❏ Remove:

- the brake light switch (**1**) by rotating it a quarter turn anticlockwise,
- the brake switch (**2**) by rotating it a quarter turn anticlockwise.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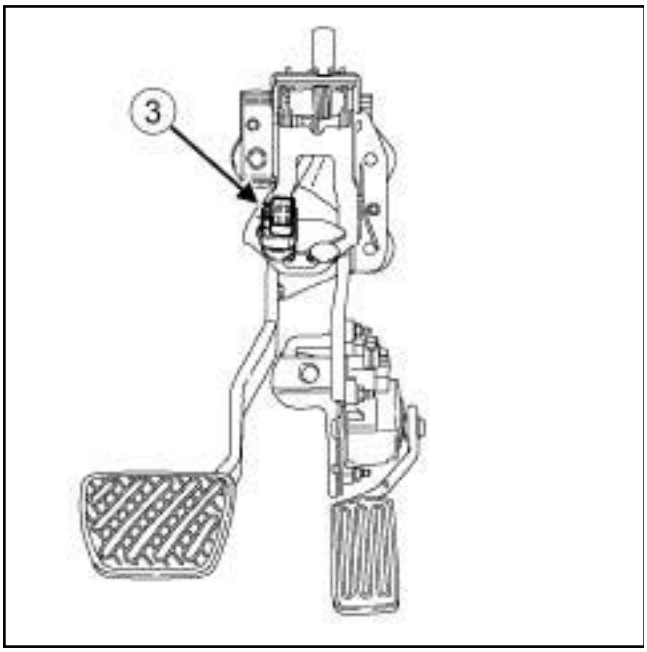
WITHOUT CRUISE CONTROL

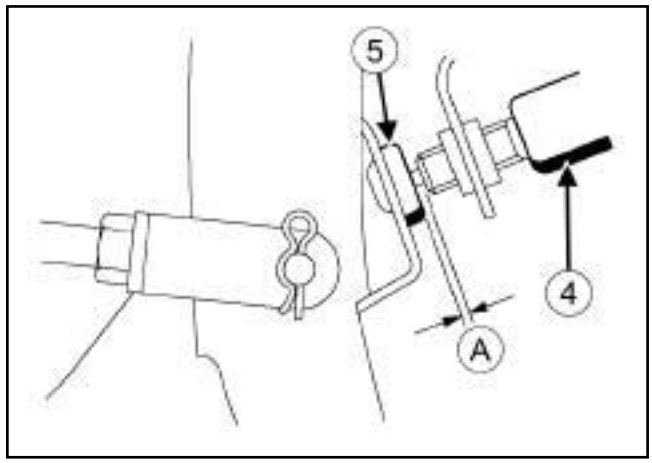



131251

❏ Remove the brake light switch (**3**) by rotating it a quarter turn anticlockwise.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131252

❏ Position the brake pedal switches.

❏ Press on the brake pedal switches (**4**) until the end of the piston touches the rubber stop (**5**) .

❏ Rotate the brake pedal switches a quarter of a turn clockwise.

❏ Measure the dimension (**A**) between the rubber stop and the end of the piston.

❏ Adjust the dimension (**A**) between **0.74 mm** and **1.96 mm**.

### II - FINAL OPERATION.

LEFT-HAND DRIVE

❏ Refit:

- the brake - accelerator pedal assembly (see **37A**, **Mechanical component controls**, **Accelerator/ brake pedal assembly: Removal - Refitting**, page **37A-23**) ,
- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (59A, Interior equipment).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Check that the brake light switch is operating correctly:

- depress the brake pedal to switch on the lights,
- release the brake pedal to switch off the lights.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❑ Refit:

- the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) ,(61A, Heating),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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FOOT BRAKE MANUAL CONTROL

| Tightening torques ▽ | |
|---|---|
| parking brake lever nuts | **14 N.m** |

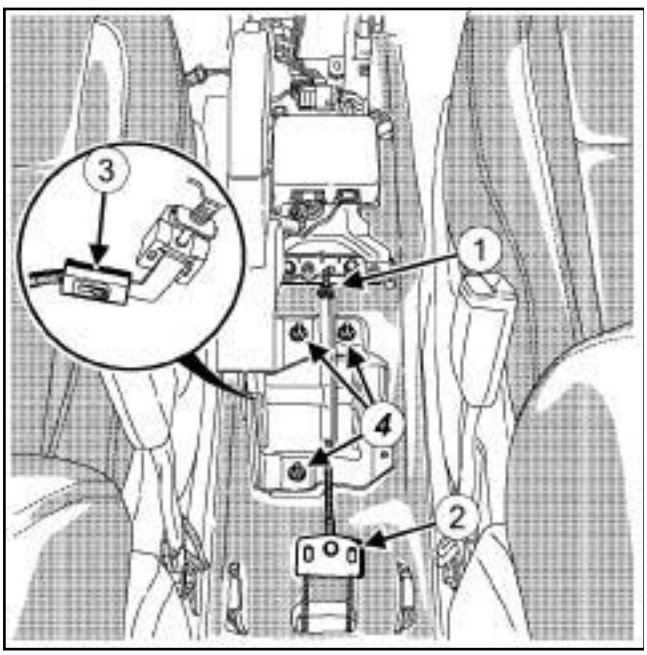
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the centre console (see **Centre console: Removal - Refitting**) (MR 416, 57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131253

❑ Remove the adjustment nut (**1**) to completely loosen the parking brake cable.

❑ Separate the parking brake cable from the parking brake compensator (**2**) .

❑ Disconnect the connector (**3**) from the parking brake switch.

❑ Remove:

- the nuts (**4**) from the parking brake lever,
- the parking brake lever.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the parking brake lever,
- the parking brake lever nuts.

❑ Torque tighten the **parking brake lever nuts (14 N.m)**.

❑ Connect:

- the parking brake switch connector,
- the parking brake cable to the parking brake compensator.

❑ Refit the adjustment nut.

### II - FINAL OPERATION.

❑ Adjust the parking brake (see **37A**, **Mechanical component controls**, **Parking brake lever: Adjusting**, page **37A-38**) .

❑ Refit the centre console (see **Centre console: Removal - Refitting**) (MR 416, 57A, Interior equipment).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FOOT BRAKE MANUAL CONTROL

## ADJUSTMENT

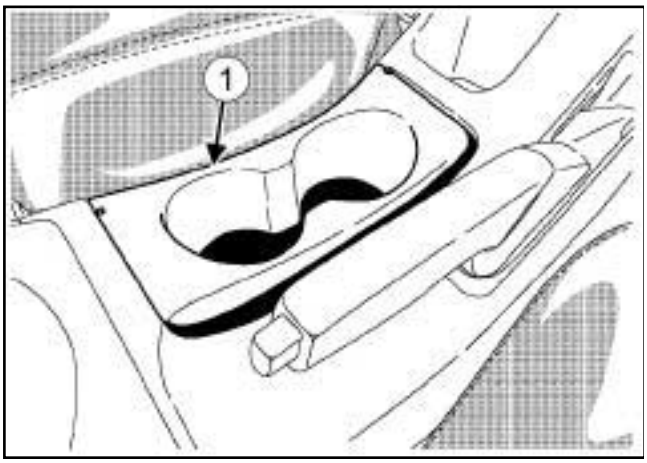
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❏ Fit the rear brake disc using the wheel nuts.

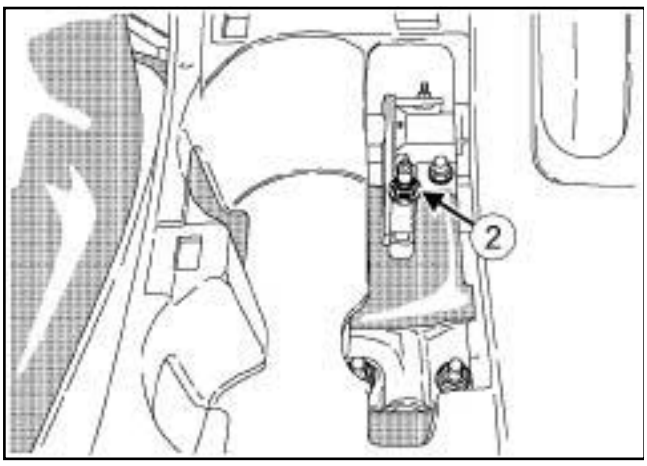
❏ Check:

- that the cables slide freely,
- the travel of the parking brake cables and engage them fully on the rear internal drum type disc.




131254

❏ Remove the cup holder (**1**) .




131255

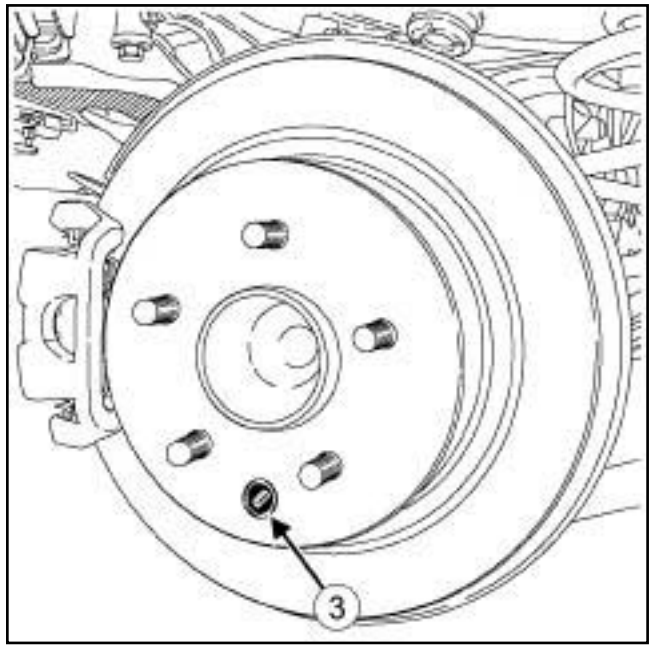
❏ Raise the parking brake lever until the lock nut (**2**) can be accessed.

Note:

Always replace the lock nut if it was removed.

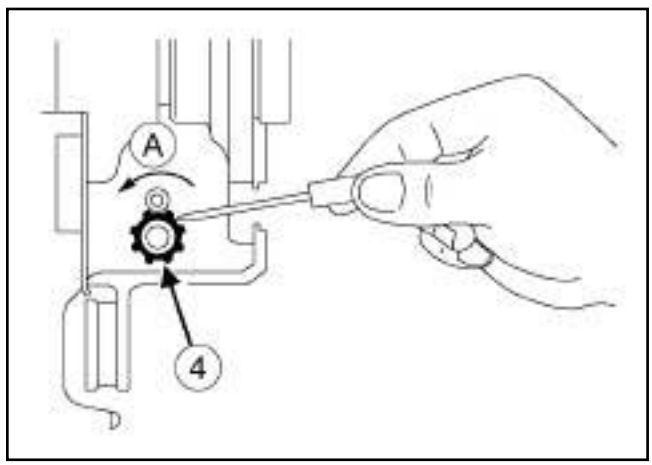
❏ Adjust the lock nut in order to loosen the cable completely.

❏ Release the parking brake lever.




131256

❏ Remove the plug (**3**) from the rear brake disc adjustment opening.




131257

❏ Turn:

- the adjustment mechanism (**4**) in the direction of (**A**) until it locks.
- the adjustment mechanism **7** notches from the locked position,
- the rear brake disc to check the absence of traction.

❏ Refit the plug on the rear brake disc adjustment opening.

Note:

The standard number of notches is **7** or **8**.



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# Parking brake lever: Adjusting

FOOT BRAKE MANUAL CONTROL

❑ Adjust the parking brake cable.

- activate the parking brake lever with a force of **294 N** about ten times minimum,
- adjust the parking brake lever travel by turning the adjustment nut,
- activate the parking brake lever with a force of **196 N**,
- check if the lever travel corresponds to the number of notches specified,
- turn the rear brake disc with the released parking brake lever,
- check for the absence of traction.


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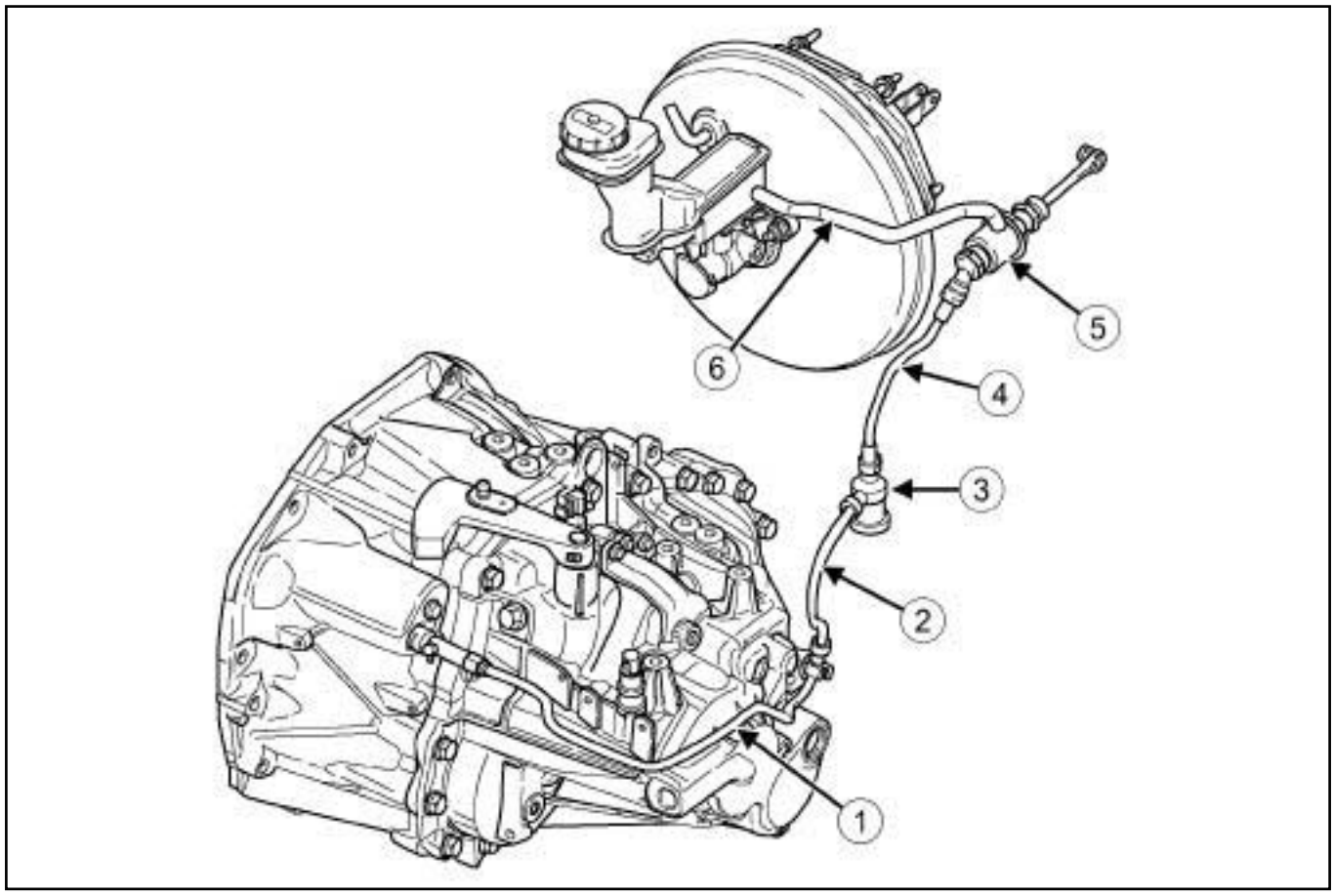
6 SPEED MANUAL GBOX

| No. | Description |
|---|---|
| *(1)* | Hydraulic clutch control pipe |
| *(2)* | Connecting hose (in a unit with the clutch control pipe) |
| *(3)* | Clutch hydraulic shock absorber |
| *(4)* | Connecting pipe |
| *(5)* | Clutch master cylinder |
| *(6)* | Clutch master cylinder supply hose |

LEFT-HAND DRIVE




131485

| No. | Description |
|---|---|
| *(1)* | Clutch control pipe |
| *(2)* | Clutch hydraulic shock absorber |
| *(3)* | Connecting pipe |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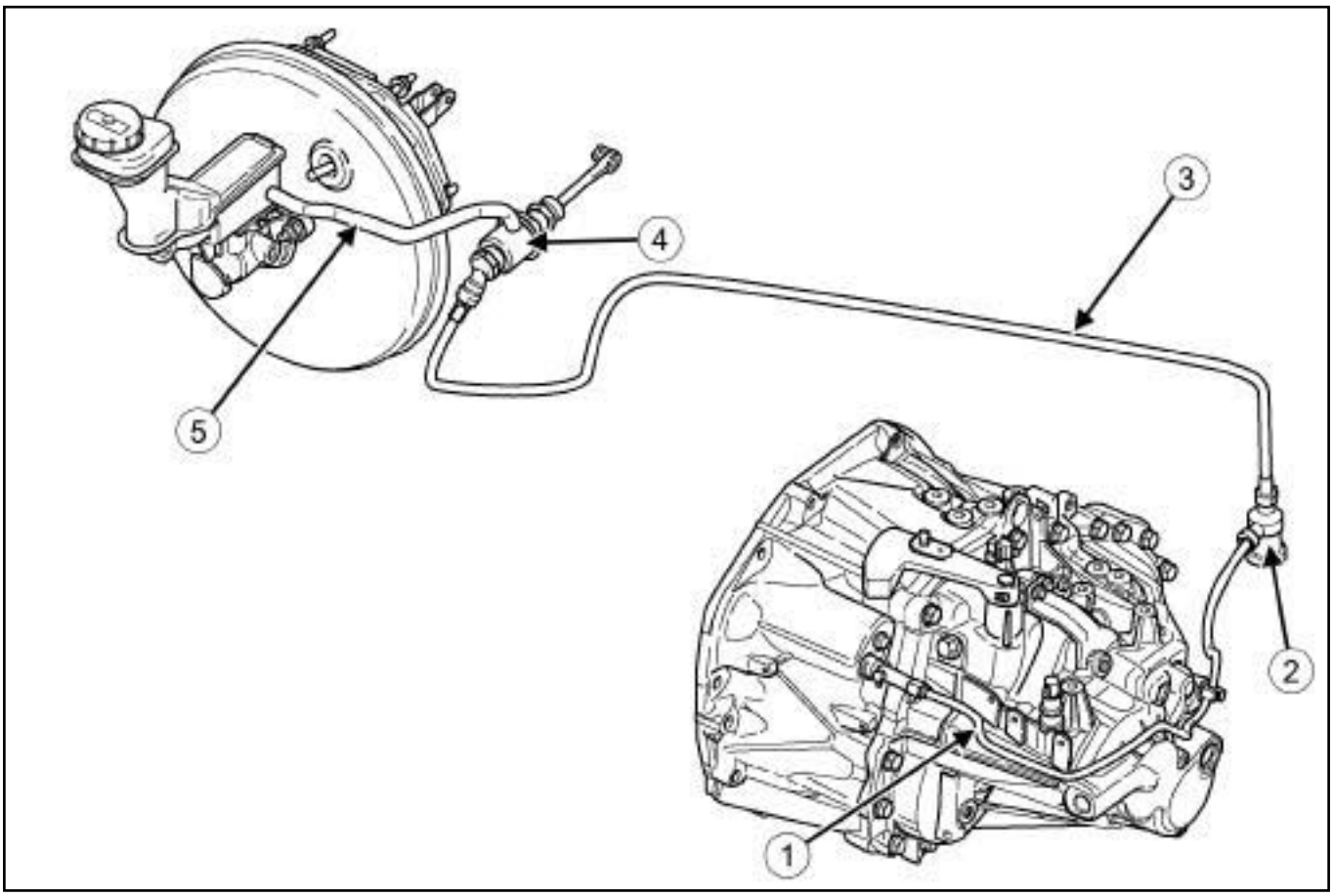
6 SPEED MANUAL GBOX

| No. | Description |
|---|---|
| *(4)* | Clutch master cylinder |
| *(5)* | Clutch master cylinder supply hose |

RIGHT-HAND DRIVE




131486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LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| clutch pedal nuts | **14 N.m** |

## REMOVAL

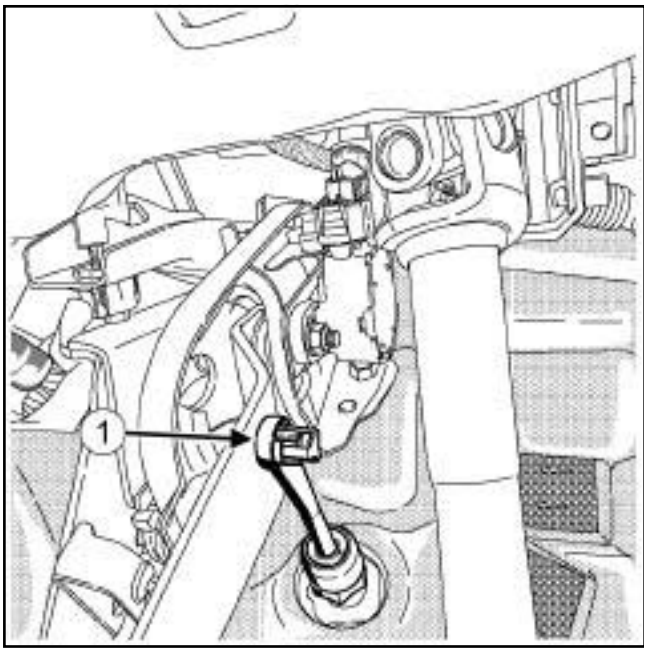
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

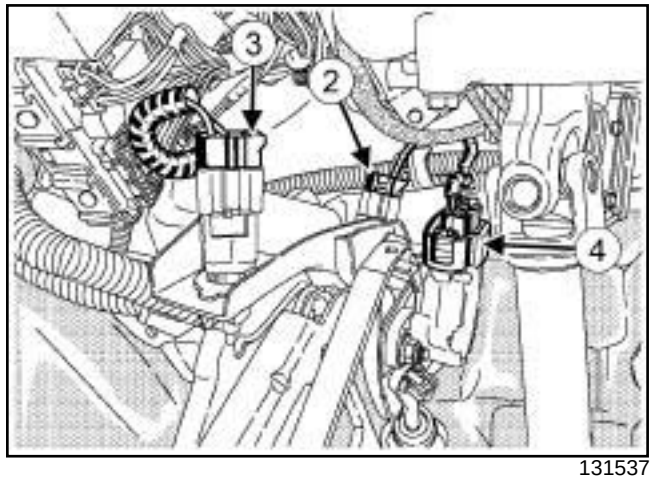
- the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131532

❏ Separate the clutch master cylinder ball joint (**1**) from the clutch pedal.




131537

❏ Disconnect the connector (**2**) from the clutch pedal switch.

CRUISE CONTROL

❏ Disconnect the connector ***(3)*** from the clutch pedal switch.

FOOT BRAKE AUTO CONTROL

❏ Disconnect the position sensor connector ***(4)*** from the clutch pedal.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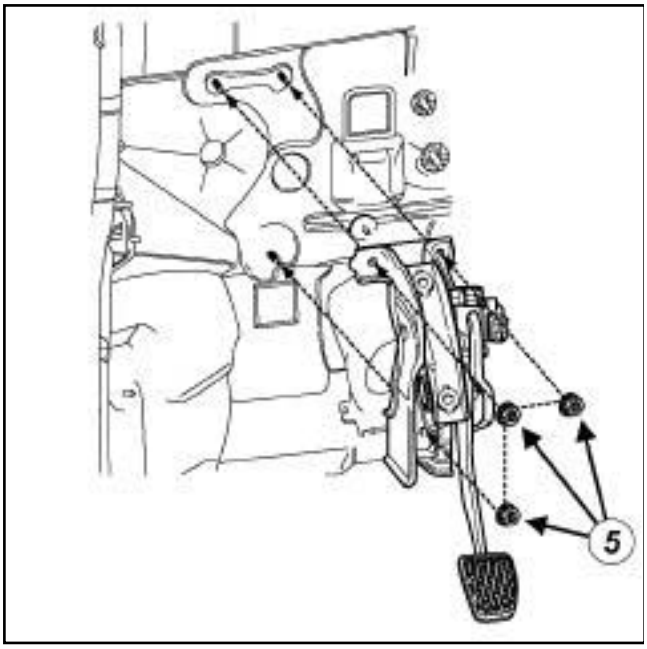
LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX




131534

❑ Remove:

- the accelerator pedal nuts (**5**) ,
- the clutch pedal.

FOOT BRAKE AUTO CONTROL

❑ Remove the clutch pedal position sensor from the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

FOOT BRAKE AUTO CONTROL

❑ Refit the clutch pedal position sensor on the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .

❑ Refit:

- the clutch pedal,
- the clutch pedal nuts.

❑ Torque tighten the **clutch pedal nuts (14 N.m)**.

❑ Connect the clutch pedal switch connector.

CRUISE CONTROL

❑ Connect the clutch pedal switch connector.

FOOT BRAKE AUTO CONTROL

❑ Connect the clutch pedal position sensor connector.

❑ Place the clutch cylinder ball joint on the clutch pedal.

### II - FINAL OPERATION.

❑ Refit:

- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| clutch pedal nuts | **14 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Unlock the steering column.

**IMPORTANT**

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (61A, Heating system),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the right-hand trim from the centre front panel,
- the steering column from the dashboard cross member (see **36A**, **Steering assembly**, **Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly).

Note:

It is not necessary to remove the steering column from the steering box.


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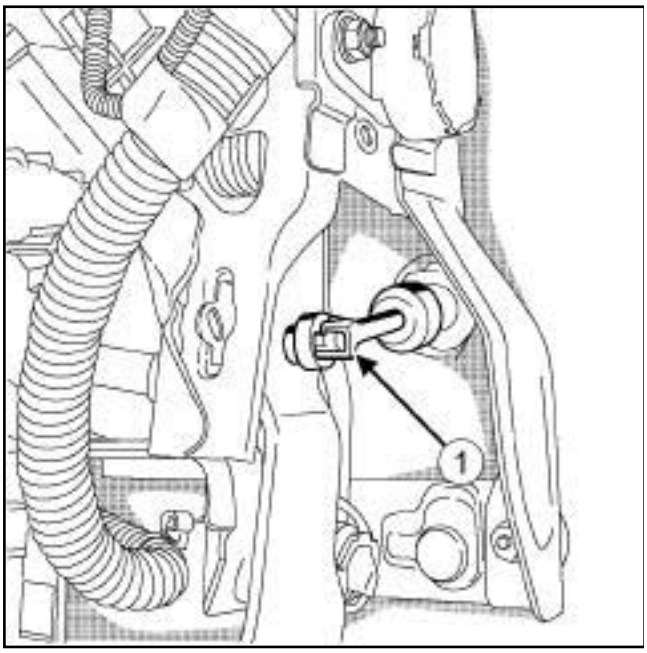
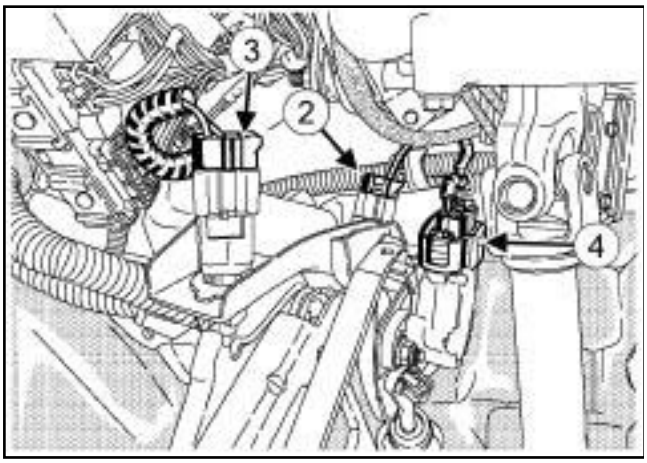
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131536

❏ Separate the clutch master cylinder ball joint (**1**) from the clutch pedal.




131533

❏ Disconnect the connector (**2**) from the clutch pedal switch.

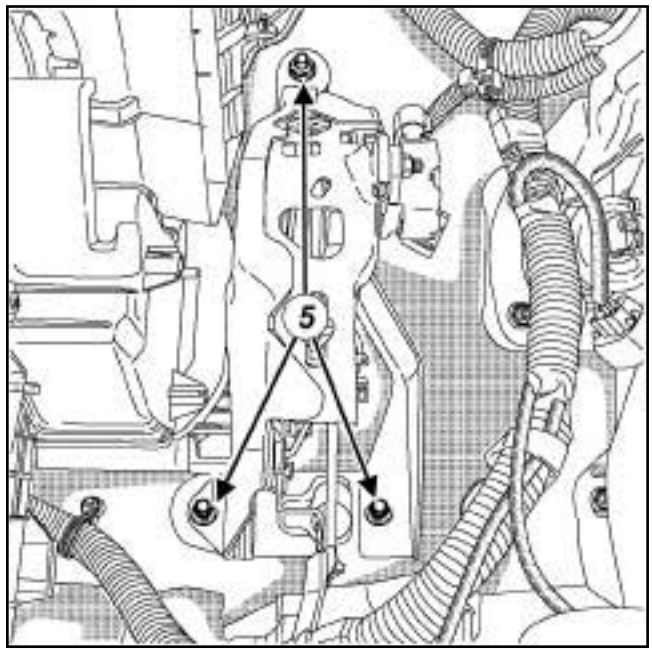
CRUISE CONTROL

❏ Disconnect the connector ***(3)*** from the clutch pedal switch.

FOOT BRAKE AUTO CONTROL

❏ Disconnect the position sensor connector ***(4)*** from the clutch pedal.

❏ Unclip the electrical wiring from the clutch.




131538

❏ Remove:

- the accelerator pedal nuts (**5**) ,
- the clutch pedal.

FOOT BRAKE AUTO CONTROL

❏ Remove the position sensor from the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .



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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

FOOT BRAKE AUTO CONTROL

❏ Refit the clutch pedal position sensor on the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .

❏ Refit:

- the clutch pedal,
- the clutch pedal nuts.

❏ Torque tighten the **clutch pedal nuts (14 N.m)**.

❏ Connect the clutch pedal switch connector.

CRUISE CONTROL

❏ Connect the clutch pedal switch connector.

FOOT BRAKE AUTO CONTROL

❏ Connect the clutch pedal position sensor connector.

❏ Fit the clutch cylinder ball joint on the clutch pedal.

### II - FINAL OPERATION.

❏ Refit:

- the steering column on the dashboard cross member (see **36A**, **Steering assembly**, **Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the centre front panel right-hand trim
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (61A, Heating system),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Adjust the neutral position of the steering wheel angle sensor (see **Fault finding - Configurations and programming** (80C, Xenon bulbs).


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FOOT BRAKE AUTO CONTROL, and 6 SPEED MANUAL GBOX

| Tightening torques ▽ | |
|---|---|
| clutch pedal position sensor nuts | 8 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

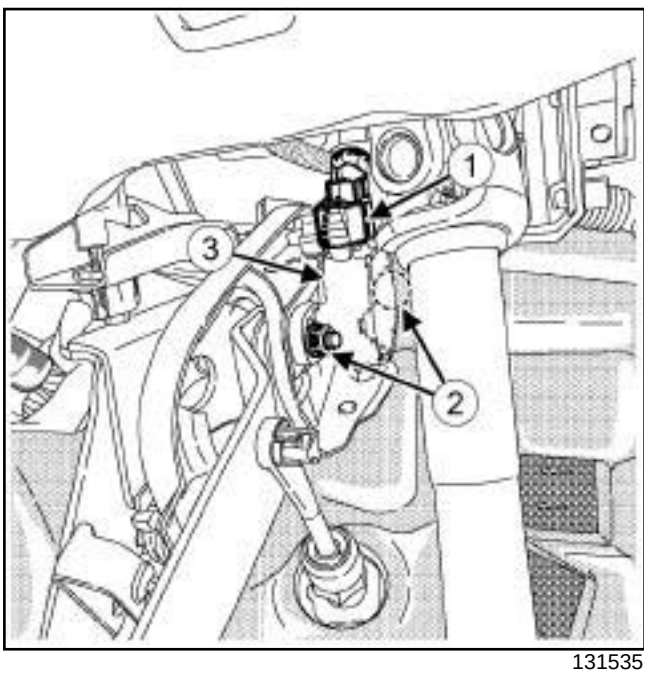
❏ Remove:

- the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment),
- the centre front panel side trim.

RIGHT-HAND DRIVE

❏ Remove the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131535

❏ Disconnect the connector (**1**) from the clutch pedal position sensor.

❏ Remove:

- the clutch pedal position sensor nuts (**2**) ,
- the clutch pedal position sensor (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clutch pedal position sensor,
- the clutch pedal position sensor nuts.

❏ Torque tighten the **clutch pedal position sensor nuts (8 N.m)**.

❏ Reconnect the clutch pedal position sensor connector.

### II - FINAL OPERATION.

RIGHT-HAND DRIVE

❏ Refit the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

❏ Refit:

- the centre front panel side trim,
- the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment).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ND5 or ND8

| Essential equipment |
|---|
| brake circuit bleeding device |
| hydraulic circuit bleed syringe |

Bleed in the event of:

- dead travel,
- pedal at mid-travel,
- pedal to the floor,
- poor gear changing.

## I - PRECAUTIONS DURING REPAIR

**Risks relating to contamination.**

❑ The hydraulic clutch system is very sensitive to contamination. The risks caused by contamination are:

- impossible to change gears,
- damage to or destruction of the clutch system,
- leaks on the hydraulic circuit.

All the operations on the hydraulic clutch circuit system must be carried out under excellent cleanliness conditions. This ensures that no impurities enter the hydraulic circuit during the operation.

The cleanliness principles apply to all components of the hydraulic clutch circuit.

Items causing contamination are:

- metal or plastic swarf,
- fibres:
  - cardboard,
  - brushes,
  - paper,
  - clothing,
  - cloth,
  - dust and particles in the air,
  - etc.

**Cleaning cloths.**

❑ Use lint-free cleaning cloths (see **Recommended products for repairwork**) (04B, Consumables - Products).

Each cloth must only be used once.

**There are two types of equipment used to bleed the clutch circuit:**

❑ ARC50 via the brake fluid reservoir.

❑ Syringe via the bleed hole located on the clutch slave cylinder.

**There are two procedures used to bleed the clutch circuit:**

❑ If no parts of the clutch hydraulic circuit are removed:

- Carry out the bleed operation using the ARC50 via the brake fluid reservoir or using a new syringe via the bleed hole located on the clutch slave cylinder.

❑ If no parts of the clutch hydraulic circuit are removed:

- Only carry out the bleed operation using a new syringe by injecting the brake fluid via the bleed hole on the clutch slave cylinder.

Note:

- Even the tiniest air bubble in the circuit can cause faulty operation (pedal failing to return properly, crunching sound when changing gear, etc.).
- Incorrect bleeding can lead to incorrect detection of faults and unnecessary part replacements.

**Consumables required for the repair:**

❑ Bleed the clutch circuit using approved (see **Vehicle: Parts and ingredients for the repairwork**) brake fluid (04B, consumables - products).

## II - PREPARATION STAGE

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the engine undertray.


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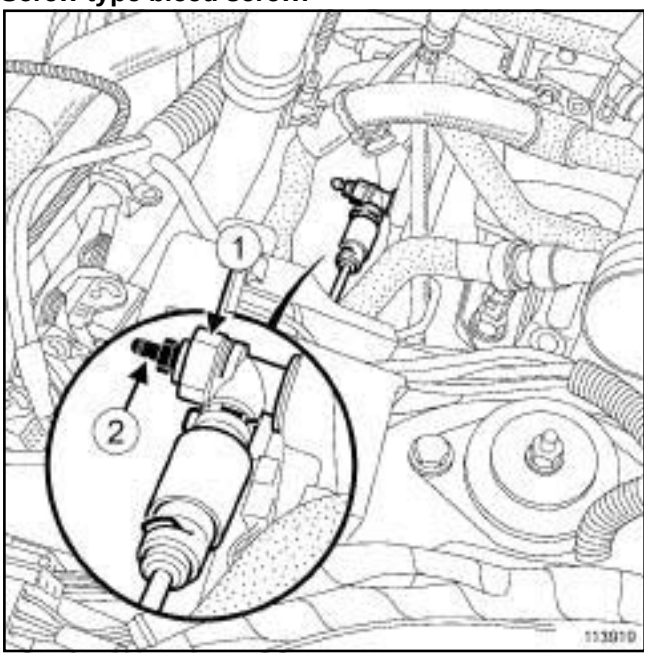
ND5 or ND8

**There are several versions of bleed screw:**

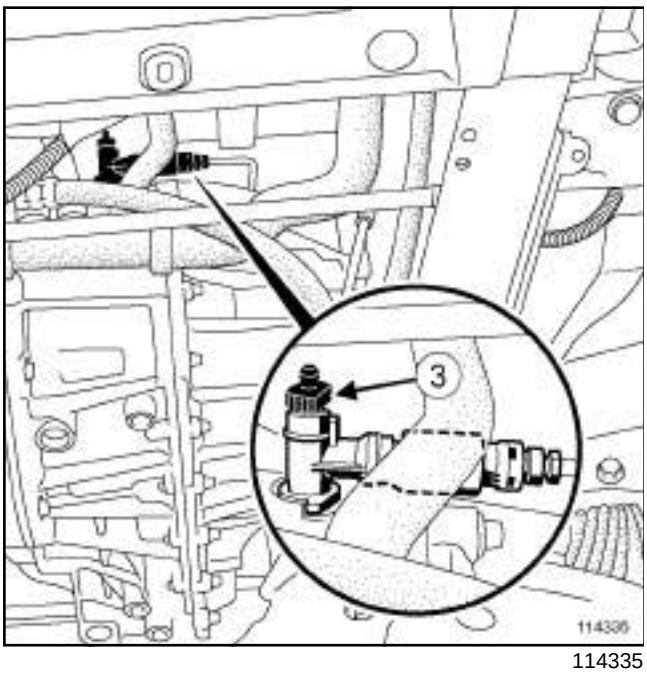
**Screw type bleed screw.**




113919

❏ To open the bleed screw, hold the plastic union (**1**) using a ring spanner and undo the bleed screw (**2**) .

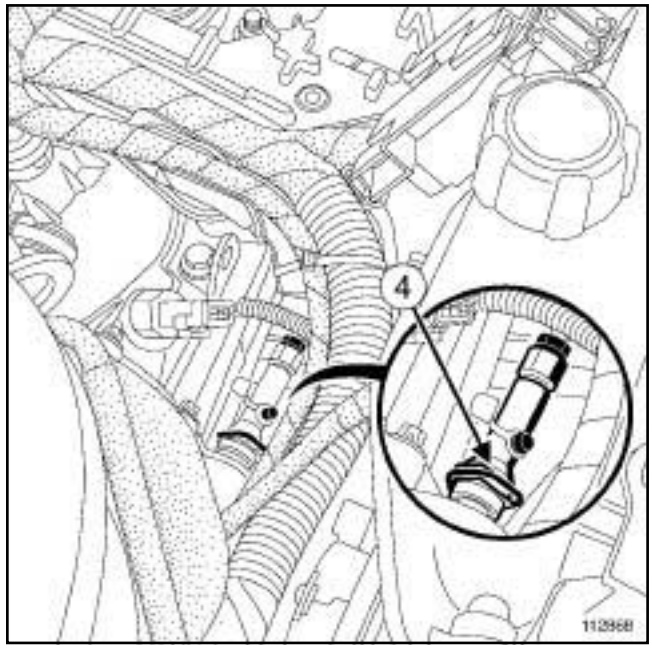
**Half-turn bleed screw.**




114335

❏ To open the bleed screw, fully turn the bleed screw (**3**) by hand.

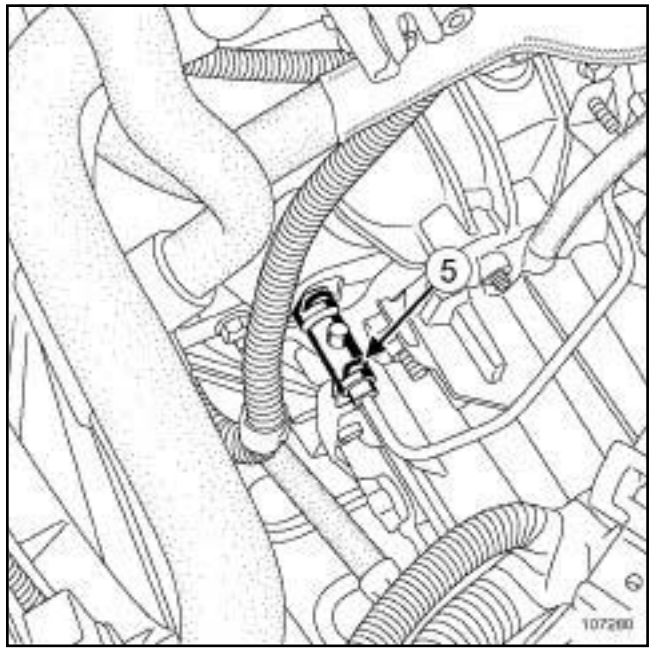
**Bleed screw with a clip.**




112868

❏ To open the bleed screw, press and hold the clip (**4**) while pulling by one notch.

**Bleed screw with a clip.**




107280

❏ To open the bleed screw, lift the clip (**5**) while pulling by one notch.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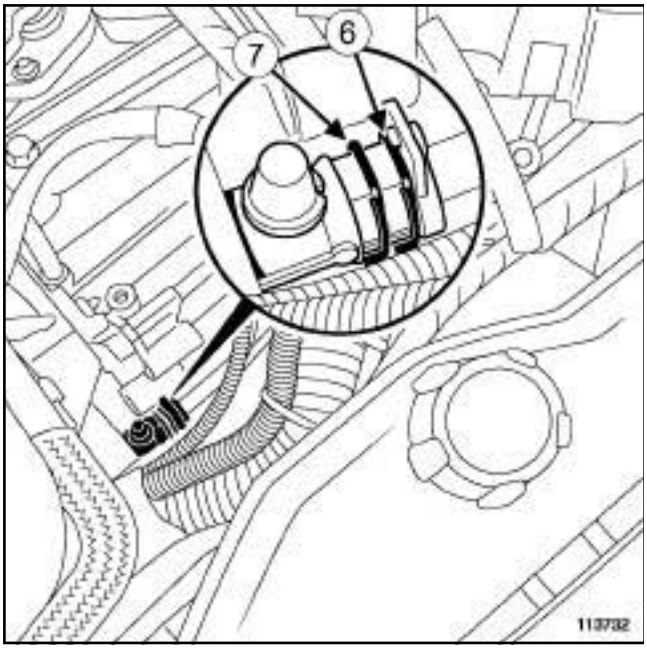
ND5 or ND8

**Bleed screw with two clips.**




113732

❏ To open the bleed screw, lower the clip (**6**) and lift the clip (**7**) while pulling by one notch.

**III - BLEED PROCEDURE IF NO PARTS OF THE HYDRAULIC CIRCUIT ARE REMOVED**

**1 - Bleed using the ARC50.**

❏ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

❏ Connect the **brake circuit bleeding device** (after having received Renault approval) to the master cylinder reservoir (see the instructions for the equipment).

❏ Remove the bleed plug from the clutch slave cylinder.

❏ Connect a transparent pipe to the bleed hole running to an empty container placed under the bleed hole.

❏ Open the bleed screw.

❏ Open the circuit between the bleeding device and the brake fluid reservoir.

❏ Let the brake fluid run until all air bubbles have been released.

❏ Stop the bleeding device to dump the pressure in the clutch circuit.

❏ Close the bleed screw.

❏ Remove the transparent pipe from the bleed hole.

❏ Refit the bleed plug.

❏ Top up the brake fluid level in the master cylinder reservoir after disconnecting the bleed device.

❏ Disengage and engage the clutch quickly around twenty times.

❏ Check that the clutch system is operating correctly.

❏ Repeat the bleed operation if necessary.

❏ Check the adjustment of the switch. (see **37A**, **Mechanical component controls**, **Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).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ND5 or ND8

**2 - Bleed using a new syringe.**

❑ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

❑ Remove the bleed plug from the clutch slave cylinder.

❑ Connect a transparent pipe of sufficient length to the bleed hole (at least thirty centimeters) in order to place it at the same height as the reservoir.

❑ Open the bleed screw.

❑ Fill the brake fluid master cylinder reservoir until brake fluid flows out of the bleed screw.

Note:

The transparent pipe must remain at the same height as the master cylinder reservoir to prevent air from entering inside the clutch circuit.

❑ Connect a new **hydraulic circuit bleed syringe** filled with a useful volume of **60 ml** of approved brake fluid to the end of the transparent pipe.

❑ Slowly inject the entire contents of the syringe into the hydraulic clutch circuit without injecting any of the air from the top section of the syringe.

❑ Close the bleed screw.

❑ Remove the transparent pipe from the bleed hole.

❑ Refit the bleed plug.

❑ Top up the brake fluid level in the master cylinder reservoir.

❑ Disengage and engage the clutch quickly around twenty times.

❑ Check that the clutch system is operating correctly.

❑ Repeat the bleed operation if necessary.

❑ Check the adjustment of the switch. (see **37A**, **Mechanical component controls**, **Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).

**IV - BLEED PROCEDURE IF PARTS OF THE HYDRAULIC CIRCUIT ARE REMOVED.**

❑

**WARNING**

The slave cylinder pipe must be disconnected from its take-off point on the brake fluid reservoir, to avoid any foreign matter penetrating inside the brake system hydraulic circuit.

**WARNING**

Prepare for the flow of fluid and protect the surrounding components.

Note:

Prefill the hydraulic circuit pipe equipped with a filter.

Position the filter head facing downwards to ensure that it fills.



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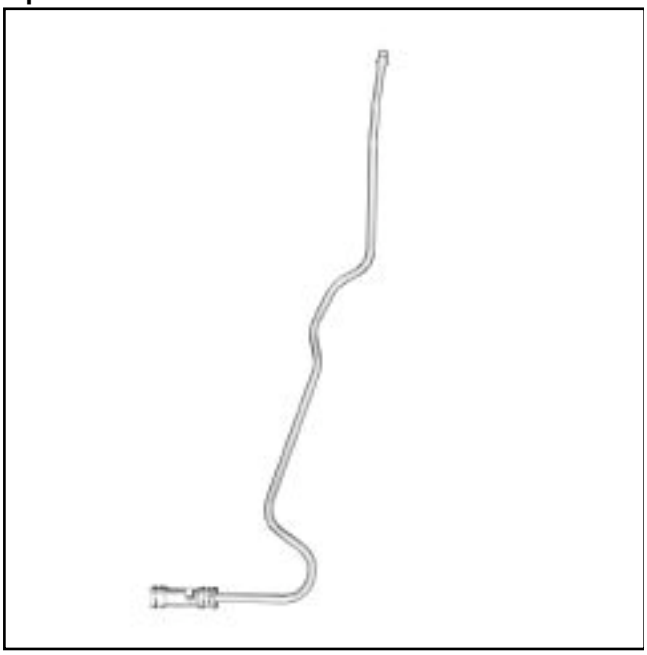
ND5 or ND8

**There are several versions of pipe with and without a filter:**

**Pipe without filter.**



141812

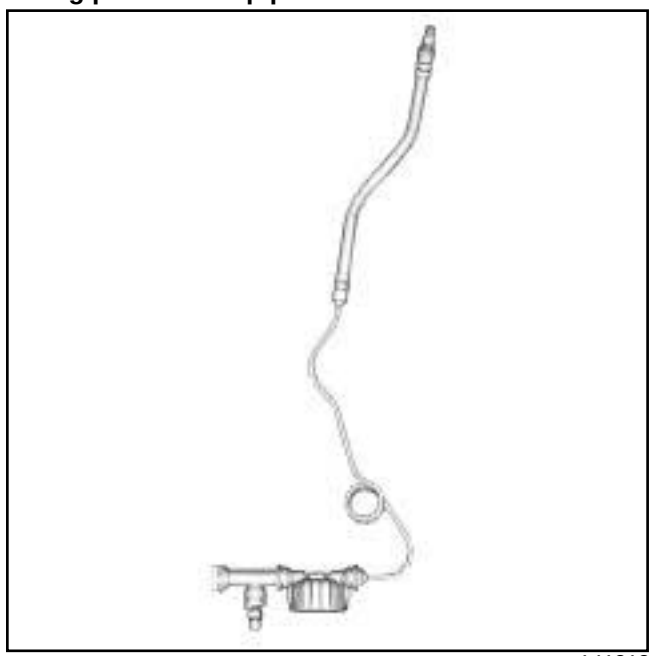
**Filling position for pipe with filter.**

141811

**Filling position for pipe with filter.**

141810

**Filling position for pipe with filter.**



141813

❏ Prefill the clutch pipe using the syringe.

❏ Plug the prefilled pipe on the clutch slave cylinder end to stop any brake fluid from escaping.



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ND5 or ND8

141809

❏ Prefill the hydraulic tappet using the new syringe (by gravity).

❏ Refit the part(s) concerned.

**V - BLEED PROCEDURE AFTER A REMOVING A COMPONENT OF THE HYDRAULIC CIRCUIT.**

❏ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

❏ Remove the bleed plug from the clutch slave cylinder.

❏ Connect a transparent pipe of sufficient length to the bleed hole (at least thirty centimeters) in order to place it at the same height as the reservoir.

❏ Open the bleed screw.

❏ Fill the brake fluid master cylinder reservoir until brake fluid flows out of the bleed screw.

Note:

The transparent pipe must remain at the same height as the master cylinder reservoir to prevent air from entering inside the clutch circuit.

❏ Connect a new syringe containing **60 ml** of approved brake fluid to the end of the transparent pipe.

❏ Slowly inject the entire contents of the syringe into the hydraulic clutch circuit without injecting any of the air from the top section of the syringe.

❏ Close the bleed screw.

❏ Remove the transparent pipe from the bleed hole.

❏ Refit the bleed plug.

❏ Top up the brake fluid level in the master cylinder reservoir.

❏ Disengage and engage the clutch quickly around twenty times.

❏ Check that the clutch system is operating correctly.

❏ Repeat the bleed operation if necessary.

❏ Check the adjustment of the switch. (see **37A**, **Mechanical component controls**, **Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).



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ND5 or ND8

**VI - FINAL OPERATION**

❑ Refit the engine undertray.

❑ Remove the vehicle from the two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).


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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Emb. 1797** | 24 mm socket for removing and refitting clutch master cylinder |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

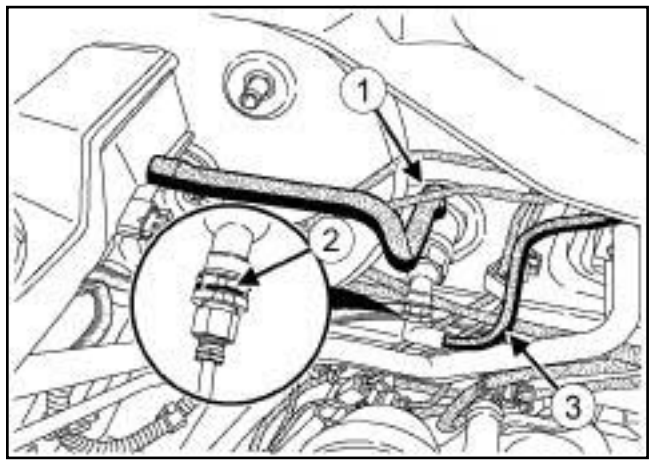
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

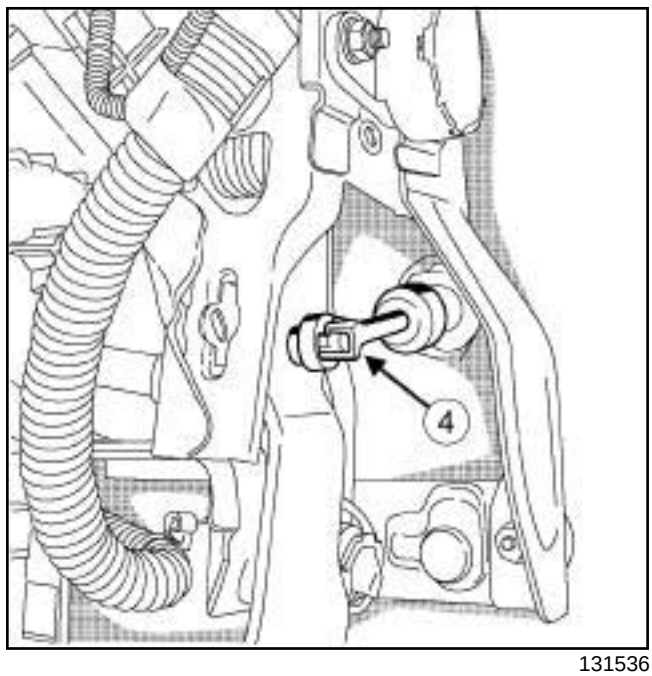


132860

❏ Disconnect the supply hose (**1**) from the clutch master cylinder.

❏ Remove the retaining clip (**2**) from the connecting pipe.

❏ Disconnect the end of the clutch control pipe (**3**) .



131536

❏ Remove:

- the lower cover from the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower trim from the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

❏ Separate the clutch master cylinder rod (**4**) from the clutch pedal.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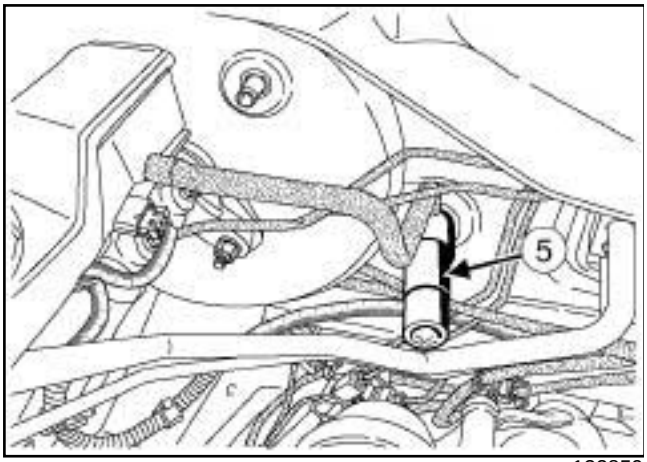
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX



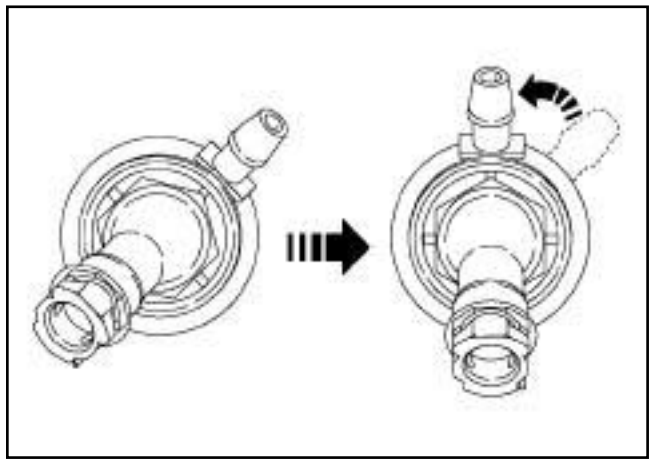

132859

❏ Turn the clutch master cylinder a quarter of a turn clockwise using the tool **(Emb. 1797)** (**5**) .

❏ Remove the clutch master cylinder.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED



132858

❏ Position the clutch master cylinder.

❏ Refit the clutch master cylinder by turning it a quarter of a turn anticlockwise using the tool **(Emb. 1797)**.

Note:

The master cylinder has a foolproofing device, it only fits in one position.

❏ Refit:

- the clutch master cylinder rod on the clutch pedal,
- the lower trim on the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the lower cover on the dashboard driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the end of the clutch control pipe on the clutch master cylinder.

❏ Refit the clip on the connecting pipe.

❏ Connect the supply hose on the clutch master cylinder.

### II - FINAL OPERATION.

❏ Bleed the hydraulic clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .

❏ Refit:

- the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❑ Check that the hydraulic clutch system is operating correctly.

❑ Refit the battery (see **80A, Battery, Battery: Removal - Refitting**).


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LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

| Essential special tooling | |
|---|---|
| **Emb. 1797** | 24 mm socket for removing and refitting clutch master cylinder |

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

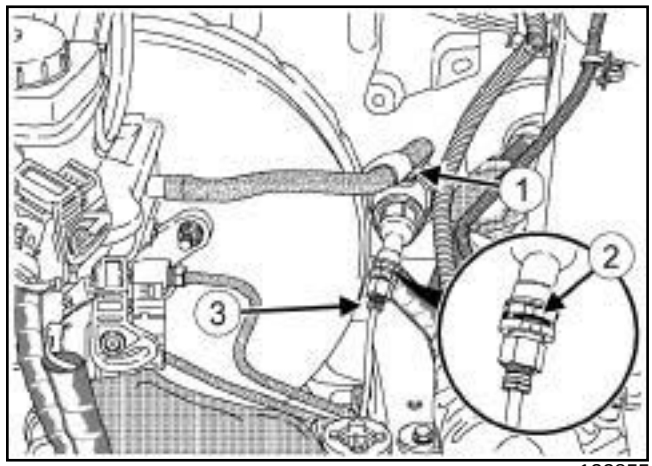
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❑ Drain the brake fluid reservoir with a syringe.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132855

❑

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❑ Disconnect the supply hose (**1**) from the clutch master cylinder.

❑ Remove the clip (**2**) from the connecting pipe.

❑ Disconnect the end of the clutch control pipe (**3**) .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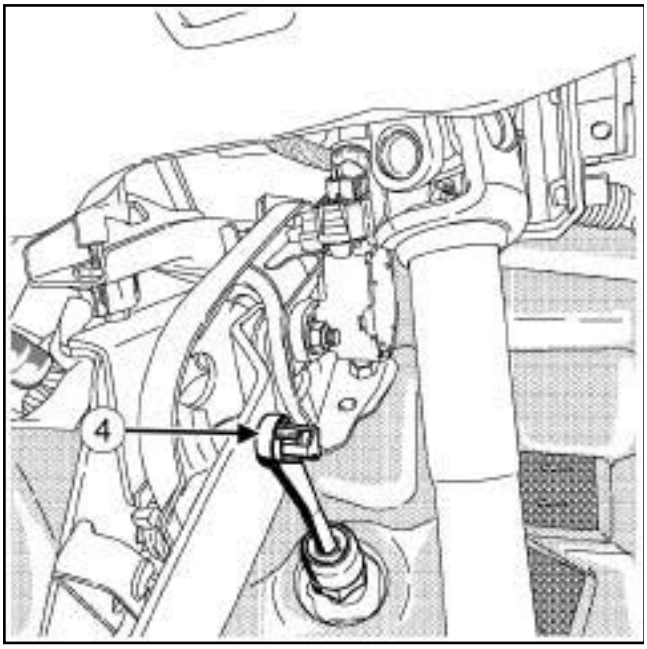
LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

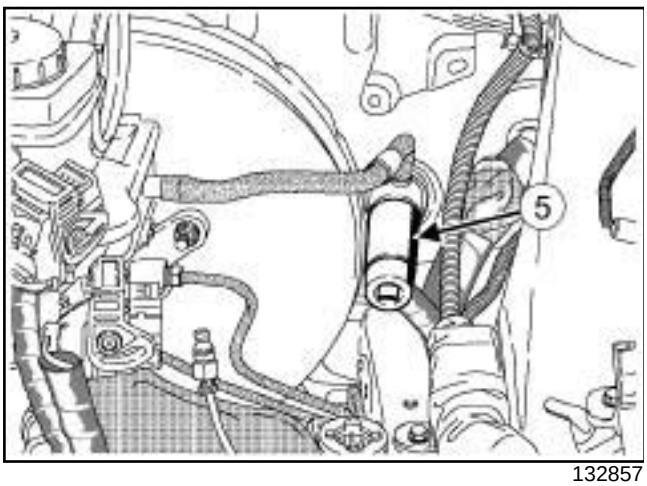



132856

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower trim from the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

❏ Separate the clutch master cylinder rod (**4**) from the clutch pedal.

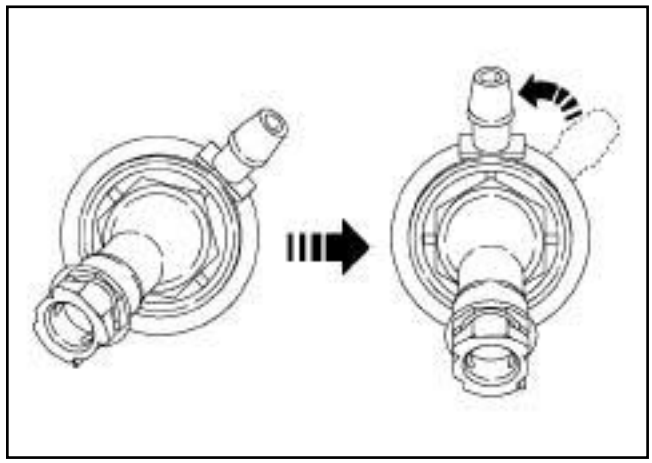



132857

❏ Remove the clutch master cylinder by turning it a quarter of a turn clockwise using the **(Emb. 1797)** (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED



132858

❏ Position the clutch master cylinder.

❏ Refit the clutch master cylinder by turning it a quarter of a turn anticlockwise using the tool **(Emb. 1797)** ***(5)*** .

> Note:
>
> The master cylinder is fitted with a foolproofing device; there is only one possible position.

❏ Refit:

- the clutch master cylinder rod on the clutch pedal,
- the lower trim of the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the end of the clutch control pipe on the clutch master cylinder.

❏ Refit the clip on the connecting pipe.

❏ Connect the supply hose on the clutch master cylinder.

### II - FINAL OPERATION.

❏ Bleed the hydraulic clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),



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LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Check that the clutch system is operating correctly.


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LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

## REMOVAL

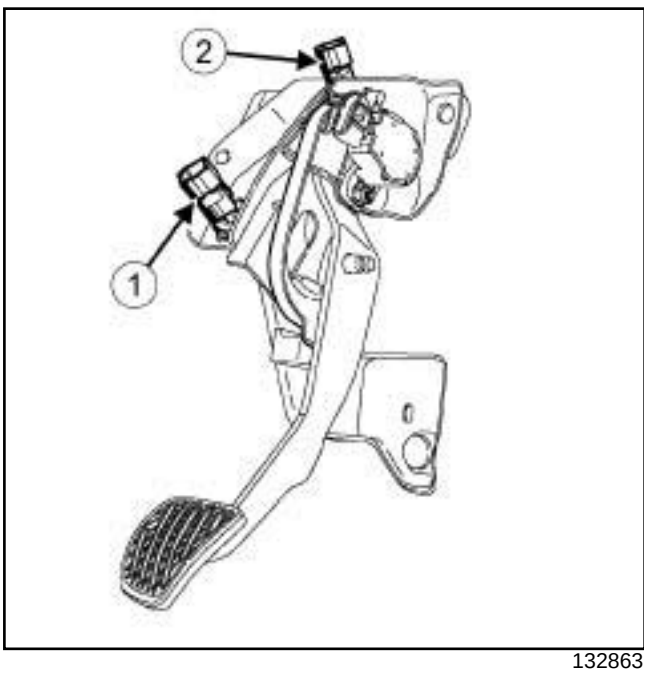
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal: Removal - Refitting**, page **37A-42**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132863

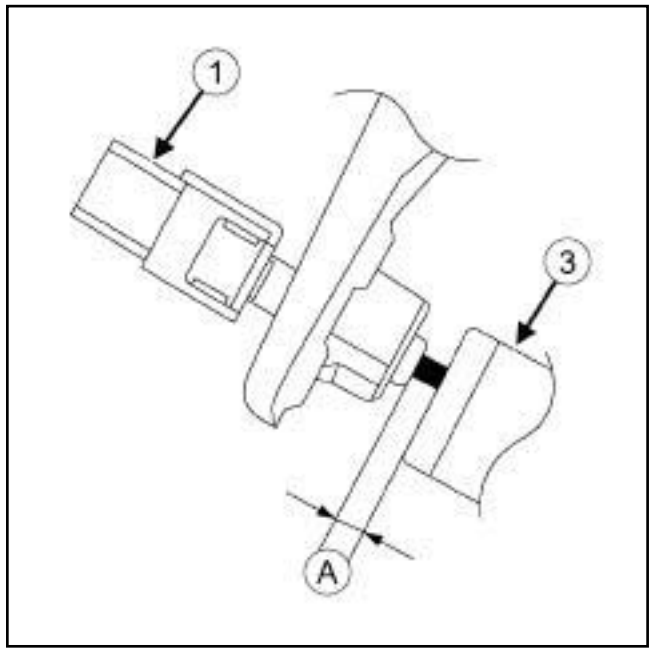
❏ Remove the clutch pedal switch (**1**) by turning it a quarter of a turn anticlockwise.

CRUISE CONTROL

❏ Remove the clutch pedal switch ***(2)*** by turning it a quarter of a turn anticlockwise.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




132861

❏ Position the clutch pedal switch (**1**) .

❏ Depress the clutch pedal switch until the end of the piston touches the rubber stop ***(3)*** .

❏ Measure the dimension ***(A)*** between the rubber stop and the end of the piston when the clutch pedal is fully depressed.

❏ If the dimension ***(A)*** is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.



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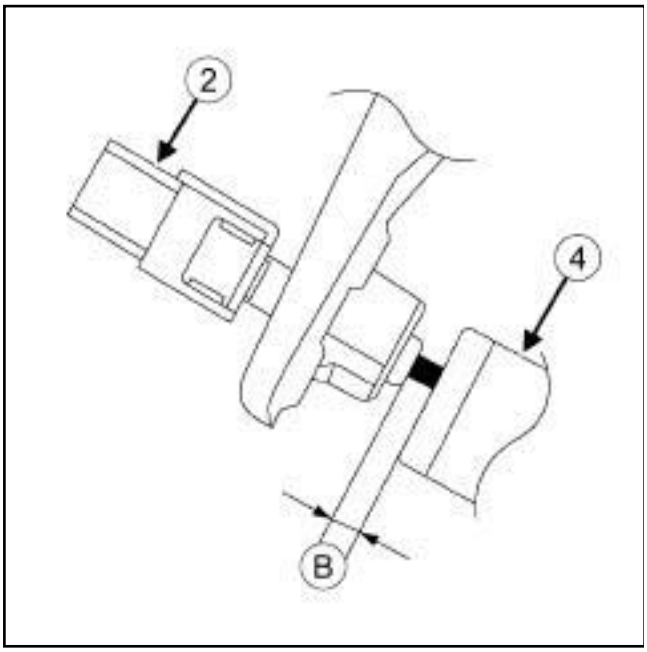
CRUISE CONTROL




132862

❏ Position the clutch pedal switch (**2**) .

❏ Depress the clutch pedal switch until the end of the piston touches the rubber stop ***(4)*** .

❏ Measure the dimension ***(B)*** between the rubber stop and the end of the piston when the clutch pedal is fully depressed.

❏ If the dimension ***(B)*** is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

**II - FINAL OPERATION.**

❏ Refit:

- the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal: Removal - Refitting**, page **37A-42**) ,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the lower cover of the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Unlock the steering column.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

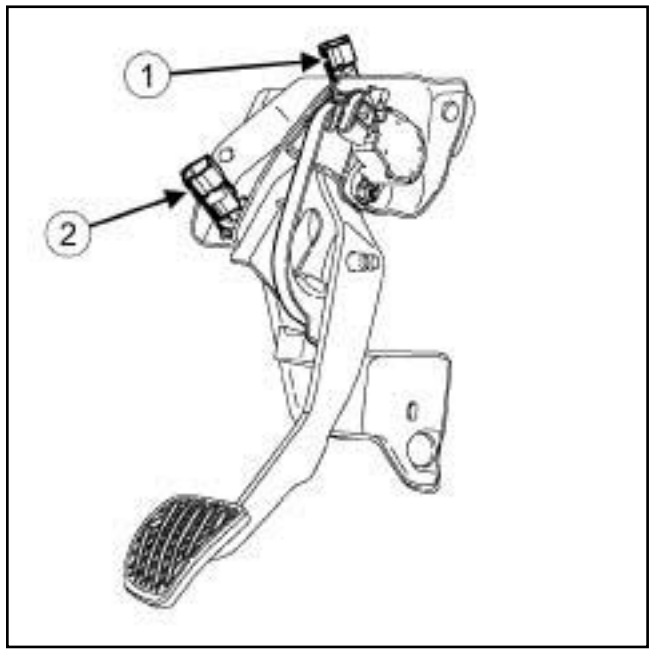
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signals),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signals),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the right-hand trim of the central front panel,
- the steering column of the dashboard cross member (see **36A**, **Steering assembly**, **Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal: Removal - Refitting**, page **37A-42**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132863

❏ Remove the clutch pedal switch (**1**) by turning it a quarter of a turn anticlockwise.

CRUISE CONTROL

❏ Remove the clutch pedal switch ***(2)*** by turning it a quarter of a turn anticlockwise.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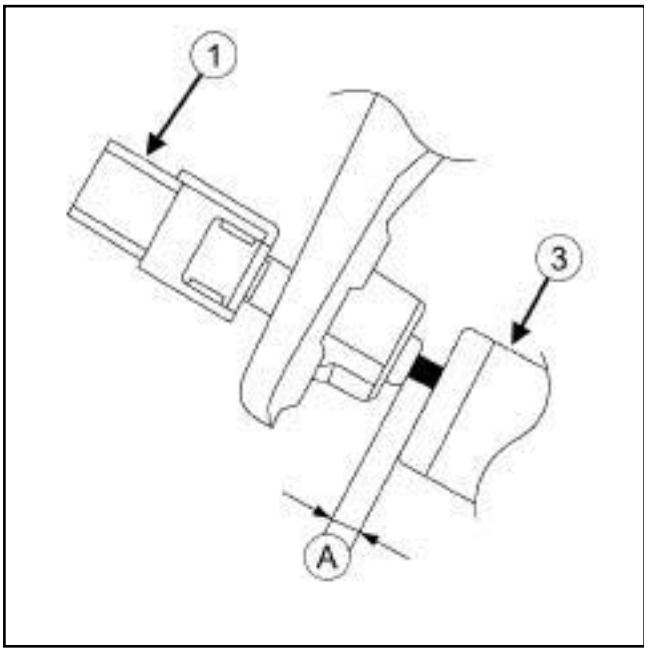
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




132861

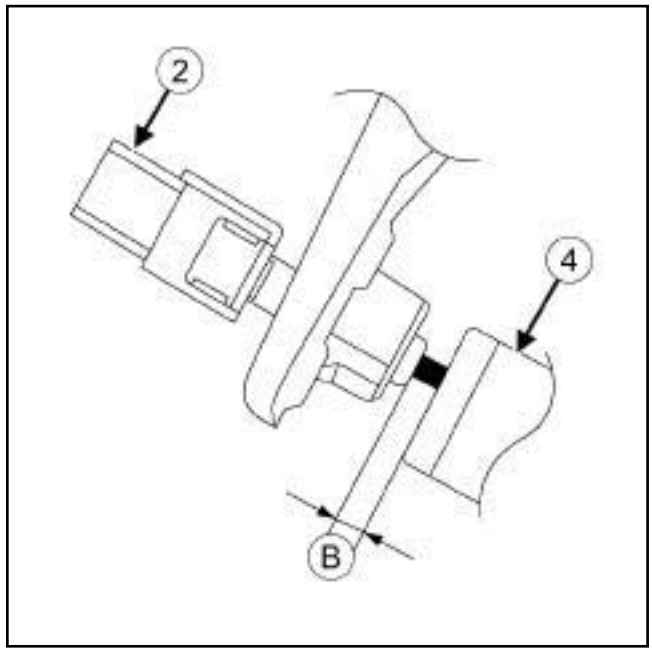
❏ Position the clutch pedal switch (**1**) .

❏ Depress the clutch pedal switch until the end of the piston touches the rubber stop ***(3)*** .

❏ Measure the dimension ***(A)*** between the rubber stop and the end of the piston when the clutch pedal is fully depressed.

❏ If the dimension ***(A)*** is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

CRUISE CONTROL




132862

❏ Position the clutch pedal switch (**2**) .

❏ Depress the clutch pedal switch until the end of the piston touches the rubber stop (**4**) .

❏ Measure the dimension (**B**) between the rubber stop and the end of the piston when the clutch pedal is fully depressed.

❏ If the dimension (**B**) is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

### II - FINAL OPERATION

❏ Refit:

- the clutch pedal (see **37A**, **Mechanical component controls**, **Clutch pedal: Removal - Refitting**, page **37A-42**) ,
- the steering column of the dashboard cross member (see **36A**, **Steering assembly**, **Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the right-hand trim of the central front panel,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),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- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signals),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Adjust the neutral position of the steering wheel angle sensor (**see Fault finding - Configurations and programming**) (80C, Xenon bulbs).



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RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

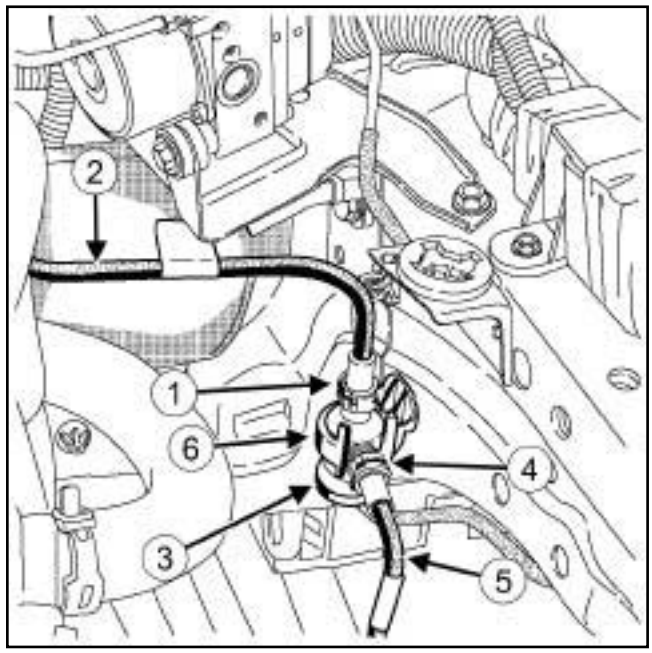
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❏ Drain the brake fluid reservoir with a syringe.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132866

❏

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❏ Remove the clip (**1**) from the connecting pipe (**2**) between the clutch master cylinder and the hydraulic damper (**3**) .

❏ Disconnect the connecting pipe from the hydraulic damper.

❏ Remove the clip (**4**) from the clutch control pipe (**5**) on the hydraulic damper.

❏ Disconnect the clutch control pipe from the hydraulic damper.

❏ Unclip the clutch hydraulic damper from its support (**6**) .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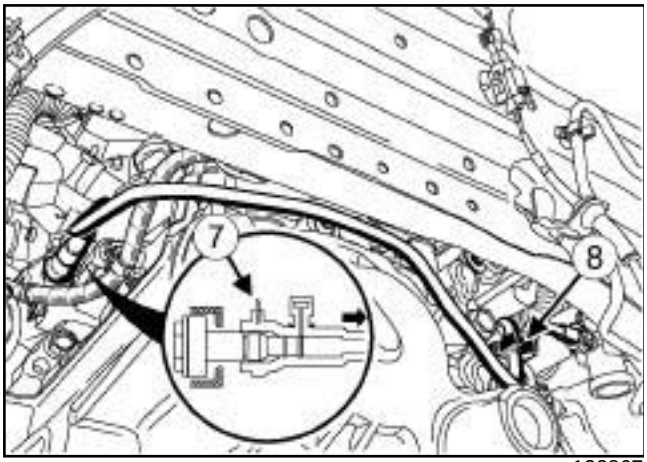
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX



132867

❏ Remove the clip (**7**) from the clutch control pipe on the clutch slave cylinder on the gearbox.

❏ Disconnect the clutch control pipe from the clutch slave cylinder.

❏ Unclip the clutch control pipe from its clip (**8**) .

❏ Remove the clutch control pipe.

❏ Fit plugs into the openings.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clutch control pipe, taking care not to damage anything,
- the clutch hydraulic damper on its support.

❏ Connect:

- the clutch control pipe on the slave cylinder side,
- the clutch control pipe on the hydraulic damper side.

❏ Refit:

- the clutch control pipe onto its clip,
- the clutch control pipe clip onto the clutch slave cylinder,
- the clutch control pipe clip onto the hydraulic damper.

❏ Connect the connecting pipe onto the hydraulic damper.

❏ Refit the connecting pipe clip between the clutch master cylinder and the hydraulic damper.

### II - FINAL OPERATION

❏ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .

❏ Check that the clutch system is operating correctly.

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).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**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

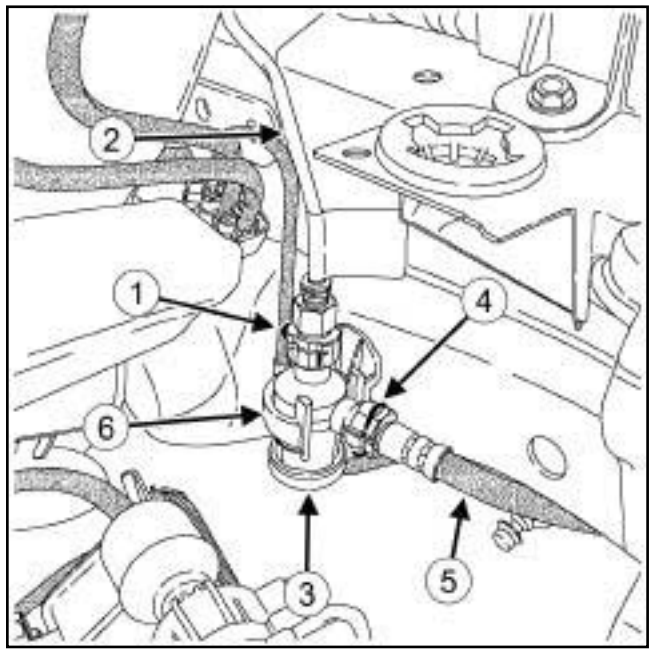
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

❏ Drain the brake fluid reservoir with a syringe.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132864

❏

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❏ Remove the clip (**1**) from the connecting pipe (**2**) between the clutch master cylinder and the hydraulic damper (**3**) .

❏ Disconnect the connecting pipe from the hydraulic damper.

❏ Remove the clip (**4**) from the connecting hose (**5**) on the hydraulic damper.

❏ Disconnect the connecting hose from the hydraulic damper.

❏ Unclip the clutch shock damper from its support (**6**) .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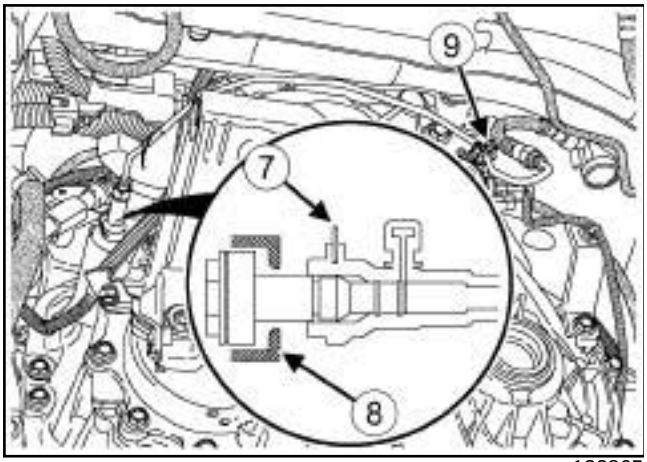

132865

❏ Remove the clip (**7**) from the clutch control pipe on the clutch slave cylinder on the gearbox (**8**) .

❏ Disconnect the clutch control pipe from the clutch slave cylinder.

❏ Unclip the clutch control pipe from its clip (**9**) .

❏ Remove the clutch control pipe.

❏ Fit plugs into the openings.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clutch control pipe, taking care not to damage anything,
- the clutch hydraulic damper on its support.

❏ Connect:

- the clutch control pipe on the slave cylinder side,
- the connecting hose on the hydraulic damper side.

❏ Refit:

- the clutch control pipe on its clip,
- the clutch control pipe clip on the clutch slave cylinder,
- the connecting hose clip on the hydraulic damper.

❏ Connect the connecting pipe on the hydraulic damper.

❏ Refit the connecting pipe clip between the clutch master cylinder and the hydraulic damper.

### II - FINAL OPERATION.

❏ Bleed the clutch circuit (see **37A**, **Mechanical component controls**, **Clutch circuit: Bleeding**, page **37A-48**) .

❏ Refit:

- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery),
- the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front left-hand wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).


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| Tightening torques ▽ | |
|---|---|
| heater matrix water outlet pipe bolt | **25 N.m** |
| wiring channel bolts | **10 N.m** |

## REMOVAL

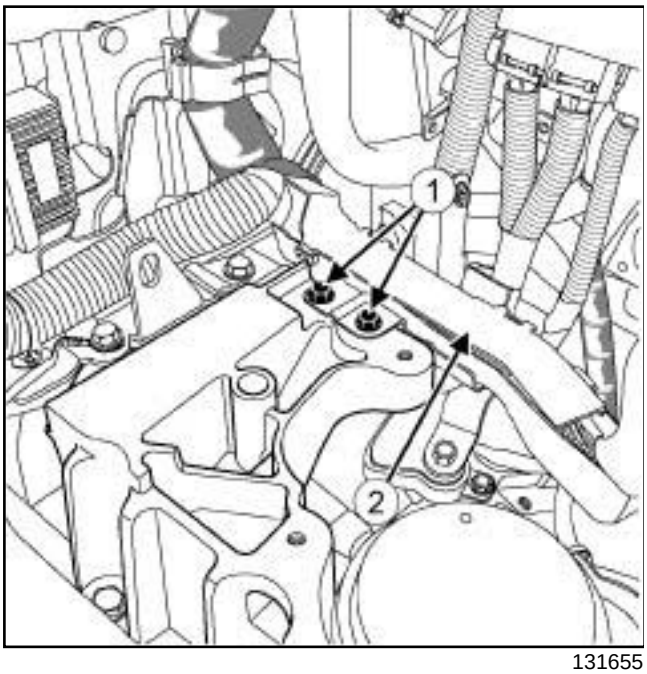
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

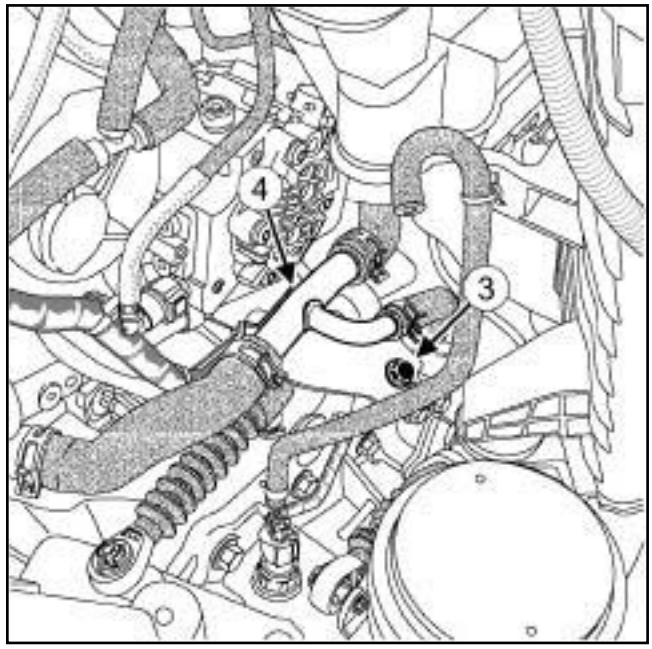


131655

❏ Remove:

- the bolts (**1**) from the wiring channel,
- the wiring channel (**2**) .

❏ Disconnect the manual gearbox control cable from the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .



131656

❏ Remove:

- the bolt (**3**) from the heater matrix water outlet hose.
- the heater matrix water outlet pipe (**4**) .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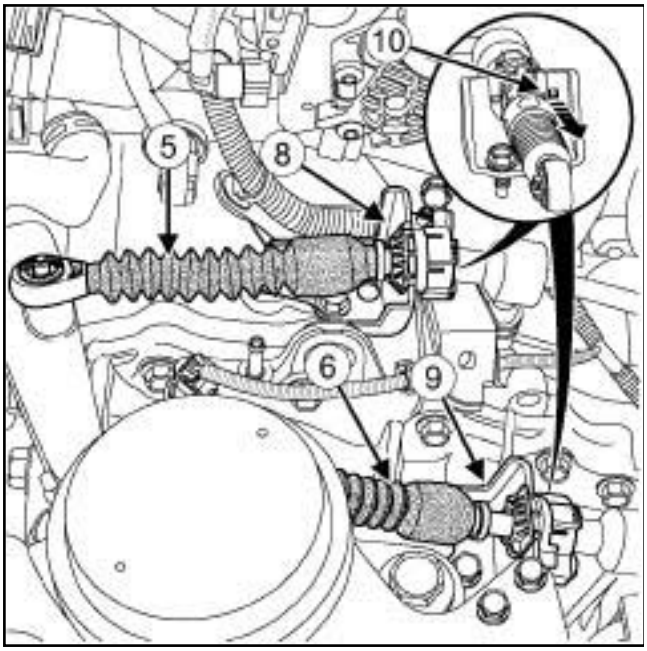
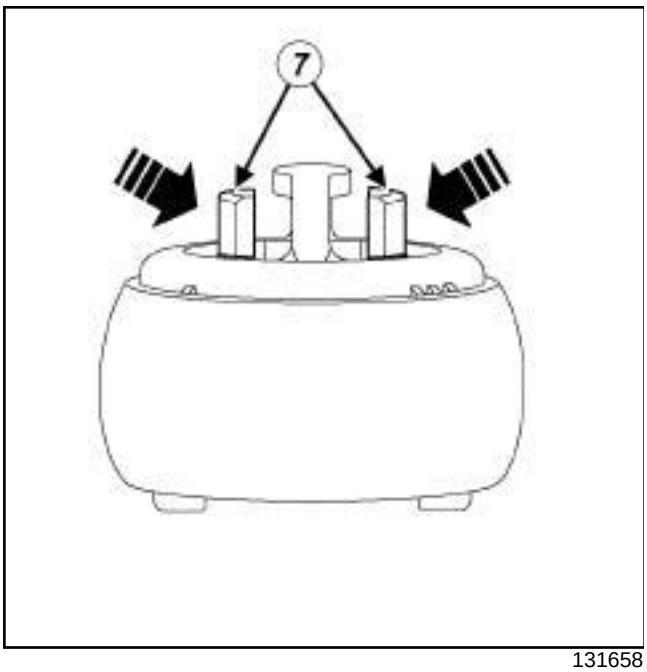
M9R, and 6 SPEED MANUAL GBOX

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131657

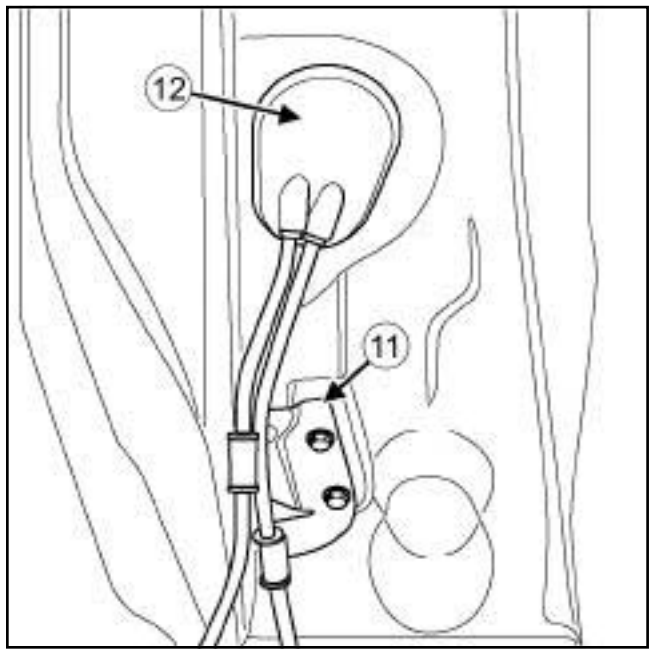



131658

❏ Unclip:

- the cable (**5**)
- gear lever A while by pressing the brackets (**7**) ,
- the cable (**6**) from the selector lever by pressing the brackets (**7**) ,
- the gear lever cable (**5**) from the upper bracket of control cable A (**8**) by pulling on the locking brackets (**10**) ,
- the gear lever cable (**6**) from the upper bracket of control cable B (**9**) by pulling on the locking brackets (**10**) .

4X2 TRANSMISSION




131659

❏ Unclip:

- the manual gearbox control cable from the lower bracket (**11**) of the control cable,
- the control cable stop (**12**) from the manual gearbox.



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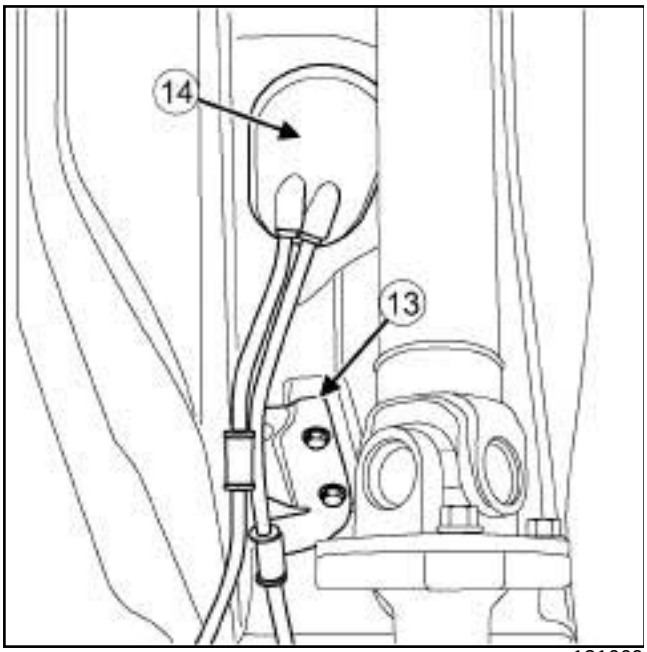
4X4 TRANSMISSION



131660

❑ Unclip:

- the manual gearbox control cable from the lower bracket (**13**) of the control cable,
- the control cable stop (**14**) from the manual gearbox.

❑ Remove the manual gearbox control cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the manual gearbox control cable.

❑ Clip:

- the manual gearbox control cable on the lower bracket of the control cable,
- the control cable stop of the manual gearbox,
- the gear lever cable on the upper bracket of control cable A,
- the gear lever cable on the upper bracket of control cable B,
- the gear lever cable on gear lever A,
- the selector lever cable on the selector lever.

### II - FINAL OPERATION.

❑ Connect the manual gearbox control cable to the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) (Mechanical component controls).

❑ Adjust the selector lever cable (see **Gear control unit: Adjusting**) (Mechanical component controls).

❑ Refit:

- the heater matrix water outlet pipe,
- the heater matrix water outlet pipe bolt.

❑ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.

❑ Refit:

- the wiring channel,
- the wiring channel bolts.

❑ Torque tighten the **wiring channel bolts (10 N.m)**.

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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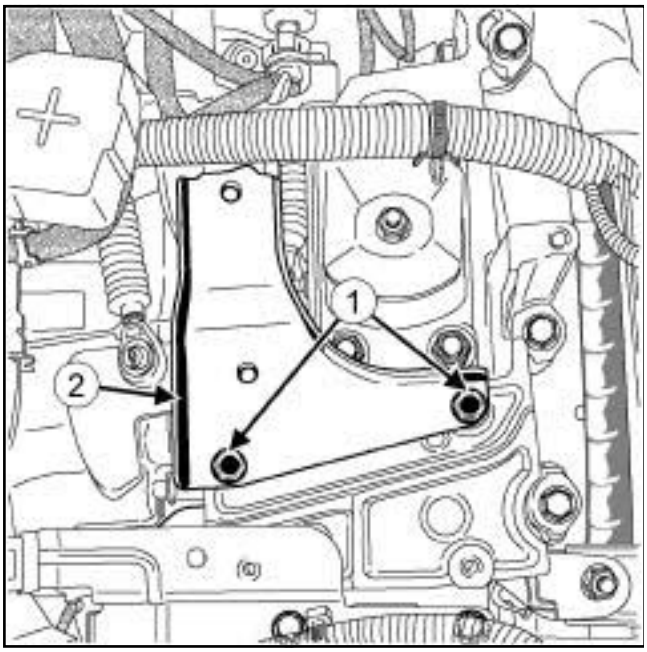
| Tightening torques ▽ | |
|---|---|
| battery tray bracket mounting bolts | **28 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



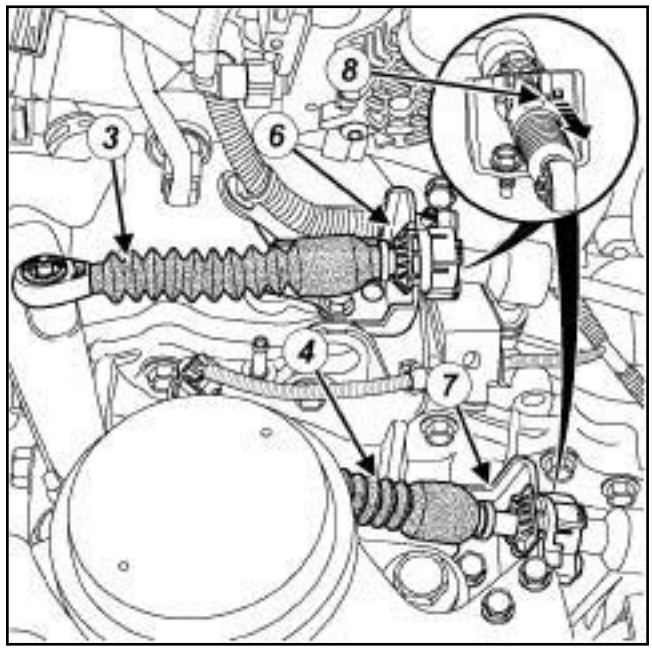

132484

❑ Remove:

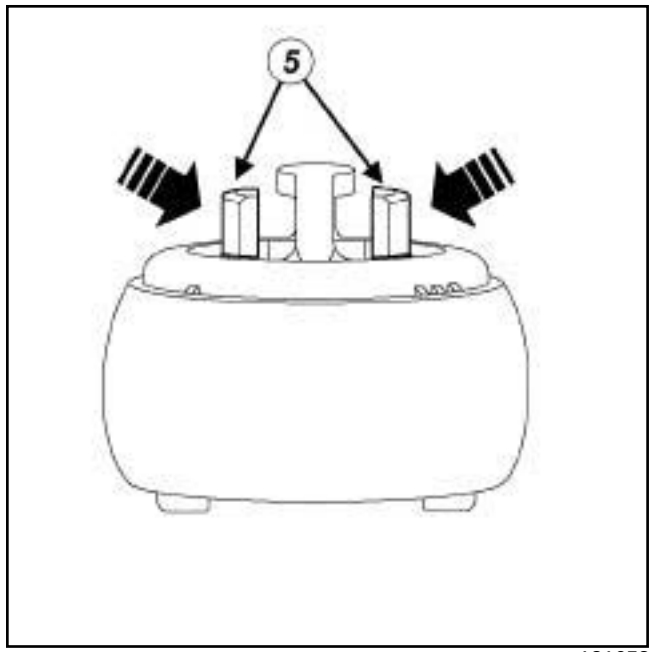
- the bolts (**1**) from the battery tray bracket,
- the battery tray bracket (**2**) .

❑ Disconnect the manual gearbox control cable from the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131657




131658

❑ Unclip:

- the cable (**3**) from the gear lever A by pressing on the brackets (**5**) ,
- the cable (**4**) from the gear lever by pressing on the brackets (**5**) ,
- the gear lever cable (**3**) from the upper bracket of control cable A (**6**) by pulling on the locking brackets (**8**) ,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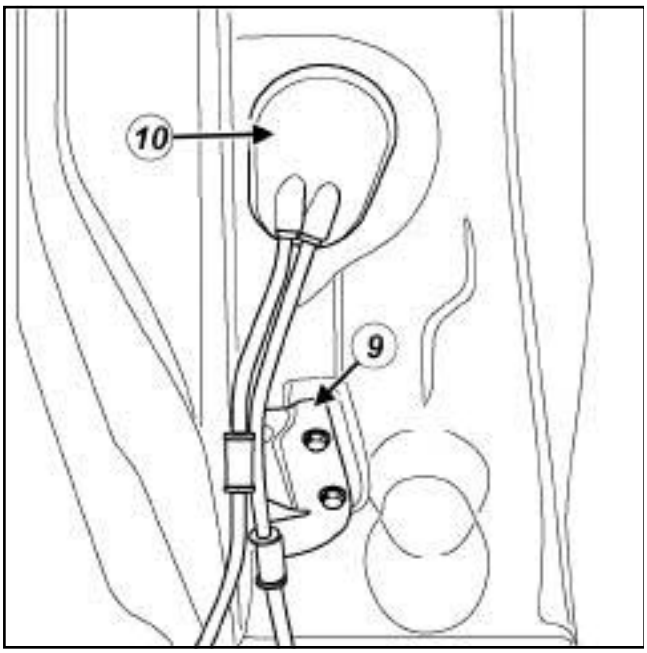
- the selector lever cable (**4**) from the upper bracket of control cable B (**7**) by pulling on the locking brackets (**8**) .

4X2 TRANSMISSION

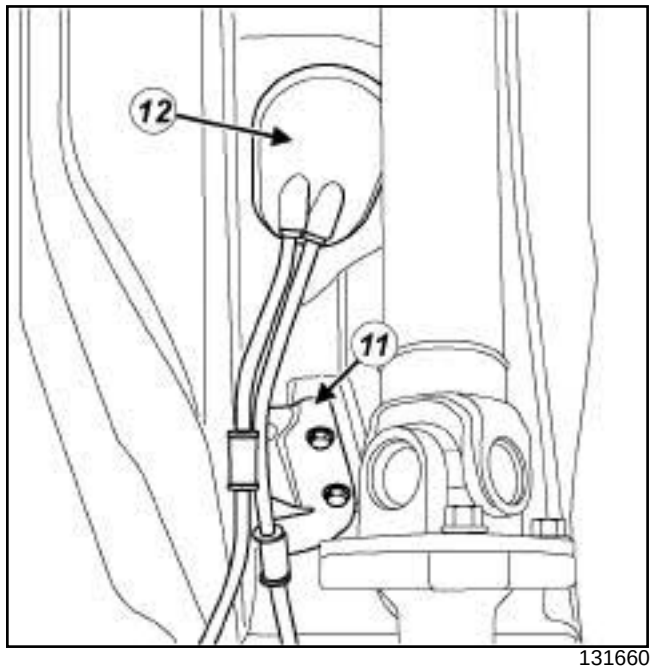



131659

❏ Unclip:

- the manual gearbox control cable from the lower bracket (**9**) of the control cable,
- the stop (**10**) from the manual gearbox control cable.

4X4 TRANSMISSION




131660

❏ Unclip:

- the manual gearbox control cable from the lower bracket (**11**) of the control cable,
- the stop (**12**) from the manual gearbox control cable.

❏ Remove the manual gearbox control cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the manual gearbox control cable.

❏ Clip:

- the manual gearbox control cable on the lower bracket of the control cable,
- the control cable stop on the manual gearbox,
- the selector lever cable on the upper bracket of control cable A,
- the selector lever cable on the upper bracket of control cable B,
- the gear lever cable on gear lever A,
- the selector lever cable on the selector lever.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2TR, and 6 SPEED MANUAL GBOX

**II - FINAL OPERATION**

❏ Connect the manual gearbox control cable to the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .

❏ Adjust the selector lever cable (see **37A**, **Mechanical component controls**, **Mechanical gear control cable: Adjustment**, page **37A-84**) .

❏ Refit:

- the battery tray bracket,
- the battery tray bracket bolts.

❏ Tighten to torque the **battery tray bracket mounting bolts (28 N.m)**.

❏ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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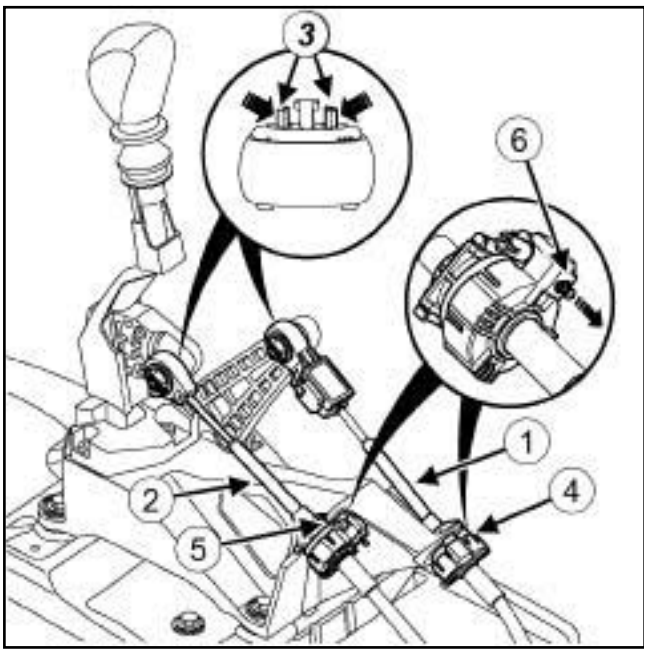
| Tightening torques ▽ | |
|---|---|
| gear control unit bolts | **7 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

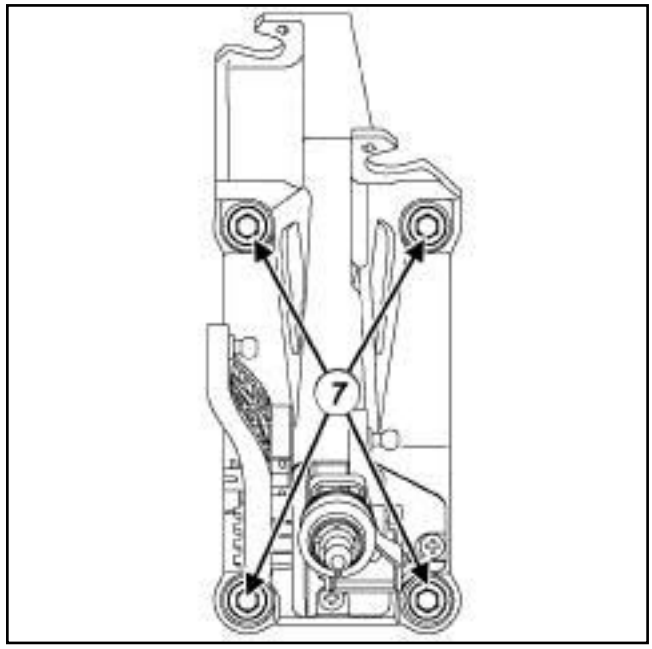
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131661

❏ Unclip:

- the selector lever cable (**1**) from the gear control unit by pressing on the brackets (**3**) ,
- the selector cable stop (**4**) from the gear control unit by pulling on the locking bracket (**6**) ,
- the cable (**2**) from the gear control unit gear lever by pressing on the brackets (**3**) ,
- the gear lever cable stop (**5**) from the gear control unit by pulling on the locking bracket (**6**) .




131662

❏ Remove:

- the bolts (**7**) from the gear control unit,
- the gear control unit.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gear control unit,
- the bolts on the gear control unit.

❏ Torque tighten the **gear control unit bolts (7 N.m)**.

❏ Clip:

- the gear lever cable stop on the gear control unit by pulling on the locking bracket,
- the gear lever cable on the gear control unit,
- the selector lever cable stop on the gear control unit by pulling on the locking bracket,
- the selector lever cable on the gear control unit.

### II - FINAL OPERATION.

❏ Adjust the selector lever cable (see **37A**, **Mechanical component controls**, **Mechanical gear control cable: Adjustment**, page **37A-84**) .

❏ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).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| Tightening torques ▽ | |
|---|---|
| gear control unit bolts | **6 N.m** |

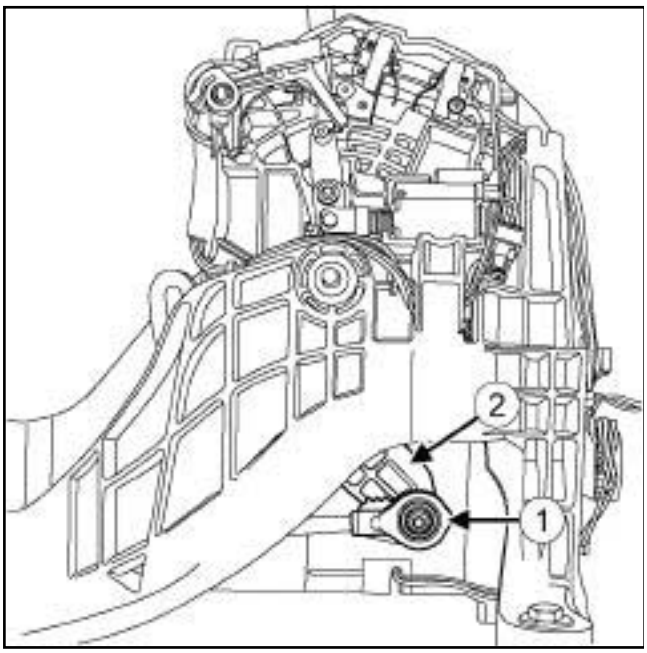
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

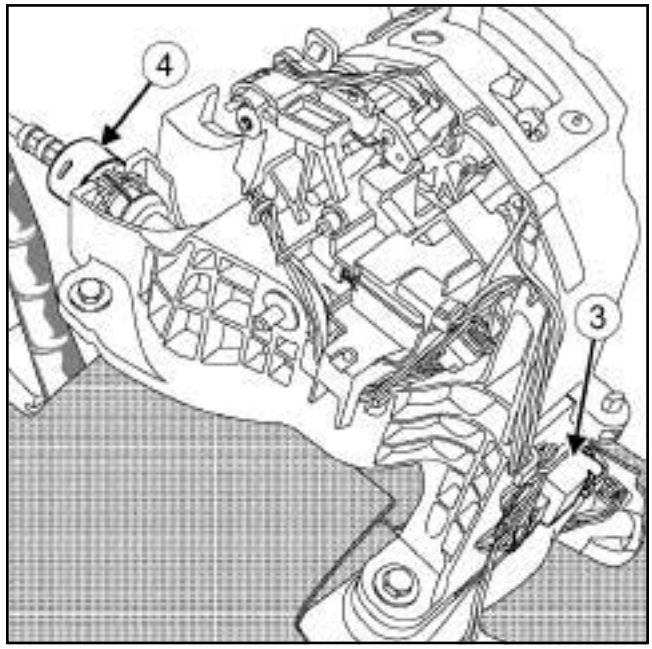
❏ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131663

❏ Unclip the automatic gearbox control cable (**1**) from the lever of the gear control unit (**2**) .

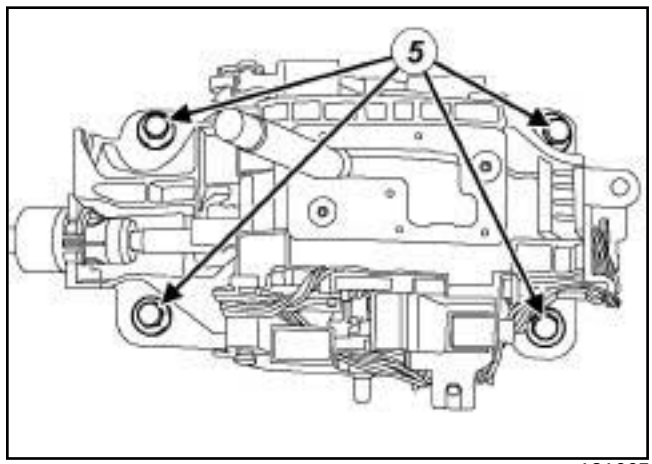



131664

❏ Unclip:

- the connector (**3**) from the gear control unit,
- the automatic gearbox control cable stop (**4**) from the gear control unit.

❏ Move aside the automatic gearbox control cable.




131665

❏ Remove:

- the gear control unit bolts (**5**) ,
- the gear control unit.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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

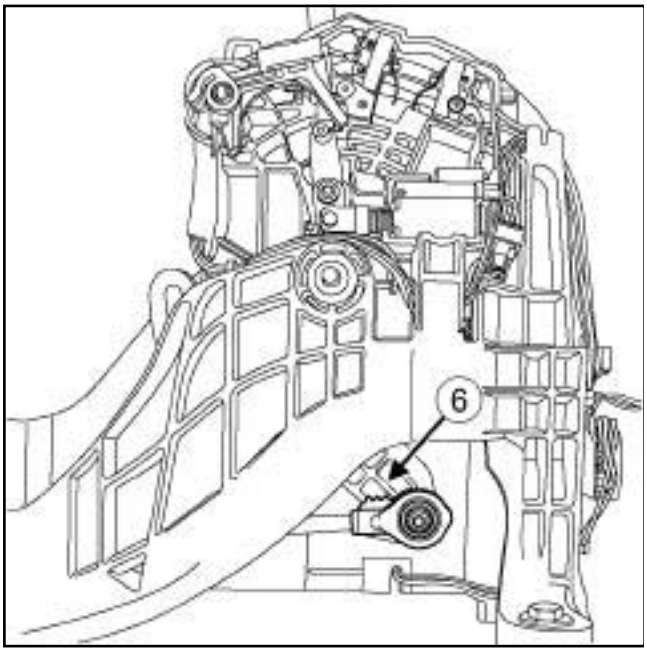
❏ Refit:

- the gear control unit.
- the gear control unit bolts,

❏ Torque tighten the **gear control unit bolts (6 N.m)**.

❏ Clip:

- the automatic gearbox control cable stop onto the gear control unit,
- the connector onto the gear control unit.




131666

❏ Clip:

- the automatic gearbox control cable onto the gear control unit lever by positioning the ribbed side (**6**) upwards,
- the automatic gearbox control cable stop onto the gear control unit.

### II - FINAL OPERATION

❏ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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VARIABLE GEARBOX

| Tightening torques ▽ | |
|---|---|
| automatic gearbox control cable nut | **14 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

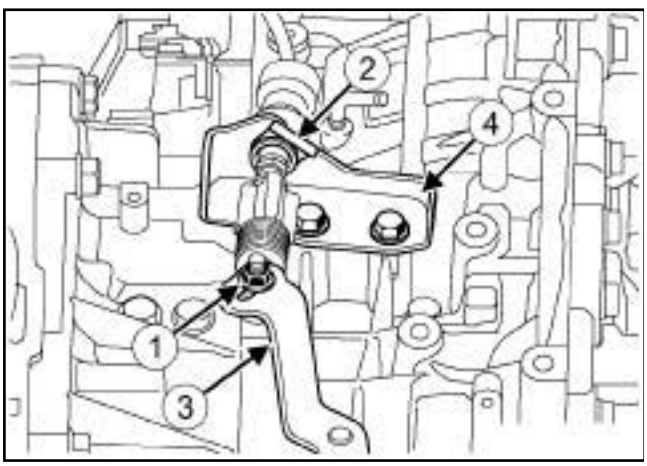
**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the air inlet pipe (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Disconnect the automatic gearbox control cable from the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



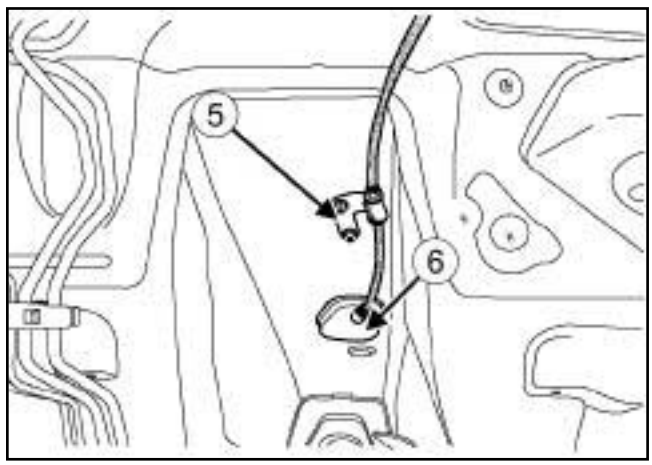

131673

❏ Remove:

- the nut (**1**) of the automatic gearbox control cable,
- the sheath stop (**2**) from the automatic gearbox control cable.

❏ Unclip:

- the automatic gearbox control cable from the multi-function switch lever ***(3)*** .
- the automatic gearbox control cable from the upper bracket ***(4)*** of the control cable.




131674

❏ Unclip:

- the automatic gearbox control cable from the lower bracket (**5**) of the control cable,
- the cover (**6**) of the automatic gearbox control cable.

❏ Remove the automatic gearbox control cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the automatic gearbox control cable.

❏ Clip:

- the automatic gearbox control cable cover,
- the automatic gearbox control cable on the lower bracket of the control cable,
- the automatic gearbox control cable on the upper bracket of the control cable,
- the automatic gearbox control cable on the multi-function switch lever.

❏ Refit:

- the sheath stop on the automatic gearbox control cable,
- the nut on the automatic gearbox control cable.

❏ Torque tighten the **automatic gearbox control cable nut (14 N.m)**.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VARIABLE GEARBOX

**II - FINAL STEP**

❑ Connect the automatic gearbox control cable on the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .

❑ Adjust the multifunction switch (see **Multifunction switch: Adjusting**) (23A, Automatic gearbox).

❑ Remove:

- the battery tray (see **Battery : Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the air inlet pipe (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).


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| Tightening torques ▽ | |
|---|---|
| automatic gearbox control cable nut | **14 N.m** |
| heater matrix water inlet pipe bolt | **25 N.m** |
| heater matrix water outlet pipe bolt | **25 N.m** |
| wiring channel bolts | **10 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

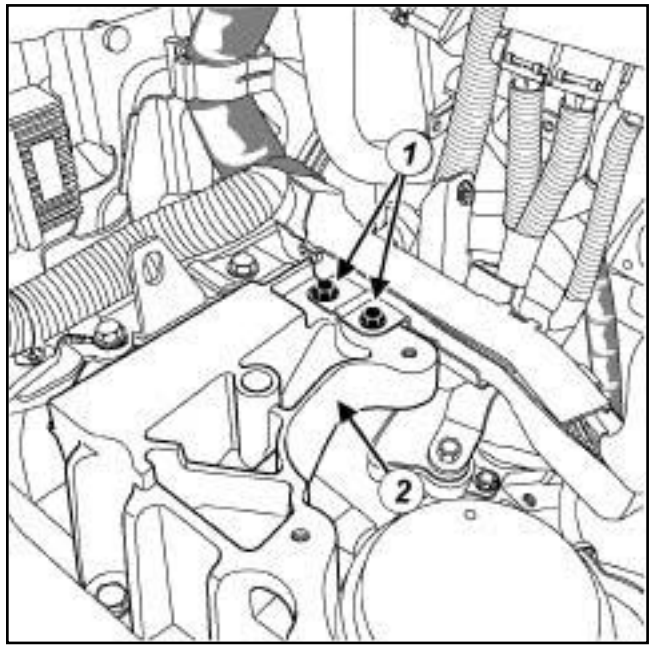
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**IMPORTANT**
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

❏ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

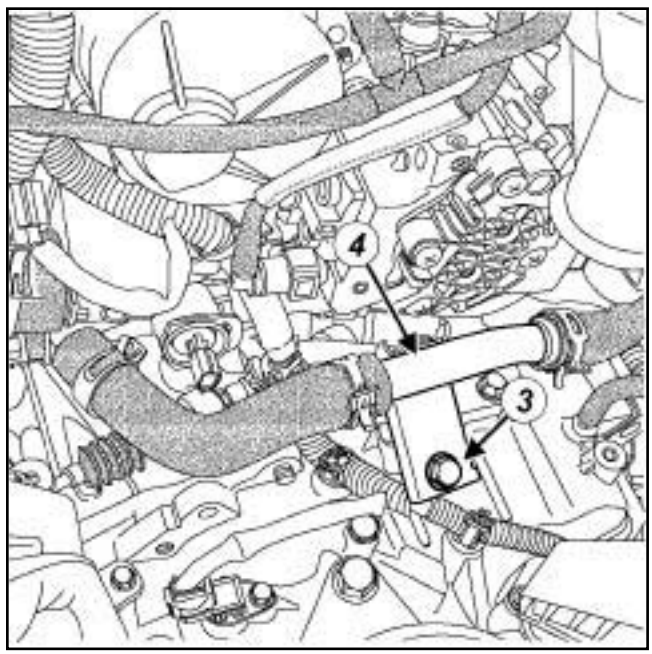
❏ Disconnect the manual gearbox control cable from the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .



131667

❏ Remove:

- the bolts (**1**) from the wiring channel,
- the wiring channel (**2**) .



131668

❏ Remove:

- the bolt (**3**) from the heater matrix water outlet pipe,
- the heater matrix water outlet pipe (**4**) .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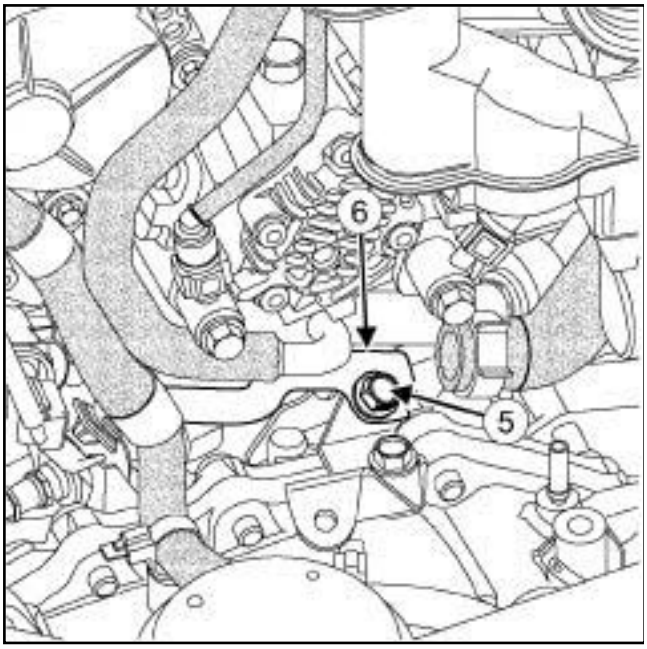
6 SPEED AUTO GBOX

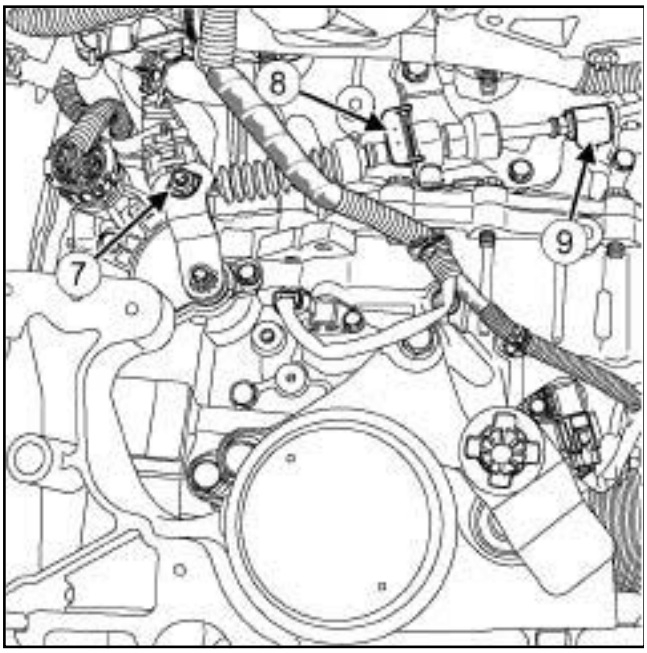



131669

❏ Remove:

- the bolt (**5**) from the heater matrix inlet pipe,
- the heater matrix inlet pipe (**6**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131670

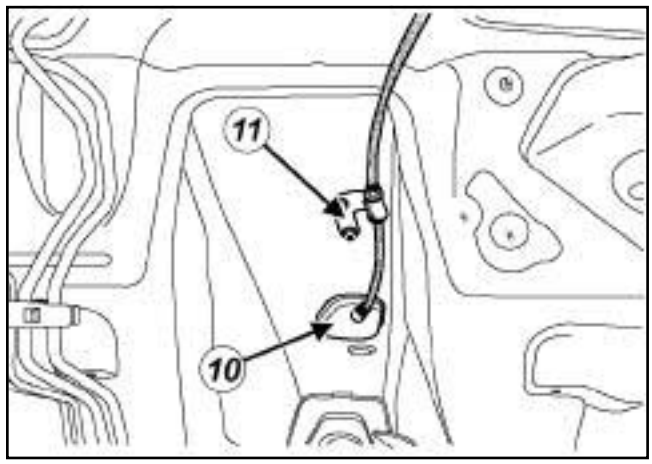
❏ Remove:

- the nut (**7**) from the automatic gearbox control cable,
- the sheath stop (**8**) from the automatic gearbox control cable.

❏ Unclip:

- the automatic gearbox control cable from the multi-function switch lever,
- the automatic gearbox control cable from the upper bracket ***(9)*** of the control cable.

4X2 TRANSMISSION




131671

❏ Unclip:

- the automatic gearbox control cable from the lower bracket (**11**) of the control cable,
- the stop (**10**) from the control cable of the automatic gearbox.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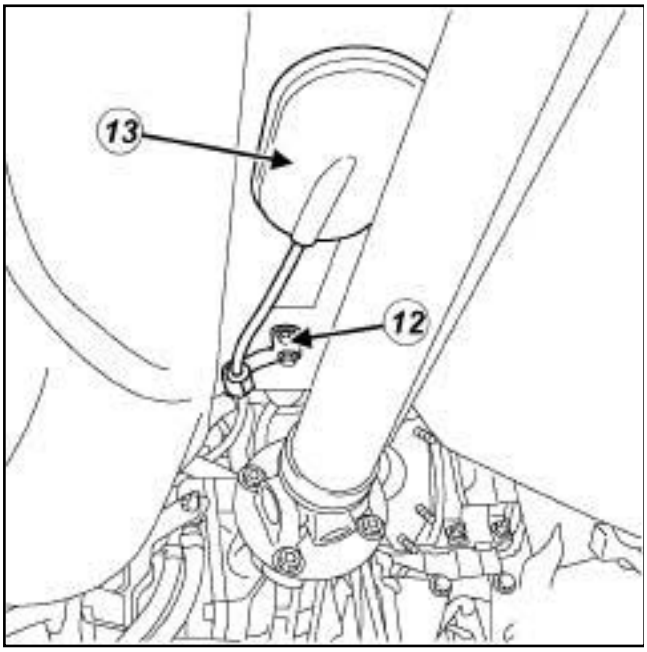
4X4 TRANSMISSION



131672

❑ Unclip:

- the automatic gearbox control cable from the lower bracket (**12**) of the control cable,
- the stop (**13**) from the control cable of the automatic gearbox.

❑ Remove the automatic gearbox control cable.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED:**

❑ Refit the automatic gearbox control cable.

❑ Clip:

- the automatic gearbox control cable on the lower bracket of the control cable,
- the stop of the automatic gearbox control cable,
- the automatic gearbox control cable on the upper bracket of the control cable,
- the automatic gearbox control cable onto the multifunction switch lever.

❑ Refit:

- the control cable sheath stop on the automatic gearbox,
- the automatic gearbox control cable nut.

❑ Torque tighten the **automatic gearbox control cable nut (14 N.m)**.

**II - FINAL OPERATION.**

❑ Refit:

- the heater matrix water inlet pipe,
- the bolt of the heater matrix water inlet pipe.

❑ Torque tighten the **heater matrix water inlet pipe bolt (25 N.m)**.

❑ Refit:

- the heater matrix water outlet pipe,
- the bolt of the heater matrix water outlet pipe.

❑ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.

❑ Refit:

- the wiring channel,
- the wiring channel bolts.

❑ Torque tighten the **wiring channel bolts (10 N.m)**.

❑ Connect the manual gearbox control cable to the gear control unit (see **37A**, **Mechanical component controls**, **Gear control unit: Removal - Refitting**, page **37A-76**) .

❑ Adjust the multifunction switch (see **Multifunction switch: Adjusting**) (23A, Automatic gearbox).

❑ Refit:

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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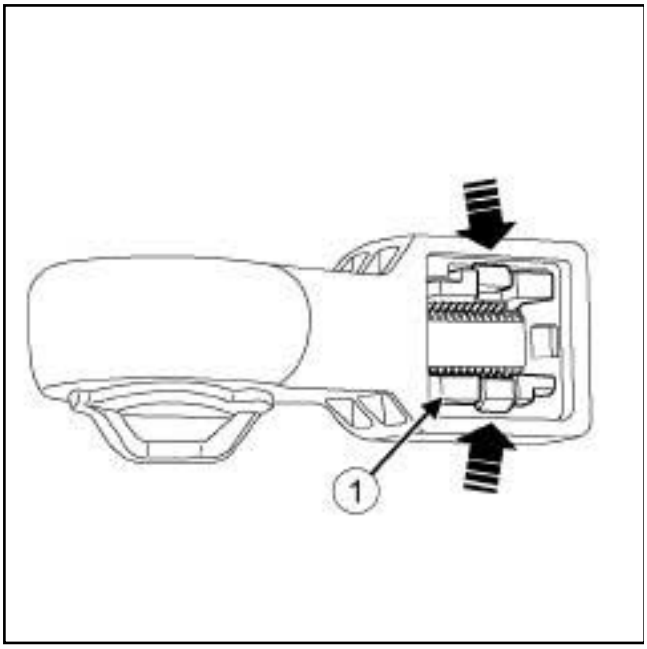
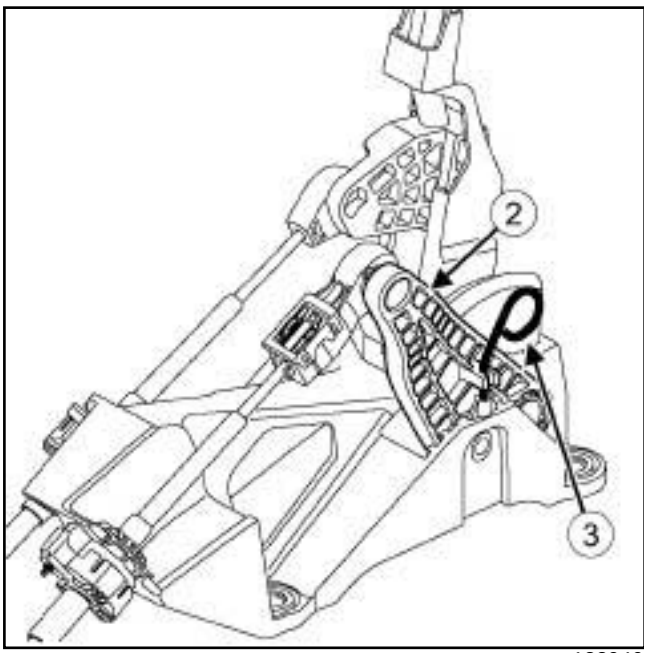



132945

❏ Unlock the selector lever cable by pressing on the adjustment clip (**1**) and pushing it downwards.




132946

❏ Clip the selector lever cable onto the gear lever (**2**) of the gear control unit.

❏ Push the pin (**3**) (**3 mm**) on the gear control unit and the selector lever of the gear control unit.

❏ Put the gear control unit in 4th gear.

❏ Lock the selector lever cable by compressing the adjustment clip ***(1)*** .

❏ Remove the pin (**3**) .

❏ Check that this gear selection is correct.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FOOT BRAKE AUTO CONTROL

| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| parking brake cable on the underbody | **6 N.m** |
| parking brake cable bolt near the rear stub axle carrier bracket | **8 N.m** |
| bolt of the parking brake cable on the rear stub axle carrier | **6 N.m** |
| parking brake cable on the rear brake disc shield | **13 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

❏ Remove:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❏ Suspend the rear brake calliper.

❏ Remove:

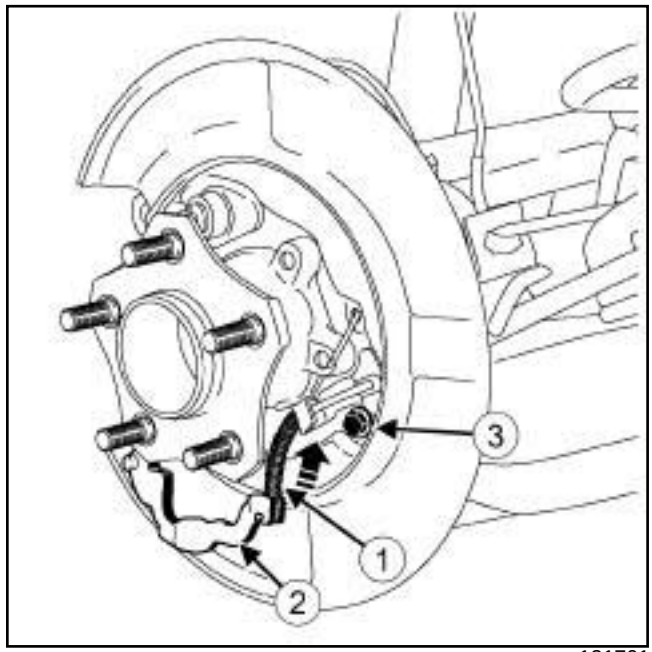
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❏

**WARNING**
To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

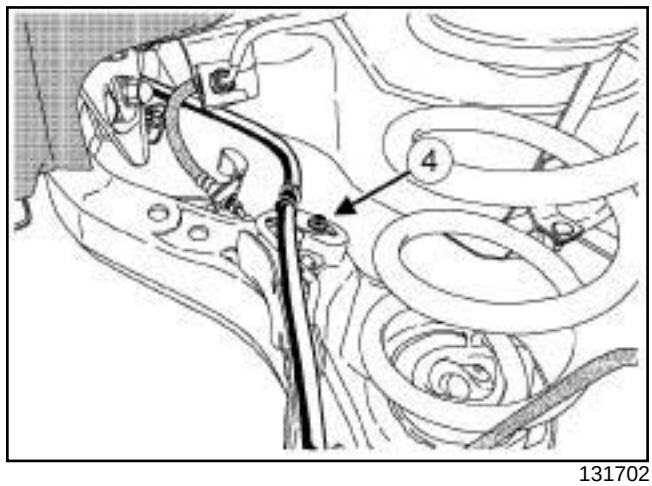
❏ Note the parking brake cable routing for refitting.



131701

❏ Separate the parking brake cable (**1**) from the parking brake lever (**2**) .

❏ Remove the bolt (**3**) from the parking brake cable.



131702

❏ Remove the parking brake cable bolt (**4**) from the rear stub axle carrier.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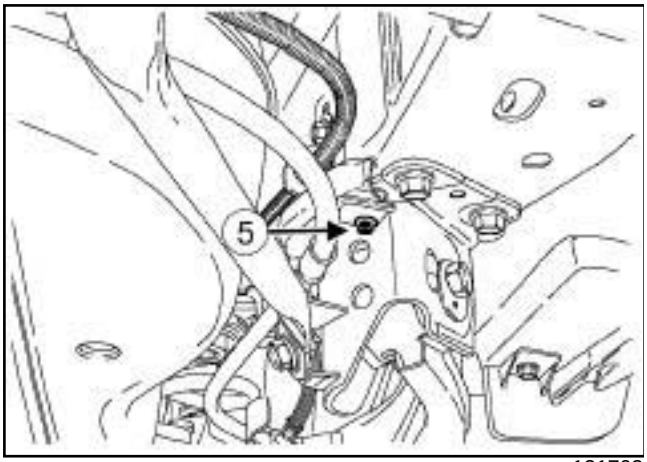
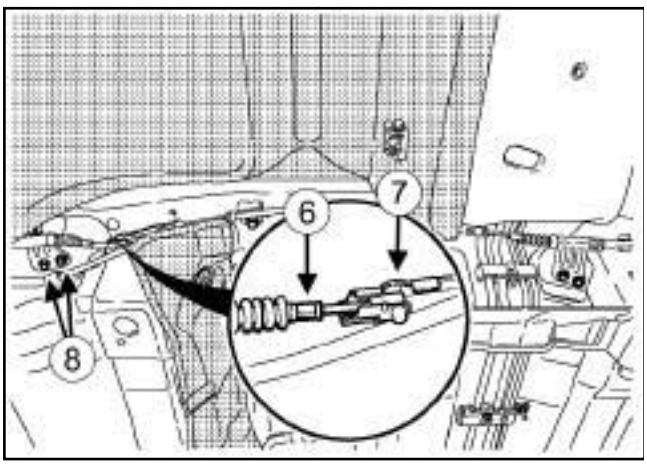



131703

❏ Remove the parking brake cable bolt (**5**) near the rear stub axle carrier support.

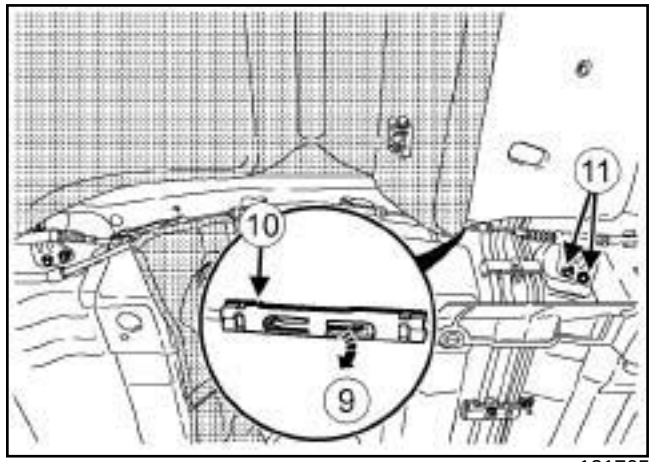



131704

❏ Disconnect the left-hand section (**6**) of the parking brake cable from its clip (**7**) .

❏ Remove:

- the bolts ***(8)*** from the left-hand section of the parking brake cable,
- the right-hand section of the parking brake cable.




131705

❏ Lift up the stopper (**9**) .

❏ Disconnect the right-side of the parking brake cable from its clip (**10**) .

❏ Remove:

- the bolts (**11**) from the right-hand section of the parking brake cable,
- the right-hand section of the parking brake cable.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the clip ***(10)*** on the right-side of parking brake cable.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the parking brake cables.

❏ Refit:

- the right-hand section of the parking brake cable,
- the bolts from the right-hand section of the parking brake cable,
- the right-hand section of the parking brake cable,
- the bolts from the left-hand section of the parking brake cable.

❏ Torque tighten the **parking brake cable on the underbody (6 N.m)**.

❏ Connect the right-side of the parking brake cable onto its new clip.

❏ Press the stopper.

❏ Connect the left-side of the parking brake cable onto its new clip.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FOOT BRAKE AUTO CONTROL

❑ Refit:

- the parking brake cable bolt near the rear stub axle carrier bracket,
- the bolt of the parking brake cable on the rear stub axle carrier.

❑ Torque tighten:

- the **parking brake cable bolt near the rear stub axle carrier bracket (8 N.m)**,
- the **bolt of the parking brake cable on the rear stub axle carrier (6 N.m)**.

❑ Refit:

- the parking brake cable to the parking brake lever,
- the bolt of the parking brake cable on to the rear brake disc shield.

❑ Torque tighten the **parking brake cable on the rear brake disc shield (13 N.m)**.

❑ Follow the brake cable routing noted during removal.

**III - FINAL OPERATION.**

❑ Refit:

- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❑ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

❑ Carry out a complete check and clear any faults generated using the **diagnostic tool**. Configure the new brake control unit (see **Fault Finding - Replacement of components**) (37B, Automatic parking brake).


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FOOT BRAKE MANUAL CONTROL

| Tightening torques ▽ | |
|---|---|
| parking brake cable bolts on the underbody | **6 N.m** |
| parking brake cable bolt near the rear stub axle carrier support | **8 N.m** |
| bolt of the parking brake cable on the rear stub axle carrier | **6 N.m** |
| parking brake cable bolt on the rear brake disc protector | **13 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Release the parking brake.

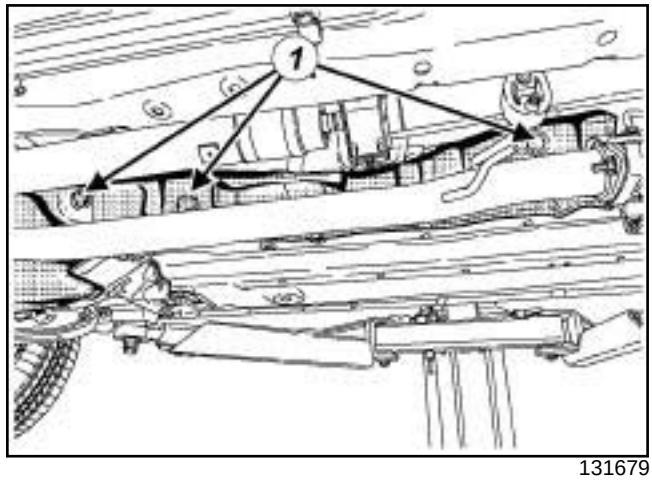
❏ Remove:

- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the rear brake calliper without disconnecting it from the brake hose (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .

❏ Suspend the rear brake calliper.

❏ Remove:

- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) .




131679

❏ Remove:

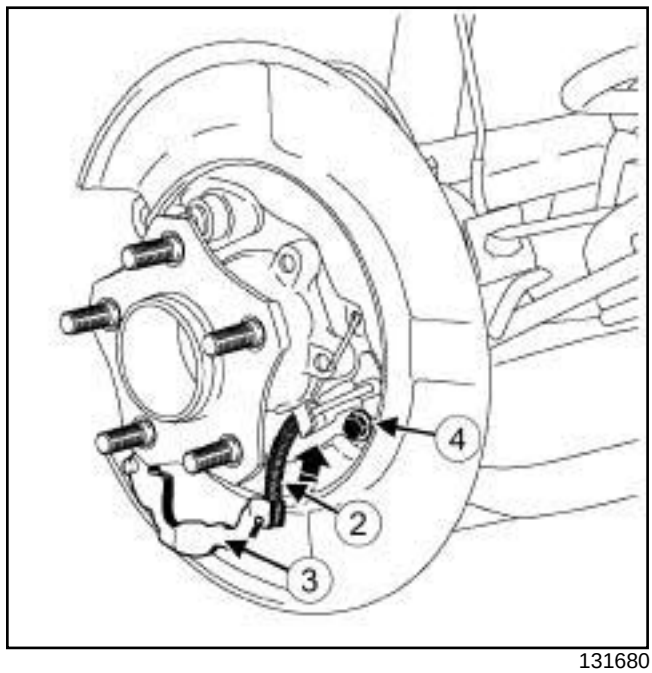
- the clips (**1**) of the silencer front heat shield,
- the silencer heat shield.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❏

**WARNING**
To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

❏ Note the parking brake cable routing for refitting.




131680

❏ Separate the parking brake cable (**2**) from the parking brake lever (**3**) .

❏ Remove the bolt (**4**) from the parking brake cable.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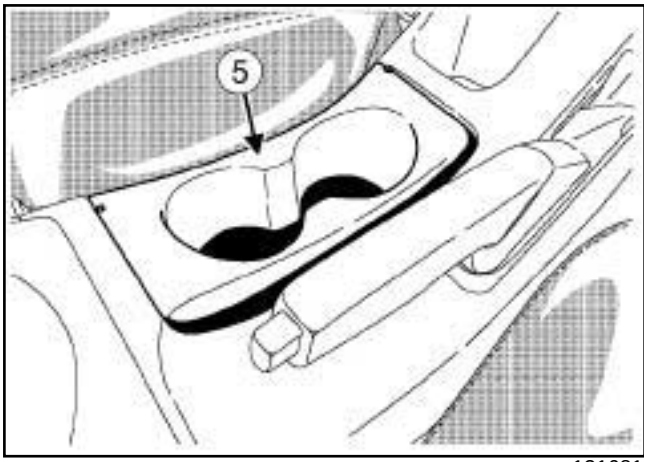
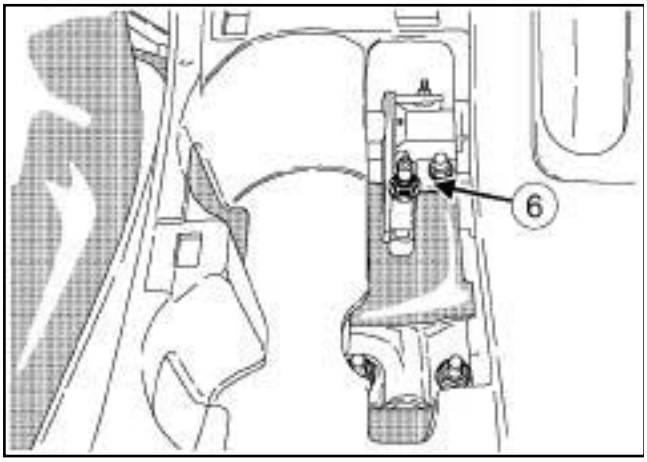
FOOT BRAKE MANUAL CONTROL



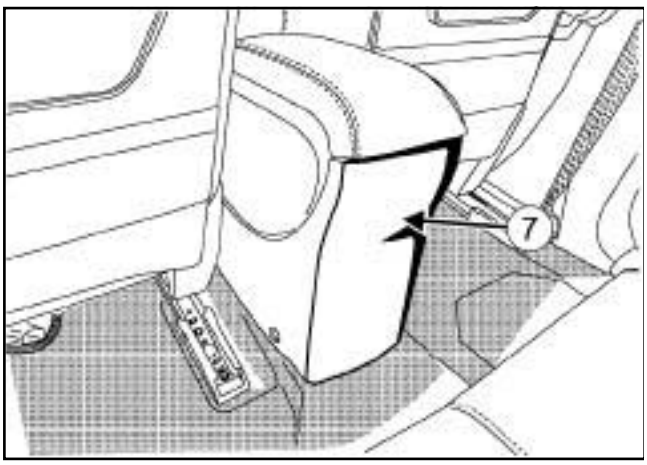

131681

❏ Remove the cup holder (**5**) .



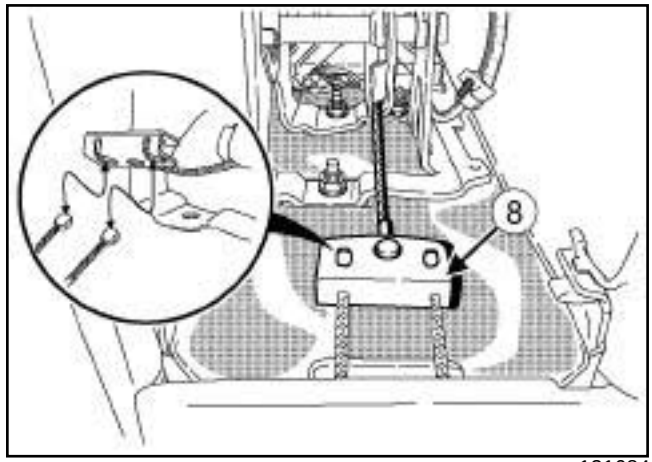

131682

❏ Loosen the adjustment nut (**6**) to completely loosen the parking brake cable.



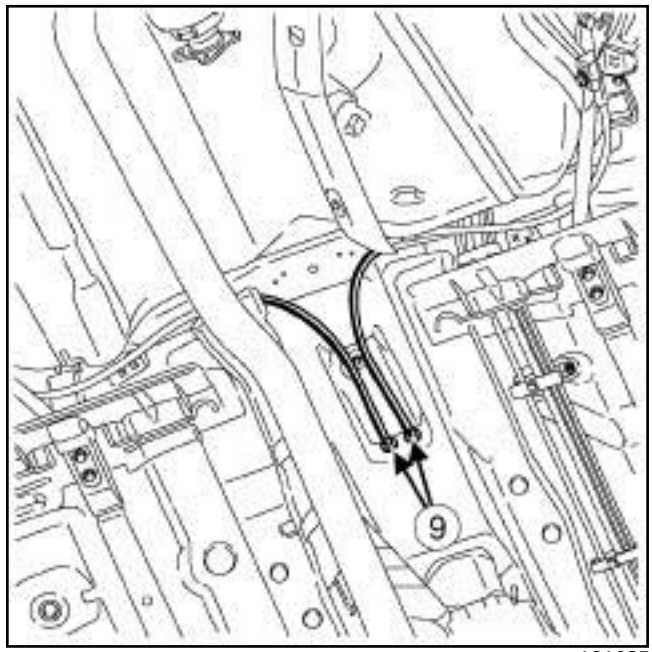

131683

❏ Remove the rear cover (**7**) from the centre console.




131684

❏ Disconnect the parking brake cables on the parking brake compensator (**8**) .




131685

❏ Remove the parking brake cables through the underbody openings (**9**) .



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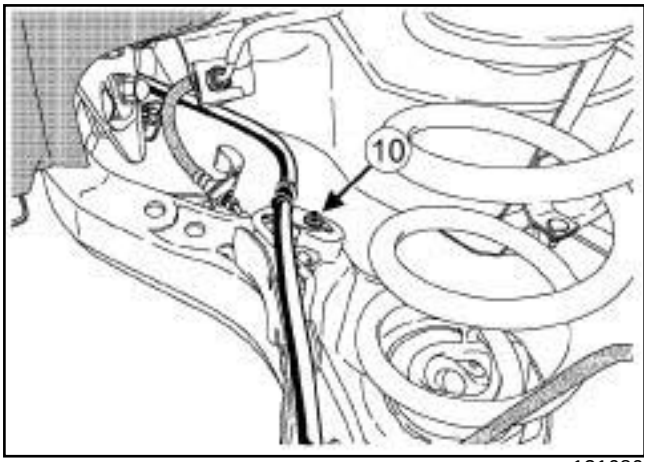
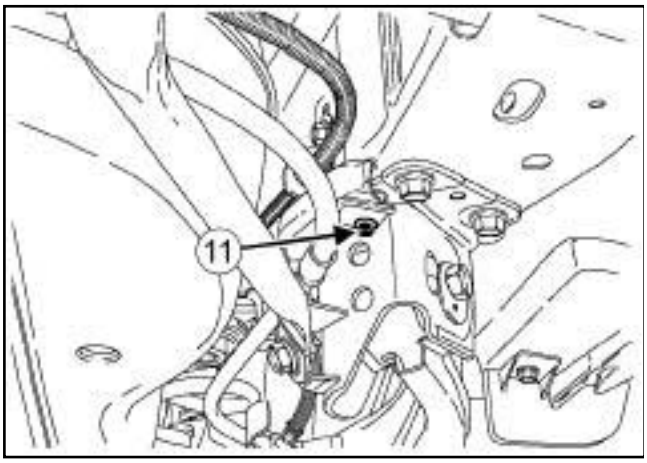
FOOT BRAKE MANUAL CONTROL



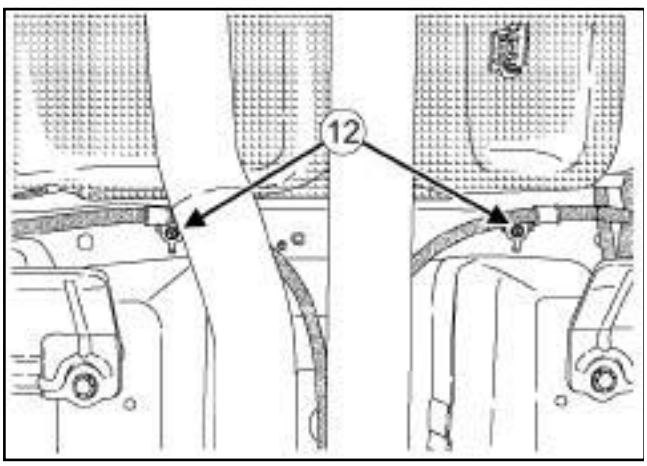

131686

❏ Remove the parking brake cable bolt (**10**) from the rear stub axle carrier.




131687

❏ Remove the parking brake cable bolt (**11**) near the rear stub axle carrier support.




131688

❏ Remove:

- the parking brake cable bolts (**12**) from the underbody,
- the parking brake cables.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ If the adjustment nut ***(6)*** has been removed, replace it with a new one.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the parking brake cables.

❏ Refit:

- the parking brake cable bolts on the underbody,
- the parking brake cable bolt near the rear stub axle carrier support,
- the bolt of the parking brake cable on the rear stub axle carrier.

❏ Torque tighten:

- the **parking brake cable bolts on the underbody (6 N.m)**,
- the **parking brake cable bolt near the rear stub axle carrier support (8 N.m)**,
- the **bolt of the parking brake cable on the rear stub axle carrier (6 N.m)**.

❏ Refit:

- the parking brake cable through the openings of the underbody
- the parking brake cable to the parking brake lever,
- the bolt of the parking brake cable on the rear brake disc protector.

❏ Torque tighten the **parking brake cable bolt on the rear brake disc protector (13 N.m)**.

❏ Follow the brake cable routing noted during removal.

❏ Connect the parking brake cables on the parking brake compensator.

❏ Refit the rear cover on the centre console.

### III - FINAL OPERATION

❏ Refit:

- the silencer heat shield,
- the clips of the silencer front heat shield.
- the rear brake lining (see **33A**, **Rear axle components**, **Rear brake lining: Removal - Refitting**, page **33A-15**) ,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FOOT BRAKE MANUAL CONTROL

- the rear brake disc (see **33A**, **Rear axle components**, **Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A**, **Rear axle components**, **Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A**, **Rear axle components**, **Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A**, **Rear axle components**, **Rear brake caliper: Removal - Refitting**, page **33A-5**) .
- the cup holder,
- the rear wheels (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .


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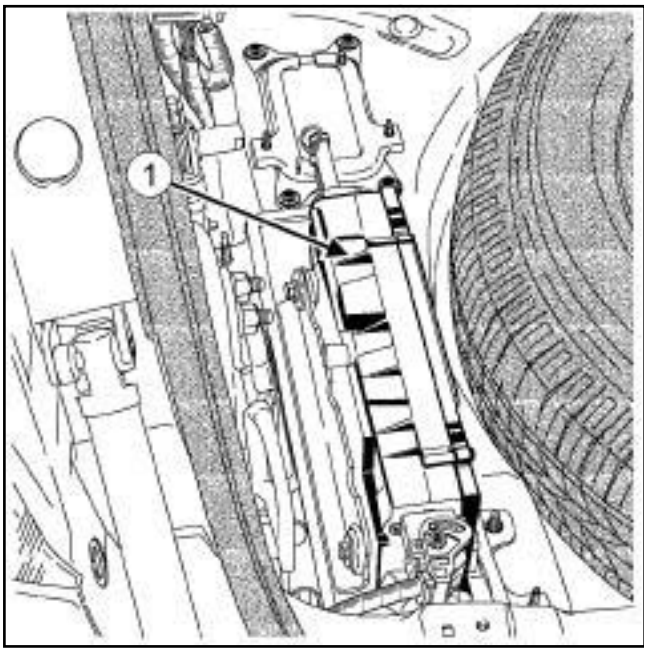
FOOT BRAKE AUTO CONTROL

## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Control unit |
| *(2)* | Emergency handle |
| *(3)* | Unit |
| *(4)* | Clutch pedal position sensor |

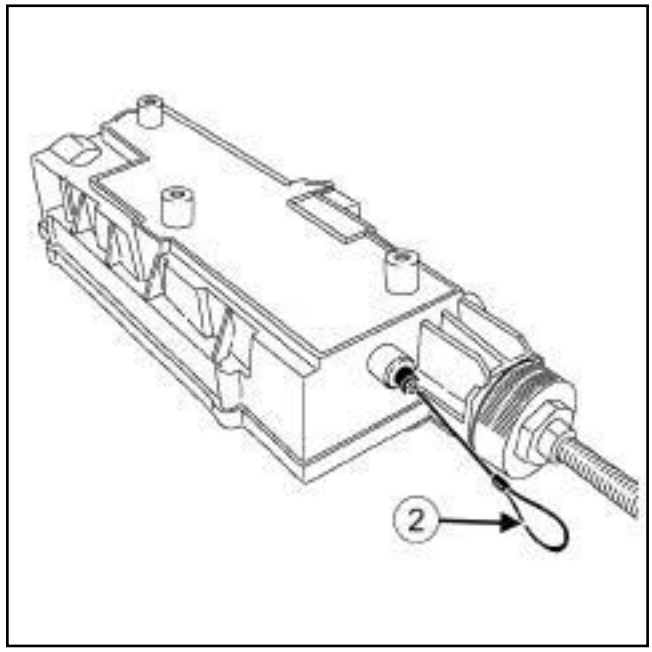
## II - LOCATION OF COMPONENTS

### 1 - Control unit




131689

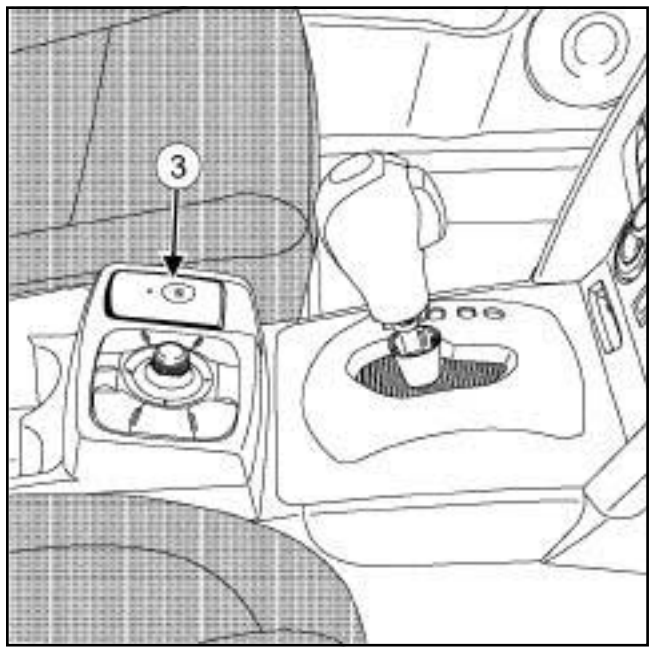
### 2 - Emergency handle




131690

The emergency handle is integrated into the control unit.

### 3 - Unit




131691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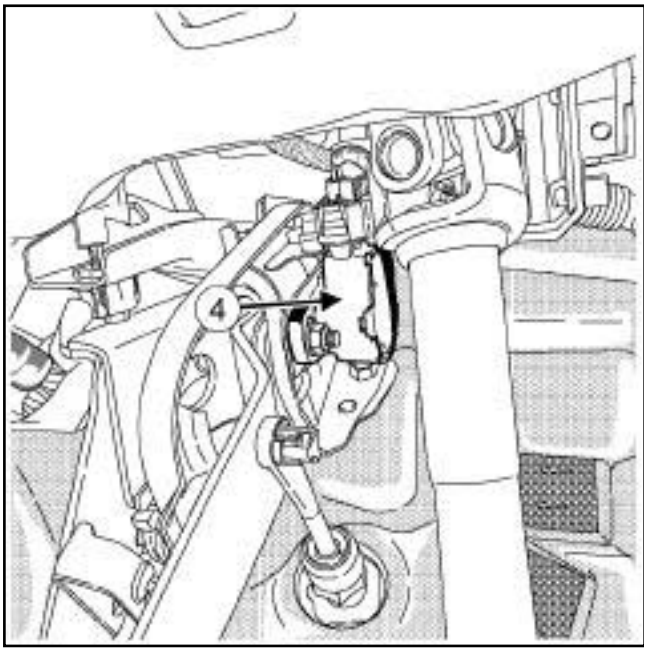
FOOT BRAKE AUTO CONTROL

**4 - Clutch pedal position sensor**




131692

To remove the clutch pedal position sensor (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .



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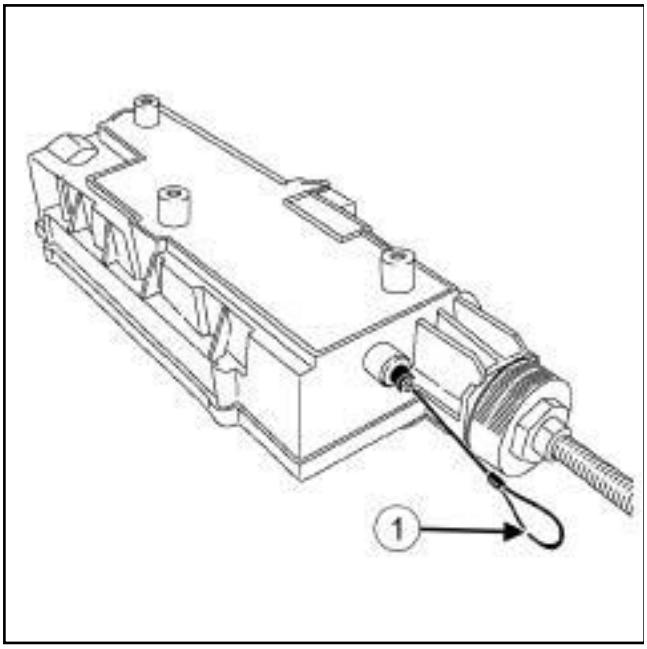


131693

❑

Note:

The emergency handle (**1**) is integrated into the control unit.



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| Essential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| nuts of the electronic parking brake control unit | **6 N.m** |
| electronic parking brake cable bracket bolts | **6 N.m** |
| the cover nuts on the electronic parking brake control unit | **4 N.m** |
| bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank | **14 N.m** |
| bolt of the electronic parking brake cable on the front left-hand side of the fuel tank | **14 N.m** |
| parking brake cable bolts on the underbody | **6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Release the parking brake.

❑ Remove:

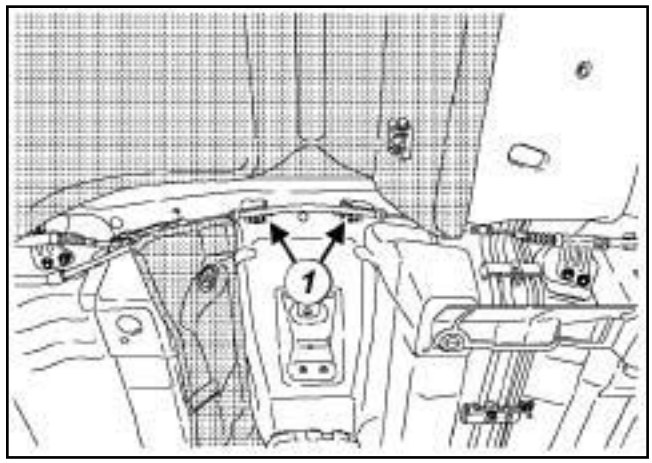
- the rear centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front luggage compartment floor box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the left-hand side C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the left-hand section of the luggage compartment side box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio).

### II - REMOVAL OF PART CONCERNED

❑

**WARNING**
To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

❑ For vehicles fitted with a manual gearbox: before removing the control unit, always save the clutch data (see Fault finding - Replacement of components) (37B, Electronic parking brake).



131694

❑ Remove the parking brake cable bolts (**1**) from the underbody.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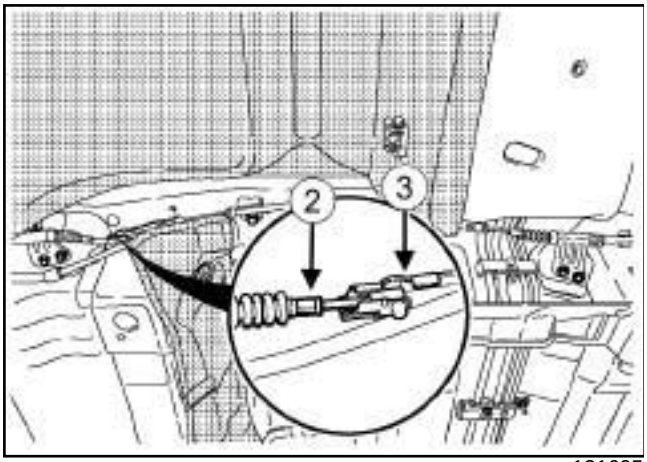
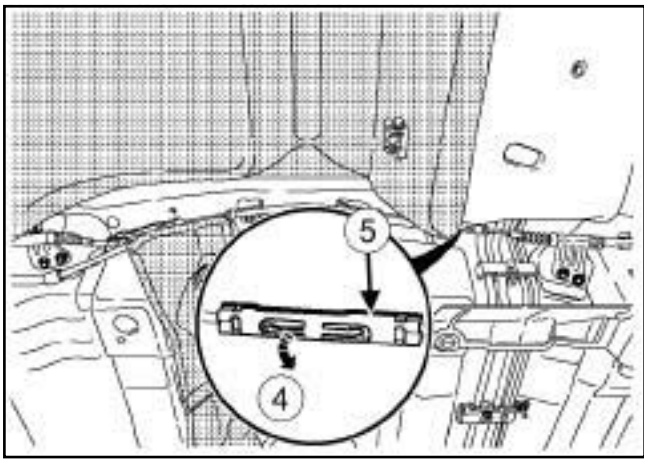


131695

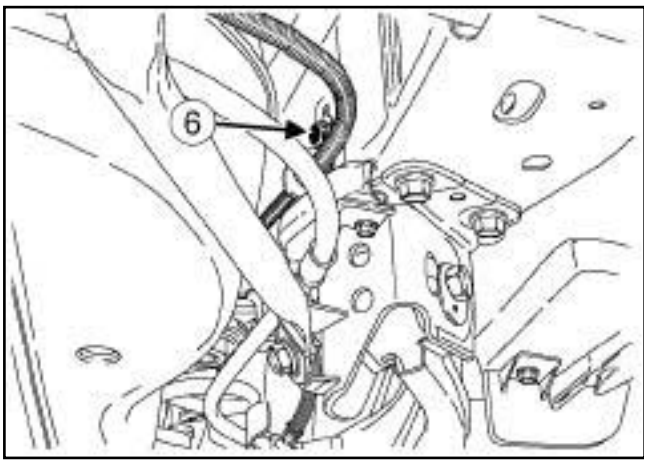
❏ Disconnect the left-hand section (**2**) of the parking brake cable from its clip (**3**) .



131696

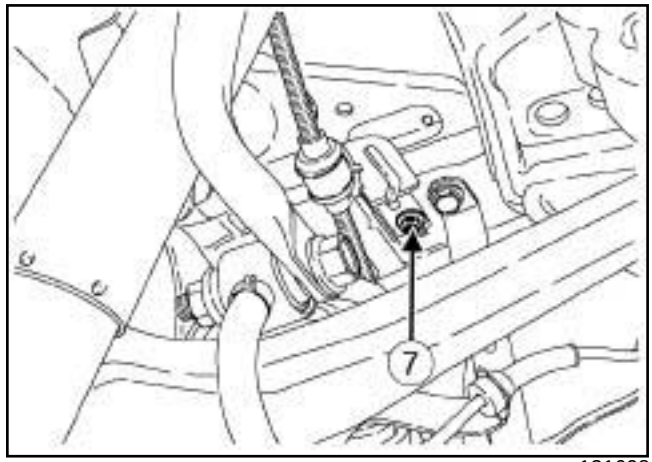
❏ Lift up the stopper (**4**) .

❏ Disconnect the right-side of the parking brake cable from its clip (**5**) .



131697

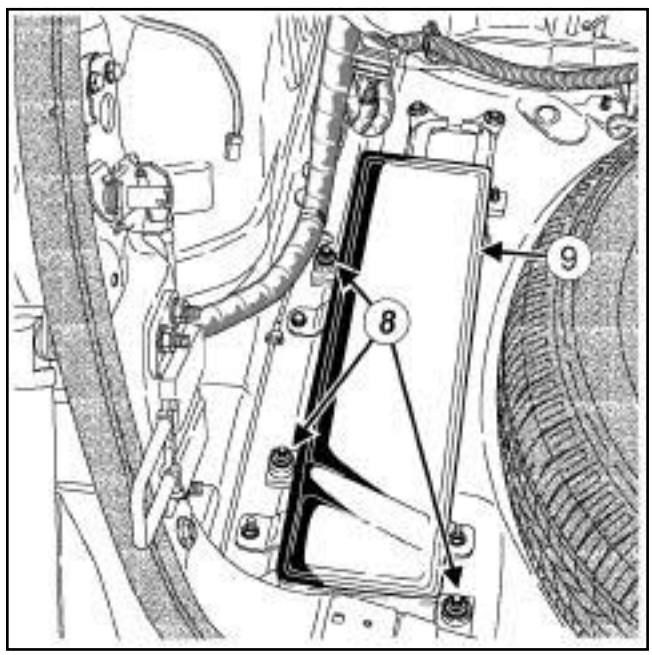
❏ Remove the parking brake cable bolt (**6**) on the front-left side of the fuel tank.



131698

❏ Remove the bolt of the electronic parking brake (**7**) on the rear left-hand face of the fuel tank.

❏ Let the electronic parking brake cable hang freely.



131699

❏ Remove:

- the cover nuts (**8**) from the electronic parking brake control unit,
- the cover (**9**) from the electronic parking brake control unit.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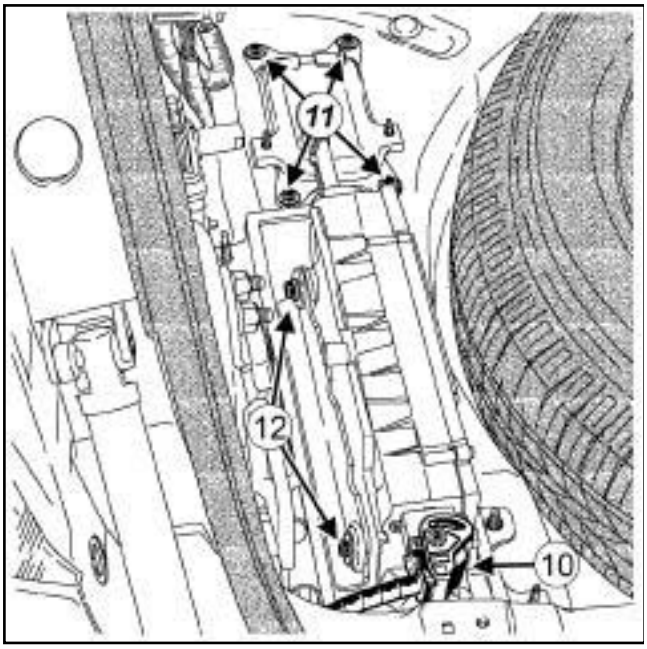



131700

❏ the connector (**10**) from the electronic parking brake control unit.

❏ Remove:

- the bolt (**11**) from the electronic parking brake cable support,
- the electronic parking brake cable bracket,
- the nuts (**12**) from the electronic parking brake control unit,
- the electronic parking brake control unit - electronic parking brake cable assembly.

Note:

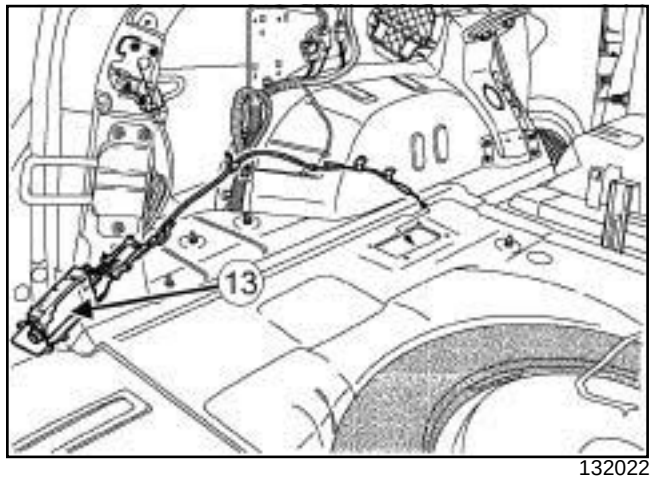
The electronic parking brake cable cannot be separated from the electronic parking brake control unit.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the clip on the right-side of parking brake cable.

### II - REFITTING PART CONCERNED




132022

❏ Fit the electronic parking brake control unit - electronic parking brake cable assembly

❏ Refit:

- the nuts of the electronic parking brake control unit,
- the electronic parking brake cable bracket,
- the bolts on to the electronic parking brake cable bracket.

❏ Tighten to torque:

- the **nuts of the electronic parking brake control unit (6 N.m)**,
- the **electronic parking brake cable bracket bolts (6 N.m)**.

❏ Connect the connector to the electronic parking brake control unit.

❏ Refit:

- the cover on the electronic parking brake control unit.
- the cover nuts on the electronic parking brake control unit.

❏ Torque tighten **the cover nuts on the electronic parking brake control unit (4 N.m)**.

❏ Refit:

- the left-side of the parking brake cable into its clip,
- the right-side of the parking brake cable into its new clip,
- the bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank.
- the bolt of the electronic parking brake bolt on the front left-hand side of the fuel tank.
- the parking brake cable bolts on the underbody.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❑ Tighten to torque:

- the **bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank (14 N.m)**,
- the **bolt of the electronic parking brake cable on the front left-hand side of the fuel tank (14 N.m)**,
- the **parking brake cable bolts on the underbody (6 N.m)**.

❑ Observe the parking brake cable routing noted during removal.

**III - FINAL OPERATION**

❑ Refit:

- the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio).
- the left-hand section of the luggage compartment side box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the left-hand side C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the front centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front luggage compartment floor box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),

❑ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

❑ Carry out a complete check and clear any faults generated using the **diagnostic tool**. Configure the new brake control unit see **(Fault finding - Replacement of components)**.


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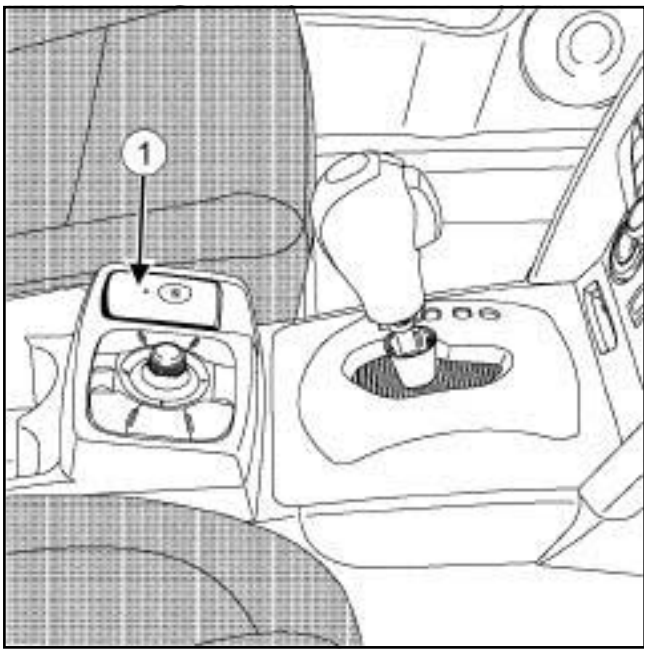
FOOT BRAKE AUTO CONTROL

## REMOVAL

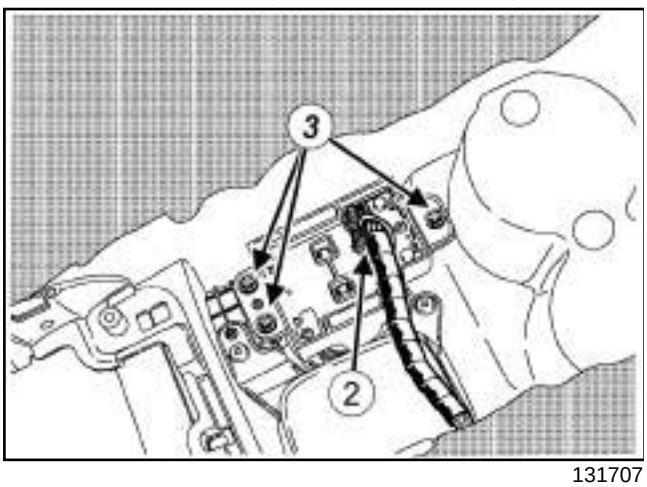
### I - REMOVAL PREPARATION OPERATION

❏ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131706




131707

❏ Disconnect the connector (**2**) from the electronic parking brake lever (**1**) .

❏ Remove:

- the bolts ***(3)*** from the electronic parking brake lever,
- the electronic parking brake lever,

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the electronic parking brake lever,
- the bolts of the electronic parking brake lever.

❏ Connect the electronic parking brake handle connector.

### II - FINAL OPERATION.

❏ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).



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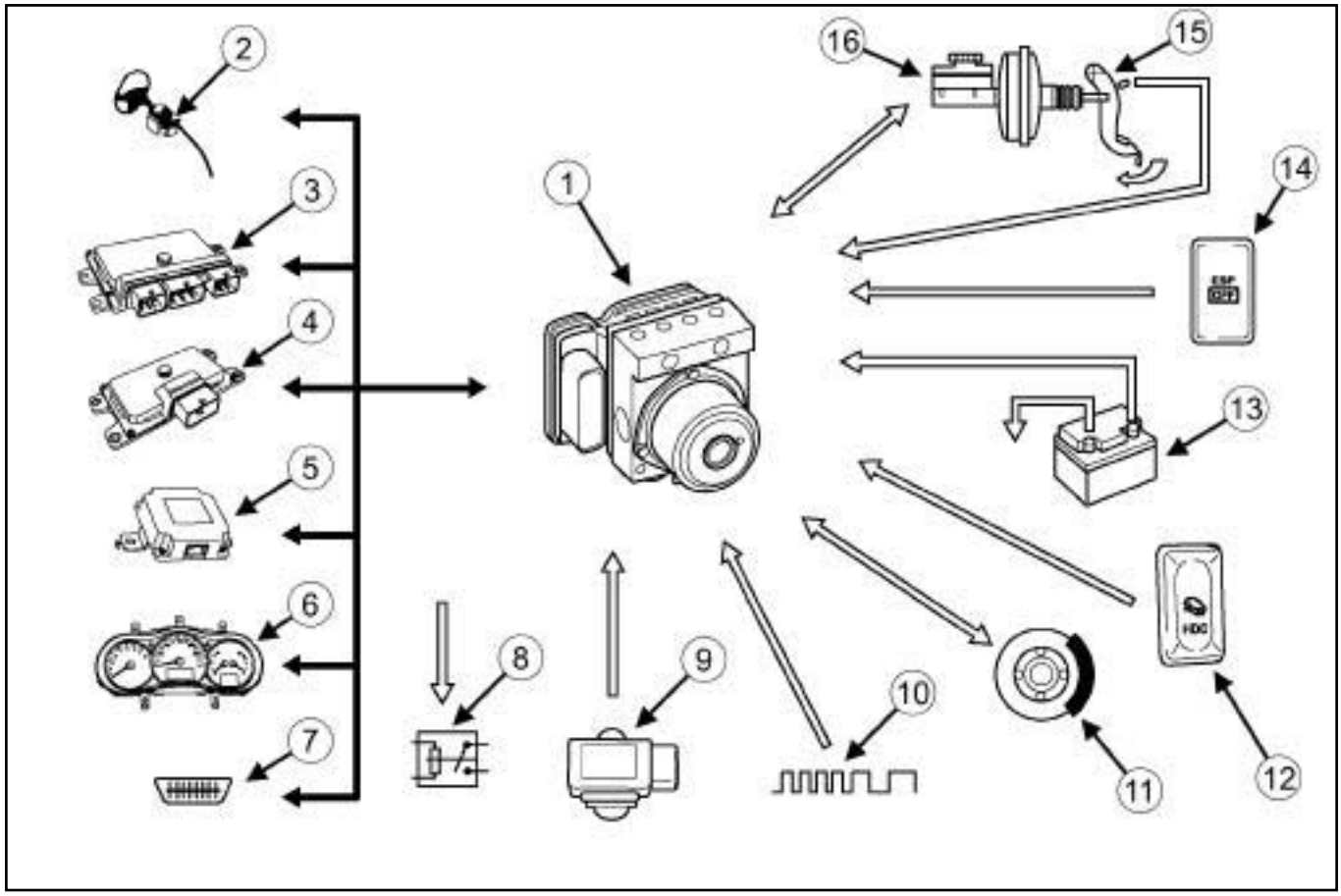
ESP 2 or ESP




131488

| No. | Description |
|---|---|
| (**1**) | Hydraulic unit |
| (**2**) | Steering wheel angle sensor |
| (**3**) | Injection computer |
| (**4**) | Automatic transmission computer (depending on version) |
| (**5**) | 4WS control unit (4WS vehicle only) |
| (**6**) | ESP warning light on the instrument panel |
| (**7**) | Diagnostic socket |
| (**8**) | Brake light switch |
| (**9**) | Lateral acceleration and yaw speed sensor |
| (**10**) | Vehicle speed |
| (**11**) | Wheel speed sensor |
| (**12**) | HDC switch (4WS vehicle only) |
| (**13**) | Battery |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ESP 2 or ESP

| No. | Description |
|---|---|
| (**14**) | ESP inhibitor switch |
| (**15**) | Brake lights switch |
| (**16**) | Master cylinder |


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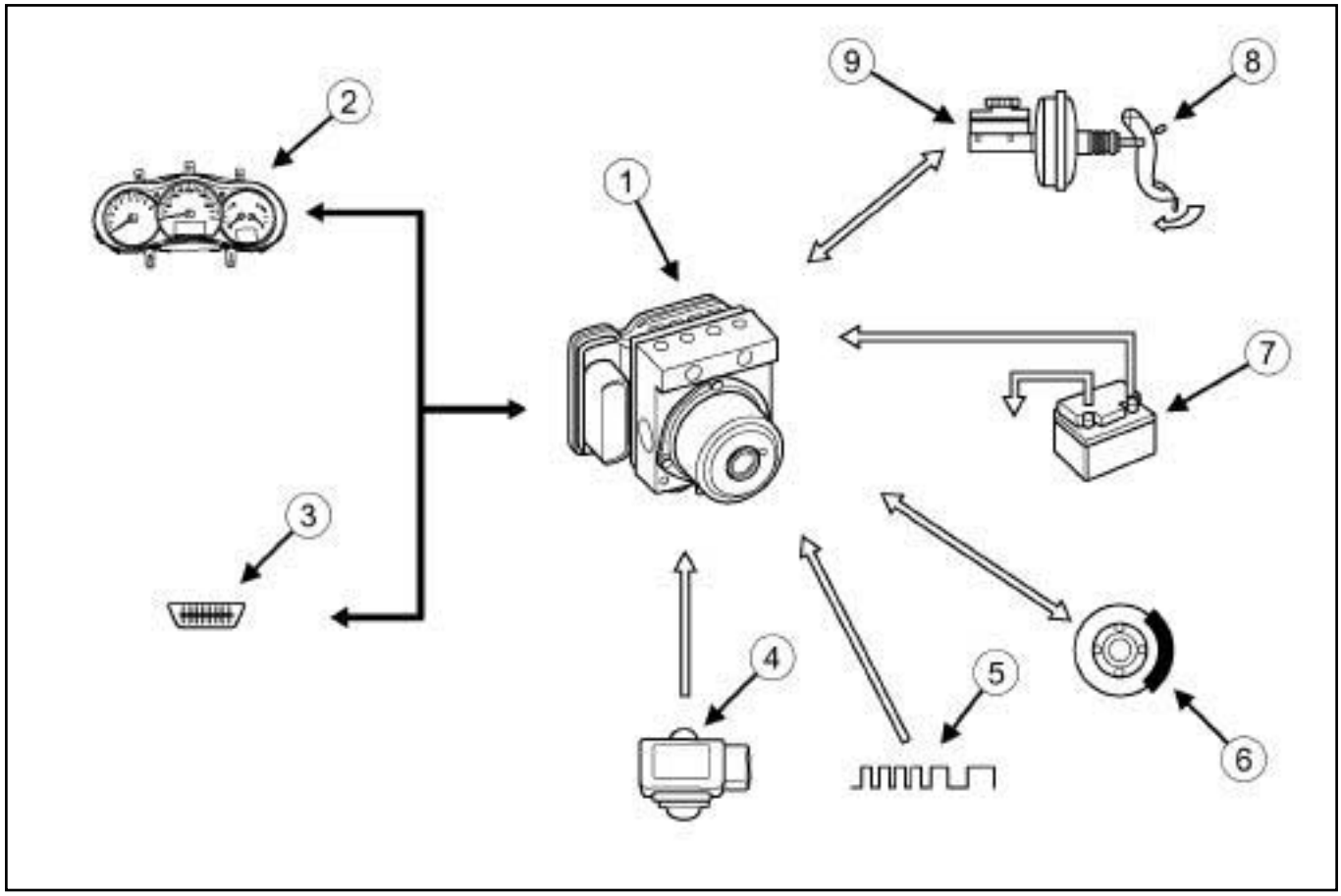
WITHOUT ESP




131487

| No. | Description |
|---|---|
| (**1**) | Hydraulic unit |
| (**2**) | ABS warning light on the instrument panel |
| (**3**) | Diagnostic socket |
| (**4**) | Lateral acceleration sensor (4WS vehicle only) |
| (**5**) | Vehicle speed |
| (**6**) | Wheel speed sensor |
| (**7**) | Battery |
| (**8**) | Brake light switch |
| (**9**) | Master cylinder |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LEFT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions (4) on the hydraulic unit | **16 N.m** |
| brake pipe unions (5) on the hydraulic unit (without ESP) | **16 N.m** |
| brake pipe unions (5) on the hydraulic unit (with ESP) | **18 N.m** |
| hydraulic brake unit bolts | **9 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

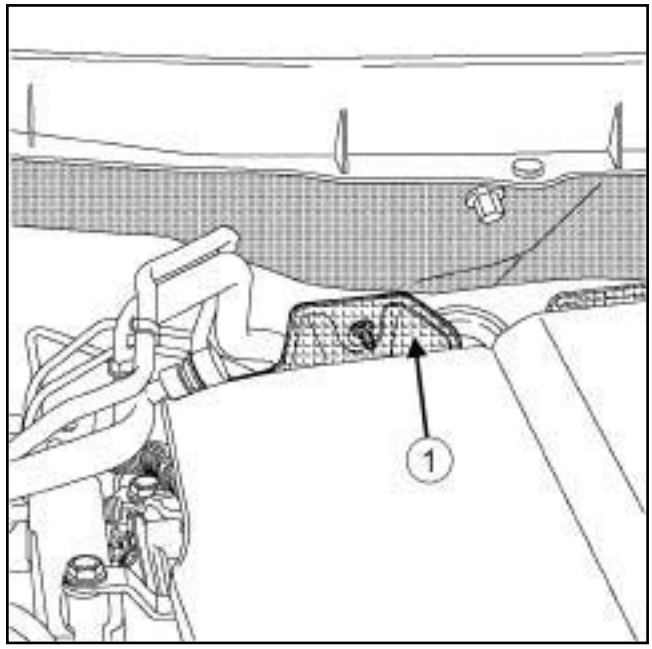
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Place the **pedal press** on the brake pedal.

❏ Remove:

- the engine cover,
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

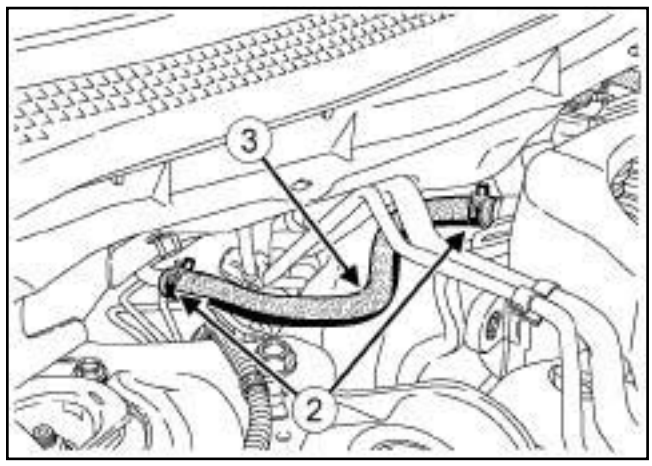



131551

❏ Remove the bulkhead insulation (**1**) (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

2TR




131552

❏ Remove:

- clips (**2**) ,
- the vacuum hose (**3**) .



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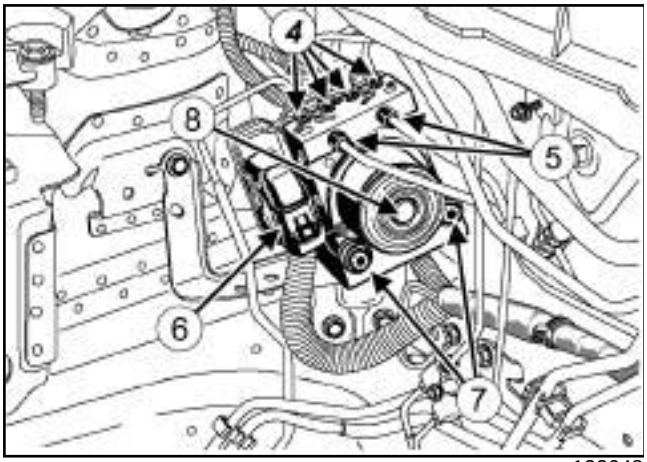
LEFT-HAND DRIVE



132648

❏ Undo:

- the brake pipe unions (**4**) on the hydraulic unit,
- the brake pipe unions (**5**) on the hydraulic unit.

❏ Disconnect the connector ***(6)*** .

❏ Remove:

- the bolts ***(7)*** from the hydraulic brake unit,
- the hydraulic brake unit ***(8)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the hydraulic brake unit,
- the hydraulic brake unit bolts.

❏ Connect the hydraulic brake unit connector.

❏ Refit:

- the brake pipe unions ***(5)*** on the hydraulic unit,
- the brake pipe unions ***(4)*** on the hydraulic unit.

❏ Torque tighten:

- the **brake pipe unions (4) on the hydraulic unit (16 N.m)**,
- the **brake pipe unions (5) on the hydraulic unit (without ESP) (16 N.m)**,
- the **brake pipe unions (5) on the hydraulic unit (with ESP) (18 N.m)**,
- the **hydraulic brake unit bolts (9 N.m)**.

### II - FINAL OPERATION.

2TR

❏ Refit:

- the vacuum hose,
- the clips.

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the engine cover.

❏ Remove the **pedal press** from the brake pedal.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RIGHT-HAND DRIVE

| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| brake pipe unions (1) on the hydraulic unit | **16 N.m** |
| brake pipe unions (2) on the hydraulic unit (without ESP) | **16 N.m** |
| brake pipe unions (2) on the hydraulic unit (with ESP) | **18 N.m** |
| brake hydraulic unit bolts | **9 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

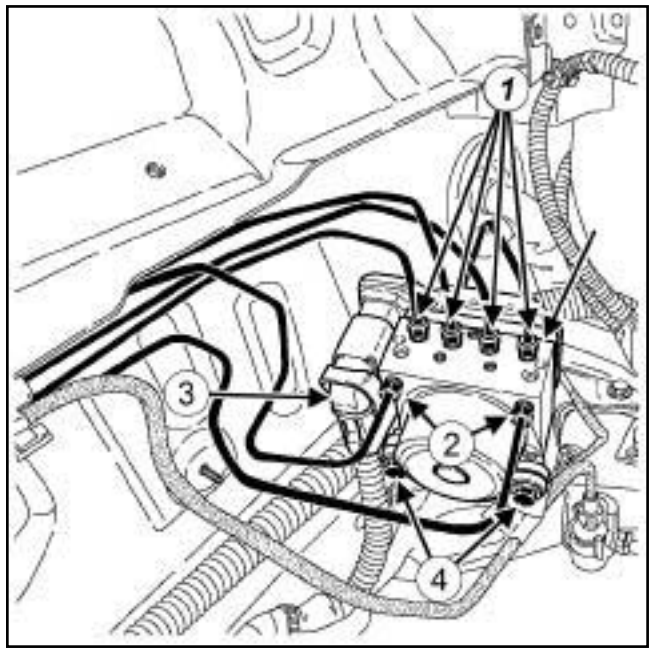
❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Place the **pedal press** on the brake pedal.

❏ Remove:

- the air intake sleeve,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131539

❏ Undo:

- the brake pipe unions (**1**) on the hydraulic unit,
- the brake pipe unions (**2**) on the hydraulic unit.

❏ Disconnect the connector (**3**) .

❏ Remove:

- the bolts (**4**) from the hydraulic brake unit,
- the hydraulic brake unit.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the hydraulic brake unit,
- the bolts on the hydraulic brake unit.

❏ Connect the hydraulic brake unit connector.

❏ Refit:

- the brake pipe unions (**2**) on the hydraulic unit,
- the brake pipe unions (**1**) on the hydraulic unit.

❏ Torque tighten:

- the **brake pipe unions (1) on the hydraulic unit (16 N.m)**,
- the **brake pipe unions (2) on the hydraulic unit (without ESP) (16 N.m)**,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RIGHT-HAND DRIVE

- the **brake pipe unions (2) on the hydraulic unit (with ESP) (18 N.m)**,
- the **brake hydraulic unit bolts (9 N.m)**.

**II - FINAL OPERATION.**

❑ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve.

❑ Remove the **pedal press** from the brake pedal.

❑ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**)

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Tightening torques ▽ | |
|---|---|
| front wheel speed sensor bolt | **10 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) ,
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

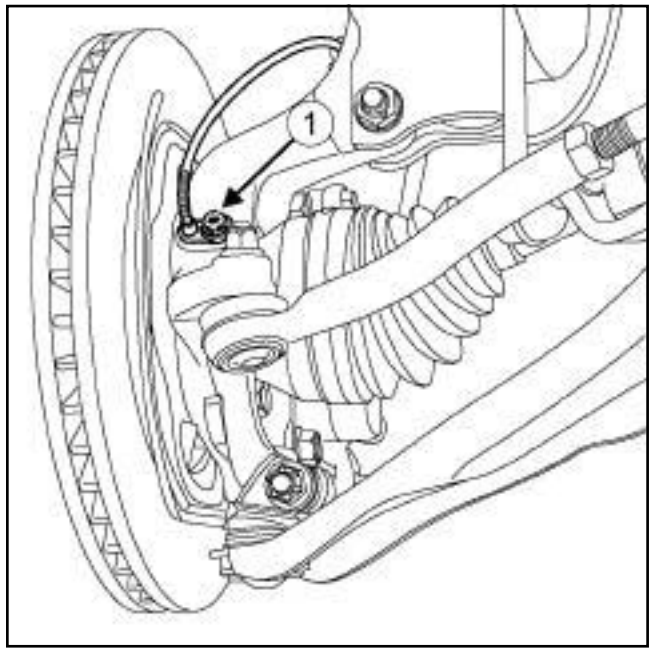
### II - OPERATION FOR REMOVAL OF PART CONCERNED

❏

**WARNING**

To avoid damaging the wheel speed sensor cable:

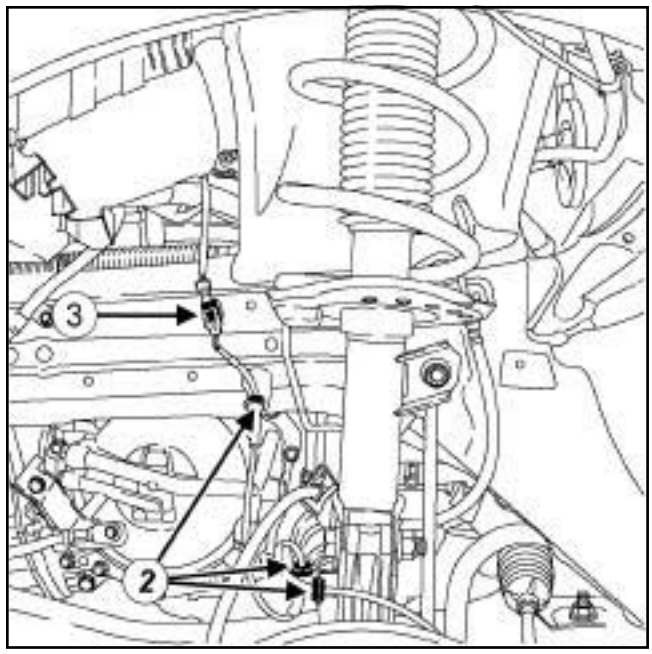
- Do not tension the cable,
- Do not twist the cable,
- Check that there is no contact with the surrounding components,
- Do not use tools that may damage the cable.




131489

❏ Remove:

- the front wheel speed sensor bolt (**1**) ,
- the front wheel speed sensor.




131490

❏ Unclip the front wheel speed sensor cable at (**2**) .

❏ Disconnect the connector (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the front wheel speed sensor connector.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❏ Clip on the front wheel speed sensor cable.

❏ Refit the front wheel speed sensor.

❏ Torque tighten the **front wheel speed sensor bolt (10 N.m)**.

**II - FINAL OPERATION.**

❏ Refit:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .


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| Tightening torques ▽ | |
|---|---|
| rear wheel speed sensor bolt | **10 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove the rear wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .

❑

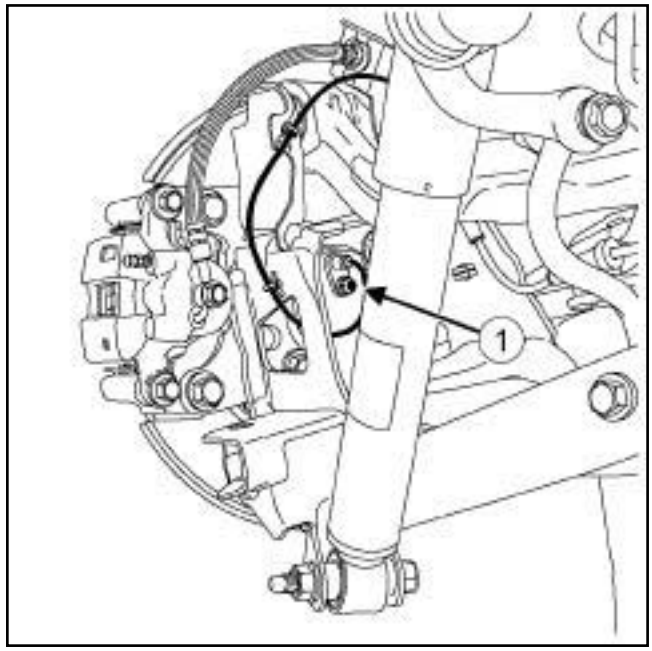
**WARNING**

To avoid damaging the wheel speed sensor cable:

- Do not tension the cable,
- Do not twist the cable,
- Check that there is no contact with the surrounding components,
- Do not use tools that may damage the cable.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

4X2 TRANSMISSION




130830

❑ Remove the bolt (**1**) from the rear wheel speed sensor.

❑ Unclip the stub axle carrier cable.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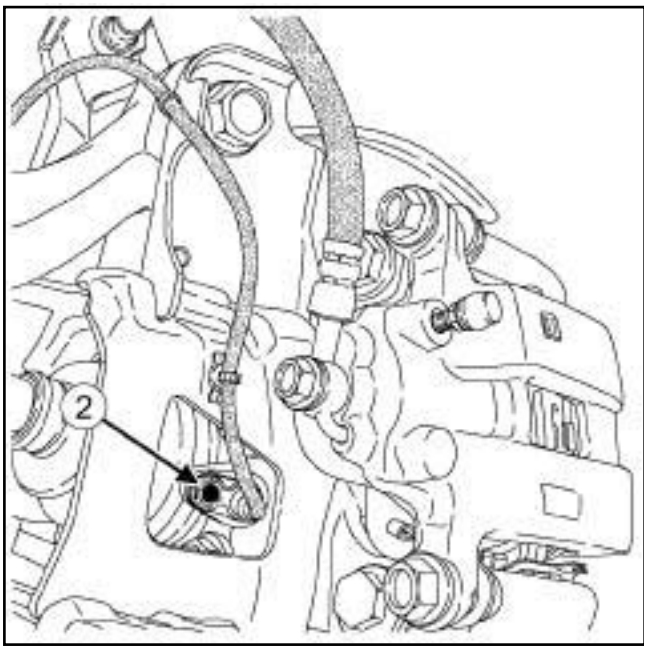
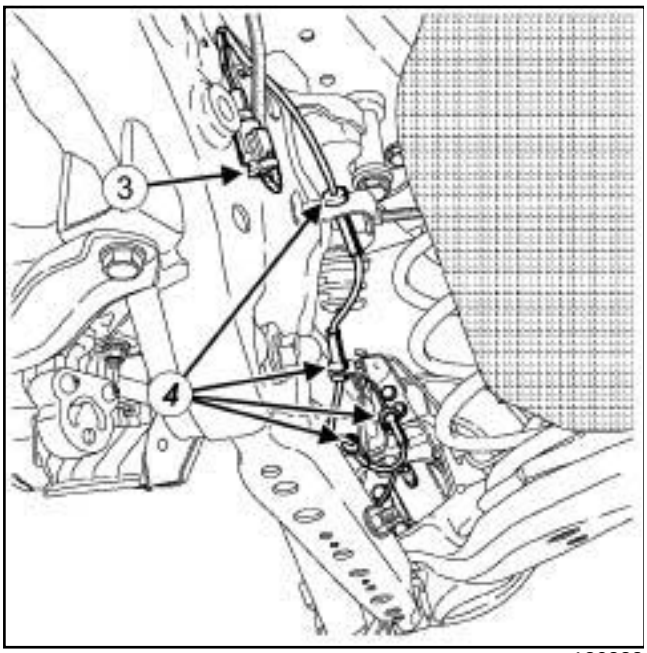
4X4 TRANSMISSION




130831

❏ Remove the bolt (**2**) from the rear wheel speed sensor.

❏ Unclip the stub axle carrier cable.




130832

❏ Disconnect the connector (**3**) from the rear wheel speed sensor.

❏ Unclip the cable from the wheel speed sensor at (**4**) .

❏ Remove the wheel speed sensor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the speed sensor connector.

❏ Clip on the cable of the rear wheel speed sensor at ***(4)*** .

❏ Refit the rear wheel speed sensor bolt.

❏ Torque tighten the **rear wheel speed sensor bolt (10 N.m)**.

### II - FINAL OPERATION.

❏ Refit the rear wheel (see **35A**, **Wheels and tyres**, **Wheel: Removal - Refitting**, page **35A-1**) .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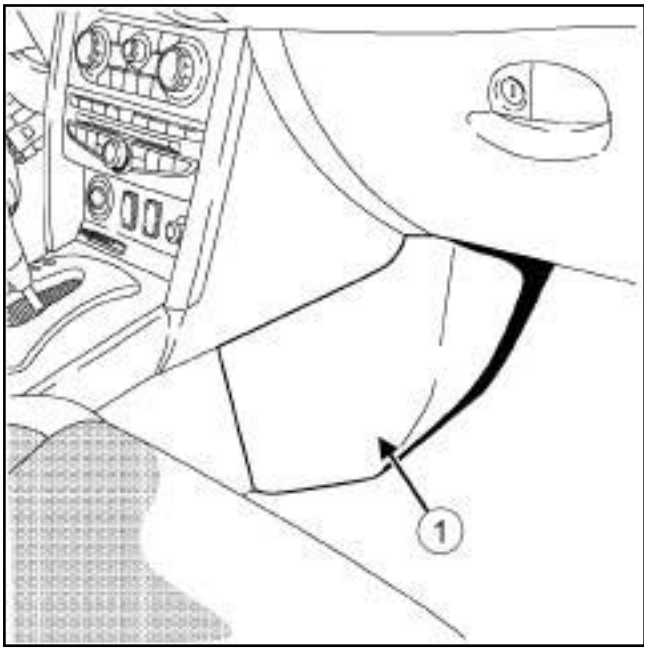
| Tightening torques ▽ | |
|---|---|
| lateral acceleration and yaw sensor nuts | **6 N.m** |

## REMOVAL

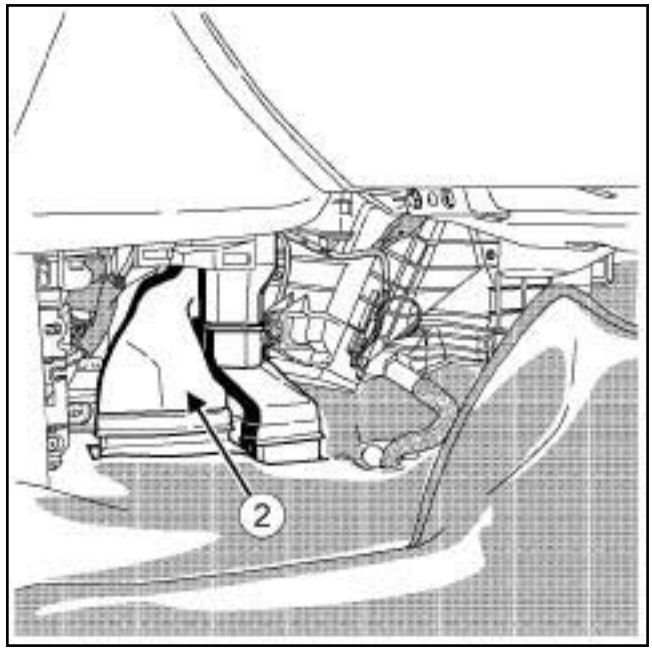
### I - REMOVAL PREPARATION OPERATION




131543

❑ Remove the lower cover (**1**) .

REAR SEATS AIR DUCT




131544

❑ Remove the duct (**2**) from the floor.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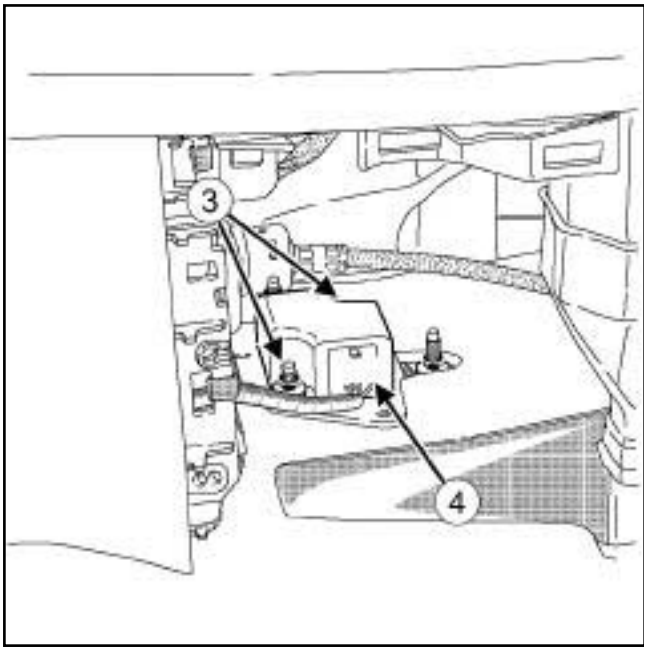
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

WITHOUT ESP

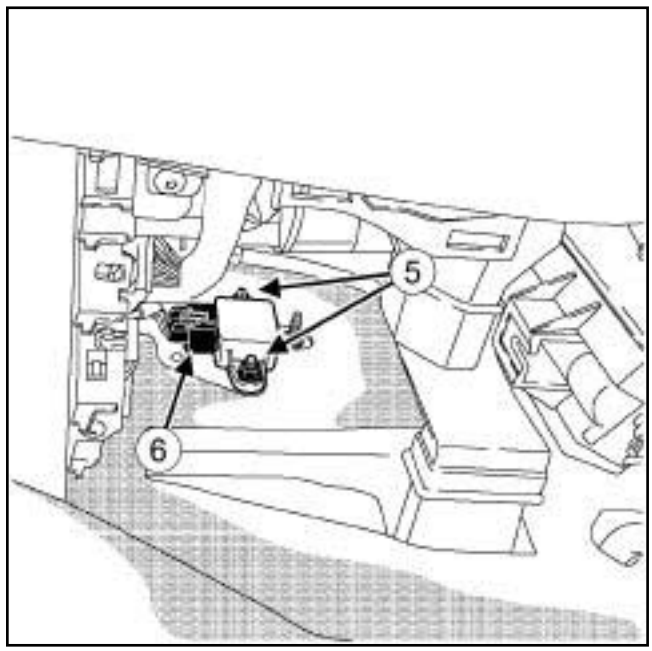



131545

❏ Remove nuts (**3**) .

❏ Disconnect the connector (**4**) .

ESP 2 or ESP




131546

❏ Remove nuts (**5**) .

❏ Disconnect the connector (**6**) .

❏ Remove the lateral acceleration and yaw sensor.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the lateral acceleration and yaw sensor.

❏ Connect the lateral acceleration and yaw sensor connector.

❏ Refit the lateral acceleration and yaw sensor nuts.

❏ Torque tighten the **lateral acceleration and yaw sensor nuts (6 N.m)**.

**II - FINAL OPERATION.**

REAR SEATS AIR DUCT

❏ Refit the floor duct.

❏ Refit the lower cover.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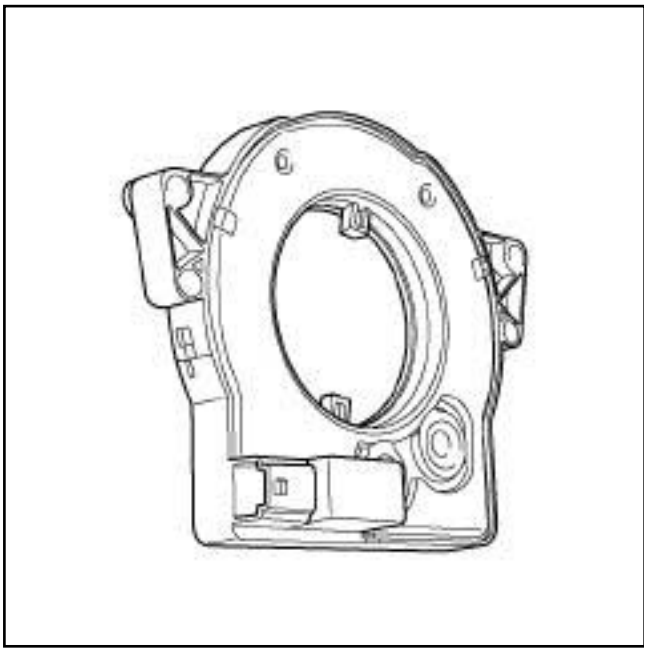
ESP 2 or ESP

| Essential equipment |
| --- |
| diagnostic tool |



131547

Note:

The steering wheel angle sensor is located on the steering column and clipped onto the rotary switch.

**IMPORTANT**

To prevent any accidental triggering whilst working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the **diagnostic tool**.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

**IMPORTANT**

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) ,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering column covers (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal).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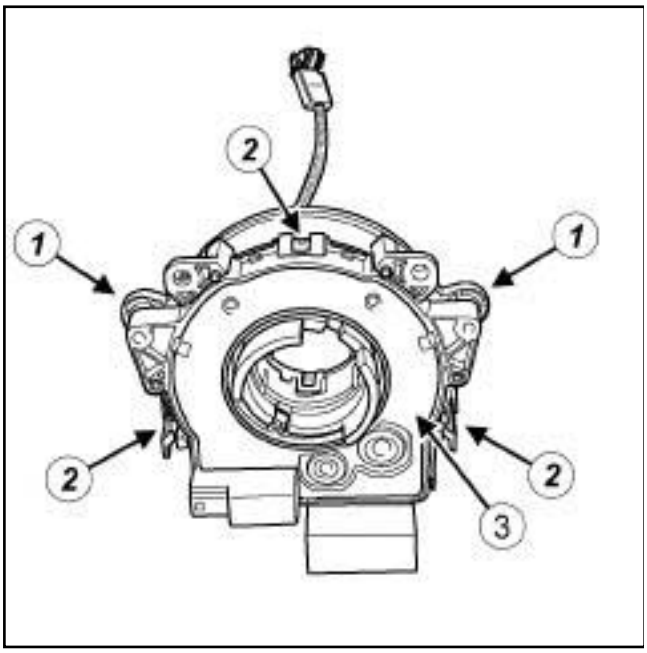
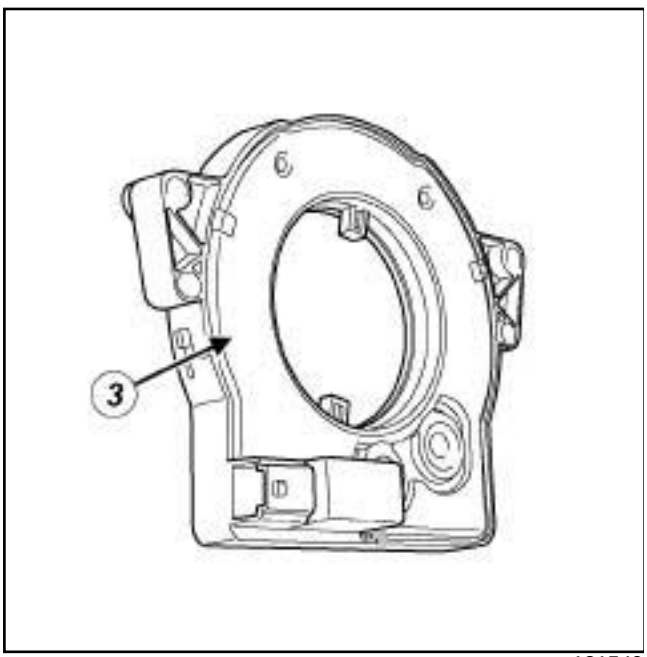
ESP 2 or ESP

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131548



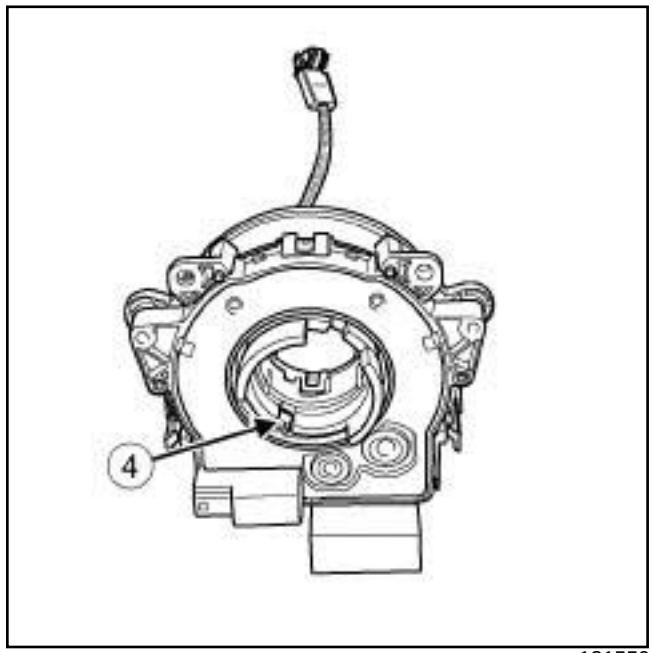

131549

❏ Remove:

- the bolts (**1**) from the steering wheel angle sensor,
- the steering wheel angle sensor (**3**) from the rotary switch by unclipping it at (**2**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131550

❏ Clip the steering wheel angle sensor onto the rotary switch by placing the rotor (**4**) into its original position.

❏ Refit the bolts of the steering wheel angle sensor.

### II - FINAL OPERATION.

❏ Refit:

- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal),
- the steering column covers (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering wheel (see **36A**, **Steering assembly**, **Steering wheel: Removal - Refitting**, page **36A-39**) ,
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Configure the steering wheel angle sensor (see **Fault finding - Configurations and Programming**) (38C, Anti-lock braking system).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| Essential equipment |
|---|
| pedal press |

| Tightening torques ▽ | |
|---|---|
| braking computer bolts | **9 N.m** |
| brake pipe unions (4) on the hydraulic unit | **16 N.m** |
| brake pipe unions (5) on the hydraulic unit (without ESP) | **18 N.m** |
| brake pipe unions (5) on the hydraulic unit (with ESP) | **16 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

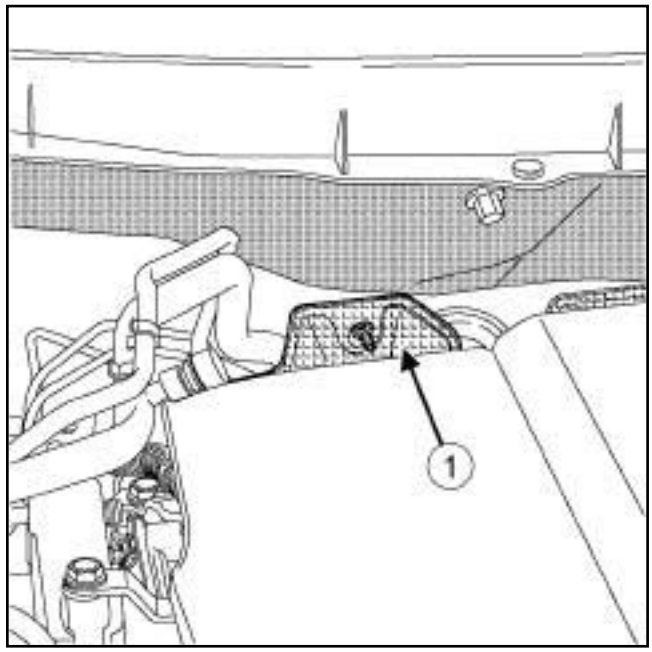
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Place the **pedal press** on the brake pedal.

❏ Remove:

- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper motor: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

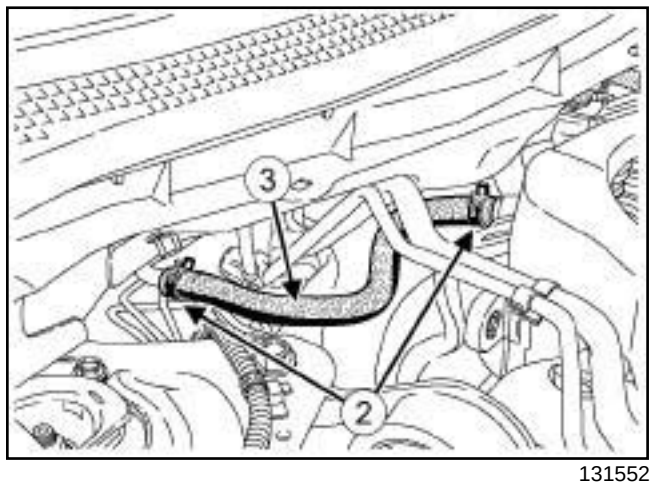



131551

❏ Remove the bulkhead insulation (**1**) (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

2TR




131552

❏ Remove:

- the clips (**2**) ,
- the vacuum hose (**3**) .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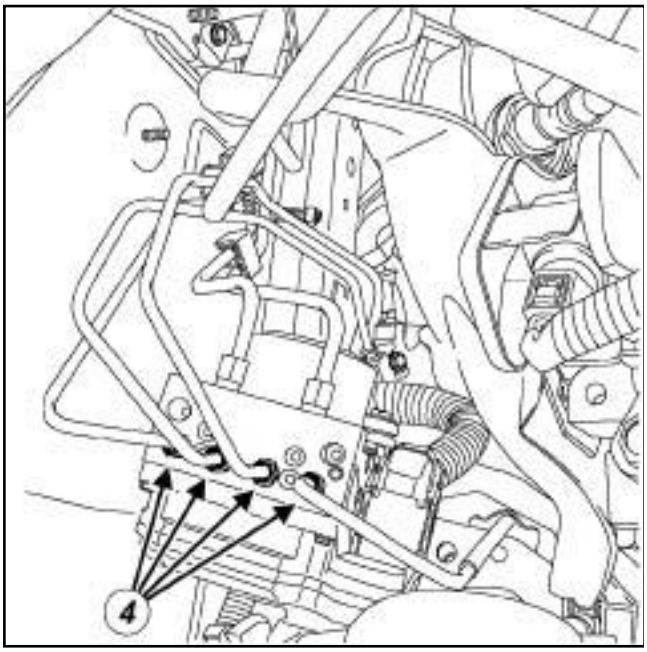
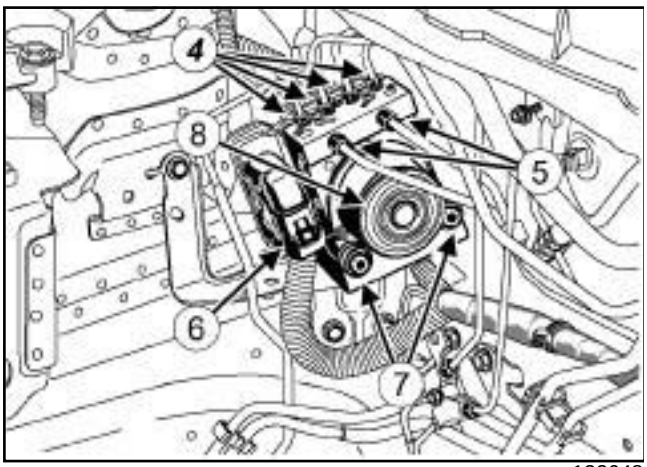


131553



132648

❏ Undo the brake pipe unions (**4**) and (**5**) on the hydraulic unit.

❏ Disconnect the connector ***(6)*** .

❏ Remove:

- the bolts ***(7)*** ,
- the braking computer ***(8)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the braking computer,
- the braking computer bolts.

❏ Torque tighten the **braking computer bolts (9 N.m)**.

❏ Connect the braking computer connector.

❏ Refit the brake pipe unions on the hydraulic unit.

❏ Torque tighten:

- the **brake pipe unions (4) on the hydraulic unit (16 N.m)**,
- the **brake pipe unions (5) on the hydraulic unit (without ESP) (18 N.m)**,
- the **brake pipe unions (5) on the hydraulic unit (with ESP) (16 N.m)**.

2TR

❏ Refit:

- the vacuum hose ***(3)*** ,
- the clips ***(2)*** .

### II - FINAL OPERATION.

❏ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper motor: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❏ Remove the **pedal press** from the brake pedal.

❏ Bleed the brake circuit (see **30A**, **General information**, **Brake circuit Bleeding**, page **30A-3**)

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RENAULT

# 4 Panelwork


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41B CENTRE LOWER STRUCTURE

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45A TOP OF BODY

47A SIDE OPENING ELEMENTS

48A NON-SIDE OPENING ELEMENTS



*X45*

**JANUARY 2008** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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| | Description | Dimension X (mm) | Dimension Y (mm) | Dimension Z (mm) | Diameter (mm) |
|---|---|---|---|---|---|
| ***(Ag)*** | Front left-hand sub-frame rear mounting | **301** | **-305** | **77.5** | **M12.125** |
| ***(Ad)*** | Front right-hand sub-frame rear mounting | **301** | **305** | **77.5** | **M12.125** |
| ***(B)*** | Rear axle assembly front mounting | **2027.5** | **± 652.7** | **88.1** | **M12.125** |
| ***(B1)*** | Additional rear axle assembly front mounting | **2138.9** | **± 568.3** | **107.7** | **M12.125** |
| ***(C)*** | Front sub-frame front mounting | **-566.6** | **-478/ 501** | **174.5** | **M12.125** |
| ***(D)*** | Rear axle assembly rear mounting | **2501** | **± 330** | **235.6** | **M12.125** |
| ***(F)*** | Front shock absorber upper mounting | **12.2** | **± 593** | **700** | **∅ 98** |
| ***(G)*** | Front side member rear leader pin | **545** | **± 410** | **-9.5** | **∅ 16** |
| ***(I)*** | Rear side member front leader pin | **1954** | **± 650** | **73** | **∅ 16** |
| ***(J)*** | Rear side member rear leader pin | **3220** | **-550.5/ 523.5** | **233** | **∅ 16** |
| ***(K)*** | Front end cross member | **-594** | **± 448** | **413.2** | **M8** |
| ***(L)*** | Rear end cross member | **3289** | **-601/ 574** | **277.5** | **Stud M8** |
| ***(L1)*** | Additional rear end cross member | **3289** | **-493/ 471** | **277.5** | **Stud M8** |
| ***(N)*** | Rear axle assembly additional mounting | **2911/ 2897** | **-549/ 525.5** | **235** | **M12.125** |
| ***()*** | Engine mounting | **-339.2** | **507** | **534.1** | **M10.125** |
| ***(P1)*** | Additional engine mounting | **-149.2** | **529** | **534.1** | **M10.125** |
| ***(Q)*** | Gearbox mounting | **-263** | **-428** | **322** | **M10.125** |
| ***(Q1)*** | Additional gearbox mounting | **-118** | **-417.8** | **322** | **M10.125** |
| ***(S)*** | Front driveshaft mounting | **1250.3** | **-73.6/ 88.4** | **77.3** | **Stud M10** |

A and B = vehicle trim level reference.


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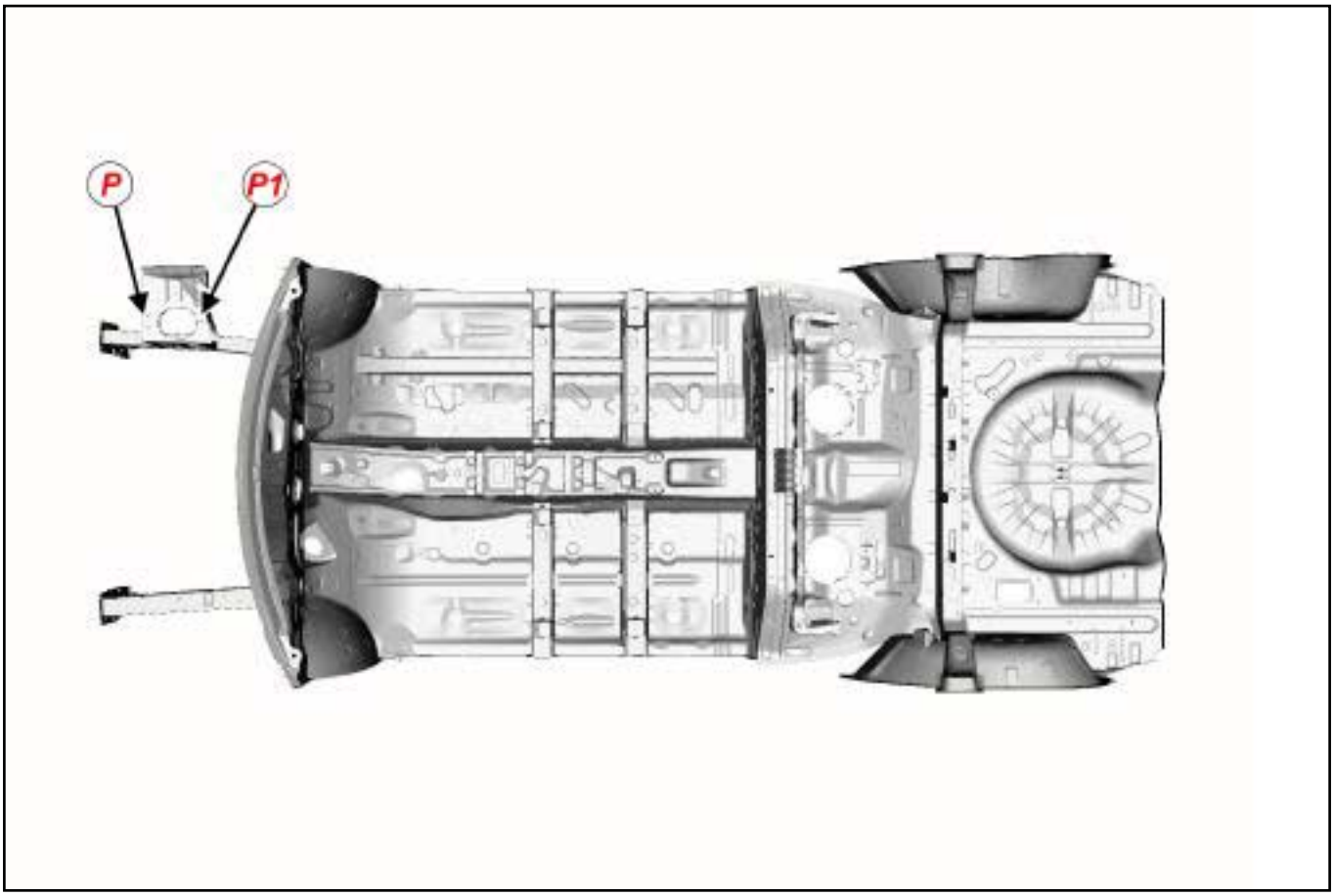


137524


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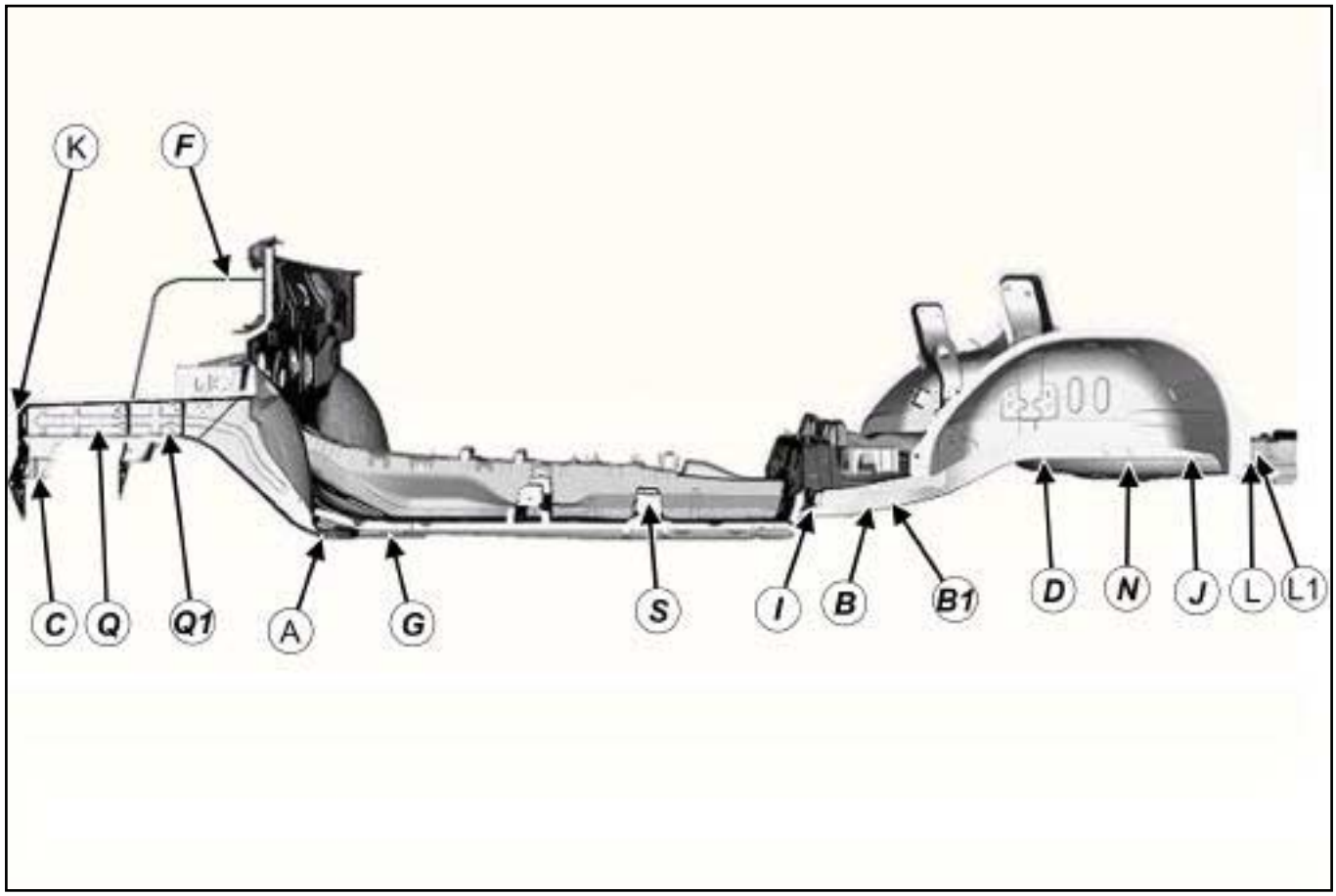


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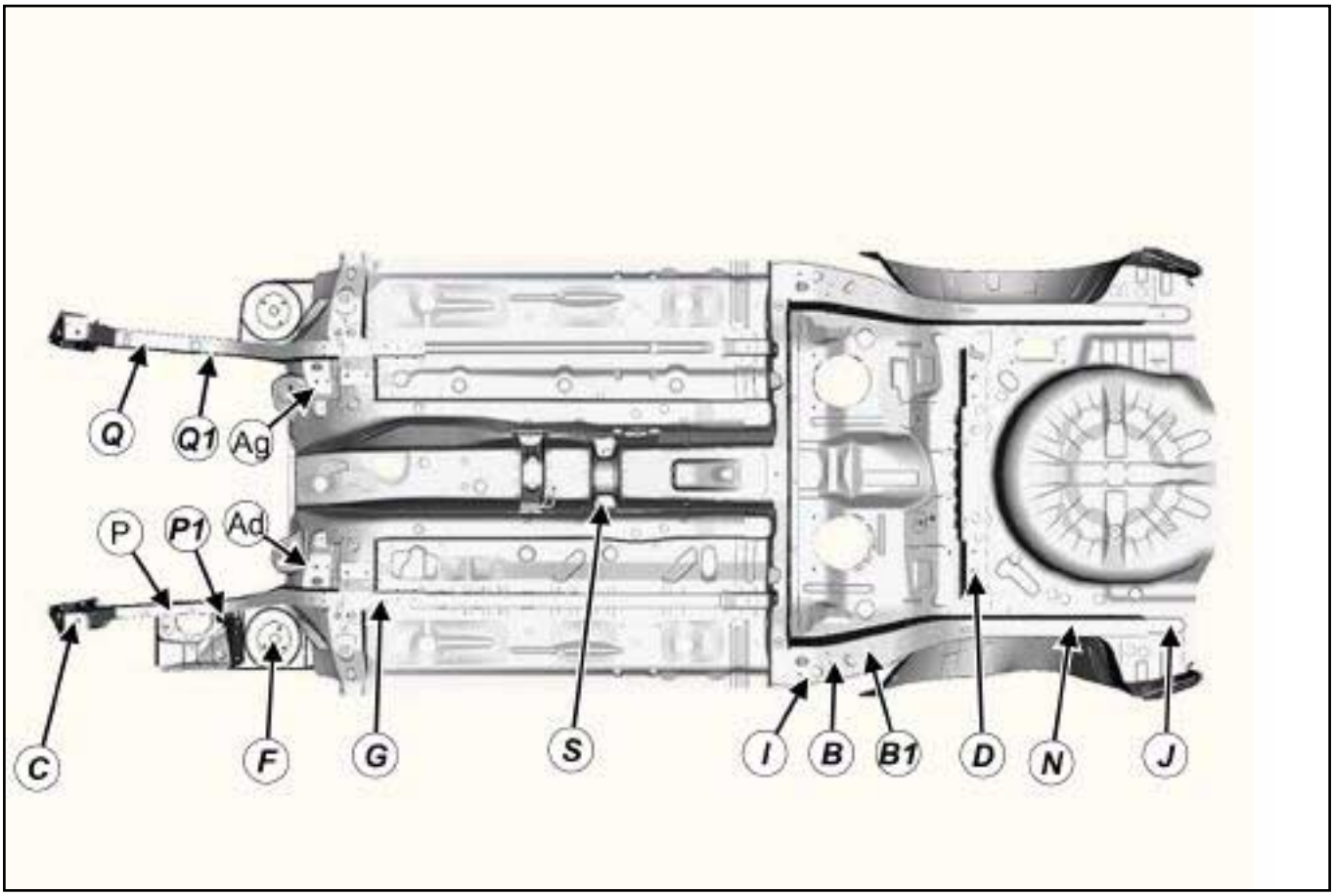


137526


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# Front impact cross member: General description

Note:

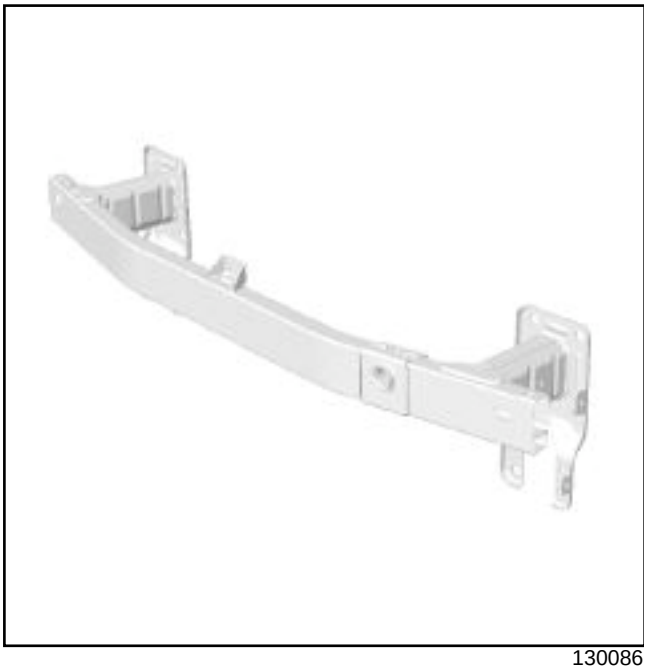
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

## DESIGN OF THE STRUCTURAL COMPONENT



130086

This part is bolted on the ends of the front side member via the radiator cross member support.



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| Tightening torques ▽ | |
|---|---|
| front impact cross member bolts | 21 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

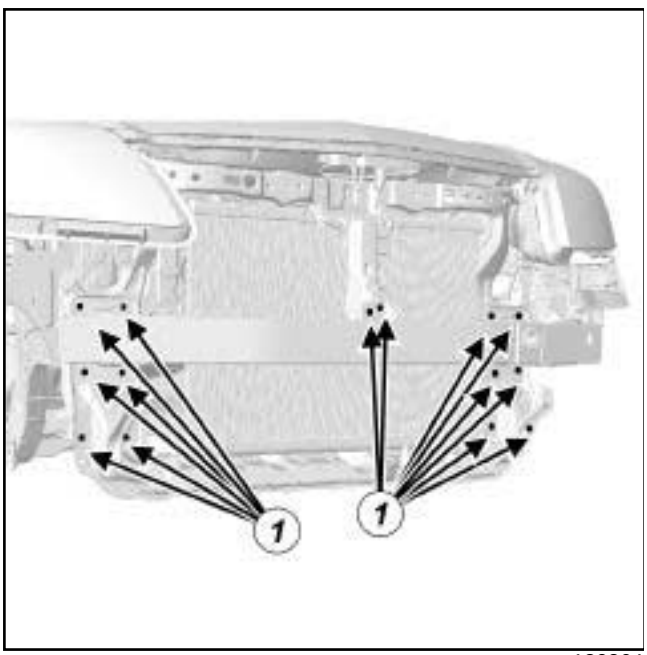
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Remove:

- partially the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the engine lower cover,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the radiator upper grille.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the energy absorber from the front bumper.




130264

❑ Remove:

- the bolts (**1**) ,
- the front impact cross member.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the front impact cross member,
- the bolts ***(1)*** .

❑ Torque tighten the **front impact cross member bolts (21 N.m)**.

❑ Refit the energy absorber of the front bumper.

### II - FINAL OPERATION

❑ Refit:

- the radiator upper grille,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the engine lower cover,
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).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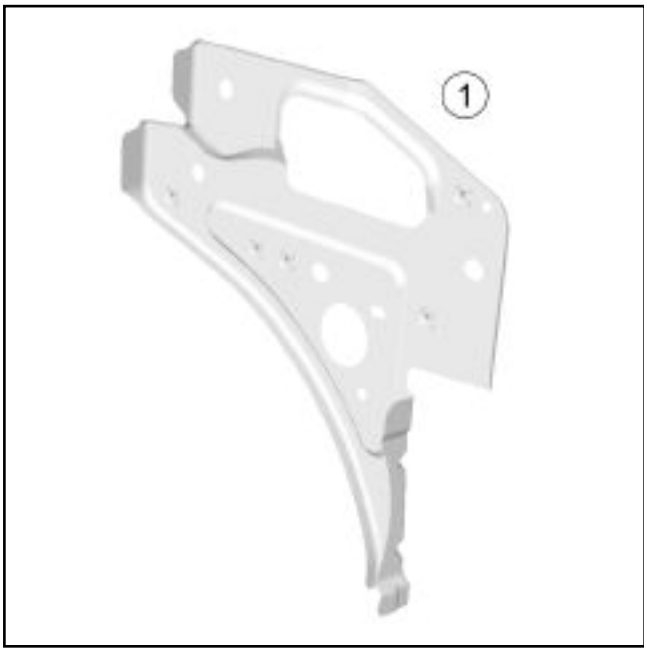
There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

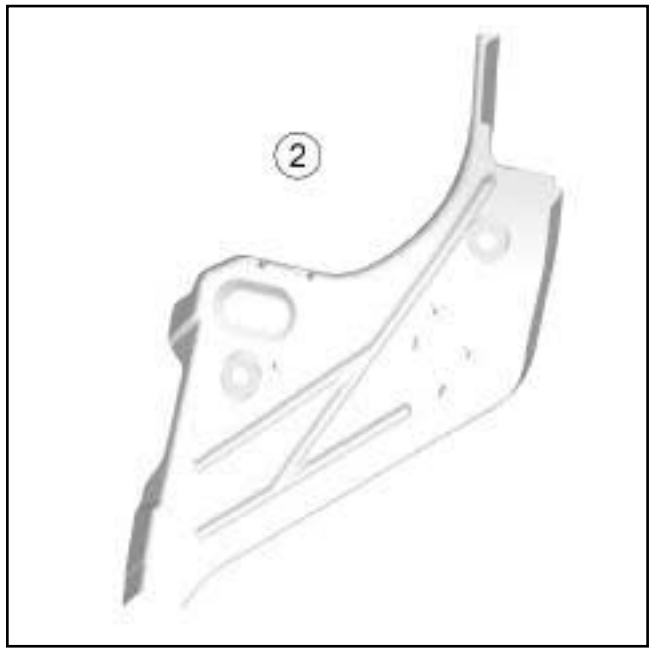
**Right-hand side**




130087

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Front end side cross member, right-hand side | HEL | **1.4** |

**Left side**

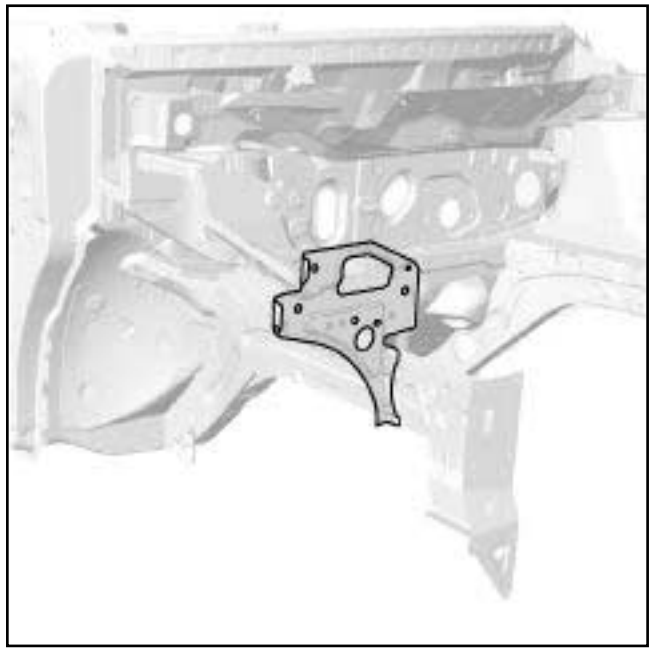



130088

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**2**) | Front end side cross member, left-hand side | HEL | **1.6** |

**II - PART FITTED**

**Right-hand side**



130089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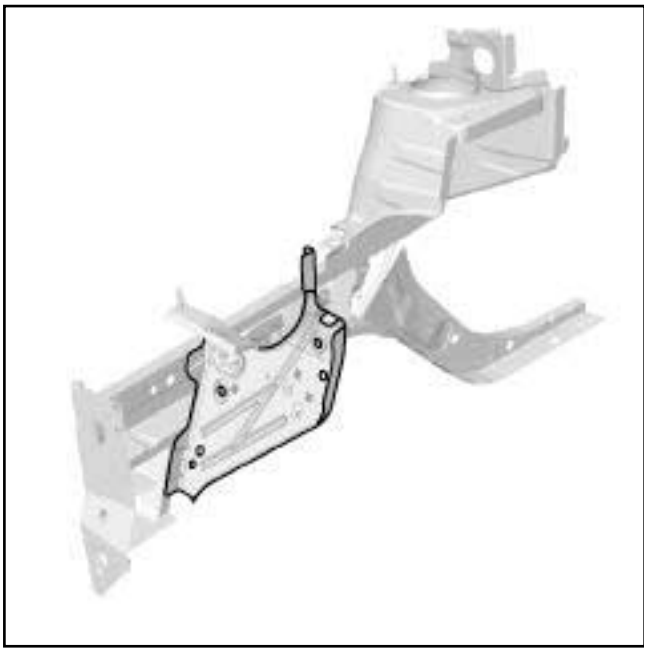
**Left side**



130090

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).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**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

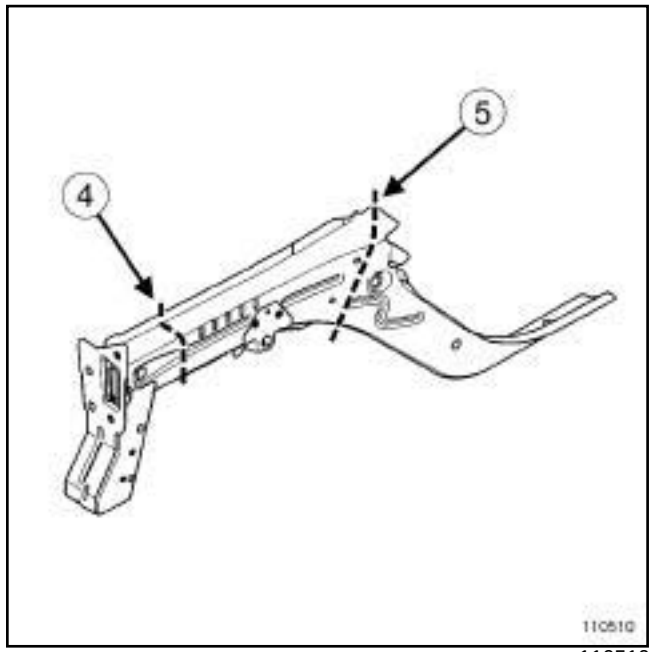
For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

110509

The special feature of this type of part is that it combines the functions of front section and rear section of the front side member and that it is made of two different kinds of panels of different thicknesses assembled by laser butt welding.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT




110510

**1 - Cut 1:**

This line shows the centre of the area in which it is possible to carry out a partial replacement.

This operation allows you to access the inside of the hollow section of the structural element to straighten it.

Note:

For the partial replacement of parts constituting a single structural component, it is essential to stagger the welds of each of the components.

In this case, the side member weld line must be staggered from that of its closure panel.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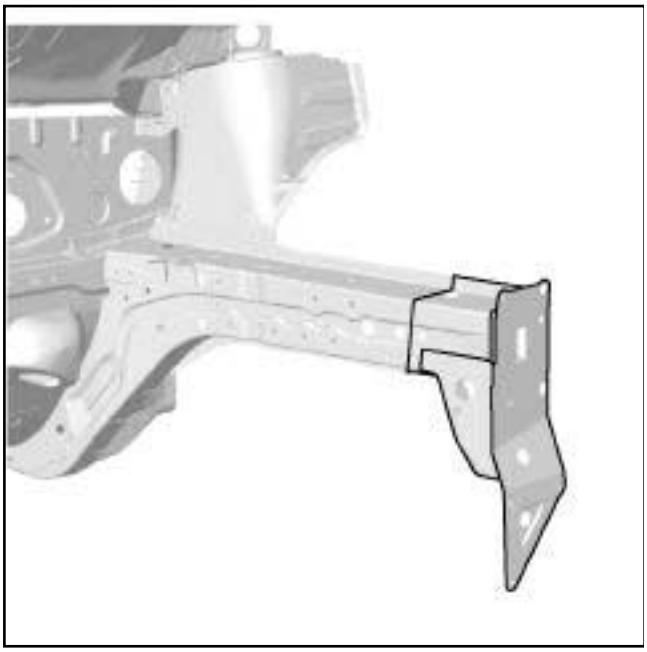
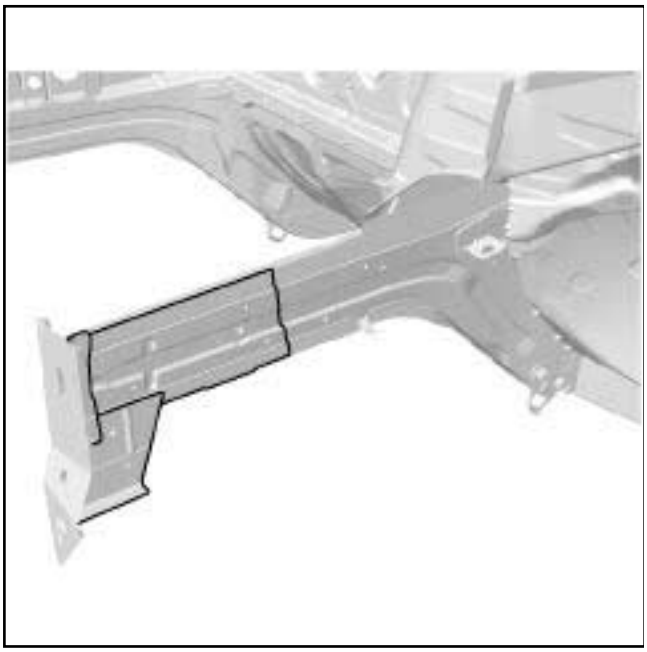


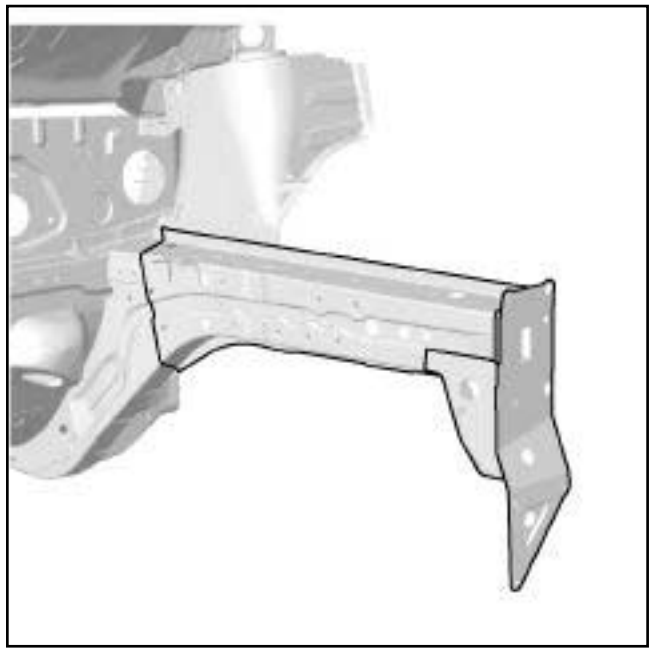
130093



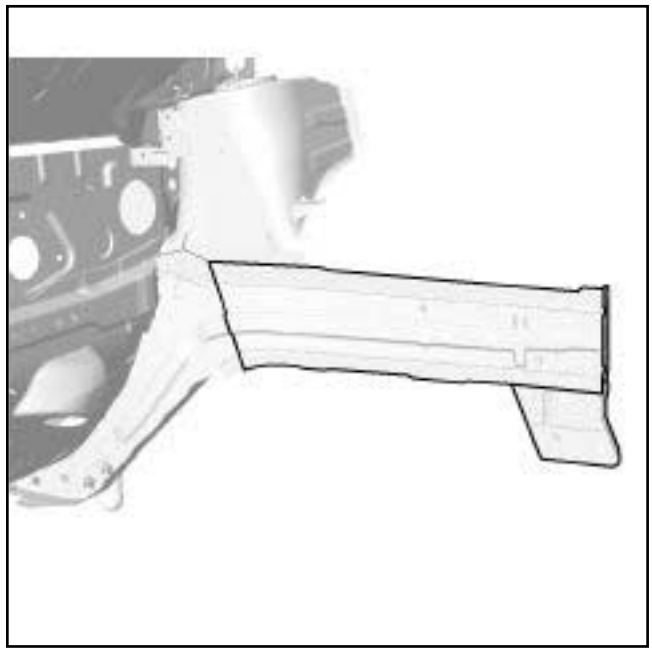
130094

**2 - Cut 2:**

The cut is made along the butt weld.



130095



130096

**III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT**

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).



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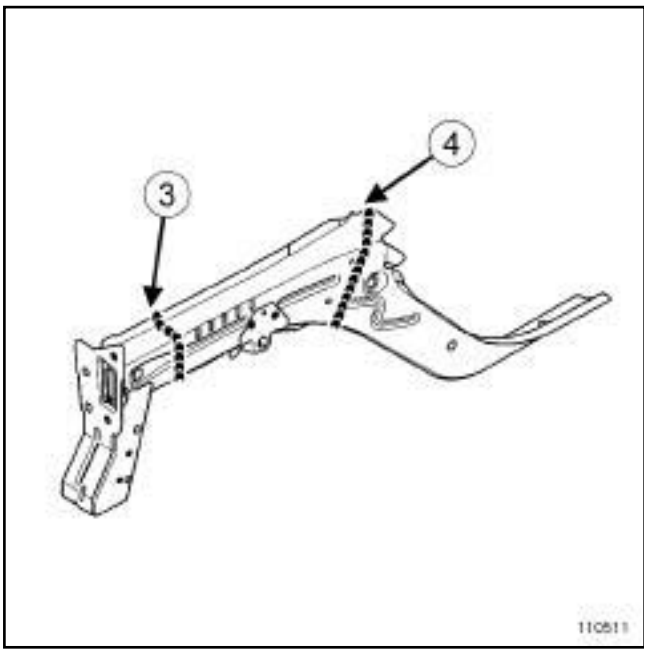
If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).




110511

Lines (**3**) and (**4**) on the diagram show a butt weld by continuous EGW welding.

Weld (**4**) along the butt weld line.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130098

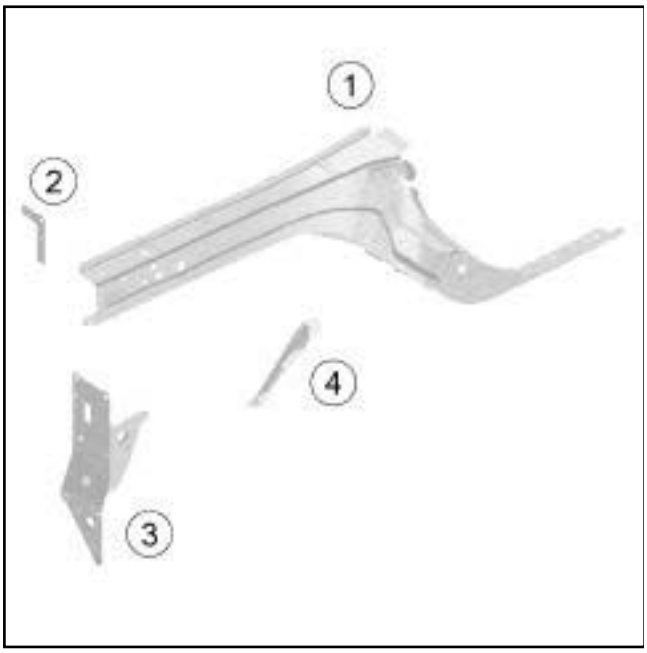
To replace this part, order the front side member expanding insert (**A**) .

The options for replacing this part are as follows:

- partial replacement of front end section,
- partial replacement of the front section.

**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**



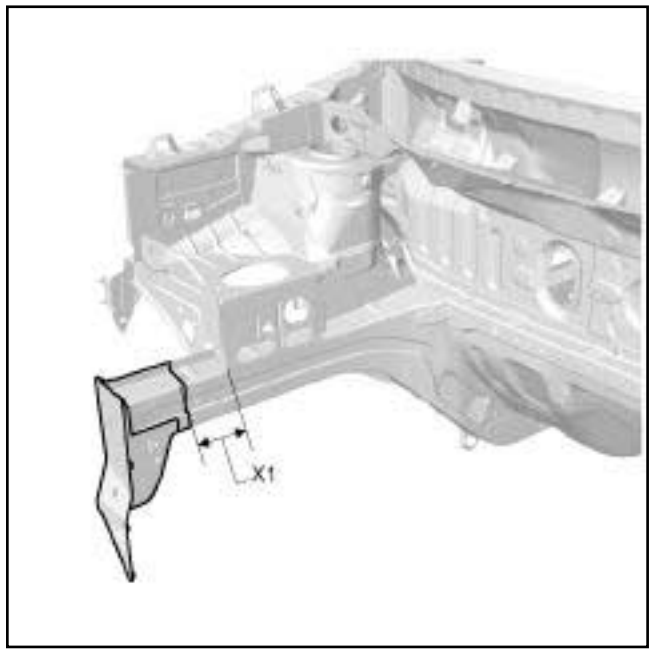

130099

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Front side member | HLE/ THLE | **1.7** / **2.0** |
| (**2**) | Front side member brace | HEL | **1.8** |
| (**3**) | Front suspen-sion member mounting bracket | | |
| (**4**) | Front side member rein-forcement | HEL | **1.4** |

**II - PART FITTED**

**1 - Partial replacement of front end section (right-hand side)**

**WARNING**
Respect the position of this cut which has been determined in accordance with the position of the inner stiffeners or acoustic inserts, in order to prevent damaging the parts (inner stiffener and/or acoustic insert).




130100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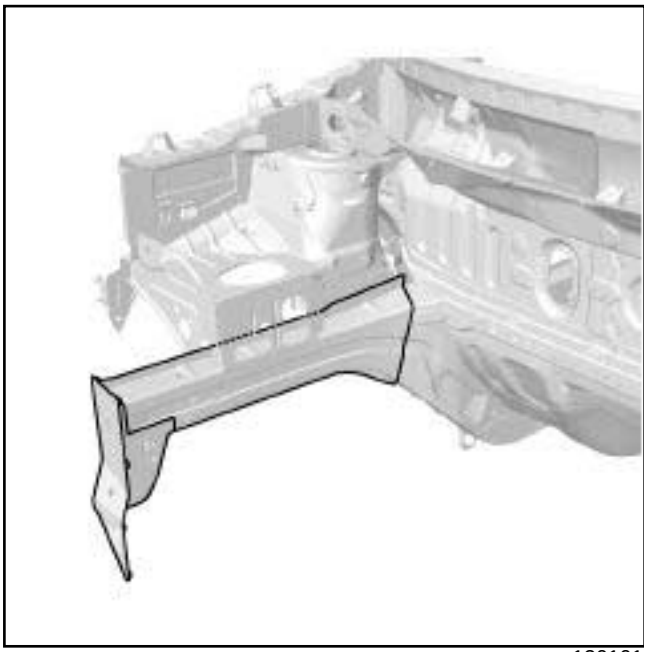
(**X1**) = **82 mm**

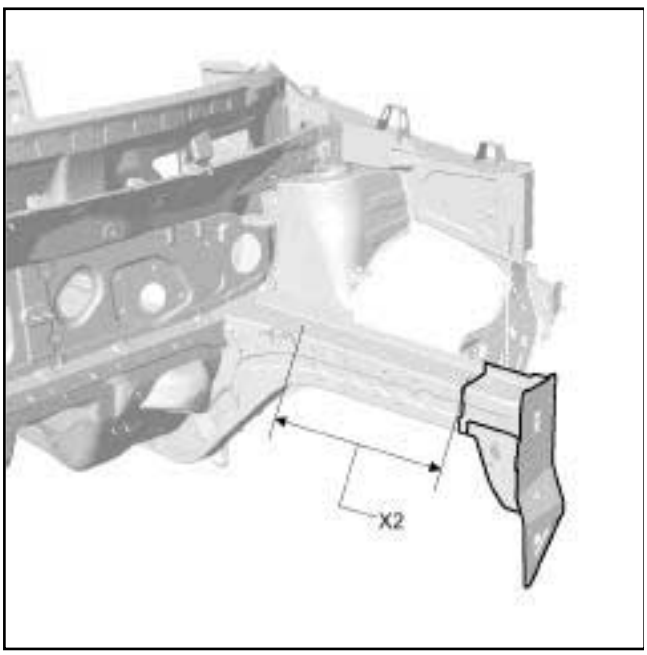
**2 - Partial replacement of front end section (right-hand side)**



130101

**WARNING**
To preserve the mechanical specifications of the part, make the cut along the line of the original butt weld.

