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Summary

Alarm

Analytical Charts

Electrical Equipment

Electrical Systems

Instrument Panel Japan

Bodywork

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4A145V

SERVICE MANUAL COMPOSITION

At present, September 1998, the **Bravo-Brava 2nd volume manual** is composed of the following booklets;

Print N°	Sections	Page Nos.	Comments
506.670/01 With binder (V/1995)	**50**	1 ÷ 43	Heater - Air conditioning
	55	1 ÷ 154	Electrical equipment
		1 ÷ 55	Wiring diagrams
	70	1 ÷ 145	Removing & refitting - Replacing body panels
506.670/02 (V/1995)	**55**	16	Update: alarm
		4	Pre-heating
		1 ÷ 103	Wiring diagrams
		105 ÷ 161	Connector blocks
		1 ÷ 117	Electrical equipment fault diagnosis
506.670/05 (II/1996)	**55**	11	Update: 4D 182L radio
506.670/06 (IV/1996)	**55**	32	Update: AD 182H radio
		20	Update: alarm
		1	Update: code
		3	Wiring diagrams update
		1	Update: connections
506.670/10 (I/1997)	**55**	8	Wiring diagrams update
506.670/11 (VI/1997)	**55**	6	Wiring diagrams
506.670/12 (VII/1997)	**50**	1	Climate control
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Print N°	Sections	Page Nos.	Comments
506.670/14 (III/1998)	**55**	6	Alarm
	55	26	Air bag
506.670/15 (V/1998)	**55**	1÷6	Japanese version
	70	19÷24 24/1÷24/4	Update: Seats
506.670/16 (IX/1998)	**55**	43÷44	Update: Wiring diagrams

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WORKSHOP MANUAL COMPOSITION

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Publication no.	Sections	Page numbers	Notes
506.670/01 With binder (V/1995)	**50**	1 - 43	Heater - Air conditioner
	55	1 - 154	Electrical equipment
		1 - 55	Wiring diagrams
	70	1 - 145	Removal and refitting - Replacing panels
506.670/02 (V/1995)	**55**	16	Updated alarm system
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		1 - 103	Wiring diagrams
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506.670/05 (II/1996)	**55**	11	Updated radio 4D 182L
506.670/06 (IV/1996)	**55**	32	Updated radio AD 182H
		20	Updated alarm system
		1	Updated code
		3	Updated wiring diagrams
		1	Updated connections
506.670/10 (I/1997)	**55**	8	Updated wiring diagrams
506.670/11 (VI/1997)	**55**	6	Wiring diagrams
506.670/12 (VII/1997)	**50**	1	Air conditioner
	55	2	Car radio
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Publication no.	Sections	Page numbers	Notes
506.670/14 (III/1998)	**55**	6	Alarm
	55	26	Air bag
506.670/15 (V/1998)	**55**	1-6	Japanese version
	70	19-24 24/1-24/4	Update: Seats

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SERVICE MANUAL COMPOSITION

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Print No.	Sections	Page Nos.	Comments
506.670/01 With binder (V/1995)	**50**	1 ÷ 43	Heater - Air conditioning
	55	1 ÷ 154	Electrical equipment
		1 ÷ 55	Wiring diagrams
	70	1 ÷ 145	Removing and refitting - Replacing body panels
506.670/02 (V/1995)	**55**	16	Alarm update
		4	Pre-heating
		1 ÷ 103	Wiring diagrams
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506.670/05 (II/1996)	**55**	11	4D 182L radio update
506.670/06 (IV/1996)	**55**	32	AD 182H radio update
		20	Alarm update
		1	Code update
		3	Wiring diagrams update
		1	Connections update
506.670/10 (I/1997)	**55**	8	Wiring diagrams update

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WORKSHOP MANUAL COMPOSITION

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Publication no.	Sections	Page numbers	Notes
506.670/01 With binder (V/1995)	**50**	1 - 43	Heater - Air conditioner
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506.670/02 (V/1995)	**55**	16	Updated alarm system
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506.670/05 (II/1996)	**55**	11	Updated radio 4D 182L
506.670/06 (IV/1996)	**55**	32	Updated radio AD 182H
		20	Updated alarm system
		1	Updated code system
		3	Updated wiring diagrams
		1	Updated connections
506.670/10 (I/1997)	**55**	8	Updated wiring diagrams
506.670/11 (VI/1997)	**55**	6	Wiring diagrams
506.670/12 (VII/1997)	**50**	1	Air conditioner
	55	2	Car radio
		23	Alarm
		6	Alarm
	70	6	Roof panel trim

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	55	26	Air bag

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	55	1 ÷ 154	Electrical equipment
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506.670/05 (II/1996)	**55**	11	4D 182L radio update
506.670/06 (IV/1996)	**55**	32	AD 182H radio update
		20	Alarm update
		1	Code update
		3	Wiring diagrams update
		1	Connections update

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		1 ÷ 55	Wiring diagrams
	70	1 ÷ 145	Removing & refitting - Replacing body panels

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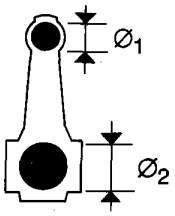
This manual contains the main instructions for repairing and maintaining the **Fiat Bravo and Fiat Brava.**

The manual is divided into sections distinguished by two digit numbers which appear in the parts microfiches and the flat rate manual.
The section **INTRODUCTION AND TECHNICAL DATA (00.)** has a dual function of introducing the model and supporting the remaining part of the manual. This section includes the tables of technical data and specific information relating to the sections in the remaining part of the man.

The remaining sections (10. - 18. etc.) include descriptions of the repair operations.

This manual contains graphic representations and symbols in place of descriptions for mechanical components, operations and repair methods.

For example:



Small end diameter

Big end bearing housing

Tighten to torque

ENGINES *Section 10 contains illustrations of the operations of removing-refitting the power units, operations on vehicle and the various fuel, lubrication and cooling systems.*

The procedures for overhauling the individual engines are described in other booklets which have the following print nos.:

Engine	Print No.	Part No.
1370 12V	504.589/19	604.89.774
1581 16V	504.589/20	604.89.781
1747 16V	504.589/18	604.89.192
1998 20V	504.589/22	604.89.788
1929 D	504.593/11	604.89.841
1910 TD	504.593/13	604.44.220

The first 4 booklets are inserted in the Overhauling Petrol Engines Manual 3rd volume, whilst the last ones are inserted in the Overhauling Diesel Engines Manual 2nd volume.

GEARBOXES *Section 21-27 contains illustrations of the operations of removing and refitting the various gearboxes. The procedures for overhauling the various manual gearboxes at the bench are published in separate booklets which have the following print nos.:*

505.023/08 Inserted in the Overhauling gearboxes manual
505.023/03 Inserted in the Overhauling gearboxes manual
505.023/18 Inserted in the Overhauling gearboxes manual 2nd volume

THIS PUBLICATION HAS BEEN PRODUCED IN A LOOSE LEAF FORMAT TO FACILITATE THE OPERATION OF UPDATING THE MODEL.

When using chemical products stick closely to the instructions in the safety chart which the supplier must give to the consumer (for Italy in accordance with D.M. no. 46/1992)

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The **Fiat Bravo** is a 2 box, 3 door vehicle with a load carrying structure, transversely mounted engine and front wheel drive

It is produced with 6 different engine types.

The engines have 4 or 5 cylinders in line with clockwise rotation and are mounted transversely at the front.

According to the trim level, the following engines are fitted:

1370 cc four cylinders in line, 12 valves running on unleaded petrol and developing a power output of 59 kW (80 CV) at 6000 rpm.

1581 cc four cylinders in line, 16 valves running on unleaded petrol and developing a power output of 76 kW (103 CV) at 5700 rpm.

1747 cc four cylinders in line, 16 valves running on unleaded petrol and developing a power output of 83 kW (113 CV) at 5800 rpm.

1998 cc five cylinders in line, 20 valves running on unleaded petrol and developing a power output of 108 kW (147 CV) at 6100 rpm.

1929 D cc four cylinders in line, 8 valves, indirect injection running on diesel fuel and developing a power output of 48 kW (65 CV) at 4600 rpm.

1910 TD cc four cylinders in line, 8 valves, indirect injection running on diesel fuel and developing a power output of 74 kW (100 CV) at 4200 rpm.

The **Fiat Brava** is a three box vehicle, with 5 doors, a load carrying structure, transversely mounted engine and front wheel drive

It is produced with 5 different engine types.

The engines are the same as those fitted on the **Fiat Bravo** with the exception of the 1998 cc.

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Remove
Disconnect

Refitting
Connect

Dismantling
Disassemble

Refitting
Composition

Tighten to torque

Tighten to torque
plus angle

Fully tighten

Stake nut

Adjustment
Regulation

Visual inspection
Check

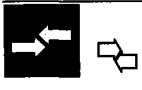
Warning

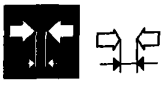
Lubricate
Grease

Replace
Genuine spares

Bleed
braking system

Work surface
Machined surface


Interference
Force fit


Distance to be measured
Measurement – Check
Thickness - Clearance

Rolling torque

Inlet

Exhaust

Operation

Tolerance
Difference in weight

Pre-loading

Rotation

Compression
ratio

Selection
Classes

Oversize
Greater than ....
Maximum

Undersize
Smaller than ....
Idling

Number of revs

Ratio

Pressure

Temperature

Temperature <0°C
Cold
Winter

Temperature >0°C
Hot
Summer

Windscreen wiper
with electric
washer pump

Rearscreen wiper
with electric
washer pump

Engine

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page

ALARM

- Location of components of alarm system 1
- Introduction 2
- Receiver 2
- Remote control 2
- Emergency key switch 3
- Operation 3
- Programming 3
- Simplified programming 4
- Closing the memory 5
- Programming with closed memory 6
- Opening memory and memorizing a new remote control 6
- Replacing alarm control unit 6

For aspects not discussed, refer to the previous Section 55 - Electrical system - Alarm, on pages 134 and following.

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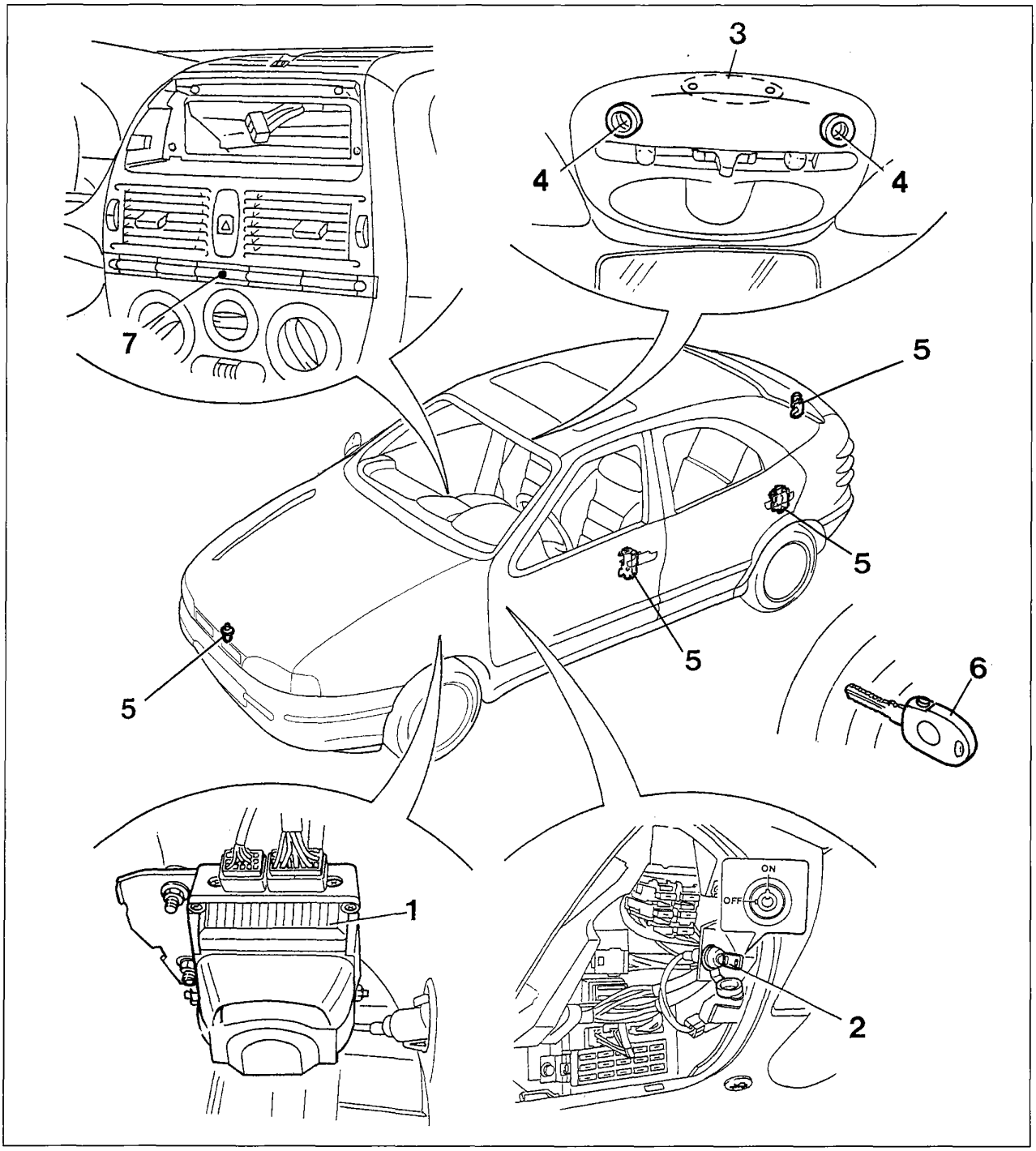
LOCATION OF COMPONENTS OF ALARM SYSTEM



P4A01DL01

1. Alarm control unit
2. Emergency key switch
3. Receiver on front central courtesy light
4. Volumetric sensors on front central courtesy light
5. Doors/bonnet/boot/fuel flap open indicator switches
6. Remote control integrated in the ignition key
7. Warning light / dissuasion LED

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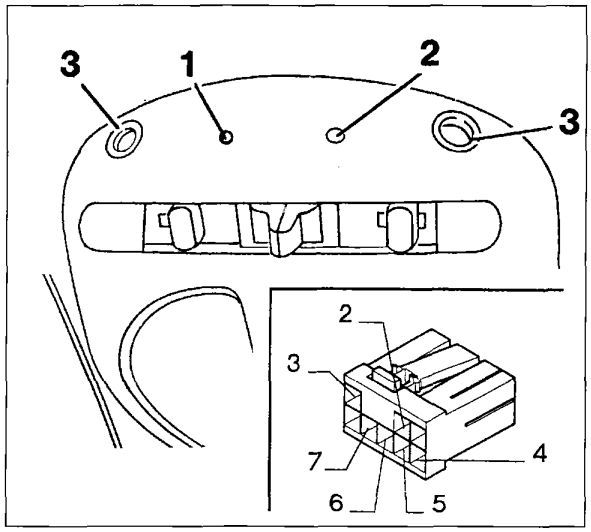
INTRODUCTION

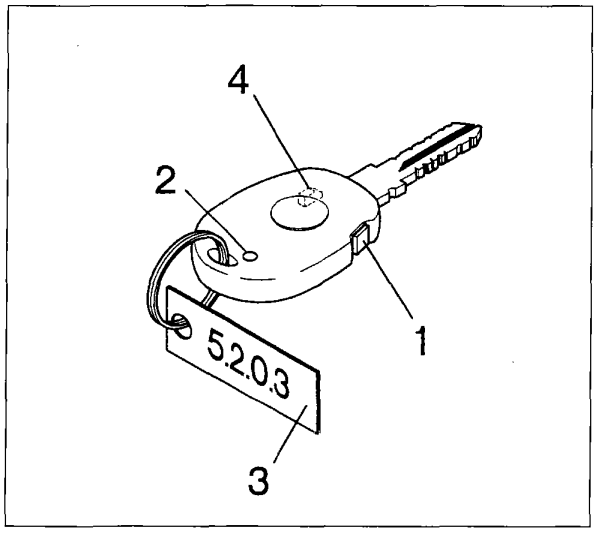
The new V.A.S. (Vehicle Alarm System) radiofrequency alarm system offers volumetric and perimetral protection; it monitors the state of the bonnet, boot, fuel flap and doors and the presence of a moving object in the interior compartment.
This alarm system has the following differences compared with the model fitted previously:
- new radiofrequency receiver, incorporated in the front central courtesy light, with green warning light (LED) (the LED was previously red);
- radiofrequency remote control, integrated in the differently-shaped ignition key;
- new alarm control unit integrated in a self-supplied siren, which is located in the front left wheelarch;
- new method of programming the remote controls.

RECEIVER

The receiver, built into the front central courtesy light, is an electronic device which captures the radiofrequency signal emitted by the remote control and carries out the functions of opening and closing the doors and activating the alarm control unit.
The receiver has a green warning light (LED) (1) which comes on when it receives the signal, while the button (2) allows the code to be memorized (see "PROGRAMMING").



P4A02DL01



P4A02DL02

Detail of receiver on front courtesy light

1. Green warning light (LED)
2. memorization button
3. Volumetric sensors

Receiver connector

1. Not connected
2. Serial line to alarm control unit
3. Battery positive (+30)
4. Earth
5. Door unlock
6. Door lock
7. Ignition-dependent positive (+15)
8. Not connected

REMOTE CONTROL

The alarm system remote control, built into the ignition key (figure opposite), is an electronic device which sends a signal to the receiver for controlling the opening/closure of the doors and activation/deactivation of the alarm system.

Whenever the button (1) on the remote control is pressed, the remote control issues a radio code which has a radius of action of about 10 metres.

1. Control button
2. Repeater warning light (LED)
3. Access code (password) tag
4. Transponder (for Fiat CODE - not visible)

NOTE *If the control unit, receiver and/or remote controls are replaced, components from the same type of system must be used.*

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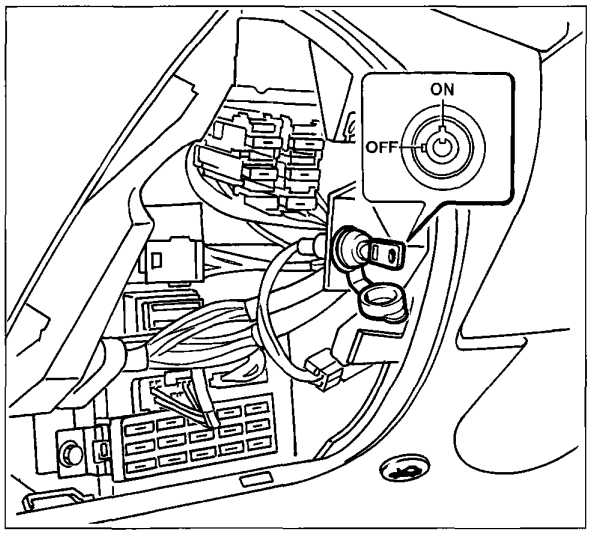

P4A16AL01

EMERGENCY KEY SWITCH

The emergency circuit key switch allows the alarm system to be excluded, if necessary.
It is located on the side under the dashboard and is only accessible after removing the bottom left trim from the dashboard (see figure).

The emergency key switch can assume two positions, namely:

OFF (key fully rotated in the anti-clockwise direction), corresponding to deactivation of the alarm circuit

ON (key fully rotated in the clockwise direction), corresponding to activation of the supply to the alarm system.

From January 1998, the alarm systems on cars intended for the United Kingdom market market no longer have the emergency key switch, so the control unit is permanently in the activated state.

OPERATION

Switching off the alarm

If the remote control's batteries become discharged or the alarm system is faulty, it can be deactivated by turning the emergency key switch to the OFF position.
This key should be rotated to the OFF position if the car is to be left unused for long periods (over three weeks).
To reactivate the system, turn the emergency key switch ON again and check that it is in this position before delivery of the car to the customer.
For cars intended for the British market which have no emergency key switch, in the above-mentioned case in which the remote control's batteries are discharged and the alarm cannot be turned off, wait for the latter to be deactivated (i.e. after the cycles of siren coming on and direction indicators flashing).

As regards "Switching alarm on/off", "Surveillance", "Alarm state", "Switching on with siren excluded" and "Discharged batteries indicator", refer to pages 134/1 and 134/2 of the previous Section 55.

PROGRAMMING

The methods of indicating the alarm may vary depending on the laws in force in the country of registration; it is therefore necessary to programme the system by entering the "country code", as described on the next page.
The system "recognizes" the code of the remote controls with no limit as to quantity, but only the last 8 remain stored in memory (when the ninth remote control is entered, the first is deleted from memory).
There are two programming methods (see the description on the following pages):

- before entering the access code (password): **SIMPLIFIED PROGRAMMING**
- after closing the memory: **PROTECTED PROGRAMMING**

In view of the importance of carrying out the programming procedure quickly and precisely, it is advisable, at least initially, for two people to carry out the operation: one to read the instructions in sequence and the other to carry them out closely.

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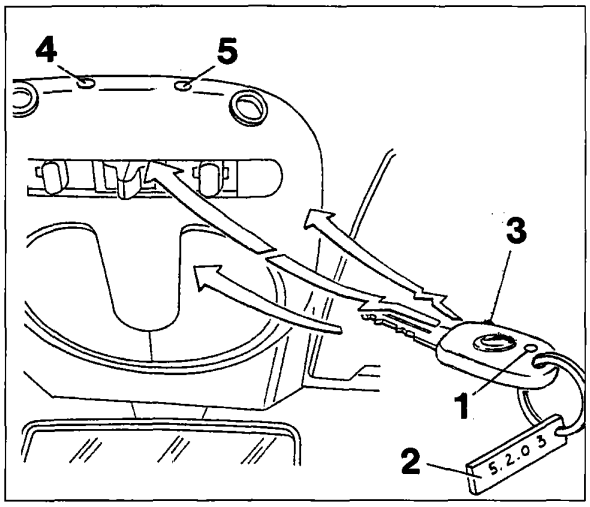

1. Remote control warning light (LED)
2. 4-digit access code (password)
3. Remote control button on ignition key
4. Warning light (LED) on front central courtesy light
5. Programming button

SIMPLIFIED PROGRAMMING

The memorization of a remote control must always take place with:
- alarm off (dissuasion LED off)
- ignition key removed or at the STOP or PARK positions
- emergency key switch (except for versions for the British market which do not have it) at the ON position

With this programming system, all the codes of the remote controls, with no limit as to quantity, are "recognized", but only the last 8 remain stored in the alarm system's memory as follows:

1. press and hold down the button (5) on the receiver, built into the front central courtesy light; the adjacent warning light (LED) (4) should flash;
2. still holding down the button (5), press the button (3) on the remote control;
3. then release the button (3) on the remote control when the LED (4) on the receiver stays on permanently;
4. release the button (5) on the courtesy light to conclude the procedure.

If the LED (4) on the receiver stops flashing and goes out when the remote control button (3) is pressed, this means that the receiver's memory is closed, so "PROTECTED" programming should be used.

NOTE *To memorize the subsequent remote controls, repeat the above-mentioned operations.*

Programming country code

Procedure a)

After memorizing the remote controls as described above, within 15 seconds of releasing the button (5) of the receiver on the courtesy light, the code of the country where the alarm system has to operate must be memorized.
The country code is programmed by pressing the button (5) of the receiver in rapid succession n times (see table below). The LED (4) will flash at each press of the button.
If the button (5) is not pressed, the system sets itself to the country code previously memorized; if there is none (1st programming), the system sets itself automatically to the operating mode for "ITALY".

NOTE *The 15 seconds are reduced to 3 from the second memorization onwards.*

COUNTRY CODE (presses of button)	COUNTRY OF OPERATION
1	ITALY
2	GERMANY
3	FRANCE
4	SWITZERLAND

COUNTRY CODE (presses of button)	COUNTRY OF OPERATION
5	UNITED KINGDOM
6	BELGIUM
7	HOLLAND
8	EEC

*If the procedure has been carried out correctly, the warning light (LED) (5) on the receiver will flash **n times** (where n is the selected country code number), confirming that the code has been memorized by both the receiver and the control unit; if not, the LED (5) **comes on and stays on for 5 seconds**; at this point it will be necessary to repeat all the programming operations starting from point 1.*
For cars intended for the British market, if the LED does not come on again, this means that the control unit is not connected to the receiver or is not supplied.

NOTE *To programme the country code, you can use the procedure with the FIAT/LANCIA Tester and the other diagnostic systems.*

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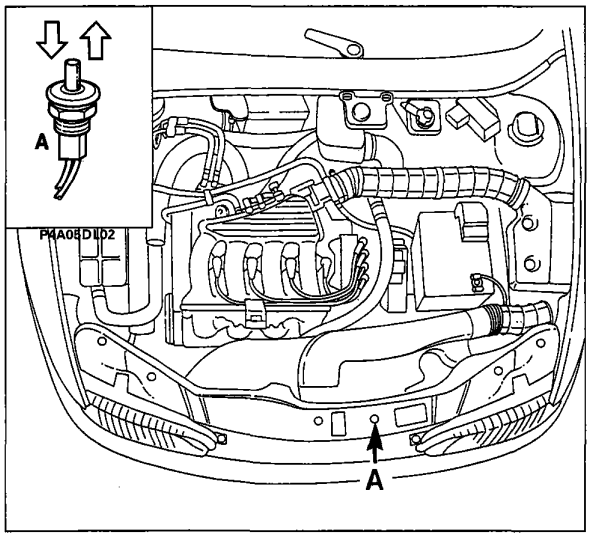

Procedure b)

Alternatively, the country code can be programmed by means of the following procedure:
- open the bonnet;
- turn the ignition from on to off (STOP position), then before 15 seconds elapse, press 7 times in rapid succession (in less than 10 seconds) the switch (A) (bonnet open sensor); 5 beeps will indicate entry into MANUAL DIAGNOSIS (see page 150 of previous Section 55). During this stage (5 beeps) press and hold down the switch (A). A final long beep will indicate acceptance of this action;
- hold down the switch (A) throughout the duration of the long beep. This long beep confirms start of "country code programming", and so the possibility of subsequently entering the "country code";
- release the switch (A) and within 10 seconds press the same switch n times (see table on preceding page), to select the operating mode for the desired country (each press will be accompanied by a confirming beep).

The simplified programming procedure permanently deletes the UNIVERSAL code, used during the stages prior to delivery of the car to the Customer.

CLOSING THE MEMORY

To avoid the entry of unauthorized remote controls, the memory must be protected (closed); this operation takes place automatically after the alarm system has switched on/off 128 times. The memory can also be closed manually by entering the access code (Password) (4-digit number stated on the tag attached to the ignition key with remote control illustrated on page 2), for example on a new car before delivery, after all the codes of the remote controls given to the Customer have been entered.

The procedure for entering the Password is as follows:
1. Take one of the tags of the remote controls memorized in the receiver, then press for 1 second the button on the receiver: the LED flashes for as long as the button is held down.
2. Then release the button: after about 3 seconds, the LED flashes briefly, to indicate that the first digit of the Password can be entered.
3. Press the receiver button as many times as indicated by the first digit of the Password (e.g. if the Password is 5.2.0.3.: press 5 times). Note that whenever the button is pressed, the LED comes on briefly to give visual confirmation.
4. About 3 seconds after the last press of the button (the fifth in the example), the LED emits another flash to request the entry of the next digit.
5. Proceed as described in point 3 to enter all the subsequent digits.

NOTE *When the password (see example) contains a "0", do not press the button on the receiver, but wait for the request to enter a new digit, indicated by the next flash.*

After the 4 digits of the Password have been entered, the LED on the receiver may:
- **flash for about 10 seconds**; to indicate that the Password has been entered correctly;
- ***come on and stay on for about 10 seconds;*** to indicate that the Password has not been entered correctly, so after the LED has gone out, the Password should be re-entered correctly starting from point 1.

The correct entry of the access code (Password) "closes" (protects) the memoery, to prevent the memorization of unauthorized remote controls.
In fact it is impossible to memorize a new remote control, because after transmitting its code, the warning light (LED) on the receiver will stop flashing to indicate that the operation has failed; in this case the memory has to be "opened", proceeding as described on the next page.

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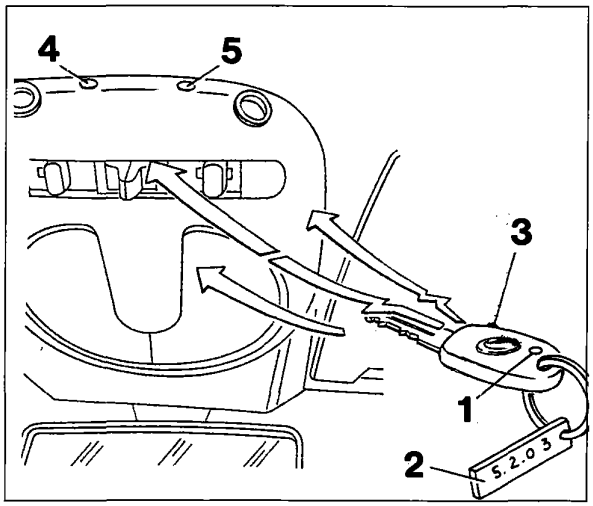

1. Transmitter warning light (LED)
2. 4-digit access code (Password)
3. Control button on transmitter
4. Warning light (LED) on courtesy light
5. Programming button

PROGRAMMING WITH CLOSED MEMORY

If the memory is "closed" (protected), further remote control codes can only be entered after the memory has been "opened" with one of the codes of the keys memorized in the receiver.

OPENING MEMORY AND MEMORIZATION OF A NEW REMOTE CONTROL

Opening the memory

To open the memory, carry out the operations listed below in quick succession:

1. press the button (5) on the receiver for about 2 seconds; the LED (4) will flash for as long as the button is pressed;
2. release the button; after about 2 seconds, the LED emits a brief flash to indicate that the first digit of the Password can be entered;
3. press the receiver button (5) as many times as indicated by the first digit of the Password (e.g. if the Password is 5.2.0.3., press 5 times). Note that whenever the button is pressed, the LED (4) comes on briefly to give visual confirmation;
4. after about 2 seconds from the last press of the button (the fifth in the example), the LED emits another flash to request the entry of the next digit;
5. proceed from point 3 to enter all four digits (if the digit is "0", do not press the button, but wait for the next request);
6. if the Password has been entered correctly (memory opened), the LED starts to flash (for about 10 seconds); if instead it comes on and stays on (for about 10 seconds), the procedure will have to be repeated from point 1, as the password has not been recognized.

Memorizing a new remote control

7. While the LED (4) is flashing, press and hold down the button (5); the LED (4) will continue to flash;
8. press the button (3) on the new remote control until the green/red LED (4) on the courtesy light stays on permanently;
9. then release the button (3) of the transmitter when the LED (4) on the courtesy light stays on permanently;
10. release the button (5) on the courtesy light to conclude the programming procedure.

*If the procedure has been carried out correctly, the LED on the receiver will flash **n times** (where n is the selected country code number), confirming that the code has been memorized by both the receiver and the control unit; otherwise the LED **comes on and stays on for 5 seconds**; all the operations will thus have to be repeated starting from point 1 of the programming procedure.*

After the new remote control has been memorized, the memory returns to the "closed" state.

REPLACING ALARM CONTROL UNIT

If only the alarm control unit has to be replaced, the new part must be activated by memorizing at least one of the remote controls provided, by following the procedure described in the "SIMPLIFIED PROGRAMMING" sub-section on page 4 or in the "PROGRAMMING WITH CLOSED MEMORY" sub-section at the top of this page.

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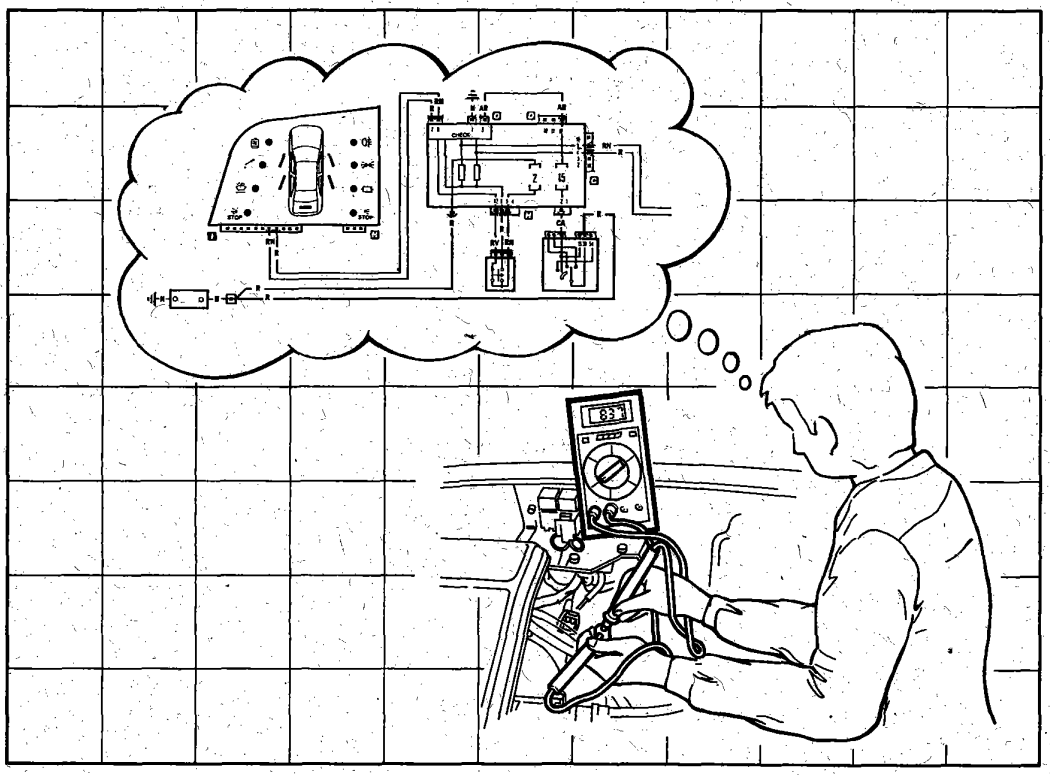
Analytical charts

Electrical equipment fault diagnosis



P4A000N01

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Chart No.	Functions involved
Chart 1 (page 1)	Parking lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights
Chart 2 (page 19)	**Trim level: S - SX** Electric front windows
Chart 3 (page 27)	**Trim level: EL - ELX - GT - HGT** Electric front windows
Chart 4 (page 35)	**Trim level: EL - ELX** Electric rear windows
Chart 5 (page 45)	**Version without alarm: S - SX - GT** Central locking
Chart 6 (page 57)	**Version: EL - ELX - HGT** Central door locking and car doors not shut warning system
Chart 7 (page 73)	**Trim level: EL - ELX - HGT** Direction indicators and warning light - Hazard warning lights and warning light - Braking lights - Reversing lights
Chart 8 (page 97)	Vehicle interior lights - Ideogram lights
Chart 9 (page 107)	Fuel level gauge and reserve warning light - Handbrake applied/insufficient brake fluid level warning light - Speedometer - Milometer/trip meter display and zeroing button - Water temperature gauge - Insufficient engine oil pressure warning light - Front brake pad wear warning light - Rev counter

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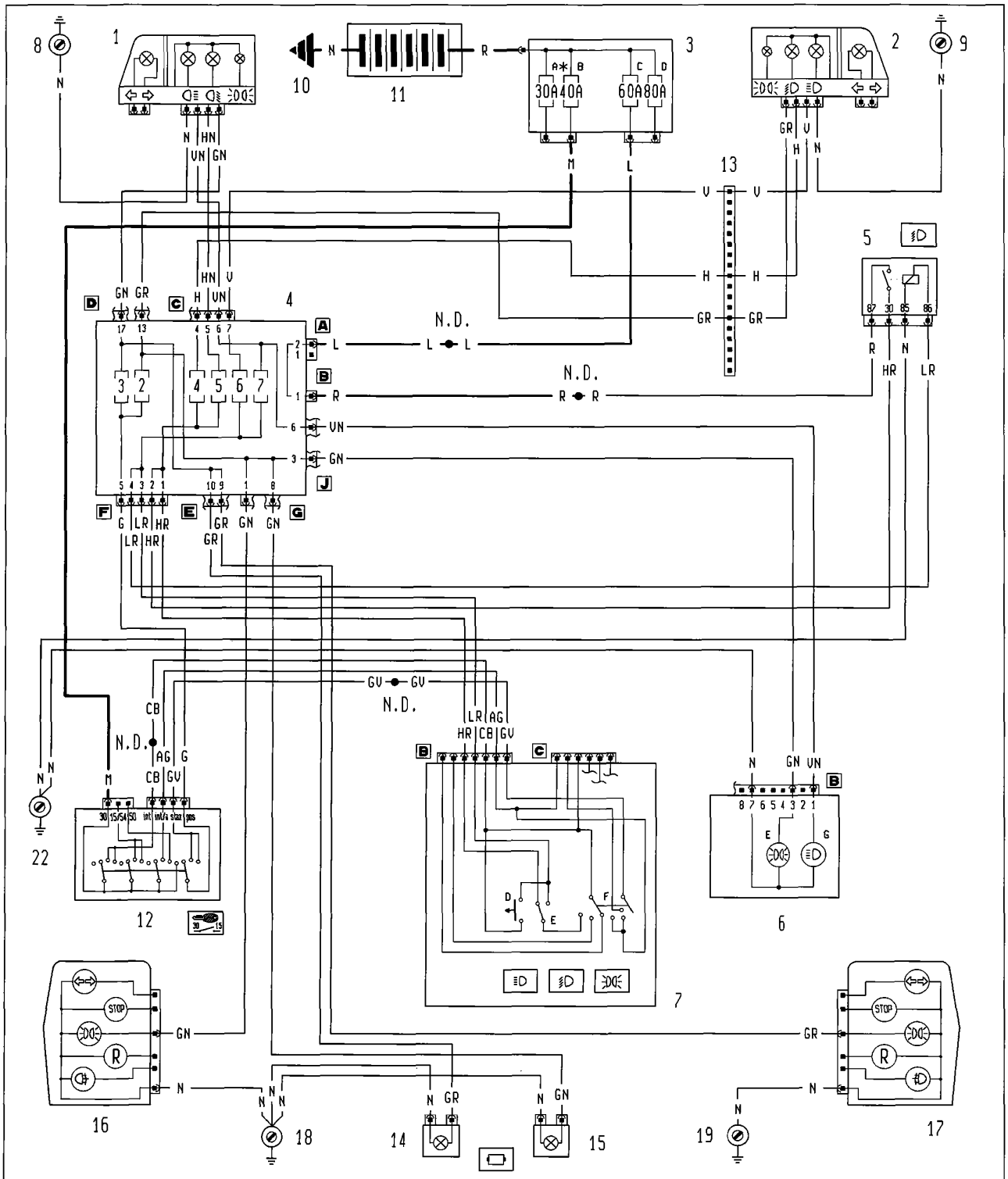
Parking lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights - (See key at end of wiring diagrams)



4A401N

P4A005N02

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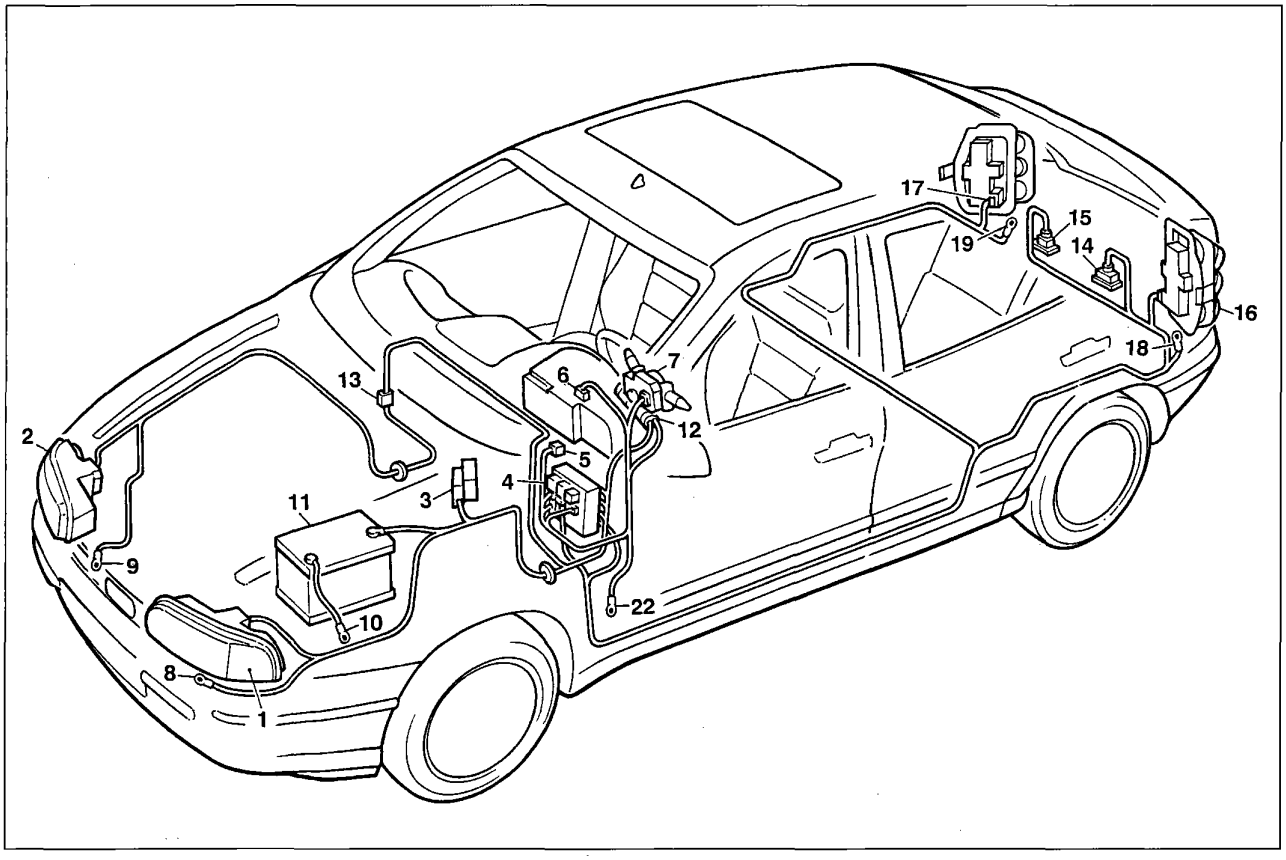

P4A007N02

Parking lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights

Components key

1 Left front light cluster
2 Right front light cluster
3 Power fuse box:
  A 30A protective fuse for injection system (60A for DS versions)
  B 40A protective fuse for ignition system
  C 60A protective fuse for optional extras
  D 80A protective fuse for junction unit
4 Junction unit
5 Dipped headlamps relay feed
6 Instrument panel:
  E Side lights warning light
  G Main beam headlamps warning light
7 Steering column switch unit:
  D Flasher control
  E Switch for dipped/main beam headlamps
  F Switch for side lights
8 Left front earth
9 Right front earth
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
13 Front right/left cables connection
14 Left no. plate light
15 Right no. plate light
16 Left rear light cluster
17 Right rear light cluster
18 Left rear earth
19 Right rear earth
22 Left dashboard earth
N.D. Ultrasound welding taped in cable loom

4A402N

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The outside lights are not working

Check condition of steering column switch unit 7 → Not OK → Overhaul or replace steering column switch unit 7

↓

OK

↓

Check the condition of the ignition switch 12 → Not OK → Overhaul or replace the ignition switch 12

The side lights and the number plate lights are not working

Check the condition of fuses 2 and 3 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace 2 and 3

↓

OK

↓

Check for voltage at the G coloured cable, at connector G pin 5 of the junction unit 4 → OK → Check the condition of the control unit 4, overhaul it or replace it

↓

Not OK

↓

Check for voltage at the G coloured cable for the ignition switch 12 → OK → Restore the continuity for the G coloured cable between the ignition switch 12 and the junction unit 4

↓

Not OK

↓

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Bridge AG & GV coloured cables at con. B for steering column switch unit 7 → OK → Check the condition of the steering column switch unit, overhaul it or replace it

↓

Not OK

↓

Check for voltage at the GV coloured cable for the ignition switch 12 → OK → Check the condition of the ignition switch 12, overhaul it or replace it

↓

Not OK

↓

Check for voltage at the GV coloured cable connector B steering col. switch unit 7 → OK → Restore continuity for GV coloured cable between steering column switch unit 7 and ignition switch 12

↓

Not OK

↓

Check for voltage at the AG coloured cable for the ignition switch 12 → OK → Restore continuity for AG coloured cable between ignition switch 12 and steering column switch unit 7

↓

Not OK

↓

Check the condition of the ignition switch 12 → Not OK → Overhaul or replace the switch 12

The left front and right rear side lights and the left no. plate light are not working

Check the condition of the fuse 3 in the junction unit → Not OK → Check for a short circuit in the system and replace the fuse 3

↓

OK

↓

4A404N

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Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

The right front and left rear side lights and right no. plate light are not working

Check the condition of the fuse 2 in the junction unit 4	Not OK	Check for a short circuit in the system and replace the fuse 2

OK

Check the condition of the junction unit 4	Not OK	Overhaul or replace the control unit 4

The left front side light is not working

Check the condition of the bulb	Not OK	Replace the bulb

OK

Check the condition of the bulb holder	Not OK	Replace the bulb holder

OK

Check for voltage at the GN coloured cable for the left front light cluster 1	OK	Overhaul or replace the light cluster 1

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Not OK

Check for voltage at the GN coloured cable connector D pin 17 of the junction unit 4 → OK → Restore the continuity for the GN coloured cable between the junction unit 4 and the light cluster 1

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The right front light is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Replace the bulb holder

OK

Check for voltage at the GR coloured cable for the right front light cluster 2 → OK → Overhaul or replace the light cluster 2

Not OK

4A406N

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Check for voltage at the GR coloured cable connector D pin 13 of the junction unit 4	OK	Restore the continuity of the GR coloured cable between the junction unit 4 and the light cluster 2
Not OK		
Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

The left rear side light is not working

Check the condition of the bulb	Not OK	Replace the bulb
OK		
Check the condition of the bulb holder	Not OK	Overhaul or replace the bulb holder
OK		
Check for voltage at the GN coloured cable for the left rear light cluster 16	OK	Overhaul or replace the light cluster 16
Not OK		
Check for voltage at the GN coloured cable connector G pin 1 of the junction unit 4	OK	Restore the continuity for the GN coloured cable between the junction unit 4 and the left rear light cluster 16

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Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The right rear side light is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the GR coloured cable of the right rear light cluster 17 → OK → Overhaul or replace the right rear light cluster 17

Not OK

Check for voltage at the GR coloured cable connector G pin 8 of the junction unit 4 → OK → Restore the continuity of the GR coloured cable between the junction unit 4 and the right rear light cluster 17

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

4A408N

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The side lights warning light is not working

Check for voltage at the GN coloured cable, connector J pin 3 of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

↓

OK

↓

Check for voltage at the GN coloured cable, connector B pin 3 of the instrument panel 6 → Not OK → Restore the continuity for the GN coloured cable between the instrument panel 6 and the control unit 4

↓

OK

↓

Check the condition of the warning light E in the instrument panel 6 → Not OK → Replace the warning light E in the instrument panel 6

↓

OK

↓

Check the condition of the instrument panel 6 → Not OK → Overhaul or replace the instrument panel 6

Both the no. plate lights are not working

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The left no. plate light is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓

4A409N

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OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the GR coloured cable, for the left no. plate light 14 → OK → Overhaul or replace the light cluster for the no. plate 14

Not OK

Bridge the N coloured cable at the left no. plate light 14 with an earth → Ok → Restore the continuity of the N coloured cable between the left no. plate light 14 and the left rear earth 18

Not OK

Check for voltage at the GR coloured cable, connector E pin 10 of the junction unit 4 → OK → Restore the continuity of the GR coloured cable between the junction unit 4 and the left no. plate light 14

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The right no. plate light is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

4A410N

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Check the condition of the bulb holder	Not OK	Overhaul or replace the bulb holder
OK		
Check for voltage at the GN coloured cable, for the right no. plate light 15	OK	Overhaul or replace the light cluster for the no. plate 15
Not OK		
Bridge the N coloured cablet at the right no. plate light 15 with an earth	OK	Restore the continuity of the N coloured cable between the right no. plate light 15 and the left rear earth 18
Not OK		
Check for voltage at the GN coloured cable, connector G pin 8 of the junction unit 4	OK	Restore the continuity for the GN coloured cable between the junction unit 4 & the right no. plate light 15
Not OK		
Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

Both the dipped headlamps are not working

Check the condition of fuses 4 and 5 in the junction unit 4	Not OK	Check for a short circuit in the system and replace the fuses 4 and 5
OK		
Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

4A411N

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Both the dipped headlamps are not working when operated by the steering column switch unit

Bridge HR & CB coloured cables at connector B for steering col. switch unit 7 → OK → Overhaul or replace steering column switch unit 7

↓

Not OK

↓

Check for voltage at the HR coloured cable, connector F pin 1 of the junction unit 4 → Not OK → Restore the continuity of the HR coloured cable between the junction unit 4 & the steering col. switch unit 7

↓

OK

↓

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

Both the dipped headlamps are not working with the main beam headlamps on

Bridge the R and HR coloured cables at the dipped headlamps relay 5 → OK → Overhaul or replace the relay 5

↓

Not OK

↓

Bridge the R and LR coloured cables at relay 5 → OK → Overhaul or replace the relay 5

↓

Not OK

↓

Bridge the N coloured cable at relay 5 with an earth → OK → Restore the continuity of the N coloured cable between the relay 5 and the earth on dashboard 22

↓

4A412N

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Not OK

Check for voltage at the R coloured cable at the relay 5 → Not OK → Restore the continuity of the R coloured cable between the relay 5 and the ultra-sound welding

OK

Check for voltage at the LR coloured cable for relay 5 → Not OK → Restore the continuity of the LR coloured cable between the relay 5 and the connector F of the junction unit 4 or overhaul the junction unit 4

OK

Check for voltage at the HR coloured cable, connector F pin 2 of the junction unit 4 → Not OK → Restore the continuity of the HR coloured cable between the junction unit 4 and the relay 5

OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The left dipped headlamp is not working

Check the condition of the fuse 5 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 5

OK

Check the condition of the bulb → Not OK → Replace the bulb

4A413N

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55D.

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the HN coloured cable for the left front light cluster 1 → OK → Overhaul or replace the left front light cluster 1

Not OK

Check for voltage at the HN coloured cable, connector C pin 5 of the junction unit 4 → OK → Restore the continuity of the HN coloured cable between the junction unit 4 and the left front light cluster 1

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The right dipped headlamp is not working

Check the condition of the fuse 6 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 6

OK

Check the condition of the bulb → Not OK → Replace the bulb

4A414N

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OK

Check the condition of the bulb holder	Not OK	Overhaul or replace the bulb holder

OK

Check for voltage at the H coloured cable for the right front light cluster 2	OK	Overhaul or replace the right front light cluster 2

Not OK

Check for voltage at the H coloured cable, connector C pin 4 of the junction unit 4	OK	Restore the continuity for the H coloured cable between the junction unit 4 and the right front light cluster 2

Not OK

Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

The left dipped headlamp and the warning light are not working

Check the condition of the fuse 7 in the junction unit 4	Not OK	Check for a short circuit in the system and replace the fuse 7

OK

Check the condition of the junction unit 4	Not OK	Overhaul or replace the junction unit 4

4A415N

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The left main beam headlamp is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓ OK

↓ Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓ OK

↓ Check for voltage at the VN coloured cable for the left front light cluster 1 → OK → Overhaul or replace the left front light cluster 1

↓ Not OK

↓ Check for voltage at the VN coloured cable connector C pin 6 of the junction unit 4 → OK → Restore the continuity for the VN coloured cable between the junction unit 4 and the left front light cluster 1

↓ Not OK

↓ Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The right main beam headlamp is not working

Check the condition of the fuse 6 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 6

↓

4A416N

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OK

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the V coloured cable for the right front light cluster 2 → OK → Overhaul or replace the right front light cluster 2

Not OK

Check for voltage at the V coloured cable connector C pin 7 of the junction unit 4 → OK → Restore the continuity for the V coloured cable between the junction unit 4 and the right front light cluster 2

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

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The main beam headlamps warning light is not working

Check for voltage at the VN coloured cable connector J pin 6 of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

↓

OK

↓

Check for voltage at the VN coloured cable, connector B pin 1 of the instrument panel 6 → Not OK → Restore the continuity for the VN coloured cable between the instrument panel 6 and the junction unit 4

↓

OK

↓

Check the condition of the warning light G in the instrument panel 6 or check the condition of the instrument panel 6 → Not OK → Replace the warning light G or overhaul the instrument panel 6

4A418N

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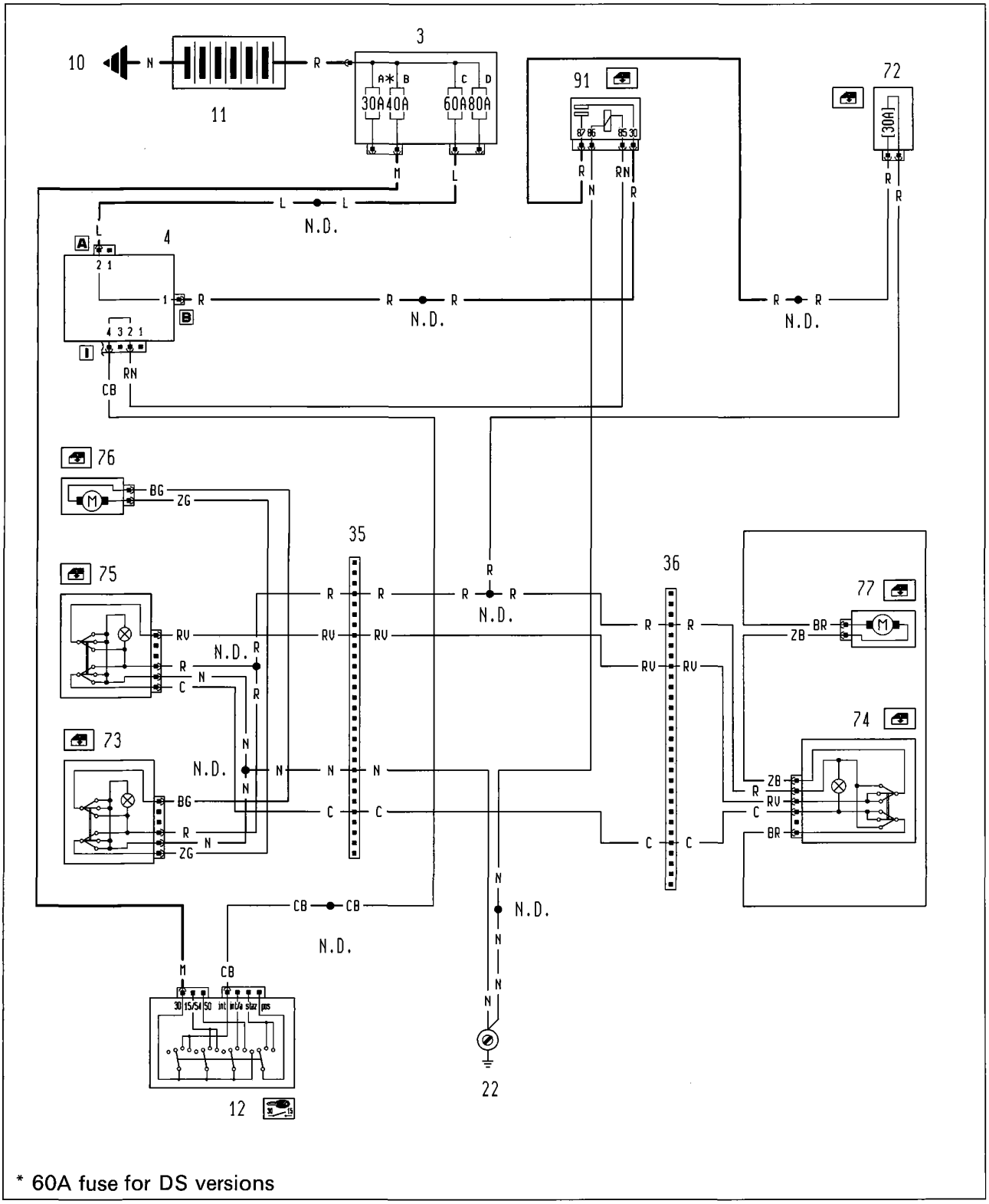
Trim Level: S - SX

Electric front windows - (See key at end of wiring diagrams)



* 60A fuse for DS versions

4A419N

P4A037N02

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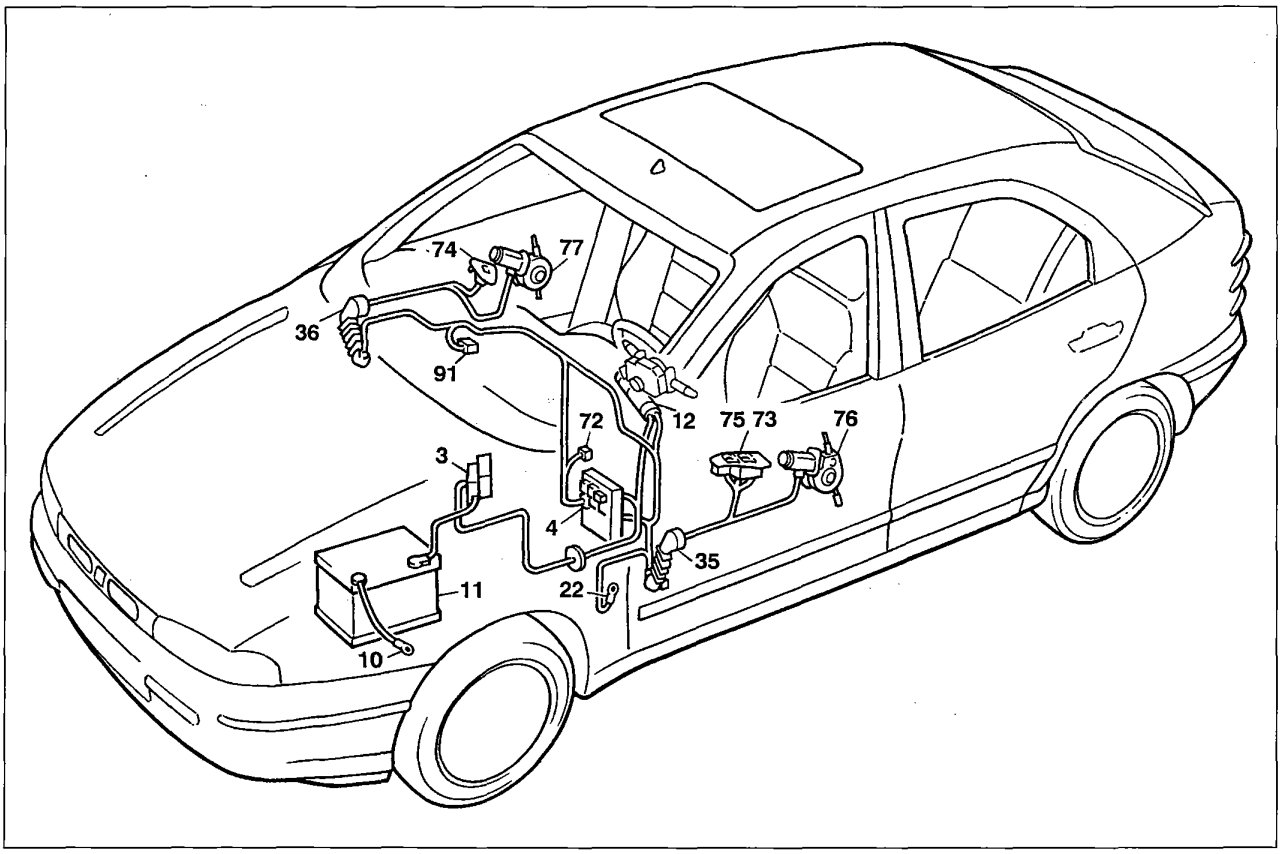

P4A039N02

Trim Level: S - SX

Electric front windows

Components key

3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
22 Left dashboard earth
35 Dashboard/left front door cables connection
36 Dashboard/right front door cables connection
72 30A protective fuse for electric front windos
73 Left front electric window control panel
74 Right electric front window control panel
75 Right front electric window control panel on left front door
76 Left front electric window motor
77 Right front electric window motor
91 Power relay

N.D. Ultrasound welding taped in cable loom

4A420N

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The electric front windows are not working

Check the condition of the fuse 72 protecting the electric windows → Not OK → Check for a short circuit in the system and replace the fuse 72

↓ OK

↓ Bridge the R coloured cable at the electric windows relay feed 91 → OK → Overhaul or replace the electric windows relay 91

↓ Not OK

↓ Bridge the R and RN coloured cables (pin 30) at the relay 91 → OK → Overhaul or replace the electric windows relay 91

↓ Not OK

↓ Bridge the N coloured cable at the electric windows relay 91 with an earth → OK → Restore the continuity of the N coloured cable between the electric windows relay 91 and the earth on dashboard 22

↓ Not OK

↓ Check for voltage at the R coloured cable (pin 30) for the electric windows relay 91 → Not OK → Restore the continuity of the R coloured cable between the electric windows relay 91 and the ultrasound welding

↓ OK

↓ Check for voltage at the RN coloured cable at the electric windows relay 91 → Not OK → Restore the continuity for the RN coloured cable between the electric windows relay 91 and the junction unit 4 or overhaul the control unit 4

↓

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OK

Check for voltage at one of the R cable for the electric windows protective fuse 72 → Not OK → Restore the continuity of the R coloured cable between the fuse 72 and the electric windows relay 91

OK

Check for voltage at the R coloured cable for the connector 36 → Not OK → Restore the continuity of the R coloured cable between the fuse 72 and the ultrasound welding towards the connectors 35 and 36

OK

Alternately bridge the N coloured cables at control panels 75 and 73 with an earth → OK → Restore continuity for the N coloured cables between the control panels 75 & 73 and the earth on dash 22

The left front electric window is not working

Bridge the R/BG and ZG/N coloured cables at the left electric windows control panel 73 (with the connector for the control panel disconnected from its housing) → OK → Overhaul or replace the left electric window control panel 73

Not OK

Bridge the R/ZG and BG/N coloured cables at the left electric window control panel 73 (with the connector for the control panel disconnected from its housing) → OK → Overhaul or replace the left electric window control panel 73

Not OK

4A422N

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Check for voltage at the R coloured cable for the left electric window control panel 73	Not OK	Restore the continuity of the R coloured cable between the left electric window control panel 73 and the ultrasound welding
OK		
Bridge the N coloured cable at the left electric window control panel 73 with an earth	OK	Restore the continuity of the N coloured cable between the left electric window control panel 73 and the ultrasound welding
Not OK		
Bridge the BG coloured cable between the left electric window control panel 73 and the left electric window motor 76 (without disconnecting the connector)	OK	Restore the continuity for the BG coloured cable between the left electric window control panel 73 and the left electric window motor 76
Not OK		
Bridge the ZG coloured cable between the left electric window control panel 73 and the left electric window motor 76 (without disconnecting the connector)	OK	Restore the continuity for the ZG coloured cable between the left electric window control panel 73 and the left electric window motor 76
Not OK		
Check the condition of the left electric window motor 76	Not OK	Replace the left electric window motor 76

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The right front electric window is not working when operated by the driver's side control panel

Check for voltage at the R coloured cable for the right electric window control panel 75 → Not OK → Restore the continuity of the R coloured cable between the right electric window control panel 75 and the ultrasound welding

↓

OK

↓

Check the condition of the right electric window control panel 75 → Not OK → Overhaul or replace the right electric window control panel 75

The right front electric window is not working operated by the passenger side control panel

Check for voltage at the R coloured cable of connector 36 → Not OK → Restore the continuity of the R coloured cable between the connector 36 and the ultrasound welding

↓

OK

↓

Check for voltage at the R coloured cable at the electric window con. panel 74 → Not OK → Restore the continuity of the R coloured cable between control panel 74 and connector 36

↓

OK

↓

Check the condition of the electric window control panel 74 → Not OK → Overhaul or replace the electric window control panel 74

The right front electric window is not working

Bridge the N coloured cable at the electric window control panel 75 with an earth → OK → Restore the continuity of the N coloured cable between the electric window control panel 75 and the ultrasound welding

↓

4A424N

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Not OK

Extract the connectors for the electric window control panels 75 and 74 from their housings, bridge the RV and C coloured cables at the connector for the control panel 74 and insert an ohmmeter at the RV and C cables for the control panel 75 connector → Not OK → Restore the continuity for the RV and C coloured cables between the control panels 75 and 74

OK

Bridge the ZB coloured cable between the electric window control panel 74 and the electric window motor 77 → OK → Restore the continuity for the ZB coloured cable btwn the control panel 74 & the electric window motor 77

Not OK

Bridge the BR coloured cable between electric window control panel 74 & electric window motor 77 → OK → Restore the continuity for the BR coloured cable between the control panel 74 and the electric window motor 77

Not OK

Extract the connector for the electric window control panel 75 from its housing, bridge both the R/RV and C/N coloured cables → OK → Overhaul or replace the electric window control panel 75

Not OK

4A425N

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55D.

Extract the connectorfor the electric window control panel 75 from its housing, bridge both the R/C and RV/N coloured cables → OK → Overhaul or replace the control panel 75

↓

Not OK

↓

Extract the connector for the electric window control panel 74 from its housing, bridge the RV/ZB and C/BR coloured cables → OK → Overhaul or replace the electric window control panel 74

↓

Not OK

↓

Extract the connector from the control panel 74 and bridge the RV/BR and C/ZB coloured cables → OK → Overhaul or replace electric window control pan. 74

↓

Not OK

↓

Check condition of right electric window motor 77 → Not OK → Overhaul or replace the electric window motor 77

4A426N

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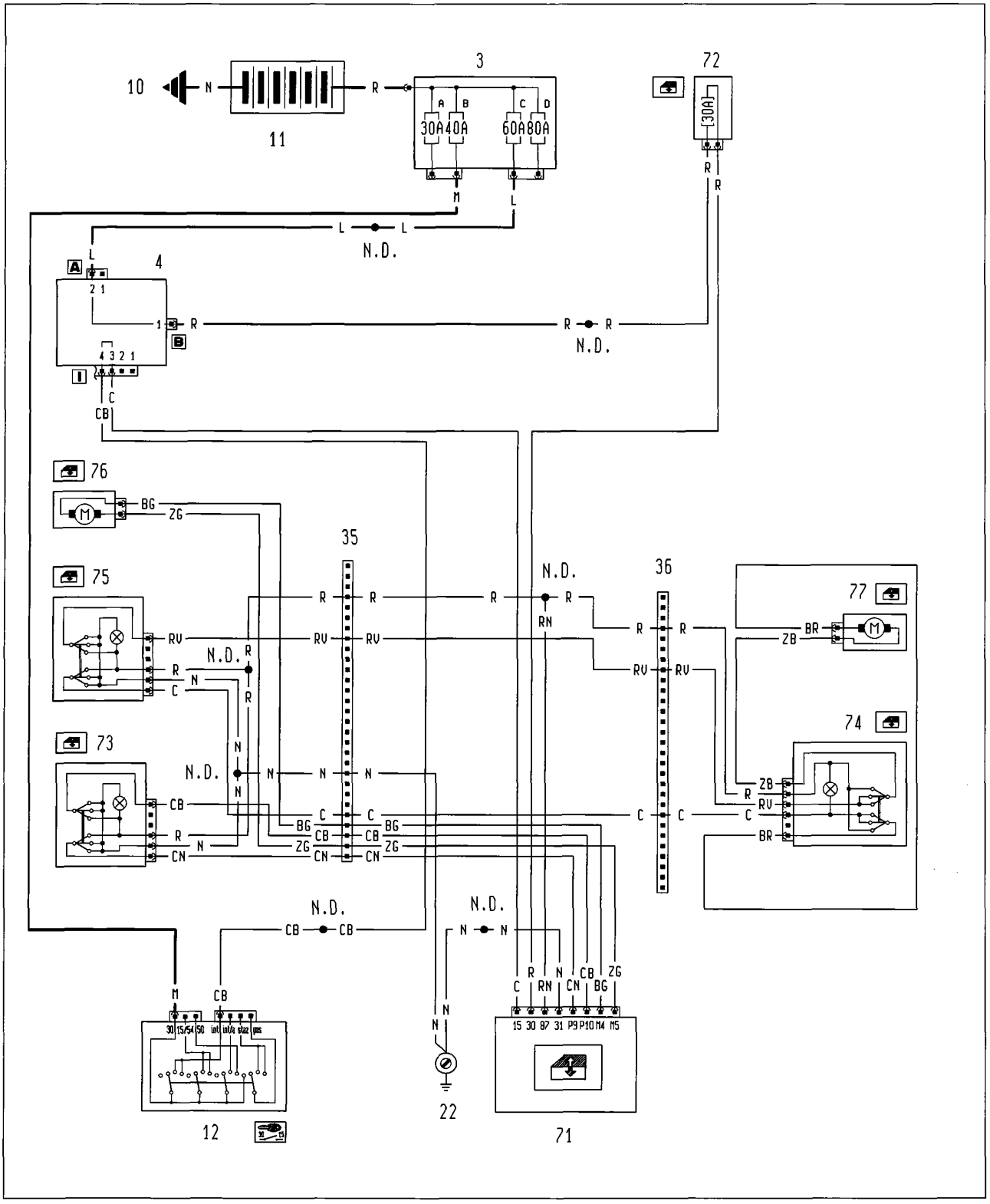
Trim Level: EL - ELX - GT - HGT

Electric front windows - (See key at end of wiring diagrams)



4A427N

P4A041N02

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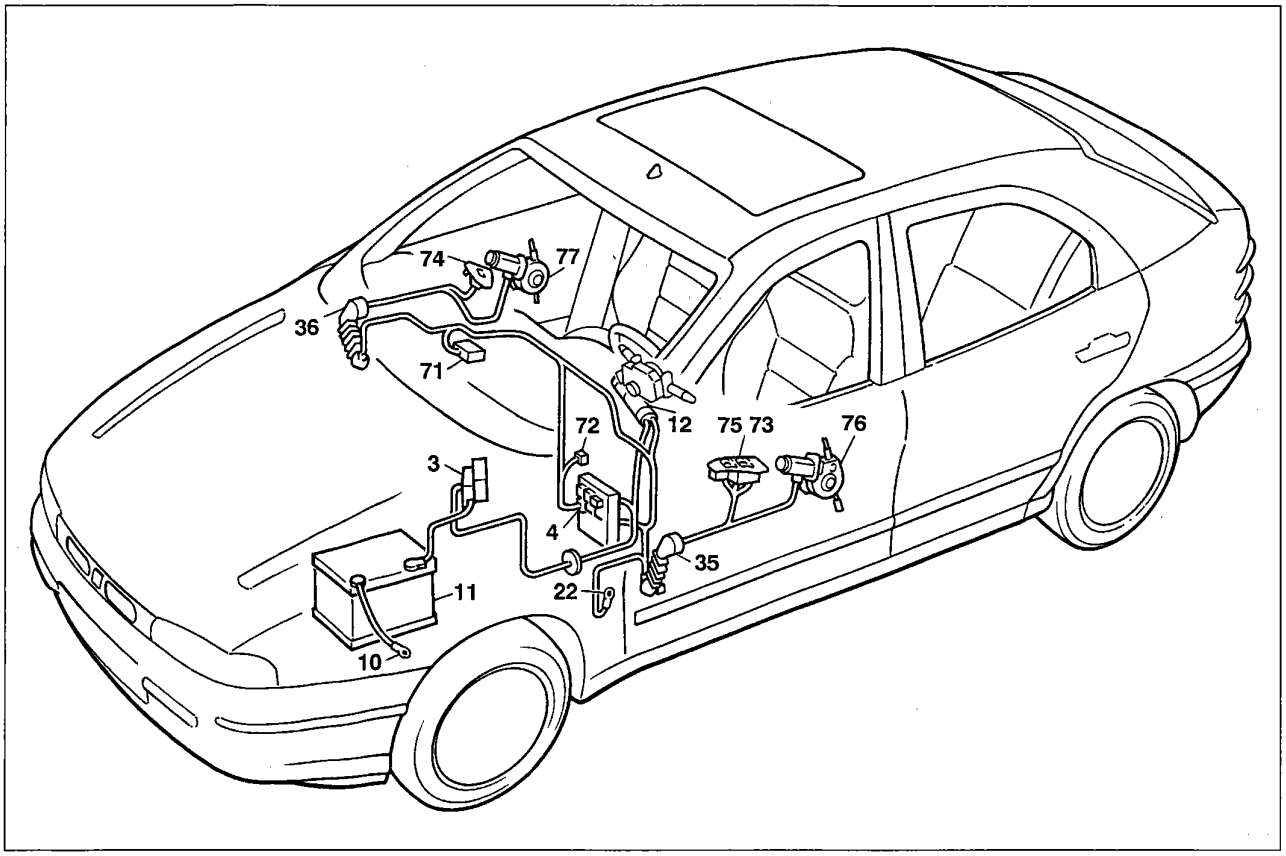
55D.



P4A043N02

Trim Level: EL - ELX - GT - HGT

Electric front windows

Components key

3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
22 Left dashboard earth
35 Dashboard/left front door cables connection
36 Dashboard/right front door cables connection
71 Electric front windows control unit
72 30A protective fuse for electric front windos
73 Left front electric window control panel
74 Right electric front window control panel
75 Right front electric window control panel on left front door
76 Left front electric window motor
77 Right front electric window motor
N.D. Ultrasound welding taped in cable loom

4A428N

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The electric front windows are not working

Check the condition of the fuse 72 protecting the electric windows → Not OK → Check for a short circuit in the system and replace the fuse 72

↓ OK

↓ Bridge the N coloured cable at the electric windows control unit 71 with an earth → OK → Restore con. of N coloured cable between electric windows con. unit 71 & earth on dashboard 22

↓ Not OK

↓ Check for voltage at one of the R coloured cables for fuse 72 → Not OK → Restore the continuity of the R coloured cable between the fuse 72 and the ultrasound welding

↓ OK

↓ Check for voltage at the R coloured cable for the electric windows control unit 71 → Not OK → Restore the continuity of the R coloured cable between the electric windows control unit 71 and the fuse 72 or check the condition of the fuse holder

↓ OK

↓ Check for voltage at the C coloured cable for the electric windows control unit 71 → Not OK → Restore the continuity for the C coloured cable between the electric windows control unit 71 and the junction unit 4 connector I pin 3, or check the condition of the junction unit 4

↓ OK

↓

4A429N

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Check for voltage at the RN coloured cable at the control unit 71	Not OK	Overhaul or replace the control unit 71
OK		
Check for voltage at the R coloured cable for connector 36	Not OK	Restore the continuity for the RN coloured cable between the control unit 71 and the ultrasound welding
OK		
Bridge N coloured cables at el. window control panels 75 & 73 with an earth	Not OK	Overhaul or replace the electric window control panels 75 and 73
OK		
Bridge the N coloured cable at connector 35 with an earth	Not OK	Restore the continuity of the N coloured cable between the connector 35 and the ultrasound welding
OK		
Check cond. of N coloured cable btwn connector 35 & earth on dash 22	Not OK	Restore continuity of the N coloured cable between the connector & the earth 22

The left electric window is not working

Check for voltage at the R coloured cable for the electric window control panel 73	Not OK	Restore the continuity of the R coloured cable between the control panel 73 and the ultrasound welding
OK		

4A430N

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Bridge the N coloured cable for the control panel 73 with an earth 71 → OK → Restore the continuity of the N coloured cable between the control panel 73 and the ultrasound welding

↓

Not OK

↓

Extract the connector for the control panel 73 from its housing, bridge the CB/R and N/CN coloured cables → OK → Overhaul or replace the electric windows control panel 73

↓

Not OK

↓

Extract the connector for the control panel 73 from its housing, bridge the R/CN and N/CB coloured cables → OK → Overhaul or replace the electric windows control panel 73

↓

Not OK

↓

Extract the connectors for the control panel 73 and for the electric window control panel 71 from their housing, bridge CN/CB coloured cables at control unit 71 and insert an ohmmeter between CN/CB coloured cables at control panel 73 connector → Not OK → Restore the continuity for the CN/CB coloured cables between the control panel 73 and the control unit 71

↓

OK

↓

Extract cons. for electric window motor 76 & control unit 71 from their housing, bridge BG/ZG coloured cables at con. unit 71 & insert ohmmeter btwn BG/ZG coloured cables at connector for el. window motor 76 → Not OK → Restore cont. for BG/ZG coloured cables btwn motor 76 & control unit 71

↓

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OK

Check the condition of the electric window motor 76 → Not OK → Overhaul or replace the electric window motor 76

OK

Check the condition of the electric window control unit 71 → Not OK → Replace the electric windows control unit 71

The right front electric window is not working operated by the driver's control panel

Check for voltage at the R coloured cable for the right electric window control panel 75 → Not OK → Restore the continuity of the R coloured cable between the right electric window control panel 75 and the ultrasound welding

OK

Check the condition of the right electric window control panel 75 → Not OK → Overhaul or replace the right electric window control panel 75

The right front electric window is not working operated by the passenger control panel

Check for voltage at the R coloured cable for connector 36 → Not OK → Restore continuity of R coloured cable btwn connector 36 & ultrasound welding

OK

Check for voltage at the R coloured cable at the electric widows courtesy light 74 → Not OK → Restore continuity of R coloured cable btwn control panel 74 & connector 36

4A432N

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OK

Check the condition of the electric window control panel 74 → Not OK → Overhaul or replace the electric window control panel 74

The right front electric window is not working

Bridge the N coloured cable at the electric window control panel 75 with an earth → OK → Restore the continuity of the N coloured cable between the electric window control panel 75 and the ultrasound welding

Not OK

Extract the connectors for the electric window control panels 75 & 74 from their housings, bridge the RV and C coloured cables at the connector for panel 74 and insert an ohmmeter at the RV and C cables at the control panel 75 connector → Not OK → Restore continuity for RV & C coloured cables between control panels 75 & 74

OK

Bridge ZB coloured cable btwn electric window control panel 74 & electric window motor 77 → OK → Restore the continuity for ZB coloured cable between control panel 74 & electric window motor 77

Not OK

Bridge BR coloured cable between electric window control panel 74 and electric window motor 77 → OK → Restore the continuity for BR coloured cable between control panel 74 & electric window motor 77

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Not OK

Extract the connector for the electric window control panel 75 from its housing, bridge both the R/RV & C/N coloured cables → OK → Overhaul or replace the electric window control panel 75

Not OK

Extract the connector for the electric window control panel 75 from its housing, bridge the R/C & RV/N coloured cables → OK → Overhaul or replace the control panel 75

Not OK

Extract the connector for the electric window control panel 74 from its housing, bridge the RV/ZB & C/BR coloured cables → OK → Overhaul or replace the electric window control panel 74

Not OK

Extract the connector for control panel 74 from its housing & bridge RV/BR & C/ZB coloured cables → OK → Overhaul or replace electric window control pan. 74

Not OK

Check condition of right electric window motor 77 → Not OK → Overhaul or replace the electric window motor 77

4A434N

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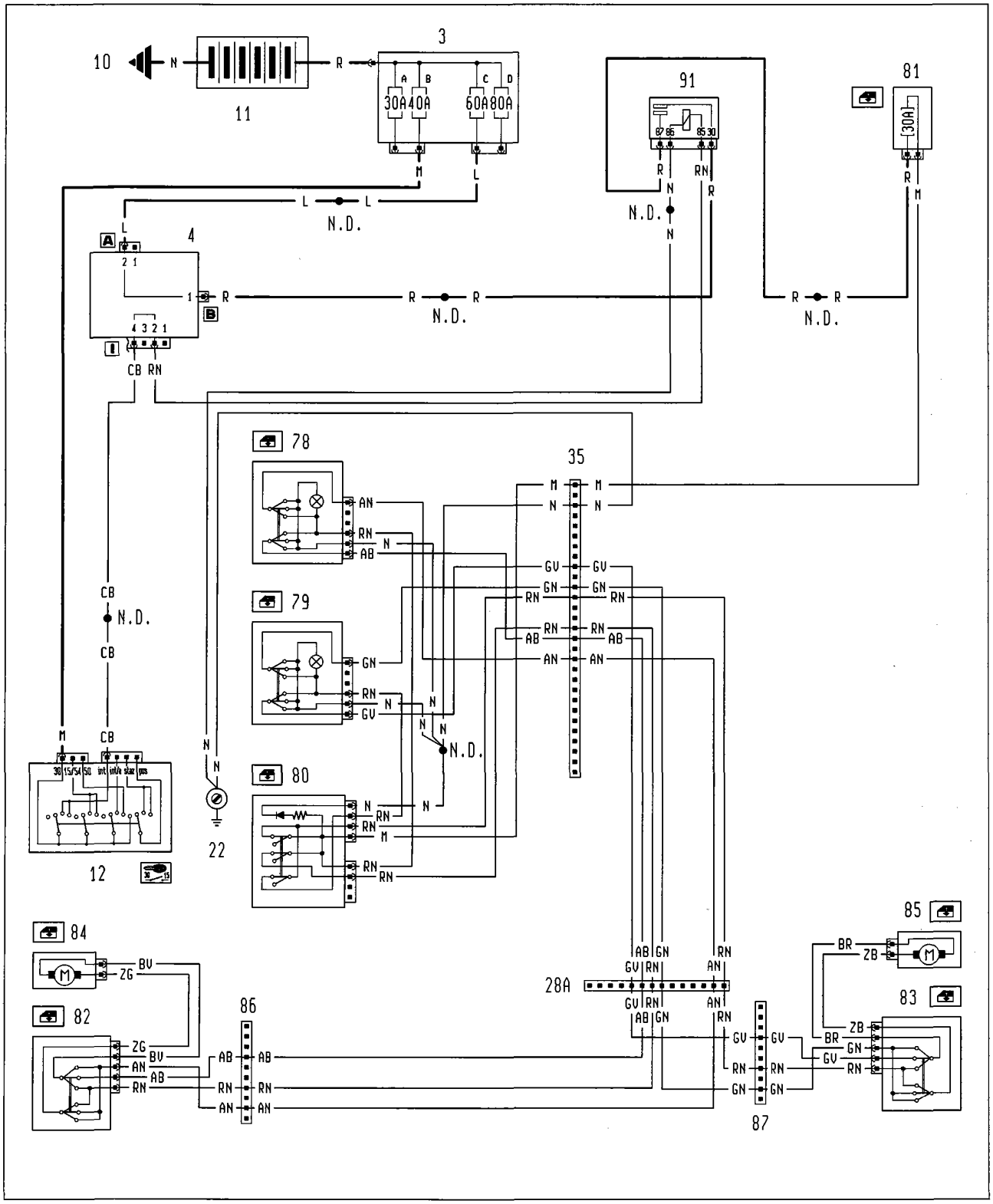
Trim Level: EL - ELX

Electric rear windows - (See key at end of wiring diagrams)



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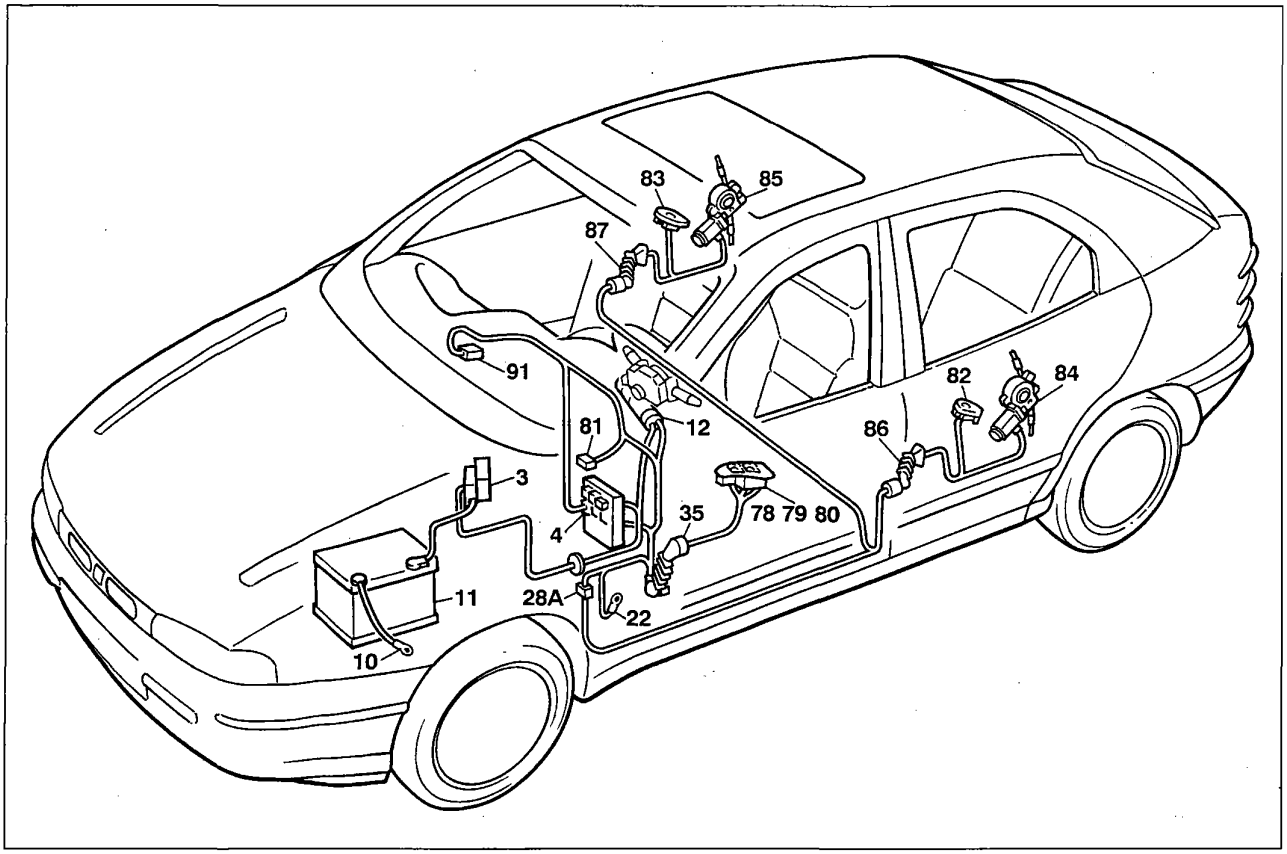

P4A047N02

Trim Level: EL - ELX

Electric rear windows

Components key

3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
22 Left dashboard earth
28A Dashboard/longitudinal cables connection
35 Dashboard/left front door cables connection
78 Left rear electric window control on left front door
79 Right rear electric window control on left front door
80 Electric rear windows inhibitor switch
81 30A protective fuse for electric rear windows
82 Left rear electric window control panel on left rear door
83 Right rear electric window control panel on right rear door
84 Left rear electric window motor
85 Right rear electric window motor
86 Longitudinal/left rear door cables connection
87 Longitudinal/right rear door cables connection
91 Power relay
N.D. Ultrasound welding taped in cable loom

4A436N

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The electric rear windows are not working

Check the condition of the electric rear windows protective fuse 81 → Not OK → Check for a short circuit in the system and replace the fuse 81

↓

OK

↓

Check for voltage at the R coloured cable for fuse 81 → Not OK → Restore the continuity of the R coloured cable between the fuse 81 and the ultrasound welding

↓

OK

↓

Check for voltage at the M coloured cable for connector 35 → Not OK → Restore continuity for M coloured cable btwn fuse 81 & connector 35 or overhaul fuse holder 81

↓

OK

↓

Check for voltage at the M coloured cable at the electric rear windows inhibitor button 80 → Not OK → Restore continuity for M coloured cable btwn button 80 & connector 35

↓

OK

↓

Extract the connector for the inhibitor button 80 from its housing, bridge the M coloured cable with all the RN coloured cables → OK → Overhaul or replace the button 80

↓

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Not OK

Bridge the N coloured cables at the electric windows control panels 78 & 79 with an earth → Not OK → Overhaul or replace panels 78 & 79

OK

Bridge the N coloured cable at connector 35 with an earth → Not OK → Restore continuity of N coloured cable btwn connector 35 & con. panel 80

OK

Check condition of N coloured cable btwn con. 35 & earth on dash 22 → Not OK → Restore the continuity of the N coloured cables

The left rear electric window is not working when operated by the left front panel

Check for voltage at the RN coloured cable for the electric window control panel 78 → Not OK → Restore continuity for RN coloured cable btwn panel 78 & electric windows inhibiting button 80

OK

Check the condition of the electric window control panel 78 → Not OK → Overhaul or replace the panel 78

4A438N

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The left rear electric window is not working when operated by the left rear panel

Check for voltage at the RN coloured cable pin 15 of connector 35 → Not OK → Restore continuity for RN coloured cable btwn connector 35 & electric windows inhibitor button 80

↓

OK

↓

Check for voltage at the RN coloured cable pin 7 for connector 28A → Not OK → Restore the continuity for the RN coloured cable between connector 28A & connector 35

↓

OK

↓

Check for voltage at the RN coloured cable for connector 86 → Not OK → Restore the continuity for the RN coloured cable between connector 86 & connector 28A

↓

OK

↓

Check for voltage at the RN coloured cable at the electric window control panel 82 → Not OK → Restore the continuity for the RN coloured cable between panel 82 & connector 86

↓

OK

↓

Check the condition of the electric window control panel 82 → Not OK → Overhaul or replace the control panel 82

4A439N

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55D.

The right rear electric window is not working when operted by the left front panel

Check for voltage at the RN coloured cable for the electric window control panel 79 → Not OK → Restore continuity for the RN coloured cable between panel 79 & electric windows inhibitor button 80

↓

OK

↓

Check the condition of the electric window control panel 79 → Not OK → Overhaul or replace the panel 79

The right rear electric window is not working when operated by the right rear panel

Check for voltage at the RN coloured cable pin 12 for connector 35 → Not OK → Restore continuity for RN coloured cable btwn connector 35 & electric windows inhibitor button 80

↓

OK

↓

Check for voltage at the RN coloured cable pin 14 for connector 28A → Not OK → Restore the continuity for the RN coloured cable between connector 28A & connector 35

↓

OK

↓

Check for voltage at the RN coloured cable for connector 87 → Not OK → Restore the continuity for the RN coloured cable between connector 87 & connector 28A

↓

OK

↓

4A440N

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Check for voltage at the RN coloured cable at the electric window control panel 83 → Not OK → Restore the continuity for the RN coloured cable between panel 83 & connector 87

↓

OK

↓

Check the condition of the electric window control panel 83 → Not OK → Overhaul or replace the panel 83

The left rear electric window is not working

Bridge the N coloured cable at the electric window control panel 78 with an earth → OK → Restore the continuity of the N coloured cable between panel 78 & the ultrasound welding

↓

Not OK

↓

Extract the connector for the panel 78 from its housing, bridge the RN/AN and AB/N coloured cables → OK → Overhaul or replace the panel 78

↓

Not OK

↓

Extract the connector for the panel 78 from it housing, bridge the RN/AB and N/AN coloured cables → OK → Overhaul or replace the panel 78

↓

Not OK

↓

4A441N

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55D.