**3 - Partial replacement of front end section (left-hand side)**

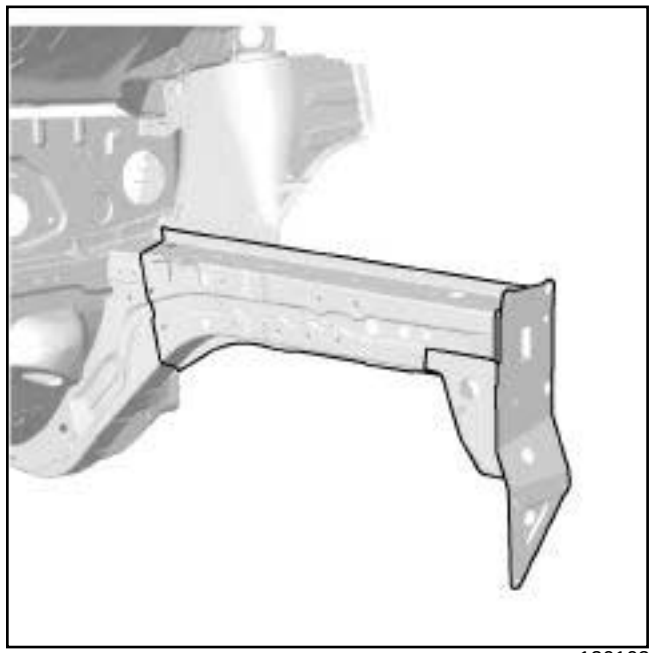



130102

(**X2**) = **335 mm**

**WARNING**
Respect the position of this cut which has been determined in accordance with the position of the inner stiffeners or acoustic inserts, in order to prevent damaging the parts (inner stiffener and/or acoustic insert).

**4 - Partial replacement of front end section (left-hand side)**



130103

**WARNING**
To preserve the mechanical specifications of the part, make the cut along the line of the original butt weld.

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**

**WARNING**
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).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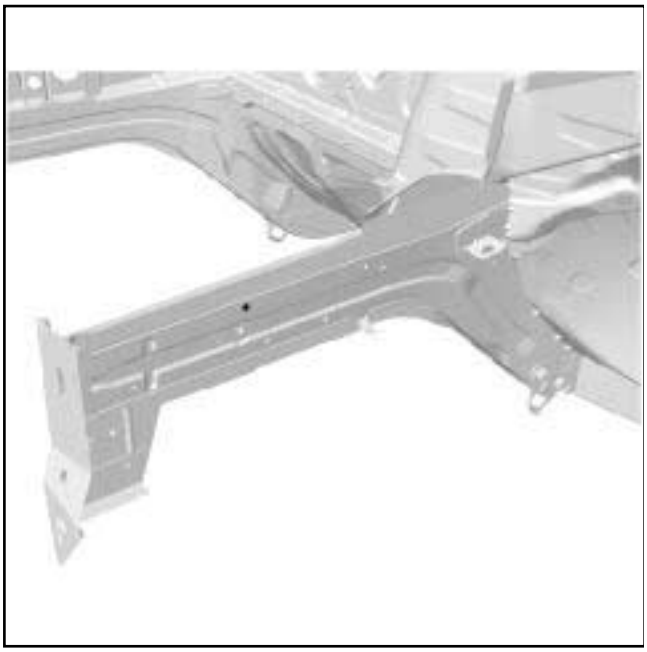
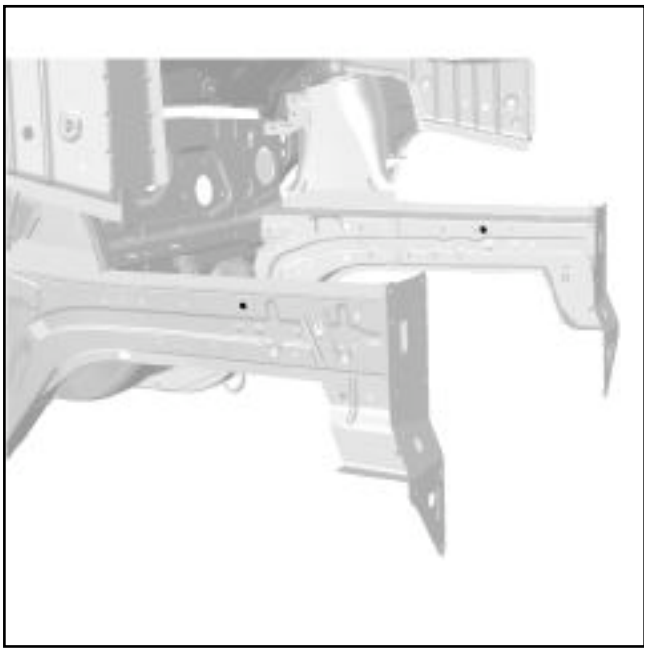


130104



130105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**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

130106

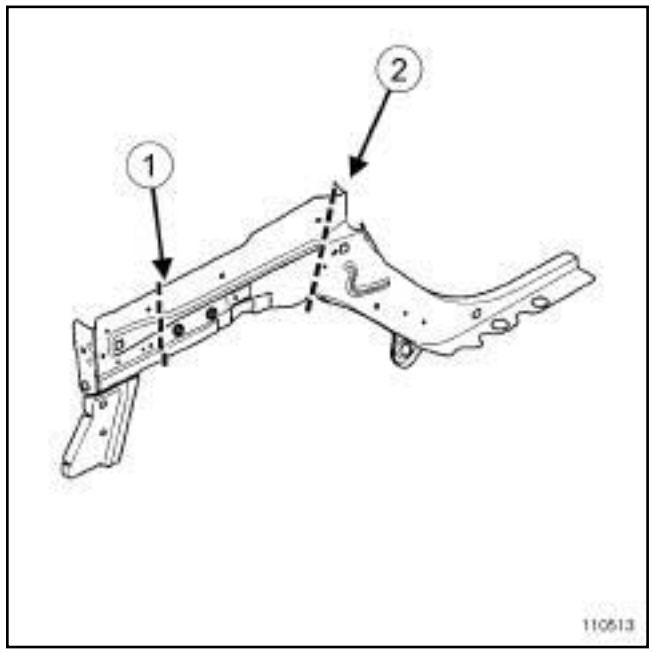
The special feature of this type of part is that it combines the functions of both the front section and rear section of the front side member closure panel and that it is made of two different kinds of panels of different thicknesses assembled by laser butt welding.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT

Note:

For the partial replacement of parts constituting a single structural component, it is essential to stagger the welds of each of the components.

For removal of the side member (see **41A**, **Front lower structure**, **Front side member: Description**, page **41A-8**) .




110513

**1 - Cut 1:**

This line shows the centre of the area in which it is possible to carry out a partial replacement.

This operation allows you to access the inside of the hollow section of the structural component to straighten it.



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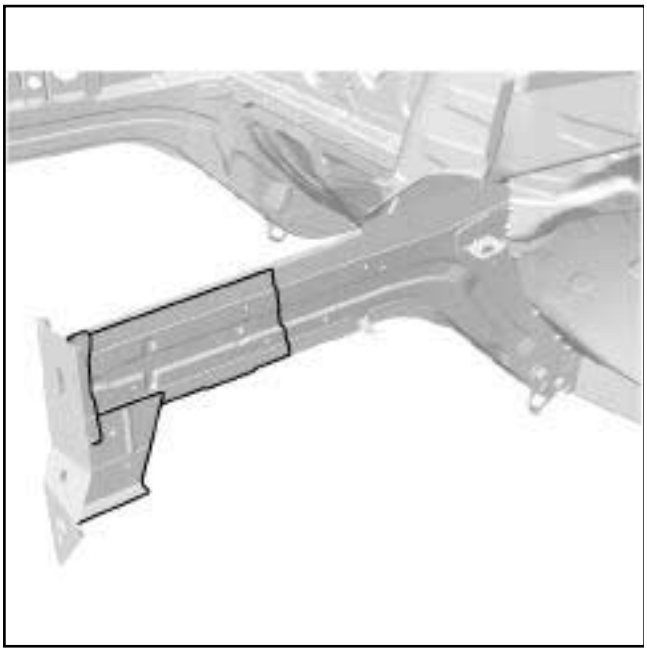
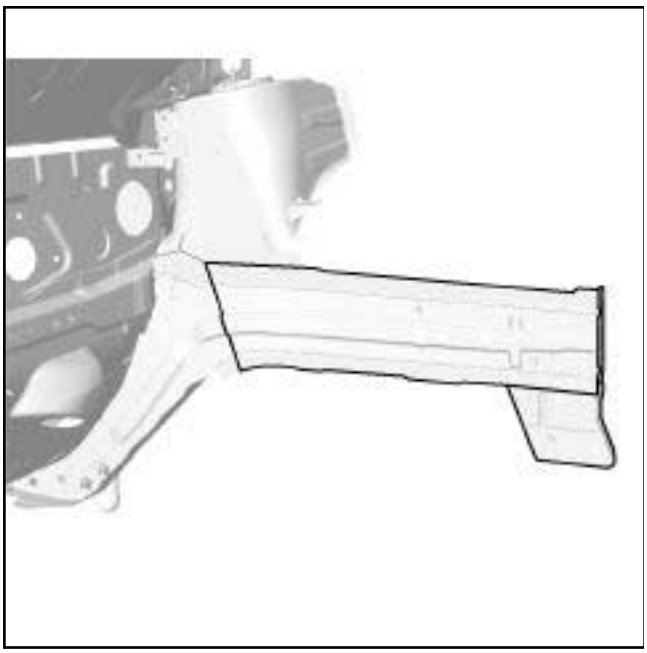


130108

**2 - Cut 2:**

The cut must be made on the splice.



130109

**III - ASSEMBLY INSTRUCTIONS FOR A PARTIAL REPLACEMENT**

In this case, the side member weld line must be staggered from that of its closure panel.

Note:

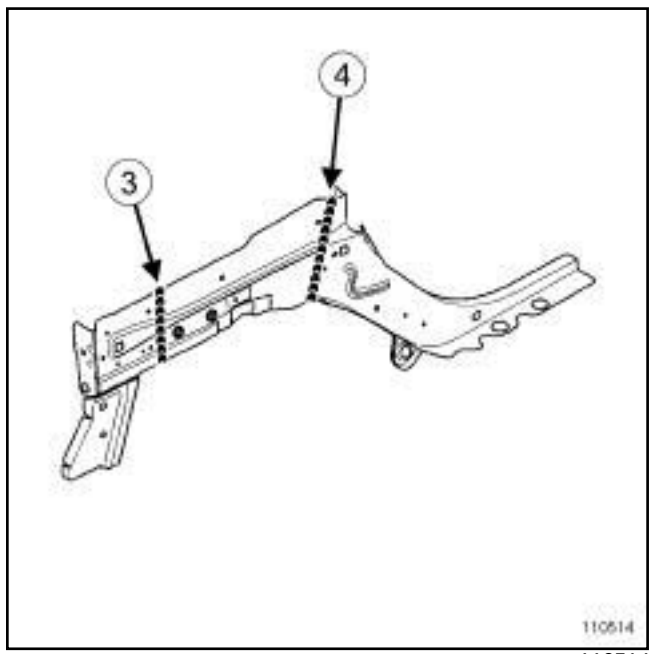
For the partial replacement of parts constituting a single structural component, it is essential to stagger the welds of each of the components.

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).




110514

Lines (**3**) and (**4**) on the diagram show a butt weld by continuous EGW welding.

Weld (**4**) along the butt weld line.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130111

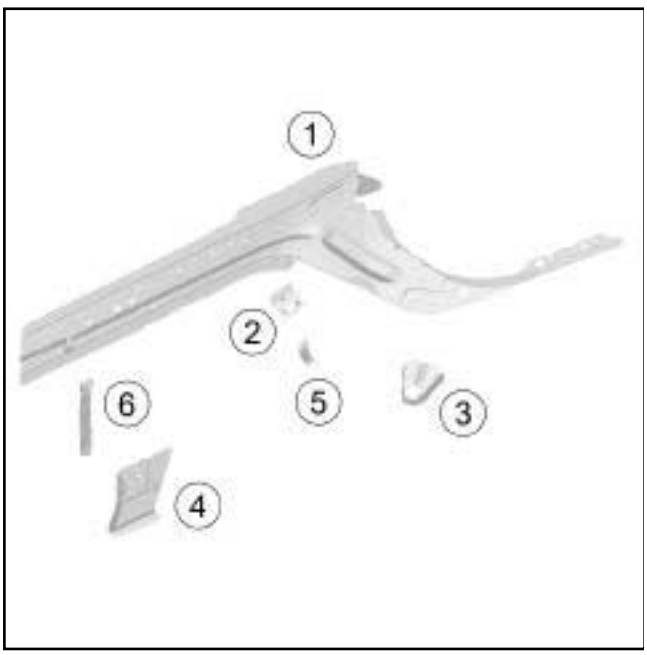
The options for replacing this part are as follows:

- partial replacement of front end section,

- partial replacement of the front section.

**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**




130112

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Side member closure panel | HLE/ THLE | **1.7/2.0** |
| (**2**) | Flexible brake pipe mounting | HEL | **2.3** |
| (**3**) | Front tie down hook | Very high yield strength | **4.0** |
| (**4**) | Front suspen-sion mounting outer bracket | HEL | **1.5** |
| (**5**) | Sensor wiring mounting | HEL | **2** |
| (**6**) | Front side mem-ber flange | HEL | **2.3** |

**II - PART IN POSITION**

**1 - Partial replacement of the front end section**

**WARNING**
To preserve the mechanical specifications when partially replacing parts with a single structural component, alter the weld lines for each of these components.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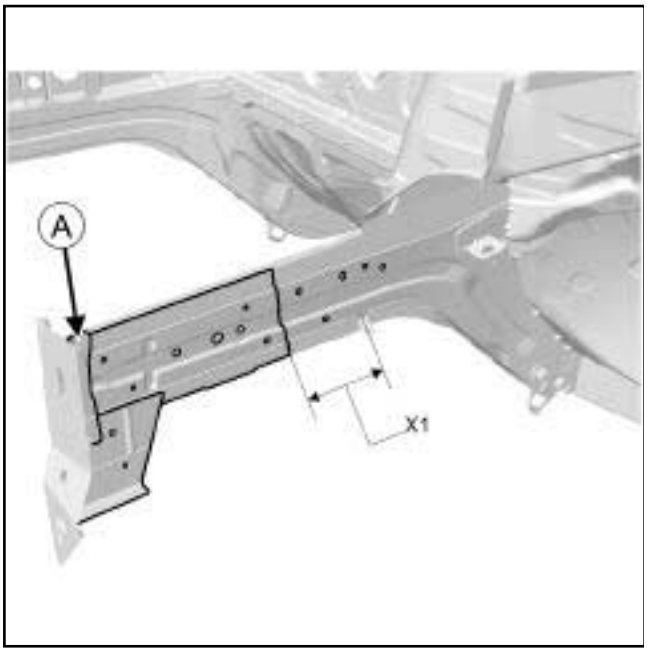



130113

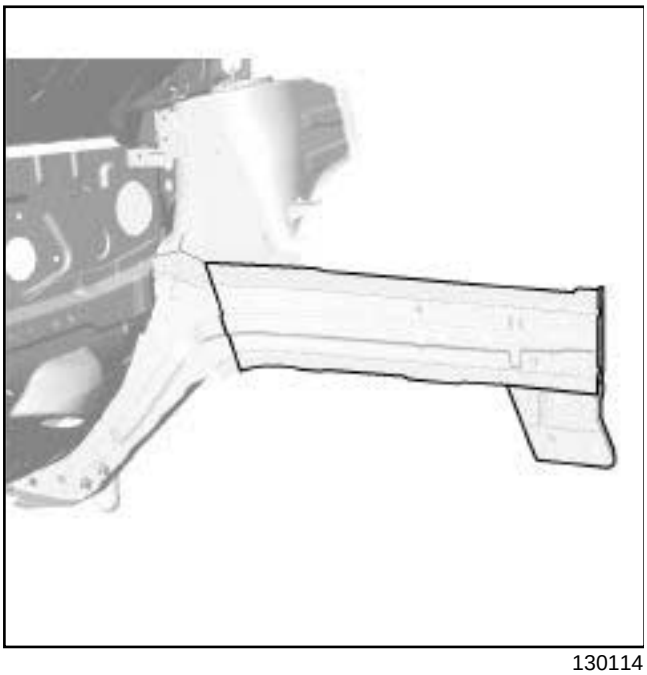
**(X1) = 132 mm**

Note:

For weld joints in three thicknesses ***(A)*** , the spot welds on the part replaced should be made in the same place as for the original joint to retain its mechanical properties (see **MR 400**).

**2 - Partial replacement of the front section**

To make this cut, first remove the front side member part section along the line of the butt weld.



130114

**WARNING**

To preserve the mechanical specifications of the part, make the cut along the line of the original butt weld.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**WARNING**

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400, 40A, General Information.**

**DESIGN OF THE STRUCTURAL COMPONENT**

130115

This is a basic part; its only function is that of front side member, centre section.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).


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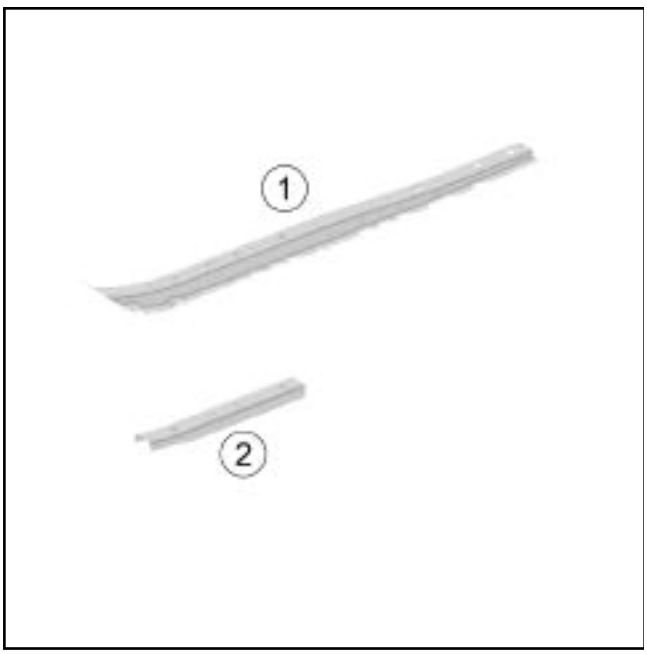
130265

There is only one way of replacing this part:

- complete replacement.

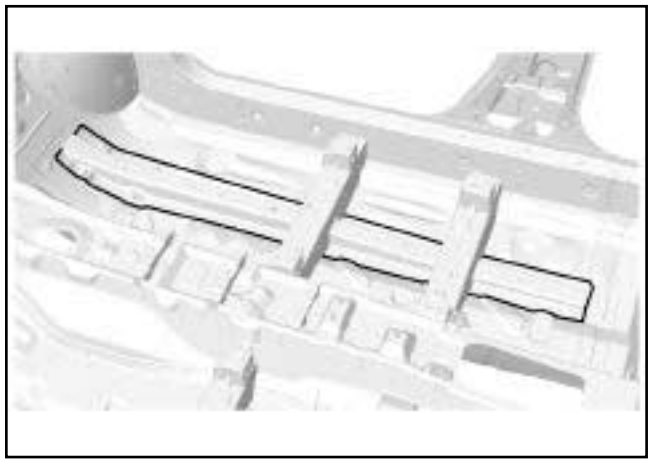
**I - COMPOSITION OF THE SPARE PART**




130266

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Centre side member | Very high yield strengt h | **1.8** |
| (**2**) | Centre side member reinfor-cement | Very high yield strengt h | **2.0** |

**II - PART FITTED**



130267

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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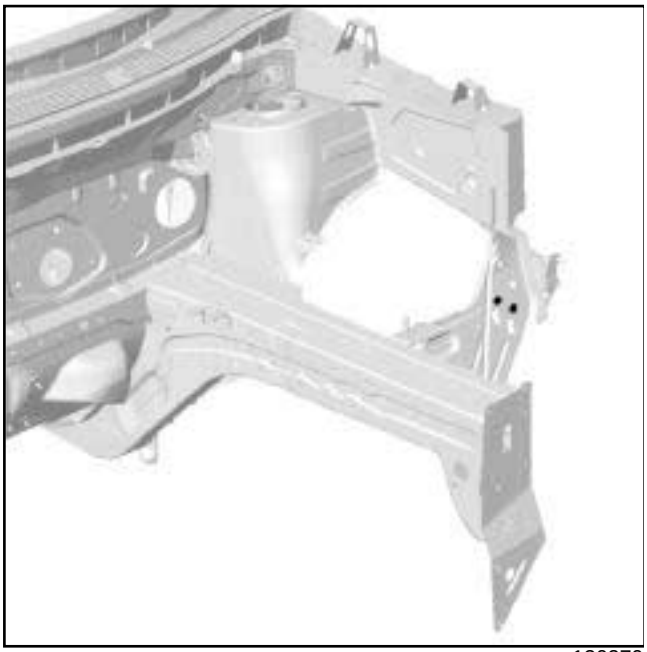
**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130270

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as closely as possible to the weld area (see **MR 400**).



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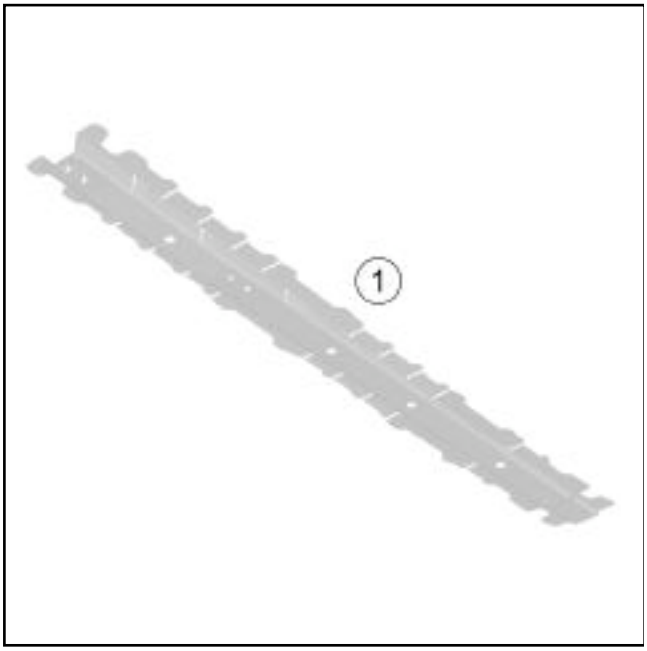
There is only one way of replacing this part:

- complete replacement.

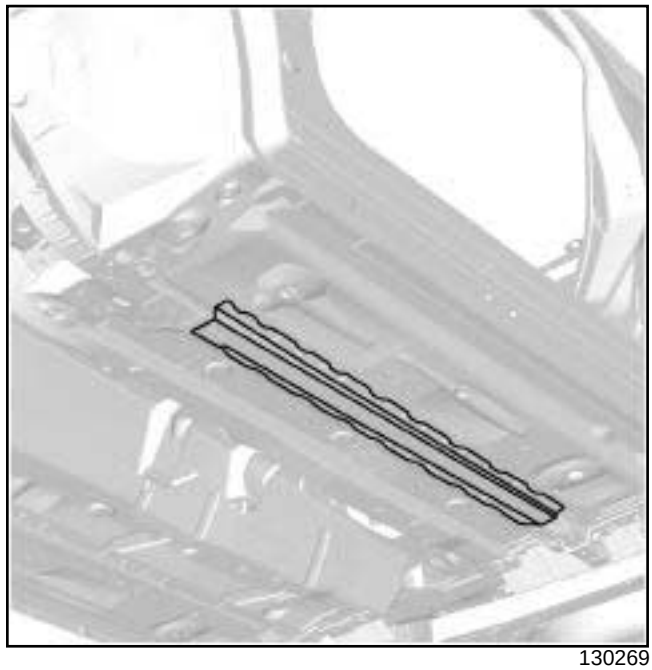
**I - COMPOSITION OF THE SPARE PART**




130268

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Front side mem-ber rear part | HEL | **1.0** |

**II - PART FITTED**

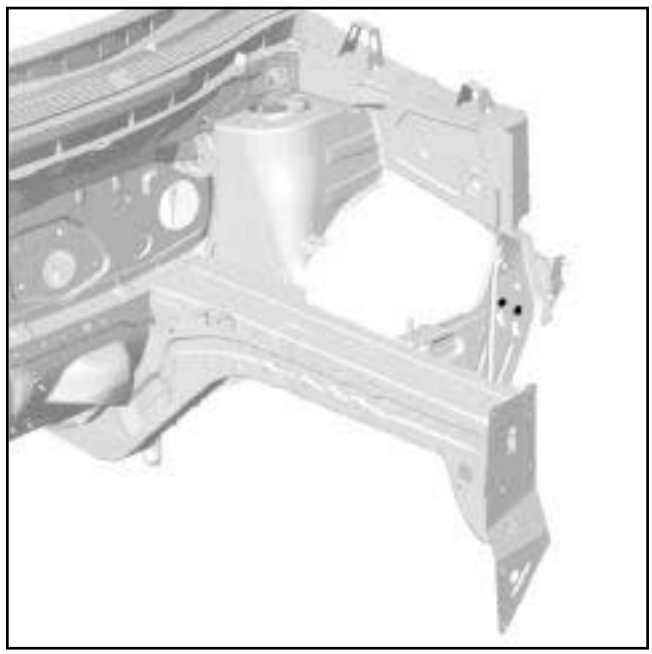


130269

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130270



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**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as closely as possible to the weld area (see **MR 400**).


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**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

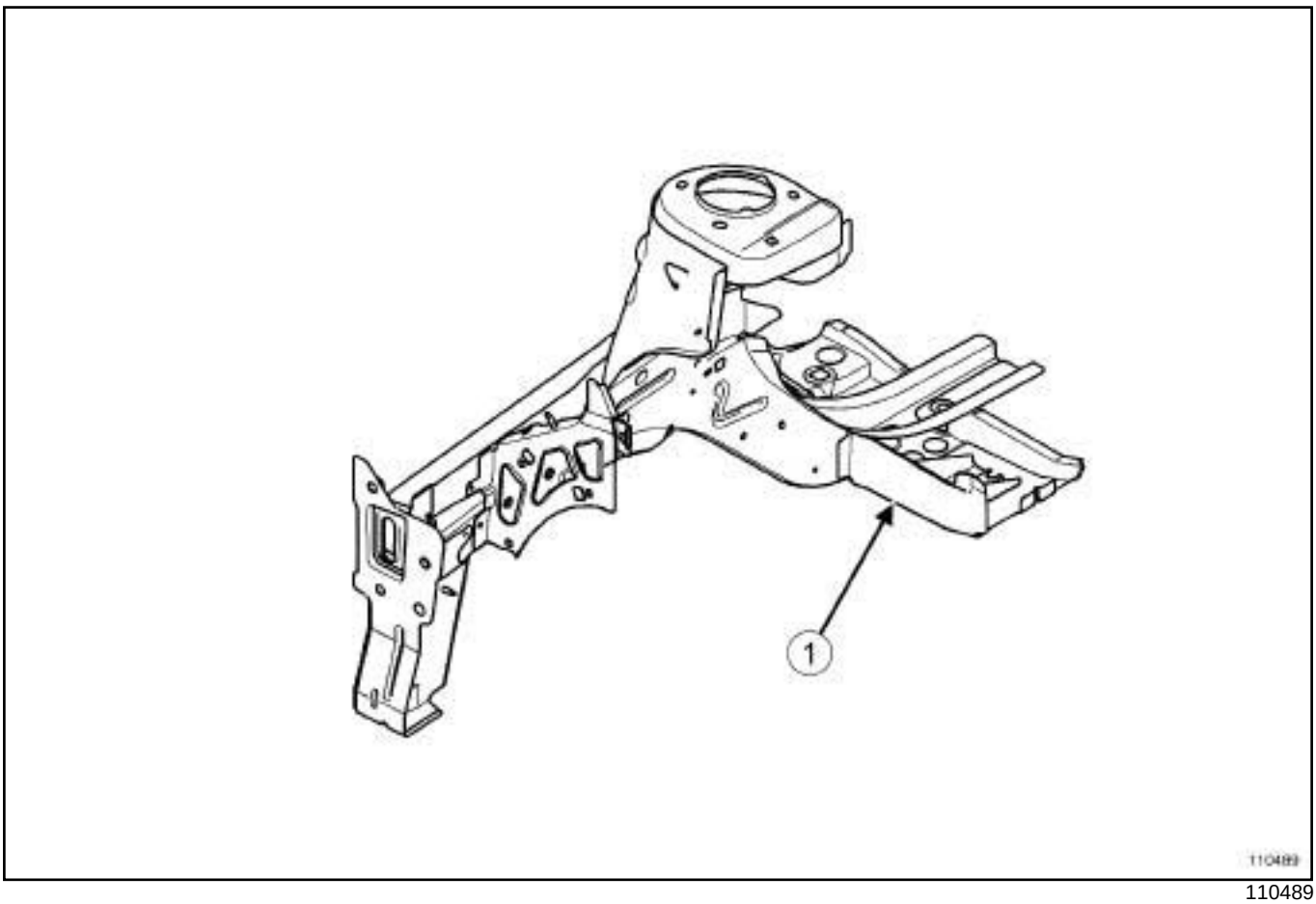
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**




110489

The front sub-frame rear mounting (**1**) is welded to the front half unit.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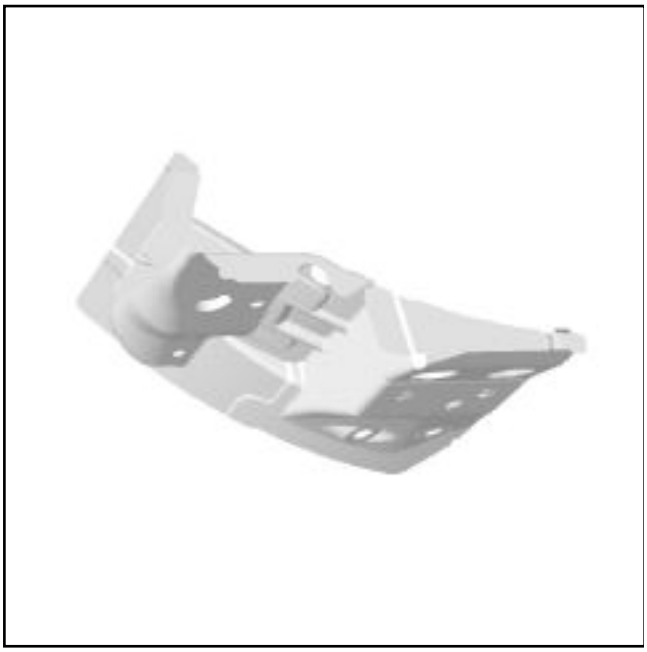
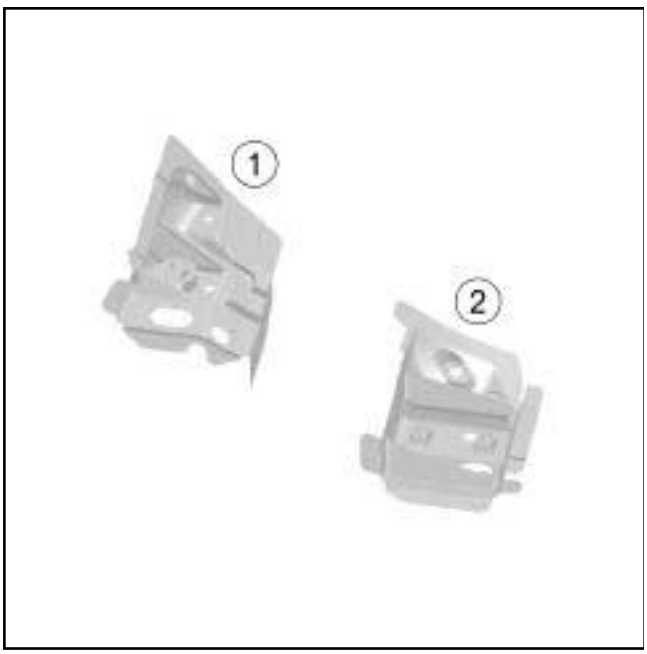


130271

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**




130272

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Front subframe rear mounting | HEL | **2.0** |
| (**2**) | Rear subframe rear mounting | HEL | **1.2** |

**II - PART FITTED**

**Complete replacement**

130273

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**

102623

This is a basic part; it only functions as an engine mounting.


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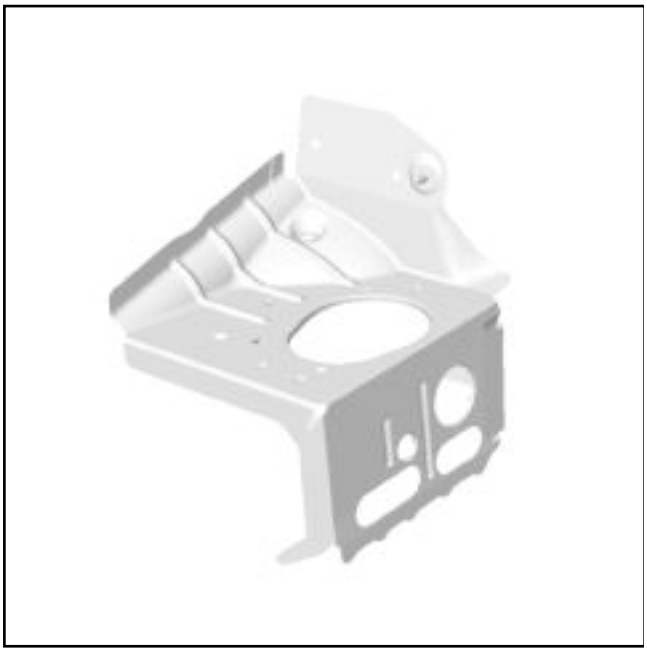

130117

There is only one way of replacing this part:

- Complete replacement: this operation complements the replacement of the scuttle panel for a frontal impact and the partial replacement of the front side member and front wheel arch for a right-hand side impact.

**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**

**Engine mounting, low torque**

130119

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Engine mounting upper section | HEL | **2.0** |
| (**2**) | Engine mounting rear section | HEL | **2.0** |
| (**3**) | Engine mounting height adjuster mounting | HEL | **1.6** |
| (**4**) | Engine mounting rear reinforcement | HEL | **2.0** |


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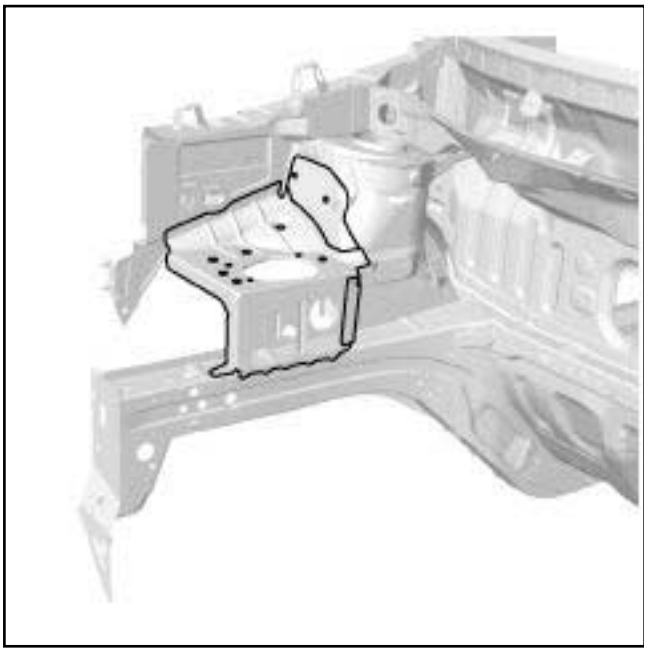
**II - PART FITTED**

**Engine mounting, low torque**



130120

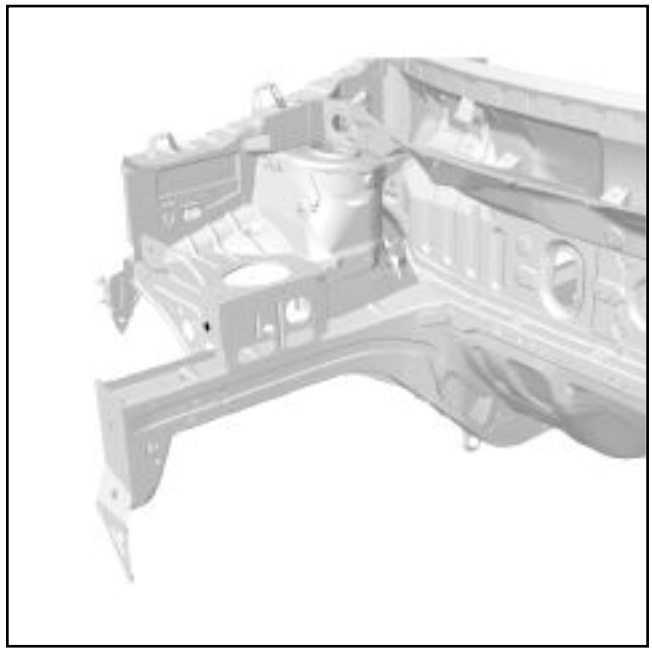
**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**

For the earth stud fitting procedure (see **Earths on the body: List and location of components**)

**Position of the earth stud**



130121



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**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

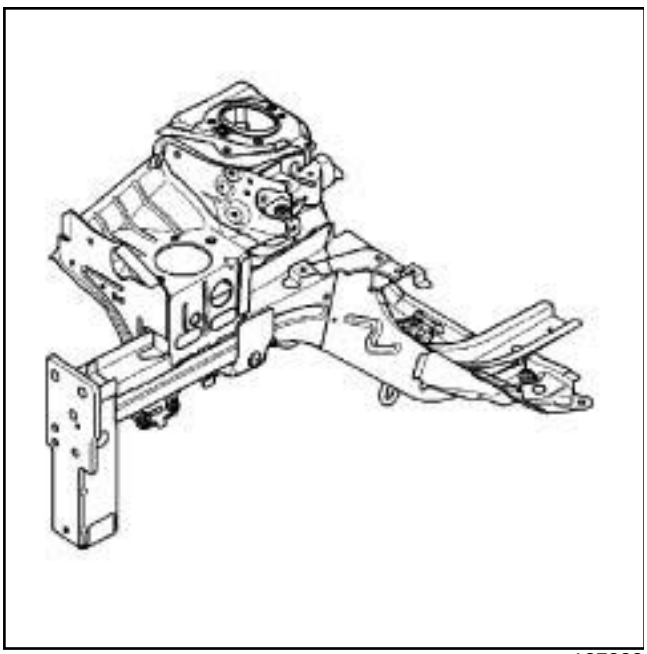
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**



127232

The special feature of this type of part is that it combines the functions of front side member, front wheel arch, centre floor front side cross member and front end side cross member, and is made up of several panels of different types and thicknesses.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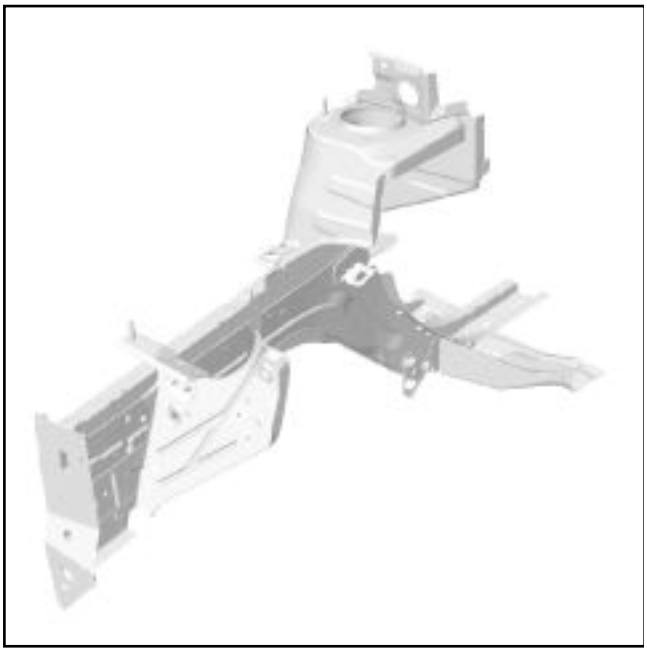
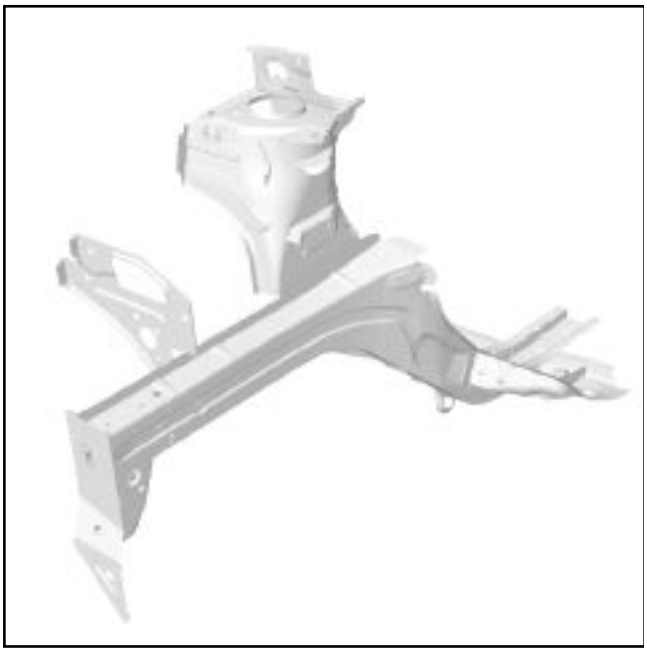


130123



130124

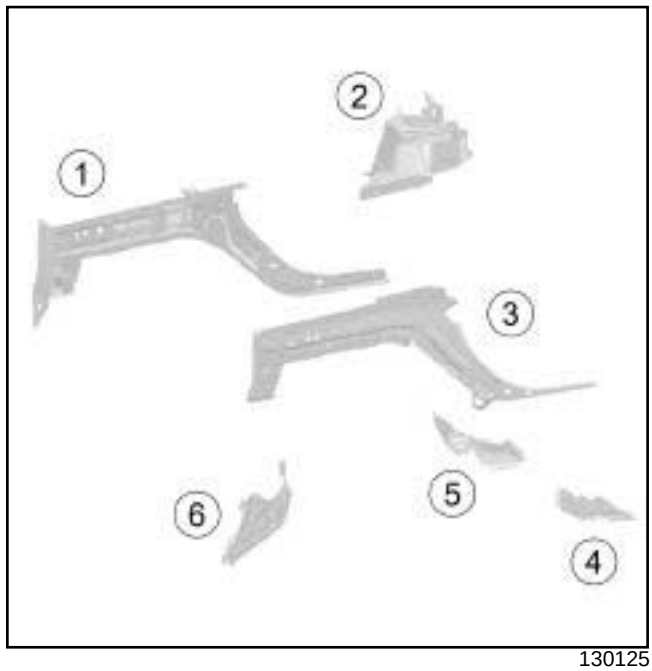
There is only one way of replacing this part:

- complete replacement.

**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**




130125

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Front side member | HLE/ THLE | **1.7/2.0** |
| (**2**) | Front wheel arch | HLE | **1.2** |
| (**3**) | Side mem-ber closure panel | HLE/ THLE | **1.7/2.0** |
| (**4**) | Sub-frame rear mounting | HLE | **1.2** |
| (**5**) | Centre floor front side cross mem-ber | HLE/ THLE | **1.2/1.6** |
| (**6**) | Front end side cross member | HLE | **1.6** |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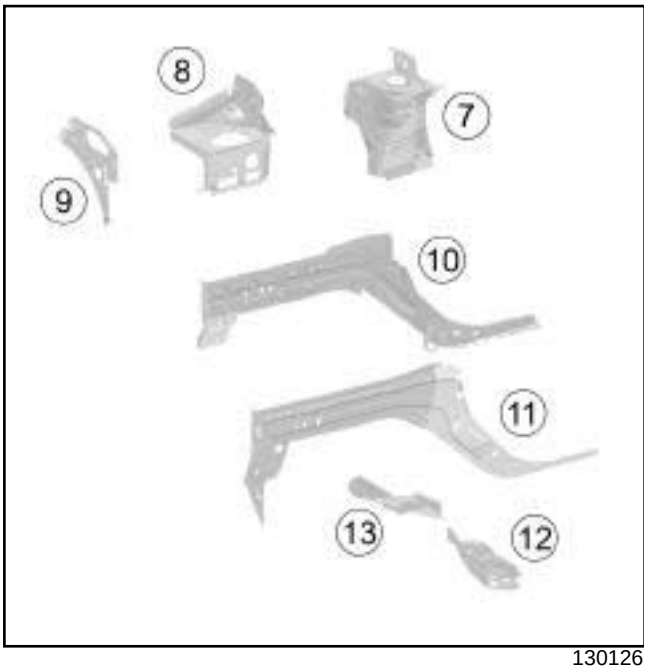
**Right-hand side**

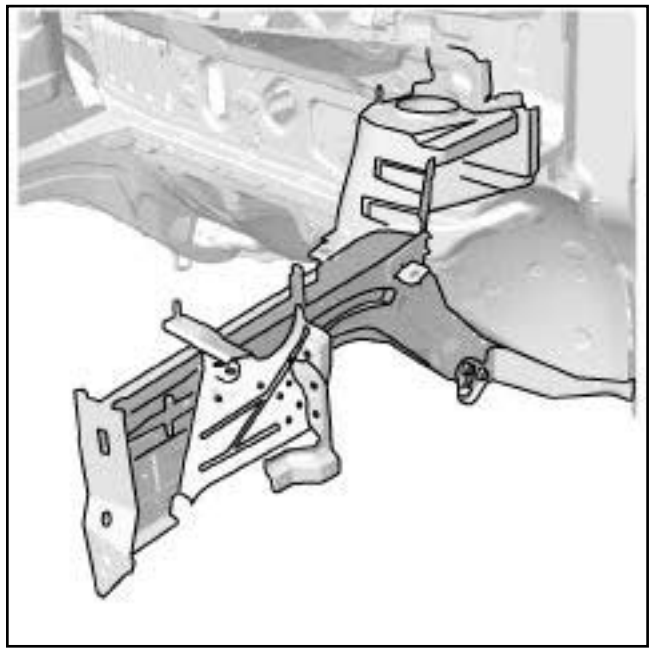



130126

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**7**) | Wheel arch | HLE | **1.2** |
| (**8**) | Engine mounting | HLE | **1.6/2.0** |
| (**9**) | Front end side cross member | HLE | **1.4** |
| (**10**) | Side mem-ber closure panel | HLE/ THLE | **1.7/2.0** |
| (**11**) | Front side member | HLE/ THLE | **1.7/2.0** |
| (**12**) | Sub-frame rear mounting | HLE | **1.2/2.0** |
| (**13**) | Floor front side cross member | HLE | **1.2/1.6** |

**II - PART FITTED**

**Complete replacement**



130127

Note:

Use a repair bench to check the positioning of the points and the geometry of the axle assemblies.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).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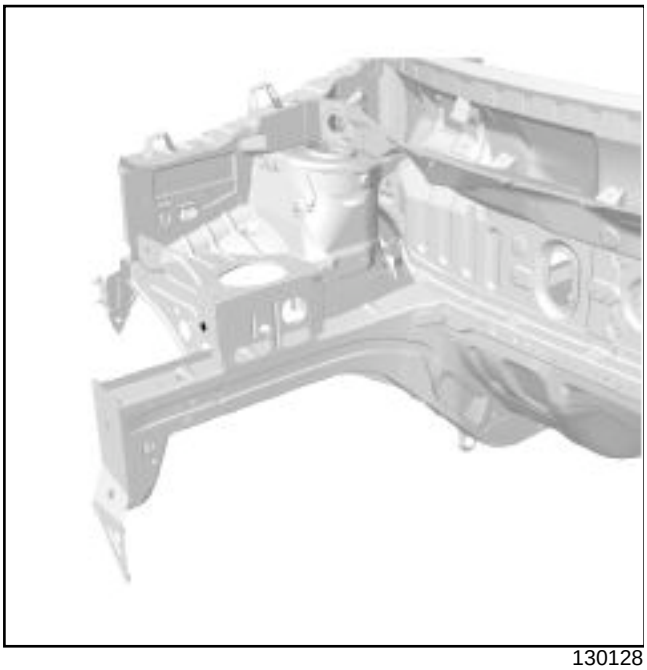
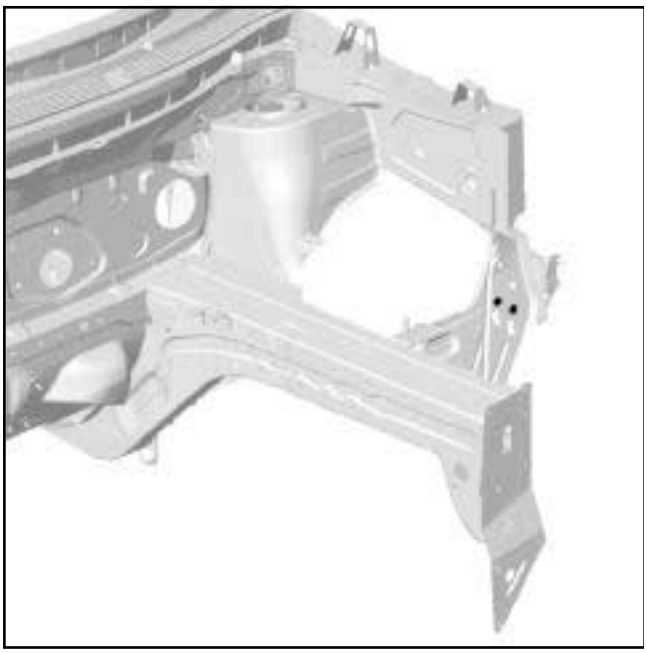
### III - POSITIONING THE EARTH POINTS



130128



130129

**WARNING**

To avoid damaging the vehicle's electrical and electronic components, disconnect the earths of any wiring near the weld area.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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**WARNING**

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

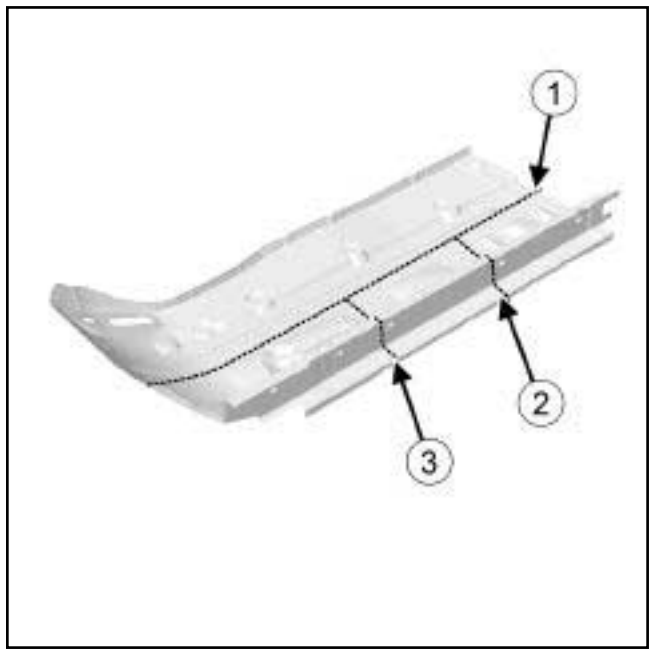
For a detailed description of a particular connection, (see **MR 400**).

## I - DESIGN OF THE STRUCTURAL COMPONENT

130130

The component is made of two different kinds of panel of different thickness assembled by laser butt welding.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT




130131

These cutting lines show the area in which it is possible to carry out a partial replacement of the centre floor side section.

Cut 1, 2 and 3:

- cut (**1**) affects the partial replacement of the centre floor side section,
- cuts (**1**) and (**2**) affect the partial replacement of the rear section of the centre floor side section
- cuts (**1**) and (**3**) affect the partial replacement of the front section of the centre floor side section.

## III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the spot welds cannot be made as they were originally using an electrical spot welding machine, they should be replaced with plug welds after holes have been drilled in the first panel.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400, 40A, General Information**).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130132

Line (**1**) on the diagram shows partial replacement and a weld by joggling with plug welds at regular intervals.

130133

Lines (**1**) and (**2**) on the diagram show the partial rear replacement and a weld by joggling with plug welds at regular intervals.

130134

Lines (**1**) and (**3**) on the diagram show the partial front replacement and a weld by joggling with plug welds at regular intervals.


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130274

The options for replacing this part are as follows:

- partial replacement of the front side section,
- partial replacement of rear side section,
- partial replacement of the side section.

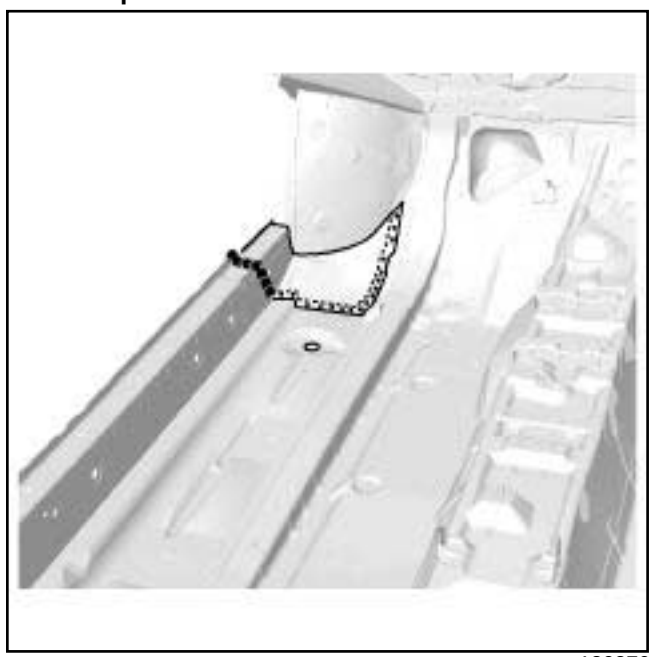
**I - COMPOSITION OF THE SPARE PART**

130275

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Side floor | HLE | **1.0/0.65** |
| (**2**) | Sill panel closure panel | HLE | **1.6** |

**II - PART FITTED**

**Partial replacement of the front end side section**



130276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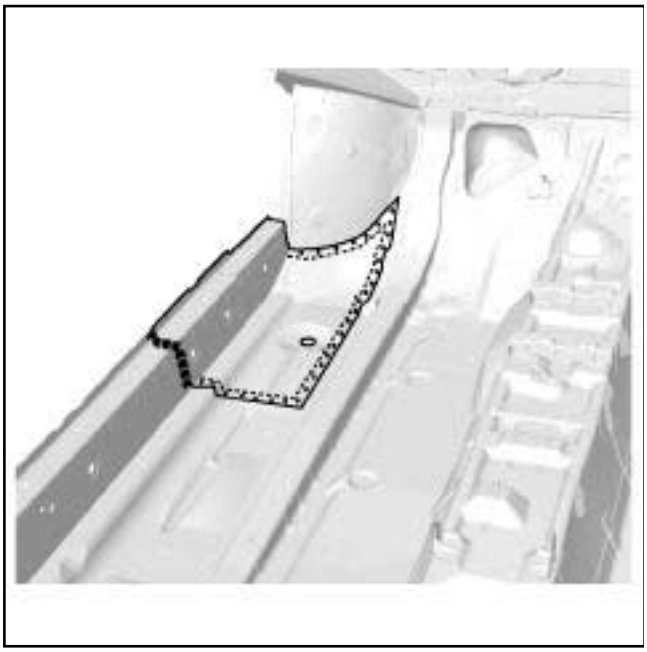
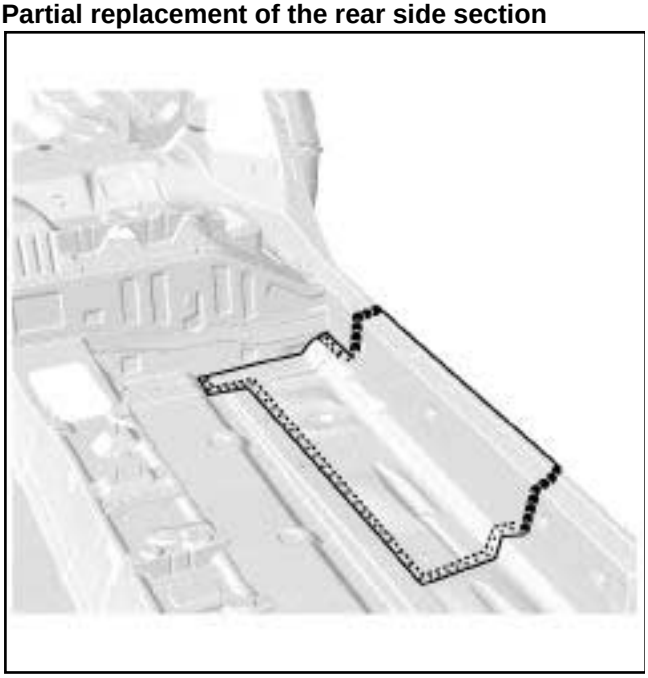
**Partial replacement of the front side section**



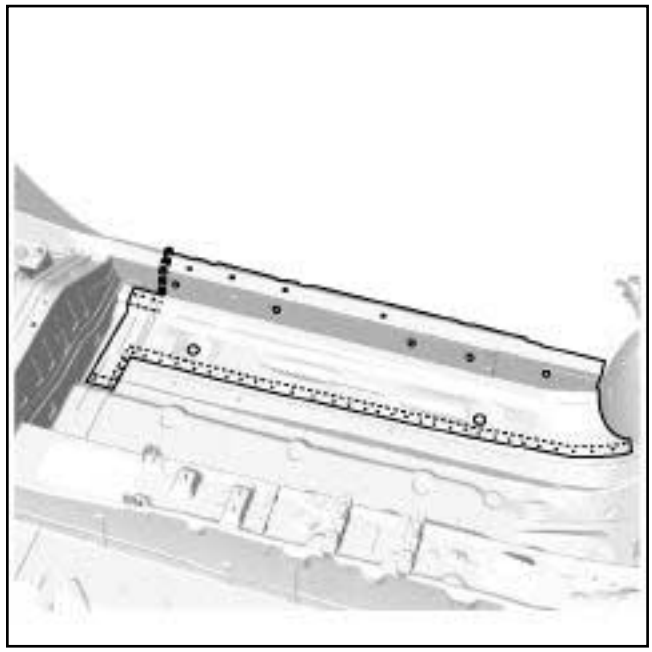
130277

**Partial replacement of the rear side section**



130278

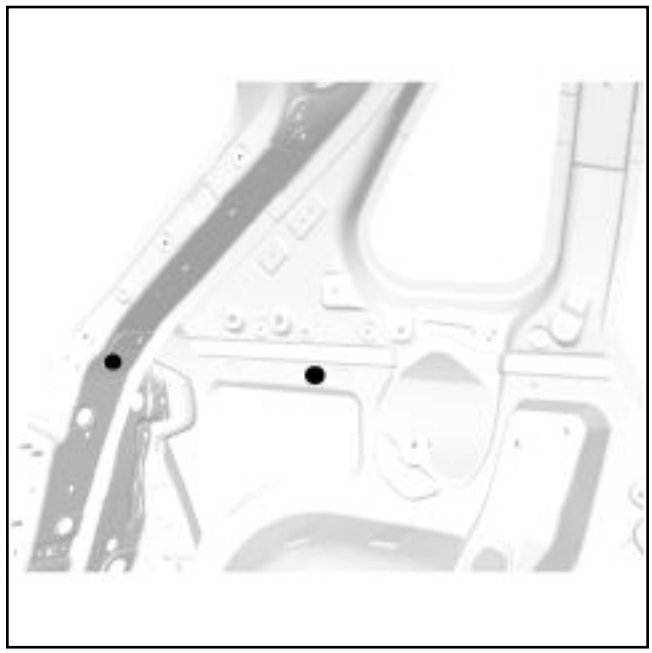
**partial replacement of the side section**



130279

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130280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**WARNING**

To avoid damaging the vehicle's electrical and electronic components, disconnect the earths of any wiring near the weld area.

Position the welding machine earth as close as possible to the weld zone (see **MR 400**).



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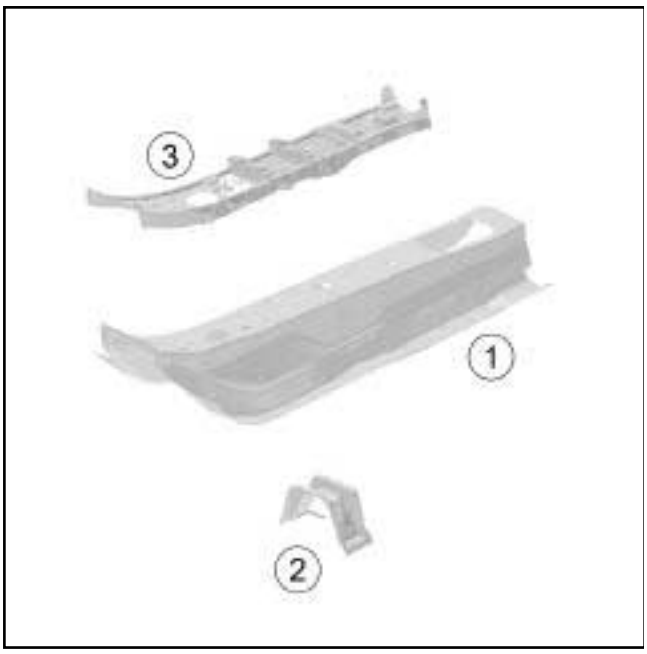
130138

There is only one way of replacing this part:

- complete replacement.

This operation complements the complete replacement of the centre floor side section for a side impact.

**I - COMPOSITION OF THE SPARE PART**

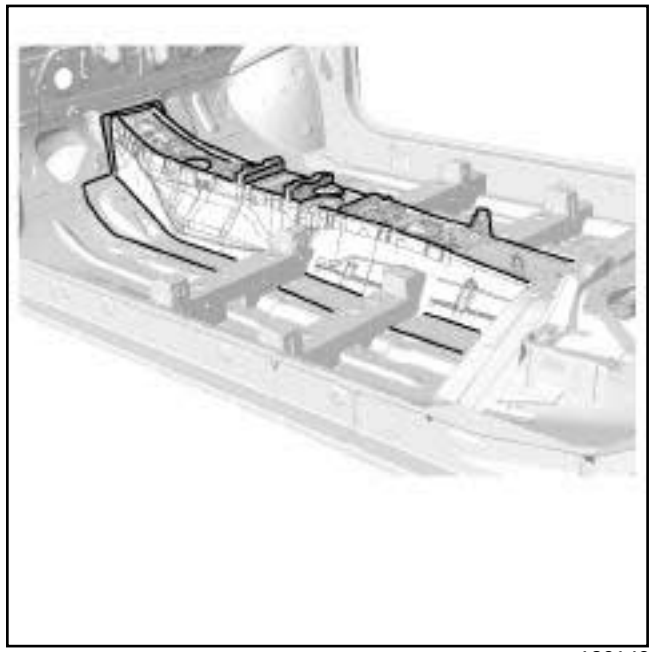



130139

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Tunnel | HLE | **1.2/0.7** |
| (**2**) | Centre cross member under the tunnel | HLE | **1.2/0.7** |
| (**3**) | Tunnel rein-forcement | HLE | **1.2/0.7** |

**II - PART FITTED**

**Complete replacement**



130140

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).



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130135

There is only one way of replacing this part:

- complete replacement.

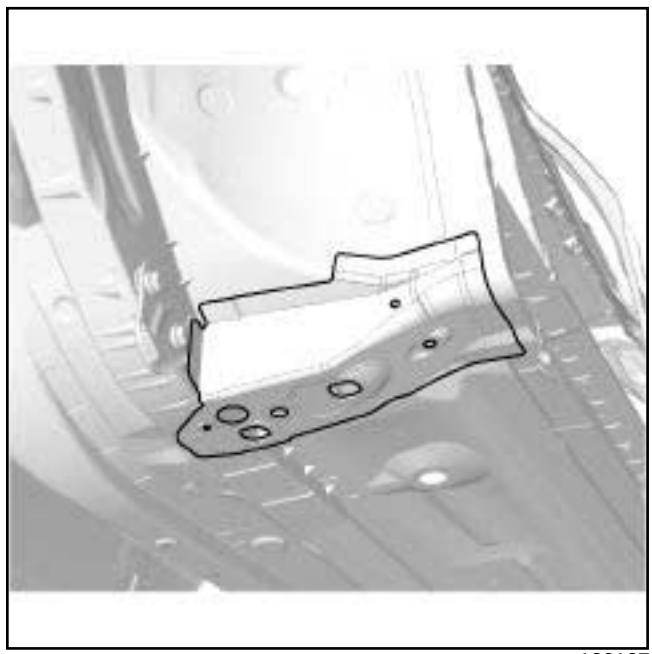
**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**

130136

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Centre floor front side cross mem-ber | HLE | **1.2** |
| (**2**) | Front suspen-sion moun-ting bracket | HLE | **1.6** |

**II - PART FITTED**



130137

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).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Note:

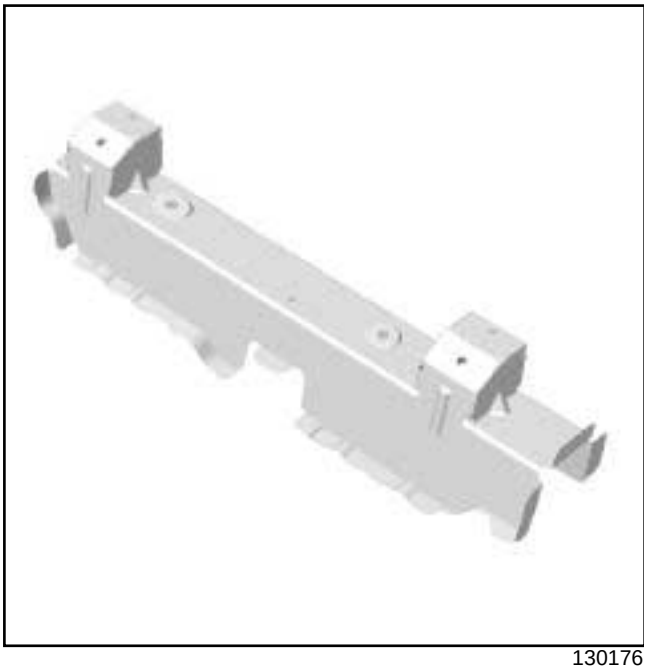
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**



130176

This is a basic part; its function is to secure the front section of the front seat and to stiffen the bodywork in the event of a side impact.



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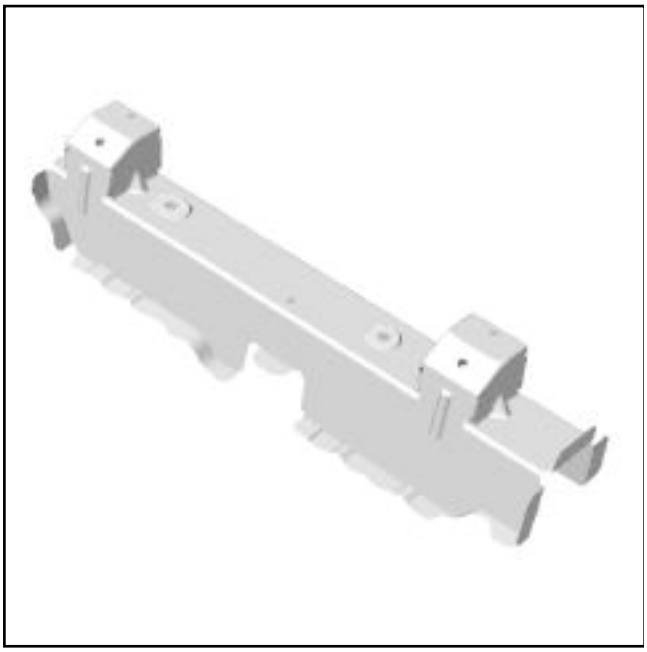
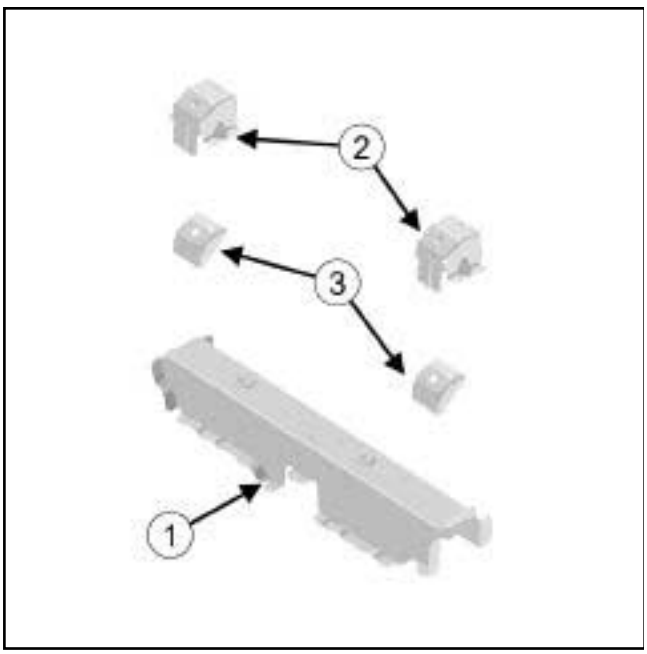


130177

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

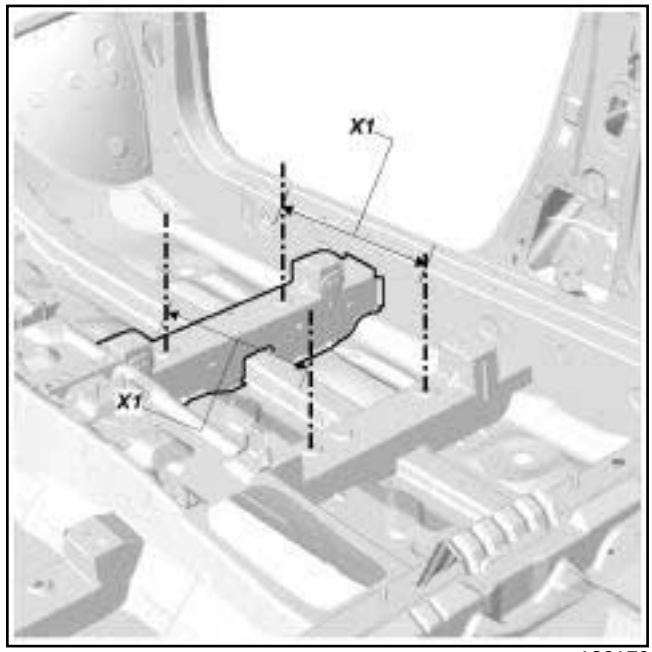



130178

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Front cross member under front seat | HLE | **1.0** |
| (**2**) | Front seat outer support | HLE | **1.0** |
| (**3**) | Outer support reinforcement of front seat | HLE | **1.0** |

**II - PART FITTED**

**Complete replacement**




130179

(**X1**) = 342 mm

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).



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Note:

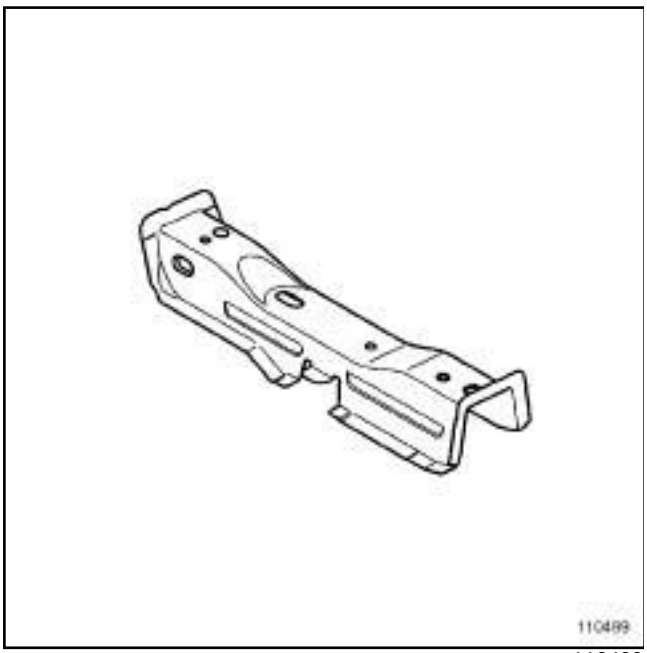
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**




110499

This is a basic part. It serves as a mounting for the rear part of the front seat and to rigidify the body in the event of a side impact.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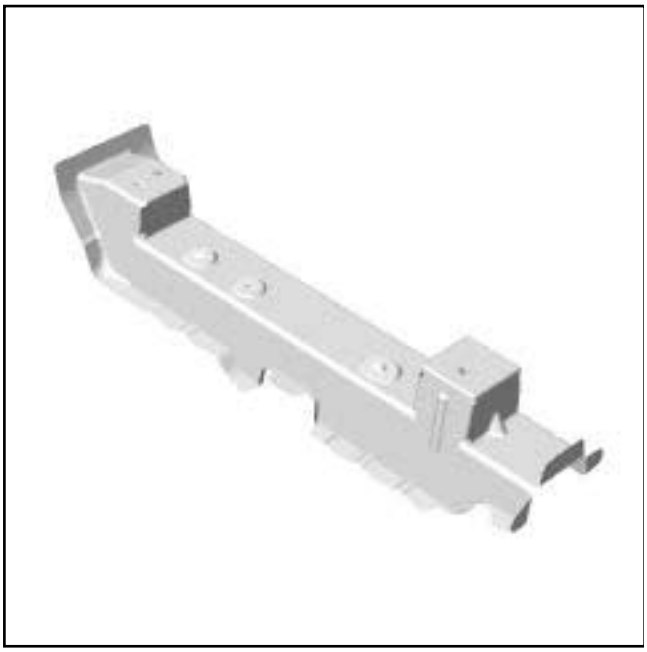
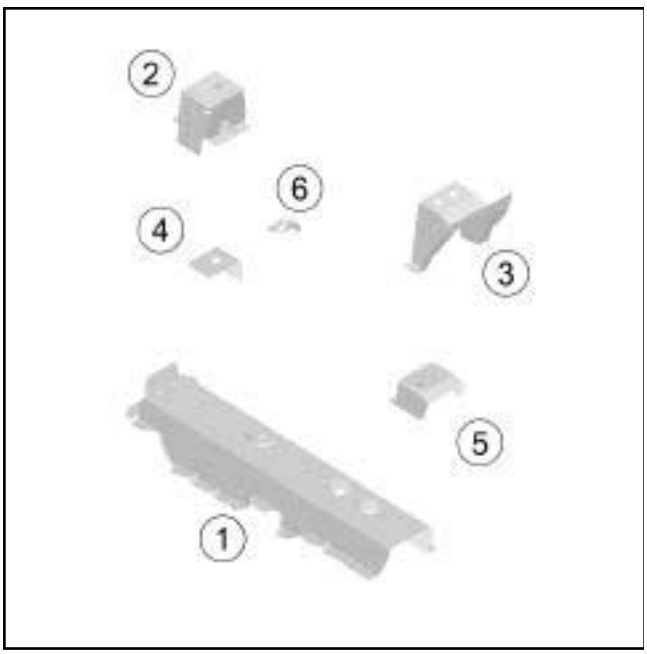


130180

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

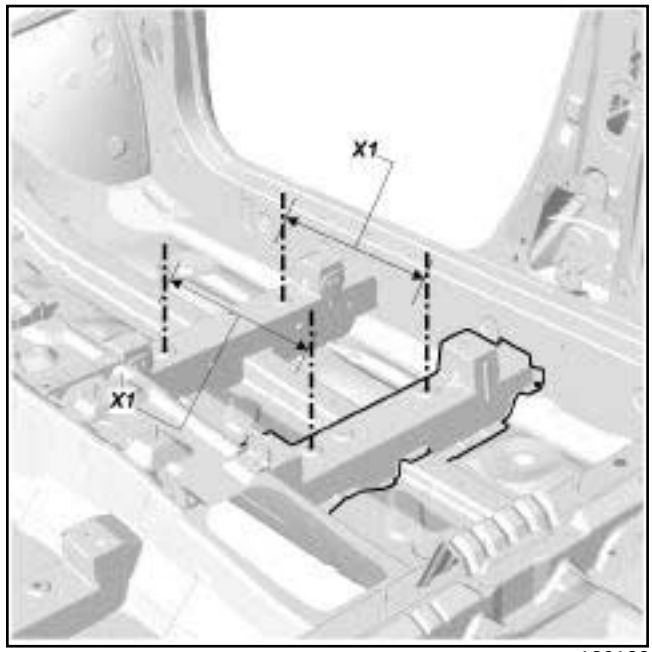



130181

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear cross member under front seat | HLE | **0.8** |
| (**2**) | Front seat outer mounting support | HLE | **1.0** |
| (**3**) | Front seat inner mounting support | HLE | **1.6** |
| (**4**) | Outer support reinforcement of front seat mounting | HLE | **1.0** |
| (**5**) | Inner support reinforcement of front seat mounting | HLE | **1.6** |
| (**6**) | Front seat outer mounting support | HLE | **1.0** |

**II - PART FITTED**

**Complete replacement**




130182

(**X1**) = 342 mm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**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).


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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, (see **MR 400**).

## I - DESIGN OF THE STRUCTURAL COMPONENT

130183

The special feature of this part is that it is butt welded by laser on the lower section with two types of panels and two different thicknesses.

This is a basic part; its only function is that of a sill panel.

This part is removed by cutting into the complete body side. This part fulfils the basic function of the sill panel. It can be replaced partially by following the cuts described as follows.


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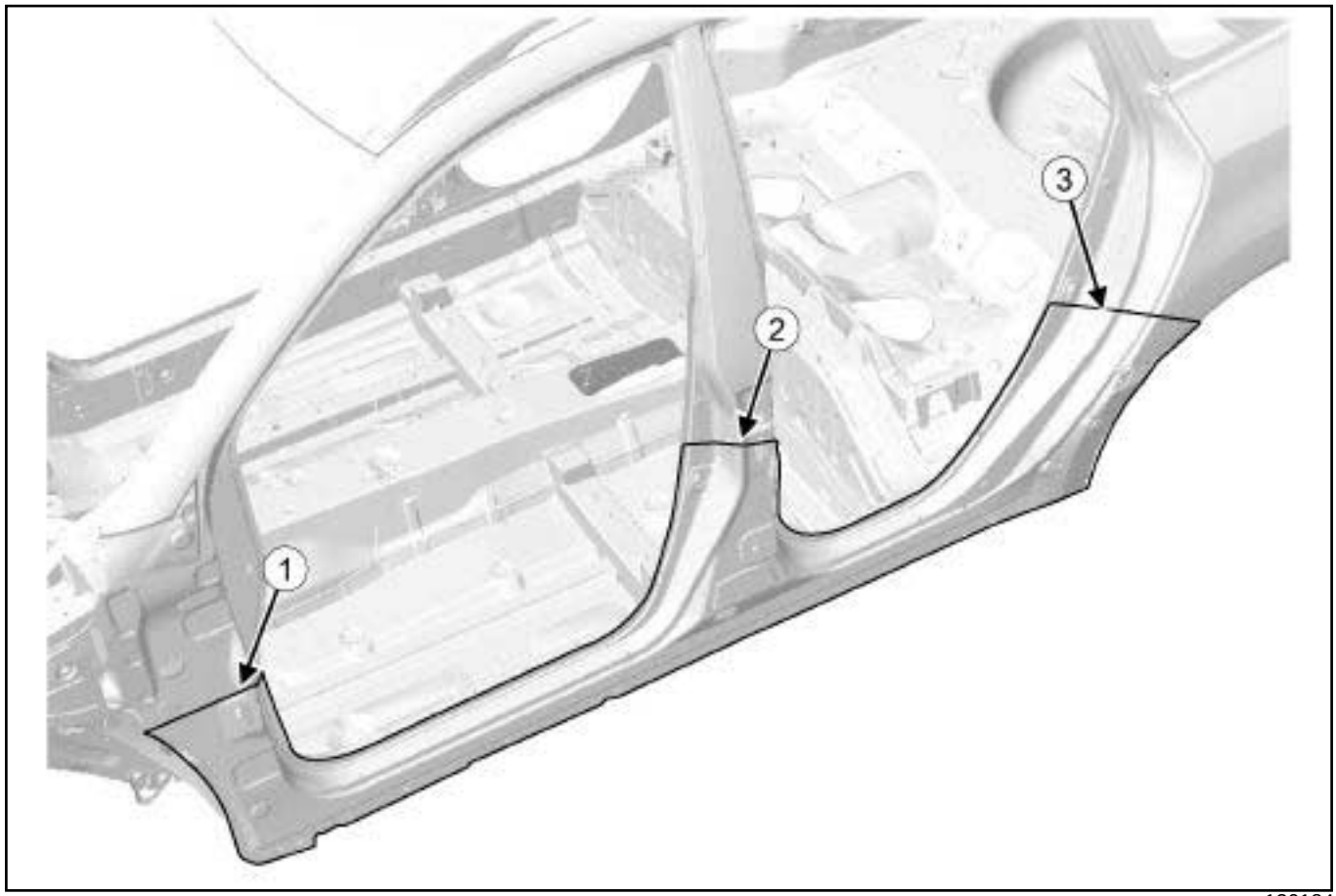
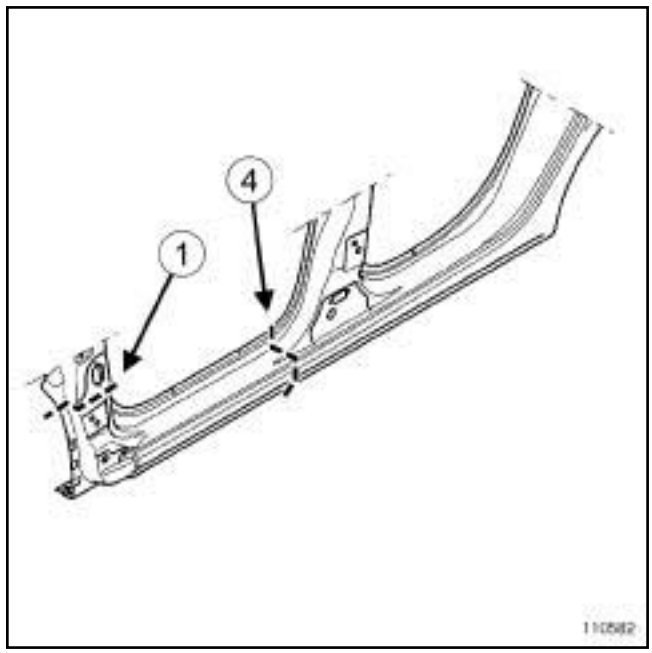
**II - AREA TO BE CUT FOR COMPLETE REPLACEMENT**




130184

The lines (**1**) , (**2**) and (**3**) mark the cutting areas for the complete replacement of the sill panel.

**III - AREA TO BE CUT FOR PARTIAL REPLACEMENT**




110582



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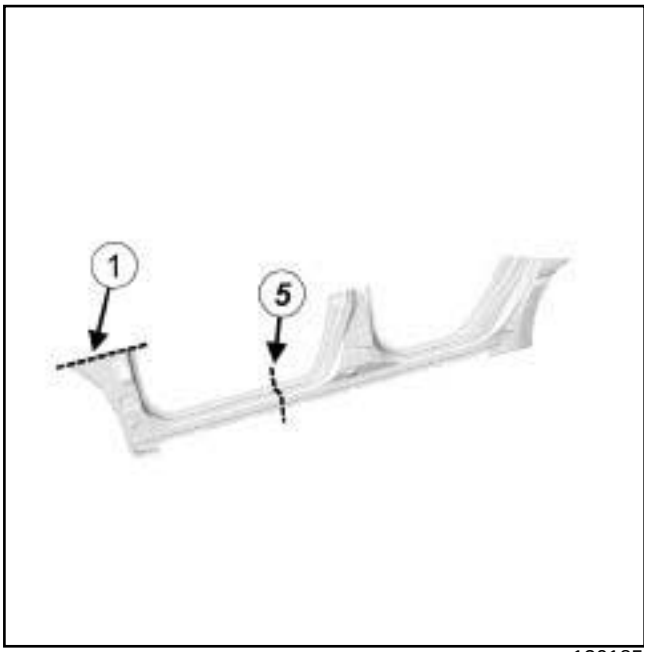
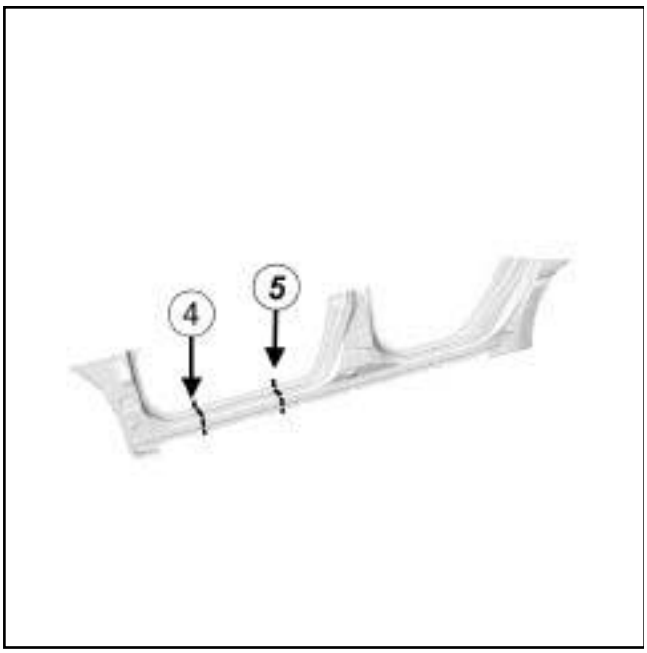
The lines (**1**) and (**4**) mark the areas for the partial replacement of the front of the sill panel.



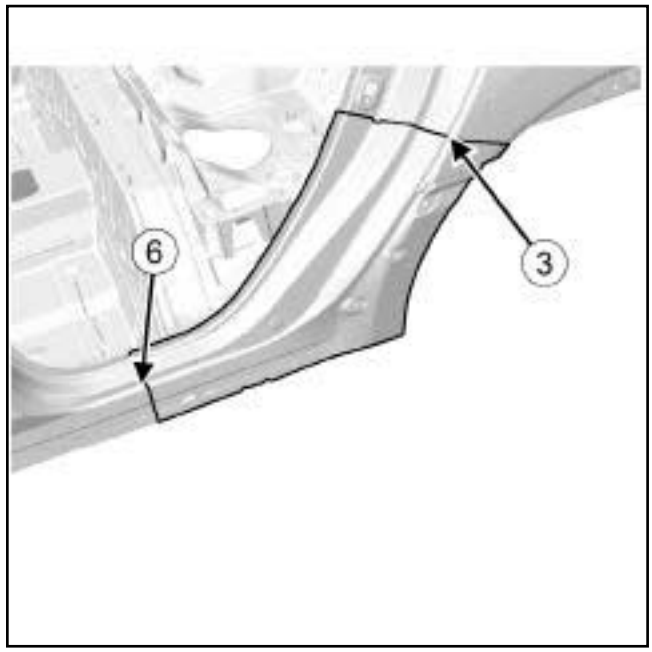

130185

The lines (**1**) and (**5**) mark the areas for the partial replacement of the front of the sill panel.




130186

The lines (**4**) and (**5**) mark the areas for the partial replacement of the sill panel under the front door.




130190

The lines (**3**) and (**6**) mark the areas for the partial replacement of the rear of the sill panel.

130187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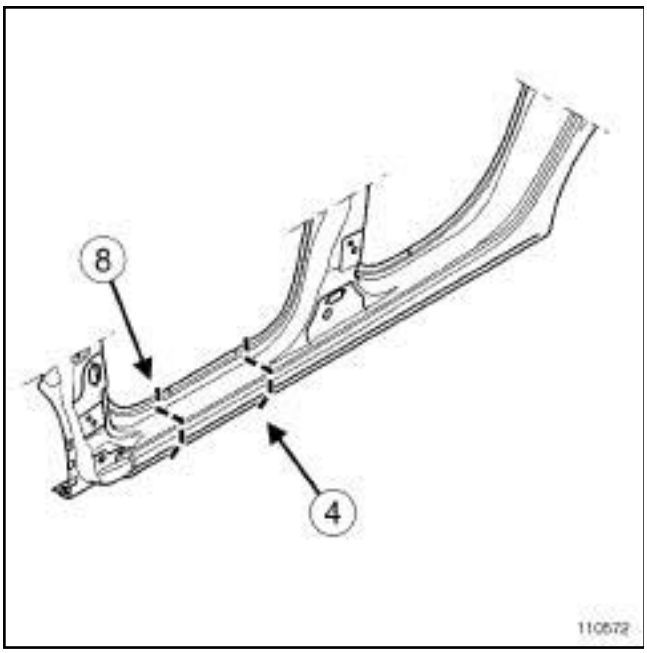
130188

It is possible to use cuts made earlier in order to carry out more significant partial replacements:

- front partial replacement,

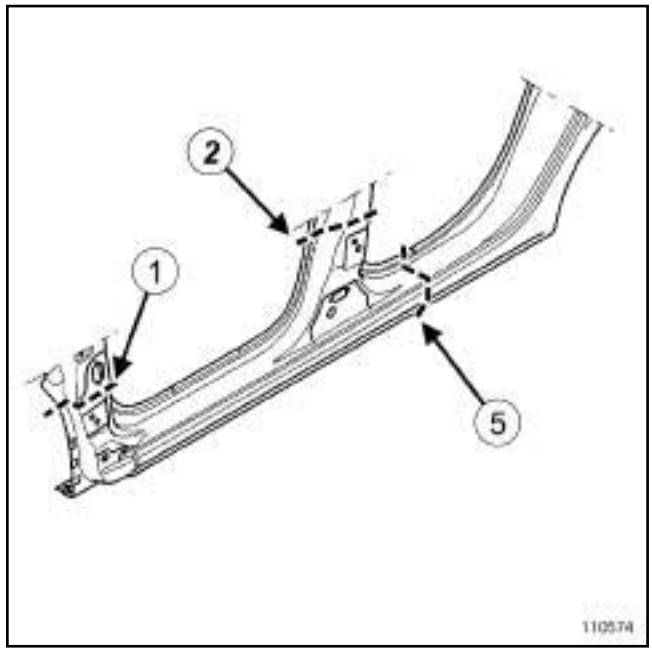
- rear partial replacement.

These operations allow you to access the inside of the hollow section of the structural element to straighten it.

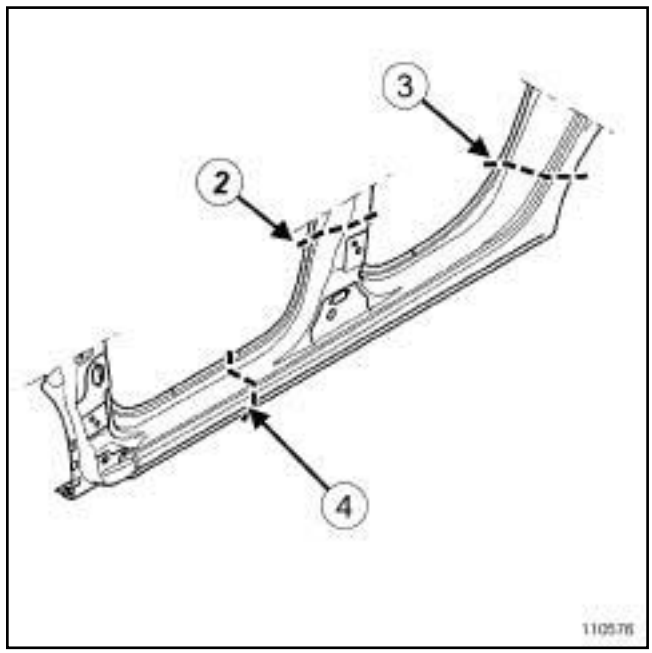



110572

The lines (**4**) and (**8**) mark the cutting areas for the partial replacement of the sill panel section under the door.




110574




110576

Previous cuts can be used to carry out more extensive partial replacements:

- front partial replacement, cut (**1**) , (**2**) and (**5**)

- Rear partial replacement, cut (**2**) , (**3**) and (**4**) .

These operations allow you to access the inside of the hollow section of the structural element to straighten it.

**IV - ASSEMBLY INSTRUCTIONS FOR A PARTIAL REPLACEMENT**

Only the connections which are specific to the partial replacement by cutting are indicated.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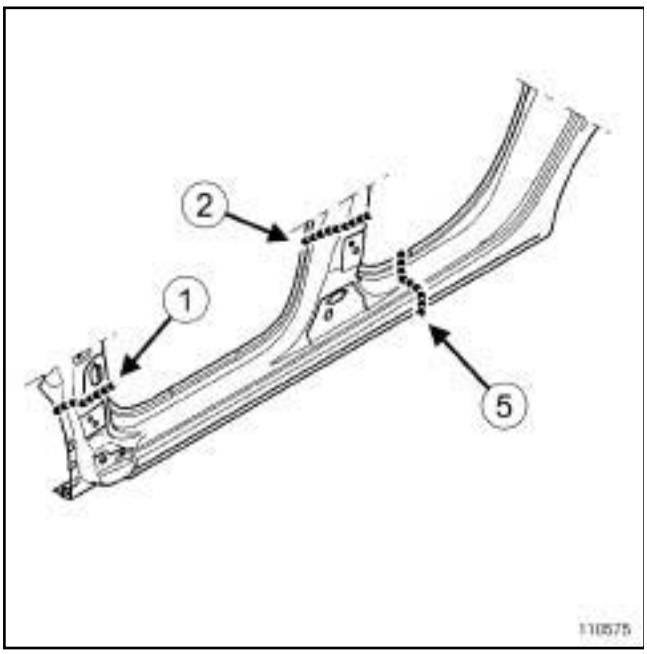
**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

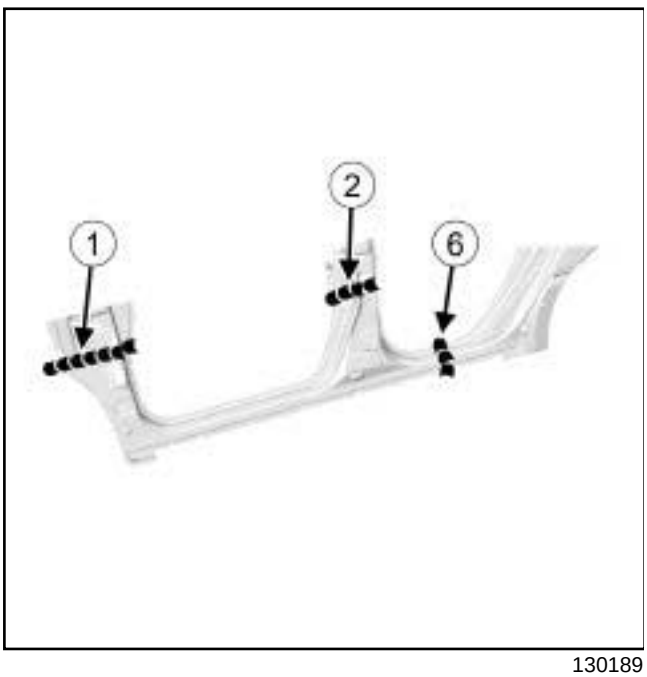
If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).




110575

Lines (**1**) , (**2**) and (**5**) on the drawing show a butt weld by continuous EGW welding.

The welds described in this procedure are all identical.




130189

Lines (**1**) , (**2**) and (**6**) on the drawing show a butt weld by continuous EGW welding.

The welds described in this procedure are all identical.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The options for replacing this part are as follows:

- front partial replacement,
- partial replacement under door:
- Rear partial replacement
- complete replacement.

**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

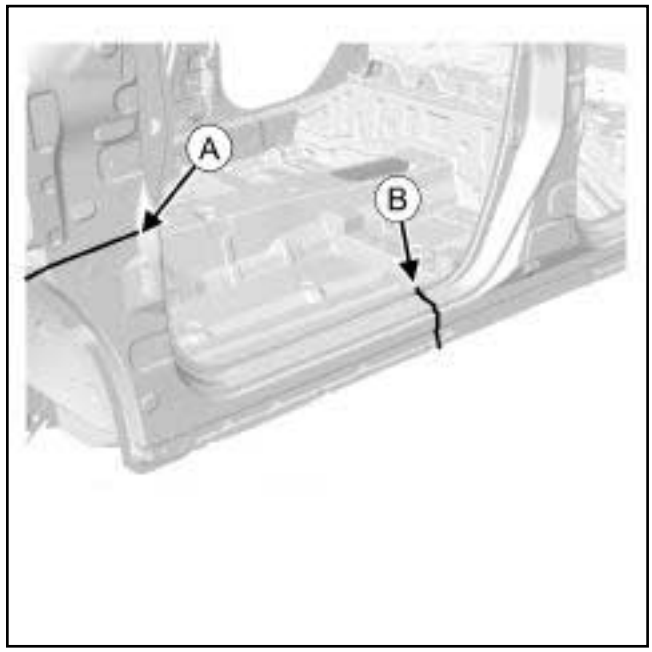
## I - COMPOSITION OF THE SPARE PART

130191

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Sill panel | - | **-** |

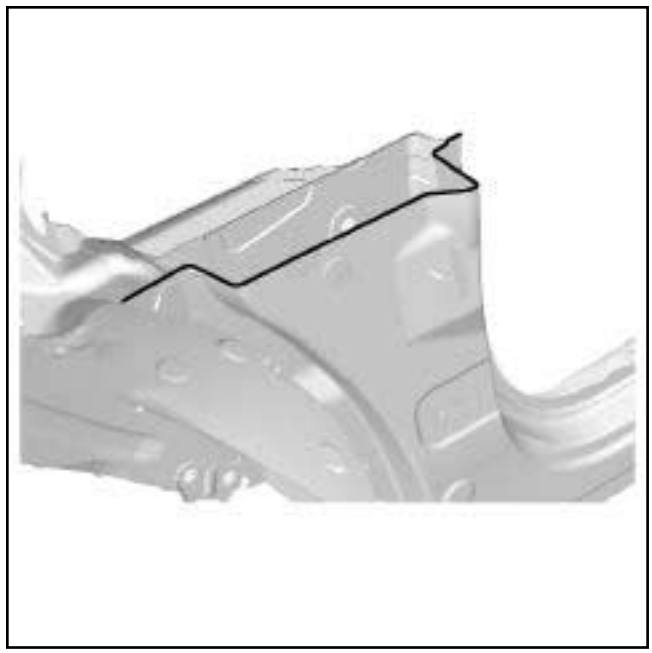
## II - PART FITTED

**Partial front replacement**




130192

**Section A**



130193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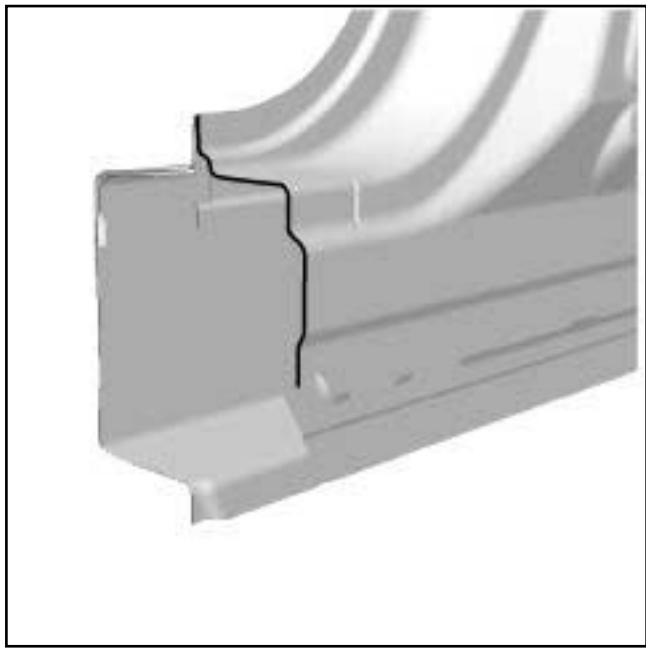
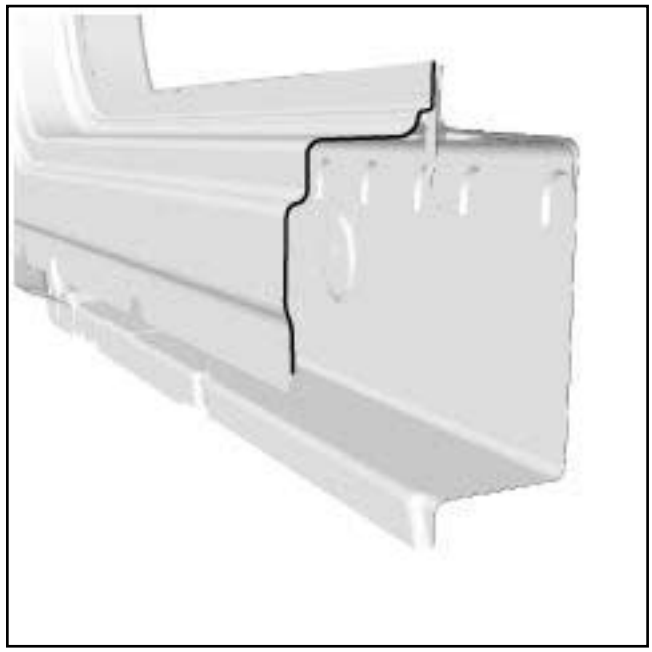
**Section B**



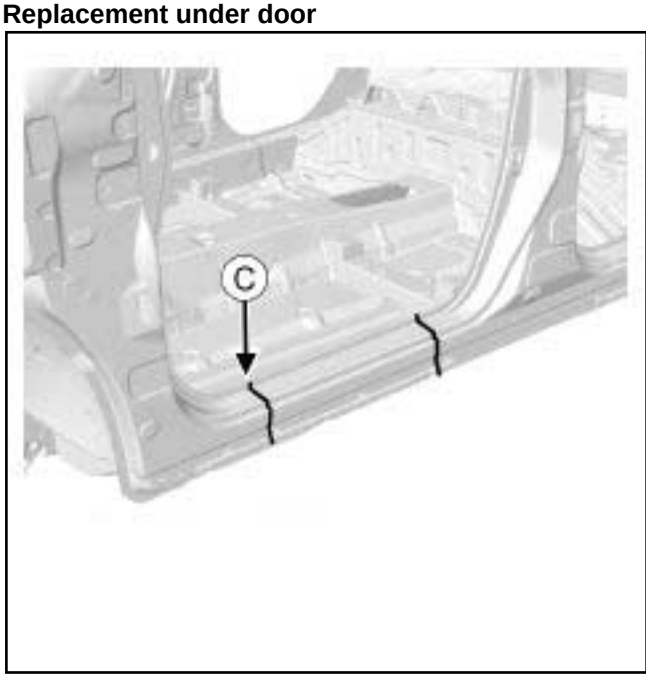
130194

**Section C**



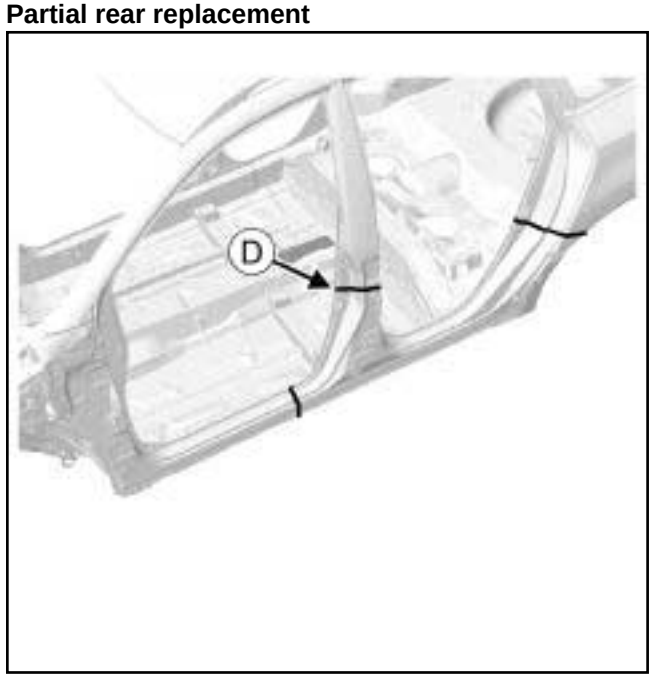
130196

**Replacement under door**




130195

**Partial rear replacement**




130197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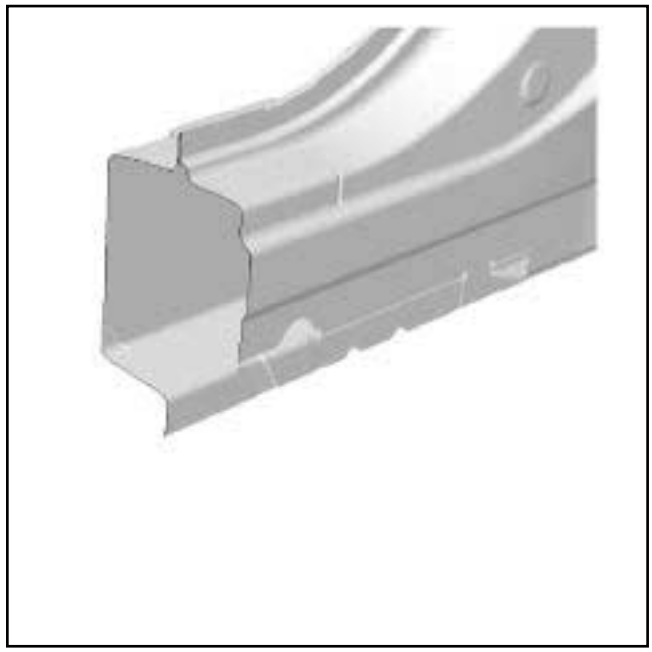
**Section D**

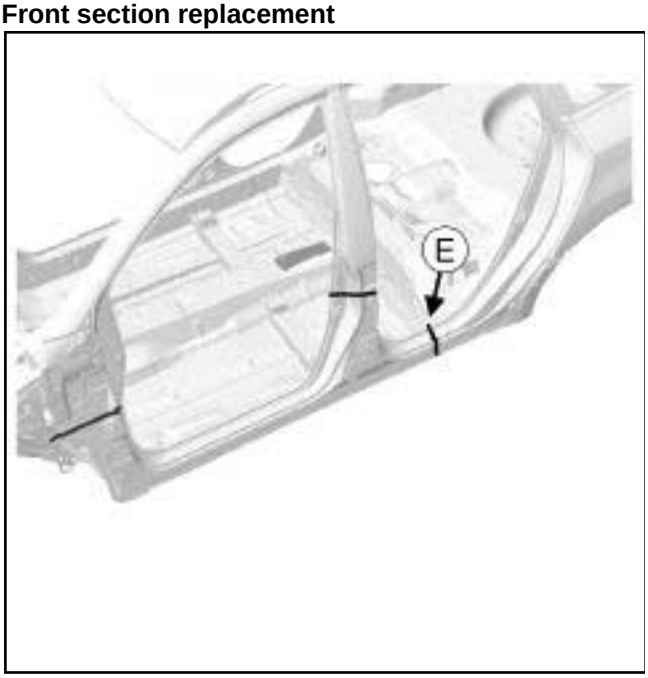
130198

**Section E**



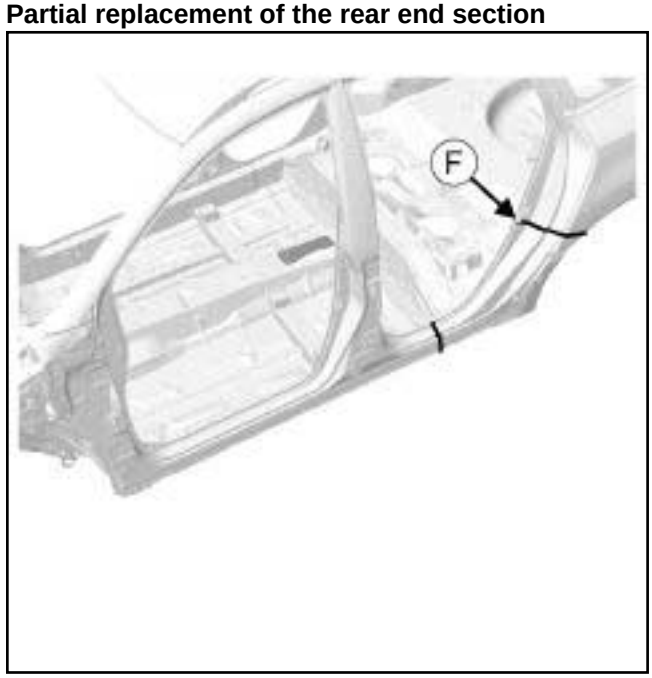
130200

**Front section replacement**




130199

**Partial replacement of the rear end section**




130201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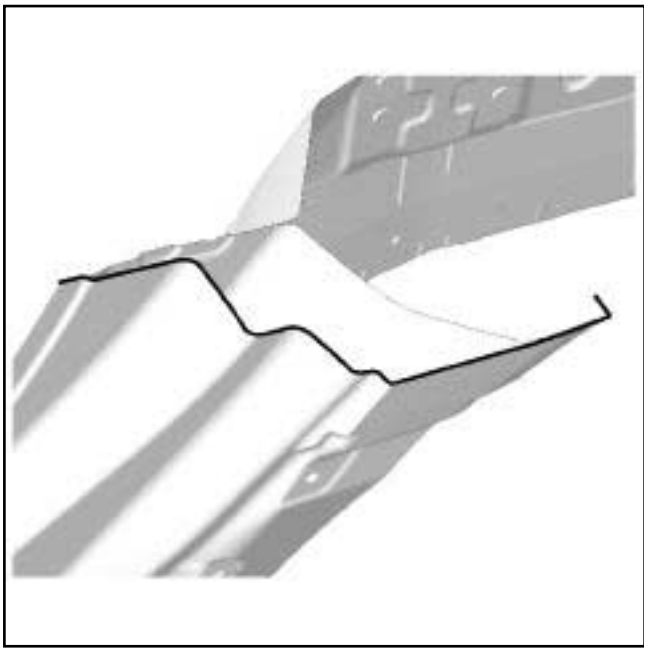
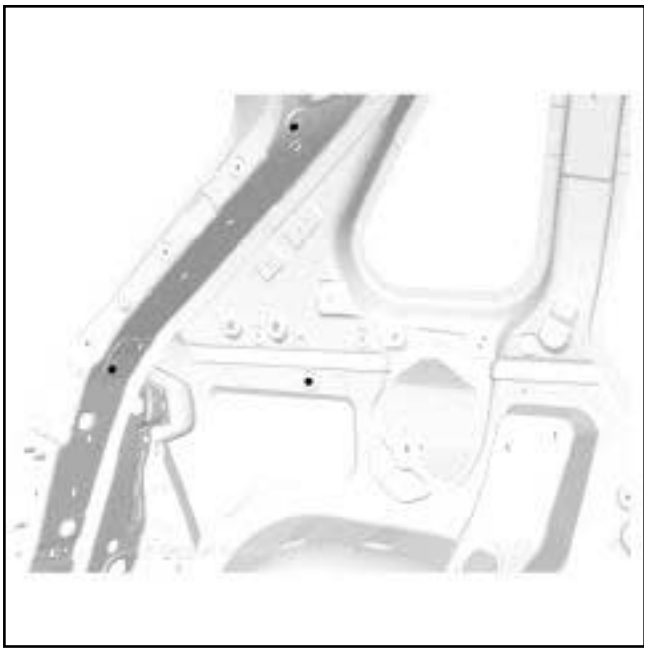
**Section F**



130202

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130203

**WARNING**

To avoid damaging the vehicle's electrical and electronic components, disconnect the earths of any wiring near the weld area.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

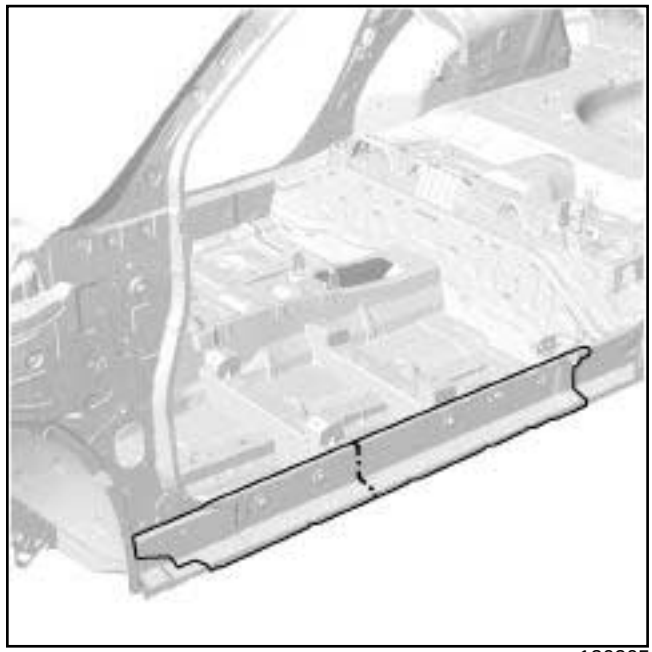
For a detailed description of a particular connection, (see **MR 400**).

### I - DESIGN OF THE STRUCTURAL COMPONENT

130204

This is a basic part; its only function is that of a sill panel closure panel.

### II - AREA TO BE CUT FOR PARTIAL REPLACEMENT



130205

### III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various options are described in the basic instructions for structural bodywork repair (see **MR 400**).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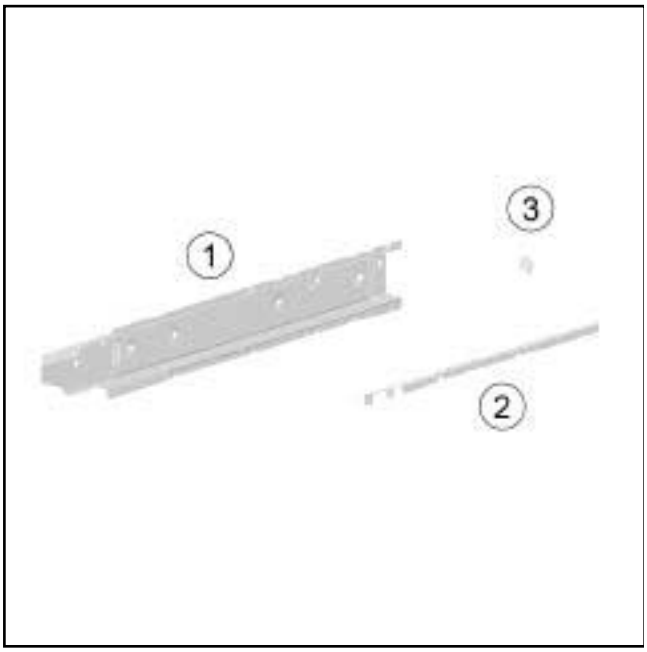
The options for replacing this part are as follows:

- front partial replacement,
- rear partial replacement.

**I - COMPOSITION OF THE SPARE PART**

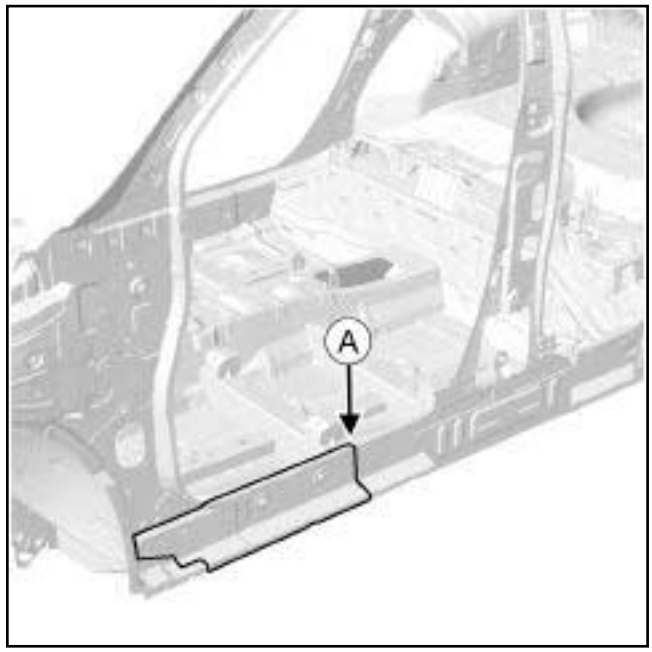



130206

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Sill closure panel | HEL | **1.6** |
| (**2**) | Sill closure panel reinforcement | Very high yield strengt h | **1.6** |
| (**3**) | Anchor plate | HEL | **2.0** |

**II - PART FITTED**

**Partial front replacement**

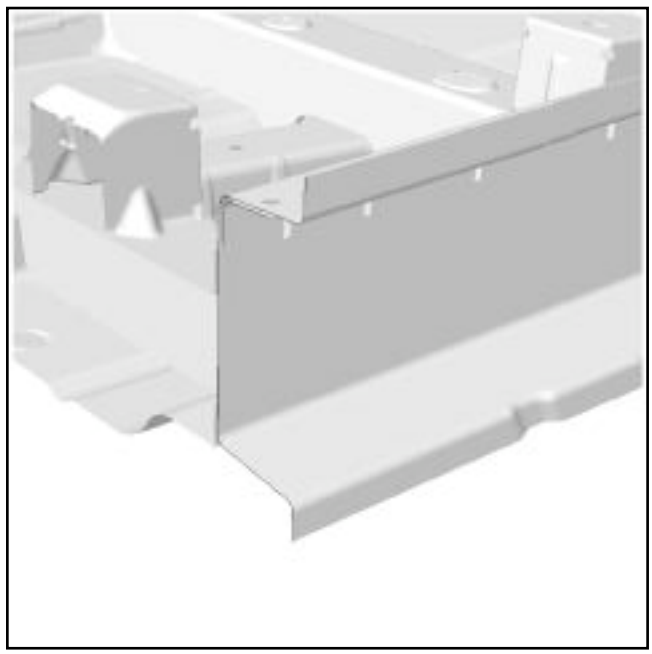



130207

**WARNING**

To preserve the mechanical specifications when partially replacing parts with a single structural component, alter the weld lines for each of these components.

**Section A**



130208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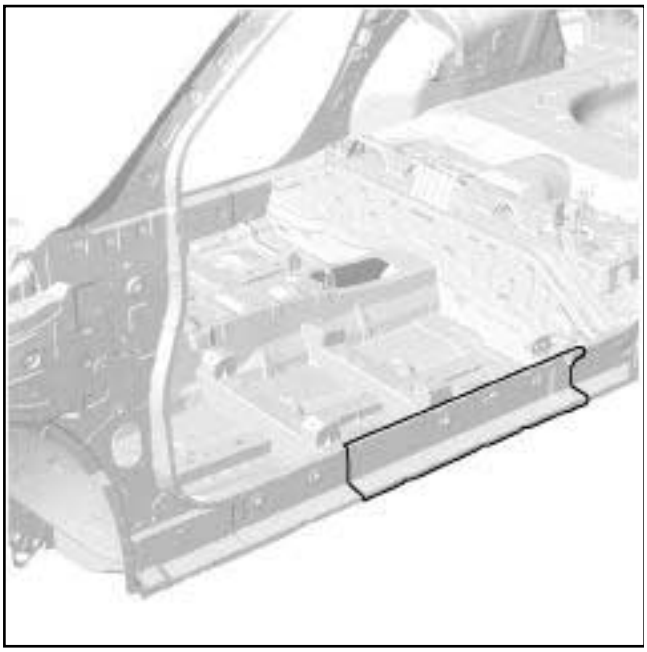
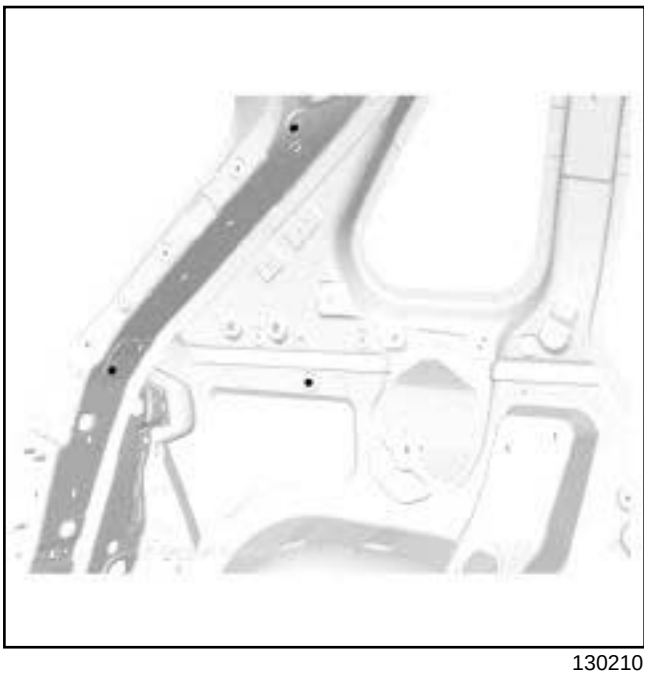
**Partial rear replacement**



130209

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130210

**WARNING**
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

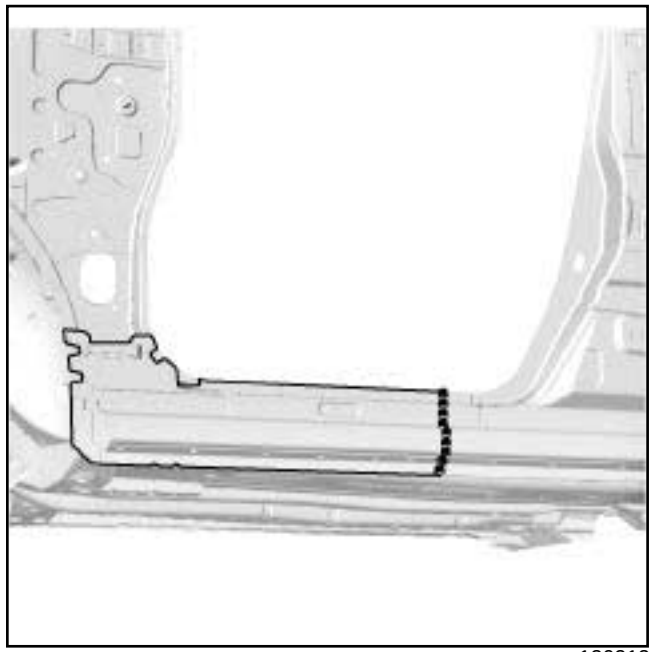
For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

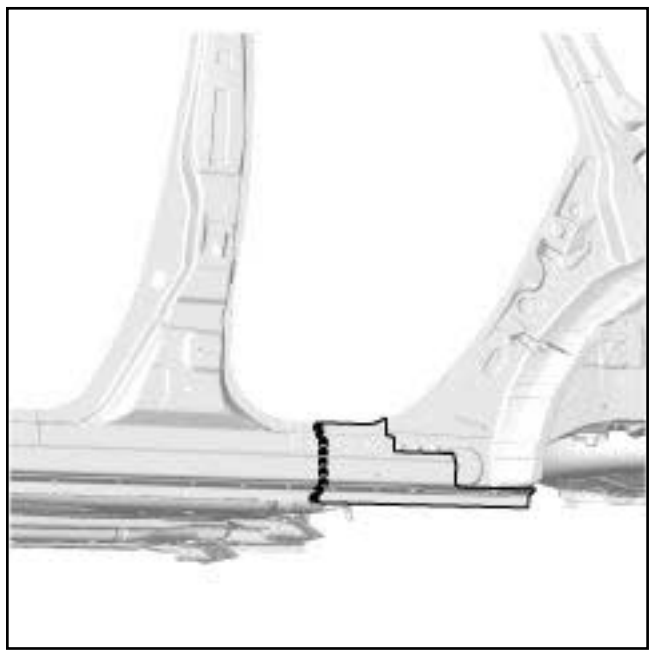
130211

Replacement of the sill panel reinforcement is linked to replacement of the inner sill panel.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT



130212



130213



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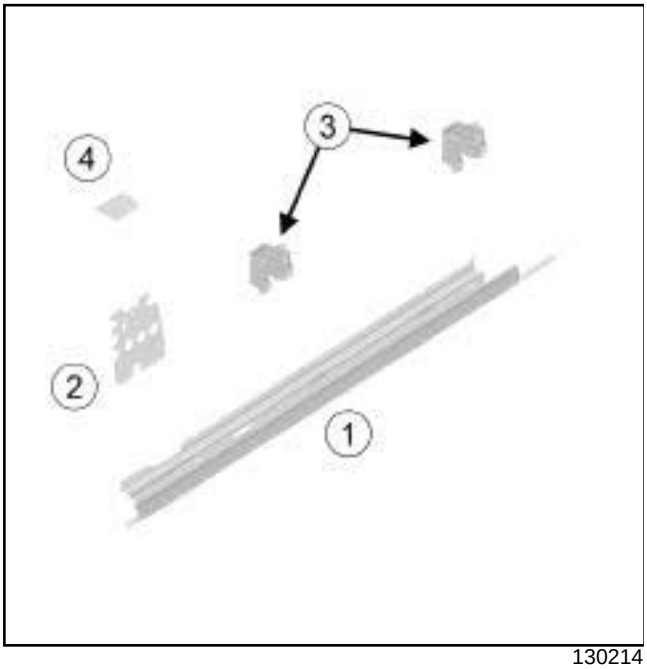
The options for replacing this part are as follows:

- partial replacement of the front section,
- partial replacement of the rear section,
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

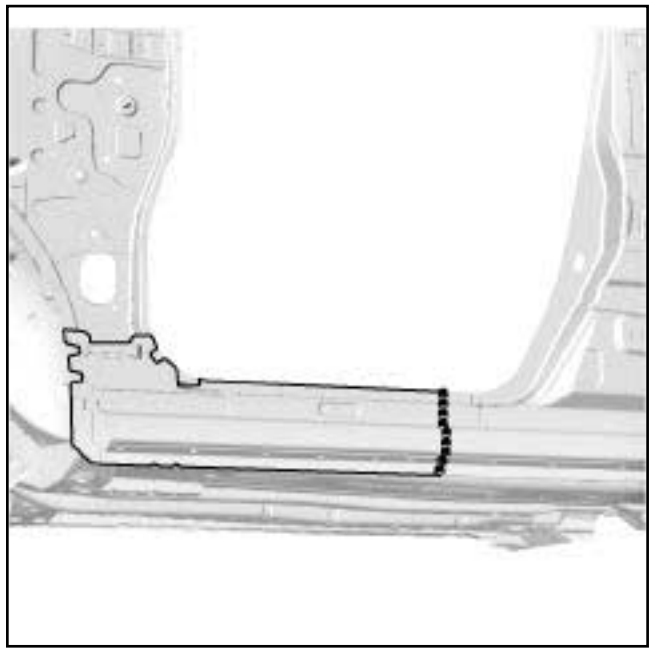



130214

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Sill panel exterior reinforcement | HLE | **1.4** |
| (**2**) | Front pillar lower reinforcement | THLE | **1.4** |
| (**3**) | Sill panel exterior front bracket | HLE | **1.0** |
| (**4**) | Front pillar insulation assembly | ORO-TEXD-FORM | **-** |

**II - PART FITTED**

**1 - Partial replacement of the front section**

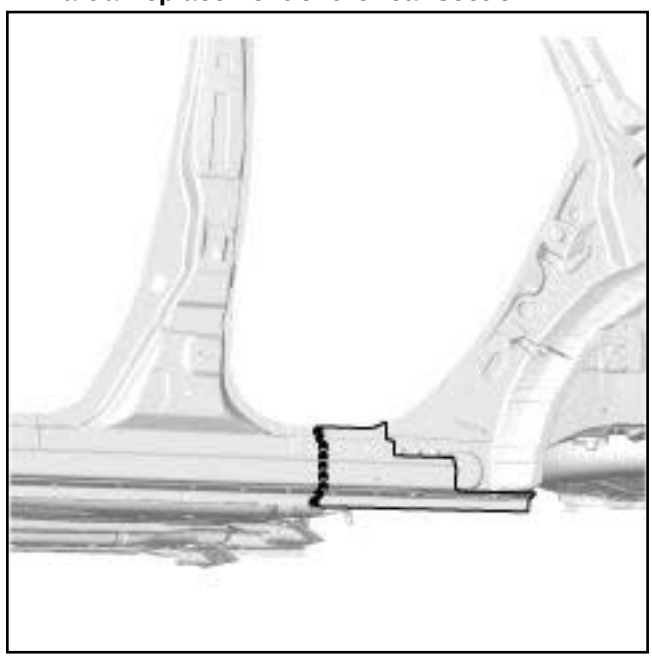


130215

**WARNING**

To preserve the mechanical specifications when partially replacing parts with a single structural component, alter the weld lines for each of these components.

**2 - Partial replacement of the rear section**



130216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**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).


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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of welded connections, see **MR 400**.

**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**DESIGN OF THE STRUCTURAL COMPONENT**

130281

This part has the special feature of combining the functions of the rear side member, the rear wheel arch, the rear floor panel central cross member and the rear end panel, and to be comprised of several sorts of panels of different thicknesses and types.



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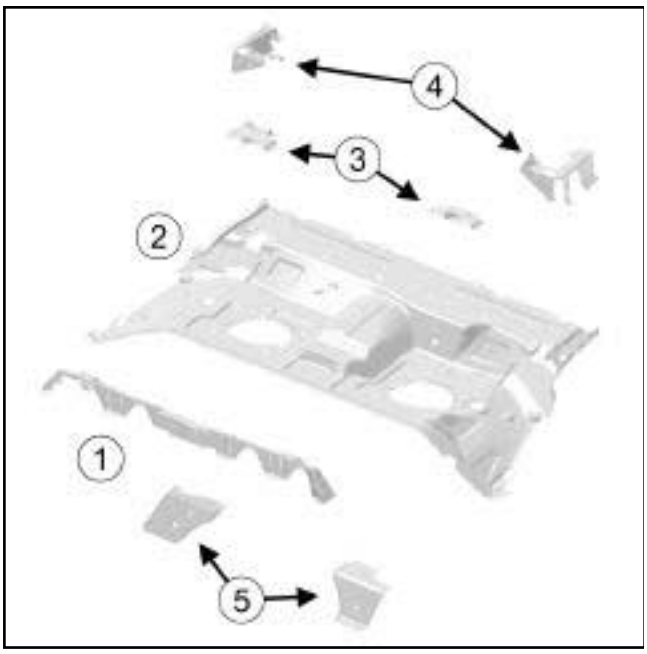
130282

The options for replacing this part are as follows:

- partial replacement of the side stiffener,
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**




130283

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear seat upper cross member | HEL | **0.7** |
| (**2**) | Front section of the rear floor | HEL | **0.7** |
| (**3**) | Mounting bracket of the rear seat | HEL | **1.6** |
| (**4**) | Exterior side floor support | HEL | **0.7** |
| (**5**) | Rear interior belt anchoring reinforcement | HEL | **1.0** |

**II - PART FITTED**

**WARNING**
To preserve the mechanical specifications when partially replacing parts with a single structural component, alter the weld lines for each of these components.

**WARNING**
Respect the position of this cut which has been determined in accordance with the position of the inner stiffeners or acoustic inserts, in order to prevent damaging the parts (inner stiffener and/or acoustic insert).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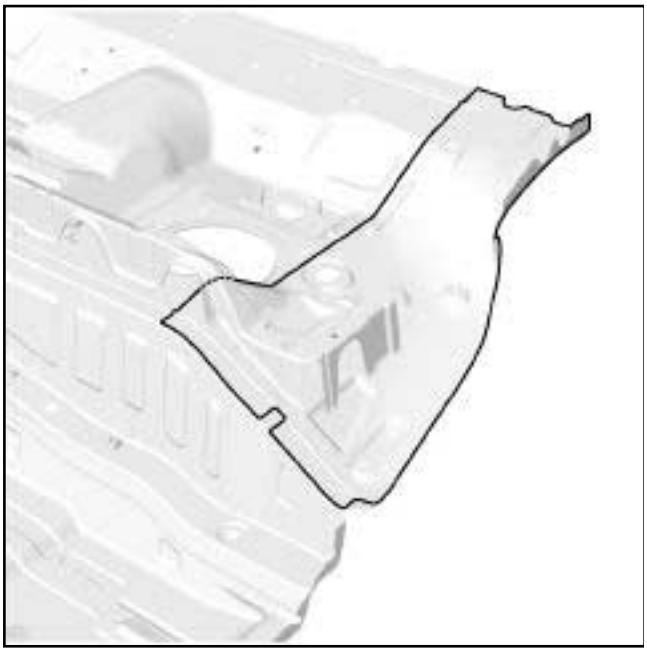
**Partial replacement of the rear section**

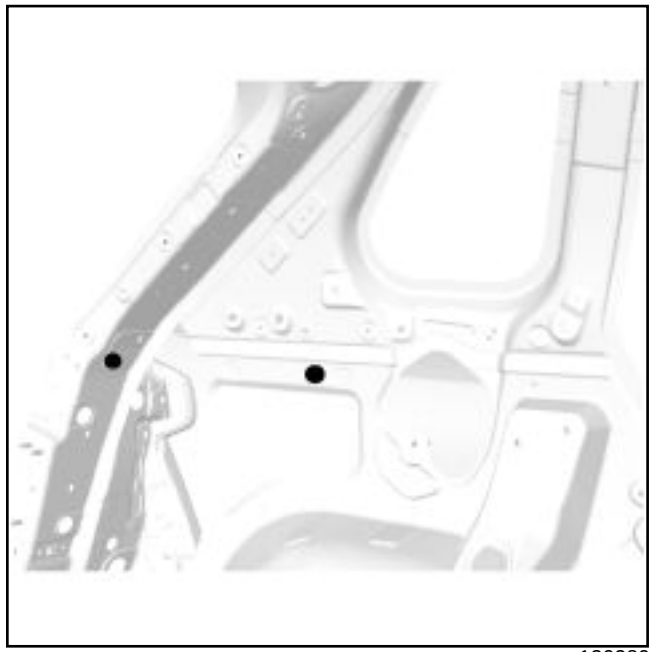


130284

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

130285

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130280

**WARNING**
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as closely as possible to the weld area (see **MR 400**).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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

130286

The distinctive feature of this part is that it combines the functions of the rear section of the rear floor and the emergency spare wheel mounting bracket.

Partial replacement is not possible for this part.

## II - ASSEMBLY INSTRUCTIONS FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).


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130287

There is only one way of replacing this part:

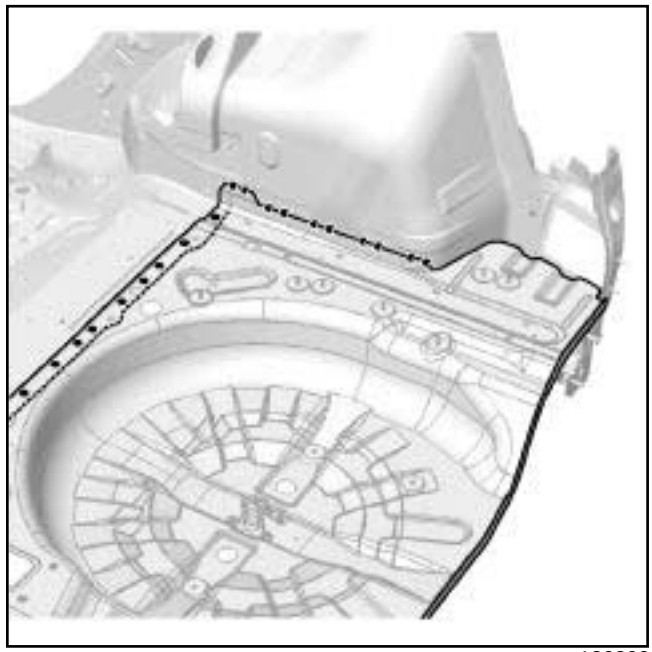
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

130288

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear section of the rear floor | HEL | **0.7** |
| (**2**) | Side of the rear floor | HEL | **0.7** |

**II - PART FITTED**



130290

**WARNING**

If the spot welds cannot be made as they were originally using an electrical spot welding machine, these should be replaced with anchoring beading.



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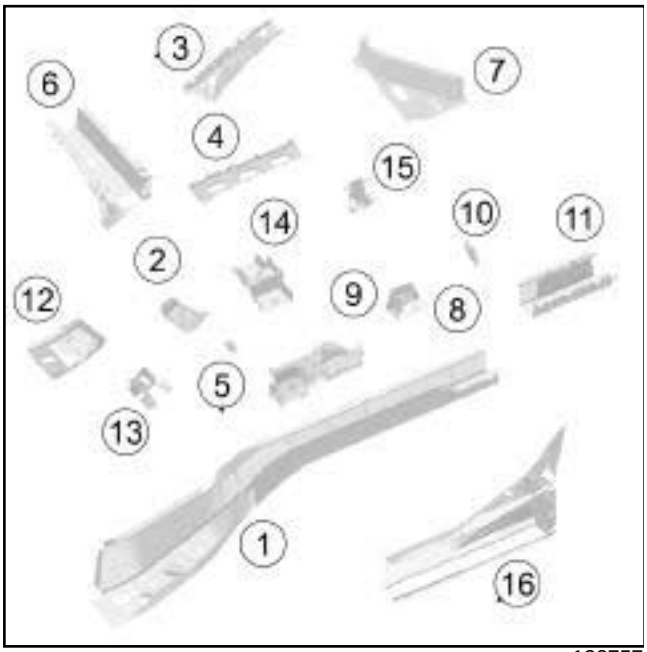
There is only one way of replacing this part:

- complete replacement.

**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

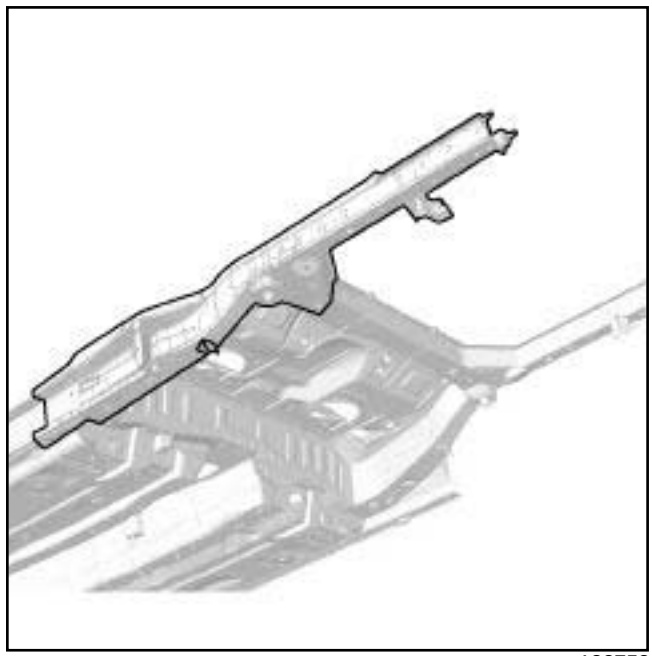
## I - COMPOSITION OF THE SPARE PART




132757

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Rear side member | HEL | **1.6** |
| (**2**) | Rear suspension mounting reinforcement | HEL | **2.3** |
| (**3**) | Rear side member reinforcement | HEL | **1.6** |
| (**4**) | Rear side member rear reinforcement | HEL | **1.6** |
| (**5**) | Rear brake hose bracket | HEL | **2.3** |
| (**6**) | Rear extension of the centre cross member | HEL | **1.6** |
| (**7**) | Centre cross member reinforcement | HEL | **1.6** |
| (**8**) | Rear spring mounting bracket | - | **-** |
| (**9**) | Rear suspension mounting reinforcement | - | **-** |
| (**10**) | Rear side member bracket | HEL | **1.0** |
| (**11**) | Rear side member extension | - | **-** |
| (**12**) | Rear anchoring hook reinforcement | HEL | **2.6** |
| (**13**) | Rear anchoring exterior reinforcement | HEL | **1.6** |
| (**14**) | Rear suspension mounting support | - | **-** |
| (**15**) | Rear silencer mounting support | - | **-** |
| (**16**) | Sill panel extension | HEL | **1.6** |

## II - PART FITTED



132758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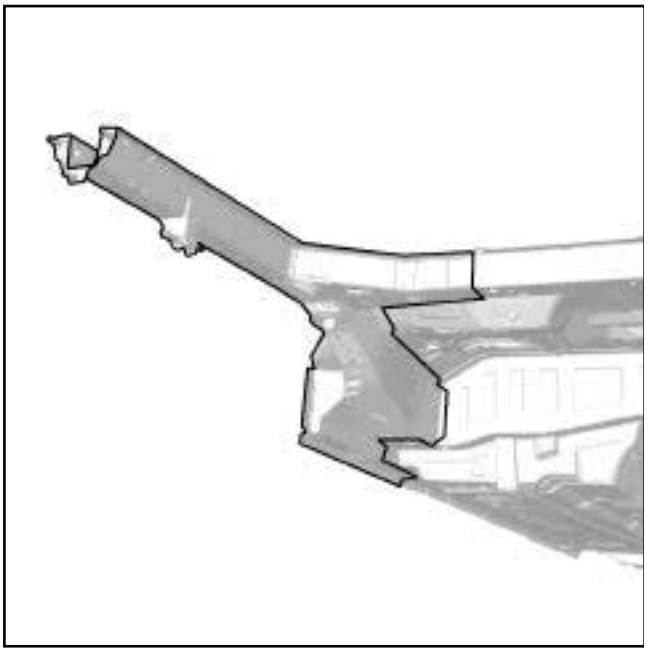

132759

**WARNING**
If the spot welds cannot be made as they were originally using an electrical spot welding machine, these should be replaced with anchoring beading.


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**IMPORTANT**
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

130289

This is a basic part; it simply fulfils the function of a rear side member.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT

**Cut 1:**

This line marks the area in which it is possible to make a partial replacement.

## III - ASSEMBLY INSTRUCTIONS FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).


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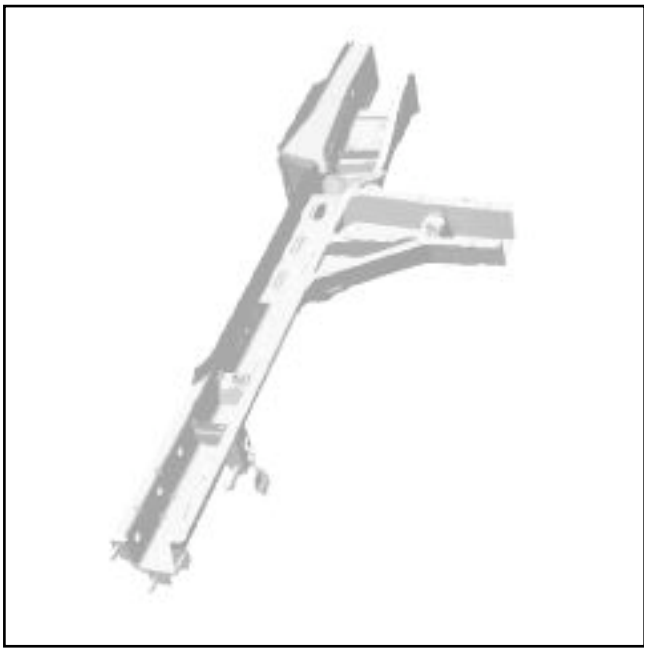


131805

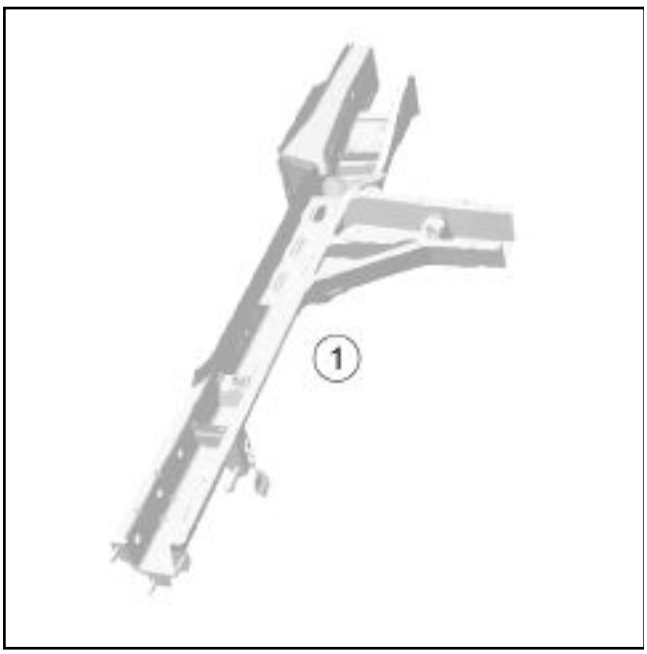
There is only one way of replacing this part:

-partial replacement of the rear section.

**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

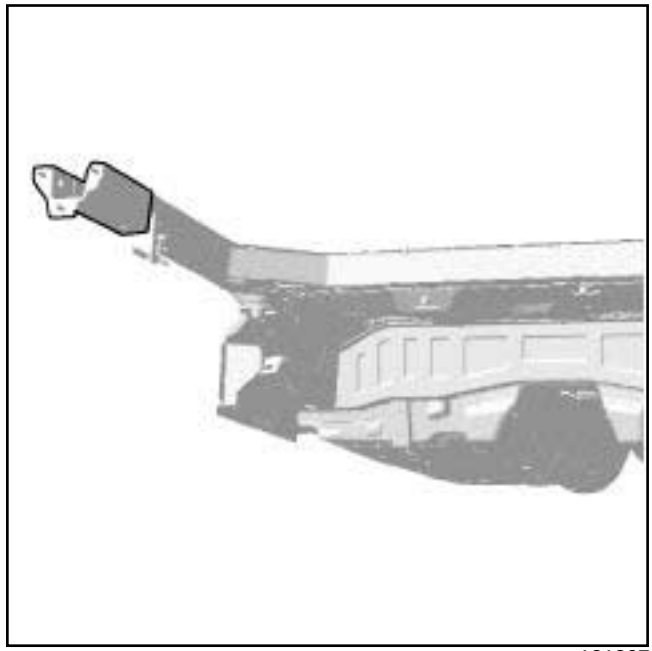
**I - COMPOSITION OF THE SPARE PART**




131806

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear side mem-ber | HEL | **1.6** |

**II - PART FITTED**



131807

**WARNING**

Respect the position of this cut which has been determined in accordance with the position of the inner stiffeners or acoustic inserts, in order to pre-vent damaging the parts (inner stiffener and/or acoustic insert).

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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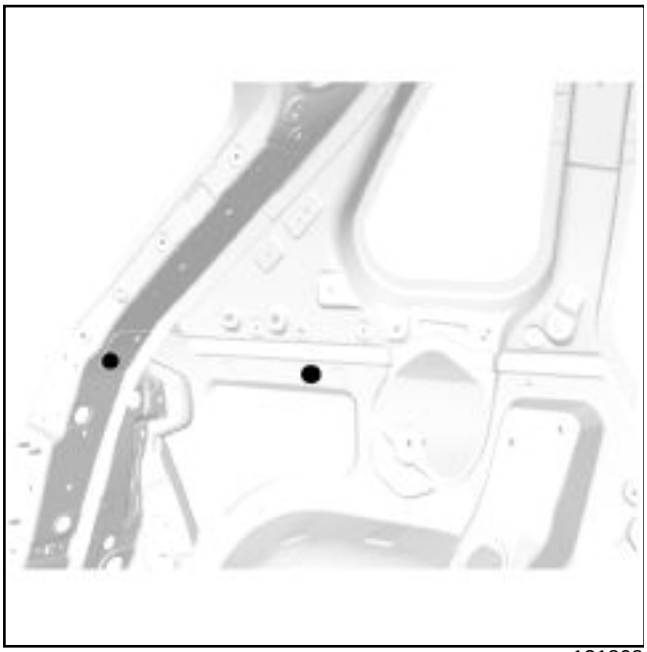
### III - POSITIONING OF LOCAL ELECTRICAL EARTHS



131808

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).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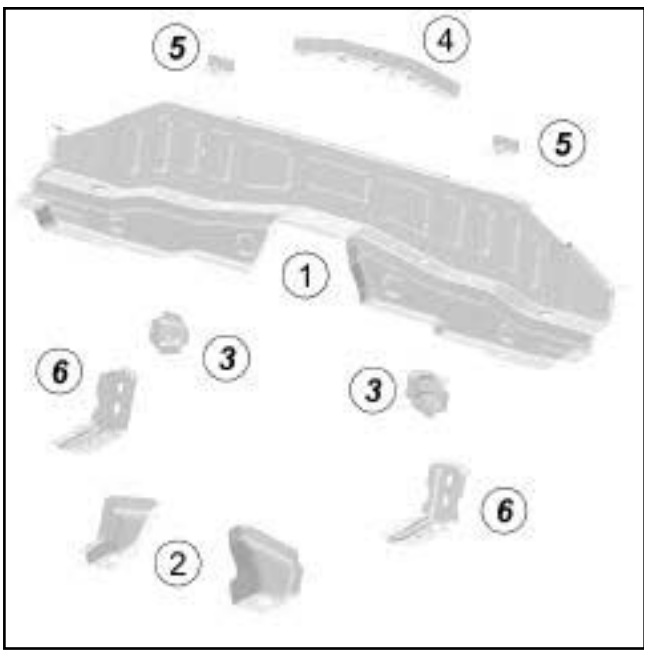
130291

There is only one way of replacing this part:

- partial replacement.

**I - COMPOSITION OF THE SPARE PART**

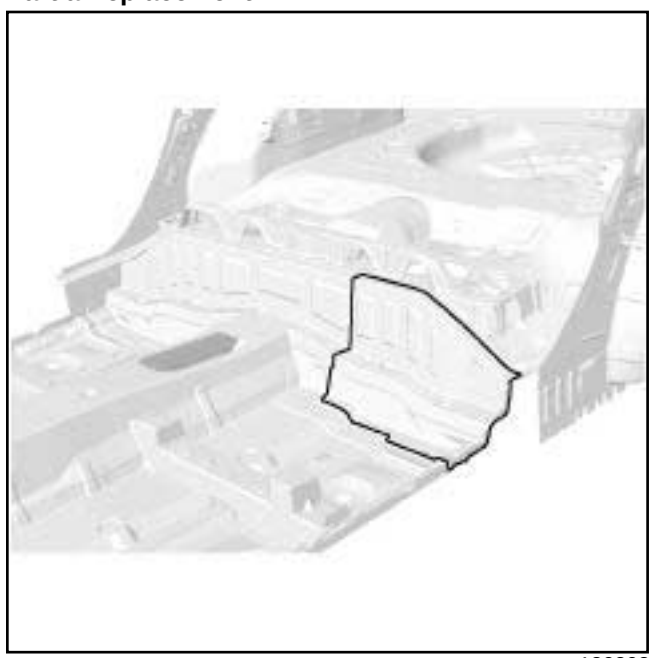



130292

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Cross member | HEL | **0.8** |
| (**2**) | Floor tunnel rein-forcement | HEL | **1.2** |
| (**3**) | PKB mounting bracket | HEL | **0.8/1.4** |
| (**4**) | Plate nut reinfor-cement | HEL | **1.2** |
| (**5**) | Fuel tank moun-ting reinforce-ment | HEL | **1.6** |
| (**6**) | Fuel tank protec-tion component | HEL | **1.8** |

**II - PART FITTED**

**Partial replacement**



130293

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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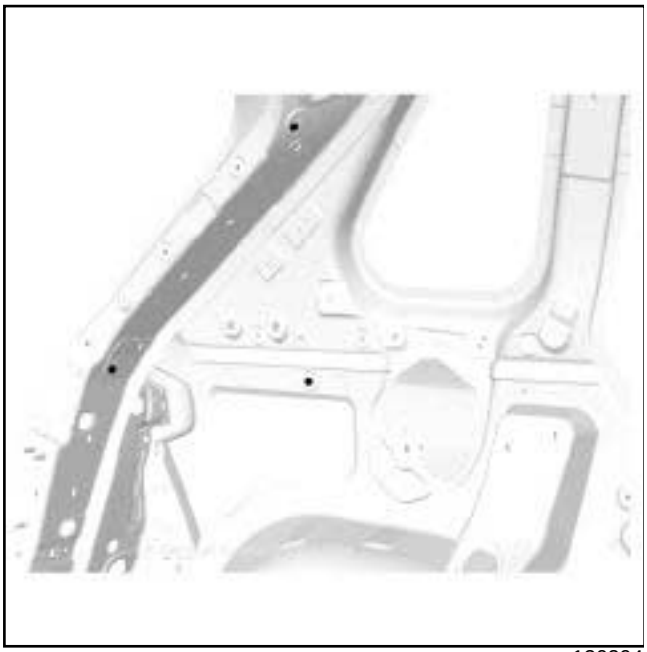
**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



130294

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as closely as possible to the weld area (see **MR 400**).



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**WARNING**

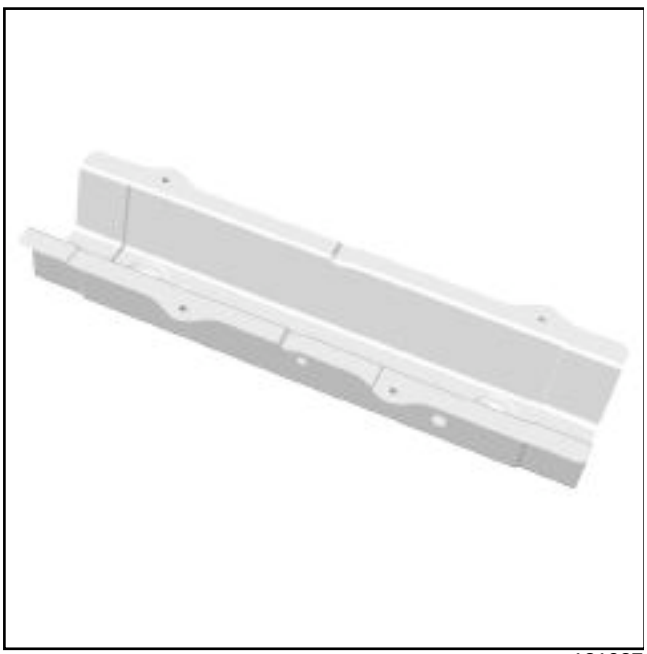
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

For a detailed description of a particular connection, see **MR 400, 40A, General Information**.

**DESIGN OF THE STRUCTURAL COMPONENT**



131027

This is a basic part; it only fulfils the function of a rear floor centre cross member.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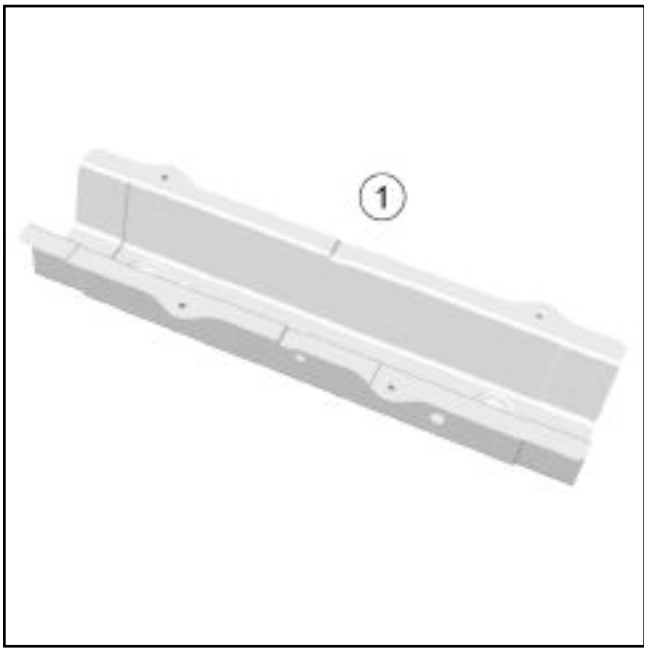


131028

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| *(1)* | Rear floor centre cross member | HEL | **1.6** |

**II - PART FITTED**

**Complete replacement**

131029

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).


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| Tightening torques ▽ | |
|---|---|
| bolts of the luggage retaining cross member | **25 N.m** |
| nuts of the luggage retaining cross member | **25 N.m** |

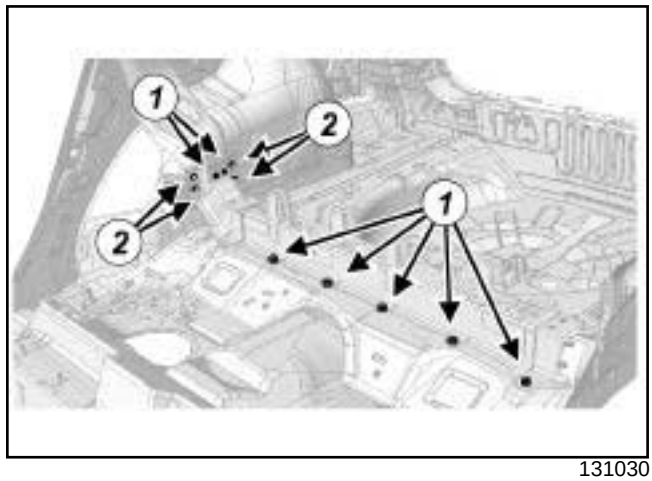
**I - REMOVAL**

**1 - REMOVAL PREPARATION OPERATION**

❑ Remove:

- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment),
- the rear bench seatback (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio),
- the proximity radar computer (see **Proximity radar Removal - Refitting**) (87F, Parking distance control).

**2 - OPERATION FOR REMOVAL OF PART CONCERNED**



131030

❑ Disconnect the connector from the supply cable.

❑ Remove:

- the bolts (**1**) of the luggage retaining cross member on each side,
- the nuts (**2**) of the luggage retaining cross member on each side.

**II - REFITTING**

**1 - OPERATION FOR REFITTING PART CONCERNED**

❑ Refit:

- the bolts ***(1)*** of the luggage retaining cross member on each side,
- the nuts ***(2)*** of the luggage retaining cross member on each side.

❑ Connect the supply cable connector.

❑ Torque tighten:

- the **bolts of the luggage retaining cross member (25 N.m)**,
- the **nuts of the luggage retaining cross member (25 N.m)**.

**2 - FINAL OPERATION**

❑ Refit:

- the proximity radar computer (see **Proximity radar Removal - Refitting**) (87F, Parking distance control),
- the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio),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- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear bench seatback (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment).


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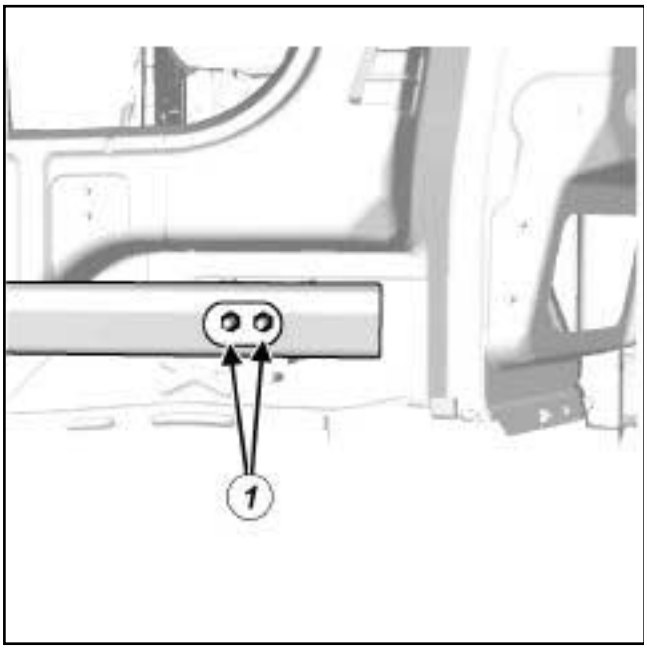
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131031

❑ Remove:

- the nuts (**1**) ,
- the rear impact lower cross member.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear impact lower cross member,
- the nuts ***(1)*** .

### II - FINAL OPERATION.

❑ Refit the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).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| Tightening torques ▽ | |
|---|---|
| bolt (1) | **5.5 N.m** |
| bolt (2) | **5.5 N.m** |
| bolt (3) | **5.5 N.m** |
| bolt (4) | **5.5 N.m** |
| bolt (5) | **9 N.m** |
| bolt (6) | **9 N.m** |
| bolt (7) | **5.5 N.m** |
| bolt (8) | **5.5 N.m** |
| bolt (9) | **5.5 N.m** |

## REMOVAL

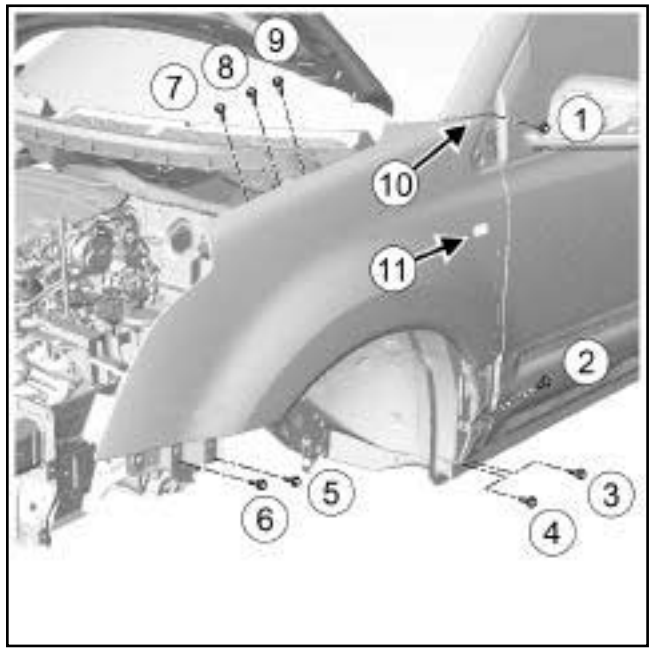
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the door mirror trim.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131032

❏ Remove:

- the windscreen trim (**10**) ,
- the wing direction indicator (**11**) .

❏ Disconnect the wing direction indicator.

❏ Remove:

- the bolts,
- the front wing.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the front wing,
- the bolts.

> Note:
>
> The separating foam seal on the front wing is supplied with the spare part.

❏ Connect the wing direction indicator.

❏ Refit:

- the wing direction indicator (**11**) ,
- the windscreen trim (**10**) .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❏ Tighten to torque:

- the **bolt (1) (5.5 N.m)**,
- the **bolt (2) (5.5 N.m)**,
- the **bolt (3) (5.5 N.m)**,
- the **bolt (4) (5.5 N.m)**,
- the **bolt (5) (9 N.m)**,
- the **bolt (6) (9 N.m)**,
- the **bolt (7) (5.5 N.m)**,
- the **bolt (8) (5.5 N.m)**,
- the **bolt (9) (5.5 N.m)**,

**II - FINAL OPERATION**

❏ Refit:

- the door mirror trim,
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).


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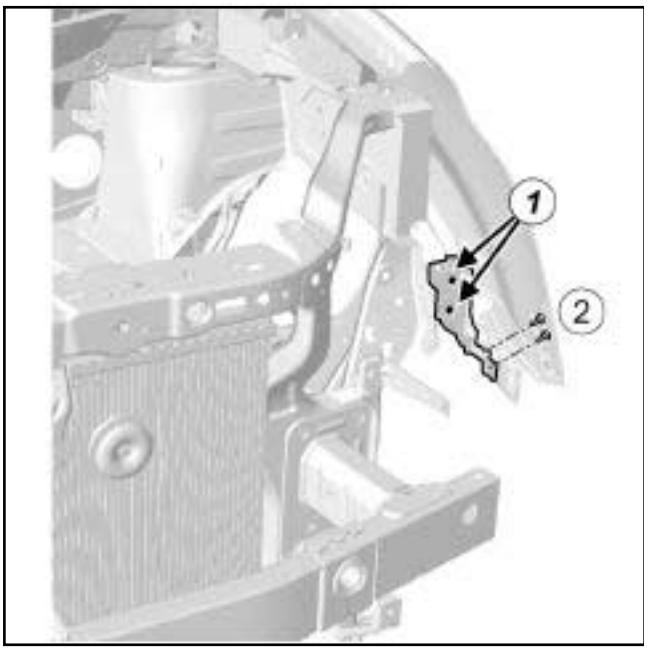
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- partially the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the windscreen washer pipe.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




135032

❏ Remove:

- the nuts (**1**) ,
- the bolts (**2**) ,
- the front wing lower mounting.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the front wing lower mounting,
- the bolts (**2**) ,
- the nuts ***(1)*** .

### II - FINAL OPERATION

❏ Refit:

- the windscreen washer pipe,
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).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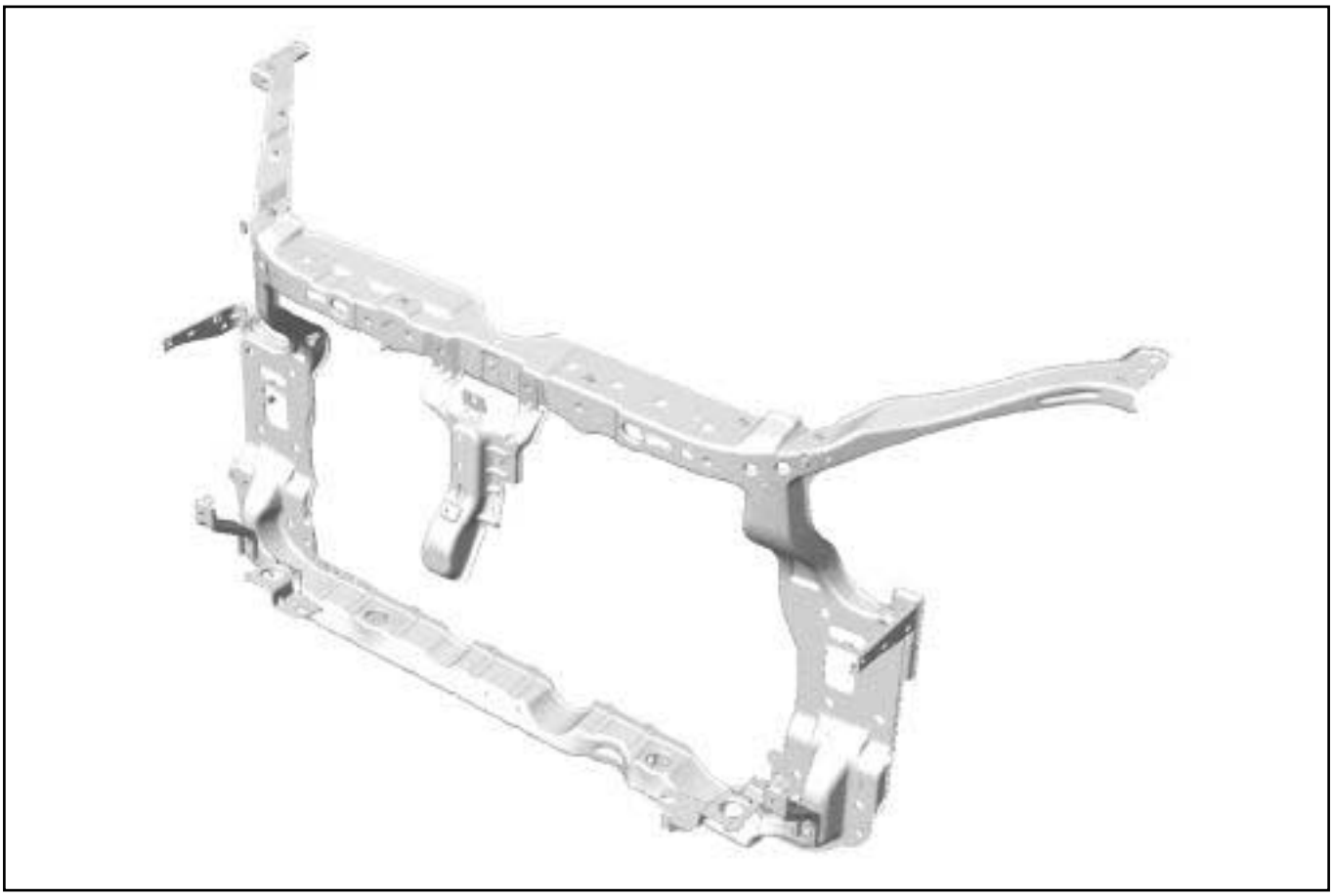
Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

## DESIGN OF THE STRUCTURAL COMPONENT



130779

A special feature of this part is that it is made out of composite materials; it cannot be repaired and is bolted onto the vehicle.

This part is attached to the ends of the front side member and cannot be adjusted.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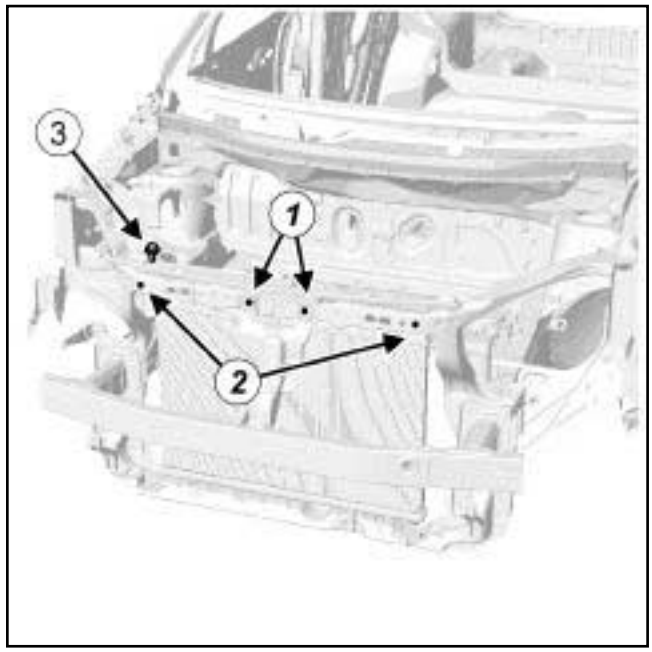
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the bonnet (see **48A**, **Non-side opening elements**, **Bonnet: Removal - Refitting**, page **48A-1**) ,
- the air inlet sleeve (see **Heating resistor relays: Removal - Refitting**) (61A, Heating),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the radiator upper grille,
- the headlights (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the audible warning (see **Horn: Removal - Refitting**) (82B, Horn).



130780

❏ Remove:

- the bolts (**1**) from the radiator central mounting,
- the bolts (**2**) from the air deflector,
- the front impact cross member (see **41A**, **Front lower structure**, **Front impact cross member: Removal - Refitting**, page **41A-2**) ,
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (19A, Cooling system),
- the expansion bottle (see **Expansion bottle: Removal - Refitting**) (19A, Cooling system),
- the bonnet switch bolt (**3**) .

❏ Disconnect the engine wiring.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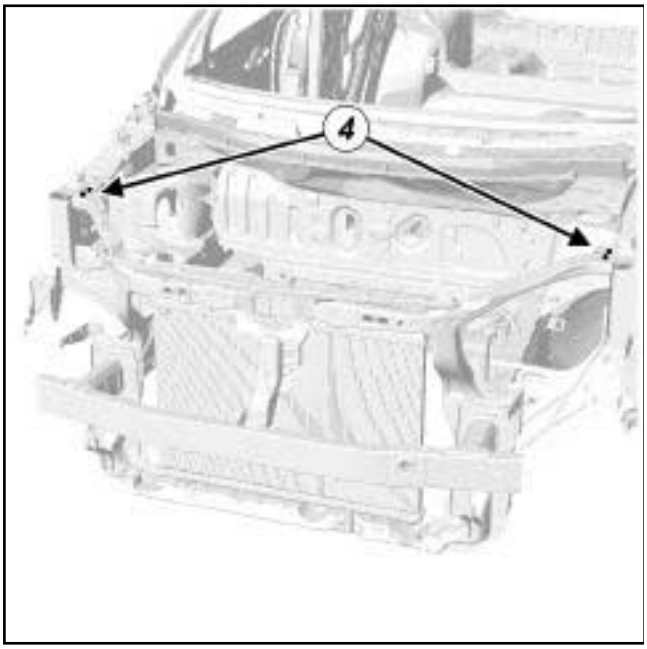
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130781

❏ Remove the front bolts (**4**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the front bolts ***(4)*** .

**II - FINAL OPERATION**

❏ Connect the engine wiring.

❏ Refit:

- the bonnet switch bolt (**3**) ,
- the expansion bottle (see **Expansion bottle: Removal - Refitting**) (19A, Cooling system),
- the cooling radiator (see **Cooling radiator: Removal - Refitting**) (19A, Cooling system),
- the front impact cross member (see **41A**, **Front lower structure**, **Front impact cross member: Removal - Refitting**, page **41A-2**) ,
- the bolts (**2**) from the air deflector,
- the bolts (**1**) from the radiator central mounting,
- the audible warning (see **Horn: Removal - Refitting**) (82B, Horn),
- the headlights (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the radiator upper grille,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the air inlet sleeve (see **Heating resistor relays: Removal - Refitting**) (61A, Heating),
- the bonnet (see **48A**, **Non-side opening elements**, **Bonnet: Removal - Refitting**, page **48A-1**) ,
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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Note:

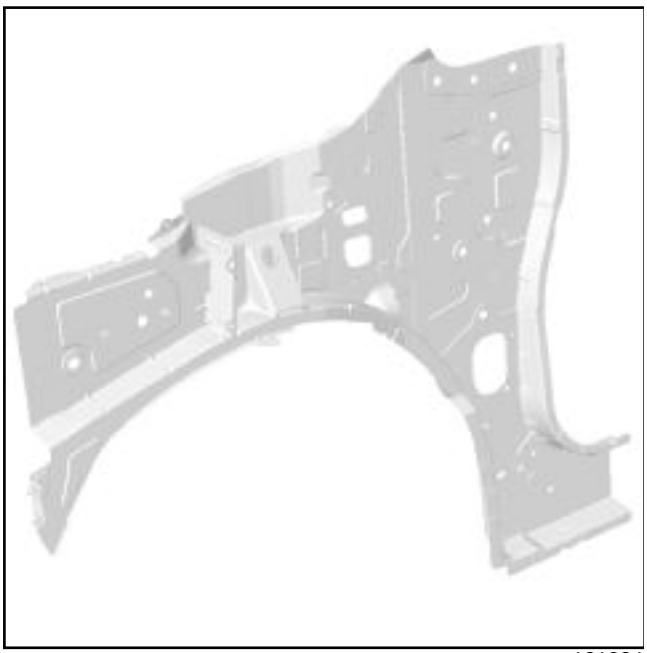
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT



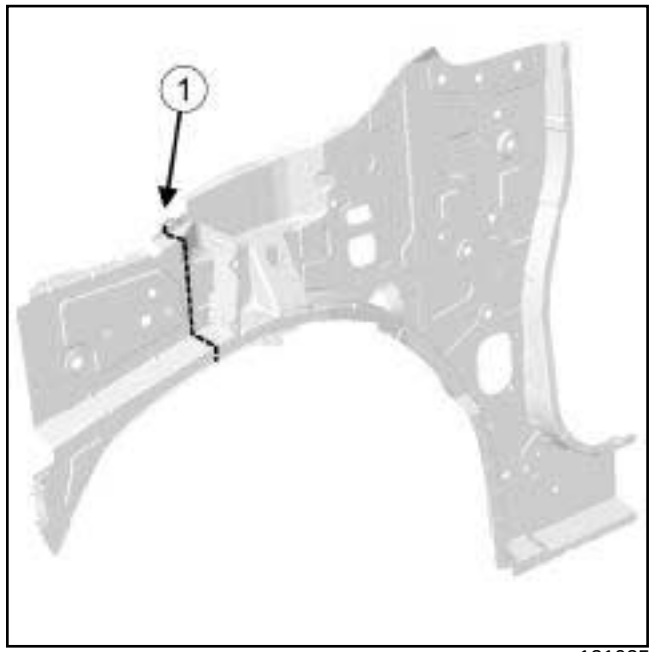
131034

The special feature of this part it that it concurrently serves two functions:

- scuttle side panel,

- A-pillar lining.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT




131035

Cutting line (**1**) shows the area in which it is possible to make a cut.

## III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).



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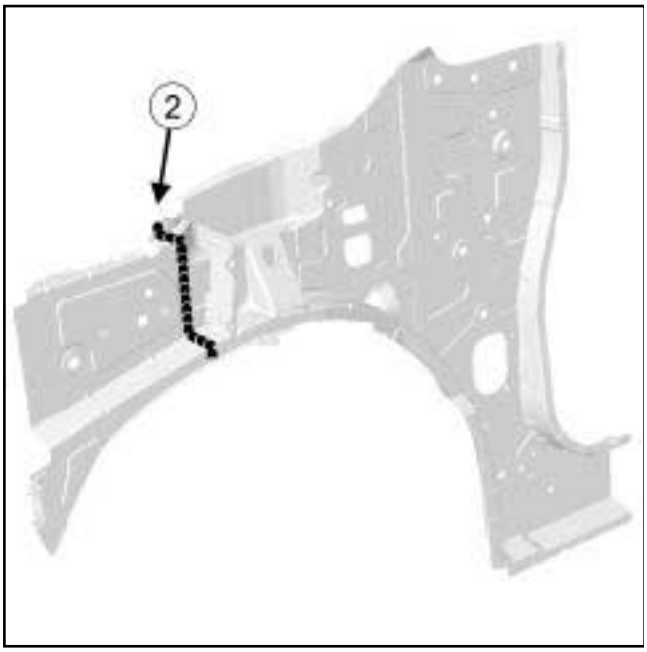


131036

Line (**2**) on the diagram shows the partial replacement and an EGW butt weld.


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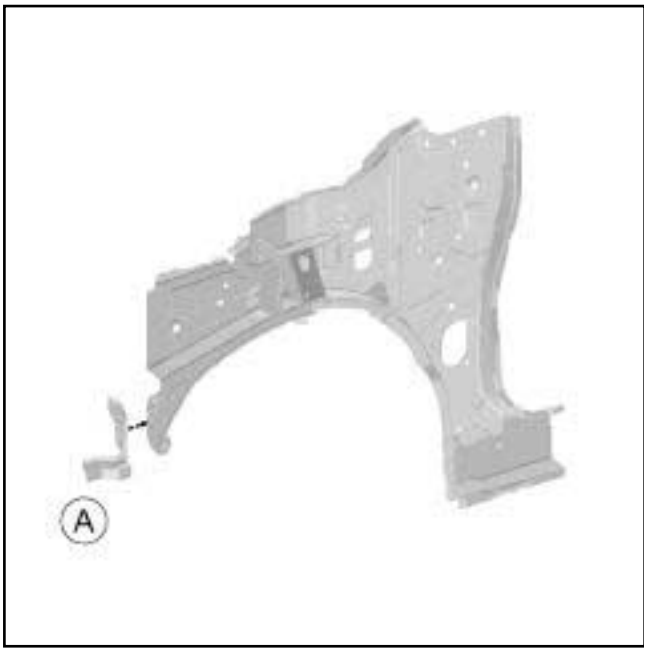


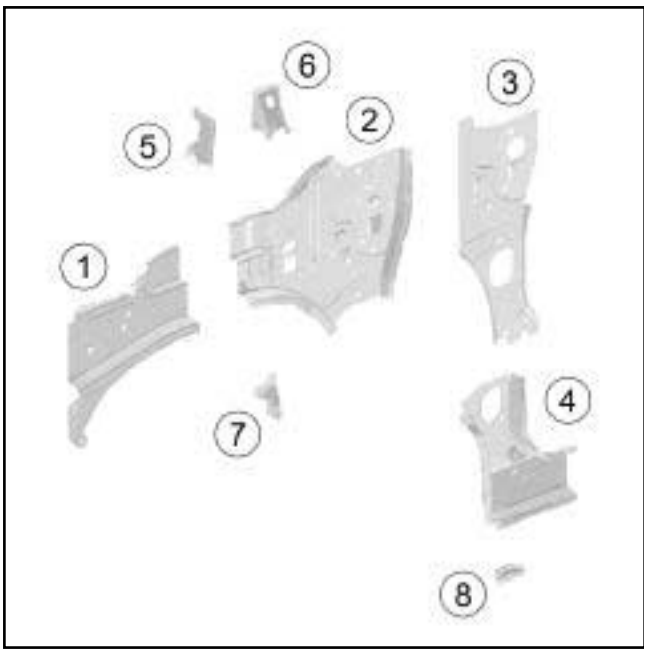

131037

To replace this part, also order the front wing mounting (**A**) .

The options for replacing this part are as follows:

- partial replacement of the front end section,
- front partial replacement,
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

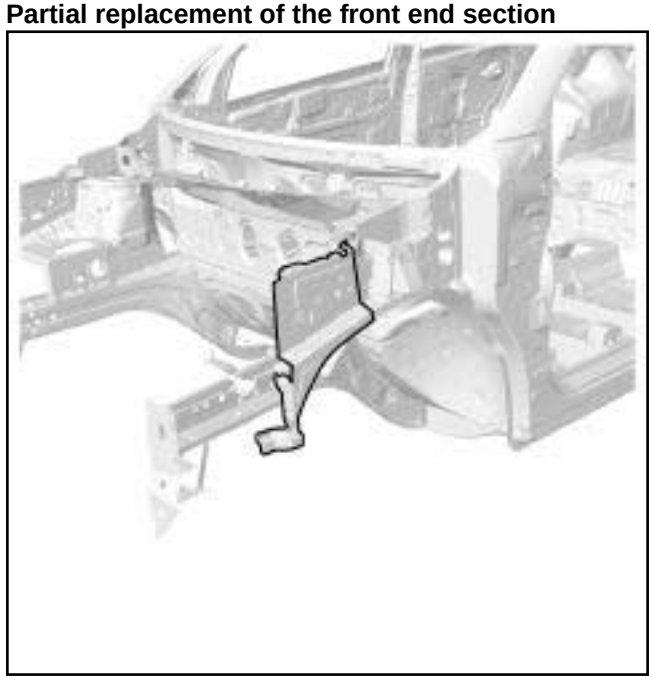



131812

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Upper section of A-pillar lining | HEL | **1.0** |
| (**2**) | Side section of A-pillar lining | HEL | **0.8** |
| (**3**) | A-pillar lining reinforcement | HEL | **1.6** |
| (**4**) | Exterior scuttle side panel | HEL | **1.4** |
| (**5**) | A-pillar lining bracket | HEL | **1.0** |
| (**6**) | A-pillar lining bracket reinforce-ment | HEL | **1.0** |
| (**7**) | A-pillar lining cover | HEL | **0.6** |
| (**8**) | Front jack bea-ring support | HEL | **2.0** |

**II - PART IN POSITION**

**Partial replacement of the front end section**



131039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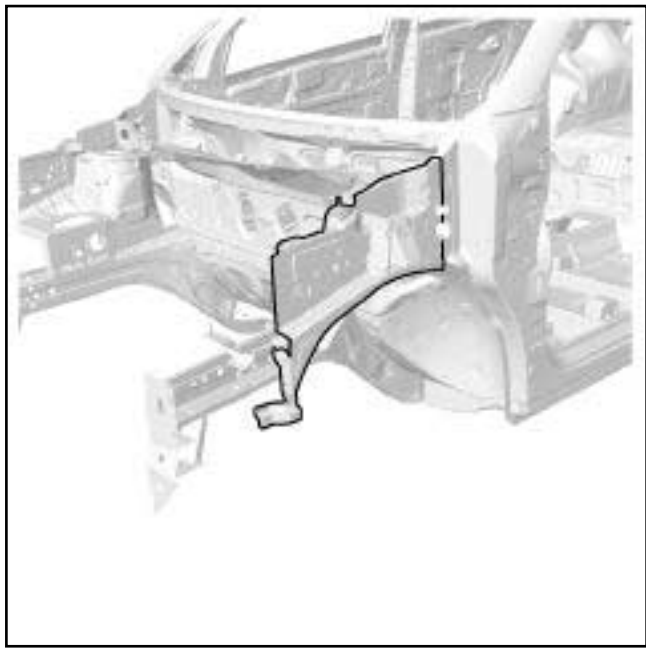
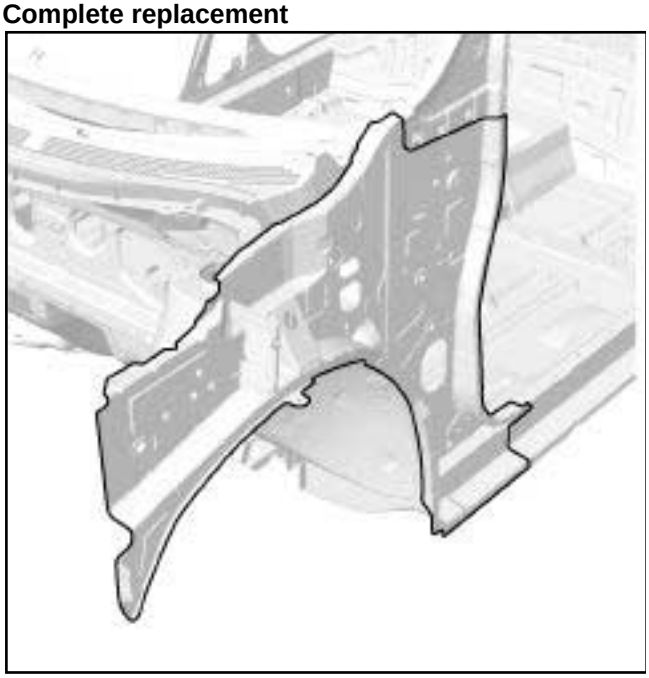
**Partial front replacement**



131040

**Complete replacement**

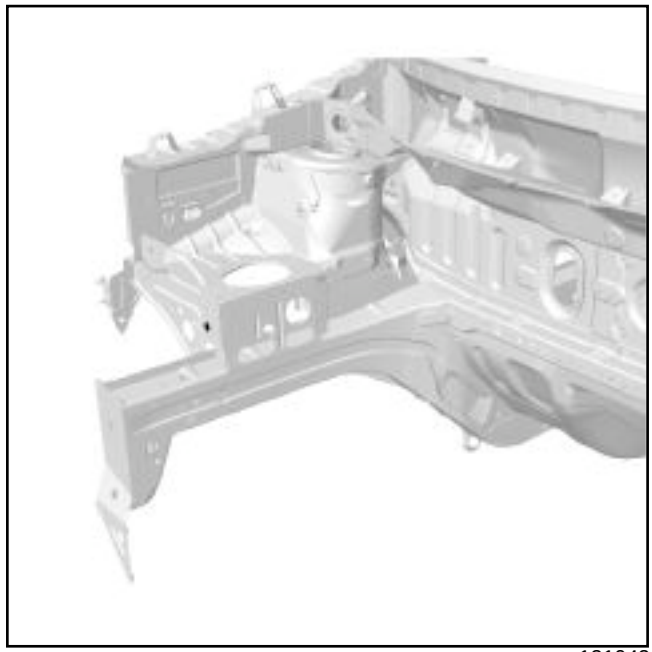


131814

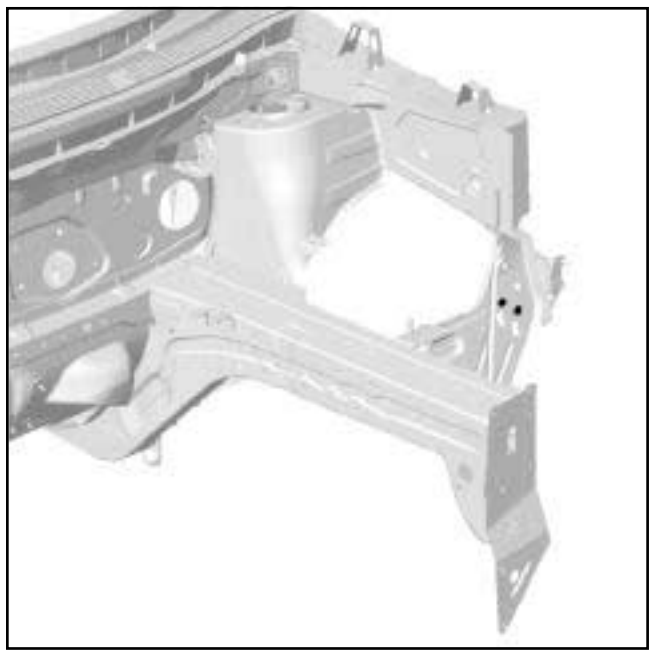
**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131042



131043

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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Note:

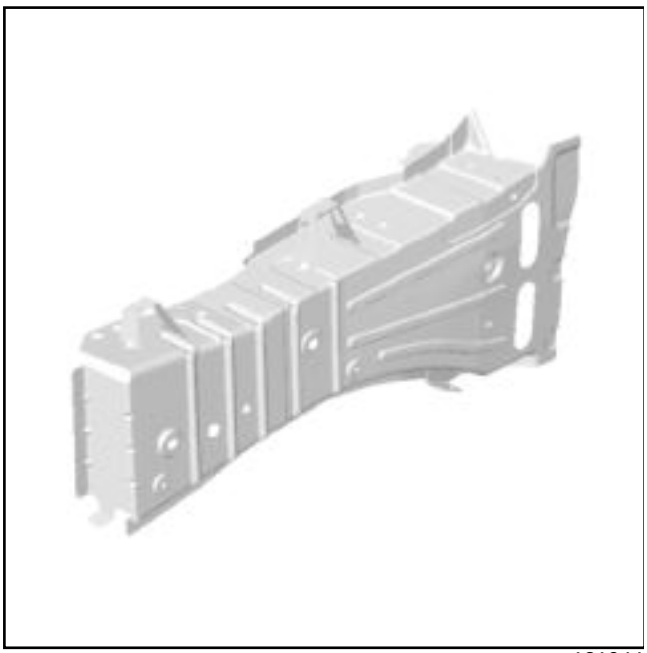
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**



131044

This type of part secures the hinge mounting and the front wing upper mounting.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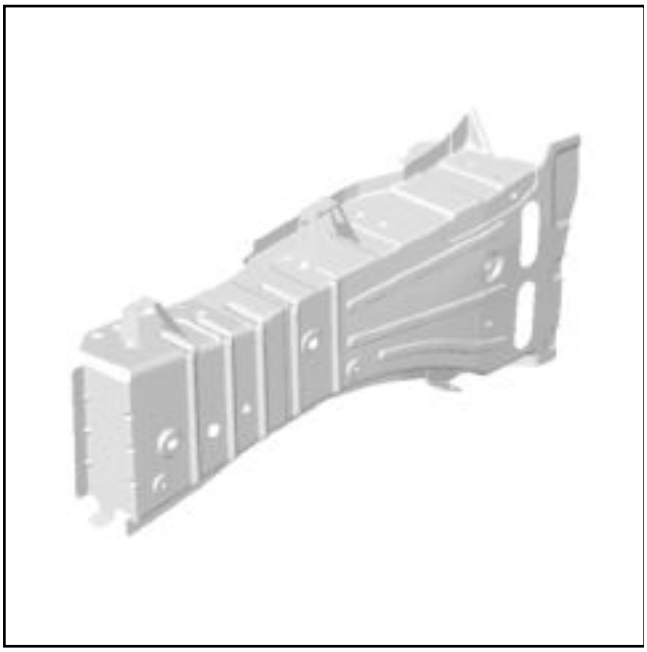
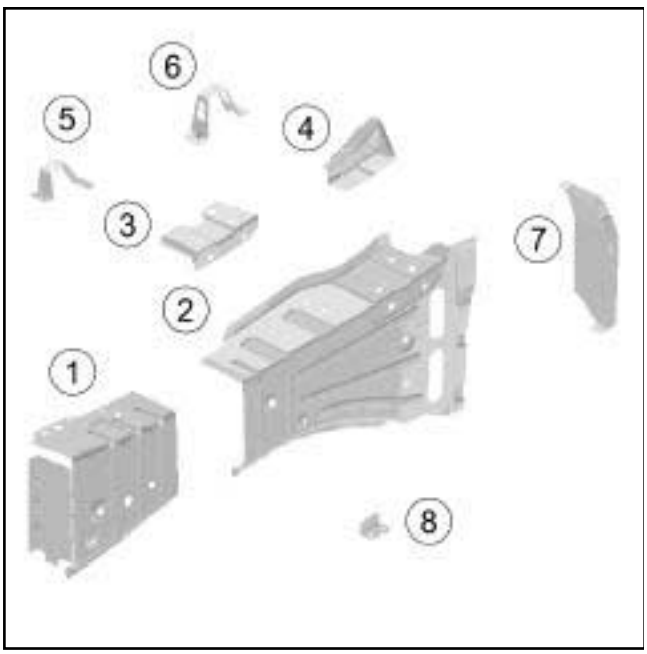


131045

There is only one way of replacing this part:

- complete replacement.

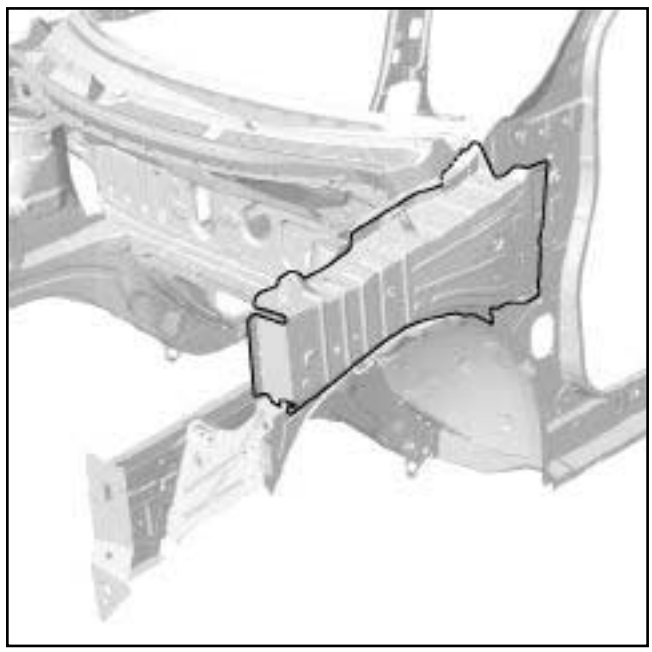
**I - COMPOSITION OF THE SPARE PART**




131046

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Scuttle side panel front reinforcement | HEL | **1.0** |
| (**2**) | Scuttle side panel rear reinforcement | HEL | **1.4** |
| (**3**) | Scuttle side panel hinge reinforcement | HEL | **0.8** |
| (**4**) | Scuttle side panel exterior reinforcement | HEL | **1.4** |
| (**5**) | Front wing upper front mounting | HEL | **1.0** |
| (**6**) | Front wing upper rear mounting | HEL | **1.0** |
| (**7**) | Scuttle side panel reinforcement | HEL | **0.7** |
| (**8**) | Wiring harness clip bracket | HEL | **1.0** |

**II - PART IN POSITION**



131047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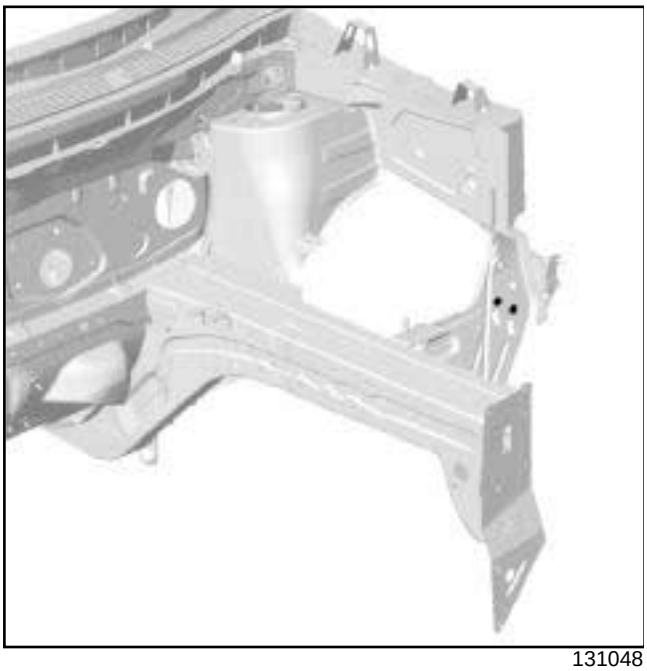
**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131048

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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**Front left-hand wheel arch**

131049

**Front right-hand wheel arch**

131050

There is only one way of replacing this part:

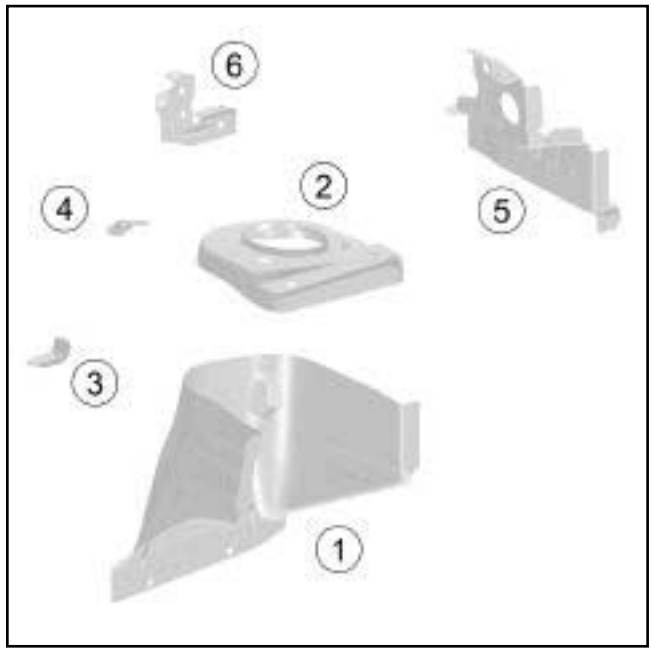
- complete replacement.

**IMPORTANT**

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

**I - COMPOSITION OF THE SPARE PART**

**Front left-hand wheel arch**




131051

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Shock absorber cup height adjuster | HEL | **1.2** |
| (**2**) | Shock absorber cup | HEL | **2.5** |
| (**3**) | Relay unit support | HEL | **1.0** |
| (**4**) | Resonator support | HEL | **1.2** |
| (**5**) | Upper side scuttle side panel | HEL | **2.0** |
| (**6**) | Lower side scuttle side panel | HEL | **1.8** |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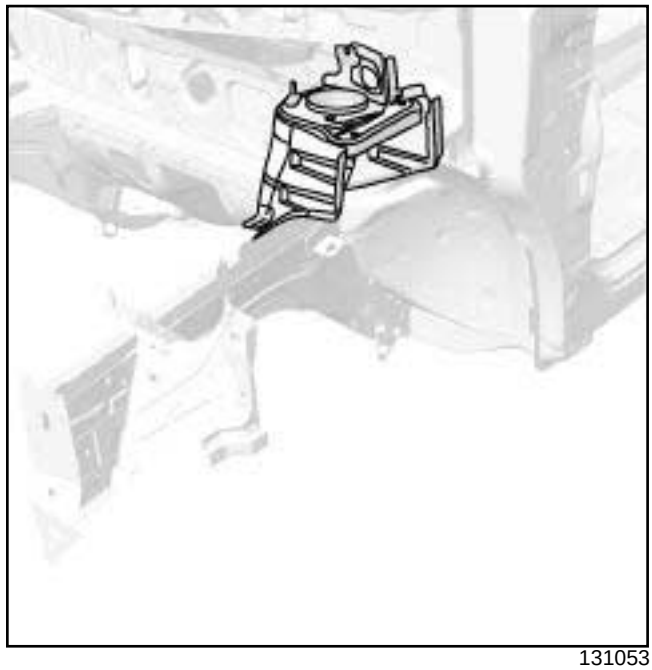
**Front right-hand wheel arch**

131052

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**7**) | Fuel filter holder | HEL | **1.2** |
| (**8**) | Shock absorber cup height adjuster | HEL | **1.2** |
| (**9**) | Shock absorber cup | HEL | **2.5** |
| (**10**) | Fuel tank torsion bar mounting | HEL | **2.0** |
| (**11**) | Lower torsion bar mounting | HEL | **2.3** |
| (**12**) | Upper reinforcement of torsion bar | HEL | **1.2** |
| (**13**) | Upper side scuttle side panel | HEL | **2.0** |

**II - PART FITTED**

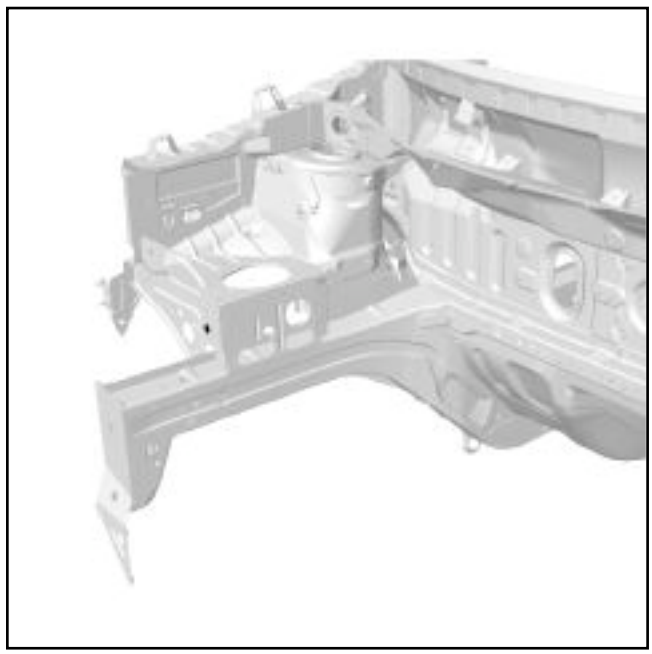


131053

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131054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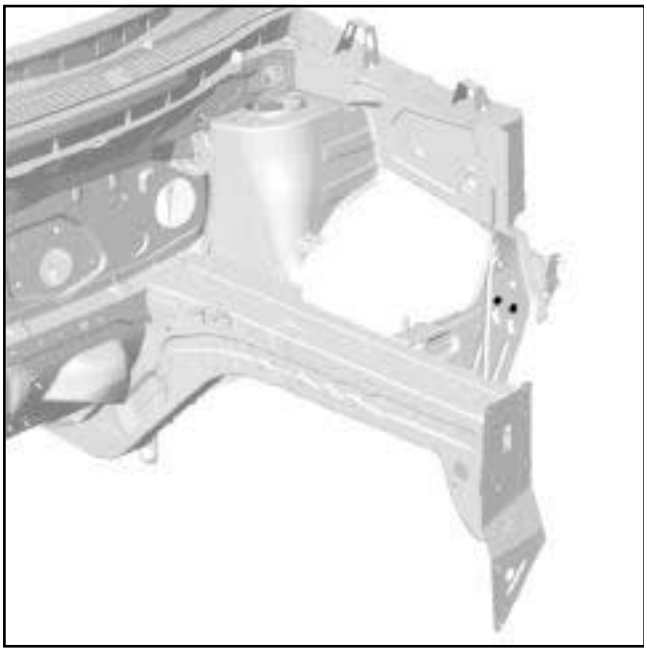

131055

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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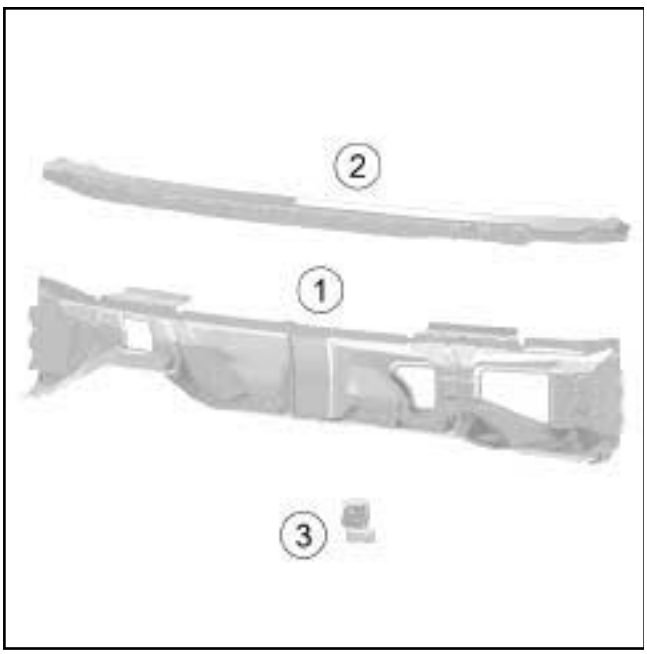
131056

There is only one way of replacing this part:

- complete replacement.

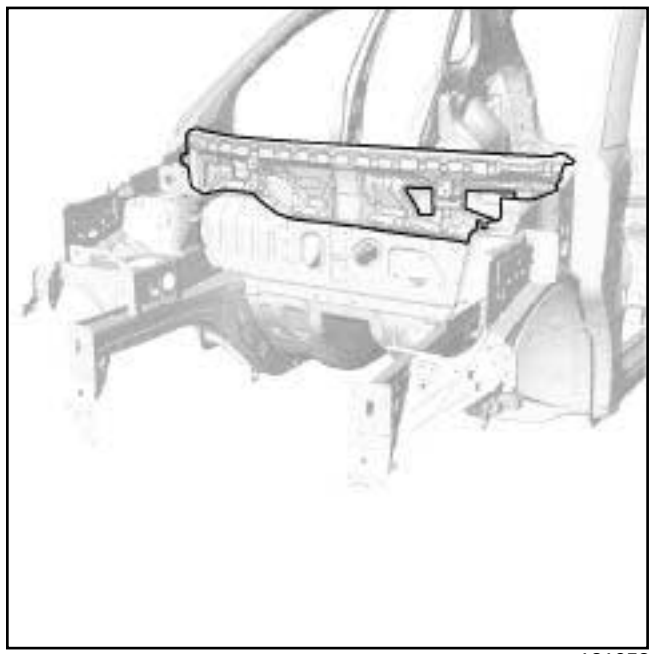
**I - COMPOSITION OF THE SPARE PART**




131057

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Windscreen aperture front lower cross mem-ber | HEL | **0.7** |
| (**2**) | Windscreen aperture central lower cross mem-ber | HEL | **0.6** |
| (**3**) | Windscreen wiper mounting | HEL | **1.2** |

**II - PART FITTED**



131058

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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| Tightening torques ▽ | |
|---|---|
| dashboard cross member bolts | 22 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

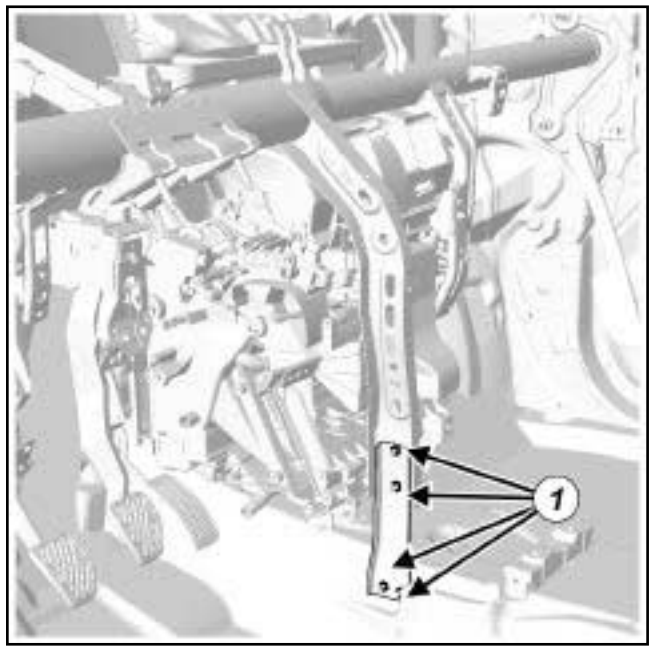
❏ Disconnect:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the earths,
- the dashboard cross member wiring.

❏ Remove:

- the front side door (see **47A**, **Side opening elements**, **Front side door: Removal - Refitting**, page **47A-1**) ,
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column (see **Steering column: Removal - Refitting**) (36A, Steering assembly).
- the air distribution duct (see **Front side air distribution duct: Removal - Refitting**) and (see **Front central air distribution duct: Removal - Refitting**) (61A, Heating system).

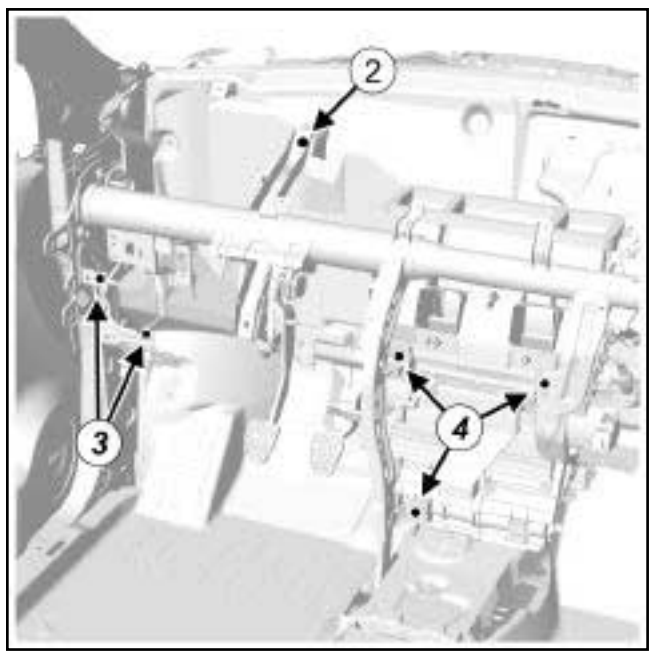
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131059

❏ Remove:

- the dashboard cross member flange bolts (**1**) ,
- the dashboard cross member flange.




131060

❏ Remove:

- the tie-rod bolt (**2**) ,
- the fuse box bolt (**3**) ,
- the bolts (**4**) from the air distribution unit.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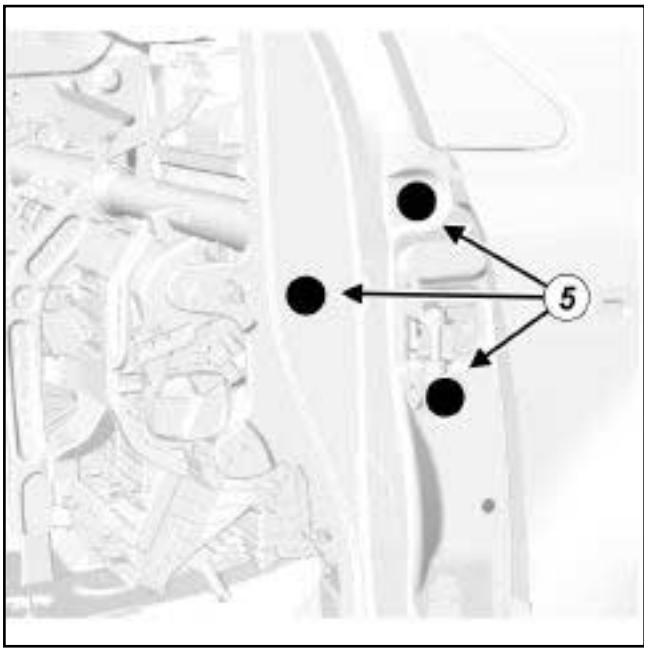
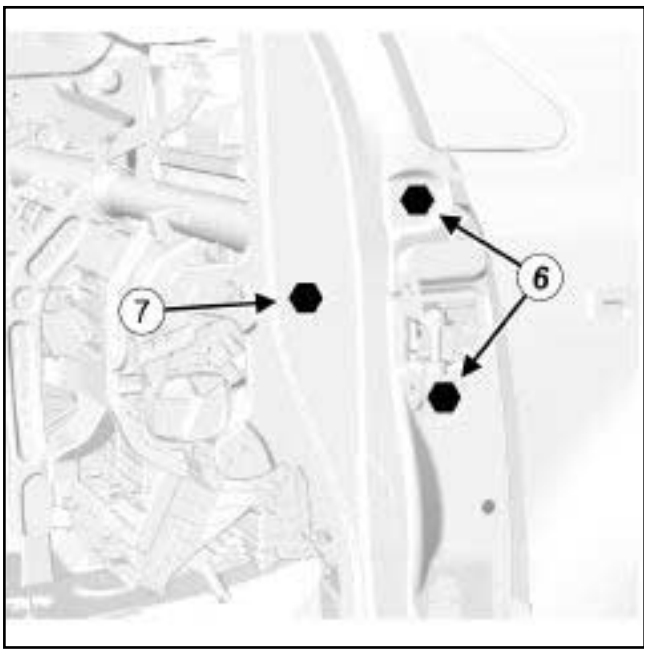



131061

❏ Remove the blanking covers (**5**) .




131062

❏ Loosen the adjustment nut and remove the side bolts (**6**) from the dashboard cross member.

❏ Remove:

- the dashboard cross member bolts (**6**) from both sides of the vehicle,
- the dashboard cross member bolt (**7**) ,
- the dashboard cross member.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the dashboard cross member,
- the dashboard cross member bolt (**7**) ,
- the bolts (**6**) from the dashboard cross member on both sides of the vehicle,
- the blanking covers ***(5)*** ,
- the bolts (**4**) from the air distribution unit,
- the fuse box bolt (**3**) ,
- the tie-rod bolt (**2**) ,
- the dashboard cross member flange,
- the dashboard cross member flange bolts (**1**) .

❏ Torque tighten the **dashboard cross member bolts (22 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the air distribution duct (see **Front side air distribution duct: Removal - Refitting**) and (see **Front central air distribution duct: Removal - Refitting**) (61A, Heating system),
- the steering column (see **Steering column: Removal - Refitting**) (36A, Steering assembly).
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the front side door (see **47A**, **Side opening elements**, **Front side door: Removal - Refitting**, page **47A-1**) .

❏ Connect:

- the dashboard cross member wiring,
- the earths,
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading this general information, check that there are no special notes associated with this vehicle. These special notes will be specified if applicable in other parts of this subsection dealing with the part.

Note:

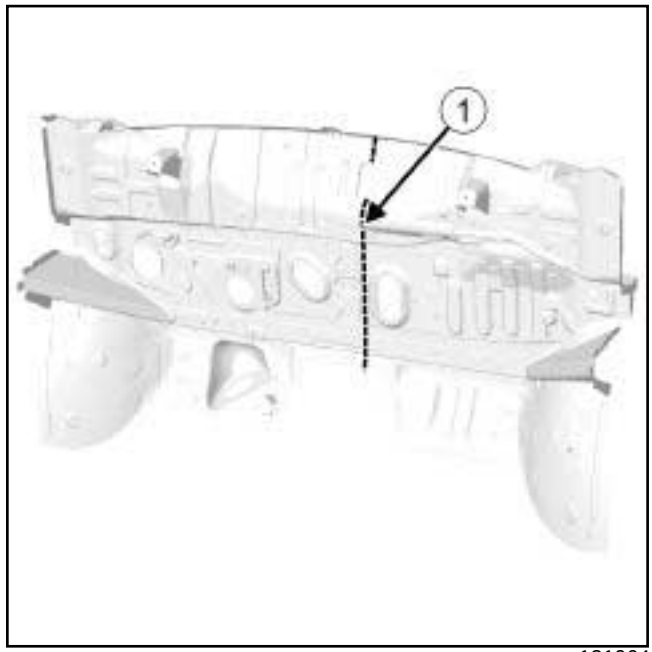
For a detailed description of a particular connection, see **MR 400**.

## I - DESIGN OF THE STRUCTURAL COMPONENT

131063

This is a basic part; its only function is that of a bulkhead.

## II - AREA TO BE CUT FOR PARTIAL REPLACEMENT




131064

Cutting line (**1**) shows the area in which it is possible to carry out a partial replacement.

## III - ASSEMBLY INSTRUCTIONS FOR A PARTIAL REPLACEMENT

Only the connections which are specific to the partial replacement by cutting are indicated.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **Connections for partial replacement edge-to-edge: Description**) .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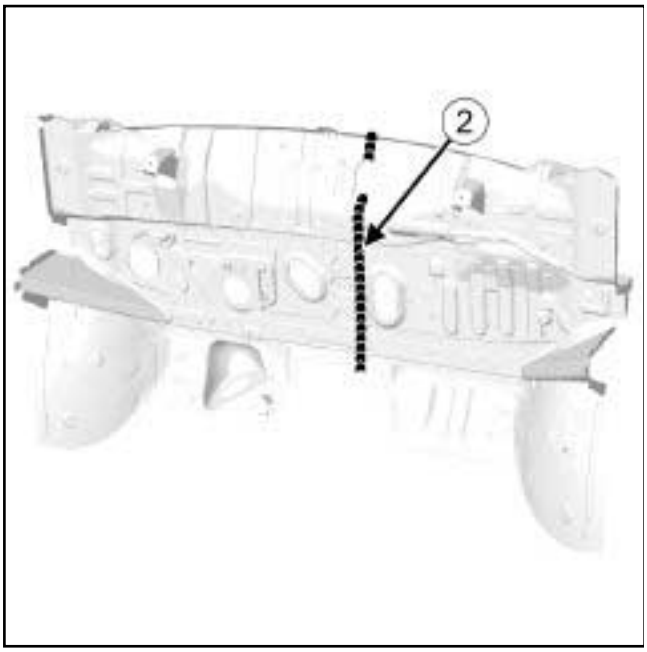


131065

The line (**2**) on the drawing shows a butt weld made by continuous **GMAW** welding.


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131066

There is only one way of replacing this part:

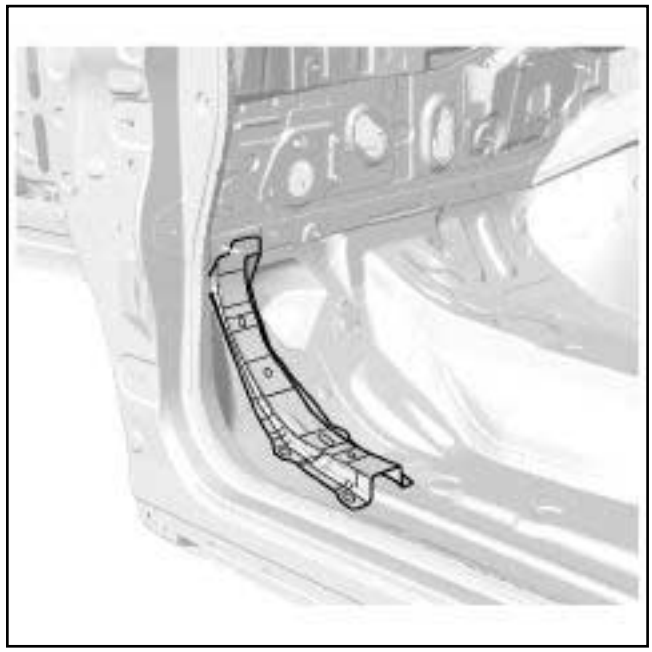
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| ***(1)*** | Bulkhead reinforcement | Very high yield strength | **2.0** |

**II - PART FITTED**

**Complete replacement**

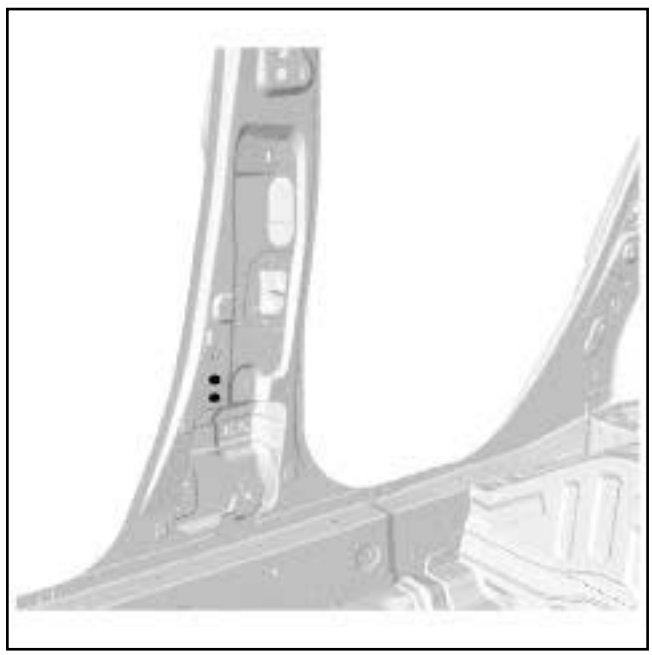


131067

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131068



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**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).


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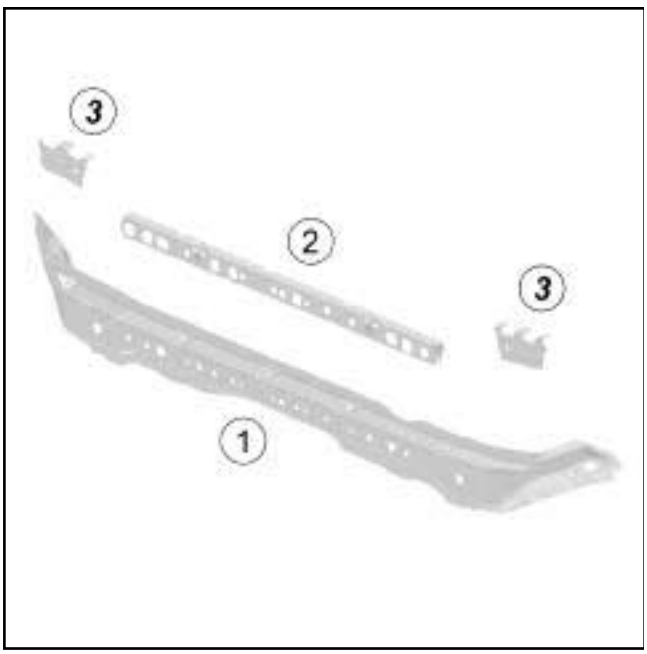
131069

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

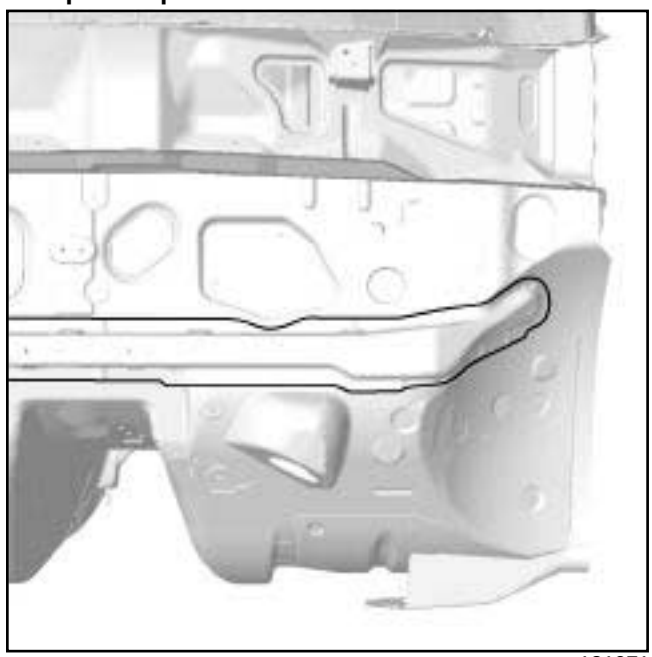



131070

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Bulkhead lower cross member | HLE | **1.0** |
| (**2**) | Bulkhead lower cross member reinforcement | HLE | **1.6** |
| (**3**) | Bulkhead lower cross member reinforcement | HLE | **1.6** |

**II - PART FITTED**

**Complete replacement**



131071

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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**WARNING**

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

**DESIGN OF THE STRUCTURAL COMPONENT**

Note:

For a detailed description of a particular connection, see **MR 400, 40A, General Information**.

131809

This is a basic part, its only function is that of an A-pillar.

**WARNING**

If the spot welds cannot be made as they were originally using an electrical spot welding machine, they should be replaced with plug welds after holes have been drilled in the first panel.


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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**

131816

This is a basic part, its only function is that of the windscreen pillar lining.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).


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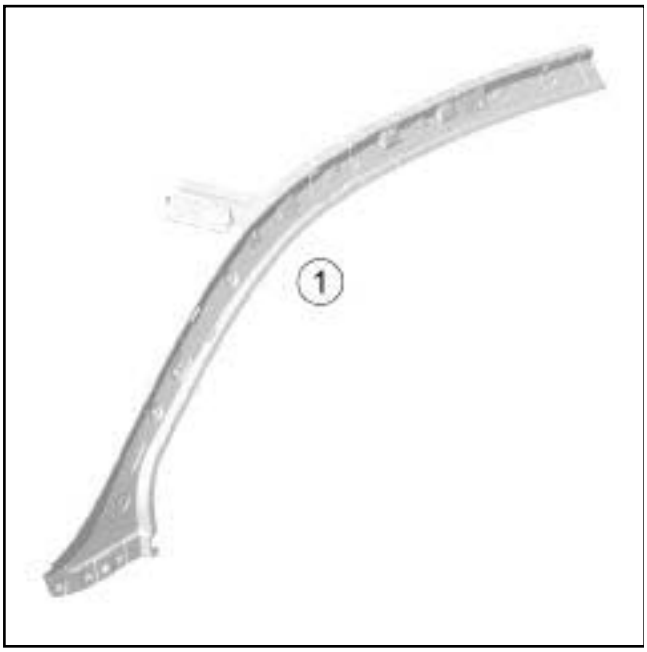
The options for replacing this part are as follows:

- partial replacement,
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

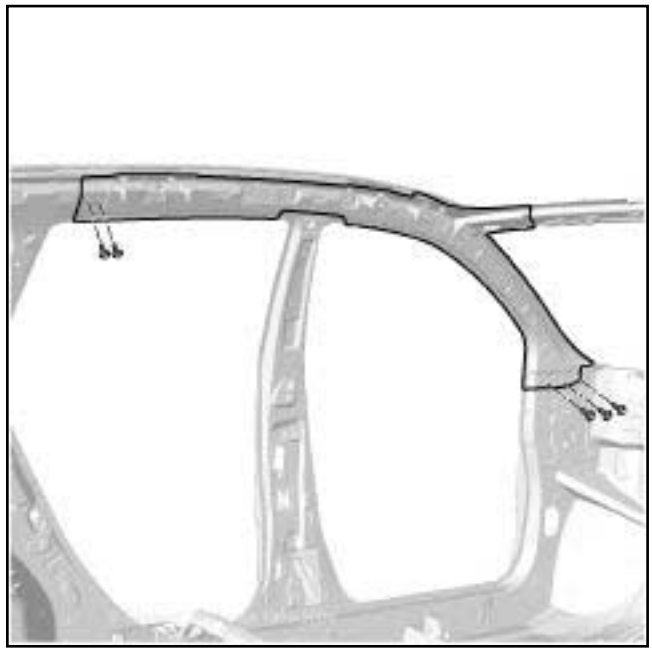



131817

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Windscreen pillar lining | HEL | **1.6** |

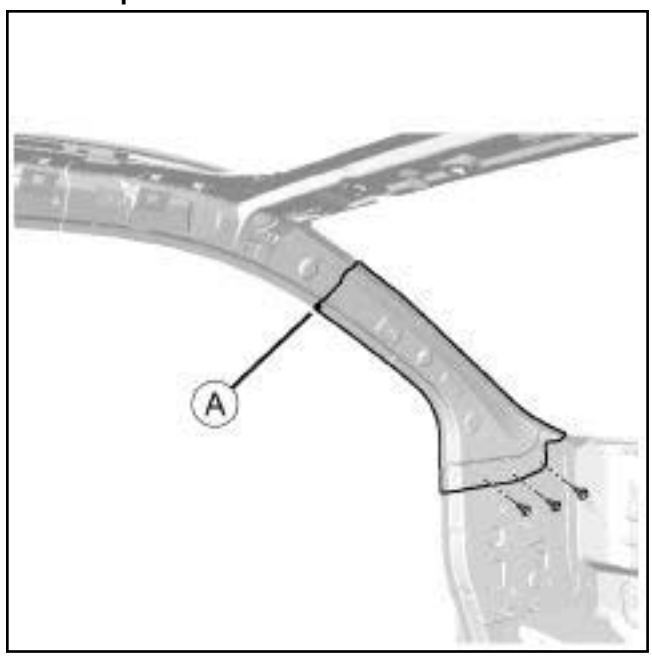
**II - PART FITTED**

**Complete replacement**



131818

**Partial replacement**




131819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**Detailed view of cut A**

131820



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**WARNING**

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

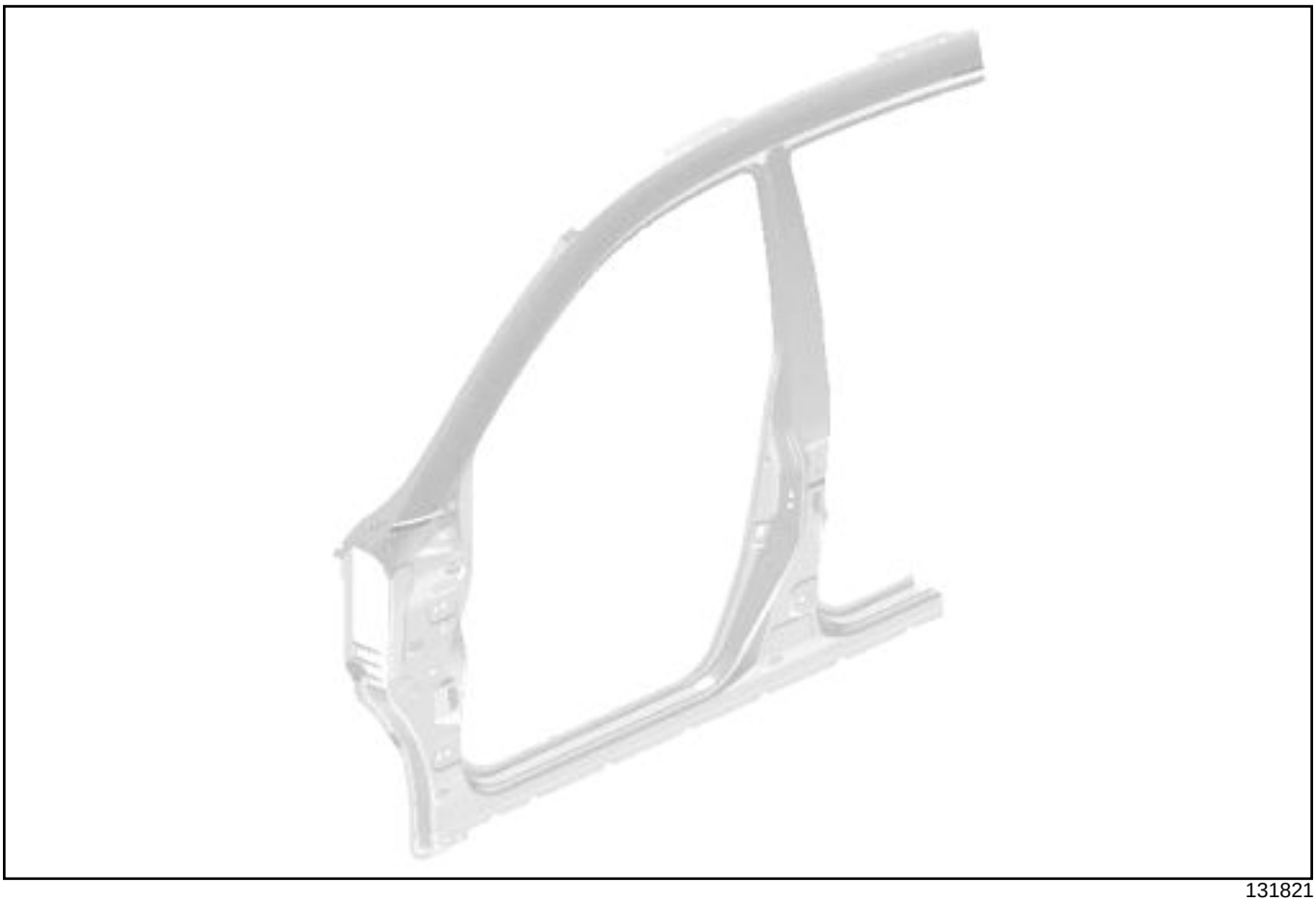
Note:

For a detailed description of a particular connection, see **MR 400, 40A, General Information**.

**IMPORTANT**

Before any operation, remove the front seat belts.

## I - DESIGN OF THE STRUCTURAL COMPONENT



131821

The B-pillar is obtained by extension from the front section body side.



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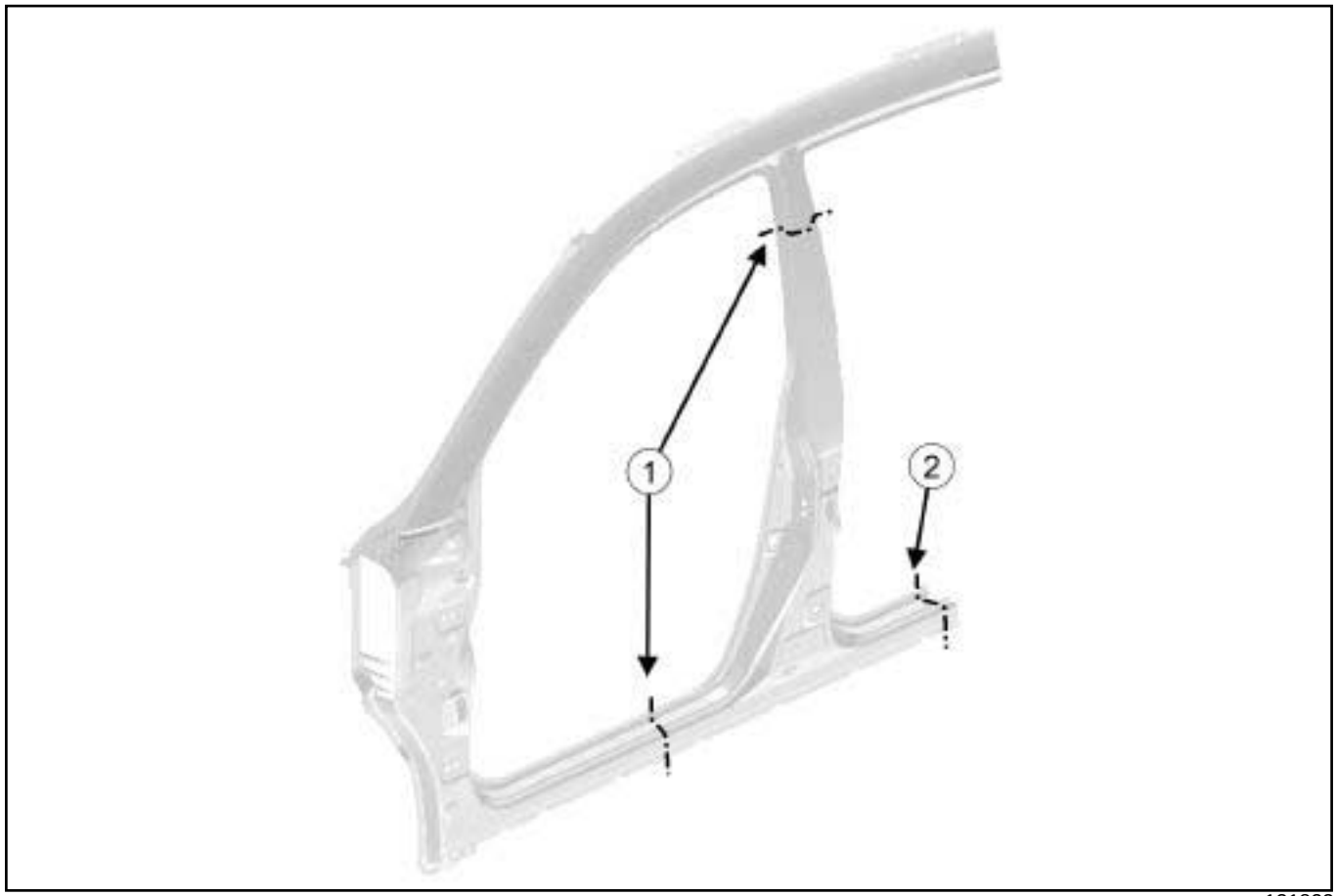
**II - AREA TO BE CUT FOR PARTIAL REPLACEMENT**




131822

Cutting lines (**1**) and (**2**) show the area in which it is possible to carry out a partial replacement.

Make the cutting line (**2**) on the butt weld.

**III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT**

Only the connections which are specific to the partial replacement by cutting are indicated.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400, 40A, General Information**).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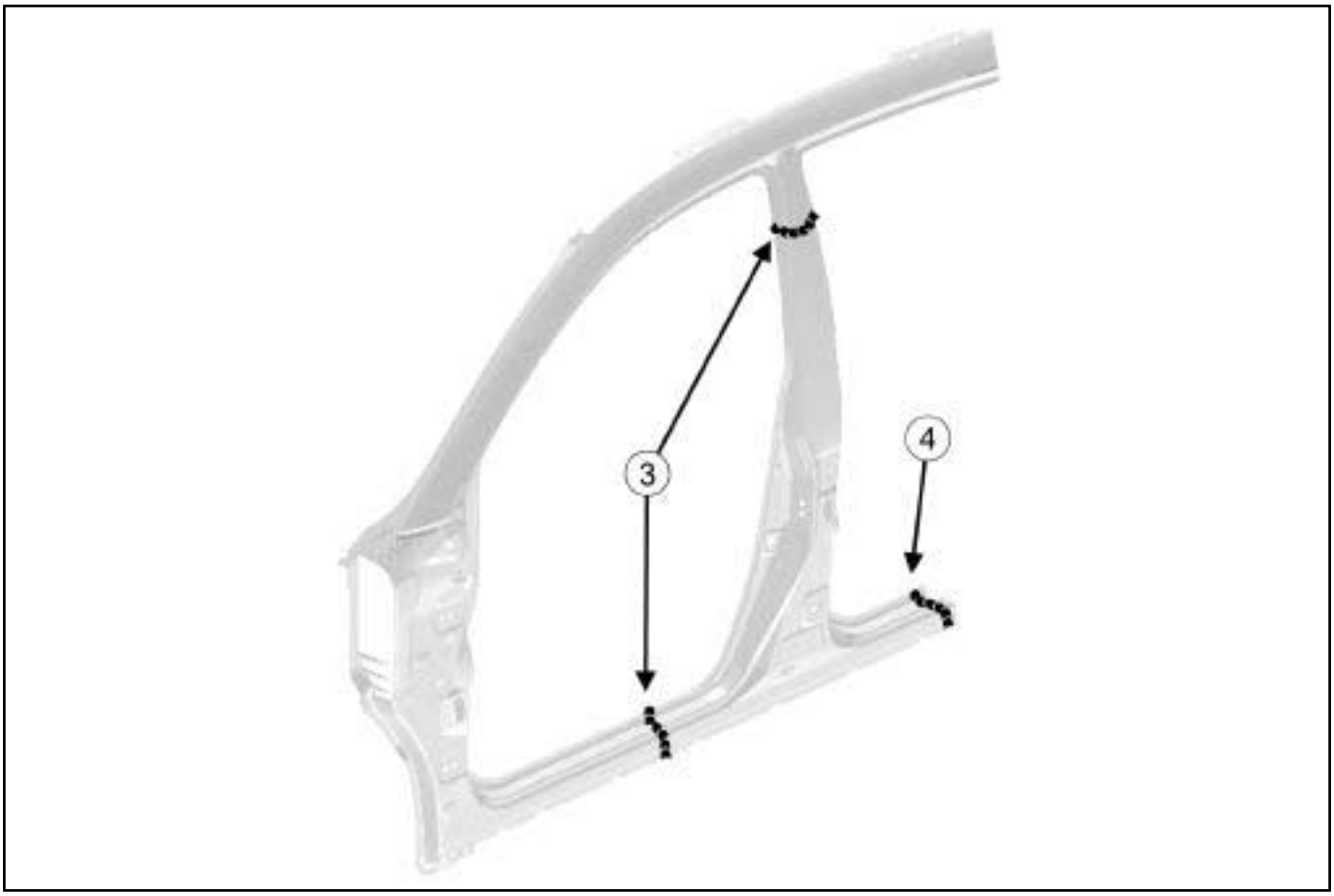


131823

Lines (**3**) and (**4**) on the diagram show a butt weld by continuous EGW welding.

Weld (**4**) along the butt weld line.

**WARNING**

If the spot welds cannot be made as they were originally using an electrical spot welding machine, they should be replaced with plug welds after holes have been drilled in the first panel.



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131824

There is only one way of replacing this part:

- complete replacement.

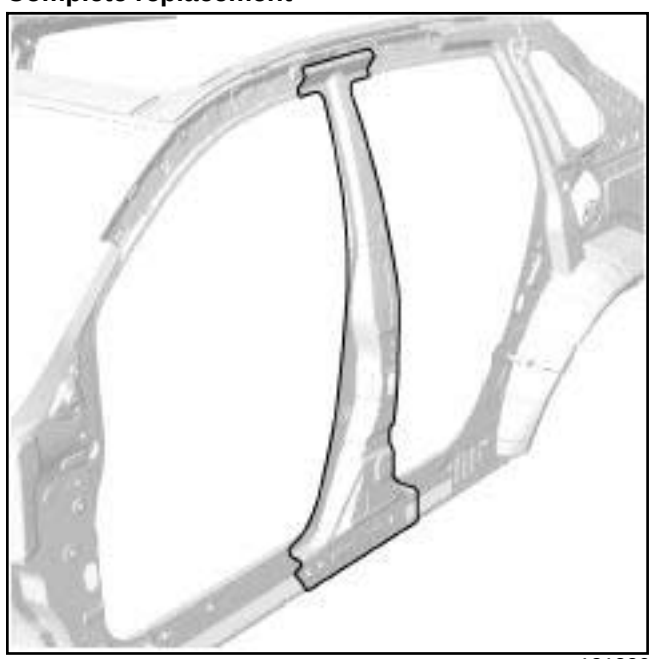
**I - COMPOSITION OF THE REPLACEMENT PART**

131825

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | B-pillar hinge reinforcement | HEL | **1.0** |
| (**2**) | B-pillar reinforce-ment | HEL | **1.0** |
| (**3**) | B-pillar upper bulkhead | HEL | **1.6** |
| (**4**) | B-pillar lower bulkhead | HEL | **1.8** |
| (**5**) | B-pillar lower reinforcement | HEL | **1.4** |

**II - PART FITTED**

**Complete replacement**



131826

For details of body side cuts (see **43A**, **Side upper structure**, **Body side front section: Description**, page **43A-15**) .

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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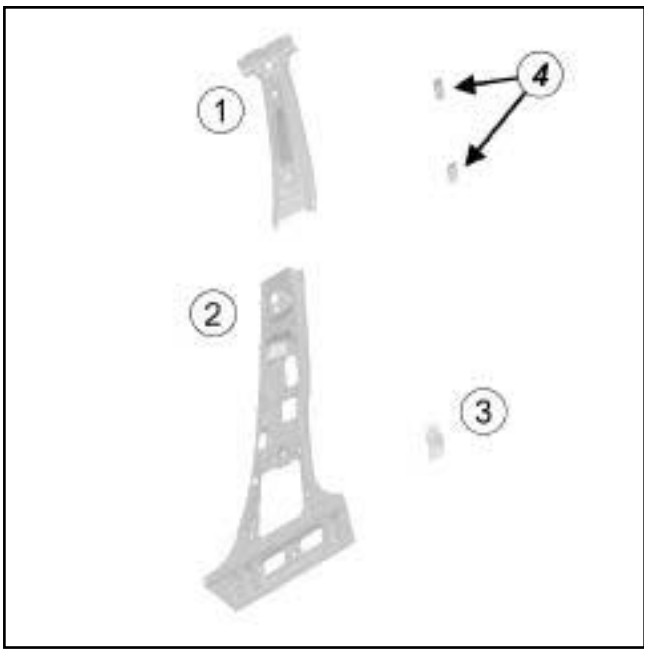
131827

The options for replacing this part are as follows:

- partial replacement,
- complete replacement.

**I - COMPOSITION OF THE REPLACEMENT PART**

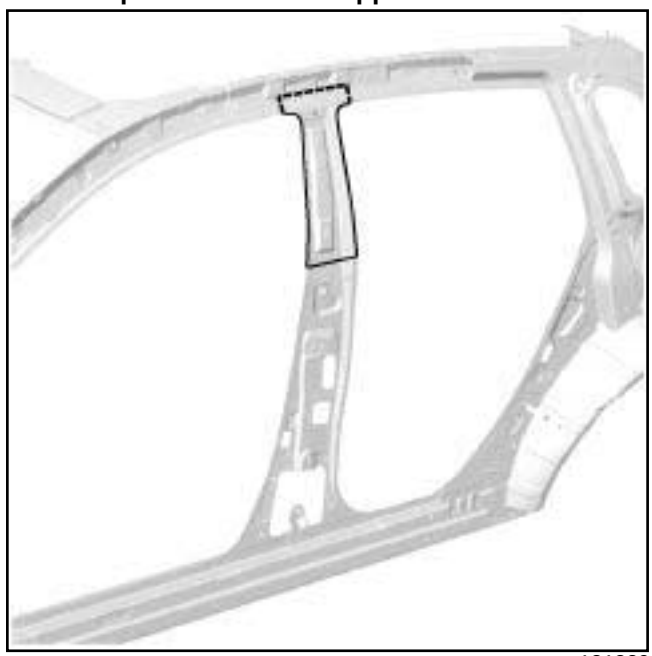



131828

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Upper interior B-pillar | HEL | **1.6** |
| (**2**) | Lower interior B-pillar | HEL | **1.0** |
| (**3**) | Seat belt ancho-rage | HEL | **2.0** |
| (**4**) | Nut plate | - | **-** |

**II - PART FITTED**

**Partial replacement of the upper section**



131829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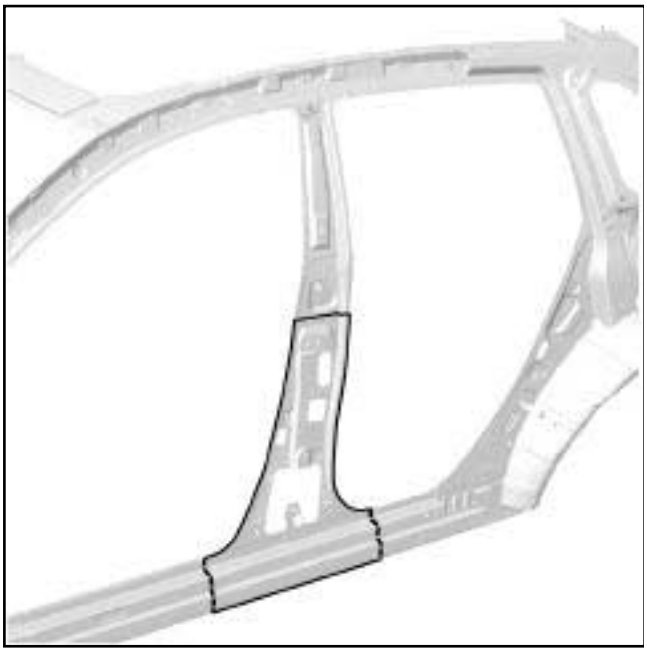
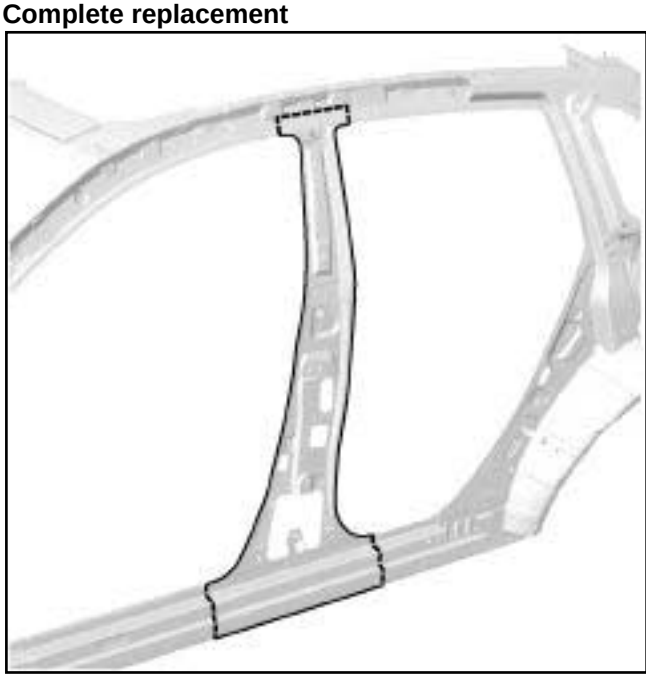
**Partial replacement of the lower section**



131830

**Complete replacement**



131831

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

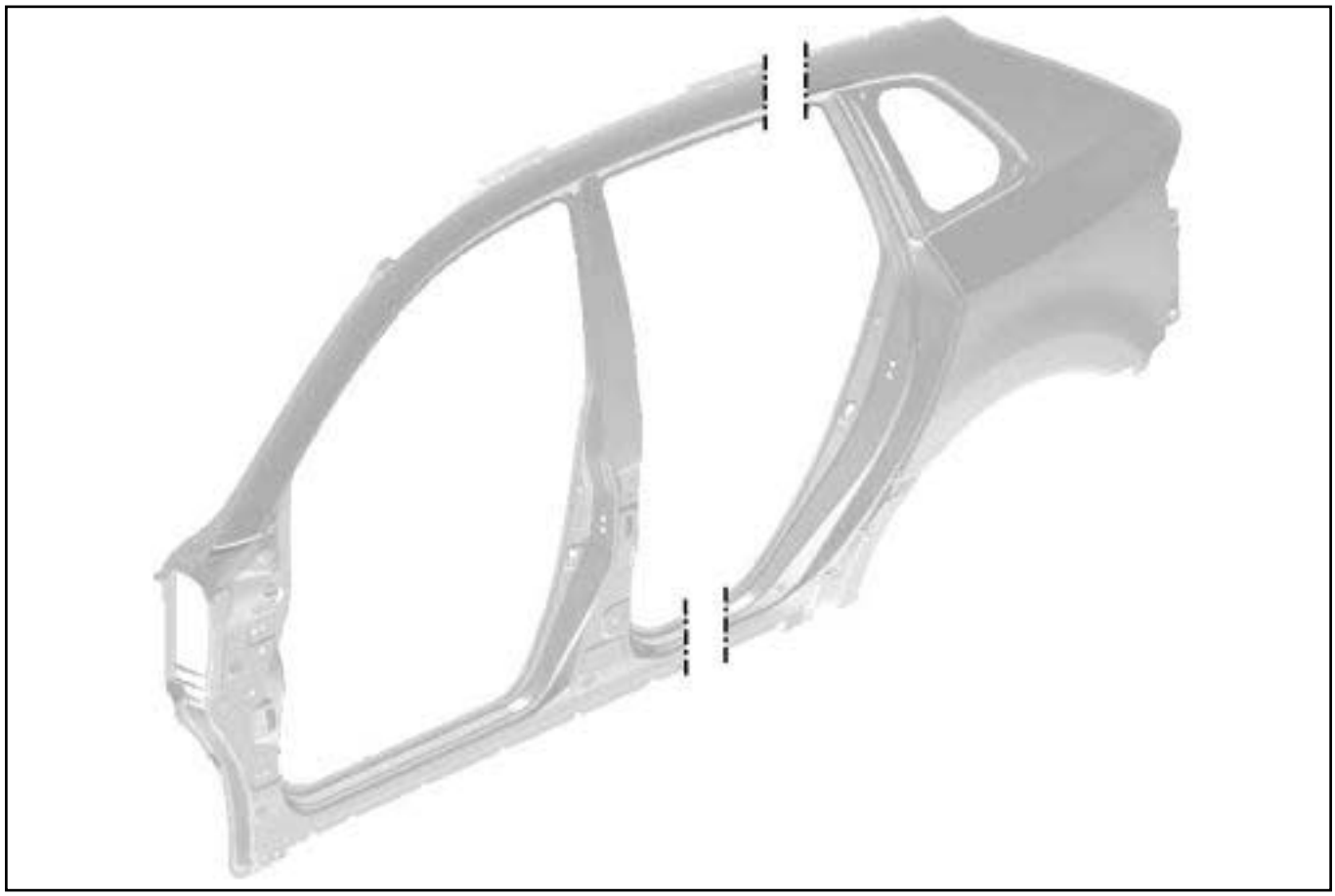
Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**

The two parts must be welded at the joint (**1**) and butt welded by continuous EGW welding.



131833

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

The body side is achieved by welding the rear wing and the body side front section.