Extract the connector for the panel 82 from its housing, bridge the RN/ZG and BV/AB coloured cables → OK → Overhaul or replace the panel 82

↓

Not OK

↓

Extract the connector for panel 82 from its housing, bridge the RN/BV and ZG/AN coloured cables → OK → Overhaul or replace the panel 82

↓

Not OK

↓

Extract connectors for panels 78 & 82 from their housings, bridge AN & AB coloured cables at connector for panel 82 & insert an ohmmeter btwn AN & AB coloured cables for connector for panel 78 → Not OK → Restore the continuity for the AN and AB coloured cables btwn panels 78 & 82

↓

OK

↓

Extract the connectors for panel 82 and motor 84 from their housings, bridge ZG & BV coloured cables at connector for motor 84 and insert an ohmmeter btwn ZG & BV coloured cables at connector for panel 82 → Not OK → Restore the continuity for the ZG and BV coloured cables between motor 84 & panel 82

↓

OK

↓

Check the condition of the electric window motor 84 → Not OK → Overhaul or replace the motor 84

4A442N

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The right rear electric window is not working

Bridge the N coloured cable at the electric window control panel 79 with an earth → OK → Restore the continuity of the N coloured cable between panel 79 & the ultrasound welding

↓

Not OK

↓

Extract the connector for panel 79 from its housing, bridge the RN/GN & N/GV coloured cables → OK → Overhaul or replace the panel 79

↓

Not OK

↓

Extract the connector for panel 79 from its housing, bridge the RN/GV & N/GN coloured cables → OK → Overhaul or replace the panel 79

↓

Not OK

↓

Extract the connector for panel 83 from its housing, bridge the RN/ZB & BR/GV coloured cables → OK → Overhaul or replace the panel 83

↓

Not OK

↓

Extract the connector for panel 83 from its housing, bridge the RN/BR & ZB/GN coloured cables → OK → Overhaul or replace the panel 83

↓

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55D.

Not OK

Extract connectors for control panels 79 & 83, bridge GN & GV coloured cables at connector for control panel 83 & insert an ohmmeter between GN & GV coloured cables at connector for panel 79 → Not OK → Restore the continuity for GN and GV coloured cables between panels 79 & 83

OK

Extract connectors for panel 83 & motor 85 from their housings, bridge BR & ZB coloured cables at connector for motor 85 & insert an ohmmeter btwn BR & ZB coloured cables at connector for panel 83 → Not OK → Restore the continuity for BR & ZB coloured cables between motor 85 and panel 83

OK

Check the condition of the electric window motor 85 → Not OK → Overhaul or replace the motor 85

4A444N

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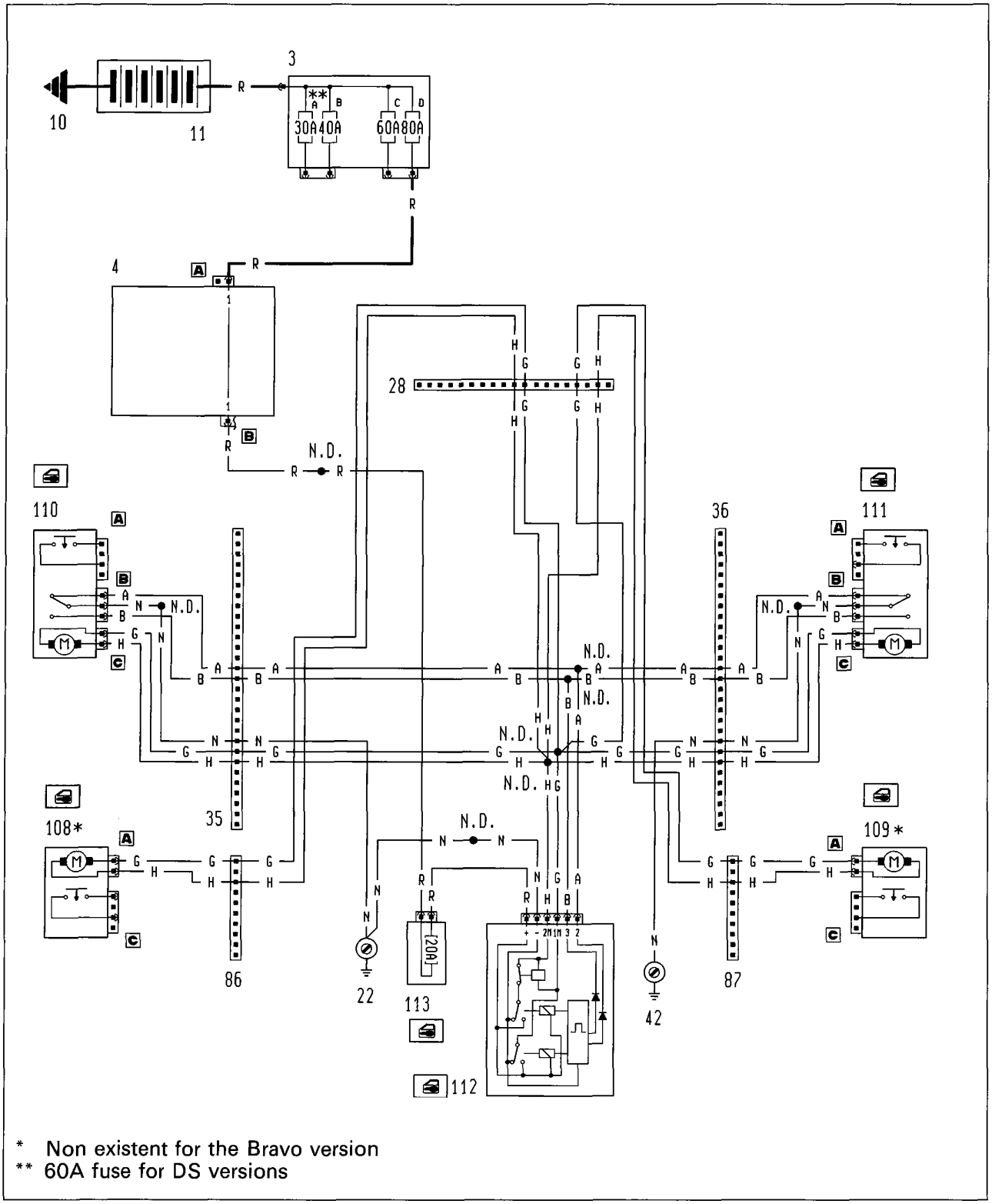
Version without alarm: S - SX - GT

Central locking - (See key at end of wiring diagrams)



* Non existent for the Bravo version
** 60A fuse for DS versions

4A445N

P4A061N02

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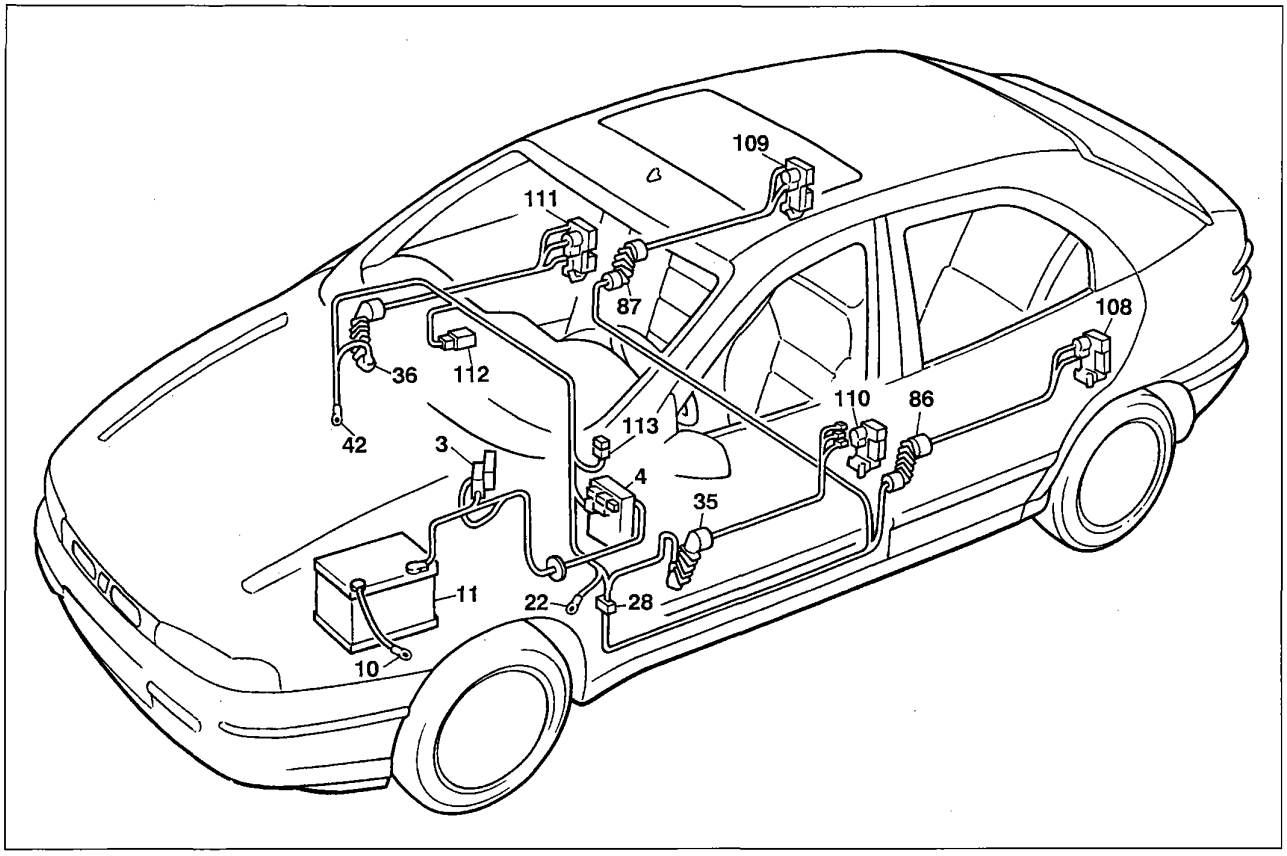

P4A063N02

Version without alarm: S - SX - GT

Central locking

Components key

3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
10 Earth for battery on bodyshell
11 Battery
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
35 Dashboard/left front door cables connection
36 Dashboard/right front door cables connection
42 Right dashboard earth
86 Longitudinal/left rear door cables connection
87 Longitudinal/right rear door cables connection
108 Left rear central locking/alarm switch
109 Right rear central locking/alarm on switch
110 Left front central locking/alarm on switch
111 Right front central locking/alarm on switch
112 Central door locking control unit
113 20A protective fuse for central locking system
N.D. Ultrasound welding taped in cable loom

4A446N

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The central locking is not working

Check the condition of the fuse 113 protecting the central locking system → Not OK → Check for a short circuit in the system and replace the fuse 113

↓

OK

↓

Check for voltage at one of the R coloured cables for fuse 113 → Not OK → Restore cont. of R coloured cable between fuse 113 & ultrasound welding

↓

OK

↓

Check for voltage at the R coloured cable for the central locking control unit 112 → Not OK → Restore continuity of R coloured cable between control unit 112 & fuse 113

↓

OK

↓

Bridge the N coloured cable at the central door locking control unit with an earth → OK → Restore continuity of N coloured cable between control unit 112 & earth on dashboard 22

↓

Not OK

↓

Extract connectors 35 & 112 from their housings, bridge H/G coloured cables at the control unit 112 & insert an ohmmeter at H/G coloured cables for the connector 35 → Not OK → Restore the continuity for the H/G coloured cables between the control unit 112 and the ultrasound welding

↓

4A447N

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55D.

OK

Check the condition of the central locking control unit 112 → Not OK → Overhaul or replace the control unit 112

The central locking is not locking the doors

Bridge the A coloured cable at the central locking control unit 112 with an earth → OK → Restore the continuity of the A coloured cable between the control unit 112 and the ultrasound welding

Not OK

Check the condition of the control locking control unit 112 → Not OK → Overhaul or replace the control unit 112

The central locking does not lock the doors controlled by the left front lock

Bridge the N coloured cable at the left front central locking 110 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 110 and the earth on dashboard 22

Not OK

Extract connectors 112 & 35 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 35 → Not OK → Restore cont. of A coloured cable between control unit 112 and connector 35

4A448N

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OK

Extract connectors 112 & 110 from their housings, bridge A/B coloured cables at the control unit connector 112 & insert an ohmmeter between the A/B coloured cables of the lock assy 110 → Not OK → Restore the continuity of the A coloured cable between the connector 35 and the lock assembly 110

OK

Bridge the A/N coloured cables at the left front lock assembly 110 → OK → Overhaul or replace the lock assembly 110

Not OK

Check the condition of the left front lock assembly 110 → Not OK → Overhaul or replace the lock assembly 110

The central locking does not lock the doors operated by the right front lock

Bridge the N coloured cable at the right front central locking 111 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

Not OK

4A449N

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55D.

Extract connectors 112 & 36 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 36 → Not OK → Restore continuity of A coloured cable btwn control unit 112 & connector 36

↓

OK

↓

Extract connectors 112 & 111 from their housings, bridge A/B coloured cables at the control unit connector 112 & insert an ohmmeter between A/B coloured cables of lock assy 111 → Not OK → Restore the continuity of the A coloured cable between the connector 36 and the lock assembly 111

↓

OK

↓

Bridge the A/N coloured cables at the left front lock assembly 111 → OK → Overhaul or replace the lock assembly 111

↓

Not OK

↓

Check the condition of the left front lock assembly 111 → Not OK → Overhaul or replace the lock assembly 111

The central locking is not unlocking the doors

Bridge the B coloured cable at the central locking control unit 112 with an earth → OK → Restore the continuity of the B coloured cable between the control unit 112 and the ultrasound welding

↓

4A450N

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Not OK

Check the condition of the central locking control unit 112 → Not OK → Overhaul or replace the control unit 112

The central locking does not unlock the doors controlled by the left front lock

Bridge the N coloured cable at the left front central locking 110 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

Not OK

Extract connectors 112 & 35 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 35 → Not OK → Restore cont. of B coloured cable between control unit 112 & connector 35

OK

Extract connectors 112 and 110 from their housings, bridge the A/B cables at the control unit connector 112 and insert an ohmmeter between the A/B coloured cables of the lock assy 110 → Not OK → Restore the continuity of the B coloured cable between the connector 35 and the lock assembly 110

OK

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55D.

Bridge the B/N coloured cables at the left front lock assembly 110 → OK → Overhaul or replace the lock assembly 110

↓

Not OK

↓

Check the condition of the left front lock assembly 110 → Not OK → Overhaul or replace the lock assembly 110

The central locking does not unlock the doors operated by the right front lock

Bridge the N coloured cable at the right front central locking 111 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

↓

Not OK

↓

Extract connectors 112 & 36 from their housings, bridge A/B coloured cables at the control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 36 → Not OK → Restore continuity of B coloured cable btwn control unit 112 and connector 36

↓

OK

↓

Extract connectors 112 and 111 from their housings, bridge the A/B cables at the control unit connector 112 and insert an ohmmeter between the A/B coloured cables of the lock assy 111 → Not OK → Restore the continuity of the B coloured cable between the connector 36 and the lock assembly 111

↓

4A452N

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OK

Bridge the B/N coloured cables at the right front lock assembly 111 → OK → Overhaul or replace the lock assembly 111

Not OK

Check the condition of the right front lock assembly 111 → Not OK → Overhaul or replace the lock assembly 111

The left front central locking motor is not working

Extract connectors 112 and 35 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables of connector 35 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 35

OK

Extract connectors 35 and 110 from their housings, bridge the H/G coloured cables at connector 35 and insert an ohmmeter between the H/G coloured cables at the lock assy connector 110 → Not OK → Restore the continuity for the H/G coloured cables between the connector 35 and the lock assembly 110

OK

Check the condition of the left front central locking motor 110 → Not OK → Overhaul or replace the central locking motor 110

4A453N

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55D.

The right front central locking motor is not working

Extract connectors 112 and 36 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables of connector 36 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 36

↓

OK

↓

Extract connectors 36 and 111 from their housings, bridge the H/G coloured cables at connector 36 and insert an ohmmeter between the H/G coloured cables at the lock assy connector 111 → Not OK → Restore the continuity for the H/G coloured cables between the connector 36 and the lock assembly 111

↓

OK

↓

Check the condition of the right front central locking motor 111 → Not OK → Overhaul or replace the central locking motor 111

The left rear central locking motor is not working (Non existent for the Bravo versions)

Extract connectors 112 and 86 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables of connector 86 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 86

↓

OK

↓

4B464N

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Extract connectors 86 and 108 from their housings, bridge the H/G coloured cables at connector 86 and insert an ohmmeter between the H/G coloured cables at the lock assy connector 108 → Not OK → Restore the continuity for the H/G coloured cables between the connector 86 and the lock assembly 108

↓

OK

↓

Check the condition of the left rear central locking motor 108 → Not OK → Overhaul or replace the central locking motor 108

The right rear central locking motor is not working (Non existent for the Bravo versions)

Extract connectors 112 and 87 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables of connector 87 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 87

↓

OK

↓

Extract connectors 87 and 109 from their housings, bridge the H/G coloured cables at connector 87 and insert an ohmmeter between the H/G coloured cables at the lock assy connector 109 → Not OK → Restore the continuity for the H/G coloured cables between the connector 87 and the lock assembly 109

↓

OK

↓

Check the condition of the left rear central locking motor 109 → Not OK → Overhaul or replace the central locking motor 109

4A455N

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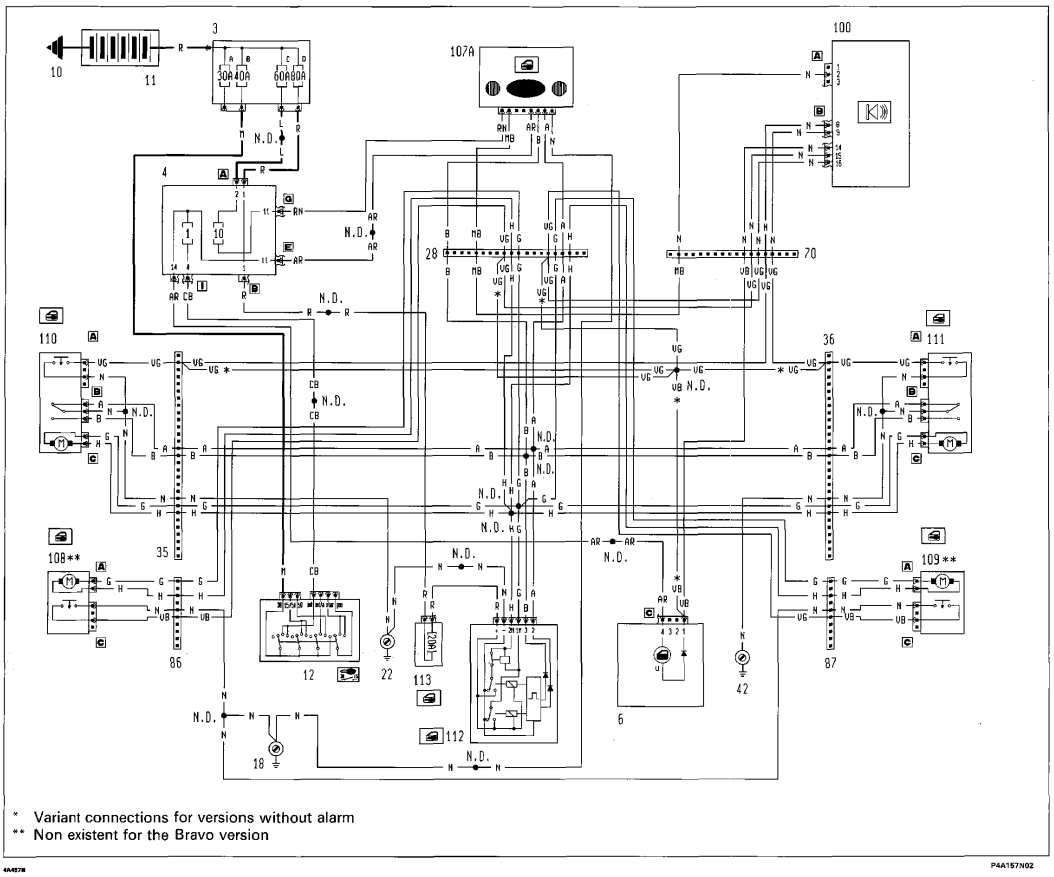
Version: EL - ELX - HGT

Central door locking and car doors not shut warning system - (See key at end of wiring diagrams)



* Variant connections for versions without alarm
** Non existent for the Bravo version

4A457E

P4A157N02

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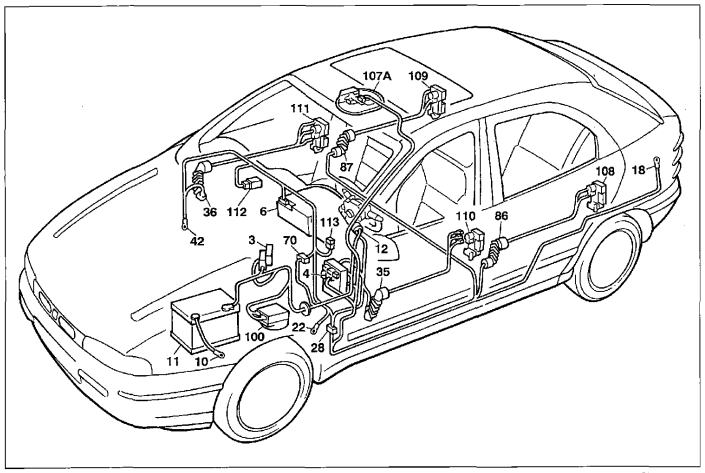


P4A169N02

Version: EL - ELX - HGT

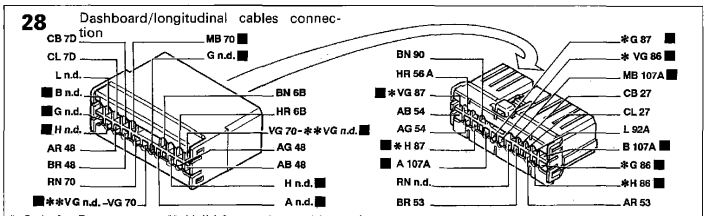
Central door locking and car doors not shut warning system

Components key

3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
6 Instrument panel:
U Doors ajar warning light
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
18 Left rear earth
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
35 Dashboard/left front door cables connection
36 Dashboard/right front door cables connection
42 Right dashboard earth
70 Dashboard/front cables connection
86 Longitudinal/left rear door cables connection
87 Longitudinal/right rear door cables connection
100 Alarm device electronic control unit
107A Central locking remote control receiver
108 Left rear central locking/alarm switch
109 Right rear central locking/alarm on switch
111 Right front central locking/alarm on switch
112 Central door locking control unit
113 20A protective fuse for central locking system
N.D. Ultrasound welding taped in cable loom

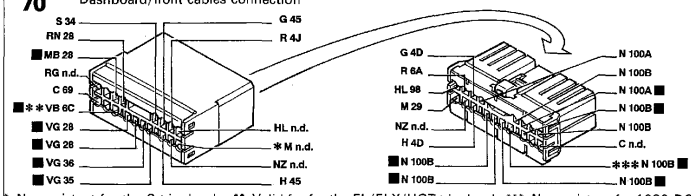
4A455N

28 Dashboard/longitudinal cables connection



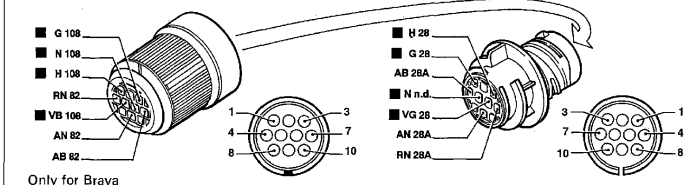
* Only for Brava ** Valid for versions without alarm

70 Dashboard/front cables connection



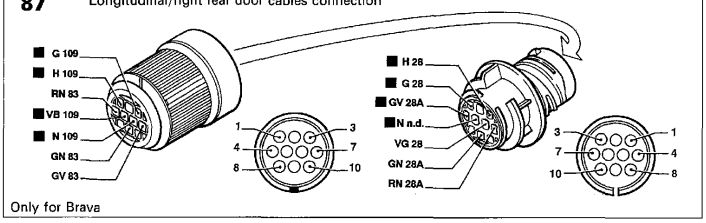
* Non existent for the S trim level ** Valid for the EL/ELX/HGT trim level *** Non existent for 1929 DS

86 Longitudinal/left rear door cables connection



Only for Brava

87 Longitudinal/right rear door cables connection



Only for Brava

P4A169N02

The cables for the wiring diagram are marked

4A455N

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The central locking is not working

Check the condition of the fuse 113 protecting the central locking system → Not OK → Check for a short circuit in the system and replace the fuse 113

↓

OK

↓

Check for voltage at one of the R coloured cables for fuse 113 → Not OK → Restore continuity of R coloured cable btwn fuse 113 & ultrasound welding

↓

OK

↓

Check for voltage at the R coloured cable for the central locking control unit 112 → Not OK → Restore cont. of R coloured cable between control unit 112 and fuse 113

↓

OK

↓

Bridge the N coloured cable at the central locking control unit with an earth → OK → Restore the continuity of the N coloured cable between the control unit 112 and the earth on dashboard 22

↓

Not OK

↓

Extract connectors 35 & 112 from their housings, bridge H/G coloured cables at control unit 112 & insert an ohmmeter at H/G coloured cables for connector 35 → Not OK → Restore the continuity for the H/G coloured cables between the control unit 112 and the ultrasound welding

↓

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55D.

OK

Check the condition of the control locking control unit 112 → Not OK → Overhaul or replace the control unit 112

The central locking is not working operated by the remote control

Check the voltage of the accumulator inside the remote control → Not OK → Replace the accumulator

OK

Check the condition of the fuse 10 inside the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 10

OK

Check for voltage at the RN coloured cable for receiver 107A → Not OK → Restore the continuity for the RN coloured cable between the receiver 107A and the connector G of the junction unit 4

OK

Bridge the N coloured cable at the central locking remote control receiver 107A with an earth → OK → Restore the continuity of the N coloured cable between the receiver 107A and the ultrasound welding

Not OK

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Check the condition of the central locking receiver 107A → Not OK → Overhaul or replace the receiver 107A

↓

OK

↓

Check the condition of the central locking remote control → Not OK → Overhaul or replace the remote control

The central locking does not lock the doors operated by the receiver

Bridge the A coloured cable at connector 28 with an earth → Not OK → Restore the continuity of the A coloured cable between the connector 28 and the ultrasound welding

↓

OK

↓

Bridge the A coloured cable at the receiver 107A with an earth → Not OK → Restore continuity of A coloured cable between receiver 107A & connector 28

↓

OK

↓

Check the condition of the receiver 107A → Not OK → Overhaul or replace the receiver 107A

The central locking does not unlock the dorrs operated by the receiver

Bridge the B coloured cable at connector 28 with an earth → Not OK → Restore the continuity of the B coloured cable between the connector 28 and the ultrasound welding

↓

OK

↓

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55D.

Bridge the B coloured cable at the receiver 107A with an earth → Not OK → Restore the continuity of the B coloured cable between the receiver 107A and the ~~connector 28~~

↓

OK

↓

Check the condition of the receiver 107A → Not OK → Overhaul or replace the receiver 107A

The central locking is not working operated by the alarm device control unit

Bridge MB coloured cable btwn connectors 28 & 70 → OK → Restore the continuity of the MB coloured cable between connectors 28 & 70

↓

Not OK

↓

Bridge the MB coloured cable between the alarm control unit 100 connector A pin 2 and the receiver 107A → OK → Restore the continuity of the MB coloured cable between the alarm control unit 100 and the receiver 107A

↓

Not OK

↓

Check the condition of the receiver 107A → Not OK → Overhaul or replace the receiver 107A

↓

OK

↓

Check the condition of the alarm control unit 100 → Not OK → Overhaul or replace the control unit 100

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The doors ajar warning light is not working (For the versions with an alarm)

Bridge the VB coloured cable at connector 70 with an earth → OK → Restore the continuity for the VB coloured cable (N) between connector 70 and the alarm control unit 100 connector B pin 14

↓

Not OK

↓

Bridge the VB coloured cable at the instrument panel 6 connector C pin 1 with an earth → OK → Restore the continuity for the VB coloured cable between the instrument panel 6 and the connector 70

↓

Not OK

↓

Check the condition of the warning light U in the instrument panel 6 → Not OK → Replace the warning light U

↓

OK

↓

Check the condition of the instrument panel 6 → Not OK → Overhaul or replace the panel 6

The doors ajar warning light is not working (For versions without alarm)

Bridge the VB coloured cable at the Instrument panel 6 connector C pin 1 with an earth → OK → Restore the continuity for the VB coloured cable between the instrument panel 6 and the connector 70

↓

Not OK

↓

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55D.

Check the condition of the warning light U in the instrument panel 6	Not OK	Replace the warning light U
OK		
Check the condition of the instrument panel 6	Not OK	Overhaul or replace the panel 6

The central locking does not lock the doors

Bridge the A coloured cable at the central locking control unit 112 with an earth	OK	Restore the continuity of the A coloured cable between the control unit 112 and the ultrasound welding
Not OK		
Check the condition of the control locking control unit 112	Not OK	Overhaul or replace the control unit 112

The central locking does not lock the doors operated by the left front lock

Bridge the N coloured cable at the left front central locking 110 with an earth	OK	Restore the continuity of the N coloured cable between the central locking 110 and the earth on dashboard 22
Not OK		

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Extract connectors 112 & 35 from their housings, bridge A/B coloured cables at the control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 35 → Not OK → Restore continuity of A coloured cable between control unit 112 & connector 35

↓

OK

↓

Extract connectors 112 & 110 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between the A/B coloured cables of the lock assy 110 → Not OK → Restore the continuity of the A coloured cable between the connector 35 and the lock assembly 110

↓

OK

↓

Bridge the A/N coloured cables at the left front lock assembly 110 → OK → Overhaul or replace the lock assembly 110

↓

Not OK

↓

Check the condition of the left front lock assembly 110 → Not OK → Overhaul or replace the lock assembly 110

The central locking does not lock the doors operated by the right front lock

Bridge the N coloured cable at the right front central locking 111 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

↓

Not OK

↓

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55D.

Extract connectors 112 & 36 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between A/B coloured cables for connector 36 → Not OK → Restore cont. of A coloured cable between control unit 112 & connector 36

↓

OK

↓

Extract connectors 112 & 111 from their housings, bridge A/B coloured cables at the control unit connector 112 and insert an ohmmeter between the A/B coloured cables of the lock assy 111 → Not OK → Restore the continuity of the A coloured cable between the connector 36 and the lock assembly 111

↓

OK

↓

Bridge the A/N coloured cables at the left front lock assembly 111 → OK → Overhaul or replace the lock assembly 111

↓

Not OK

↓

Check the condition of the left front lock assembly 111 → Not OK → Overhaul or replace the lock assembly 111

The central locking does not unlock the doors

Bridge the B coloured cable at the central locking control unit 112 with an earth → OK → Restore the continuity of the B coloured cable between the control unit 112 and the ultrasound welding

↓

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Not OK

Check the condition of the central locking control unit 112 → Not OK → Overhaul or replace the control unit 112

The central locking does not unlock the doors operated by the left front lock

Bridge the N coloured cable at the left front central locking 110 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

Not OK

Extract connectors 112 & 35 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter btwn A/B coloured cables for connector 35 → Not OK → Restore cont. of B coloured cable between control unit 112 & connector 35

OK

Extract connectors 112 and 110 from their housings, bridge the A/B cables at the control unit connector 112 and insert an ohmmeter between the A/B coloured cables of the lock assy 110 → Not OK → Restore the continuity of the B coloured cable between the connector 35 and the lock assembly 110

OK

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55D.

Bridge the B/N coloured cables at the left front lock assembly 110 → OK → Overhaul or replace the lock assembly 110

↓

Not OK

↓

Check the condition of the left front lock assembly 110 → Not OK → Overhaul or replace the lock assembly 110

The central locking does not unlock the doors operated by the right front lock

Bridge the N coloured cable at the right front central locking 111 with an earth → OK → Restore the continuity of the N coloured cable between the central locking 111 and the earth on dashboard 42

↓

Not OK

↓

Extract connectors 112 & 36 from their housings, bridge A/B coloured cables at control unit connector 112 & insert an ohmmeter between A/B coloured cables of connector 36 → Not OK → Restore the continuity of the B coloured cable between the control unit 112 and the connector 36

↓

OK

↓

Extract connectors 112 and 111 from their housings, bridge the A/B cables at the control unit connector 112 and insert an ohmmeter between the A/B coloured cables of the lock assy 111 → Not OK → Restore the continuity of the B coloured cable between the connector 36 and the lock assembly 111

↓

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OK

Bridge the B/N coloured cables at the right front lock assembly 111 → OK → Overhaul or replace the lock assembly 111

Not OK

Check the condition of the right front lock assembly 111 → Not OK → Overhaul or replace the lock assembly 111

The left front central locking motor is not working

Extract connectors 112 and 35 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables of connector 35 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 35

OK

Extract connectors 35 and 110 from their housings, bridge the H/G coloured cables at connector 35 and insert an ohmmeter between the H/G coloured cables at the lock assy connector 110 → Not OK → Restore the continuity for the H/G coloured cables between the connector 35 and the lock assembly 110

OK

Check the condition of the left front central locking motor 110 → Not OK → Overhaul or replace the central locking motor 110

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55D.

The right front central locking motor is not working

Extract connectors 112 and 36 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables for connector 36 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 36

↓

OK

↓

Extract connectors 36 and 111 from their housings, bridge the H/G coloured cables at connector 36 and insert an ohmmeter between the H/G coloured cables at the lock 111 connector → Not OK → Restore the continuity for the H/G coloured cables between the connector 36 and the lock 111

↓

OK

↓

Check the condition of the right front central locking motor 111 → Not OK → Overhaul or replace the central locking motor 111

The left rear central locking motor is not working (Non existent for the Bravo versions)

Extract connectors 112 and 86 from their housings, bridge the H/G coloured cables at the central locking control unit connector 112 and insert an ohmmeter between the H/G coloured cables at connector 86 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 86

↓

OK

↓

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Extract connectors 86 & 108 from their housings, bridge the H/G coloured cables at connector 86 and insert an ohmmeter between the H/G coloured cables at the connector for the lock 108 → Not OK → Restore the continuity for the H/G coloured cables between the connector 86 and the lock assembly 108

↓

OK

↓

Check the condition of the left rear central locking motor 108 → Not OK → Overhaul or replace the central locking motor 108

The righ rear central locking motor is not working (Non existent for the Bravo versions)

Extract connectors 112 & 87 from their housings, bridge the H/G col. cables at the central locking c/unit connector 112 & insert an ohmmeter btwn the H/G col. cables for connector 87 → Not OK → Restore the continuity for the H/G coloured cables between the ultrasound welding and the connector 87

↓

OK

↓

Extract connectors 87 & 109 from their housings, bridge the H/G coloured cables at connector 87 & insert an ohmmeter btwn the H/G coloured cables at the connector for the lock assy 109 → Not OK → Restore the continuity for the H/G coloured cables between the connector 87 and the lock assembly 109

↓

OK

↓

Check the condition of the left rear central locking motor 109 → Not OK → Overhaul or replace the central locking motor 109

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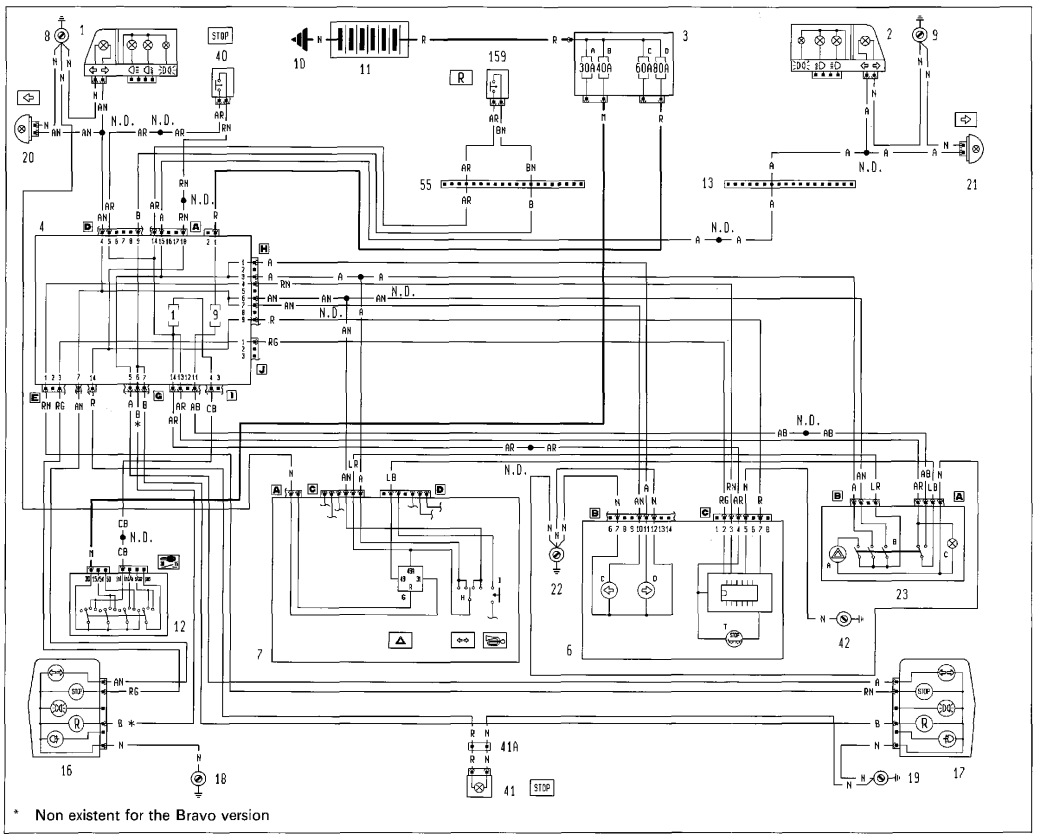
Trim level: EL - ELX - HGT

Direction indicators and warning light - Hazard warning lights and warning light - Braking lights - Reversing lights - (See key at end of wiring diagrams)



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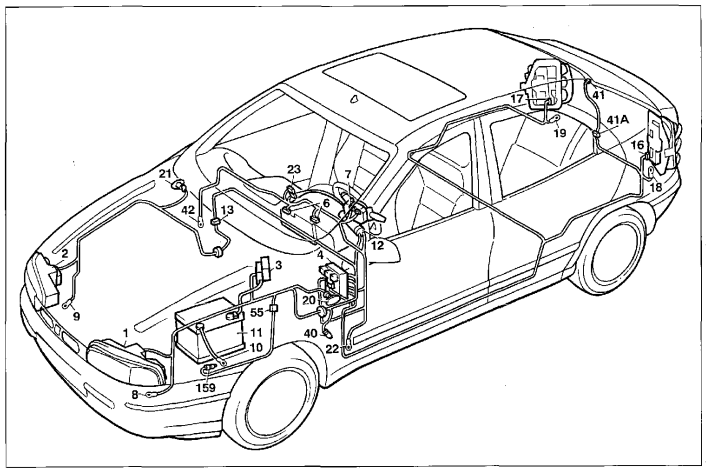


P4A123N02

Trim level: EL - ELX - HGT

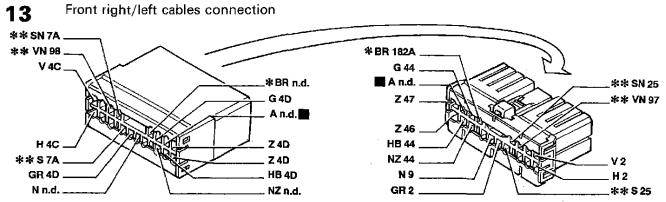
Direction indicators and warning light - Hazard warning lights and warning light - Braking lights - Reversing lights

Components key

1 Left front light cluster
2 Right front light cluster
3 Power fuse box:
A 30A protective fuse for injection system (60A for DS versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit
6 Instrument panel:
C Left direction indicator warning light
D Right direction indicator warning light
T Warning light signalling brake lights failure
7 Steering column switch unit:
H Switch for direction indicators
I Horn control
8 Left front earth
9 Right front earth
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
13 Front right/left cables connection
16 Left rear light cluster
17 Right rear light cluster
18 Left rear earth
19 Right rear earth
20 Left front side direction indicator
21 Right front side direction indicator
22 Left dashboard earth
23 Hazard warning lights switch unit
A Hazard warning lights warning light
B Hazard warning lights switch
C Hazard warning lights ideogram light
40 Brake lights control switch
41 Additional brake light
41A Additional rear brake light cables connection
42 Right dashboard earth
55 Front/fuel gauge cables connection
159 Reversing lights control switch
N.D. Ultrasound welding taped in cable loom

4A476N

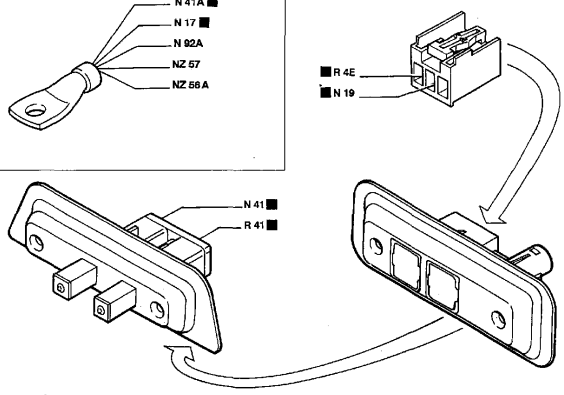
13 Front right/left cables connection



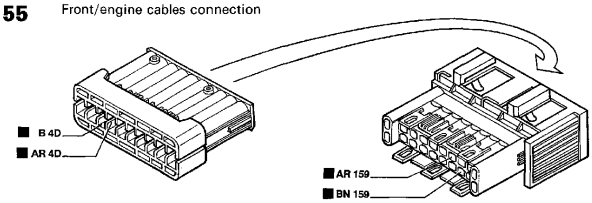
* Only valid for 1998 ** Non existent for 1370

19 Right rear earth

41A Additional brake light rear cables connection



55 Front/engine cables connection



The cables in the wiring diagram are marked

P4A124N02

4A476N

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The direction indicators/hazard warning lights are not working

Bridge AB/LB coloured cables at hazard warning lights switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

Bridge LB col. cable btwn switch 23 & steering col. switch unit 7 connector D → OK → Restore cont. for LB col. cable btwn switch 23 & steering col. switch unit 7

↓

Not OK

↓

Bridge LB col. cable with AN/A coloured cables at steering col. switch unit 7 → OK → Overhaul or replace direction indicators/hazard w/-lights intermittent device G in steering col. switch unit 7, or overhaul unit 7

The direction indicators are not working

Bridge the LR coloured cable with the A/AN coloured cables at connector C for steering col. switch unit 7 → OK → Overhaul or replace the switch for direction indicators H in steering column switch unit 7, or overhaul unit 7

↓

Not OK

↓

Bridge the AR/LB coloured cables at the hazard warning lights control switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

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55D.

Check for voltage at the AR cable at connector A for the hazard warning lights control switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

Check for voltage at the AR coloured cable connector I pin 13 of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The hazard warning lights are not working

Bridge the AB/LB coloured cables at connector A for the hazard warning lights switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

Check for voltage at AB col. cable connector A of hazard warning lights switch 23 → Not OK → Restore the continuity of the AB coloured cable between switch 23 and the ultrasound welding

↓

OK

↓

Bridge LB/LR col. cables at steering col. switch unit 7 → OK → Overhaul or replace the steering col. switch unit 7

↓

Not OK

↓

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Bridge the AB/LR coloured cables at the hazard warning lights switch 23	OK	Restore cont. of LR coloured cable btwn switch 23 & st/ col. switch unit 7

Not OK

Bridge LR coloured cable with A/AN coloured cables at connector B of hazard warning lights switch 23	OK	Overhaul or replace the hazard warning lights switch 23

The left branch of the direction indicators/hazard warning lights is not working operated by the steering column switch unit

Bridge the LR/AN coloured cables at connector C of steering col. switch unit 7	OK	Overhaul or replace switch H controlling direction indicators, or overhaul or replace st/col. switch unit 7

Not OK

Check for voltage at the AN coloured cable at connector C , steering column switch unit 7	OK	Restore continuity of AN col. cable btwn steering col. switch unit 7 & ultrasound welding

The right branch of the direction indicators/hazard warning lights is not working operated by the steering column switch unit

Bridge LR/A coloured cables at connector C of steering col. switch unit 7	OK	Overhaul or replace switch H controlling direction indicators or overhaul or replace st/col. switch unit 7

Not OK

Check for voltage at the A coloured cable at connector C, steering column switch unit 7	OK	Restore the continuity of the A coloured cable between steering column switch unit 7 & the ultrasound welding

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55D.

The left branch of the direction indicators/hazard warning lights is not working operated by the hazard w/lights switch

Bridge the LR/AN coloured cables at connector B of the hazard warning lights switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

Check for voltage at the AN coloured cable at connector B of the hazard warning lights switch 23 → OK → Restore the continuity of the AN coloured cable between switch 23 & the ultrasound welding

The right branch of the direction indicators/hazard warning lights is not working operated by the hazard w/lights switch

Bridge the LR/A coloured cables at connector B of the hazard warning lights switch 23 → OK → Overhaul or replace the hazard warning lights switch 23

↓

Not OK

↓

Check for voltage at the A coloured cable at connector B of the hazard warning lights switch 23 → OK → Restore the continuity of the A coloured cable between switch 23 & the ultrasound welding

The left front and side direction indicators are not working

Check for voltage at the AN coloured cable connector I pin 4 of the junction unit 4 → Not OK → Overhaul the junction unit 4

↓

OK

↓

4A479N

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Check for voltage at the AN coloured cable of the left front light cluster 1	Not OK	Restore the continuity of the AN coloured cable between the junction unit 4, connector I & the ultrasound welding

The right front and side direction indicators are not working

Check for voltage at the A coloured cable connector A pin 15 of the junction unit	Not OK	Overhaul the junction unit 4

OK

Check for voltage at the A coloured cable, connector 13	Not OK	Restore the continuity of the A coloured cable between the junction unit 4, connector A & connector 13

OK

Check for voltage at the A coloured cable of the right front light cluster 2	Not OK	Restore the continuity of the A coloured cable between the right front light cluster 2 & connector 13

The left front direction indicator is not working

Check the condition of the bulb	Not OK	Replace the bulb

OK

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55D.

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

OK

↓

Bridge the N coloured cable at the left front light cluster 1 with an earth → OK → Restore the continuity of the N coloured cable between the left front light cluster 1 & the left front earth 8

↓

Not OK

↓

Check for voltage at the AN coloured cable of the left front light cluster 1 → Not OK → Restore the continuity of the AN coloured cable between the light cluster 1 & the ultrasound welding

The right front direction indicator is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

OK

↓

Bridge the N coloured cable at the right front light cluster 2 with an earth → OK → Restore the continuity of the N coloured cable between the right front light cluster 2 & the right front earth 9

↓

4A481N

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Not OK

Check for voltage at the A coloured cable of the right front light cluster 2 → Not OK → Restore the continuity of the A coloured cable between the light cluster 2 & the ultrasound welding

The left front side direction repeater is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Bridge the N coloured cable at the left front repeater 20 with an earth → OK → Restore the continuity of the N coloured cable between the repeater 20 & the left front earth 8

Not OK

Check for voltage at the AN coloured cable at the left front repeater 20 → Not OK → Restore the continuity of the AN coloured cable between the repeater 20 & the ultrasound welding

The right front side direction repeater is not working

Check the condition of the bulb → Not OK → Replace the bulb

4A482N

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55D.

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Bridge the N coloured cable at the right front repeater 21 with an earth → OK → Restore the continuity of the N coloured cable between the repeater 21 and the right front earth 9

Not OK

Check for voltage at the A coloured cable at the right front repeater 21 → Not OK → Restore the continuity of the A coloured cable between the repeater 21 7 the ultra-sound welding

The left rear direction indicator is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the AN coloured cable of the left rear light cluster 16 → OK → Overhaul or replace the light cluster 16

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Not OK

Check for voltage at the AN coloured cable connector E pin 7 of the junction unit 4 → OK → Restore the continuity of the AN coloured cable between the junction unit 4 connector E and the light cluster 16

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the unit 4

The right rear direction indicator is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

OK

Check for voltage at the A coloured cable for the right rear light cluster 17 → OK → Overhaul or replace the light cluster 17

Not OK

4A484N

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55D.

Check for voltage at the A coloured cable connector G pin 5 of the junction unit 4 → OK → Restore the continuity of the A coloured cable between the junction unit 4 connector G & the light cluster 17

↓

Not OK

↓

Check the condition of the junction unit 4 → Not OK → Overhaul or replace the junction unit 4

The left direction indicators warning light is not working

Check for voltage at the AN coloured cable at connector B pin 10 of the instrument panel 6 → OK → Replace the warning light C in the intrument panel 6, or overhaul the instrument panel 6

↓

Not OK

↓

Check for voltage at the AN coloured cable of connector H pin 7 of the junction unit 4 → OK → Restore the continuity of the AN coloured cable between the unit 4 connector H & the instrument panel 6 connector B

↓

Not OK

↓

Check the condition of the junction unit 4 → Not OK → Overhaul the junction unit 4

The right direction indicators warning light is not working

Check for voltage at the A coloured cable at connector B pin 11 of the instrument panel 6 → OK → Replace the warning light D in the instrument panel 6, or overhaul the instrument panel 6

↓

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Not OK

Check for voltage at the A coloured cable for connector H pin 1 of the junction unit 4 → OK → Restore the continuity of the A coloured cable between the unit 4 connector H & the instrument panel 6 connector B

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul the junction unit 4

The hazard warning lights warning light is not working

Bridge the N coloured cable at connector A of the hazard warning lights switch 23 → OK → Restore continuity of N coloured cable between hazard w/lights switch 23 & earth on dashboard 22

Not OK

Check the condition of the hazard warning lights w/-light A in the hazard w/-lights switch 23 → Not OK → Replace the warning light A

Not OK

Check the condition of the hazard w/lights switch 23 → Not OK → Overhaul or replace the switch 23

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Both the reversing lights are not working

Bridge the AR/BN coloured cables at connector 55 → OK → Restore the continuity for one of the AR/BN coloured cables between connector 55 & reversing switch 159, or replace the reversing lights switch 159

↓

Not OK

↓

Bridge the AR/B coloured cables between connectors A pin 14 & B pin 9 of the junction unit 4 → OK → Restore the continuity for one of the AR/B coloured cables between the junction unit 4 connectors A & B & connector 55

↓

Not OK

↓

Check for voltage at the AR cable connector A pin 14 of the junction unit 4 → Not OK → Overhaul the junction unit 4

↓

OK

↓

Using a cable bridge pin 9 connector D with pin 6 (7) connector G of the junction unit 4 → OK → Overhaul the junction unit 4

The left reversing light is not working (Non existent for the Bravo versions)

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

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Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓ OK

Check for voltage at the B coloured cable for the left rear light cluster 16 → OK → Overhaul or replace the light cluster 16

↓ Not OK

Check for voltage at the B coloured cable connector G pin 6 of the junction unit 4 → OK → Restore the continuity of the B coloured cable between the junction unit 4 connector G & the light cluster 16

↓ Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul the junction unit 4

The right reversing light is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓ OK

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

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55D.

OK

Check for voltage at the B coloured cable for the right rear light cluster 17 → OK → Overhaul or replace the light cluster 17

Not OK

Check for voltage at the B coloured cable connector G pin 7 of the junction unit 4 → OK → Restore the continuity of the B coloured cable between the junction unit 4 connector G & the light cluster 17

Not OK

Check the condition of the junction unit 4 → Not OK → Overhaul the junction unit 4

The brake lights are not working

Bridge the AR/RN coloured cables at the brake lights switch 40 → OK → Overhaul or replace the switch 40

Not OK

Bridge the AR/RN coloured cables at connectors D pin 4 & A pin 18 of the junction unit 4 → OK → Restore the continuity for the AR/RN coloured cables between the junction unit 4, connectors D & A & the brake lights switch 40

Not OK

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Check for voltage at the AR cable connector D pin 5 of the junction unit 4	Not OK	Overhaul the junction unit 4
OK		
Using a cable bridge pin 18 connector A & pin 14 (12,13) connector E of the junction unit 4	OK	Overhaul the junction unit 4

The left brake light is not working (Valid for S/SX/GT versions)

Check the condition of the bulb	Not OK	Replace the bulb
OK		
Check the condition of the bulb holder	Not OK	Overhaul or replace the bulb holder
OK		
Check for voltage at the RG coloured cable for the left rear light cluster 16	OK	Overhaul or replace the light cluster 16
Not OK		
Check for voltage at the RG coloured cable connector E pin 12 of the junction unit 4	OK	Restore the continuity of the RG coloured cable between the junction unit 4, connector E & the light cluster 16

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55D.

↓

Not OK

↓

Bridge the RN/RG coloured cables at connector E pin 12 & 13 of the junction unit 4 → OK → Overhaul the junction unit 4

The right brake light is not working (Valid for S/SX/GT versions)

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

OK

↓

Check for voltage at the RN coloured cable of the right rear light cluster 17 → OK → Overhaul or replace the light cluster 17

↓

Not OK

↓

Check for voltage at the RN coloured cable connector E pin 13 of the junction unit 4 → OK → Restore the continuity for the RN coloured cable between the junction unit 4, connector E & the light cluster 17

↓

Not OK

↓

Bridge the RN/RG coloured cables at connector E pin 12 & 13 of the junction unit 4 → OK → Overhaul the junction unit 4

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The addition brake light is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

OK

↓

Bridge the N coloured cable at the additional brake light 41 with an earth → OK → Restore the continuity of the N coloured cable between the additional brake light 41 and the right rear earth 19

↓

Not OK

↓

Check for voltage at the R coloured cable for the additional brake light 41 → OK → Overhaul or replace the additional rear brake light unit 41

↓

Not OK

↓

Bridge the R/RN coloured cables at connector E pin 14/13 of the junction unit 4 → Not OK → Overhaul the junction unit 4

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The brake lights are not working, but the additional brake light is working (Valid for EL/ELX/HGT versions)

Check for voltage at the R coloured cable connector C pin 7 of the instrument panel 6 → Not OK → Restore the continuity of the R coloured cable between the instrument panel 6 connector C & the junction unit 4 connector H, or overhaul the unit 4

↓ OK

↓

Bridge the N coloured cable at the instrument panel 6 connector C pin 15 with an earth → OK → Restore the continuity of the N coloured cable between the instrument panel 6 & the earth on dashboard 42

↓ OK

↓

Check for voltage at the AR cable of the instrument panel 6 connector C pin 4 → Not OK → Restore the continuity for the AR coloured cable between the instrument panel 6 connector C & the ultrasound welding

↓ OK

↓

Check for voltage at the RN coloured cable of the instrument panel 6 connector C pin 3 → Not OK → Overhaul or replace the brake lights failure control circuit, or overhaul the instrument panel 6

The left brake light is not working (Valid for EL/ELX/HGT versions)

Check the condition of the bulb → Not OK → Replace the bulb

↓ OK

↓

4A493N

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Check the condition of the bulb holder	Not OK	Overhaul or replace the bulb holder
OK		
Check for voltage at the RG coloured cable of the left rear light cluster 16	OK	Overhaul or replace the light cluster 16
Not OK		
Check for voltage at the RG coloured cable connector E pin 3 of the junction unit 4	OK	Restore the continuity of the RG coloured cable between the junction unit 4, connector E & the light cluster 16
Not OK		
Bridge pin 3 connector E & pin 1 connector J of the junction unit 4	OK	Overhaul the junction unit 4
Not OK		
Check for voltage at the RG coloured cable of the instrument panel 6 connector C pin 2	Not OK	Restore the continuity of the RG coloured cable between the instrument panel 6 connector C & the junction unit 4 connector J
OK		

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55D.

Check the condition of the brake lights failure circuit → Not OK → Replace the brake lights failure circuit or overhaul the instrument panel 6

The right brake light is not working (Valid for EL/ELX/HGT versions)

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check the condition of the bulb holder → Not OK → Overhaul or replace the bulb holder

↓

OK

↓

Check for voltage at the RN coloured cable of the right rear light cluster 17 → OK → Overhaul or replace the light cluster 17

↓

Not OK

↓

Check for voltage at the RN coloured cable connector E pin 1 of the junction unit 4 → OK → Restore the continuity for the RN coloured cable between the junction unit 4, connector E & the light cluster 17

↓

Not OK

↓

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Bridge pin 1 connector E & pin 4 connector H of the junction unit 4	OK	Overhaul the junction unit 4
Not OK		
Check for voltage at the RN coloured cable of the instrument panel 6 connector C pin 3	Not OK	Restore the continuity for the RN coloured cable between the instrument panel 6 connector C & the junction unit 4 connector H
OK		
Check the condition of the brake lights failure circuit	Not OK	Replace the brake lights failure circuit, or overhaul the instrument panel 6

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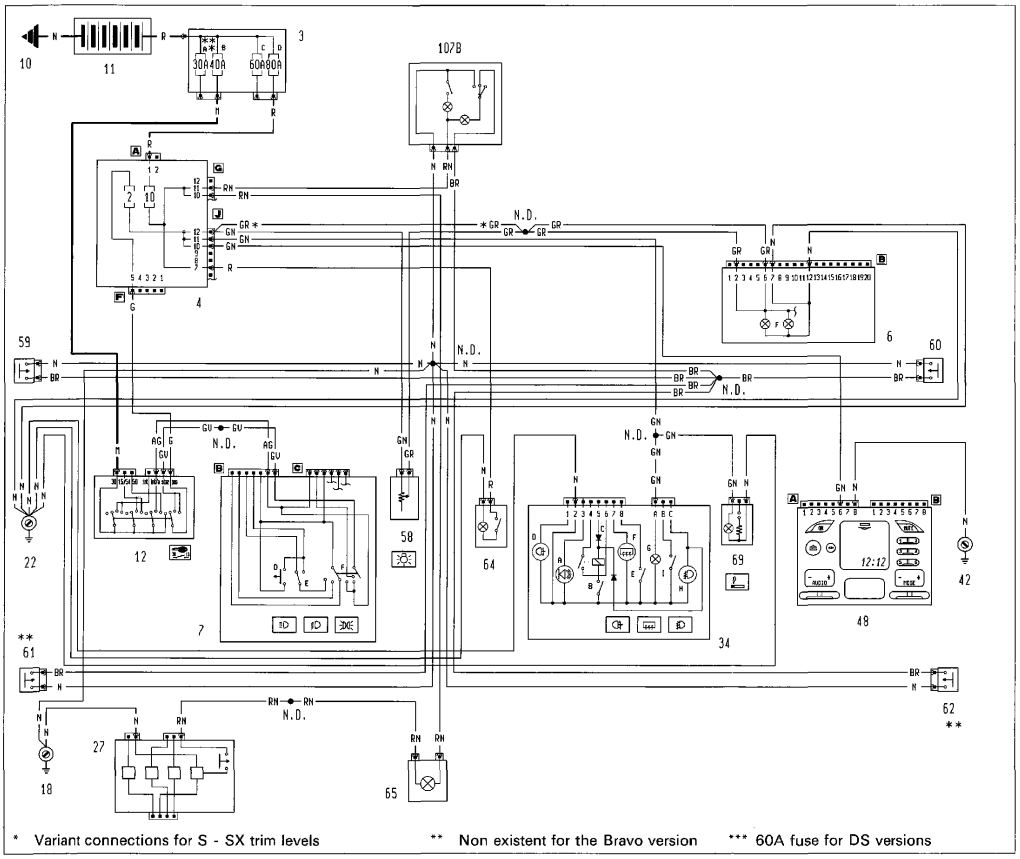
Vehicle interior lights - Ideogram lights - (See key at end of wiring diagrams)



* Variant connections for S - SX trim levels

** Non existent for the Bravo version

*** 60A fuse for DS versions

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P4A133N02

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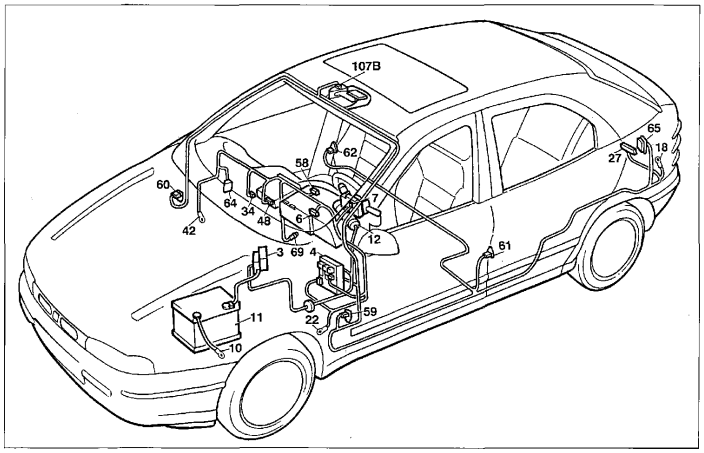


P4A135N02

Vehicle interior lights - Ideogram lights

Components key

3 Power fuse box:
- A 30A protective fuse for injection system (60A for DS versions)
- B 40A protective fuse for ignition system
- C 60A protective fuse for optional extras
- D 80A protective fuse for junction unit

4 Junction unit
6 Instrument panel:
- F Instrument panel ideogram lights

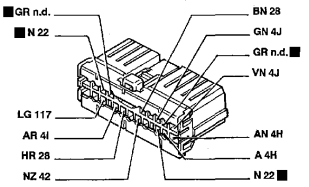
7 Steering column switch unit:
- D Flasher control
- E Switch for dipped/main beam headlamps
- F Switch for side lights

10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
18 Left rear earth
22 Left dashboard earth
27 Contact board for rear connections with luggage compartment light switch incorporated
34 Switch control panel:
- A Anti-theft warning light on
- B Rear fog lamps switch
- C Rear fog lamps relay feed
- D Rear fog lamps warning light
- E Heated rear windscreen switch
- F Heated rear windscreen warning light
- G Switch control unit ideogram light
- H Fog lights warning light
- I Fog lights switch

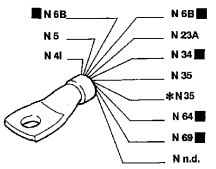
42 Right dashboard earth
48 Radio receiver with clock
58 Light dimmer
59 Push button on left front pillar for courtesy light
60 Push button on right/left pillar for courtesy light
61 Push button on left rear pillar for courtesy light
62 Push button on right rear pillar for courtesy light
64 Glove compartment light bulb with switch incorporated
65 Luggage compartment light/anti-theft device on
69 Cigar lighter
107B Courtesy lights
N.D. Ultrasound welding taped in cable loom

4A469N

6B Instrument panel

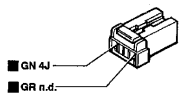


22 Left dashboard earth

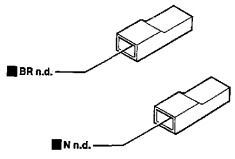


* Only for ELX trim level

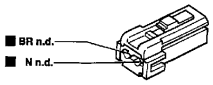
58 Interior light dimmer



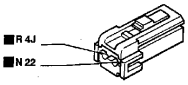
59 Push button on left front pillar for courtesy light



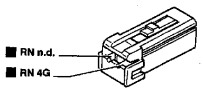
62 Push button on right rear pillar for courtesy light



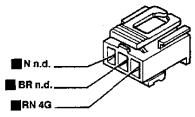
64 Glove compartment light bulb with switch incorporated



65 Luggage compartment light for switching on alarm system



107B Courtesy lights



The cables in the wiring diagram are marked

P4A136N02

4A469N

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The front courtesy light, the glove compartment light and the luggage compartment light are not working

Check the condition of the fuse 10 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 10

↓ OK

↓ Check for voltage at the junction unit 4 connector G pin 11 → Not OK → Overhaul the junction unit 4

↓ OK

↓ Bridge the N coloured cable at the front courtesy light 107B with an earth → OK → Restore the continuity of the N coloured cable between the left rear earth 18 & the ultrasound welding

The front courtesy light is not working

Bridge the N coloured cable at the courtesy light 107B with an earth → OK → Restore the continuity of the N coloured cable between the courtesy light 107B & the left rear earth 18

↓ Not OK

↓ Check for voltage at the RN coloured cable for the courtesy light 107B → Not OK → Restore the continuity for the RN coloured cable between the courtesy light 107B & the junction unit 4 connector G or overhaul the unit 4

↓ OK

↓ Check the condition of the bulbs → Not OK → Replace the bulbs

↓ OK

↓

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Check the condition of the courtesy light 107B	Not OK	Overhaul the courtesy light 107B

The courtesy light is not working when any of the doors are opened

Check the condition of the bulb in the courtesy light 107B	Not OK	Replace the bulb
OK		
Bridge BR/N coloured cables at courtesy light 107B	Not OK	Overhaul or replace the courtesy light 107B
OK		
Bridge the BR coloured cable at the left front push button 60 with an earth	Not OK	Restore the continuity of the N coloured cable between the courtesy light 107B & the ultrasound welding

The courtesy light does not work when the left front door is opened

Bridge the BR/N coloured cables at the left front courtesy light switch 59	OK	Overhaul or replace the left front push button 59
Not OK		
Bridge the BR coloured cable at the left front push button 59 with an earth	Not OK	Restore continuity for BR coloured cable between the left front push button 59 & the ultrasound welding
OK		
Bridge the N coloured cable at the left front push button 59 with an earth	OK	Restore the continuity of the N coloured cable between the left front push button 59 & the ultrasound welding

4A501N

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The courtesy light does not work when the right front door is opened

Bridge the BR/N coloured cables at the right front courtesy light switch 60 → OK → Overhaul or replace the right front push button 60

↓ Not OK

Bridge the BR coloured cable at the right front push button 60 with an earth → Not OK → Restore continuity for BR coloured cable between the right front push button 60 & the ultrasound welding

↓ OK

Bridge the N coloured cable at the right front push button 60 with an earth → OK → Restore continuity of N coloured cable between the right front push button 60 & the ultrasound welding

The courtesy light does not work when the left rear door is opened (Only for Brava versions)

Bridge the BR/N coloured cables at the left rear courtesy light switch 61 → OK → Overhaul or replace the left rear push button 61

↓ Not OK

Bridge the BR coloured cable at the left rear push button 61 with an earth → Not OK → Restore continuity for BR coloured cable between the left rear push button 61 & the ultrasound welding

↓ OK

Bridge the N coloured cable at the left rear push button 61 with an earth → OK → Restore the continuity of the N coloured cable between the left rear push button 61 & the ultrasound welding

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55D.

The courtesy light does not work when the right rear door is opened

Bridge the BR/N coloured cables at the right rear courtesy light switch 62 → OK → Overhaul or replace the right rear push button 62

↓ Not OK

↓ Bridge the BR coloured cable at the right rear push button 62 with an earth → Not OK → Restore continuity for BR coloured cable between the right rear push button 62 & the ultrasound welding

↓ OK

↓ Bridge the N coloured cable at the right rear push button 62 with an earth → OK → Restore the continuity of the N coloured cable between the right rear push button 62 & the ultrasound welding

The glove compartment light is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓ OK

↓ Bridge the N coloured cable at the glove compartment light 64 with an earth → OK → Restore the continuity of the N coloured cable between the glove compartment light 64 and the dash earth

↓ Not OK

↓ Check for voltage at the R coloured cable at the glove compartment light 64 → Not OK → Restore the continuity of the R coloured cable between the light 64 & the junction unit 4 connector J, or overhaul the junction unit 4

↓

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OK

Check the condition of the glove compartment light assembly 64 → Not OK → Overhaul the glove compartment light assembly 64

The luggage compartment light is not working

Check the condition of the bulb → Not OK → Replace the bulb

OK

Bridge the R/N coloured cables at the rear contact board 27 → OK → Overhaul or replace the luggage compartment light push button inside the contact board 27, or overhaul the contact board 27

Not OK

Bridge the N coloured cable at the rear contact board 27 with an earth (Only if the rearscreen wiper is also not working) → OK → Restore the continuity of the N coloured cable between the contact board 27 & the left rear earth 18

Not OK

Check for voltage at the RN coloured cable at the junction unit 4 connector G pin 10 → Not OK → Overhaul the junction unit 4

OK

Check for voltage at the RN coloured cable for the rear contact board 27 → Not OK → Restore the continuity for the RN coloured cable between the junction unit 4 connector G pin 10 & the rear contact board 27, or overhaul the luggage compartment bulb holder 65

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55D.

The ideogram lights are not working

Check the condition of the fuse 2 in the junction unit 4 → Not OK → Check for a short circuit in the system and replace the fuse 2

↓ OK

↓ Check for voltage at one of the GN coloured cables for the junction unit 4 connector J → Not OK → Overhaul the junction unit 4

The ideogram lights in the instrument panel are not working

Check for voltage at the GN coloured cable for the junction unint 4 connector J pin 12 → Not OK → Overhaul the junction unit 4

↓ OK

↓ Bridge the cables GN/GR coloured cables at the light dimmer 58 (Non existent for for the S/SX trim level) → OK → Replace the light dimmer 58

↓ Not OK

↓ Check for voltage at the GN coloured cable at the light dimmer 58 (Non existent for the S/SX trim level) → Not OK → Restore the continuity for the GN coloured cable between the dimmer 58 & the junction unit 4 connector J

↓ OK

↓

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Check for voltage at one of the GR coloured cables of the instrument panel 6 connector B → Not OK → Restore the continuity of the GR coloured cable between the dimmer 58 (For S/SX trim levels), the junction unit 4 connector J pin 12) & the ultrasound welding

↓

OK

↓

Check the condition of the instrument panel 6 → Not OK → Overhaul the instrument panel 6

The ideogram lights in the switch panel and the cigar lighter are not working

Check for voltage at the GN coloured cable of the junction unit 4 connector J pin 11 → Not OK → Overhaul the junction unit 4

↓

OK

↓

Check for voltage at the GN coloured cable for the switch panel 34 → Not OK → Restore the continuity for the GN coloured cable between the junction unit 4 connector J pin 11 & the ultrasound welding

The ideogram in the switch panel is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check for voltage at the GN coloured cable for the switch panel 34 → Not OK → Restore the continuity for the GN coloured cable between the switch panel 34 & the ultrasound welding

↓

OK

↓

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55D.

Check the condition of the switch panel 34 → Not OK → Overhaul the switch panel 34

The ideogram on the cigar lighter is not working

Check the condition of the bulb → Not OK → Replace the bulb

↓

OK

↓

Check for voltage at the GN coloured cable for the cigar lighter 69 → Not OK → Restore the continuity for the GN coloured cable between the cigar lighter 69 & the ultrasound welding

↓

OK

↓

Check the condition of the cigar lighter 69 → Not OK → Overhaul the cigar lighter 69

The radio light is not working

Check for voltage at the GN coloured cable at the junction unit 4 connector J pin 10 → Not OK → Overhaul the junction unit 4

↓

OK

↓

Check for voltage at the GN coloured cable at connector A for the radio 48 → Not OK → Restore the continuity for the GN coloured cable between the junction unit 4 connector J & the radio 48

↓

OK

↓

Check the condition of the radio 48 → Not OK → Overhaul the radio 48

4A507N

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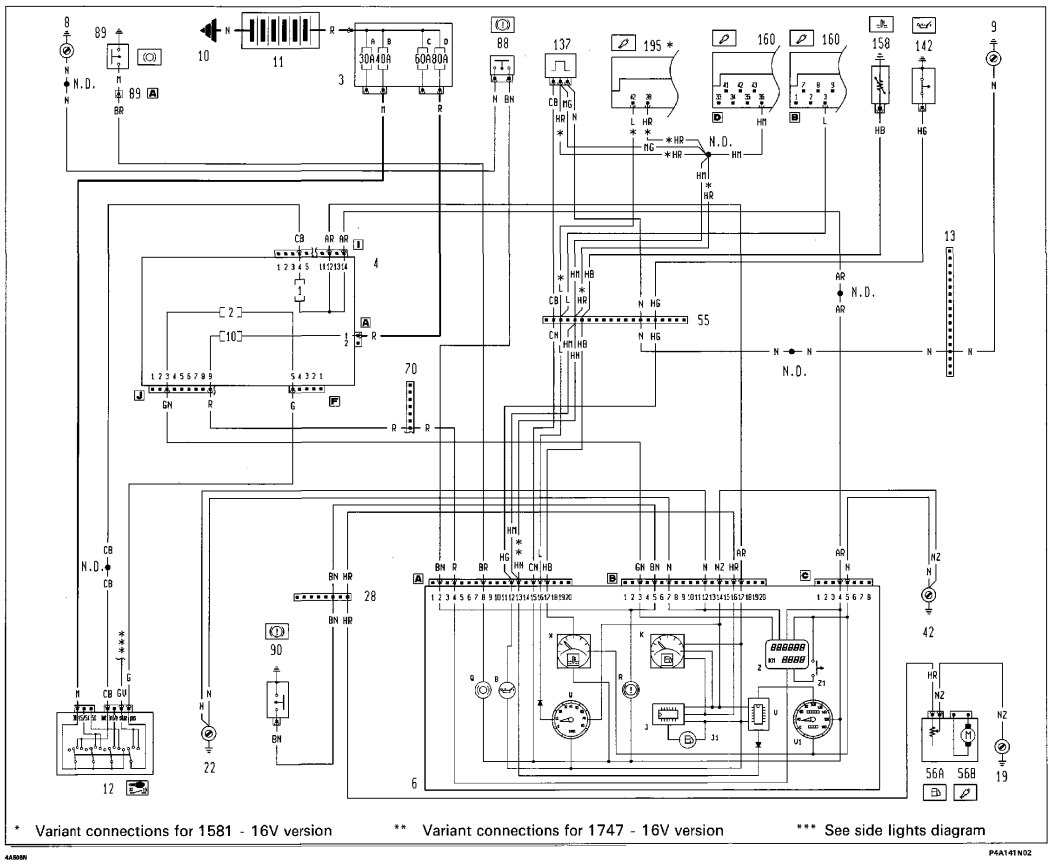
Trim level: EL - ELX

Fuel level gauge and reserve warning light - Handbrake applied/insufficient brake fluid level warning light - Speedometer - Milometer/trip meter display and zeroing button - Water temperature gauge- Insufficient engine oil pressure warning light - Front brake pad wear warning light - Rev counter - (See key at end of wiring diagrams)



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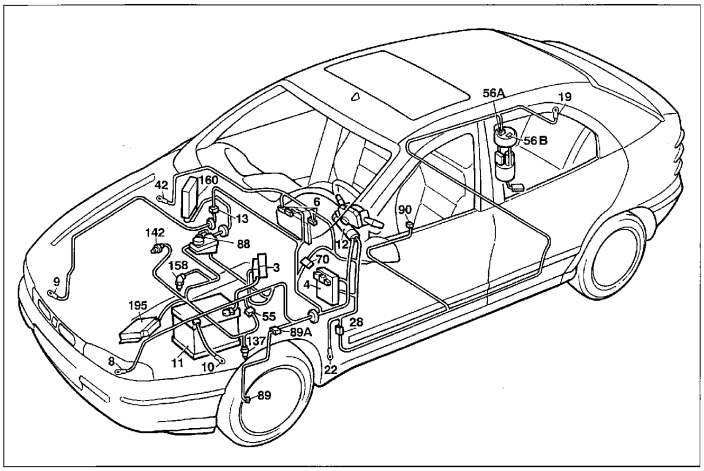


P4A143N02

Trim level: EL - ELX

Fuel level gauge and reserve warning light - Handbrake applied/insufficient brake fluid level warning light - Speedometer - Milometer/trip meter display and zeroing button - Water temperature gauge- Insufficient engine oil pressure warning light - Front brake pad wear warning light - Rev counter

Components key

3 Power fuse box:
- A 30A protective fuse for injection system (60A for DS versions)
- B 40A protective fuse for ignition system
- C 60A protective fuse for optional extras
- D 80A protective fuse for junction unit

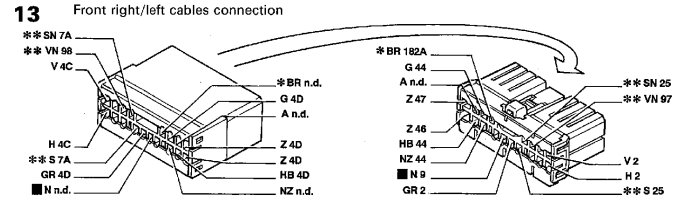
4 Junction unit
6 Instrument panel:
- B Insufficient engine oil pressure warning light
- J Fuel reserve circuit control module
- J1 Warning light signalling fuel reserve
- K Fuel level gauge
- Q Front brake pad wear warning light
- R Hanbrake applied / insufficient brake fluid level warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge
- Z Milometer / trip meter display
- Z1 Trip meter zeroing button

8 Left front earth
9 Right front earth
10 Earth for battery on bodyshell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 Right rear earth
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front/fuel gauge cables connection
56 Fuel level gauge
- A Fuel level sensor
- B Electric fuel pump

70 Dashboard/front cables connection
88 Insufficient brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Switch signalling handbrake applied
137 Vehicle speed sensor
142 Switch signalling insufficient engine oil pressure
158 Coolant temperature sensor for instrument
160 Injection/ignition electronic control unit (1747 Hitachi)
195 Injection/ignition electronic control unit (1581)
N.D. Ultrasound welding taped in cable loom

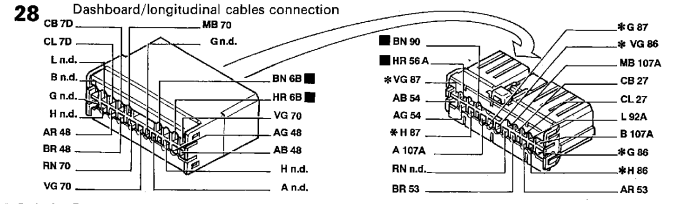
4A918N

13 Front right/left cables connection



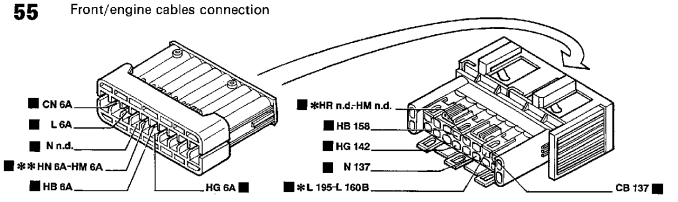
* Only valid for 1998 ** Non existent for 1370

28 Dashboard/longitudinal cables connection



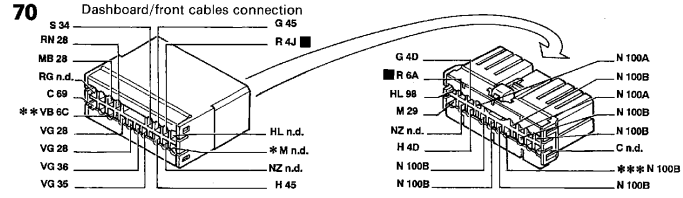
* Only for Brava

55 Front/engine cables connection



* Only valid for 1581 ** Only valid for 1747

70 Dashboard/front cables connection



* Non existent for S trim level ** Valid for EL/ELX/HGT trim level *** Non existent for 1929 DS

The cables in the wiring diagram are marked

P4A144N02

4A926N

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The fuel level gauge is not working

Bridge the HR/NZ coloured cables at the fuel level gauge 56A so that the pointer on the instrument panel 6 gauge K signals the end of scale - full tank → OK → Overhaul or replace the fuel level gauge 56A

↓

Not OK

↓

Bridge the NZ coloured cable at the fuel level gauge 56A with an earth → OK → Restore the continuity for the NZ coloured cable between the assembly 56A & the rear earth 19

↓

Not OK

↓

Bridge the HR coloured cable at connector 28 with an earth so that the instrument panel 6 gauge K pointer signals the end of scale - full tank → OK → Restore the continuity of the HR coloured cable between connector 28 & the fuel level gauge 56A

↓

Not OK

↓

Bridge the HR coloured cable at the instrument panel 6 connector B pin 16 with an earth, so that the instrument panel 6 gauge K pointer signals the end of scale - full tank → OK → Restore continuity for the HR coloured cable between the instrument panel 6 connector B & connector 28

↓

Not OK

↓

4A611N

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Check the condition of the fuel level warning light K in the fuel level circuit J in the instrument panel 6	Not OK	Overhaul or replace the warning light K or the circuit J in the instrument panel 6, or overhaul the instrument panel 6

The engine coolant temperature gauge is not working

Extract the connector for the engine coolant temperature sensor 158 from its housing, connect the terminal for a resistor around 100 ohm in series to the HB coloured cable and connect the other terminal to earth so that the temperature gauge X in the instrument panel signals the end of scale - maximum temperature	OK	Replace the engine coolant temperature sensor 158

Not OK

Extract connector 55 from its housing, connect the terminal of a resistor around 100 ohm in series to the HB coloured cable and connect the other terminal to earth, so that the temperature gauge X in the instrument panel signals the end of scale - maximum temperature	OK	Restore the continuity of the HB coloured cable between connector 55 & temperature sensor 158

Not OK

4A512N

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Extract connector A for the instrument panel from its housing, connect the terminal for a resistor around 100 ohm in series to pin 17 of connector A, at the instrument panel, connect the other terminal to earth so that the temperature gauge X in the instrument panel 6 signals the end of scale - maximum temperature → OK → Restore continuity for the HB coloured cable between the instrument panel 6 connector A & connector 55

↓

Not OK

↓

Check the condition of the water temperature gauge X in the instrument panel 6 → Not OK → Overhaul or replace the gauge X in the instrument panel 6

The handbrake applied and insufficient brake fluid is not being signalled

Check the condition of the warning light R in the instrument panel 6 → Not OK → Replace the warning light R

↓

OK

↓

Bridge the BN coloured cable at the instrument panel 6 connector B pin 6 (or pin 2) with an earth → Not OK → Overhaul the instrument panel 6

The handbrake applied is not being signalled

Bridge the BN coloured cable at the switch signalling handbrake applied 90 with an earth → OK → Replace the switch 90 or restore the connection to earth

↓

4A513N

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55D.

Not OK

Bridge the BN coloured cable at connector 28 with an earth → OK → Restore the continuity for the BN coloured cable between connector 28 & switch 90

Not OK

Bridge the BN coloured cable at the instrument panel 6 connector B pin 5 with an earth → OK → Restore continuity for the BN coloured cable between the instrument panel 6 connector B & connector 28

Not OK

Check the condition of the instrument panel 6 → Not OK → Overhaul the instrument panel 6

The insufficient brake fluid level is not signalled

Bridge the BN/N coloured cables at the switch signalling insufficient brake fluid level 88 → OK → Replace the switch 88

Not OK

Bridge the N coloured cable at the switch 88 with an earth → OK → Restore the continuity of the N coloured cable between the switch 88 & the left front earth 88

Not OK

Bridge the BN coloured cable at the instrument panel 6 connector A pin 2 with an earth → OK → Restore the continuity for the BN coloured cable between the instrument panel 6 connector A & switch 88

4A514N

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Not OK

Check the condition of the instrument panel 6 → Not OK → Overhaul the instrument panel 6

The insufficient engine oil pressure warning light is not working

Bridge the HG coloured cable at the insufficient engine oil pressure sensor 142 with an earth → OK → Replace the insufficient engine oil pressure sensor 142

Not OK

Bridge the HG coloured cable at connector 55 with an earth → OK → Restore the continuity for the HG coloured cable between connector 55 & switch 142

Not OK

Bridge the HG coloured cable at the instrument panel 6 connector A pin 12 with an earth → OK → Restore continuity for the HG coloured cable between the instrument panel 6 connector A & connector 55

Not OK

Check the condition of the insufficient engine oil pressure warning light B in the instrument panel 6 → Not OK → Replace the warning light B

OK

Check the condition of the instrument panel 6 → Not OK → Overhaul the instrument panel 6

4A515N

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55D.

The left front brake pad wear warning light is not working

Bridge the BR coloured cable at connector 89A with an earth → OK → Replace the left front brake pad wear sensor 89, or restore the continuity for the M coloured cable between connector 89A & the sensor, or restore the connection to earth

↓ Not OK

Bridge the BR coloured cable at the instrument panel 6 connector A pin 8 with an earth → OK → Restore continuity for the BR coloured cable between the instrument panel 6 connector A & connector 89A

↓ Not OK

Check the condition of the warning light Q in the instument panel 6 → Not OK → Replace the warning light Q

↓ OK

Check the condition of the instrument panel 6 → Not OK → Overhaul the instrument panel 6

The front brake pad wear warning light is not working (Only for HGT trim level)

Bridge the BR coloured cable at the instrument panel 6 connector A pin 8 with an earth → OK → Restore cont. for BR coloured cable between instrument panel 6 connector A & the ultrasound welding

↓ Not OK

Check the condition of the warning light Q in the instrument panel 6 → Not OK → Replace the warning light Q

↓ OK

↓

4A516N

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Check the condition of the instrument panel 6	Not OK	Overhaul the instrument panel 6

The left front brake pad wear warning light is not working (Only for HGT trim level)

Bridge the BR coloured cable at connector 89A with an earth	OK	Replace the left front brake pad wear sensor 89, or restore the continuity for the M coloured cable M between connector 89A & the sensor, or restore the connection to earth
Not OK		
Bridge the BR coloured cable at the instrument panel 6 connector A pin 8 with an earth	OK	Restore the continuity for the BR coloured cable between connector 89A & the ultrasound welding (See wiring diagram)

The right front brake pad wear warning light is not working (Only for HGT trim level)

Bridge the BR coloured cable at connector 182A with an earth	OK	Replace the right front brake pad wear sensor 182A, or restore the continuity for the M coloured cable between connector 182A and the sensor, or restore the connection to earth
Not OK		
Bridge the BR coloured cable at connector 13 with an earth	OK	Restore the continuity for the BR coloured cable between connector 13 & connector 182A
Not OK		
Bridge the BR coloured cable at the instrument panel 6 connector A pin 8 with an earth	OK	Restore the continuity for the BR coloured cable between connector 13 & the ultrasound welding

4A517N

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55D.