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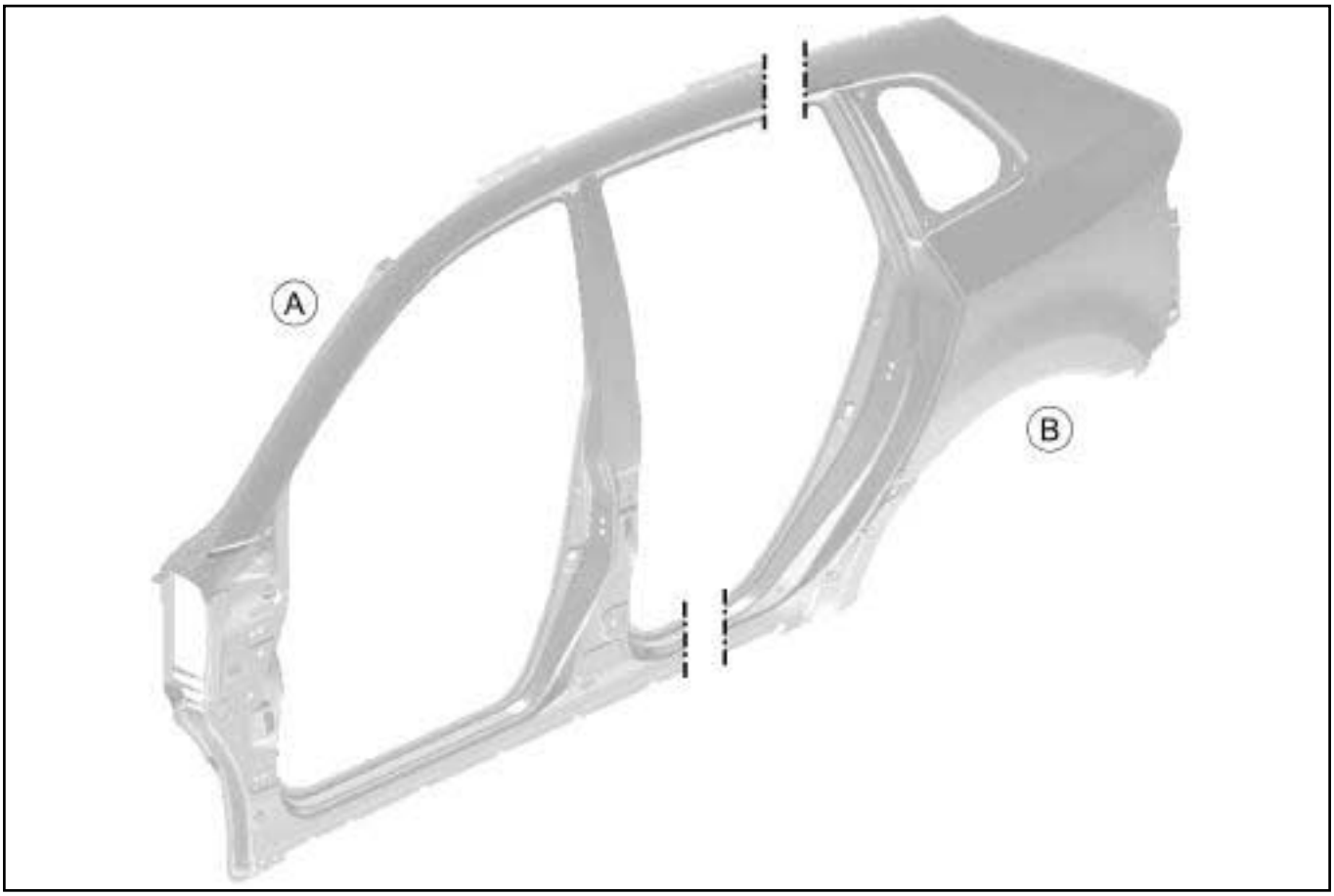


131833

To replace this part, order the body side front section (**A**) with the rear wing panel (**B**) .

The parts supplied are long enough to cover the parts to be replaced.

For a detailed explanation of procedures (see **43A**, **Side upper structure**, **Body side front section: Description**, page **43A-15**) and (see **44A**, **Rear upper structure**, **Rear wing panel: Description**, page **44A-1**) .


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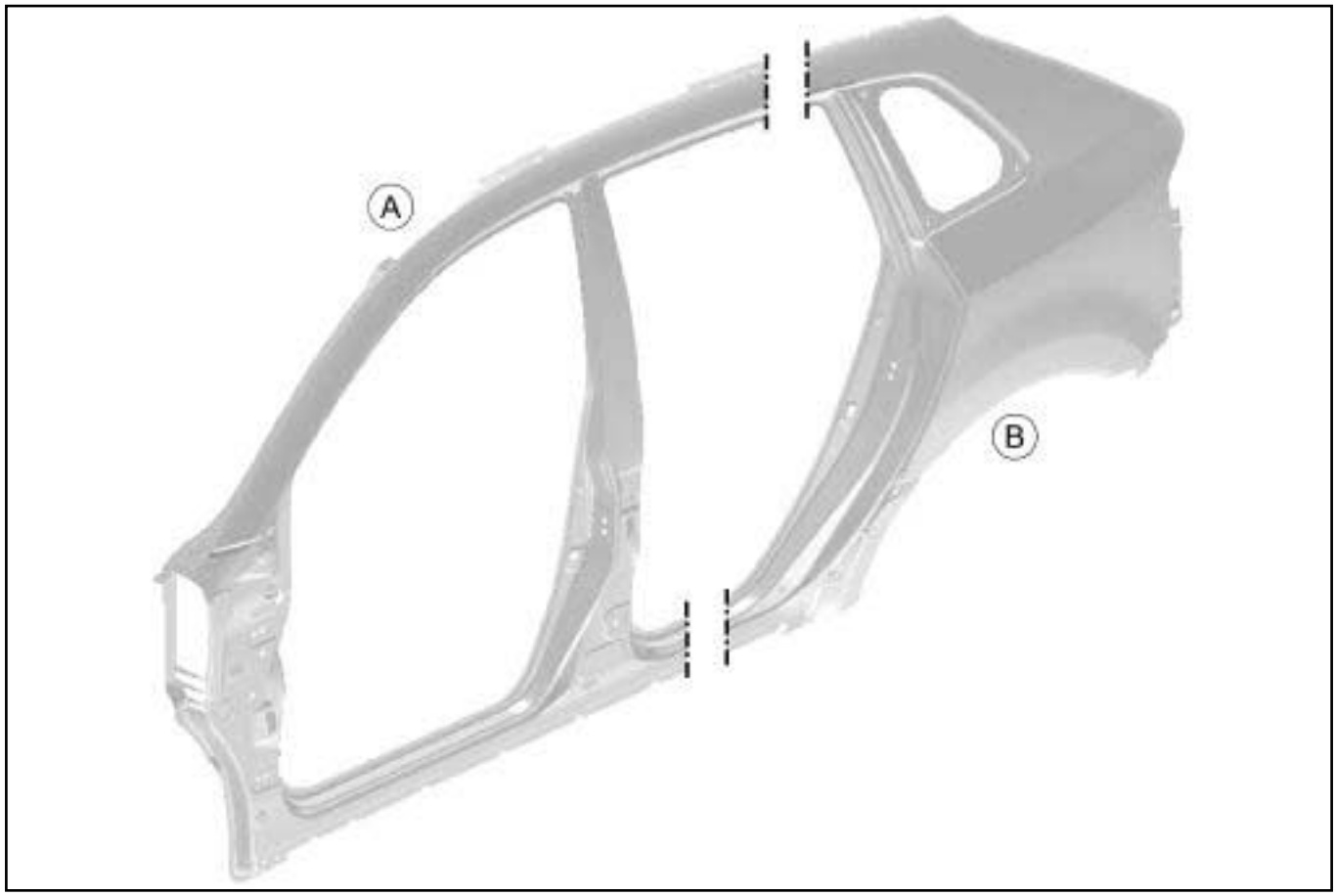


131833

To replace this part, order the body side front section ***(A)*** with the rear wing panel ***(B)*** .

The parts supplied are long enough to cover the parts to be replaced.

For details of the procedures, (see **43A**, **Side upper structure**, **Body side front section: Description**, page **43A-15**) and (see **44A**, **Rear upper structure**, **Rear wing panel: Description**, page **44A-1**) .

Note:

For a detailed description of a particular connection, see **MR 400**.


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Note:

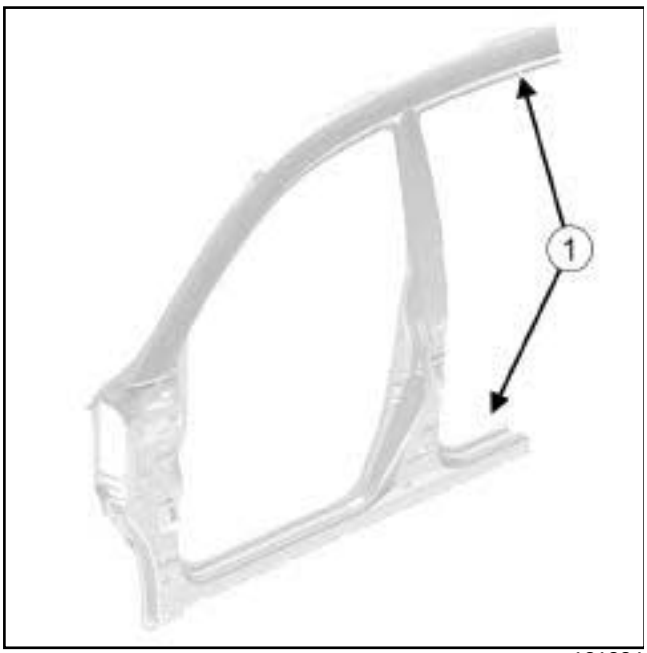
The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**




131834

This part has two special features:

- it is welded under the roof,
- it is butt welded in part (**1**) .

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).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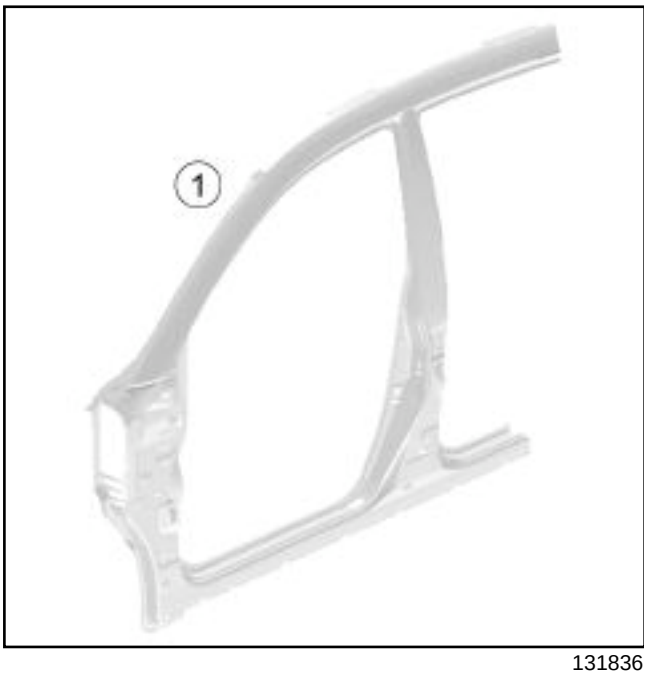
131835

To replace this part, order a double seal mounting (**A**) in the event that the A-pillar has to be replaced.

The options for replacing this part are as follows:

- replacement of the lower section of the A-pillar
- replacement of the A-pillar,
- replacement of the B-pillar,
- replacement of the entire B-pillar,
- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

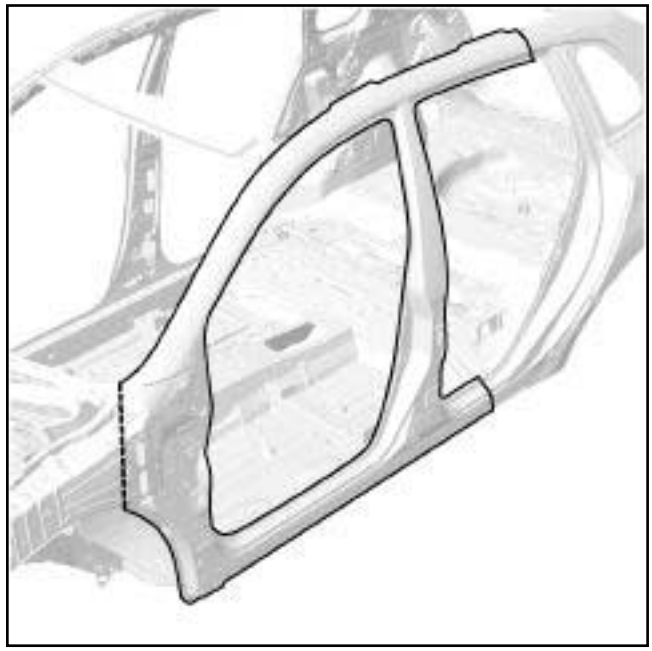



131836

| No. | Description | Type | Thickness (mm) |
|---|---|---|---|
| (**1**) | Body side front section | HEL | **0.75** |

**II - PART IN POSITION**

**Complete replacement**



131837

**WARNING**
If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

Note:

Before any operation, remove the front seat belts.

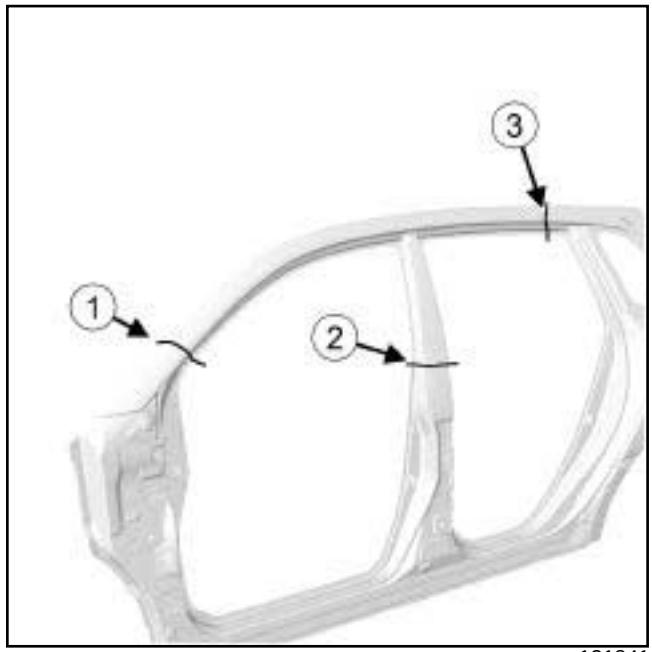
**I - DESIGN OF THE STRUCTURAL COMPONENT**

131840

This is a basic part; its only function is that of an upper body.

This is a basic part; its only function is that of an upper body.

**II - AREA TO BE CUT FOR PARTIAL REPLACEMENT**




131841

Lines (**1**) , (**2**) and (**3**) in the drawing show the area in which partial replacement may be carried out.

**III - ASSEMBLY METHOD FOR A PARTIAL REPLACEMENT**

Only the connections which are specific to the partial replacement by cutting are indicated.

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see **MR 400**).

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).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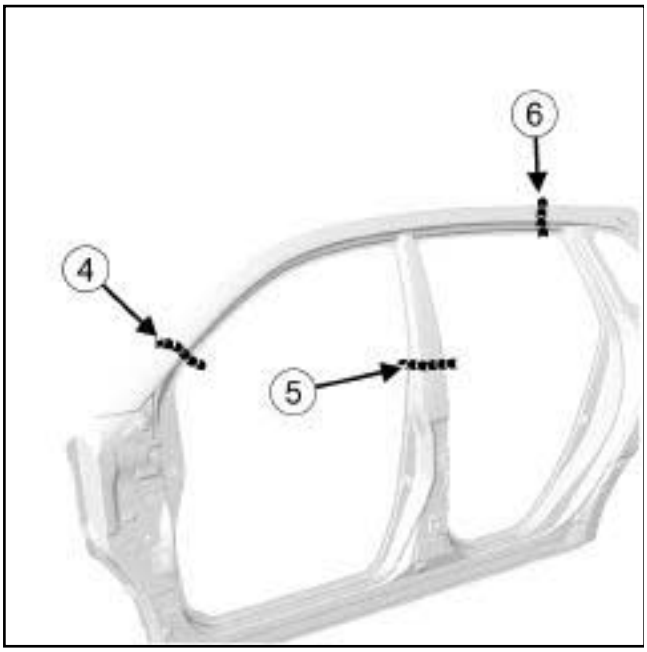


135093

Lines (**4**) , (**5**) and (**6**) on the drawing show a butt weld by continuous EGW welding.

Weld (**6**) along the butt weld line.


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There is only one way of replacing this part:

- partial replacement.

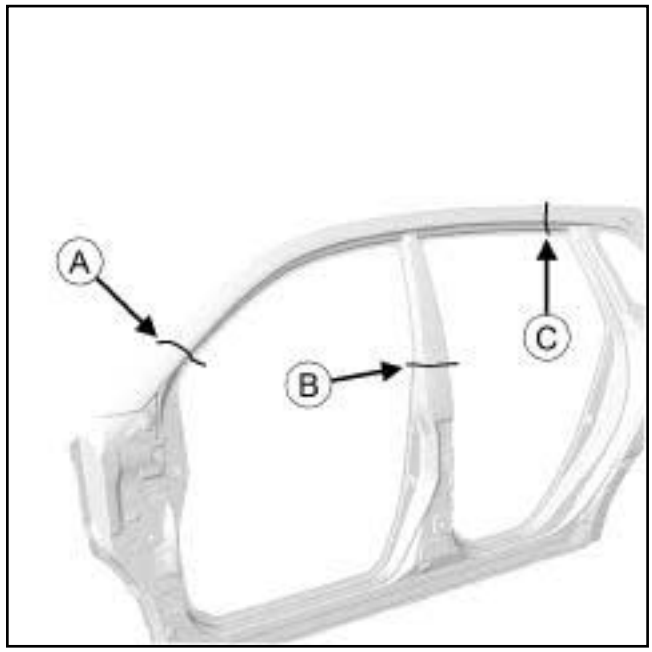
**I - COMPOSITION OF THE SPARE PART**

131840

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Roof panel | - | **-** |

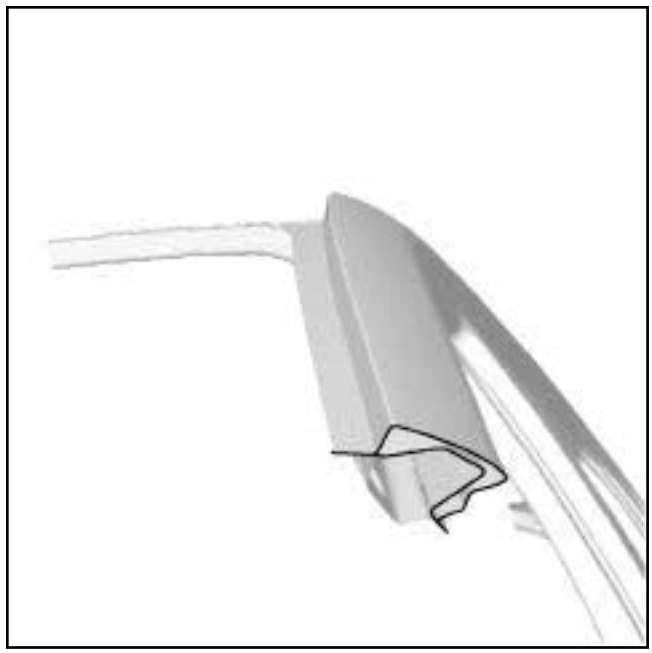
**II - PART FITTED**

**Partial replacement**




131841

**Section A**



131842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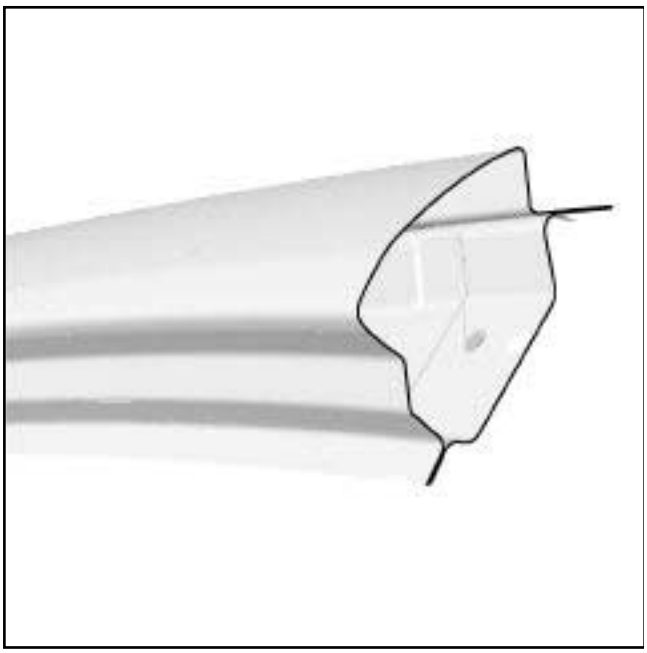
**Section B**

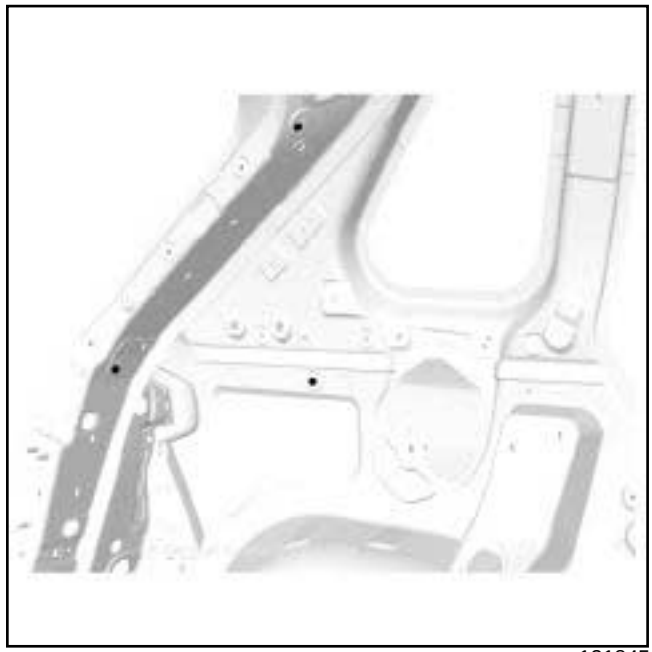
131843

**Section C**



131844

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131845

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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The options for replacing this part are as follows:

- partial replacement,
- complete replacement.

**I - COMPOSITION OF THE REPLACEMENT PART**

131846

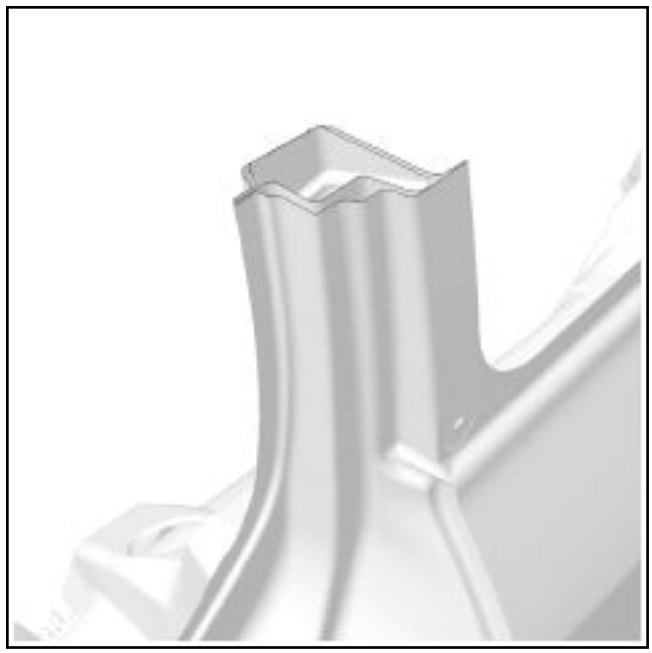
| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear wing panel | HLE | **0.75** |

**II - PART FITTED**

**Partial replacement**

131847

**Section A**



131848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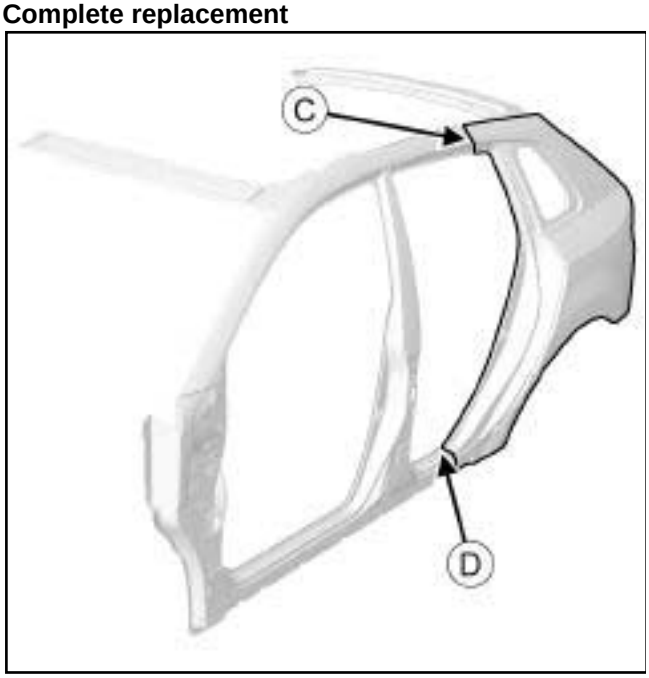
**Section B**

131849

**Section C**

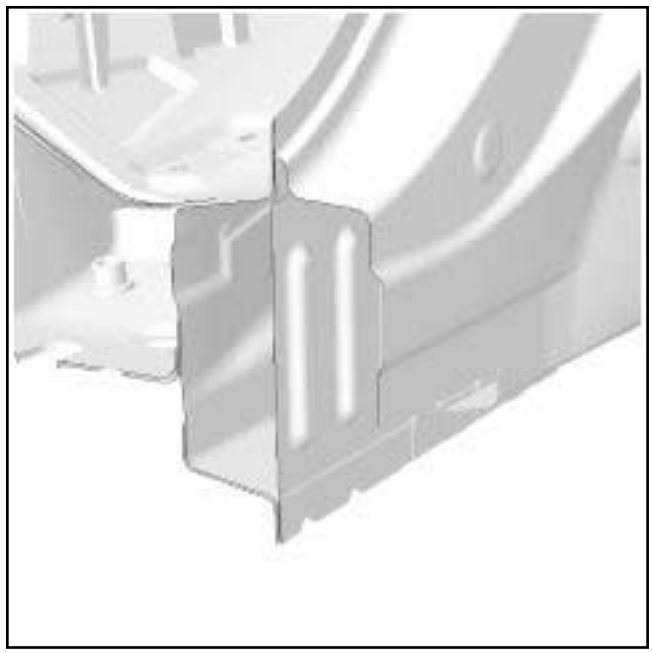
131851

**Complete replacement**




131850

**Section D**



131852

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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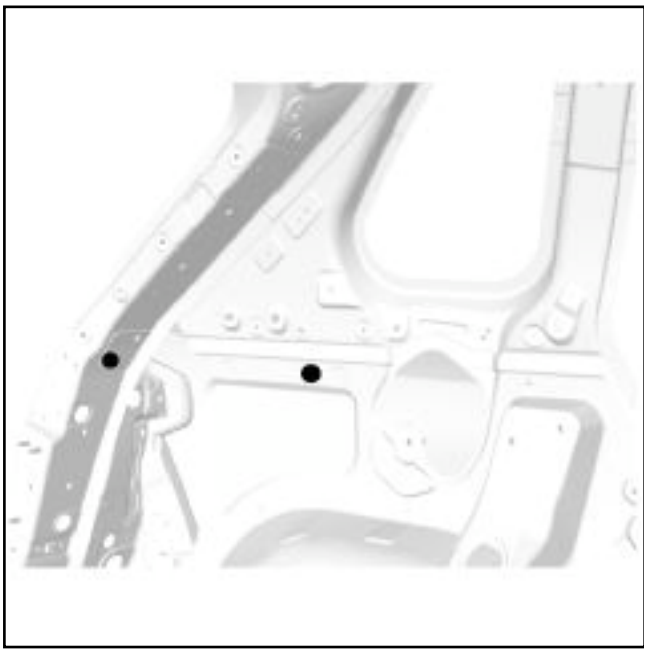
Note:

For welded connections in three thicknesses, the spot welds on the part replaced should be made in the same place as for the original joint to retain the mechanical specifications of the connection. See **MR 400.**

**III - POSITIONING OF LOCAL ELECTRICAL EARTHS**



131853

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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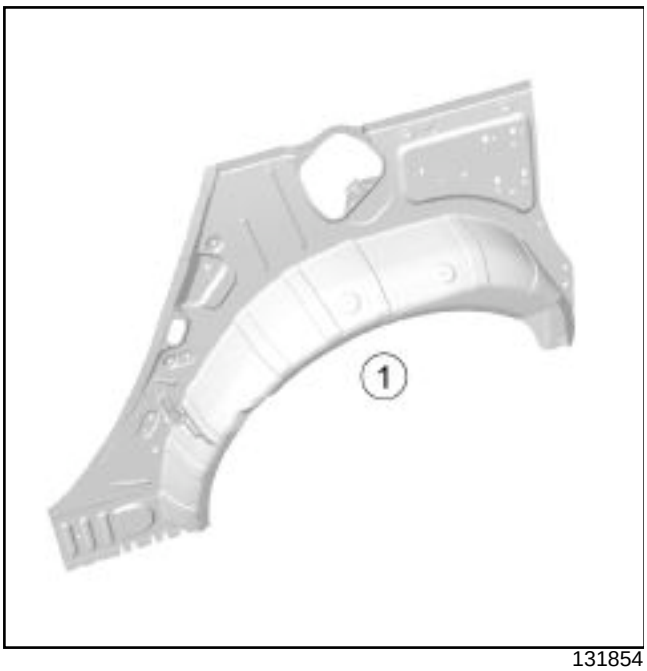
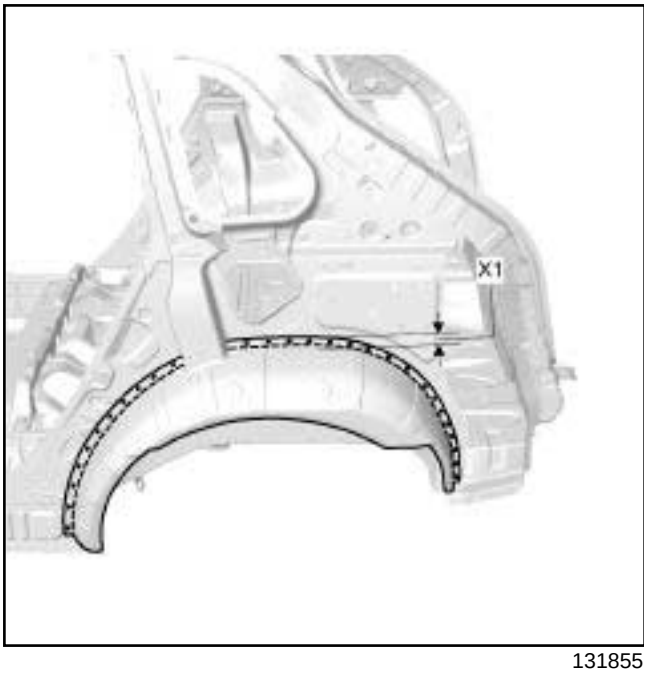
## I - COMPOSITION OF THE SPARE PART




131854

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Outer rear wheel arch | - | **0.65** |

## II - PART FITTED



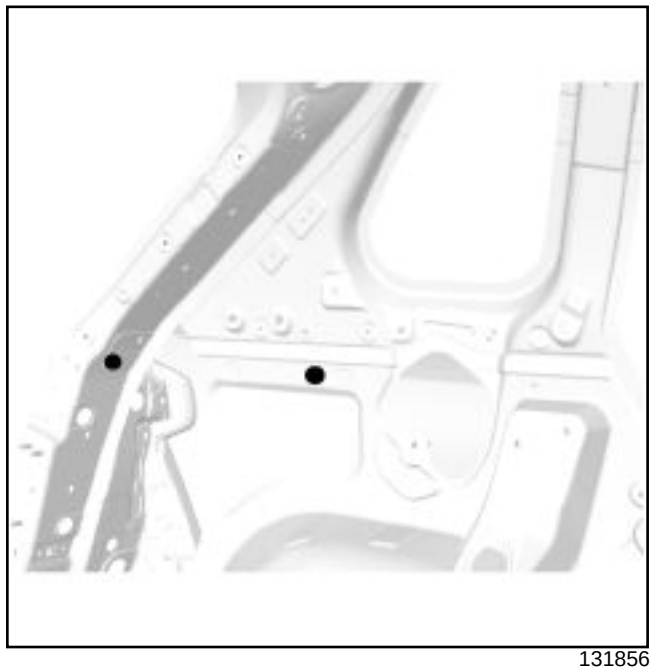

131855

(**X1**) =15 mm

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

## III - POSITIONING OF LOCAL ELECTRICAL EARTHS



131856

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as closely as possible to the weld area (see **MR 400**).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**Left-hand side**

131857

**Right-hand side**

131858

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**

**Left-hand side**

131859

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Inner rear wheel arch | HLE | **0.9** |
| (**2**) | Rear interior wheel arch rein-forcement | HLE | **1.6** |
| (**3**) | Rear interior wheel arch rein-forcement B | HLE | **1.4** |
| (**4**) | Rear seat ancho-rage plate | HLE | **1.6** |
| (**5**) | Rear seat bac-krest hinge sup-port | HLE | **1.4** |


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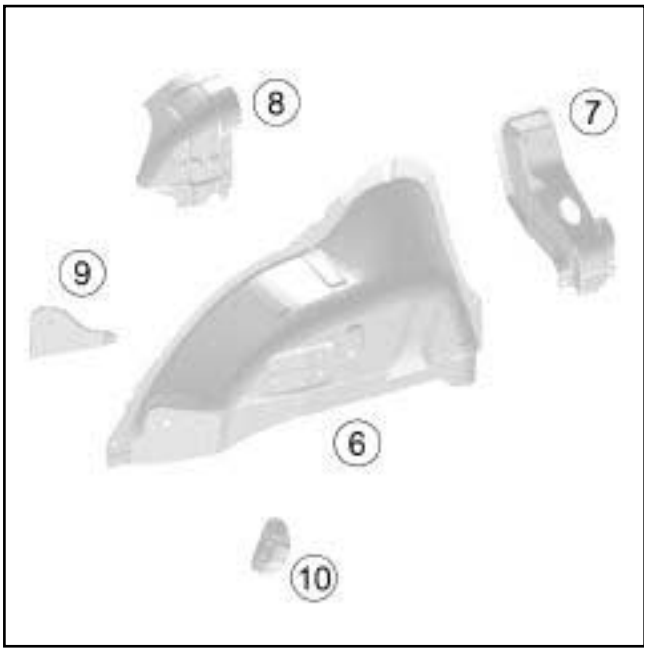
**Right-hand side**

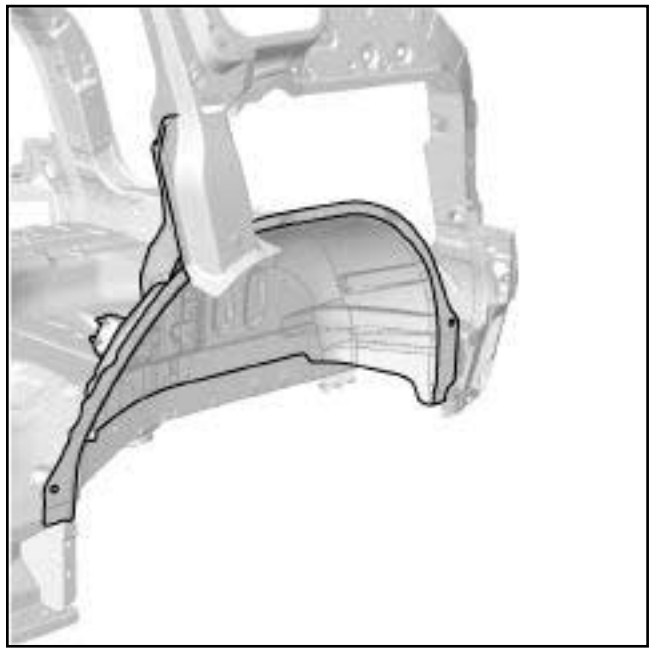



131860

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**6**) | Inner rear wheel arch | HLE | **0.9** |
| (**7**) | Rear interior wheel arch rein-forcement | HLE | **1.6** |
| (**8**) | Rear interior wheel arch rein-forcement B | HLE | **1.4** |
| (**9**) | Rear seat ancho-rage plate | HLE | **1.6** |
| (**10**) | Rear seat bac-krest hinge sup-port | HLE | **1.4** |

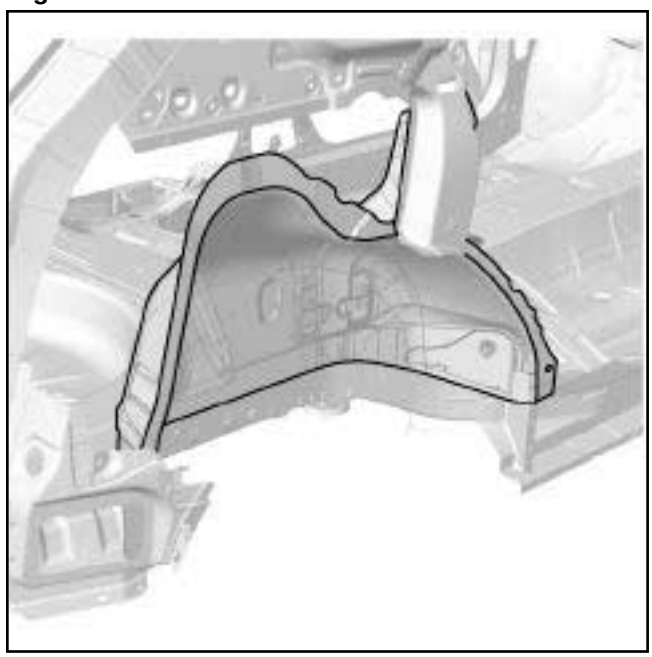
**II - PART IN POSITION**

**Left-hand side**



131861

**Right-hand side**



131862

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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**WARNING**

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400, 40A, General Information**.

**DESIGN OF THE STRUCTURAL COMPONENT**

131863

The special feature of this part it that it concurrently serves two functions:

- quarter panel lining,

- outer rear wheel arch.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400, 40A, General Information**).



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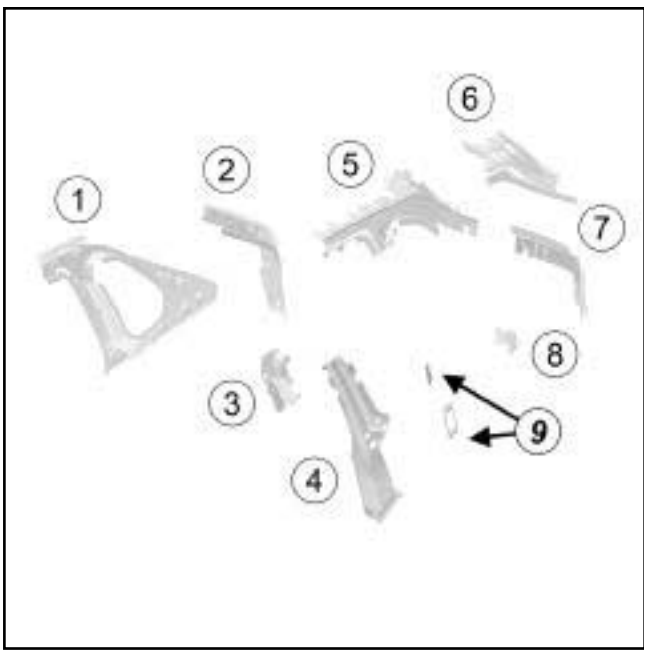
131864

There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**




131865

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Quarter panel interior lining | HLE | **0.65** |
| (**2**) | Quarter panel rear interior lining | HLE | **0.8** |
| (**3**) | Seat belt ancho-rage on the quarter panel | HLE | **1.6** |
| (**4**) | Quarter panel interior reinforce-ment | HLE | **0.8** |
| (**5**) | Quarter panel rear side reinfor-cement | HLE | **1.2** |
| (**6**) | Quarter panel upper interior lining | HLE | **1.4** |
| (**7**) | Quarter panel upper reinforce-ment | HLE | **0.8** |
| (**8**) | Tailgate stop reinforcement | HLE | **2.0** |
| (**9**) | Striker plate | HLE | **2.8** |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**II - PART IN POSITION**

**Complete replacement**

131866

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

Note:

For more detailed information on welded connections with three thicknesses, see **MR 400**.



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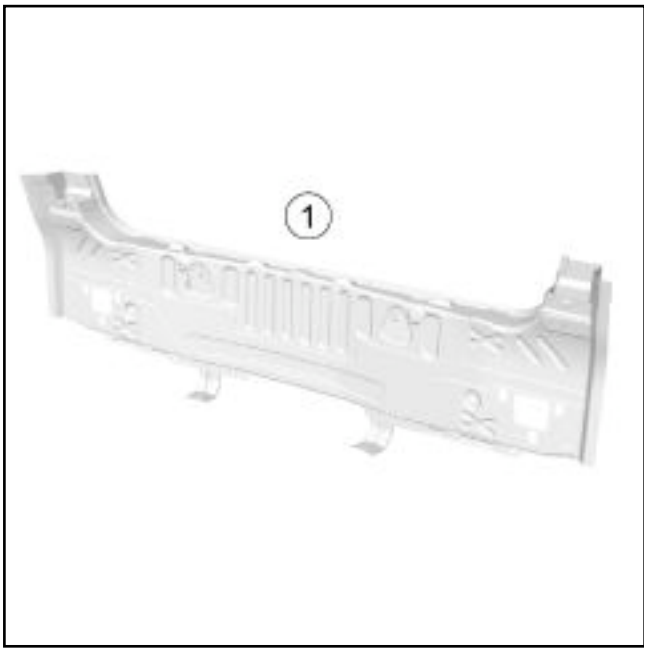
There is only one way of replacing this part:

- complete replacement.

**I - COMPOSITION OF THE SPARE PART**




131867

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear end panel | HEL | **-** |

**II - PART IN POSITION**

132024

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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Note:

The information contained in the following describes the general repair procedure for all vehicles having the same design for this part.

Before reading the following general information, make sure that there are no special notes associated with the vehicle. These special notes are specified if necessary in other parts of the sub-section dealing with the component.

Note:

For a detailed description of a particular connection, see **MR 400**.

**DESIGN OF THE STRUCTURAL COMPONENT**

130436

This is a basic part; its only function is that of a roof.

The roof is welded onto the body sides.

For vehicles fitted with a sunroof, the roof only has a front section and a rear section.

If there are other issues regarding access to mating faces, the various replacement options are described in the basic instructions for structural bodywork repair (see **MR 400**).



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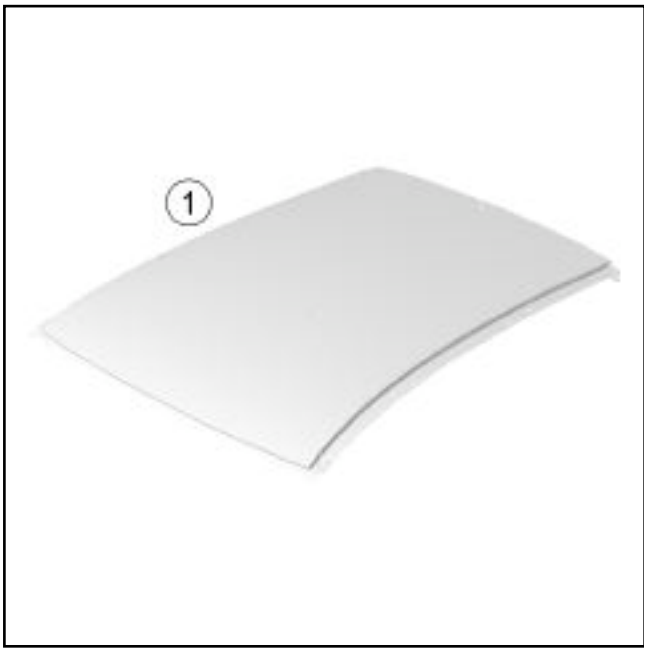
There is only one way of replacing this part:

- complete replacement.

## I - COMPOSITION OF THE SPARE PART

**Normal roof**




130437

**Roof with sunroof**

130438

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Normal roof | HEL | **0.8** |
| (**2**) | Roof with sunroof | - | **-** |

## II - PART FITTED

**Front section**

130439

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



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**Rear section**

130440

Note:
The procedure presents no difficulties.

**Roof bonding area**

**Normal roof front side section**

130441

**Sunroof front side section**

130442



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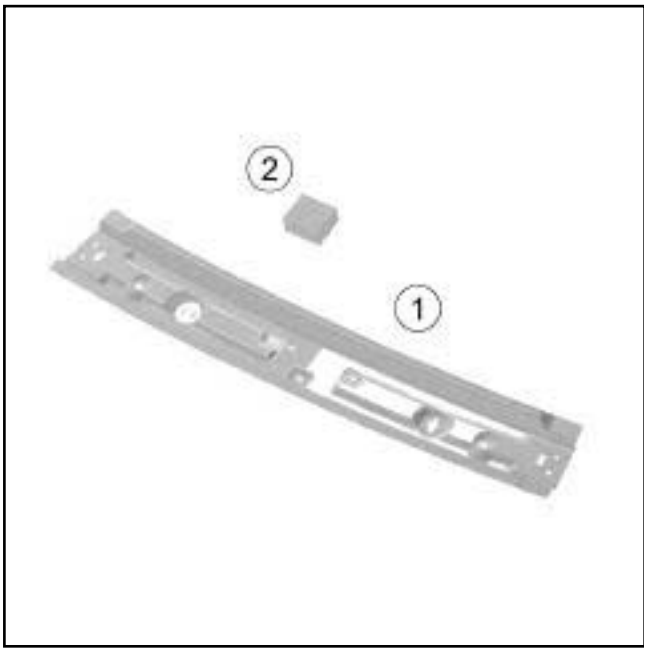
There is only one way of replacing this part:

- complete replacement.

## I - COMPOSITION OF THE SPARE PART

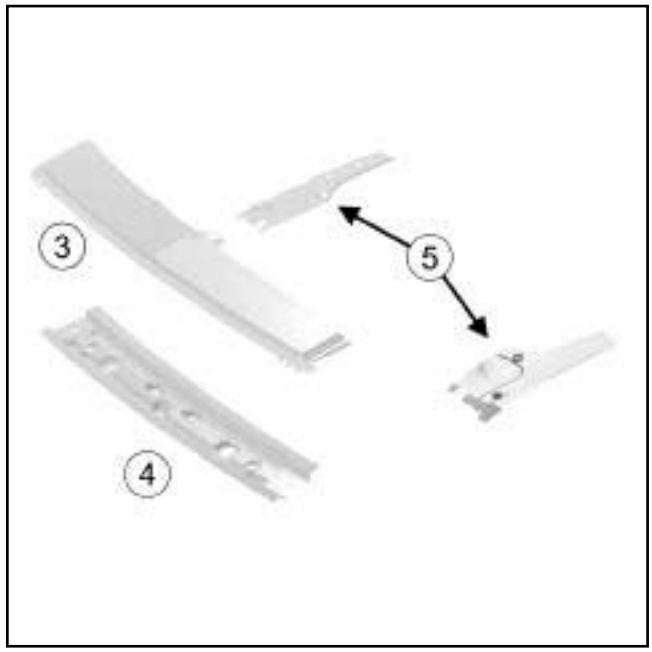
**Normal roof**




130443

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Bottom of roof front section | HEL | **0.6** |
| (**2**) | Front roof rail energy absorber assembly | HEL | **1.4** |

**Roof with sunroof**




130444

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**3**) | Top of roof front section | - | **-** |
| (**4**) | Bottom of roof front section | HEL | **1.2** |
| (**5**) | Part of roof front section | HEL | **1.0** |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## II - PART FITTED

### Complete replacement

**Normal roof**

130445

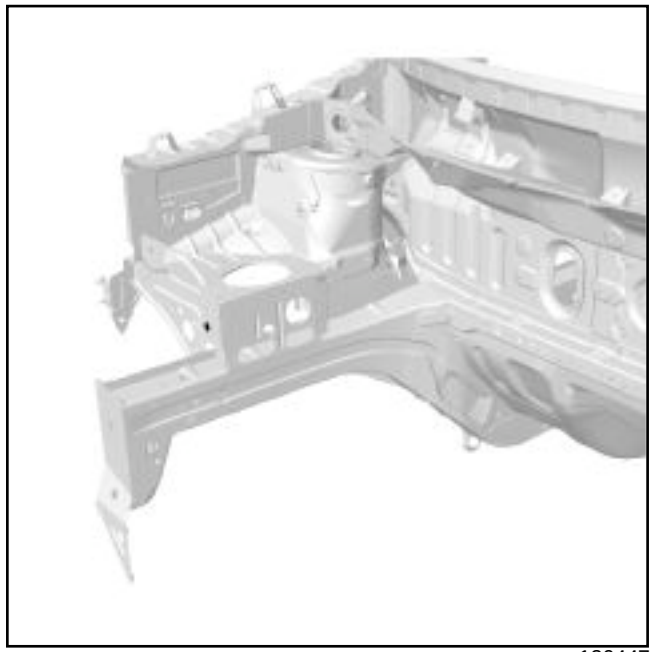
**Roof with sunroof**

130446

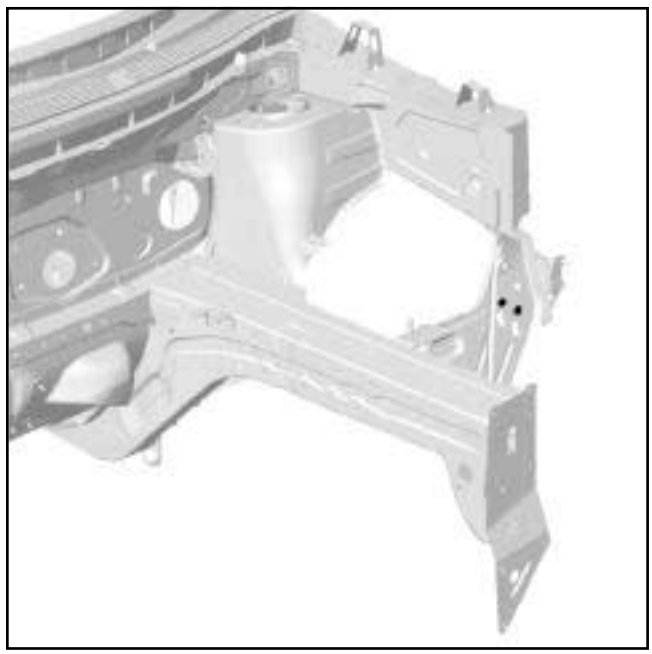
Note:

For welded connections in three thicknesses, the spot welds on the part replaced should be made in the same place as for the original joint to retain its mechanical specifications. See **MR 400.**

## III - POSITIONING OF LOCAL ELECTRICAL EARTHS



130447



130448

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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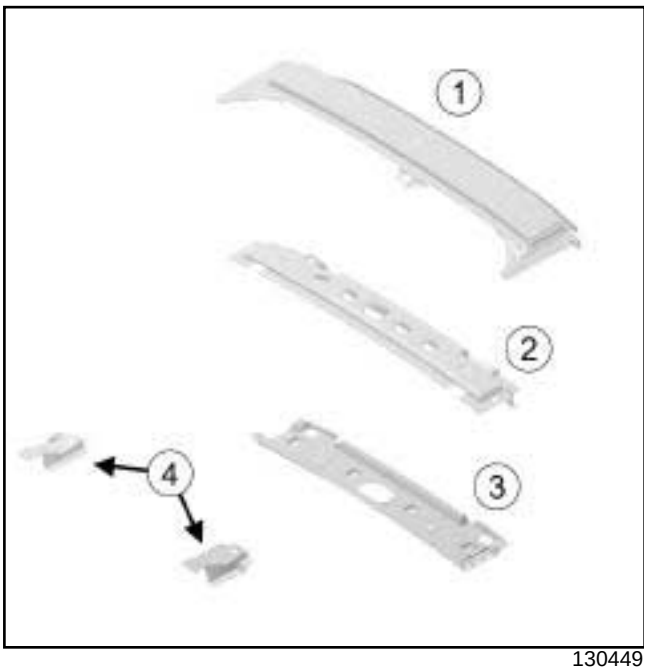
There is only one way of replacing this part:

- complete replacement.

This operation only affects versions equipped with a sunroof.

**I - COMPOSITION OF THE SPARE PART**

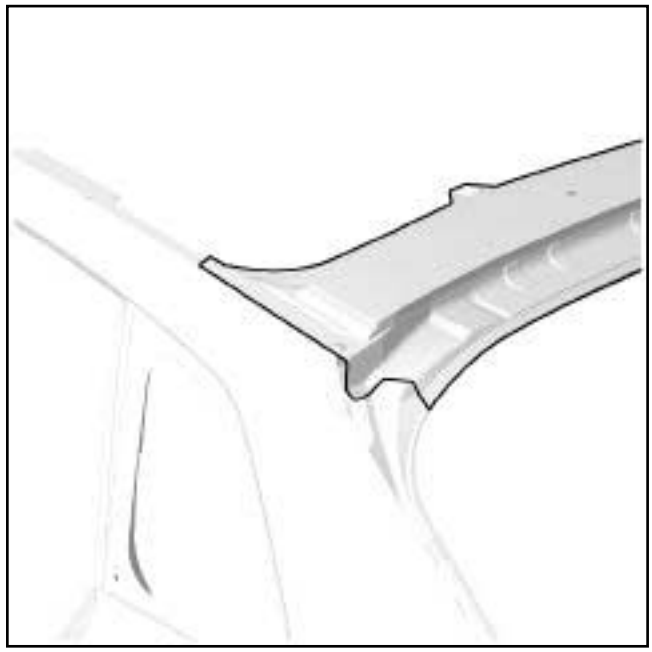



130449

| No. | Description | Type | Thic-kness (mm) |
|---|---|---|---|
| (**1**) | Rear roof | - | **-** |
| (**2**) | Top of roof rear section | HEL | **0.8** |
| (**3**) | Bottom of roof rear section | HEL | **0.7** |
| (**4**) | Roof rear section reinforcement | HEL | **1.4** |

**II - PART FITTED**

**Complete replacement**



132355

**WARNING**

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

Note:

For welded connections in three thicknesses, the spot welds on the part replaced should be made in the same place as for the original joint to retain its mechanical specifications. See **MR 400.**



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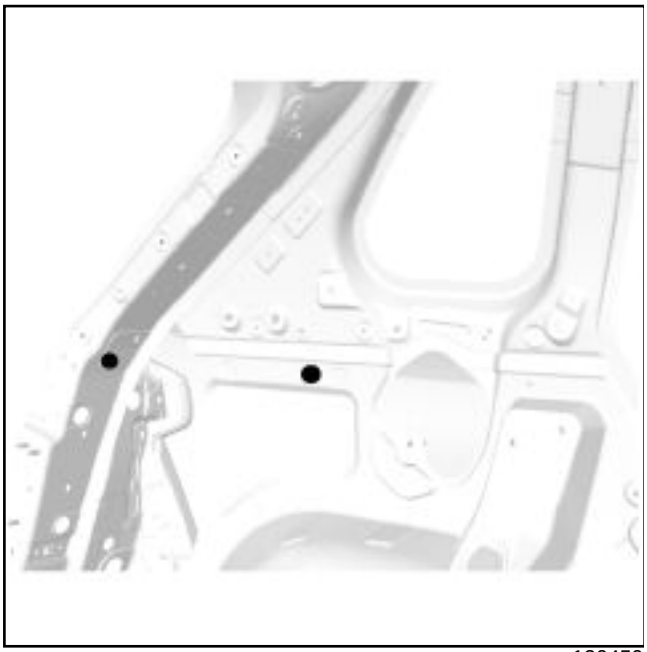
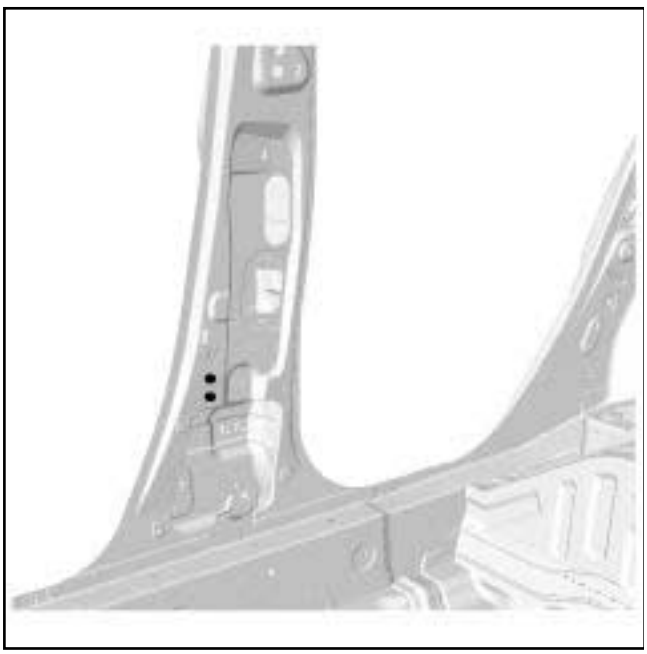
### III - POSITIONING OF LOCAL ELECTRICAL EARTHS



130450



130451

**WARNING**

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the welding machine earth as close as possible to the weld zone (see MR 400).



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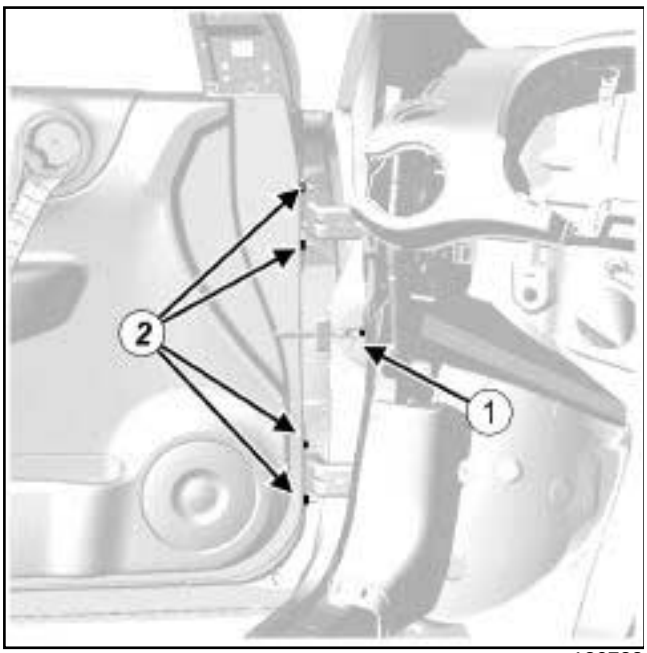
| Tightening torques ▽ | |
|---|---|
| front side door nuts | **24 N.m** |
| front side door hinge bolts | **21 N.m** |
| front side door hinge nuts | **24 N.m** |

## I - REMOVAL WITHOUT HINGES

### 1 - REMOVAL PREPARATION OPERATION

❏ Disconnect the wiring supply connectors.

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED




130782

❏ Remove:

- the front side door check strap (**1**) (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms),

- the front side door nuts (**2**) ,

- the front side door.

## II - REFITTING WITHOUT HINGES

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the front side door,

- the front side door nuts ***(2)*** ,

- the front side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms)

❏ Adjust the door clearances and flush fitting (see **Vehicle clearances: Adjustment values**) (01C, Vehicle bodywork specifications).

❏ Torque tighten the **front side door nuts (24 N.m)**.

### 2 - FINAL OPERATION

❏ Connect the wiring supply connector.

## III - REMOVAL WITH HINGES

### 1 - REMOVAL PREPARATION OPERATION

❏ Remove the front wing (see **42A**, **Front upper structure**, **Front wing: Removal - Refitting**, page **42A-1**) .

❏ Disconnect the wiring supply connector.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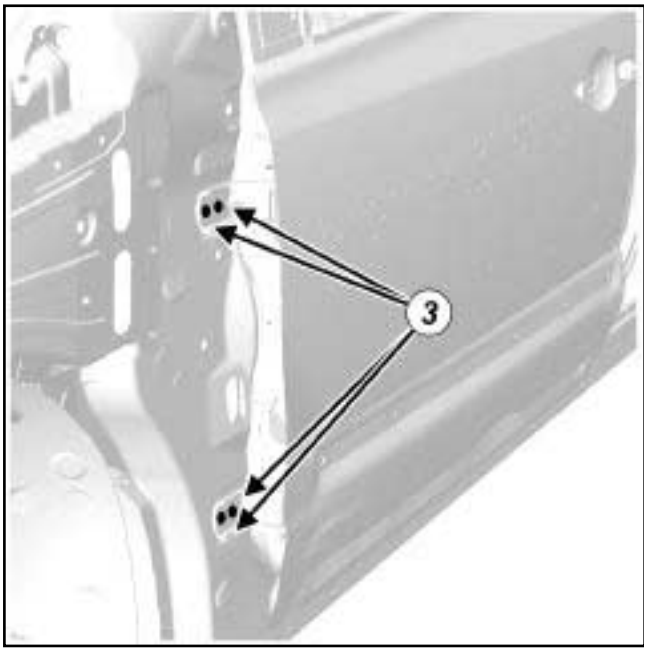
**2 - OPERATION FOR REMOVAL OF PART CONCERNED**




130783

❏ Remove:

- the front side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms)

- the front side door hinge bolts (**3**) ,

- the front side door.

**IV - REFITTING WITH HINGES**

**1 - OPERATION FOR REFITTING PART CONCERNED**

❏ Refit:

- the front side door,

- the front side door hinge bolts ***(3)*** ,

- the front side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms).

❏ Adjust the door clearances and shut lines (see **Vehicle clearances: Adjustment values**) .

❏ Torque tighten:

- the **front side door hinge bolts (21 N.m)**,

- the **front side door hinge nuts (24 N.m)**.

**2 - FINAL OPERATION**

❏ Connect the wiring supply connector.

❏ Refit the front wing (see **42A**, **Front upper structure**, **Front wing: Removal - Refitting**, page **42A-1**) .



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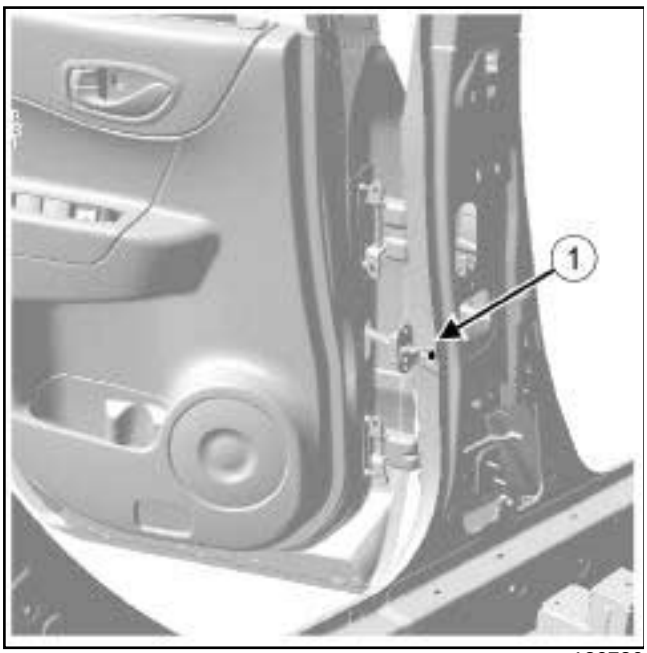
| Tightening torques ▽ | |
|---|---|
| rear side door nuts | **24 N.m** |
| rear side door hinge nuts | **24 N.m** |
| rear side door hinge bolts | **21 N.m** |

## I - REMOVAL WITHOUT HINGES

### 1 - REMOVAL PREPARATION OPERATION

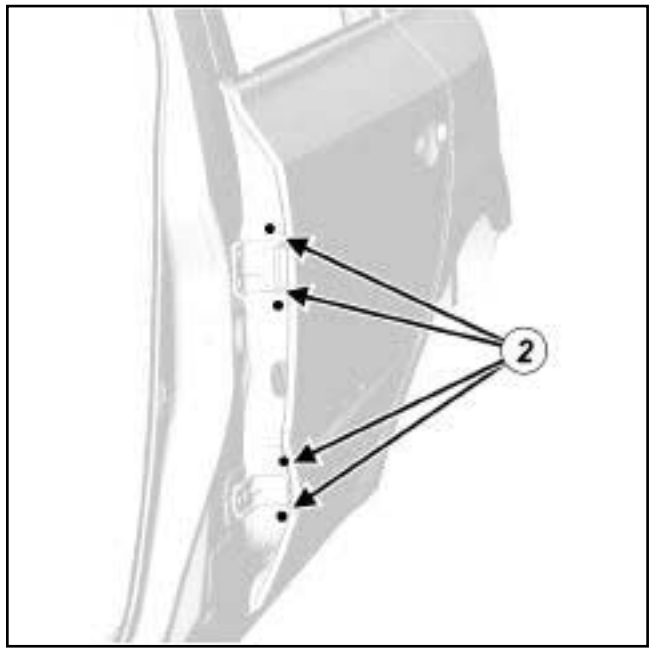
❏ Disconnect the wiring supply connectors.

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED




130786

❏ Remove the rear side door check strap (**1**) (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms).




130784

❏ Remove:

- the rear side door nuts (**2**) ,
- the rear side door.

## II - REFITTING WITHOUT HINGES

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the rear side door,
- the rear side door nuts (**2**) ,
- the rear side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms)

❏ Adjust the door clearances and flush fitting (see **Vehicle clearances: Adjustment values**) (01C, Vehicle bodywork specifications).

❏ Torque tighten the **rear side door nuts (24 N.m)**.

### 2 - FINAL OPERATION

❏ Connect the wiring supply connector.

## III - REMOVAL WITH HINGES

### 1 - REMOVAL PREPARATION OPERATION

❏ Remove the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),

❏ Disconnect the wiring supply connector.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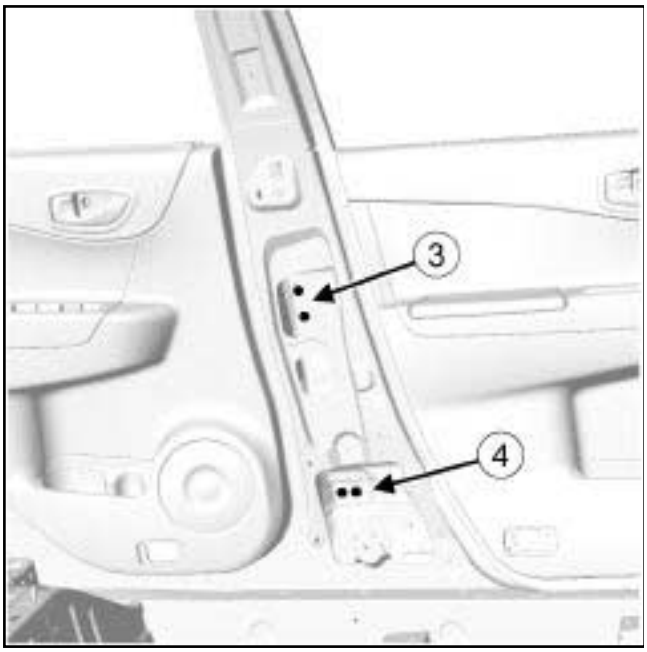
**2 - OPERATION FOR REMOVAL OF PART CONCERNED**



130785

❑ Remove:

- the rear side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms)

- the rear side door hinge nuts (**3**) ,

- the rear side door hinge bolts (**4**) ,

- the rear side door.

**IV - REFITTING WITH HINGES**

**1 - OPERATION FOR REFITTING PART CONCERNED**

❑ Refit:

- the rear side door,

- the rear side door hinge bolts (**4**) ,

- the rear side door hinge nuts (**3**) ,

- the rear side door check strap ***(1)*** (see **Rear side door check strap: Removal - Refitting**) (51A, Side opening element mechanisms).

❑ Torque tighten:

- the **rear side door hinge nuts (24 N.m)** ***(3)*** ,

- the **rear side door hinge bolts (21 N.m)** ***(4)*** .

❑ Adjust the door clearances and shut lines (see **Vehicle clearances: Adjustment values**) .

**2 - FINAL OPERATION**

❑ Connect the wiring supply connector.

❑ Refit the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim).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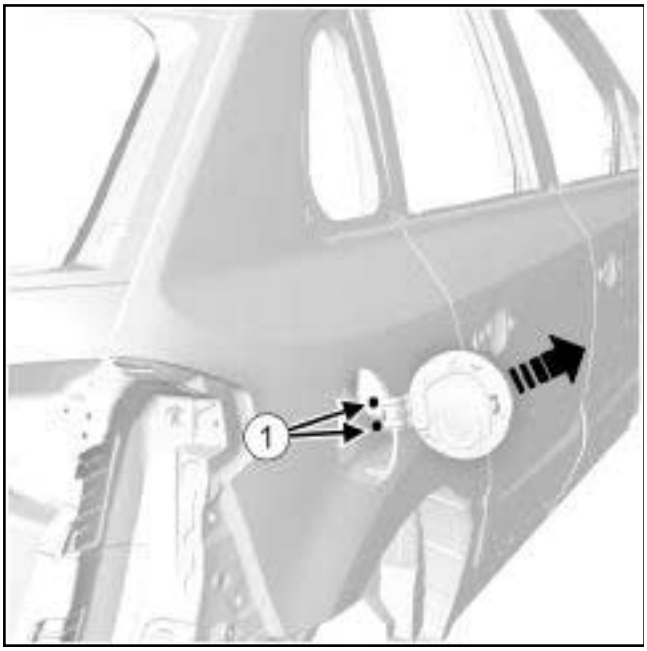
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



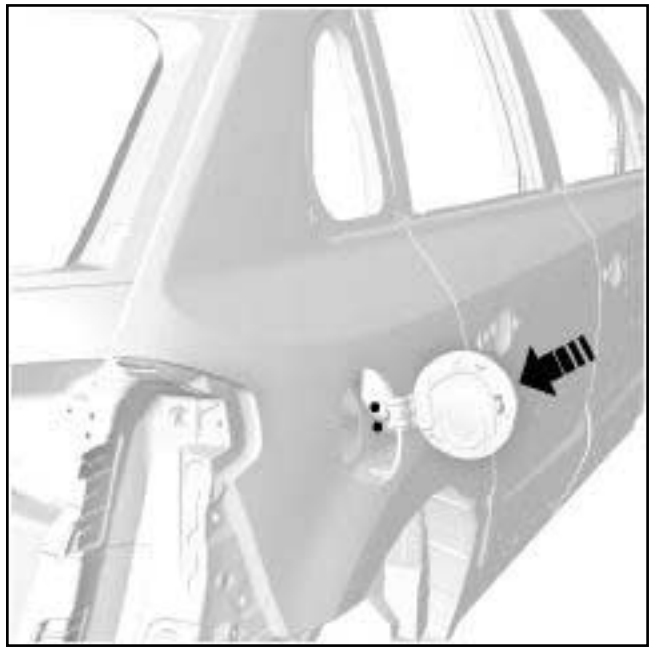

130787

❏ Remove the fuel filler flap bolts (**1**) .

❏ Unclip the fuel filler flap.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED



130788

❏ Clip on the fuel filler flap.

❏ Refit the fuel filler flap bolts.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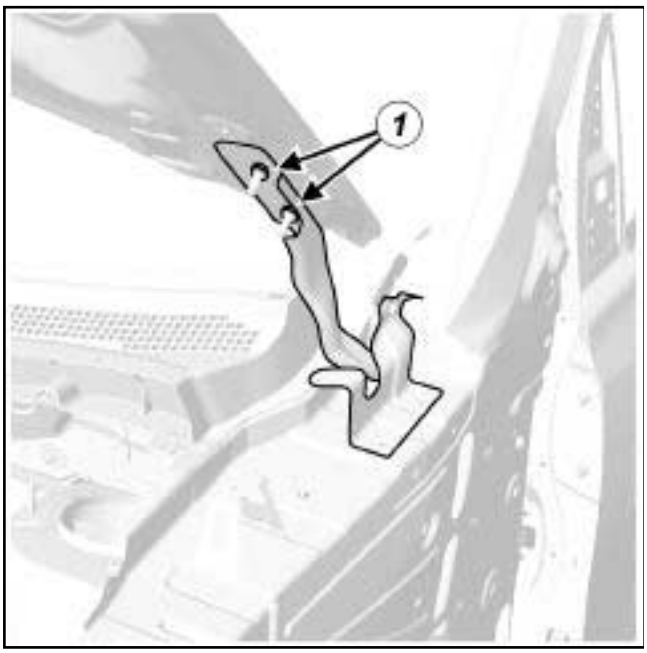
| Tightening torques ▽ | |
|---|---|
| bonnet nuts | **13.5 N.m** |
| bonnet hinge bolts | **13.5 N.m** |

## I - REMOVAL BY MEANS OF THE BONNET NUTS

### OPERATION FOR REMOVAL OF PART CONCERNED




130789

❏ Remove:

- the nuts (**1**) ,
- the bonnet.

## II - REFITTING BY MEANS OF THE BONNET NUTS

### OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the cover,
- the nuts ***(1)*** .

❏ Adjust the opening clearances and flush fitting (see **Vehicle clearances: Adjustment values**) (01C, Vehicle bodywork specifications).

❏ Torque tighten the **bonnet nuts (13.5 N.m)** ***(1)*** .

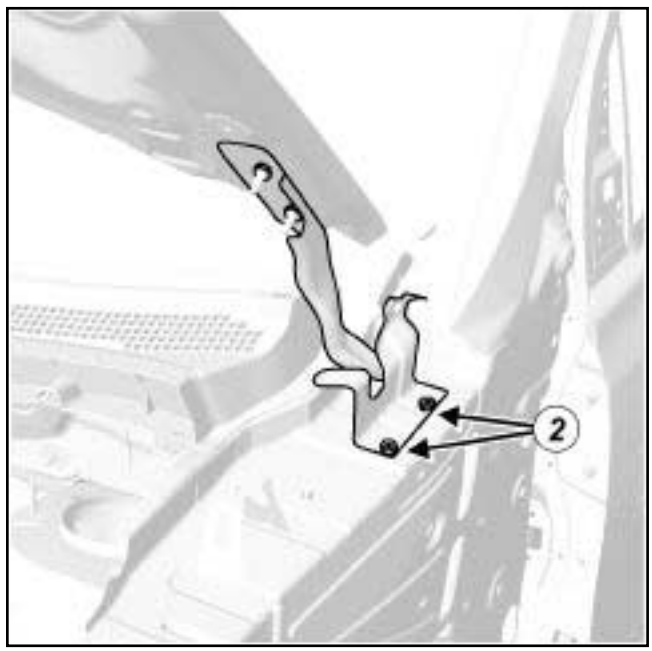
## III - REMOVAL BY MEANS OF THE BONNET HINGE BOLTS

### 1 - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the front wing (see **42A**, **Front upper structure**, **Front wing: Removal - Refitting**, page **42A-1**) .

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED




130790

❏ Remove:

- the bolts (**2**) ,
- the bonnet.

## IV - REFITTING BY MEANS OF THE BONNET HINGE BOLTS

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the cover,
- the bonnet hinge bolts ***(2)*** .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❏ Adjust the opening clearances and flush fitting (see **Vehicle clearances: Adjustment values**) (01C, Vehicle bodywork specifications).

❏ Torque tighten the **bonnet hinge bolts (13.5 N.m)** ***(2)*** .

**2 - FINAL OPERATION**

❏ Refit:

- the front wing (see **42A**, **Front upper structure**, **Front wing: Removal - Refitting**, page **42A-1**) ,
- the headlight (see **Front headlight: Removal - Refitting**) (80B, Headlights),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).


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| Tightening torques ▽ | |
|---|---|
| tailgate bolts | **40 N.m** |
| tailgate earth nuts | **30 N.m** |

## I - REMOVAL WITHOUT HINGES

### 1 - REMOVAL PREPARATION OPERATION

❏ Remove the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

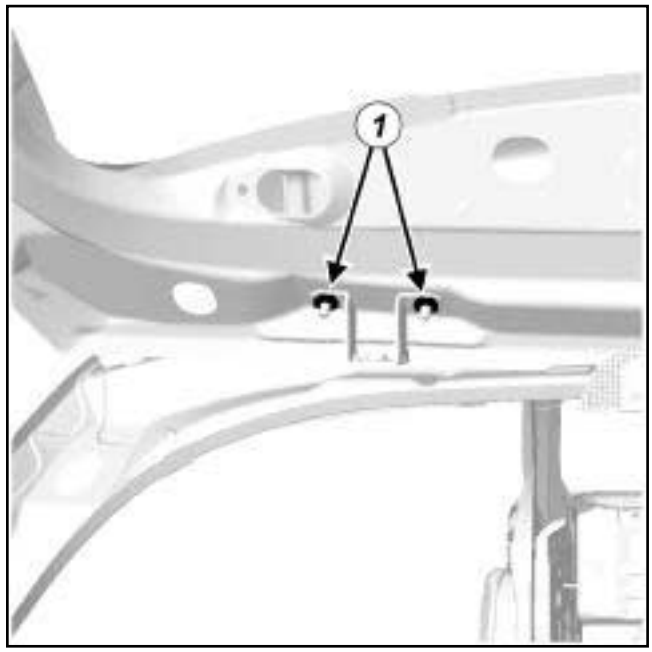
❏ Disconnect:

- the high level brake light connector (see **Third brake light: Removal - Refitting**) (81A, Rear lighting),
- the radio aerial connector (see **Radio aerial: Removal - Refitting**) (86A, Radio),
- the tailgate screen washer jet pipe (see **Rear screen washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the heated rear screen connector.

❏ Remove:

- the tailgate electrical supply harness,
- the tailgate gas strut (see **Tailgate balancer: Removal - Refitting**) (52A, Non-side opening element mechanisms).

### 2 - OPERATION FOR REMOVAL OF PART CONCERNED



130791

❏ Remove:

- the tailgate bolts (**1**) ,
- the tailgate.

## II - REFITTING WITHOUT HINGES

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Remove:

- the tailgate,
- the tailgate bolts ***(1)*** .

❏ Torque tighten the **tailgate bolts (40 N.m)** ***(1)*** .

### 2 - FINAL OPERATION

❏ Refit:

- the tailgate gas strut (see **Tailgate balancer: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the tailgate electrical supply harness,

❏ Connect:

- the heated rear screen connector,
- the tailgate screen washer jet pipe (see **Rear screen washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the radio aerial connector (see **Radio aerial: Removal - Refitting**) (86A, Radio),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- the high level brake light connector (see **Third brake light: Removal - Refitting**) (81A, Rear lighting).

❏ Refit the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

### III - REMOVAL WITH HINGES

#### 1 - REMOVAL PREPARATION OPERATION

❏ Remove:

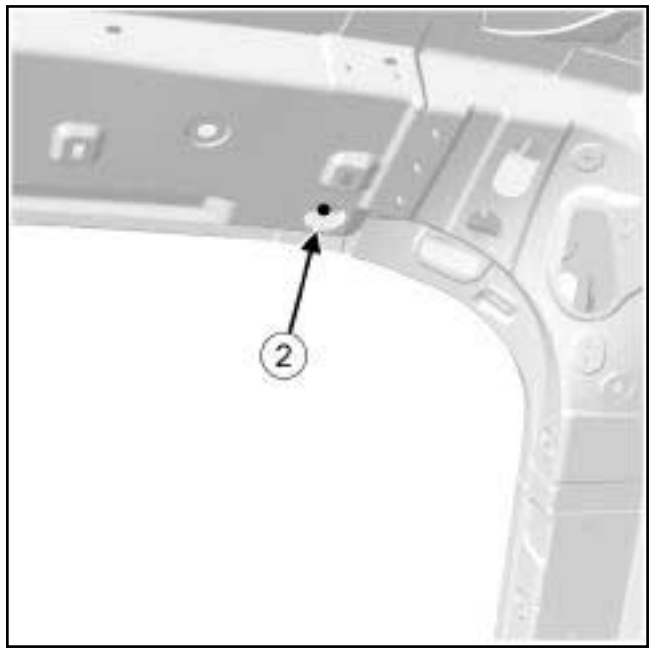
- the headlining (see **Headlining: Removal - Refitting**) (Body internal trim),
- the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

❏ Disconnect:

- the high level brake light connector (see **Third brake light: Removal - Refitting**) (81A, Rear lighting),
- the radio aerial connector (see **Radio aerial: Removal - Refitting**) (86A, Radio),
- the tailgate screen washer jet pipe (see **Rear screen washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the heated rear screen connector.

❏ Remove the tailgate gas strut (see **Tailgate balancer: Removal - Refitting**) (52A, Non-side opening element mechanisms).

#### 2 - OPERATION FOR REMOVAL OF PART CONCERNED




130792

❏ Remove:

- the tailgate hinge nuts on each side of the vehicle (**2**) ,
- the tailgate.

### IV - REFITTING WITH HINGES

#### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the tailgate,
- the tailgate hinge nuts ***(2)*** on each side of the vehicle.

❏ Torque tighten the **tailgate earth nuts (30 N.m)** ***(2)*** .

#### 2 - FINAL OPERATION

❏ Refit:

- the tailgate gas strut (see **Tailgate balancer: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the tailgate screen washer jet pipe (see **Rear screen washer jet: Removal - Refitting**) (85A, Wiping - Washing).

❏ Connect:

- the heated rear screen connector,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- the tailgate screen washer jet pipe (see **Rear screen washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the radio aerial connector (see **Radio aerial: Removal - Refitting**) (86A, Radio),
- the high level brake light connector (see **Third brake light: Removal - Refitting**) (81A, Rear lighting).

❑ Refit:

- the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim),
- the headlining (see **Headlining: Removal - Refitting**) (Body internal trim).


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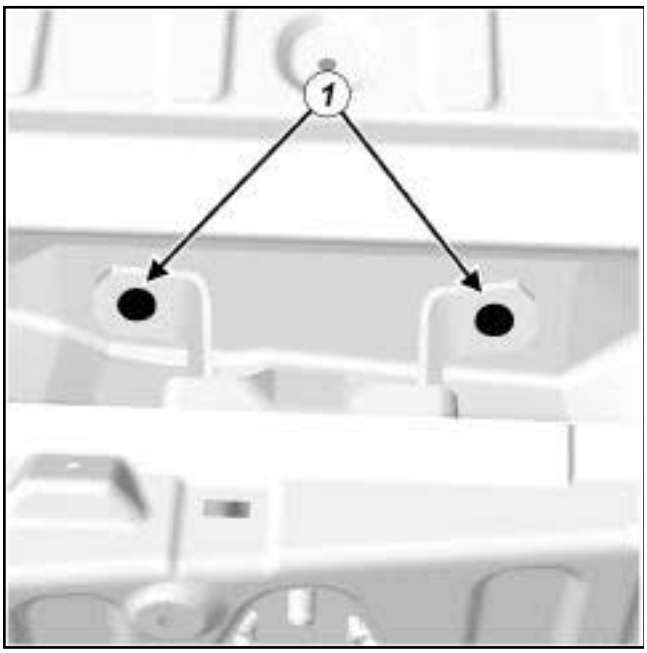
| Tightening torques ▽ | |
|---|---|
| boot chute bolts | **60 N.m** |
| hinge nut | **60 N.m** |
| hinge bolts | **60 N.m** |

**I - REMOVAL WITHOUT HINGES**

**1 - REMOVAL PREPARATION OPERATION**

❏ Remove the boot chute gas strut.

**2 - OPERATION FOR REMOVAL OF PART CONCERNED**




130793

❏ Remove:

- the boot chute hinge bolts (**1**) ,
- the boot chute.

**II - REFITTING WITHOUT HINGES**

**1 - OPERATION FOR REFITTING PART CONCERNED**

❏ Refit:

- the boot chute,
- the boot chute hinge bolts (**1**) .

❏ Torque tighten the **boot chute bolts (60 N.m)** ***(1)*** .

**2 - FINAL OPERATION**

❏ Refit the boot chute gas strut.

**III - REMOVAL WITH HINGES**

**1 - REMOVAL PREPARATION OPERATION**

❏ Remove:

- the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection),
- the boot chute gas strut.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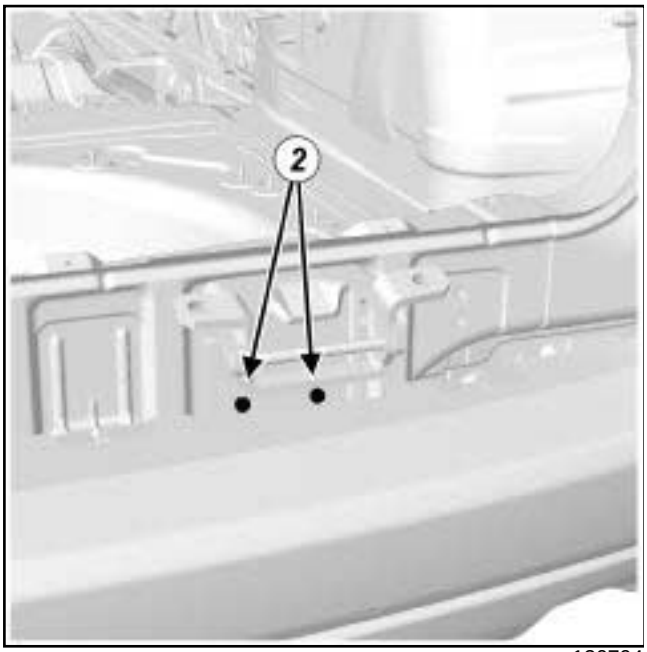
### 2 - OPERATION FOR REMOVAL OF PART CONCERNED

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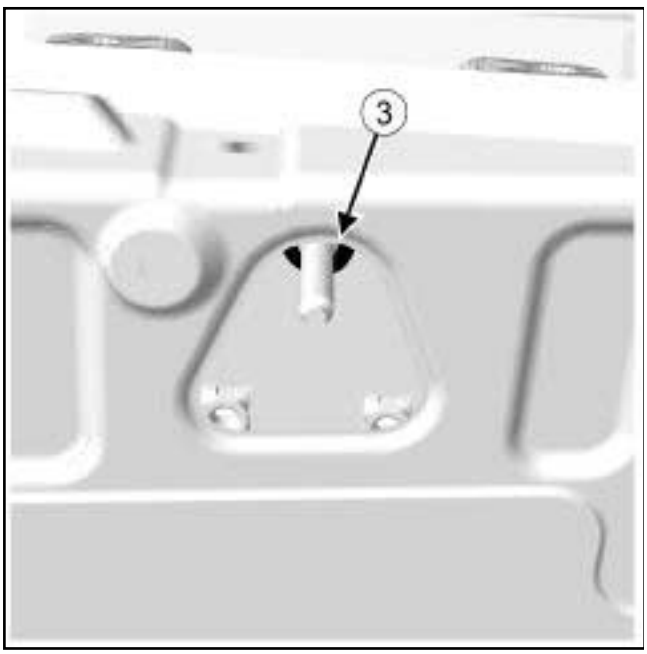


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❏ Remove:

- the boot chute hinge bolts (**2**) ,
- the boot chute hinge nut (**3**) ,
- the boot chute.

## IV - REFITTING WITH HINGES

### 1 - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the boot chute,
- the boot chute hinge nut (**3**) ,
- the boot chute hinge bolts (**2**) .

❏ Torque tighten:

- the **hinge nut (60 N.m)** ***(3)*** ,
- the **hinge bolts (60 N.m)** ***(2)*** .

### 2 - FINAL OPERATION

❏ Refit:

- the boot chute gas strut,
- the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).


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## I - ADJUSTMENT VALUE

❏ For all information about boot chute adjustment values (see **Vehicle clearances: Adjustment values**) (MR 389, 01C, Vehicle bodywork specifications).

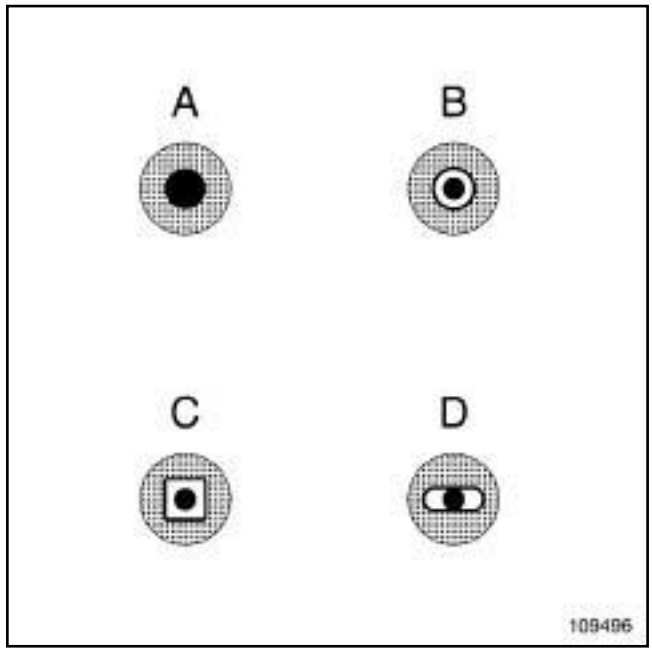
## II - ADJUSTMENT

❏ There are two options for adjusting the boot chute:

- using the boot chute bolts,
- using the boot chute hinge nuts: supplementary step for the removal of the rear bumper.

130796

❏ Observe the adjustment sequence.

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❏ Symbols A, B, C and D show the adjustment options.

The black dot in the centre represents the body of the bolt.

The grey section represents the component to be adjusted.

The white section represents the adjustment area.


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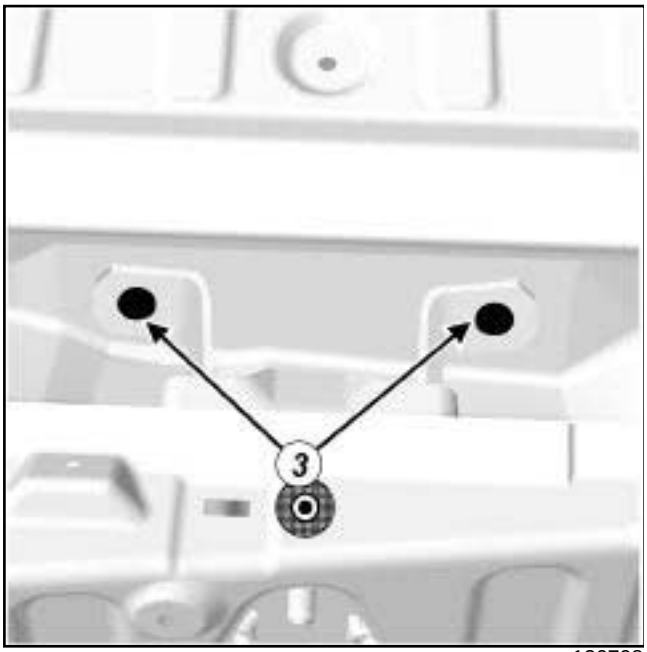
### III - ADJUSTMENT USING THE BOOT CHUTE BOLTS

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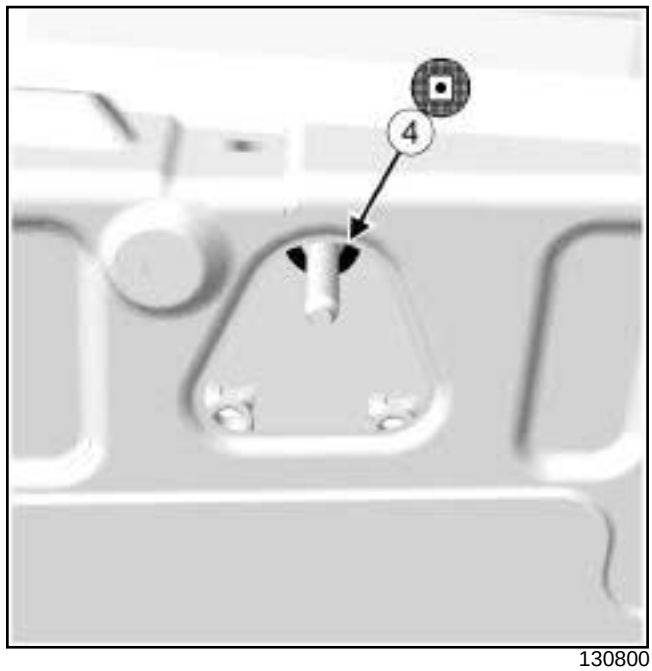
130799

❏ Loosen the boot chute bolts (**3**) on both sides of the vehicle.

❏ Adjust the flush fitting of the boot chute.

### IV - ADJUSTMENT USING THE HINGE NUTS




130800

❏ Loosen the hinge nut (**4**) on both sides of the vehicle.

❏ Adjust the flush fitting of the boot chute.

❏ Refit the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).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RENAULT

# 5 Mechanisms and accessories


51A SIDE OPENING ELEMENT MECHANISMS

52A NON-SIDE OPENING ELEMENT MECHANISMS

54A WINDOWS

55A EXTERIOR PROTECTION

56A EXTERIOR EQUIPMENT

57A INTERIOR EQUIPMENT

59A SAFETY ACCESSORIES



*X45*

**JANUARY 2008** **Edition Anglaise**



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The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# KOLEOS - Section 5

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| Tightening torques ▽ | |
|---|---|
| front side door tie-rod bolts (on the door) | **5 N.m.** |
| front side door tie-rod bolts (on the body) | **15 N.m.** |

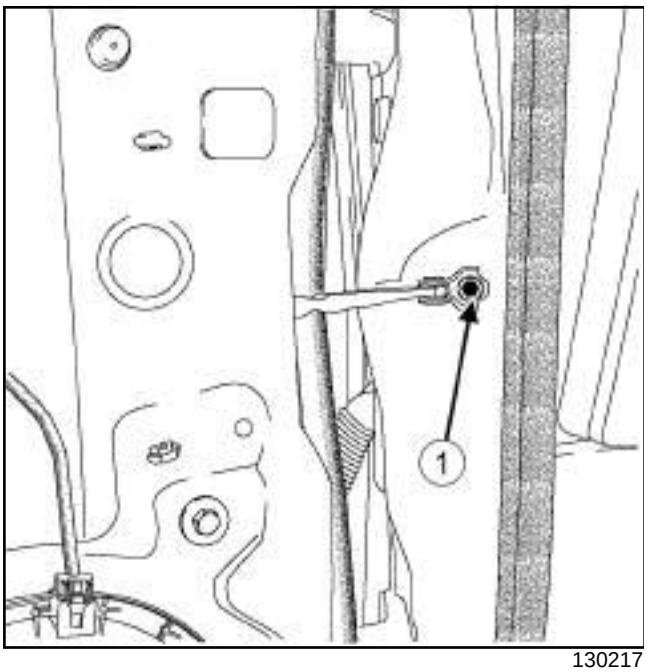
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

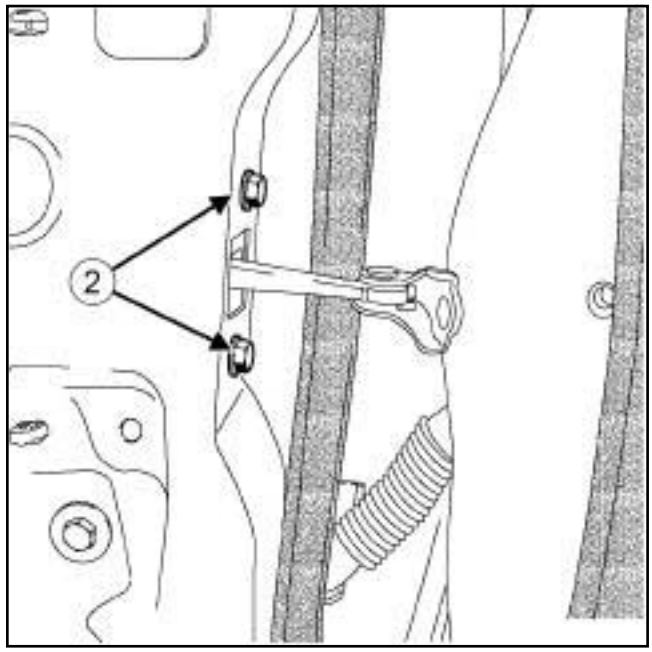
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130217

❑ Remove the bolt (**1**) .




130218

❑ Remove:

- the bolts (**2**) ,
- the front side door check strap from inside the door box section.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the front side door tie-rod in the door box section and temporarily refit the bolts on the door.

❑ Torque tighten:

- the **front side door tie-rod bolts (on the door) (5 N.m.)**
- the **front side door tie-rod bolts (on the body) (15 N.m.)**

### II - FINAL OPERATION

❑ Refit:

- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).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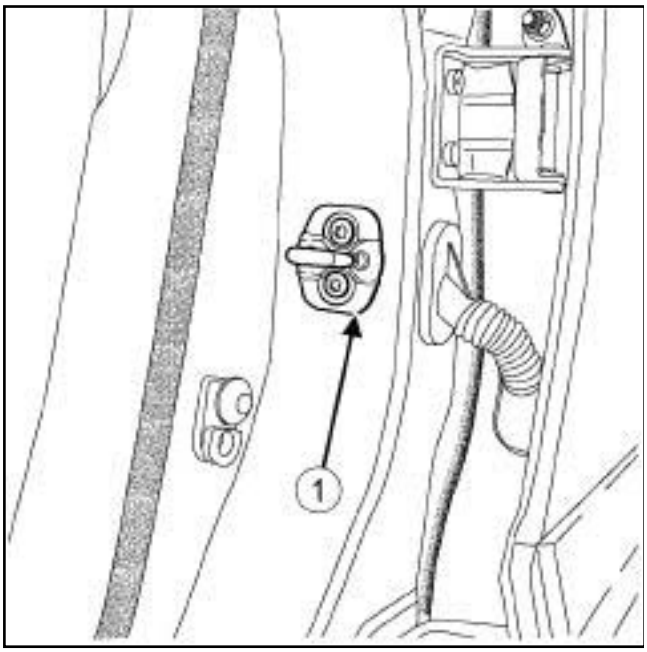
| Tightening torques ▽ | |
|---|---|
| front side door striker panel bolts | **18 N.m** |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



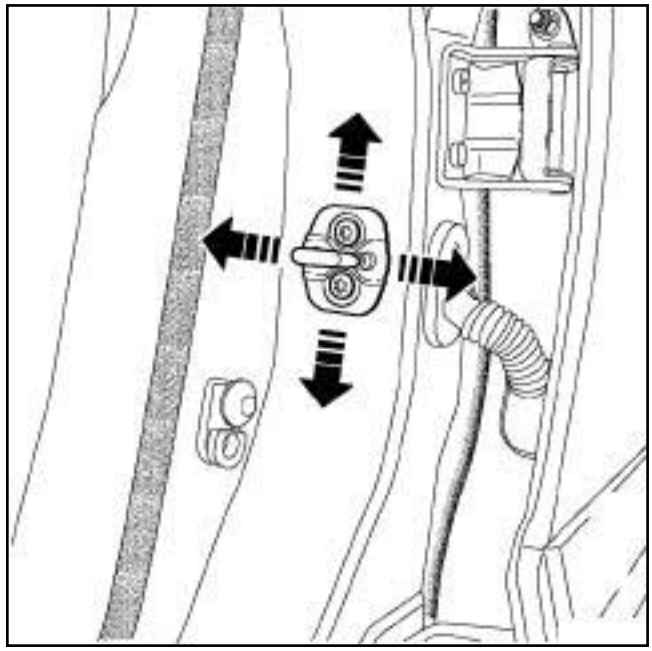

130219

❑ Remove:

- the bolts,
- the front side door striker panel (**1**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED



130220

❑ Refit:

- the front side door striker panel,
- the bolts.

❑ Adjust the striker panel of the front side door.

❑ Check if it is possible to close the door.

❑ Torque tighten the **front side door striker panel bolts (18 N.m)**.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| Tightening torques ▽ | |
|---|---|
| front side door lock bolts | **6 N.m** |

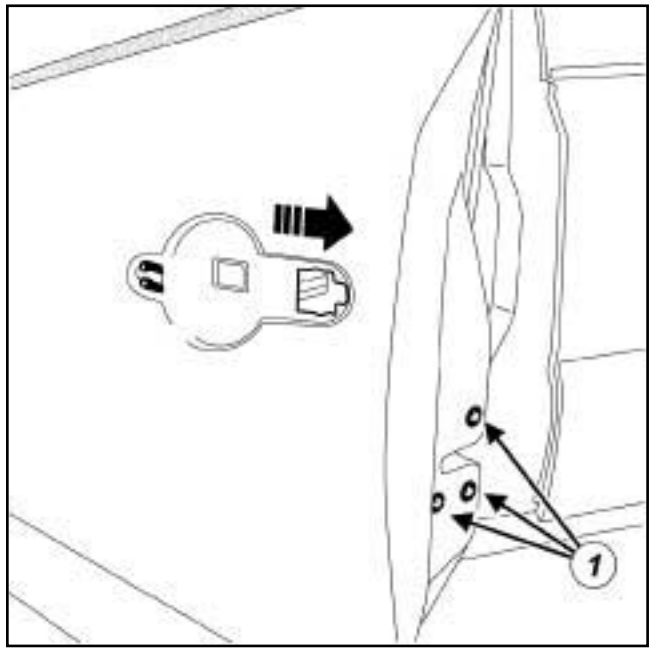
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the lock blanking cover,
- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) ,
- the door exterior handle (see **51A**, **Side opening element mechanisms**, **Door exterior handle: Removal - Refitting**, page **51A-7**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131868

❏ Remove the bolts (**1**) .

❏ Disconnect the connectors (depending on equipment level).

❏ Remove the lock and the module through the door box section.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Refit the base of the exterior handle and connect the connectors (depending on equipment level).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the front side door lock module.

❏ Connect the connectors.

❏ Refit the bolts ***(1)*** .

❏ Torque tighten the **front side door lock bolts (6 N.m)** ***(1)*** .

❏ Refit:

- the door exterior handle (see **51A**, **Side opening element mechanisms**, **Door exterior handle: Removal - Refitting**, page **51A-7**) ,
- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) .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**III - FINAL OPERATION.**

❑ Refit:

- the lock blanking cover,
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim).


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

**1 - Driver's side door**

❑ Remove:

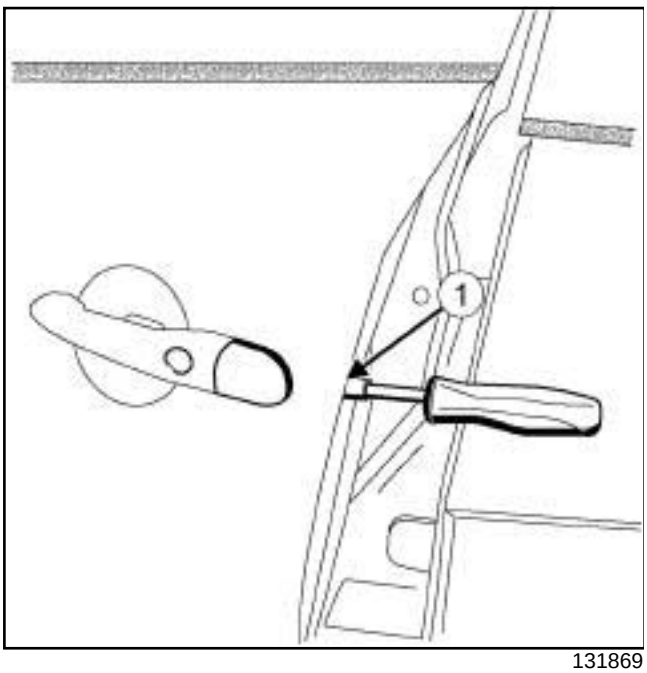
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the lock blanking cover.

**2 - Passenger side door**

❑ Remove the lock blanking cover.

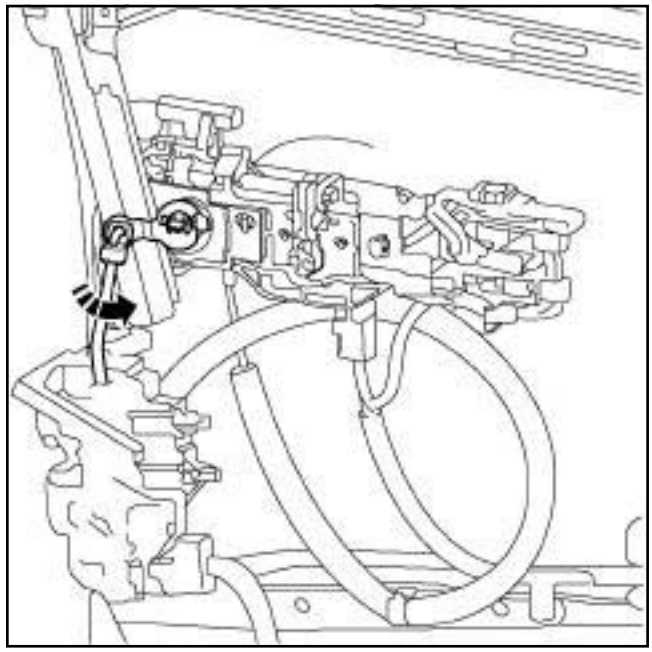
### II - OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Driver's side door**



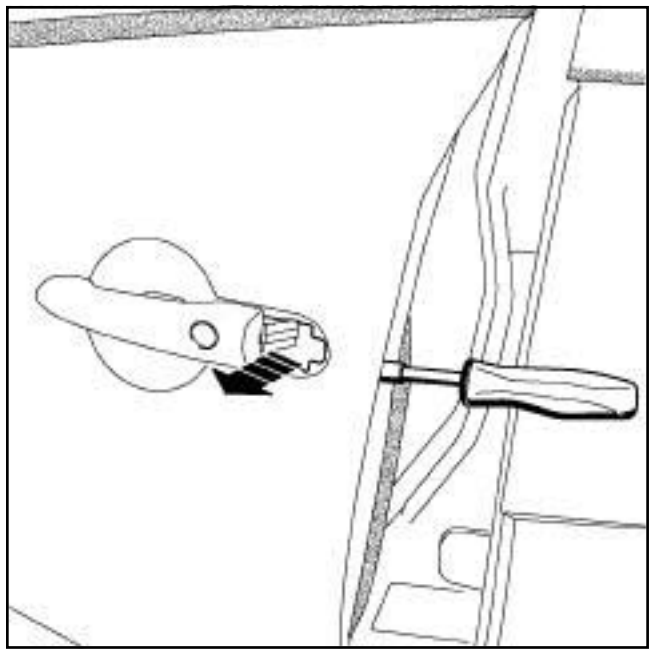

131869

❑ Undo the bolt (**1**) without removing it.



131870

❑ Disconnect the lock locking rod.



131871

❑ Remove the lock barrel.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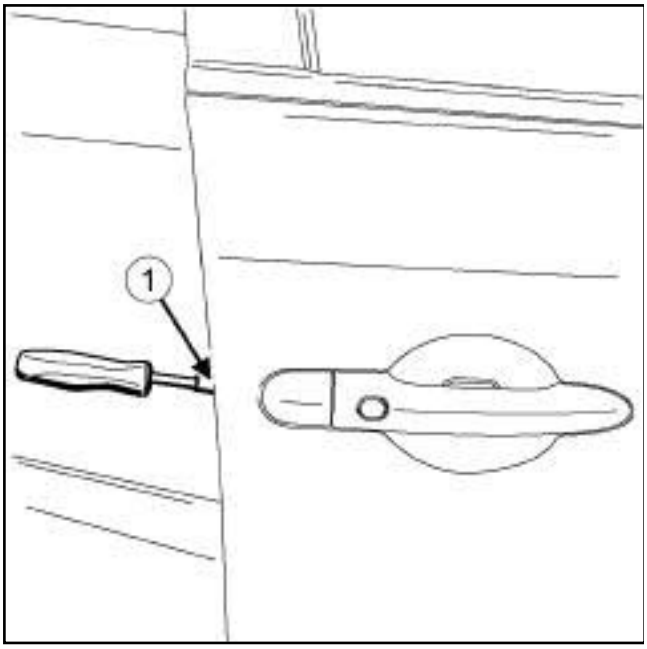
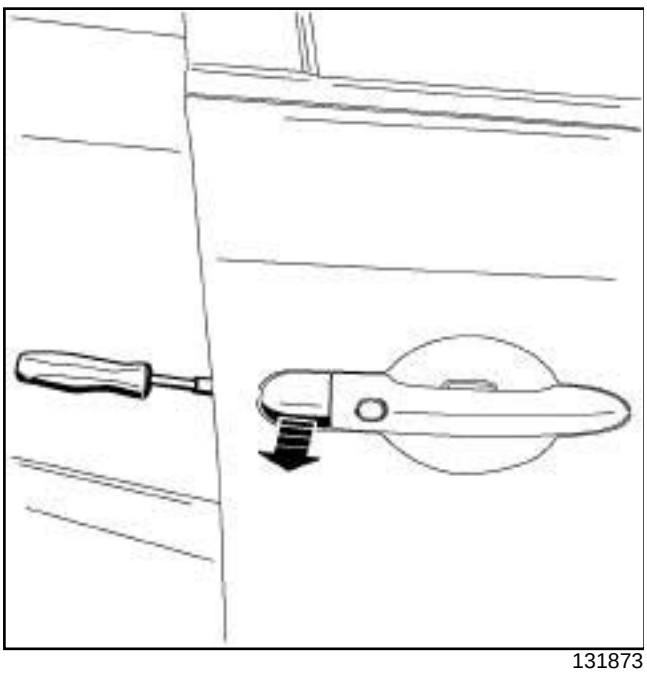
**2 - Passenger side door**




131872

❏ Undo the bolt (**1**) without removing it.



131873

❏ Remove the lock barrel.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

**1 - Driver's side door**

❏ Refit the door lock barrel.

❏ Connect the locking rod on the lock.

❏ Refit the bolt ***(1)*** .

**2 - Passenger side door**

❏ Refit the door lock barrel.

❏ Refit the bolt ***(1)*** .

**II - FINAL OPERATION.**

**1 - Driver's side door**

❏ Refit:

- the lock blanking cover,
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim).

**2 - Passenger side door**

❏ Refit the lock blanking cover.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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

> Note:
>
> Before removing the exterior door handle, the mechanic must know which option applies to the vehicle.

**1 - Front side door**

***a - (Vehicle option 1: With keyless entry)***

❑ Remove:

- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the lock blanking cover,
- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) .

***b - (Vehicle option 2: Without keyless entry)***

❑ Remove:

- the lock blanking cover,
- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) .

**2 - Rear side door**

***a - (Vehicle option 1: With keyless entry)***

❑ Remove:

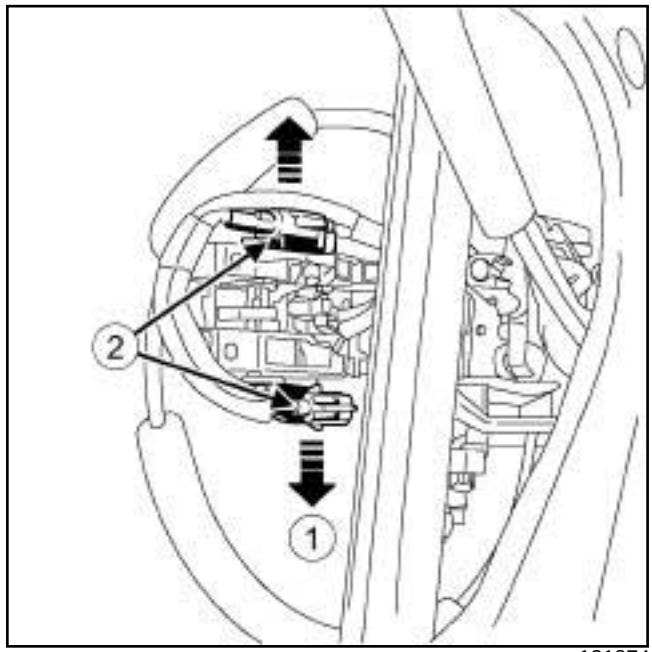
- the lock blanking cover,
- the rear side door lock barrel,
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).
- the rear side door sealing film, partially.

***b - (Vehicle option 2: Without keyless entry)***

❑ Remove:

- the lock blanking cover,
- the rear side door lock barrel.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131874

❑ Remove the power supply connectors from the exterior handle module (depending on equipment level).

❑ Disconnect the supply connectors (**2**) (depending on equipment level).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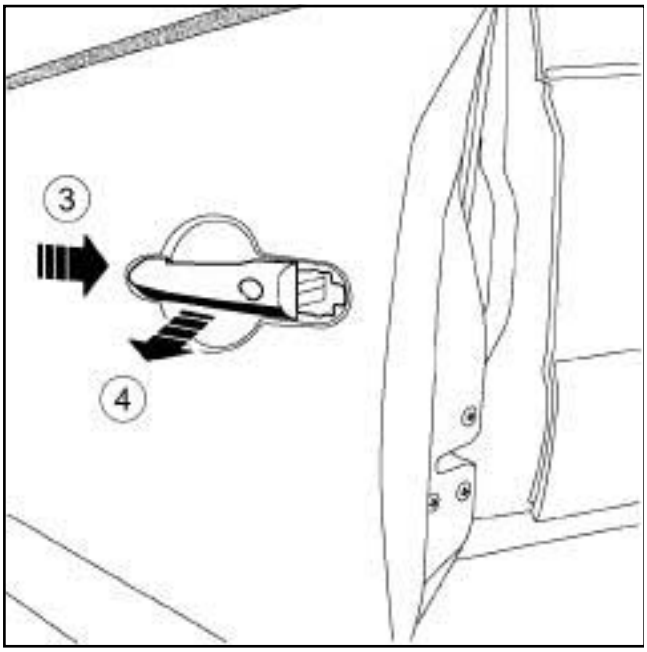
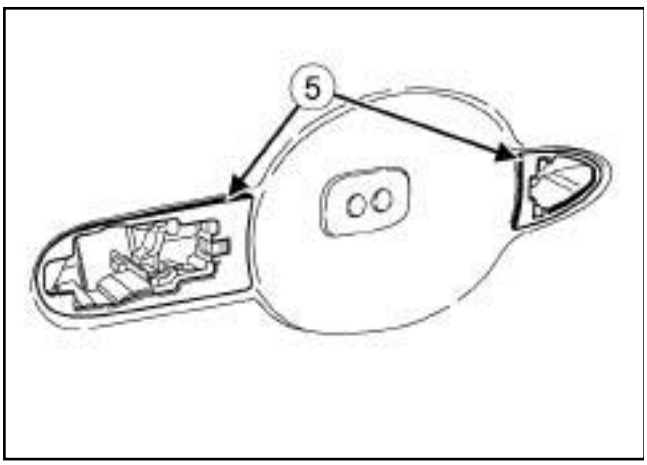


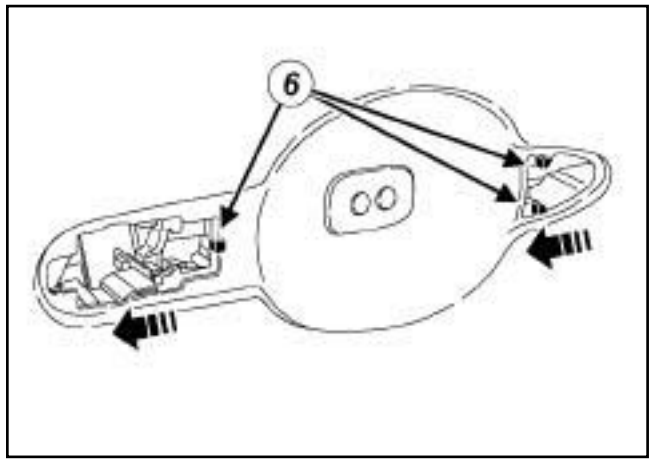

131875

❏ Remove the handle in the direction of the arrows (**3**) and (**4**) .



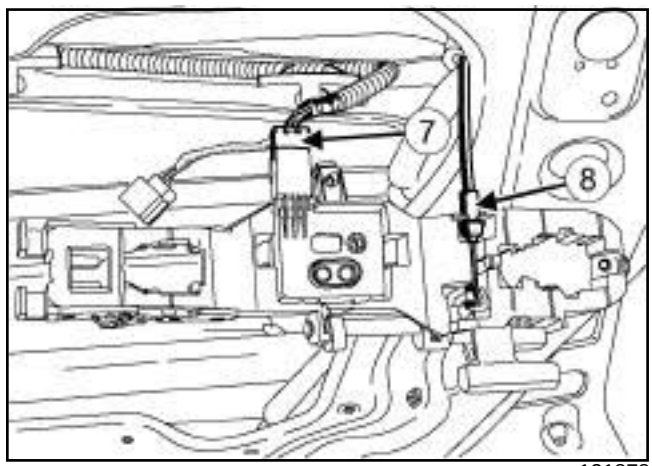

131876

❏ Remove the exterior door handle seals (**5**) .




131877

❏ Unclip the exterior door handle module at (**6**) while pulling it towards the rear.




131878

❏ Disconnect:

- the optical sensor connector (**7**) (depending on equipment level),
- the door handle module door lock cable (**8**) (depending on equipment level).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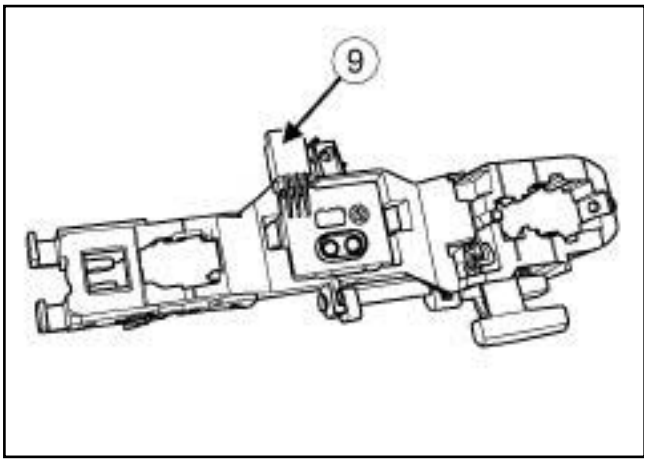


131879

❑ Remove the exterior door handle module - optical sensor assembly (**9**) (depending on equipment level).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the exterior door handle module - optical sensor assembly (**9**) (depending on equipment level).

❑ Connect:

- the door handle module door lock cable ***(8)*** (depending on equipment level),
- the optical sensor connector ***(7)*** (depending on equipment level).

❑ Refit:

- the exterior door handle module,
- the exterior door handle seals ***(5)*** .

❑ Connect the supply connectors (**2**) (depending on equipment level).

❑ refit:

- the supply connectors ***(2)*** on the exterior handle module (depending on equipment level),
- the door exterior handle.

### II - FINAL OPERATION.

#### 1 - Front side door

***a - (Vehicle option 1: With keyless entry)***

❑ Refit:

- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) ,
- the lock blanking cover,
- the front side door control module (see **51A**, **Side opening element mechanisms**, **Front side door electric window mechanism: Removal - Refitting**, page **51A-10**) ,
- the front side door sliding window (see **54A**, **Windows**, **Sliding window in front side door: Removal - Refitting**, page **54A-4**) (54A, Windows),
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim).

***b - (Vehicle option 2: Without keyless entry)***

❑ Refit:

- the front side door lock barrel (see **51A**, **Side opening element mechanisms**, **Front side door lock barrel: Removal - Refitting**, page **51A-5**) ,
- the lock blanking cover.

#### 2 - Rear side door

***a - (Vehicle option 1: With keyless entry)***

❑ Refit:

- the rear side door lock barrel,
- the lock blanking cover,
- the rear side door sealing film,
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

***b - (Vehicle option 2: Without keyless entry)***

❑ Refit:

- the rear side door lock barrel,
- the lock blanking cover.


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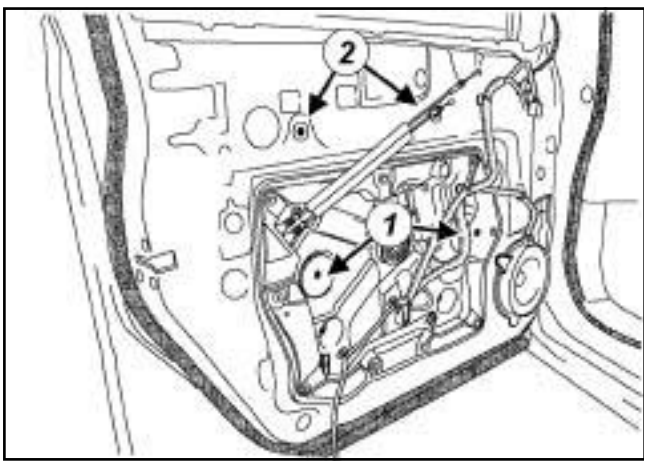
| Tightening torques ▽ | |
|---|---|
| front side door window bolts | **6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



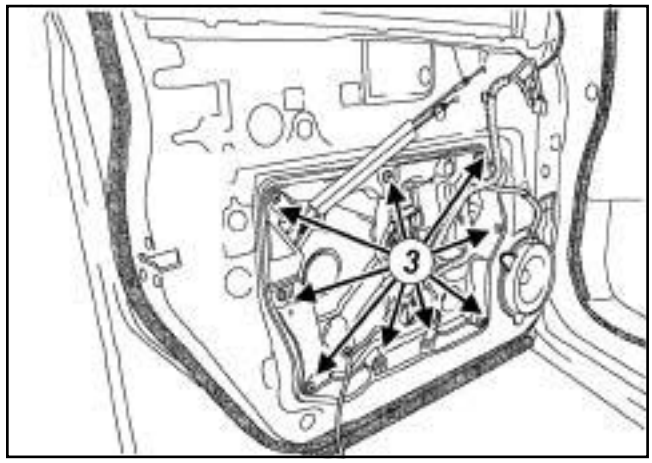

131880

❏ Position the window to gain access to the bolt (**1**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the bolts (**1**) ,
- the front side door window,
- the bolts (**2**) .



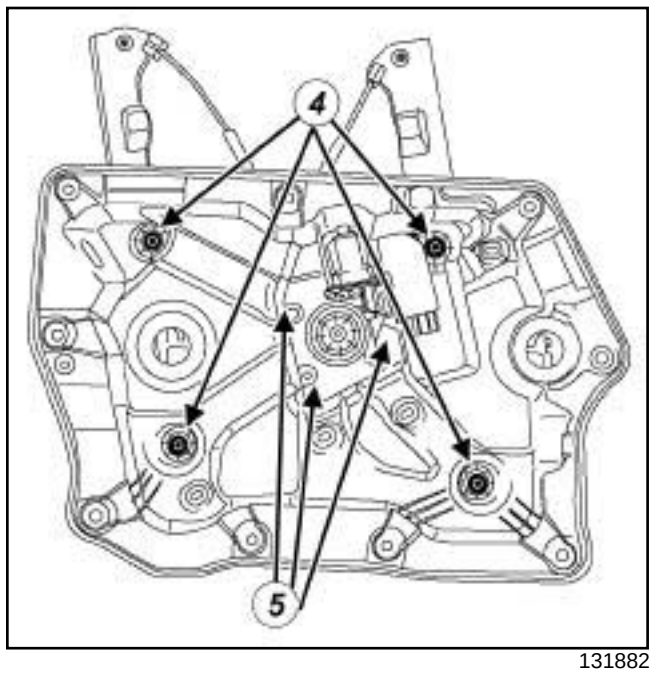

131881

❏ Remove the bolts (**3**) .

❏ Disconnect the electric window mechanism supply connector.

❏ Remove:

- the clips,
- the electric window mechanism, motor and operating mechanism assembly.




131882

❏ Remove:

- the bolts (**4**) ,
- the bolts (**5**) ,
- the electric window motor.
- the electric window mechanism.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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the electric window mechanism.
- the electric window motor.
- the bolts ***(5)*** ,
- the bolts ***(4)*** .

❏ Refit:

- the front side door electric window mechanism, motor and operating mechanism assembly,
- the bolts ***(3)*** .

❏ Connect the front side door electric window connector.

❏ Clip the wiring with clips.

❏ Refit:

- the front side door window,
- the bolts ***(1)*** .

❏ Torque tighten the **front side door window bolts (6 N.m)**.

❏ Refit the bolts ***(2)*** .

### II - FINAL OPERATION

❏ Refit the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

> Note:
>
> For operation in one-touch mode and/or in operational mode (opening and closing) as well as the anti-pinch function, the electronic system integrated into the engine must be correctly initialised.

❏ Initialise the front side electric window motor by lowering the window completely in the door box then raising it to the upper stop and keeping the control button pressed for at least 5 seconds.

❏ Check that the electric window is working properly.


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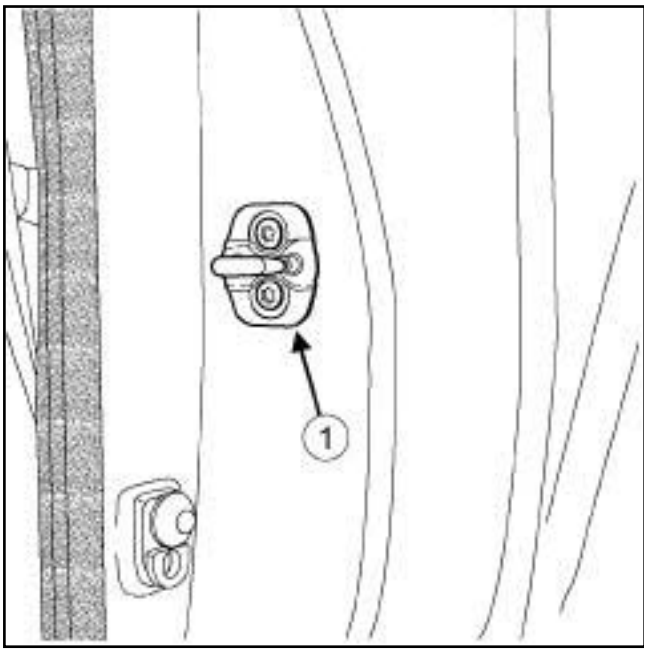
| Tightening torques ▽ | |
|---|---|
| rear side door striker panel bolts | **18 N.m** |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



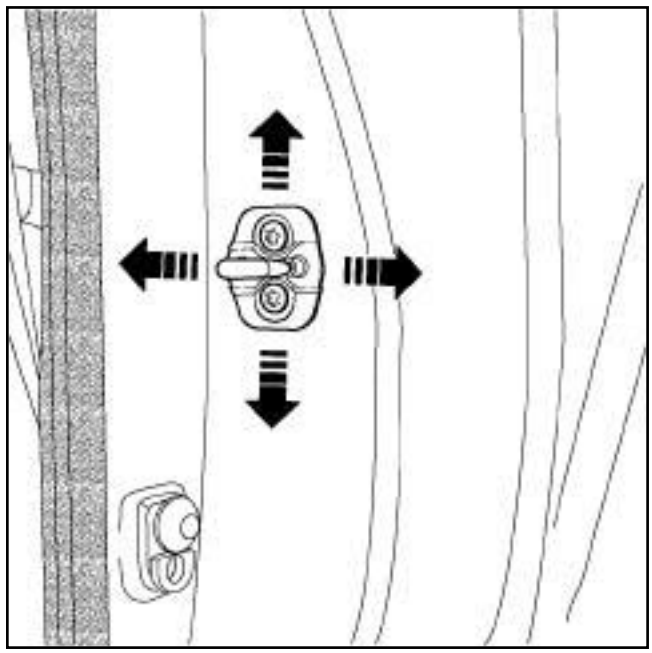

130221

❏ Remove:

- the bolts,
- the rear side door striker panel (**1**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED



130222

❏ Refit:

- the rear side door striker panel,
- the bolts.

❏ Adjust the rear side door striker panel.

❏ Check if it is possible to close the door.

❏ Torque tighten the **rear side door striker panel bolts (18 N.m)**.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| Tightening torques ▽ | |
|---|---|
| rear side door lock bolts | **6 N.m** |

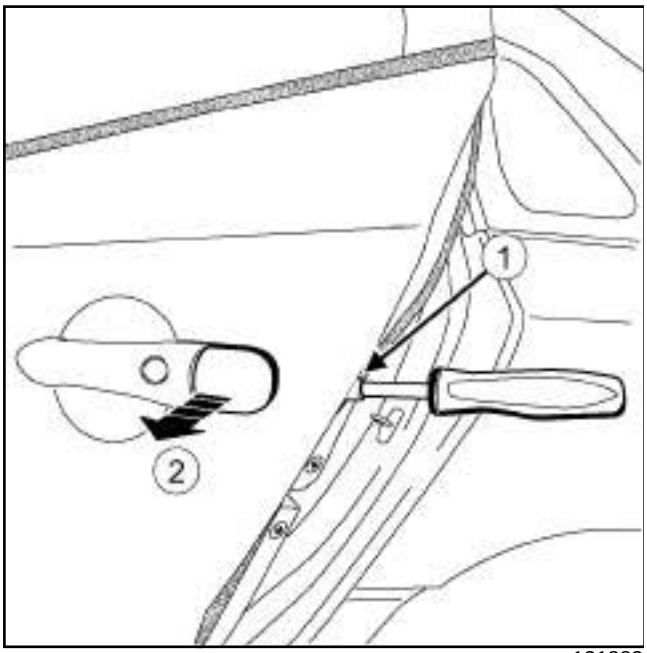
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the rear side door sealing film (see **Door sealing film: Removal - Refitting**) (65A, Door sealing),
- the lock blanking cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

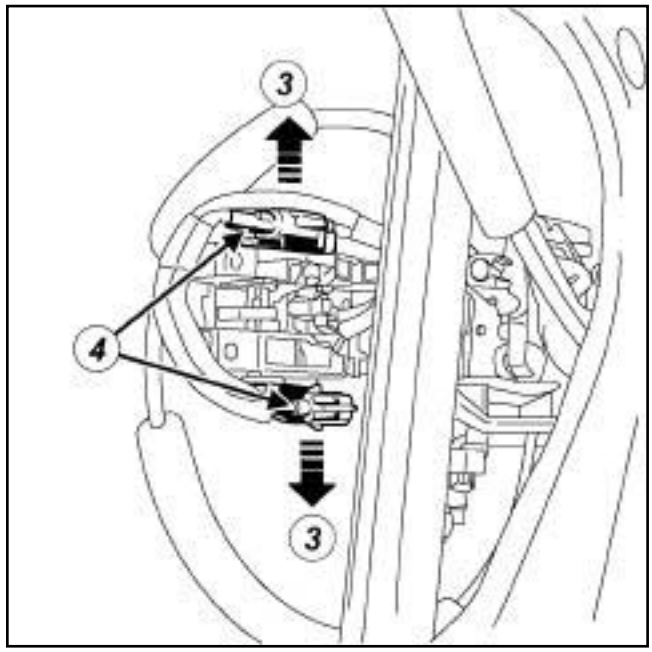



131883

❏ Undo the bolt (**1**) without removing it.

❏ Remove:

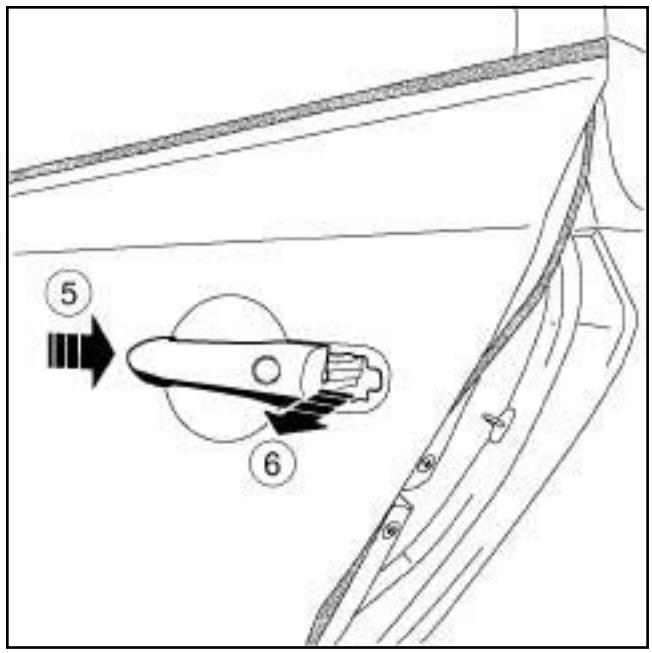
- the cover,
- the barrel at (**2**) .




131888

❏ Remove the connector at (**3**) from the exterior handle module.

❏ Disconnect the connectors at (**4**) .




131884

❏ Remove:

- the rear side door exterior handle at (**5**) and (**6**) .
- the seal.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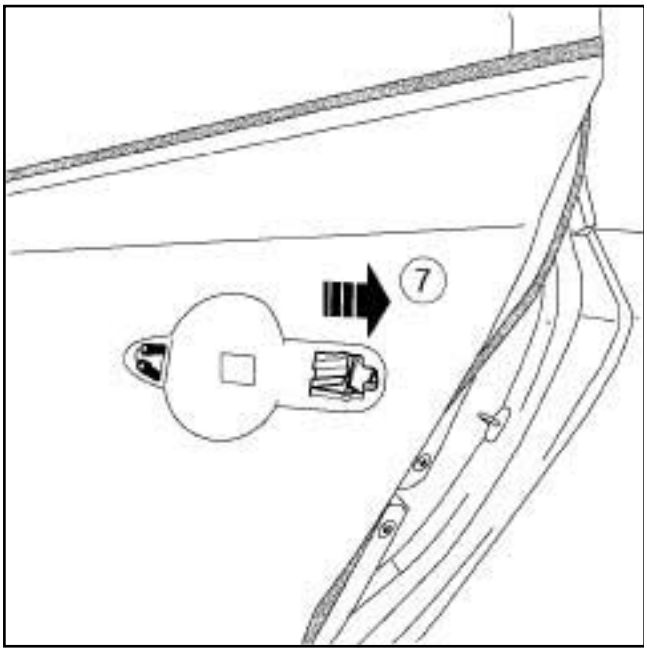
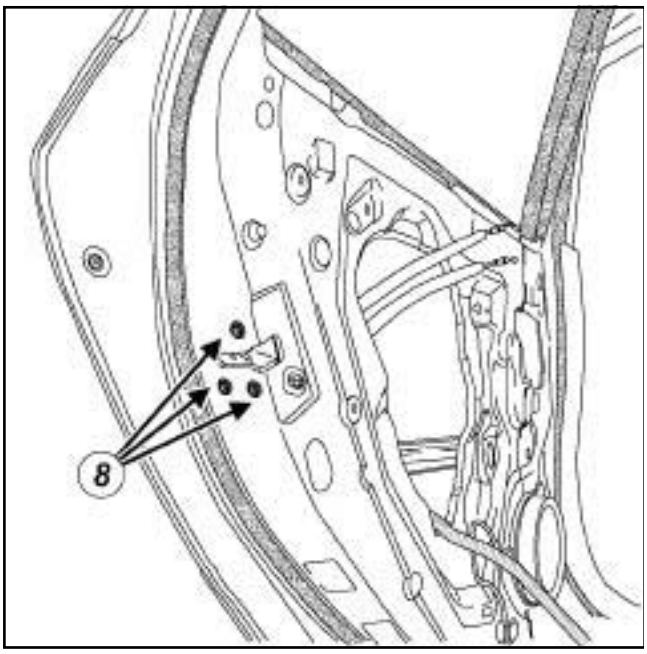



131886

❏ Remove the lock module.




131887

❏ Remove:

- the bolts (**8**) .
- the lock and the module through the door box section.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Refit:

- the exterior handle base,
- the seal .

❏ Connect the connectors.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the door lock module.

❏ Connect the connectors.

❏ Refit the bolts ***(8)*** .

❏ Torque tighten the **rear side door lock bolts (6 N.m)**.

❏ Refit the exterior door handle (see **51A**, **Side opening element mechanisms**, **Door exterior handle: Removal - Refitting**, page **51A-7**) (51A, Side opening element mechanisms).

### III - FINAL OPERATION.

❏ Carry out a function test.

❏ Refit:

- the lock blanking cover,
- the rear side door sealing film (see **Door sealing film: Removal - Refitting**) (65A, Door sealing),
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).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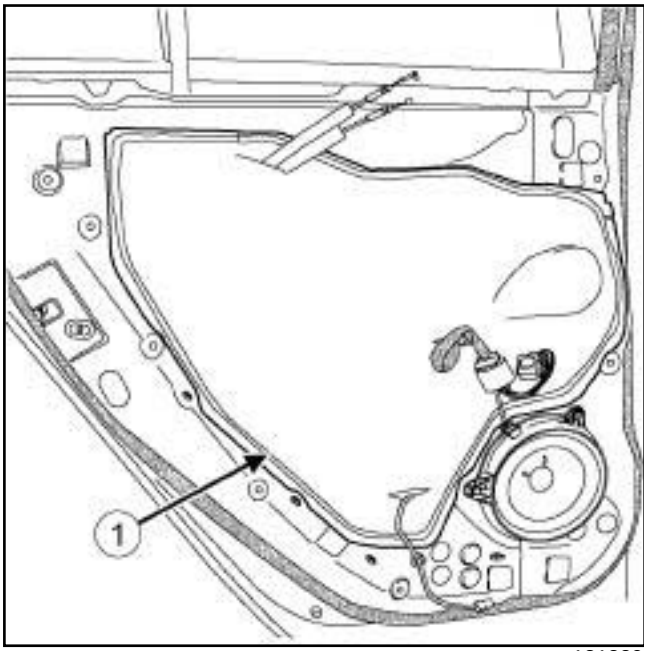
| Tightening torques ▽ | |
|---|---|
| rear side door window bolts | 6 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

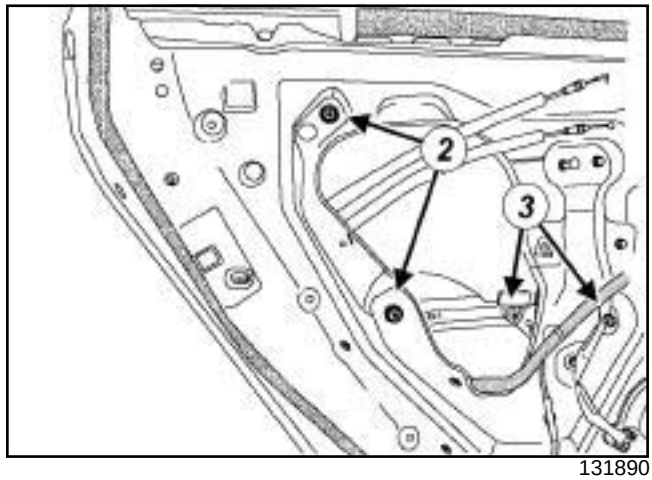
❏ Remove the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).




131889

❏ Remove the door sealing film (**1**) (see **Door sealing film: Removal - Refitting**) (65A, Opening element sealing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



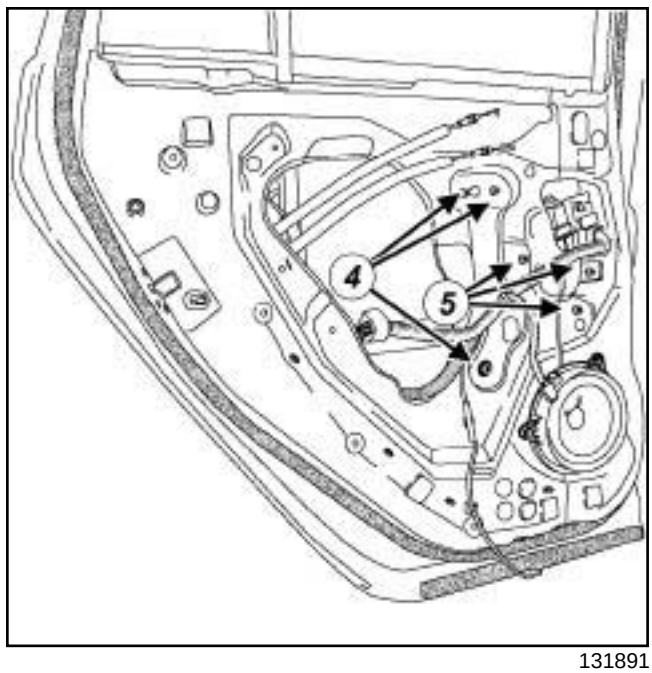

131890

❏ Position the window to access the bolts (**3**) .

❏ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Remove:

- the bolts (**2**) ,
- the bolts (**3**) ,
- the rear side door window.




131891

❏ Disconnect the window winder mechanism supply connector.

❏ Remove:

- the bolts (**4**) ,
- the bolts (**5**) ,
- the window winder mechanism.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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the window lift mechanism,
- the bolts (**5**) ,
- the bolts (**4**) .

❏ Connect the rear side door electric window mechanism power supply connector.

❏ Refit the rear side door window.

❏ Torque tighten the **rear side door window bolts (6 N.m)** ***(3)*** .

❏ Refit the bolts ***(2)*** .

### II - FINAL OPERATION.

❏ Refit:

- the door sealing film (see **Door sealing film: Removal - Refitting**) (65A, Door sealing),
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

> Note:
>
> For operation in one-touch mode and/or in operational mode (opening and closing) as well as the anti-pinch function, the electronic system integrated into the engine must be correctly initialised.

❏ Initialise the rear side electric window motor by raising the window to the upper limit and maintain the power supply for at least 3 seconds.


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| Tightening torques ▽ | |
|---|---|
| bolts of the rear side door tie-rod (on the door) | **5 N.m.** |
| bolts of the rear side door tie-rod (on the body) | **15 N.m** |

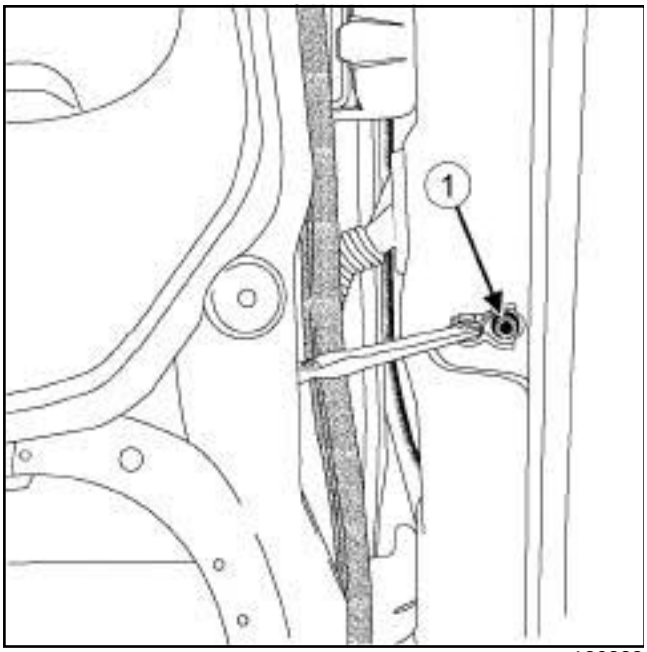
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

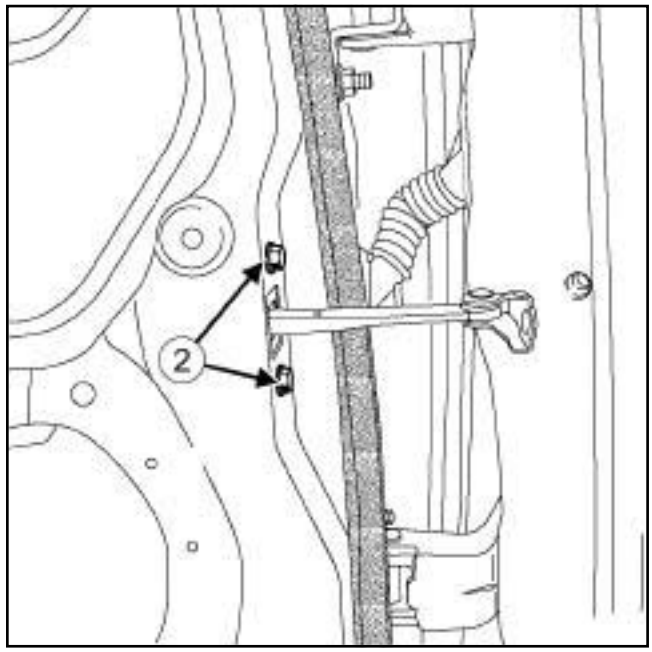
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the rear speaker (see **Rear speakers: Removal - Refitting**) (86A, Radio).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130223

❏ Remove the bolt (**1**) .



130224

❏ Remove:

- the bolts (**2**) ,
- the rear side door tie-rod from inside the door box section.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear side door tie-rod in the door box section and temporarily refit the bolts.

❏ Torque tighten:

- the **bolts of the rear side door tie-rod (on the door) (5 N.m.)**,
- the **bolts of the rear side door tie-rod (on the body) (15 N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the rear speaker (see **Rear speakers: Removal - Refitting**) (86A, Radio),
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening elements trim).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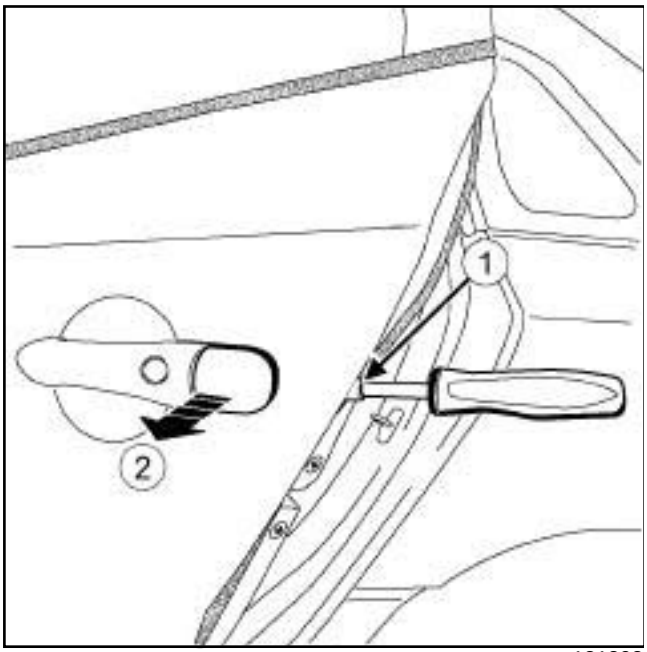
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the door lock blanking cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131892

❏ Undo the bolt (**1**) without removing it.

❏ Remove the door lock barrel (**2**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the door lock barrel ***(2)*** .

❏ Refit the bolt ***(1)*** .

### II - FINAL OPERATION.

❏ Refit the door lock blanking cover.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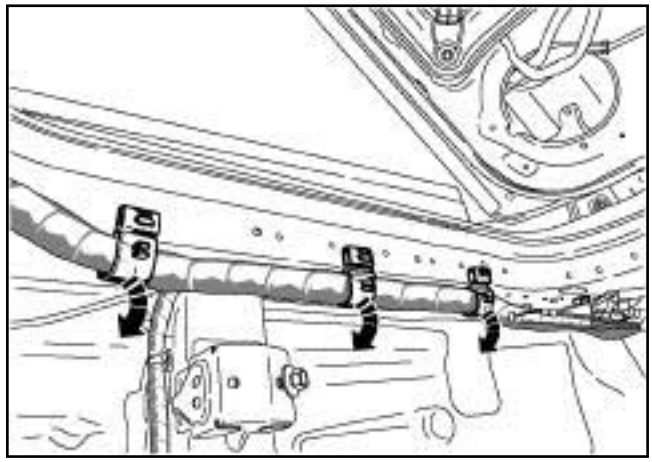
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the fuel filler flap release control cable from the bonnet release control (see **52A**, **Non-side opening element mechanisms**, **Bonnet release handle: Removal - Refitting**, page **52A-1**) ,
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the centre floor side soundproofing, partially (see **Centre floor side soundproofing: Removal - Refitting**) (68A, Soundproofing),
- the centre floor rear soundproofing, partially (see **Centre floor rear soundproofing: Removal - Refitting**) (68A, Soundproofing),
- the C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the luggage retainer cross member (see **Luggage retainer cross piece: Removal - Refitting**) (41D, Rear lower structure),
- the luggage compartment floor lining (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131893

❏ Note the fuel filler flap opening release cable routing.

❏ Detach the fuel filler flap release control cable from the mounting clips.

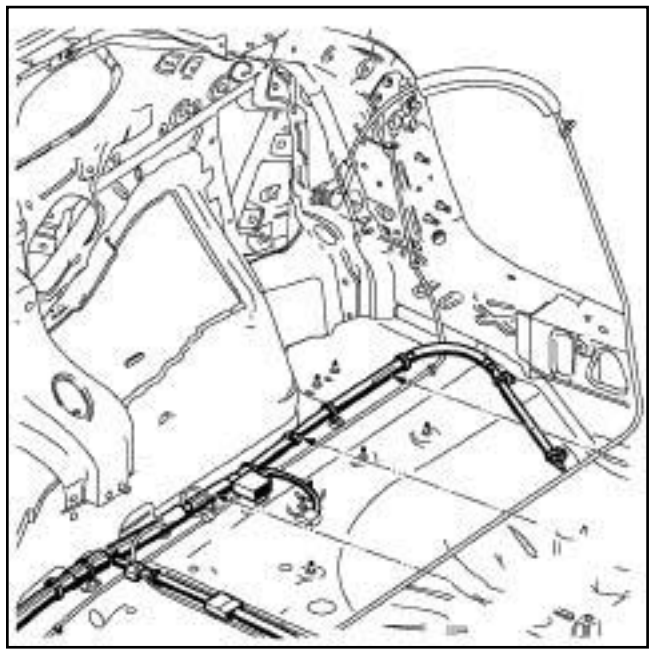
❏ Remove the fuel filler flap lock.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the mounting clips and replace them if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED



131894

❏ Refit the release cable on the mounting clips.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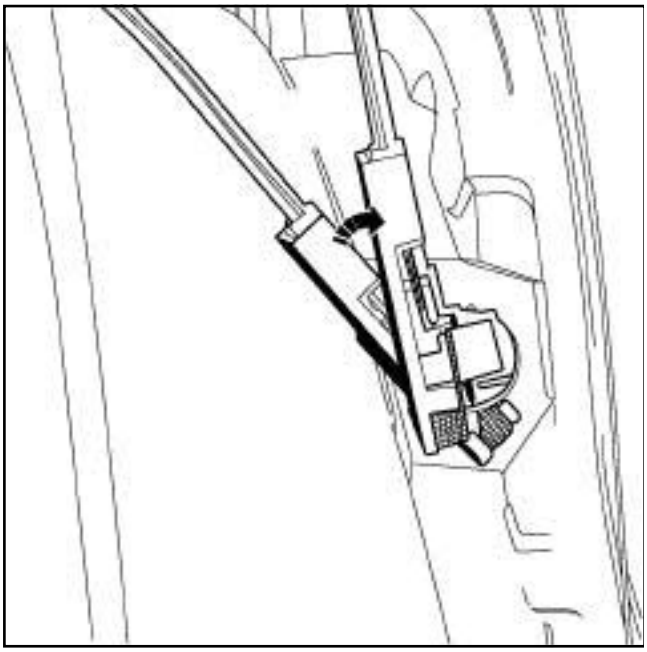

131895

❑ Refit the fuel filler flap lock.

**III - FINAL OPERATION.**

❑ Refit:

- the luggage compartment floor lining (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the luggage retainer cross member (see **Luggage retainer cross piece: Removal - Refitting**) (41D, Rear lower structure),
- the C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the centre floor rear soundproofing, partially (see **Centre floor rear soundproofing: Removal - Refitting**) (68A, Soundproofing),
- the centre floor side soundproofing, partially (see **Centre floor side soundproofing: Removal - Refitting**) (68A, Soundproofing),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the fuel filler flap release control cable on the bonnet release control (see **52A**, **Non-side opening element mechanisms**, **Bonnet release handle: Removal - Refitting**, page **52A-1**) .


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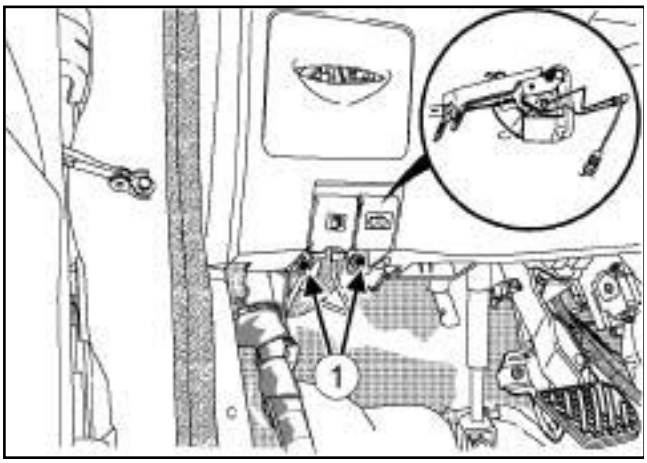
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front door sill lining (see **B-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130295

❏ Remove:

- the bolts (**1**) ,
- the bonnet release control,
- the bonnet release cable,
- the hatch release control cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the hatch release control cable,
- the bonnet opening cable,
- the bonnet release control,
- the bolts ***(1)*** .

### II - FINAL OPERATION.

❏ Refit:

- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **B-pillar lower trim: Removal - Refitting**) (71A, Body internal trim).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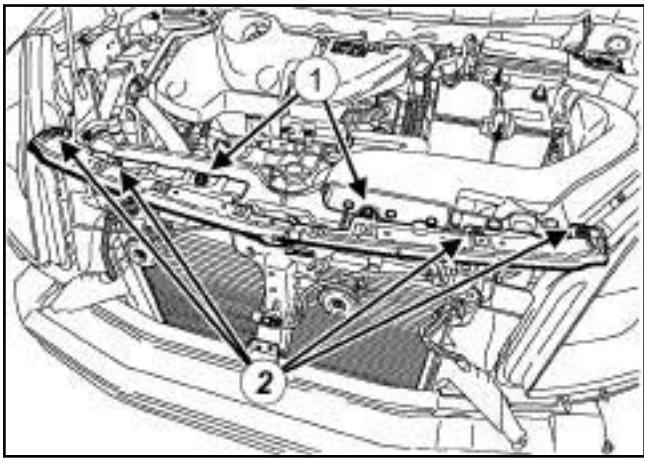
| Tightening torques ▽ | |
|---|---|
| bonnet catch bolts | **22 N.m** |

## REMOVAL

### I - OPERATION FOR PREPARATION OF PART CONCERNED

❏ Remove the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .

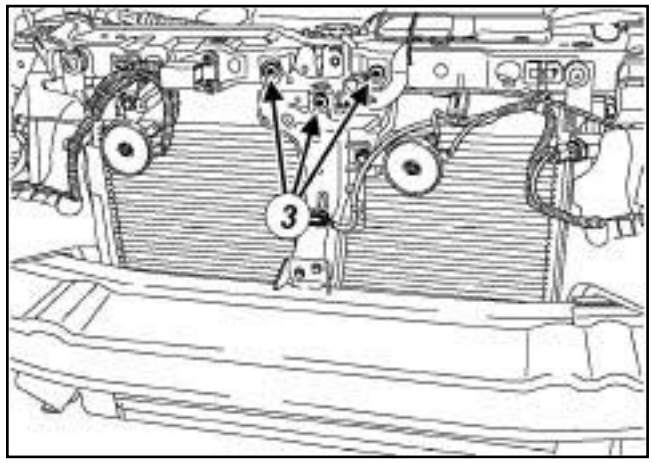



135023

❏ Remove:

- the bolts (**1**) ,
- the clips (**2**) ,
- the radiator upper grille.

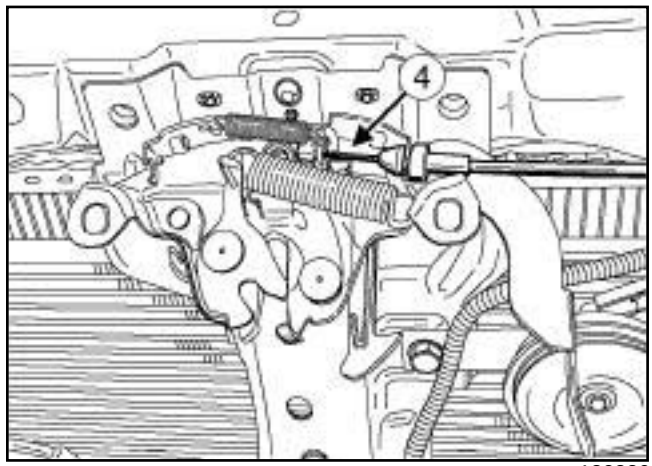
### II - OPERATION FOR REMOVAL OF PART CONCERNED




135024

❏ Remove:

- the bolts (**3**) ,
- the bonnet catch.




130226

❏ Remove the bonnet release cable (**4**) .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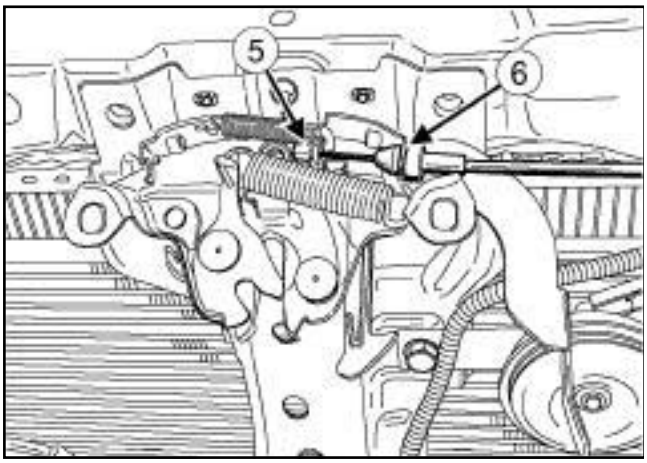
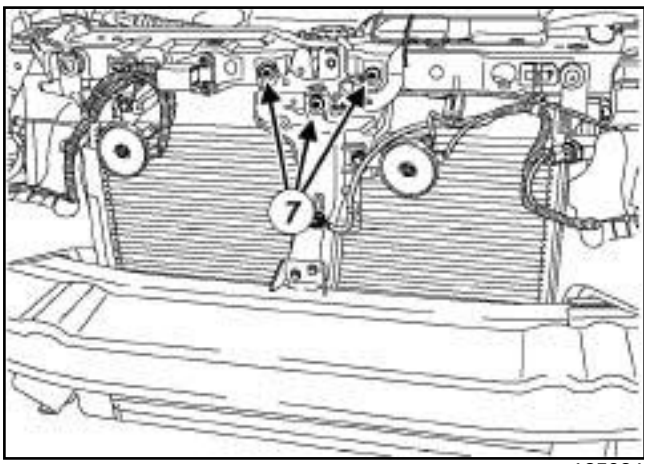
## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




130227

❏ Place the bonnet release cable at (**5**) and (**6**) .




135024

❏ Refit:

- the bonnet catch,
- the bolts (**7**) on the bonnet catch.

❏ Pre-tighten the bonnet catch bolts.

❏ Adjust the bonnet clearances and flush fitting (see **Vehicle clearances: Adjustment values**) (01C, Vehicle bodywork specifications).

❏ Torque tighten the **bonnet catch bolts (22 N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the radiator upper grille,
- the clips ***(2)*** ,
- the bolts ***(1)*** ,
- the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .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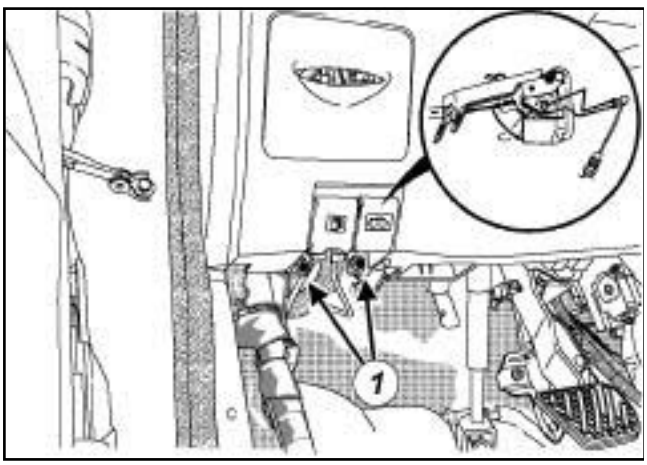
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front wheel arch liner partially (see **55A**, **Exterior protection**, **Front wheel arch liner: Removal - Refitting**, page **55A-10**) (55A, Exterior protection),
- the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) (55A, Exterior protection).

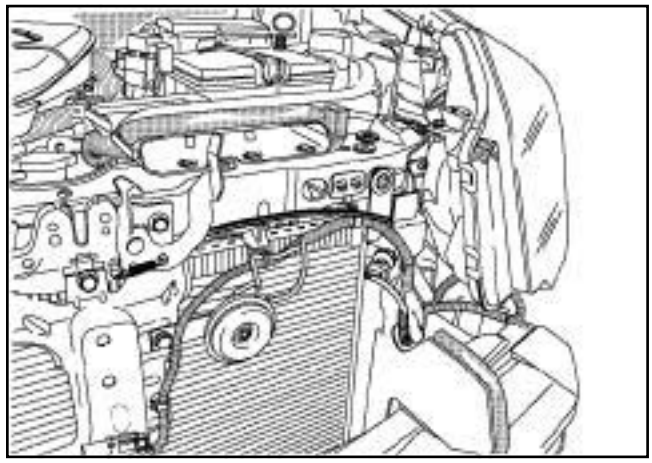
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131072

❑ Remove:

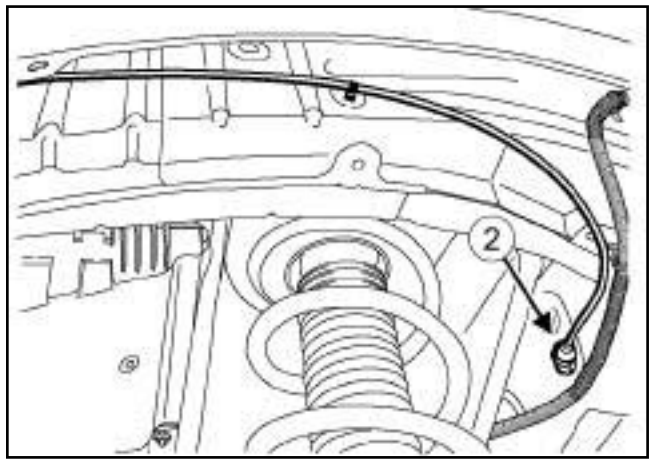
- the bolts (**1**) ,
- the bonnet release handle.



131073

❑ Note the routing of the bonnet release cable.

❑ Remove the bulkhead cable routing blanking piece.




131074

❑ Remove:

- the bonnet catch (see **52A**, **Non-side opening element mechanisms**, **Bonnet latch: Removal - Refitting**, page **52A-2**) (52A, Non-side opening element mechanisms),
- the bonnet catch cable,
- the bonnet release cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the release cable on the bonnet lock,
- the bonnet catch (see **52A**, **Non-side opening element mechanisms**, **Bonnet latch: Removal - Refitting**, page **52A-2**) (52A, Non-side opening element mechanisms),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- the bonnet release cable,
- the cable routing blanking piece on the bulkhead,
- the bonnet release handle,
- the bolts of the bonnet release handle.

**II - FINAL OPERATION.**

❑ Refit:

- the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) (55A, Exterior protection),
- the front wheel arch liner (see **55A**, **Exterior protection**, **Front wheel arch liner: Removal - Refitting**, page **55A-10**) (55A, Exterior protection),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim).


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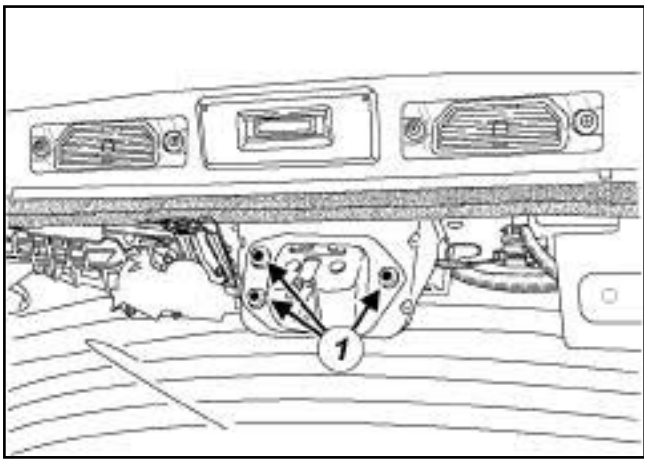
| Tightening torques ▽ | |
|---|---|
| tailgate lock bolts | **22 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130452

❏ Remove the bolts (**1**) .

❏ Disconnect the power supply connector.

❏ Remove the tailgate lock.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the supply connector.

❏ Refit:

- the tailgate lock,
- the bolts ***(1)*** .

❏ Torque tighten the **tailgate lock bolts (22 N.m)**.

### II - FINAL OPERATION.

❏ Refit the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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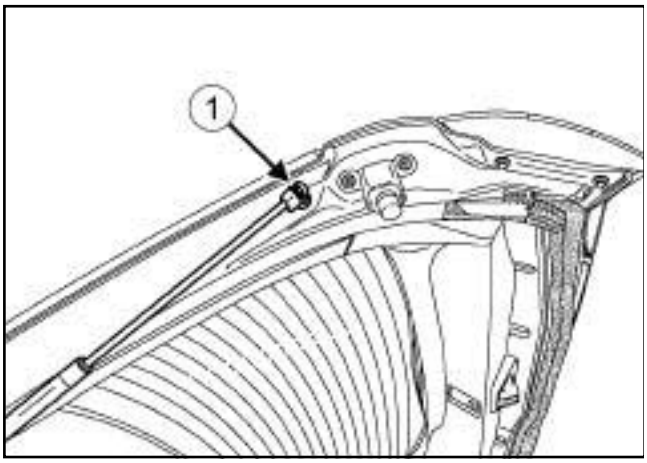
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

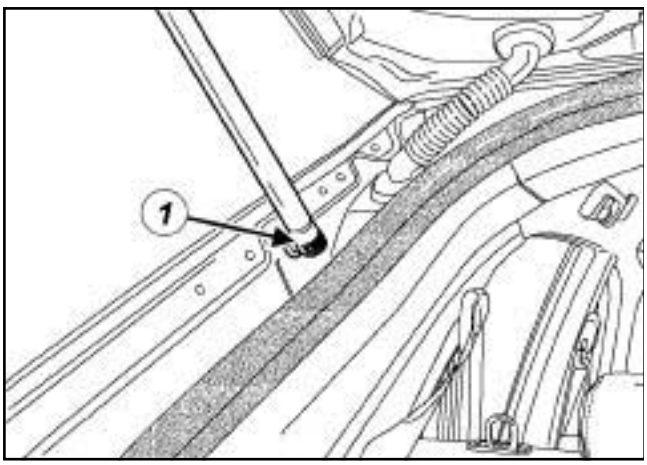
❑

**WARNING**
The strut is fitted in such a way as to prevent leaks. Note the strut's direction of fitting (position of the body and strut rod) before removing it, in order to refit the strut identically during the refitting operation.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130453



130454

❑ Unclip the clips (**1**) without removing them.

❑ Remove the struts whilst immobilising the tailgate.

## REFITTING

### I - REFITTING PREPARATIONS OPERATION

❑ Position the clips on the tailgate strut.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the tailgate strut.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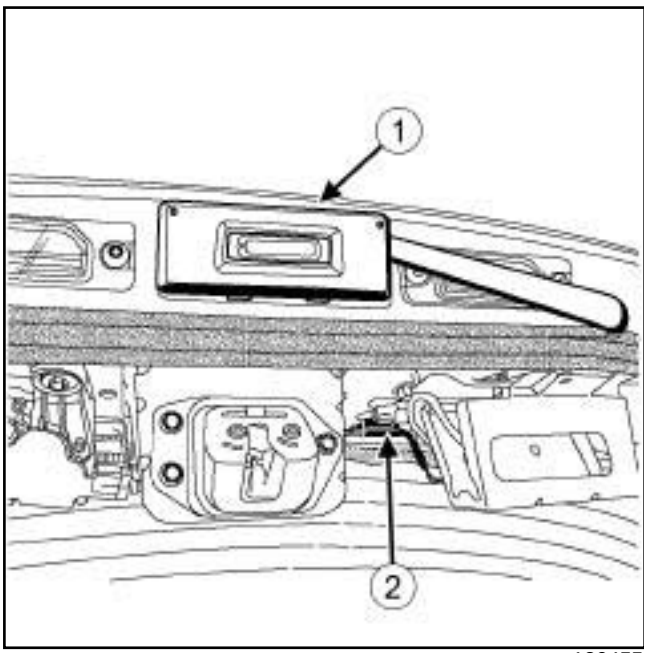
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

## REMOVAL

### I - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Remove the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130455

❑ Remove the exterior opening control (**1**) of the tailgate using the tool **(Car. 1597)**.

❑ Disconnect the connector (**2**) from the exterior opening control of the tailgate.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the connector ***(2)*** for the exterior opening control of the tailgate.

❑ Refit the exterior opening control ***(1)*** of the tailgate.

### II - FINAL OPERATION.

❑ Refit the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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ELECTRICAL SUNROOF + FIXED REAR SECT

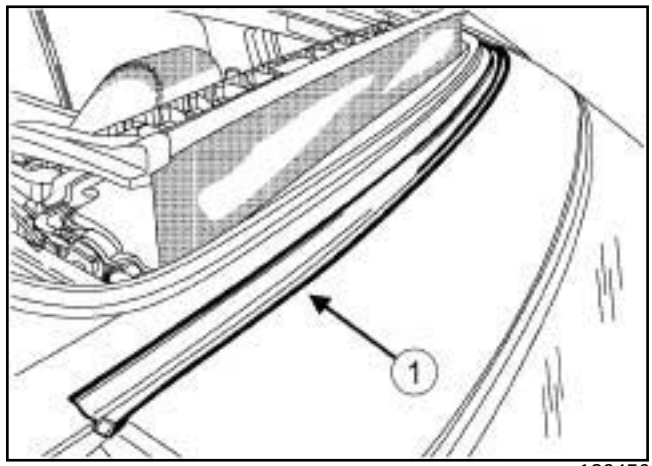
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the roof bar (see **56A**, **Exterior equipment**, **Roof rack bar: Removal - Refitting**, page **56A-8**) (56A, Exterior equipment),
- the sunroof mobile panel (see **52A**, **Non-side opening element mechanisms**, **Sunroof moving panel: Removal - Refitting**, page **52A-12**) (Non-side opening element mechanisms),
- the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87A, Electric windows - Sunroof),
- the sunroof sunblind (see **52A**, **Non-side opening element mechanisms**, **Sunroof lining: Removal - Refitting**, page **52A-14**) (Non-side opening element mechanisms),
- the sunblind of the fixed glass roof (see **52A**, **Non-side opening element mechanisms**, **Fixed glass roof sunblind: Removal - Refitting**, page **52A-17**) (Non-side opening element mechanisms).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

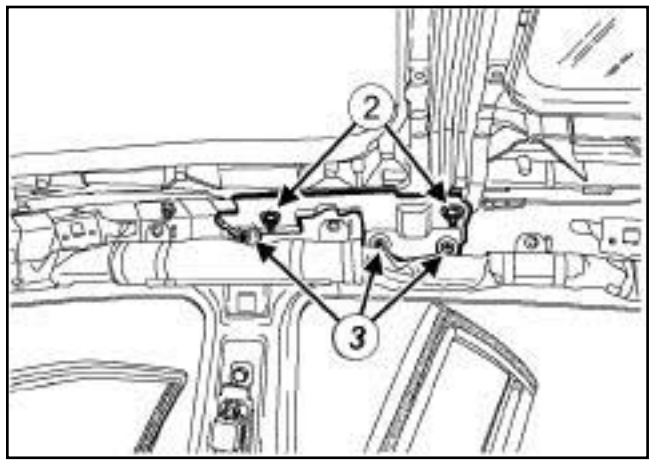



130456

❑ Detach the seal (**1**) .

Note:

Whenever a used seal is removed, refit a new seal from the refitting kit available from the Parts Department.




130457

❑ Remove:

- the nuts (**2**) ,
- the bolts (**3**) .



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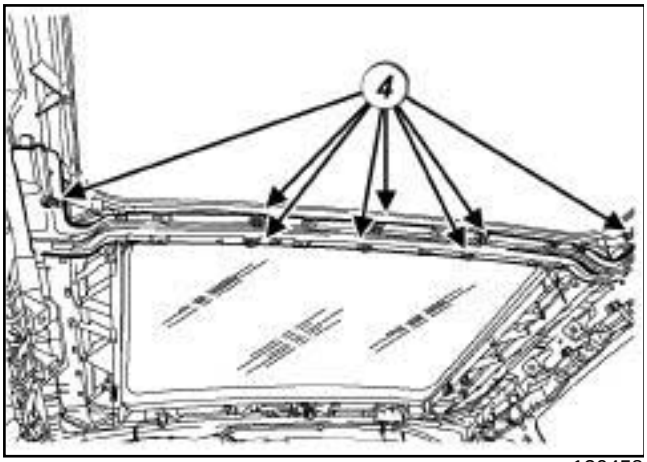
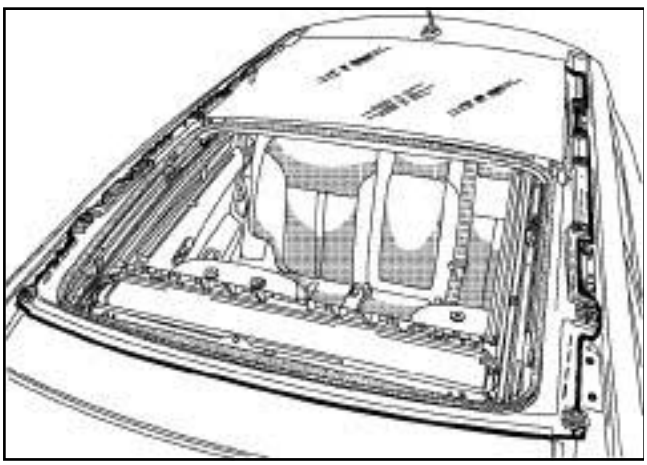


130458

❑ Remove:

- the bolts (**4**) ,
- the side panel.

❑ Cut the cement bead around the edge of the sunroof operating mechanism (this operation requires two people).


130459

❑ Remove the sunroof operating mechanism.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ For the preparation and the bonding (see **Sunroof bonding: Description**) (Technical Note 560A, 54A, Windows).

❑ Position the shims around the edge of the sunroof operating mechanism.

❑ Fit the sunroof operating mechanism.

❑ Equal out the clearances and shut lines.

### II - FINAL OPERATION.

❑ Refit:

- the sunblind of the fixed glass roof (see **52A**, **Non-side opening element mechanisms**, **Fixed glass roof sunblind: Removal - Refitting**, page **52A-17**) (Non-side opening element mechanisms),
- the sunroof sunblind (see **52A**, **Non-side opening element mechanisms**, **Sunroof lining: Removal - Refitting**, page **52A-14**) (Non-side opening element mechanisms),
- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87A, Electric windows - Sunroof),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms),
- the sunroof mobile panel (see **52A**, **Non-side opening element mechanisms**, **Sunroof moving panel: Removal - Refitting**, page **52A-12**) (Non-side opening element mechanisms),
- the roof bar (see **56A**, **Exterior equipment**, **Roof rack bar: Removal - Refitting**, page **56A-8**) (56A, Exterior equipment).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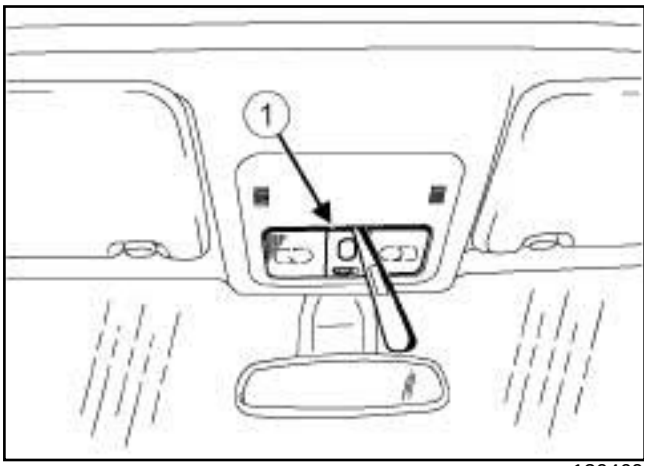
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

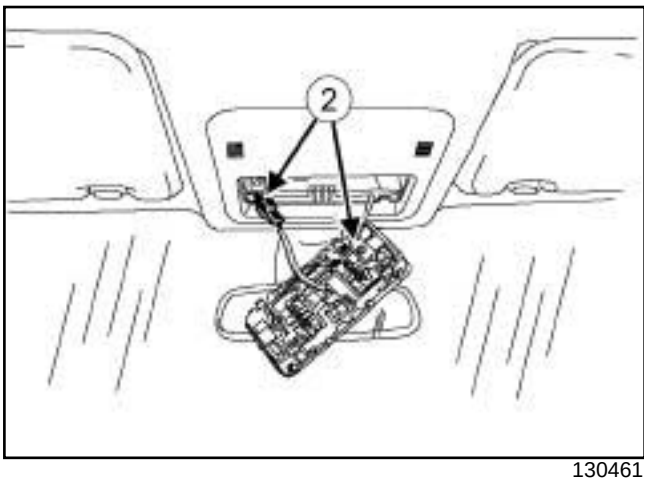
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130460

❑ Remove the sunroof opening control (**1**) using the tool **(Car. 1597)**.




130461

❑ Disconnect the connectors (**2**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❑ Connect the connectors.

❑ Refit the sunroof opening control.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| Tightening torques ▽ | |
|---|---|
| sunroof mobile panel front bolts | **5.6 N.m** |
| sunroof mobile panel rear bolt | **5.6 N.m** |

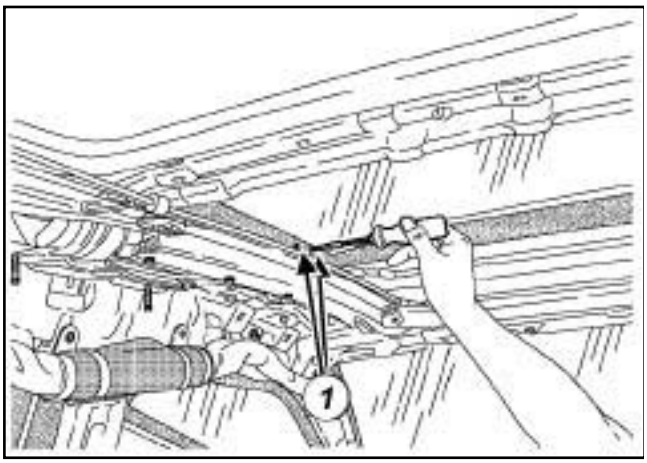
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Half-open the sunroof mobile panel.

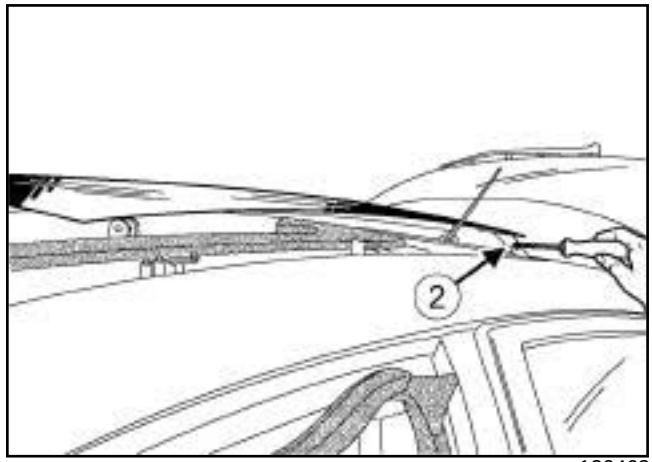
❏ Remove the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130462

❏ Remove the bolts (**1**) from the front of the sunroof mobile panel



130463

❏ Remove:

- the bolt (**2**) from the rear of the sunroof mobile panel,
- the sunroof mobile panel (this operation requires two people).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏

Note:

When removing and refitting the sunroof mobile panel, coat the bolts with a small amount of Frenbloc.

When replacing the sunroof mobile panel, replace the bolts with the bolts supplied with the sunroof mobile panel.

❏ Lubricate the linkages and rail mechanisms.

❏ Refit the sunroof mobile panel (this operation requires two people).

❏ Torque tighten:

- the **sunroof mobile panel front bolts (5.6 N.m)**,
- the **sunroof mobile panel rear bolt (5.6 N.m)**.

### II - FINAL OPERATION.

❏ Refit the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms).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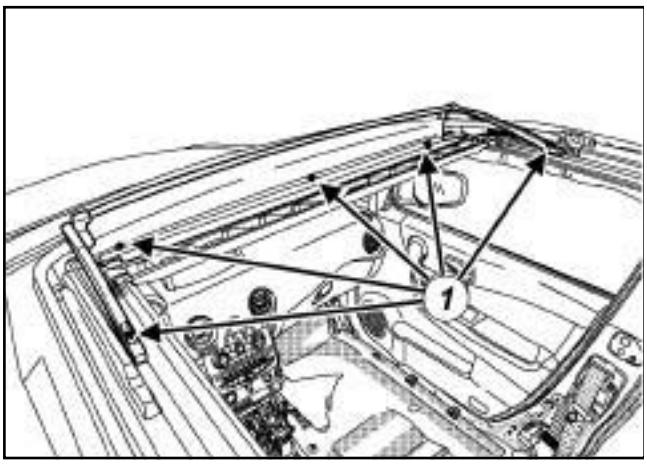
| Tightening torques ▽ | |
|---|---|
| sunroof deflector bolts | **2 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Half-open the mobile panel.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130464

❏ Protect the upper bar of the sunroof deflector using masking tape

❏ Remove:

- the bolts (**1**) of the sunroof deflector,
- the sunroof deflector.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Position the deflector return spring.

❏ Keep the deflector under pressure.

❏ Refit the sunroof deflector bolts.

❏ Torque tighten the **sunroof deflector bolts (2 N.m)**.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ELECTRICAL SUNROOF + FIXED REAR SECT

| Tightening torques ▽ | |
|---|---|
| sunroof sunblind bolts | **3 N.m** |

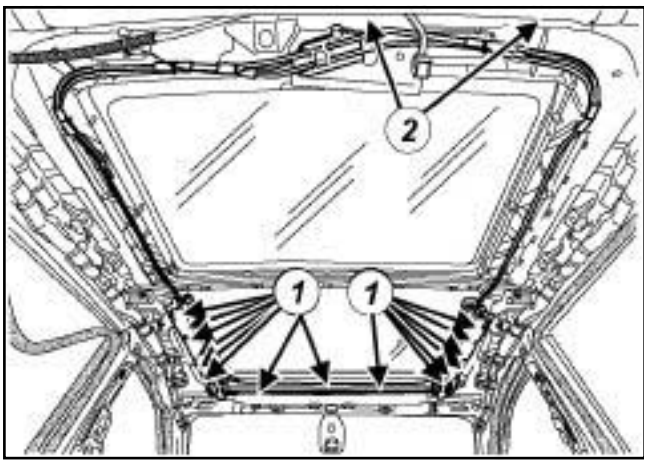
## REMOVAL

### I - REMOVAL PREPARATION STAGE

❏ Remove:

- the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87D, Electric windows - Sunroof).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130465

❏ Remove:

- the bolts (**1**) ,
- the earth bolts (**2**) ,
- the sunroof sunblind (this operation requires two people).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the sunroof sunblind (this operation requires two people),
- the bolts.

❏ Torque tighten the **sunroof sunblind bolts (3 N.m)**.

### II - FINAL OPERATION

❏ Refit:

- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87D, Electric windows - Sunroof),
- the headlining (see **Headlining: Removal - Refitting**) 71A, Body internal trim),
- the sunroof deflector (see **52A**, **Non-side opening element mechanisms**, **Sunroof deflector: Removal - Refitting**, page **52A-13**) (Non-side opening element mechanisms).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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

| Tightening torques ▽ | |
|---|---|
| mobile panel front bolts | **5.6 N.m** |
| mobile panel front bolts | **5.6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

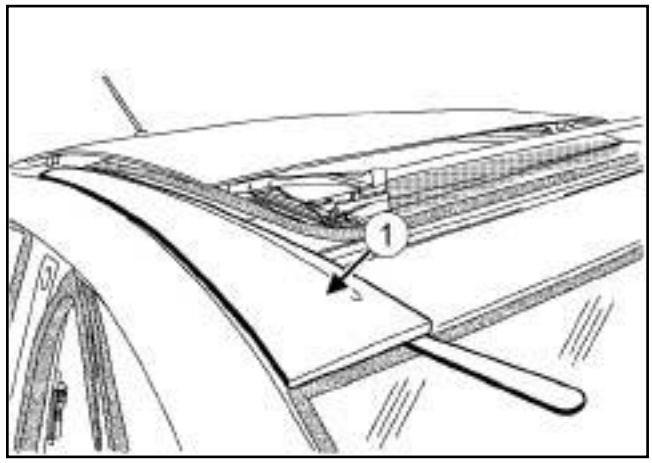
❑ Open the mobile panel to the half-open position.

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

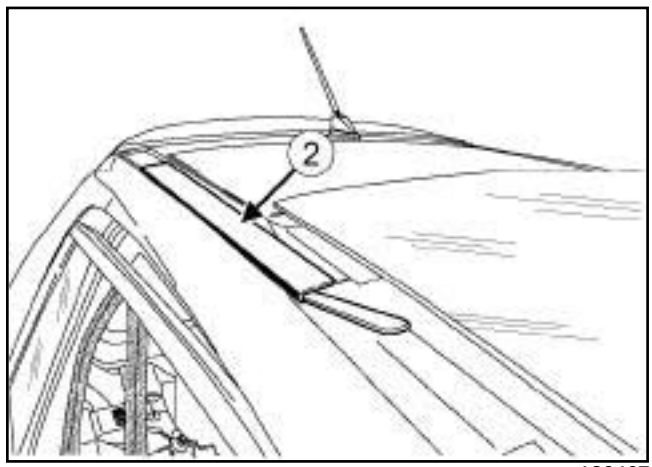
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the roof bar (see **56A**, **Exterior equipment**, **Roof rack bar: Removal - Refitting**, page **56A-8**) ((56A, Exterior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



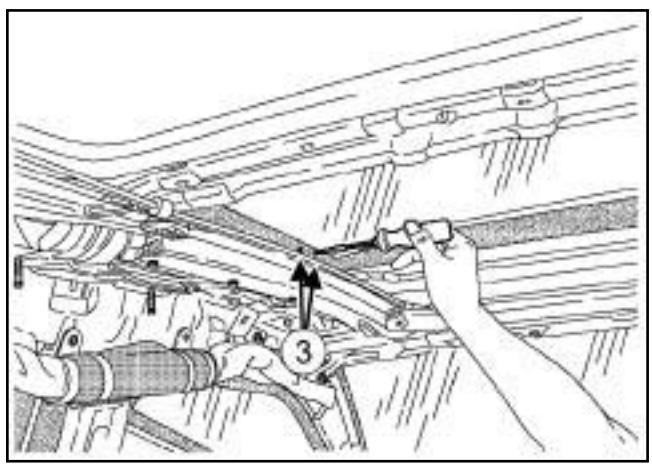

130466

❑ Unclip the trim (**1**) using the tool **(Car. 1363)**.




130467

❑ Unclip the trim (**2**) using the tool **(Car. 1363)**.




130468

❑ Remove the bolts (**3**) from the front of the mobile panel.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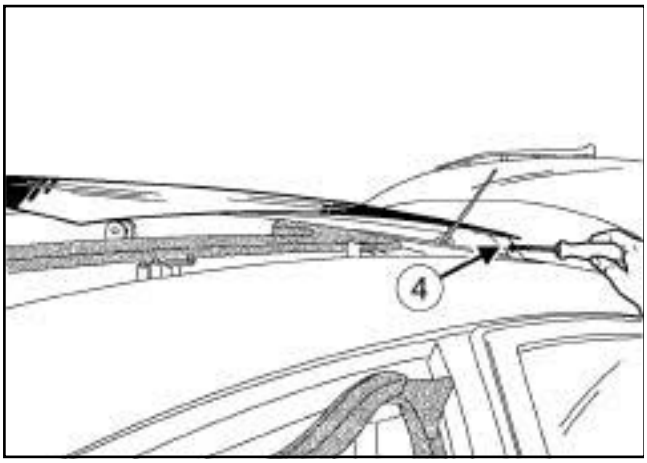


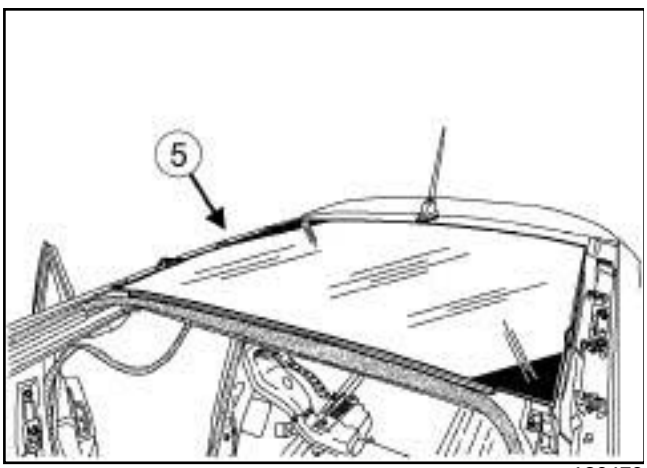
130469

❏ Remove:

- the bolt (**4**) from the rear of the mobile panel,
- the mobile panel (this operation requires two people).

❏ Protect:

- the roof panel around the fixed glass roof using masking tape,
- the inside of the vehicle.



130470

❏ Begin cutting the cement bead.

❏ Remove the fixed glass roof (**5**) (this operation requires two people).

## REFITTING

### I - REMOVAL PREPARATION OPERATION

❏ For the preparation and bonding (see **Window bonding: Description**) (Technical Note 560A, 54A, Windows).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the fixed glass roof (this operation requires two people).

❏

Note:

When removing and refitting the mobile panel, coat the bolts with a small amount of Frenbloc.

When replacing the mobile panel, replace the bolts with the bolts supplied with the mobile panel.

❏ Refit the mobile panel (this operation requires two people).

❏ Torque tighten:

- the **mobile panel front bolts (5.6 N.m)**,
- the **mobile panel front bolts (5.6 N.m)**.

❏ Refit:

- the trim ***(2)*** ,
- the trim ***(1)*** .

### III - FINAL OPERATION

❏ Refit:

- the roof bar (see **56A**, **Exterior equipment**, **Roof rack bar: Removal - Refitting**, page **56A-8**) ((56A, Exterior equipment),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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| Tightening torques ▽ | |
|---|---|
| bolts of the fixed glass roof sunblind | **3 N.m** |

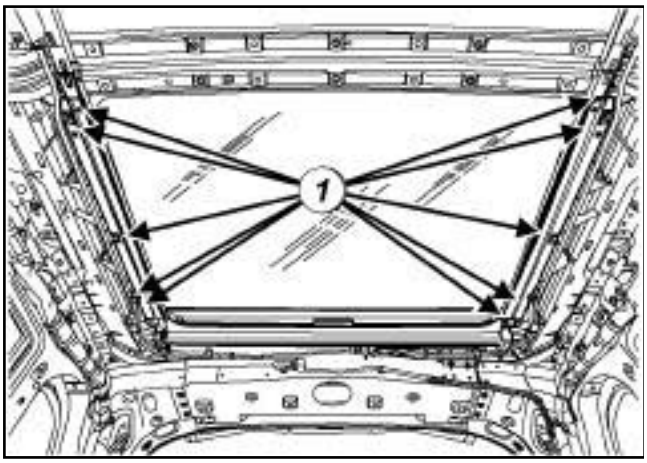
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87D, Electric windows - Sunroof).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130471

❏ Remove:

- the bolts (**1**) of the fixed glass roof sunblind,
- the fixed glass roof sunblind.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏

Note:

When removing and refitting the mobile panel, coat the bolts with a small amount of frenbloc.

When replacing the mobile panel, replace the bolts with the bolts supplied with the mobile panel.

Refit:

- the bolts of the fixed glass roof sunblind,
- the fixed glass roof sunblind.

❏ Torque tighten the **bolts of the fixed glass roof sunblind (3 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the sunroof opening motor (see **Sunroof opening motor Removal - Refitting**) (87D, Electric windows - Sunroof),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).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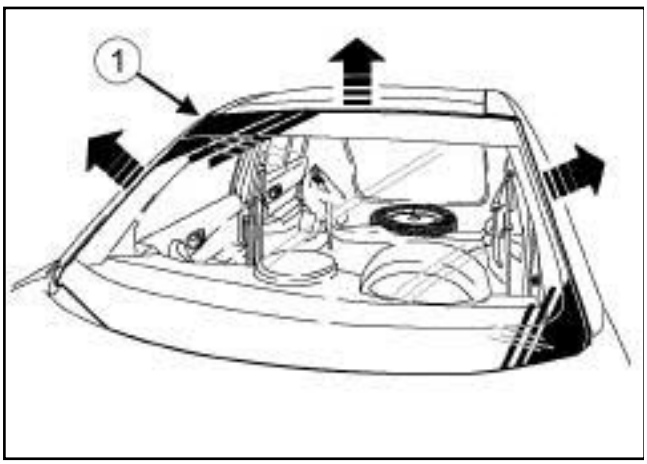
| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1847** | Universal protector |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the windscreen pillar trim (see **A-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the interior rear-view mirror (see **57A**, **Interior equipment**, **Interior rear-view mirror Removal - Refitting**, page **57A-18**) (57A, Interior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

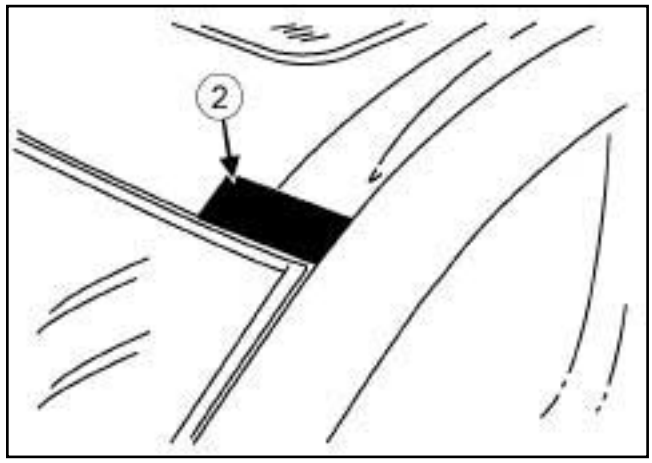



130472

❏ Remove the windscreen trim (**1**) .

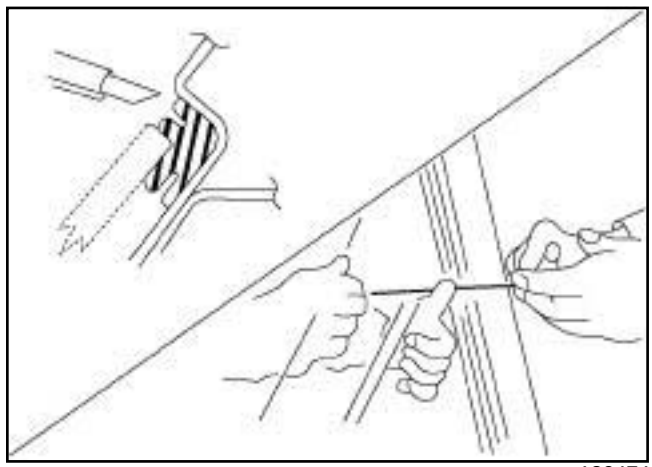
Fit the universal protector **(Car. 1847)**.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130473

❏ Protect the windscreen perimeter using masking tape (**2**) .



130474

❏ Begin cutting the cement bead.

## REFITTING

### I - REFITTING PREPARATIONS OPERATION

❏ Position the two side positioning shims.

❏ Refit the rubber stop.

❏ For the preparation and the bonding (see **Window bonding: Description**) (Technical Note 560A, 54A, Windows).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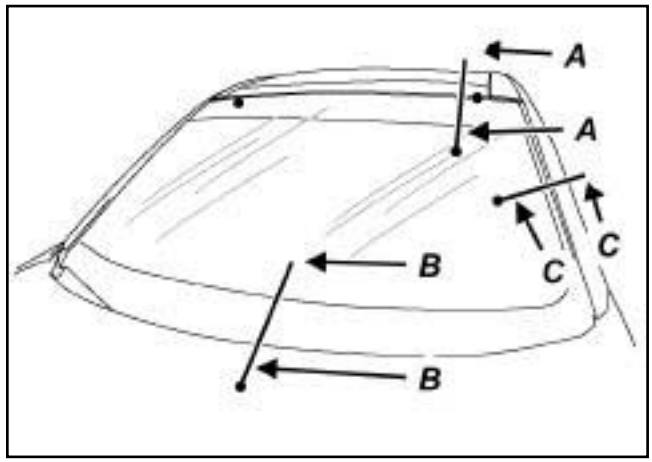
**II - REFITTING OPERATION FOR PART CONCERNED**

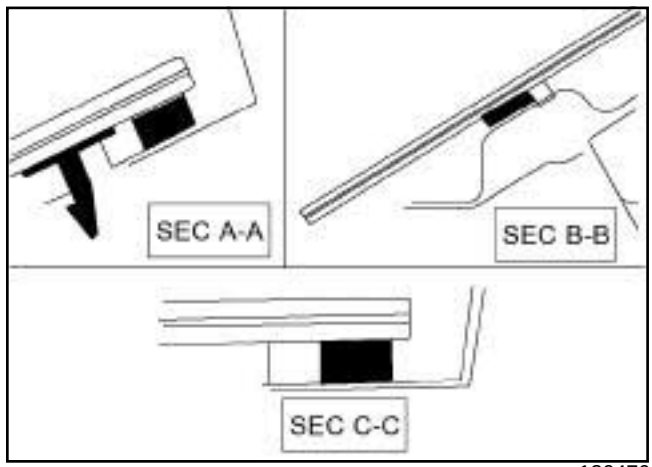
❑

Note:

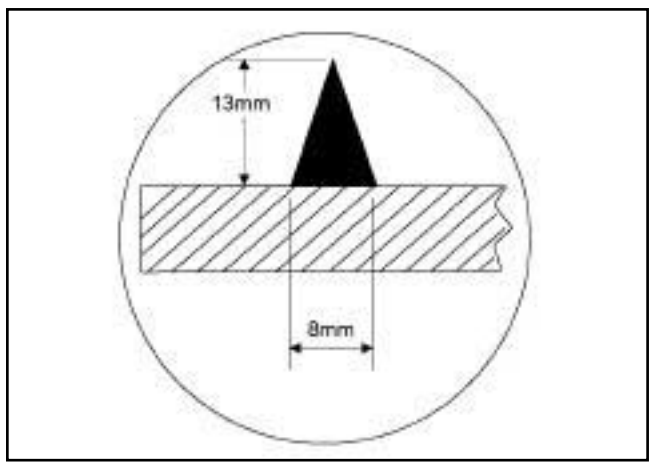
Always use high modulus adhesive to bond the rear window.




130475




130476




130477

❑ Refit the windscreen (this operation requires two people).

❑ Respect the following clearances and shut lines:

- windscreen - roof,

- windscreen - A-pillar.



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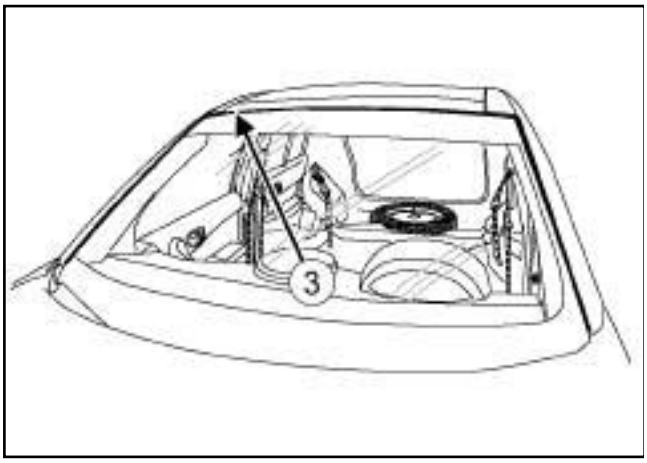
**III - FINAL OPERATION.**




130478

❏ Clip the trim piece in place (**3**) .

❏ Refit:

- the scuttle panel grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the interior rear-view mirror (see **57A**, **Interior equipment**, **Interior rear-view mirror Removal - Refitting**, page **57A-18**) (57A, Interior equipment),
- the windscreen pillar trim (see **A-pillar trim: Removal - Refitting**) (71A, Body internal trim).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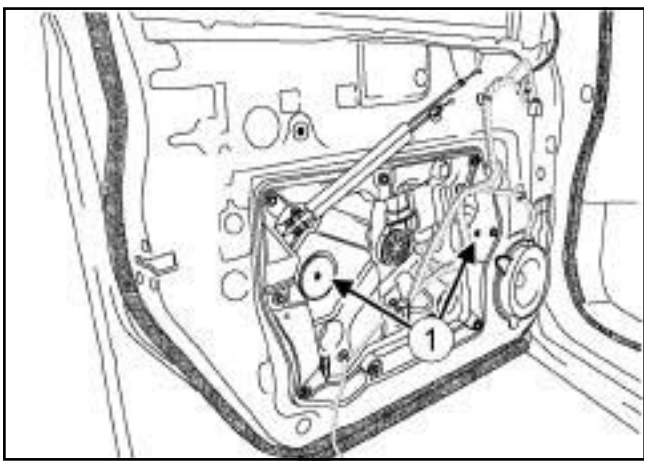
| Tightening torques ▽ | |
|---|---|
| bolts of the front side door sliding window | **6 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

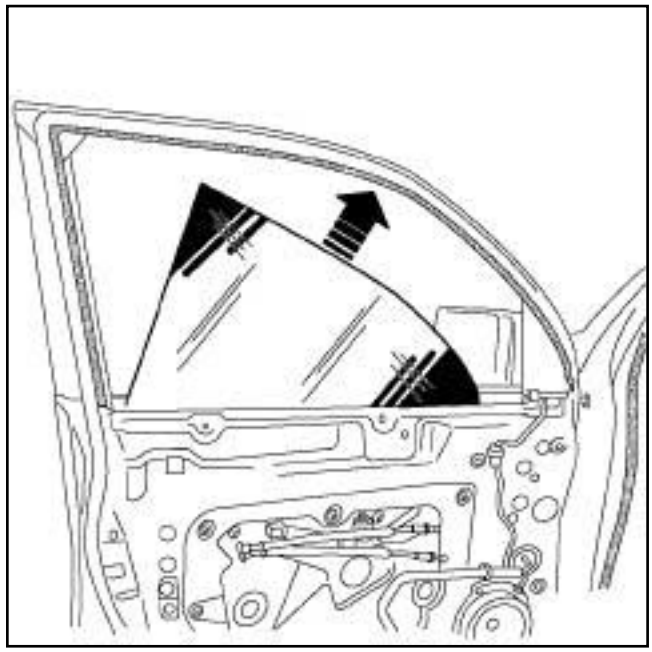



130229

❏ Remove the front side door seal cover.

❏ Lower the window to access the sliding window bolts (**1**) .

❏ Remove the bolts (**1**) .



130230

❏ Remove the front side door sliding window.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the sliding window.

❏ Torque tighten the **bolts of the front side door sliding window (6 N.m)** ***(1)*** .

❏ Refit the front side door seal cover.

### II - FINAL OPERATION

❏ Check for correct operation.

❏ Refit the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim)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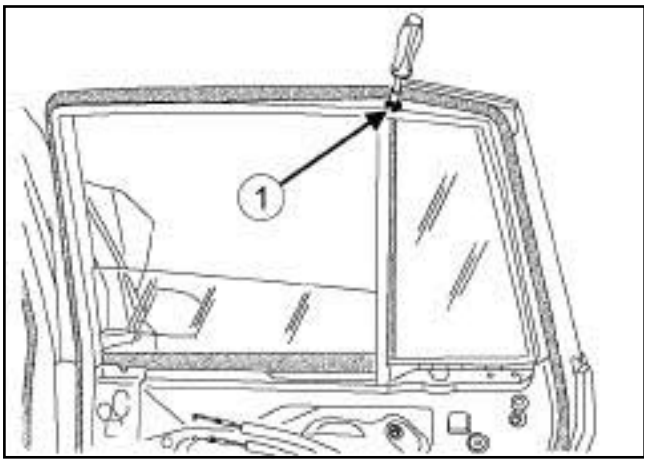
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

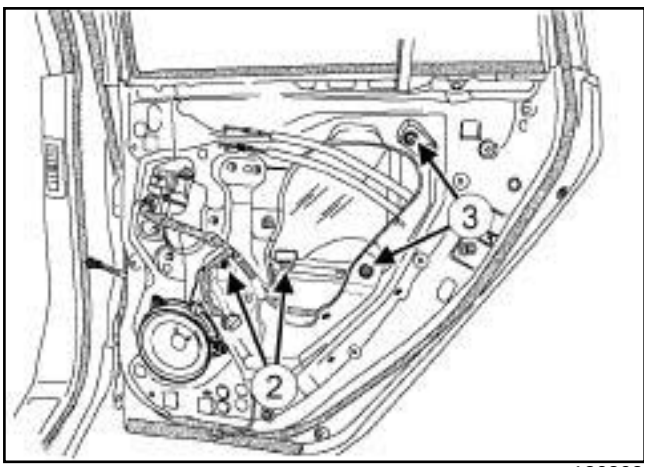
❏ Place the sliding window of the rear side door at the bottom of the box to remove the window bolts.




130801

❏ Remove:

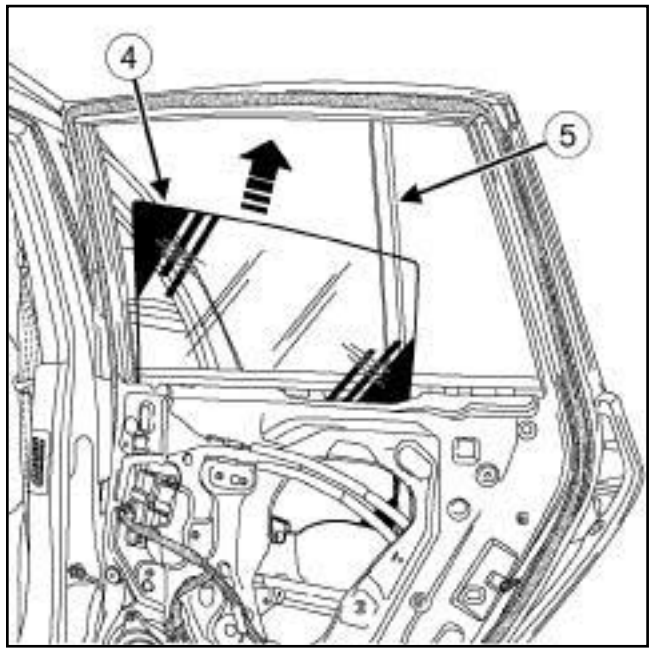
- the door channel partially,
- the fixed upright upper bolt (**1**) .




130802

❏ Remove:

- the window bolts (**2**) ,
- the fixed upright bolts (**3**) ,
- the fixed upright partially.

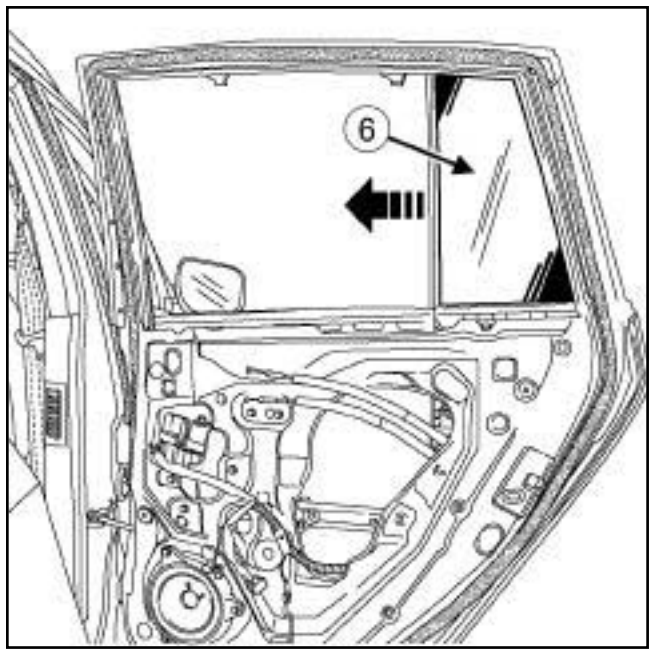



130803

❏ Remove:

- the sliding window (**4**) ,
- the fixed upright (**5**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130804

❏ Remove the rear side door fixed window (**6**) .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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the rear side door fixed window.

### II - FINAL OPERATION.

❑ Refit:

- the fixed upright,
- the sliding window into the door box section,
- the fixed window bolts,
- the fixed upright bolts,
- the fixed upright upper bolt,
- the door channel,
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).


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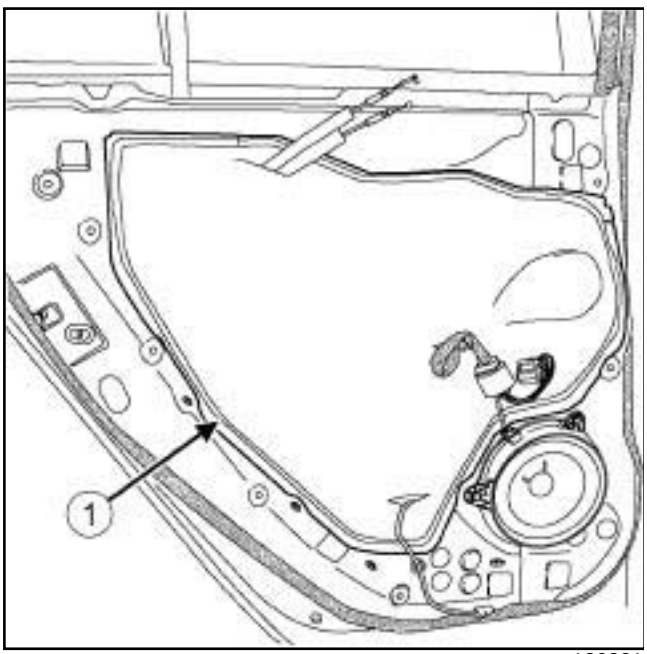
| Tightening torques ▽ | |
|---|---|
| bolts of the rear side door sliding window | 6 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

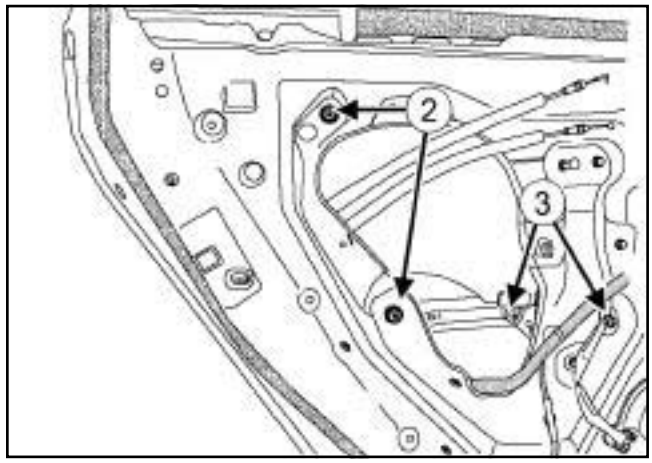
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130231

❏ Disconnect the connector of the rear side door speaker.

❏ Remove the door sealing film (**1**) .

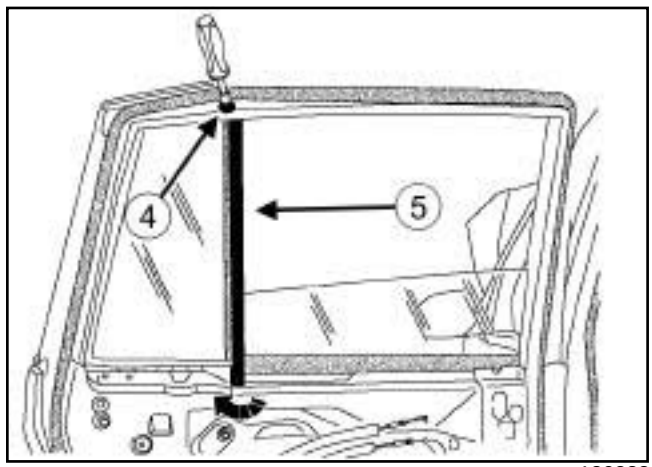


130232

❏ Lower the window to access the sliding window bolts (**3**) .

❏ Remove:

- the bolts (**2**) ,
- the bolts (**3**) .



130233

❏ Remove:

- the bolt (**4**) ,
- the run channel (**5**) ,
- the rear door window seal partially,
- the rear side door sliding window.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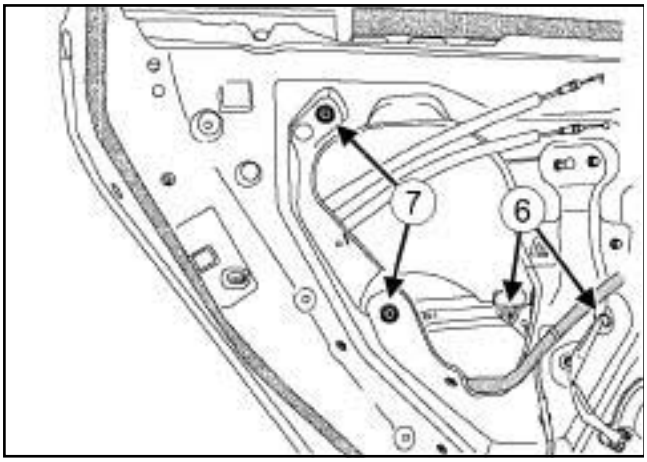
## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED



130234

❏ Refit:

- the rear side door window seal,
- the rear side sliding window.
- the run channel ***(5)*** ,
- the bolt ***(4)*** ,

❏ Torque tighten the **bolts of the rear side door sliding window (6 N.m)** (**6**) .

❏ Refit:

- the bolts (**7**) ,
- the door sealing film ***(1)*** .

❏ Connect the connector of the rear side door speaker.

### II - FINAL OPERATION.

❏ Check the correct operation of the rear side door sliding window.

❏ Refit the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).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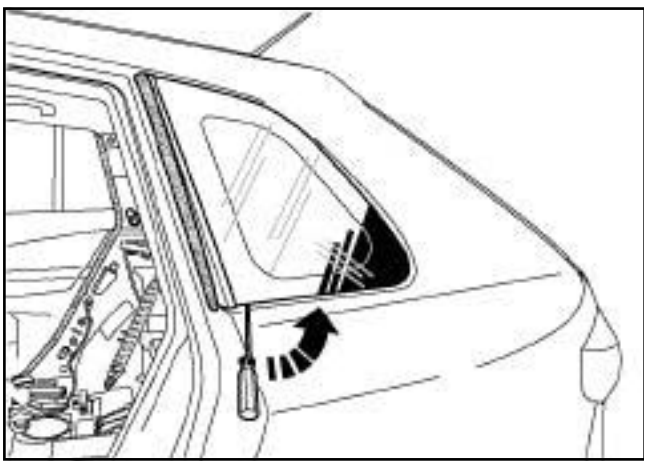
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130235

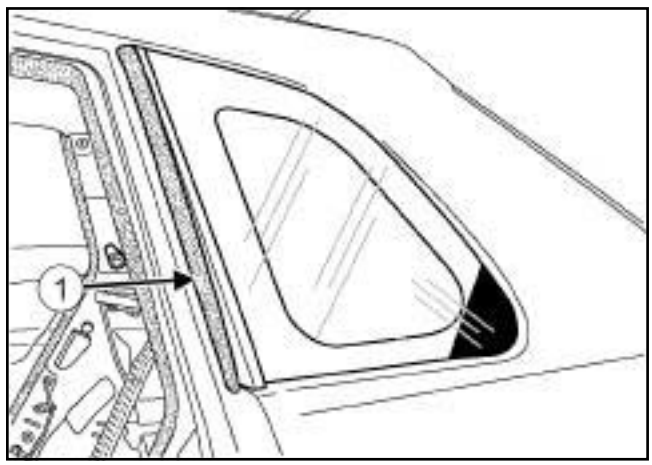
❏ Protect the edge of the rear quarter panel window using masking tape.

❏ Pierce the cement bead using a cutting wire in the rear section.

❏ Begin cutting the cement bead.

## REFITTING

### I - OPERATION FOR PREPARATION OF PART CONCERNED

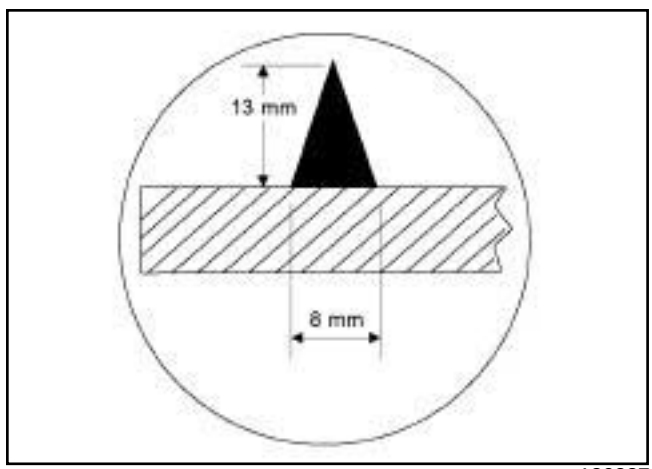



130236

❏ Replace the seal (**1**) if necessary.

❏ For the preparation and the bonding (see **Window bonding: Description**) (Technical Note 560A, Windows).

### II - REFITTING OPERATION FOR PART CONCERNED




130237

❏ Use the correct size of cement bead.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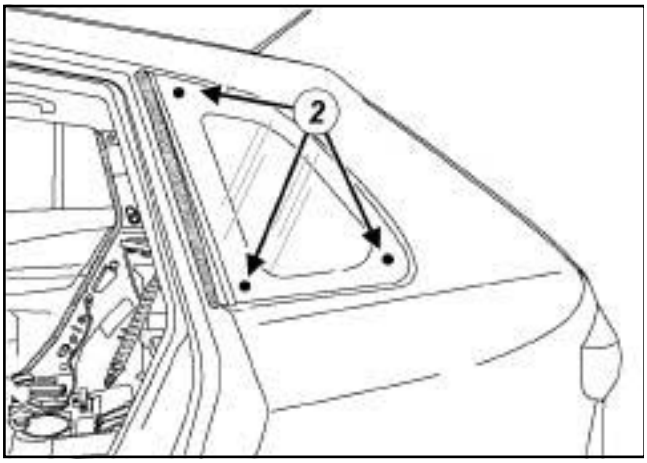

130238

❏ Bond the rear quarter panel window.

❏ Refit the rear quarter panel window with the clips (**2**) .

❏ Balance the adjustments and shut the lines.

❏

Note:

Once the cement has dried, cut the tabs at the stops.

**III - FINAL OPERATION**

❏ Refit:

- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim).


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

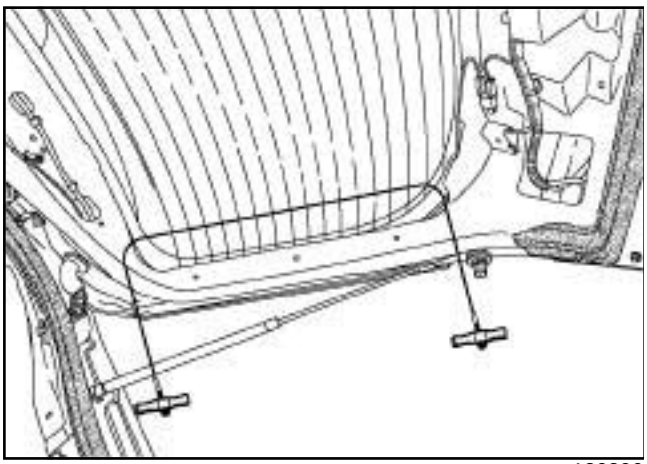
❏ Remove:

- the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim),
- the rear screen wiper arm (see **Rear screen wiper arm: Removal - Refitting**) (85A, Washing - Wiping),
- the tailgate locking switch (see **Tailgate locking switch: Removal - Refitting**) (87C, Opening element management).

❏ Disconnect the heated rear screen wiring connector and the aerial connector as well as the earths located against the rear screen.

❏ Protect the edges of the rear screen using masking tape.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130296

❏ Begin cutting the cement bead.

## REFITTING

### I - REFITTING PREPARATIONS OPERATION

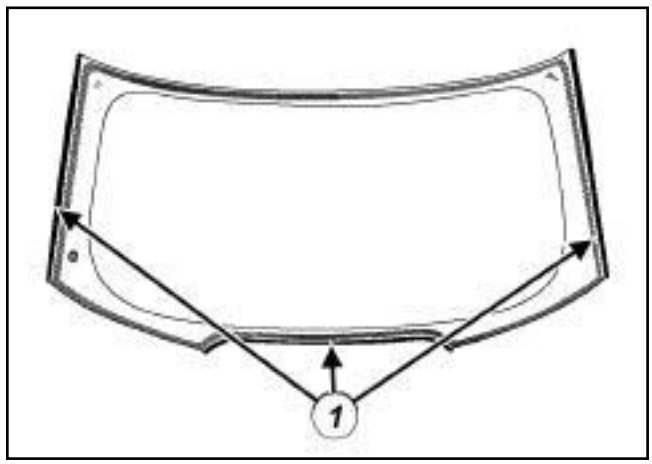
❏ For the preparation and the bonding (see **Window bonding: Description**) (Technical Note 560A, 54A, Windows).

### II - REFITTING OPERATION FOR PART CONCERNED

❏

Note:

Use high modulus adhesive for bonding the rear screen.




130297

❏ Refit the rear screen mouldings (**1**) .

❏ Use the correct size of cement bead.

❏ Bond the rear screen (this operation requires two people).

❏ Respect the following clearances and shut lines:

- rear screen - roof,
- rear screen - rear wings.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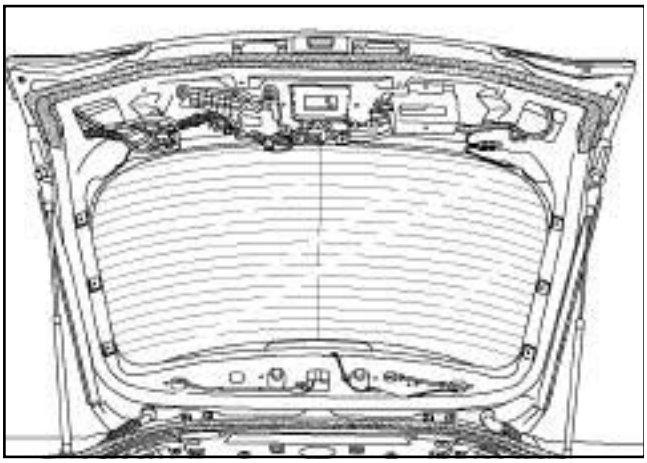
**III - FINAL OPERATION.**



130298

❏ Connect the heated rear screen wiring connector and the aerial connector as well as the earths located against the rear screen.

❏ Refit:

- the tailgate locking switch (see **Tailgate locking switch: Removal - Refitting**) (87C, Opening element management),
- the rear screen wiper arm (see **Rear screen wiper arm: Removal - Refitting**) (85A, Washing - Wiping),
- the tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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## REMOVAL

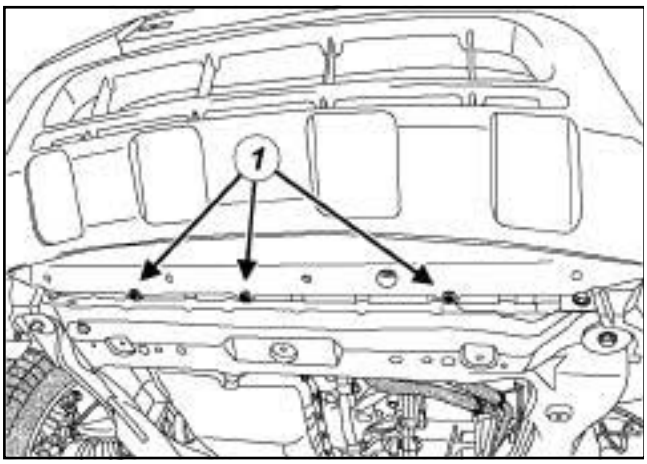
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

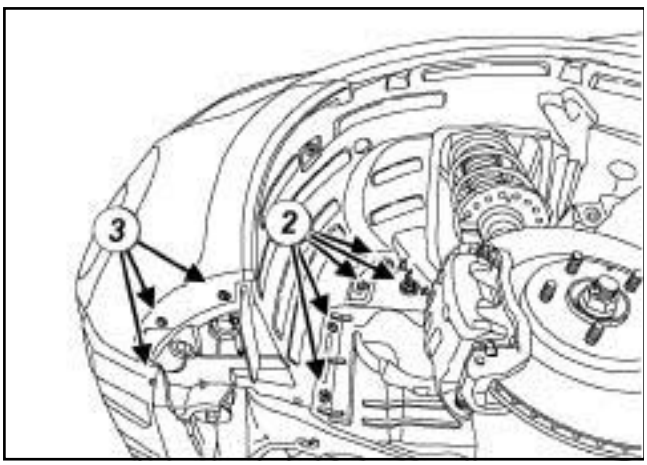
- the engine undertray,
- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131896

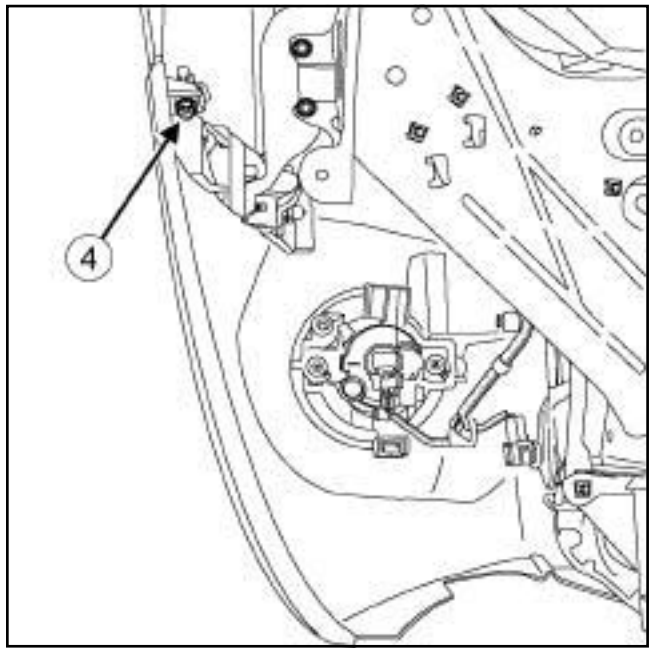
❏ Remove the clips (**1**) .




131897

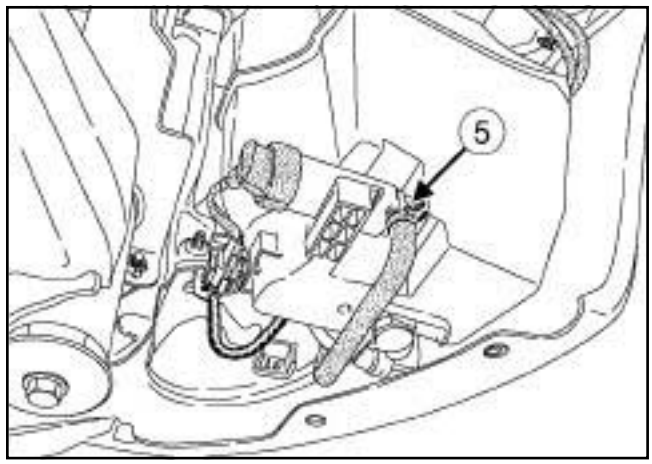
❏ Remove:

- the clips (**2**) ,
- the bolts (**3**) ,
- the front section of the front wheel arch liner.




131898

❏ Remove the bolt (**4**) .




131899

❏ Disconnect the headlight washer jets supply pipe (**5**) (depending on the equipment level).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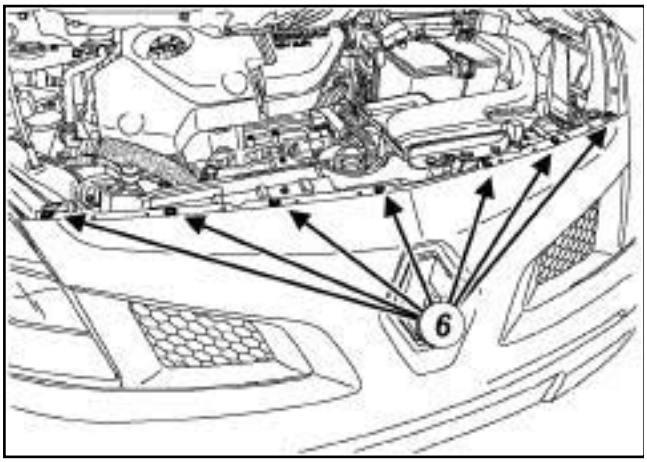
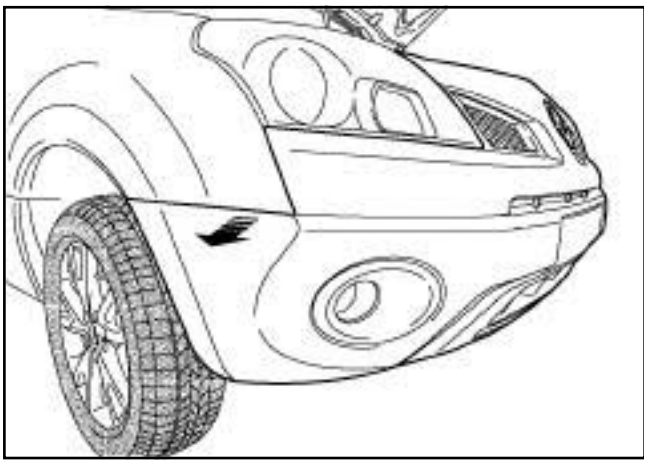



131900

❏ Remove the clips (**6**) .



131901

❏ Remove the front bumper unit (this operation requires two people).

❏ Disconnect the various connectors (according to the equipment level).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect:

- the various connectors (depending on the equipment level),
- the headlight washer jets supply pipe (**5**) (depending on the equipment level).

❏ Refit:

- the front bumper (this operation requires two people),
- the clips ***(6)*** ,
- the bolt ***(4)*** ,
- the bolts ***(3)*** ,
- the clips ***(2)*** ,
- the clips ***(1)*** .

### II - FINAL OPERATION.

❏ Refit:

- the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.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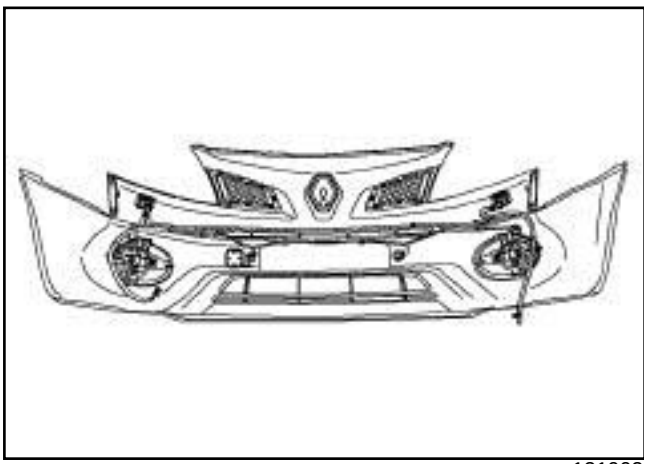
## STRIPPING

### I - STRIPPING PREPARATION OPERATION

❑ Remove the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .

### II - STRIPPING OPERATION FOR PART CONCERNED

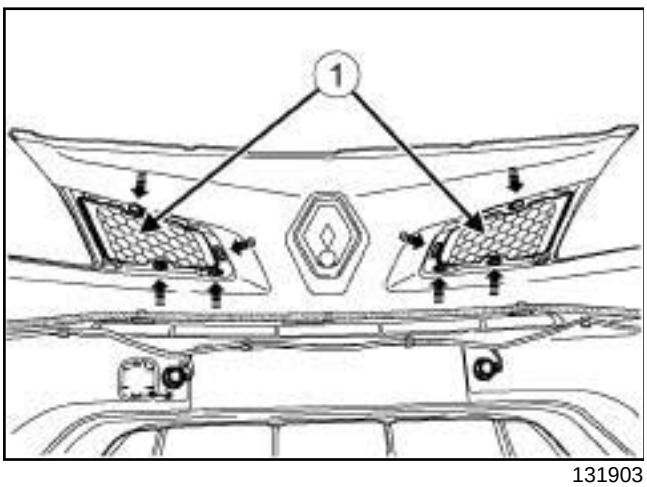


131902

❑

Note:

Mark the direction in which the proximity radar connector is fitted before removal.




131903

❑ Remove:

- the front bumper grilles (**1**) ,
- the proximity radars (depending on the equipment level) (see **Proximity radar Removal - Refitting**) (87F, Parking distance control),
- the front bumper wiring,
- the headlight washer jet (depending on the equipment level) (see **Headlight washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the headlight washer pipe,
- the front fog light (see **Front fog light: Removal - Refitting**) (80B, Headlights).

## REASSEMBLING

### I - REBUILDING OPERATION FOR PART CONCERNED

❑

**WARNING**

The distance control radars are fragile. Handle with care as the external part cannot withstand impacts.

When drying the bumper and/or proximity radars, the temperature must not exceed **60°C**.

❑ Refit:

- the front fog light (see **Front fog light: Removal - Refitting**) (80B, Headlights),
- the headlight washer pipe,
- the headlight washer jet (depending on the equipment level) (see **Headlight washer jet: Removal - Refitting**) (85A, Wiping - Washing),
- the front bumper wiring,
- the proximity radars (depending on the equipment level) (see **Proximity radar Removal - Refitting**) (87F, Parking distance control),
- the front bumper grilles (**1**) .

### II - FINAL OPERATION.

❑ Refit the front bumper (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .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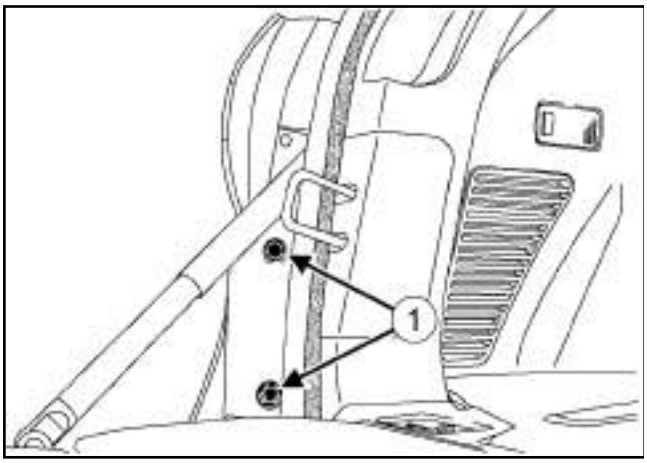
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

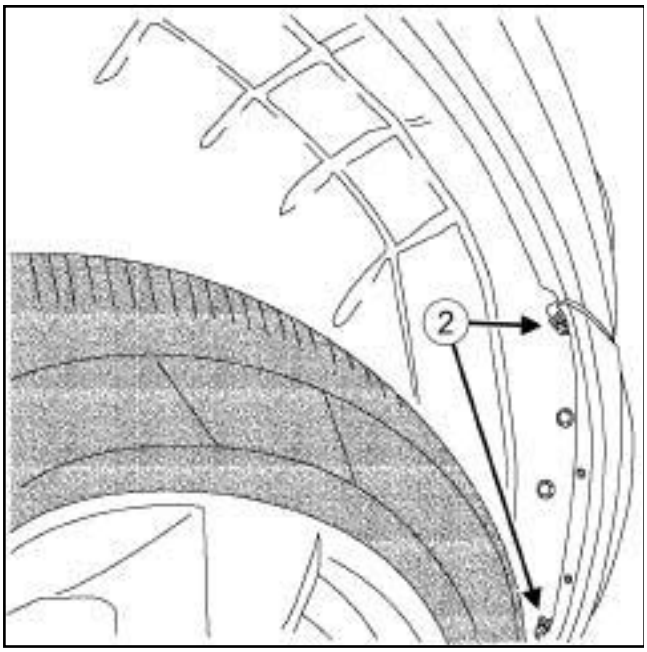
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



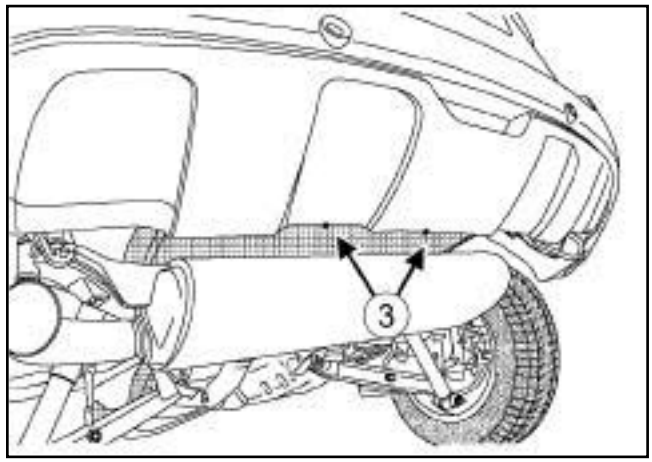

131904

❏ Remove the clips (**1**)



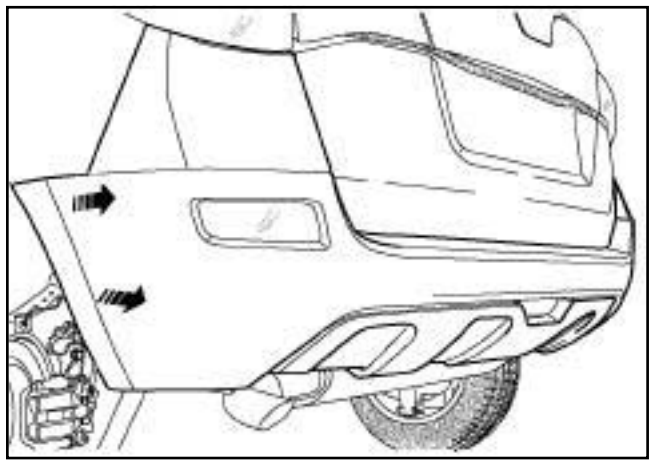

131905

❏ Remove the bolts (**2**) .




131906

❏ Remove the clips (**3**) .



131907

❏ Remove the rear bumper partially.

❏ Disconnect the various connectors (according to the equipment level).

❏ Remove the rear bumper (this operation requires two people).

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Connect the various connectors (depending on equipment level).

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Position the rear bumper (this operation requires two people).

❏ Refit:

- the clips ***(3)*** ,
- the bolts ***(2)*** ,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- the clips ***(1)*** .

**III - FINAL OPERATION.**

❑ Carry out a function test on the proximity radar.


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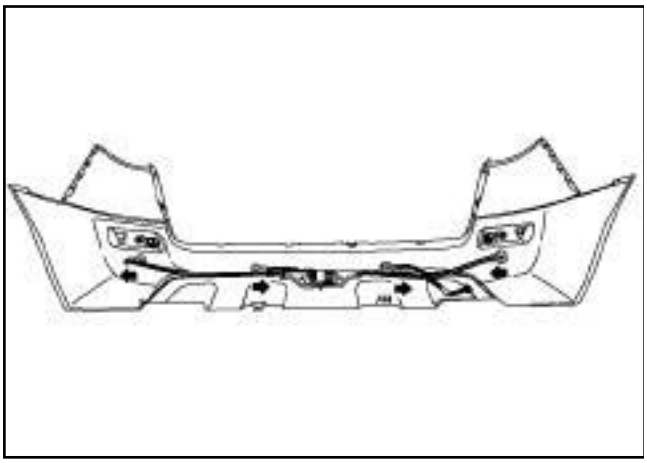
## STRIPPING

### I - STRIPPING PREPARATION OPERATION

❑ Remove the rear bumper (this operation requires two people) (see **55A**, **Exterior protection**, **Rear bumper: Removal - Refitting**, page **55A-4**) .

### II - STRIPPING OPERATION FOR PART CONCERNED



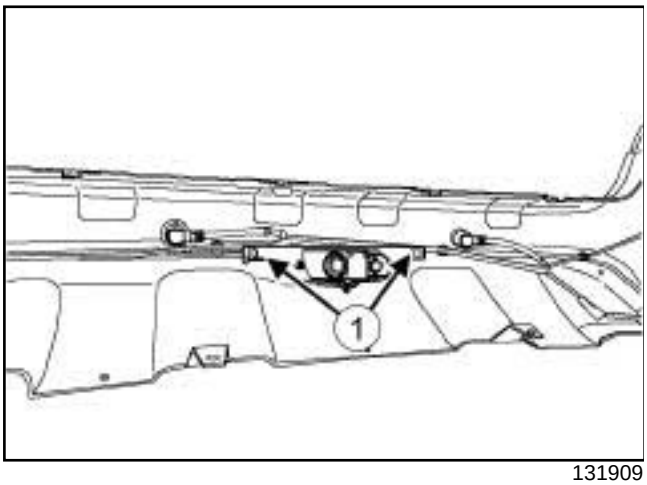
131908

❑

> Note:
>
> Mark the direction in which the proximity radar connector is fitted before removal.

❑ Remove:

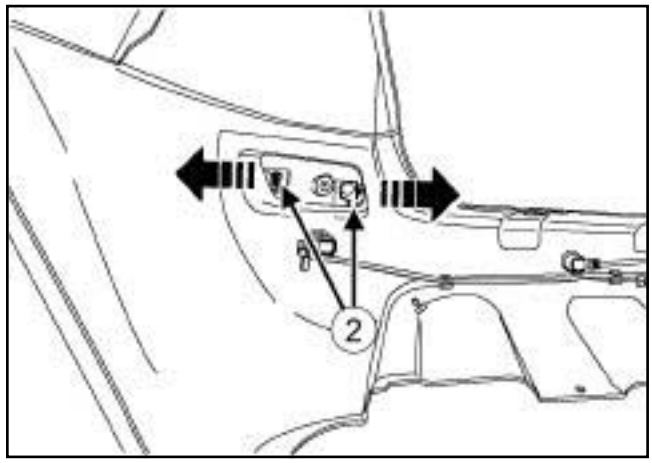
- the proximity radars (depending on the equipment level) (see **Proximity radar Removal - Refitting**) (87F, Parking distance control),
- the rear bumper wiring.




131909

❑ Remove:

- the bolts (**1**) ,
- the rear fog light (depending on the equipment level).




131910

❑ Unclip the reflector mounting at (**2**) .

❑ Remove the reflector.

## REASSEMBLING

### I - REBUILDING OPERATION FOR PART CONCERNED

❑

> **WARNING**
>
> The distance control radars are fragile. Handle with care as the external part cannot withstand impacts.
>
> When drying the bumper and/or proximity radars, the temperature must not exceed **60°C**.

❑ Refit:

- the reflector,
- the rear fog light (depending on the equipment level),
- the bolts.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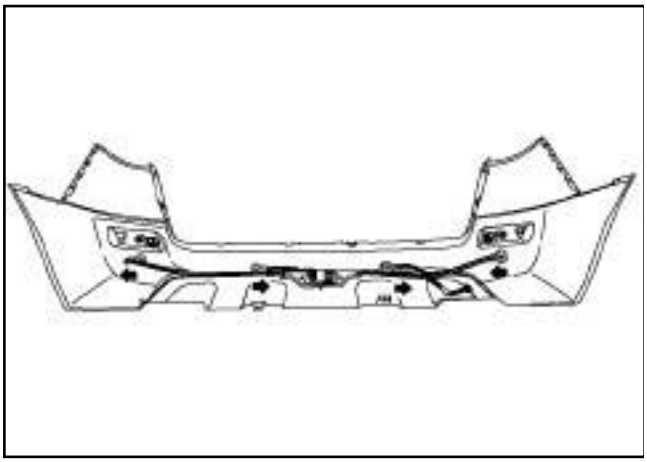

131908

❑ Refit:

- the rear bumper wiring,
- the proximity radars (depending on the equipment level) (see **Proximity radar Removal - Refitting**) (87F, Parking distance control).

**II - FINAL OPERATION.**

❑ Refit the rear bumper (this operation requires two people) (see **55A**, **Exterior protection**, **Rear bumper: Removal - Refitting**, page **55A-4**) .


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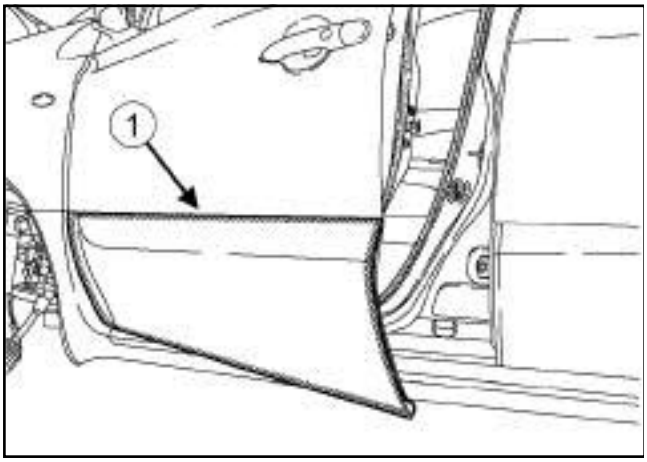
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

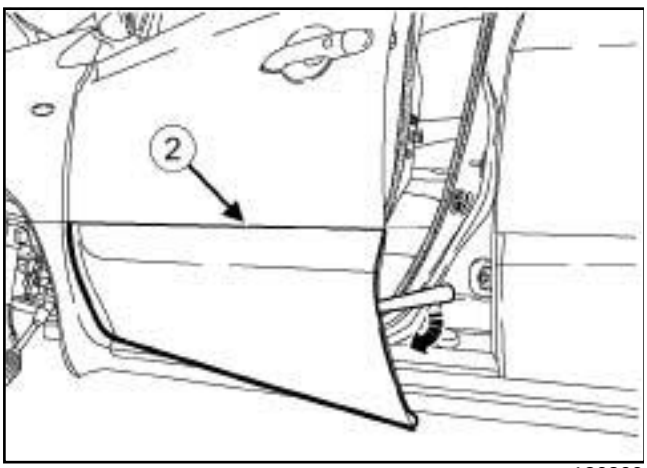
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130299

❑ Heat the edges (**1**) of the front door moulding using a heating gun.




130300

❑

Note:

Make sure that the body is not damaged.

❑ Protect the door rabbet using masking tape.

❑ Unclip the rear section of the moulding (**2**) by pulling on the lever arm using the **(Car. 1597)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

Note:

Always clean the body and the moulding before starting the refitting procedure.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the front side door moulding.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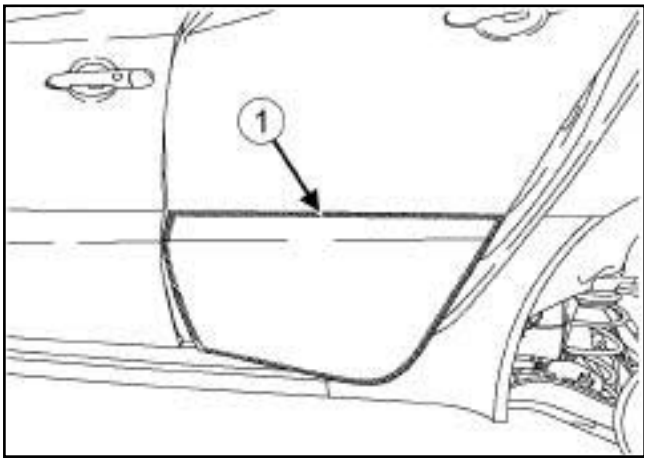
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

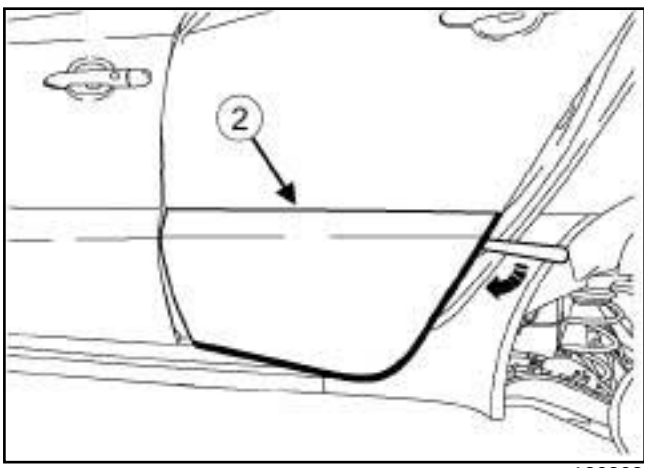
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130301

❑ Heat the edges (**1**) of the rear door moulding using a heating gun.




130302

❑

> Note:
>
> Make sure that the body is not damaged.

❑ Protect the door rabbet using masking tape.

❑ Unclip the rear section of the moulding (**2**) by pulling the lever arm using the tool **(Car. 1597)**.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

> Note:
>
> Always clean the body and the moulding before starting the refitting procedure.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the rear side door moulding at.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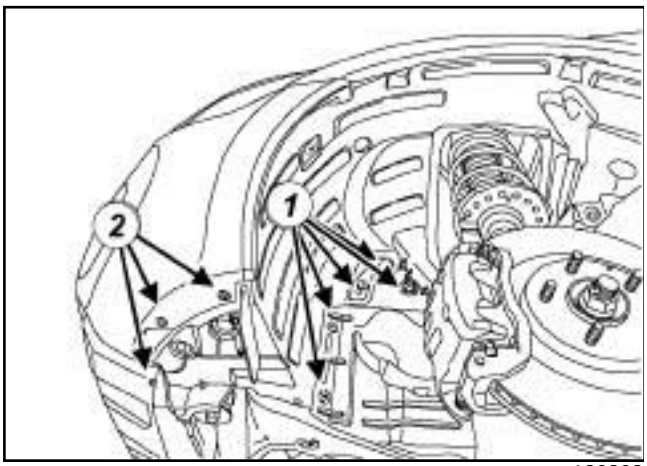
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

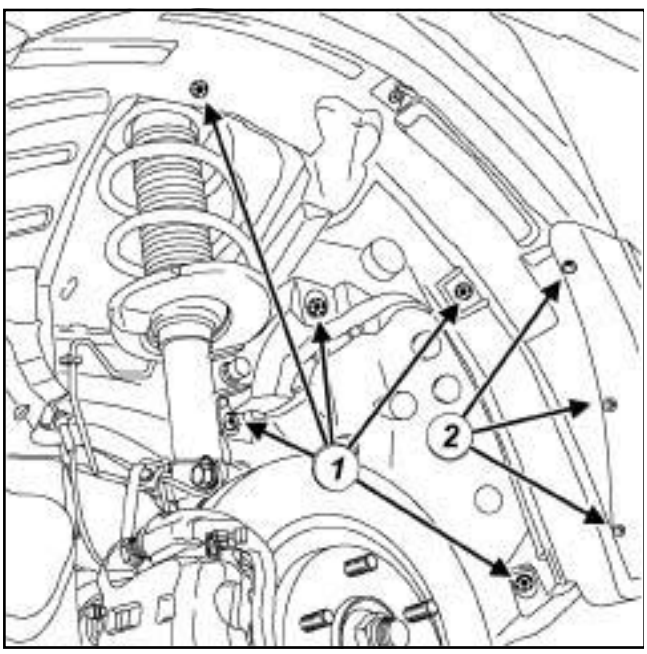
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment),

❏ Remove the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130303



130304

❏ Remove:

- the clips (**1**) ,
- the front splash guard,
- the bolts (**2**) ,
- the wheel arch liner starting with the front section.

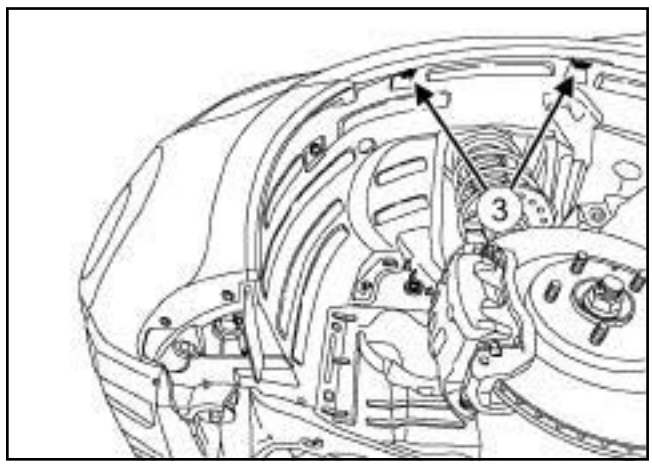
## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the clips and replace if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the front wheel arch liner starting with the rear section.



130305

❏ Check the condition of the clips (**3**) and replace them if necessary.

❏ Refit:

- the front splash guard,
- the clips ***(1)*** ,
- the bolts ***(2)*** ,

### III - FINAL OPERATION

❏ Refit the front wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres)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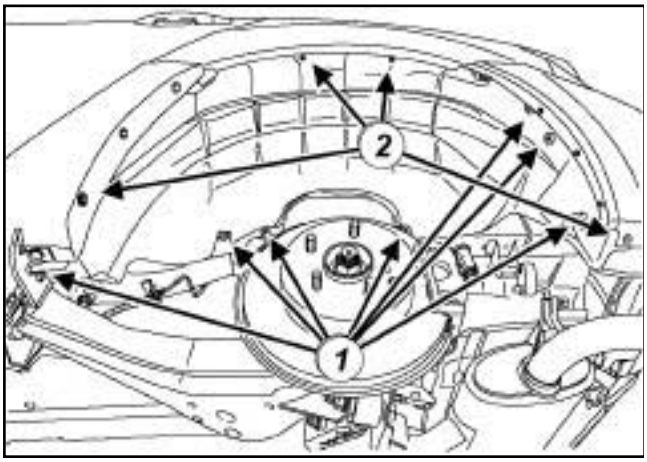
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment),

❏ Remove the rear wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130306

❏ Remove:

- the clips (**1**) ,
- the bolts (**2**) ,
- the rear wheel arch liner.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the clips and replace them if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear wheel arch liner,
- the clips ***(1)*** ,
- the bolts ***(2)*** .

### III - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear wheels (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).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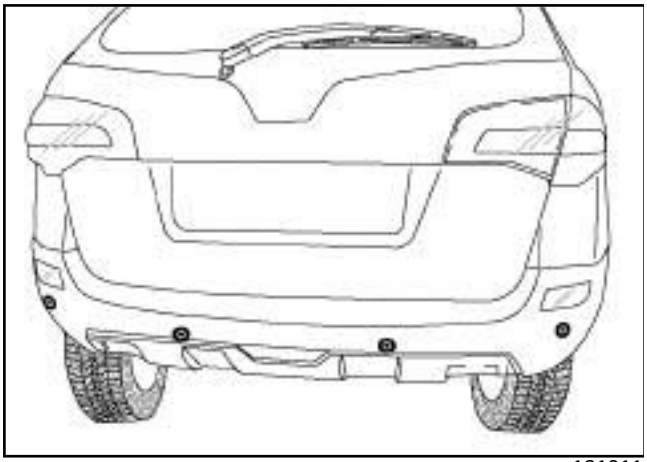
FR AND RR PROX RADAR



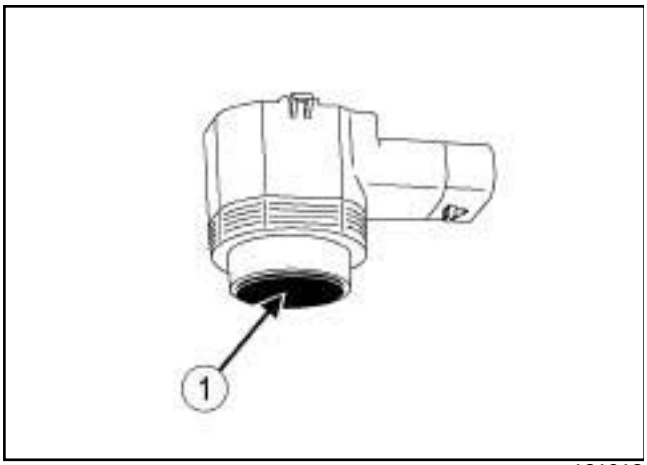
131911

❑

**WARNING**

The distance control radars are fragile. Handle with care as the external part cannot withstand impacts.

When drying the bumper and/or proximity radars, the temperature must not exceed **60˚C**.




131912

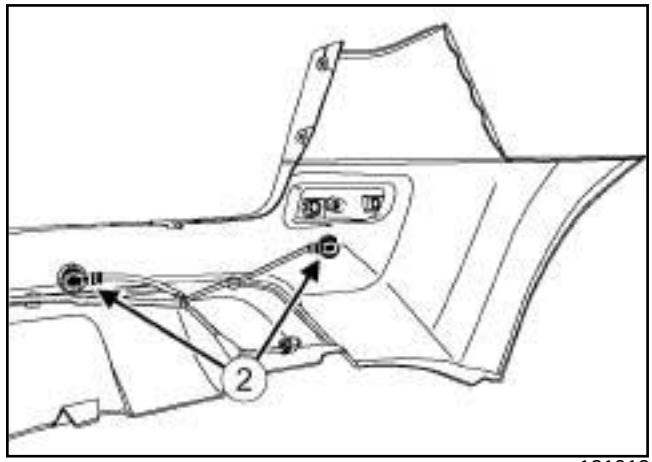
❑ The radar detects by means of a highly sensitive membrane (**1**) .

The sensitivity of the membrane may be affected by an unsuitable coating.

The radar will then detect false information or nothing at all.

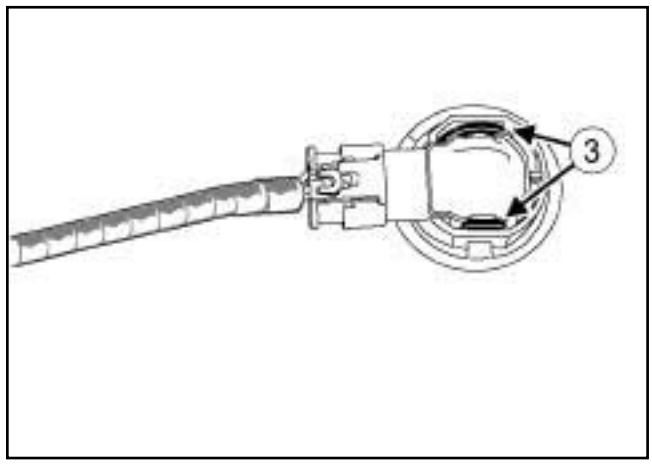
**I - REMOVAL**

❑ Remove the rear or front bumper (see **55A**, **Exterior protection**, **Rear bumper: Removal - Refitting**, page **55A-4**) or (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .




131913

❑ Disconnect the connectors (**2**) .




131914

❑ Remove the proximity radar by pressing on the clips (**3**) .



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FR AND RR PROX RADAR

**II - PAINTING**

❑ Only proximity radars sold and prepared in the Parts department can be painted.

Paint the proximity radars and the bumper separately.

Put masking tape on the part of the proximity radar which must not be painted.

Apply the product range for painting on polypropene:

- degreasing (surface cleaning),

- rub down with a grey rubber pad,

- cleaning and degreasing with the surface-blowing cleaner,

- applying finishing product.

If the bumper needs touching up, cover or remove the proximity radars.

The proximity radars must not be painted several times.

**III - REFITTING**

❑ Refit:

- the proximity radar (see **Proximity radar Removal - Refitting**) (87F, Parking distance control),

- the rear or front bumper (see **55A**, **Exterior protection**, **Rear bumper: Removal - Refitting**, page **55A-4**) or (see **55A**, **Exterior protection**, **Front bumper: Removal - Refitting**, page **55A-1**) .

**IV - MALFUNCTIONING**

❑ Faults leading to proximity radar malfunctioning:

- excessive run or paint thickness on the membrane,

- run in the peripheral section of the membrane's neck,

- membrane damage,

- deformed bumper changing the orientation of the proximity radars.



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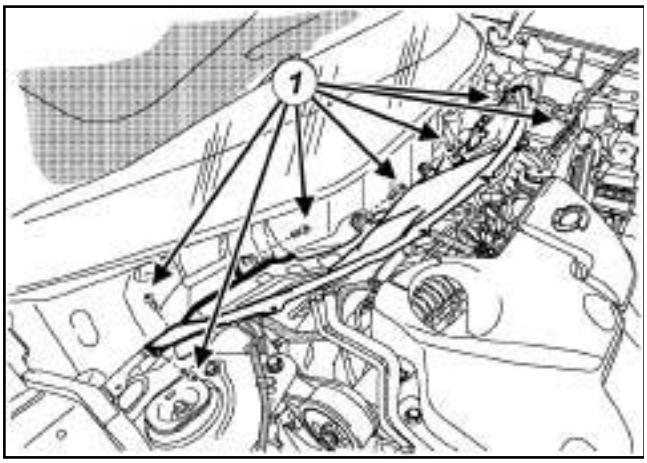
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **56A**, **Exterior equipment**, **Scuttle half-grille: Removal - Refitting**, page **56A-5**) ,
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130307

❑ Remove:

- the bolts (**1**) ,
- the windscreen wiper motor wiring,
- the scoop under the scuttle panel grille.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the scoop under the scuttle panel grille.
- the windscreen wiper motor wiring,
- the bolts.

### II - FINAL OPERATION.

❑ Refit:

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **56A**, **Exterior equipment**, **Scuttle half-grille: Removal - Refitting**, page **56A-5**) ,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).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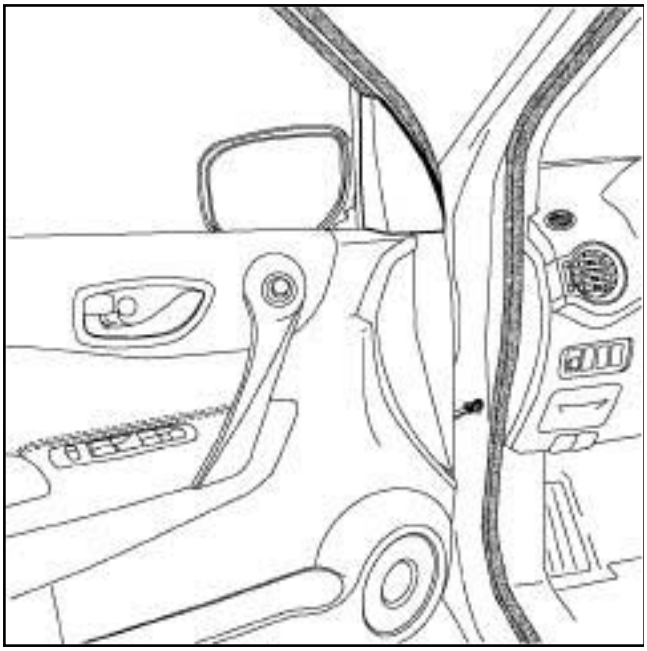
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

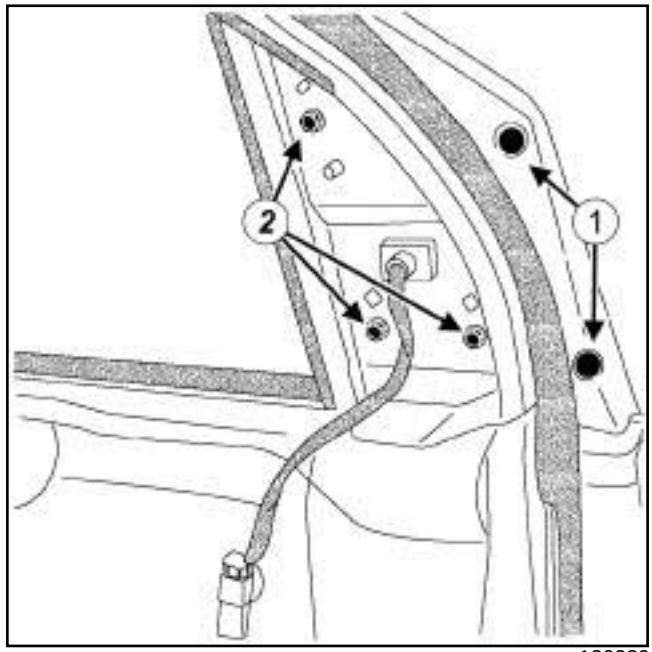


130240

❑ Remove:

- the cover from the corner of the door mirror,
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130239

❑ Remove:

- the clips (**1**) ,
- the bolts (**2**) .

❑ Disconnect the supply connectors (depending on equipment level).

❑ Remove the door mirror.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the door mirror,
- the bolts,
- the clips.

❑ Connect the supply connector (depending on equipment level).

### II - FINAL OPERATION.

❑ Check that it is working correctly.

❑ Refit:

- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the cover on the corner of the door mirror.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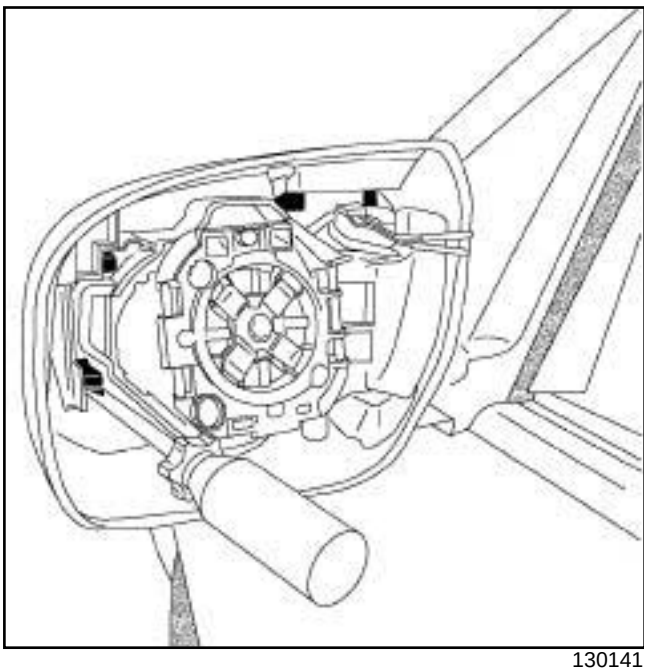
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the door mirror glass (see **56A**, **Exterior equipment**, **Door mirror glass: Removal - Refitting**, page **56A-4**) .

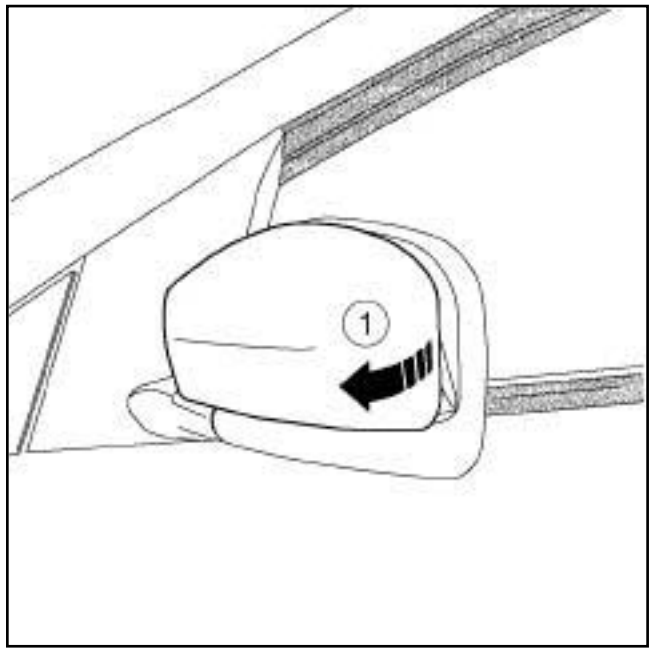
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130141

❏ Unclip the retaining clips using a flat-blade screwdriver.

❏ Fold in the door mirror.




130142

❏ Remove the door mirror cover (**1**) .

❏ Check the condition of the clips and replace the door mirror cover, if necessary.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the door mirror cover.

### II - FINAL OPERATION

❏ Refit the door mirror glass (see **56A**, **Exterior equipment**, **Door mirror glass: Removal - Refitting**, page **56A-4**) .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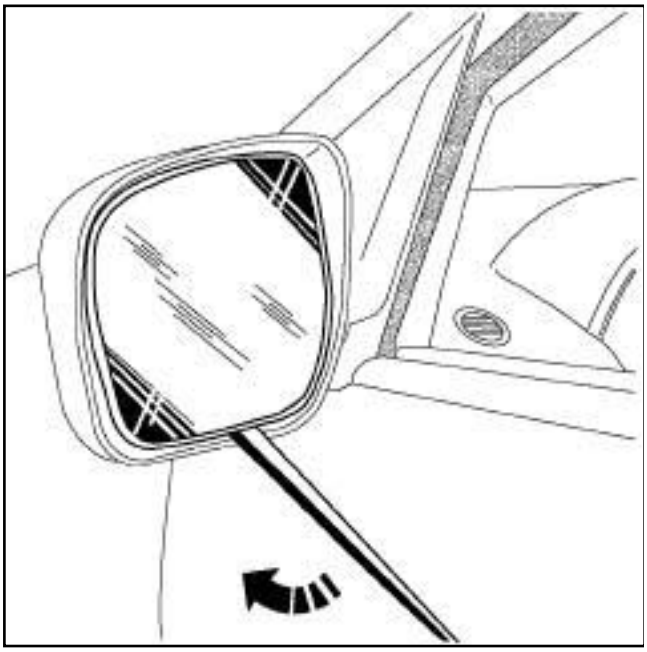
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

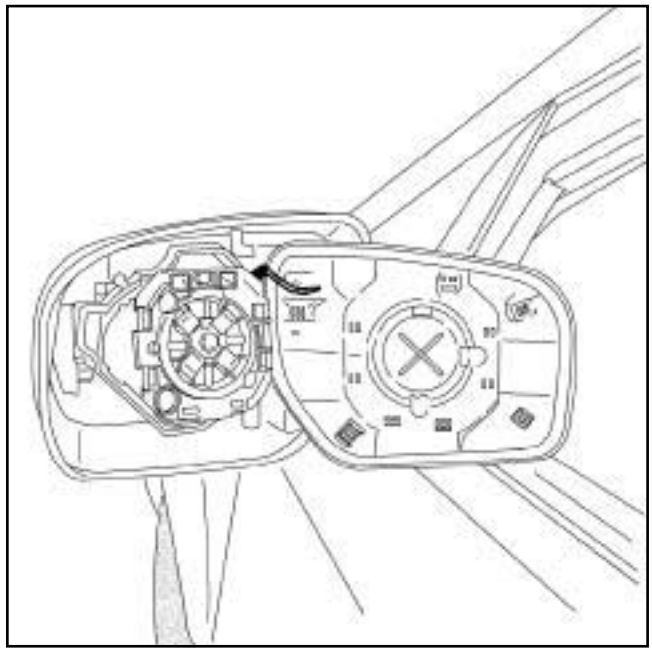
### OPERATION FOR REMOVAL OF PART CONCERNED



130143

❏ Protect the edges of the door mirror using masking tape.

❏ Unclip the door mirror glass using the tool **(Car. 1363)**.

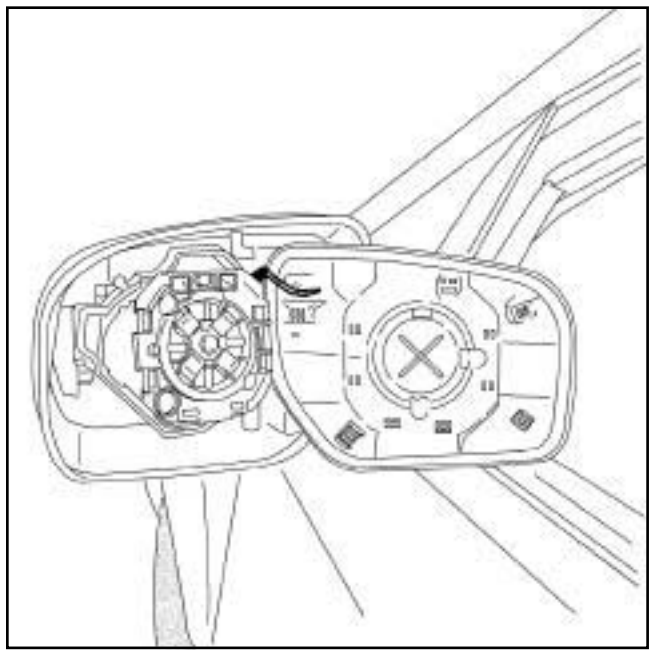


130144

❏ Disconnect the supply connectors (depending on equipment level).

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED



130145

❏ Connect the supply connector (depending on equipment level).

❏ Refit the door mirror glass.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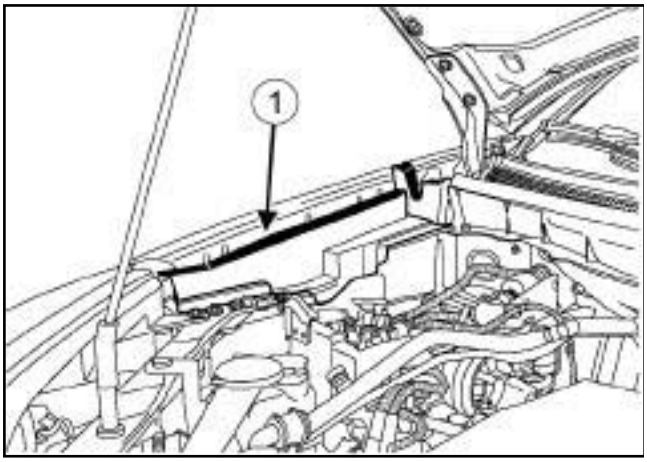
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

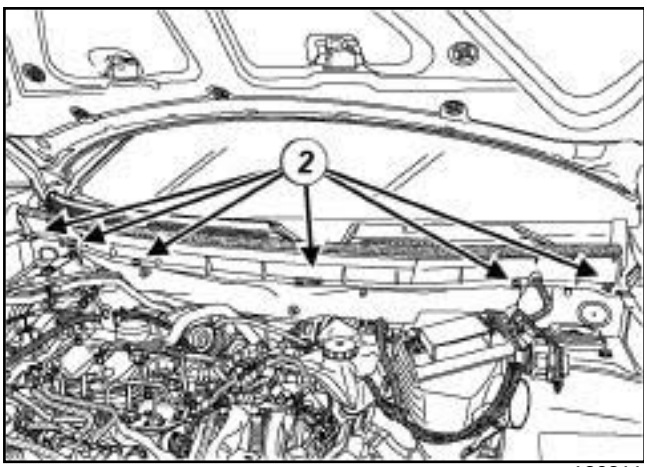



130308

❏ Remove:

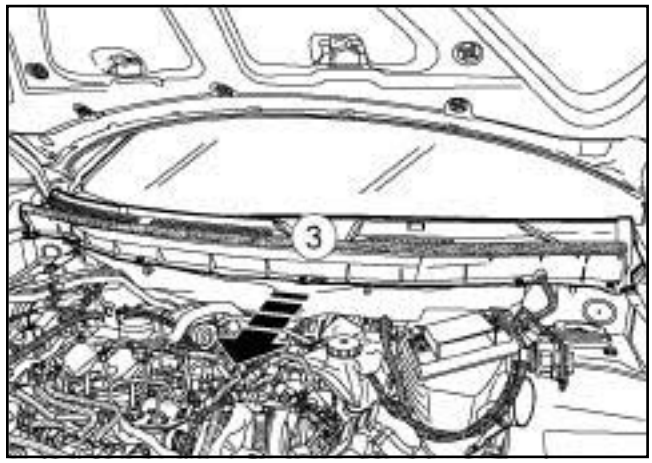
- the seals (**1**) ,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



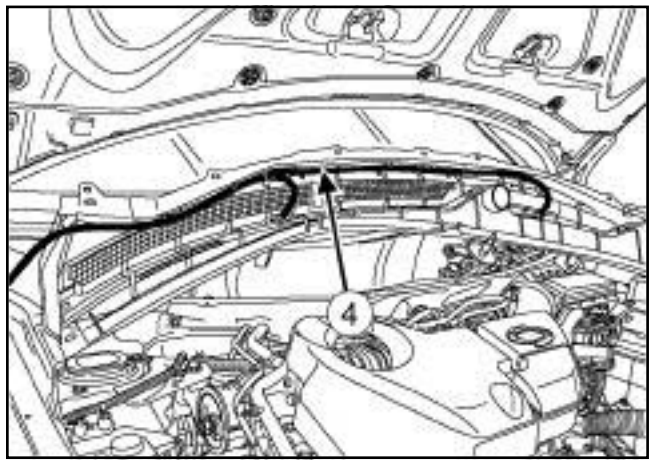

130311

❏ Remove the clips (**2**) .




130309

❏ Remove the scuttle half-grille (**3**) .




130310

❏ Remove the hose (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the pipe,
- the scuttle half-grille,
- the clips.

### II - FINAL OPERATION.

❏ Refit:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the seals.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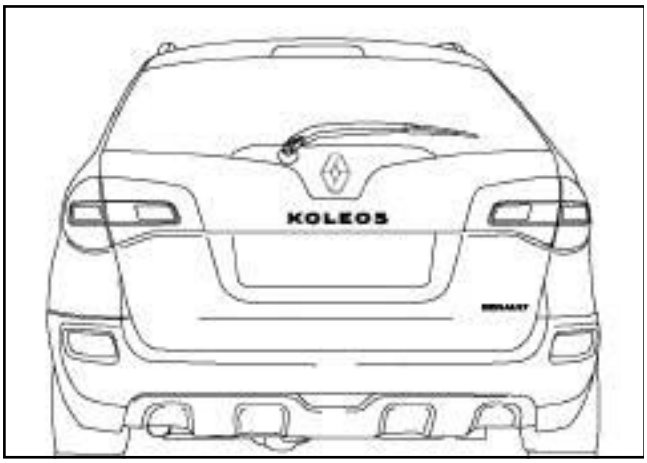
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED

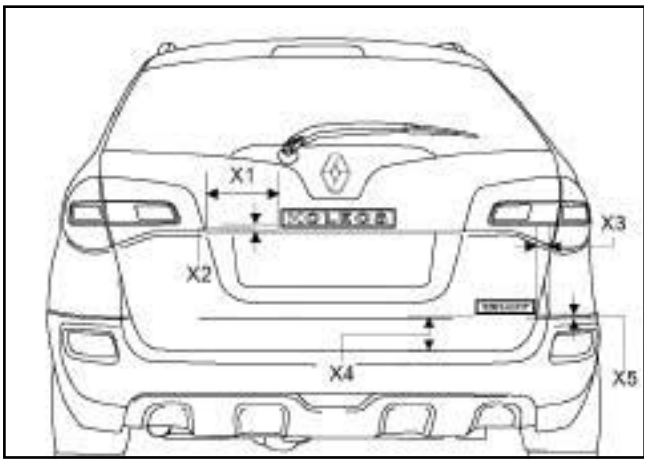



131916

❏ Unclip the vehicle badge.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED




131917

❏ Remove the protective paper from the back of the vehicle badge.

**1 - "KOLEOS" badge**

❏ Position the template - badge assembly:

- ***(X1)*** : **200 mm**,
- ***(X2)*** : **15.5 mm**.

❏ Stick on the vehicle badge.

❏ Remove the template.

**2 - "RENAULT" badge**

❏ Position the template - badge assembly:

- ***(X3)*** : **67.5 mm**,
- ***(X4)*** : **98 mm**,
- ***(X5)*** : **9 mm**.

❏ Stick on the vehicle badge.

❏ Remove the template.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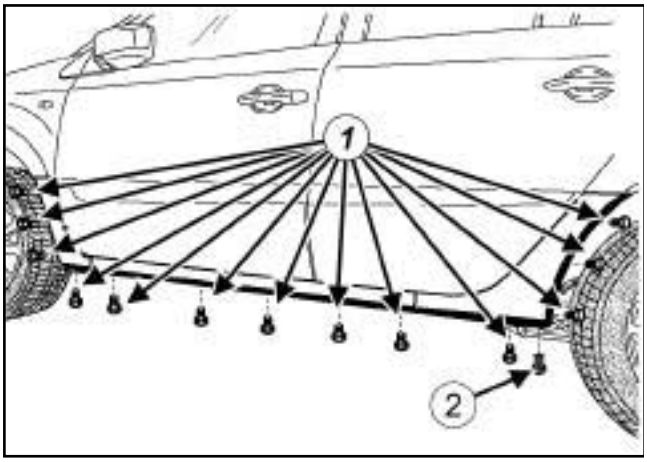
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




131915

❏ Remove:

- the bolts (**1**) ,
- the clip (**2**) ,
- the sill panel extender.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the mountings and replace them if necessary.

### II - OPERATION FOR REFITTING PART CONCERNED

❏ Refit:

- the sill panel extender,
- the clip (**2**) ,
- the bolts (**1**) .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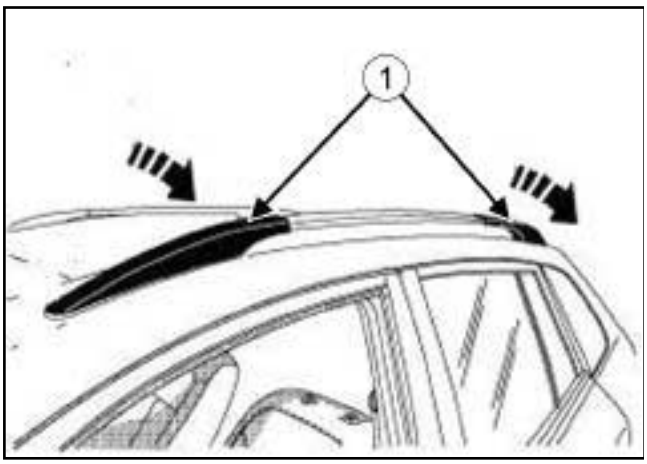
| Tightening torques ▽ | |
|---|---|
| roof bar bolts | **25 N.m** |

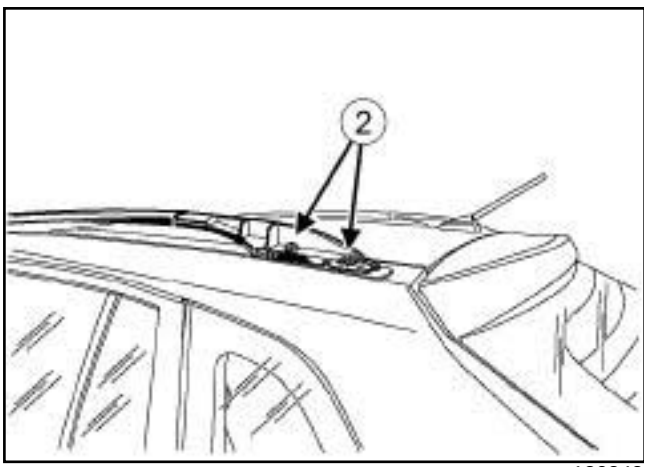
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130241

❏ Remove the front and rear roof bar trims (**1**) by turning them from the inside towards the outside.




130242

❏ Remove:

- the front and rear bolts (**2**) ,
- the roof bar.

❏ Carry out the same operation for the roof bar on the left-hand side.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the roof bar,
- the bolts,
- the front and rear roof bar trims.

❏ Torque tighten the **roof bar bolts (25 N.m)**.

### II - FINAL OPERATION

❏ Check that it is operating correctly.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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

| Tightening torques ▽ | |
|---|---|
| passenger front airbag bolts | **15 N.m** |

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

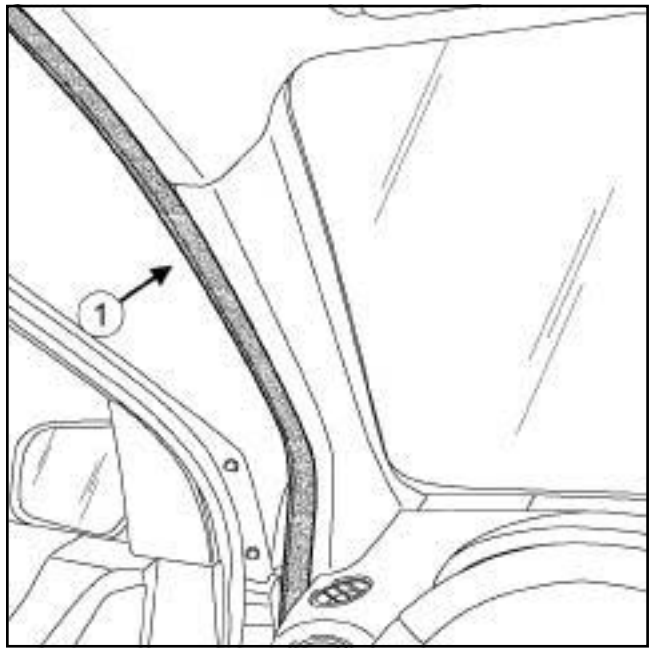
**IMPORTANT**

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).




131936

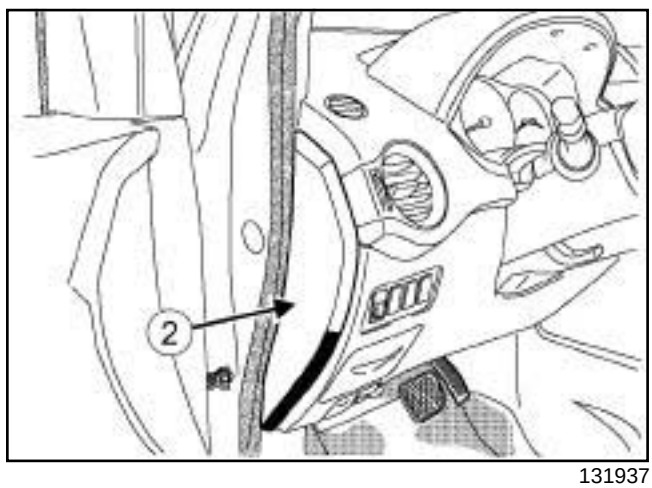
❑ Remove the seal (**1**) .

Note:

Each time a worn seal is removed, replace it with a new seal from the refitting kit available from the parts department.

❑ Remove:

- the windscreen pillar trim (see **A-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim).




131937

❑ Unclip the side cover (**2**) .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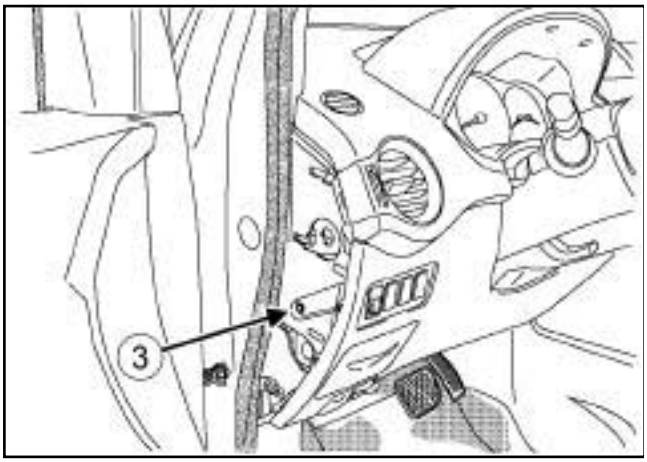
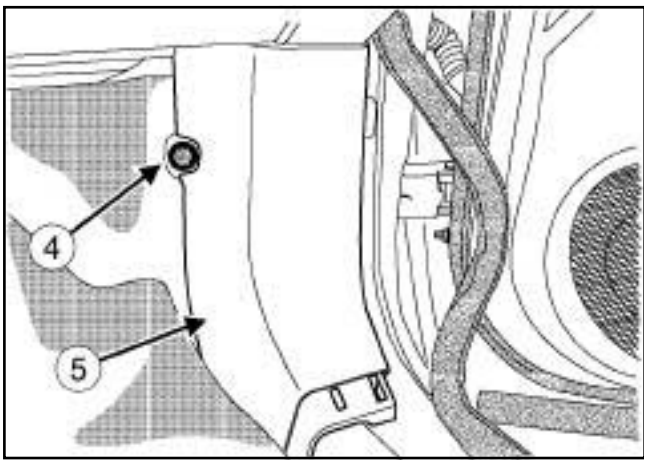



131938

❏ Remove the bolt (**3**)

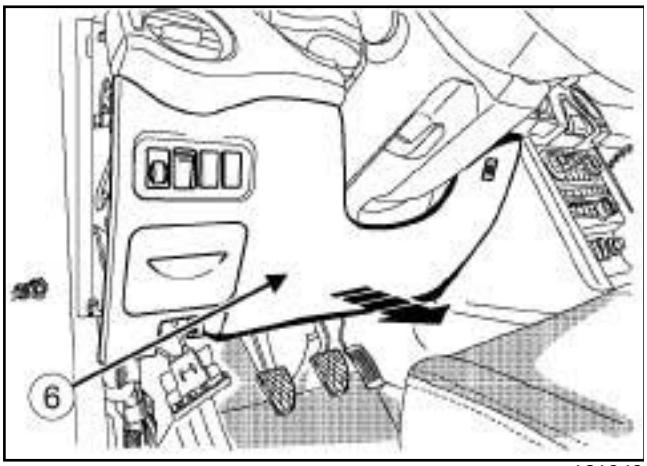



131939

❏ Remove:

- the bolt (**4**) ,
- the trim (**5**) from the cab floor.

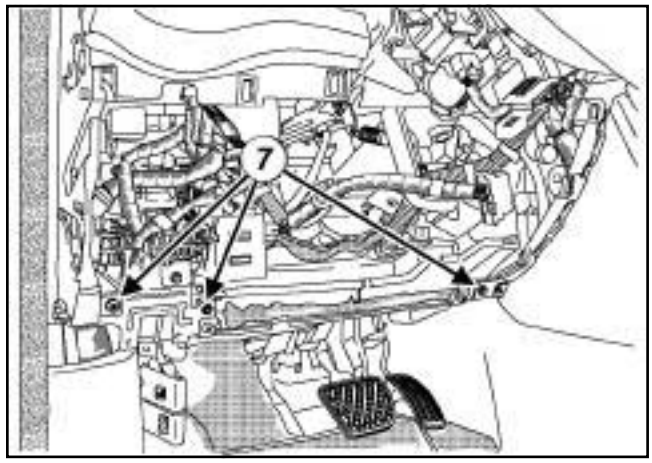
❏ Remove the bonnet release handle.




131940

❏ Remove the lower cover (**6**) .

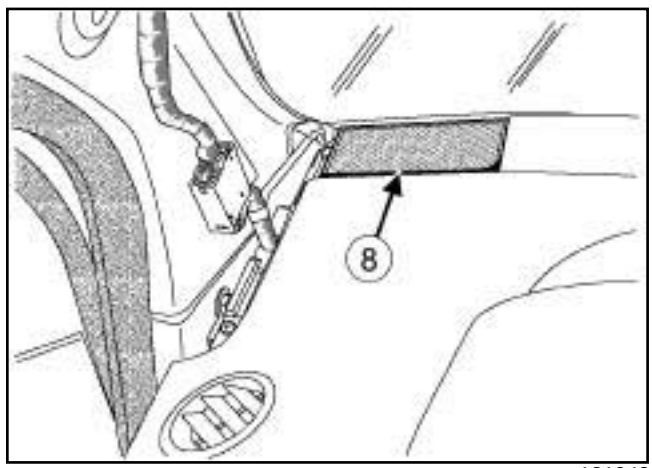
❏ Disconnect the connectors.




131941

❏ Remove:

- the bolts (**7**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly).




131942

❏ Remove the cover (**8**) using the tool **(Car. 1597)**.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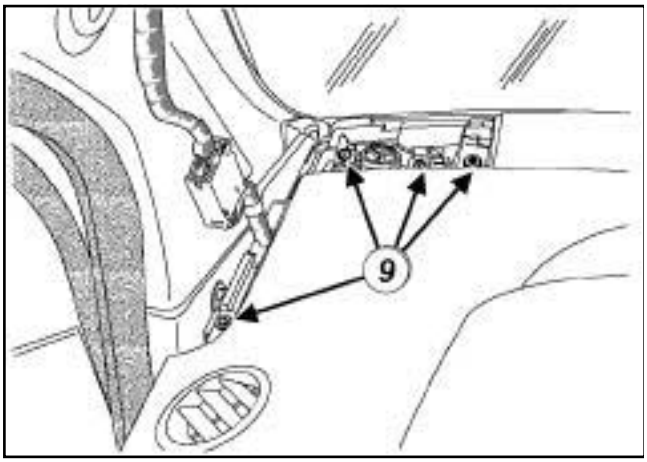



131943

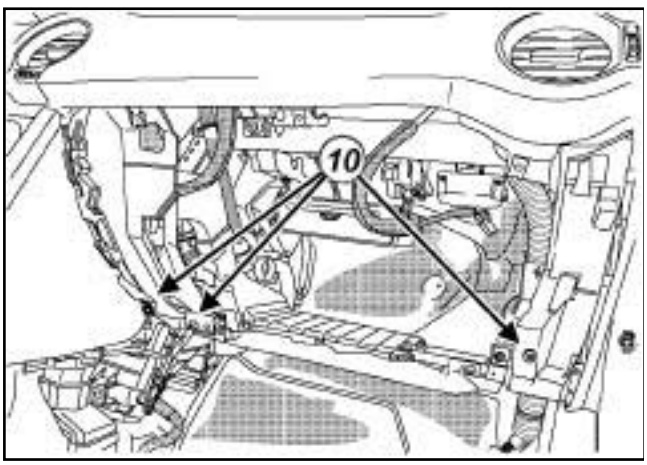
❏ Remove:

- the bolts (**9**) ,
- the speaker.

❏ Disconnect the speaker connector.

❏ Remove:

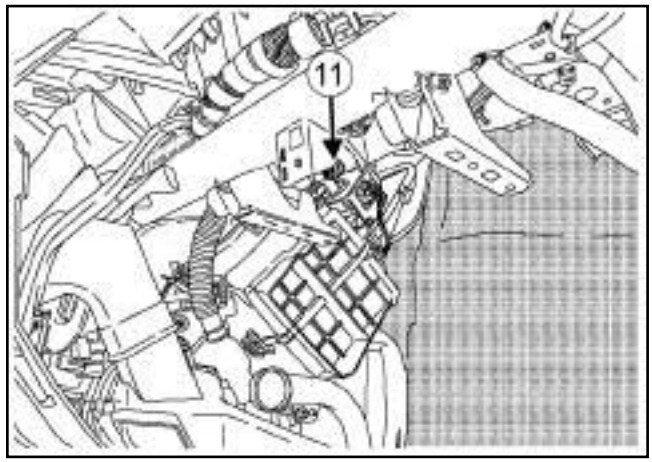
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the glovebox (see **57A**, **Interior equipment**, **Glovebox: Removal - Refitting**, page **57A-14**) ,
- the navigation computer (see **Navigation computer: Removal - Refitting**) (83C, On-board telematics system).




131944

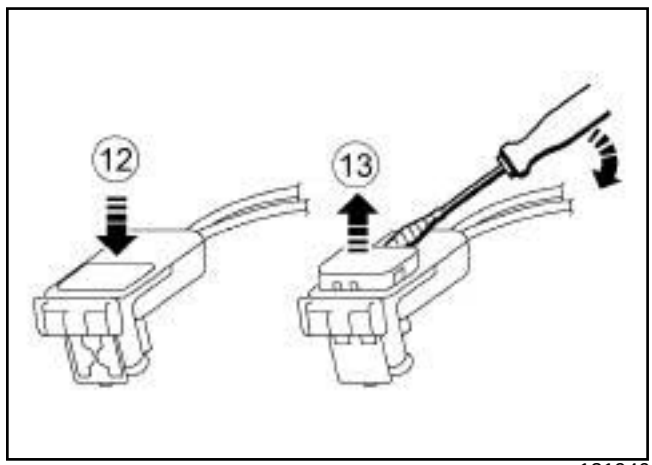
❏ Remove the bolts (**10**) .

**WARNING**
To ensure the airbag is not damaged during removal, do not use a tool with a point or a sharp edge.




131945

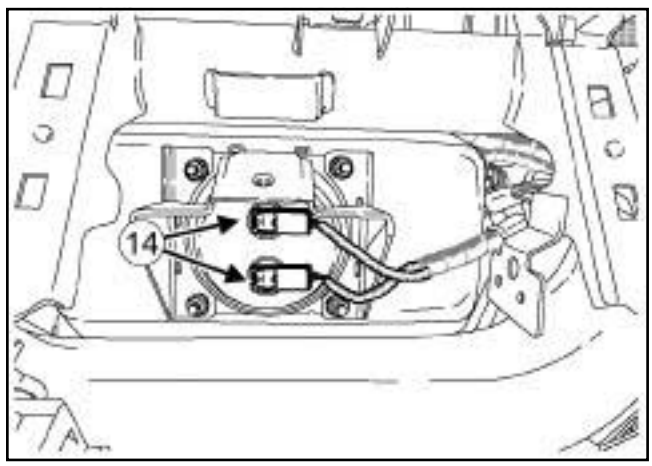
❏ Remove the airbag bolt (**11**) .




131946

❏

Note:
To disconnect the airbag connector, insert a thin flat-blade screwdriver wrapped in adhesive tape into the notch (**12**) , lift the safety device (**13**) and disconnect the connector.




131947

❏ Disconnect the airbag connectors (**14**) .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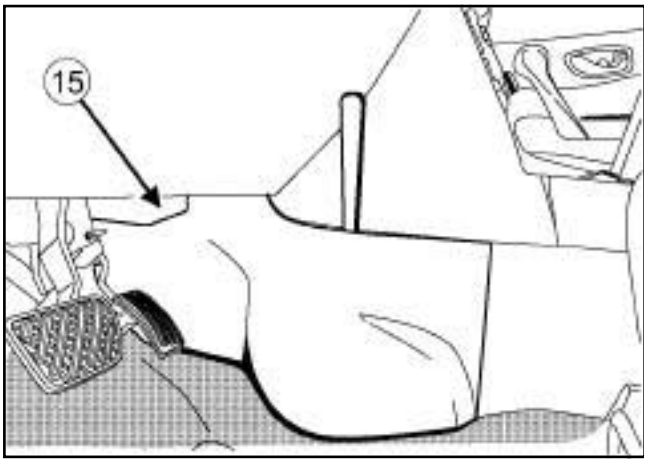
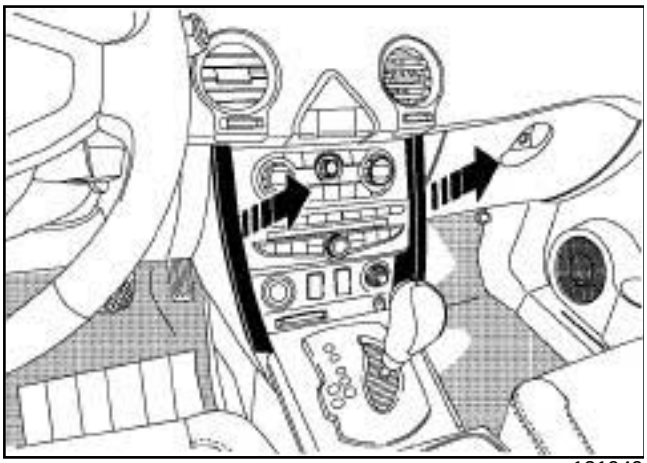


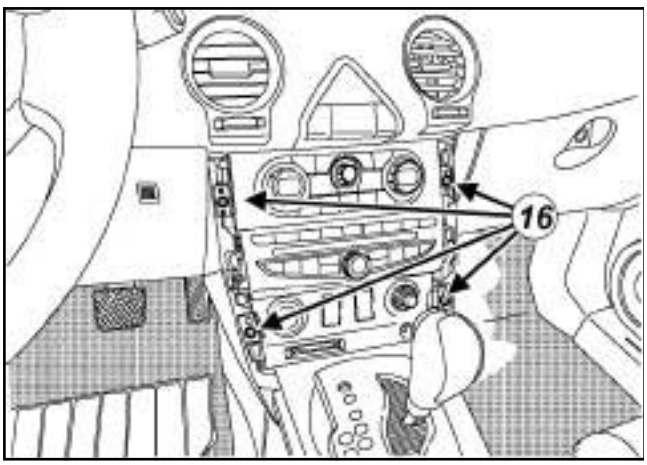

131948

❏ Remove the lower cover (**15**) .



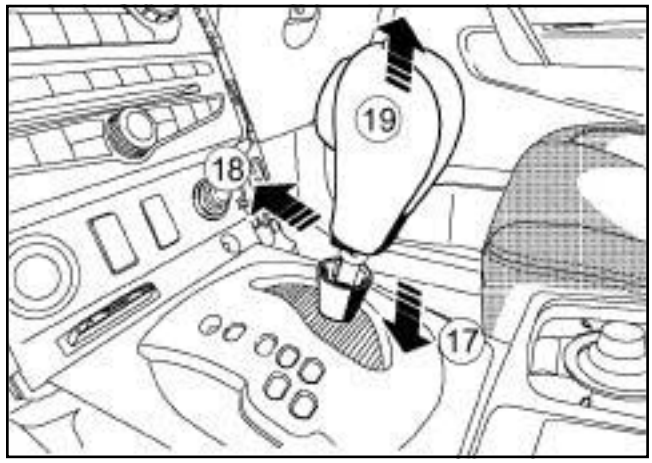
131949

❏ Unclip the trim.




131950

❏ Remove the bolts (**16**) .

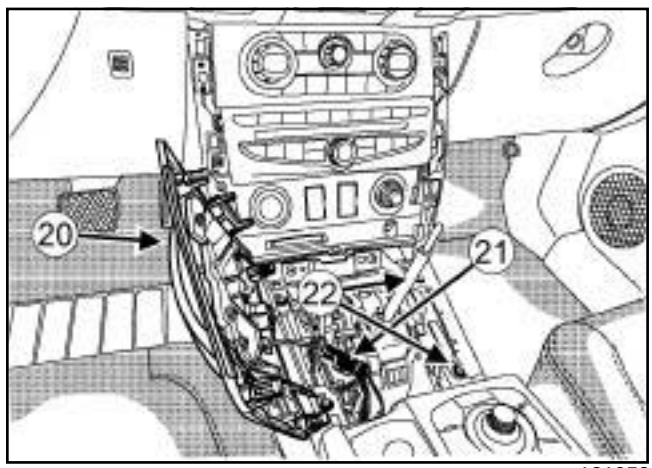



131951

❏ Remove:

- the gear lever cover (**17**) ,
- the pin (**18**) .

❏ Unclip the gear lever (**19**) .




131952

❏ Unclip the gear lever plate (**20**) .

❏ Disconnect the connector (**21**) .

❏ Remove the bolts (**22**) .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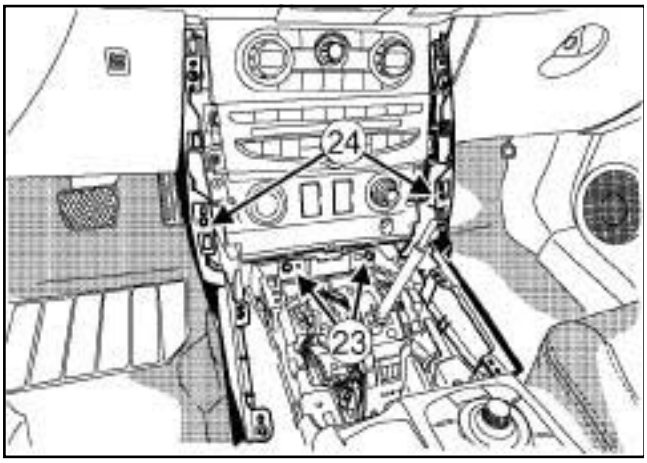
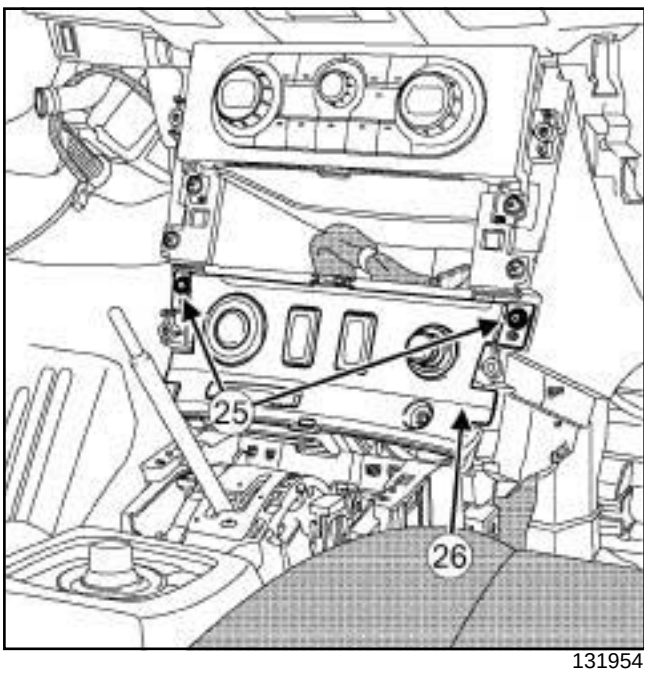


131953

❏ Remove:

- the bolts (**23**) ,
- the trim (**24**) ,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio).



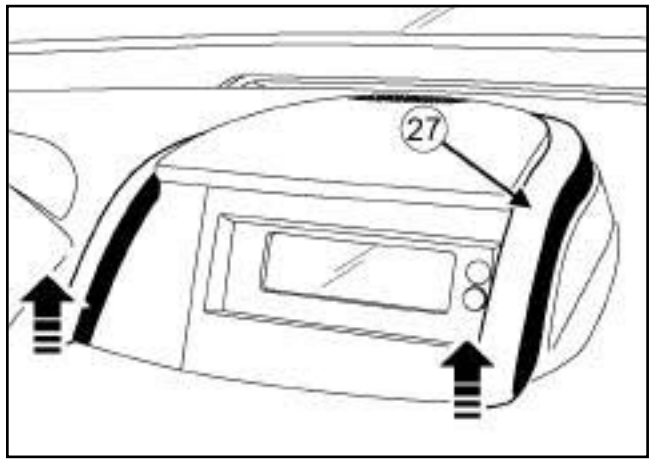
131954

❏ Remove the bolts (**25**) .

❏ Disconnect the power supply connector.

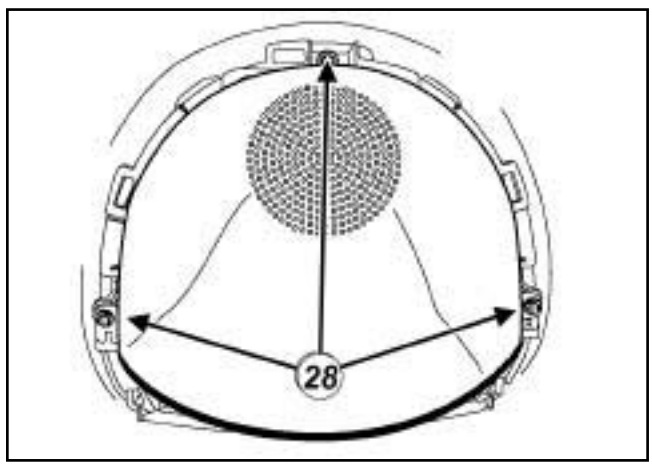
❏ Remove:

- the control panel (**26**) ,
- the centre console (see **57A**, **Interior equipment**, **Centre console: Removal - Refitting**, page **57A-15**) .



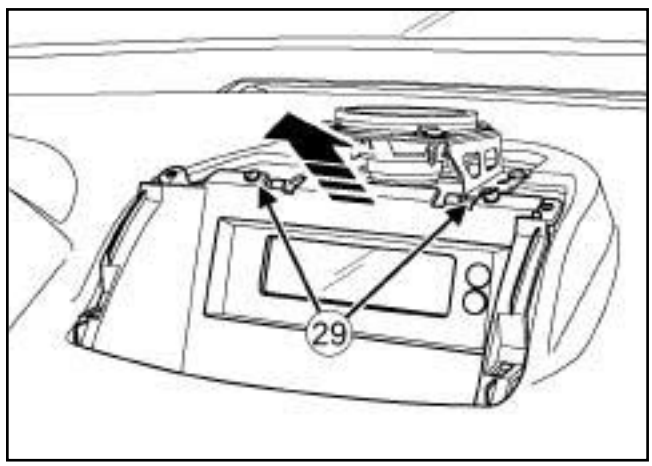
131955

❏ Remove the trim (**27**) .



131956

❏ Remove the bolts (**28**) .



131957

❏ Remove:

- the bolts (**29**) ,
- the display.

❏ Disconnect the power supply connector.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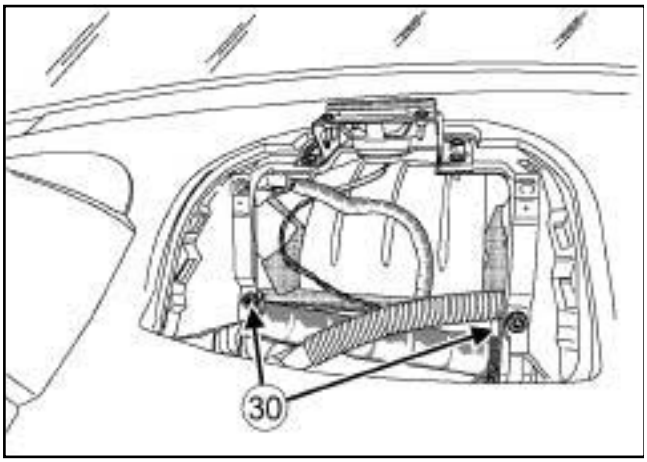
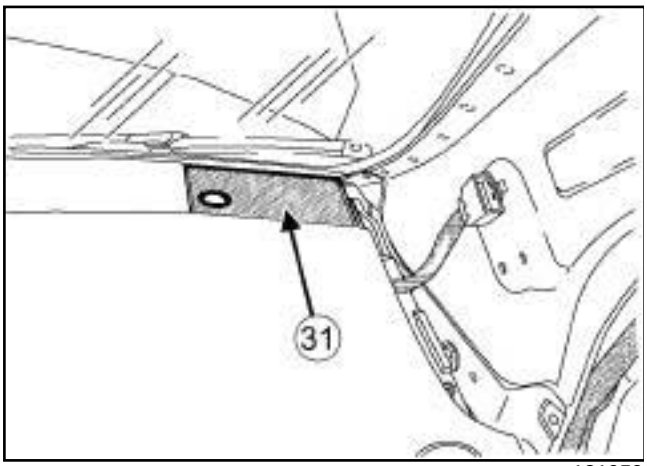



131958

❏ Remove the bolts (**30**) .

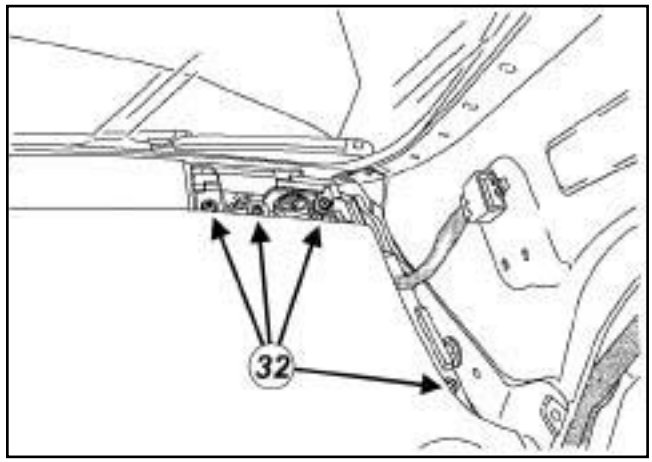
❏ Disconnect the speaker connector.




131959

❏ Remove the cover (**31**) using the tool **(Car. 1597)**.

❏ Disconnect the power supply connector.

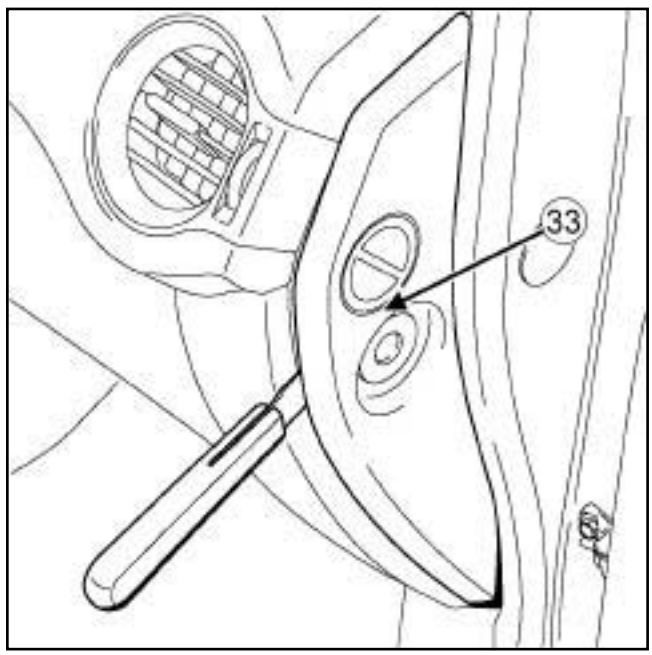



131960

❏ Remove:

- the bolts (**32**) ,
- the speaker.

❏ Disconnect the speaker connector.




130968

❏ Remove the side cover (**33**) .

❏ Disconnect the connector.



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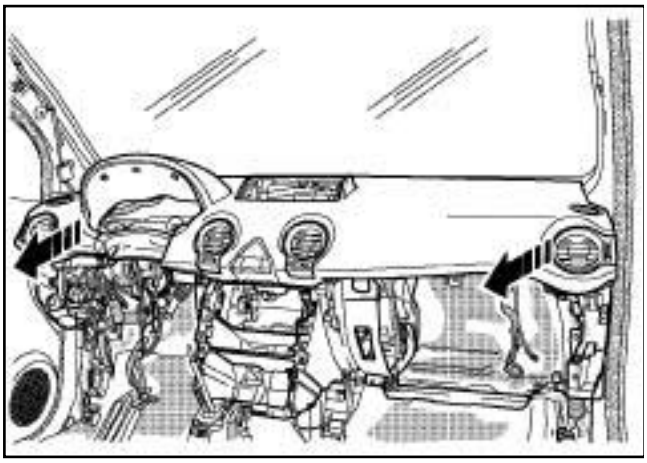
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

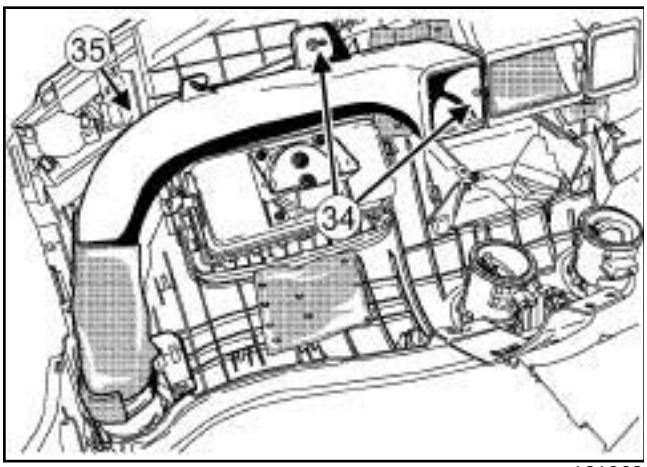


131962

❏ Partially remove the dashboard (this operation requires two people).

> Note:
>
> Mark the position of the various front dashboard wiring harnesses.

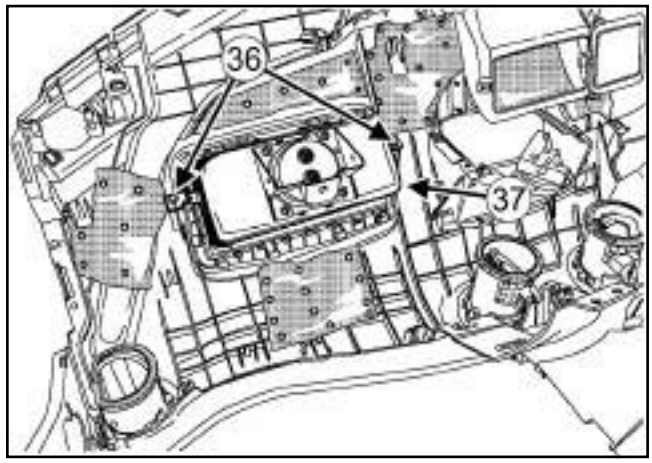
❏ Remove the dashboard (this operation requires two people).




131963

❏ Remove:

- the bolts (**34**) ,
- the air duct (**35**) .




131964

❏ Remove:

- the bolts (**36**) ,
- the passenger front airbag (**37**) .

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Check that the wiring is in good condition.

❏ Refit:

- the passenger front airbag ***(37)*** ,
- the bolts ***(36)*** .

❏ Torque tighten the **passenger front airbag bolts (15 N.m)**.

❏ Refit:

- the air duct ***(35)*** ,
- the bolts ***(34)*** .

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the various wiring harnesses on the dashboard,
- the dashboard (this operation requires two people),
- the dashboard bolts starting with the central bolts.

**III - FINAL OPERATION.**

❏ Refit the side cover ***(33)*** .

❏ Connect the connector.

❏ Refit:

- the speaker,
- the bolts ***(32)*** ,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- the speaker cover ***(31)*** ,
- the bolt ***(30)*** ,
- the display,
- the trim ***(27)*** ,
- the control panel,
- the air conditioning control panel,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the centre console (see **57A**, **Interior equipment**, **Centre console: Removal - Refitting**, page **57A-15**) ,
- the trim ***(24)*** ,
- the gear lever plate ***(20)*** ,
- the gear lever cover ***(17)*** ,
- the bolts ***(16)*** ,
- the trim ,
- the lower cover ***(15)*** ,
- the passenger airbag,
- the airbag bolts ***(11)*** ,
- the bolts ***(10)*** ,
- the navigation computer (see **Navigation computer: Removal - Refitting**) (83C, On-board telematics system),
- the glovebox (see **57A**, **Interior equipment**, **Glovebox: Removal - Refitting**, page **57A-14**) ,
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the speaker,
- the bolts ***(9)*** ,
- the speaker cover ***(8)*** .

❏ Check that the wheels are set straight.

❏ Refit the rotary switch.

❏ Connect the connectors.

❏ Refit:

- the bolts,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the bolts ***(7)*** ,
- the lower cover ***(6)*** ,
- the cab floor trim ***(5)*** ,
- the bolts ***(4)*** ,
- the bolts ***(3)*** ,
- the side cover ***(2)*** ,
- the door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the windscreen pillar trim (see **A-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the seal ***(1)*** .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Tightening torques ▽ | |
|---|---|
| passenger front airbag bolts | **8 N.m** |

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## STRIPPING

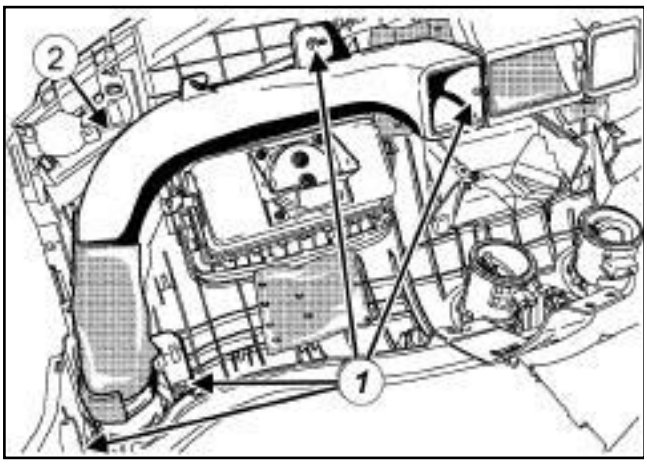
### I - STRIPPING PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard (see **57A**, **Interior equipment**, **Dashboard: Removal - Refitting**, page **57A-1**) ,
- the glovebox (see **57A**, **Interior equipment**, **Glovebox: Removal - Refitting**, page **57A-14**) .

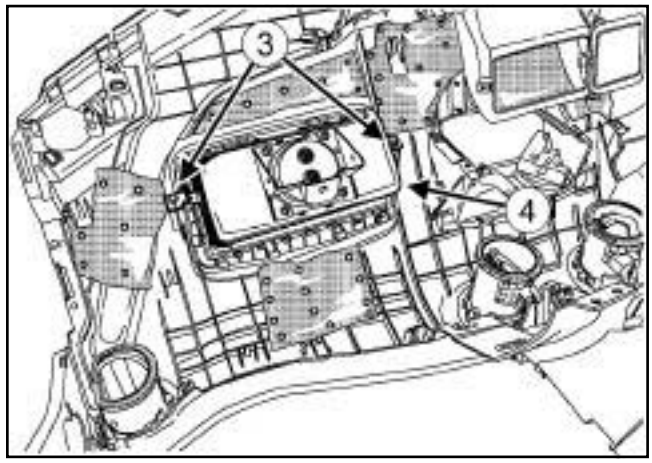
### II - STRIPPING OPERATION FOR PART CONCERNED



131966

❏ Remove:

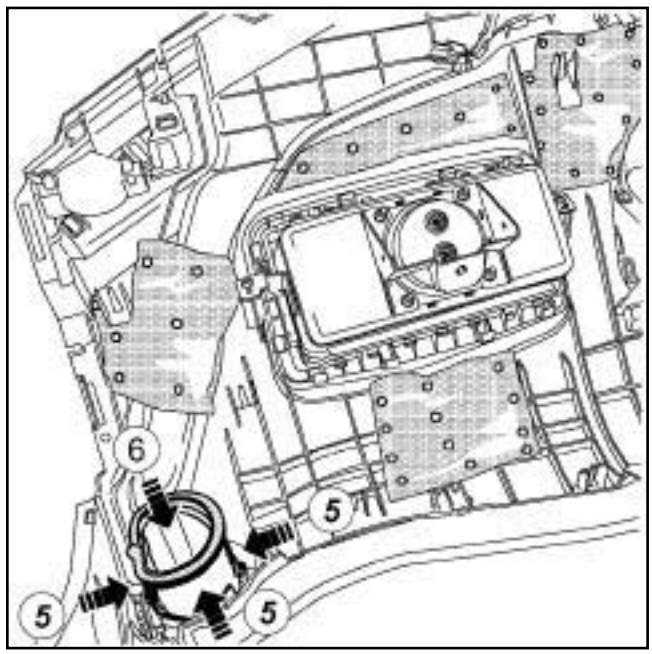
- the bolts (**1**) ,
- the air duct (**2**) .



131967

❏ Remove:

- the bolts (**3**) ,
- the passenger front airbag (**4**) .



131968

❏ Press:

- on the clips (**6**) on side (**5**) ,
- on the side air vent at (**6**) .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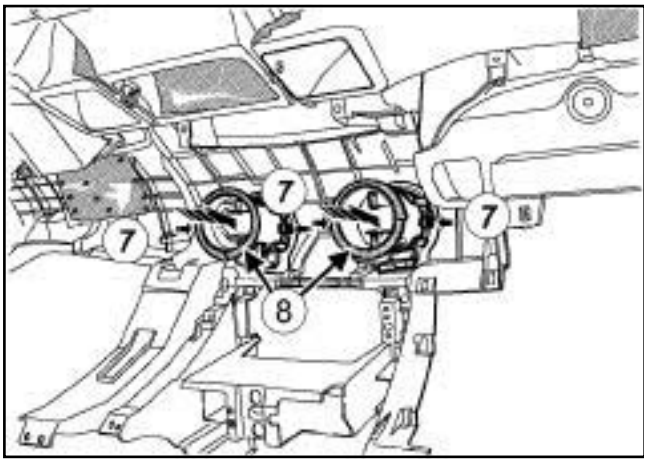
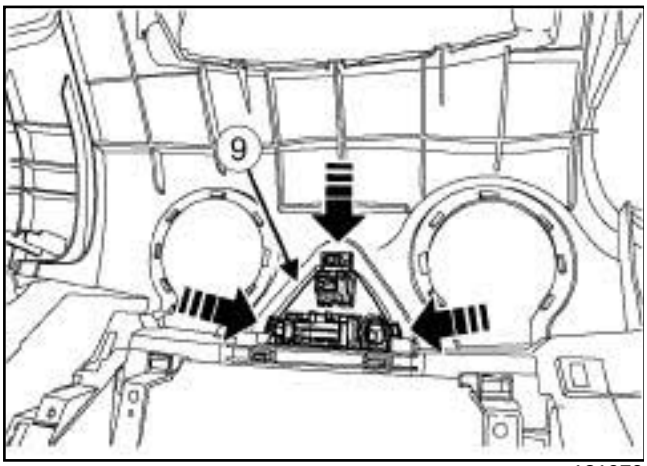



131969

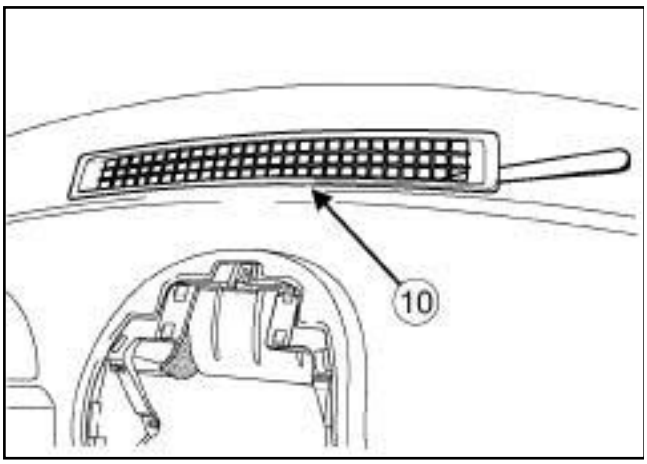
❏ Press on the clips (**7**) on both sides.

❏ Remove the centre air vent (**8**) .



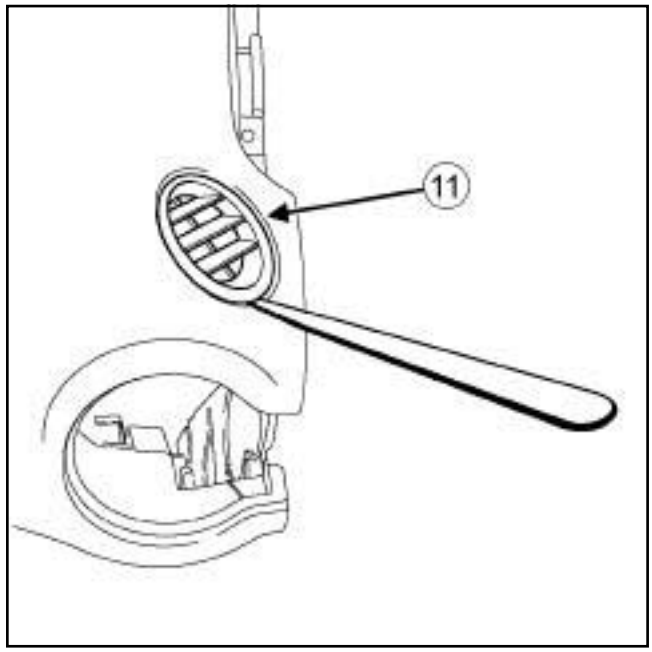

131970

❏ Remove the trim (**9**) .




131971

❏ Remove the front air vent (**10**) .




131972

❏ Remove the side air vent (**11**) .

## REASSEMBLING

### I - REBUILDING OPERATION FOR PART CONCERNED

❏ Refit:

- the passenger front airbag ***(4)*** ,
- the bolts ***(3)*** ,

❏ Torque tighten the **passenger front airbag bolts (8 N.m)**.

❏ Refit:

- air duct ***(2)*** ,
- the bolts ***(1)*** ,
- the side air vent ***(11)*** ,
- the front air vent ***(10)*** ,
- the trim ***(9)*** ,
- the centre air vent ***(8)*** ,
- the side air vent.

### II - FINAL OPERATION.

❏ Refit:

- the glovebox (see **57A**, **Interior equipment**, **Glovebox: Removal - Refitting**, page **57A-14**) ,
- the dashboard (see **57A**, **Interior equipment**, **Dashboard: Removal - Refitting**, page **57A-1**) .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❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

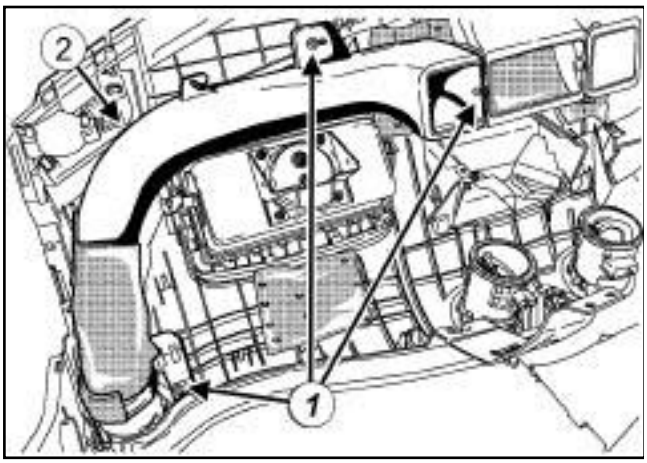
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove the dashboard (see **57A**, **Interior equipment**, **Dashboard: Removal - Refitting**, page **57A-1**) .

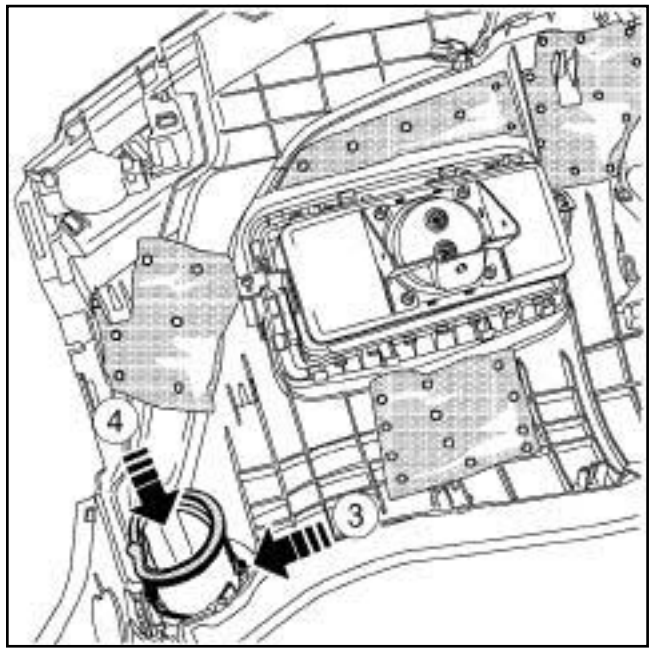
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130312

❑ Remove:

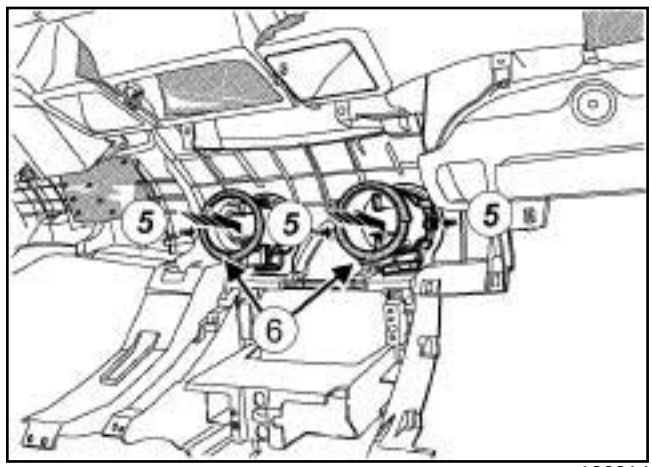
- the bolts (**1**) ,
- the air duct (**2**) .



130313

❑ Press on the clips at (**3**) and (**4**) .

❑ Remove the side air vent.



130314

❑ Press on both sides of the clips at (**5**) .

❑ Remove the centre air vent (**6**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the centre air vent,
- the side air vent,
- air duct ,
- the bolts.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**II - FINAL OPERATION.**

❏ Refit the dashboard (see **57A**, **Interior equipment**, **Dashboard: Removal - Refitting**, page **57A-1**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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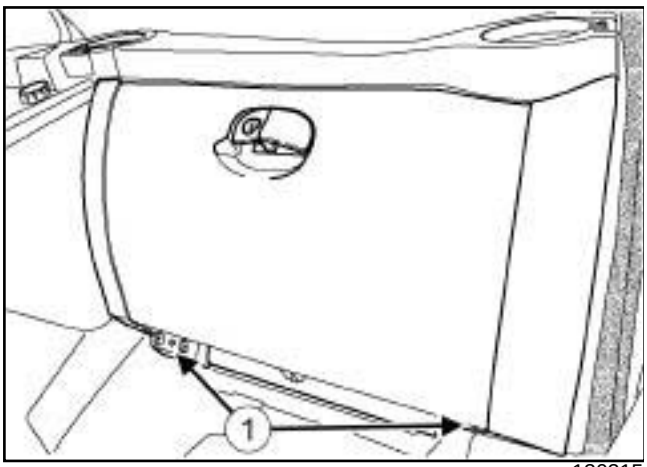
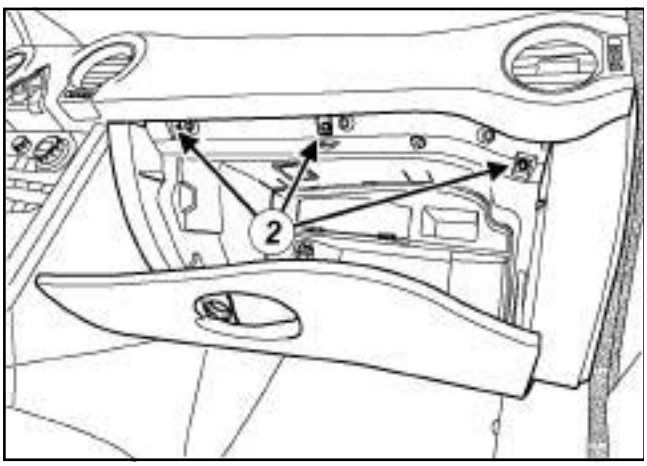
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130315

❏ Remove the lower bolts (**1**) .



130316

❏ Remove the upper bolts (**2**) .

❏ Take out the glovebox.

❏ Disconnect the connectors.

❏ Remove the glovebox.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connectors.

❏ Refit:

- the glovebox,
- the upper bolts,
- the lower bolts.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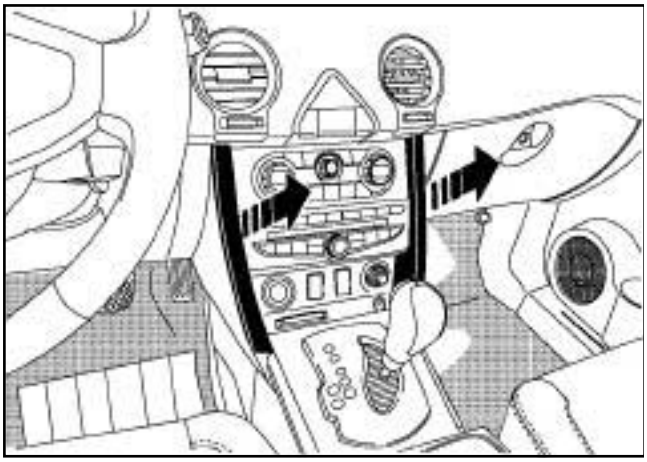
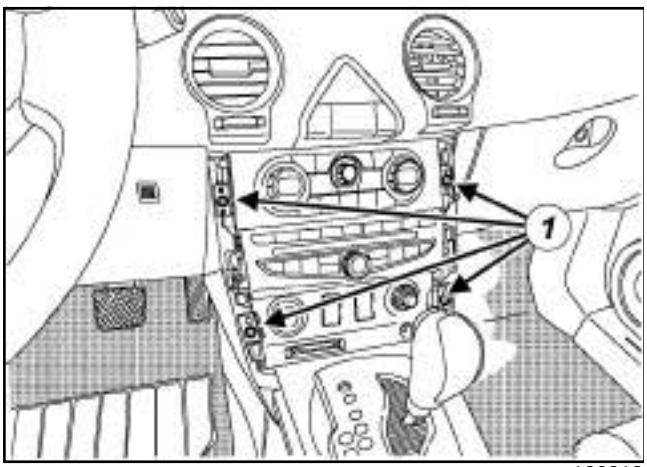
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130317

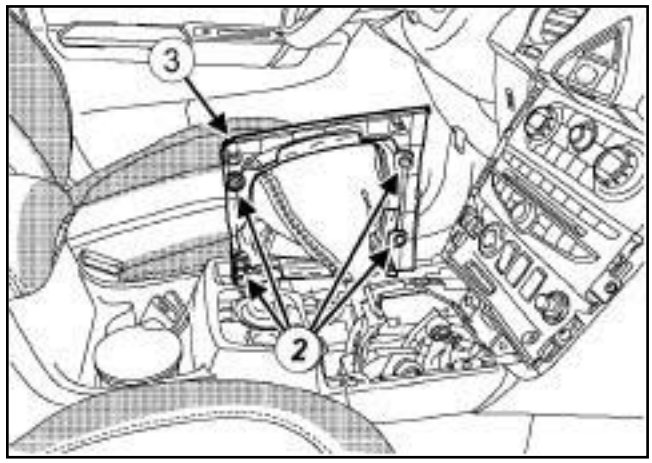
❏ Unclip the trims.




130318

❏ Remove the bolts (**1**) .

6 SPEED MANUAL GBOX



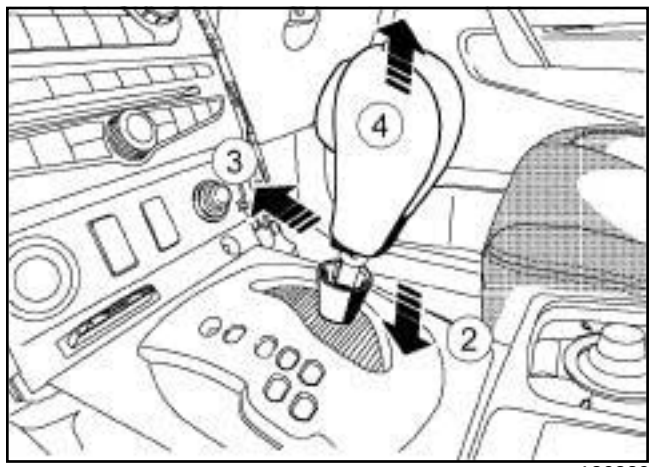

130319

❏ Unclip the gear lever plate (**3**) .

❏ Remove:

- the bolts (**2**) ,
- the gear lever plate (**3**) .

6 SPEED AUTO GBOX




130320

❏ Remove:

- the gear lever cover (**2**) ,
- the pin (**3**) .

❏ Unclip the gear lever (**4**) .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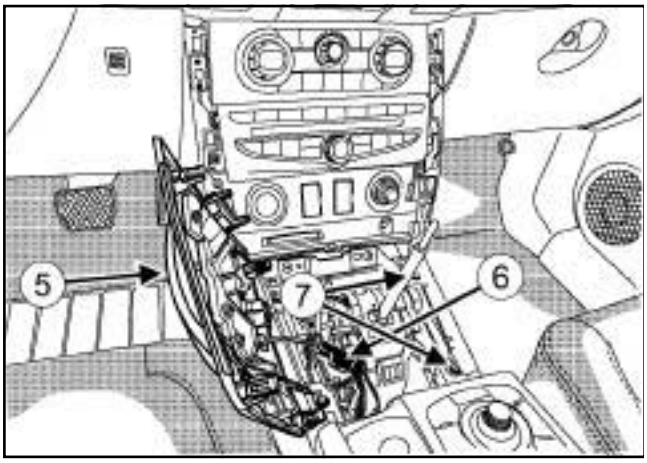
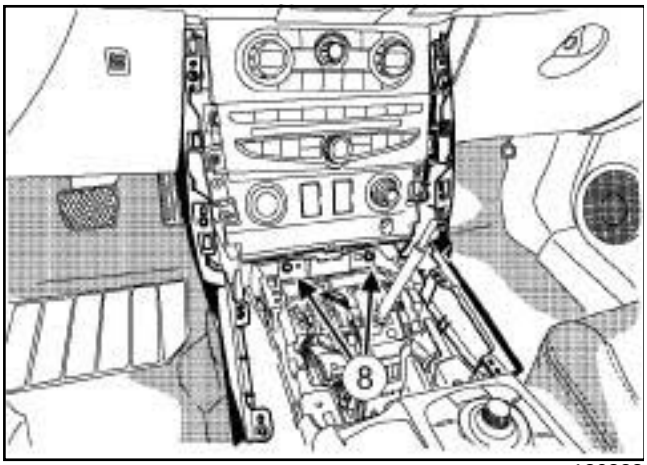



130329

❏ Unclip the gear lever plate (**5**) .

❏ Disconnect the connector (**6**) .

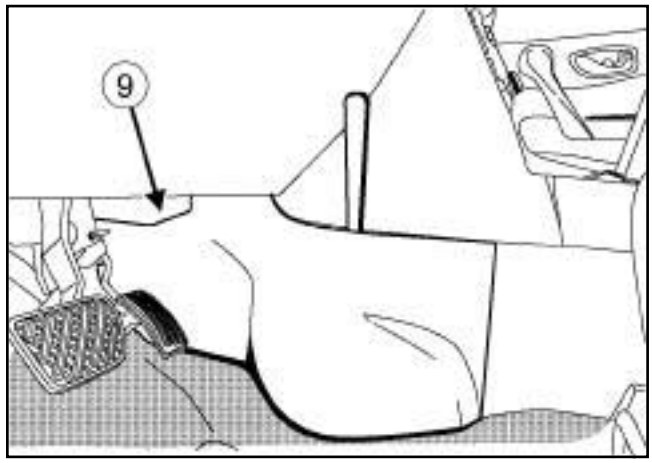
❏ Remove the bolts (**7**) .




130322

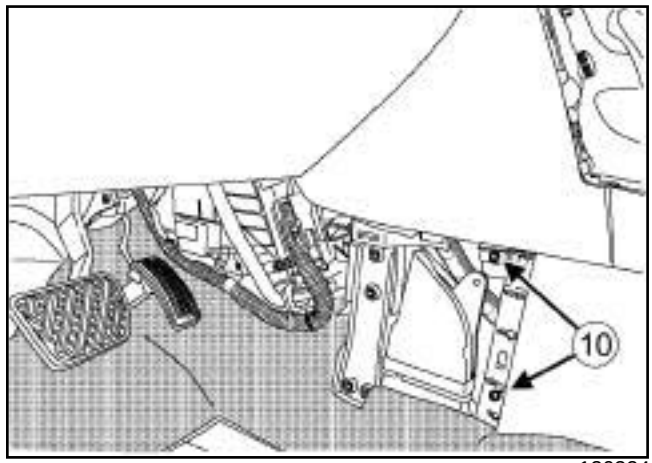
❏ Partially remove the trim,

❏ Remove the bolts (**8**) .



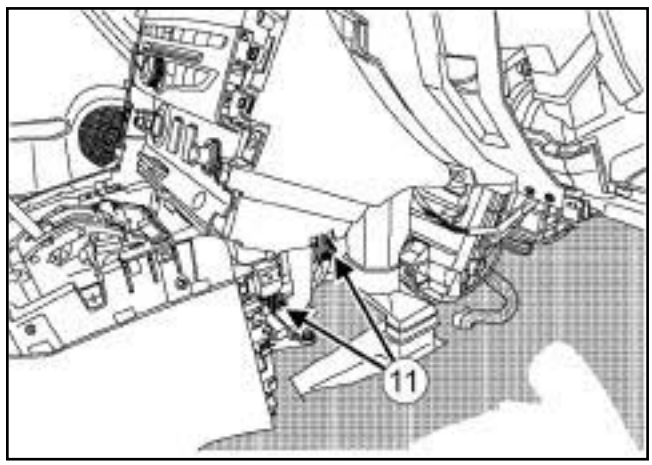

130323

❏ Remove the lower cover (**9**) .




130324

❏ Remove the bolts (**10**) .




130325

❏ Disconnect the connectors (**11**) .

❏ Move the front seats forward.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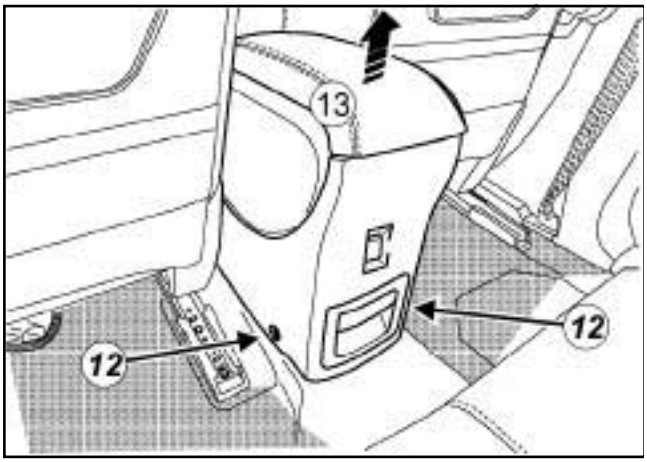

130326

❏ Remove:

- the bolts (**12**) ,
- the centre console (**13**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the centre console,
- the bolts ***(12)*** .

❏ Push the front seats back.

❏ Connect the connectors ***(11)*** .

❏ Refit:

- the bolts ***(10)*** ,
- the lower cover ***(9)*** ,
- the bolts ***(8)***
- the trim.

6 SPEED MANUAL GBOX

❏ Refit:

- the bolts ***(2)*** ,
- the gear lever plate ***(3)*** .

❏ Clip on the gear lever plate.

6 SPEED AUTO GBOX

❏ Refit the bolts ***(7)*** .

❏ Connect the connector ***(6)*** .

❏ Clip:

- the gear lever plate ***(5)*** ,
- the gear lever ***(4)*** .

❏ Refit:

- the pin ***(3)*** ,
- the gear lever cover ***(2)*** .

❏ Refit the bolts ***(1)*** .

❏ Clip on the trims.


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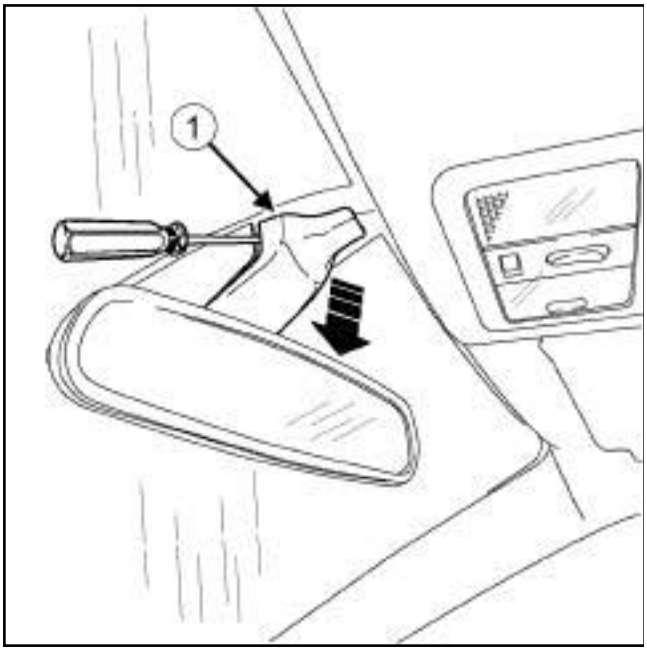
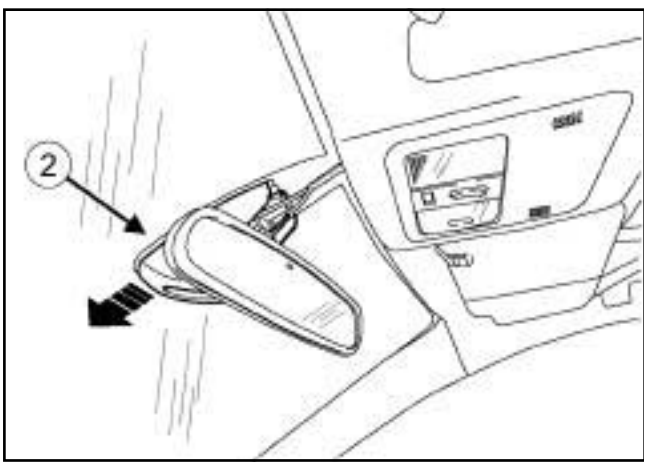
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130331

❏ Unclip the upper cover (**1**) .



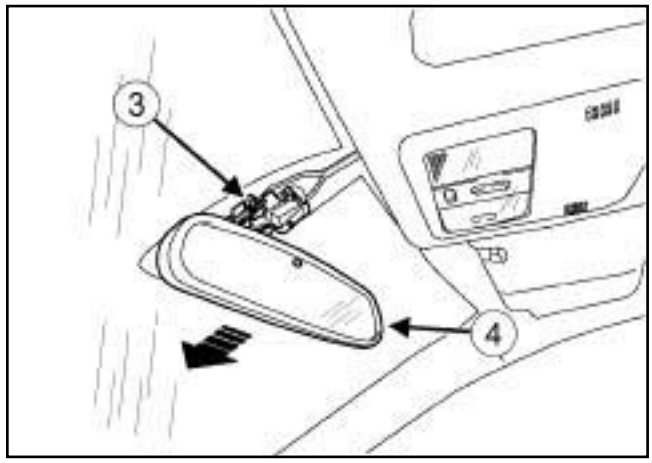

130332

❏ Unclip the lower cover (**2**) .

❏

Note:

When removing the rear-view mirror, be careful of the nearby rain sensor to avoid damaging it.



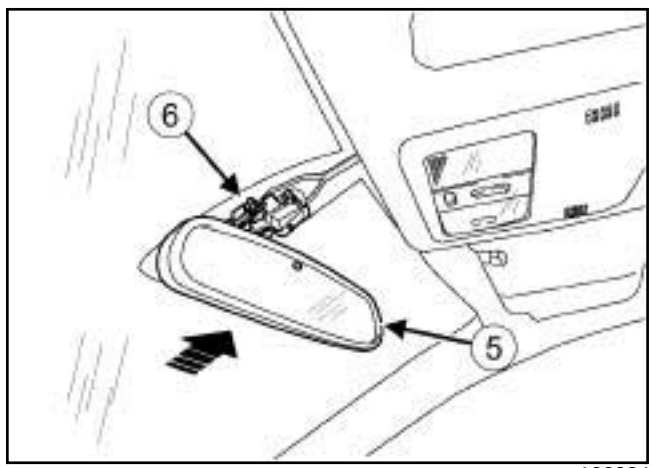

130333

❏ Disconnect the connector (**3**) .

❏ Remove interior rear-view mirror (**4**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED




130334

❏ Refit the interior rear-view mirror (**5**) .

❏ Connect the connector (**6**) .

❏ Refit:

- the inner cover ***(2)*** ,
- the upper cover ***(1)*** .



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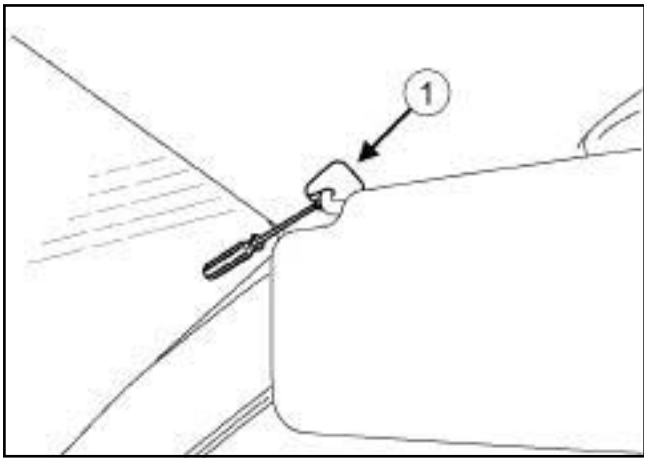
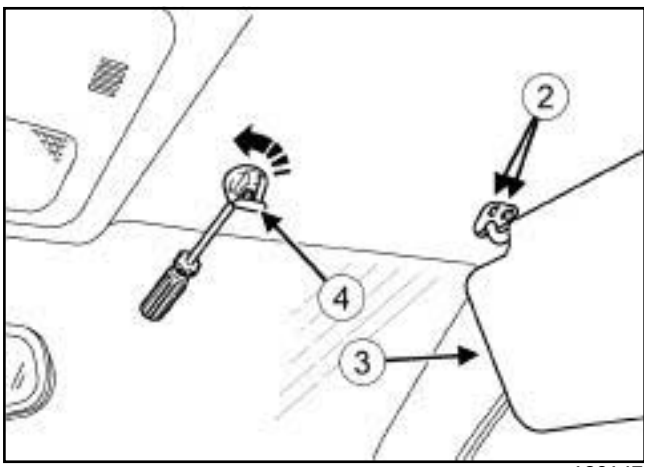
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130146

❏ Unclip the cover (**1**) of the sun visor.




130147

❏ Remove:

- the bolts (**2**) ,
- the sun visor cover (**3**) .

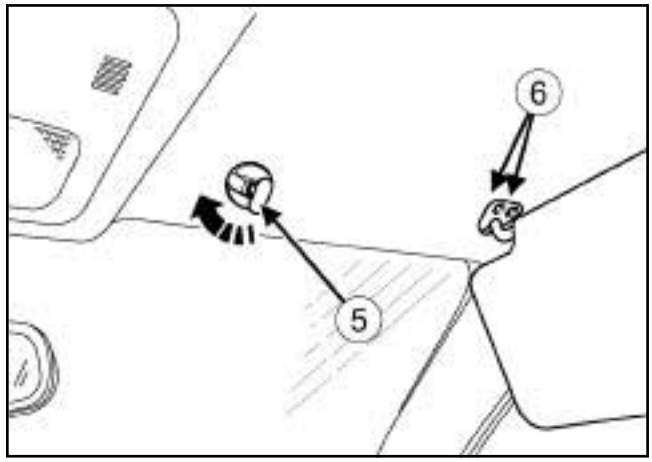
❏ Disconnect the connector from the sun visor bulb (depending on the equipment level).

❏ Turn the sun visor support 90 degrees by inserting a flat-blade screwdriver through the support hole.

❏ Remove the sun visor support (**4**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED




130148

❏ Refit the sun visor support (**5**) .

❏ Connect the sun visor bulb connector.

❏ Refit the bolts. (**6**)

❏ Fit the sun visor cover.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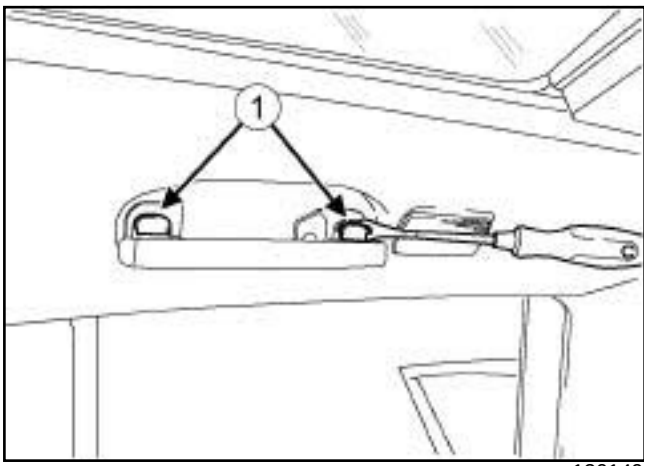
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

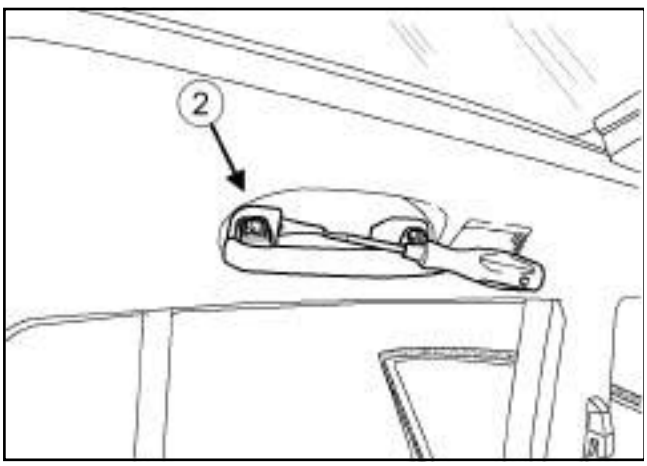
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130149

❏ Remove the clips (**1**) using the tool **(Car. 1597)**.



130150

❏ Remove the grab handle (**2**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the grab handle,
- the handle clips.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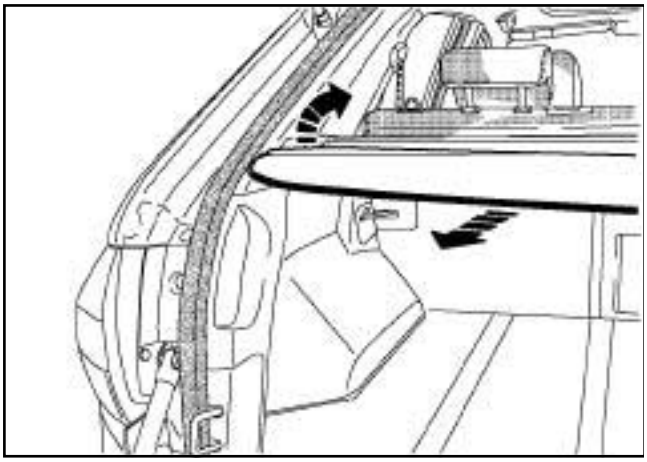
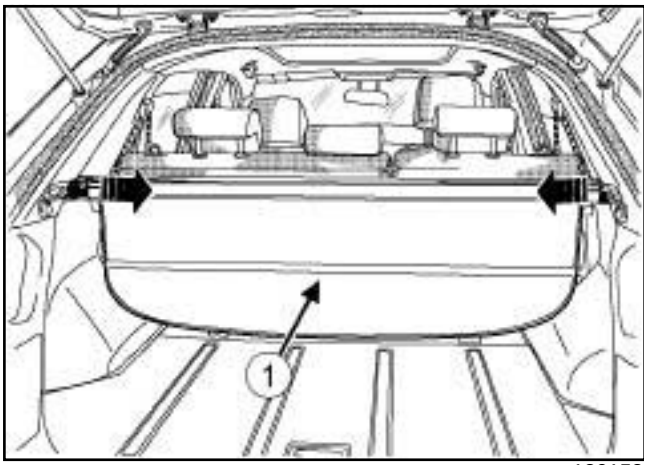
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130151

❏ Pull the parcel shelf slightly to free it from its contact points.




130152

❏ Remove the parcel shelf (**1**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Position the rear parcel shelf.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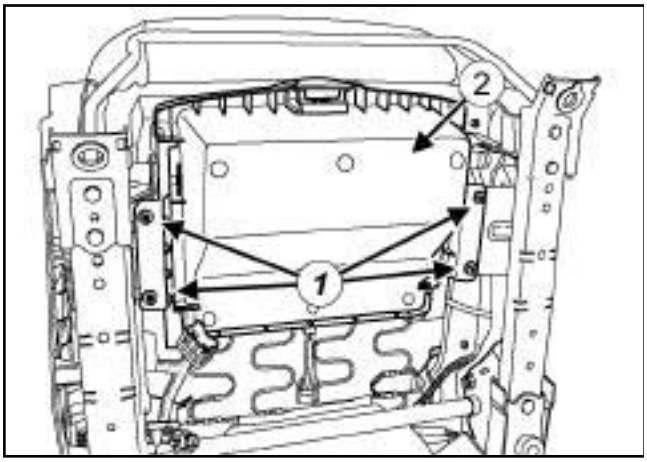
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the complete front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130243

❑ Remove:

- the bolts (**1**) ,
- the flap (**2**) and the storage under the seat.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the flap and the storage under the seat,
- the bolts.

### II - FINAL OPERATION.

❑ Refit the complete front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners).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| Tightening torques ▽ | |
|---|---|
| bolts of the seat belt height adjustment system | **49 N.m** |

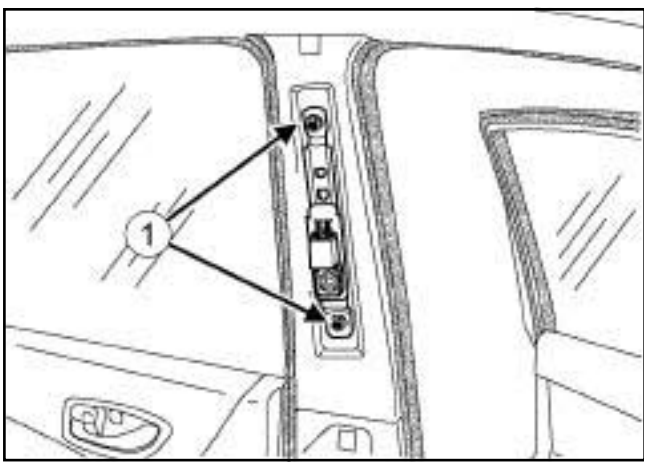
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the front side seat belt (see **Front side seat belt: Removal - Refitting**) (88C, Airbags and pretensioners),
- the B-pillar upper trim (see **B-pillar upper trim: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130244

❑ Remove:

- the bolts (**1**) ,
- the seat belt height adjustment system.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the seat belt height adjustment system.

❑ Torque tighten the **bolts of the seat belt height adjustment system (49 N.m)** ***(1)*** .

### II - FINAL OPERATION.

❑ Refit:

- the B-pillar upper trim (see **B-pillar upper trim: Removal - Refitting**) (71A, Body internal trim),
- the front side seat belt (see **Front side seat belt: Removal - Refitting**) (88C, Airbags and pretensioners),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim).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RENAULT

# 6 Air conditioning

## 61A HEATING

## 62A AIR CONDITIONING

***X45***

**FEBRUARY 2008** **Edition Anglaise**

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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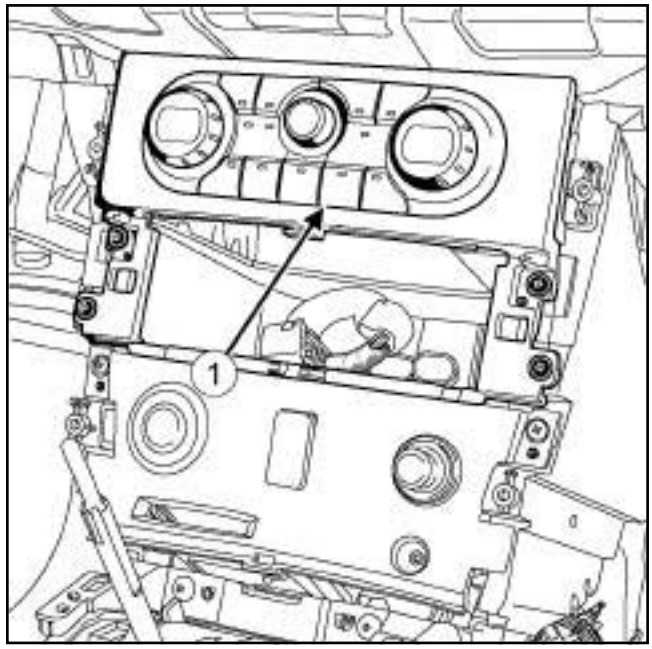
# Heating: List and location of components



LEFT-HAND DRIVE

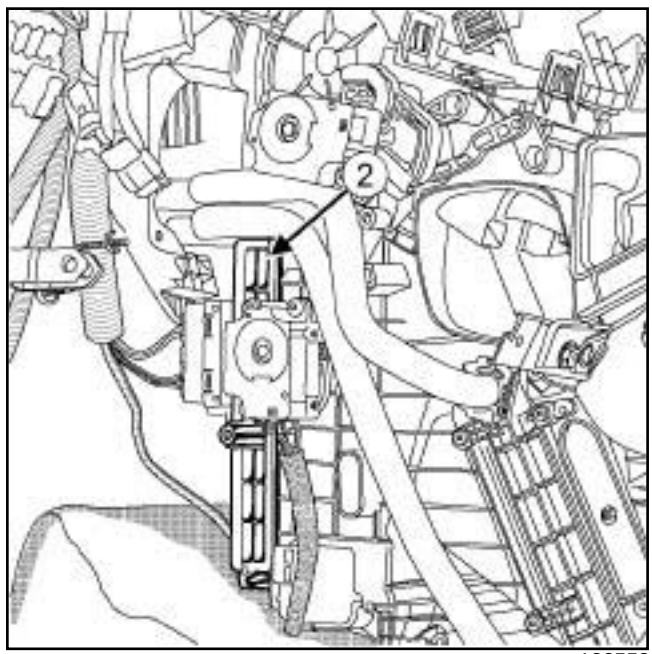
| No. | Description |
|---|---|
| ***(1)*** | Control panel |
| ***(2)*** | Cabin filter |
| ***(3)*** | Rear air distribution duct |
| ***(4)*** | Recirculation motor |
| ***(5)*** | Air mixing motor (front passenger side) |
| ***(6)*** | Air mixing motor (driver's side) |
| ***(7)*** | Air distribution motor |
| ***(8)*** | Air distribution unit |
| ***(9)*** | Heater matrix |
| ***(10)*** | Motor-driven fan assembly |
| ***(11)*** | Heater resistance |
| ***(12)*** | Passenger compartment fan assembly control unit (front and rear) |
| ***(13)*** | Front side air distribution duct |
| ***(14)*** | Glove box air duct |
| ***(15)*** | A-pillar air distribution duct |
| ***(16)*** | Front central air distribution duct |
| ***(17)*** | Rear fan assembly |

**1 - Control Panel**




132552

**2 - Cabin filter**




132553



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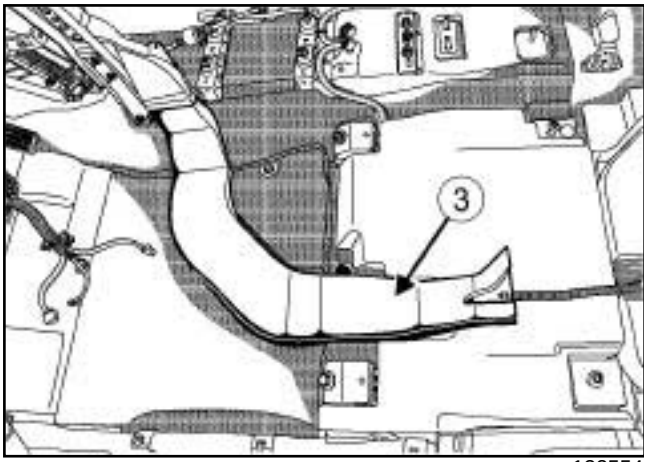
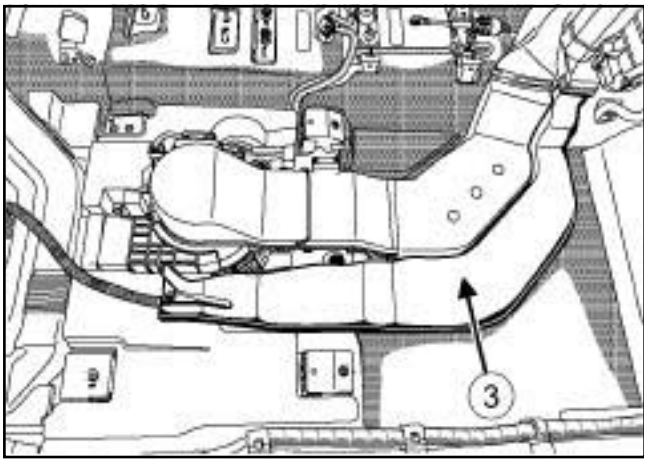
LEFT-HAND DRIVE

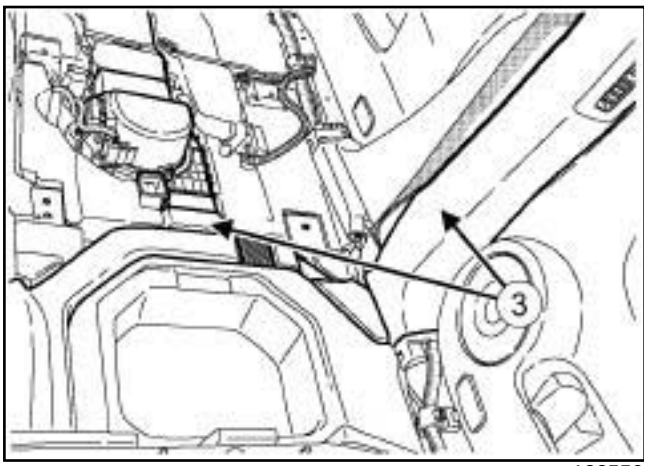
**3 - Rear air distribution duct**



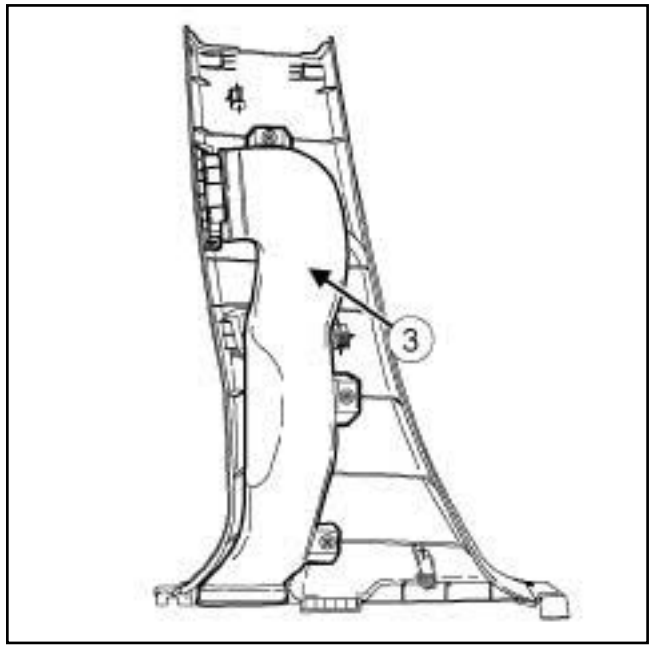

132554




132555

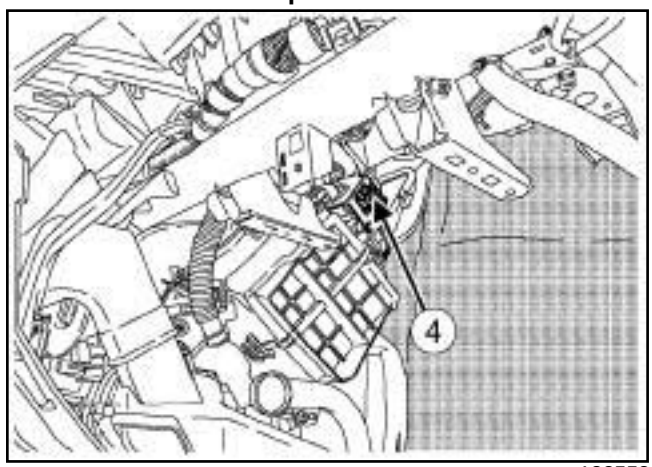



132556



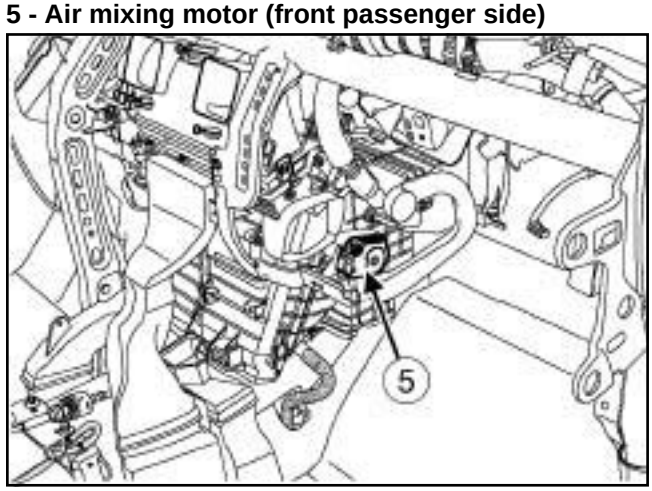

132557

**4 - Air recirculation flap motor**




132558

**5 - Air mixing motor (front passenger side)**




132559



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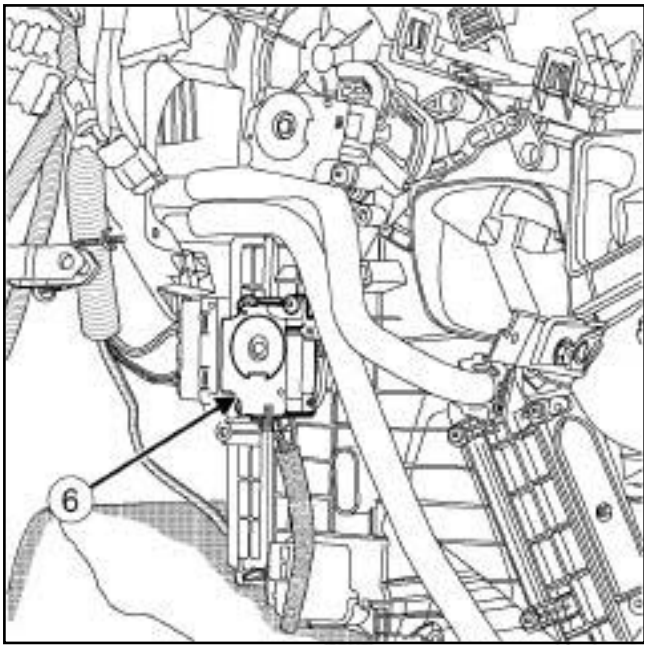
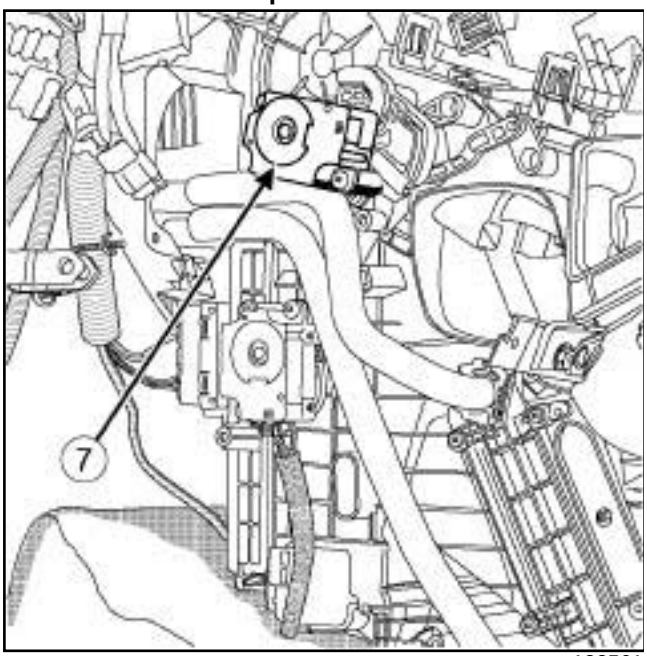
LEFT-HAND DRIVE

**6 - Air mixing motor (driver's side)**



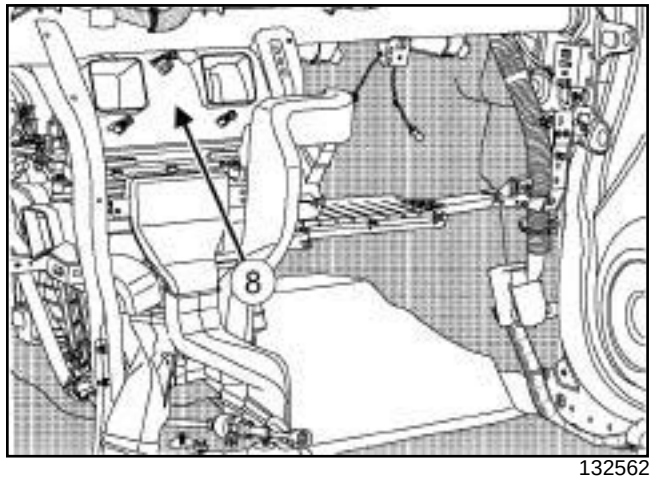

132560

**7 - Air distribution flap motor**



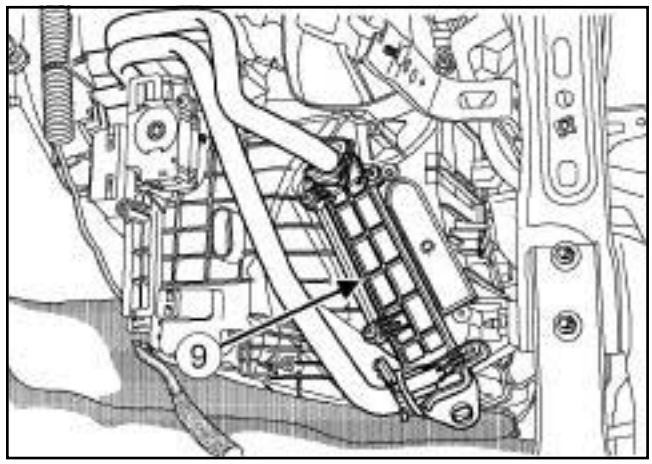

132561

**8 - Air distribution unit**



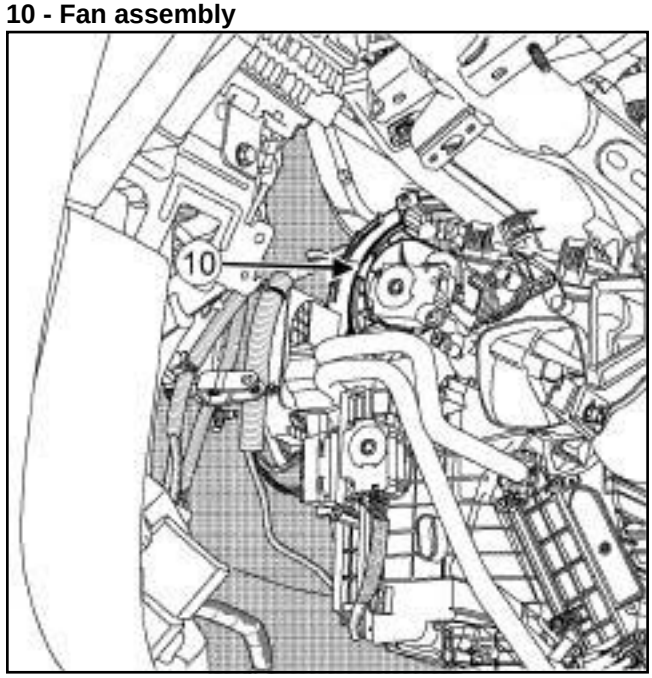

132562

**9 - Heater matrix**




132563

**10 - Fan assembly**




132564



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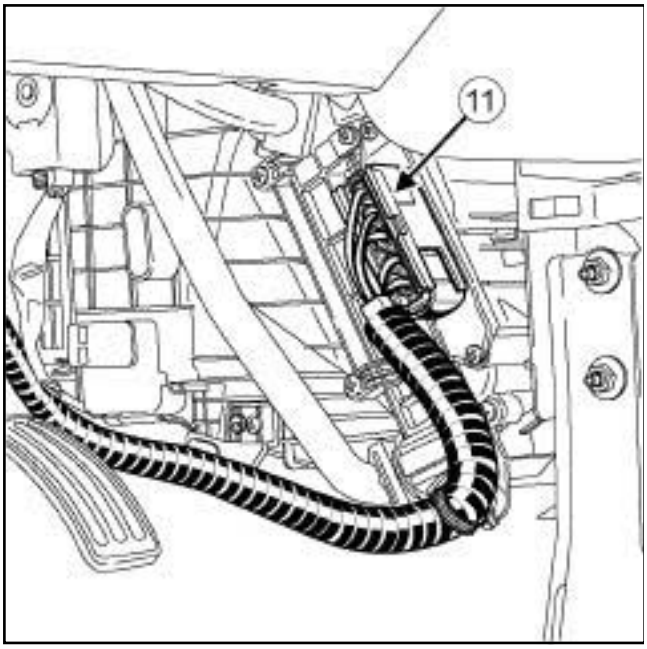
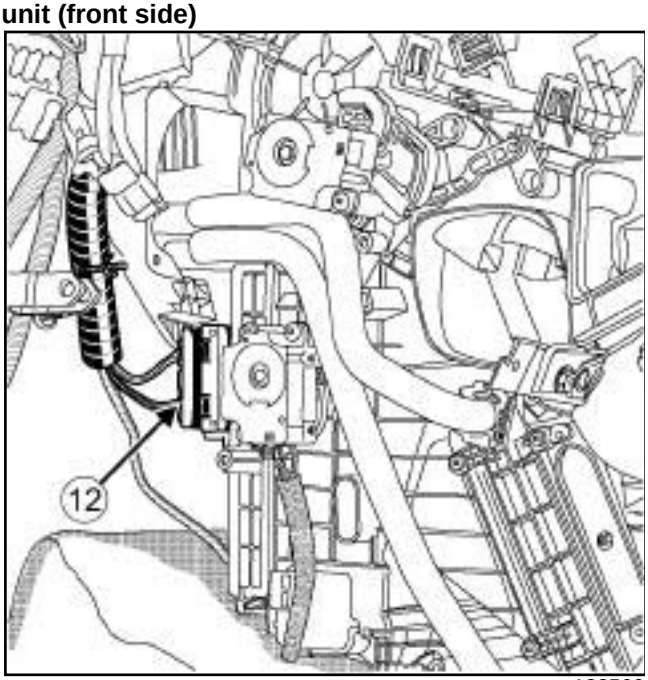
LEFT-HAND DRIVE

**11 - Heating resistor**



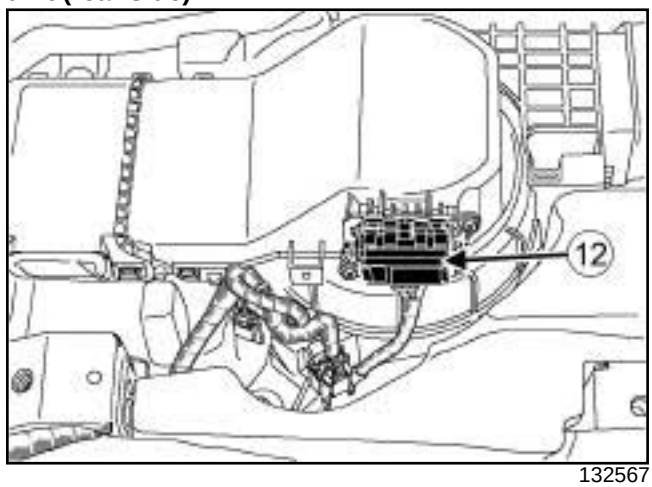

132565

**12 - Passenger compartment fan assembly control unit (front side)**



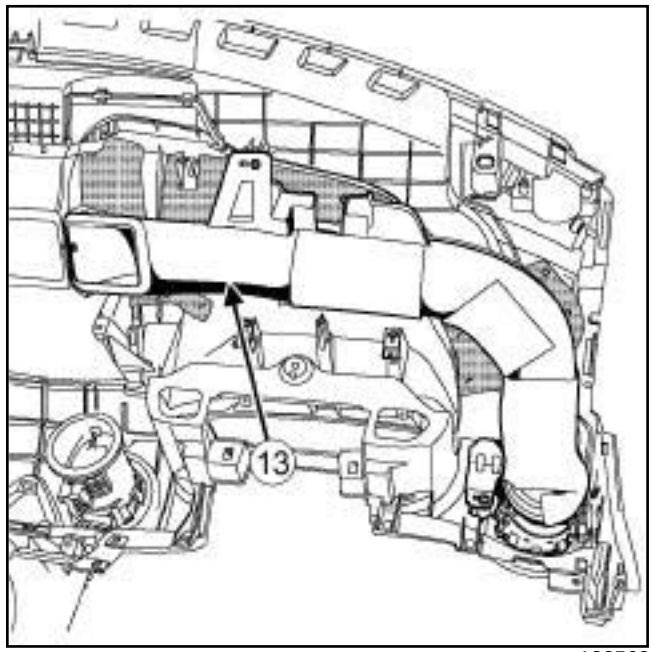

132566

**12 - Passenger compartment fan assembly control unit (rear side)**




132567

**13 - Front side air distribution duct**




132568



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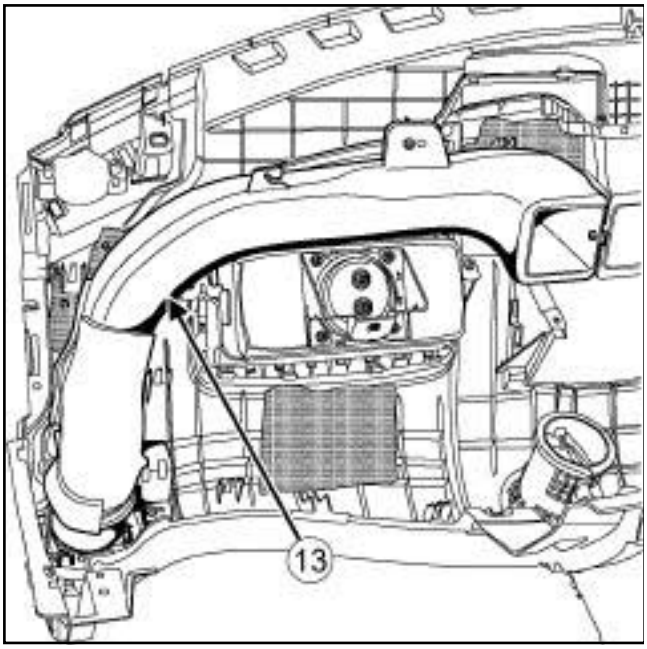
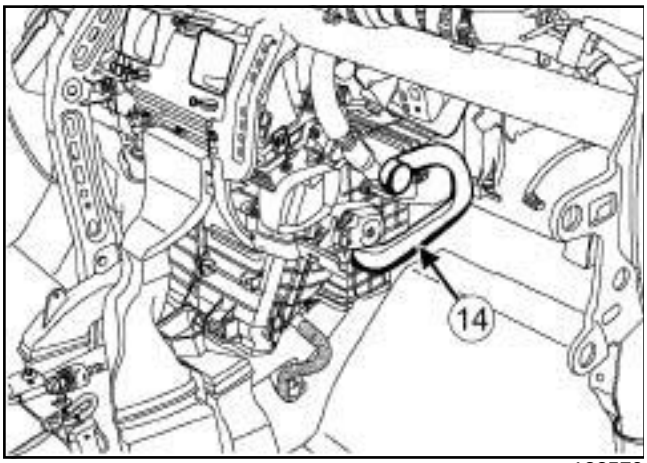
LEFT-HAND DRIVE



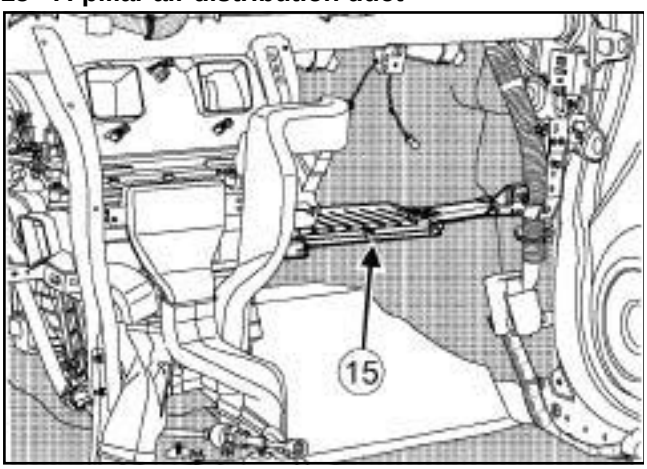

132569

**14 - Glove box air duct**

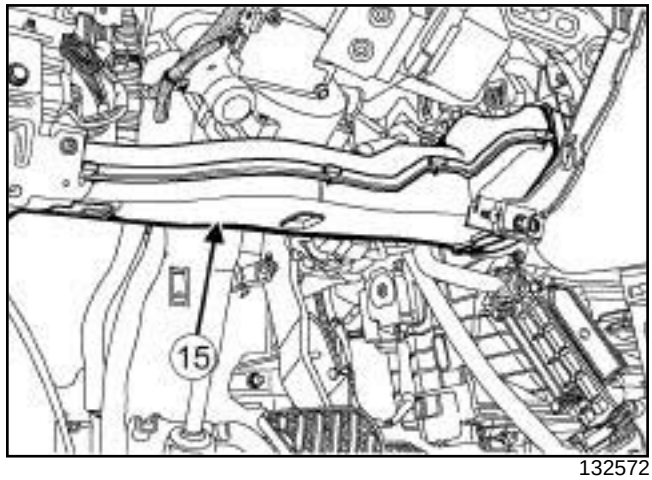



132570

**15 - A-pillar air distribution duct**

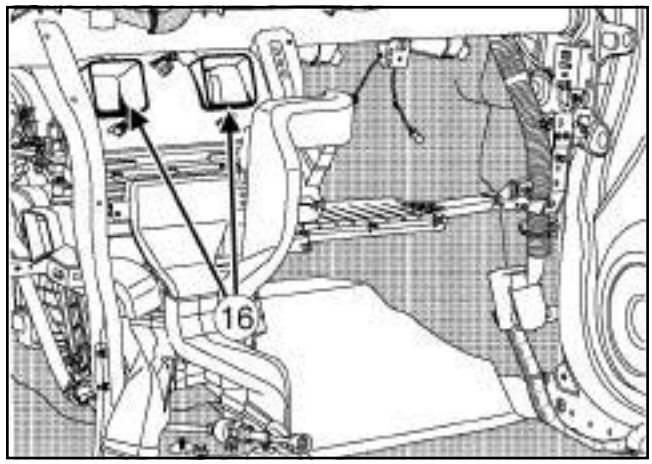



132571



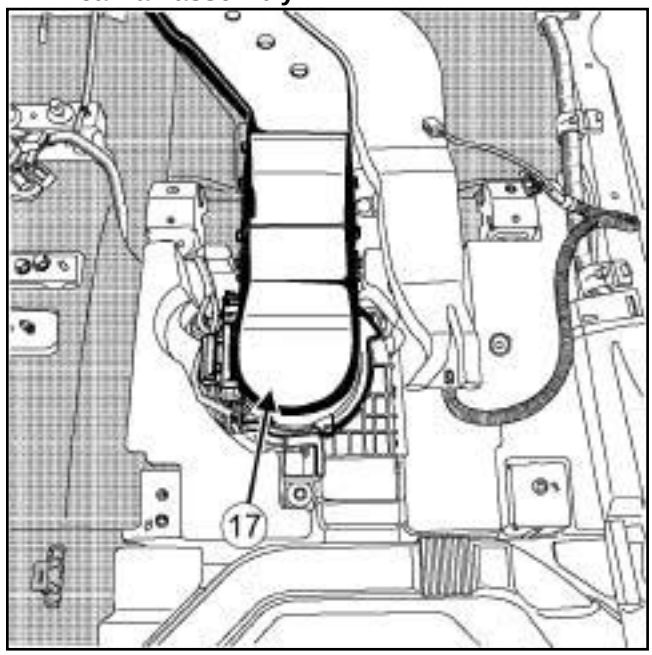

132572

**16 - Front central air distribution duct**




132573

**17 - Rear fan assembly**




132574



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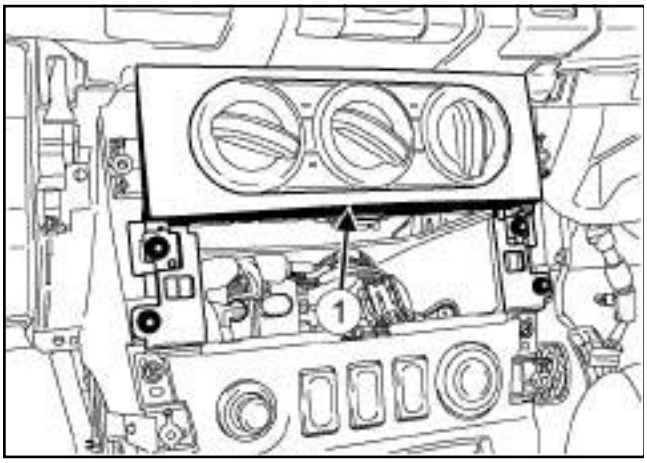
RIGHT-HAND DRIVE

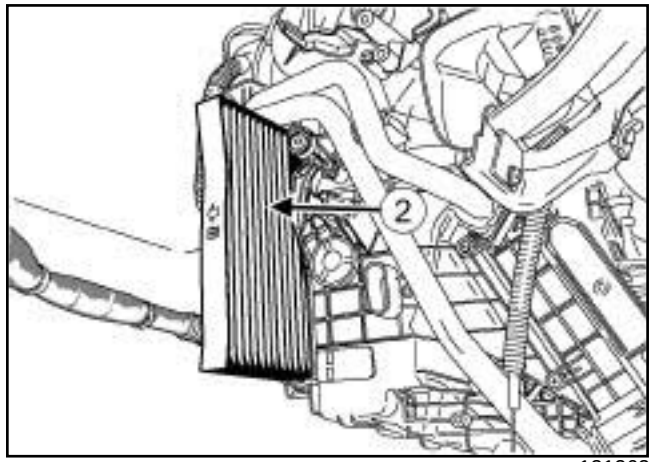
| No. | Description |
|---|---|
| *(1)* | Control panel |
| *(2)* | Passenger compartment filter |
| *(3)* | Rear air distribution duct |
| *(4)* | Recirculation motor |
| *(5)* | Air mixer motor (front passenger side) |
| *(6)* | Air mixer motor (driver's side) |
| *(7)* | Air distribution motor |
| *(8)* | Air distribution unit |
| *(9)* | Heater matrix |
| *(10)* | Motor-driven fan assembly |
| *(11)* | Heater resistance |
| *(12)* | Passenger compartment fan assembly control unit (front and rear) |
| *(13)* | Front side air distribution duct |
| *(14)* | Glove box air duct |
| *(15)* | A-pillar air distribution duct |
| *(16)* | Front central air distribution duct |
| *(17)* | Rear fan assembly |

**1 - Control Panel**



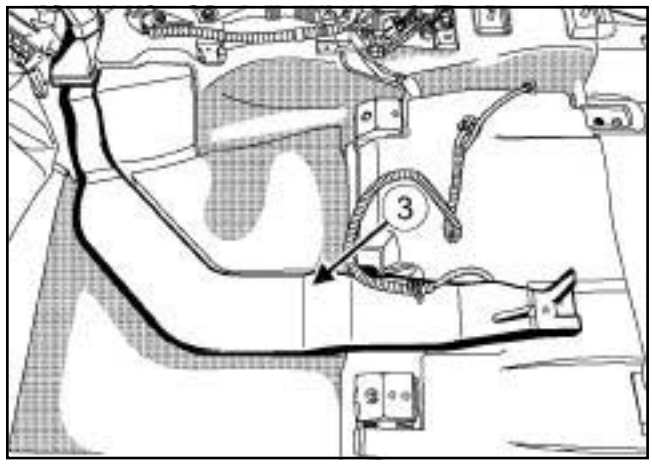

131715

**2 - Passenger compartment filter**

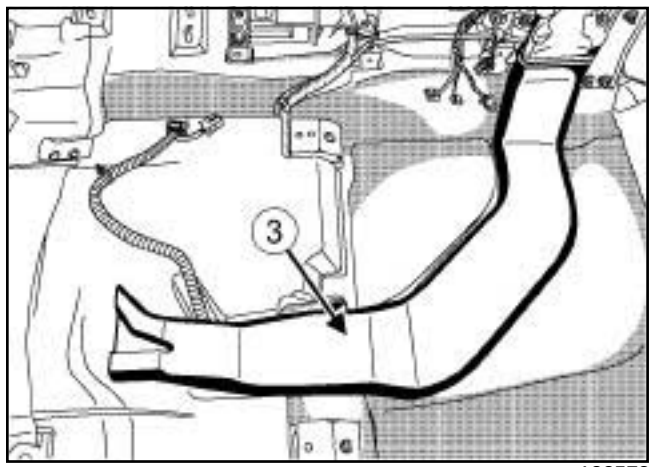



131262

**3 - Rear air distribution duct**




132577




132578



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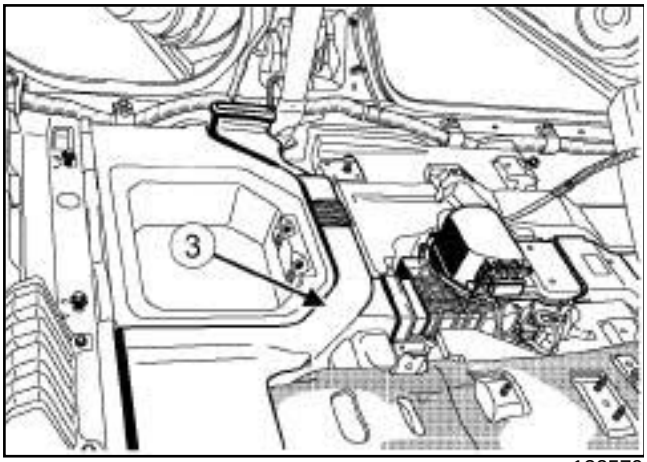
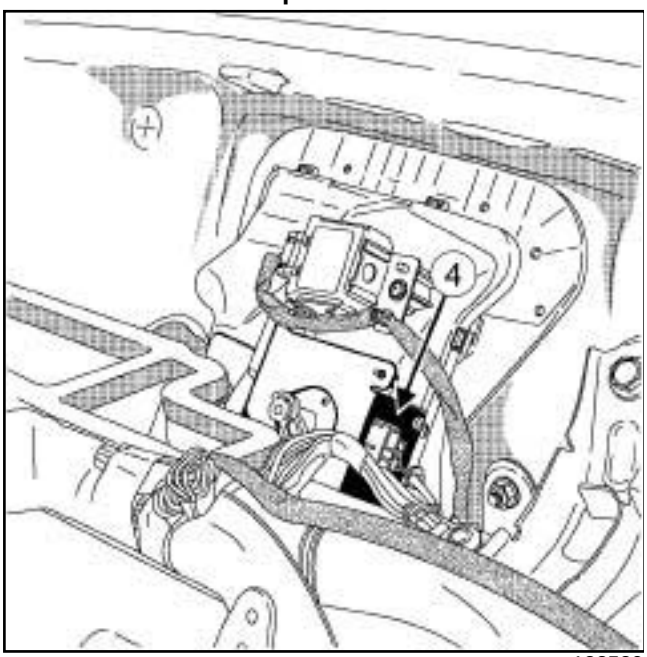
RIGHT-HAND DRIVE



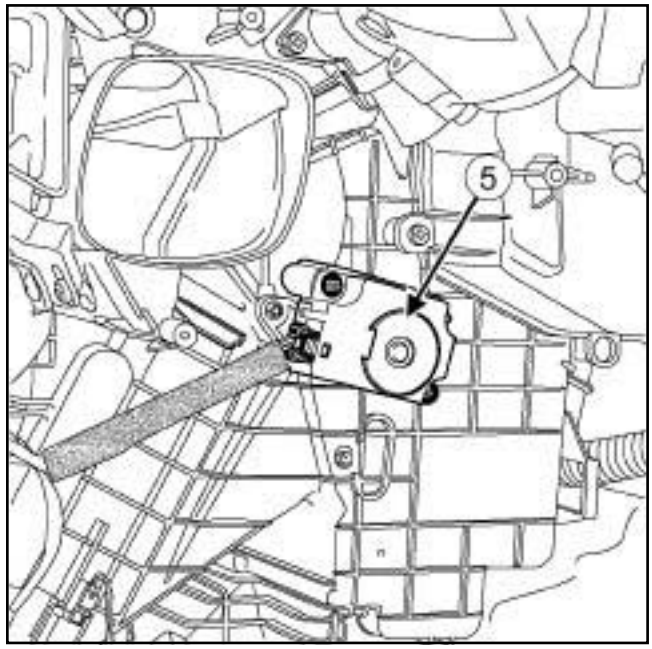

132579

**4 - Air recirculation flap motor**



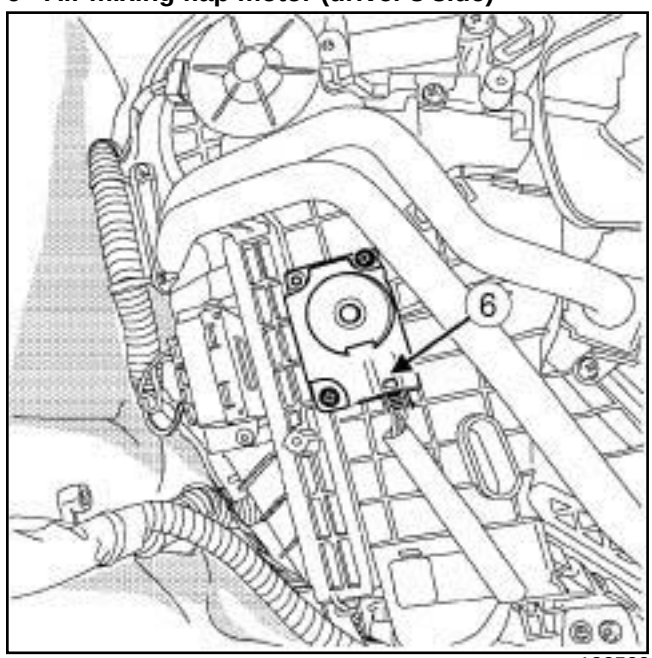

132580

**5 - Air mixing flap motor (front passenger side)**




132581

**6 - Air mixing flap motor (driver's side)**




132582



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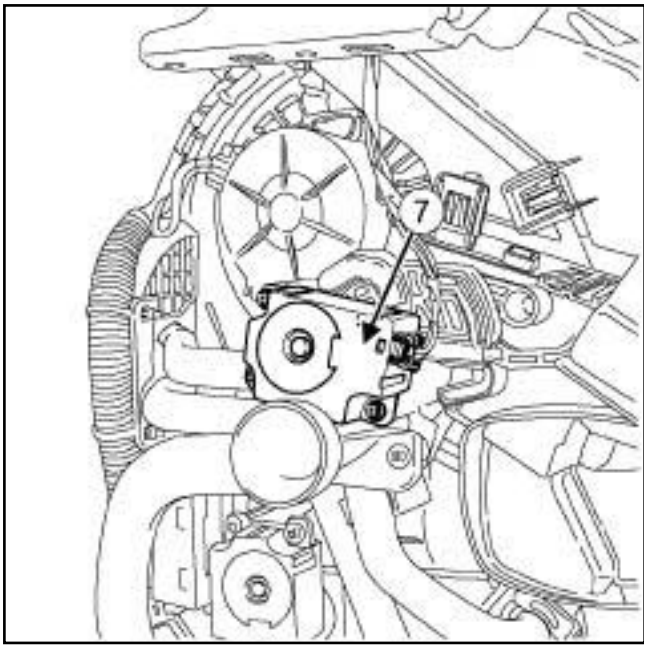
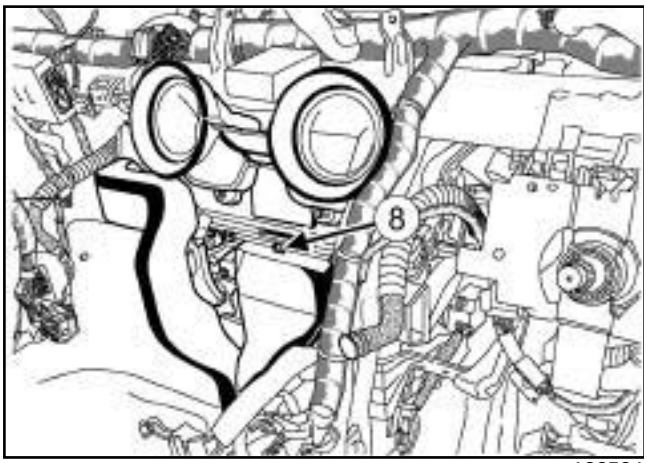
RIGHT-HAND DRIVE

**7 - Air distribution flap motor**



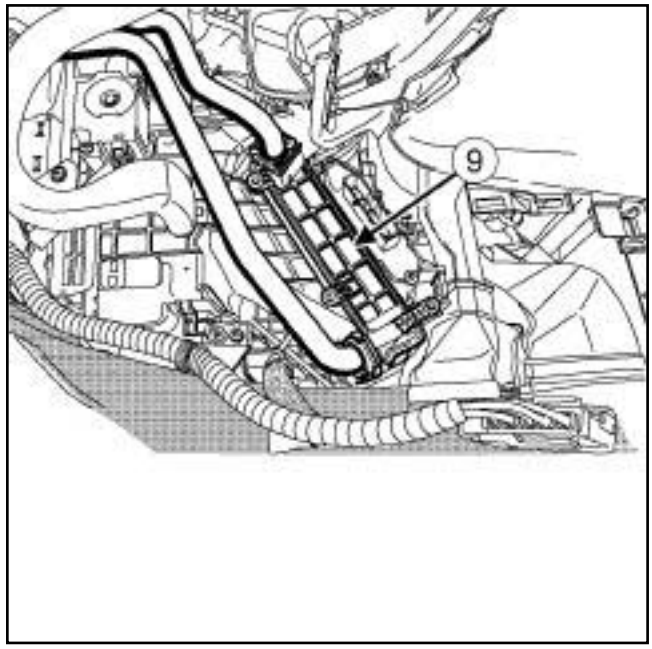

132583

**8 - Air distribution unit**



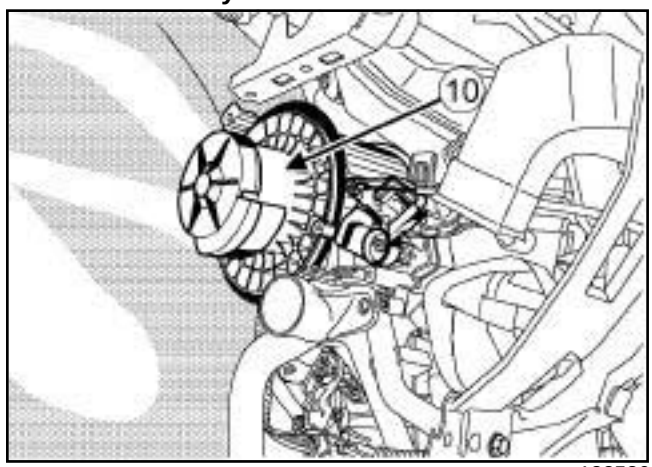

132584

**9 - Heater matrix**



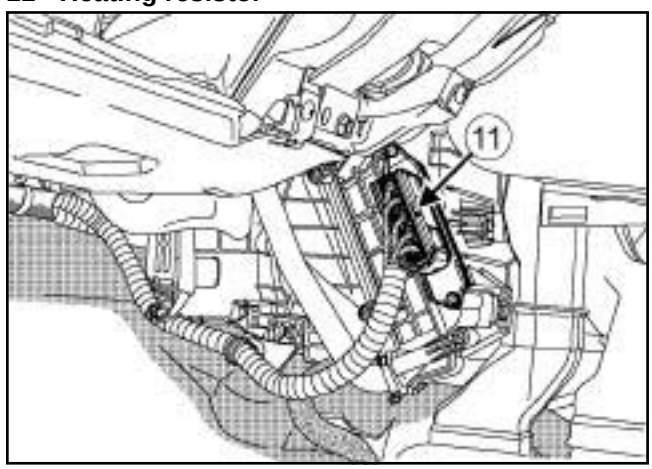

132585

**10 - Fan assembly**




132586

**11 - Heating resistor**




132587



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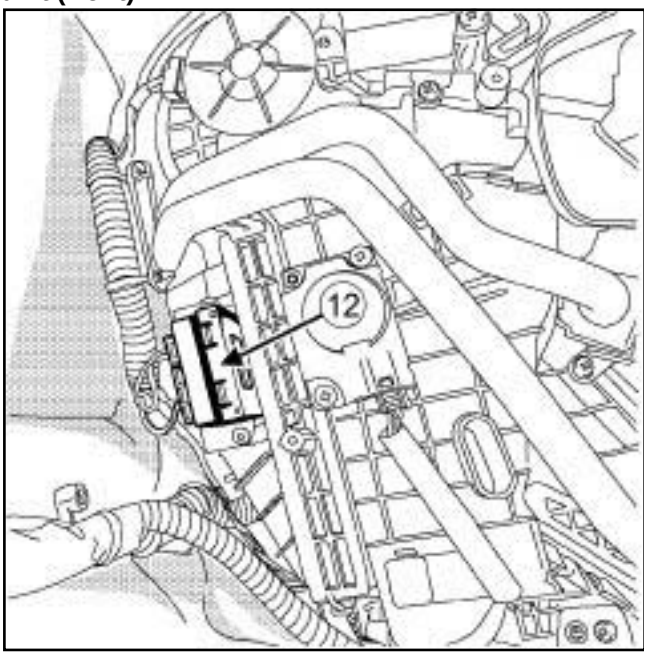
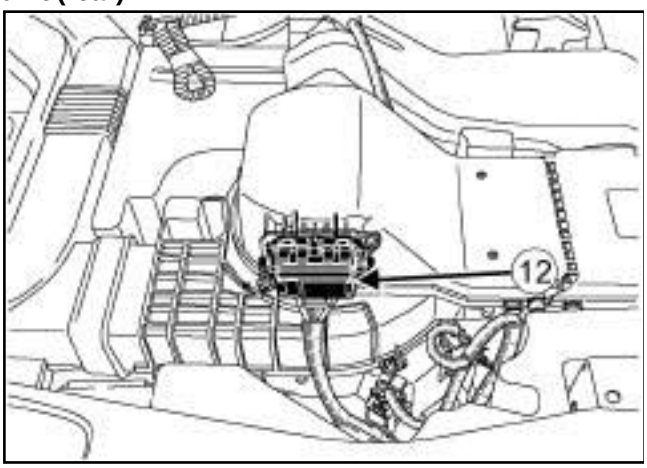
RIGHT-HAND DRIVE

**12 - Passenger compartment fan assembly control unit (front)**



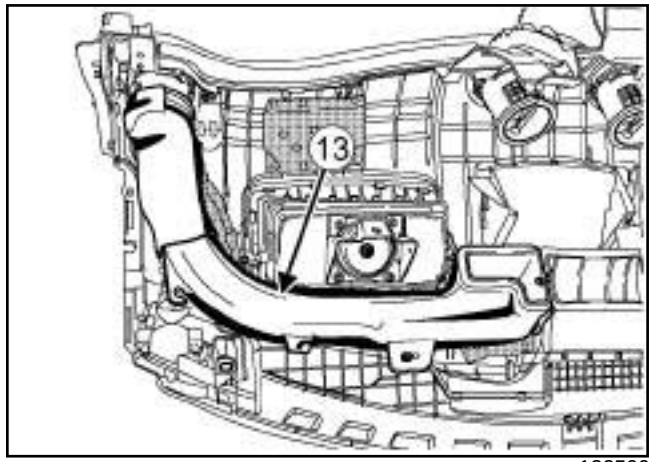

132588

**12 - Passenger compartment fan assembly control unit (rear)**

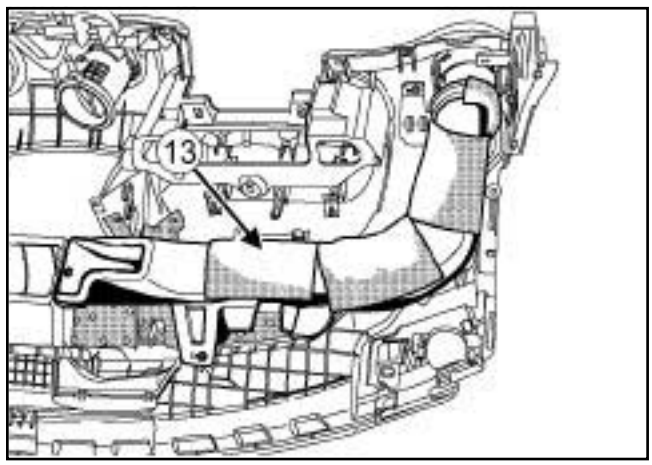



132589

**13 - Front air distribution duct**

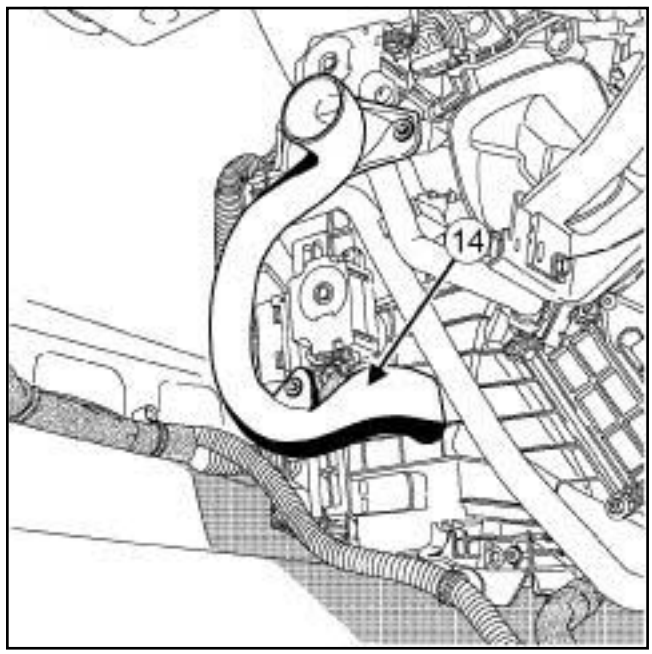



132590




132591

**14 - Glove box air duct**




132592



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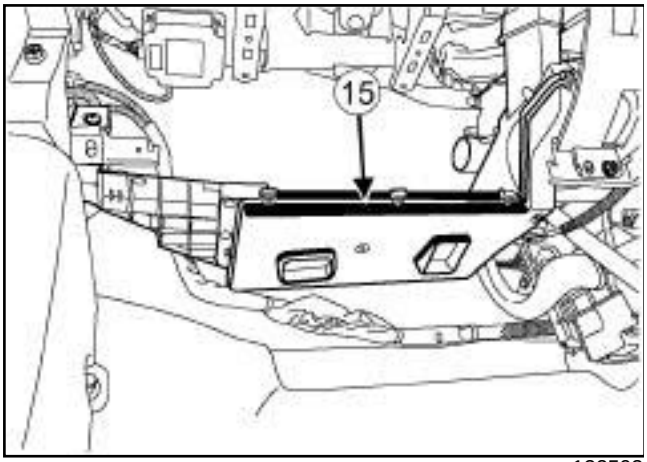
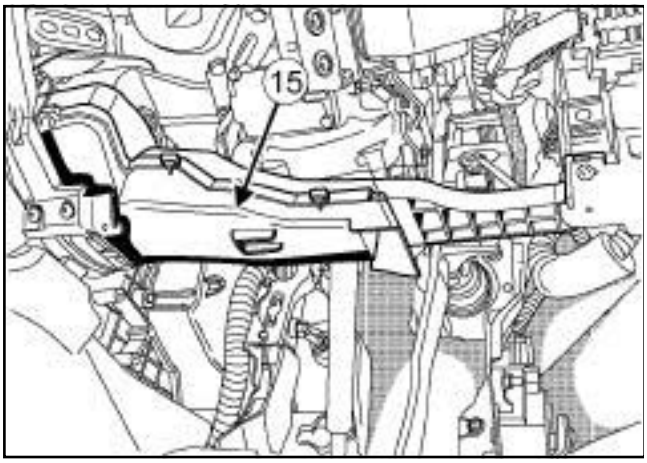
RIGHT-HAND DRIVE

**15 - A-pillar air distribution duct**

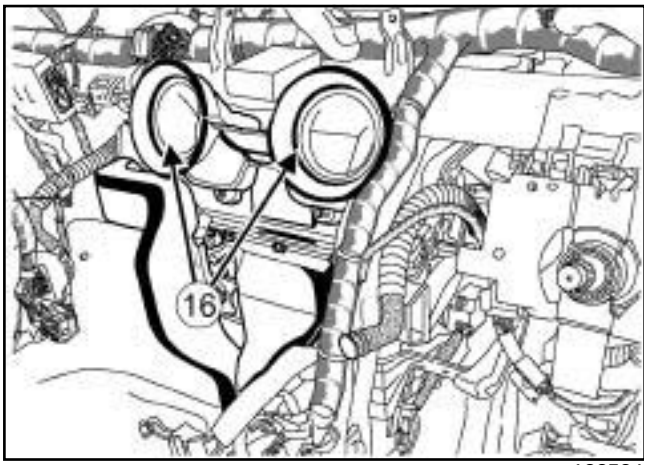



132593



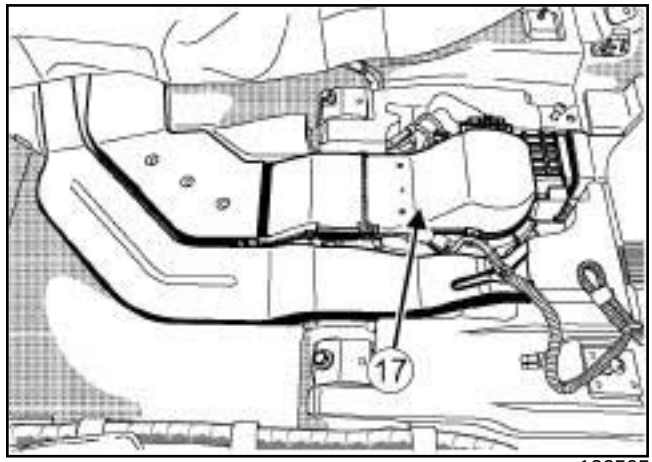

132594

**16 - Front central air distribution duct**




132584

**17 - Rear fan assembly**




132595



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# Cabin filter: Removal - Refitting

LEFT-HAND DRIVE

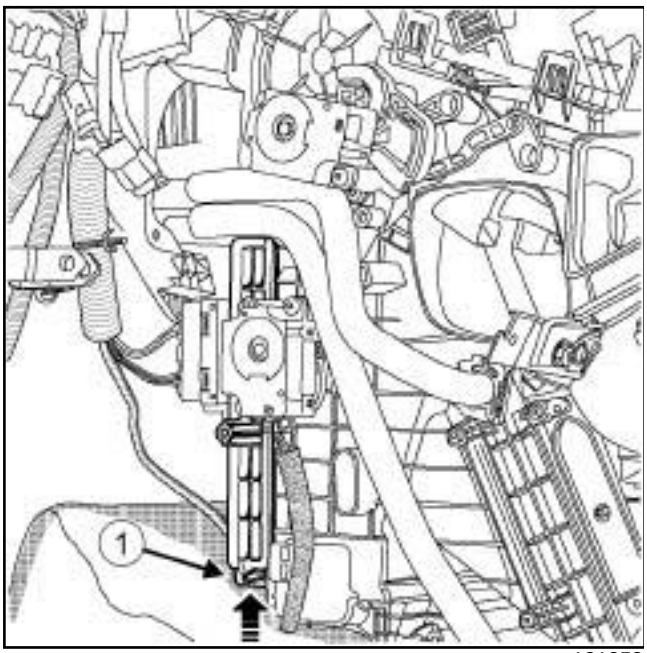
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131258

❏ Unclip the retaining clip (**1**) .

> Note:
>
> Foreign bodies (leaves, insects etc.) are likely to accumulate in the passenger compartment filter.
>
> Remove the passenger compartment filter with care to prevent foreign bodies getting into the evaporator.

❏ Remove:

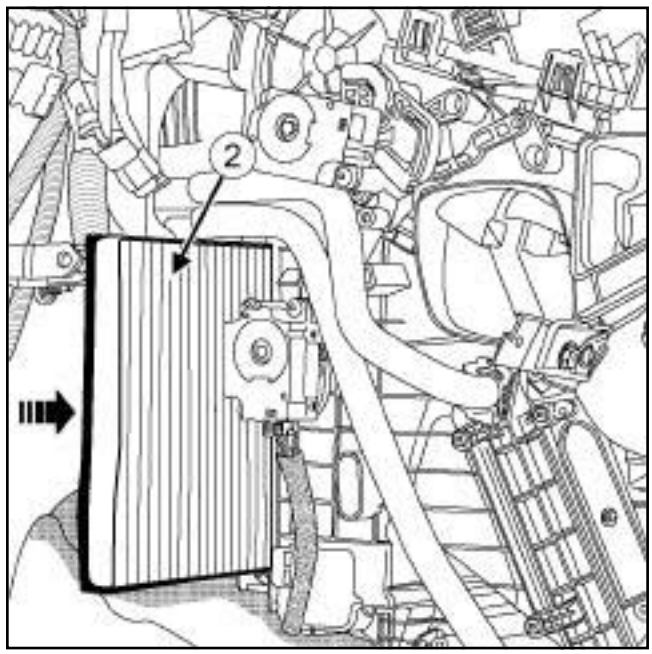
- the cabin filter cover,
- the passenger compartment filter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check for foreign bodies in the passenger compartment filter housing, and clean thoroughly if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED




131259

❏ Refit:

- the cabin filter (**2**) ,
- the passenger compartment filter cover.

❏ Clip on the retaining clip.

### III - FINAL OPERATION.

❏ Refit:

- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



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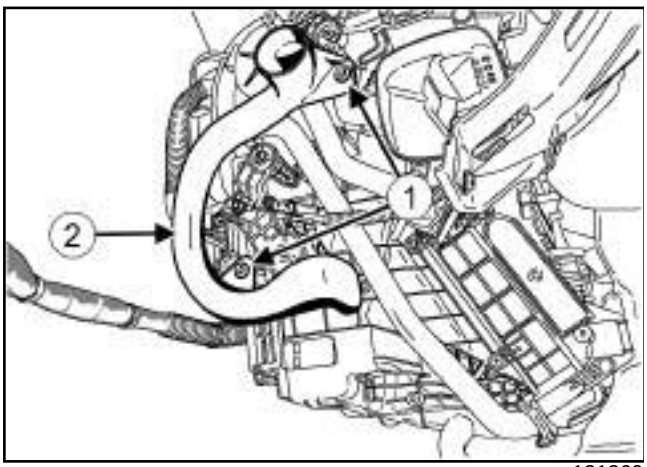
RIGHT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

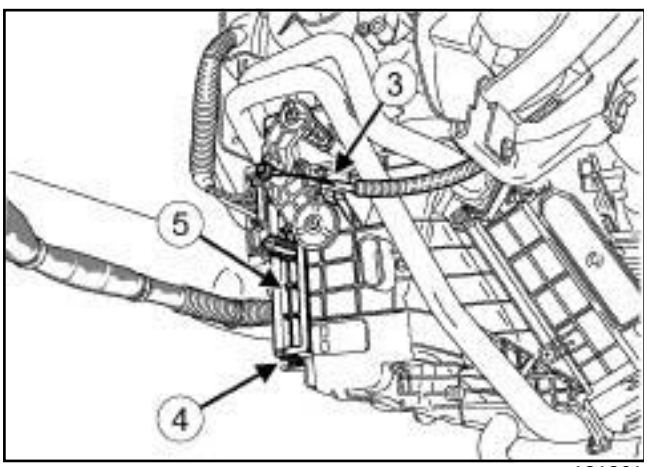



131260

❏ Remove:

- the bolts (**1**) ,
- the glove box air duct (**2**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131261

❏ Remove the air mixing control cable (**3**) .

❏ Unclip the retaining clip ***(4)*** .

Note:

Foreign bodies (leaves, insects etc.) are likely to accumulate in the passenger compartment filter.

Remove the passenger compartment filter with care to prevent foreign bodies getting into the evaporator.

❏ Remove:

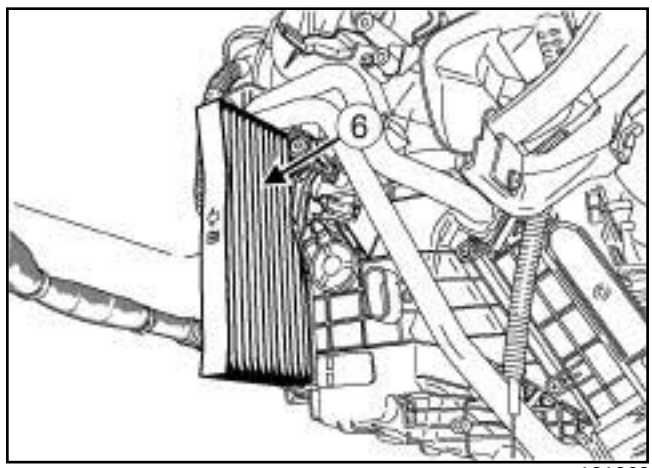
- the passenger compartment filter cover ***(5)*** ,
- the passenger compartment filter.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check for foreign bodies in the passenger compartment filter housing, and clean thoroughly if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED




131262

❏ Refit:

- the cabin filter (**6**) ,
- the passenger compartment filter cover.

❏ Clip on the retaining clip ***(4)*** .

❏ Refit:

- the air mixing control cable.
- the glove box air duct,
- the air duct screws.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RIGHT-HAND DRIVE

**III - FINAL OPERATION.**

❑ Refit:

- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

#### 1 - Rear left-hand air distribution duct

❏ Remove:

- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the driver's seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the floor carpet on the driver's side (see **Floor carpet: Removal - Refitting**) (71A, Bodywork interior trim).

#### 2 - Rear right-hand air distribution duct

❏ Remove:

- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the front passenger seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the floor carpet on the passenger side (see **Floor carpet: Removal - Refitting**) (71A, Bodywork interior trim).

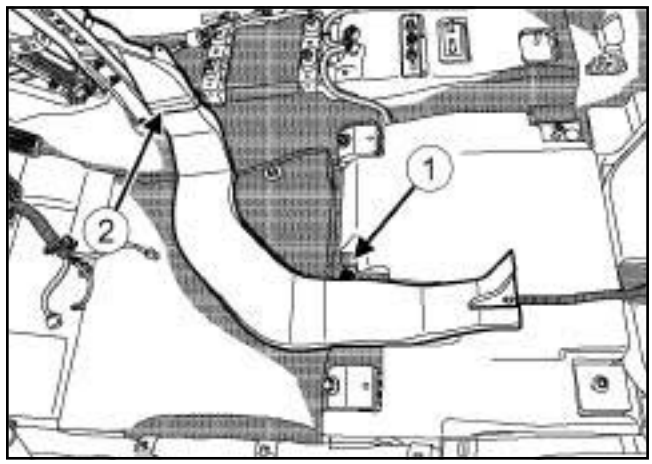
#### 3 - Rear air distribution duct

❏ Remove:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the front seats (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),
- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Rear left-hand air distribution duct



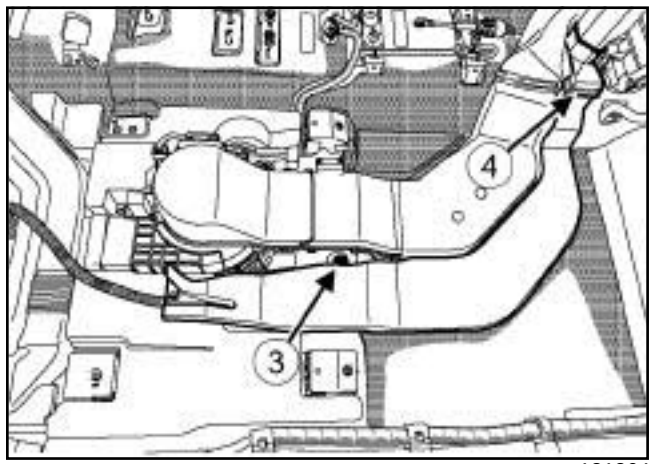
131263

❏ Unclip the retaining clip (**1**) for the rear left-hand air distribution duct.

❏ Disconnect the rear left-hand air distribution duct at ***(2)*** .

❏ Remove the rear left-hand air distribution duct.

#### 2 - Rear right-hand air distribution duct



131264

❏ Unclip the retaining clip (**3**) for the rear right-hand air distribution duct.

❏ Disconnect the rear right-hand air distribution duct at ***(4)*** .

❏ Remove the rear right-hand air distribution duct.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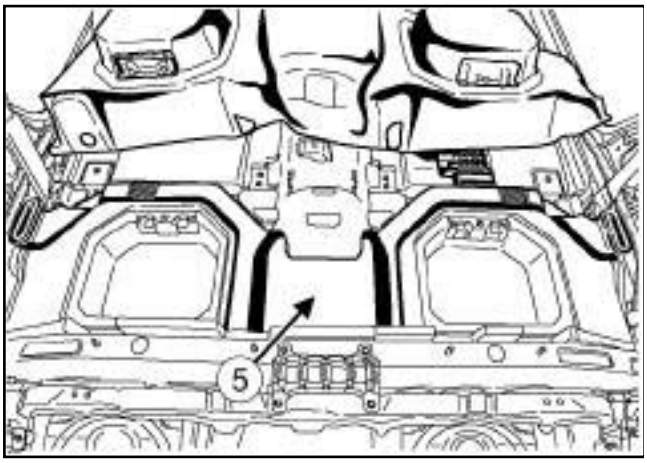
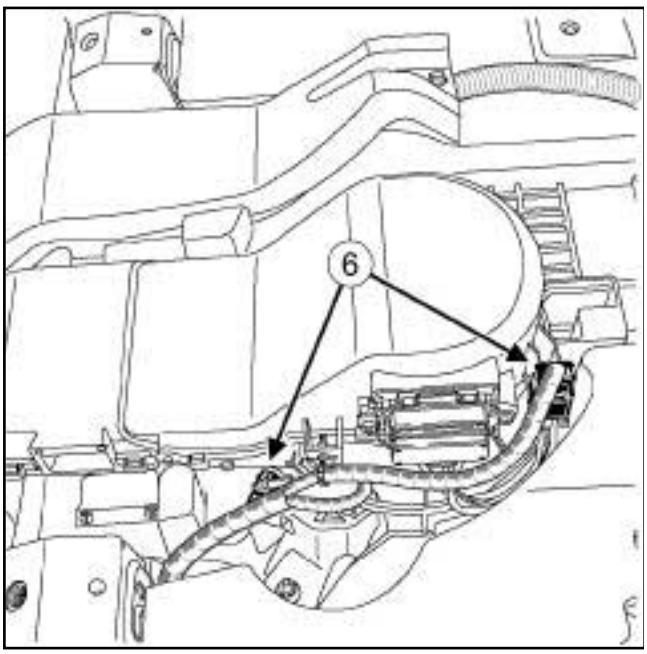
**3 - Rear air distribution duct**



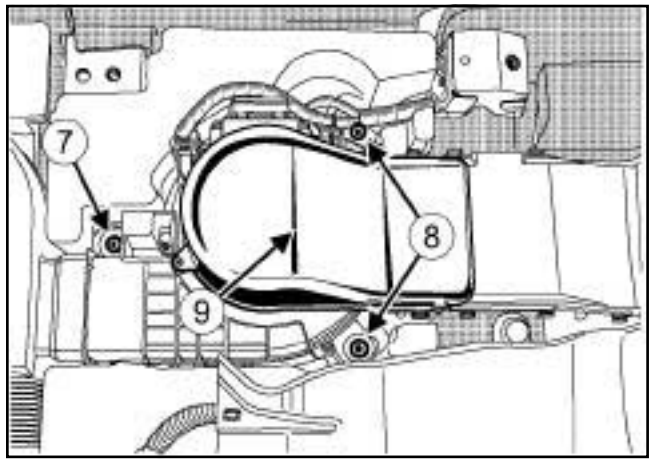

131265

❏ Remove the rear section of the rear air distribution duct (**5**) .




131266

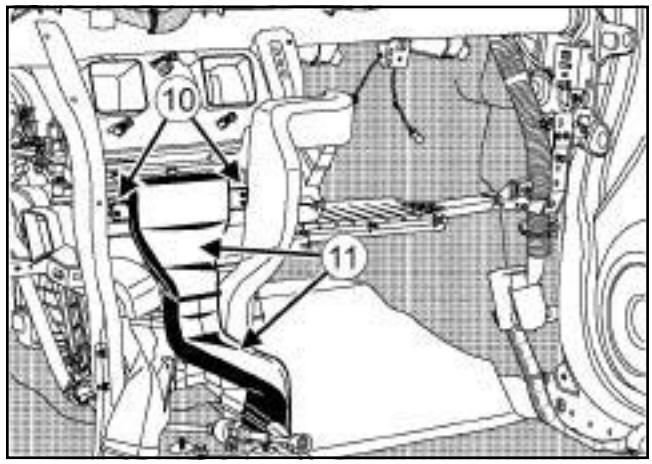
❏ Disconnect the connectors (**6**) .




131267

❏ Remove:

- the bolt (**7**) ,
- the nuts (**8**) ,
- the rear blower unit (**9**) .




131268

❏ Remove:

- the bolts (**10**) ,
- the front section of the rear air distribution duct (**11**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Rear left-hand air distribution duct**

❏ Refit:

- the rear left-hand air distribution duct,
- the retaining clip on the rear left-hand air distribution duct.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**2 - Rear right-hand air distribution duct**

❏ Refit:

- the rear right-hand air distribution duct,
- the retaining clip on the rear right-hand air distribution duct.

**3 - Rear air distribution duct**

❏ Refit:

- the front section of the rear air distribution duct,
- the screws for the front section of the rear air distribution duct,
- the rear fan assembly,
- the nuts for the rear fan assembly,
- the screw for the rear fan assembly.

❏ Connect the connectors ***(6)*** .

❏ Refit the rear section of the rear air distribution duct.

**II - FINAL OPERATION.**

**1 - Rear left-hand air distribution duct**

❏ Refit:

- the floor carpet on the driver's side (see **Floor carpet: Removal - Refitting**) (71A, Bodywork interior trim),
- the driver's seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

**2 - Rear right-hand air distribution duct**

❏ Refit:

- the floor carpet on the passenger side (see **Floor carpet: Removal - Refitting**) (71A, Bodywork interior trim),
- the front passenger seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

**3 - Rear air distribution duct**

❏ Refit:

- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the front seats (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the cab floor lining (see **Cab floor lining: Removal - Refitting**) (71A, Body internal trim),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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LEFT-HAND DRIVE

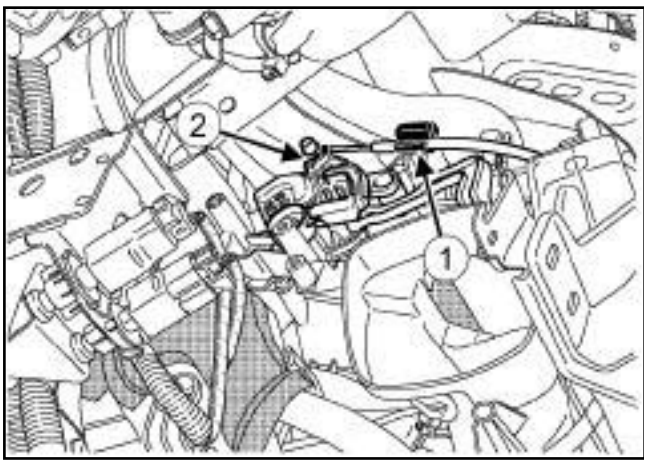
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the left-hand side trim on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131151

❏ Unclip the air distribution unit cable sleeve stop (**1**) .

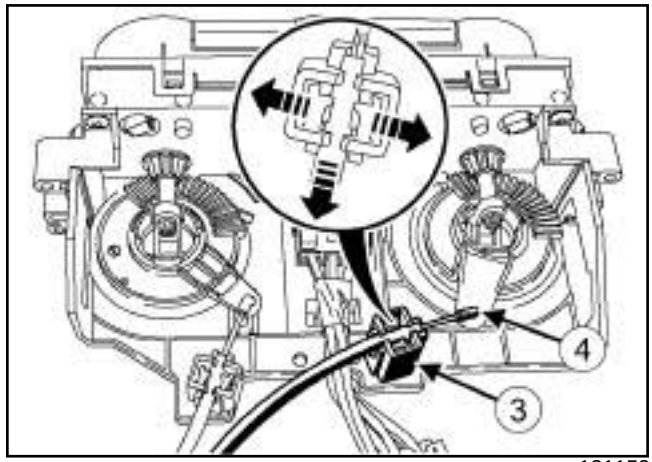
❏ Remove:

- the air distribution flap seal ***(2)*** ,
- the air distribution control cable on the air distribution unit.

Note:

Note the route of the air distribution control cable.

❏ Remove the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .




131152

❏ Unclip the sleeve stop at (**3**) .

❏ Remove the seal ***(4)*** .

❏ Remove the air distribution control cable on the control panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the air distribution control cable on the control panel.

❏ Refit the seal ***(4)*** .

❏ Clip the sleeve stop at ***(3)*** .

❏ Refit:

- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the air distribution control cable to the air distribution unit,
- the seal to the air distribution flap.

❏ Clip the sleeve stop onto the distribution unit.

### II - FINAL OPERATION.

❏ Refit:

- the left-hand side trim on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),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LEFT-HAND DRIVE

- the driver's side A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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# Air distribution cable: Removal - Refitting

RIGHT-HAND DRIVE

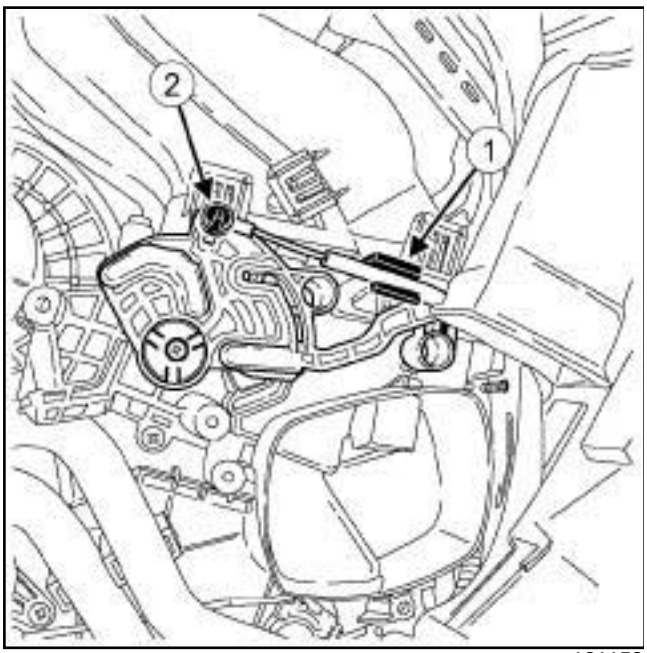
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the right-hand side trim on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131153

❏ Unclip the cable sleeve stop (**1**) from the distribution unit.

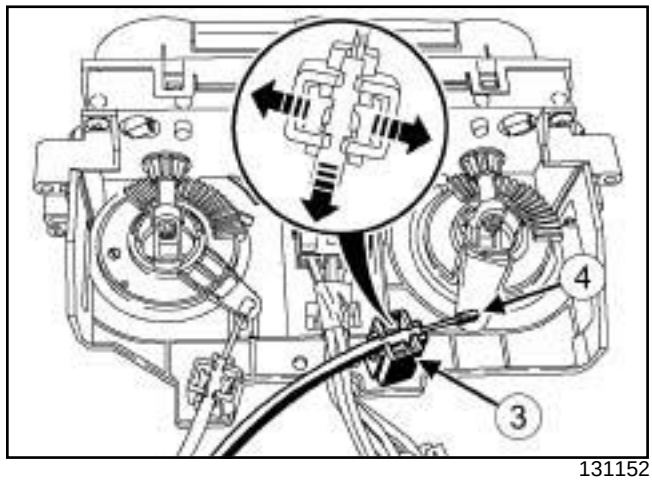
❏ Remove:

- the air distribution flap seal ***(2)*** ,
- the air distribution control cable on the air distribution unit.

Note:

Take note of the routing of the air distribution control cable.

❏ Remove the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .




131152

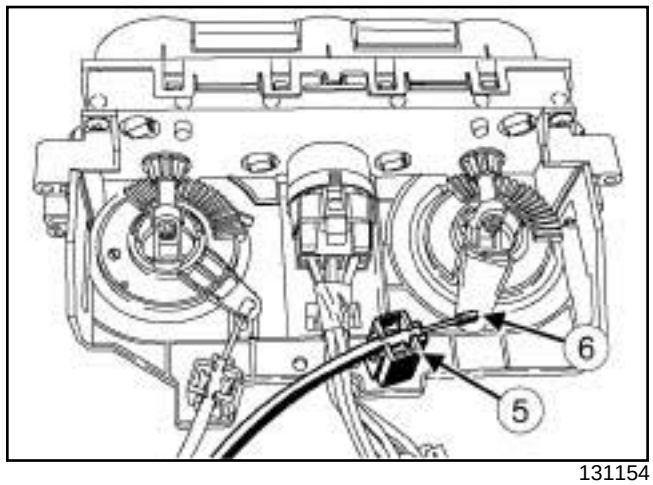
❏ Unclip the sheath stop (**3**) .

❏ Remove the seal ***(4)*** .

❏ Remove the air distribution control cable on the control panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131154

❏ Refit the air distribution control cable on the control panel.

❏ Refit the seal ***(6)*** .

❏ Clip the sleeve stop at ***(5)*** .

❏ Refit the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .



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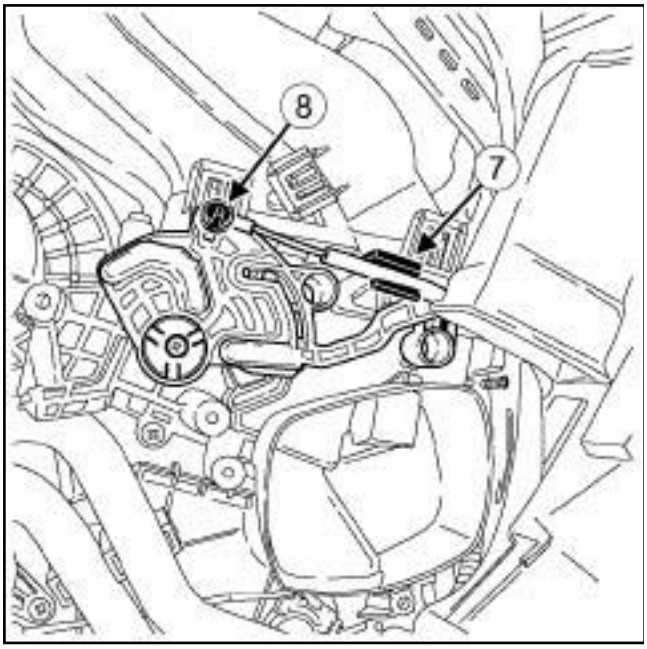
RIGHT-HAND DRIVE




131153

❑ Refit:

- the air distribution control cable on the air distribution unit,
- the seal (**8**) to the air distribution flap.

❑ Clip the sleeve stop ***(7)*** onto the distribution unit.

**II - FINAL OPERATION**

❑ Refit:

- the right-hand side trim on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).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# Air mixing cable: Removal - Refitting

LEFT-HAND DRIVE

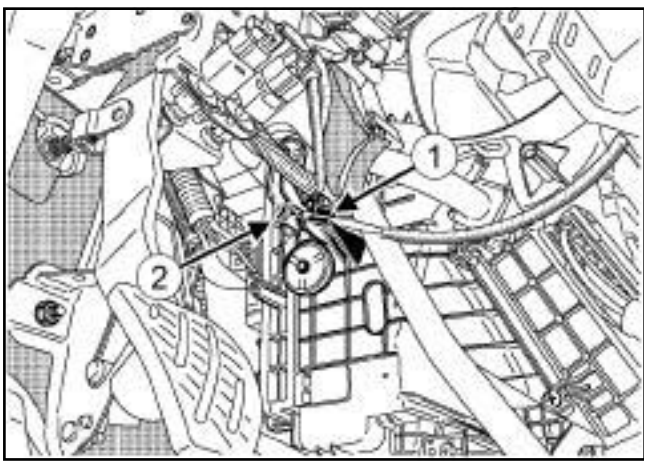
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the bottom cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the front panel side trim (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131155

❏ Unclip the cable sleeve stop (**1**) from the distribution unit.

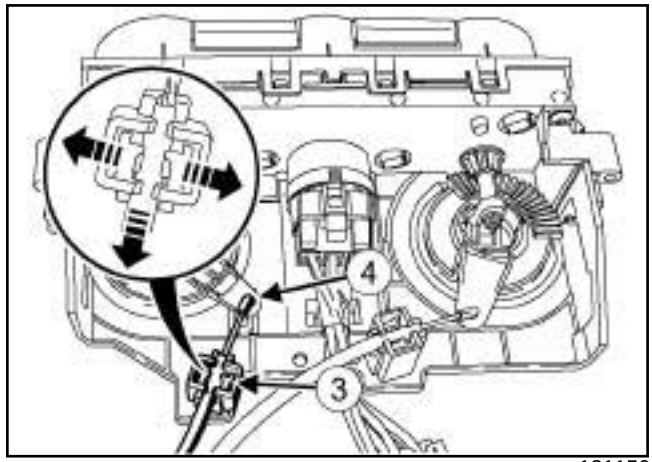
❏ Remove:

- the mixer flap seal ***(2)*** ,
- the air mixer flap control cable on the air distribution unit.

Note:

Note the route of the air mixing control cable.

❏ Remove the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .




131156

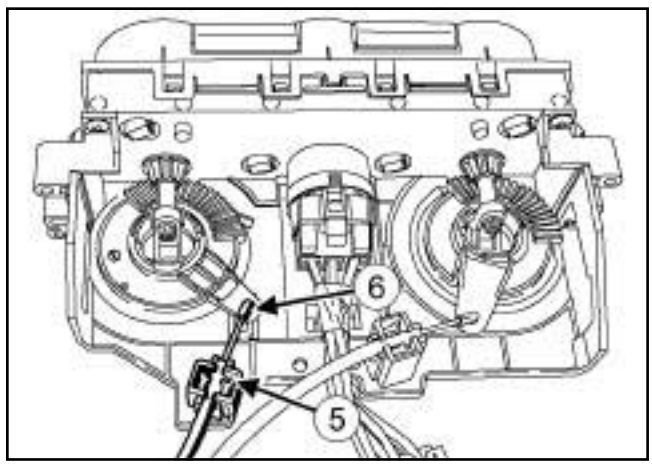
❏ Unclip the sheath stop (**3**) .

❏ Remove the seal ***(4)*** .

❏ Remove the air mixing control cable on the control panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131157

❏ Refit the air mixing control cable to the control panel.

❏ Refit the seal ***(6)*** .

❏ Clip the sleeve stop at ***(5)*** .

❏ Refit the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .



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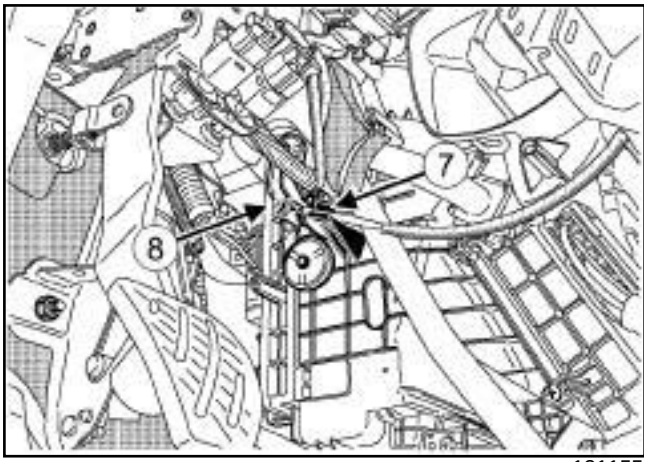
LEFT-HAND DRIVE



131155

❑ Refit:

- the air mixing control cable to the air distribution unit,
- the seal (**8**) to the air mixer flap.

❑ Clip the sleeve stop ***(7)*** onto the distribution unit.

**II - FINAL OPERATION.**

❑ Remove:

- the front panel side trim (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the bottom cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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# Air mixing cable: Removal - Refitting

RIGHT-HAND DRIVE

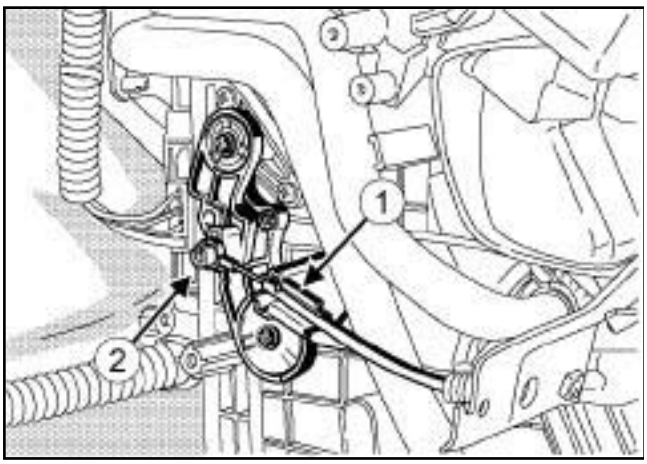
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the right-hand lower cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the right-hand side trim of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131158

❑ Unclip the cable sleeve stop (**1**) from the distribution unit.

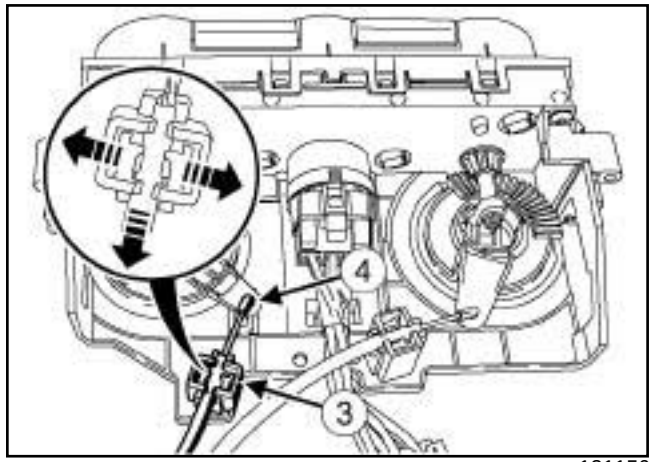
❑ Remove:

- the mixing flap seal ***(2)*** ,
- the air mixing control cable on the air distribution unit.

Note:

Note the route of the air mixing control cable.

❑ Remove the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .




131156

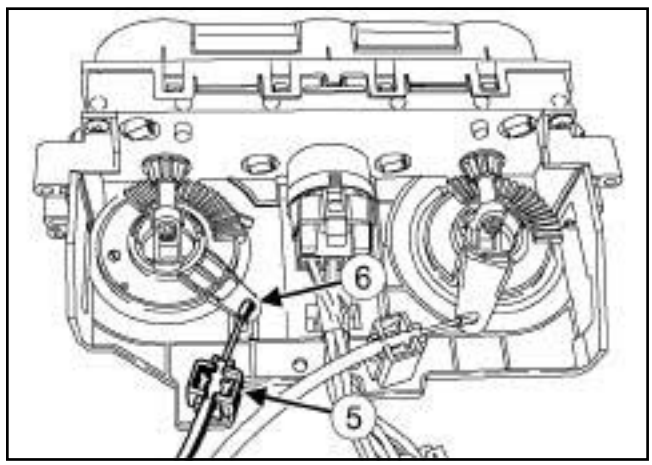
❑ Unclip the sheath stop (**3**) .

❑ Remove the seal ***(4)*** .

❑ Remove the air mixing control cable on the control panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




131157

❑ Refit the air mixing control cable to the control panel.

❑ Refit the seal ***(6)*** .

❑ Clip the sleeve stop at ***(5)*** .

❑ Refit the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) .



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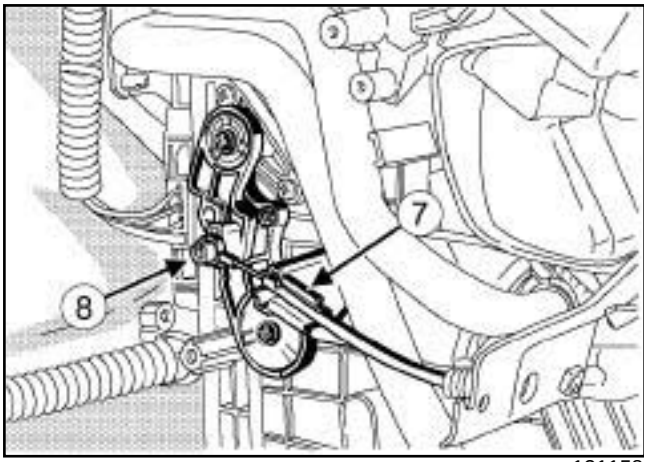
RIGHT-HAND DRIVE



131158

❑ Refit:

- the air mixing control cable to the air distribution unit,
- the seal (**8**) to the air mixing flap.

❑ Clip the sleeve stop ***(7)*** onto the distribution unit.

**II - FINAL OPERATION**

❑ Refit:

- the right-hand side trim on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the right-hand lower cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ms. 583** | Hose clamp pliers. |

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| pipe union bolt | **4 N.m** |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, On-board telematics system),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure).


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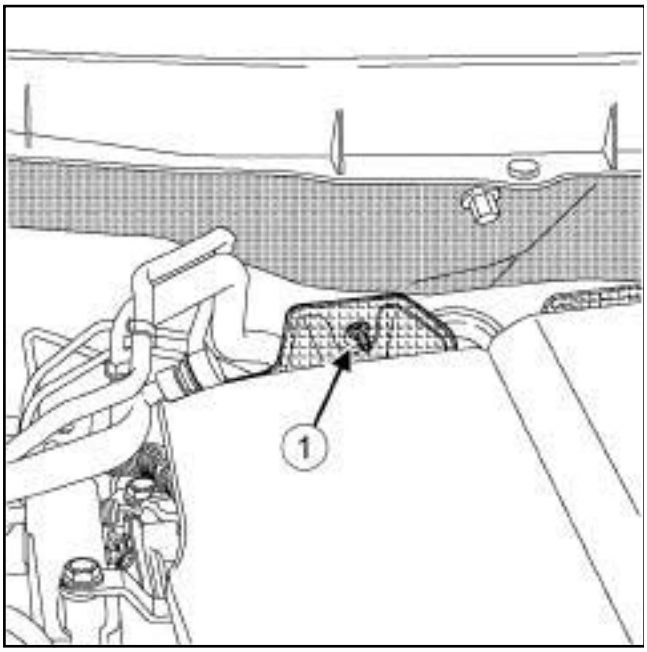
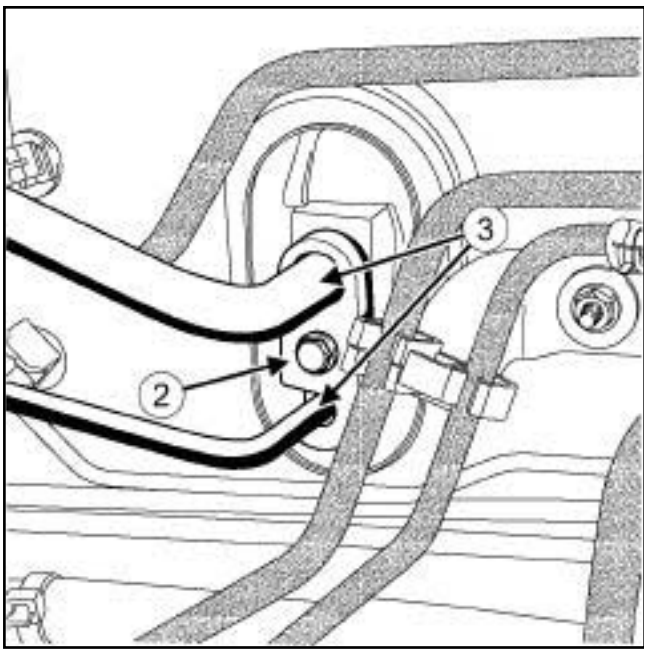


131159

❑ Remove the nut (**1**) .

❑ Lift the bulkhead insulation.



131337

❑ Remove:

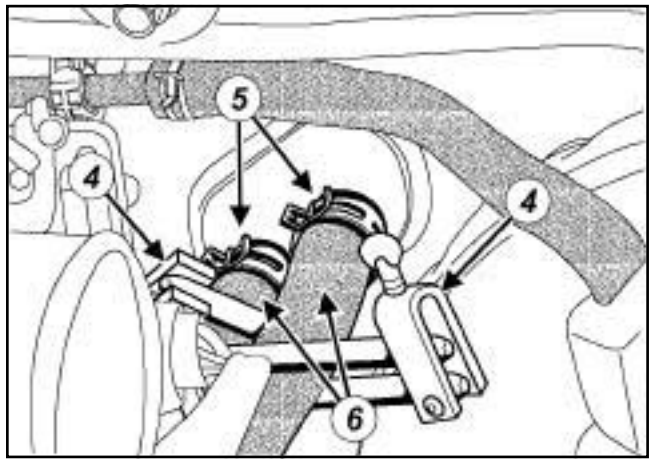
- the bolt (**2**) of the pipe union,
- the expansion valve pipe union.

**WARNING**
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❑ Disconnect the expansion valve connection pipes ***(3)*** .

❑ Fit plugs into the openings.

❑ Remove the air filter housing (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).



135208

❑ Fit the hose clamps **(Ms. 583)** (**4**) on the heater matrix inlet and outlet hoses.

❑ Remove the clips ***(5)**** from the heater matrix hoses.

❑ Disconnect the heater matrix hoses ***(6)*** .

❑ Remove the bracket for the heater matrix pipes (see **61A**, **Heating**, **Heater matrix: Removal - Refitting**, page **61A-29**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

❑ Remove the air distribution unit.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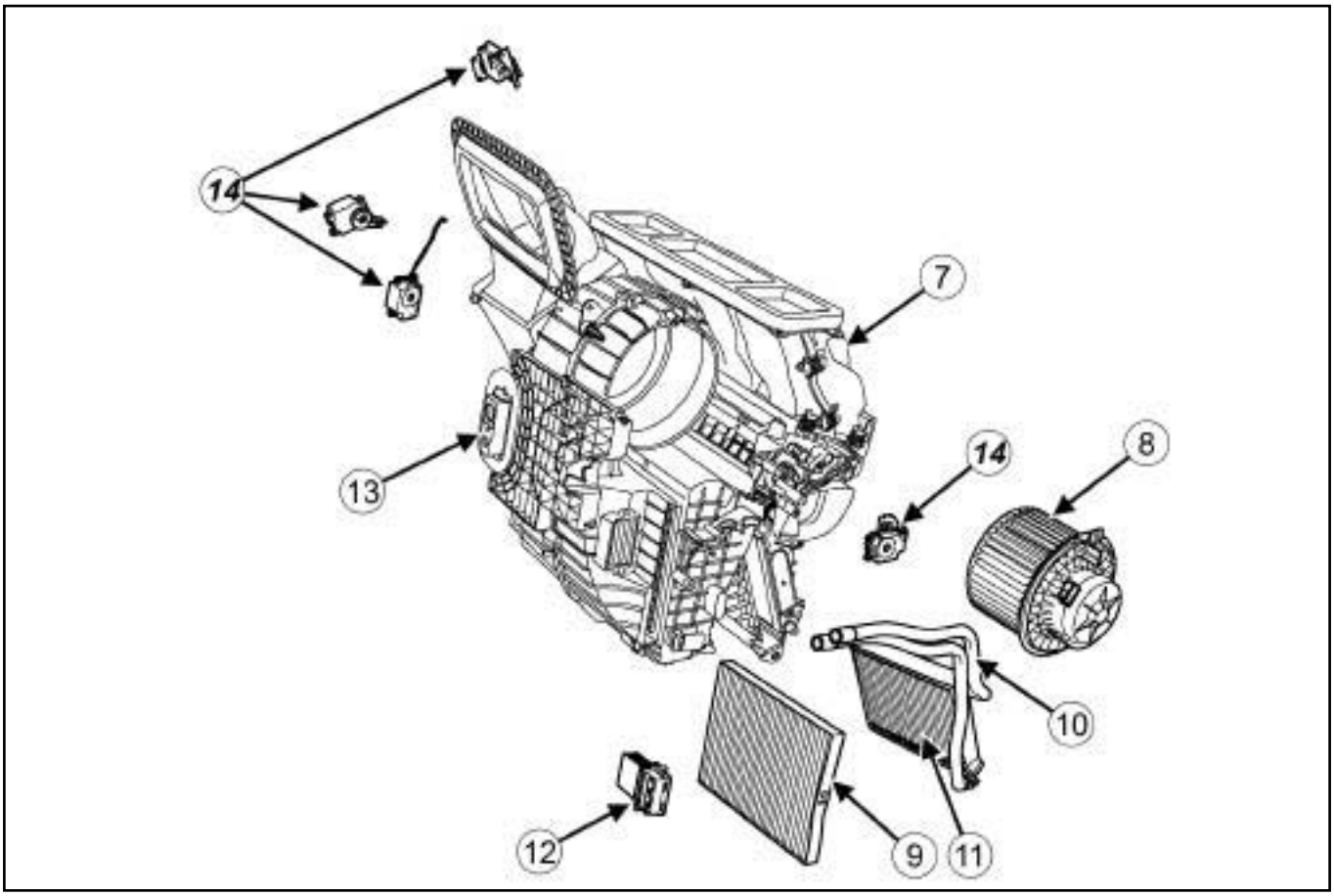


131162

❑ Remove the following air distribution unit components (**7**) :

- the fan assembly (**8**) ,
- the cabin filter (**9**) ,
- the heater matrix pipes (**10**) ,
- the heater matrix (**11**) ,
- the heating resistor (if the vehicle is fitted with one),
- the fan assembly control unit (**12**) ,
- the expansion valve (**13**) ,
- the control cables (if the vehicle is fitted with them),
- the motors (**14**) (if the vehicle is fitted with them).

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Check that the parts are in good condition and if necessary, replace any defective parts.

❑ Refit the following components to the air distribution unit:

- the motors (if the vehicle is fitted with them),
- the control cables (if the vehicle is fitted with them),
- the expansion valve,
- the fan assembly control unit,
- the heating resistor (if the vehicle is fitted with one),
- the heater matrix,
- the heater matrix pipes,
- the cabin filter,
- the fan assembly.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the air distribution unit.

### III - FINAL OPERATION

❑ Refit the bracket for the heater matrix pipes (see **61A**, **Heating**, **Heater matrix: Removal - Refitting**, page **61A-29**) .

❑ Connect the heater matrix hoses.

❑ Refit the clips on the heater matrix hoses.

❑ Remove the hose clamps **(Ms. 583)**.


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❑ Refit the air filter housing (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the plugs from the openings.

❑ Connect the connecting pipes to the expansion valve.

❑ Refit:

- the pipe union to the expansion valve,
- the bolt to the pipe union.

❑ Torque tighten the **pipe union bolt (4 N.m)**.

❑ Refit:

- the bulkhead insulation in its original position,
- the nut of the bulkhead insulation,
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, On-board telematics system),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Perform the following operations:

- fill the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- check the cooling system (see **Engine cooling circuit: check**) (19A, Cooling),
- fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ Check:

- that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) ,
- that there are no leaks (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .


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RIGHT-HAND DRIVE

| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ms. 583** | Hose clamp pliers. |

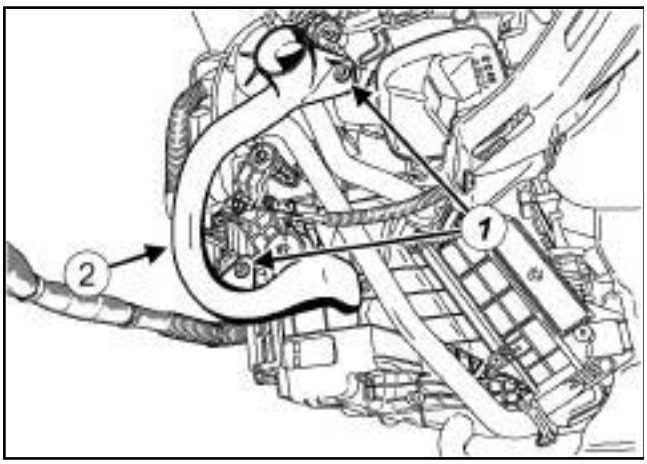
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the left-hand cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

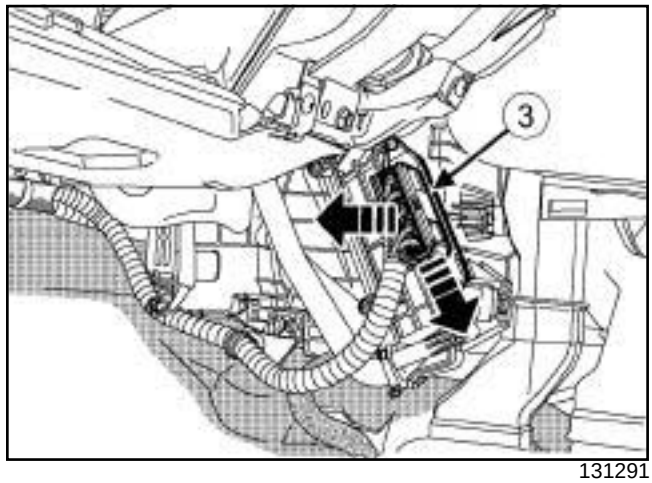



131260

❏ Remove:

- the bolts (**1**) ,
- the glove box air duct (**2**) ,
- the air mixing cable (see **61A**, **Heating**, **Air mixing cable: Removal - Refitting**, page **61A-21**) .

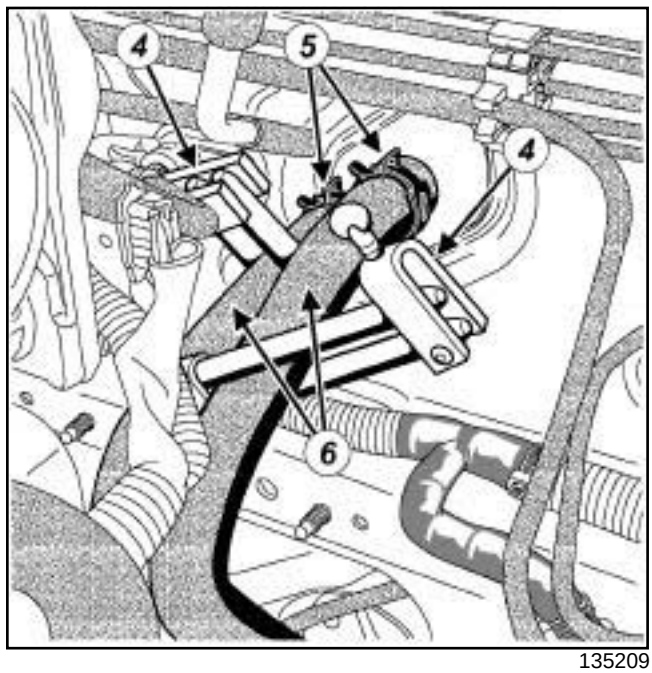
M9R




131291

❏ Disconnect the connector (**3**) from the heating resistor.

❏ Remove the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).




135209

❏ Fit the hose clamps **(Ms. 583)** (**4**) on the heater matrix inlet and outlet hoses.

❏ Remove the clips ***(5)*** from the heater matrix hoses.

❏ Disconnect the heater matrix hoses ***(6)*** .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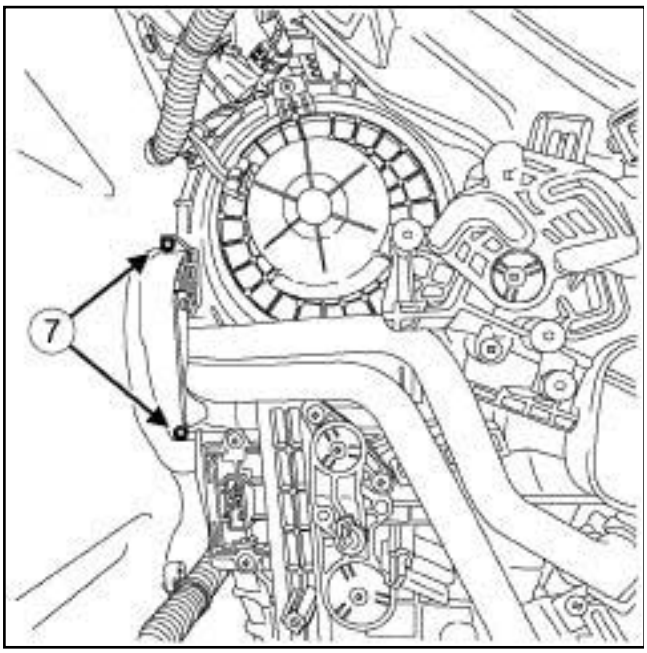
RIGHT-HAND DRIVE

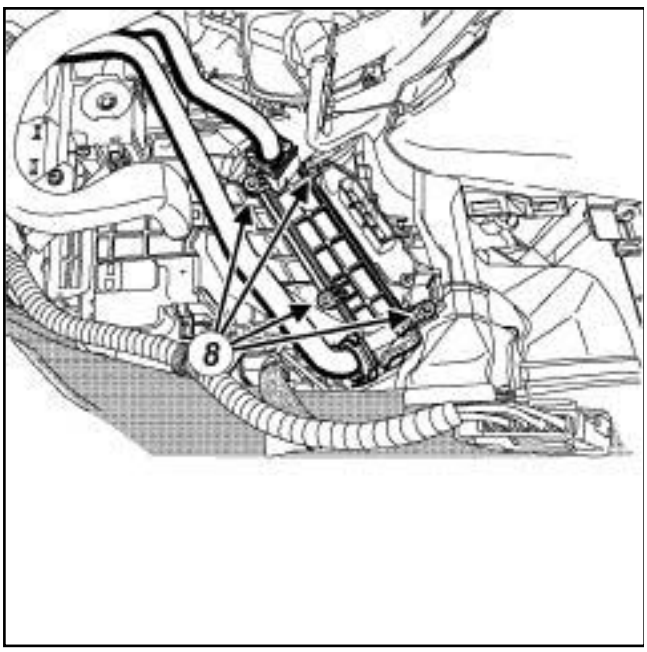
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




132350

❏ Remove:

- the bolts (**7**) for the heater matrix pipe bracket,
- the heater matrix pipe bracket.

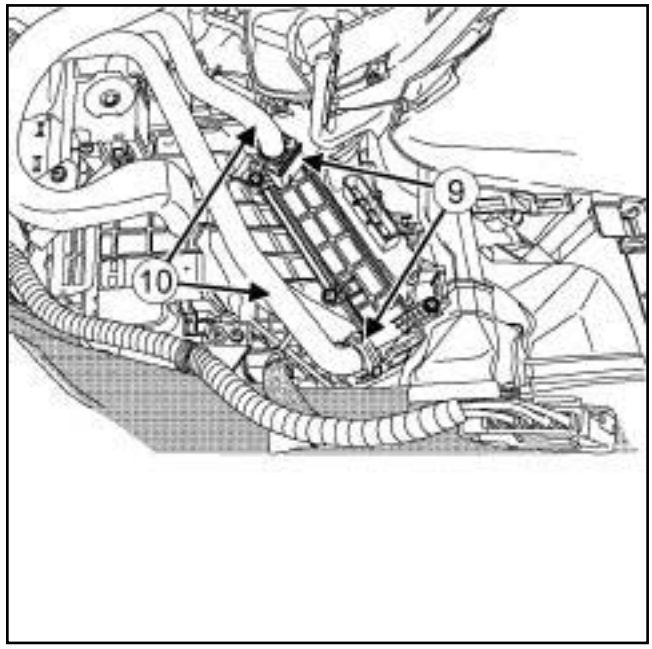



132351

❏ Remove:

- the heater matrix cover bolts (**8**) ,
- the heater matrix cover.

❏ Place a container underneath the heater matrix to collect the coolant.




132352

❏ Unclip the retaining clips (**9**) .

❏ Disconnect the heater matrix pipes ***(10)*** from the heater matrix.

❏ Remove the heater matrix.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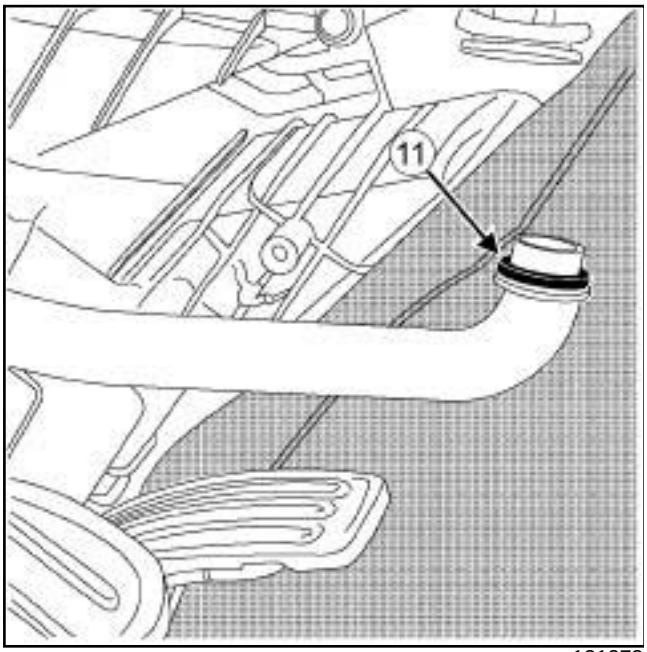
RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING PREPARATION OPERATION



131273

❏ Always replace the seals (**11**) between the pipes and the heater matrix.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the new seals between the pipes and the heater matrix.

❏ Remove the container placed underneath the heater matrix.

❏ Refit the heater matrix.

❏ Connect the heater matrix pipes to the heater matrix.

❏ Refit the pipe clips.

❏ Refit:

- the heater matrix cover,
- the heater matrix cover bolts,
- the heat matrix pipe bracket,
- the heater matrix pipe bracket bolts.

### III - FINAL OPERATION

❏ Connect the heater matrix hoses.

❏ Refit the clips on the heater matrix hoses.

❏ Remove the hose clamps **(Ms. 583)**.

❏ Refit the air filter housing (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

M9R

❏ Connect the heating resistor connector.

❏ Refit:

- the air mixing cable (see **61A**, **Heating**, **Air mixing cable: Removal - Refitting**, page **61A-21**) .
- the glove box air duct,
- the glove box air duct bolts,
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the left-hand cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Perform the following operations:

- fill the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❏ Check the cooling circuit (see **Engine cooling circuit: check**) (19A, Cooling).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LEFT-HAND DRIVE

| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ms. 583** | Hose clamp pliers. |

## REMOVAL

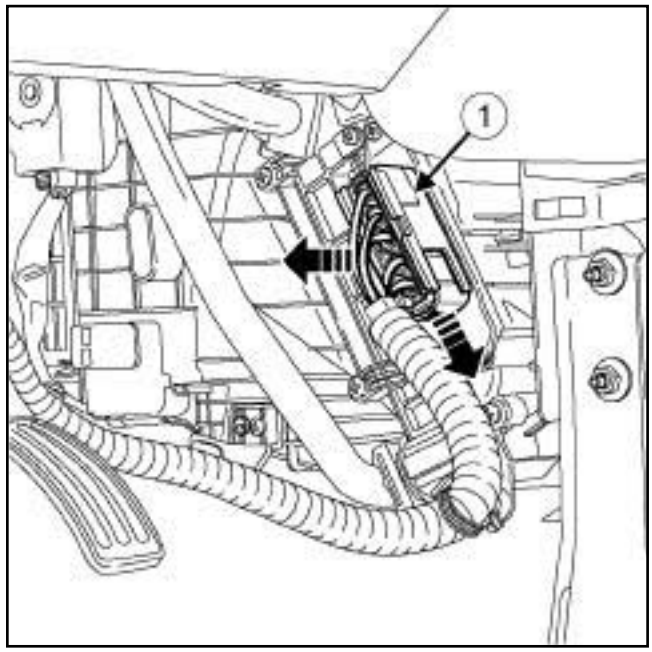
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the air mixing cable (see **61A**, **Heating**, **Air mixing cable: Removal - Refitting**, page **61A-21**) .

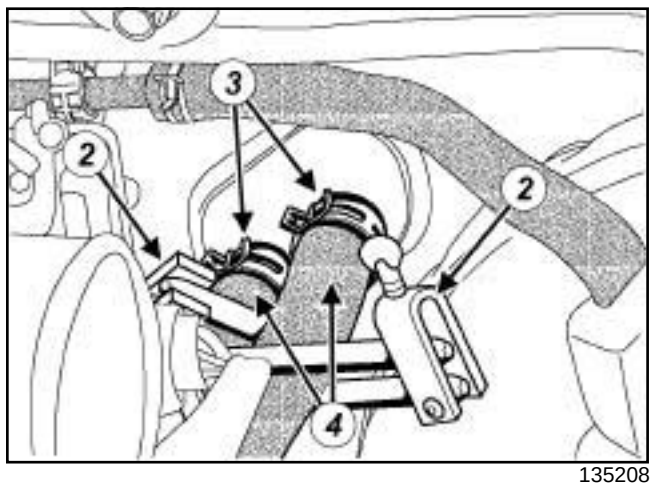
M9R




131274

❏ Disconnect the connector (**1**) from the heating resistor.

❏ Remove the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).




135208

❏ Fit the hose clamps **(Ms. 583)** (**2**) on the heater matrix inlet and outlet hoses.

❏ Remove the clips ***(3)*** from the heater matrix hoses.

❏ Disconnect the heater matrix hoses ***(4)*** .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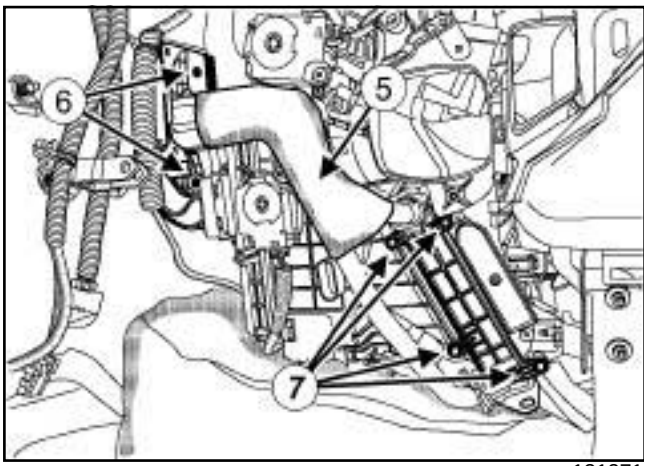
LEFT-HAND DRIVE

### II - OPERATION FOR REMOVAL OF PART CONCERNED



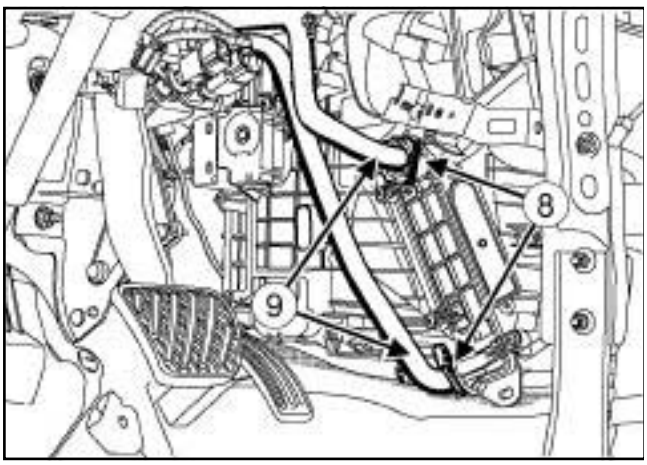
131271

❏ Remove:

- the sheath (**5**) of the heater matrix pipes,
- the bolts (**6**) for the heater matrix pipe bracket,
- the heater matrix pipe bracket,
- the heater matrix cover bolts (**7**) ,
- the heater matrix cover.

**WARNING**
Prepare for the flow of fluid, and protect the surrounding components.

❏ Place a container underneath the heater matrix to collect the coolant.



131275

❏ Unclip the retaining clips (**8**) .

❏ Disconnect the heater matrix pipes ***(9)*** from the heater matrix.

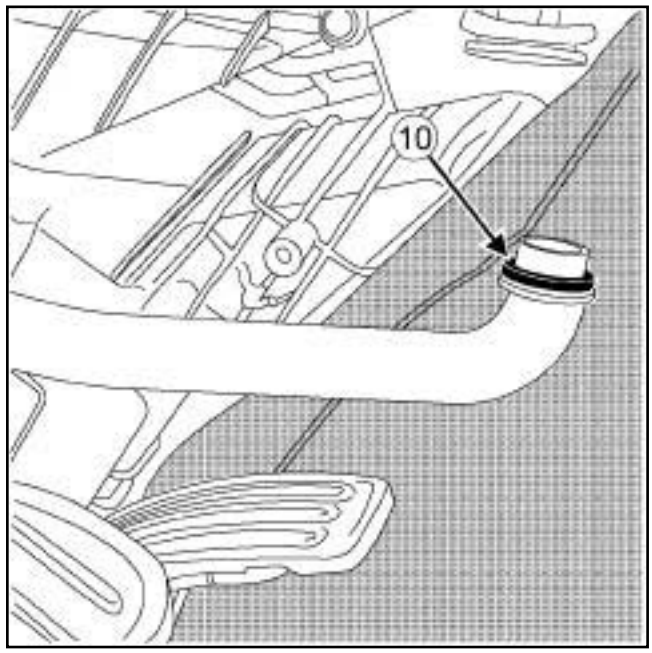
❏ Remove the heater matrix.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**WARNING**
To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.



131273

❏ Always replace the seals (**10**) between the pipes and the heater matrix.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the new seals between the pipes and the heater matrix.

❏ Remove the container placed underneath the heater matrix.

❏ Refit the heater matrix.

❏ Connect the heater matrix pipes to the heater matrix.

❏ Refit the retaining clips.

❏ Refit:

- the heater matrix cover,
- the heater matrix cover bolts,
- the heater matrix pipe bracket,
- the heater matrix pipe bracket bolts.
- the heater matrix pipe sheath.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LEFT-HAND DRIVE

**III - FINAL OPERATION**

❏ Connect the heater matrix hoses.

❏ Refit the clips on the heater matrix hoses.

❏ Remove the hose clamps **(Ms. 583)**.

❏ Refit the air filter housing (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

M9R

❏ Connect the heating resistor connector.

❏ Refit:

- the air mixing cable (see **61A**, **Heating**, **Air mixing cable: Removal - Refitting**, page **61A-21**) .
- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Perform the following operations:

- fill the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling),
- bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling).

❏ Check the cooling circuit (see **Engine cooling circuit: check**) (19A, Cooling).


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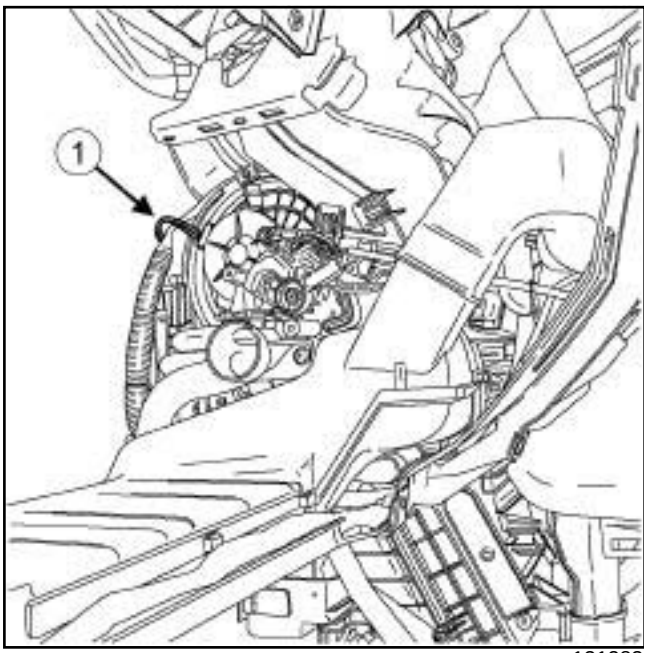
RIGHT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

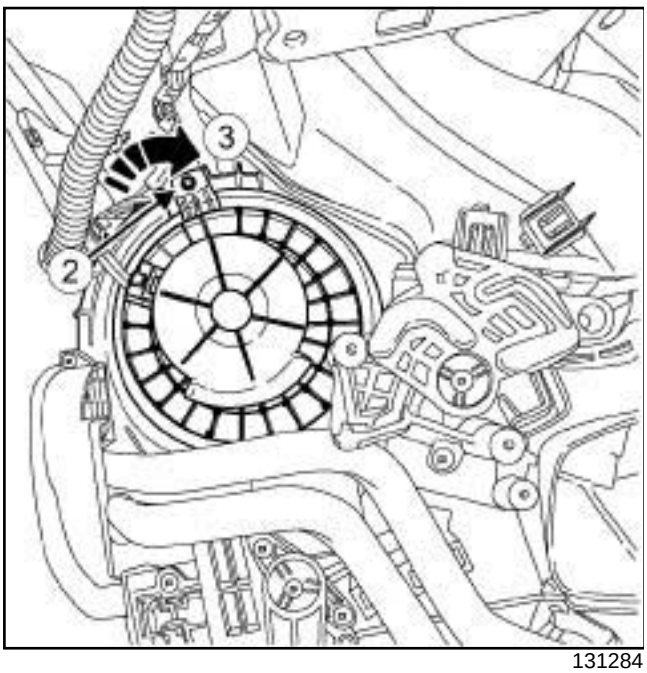
❑ Remove the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131283

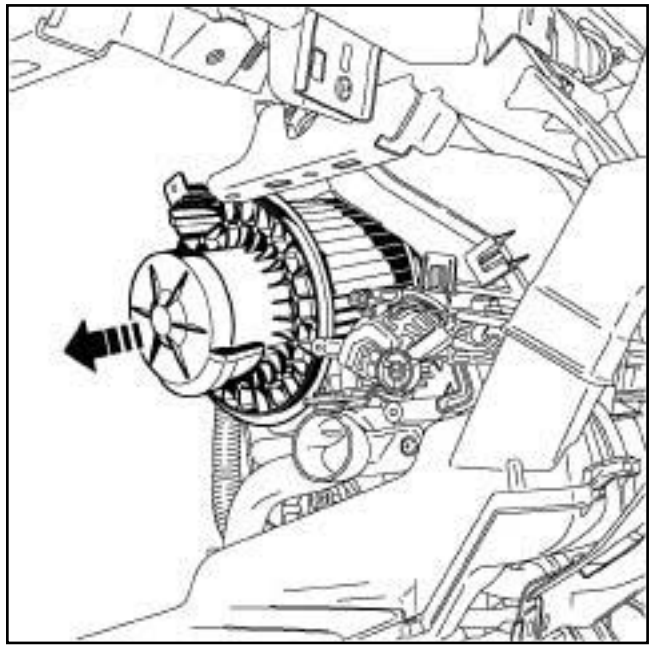
❑ Disconnect the fan assembly connector (**1**) .

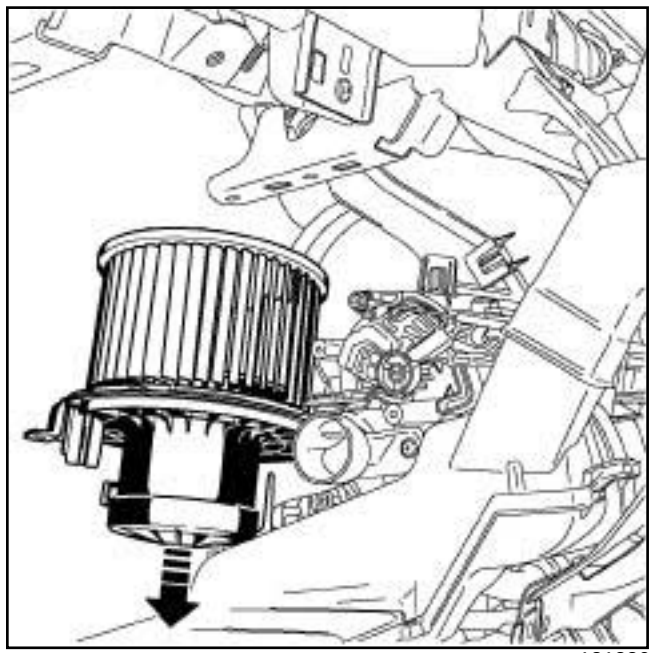


131284

❑ Remove the fan assembly bolt (**2**) .

❑ Turn the fan assembly clockwise ***(3)*** .


131285


131286

❑ Remove the fan assembly.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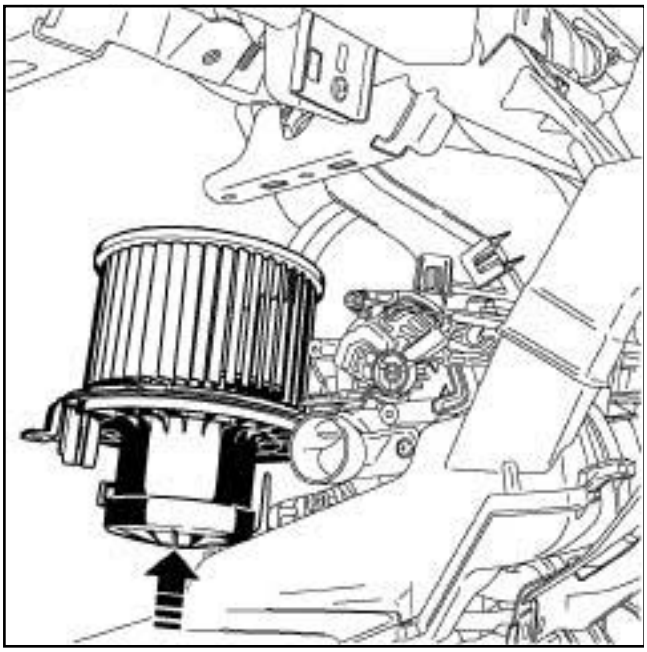
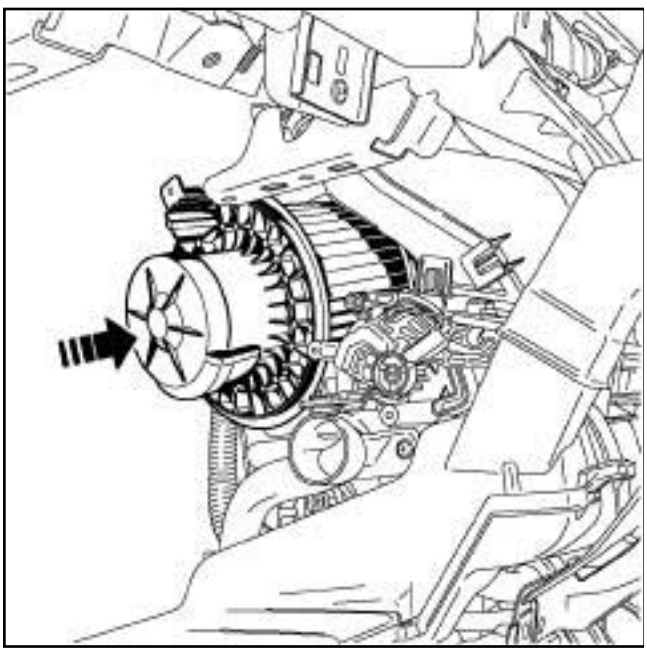
RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

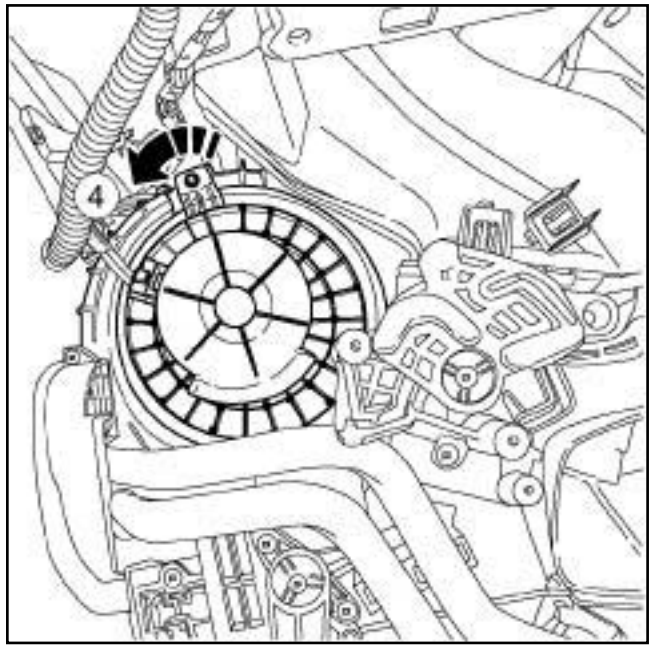


131287



131288

❏ Refit the fan assembly.




131289

❏ Turn the fan assembly anti-clockwise (**4**) .

❏ Refit the fan assembly bolt.

❏ Connect the fan assembly connector.

### II - FINAL OPERATION.

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).



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LEFT-HAND DRIVE

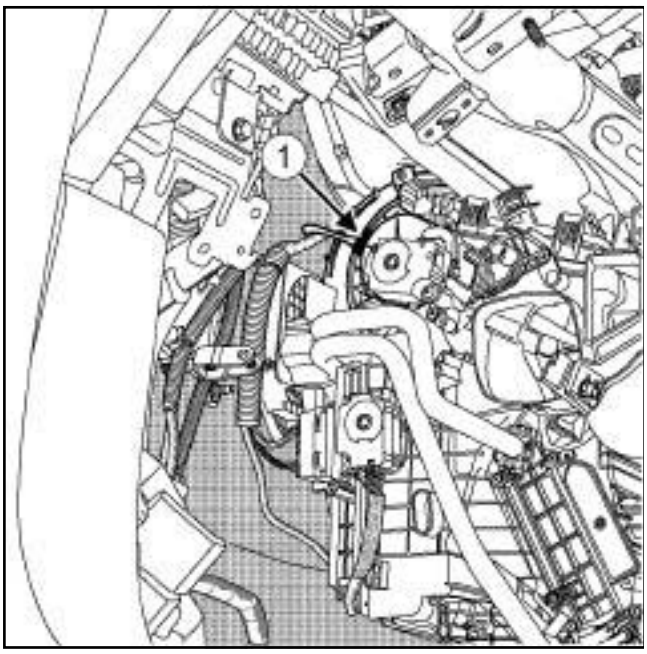
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

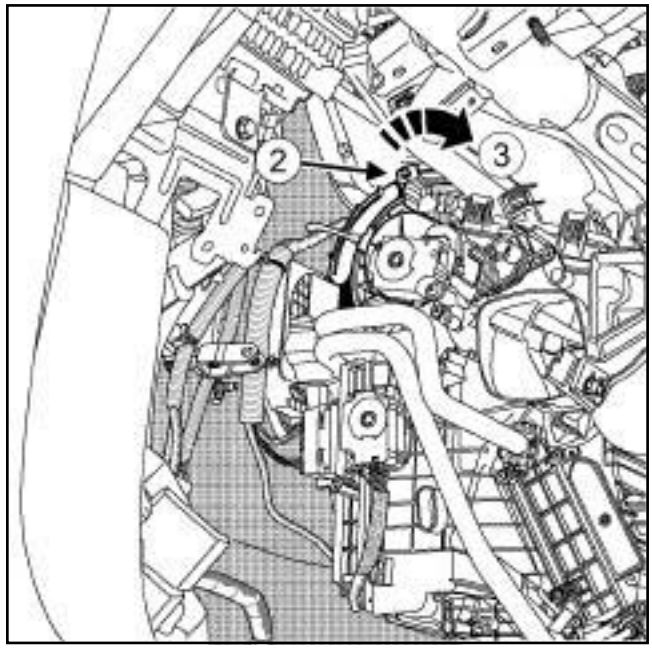
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the brake and accelerator pedal assembly (see **Accelerator/brake pedal assembly: Removal - Refitting**) (37A, Mechanical component controls).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131276

❑ Remove the fan assembly connector (**1**) .




131277

❑ Remove the fan assembly bolt (**2**) .

❑ Turn the fan assembly clockwise ***(3)*** .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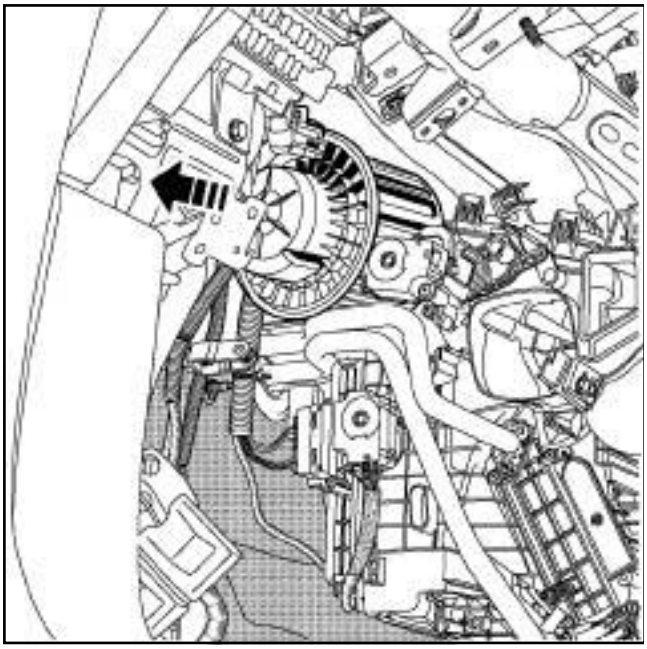
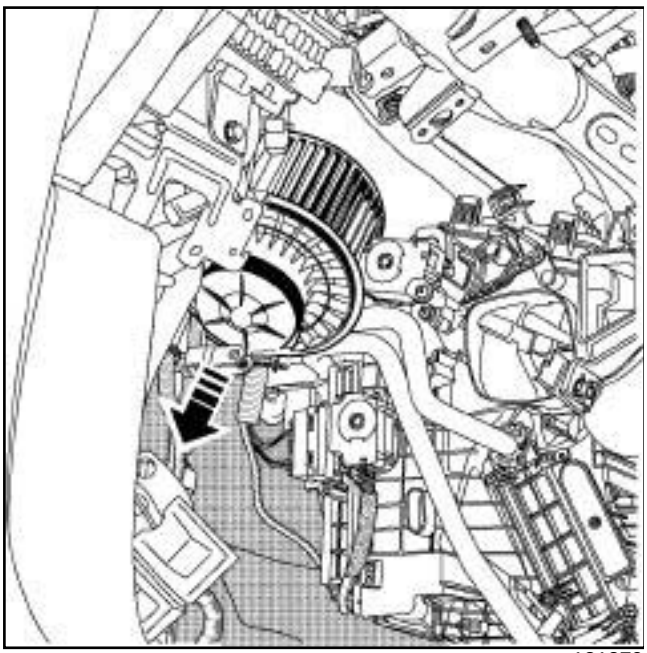
LEFT-HAND DRIVE



131278

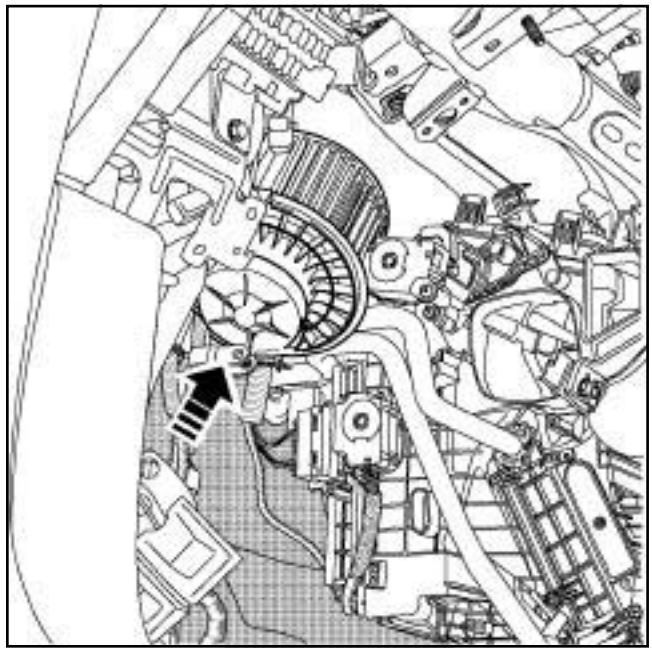


131279

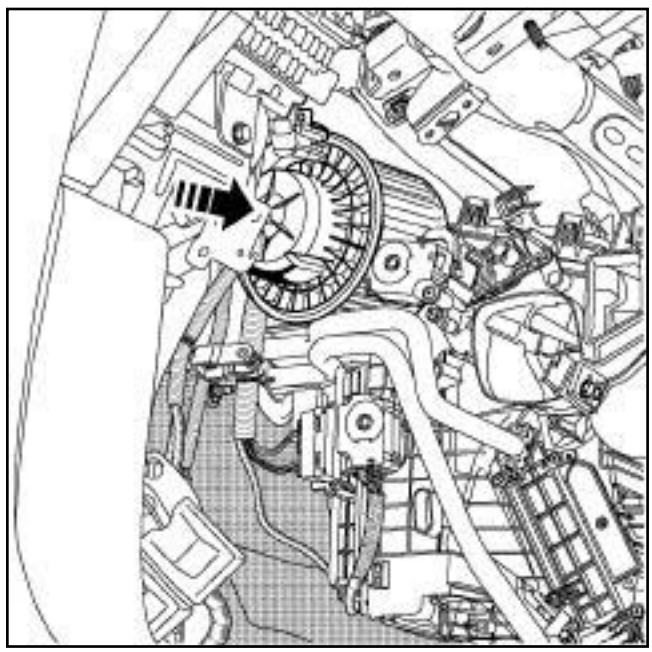
❑ Remove the fan assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED



131280



131281

❑ Refit the fan assembly.



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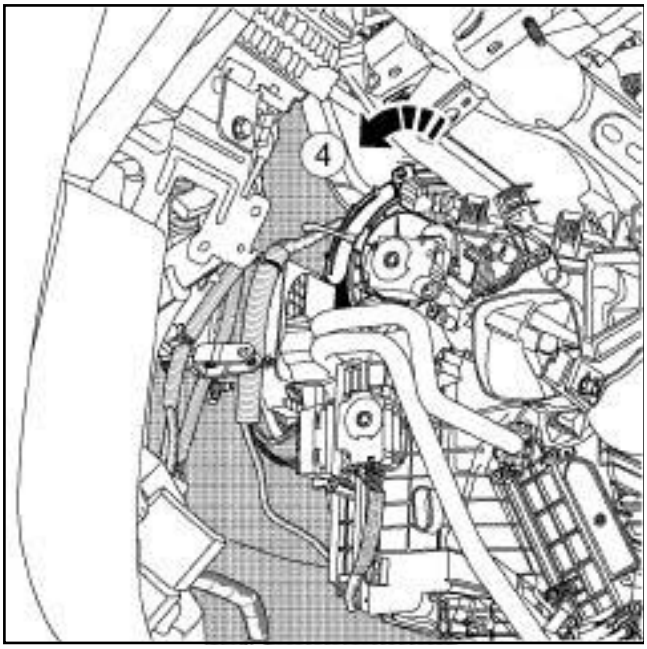
LEFT-HAND DRIVE




131282

❏ Turn the fan assembly anti-clockwise (**4**) .

❏ Refit the fan assembly bolt.

❏ Connect the fan assembly connector.

**II - FINAL OPERATION.**

❏ Refit:

- the brake and accelerator pedal assembly (see **Accelerator/brake pedal assembly: Removal - Refitting**) (37A, Mechanical component controls),
- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



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## REMOVAL

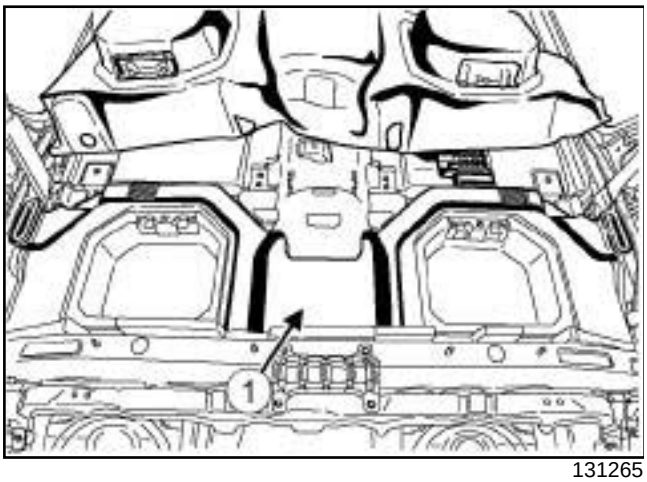
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

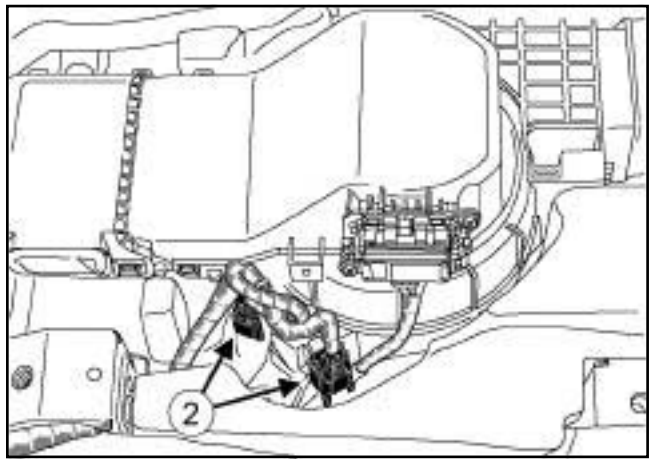
- the cab floor panel trim (see **Cab floor lining: Removal - Refitting**) (71A, Bodywork interior trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),)
- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



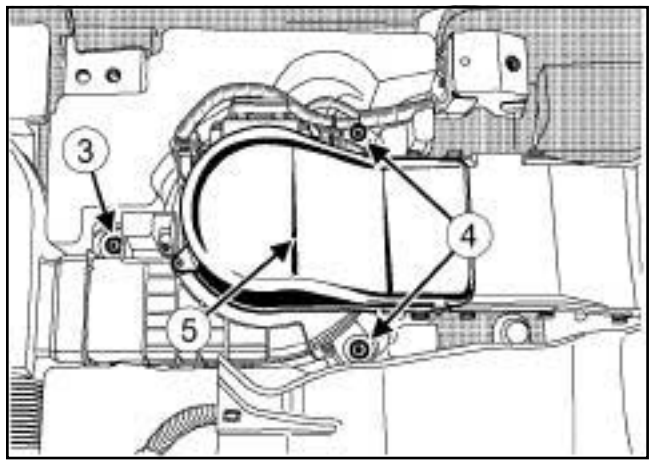

131265

❏ Remove the rear air distribution duct (**1**) .




132597

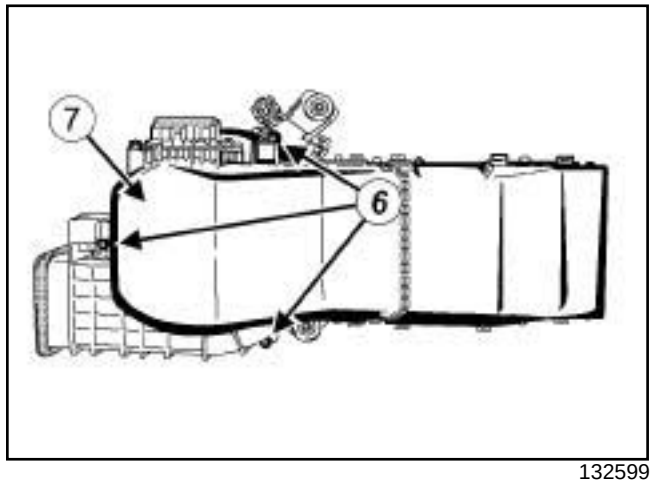
❏ Disconnect the connectors (**2**) .




132598

❏ Remove:

- the bolt (**3**) ,
- the nuts (**4**) ,
- the rear fan assembly (**5**) .




132599

❏ Remove:

- the bolts (**6**) ,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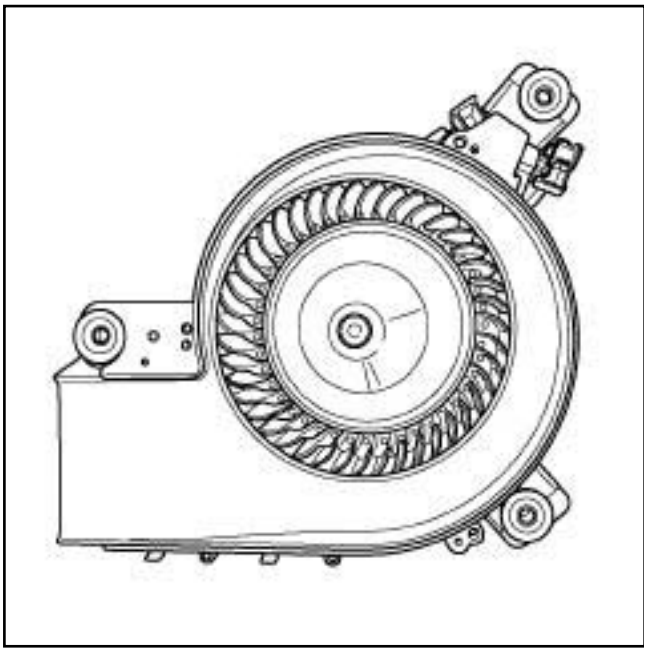
- the rear fan assembly rear air distribution duct (**7**) .



132600

❑ Remove the rear fan assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear air distribution duct to the rear fan assembly,
- the rear air distribution duct bolts,
- the rear fan assembly,
- the rear fan assembly nuts,
- the rear fan assembly bolts.

❑ Connect the rear fan assembly connectors.

❑ Refit the rear air distribution duct.