The rev counter is not working

Bridge the L coloured cable between the instrument panel 6 connector A pin 16 and the fuel injection control unit 160 pin 3 (195 pin 42 for 1581, 190 pin 6 for 1998) → OK → Restore the continuity for the L coloured cable between the instrument panel 6 connector A & the electronic injection control unit

↓

Not OK

↓

Connect to diagnostic socket 139 (See electronic injection wiring diagram) and carry out fault diagnosis with the Fiat Lancia Tester

The speedometer is not working

Bridge the N coloured cable at the vehicle speed sensor 137 with an earth (if there are also problems with the electronic injection control unit sensor 137) → OK → Restore the continuity of the N coloured cable between the sensor 137 & the right front earth 9

↓

Not OK

↓

Check for voltage at the CN coloured cable for the instrument panel 6 connector A pin 15 (if there are also problems with the electronic injection control unit sensor 137) → Not OK → Overhaul the instrument panel 6

↓

OK

↓

Check for voltage at the CN coloured cable for connector 55 → Not OK → Restore continuity for the CN coloured cable between connector 55 & the instrument panel 6 connector A

↓

4A518N

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OK

Check for voltage at the CB coloured cable for the vehicle speed sensor 137 → Not OK → Restore the continuity for the CB coloured cable between the sensor 137 & the connector 55

OK

Bridge cable between instrument panel 6 connector A pin 13 & the centre pin for sensor 137 (see the wiring diagram for the colour) → OK → Restore continuity of cable between the instrument panel 5 connector A & the centre pin for sensor 137

Not OK

Check the condition of the vehicle speed sensor 137 or rev counter circuit in the instrument panel 6 → Not OK → Replace the sensor 137 or replace the rev counter circuit in the instrument panel 6

4A619N

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Components key

1 Left front light cluster
2 Right front light cluster
3 Power fuse box
A 30A protective fuse for injection system (60A for D versions)
B 40A protective fuse for ignition system
C 60A protective fuse for optional extras
D 80A protective fuse for junction unit
4 Junction unit:
E1 Ignition discharge relay
E2 Horn relay feed
E3 Heated rear windscreen relay feed
5 Dipped headlamps relay feed
6 Instrument panel:
A Battery recharging warning light
B Insufficient engine oil pressure warning light
C Left direction indicator warning light
D Right direction indicator warning light
E Side lights warning light
F Instrument panel ideograms light
G Main beam headlamps warning light
H Air bag system failure warning light
I Anti-kick braking system failure warning light (ABS)
J Fuel reserve circuit control module
J1 Warning light signalling fuel reserve
K Fuel level gauge
L Fiat CODE device failure warning light
M Injection system failure warning light petrol/de
N Maximum turbocharging pressure warning light
O Heater plugs warning light
Q Front brake pad wear warning light
R Handbrake applied/insufficient brake fluid level warning light
S Brake light failure signalling device electronic control module
T Warning light signalling brake lights failure
U Doors ajar warning light
V Speedometer control module
V1 Speedometer
W Rev counter
X Water temperature gauge
Z Milometer / trip meter display
Z1 Pulsante azzeramento chilometri parziali
7 Steering column switch unit:
A Windscreen wiper speed control
B windscreen washer/headlamp washer/rearscreen washer switch
C Rearscreen wiper control switch
D Flasher control
E Switch for dipped/main beam headlamps
F Switch for side lights
G *Direction indicators/hazard warning lights switch*
H Switch for direction indicators
I Horn control
8 Left front earth
9 Right front earth
10 Earth for battery on bodyshell
10A Engine earth
11 Battery
12 Ignition switch
13 Front right/left cables connection
14 Left no. plate light bulb
15 Right no. plate light bulb
16 Left rear light cluster
17 Right rear light cluster
18 Left rear earth
19 Right rear earth
20 Left front side direction indicator
21 Right front side direction indicator
22 Left dashboard earth
23 Hazard warning lights switch unit:
A Hazard warning lights warning light
B Hazard warning lights switch
C Hazard warning lights ideogram light
24 Windscreen wiper motor
25 Windscreen/rearscreen electric washer pump
26 Rearscreen wiper motor
27 Contact board for rear connections with luggage compartment switch incorporated
28 Dashboard/longitudinal cables connection
28A Dashboard/longitudinal cables connection
29 Front/fog light cables connection
30 Left fog lamp
31 Right fog lamp
32 *Fog lights relay*
33 20A protective fuse for fog lights
34 Switch control panel:
A Alarm on warning light
B Rear fog lamps switch
C Rear fog lamp relay feed
D Rear fog lamps warning light
E Heated rear windscreen control switch
F Heated rear windscreen warning light
G Switch control unit ideogram light
H Fog lights warning light
I Fog lights switch
35 Dashboard/left front door cables connection
36 Dashboard/right front door cables connection
37 Left external heated rear view mirror resistor
38 Right external heated rear view mirror resistor
39 Heated rear windscreen
40 Brake lights control switch
41 Additional brake light
41A Additional brake light rear cables connection
42 Right dashboard earth
43 Electrical actuator for left headlamp alignment correction
44 Electrical actuator for right headlamp alignment correction
45 Headlamp alignment control unit
46 Left electric horn
47 Right electric horn
48 Radio receiver with clock
49 Left front speaker (tweeter)
50 Right front speaker (tweeter)
51 Speaker in left front door
52 Speaker in right front door
53 Left rear speaker
54 Right rear speaker
55 Front/fuel gauge cables connection
55A Left front/engine cables connection
55B Right front/engine cables connection
55C Left front/engine cables connection
56 Fuel level gauge
A Fuel level sensor
B Electric fuel pump
57 Inertia switch
58 Instrument panel light dimmer
59 Push button on left front piller for courtesy light
60 Push button on right front pillar for courtesy light
61 Push button on left rear piller for courtesy light
62 Push button on right rear pillar for courtesy lighg
63 Thermostatic switch on radiator
64 Glove compartment light bulb with switch incorporated
65 Luggage compartment light/alarm on switch
66 Electrically adjusted external rear view mirrors control panel
67 Left electrically adjusted external rear view mirror
68 Right electrically adjusted external rear view mirror
69 Cigar lighter
70 Dashboard/front cables connection
71 Electric front windows control unit
72 30A protective fuse for electric front windows
73 Left front electric window control panel
74 Right electric front window control panel
75 Right front electric window control panel on left front door
76 Left front electric window motor
77 Right front electric window motor
78 Left rear electric window control on left front door
79 Right rear electric window control on left front door
80 Electric rear windows inhibitor switch
81 30A protective fuse for electric rear windows
82 Left rear electric window control panel on left rear door
83 Right rear electric window control panel on right rear door
84 Left rear electric window motor
85 Right rear electric window motor
86 Longitudinal/left rear door cables connection
87 Longitudinal/right rear door cables connection
88 Insufficient brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Switch signalling handbrake applied
91 Power relay
92 20A protective fuse for electric sun roof
92A 12B Front/air conditioning cables connection
conn 127 Front left cables/cable on relay holder bracket connection
93A 12B Front/air conditioning cables connection
93B 129 50A protective power fuse for engine cooling fan
93C 130 Diagnostic socket for Air-bag
93D 131 Fiat CODE electronic control unit
132 Petrol vapour cut out solenoid valve (canister)
94 133 5A protective fuse for Air-bag
95 134 *Rear/heated driver's seat cables connection*
96 134A Heated driver's seat heater pad
135 Rear/heated passenger seat cables connection
97
98 135A Heated passenger seat heater pad
99 136 Detonation sensor
100 136A Detonation sensor
101 137 Vehicle speed sensor
102 138 Idle adjustment actuator motor
103 139 Diagnostic socket for injection system
105 140 Injection/ignition control unit (1370 spi Bosch)
106 Heated Lambda sensor
107A 142 Switch signalling insufficient engine oil pressure
107B
108 143 Alternator
109 144 Rpm and T.D.C. sensor
110 145 Starter motor
146 Potentiometer on butterfly valve
111 147 Compressor for air conditioning
148 Earth for electronic injection
112 149 Instrument injector
113 150 Injection system relay feed
151 Lambda sensor, electric fuel pump, injector relay feed
114
115 152 10A protective fuse for injection system (25A for 1581, 30A for 1747, 7.5A for 1998)
116
117
120 153 10A protective fuse for electric fuel pump, Lambda sensor (15A for 1747)
121
122 154 Engine cooling fan
123 155 Ignition coils
123A 156 Spark plugs
124 157 Water temperature sensor for injection system
126
158 Water temperature sensor for instrument
159 Reversing lights control switch
160 Injection/ignition electronic control unit (1747 HITACHI)
161 Ignition power module
162 Injector (1°)
163 Injector (2°)
164 Injector (3°)
165 Injector (4°)
165A Injector (5°)
166 Idle adjustment actuator
167 Air flow meter
168 Timing sensor
169 Resistor for engine cooling fan
171 Heater unit cables connection
172 Two level thermal switch
173 Connector prepared for Compact Disc
174 Power earth for anti-lock brakes (A.B.S.)
175 Battery cables connection for anti-lock brakes (A.B.S.)
176 Diagnostic socket for anti-lock braking system (A.B.S.)
177 Sensor on left front wheel for anti-lock brakes (A.B.S.)
178 Sensor on left rear wheel for anti-lock brakes (A.B.S.)
179 Sensor on right front wheel for anti-lock brakes (A.B.S.)
180 Sensor on right rear wheel for anti-lock brakes (A.B.S.)
181 Hydraulic control unit for anti-lock brakes (A.B.S.)
182 Right wheel brake pad wear sensor
182A Right wheel brake pad wear sensor cables connection
183 Ignition coil (1°)
184 Ignition coil (2°)
185 Ignition coil (3°)
186 Ignition coil (4°)
187 Ignition coil (5°)
188 Ignition coil earth
189 Phase transformer
190 Injection/ignition electronic control unit (1998)
191 Phase transformer relay feed
192 Air temperature sensor
193 Earth for electronic injection
194 Injection cables/injector band connection
195 Injection/ignition electronic control unit (1981)
196 Multiple relay
197 Absolute pressure sensor
198 6A protective fuse for injection/ignition electronic control unit
199 Aerial for Fiat CODE
200 Inertia switch relay feed
201 Heater plugs control unit
202 Heater unit/air conditioning controls ideogram light bulbs
203 Air conditioning controls:
A Air conditioning on switch
B Air conditioning recirculation switch
204 Electric fan (206) 1st speed relay feed)
205 Electric fan (206) relay feed
206 Car interior climate control fan
207 Electric fan (206) speed switch
208 Resistor for electric fan (206) speed
209 Air intake flap control actuator
210 Electronic control unit for compressor
211 Frost sensor (N.T.C.)
212 Engine cooling fan relay feed
213 Earth for Air Bag
222 Earth for fuel system (Da)
223 Rpm sensor
224 Instrument injector (Da)
225 Flow meter
226 Diagnostic socket for Fiat CODE
227 Diagnostic socket for injection system (1747)
228 Heater plugs
229 Engine cut out electro-stop
230 Earth for Fiat CODE
231 Clock spring connection
232 Earth for compressor
233 Thermal relay on water pump
234 7.5A protective fuse for electrically adjusted external rear view mirrors
235 Air conditioning compressor cables connection

N.D. Ultrasound welding taped in cable loom

Cable colour code

A	Light blue	GN	Yellow/Black
B	White	GL	Yellow/Blue
C	Orange	GR	Yellow/Red
G	Yellow	GV	Yellow/Green
H	Grey	HG	Grey/Yellow
L	Blue	HN	Grey/Black
M	Brown	HR	Grey/Red
N	Black	HV	Grey/Green
R	Red	LB	Blue/White
S	Pink	LG	Blue/Yellow
V	Green	LN	Blue/Black
Z	Violet	LR	Blue/Red
AB	Light blue/White	LV	Blue/Green
AG	Light blue/Yellow	MB	Brown/White
AN	Light blue/Black	MN	Brown/Black
AR	Light blue/Red	NZ	Black/Violet
AV	Light blue/Green	RB	Red/White
BG	White/Yellow	RG	Red/Yellow
BL	White/Blue	RN	Red/Black
BN	White/Black	RV	Red/Green
BR	White/Red	SN	Pink/Black
BV	White/Green	VB	Green/White
BZ	White/Violet	VN	Green/Black
CA	Orange/Light blue	VR	Green/Red
CB	Orange/White	ZB	Violet/White
CN	Orange/Black		

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Electrical system

Contents

55.

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NAME	Bravo					Brava					
	S		SX		GT	S		SX		EL	ELX
	1910 (75 bhp)	1910 (100 bhp)	1910 (75 bhp)	1910 (100 bhp)	1910 (100 bhp)	1910 (75 bhp)	1910 (100 bhp)	1910 (75 bhp)	1910 (100 bhp)	1910 (100 bhp)	1910 (100 bhp)
Version with air conditioner Engine cooling system - Water temperature gauge	5	5	5	5	5	5	5	5	5	5	5
Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE system fault warning light - Rev counter		9		9	9		9		9	9	9
Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE system fault warning light - Rev counter	13		13			13		13			
Version without air conditioner Engine cooling system - Water temperature gauge - Car interior ventilation	17	17	17	17	17	17	17	17	17	17	17
Windscreen wash/wipe - Rear window wash/wipe - Electric horns - Heated rear window and warning light - Headlamp washer	21	21	21	21	21	21	21	21	21	21	21
Air conditioner	29	25	29	25	25	29	25	29	25	25	25
Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Trip recorder/mileage counter and relevant reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pade wear warning light - Heater plugs warning light - Rev counter	33	33	33	37	37	33	33	33	33	41	41
Instrument panel connections	45	45	45	49	49	45	45	45	45	53	53

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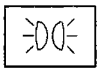
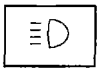
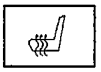
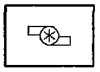
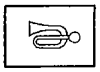
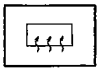
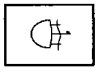
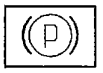
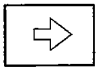
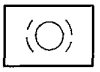
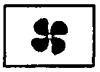
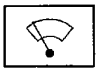
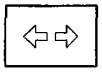
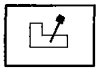
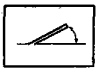
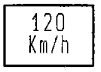
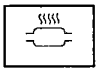
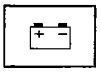
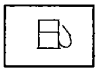
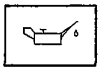
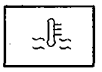
Electrical symbols

 Side lights	Choke (starter)	Ign.switch discharge
 Main beam headlamps	Water in fuel filter	Dipped headlamps
 Heated seat	Plug preheating	Indicators with central door locking
Seat belts	 Turbo compressor pressure	 Electric horns
 Heated rear window	 Rear fog lamps	Left indicator
 Handbrake on and low brake fluid level	Front fog lamps	 Right indicator
A.B.S.	 Brake pad wear	 Engine cooling system
Hazard	Turbo compressor pressure	 Windscreen wiper
 Indicators	 Auto transmission fluid temperature	 Electric sunroof
Handbrake on and low brake fluid	 Speed limits	 Catalytic converter temperature
 Recharging	 Fuel gauge	Resistor
 Engine oil pressure	 Coolant temperature	Diode

P4A001N01

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55.

Electrical symbols

Warning light	Trip computer control	Differential lock
Bulb	Electronic fuel injection	Auto transmission fluid temperature
Fuse	Engine oil level	Temperature
Switch open	Brake fluid level (Japan version)	Anti-theft device
Selector switch	Doors open	Electric windows
Button open	Door locking	Earth
Coil-controlled switch (Relay)	Sport function controlled damping suspension	No. plate lights
Engine	Transistor	Pulse generator (Timer)
Rear window wiper	Air Bag	Analogue clock
Headlamp washer	A.B.S. (Japan version)	Digital clock
Windscreen wash/wipe	Car stop fault	Speedometer
Rear window wash/wipe	Windscreen wiper	Rev counter

P4A002N01

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Electrical symbols

Digital speedometer

Digital rev counter

Digital fuel gauge

Analogue fuel gauge

Analogue coolant temperature gauge

Econometer

Digital coolant temperature gauge

Engine oil temperature

Engine oil pressure gauge

Voltmeter

P4A003N01

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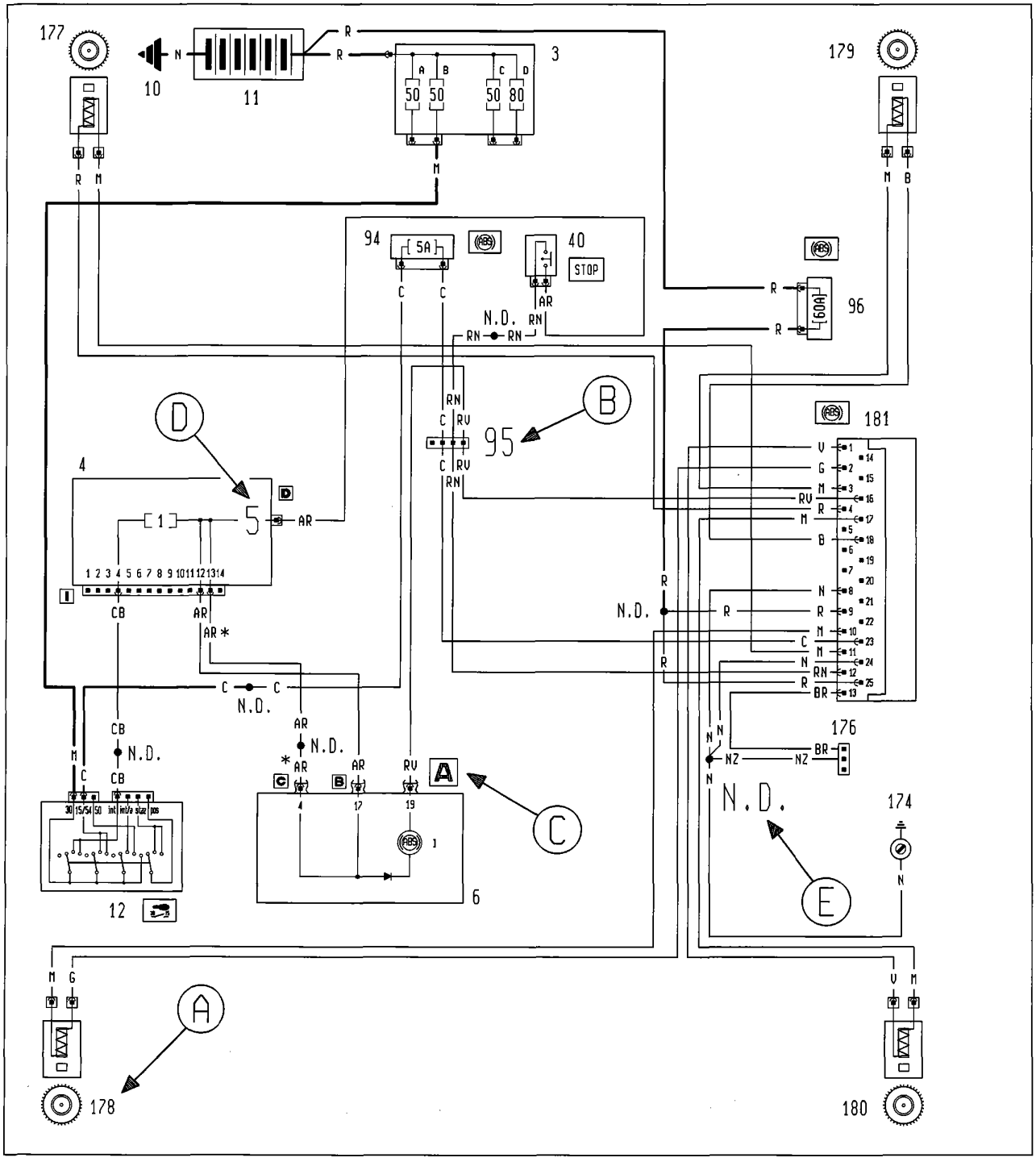
55.

Explanation to reading wiring diagram



P4A004N01

Key to references

A Component number
B Connection number
C Connector identification on component
D Connecting pin number
E Ultrasound-soldered joint taped into wiring loom

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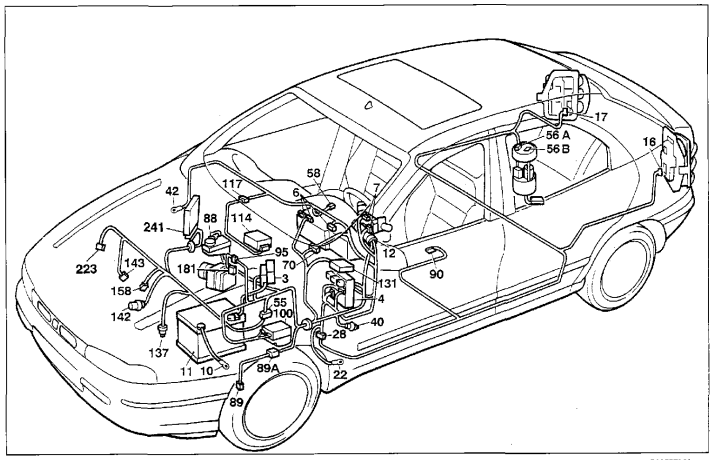


Version: EL - ELX

Instrument panel connections

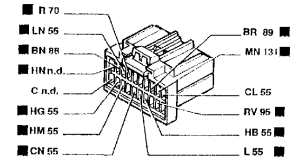
Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
A Low generator charge warning light
B Low engine oil pressure warning light
C Left direction indicator warning light
D Right direction indicator warning light
E Side lights warning light
F Instrument panel symbol lights
G Main beam headlamps warning light
H Air Bag fault warning light
I Anti-lock braking system fault warning light
J Fuel reserve circuit control module
J1 Low fuel level warning light
K Fuel gauge
L Fiat CODE system fault warning light
M Fuel injection fault warning light
O Heater plugs warning light
Q Front brake pad wear warning light
R Handbrake on/low brake fluid level warning light
S Stop lights fault indicator electronic control module
T Stop lights fault warning light
U Doors open warning light
V Speedometer control module
V1 Speedometer
W Rev counter
X Coolant temperature gauge
Z Trip recorder/mileage counter
Z1 Trip recorder reset button

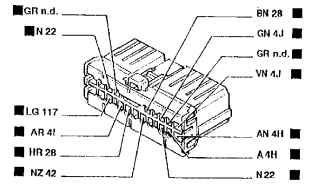
7 Stalk unit:
D Flasher button
E Dipped beam/main beam headlamps switch
F Side lights switch
H Direction indicators switch
10 Battery earth on body shell
11 Battery
12 Ignition switch
16 Rear left lights cluster
17 Rear right lights cluster
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
40 Stop lights switch
42 Right dashboard earth
55 Front/engine cables connection
56 Fuel gauge controller
A Fuel level sensor
B Electric fuel pump
58 Lighting brightness adjustment rheostat
70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
95 Front cables/anti-lock braking system (A.B.S.) cables connection
100 Alarm electronic control unit
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
131 Fiat CODE electronic control unit
137 Vehicle speed sensor
142 Low oil pressure warning light switch
143 Alternator
158 Coolant temperature sensor for gauge
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)
223 Wheel speed sensor
241 Fuel pump electronic control unit

N.D. Ultrasound-soldered joint taped in wiring loom

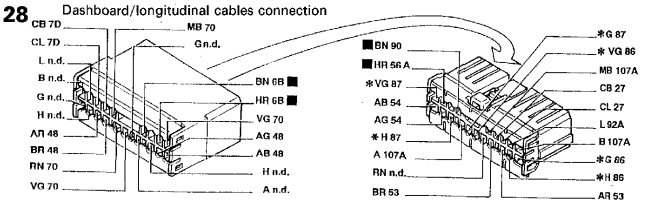
6A Instrument panel



6B Instrument panel

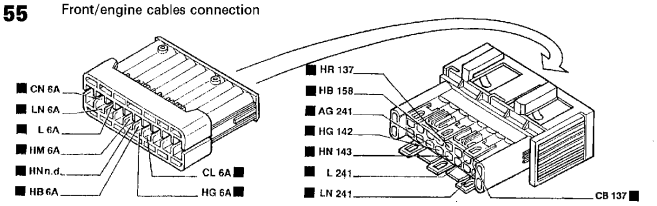


28 Dashboard/longitudinal cables connection

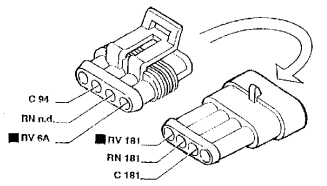


* Brava only

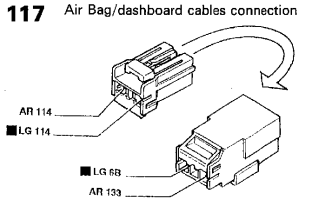
55 Front/engine cables connection



95 Front/anti-lock braking system (A.B.S.) cables connection



117 Air Bag/dashboard cables connection



P4A86ZL01

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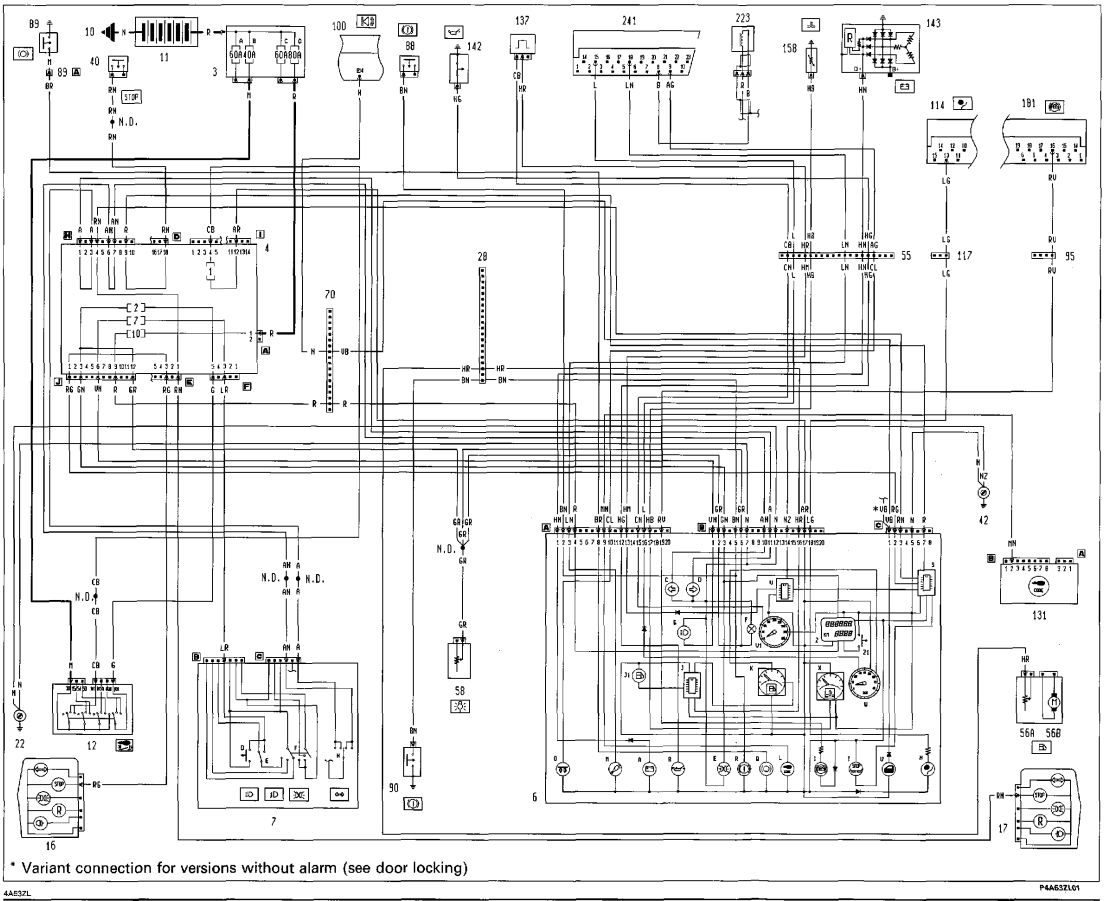
Version: EL - ELX

Instrument panel connections - (See key following diagrams)



* Variant connection for versions without alarm (see door locking)

4AE32L

P4A6SZL01

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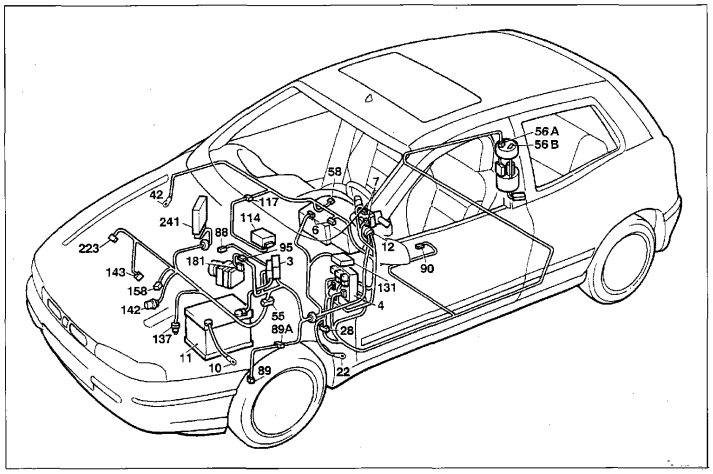


P4A61ZL01

Version: SX - GT

Instrument panel connections

Key to components

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting ignition system
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- A Low generator charge warning light
- B Low engine oil pressure warning light
- C Left direction indicator warning light
- D Right direction indicator warning light
- E Side lights warning light
- F Instrument panel symbol lights
- G Main beam headlamps warning light
- H Air Bag fault warning light
- I Anti-lock braking system fault warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- L Fiat CODE fault warning light
- M Fuel injection fault warning light
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Handbrake on / low brake fluid warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge

7 Stalk unit:
- D Headlamp flasher button
- E Dipped beam/main beam headlamps switch
- F Side lights switch
- H Direction indicators switch

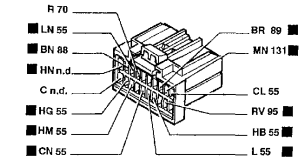
10 Battery earth on body shell
11 Battery
12 Ignition switch
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front/engine cables connection
56 Fuel gauge controller
- A Fuel level sensor
- B Electric fuel pump

58 Lighting brightness adjustment rheostat
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
95 Front cables/anti-lock braking system (A.B.S.) connection
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
131 Fiat CODE electronic control unit
137 Vehicle speed sensor
142 Low oil pressure warning light switch
143 Alternator
158 Coolant temperature sensor for gauge
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)
223 Wheel speed sensor
241 Fuel pump electronic control unit

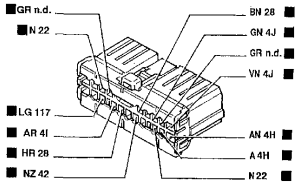
N.D. Ultrasound-soldered joint taped in wiring loom

4A51ZL

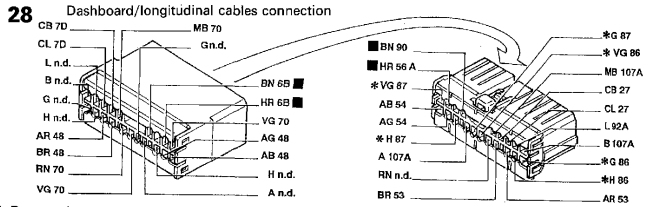
6A Instrument panel



6B Instrument panel

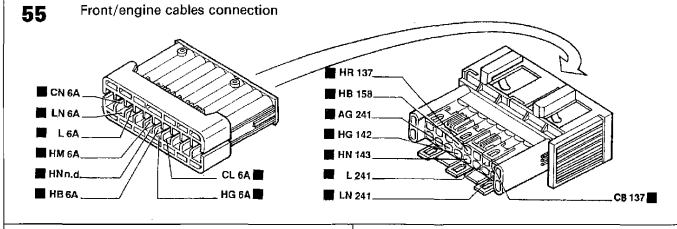


28 Dashboard/longitudinal cables connection

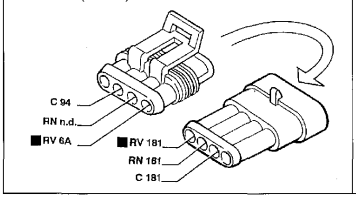


* Brava only

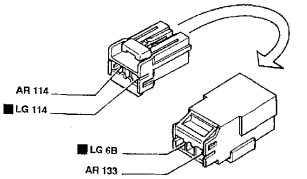
55 Front/engine cables connection



95 Front cables/anti-lock braking system (A.B.S.) cables connection



117 Air Bag/dashboard cables connection



P4A52ZL01

4A52ZL

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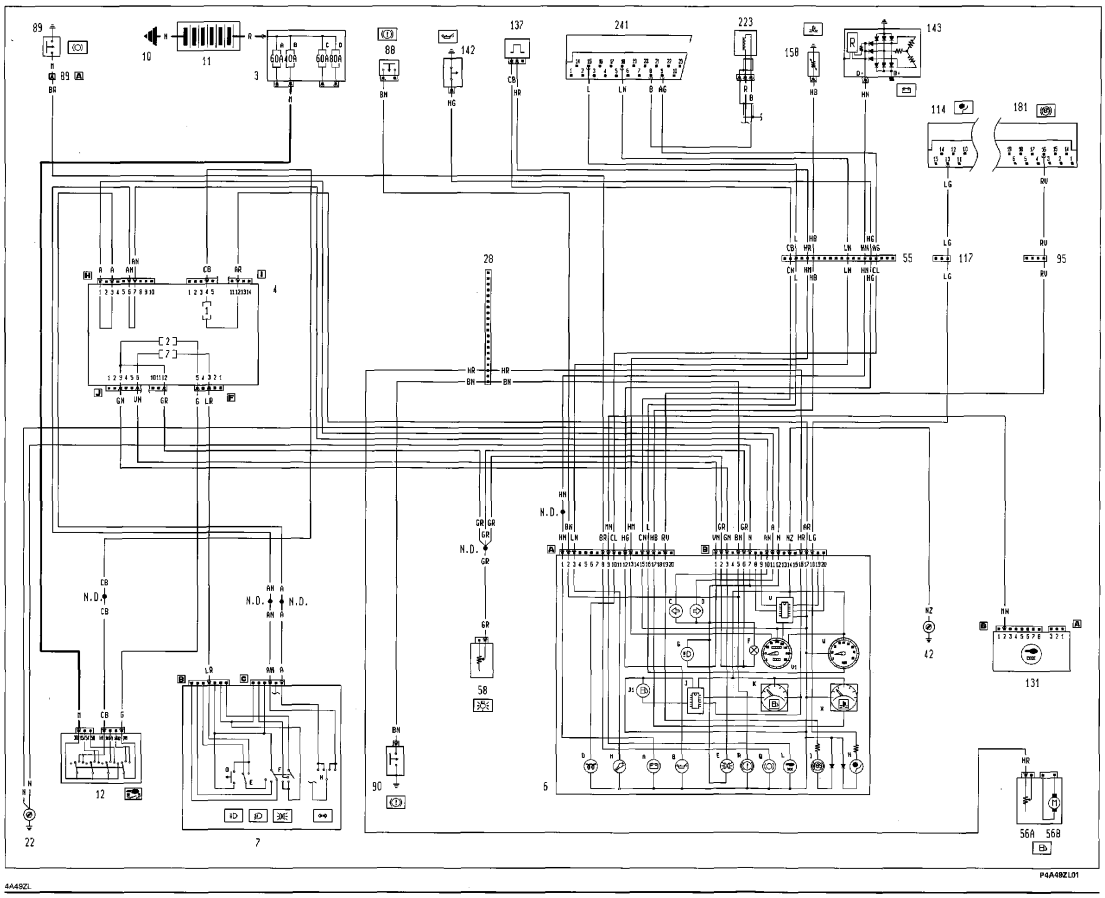
Version: SX - GT

Instrument panel connections - (See key following diagrams)



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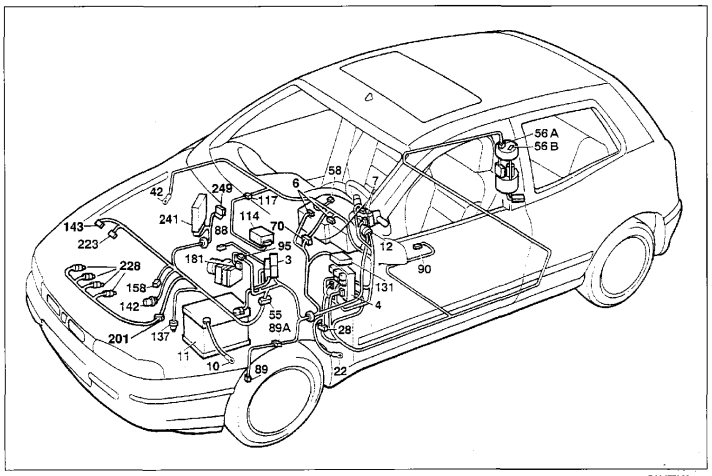


P4A47ZL01

Version: S - SX

Instrument panel connections

Key to components

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting ignition system
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- A Low generator charge warning light
- B Low engine oil pressure warning light
- C Left direction indicator warning light
- D Right direction indicator warning light
- E Side lights warning light
- F Instrument panel symbol lights
- G Main beam headlamps warning light
- H Air Bag fault warning light
- I ABS fault warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- L Fiat CODE system fault warning light
- M Fuel injection fault warning light
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Handbrake on / low brake fluid level warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge
- Z Trip recorder / mileage counter
- Z1 Trip recorder reset button

7 Stalk unit:
- D Headlamp flasher button
- E Dipped beam/main beam headlamps switch
- F Side lights switch
- H Direction indicators switch

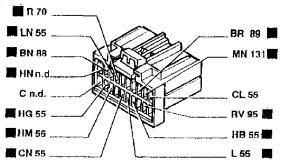
10 Battery earth on body shell
11 Battery
12 Ignition switch
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front/engine cables connection
66 Fuel gauge controller
- A Fuel level sensor
- B Electric fuel pump

58 Lighting brightness adjustment rheostat
70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
95 Front cables/A.B.S. cables connection
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
131 Fiat CODE electronic control unit
137 Vehicle speed sensor
142 Low oil pressure warning light switch
143 Alternator
158 Coolant temperature sensor for gauge
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)
201 Plug preheating control unit
223 Wheel speed sensor
228 Heater plugs
241 Fuel pump control unit
249 E.G.R. electronic control unit

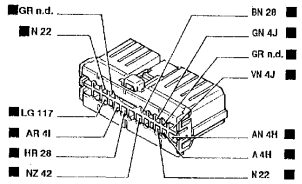
N.D. Ultrasound-soldered joint taped in wiring loom

4A47ZL

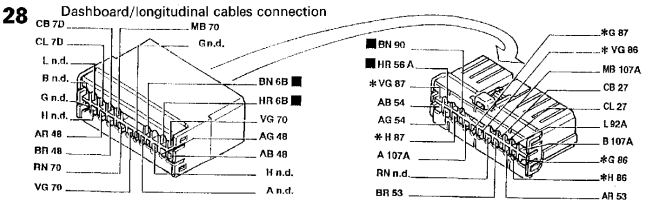
6A Instrument panel



6B Instrument panel

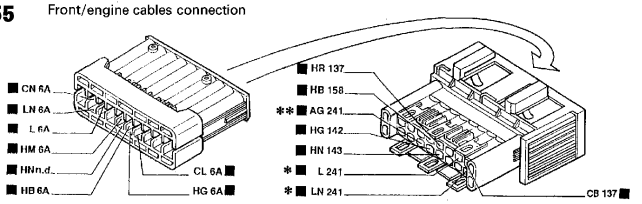


28 Dashboard/longitudinal cables connection



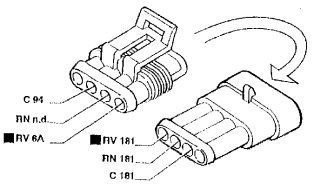
* Brava only

55 Front/engine cables connection

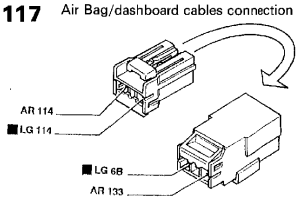


* N.D. for soft version (75cv) ** 201 for soft version (75cv)

95 Front cables/A.B.S. cables connection



117 Air Bag/dashboard cables connection



P4A48ZL01

4A48ZL

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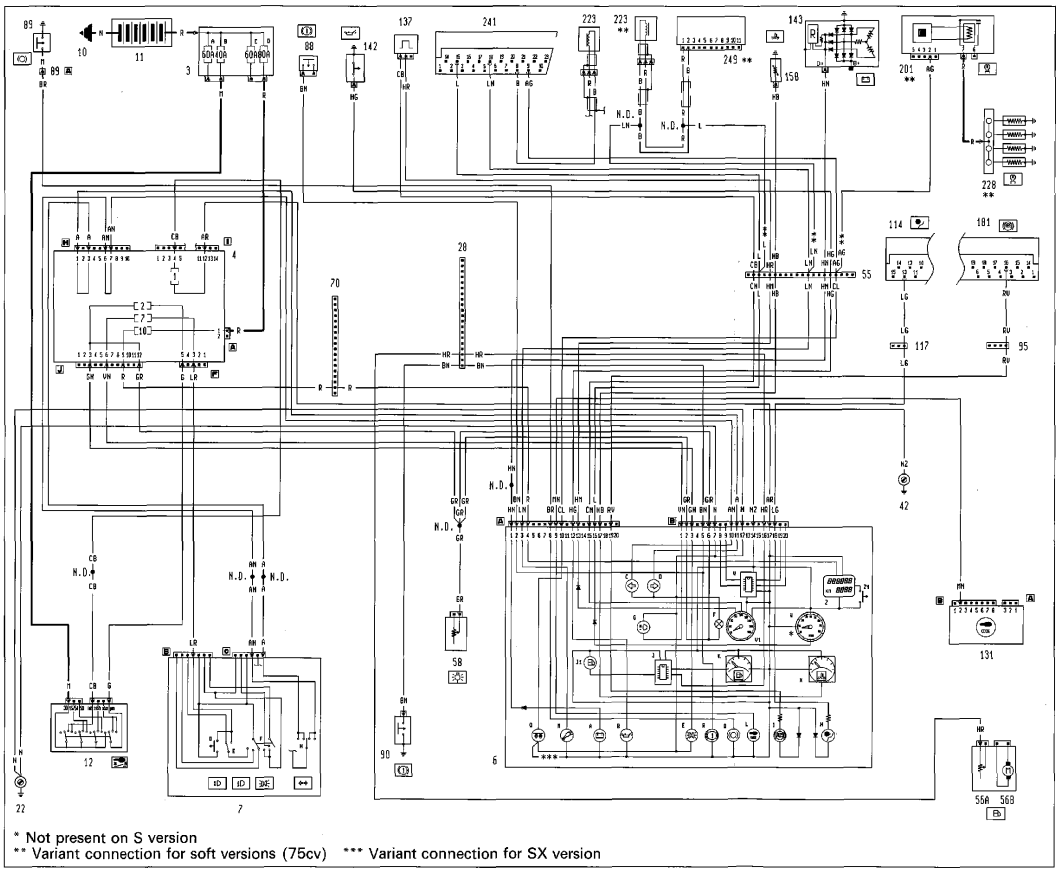
Version: S - SX

Instrument panel connections - (See key following diagrams)



* Not present on S version
** Variant connection for soft versions (75cv) *** Variant connection for SX version

P4A45ZL01

4A45ZL

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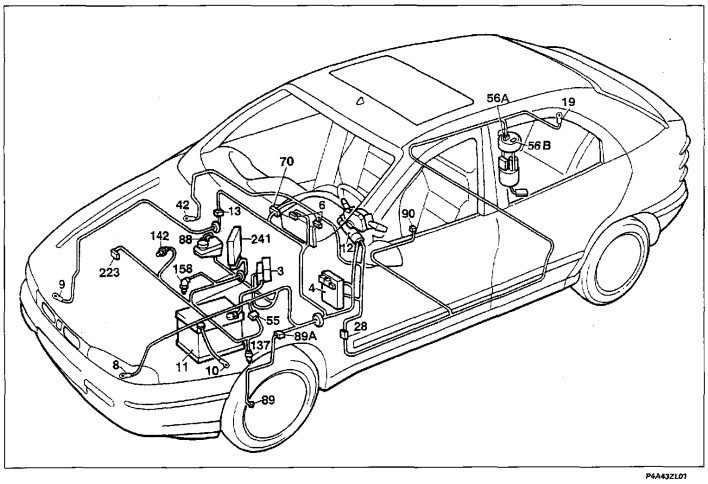
55.



P4A43ZL01

Version: EL - ELX

Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Trip recorder/mileage counter and relevant reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter

Key to components

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting ignition system
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- B Low engine oil pressure warning light
- J *Fuel reserve circuit control module*
- J1 Low fuel level warning light
- K Fuel gauge
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Handbrake on / low brake fluid level warning light
- V Speedometer control module
- V1 *Speedometer*
- W Rev counter
- X Coolant temperature gauge
- Z Trip recorder/mileage counter
- Z1 Trip recorder reset button

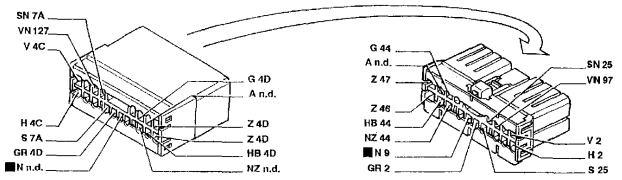
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 *Rear right earth*
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front/engine cables connection
56 Fuel gauge controller
- A Fuel level sensor
- B Electric fuel pump

70 *Dashboard/front cables connection*
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
137 Vehicle speed sensor
142 Low oil pressure warning light switch
158 Coolant temperature sensor for gauge
223 Wheel speed sensor
241 Fuel pump electronic control unit

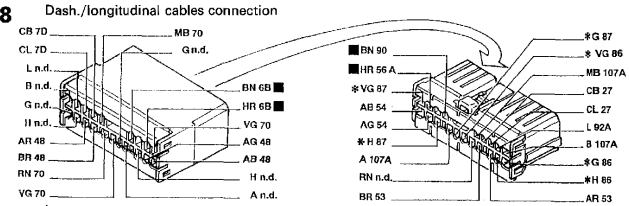
N.D. Ultrasound-soldered joint taped in wiring loom

4A43ZL

13 Front right/left cables connection

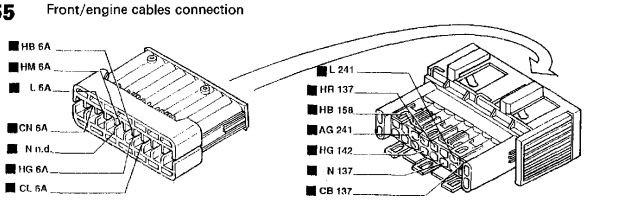


28 Dash./longitudinal cables connection

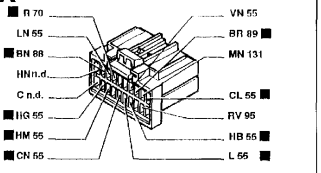


* Brava only

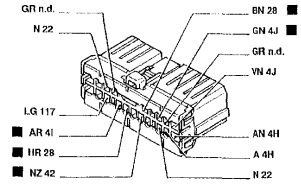
55 Front/engine cables connection



6A Instrument panel



6B Instrument panel



The cables involved in the wiring diagram are marked with a solid square

P4A44ZL01

4A44ZL

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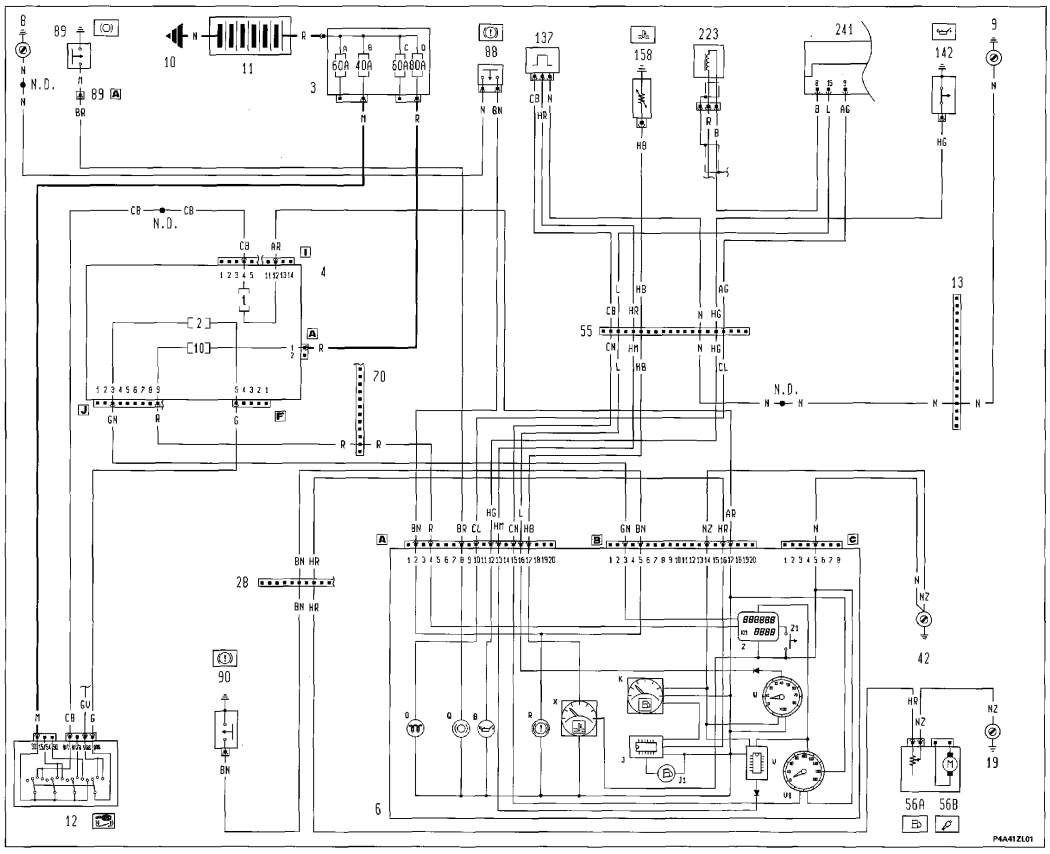
Version: EL - ELX
Fuel level gauge and reserve warning light - Handbrake on / low brake fluid level warning light - Speedometer - Trip recorder/mileage counter and relevant reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter - (See key following diagrams)



4A41ZL

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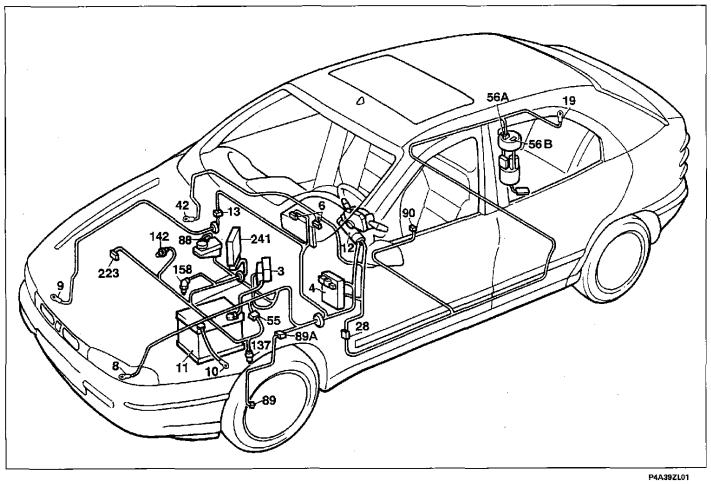


P4A39ZL01

Version: SX - GT

Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Water temperature gauge- Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter

Key to components

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting ignition system
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- B Low engine oil pressure warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Handbrake on / low brake fluid level warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge

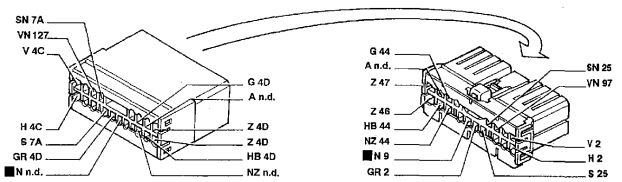
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 Rear right earth
28 *Dashboard/longitudinal cables connection*
42 Right dashboard earth
55 Front/engine cables connection
56 Fuel gauge sender assembly
- A Fuel level sensor
- B Electric fuel pump

88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
137 Vehicle speed sensor
142 Low oil pressure warning light switch
158 Coolant temperature sensor for gauge
223 Wheel speed sensor
241 Fuel pump electronic control unit

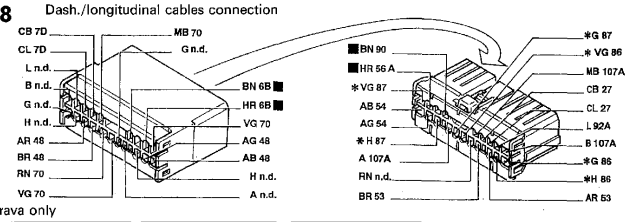
N.D. Ultrasound-soldered joint taped in wiring loom

4A39ZL

13 Front right/left cables connection

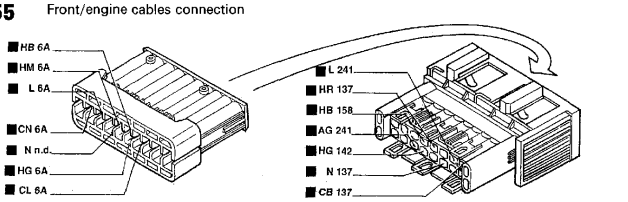


28 Dash./longitudinal cables connection

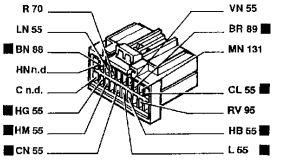


* Brava only

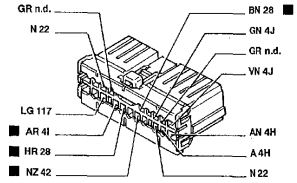
55 Front/engine cables connection



6A Instrument panel



6B Instrument panel



The cables involved in the wiring diagram are marked with a solid square

P4A40ZL01

4A40ZL

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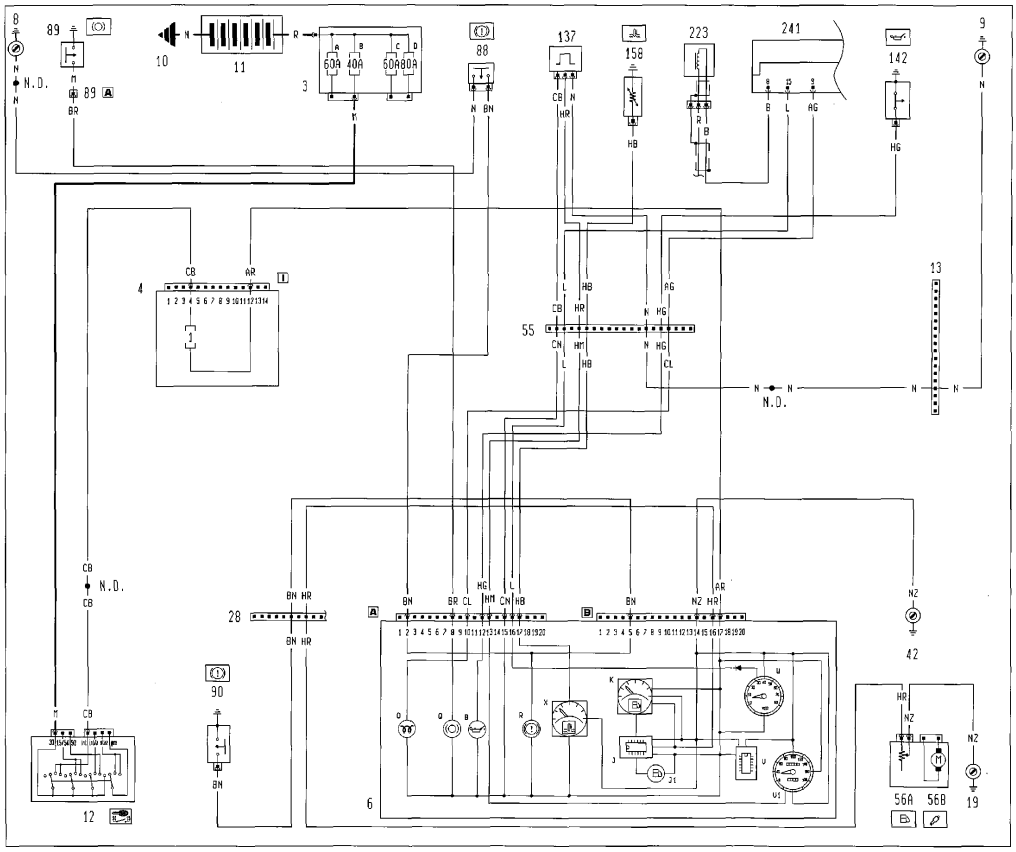
Version: SX - GT

Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Water temperature gauge- Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter - (See key following diagrams)



4A37ZL

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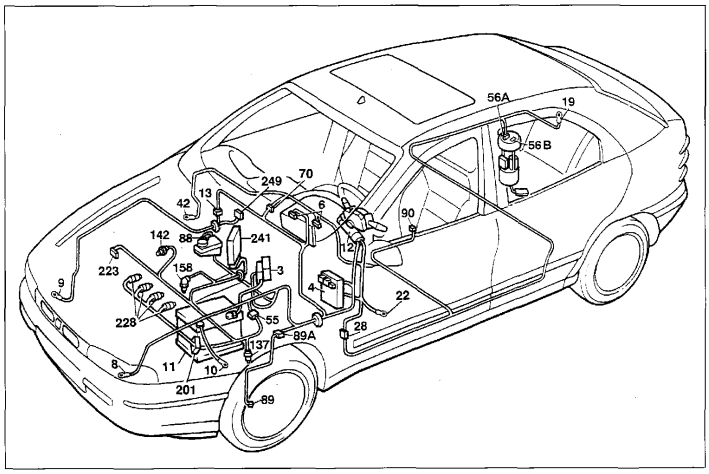


P4A35ZL01

Version: S - SX

Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Trip recorder/mileage counter and relevant reset button - Water temperature gauge- Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter

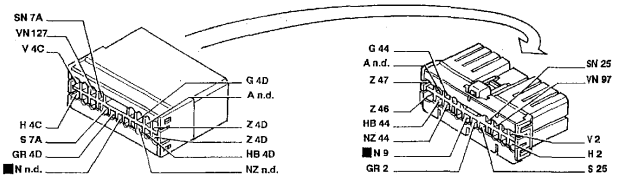
Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
B Low engine oil pressure warning light
J *Fuel reserve circuit control module*
J1 Low fuel level warning light
K Fuel gauge
O Heater plugs warning light
Q Front brake pad wear warning light
R Handbrake on / low brake fluid level warning light
V Speedometer control module
V1 Speedometer
W Rev counter
X Coolant temperature gauge
Z Trip recorder / mileage counter
Z1 Trip recorder reset button
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front/left cables connection
19 Rear right earth
22 Left dashboard earth
28 Dashboard/longitudional cables connection
42 Right dashboard earth
55 Front/engine cables connection
56 Fuel gauge sender assembly
A Fuel level sensor
B *Electric fuel pump*
70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
137 Vehicle speed sensor
142 Low oil pressure warning light switch
158 Coolant temperature sensor for gauge
201 Plug preheating control unit
223 Wheel speed sensor
228 Heater plugs
241 Fuel pump electronic control unit
249 E.G.R. electronic control unit

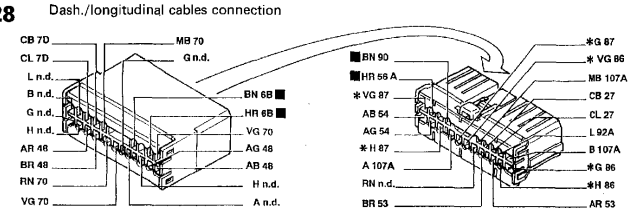
N.D. Ultrasound-soldered joint taped in wiring loom

4A35ZL

13 Front right/left cables connection

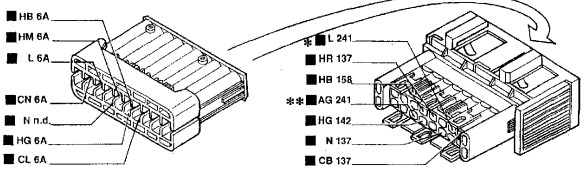


28 Dash./longitudinal cables connection



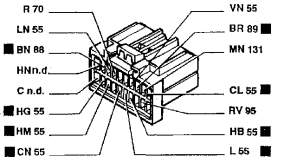
* Brava only

55 Front/engine cables connection

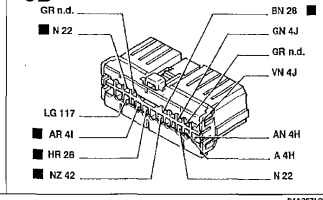


* N.D. for soft version (75cv) ** 201 for soft version (75cv)

6A Instrument panel



6B Instrument panel



P4A36ZL01

The cables involved in the wiring diagram are marked with a solid square

4A36ZL

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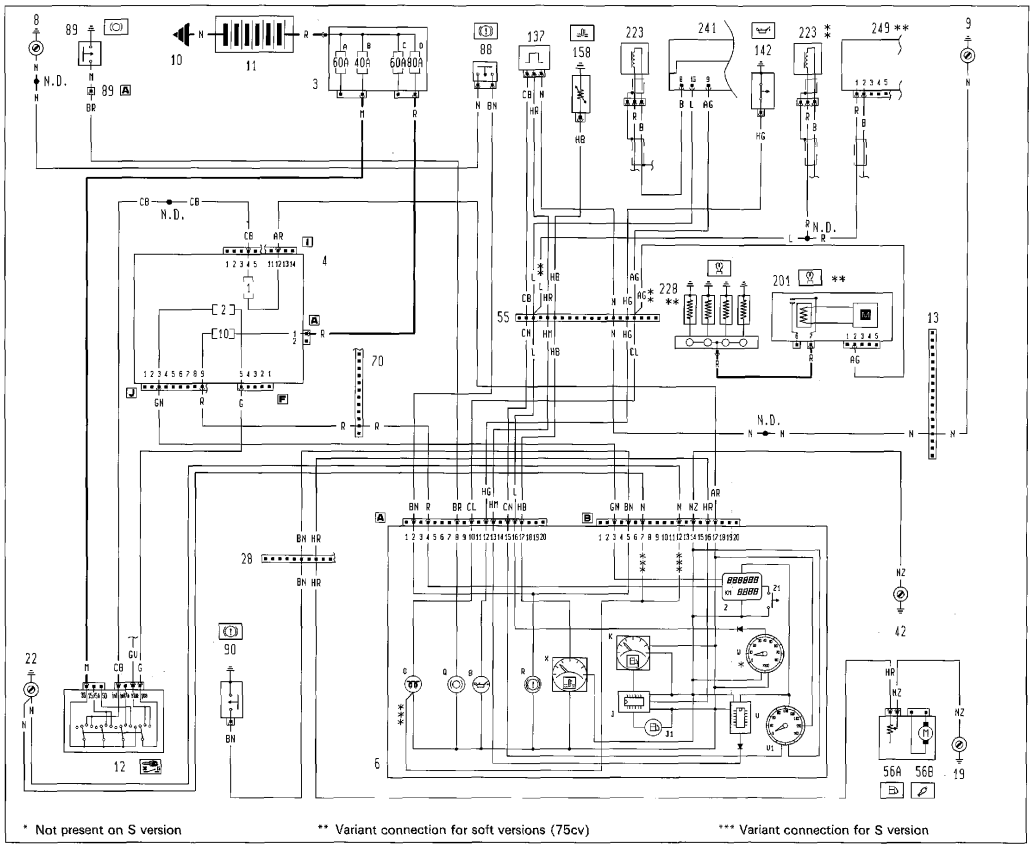
Version: S -SX
Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Trip recorder/mileage counter and relevant reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pad wear warning light - Heater plugs warning light - Rev counter - (See key following diagrams)



P4A33ZL01

4A33ZL

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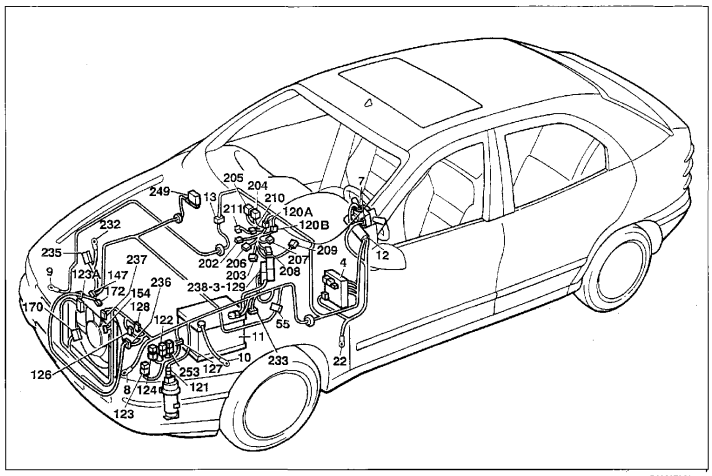


P4A31ZL01

Model: 1910 75 BHP

Air conditioner

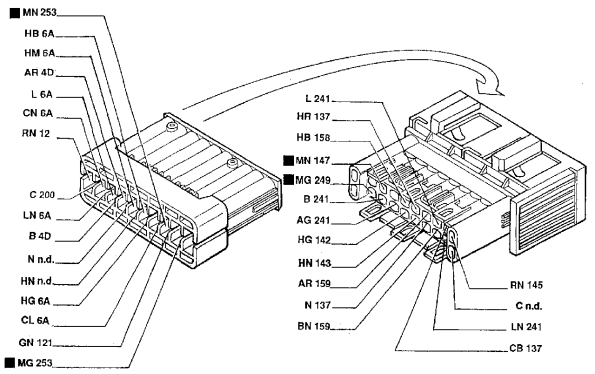
Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
E1 Ignition switch discharge relay
7 Stalk unit
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
22 Left dashboard earth
55 Front/engine cables connection
120 Air conditioner cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed relay
123 Engine cooling fan high speed timer
123A Engine cooling fan high speed relay
124 Air conditioner compressor relay
126 Front/air conditioner cables connection
127 connection between front left cables/cable on relay bracket
128 Front/air conditioner cables connection
129 40A power fuse protecting engine cooling fan
147 Compressor for air conditioner
154 Engine cooling fan
170 Engine cooling fan limiting resistor
172 Two-stage thermostat
202 Bulbs lighting heater/air conditioner unit
203 Air conditioner controls:
A Switch for switching on air conditioner
B Air conditioner recirculation switch
204 Air conditioner fan 1st speed relay
205 Air conditioner fan relay
206 Heater/air conditioner electric fan
207 Heater/air conditioner speed control switch
208 Limiting resistor for heater/air conditioner
209 Actuator controlling exterior air/recirculation flap
210 Electronic thermostat cables connection
211 Electronic thermostat (N.T.C.)
232 Compressor earth
233 Thermostat on coolant pump
235 Air conditioner compressor cables connection
236 Front/air conditioner cables connection
237 Additional engine cooling fan
238 40A fuse protecting engine cooling fan
249 E.G.R. electronic control unit
253 Relay switching off compressor

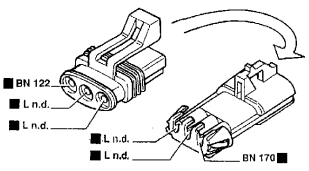
N.D. Ultrasound-soldered joint taped in wiring loom

4A31ZL

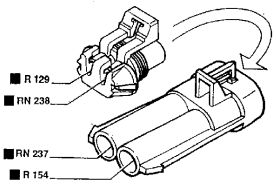
55 Front/engine cables connection



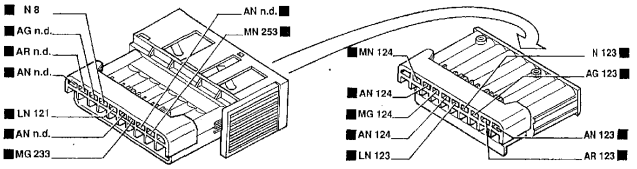
126 Front/air conditioner cables connection



128 Front/air conditioner cables connection



127 Connection between front left cables/cable on relay bracket



P4A32ZL01

The cables involved in the wiring diagram are marked with a solid square

4A32ZL

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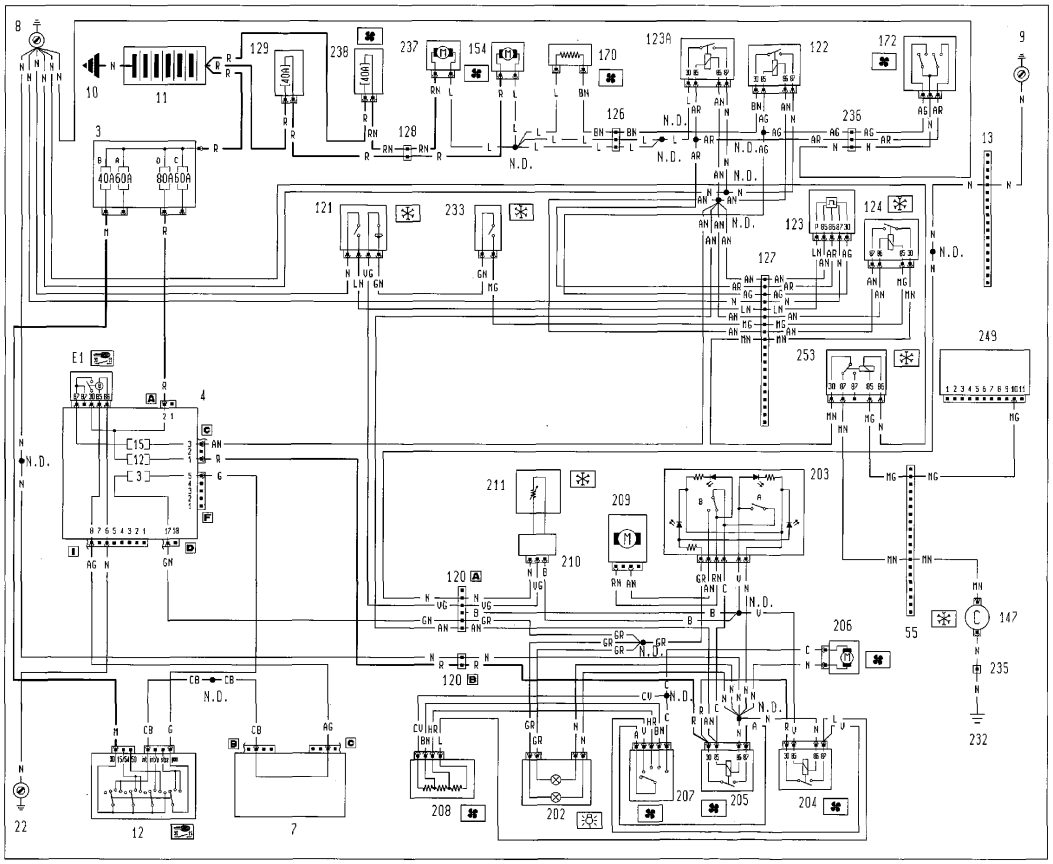
Model: 1910 75 BHP

Air conditioner - (See key following diagrams)



4A29ZL

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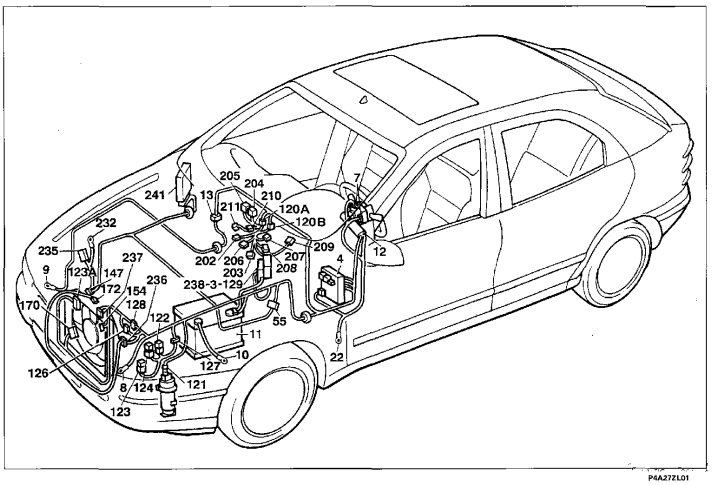


P4A27ZL01

Version: 1910 100 BHP

Air conditioner

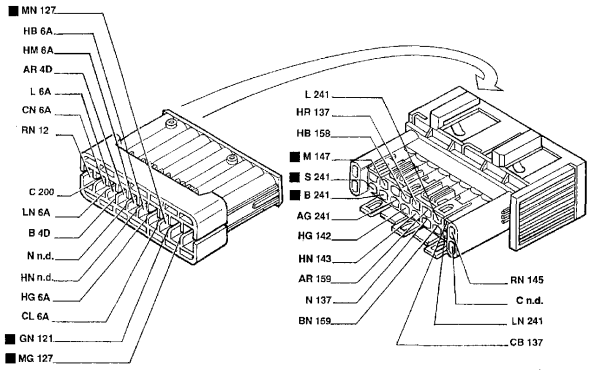
Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
E1 Ignition switch discharge relay
7 Stalk unit
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
22 Left dashboard earth
55 Front/engine cables connection
120 Air conditioner cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed control relay
123 Engine cooling fan high speed timer
123A Engine cooling fan high speed relay
124 Air conditioner compressor relay
126 Front/air conditioner cables connection
127 Connection between front left cables/cable on relay bracket
128 Front/air conditioner cables connection
129 40A power fuse protecting engine cooling fan
147 Compressor for air conditioner
154 Engine cooling fan
170 Cooling fan limiting resistor
172 Two-stage thermostat
202 Bulbs for lighting heater/air conditioner unit
203 Air conditioner controls:
A Switch for switching on air conditioner
B Switch controlling air conditioner recirculation
204 Relay controlling air conditioner electric fan 1st speed
205 Air conditioner fan relay
206 Heater/air conditioner electric fan
207 Switch controlling speed of heater/air conditioner
208 Limiting resistor for heater/air conditioner
209 Actuator controlling external air/recirculation flap
210 Electronic thermostat cables connection
211 Electronic thermostat (N.T.C.)
232 Compressor earth
235 Air conditioner compressor cables connection
236 Front/air conditioner cables connection
237 Additional engine cooling fan
238 40A fuse protecting engine cooling fan
241 Fuel pump electronic control unit

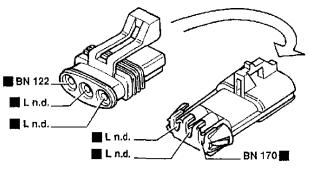
N.D. Ultrasound-soldered joint taped in wiring loom

4A27ZL

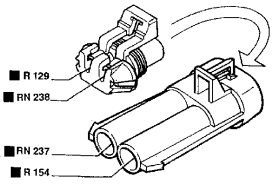
55 Front/engine cables connection



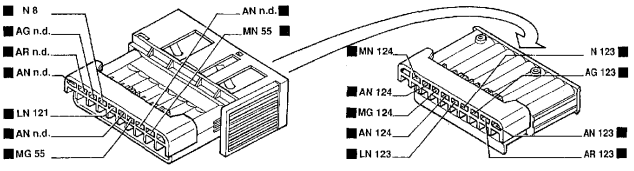
126 Front/air conditioner cables connection



128 Front/air conditioner cables connection



127 Connection between front left cables/cable on relay bracket



P4A28ZL01

The cables involved in the wiring diagram are marked with a solid square

4A09ZL

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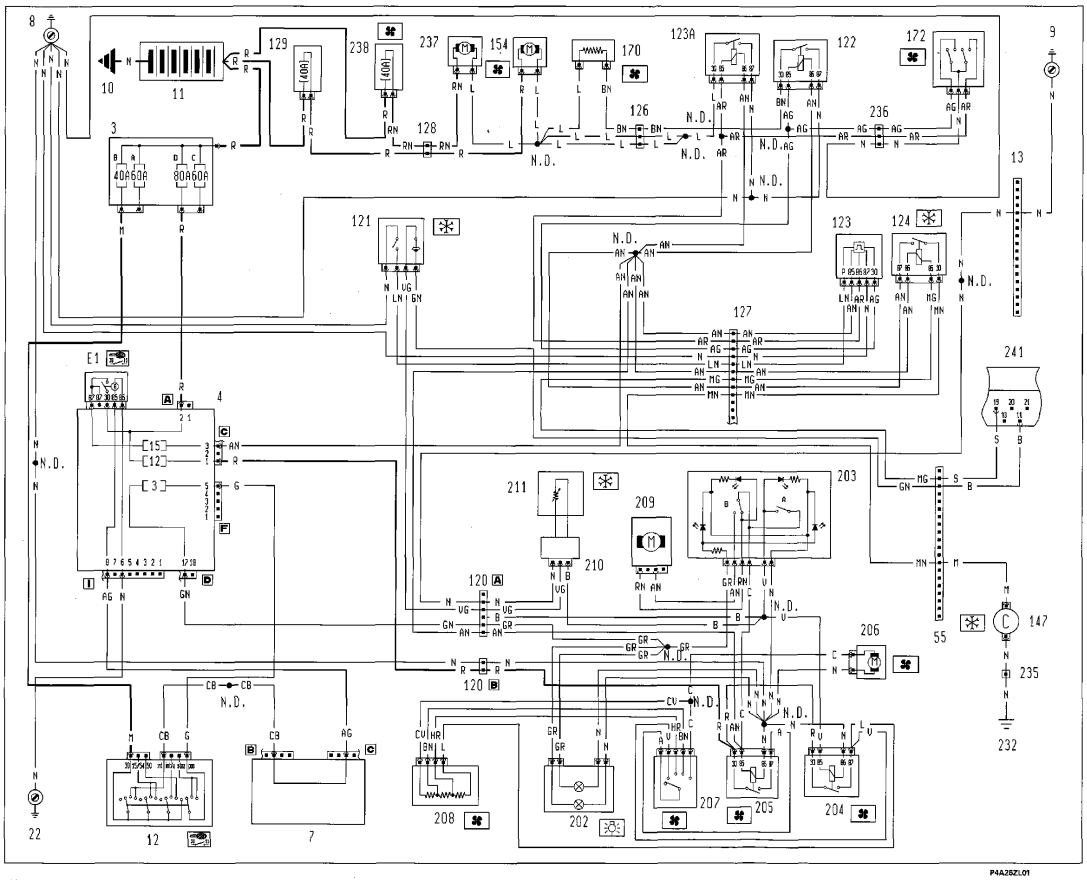
Model: 1910 100 BHP

Air conditioner - (See key following diagrams)



4A26ZL

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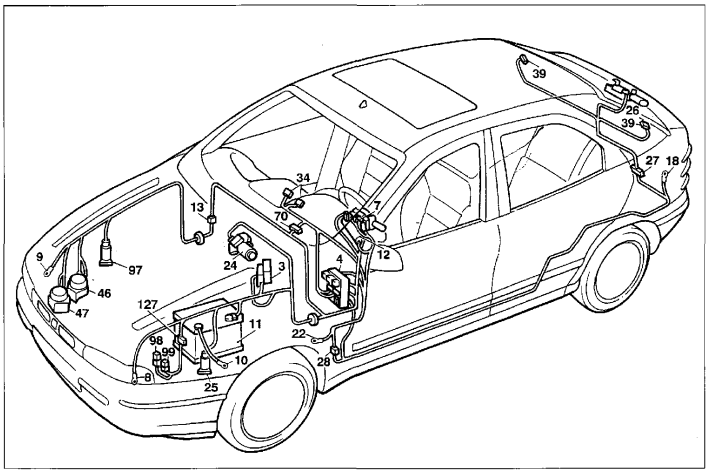


P4A23ZL01

Windscreen wash/wipe - Rear window wash/wipe - Electric horns - Heated rear window and warning light - Headlamp washer

Key to components

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting fuel injection
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit:
- E1 Ignition switch discharge relay
- E2 Horn relay
- E3 Heated rear window relay

7 Stalk unit:
- A Windscreen wiper speed control switch
- B Windscreen wash/headlamp wash/rear window wash controlswitch
- C Rear window wiper switch
- D Flasher button
- E Dipped beam/main beam switch
- F Side lights switch
- G Indicators/hazard lights intermittent switch
- H Direction indicators switch
- I Horn button

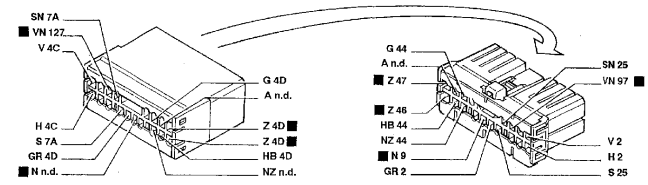
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
18 Rear left earth
22 Left dashboard earth
24 Windscreen wiper motor
25 Windscreen/rear window wash pump
26 Rear window wiper motor
27 Rear connections contact assembly with built-in boot light switch
28 Dashboard/longitudinal cables connection
34 Switches control unit:
- A Alarm on warning light
- B Rear fog lamps switch
- C Rear fog lamps relay
- D Rear fog lamps warning light
- E Heated rear window switch
- F Heated rear window warning light
- G Symbol light on switch assembly
- H Front fog lamps warning light
- I Front fog lamps switch

39 Heated rear window
46 Left horn
47 Right horn
70 Dashboard/front cables connection
97 Headlamp washer pump
98 Headlamp washer intermittent switch
99 20A fuse protecting headlamp washer
127 Front left cables/cable on relay bracket

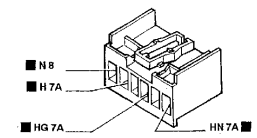
N.D. Ultrasound-soldered joint taped in wiring loom

4A23ZL

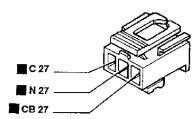
13 Front right/left cables connection



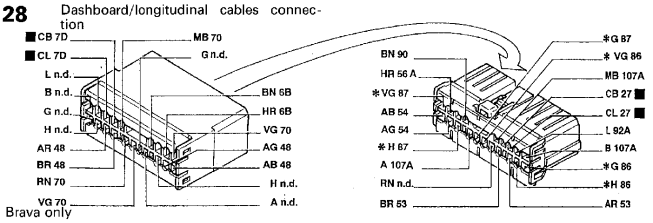
24 Windscreen wiper motor



26 Rear window wiper motor

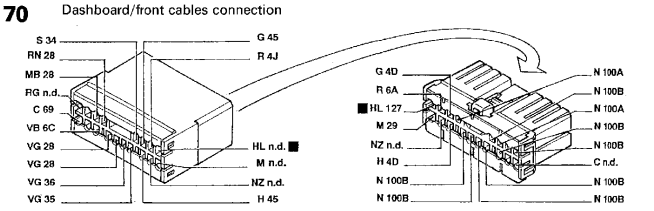


28 Dashboard/longitudinal cables connection



* Brava only

70 Dashboard/front cables connection



P4A24ZL01

The cables involved in the wiring diagram are marked with a solid square

4A24ZL

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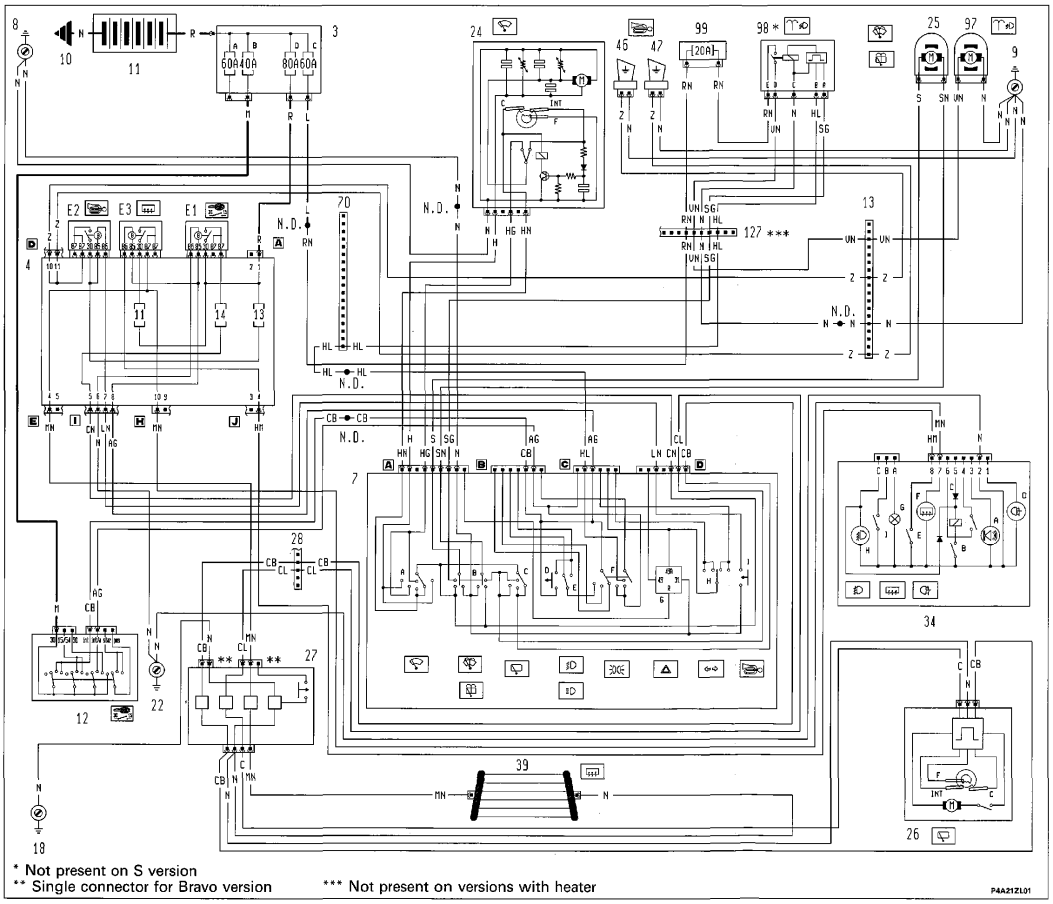
Windscreen wash/wipe - Rear window wash/wipe - Electric horns - Heated rear window and warning light - Headlamp washer - (See key following diagrams)



4A21ZL

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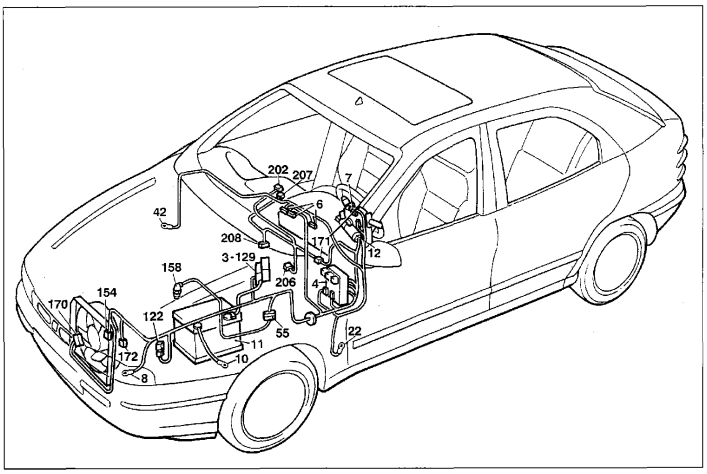


P4A19ZL01

Version without air conditioner

Engine cooling system - Water temperature gauge - Car interior ventilation

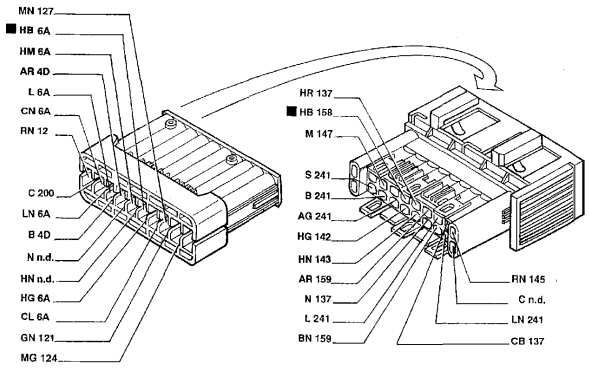
Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A protecting fuse and relay unit
4 Fuse and relay unit
E1 Ignition switch discharge relay
6 Instrument panel:
X Coolant temperature gauge
7 Stalk unit
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
22 Left dashboard earth
42 Right dashboard earth
55 Front/engine cables connection
122 Engine cooling fan low speed relay
129 40A power fuse protecting engine cooling fan
154 Engine cooling fan
158 Coolant temperature sensor for gauge
170 Engine cooling fan limiting resistor
171 Heater unit
172 Two-stage thermostat
202 Bulbs for heater/air conditioner unit
206 Heater/air conditioner electric fan
207 Speed control switch for heater/air conditioner unit
208 Limiting resistor for heater/air conditioner unit

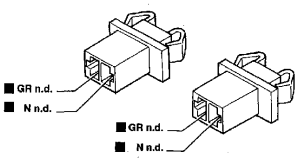
N.D. Ultrasound-soldered joint taped in wiring loom

4A19ZL

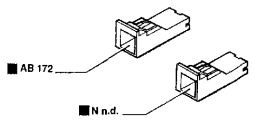
55 Front/engine cables connection



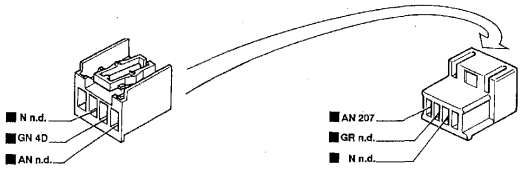
202 Bulbs for illuminating symbols on heater/air conditioner controls



170 Resistor for engine cooling fan



171 Heater cables connection



P4A20ZL01

4A20ZL

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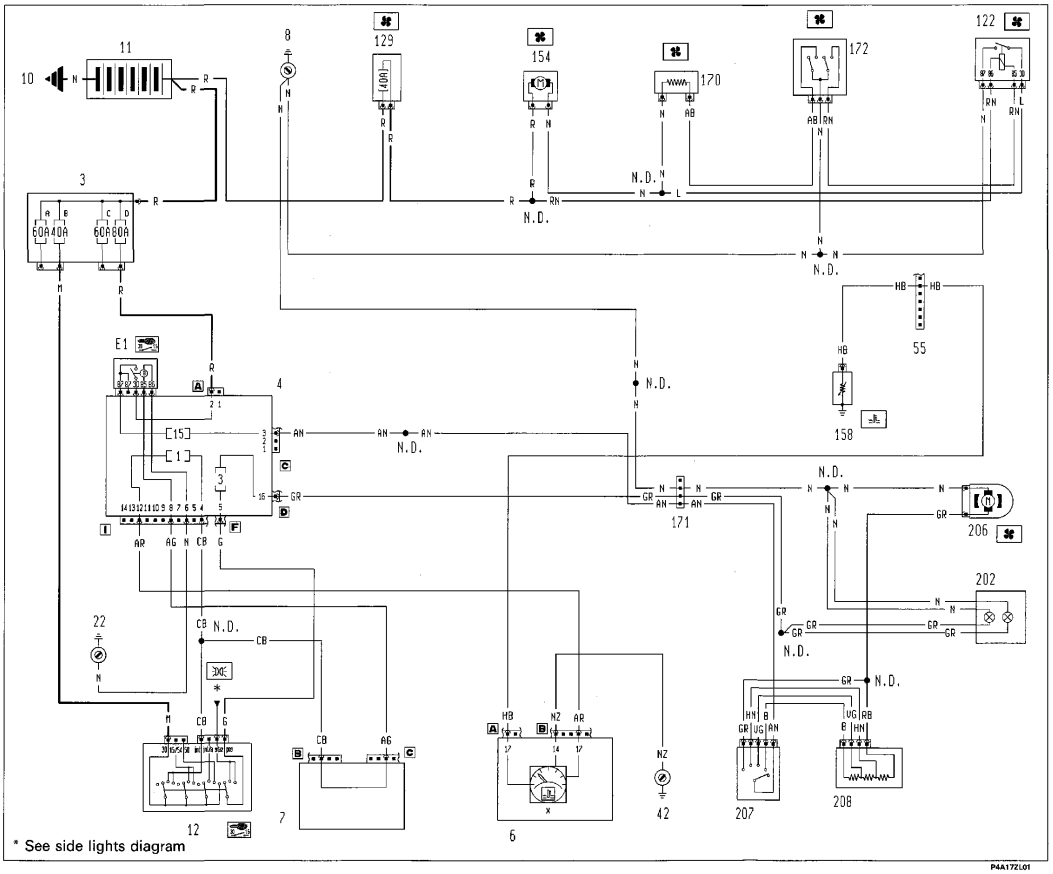
Version without air conditioner
Engine cooling system - Water temperature gauge - Car interior ventilation - (See key following diagrams)



4A172L

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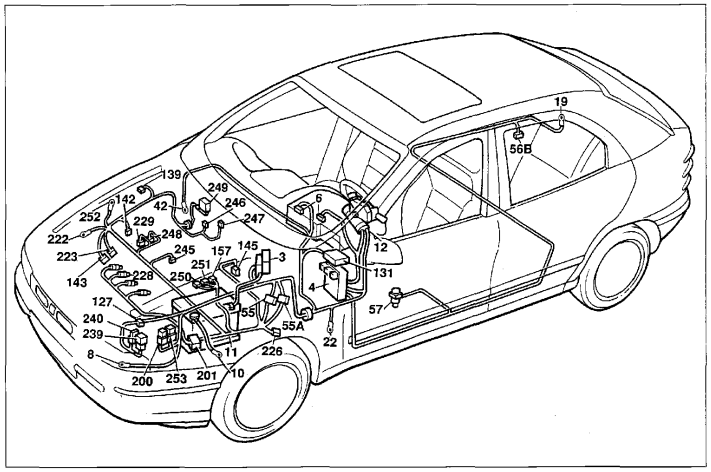
55.