### II - FINAL OPERATION.

❑ Refit:

- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),)
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the cab floor panel trim (see **Cab floor lining: Removal - Refitting**) (71A, Bodywork interior trim).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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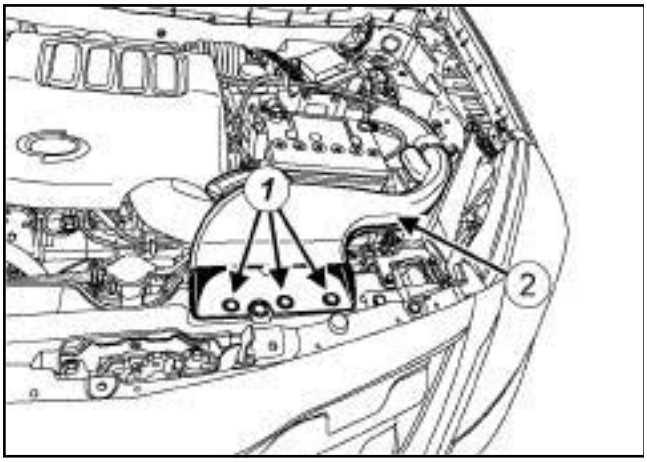
## REMOVAL

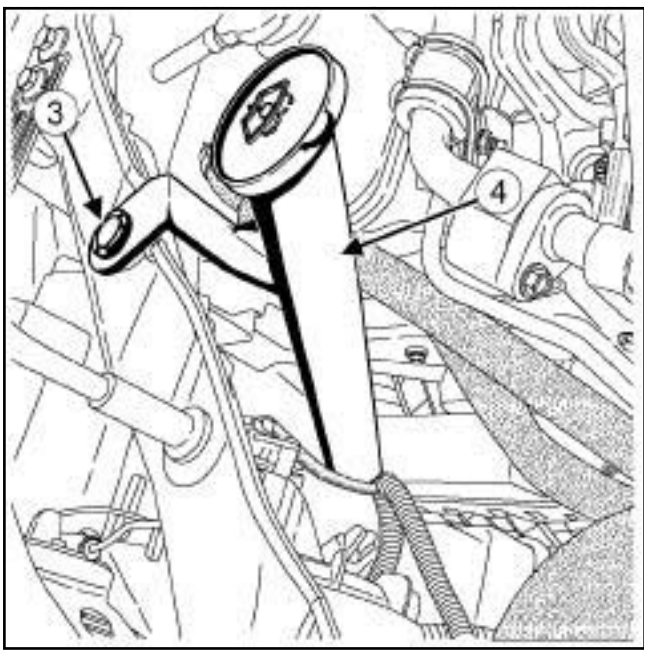
### REMOVAL PREPARATION OPERATION




131708

❏ Remove clips (**1**) .

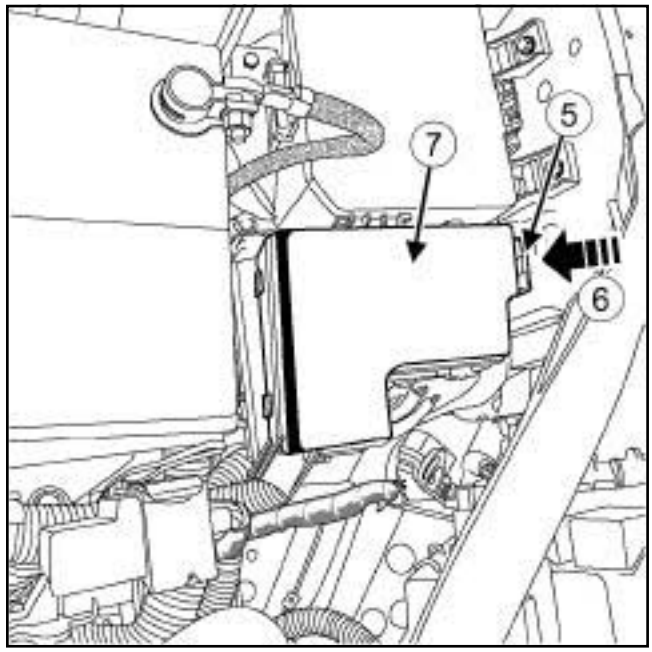
❏ Remove the air inlet sleeve ***(2)*** .




132650

❏ Remove:

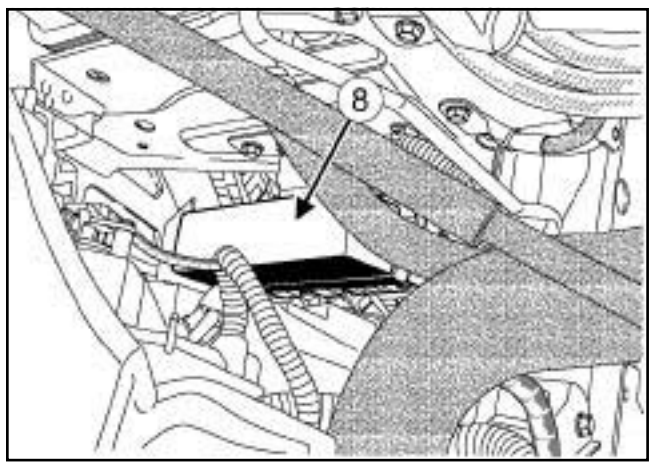
- the clip (**3**) ,
- the screen washer bottle filler neck (**4**) .




131709

❏ Unclip the relay unit cover at (**5**) in the direction of the arrow (**6**) .

❏ Remove the relay unit cover ***(7)*** .




132651

❏ Remove the relay unit cover (**8**) .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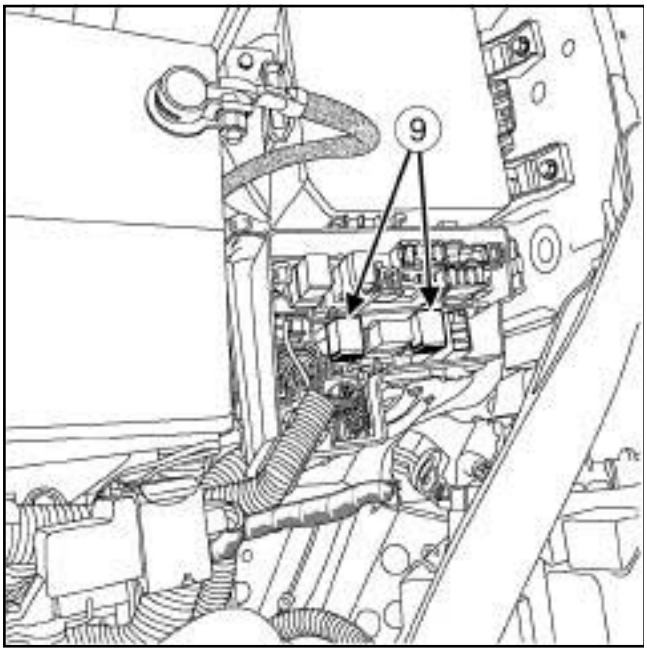
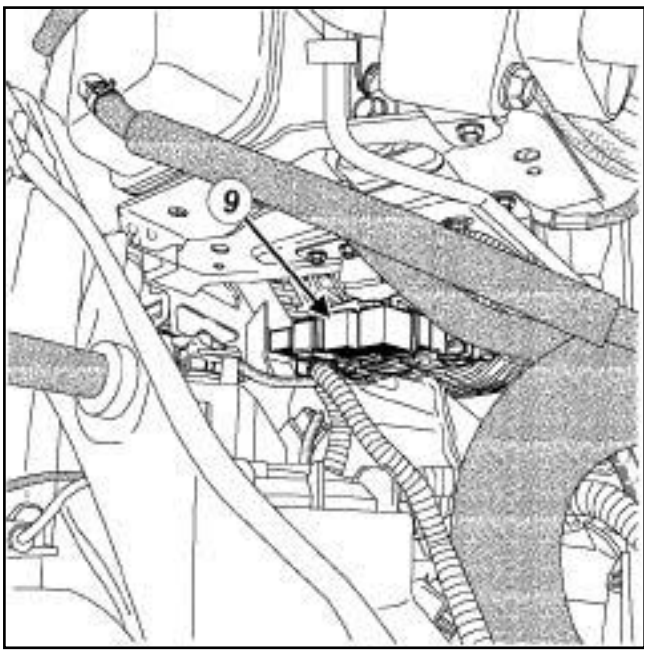


131710



132652

❏ Remove the heating resistor relays (**9**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the heater resistor relays,
- the relay unit covers.

❏ Clip the relay unit cover on at ***(5)*** .

### II - FINAL OPERATION.

❏ Refit:

- the screen washer bottle filler neck,
- the clip ***(3)*** ,
- the air inlet sleeve.

❏ Refit the air inlet sleeve clips.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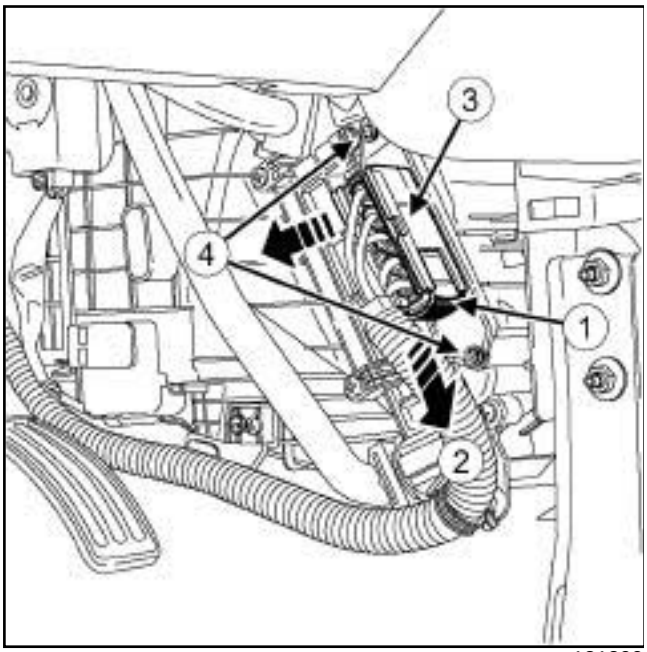
LEFT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the lower left-hand cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131290

❏ Unclip the heater resistor connector clip (**1**) in the direction of the arrow (**2**) .

❏ Disconnect the connector (**3**) .

❏ Remove:

- the bolts (**4**) ,
- the heating resistor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the heating resistor,
- the heating resistor bolts.

❏ Connect the heating resistor connector.

❏ Clip on the heater resistor connector clip.

### II - FINAL OPERATION.

❏ Remove the lower left-hand cover on the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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# Heating resistor unit: Removal - Refitting

RIGHT-HAND DRIVE

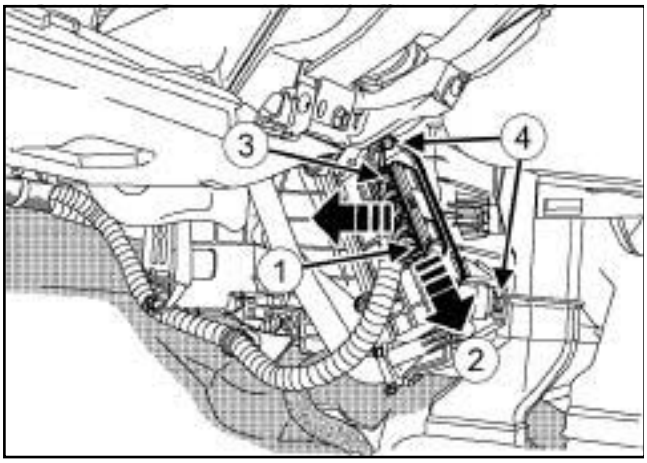
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the lower cover on the right-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131291

❏ Unclip the heater resistor connector clip (**1**) in the direction of the arrow (**2**) .

❏ Disconnect the connector (**3**) .

❏ Remove:

- the bolts (**4**) ,
- the heating resistor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the heating resistor,
- the heating resistor bolts.

❏ Connect the heating resistor connector.

❏ Clip on the heater resistor connector clip.

### II - FINAL OPERATION

❏ Refit:

- the driver's side A pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) ,
- the lower cover on the right-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).



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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

#### 1 - At the fan assembly end

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the centre panel lower left-hand cover,
- the driver's side A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) ,
- the brake and accelerator pedal assembly (see **Accelerator/brake pedal assembly: Removal - Refitting**) (37A, Mechanical component controls).

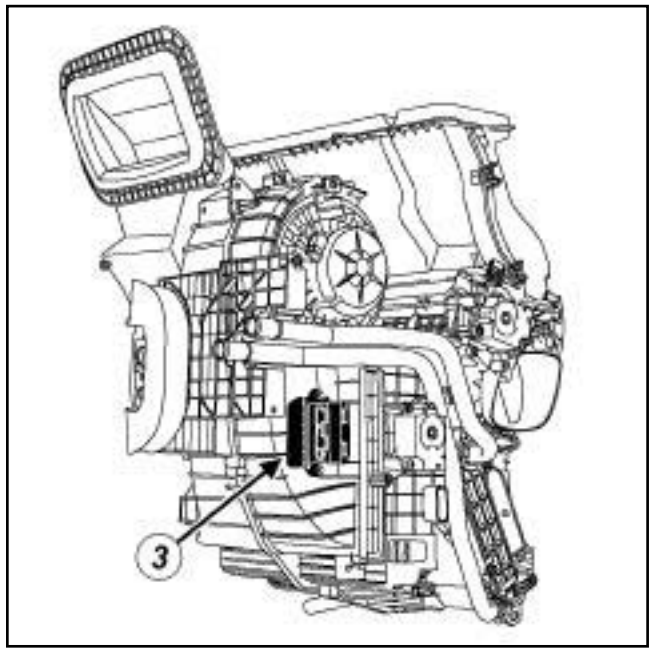
#### 2 - At the rear fan assembly end

❏ Remove:

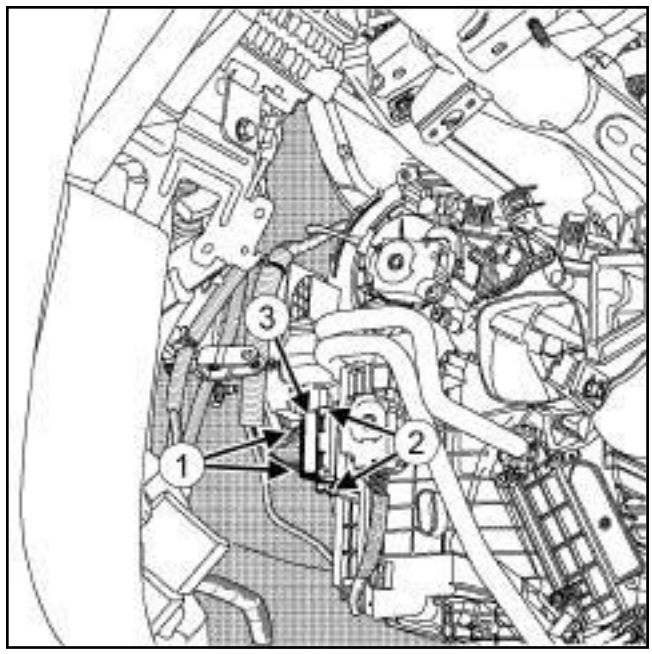
- the cab floor panel trim (see **Cab floor lining: Removal - Refitting**) (71A, Bodywork interior trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Bodywork interior trim),
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),
- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - At the fan assembly end




132761




132762

❏ Disconnect the connectors (**1**) .

❏ Remove:

- the bolts ***(2)*** ,
- the fan assembly control unit ***(3)*** .



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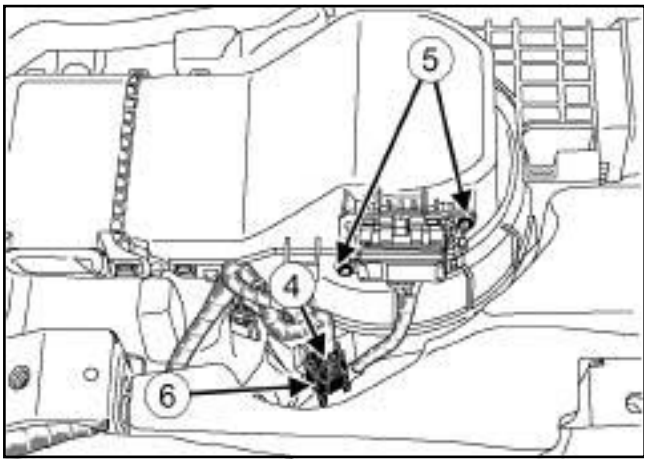
**2 - At the rear fan assembly end**



132763

❏ Disconnect the connector (**4**) .

❏ Remove:

- the bolts ***(5)*** ,
- the retaining clip ***(6)*** ,
- the rear fan assembly control unit.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

**1 - At the fan assembly end**

❏ Refit:

- the fan assembly control unit,
- the bolts to the fan assembly control unit.

❏ Connect the fan assembly control unit connectors.

**2 - At the rear fan assembly end**

❏ Refit:

- the rear fan assembly control unit,
- the retaining clip,
- the bolts to the rear fan assembly control unit.

❏ Connect the fan assembly control unit connector.

**II - FINAL OPERATION.**

**1 - At the fan assembly end**

❏ Remove:

- the brake and accelerator pedal assembly (see **Accelerator/brake pedal assembly: Removal - Refitting**) (37A, Mechanical component controls),
- the driver's side A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) ,
- the centre panel lower left-hand cover,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

**2 - At the rear fan assembly end**

❏ Remove:

- the floor carpet (see **Floor carpet: Removal - Refitting**) (71A, Body internal trim),
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and seat runners),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Bodywork interior trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the cab floor panel trim (see **Cab floor lining: Removal - Refitting**) (71A, Bodywork interior trim).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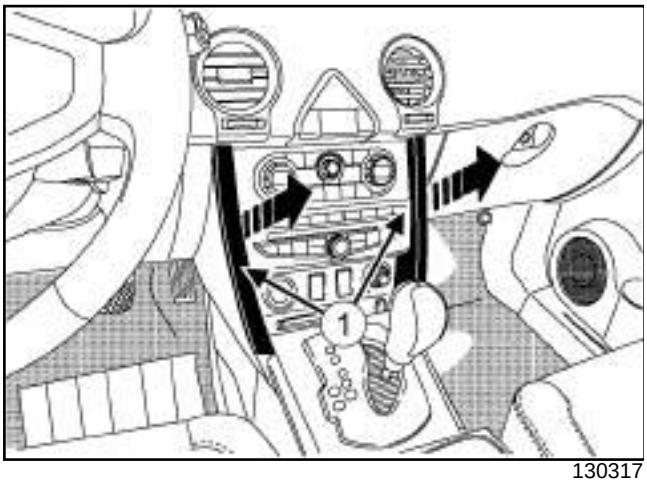
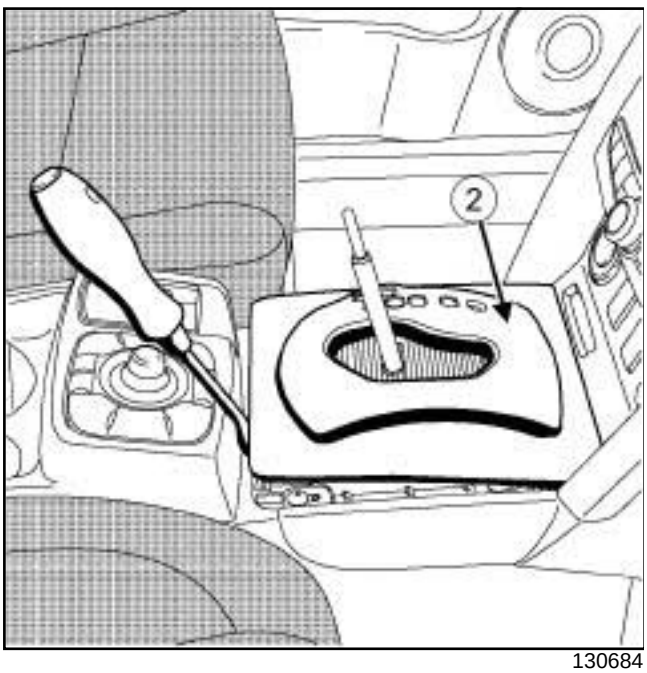
## REMOVAL

### I - REMOVAL PREPARATION OPERATION



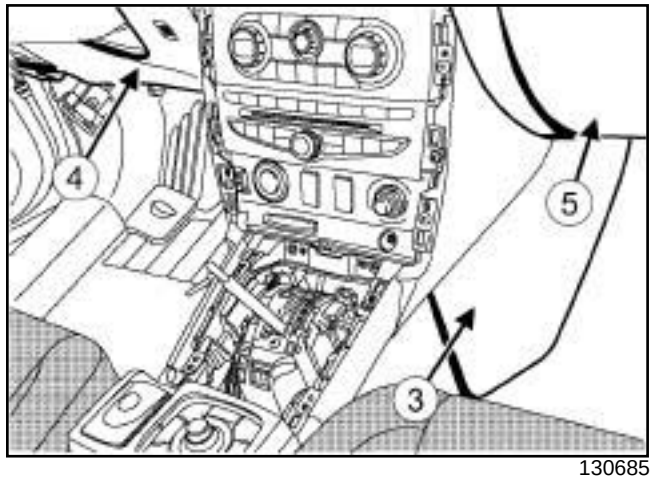

130317

❏ Remove the side trims (**1**) from the centre panel.




130684

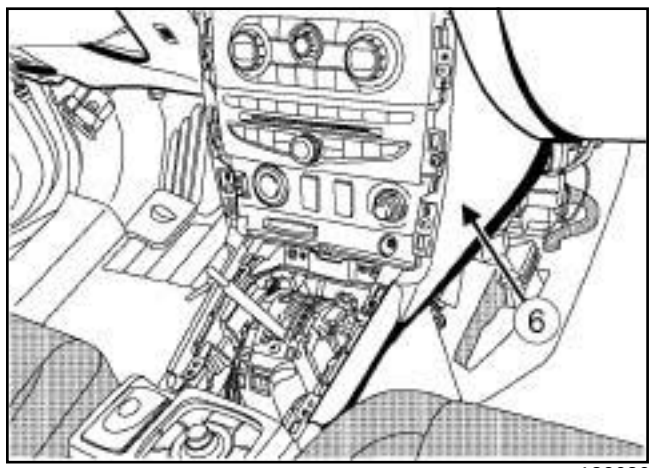
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




130685

❏ Remove:

- the lower covers (**3**) from the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover (**4**) on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (**5**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).




130686

❏ Remove:

- the side trims (**6**) from the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio).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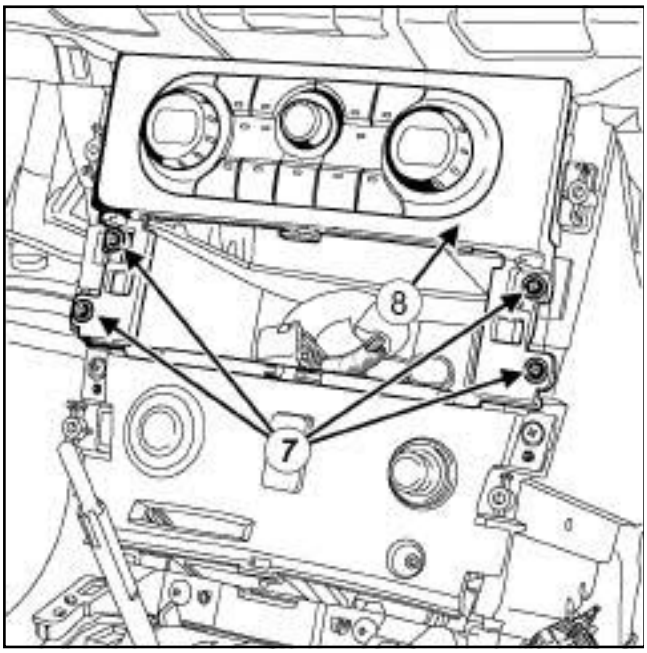
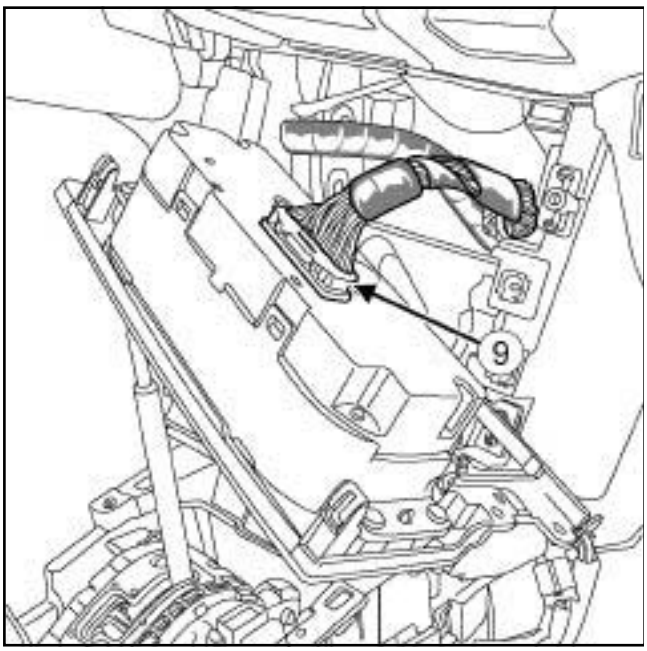
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




132552

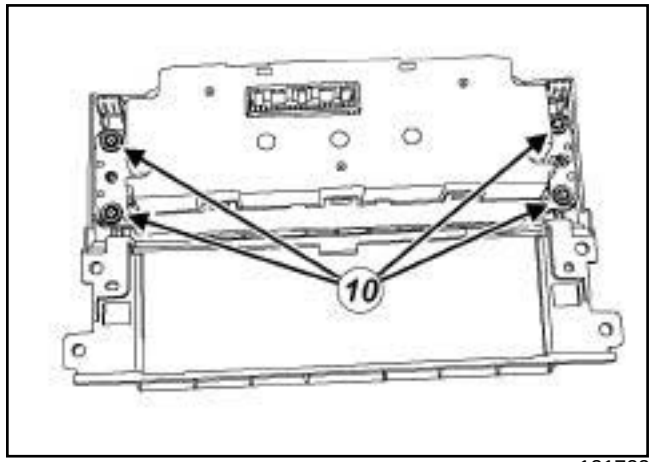
❑ Remove:

- the bolts (**7**) ,
- the air conditioning control panel (**8**) .




131719

❑ Disconnect the connector (**9**) .




131722

❑ Remove:

- the control panel bolts (**10**) ,
- the control panel.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❑ Refit the control panel bolts.

❑ Connect the control panel connector.

❑ Refit:

- the control panel,
- the bolts ***(7)*** .

**II - FINAL OPERATION.**

❑ Refit:

- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the side centre panel side trims (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower covers to the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),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- the centre panel side trims.


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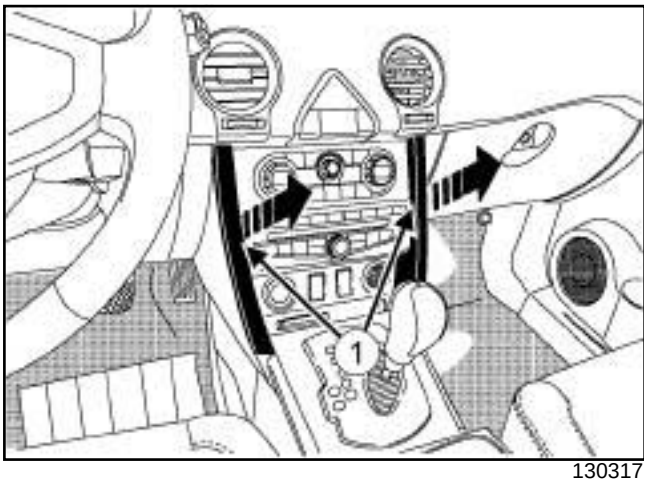
AIR CON 01 or BASIC HEATING

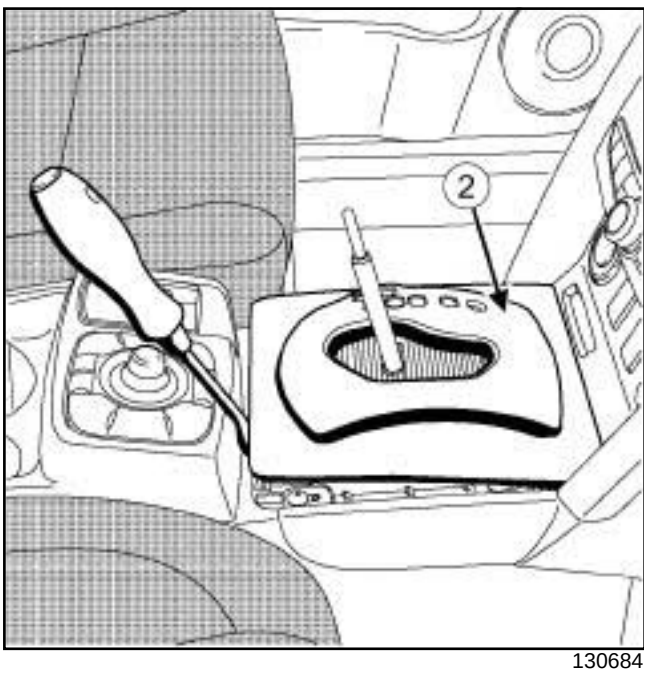
## REMOVAL

### I - REMOVAL PREPARATION OPERATION



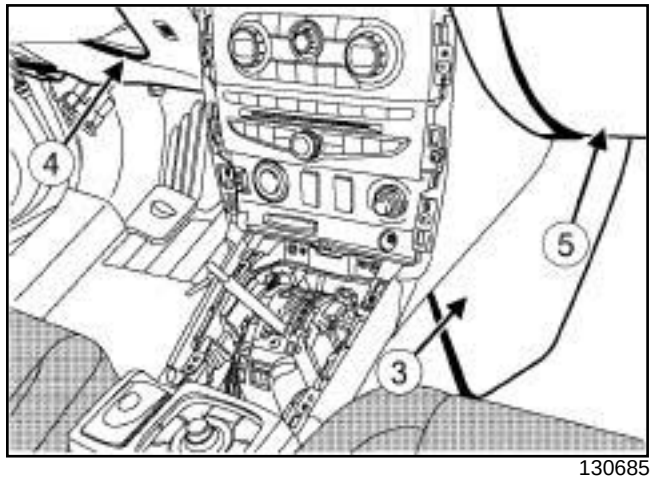

130317

❏ Remove the side trims (**1**) from the centre panel.




130684

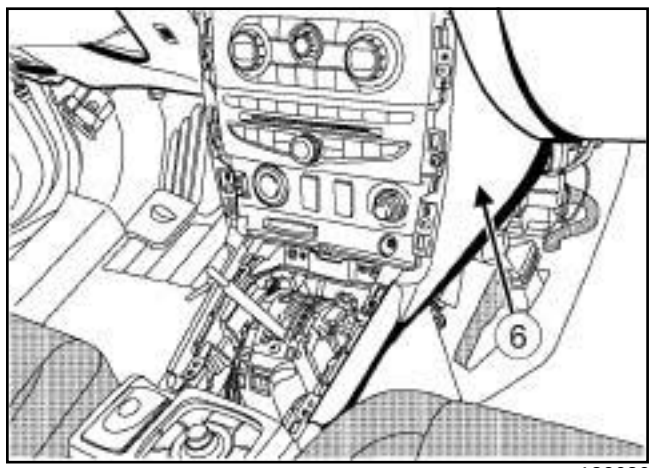
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




130685

❏ Remove:

- the lower covers (**3**) from the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover (**4**) on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (**5**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).




130686

❏ Remove:

- the side trims (**6**) from the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio).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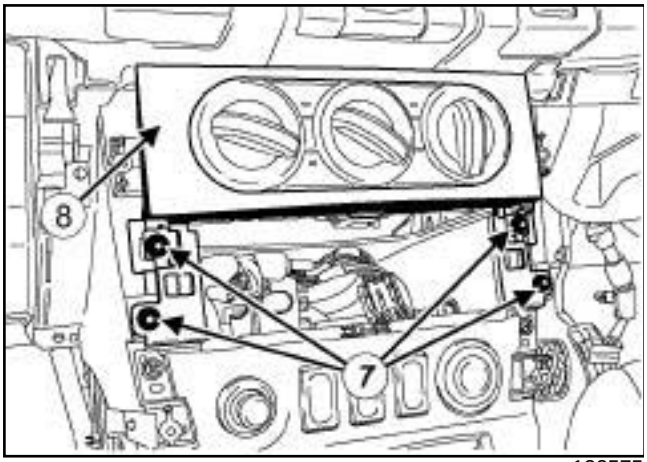
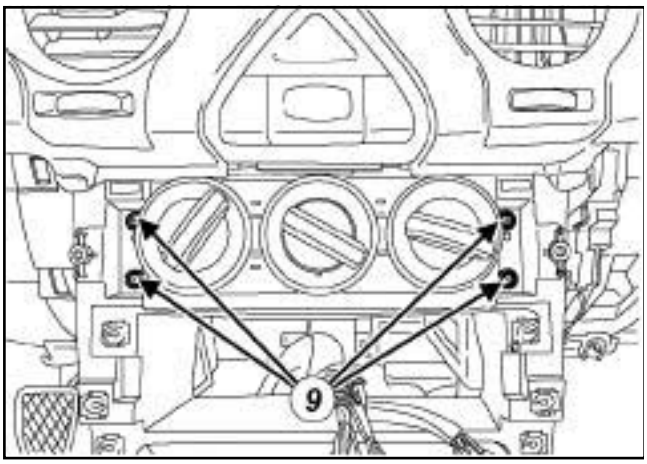


132575

❏ Remove:

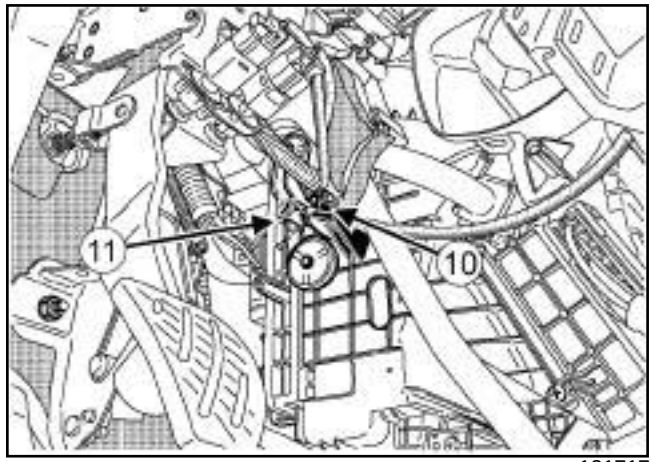
- the bolts (**7**) ,
- the cover (**8**) .

**II - OPERATION FOR REMOVAL OF PART CONCERNED**



131716

❏ Remove the bolts (**9**) .



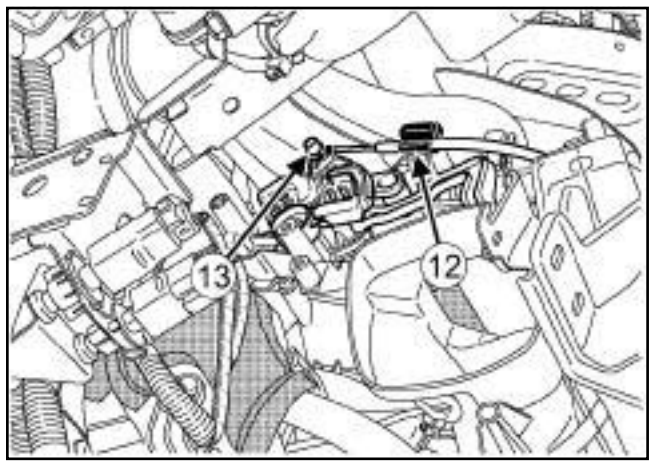
131717

❏

Note:
Mark the routing of the air distribution cable.

❏ Remove:

- the air mixer wiring from the sleeve stop ***(10)*** ,
- the retaining ring ***(11)*** ,
- the air mixing cable.



131718

❏

Note:
Note the routing of the air distribution cable.

❏ Remove:

- the air distribution cable from the sleeve stop ***(12)*** ,
- the retaining ring ***(13)*** ,
- the air distribution cable.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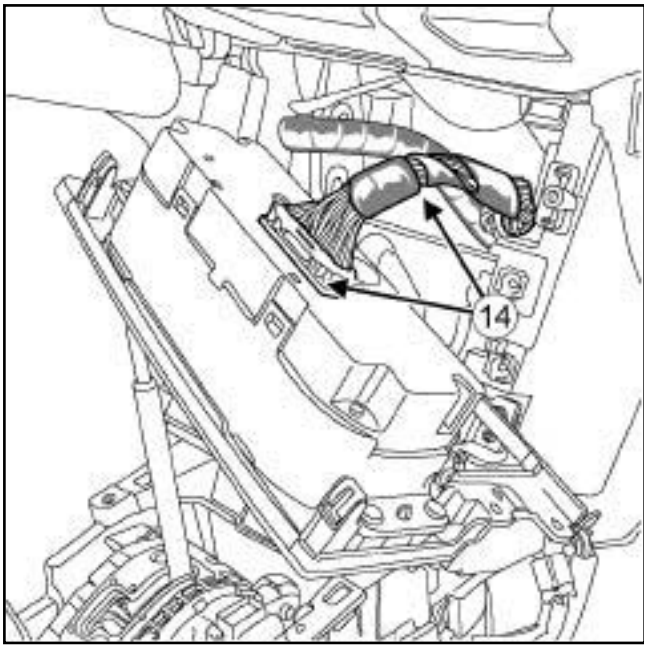
AIR CON 01 or BASIC HEATING




131719

❏ Disconnect the connectors (**14**) .

❏ Remove the control panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the control panel.

❏ Connect the connectors ***(14)*** .

❏ Refit:

- the air distribution cable,
- the air distribution cable to the sleeve stop,
- the retaining ring,
- the air mixer cable.
- the air mixer cable to the sleeve stop,
- the retaining ring,
- the bolts ***(9)*** .

### II - FINAL OPERATION.

❏ Refit:

- the cover ***(8)*** ,
- the bolts ***(7)*** ,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the side centre panel side trims (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower covers ***(3)*** from the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the centre panel side trims.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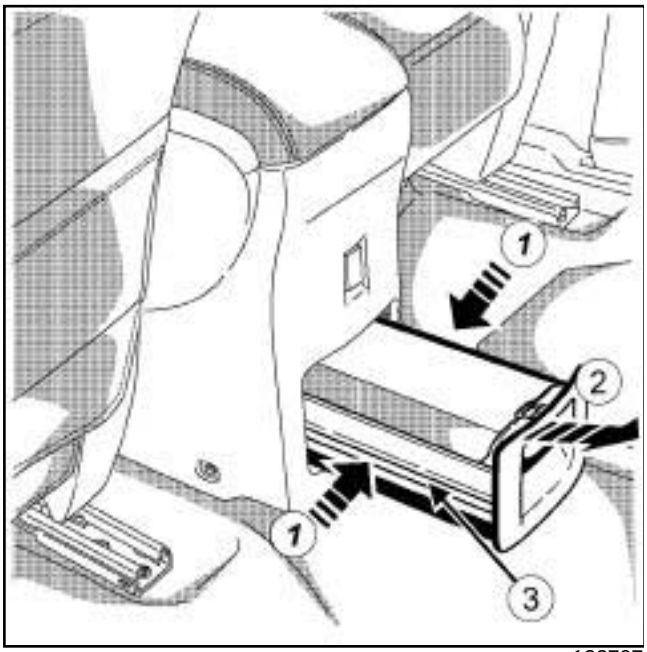
REAR SEATS AIR DUCT

## REMOVAL

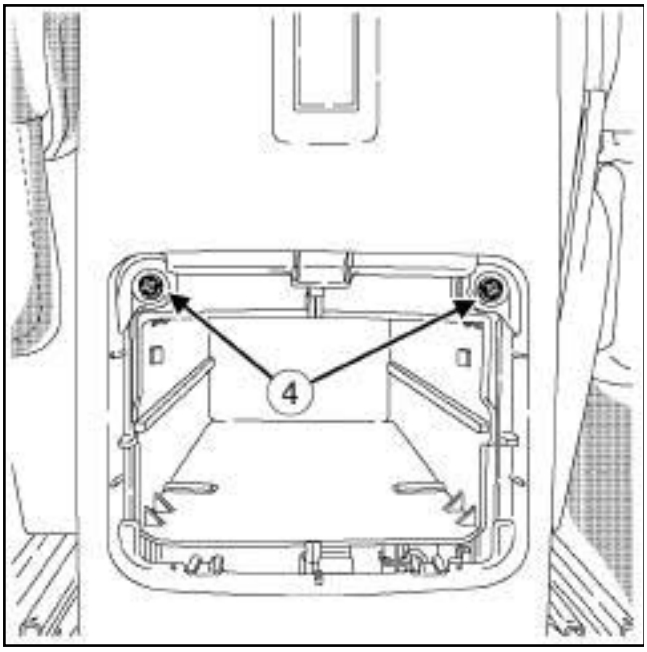
### I - REMOVAL PREPARATION OPERATION

❑ Remove the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners).



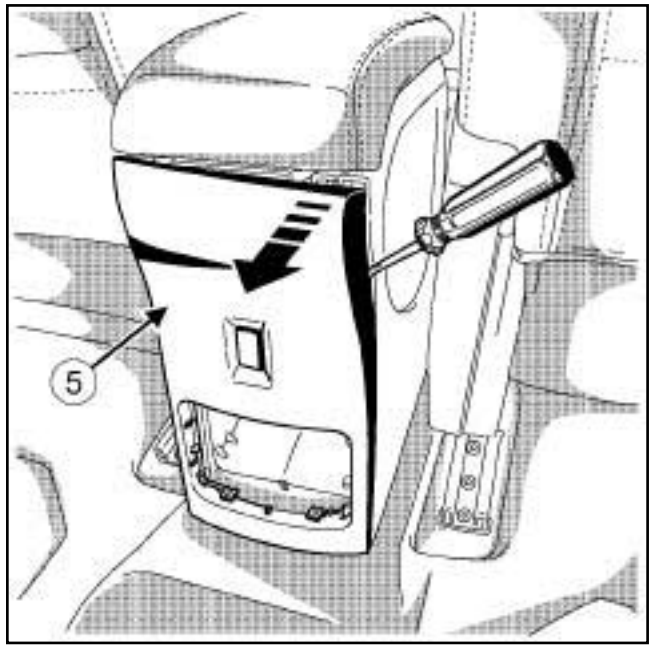

132797

❑ Remove the rear storage compartment from the centre console (**3**) in the direction of (**2**) by pushing at (**1**) .




132798

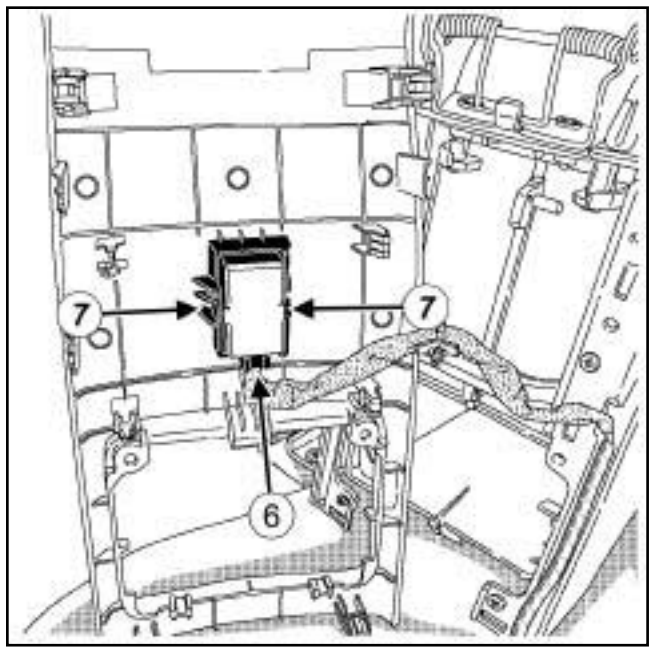
❑ Remove the bolts (**4**) .




132799

❑ Remove the rear cover (**5**) from the centre console using a flat-blade screwdriver.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132800

❑ Disconnect the connector (**6**) .

❑ Unclip the clips ***(7)*** .

❑ Remove the rear control panel.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REAR SEATS AIR DUCT

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear control panel.

❏ Attach the clips.

❏ Connect the connector.

### II - FINAL OPERATION.

❏ Refit:

- the centre console rear cover,
- the bolts ***(4)*** ,
- the centre console rear storage compartment,
- the rear seat (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and seat runners).


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# Front side air distribution duct: Removal - Refitting

RIGHT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

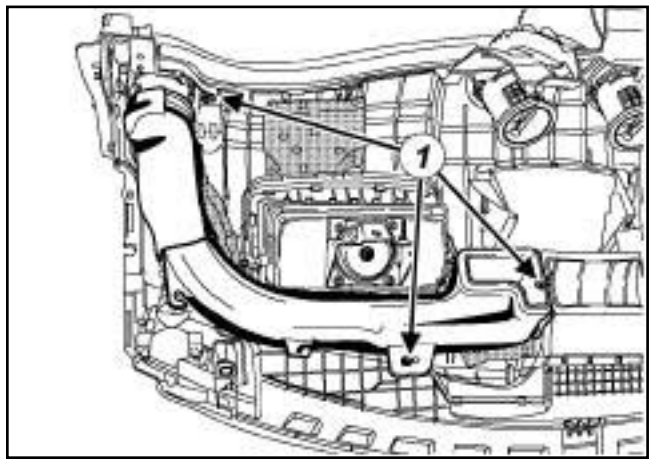
❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the glovebox (see **Dashboard: Removal - Refitting**) ( 57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Front left-hand air distribution duct

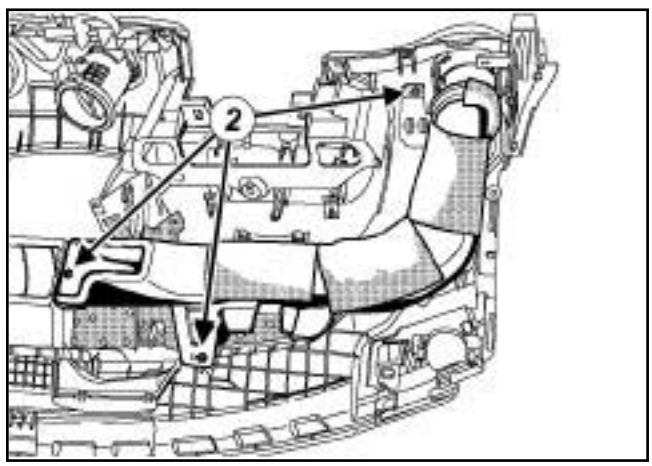



131294

❑ Remove:

- the bolts (**1**) ,
- the front left-hand air distribution duct.

#### 2 - Front right-hand air distribution duct




131295

❑ Remove:

- the bolts (**2**) ,
- the front right-hand air distribution duct.



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RIGHT-HAND DRIVE

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Front left-hand air distribution duct**

❑ Refit:

- the front left-hand air distribution duct,
- the front left-hand air distribution duct bolts.

**2 - Front right-hand air distribution duct**

❑ Refit:

- the front right-hand air distribution duct,
- the front right-hand air distribution duct bolts.

### II - FINAL OPERATION.

❑ Refit:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Dashboard: Removal - Refitting**) ( 57A, Interior equipment),
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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# Front side air distribution duct: Removal - Refitting



LEFT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

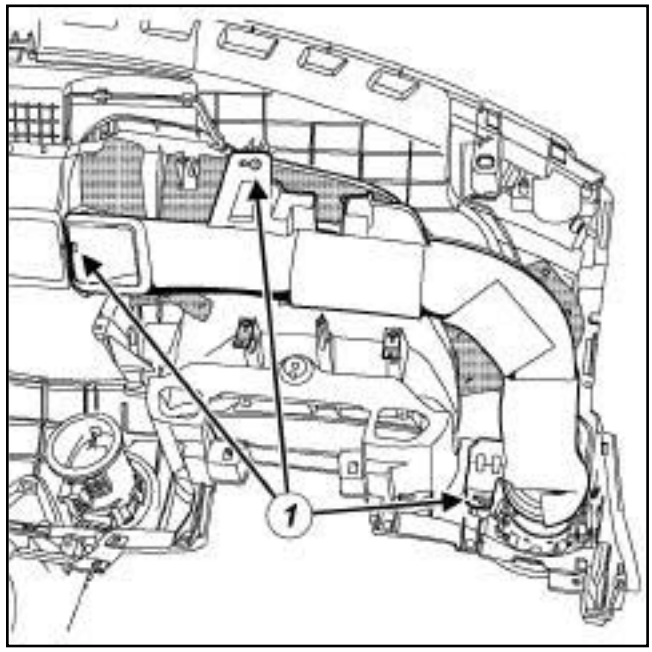
❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, Onboard telematics system),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Front left-hand air distribution duct




131292

❑ Remove:

- the bolts (**1**) ,
- the front left-hand air distribution duct.



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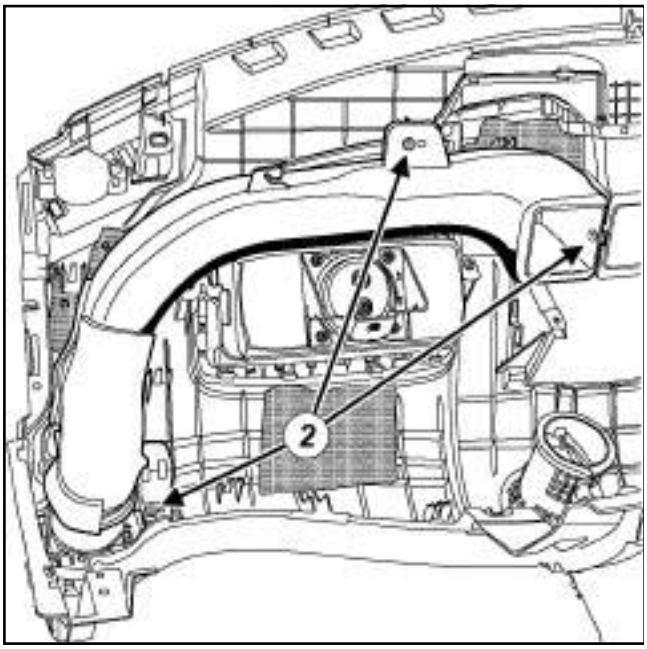
LEFT-HAND DRIVE

**2 - Front right-hand air distribution duct**



131293

❏ Remove:

- the bolts (**2**) ,
- the front right-hand air distribution duct.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Front left-hand air distribution duct**

❏ Remove:

- the front left-hand air distribution duct,
- the front left-hand air distribution duct bolts.

**2 - Front right-hand air distribution duct**

❏ Remove:

- the front right-hand air distribution duct,
- the front right-hand air distribution duct bolts.

### II - FINAL OPERATION.

❏ Refit:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**)
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, Onboard telematics system),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RIGHT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**

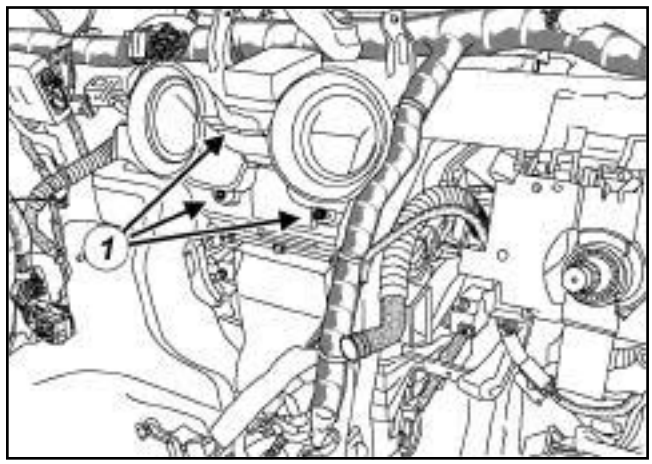
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131297

❑ Remove:

- the bolts (**1**) ,
- the front centre air distribution duct.

### III - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the front centre air distribution duct.
- the screws for the front central air distribution duct.

### IV - FINAL OPERATION.

❑ Refit:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),



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RIGHT-HAND DRIVE

- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

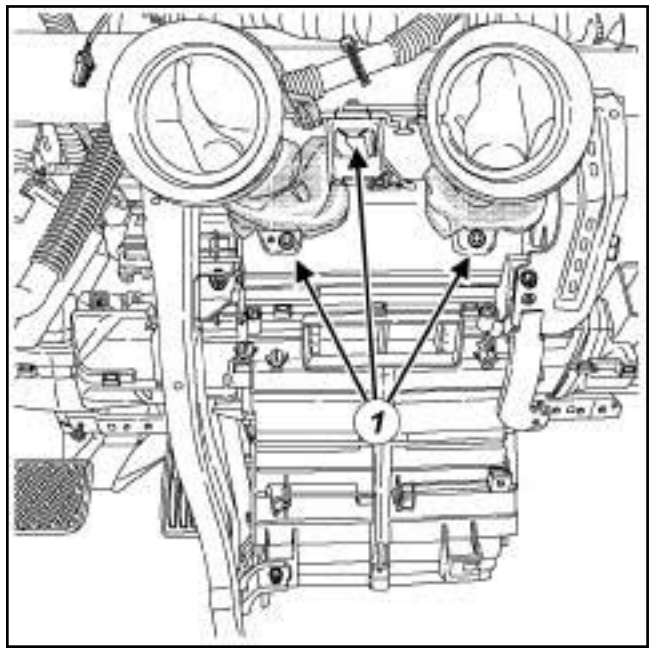
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, On-board telematics system),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131296

❑ Remove:

- the bolts (**1**) from the front centre air distribution duct,
- the front centre air distribution duct.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the front centre air distribution duct.
- the bolts for the front central air distribution duct.

### II - FINAL OPERATION.

❑ Refit:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**) ,
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),



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- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the navigation screen (see **Navigation screen: Removal - Refitting**) (83C, On-board telematics system),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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## REMOVAL

### I - REFITTING PREPARATION OPERATION

**1 - Driver's side**

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

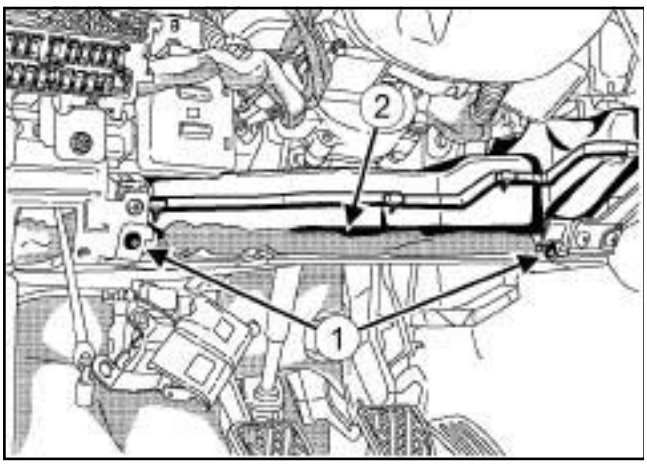
**2 - Front passenger side**

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the lower cover on the right-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

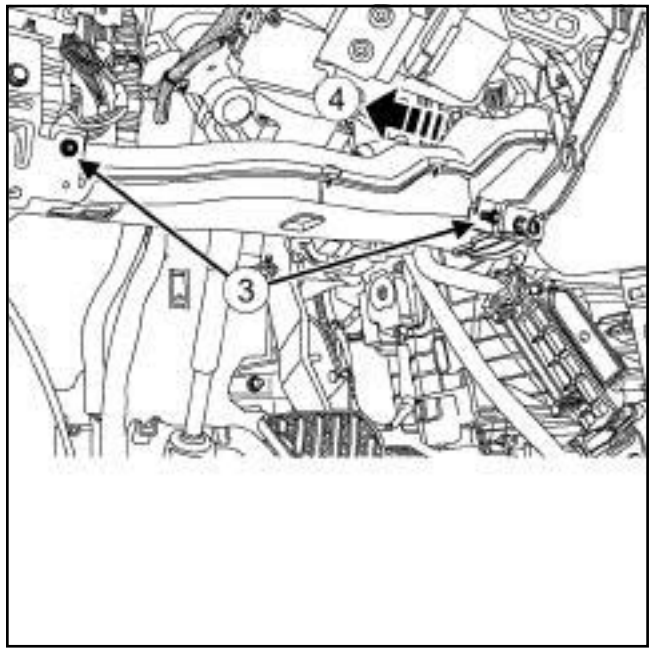
**1 - Driver's side**




132356

❏ Remove:

- the bolts (**1**) ,
- the driver's side lower dashboard trim (**2**) .

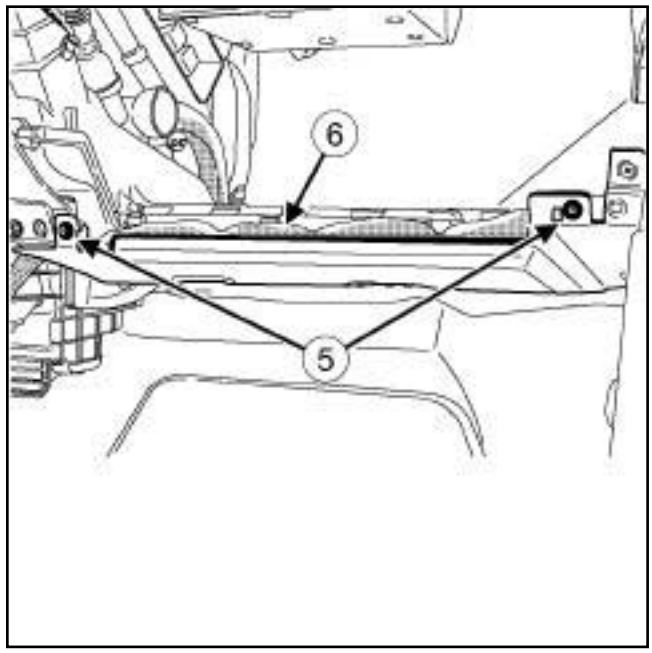



132357

❏ Remove:

- the bolts (**3**) ,
- the driver's side A pillar air distribution duct in the direction of the arrow (**4**) .

**2 - Front passenger side**




132358

❏ Remove:

- the bolts (**5**) ,
- the passenger side lower dashboard trim.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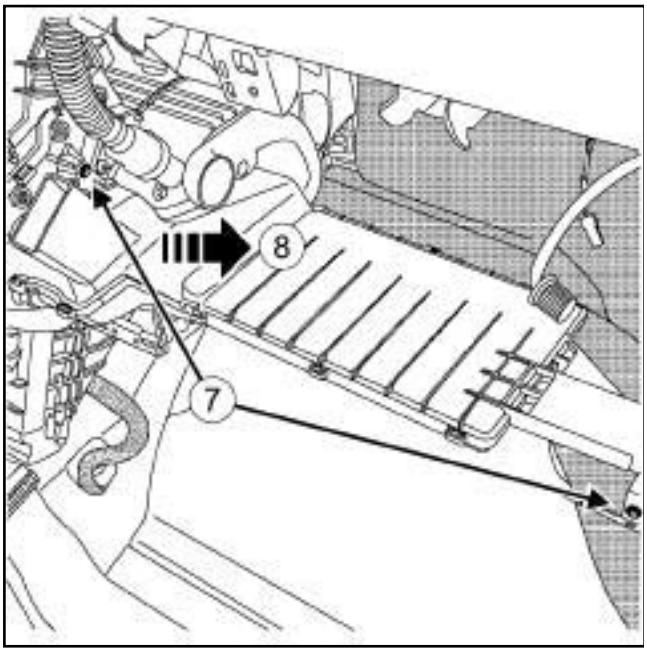

132359

❏ Remove:

- the bolts (**7**) ,
- the passenger side A pillar air distribution duct in the direction of the arrow (**8**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Driver's side

❏ Refit:

- the driver's side A pillar air distribution duct,
- the bolts for the A pillar air distribution duct on the driver's side,
- the driver's side lower dashboard trim,
- the dashboard lower trim bolts on the driver's side.

#### 2 - Front passenger side

❏ Refit:

- the passenger side A pillar air distribution duct,
- the bolts for the A pillar air distribution duct on the passenger side,
- the passenger side lower dashboard trim,
- the dashboard lower trim bolts on the passenger side.

### II - FINAL OPERATION.

#### 1 - Driver's side

❏ Refit:

- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

#### 2 - Front passenger side

❏ Remove:

- the lower cover on the right-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).


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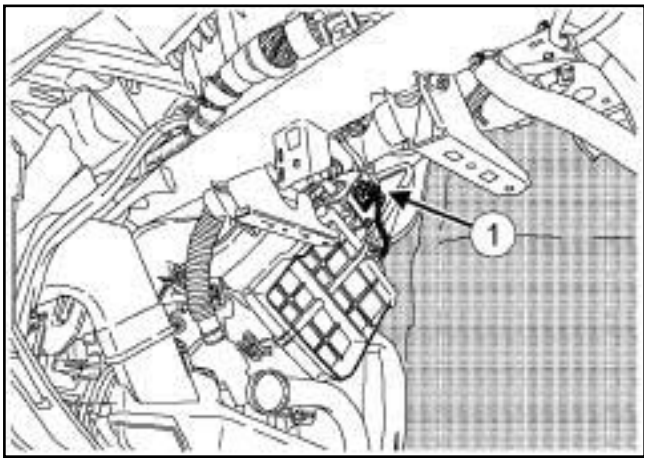
LEFT-HAND DRIVE, and AIR CON 02

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

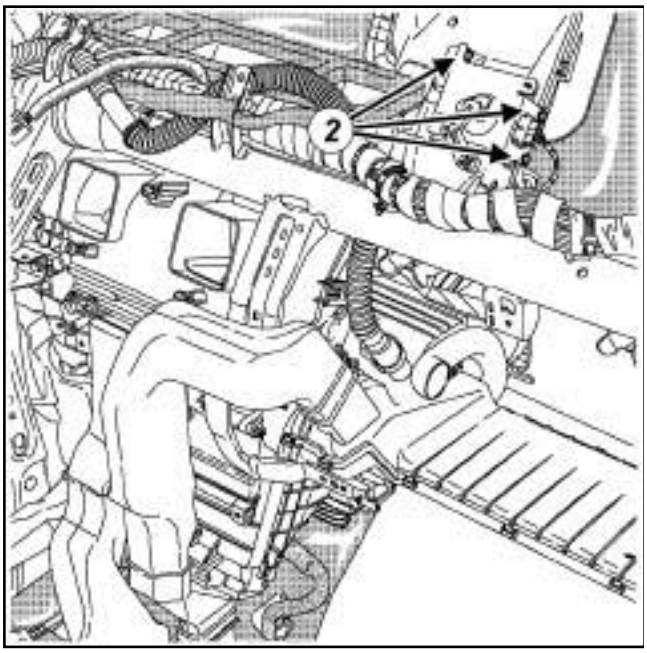
❏ Remove the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131298

❏ Disconnect the connector (**1**) .




131299

❏ Remove:

- the bolts (**2**) ,
- the recirculation motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the recirculation motor,
- the recirculation motor bolts.

❏ Connect the recirculation motor connector.

### II - FINAL OPERATION.

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).



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# Recirculation motor: Removal - Refitting

RIGHT-HAND DRIVE, and AIR CON 02

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**

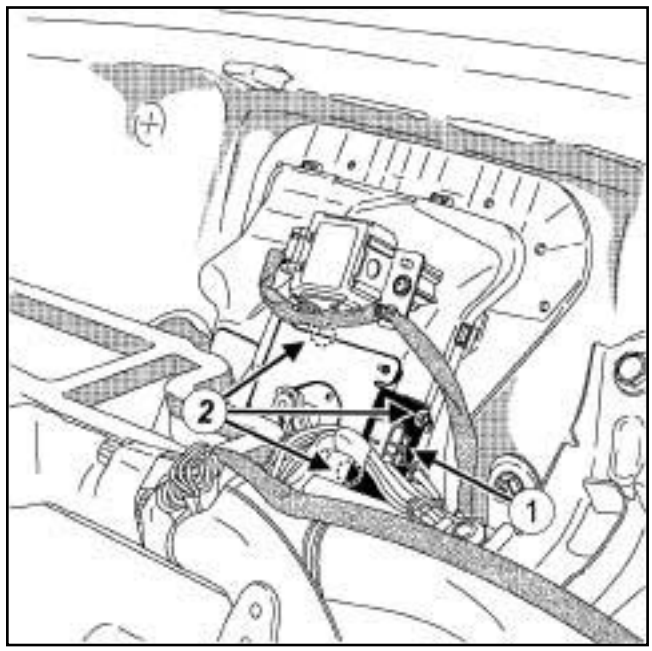
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**)
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the glovebox (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131300

❑ Disconnect the connector (**1**) .

❑ Remove:

- the bolts (**2**) ,
- the recirculation motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the recirculation motor,
- the recirculation motor bolts,

❑ Connect the connector.

### II - FINAL OPERATION.

❑ Refit:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),



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RIGHT-HAND DRIVE, and AIR CON 02

- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- the starter control panel (see **Card reader: Removal - Refitting**) (82A, Immobiliser),
- the control panel (see **61A**, **Heating**, **Control panel: Removal - Refitting**, page **61A-48**)
- the radio (see **Car radio: Removal - Refitting**) (86A, Radio),
- the CD changer (see **CD changer: Removal - Refitting**) (86A, Radio),
- the solar radiation detector (see **61A**, **Heating**, **Insolation sensor: Removal - Refitting**, page **61A-76**) ,
- the tweeter (see **Tweeter: Removal - Refitting**) (86A, Radio),
- the display (see **Display: Removal - Refitting**) (86A, Radio),
- the front speaker (see **Front speakers: Removal - Refitting**) (86A, Radio),
- the instrument panel (see **Instrument panel: Removal - Refitting**) (83A, Instrument panel),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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LEFT-HAND DRIVE, and AIR CON 02

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

#### 1 - Left-hand mixer motor

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the centre panel lower left-hand cover,
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .

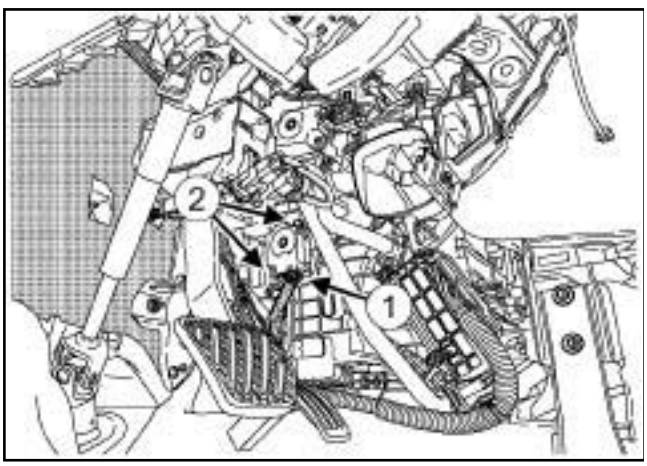
#### 2 - Right-hand mixer motor

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre panel lower left-hand cover
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Left-hand mixer motor



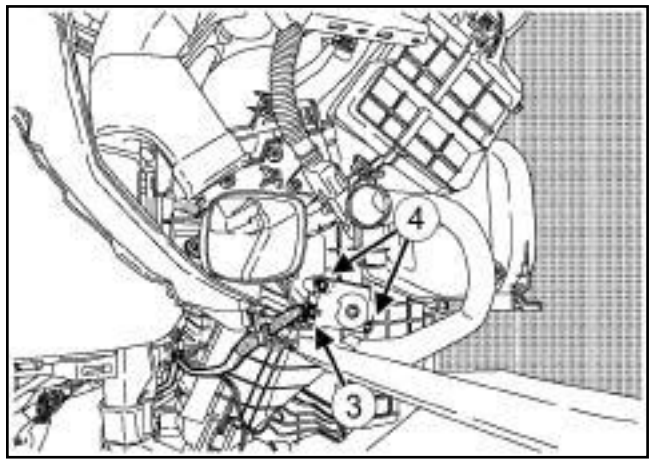

132801

❏ Disconnect the connector (**1**) .

❏ Remove:

- the bolts ***(2)*** ,
- the left-hand mixer motor.

#### 2 - Right-hand mixer motor




132802

❏ Disconnect the connector (**3**) .

❏ Remove:

- the bolts ***(4)*** ,
- the right-hand mixer motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the air mixing motor,
- the air mixing motor bolts.

❏ Connect the air mixing motor connector.

### II - FINAL OPERATION.

#### 1 - Left-hand mixer motor

❏ Refit:

- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .
- the centre panel lower left-hand cover,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

#### 2 - Right-hand mixer motor

❏ Refit:

- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .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LEFT-HAND DRIVE, and AIR CON 02

- the centre panel lower left-hand cover,
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).


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RIGHT-HAND DRIVE, and AIR CON 02

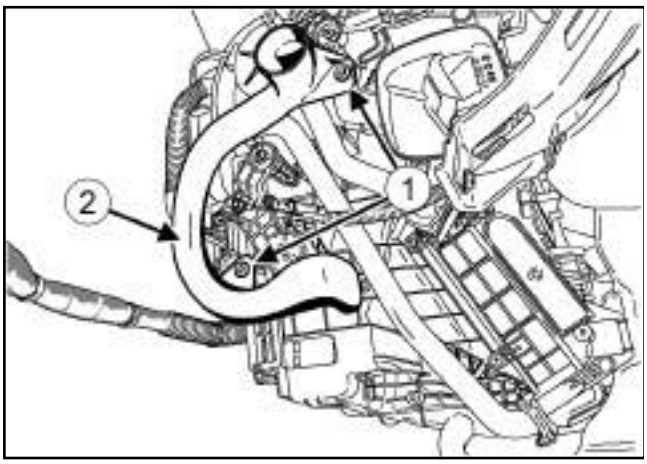
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

#### 1 - Left-hand mixer motor

❏ Remove:

- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre panel lower left-hand cover,
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .




131260

❏ Remove:

- the bolts (**1**) ,
- the glove box air duct (**2**) .

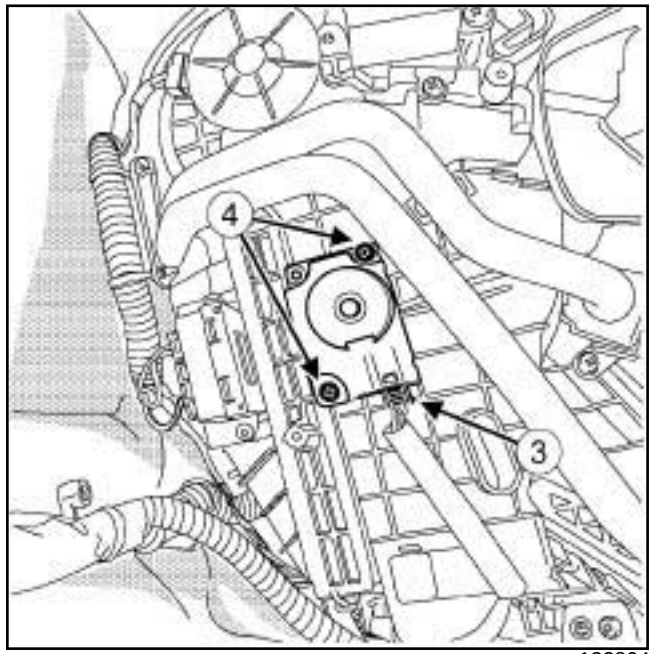
#### 2 - Right-hand mixer motor

❏ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the centre panel lower left-hand cover
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Left-hand mixer motor



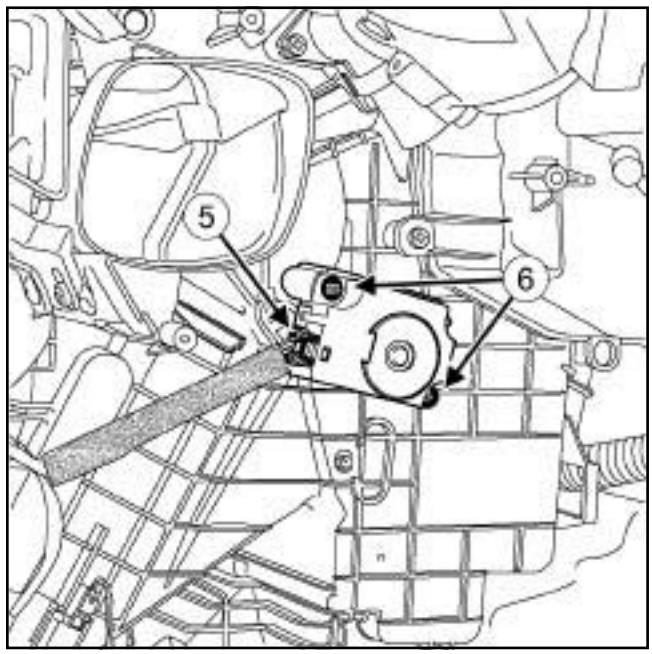

132804

❏ Disconnect the connector (**3**) .

❏ Remove:

- the bolts ***(4)*** ,
- the left-hand mixer motor.

#### 2 - Right-hand mixer motor




132805

❏ Disconnect the connector (**5**) .



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RIGHT-HAND DRIVE, and AIR CON 02

❏ Remove:

- the bolts ***(6)*** ,
- the right-hand mixer motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the air mixing motor,
- the air mixing motor bolts.

❏ Connect the air mixing motor connector.

### II - FINAL OPERATION

#### 1 - Left-hand mixer motor

❏ Remove:

- the glove box air duct,
- the bolts,
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .
- the centre panel lower left-hand cover,
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

#### 2 - Right-hand mixer motor

❏ Remove:

- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .
- the centre panel lower left-hand cover
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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AIR CON 02

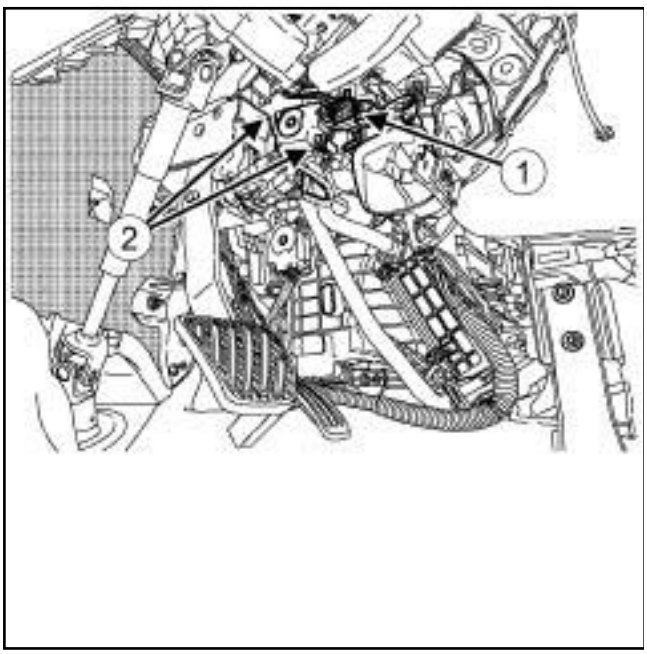
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131301

❑ Disconnect the connector (**1**) .

❑ Remove:

- the bolts (**2**) ,
- the distribution motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the distribution motor,
- the distribution motor bolts.

❑ Connect the connector.

### II - FINAL OPERATION.

❑ Refit:

- the A pillar air distribution duct (see **61A**, **Heating**, **A-pillar air distribution duct: Removal - Refitting**, page **61A-64**) .
- the lower cover on the left-hand side of the centre panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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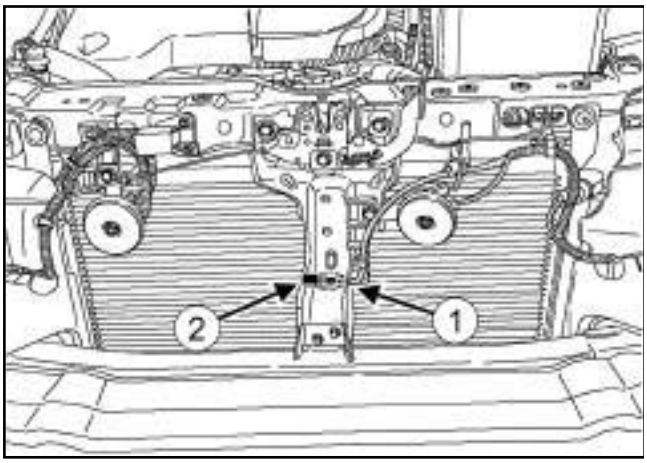
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ the radiator grille (see **Radiator grille: Removal - Refitting**) (56A, Exterior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131309

❏ Disconnect the connector (**1**) .

❏ Unclip the external temperature sensor (**2**) using a flat-blade screwdriver.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the external temperature sensor.

❏ Connect the connector.

### II - FINAL OPERATION.

❏ Refit the radiator grille (see **Radiator grille: Removal - Refitting**) (56A, Exterior equipment).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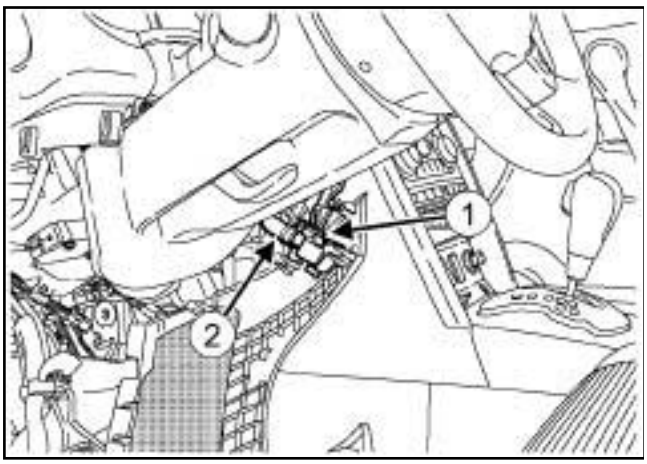
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

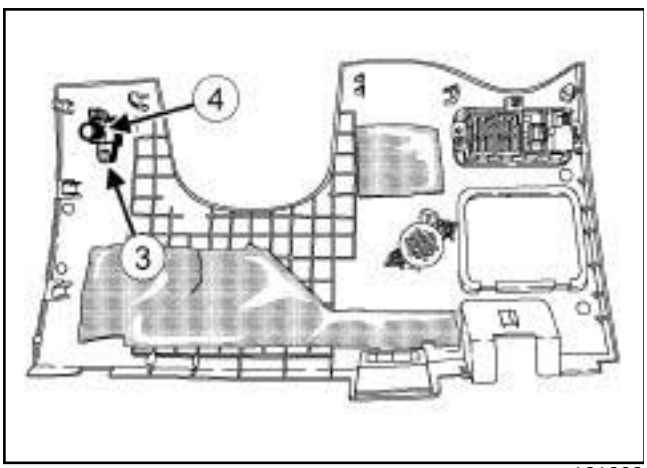
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131302

❏ Disconnect:

- the connector (**1**) ,
- the pipe (**2**) from the sensor.




131303

❏ Remove:

- the bolt (**3**) ,
- the passenger compartment temperature sensor (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the passenger compartment temperature sensor,
- the passenger compartment temperature sensor bolt.

❏ Connect:

- the pipe to the sensor,
- the connector.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



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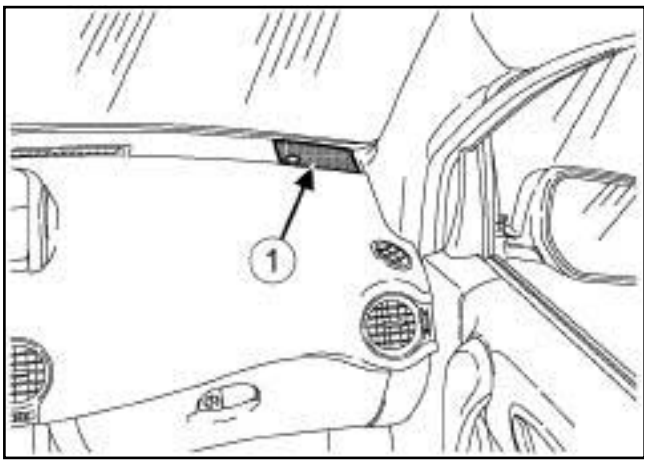
## REMOVAL

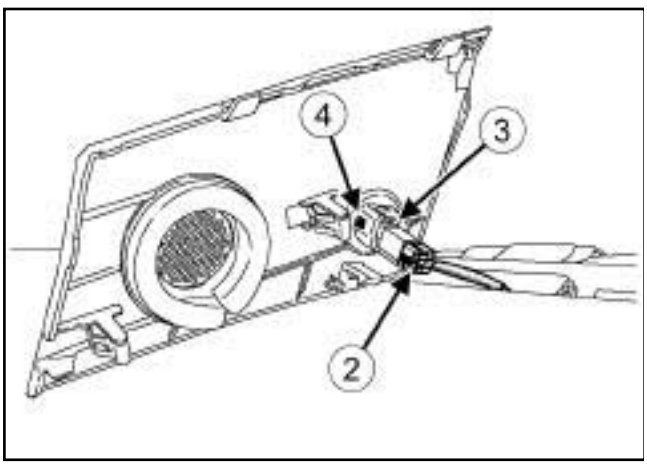
### I - REMOVAL PREPARATION OPERATION




132850

❑ Remove the grille (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132851

❑ Disconnect the connector (**2**) .

❑ Unclip the solar radiation sensor (**3**) at (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the solar radiation sensor.

❑ Connect the solar radiation sensor connector.

### II - FINAL OPERATION.

❑ Refit the grille.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## I - SAFETY

**IMPORTANT**

The following must be worn when handling refrigerant:

- gloves,

- protective goggles (with side shields if possible).

In the event of refrigerant fluid coming into contact with the eyes, rinse well with clean water continuously for **15 minutes**. If possible, have an eye rinse unit available.

If refrigerant comes into contact with your eyes, consult a doctor immediately. Inform the doctor that the burns were caused by **R134A** refrigerant.

In the event of contact with other unprotected parts of the body (event though the safety advice has been observed), rinse well with clean water continuously for **15 minutes**.

**IMPORTANT**

Work requiring the use of refrigerant must be carried out in a well-ventilated area.

The refrigerant must not be stored in a shaft, a pit, a hermetically sealed room, etc.

Refrigerants are colourless and odourless fluids.

Refrigerant is heavier than air.

As a result, there is a danger of asphyxiation for those working close to the ground and less than **5 m** away from the working area (pit, wells, air vent, etc.).

Switch on gas extraction systems.

At temperatures above **100˚C**, the refrigerant will decompose and produce a highly irritant gas.

**IMPORTANT**

It is forbidden to smoke close to an open refrigerant circuit.

## II - GENERAL RECOMMENDATIONS

It is possible to place components in the drying oven after painting or to carry out work near the system if the temperature does not exceed **80˚C**.

**IMPORTANT**

To prevent refrigerant from leaking, never repair a faulty air conditioning circuit component.

Replace all faulty components.

It is essential to follow the routing of the connecting pipes.

Ensure that the refrigerant connecting pipes are correctly fitted so that they will not come into contact with metal parts in the engine compartment.

**WARNING**

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

**WARNING**

Lubricants are not mutually compatible: always observe the type and quantity of oil recommended for each compressor even when topping up as this could damage the cold loop components.

Always close the oil cans again after use to keep moisture out and never use oil contained in a can that has been open for a long time (viscous appearance).


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For the part numbers of the oils (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

**Table of vehicle refrigerant capacities according to their engines and various features.**

| Engine | Refrigerant capacity (g) | Type of compressor | Type of oil | Quantity of oil (ml) |
|---|---|---|---|---|
| 2TR | 550 ± 50 | Valeo DKS-17 D | SANDEN SP10 | 120 |
| M9R | | | | |

**Table of quantities of oil to add when replacing components:**

| Operation on the air-conditioning circuit | Quantity of oil (ml or cc) |
|---|---|
| Circuit oil change | Measure the quantity recovered and add the same quantity of new oil |
| Burst pipe or other rapid leak | **100** |
| Replacing a hose | Quantity recovered **+10** |
| Replacement of a condenser | Quantity recovered **+35** |
| Replacement of an evaporator | Quantity recovered **+75** |
| Removing / refitting a compressor | Quantity recovered |
| Replacement of a compressor | None added |


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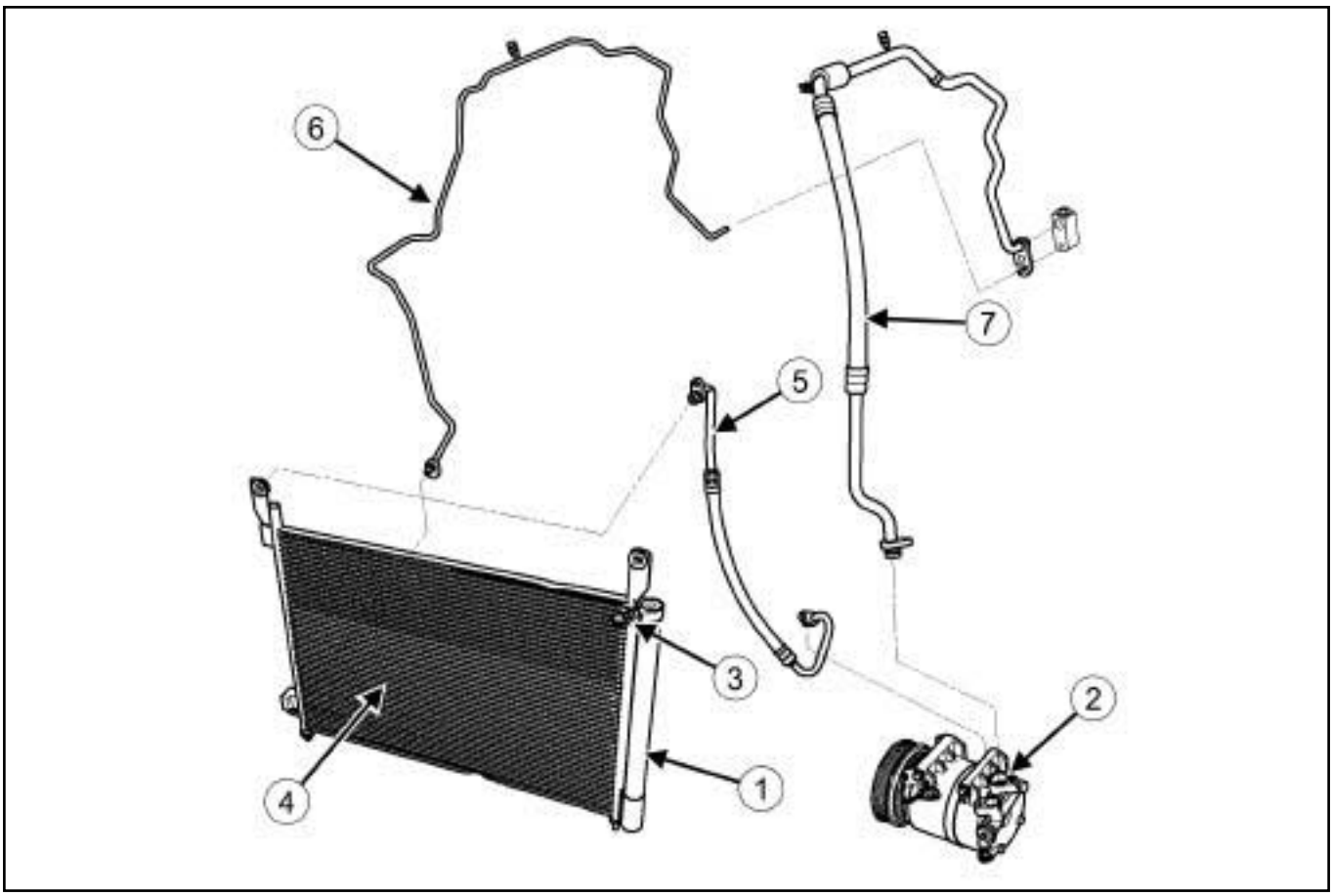
AIR CON 01 or AIR CON 02

| No. | Description |
|---|---|
| (1) | Dehydrator reservoir |
| (2) | Compressor |
| (3) | Pressure sensor |
| (4) | Condenser |
| (5) | Condenser - compressor connecting pipe |
| (6) | Expansion valve - condenser connecting pipe |
| (7) | Compressor - expansion valve connecting pipe |
| (8) | Intermediate pipe - expansion valve connecting pipe |
| (9) | Intermediate pipe - compressor connecting pipe |
| (10) | Expansion valve |
| (11) | Evaporator |
| (12) | External temperature sensor |
| (13) | Passenger compartment temperature sensor |
| (14) | Solar radiation sensor |

2TR




131305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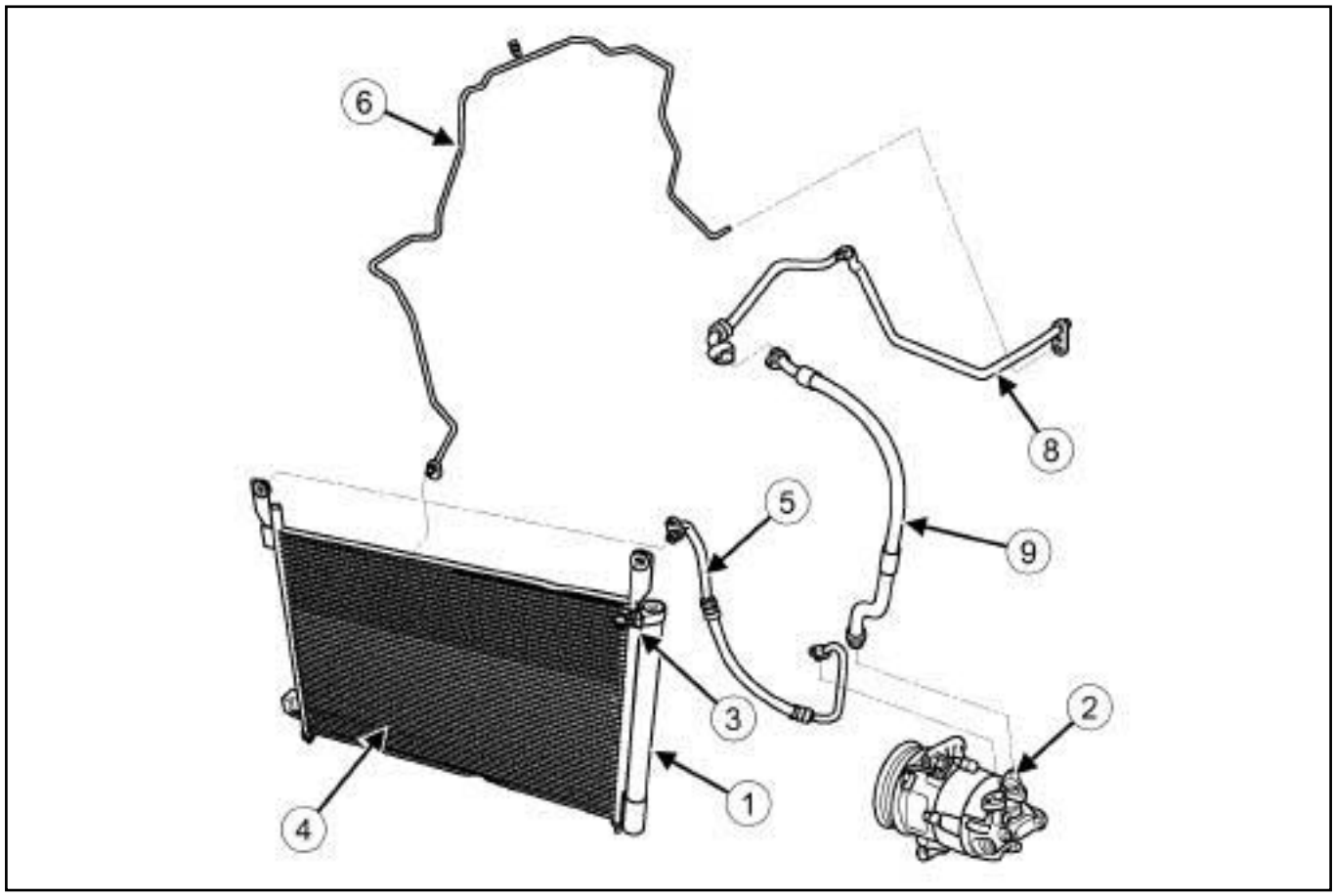
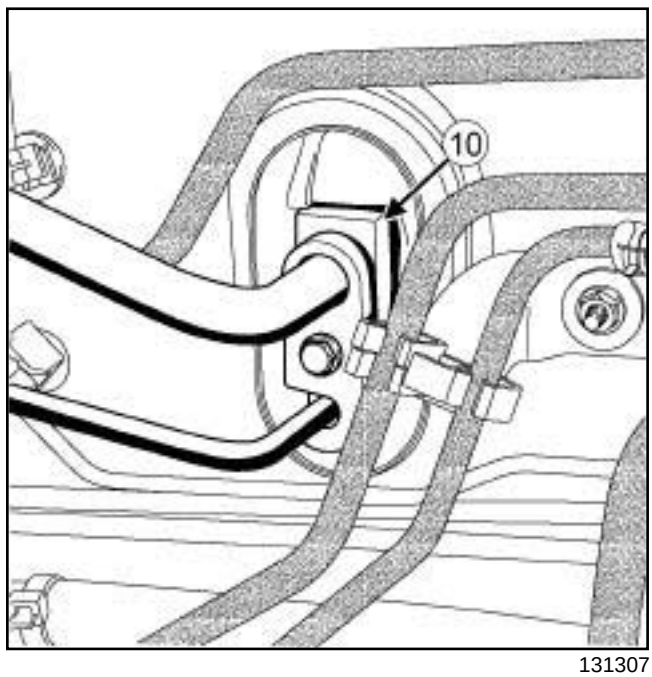
AIR CON 01 or AIR CON 02

M9R




131306

All the components shown in the diagram are located in the engine compartment.




131307

To access the expansion valve (**10**) , remove the pipe union.



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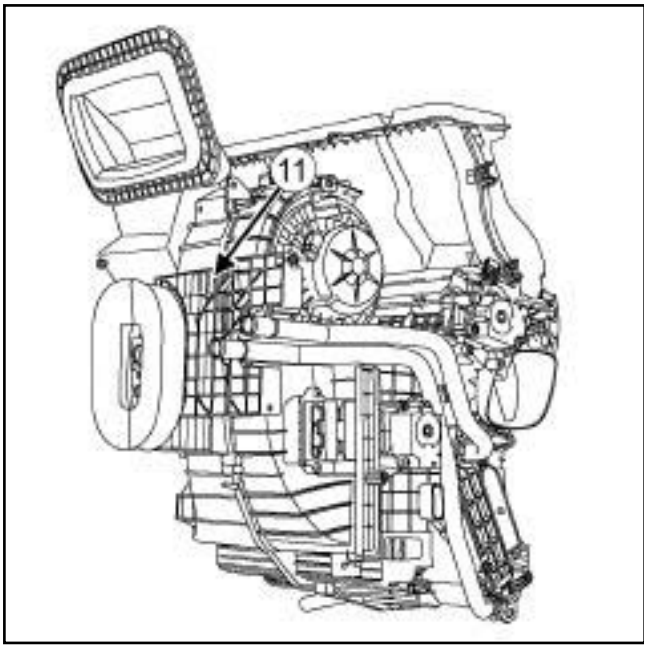
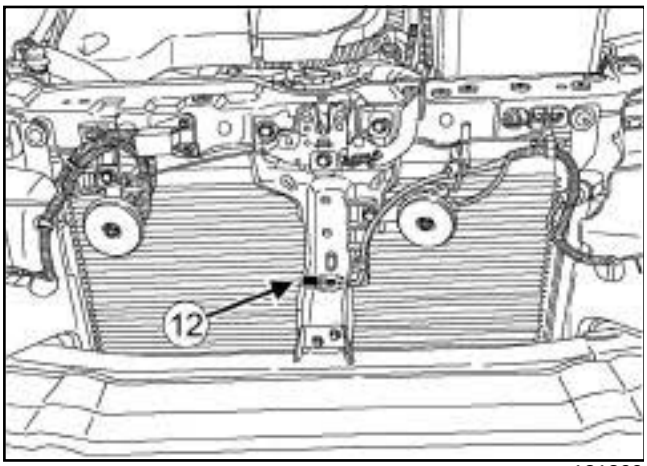


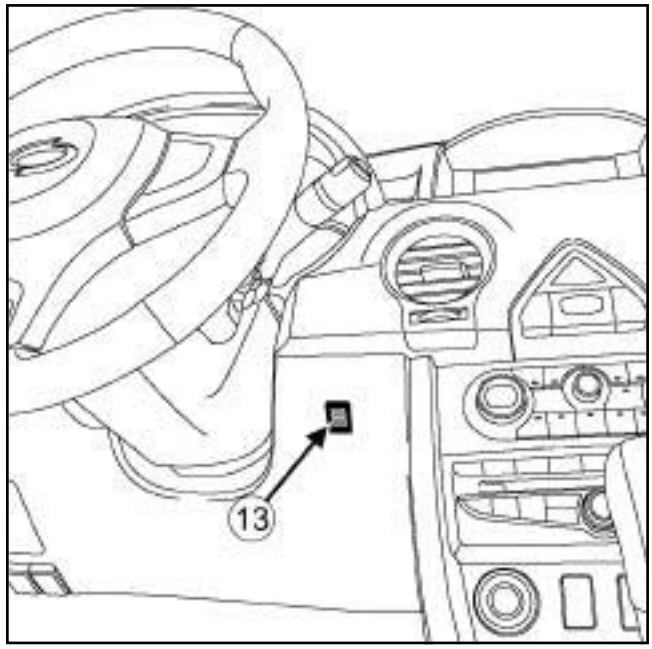

131308

The evaporator (**11**) cannot be separated from the distribution unit.



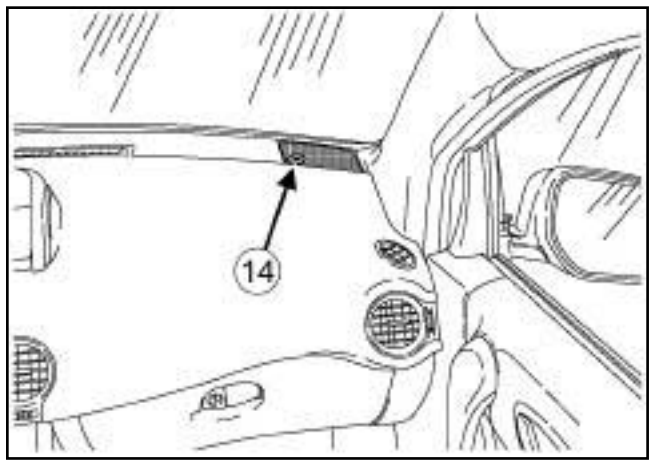

131309

The external temperature sensor is located in front of the radiator.




131310

The passenger compartment temperature sensor (**13**) is located on the lower cover of the dashboard on the driver's side.




131311

The solar radiation sensor is located on the dashboard tweeter grille.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| Equipment required |
| --- |
| Dual sensor temperature measuring device |

Note:

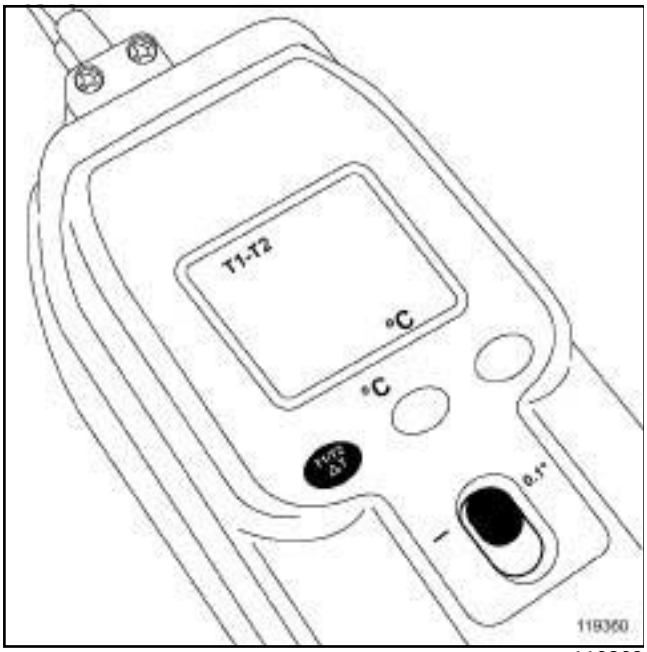
For Renault maintenance, check the air conditioning system at the end of the vehicle maintenance program, to ensure that the engine is as cold as possible.

**I - MEASURING DEVICE PREPARATION OPERATION**

❏ Check that the **dual temperature sensor measuring device** operates correctly (refer to the instruction manual for the device).

❏ Adjust the unit of the value displayed in ˚C.

❏ Adjust the reading accuracy of the device to **0.1˚C**.




119360

❏ Adjust the reading mode to (ΔT) = (T1 - T2)

119358

❏ Check the two sensors T1 and T2 in order to calculate the correction (Δ) to be applied to the measurement (ΔT) = (T1 - T2). the two sensors must indicate the same measurement under the same conditions. Check the sensors:

- bring the two ends of the sensors together until they touch,
- place them in the air flow of an air vent,
- set the passenger compartment blower unit to maximum speed,
- wait for the value to stabilise,
- note the correction value (Δ).

Note:

It is not necessary to start the vehicle. The device display is in mode (ΔT) = (T1 - T2).

**WARNING**

Note the difference and sign as soon as the temperature becomes stable. Calculate the correction (Δ) = - (T1 - T2) to be applied to the measurement (ΔT).

Examples:

- If (T1 - T2) = -0.3˚C, correct the measurement (ΔT) by (Δ) +0.3˚C,
- If (T1 - T2) = +0.3˚C, correct the measurement (ΔT) by (Δ) -0.3˚C.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**II - VEHICLE PREPARATION OPERATION**

❏ Position the vehicle away from direct sunlight in an area with a stable ambient temperature greater than or equal to at least **15°C**.

❏ Close the bonnet.

❏ Open the front windows.

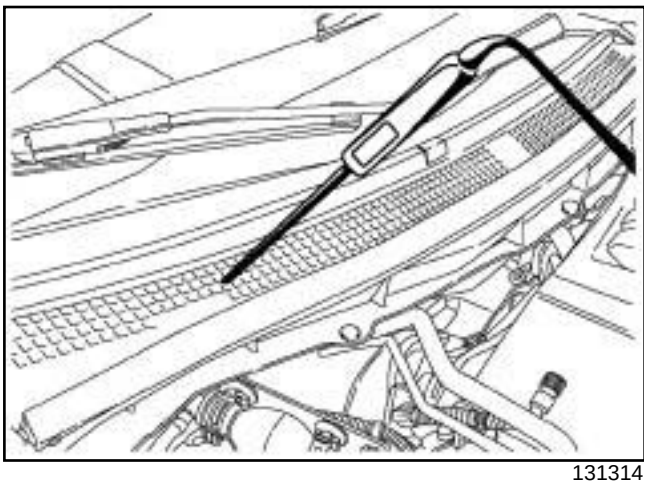
❏ Run the engine at idle speed.

❏ Set the heating and ventilation controls as follows:

- recirculation mode in the external position,
- air distribution in "face" mode,
- temperature adjustment control in maximum cold position in the front (and the rear if equipped),
- passenger compartment blower unit speed in maximum position (cut off the rear control if equipped),
- front centre and side air vents open, with vanes set to neutral position,
- the air conditioning system must be activated (indicator light on).

❏ Wait **5 minutes** with the engine idling before taking any measurements.

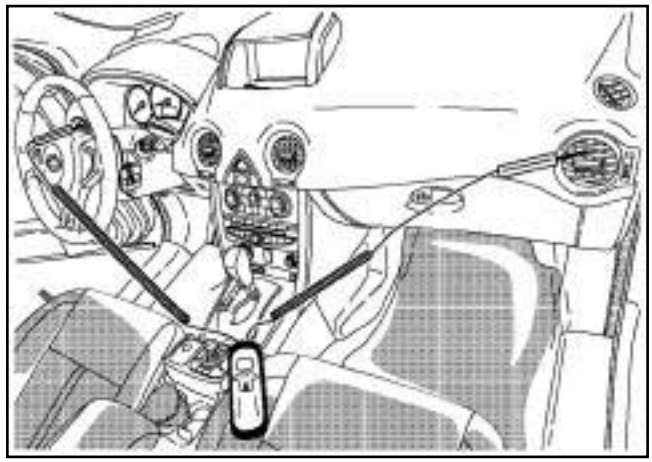
**III - MEASUREMENT**



131314

❏ Record the air temperature at the scuttle panel grille (T3).

- Depending on the vehicle, open the bonnet to access the scuttle panel grille.
- Place the sensor where air is drawn through the scuttle panel grille.
- Wait for the value to stabilise.
- Note the value of temperature (T3).
- Close the bonnet if it was opened.



131315

❏ Record the air temperature at the left-hand air vent (T1), and the air temperature at the right-hand air vent (T2).

- Fit sensor T1 in the left-hand air vent.
- Fit sensor T2 in the right-hand air vent.

❏ Note the temperature differences, once the value (ΔT) has stabilised:

- Between T3 and the higher of values T1 or T2, (T3 - highest value).
- Note this temperature difference.
- Between T1 and T2 (read the value (ΔT) in the reading display mode (T1 - T2)).
- Note the temperature difference (ΔT) according to the correction (Δ) to be applied to the measurement.

❏ If the measurement (ΔT) = (T1 - T2) is unstable, carry out the following procedure:

> Note:
>
> Depending on the vehicle's air conditioning system programming, this check method may not be applicable because the engine cooling fan assembly has been activated. Its operation renders the (ΔT) value between T1 and T2 unstable. To eliminate this, the fan assembly must be activated for the entire period over which temperature measurements T1 and T2 are recorded.

❏ Force operation of the engine cooling fan by adjusting the engine speed.

- Stabilise the engine speed at **2000 rpm** while T1 and T2 temperature measurements are being recorded.
- Check that the engine cooling fan assembly is operating.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- Record the temperatures by following the instructions given in the MEASUREMENTS paragraph.

**IV - FAULT FINDING**

❑ It is essential to observe the following two conditions:

- The difference between T3 and the highest value of T1 or T2 should be greater than or equal to **5°C**,
- The difference between T1 and T2 must be less than or equal to **2°C**.

Note:

If one of these two conditions is not met, then the air conditioning system is not working properly. In this case, refer to the fault finding procedure for the air conditioning system of the vehicle concerned.


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**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

**Fault finding for detecting leaks:**

| Component | Detection area | Part to be replaced after first check | Part to be replaced after filling and second check |
|---|---|---|---|
| Condenser | Inlet or outlet | Pipe | Condenser |
| Evaporator | Connection flange | Pipe | Connection flange and/or evaporator |
| Compressor | Inlet or outlet | Pipes | Compressor |

## I - ELECTRONIC DETECTORS

❏

Note:

Check for leaks using the electronic detector first before using the trace detector.

❏ This device measures variations in the quantity of refrigerant in the air and beeps accordingly.

❏ The device must be initialised before checking.

To do this:

- immobilise the device,
- calibrate the device in the engine compartment,
- do not start the engine.

This point is then used as standard for detecting the contamination rate.

This device is highly sensitive: during the detection process, only follow the line of the circuit as closely as possible to limit variations caused by other gases.

This device only detects relatively substantial leaks.

Note:

Make sure that the sensor at the end of the rod is extremely clean and in good condition.

## II - TRACE DETECTORS

❏

**WARNING**

After injecting dye into the refrigerant, be sure to indicate this on a label (supplied with the dye capsule), and the date of the operation.

Position the label so it is visible near to the cold loop filler valve.

❏ Detecting leaks using a tracer involves adding a dye to the refrigerant, and locating the points of loss using an ultraviolet light.

Note:

The procedure described must be observed.

Note:

Use this leak detection method as a last resort for leaks that cannot be located.


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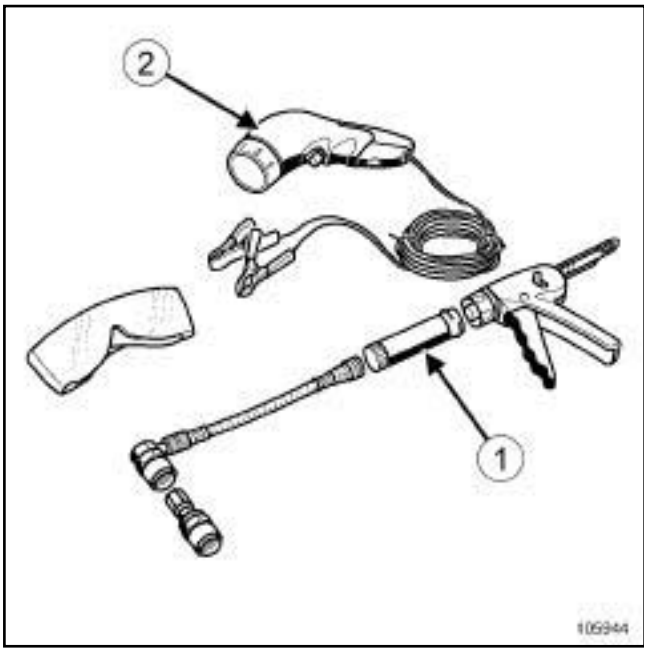


105944

❏ The procedure for detecting refrigerant leaks uses a dye which is available as a single-use capsule (**1**) : traces of fluid are detected using an ultraviolet lamp (**2**) .

❏ The dye remains in the air conditioning system.

❏ It is possible to check the status of the cold loop using the ultraviolet lamp, without injecting the dye again.

**WARNING**
To avoid damaging the cold loop components (corrosions, etc.), do not use dye if the traces reveal that some product has already been injected.

❏ If there is nothing to indicate that dye has been used previously (label, etc.):

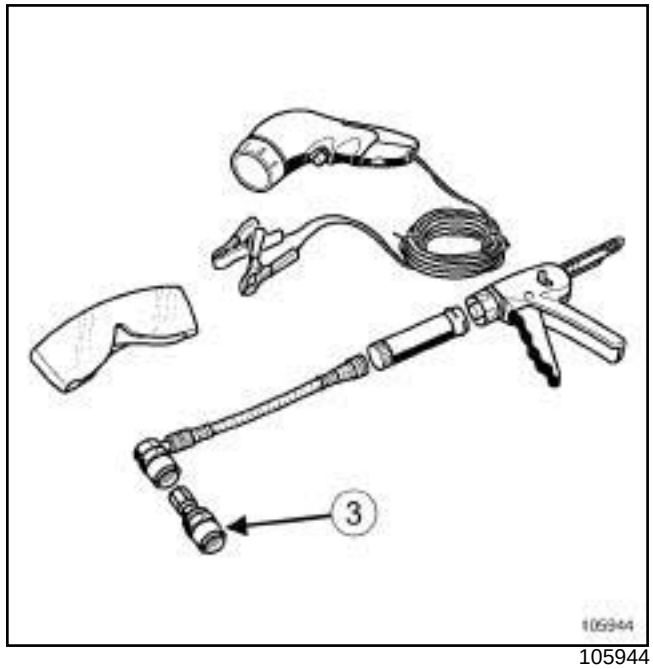
- position a cloth,
- release a small jet of refrigerant through the two valves,
- light up the valve interior using the ultraviolet lamp,
- check for fluorescent traces.

❏ Add a dose of detection dye if there are no fluorescent traces or label.

❏ Affix a label.

❏ Record the date when the dye was added.

**1 - Injecting dye into the circuit**



105944

❏ For vehicles with a single valve, set up the dye injection system on the low pressure valve by following the circulation direction of the product and using the union (**3**) .

❏ Inject the dye into the circuit.

❏ Run the air conditioning system for approximately **15 minutes**.

**2 - Leak detection procedure**

❏ Carry out an initial check (with the engine stopped) by sweeping the circuit with an ultraviolet light.

Note:
Use an adjustable mirror wherever access is difficult.

If no leak is apparent:

- carefully clean the coolant circuit on the outside,
- run the air conditioning system until the leak is detected (failing this, check the condition of the evaporator).

**WARNING**
After injecting dye into the refrigerant, be sure to indicate this on a label (supplied with the dye capsule), and the date of the operation.

Position the label so it is visible near to the cold loop filler valve.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AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
| --- |
| refrigerant charging station |

**IMPORTANT**

To avoid any risk of damaging the systems, apply the safety and cleanliness instructions and the operation recommendations before carrying out the repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

**IMPORTANT**

The following must be worn when handling refrigerant:

- gloves,

- protective goggles (with side shields if possible).

In the event of refrigerant fluid coming into contact with the eyes, rinse well with clean water continuously for **15 minutes**. If possible, have an eye rinse unit available.

If refrigerant comes into contact with your eyes, consult a doctor immediately. Inform the doctor that the burns were caused by **R134A** refrigerant.

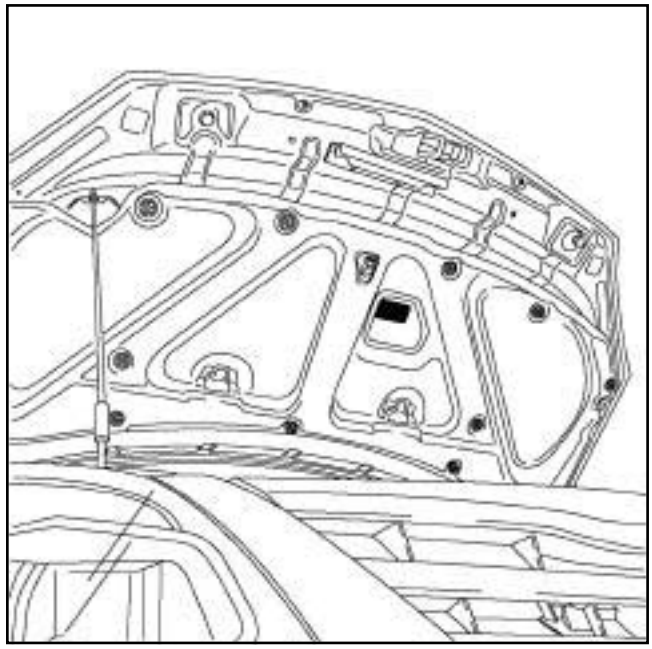
In the event of contact with other unprotected parts of the body (event though the safety advice has been observed), rinse well with clean water continuously for **15 minutes**.

**I - FLUID**

❑

Note:

All vehicles using **R134A** have a label in the engine compartment specifying its use.



131317

❑ **R134A** refrigerant is colourless in its liquid state and odourless and invisible in its gaseous state.

❑ A summary table indicates the quantities of refrigerant in the circuit depending on the engine type (see **62A**, **Air conditioning**, **Air conditioning: Parts and consumables for the repair work**, page **62A-2**) .

**II - OIL**

❑ The cold loop contains a special oil to lubricate the compressor.

❑ Fill up with the same quantity of oil as was drained.

❑ When replacing a component of the heating and air conditioning system, top up the oil level if necessary (see **62A**, **Air conditioning**, **Air conditioning: Parts and consumables for the repair work**, page **62A-2**) and (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

Note:

Lubricants are not mutually compatible: always observe the types and quantities of oil required for each compressor even when topping up as this could damage the cold loop components.

Always close the oil cans after use to prevent moisture getting inside and never reuse oil contained in a can that has been open for a long time (viscous appearance).



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AIR CON 01 or AIR CON 02

**III - RECOVERING REFRIGERANT**

❑

Note:

The air conditioning circuit is fitted with a single filler valve, some filling equipment requires only the use of the high pressure pipe (refer to **the filling station instructions**).

Depending on the situation, run the system for a few minutes before recovering the coolant to improve drainage.

Note:

These procedures must be followed in order to avoid:

- gas escaping when the circuit is opened,
- damage to the environment by releasing gas into the atmosphere when opening the circuit or creating a vacuum.

When draining or checking the refrigerant fill load, three scenarios are to be taken into account:

- the engine and air conditioning are operating (scenario A),
- the engine is operating but not the air conditioning (scenario B),
- neither the engine nor the air conditioning are operating (scenario C).

**Scenario A** :

- let the air conditioning operate until the cooling fan is triggered for the second time,
- switch off the engine,
- wait **15 minutes**,
- check that the relative pressure is less than or equal to 0 bar,
- start the drain cycles again if the relative pressure is above **0 bar**,
- add the values of the various draining operations; the fill is confirmed as being correct if the total is equal to the specified fill **+35 g or -100 g**.

**Scenario B** :

- let the engine operate until the cooling fan is triggered for the second time,
- switch off the engine,
- drain for the first time (note down the value),
- wait **15 minutes**,
- let the engine operate until the cooling fan is triggered for the second time,
- switch off the engine,
- drain for the second time (note down the value),
- start the drain cycles again if the relative pressure is above **0 bar**,
- add the values of the various draining operations; the fill is confirmed as being correct if the total is equal to the specified fill **+35 g or -100 g**.

**Scenario C** :

- drain for the first time (note down the value),
- wait for **2 hours**,
- start the drain cycles again if the relative pressure is above **0 bar**,
- add the values of the various draining operations; the fill is confirmed as being correct if the total is equal to the specified fill **+35 g or -100 g**.

**IV - CREATION OF A VACUUM**

❑ A good vacuum must be created before filling, otherwise the air conditioning will not operate correctly.

There are two scenarios to consider:

- the creation of a vacuum will take place immediately after the drain (scenario A):
- the creation of a vacuum will take place after several hours or days (scenario B).

**Scenario A** :

- the creation of a vacuum lasts **20 minutes**,

**Scenario B** :

- the creation of a vacuum lasts **45 minutes** to eliminate any trace of moisture.

❑ Test the seal once the vacuum has been created (some stations do this automatically).

**V - FILLING**

❑ Fill the refrigerant circuit using the **refrigerant charging station**.

❑ Add oil and refrigerant depending on the type and quantity of oil recommended, as well as the operation carried out (see **62A**, **Air conditioning**, **Air conditioning: Parts and consumables for the repair work**, page **62A-2**) and (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).


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AIR CON 01 or AIR CON 02

- ❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .
- ❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| bolt of the compressor - condenser connecting pipe union | **4 N.m** |
| bolt of the expansion valve - condenser connecting pipe union | **4 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### REMOVAL PREPARATION OPERATION

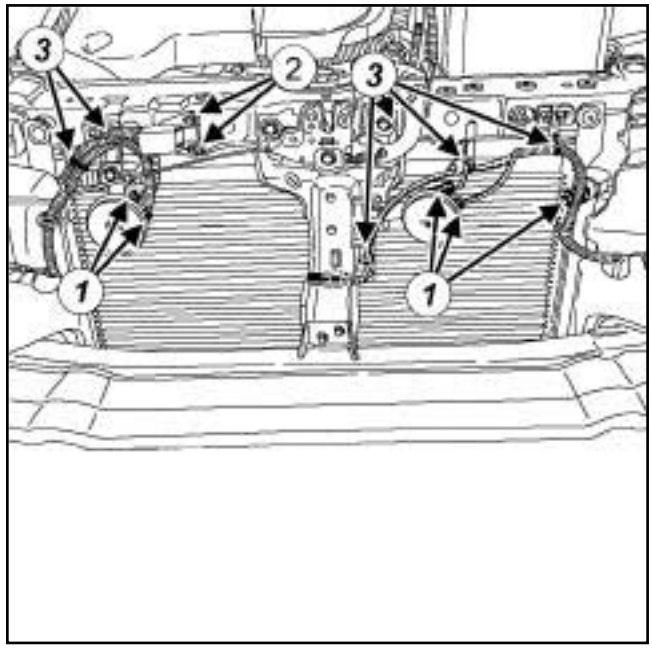
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine undertray,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the bonnet catch (see **Bonnet latch: Removal - Refitting**) (52A, Non-side opening element mechanisms),



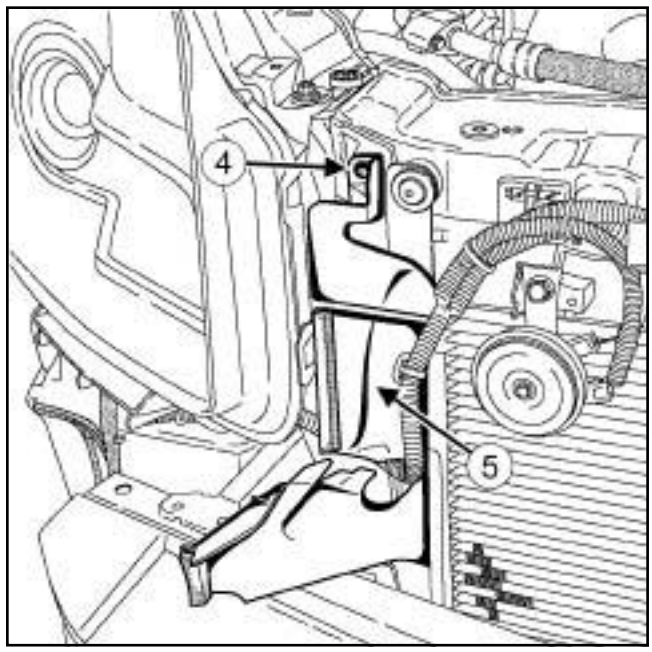
131318

❏ Disconnect the connectors (**1**) .

❏ Remove the bolts ***(2)*** .

❏ Unclip the wiring clips ***(3)*** .

❏ Move aside the wiring.



131319

❏ Remove:

- the bolt (**4**) ,
- the front air deflector (**5**) .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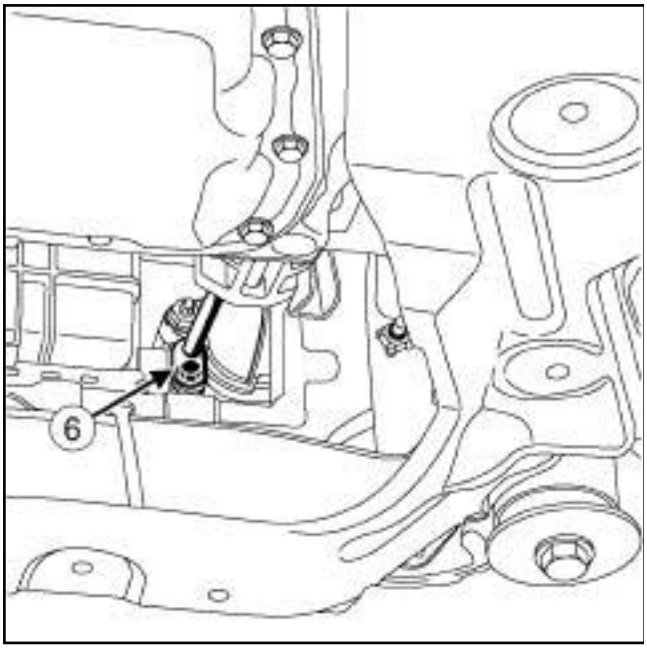
AIR CON 01 or AIR CON 02




131320

❏ Remove the bolt (**6**) from the pipe union.

**WARNING**

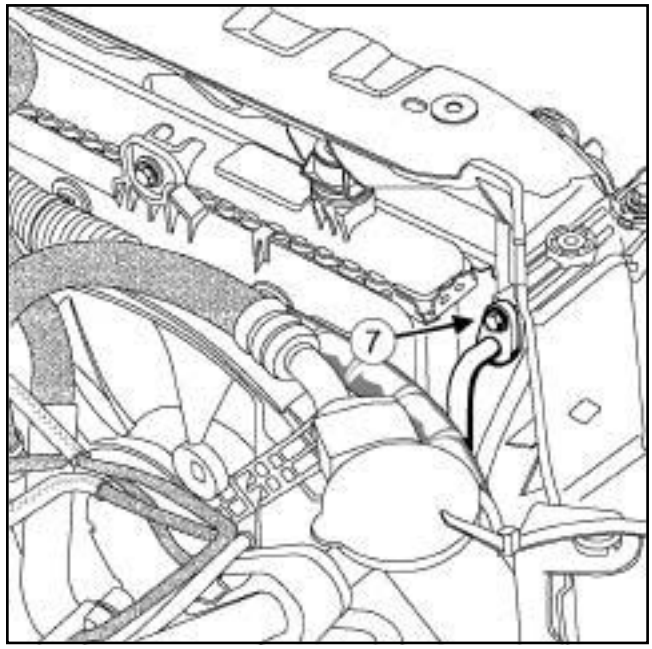
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the expansion valve - condenser connecting pipe from the condenser.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.

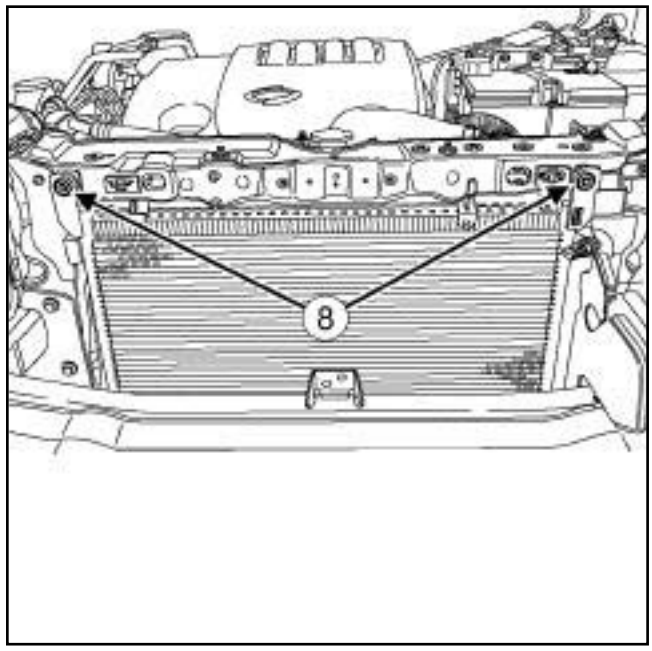



131347

❏ Remove the bolt (**7**) from the pipe union.

❏ Disconnect the compressor - condenser connecting pipe from the condenser.

❏ Fit plugs into the openings.




131322

❏ Remove:

- the bolts (**8**) from the condenser,
- the condenser.



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AIR CON 01 or AIR CON 02

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals of the connecting pipes of the condenser.

❑ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the condenser,
- the condenser bolts.

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the plugs from the openings.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals on the connecting pipes of the condenser.

❑ Connect the compressor - condenser connecting pipe to the condenser.

❑ Refit the bolt on the pipe union.

❑ Torque tighten the **bolt of the compressor - condenser connecting pipe union (4 N.m)**.

❑ Connect the expansion valve - condenser connecting pipe to the condenser.

❑ Refit the bolt on the pipe union.

❑ Torque tighten the **bolt of the expansion valve - condenser connecting pipe union (4 N.m)**.

### III - FINAL OPERATION

❑ Refit:

- the front air deflector,
- the bolt of the front air deflector.

❑ Fit the wiring.

❑ Clip on the wiring clips.

❑ Refit the bolts.

❑ Connect the connectors.

❑ Refit:

- the bonnet catch (see **Bonnet latch: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ Set the control of the passenger compartment blower unit to the maximum speed.

❑ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❑ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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# Dehydration canister: Removal - Refitting

AIR CON 01 or AIR CON 02

**IMPORTANT**

To avoid any risk of damaging the systems, apply the safety and cleanliness instructions and the operation recommendations before carrying out the repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

Note:

The dehydrator reservoir cannot be separated from the condenser.

❑ For the removal or replacement of the dehydrator reservoir (see **62A**, **Air conditioning**, **Condenser: Removal - Refitting**, page **62A-14**) .



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M9R, and AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| compressor bolts | **25 N.m** |
| bolts of the pipe unions | **4 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

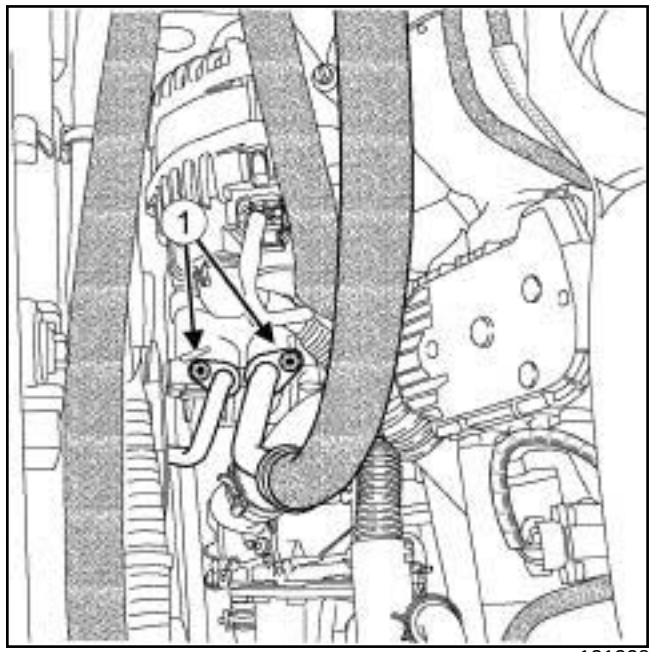
❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **Accessories belt: Removal - Refitting**) (11A, Top and front of engine).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131328

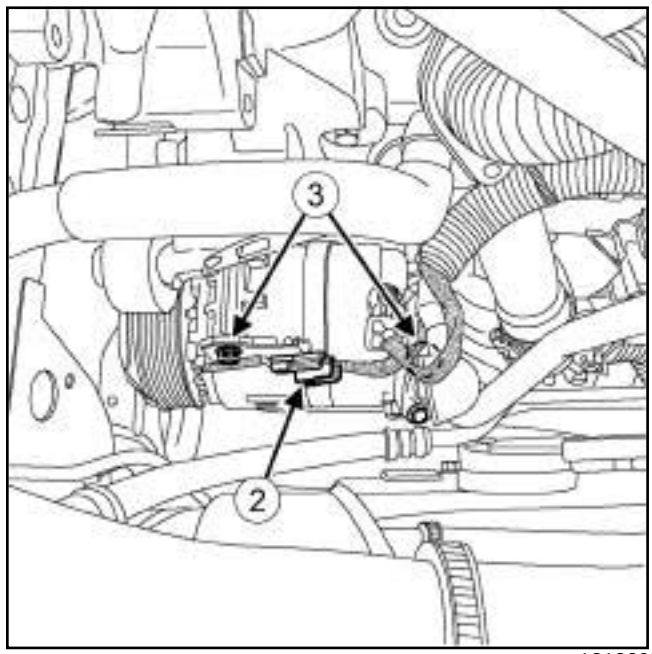
❏ Remove the bolts (**1**) from the pipe unions.

❏ Disconnect the pipes.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.




131329

❏ Disconnect the compressor connector (**2**) .



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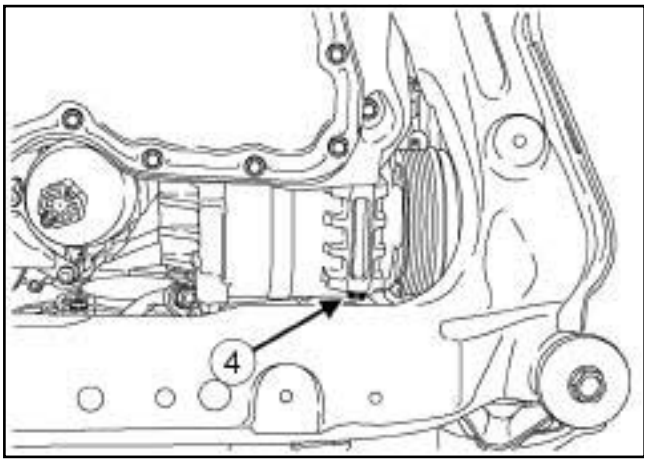
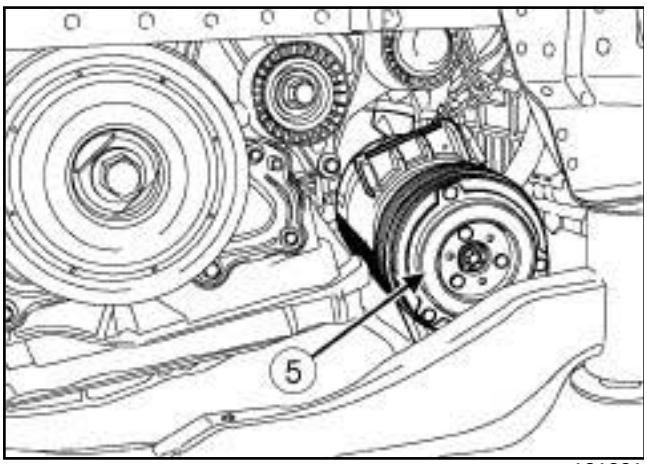
M9R, and AIR CON 01 or AIR CON 02

❑ Remove the bolts ***(3)*** from the compressor.




131330

❑ Remove the bolt (**4**) from the compressor.




131331

❑ Remove the compressor (**5**) on the right-hand side of the vehicle.

## REFITTING

### I - REMOVAL PREPARATION OPERATION

❑ Always replace the seals of the connecting pipes of the compressor.

❑ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the compressor,
- the compressor bolts.

❑ Torque tighten the **compressor bolts (25 N.m)**.

❑ Connect the compressor connector.

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the plugs from the openings.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Place new seals on the connecting pipes of the compressor.

❑ Connect the pipes.

❑ Remove the bolts from the pipe unions.

❑ Torque tighten the **bolts of the pipe unions (4 N.m)**.

### III - FINAL OPERATION

❑ Refit:

- the accessories belt (see **Accessories belt: Removal - Refitting**) (11A, Top and front of engine),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ When replacing the compressor, carry out the following operations:

- Switch on the ignition,
- Check that the air conditioning is off,
- Set the temperature settting at minimum,
- Select the air recirculation position,
- Start the engine.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M9R, and AIR CON 01 or AIR CON 02

- Run the air conditioning in manual mode (if equipped with a climate control panel),
- Run the engine at idle speed for 3 minutes with air conditioning,
- Switch off the engine.

❏ These operations are to be carried out when the compressor is removed, refitted or replaced.

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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2TR, and AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| compressor bolts | **25 N.m** |
| bolt of the compressor - condenser connecting pipe union on the condenser | **4 N.m** |
| bolt and nut of the pipe unions on the compressor | **4 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

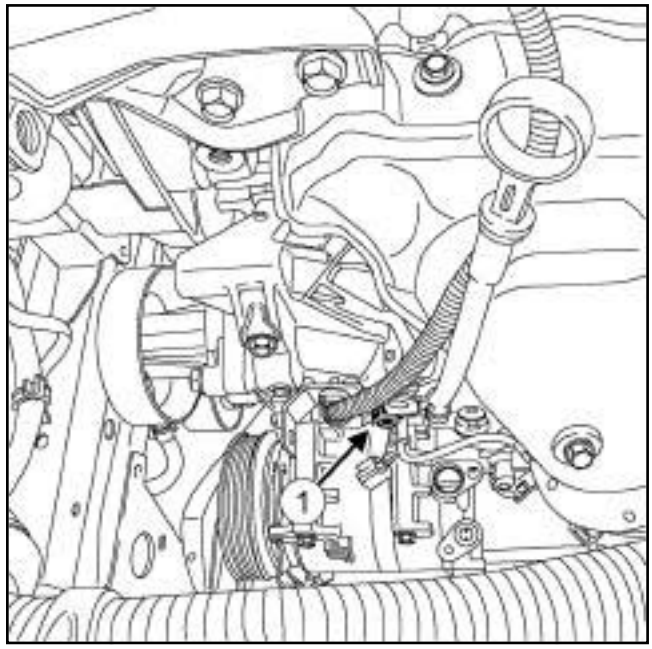
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine undertray,
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the accessories belt (see **Accessories belt: Removal - Refitting**) (11A, Top and front of engine),
- the alternator (see **Alternator: Removal - Refitting**) (16A, Starting - Charging).

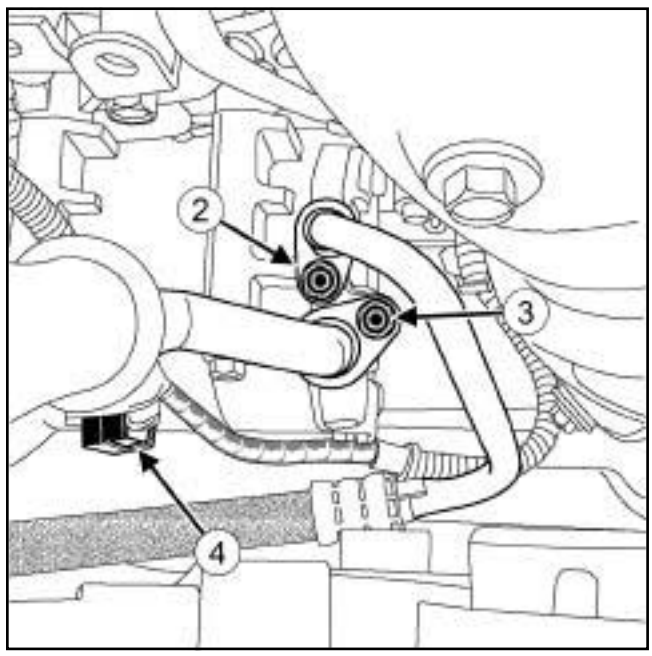


131323

❏ Remove:

- the dipstick guide tube bolt (**1**) ,
- the dipstick tube.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131324

❏ Remove:

- the bolt (**2**) from the pipe union,
- the nut (**3**) from the pipe union.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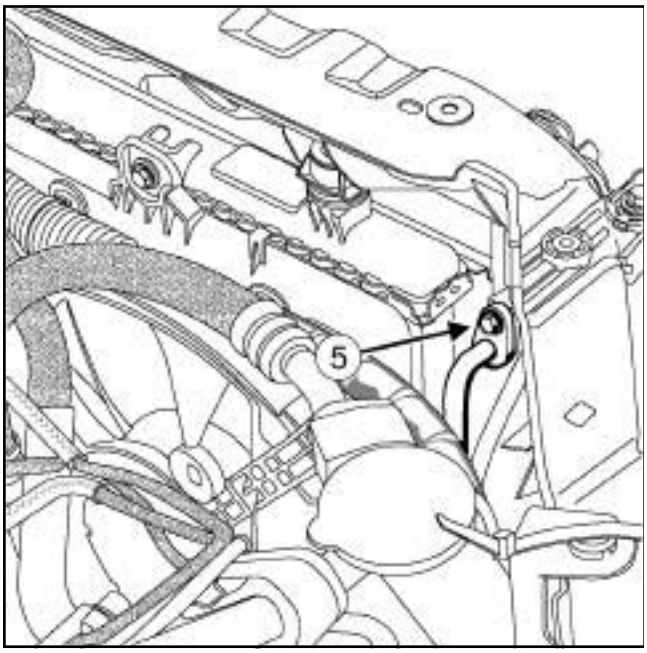
2TR, and AIR CON 01 or AIR CON 02

❏ Disconnect the pipes from the compressor.

**WARNING**
To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.

❏ Disconnect the connector ***(4)*** .

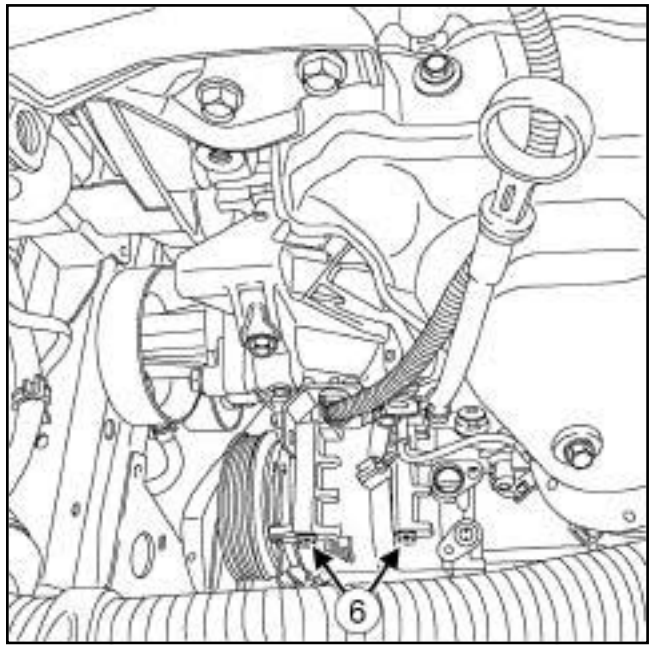



131325

❏ Remove the pipe union bolt (**5**) on the condenser.

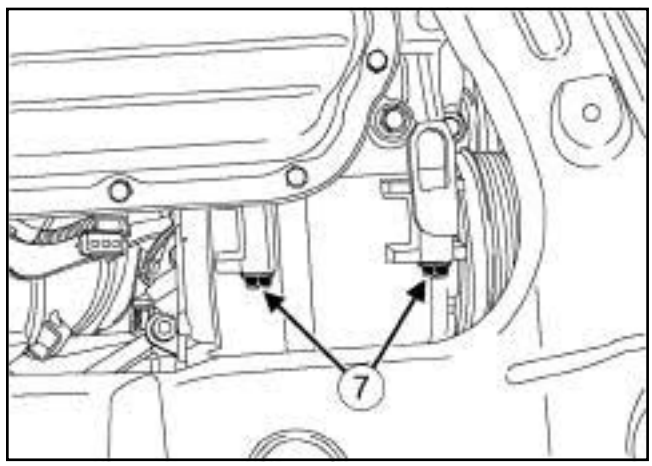
❏ Disconnect the compressor - condenser connecting pipe from the condenser.

❏ Fit plugs into the openings.




131326

❏ Remove the bolts (**6**) from the compressor.




131327

❏ Remove:

- the compressor bolts (**7**) ,

- the compressor.

## REFITTING

### I - REMOVAL PREPARATION OPERATION

❏ Always replace the seals of the connecting pipes of the compressor.

❏ Lubricate the seals using recommended air conditioning oil to make fitting easier.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2TR, and AIR CON 01 or AIR CON 02

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the compressor,
- the compressor bolts.

❏ Torque tighten the **compressor bolts (25 N.m)**.

**WARNING**
Do not remove the blanking plugs from each component until the last moment.
Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❏ Remove the plugs from the openings.

**WARNING**
To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❏ Place new seals on the connecting pipes of the compressor.

❏ Connect the compressor - condenser connecting pipe to the condenser.

❏ Refit the bolt on the pipe union.

❏ Torque tighten the **bolt of the compressor - condenser connecting pipe union on the condenser (4 N.m)**.

❏ Connect the connector ***(4)*** .

**WARNING**
To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❏ Remove the plugs from the openings.

❏ Connect the pipes to the compressor.

❏ Refit:

- the pipe unions on the compressor,
- the pipe bolt,
- the pipe nut.

❏ Torque tighten the **bolt and nut of the pipe unions on the compressor (4 N.m)**.

**III - FINAL OPERATION**

❏ Refit:

- the dipstick guide,
- the dipstick guide tube bolt,
- the alternator (see **Alternator: Removal - Refitting**) (16A, Starting - Charging),
- the accessories belt (see **Accessories belt: Removal - Refitting**) (11A, Top and front of engine),
- the front right-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front right-hand wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the engine undertray.

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ when replacing the compressor, carry out the following operations:

- Switch on the ignition,
- Check that the air conditioning is off,
- Put the temperature setting at minimum,
- Select the air recirculation position,
- Start the engine.
- Run the air conditioning in manual mode (if equipped with a climate control panel),
- run the engine at idle speed for 3 minutes with air conditioning,
- Switch off the engine.

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| bolts of the expansion valve | **4 N.m** |
| bolt of the pipe union on the expansion valve | **4 N.m** |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

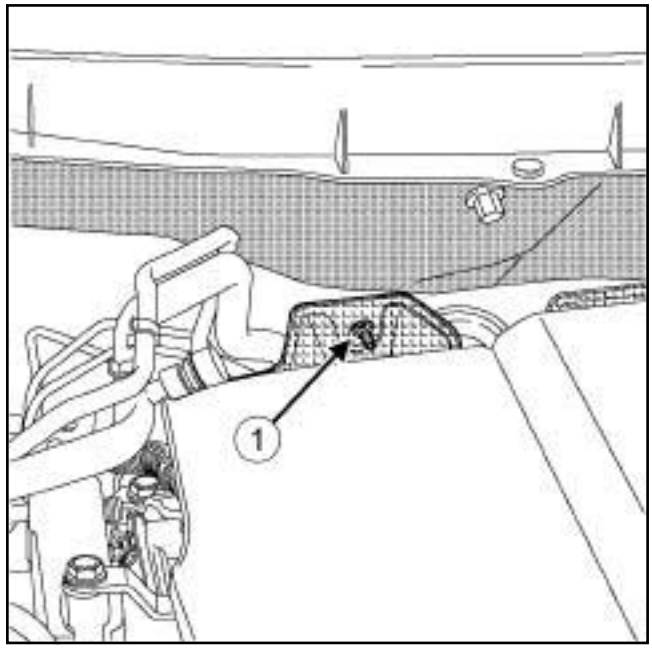
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



131332

❏ Remove the nut (**1**) of the bulkhead insulation.

❏ Separate the bulkhead insulation.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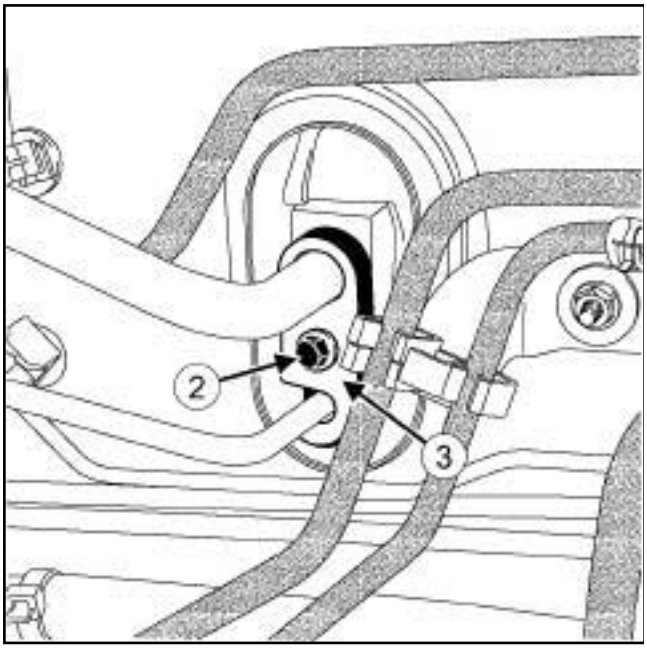
AIR CON 01 or AIR CON 02




131333

❏ Remove:

- the bolt (**2**) of the pipe union,
- the pipe union (**3**) .

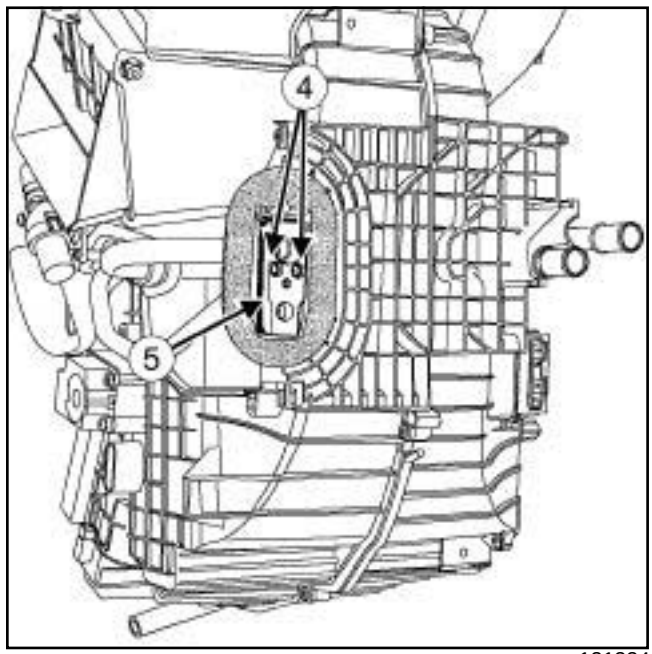
**WARNING**
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the pipesfrom the expansion valve.

**WARNING**
To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131334

❏ Remove:

- the bolts (**4**) from the expansion valve,
- the expansion valve (**5**) .

## REFITTING

**I - REFITTING PREPARATION OPERATION**

❏ Always replace the seals on the refrigerant fluid connecting pipes.

❏ Lubricate the seals using recommended air conditioning oil to make fitting easier.

**II - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the expansion valve,
- the expansion valve bolts.

Note:
Gradually tighten the bolts of the expansion valve so that the expansion valve is positioned evenly on the distribution unit.

❏ Torque tighten the **bolts of the expansion valve (4 N.m)**.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AIR CON 01 or AIR CON 02

**III - FINAL OPERATION**

❑

**WARNING**
Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the plugs from the openings.

**WARNING**
To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals on the refrigerant pipes.

❑ Connect the pipes to the expansion valve.

❑ Refit:

- the pipe union,
- the bolt of the pipe union.

❑ Torque tighten the **bolt of the pipe union on the expansion valve (4 N.m)**.

❑ Fit the bulkhead insulation in its original position.

❑ Refit:

- the nut of the bulkhead insulation,
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:
When replacing a pipe, add **10 ml** of the recommended oil to the quantity of oil recovered.

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ Set the control of the passenger compartment blower unit to the maximum speed.

❑ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❑ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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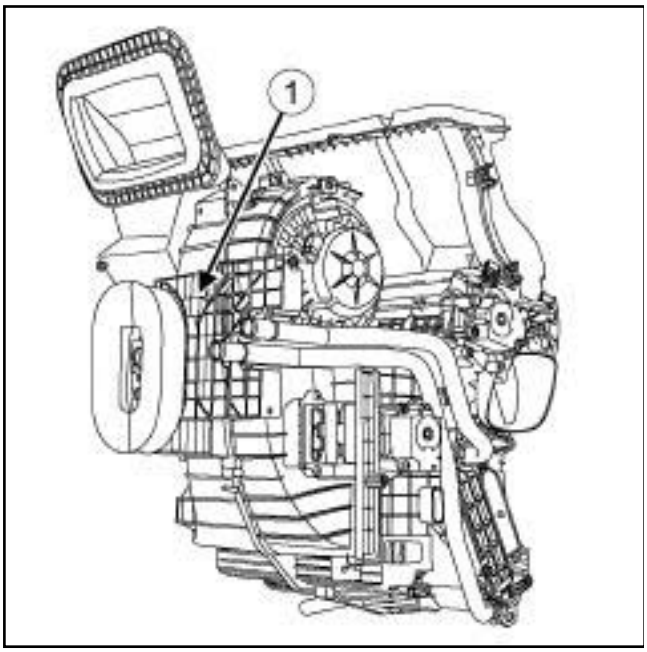
AIR CON 01 or AIR CON 02

**IMPORTANT**

To avoid any risk of damaging the systems, apply the safety and cleanliness instructions and the operation recommendations before carrying out the repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .




131308

❑

Note:

The evaporator cannot be separated from the distribution unit (**1**) .

❑ If removing or replacing the evaporator (see **61A**, **Heating**, **Air distribution unit: Removal - Refitting**, page **61A-25**) .



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| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| bolt of the expansion valve - condenser connecting pipe union on the condenser | **4 N.m** |
| bolt of the pipe union on the expansion valve | **4 N.m** |

**IMPORTANT**
To avoid any risk of damaging the systems, apply the safety and cleanliness instructions and the operation recommendations before carrying out the repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

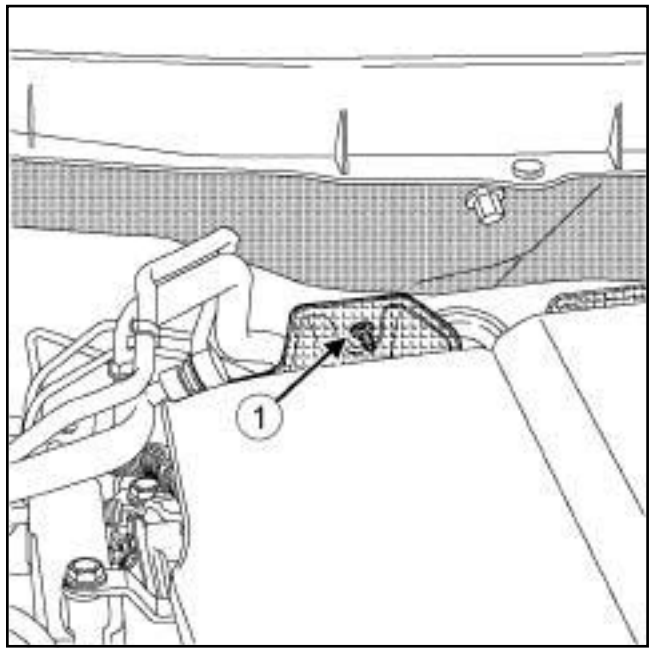
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**)

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the engine undertray,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

❏ Remove the nut (**1**) from the bulkhead insulation.

❏ Separate the bulkhead insulation.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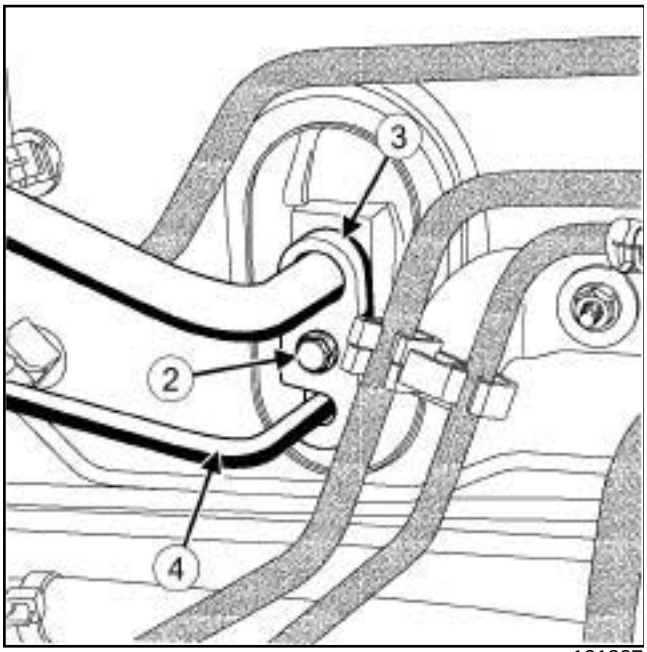
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131337

❏ Remove:

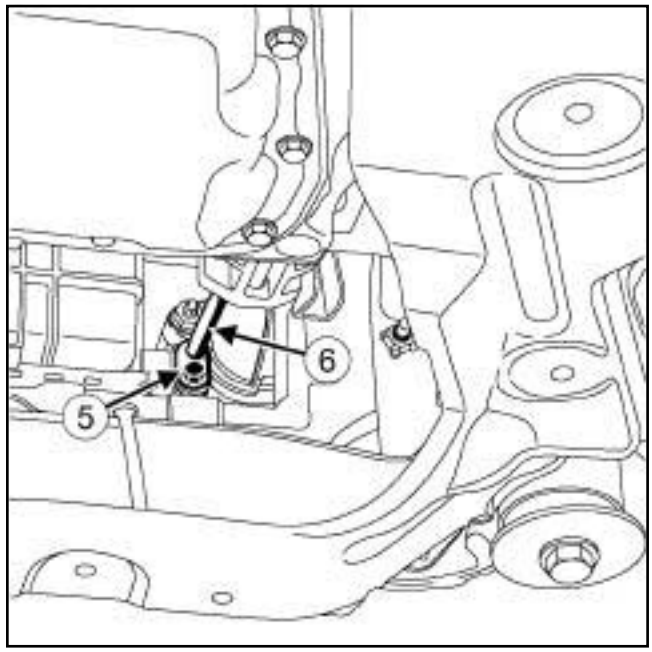
- the bolt (**2**) of the pipe union,
- the pipe union (**3**) .

**WARNING**
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the expansion valve - condenser connecting pipe ***(4)*** from the expansion valve.

**WARNING**
To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.

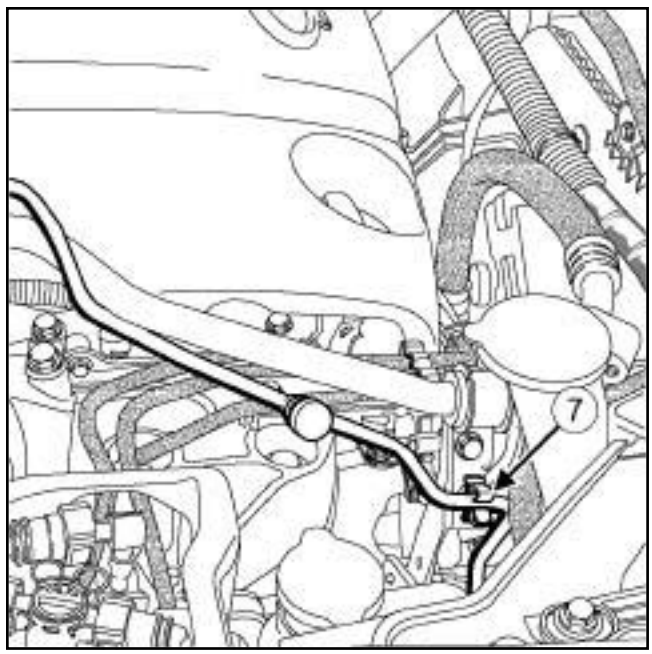



131320

❏ Remove the bolt (**5**) from the pipe union.

❏ Disconnect the expansion valve - condenser connecting pipe ***(6)*** from the condenser.

❏ Fit plugs into the openings.




132522

❏ Unclip the expansion valve - condenser connecting pipe at (**7**) .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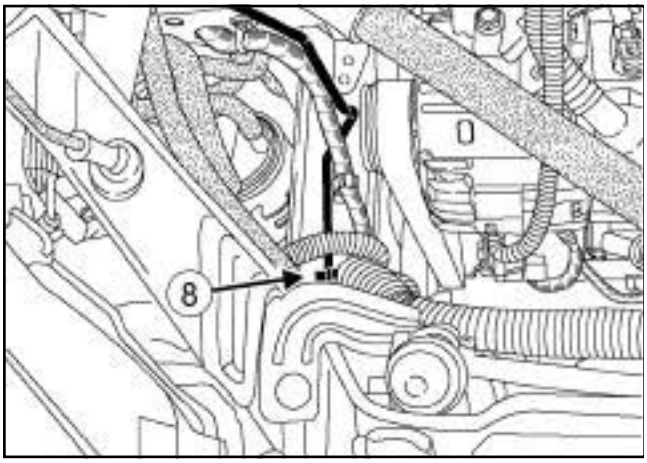
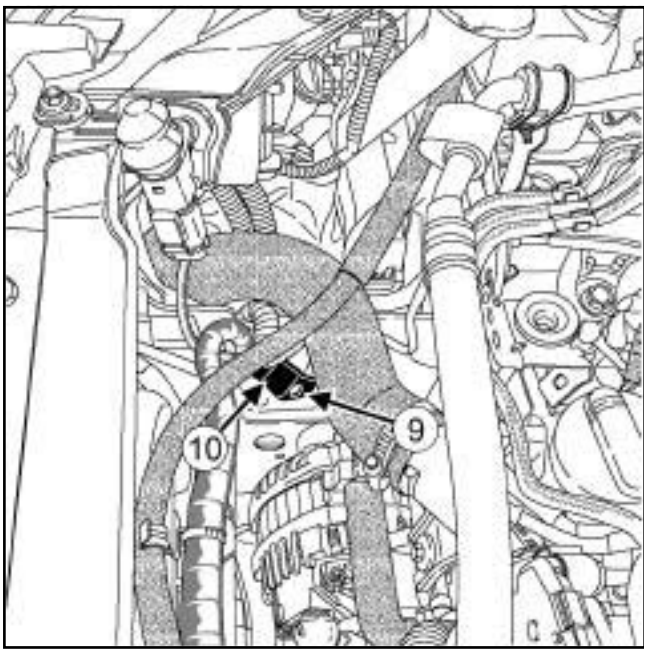



132524

❑ Unclip the expansion valve - condenser connecting pipe at (**8**) .

M9R




132523

❑ Remove:

- the bolt (**9**) ,
- the support (**10**) .

❑ Remove the expansion valve - condenser connecting pipe.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals on the refrigerant fluid connecting pipes.

❑ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the expansion valve - condenser connecting pipe.

M9R

❑ Refit:

- the support ***(10)*** ,
- the support bolt.

❑ Clip:

- the expansion valve - condenser connecting pipe at ***(8)*** ,
- the expansion valve - condenser connecting pipe at ***(7)*** .

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the opening plugs on the side concerned.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals to the refrigerant connecting pipes.

❑ Connect the expansion valve - condenser connecting pipe on the condenser.

❑ Refit the bolt of the pipe union.

❑ Torque tighten the **bolt of the expansion valve - condenser connecting pipe union on the condenser (4 N.m)**.

❑ Remove the opening plugs on the side concerned.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❏ Connect the expansion valve - condenser connecting pipe on the expansion valve.

❏ Refit:

- the pipe union,
- the bolt of the pipe union.

❏ Torque tighten the **bolt of the pipe union on the expansion valve (4 N.m)**.

**III - FINAL OPERATION.**

❏ Fit the bulkhead insulation in its original position.

❏ Refit:

- the nut of the bulkhead insulation,
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior accessories),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:

When replacing a pipe, add **10 ml** of the recommended oil to the quantity of oil recovered.

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**)

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .


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M9R, and AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| bolt of the compressor - intermediate pipe connecting pipe union on the compressor | **4 N.m** |
| bolt of the compressor - intermediate pipe connecting pipe union on the expansion valve - intermediate pipe | **connecting pipe4 N.m** |
| bolt of the pipe union | **4 N.m** |
| bolt of the pipe union on the expansion valve | **4 N.m** |

**IMPORTANT**

To avoid any risk of damaging the systems, apply the safety and cleanliness instructions and the operation recommendations before carrying out the repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

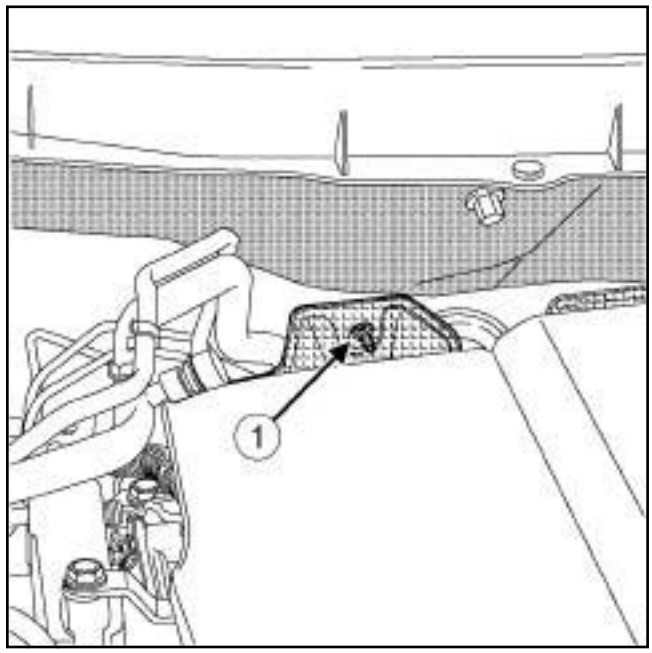
❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

**Expansion valve - intermediate pipe connecting pipe**

❏ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




131336

❏ Remove the nut (**1**) of the bulkhead insulation.

❏ Separate the bulkhead insulation.



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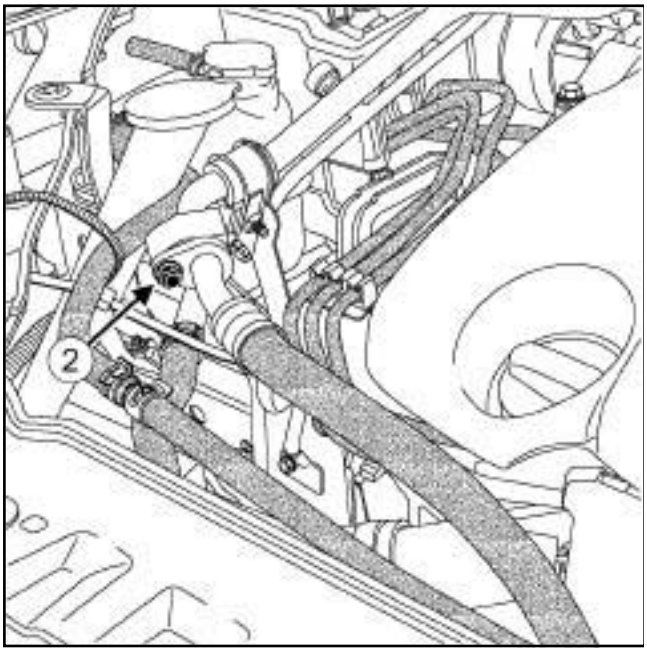
## II - OPERATION FOR REMOVAL OF PART CONCERNED

### 1 - Compressor - intermediate pipe connecting pipe




131340

❏ Remove the bolt of the pipe union (**2**) .

**WARNING**

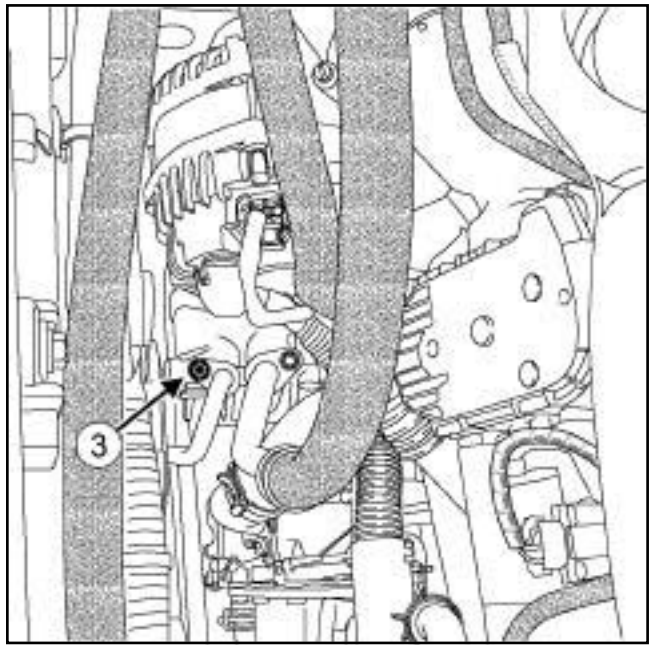
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the compressor - intermediate pipe connecting pipe from the expansion valve - intermediate pipe connecting pipe.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.




131341

❏ Remove the bolt from the pipe union (**3**) .

❏ Disconnect the compressor - intermediate pipe connecting pipe from the compressor.

❏ Fit plugs into the openings.



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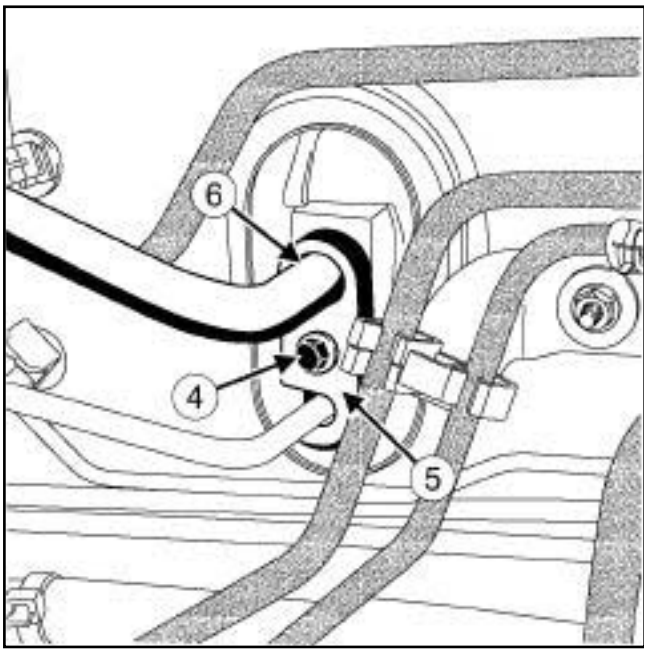
M9R, and AIR CON 01 or AIR CON 02

**2 - Expansion valve - intermediate pipe connecting pipe**




131342

❏ Remove:

- the bolt (**4**) of the pipe union,
- the pipe union (**5**) .

**WARNING**

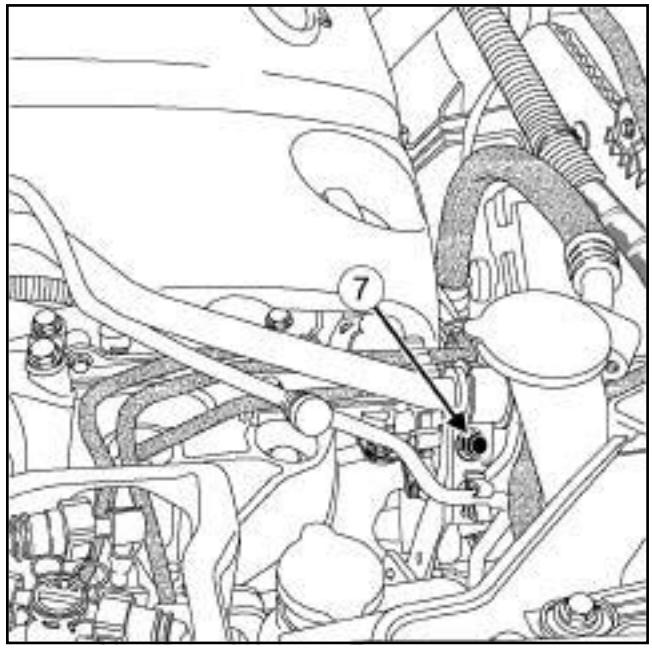
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the expansion valve - intermediate pipe connecting pipe ***(6)*** from the expansion valve.

**WARNING**

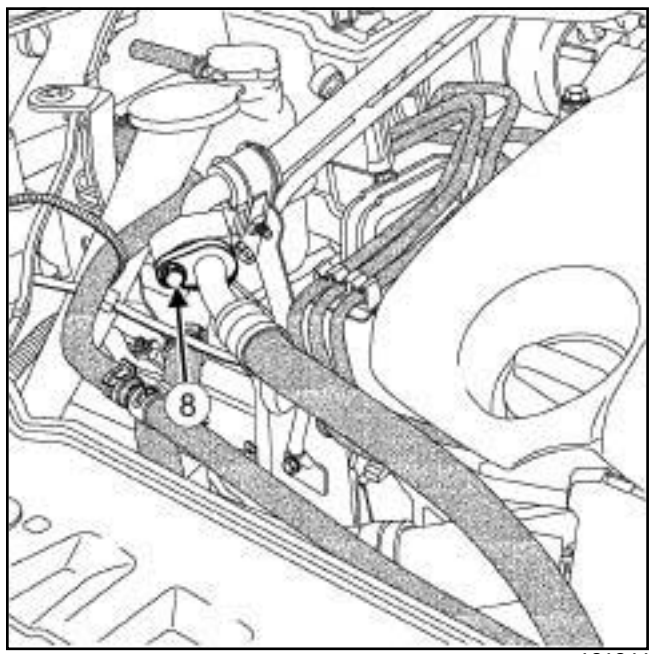
To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.




131343

❏ Remove the bolt (**7**) from the clip.




131344

❏ Remove the bolt (**8**) from the pipe union.

❏ Disconnect the expansion valve - intermediate pipe connecting pipe from the compressor - intermediate pipe connecting pipe.

❏ Fit plugs into the openings.



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M9R, and AIR CON 01 or AIR CON 02

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals on the refrigerant connecting pipes.

❑ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❑

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

**1 - Compressor - intermediate pipe connecting pipe**

❑ Remove the plugs from the openings on the side concerned.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals to the refrigerant connecting pipes.

❑ Connect the compressor - intermediate pipe connecting pipe on the compressor.

❑ Refit the bolt of the compressor - intermediate pipe connecting pipe union.

❑ Torque tighten the **bolt of the compressor - intermediate pipe connecting pipe union on the compressor (4 N.m)**.

❑ Remove the plugs from the openings on the side concerned.

❑ Refit the bolt of the pipe union.

❑ Connect the compressor - intermediate pipe connecting pipe on the expansion valve - intermediate pipe connecting pipe.

❑ Torque tighten the **bolt of the compressor - intermediate pipe connecting pipe union on the expansion valve - intermediate pipe (connecting pipe4 N.m)**.

**2 - Expansion valve - intermediate pipe connecting pipe**

❑ Remove the plugs from the openings on the side concerned.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals to the refrigerant connecting pipes.

❑ Connect the expansion valve - intermediate pipe connecting pipe on the compressor - intermediate pipe connecting pipe.

❑ Remove the bolt from the pipe union.

❑ Torque tighten the **bolt of the pipe union (4 N.m)**.

❑ Refit the bolt of the clip.

❑ Connect the expansion valve - intermediate pipe connecting pipe on the expansion valve.

❑ Refit:

- the pipe union,

- the bolt of the pipe union.

❑ Torque tighten the **bolt of the pipe union on the expansion valve (4 N.m)**.

### III - FINAL OPERATION.

**Expansion valve - intermediate pipe connecting pipe**

❑ Fit the bulkhead seal in its original position.

❑ Refit:

- the nut of the bulkhead insulation,

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),

- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).



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M9R, and AIR CON 01 or AIR CON 02

❑

Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:

When replacing a pipe, add **10 ml** of the recommended oil to the quantity of oil recovered.

❑ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ Set the control of the passenger compartment blower unit to the maximum speed.

❑ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❑ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .



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2TR, and AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| nut of the expansion valve - compressor connecting pipe union on the compressor | **4 N.m** |
| bolt of the pipe union on the expansion valve | **4 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

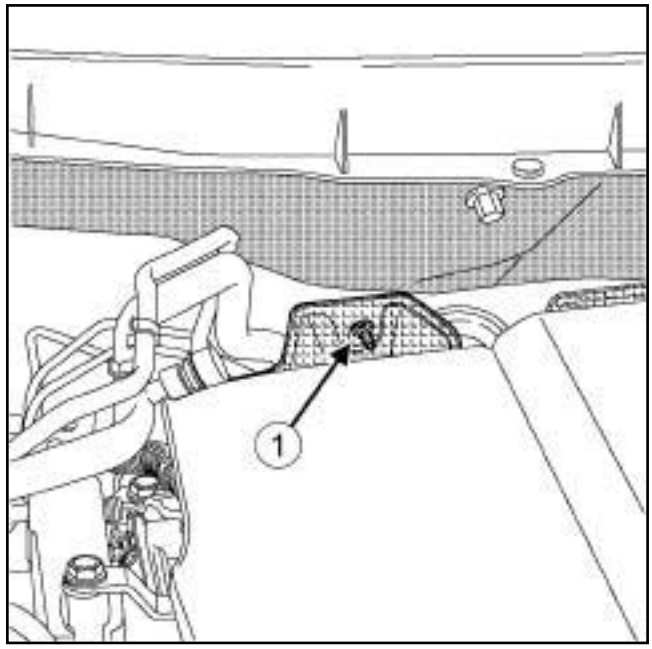
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❑ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❑ Remove:

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).




131336

❑ Remove the nut (**1**) from the bulkhead insulation.

❑ Separate the bulkhead insulation.



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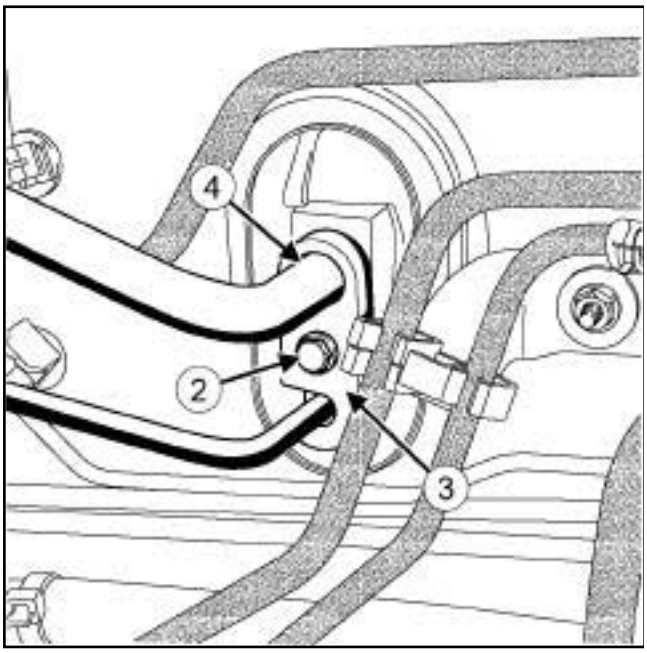
2TR, and AIR CON 01 or AIR CON 02

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131337

❏ Remove:

- the bolt (**2**) of the pipe union,
- the pipe union (**3**) .

**WARNING**

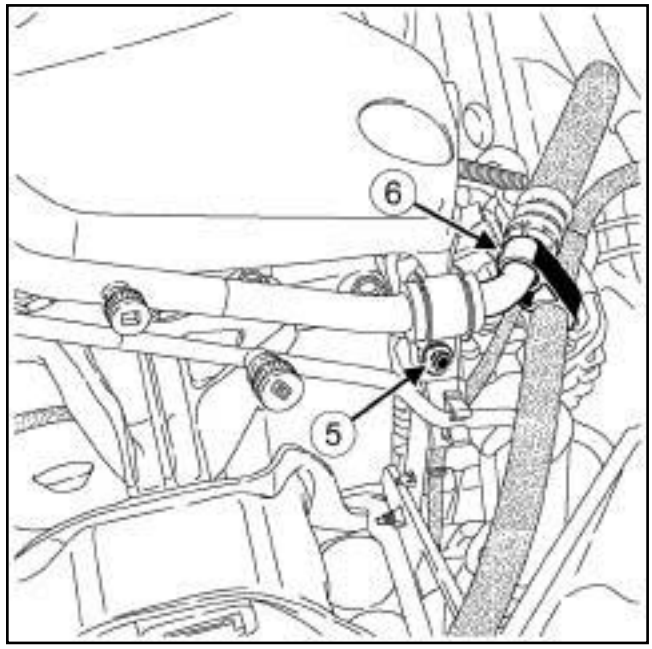
In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the connecting pipe ***(4)*** from the expansion valve.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

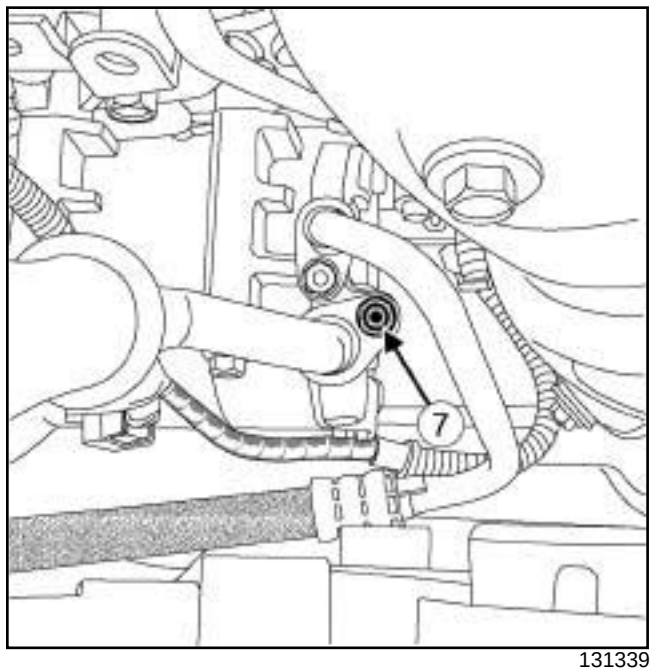
❏ Fit plugs into the openings.




131338

❏ Remove the bolt (**5**) from the connecting pipe clip.

❏ Unfasten clip ***(6)*** .




131339

❏ Remove the nut (**7**) from the pipe union.

**WARNING**

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.



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2TR, and AIR CON 01 or AIR CON 02

❏ Disconnect the expansion valve - compressor connecting pipe from the compressor.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the seals on the refrigerant connecting pipes.

❏ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❏

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❏ Remove the plugs from the openings on the side concerned.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❏ Fit new seals to the refrigerant connecting pipes.

❏ Connect the expansion valve - compressor connecting pipe to the compressor.

❏ Refit the nut of the pipe union.

❏ Torque tighten the **nut of the expansion valve - compressor connecting pipe union on the compressor (4 N.m)**.

❏ Engage clip ***(6)*** .

❏ Refit the bolt of the connecting pipe clip.

❏ Remove the opening plugs on the side concerned.

❏ Connect the expansion valve - compressor connecting pipe to the expansion valve.

❏ Refit:

- the pipe union,

- the bolt of the pipe union.

❏ Torque tighten the **bolt of the pipe union on the expansion valve (4 N.m)**.

### III - FINAL OPERATION

❏ Fit the bulkhead insulation in its original position.

❏ Refit:

- the nut of the bulkhead insulation,

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),

- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),

- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:

When replacing a pipe, add **10 ml** of the recommended oil to the quantity of oil recovered.

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .



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| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| pressure sensor nut | **11 N.m** |

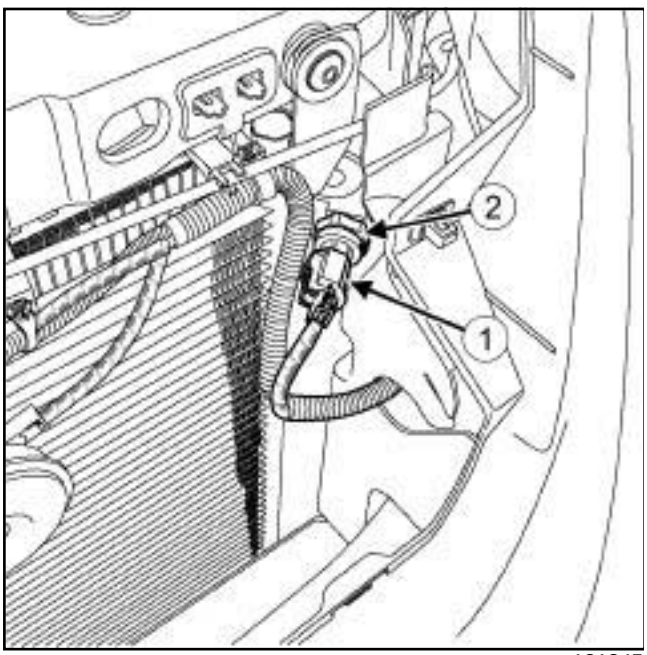
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



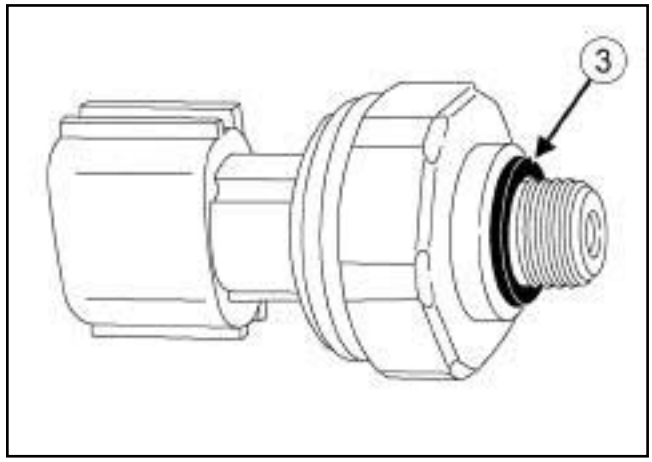

131345

❏ Disconnect the connector (**1**) .

❏ Remove the pressure sensor (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION




131346

❏ Always replace the seal (**3**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the pressure sensor.

❏ Torque tighten the **pressure sensor nut (11 N.m)**.

❏ Connect the connector ***(1)*** .

### III - FINAL OPERATION.

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .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AIR CON 01 or AIR CON 02

| Essential equipmentEssential equipment |
|---|
| refrigerant charging station |

| Tightening torques ▽ | |
|---|---|
| bolt of the compressor - condenser connecting pipe union on the compressor | **4 N.m** |
| bolt of the compressor - condenser connecting pipe union on the condenser | **4 N.m** |

**IMPORTANT**

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **62A**, **Air conditioning**, **Air conditioning: Precautions for repair**, page **62A-1**) .

## REMOVAL

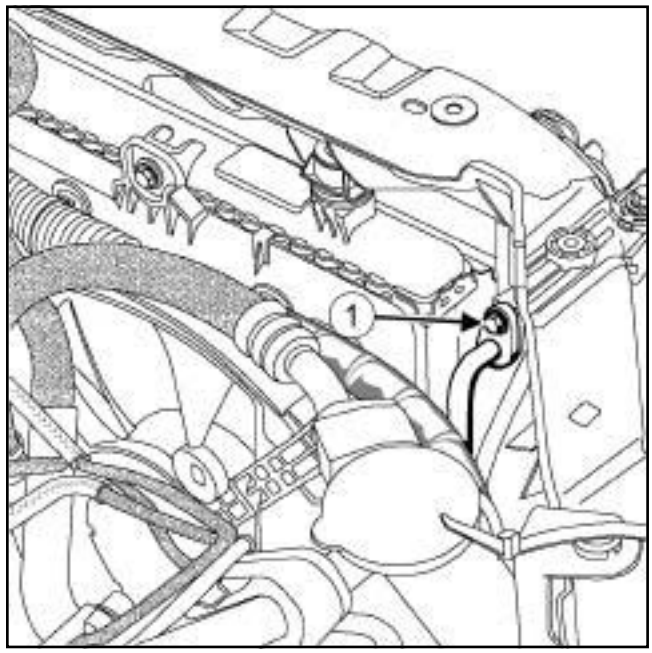
### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Drain the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131347

❏ Remove the bolt (**1**) from the pipe union.

**WARNING**

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

❏ Disconnect the compressor - condenser connecting pipe from the condenser.

**WARNING**

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

❏ Fit plugs into the openings.



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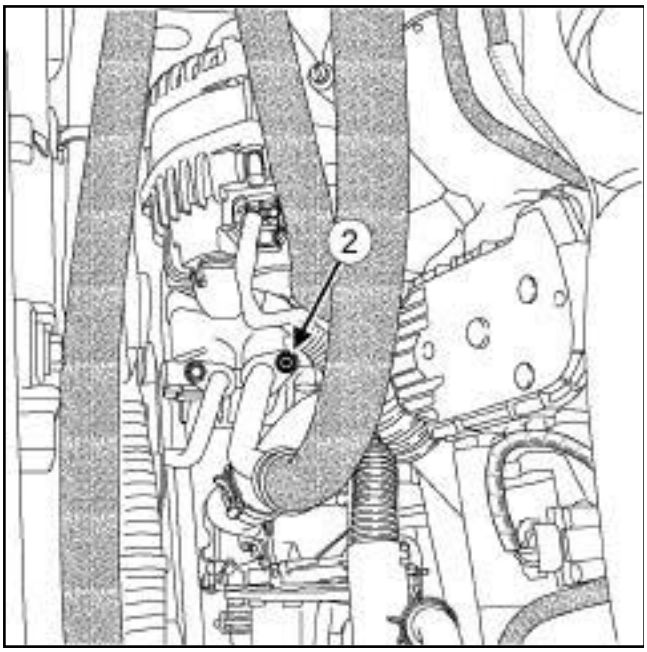
AIR CON 01 or AIR CON 02

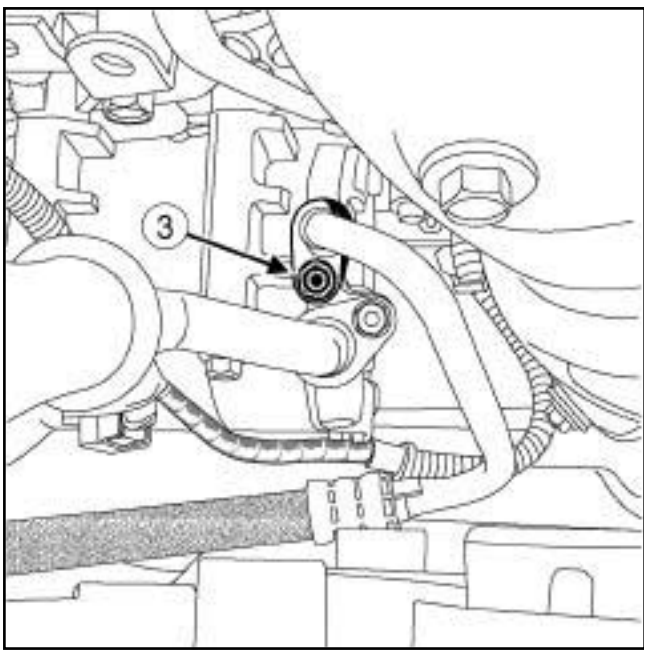
M9R




131348

❑ Remove the bolt (**2**) from the pipe union.

2TR




131349

❑ Remove the bolt (**3**) from the pipe union.

❑ Disconnect the compressor - condenser connecting pipe from the compressor.

❑ Fit plugs into the openings.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the seals on the refrigerant fluid connecting pipes.

❑ Lubricate the seals using recommended air conditioning oil to make fitting easier.

### II - REFITTING OPERATION FOR PART CONCERNED

❑

**WARNING**

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

❑ Remove the plugs from the openings on the side concerned.

**WARNING**

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.

❑ Fit new seals to the refrigerant connecting pipes.

❑ Connect the compressor - condenser connecting pipe on the compressor.

❑ Refit the bolt of the pipe union.

❑ Torque tighten the **bolt of the compressor - condenser connecting pipe union on the compressor (4 N.m)**.

❑ Remove the plugs from the openings on the side concerned.

❑ Fit new seals to the refrigerant connecting pipes.

❑ Connect the compressor - condenser connecting pipe on the condenser.

❑ Refit the bolt of the pipe union.

❑ Torque tighten the **bolt of the compressor - condenser connecting pipe union on the condenser (4 N.m)**.



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AIR CON 01 or AIR CON 02

**III - FINAL OPERATION**

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

Note:

When replacing a pipe, add **10 ml** of the recommended oil to the quantity of oil recovered.

❏ Fill the refrigerant circuit using the **refrigerant charging station** (see **62A**, **Air conditioning**, **Coolant circuit Draining - Refilling**, page **62A-11**) .

❏ Set the control of the passenger compartment blower unit to the maximum speed.

❏ Check that the air conditioning system is operating correctly (see **62A**, **Air conditioning**, **Air conditioning: Check**, page **62A-6**) .

❏ Check for leaks (see **62A**, **Air conditioning**, **Coolant circuit check**, page **62A-9**) .



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RENAULT

# 6 Sealing and soundproofing

## 65A OPENING ELEMENT SEALING

## 66A WINDOW SEALING

## 68A SOUNDPROOFING

***X45***

**JANUARY 2008** **Edition Anglaise**

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

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# KOLEOS - Section 6

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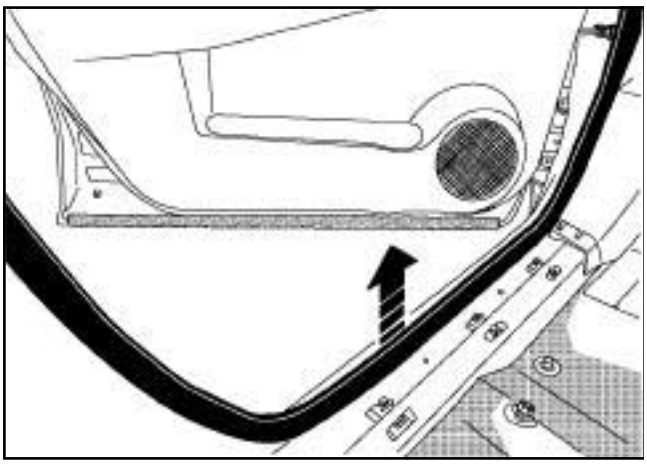
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the cab floor trim (see **Cab floor lining: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (MR 421, 71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130153

❏ Remove the front side door frame seal.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the front side door frame seal.

### II - FINAL OPERATION.

❏ Refit:

- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the cab floor trim (see **Cab floor lining: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (MR 421, 71A, Body internal trim).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❑

Note:

When removing the sealing film, the mastic must remain on the sealing film. Any damage to the mastic requires the sealing film to be replaced.

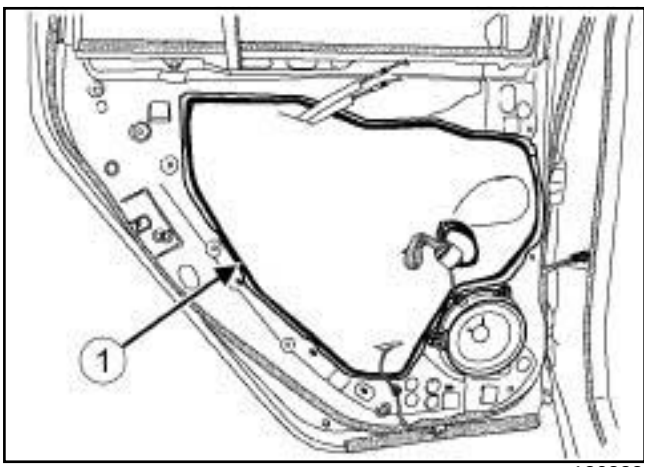
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ **(REAR SIDE DOOR)**




130338

❑ Carefully peel off the sealing film (**1**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

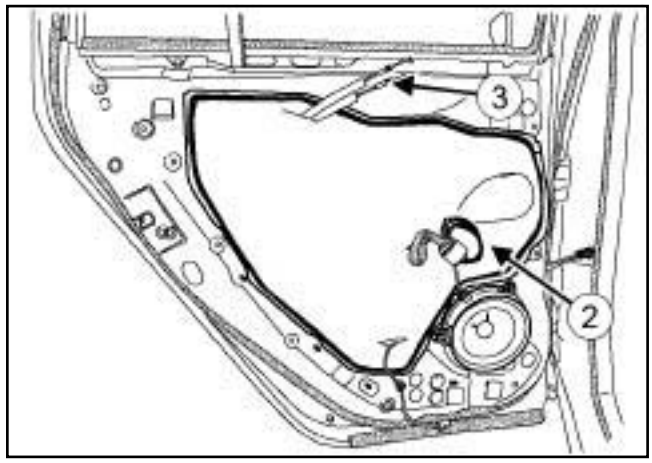
Note:

Remove any adhesive residue from the door box section.

Clean the door box section with heptane using a dry, lint-free cloth.

The door must be clean (free of dust, grease, anti-adhesive products), with no trace of impurities and no condensation.

### II - REFITTING OPERATION FOR PART CONCERNED




130339

❑ Refit:

- the internal door opening control cable (**3**) ,
- the speaker cable (**2**) .

❑ Attach the sealing film around its entire edge.

### III - FINAL OPERATION.

❑ Refit the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening elements trim).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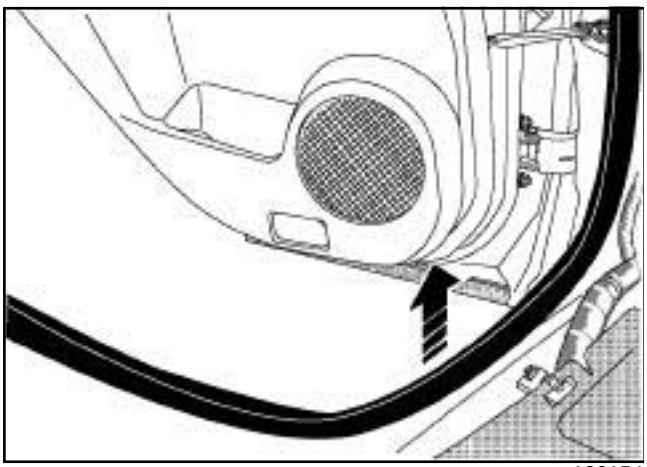
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the rear door sill lining (see **Rear door sill lining: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (MR 421, 71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130154

❑ Remove the rear side door seal.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit the rear side door seal.

### II - FINAL OPERATION.

❑ Refit:

- the C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (MR 421, 71A, Body internal trim),
- the rear door sill lining (see **Rear door sill lining: Removal - Refitting**) (MR 421, 71A, Body internal trim).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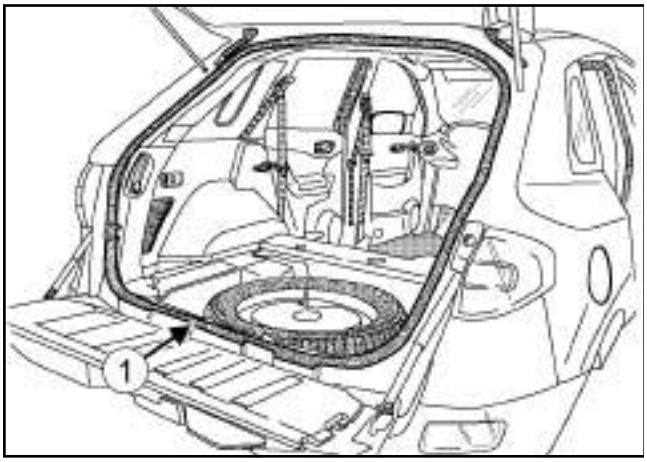
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the rear panel trim (see **Rear panel trim: Removal - Refitting**) (MR 421, 71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130155

❏ Remove the tailgate seal (**1**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the tailgate seal ***(1)*** .

### II - FINAL OPERATION.

❏ Refit the rear panel trim (see **Rear panel trim: Removal - Refitting**) (MR 421, 71A, Body internal trim)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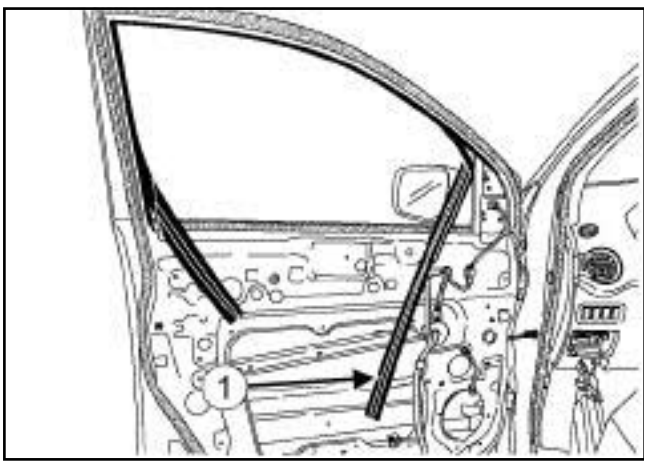
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim),
- the front side door sliding window (see **Sliding window in front side door: Removal - Refitting**) (54A, Windows).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130340

❏ Remove the front door window channel (**1**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the front door window channel ***(1)*** .

### II - FINAL OPERATION.

❏ Refit:

- the front side door sliding window (see **Sliding window in front side door: Removal - Refitting**) (54A, Windows),
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening element trim).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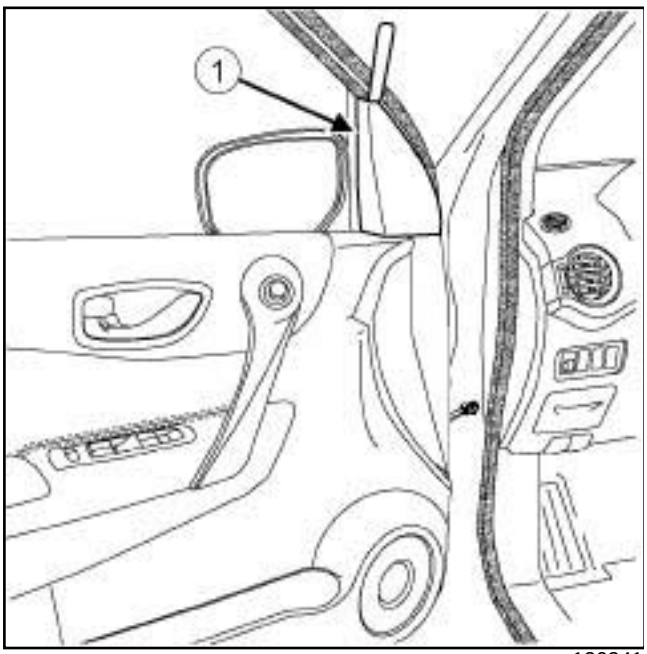
| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

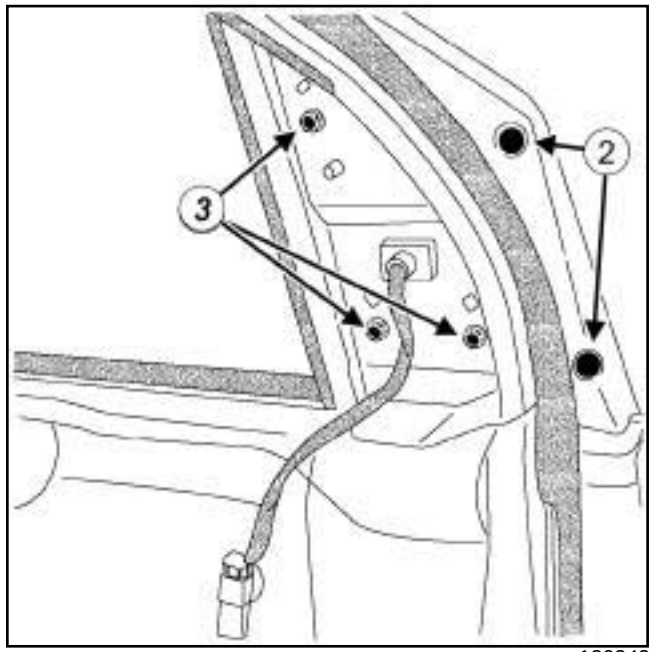



130341

❑ Remove:

- the interior trim (**1**) ,
- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



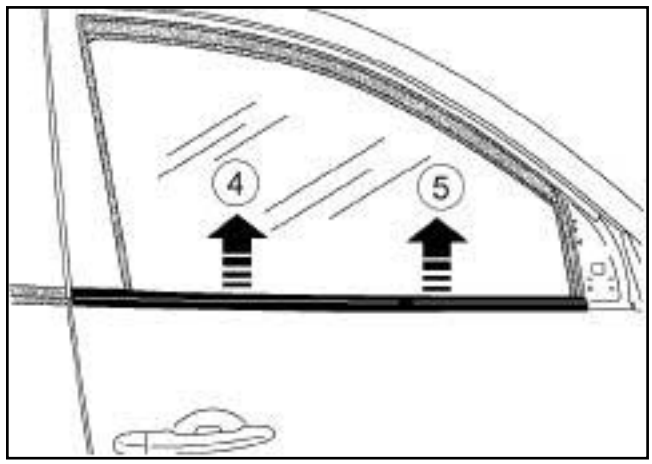

130342

❑ Remove:

- the clips (**2**) ,
- the bolts (**3**) .

❑ Disconnect the connector (depending on equipment level).

❑ Remove the door mirror.




130343

❑ Carefully remove the front side door exterior weatherstrip in the direction of (**4**) and (**5**) using the tool **(Car. 1363)**.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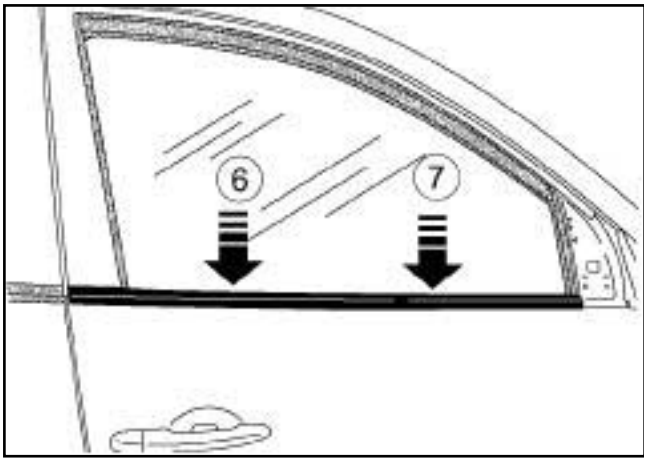
## REFITTING




130344

❏ Refit:

- the front side door exterior weatherstrip in the direction of (**6**) and (**7**) ,
- the door mirror.

❏ Connect the connector (depending on the equipment level).

❏ Refit:

- the clips ***(2)*** ,
- the bolts ***(3)*** .

### FINAL OPERATION.

❏ Refit:

- the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim),
- the interior trim.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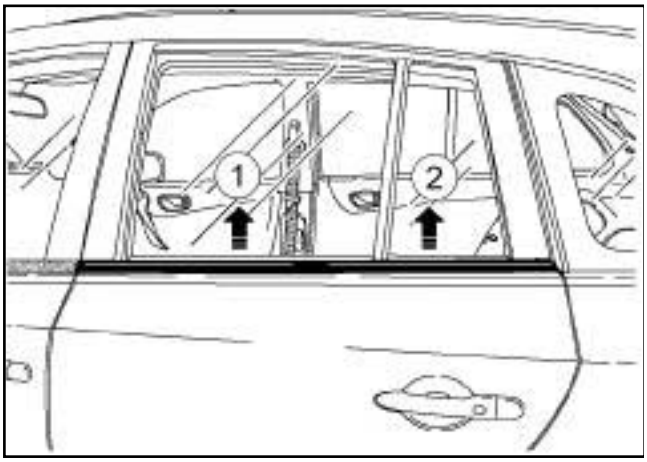
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130345

❏ Carefully remove the exterior weatherstrip in the direction of (**1**) and (**2**) using the tool **(Car. 1363)**.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear side exterior door weatherstrip.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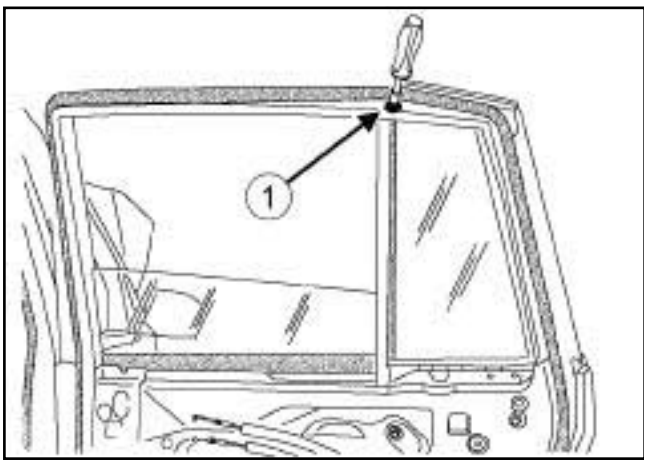
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

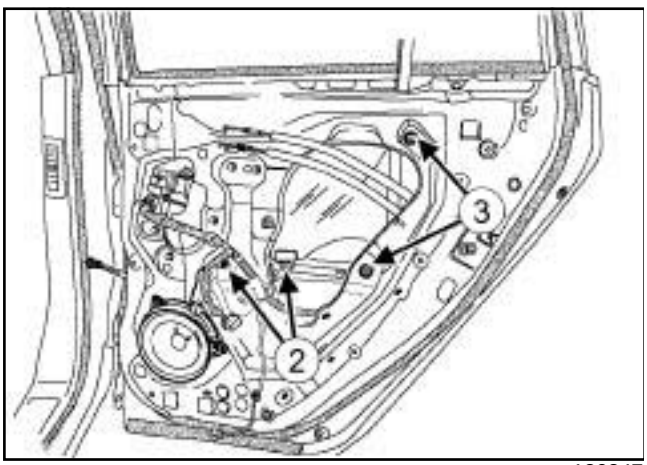
❏ Completely lower the rear side door window to remove the window bolts.



130346

❏ Remove:

- the rear side door channel partially,
- the fixed upright upper bolt (**1**) .

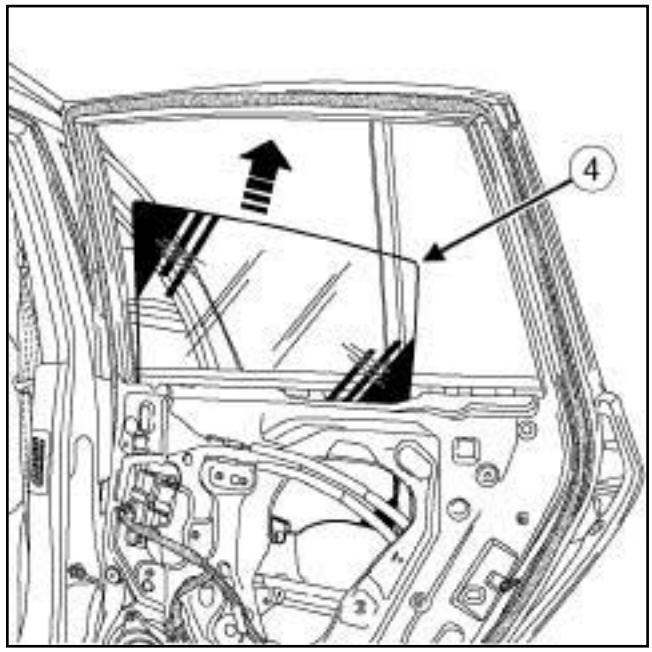


130347

❏ Remove:

- the window bolts (**2**) ,
- the fixed upright bolts (**3**) .

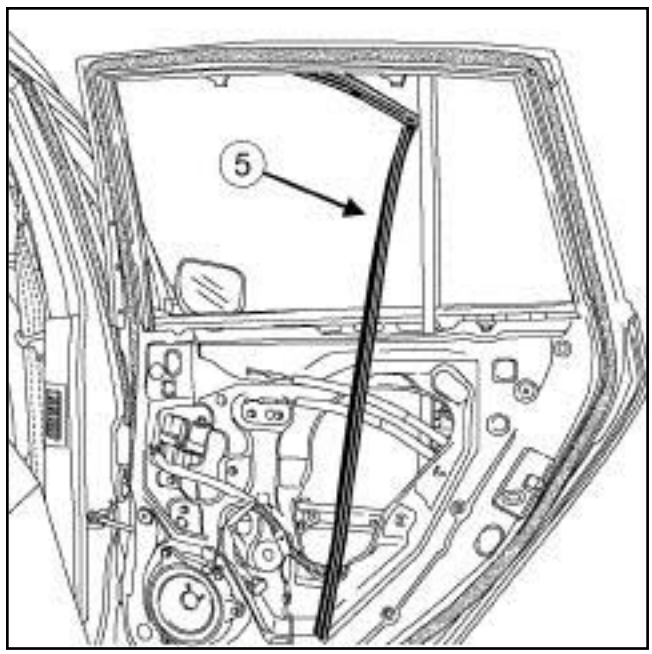
❏ Turn the fixed upright a quarter of a turn to remove the rear side door sliding window.



130348

❏ Remove the sliding window (**4**) from the rear side door.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130349

❏ Remove the rear side door window channel (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear side door window channel ***(5)*** .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**II - FINAL OPERATION.**

❑ Refit:

- the rear side door sliding window ***(4)*** in the door box section,
- the fixed upright bolts ***(3)*** ,
- the window bolts ***(2)***
- the fixed upright upper bolt ***(1)*** ,
- the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).


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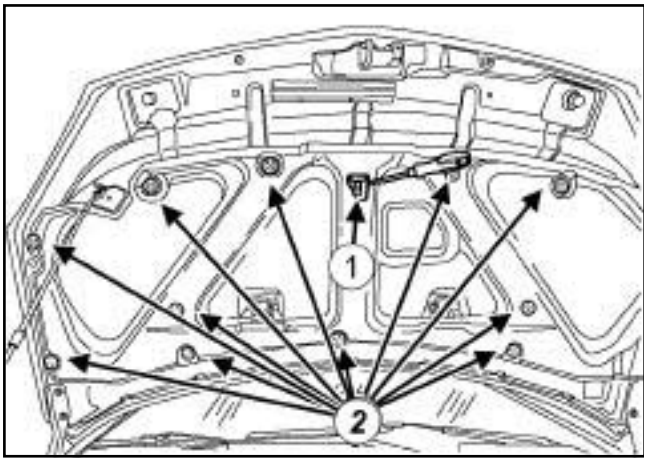
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130246

❏ Remove:

- the seal (**1**) ,
- the bonnet soundproofing clips (**2**) ,
- the bonnet soundproofing.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the bonnet soundproofing clips if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the bonnet soundproofing,
- the clips ***(2)*** ,
- the seal ***(1)*** .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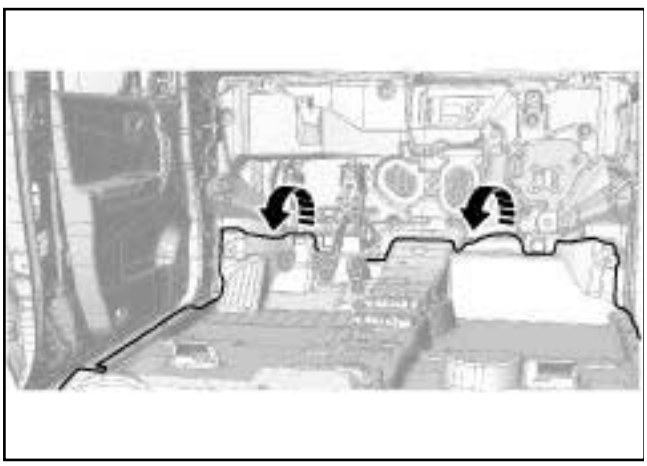
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

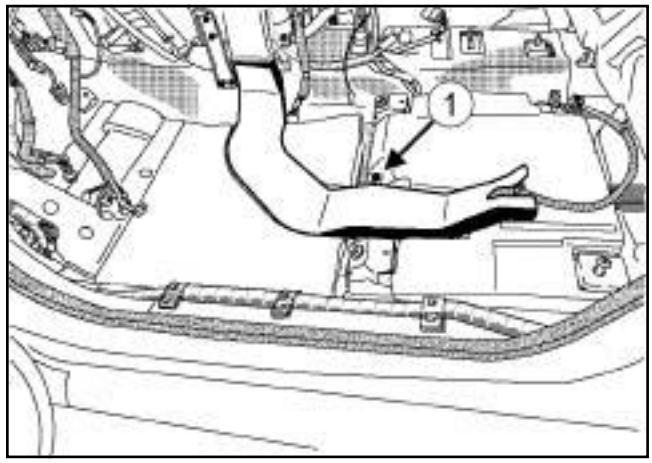
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the air distribution unit (see **Air distribution unit: Removal - Refitting**) ,
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the gear control unit (see **Gear control unit: Removal - Refitting**) (37A, Mechanical component controls),
- the airbag computer (see **Airbag computer: Removal - Refitting**) (88C, Airbag and pretensioners),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners).



131930

❑ Remove the front section of the carpet.

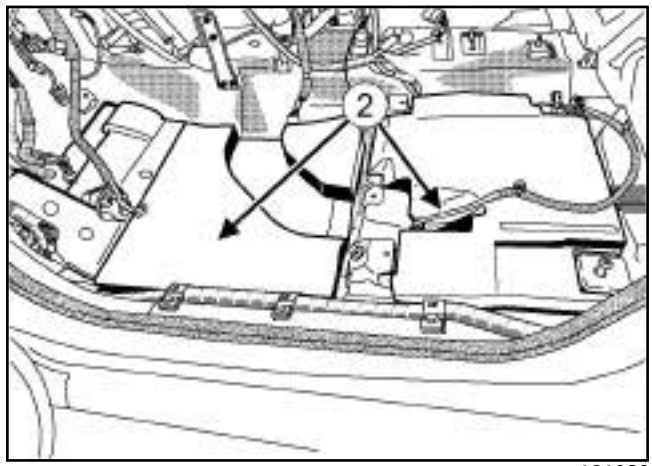
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131931

❑ Remove:

- the clip (**1**) ,
- the left-hand side air distribution duct.




131932

❑ Remove the left-hand floor side soundproofing (**2**) .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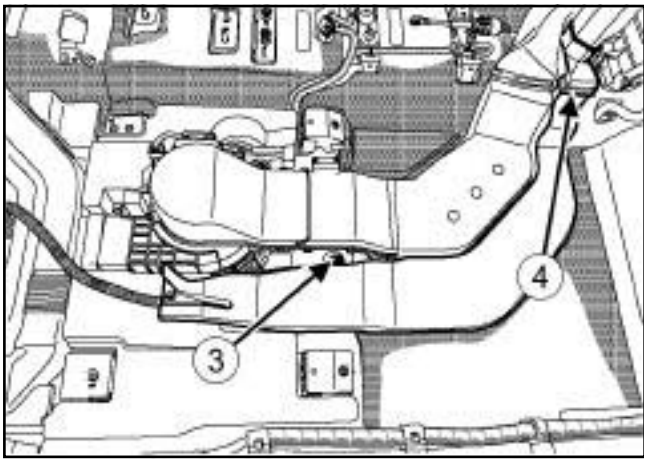

132760

❏ Remove the retaining clip (**3**) from the rear right-hand air distribution duct.

❏ Lift the rear right-hand air distribution duct at (**4**) .

❏ Remove:

- the module of the rear fan assembly,
- the floor side soundproofing.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the floor side soundproofing,
- the module of the rear fan assembly,
- the rear right-hand air distribution duct,
- the left-hand floor side soundproofing,
- the clip
- the left-hand side air distribution duct,
- the clips ***(1)*** .

### II - FINAL OPERATION.

❏ Refit:

- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the airbag computer (see **Airbag computer: Removal - Refitting**) (88C, Airbag and pretensioners),
- the gear control unit (see **Gear control unit: Removal - Refitting**) (37A, Mechanical component controls),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the air distribution unit (see **Air distribution unit: Removal - Refitting**) ,
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).


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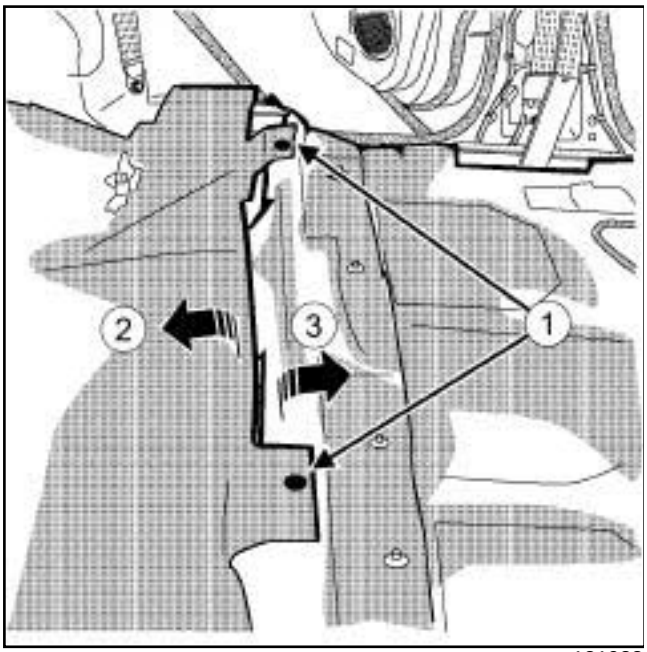
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

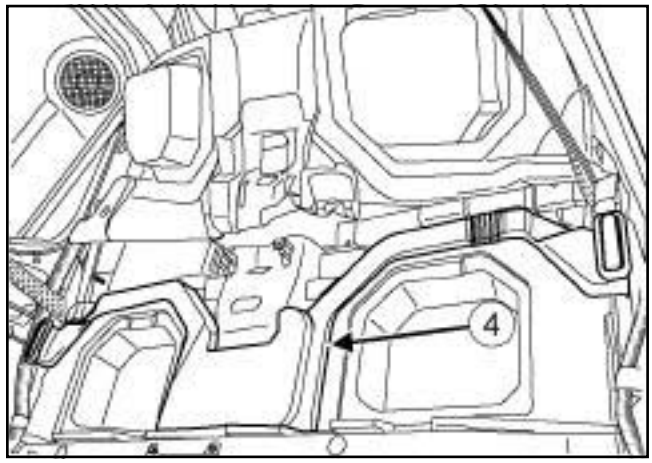



131933

❏ Remove the clips (**1**) .

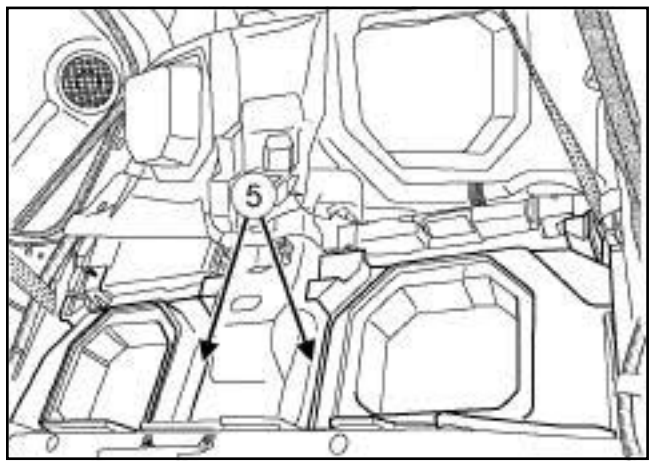
❏ Remove:

- the rear carpet at (**2**) ,
- the rear section of the front carpet at (**3**) .




131934

❏ Remove the rear heating duct (**4**) .




131935

❏ Remove the rear floor soundproofing (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear floor soundproofing,
- the rear heating duct,
- the front carpet,
- the rear carpet,
- the clips.

### II - FINAL OPERATION.

❏ Refit:

- the rear bench seat base (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),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- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front door sill lining (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim).


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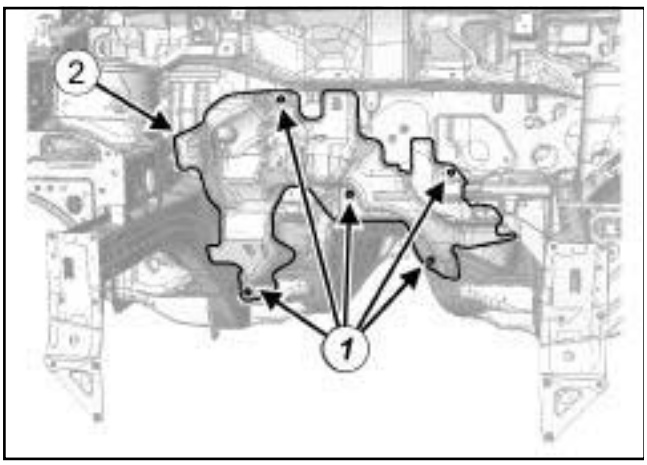
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the battery (see **Battery : Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet duct,
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131918

❑ Remove:

- the clips (**1**) ,
- the bulkhead insulation (**2**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the bulkhead insulation,
- the clips.

### II - FINAL OPERATION.

❑ Refit:

- the particle filter (see **Particle filter: Removal - Refitting**) (19B, Exhaust),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air inlet duct,
- the air filter unit (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
- the battery (see **Battery : Removal - Refitting**) (80A, Battery).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RENAULT

# 7 Trim and upholstery


71A BODY INTERNAL TRIM

72A SIDE OPENING ELEMENT TRIM

73A NON-SIDE OPENING ELEMENTS TRIM

75A FRONT SEAT FRAMES AND RUNNERS

76A REAR SEAT FRAMES AND RUNNERS

78A REAR SEAT TRIM

79A SEAT COMPONENTS



*X45*

**JANUARY 2008** **Edition Anglaise**



"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# KOLEOS - Section 7

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**IMPORTANT**
To prevent the pyrotechnic components from not working or being accidentally triggered (airbags or pretensioners), wait at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

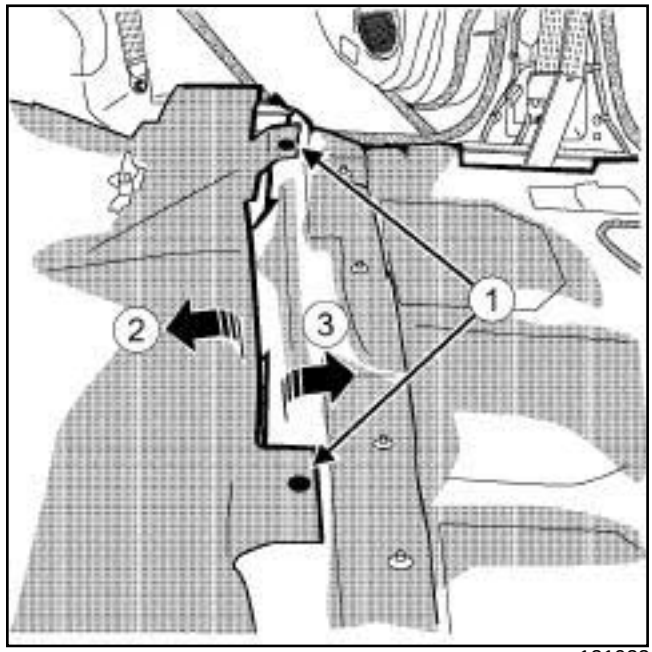
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the air distribution unit (see **Air distribution unit: Removal - Refitting**) (61A, Heating system),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the gear control unit (see **Gear control unit: Removal - Refitting**) (37A, Mechanical component controls),
- the airbag computer (see **Airbag computer: Removal - Refitting**) (88C, Airbag and pretensioners),
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

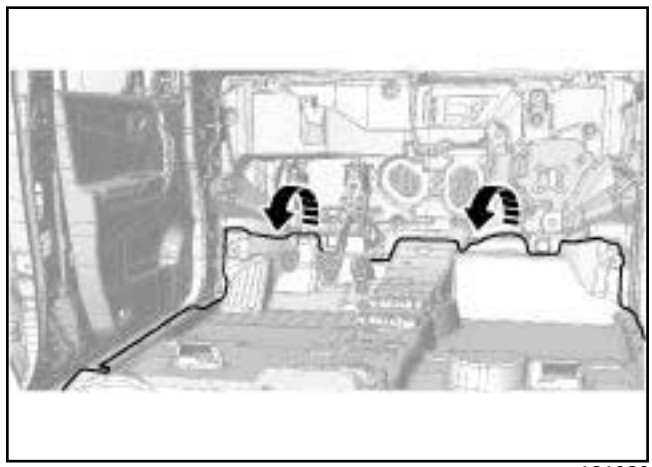


131933

❏ Remove the clips (**1**) .

❏ Remove:

- the rear carpet at (**2**) ,
- the rear section of the front carpet at (**3**) .


131930

❏ Remove the front section of the carpet.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the front carpet,
- the rear carpet,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- the clips.

**II - FINAL OPERATION.**

❑ Refit:

- the front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) ,
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the airbag computer (see **Airbag computer: Removal - Refitting**) (88C, Airbag and pretensioners),
- the gear control unit (see **Gear control unit: Removal - Refitting**) (37A, Mechanical component controls),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the air distribution unit (see **Air distribution unit: Removal - Refitting**) (61A, Heating system),
- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

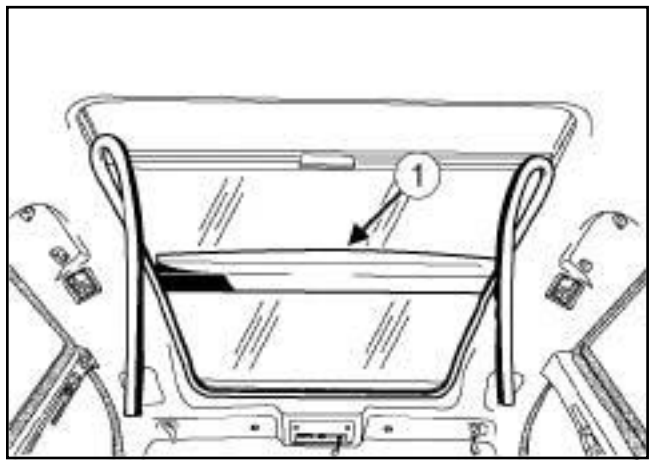
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the A-pillar trim (see **71A**, **Body internal trim**, **A-pillar trim: Removal - Refitting**, page **71A-10**) ,
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the B-pillar upper trim (see **71A**, **Body internal trim**, **B-pillar upper trim: Removal - Refitting**, page **71A-12**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the C-pillar upper trim (see **71A**, **Body internal trim**, **C-pillar upper trim: Removal - Refitting**, page **71A-15**) ,
- the sunroof opening control (depending on equipment level) (see **Sunroof opening control: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the interior rear-view mirror (see **Interior rear-view mirror Removal - Refitting**) (57A, Interior equipment),
- the sun visor (see **Sun visor: Removal - Refitting**) (57A, Interior equipment),
- the grab handle (see **Grab handle: Removal - Refitting**) (57A, Interior equipment).

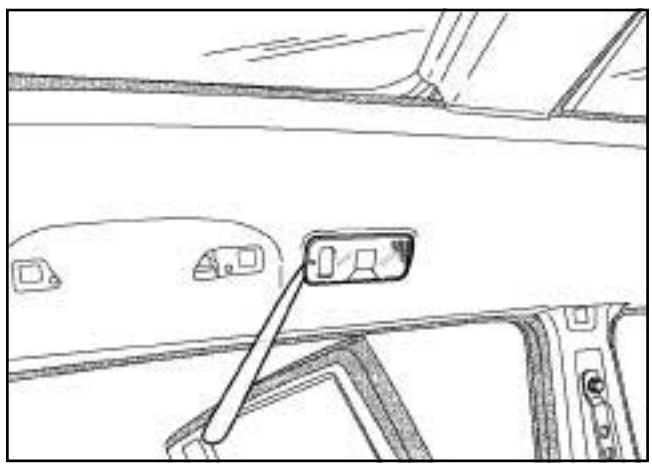
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131975

❏ Remove:

- the centre headlining (**1**) ,
- the sunroof seal carefully (depending on equipment level).


131976

❏ Remove the individual light.

❏ Disconnect the power supply connector.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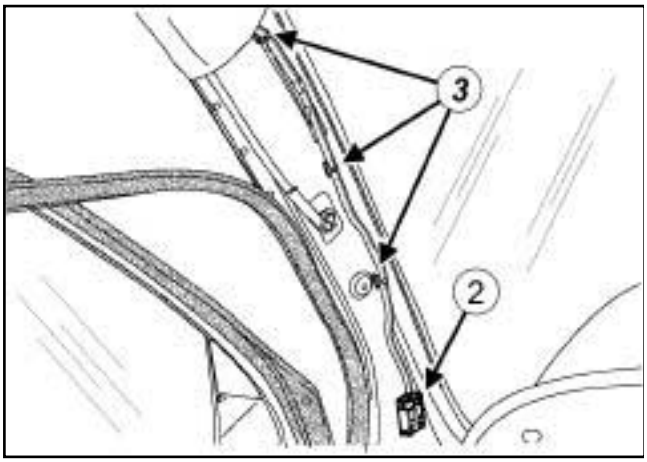
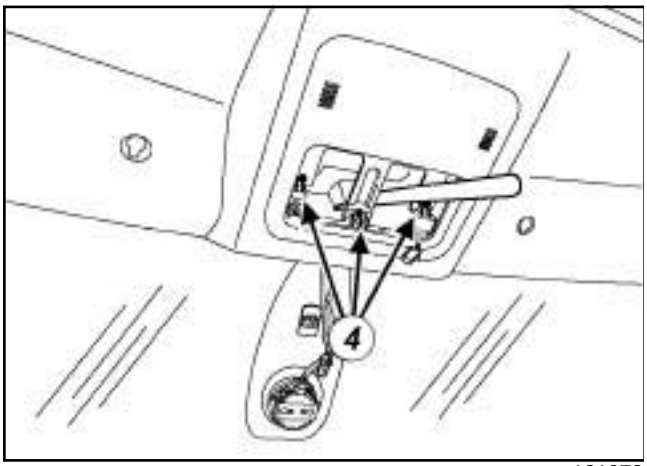



131977

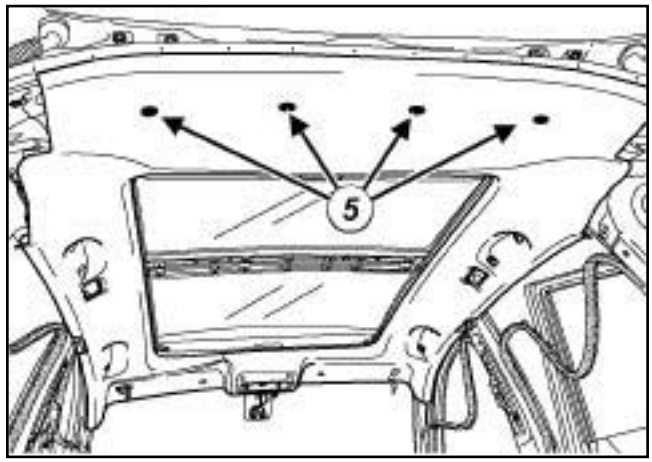
❏ Disconnect the power supply connector (**2**) .

❏ Unclip the clips (**3**) .




131978

❏ Unclip the front section at (**4**) of the headlining using the **(Car. 1597)**.




131979

❏ Remove:

- the clips (**5**) ,
- the upper section of the front side door seal, partially,
- the upper section of the rear side door seal, partially.

❏ Pull on the headlining and remove it via the rear of the vehicle (this operation requires two people).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Position the headlining in the luggage compartment (this operation requires two people).

> Note:
>
> For vehicles equipped with a sunroof, the headlining must be handled with care. The side edges are weakened by the design of the sunroof.

❏ Clip on the front section of the headlining.

❏ Fit the rear section of the headlining.

❏ Refit:

- the headlining clips ***(5)*** ,
- the clips ***(3)*** .

❏ Connect the supply connector ***(2)*** .

❏ Refit:

- the sunroof seal (depending on equipment level),
- the centre headlining.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**II - FINAL OPERATION**

❏ Refit:

- the grab handle (see **Grab handle: Removal - Refitting**) (57A, Interior equipment),
- the interior rear-view mirror (see **Interior rear-view mirror Removal - Refitting**) (57A, Interior equipment),
- the sun visor (see **Sun visor: Removal - Refitting**) (57A, Interior equipment),
- the sunroof opening control (depending on equipment level) (see **Sunroof opening control: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the C-pillar upper trim (see **71A**, **Body internal trim**, **C-pillar upper trim: Removal - Refitting**, page **71A-15**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the B-pillar upper trim (see **71A**, **Body internal trim**, **B-pillar upper trim: Removal - Refitting**, page **71A-12**) ,
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the A-pillar trim (see **71A**, **Body internal trim**, **A-pillar trim: Removal - Refitting**, page **71A-10**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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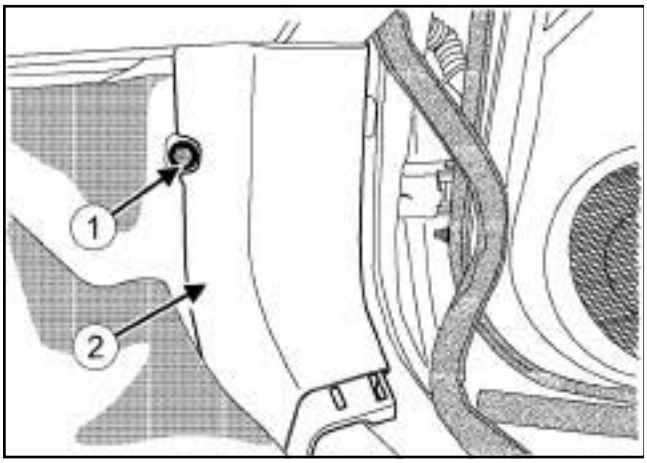
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the frame seal of the front side door (see **Front side door frame seal: Removal - Refitting**) (65A, Door sealing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130247

❏ Remove:

- the bolt (**1**) ,
- the cab floor lining (**2**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the cab floor lining,
- the bolt.

### II - FINAL OPERATION.

❏ Refit:

- the front side door frame seal (see **Front side door frame seal: Removal - Refitting**) (65A, Door sealing),
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) .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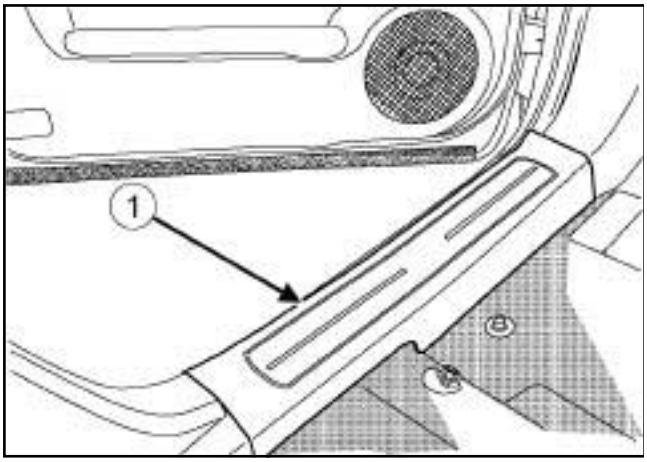
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130156

❏ Unclip the front door sill lining (**1**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the clips of the door sill lining if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Clip on the front door sill lining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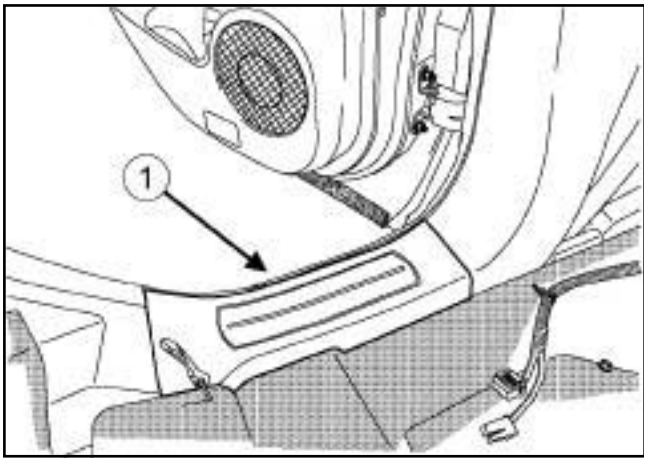
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130157

❏ Unclip the rear door sill lining (**1**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the clips of the rear door sill lining if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Clip on the rear door sill lining.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| Tightening torques ▽ | |
|---|---|
| rear safety C-pillar lower bolt | **49 N.m** |

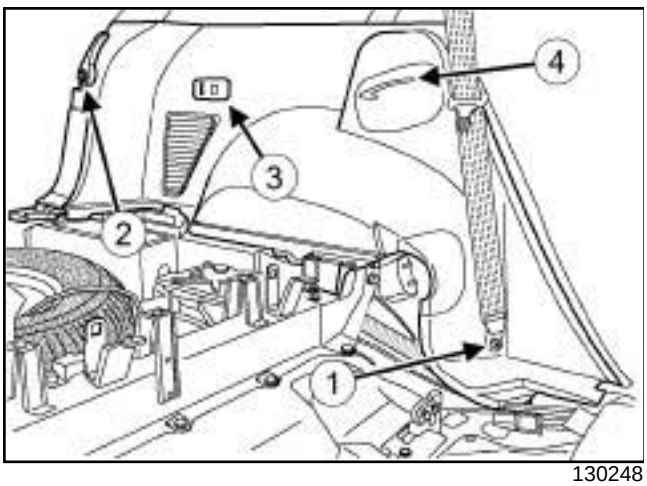
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment),
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the luggage compartment floor lining (see **71A**, **Body internal trim**, **Luggage compartment floor lining: Removal - Refitting**, page **71A-17**) ,
- the rear panel trim (see **71A**, **Body internal trim**, **Rear end panel lining: Removal - Refitting**, page **71A-16**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130248

❏ Remove:

- the lower bolt (**1**) from the rear seat belt,
- the bolt (**2**) ,
- the rear seat control handle (option),
- the luggage compartment light (**3**) ,
- the rear seat striker panel trim (**4**) .

❏ Disconnect the connector.

❏ Remove the C-pillar lower trim.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connector.

❏ Refit the C-pillar lower trim.

❏ Torque tighten the **rear safety C-pillar lower bolt (49 N.m)**.

❏ Refit:

- the rear seat control handle (option),
- the bolt,
- the luggage compartment light.

### II - FINAL OPERATION.

❏ Refit:

- the rear panel trim (see **71A**, **Body internal trim**, **Rear end panel lining: Removal - Refitting**, page **71A-16**) ,
- the luggage compartment floor lining (see **71A**, **Body internal trim**, **Luggage compartment floor lining: Removal - Refitting**, page **71A-17**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment).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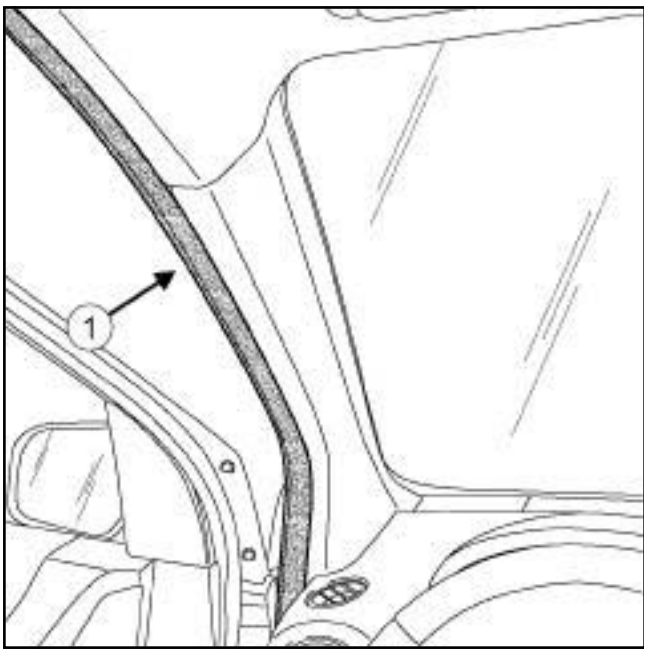
## REMOVAL

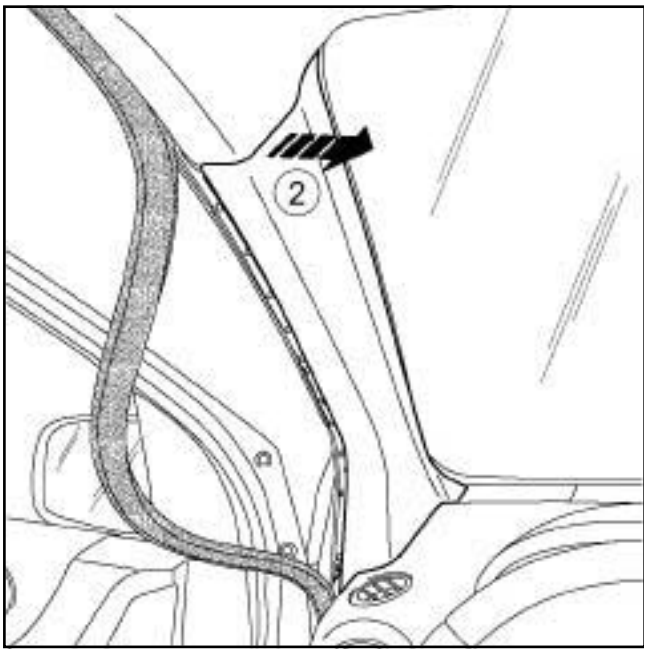
### I - REMOVAL PREPARATION OPERATION




130249

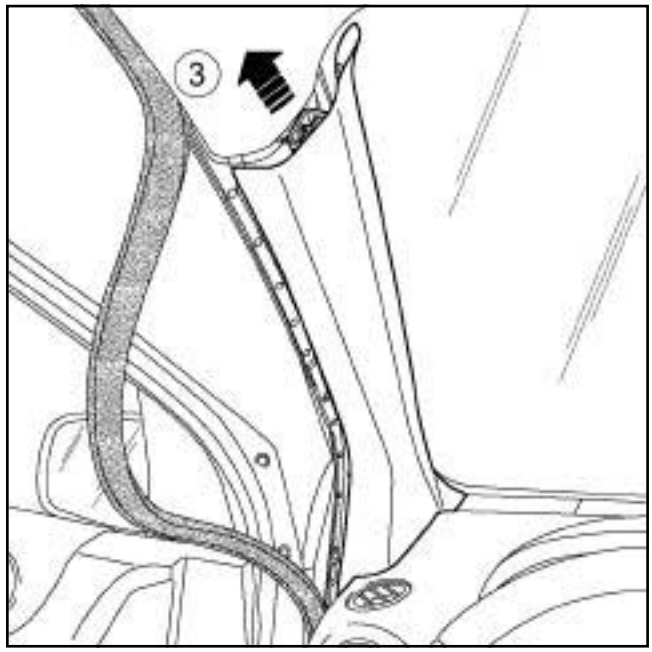
❏ Partially remove the front side door seal (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130250

❏ Unclip the top of the A-pillar trim at (**2**) .




130251

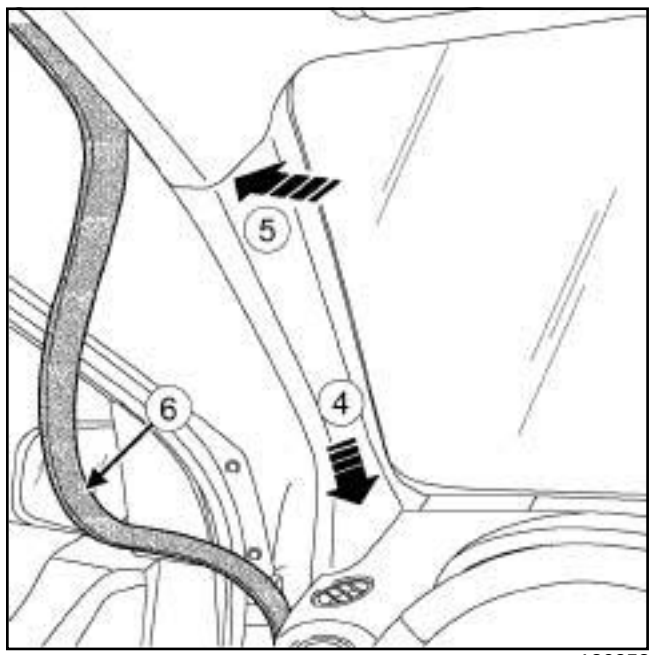
❏ Remove the A-pillar trim by pulling upwards at (**3**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the A-pillar clips, if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED




130252

❏ Refit the bottom of the trim at (**4**) and (**5**) .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**III - FINAL OPERATION.**

❑ Refit the seal ***(6)*** of the front side door.


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| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1597** | Trim removal lever. |

| Tightening torques ▽ | |
|---|---|
| seat belt upper bolt | **49 N.m** |

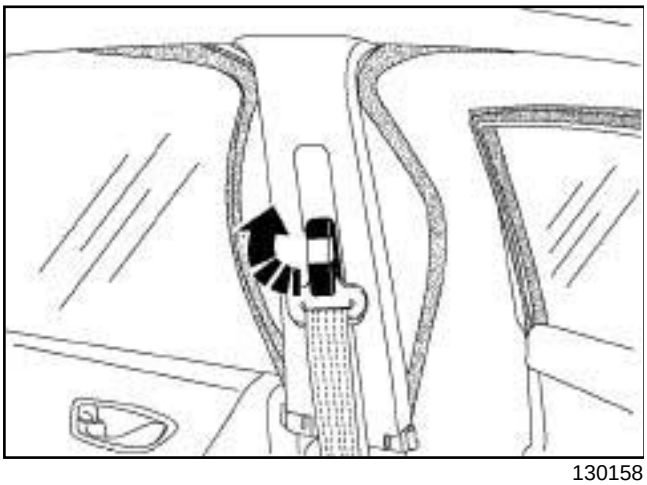
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

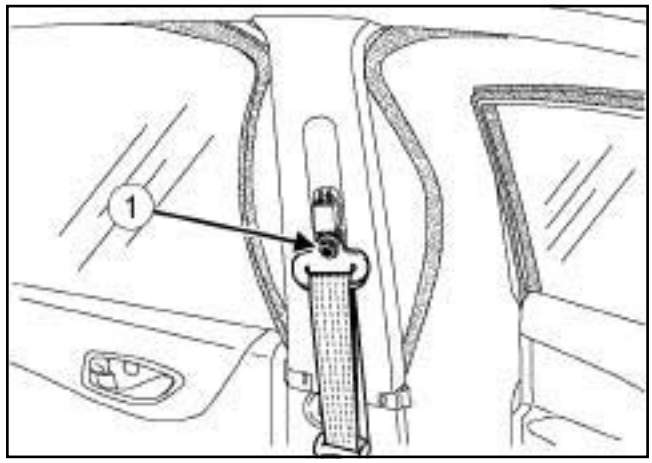
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the front side door seal partially (see **Front side door frame seal: Removal - Refitting**) (65A, Opening element sealing),
- the rear side door seal partially (see **Rear side door seal: Removal - Refitting**) (65A, Opening element sealing).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130158

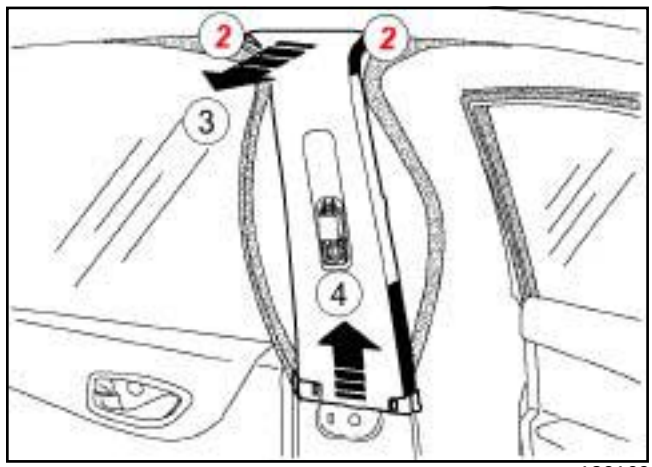
❑ Remove the cover.




130159

❑ Remove:

- the seat belt upper bolt (**1**) ,
- the seat belt, partially.




130160

❑ Unclip the clips using the trim removal tool **(Car. 1597)**.

❑ Remove the top of the trim at (**3**) .

❑ Lift the trim at (**4**) .

❑ Remove the B-pillar upper trim.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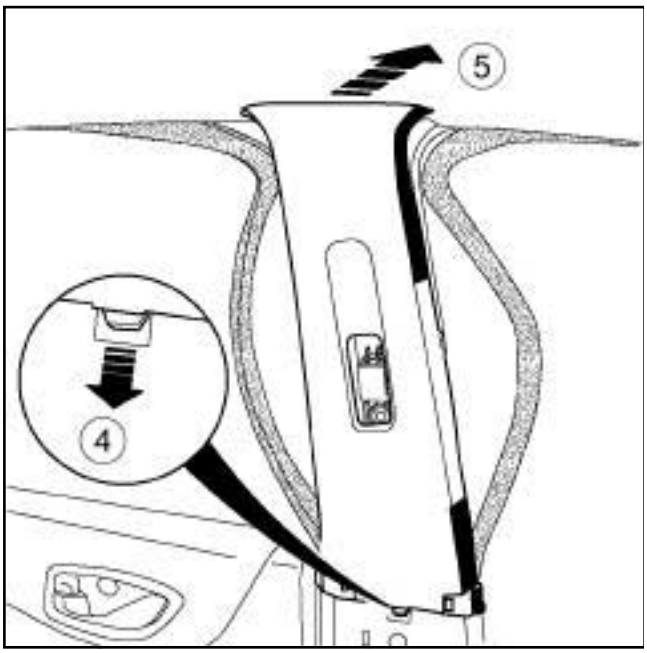
## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED




130161

❏ Refit:

- the B-pillar upper trim at (**4**) and (**5**) ,
- the seat belt,
- the seat belt upper bolt.

❏ Torque tighten the **seat belt upper bolt (49 N.m)**.

❏ Refit the cover.

### II - FINAL OPERATION

❏ Refit:

- the rear side door seal (see **Rear side door seal: Removal - Refitting**) (65A, Opening element sealing),
- the front side door seal (see **Front side door frame seal: Removal - Refitting**) (65A, Opening element sealing),
- the B-pillar trim (see **71A**, **Body internal trim**, **B-pillar trim: Removal - Refitting**, page **71A-14**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) .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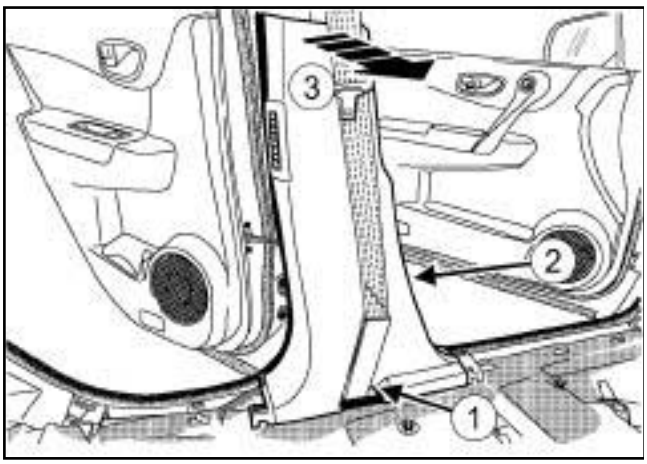
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130162

❏ Remove the cover (**1**) .

❏ Unclip the B-pillar trim at (**2**) and (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Clip on the B-pillar trim.

❏ Refit the cover.

### II - FINAL OPERATION.

❏ Refit:

- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the front door sill lining (see **71A**, **Body internal trim**, **Front door sill lining: Removal - Refitting**, page **71A-7**) .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| Tightening torques ▽ | |
|---|---|
| rear seat belt upper bolt | **49 N.m** |

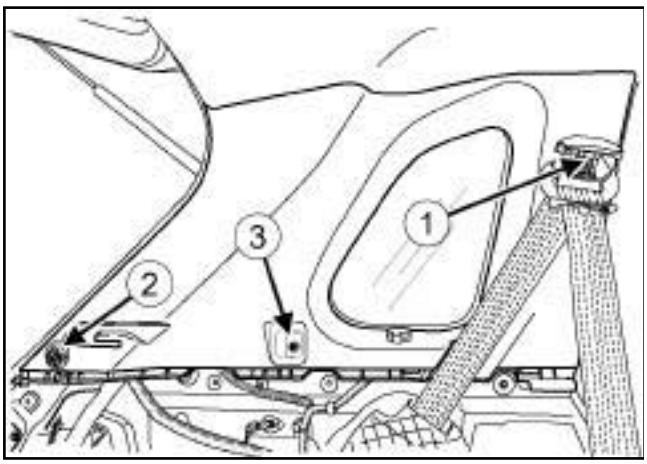
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130253

❏ Open the covers.

❏ Remove:

- the rear seat belt upper bolt (**1**) ,
- the bolt (**2**) ,
- bolt (**3**) .

❏ Disconnect the connector.

❏ Remove the C-pillar upper trim.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the clips and replace if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the supply connector.

❏ Refit the C-pillar upper trim.

❏ Torque tighten the **rear seat belt upper bolt (49 N.m)** ***(1)*** .

❏ Refit:

- the bolt ***(2)*** ,
- the bolt ***(3)*** ,
- the covers.