P4A15ZL01

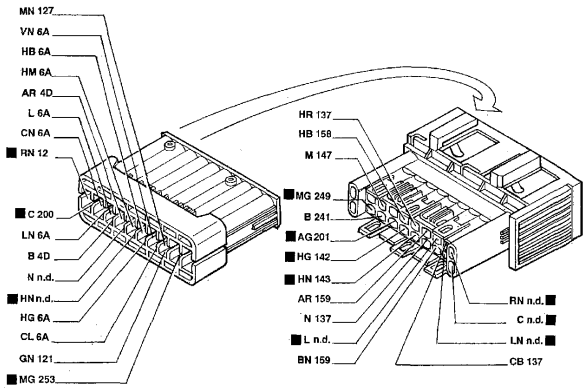
Model: 1910 75 BHP
Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE system fault warning light - Rev counter

Key to components

3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
A Low generator charge warning light
B Low engine oil pressure warning light
L Fiat CODE system fault warning light
M Fuel injection fault warning light
O Heater plug warning light
W Rev counter
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
19 Rear right earth
22 Left dashboard earth
42 Right dashboard earth
55 Front/engine cables connection
55A Front left/engine cables connection
56B Fuel gauge sender
57 Inertial switch
127 Connection between front left cables/cable on relay bracket
131 Fiat CODE electronic control unit
139 Diagnostic socket for fuel injection
142 Low oil pressure warning light switch
143 Alternator
145 Starter motor
157 Water temperature sensor for fuel injection
200 Inertial switch control relay
201 Plug preheating control unit
222 Earth for fuel system
223 Wheel speed sensor
226 Diagnostic socket for Fiat CODE system
228 Heater plugs
229 Engine cut-off electrostop
239 Heated diesel filter relay
240 20A fuse protecting heated diesel filter relay
245 E.G.R. solenoid
246 Heated fuel filter
247 Heated fuel filter thermal contact
248 Potentiometer on fuel pump
249 E.G.R. electronic control unit
250 Water temperature sensor for preheating control unit
251 K.S.B. thermal switch
252 K.S.B. earth
253 Relay for switching off compressor
N.D. Ultrasound-soldered joint taped in wiring loom

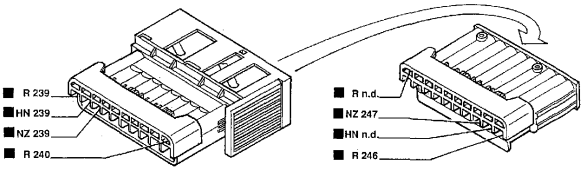
4A15ZL

55 Front/engine cables connection



55A Front left/engine cables connection

127 Connection between front left cables/cable on relay bracket



P4A16ZL01

4A16ZL

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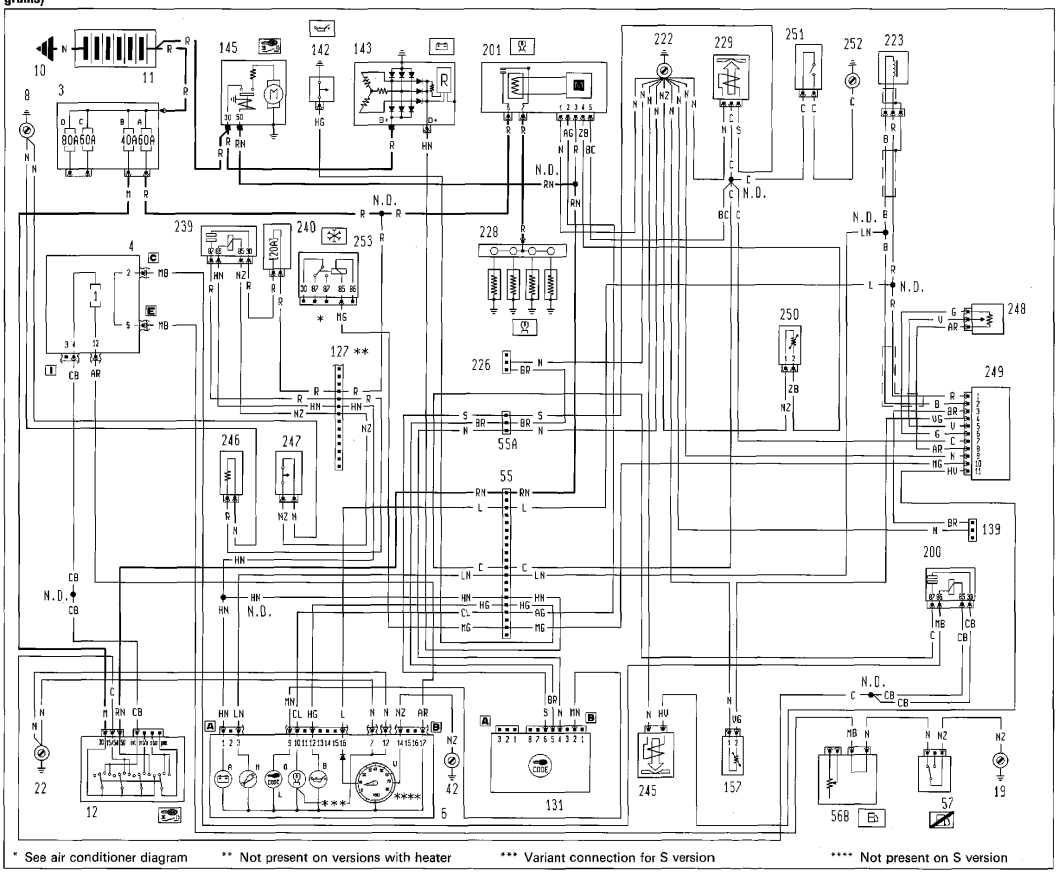
Version: 1910 75 BHP

Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE fault system warning light - Rev counter (See key following diagrams)



4A13ZL

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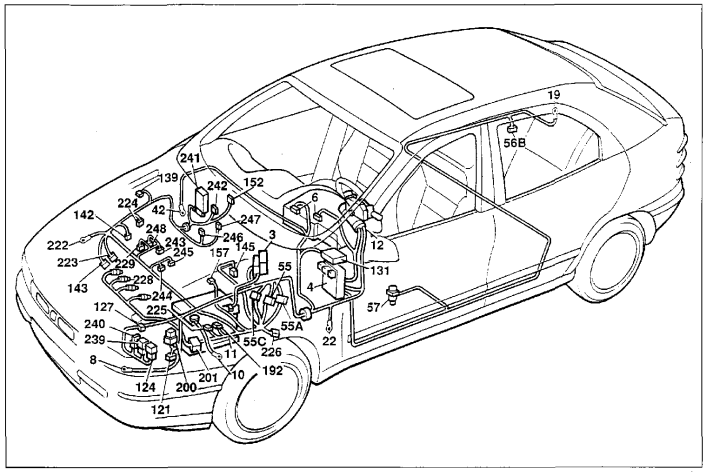


P4A11ZL01

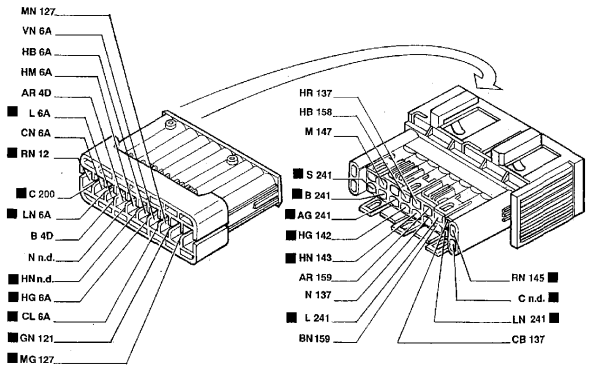
Model: 1910 100 BHP
Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE system warning light - Rev counter

Key to components

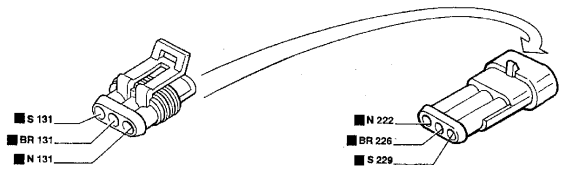
3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting fuel injection system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
A Low generator charge warning light
B Low engine oil pressure warning light
L Fiat CODE system fault warning light
M Fuel injection fault warning light
O Plug preheating warning light
W Rev counter
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
19 Rear right earth
22 Left dashboard earth
42 Right dashboard earth
55 Front/engine cables connection
55A Front left/engine cables connection
55C Front left/engine cables connection
56B Fuel gauge sender unit
57 Inertial switch
121 Three-stage pressure switch
124 Air conditioner compressor control relay
127 Connection between front left cables/cable on relay bracket
131 Fiat CODE electronic control unit
139 Diagnostic socket for fuel injection
142 Low oil pressure warning light switch
143 Alternator
145 Starter motor
152 10A fuse protecting fuel injection
157 Water temperature sensor for fuel injection
192 Air temperature sensor
200 Inertial switch relay
201 Plug preheating control unit
222 Earth for fuel system
223 Wheel speed sensor
224 Instrumented fuel injector
225 Flowmeter
226 Diagnostic socket for Fiat CODE system
228 Heater plugs
229 Engine cut-off electrostop
239 Heated diesel filter relay
240 20A fuse protecting heating diesel filter relay
241 Fuel pump electronic control unit
242 Fuel injection relay
243 Engine advance adjustment solenoid
244 Fast idle solenoid
245 E.G.R. solenoid
246 Heated fuel filter
247 Heated fuel filter thermal contact
248 Potentiometer on fuel pump
N.D. Ultrasound-soldered joint taped in wiring loom

4A11ZL

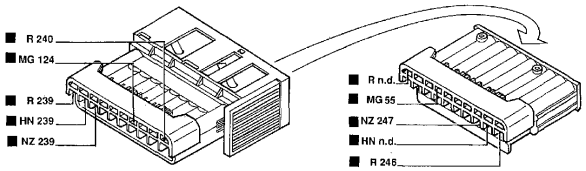
55 Front/engine cables connection



55A Front left/engine cables connection



127 Connection between front left cables/cable on relay bracket



P4A12ZL01

4A12ZL

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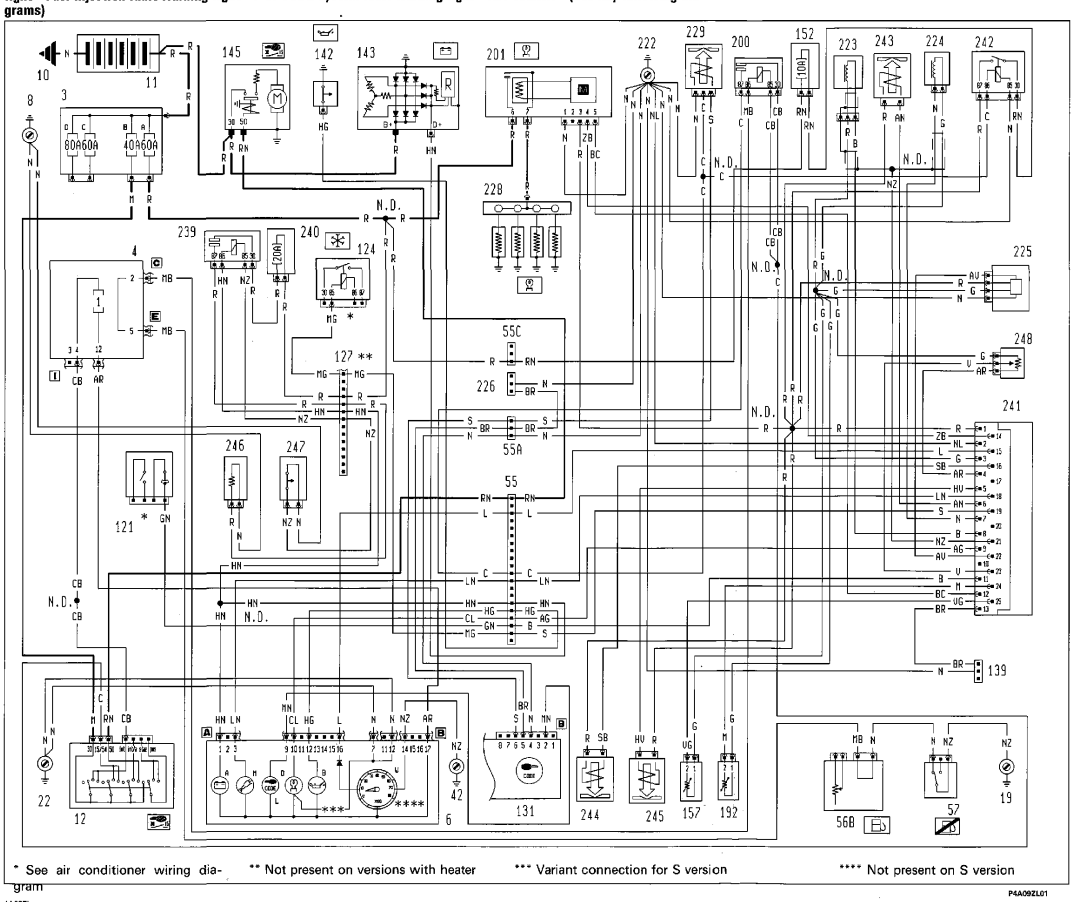
Model: 1910 100 BHP

Starting system - Recharging system and warning light - Low engine oil pressure warning light - Heater plugs warning light - Fuel injection fault warning light - Fiat CODE system fault warning light - Rev counter - (See key following diagrams)



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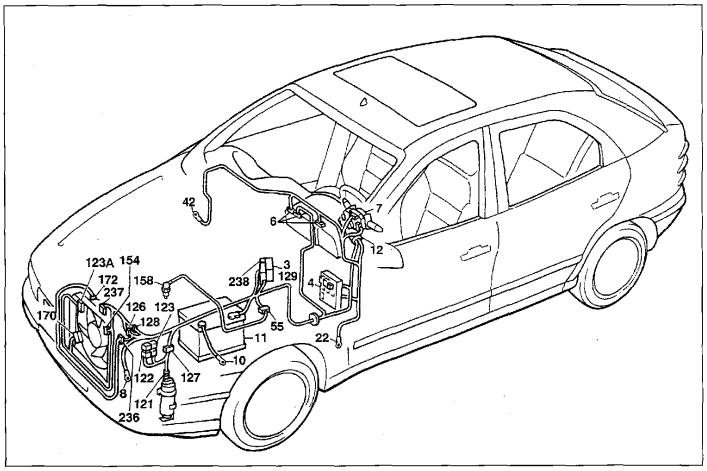


P4A07ZL01

Version with air conditioner

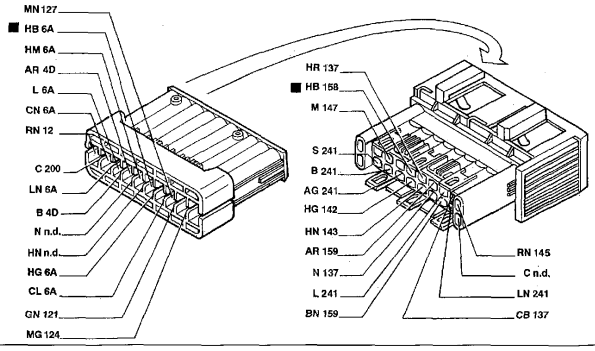
Engine cooling system - Water temperature gauge

Key to components

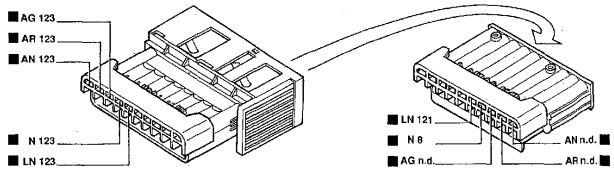
3 Power fuse box:
A 60A fuse protecting fuel injection system
B 40A fuse protecting ignition system
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
E1 Ignition switch discharge relay
6 Instrument panel:
X Water temperature gauge
7 Stalk unit
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
22 Left dashboard earth
42 Right dashboard earth
55 Front/engine cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed control relay
123 Engine cooling fan high speed timer
123A Engine cooling fan high speed control relay
126 Front/air conditioner cables connection
127 Connection between front left cables/cable on relay bracket
128 Front/air conditioner cables connection
129 40A power fuse protecting engine cooling fan
154 Engine cooling fan
158 Coolant temperature sensor for instrument
170 Engine cooling fan limiting resistor
172 Two-stage thermostat
236 Front/air conditioner cables connection
237 Additional engine cooling fan
238 40A power fuse protecting engine cooling fan

N.D. Ultrasound-soldered joint taped in wiring loom

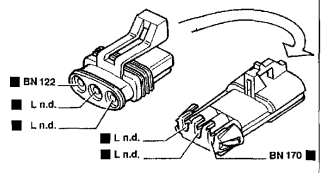
55 Front/engine cables connection



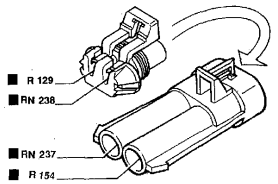
127 Connection between front left cables/cable on relay bracket



126 Front/air conditioner cables connection



128 Front/air conditioner cables connection



P4A08ZL01

The cables involved in the wiring diagram are marked with a solid square

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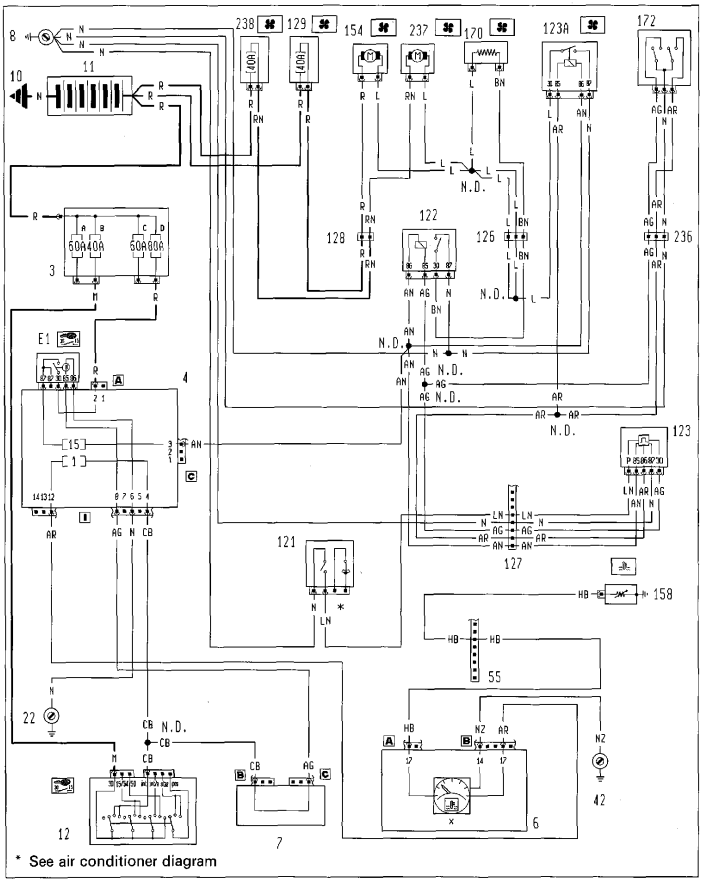
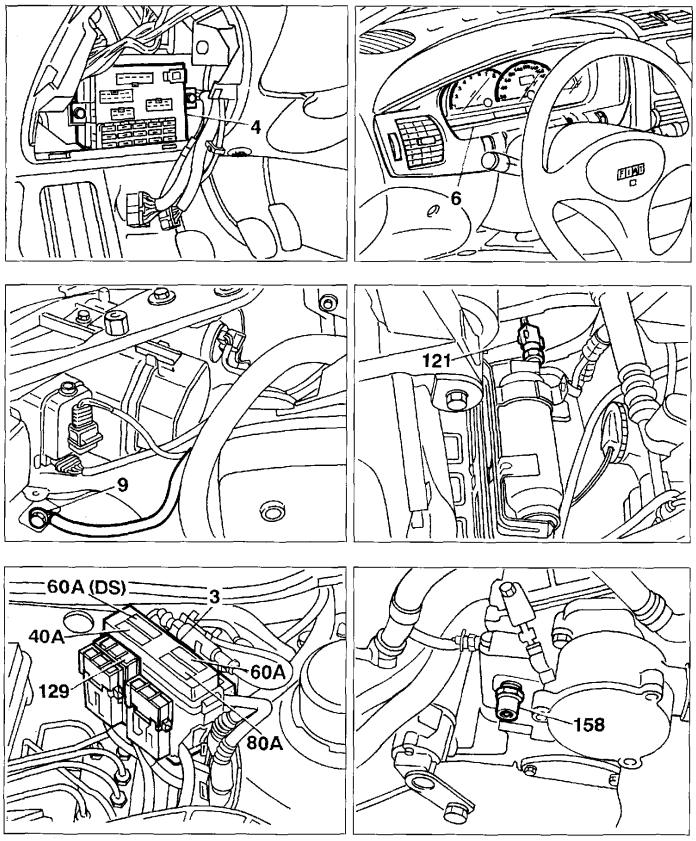
Version with air conditioner

Engine cooling system - Water temperature gauge - (See key following diagrams)



Location of components



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CONNECTOR BLOCKS *

INTRODUCTION page

Interpretation of the codes on the connector blocks 58
Wiring colour code 58
Connector blocks 59

* With regard to the 1910 Turbo D engine, the connector blocks have been added from the previous publication; for aspects not covered, refer to the Bravo-Brava publication no. 506.670/02.

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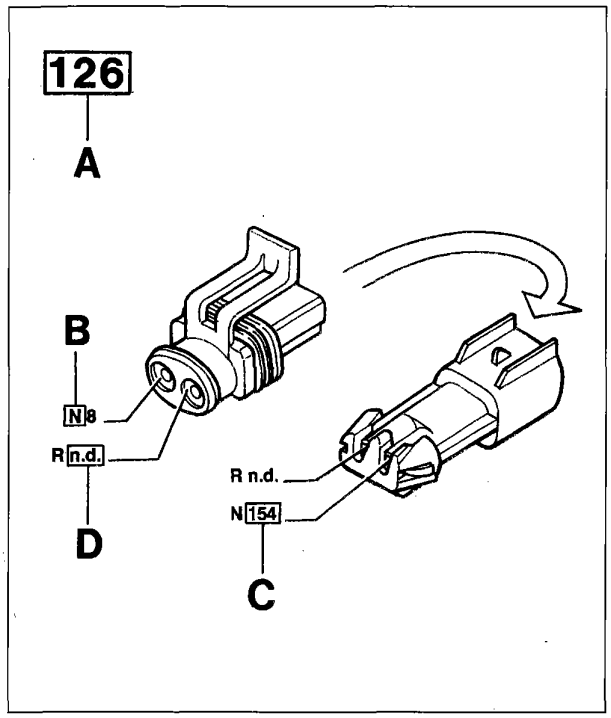
INTRODUCTION

Interpretation of the codes on the connector blocks



P4A58ZL01

A Connector block identification number referring to the wiring diagrams

B Cable colour identification code

C Identification number of the cable's destination block

D The abbreviation n.d. identifies an ultrasound-soldered joint taped into the wiring loom

Cable colour codes

A	Light blue	**BG**	White-Yellow	**LB**	Blue-White
B	White	**BL**	White-Blue	**LG**	Blue-Yellow
C	Orange	**BN**	White-Black	**LN**	Blue-Black
G	Yellow	**BR**	White-Red	**LR**	Blue-Red
H	Grey	**BV**	White-Green	**LV**	Blue-Green
L	Blue	**BZ**	White-Purple	**MB**	Brown-White
M	Brown	**CA**	Orange-Light blue	**MN**	Brown-Black
N	Black	**CB**	Orange-White	**NZ**	Black-Purple
R	Red	**CN**	Orange-Black	**RB**	Red-White
S	Pink	**GN**	Yellow-Black	**RG**	Red-Yellow
V	Green	**GL**	Yellow-Blue	**RN**	Red-Black
Z	Purple	**GR**	Yellow-Red	**RV**	Red-Green
AB	Light blue-White	**GV**	Yellow-Green	**SN**	Pink-Black
AG	Light blue-Yellow	**HG**	Grey-Yellow	**VB**	Green-White
AN	Light blue-Black	**HN**	Grey-Black	**VN**	Green-Black
AR	Light blue-Red	**HR**	Grey-Red	**VR**	Green-Red
AV	Light blue-Green	**HV**	Grey-Green	**ZB**	Purple-White

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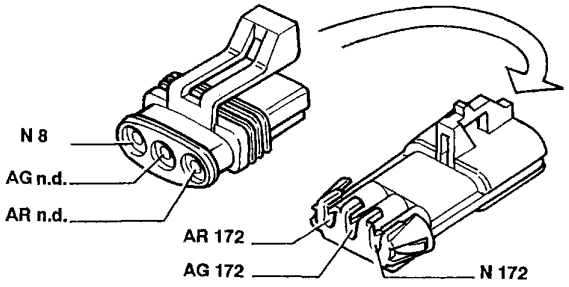
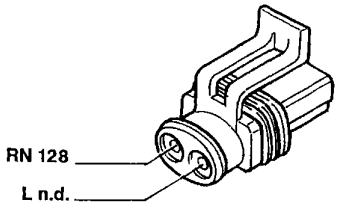
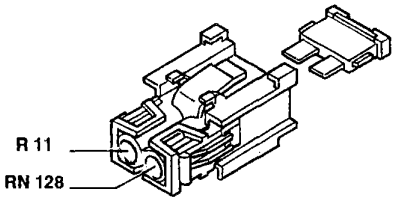
236 Front/air conditioner cables connection



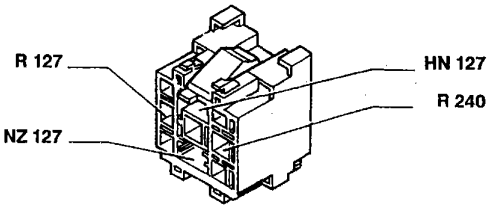
237 Additional engine cooling fan



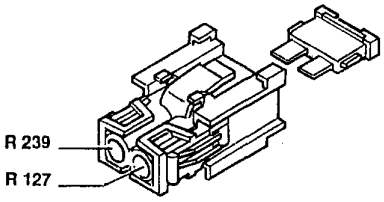
238 40A fuse protecting engine cooling fan



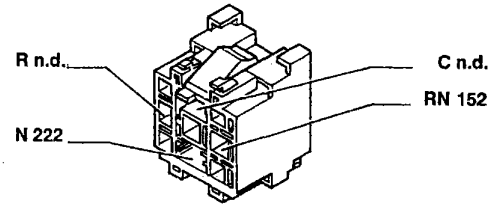
239 Heated diesel filter control relay



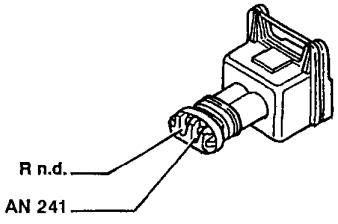
240 20A fuse protecting heated diesel filter control relay



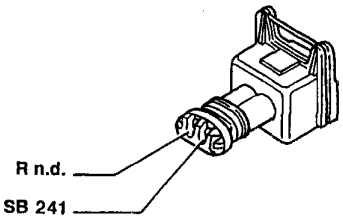
242 Fuel injection control relay



243 Engine advance adjustment solenoid



244 Fast idle adjustment solenoid



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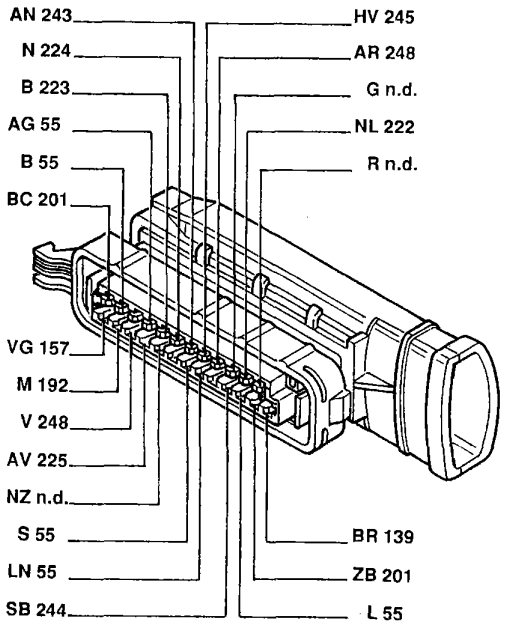
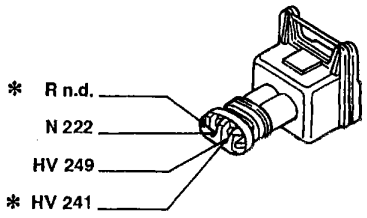
55.

241 Fuel pump electronic control unit

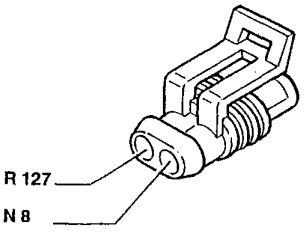


245 E.G.R. solenoid

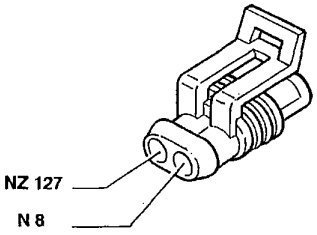


* Variant connections for 100 BHP version

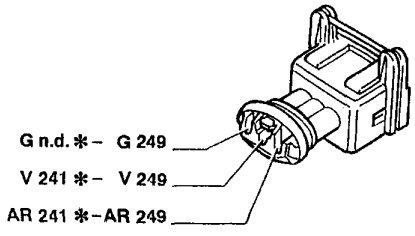
246 Heated fuel filter



247 Heated fuel filter thermal contact



248 Potentiometer on fuel pump



* Variant connections for 100 BHP version

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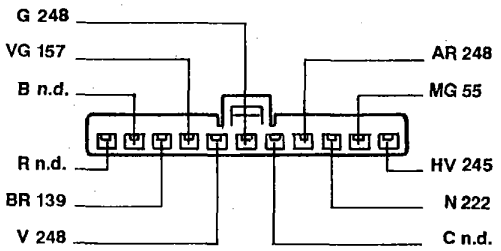
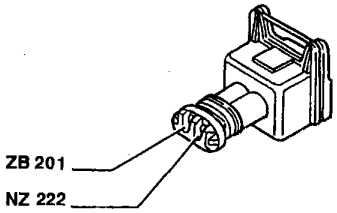
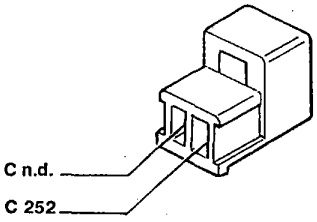
249 E.G.R. electronic control unit



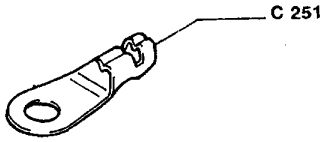
250 Water temperature sensor for preheating control unit



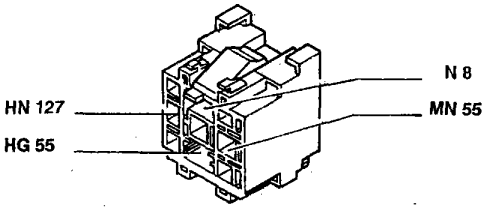
251 Thermal switch for K.S.B.



252 Earth for K.S.B. device



253 Relay for switching off compressor



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Electrical system

Key

55.

Key to compnents:

3 Power fuse box:
- A 60A fuse protecting fuel injection system
- B 40A fuse protecting ignition system
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit:
- E1 Ignition switch discharge relay
- E2 Horn relay
- E3 Heated rear window relay

6 Instrument panel:
- A Low generator charge warning light
- B Low engine oil pressure warning light
- C Left direction indicator warning light
- D Right direction indicator warning light
- E Side lights warning light
- F Instrument panel symbol lights
- G Main beam headlamps warning light
- H Air Bag fault warning light
- I Anti-lock braking system fault warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- L Fiat CODE fault warning light
- M Fuel injection fault warning light
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Handbrake on / low brake fluid level warning light
- S Stop lights fault indicator electronic control module
- T Stop lights fault warning light
- U Door open warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Water temperature gauge
- Z Trip recorder/mileage counter
- Z1 Trip recorder reset button

7 Stalk unit:
- A Windscreen wiper speed switch
- B Windscreen wash/headlamp wash/rear window wash switch
- C Rear window wiper switch
- D Headlamp flasher button
- E Dipped beam/main beam headlamps
- F Side lights switch
- G Indicators/hazard lights intermittent switch
- H Direction indicators switch
- I Horn button

8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
18 Rear left earth
19 Rear right earth
22 Left dashboard earth
24 Windscreen wiper motor
25 Windscreen/rear window washer pump
26 Rear window wiper motor
27 Rear connections contact assembly with built-in boot light switch
28 Dash./longitudinal cables connection
34 Switch controls unit:
- A Alarm on warning light
- B Rear fog lamps switch
- C Rear fog lamps relay
- D Rear fog lamps warning light
- E Heated rear window switch
- F Heated rear window warning light
- G Switch controls unit symbol light
- H Front fog lamps warning light
- I Front fog lamps switch

39 Heated rear window
42 Right dashboard earth
46 Left horn
47 Right horn
55 Front/engine cables connection
55A Front left/engine cables connection
55C Front left/engine cables connection

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56 Fuel gauge controller
A Fuel level sensor
B Electric fuel pump
57 Inertial switch
58 Lighting brightness adjustment rheostat
70 Dash./front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
95 Front/anti-lock braking system (A.B.S.) cables connection
97 Headlamp washer pump
98 Headlamp washer intermittent switch
99 20A fuse protecting headlamp washer
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
120 Air conditioner cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed relay
123 Engine cooling fan high speed timer
123A Engine cooling fan high speed relay
124 Air conditioner compressor relay
126 Front/air conditioner cables connection
127 Connection between front left cables/cable on relay bracket
128 Front/air conditioner cables connection
129 40A power fuse protecting engine cooling fan
131 Fiat CODE electronic control unit
137 Car speed sensor
139 Diagnostic socket for fuel injection
142 Low oil pressure warning light switch
143 Alternator
145 Starter motor
147 Compressor for air conditioner
152 10A fuse protecting fuel injection
154 Engine cooling fan
157 Water temperature sensor for fuel injection
158 Water temperature sensor for gauge
170 Engine cooling fan limiting resistor
171 Heater unit
172 Two-stage thermostat
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)
192 Air temperature sensor
200 Inertial switch relay
201 Plug preheating control unit
202 Heater/air conditioner light bulbs
203 Air conditioner controls:
A Switch for switching on air conditioner
B Air conditioner recirculation control switch
204 Engine cooling fan 1st speed control relay
205 Air conditioner fan control relay
206 Heater/air conditioner fan
207 Heater/air conditioner speed control switch
208 Heater/air conditioner limiting resistor
209 Actuator controlling exterior air/recirculation
210 Electronic thermostat cables connection
211 Electronic thermostat (N.T.C.)
222 Earth for fuel system
223 Wheel speed sensor
224 Instrumented fuel injector
225 Flowmeter
226 Diagnostic socket for Fiat CODE system
228 Heater plugs
229 Engine cut-out electrostop
232 Compressor earth
233 Thermostat on coolant pump
235 Air conditioner compressor cables connection
236 Front/air conditioner cables connection
237 Additional engine cooling fan
238 40A fuse protecting engine cooling fan
239 Heated diesel filter relay
240 20A fuse protecting heated diesel filter relay
241 Fuel pump electronic control unit
242 Fuel injection control relay
243 Engine advance adjustment solenoid
244 Fast idle solenoid
245 E.G.R. solenoid
246 Heated fuel filter
247 Heated fuel filter thermal contact
248 Potentiometer on fuel pump
249 E.G.R. electronic control unit
250 Water temperature sensor for preheating control unit
251 K.S.B. thermal switch
252 K.S.B. earth.
253 Relay for switching off compressor

N.D. Ultrasound-soldered joint taped into wiring loom

Cable colour code:

A	Light blue
B	White
C	Orange
G	Yellow
H	Grey
L	Blue
M	Brown
N	Black
R	Red
S	Pink
V	Green
Z	Purple
AB	Light blue-White
AG	Light blue-Yellow
AN	Light blue-Black
AR	Light blue-Red
AV	Light blue-Green
BG	White-Yellow
BL	White-Blue
BN	White-Black
BR	White-Red
BV	White-Green
BZ	White-Purple
CA	Orange-Light blue
CB	Orange-White
CN	Orange-Black
GN	Yellow-Black
GL	Yellow-Blue
GR	Yellow-Red
GV	Yellow-Green
HG	Grey-Yellow
HN	Grey-Black
HR	Grey-Red
HV	Grey-Green
LB	Blue-White
LG	Blue-Yellow
LN	Blue-Black
LR	Blue-Red
LV	Blue-Green
MB	Brown-White
MN	Brown-Black
NZ	Black-Purple
RB	Red-White
RG	Red-Yellow
RN	Red-Black
RV	Red-Green
SN	Pink-Black
VB	Green-White
VN	Green-Black
VR	Green-Red
ZB	Purple-White

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page

- Electrical symbols 1
- How to read the wiring diagrams 4
- Wiring diagrams 5
- Key to wiring diagrams 37

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55.

NAME	Bravo		Brava			
	S	SX	S	SX	EL	ELX
	1581 16v	1581 16v	1581 16v	1581 16v	1581 16v	1581 16v
Side lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights -	5	5	5	5	5	5
Front fog lamps and warning light - Rear fog lamps and warning light	7	7	7	7	7	7
Version with air conditioner Engine cooling system - Water temperature gauge	9	9	9	9	9	9
Anti-lock braking system (A.B.S.) and fault warning light - Hand brake on/low brake fluid level warning light	11	11	11	11	11	11
Fiat-CODE system and fault warning light	13	13	13	13	13	13
Starting - Electronic ignition and fuel injection - Recharging and warning light - Low engine oil pressure warning light - Fuel injection fault warning light - Rev counter	15	15	15	15	15	15
Model without air conditioner Engine cooling system - Water temperature gauge - Car interior ventilation	17	17	17	17	17	17
Direction indicators and warning lamp - Hazard warning lights and warning lamp - Stop lights - Reversing lights	19	19	19	19	21	21
Fuel level gauge and reserve warning light - Hand brake on/low brake fluid level warning light - Speedometer - Trip recorder/total mileage counter and trip recorder reset button - Water temperature gauge - Low engine oil pressure warning light - Rev counter - Front brake pad wear warning light	23	23	23	23	25	25
Air conditioner	27	27	27	27	27	27
Courtesy light - Symbol illumination	29	29	29	29	29	29
Instrument panel connections	31	31	31	31	33	33
Diagnostic socket connections	35	35	35	35	35	35

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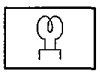
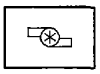
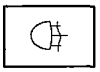
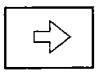
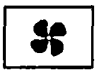
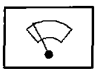
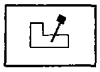
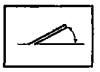
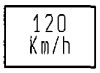
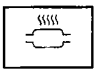
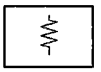
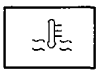
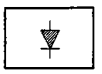
Electrical symbols

Side lights	Choke (starter)	Switch discharge
Main beam	Water in fuel filter	Dipped headlamps
Heated seat	 Heater plug	Indicators flashing with central door locking
Seat belts	 Compressor turbo pressure	Electric horns
Heated rear window	 Rear fog lamps	Left indicator
Hand brake on and low brake fluid level	Front fog lamps	 Right indicator
A.B.S.	Brake pad wear	 Engine cooling
Hazard warning	Compressor turbo pressure	 Windscreen wiper
Indicators	 Auto transmission fluid temperature	 Electric sunroof
Handbrake on and low brake fluid level	 Speed limits	 Catalytic converter temperature
Recharging	Fuel gauge	 Heating element
Engine oil pressure	 Engine coolant temperature gauge	 Diode

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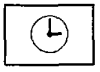
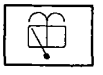
55.

Electrical symbols

Warning light	Trip computer control	Differential lock
Bulb	Electronic injection	Auto transmission fluid temperature
Fuse	Engine oil level	Temperature
Switch open	Brake fluid level (Japan version)	Anti-theft device
Selector switch	Doors open	Electric windows
Button open	Central locking	Earth
Coil-controlled switch (Relay)	Sport function on electronic suspension system	No. plate lights
Motor	Transistor	Pulse generator (Timer)
Rear window wiper	Air Bag	 Analogue clock
Headlamp washer	A.B.S. (Japan version)	Digital clock
Screen wash/wipe	Car stop fault	Speedometer
 Rear win. wash/wipe	Windscreen wiper	Rev counter

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Electrical symbols

Digital speedometer

Digital rev counter

Digital fuel gauge

Analogue fuel gauge

Analogue coolant temperature gauge

Econometer

Digital coolant temperature gauge

Engine oil temperature

Engine oil pressure gauge

Voltmeter

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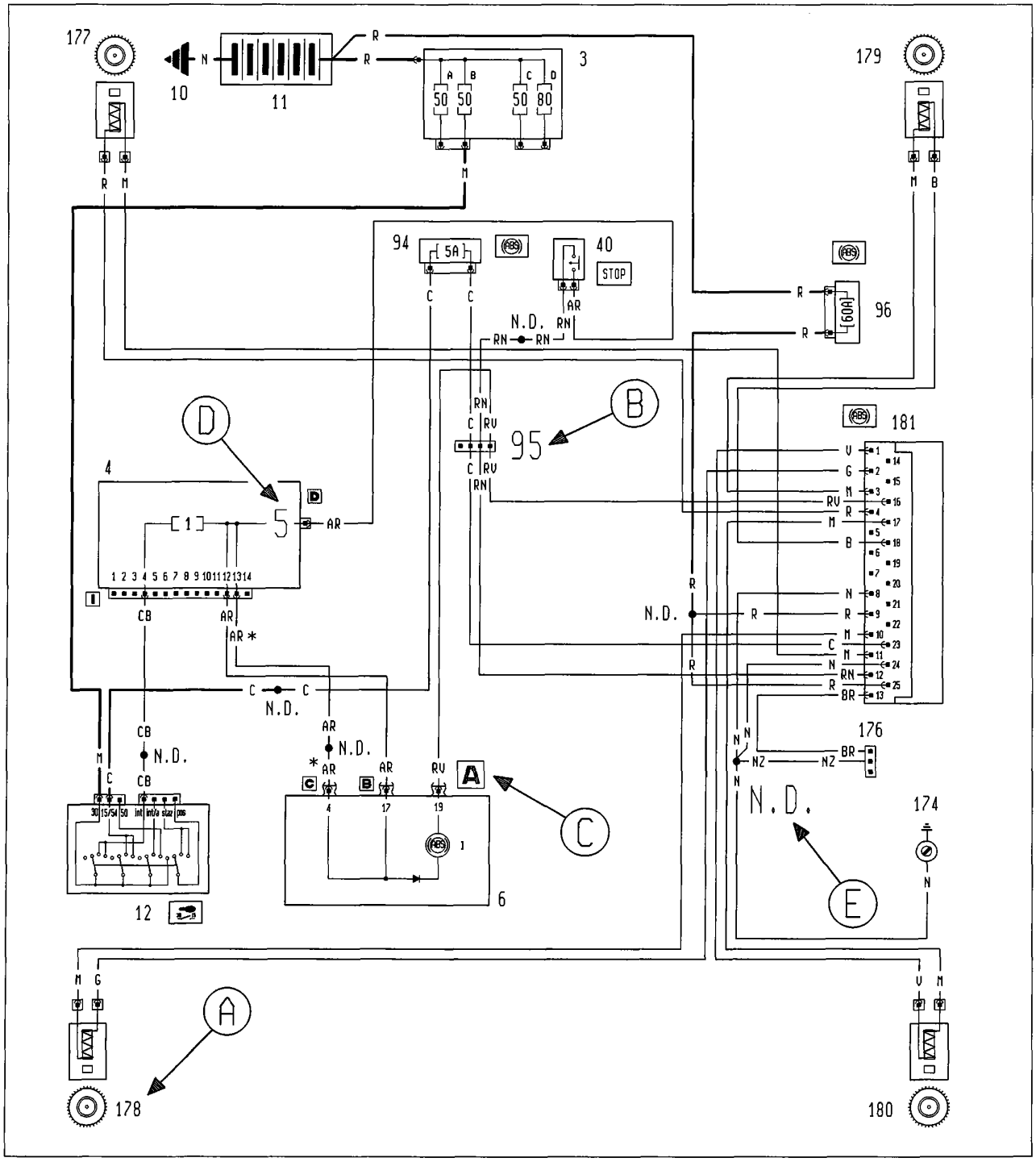
55.

How to read the wiring diagrams



P4A04EL01

Key to references

A Component number
B Connection number
C Identification of connector on component
D Connecting pin number
E Ultrasound-soldered joint taped in wiring loom

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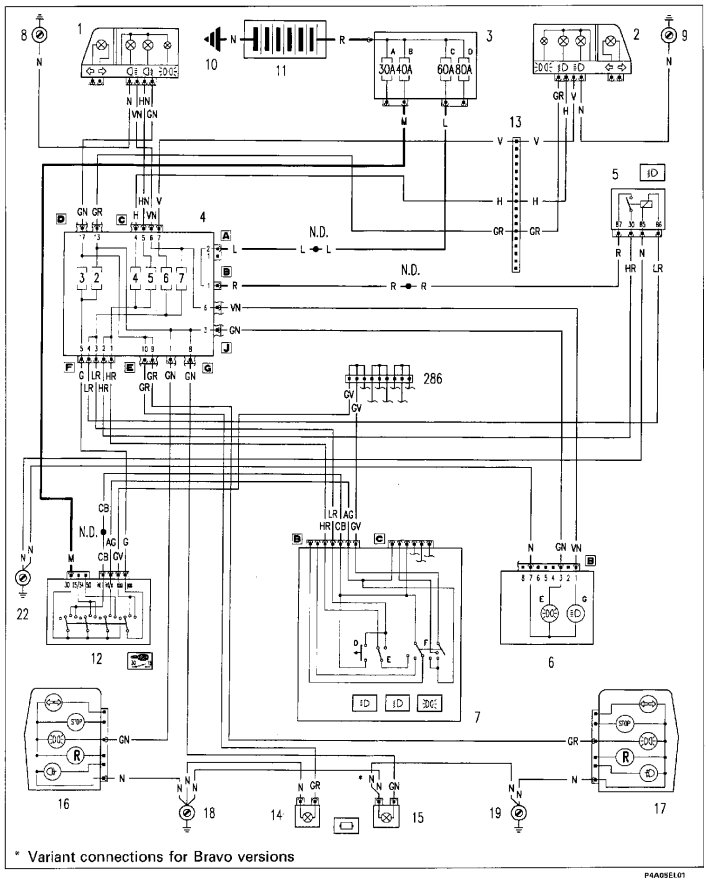
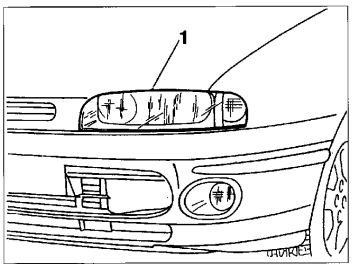
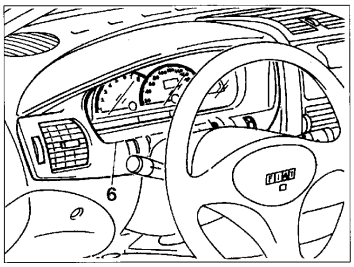
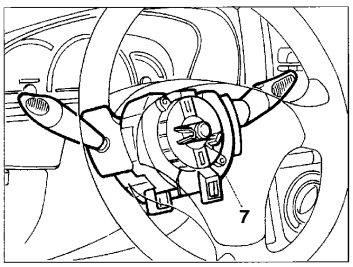
Side lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights -

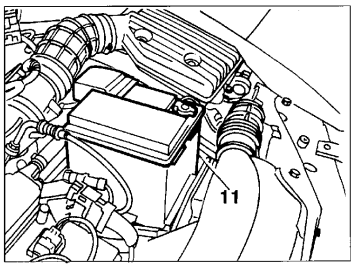


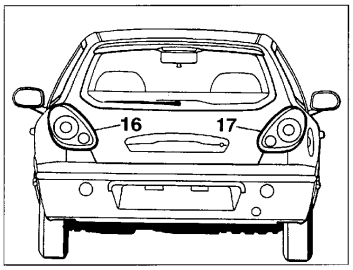
Location of components

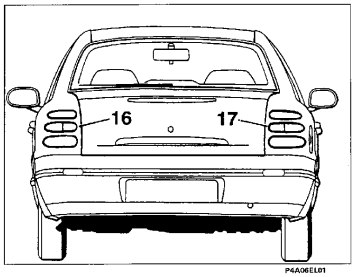












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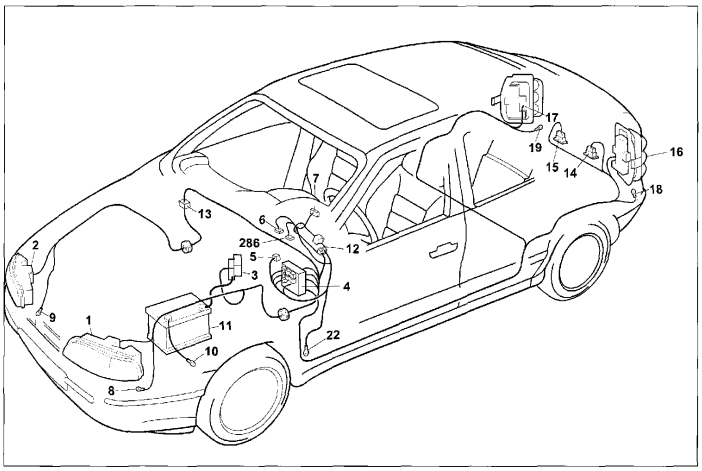


P4A07EL01

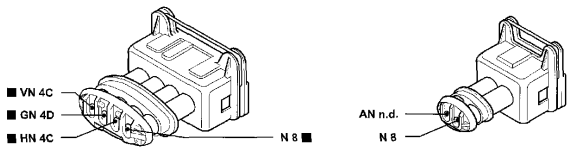
Side lights and warning lamp - Dipped beam headlamps - Main beam headlamps and warning light - Parking lights - Number plate lights

Key to components

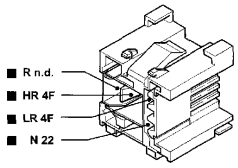
1 Front left lights cluster
2 Front right lights cluster
3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
5 Dipped beam relay
6 Instrument panel:
E Side lights warning light
G Main beam headlamps warning light
7 Stalk unit:
D Flasher button
E Main beam/dipped beam headlamps stalk
F Side lights stalk
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Connection between front right/left cables
14 Left number plate light
15 Right number plate light
16 Rear left lights cluster
17 Rear right lights cluster
18 Rear left earth
19 Rear right earth
22 Left dashboard earth
286 Short-circuiting connection

N.D. Ultrasound-soldered joint taped in wiring loom

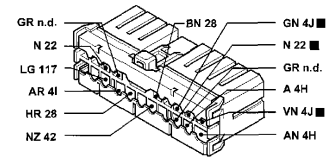
1 Front left lights cluster



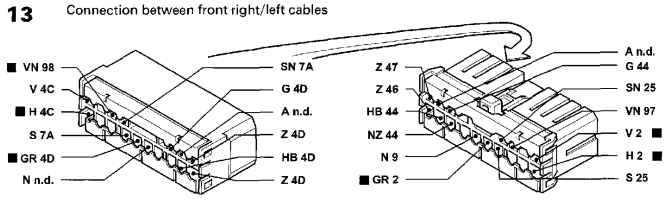
5 Dipped beam relay



6B Instrument panel



13 Connection between front right/left cables



16 Rear lights cluster

Only for Bravo

Only for Brava

P4A08EL01

■ The cables involved in the wiring diagram are marked by a solid square

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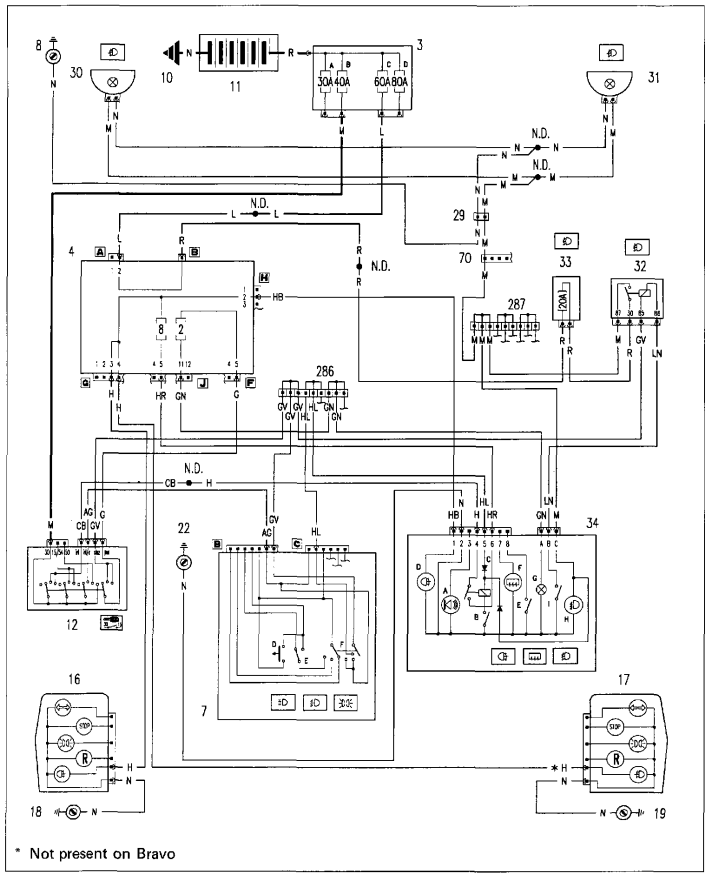
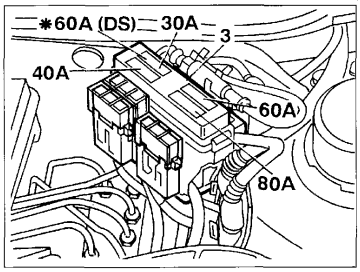
Front fog lamps and warning light - Rear fog lamps and warning light

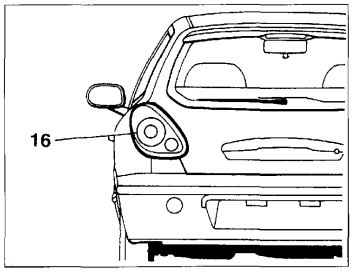


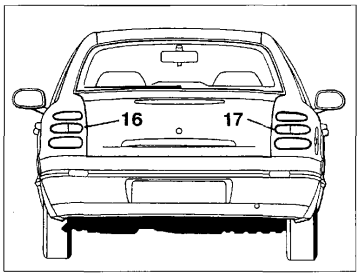
* Not present on Bravo

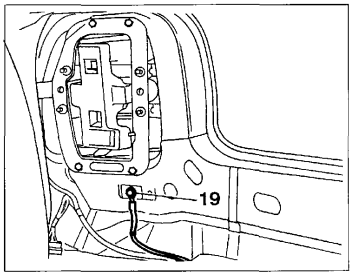
P4A09EL01

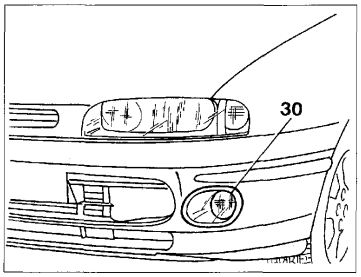
Location of components

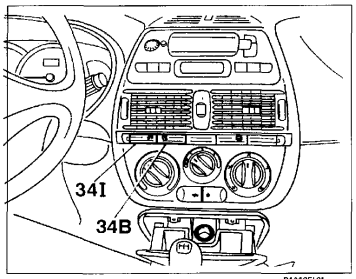












P4A10EL01

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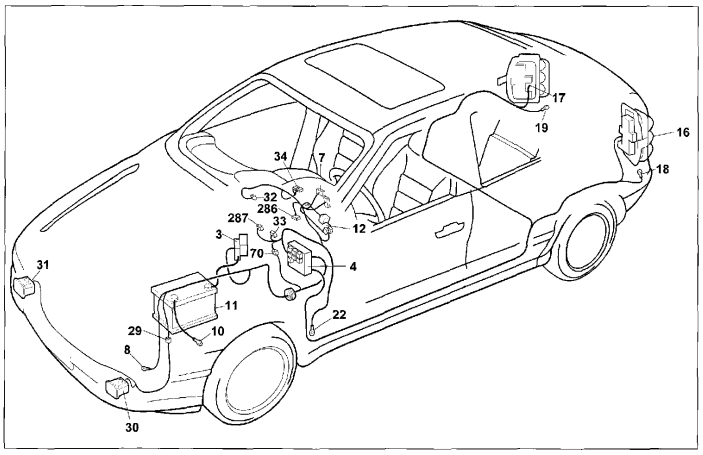


P4A11EL01

Front fog lamps and warning light - Rear fog lamps and warning light

Key to components

3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

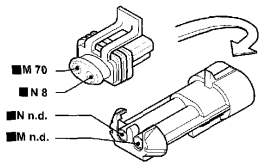
4 Fuse and relay unit
7 Stalk unit:
- D Flasher button
- E Dipped beam/main beam headlamps stalk
- F Side lights stalk

8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
16 Rear left lights cluster
17 Rear right lights cluster
18 Rear left earth
19 Rear right earth
22 Left dashboard earth
29 Front/front fog lamps cables connection
30 Front left fog lamp
31 Front right fog lamp
32 Front fog lamp relay
33 20A fuse protecting front fog lamps
34 Switch controls unit:
- A Alarm on warning light
- B Rear fog lamps switch
- C Rear fog lamps relay
- D Rear fog lamps warning light
- E Heated rear window switch
- F Heated rear window warning light
- G Switch controls unit symbol light
- H Front fog lamps warning light
- I Front fog lights switch

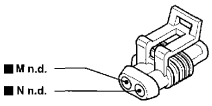
70 Dashboard/front cables connection
286 Short-circuiting connection
287 Short-circuiting connection

N.D. Ultrasound-soldered joint taped in wiring loom

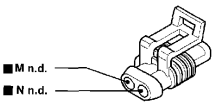
29 Front/front fog lamps cables connection



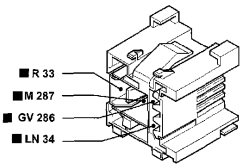
30 Front left fog lamp



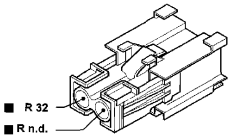
31 Front right fog lamp



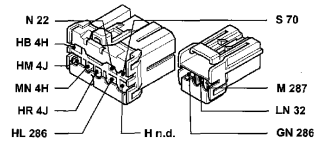
32 Front fog lamp relay



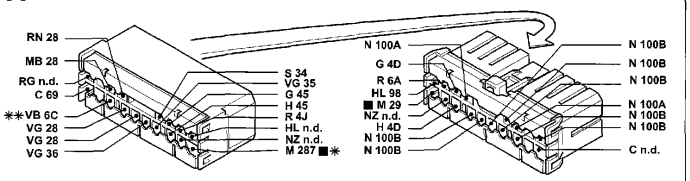
33 20A fuse protecting front fog lamps



34 Switches controls unit



70 Dashboard/front cables connection



* Not present on S version ** Applies only to EL/ELX version

P4A12EL01

■ The cables involved in the wiring diagram are marked with a solid square

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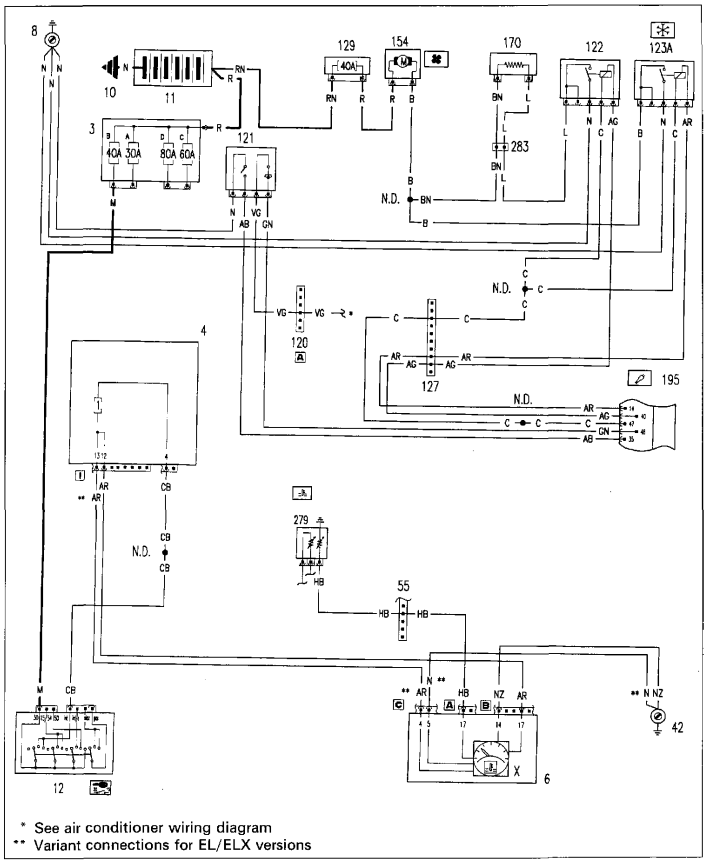
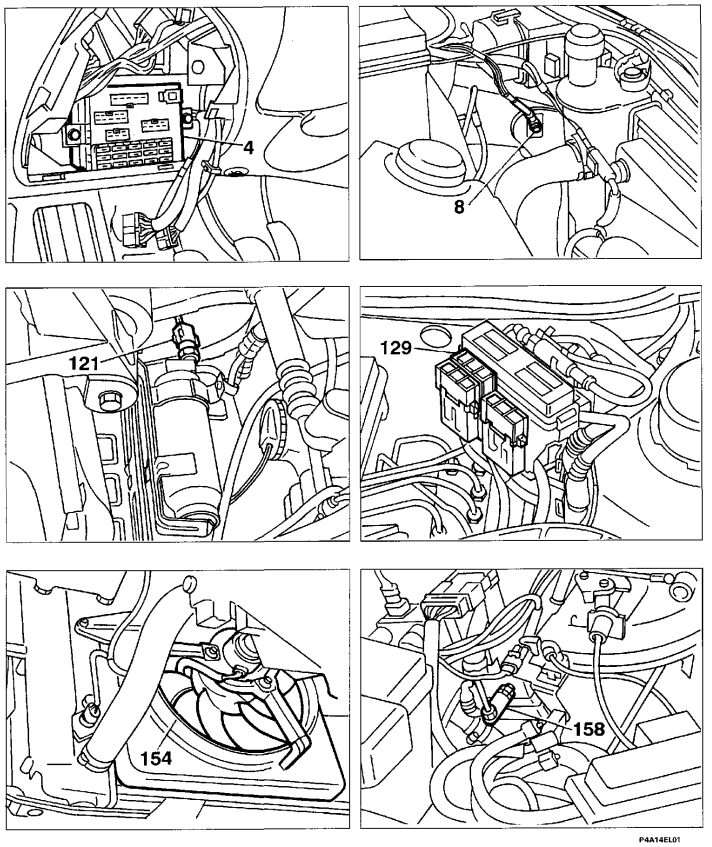
Version with air conditioner

Engine cooling system - Water temperature gauge



P4A13EL01

Location of components



P4A14EL01

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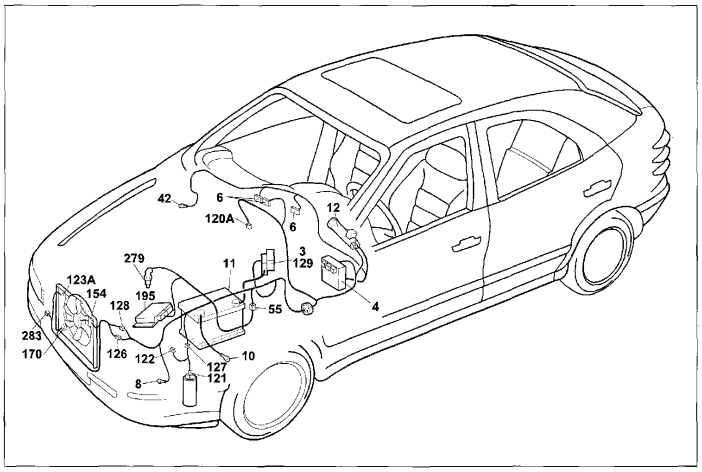


P4A15EL01

Version with air conditioner

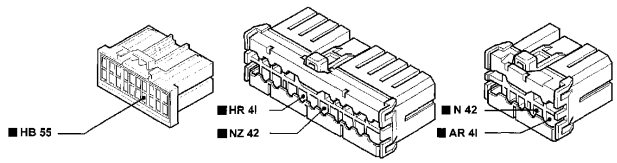
Engine cooling system - Water temperature gauge

Key to components

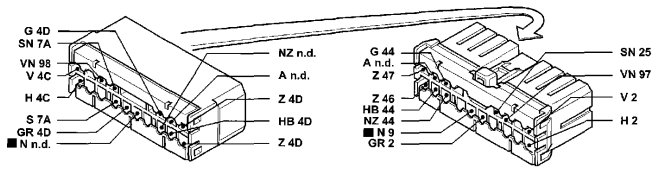
3 Power fuse box:
30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
E1 Ignition switch discharge relay
6 Instrument panel:
X Water temperature gauge
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
42 Right dashboard earth
55 Connection between front cables/fuel gauge control
120 Air conditioner
121 Three-stage pressure switch
122 Engine cooling fan low speed control relay
123A Engine cooling fan high speed control relay
127 Connection between front left cables/cable on relay carrier bracket
128 Front/air conditioner cables connection
129 50A power fuse protecting engine cooling fan
154 Engine cooling fan
170 Engine cooling fan limiting resistor
195 Ignition/fuel injection electronic control unit (1581)
279 Engine coolant temperature double sender unit
283 Front cable/resistor connection

N.D. Ultrasound-soldered joint taped in wiring loom

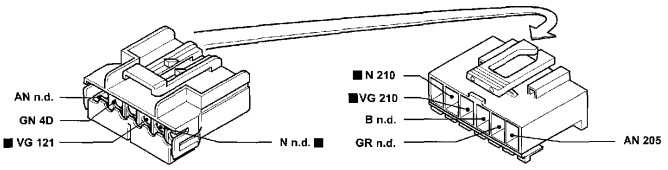
6 A - B - C Instrument panel



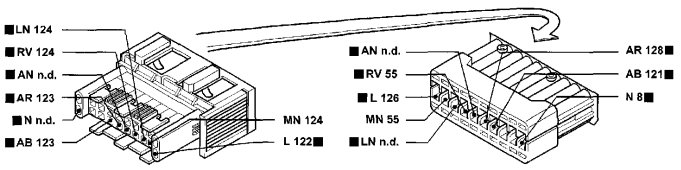
13 Front right/left cables connection



120 Air conditioner cables connection



127 Connection between front left cables/cable on relay carrier bracket



P4A18EL01

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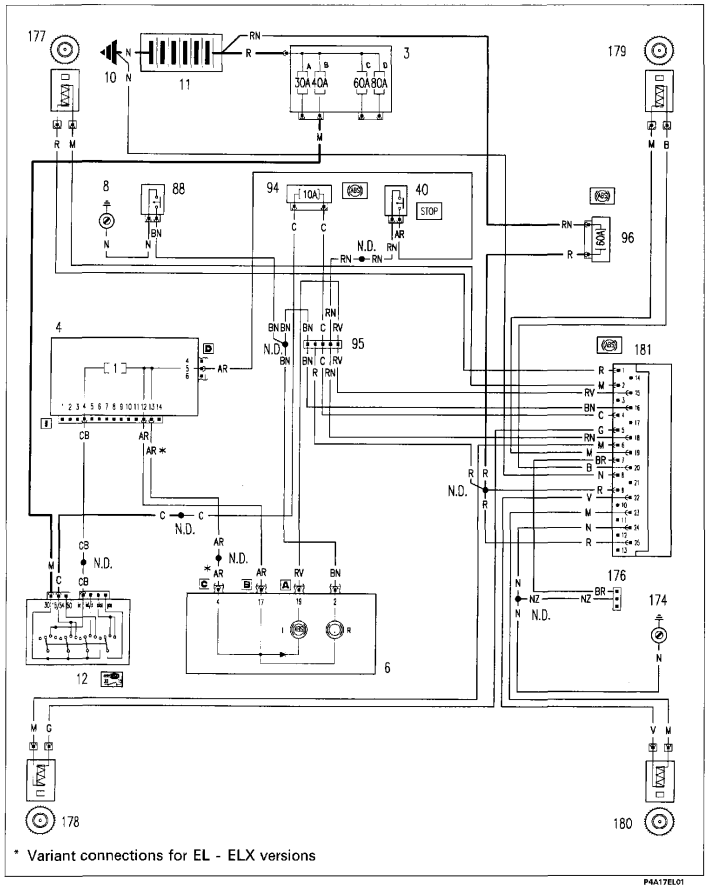
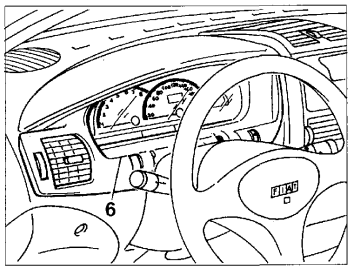
Anti-lock braking system (A.B.S.) and fault warning light - Hand brake on/low brake fluid level warning light

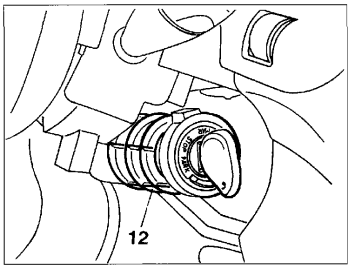


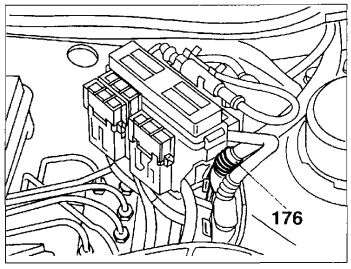
* Variant connections for EL - ELX versions

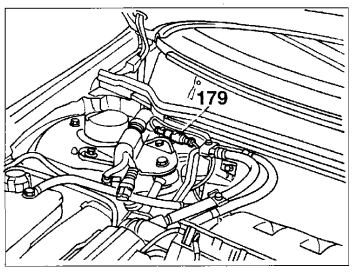
P4A17EL01

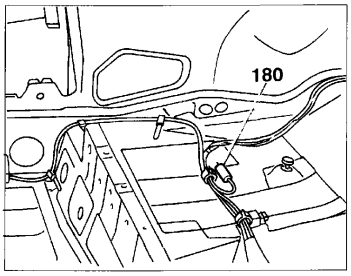
Location of components

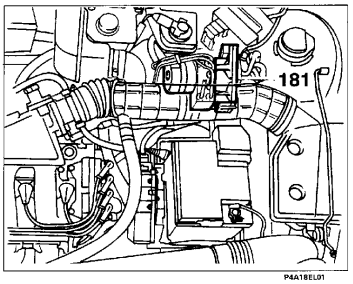












P4A18EL01

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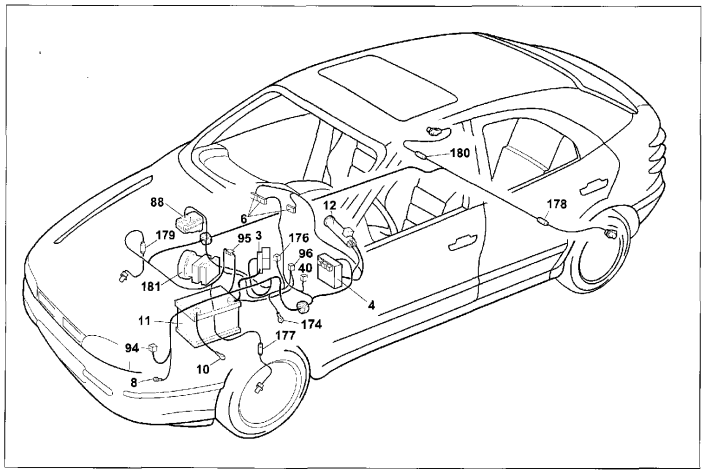


P4A19EL01

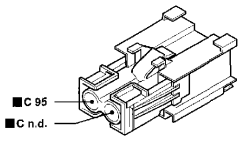
Anti-lock braking system (A.B.S.) and fault warning light - Hand brake on/low brake fluid level warning light

Key to components

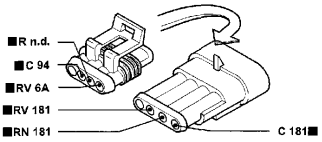
3 Power fuse box:
A 50A fuse protecting fuel injection
B 50A fuse protecting ignition
C 50A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
I. Hand brake on/low brake fluid warning light
8 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
40 Stop lights switch
88 Low brake fluid level sensor
94 5A fuse protecting anti-lock braking system (A.B.S.)
95 Front cables/anti-lock braking system (A.B.S.) connection
96 60A fuse protecting electrical system
174 Power earth for anti-lock braking system (A.B.S.)
176 Diagnostic socket for anti-lock braking system (A.B.S.)
177 Sensor on front left wheel for anti-lock braking system (A.B.S.)
178 Sensor on rear left wheel for anti-lock braking system (A.B.S.)
179 Sensor on front right wheel for anti-lock braking system (A.B.S.)
180 Sensor on rear right wheel for anti-lock braking system (A.B.S.)
181 Anti-lock braking system (ABS) electronic control unit.)

N.D. Ultrasound-soldered joint taped in wiring loom

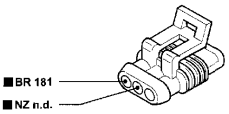
94 5A fuse protecting anti-lock braking system (A.B.S.)



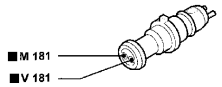
95 Front cables/anti-lock braking system (A.B.S.) connection



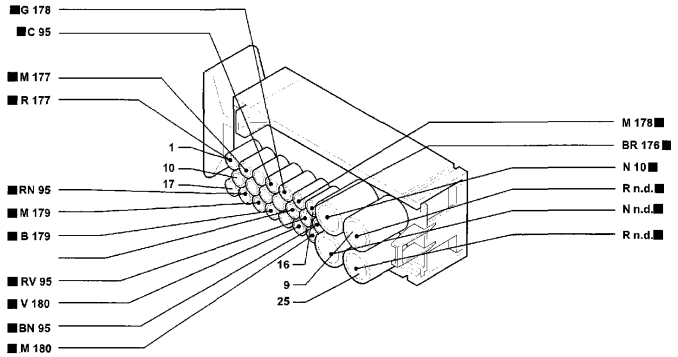
176 Diagnostic socket for anti-lock braking system (A.B.S.)



180 Sensor on rear right wheel for anti-lock braking system (A.B.S.)



181 Anti-lock braking system (ABS) electronic control unit



P4A20EL01

■ The cables involved in the wiring diagram are marked with a solid square

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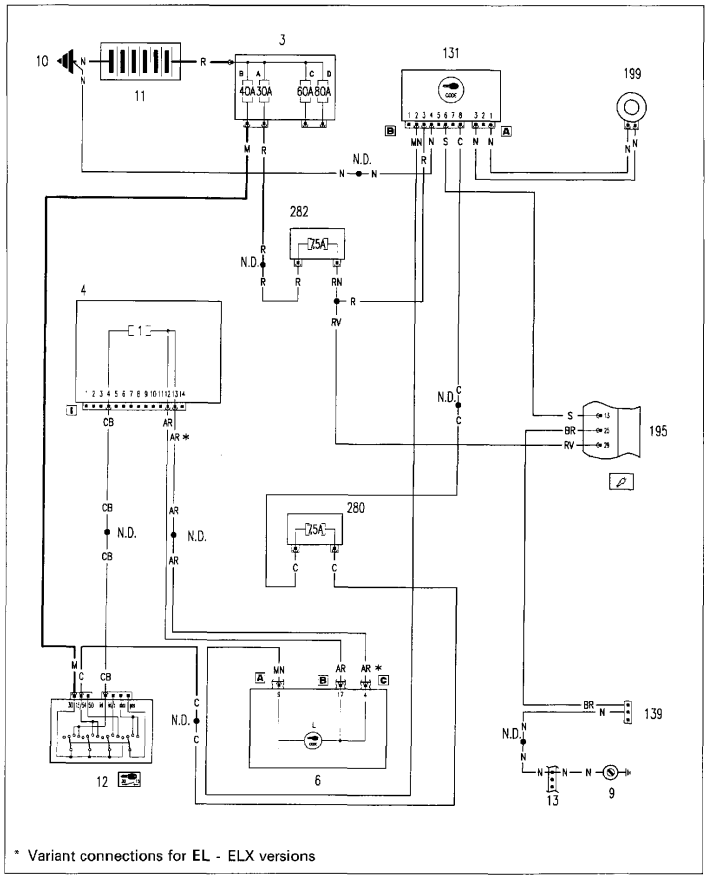
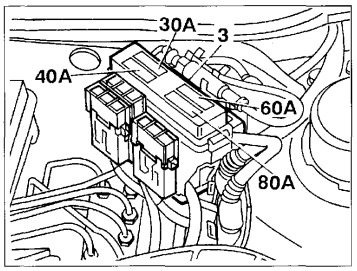
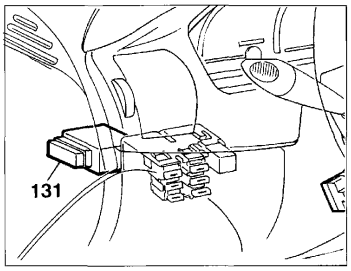
Fiat-CODE system and fault warning light

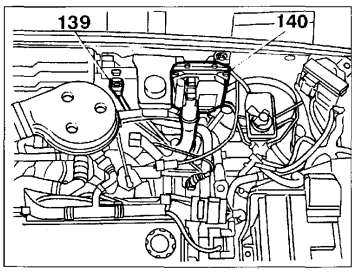


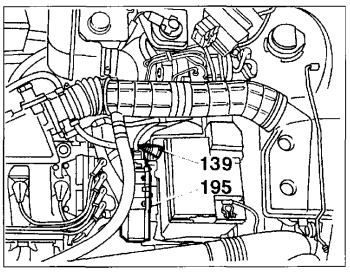
P4A21EL01

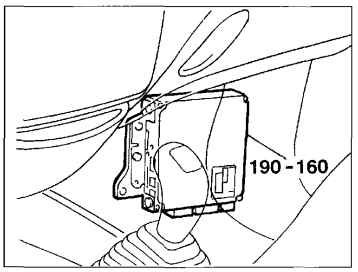
Location of components

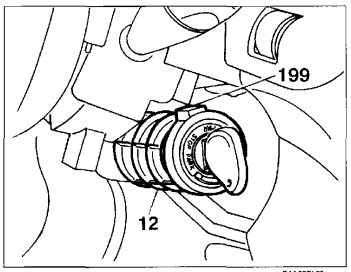












P4A22EL01

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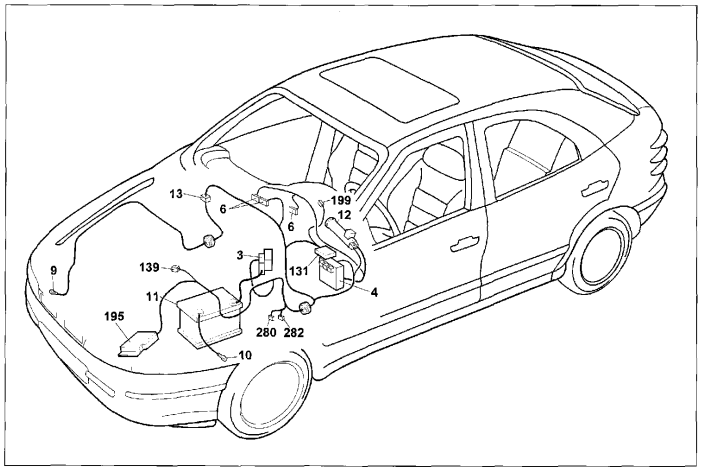


P4A23EL01

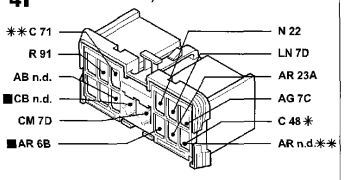
Fiat-CODE system and fault warning light

Key to components

3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
L Fiat-CODE fault warning light
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Right/left cable connection
131 Fiat-CODE electronic control unit
139 Diagnostic socket for fuel injection
195 Ignition/fuel injection electronic control unit (1581)
199 Aerial for Fiat-CODE system
280 7.5 A fuse protecting ignition switch
282 7.5 A fuse protecting Fiat-CODE/electronic fuel injection

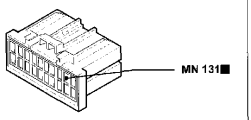
N.D. Ultrasound-soldered joint taped in wiring loom

4I Fuse and relay unit

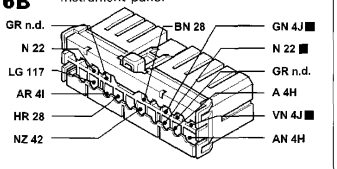


* Applies only to S/SX version
** Applies only to EL/ELX version

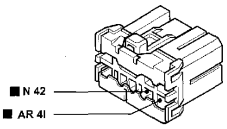
6A Instrument panel



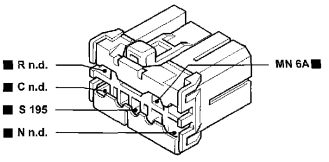
6B Instrument panel



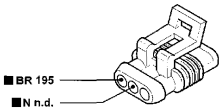
6C Instrument panel



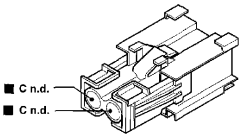
131 Fiat-CODE electronic control unit



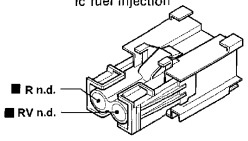
139 Diagnostic socket for fuel injection



280 7.5A fuse protecting ignition switch



282 7.5A fuse protecting Fiat-CODE/electronic fuel injection



P4A24EL01

■ The cables involved in the wiring diagram are marked with a solid square

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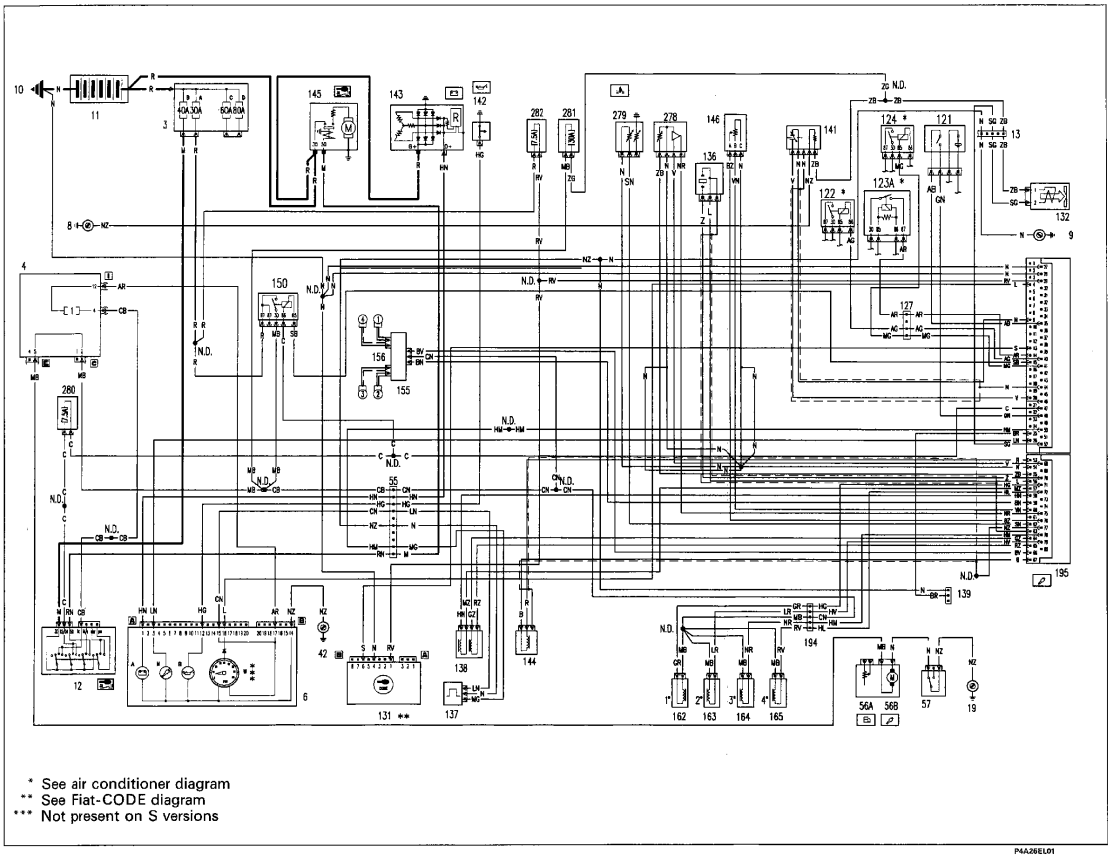
Starting - Electronic ignition and fuel injection - Recharging and warning light - Low engine oil pressure warning light - Fuel injection fault warning light - Rev counter



* See air conditioner diagram
** See Fiat-CODE diagram
*** Not present on S versions

P4A26EL01

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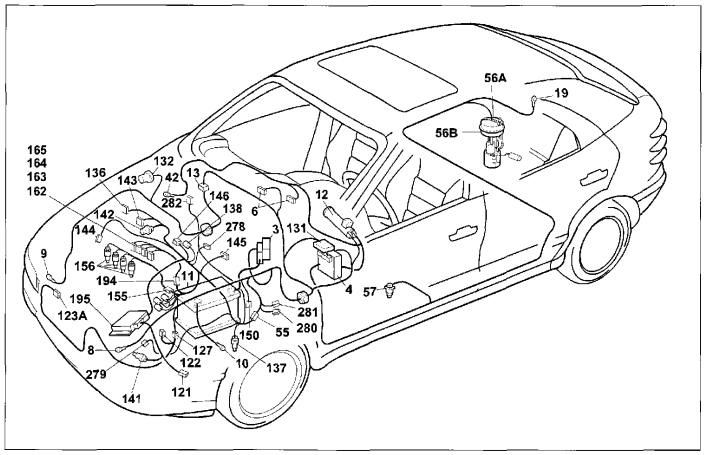


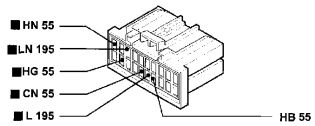
P4A27EL01

Starting - Electronic ignition and fuel injection - Recharging and warning light - Low engine oil pressure warning light - Fuel injection fault warning light - Rev counter

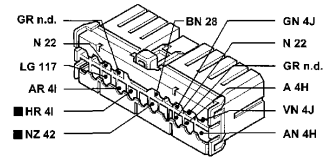
Key to components

3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protectiing fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
A Low generator recharging warning light
B Low engine oil pressure warning light
M Fuel injection fault warning light
W Rev counter
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 Rear right earth
42 Right dashboard earth
55 Front cables/fuel gauge control connection
56 Fuel gauge control unit
A Fuel gauge sensor
B Electric fuel pump
57 Inertial switch
121 Three-stage pressure switch
131 Fiat-CODE electronic control unit
132 Petrol vapours cut-off solenoid (canister)
136 Knock sensor
137 Car speed sensor
138 Idle adjustment actuator
139 Diagnostic socket for fuel injection
141 Heated Lambda probe
142 Low oil pressure warning light switch
143 Alternator
144 Rpm and T.D.C. sensor
145 Starter motor
146 Potentiometer on throttle valve
150 Fuel injection control relay
155 Ignition coils assembly
156 Spark plugs
162 Fuel injector (1st)
163 Fuel injector (2nd)
164 Fuel injector (3rd)
165 Fuel injector (4th)
194 Fuel injection cables/fuel injector flange connection
195 Ignition/fuel injection electronic control unit (1581)
278 Integrated air temperature/pressure sender unit
279 Engine coolant temperature double sender unit
280 7.5A fuse protecting ignition switch
281 30A fuse protecting Lambda probe/canister solenoid
282 7.5 A fuse protecting Fiat-CODE/electronic injection

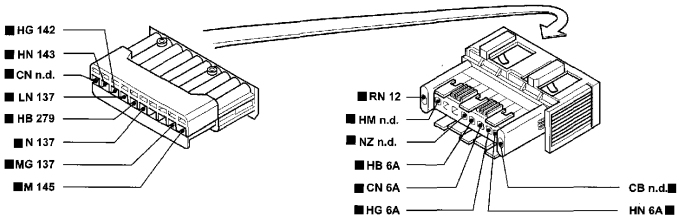
6A Instrument panel



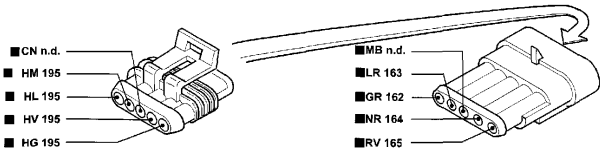
6B Instrument panel



55A Front left/engine cables connection



194 Fuel injection cables/injector flange connection



P4A28EL01

■ The cables involved in the wiring diagram are marked with a solid square

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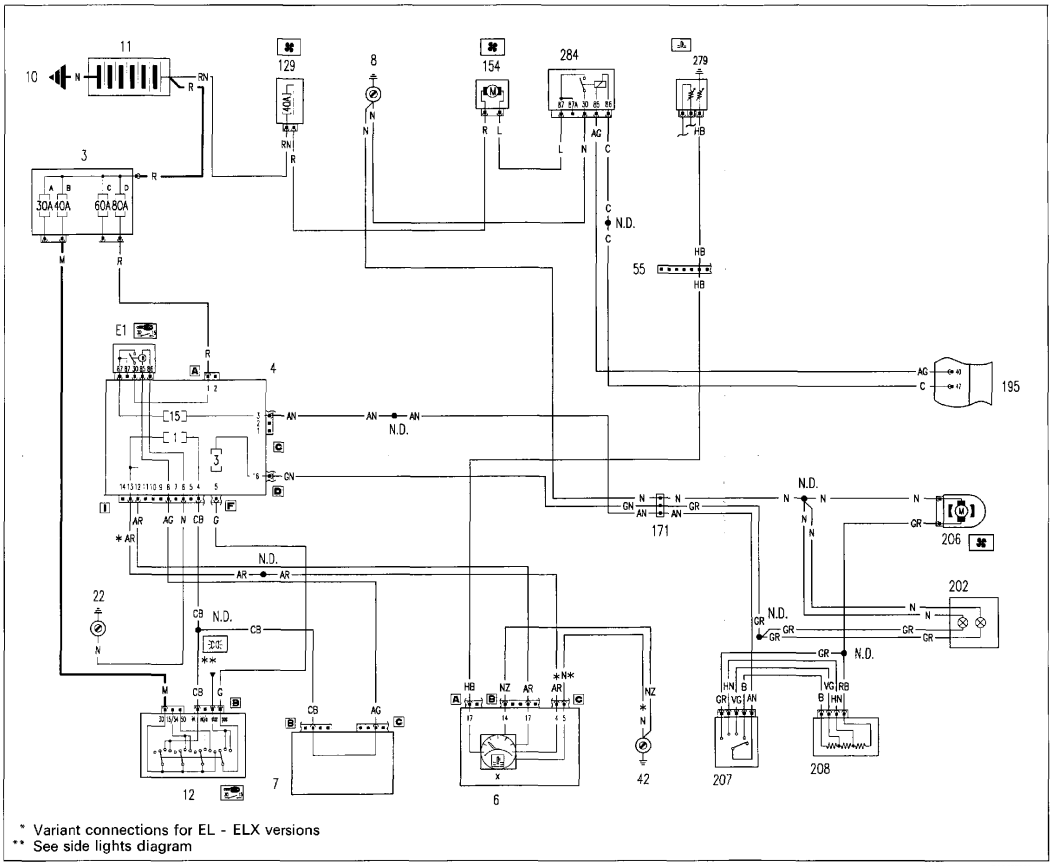
Model without air conditioner

Engine cooling system - Water temperature gauge - Car interior ventilation



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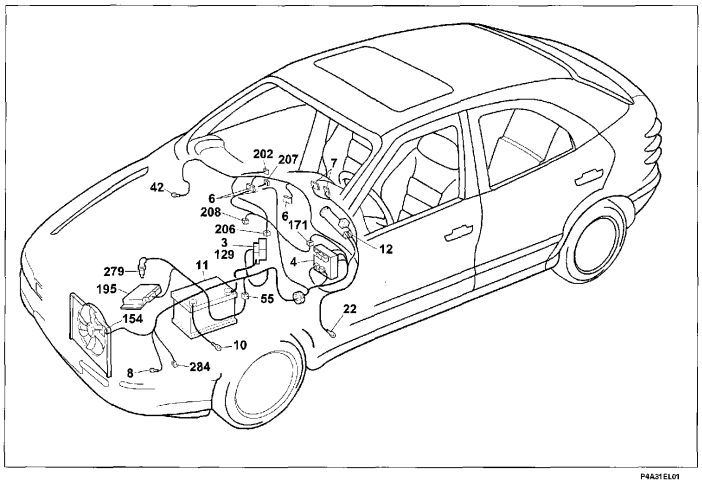


P4A31EL01

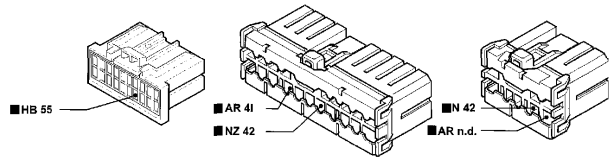
Engine cooling system - Water temperature gauge - Car interior ventilation

Key to components

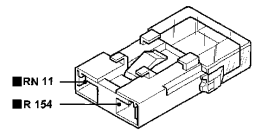
3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
E1 Ignition switch discharge relay
6 Instrument panel:
X Coolant temperature gauge
7 Stalk unit
8 Front left earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
22 Left dashboard earth
42 Right dashboard earth
55 Front cables/fuel gauge control connection
129 50A power fuse protecting engine cooling fan
154 Engine cooling fan
171 Heater unit
195 Ignition/fuel injection electronic control unit (1581)
202 Heater/air conditioner light bulbs
206 Heater/air conditioner electric fan
207 Heater/air conditioner speed control switch
208 Limiting resistor for heater/air conditioner
279 Engine coolant temperature double sender unit
284 Engine cooling fan relay

N.D. Ultrasound-soldered joint taped in wiring loom

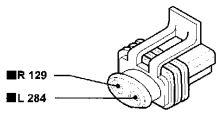
6A - 6B - 6C Instrument panel



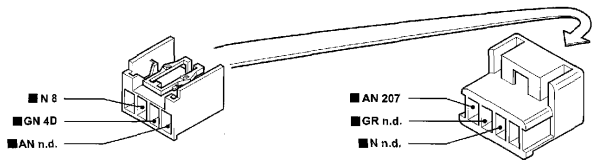
129 50A power fuse protecting engine cooling fan



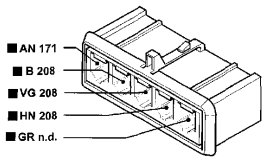
154 Engine cooling fan



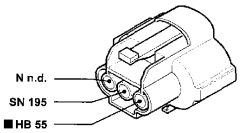
171 Heater unit cables connection



207 Electric fan speed control switch



279 Engine coolant temperature double sender unit



P4A32EL01

■ The cables involved in the wiring diagram are marked with a solid square

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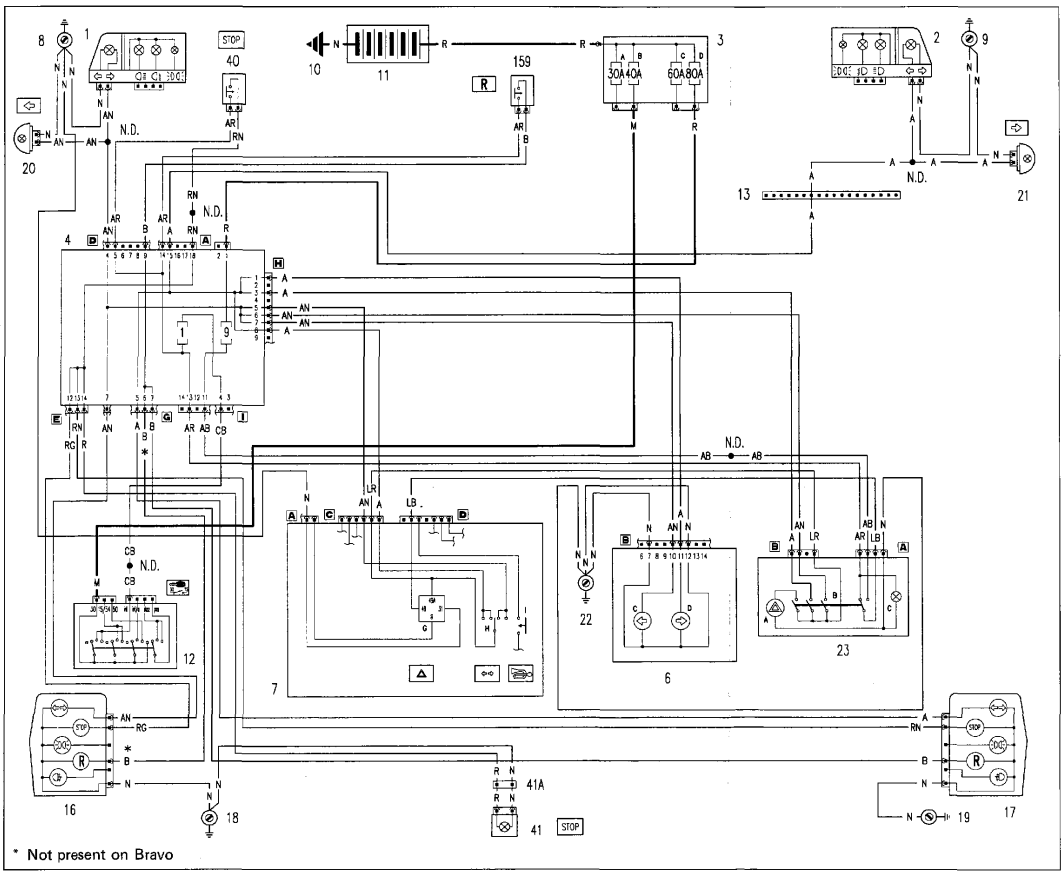
Version: S - SX

Direction indicators and warning lamp - Hazard warning lights and warning lamp - Stop lights - Reversing lights



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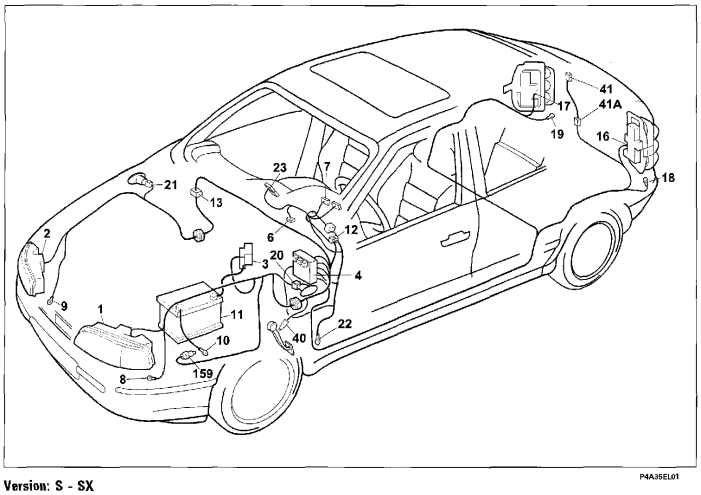


P4A35EL01

Version: S - SX

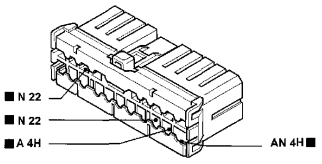
Direction indicators and warning lamp - Hazard warning lights and warning lamp - Stop lights - Reversing lights

Key to components

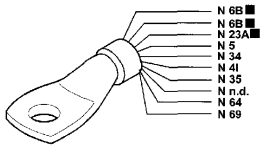
1 Front left lights cluster
2 Front right lights cluster
3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
C Left direction indicator warning light
D Right direction indicator warning light
7 Stalk unit:
H Direction indicators stalk
I Horn button
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
16 Rear left lights cluster
17 Rear right lights cluster
18 Rear left earth
19 Rear right earth
20 Front left side repeater
21 Front right side repeater
22 Left dashboard earth
23 Hazard lights switch unit
A Hazard warning lights warning lamp
B Hazard lights control switch
C Hazard lights unit symbol light
40 Stop lights switch
41 Additional stop light
41A Additional stop light rear cables connection
159 Reversing lights switch

N.D. Ultrasound-soldered joint taped in wiring loom

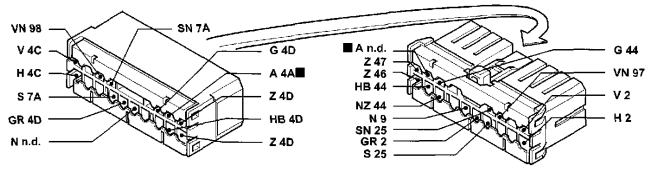
6A Instrument panel



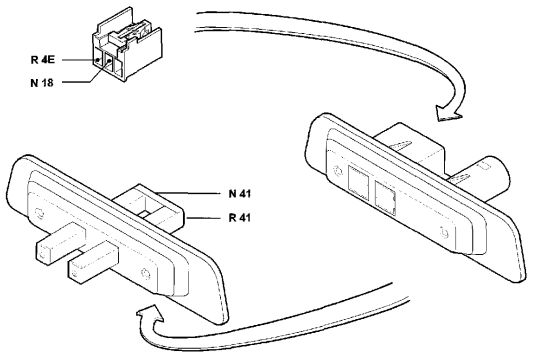
22 Left dashboard earth



13 Front right/left cables connection



41A Additional stop light rear cables connection



P4A36EL01

■ The cables involved in the wiring diagram are marked with a solid square

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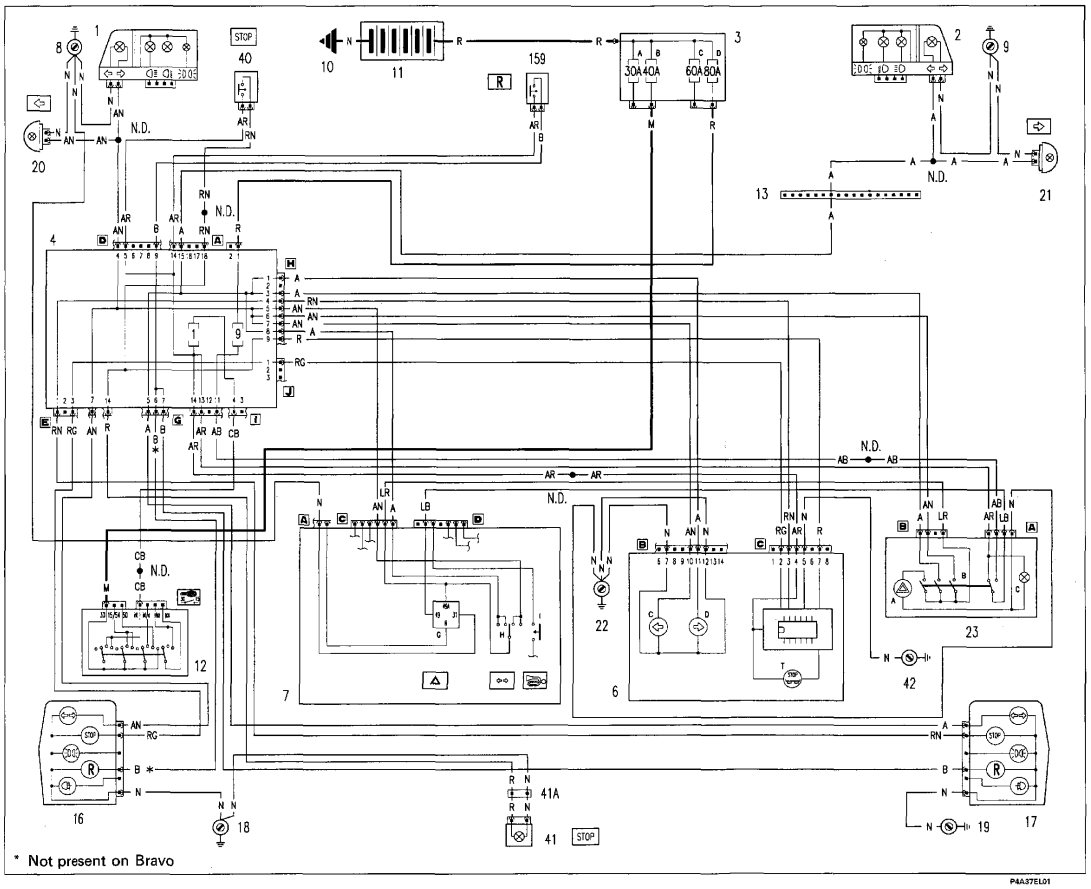
Version: EL - ELX

Direction indicators and warning lamp - Hazard warning lights and warning lamp - Stop lights - Reversing lights



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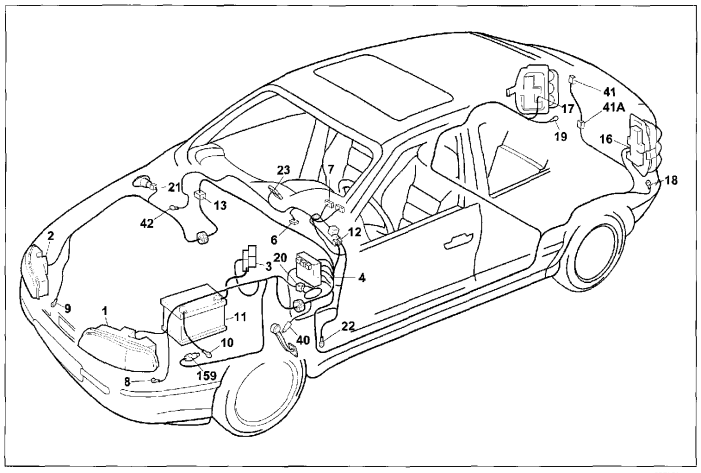


P4A39EL01

Version: EL - ELX

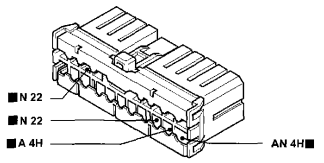
Direction indicators and warning lamp - Hazard warning lights and warning lamp - Stop lights - Reversing lights

Key to components

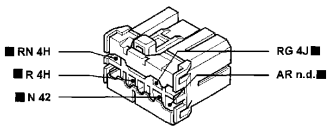
1 Front left lights cluster
2 Front right lights cluster
3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit
6 Instrument panel:
C Left direction indicator warning light
D Right direction indicator warning light
T Stop lights fault warning light
7 Stalk unit:
H Direction indicators stalk
I Horn button
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
16 Rear left lights cluster
17 Rear right lights cluster
18 Rear left earth
19 Rear right earth
20 Front left side repeater
21 Front right side repeater
22 Left dashboard earth
23 Hazard warning lights switch unit
A Hazard warning lights warning lamp
B Hazard warning lights switch
C Hazard warning lights unit symbol light
40 Stop lights switch
41 Additional stop light
41A Additional stop light rear cables connection
42 Right dashboard earth
159 Reversing lights switch

N.D. Ultrasound-soldered joint taped in wiring loom

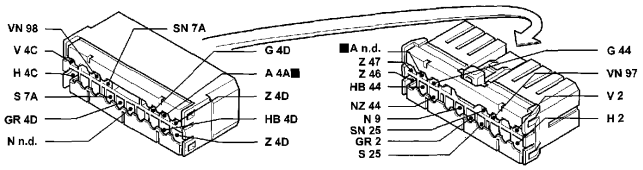
6B Instrument panel



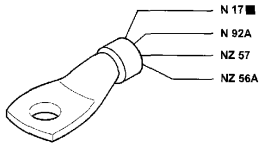
6C Instrument panel



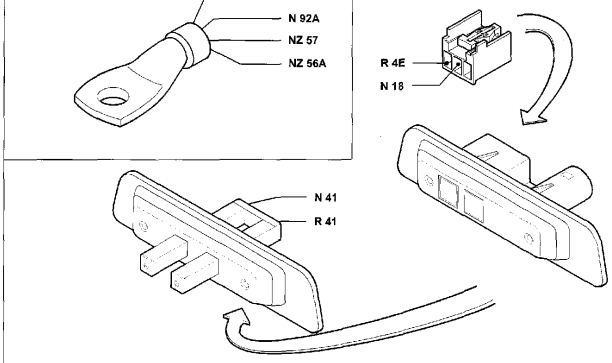
13 Front right/left cables connection



19 Rear right earth



41A Additional stop light rear cables connection



P4A40EL01

■ The cables involved in the wiring diagram are marked with a solid square

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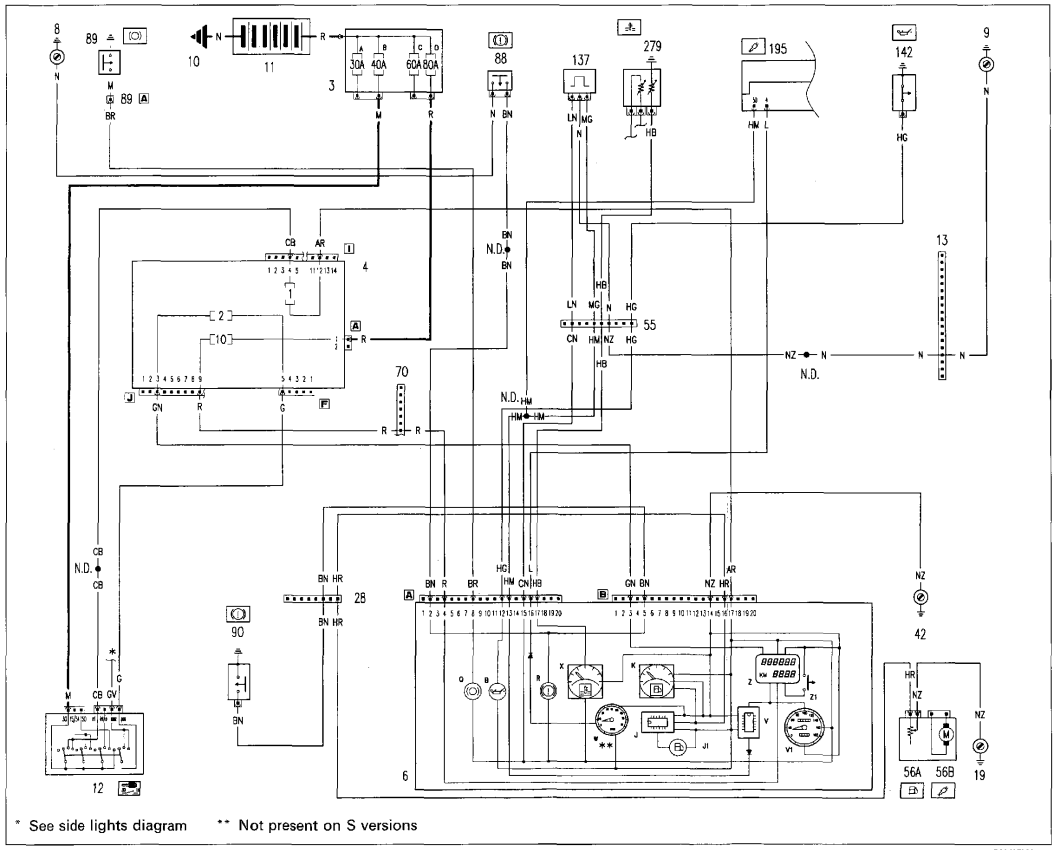
Version: S - SX

Fuel level gauge and reserve warning light - Handbrake on/low brake fluid level warning light - Speedometer - Trip recorder/total mileage counter and reset button - Water temperature gauge - Low engine oil pressure warning light - Rev counter - Front brake pad wear warning light



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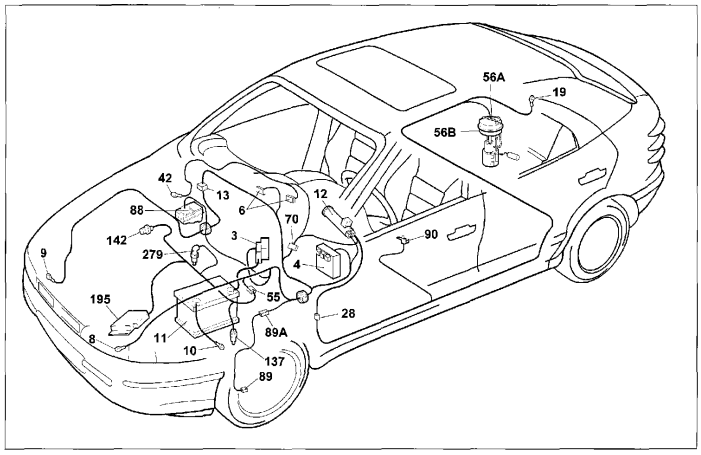


P4A43EL01

Version: S - SX

Fuel level gauge and reserve warning light - Hand brake on/low brake fluid warning light - Speedometer - Trip recorder/-total mileage counter and reset button - Water temperature gauge - Low engine oil pressure warning light - Rev counter - Front brake pad wear warning light

Key to components

3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- B Low engine oil pressure warning light
- J Fuel reserve circuit control module

J1 Low fuel level warning light
- K Fuel gauge
- Q Front brake pad wear warning light
- R Hand brake on/low brake fluid level warning light

- V Speedometer control module

V1 Speedometer
- W Rev counter
- X Coolant temperature gauge
- Z Trip recorder/total mileage counter

Z1 Trip recorder reset button
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 Rear right earth
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front cables/fuel gauge control connection

56 Fuel gauge control unit
- A Fuel gauge sensor
- B Electric fuel pump

70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection

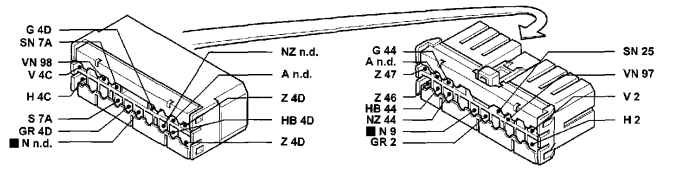
90 Handbrake on warning light switch
137 Vehicle speed sensor
142 Low oil pressure warning light switch

195 Ignition/fuel injection electronic control unit (1581)

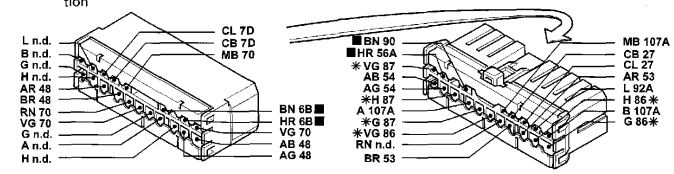
279 Engine coolant temperature double sender unit

N.D. Ultrasound-soldered joint taped in wiring loom

13 Front right/left cables connection

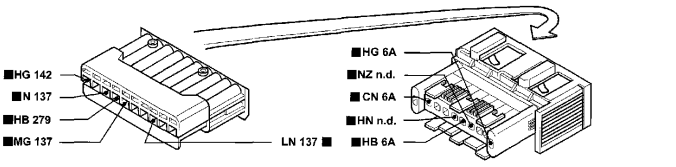


28 Dashboard/longitudinal cables connection

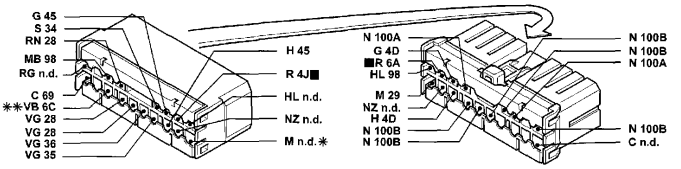


* Only for Brava

55 Front/engine cables connection



70 Dashboard/front cables connection



* Not present on S version

** Applies to EL/ELX version

P4A44EL01

■ The cables involved in the wiring diagram are marked with a solid square

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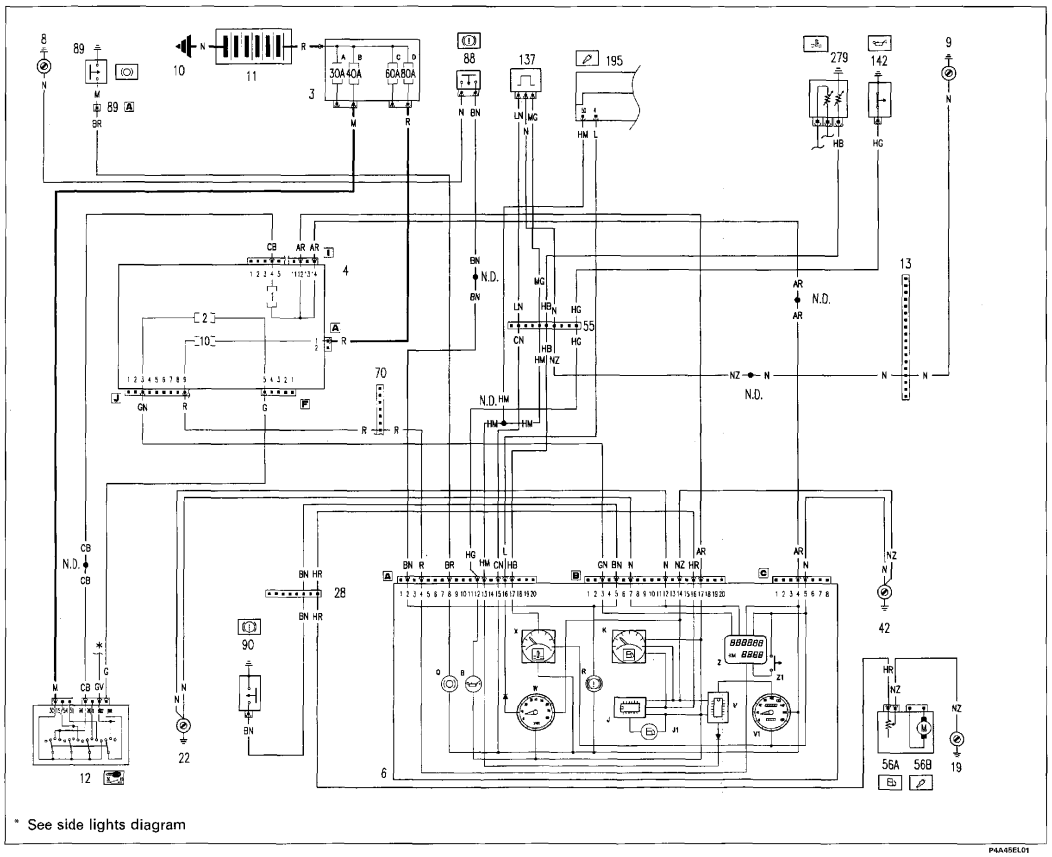
Version: EL - ELX

Fuel level gauge and reserve warning light - Hand brake on/low brake fluid warning light - Speedometer - Trip recorder/ total mileage counter and reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pad wear warning light - Rev counter -



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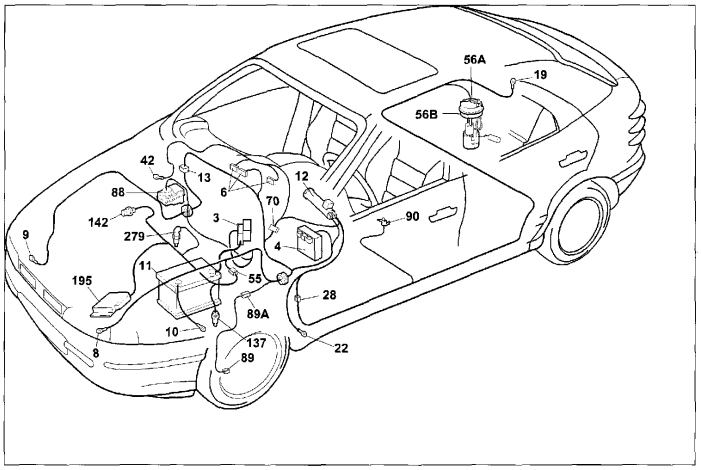


P4A47EL01

Version: EL - ELX

Fuel level gauge and reserve warning light - Hand brake on/low brake fluid level warning light - Speedometer - Trip recorder/total mileage counter and reset button - Water temperature gauge - Low engine oil pressure warning light - Front brake pad wear warning light - Rev counter

Key to components

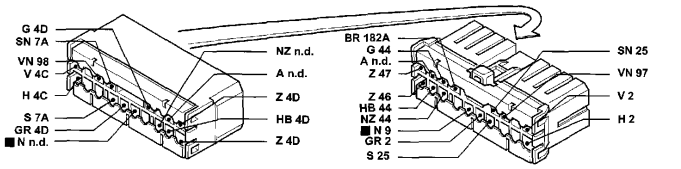
3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- B Low engine oil pressure warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- Q Front brake pad wear warning light
- R Hand brake on/low brake fluid warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge
- Z Trip recorder/total mileage counter
- Z1 Trip recorder reset button

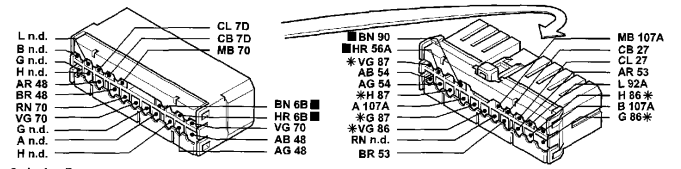
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
19 Rear right earth
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
42 Right dashboard earth
55 Front cables/fuel gauge control connection
56 Fuel gauge control unit
- A Fuel gauge sensor
- B Electric fuel pump

70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
137 Car speed sensor
142 Low oil pressure warning light switch
195 Ignition/fuel injection electronic control unit (1581)
279 Engine coolant temperature double sender unit
N.D. Ultrasound-soldered joint taped in wiring loom

13 Front right/left cables connection

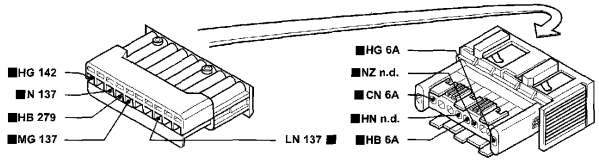


28 Dashboard/longitudinal cables connection

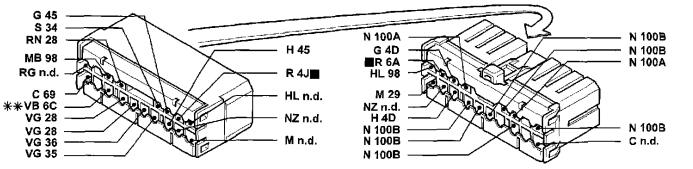


* Only for Brava

55 Front/engine cables connection



70 Dashboard/front cables connection



* Not present on S version

** Applies to EL/ELX version

P4A48EL01

■ The cables involved in the wiring diagram are marked with a solid square

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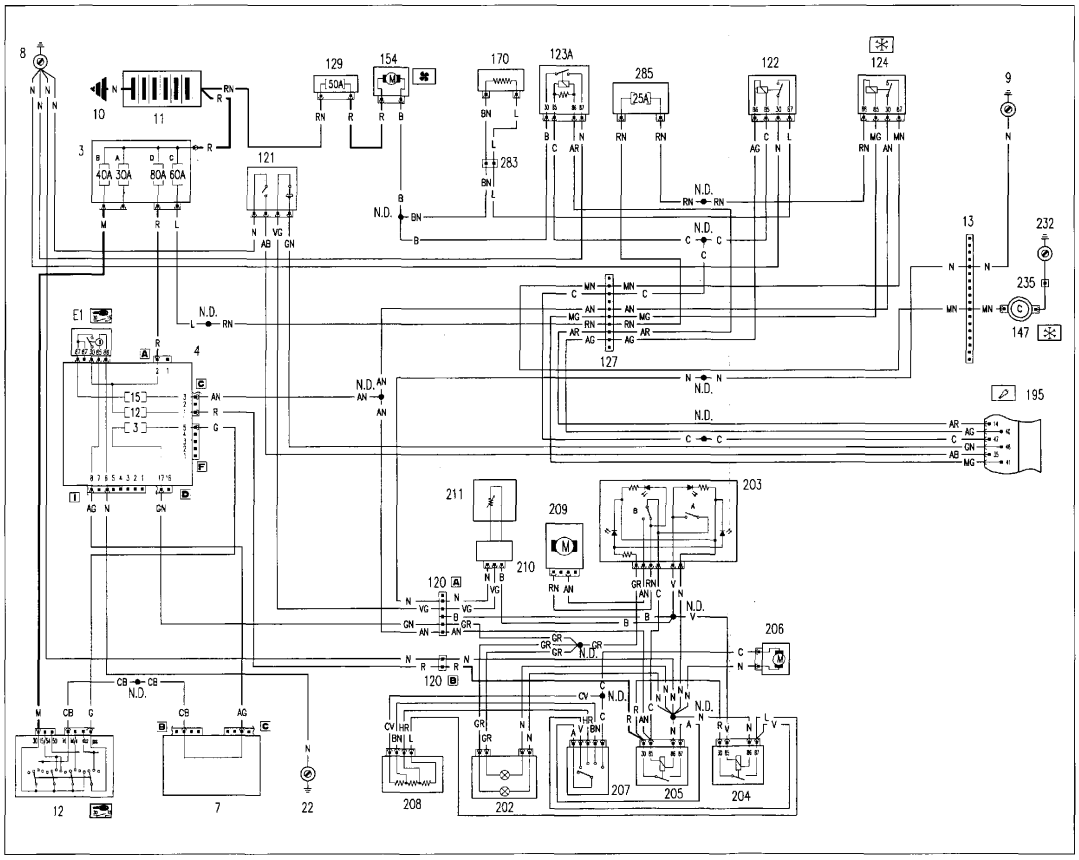
Air conditioner



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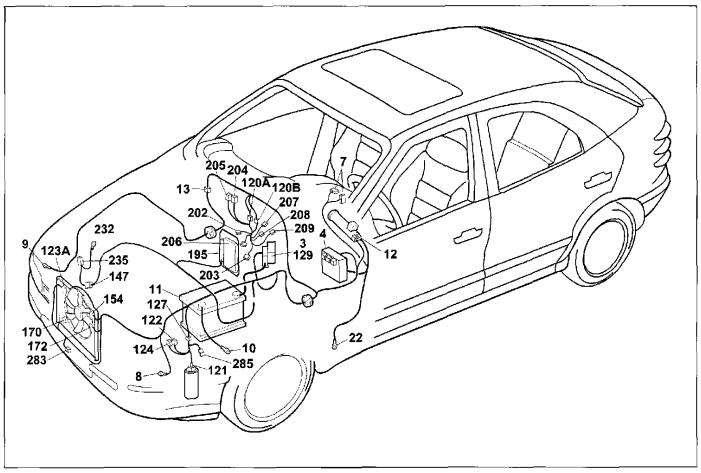


P4A51EL01

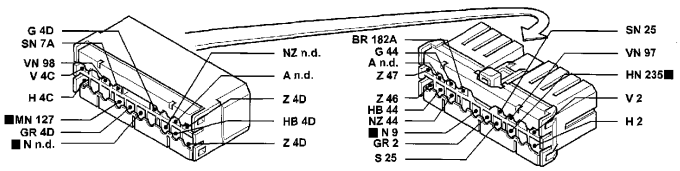
Air conditioner

Key to components

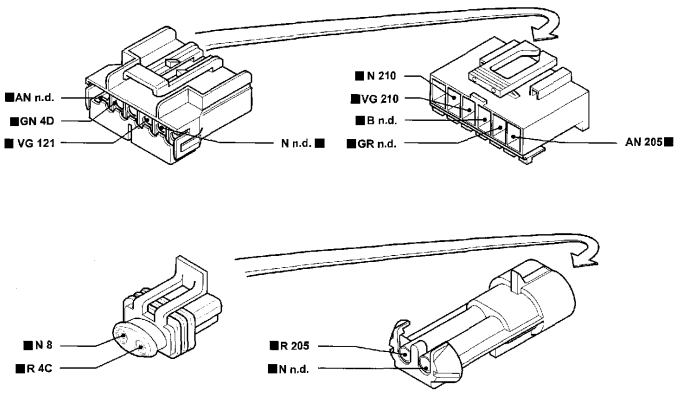
3 Power fuse box:
A 30A fuse protecting fuel injection
B 40A fuse protecting ignition
C 60A fuse protecting additional optional extras
D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
E1 Ignition switch discharge relay
7 Stalk unit
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
22 Left dashboard earth
120 Air conditioner cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed relay
123A Engine cooling fan high speed relay
124 Air conditioner compressor control relay
127 Connection between front left cables/cable on relay carrier bracket
129 50A power fuse protecting engine cooling fan
147 Compressor for air conditioner
154 Engine cooling fan
170 Engine cooling fan limiting resistor
195 Ignition/fuel injection electronic control unit (1581)
02 Heater/air conditioner light bulbs
203 Air conditioner controls unit:
A Switch for switching on air conditioner
B Switch for air conditioner recirculation
204 Air conditioner fan 1st speed control relay
205 Air conditioner fan relay
206 Heater/air conditioner electric fan
207 Heater/air conditioner speed control switch
208 Limiting resistor for heater/air conditioner
209 External/recirculation air flap actuator
210 Electronic thermostat cables connection
211 Electronic thermostat (N.T.C.)
232 Earth for compressor
235 Air conditioner compressor cables connection
283 Front cable/resistor cable connection
285 25A fuse protecting headlamp washer/compressor relay

N.D. Ultrasound-soldered joint taped in wiring loom

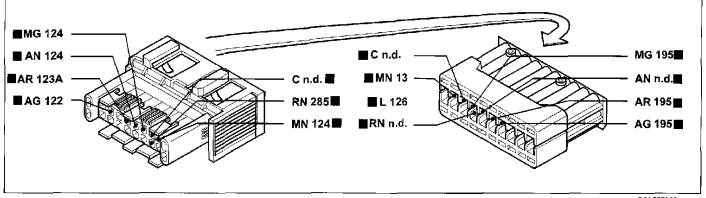
13 Front right/left cables connection



120 Air conditioner cables connection



127 Connection between front left cables/cable on relay carrier bracket



P4A52EL01

■ The cables involved in the wiring diagram are marked with a solid square

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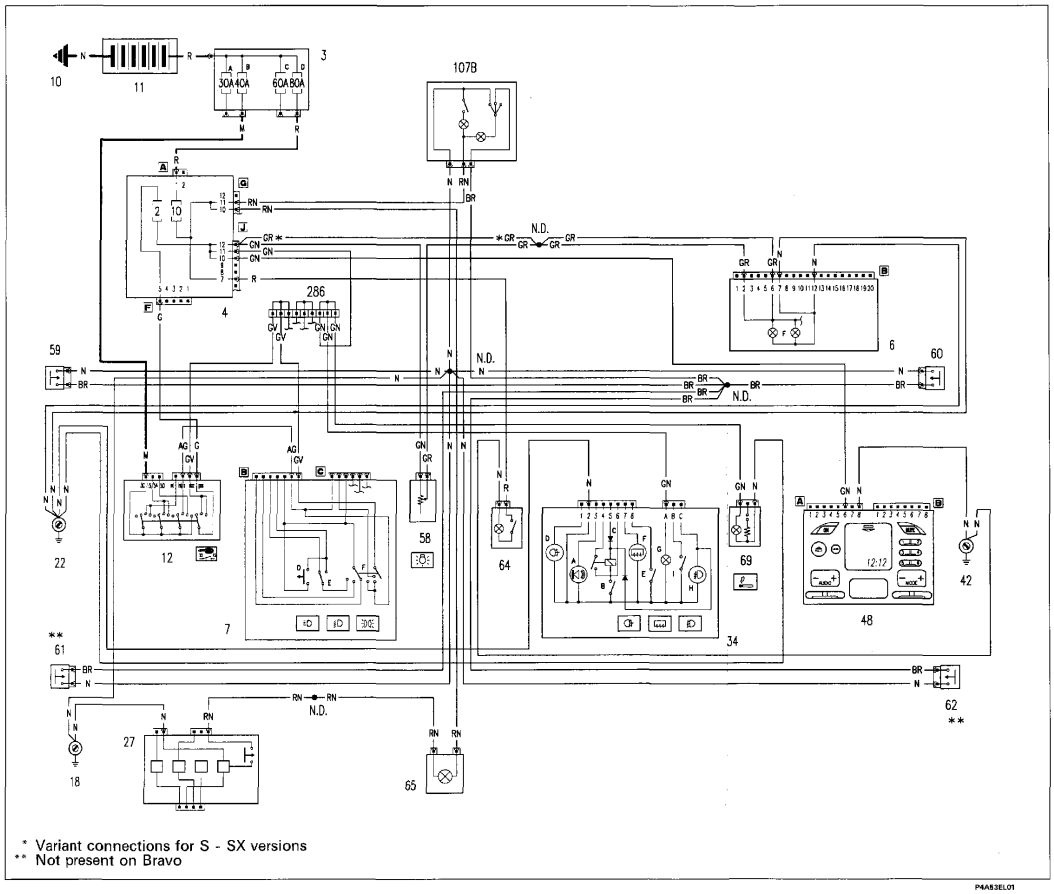
Courtesy light - Symbol illumination



* Variant connections for S - SX versions
** Not present on Bravo

P4A83EL01

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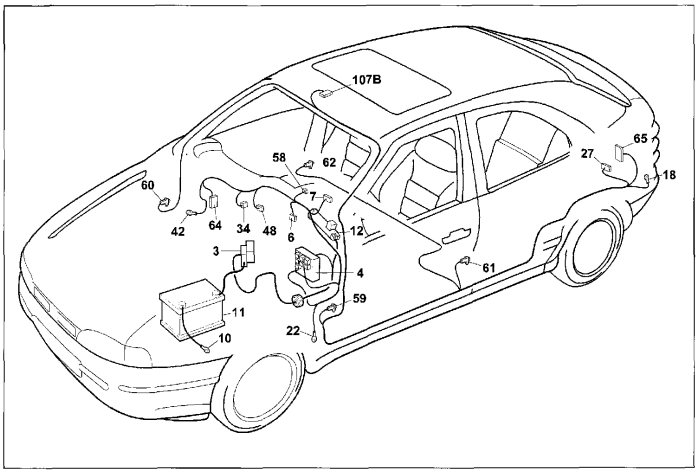


P4A88EL01

Courtesy light - Symbol illumination

Key to components

3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- F Instrument panel symbol lights

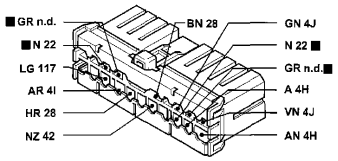
7 Stalk unit:
- D Flasher button
- E Main beam/dipped beam headlamps stalk
- F Side lights stalk

10 Battery earth on body shell
11 Battery
12 Ignition switch
18 Rear left earth
22 Left dashboard earth
27 Rear connections contact assembly with built-in boot light
34 Switch controls unit:
- A Anti-theft "on" warning light
- B Rear fog lamps control switch
- C Rear fog lamps relay
- D Rear fog lamps warning light
- E Heated rear window switch
- F Heated rear window warning light
- G Switch controls unit symbol light
- H Front fog lamps warning light
- I Front fog lights switch

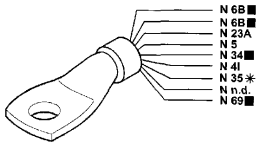
42 Right dashboard earth
48 Radio with clock
58 Lighting brightness adjustment rheostat
59 Courtesy light button on front left pillar
60 Courtesy light button on front right pillar
61 Courtesy light button on rear left pillar
62 Courtesy light button on rear right pillar
64 Glove compartment light with built-in switch
65 Boot light / anti-theft device "on"
69 Cigarette lighter
107B Car interior courtesy light
286 Short-circuiting connection

N.D. Ultrasound-soldered joint taped in wiring loom

6B Instrument panel

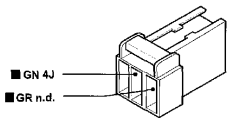


22 Left dashboard earth

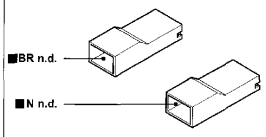


✳ Only for ELX version

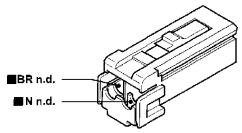
58 Courtesy light brightness adjustment rheostat



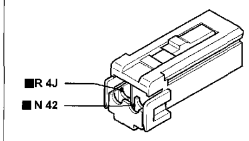
59 Courtesy light button on front left pillar



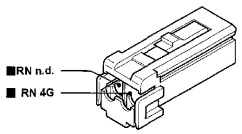
62 Courtesy light button on front right pillar



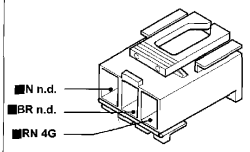
64 Glove compartment light bulb with integrated switch



65 Boot light bulb/anti-theft device "on"



107B Car interior courtesy light



P4A88EL01

■ The cables involved in the wiring diagram are marked with a solid square

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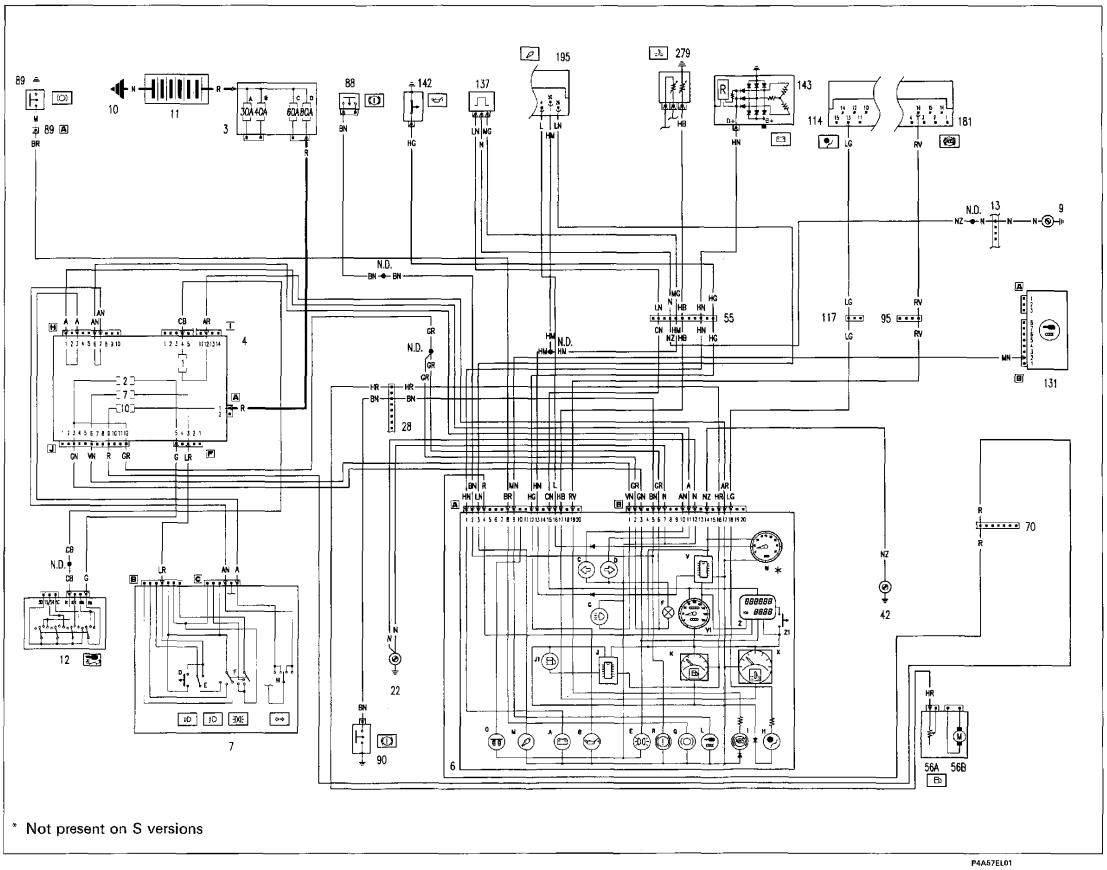
Version: S - SX

Instrument panel connections



* Not present on S versions

IP4A57EL01

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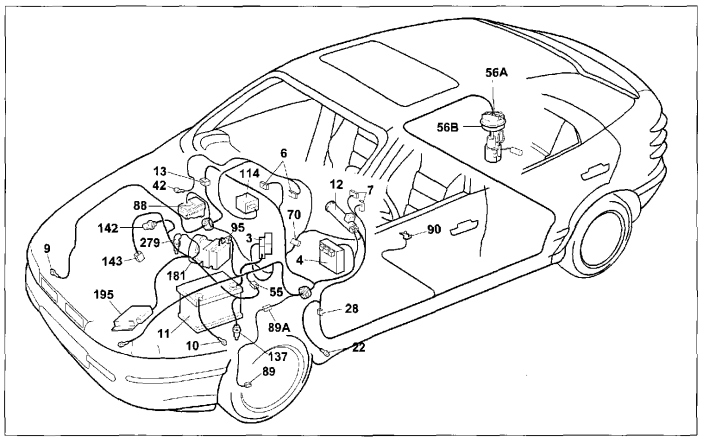
55.



P4A59EL01

Version: S - SX

Instrument panel connections

Key to components

3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit

6 Instrument panel:
- A Low generator recharging warning light
- B Low engine oil pressure warning light
- C Left direction indicator warning light
- D Right direction indicator warning light
- E Side lights warning light
- F Instrument panel symbol lights
- G Main beam headlamps warning light
- H Air Bag system fault warning light
- I Anti-lock braking system fault warning light
- J Fuel reserve circuit control module

J1 Low fuel level warning light

K Fuel gauge
- L Fiat-CODE system fault warning light
- M Petrol/diesel fuel injection fault warning light

Q Front brake pad wear warning light

R Hand brake on / low brake fluid level warning light

V Speedometer control unit
- V1 Speedometer
- W Rev counter
- X Coolant temperature gauge
- Z Trip recorder / total mileage counter
- Z1 Trip recorder reset button

7 Stalk unit:
- D Flasher button
- E Main beam/dipped beam headlamps stalk
- F Side lights stalk
- H Direction indicators stalk

9 Front right earth

10 Battery earth on body shell

11 Battery

12 Ignition switch

13 Front left/right cables connection

22 Left dashboard earth

28 Dashboard/longitudinal cables connection

42 Right dashboard earth

55 Front/fuel gauge control cables connection

56 Fuel gauge control unit
- A Fuel level sensor
- B Electric fuel pump

70 Dashboard/front cables connection

88 Low brake fluid level sensor

89 Left brake pad wear sensor

89A Left brake pad wear sensor cables connection

90 Handbrake on warning light switch

95 Front cables/anti-lock braking system (A.B.S.) connection

114 Air Bag electronic control unit

117 Air Bag/dashboard cables connection

131 Fiat CODE electronic control unit

137 Car speed sensor

142 Low oil pressure warning light switch

143 Alternator

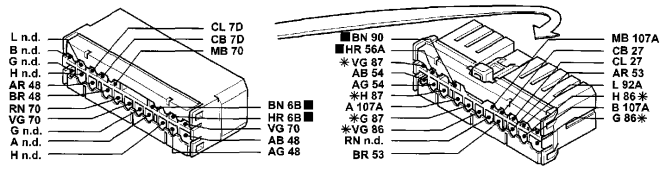
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)

195 Ignition/fuel injection electronic control unit (1581)

279 Engine coolant temperature double sender unit

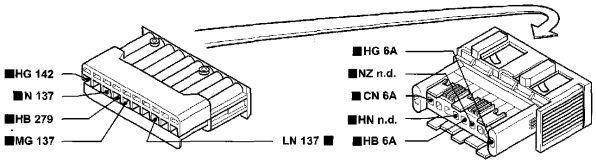
N.D. Ultrasound-soldered joint taped in wiring loom

28 Dash./longitudinal cables connection

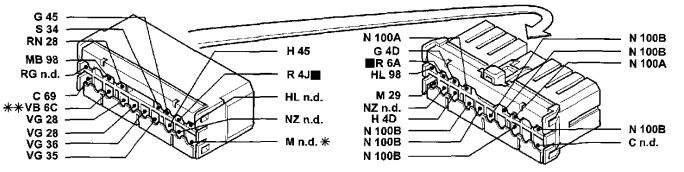


* Only for Brava

55 Front/engine cables connection

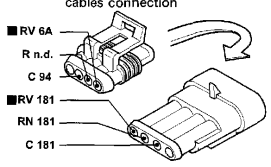


70 Dashboard/front cables connection

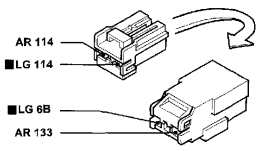


* Not present on S version ** Applies only to EL/ELX version

95 Front/anti-lock braking system (A.B.S.) cables connection



117 Air Bag/dashboard cables connection



P4A60EL01

■ The cables involved in the wiring diagram are marked with a solid square

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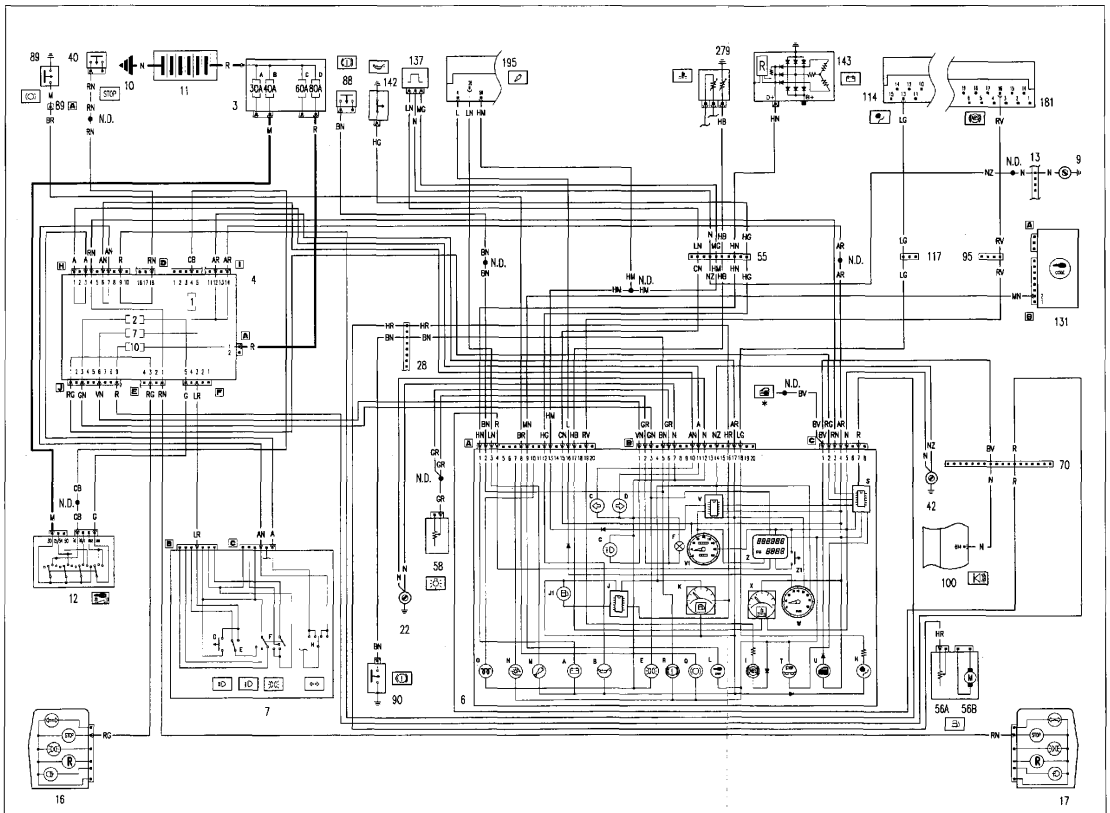
Version: EL - ELX

Instrument panel connections



* Variant connections for versions without alarm (See central door locking)

P4A61EL01

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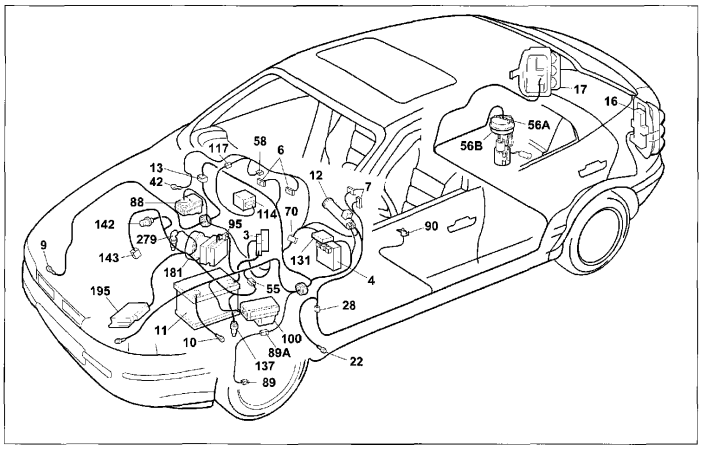


P4A83EL01

Version: EL - ELX

Instrument panel connections

Key to components

3 Power fuse box:
- A 30A fuse protecting fuel injection
- B 40A fuse protecting ignition
- C 60A fuse protecting additional optional extras
- D 80A fuse protecting fuse and relay unit

4 Fuse and relay unit
6 Instrument panel:
- A Low generator recharging warning light
- B Low engine oil pressure warning light
- C Left direction indicator warning light
- D Right direction indicator warning light
- E Side lights warning light
- F Instrument panel symbol lights
- G Main beam headlamps warning light
- H Air Bag fault warning light
- I Anti-lock braking system fault warning light
- J Fuel reserve circuit control module
- J1 Low fuel level warning light
- K Fuel gauge
- L Fiat-CODE system fault warning light
- M Fuel injection fault warning light
- N Maximum turbocharging pressure warning light
- O Heater plugs warning light
- Q Front brake pad wear warning light
- R Hand brake on/low brake fluid level warning light
- S Electronic module for car stop lights fault indicator system
- T Stop lights fault warning light
- U Door open warning light
- V Speedometer control module
- V1 Speedometer
- W Rev counter
- X Water temperature gauge
- Z Trip recorder / total mileage counter
- Z1 Trip recorder reset button

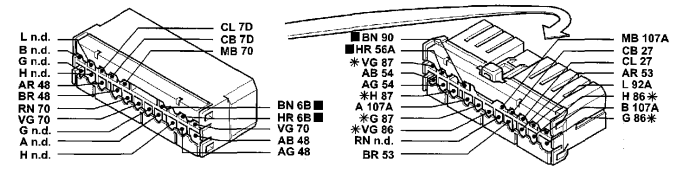
7 Stalk unit:
- D Flasher button
- E Main beam/dipped beam headlamps stalk
- F Side lights stalk
- H Direction indicators stalk

9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
16 Rear left lights cluster
17 Rear right lights cluster
22 Left dashboard earth
28 Dashboard/longitudinal cables connection
40 Stop lights switch
42 Right dashboard earth
55 Front/fuel gauge control cables connection
56 Fuel gauge control unit
- A Fuel level sensor
- B Electric fuel pump

58 Lighting brightness adjustment rheostat
70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 Left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
95 Front/anti-lock braking system (A.B.S.) cables connection
100 Alarm system electronic control unit
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
131 Fiat-CODE electronic control unit
137 Car speed sensor
142 Low engine oil pressure indicator switch
143 Alternator
181 Electronic control unit for anti-lock braking system (A.B.S.)
195 Ignition/fuel injection electronic control unit (1581)

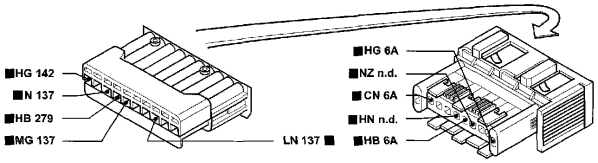
279 Engine coolant temperature double sender unit
N.D. Ultrasound-soldered joint taped in wiring loom

28 Dash./longitudinal cables connection

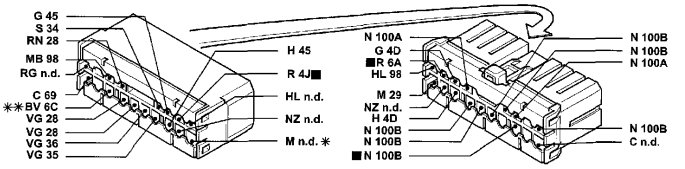


* Only for Brava

55 Front/engine cables connection

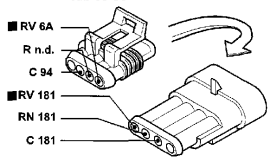


70 Dashboard/front cables connection

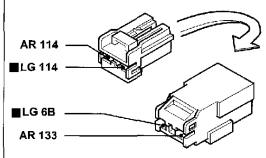


* Not present on S version ** Applies only to EL/ELX version

95 Front/anti-lock braking system (A.B.S.) cables connection



117 Air Bag/dashboard cables connection



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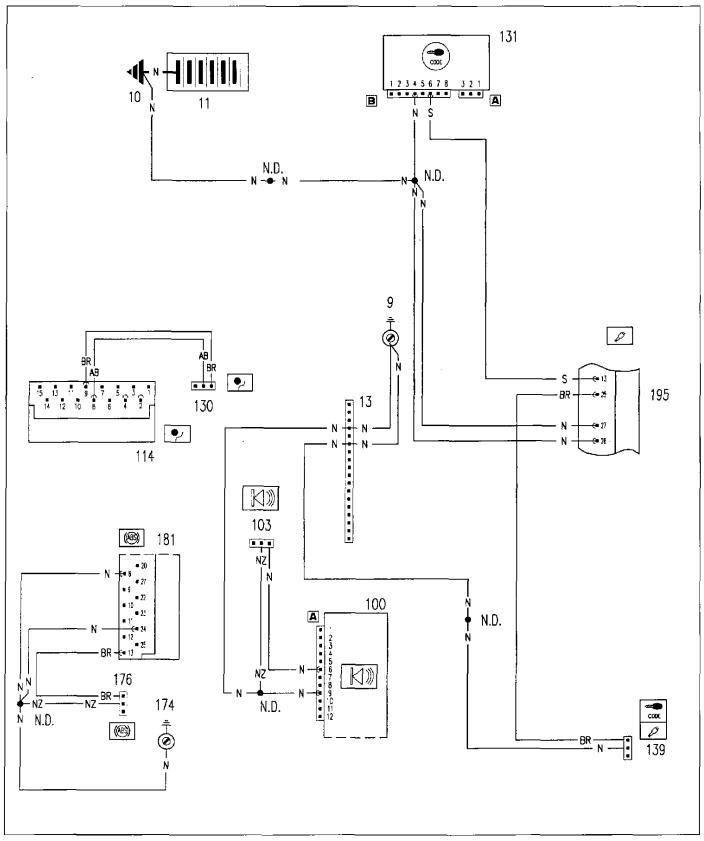
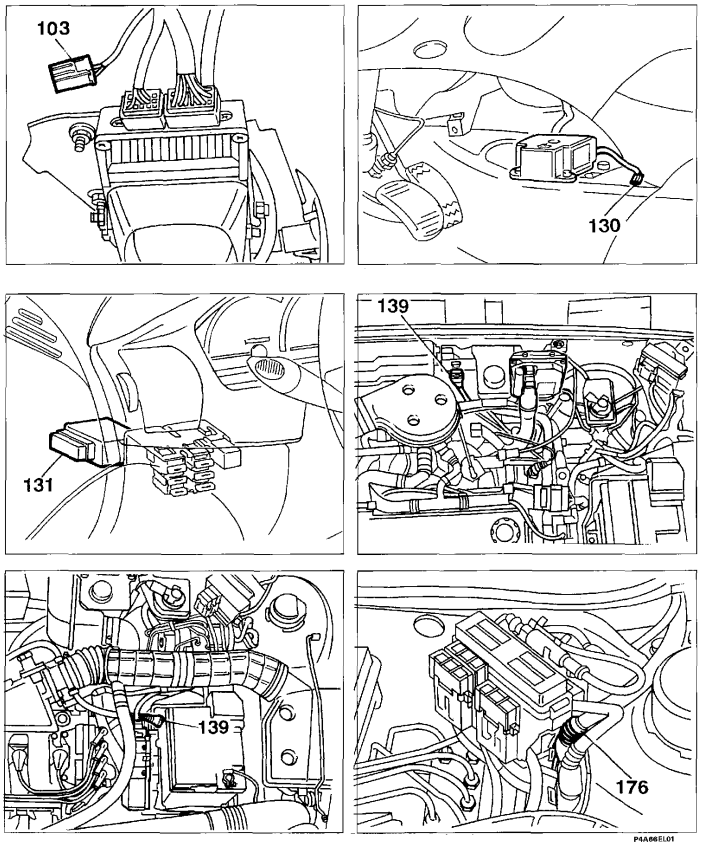
Diagnostic socket connections



Location of components



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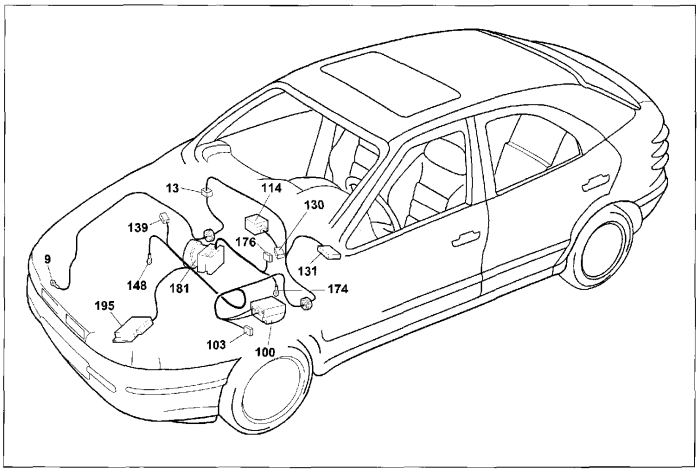


P4A87EL01

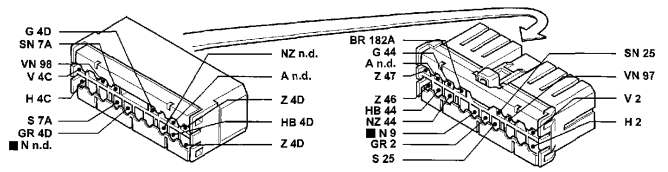
Diagnostic socket connections

Key to components

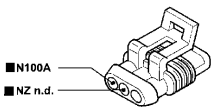
9 Front right earth
10 Battery earth on body shell
13 Front right/left cables connection
100 Alarm electronic control unit
103 Diagnostic socket for alarm
114 Air Bag electronic control unit
130 Diagnostic socket for Air Bag system
131 Fiat-CODE electronic control unit
139 Diagnostic socket for fuel injection
148 Earth for electronic fuel injection
174 Power earth for anti-lock braking system (A.B.S.)
176 Diagnostic socket for anti-lock braking system (A.B.S.)
181 Anti-lock braking system (ABS) electronic control unit.)
195 Ignition/fuel injection electronic control unit (1581)

N.D. Ultrasound-soldered joint taped in wiring loom

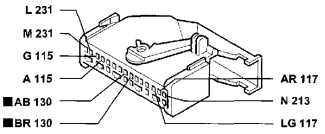
13 Front right/left cables connection



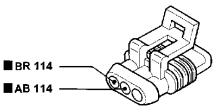
103 Diagnostic socket for alarm



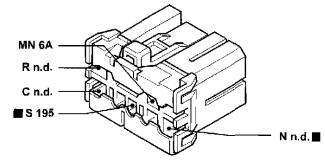
114 Air Bag electronic control unit



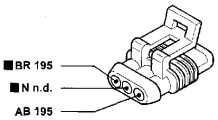
130 Diagnostic socket for Air-bag system



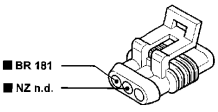
131 Fiat-CODE electronic control unit



139 Diagnostic socket for fuel injection



176 Diagnostic socket for A.B.S



P4A88EL01

■ The cables involved in the wiring diagram are marked with a solid square

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Key to components

1 Front left lights cluster
2 Front right lights cluster
3 Power fuse box
  A 50A fuse protecting fuel injection (60A for D versions)
  B 50A fuse protecting ignition
  C 50A fuse protecting additional optional extras
  D 80A fuse protecting fuse and relay unit
4 Fuse and relay unit:
  E1 Ignition switch discharge relay
5 Dipped beam relay
6 Instrument panel:
  A Low generator recharging warning light
  B Low engine oil pressure warning light
  C Left direction indicator warning light
  D Right direction indicator warning light
  E Side lights warning light
  F Instrument panel symbol lights
  G Main beam headlamps warning light
  H Air Bag system fault warning light
  I Anti-lock braking system fault warning light
  J Fuel reserve circuit control module
  J1 Low fuel level warning light
  K Fuel gauge
  L Fiat CODE fault warning light
  M Petrol fuel injection fault warning light
  Q Front brake pad wear warning light
  R Hand brake on / low brake fluid warning light Car stop lights fault warning light
  V Speedometer control module
  V1 Speedometer
  W Rev counter
  X Water temperature gauge
  Z Trip recorder / total mileage counter
  Z1 Trip recorder reset button
7 Stalk unit:
  A Windscreen wiper speed control stalk
  B Windscreen wiper headlamp washer/rear window wiper stalk
  C Rear window wiper switch
  D Flasher button
  E Dipped beam/main beam headlamps stalk
  F Side lights stalk
  H Direction indicators stalk
  I Horn button
8 Front left earth
9 Front right earth
10 Battery earth on body shell
11 Battery
12 Ignition switch
13 Front right/left cables connection
14 Left number plate light
15 Right number plate light
16 Rear left lights cluster
17 Rear right lights cluster
18 Rear left earth
19 Rear right earth
20 Front left side repeater
21 Front right side repeater
22 Left dashboard earth
23 Hazard lights switch unit
  A Hazard warning lights warning lamp
  B Hazard warning lights switch
  C Hazard warning lights symbol light
27 Contact assembly for rear connections with integrated boot light switch
28 Dash./longitudinal cables connection
29 Front/front fog lamps cables connection
30 Front left fog lamp
31 Front right fog lamp
32 Front fog lamp relay
33 20A fuse protecting front fog lamps
34 Switch controls unit:
  A Anti-theft device "on" warning light
  B Rear fog lights switch
  C Rear fog lights relay
  D Rear fog lamps warning light
  E Heated rear window switch
  F Heated rear window warning light
  G Switch controls unit symbol light
  H Front fog lamps warning light
  I Front fog lights switch
40 Stop lights switch
41 Additional stop light
41A Additional stop light rear cables connection
42 Right dashboard earth
48 Radio with clock
55 Front/fuel gauge control cables connection
56 Fuel gauge control unit
  A Fuel level sensor
  B Electric fuel pump

4A89EL

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57 Inertial switch
58 Lighting brightness adjustment rheostat
59 Courtesy light button on front left pillar
60 Courtesy light button on front right pillar
61 Courtesy light button on rear left pillar
62 Courtesy light button on rear right pillar
64 Glove compartment light with integrated switch
65 Boot light bulb/anti-theft device "on"
69 Cigarette lighter
70 Dashboard/front cables connection
88 Low brake fluid level sensor
89 left brake pad wear sensor
89A Left brake pad wear sensor cables connection
90 Handbrake on warning light switch
94 5A fuse protecting anti-lock braking system (A.B.S.)
95 Front/anti-lock braking system (A.B.S.) cables connection
96 60A power fuse protecting electrical system
100 Anti-theft electronic control unit
107B Car interior courtesy light
103 Diagnostic socket for anti-theft device
114 Air Bag electronic control unit
117 Air Bag/dashboard cables connection
120 Air conditioner cables connection
121 Three-stage pressure switch
122 Engine cooling fan low speed relay
123A Engine cooling fan high speed relay
124 Air conditioner compressor relay
127 Connection between front left cables/cable on relay carrier bracket
128 Front/air conditioner cables connection
129 50A power fuse protecting engine cooling fan
130 Diagnostic socket for Air Bag
131 Fiat-CODE electronic control unit
136 Knock sensor
137 Vehicle speed sensor
138 Idle adjustment actuator
139 Diagnostic socket for fuel injection
141 Heated Lambda probe
142 Low oil pressure warning light switch
143 Alternator
144 Rpm and T.D.C. sensor
145 Starter motor
146 Potentiometer on throttle valve
147 Compressor for air conditioner
148 Earth for electronic fuel injection
150 Fuel injection relay
154 Engine cooling fan
155 Ignition coils assembly
156 Spark plugs
159 Reversing lights switch
162 Fuel injector (1st)
163 Fuel injector (2nd)
164 Fuel injector (3rd)
165 Fuel injector (4th)
170 Engine cooling fan limiting resistor
171 Heater
174 Power earth for anti-lock braking system (A.B.S.)
176 Diagnostic socket for anti-lock braking system (A.B.S.)
177 Sensor on front left wheel for anti-lock braking system (A.B.S.)
178 Sensor on rear left wheel for anti-lock braking system (A.B.S.)
179 Sensor on front right wheel for anti-lock braking system (A.B.S.)
180 Sensor on rear right wheel for anti-lock braking system (A.B.S.)
181 Electrohydraulic control unit for anti-lock braking system (A.B.S.)
194 Injection/injector flange cables connection
195 Ignition/fuel injection electronic control unit (1581)
199 Aerial for Fiat CODE system
202 Heater/air conditioner light bulbs
203 Air conditioner controls:
A Air conditioner recirculation switch
B Air conditioner "on" switch
204 Air conditioner fan 1st speed relay
205 Air conditioner fan relay
206 Heater/air conditioner fan
207 Heater/air conditioner speed control switch
208 Limiting resistor for heater/air conditioner
209 External/recirculation air flap actuator

210 Electronic thermostat cables connection
211 Electronic thermostat (N.T.C.)
232 Earth for compressor
235 Air conditioner compressosr cables connection
278 Integrated air temperature/pressure sender unit
279 Engine coolant temperature double sender unit
280 7.5A fuse protecting ignition switch
281 30A fuse protecting Lambda probe/canister solenoid
282 7.5A fuse protecting Fiat-CODE/electronic fuel injection
283 Front cable/resistor connection
284 Engine cooling fan relay
285 25A fuse protecting headlamp washer/compressor
286 Short-circuiting connection
287 Short-circuiting connection
288 Short-circuiting connection
289 Short-circuiting connection

Cable colour codes

A	Light blue	**GN**	Yellow-Black
B	White	**GL**	Yellow-Blue
C	Orange	**GR**	Yellow-Red
G	Yellow	**GV**	Yellow-Green
H	Grey	**HG**	Grey-Yellow
L	Blue	**HN**	Grey-Black
M	Brown	**HR**	Grey-Red
N	Black	**HV**	Grey-Green
R	Red	**LB**	Blue-White
S	Pink	**LG**	Blue-Yellow
V	Green	**LN**	Blue-Black
Z	Purple	**LR**	Blue-Red
AB	Light blue-White	**LV**	Blue-Green
AG	Light blue-Yellow	**MB**	Brown-White
AN	Light blue-Black	**MN**	Brown-Black
AR	Light blue-Red	**NZ**	Black-Purple
AV	Light blue-Green	**RB**	Red-White
BG	White-Yellow	**RG**	Red-Yellow
BL	White-Blue	**RN**	Red-Black
BN	White-Black	**RV**	Red-Green
BR	White-Red	**SN**	Pink-Black
BV	White-Green	**VB**	Green-White
BZ	White-Purple	**VN**	Green-Black
CA	Orange-Light blue	**VR**	Green-Red
CB	Orange-White	**ZB**	Purple-White
CN	Orange-Black		

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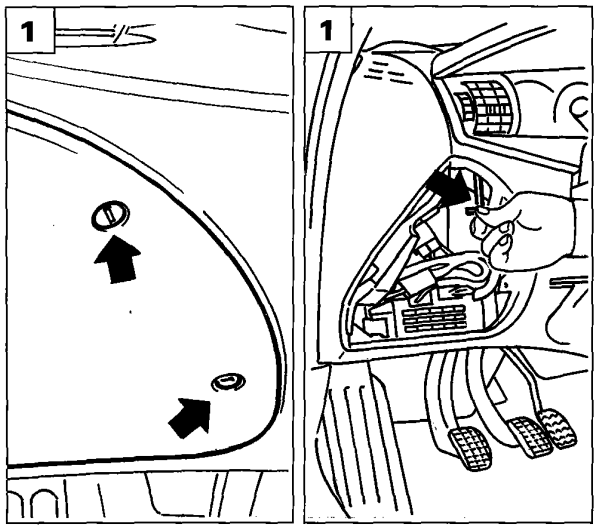
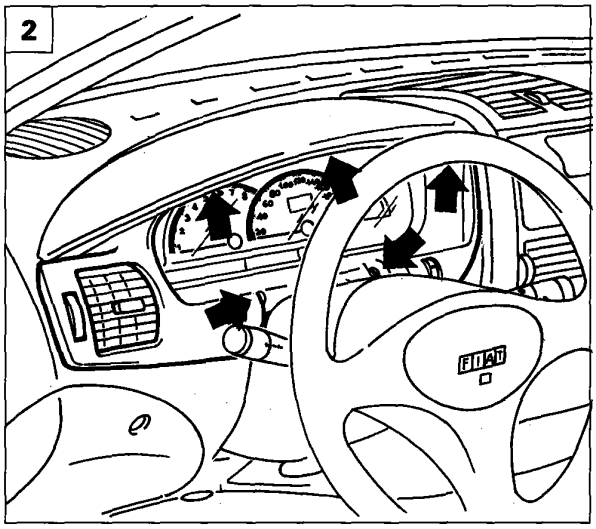
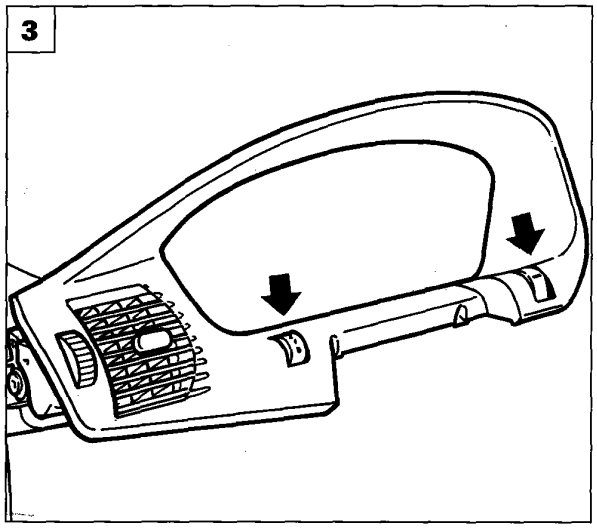


P4A001L01 P4A001L02



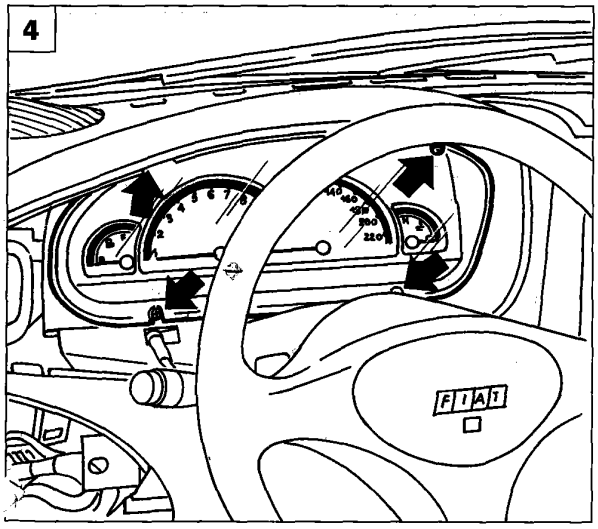
P4A001L03



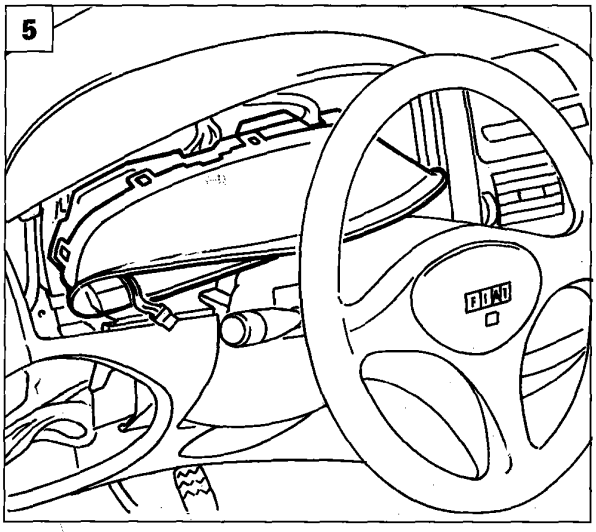
P4A001L04

REMOVING-REFITTING

1. Remove the protective cover from the fuse and relay unit. Undo the outer screw securing the control panel frame.
2. Undo the outer screws securing the control panel frame.
3. Withdraw the panel frame after disconnecting the two connectors from the panel lignting rheostat and headlamp adjustment rheostat (arro)ed).
4. Undo the screws securing the instrument panel to the dashboard.
5. Disconnect the instrument panel wiring connections and remove it from the car.



P4A001L05



P4A001L06

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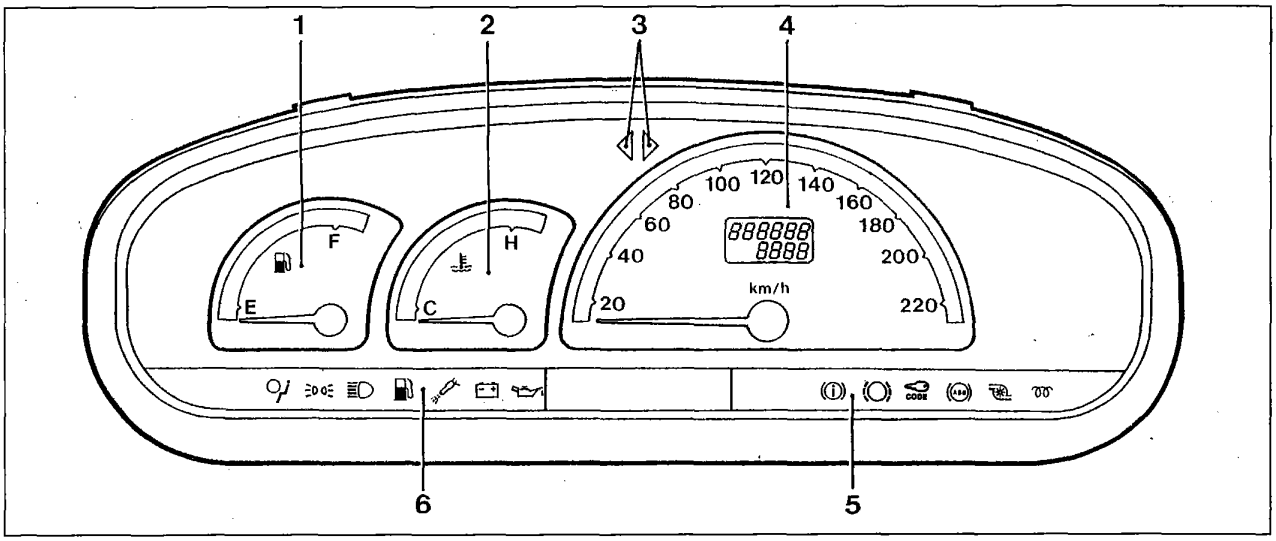
55.