### III - FINAL OPERATION.

❏ Refit:

- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the rear door sill lining (see **71A**, **Body internal trim**, **Rear door sill lining: Removal - Refitting**, page **71A-8**) .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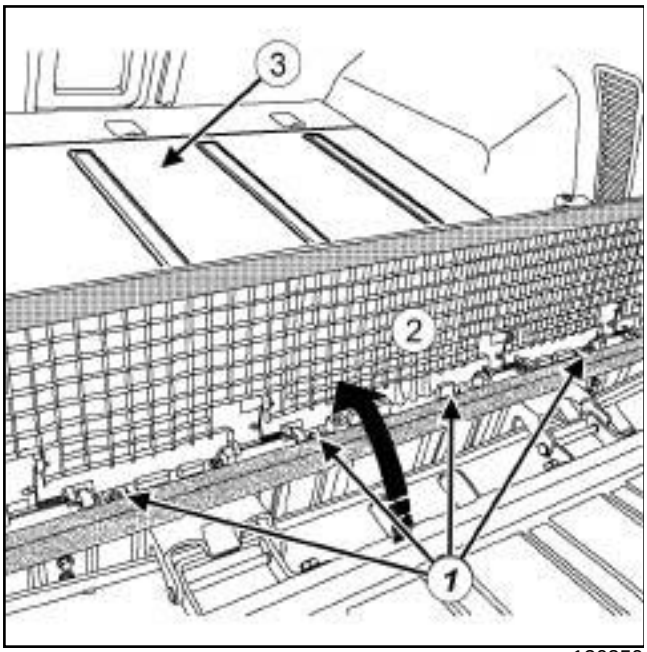
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED

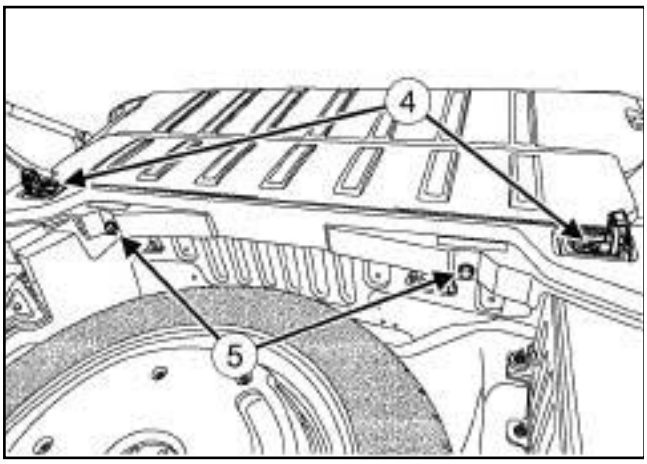


130350

❏ Open the rear end panel lining (**2**) .

❏ Remove:

- the bolts (**1**) ,
- the rear central luggage compartment floor (**3**) ,
- the front luggage compartment floor box.



130351

❏ Remove:

- the luggage compartment net hook bolts (**4**) ,
- the clips (**5**) ,
- the rear end panel lining.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the clips and replace them if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear end panel lining,
- the clips ***(5)*** ,
- the luggage compartment net hook bolts ***(4)*** ,
- the front luggage compartment floor box,
- the rear central luggage compartment floor ***(3)*** .

❏ Close the rear end panel lining ***(2)*** .

❏ Refit the bolts ***(1)*** .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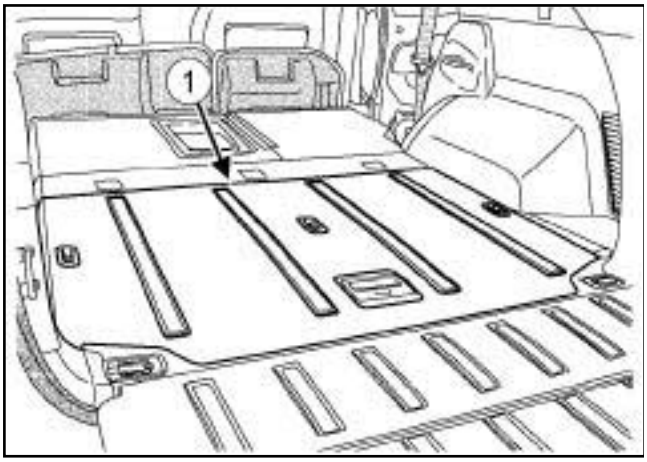
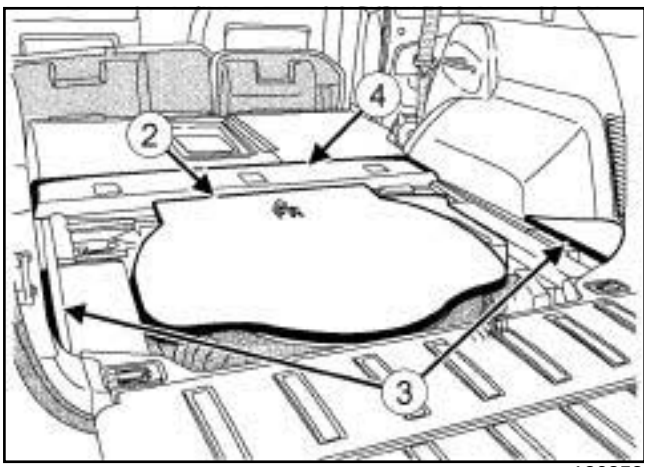
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130352

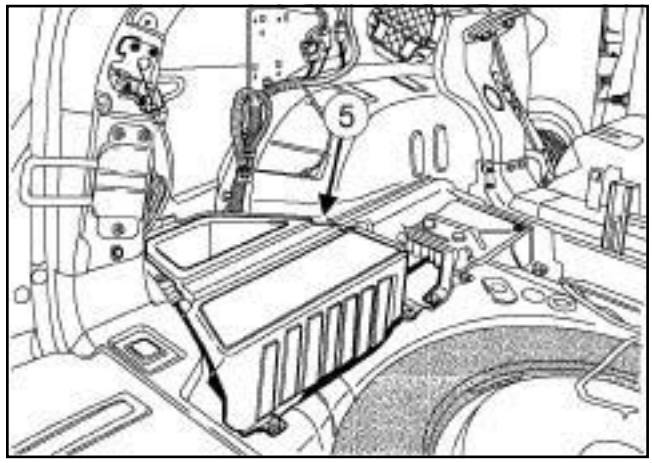
❏ Remove the panel from the rear central luggage compartment floor (**1**) .




130353

❏ Remove:

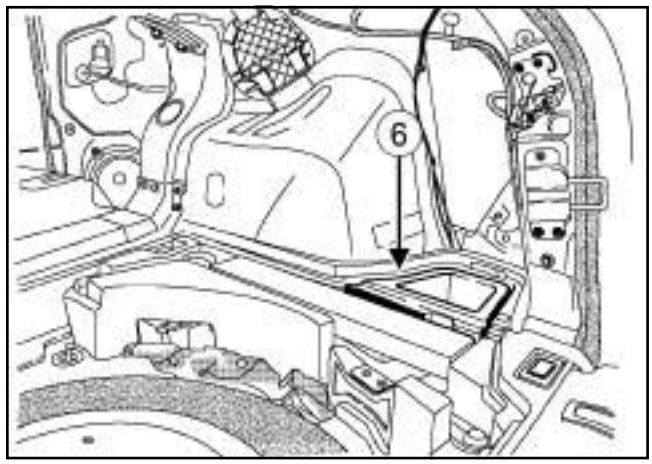
- the front luggage compartment floor box (**2**) ,
- the side luggage compartment floors (**3**) ,
- the front central luggage compartment floor (**4**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) .




130354

❏ Unclip the box clip.

❏ Remove the side luggage compartment box (**5**) .




130355

❏ Unclip the box clip.

❏ Remove the side luggage compartment box (**6**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the side luggage compartment boxes,
- the clips,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the front central luggage compartment floor,
- the side luggage compartment floors,
- the front luggage compartment floor box,
- the rear central luggage compartment floor.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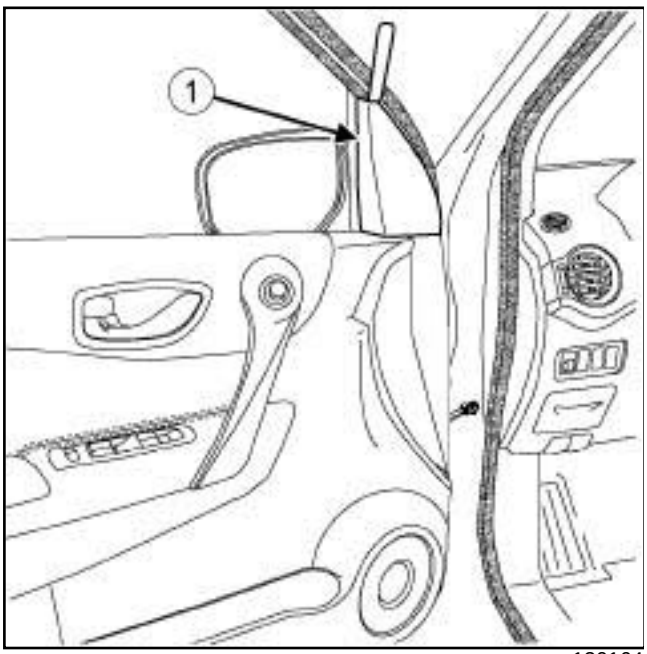
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

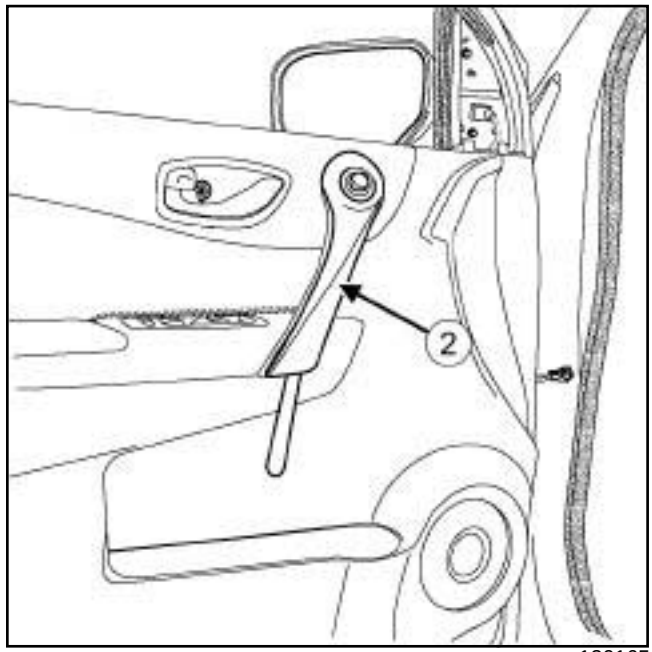
### I - REMOVAL PREPARATION OPERATION




130164

❏ Unclip the trim (**1**) from the door mirror using the tool **(Car. 1363)**

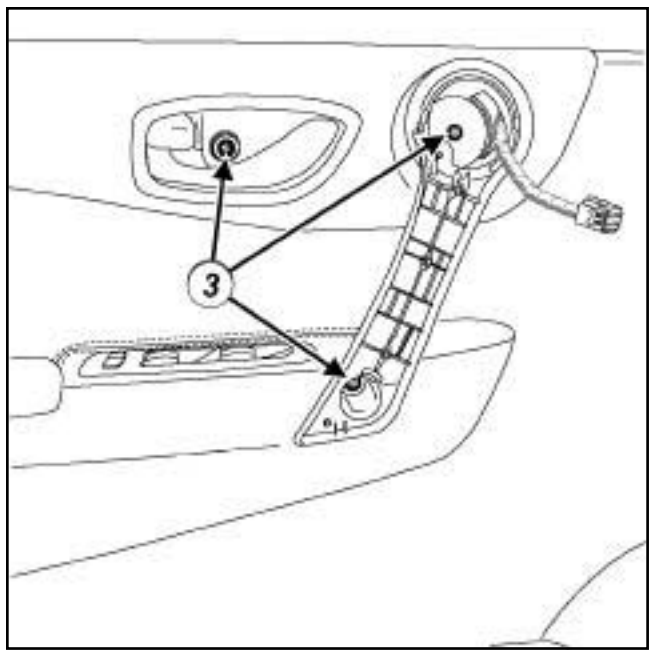
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130165

❏ Unclip the trim (**2**) using the **(Car. 1363)**

❏ Disconnect the supply connectors (depending on equipment level).




130166

❏ Remove the bolts (**3**) .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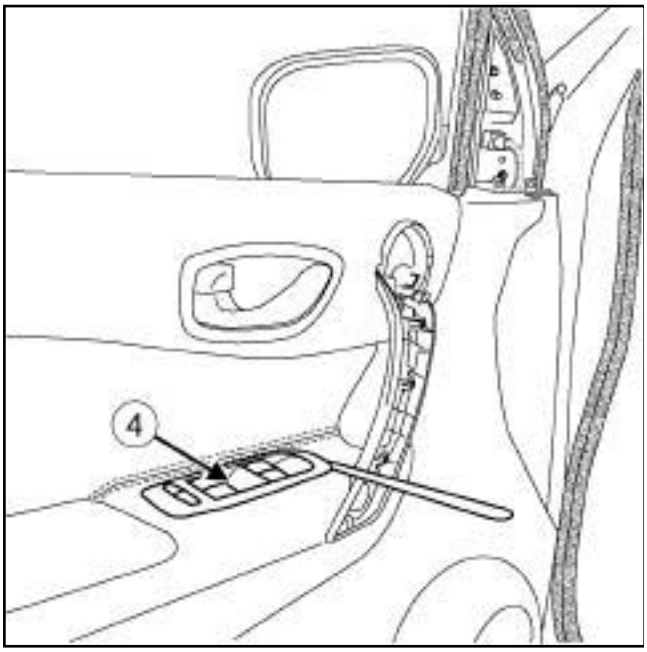



130167

❏ Remove the control board (**4**) using the tool **(Car. 1363)**

❏ Disconnect the supply connectors.

❏ Remove the front side door trim partially.

❏ Unclip the interior opening control cable using a flat-blade screwdriver.

❏ Disconnect the door sill light connector.

## REFITTING

### I - REFITTING PREPARATION OPERATION

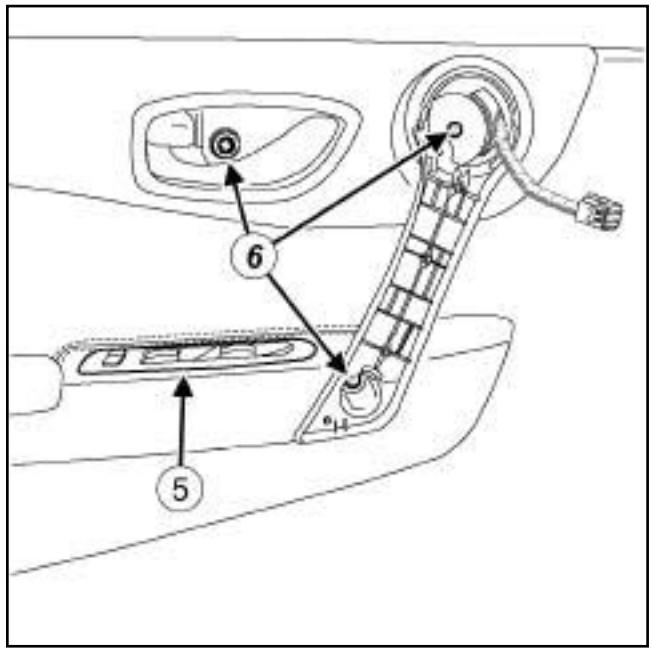
❏ If necessary, replace the clips on the front side door trim.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the supply connector (depending on equipment level).

❏ Clip on the door interior handle cable.

❏ Refit the front side door trim.

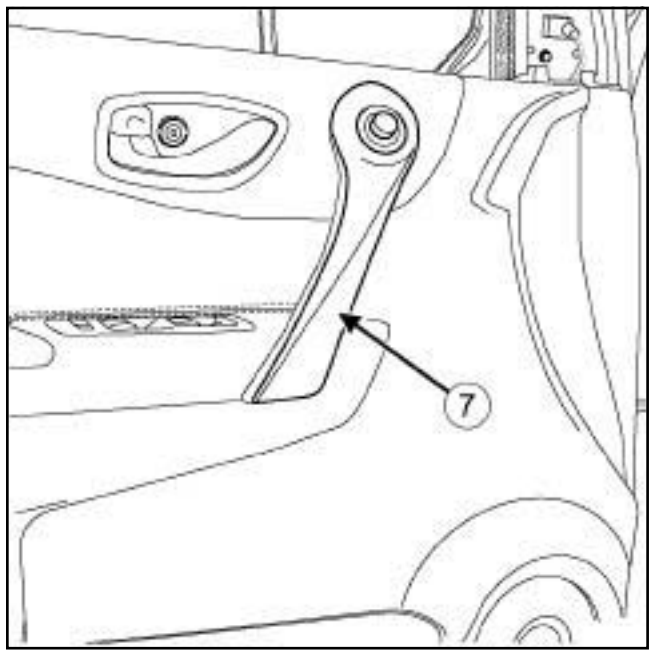



130168

❏ Connect the supply connector.

❏ Refit:

- the control board (**5**) ,
- the bolts (**6**) .




130169

❏ Connect the door mirror switch connector.

❏ Refit the trim (**7**) .

### III - FINAL OPERATION.

❏ Check that it is working correctly.

❏ Clip the trim ***(1)*** onto the door mirror.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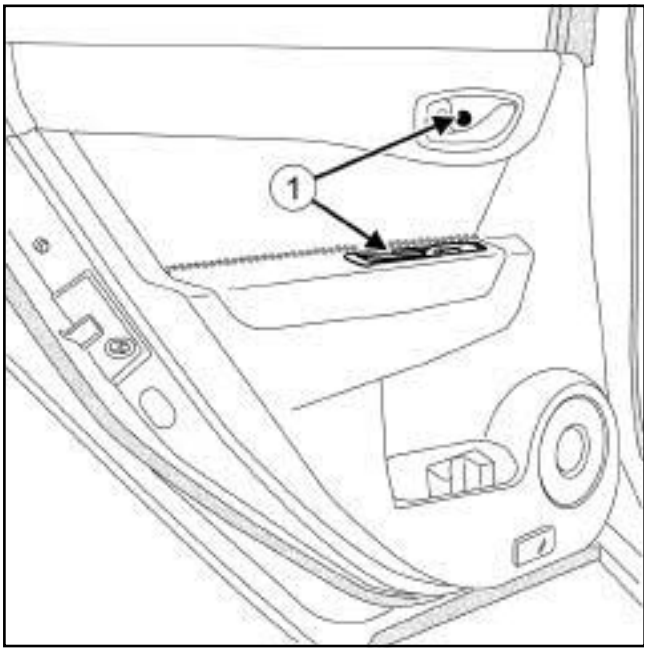
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

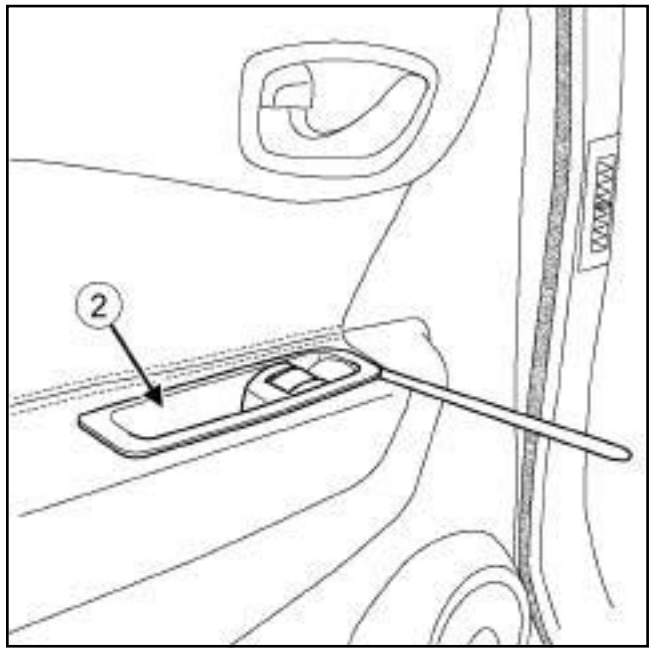
### OPERATION FOR REMOVAL OF PART CONCERNED




130170

❑ Remove:

- the covers,
- the bolts (**1**) .




130171

❑ Remove the plate (**2**) using the **(Car. 1363)**

❑ Disconnect the power supply connector.

❑ Remove the rear side door trim partially.

❑ Unclip the rear side door interior opening release cable.

❑ Disconnect the supply connector.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ If necessary, replace the clips on the rear side door trim.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑ Connect the supply connector (depending on the equipment level).

❑ Clip on the rear side door interior opening release cable.

❑ Refit the rear side door trim.

❑ Connect the supply connector.

❑ Refit:

- the plate ***(2)*** ,
- the bolts ***(1)*** .

### III - FINAL OPERATION.

❑ Check that it is working correctly.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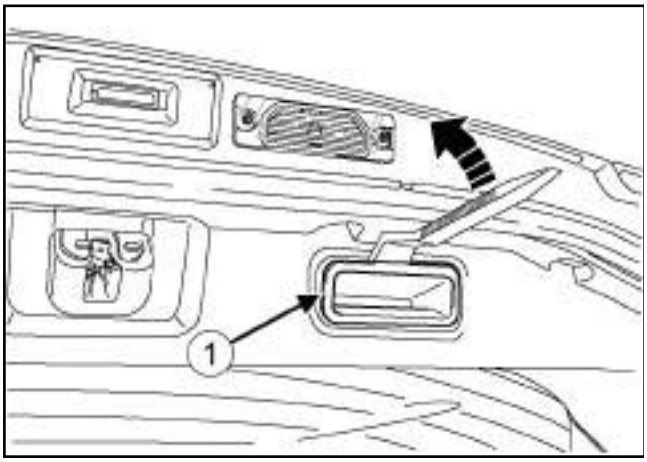
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

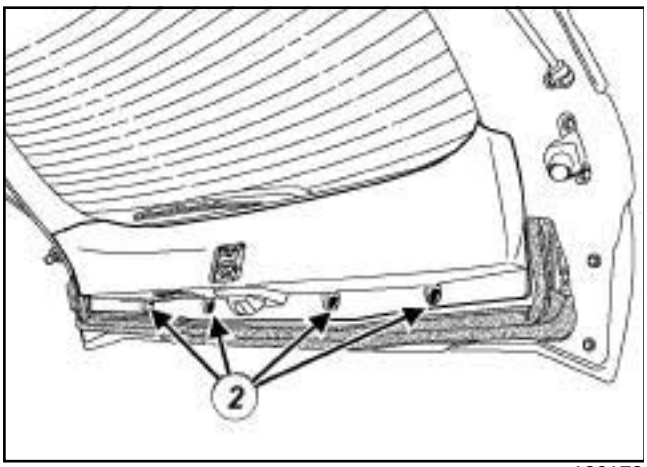
### I - REMOVAL PREPARATION OPERATION




130172

❏ Remove the trim (**1**) using the **(Car. 1363)**

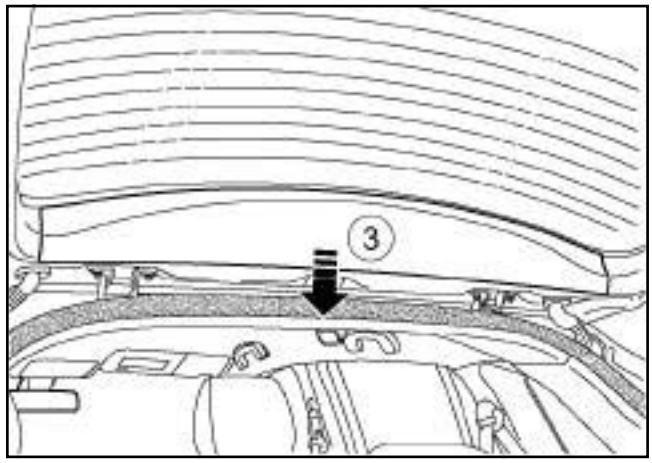
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130173

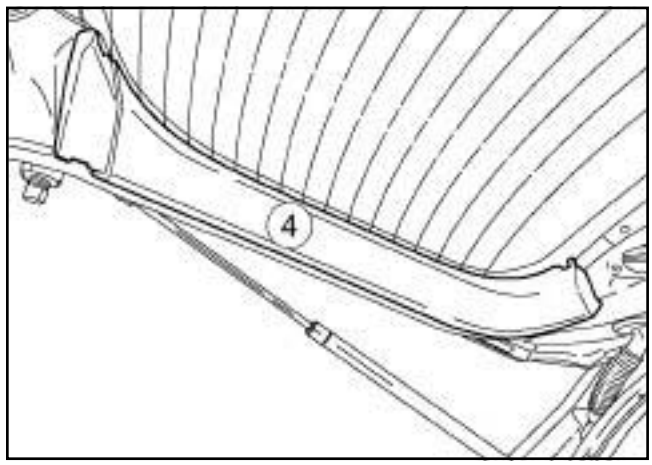
❏ Remove:

- the clips (**2**) ,
- the tailgate lower trim.




130174

❏ Remove the upper trim (**3**) from the tailgate.




130175

❏ Remove the side trim (**4**) from the tailgate.

## REFITTING

### I - REMOVAL PREPARATION OPERATION

❏ Replace the tailgate trim clips if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the side trim ***(4)*** on the tailgate,
- the upper trim ***(3)*** on the tailgate,
- the lower trim on the tailgate,
- the clips ***(2)*** ,
- the trim ***(1)*** .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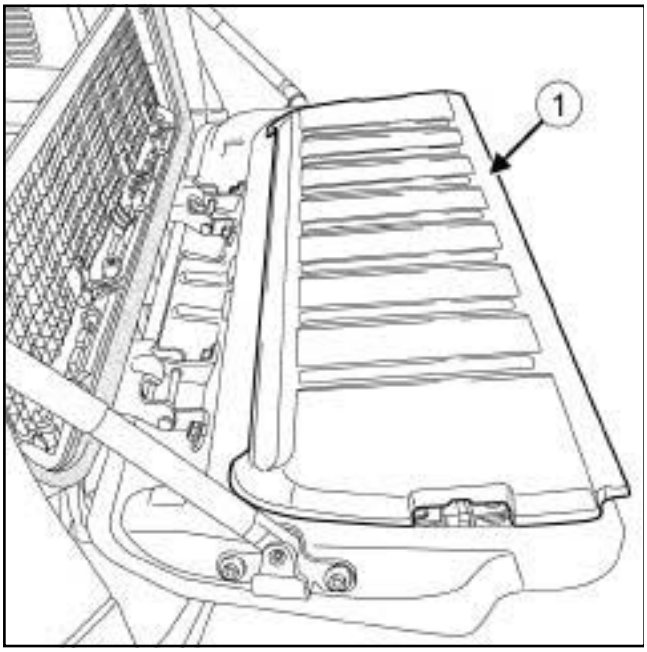
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED

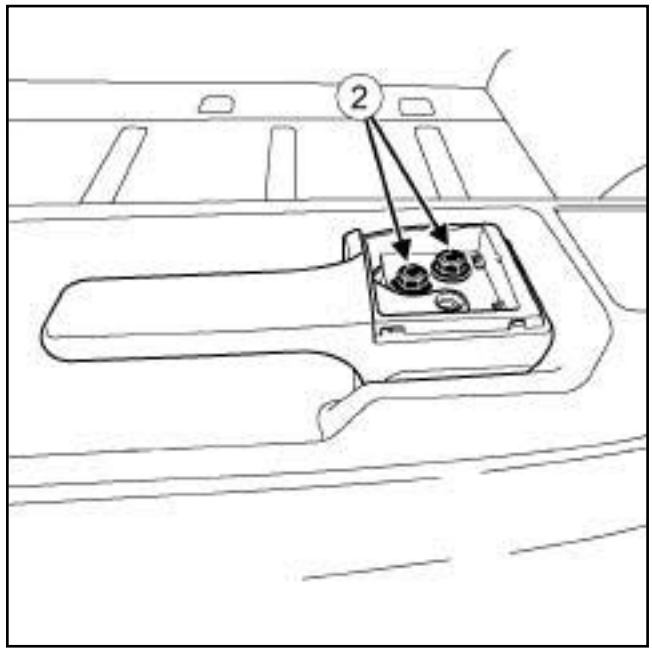



130254

❏ Support the boot chute trim using a suitable tool.

❏ Remove:

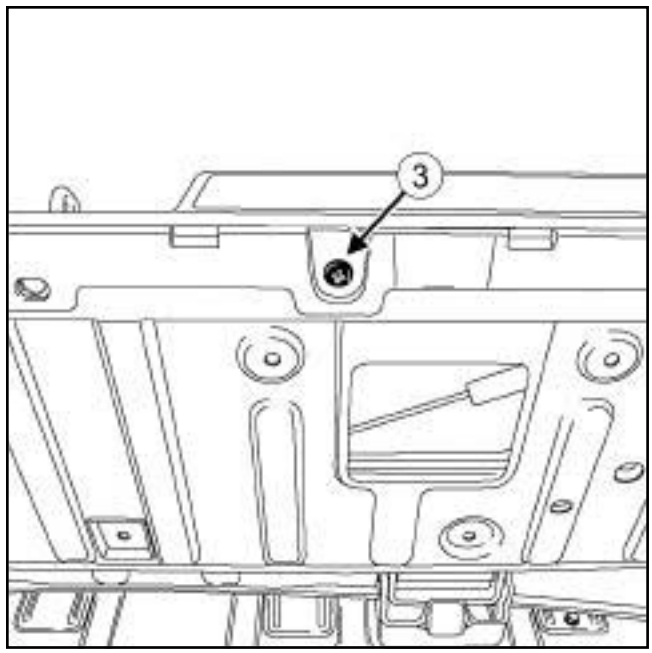
- the trim (**1**) using the **(Car. 1363)**,
- the handle cover.




130255

❏ Remove:

- the bolts (**2**) ,
- the boot chute handle.




130256

❏ Remove the bolt (**3**) .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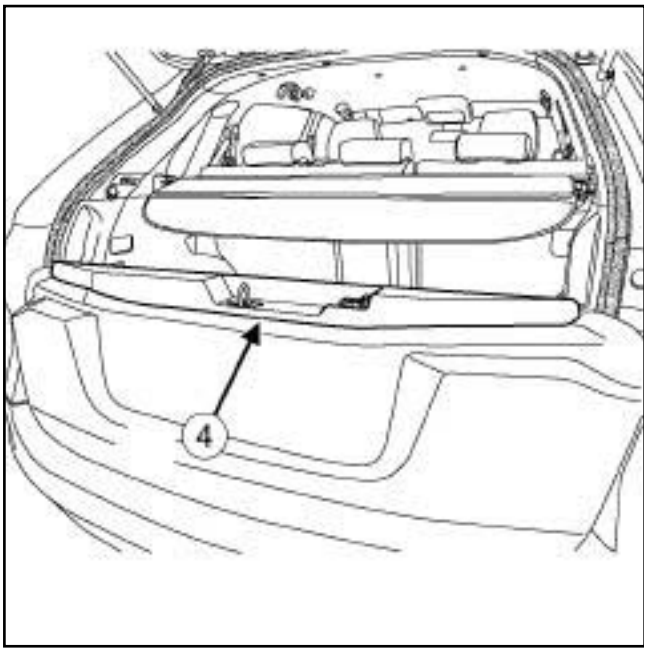


130258

❏ Remove the upper trim (**4**) from the boot chute.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Replace the boot chute trim clips if necessary.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the upper trim (**4**) of the boot chute,
- the bolt (**3**) ,
- the boot chute handle,
- bolt ***(2)*** .

❏ Support the boot chute trim using a suitable tool.

❏ Refit the trim ***(1)*** .


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| Tightening torques ▽ | |
|---|---|
| front seat frame bolts | **49 N.m** |

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

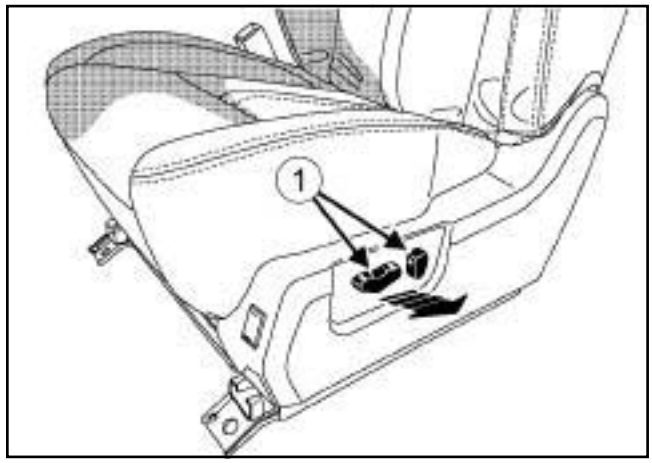
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the compete front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) ,
- the front seat belt buckle stalk (see **Front seat belt buckle: Removal - Refitting**) (88C, Airbag and pretensioners),
- the head rest.

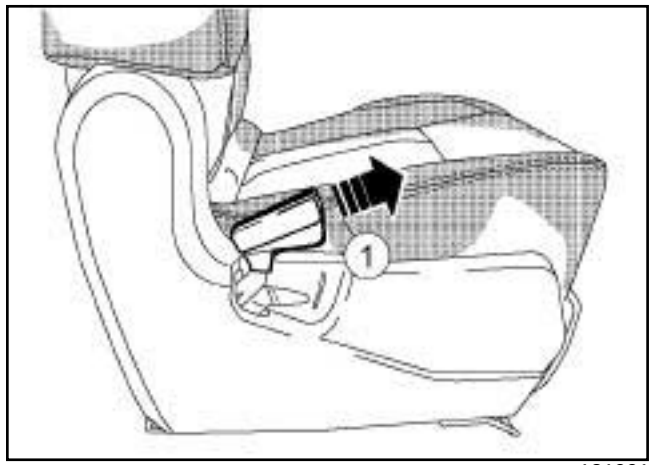
### II - OPERATION FOR REMOVAL OF PART CONCERNED



131981

❏ Remove the seat slide and the height adjuster switch (**1**) .

FRONT SEAT TYPE 01



131991

❏ Remove the height adjuster lever (**1**) .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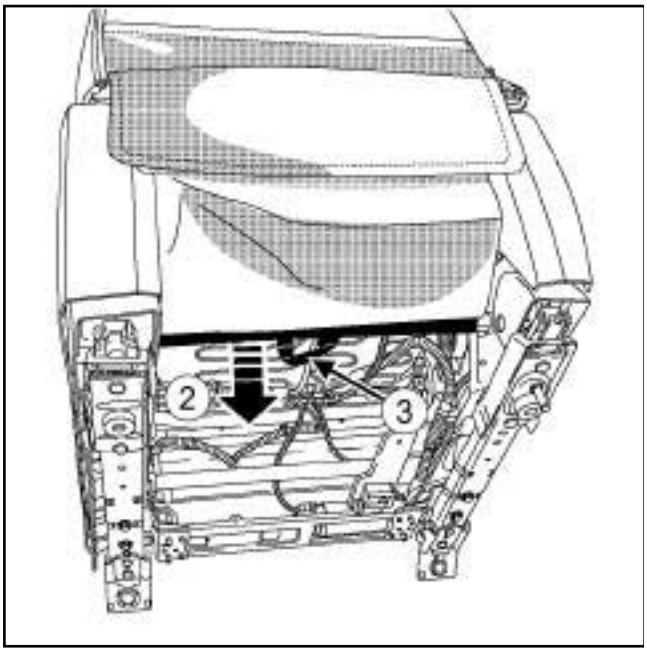
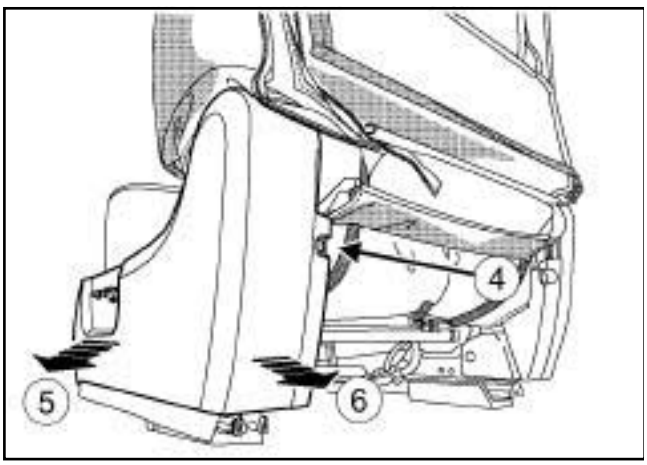



131982

❏ Unclip the seat trim (**2**) .

❏ Remove the retaining strip (**3**) .

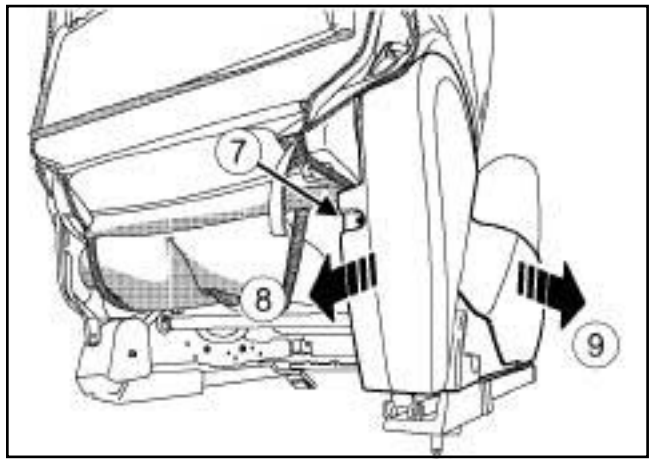



131983

❏ Remove the bolt (**4**) .

❏ Unclip the trim at (**5**) and (**6**) .

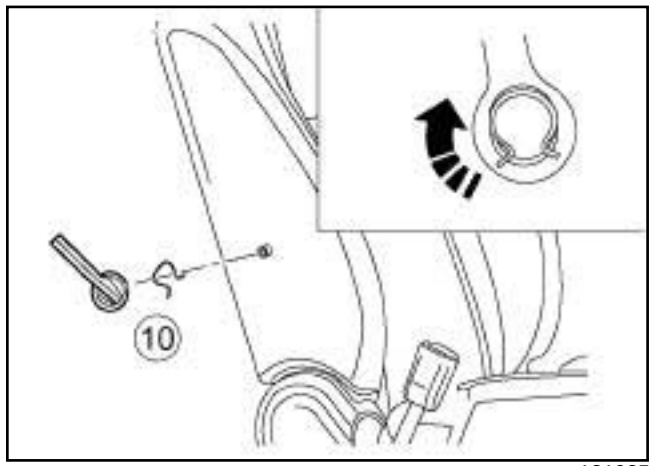
❏ Disconnect the power supply connector.




131984

❏ Remove the bolt (**7**) .

❏ Unclip the trim at (**8**) and (**9**) .




131985

❏ Remove the lumbar adjustment lever knob (**10**) .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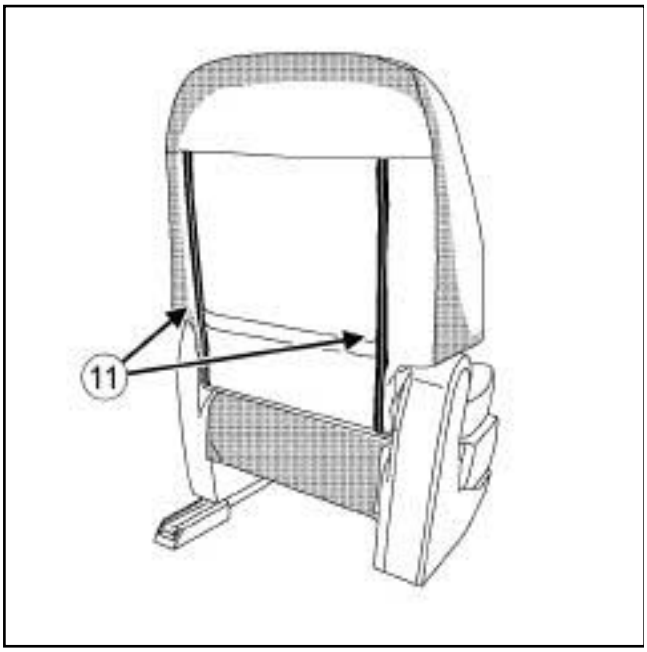
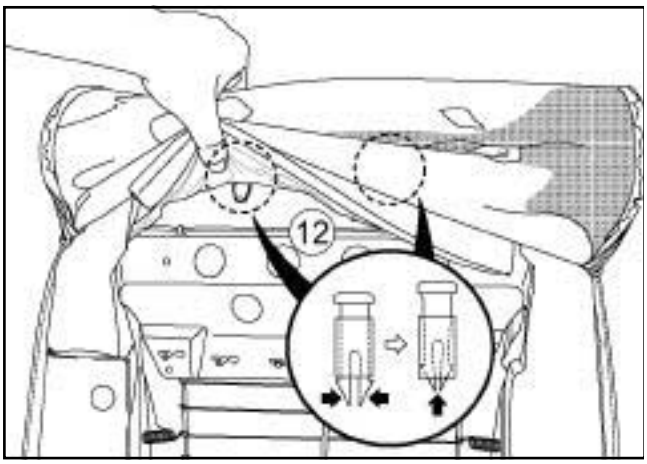



131986

❏ Open the zip fasteners (**11**) .

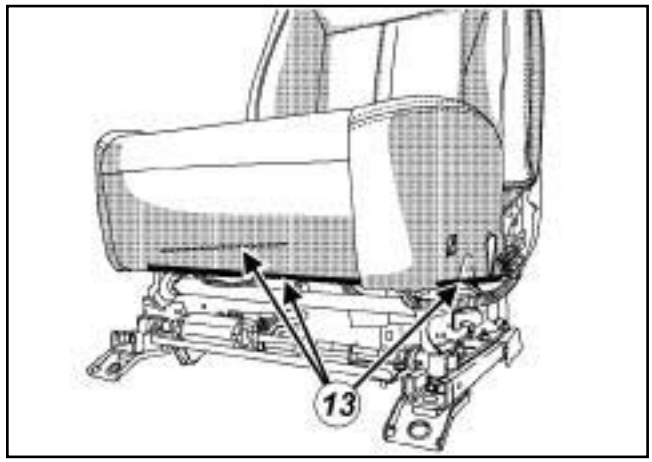



131987

❏ Remove the headrest guides from the support (**12**) .

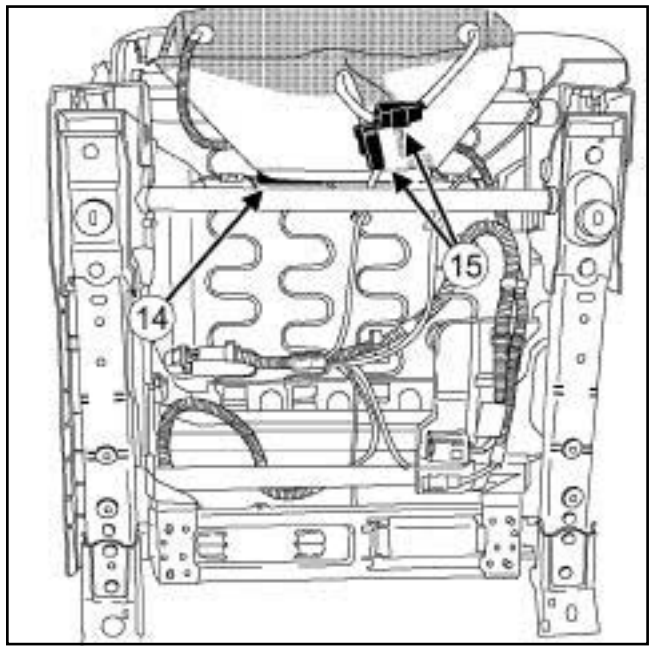
❏ Separate the airbag module from the fabric of the seatback trim.

❏ Remove the seatback trim - foam assembly from the front seat frame.




131988

❏ Unclip the seat base trim retaining sections (**13**) .




131989

❏ Unclip the retaining sections (**14**) .

❏ Disconnect the connectors (**15**) .

❏ Remove the seat base trim - foam assembly.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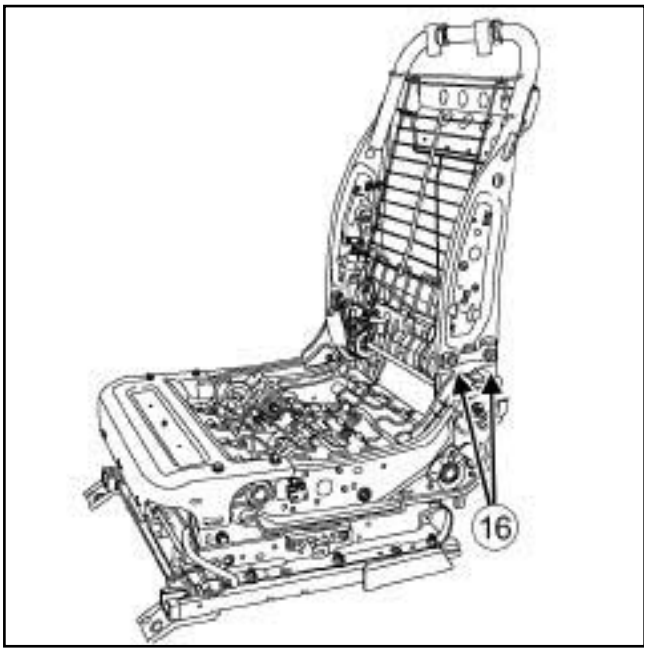

131990

❑ Remove:

- the bolts (**16**) from the front seat frame on each side,
- the front seat frame.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the front seat frame,
- the front seat frame bolts.

❑ Torque tighten the **front seat frame bolts (49 N.m)**.

❑ Refit the seat base trim - foam assembly.

❑ Connect the connectors ***(15)*** .

❑ Refit:

- the retaining sections ***(14)*** ,
- the seat base trim retaining sections ***(13)*** ,
- the front side airbag (chest level) (see **Front (chest) side airbag: Removal - Refitting**) (88C, Airbag and pretensioners),
- the headrest guides on the support ***(12)*** .

❑ Close the zip fasteners.

❑ Refit:

- the lumbar adjustment lever knob,
- the trim ,
- the bolts ***(7)*** ,

❑ Connect the connectors.

❑ Refit:

- the trim ,
- the bolt ***(4)*** ,
- the retaining strips,
- the trim ***(2)*** ,

FRONT SEAT TYPE 01

❑ Refit the height adjustment lever.

❑ Refit the seat slide and the height adjuster switch.

### II - FINAL OPERATION.

❑ Refit:

- the front seat belt buckle stalk (see **Front seat belt buckle: Removal - Refitting**) (88C, Airbag and pretensioners),
- the headrest,
- the entire front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) .

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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FRONT SEAT TYPE 04

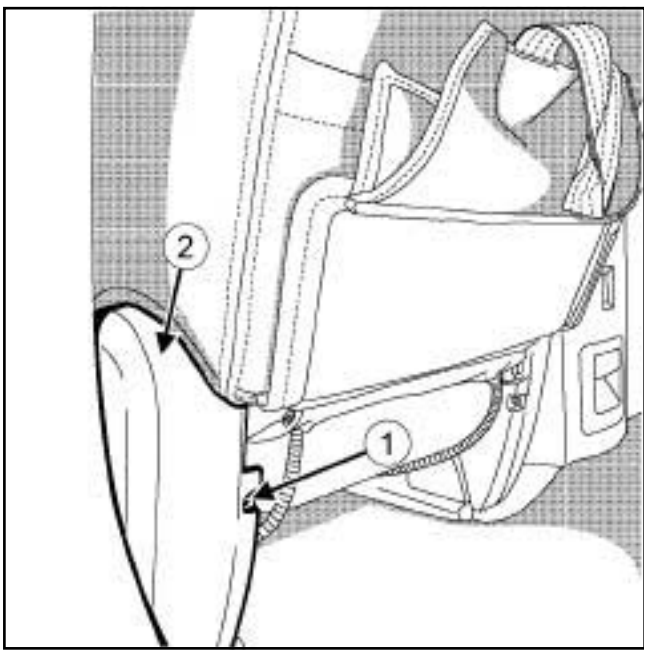
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

Note:

Move the seat as far forward as possible to remove the front seat trim.



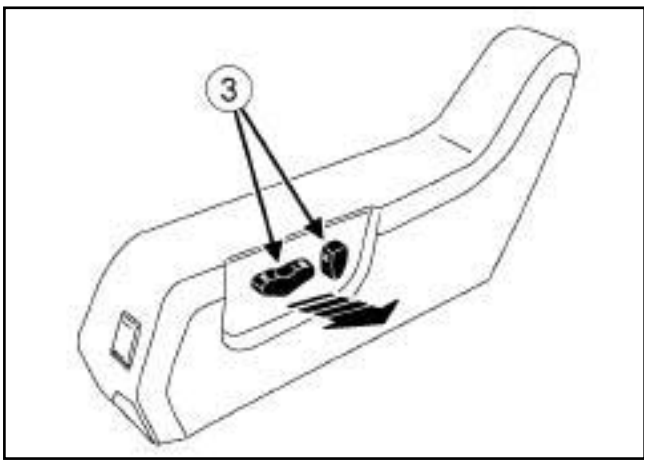

131921

❑ Remove the front seat trim bolt (**1**) .

❑ Unclip the front seat trim (**2**) .

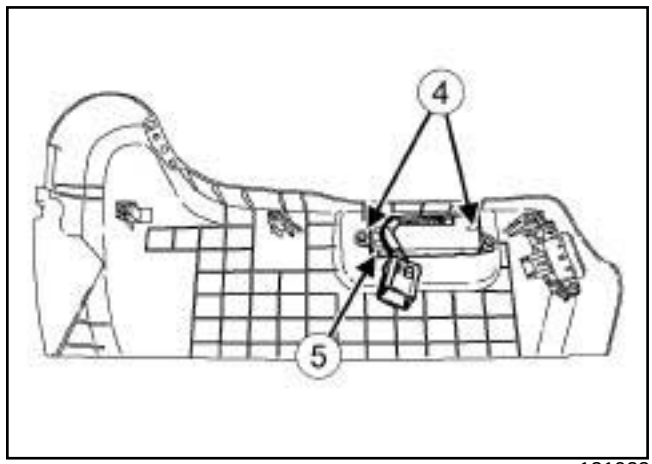
❑ Disconnect the connectors.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131922

❑ Remove the front seat control switch (**3**) .




131923

❑ Remove:

- the bolts (**4**) ,
- the front seat control keypad (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the front seat control keypad,
- the bolts,
- the front seat control switch.

### II - FINAL OPERATION.

❑ Connect the connectors.

❑ Clip on the front seat trim.

❑ Refit the front seat trim bolt.



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| Tightening torques ▽ | |
|---|---|
| complete front seat bolts | **40 N.m** |
| complete front seat bolts | **40 N.m** |

## REMOVAL

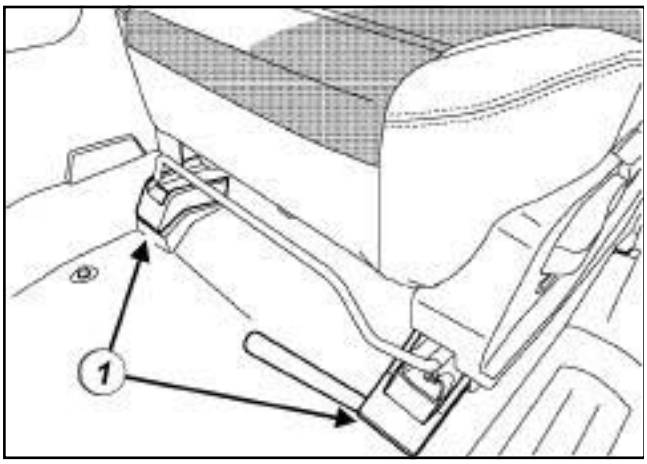
### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To avoid any triggering at the time of an operation on or near to a pyrotechnic component (airbags or pretensioners), wait for at least three minutes after battery disconnection.

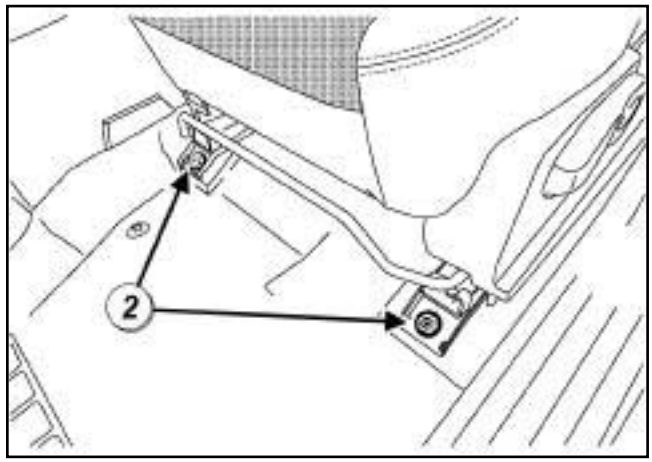
❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130257

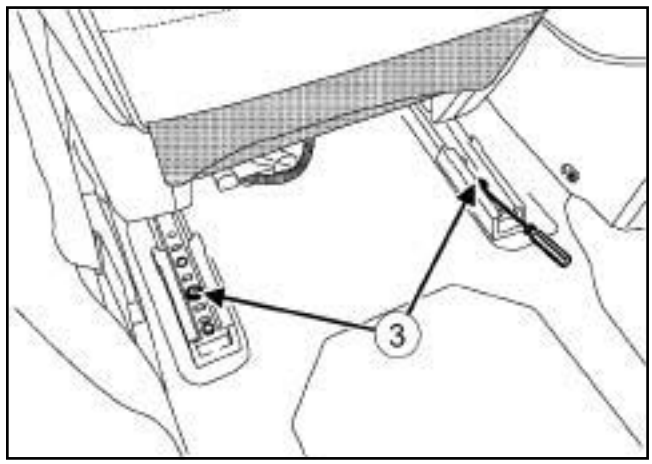
❑ Remove the covers (**1**) .



130259

❑ Remove the bolts (**2**) from the entire front seat.

❑ Move the seat as far forward as possible.



130260

❑ Remove the bolts (**3**) from the entire front seat.

❑ Disconnect the connectors under the seat (depending on equipment level).

❑ Remove the front seat.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the seat, in the vehicle.

❑ Connect the connectors under the seat (depending on equipment level).

❑ Refit the bolts ***(3)*** from the complete front seat.

❑ Torque tighten the **complete front seat bolts (40 N.m)** ***(3)*** .

❑ Refit the bolts ***(2)*** from the complete front seat.

❑ Torque tighten the **complete front seat bolts (40 N.m)** ***(2)*** .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❑ Move the seat back.

❑ Refit the covers.

**II - FINAL OPERATION.**

❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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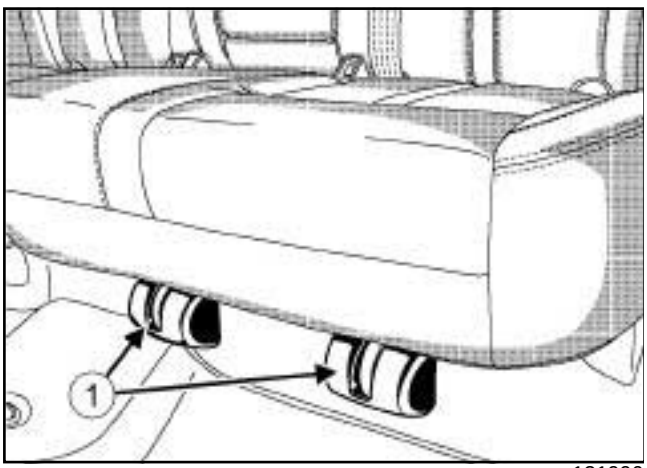
| Tightening torques ▽ | |
|---|---|
| seatback bolts | **25 N.m** |
| seatback nuts | **25 N.m** |
| lower bolt of the rear central seat belt | **49 N.m** |
| upper bolts of the rear seat base | **28 N.m** |
| lower bolts of the rear seat base | **28 N.m** |

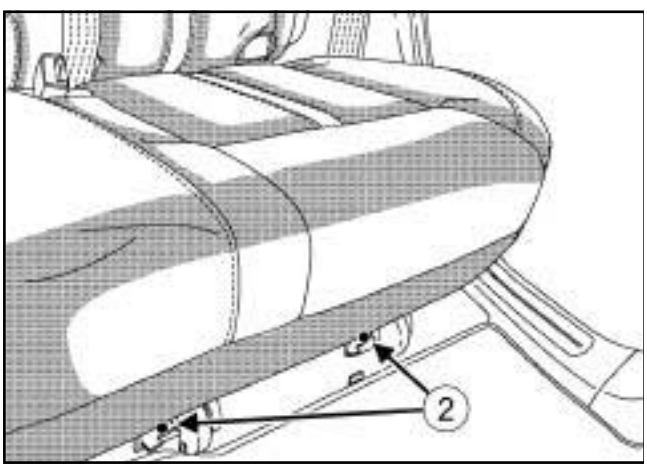
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



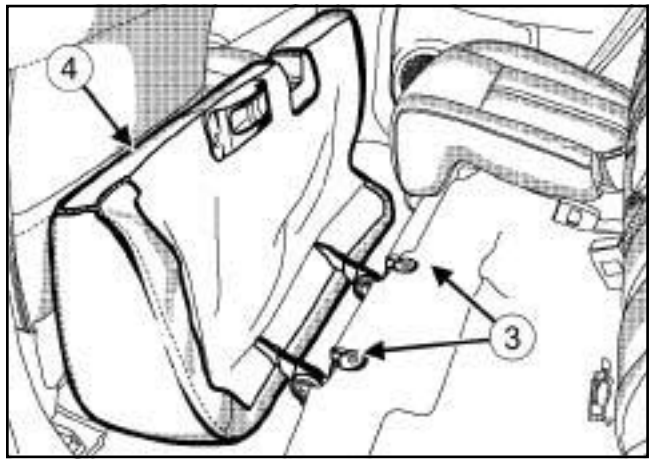

131996

❏ Remove the rear seat base hinge cover (**1**) .




131997

❏ Remove the lower bolts (**2**) from the rear seat base.

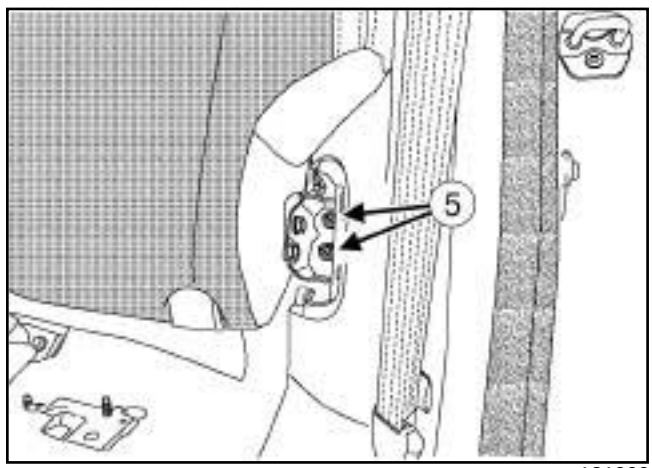



131998

❏ Tilt the rear seat base (**4**) .

❏ Remove:

- the rear seat base upper bolts (**3**) ,
- the rear seat base (**4**) .




131999

❏ Remove:

- the side hinge cover,
- the seatback nuts (**5**) ,
- the rear centre seat belt lower bolt.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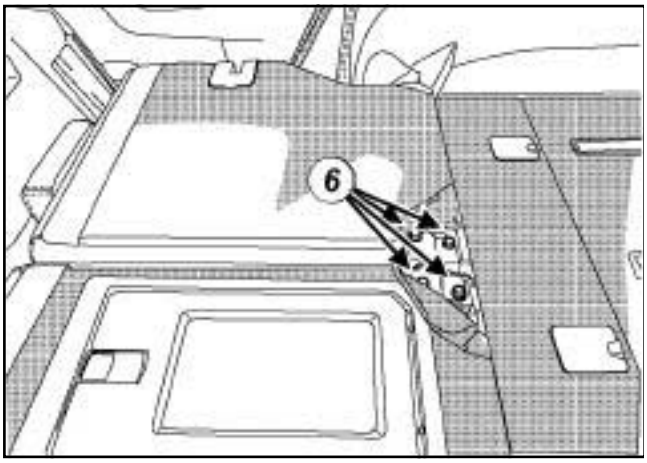

132000

❏ Remove:

- the seatback bolts (**6**) ,
- the seatback.

Note:

If the vehicle is equipped with the Easy Break system, partially remove the carpet in order to disconnect the cable from the control unit.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Fit the seatback.

❏ Refit:

- the seatback bolts,
- the seatback nuts,
- the rear centre seat belt lower bolt.

❏ Torque tighten:

- the **seatback bolts (25 N.m)**,
- the **seatback nuts (25 N.m)**,
- the **lower bolt of the rear central seat belt (49 N.m)**.

❏ Refit:

- the side hinge cover,
- the seat base,
- the rear seat base upper bolts,
- the rear seat base lower bolts.

Note:

If the vehicle is equipped with the Easy Break system, reconnect the control unit cable.

❏ Torque tighten:

- the **upper bolts of the rear seat base (28 N.m)**,
- the **lower bolts of the rear seat base (28 N.m)**.

❏ Refit the rear seat base hinge cover.

Note:

If the vehicle is equipped with the Easy Break system, check that the system is operating correctly.


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| Tightening torques ▽ | |
|---|---|
| rear bench seatback unlocking mechanism bolts | 20 N.m |

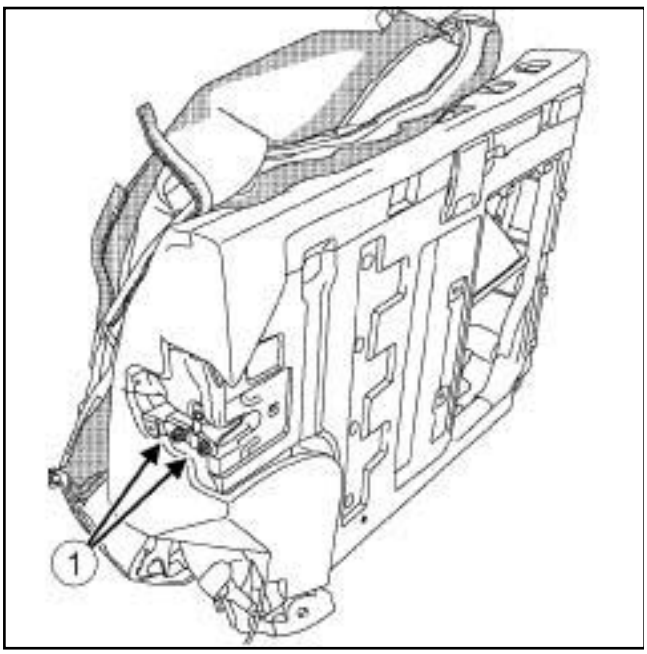
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the headrest,
- the rear centre armrest (see **79A**, **Seat components**, **Rear centre arm rest: Removal - Refitting**, page **79A-5**) ,
- the rear bench seatback (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) ,
- the rear bench seatback trim (see **78A**, **Rear seat trim**, **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**, page **78A-3**) .

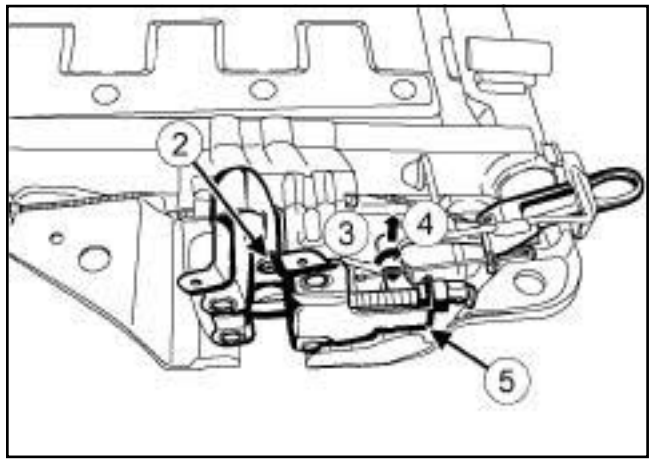
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131927

❏ Remove:

- the bolts (**1**) ,
- the foam-cover assembly, partially.

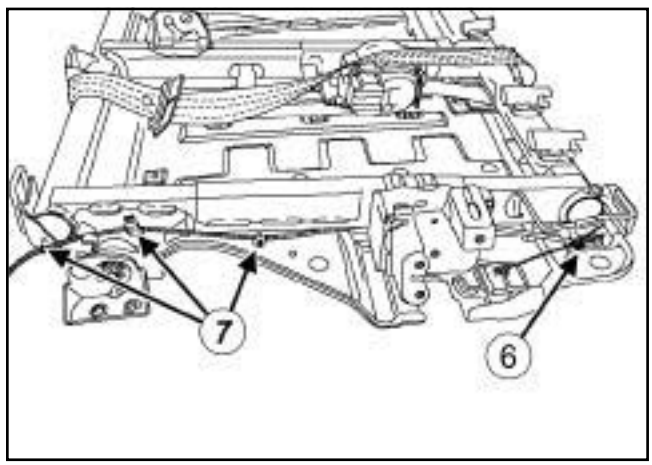



131928

❏ Remove the rear bench seatback unlocking mechanism bolt (**2**) .

❏ Unclip the cable hook at (**3**) and (**4**) .

❏ Remove the rear bench seatback unlocking mechanism (**5**) .




131929

❏ Unclip the cable at (**6**) .

❏ Remove:

- the clips (**7**) ,
- the rear bench seatback unlocking cable.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the clips,
- the rear bench seatback unlocking cable,
- the rear bench seatback unlocking mechanism,
- the cable hook,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- the rear bench seatback unlocking mechanism bolts ***(2)*** .

❏ Torque tighten the **rear bench seatback unlocking mechanism bolts (20 N.m)**.

❏ Refit:

- the foam-cover assembly,
- the bolts ***(1)*** .

**II - FINAL OPERATION.**

❏ Refit:

- the rear bench seatback trim (see **78A**, **Rear seat trim**, **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**, page **78A-3**) ,
- the rear bench seatback (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) ,
- the rear centre armrest (see **79A**, **Seat components**, **Rear centre arm rest: Removal - Refitting**, page **79A-5**) ,
- the head rest.


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| Tightening torques ▽ | |
|---|---|
| bolts of the rear bench seatback striker panel | **40 N.m** |
| relay nuts | **25 N.m** |

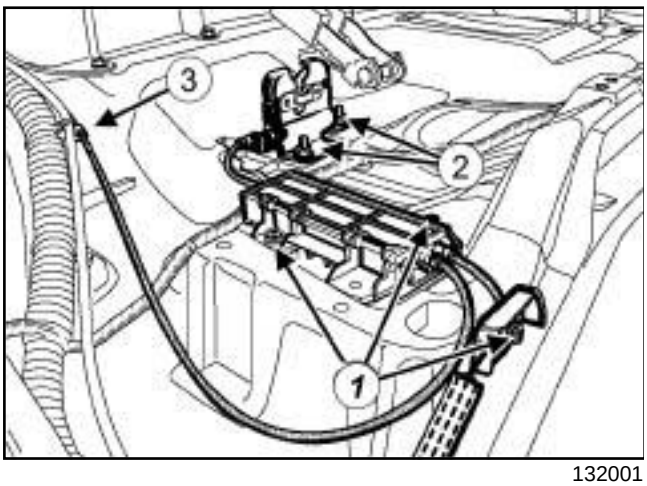
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the rear bench seatback (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) ,
- the luggage compartment floor lining (see **71A**, **Body internal trim**, **Luggage compartment floor lining: Removal - Refitting**, page **71A-17**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the rear end panel lining (see **71A**, **Body internal trim**, **Rear end panel lining: Removal - Refitting**, page **71A-16**) ,
- the rear floor carpet.

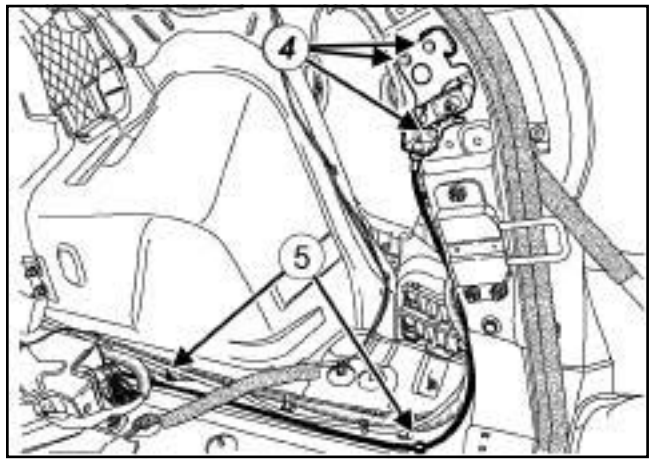
### II - OPERATION FOR REMOVAL OF PART CONCERNED



132001

❑ Remove:

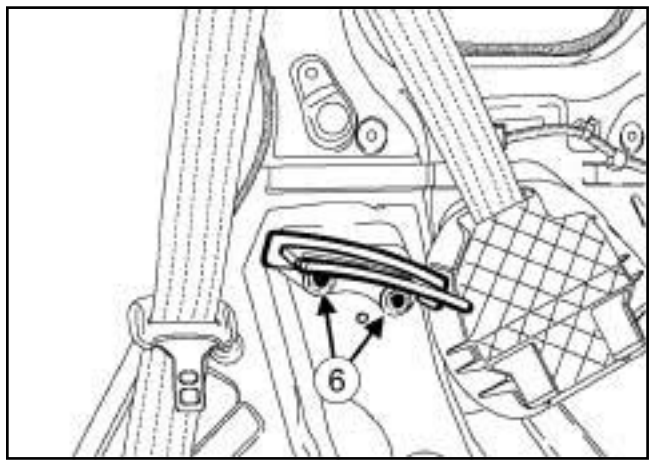
- the bolts (**1**) ,
- the relay nuts (**2**) ,
- the clip (**3**) ,
- the relay unit and the handle,
- the cable.



132002

❑ Remove

- the bolts (**4**) ,
- the clips (**5**) ,
- the lever unit,
- the cable.



132003

❑ Remove:

- the bolts (**6**) of the rear bench seatback striker panel,
- the rear bench seatback striker panel.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear bench seatback striker panel,
- the bolts of the rear bench seatback striker panel.

❑ Torque tighten the **bolts of the rear bench seatback striker panel (40 N.m)**.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❏ Refit:

- the cable,
- the lever unit,
- the clips ***(5)*** ,
- the bolts ***(4)*** ,
- the cable,
- the relay unit and the handle,
- the clips ***(3)*** ,
- the bolts (**1**) ,
- the relay nuts (**2**) .

❏ Torque tighten the **relay nuts (25 N.m)**.

**II - FINAL OPERATION.**

❏ Refit:

- the rear floor carpet,
- the rear end panel lining (see **71A**, **Body internal trim**, **Rear end panel lining: Removal - Refitting**, page **71A-16**) ,
- the C-pillar lower trim (see **71A**, **Body internal trim**, **C-pillar lower trim: Removal - Refitting**, page **71A-9**) ,
- the luggage compartment floor lining (see **71A**, **Body internal trim**, **Luggage compartment floor lining: Removal - Refitting**, page **71A-17**) ,
- the rear bench seatback (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) ,


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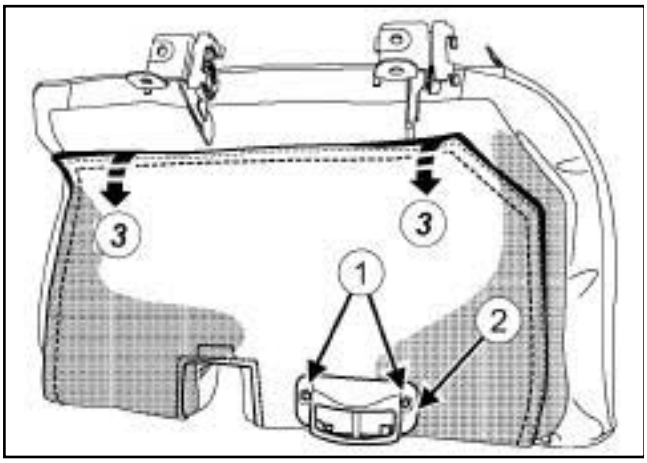
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the 1/3 and 2/3 rear bench seat base (see **1/3 and 2/3 rear bench seat:Removal - Refitting**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

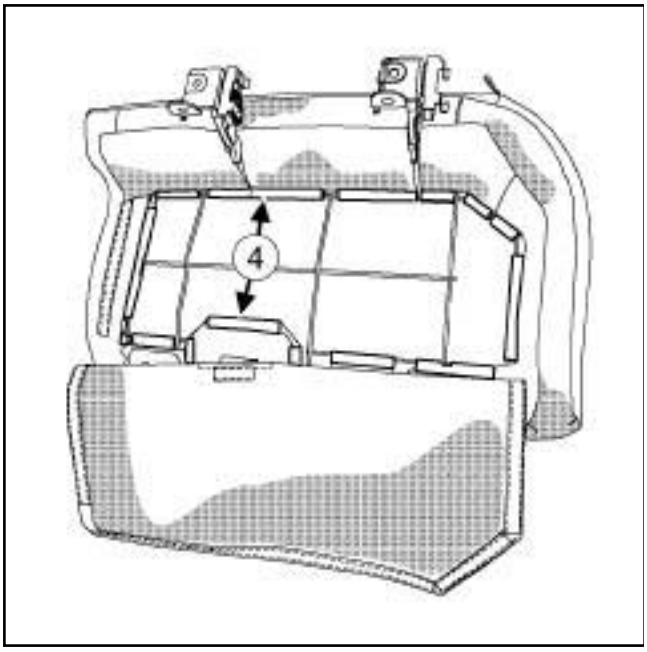



132005

❏ Remove:

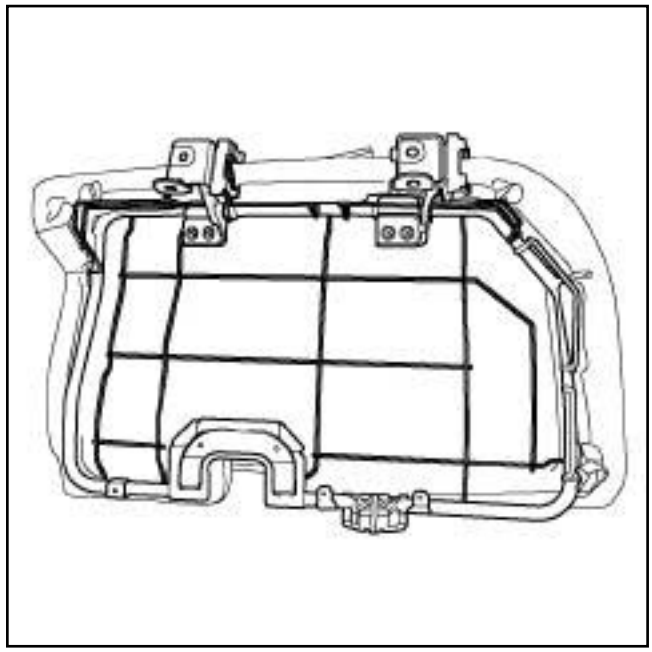
- the bolts (**1**) ,
- the rear bench seat lock trim (**2**) .

❏ Uncover the seat base trim at (**3**) .



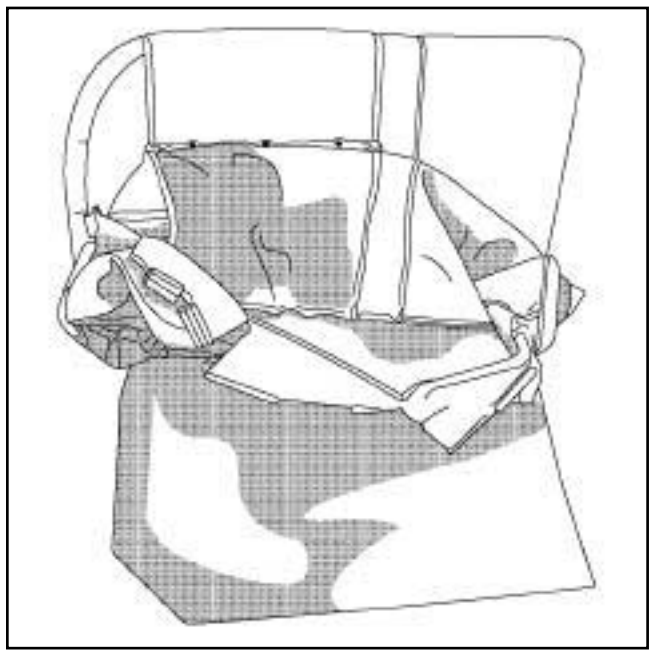

132006

❏ Unclip the trims at (**4**) .



132007

❏ Remove the trim and foam from the seat base.



132008

❏ Cut the seat base trim retaining clips.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the seat base trim on the foam.

❏ Check that the trim is correctly positioned on the foam.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❏ Refit:

- the foam - trim assembly on the seat base frame,
- the clips ***(4)*** .

❏ Cover the seat base trim.

❏ Refit:

- the rear bench seat lock trim,
- the bolts.

**II - FINAL OPERATION.**

❏ Refit the 1/3 and 2/3 rear bench seat base (see **1/3 and 2/3 rear bench seat:Removal - Refitting**) .


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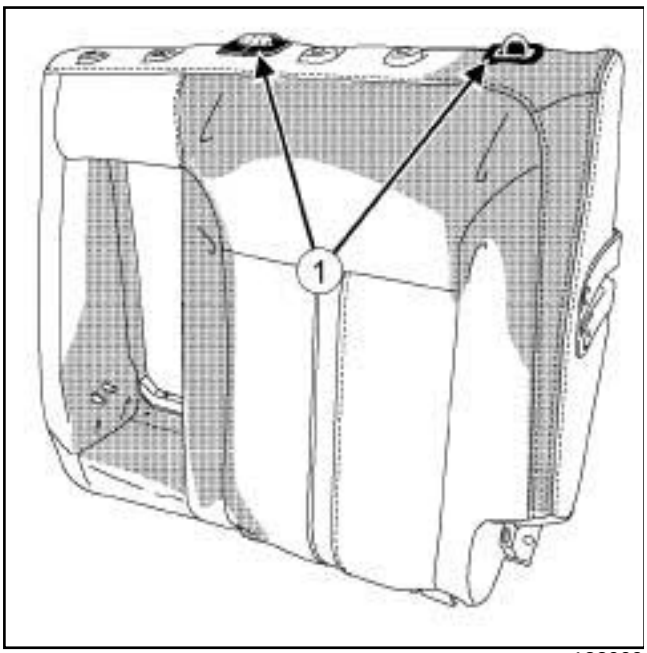
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

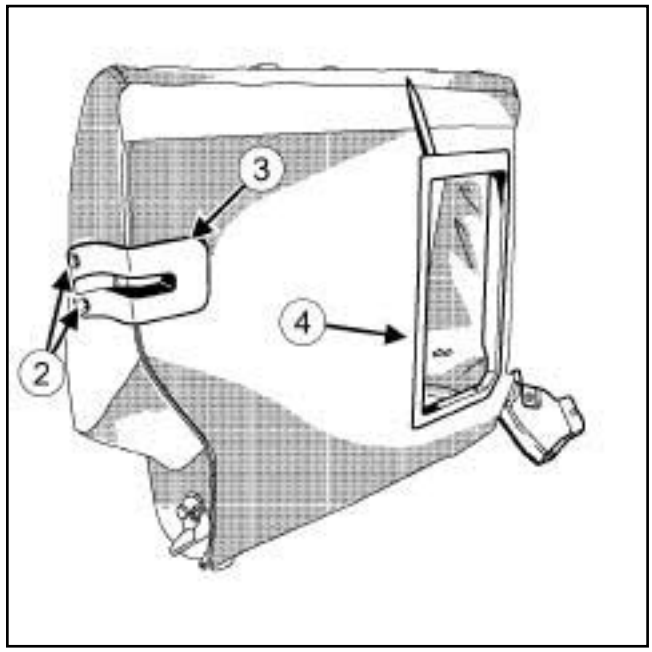
- the headrest,
- the rear centre armrest (see **79A**, **Seat components**, **Rear centre arm rest: Removal - Refitting**, page **79A-5**) ,
- the 1/3 and 2/3 rear bench seatback (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132009

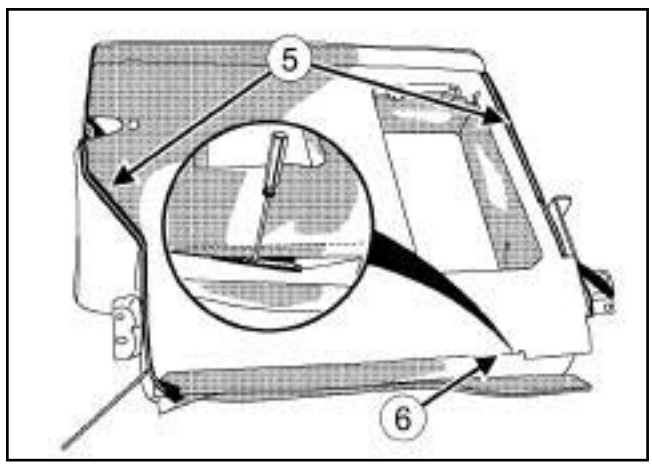
❑ Remove the trim at (**1**) .




132010

❑ Remove:

- the bolts (**2**) ,
- the rear bench seat lock trim (**3**) ,
- the armrest trim (**4**) ,
- the bolt.




132011

❑ Open the zip fasteners (**5**) .

❑ Unclip the lower cover at (**6**) .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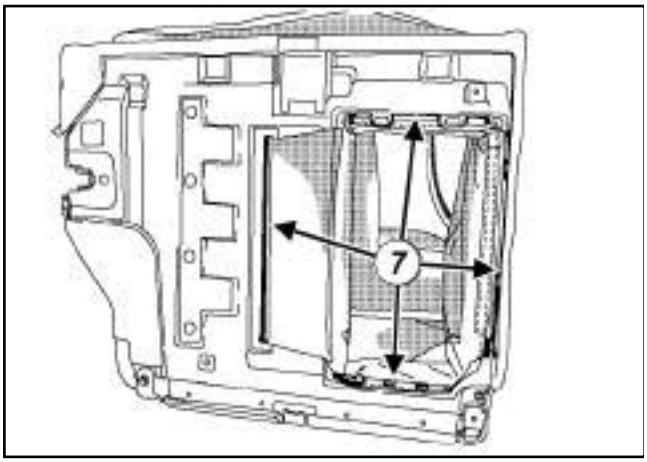
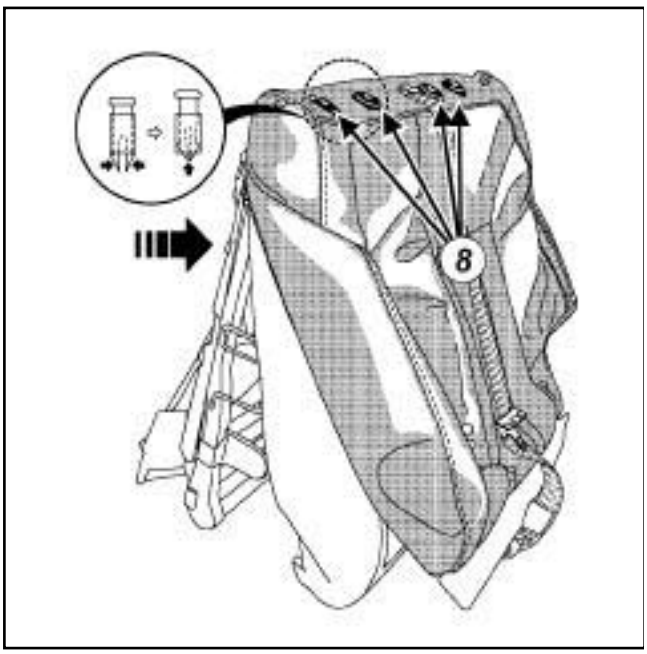



132012

❏ Remove the cover at (**7**) .




132013

❏ Remove:

- the cover partially to access the headrest guides,
- the headrest guides (**8**) .

❏ Cut the seatback trim retaining clips.

❏ Remove the 1/3 and 2/3 rear bench seatback trim.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the 1/3 and 2/3 rear bench seatback trim,
- clip the seatback trim onto the foam.

❏ Check that the trim is correctly positioned on the foam.

❏ Refit:

- the headrest guides,
- the cover,
- the cover ***(7)*** ,
- the lower cover ***(6)***

❏ Close the zip fasteners.

❏ Refit:

- the bolt,
- the armrest trim,
- the rear bench seat lock trim,
- the bolts ***(2)*** ,
- the trim ***(1)*** .

### II - FINAL OPERATION.

❏ Refit:

- the 1/3 and 2/3 rear bench seatbacks (see **76A**, **Rear seat frames and runners**, **Complete rear seat: Removal - Refitting**, page **76A-1**) ,
- the rear centre armrest (see **79A**, **Seat components**, **Rear centre arm rest: Removal - Refitting**, page **79A-5**) ,
- the head rest.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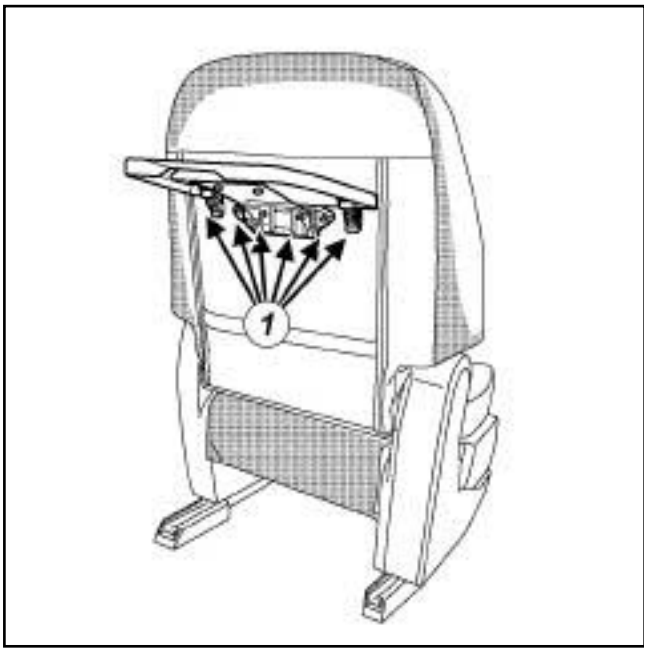
FRONT SEAT TYPE 02

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




131926

❏ Remove:

- the nuts (**1**) ,
- the seatback table.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the seatback table,
- the nuts (**1**) .



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**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

## REMOVAL

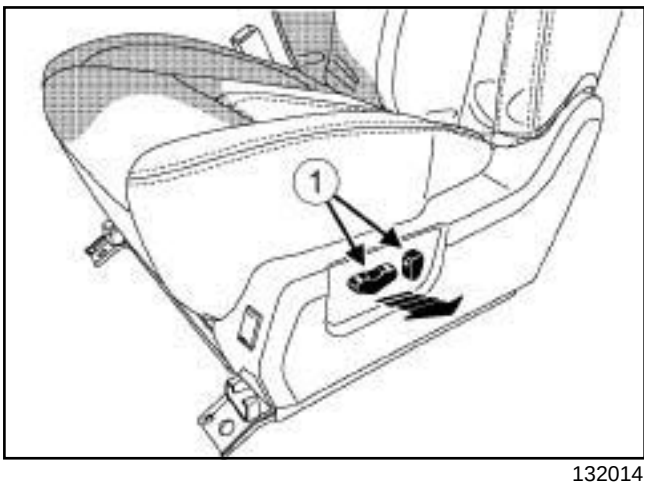
### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

❏ Remove:

- the compete front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) ,
- the seatback table (see **79A**, **Seat components**, **Seatback tray: Removal - Refitting**, page **79A-1**) ,
- the front seat belt buckle stalk (see **Front seat belt buckle: Removal - Refitting**) (88C, Airbag and pretensioners),
- the head rest.

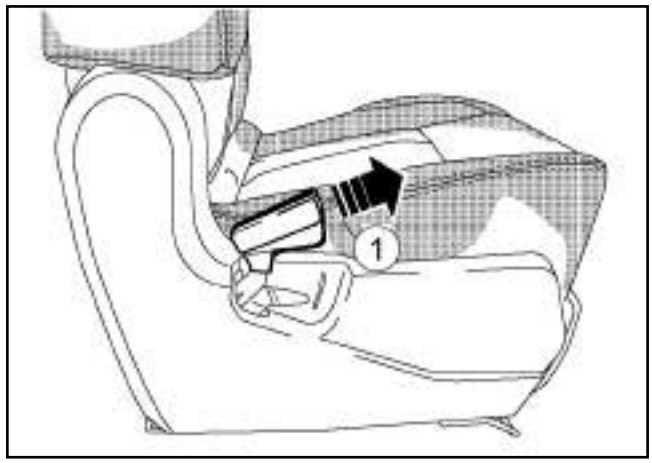
### II - OPERATION FOR REMOVAL OF PART CONCERNED




132014

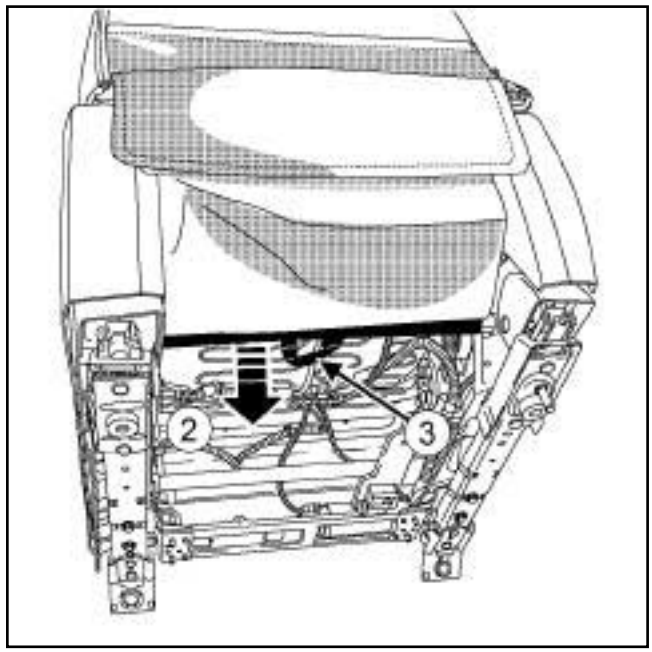
❏ Remove the seat slide and the height adjuster switch (**1**) .

FRONT SEAT TYPE 01




132015

❏ Remove the height adjuster lever (**1**) .




132016

❏ Unclip the seat trim (**2**) .

❏ Remove the retaining strip (**3**) .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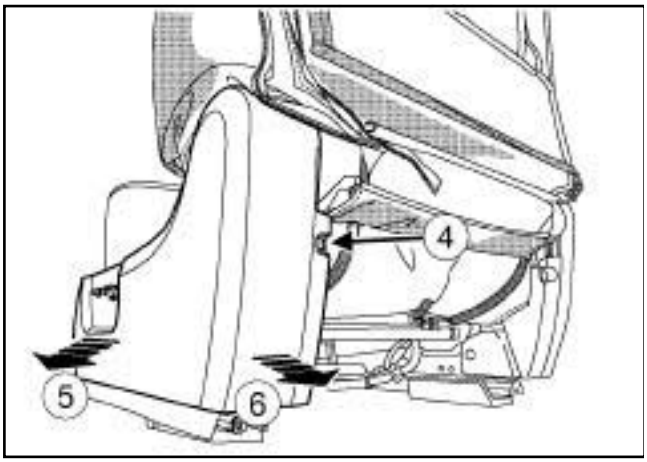
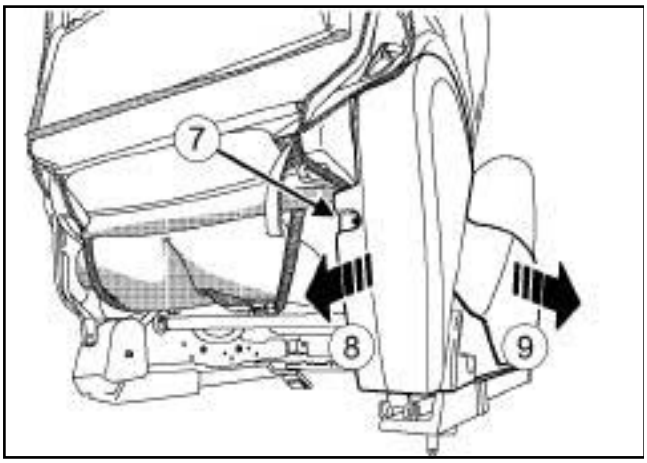


132017

❏ Remove the bolt (**4**) .

❏ Unclip the trim at (**5**) and (**6**) .

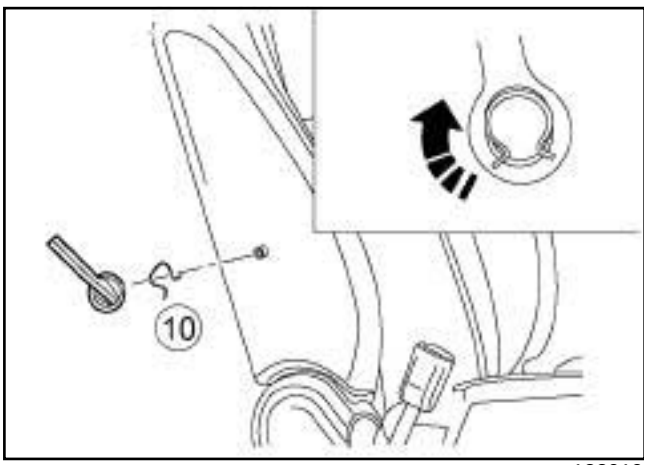
❏ Disconnect the connector.



132018

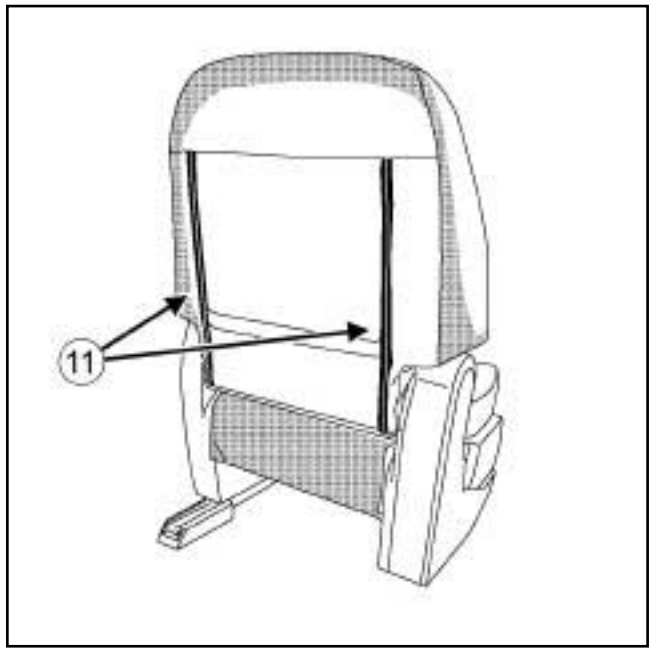
❏ Remove the bolt (**7**) .

❏ Unclip the trim at (**8**) and (**9**) .



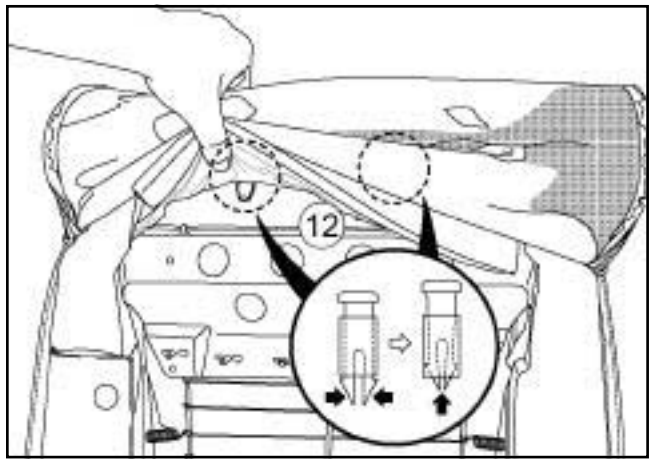
132019

❏ Remove the lumbar adjustment lever knob (**10**) .



132020

❏ Open the zip fasteners (**11**) .



132021

❏ Extract the headrest guides (**12**) from the support.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the headrest guides on the support.

❏ Close the zip fasteners.

❏ Refit:

- the lumbar adjustment lever knob,
- the trim ,
- the bolt ***(7)*** ,
- the connector,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- the trim ,
- the bolt ***(4)*** ,
- the retaining strip,
- the seat trim ***(2)*** .

FRONT SEAT TYPE 01

❏ Refit the height adjustment lever.

❏ Refit the seat slide and the height adjuster switch.

**II - FINAL OPERATION.**

❏ Refit:

- the headrest,
- the front seat belt buckle stalk (see **Front seat belt buckle: Removal - Refitting**) (88C, Airbag and pretensioners),
- the seatback table (see **79A**, **Seat components**, **Seatback tray: Removal - Refitting**, page **79A-1**) ,
- the entire front seat (see **75A**, **Front seat frames and runners**, **Complete front seat: Removal - Refitting**, page **75A-6**) .

❏ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).


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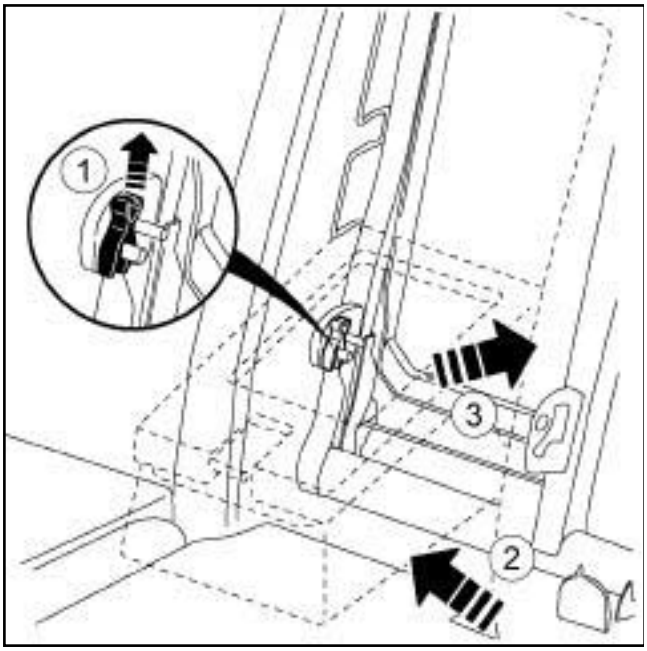
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




131924

❏ Remove:

- the rear central armrest clip (**1**) ,
- the rear central armrest at (**2**) and (**3**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear central armrest,
- the rear central armrest clip.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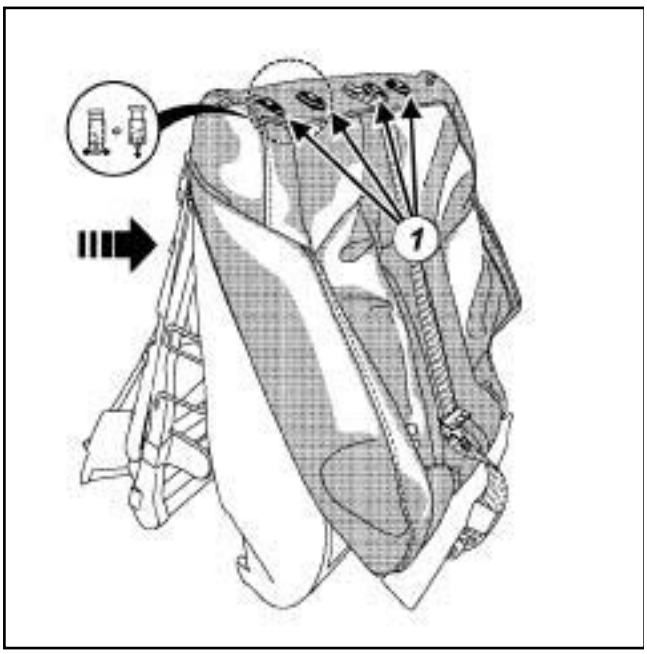
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the headrest,
- the rear bench seatback trim, partially (see **78A**, **Rear seat trim**, **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**, page **78A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




131925

❏ Extract the headrest guides (**1**) from the support.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the new headrest guides on the support.

### II - FINAL OPERATION.

❏ Refit:

- the rear bench seatback trim (see **78A**, **Rear seat trim**, **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**, page **78A-3**) ,
- the head rest.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RENAULT

# 8 Electrical equipment


80A BATTERY

80B HEADLIGHTS

80C XENON BULBS

81A REAR LIGHTING

81B INTERIOR LIGHTING

81C FUSES

82A ENGINE IMMOBILISER

82B HORN

82C ALARM

83A INSTRUMENT PANEL

83C ON-BOARD TELEMATICS SYSTEM



*X45*

**FEBRUARY 2008** **Edition Anglaise**



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The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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83D CRUISE CONTROL

84A CONTROL - SIGNALS

85A WIPING - WASHING

86A RADIO

87B PASSENGER COMPARTMENT CONNECTION UNIT

87C OPENING ELEMENT MANAGEMENT

87D ELECTRIC WINDOWS - SUNROOF

87F PARKING DISTANCE CONTROL

87G ENGINE COMPARTMENT CONNECTION UNIT

88A WIRING HARNESS

88C AIR BAG AND PRETENSIONERS

88D DRIVER'S POSITION

*X45*

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# Battery: Precautions for repair

## I - SAFETY

**IMPORTANT**

A battery contains sulphuric acid, a dangerous substance.

If acid splashes on to your clothing, rinse all contaminated areas thoroughly in water.

If it comes into contact with the skin or eyes, seek medical attention.

### 1 - DANGER: RISK OF ACID WHEN HANDLING AND WHEN MOUNTING IS INCORRECTLY TIGHTENED

Sulphuric acid is a highly aggressive and toxic substance which corrodes most metals.

When handling batteries, it is very important to take the following precautions:

- protect your eyes by wearing goggles,

- wear acid-proof gloves and clothing.

### 2 - DANGER: RISK OF EXPLOSION LINKED TO CHARGING AND TO INCORRECT TIGHTENING OF THE TERMINALS

**IMPORTANT**

To prevent damaging the battery or even causing it to explode, do not place any heat sources or create any sparks near a charging battery.

**WARNING**

Poor contact may cause starting or charging faults, create sparks and cause the battery to explode.

When a battery is charging, oxygen and hydrogen are produced. Gas formation is at its maximum when the battery is completely charged. The quantity of gas produced is proportional to the intensity of the charging current.

The oxygen and hydrogen mix in the free space on the surface of the plates which forms an explosive mixture.

This mixture is highly explosive.

The smallest of sparks or heat sources can cause an explosion. The explosion is so strong that the battery can shatter and spray the acid into the surrounding atmosphere.

People nearby are at risk (exploded fragments, acid splashes). Acid splashes are dangerous. They also damage clothing.

Safeguarding against the danger of explosion, which can be caused by handling a battery carelessly, must be taken very seriously.

**IMPORTANT**

To avoid all risk of sparks, ensure that all electrical consumers are fully switched off.

When a battery is being charged inside a building, switch off the charger before connecting or disconnecting the battery.

Do not place any metallic items on the battery as this may create a short circuit across the terminals.

Never hold a naked flame, welding gun, blowtorch, cigarette or lighted match near to a battery.

## II - CLEANLINESS

Check that there is no salt leakage (sulphation) on the battery terminals.

Clean the battery terminals if salt has accumulated (see **80A**, **Battery**, **Battery: Removal - Refitting**, page **80A-3**) .

## III - GENERAL RECOMMENDATIONS

**WARNING**

These vehicles are equipped with a battery with low water consumption. Topping up the electrolyte is therefore prohibited.

**WARNING**

Before disconnecting the battery:

- wait for the motor-driven fan assembly to stop,

- wait for the computer to finish saving (**1 minute**).

**WARNING**

Some vehicles are only fitted with « TB » (low height) batteries. To avoid damaging the bonnet, only refit a battery which is identical to the battery originally fitted.

When refitting the battery or every time it has been disconnected, carry out some reprogramming without the diagnostic tool, so that the vehicle operates correctly (see **80A**, **Battery**, **Battery: Removal - Refitting**, page **80A-3**) .


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| Tightening torques ▽ | |
|---|---|
| battery mounting nuts | **5 N.m** |
| positive battery terminal nut | **6 N.m** |
| negative battery terminal nut | **6 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **80A**, **Battery**, **Battery: Precautions for repair**, page **80A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Switch off the ignition.

**WARNING**

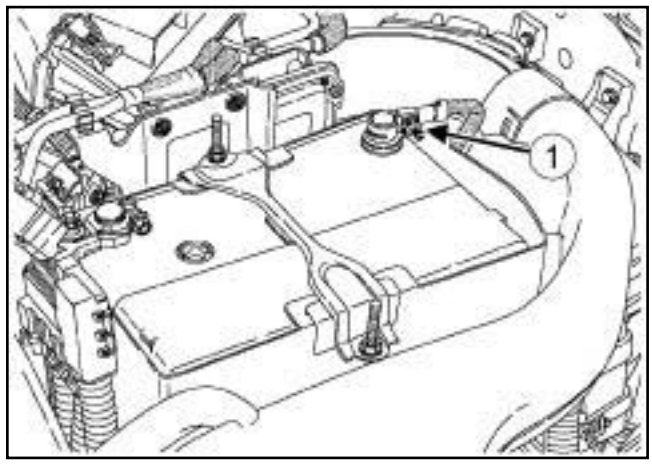
Before disconnecting the battery:

- wait for the motor-driven fan assembly to stop,
- wait for the computer to finish saving (**1 minute**).

**WARNING**
The visual indicator cannot be considered reliable in After-Sales; do not use it to determine the state of the battery.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

### 1 - DISCONNECTION

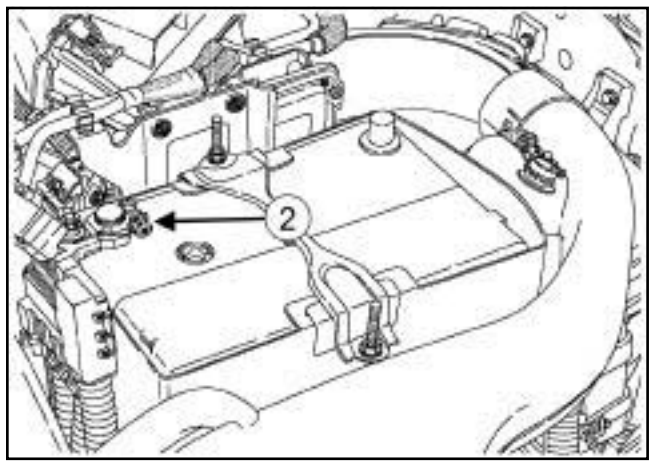


130833

❏ Undo the negative battery terminal nut (**1**) .

❏ Disconnect the negative wiring from the negative battery terminal.

### 2 - REMOVAL



130834

❏ Undo the positive battery terminal nut (**2**) .

❏ Disconnect the positive wiring from the positive battery terminal.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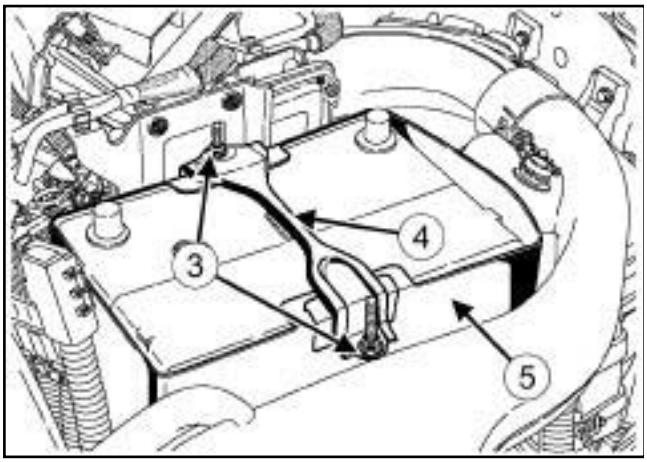

130835

❏ Loosen the battery mounting nuts (**3**) .

❏ Remove:

- the battery mounting ***(4)*** ,
- the battery cover ***(5)*** ,
- the battery,
- the battery lower cover.

❏ In the event of a replacement operation, perform the necessary checks (see **Checking the charge circuit: Tests**) (Technical Note 6014A, 16A, Starting and charging).

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the battery (see **Battery: Check**) (Technical Note 6002A, 80A, Battery).

### II - REFITTING OPERATION FOR PART CONCERNED

#### 1 - REFITTING

❏ Fit the battery lower cover.

❏ Refit:

- the battery,
- the battery cover,
- the battery mounting.

❏ Torque tighten the **battery mounting nuts (5 N.m)**.

❏ Push the positive battery wiring fully onto the positive battery terminal.

**WARNING**

Incorrect tightening could cause heating of contacts, starting or charging faults, sparking, or could cause the battery to explode (see **80A**, **Battery**, **Battery: Precautions for repair**, page **80A-1**) .

❏ Torque tighten the **positive battery terminal nut (6 N.m)**.

#### 2 - CONNECTION

❏ Push the negative battery wiring fully onto the negative battery terminal.

**WARNING**

Incorrect tightening could cause heating of contacts, starting or charging faults, sparking, or could cause the battery to explode (see **80A**, **Battery**, **Battery: Precautions for repair**, page **80A-1**) .

❏ Torque tighten the **negative battery terminal nut (6 N.m)**.

### III - FINAL OPERATION

❏

Note:

When refitting the battery and after every time it has been disconnected for longer than **3 seconds**, it may be necessary to carry out some operations without the diagnostic tool, so that the vehicle operates correctly.

❏ If the battery is disconnected for more than 10 seconds, reinitialise the electric windows: raise all the windows to their upper stop and keep the raise button pressed in this position for at least **3 seconds**.

❏ If the battery is disconnected for more than 5 seconds: reinitialise the rain and light sensor: perform key ON, key OFF.


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M9R

| Tightening torques ▽ | |
|---|---|
| battery tray bolts | **10 N.m** |

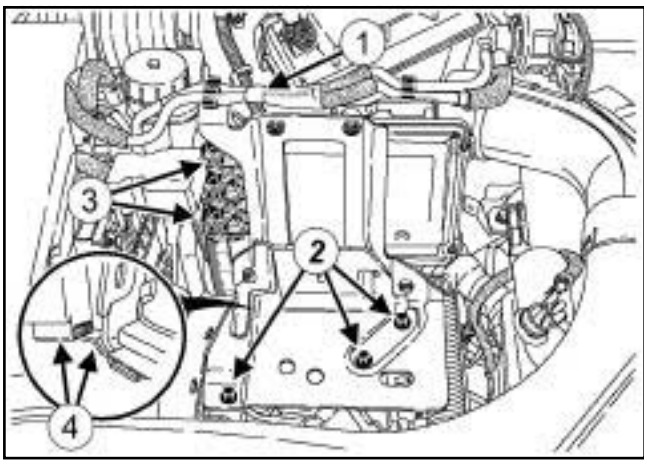
**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **80A**, **Battery**, **Battery: Precautions for repair**, page **80A-1**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130357

❏ Unclip the hose (**1**) from the turbocharging pressure regulator.

❏ Remove the bolts (**2**) from the battery tray.

❏ Disconnect the connectors (**3**) from the diesel injection computer.

❏ Unclip:

- the wiring,
- the wiring bracket (**4**) from the battery tray.

❏ Remove:

- the battery tray - diesel injection computer assembly,
- the diesel injection computer from the battery tray (see **Diesel injection computer: Removal - Refitting**) (13B, Diesel injection).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the diesel injection computer on the battery tray (see **Diesel injection computer: Removal - Refitting**) (13B, Diesel injection),
- the battery tray - diesel injection computer assembly.

❏ Clip:

- the wiring bracket onto the battery tray,
- the wiring.

❏ Connect the diesel injection computer connectors.

❏ Refit the battery tray bolts.

❏ Torque tighten the **battery tray bolts (10 N.m)**.

❏ Clip on the turbocharging pressure regulator hose.

### II - FINAL OPERATION.

❏ Refit the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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# Battery tray: Removal - Refitting

2TR

| Tightening torques ▽ | |
|---|---|
| battery tray bolts | **21 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **80A**, **Battery**, **Battery: Precautions for repair**, page **80A-1**) .

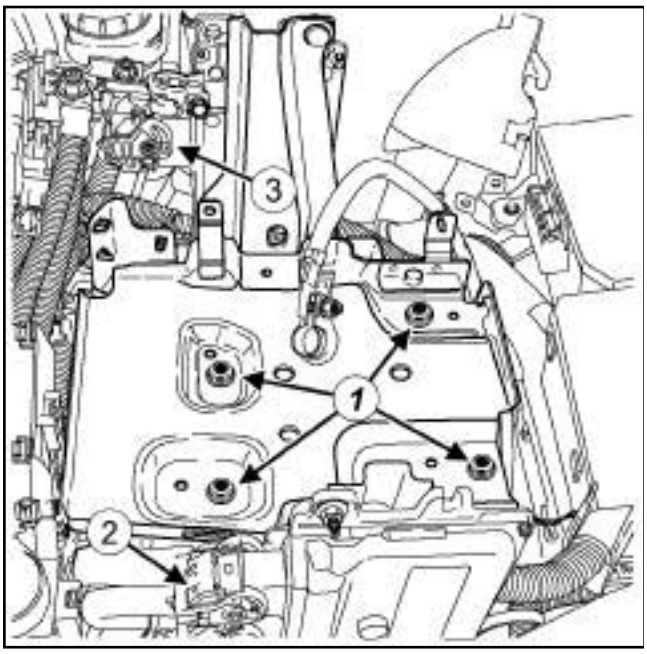
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130358

❏ Remove the bolts (**1**) from the battery tray.

❏ Disconnect:

- the fuel injection computer connectors (**2**) ,
- the gearbox computer connector (**3**) .

❏ Unclip the wiring.

❏ Remove:

- the battery tray - fuel injection computer - gearbox computer assembly,
- the fuel injection computer from the battery tray (see **Petrol injection computer: Removal - Refitting**) (17B, Petrol injection),
- the gearbox computer from the battery tray (see **Automatic transmission computer: Removal - Refitting**) (23A, Automatic gearbox).

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the gearbox computer on the battery tray, (see **Automatic transmission computer: Removal - Refitting**) (23A, Automatic gearbox).
- the fuel injection computer on the battery tray (see **Petrol injection computer: Removal - Refitting**) (17B, Petrol injection),
- the battery tray - fuel injection computer - gearbox computer assembly.

❏ Attach the wiring.

❏ Connect:

- the gearbox computer connector,
- the petrol injection computer connectors.

❏ Refit the battery tray bolts.

❏ Torque tighten the **battery tray bolts (21 N.m)**.

### II - FINAL OPERATION.

❏ Refit:

- the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) ,
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).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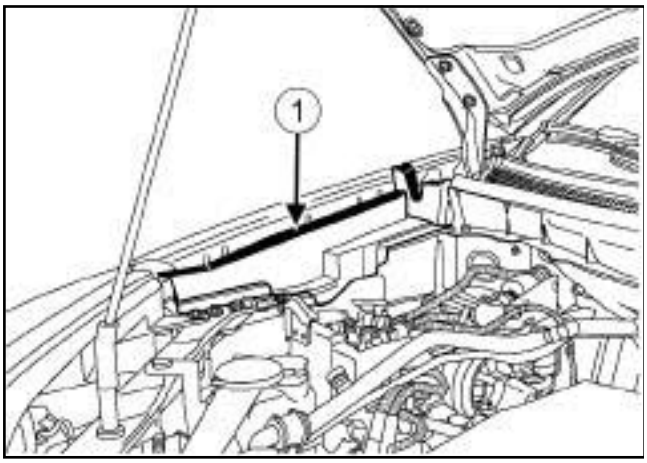
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).




130308

❏ Remove the trim (**1**) .

XENON BULBS

❏

**IMPORTANT**

To prevent eye injuries:

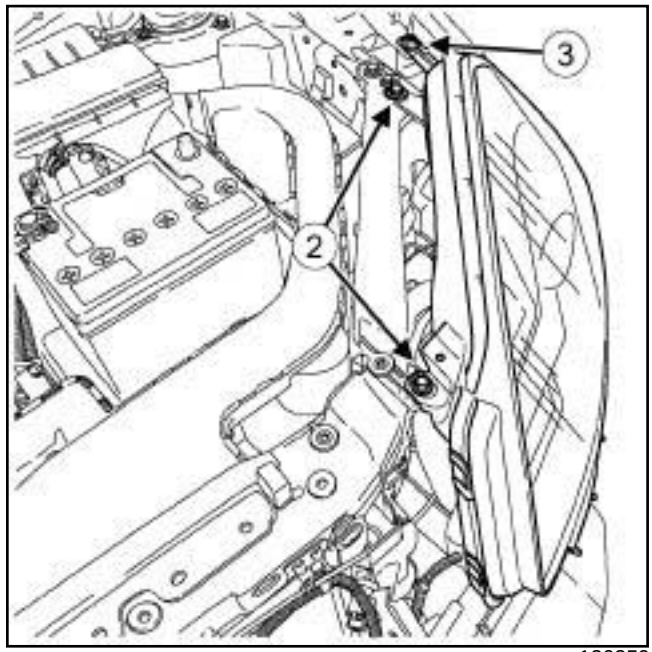
- do not look at a discharge bulb when lit (voltage when lit **20000 V**),
- do not light a bulb which has not been fitted into its headlight.

**IMPORTANT**

To prevent burns, wait until the « computer - power unit » assembly has cooled before removing them.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

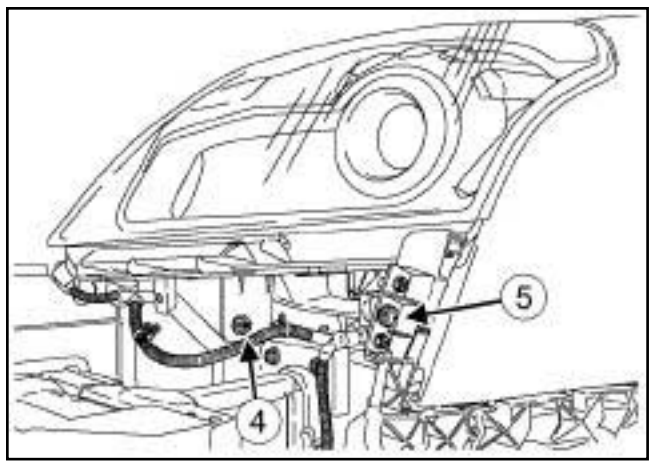
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130359

❏ Remove:

- the headlight upper bolts (**2**) ,
- the clip (**3**) .




130360

❏ Remove:

- the headlight lower bolt (**4**) ,
- the headlight lower nut (**5**) .

❏ Disconnect the headlight connectors.

❏ Remove the headlight.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## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**

To avoid any humidity getting into the headlight, check there are no cracks on the headlight before carrying out the repair.

Replace all cracked headlights.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the headlight connectors.

❑ Refit:

- the headlight,
- the clip,
- the headlight lower nut,
- the headlight lower bolt,
- the headlight upper bolts.

### III - FINAL OPERATION

❑ Refit the front bumper (see **Front bumper: Removal - Refitting**) (MR 416, 55A, Exterior protection).

XENON BULBS

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Adjust the headlight beam (see **80B**, **Headlights**, **Front headlight: Adjusting**, page **80B-3**) .



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WITHOUT XENON BULBS

| Essential equipmentEssential equipment |
| --- |
| headlight adjustment and checking tool |

## ADJUSTMENT

### I - PREPARATION OPERATION FOR CHECK

❏ Position the vehicle on a flat, horizontal work surface, without applying the parking brake.

❏ Check and inflate the tyres (see **Tyre inflation pressure: Identification**) (35A, Wheels and tyres).

❏ Open the bonnet.

❏ Check:

- that the luggage compartment is empty,
- that the headlights are clean.

> Note:
> Do not get into the vehicle during the operation.

❏ Position the headlight beam remote adjustment control to " **0** ".

❏ Switch on the dipped headlights.

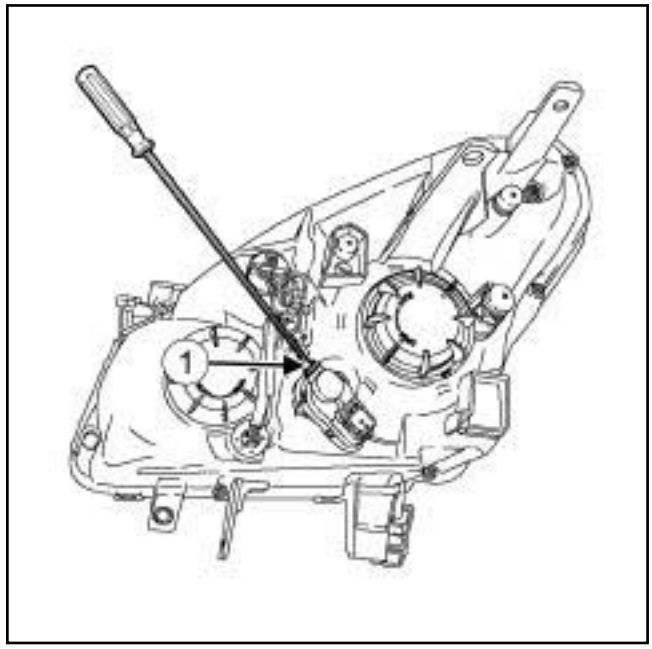
### II - CHECKING OPERATION

❏ Place a tool **headlight adjustment and checking tool** set to **-1.2%** in front of the vehicle (see **Equipment instructions**).

❏ Check the headlight beam adjustment using the tool **headlight adjustment and checking tool** (see **Equipment instructions**).

### III - ADJUSTMENT OPERATION

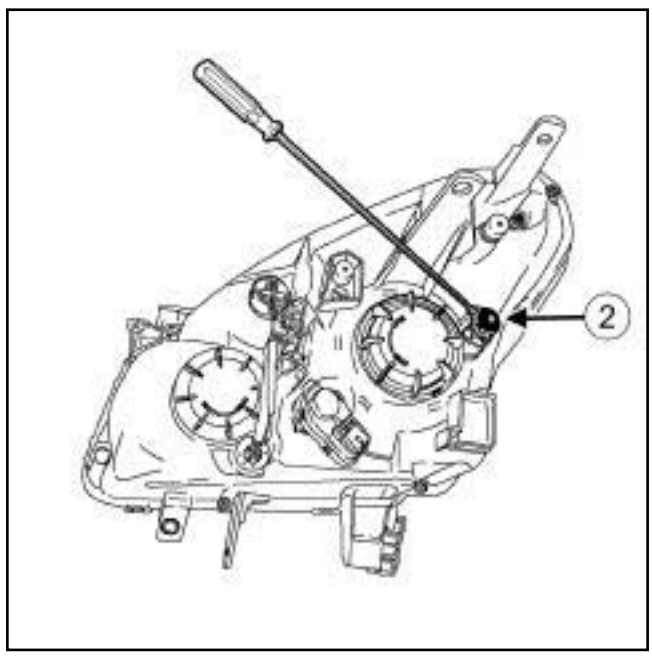
#### 1 - Vertical adjustment




131350

❏ Use the **headlight adjustment and checking tool** to vertically adjust the headlight by turning the bolt (**1**) .

#### 2 - Horizontal adjustment




131351

❏ Use the tool **headlight adjustment and checking tool** to horizontally adjust the headlight by turning the bolt (**2**) .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WITHOUT XENON BULBS

**IV - FINAL OPERATION.**

❑ Close the bonnet.



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XENON BULBS

| Essential equipmentEssential equipment |
| --- |
| headlight adjustment and checking tool |

## ADJUSTMENT

### I - PREPARATION OPERATION FOR CHECK

❏ Put the vehicle on a flat, horizontal work surface, without applying the parking brake.

❏ Check and inflate the tyres (see **Tyre inflation pressure: Identification**) (35A, Wheels and tyres).

❏ Open the bonnet.

❏ Check:

- that the luggage compartment is empty,
- that the headlights are clean.

> Note:
> Do not get into the vehicle during the operation.

❏ Switch on the dipped headlights.

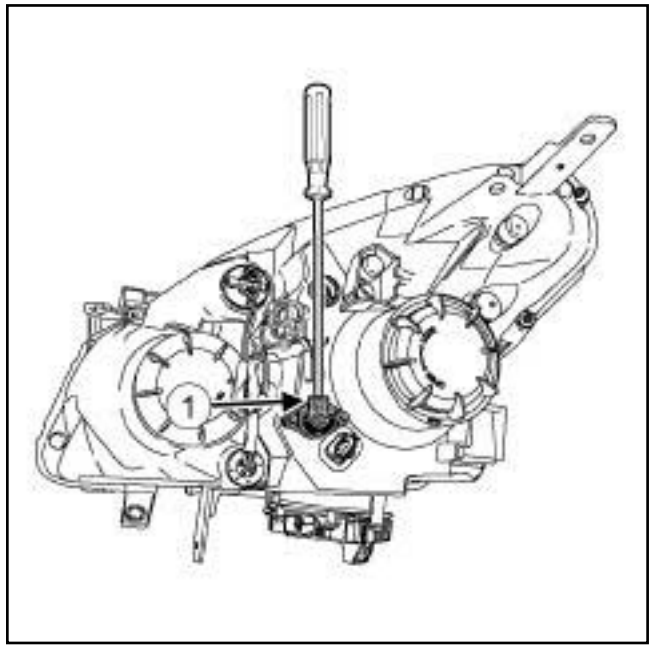
### II - CHECKING OPERATION

❏ Place a tool **headlight adjustment and checking tool** set to **-1.2%** in front of the vehicle (see **Equipment instructions**).

❏ Check the headlight beam adjustment using the tool **headlight adjustment and checking tool** (see **Equipment instructions**).

### III - ADJUSTMENT OPERATION

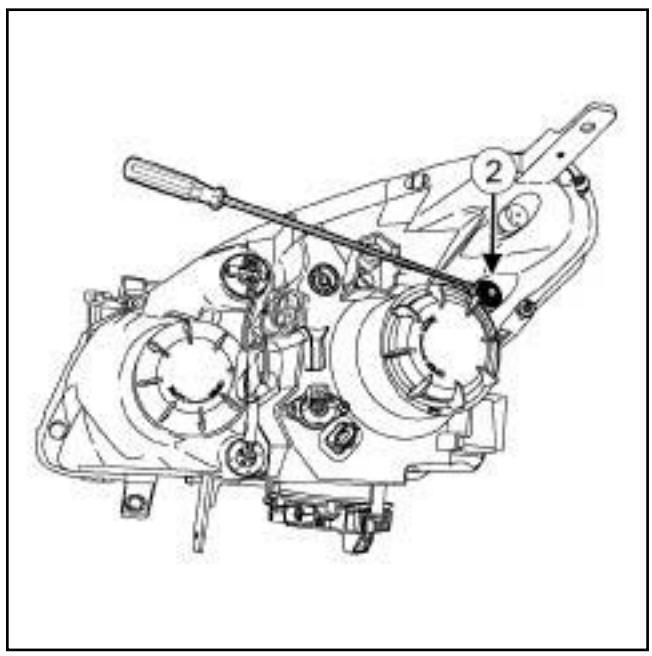
#### 1 - Vertical adjustment




131352

❏ Use the **headlight adjustment and checking tool** to vertically adjust the headlight by turning the bolt (**1**) .

#### 2 - Horizontal adjustment




131353

❏ Use the tool **headlight adjustment and checking tool** to horizontally adjust the headlight by turning the bolt (**2**) .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XENON BULBS

**IV - FINAL OPERATION.**

❑ Close the bonnet.


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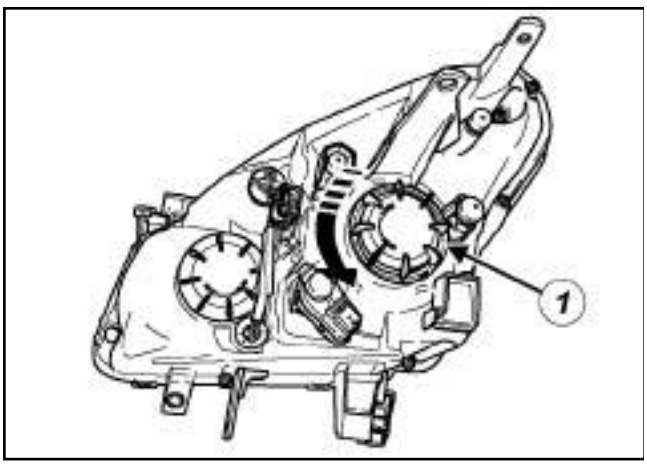
WITHOUT XENON BULBS

## I - LIST OF COMPONENTS

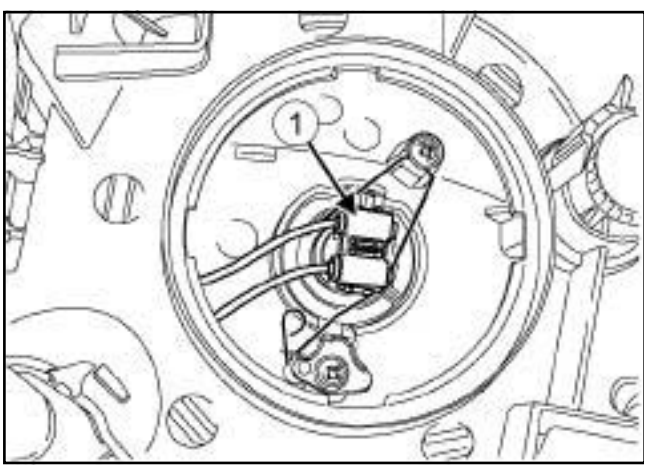
| No. | Description |
|---|---|
| *(1)* | Main beam headlight bulbs |
| *(2)* | Dipped beam headlight bulb |
| *(3)* | Side light bulbs |
| *(4)* | Direction indicator bulb |
| *(5)* | Front fog light |
| *(6)* | Side repeater |
| *(7)* | Vertical adjusting bolt |
| *(8)* | Horizontal adjusting bolt |

## II - LOCATION OF COMPONENTS

### 1 - Main beam headlight bulbs

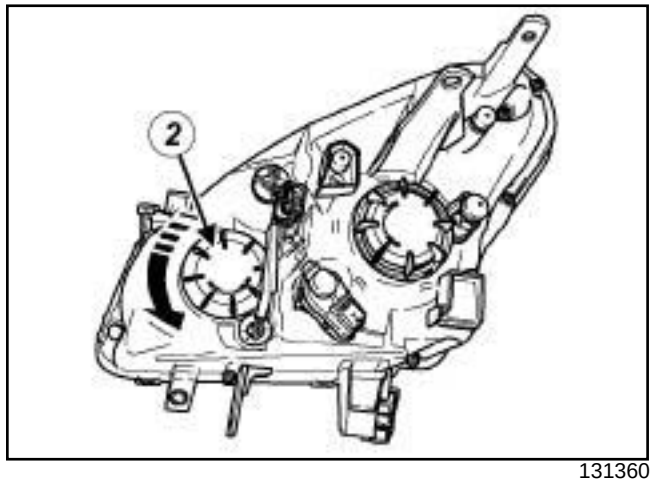



131358

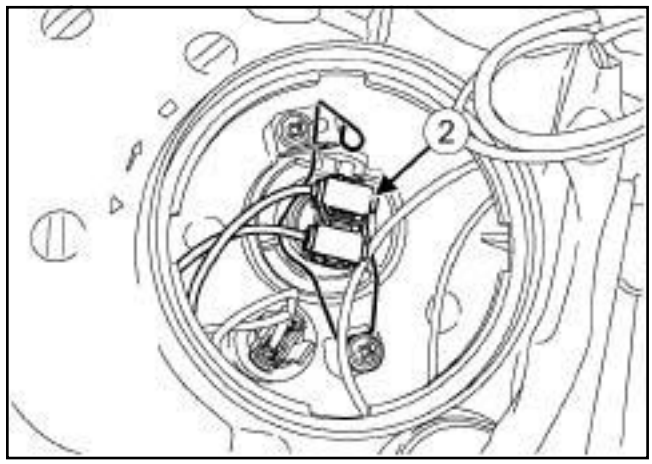



131359

### 2 - Dipped beam headlight bulb

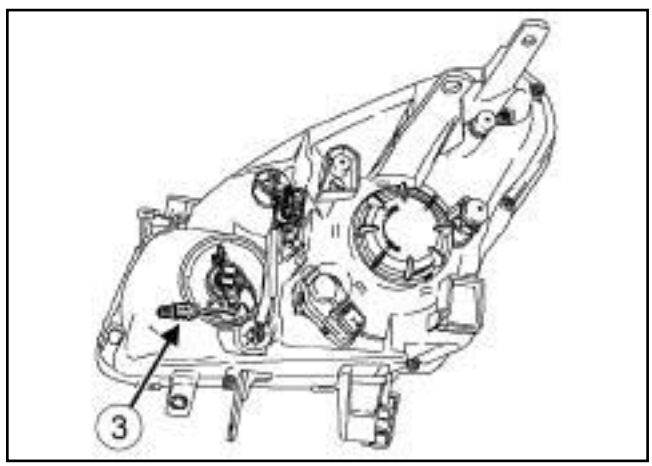



131360




131361

### 3 - Side light bulbs




131357



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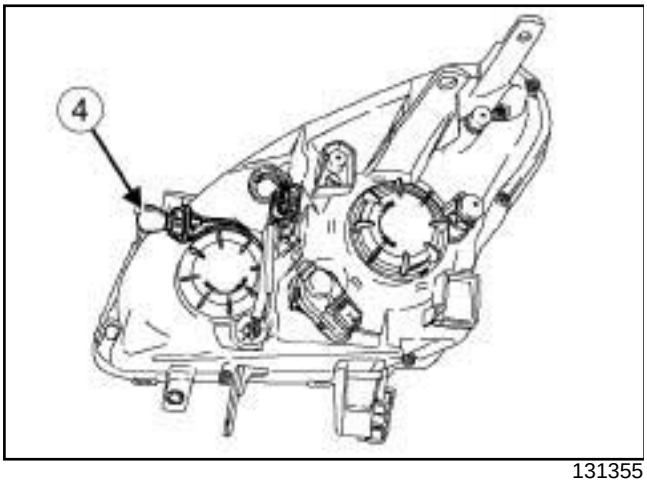
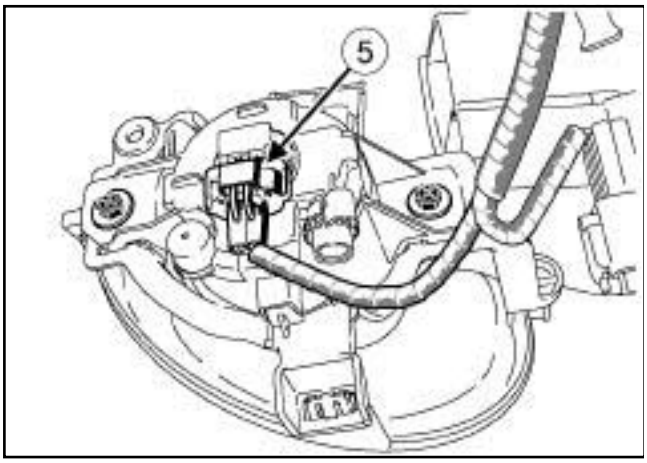
WITHOUT XENON BULBS

**4 - Direction indicator bulb**



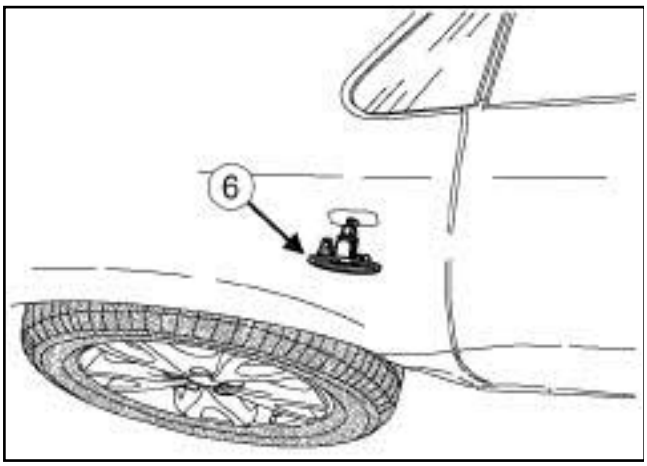

131355

**5 - Front fog light**



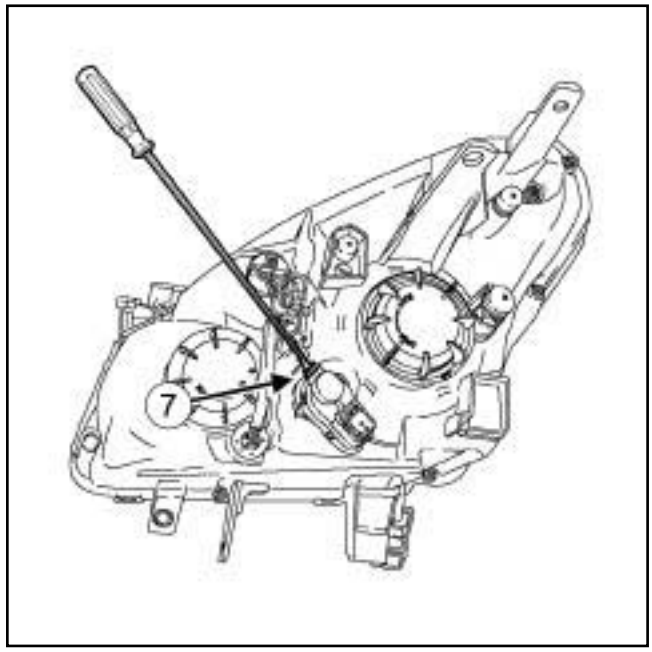

130837

**6 - Side repeater**



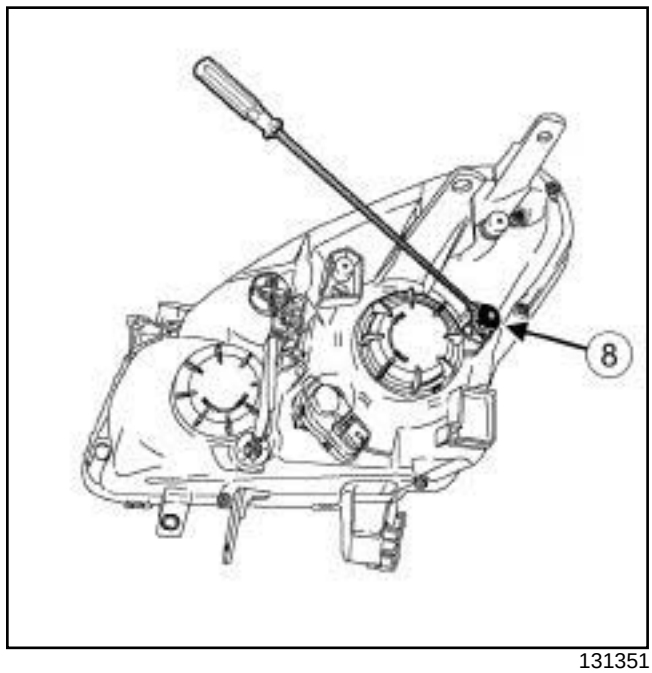

131732

**7 - Vertical adjusting bolt**




131350

**8 - Horizontal adjusting bolt**




131351



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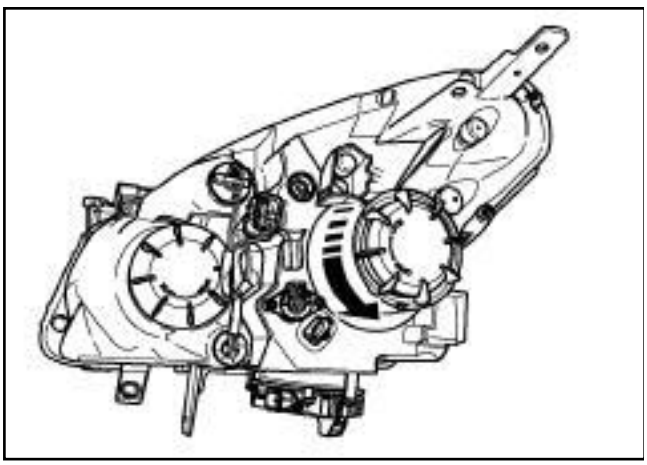
XENON BULBS

## I - LIST OF COMPONENTS

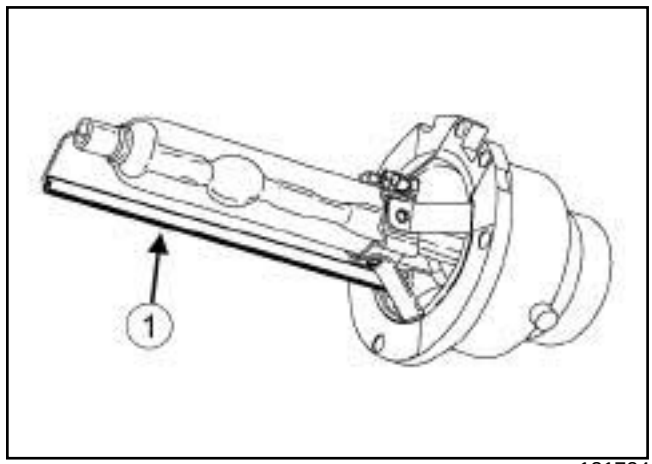
| No. | Description |
|---|---|
| *(1)* | Discharge bulb |
| *(2)* | Cornering light bulb |
| *(3)* | Side light bulbs |
| *(4)* | Direction indicator bulb |
| *(5)* | High voltage unit |
| *(6)* | Cornering lights computer |
| *(7)* | Headlight adjustment rear sensor |
| *(8)* | Side repeater |
| *(9)* | Vertical adjusting bolt |
| *(10)* | Horizontal adjusting bolt |

## II - LOCATION OF COMPONENTS

### 1 - Discharge bulb

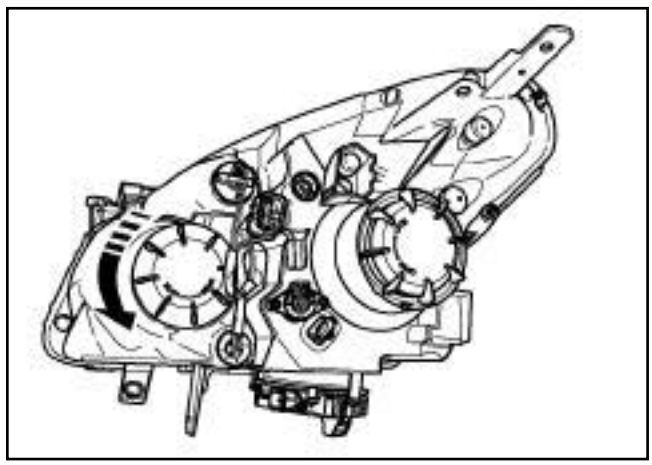


131723

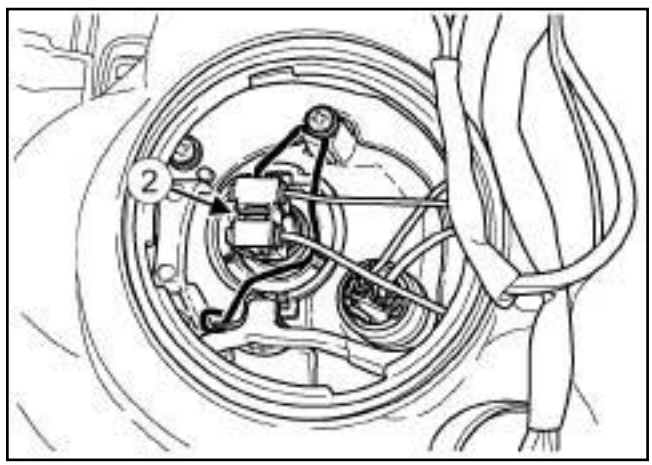



131724

### 2 - Cornering light bulb



131725




131726



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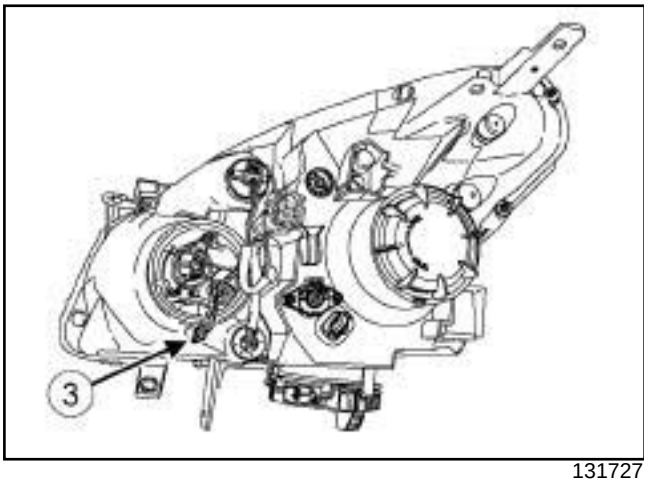
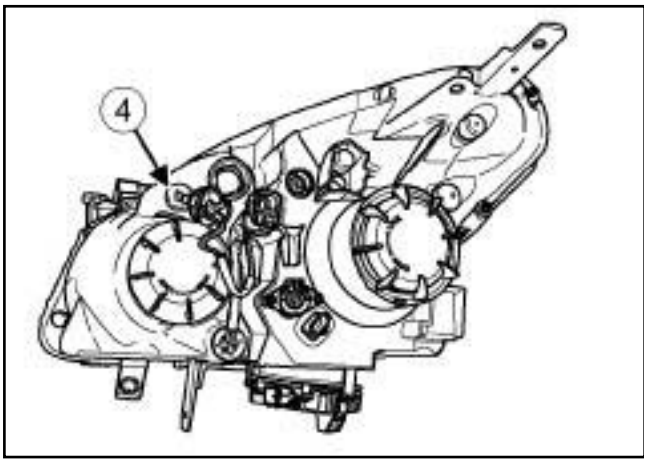
XENON BULBS

**3 - Side light bulbs**



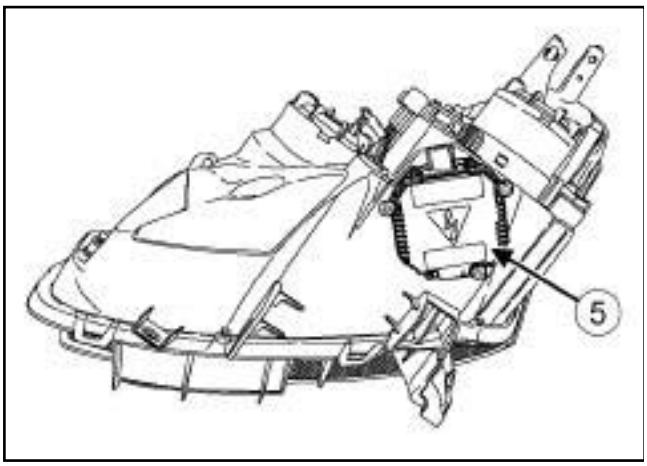

131727

**4 - Direction indicator bulb**



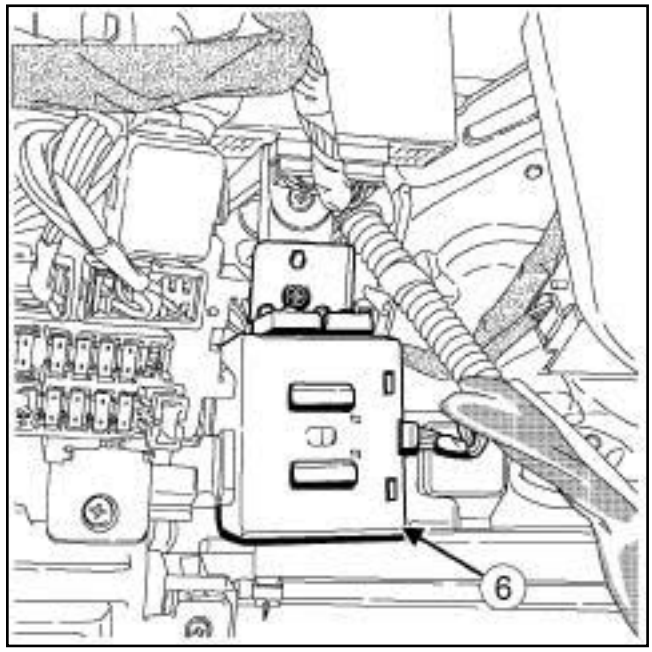

131728

**5 - High voltage unit**



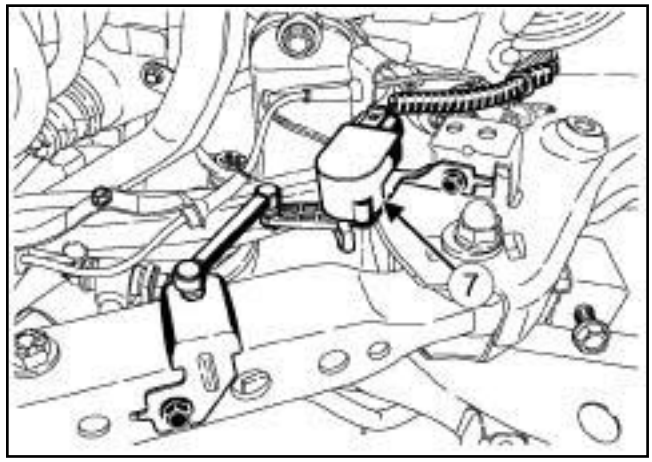

131729

**6 - Cornering lights computer**




131730

**7 - Headlight adjustment rear sensor**




131731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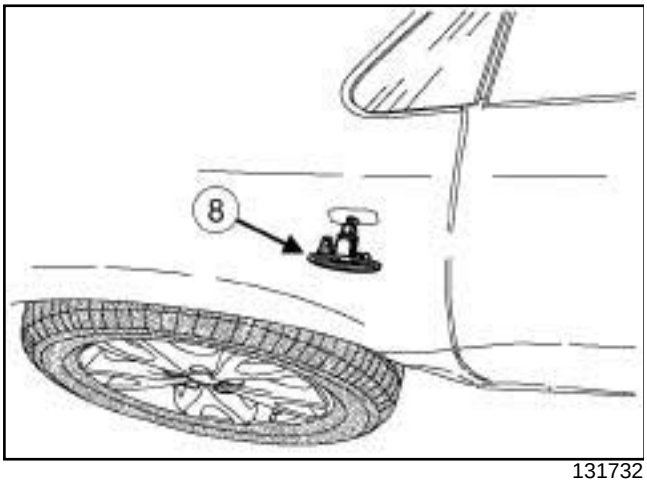
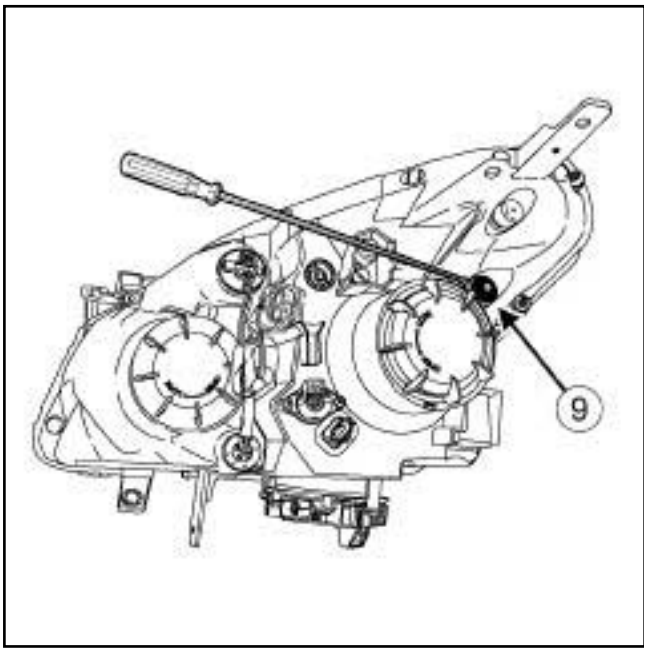
XENON BULBS

**8 - Side repeater**



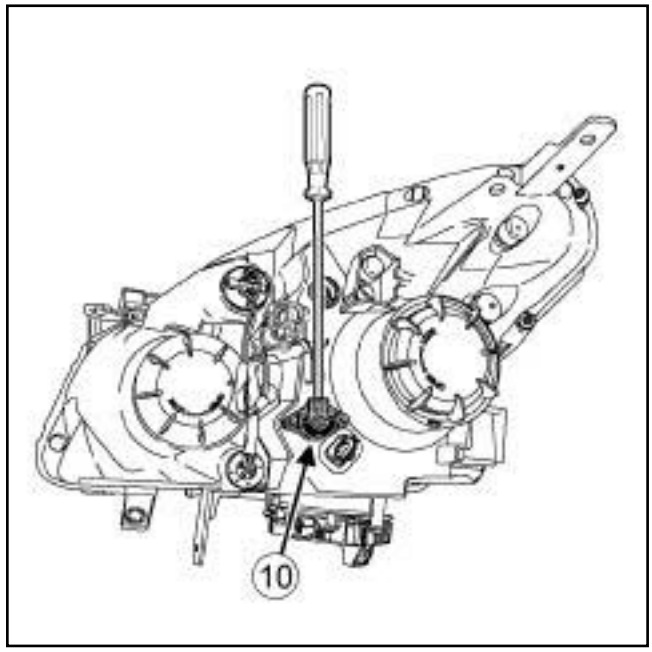

131732

**9 - Vertical adjusting bolt**




131733

**10 - Horizontal adjusting bolt**




131734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WITHOUT XENON BULBS

## REMOVAL

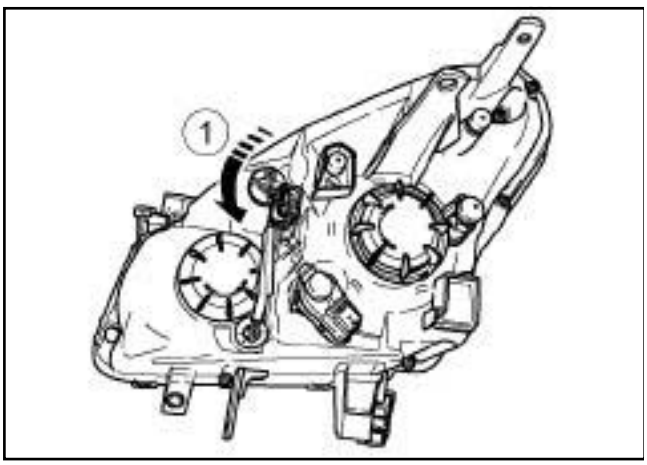
### I - REMOVAL PREPARATION OPERATION

❏ Remove:

- the air inlet sleeve to access the left-hand headlight bulbs (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen washer bottle neck to access the right-hand headlight bulbs (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) (85A, Wiping - Washing).

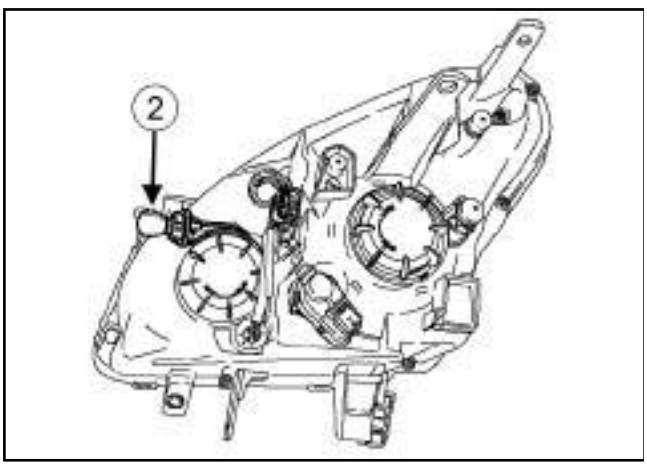
### II - REMOVAL OF PART CONCERNED

#### 1 - Direction indicator bulb




131354

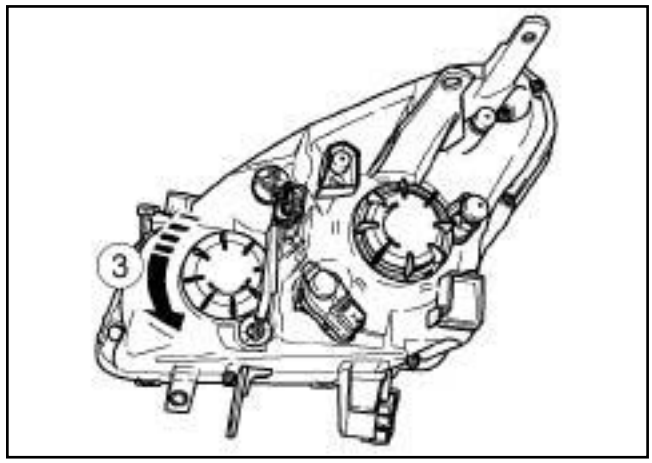
❏ Remove the bulb holder by turning it a quarter of a turn anticlockwise (**1**) .




131355

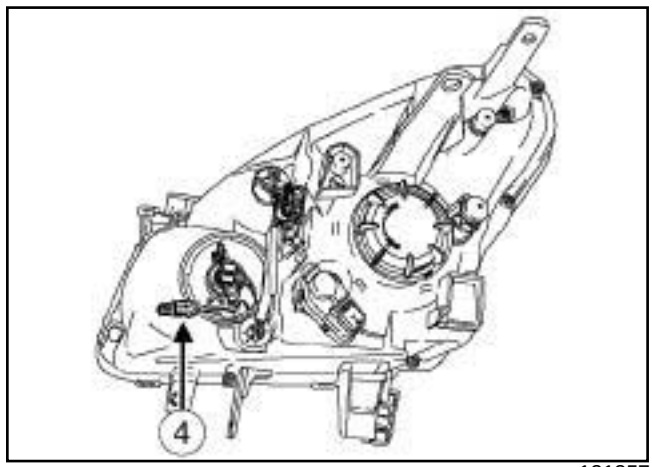
❏ Remove the bulb (**2**) from the bulb holder.

#### 2 - Side light bulb




131356

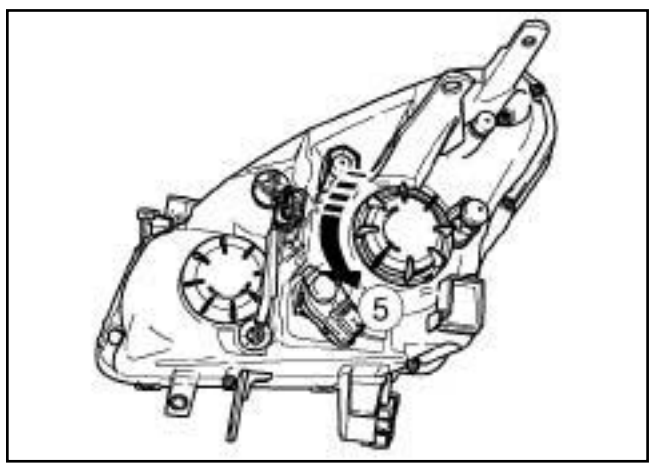
❏ Remove the sealing cover by turning it a quarter of a turn anticlockwise (**3**) .




131357

❏ Remove the bulb (**4**) from the bulb holder.

#### 3 - Main beam headlight bulbs




131358

❏ Remove the sealing cover by turning it a quarter of a turn anticlockwise (**5**) .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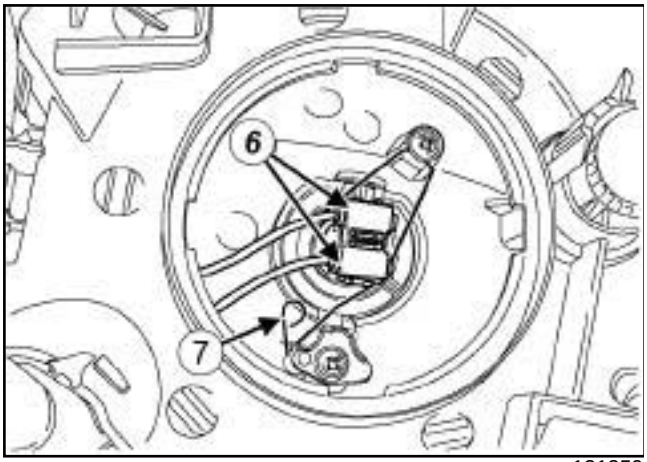
WITHOUT XENON BULBS



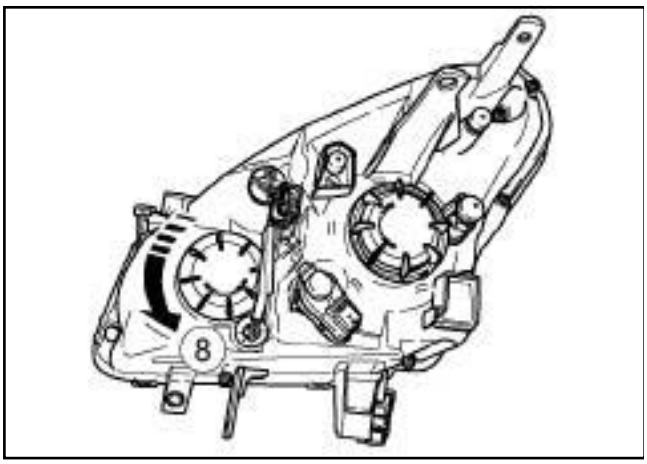

131359

❏ Disconnect the connector from the main beam headlight bulb (**6**) .

❏ Unfasten clip (**7**) .

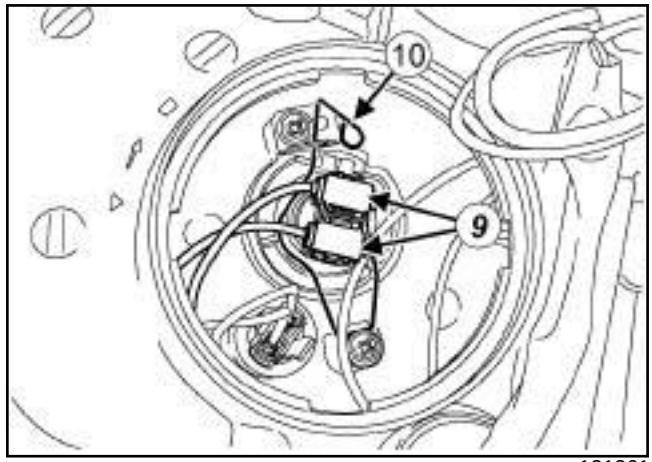
❏ Remove the main beam headlight bulb.

**4 - Dipped beam headlight bulb**




131356

❏ Remove the sealing cover by turning it a quarter of a turn anticlockwise (**8**) .




131361

❏ Disconnect the connector from the dipped beam headlight bulb (**9**) .

❏ Unfasten the clip (**10**) .

❏ Remove the dipped beam headlight bulb.

## REFITTING

**I - REFITTING PART CONCERNED**

**1 - Direction indicator bulb**

❏ Refit:

- an approved **PY21W** bulb onto the direction indicator bulb holder,
- the bulb holder on the headlight.

❏ Turn the bulb holder a quarter of a turn clockwise.

**2 - Side light bulb**

❏ Refit:

- an approved **W5W** bulb onto the side light bulb holder,
- the bulb holder on the headlight.

❏ Refit the cover by turning it a quarter of a turn clockwise.

**3 - Main beam headlight bulbs**

❏ Refit an approved **H7** bulb on the headlight.

❏ Clip the clip onto the headlight.

❏ Connect the connector to the main beam headlight bulb.

❏ Refit the cover by turning it a quarter of a turn clockwise.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WITHOUT XENON BULBS

**4 - Dipped beam headlight bulb**

❏ Refit an approved **H7** bulb on the headlight.

❏ Clip the clip onto the headlight.

❏ Connect the connector to the dipped beam headlight bulb.

❏ Refit the cover by turning it a quarter of a turn clockwise.

**II - FINAL OPERATION.**

❏ Refit:

- the screen washer bottle filler neck (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) (12A, Washing - Wiping),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).


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XENON BULBS

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

**1 - Direction indicator light, side light and cornering light bulbs**

❑ Remove:

- the air inlet sleeve to access the left-hand headlight bulbs (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the windscreen washer bottle neck to access the right-hand headlight bulbs (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) .

**2 - Discharge bulb**

❑

**IMPORTANT**

To prevent burns, wait until the «computers - power unit » assemblies are cold before removal.

**IMPORTANT**

To prevent eye injuries:

- do not look at a discharge bulb when lit (voltage when lit **20000 V**),
- do not light a bulb which has not been fitted into its headlight.

❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

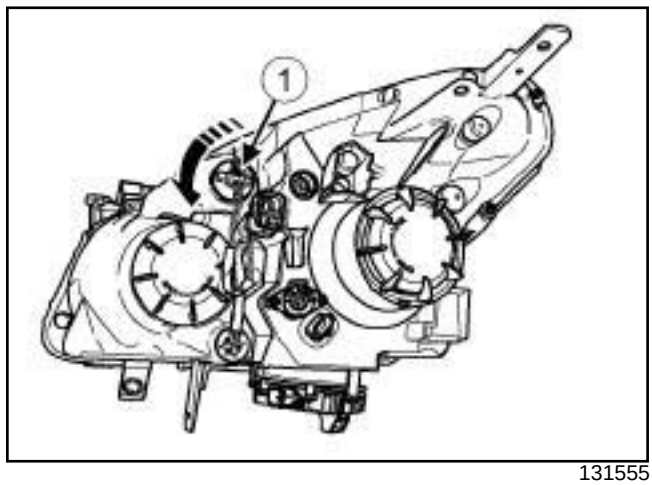
❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove:

- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the headlight (see **80B**, **Headlights**, **Front headlight: Removal - Refitting**, page **80B-1**) .

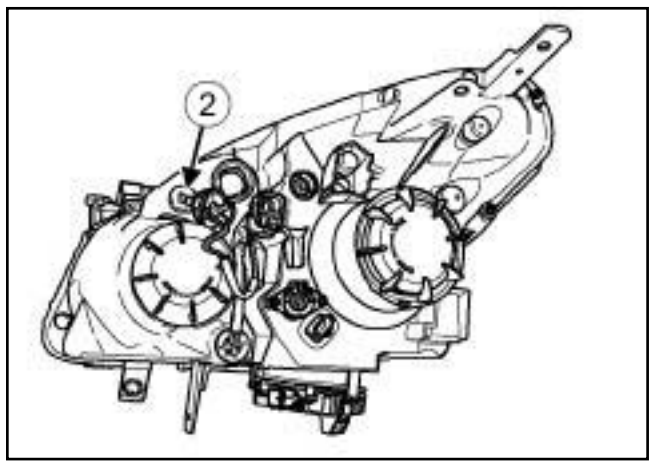
### II - REMOVAL OF PART CONCERNED

**1 - Direction indicator bulb**




131555

❑ Remove the bulb holder (**1**) by turning it a quarter of a turn anticlockwise.




131556

❑ Remove the bulb (**2**) from the bulb holder.



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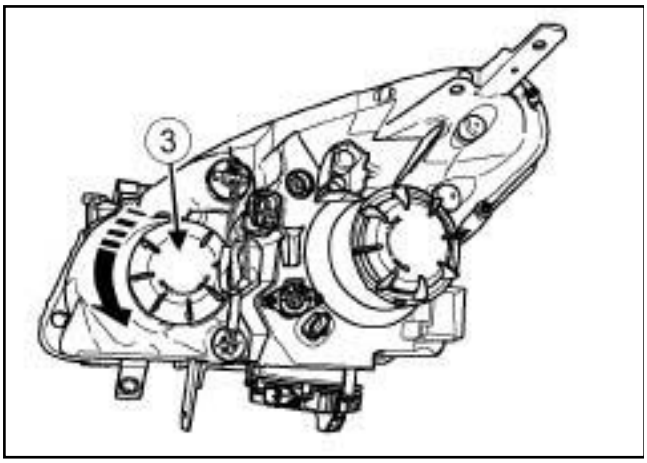
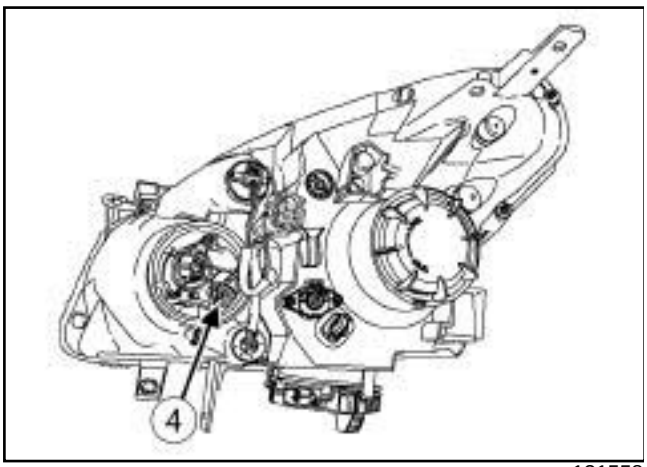
XENON BULBS

**2 - Side light bulbs**




131557

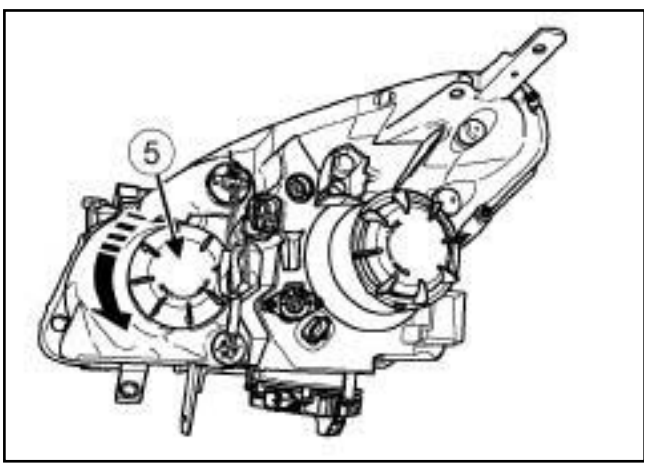
❏ Remove the sealing cover (**3**) by turning it a quarter of a turn anticlockwise.




131558

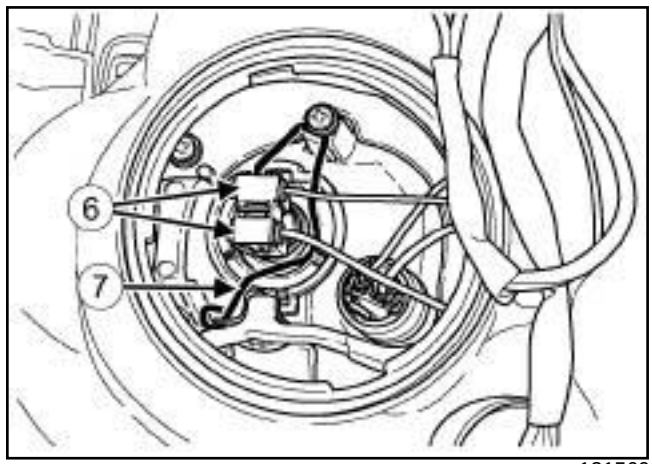
❏ Remove the bulb (**4**) from the bulb holder.

**3 - Cornering light bulb**




131559

❏ Remove the sealing cover (**5**) by turning it a quarter of a turn anticlockwise.



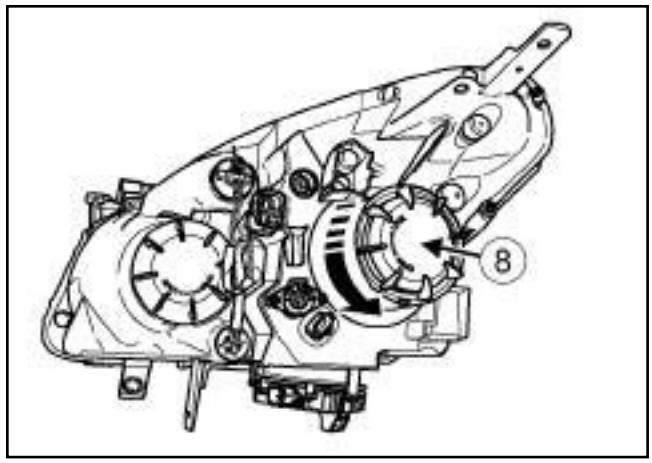

131560

❏ Disconnect the cornering light bulb (**6**) .

❏ Unfasten clip (**7**) .

❏ Remove the cornering light bulb.

**4 - Discharge bulb**




131561

❏ Remove the sealing cover (**8**) by turning it a quarter of a turn anticlockwise.



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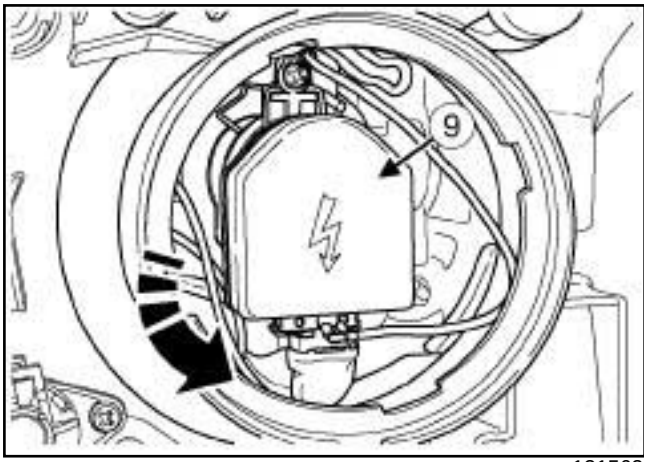
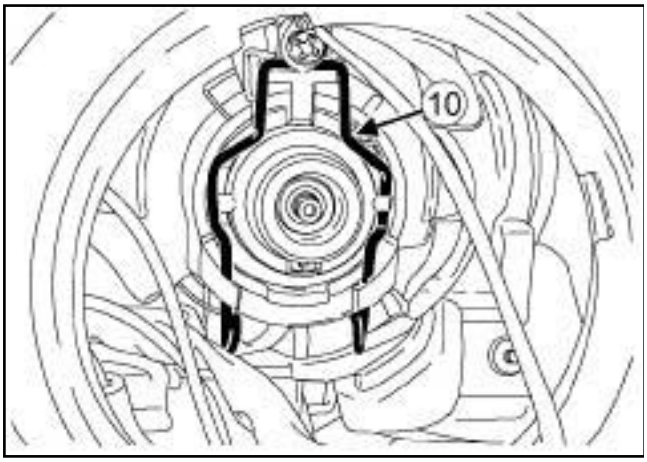
XENON BULBS




131562

❏ Remove the capacitor (**9**) by turning it anticlockwise.




131563

❏ Unfasten clip (**10**) .

**WARNING**

To prevent any breakages, handle the bulb by its base. If you should touch the glass, clean it with alcohol and a lint-free cloth.

❏ Remove the bulb with caution, taking it by the neck.

## REFITTING

### I - REFITTING PART CONCERNED

#### 1 - Direction indicator bulb

❏ Refit:

- an approved PY21W bulb in the direction indicator bulb holder,
- the bulb holder on the headlight.

❏ Turn the bulb holder a quarter of a turn clockwise.

#### 2 - Cornering light bulb

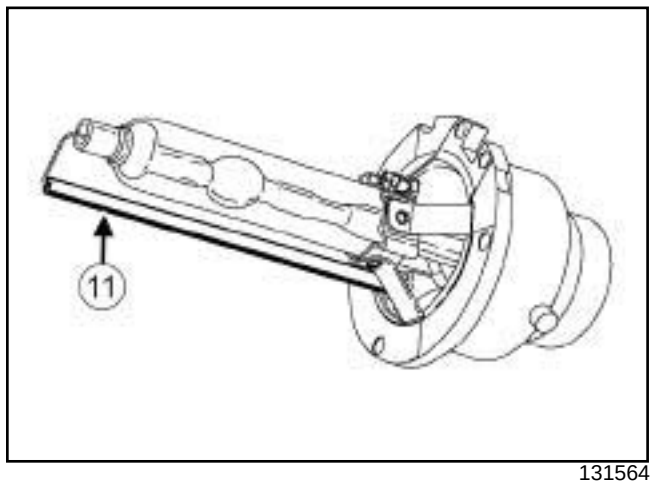
❏ Refit an approved H7 bulb on the headlight.

❏ Clip the clip onto the headlight.

❏ Connect the cornering light bulb connector.

❏ Refit the cover by turning it a quarter of a turn clockwise.

#### 3 - Xenon bulb




131564

❏

**WARNING**

The bulb must be handled with care.

The external conductor (**11**) is very fragile and must not be damaged.

❏ Refit an approved D2S bulb on the headlight.

❏ Clip the clip onto the headlight.

❏ Refit:

- the capacitor by turning it clockwise,
- the cover by turning it a quarter of a turn clockwise.

### II - FINAL OPERATION.

#### 1 - Direction indicator light, side light and cornering light bulbs

❏ Refit:

- the windscreen washer bottle neck to access the right-hand headlight bulbs (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) .
- the air inlet sleeve to access the left-hand headlight bulbs (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),



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XENON BULBS

**2 - Xenon bulb**

❑ Refit:

- the headlight (see **80B**, **Headlights**, **Front headlight: Removal - Refitting**, page **80B-1**) .
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Adjust the headlights (see **80B**, **Headlights**, **Front headlight: Adjusting**, page **80B-3**)


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ADDITIONAL HEADLIGHTS

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

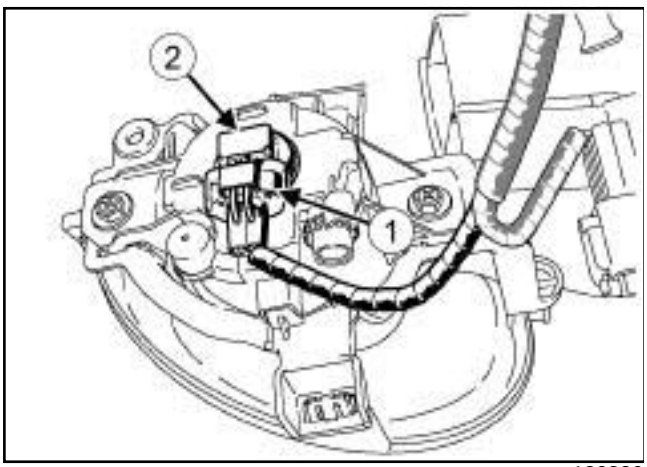
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove:

- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres),
- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Front fog light bulb



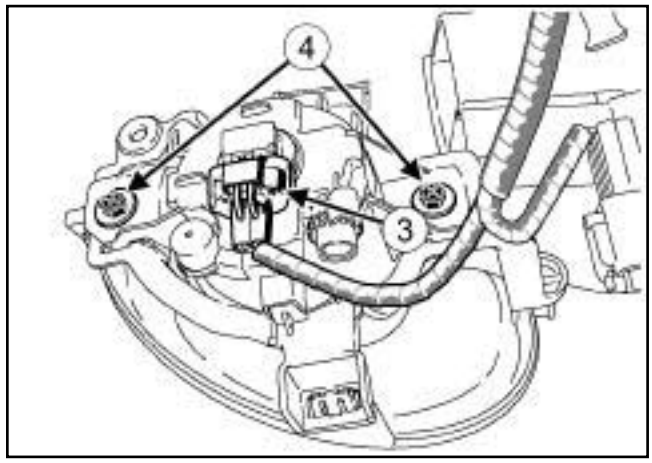

130836

❏ Disconnect the front fog light connector (**1**) .

❏ Remove:

- the bulb holder (**2**) by turning it a quarter of a turn anticlockwise,
- the bulb from the bulb holder.

#### 2 - Front fog light




130837

❏ Disconnect the front fog light connector (**3**) .

❏ Remove:

- the bolts ***(4)*** from the front fog light,
- the front fog light.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Front fog light bulb

❏ Refit:

- an approved **P12V** bulb onto the bulb holder of the front fog light,
- the bulb holder on the front fog light.

❏ Turn the bulb holder a quarter of a turn clockwise.

❏ Connect the front fog light connector.

#### 2 - Front fog light

❏ Refit:

- the front fog light,
- the front fog light bolts.

❏ Connect the front fog light connector.

### II - FINAL OPERATION.

❏ Refit:

- the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),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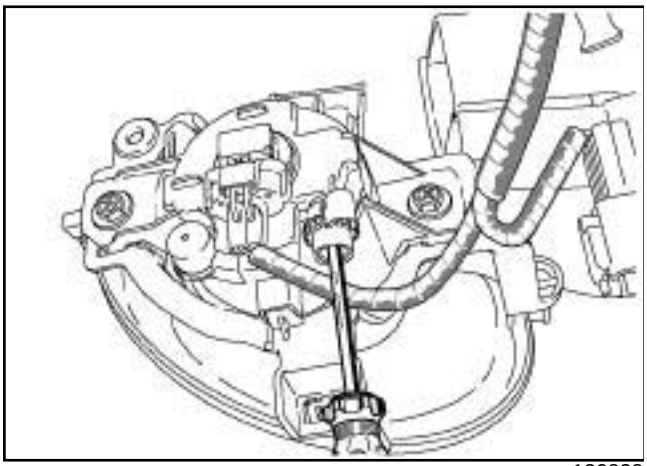
ADDITIONAL HEADLIGHTS

- the front wheel (see **Wheel: Removal - Refitting**) (35A, Wheels and tyres).



130838

❏ Adjust the front fog lights using a screwdriver.



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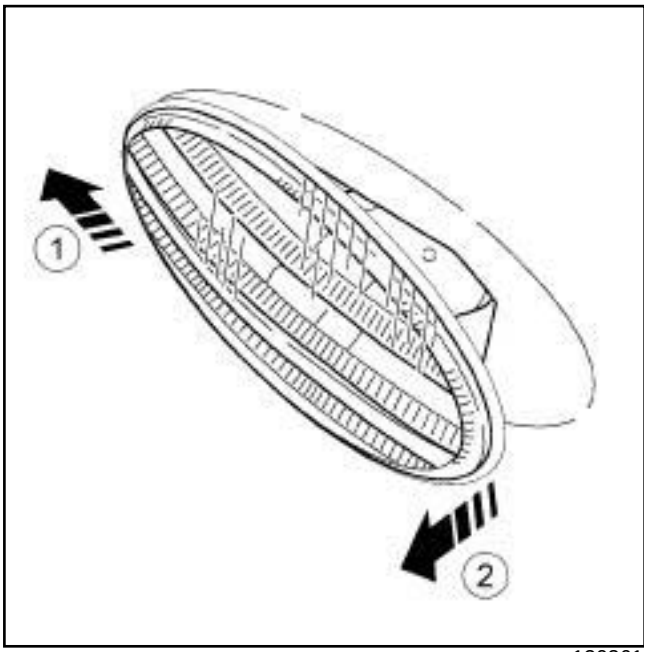
## REMOVAL

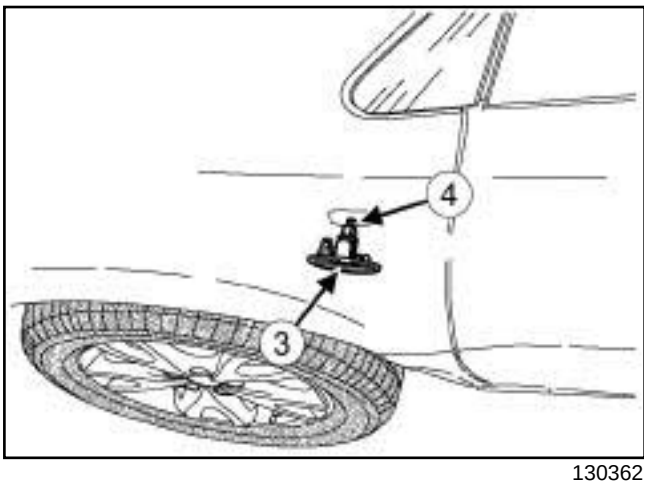
### OPERATION FOR REMOVAL OF PART CONCERNED




130361

❏ Push the side indicator towards the front of the vehicle (**1**) .

❏ Pull the side indicator in the direction of (**2**) .




130362

❏ Remove:

- the side indicator cover (**3**) from the bulb holder (**4**) by turning it a quarter turn anticlockwise,
- the side indicator bulb from the bulb holder.

Note:

Support the side indicator wiring using adhesive tape, so that the side indicator does not fall into the front wing.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Replace the bulb only with an approved **W5W** bulb.

❏ Refit:

- the side indicator bulb on the bulb holder,
- the side indicator cover on the bulb holder by turning it a quarter turn clockwise,
- the side indicator on the front wing.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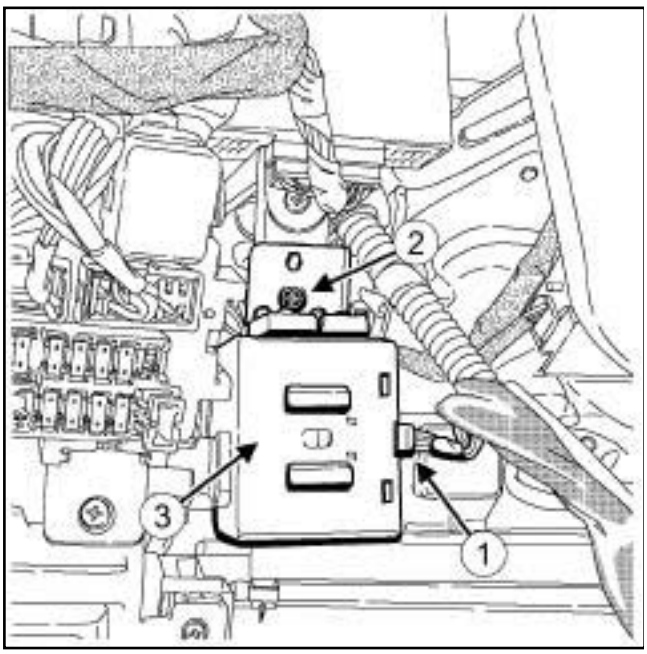
XENON BULBS

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130363

❏ Disconnect the additional cornering lights computer connector (**1**) .

❏ Remove:

- the additional cornering lights computer bolt (**2**) ,
- the additional cornering lights computer (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the additional cornering lights computer,
- the additional cornering lights computer bolt.

❏ Connect the connector to the additional cornering lights computer.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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# Xenon headlight high voltage unit: Removal - Refitting

XENON BULBS

**IMPORTANT**

To prevent eye injuries:

- do not look at a discharge bulb when lit (voltage when lit **20000 V**),
- do not light a bulb which has not been fitted into its headlight.

**IMPORTANT**

To prevent burns, wait until the « computers - power unit » assemblies are cold before removal.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

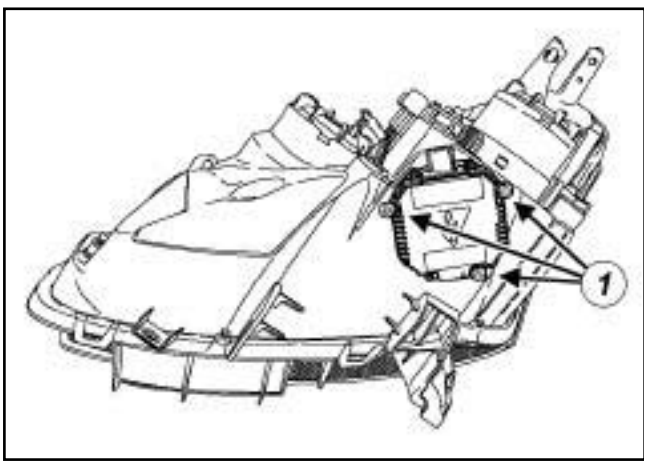
❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove:

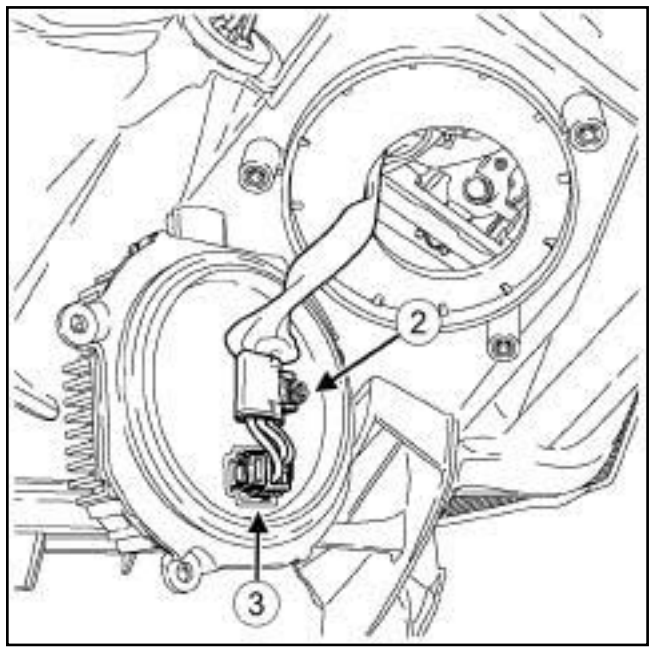
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection),
- the headlight (see **80B**, **Headlights**, **Front headlight: Removal - Refitting**, page **80B-1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130364

❏ Remove the bolts (**1**) from the high voltage unit.




130365

❏ Remove the bolt (**2**) from the high voltage unit.

❏ Disconnect the high voltage unit connector (**3**) .

❏ Remove the high voltage unit.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the high voltage unit seal.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the high voltage unit connector.

Note:

Check that the connector is locked correctly.

❏ Refit:

- the bolt of the high voltage unit wiring,
- the high voltage unit with a new seal,
- the high voltage unit bolts.

### III - FINAL OPERATION.

❏ Refit:

- the headlight (see **80B**, **Headlights**, **Front headlight: Removal - Refitting**, page **80B-1**) ,
- the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).



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XENON BULBS

- ❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .
- ❏ Adjust the headlight beam (see **80B**, **Headlights**, **Front headlight: Adjusting**, page **80B-3**) .


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XENON BULBS

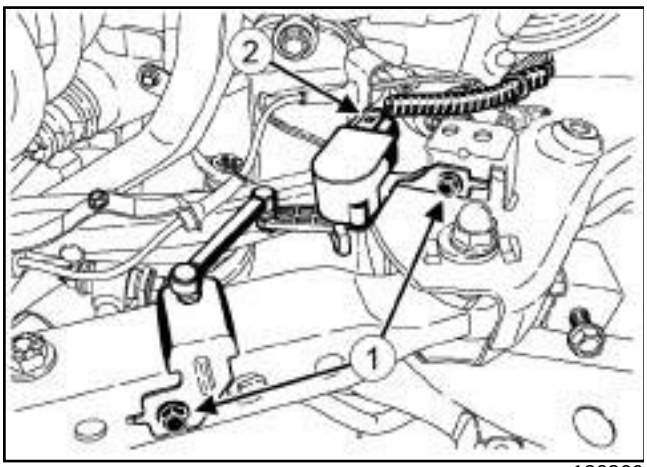
| Tightening torques ▽ | |
|---|---|
| headlight beam adjustment rear sensor bolt | **25 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130366

❏ Remove the bolts (**1**) from the headlight beam adjustment rear sensor.

❏ Disconnect the connector (**2**) from the headlight beam adjustment rear sensor.

❏ Remove the headlight beam adjustment rear sensor.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

Note:

Replace the sensor if the linkage is damaged along its length or if there is damage to the ball joint - lever - linkage connection.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the headlight beam adjustment rear sensor connector.

❏ Fit the sensor with its mounting to the vehicle.

❏ Refit:

- the headlight beam adjustment rear sensor,
- the bolts for the headlight beam adjustment rear sensor.

❏ Torque tighten the **headlight beam adjustment rear sensor bolt (25 N.m)**.

### III - FINAL OPERATION.

❏ Adjust:

- the front headlights (see **80B**, **Headlights**, **Front headlight: Adjusting**, page **80B-3**) ,
- the headlight beam adjustment rear sensor (see **Fault Finding - Programming**)(80B, Headlights).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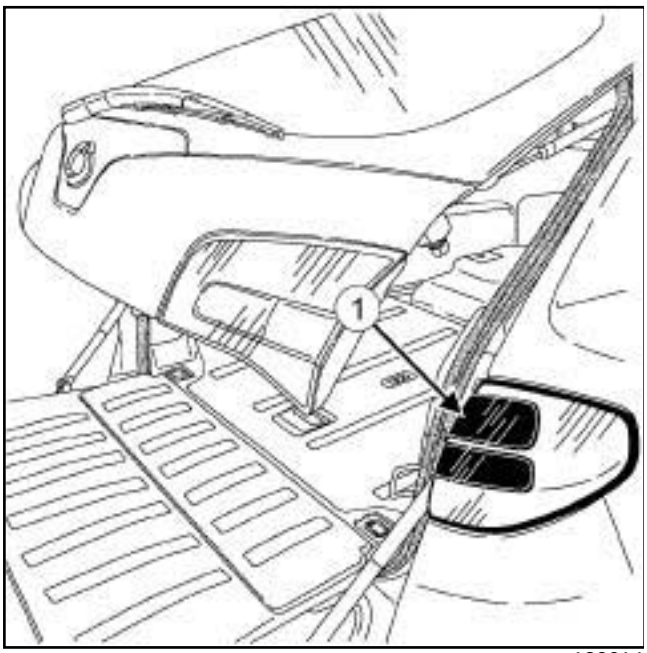
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Rear light on wing |
| *(2)* | Tailgate light |
| *(3)* | Rear light bulbs |
| *(4)* | High level brake light |
| *(5)* | Number plate light |

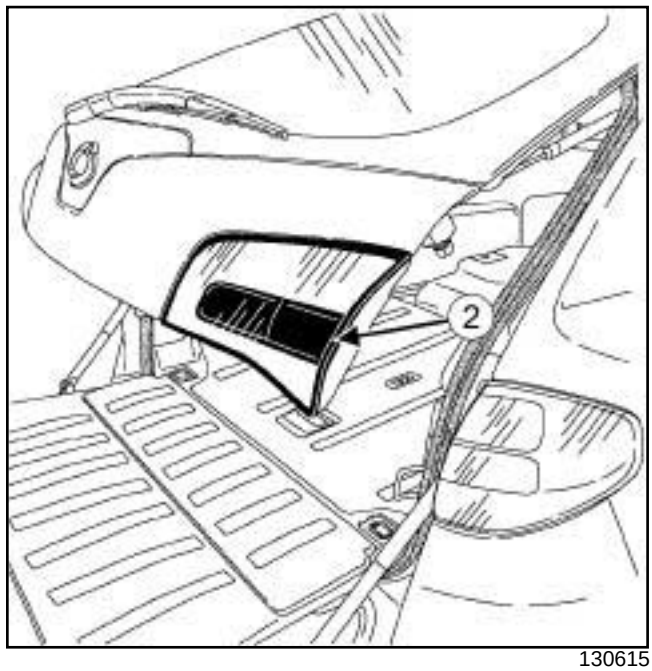
## II - LOCATION OF COMPONENTS

### 1 - Rear light on wing



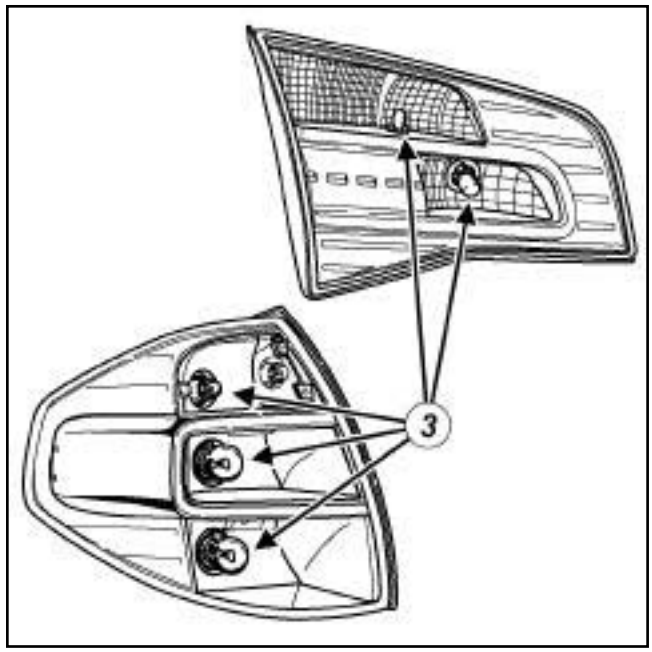

130614

### 2 - Tailgate light




130615

### 3 - Rear light bulbs




130616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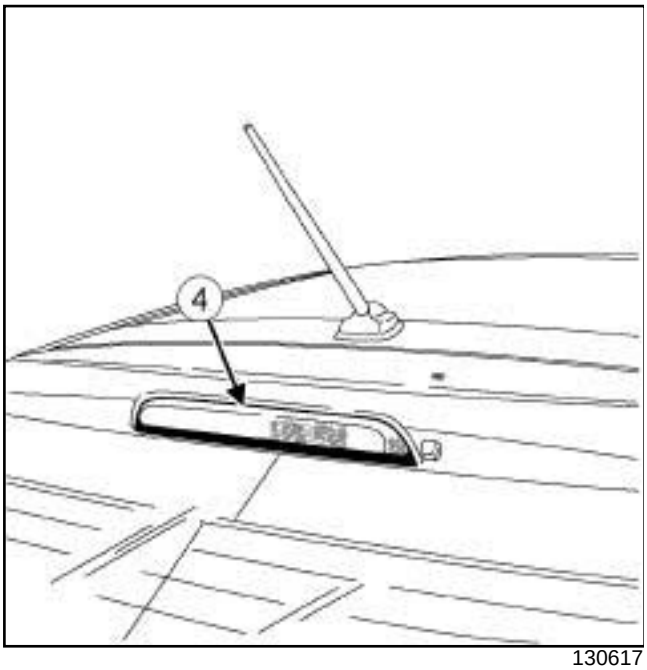
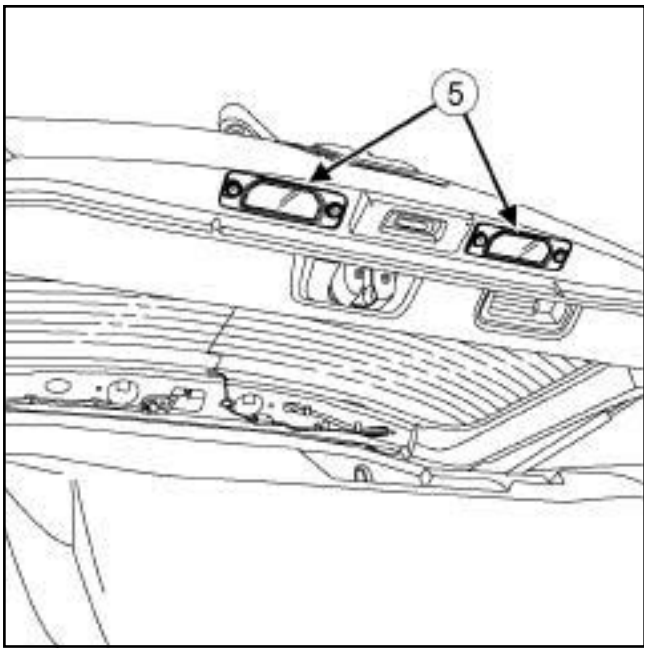
**4 - High level brake light**




130617

**5 - Number plate light**




130618

Note:

The number plate lights are located on the tailgate strip.



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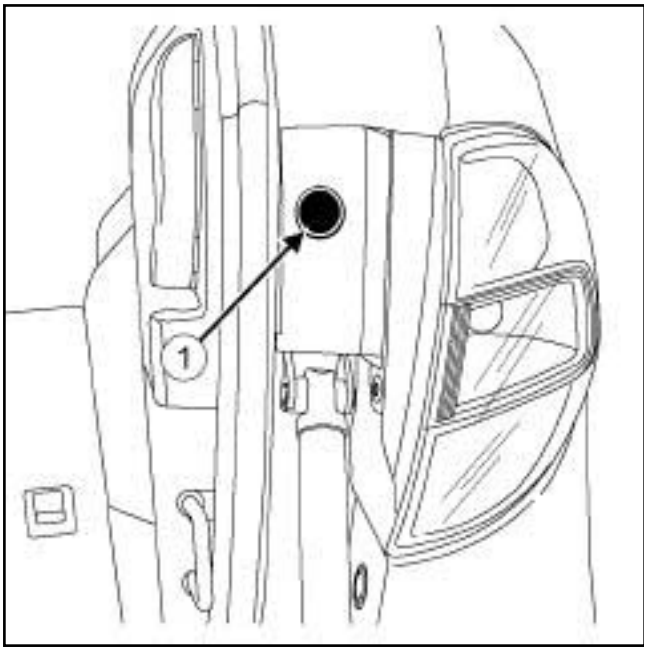
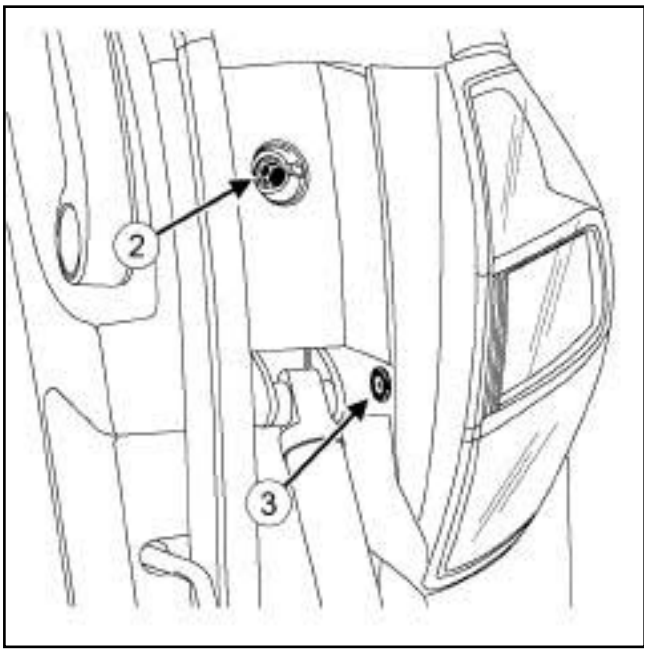
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130619

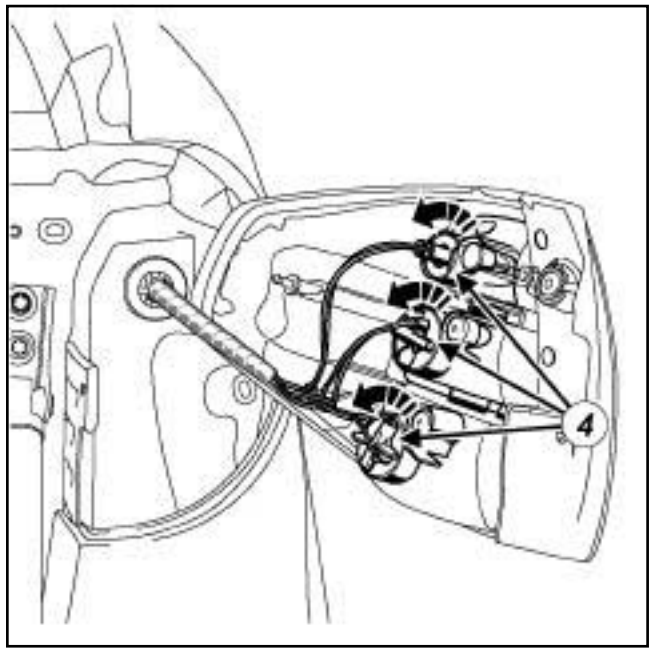
❏ Remove the blanking cover (**1**) .




130620

❏ Remove the rear light bolt (**2**) .

❏ Unclip the retaining clip (**3**) .




130621

❏

Note:

Protect the bodywork vamish using a cloth if using a flat-blade screwdriver.

❏ Remove:

- the rear light using a flat-blade screwdriver,
- the bulb and bulb mounting assembly (**4**) of the rear light housing by rotating it anti-clockwise.

Note:

After removing the rear light, check that the grommets ***(9)*** are correctly fitted on the body (it is possible for water to flow through the grommet).



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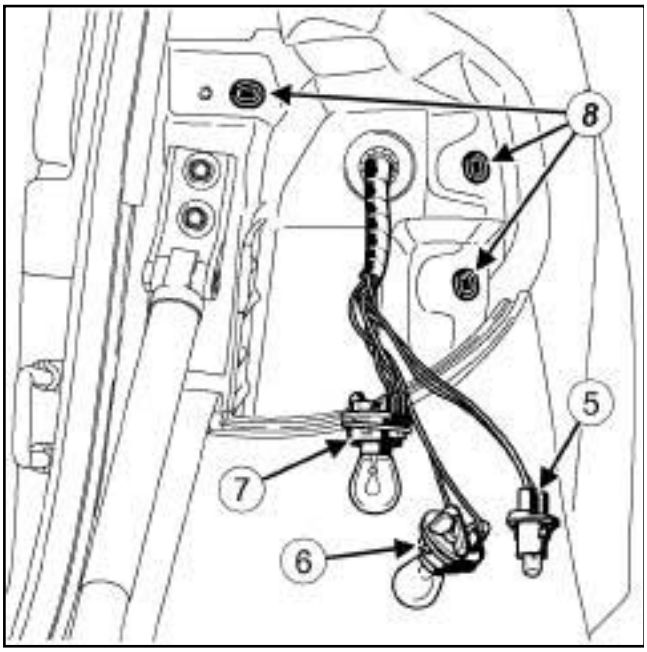



135216

❏ Remove:

- the side light bulb (**5**) ,
- the direction indicator bulb (**6**) ,
- the brake light bulb (**7**) .

## REFITTING

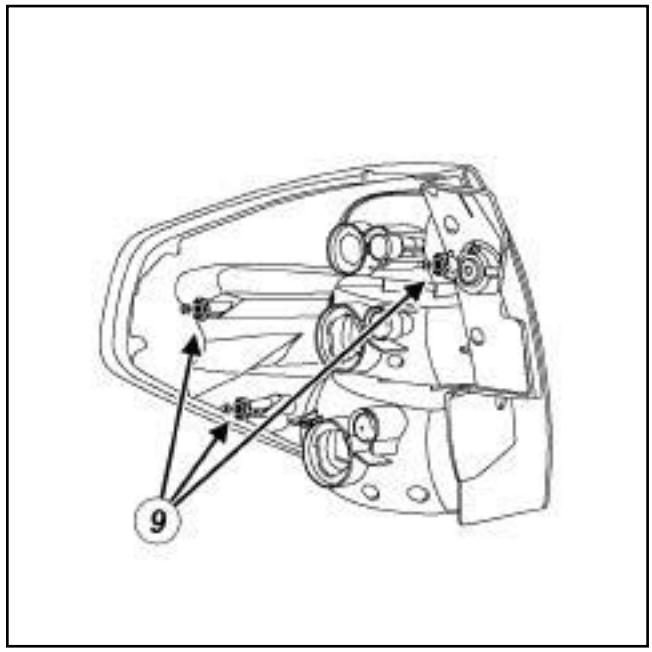
### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved bulb:

- **W5W** for the side light,
- **KHA 12V 21W** for the direction indicator,
- **P21W** for the brake light.

❏ Refit:

- the bulbs on the mountings,
- the bulb and mounting assembly on the rear light housing by rotating it clockwise.




130623

❏ Refit the rear light on the wing using the centring devices (**9**) .

❏ Clip on the retaining clip.

❏ Refit:

- the rear light bolt,
- the blanking cover.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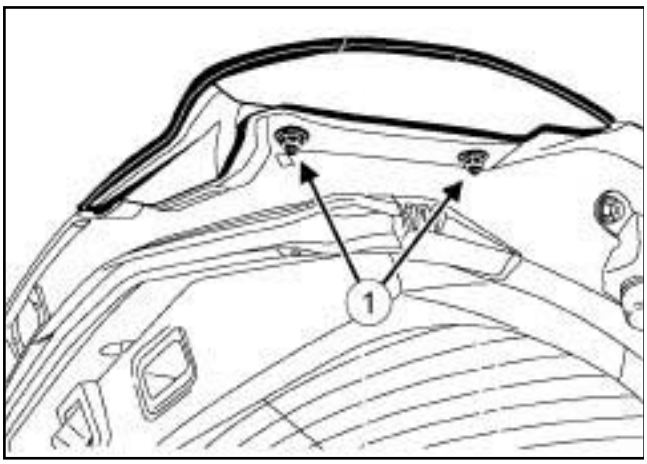
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130632

❑

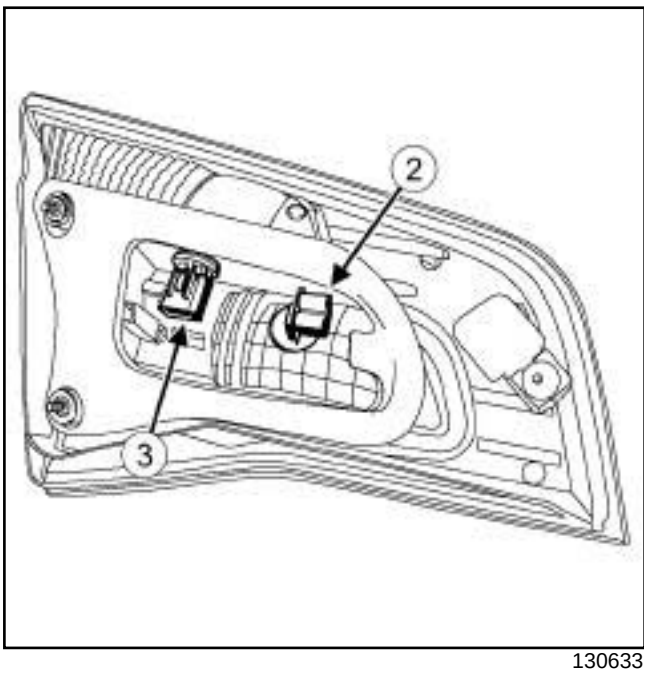
Note:

Protect the bodywork varnish using a cloth if using a flat-blade screwdriver.

❑ Remove:

- the tailgate light nuts (**1**) ,
- the tailgate light using a flat-blade screwdriver.

❑ Disconnect the connectors.




130633

❑ Remove:

- the reversing light bulb (**2**) ,
- the side light bulb (**3**) .

## REFITTING

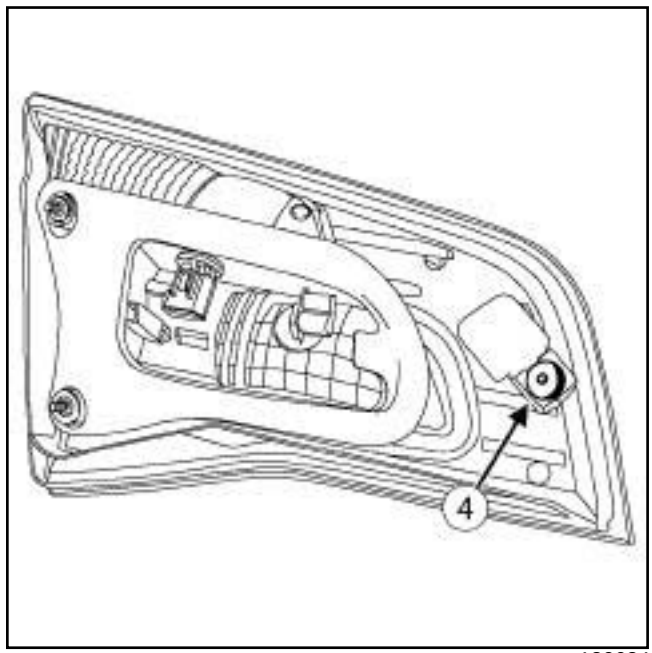
### REFITTING OPERATION FOR PART CONCERNED

❑ Use an approved bulb for replacement:

- **P12V / W5W** for the side light,
- **P12V / W16W** for the reversing light.

❑ Refit the bulbs.

❑ Connect the connectors.




130634

❑ Refit:

- the tailgate light on the tailgate using the centring device (**4**) ,
- the tailgate light nuts.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## REMOVING - REFITTING

### I - REMOVAL PREPARATION OPERATION

**1 - Rear light on wing**

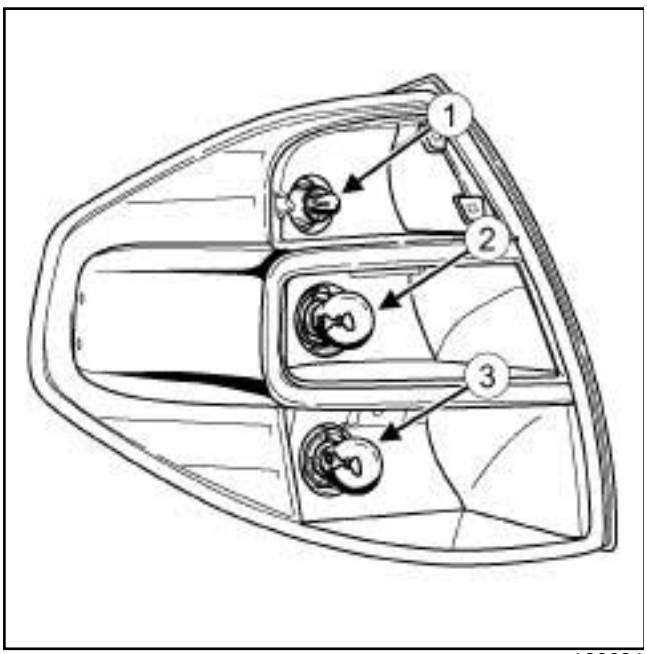
❏ Remove the bulb holder (see **81A**, **Rear lighting**, **Rear light on wing: Removal - Refitting**, page **81A-3**) .

**2 - Tailgate light**

❏ Remove the bulb holder (see **81A**, **Rear lighting**, **Rear opening element light: Removal - Refitting**, page **81A-5**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Rear light on wing**

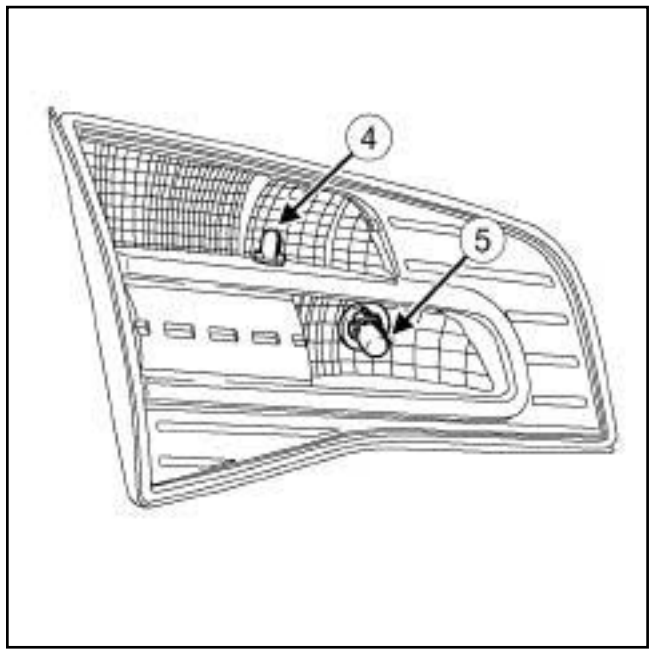



130624

❏ Remove:

- the side light bulb (**1**) ,
- the direction indicator bulb (**2**) ,
- the brake light bulb (**3**) .

**2 - Tailgate light**




130625

❏ Remove:

- the side light bulb (**4**) ,
- the reversing light bulb (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Rear light on wing**

❏ Refit:

- the approved **P21W** bulb for the brake light,
- the approved **KHA 12V 21W** bulb for the direction indicator light,
- the approved **W5W** bulb for the side light.

**2 - Tailgate light**

❏ Refit:

- the approved **P12V/W16W** bulb for the reversing light,
- the approved **W5W** bulb for the side light.

### II - FINAL OPERATION.

**1 - Rear light on wing**

❏ Refit the bulb holder (see **81A**, **Rear lighting**, **Rear light on wing: Removal - Refitting**, page **81A-3**) .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**2 - Tailgate light**

❑ Refit the bulb holder (see **81A**, **Rear lighting**, **Rear opening element light: Removal - Refitting**, page **81A-5**) .


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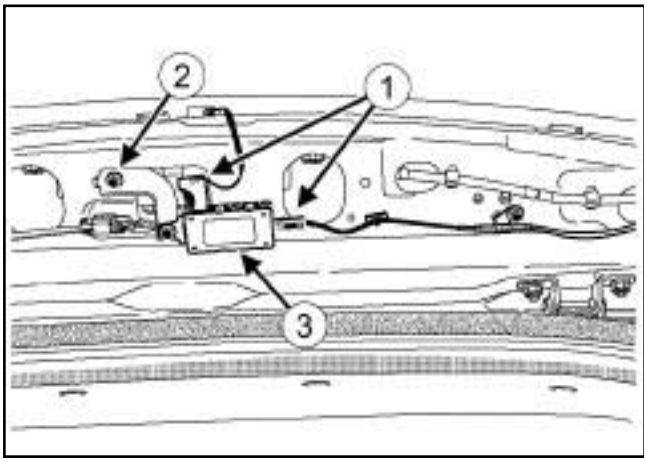
## REMOVING - REFITTING

### I - REMOVAL PREPARATION OPERATION

❏ Remove the tailgate upper trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).




130626

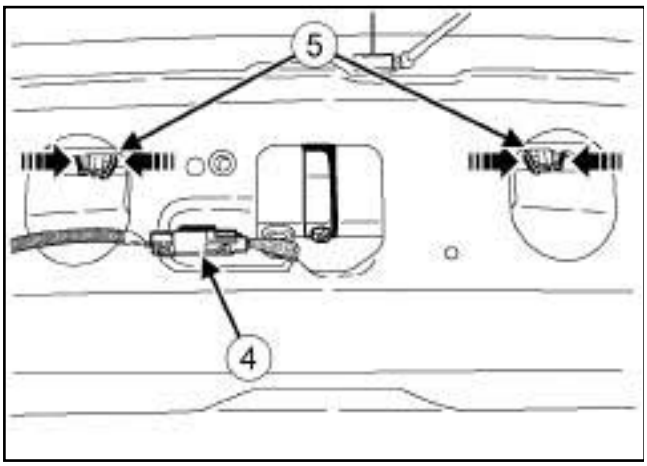
❏ Disconnect the connectors (**1**) .

❏ Remove:

- the bolt (**2**) ,
- the clip (**3**) .

❏ Move aside the amplifier and its support.

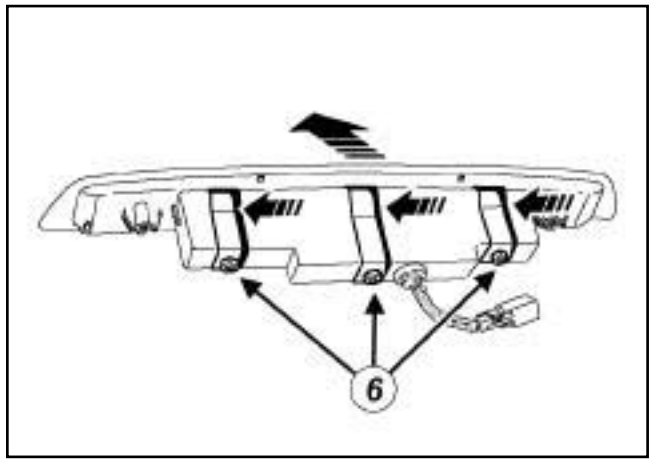
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130627

❏ Disconnect the connector (**4**) .

❏ Unclip clips (**5**) .




130628

❏ Remove:

- the clips (**6**) ,
- the high level brake light.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the high level brake light bulb, replace the high level brake light assembly.

❏ Refit the high level brake light.

❏ Connect the connector.

### II - FINAL OPERATION.

❏ Fit the amplifier and its support in their original location.

❏ Refit:

- the clip,
- the bolt.

❏ Connect the connectors.

❏ Refit the tailgate upper trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Rear fog light bulb

❏ Disconnect the rear fog light connector.

❏ Remove:

- the bulb holder by rotating it a quarter turn anticlockwise,
- the bulb from the bulb holder.

#### 2 - Rear fog light

❏ Disconnect the rear fog light connector.

❏ Remove:

- the rear fog light bolts,
- the rear fog light from the rear bumper.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

#### 1 - Rear fog light bulb

❏ Refit:

- an approved **W21W** bulb in the rear fog light bulb holder,
- the bulb holder on the rear fog light by rotating it a quarter turn clockwise.

❏ Connect the rear fog light connector.

#### 2 - Rear fog light

❏ Refit:

- the rear fog light on the rear bumper,
- the rear fog light bolts.

❏ Connect the rear fog light connector.


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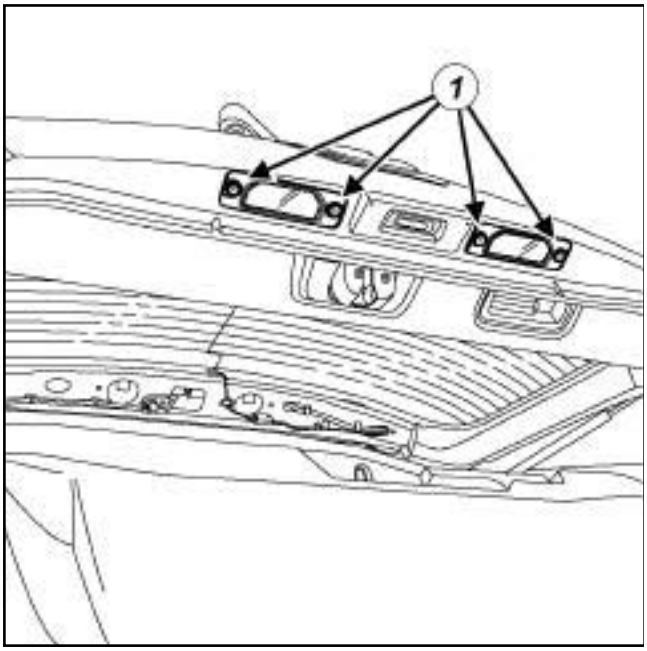
## REMOVING - REFITTING

### OPERATION FOR REMOVAL OF PART CONCERNED

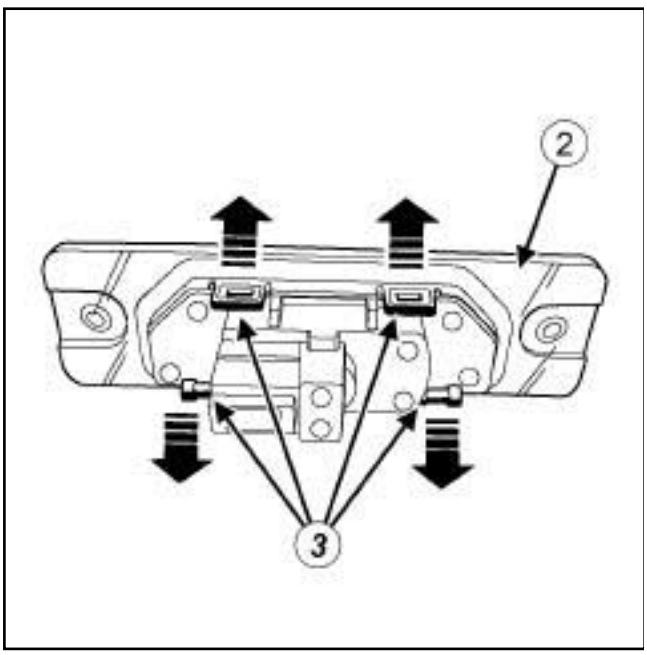



130629

❏ Remove the number plate light bolts (**1**) .

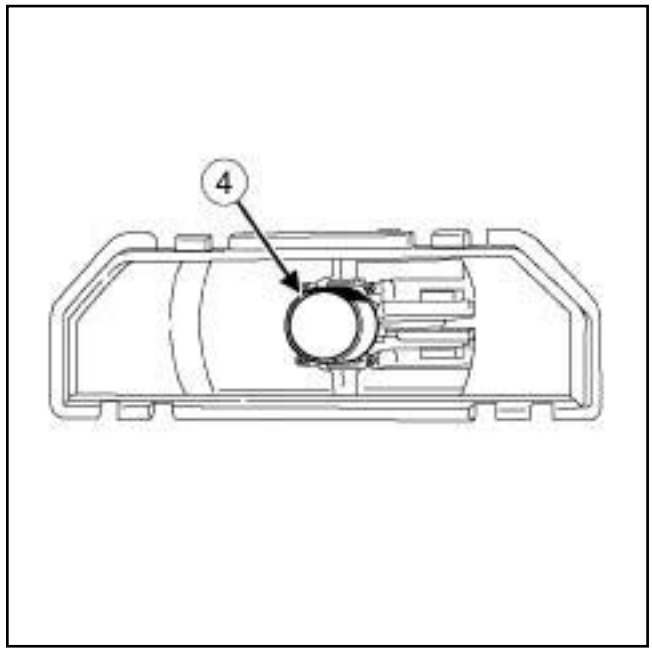
❏ Disconnect the number plate light connectors.

❏ Remove the number plate lights.




130630

❏ Unclip the plate (**2**) at (**3**) .




130631

❏ Remove the bulb (**4**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved **W5W** bulb.

❏ Refit the bulb.

❏ Clip on the plate.

❏ Connect the number plate light connectors.

❏ Refit:

- the number plate lights,
- the number plate light bolts.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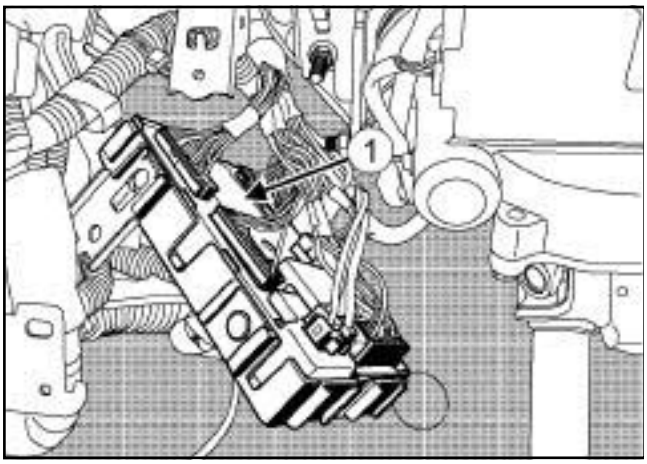
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Fuse boxes and passenger compartment relays |
| *(3)* | Courtesy light |
| *(4)* | Headlining light |
| *(5)* | Courtesy light |
| *(6)* | Storage compartment light |
| *(7)* | Door sill light |
| *(8)* | Luggage compartment light |
| *(9)* | Centre console light |

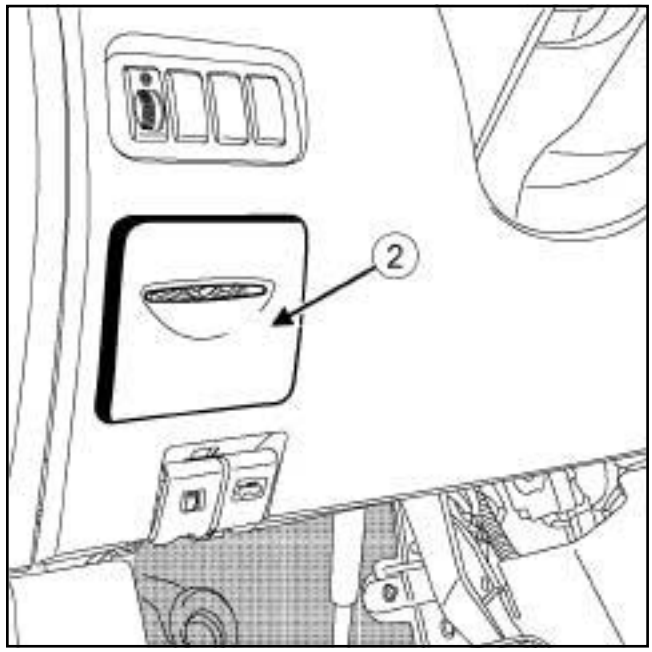
## II - LOCATION OF COMPONENTS

**1 - UCH**



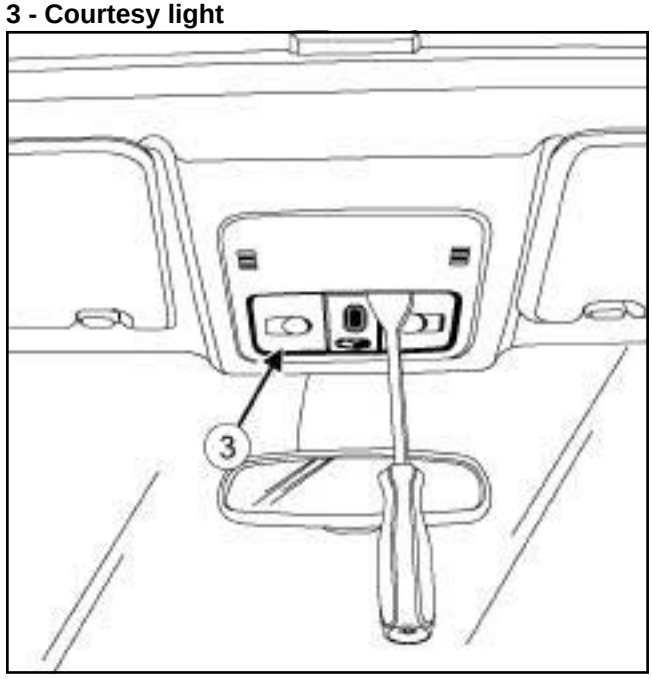

130635

**2 - Passenger compartment fuse and relay box**




130636

**3 - Courtesy light**




130637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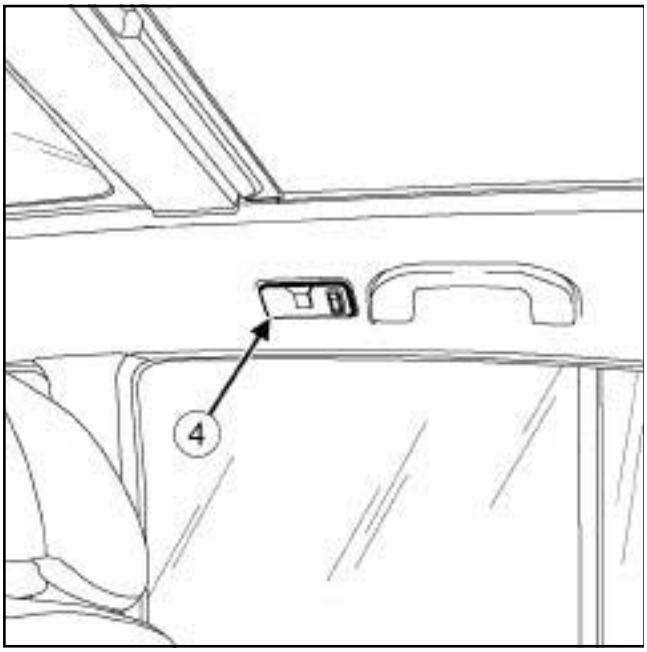
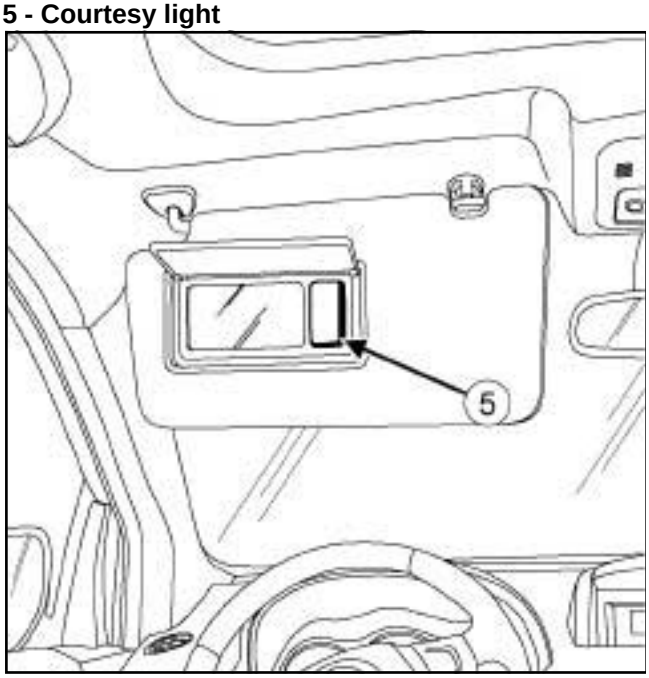
**4 - Headlining light**



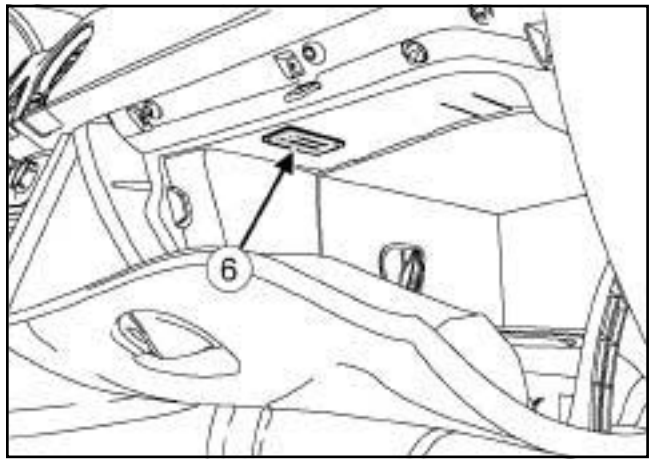

130638

**5 - Courtesy light**



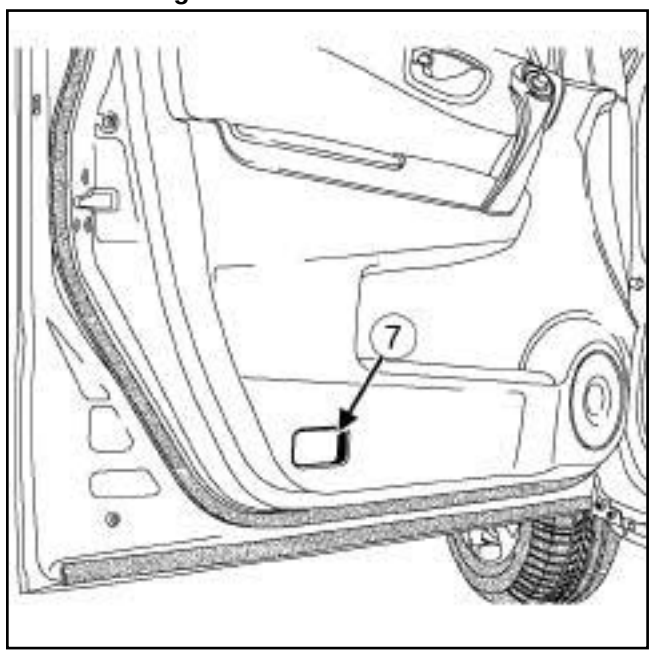

130639

**6 - Glove box light**




130640

**7 - Door sill light**




130641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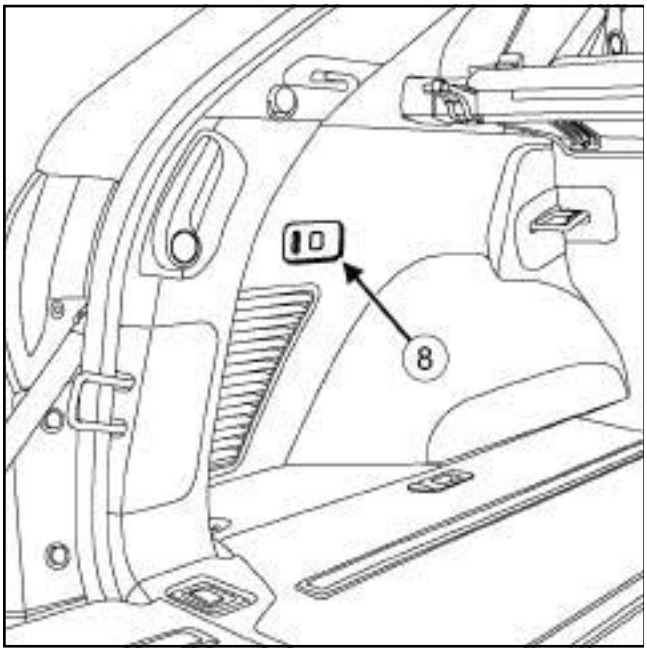
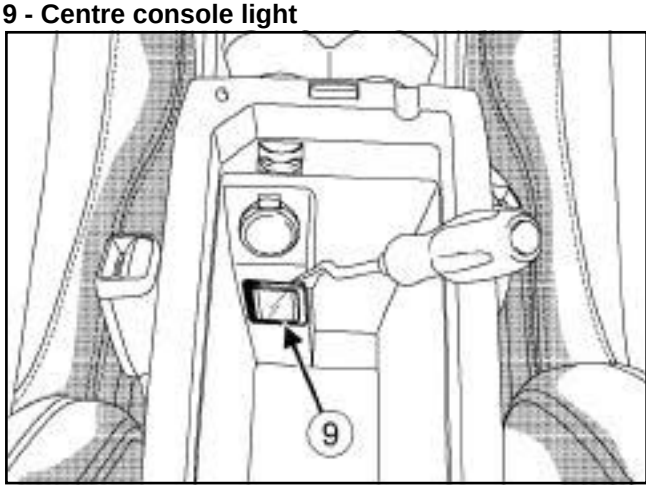
**8 - Luggage compartment light**




130642

**9 - Centre console light**




130643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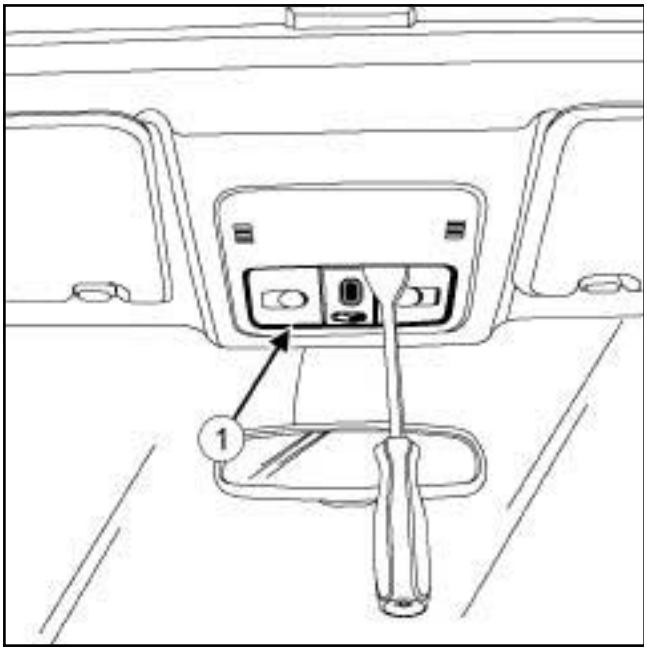
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



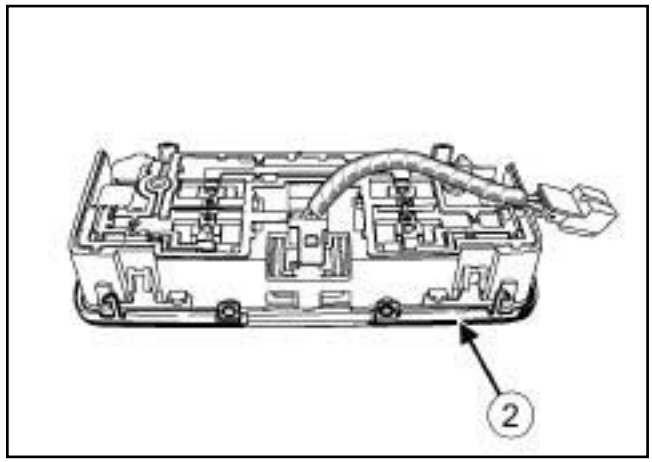

130644

❏

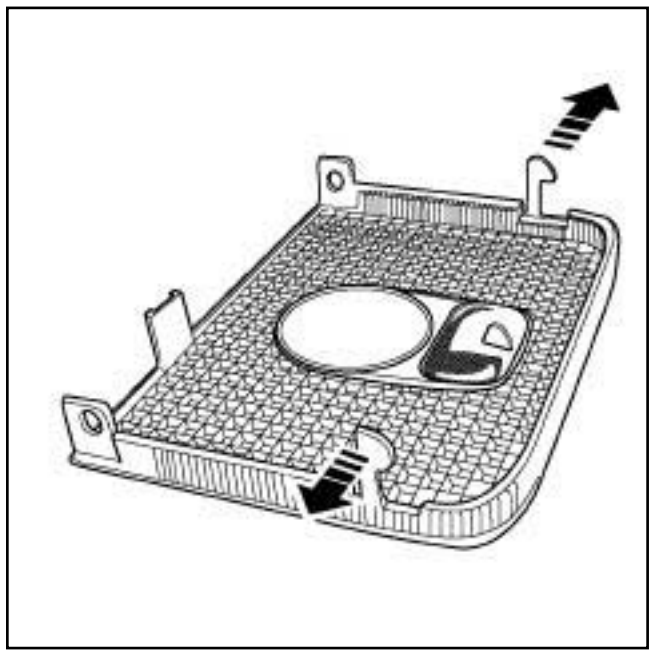
> Note:
>
> If using a flat-blade screwdriver, protect the courtesy light unit with a cloth.

❏ Unclip the courtesy light (**1**) using a small flat-blade screwdriver.

❏ Disconnect the connector.




130645



130646

❏ Unclip the transparent cover (**2**) .

❏ Remove the bulb.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved **12V 8W** bulb.

❏ Connect the courtesy lights connector.

❏ Refit the courtesy light.



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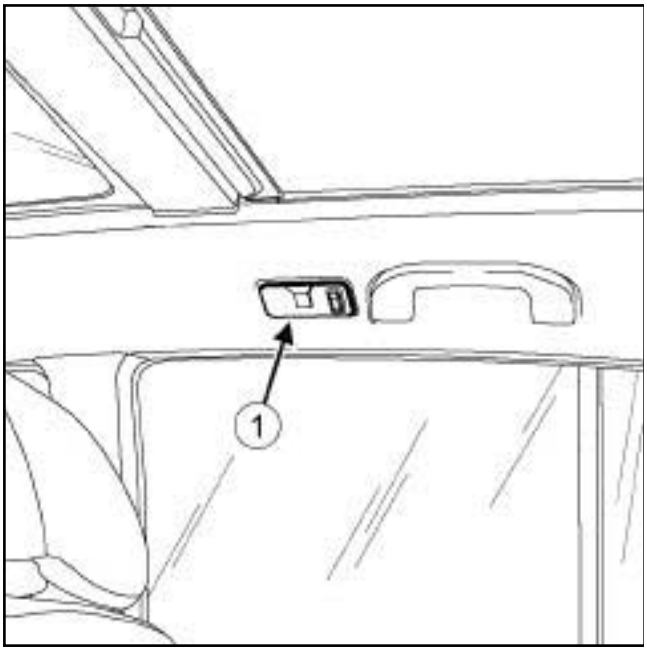
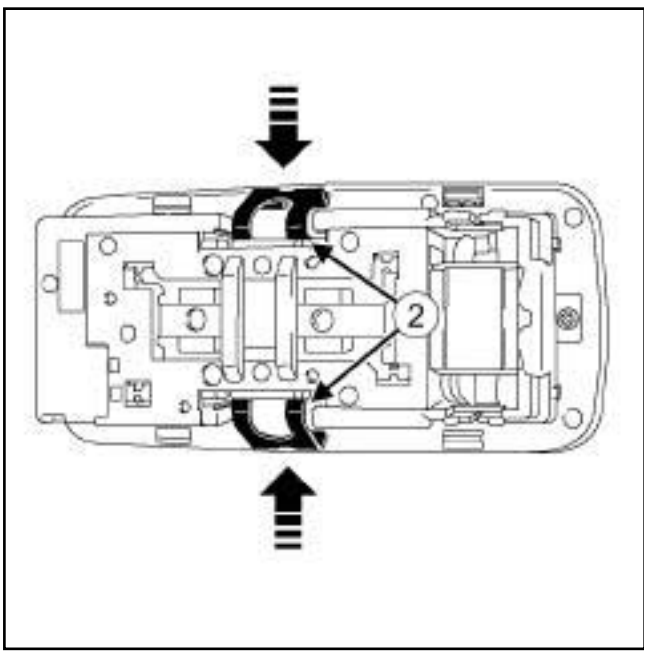
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



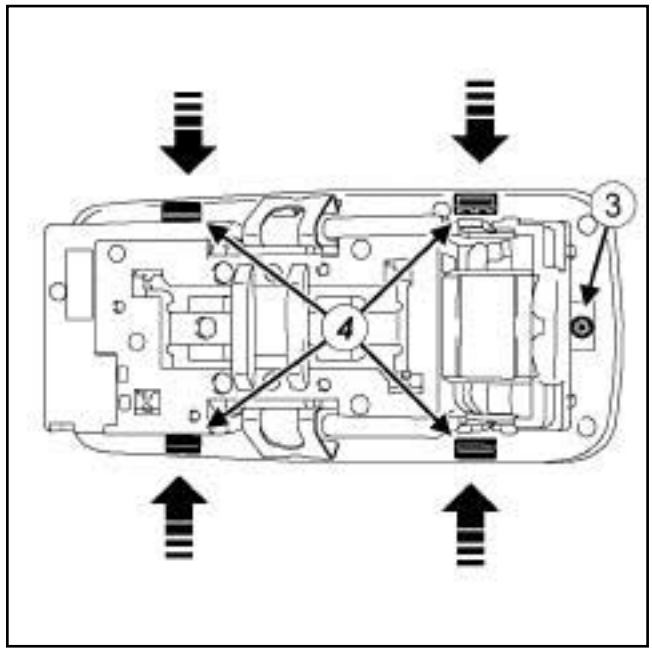

130657




130658

❏ Remove the headlining light (**1**) by unclipping the clips (**2**) using a small flat-blade screwdriver.

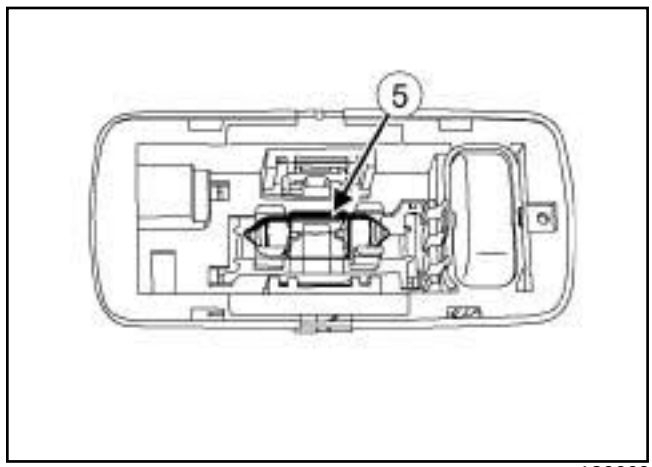
❏ Disconnect the connector.




130659

❏ Remove the bolt (**3**) .

❏ Unclip the translucent cover at (**4**) .




130660

❏ Remove the bulb (**5**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing a bulb, use an approved **12V 8W** bulb.

❏ Refit the bulb.

❏ Clip the translucent cover in place.

❏ Refit the bolt.

❏ Connect the connector.

❏ Refit the headlining light.



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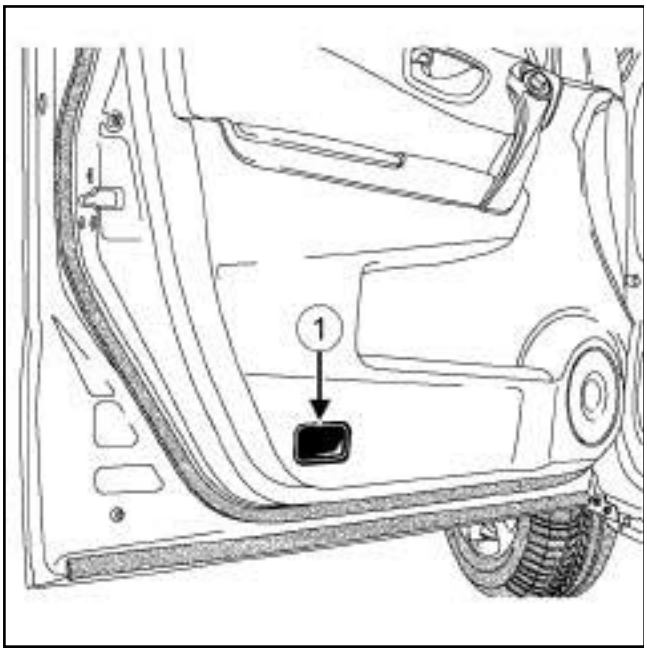
## REMOVAL

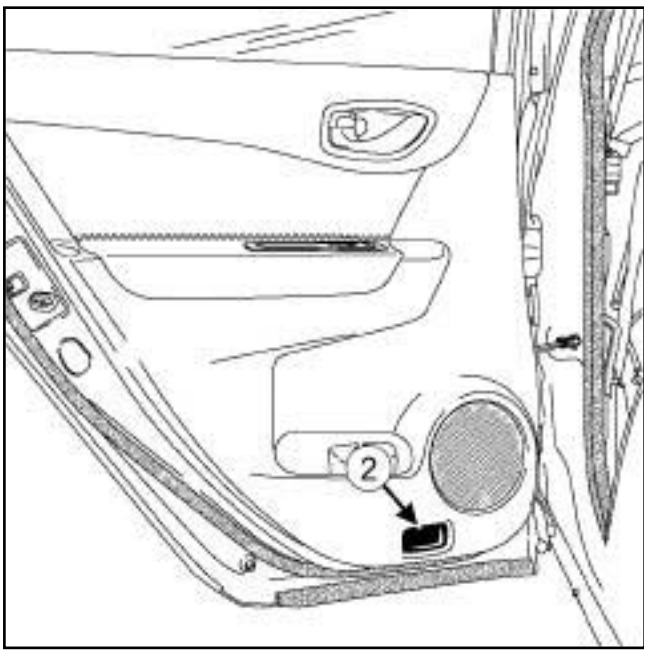
### OPERATION FOR REMOVAL OF PART CONCERNED

**Front door side**




130647

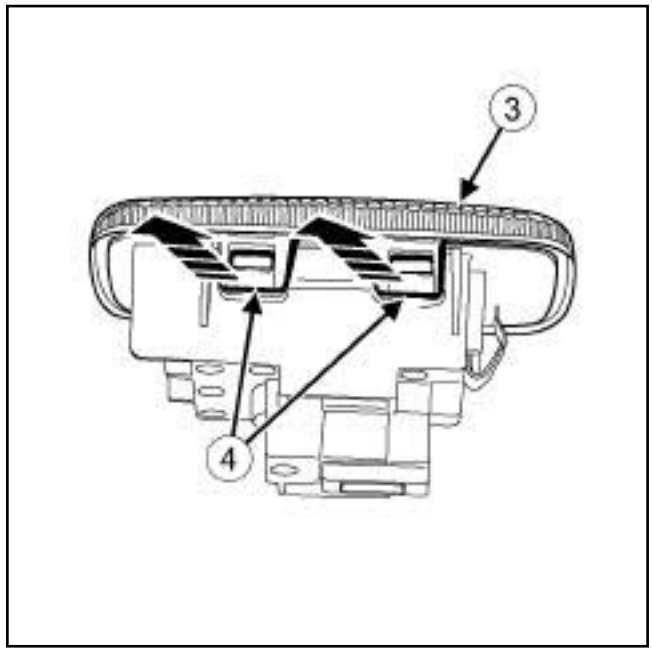
**Rear door side**




130648

❏ Remove the lower door light (**1**) or (**2**) using a small flat-blade screwdriver.

❏ Disconnect the connector.




130649

❏ Remove the translucent cover (**3**) by unclipping the clips (**4**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved **12V 5W** bulb.

❏ Refit the translucent cover.

❏ Connect the connector.

❏ Refit the lower door light.



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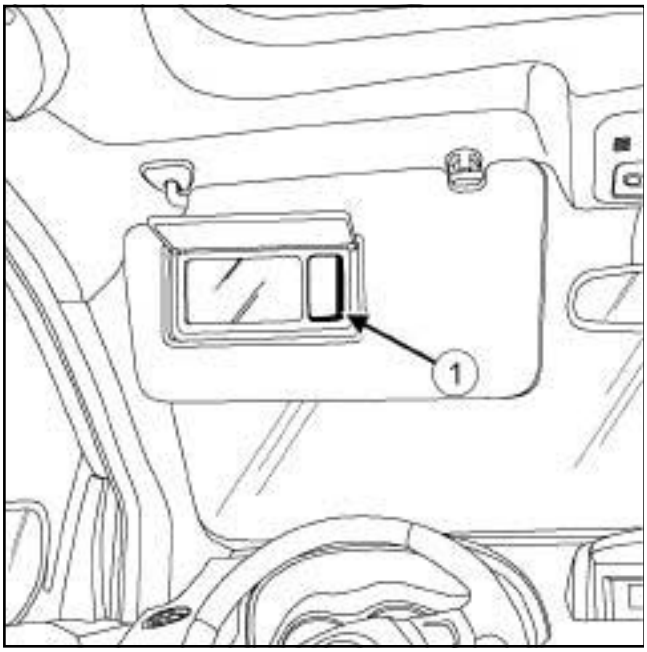
SUN VISOR + MIRROR WITH LIGHTING

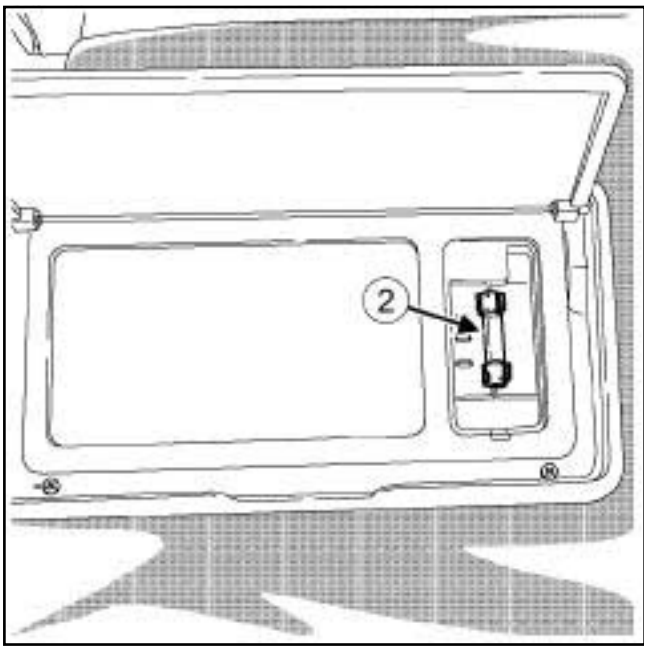
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130650

❏ Unclip the courtesy light translucent cover (**1**) using a small flat-blade screwdriver.




130651

❏ Remove the bulb (**2**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved **12V 0.25 A bulb.**

❏ Refit:

- the bulb,
- the translucent cover.