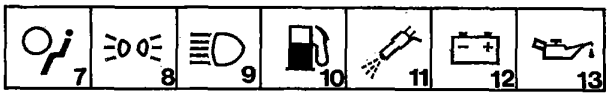
INSTRUMENT PANEL FOR S, SX VERSIONS



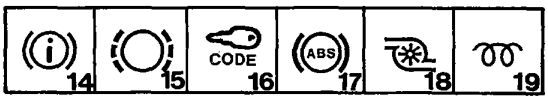
P4A002L01

Front of control panel

1. Fuel gauge
2. Coolant temperature gauge
3. Direction indicators warning lights
4. Analogue speedometer and digital trip recorder
5. Warning lights (see page 13)
6. Warning lights (see page 13)



P4A002L02



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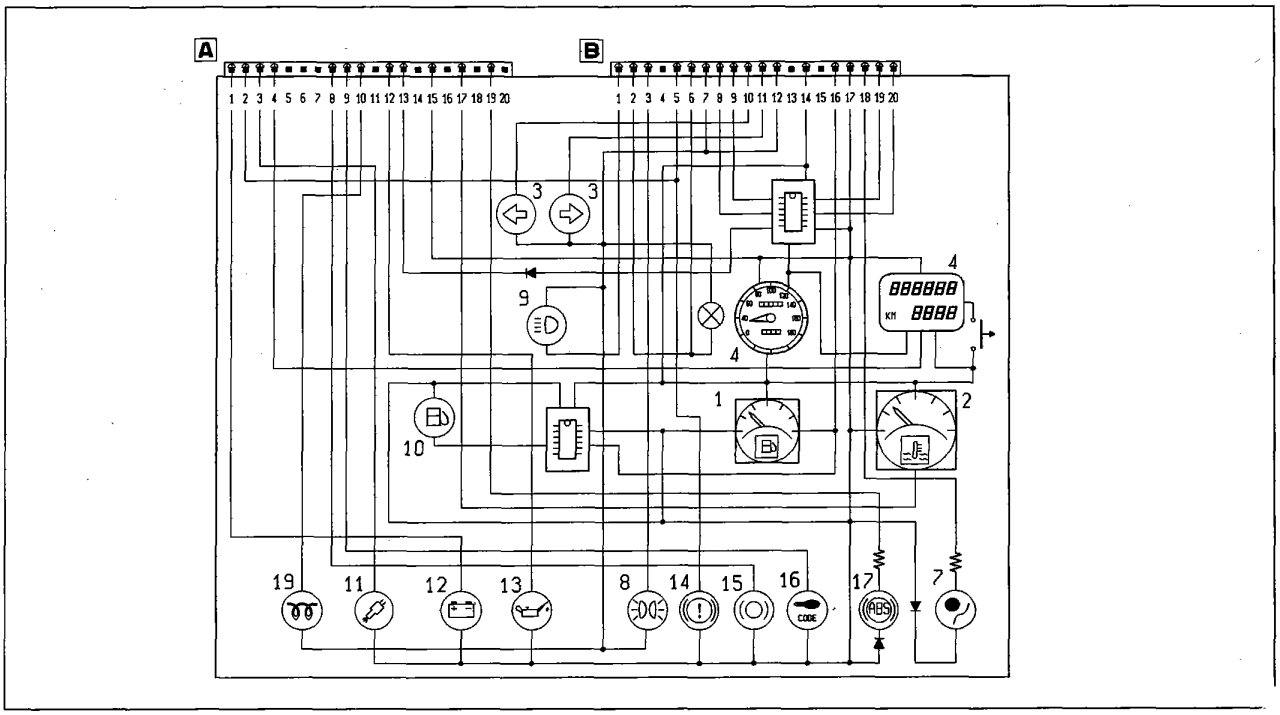

Wiring diagram

P4A002L04

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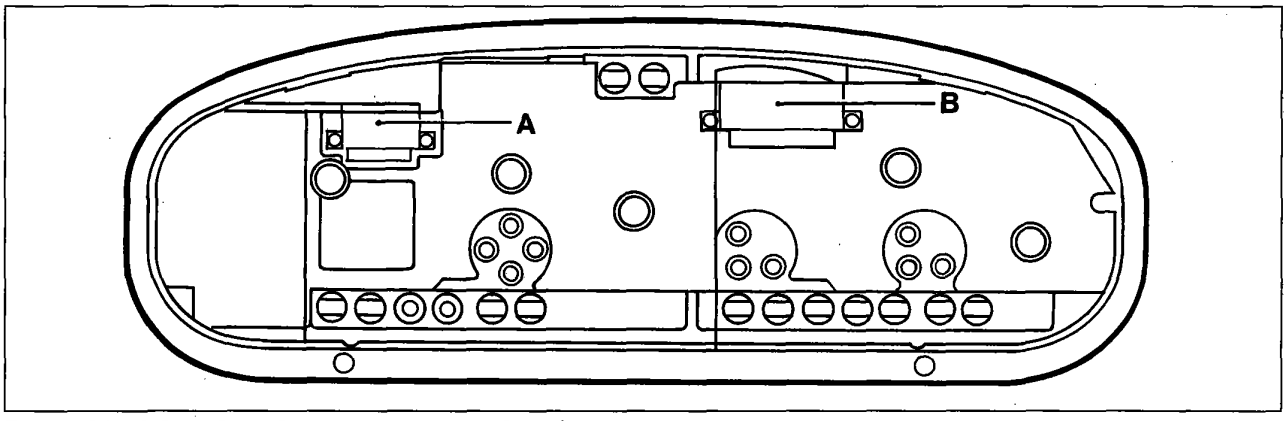
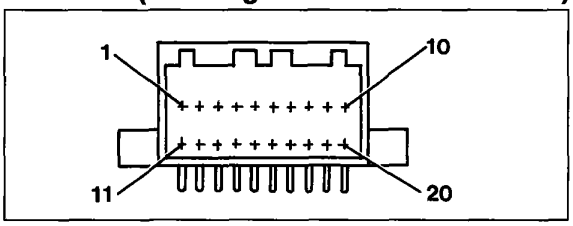
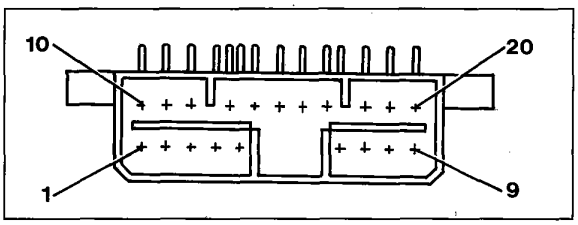


Rear side (showing the connector sockets) P4A003L01



Connector A P4A003L02



Connector B P4A003L03

Pin no.	Wire colour	Circuit involved
1	HN	Generator
2	BN	Brake fluid level
3	LN	Inertial switch fault
4	R	+30 battery (for odometer)
5	-	Not connected
6	-	Not connected
7		Not connected
8	BR	Brake pad wear
9	MN	Fiat Code
10	CL	Plug preheating
11	-	Not connected
12	HG	Low oil pressure
13	HM	Speedometer module signal
14	-	Not connected
15	CN	Speedometer signal
16	-	Not connected
17	HB	Coolant temperature
18	-	Not connected
19	RV	Anti-lock braking system
20	-	Not connected

Pin no.	Wire colour	Circuit involved
1	VN	Main beam headlamps
2	GR	Panel symbol lights
3	GN	Side lights
4	-	Not connected
5	BN	Emergency brake-brake fluid level
6	GR	Instrument panel light
7	N	Main earth
8	-	Speedometer output 1
9	-	Speedometer output 2
10	AN	Left direction indicator
11	A	Right direction indicator
12	N	Main earth
13	-	Not connected
14	NZ	Earth (electronic)
15	-	Not connected
16	HR	Fuel gaug
17	AR	+ 15 battery
18	LG	Air Bag fault
19	-	Speedometer output 3
20	-	Speedometer output 4

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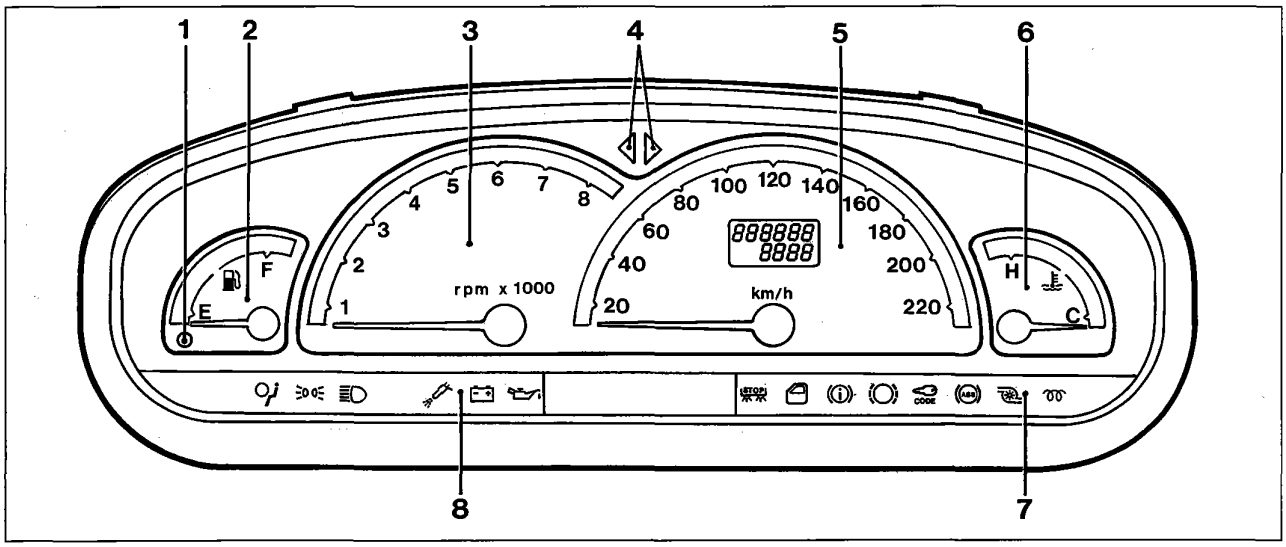
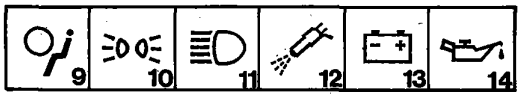
INSTRUMENT PANEL FOR EL, ELX VERSIONS



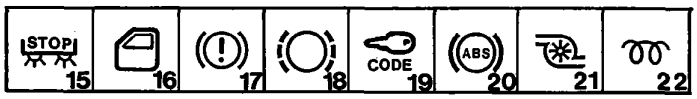
P4A004L01

Front side

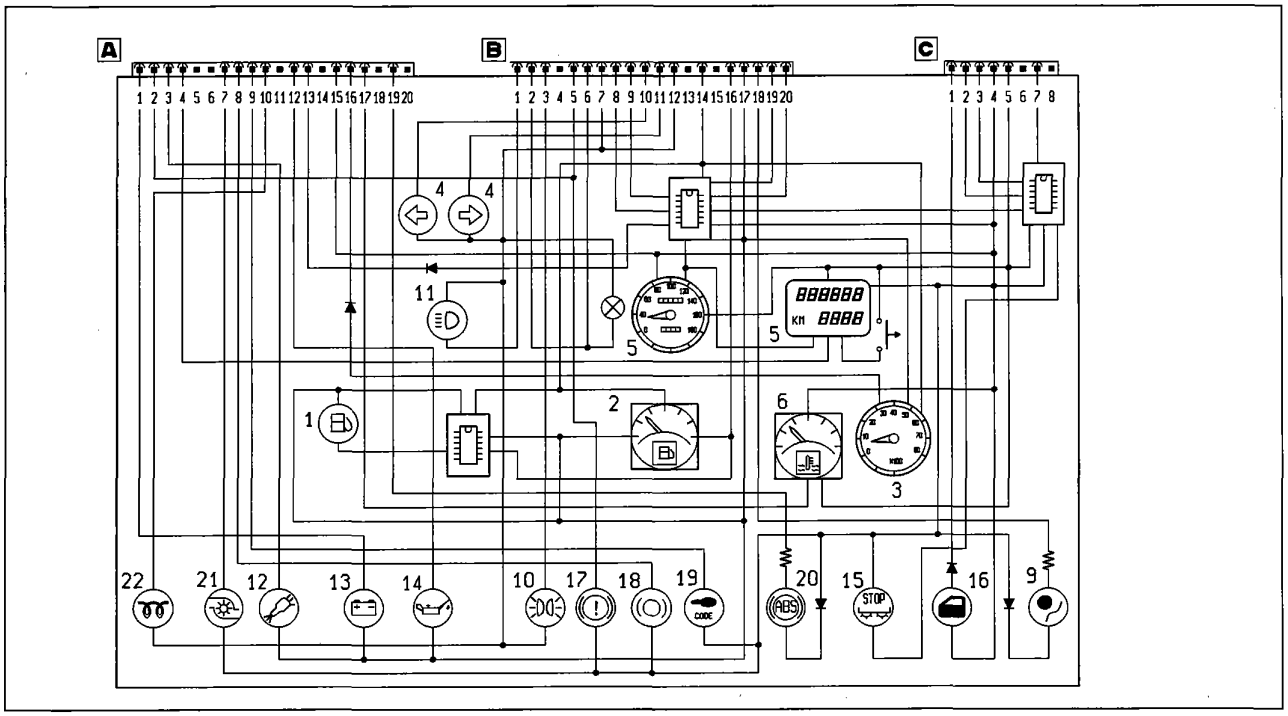
1. Fuel reserve warning light
2. Fuel gauge
3. Rev counter
4. Direction indicators warning lights
5. Analogue speedometer and digital trip recorder
6. Coolant temperature gauge
7. Warning lights (see page 13)
8. Warning lights (see page 13)



P4A004L02



P4A004L03



P4A004L04

Wiring diagram

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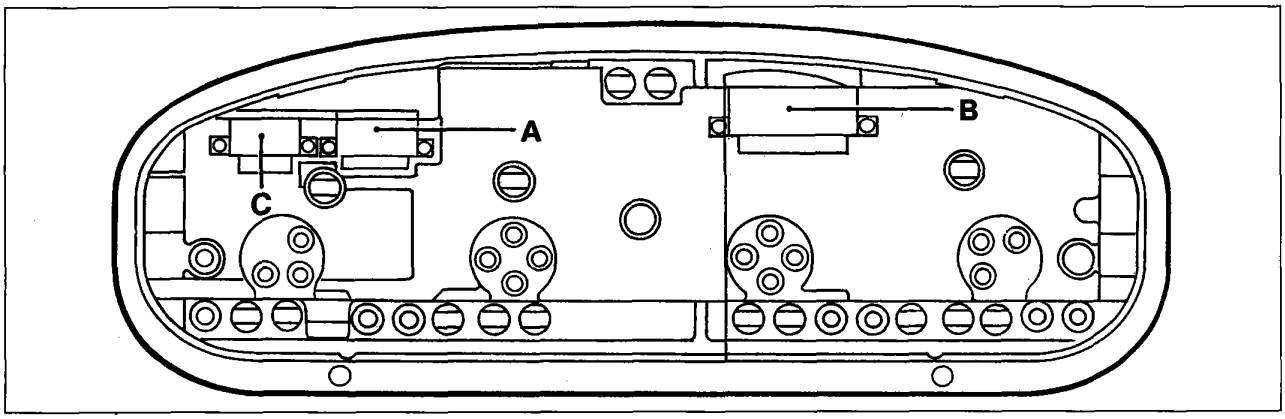
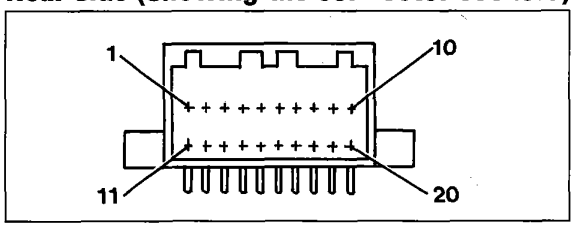


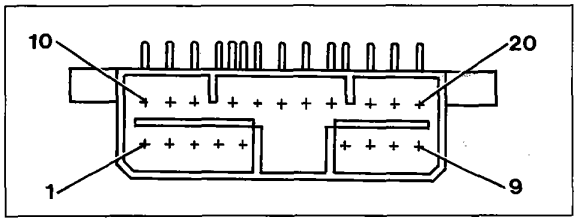
Rear side (showing the connector sockets)

P4A005L01



Connector A

P4A003L02



Connector B

P4A003L03

Pin no.	Wire colour	Circuit involved
1	HN	Generator
2	BN	Brake fluid level
3	LN	Inertial switch fault
4	R	+30 battery (for odometer)
5	-	Not connected
6	-	Not connected
7		Turbocharger
8	BR	Brake pad wear
9	VN	Fiat Code
10	-	Plug preheating
11	-	Not connected
12	HG	Low oil pressure
13	HN	Speedometer module signal
14	-	Not connected
15	CN	Speedometer signal
16	L	Rev counter signal
17	HB	Coolant temperature
18	-	Not connected
19	RV	Anti-lock braking system
20	-	Not connected

Pin no.	Wire colour	Circuit involved
1	VN	Main beam headlamps
2	GR	Panel symbol lights
3	GN	Side lights
4	-	Not connected
5	BN	Emergency brake-brake fluid level
6	GR	Instrument panel light
7	N	Main earth
8	-	Speedometer output 1
9	-	Speedometer output 2
10	AN	Left direction indicator
11	A	Right direction indicator
12	N	Main earth
13	-	Not connected
14	NZ	Earth (electronic)
15	-	Not connected
16	HR	Fuel gauge
17	AR	+ 15 battery
18	LG	Air Bag fault
19	-	Speedometer output 3
20	-	Speedometer output 4

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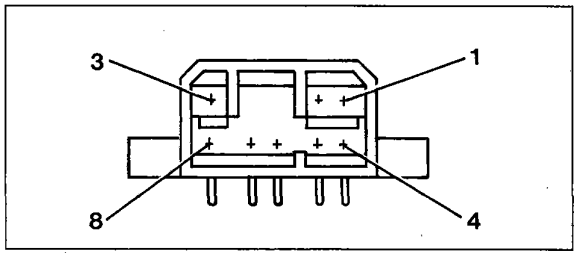
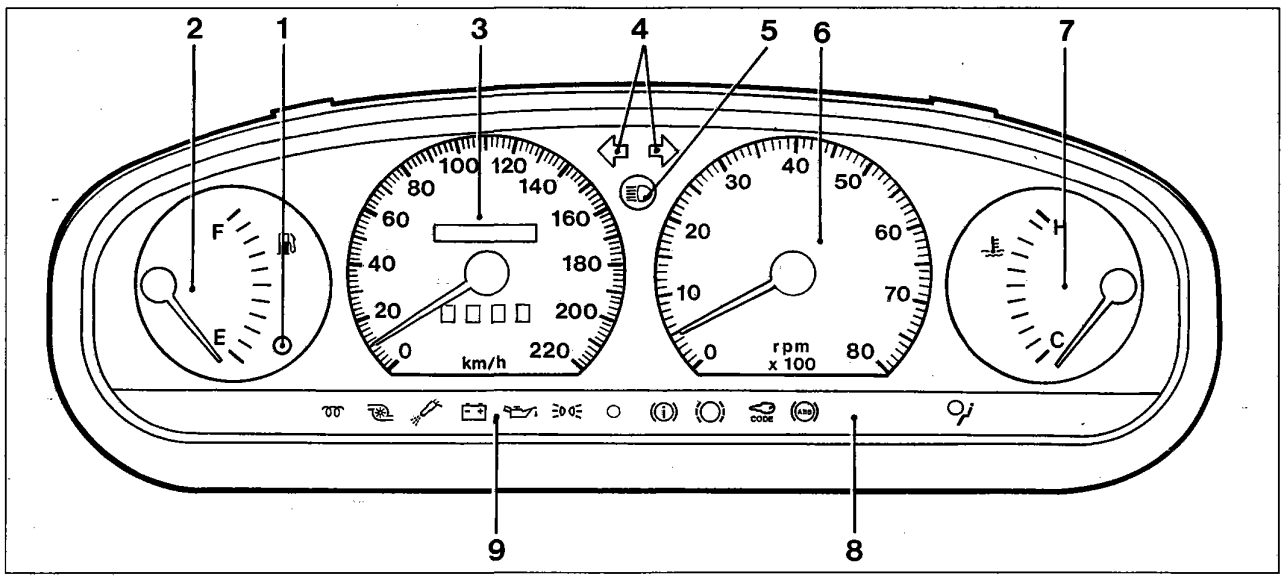
55.

Pin no.	Wire colour	Circuit involved
1	VB	Bonnet/doors not shut
2	RG	Left stop light fault
3	RN	Right stop light fault
4	AR	+15 battery
5	N	Electronic earth
6	-	Not connected
7	R	Stop light (+ from brake pedal)
8	-	Not connected



Connector C - P4A006L01

INSTRUMENT PANEL FOR GT VERSION



P4A006L02

Front side

1. Fuel reserve warning light
2. Fuel gauge
3. Analogue speedometer and trip recorder
4. Direction indicators warning lights
5. Main beam headlamps warning light
6. Rev counter
7. Coolant temperature gauge
8. Warning lights (see page 13)
9. Warning lights (see page 13)

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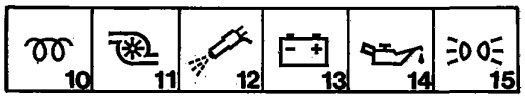
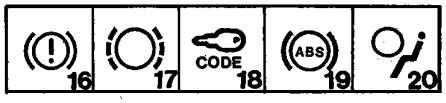


P4A007L01



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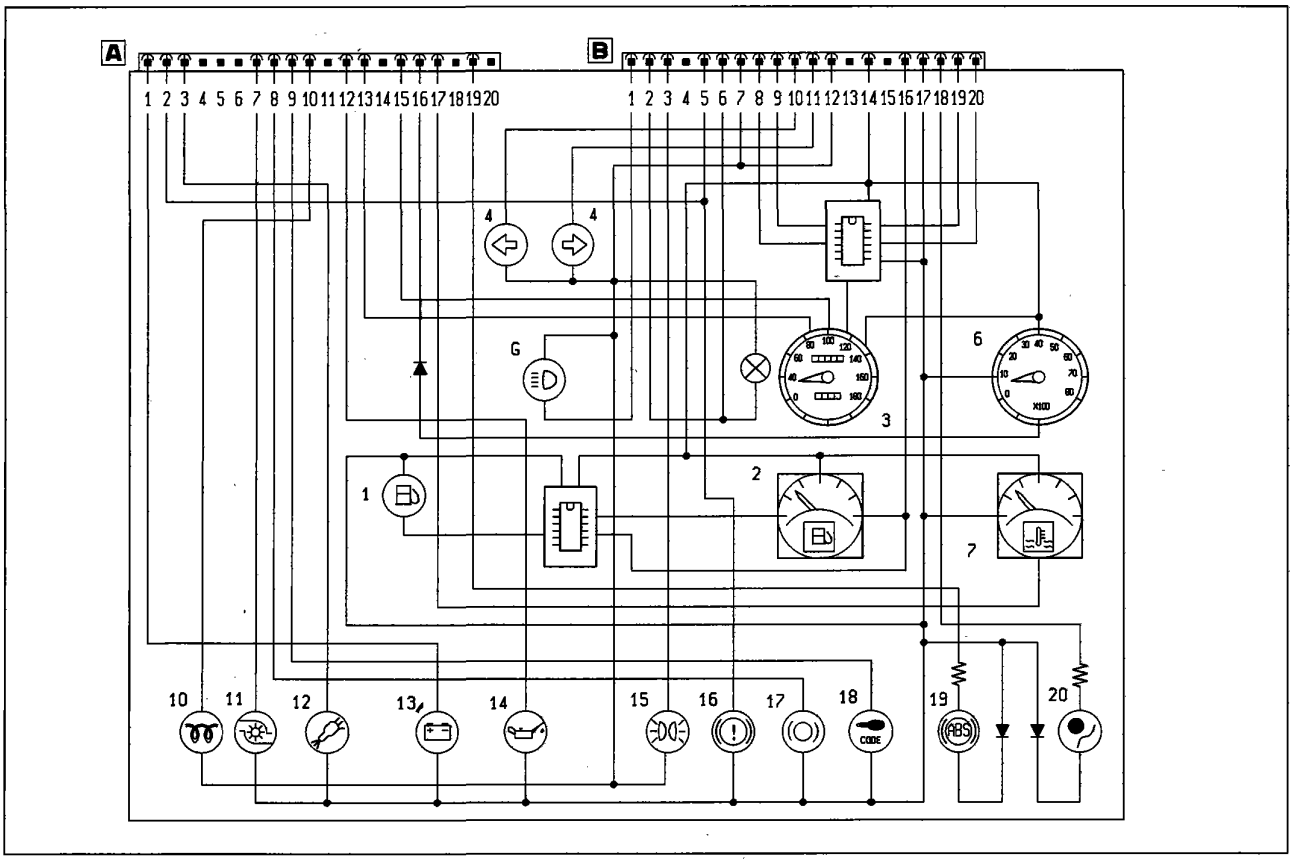
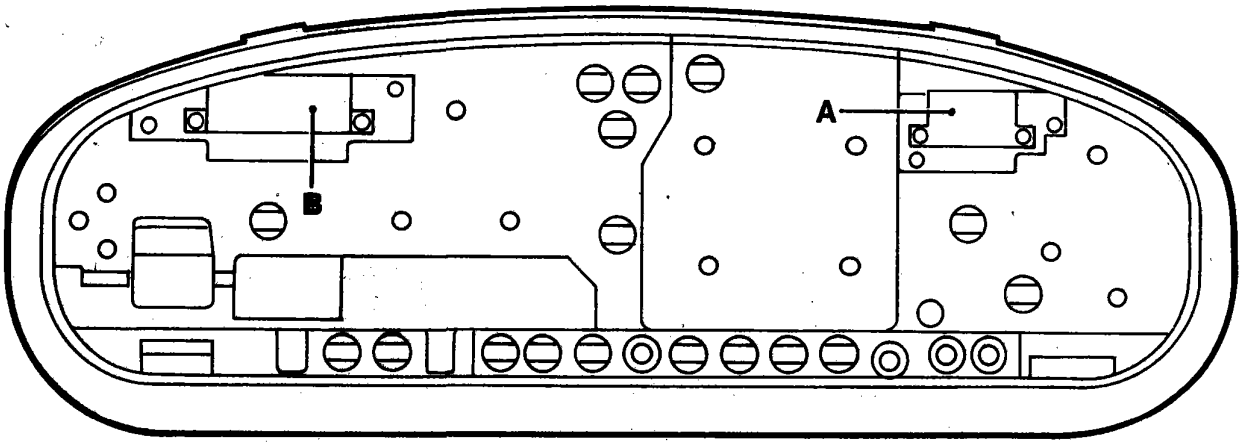


P4A007L03

Wiring diagram



1

P4A007L04

Rear side (showing the connector sockets)

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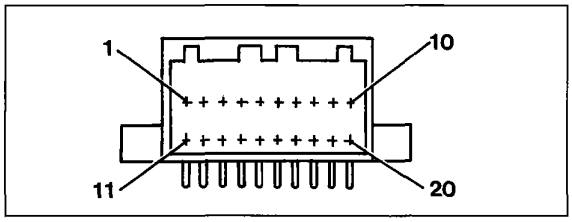
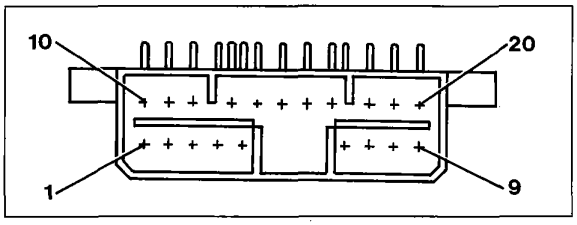


P4A003L02

Connector A



P4A003L03

Connector B

Pin no.	Wire colour	Circuit involved
1	HN	Generator
2	BN	Brake fluid level
3	LN	Inertial switch fault
4	-	Not connected
5	-	Not connected
6	-	Not connected
7		Turbocharging
8	BR	Brake pad wear
9	MN	Fiat Code
10		Plug preheating
11	-	Not connected
12	HG	Low oil pressure
13	HN	Speedometer module signal
14	-	Not connected
15	CN	Speedometer signal
16	L	Rev counter signal
17	HB	Coolant temperature
18	-	Not connected
19	RV	Anti-lock braking system
20	-	Water in fuel (diesel)

Pin no.	Wire colour	Circuit involved
1	VN	Main beam headlamps
2	GR	Panel symbol lights
3	GN	Side lights
4	-	Not connected
5	BN	Emergency brake-brake fluid level
6	GR	Instrument panel light
7	N	Main earth
8	-	Speedometer output 1
9	-	Speedometer output 2
10	AN	Left direction indicator
11	A	Right direction indicator
12	N	Main earth
13	-	Not connected
14	NZ	Earth (electronic)
15	-	Not connected
16	HR	Fuel gauge
17	AR	+ 15 battery
18	LG	Air Bag fault
19	-	Speedometer output 3
20	-	Speedometer output 4

On the instrument panel fitted to the turbo diesel versions, the full scale on the speedometer and rev counter are 220 km/h and 6000 rpm respectively.

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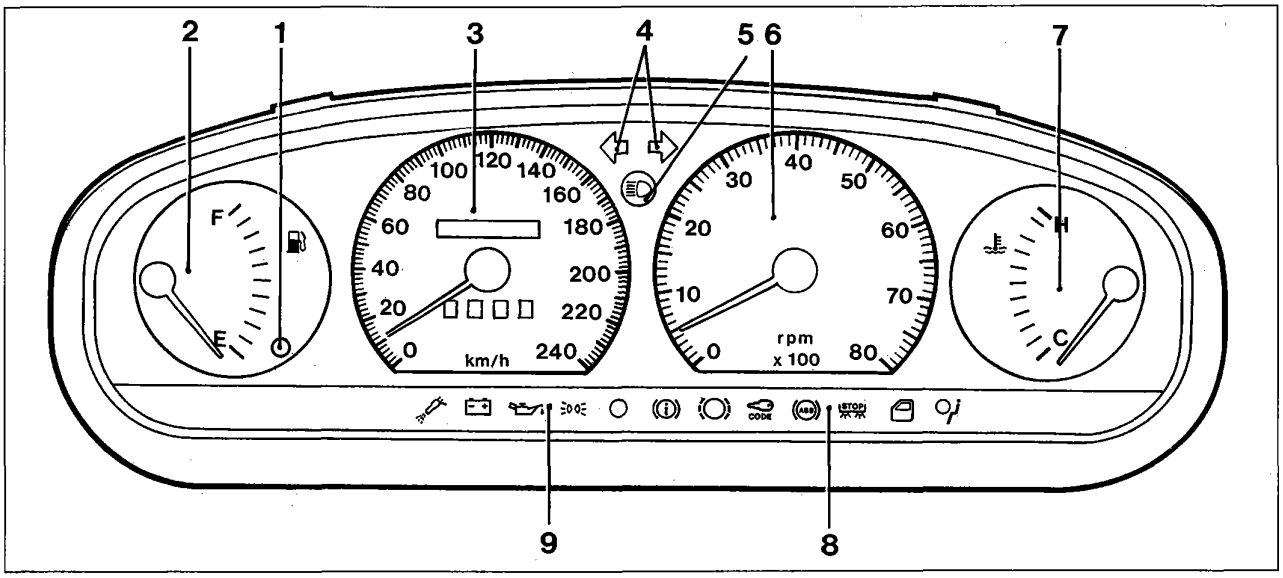
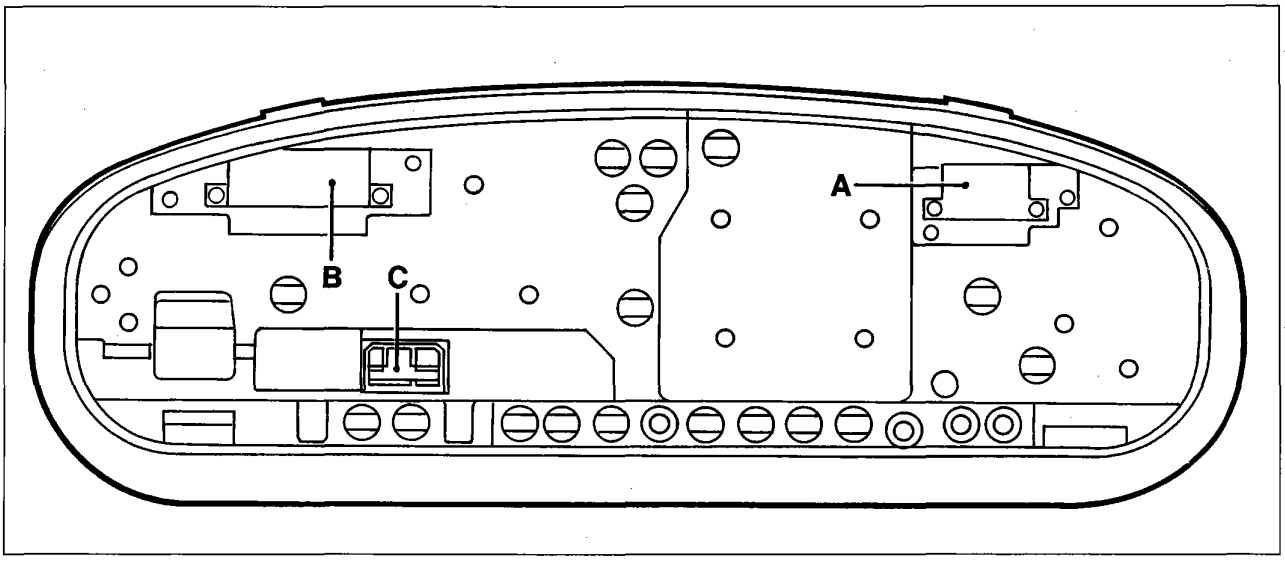
INSTRUMENT PANEL FOR HGT VERSION



P4A009L01

Front side

1. Fuel reserve warning light
2. Fuel gauge
3. Analogue speedometer and trip recorder
4. Direction indicators warning lights
5. Main beam headlamps warning light
6. Rev counter
7. Coolant temperature gauge
8. Warning lights (see page 13)
9. Warning lights (see page 13)



P4A009L02

Rear side (showing the connector sockets)

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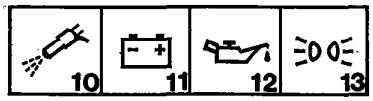

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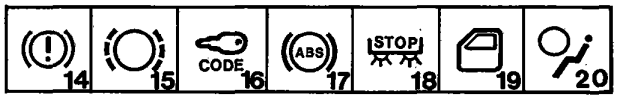

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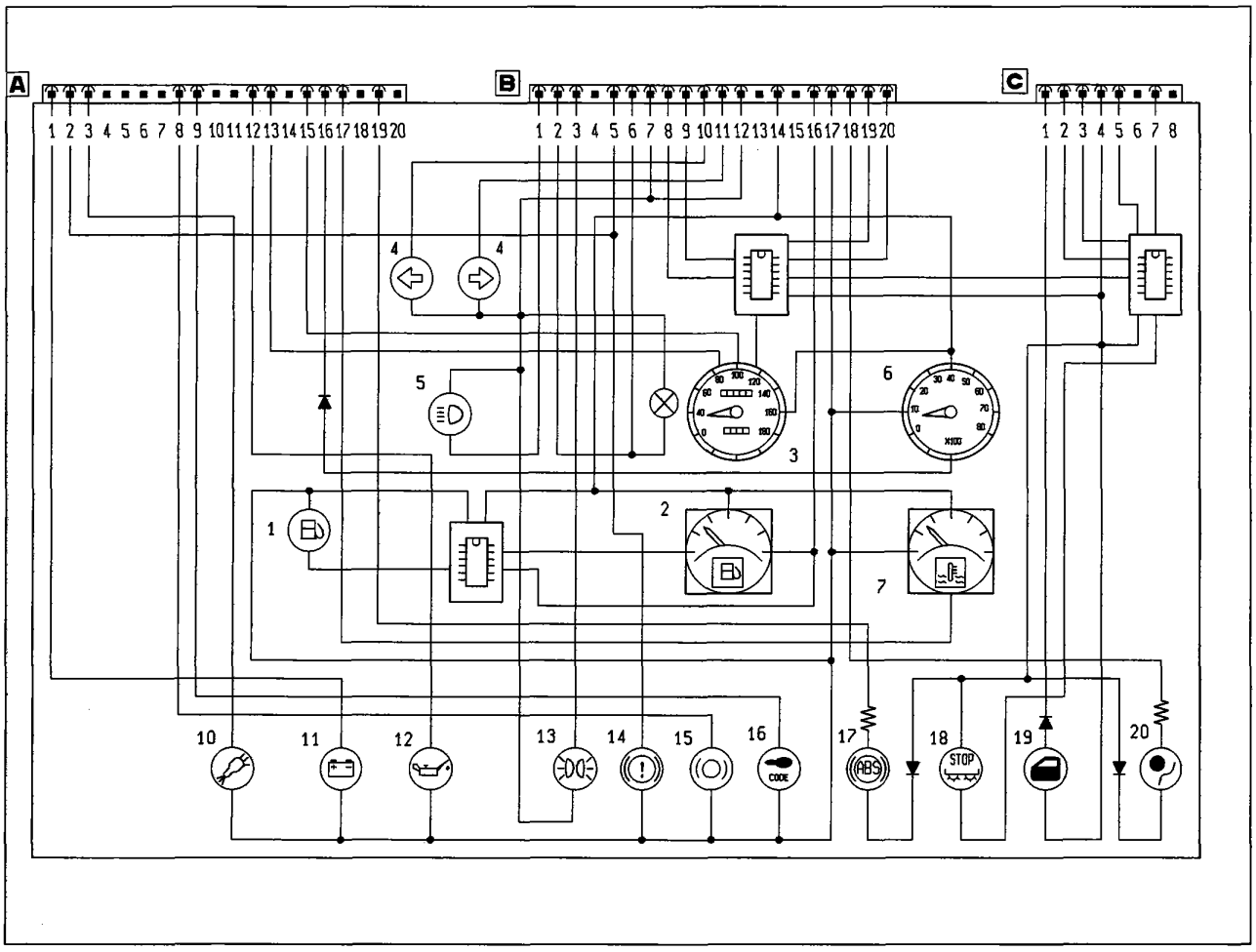

Wiring diagram

P4A010L03

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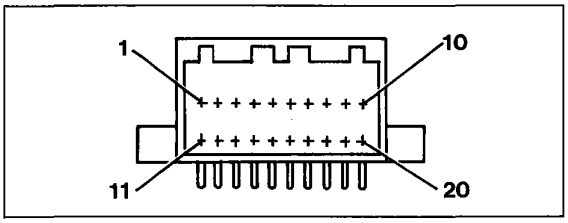
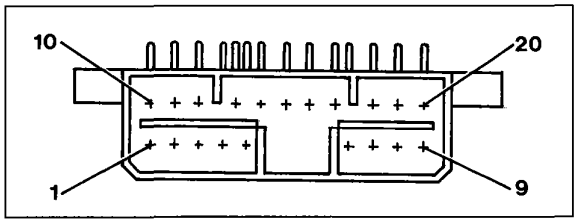


P4A003L02

Connector A

N° pin	Wiring colours	Circuit involved
1	HN	Generator
2	BN	Brake fluid level
3	LN	Inertia switch failure
4	-	Not connected
5	-	Not connected
6	-	Not connected
7	–	Turbocharging
8	BR	Brake lining wear
9	MN	Fiat Code
10	-	Glow plug preheating
11	-	Not connected
12	HG	Low oil pressure
13	HN	Speedometer module signal
14	-	Not connected
15	CN	Signal from speedometer
16	L	Rev counter signal
17	HB	Coolant temperature
18	-	Not connected
19	RV	Anti-lock braking system
20	-	Signal indicating presence of water in fuel (diesel)



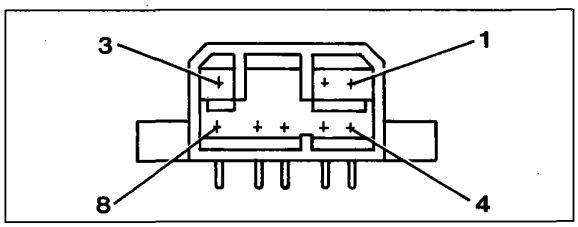
P4A003L03

Connector B

N° pin	Wiring colours	Circuit involved
1	VN	Main beam head-lamps
2	GR	Control panel symbol lights
3	GN	Side lights
4	-	Not connected
5	BN	Emergency brake/brake fluid level
6	GR	Instrument panel light
7	N	Master earth
8	-	Speedometer output 1
9	-	Speedometer output 2
10	AN	Left-hand turn signal
11	A	Right-hand turn signal
12	N	Master earth
13	-	Not connected
14	NZ	Earth (eletronic)
15	-	Not connected
16	HR	Fuel level
17	AR	+ 15 battery
18	LG	Air-bag failure
19	-	Speedometer output 3
20	-	Speedometer output 4

Connector C

1	VB	Bonnet/doors not closed
2	RG	Left brake light failure
3	RN	Right brake light failure
4	AR	+15 battery
5	N	Electronic earth
6	-	Not connected
7	R	Car brake light (+ from brake pedal)
8	-	Not connected



Connector C

P4A006L01

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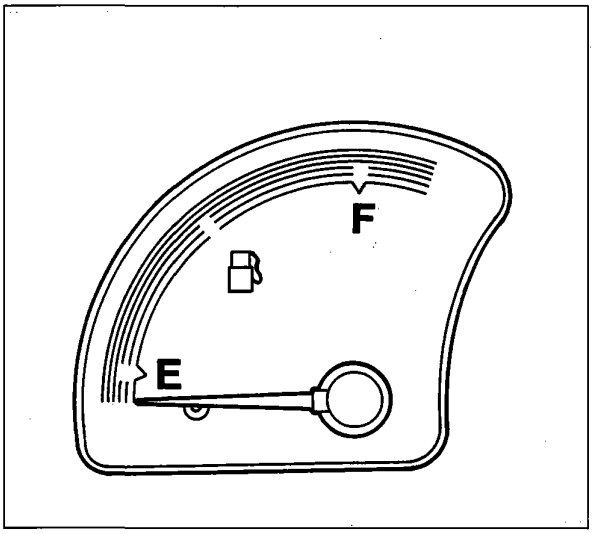
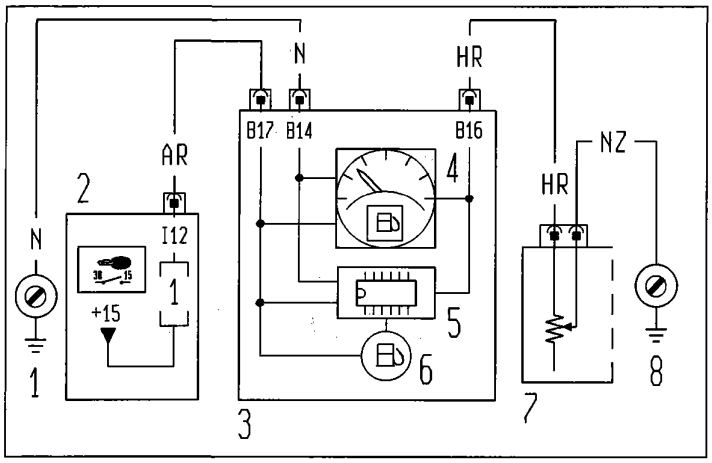
The tables below give values which can be used to test various readings on the following gauges: fuel level and coolant temperature.

Fuel level gauge

Setting test values	
Indicator position	**Value in Ohms**
4/4 (F)	16 ± 6
1/2	140 ± 12
Reserve begins	240 ± 5
0 (E)	292.5 ± 15



P4A012L01



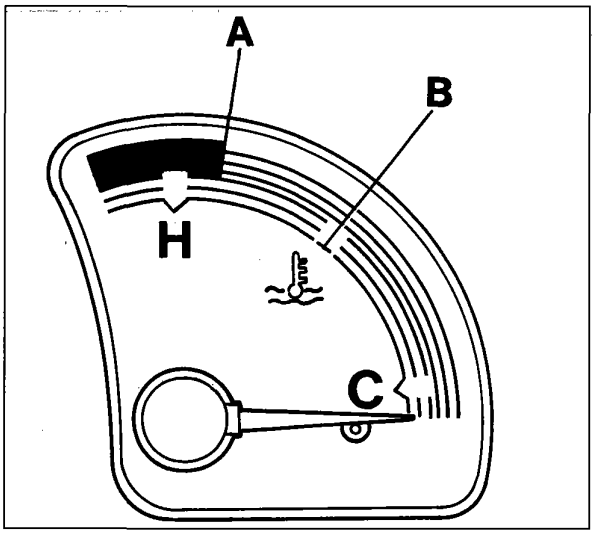
P4A012L02

Fuel level gauge wiring diagram

1. Left hand facia earth
2. Junction unit
3. Instrument panel
4. Fuel level gauge
5. Fuel level control module
6. Fuel reserve warning light
7. Fuel level gauge
8. Right rear earth

Engine coolant temperature gauge

Gauge scale	Average resistance value (ohm)
Indicator off	2000 - 500
B	175 ± 15
A	74.5 ± 5.5



P4A012L03

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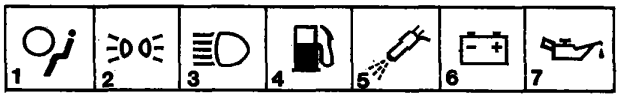
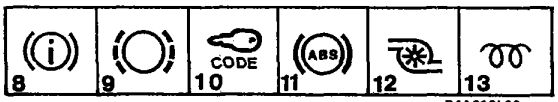
Warning lights for S, SX versions



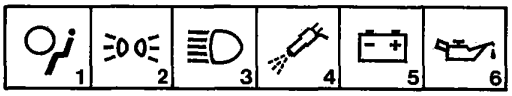
P4A013L01



P4A013L02

1. Air Bag fault warning light
2. Side lights warning light
3. Main beam headlamps warning light
4. Fuel reserve warning light
5. Fuel injection fault warning light
6. Low alternator recharging warning light
7. Low engine oil pressure warning light
8. Handbrake on/low brake fluid level warning light
9. Brake pad wear warning light
10. Fiat Code system warning light
11. ABS fault warning light
12. Maximum turbo pressure warning light
13. Plug preheating warning light

Warning lights for EL, ELX versions



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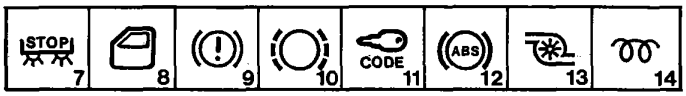
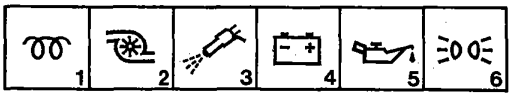


P4A013L04

1. Air Bag fault warning light
2. Side lights warning light
3. Main beam headlamps warning light
4. Fuel injection fault warning light
5. Low alternator recharging warning light
6. Low engine oil pressure warning light
7. Stop lights fault warning light
8. Doors open warning light
9. Handbrake on/low brake fluid level warning light
10. Brake pad wear warning light
11. Fiat Code system fault warning light
12. ABS fault warning light
13. Maximum turbo pressure warning light
14. Plug preheating warning light

Warning lights for GT version



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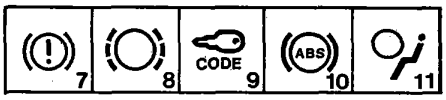
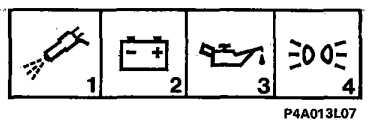


P4A013L06

1. Plug preheating warning light
2. Maximum turbo pressure warning light
3. Fuel injection fault warning light
4. Low alternator recharging warning light
5. Low engine oil pressure warning light
6. Side lights warning light
7. Handbrake on/low brake fluid level warning light
8. Brake pad wear warning light
9. Fiat Code system fault warning light
10. ABS fault warning light
11. Air Bag fault warning light

Warning lights for HGT version



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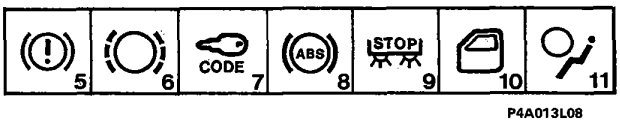

P4A013L08

1. Fuel injection fault warning light
2. Low alternator recharging warning light
3. Low engine oil pressure warning light
4. Side lights warning light
5. Handbrake on/low brake fluid level warning light
6. Brake pad wear warning light
7. Fiat Code system warning light
8. ABS fault warning light
9. Stop lights fault warning light
10. Doors open warning light
11. Air Bag fault warning light

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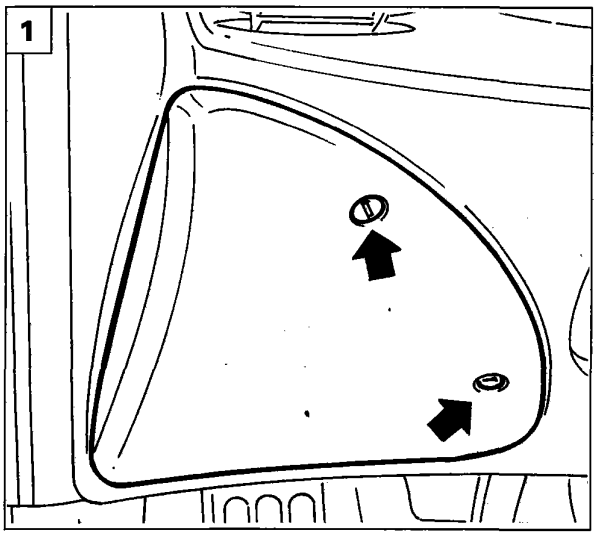
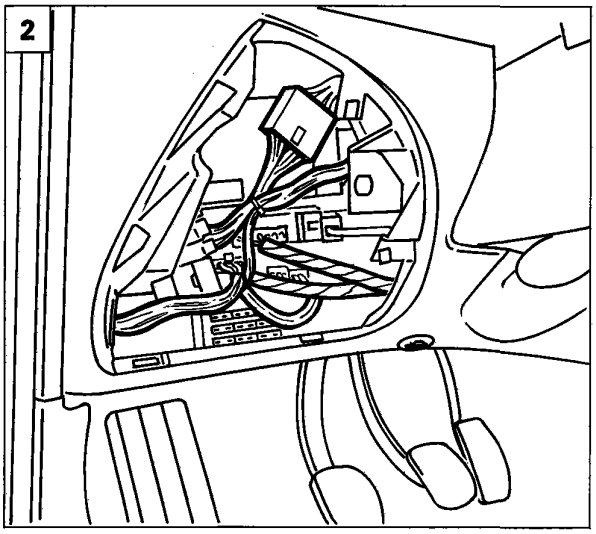


P4A014L01

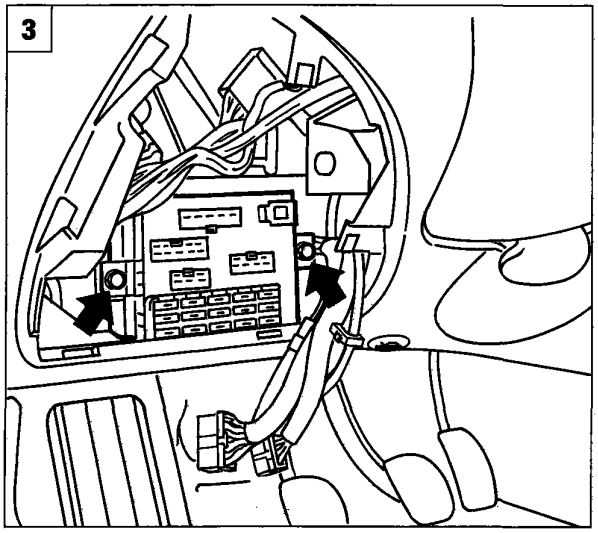
FUSE AND RELAY UNIT

Removing-refitting

1. Undo the screws indicated and remove the unit cover.
2. Disconnect the wiring connectors plugged into the front of the unit.
3. Undo the screws securing the unit to the dashboard.
4. Move aside the unit, disconnect the connectors plugged into the rear of the unit and remove the unit from the dashboard.



P4A014L02



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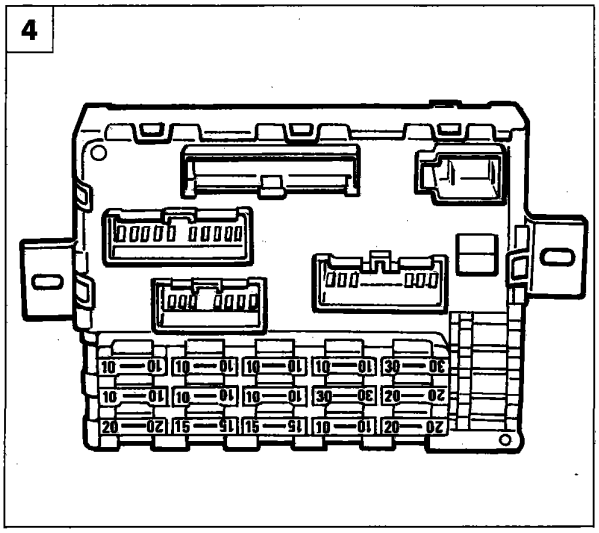

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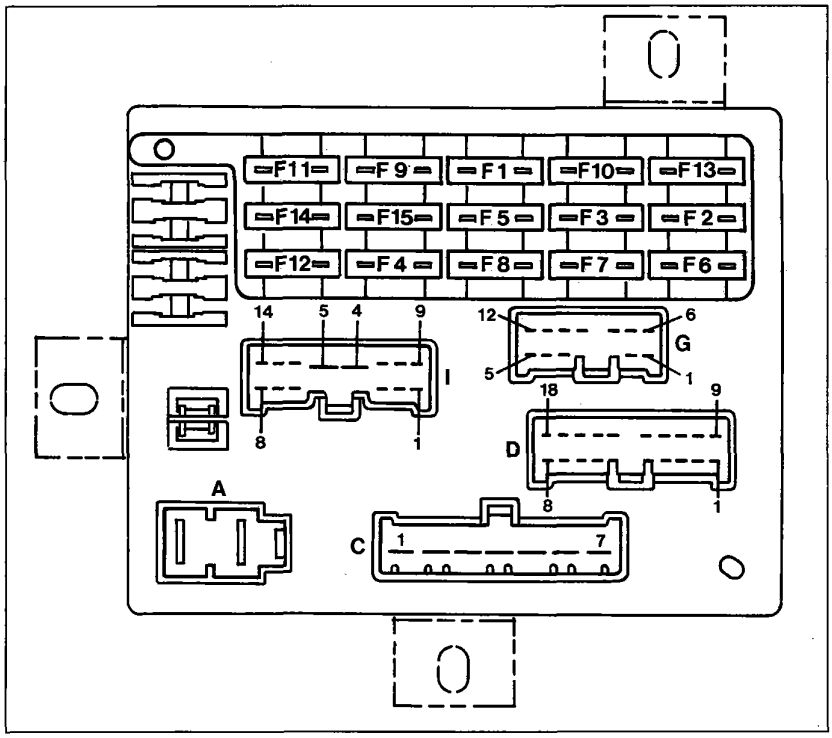
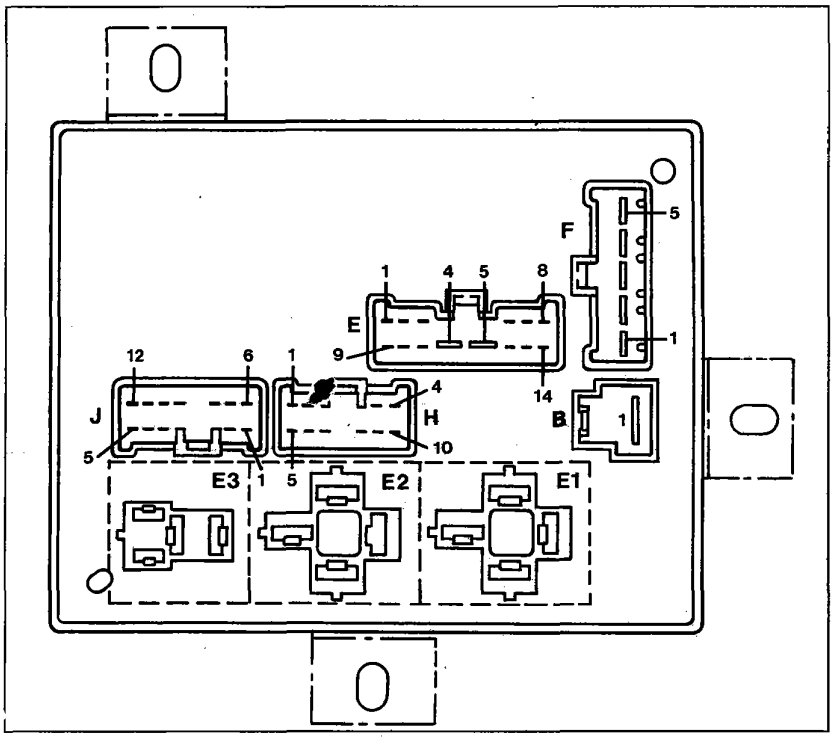


P4A015L01

Front view of fuse and relay unit and identification of fuses

The connectors cannot be connected incorrectly, as each is shaped differently. The letters identifying the connectors are the same as those used on the wiring diagrams.



P4A015L02

Rear view of fuse and relay unit and location of relays

E1. Ignition switch discharge relay
E2. Horn relay
E3. Heated rear window relay

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List of fuses and main protected circuits

Fuse no.	Amp.	Symbol	Protected circuit
1	15	SERVIZI SERVICES	Reversing lights -Stop lights - Additional stop light (if present) - Direction indicators flasher - Supply to check panel instrument (if present) - Electric windows control (if present) - Air Bag circuit - ABS enablement.
2	10		Front right side light - Rear left side light - Right number plate light - Radio lighting - Instrument lighting and side lights warning light - Switch panel lighting.
3	10		Front left side light - Heater/air conditioner controls lighting - Rear right side light - Rear right side light - Left number plate light.
4	10		Left dipped beam.
5	10		Right dipped beam - Headlamp adjusters.
6	10		Right main beam.
7	10		Left main beam - Main beam headlamps warning light.
8	10		Rear fog lamps.
9	10		Hazard warning lights flasher.
10	15		Courtesy light - Luggage compartment light - Clock supply - Remote control receiver supply (if present) - Radio supply - Glove compartment light.
11	20		Heated rear window - Heated rear window warning light - Mirror demisting (if present).
12	30		Not used.
13	20		Horns.
14	20		Windscreen wiper - Rear window wiper - Windscreen/rear window washer wiper - Headlamp washer intermittent switch.
15	20		Climate control fan motor and resistor for determining its speed - Relays for first and second speeds of condenser and radiator fans and 2nd speed delay unit - Air conditioner compressor relay - Cigar lighter.

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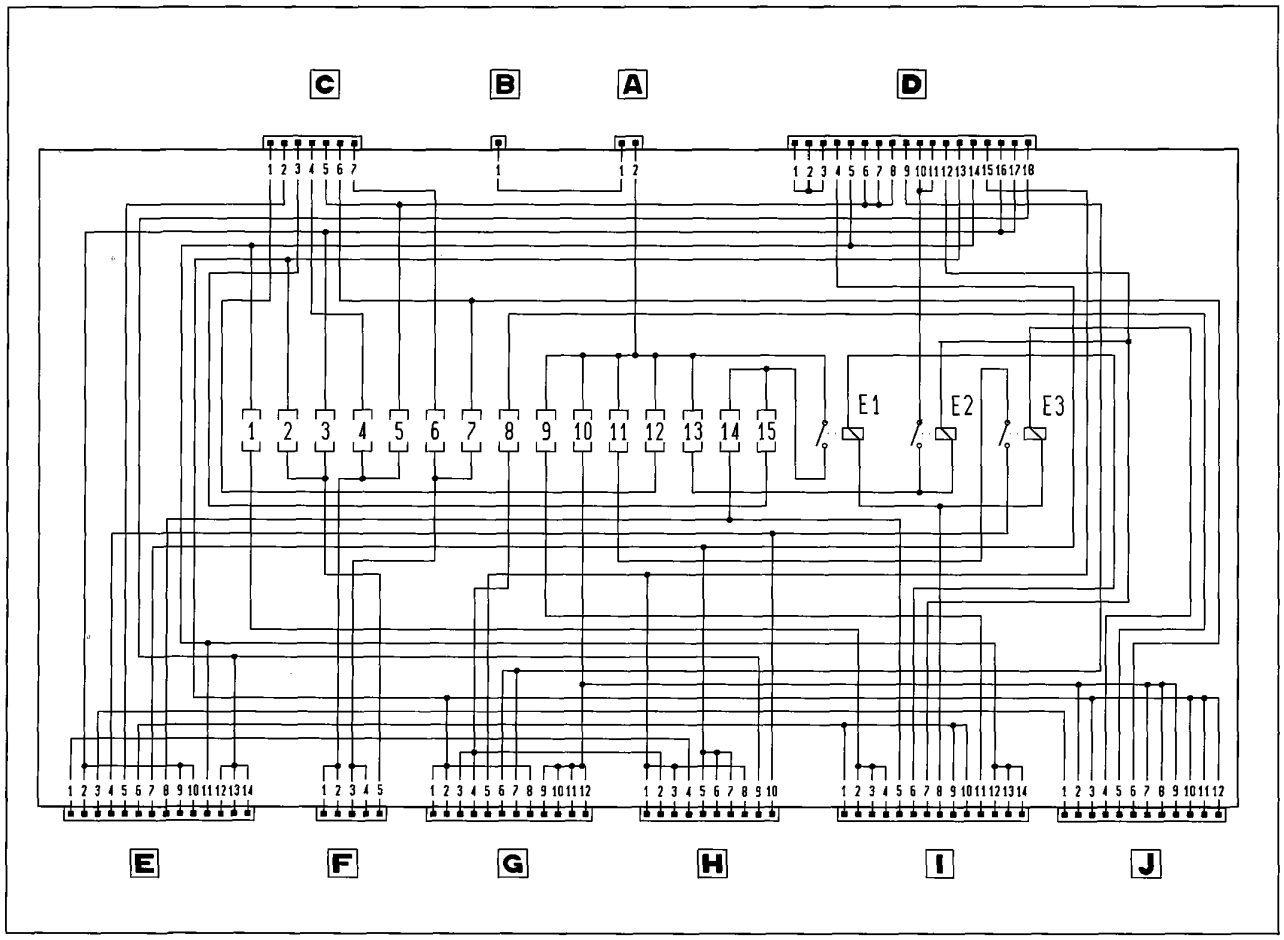
Diagram of fuse and relay unit internal connections



E1. Ignition switch discharge relay
E2. Horn relay
E3. Heated rear window relay

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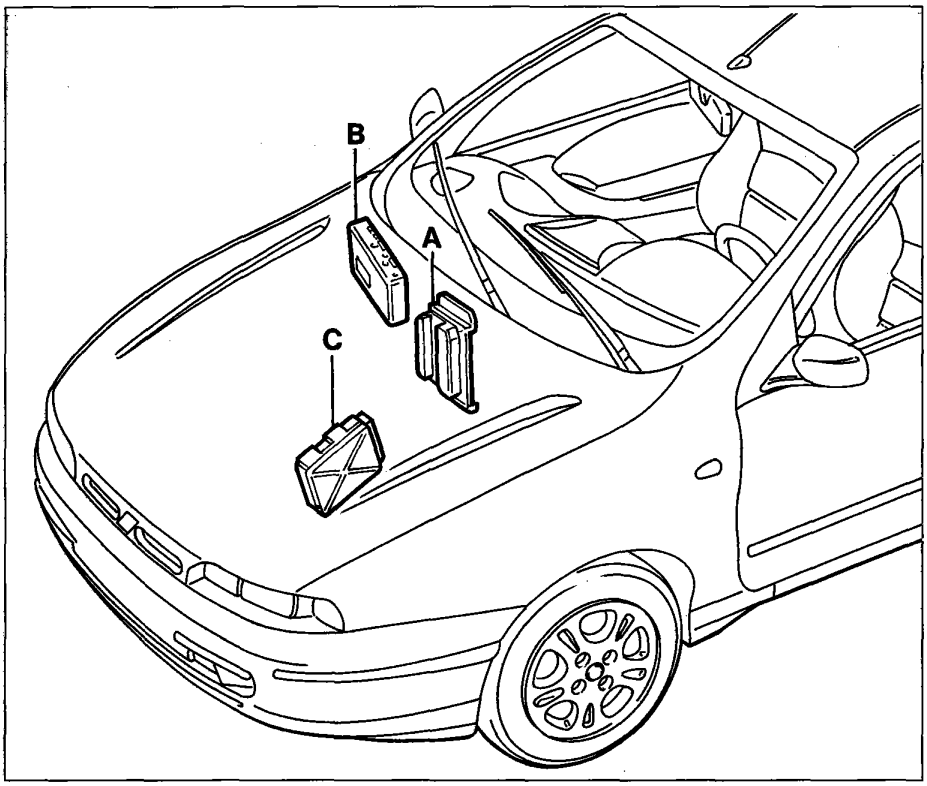
55.

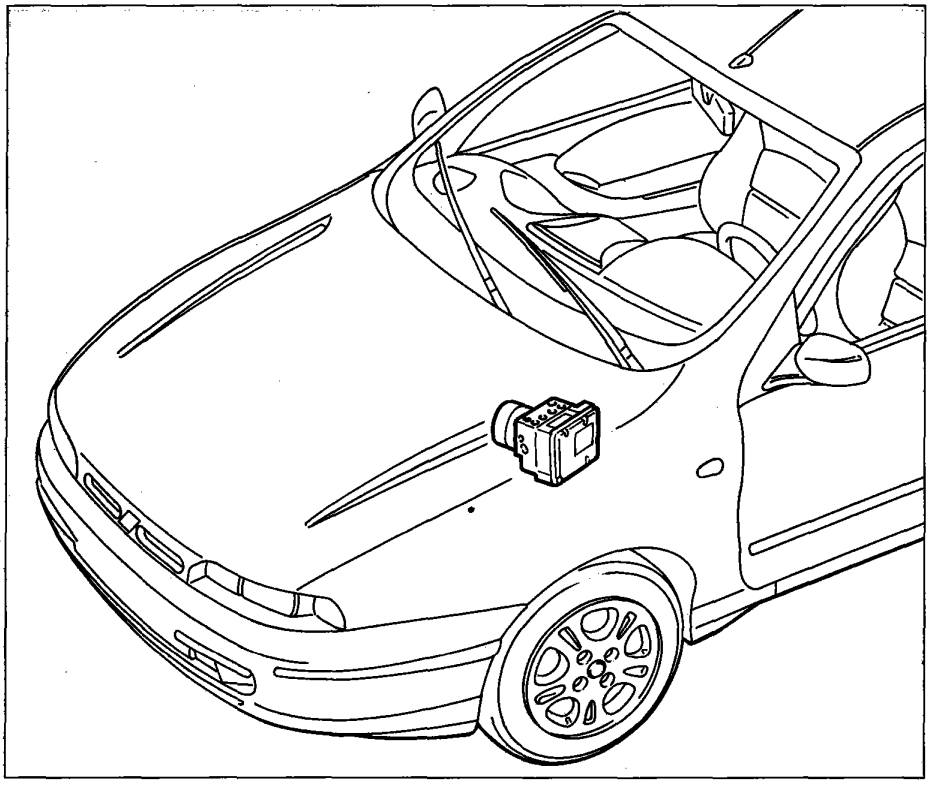
LOCATION OF FUEL INJECTION/IGNITION CONTROL UNIT



P4A018L01

A. 1370 SPI 12V engine
B. 1747 MPI 16V; 1998 MPI 20V engines (car interior).
C. 1581 MPI 16V engine

LOCATION OF ELECTROHYDRAULIC CONTROL UNIT FOR ANTI-LOCK BRAKING SYSTEM



P4A018L02

To remove and refit the units shown on this page, consult Section 33 (Braking system).

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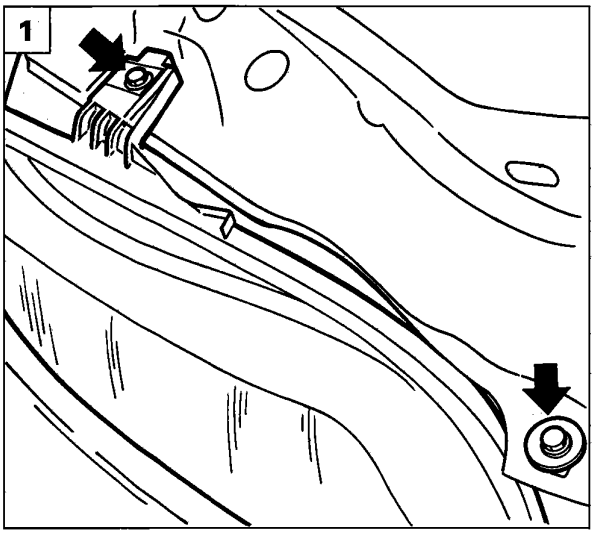
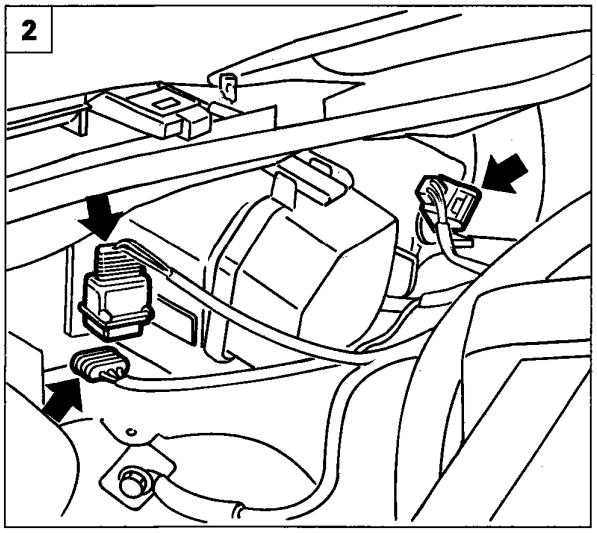


P4A019L01

FRONT LIGHTS CLUSTER WITH DIRECTION INDICATOR

Removing-refitting

1. Undo the bolts securing the lights cluster to the body shell.
2. Disconnect the wiring connectors from the lights cluster.
3. Remove the complete warning light from the car.
4. During assembly, insert pin A in its seating in the body shell.



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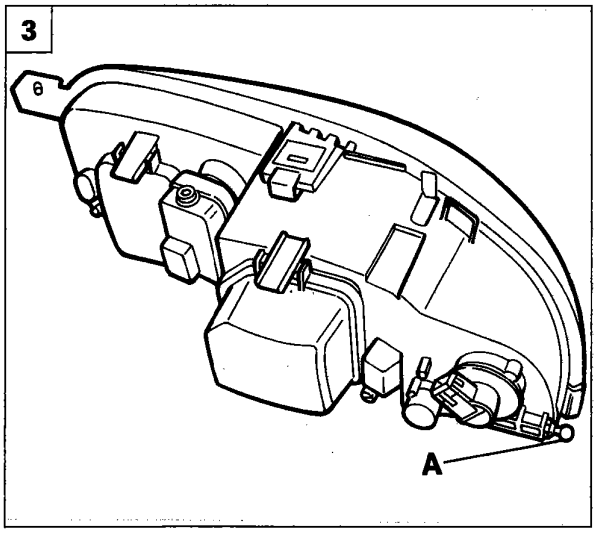
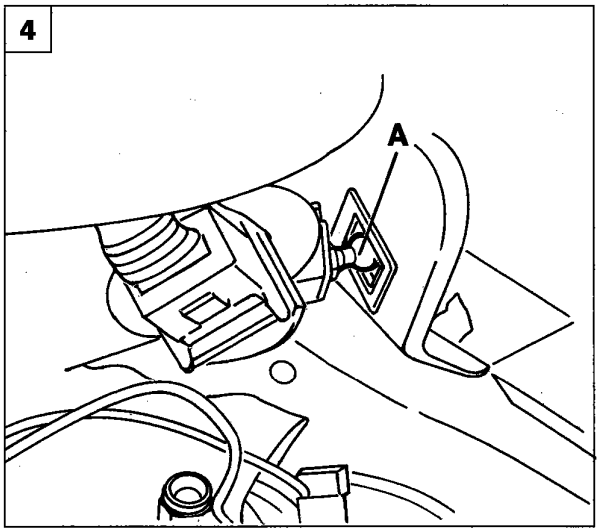


P4A019L03



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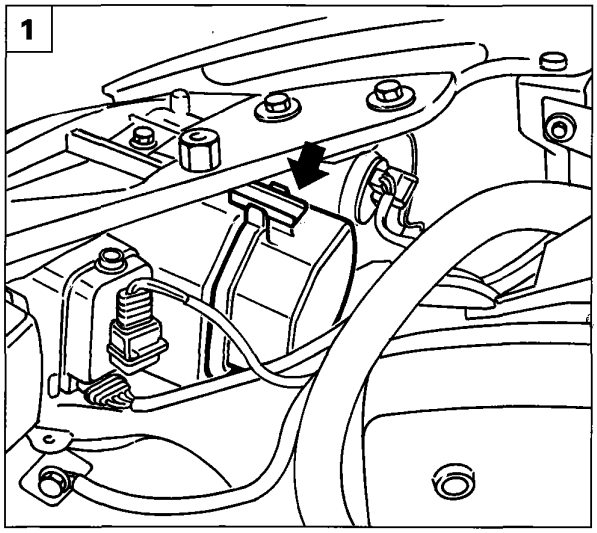
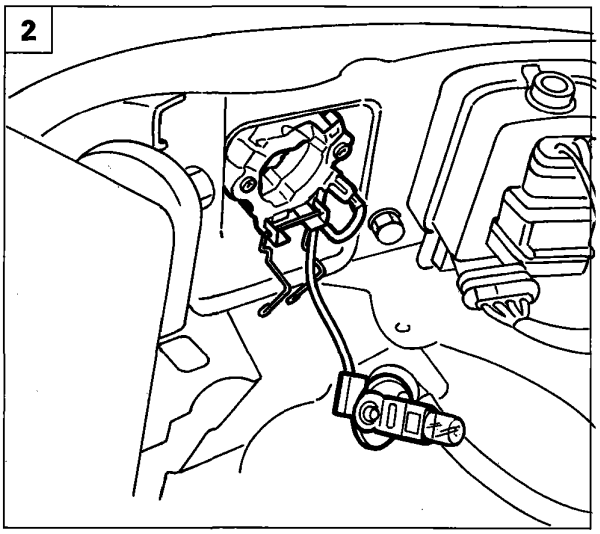


P4A020L01



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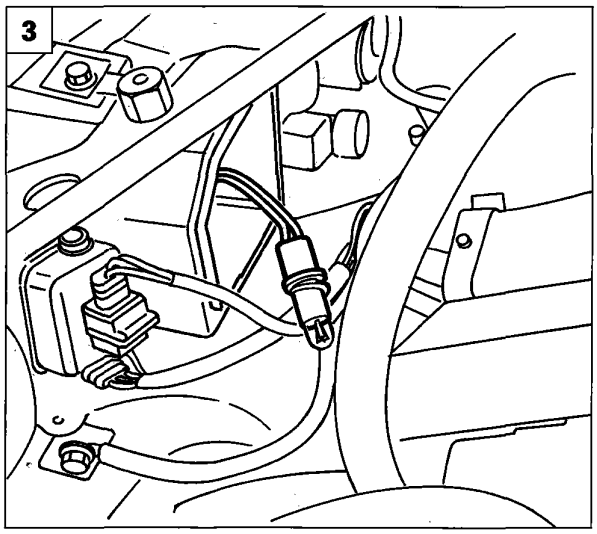

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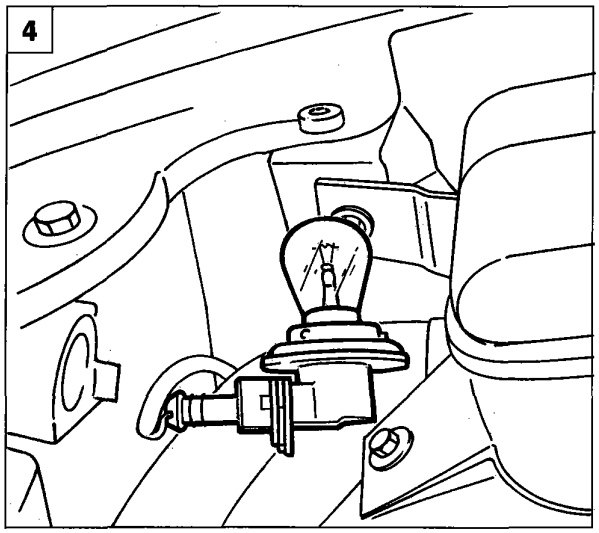


P4A020L04

REPLACING BULBS ON FRONT LIGHTS CLUSTER

Dipped and main beam headlamp bulbs

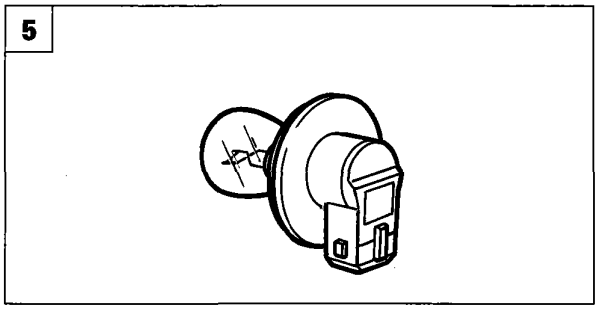
1. Remove the plastic protections by pressing on the lever indicated which secures them to the lights cluster.
2. Withdraw the bulb concered (after releasing the retaining lug) from the lights cluster. Disconnect the bulb from its connector and replace it; do not touch it with your bare hands.

Side light bulbs

3. Carry out operation 1 and disengage the bulb holder from the lights cluster and then disengage the bulb from the holder.

Direction indicators bulb

4. Rotate the bulb holder by 90 degrees and withdraw it from the lights cluster.
5. Disconnect the connector from the bulb holder and disconnect the bulb from the holder by rotating it.



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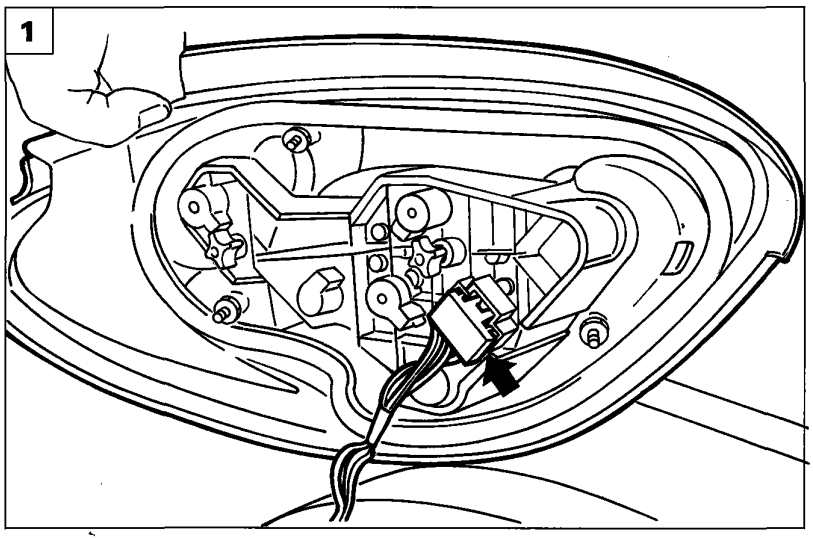
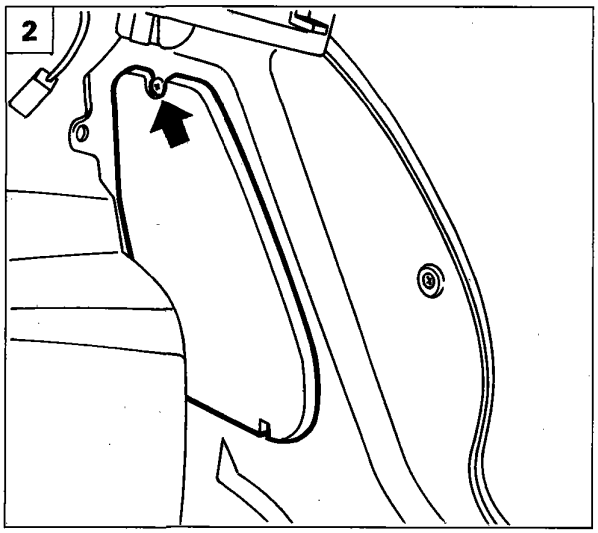


P4A025L01

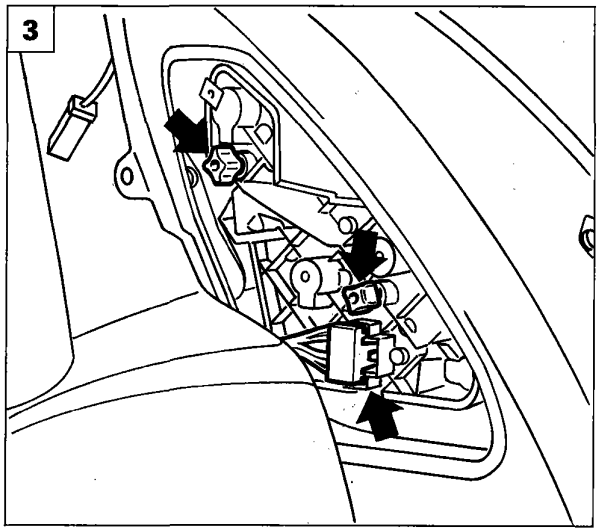
1. Disconnect the connection indicated and remove the rear lights cluster from the car.



P4A025L02

Replacing rear lights cluster bulbs

2. Undo the screws indicated and remove the trim.
3. Undo the stops indicated, disconnect the connection shown and remove the bulb holder from the car.
4. Remove the bulbs concerned.



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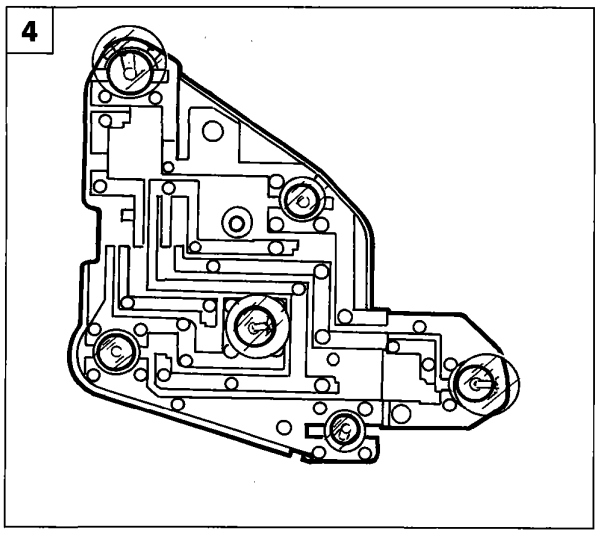

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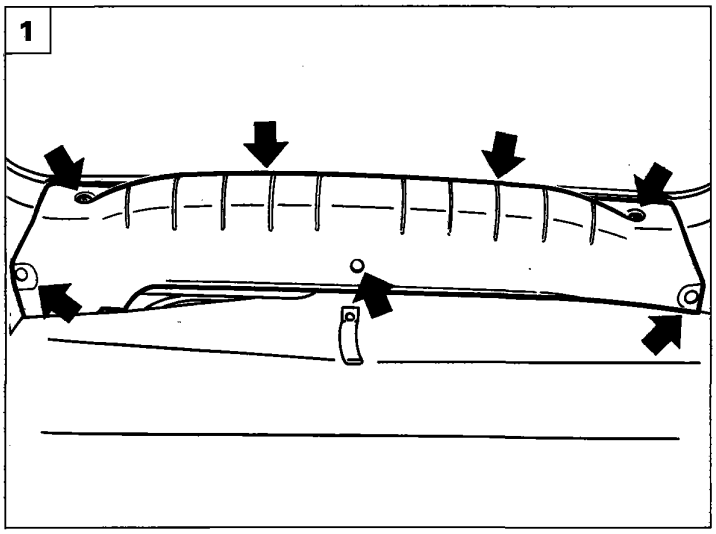
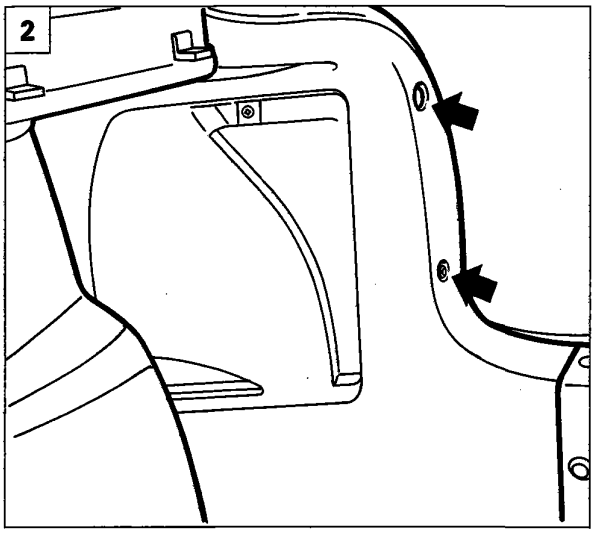


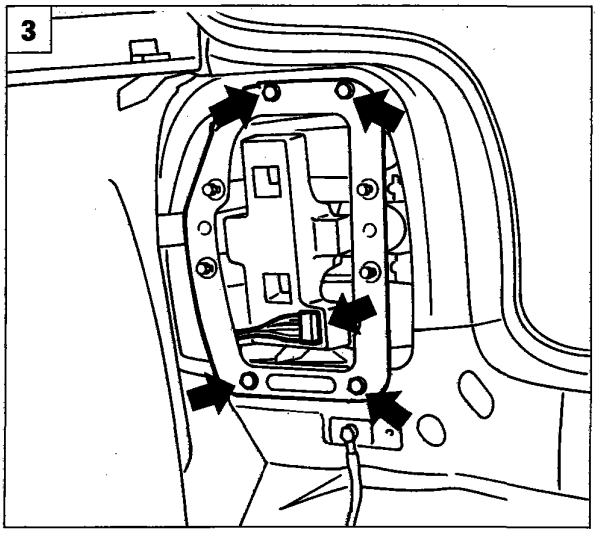
P4A026L01



P4A026L02

Removing-refitting rear lights cluster *(5-door version)*

1. Undo the screws and remove the buttons securing the trim on the rear crossmember and remove the trim.
2. Undo the screw indicated and remove the lights cluster trim.
3. Undo the screws securing the lights cluster to the body shell and disconnect the relevant connector.
4. Remove the lights cluster from the car.



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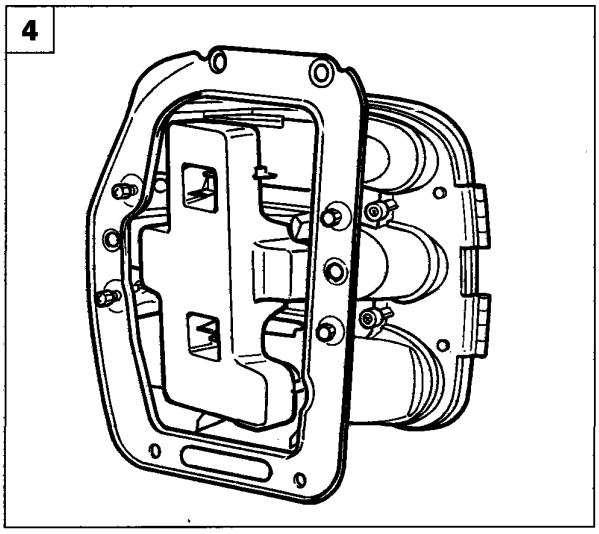

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Service News

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Assistenza Tecnica

Fiat Brava All versions

55
13.96

5540 A 461 AE/CC **REAR LIGHT CLUSTER**
instructions for replacement

To complete the description in section 55 of the Service Manual, the next page contains the instructions for replacing the rear light cluster on the model in question.

IF60D6

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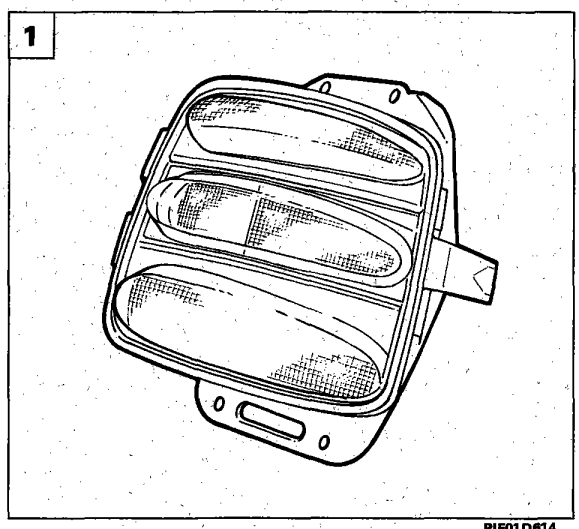
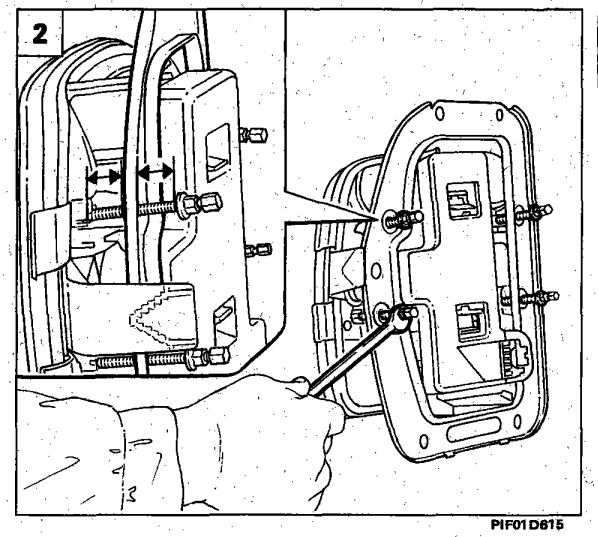
IF61D6



PIF01D614

Replacing rear light cluster

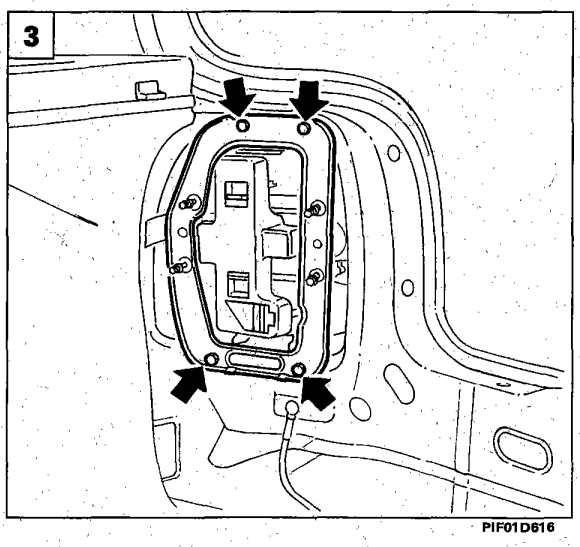
1. Remove the rear light cluster as described on page 26 - sec. 55 of the manual.
2. Make sure, before fitting the rear light cluster, that the frame fixing the light cluster to the bodyshell, is positioned at the centre of the seal pre-loading adjustment screws; if this is not the case, adjust the screws as shown in the diagram.
3. Correctly position the rear light cluster on the bodyshell and tighten the fixing bolts shown in the diagram.
4. Gradually tighten the bolts in the order shown, then continue the tightening until they actually break.



PIF01D615

The operation described above allows the right pressure for the rear light cluster perimeter trim on the bodyshell.

NOTE *Complete the fitting of the elements removed, reversing the order of the operations carried out for the removal of the rear light cluster.*



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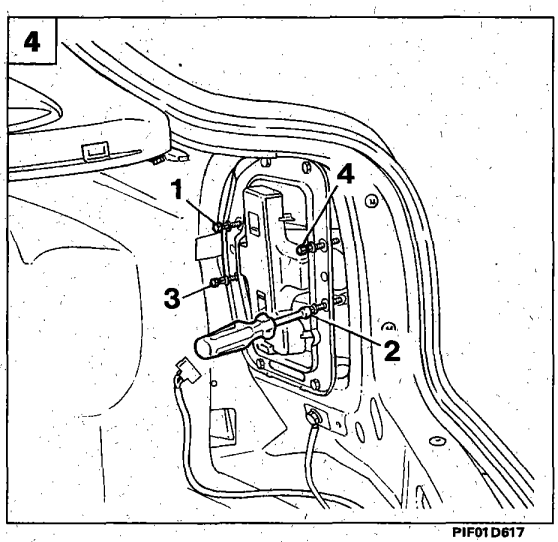

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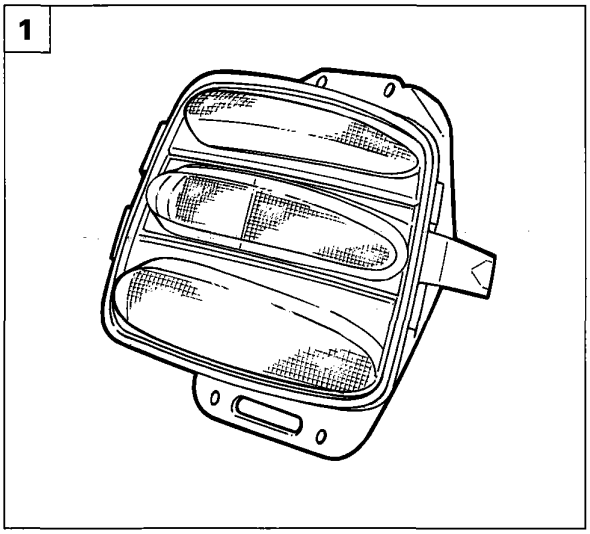

P4A026L05

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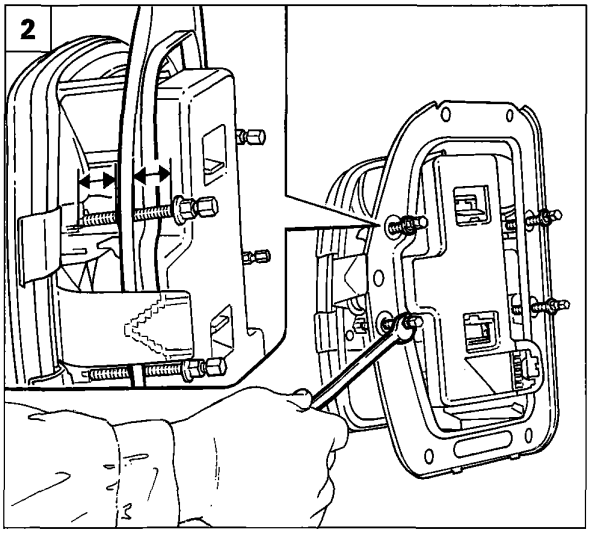


P4A026L06

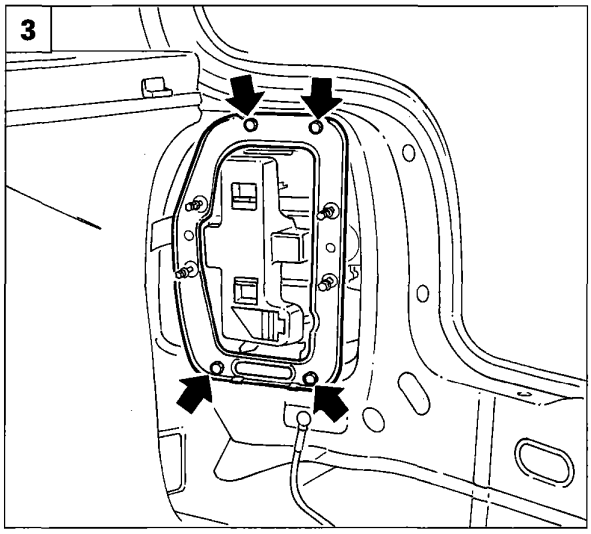
Replacing tail light cluster

1. Remove the tail light cluster as described on page 26.
2. Before fitting the tail light cluster, ensure that the frame fastening the light cluster to the body is positioned half way along the length of the gasket preload adjustment screws. Otherwise adjust the screws as shown in the figure.
3. Correctly position the tail light cluster on the body and tighten the retaining screws shown in the figure.
4. Gradually tighten the screws in the order shown, then continue to tighten to break point.

The above operation allows the gasket between the tail light cluster and body to be adjusted to the correct pressure.

NOTE *Finish refitting the parts by reversing the instructions for tail light removal.*

3



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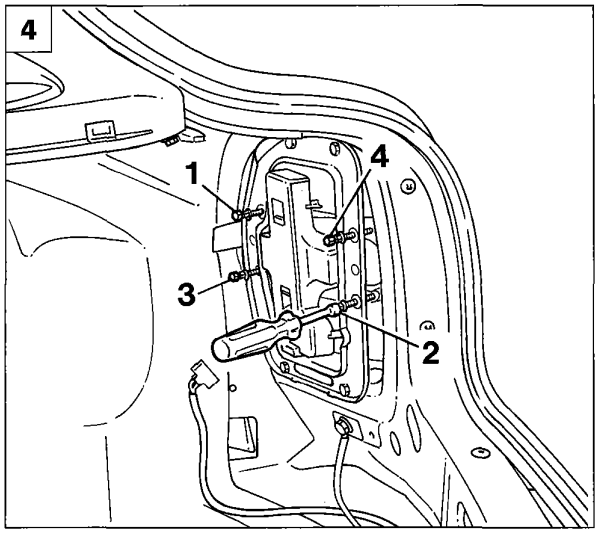

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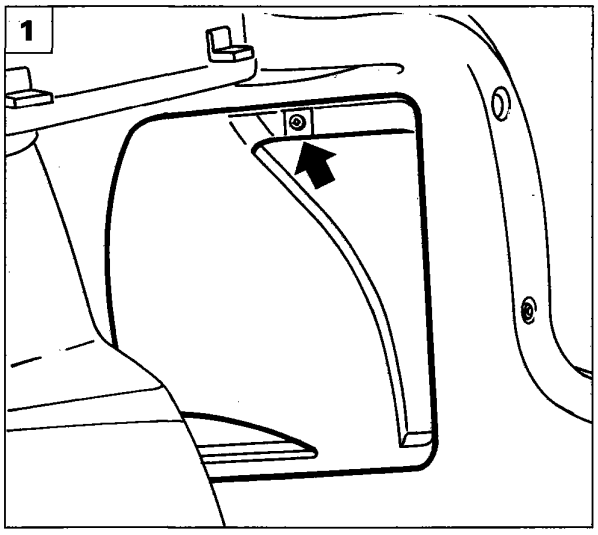
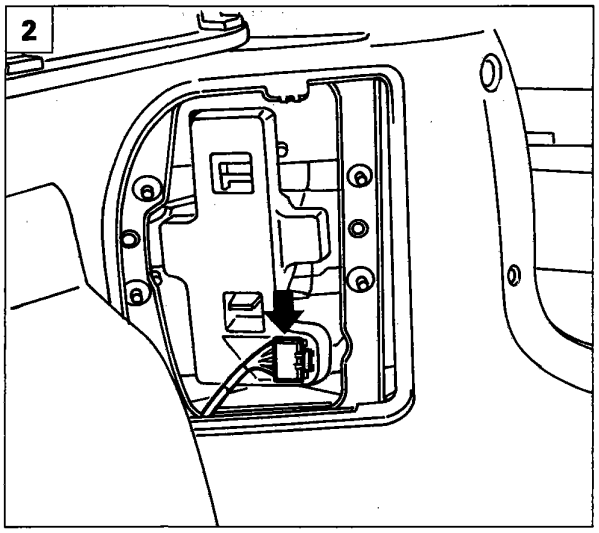


P4A027L01

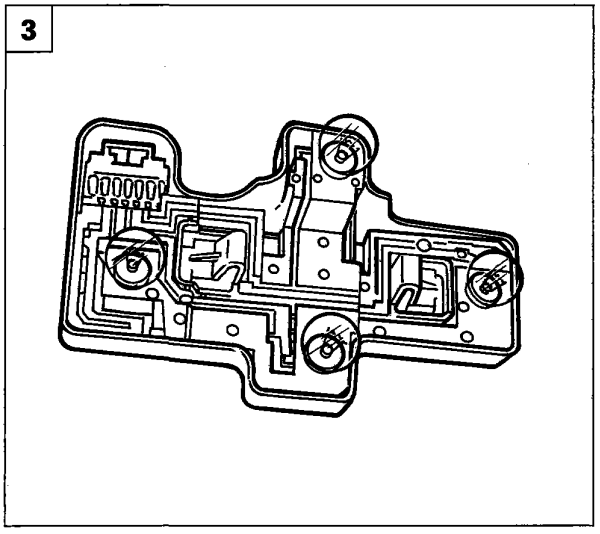
Replacing rear lights cluster bulbs *(5-door version)*

1. Undo the screw indicated and remove the trim.



P4A027L02

2. Disconnect the wiring connector and withdraw the bulb holder unit from the car.



P4A027L03

3. Replace the bulbs concerned.

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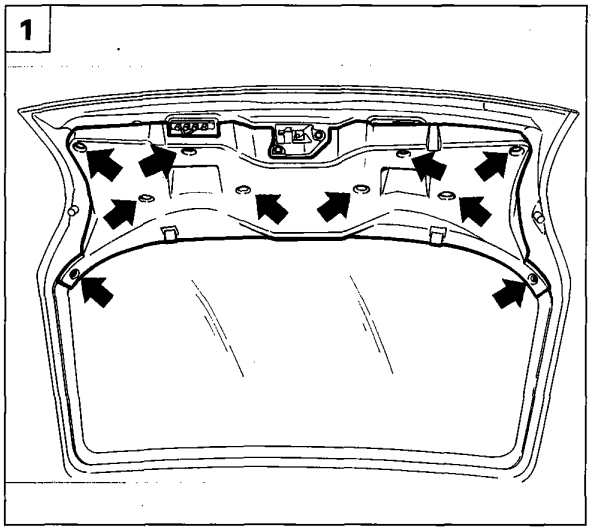
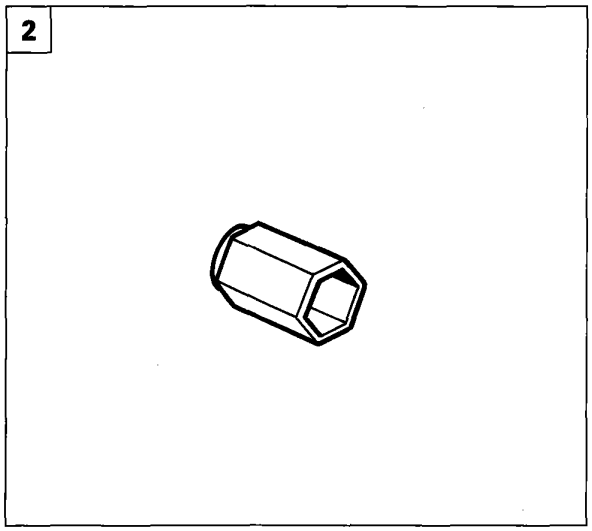


P4A028L01

ADDITIONAL STOP LIGHT

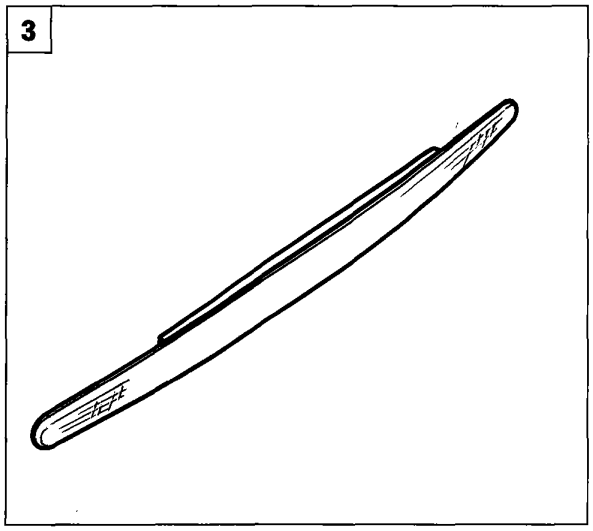
Removing-refitting *(5-door version)*

1. Remove the trim by undoing the screws and buttons securing it to the tailgate.



P4A028L02

2. Undo the plastic nuts securing the additional stop light to the tailgate.



P4A028L03

3. Remove the additional stop light from the car.

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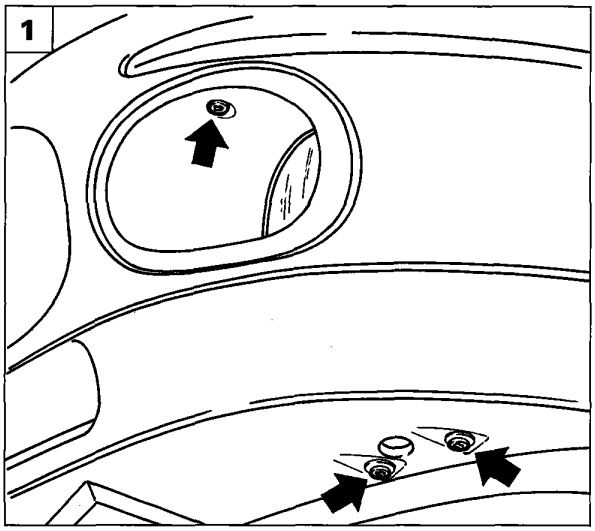

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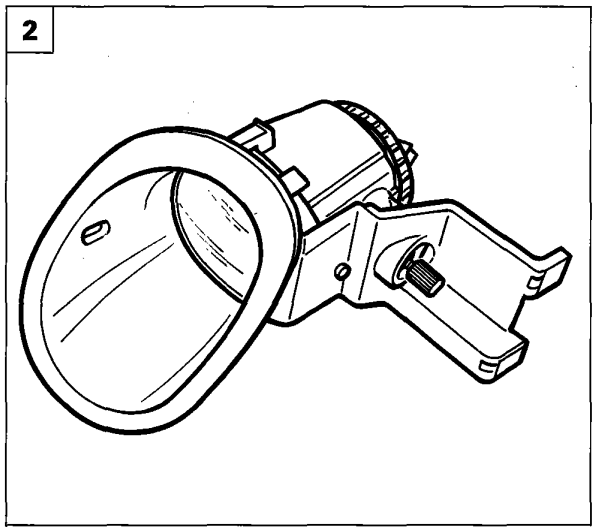

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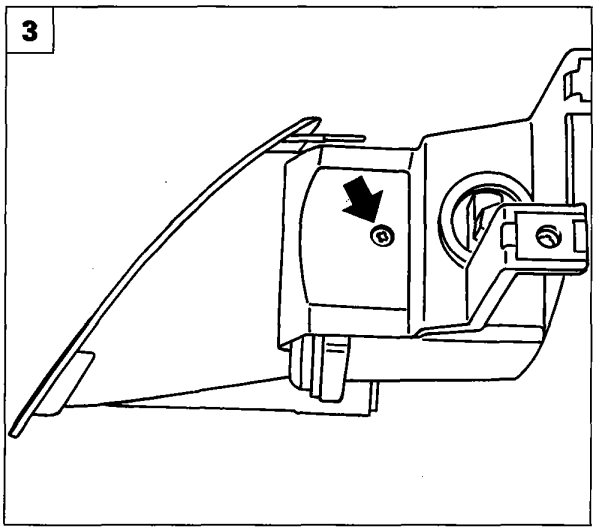
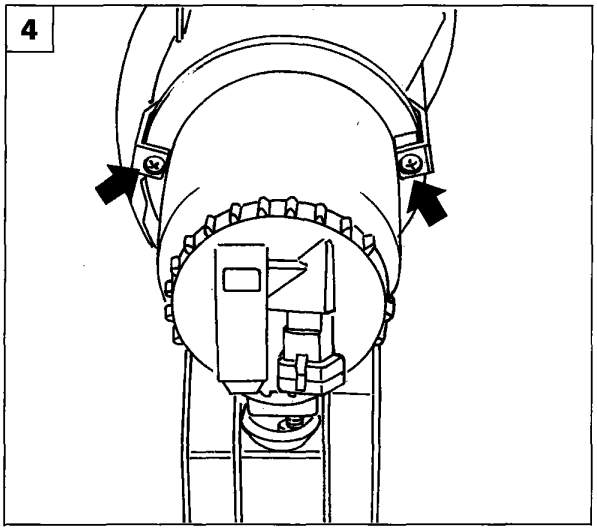


P4A029L03

FRONT FOG LAMPS

Removing-refitting

1. Place the car on ramps, raise it and undo the screws shown in the figure.
2. Remove the front fog lamp from the car.
3. Undo the screw shown in the figure.
4. Undo the screws shown in the figure.
5. Detach the frame from the front fog lamp.



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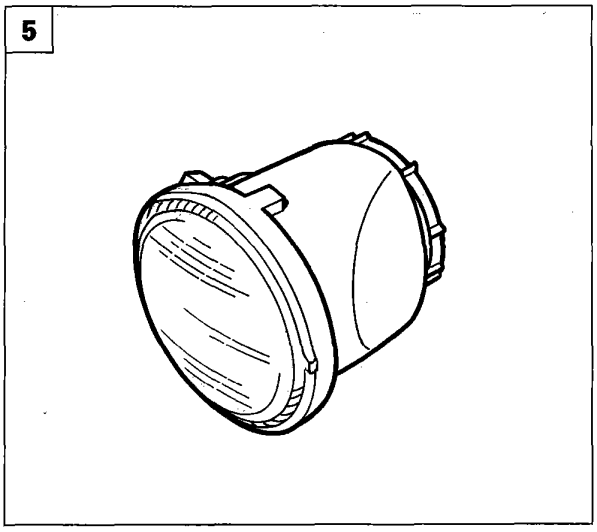

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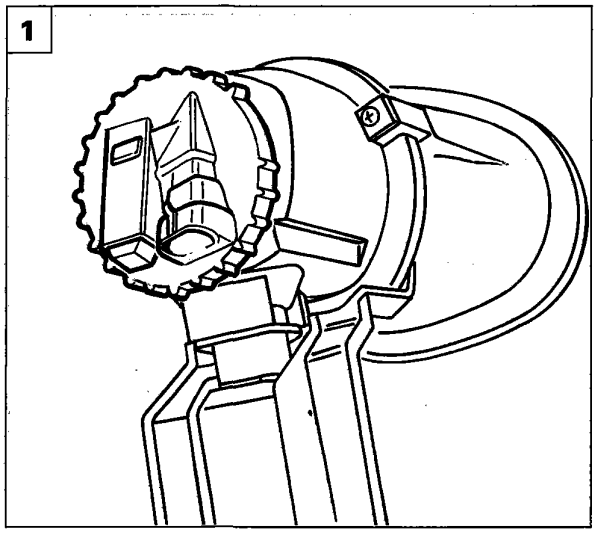

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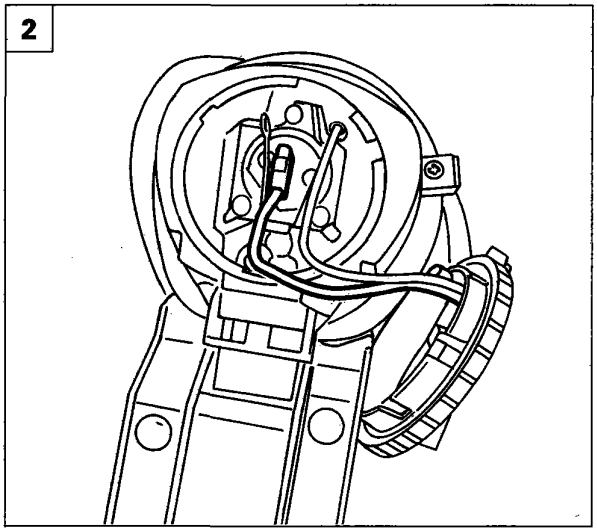

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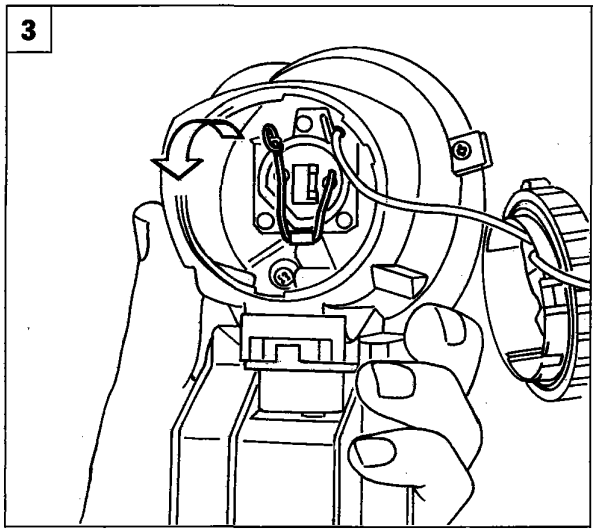


P4A030L03

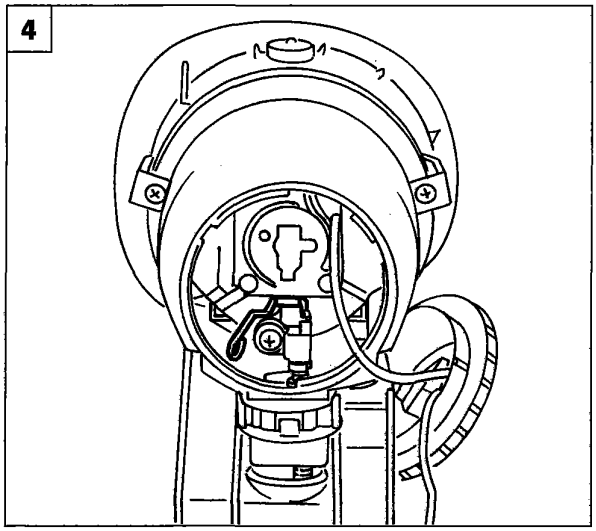
Replacing front fog lamp bulb

Carry out operations 1, 2, 3 described on the previous page.

1. Undo the cover located at the rear of the front fog lamp assembly.
2. Disconnect the wiring connection indicated.

3-4. Turn the lever indicated which locks the bulb in question.

5. Withdraw the bulb from the bulb holder.



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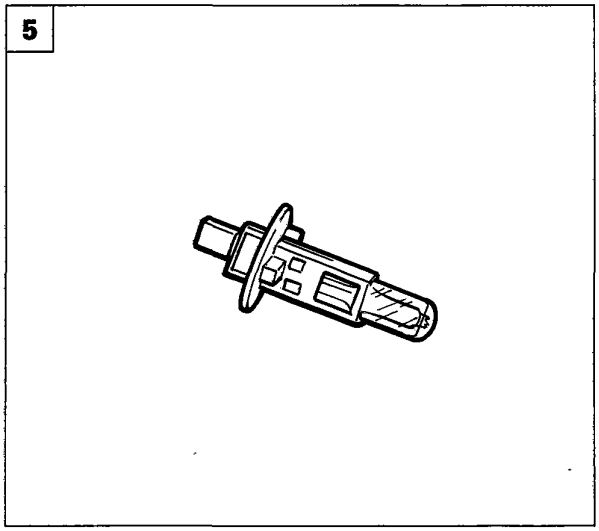

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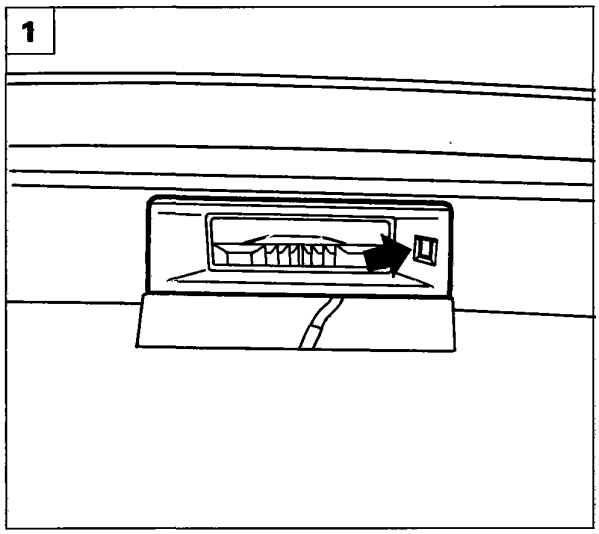

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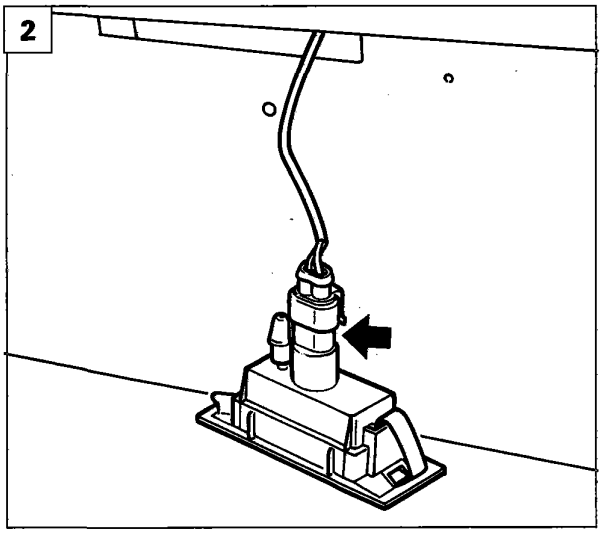

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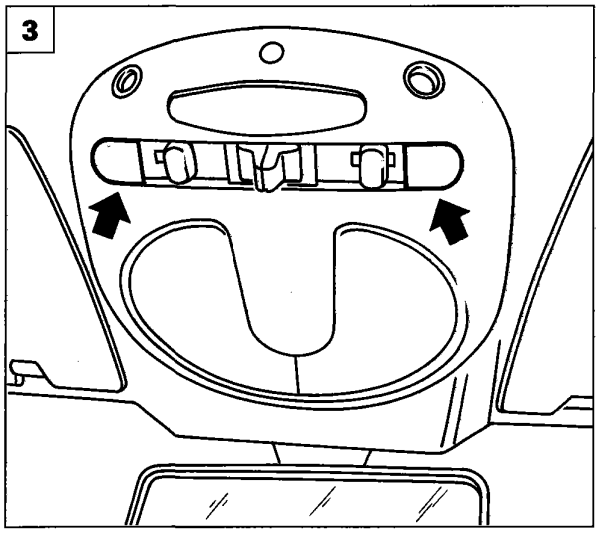


P4A031L03

NUMBER PLATE LIGHT

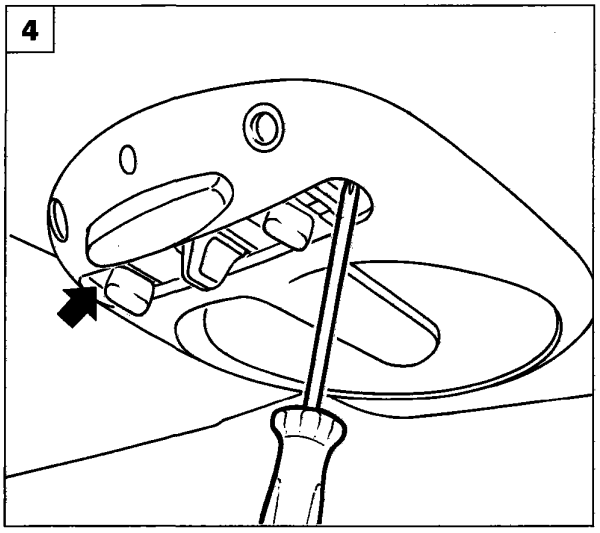
Removing-refitting

1. Release the stop (arrowed) to enable the lamp unit to be withdrawn from the rear bumper.
2. Disconnect the connector indicated and remove the lamp.

COURTESY LIGHTS

Removing-refitting top courtesy light

3. Remove the cover pieces (arrowed).
4. Undo the screws (arrowed) securing the courtesy light to the bodywork.
5. Disconnect the wiring connections and remove the courtesy light from the car.



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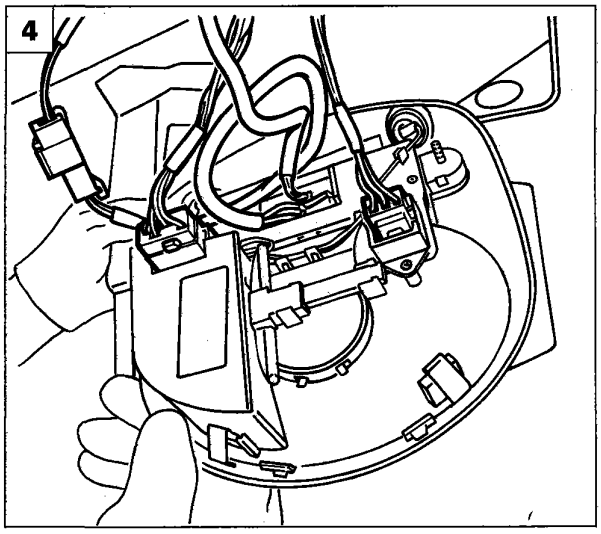

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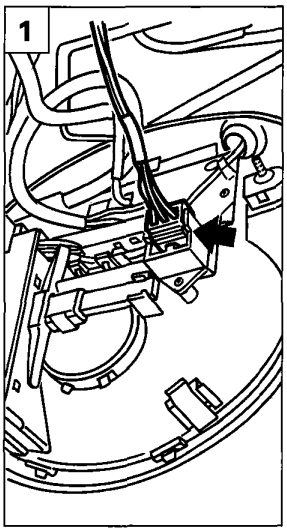

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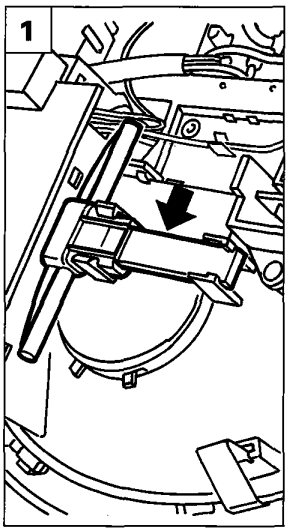

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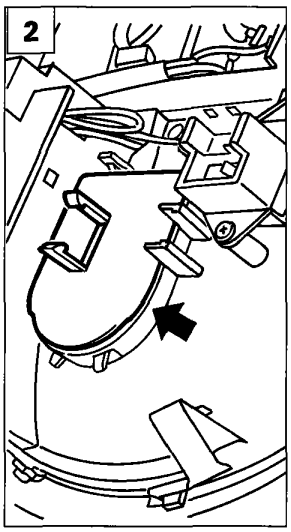

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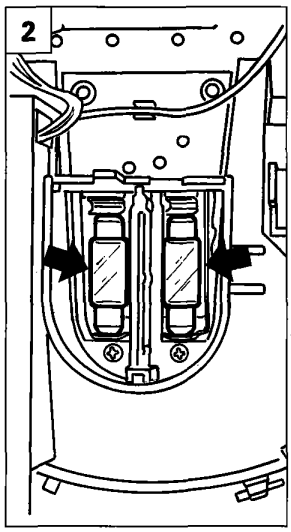

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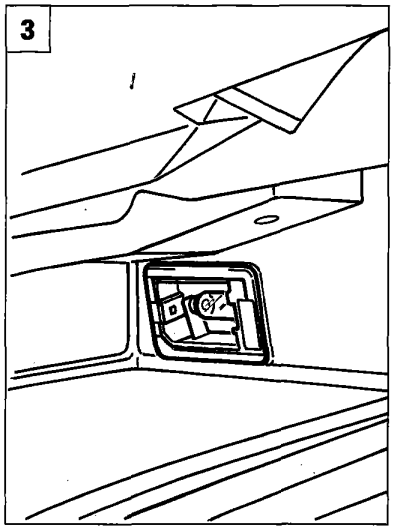

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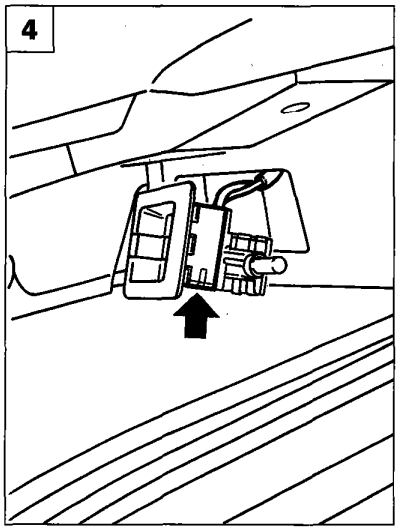

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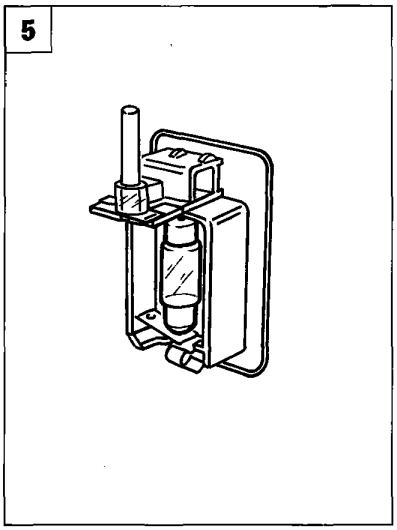

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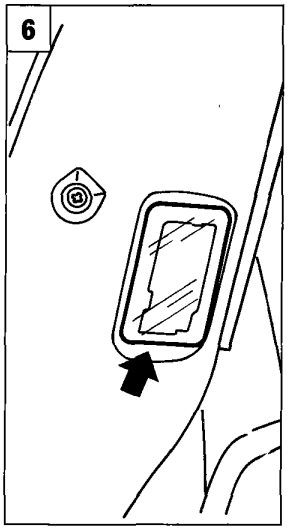

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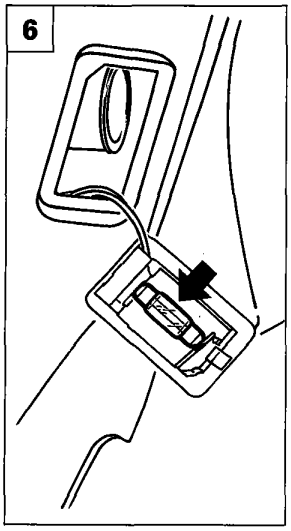

P4A032L09

Replacing courtesy light bulbs

1. Disconnect the connection and remove the part shown in the figure.
2. Remove the protection and replace the bulbs concerned.

Removing-refitting glove compartment light and replacing bulb

3. Disengage the edges of the courtesy light and remove it from its seating.
4. Disconnect the connector shown and remove the light from the glove compartment.
5. Replace the bulb concerned.

Removing-refitting and replacing luggage compartment bulb

6. Remove the courtesy light from its seating, disconnect the connector and remove the light.

NOTE *The bulb can be replaced without removing the courtesy light from the car.*

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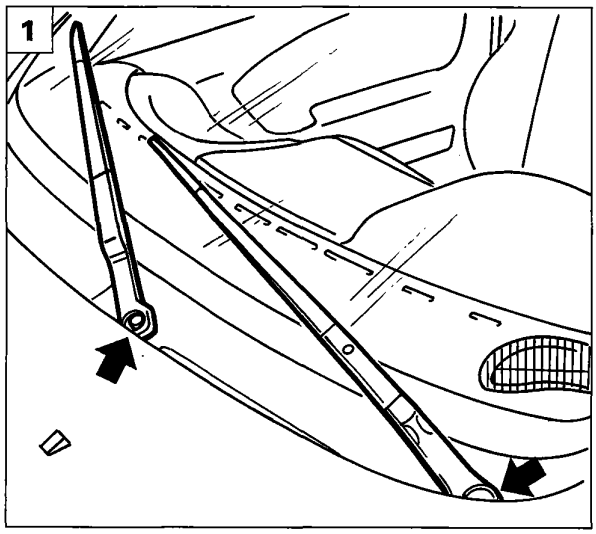
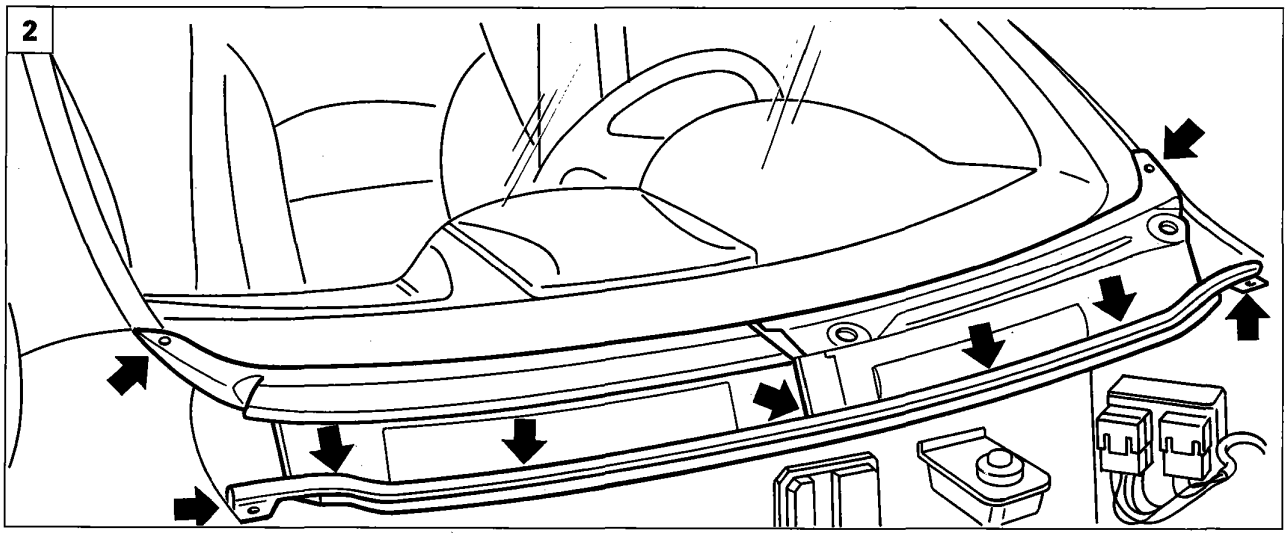


P4A033L01

REMOVING-REFITTING WINDSCREEN WIPER MOTOR

1. Remove the protective covers, then undo the nuts and remove the windscreen wiper arms.
2. Raise the bonnet, undo the screws indicated and remove the trim under the windscreen.



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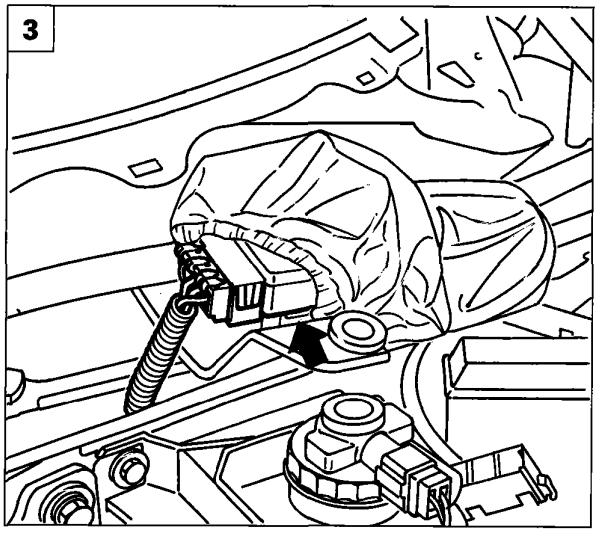

P4A033L03

3. Lift the windscreen wiper motor protection and disconnect the connector indicated.

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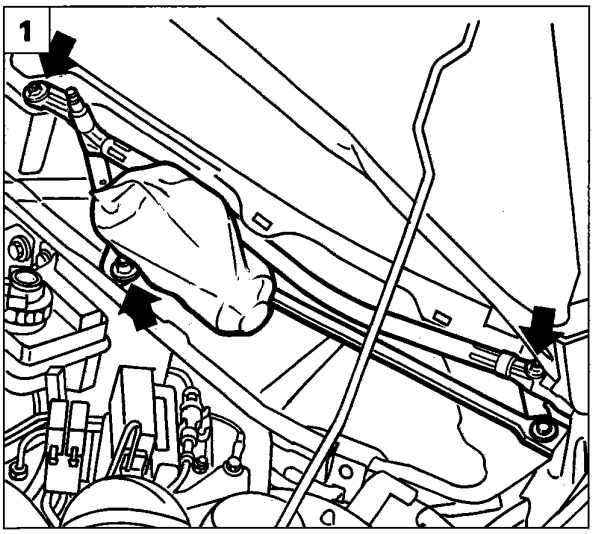

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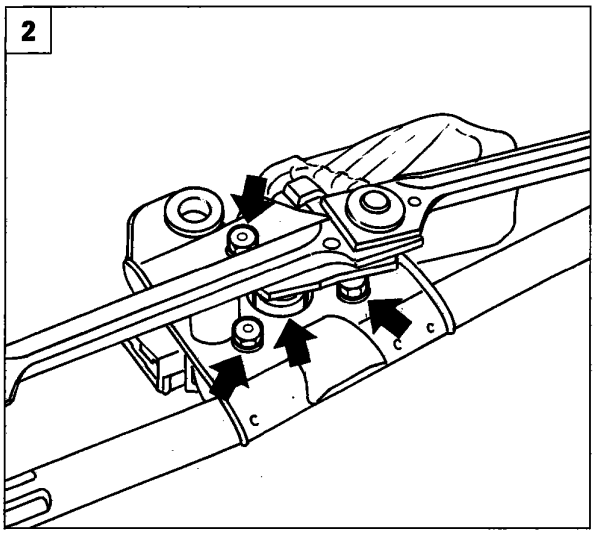
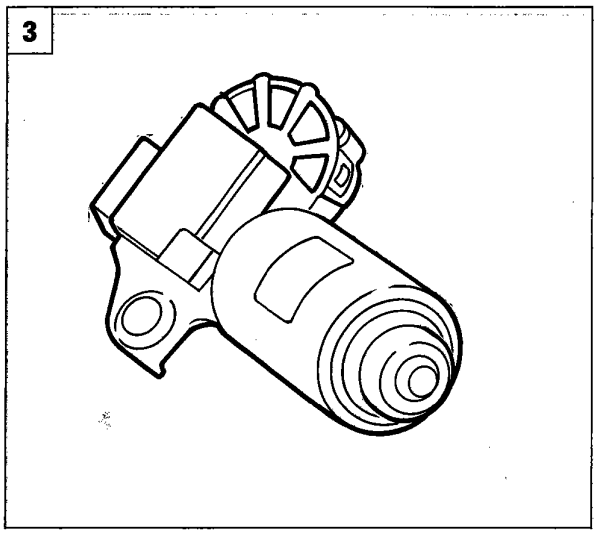


P4A034L02

1. Undo the screws indicated and remove the windscreen wiper assembly from the car.
2. Undo the bolts and nut indicated.
3. Separate the windscreen wiper motor from the linkage.

Replacing windscreen wiper blades

4. To replace the windscreen wiper blades, press the button shown in the figure, and withdraw in the direction of the arrow.



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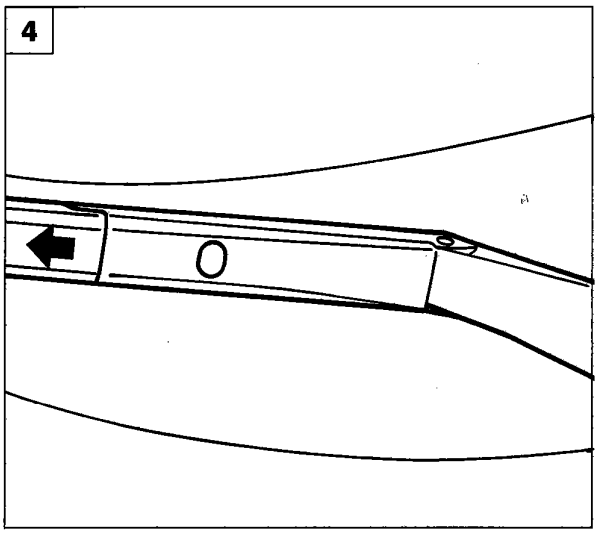

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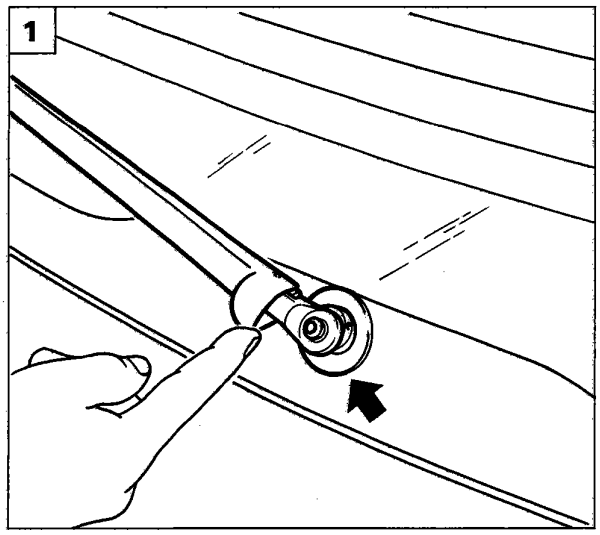


P4A035L01

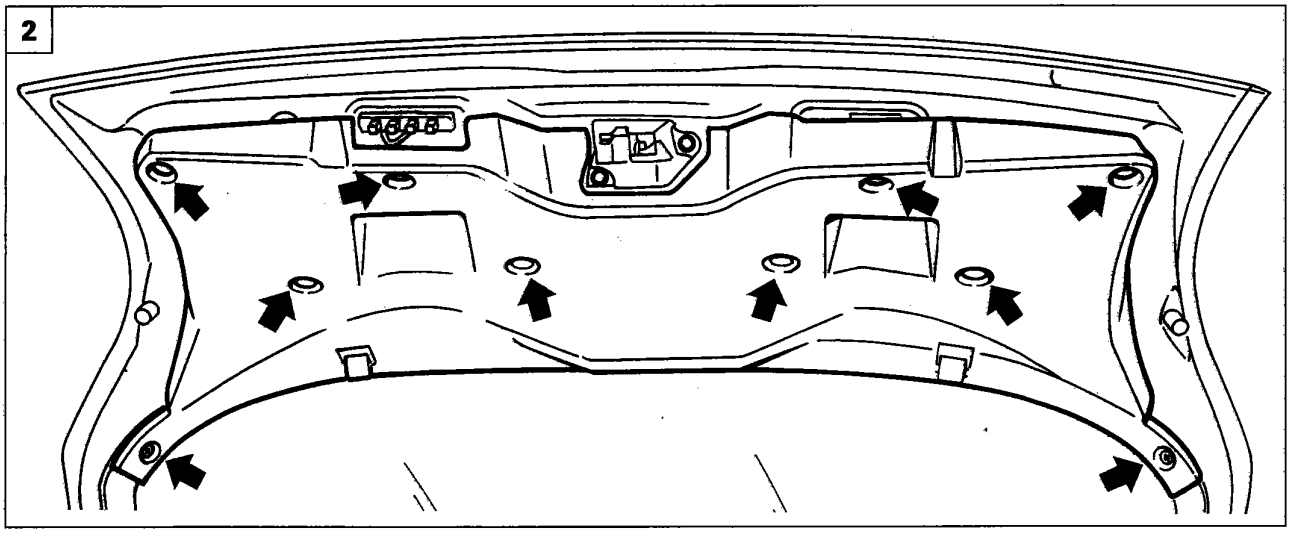
REAR WINDOW WIPER MOTOR

Removing-refitting

1. Raise the protection indicated in the figure, undo the nut and remove the rear window wiper arm.
2. Lift the tailgate, undo the attachment buttons and remove the trim.
3. Disconnect the electrical connection indicated, undo the socket-headed screws and remove the rear window wiper motor from the car.

Replacing rear window wiper blade

4. Working on both sides of the blade carrier as shown in the figure, remove the blade from the car.



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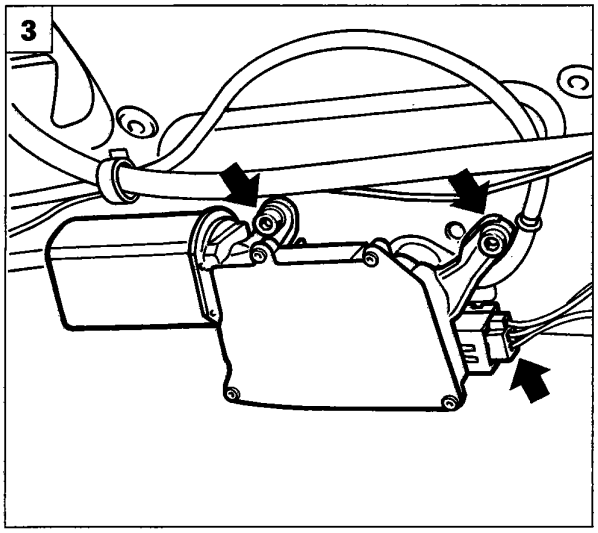

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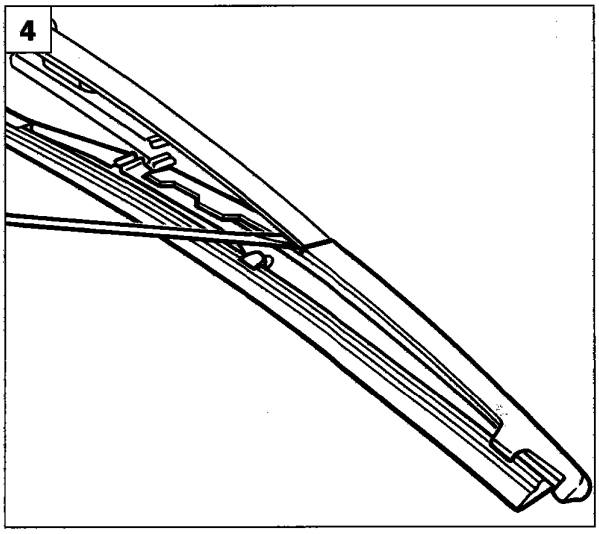

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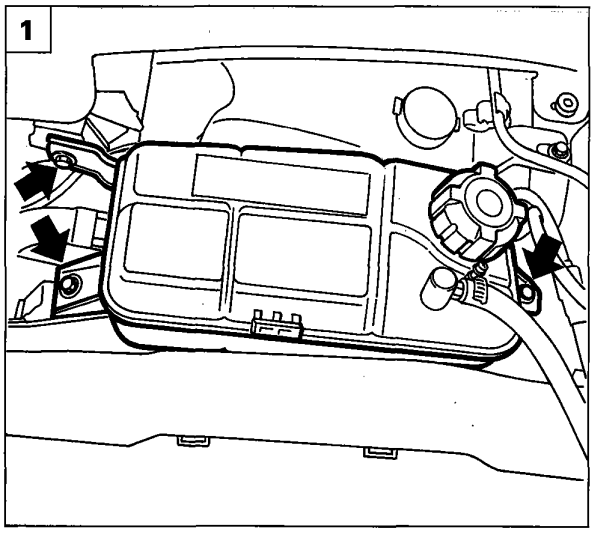


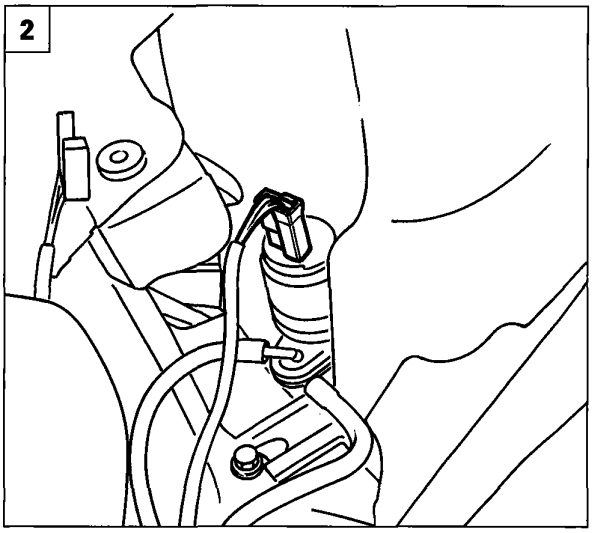
P4A036L01

WINDSCREEN/REAR WINDOW WASHER PUMP

Removing-refitting

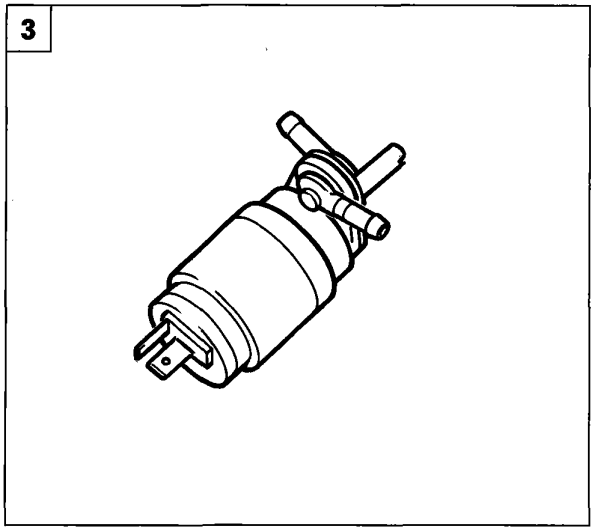
Lift the bonnet, drain the windscreen washer fluid in the reservoir and save it.

1. Undo the bolts securing the coolant reservoir to the body work and move the reservoir over to one side.



P4A036L02

2. Disconnect the pump supply connector.



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3. Remove the pump from the car.

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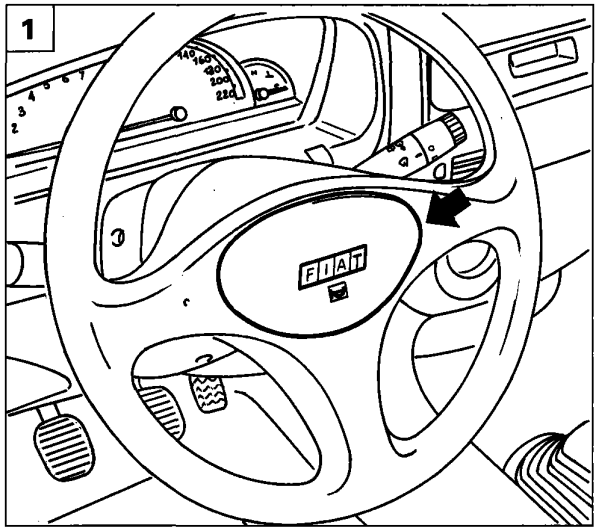

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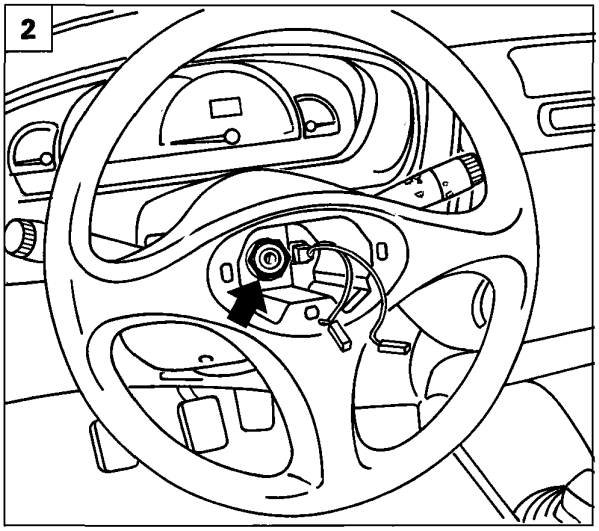

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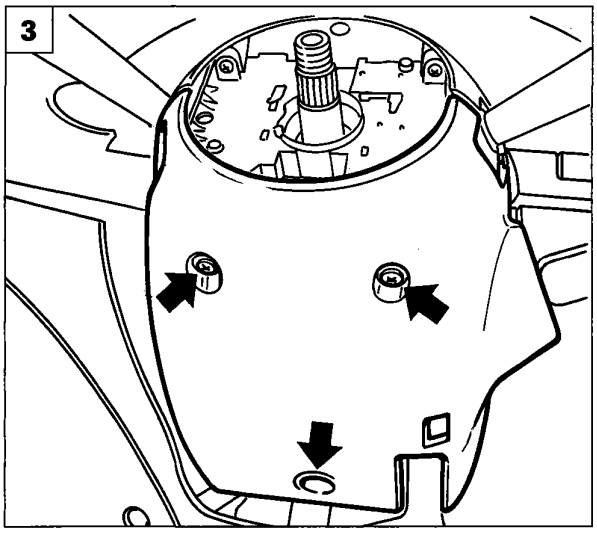


P4A037L03

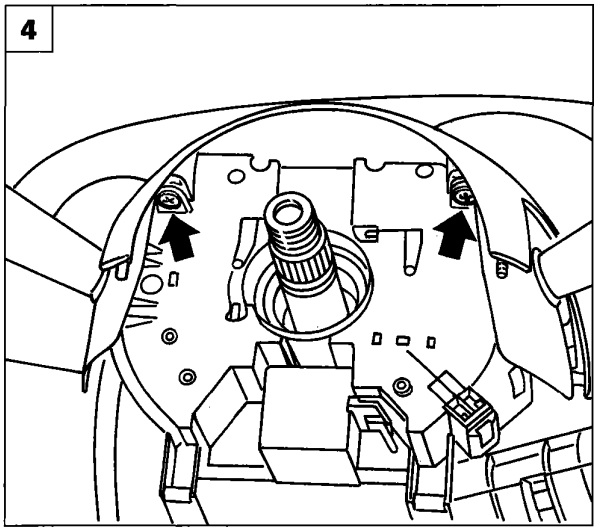
STALK UNIT

Removing-refitting

(for versions without Air Bag)

NOTE *For versions with Air Bag, refer to the relevant sub-section.*

1. Disconnect the battery's negative terminal, then remove the horn cover after disconnecting its connections.
2. Undo the nut (arrowed) and remove the steering wheel from the car.
3. Undo the screws (arrowed) and remove the steering column bottom shroud.
4. Undo the screws (arrowed) and remove the steering column upper shroud.
5. Undo the socket-headed screw and disconnect the relevant connectors, then remove the stalk unit from the car.



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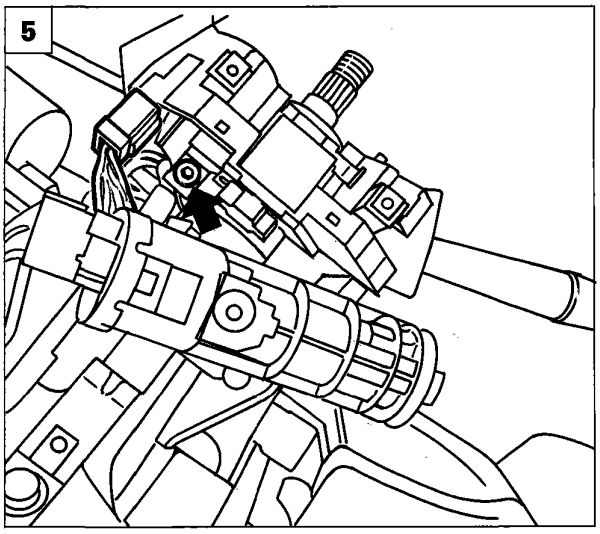

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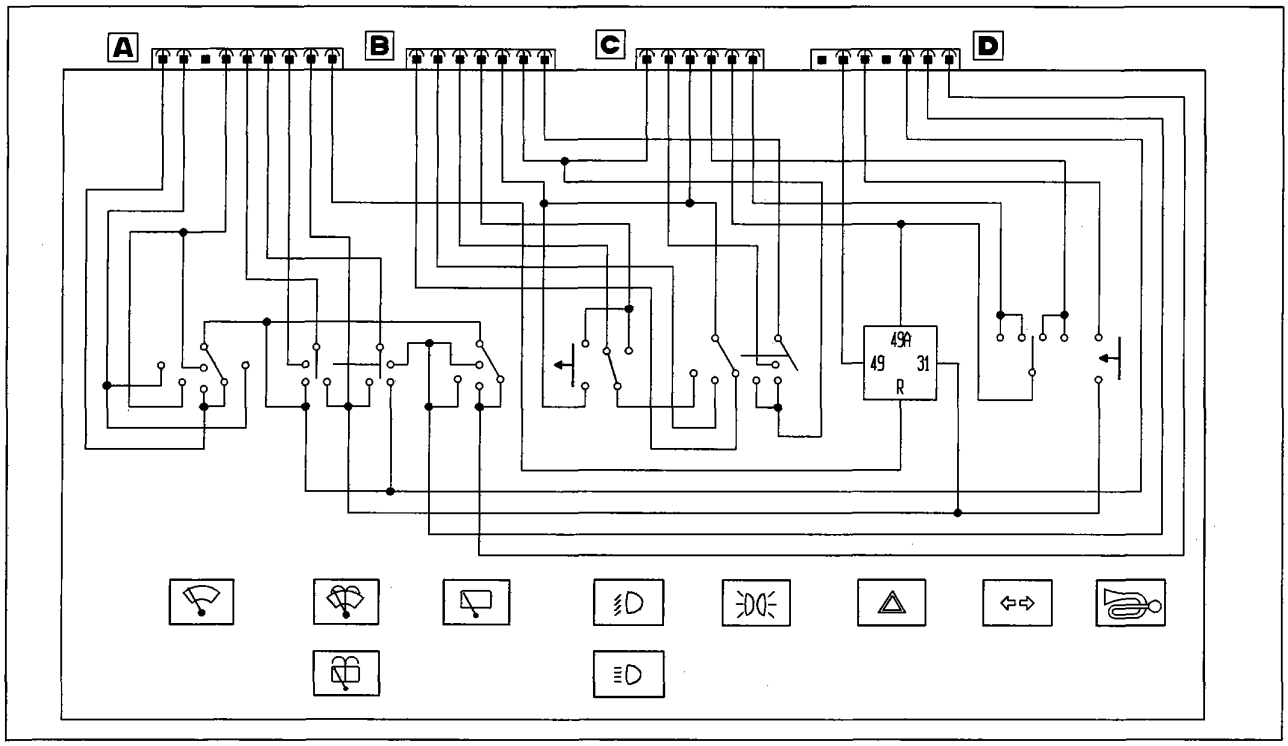
Wiring diagram of stalk unit



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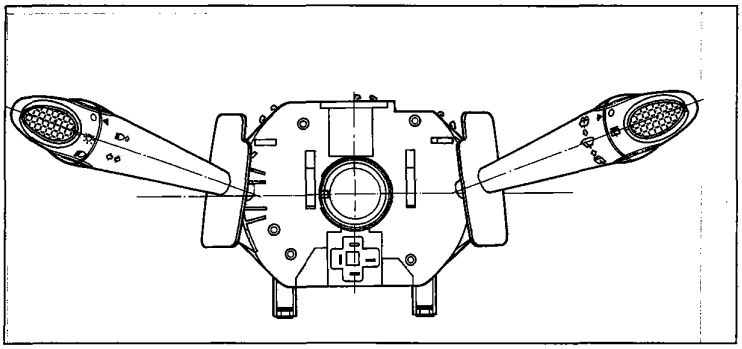

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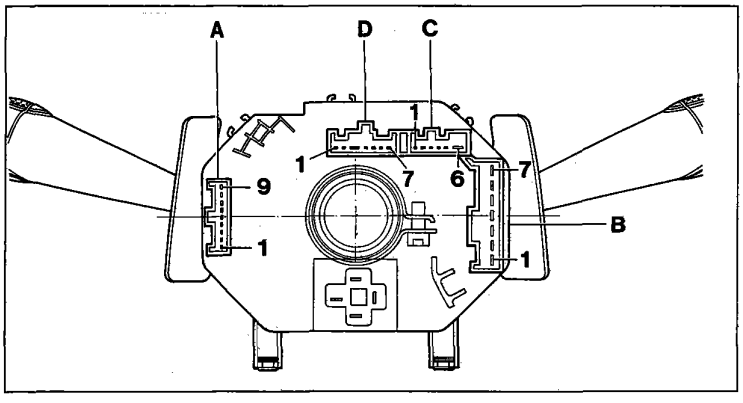
Front view of stalk unit



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Rear view of stalk unit

The letters indicate the sockets for the connectors of the corresponding names, and the numbers identify the relevant first and last pins.

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IDENTIFICATION OF CONNECTOR TERMINALS

Connector A

Pin no.	Wire colour	Circuit involved
1	HN	Windscreen wiper and brake
2	H	Windscreen wiper - High speed
3	-	Not connected
4	HG	Windscreen wiper Intermittent/Low speed
5	S	Bidirectional pump
6	SN	Bidirectional pump
7	SG	Headlamp washer control
8	N	Earth
9	-	Trailer indicators warning light

Connector B

Pin no.	Wire colour	Circuit involved
1	-	Northern Europe legislation
2	-	Northern Europe legislation
3	HR	Dipped headlamps
4	LR	Main beam headlamps
5	CB	Int/A
6	AG	Int
7	GV	Side lights

Connector C

Pin no.	Wire colour	Circuit involved
1	-	Not used
2	HL	Rear fog lamps enablement
3	AG	Int/A
4	AN	Right direction indicator
5	LR	Hazard lights indicator
6	A	Right direction indicator

Connector D

Pin no.	Wire colour	Circuit involved
1	-	Not connected
2	LB	+30
3	LN	Horn
4	-	Not connected
5	CN	Positive Windscreen wash/wipe-rear window washer
6	CL	Rear window wiper
7	CB	Rear window wiper and brake

STALK UNIT RIGHT LEVER

The stalk unit right lever controls the windscreen wiper (two speeds + intermittent operation) and the windscreen washer pump in accordance with the following logic:

- When the right lever is moved downwards one click, the switch is activated, switching on the windscreen wiper intermittent function at the rate of about 15 wipes a minute.
- When the switch is moved two clicks downwards, intermittent operation at about 35 wipes a minute is selected.
  Operation remains the same as above, except that the pause time between wipes is reduced to 2 seconds.
- By moving the switch three clicks downwards, continuous operation of the windscreen wiper is switched on at 45 wipes a minute.
  If from the STOP position the lever is pushed upwards and held in this position, continuous operation of the windscreen wiper is still selected, but with the lever in an unstable position.
  In other words, the windscreen operates for as long as the lever is held in that position, and stops as soon as the lever is released.

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Windscreen wiper motor

On the motor casing, there is a container with the switching circuit, consisting of a relay and a switch for the automatic return of the blades to the rest position.

Windscreen washer

When the right stalk unit lever is moved towards the driver, the windscreen washer pump is supplied. When the lever is released, the pump stops while the windscreen wiper remains on for about four seconds to finish wiping the window.

Windscreen washer pump

The windscreen washer pump is mounted directly on the fluid reservoir.

Rear window wiper

The rear window wiper and pump are controlled by the right stalk unit lever, which has two additional switches; one is of the ring type for controlling the rear window wiper and one controls the pump. The rear window wiper motor has a relay and a switch which constitute the control/reset circuit of the wiper blade.

A. When the ring switch located on the stalk unit lever is rotated, a terminal of the control relay is connected directly to earth by a cable which supplies the motor continuously.
B. When the lever is pushed towards the dashboard, the pump and rear window wiper are switched on simultaneously, and remain on until pressure on the lever stops.

Rear window washer

The pump is of the bidirectional type, and has two connections to which are connected two pipes conveying the fluid to the spray jets for the windscreen and the jet for the rear window.

The direction of the fluid and so its destination depend on the direction of rotation of the pump, which is determined by the position to which the stalk unit lever is pushed. In other words, by pushing the lever forwards in a horizontal direction, the pump is supplied sending the positive to the SN cable and the negative to the S cable.
The fluid is thus sent to the rear window and at the same time the rear window wiper is operated until the lever is released.

Headlamp washer

The headlamp washer system comprises a pump located on the windscreen washer fluid reservoir adjacent to the windscreen washer pump, to which two jets secured to the front bumper are connected via the appropriate pipes, and a timer.
With the dipped beam headlamps switched on, when the right stalk unit lever is moved towards the driver, in addition to activating the windscreen washer function, the headlamp washer function is also activated.

Operation

The timer is supplied by a 12 V positive coming directly from the battery and protected by a 20 A fuse connected to the front left earth via a terminal.
When the the dipped beam headlamps or front and rear fog lamps are switched on, by means of the stalk unit ring switch, a timer on its terminal is supplied, preparing the system for operation.

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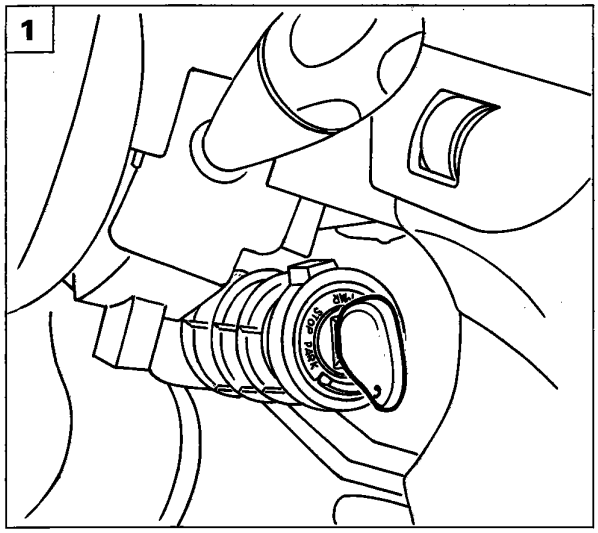

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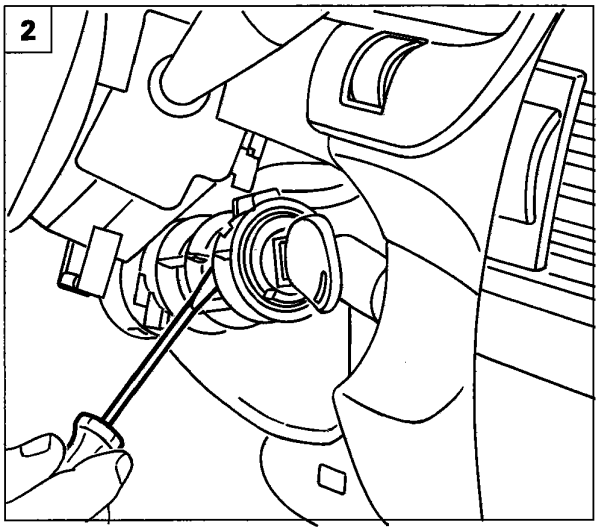

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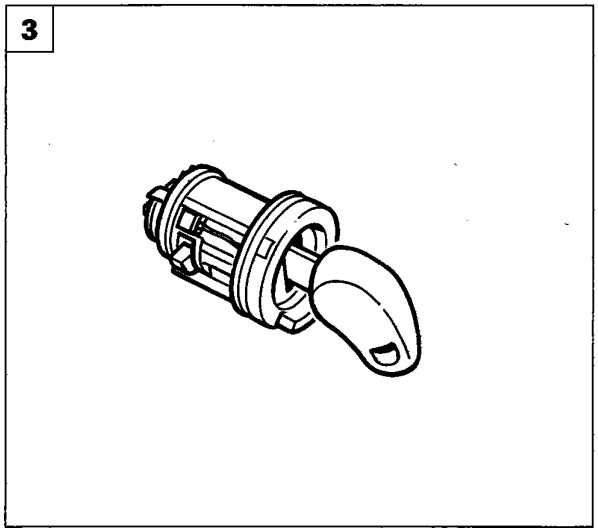

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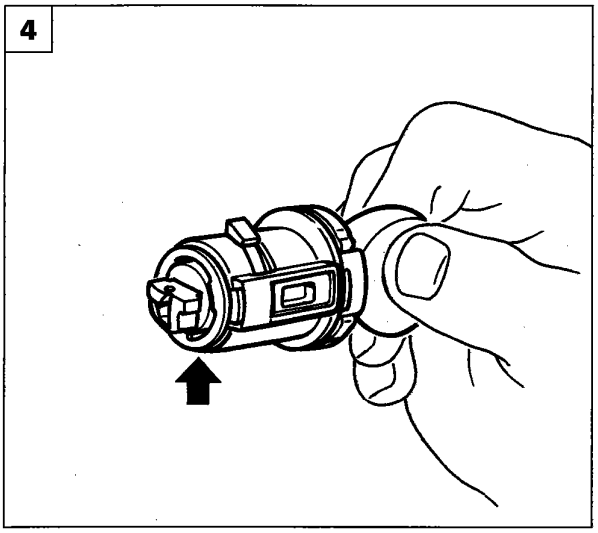
IGNITION SWITCH

Removing-refitting

1. Disconnect the battery's negative terminal and remove the top and bottom steering column shrouds. Insert the ignition key in the ignition switch block and switch the ignition ON.
2. Press on the retaining lug as shown in the figure.
3. Withdraw the block from the ignition switch.
4. Remove the circlip at the rear of the ignition switch block.
5. Press the lever for switching on the parking lights and turn the key so that the stop A is positioned as shown in the figure.



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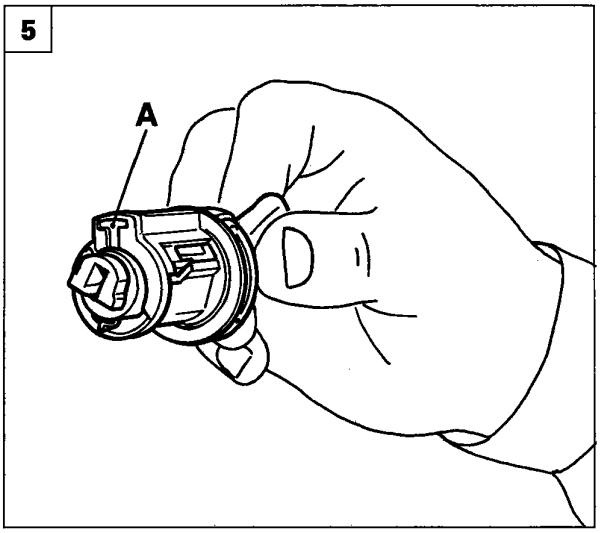

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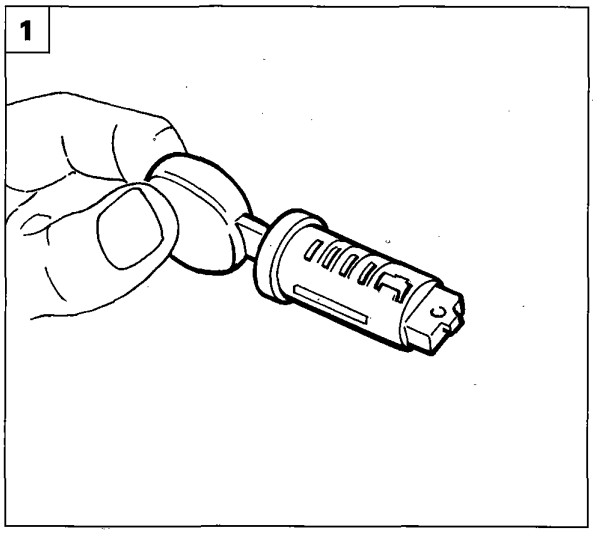

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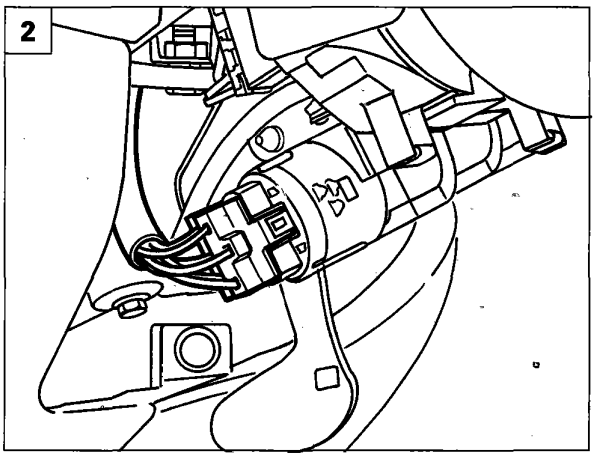


P4A042L02

1. Withdraw the ignition key block.

Removing-refitting ignition key

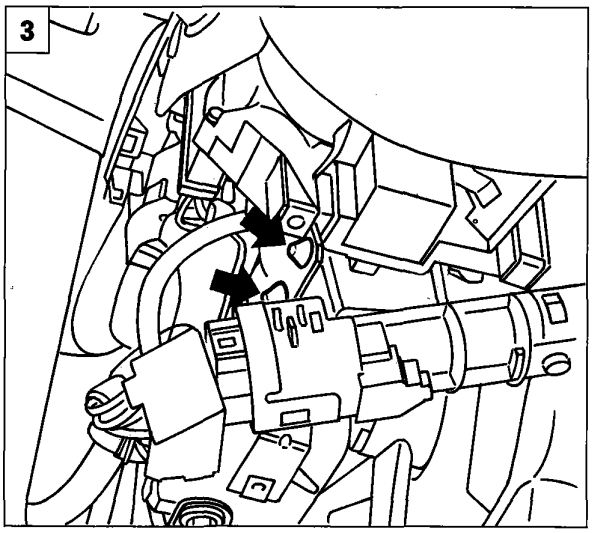
2. Disconnect the negative terminal from the battery and carry out operation 3 on page 37. Disconnect the wiring connections from the ignition switch.
3. Undo the shear bolts (arrowed).

These bolts must be renewed during assembly.

4. Remove the switch from the car.

Removing-refitting ignition switch contact block

5. Carry out operation 2. Disengage the block from the car as shown in the figure.



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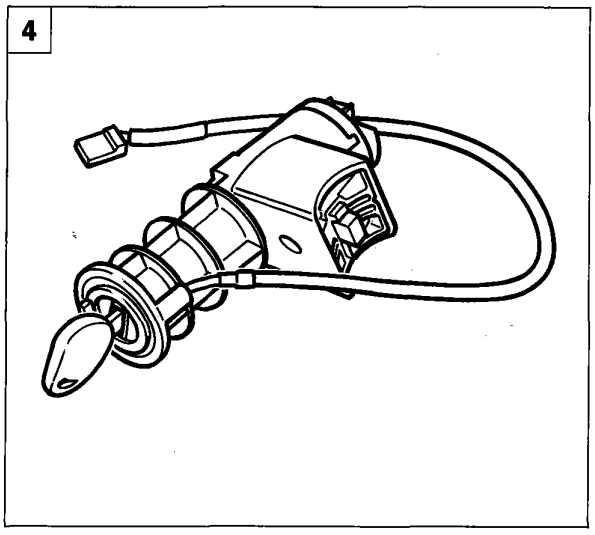

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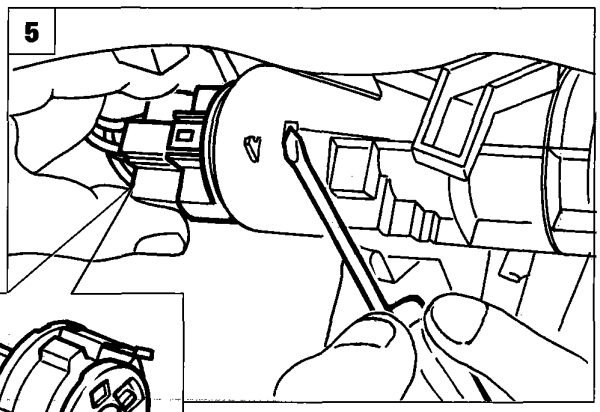

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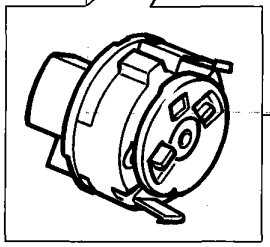
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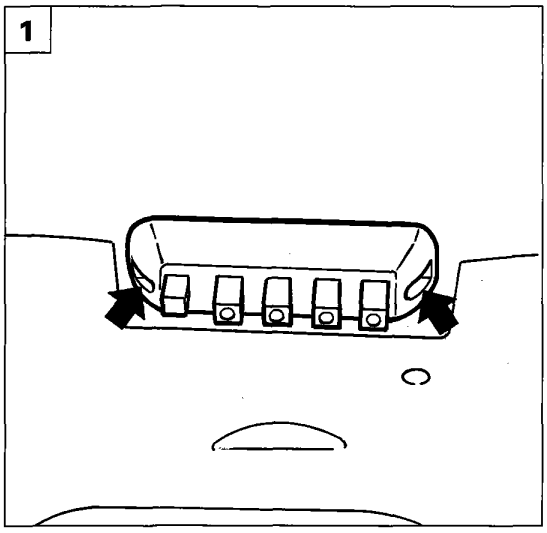

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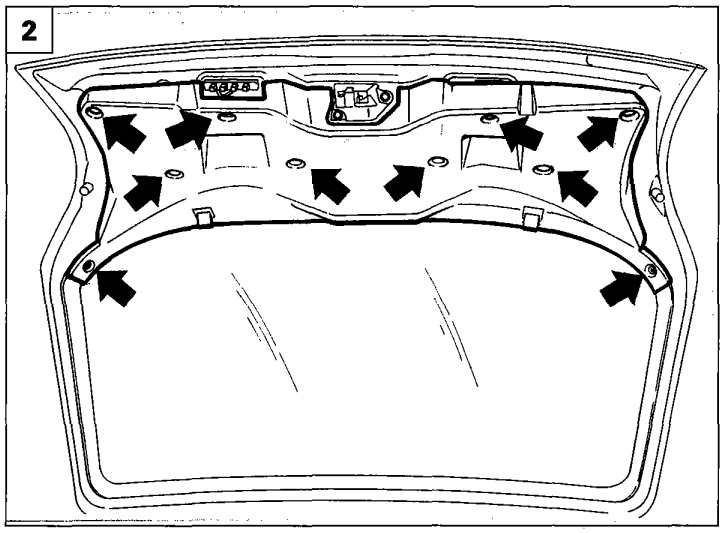

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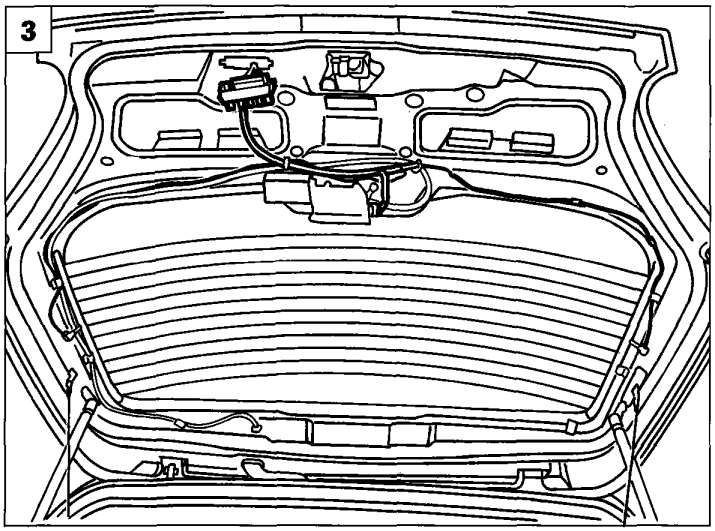

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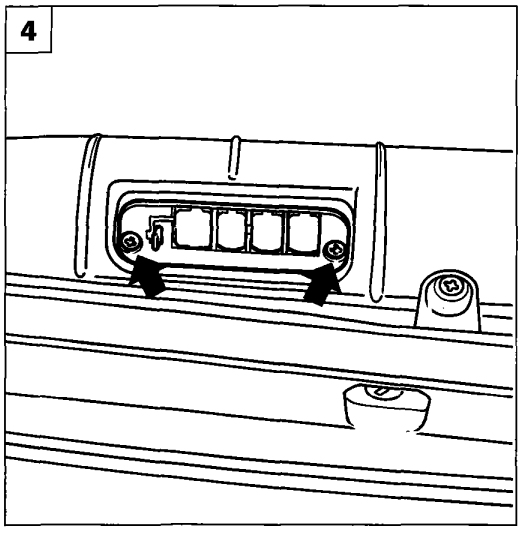
TAILGATE ELECTRICAL CONTACTS

Removing-refitting (on tailgate)

1. Undo the screws (arrowed) and remove the tailgate contact block.
2. Remove the tailgate trim by undoing the attachment buttons.
3. Disconnect the connections shown and remove the tailgate contacts with the relevant wiring.

Removing-refitting (on body shell)

4. Undo the screws (arrowed) and remove the contact block from the bodywork.
5. Disconnect the supply connectors and remove the contact block from the car.



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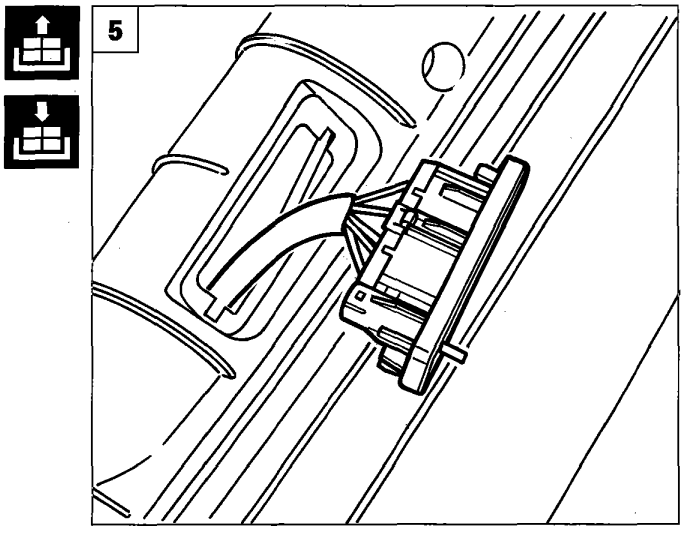

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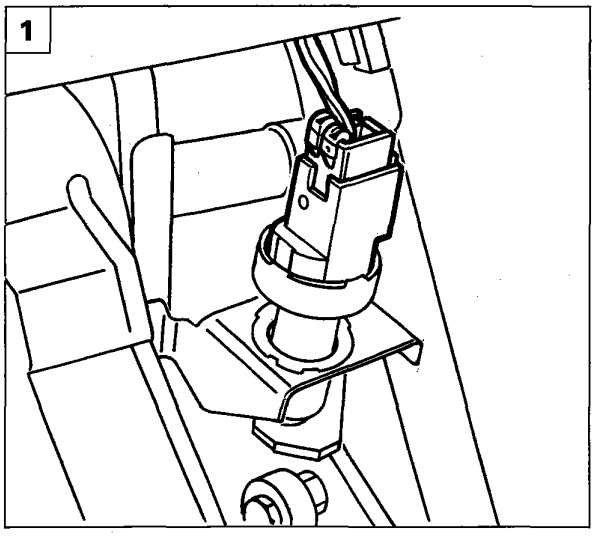

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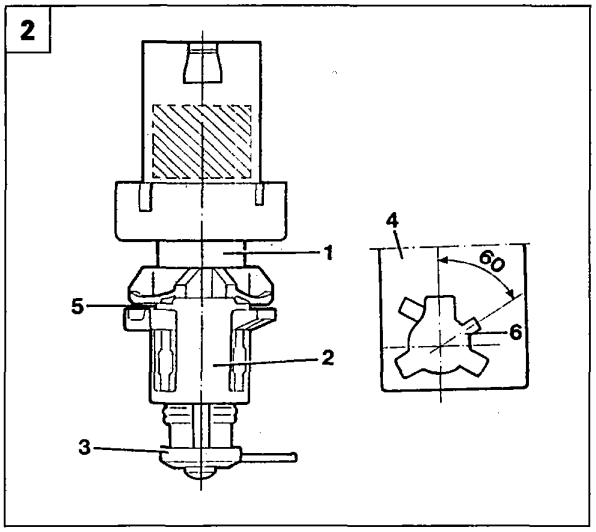

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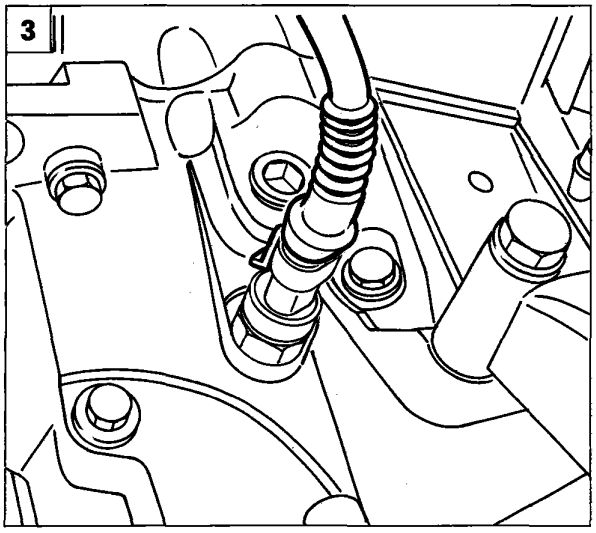

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STOP LIGHTS SWITCH

To replace the stop lights switch, closely follow the procedure below:

Dismantling

- Disconnect the electrical connections block;
- withraw the switch, turning it anti-clockwise by about 60°;

This operation is facilitated if a wrench is used on the hexagonal section (1) in the central figure.

Refitting

- Fit the new switch complete with bush (2) and spacer (3) in its seating (4) as follows:
- hold the brake pedal depressed, then fit the new switch in the engagement position on the bracket (4);
- turn the switch by about 60° clockwise to the limit of its travel. The retaining lug (5) should be heard engaging in its seating (6).

Regulation

- Release the brake pedal to the rest position; the switch will be positioned automatically in relation to the bush (2);
- press the pedal so that the working spacer (3) used as protection during adjustment can be removed and scrapped.

NOTE *The working spacer (3) releases an inner stop lug which prevents any further movement between the switch and bush (2).*

REVERSING LIGHTS SWITCH

3. Disconnect the connector indicated and undo the gearbox switch, taking care to avoid leakage of oil.

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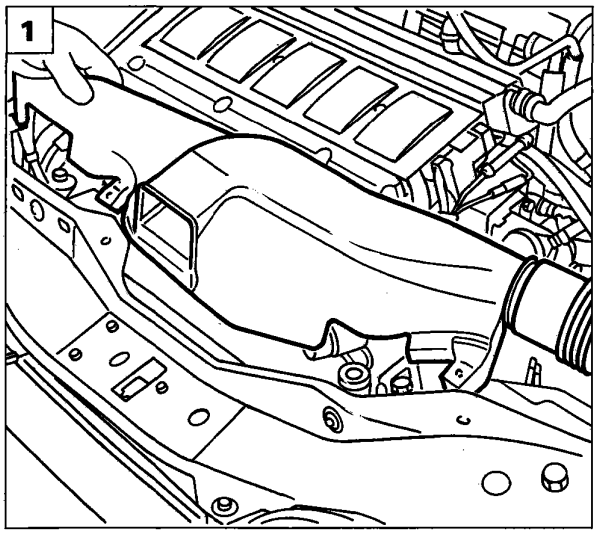

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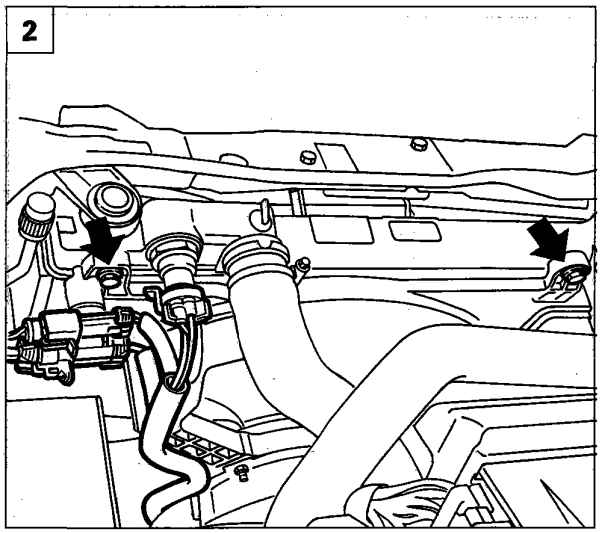

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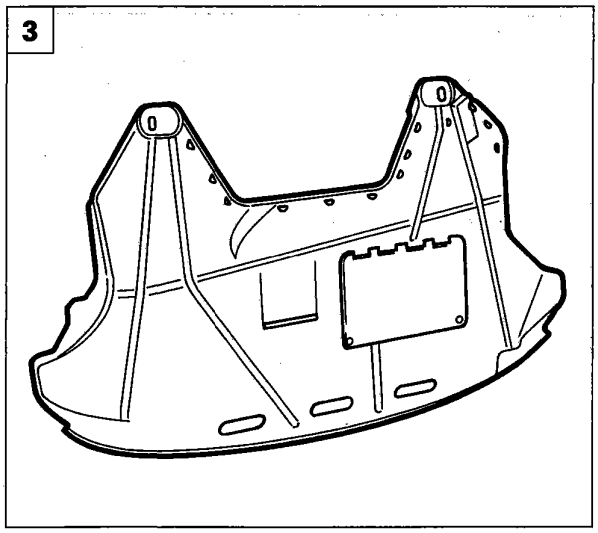
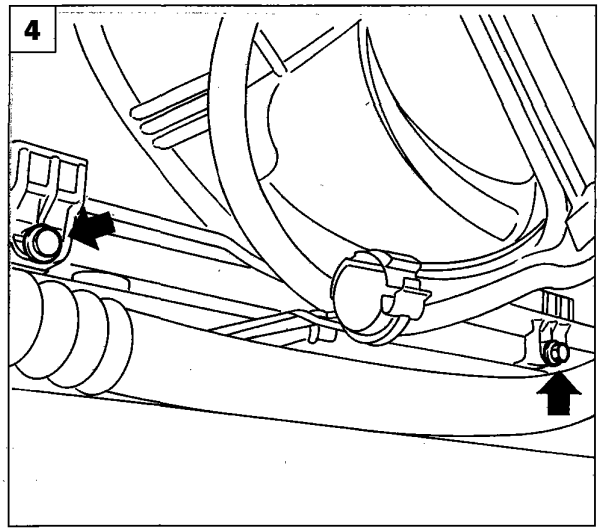


P4A045L03

REMOVING-REFITTING RADIATOR FAN

1. Place the car on ramps, disconnect the battery's negative cable, then remove the air duct.
2. Undo the fan's top bolts and the connections indicated.
3. Lift the car and remove the bottom sound-proofing shield from the car.
4. Undo the fan's bottom bolts.
5. Remove the fan from the car.

The operations described above may not apply if the engine or version are not the same as that illustrated above.



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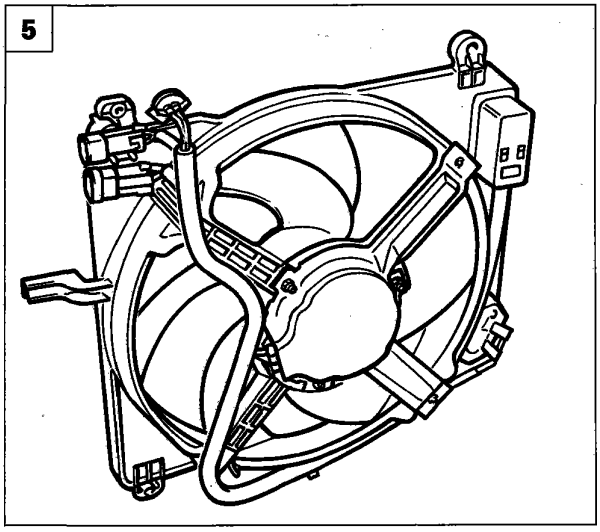

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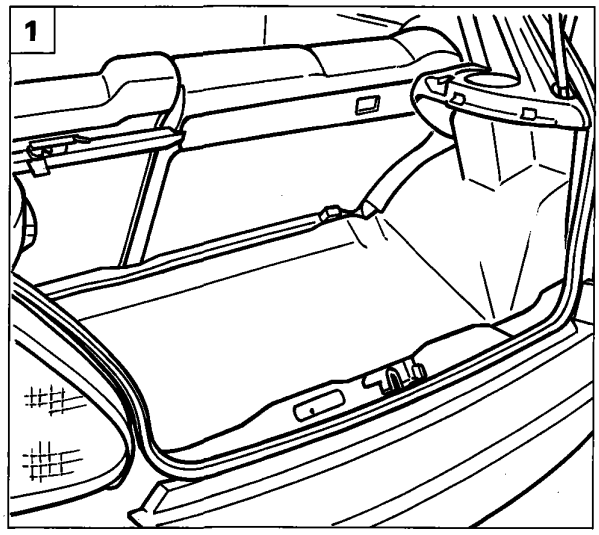

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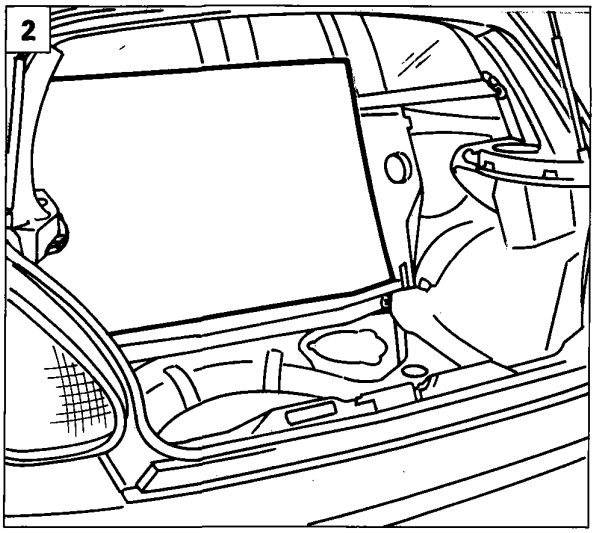
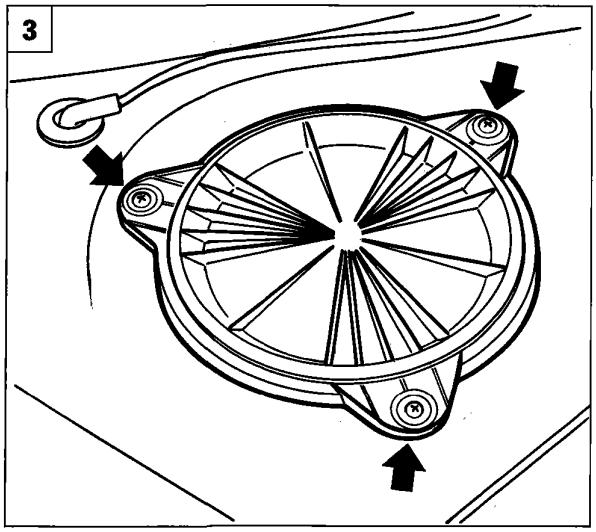


P4A046L02

FUEL GAUGE SENDER UNIT

Removing-refitting

1. Open the tailgate and remove the parcel shelf.
2. Fold down the rear seat and lift the spare wheel cover.
3. Undo the screws (arrowed) and remove the protective cover.
4. Disconnect the electrical connections and the pipes from the fuel gauge sender unit.