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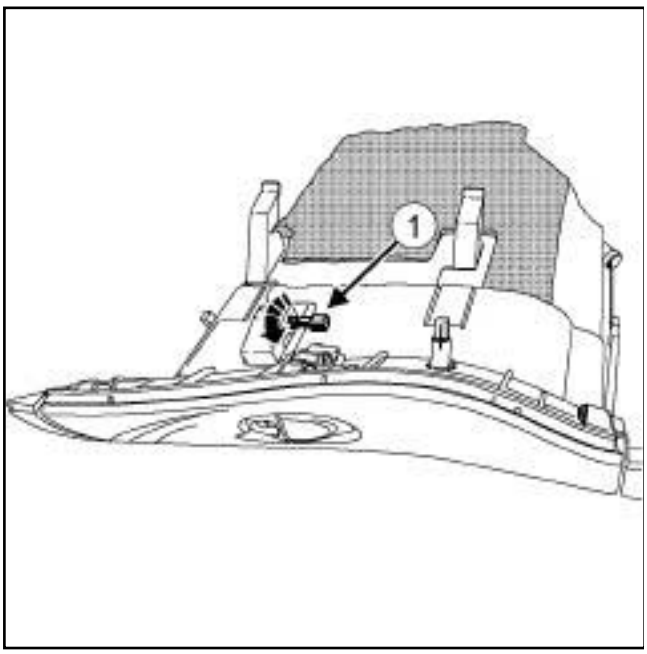
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130652

❏ Disconnect the storage compartment light connector.

❏ Remove the bulb and mounting assembly (**1**) by rotating in an anti-clockwise direction.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the storage compartment light bulb, replace the storage compartment light assembly.

❏ Refit the storage compartment light (**1**) by rotating it clockwise.

❏ Connect the connector.

### II - FINAL OPERATION

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).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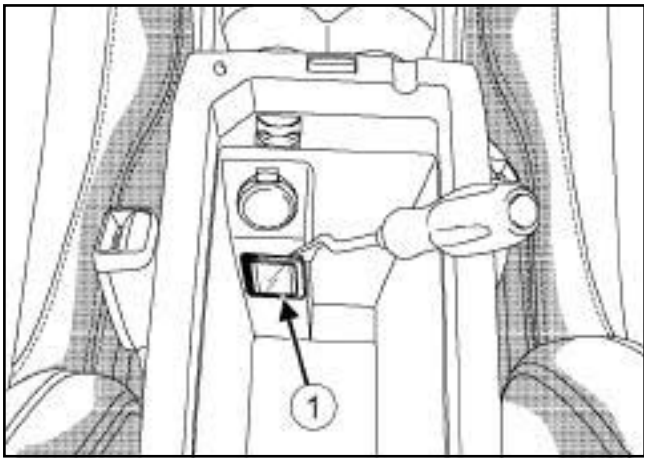
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130653

❏ Remove the centre console light (**1**) using a small flat-blade screwdriver.

❏ Disconnect the connector.

❏ Remove the bulb.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connector.

❏ Refit the centre console light.



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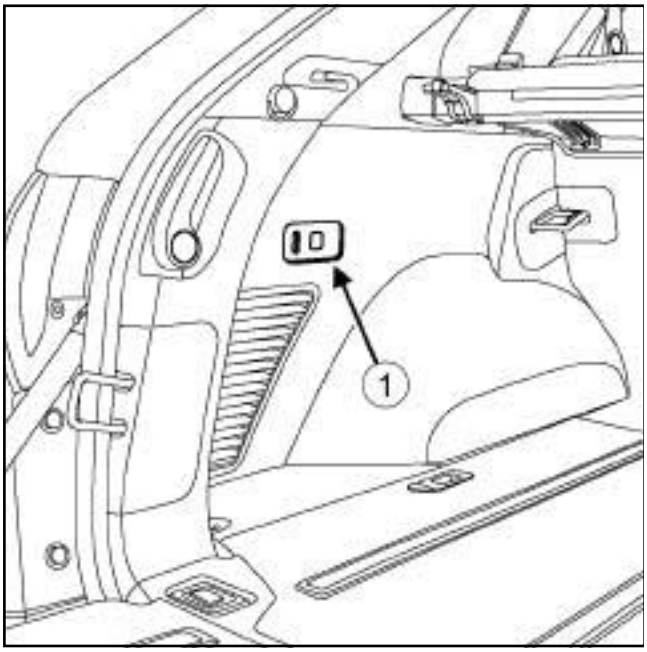
## REMOVAL

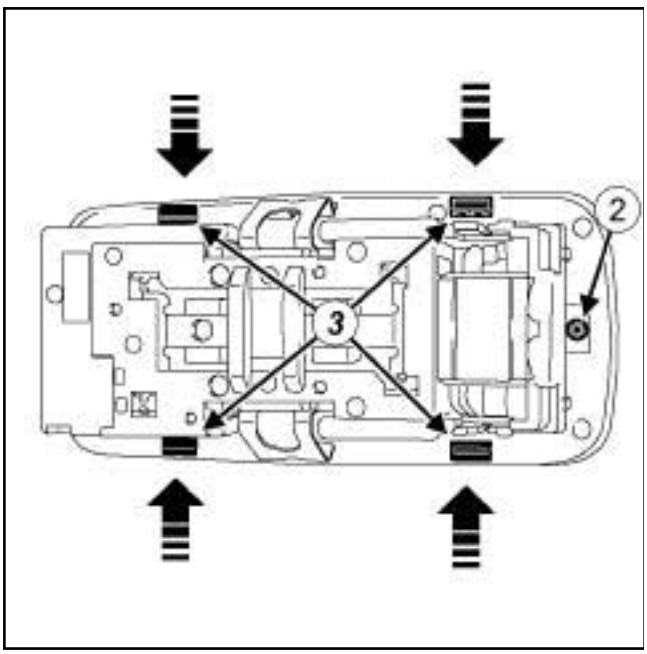
### OPERATION FOR REMOVAL OF PART CONCERNED




130654

❏ Unclip the luggage compartment light (**1**) by compressing the clip using a small flat-blade screwdriver.

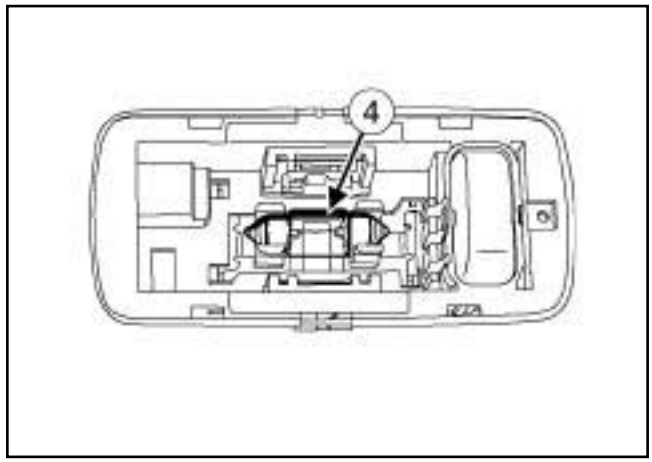
❏ Disconnect the connector.




130655

❏ Remove the bolt (**2**) .

❏ Unclip the translucent cover by unclipping the clips (**3**) .




130656

❏ Remove the bulb (**4**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ When replacing the bulb, use an approved **12V 8W** bulb.

❏ Refit the bulb.

❏ Clip the translucent cover in place.

❏ Refit the bolt.

❏ Connect the connector.

❏ Refit the luggage compartment light.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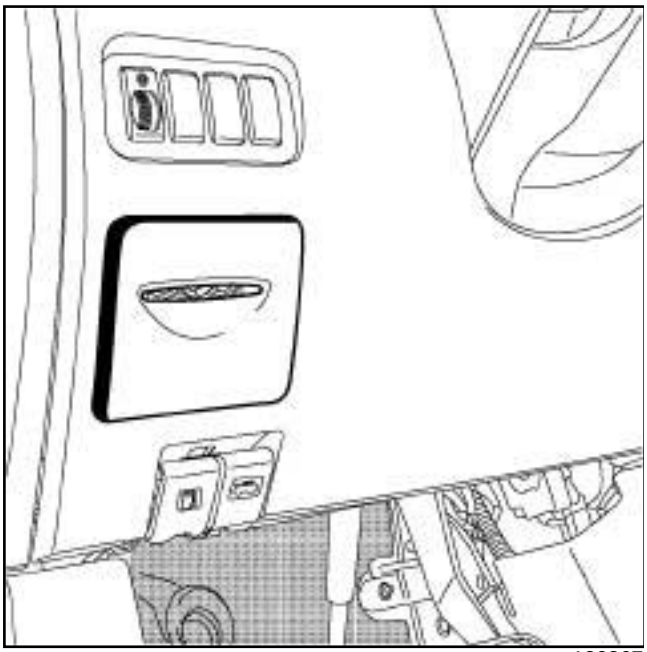
## I - LIST OF COMPONENTS

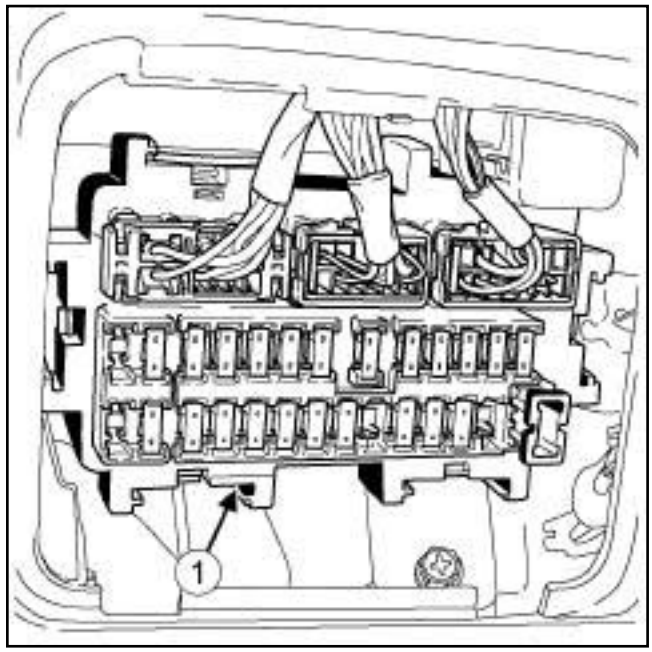
| No. | Description |
|---|---|
| *(1)* | Passenger compartment fuse and relay box |
| *(2)* | Engine fuse and relay box / supply fuse board |
| *(3)* | Battery protection fuses |
| *(4)* | Engine compartment connection unit |

## II - LOCATION OF COMPONENTS

### 1 - Passenger compartment fuse and relay box

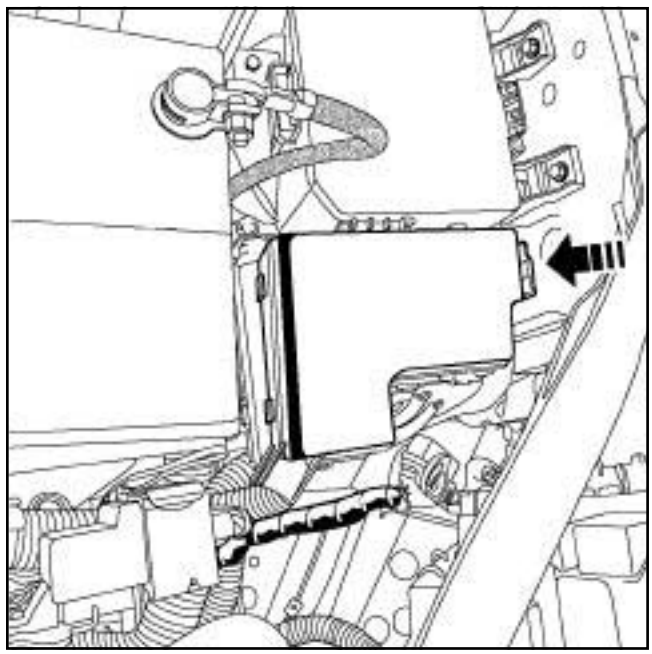


130367




130368

### 2 - Engine fuse and relay box / supply fuse board



130369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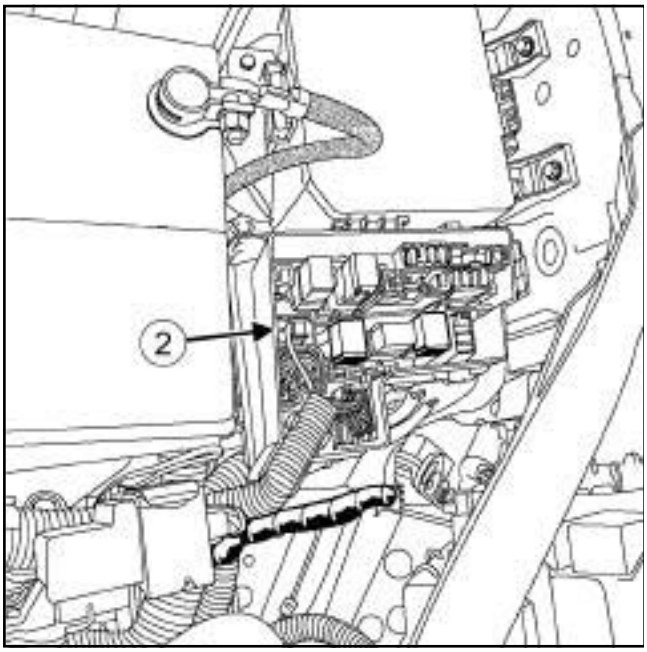
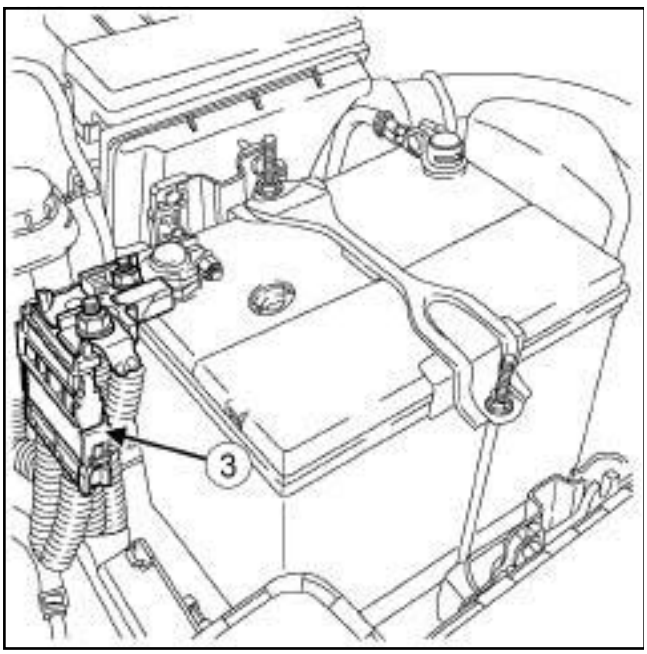



130370

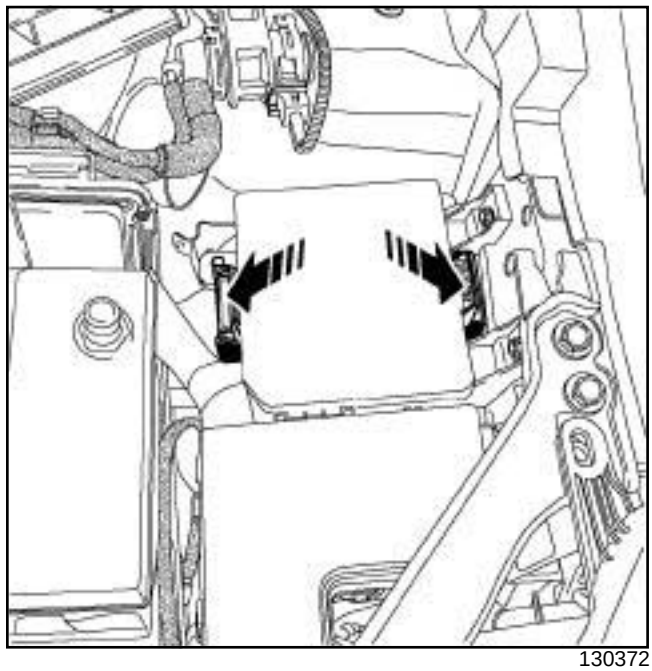
**3 - Battery protection fuses**



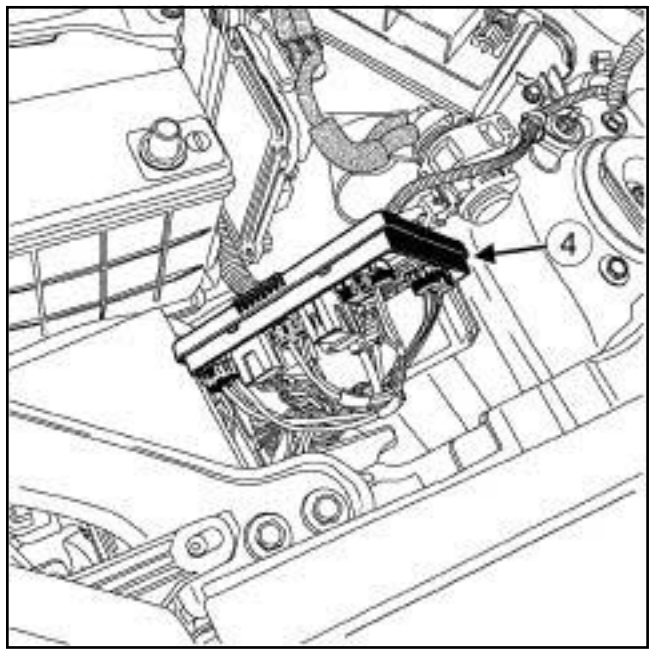

130371

These fuses are located on the positive battery terminal.

**4 - Engine compartment connection unit**



130372




130373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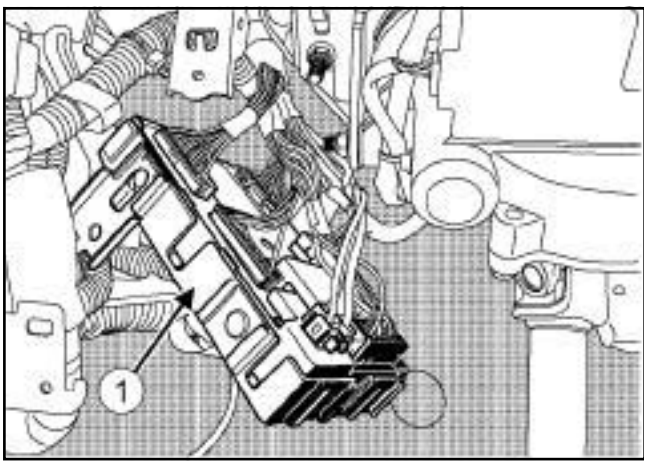
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Front starting aerial |
| *(3)* | Central starting aerial |
| *(4)* | Rear starting aerial |
| *(5)* | Start button |
| *(6)* | Card reader |
| *(7)* | Electric steering column lock |
| *(8)* | Card |

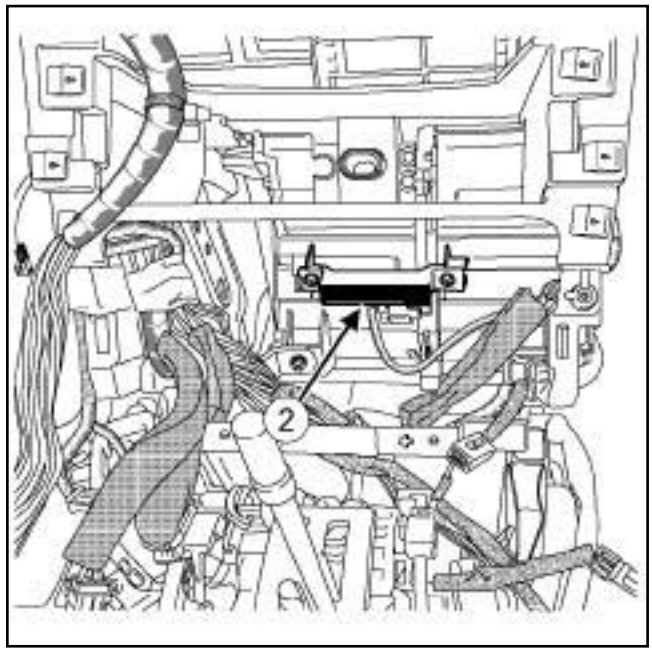
## II - LOCATION OF COMPONENTS

**1 - UCH**



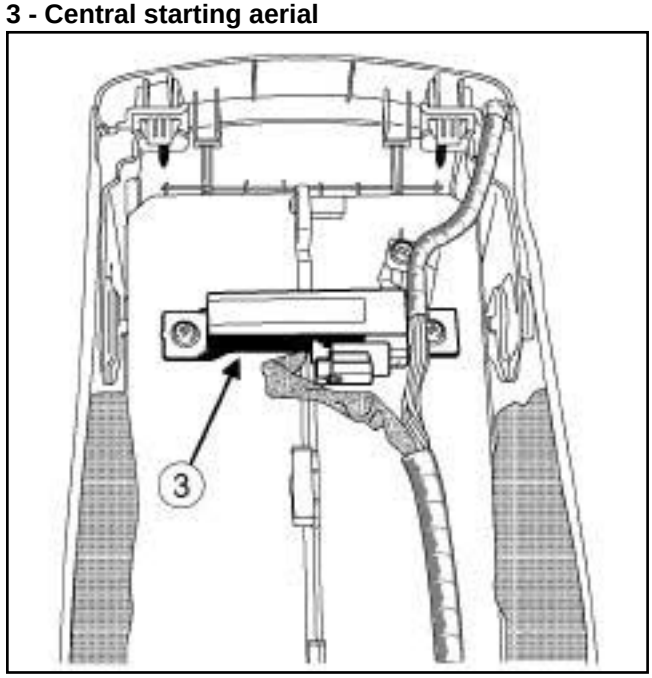

130661

**2 - Front starting aerial**




130662

**3 - Central starting aerial**




130663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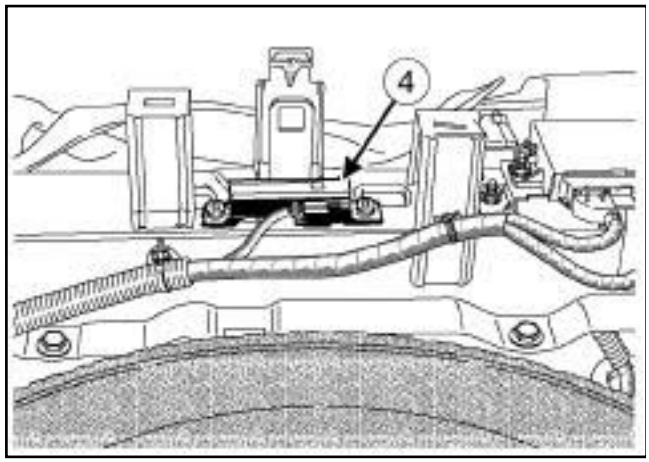
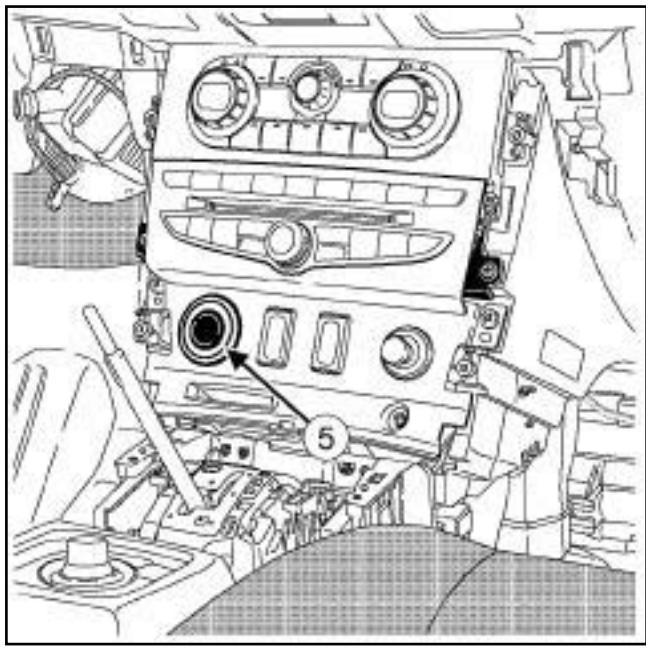
**4 - Rear starting aerial**



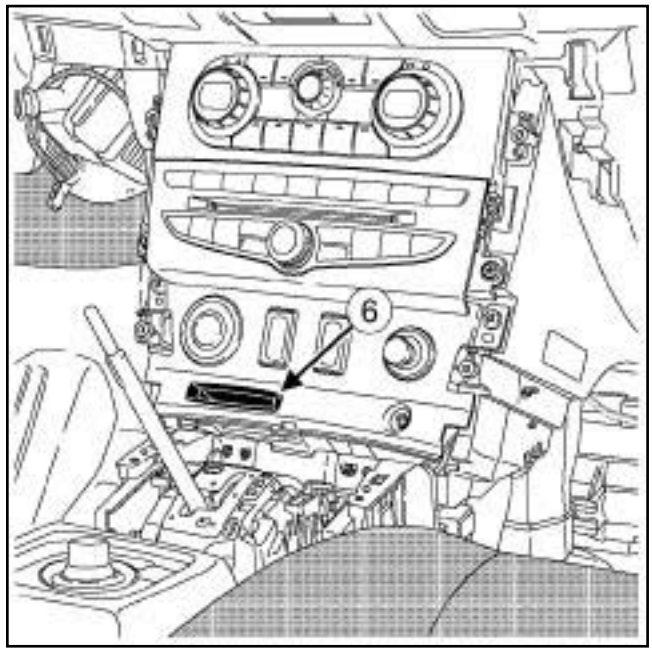

130664

**5 - Start button**



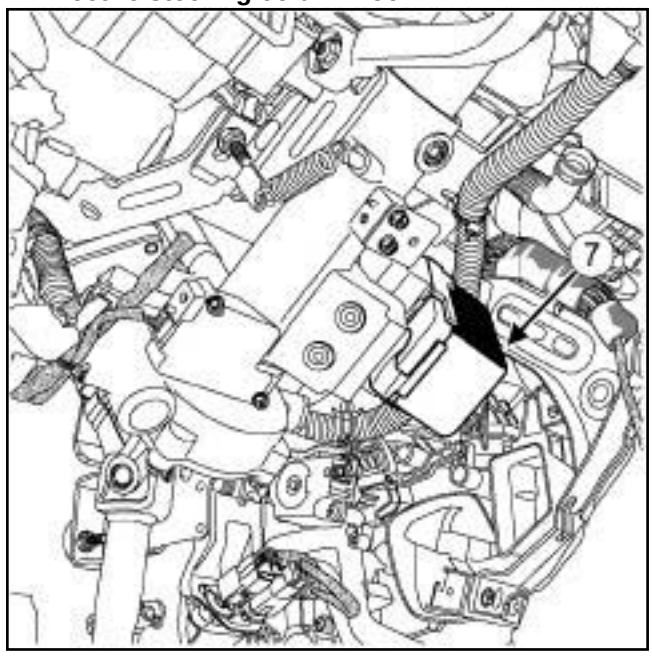

130665

**6 - Card reader**




130666

**7 - Electric steering column lock**




130667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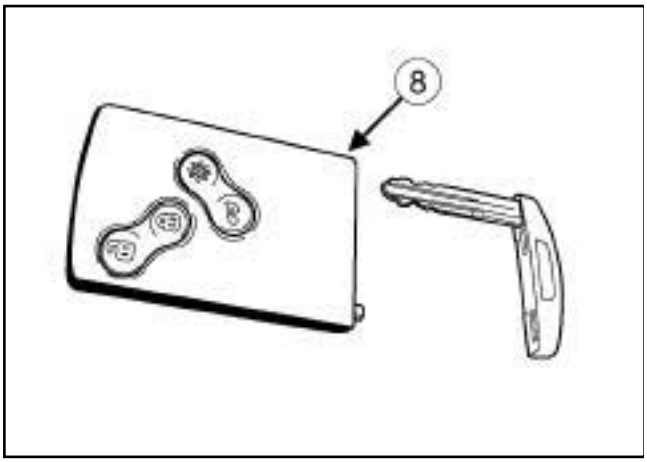
**8 - Card**




130668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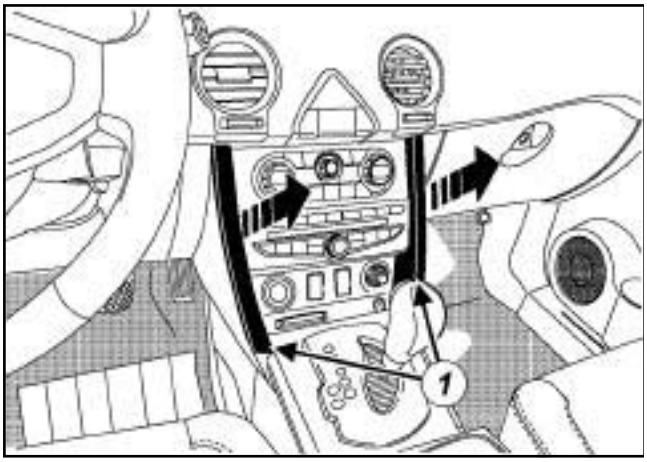
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

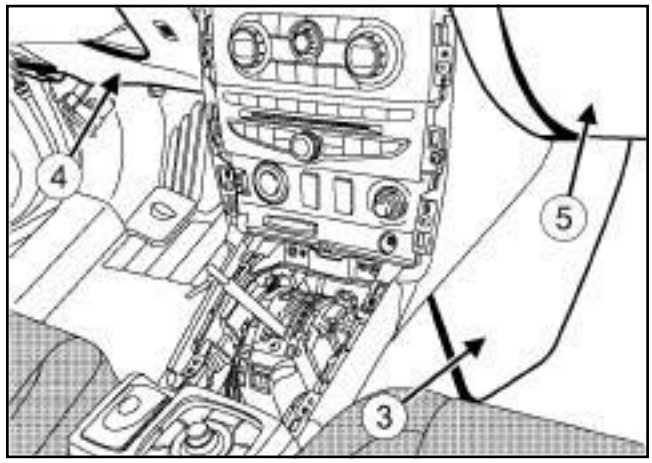



130758

❏ Remove the side trims (**1**) from the centre front panel.

130670

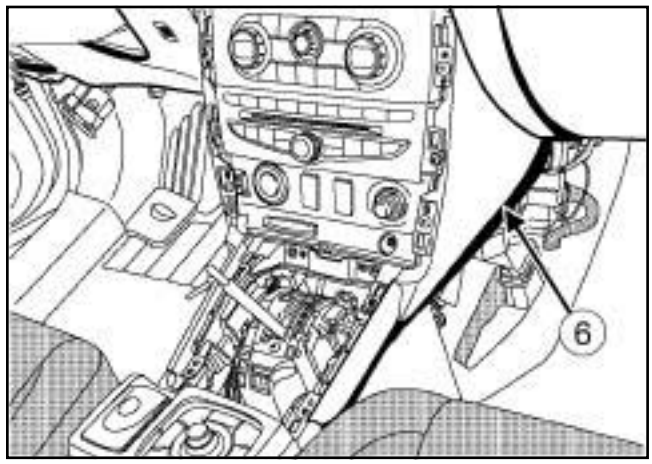
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




130672

❏ Remove:

- the lower covers (**3**) from the centre front panel (see **Dashboard: Removal - Refitting**) ,
- the dashboard lower cover (**4**) on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (**5**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).




130673

❏ Remove:

- the side trims (**6**) from the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the CD changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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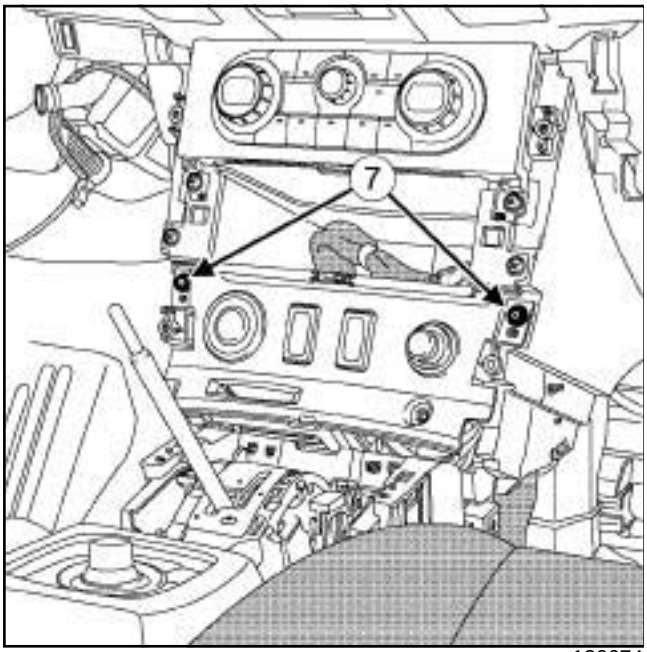
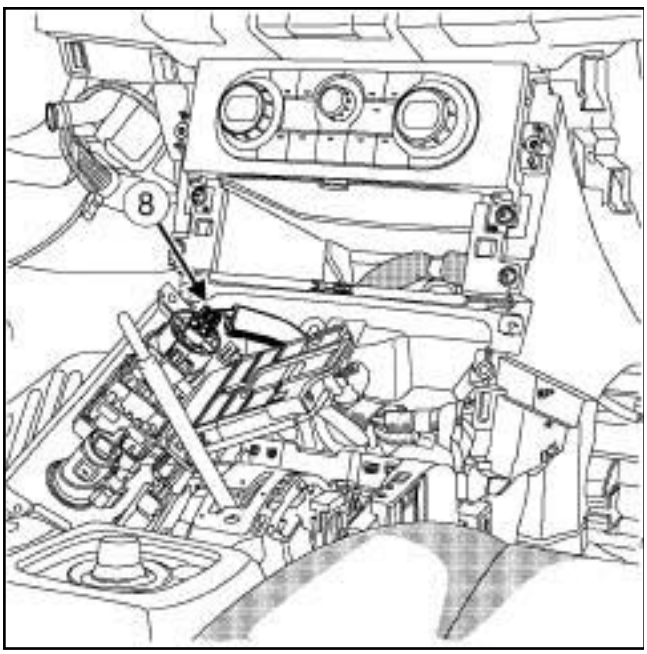
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130674

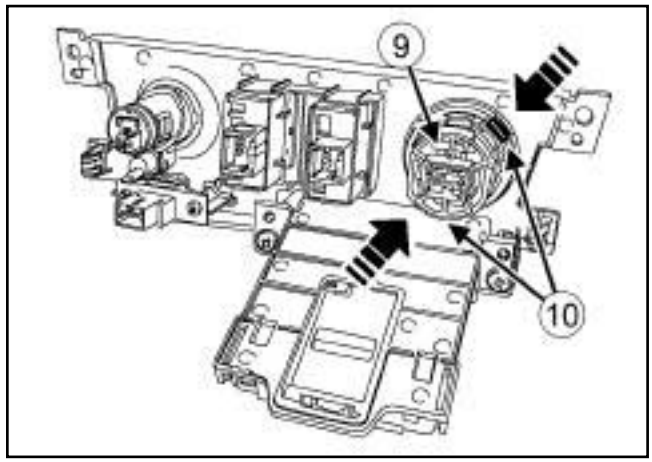
❏ Remove:

- the bolts (**7**) ,
- the starter control panel.




130675

❏ Disconnect the connector (**8**) .




130676

❏ Remove the start button (**9**) by squeezing the clips (**10**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the start button on the control panel.

❏ Connect the start button connector.

❏ Refit:

- the starter control panel,
- the starter control panel bolts.

**II - FINAL OPERATION**

❏ Refit:

- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the side trims ***(6)*** of the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover ***(4)*** on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower covers ***(3)*** of the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the plate ***(2)*** of the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the side trim ***(1)*** of the centre front panel.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| Essential equipmentEssential equipment |
|---|
| diagnostic tool |

| Tightening torques ▽ | |
|---|---|
| electric steering column lock bolts | **15 N.m** |

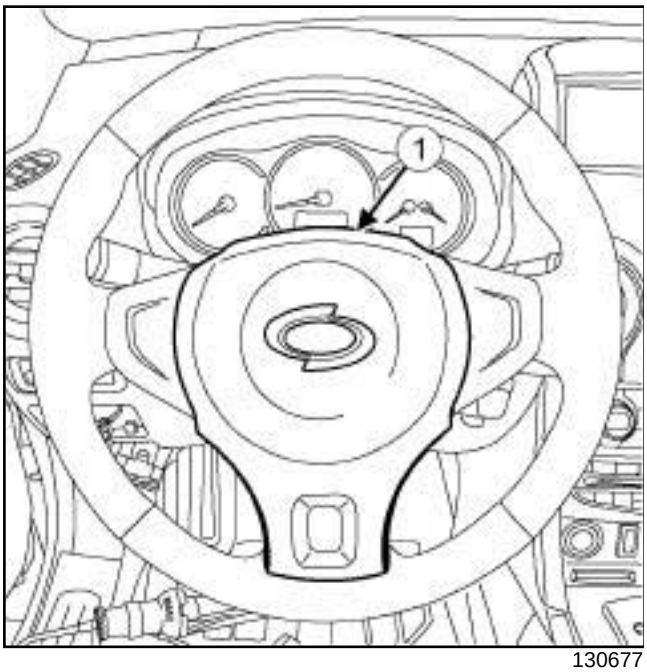
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

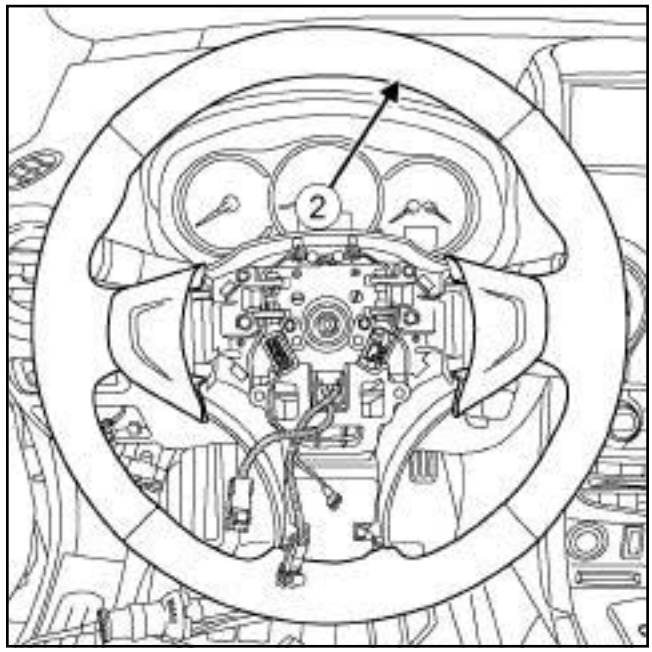
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .



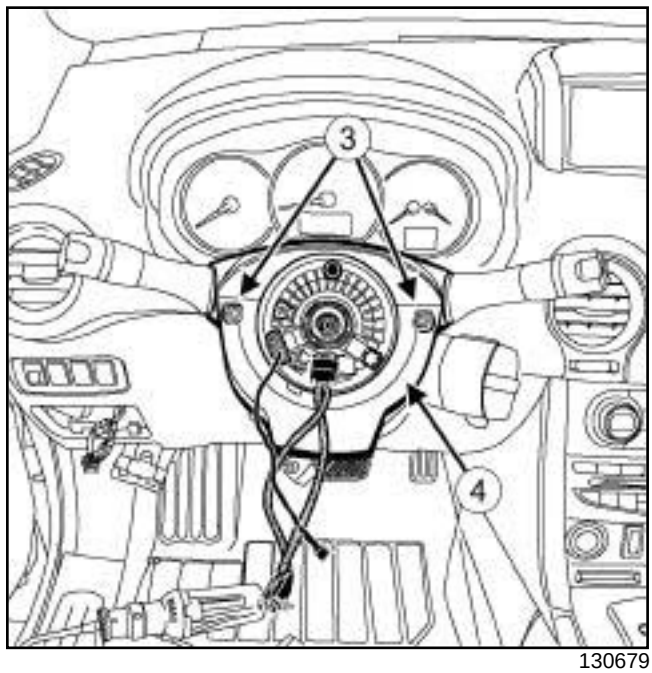
130677

❑ Remove the driver's front airbag (**1**) (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .



130678

❑ Remove the steering wheel (**2**) (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly).



130679

❑ Remove:

- the bolts (**3**) ,
- the cover (**4**) ,
- the radio control satellite (see **86A**, **Radio**, **Radio control satellite: Removal - Refitting**, page **86A-17**) ,
- the steering column lower cover.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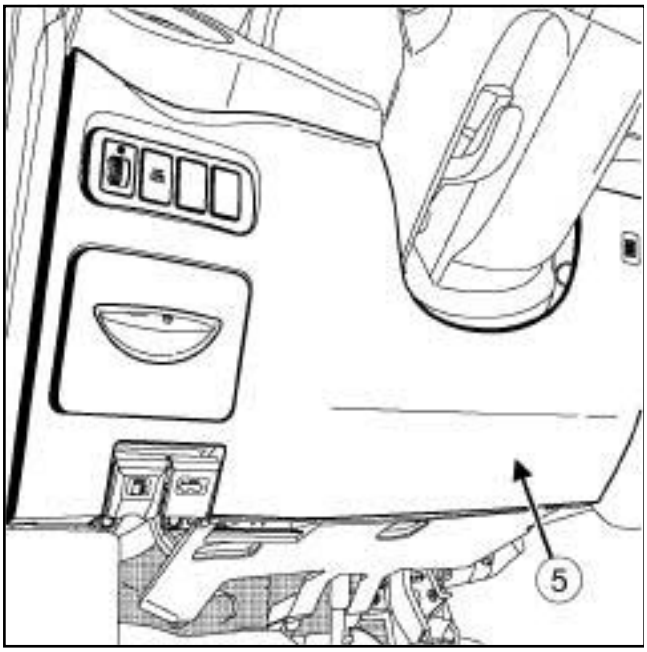
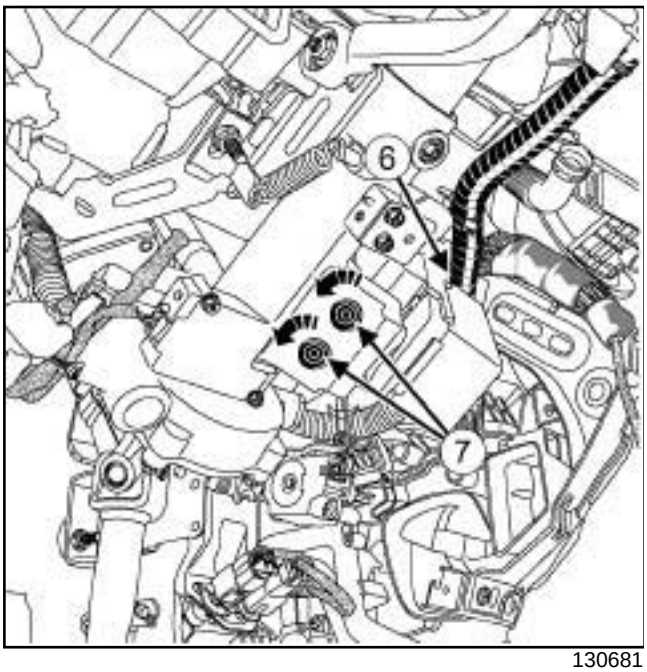



130680

❏ Remove the dashboard lower cover (**5**) on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

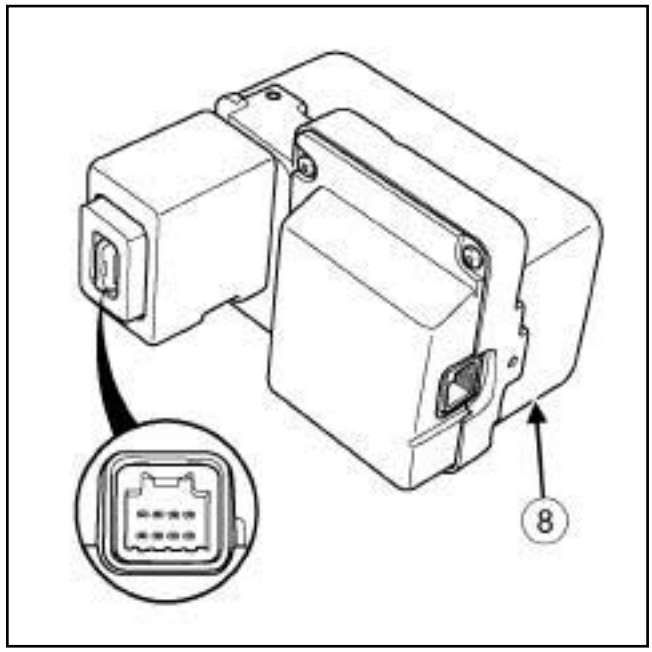
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130681

❏ Disconnect the electric steering column lock connector (**6**) .

❏ Remove the bolts (**7**) from the electric steering column lock by rotating them anticlockwise using a punch.




130682

❏

Note:

To remove the electric steering column lock, it must be in the « unlocked » position.

❏ Remove the electric steering column lock (**8**) .

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the electric steering column lock.

Note:

The electric steering column lock bolts are shearing bolts. A tightening torque of **16 N.m** will cut off the bolt head.

❏ Torque tighten the **electric steering column lock bolts (15 N.m)**.

❏ Connect the electric steering column lock connector.

Note:

To program the electric steering column lock, the immobiliser code must be stored in the computer.

Running tests with computers borrowed from the Parts Department or from another vehicle which must then be returned is prohibited.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**II - FINAL OPERATION**

❑ Refit:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column lower cover,
- the radio control satellite (see **86A**, **Radio**, **Radio control satellite: Removal - Refitting**, page **86A-17**) ,
- the cover,
- the bolts,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ When replacing the steering column electric lock, carry out the necessary operations using the **diagnostic tool** (see **Replacement of components**) (87B, Passenger compartment connection unit).


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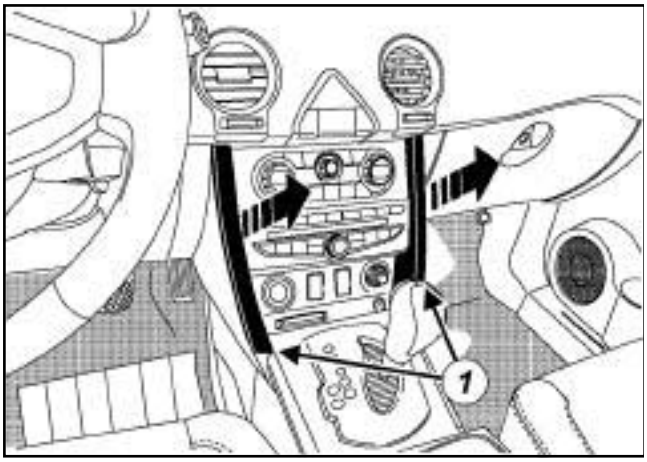
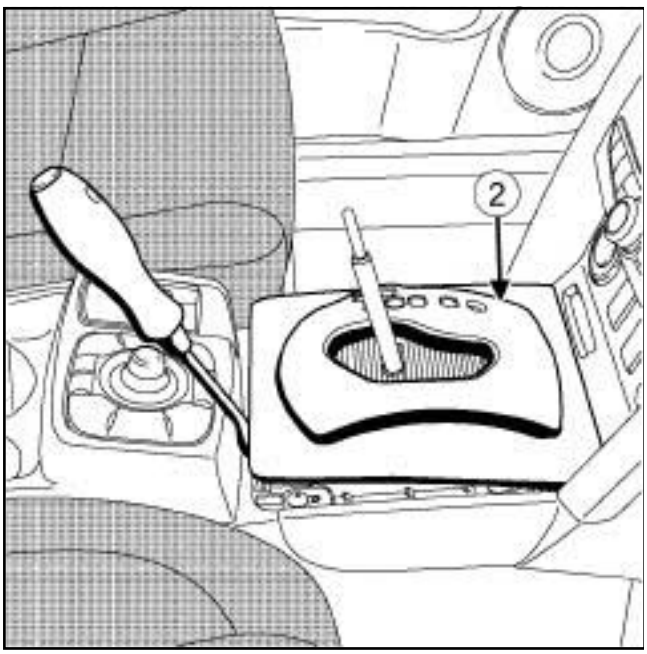
## REMOVAL

### I - REMOVAL PREPARATION OPERATION



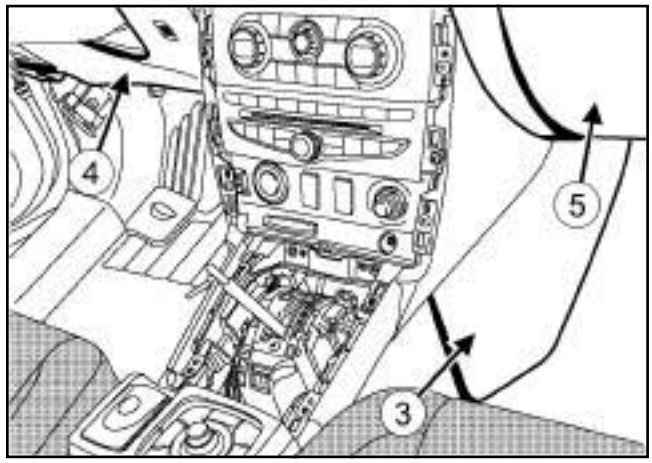

130758

❏ Remove the side trims (**1**) from the centre front panel.




130684

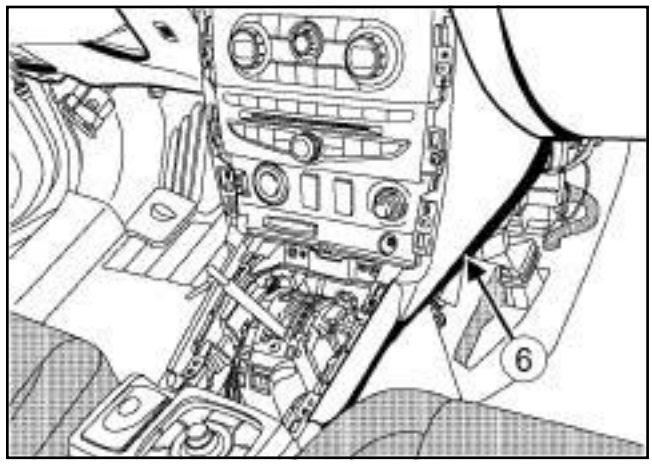
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




130685

❏ Remove:

- the lower covers (**3**) from the centre front panel (see **Dashboard: Removal - Refitting**) ,
- the dashboard lower cover (**4**) on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (**5**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).




130686

❏ Remove:

- the side trims (**6**) from the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the CD changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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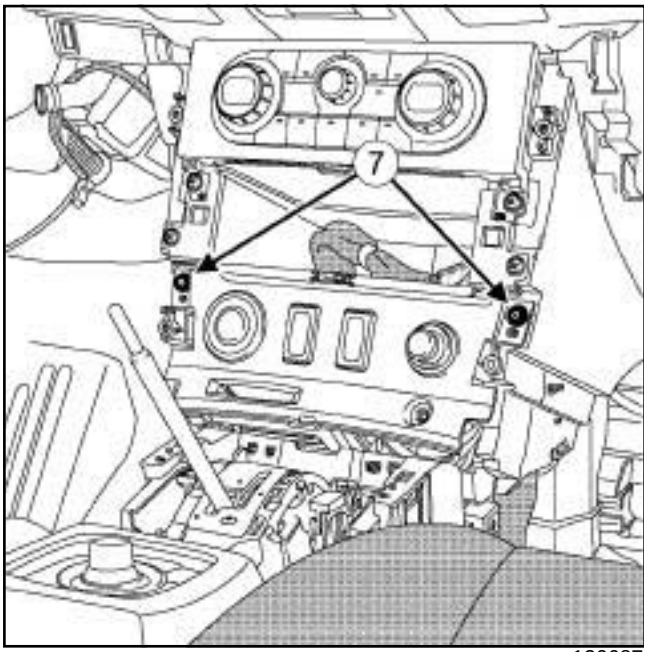
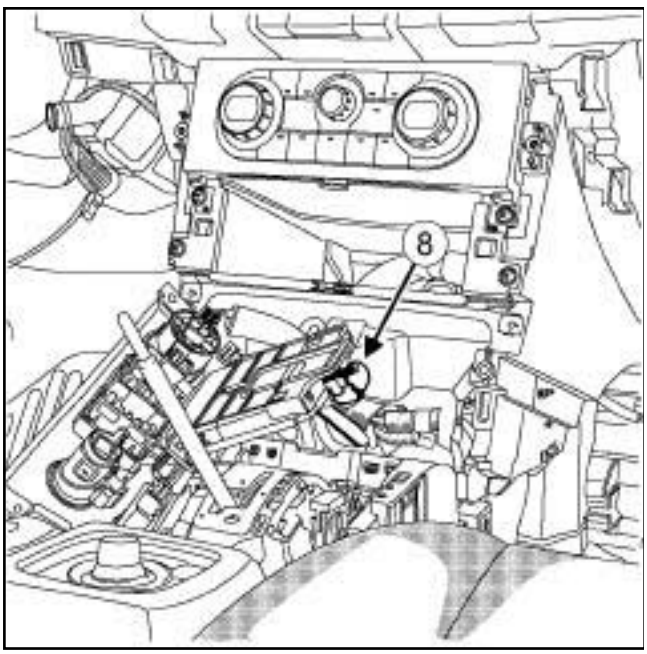
**II - OPERATION FOR REMOVAL OF PART CONCERNED**




130687

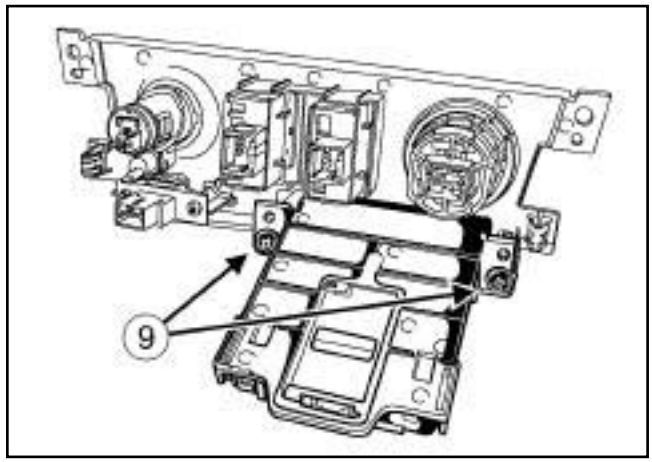
❏ Remove:

- the starter control panel bolts (**7**) ,
- the starter control panel.




130688

❏ Disconnect the connector (**8**) .




130689

❏ Remove:

- the card reader bolts (**9**) ,
- the card reader.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit:

- the card reader,
- the card reader bolts.

❏ Connect the card reader connector.

❏ Refit:

- the starter control panel,
- the starter control panel bolts.

**II - FINAL OPERATION**

❏ Refit:

- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the side trims ***(6)*** of the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower cover ***(4)*** on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),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- the lower covers ***(3)*** of the centre front panel (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the plate ***(2)*** of the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the side trims ***(1)*** of the centre front panel.


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

#### 1 - Front starting aerial

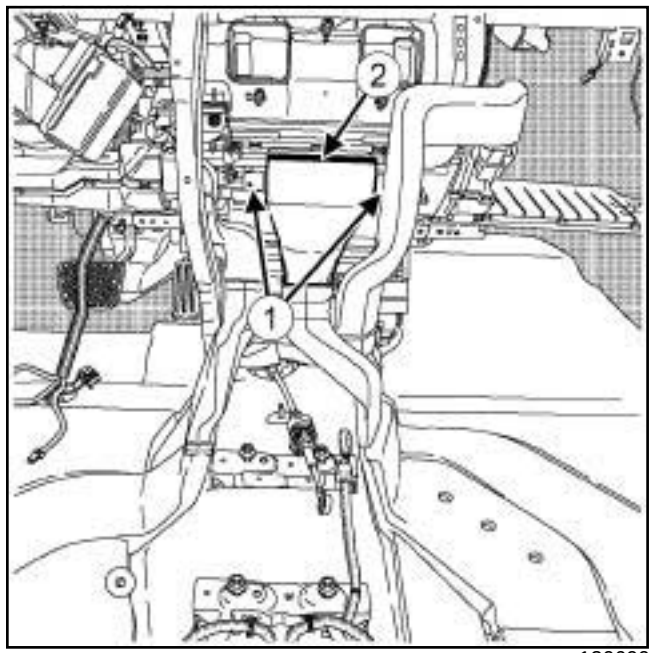
❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove:

- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **86A**, **Radio**, **Radio control satellite: Removal - Refitting**, page **86A-17**) ,
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch (see **84A**, **Control - Signals**, **Rotary switch: Removal - Refitting**, page **84A-2**) ,
- the steering column switch assembly (see **84A**, **Control - Signals**, **Steering wheel controls assembly: Removal - Refitting**, page **84A-4**) ,
- the instrument panel (see **83A**, **Instrument panel**, **Instrument panel: Removal - Refitting**, page **83A-1**) ,
- the front centre speaker (see **86A**, **Radio**, **Front speakers: Removal - Refitting**, page **86A-11**) ,
- the display (see **86A**, **Radio**, **Display: Removal - Refitting**, page **86A-15**) ,
- the tweeter (see **86A**, **Radio**, **Tweeter: Removal - Refitting**, page **86A-10**) ,
- the solar radiation detector (see **Insolation sensor: Removal - Refitting**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the control panel (see **Control panel: Removal - Refitting**) (61A, Heating),
- the starter control panel (see **82A**, **Engine immobiliser**, **Card reader: Removal - Refitting**, page **82A-9**) ,
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment),
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



130690

❑ Remove:

- the bolts (**1**) ,
- the rear air distribution duct (**2**) .

#### 2 - Central starting aerial

❑ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).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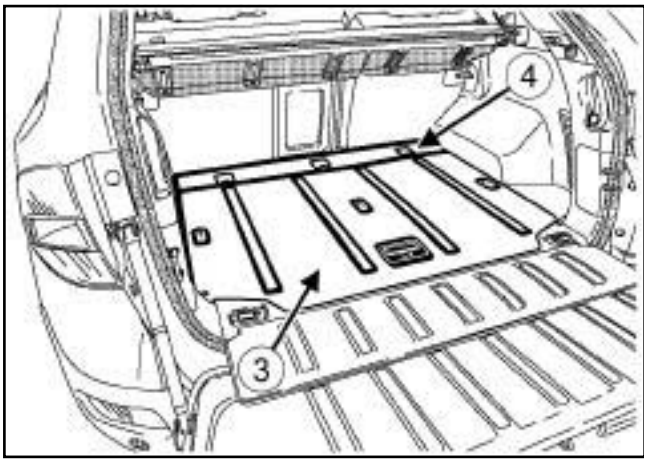
**3 - Rear starting aerial**



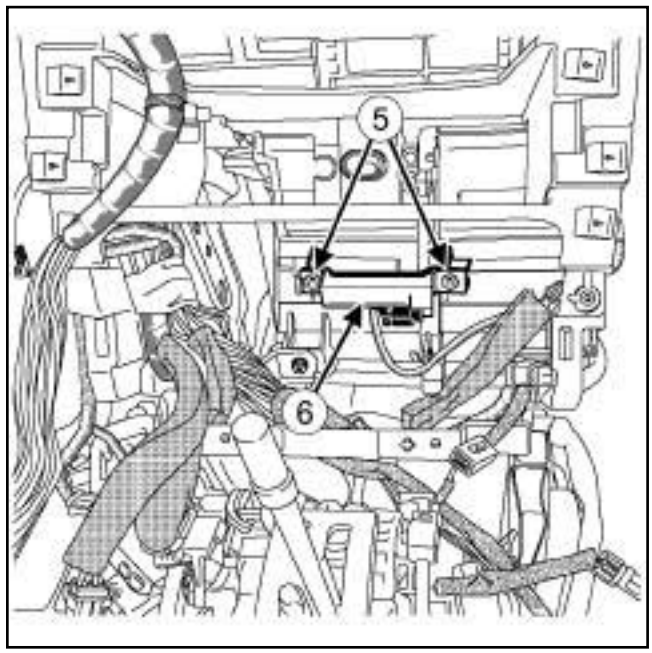

130691

❏ Remove:

- the luggage compartment front centre floor trim (**3**) (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment front floor trim (**4**) (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

**1 - Front starting aerial**




130692

❏ Remove:

- the mounting clips (**5**) ,
- the front starting aerial (**6**) .

❏ Disconnect the front starting aerial connector.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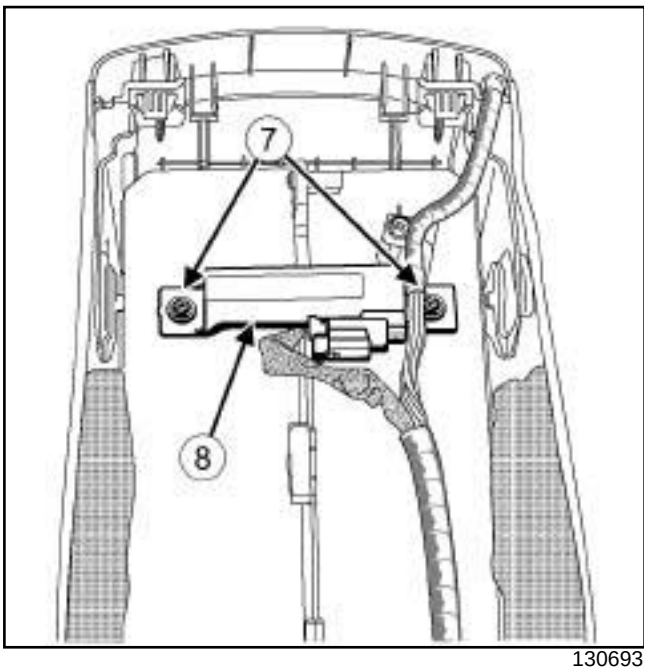
**2 - Central starting aerial**



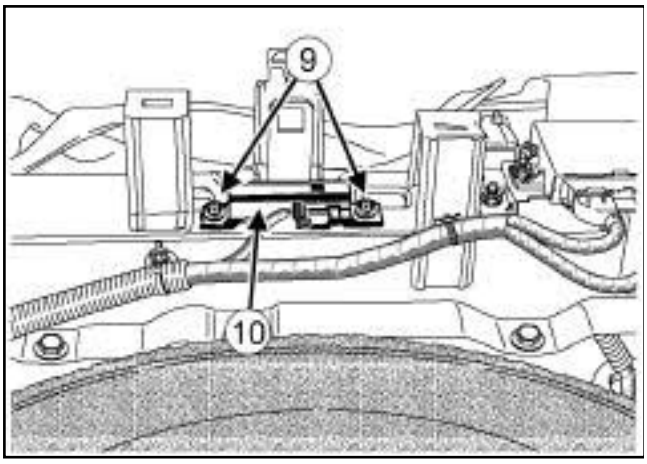

130693

❏ Remove:

- the mounting clips (**7**) ,
- the central starting aerial (**8**) .

❏ Disconnect the front starting aerial connector.

**3 - Rear starting aerial**




130694

❏ Remove:

- the mounting clips (**9**) ,
- the rear starting aerial (**10**) .

❏ Disconnect the front starting aerial connector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Front starting aerial**

❏ Connect the front starting aerial connector.

❏ Refit:

- the front starting aerial,
- the mounting clips.

**2 - Central starting aerial**

❏ Connect the front starting aerial connector.

❏ Refit:

- the central starting aerial,
- the mounting clips.

**3 - Rear starting aerial**

❏ Connect the front starting aerial connector.

❏ Refit:

- the rear starting aerial,
- the mounting clips.

### II - FINAL OPERATION.

**1 - Front starting aerial**

❏ Refit:

- the rear air distribution duct,
- the rear air distribution duct bolts,
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- the central console (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment),
- the starter control panel (see **82A**, **Engine immobiliser**, **Card reader: Removal - Refitting**, page **82A-9**) ,
- the control panel (see **Control panel: Removal - Refitting**) (61A, Heating),
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,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- the solar radiation detector (see **Insolation sensor: Removal - Refitting**) ,
- the tweeter (see **86A**, **Radio**, **Tweeter: Removal - Refitting**, page **86A-10**) ,
- the display (see **86A**, **Radio**, **Display: Removal - Refitting**, page **86A-15**) ,
- the front centre speaker (see **86A**, **Radio**, **Front speakers: Removal - Refitting**, page **86A-11**) ,
- the instrument panel (see **83A**, **Instrument panel**, **Instrument panel: Removal - Refitting**, page **83A-1**) ,
- the steering column switch assembly (see **84A**, **Control - Signals**, **Steering wheel controls assembly: Removal - Refitting**, page **84A-4**) ,
- the rotary switch (see **84A**, **Control - Signals**, **Rotary switch: Removal - Refitting**, page **84A-2**) ,
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the radio control satellite (see **86A**, **Radio**, **Radio control satellite: Removal - Refitting**, page **86A-17**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**2 - Central starting aerial**

❏ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

**3 - Rear starting aerial**

❏ Refit:

- the luggage compartment front floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment front centre floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).


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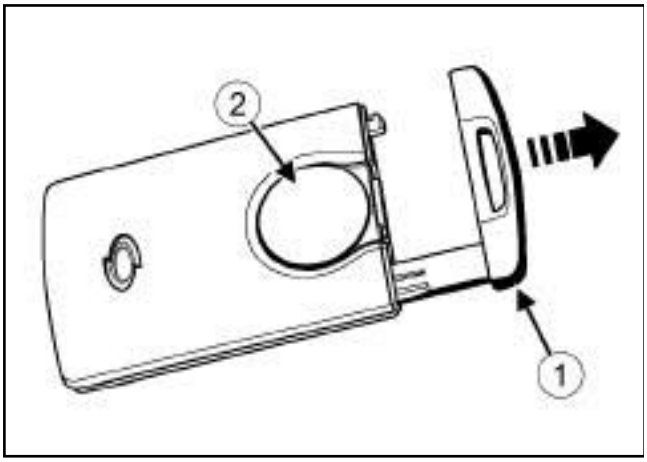
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130695

❑ Remove:

- the emergency key (**1**) ,
- the battery cover (**2**) from the door locking remote control using a flat-blade screwdriver,
- the door locking remote control battery.

## REFITTING

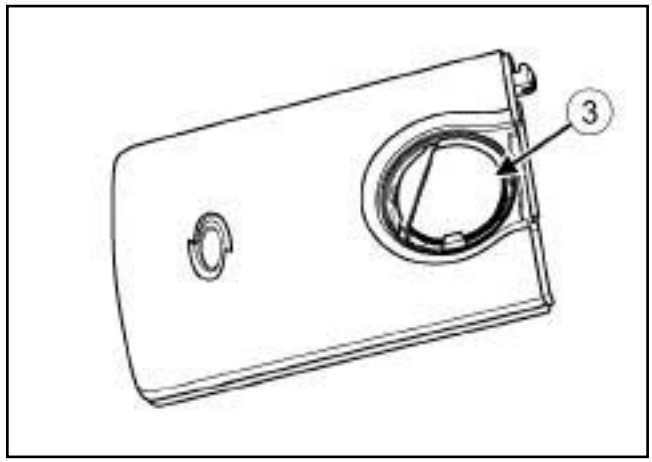
### REFITTING OPERATION FOR PART CONCERNED

❑

**WARNING**

To ensure that the remote control operates correctly, take care not to damage the battery contacts.

Only handle the new battery with dry, grease-free hands or wearing clean gloves to avoid any risk of dirt and oxidation on the battery.




130696

❑ Refit:

- the door locking remote control battery (**3**) using a flat-blade screwdriver,
- the door locking remote control battery cover,
- the emergency key.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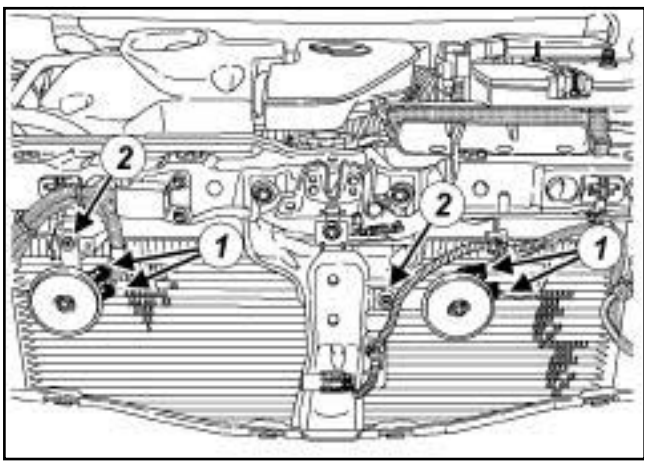
| Tightening torques ▽ | |
|---|---|
| audible warning bolts | **21 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130839

❏ Disconnect the audible warning connectors (**1**) .

❏ Remove:

- the audible warning bolts (**2**) ,
- the audible warnings.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the audible warnings.

❏ Torque tighten the **audible warning bolts (21 N.m)**.

❏ Connect the audible warning connectors.

### II - FINAL OPERATION.

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).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# Alarm: List and location of components

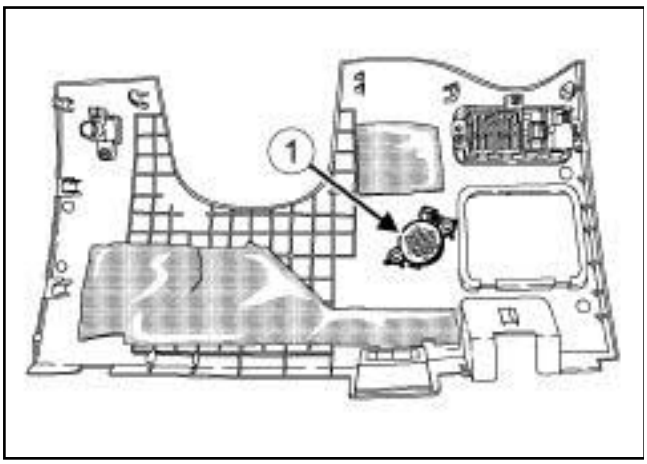
ALARM 01

## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Front parking distance control buzzer |
| *(2)* | Rear parking distance control buzzer |
| *(3)* | Instrument panel buzzer |

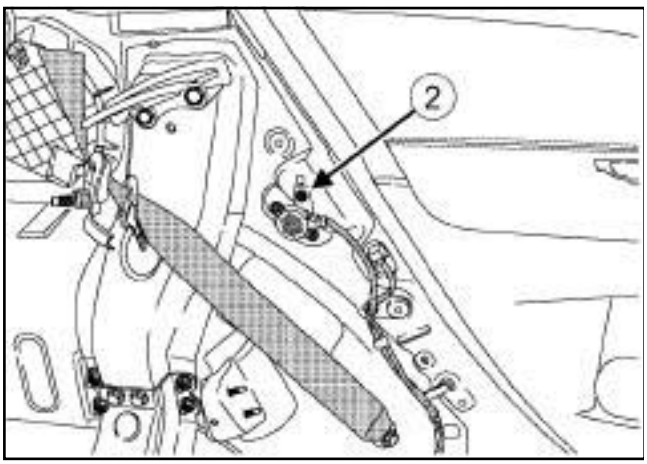
## II - POSITION OF THE COMPONENTS

### 1 - Front parking distance control buzzer



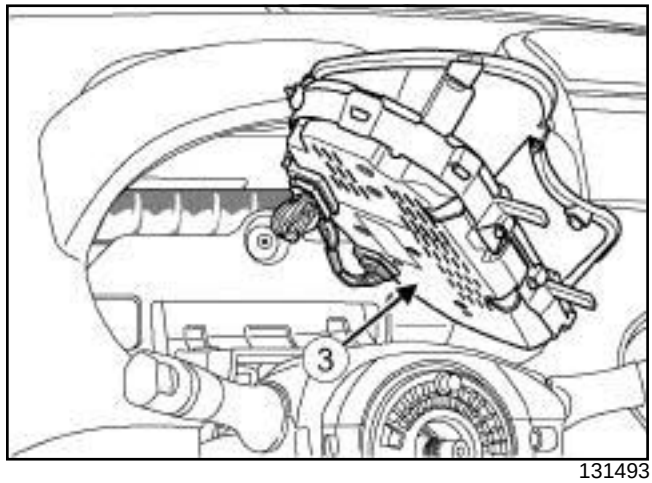

131491

### 2 - Rear parking distance control buzzer




131492

### 3 - Instrument panel buzzer




131493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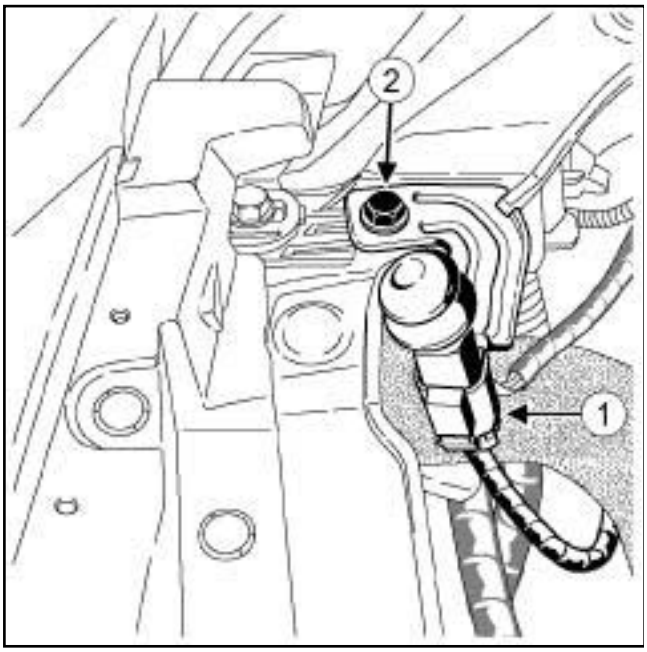
ALARM 01

## REMOVAL

### REMOVAL OF PART CONCERNED




131362

❏ Disconnect the connector (**1**) from the bonnet switch.

❏ Remove:

- the bonnet switch bolt (**2**) ,
- the bonnet switch with the support.

## REFITTING

### REFITTING PART CONCERNED

❏ Refit:

- the bonnet switch with the support,
- the bonnet switch bolt.

❏ Connect the bonnet switch connector.



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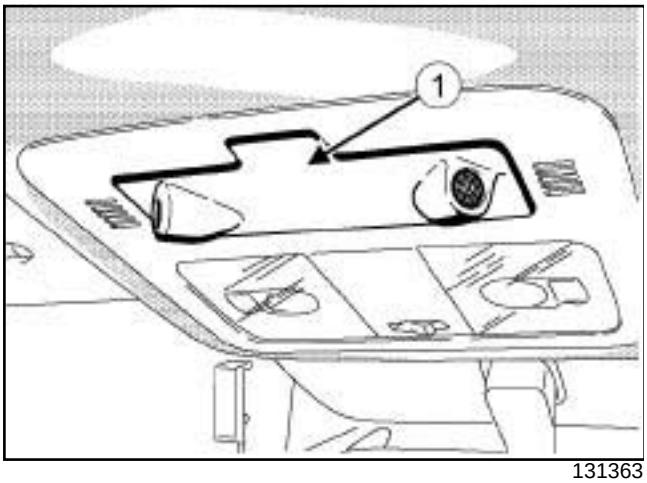
ALARM 01

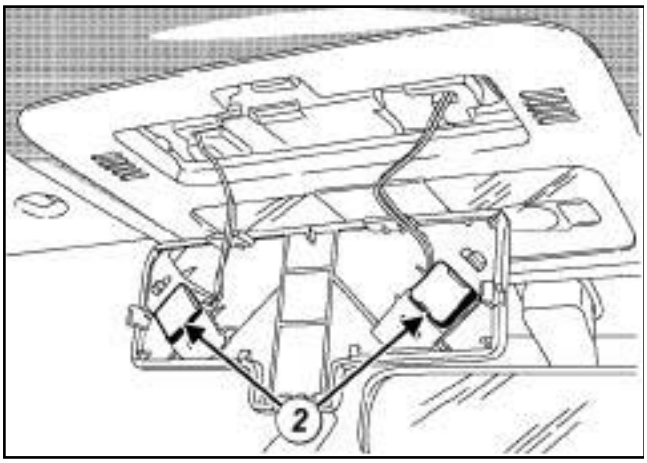
## REMOVAL

### REMOVAL OF PART CONCERNED




131363

❏ Unclip the cover (**1**) from the anti-intrusion alarm sensor.

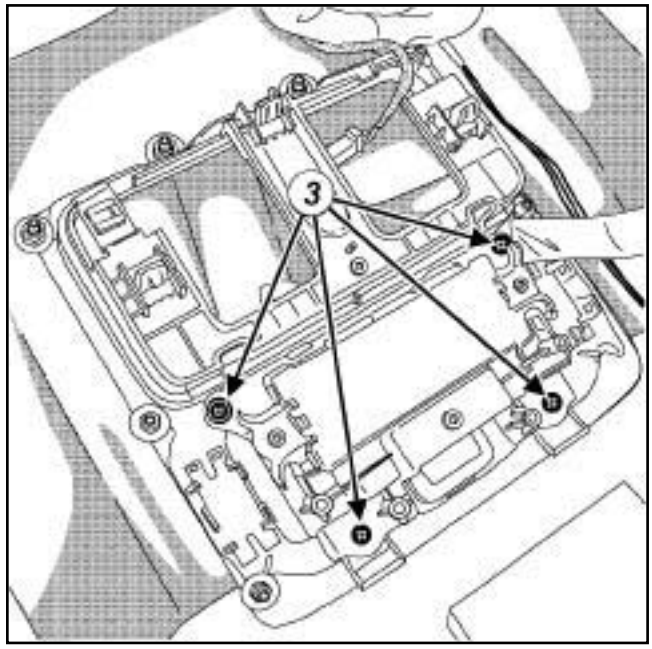



131364

❏ Unclip:

- the anti-intrusion alarm sensor detector clips (**2**) ,
- the anti-intrusion alarm sensor detector from the cover.

❏ Remove the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).




131365

❏ Remove:

- the anti-intrusion alarm sensor bolts (**3**) ,
- the anti-intrusion alarm sensor.

## REFITTING

### REFITTING PART CONCERNED

❏ Refit:

- the anti-intrusion sensor,
- the anti-intrusion sensor bolts,
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

❏ Clip:

- the anti-intrusion alarm sensor detector on the cover,
- the anti-intrusion alarm sensor detector clips,
- the anti-intrusion alarm sensor cover.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| Essential equipmentEssential equipment |
| --- |
| diagnostic tool |

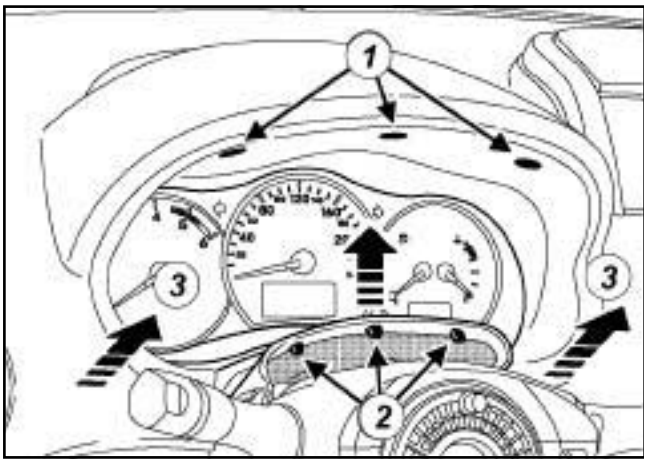
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

> Note:
>
> The steering wheel does not need to be removed.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

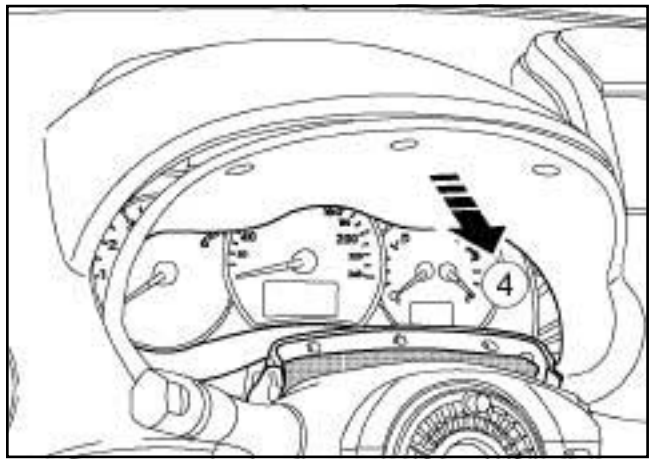



130697

❏ Remove the bolts (**1**) .

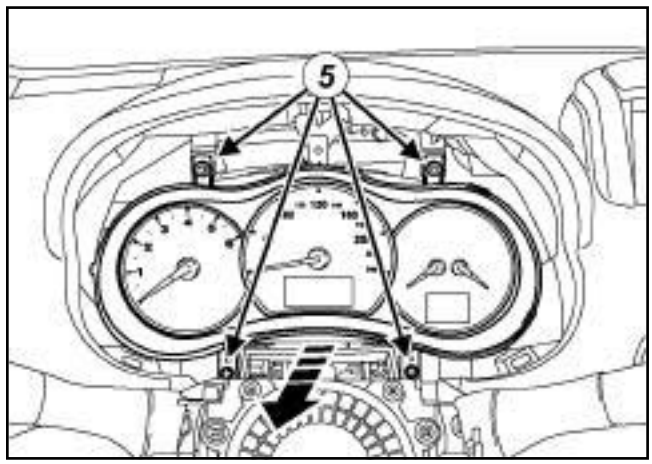
❏ Unclip the clips (**2**) .

❏ Remove the bottom of the instrument panel trim in the direction of the arrows (**3**) .



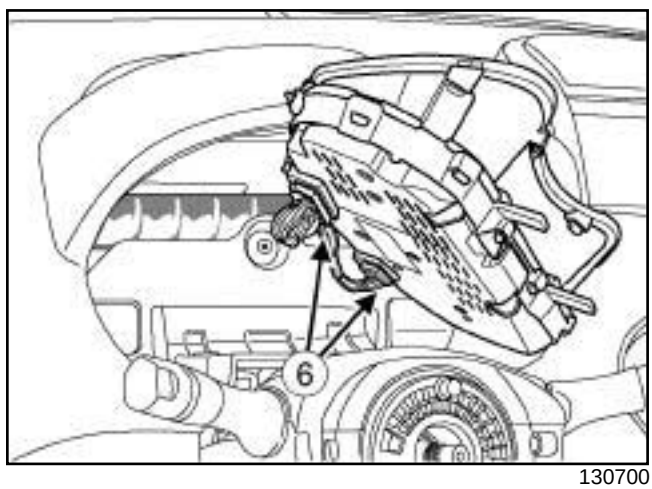

130698

❏ Remove the top of the instrument panel trim in the direction of the arrow (**4**) .




130699

❏ Remove the bolts (**5**) from the instrument panel.




130700

❏ Remove the instrument panel.

❏ Disconnect the connectors (**6**) from the instrument panel.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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connectors to the instrument panel.

❏ Refit:

- the instrument panel,
- the instrument panel bolts,
- the instrument panel trim.

❏ Clip the clips onto the upper half cowling.

❏ Refit the instrument panel trim bolts.

### II - FINAL OPERATION.

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ When replacing the instrument panel, carry out the necessary operations using the **diagnostic tool** (see **Fault finding - Replacement of components**) (83A, Instrument panel).


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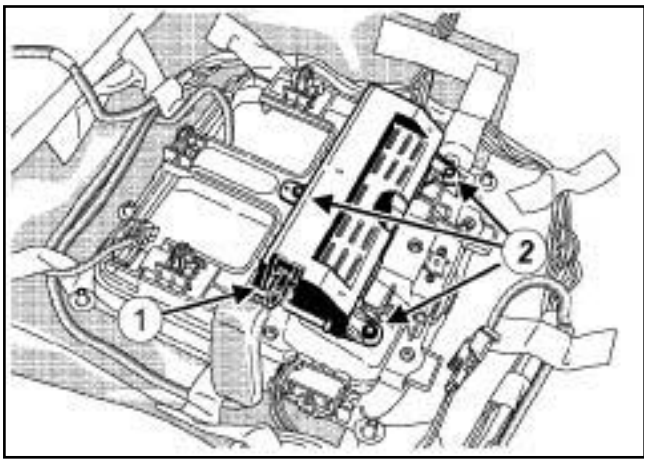
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130374

❏ Disconnect the vehicle location sensor connector (**1**) .

❏ Remove:

- the vehicle location sensor bolts (**2**) ,
- the vehicle location sensor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the vehicle location sensor,
- the vehicle location sensor bolts.

❏ Connect the vehicle location sensor connector.

### II - FINAL OPERATION.

❏ Refit the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).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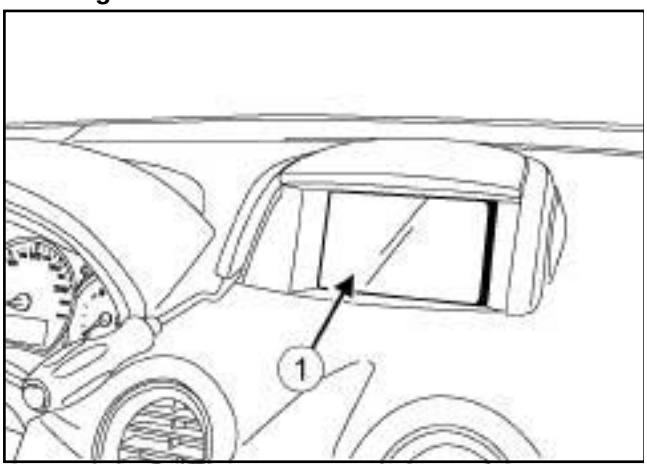
NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Navigation screen |
| *(2)* | Navigation computer |
| *(3)* | Navigation aerial |
| *(4)* | Navigation interface unit |
| *(5)* | Central control |

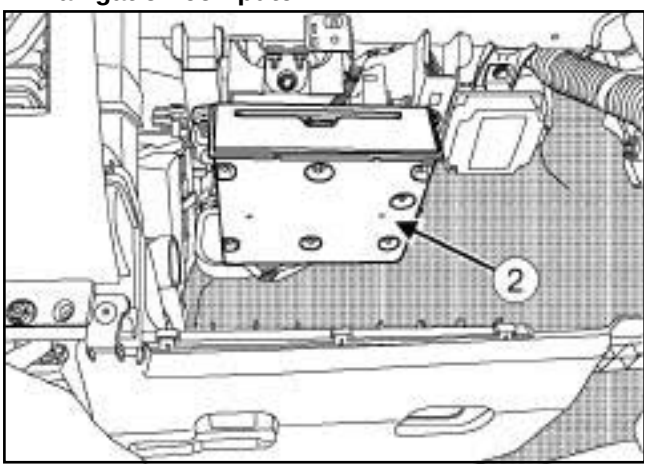
## II - LOCATION OF COMPONENTS

### 1 - Navigation screen



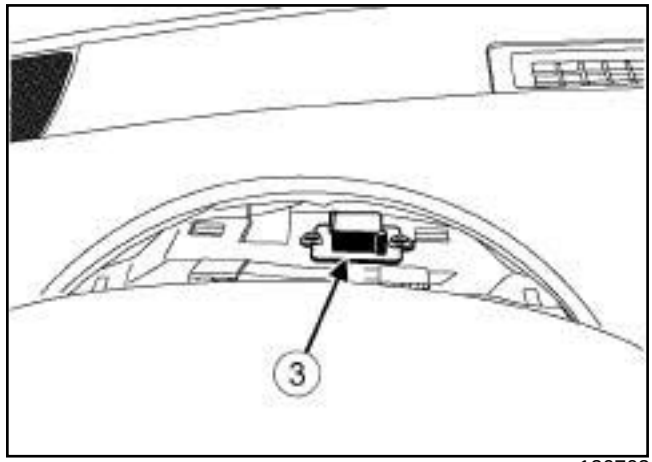

130701

### 2 - Navigation computer



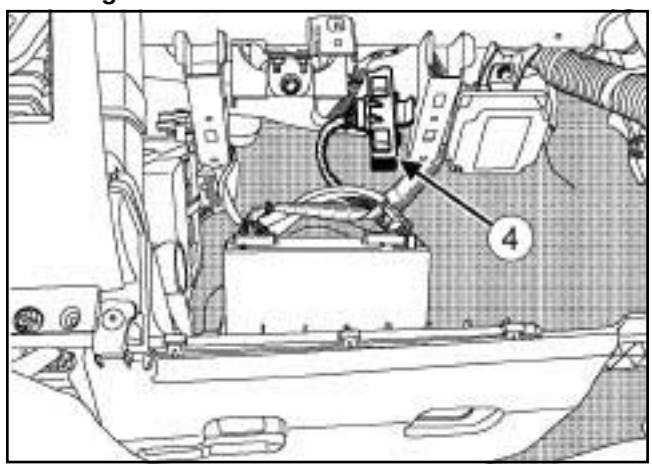

130702

### 3 - Navigation aerial



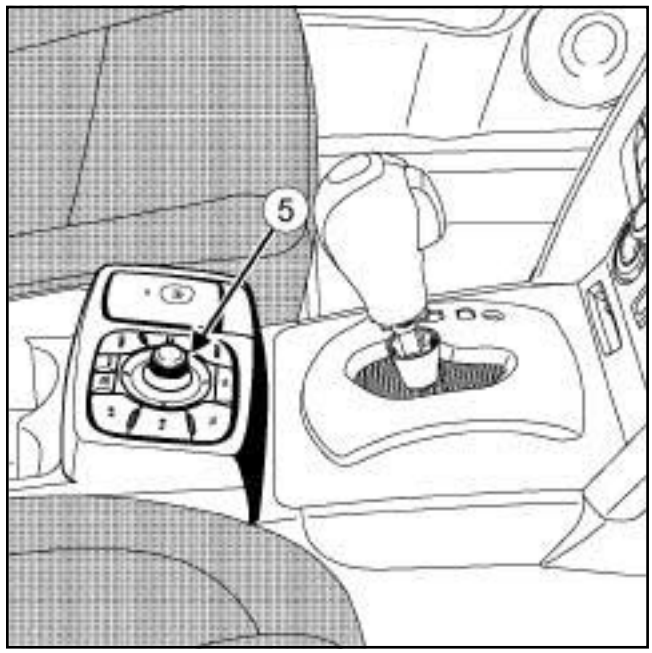

130703

### 4 - Navigation interface unit




130704

### 5 - Central control




130705



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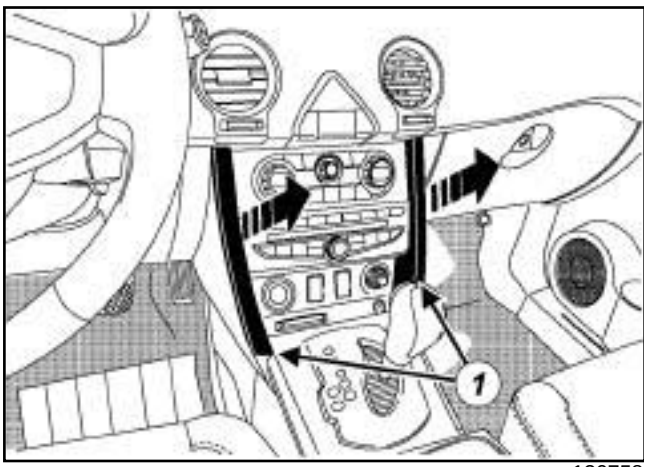
NAVIGATION AID LEVEL 1

| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Ms. 1373** | Tool for removing radio or chronotachograph. |

## REMOVAL

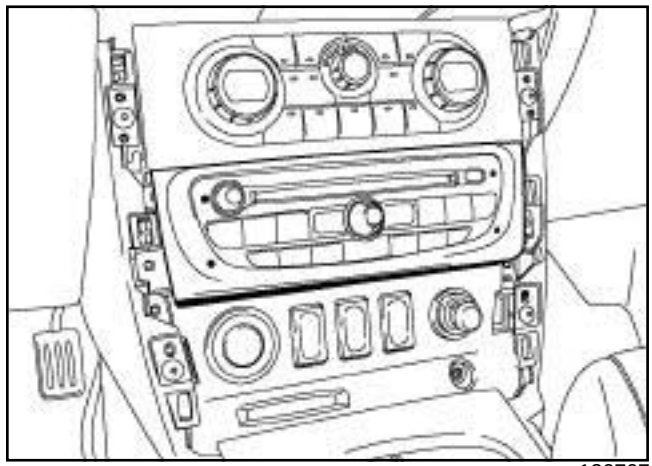
### I - REMOVAL PREPARATION OPERATION

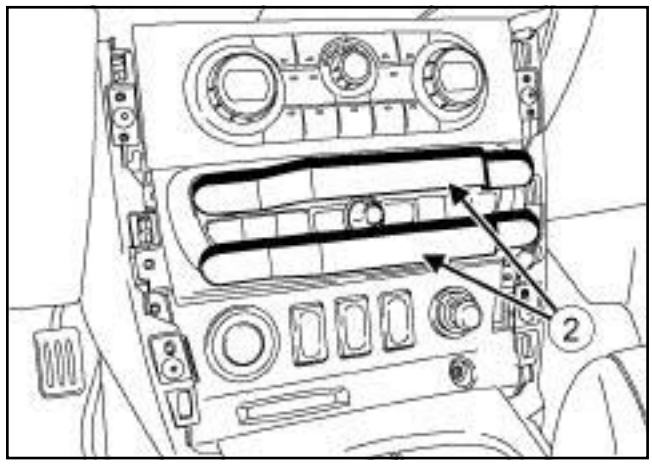


130758

❏ Remove the centre front panel side trim (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED


130707



130708

❏ Remove the radio navigation system using tool **(Ms. 1373)** (**2**) .

❏ Disconnect the connectors.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connectors.

❏ Refit the radio navigation system.

### II - FINAL OPERATION

❏ Refit the centre front panel side trim.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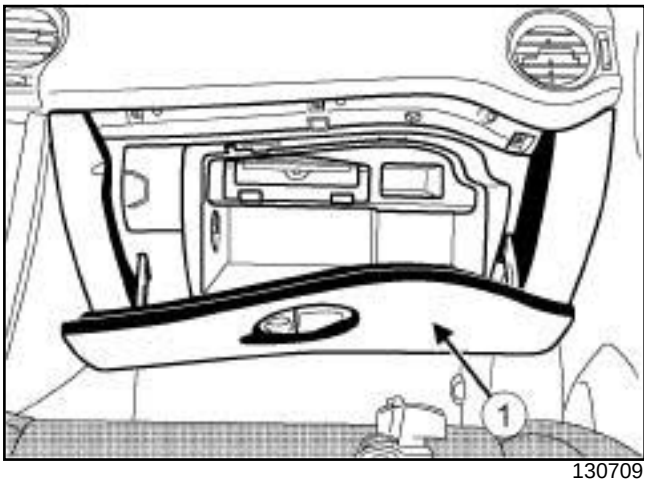
NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

## REMOVAL

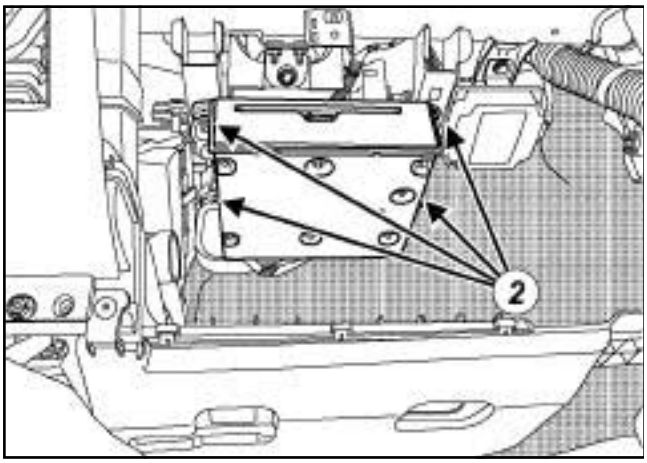
### I - REMOVAL PREPARATION OPERATION




130709

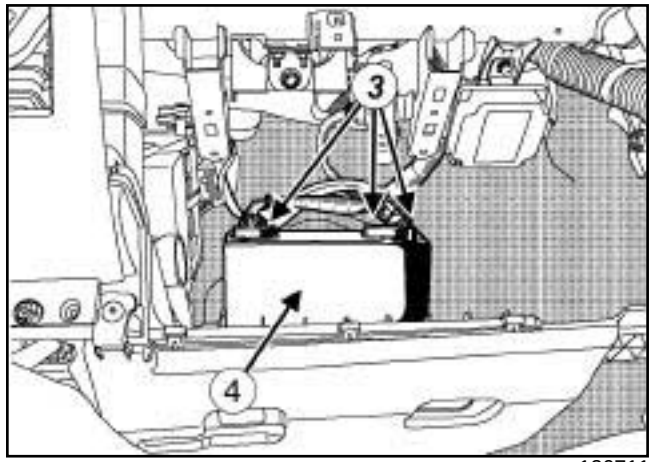
❏ Remove the glovebox (**1**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130710

❏ Remove the bolts (**2**) .




130711

❏ Disconnect the connectors (**3**) .

❏ Remove the navigation computer (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the navigation computer connectors.

❏ Refit:

- the navigation computer,
- the navigation computer bolts.

### II - FINAL OPERATION.

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).



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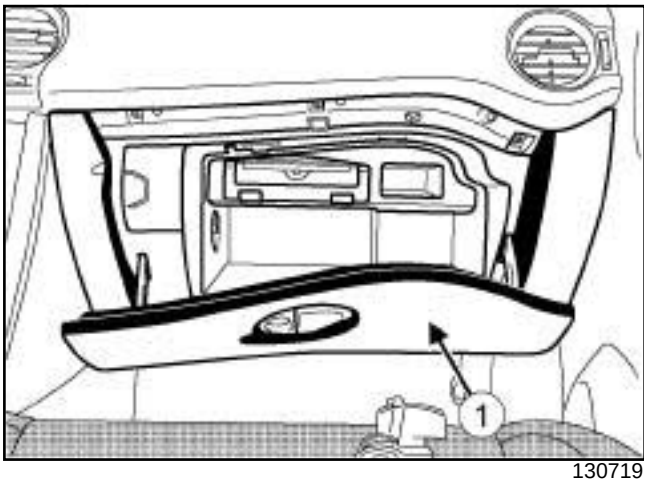
NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

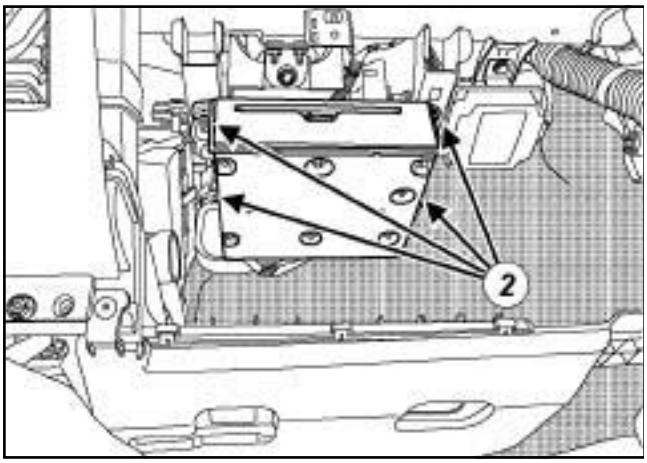
## REMOVAL

### I - REMOVAL PREPARATION OPERATION




130719

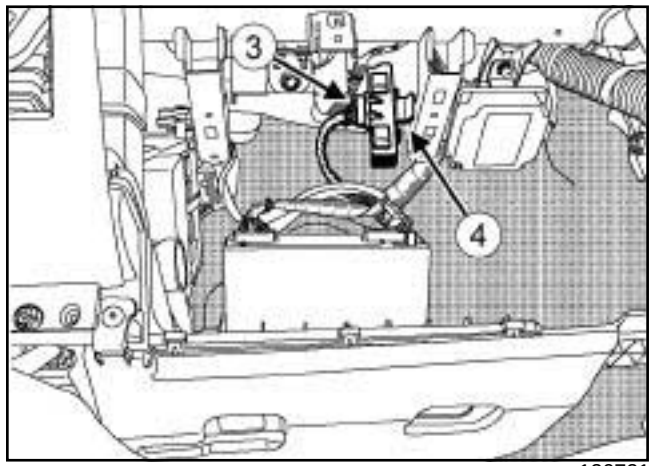
❏ Remove the glovebox (**1**) (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).




130720

❏ Remove the bolts (**2**) from the navigation computer.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130721

❏ Disconnect the connector (**3**) .

❏ Unclip the navigation interface unit at (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Clip on the navigation interface unit.

❏ Connect the navigation interface unit connector.

### II - FINAL OPERATION.

❏ Refit:

- the navigation computer bolts,
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).



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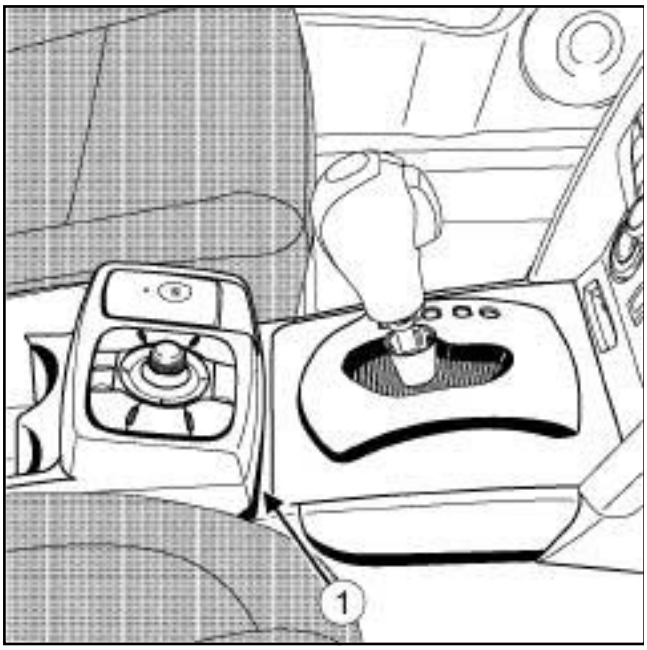
NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

## REMOVAL

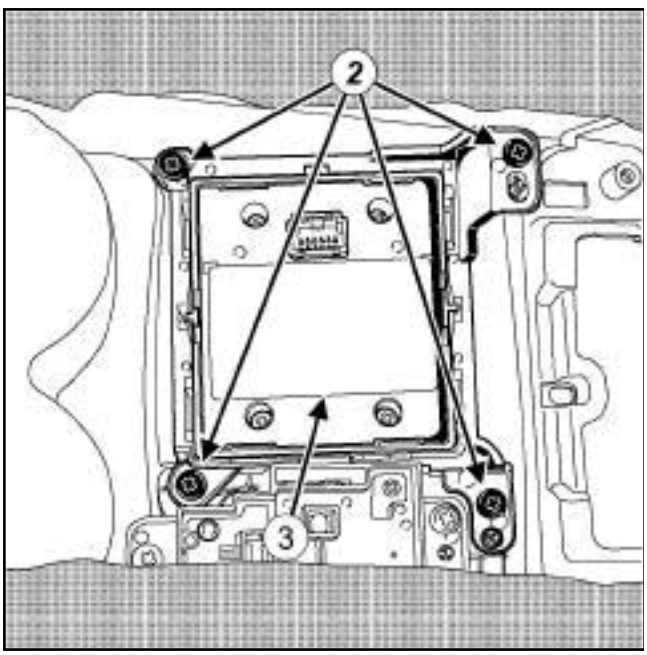
### I - REMOVAL PREPARATION OPERATION




130712

❑ Remove the centre console (**1**) (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130713

❑ Disconnect the connector from the central control.

❑ Remove:

- the bolts (**2**) ,
- the central control (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the central control,
- the central control bolts.

❑ Connect the connector to the central control.

### II - FINAL OPERATION.

❑ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).



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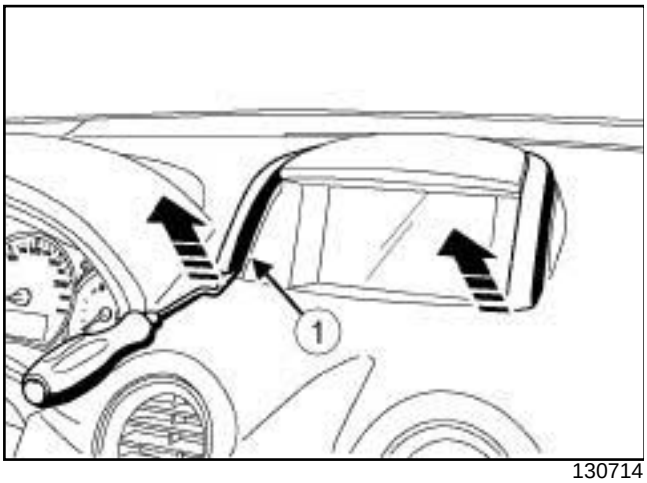
NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

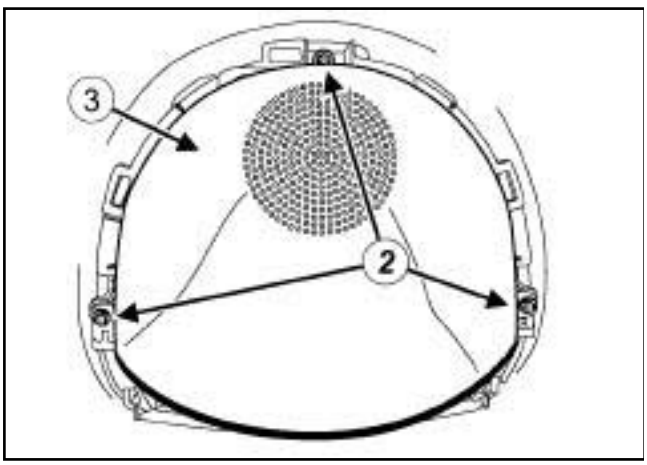
## REMOVAL

### I - REMOVAL PREPARATION OPERATION




130714

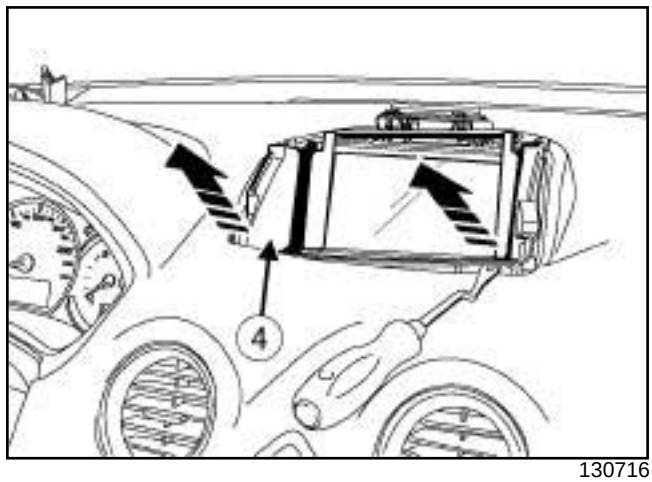
❑ Remove the front centre speaker trim (**1**) .




130715

❑ Remove:

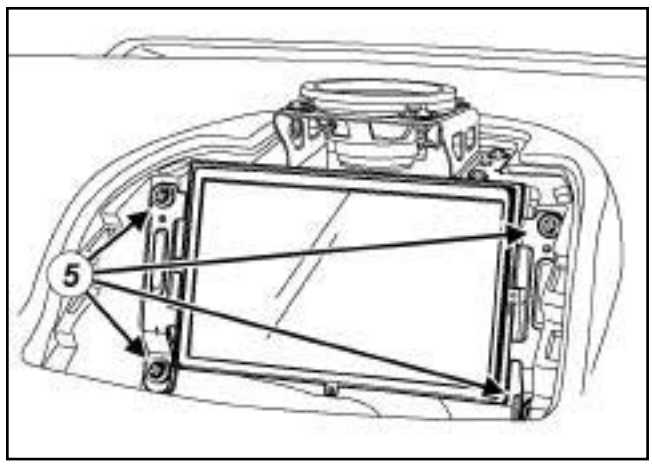
- the front centre speaker cover bolts (**2**) ,
- the front centre speaker cover (**3**) .




130716

❑ Remove the navigation screen protector (**4**) using a flat-blade screwdriver.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130717

❑ Remove the bolts (**5**) .



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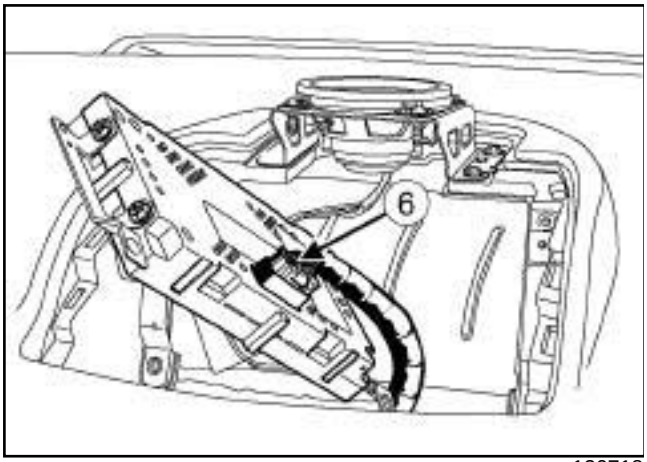

130718

❏ Remove the navigation screen.

❏ Disconnect the connector (**6**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the connector.

❏ Refit:

- the navigation screen,
- the navigation screen bolts.

### II - FINAL OPERATION.

❏ Refit:

- the navigation screen protector,
- the front centre speaker cover,
- the front centre speaker cover bolts,
- the front centre speaker trim.


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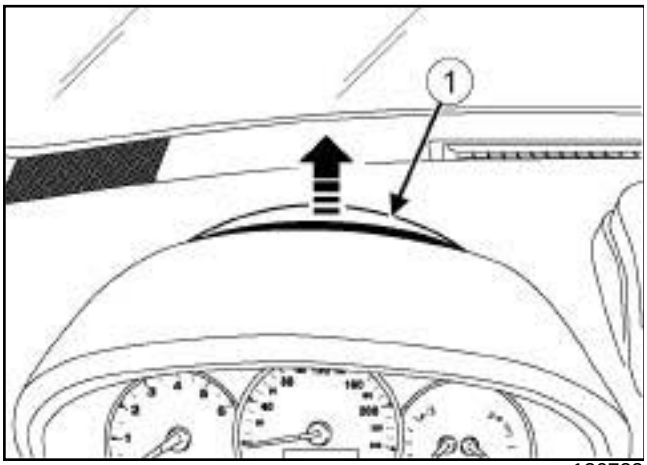
NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2 or NAVIGATION AID LEVEL 4

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

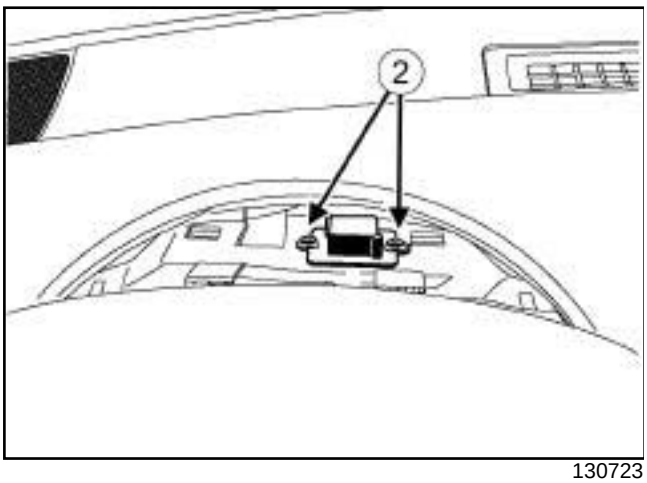
- the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment),
- the navigation computer (see **83C**, **On-board telematics system**, **Navigation computer: Removal - Refitting**, page **83C-3**) .




130722

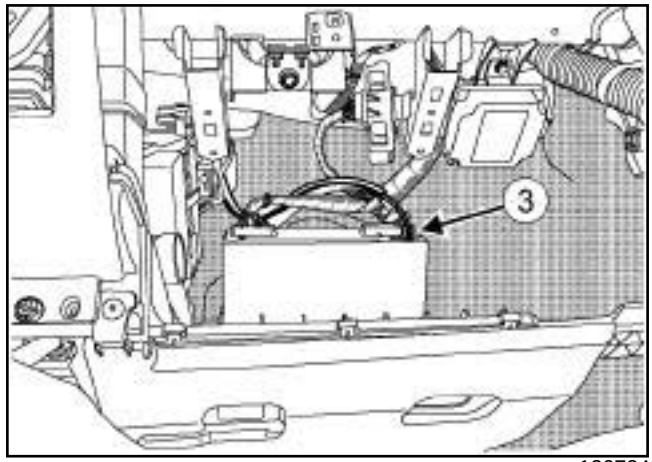
❑ Remove the rear section of the dashboard cover (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130723

❑ Remove the navigation aerial bolts (**2**) .

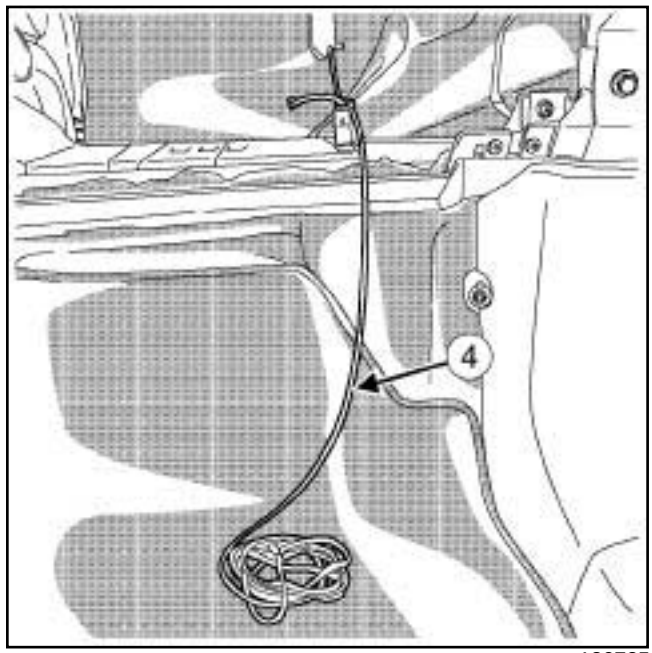



130724

❑ Disconnect the connector (**3**) .

Note:

Use a rope to remove and refit the navigation aerial wiring.




130725

❑ Secure the navigation aerial wiring using a rope (**4**) .



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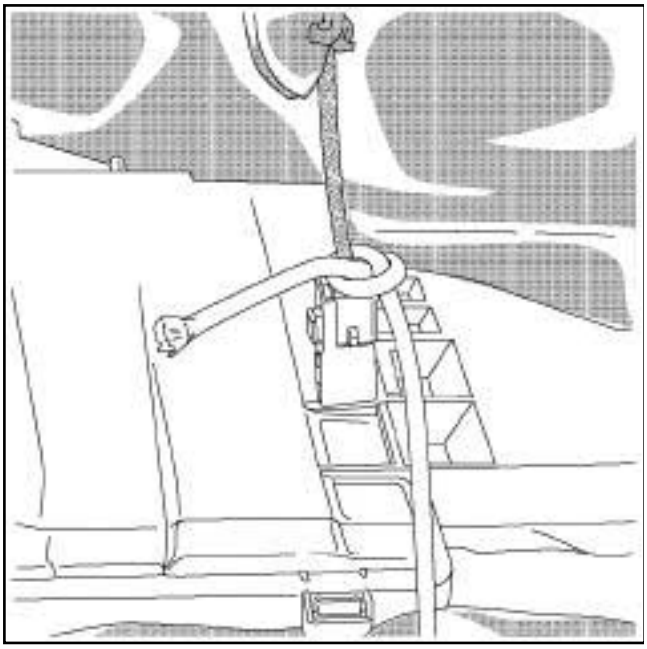

130726

❑ Remove:

- the dashboard navigation aerial wiring by pulling it from the dashboard,
- the navigation aerial.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the navigation aerial,
- the navigation aerial wiring inside the dashboard by pulling the rope under the dashboard.

❑ Detach the rope.

❑ Connect the connector.

❑ Refit the navigation aerial bolts.

### II - FINAL OPERATION

❑ Refit:

- the rear section of the dashboard cover,
- the navigation computer (see **83C**, **On-board telematics system**, **Navigation computer: Removal - Refitting**, page **83C-3**) ,
- the glovebox (see **Glovebox: Removal - Refitting**) .


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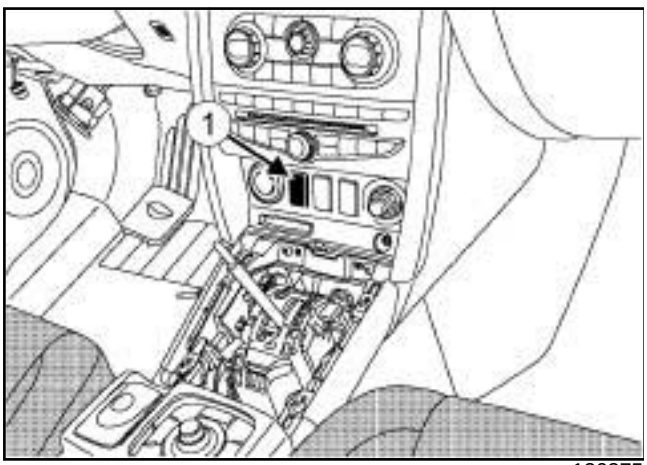
CRUISE CONTROL

## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Switch |
| *(2)* | Steering column switches |
| *(3)* | Brake switch |
| *(4)* | Clutch switch |

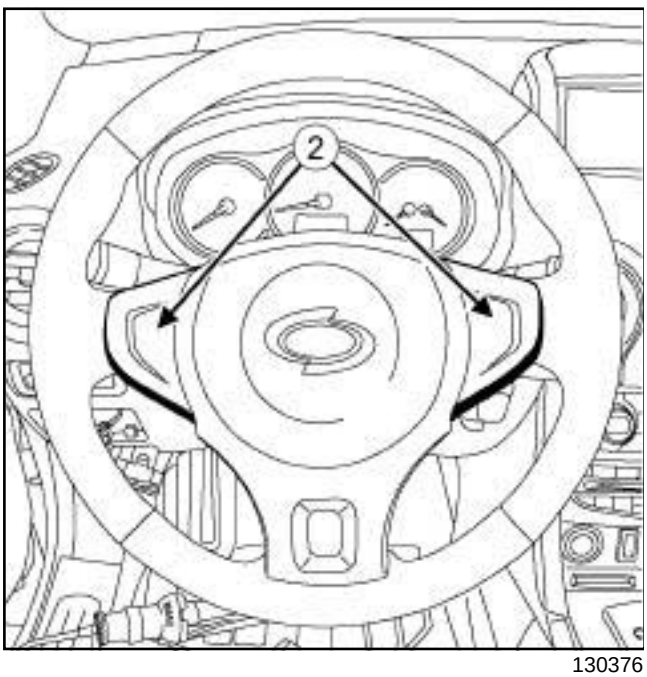
## II - LOCATION OF COMPONENTS

### 1 - Switch



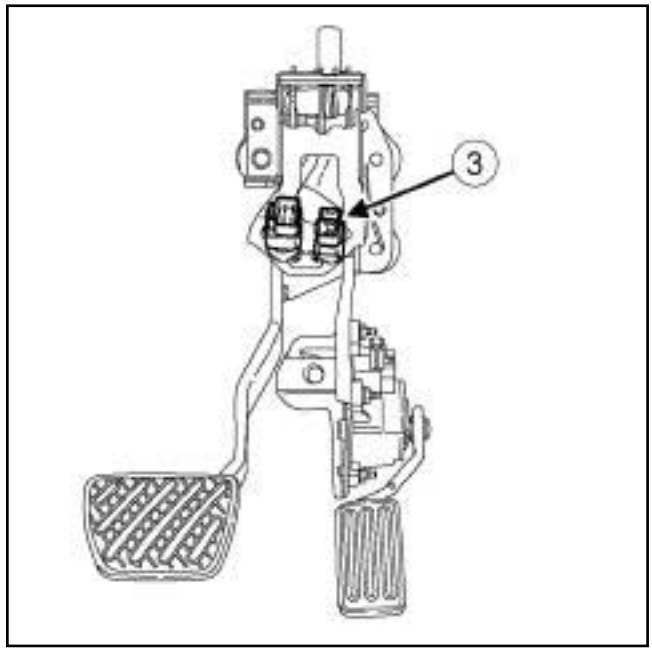

130375

### 2 - Steering column switches



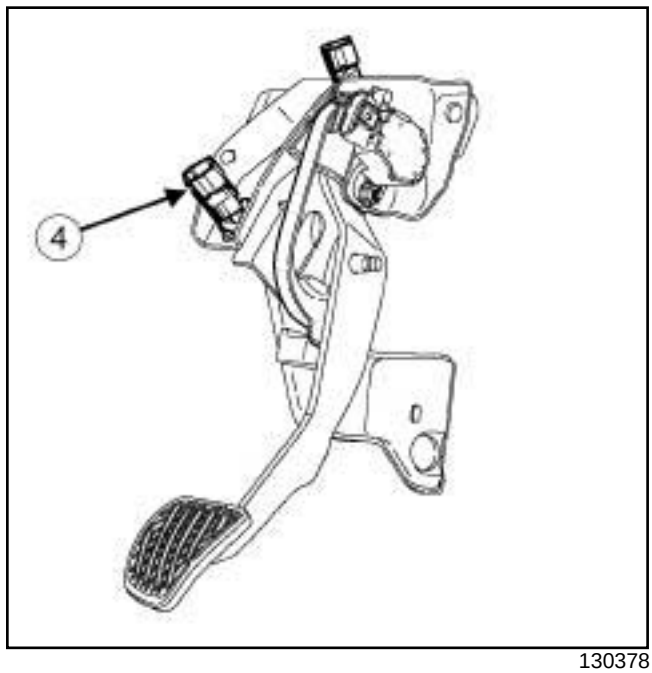

130376

### 3 - Brake switch




130377

### 4 - Clutch switch




130378



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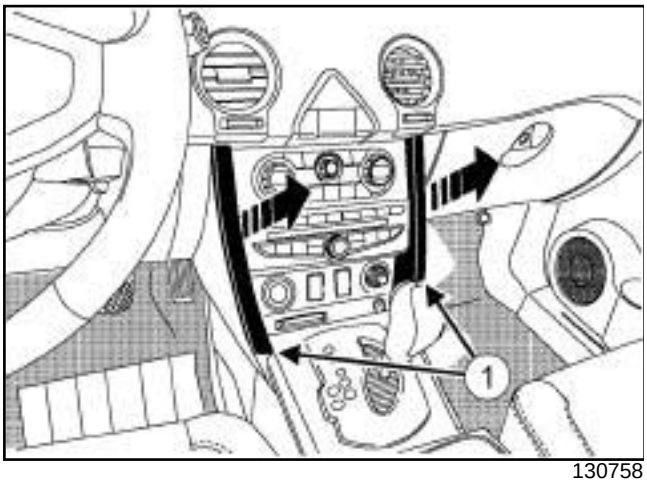
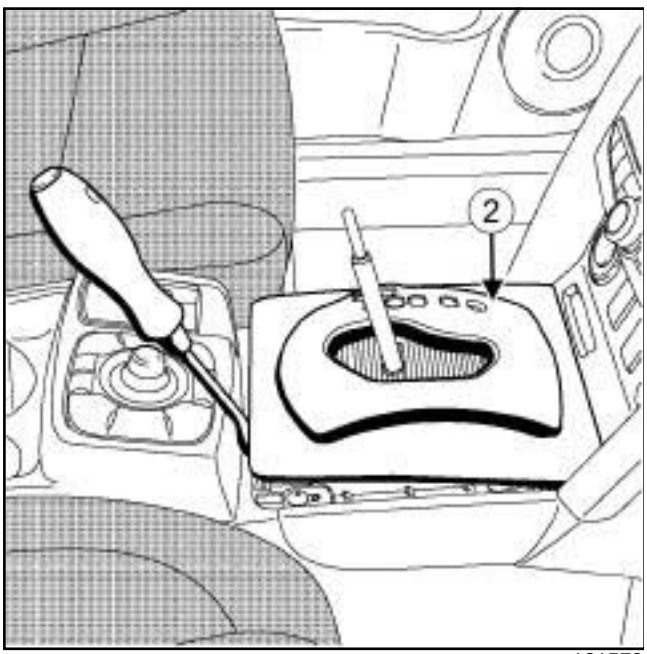
## REMOVAL

### I - REMOVAL PREPARATION OPERATION



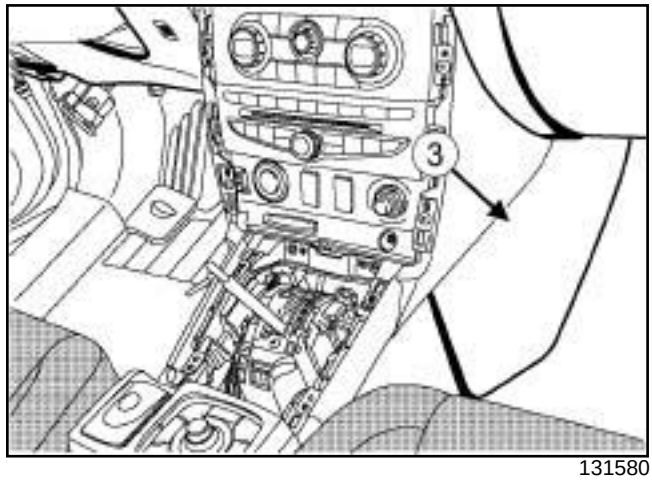

130758

❏ Remove the centre front panel side trim (**1**) .




131579

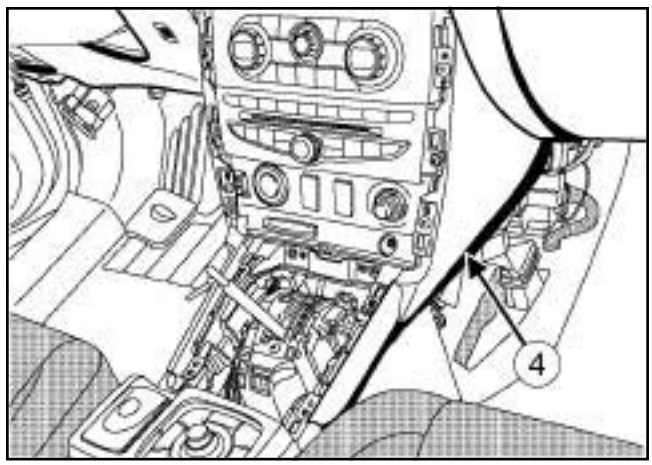
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




131580

❏ Remove:

- the centre front panel lower covers (**3**) on both sides,
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).




131581

❏ Remove:

- the centre front panel side trims (**4**) on both sides,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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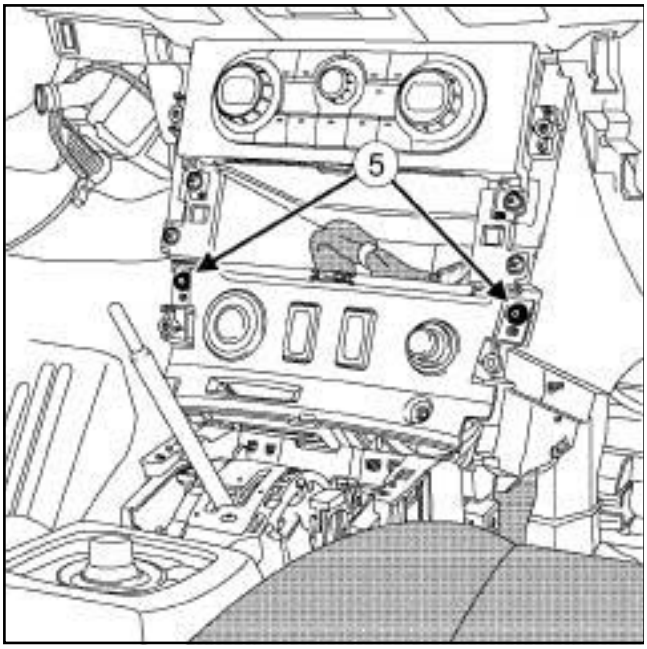


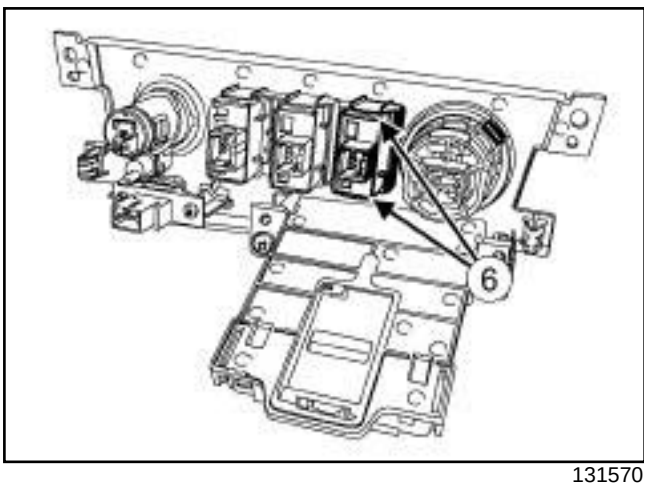

131582

❏ Remove:

- the starter control panel bolts (**5**) ,
- the starter control panel.

❏ Disconnect the connectors.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**




131570

❏ Unclip the switch clips (**6**) .

❏ Remove the switch.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the switch on the control panel.

❏ Connect the connectors.

❏ Refit:

- the starter control panel,
- the starter control panel bolts.

**II - FINAL OPERATION.**

❏ Refit:

- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the centre front panel side trims on both sides,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre front panel lower covers on both sides,
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the centre front panel side trim.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CRUISE CONTROL

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

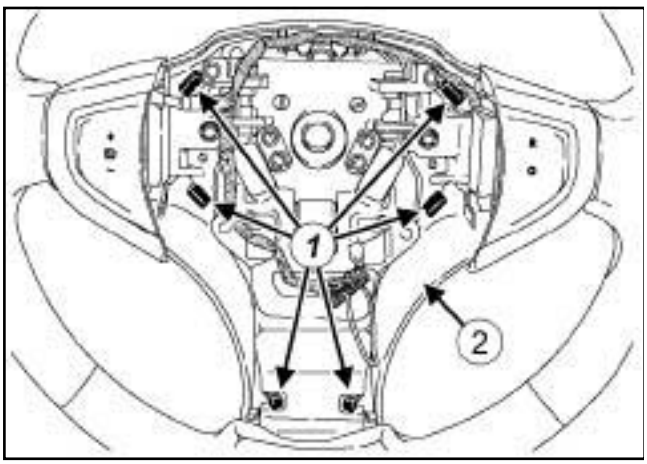
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove:

- the driver's front airbag (see **88C**, **Air bag and Pre-tensioners**, **Driver's front airbag: Removal - Re-fitting**, page **88C-10**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly).

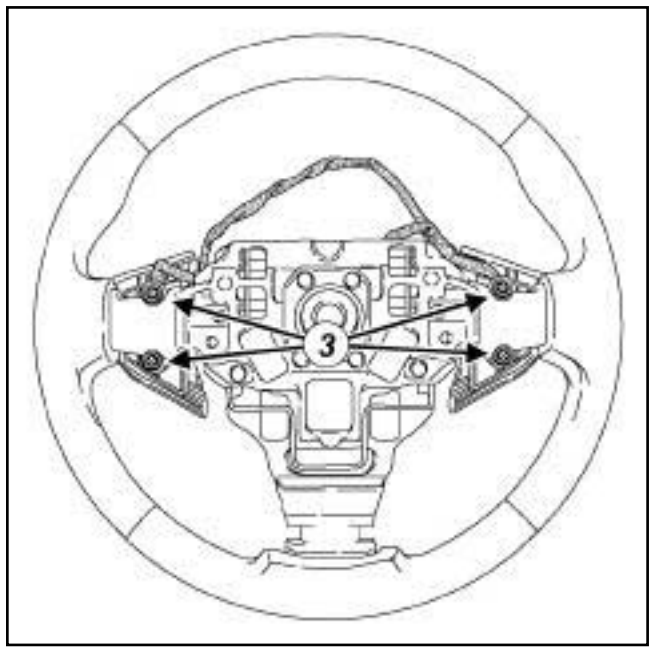
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130379

❑ Unclip the steering wheel rear cover clips (**1**) .

❑ Remove the steering wheel rear cover (**2**) from the steering wheel.



130380

❑ Remove:

- the bolts (**3**) from the steering column switches,
- the steering column switches.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the steering wheel nut.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the steering column switches,
- the steering column switch bolts,
- the steering wheel rear cover on the steering wheel.

### III - FINAL OPERATION.

❑ Refit:

- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pre-tensioners**, **Driver's front airbag: Removal - Re-fitting**, page **88C-10**) .

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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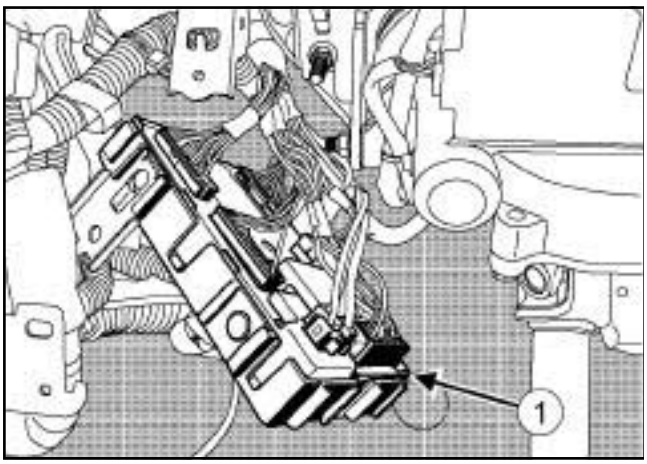
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Wiper stalk |
| *(3)* | Lighting stalk |
| *(4)* | Telephone/radio control satellite |

## II - LOCATION OF COMPONENTS

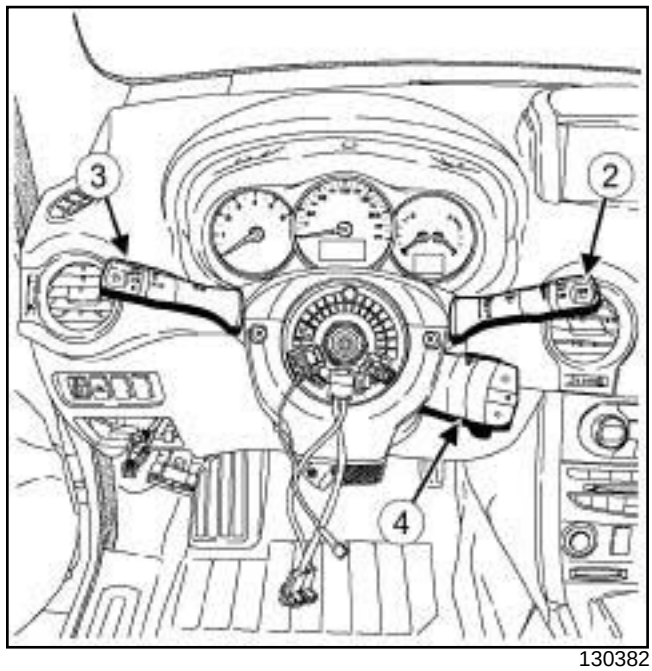
### 1 - UCH




130381

The UCH (**1**) is located in the dashboard, behind the passenger compartment relay unit. To remove it (see **87B**, **Passenger compartment connection unit**, **UCH: Removal - Refitting**, page **87B-1**) .

### 2 - Steering column switch assembly




130382

(**2**) Wiper stalk

(**3**) Lighting stalk

(**4**) Telephone/radio control satellite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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Set the wheels straight ahead.

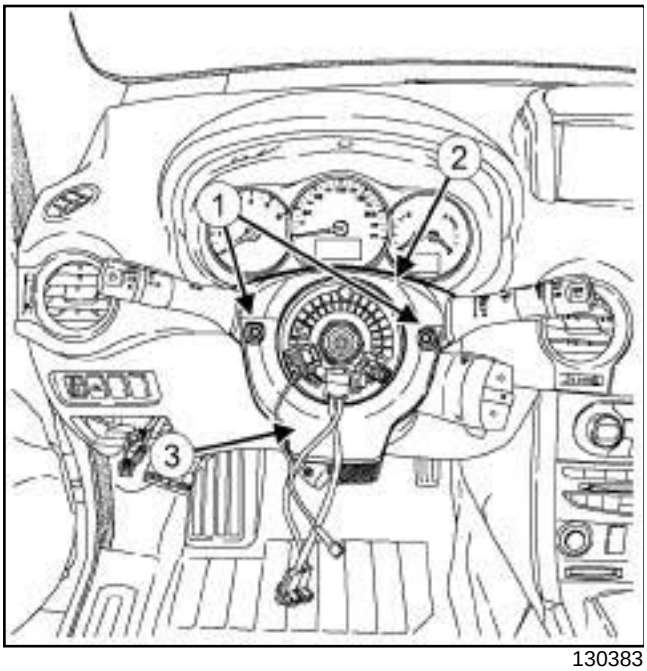
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove:

- the driver's front airbag (see **88C**, **Air bag and Pre-tensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

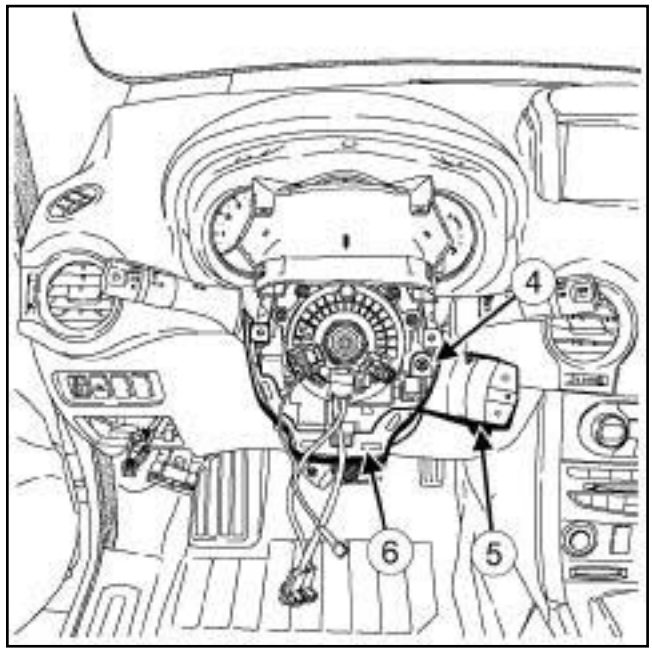


130383

❏ Remove the bolts (**1**) from the cover under the steering wheel.

❏ Unclip:

- the upper half of the cover (**2**) under the steering wheel,
- the lower half of the cover (**3**) under the steering wheel.



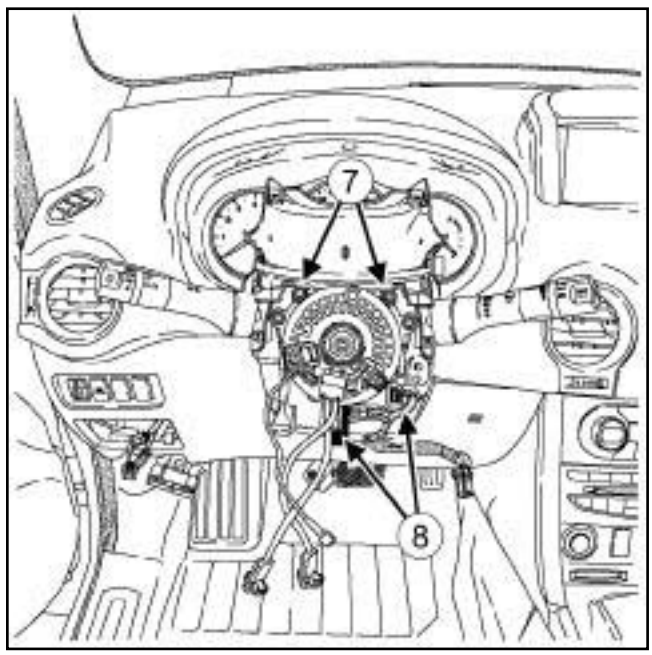
130384

❏ Remove:

- the radio control satellite nut (**4**) ,
- the radio control satellite (**5**) .

❏ Disconnect the radio control satellite connector.

❏ Unclip the lower half of the cover ***(6)*** under the steering wheel.



130385

❏ Remove the rotary switch bolts (**7**) .

❏ Unclip the rotary switch.

❏ Disconnect the rotary switch connectors ***(8)*** .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## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the steering wheel nut.

### II - REFITTING OPERATION FOR PART CONCERNED

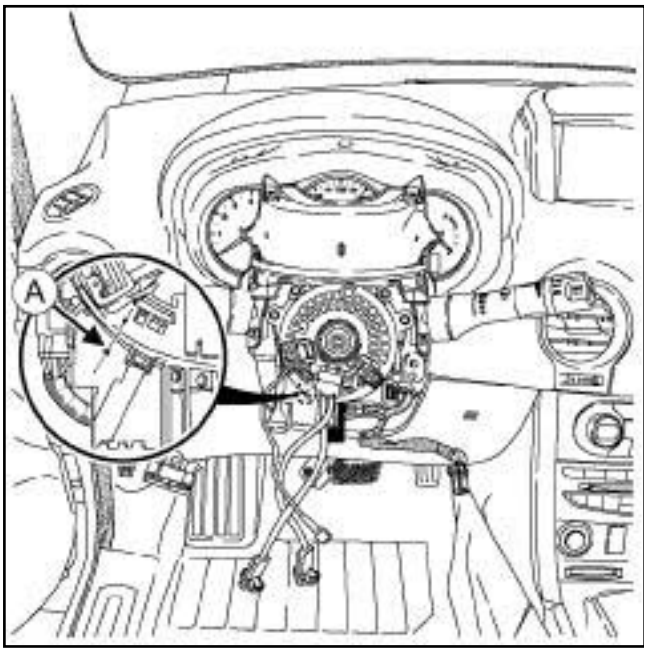
❏

**WARNING**
To prevent damaging the rotary switch, do not turn the mobile section of the rotary switch.

❏ Connect the rotary switch connectors.

❏ Refit:

- the rotary switch,
- the rotary switch bolts.




130386

❏ Adjust the neutral position of the rotary switch:

- turn the rotary switch carefully clockwise as far as it will go,
- turn the rotary switch anticlockwise (approximately two and a half turns),
- stop rotating at (**A**) .

❏ Refit the lower half of the cover under the steering wheel.

❏ Connect the radio control satellite connector.

❏ Refit:

- the radio control satellite,
- the radio control satellite nut,
- the lower half of the cover under the steering wheel,
- the upper half of the cover under the steering wheel,
- the bolts of the cover under the steering wheel.

### III - FINAL OPERATION.

❏ Refit:

- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Set the wheels straight ahead.

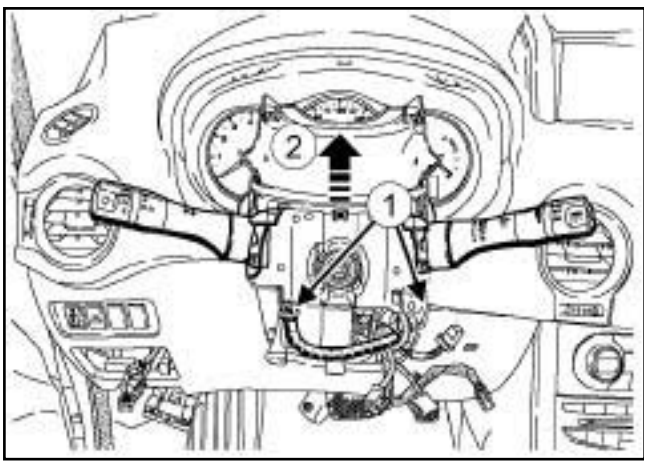
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove:

- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the rotary switch. (see **84A**, **Control - Signals**, **Rotary switch: Removal - Refitting**, page **84A-2**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130387

❏ Disconnect the steering column switch assembly connectors (**1**) .

❏ Remove the steering column switch assembly by pulling it in the direction of the arrow (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Always replace the steering wheel nut.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the steering column switch assembly.

❏ Connect the steering column switch assembly connectors.

### III - FINAL OPERATION.

❏ Refit:

- the rotary switch (see **84A**, **Control - Signals**, **Rotary switch: Removal - Refitting**, page **84A-2**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

Note:

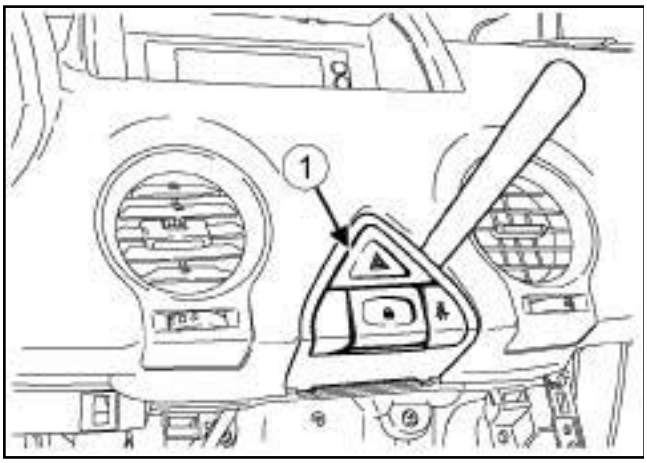
The hazard warning light switch and the central door locking switch constitute a single part.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).

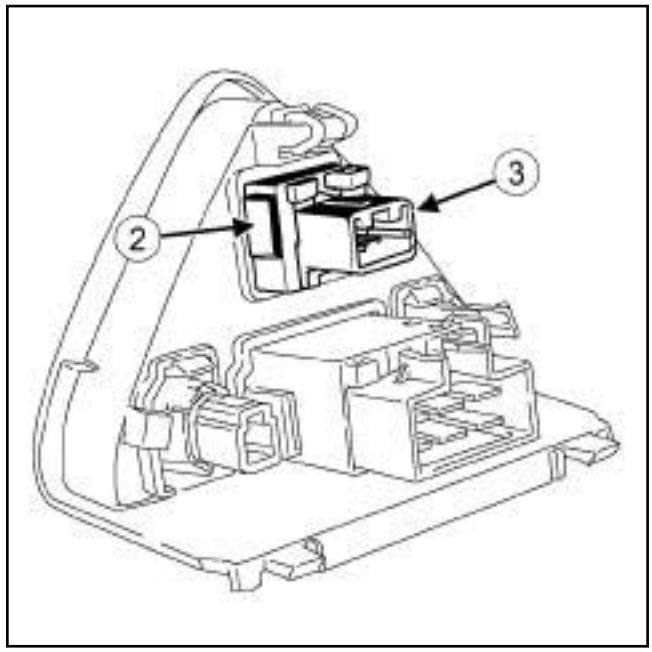
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130388

❏ Remove the hazard warning light and central door locking switches (**1**) using the tool **(Car. 1363)**.

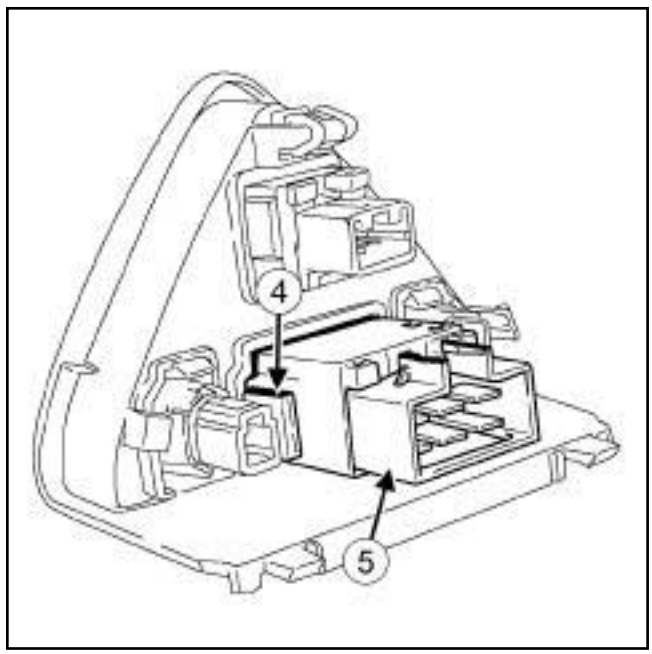
❏ Disconnect the hazard warning light and central door locking switch connectors.




130389

❏ Unclip the clips (**2**) on both sides.

❏ Remove the hazard warning lights switch (**3**) .




130390

❏ Unclip the clips (**4**) on both sides.

❏ Remove the central door locking switch (**5**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the central door locking switch,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- the hazard warning light switch.

❑ Connect the hazard warning light and central door locking switch connectors.

**II - FINAL OPERATION.**

❑ Refit the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).


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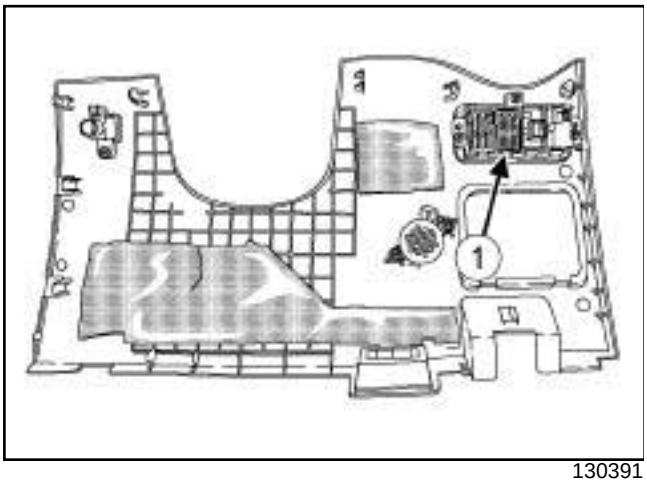
ESP 2 or ESP

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130391

❏ Unclip the ESP inhibitor switch (**1**) from the dashboard lower cover.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the ESP inhibitor switch on the dashboard lower cover.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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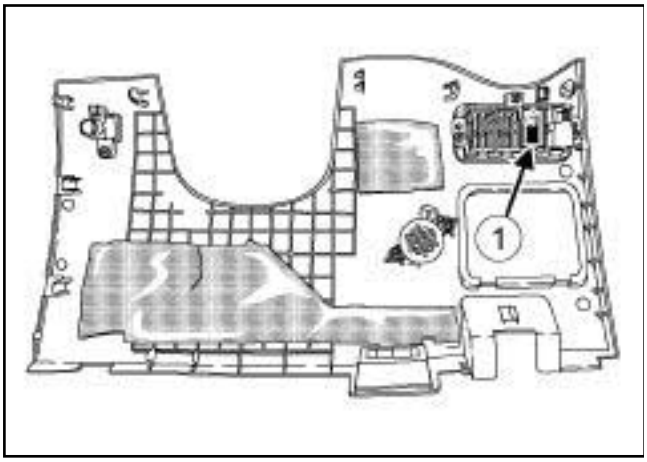
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




132647

❏ Unclip the remote headlight beam adjustment control (**1**) from the dashboard lower cover.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the remote headlight beam adjustment control on the dashboard lower cover.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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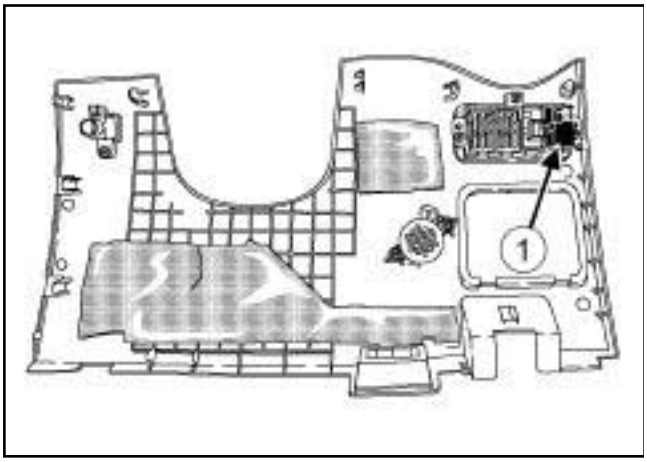
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130392

❏ Unclip the lighting dimmer (**1**) from the dashboard lower cover.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the lighting dimmer on the dashboard lower cover.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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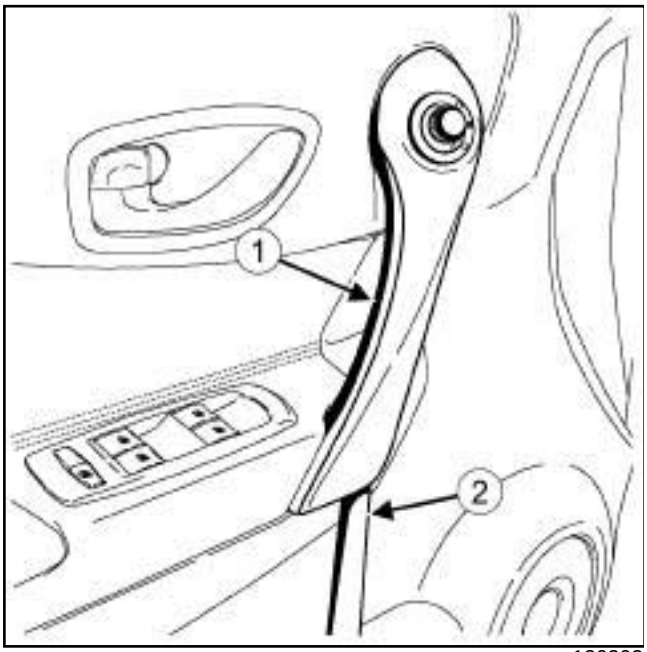
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

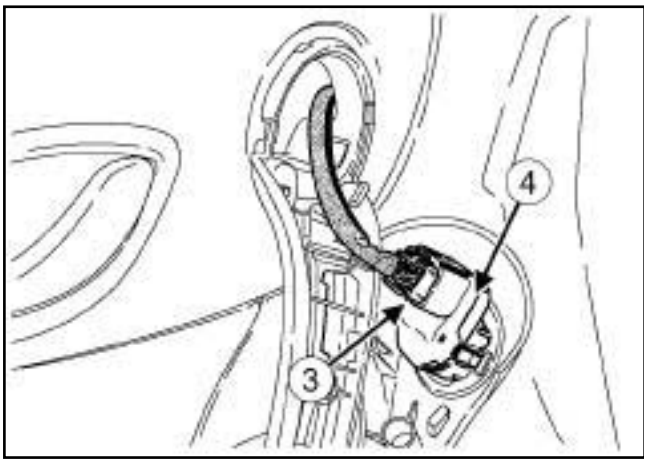
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130393

❑ Remove the front door handle trim (**1**) using the tool **(Car. 1363)** (**2**) .



130394

❑ Disconnect the door mirror control switch connector (**3**) .

❑ Remove the door mirror control switch (**4**) from the front door handle trim.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❑ Connect the door mirror control switch connector.

❑ Refit:

- the door mirror control switch on the front door handle trim,
- the front door handle trim.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The screen printed heated grid on the inner face of the window may have an accidental cut, making the affected part of the circuit useless.

❏ Determine the exact location of the cut using a voltmeter.

Faults such as these can be repaired by using the heated rear screen varnish available at the. **Magasin Pièce de Rechange**

### I - DETERMINING THE EXACT LOCATION OF THE CUT USING A VOLTMETER

❏ Switch on the ignition.

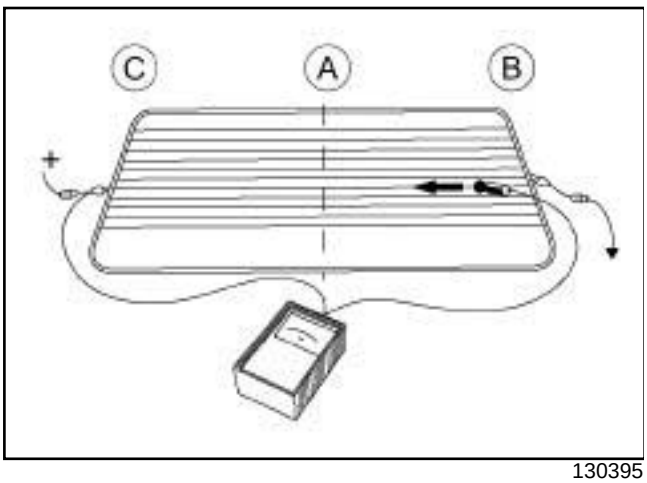
❏ Press the heated rear screen switch.

#### 1 - Detection between lines B and A

❏ Connect the **+** wire of the voltmeter to the **+** feed terminal of the rear screen.

❏ Put the **-** wire of the voltmeter on a filament at the **-** terminal side of the rear screen (line **A**); the voltage obtained should be roughly equal to that of the battery.

❏ Move the **-** wire towards line **A** (see arrow): the voltage gradually drops.




130395

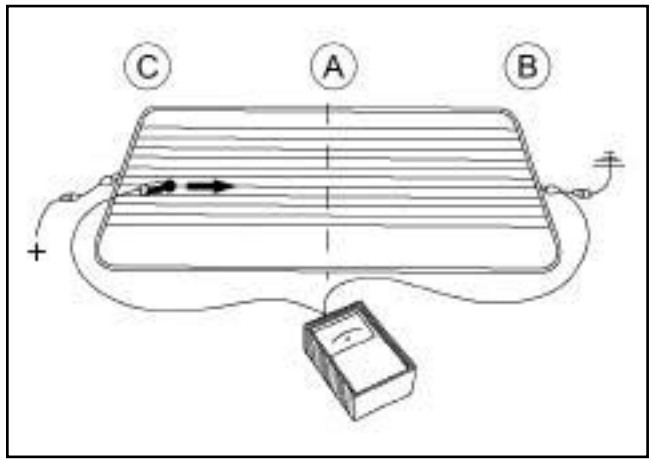
❏ A sudden voltage drop indicates that the filament is cut at that point (repeat this operation for each filament).

#### 2 - Detection between lines C and A

❏ Connect the **-** wire of the voltmeter to the **-** terminal of the rear screen.

❏ Put the **+** wire of the voltmeter on the filament at the **+** terminal end of the rear screen (line **C**); the voltage obtained should be roughly equal to battery voltage.

❏ Move the **+** wire towards line **A** (see arrow): the voltage gradually drops.




130396

❏ A sudden voltage drop indicates that the filament is cut at that point (repeat this operation for each filament).

### II - REPAIRING THE FILAMENT

❏ Clean the section to be repaired to remove all dust or grease, preferably using alcohol or a glass cleaner, and wipe with a clean, dry cloth.

❏ To ensure that the new line is straight, before varnishing, apply adhesive tape to either side of the section to be repaired, leaving the conducting line exposed.

❏ Before using the varnish, shake the bottle to prevent the silver particles settling at the bottom.

#### Repair

❏ Carry out the repair using a small brush, applying a sufficiently thick layer. If applying successive coats, allow sufficient drying time between each coat and do not repeat the operation more than three times.

❏ Any varnish that runs over can be removed using a knife, but only after several hours of drying.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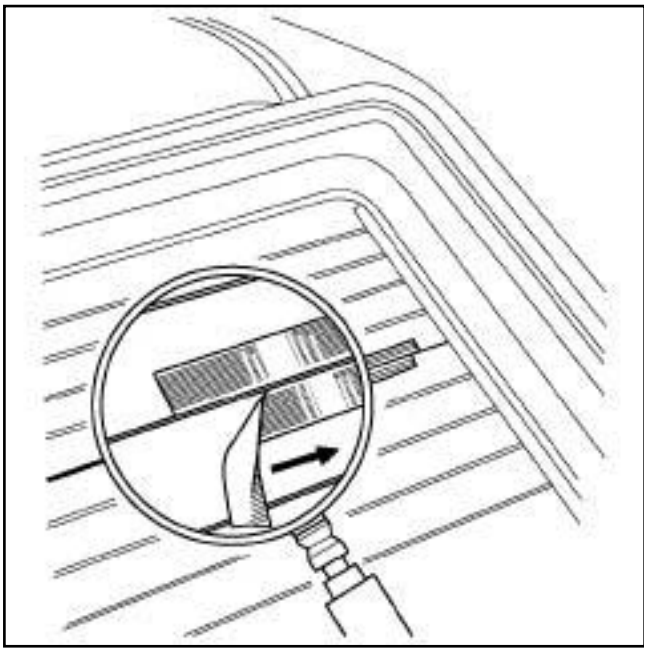

130397

- The adhesive tape used as a guide must not be removed until approximately one hour after application. The tape must be pulled off perpendicularly to the resistance, in the direction of the arrow. Varnish applied at an ambient temperature of **20°C** will be completely dry in three hours. At lower temperatures, the drying time is slightly longer.


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FRONT SEAT WITH HEATING

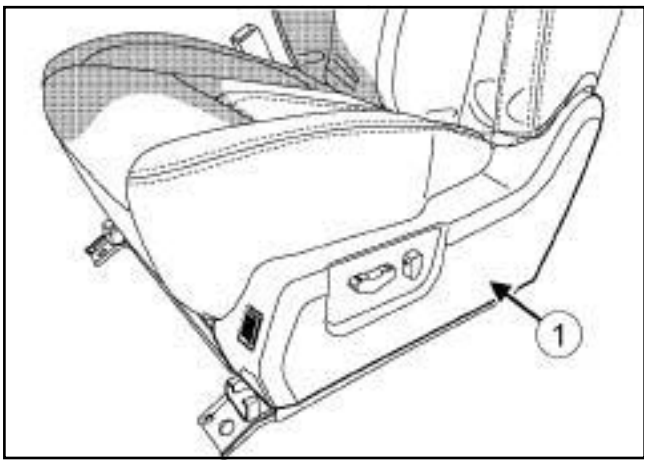
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

> Note:
>
> It is not necessary to remove the front seat completely.

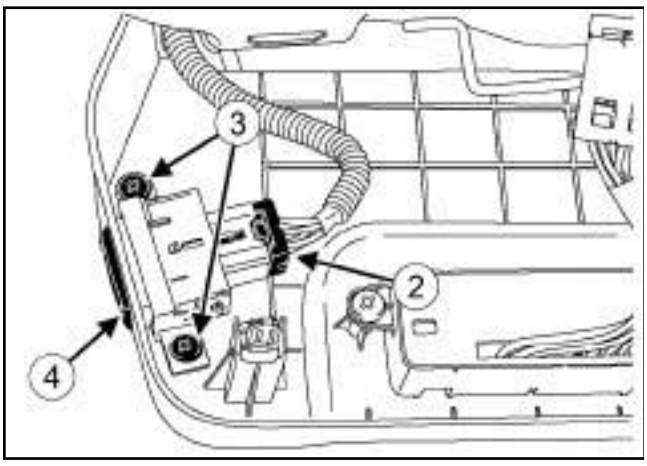
❑ Move the seat as far forward as possible.




130398

❑ Remove the front seat lower cover (**1**) on the side concerned (see **Front seat base trim: Removal - Refitting**) (77A, Front seat trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130399

❑ Disconnect the connector (**2**) from the heated seat cover switch.

❑ Remove:

- the heated seat cover switch bolts (**3**) ,
- the heated seat cover switch (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the heated seat cover switch,
- the heated seat cover switch bolts.

❑ Connect the heated seat cover switch connector.

### II - FINAL OPERATION.

❑ Refit the front seat lower cover on the side concerned (see **Front seat base trim: Removal - Refitting**) (77A, Front seat trim).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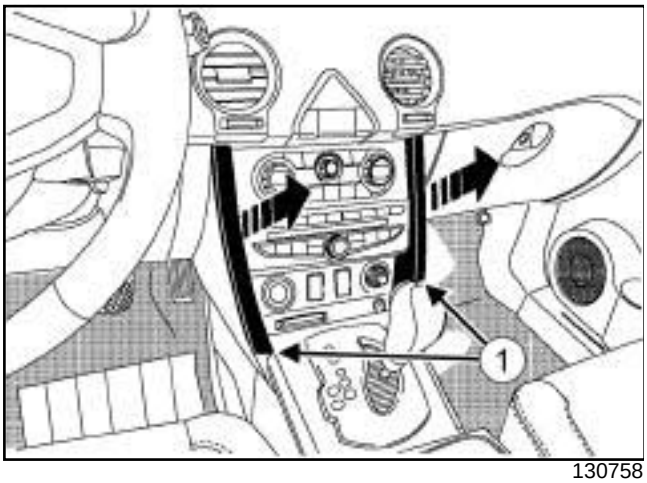
ESP 2

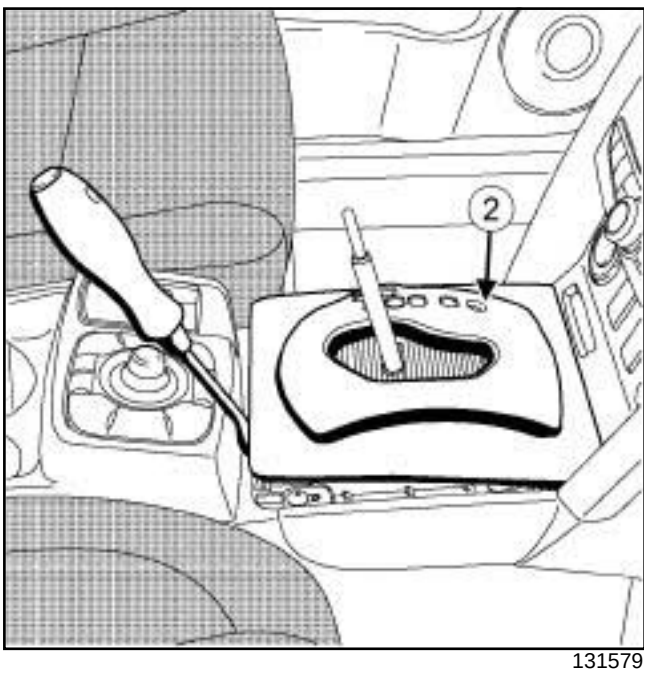
## REMOVAL

### I - REMOVAL PREPARATION OPERATION



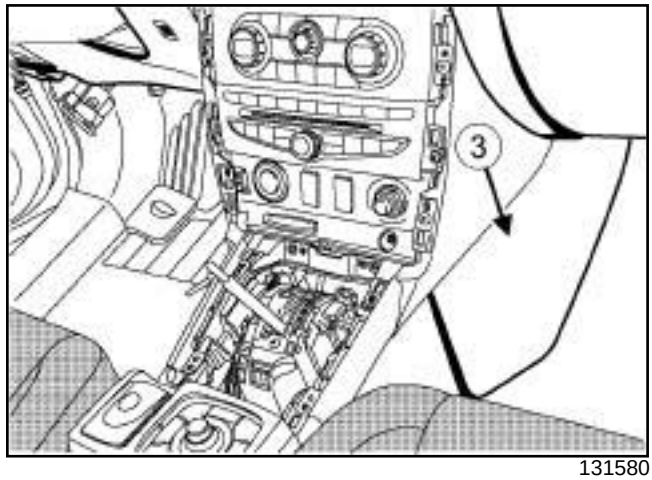

130758

❏ Remove the centre front panel side trim (**1**) .




131579

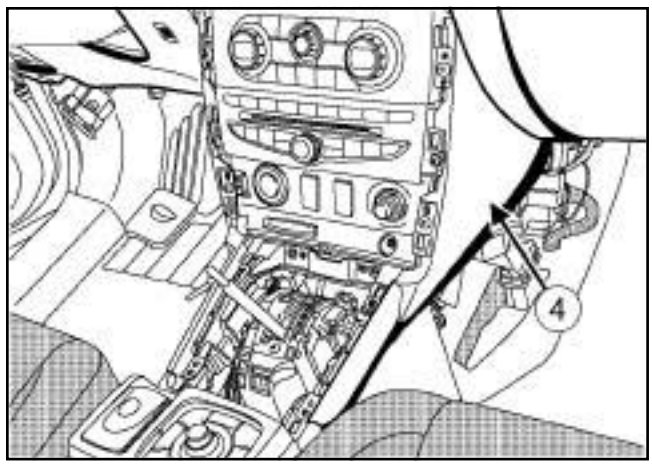
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




131580

❏ Remove:

- the centre front panel lower covers (**3**) on both sides,
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).




131581

❏ Remove:

- the centre front panel side trims (**4**) on both sides,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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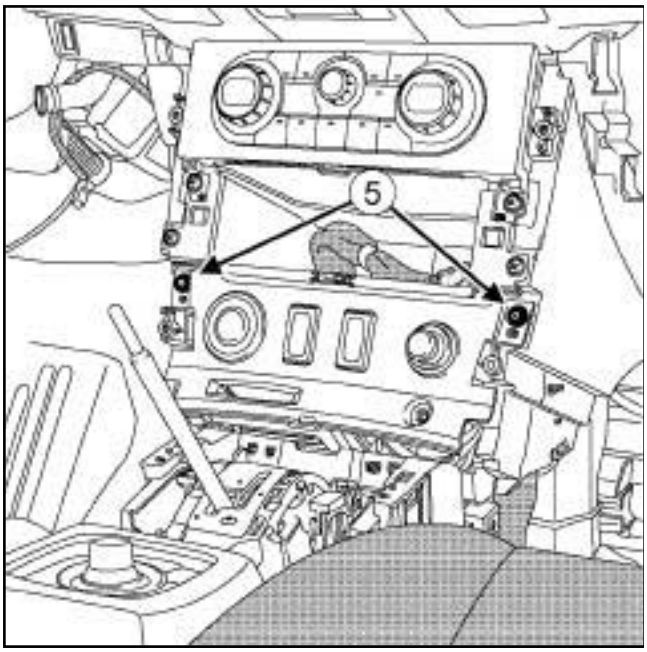
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

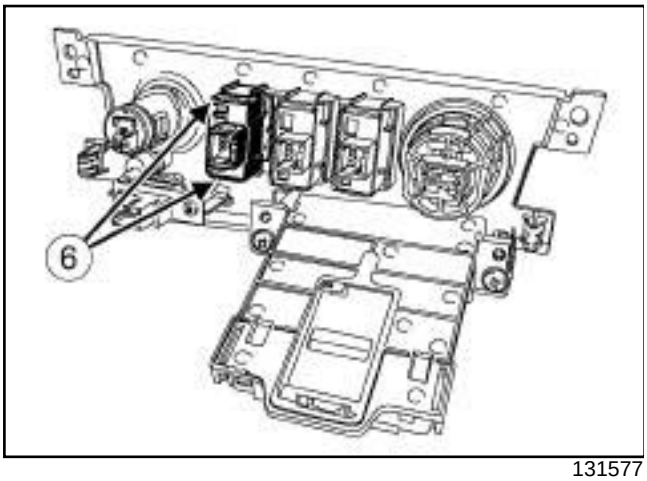



131582

❏ Remove:

- the starter control panel bolts (**5**) ,
- the starter control panel.

❏ Disconnect the connectors.




131577

❏ Unclip the clips (**6**) of the hill descent control switch.

❏ Remove the hill descent control switch.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the hill descent control switch on the control panel.

❏ Connect the connectors.

❏ Refit:

- the starter control panel,
- the starter control panel bolts.

**II - FINAL OPERATION.**

❏ Refit:

- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the centre front panel side trims on both sides,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre front panel lower covers on both sides,
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the centre front panel side trim.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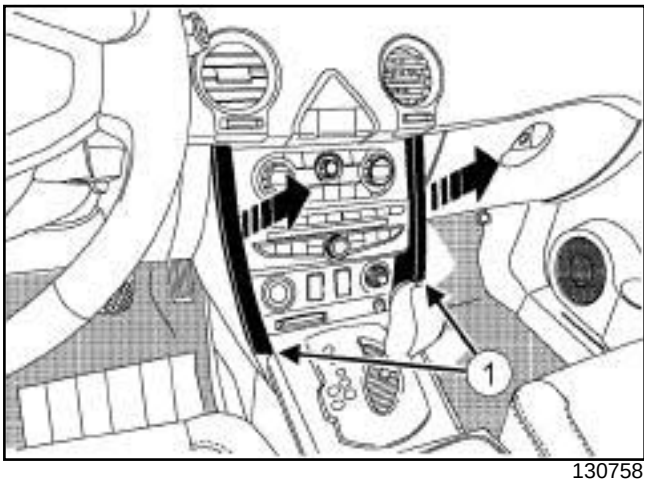
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

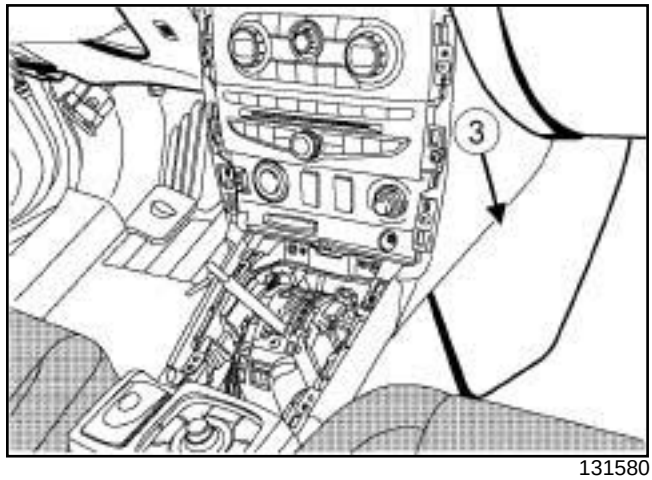


130758

❏ Remove the centre front panel side trim (**1**) .

131579

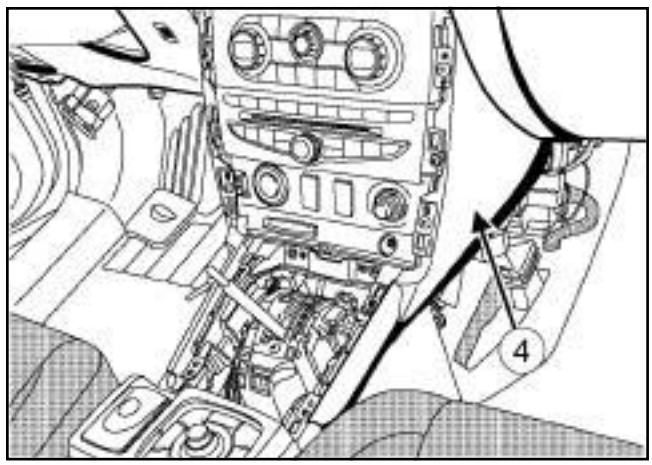
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).



131580

❏ Remove:

- the centre front panel lower covers (**3**) on both sides,
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



131581

❏ Remove:

- the centre front panel side trims (**4**) on both sides,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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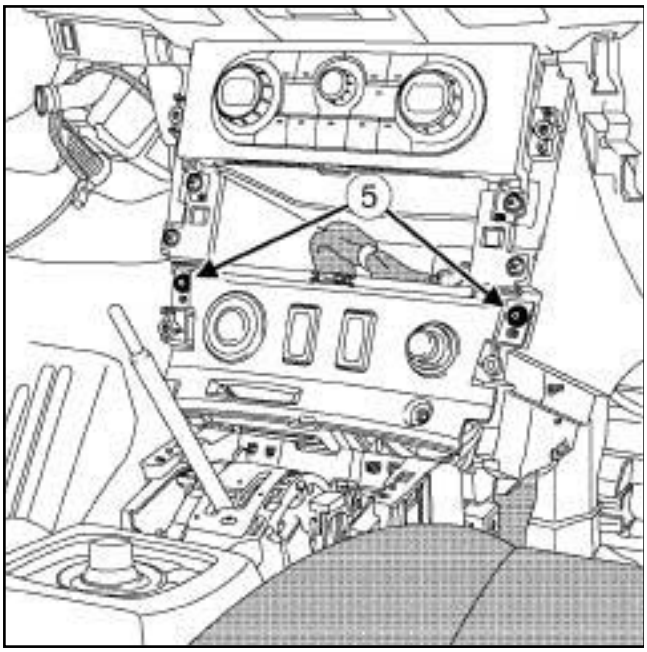
**II - OPERATION FOR REMOVAL OF PART CONCERNED**

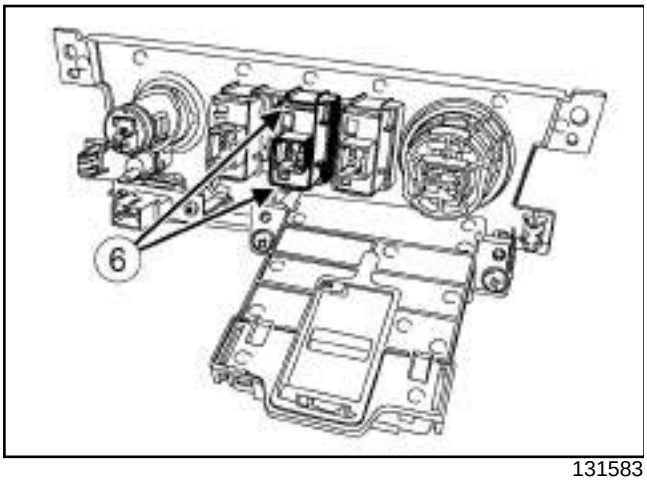



131582

❏ Remove:

- the starter control panel bolts (**5**) ,
- the starter control panel.

❏ Disconnect the connectors.




131583

❏ Unclip the transmission mode switch clips (**6**) .

❏ Remove the transmission mode switch.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Refit the transmission mode switch on the starter control panel.

❏ Connect the connectors.

❏ Refit:

- the starter control panel,
- the starter control panel bolts.

**II - FINAL OPERATION.**

❏ Refit:

- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the centre front panel side trims on both sides,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre front panel lower covers on both sides,
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the centre front panel side trim.



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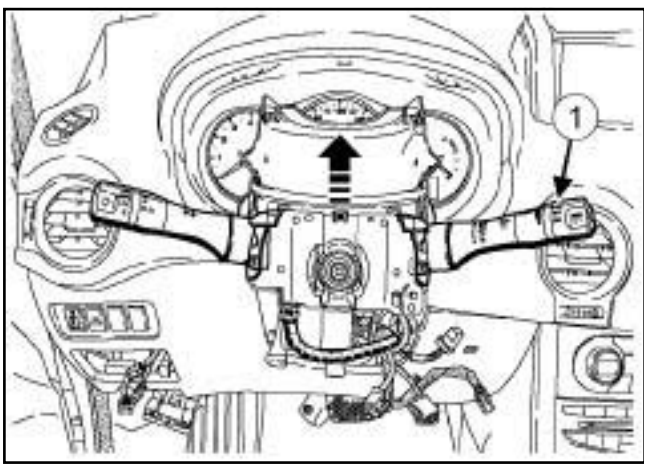
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Wiper stalk |
| *(2)* | UCH |
| *(3)* | Passenger compartment fuse and relay box |
| *(4)* | Windscreen wiper blade |
| *(5)* | Windscreen wiper blade arm |
| *(6)* | Windscreen wiper mechanism |
| *(7)* | Windscreen wiper motor |
| *(8)* | Windscreen wiper jet |
| *(9)* | Rear screen wiper blade |
| *(10)* | Rear screen wiper blade arm |
| *(11)* | Rear screen wiper motor |
| *(12)* | Rear screen wiper jet |
| *(13)* | Windscreen washer bottle |
| *(14)* | Windscreen washer pump |
| *(15)* | Windscreen washer neck |
| *(16)* | Rain and light sensor |

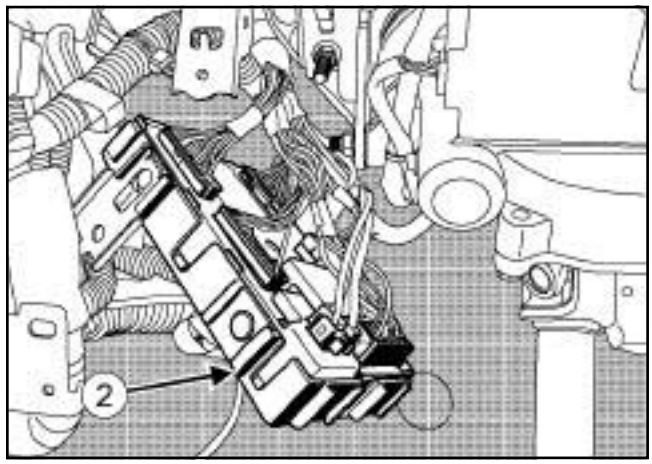
## II - LOCATION OF COMPONENTS

### 1 - Wiper stalk




130400

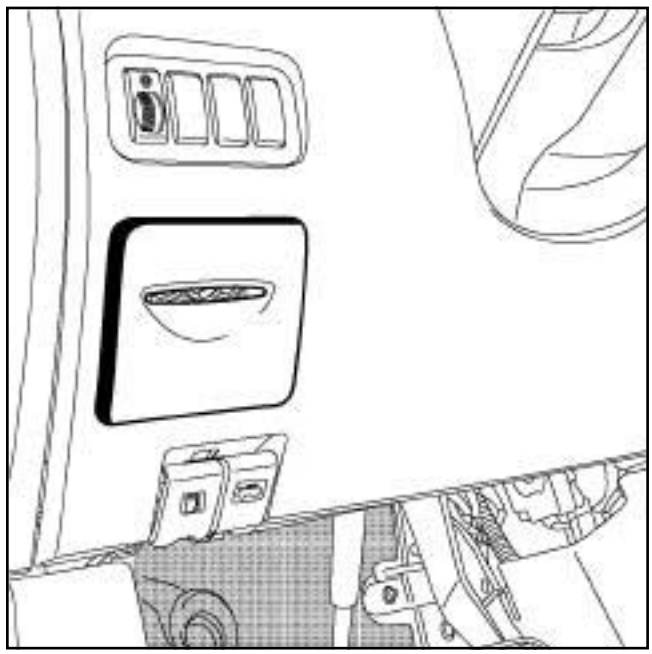
### 2 - UCH




130401

The UCH is located in the dashboard, behind the passenger compartment fuse and relay box. To remove it (see **87B**, **Passenger compartment connection unit**, **UCH: Removal - Refitting**, page **87B-1**) .

### 3 - Passenger compartment fuse and relay box



130402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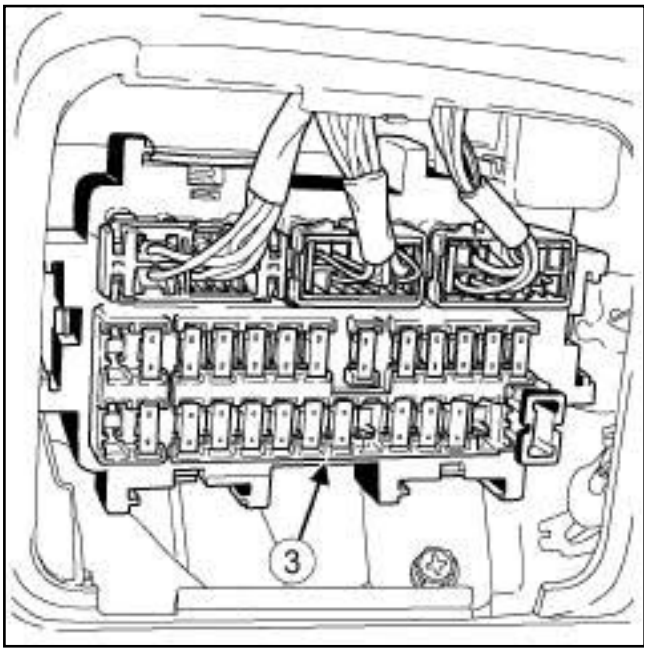
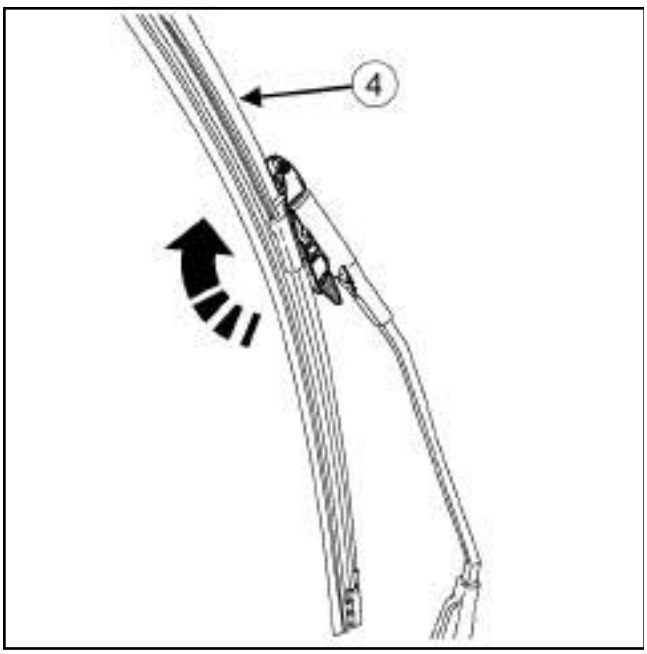


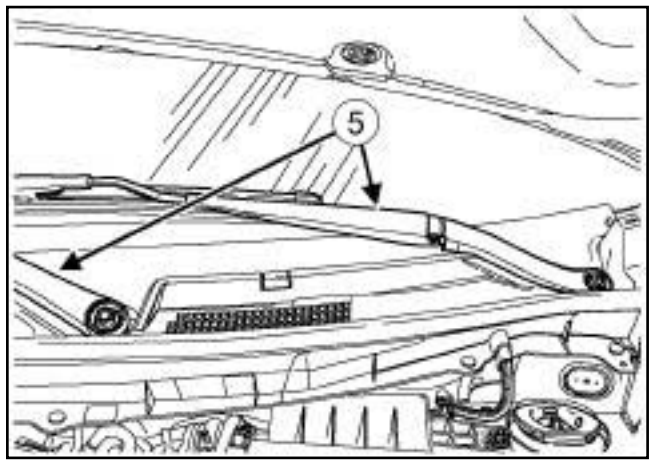

130403

**4 - Windscreen wiper blade**



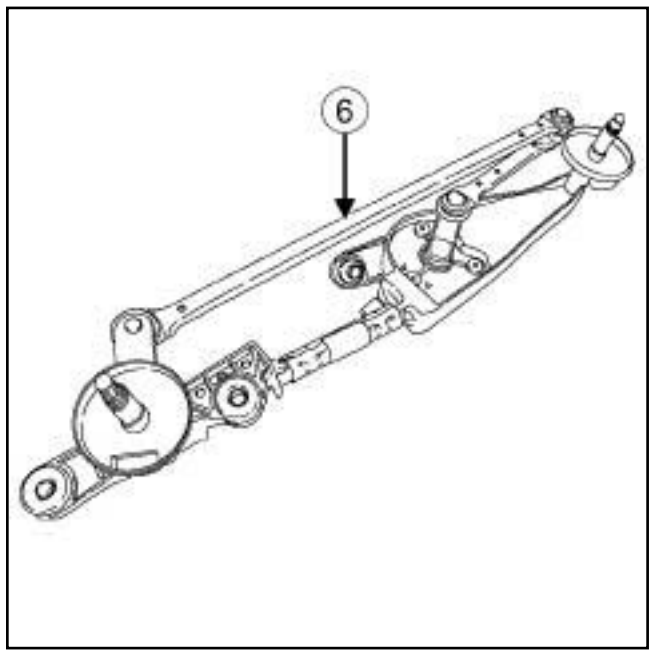

130405

**5 - Windscreen wiper blade arm**




130406

**6 - Windscreen wiper mechanism**




130425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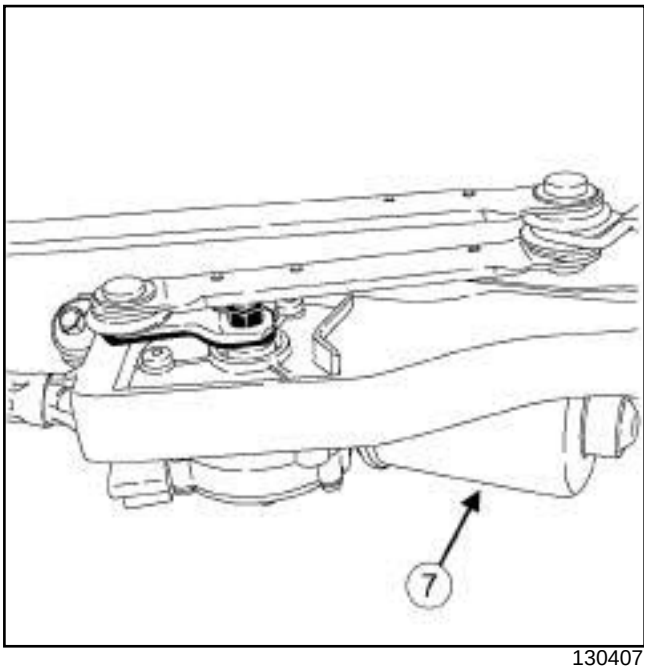
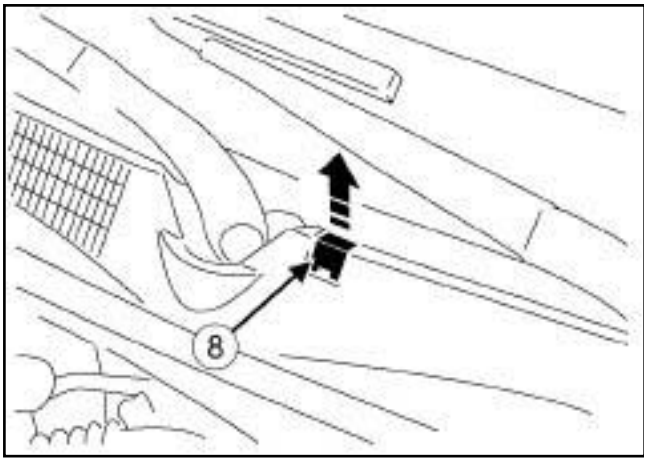
**7 - Windscreen wiper motor**




130407

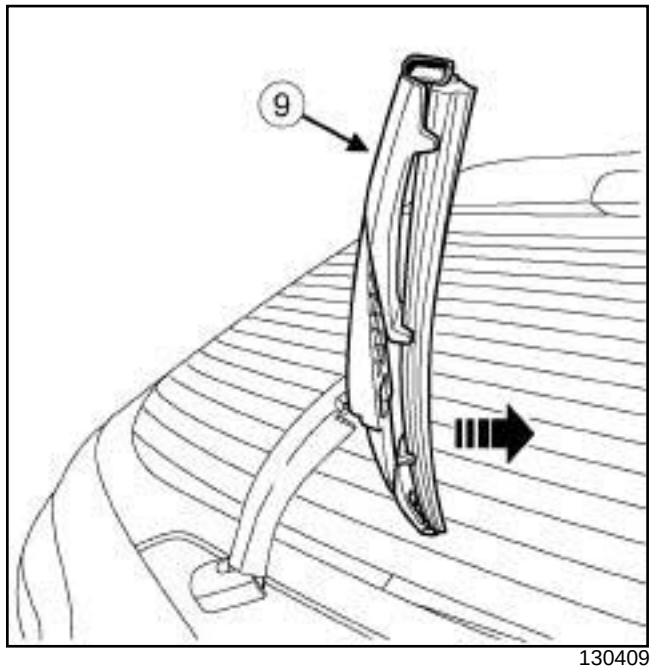
The windscreen wiper motor is incorporated into the windscreen wiper mechanism (see **85A**, **Wiping - Washing**, **Windscreen wiper mechanism: Removal - Refitting**, page **85A-9**) .

**8 - Windscreen wiper jet**



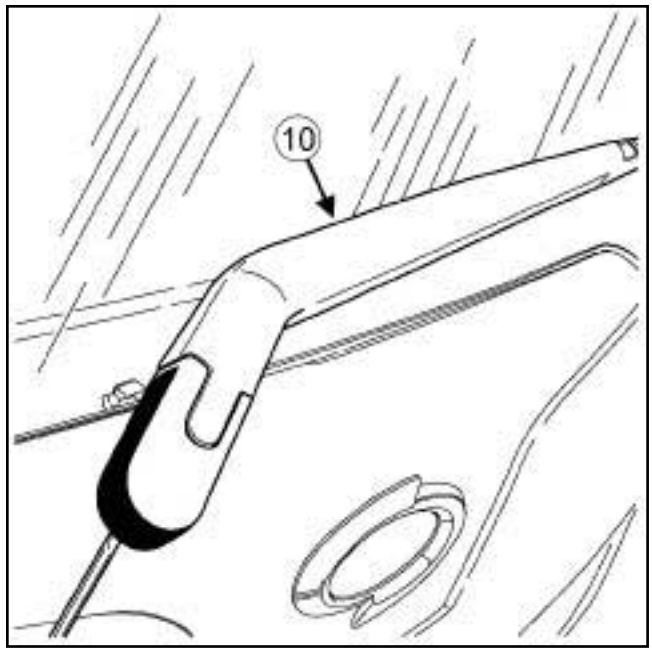

130408

**9 - Rear screen wiper blade**




130409

**10 - Rear screen wiper blade arm**




130410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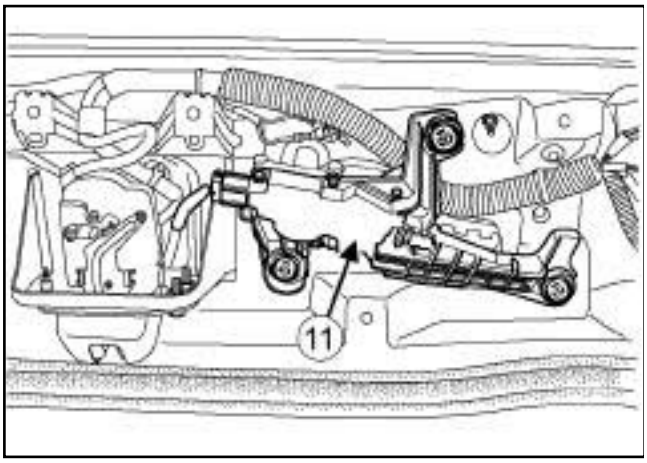
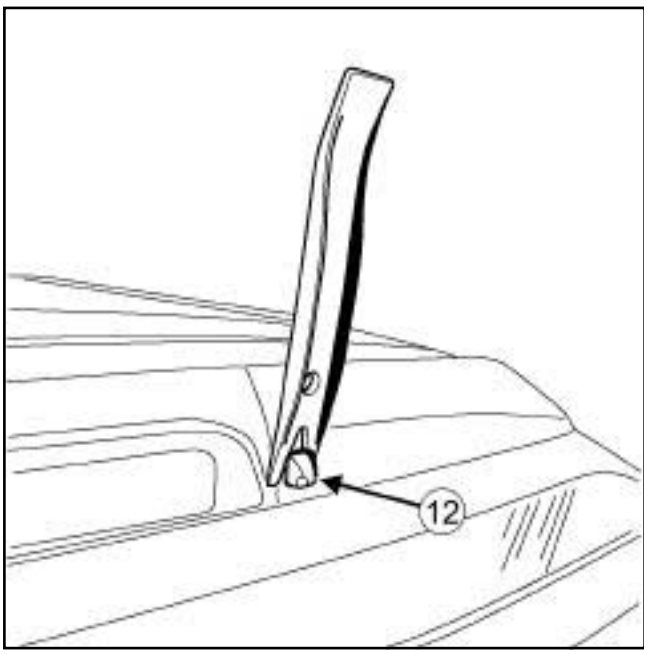
**11 - Rear screen wiper motor**



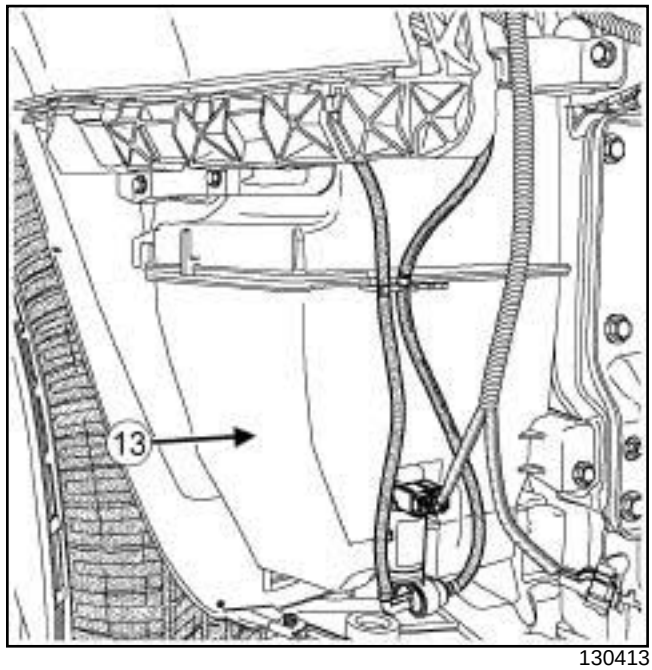

130411

**12 - Rear screen wiper jet**



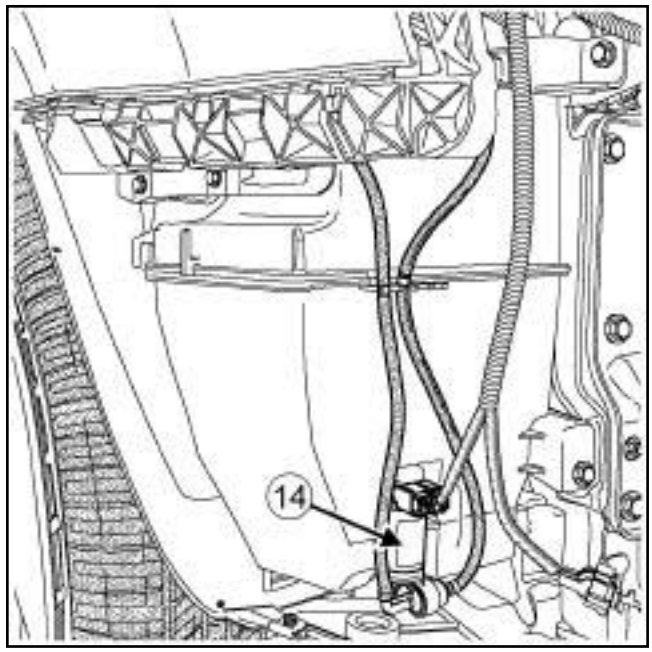

130412

**13 - Windscreen washer bottle**




130413

**14 - Windscreen washer pump**




130414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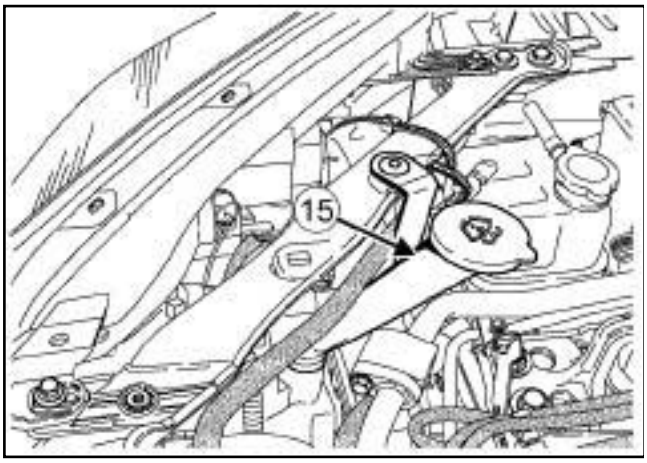
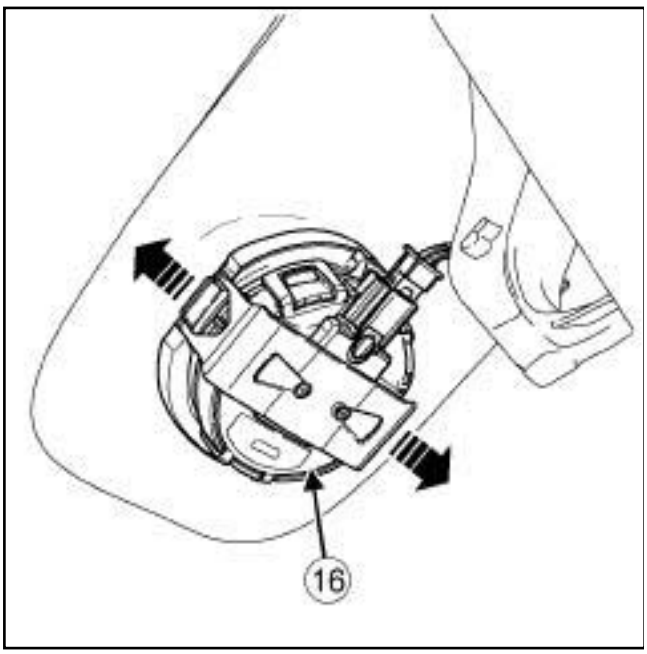
**15 - Windscreen washer neck**




130415

**16 - Rain and light sensor**




130416

The rain and light sensor is located underneath the interior rear-view mirror covers.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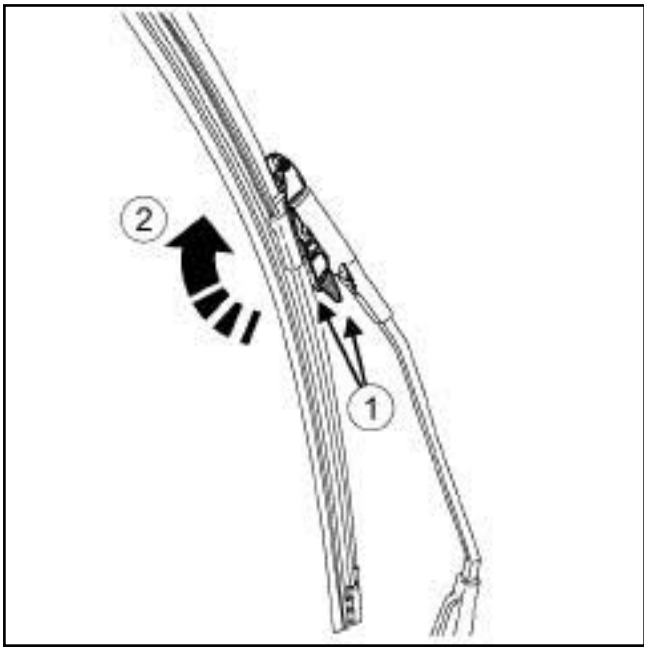
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



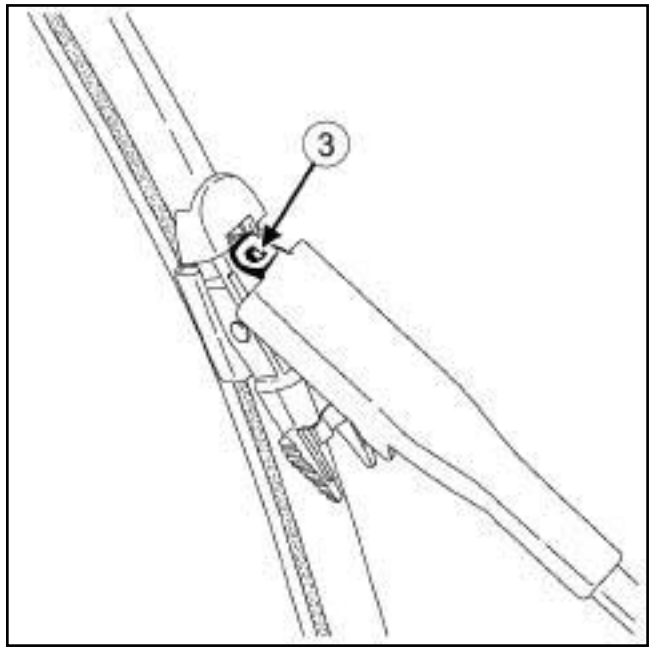

130418

❏ Press the clips (**1**) on both sides while turning the windscreen wiper blade in the direction of the arrow (**2**) .

❏ Remove the windscreen wiper blade.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED




130419

❏ Refit the windscreen wiper blade on the end (**3**) of the wiper arm.

❏ Clip the windscreen wiper blade onto the windscreen wiper arm.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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ele. 1865** | Tool for removing wiper arms |

| Tightening torques ▽ | |
|---|---|
| windscreen wiper arm nut24 | **N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Switch on the ignition.

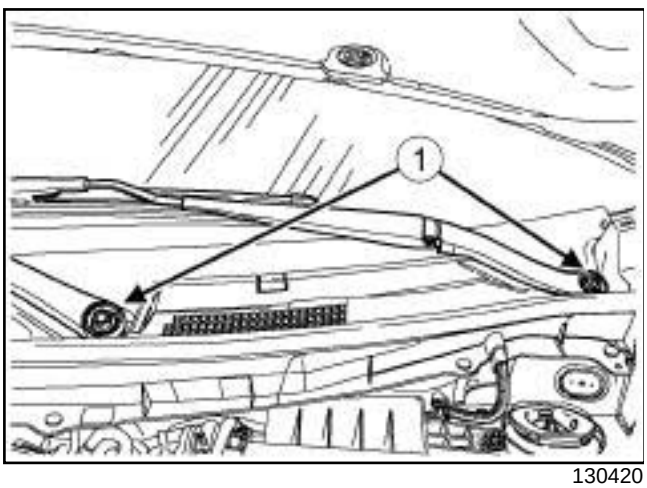
> **WARNING**
> To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper switch stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.

❏ Mark the position of the wiper arms for the refitting operation.

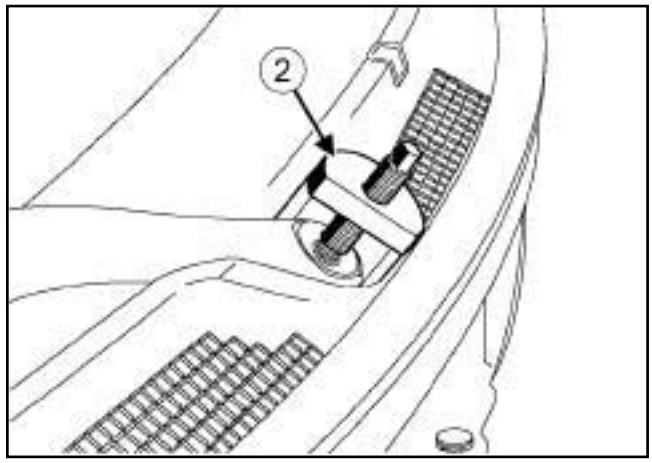
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130420

❏ Remove:

- the covers from the screen wiper arm nuts,
- the nuts (**1**) from the screen wiper arm.

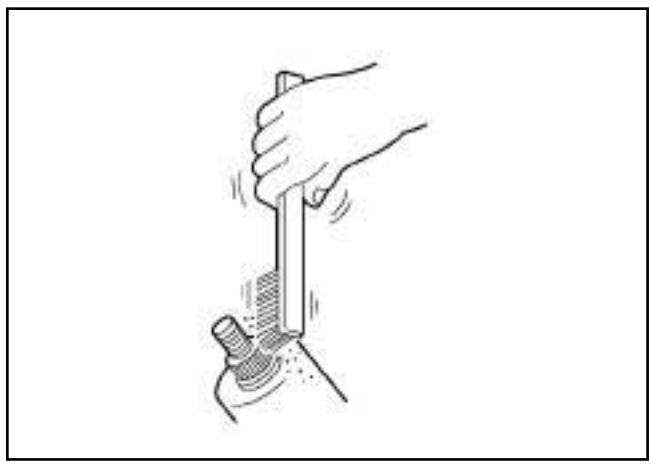


130421

❏ Remove the wiper arm using the **(Ele. 1865)** (**2**) .

## REFITTING

### I - REFITTING PREPARATION OPERATION


130422

❏ Clean the screen wiper arm mounting to prevent the nut from coming loose.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Switch on the ignition.

> **WARNING**
> To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper switch stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.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❏ Refit:

- the wiper arm in the position marked before removal,
- the wiper arm nut.

❏ Torque tighten the **windscreen wiper arm nut24 (N.m)**.

❏ Refit the wiper arm nut cover.


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| Tightening torques ▽ | |
|---|---|
| windscreen wiper mechanism bolts | 5 N.m |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Switch on the ignition.

**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

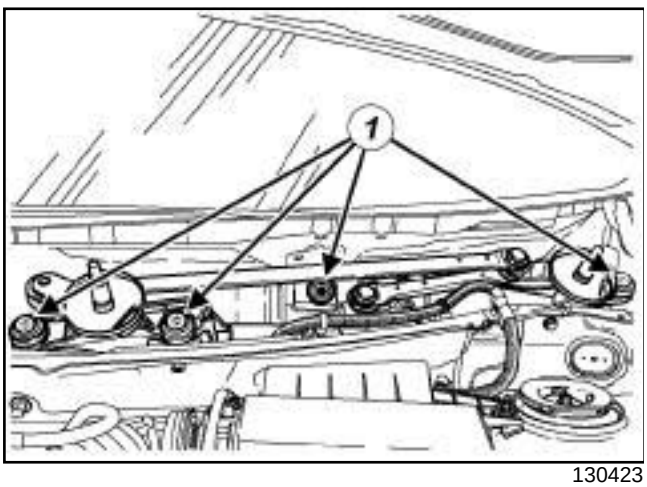
❏ Switch off the ignition.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove:

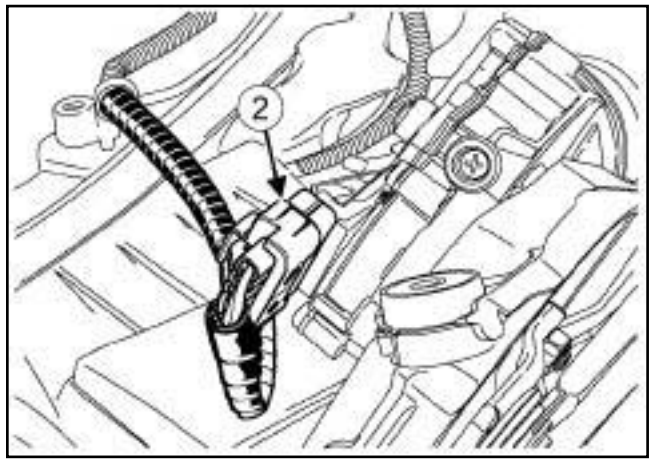
- the front wiper arms (see **85A**, **Wiping - Washing**, **Windscreen wiper arm: Removal - Refitting**, page **85A-7**) ,
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130423

❏ Remove the bolts (**1**) from the windscreen wiper mechanism.



130424

❏ Partially remove the windscreen wiper mechanism.

❏ Disconnect the windscreen wiper motor connector (**2**) .

❏ Remove the windscreen wiper mechanism.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the windscreen wiper motor connector.

❏ Refit:

- the windscreen wiper mechanism,
- the windscreen wiper mechanism bolts.

❏ Torque tighten the **windscreen wiper mechanism bolts (5 N.m)**.

### II - FINAL OPERATION.

❏ Refit the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Switch on the ignition.

**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.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❑ Refit the front wiper arms (see **85A**, **Wiping - Washing**, **Windscreen wiper arm: Removal - Refitting**, page **85A-7**) .


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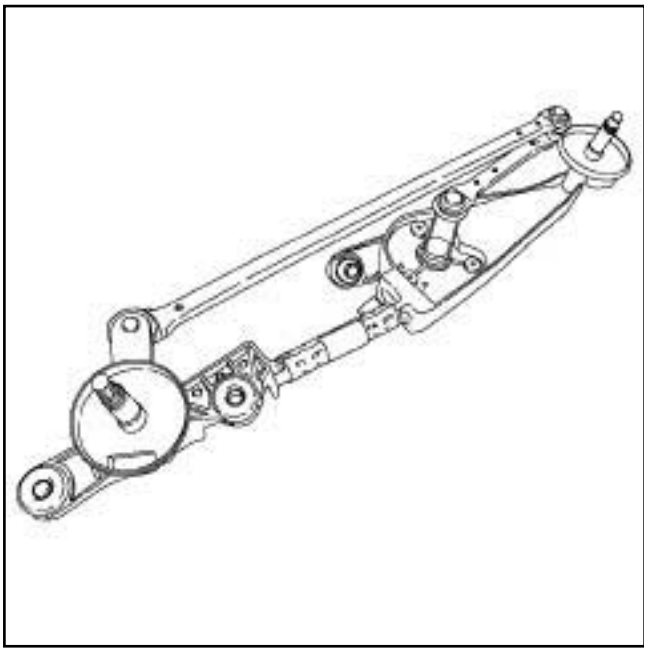
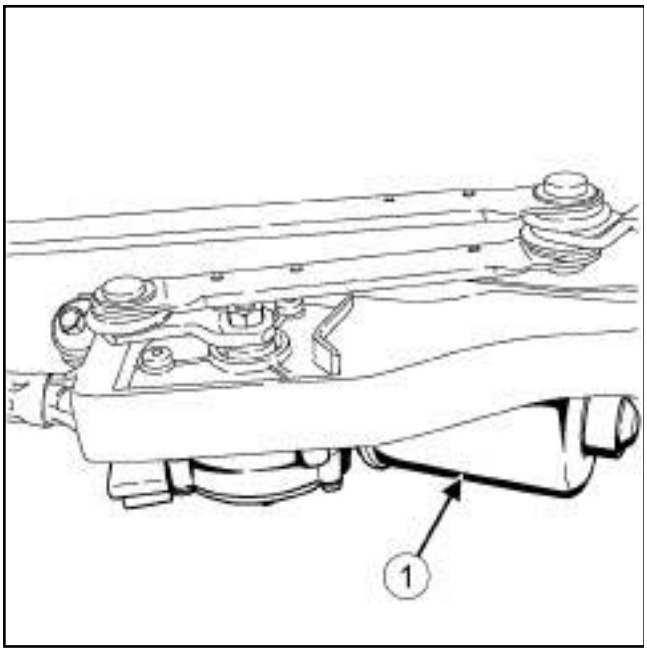


130425




130426

The windscreen wiper motor (**1**) is incorporated into the windscreen wiper mechanism (see **85A**, **Wiping - Washing**, **Windscreen wiper mechanism: Removal - Refitting**, page **85A-9**) .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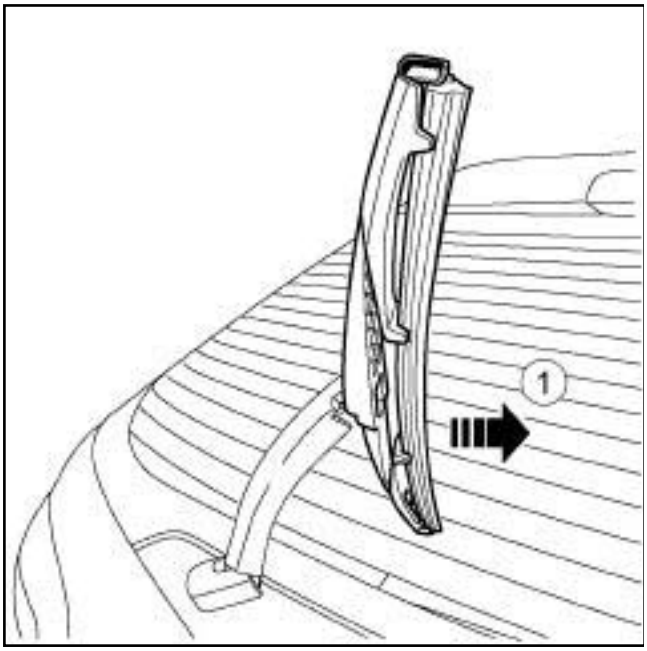
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED



130427

- ❏ Lift the rear screen wiper arm.
- ❏ Turn the rear screen wiper arm.
- ❏ Remove the rear screen wiper blade by pulling it in the direction of the arrow (**1**) .

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

- ❏ Refit the rear screen wiper blade to the rear screen wiper arm.
- ❏ Lower the rear screen wiper arm.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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ele. 1841** | Tool for removing wiper arms |

| Tightening torques ▽ | |
|---|---|
| rear screen wiper arm nut | **9 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Switch on the ignition.

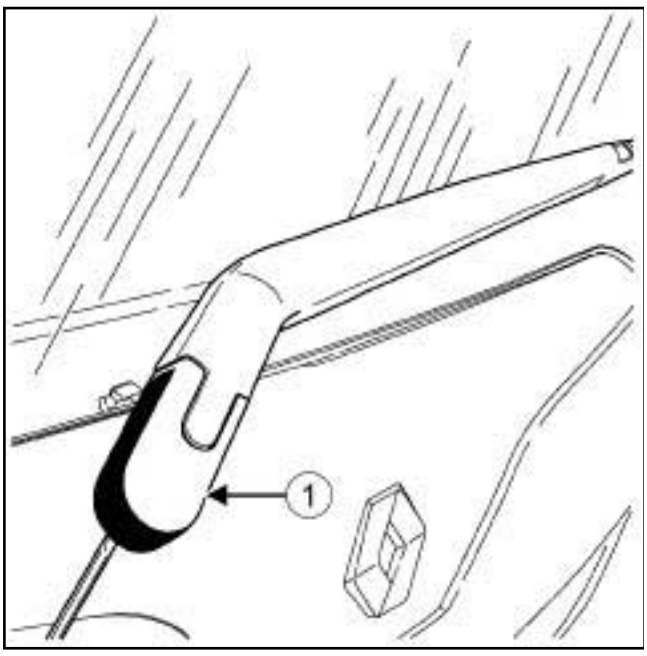
**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.

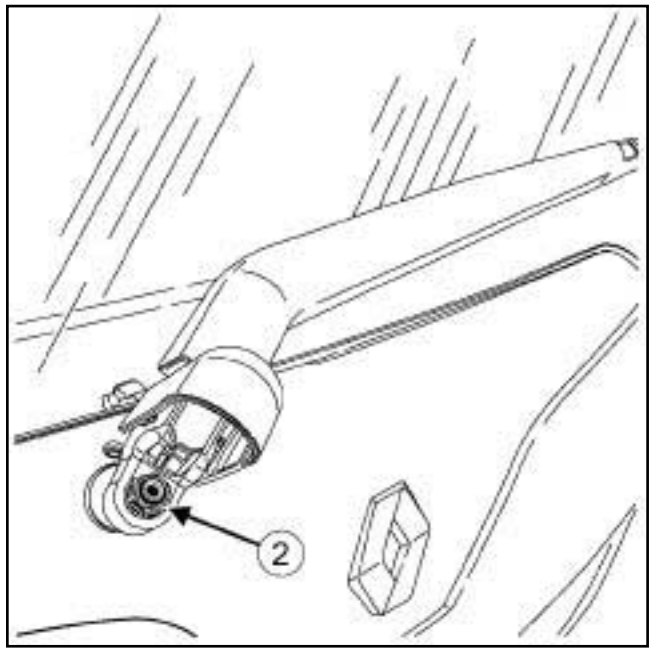
❏ Mark the position of the rear screen wiper arm.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



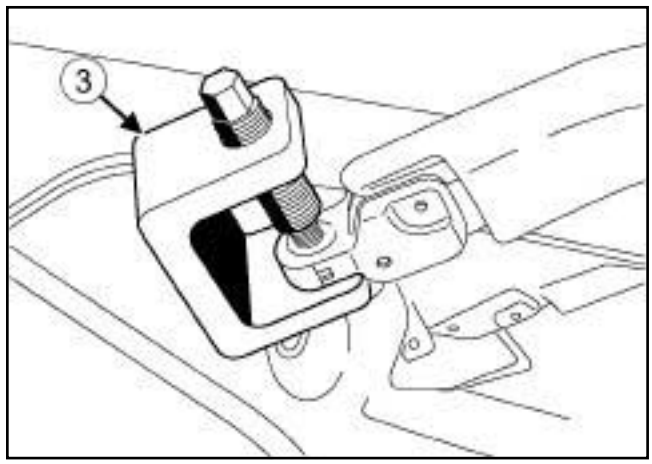

130428

❏ Open the rear screen wiper arm nut cover (**1**) .




130429

❏ Remove the nut (**2**) from the rear screen wiper arm.




130430

❏ Remove the rear screen wiper arm using the **(Ele. 1841)** (**3**) .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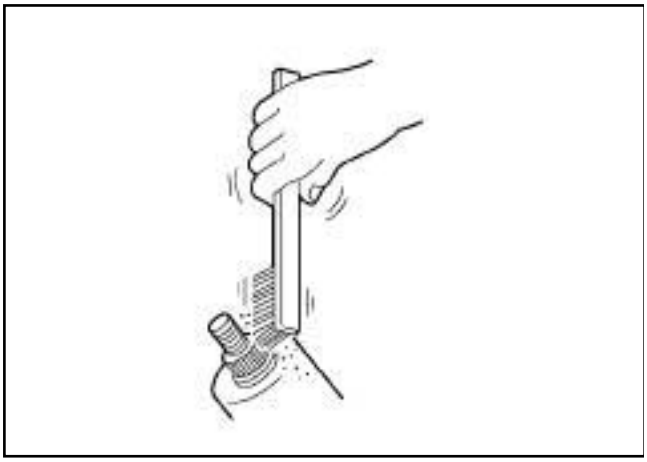
## REFITTING

### I - REFITTING PREPARATION OPERATION



130431

❏ Clean the rear screen wiper arm mounting to prevent the nut from coming loose.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Switch on the ignition.

**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.

❏ Refit:

- the rear screen wiper arm in the position marked before the removal operation,
- the rear screen wiper arm nut.

❏ Torque tighten the **rear screen wiper arm nut (9 N.m)**.

❏ Close the rear screen wiper arm nut cover.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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Switch on the ignition.

**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper switch stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

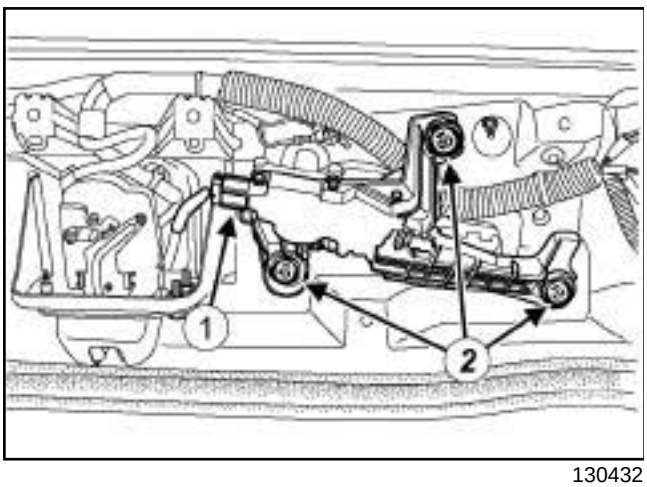
❏ Switch off the ignition.

❏ Mark the position of the rear screen wiper arm.

❏ Remove:

- the rear screen wiper arm (see **85A**, **Wiping - Washing**, **Rear screen wiper arm: Removal - Refitting**, page **85A-13**) ,
- the lower tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130432

❏ Disconnect the rear screen wiper motor connector (**1**) .

❏ Remove:

- the bolts (**2**) from the rear screen wiper motor,
- the rear screen wiper motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the rear screen wiper motor,
- the rear screen wiper motor bolts.

❏ Connect the rear screen wiper motor connector.

### II - FINAL OPERATION.

❏ Switch on the ignition.

**WARNING**
To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

❏ Turn the wiper switch stalk from (**0**) to (**1**), and then from (**1**) to (**0**).

❏ Switch off the ignition.

❏ Refit:

- the lower tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim),
- the rear screen wiper arm (see **85A**, **Wiping - Washing**, **Rear screen wiper arm: Removal - Refitting**, page **85A-13**) .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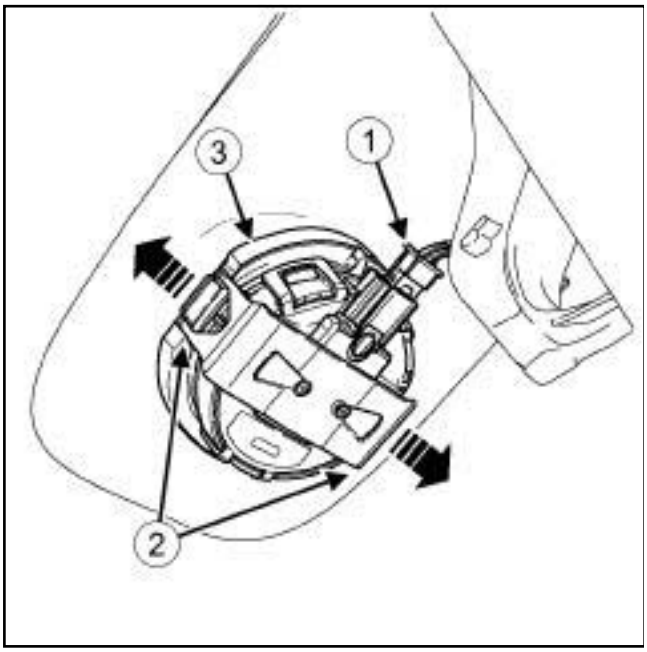
AUTO LIGHTS+WIPER

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove the covers from the interior rear-view mirror (see **Interior rear-view mirror Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130840

❑ Disconnect the connector (**1**) from the rain and light sensor.

❑ Unclip the two side clips (**2**) from the rain and light sensor (**3**) using a small flat-blade screwdriver.

❑ Separate the rain and light sensor from its support.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**WARNING**

The rain sensor should be removed and refitted in totally clean conditions: any dust or cloth residue could cause a malfunction.

Do not touch the electronic part of the sensor. Fit the sensor to the vehicle immediately after removing it from its packaging.

Note:

When replacing the windscreen or removing the rain and light sensor, the rain and light sensor must always be replaced because the adhesive base of the sensor cannot be reused.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the rain and light sensor onto the support.

❑ Clip the two side clips onto the rain and light sensor support.

❑ Connect the connector for the rain and light sensor.

### III - FINAL OPERATION

❑ Refit the covers of the interior rear-view mirror (see **Interior rear-view mirror Removal - Refitting**) (57A, Interior equipment).

❑ Carry out an operating test:

- select automatic wiping mode,
- spray droplets of water onto the windscreen within the sensor detection area,
- check that the automatic wiping function is operating correctly.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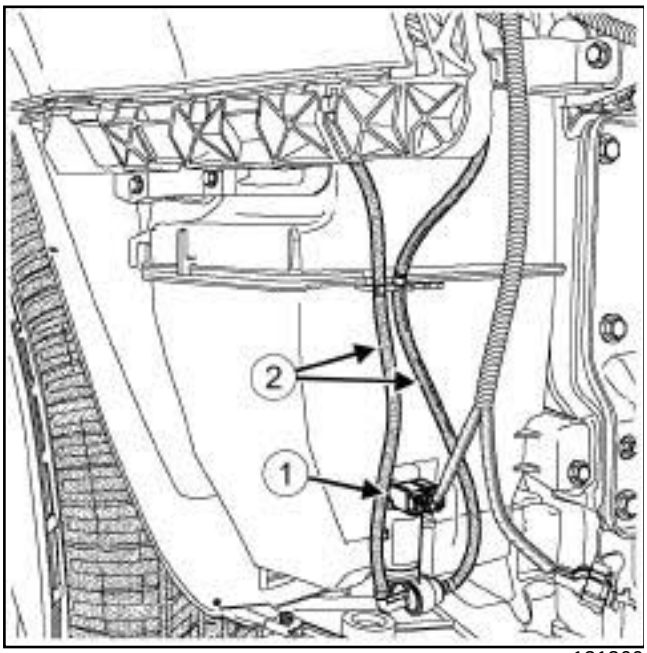
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

### II - REMOVAL OF PART CONCERNED



131366

❏ Place a container underneath the windscreen washer bottle.

❏ Disconnect:

- the connector ***(1)*** from the windscreen washer pump,
- the supply pipes ***(2)*** .

Note:
Mark the routing of the supply pipes and wiring.

❏ Remove the windscreen washer pump.

## REFITTING

### I - REFITTING PART CONCERNED

❏ Refit the windscreen washer pump.

❏ Connect:

- the supply pipes,
- the windscreen washer pump connector.

### II - FINAL OPERATION.

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Fill-up the windscreen washer bottle.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HEADLIGHT WASHERS WITH BLADE

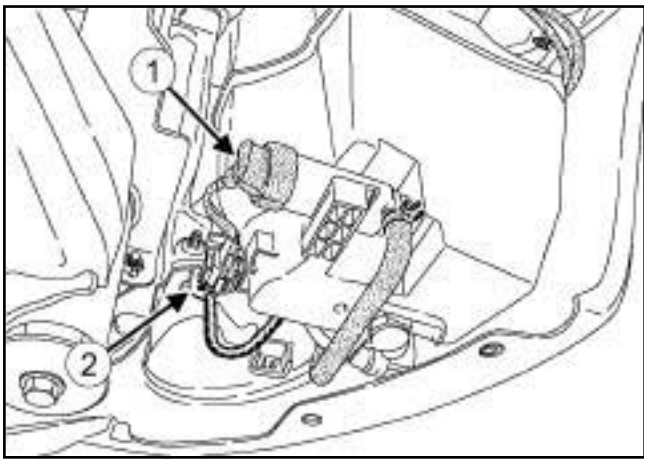
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Partially remove the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

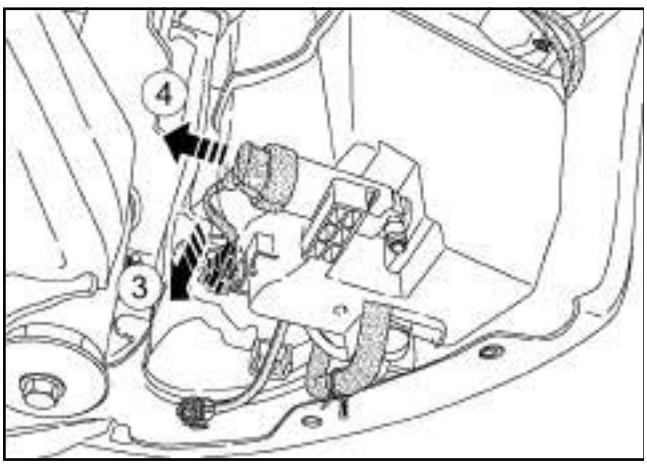



131735

❏ Unfasten clip (**1**) .

❏ Disconnect:

- the headlight washer hose,
- the headlight washer pump connector ***(2)*** .




131736

❏ Unclip:

- the headlight washer pump connector in the direction (**3**) ,
- the headlight washer pump in the direction (**4**) .

❏ Remove the headlight washer pump - headlight washer pump connector assembly from the screen washer reservoir.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the headlight washer pump - headlight washer pump connector assembly to the screen washer reservoir.

❏ Clip on the headlight washer pump connector.

❏ Connect:

- the headlight washer pump connector,
- the headlight washer hose.

❏ Clip on the clip.

### II - FINAL OPERATION.

❏ Fit the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).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HEADLIGHT WASHERS WITH BLADE

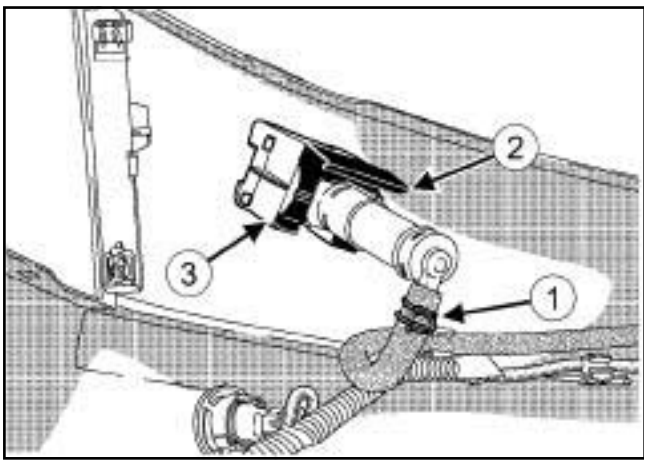
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



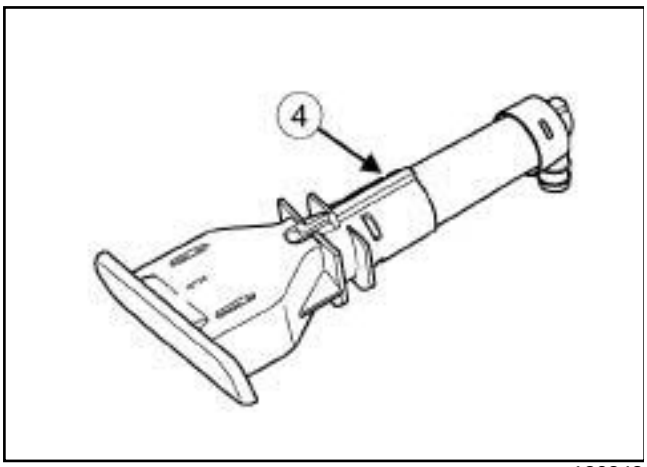

130841

❏ Remove the clip (**1**) from the supply pipe.

❏ Disconnect the supply pipe.

❏ Unclip the headlight washer jet clip (**2**) .

❏ Remove the headlight washer jet support (**3**) .




130842

❏ Remove the headlight washer jet (**4**) from the front bumper.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the headlight washer jet to the front bumper.

❏ Refit:

- the headlight washer jet support,
- the headlight washer jet clip.

❏ Connect the supply pipe.

❏ Refit the supply pipe mounting clip.

### II - FINAL OPERATION.

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).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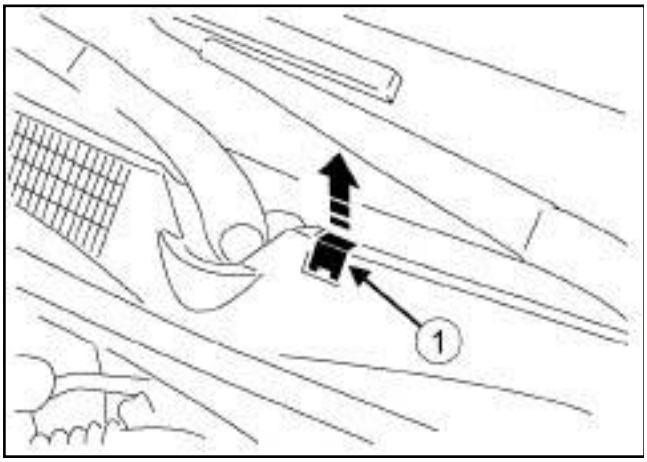
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130433

- ❏ Unclip the windscreen washer jet (**1**) using the **(Car. 1363)**.
- ❏ Disconnect the pipe from the windscreen washer jet.
- ❏ Attach the pipe for the windscreen washer jet using adhesive tape so that the windscreen washer jet pipe does not fall into the scuttle panel half-grille.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

- ❏ Connect the pipe for the windscreen washer jet.
- ❏ Clip on the windscreen washer jet.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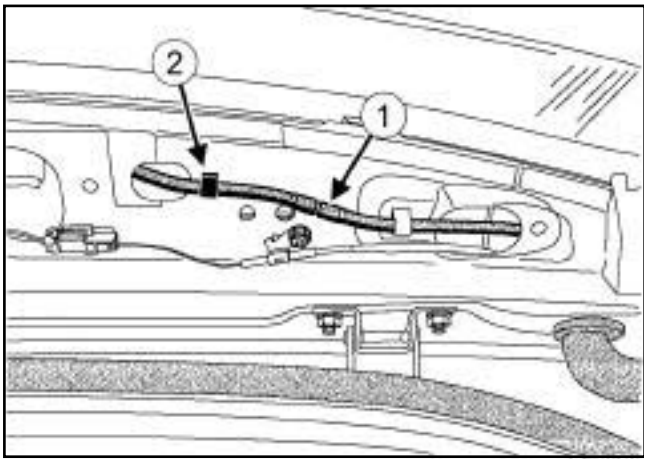
| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the upper tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

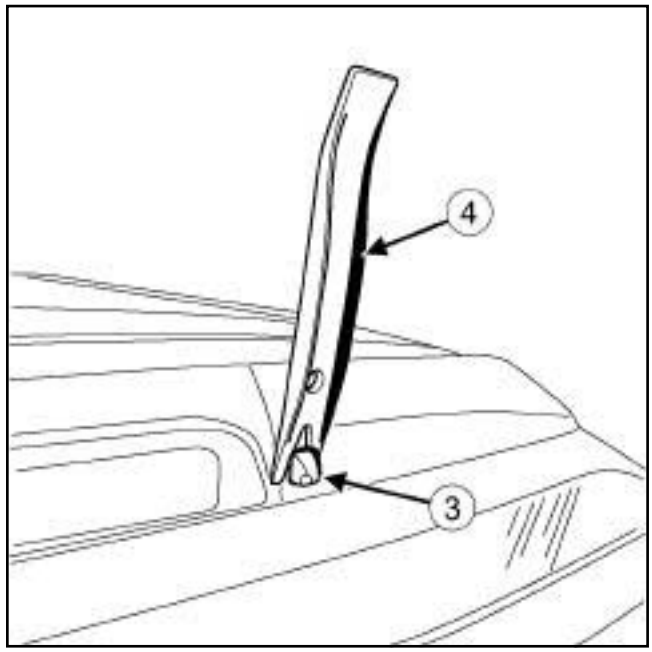
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130434

❏ Disconnect:

- the rear screen washer jet pipe at (**1**) ,
- the clip (**2**) .



130435

❏ Remove the rear screen washer jet (**3**) using the tool **(Car. 1363)** (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear screen washer jet.

❏ Connect the pipe for the rear screen washer jet.

❏ Refit the clip.

### II - FINAL OPERATION.

❏ Refit the upper tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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| Tightening torques ▽ | |
|---|---|
| windscreen washer bottle bolts | **10 N.m** |

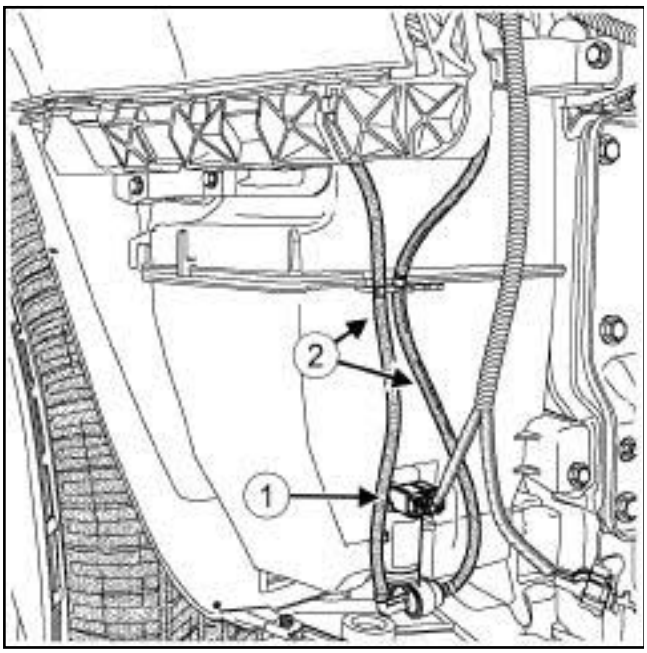
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

❏ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



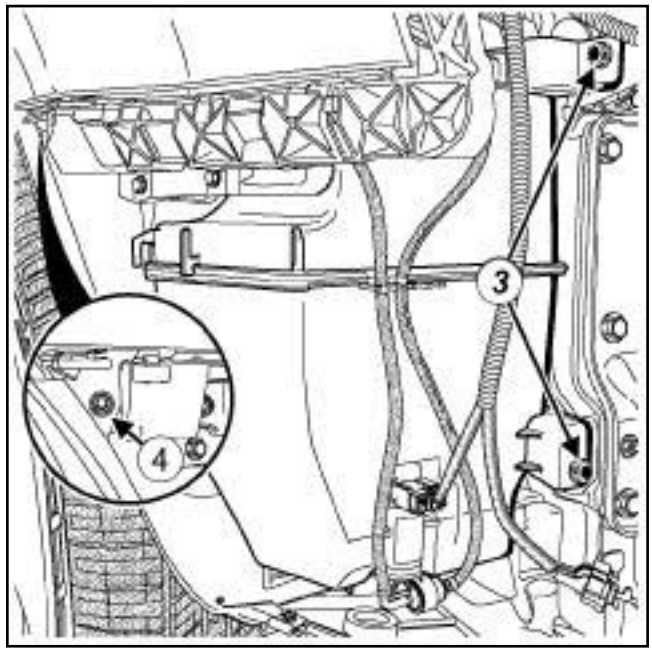
131366

❏ Place a container underneath the windscreen washer bottle.

❏ Remove the windscreen washer bottle neck (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) .

❏ Disconnect:

- the connector (**1**) from the windscreen washer pump,
- the supply pipes (**2**) .



131367

❏ Remove:

- the front bolts (**3**) of the windscreen washer bottle,
- the rear bolt (**4**) of the windscreen washer bottle,
- the windscreen washer bottle,
- the windscreen washer pump from the windscreen washer bottle.

Note:
Mark the routing of the supply pipes and wiring.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the windscreen washer pump to the windscreen washer bottle,
- the windscreen washer bottle,
- the front bolts of the windscreen washer bottle,
- the rear bolt of the windscreen washer bottle.

❏ Torque tighten the **windscreen washer bottle bolts (10 N.m)**.

❏ Connect:

- the supply pipes,
- the windscreen washer pump connector.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❏ Refit the windscreen washer bottle neck (see **85A**, **Wiping - Washing**, **Windscreen washer bottle funnel: Removal - Refitting**, page **85A-24**) .

**II - FINAL OPERATION.**

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Fill the windscreen washer bottle.


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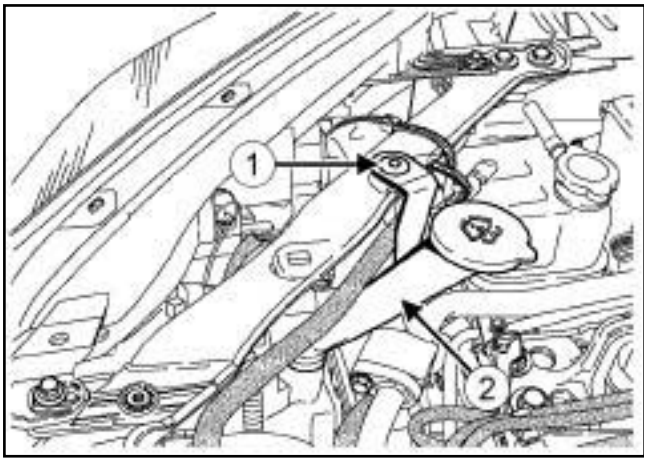
## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED




130843

❏ Unfasten clip (**1**) .

❏ Separate the neck (**2**) from the windscreen washer bottle.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the windscreen washer bottle neck.

❏ Engage clip.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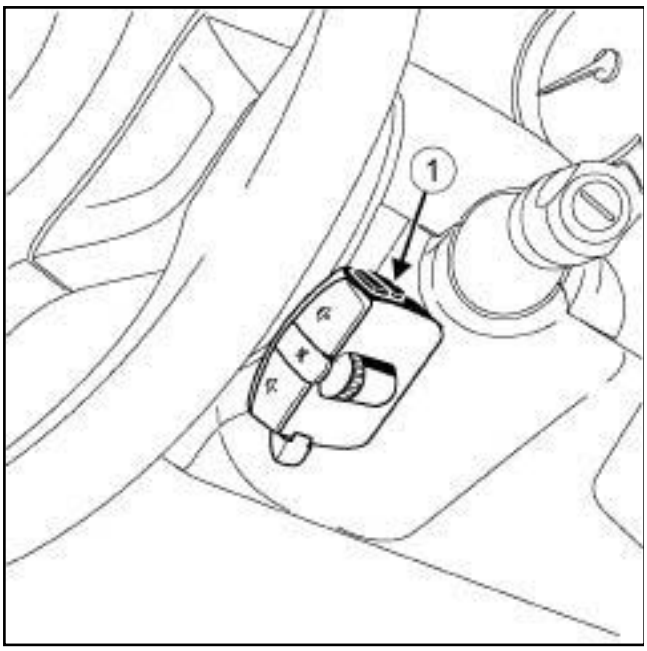
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Radio control satellite |
| *(2.2)* | Radio aerial |
| *(3)* | Radio |
| *(4)* | Radio unit |
| *(5)* | Display |
| *(6)* | Tweeter |
| *(7)* | Front central speaker |
| *(8)* | Speaker in the front door |
| *(9)* | Speaker in the rear door |
| *(10)* | Subwoofer |
| *(11)* | Tuner-amplifier |

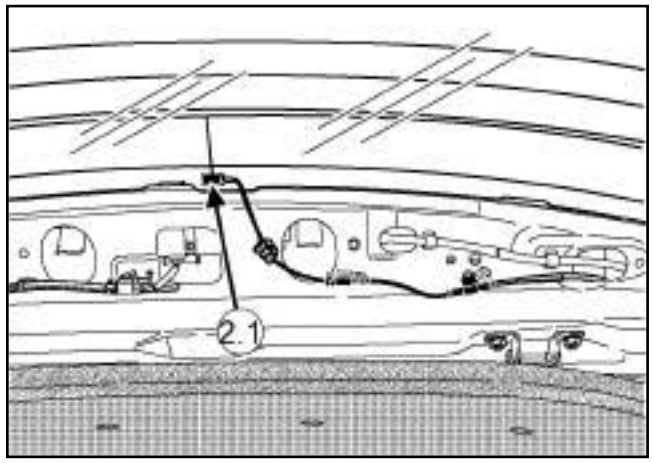
## II - LOCATION OF COMPONENTS

**1 - Radio control satellite**



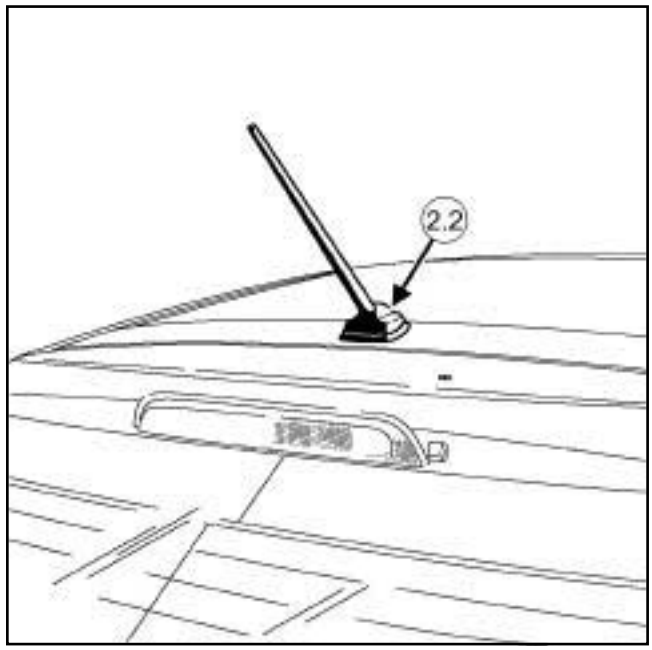

130727

**2.1 - Window mounted radio aerial**



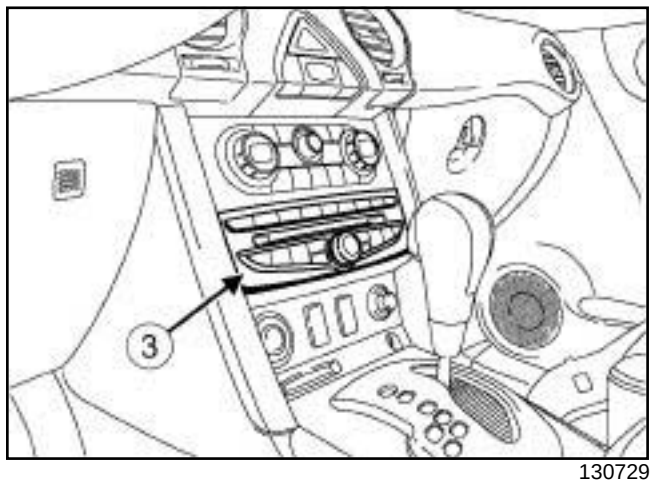

135217

**2.2 - Roof mounted radio aerial**




130728

**3 - Radio**




130729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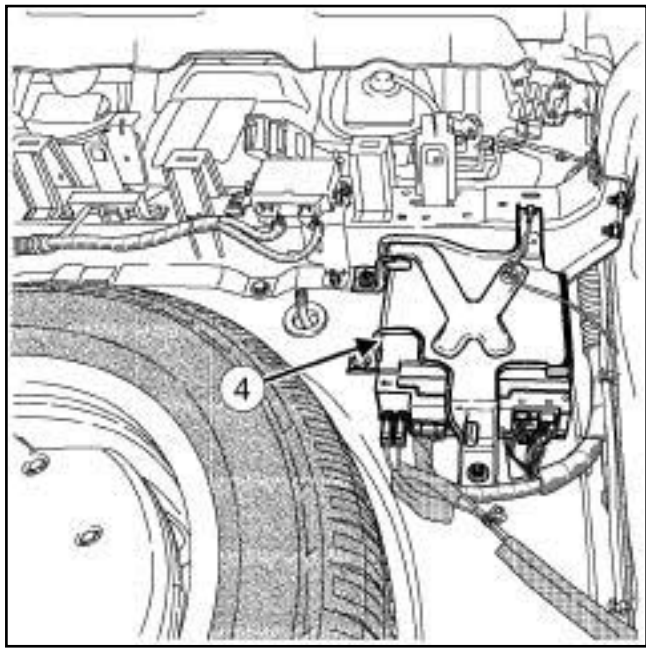
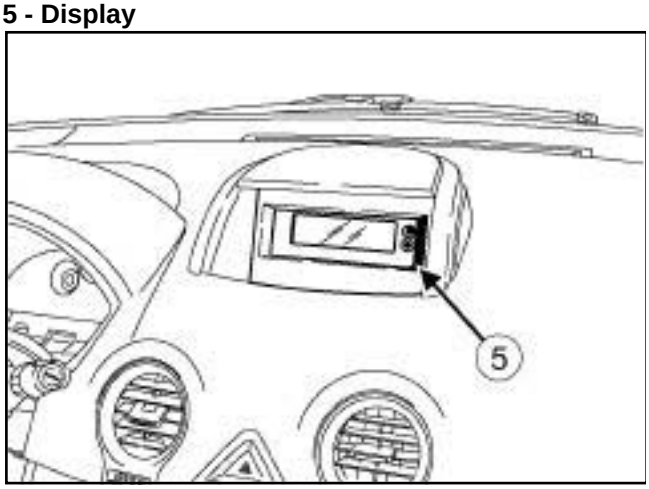
**4 - Radio unit**



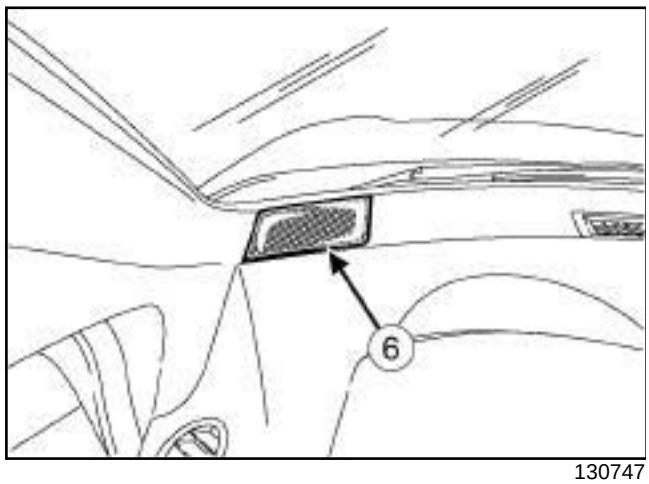

130730

**5 - Display**



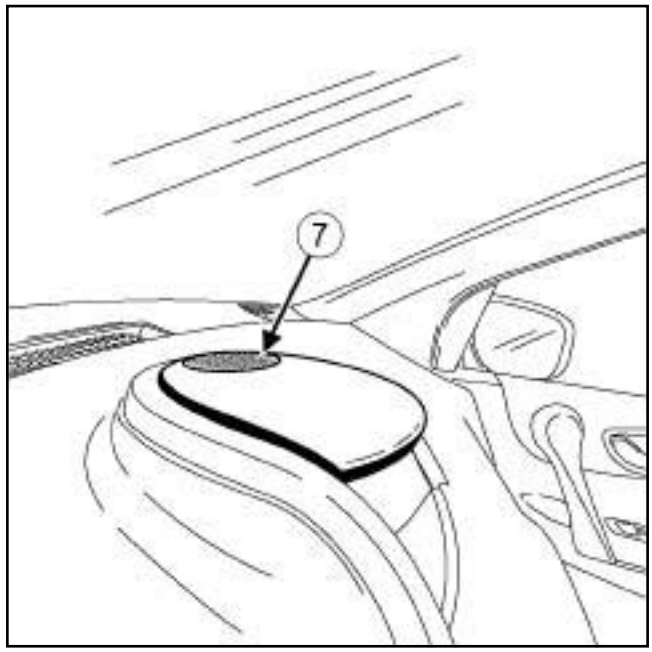

130731

**6 - Tweeter**



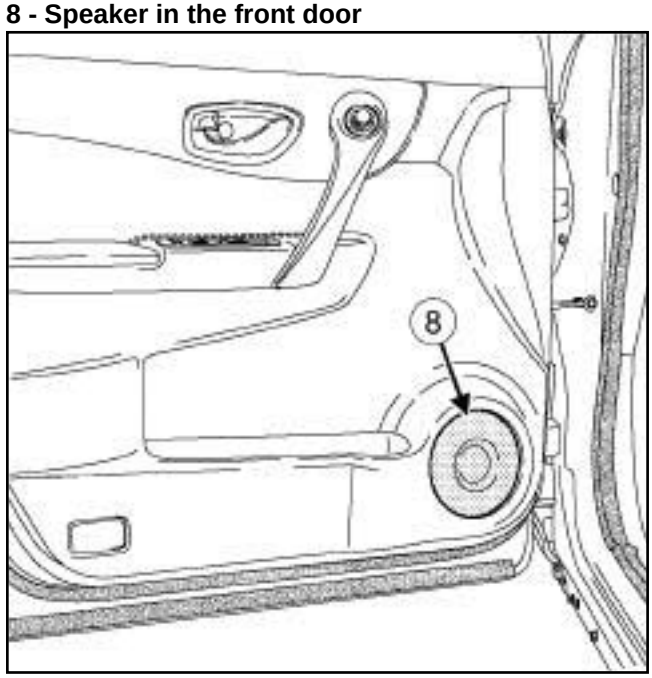

130747

**7- Front central speaker**




130733

**8 - Speaker in the front door**




130734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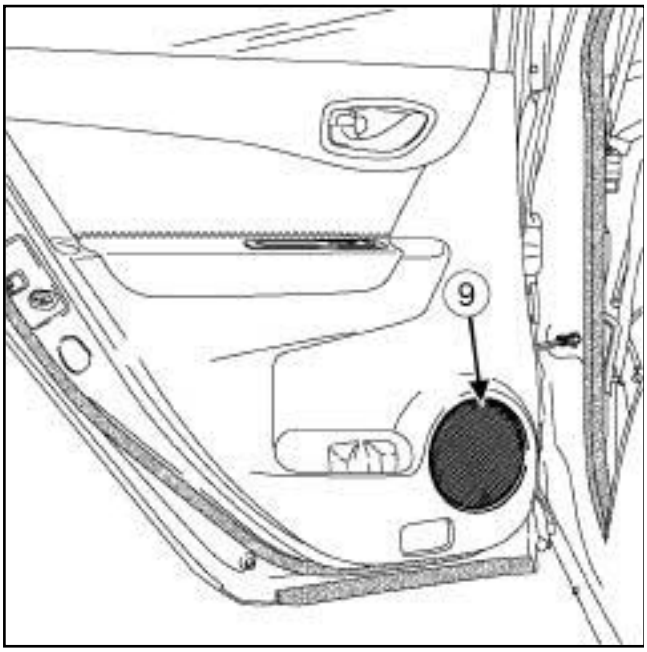
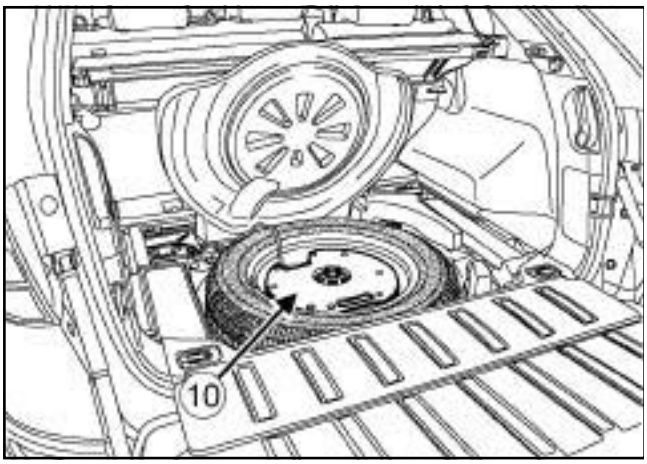
**9 - Speaker in the rear door**



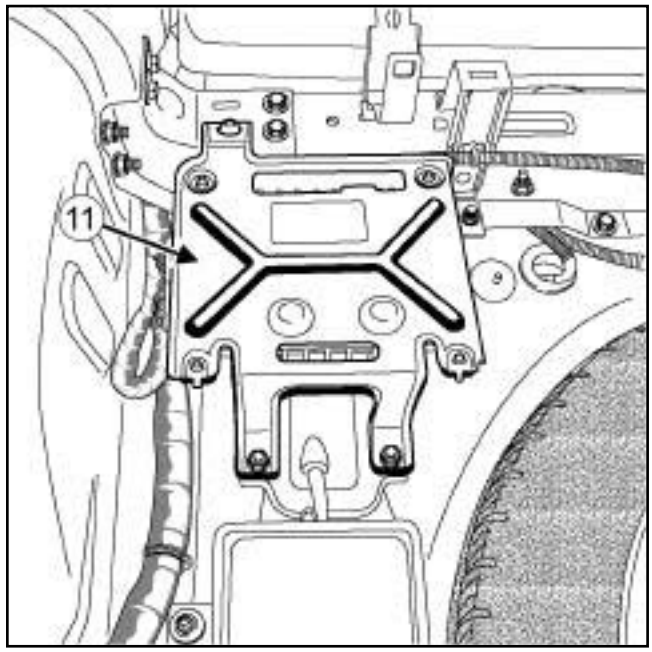

130735

**10 - Subwoofer**




130736

**11 - Tuner - amplifier**




130737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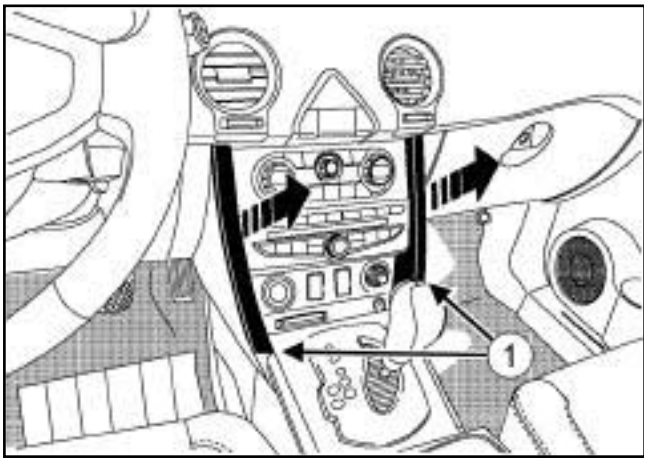
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Ms. 1373** | Tool for removing radio or chronotachograph. |

## REMOVAL

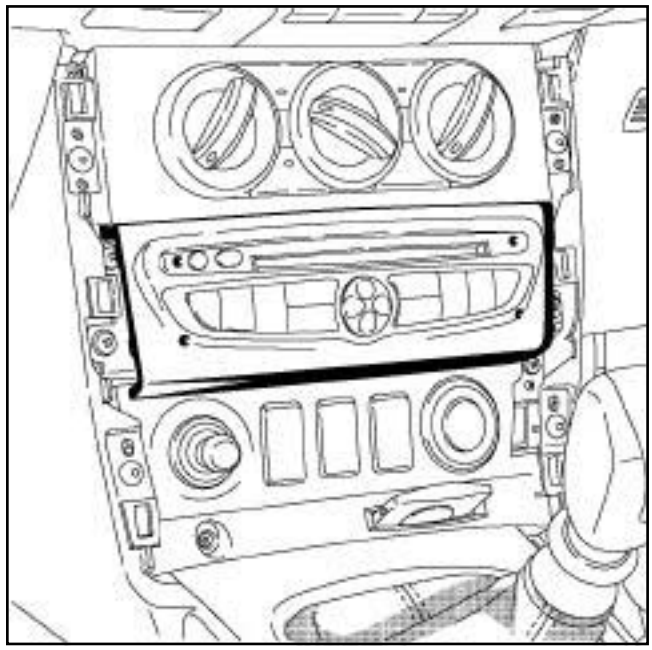
### I - REMOVAL PREPARATION OPERATION



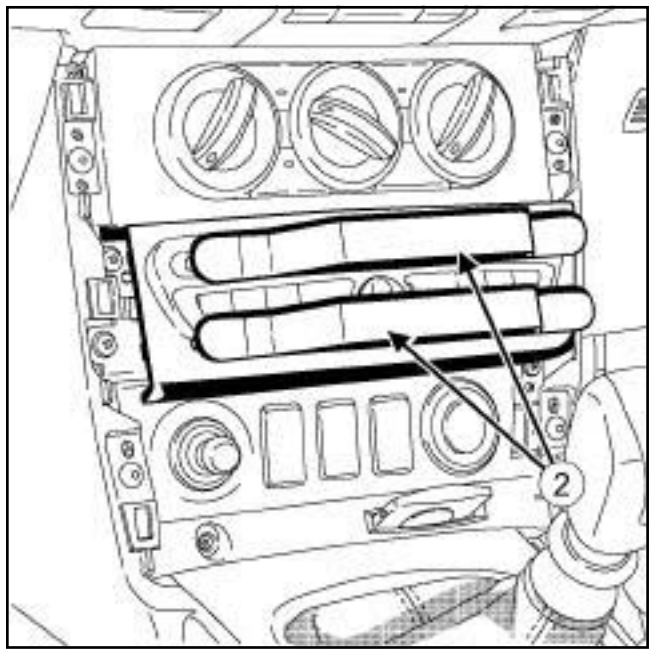

130758

❑ Remove the centre front panel side trim (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



132550




132551

❑ Remove the radio using the tool **(Ms. 1373)** (**2**) .

❑ Disconnect the connectors.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the connectors.

❑ Refit the radio.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**II - FINAL OPERATION.**

❑ Refit the centre front panel side trim.


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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ms. 1373** | Tool for removing radio or chronotachograph. |

## REMOVAL

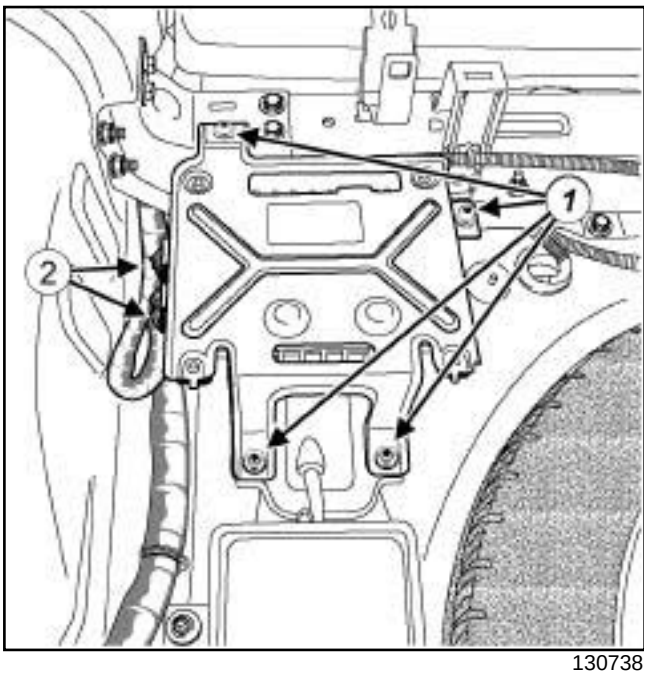
### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the rear centre luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the front centre luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment side trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).

### II - REMOVAL OPERATION FOR THE PART CONCERNED

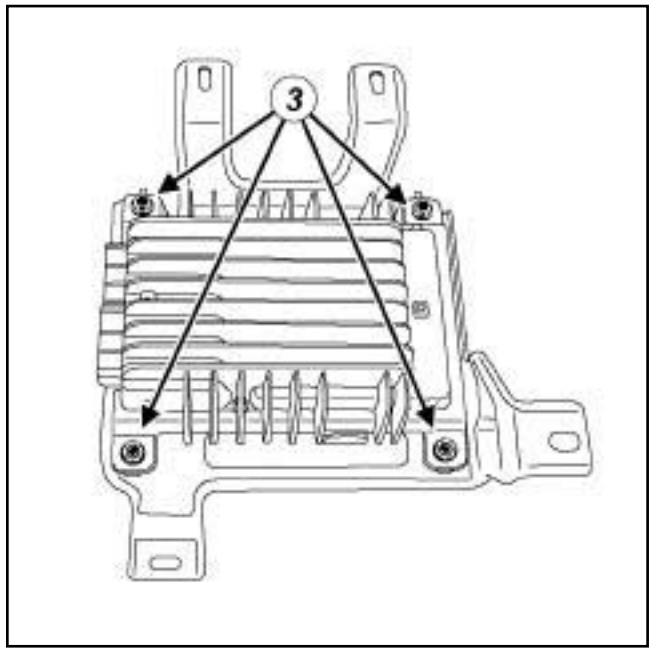
#### 1 - Tuner-amplifier




130738

❑ Remove nuts (**1**) .

❑ Disconnect the connectors ***(2)*** .

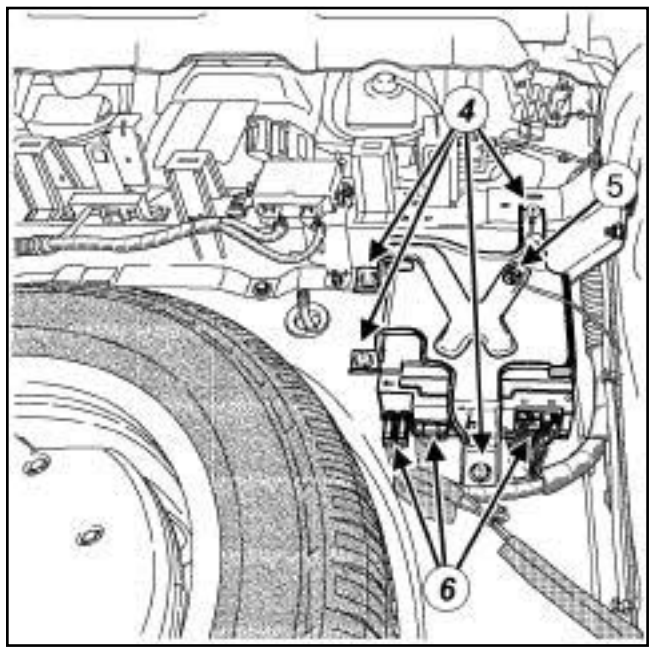



130739

❑ Remove:

- the nuts (**3**) ,
- the tuner-amplifier from the support.

#### 2 - Radio unit




130740

❑ Remove the bolts (**4**) .

❑ Unclip the wiring at ***(5)*** .

❑ Disconnect the connectors ***(6)*** .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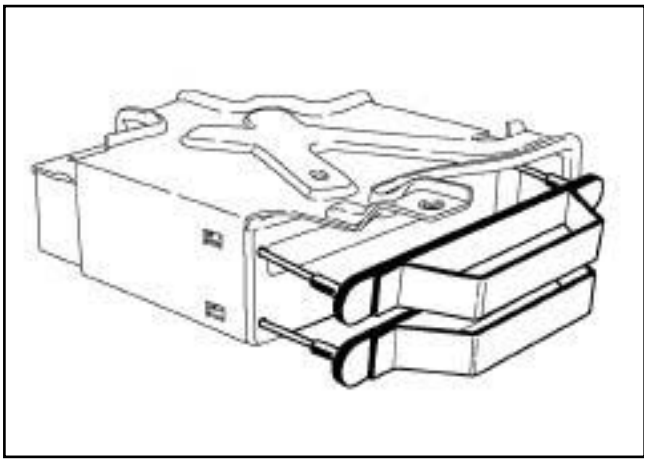

130741

❏ Remove the radio unit using the tool **(Ms. 1373)**.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

#### 1 - Tuner-amplifier

❏ Refit:

- the tuner-amplifier to the support,
- the nuts.

❏ Connect the connectors.

❏ Refit the nuts.

#### 2 - Radio unit

❏ Refit the radio unit to the support.

❏ Connect the connectors.

❏ Attach the wiring.

❏ Refit the bolts.

### II - FINAL OPERATION.

❏ Refit:

- the luggage compartment side trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the front centre luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear centre luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

**1 - Radio aerial incorporated in the window glass**

❑ Remove:

- the upper tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim).

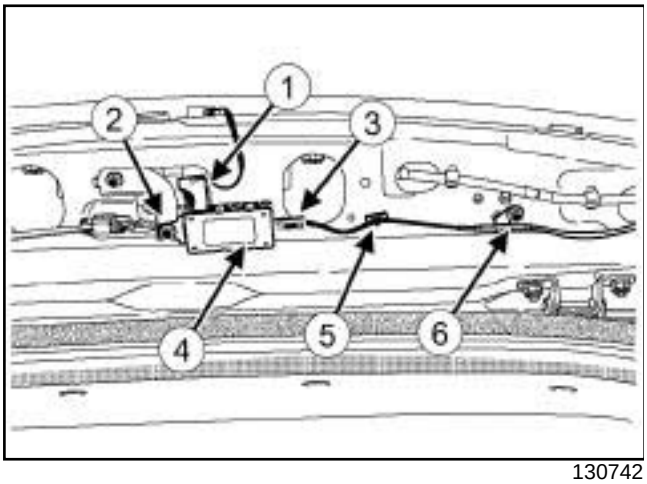
**2 - Roof radio aerial**

❑ Remove:

- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim),
- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

### II - REMOVAL OPERATION FOR THE PART CONCERNED

**1 - Radio aerial incorporated in the window glass**




130742

❑ Disconnect the connector (**1**) .

❑ Remove the bolt ***(2)*** .

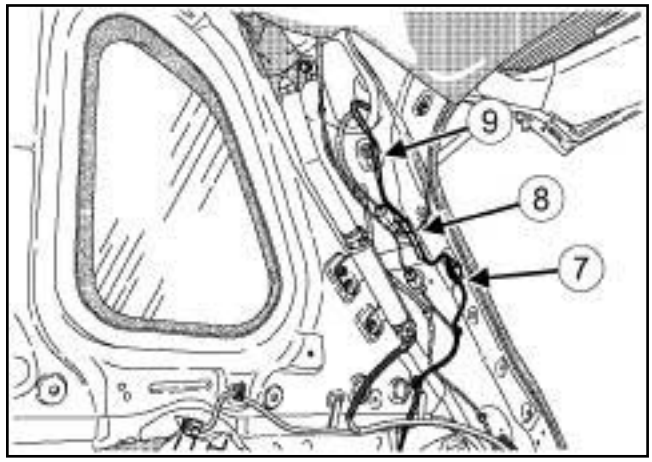
❑ Disconnect the connector ***(3)*** .

❑ Remove:

- the amplifier mounting clip using a flat-blade screwdriver,
- the amplifier ***(4)*** .

❑ Unfasten the clip ***(5)*** .

❑ Remove the bolt ***(6)*** .

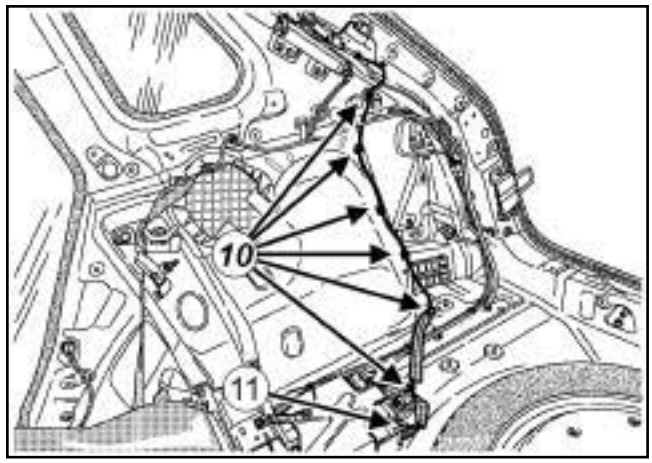



130743

❑ Disconnect the connector (**7**) .

❑ Unfasten clip ***(8)*** .

❑ Remove the bolt ***(9)*** .




130744

❑ Unclip the clips (**10**) .

❑ Disconnect the connector ***(11)*** .

❑ Remove the radio aerial wiring.

Note:

When replacing the printed radio aerial on the rear screen, replace the rear screen glass (see **Rear screen: Removal - Refitting**) (54A, Windows).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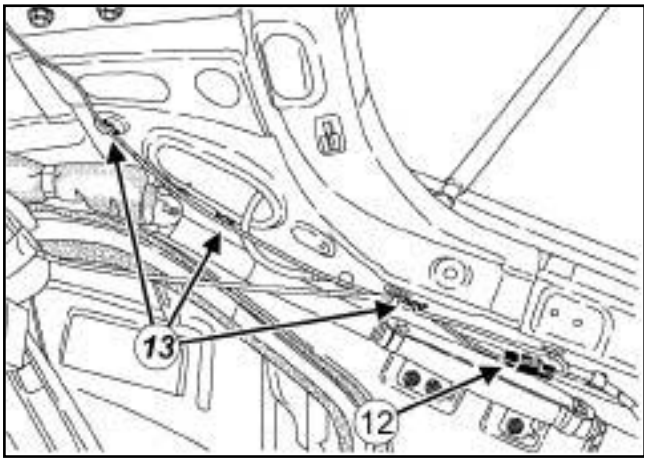
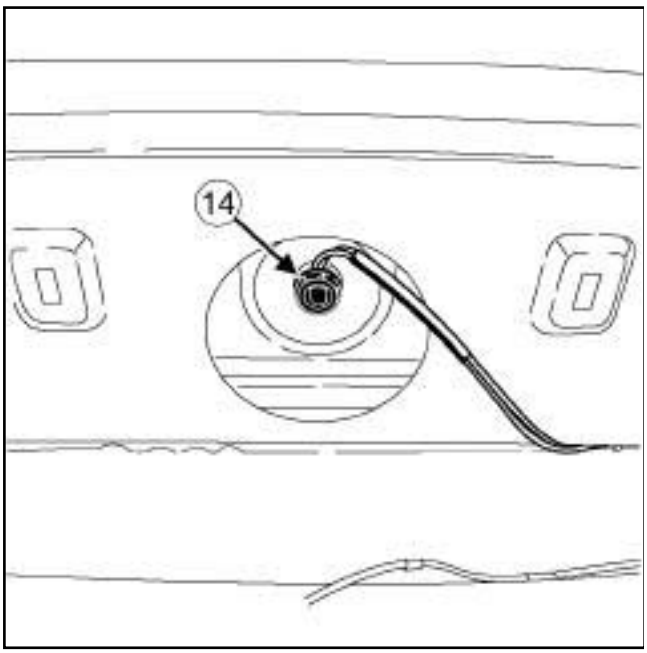
**2 - Roof radio aerial**




130745

❏ Disconnect the connector (**12**) .

❏ Unclip the clips ***(13)*** .




130746

❏ Remove:

- the nut (**14**) ,
- the radio aerial.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

**1 - Radio aerial incorporated in the window glass**

❏ Refit:

- the radio aerial,
- the radio aerial wiring.

❏ Connect the connectors ***(11)*** .

❏ Attach the clips ***(10)*** .

❏ Refit the bolt ***(9)*** .

❏ Clip on the clip ***(8)*** .

❏ Connect the connector ***(7)*** .

❏ Refit the bolt ***(6)*** .

❏ Engage clip ***(5)*** .

❏ Refit the amplifier ***(4)*** .

❏ Clip on the amplifier mounting clip.

❏ Connect the connector ***(3)*** .

❏ Refit the bolt ***(2)*** .

❏ Connect the connector ***(1)*** .

**2 - Roof radio aerial**

❏ Refit:

- the radio aerial,
- the radio aerial nut.

❏ Attach the clips ***(13)*** .

❏ Connect the connector ***(12)*** .

**II - FINAL OPERATION.**

**1 - Radio aerial incorporated in the window glass**

❏ Refit:

- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim),
- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the upper tailgate trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

**2 - Roof radio aerial**

❏ Refit:

- the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim),
- the upper trim of the C-pillar (see **C-pillar upper trim: Removal - Refitting**) (71A, Body internal trim),
- the rear pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim).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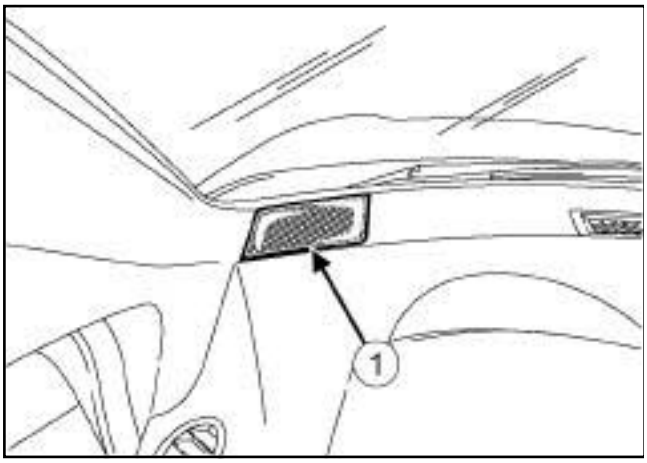
## REMOVAL

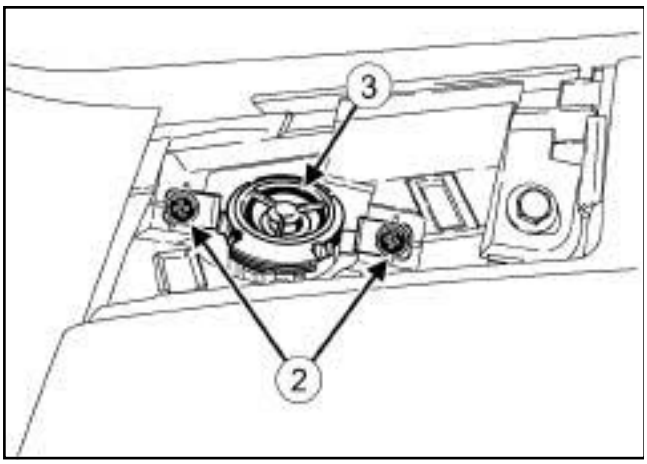
### I - REMOVAL PREPARATION OPERATION




130747

❏ Unclip the tweeter grille (**1**) using a flat-blade screwdriver.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130748

❏ Remove:

- the bolts (**2**) ,
- the tweeter (**3**) .

❏ Disconnect the tweeter speaker connector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the tweeter speaker connector.

❏ Refit:

- the tweeter,
- the tweeter bolts.

### II - FINAL OPERATION.

❏ Refit the tweeter grille.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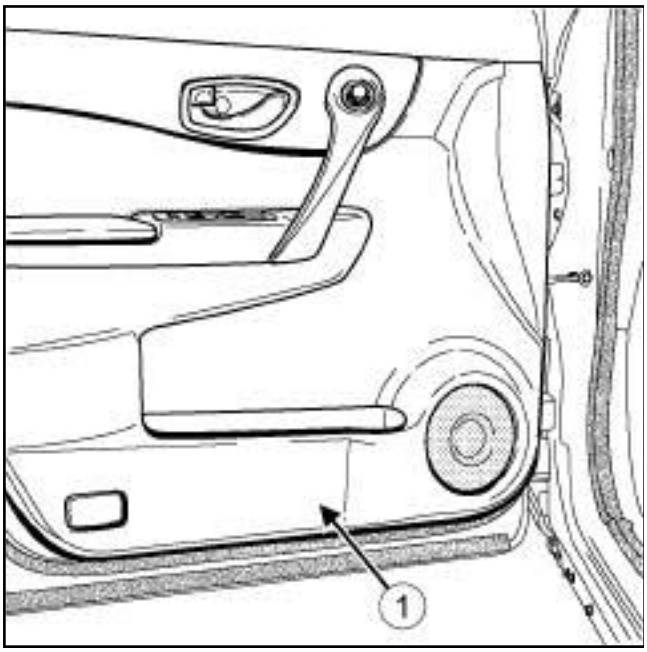
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

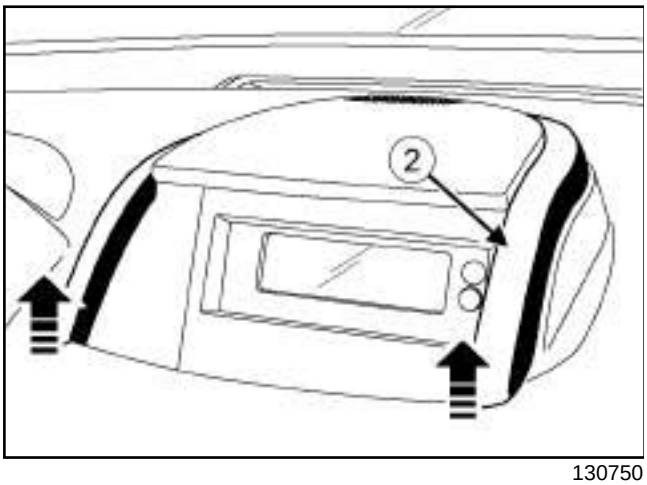
#### 1 - Front door speaker




130749

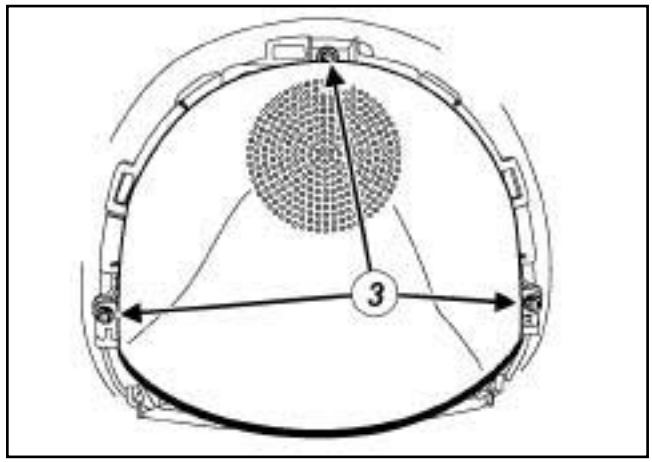
❏ Remove the front side door trim (**1**) (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

#### 2 - Front centre speaker




130750

❏ Remove the front centre speaker trim (**2**) .



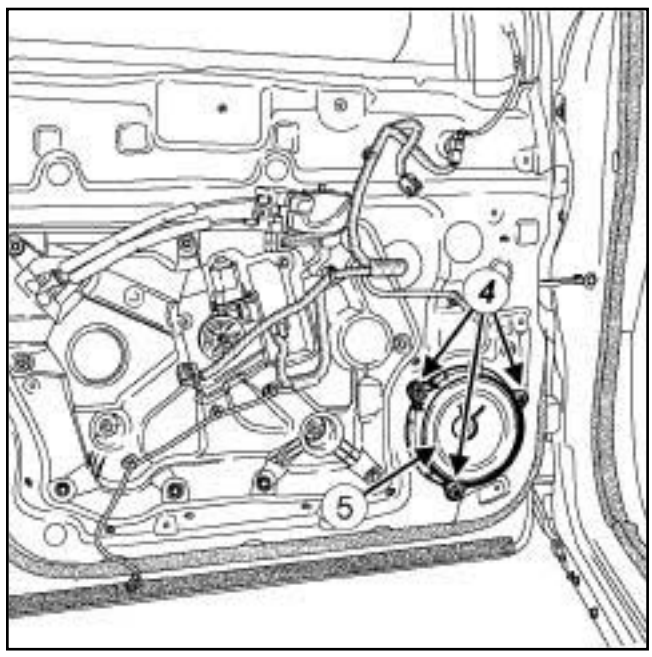

130751

❏ Remove:

- the front centre speaker cover bolts (**3**) ,
- the front centre speaker cover.

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Front door speaker




130752

❏ Remove:

- the bolts (**4**) ,
- the front speaker (**5**) .

❏ Disconnect the connector.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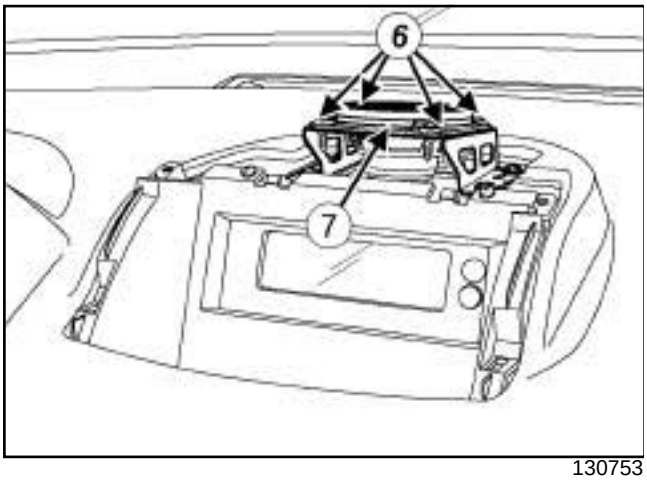
**2 - Front centre speaker**




130753

❏ Remove:

- the bolts (**6**) ,
- the front centre speaker (**7**) .

❏ Disconnect the connector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Front door speaker**

❏ Connect the front door speaker connector.

❏ Refit:

- the front door speaker,
- the front door speaker bolts.

**2 - Front centre speaker**

❏ Connect the front centre speaker connector.

❏ Refit:

- the front centre speaker,
- the front centre speaker bolts.

### II - FINAL OPERATION.

**1 - Front door speaker**

❏ Refit the front side door trim (see **Front side door trim: Removal - Refitting**) (72A, Side opening elements trim).

**2 - Front centre speaker**

❏ Refit:

- the front centre speaker cover,
- the front centre speaker cover bolts,
- the front centre speaker trim.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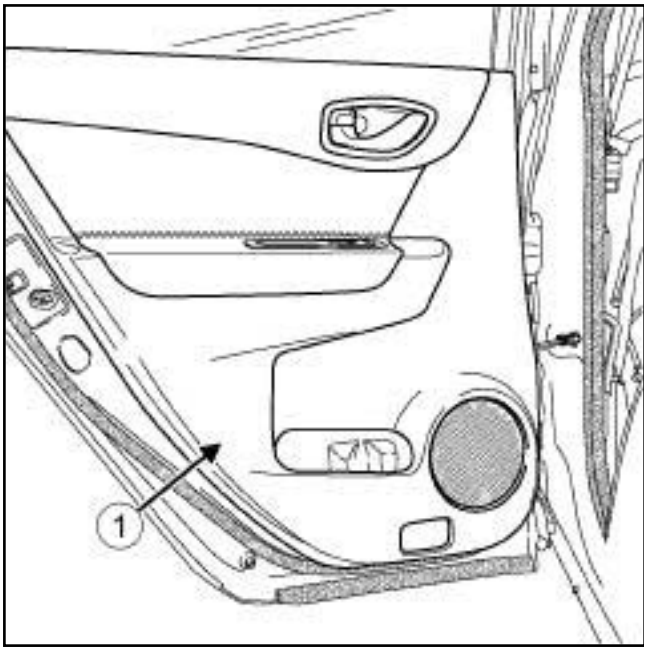
## REMOVAL

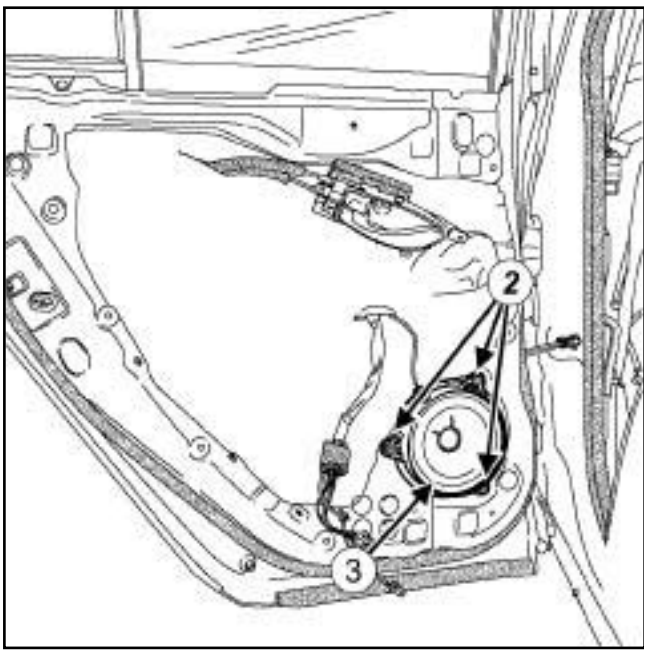
### I - REMOVAL PREPARATION OPERATION




130754

❏ Remove the rear side door trim (**1**) (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130756

❏ Remove:

- the bolts (**2**) ,
- the rear speaker (**3**) .

❏ Disconnect the rear speaker connector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Connect the rear speaker connector.

❏ Refit:

- the rear speaker (**3**) ,
- the rear speaker bolts (**2**) .

### II - FINAL OPERATION

❏ Refit the rear side door trim (see **Rear side door trim: Removal - Refitting**) (72A, Side opening element trim).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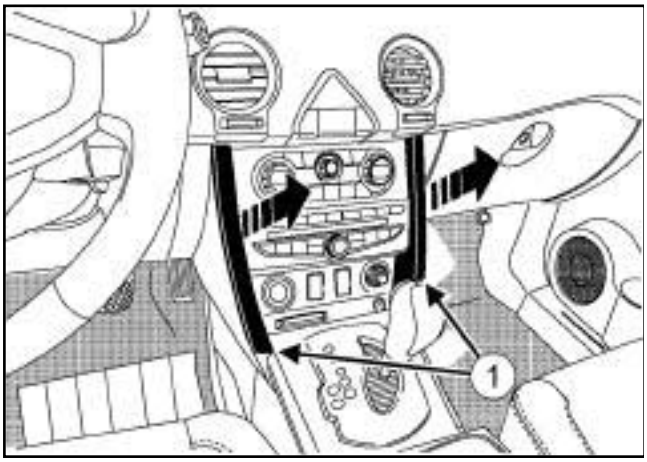
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Ms. 1373** | Tool for removing radio or chronotachograph. |

## REMOVAL

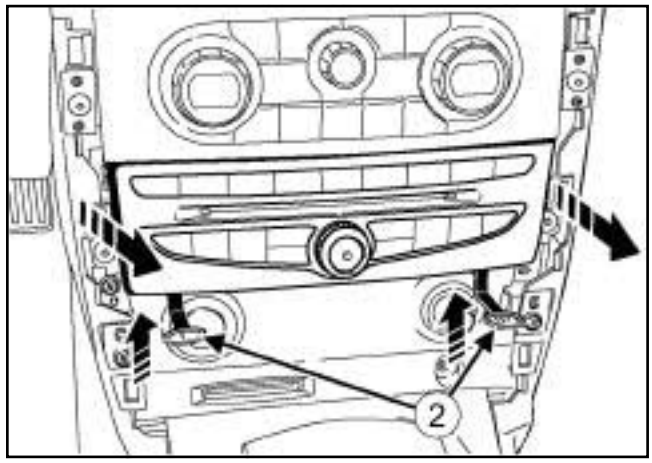
### I - REMOVAL PREPARATION OPERATION



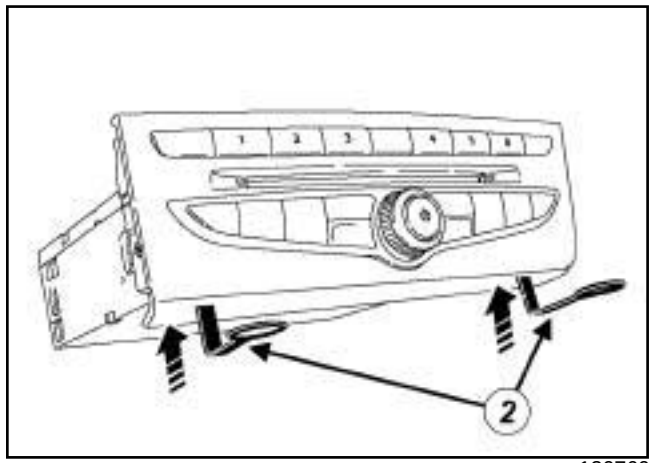

130758

❑ Remove the centre front panel side trim (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130759




130760

❑ Remove the radio using the tool **(Ms. 1373)** (**2**) .

❑ Disconnect the connectors.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the connectors.

❑ Refit the radio.

### II - FINAL OPERATION.

❑ Refit the centre front panel side trim.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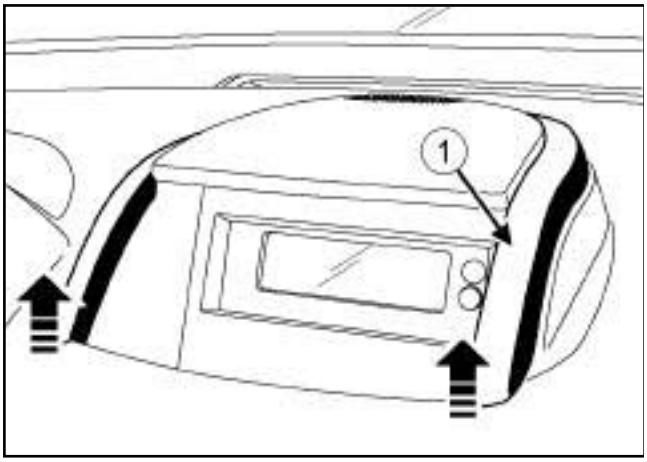
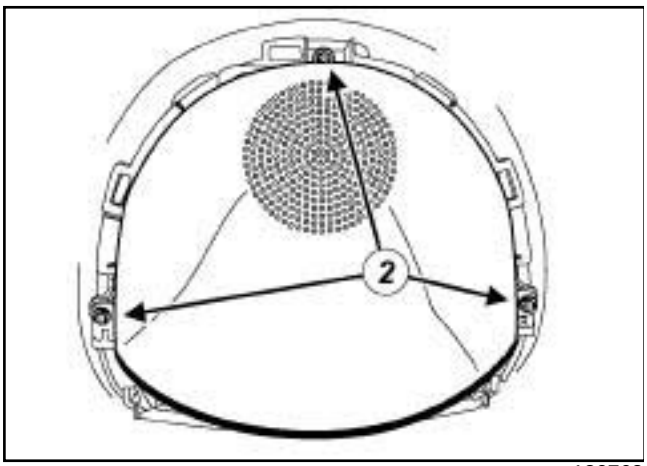
## REMOVAL

### I - REMOVAL PREPARATION OPERATION




130761

❏ Remove the front centre speaker trim (**1**) .

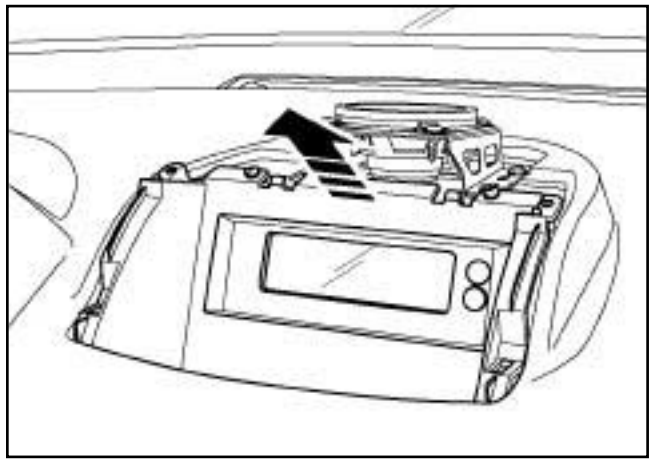



130762

❏ Remove:

- the front centre speaker cover bolts (**2**) ,
- the front centre speaker cover.

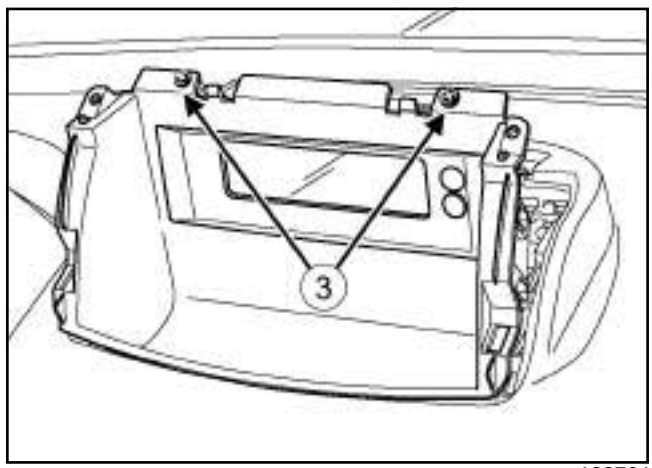
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130763

❏ Unclip the « display - display protector » assembly.

❏ Disconnect the display connector.




130764

❏ Remove the upper bolts (**3**) .



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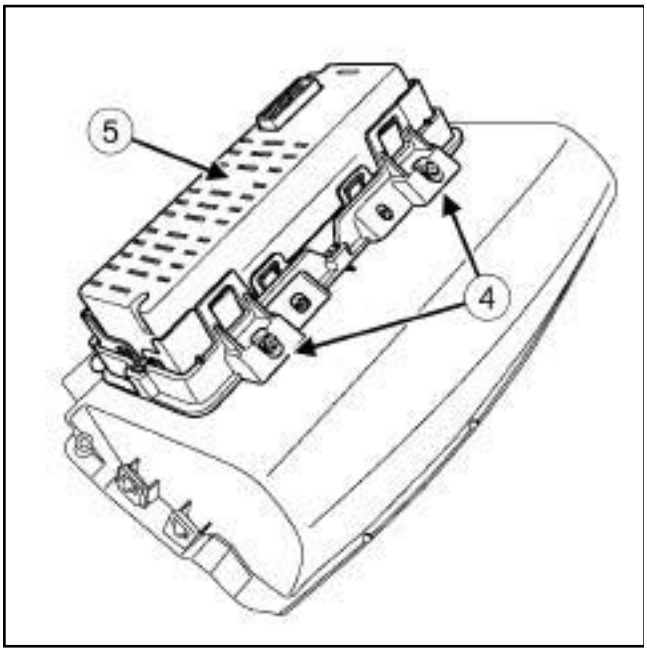

130765

❑ Remove:

- the lower bolts (**4**) ,
- the display (**5**) from the display protector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the display on the display protector,
- the lower bolts,
- the upper bolts.

❑ Connect the connector.

❑ Clip on the « display - display protector » assembly.

### II - FINAL OPERATION.

❑ Refit:

- the front centre speaker cover,
- the front centre speaker cover bolts,
- the front centre speaker trim.


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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

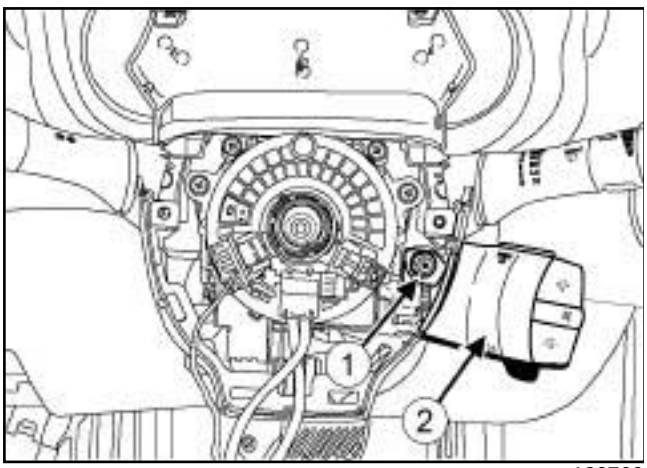
**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove:

- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) ,
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly).

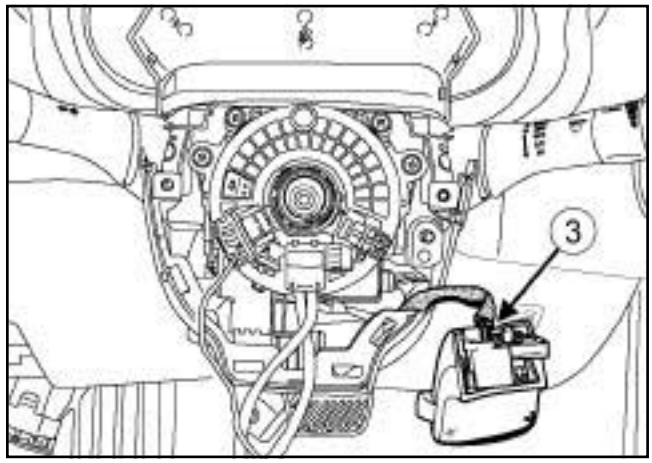
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130766

❑ Remove:

- the bolts (**1**) ,
- the radio control satellite (**2**) .



130767

❑ Disconnect the connector (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Connect the connector.

❑ Refit:

- the radio control satellite,
- the bolts.

### II - FINAL OPERATION.

❑ Refit:

- the half cowlings (see **Steering column: Removal - Refitting**) (36A, Steering assembly),
- the steering wheel (see **Steering wheel: Removal - Refitting**) (36A, Steering assembly),
- the driver's front airbag (see **88C**, **Air bag and Pretensioners**, **Driver's front airbag: Removal - Refitting**, page **88C-10**) .

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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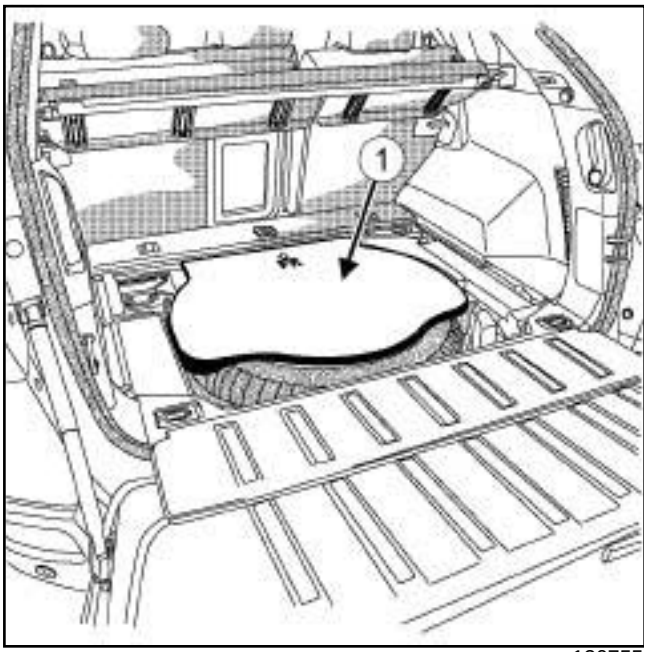
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

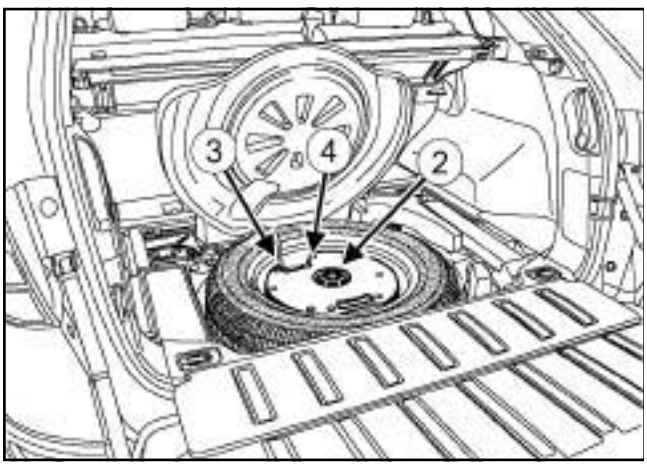
❏ Remove the rear central luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).




130755

❏ Remove the front luggage compartment floor casing (**1**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130757

❏ Remove the mounting bracket (**2**) .

❏ Unclip the wiring clip ***(3)*** .

❏ Disconnect the connector ***(4)*** .

❏ Remove the subwoofer.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the subwoofer.

❏ Connect the connector.

❏ Clip on the wiring clip.

❏ Refit the mounting bracket.

### II - FINAL OPERATION.

❏

> Note:
>
> The emergency spare wheel and the subwoofer must be mounted correctly.

❏ Refit:

- the front luggage compartment floor casing,
- the rear central luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).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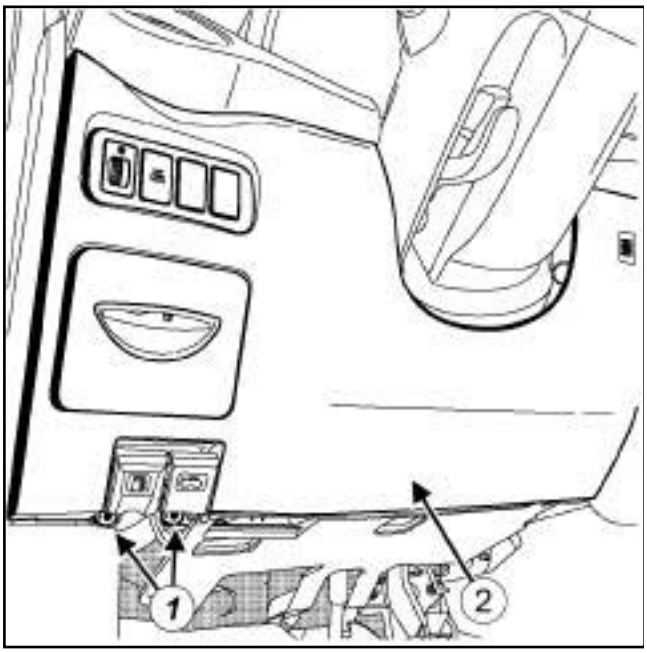
| Essential equipmentEssential equipment |
| --- |
| diagnostic tool |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

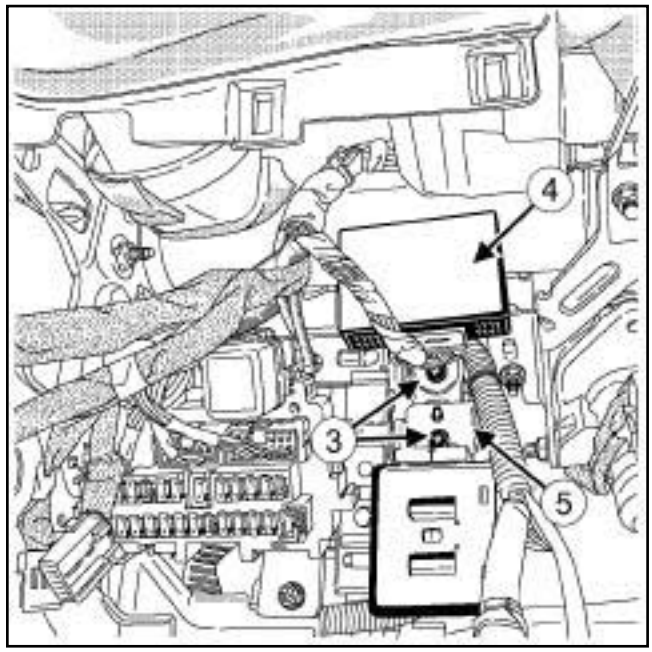
❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .




131584

❏ Remove:

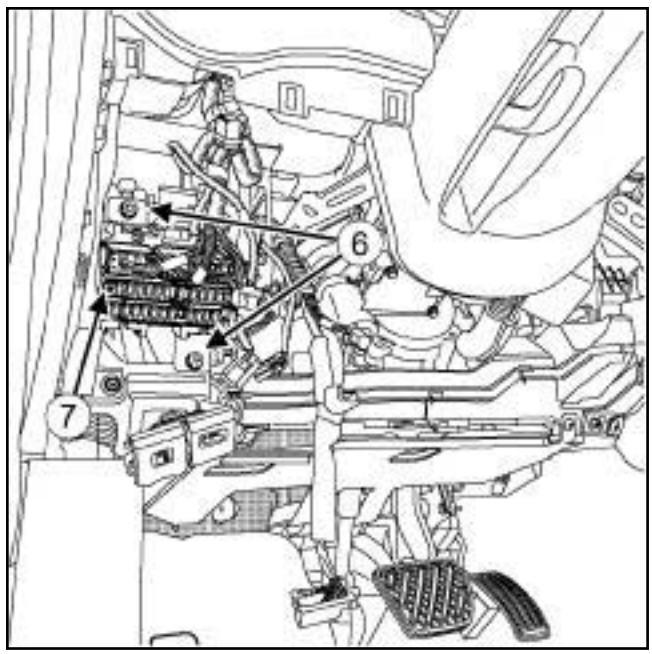
- the bolts (**1**) ,
- the lower cover (**2**) .




131585

❏ Remove:

- the bolts (**3**) ,
- the tyre pressure monitor computer (**4**) ,
- the additional cornering lights computer (**5**) .




131586

❏ Remove the bolts (**6**) .

❏ Move aside the passenger compartment fuse and relay box (**7**) .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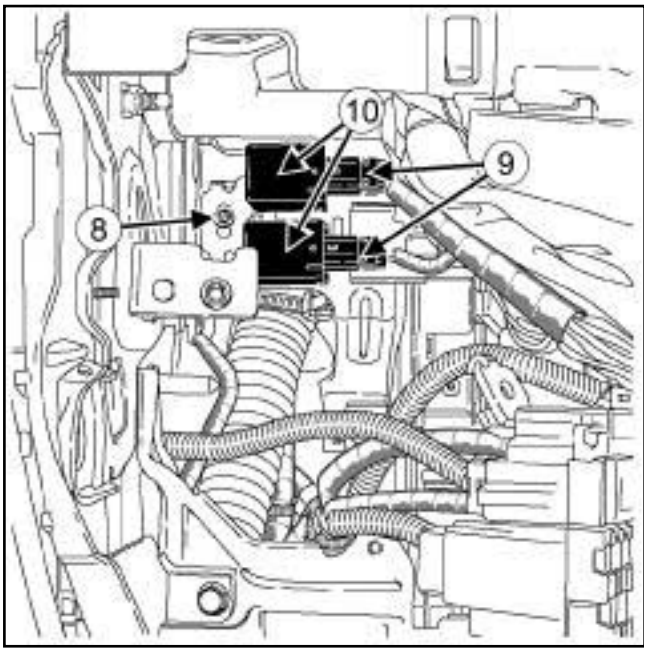


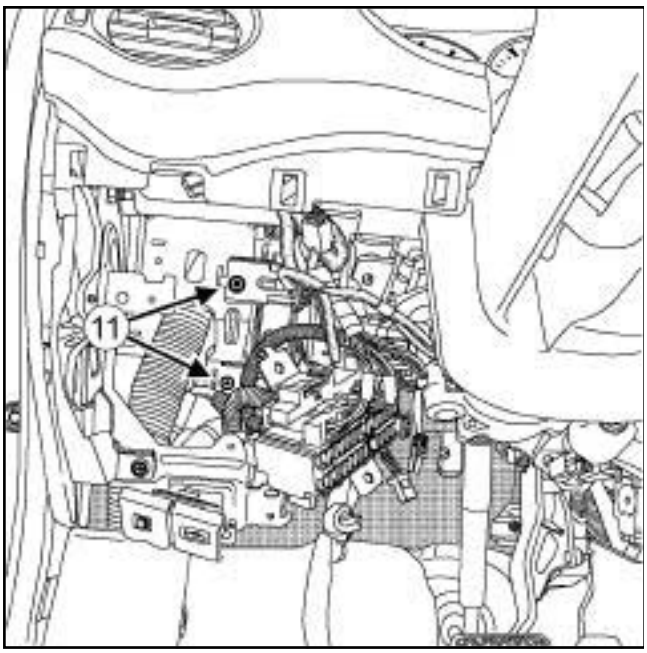
131587

❏ Remove the bolt (**8**) .

❏ Disconnect the connectors (**9**) .

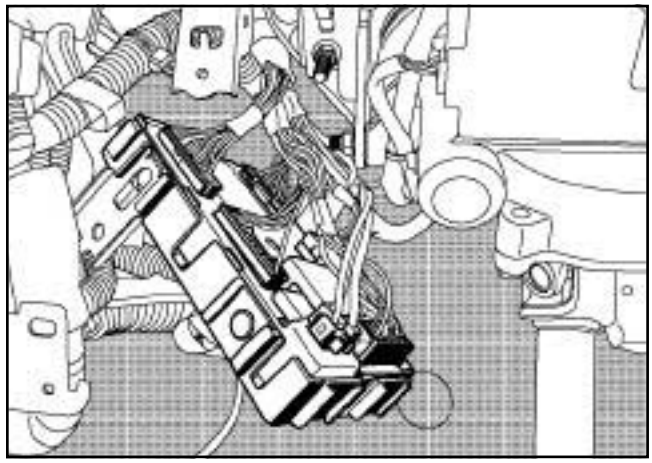
❏ Remove the relays (**10**) .

**II - REMOVAL OF PART CONCERNED**

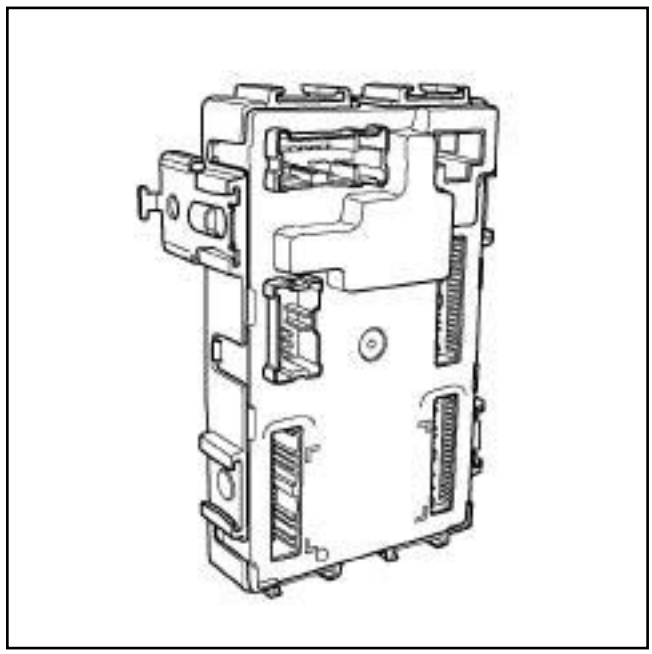


131588

❏ Remove the bolts (**11**) .


131589

❏ Disconnect the connectors.


131590

❏ Remove the UCH.

## REFITTING

**I - REFITTING PART CONCERNED**

❏ Refit the UCH.

❏ Connect the connectors.

❏ Refit the bolts ***(11)*** .

**II - FINAL OPERATION.**

❏ Refit the relays.

❏ Connect the connectors.

❏ Refit the bolts ***(8)*** .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❏ Fit the passenger compartment fuse and relay box in its original position.

❏ Refit:

- the bolts ***(6)*** ,
- the additional cornering lights computer,
- the tyre pressure monitor computer,
- the bolts ***(3)*** ,
- the lower cover ***(2)*** ,
- the bolts ***(1)*** .

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ When replacing the UCH, carry out the necessary operations using the **diagnostic tool** (see **Fault finding - Replacement of components**) (87B, Passenger compartment connection unit).


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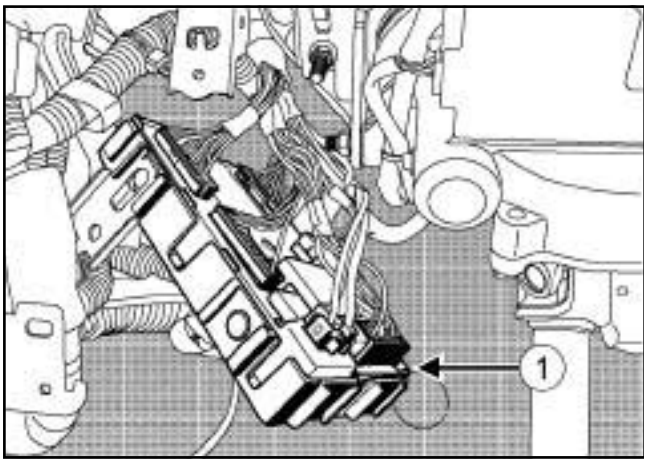
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Passenger compartment fuse and relay box |
| *(3)* | Remote door locking control |
| *(4)* | Central locking switch |
| *(5)* | Tailgate opening switch |
| *(6)* | Tailgate locking switch |
| *(7)* | Opening aerials |

## II - POSITION OF THE COMPONENTS

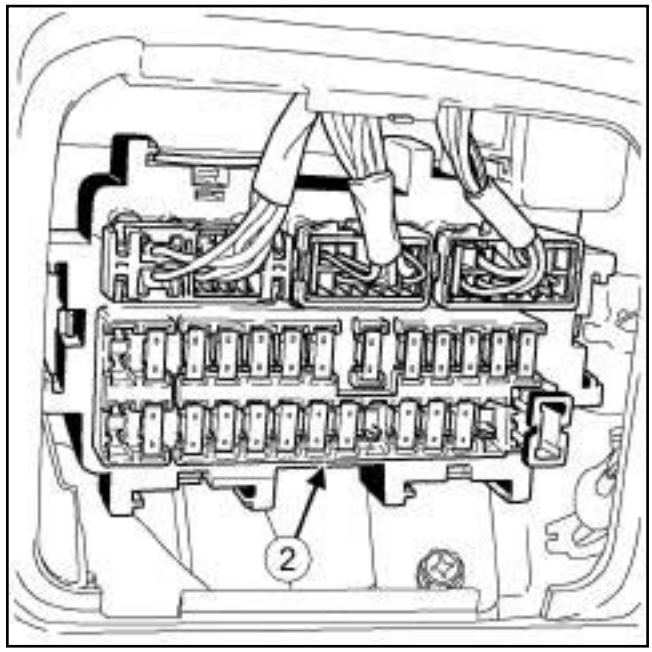
### 1 - UCH




132490

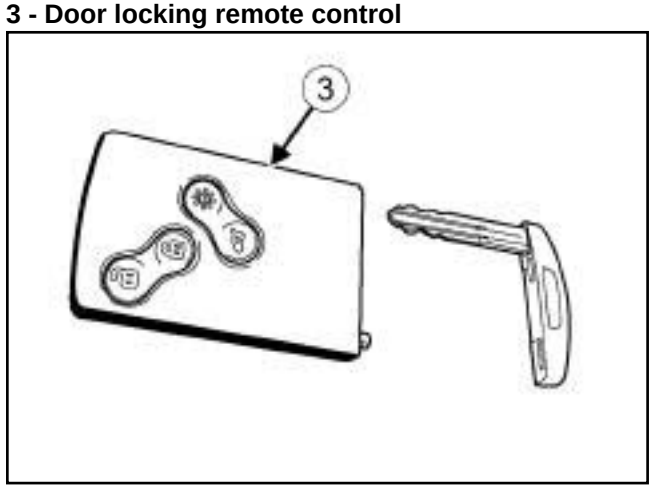
The UCH is located in the dashboard, behind the passenger compartment relay unit; to remove it (see **87B**, **Passenger compartment connection unit**, **UCH: Removal - Refitting**, page **87B-1**) .

### 2 - Passenger compartment fuse and relay box



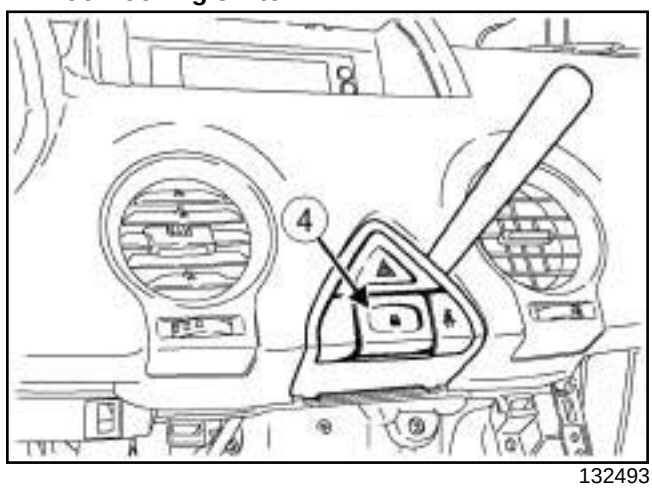

132491

### 3 - Door locking remote control




132492

### 4 - Door locking switch




132493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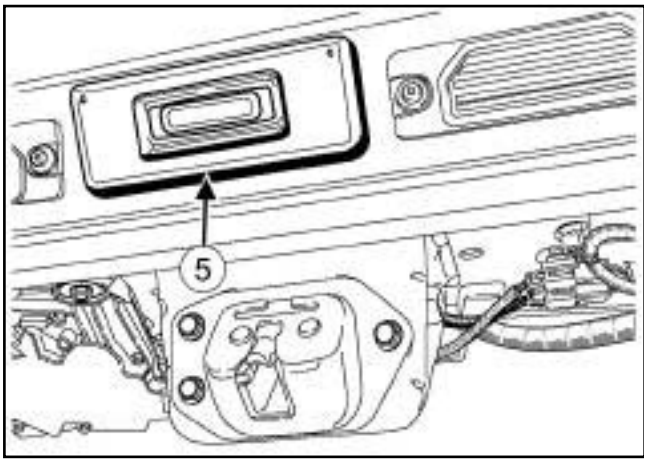
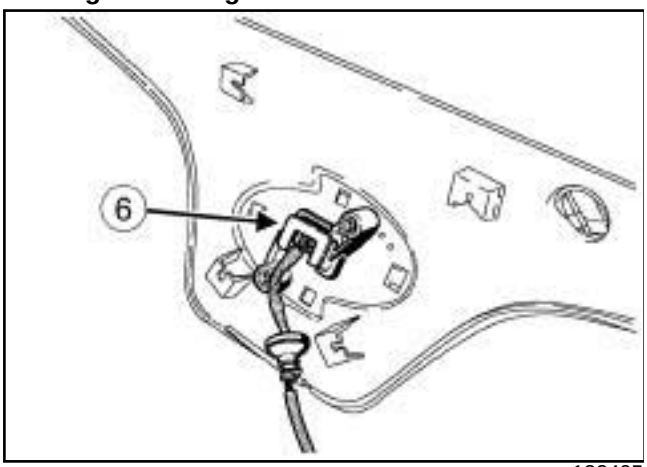
**5 - Tailgate opening switch**



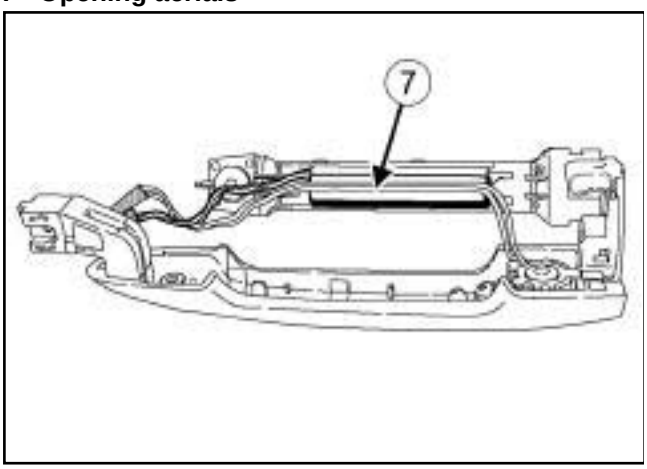

132494

**6 - Tailgate locking switch**



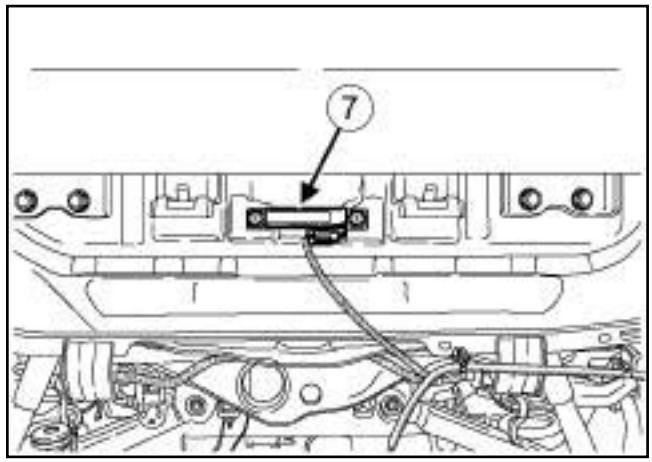

132495

**7 - Opening aerials**



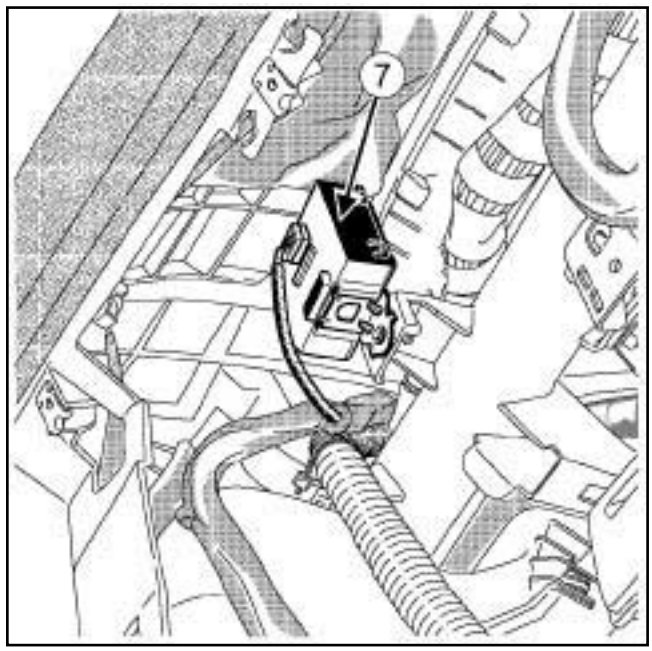

132496

Opening aerials in the front door handles.




132497

Opening aerial in the rear absorber: it is not necessary to remove the rear bumper.




132498

Keyless entry computer: to access the keyless entry computer, the glove box must be removed.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## REMOVAL

### I - REMOVAL PREPARATION OPERATION

**1 - Opening aerial on the driver and passenger sides**

❑ Remove the door handle on the side concerned (see **Door exterior handle: Removal - Refitting**) .

**2 - Rear opening aerial**

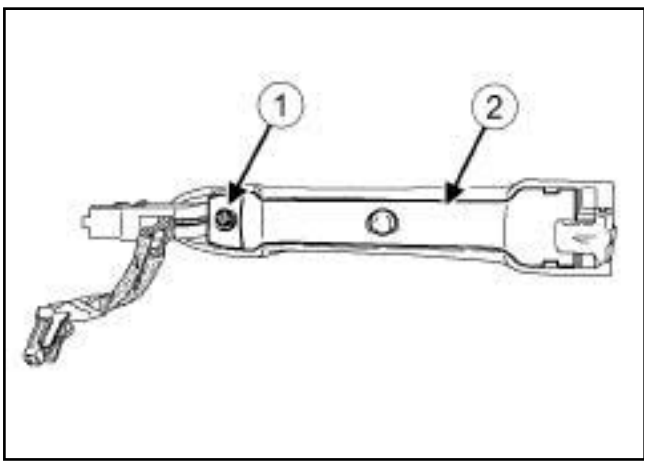
❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

**3 - Keyless entry computer**

❑ Remove the glovebox (see **Glovebox: Removal - Refitting**)

### II - REMOVAL OF PART CONCERNED

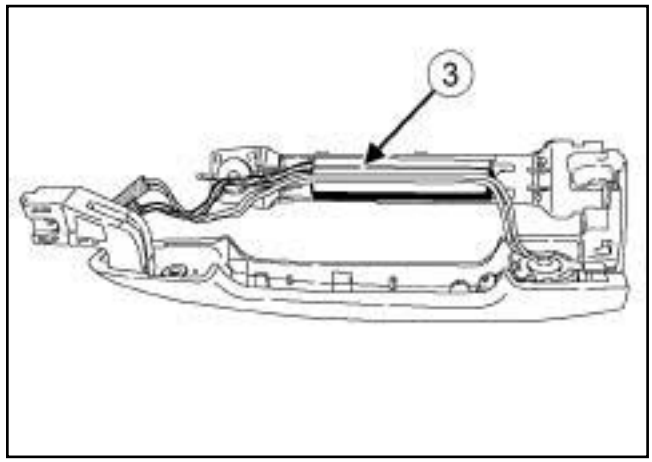
**1 - Opening aerial on the driver and passenger sides**




130768

❑ Remove:

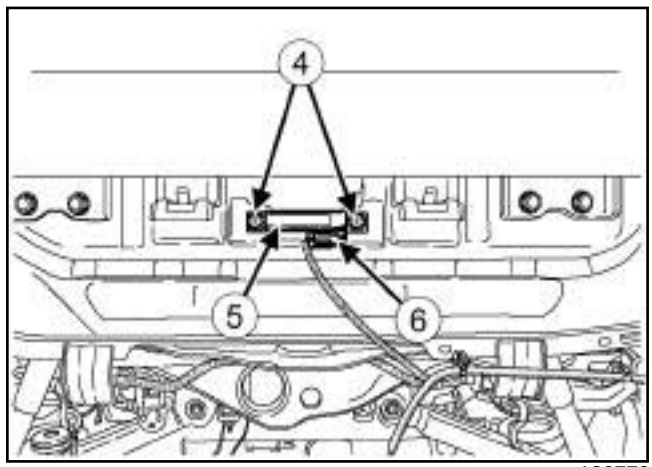
- the bolt (**1**) ,
- the cover (**2**) .




130769

❑ Remove the opening aerial (**3**) from the door handle.

**2 - Rear opening aerial**




130770

❑

Note:
It is not necessary to remove the rear bumper.

❑ Remove:

- the clips (**4**) ,
- the opening aerial (**5**) .

❑ Disconnect the connector (**6**) .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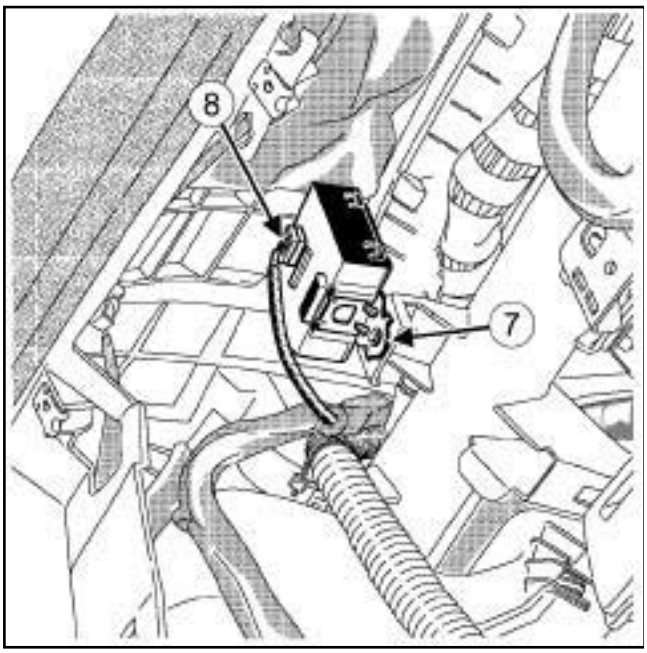
**3 - Keyless entry computer**




132498

❏ Remove the keyless entry computer bolt (**7**) .

❏ Disconnect the keyless entry computer connector ***(8)*** .

❏ Remove the keyless entry computer.

## REFITTING

### I - REFITTING PART CONCERNED

**1 - Opening aerial on the driver and passenger sides**

❏ Refit the opening aerial on the door handle.

❏ Refit:

- the cover,
- the bolt.

**2 - Rear opening aerial**

❏ Connect the connector.

❏ Refit:

- the opening aerial,
- the clips.

**3 - Keyless entry computer**

❏ Connect the keyless entry computer connector.

❏ Refit:

- the keyless entry computer,
- the keyless entry computer bolt.

### II - FINAL OPERATION

**1 - Opening aerial on the driver and passenger sides**

❏ Refit the door handle (see **Door exterior handle: Removal - Refitting**) .

**2 - Keyless entry computer**

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) .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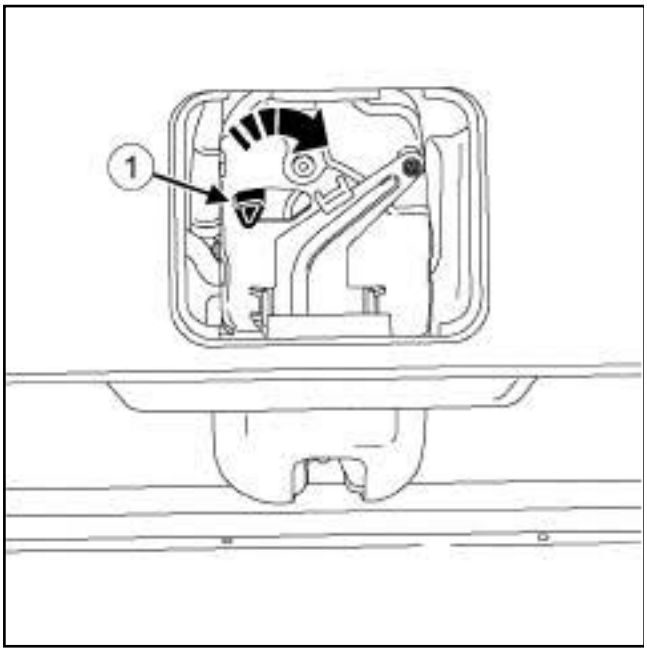



130844

Note:

In case of an electrical fault, it is possible to open the tailgate manually.

Carry out this operation from inside the vehicle.

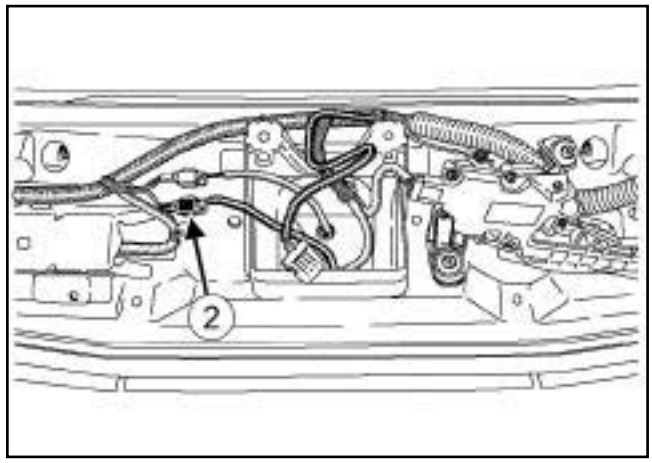
Unlock the tailgate by turning the fastener (**1**) in the direction of the arrow.

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

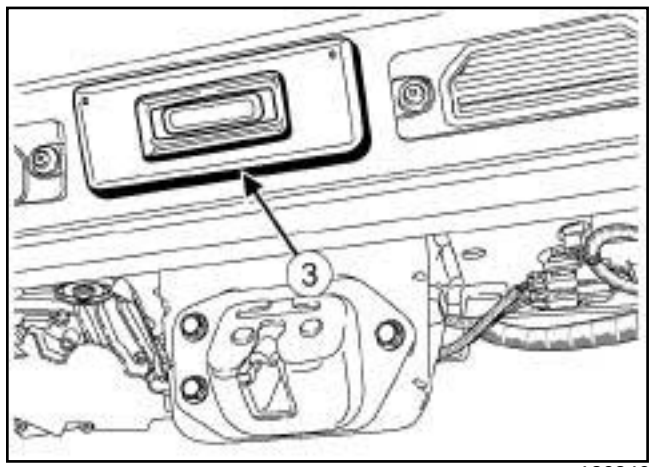
❏ Remove the tailgate lower trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130845

❏ Disconnect the tailgate opening switch connector (**2**) .




130846

❏

Note:

Carefully unclip the tailgate opening switch cover to avoid damaging it.

❏ Separate the cover (**3**) from the tailgate opening switch.

❏ Remove the tailgate opening switch assembly.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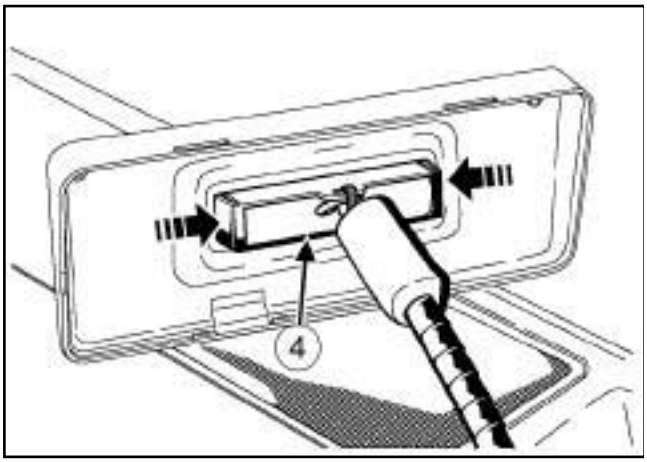

130847

❏ Unclip the tailgate opening switch (**4**) by pressing on the clips in the direction of the arrows.

❏ Remove the tailgate opening switch from its support.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the tailgate opening switch cover.

❏ Replace the cover if it is damaged.

### II - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the tailgate opening switch on the cover,
- the tailgate opening switch assembly on the tailgate.

❏ Connect the tailgate opening switch connector.

### III - FINAL OPERATION.

❏ Refit the tailgate lower trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).


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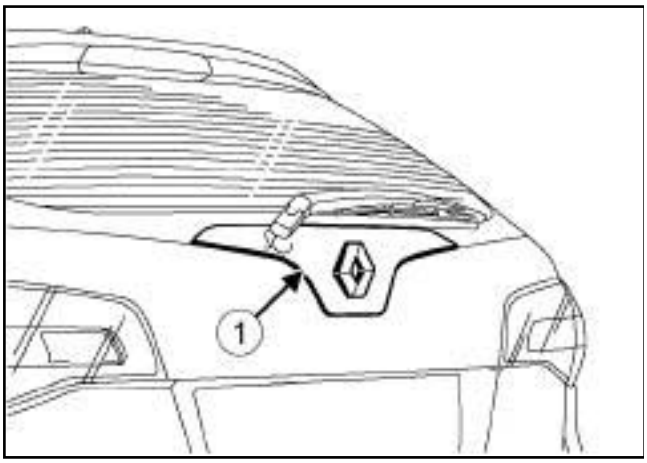
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

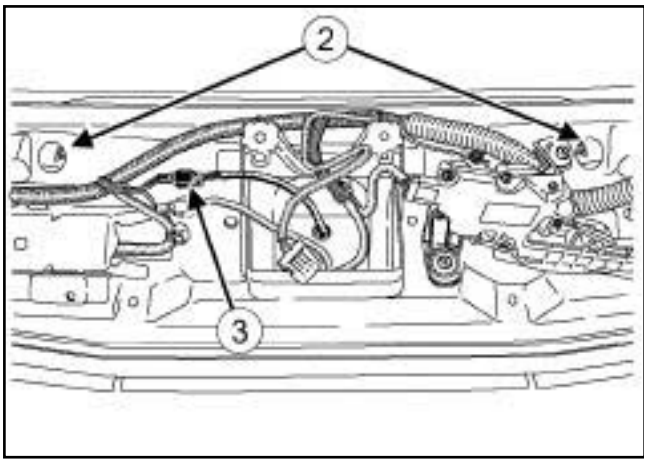
❏ Remove:

- the tailgate lower trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim),
- the tailgate lock (see **Tailgate lock: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the rear screen wiper arm (see **85A**, **Wiping - Washing**, **Rear screen wiper arm: Removal - Refitting**, page **85A-13**) .

### II - REMOVAL OF PART CONCERNED




131369



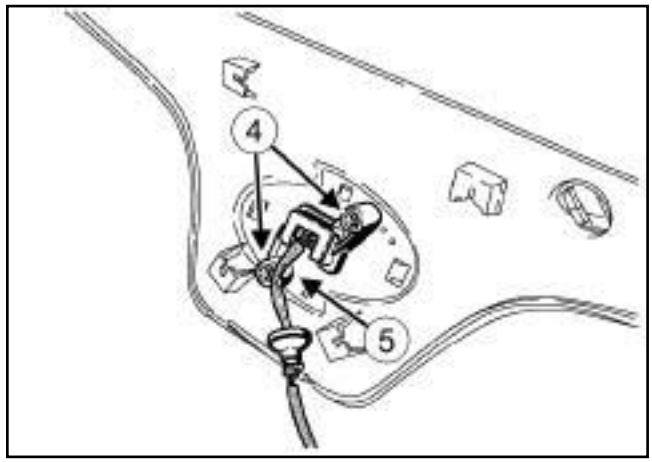

131370

❏ Remove the nuts (**2**) from the tailgate trim (**1**) .

❏ Disconnect the connector ***(3)*** from the tailgate locking switch.

❏ Unclip the tailgate trim.

❏ Remove the tailgate trim.




131371

❏ Remove:

- the bolts (**4**) from the tailgate locking switch support,
- the tailgate locking switch (**5**) from the support.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❏ Check the condition of the clips on the tailgate trim.

❏ Replace the clips if they are damaged.

### II - REFITTING PART CONCERNED

❏ Refit:

- the tailgate locking switch on the tailgate trim with the support,
- the bolts of the tailgate locking switch support,
- the tailgate trim on the tailgate,
- the tailgate trim nuts.

❏ Connect the tailgate locking switch connector.

### III - FINAL OPERATION.

❏ Refit:

- the rear screen wiper arm (see **85A**, **Wiping - Washing**, **Rear screen wiper arm: Removal - Refitting**, page **85A-13**) ,
- the tailgate lock (see **Tailgate lock: Removal - Refitting**) (52A, Non-side opening element mechanisms),
- the tailgate lower trim (see **Tailgate lining: Removal - Refitting**) (73A, Non-side opening elements trim).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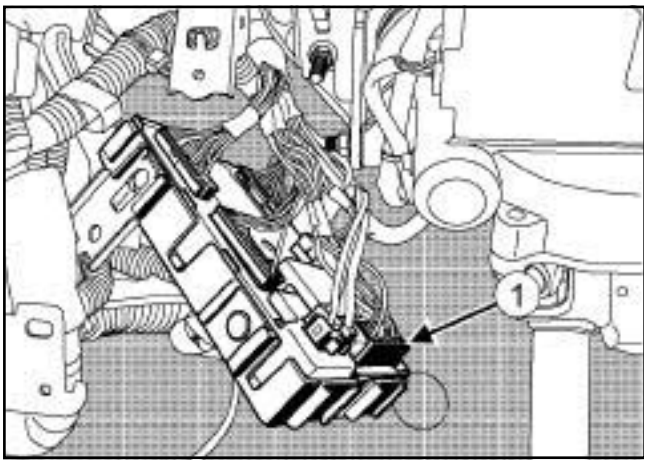
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Front electric window switch on the driver's door |
| *(3)* | Front electric window switch on the passenger door |
| *(4)* | Rear window winder switch |

## II - LOCATION OF COMPONENTS

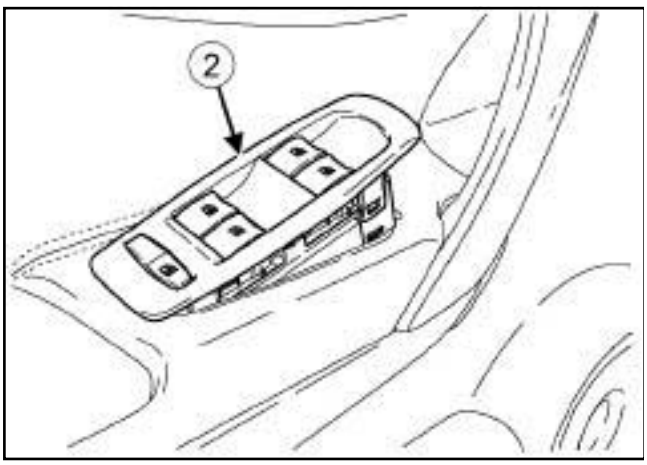
### 1 - UCH




130848

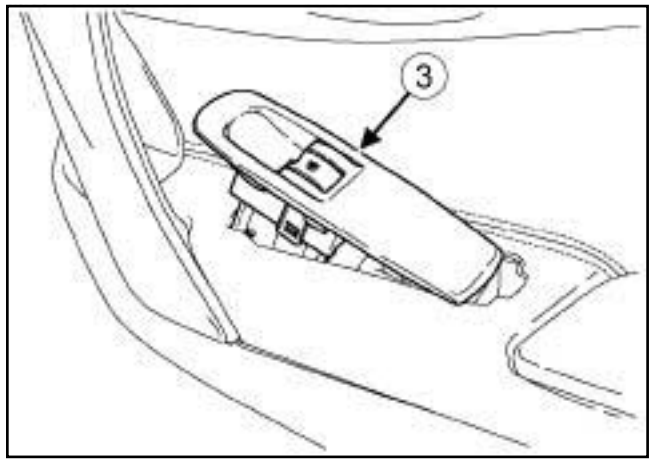
The UCH is located in the dashboard, behind the passenger compartment relay unit. To remove it (see **87B**, **Passenger compartment connection unit**, **UCH: Removal - Refitting**, page **87B-1**) .

### 2 - Front electric window switch on the driver's door



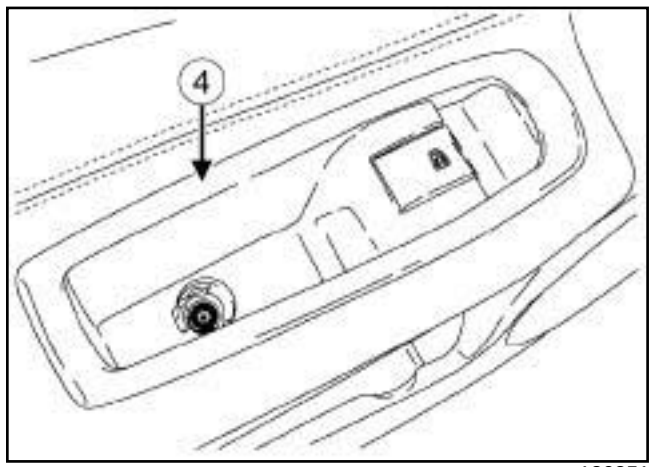

130849

### 3 - Front electric window switch on the passenger door




130850

### 4 - Rear window winder switch




130851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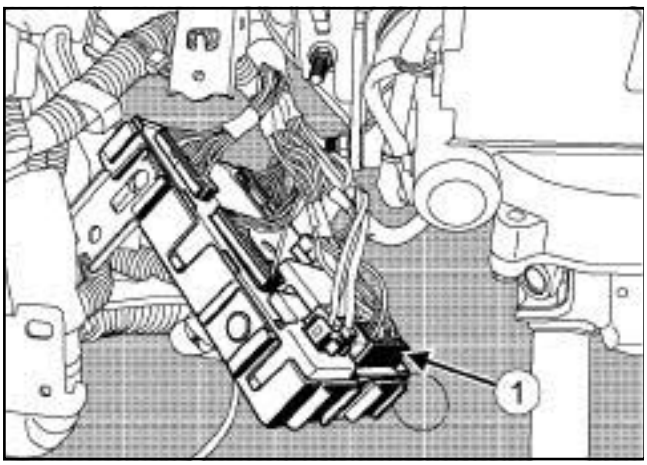
ELECTRICAL SUNROOF + FIXED REAR SECT

## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | UCH |
| *(2)* | Passenger compartment fuse and relay box |
| *(3)* | Sunroof switch |
| *(4)* | Sunroof motor - computer |

## II - LOCATION OF COMPONENTS

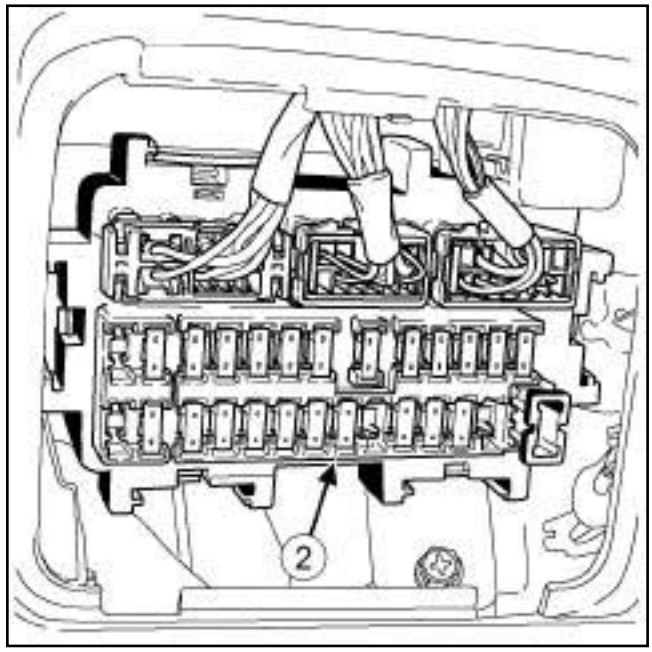
### 1 - UCH




130852

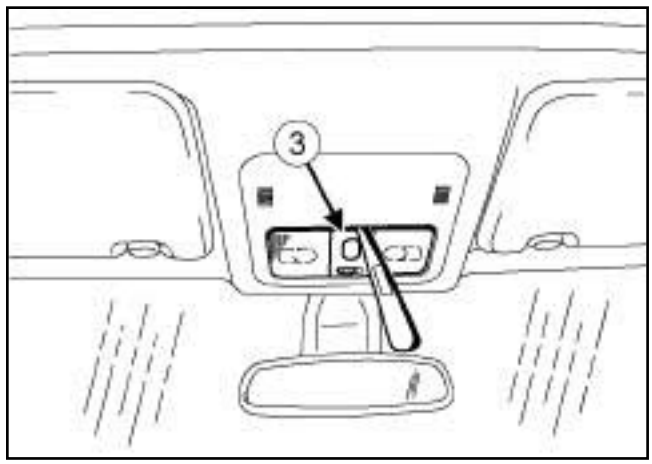
The UCH is located in the dashboard, behind the passenger compartment relay unit. To remove it (see **87B**, **Passenger compartment connection unit**, **UCH: Removal - Refitting**, page **87B-1**) .

### 2 - Passenger compartment fuse and relay box




130853

### 3 - Sunroof switch




130460



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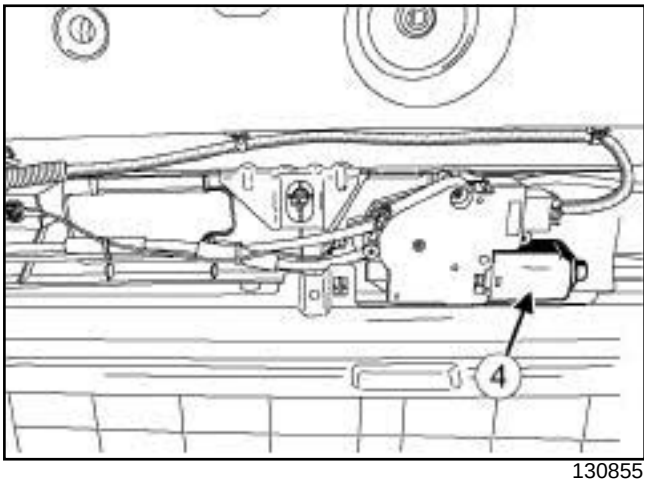
ELECTRICAL SUNROOF + FIXED REAR SECT

**4 - Sunroof motor - computer**




130855

The « sunroof motor - computer » assembly is located under the headlining, at the rear of the vehicle.

The sunroof opening motor and the electric sunroof computer cannot be separated.



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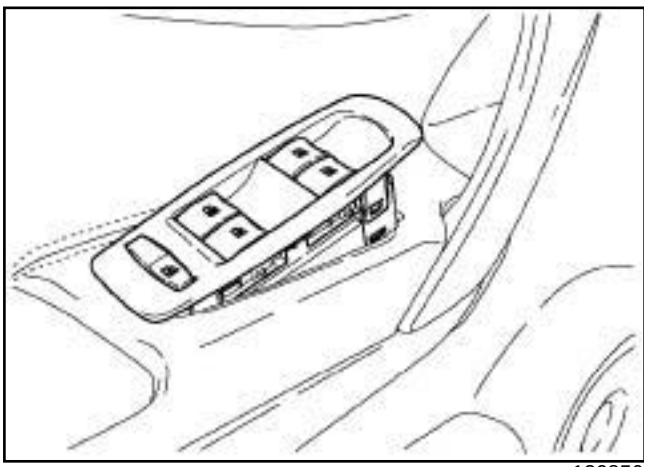
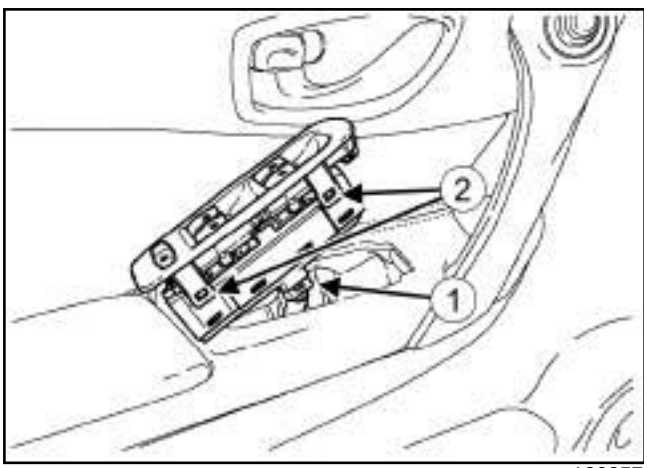
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED


130856

❏ Unclip the electric window switch plate using the tool **(Car. 1363)**.



130857

❏ Disconnect the electric window switch connector (**1**) .

❏ Unclip clips (**2**) .

❏ Remove the electric window switch from the plate.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the electric window switch on the plate.

❏ Connect the window winder switch connector.

❏ Refit the electric window switch plate by inserting it from the rear.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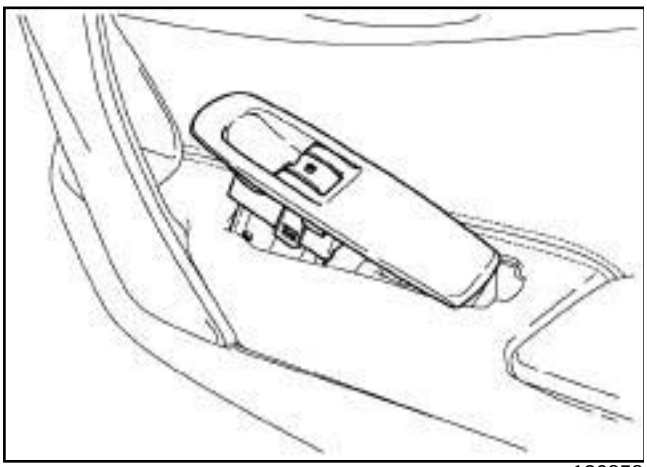
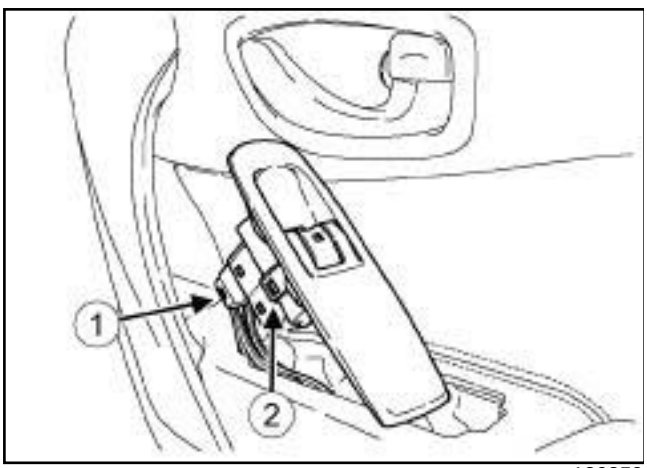
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED


130858

❏ Unclip the electric window switch plate using the tool **(Car. 1363)**.



130859

❏ Disconnect the electric window switch connector (**1**) .

❏ Unclip the two clips (**2**) .

❏ Remove the electric window switch from the plate.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the electric window switch on the plate.

❏ Connect the window winder switch connector.

❏ Refit the electric window switch plate by inserting it from the rear.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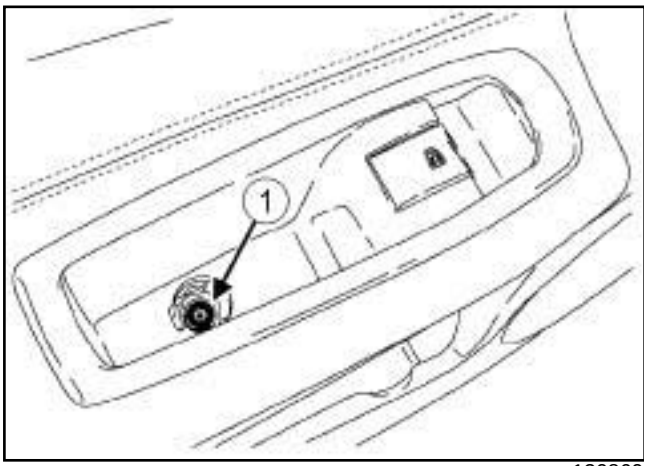
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

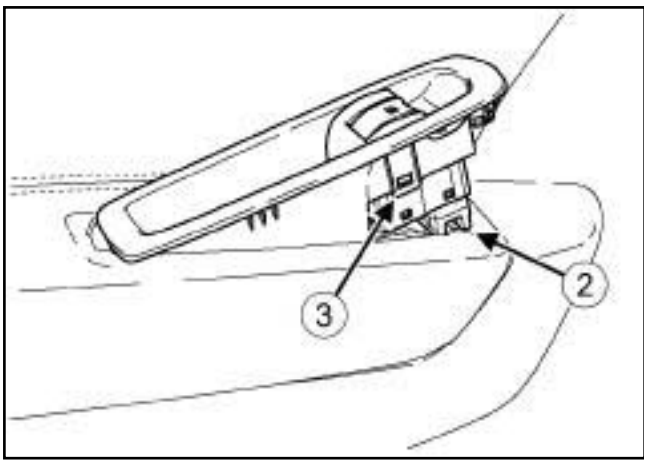
### OPERATION FOR REMOVAL OF PART CONCERNED




130860

❏ Remove:

- the cover,
- bolt (**1**) .




130861

❏ Unclip the rear electric window switch plate using the tool **(Car. 1363)**.

❏ Disconnect the rear electric window switch connector (**2**) .

❏ Unclip the two clips (**3**) .

❏ Separate the rear electric window switch from the plate.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear electric window switch on the plate.

❏ Connect the rear electric window switch connector.

❏ Refit:

- the rear electric window plate by inserting it from the rear,
- the bolt,
- the cover.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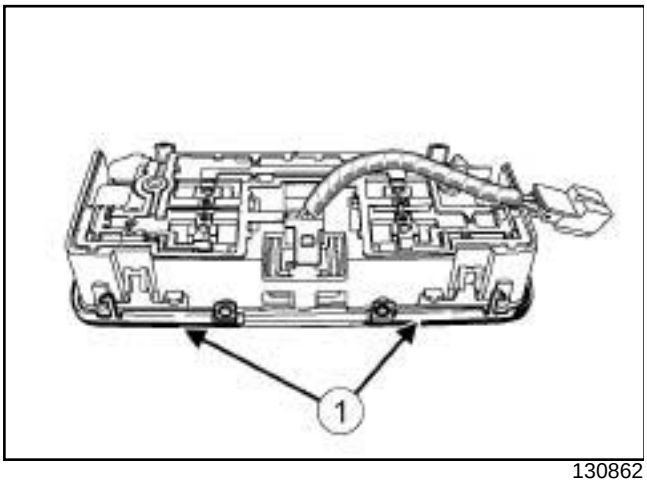
ELECTRICAL SUNROOF + FIXED REAR SECT

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

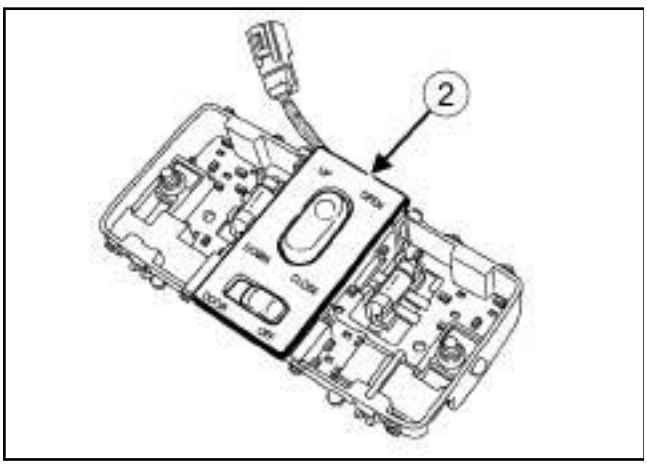
❏ Remove the interior light (see **81B**, **Interior lighting**, **Courtesy light: Removal - Refitting**, page **81B-4**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



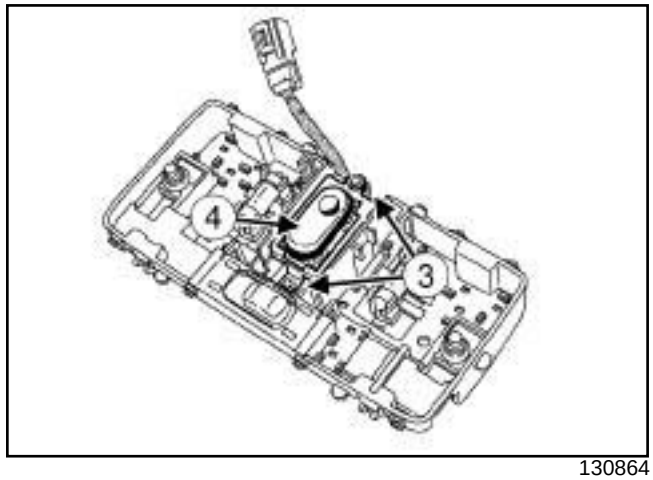

130862

❏ Unclip the translucent covers (**1**) .




130863

❏ Unclip the sunroof switch cover (**2**) .




130864

❏ Remove:

- the sunroof switch bolts (**3**) ,
- the sunroof switch (**4**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the sunroof switch,
- the sunroof switch bolts,
- the sunroof switch cover,
- the translucent covers.

### II - FINAL OPERATION.

❏ Refit the interior light (see **81B**, **Interior lighting**, **Courtesy light: Removal - Refitting**, page **81B-4**) .



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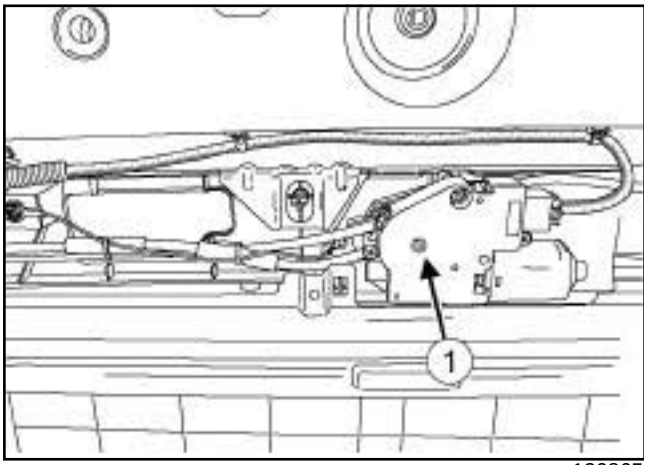
| Tightening torques ▽ | |
|---|---|
| sunroof motor bolts | **3 N.m** |



130865

Note:

In the event of a fault, the electric sunroof motor can be moved manually at (**1**) using an Allen key.

Note:

The sunroof motor and the electric sunroof computer cannot be separated.

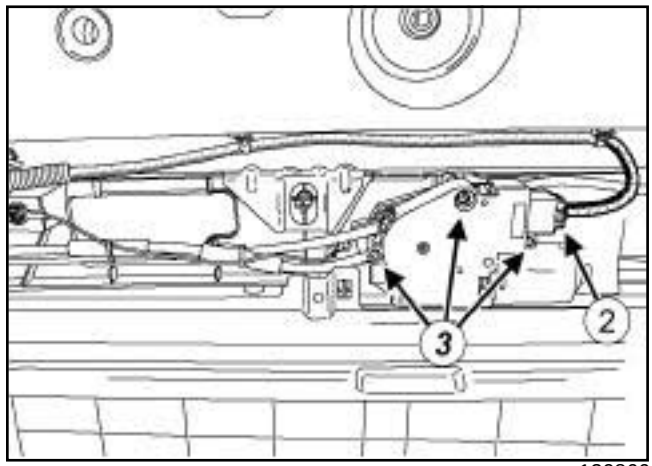
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130866

❏ Disconnect the connector (**2**) from the sunroof motor.

❏ Remove:

- the bolts (**3**) from the sunroof motor,
- the sunroof motor.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the sunroof motor,
- the sunroof motor bolts.

❏ Torque tighten the **sunroof motor bolts (3 N.m)**.

❏ Connect the sunroof motor connector.

### II - FINAL OPERATION.

❏ Refit the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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FR AND RR PROX RADAR

## I - LIST OF COMPONENTS

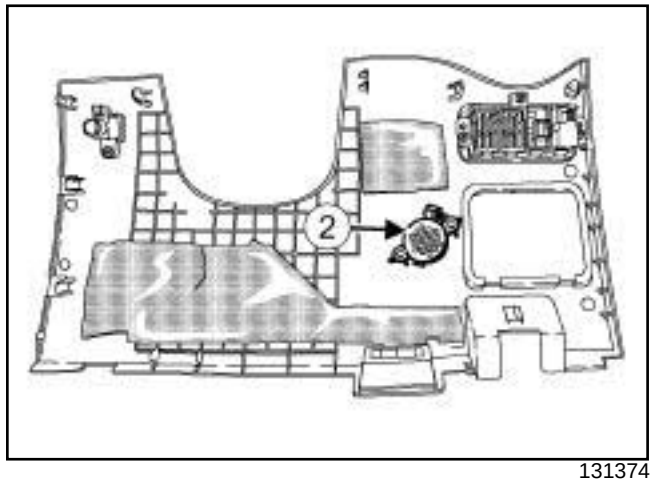
| No. | Description |
|---|---|
| *(1)* | Parking distance control switch |
| *(2)* | Front parking distance control buzzer |
| *(3)* | Rear parking distance control buzzer |
| *(4)* | Front proximity sensors |
| *(5)* | Rear proximity sensors |
| *(6)* | Parking distance control computer |

## II - LOCATION OF COMPONENTS

### 1 - Parking distance control switch

131373

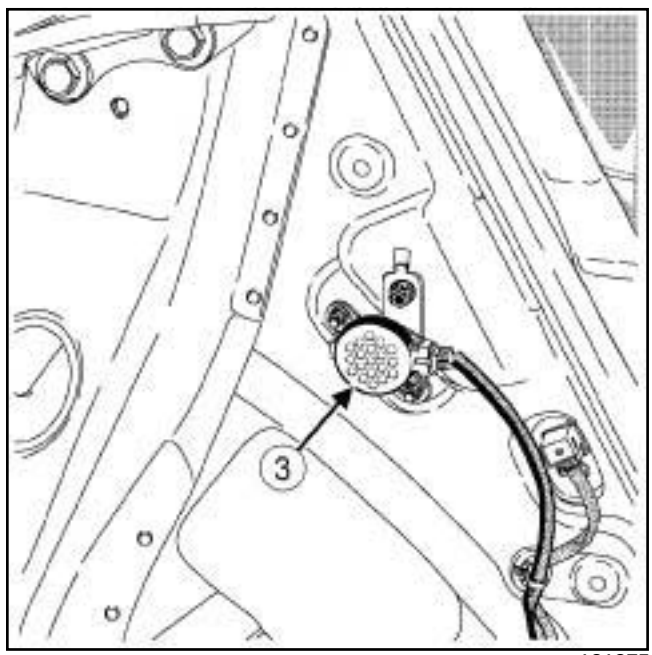
### 2 - Front parking distance control buzzers




131374

The front parking distance control buzzer (**2**) is located at the rear of the dashboard lower cover on the driver's side.

### 3 - Rear parking distance control buzzer




131375

The rear parking distance control buzzer (**3**) is located in the left-hand side of the C-pillar lower trim.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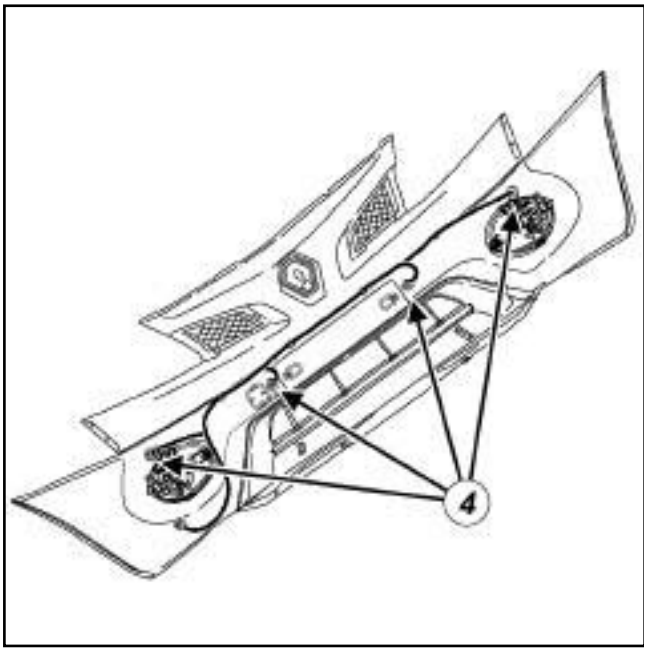
FR AND RR PROX RADAR

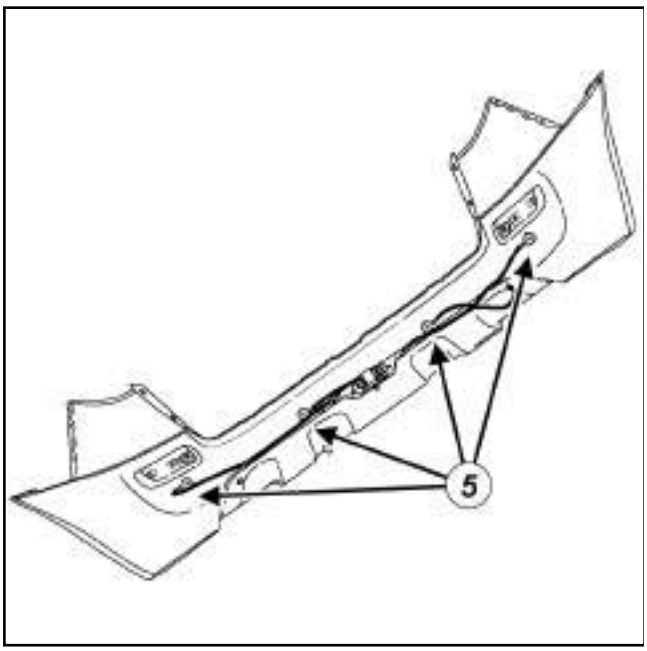
**4 - Front proximity sensors**




131376

Four proximity radars (**4**) are clipped into the supports on the front bumper.

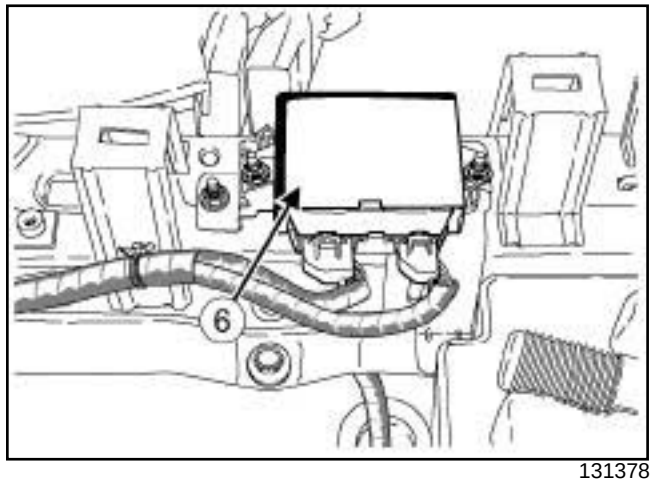
**5 - Rear proximity sensors**




131377

Four proximity radars (**5**) are clipped into the supports on the rear bumper.

**6 - Parking distance control computer**




131378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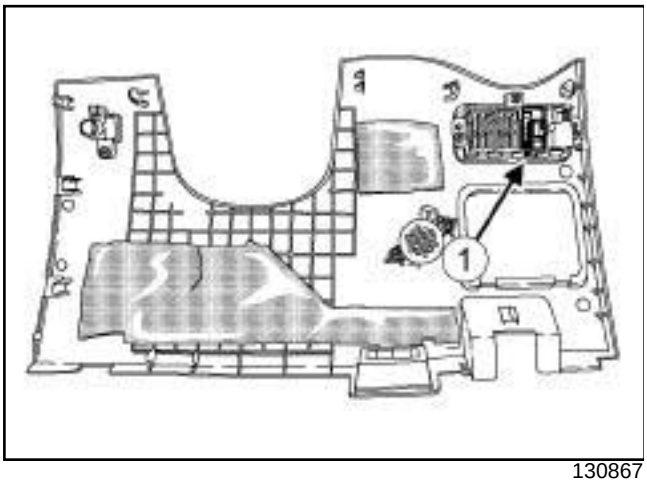
FR AND RR PROX RADAR

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130867

❏ Unclip the parking distance control switch (**1**) from the dashboard lower cover.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Clip the parking distance control switch onto the dashboard lower cover.

### II - FINAL OPERATION.

❏ Refit the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).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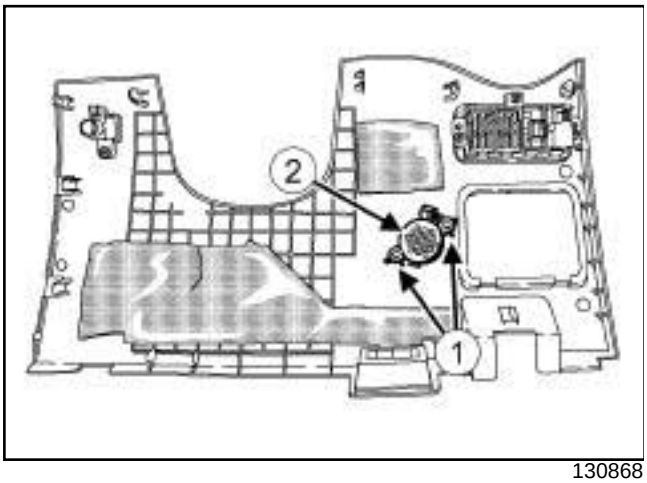
FR AND RR PROX RADAR

## REMOVAL

### OPERATION FOR REMOVAL OF PART CONCERNED

**1 - Front parking distance control buzzer**

❑ Remove the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).



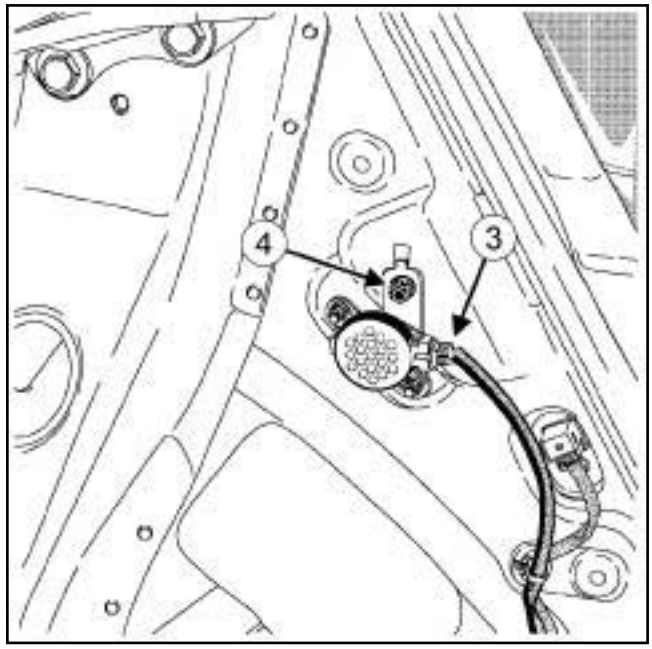

130868

❑ Remove:

- the front parking distance control buzzer bolts (**1**) ,
- the front parking distance control buzzer (**2**) .

**2 - Rear parking distance control buzzer**

❑ Remove the C-pillar lower trim on the left-hand side (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim).




130869

❑ Disconnect the connector (**3**) from the rear parking distance control buzzer.

❑ Remove:

- the rear parking distance control buzzer bolt ***(4)*** ,
- the rear parking distance control buzzer.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

**1 - Front parking distance control buzzer**

❑ Refit:

- the front parking distance control buzzer,
- the front parking distance control buzzer bolts,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

**2 - Rear parking distance control buzzer**

❑ Refit:

- the rear parking distance control buzzer,
- the rear parking distance control buzzer bolts.

❑ Connect the rear parking distance control buzzer connector.

❑ Refit the C-pillar lower trim on the left-hand side (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim).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FR AND RR PROX RADAR

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

> Note:
>
> The operations for removing and refitting the front and rear proximity radars are identical.

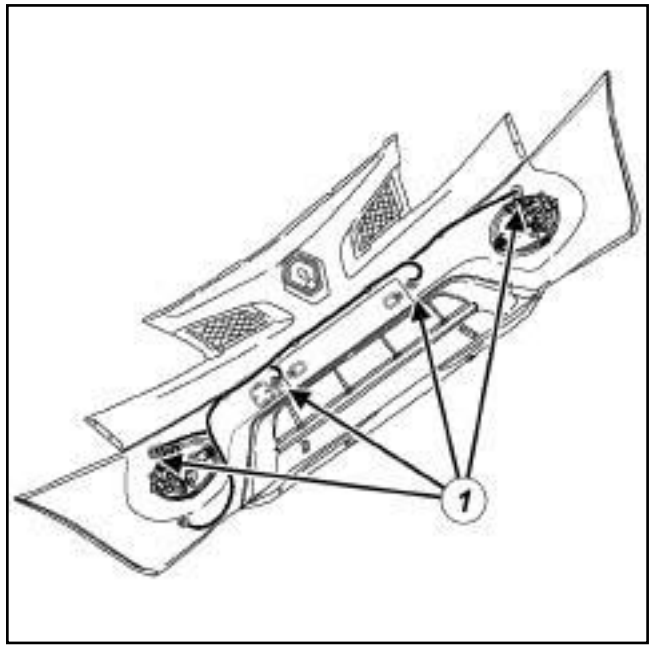
❑ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection) or the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

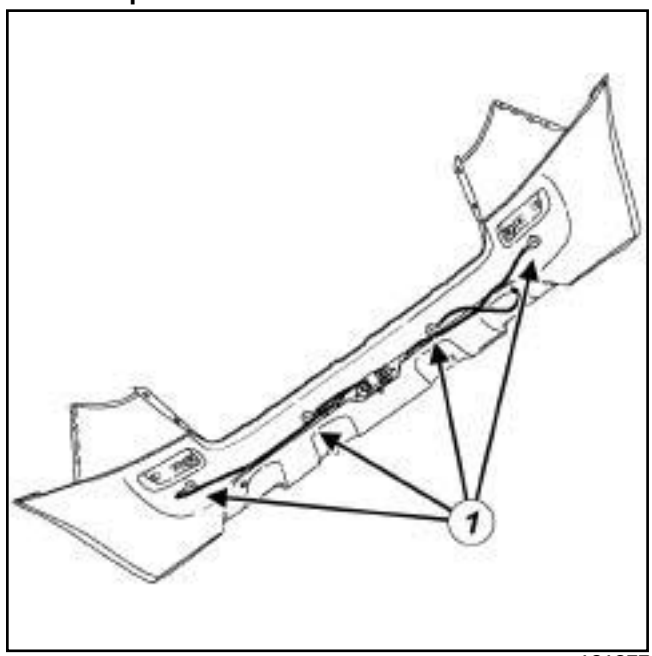
> **WARNING**
>
> The distance control radars are fragile. Handle with care as the external part cannot withstand impacts.

**Front bumper**




131376

**Rear bumper**




131377

❑ Disconnect the connectors (**1**) from the proximity radar.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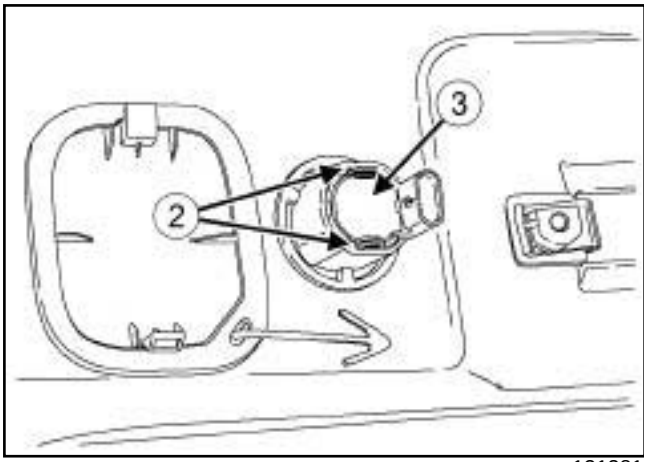
FR AND RR PROX RADAR



131381

❏ Unclip the proximity radar at (**2**) .

❏ Remove the proximity radar (**3**) .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Clip the proximity radar onto its support.

❏ Connect the proximity radar connectors.

### II - FINAL OPERATION.

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection) or the rear bumper (see **Rear bumper: Removal - Refitting**) (55A, Exterior protection).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FR AND RR PROX RADAR

| Essential equipmentEssential equipment |
| --- |
| diagnostic tool |

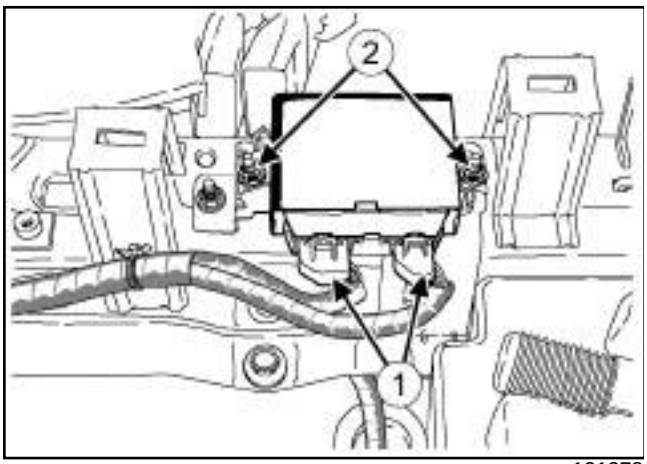
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



131378

❏ Disconnect the connectors (**1**) from the parking distance control computer.

❏ Remove:

- the parking distance control computer nuts (**2**) ,
- the parking distance control computer.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit:

- the parking distance control computer,
- the parking distance control computer nuts.

❏ Connect the parking distance control computer connectors.

### II - FINAL OPERATION.

❏ Refit the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ In the event of replacement, carry out the necessary operations using the **diagnostic tool** (see **Replacement of components**) (87F, Parking distance control).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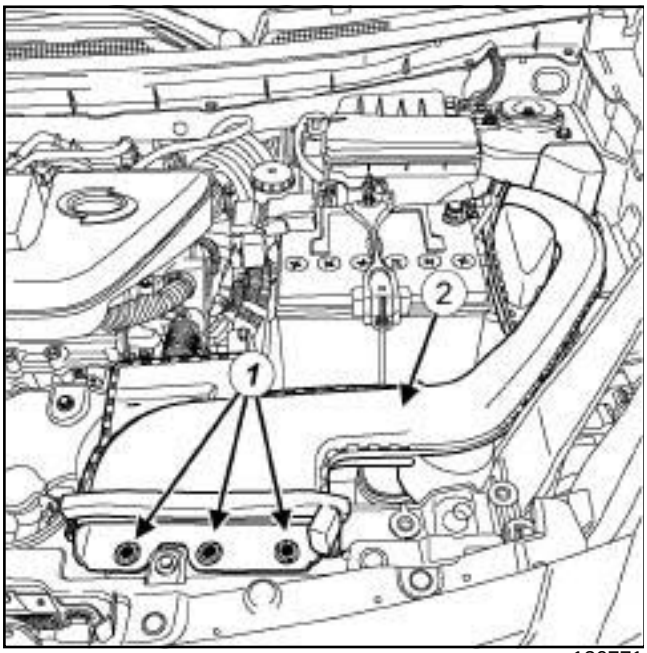
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

2TR

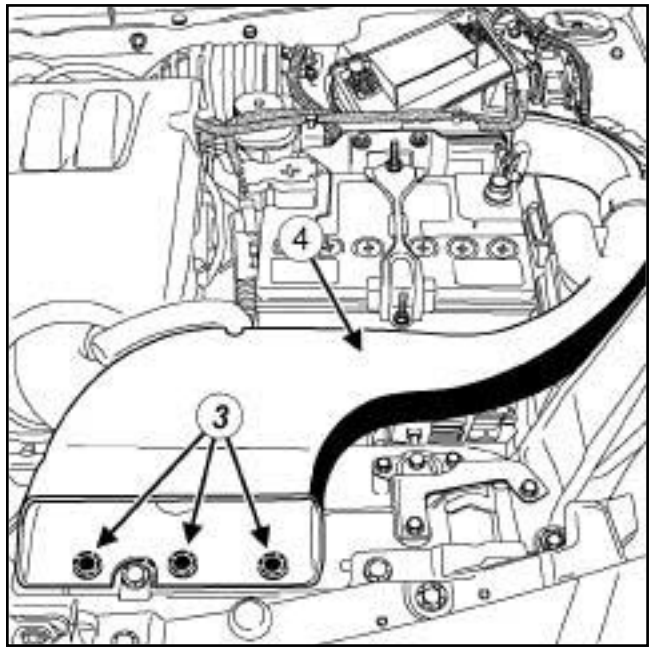



130771

❏ Unclip the clips (**1**) .

❏ Remove the air inlet duct (**2**) .

M9R

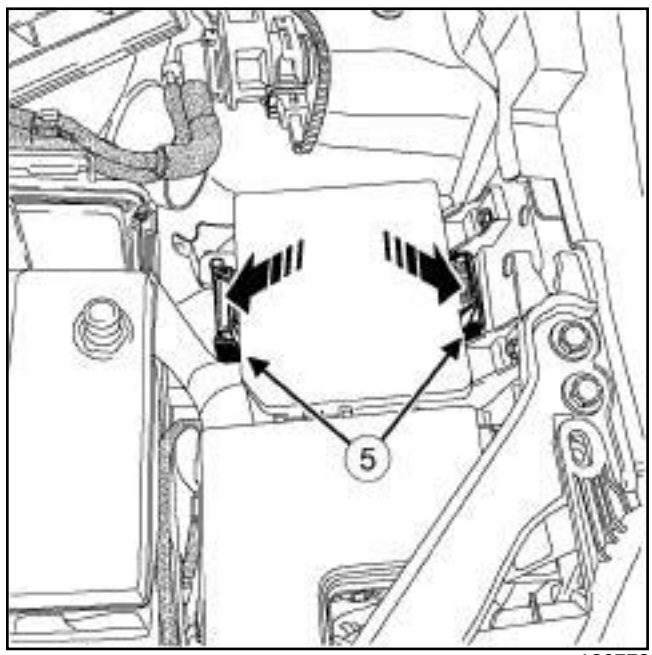



130772

❏ Unclip the clips (**3**) .

❏ Remove the air inlet duct (**4**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130773

❏ Unclip the Protection and Switching Unit at (**5**) .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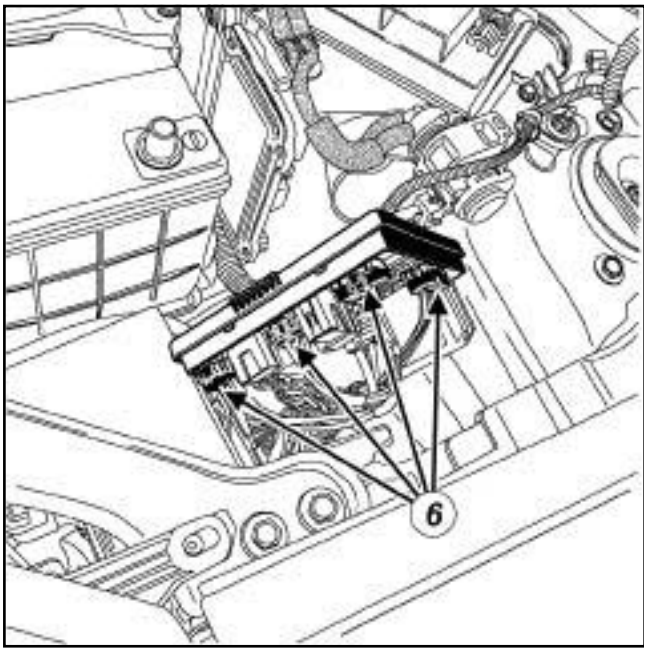


130774

❏ Disconnect the connectors (**6**) from the Protection and Switching Unit by pressing on the tab of the connector.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Fit the protection and switching unit.

❏ Connect the connectors.

❏ Check the condition of the wiring.

❏ Clip on the Protection and Switching Unit.

### II - FINAL OPERATION.

❏ Refit the air inlet duct.

❏ Clip on the clips.

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ When replacing the Protection and Switching Unit, carry out the necessary configuration (see **Replacement of components**) (87G, Engine compartment connection unit).



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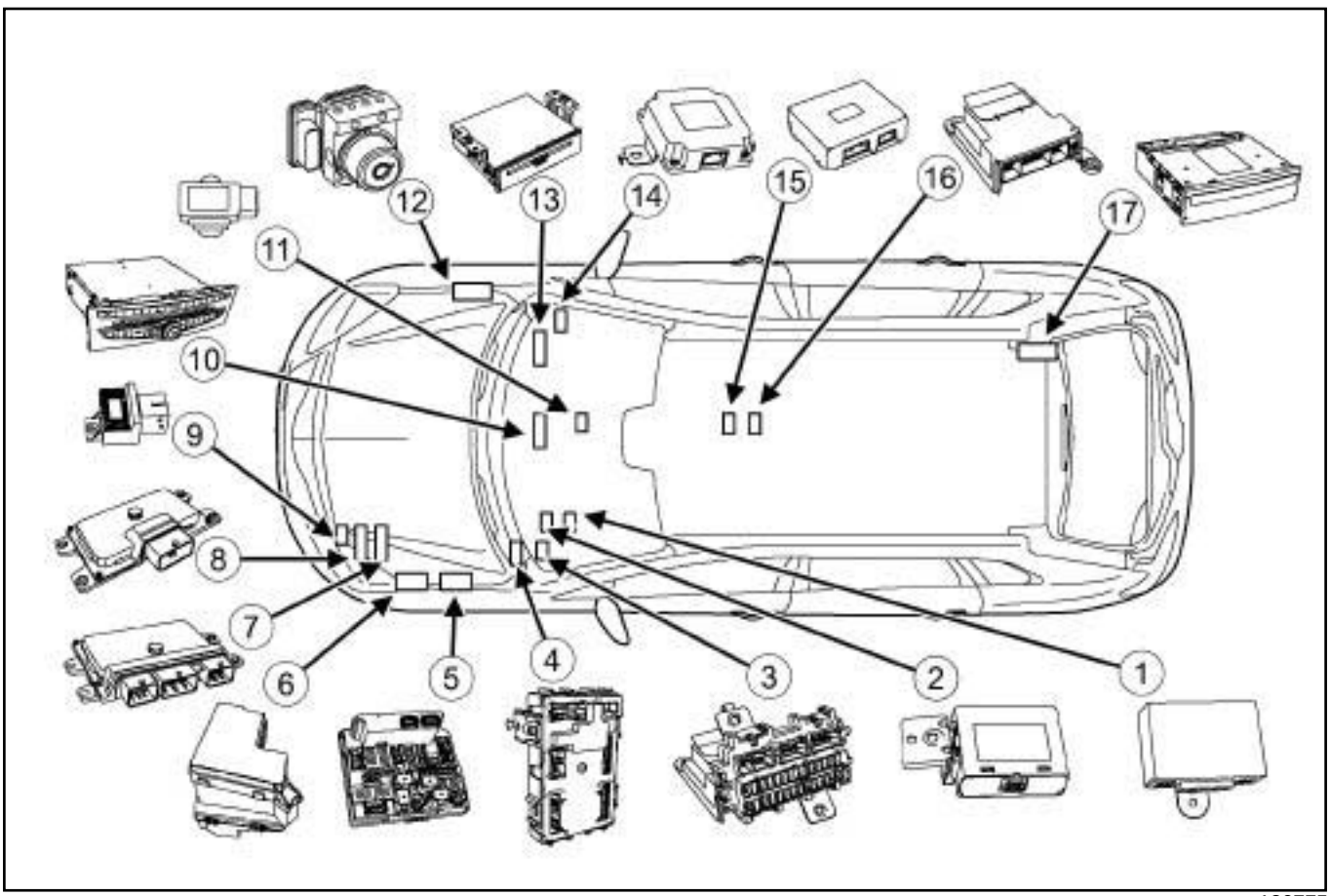
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Additional cornering lights computer |
| *(2)* | Tyre pressure monitor computer |
| *(3)* | Passenger compartment fuse and relay box |
| *(4)* | UCH |
| *(5)* | Protection and switching unit |
| *(6)* | Engine fuse and relay box |
| *(7)* | Injection computer |
| *(8)* | Automatic gearbox computer |
| *(9)* | Pre-postheating unit |
| *(10)* | Radio |
| *(11)* | Yaw speed and lateral acceleration sensor |
| *(12)* | ABS / ESP computer |
| *(13)* | Navigation computer |
| *(14)* | Rear final drive coupler computer |
| *(15)* | Telephone computer |
| *(16)* | Airbag computer |
| *(17)* | Radio unit |

## II - LOCATION OF COMPONENTS




130775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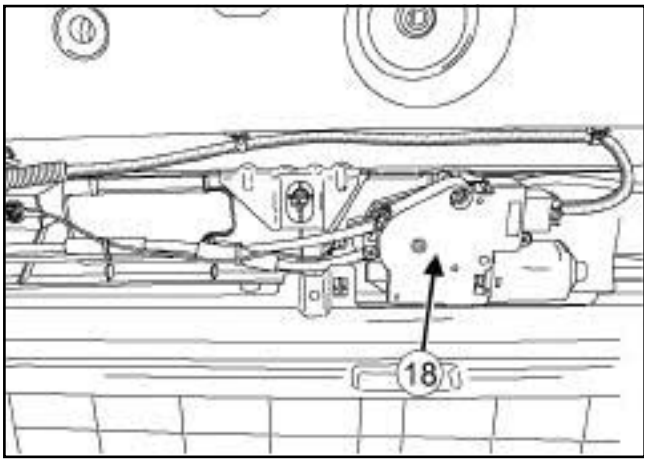
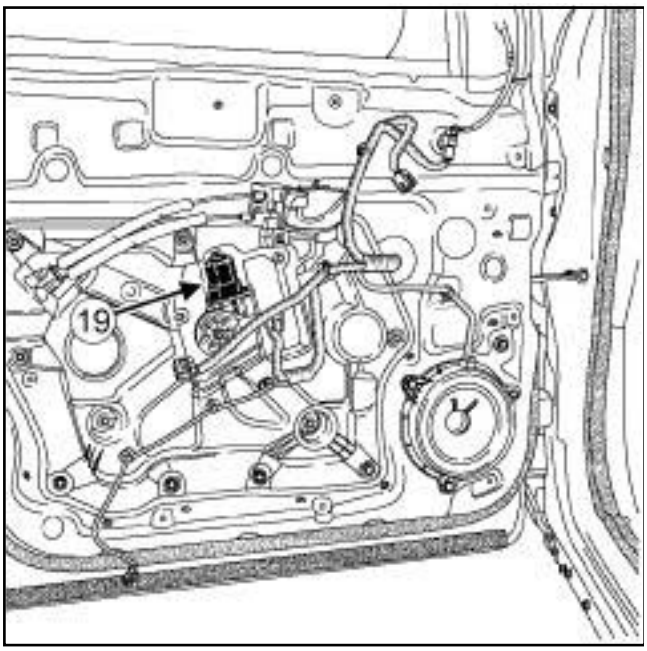
**Computers integrated into components**




130776

The sunroof computer is integrated into the electric motor (**18**) .




130777

The anti-pinch function is integrated into the electric motor (**19**) .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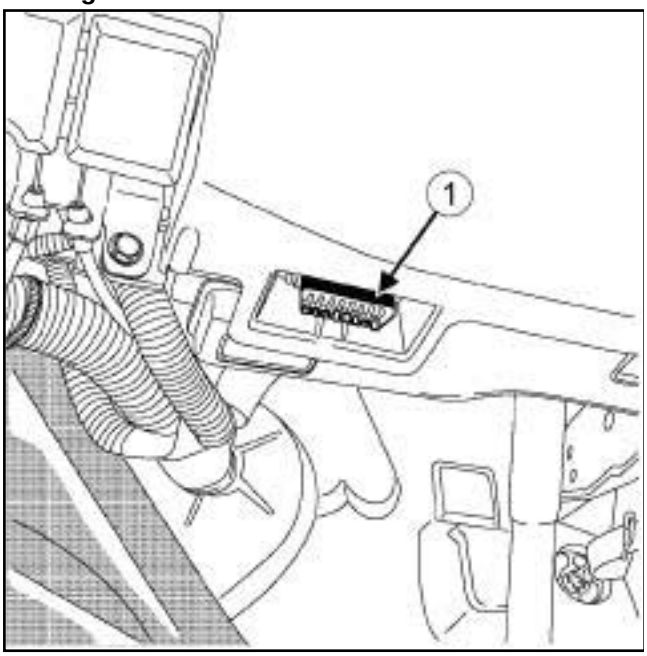
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| *(1)* | Diagnostic socket |

## II - LOCATION OF COMPONENTS

### 1 - Diagnostic socket




130778

The diagnostic socket is located on the lower section of the dashboard lower cover on the driver's side.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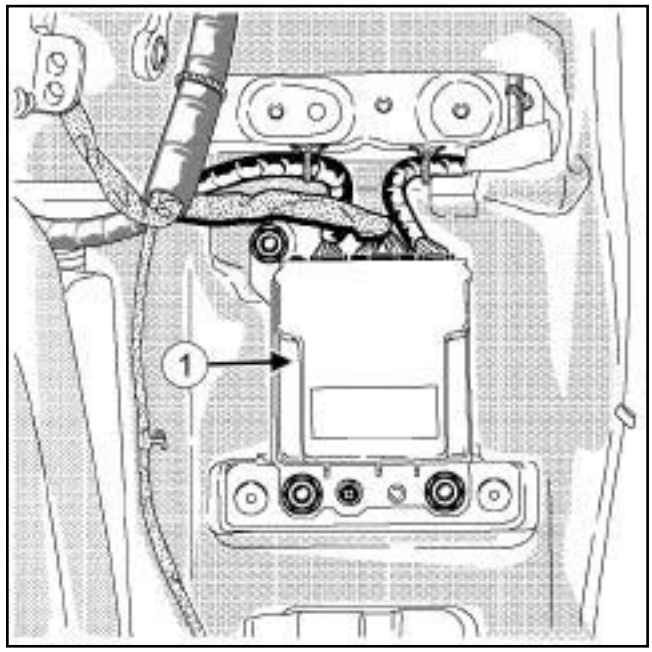
## I - LIST OF COMPONENTS

| No. | Description |
|---|---|
| ***(1)*** | Airbag computer |
| ***(2)*** | Driver's front airbag |
| ***(3)*** | Passenger front airbag |
| ***(4)*** | Front (thorax) side airbag |
| ***(5)*** | Curtain side airbag |
| ***(6)*** | Front seat lap belt pretensioner |
| ***(7)*** | Front seat belt buckle |
| ***(8)*** | Rear seat belt buckles |
| ***(9)*** | Front side seat belt |
| ***(10)*** | Rear side seat belt |
| ***(11)*** | Rear centre seat belt |
| ***(12)*** | Side impact sensor |
| ***(13)*** | Front impact sensor |
| ***(14)*** | Inhibitor switch |
| ***(15)*** | Front passenger airbag inhibitor switch warning light |
| ***(16)*** | Passenger seat belt warning light |
| ***(17)*** | Passenger presence sensor |

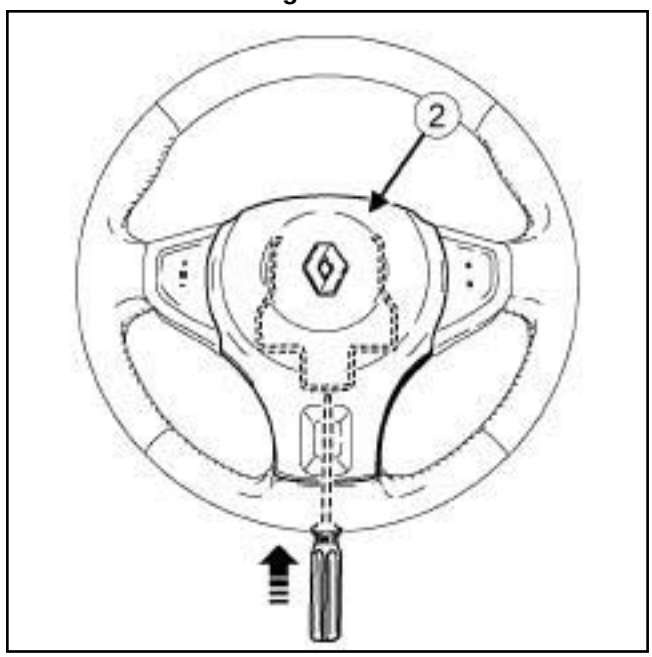
## II - LOCATION OF COMPONENTS

**1 - Airbag computer**




131742

**2 - Driver's front airbag**




131743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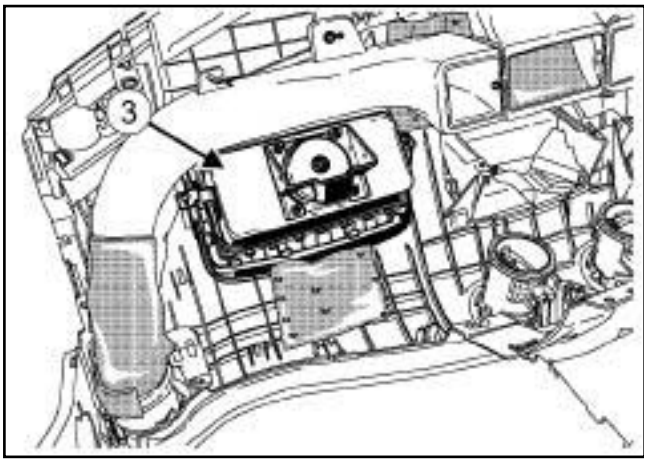
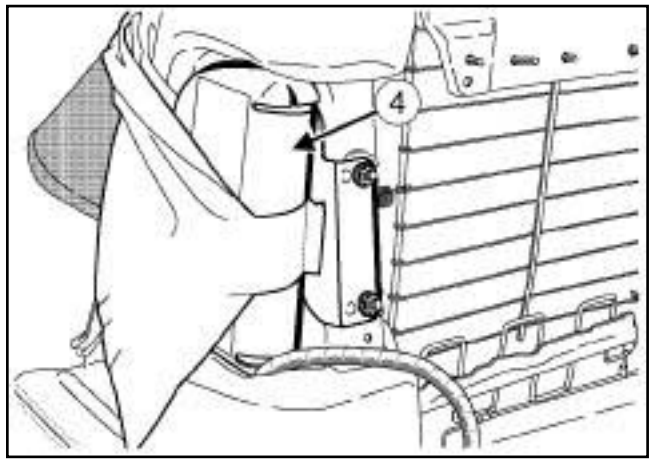
**3 - Passenger front airbag**



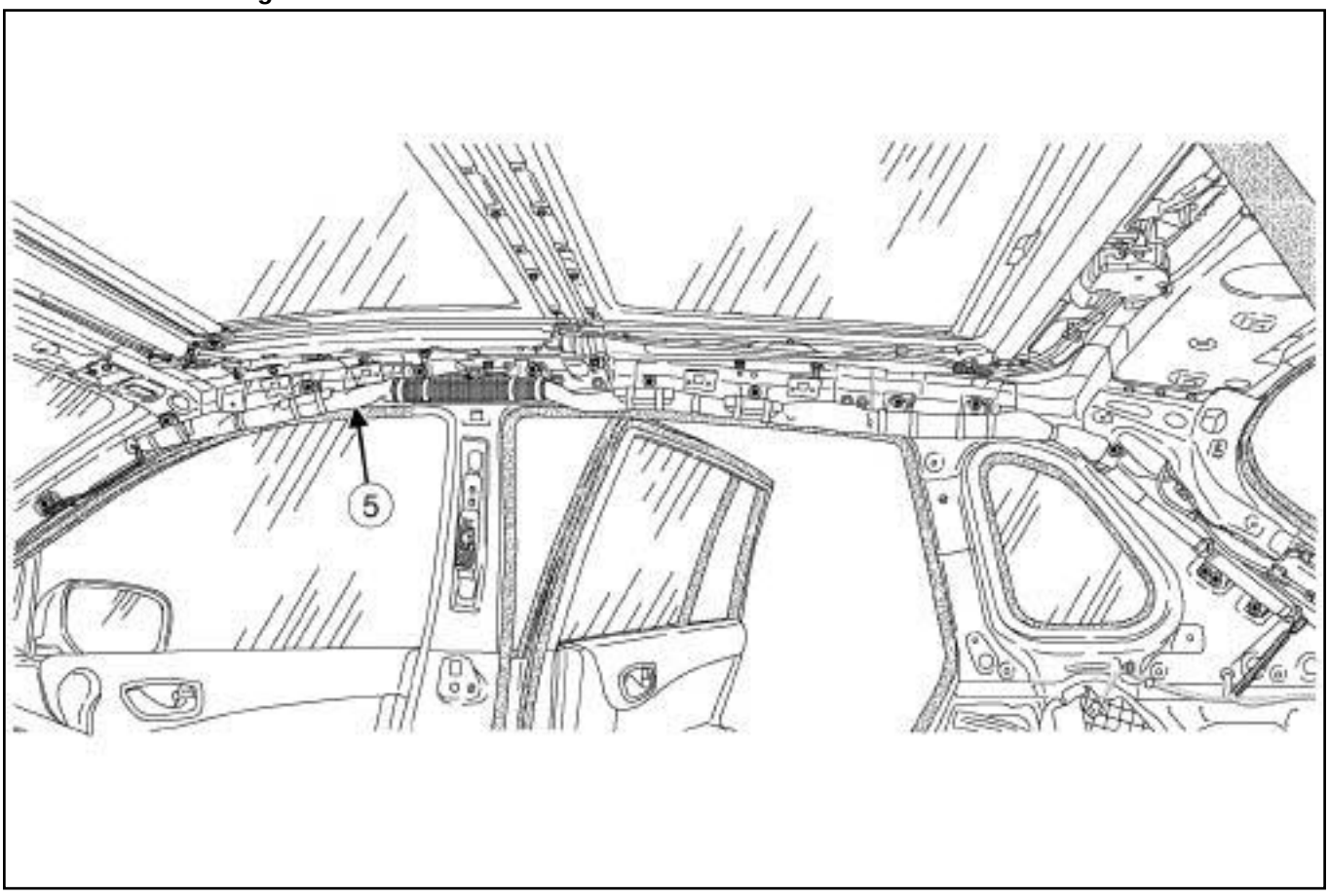

131744

**4 - Front (chest-level) side airbag**




131745

**5 - Curtain side airbag**




131746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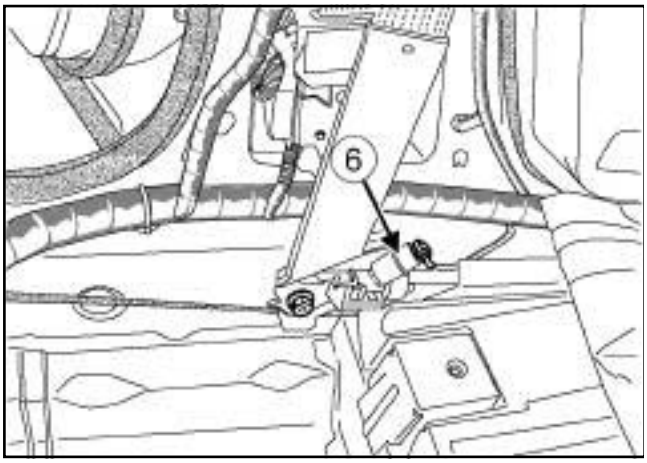
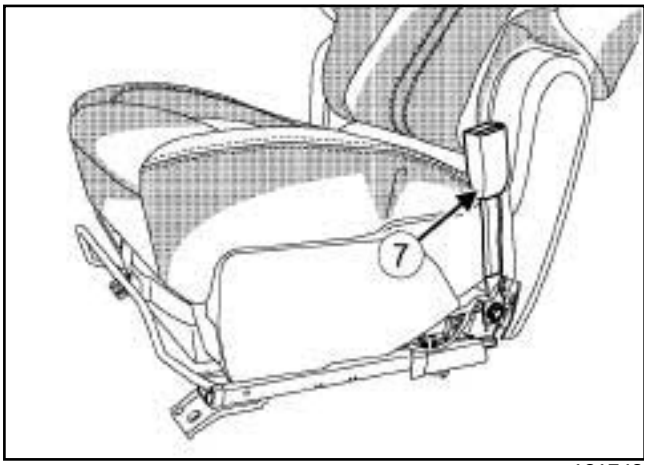
**6 - Front seat lap belt pretensioner**




131747

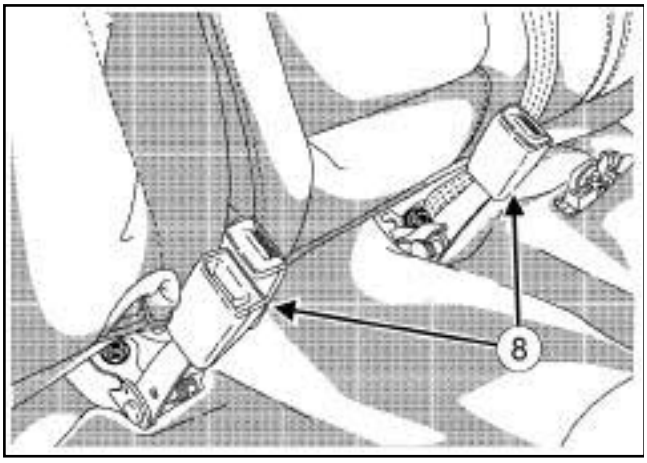
The front seat lap belt pretensioner cannot be separated from the front side seat belt.

**7 - Front seat belt buckle**



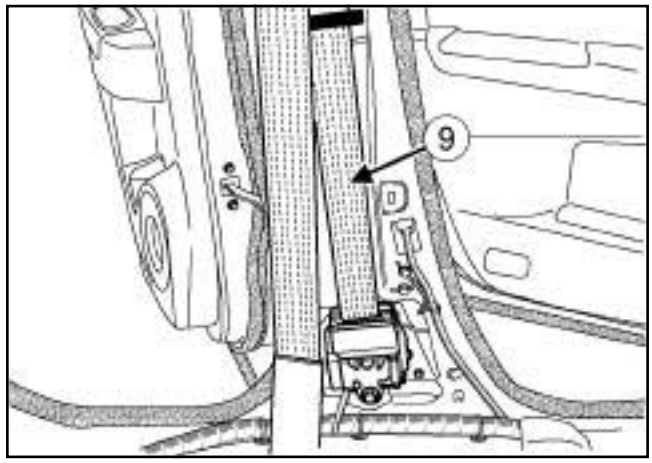

131748

**8 - Rear seat belt buckles**



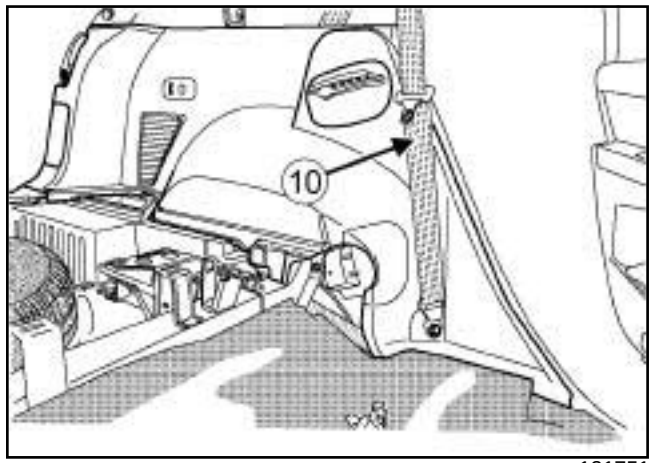

131749

**9 - Front side seat belt**



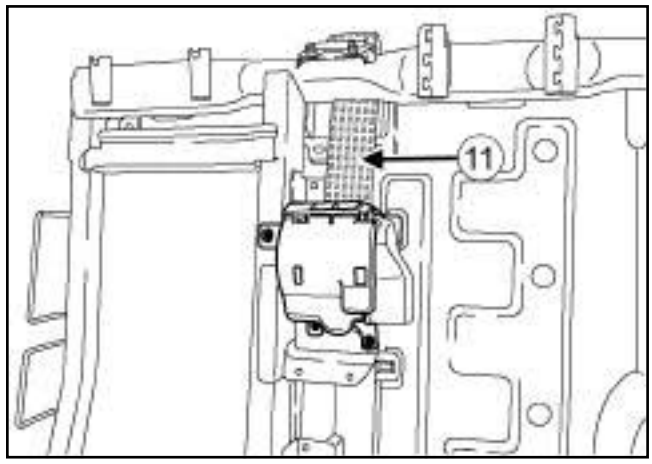

131750

**10 - Rear side seat belt**




131751

**11 - Rear centre seat belt**




131752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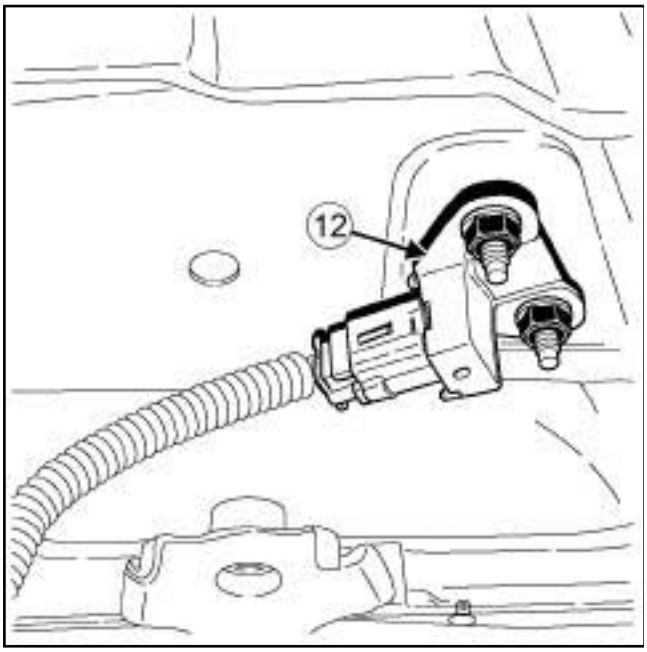
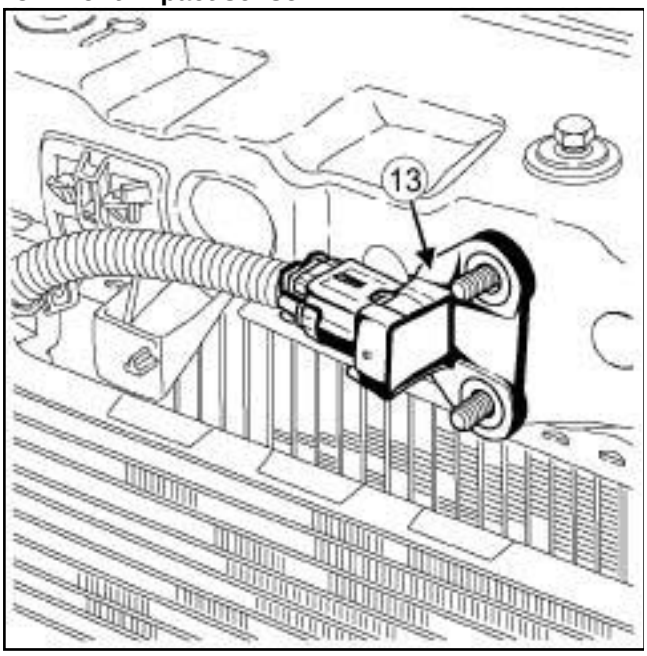
**12 - Side impact sensor**



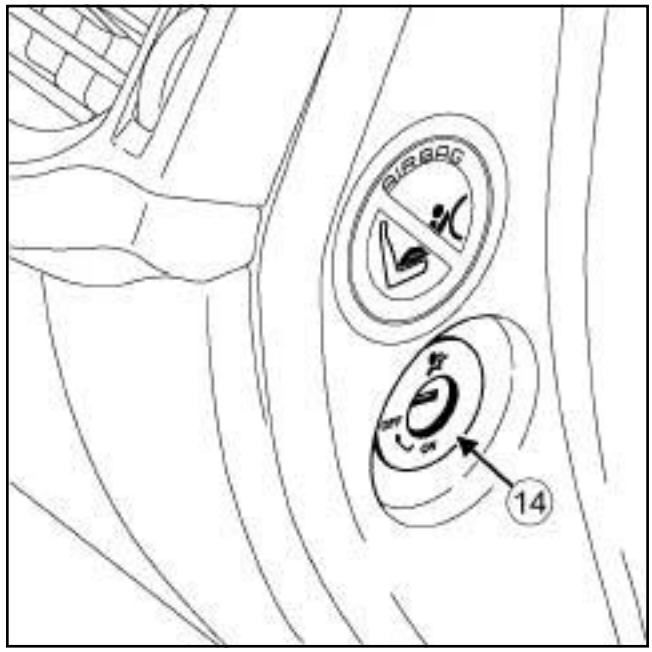

131753

**13 - Front impact sensor**



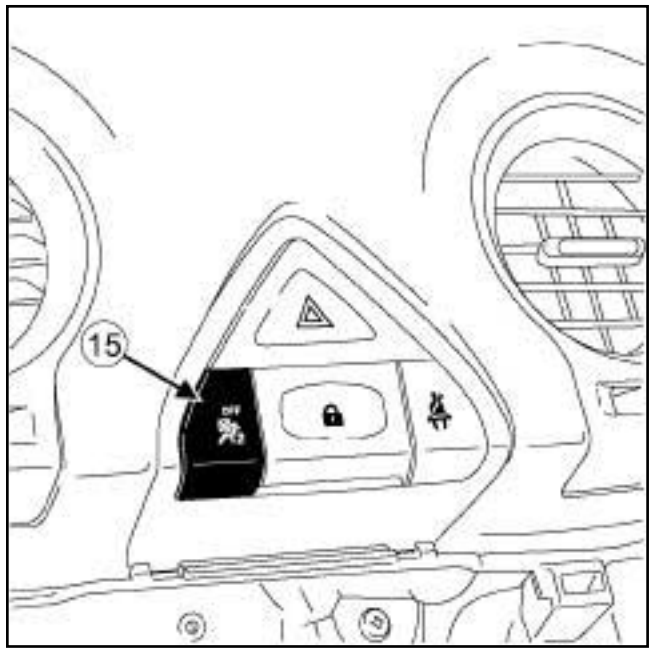

131754

**14 - Inhibitor switch**




131755

**15 - Passenger front airbag inhibitor switch warning light**




131757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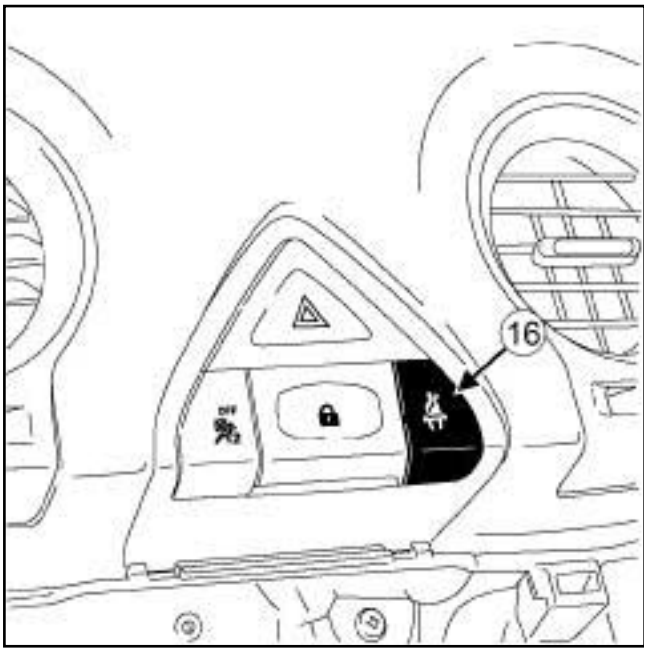
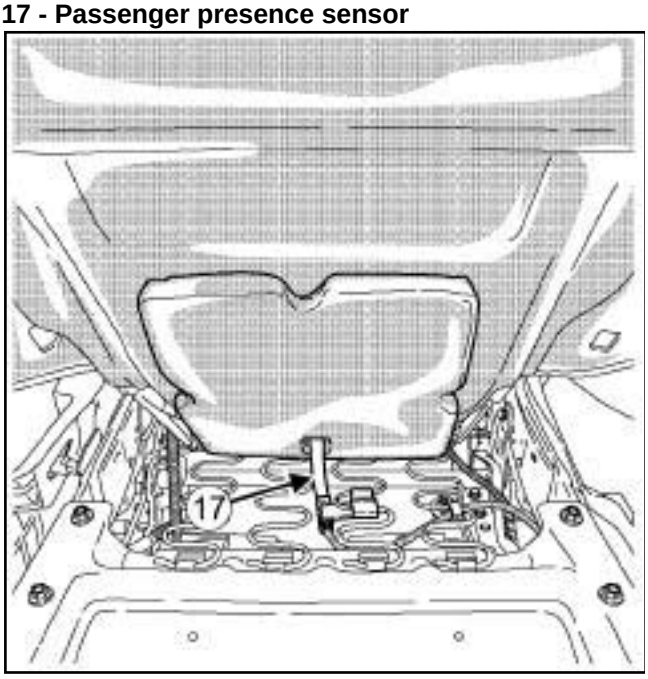
**16 - Passenger seat belt warning light**




131756

**17 - Passenger presence sensor**




131758

To remove it (see **Passenger presence detection ply: Removal - Refitting**) (59A, Safety equipment).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| Essential equipmentEssential equipment |
| --- |
| diagnostic tool |

**PRECAUTIONS FOR REPAIR**

**IMPORTANT**

All operations on airbag and pretensioner systems must be carried out by qualified trained personnel.

The airbags have a pyrotechnic gas generator, with an ignition module and bag which must not be separated.

The pretensioners have a pyrotechnic gas generator and an igniter which must, under no circumstances, be separated.

**IMPORTANT**

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

When an airbag or a pretensioner is triggered, the airbag computer is permanently locked and the « airbag fault » warning light on the instrument panel comes on.

The airbag computer must be replaced (certain components lose their nominal specifications after being subjected to the trigger energy)

**IMPORTANT**

In order to prevent interference with the deployment of the airbags:

- do not fit a cover to the front seats,

- do not place objects in the area of deployment.

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only.

(see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .

**IMPORTANT**

In the event of a repair operation after an impact, the mounting bolts of the seat belts and seat belt buckles must always be replaced.

A visual inspection must be carried out on the pyrotechnic system mountings and the tightening torque must be checked.

The pyrotechnic systems (pretensioners and airbags) must be checked using the **diagnostic tool** :

- after an accident that did not trigger the systems,

- after theft or attempted theft of the vehicle,

- before selling a used vehicle.


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| Essential special toolingEssential special toolingEssential special tooling | |
|---|---|
| **Ele. 1287** | Airbag and pretensioners destruction tool. |
| **Ele. 1287-02** | Set of 2 adapters for airbag and pretensioners destruction tool. |

**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only.

**WARNING**

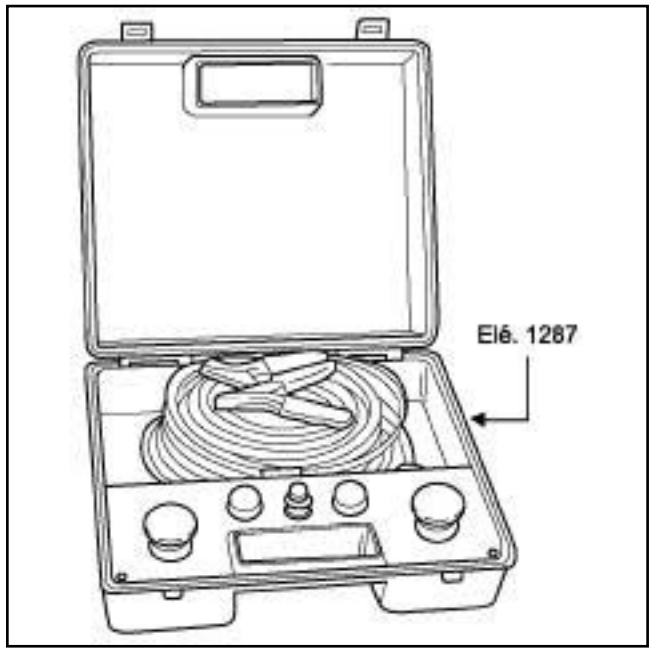
- Each part is intended for a specific vehicle type and should not be fitted on another vehicle under any circumstances. The parts are not interchangeable.
- Do not trigger pretensioners which are to be returned under warranty because of a faulty stalk. This makes analysis of the part by the supplier impossible. Return the defective part to Techline in the packaging of the new part.

**WARNING**

The destruction procedure cannot be carried out if local regulations require a special procedure which has been confirmed and published by the Fault finding, Repair and Procedures Department.

Note:

If triggering is not possible (faulty ignition module) return the part to Techline.




131739

❑ It is essential to use the tool **(Ele. 1287)** and **(Ele. 1287-02)**.

❑ Use a wiring connector kit **82 00 518 971**.

❑ Attach the wiring connectors **82 00 518 971** to the adapters **(Ele. 1287-02)** to obtain an adapter for each colour (green, orange, blue, etc.) (see **Wiring: Repair**) (Technical Note 6015A, 88A, Wiring).

❑ Use a battery to power the destruction tool.

**I - AIRBAGS**

❑

Note:

The airbags must be destroyed outside the workshop, in an area with sufficient space.

The airbags to be destroyed must be removed.

Note:

If the airbag has two levels of activation (i.e. it is fitted with two connectors), destroy both connectors.

❑ Prepare the adapter corresponding to the airbag to be destroyed.

❑ Connect:

- the adapter to the destruction tool **(Ele. 1287)**,
- the adapter to the airbag.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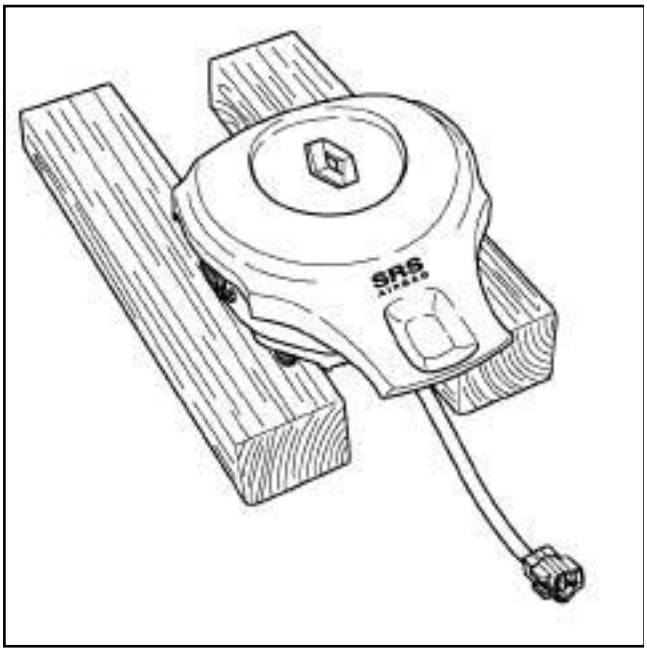
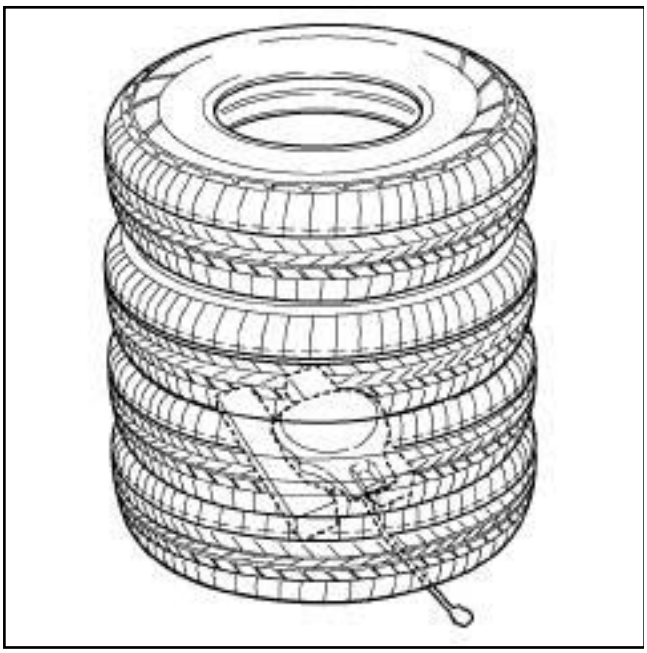



131740

❏ Put the airbag on two wooden blocks.



131741

❏ The destruction procedure is carried out in a stack of old tyres.

❏ Make sure that the airbag deployment will not be hindered.

❏ Unwind the full length of the wiring for the tool, in order to distance it as far away as possible from the pyrotechnic component to be destroyed.

❏ Connect the two feed wires of the destruction tool **(Ele. 1287)** to a battery.

**IMPORTANT**
To prevent any risk of an accident when destroying a pyrotechnic component, check that no-one is in the vicinity.

❏ Destroy the airbag by pressing the two push buttons on the tool simultaneously.

**II - PYROTECHNIC PRETENSIONERS AND INERTIA REELS**

**1 - Destruction of part fitted on the vehicle to be scrapped:**

❏ Move the vehicle outside the workshop.

❏ Mark the adapter corresponding to the pyrotechnic component to be destroyed.

❏ Connect:

- the destruction tool **(Ele. 1287)** to the adapter,

- the adapter to the pyrotechnic component.

❏ Unwind the tool wiring fully, so that you are far enough away from the vehicle (approximately ten metres) when the device is triggered.

❏ Connect the two feed wires of the destruction tool **(Ele. 1287)** to a battery.

**IMPORTANT**
To prevent any risk of an accident when destroying a pyrotechnic component, check that no-one is in the vicinity.

❏ Destroy the pyrotechnic component by pressing the two push buttons on the tool simultaneously.

**2 - Destruction of part removed from the vehicle:**

❏ Proceed in the same way as for an airbag (in a stack of old tyres).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| Tightening torques ▽ | |
|---|---|
| airbag computer bolt (3) | **7 N.m** |
| airbag computer bolts (2) | **25 N.m** |

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

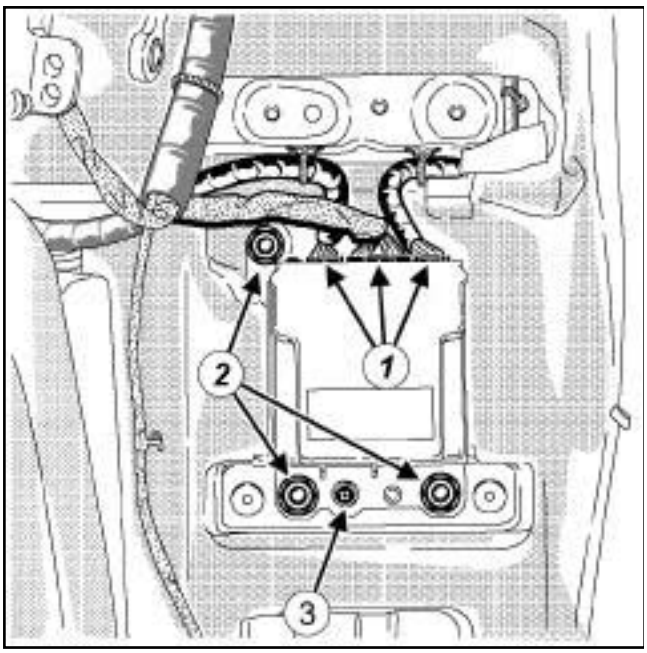
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130870

❑ Disconnect the airbag computer connectors (**1**) .

❑ Remove:

- the airbag computer bolts ***(2)*** ,
- the airbag computer bolt ***(3)*** ,
- the airbag computer.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the airbag computer,
- the airbag computer bolt,
- the bolts from the airbag computer.

❑ Torque tighten:

- the **airbag computer bolt (3) (7 N.m)**,
- the **airbag computer bolts (2) (25 N.m)**,

❑ Connect the airbag computer connectors.

### II - FINAL OPERATION.

❑ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .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**IMPORTANT**

To avoid any risk of damaging the systems, apply the instructions relating to safety and cleanliness and the operation recommendations before carrying out the repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

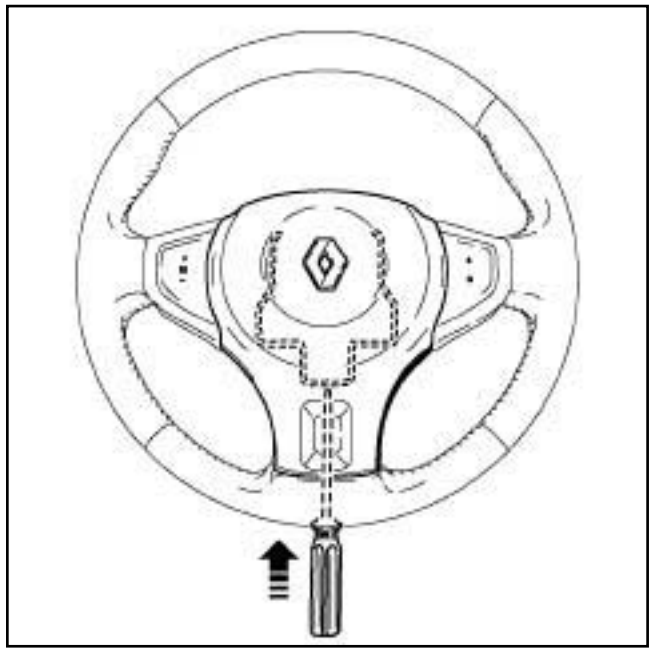
❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

**WARNING**

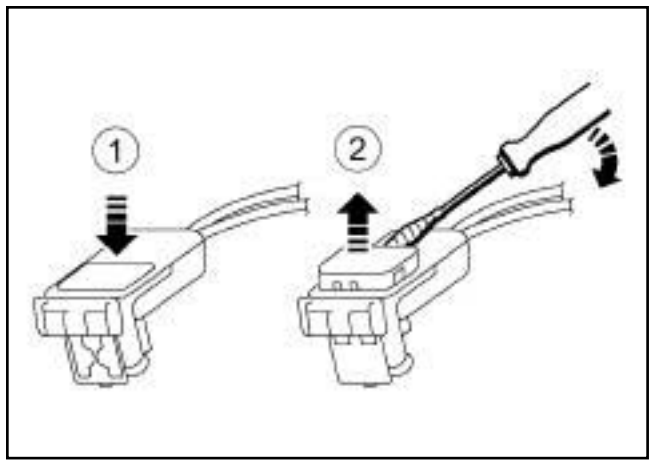
To ensure the airbag is not damaged during removal, do not use a tool with a point or a sharp edge.



130965

❑ Insert a flat-blade screwdriver into the opening located behind the steering wheel.

❑ Unclip the driver's front airbag by pushing the flat-blade screwdriver upwards.




130966

❑

Note:

To disconnect the airbag connector, insert a flat-blade screwdriver wrapped in adhesive tape in the notch (**1**) , lift the security device (**2**) and disconnect the connector.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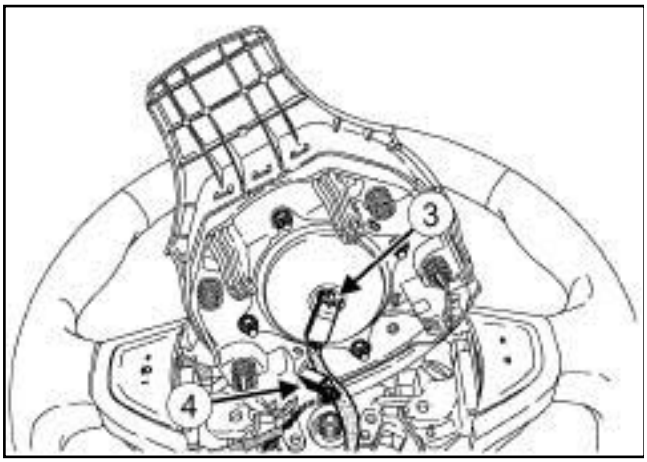

130967

❑ Disconnect:

- the driver's front airbag connector (**3**) ,
- the horn connector (**4**) .

❑ Remove the driver's front airbag.

**IMPORTANT**
To prevent the any component from being thrown upwards, store the airbag with the inflatable cushion facing upwards.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑

**IMPORTANT**
After a seat belt pyrotechnic component is triggered, it is essential to replace certain parts (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Connect:

- the horn connector,
- the driver's front airbag connector.

❑ Fit the driver's front airbag in place.

❑ Clip the driver's front airbag on to the steering wheel.

### III - FINAL OPERATION.

❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**IMPORTANT**
To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .


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| Tightening torques ▽ | |
|---|---|
| passenger front airbag bolts | 23 N.m |

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **88C**, **Air bag and Pretensioners**, **Air-bag and Pretensioners: Precautions for repair**, page **88C-6**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2

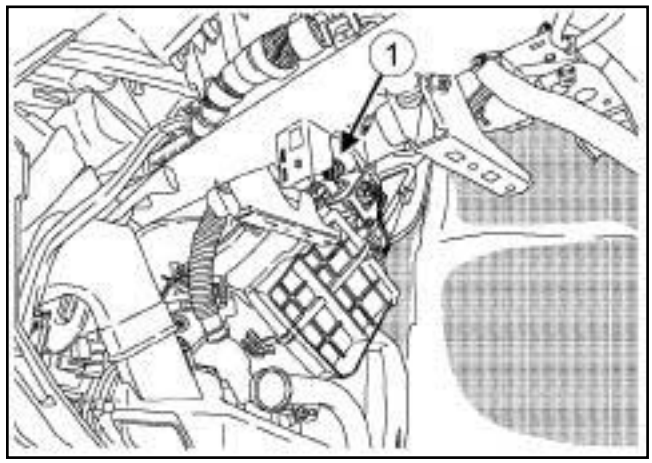
❑ Remove:

- the navigation computer (see **83C**, **On-board telematics system**, **Navigation computer: Removal - Refitting**, page **83C-3**)
- the navigation interface unit (see **83C**, **On-board telematics system**, **Navigation interface unit: Removal - Refitting**, page **83C-4**)

### II - OPERATION FOR REMOVAL OF PART CONCERNED

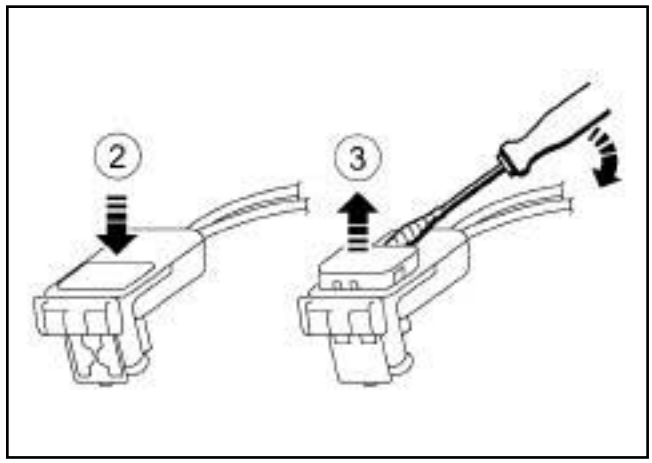
❑

**WARNING**
To ensure the airbag is not damaged during removal, do not use a tool with a point or a sharp edge.



130871

❑ Remove the front passenger airbag bolt (**1**) .



130872

❑

Note:
To disconnect the airbag connector, insert a flat-blade screwdriver wrapped in adhesive tape in the notch (**2**) , lift the security device (**3**) and disconnect the connector.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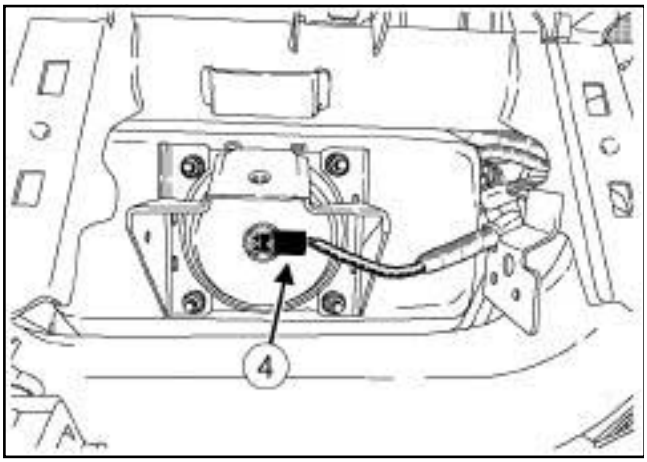
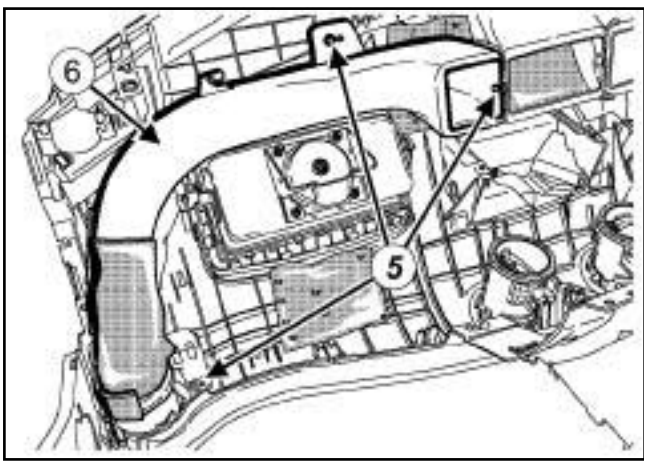



130873

❑ Disconnect the front passenger airbag connector (**4**) .

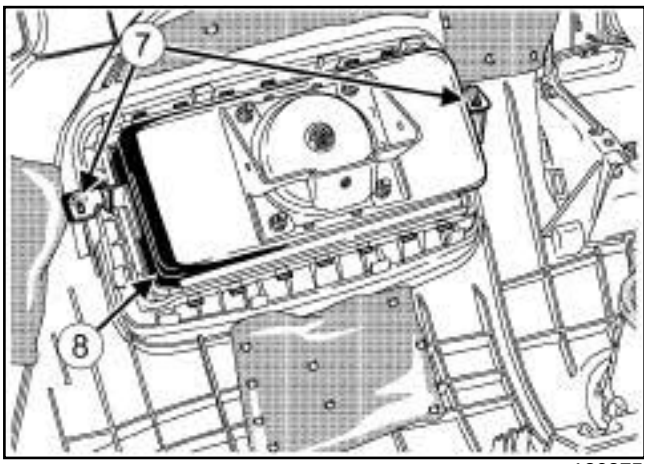
❑ Remove the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).




130874

❑ Remove:

- the front side air distribution duct bolts,
- the front side air distribution duct.




130875

❑ Remove the front passenger airbag bolts (**7**) .

❑ Detach the passenger front airbag ***(8)*** from the dashboard.

❑ Remove the passenger frontal airbag.

**IMPORTANT**

To prevent the any component from being thrown upwards, store the airbag with the inflatable cushion facing upwards.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the passenger front airbag bolts.

**IMPORTANT**

After a seat belt pyrotechnic component is triggered, it is essential to replace certain parts (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

**IMPORTANT**

When the passenger front airbag is triggered, the consequent damage caused to the mountings always requires the dashboard to be replaced. Affix the label warning against fitting a rear-facing child seat on the front passenger seat to the passenger side of the dashboard.

### II - REFITTING OPERATION FOR PART CONCERNED

NAVIGATION AID LEVEL 1 or NAVIGATION AID LEVEL 2

❑ Refit:

- the navigation interface unit (see **83C**, **On-board telematics system**, **Navigation interface unit: Removal - Refitting**, page **83C-4**)
- the navigation computer (see **83C**, **On-board telematics system**, **Navigation computer: Removal - Refitting**, page **83C-3**)

❑ Refit:

- the passenger front airbag to the dashboard,
- new passenger front airbag bolts,
- the front side air distribution duct,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- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the front passenger airbag connector.

❏ Refit the passenger front airbag bolt.

❏ Torque tighten the **passenger front airbag bolts (23 N.m)**.

**III - FINAL OPERATION**

❏ Refit the glovebox (see **Glovebox: Removal - Refitting**) (57A, Interior equipment).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .


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| Tightening torques ▽ | |
|---|---|
| chest-level side airbag nuts | 7 N.m |

The front (chest-level) side airbag is fitted to the backrest of each front seat on the door side.

When it is deployed, the airbag tears the module cover and the foam and detaches the trim.

**IMPORTANT**
To avoid any risk of damaging the systems, apply the instructions relating to safety and cleanliness and the operation recommendations before carrying out the repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

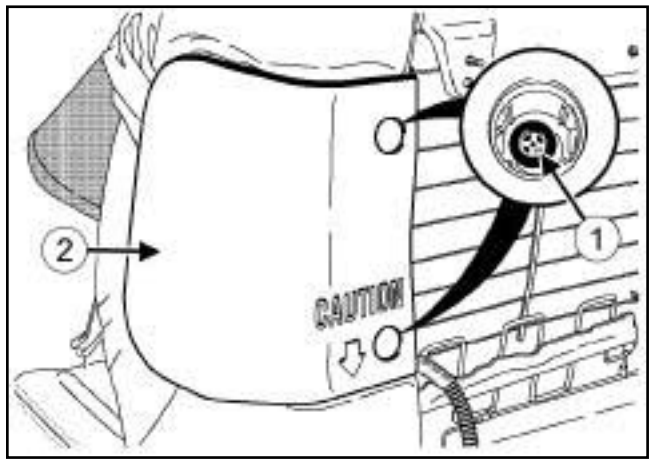
**IMPORTANT**
To avoid causing a fault or triggering a pyrotechnic component (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❏ Remove:

- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners),
- the front seat belt stalk (see **88C**, **Air bag and Pretensioners**, **Front seat belt buckle: Removal - Refitting**, page **88C-24**) ,
- the headrest guide (see **Front seat headrest guide: Removal - Refitting**) (79A, Seat accessories),
- the front seat backrest trim partially (see **Front seat base trim: Removal - Refitting**) (77A, Front seat trim).

### II - REMOVAL OF PART CONCERNED

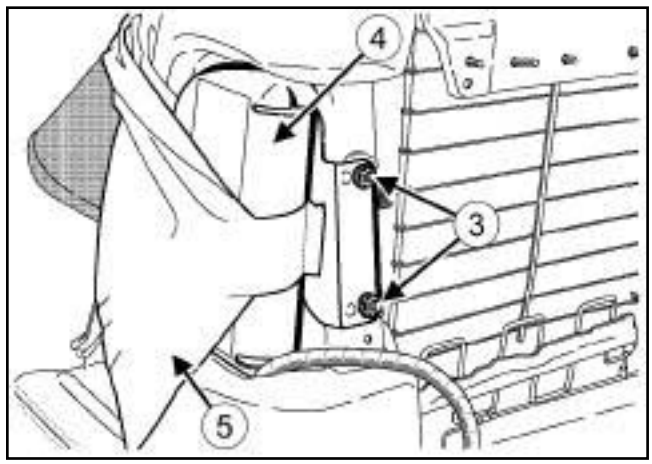


131737

❏ Remove:

- the covers from the front (chest-level) side airbag cover bolts,
- the bolts (**1**) from the front (chest-level) side airbag cover,
- the cover (**2**) from the front (chest-level) side airbag.

❏ Detach the clips from the front (chest-level) side airbag wiring underneath the seat.



131738

❏ Remove the nuts (**3**) from the front (chest-level) side airbag.

❏ Separate the front (chest-level) side airbag (**4**) from the seat backrest trim cover (**5**) .

❏ Remove:

- the front side (chest-level) airbag,
- the foam - trim assembly from the front seat backrest.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## REFITTING

### I - REFITTING PREPARATION OPERATION

❏

**IMPORTANT**

After a seat belt pyrotechnic component is triggered, it is essential to replace certain parts (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .

❏ Always replace the nuts for the front (chest-level) side airbag.

### II - REFITTING PART CONCERNED

❏ Refit:

- the foam - trim assembly for the front seat backrest,
- the front (chest-level) side airbag to the seat backrest trim cover,
- the new nuts for the front (chest-level) side airbag

❏ Torque tighten the **chest-level side airbag nuts (7 N.m)**.

### III - FINAL OPERATION.

❏ Refit:

- the front seat backrest trim partially (see **Front seat base trim: Removal - Refitting**) (77A, Front seat trim),
- the headrest guide (see **Front seat headrest guide: Removal - Refitting**) (79A, Seat accessories),
- the front seat belt stalk (see **88C**, **Air bag and Pretensioners**, **Front seat belt buckle: Removal - Refitting**, page **88C-24**) ,
- the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners),

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .


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| Tightening torques ▽ | |
|---|---|
| side curtain airbag bolts | **11 N.m** |

The side curtain airbag is mounted behind the headlining.

When inflating, the airbag becomes detached from the roof lining.

**IMPORTANT**
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

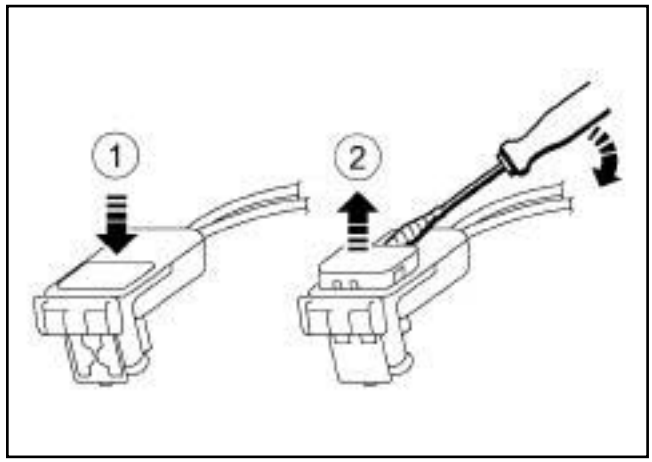
❑ Remove the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

❑

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**WARNING**
To ensure the airbag is not damaged during removal, do not use a tool with a point or a sharp edge.



130876

❑

Note:
To disconnect the airbag connector, insert a flat-blade screwdriver wrapped in adhesive tape in the notch (**1**) , lift the security device (**2**) and disconnect the connector.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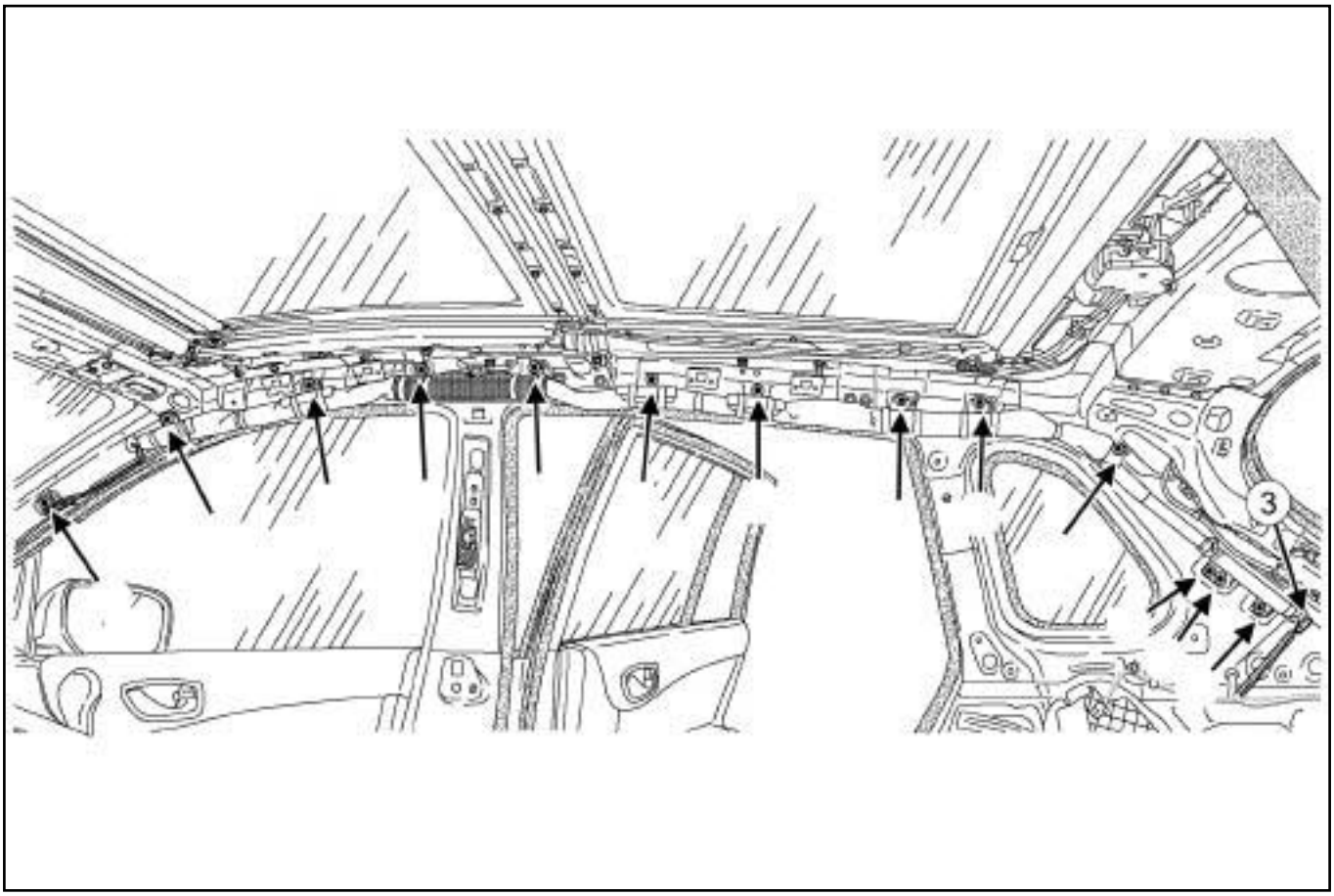
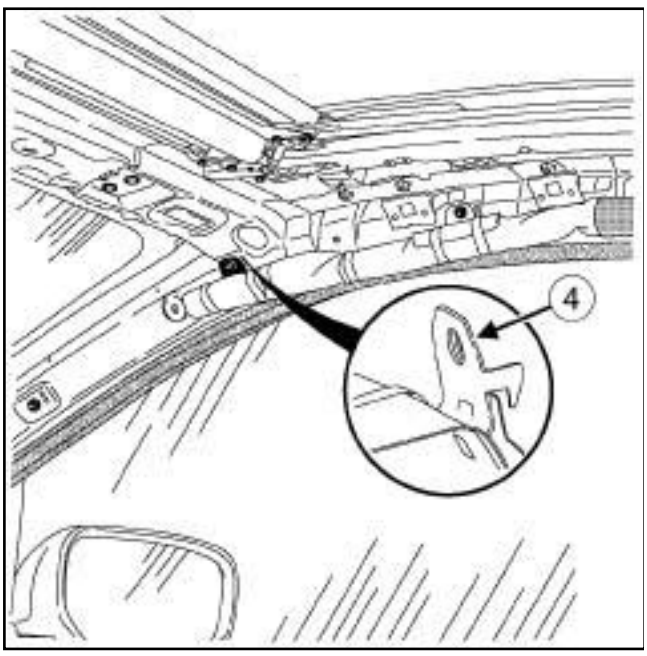



130877

❑ Disconnect the connector (**3**) from the side curtain airbag.

❑ Remove the side curtain airbag bolts.




130878

❑ Unclip the side curtain airbag mounting brackets (**4**) .

❑ Remove the side curtain airbag.

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the side curtain airbag bolts.

**IMPORTANT**

In order to ensure that the side curtain airbag mountings are secure, never refit a side curtain airbag which has been removed.

**IMPORTANT**

After a seat belt pyrotechnic component is triggered, it is essential to replace certain parts (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the side curtain airbag.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- ❏ Attach the side curtain airbag mounting brackets.
- ❏ Refit the new side curtain airbag bolts.
- ❏ Torque tighten the **side curtain airbag bolts (11 N.m)**.
- ❏ Connect the side curtain airbag connector.
- ❏ Check that the side curtain airbag connector is correctly locked.

**III - FINAL OPERATION**

- ❏ Refit the headlining (see **Headlining: Removal - Refitting**) (71A, Body internal trim).
- ❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .


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| Tightening torques ▽ | |
|---|---|
| side impact sensor nuts11 | N.m |

**IMPORTANT**
To avoid any risk of damaging the systems, apply the instructions relating to safety and cleanliness and the operation recommendations before carrying out the repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

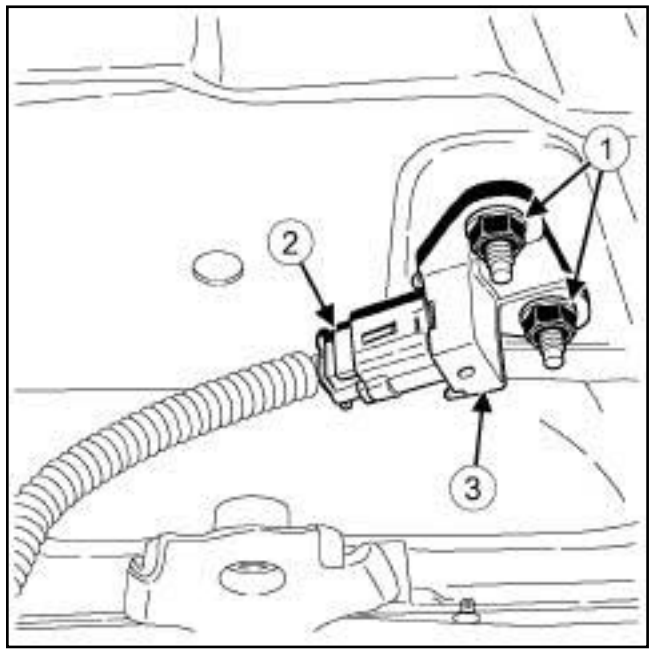
❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove the front pyrotechnic inertia reel (see **88C**, **Air bag and Pretensioners**, **Front side seat belt: Removal - Refitting**, page **88C-27**) .

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130879

❑ Remove the nuts (**1**) from the side impact sensor.

❑ Disconnect the connector ***(2)*** from the side impact sensor.

❑ Remove the side impact sensor ***(3)*** .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the side impact sensor nuts.

### II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the side impact sensor,

- the new side impact sensor nuts.

❑ Torque tighten the **side impact sensor nuts11 (N.m)**.

❑ Connect the side impact sensor connector.

### III - FINAL OPERATION.

❑ Refit the front pyrotechnic inertia reel (see **88C**, **Air bag and Pretensioners**, **Front side seat belt: Removal - Refitting**, page **88C-27**) .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❑ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .


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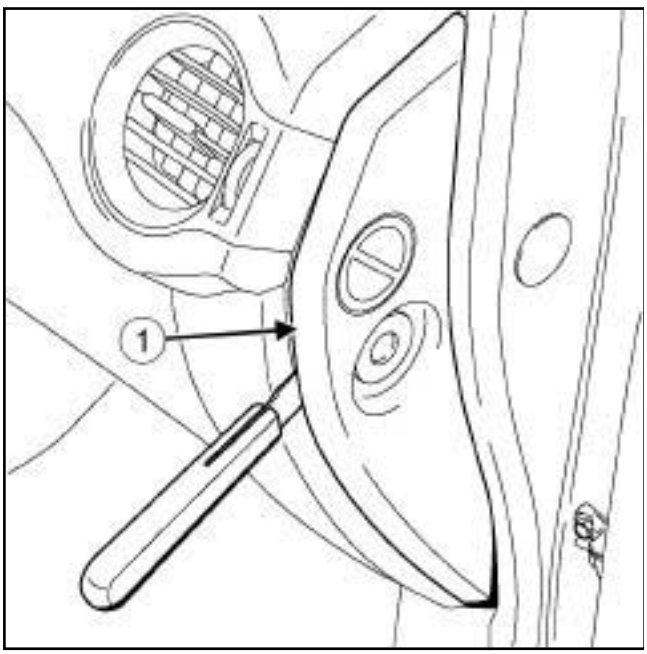
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

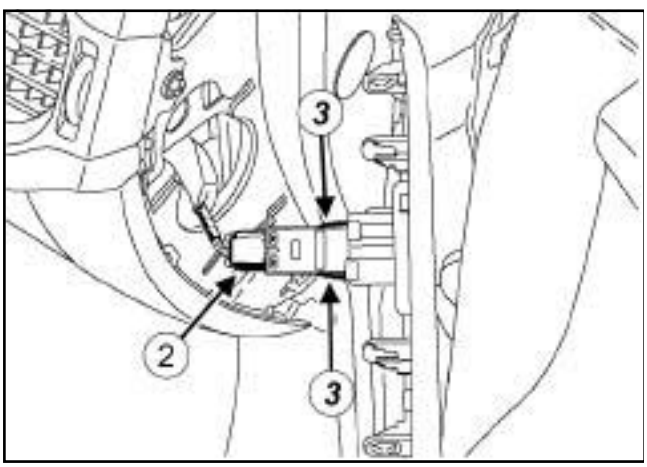
❏ Switch off the ignition.

### II - OPERATION FOR REMOVAL OF PART CONCERNED




130968

❏ Unclip the side panel (**1**) using the tool **(Car. 1363)**.




131075

❏ Disconnect the inhibitor switch connector (**2**) .

❏ Remove the inhibitor switch by pressing on the clips ***(3)*** .

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the inhibitor switch on the side panel.

❏ Connect inhibitor switch connector.

❏ Clip the side panel onto the dashboard.

### II - FINAL OPERATION.

❏ Check:

- the operation of the deactivation switch,
- the « airbag OFF » warning light on the instrument panel.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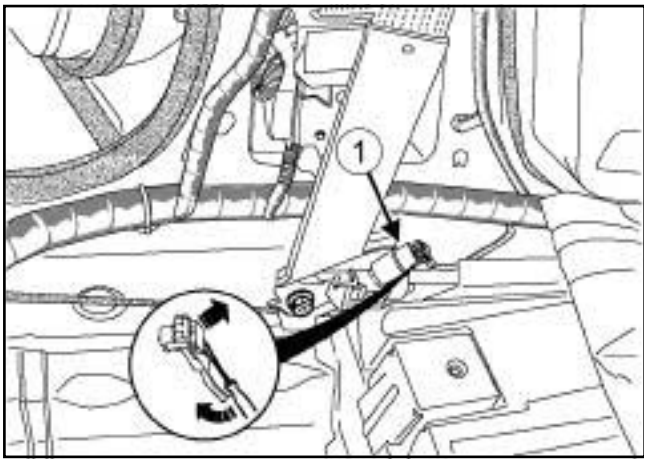

130880

Note:

The front side seat lap belt pretensioner (**1**) cannot be separated from the front side seat belt. In the event of a fault, replace the front side seat belt (see **88C**, **Air bag and Pretensioners**, **Front side seat belt: Removal - Refitting**, page **88C-27**) .


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| Tightening torques ▽ | |
|---|---|
| driver's side front seat belt buckle bolt | **49 N.m** |
| passenger side front seat belt buckle bolt | **49 N.m** |

**IMPORTANT**
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **88C**, **Air bag and Pretensioners**, **Air-bag and Pretensioners: Precautions for repair**, page **88C-6**) .

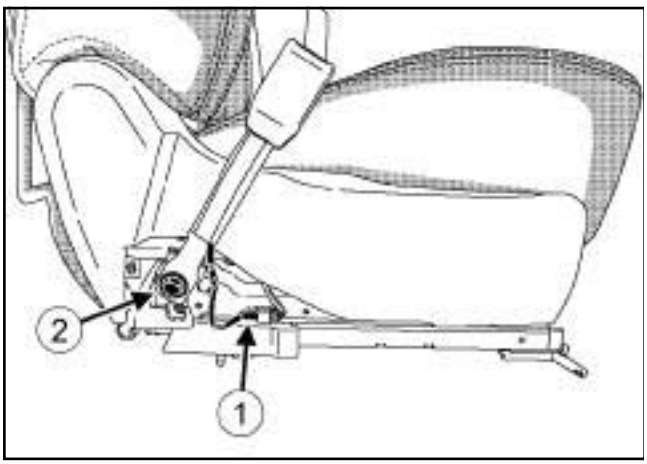
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners).

### II - OPERATION FOR REMOVAL OF PART CONCERNED

#### 1 - Driver's side front seat belt buckle



130881

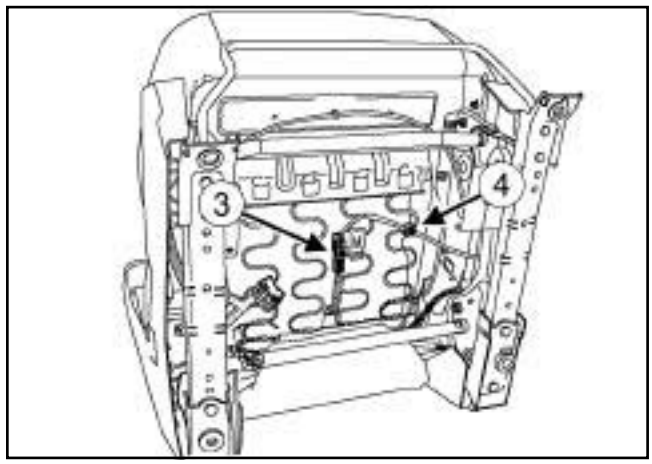
❏ Disconnect the font seat belt buckle connector (**1**) .

❏ Remove:

- the bolt ***(2)*** from the front seat belt buckle,
- the front seat belt buckle.

#### 2 - Passenger side front seat belt buckle

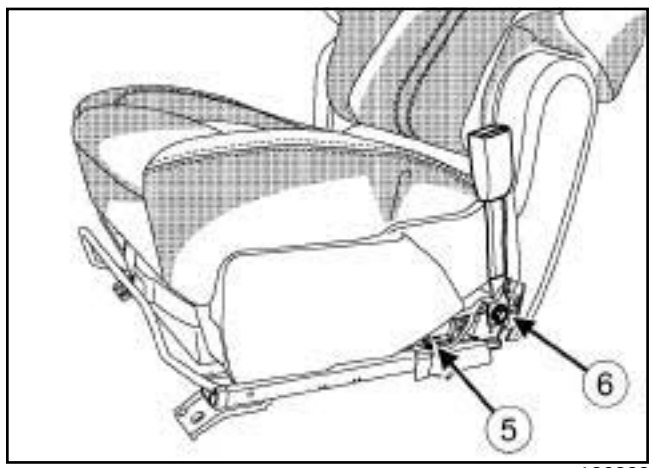
❏ Remove the flap and the storage compartment underneath the seat (see **Underseat flap and storage: Removal - Refitting**) (57A, Interior equipment).



130882

❏ Disconnect the connector (**3**) from the passenger presence sensor.

❏ Remove the clip ***(4)*** .



130883

❏ Disconnect the font seat belt buckle connector (**5**) .

❏ Remove:

- the bolt ***(6)*** from the front seat belt buckle,
- the front seat belt buckle.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## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Driver's side front seat belt buckle**

❏ Refit the front seat belt buckle.

❏ Torque tighten the **driver's side front seat belt buckle bolt (49 N.m)**.

❏ Connect the front seat belt stalk connector.

**2 - Passenger side front seat belt buckle**

❏ Refit the front seat belt buckle.

❏ Torque tighten the **passenger side front seat belt buckle bolt (49 N.m)**.

❏ Connect the front seat belt stalk connector.

❏ Refit the clip.

❏ Connect the connector for the passenger presence sensor.

❏ Refit the flap and the storage compartment underneath the seat (see **Underseat flap and storage: Removal - Refitting**) (57A, Interior equipment).

### II - FINAL OPERATION.

❏ Refit the front seat (see **Complete front seat: Removal - Refitting**) (75A, Front seat frames and runners).


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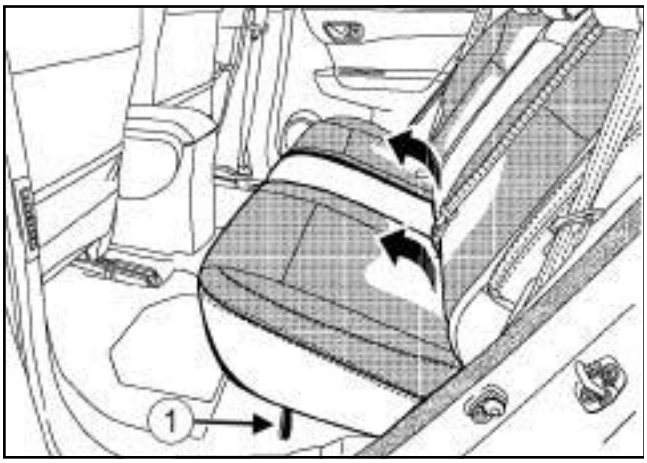
| Tightening torques ▽ | |
|---|---|
| rear seat belt buckle bolts | **49 N.m** |

## REMOVAL

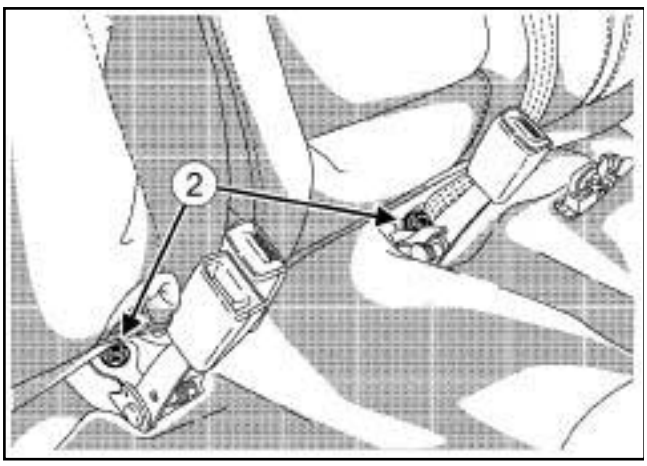
### OPERATION FOR REMOVAL OF PART CONCERNED




130884

❏ Pull the tabs (**1**) on each side of the bench seat.

❏ Fold the rear seat base down in the direction of the arrows.




130885

❏ Remove:

- the bolts (**2**) from the rear seat belt buckles,
- the rear seat belt buckles.

## REFITTING

### REFITTING OPERATION FOR PART CONCERNED

❏ Refit the rear seat belt buckles.

❏ Torque tighten the **rear seat belt buckle bolts (49 N.m)**.

❏ Fit the rear seat base in place.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| Tightening torques ▽ | |
|---|---|
| front lap belt pretensioner bolt | **49 N.m** |
| front pyrotechnic inertia reel bolt | **49 N.m** |
| front side seat belt | **upper bolt49 N.m** |
| front pyrotechnic inertia reel bolt49 | **N.m** |
| front side seat belt lower bolt49 | **N.m** |
| front side seat belt | **upper bolt49 N.m** |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏

**IMPORTANT**
Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

❏ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

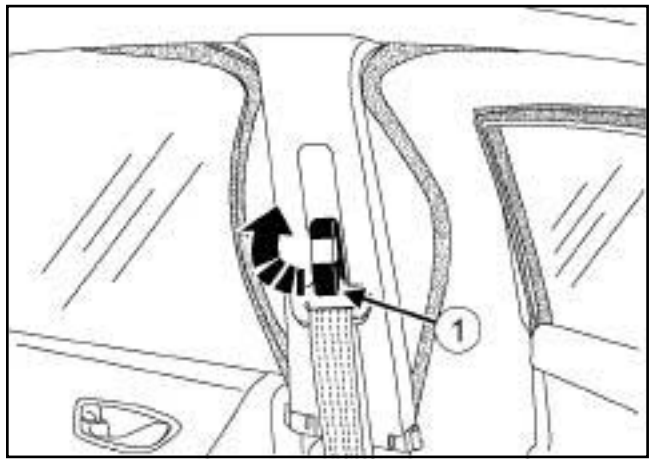
❏ Remove:

- the front sill panel trim (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim).

❏ Move the front seat as far forward as possible.

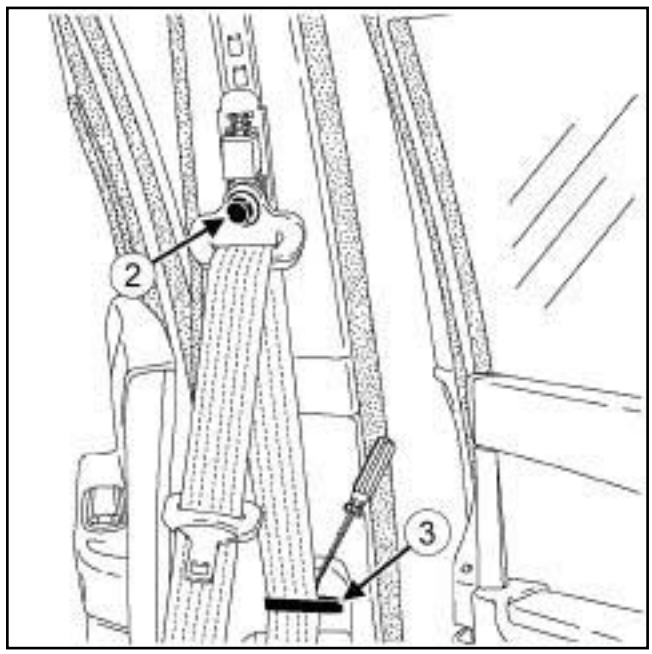
❏ Partially pull up the edge of the floor carpet around the B-pillar trim.

### II - OPERATION FOR REMOVAL OF PART CONCERNED



130886

❏ Remove cover (**1**) .



130887

❏ Remove the front side seat belt upper bolt (**2**) .

❏ Detach the front side seat belt guide (**3**) .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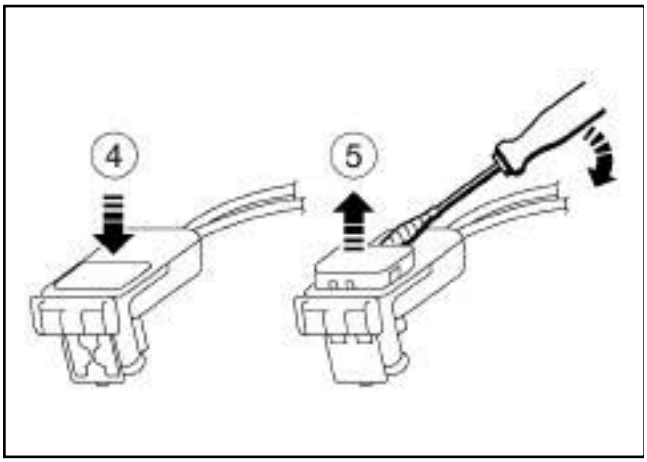


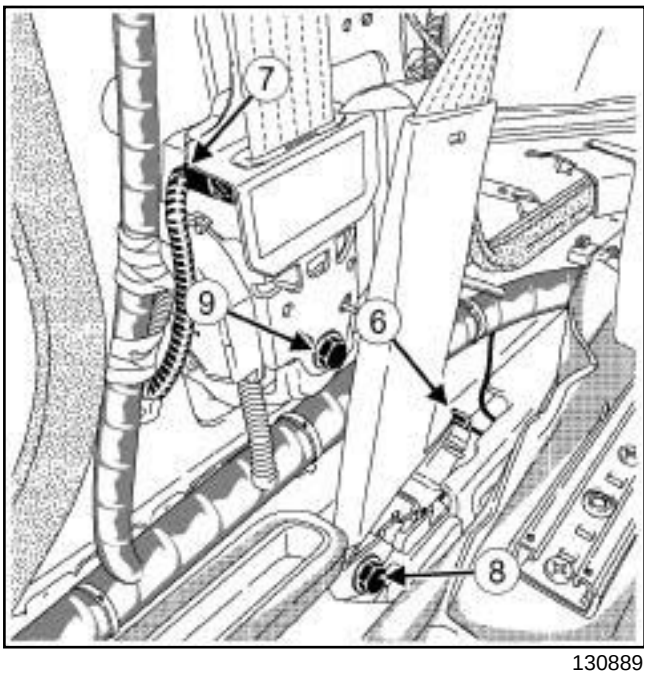

130876

❏

Note:

To disconnect the airbag connector, insert a flat-blade screwdriver wrapped in adhesive tape in the notch (**4**) , lift the security device (**5**) and disconnect the connector.

**1 - Driver's side front side seat belt**




130889

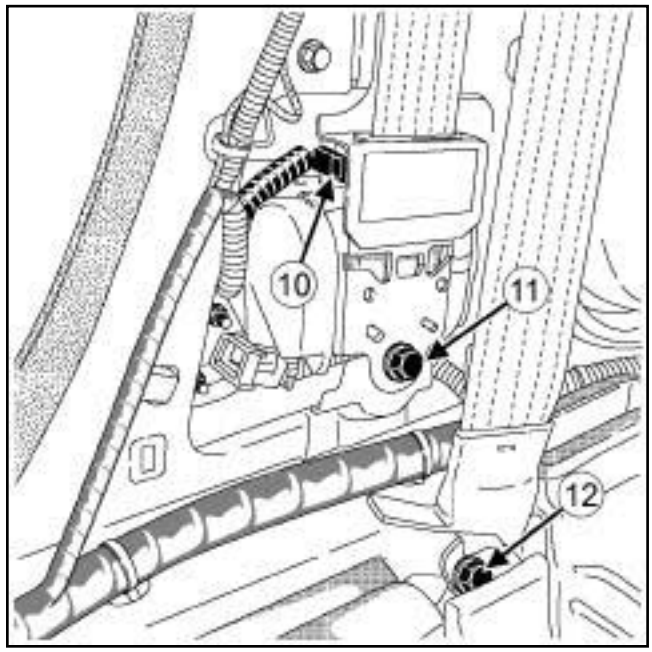
❏ Disconnect:

- the connector (**6**) for the front lap belt pretensioner,
- the connector (**7**) for the front pyrotechnic inertia reel.

❏ Remove:

- the bolt ***(8)*** from the front lap belt pretensioner,
- the front lap belt pretensioner,
- the front pyrotechnic inertia reel bolt ***(9)*** ,
- the front pyrotechnic seat belt inertia reel,
- the « front side seat belt - front pyrotechnic inertia reel - front lap belt pretensioner » assembly.

**2 - Passenger side front side seat belt**




130890

❏ Disconnect the connector (**10**) from the front pyrotechnic inertia reel.

❏ Remove:

- the front pyrotechnic inertia reel bolt ***(11)*** ,
- the lower bolt ***(12)*** for the front side seat belt,
- the « front side seat belt - front pyrotechnic inertia reel » assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

**1 - Driver's side front side seat belt**

❏ Fit the « front side seat belt - front pyrotechnic inertia reel - front lap belt pretensioner » assembly in place.

❏ Refit:

- the front lap belt pretensioner,
- the front lap belt pretensioner bolt,
- the front pyrotechnic seat belt inertia reel,
- the front pyrotechnic inertia reel bolt.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❏ Torque tighten:

- the **front lap belt pretensioner bolt (49 N.m)**,
- the **front pyrotechnic inertia reel bolt (49 N.m)**.

❏ Connect:

- the connector for the front lap belt pretensioner,
- the connector for the front pyrotechnic inertia reel.

❏ Connect the front pyrotechnic inertia reel connector.

❏ Refit:

- the front side seat belt guide,
- the upper bolt for the front side seatbelt.

❏ Torque tighten the **front side seat belt (upper bolt49 N.m)**.

❏ Refit the cover.

**2 - Passenger side front side seat belt**

❏ Fit the « front side seat belt - front pyrotechnic inertia reel » assembly in place.

❏ Refit:

- the front pyrotechnic seat belt inertia reel,
- the front pyrotechnic inertia reel bolt,
- the lower bolt for the front side seat belt.

❏ Torque tighten:

- the **front pyrotechnic inertia reel bolt49 (N.m)**,
- the **front side seat belt lower bolt49 (N.m)**.

❏ Connect the front pyrotechnic inertia reel connector.

❏ Refit:

- the front side seat belt guide,
- the upper bolt for the front side seatbelt.

❏ Torque tighten the **front side seat belt (upper bolt49 N.m)**.

❏ Refit the cover.

**II - FINAL OPERATION.**

❏ Position the floor carpet.

❏ Refit:

- the B-pillar trim (see **B-pillar trim: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the front sill panel trim (see **Front door sill lining: Removal - Refitting**) (71A, Body internal trim).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

**IMPORTANT**

To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recycling - Destruction**, page **88C-7**) .


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| Tightening torques ▽ | |
|---|---|
| rear side seat belt automatic inertia reel bolt | **49 N.m** |
| rear side seat belt lower bolt | **49 N.m** |
| rear side seat belt upper bolt | **49 N.m** |

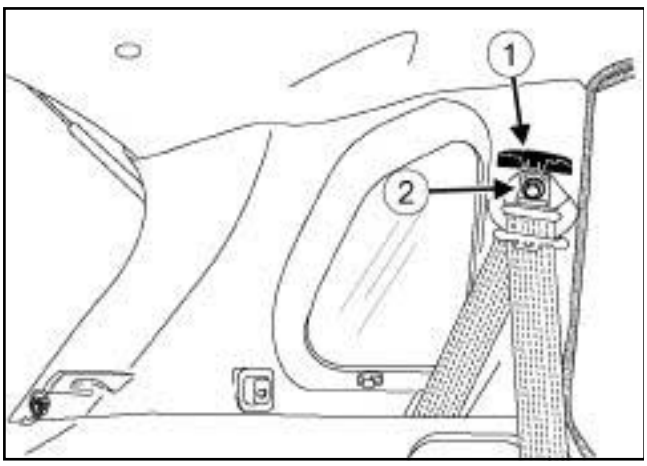
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear panel trim (see **Rear end panel lining: Removal - Refitting**) (71A, Body internal trim).

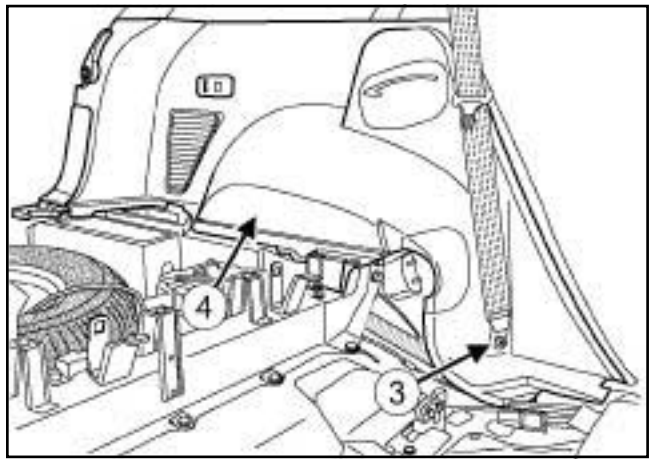
### II - OPERATION FOR REMOVAL OF PART CONCERNED



130891

❑ Open the cover (**1**) of the rear side seat belt upper bolt.

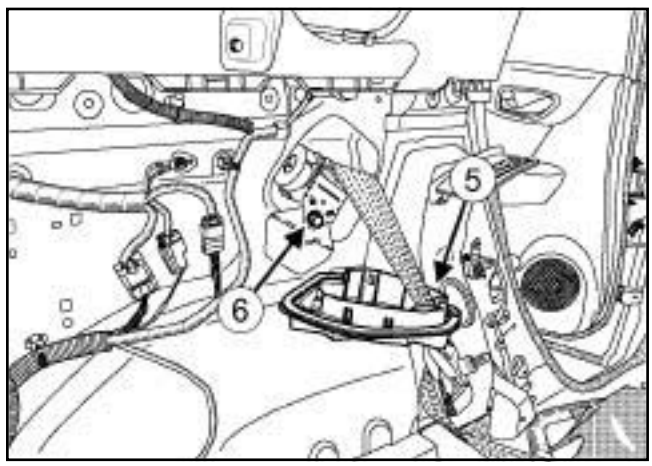
❑ Remove the rear side seat belt upper bolt ***(2)*** .



130892

❑ Remove:

- the cover of the rear side seat belt lower bolt,
- the rear side seat belt lower bolt (**3**) ,
- the rear pillar lower trim (**4**) (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim).



130893

❑ Remove:

- the rear side seat belt cover (**5**) ,
- the rear side seat belt automatic inertia reel bolt (**6**) ,
- the « rear side seat belt - rear side seat belt automatic inertia reel » assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the « rear side seat belt - rear side seat belt automatic inertia reel » assembly in place.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❑ Refit:

- the rear side seat belt automatic inertia reel bolt,
- the rear side seat belt cover.

❑ Torque tighten the **rear side seat belt automatic inertia reel bolt (49 N.m)**.

❑ Refit:

- the lower trim of the C-pillar (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the rear side seat belt lower bolt.

❑ Torque tighten the **rear side seat belt lower bolt (49 N.m)**.

❑ Refit:

- the cover of the rear side seat belt lower bolt,
- the rear side seat belt upper bolt.

❑ Torque tighten the **rear side seat belt upper bolt (49 N.m)**.

❑ Refit the cover of the rear side seat belt upper bolt.

**II - FINAL OPERATION.**

❑ Refit:

- the rear panel trim (see **Rear end panel lining: Removal - Refitting**) (71A, Body internal trim),
- the luggage compartment floor trim (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the rear inner sill trim (see **Rear door sill lining: Removal - Refitting**) (71A, Body internal trim),
- the rear parcel shelf (see **Rear parcel shelf: Removal - Refitting**) (57A, Interior equipment).


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| Tightening torques ▽ | |
|---|---|
| rear centre seat belt automatic inertia reel bolt | **49 N.m** |

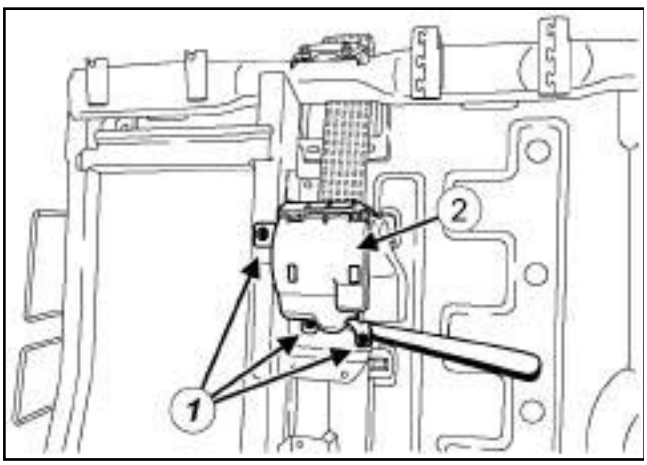
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the headrests from the rear seats,
- the rear centre armrest (see **Rear centre arm rest: Removal - Refitting**) (79A, Seat accessories),
- the rear seat backrest (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- the rear seat backrest trim (see **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**) (78A, Rear seat trim).

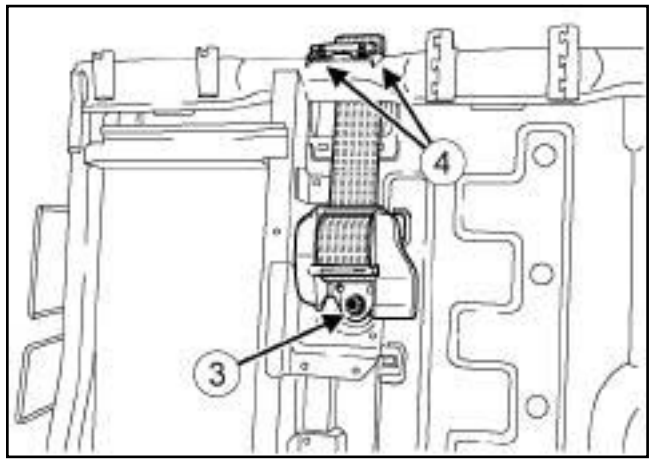
### II - OPERATION FOR REMOVAL OF PART CONCERNED




130894

❑ Remove:

- the clips (**1**) ,
- the rear centre seat belt automatic inertia reel cover (**2**) .




130895

❑ Remove:

- the rear centre seat belt automatic inertia reel bolt (**3**) ,
- the nuts (**4**) for the rear centre seat belt guide,
- the « rear centre seat belt - rear centre seat belt automatic inertia reel » assembly.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the « rear centre seat belt - rear centre seat belt automatic inertia reel » assembly in place.

❑ Refit:

- the rear centre seat belt automatic inertia reel bolt,
- the nuts for the rear centre seat belt guide.

❑ Torque tighten the **rear centre seat belt automatic inertia reel bolt (49 N.m)**.

❑ Refit:

- the rear centre seat belt automatic inertia reel cover
- the clips.

### II - FINAL OPERATION.

❑ Refit:

- the rear seat backrest trim (see **1/3 and 2/3 rear bench seat seatback trim: Removal - Refitting**) (78A, Rear seat trim),
- the rear seat backrest (see **Complete rear seat: Removal - Refitting**) (76A, Rear seat frames and runners),
- the rear centre armrest (see **Rear centre arm rest: Removal - Refitting**) (79A, Seat accessories),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- the rear seat headrests.


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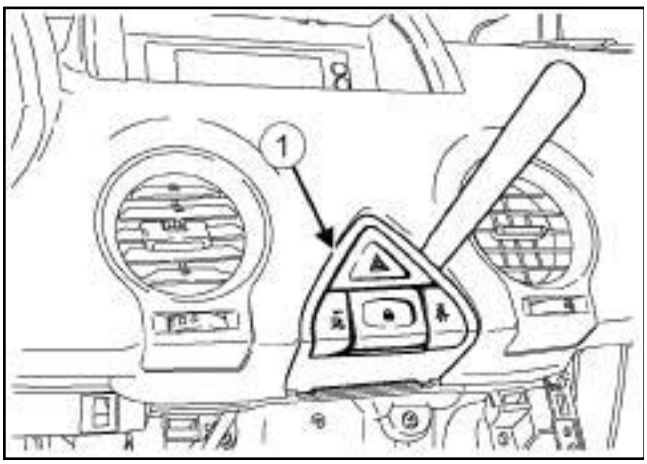
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).

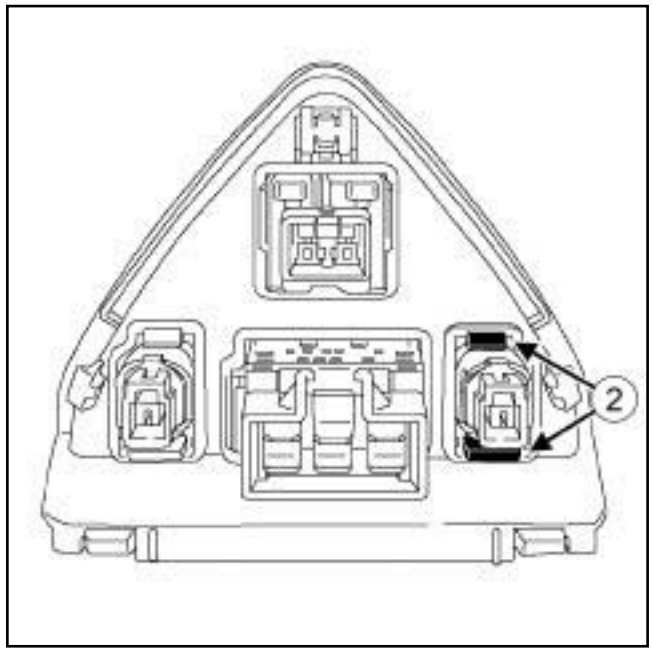
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131494

❏ Remove the hazard warning light switches and the central locking switches (**1**) using the tool **(Car. 1363)**.

❏ Disconnect the connectors.




131495

❏ Unclip the clips (**2**) on both sides.

❏ Remove the passenger front airbag deactivation switch warning light.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the passenger front airbag deactivation switch warning light.

❏ Connect the connectors.

❏ Refit the hazard warning light switches and the central locking switches.

### II - FINAL OPERATION.

❏ Refit the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).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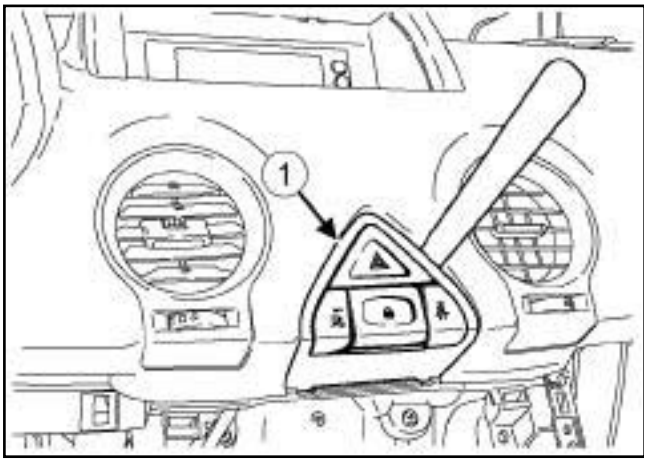
| Essential special toolingEssential special tooling Essential special tooling | |
|---|---|
| **Car. 1363** | Set of trim removal levers. |

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

❏ Remove the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).

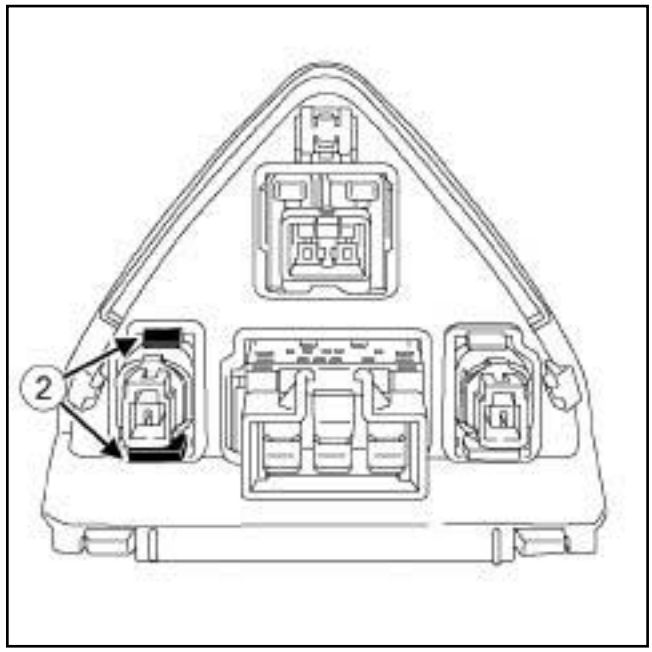
### II - OPERATION FOR REMOVAL OF PART CONCERNED




131496

❏ Remove the hazard warning light switches and the central locking switches (**1**) using the tool **(Car. 1363)**.

❏ Disconnect the connectors.




131497

❏ Unclip the clips (**2**) on both sides.

❏ Remove the passenger seat belt warning light.

## REFITTING

### I - REFITTING OPERATION FOR PART CONCERNED

❏ Refit the passenger seat belt warning light.

❏ Connect the connectors.

❏ Refit the hazard warning light switches and the central locking switches.

### II - FINAL OPERATION.

❏ Refit the control panel (see **Control panel: Removal - Refitting**) (61A, Heating).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| Tightening torques ▽ | |
|---|---|
| front impact sensor nuts | **11 N.m** |

**IMPORTANT**
To avoid any risk of damaging the systems, apply the instructions relating to safety and cleanliness and the operation recommendations before carrying out the repair (see **88C**, **Air bag and Pretensioners**, **Airbag and Pretensioners: Precautions for repair**, page **88C-6**) .

**IMPORTANT**
To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only (see **88C**, **Air bag and Pretensioners**, **Airbags and pretensioners: Recyding - Destruction**, page **88C-7**) .

## REMOVAL

### I - REMOVAL PREPARATION OPERATION

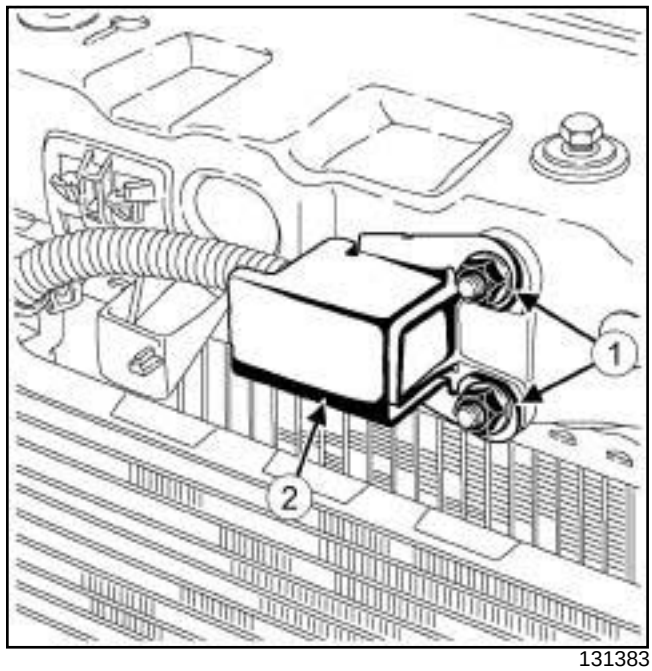
❑

**IMPORTANT**
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

❑ Disconnect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .

❑ Remove the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

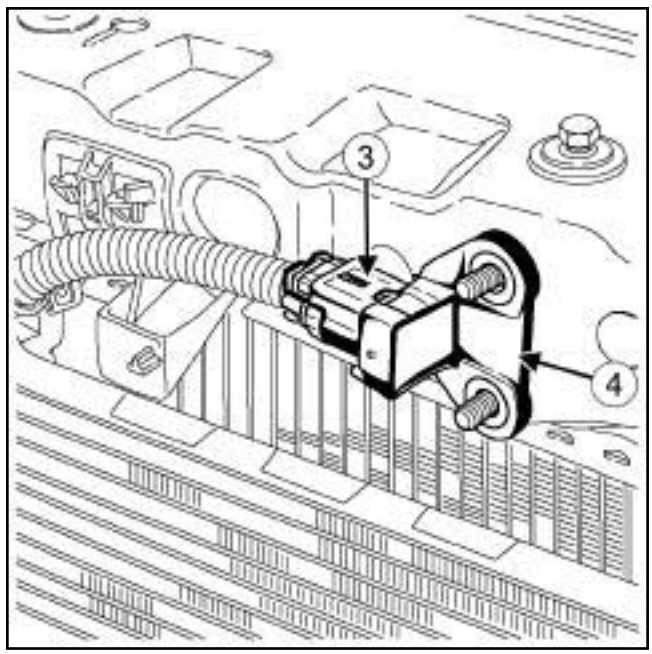
### II - REMOVAL OF PART CONCERNED



131383

❑ Remove:

- the front impact sensor nuts (**1**) ,
- the front impact sensor cover (**2**) .



131384

❑ Disconnect the front impact sensor connector (**3**) .

❑ Remove the front impact sensor ***(4)*** .

## REFITTING

### I - REFITTING PREPARATION OPERATION

❑ Always replace the front impact sensor nuts.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**II - REFITTING PART CONCERNED**

❏ Refit the front impact sensor.

❏ Connect the front impact sensor connector.

❏ Refit:

- the front impact sensor cover,
- the front impact sensor nuts.

❏ Torque tighten the **front impact sensor nuts (11 N.m)**.

**III - FINAL OPERATION.**

❏ Refit the front bumper (see **Front bumper: Removal - Refitting**) (55A, Exterior protection).

❏ Connect the battery (see **80A**, **Battery**, **Battery : Removal - Refitting**, page **80A-3**) .


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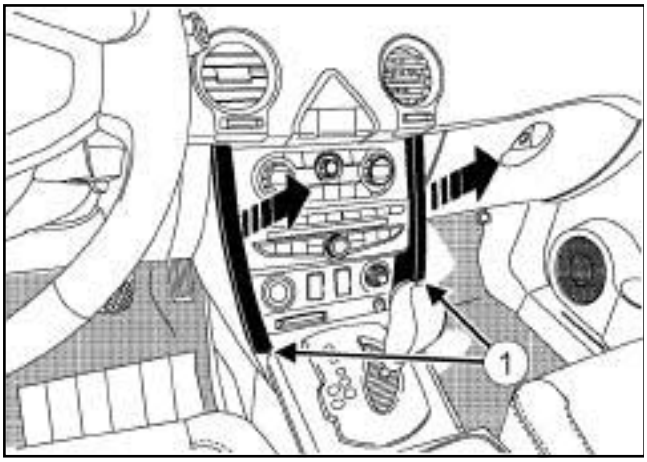
## REMOVAL

### I - REMOVAL PREPARATION OPERATION

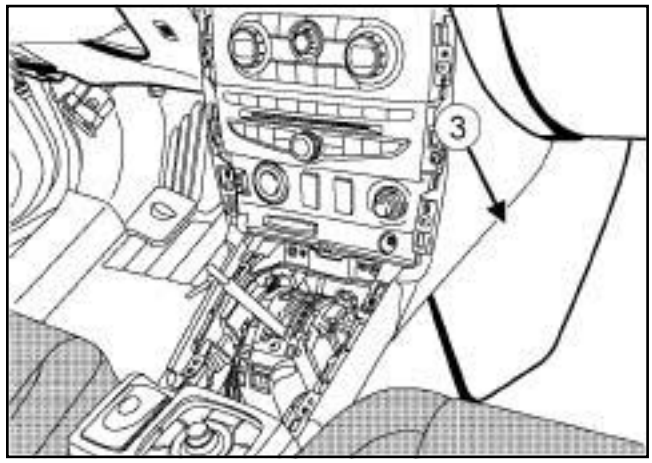



130758

❏ Remove the centre front panel side trim (**1**) .

131579

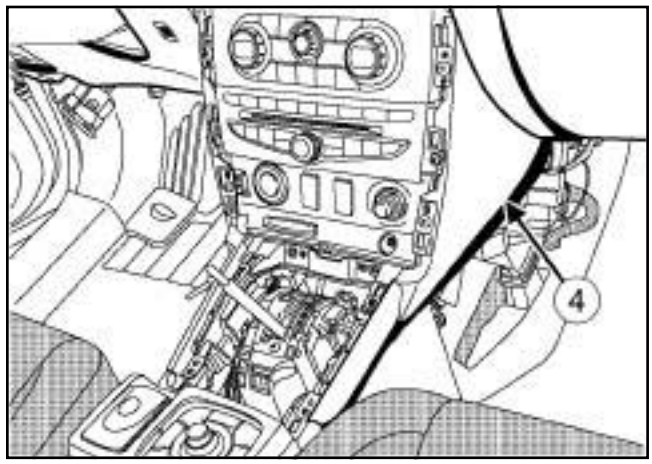
❏ Remove the plate (**2**) from the gear lever (see **Centre console: Removal - Refitting**) (57A, Interior equipment).




131580

❏ Remove:

- the lower covers (**3**) from the centre panel on both sides,
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).




131581

❏ Remove:

- the lower trims (**4**) from the centre panel on both sides,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) .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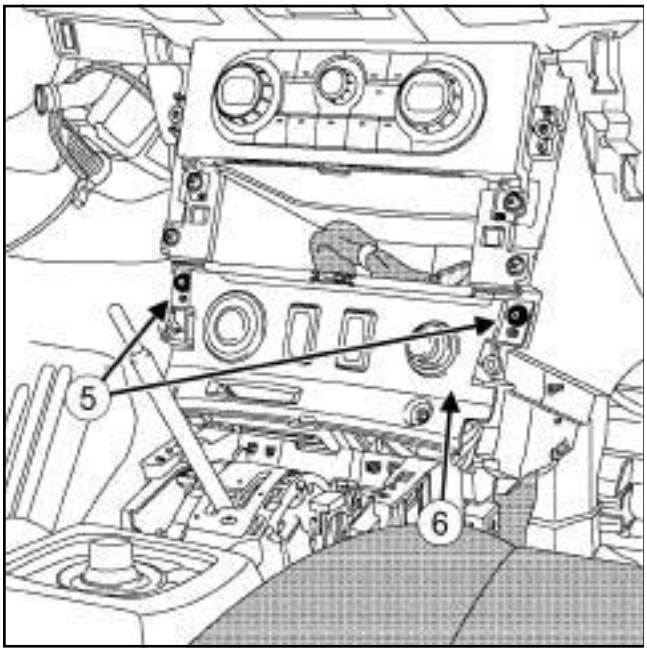


131582

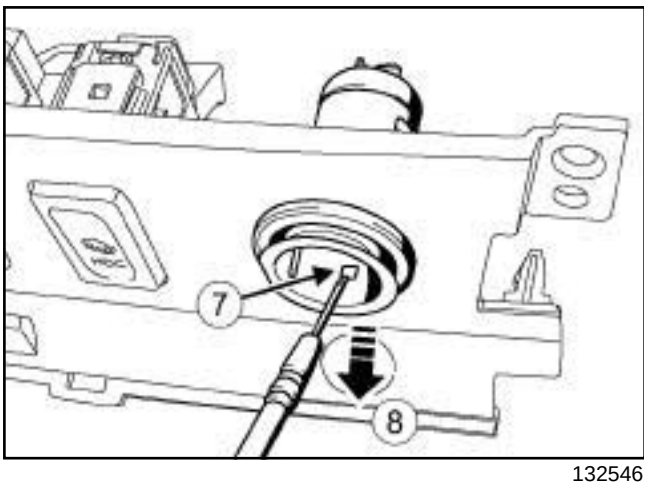
❏ Remove:

- the starter control panel bolts (**5**) ,
- the starter control panel (**6**) .

❏ Disconnect the connectors.

**II - OPERATION FOR REMOVAL OF PART CONCERNED**

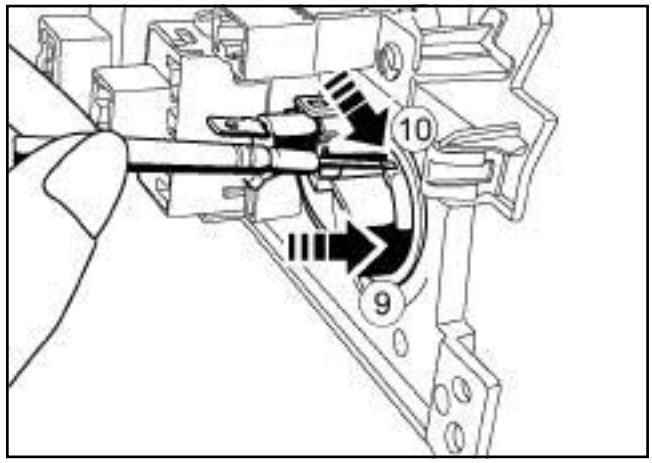
❏ Remove the cigarette lighter.



132546

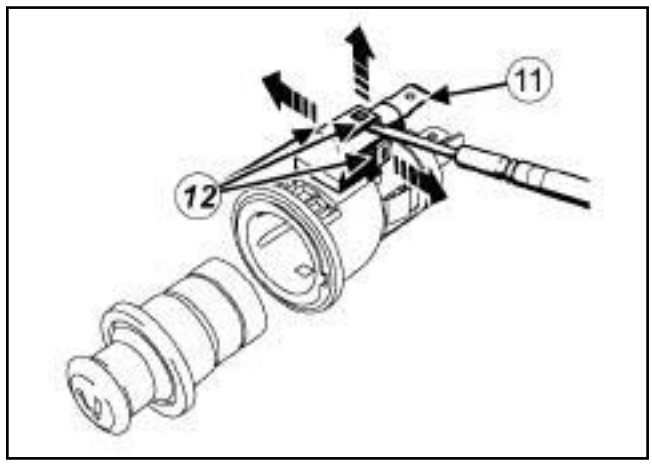
❏ Keep the plastic support unlocked at (**7**) using a small flat-blade screwdriver.

❏ Remove the cigarette lighter support in the direction of ***(8)*** .



132547

❏ Remove the cigarette lighter socket in the direction of (**9**) by moving it in the direction of (**10**) using a small flat-blade screwdriver.



132548

❏ Unclip the bulb support (**11**) by pulling on the clips (**12**) using a flat-blade screwdriver.

## REFITTING

**I - REFITTING OPERATION FOR PART CONCERNED**

❏ Clip on the bulb mounting.

❏ Refit:

- the cigarette lighter socket on the fascia panel,
- the cigarette lighter mounting,
- the cigarette lighter.

**II - FINAL OPERATION.**

❏ Connect the connectors.

❏ Refit:

- the starter control panel,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- the starter control panel bolts,
- the radio (see **86A**, **Radio**, **Car radio: Removal - Refitting**, page **86A-4**) ,
- the CD multi-changer (see **86A**, **Radio**, **CD changer: Removal - Refitting**, page **86A-14**) ,
- the centre panel lower trims on both sides,
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the glovebox (see **Glovebox: Removal - Refitting**) ( 57A, Interior equipment),
- the centre panel lower covers on both sides,
- the gear lever plate (see **Centre console: Removal - Refitting**) (57A, Interior equipment),
- the centre front panel side trim.


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