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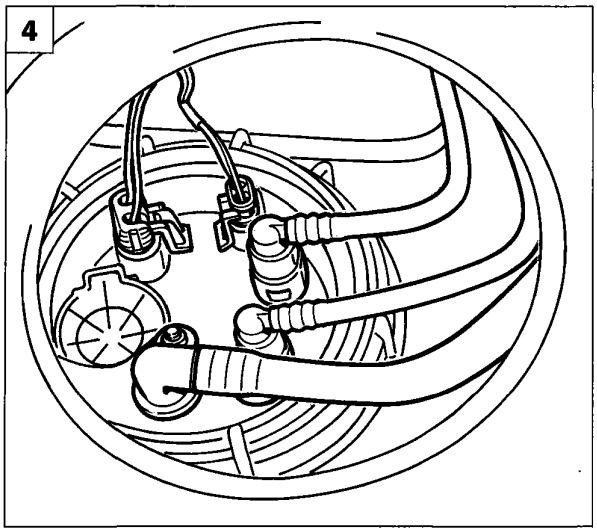

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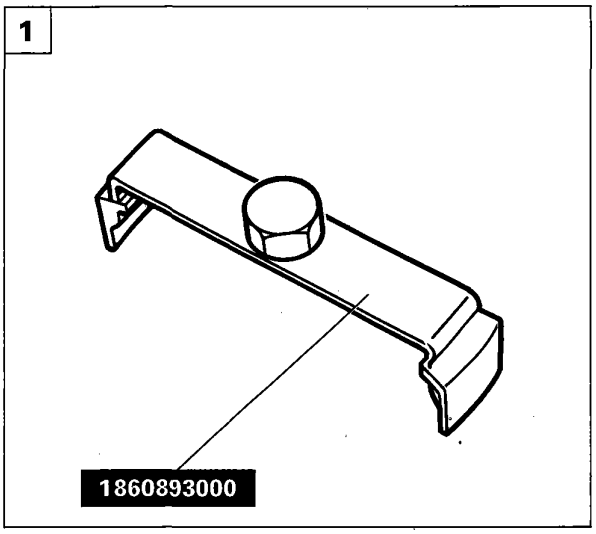
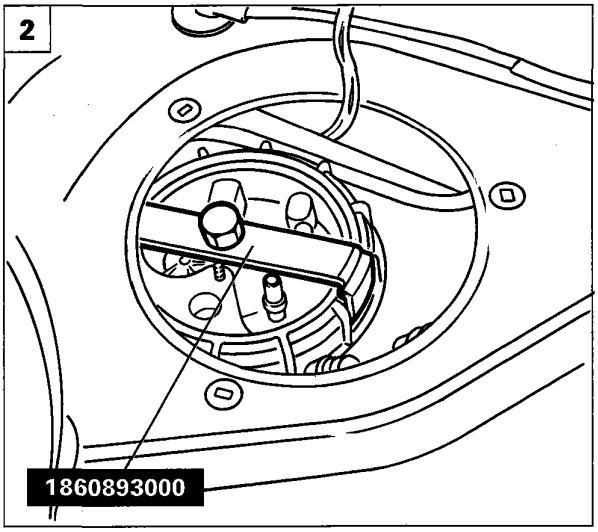
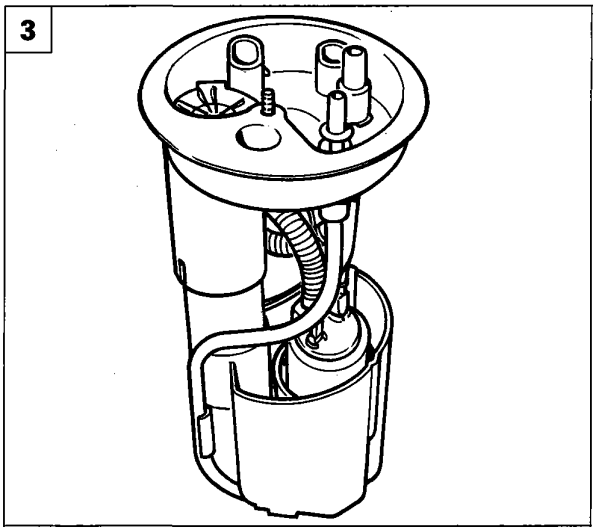


P4A047L01

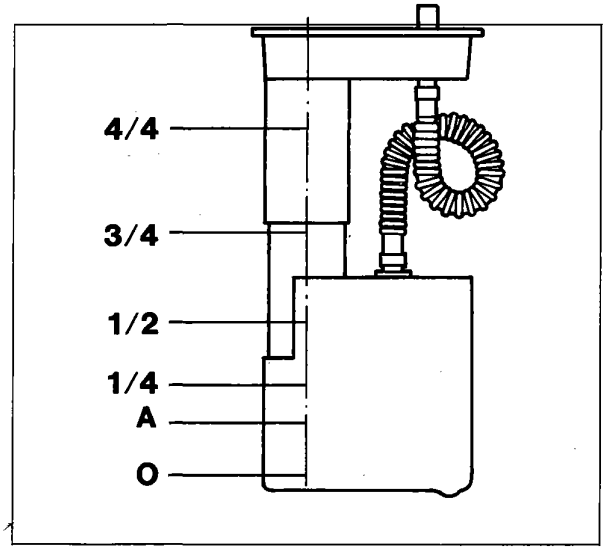


P4A047L02



P4A047L03

1-2. Fit the tool 1860893000 on the fuel gauge sender unit and remove the attachment ring nut.
3. Remove the fuel gauge sender unit from the car.



P4A047L04

Fuel gauge

Values for checking calibration	
Pointer position	**Value in Ohms**
4/4	0 - 6
3/4	59 - 69
1/2	116 - 126
1/4	186 - 201
Start of reserve (A)	255 ± 3
0	290 - 304

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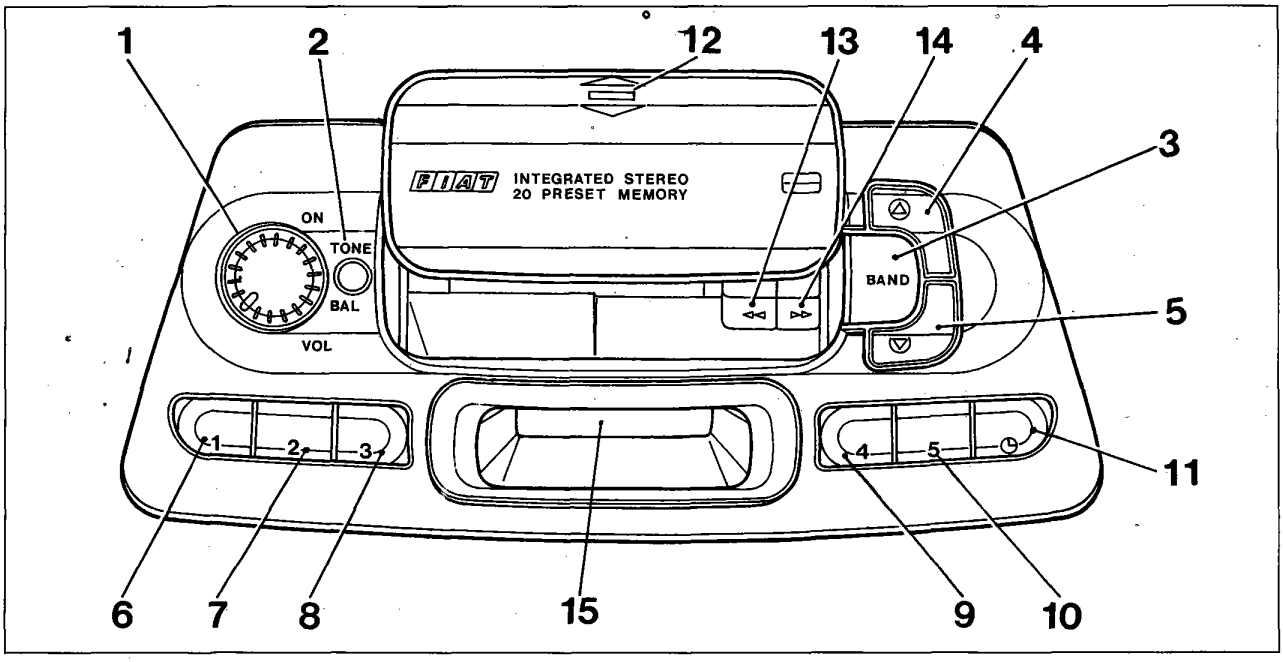
55.

GRUNDIG AD 182 L RADIO AND CASSETTE PLAYER

The car is fitted as standard with a radio comprising the following main components:

- GRUNDIG AD 182 L radio and cassette player (non removable) which is fitted at the centre of the instrument panel, and its customized FIAT front trim cover is fully integrated in the line of the dashboard;
- two loudspeakers located on the inner panels of the front doors;
- fishpole aerial located at the centre front of the roof.



P4A048L01

1. Knob for switching on the radio (by pressing) and adjusting the volume (by rotating);
2. Cylindrical button for adjusting the tone (pressure and rotation) and adjusting the balance between the two loudspeakers (by pressure, extraction and rotation);
3. Button for selecting the wave bands (FM1 - FM2 - MW - LW);
4. Button for automatic or manual search (single press or prolonged pressure) in order of increasing frequency of transmitting stations;
5. Button for automatic or manual search (single press only or prolonged pressure) in decreasing order of transmitting stations;
6. Button for preselection of transmitting station n° 1 - selection of priority of indication of time / radio frequency on the display;
7. Button for preselecting transmitting station n° 2 - adjustment in decreasing order of time;
8. Button for preselecing transmitting n° 3 - adjustment of time in increasing order;
9. Button for preselecting transmitting station n° 4 - increasing adjustment of minutes;
10. Button for preselecting transmitting station n° 5 - adjustment in decreasing order of minutes;
11. Button for switching between display of radio frequency / time (single press only) and for selecting time adjustment (prolonged pressure);
12. Point for pressing and opening the flap covering the slot for inserting cassettes;
13. Button for fast rewind of the cassette tape and for expelling the cassette from its seating (press simultaneously with button 14);
14. Button for fast forward feed of the cassette tape and for expelling the cassette from its seating (press simultaneously with button 13);
15. Display of wave band / frequency of station being listened to / stereo transmission / search sensitivity / time.

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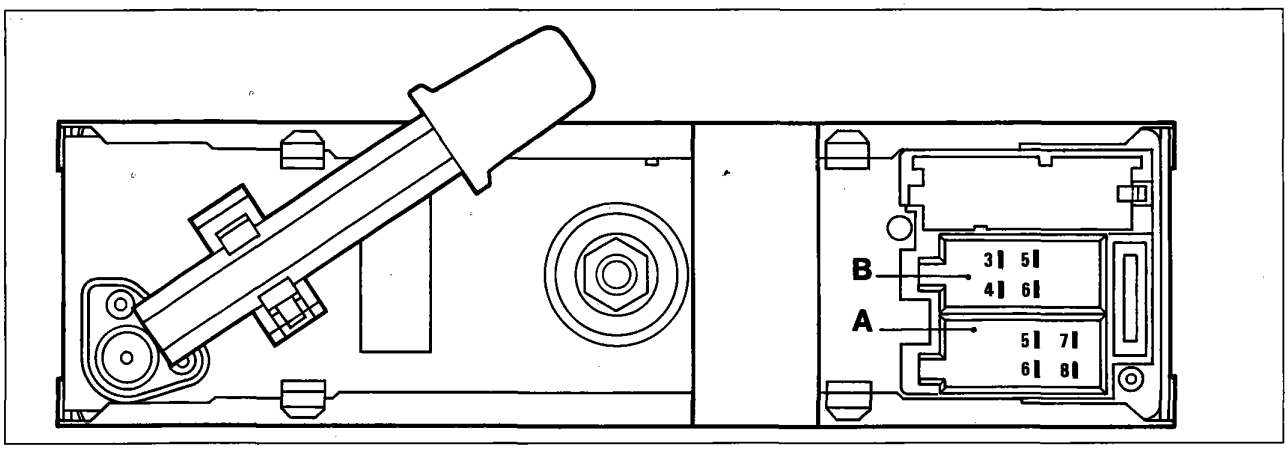
Rear view of radio



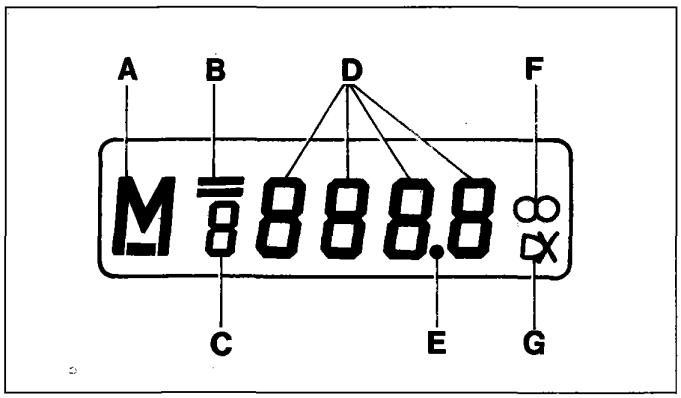
P4A049L01

SOCKET FOR CONNECTOR A	
Pin no.	**Connection**
5	Service
6	Lighting
7	Supply: positive
8	Supply: negative (earth)

SOCKET FOR CONNECTOR B	
Pin no.	**Connection**
3	Right loudspeaker
4	Right loudspeaker
5	Left loudspeaker
6	Left loudspeaker

NOTE *The pins not mentioned in the tables are not connected.*

DISPLAY INFORMATION



P4A049L02

A. Distinctive letter of waveband - activation of manual search of transmitting stations - selection of priority of indication of time / radio frequency
B. Horizontal lines indicating MF bands
C. Number of preselected transmitting station or for selecting priority of indication of time / radio frequency
D. Numbers indicating the tuning frequency
E. Decimal point of frequency
F. Symbol for listening of transmission in stereo
G. Symbol of sensitivity of search for transmitting stations

Codes relating to the various wave bands or ranges

Code	Wave band and range
M	Medium wave
L	Long wave
U	Frequency modulation
M (*)	Manual search for transmitting stations
U -	Frequency modulation 1
U =	Frequency modulation 2

(*) = Button

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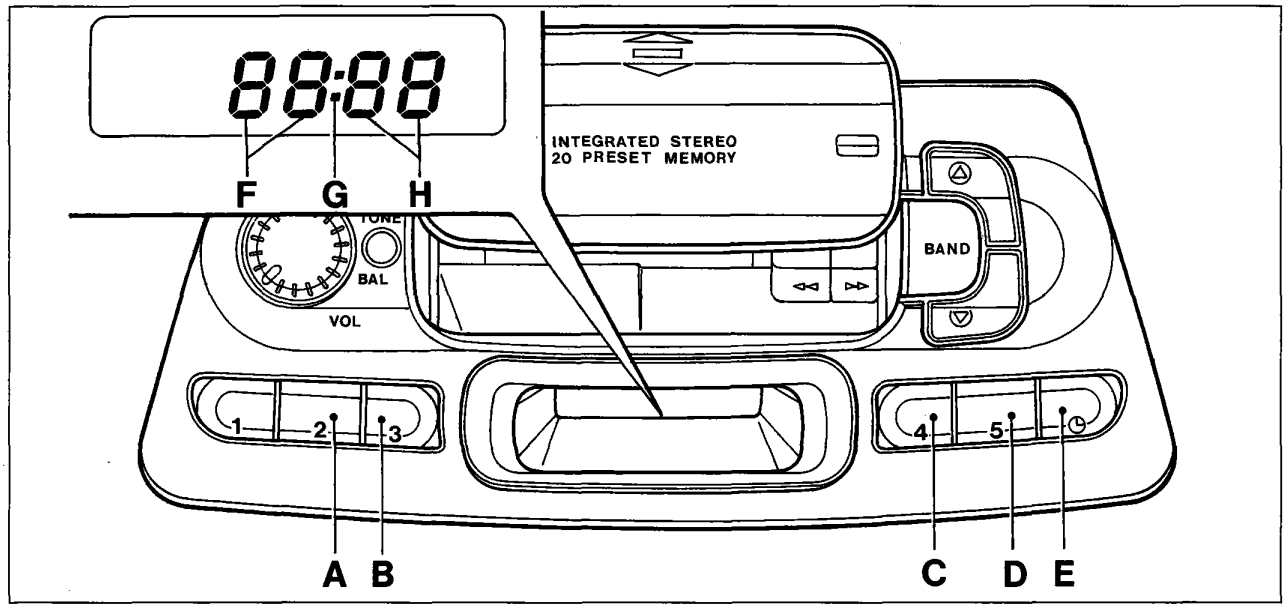


P4A050L01

F. Hours G. Flashing colon H. Minutes

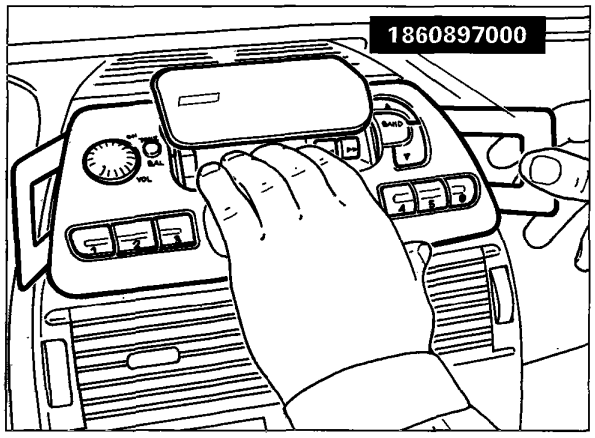
ADJUSTING DIGITAL CLOCK

To adjust the clock, carry out the following operations in the order stated:
- Press the E button for more than two seconds until the letter M accompanied by the number 1 or 2 is displayed on the left of the display.
- To adjust the hours (F) press the buttons A and B (which increase or decrease the number).
- To adjust the minutes (H) press the buttons C and D (which increase or decrease the number).
- Press the E button again to memorize the new time, which will also be visible when the car is stopped with the radio off, with the colon (G) flashing.

TECHNICAL CHARACTERISTICS	
No. of output channels	2
Musical output power	About 8W peak (per channel)
Nominal output power	⩽ at 4W RMS
Load impedance	4 Ohm

REMOVING-REFITTING RADIO

Fit tool 1860897000 as shown in the figure, then lift the flap for inserting the cassette and withdraw the radio from its seating.
After disconnecting the electrical connections from the rear, remove the radio from the car.



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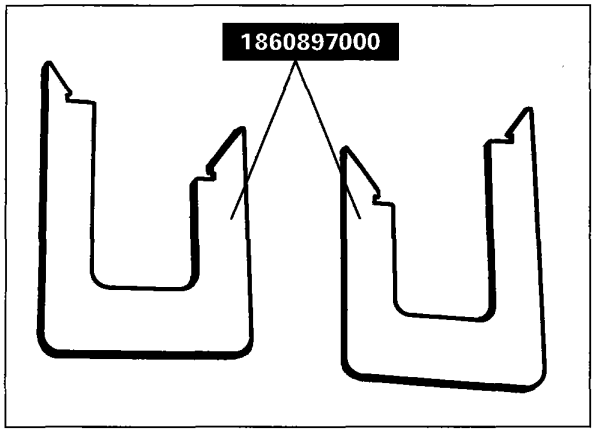

P4A050L03

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RADIO CASSETTE MODEL AD 182 H

The vehicle can be equipped, on request, with a radio system which is composed of the following main components:
- radio cassette player (which cannot be removed) model AD 182 H which is fitted in place of the previous one in the centre of the dashboard and the personalized FIAT front section is completely integrated with the contours of the dashboard;
- six speakers, two of which are positioned at the side in the upper part of the dashboard, two being positioned in the same place as for the previous system in the front door panels and the last two are positioned at the sides of the rear parcel shelf;
- aerial located at the centre front section of the roof.
- cable for connection with compact disc player (CD) (if fitted);

The radio cassette player model AD 182 H is equipped with the following functions:

RADIO SECTION

- PLL tuning with FM/MW/LW frequency bands
- RDS (Radio Data System) with TP (Traffic Program) - EON functions
- Automatic / manual station tuning
- Manual programming of 6 stations in the FM band, 6 in the RDS1 band, 6 in the RDS2 band, 6 in the MW band and 6 in the LW band.
- Automatic programming (AUTOSTORE function) of 6 stations in the RDS2 band
- Automatic DX function (Distant: maximum sensitivity in searching for radio stations)
- Scan function (scanning for stations programmed).

CASSETTE SECTION

- Autoreverse
- Fast forward and rewinding of the tape
- Automatic recognizing and equalizing of "Cr / Me" tapes with optimum sound reproduction
- Music Search System function (automatic search for previous / next track)
- Listening to radio whilst fast forwarding or rewinding the tape.
- DOLBY B (noise reduction circuit) (*)

COMPACT DISC SECTION (if the CD player is fitted)

- Disc selection (Disc No.)
- Track selection (fowards / backwards)
- Repeat Function (repetition of last track or repetition of CD)
- Scan Function (scanning tracks on Compact Disc)
- Random Function (random reproduction of tracks).

AUDIO SECTION

- Loudness Function
- Mute Function
- Pause Function
- Separate adjustment of low / high
- Right / left and front / rear channel balancing
- Radio on / off logic selection
- Pre-setting volume level for TP function.

CLOCK SECTION

- Adjustment of hours / minutes
- Clock / Radio, Cassette or Compact Disc functions priority selection.

(*) The DOLBY noise reduction circuit is manufactured under licence by the Dolby Laboratories Licensing Corporation. DOLBY and the double D symbol are their registered trade marks.

4A111L

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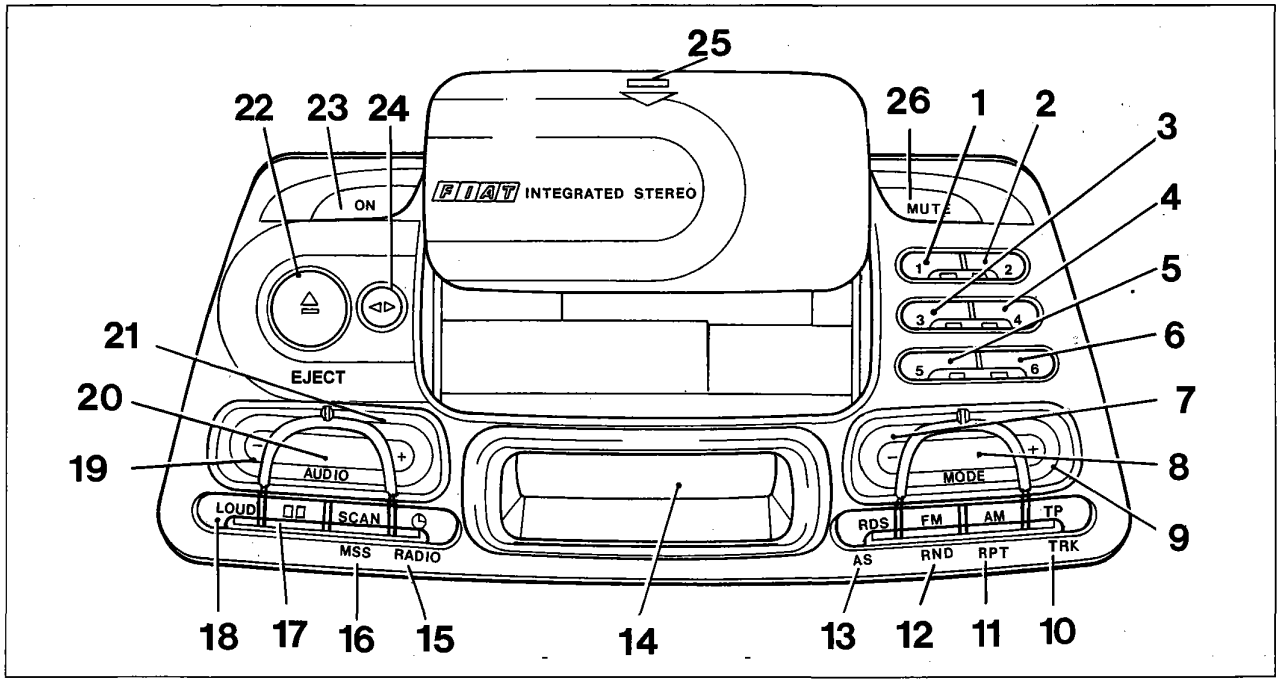
Description of the controls



P4A502L01

1. Switch for programming station N. 1 / selecting CD N. 1 / adjustment in decreasing order of clock hours / entering of 1st anti-theft device code figure
2. Switch for programming station N. 2 / selecting CD N. 2 / adjustment in decreasing order of clock hours / entering of 2nd anti-theft device code figure
3. Switch for programming station N. 3 / selecting CD N. 3 / adjustment in decreasing order of clock minutes / entering 3rd anti-theft device code figure
4. Switch for programming station N. 4 / selecting CD N. 4 / adjustment in increasing order of clock minutes / entering 4th anti-theft device code figure
5. Switch for programming station N. 5 / selecting CD N. 5 / selecting hour priority on display
6. Switch for programming station N. 6 / selecting CD N. 6 / selecting radio, cassette, CD function priority on display
7. Switch for automatic or manual tuning in decreasing frequency order, rewinding cassette tape, selecting previous CD track
8. Switch for selecting radio, cassette, CD operating modes
9. Switch for automatic or manual tuning in increasing frequency order, winding on cassette tape, selecting next CD track
10. Switch for selecting the following functions: traffic news (TP), CD track repetition, anti-theft mode with security code
11. Switch for selecting the following functions: medium/long wave bands, manual search for transmitter, CD track repetition
12. Switch for selecting the following functions: FM band, manual search for transmitter, random CD track repetition
13. Switch for selecting the following functions: FM band for RDS stations only (Radio Data System), automatic programming of stations in RDS2 band
14. Display
15. Switch for changing display of radio frequency, cassette player, CD, time (impluse only) and selecting time adjustment (prolonged pressing)
16. Switch for selecting listening for 10 seconds to each of the stations programmed, automatic search for previous or next cassette track, listening for 10 seconds to various CD tracks
17. Dolby B function selection switch (elimination of hissing)
18. Loudness selection switch
19. Switch for adjusting functions selected with switch 20 in decreasing order
20. Audio functions selection switch: volume, low/high tones, right/left balance, front/rear and pre-setting volume level for TP (traffic information)
21. Switch for adjusting functions selected with switch 20 in increasing order
22. Switch for automatically opening cassette housing and ejecting the tape
23. Radio activating/deactivating switch
24. Reverse function selection switch
25. Pressure point for manually closing cassette housing flap
26. Switch for selecting the following functions: Mute, radio on logic

4A212L

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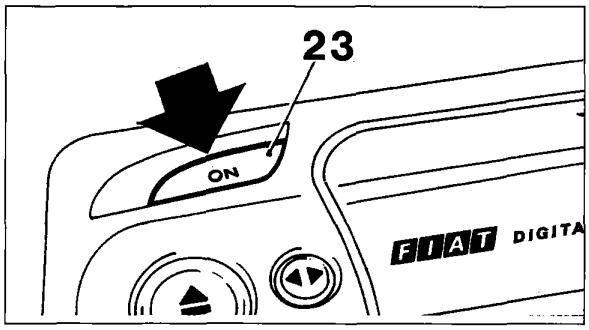
DESCRIPTION OF THE OPERATION OF THE RADIO MODEL AD 182 H



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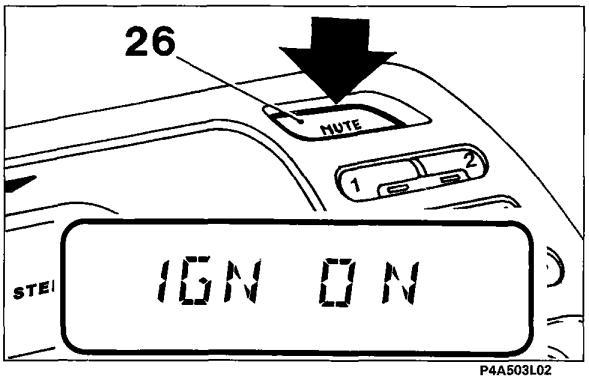

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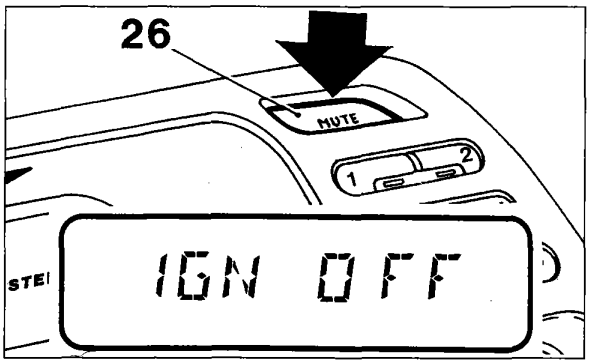

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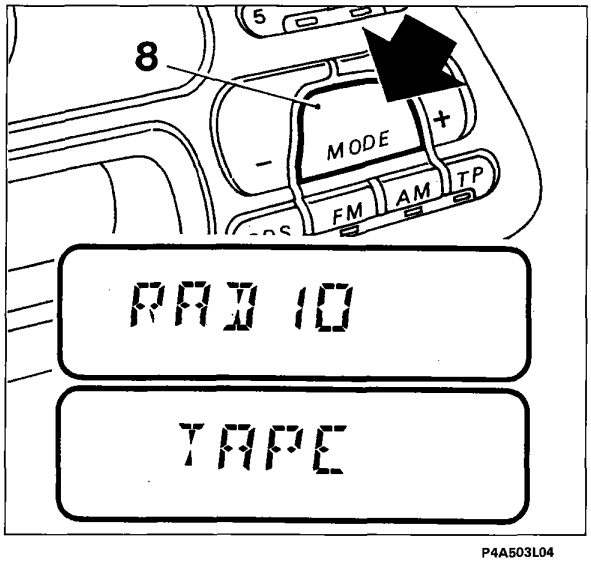

P4A503L04

4A213L

RADIO ON

Press the ON switch (23) once: the equipment should come on. If the radio is on whilst the engine is off, then it goes off automatically after around 20 minutes.

Switching on / off with engine started / stopped

The radio possesses a logic whereby if activated it allows the radio to be switched on / switched off simultaneously to the engine being started up / switched off.

If the logic is activated: when the engine is started up / switched off, the radio is automatically switched on / off.

If the logic is not activated: the radio can be switched on / off irrespective of whether the engine is switched on / off.

In order to activate this logic, proceed as follows:

- keep the "MUTE" button (26) pressed with the radio off until the words "IGN ON" appear on the display, then switch on the radio with the "ON" switch (23).

The logic is only activated when the radio is switched on with the "ON" switch (23).

To deactivate this logic, proceed as follows:

- keep the "MUTE" button (26) pressed with the radio off until the words "IGN OFF" appear on the display.

Irrespective of whether or not the logic is activated, it is possible to switch the radio on / off and to activate / deactivate the "MUTTE" function, which can be selected with the radio on as indicated in the paragraph "Mute Function", without this logic being activated or deactivated.

SELECTING RADIO / CASSETTE / COMPACT DISC FUNCTIONS

Press the "MODE" switch (8) repeatedly to select the following functions cyclically:

- RADIO: the word "RADIO" appears on the display momentarily;
- CASSETTE (if previously switched on): the word "TAPE" appears on the display momentarily;
- COMPACT DISC (if a Compact Disc player is fitted) : the word "CD" appears on the display momentarily.

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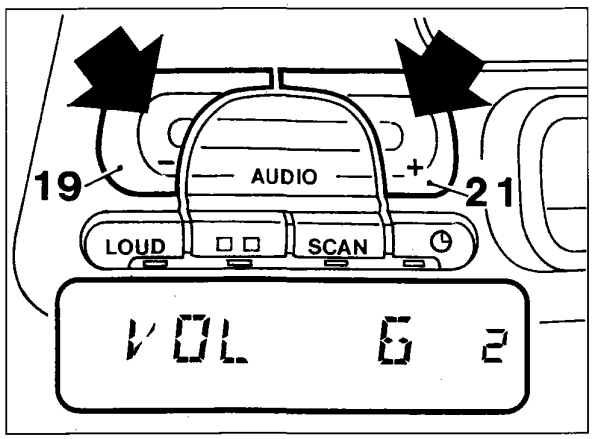
NOTE *The functions which cannot be selected (for example cassette when it has not been switched on previously, CD where it is not fitted) are automatically excluded.*

PAUSE FUNCTION

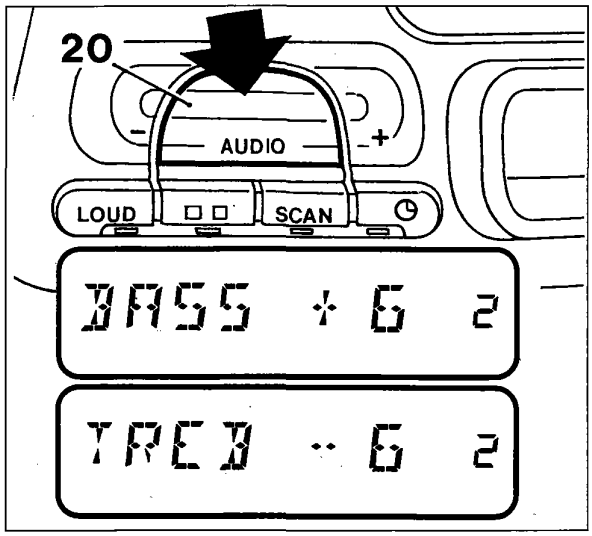
If when listening to a cassette or a compact disc another function is selected (for example the radio), the reproduction is interrupted and when returning to the "Cassette" or "Compact Disc" mode it starts again from the point where it was interrupted. If when listening to the radio another function is selected, on returning to the "Radio" mode, the last station selected is tuned into.



P4A504L01

ADJUSTING THE VOLUME

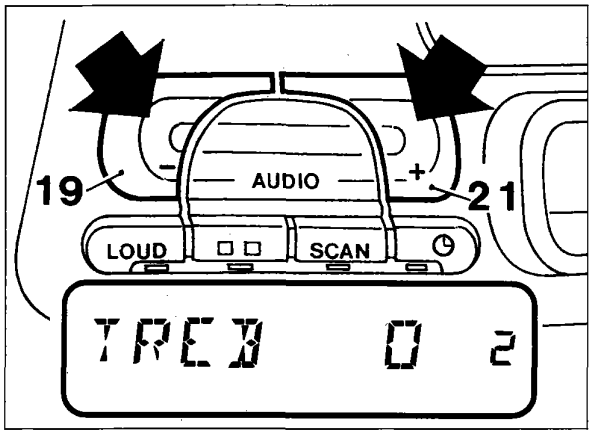
- Press the "AUDIO +" switch (21) to increase the volume and the "AUDIO -" switch (19) to decrease it;
- by pressing the switch briefly it is possible to change gradually in steps;
- by pressing it for longer, it is possible to change quickly and the word "VOL" appears on the display with the volume level;



P4A504L02

ADJUSTING THE TONE

- Press the "AUDIO" switch (20) briefly and repeatedly until the words "BASS" or "TREB" appear on the display (adjustment of Bass or Treble)
- press the "AUDIO +" switch (21) to emphasize the bass or treble or the "AUDIO -" switch (19) to decrease them;



P4A504L03

NOTE *The "BASS" and "TREB" settings are between - 6 and + 6.*

- by pressing the switch briefly it is possible to change gradually in steps;
- by pressing it for longer it is possible to change quickly;
- by pressing the "AUDIO +" and "AUDIO -" switches at the same time, the adjustment in the central position is selected and the zeroed bass / treble level appears on the display.

4A214L

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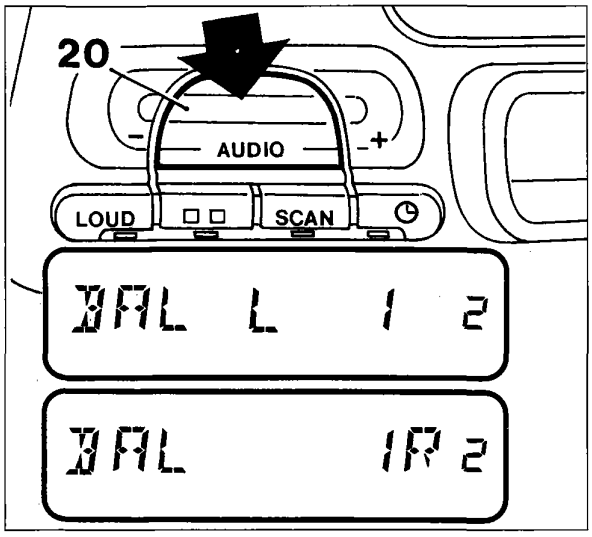

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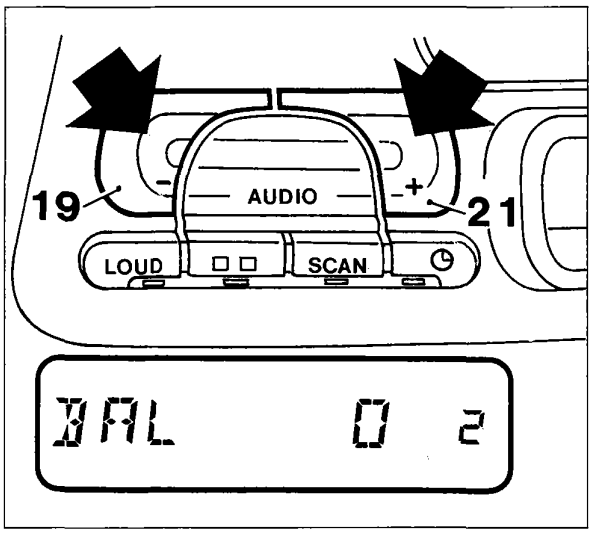

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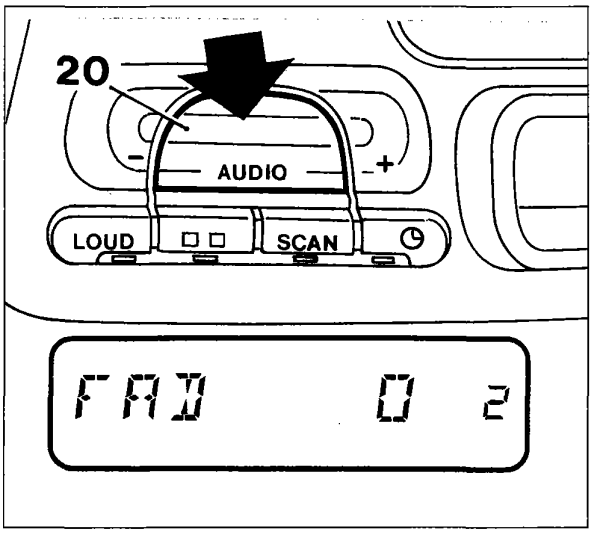

P4A505L03

4A216L

ADJUSTING THE BALANCE (between right and left speakers)

- Press the "AUDIO" switch (20) briefly and repeatedly until the word "BAL" appears on the display (balance adjustment selection);

- press the "AUDIO +" switch (21) to emphasize the sound coming from the right speakers or the "AUDIO -" switch (19) to emphasize the sound coming from the left speakers and the balance levels appear on the display (L = left, R = right)
- by pressing the switches briefly it is possible to change gradually in steps;
- by pressing them for longer, it is possible to change quickly;

NOTE *The values which can be set for "BAL L" and "BAL R" are between 0 and 15.*

- by pressing thei "AUDIO +" and "AUDIO -" switches at the same time, the adjustment is selected in a central position and the zeroed balance level appears on the display.

ADJUSTING THE FADER (balance between front and rear speakers)

- Press the "AUDIO" switch (20) briefly and repeatedly until the word "FAD" appears on the display (Fader adjustment selection).

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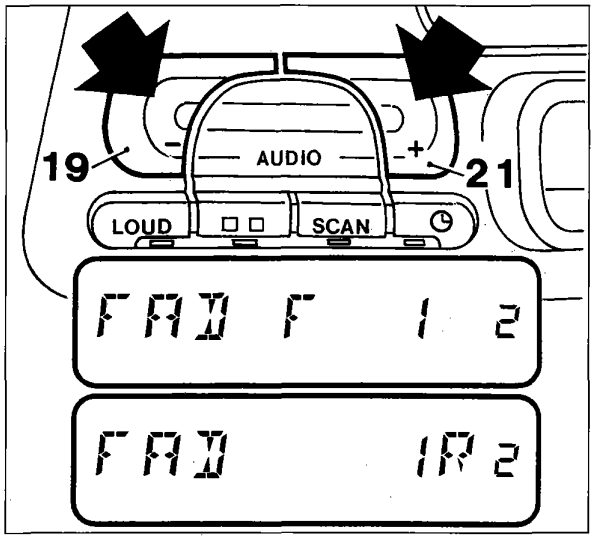
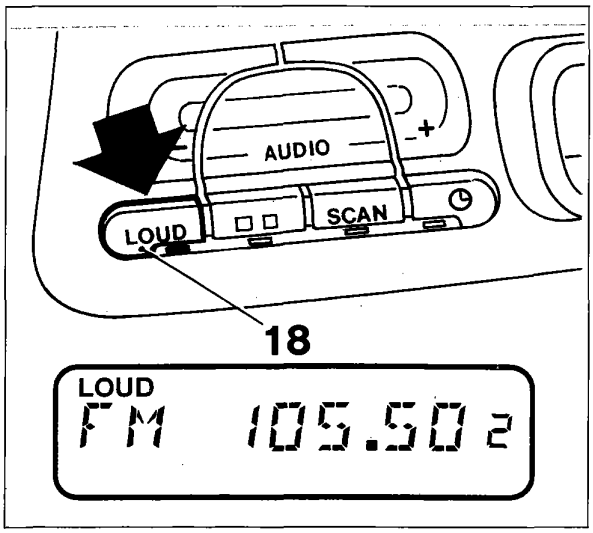


P4A506L01

- press the "AUDIO +" switch (21) to emphasize the sound coming from the rear speakers or the "AUDIO -" switch (19) to emphasize the sound coming from the front speakers and the Fader levels will appear on the display (F = front; R = rear);
- by pressing the switches briefly, it is possible to change gradually in steps;
- by pressing them for longer, it is possible to change quickly;

NOTE *The "FAD F" and "FAD R" values which can be set are between 0 and 15.*

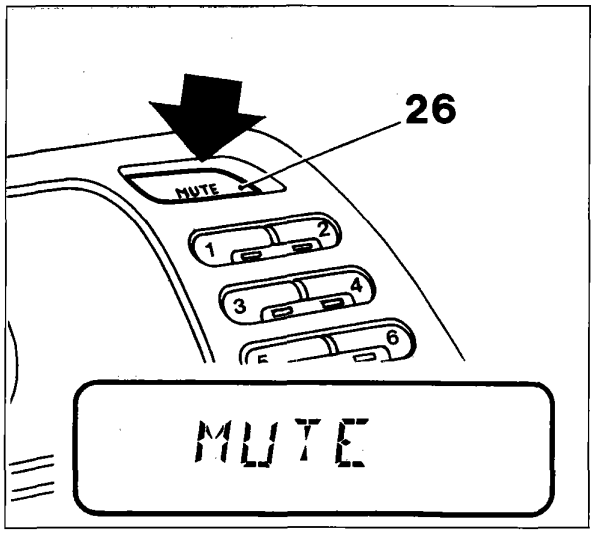
- by pressing the "AUDIO +" and "AUDIO -" switches at the same time the adjustment in the central position is selected and the display shows the zeroed Fader level (see diagram at the foot of the previous page).



P4A506L02

LOUDNESS FUNCTION

- Press the "LOUD" switch (18) to activate / de-activate this function which makes it possible to emphasize the bass whilst listening. If the function is activated, the LED under the switch comes on and the word "LOUD" appears on the display.



P4A506L03

MUTE FUNCTION

- Press the "MUTE" swith (26) to activate / deactivate this function. If the function is activated, the radio does not send any signal to the speakers and the word "MUTE" appears on the display.

4A216L

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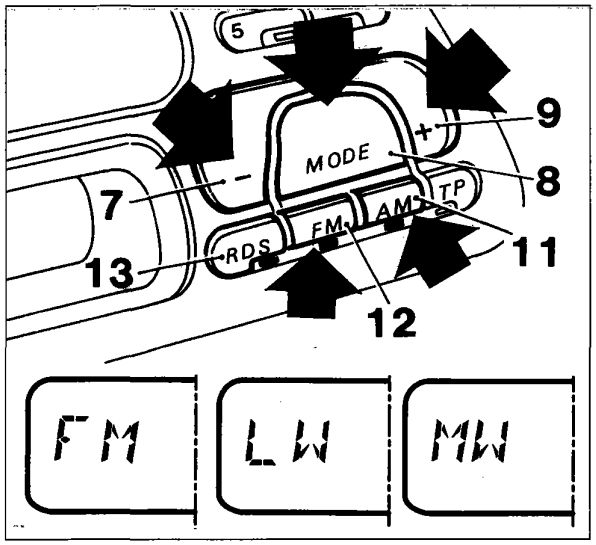
RADIO FUNCTION

The reception conditions vary constantly when driving. The reception can be interfered with by the presence of mountains, buildings or bridges, particularly when the transmitter is far away.

NOTE *When the "RADIO" function is activated, the last station listened to before switching off is received.*



P4A507L01

Selecting the function

As soon as the radio is switched on, the radio is heard. To select the Radio function whilst listening to a cassette or a compact disc, press the "MODE" switch (8) repeatedly until the word "RADIO" appears on the display.

Selecting the band

Press the "FM" switch (12) or the "AM" switch (11) briefly to select the desired reception band (the LED under the switch selected should come on).
Each time the "AM" switch (11) is pressed, the "MW" or "LW" stations are selected.
If you wish to select stations which are transmitted on the RDS (Radio Data System), see the description overleaf (RDS FUNCTION).

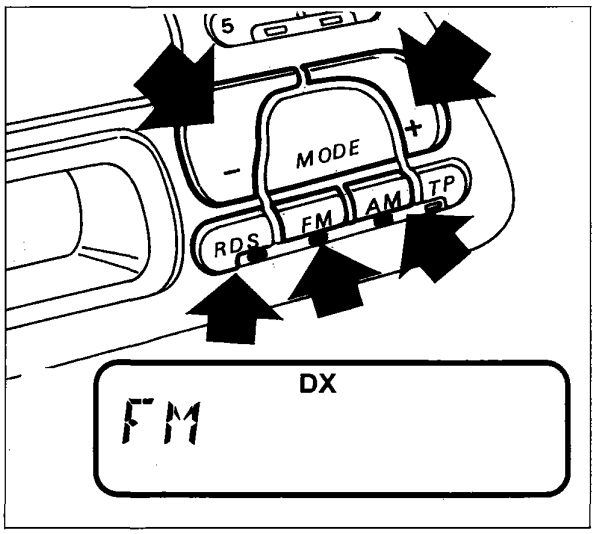
P4A507L02

Manual search tuning

This makes it possible to search manually for stations on the pre-selected band.

- Select the band: "FM", "MW" or "LW".
- keep the "FM" switch (12) pressed (if the FM band is selected) or the "AM" switch (11) (if the MW or LW band is selected) until the word "MAN" appears on the display.
- press the "MODE +" switch (9) or the "MODE -" switch (7) to select the desired station;
- by pressing the switch briefly it is possible to change frequency gradually in steps;
- by pressing it for longer it is possible to change frequency quickly.

The manual search function is not activated for bands RDS1 and RDS2.



P4A507L03

You return to the automatic tuning mode automatically (the word "MAN" disappers from the display) after 60 seconds or if one of the station programming switches numbered from "1" to "6" is pressed briefly. In the latter case the station previously programmed with this switch is tuned into.

Automatic search tuning

This makes it possible to automatically search for stations in the pre-selected band.

- Select the band: "RDS1", "RDS2", "FM", "MW" or "LW";
- press the "MODE +" switch (9) or the "MODE -" switch (7);

The sensitivity of the search increases starting from the 2nd stage through the entire frequency range (the word "DX" appears on the display).

4A217L

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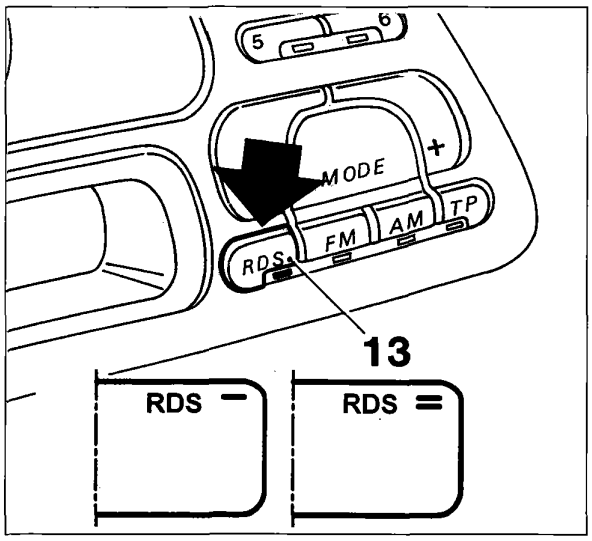
Programming the last station listened to

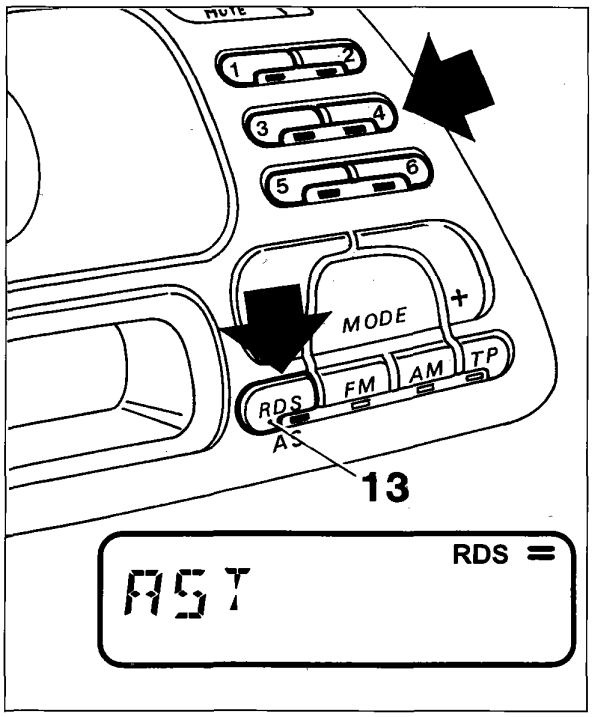
The last station listened to for each reception band is automatically kept in the memory and then tuned into the moment the radio is switched on or the reception band is changed.



P4A508L01

RDS FUNCTION (Radio Data System)

If you wish to select stations which transmit on RDS (Radio Data System), press the "RDS" switch (13) briefly (the LED under the switch will come on).
Each time the switch is pressed, the stations on "RDS1" (display shows "RDS -") or "RDS2" (display shows "RDS =") are selected.
The RDS system makes it possible, with the transmitters enabled, to automatically tune into the optimum frequency for the station you have selected: you can therefore continue to listen to the stationwithout having to alter the frequency when changing areas.
Naturally it must be possible to receive the station being listened to in the area one is passing through.
The name of the station transmitting on RDS appears on the display.



P4A508L02

Automatic programming in RDS2 band (AUTOSTORE)

It is possible to memorize 6 stations in the RDS2 band. If the RDS mode is set (RDS1 or RDS2), keep the "AS" switch (13) pressed until the sound switches off.
The stations transmitting programmes on RDS with the most powerful signal at that moment will be automatically programmed at buttons (1), (2), (3), (4), (5) and (6). A maximum of 2 passages through the entire frequency range are made with increasing search sensitivity.
During the search the word "AST" appears on the display. When the programming is complete, the radio tunes in automatically to the frequency programmed for button (1).

The activating of the Autostore takes place if the RDS1 or RDS2 band is set.

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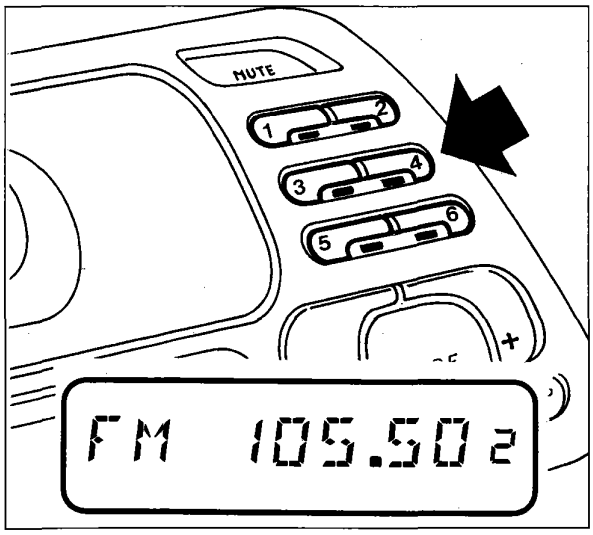


P4A509L01

Manual station programming

The station to which you are listening can be programmed in the range selected using buttons (1), (2), (3), (4), (5) and (6).
Keep the button pressed with which you wish to programme the station until transmitter is audible again. The LED under the switch will come on and the number corresponding to the switch will appear on the display.

Even if the supply voltage is interrupted, the memories remin active.

Listening to stations programmed

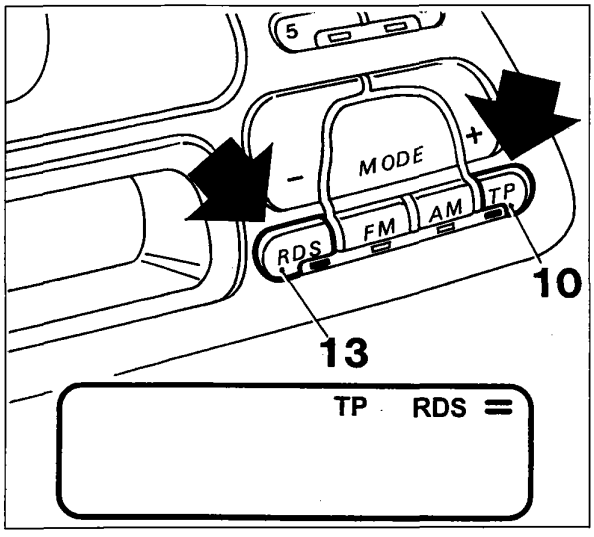
Proceed as follows:
- Select the band desired using switchs (11), (12) and (13) (see page 50/7);
- pressone of the six station programming buttons briefly;

The LED under the switch will come on and the number corresponding to that switch will appear on the display. For bands RDS1 and RDS2, if the reception is not gooe, an alternative frequency is automatically searched for (the word "SRC" will appear on the display during the search).

TP Function (Traffic Programme)

Several stations belonging to the RDS1, RDS2 bands also transmit information on traffic conditions.

With the TP function (Traffic Programme) it is possible:
a) to search only for RDS stations which transmit traffic information;
b) to receive traffic information even if the cassette player or CD player function is selected;
c) to receive traffic information at a minimum pre-set volume even with the radio volume at zero.



P4A509L02

4A218L

NOTE *There follows instructions for carrying out each of the operations illustrated for points a), b) and c) described previously.*

Point a)

- Select an RDS1, RDS2 band by pressing the "RDS" switch (13) briefly (the LED under the switch will come on);
- press the "TP" switch (10) briefly so that the word "TP" appears on the display (the LED under the switch will come on).

If the transmitter is not enabled to supply traffic information, then the radio will automatically tune into the closest one able to transmit it.

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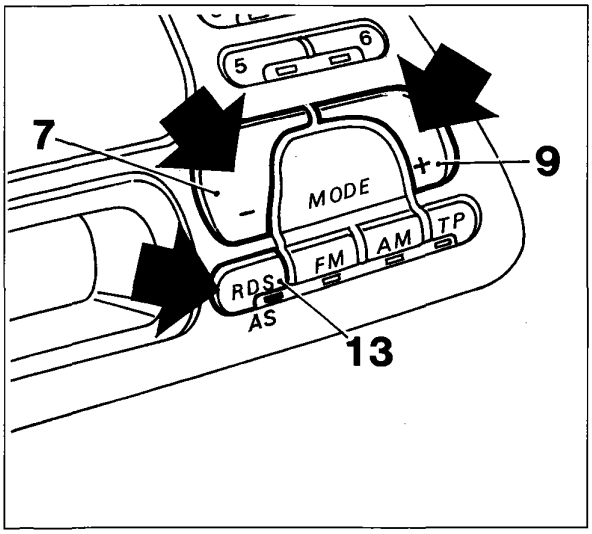


P4A510L01

If you wish to search for other stations, press the "MODE -" (7) or "MODE +" (9) tuning switches.
To programme transmitters with the "TP" function activated, carry out the programming operations (see paragraph on "Programming a station").
As an alternative to the manual programming, by keeping the "AS" switch (13) pressed until the audio is switched off, the automatic programming will be carried out (see paragraph on "Automatic programming on RDS2 band - Autostore")

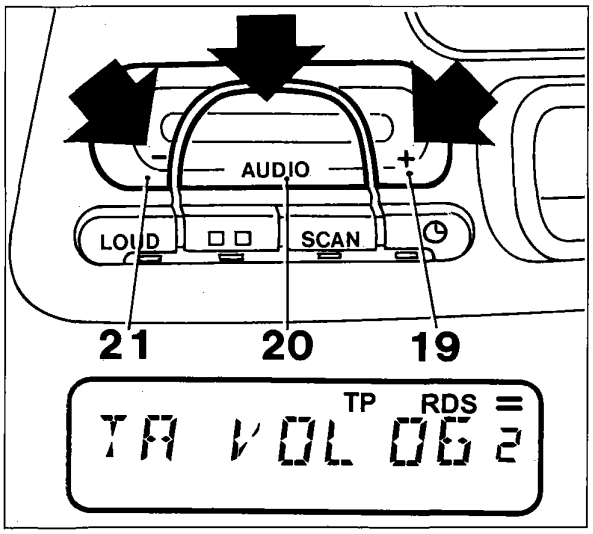
Point b)

If you wish to receive traffic information, before putting in the tape or the compact disc, tune in to an RDS TP transmitter. If, whilst listening to the tape or compact disc, the latter transmits traffic information, the reproductionof the tape or the compact disc will temporarily be halted and resumed automatically when the message is over.

Point c)

Even when not listening to the radio it is possible to receive traffic information. After tuning in to an RDS TP transmitter and placing the volume level at zero, if traffic information is transmitted it will be heard at a pre-set minimum volume.

In certain countries there are radio stations that, even if the TP functionis activated, do not transmit traffic information.



P4A510L02

Pre-setting volume level for TP function (Traffic Programme)

- Select the desired volume level using the "AUDIO -" (19) and "AUDIO +" (21) switches;
- keep the "AUDIO" switch (20) pressed until the words "TA VOL XX" appear on the display, where "XX" is the pre-set volume level;

NOTE *The volume level which can be pre-set varies from 5 to 31 (max volume).*

If no level or a minimum level of 5 is pre-set, then level 5 is automatically selected.

4A220L

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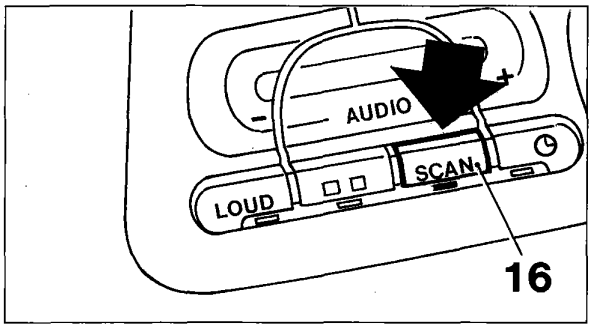
EON Function (Enhanced Other Network)

In certain countries circuits which cover several transmitters broadcasting traffic information are grouped together.
In these cases listening to the RDS TP station programme will be temporarily interrupted to receive traffic information each time it is transmitted by one of the transmitters in the same circuit.
In order to exclude this function (EON), briefly press the "TP" switch (10) (the LED under the switch will go out).

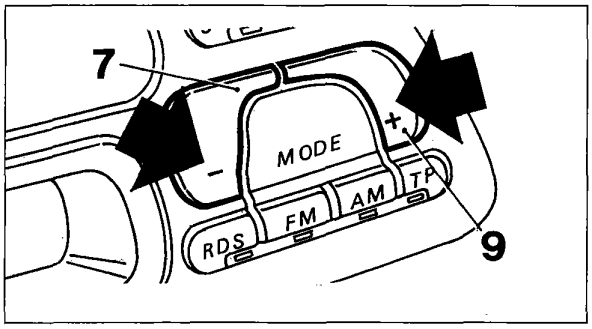
Scanning programmed stations (SCAN Function)

With this function it is possible to cyclically tune in, for 10 seconds at a time, to all the stations which can be received which have been previously programmed on this band.
During scanning, when a station is tuned into, the LED under the switch where it is programmed comes on and the number of the switch appears on the display.
Stations where the signal is too weak cannot be heard.



P4A511L01

In order to select the SCAN function, proceed as described below:
- select the band desired;
- press the "SCAN" switch (16) (the LED under the switch comes on).

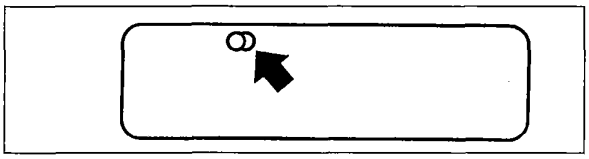


P4A511L02

It is possible to change the direction of the search several times by pressing the "MODE +" (9) or "MODE -" (7) switches.
In order to interrupt the scanning, press the "SCAN" switch (16) again : the LED under the switch will go out and the station present at that moment will be heard.

Stereo transmitters

When the station is transmitting the programme in stereo, the symbol shown by the arrow in the diagram below will appear on the display.
If the signal arriving is weak, the reproduction will be automatically switched from Stereo to Mono.



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4A221L

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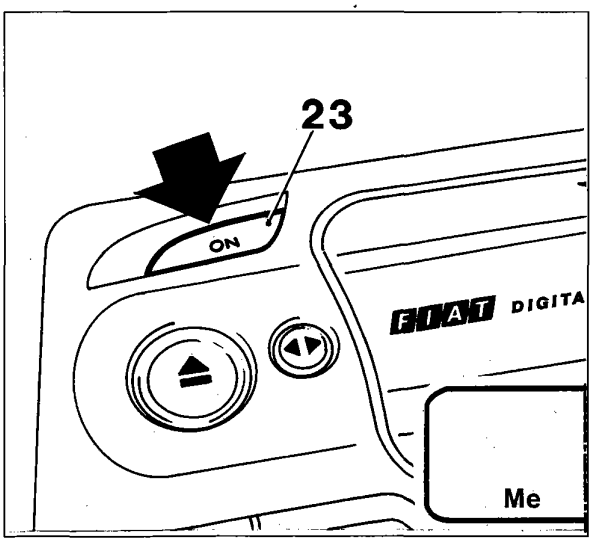
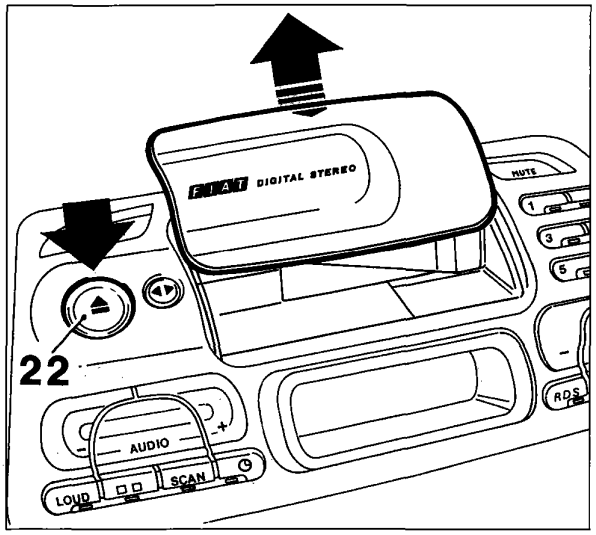
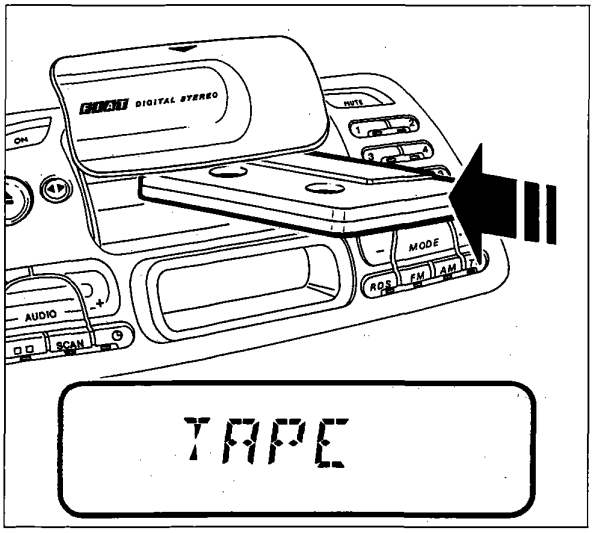


P4A512L01



P4A512L02



P4A512L03

4A222L

CASSETTE PLAYER

The radio is equipped with a cassette player which has an "Autoreverse" reverse function which makes it possible to listen to both sides of a tape without having to remove it and turn it over.

Automatic equalizing selection

Depending on the type of tape used the correct equalizing of the cassette player is carried out automatically.
If CHROME (CrO2) or METAL tapes are used, the word "Me" appears on the display.

Cassette reproduction

- Activate the radio by pressing the ON switch (23);
- press switch (22), to open the cassette housing protective flap;
- insert the cassette properly in the housing, making sure that it is correctly in place; the reproduction will start and the word "TAPE" will appear on the display.

NOTE *For the correct operation of the automatic selection, only insert the cassette in the housing when the radio is working.*

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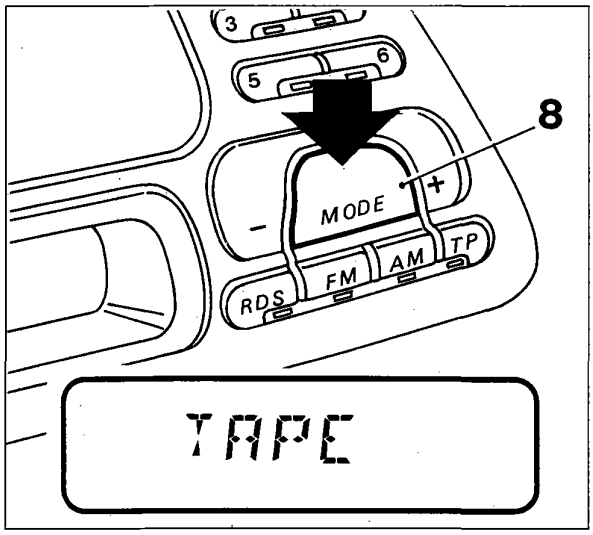
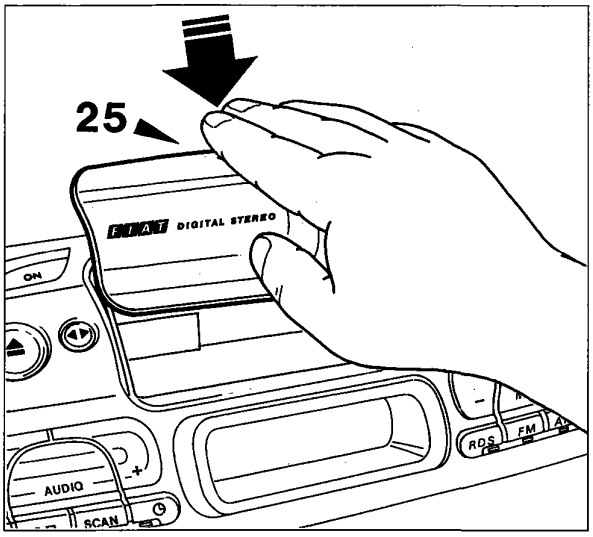


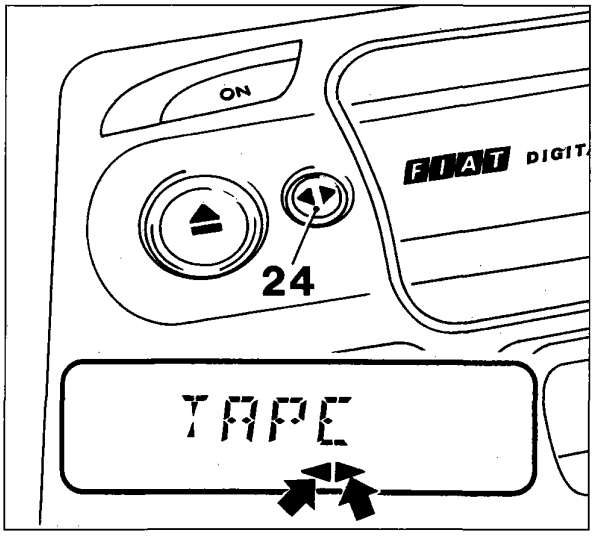
P4A513L01

- in order to reproduce a cassette already inserted previously, whilst listening to the radio or a compact disc, press the "MODE" switch (8) repeatedly until the word "TAPE" appears on the display;



P4A513L02

- to close the cassette housing, press in a vertical direction at the point shown by the symbol above the hand in the diagram at the side (25) with the flap closed until the retaining spring is heard to click.



P4A513L03

4A223L

Changing cassette side

At the end of the tape the side of the cassette is changed automatically (Autoreverse). The display shows the side of the cassette being listened to.
The symbol shown by the right arrow illustrates the upper side, whilst the one shown by the left arrow indicates the lower side.
To change the side of the cassette, before the end of the tape, press switch (24) (Reverse).

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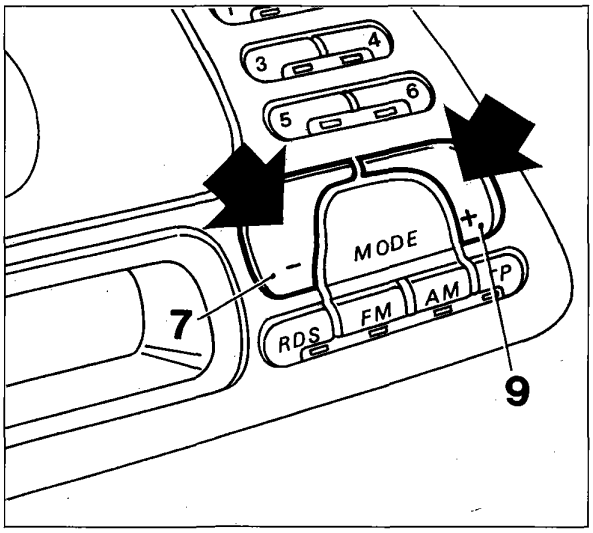


P4A514L01

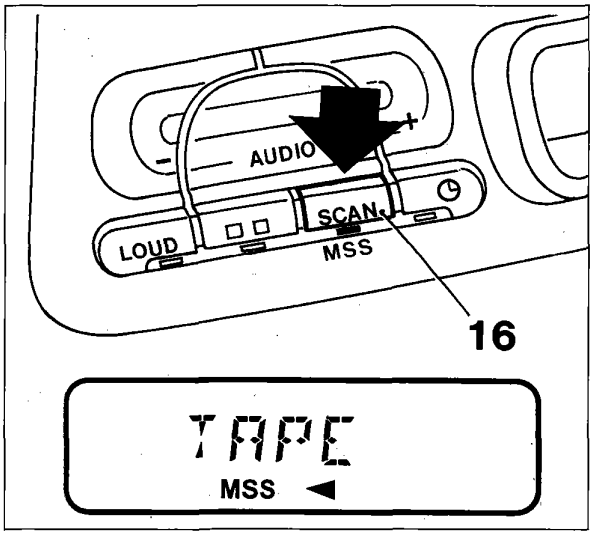
Fast forward / rewind

Press the "MODE +" switch (9) or the "MODE -" switch (7) to fast foward or rewind the cassette tape.

To stop the tape, press the switch used previously again.

Listening to the radio whilst fast fowarding / rewinding the tape

Whilst fast forwarding or rewinding a tape, the last station tuned into will be heard.



P4A514L02

Searching for previous / next track (Music Search System Function)

Keep the "MSS" switch (16) pressed until the word "MSS" appears on the display, at the same time the LED under the switch will come on. The tape will fast forward automatically until the next track is reached, from where it will start to play.

With the MSS function activated, press the "MODE +" switch (9) to listen to the next track on the tape.

Press the "MODE -" switch (7) whilst listeneing to a track to reproduce the track again from the beginning; by pressing this switch further it is possible to listen to the previous track.

Press these switches several times to go forwards / backwards several tracks equal to the number of times the switch is pressed.

To interrupt the search, gently press the last switch selected (MODE + or MODE -). In these circumstances the reproduction will be activated starting from that point.

To exit from the MSS mode, press the "MSS" switch (16) again: the LED under the switch will go out and the word "MSS" will appear on the display.

The previous / next track search function cannot be activated correctly with the following types of tapes:

- tapes recorded at low levels (for example with weak sound and imperfect recording);
- tapes with conversations;
- tapes with blank sections lasting less than 3 seconds;
- tapes with long periods of silence in the recordings;
- tapes which do not have blank sections of tape (for example live recordings);
- tapes with a lot of background noise in the blank sections.

4A224L

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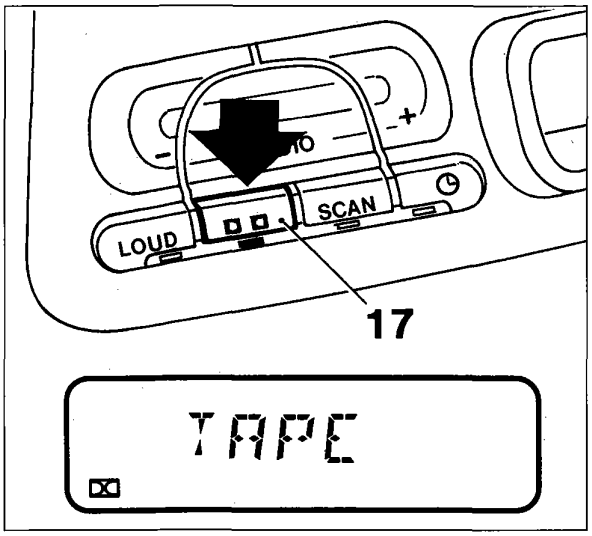
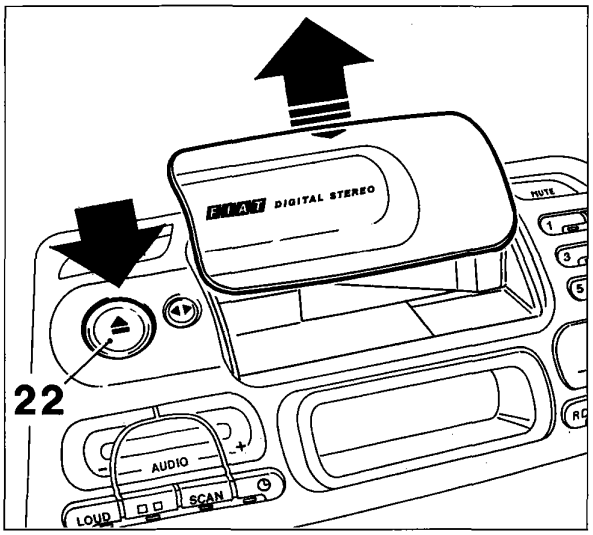
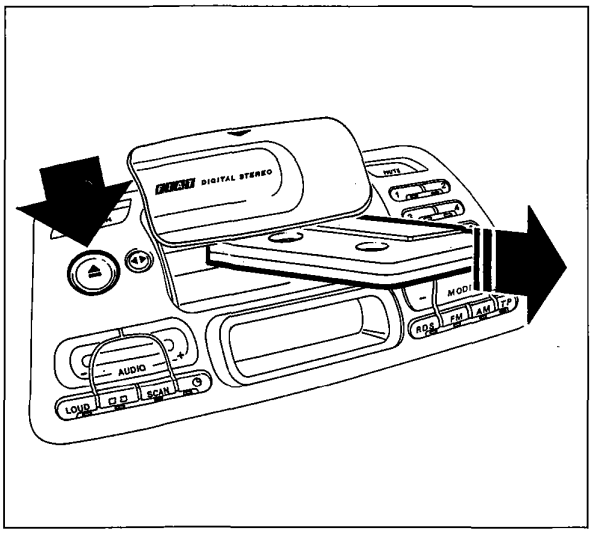


P4A515L01



P4A515L02



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4A225L

Dolby B Function

Press switch (17) to activate / deactivate the Dolby B function (device for limiting the noise produced under licence by the "Dolby Laboratories Licensing Corporation") (*).
When the Dolby function is activated, the LED under the switch comes on and the appropriate symbol (illustrated in the diagram, bottom left) appears on the display.

(*) Dolby and the symbol (two Ds) are registered trade marks of the above company.

Ejecting the cassette

- Press switch (22) briefly to open the cassette housing protective flap;
- press switch (22) briefly a second time to eject the cassette.

NOTE *The same result is achieved by keeping the switch (22) pressed until the cassette is ejected.*

- After the tape is ejected the word "TAPE" appears on the display and the radio starts to work, tuning in to the last station listened to.

NOTE *The cassette cannot be ejected with the radio off.*

Never expose cassettes to heat or to direct sunlight, but always store them properly after use.
It is advisable to use good quality cassettes, no longer than C-90 in order to always ensure optimum reproduction.
Impurities on the head caused by tapes can result, in time, in decreased high tones during reproduction. It is therefore advisable to clean the heads periodically using a special non abrasive type head cleaning cassette.

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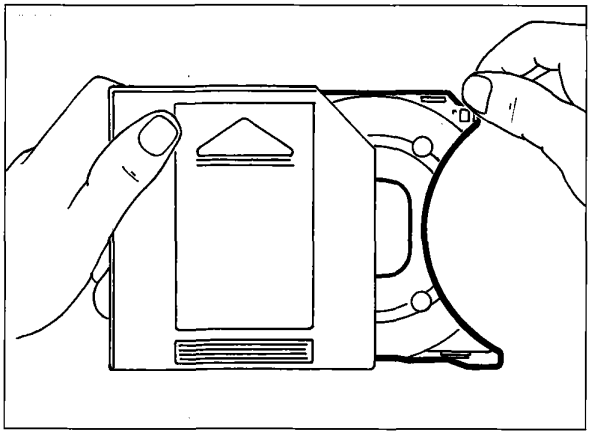
COMPACT DISC PLAYER FUNCTION

Vehicles equipped with the AD182H radio are prepared for the fitting of a Compact Disc (CD) player with a multipolar cable which ends in the luggage compartment on the left hand side.
A kit is available from FIAT Lineaccessori FIAT which includes a Compact Disc player, an additional connecting multipolar cable and a mounting bracket for the fitting.
The player has a special loader which can hold up to 6 compact discs.



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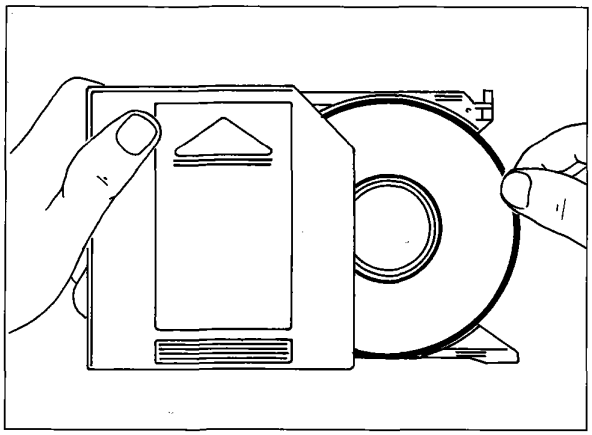

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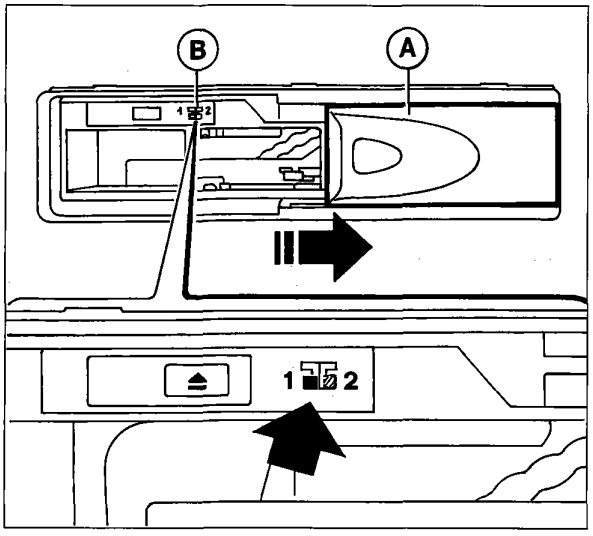

P4A516L03

4A226L

Filling the Compact Disc loader

- Extract a support for each compact disc that you wish to play;
- insert the compact disc with the label or the printed section facing the support.

If the compact disc is placed incorrectly, it will not play.

Inserting loader in Compact Disc player

NOTE *The player cannot play 8 cm compact discs (unless special adaptors available from Hi-Fi shops are used).*

To insert the loader in the compact disc player, proceed as described below:
- slide the flap A towards the right, as illustrated in the diagram, until it is not locked;
- check that the switch B is in position "1";

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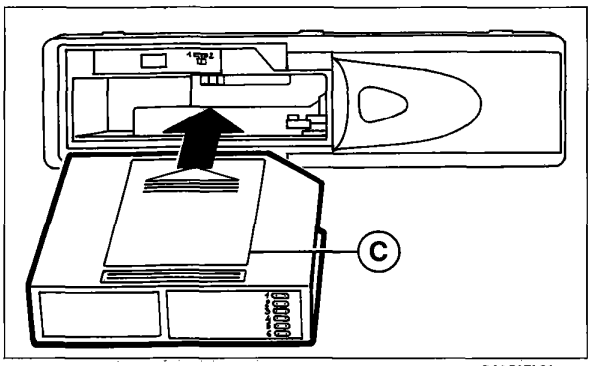

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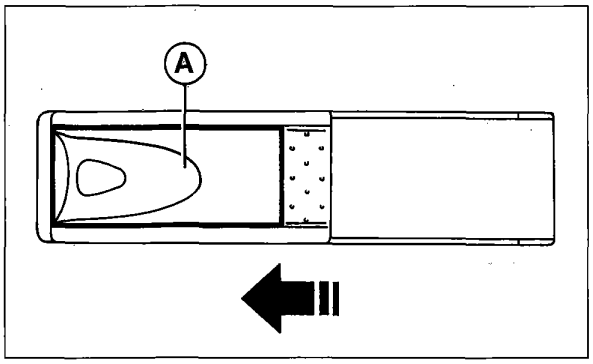
- insert the loader C in the compact disc player with the side with the label (see arrow) upwards;



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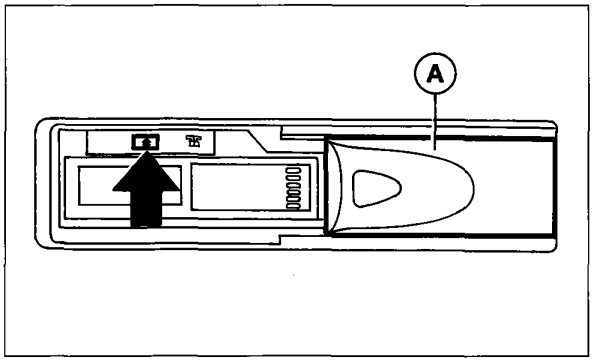
- close the sliding flap A after having inserted the loader to prevent foreign bodies and dust from entering the player.



P4A517L03

Eextracting loader from Compact Disc player

Proceed as illustrated below:

- slide the flap A towards the right, as illustrated in the diagram, until it is not locked;
- act on the eject button (shown by the arrow) on the Compact Disc player.

Extracting compact discs from loader

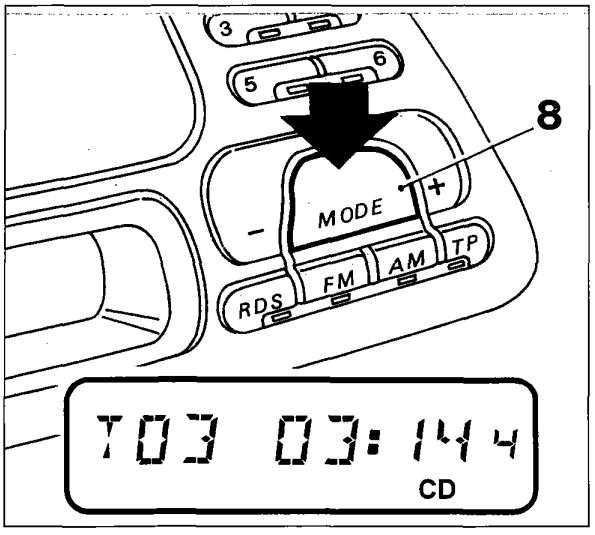
Extract the discs and supports from the loader.

OPERATION OF THE CD PLAYER

In order to play compact discs already inserted in the player previously, press the "MODE" switch (8) repeatedly until the word "CD" appears on the display.

If this function is selected after inserting the loader, the words "CD CHECK" appear instead whilst the connections and the contents of the loader are examined.

Whilst listening the following appears on the display: "CD", the number of the track (for example "T03" = third track), the playing time (for example "03:14" = 3 minutes and 14 seconds) and the CD number (for example "4").



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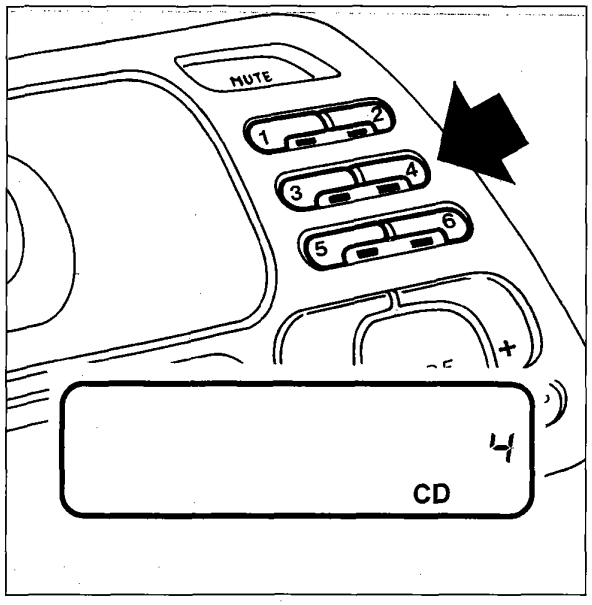
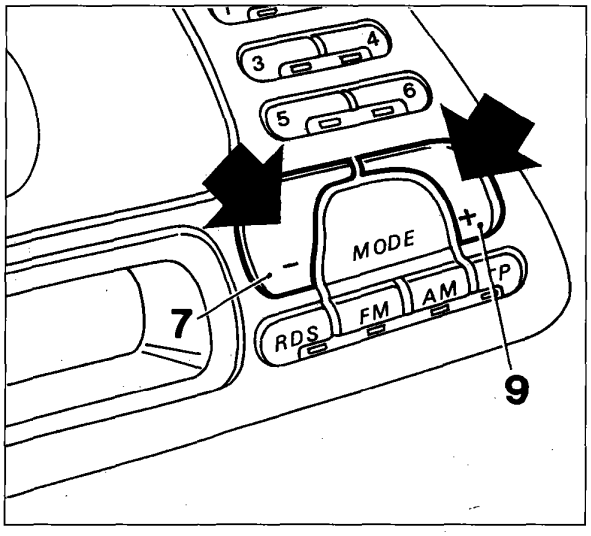
Possible error messages

If the loader has not been introduced or has not been properly inserted in the Compact Disc player, then the word "MAGAZINE" will appear on the display.
If the loader does not contain any compact discs, then the words "NO CD" appear on the display.
If a compact disc is damaged or has not been introduced properly into the loader, then the word "SURFACE" appers on the display".
If there is a break in the connection with the compact disc player then the word "CD" appears on the display.
In the case of a mechanical fault with the CD player the word "MECHANIC" appears on the display.
If the compact disc player overheats, the words "TOO HOT" appear on the display.

If the last condition mentioned above occurs, it is advisable to switch off the CD player for a certain period of time.



P4A518L01



P4A514L01

4A228L

Selecting disc

Press one of the following buttons (1), (2), (3), (4), (5) or (6), to select the compact disc to listen to from those stored in the loader and the number of the compact disc selected will appear on the display.

If there is a compact disc in the loader, the LED under the switch corresponding to the number of the compact disc will remain on, otherwise it will remain off.

Track search (forwards/backwards)

- Press the "MODE +" switch (9) to play the next track on the CD to which you are listening;
- press the "MODE -" switch (7) whilst listening to a track to play the track again from the beginning; by pressing twice in succession the previous track can be played;
- press these switches several times to go forwards/backwards as many tracks as the number of times the switches are pressed;

NOTE *If the "RANDOM" function is activated, (see page 50/20), tracks from the compact disc to which you are listening are selected at random.*

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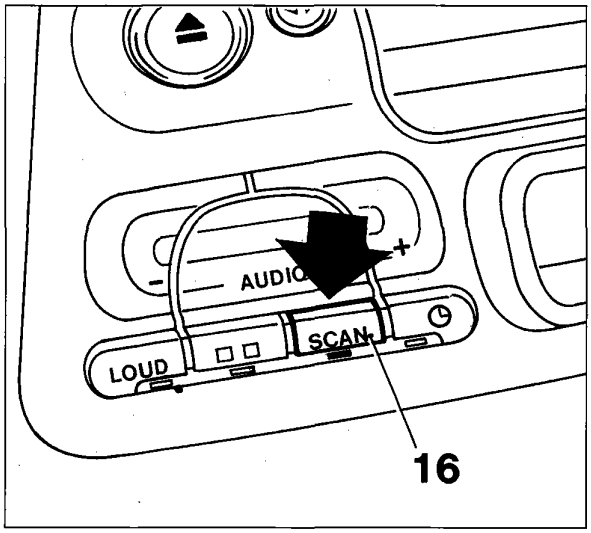
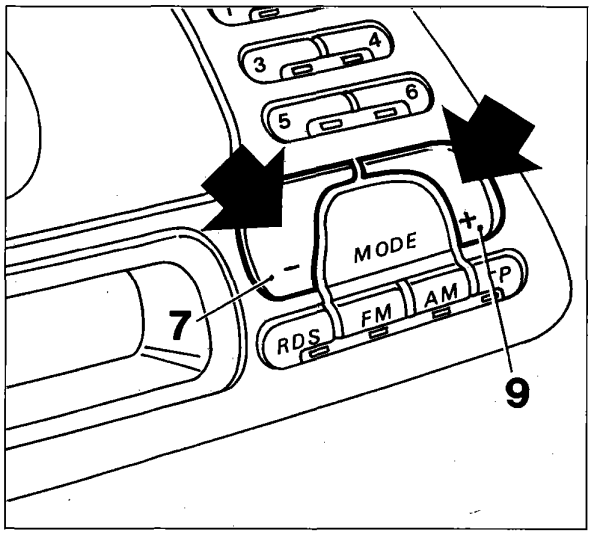


P4A519L01

Scanning tracks on the compact disc (SCAN Function)

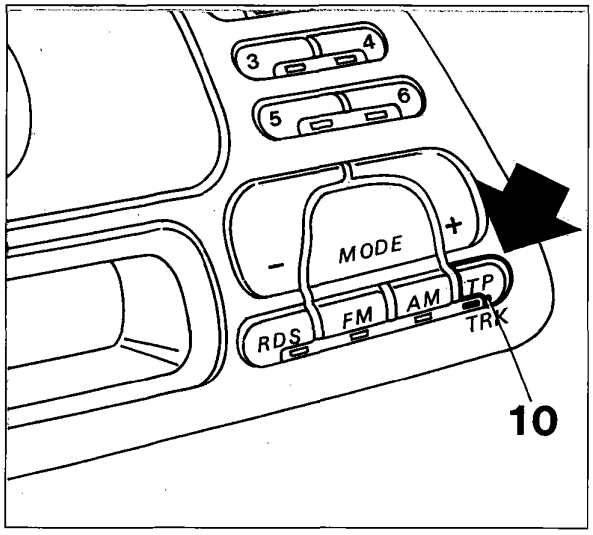
Press the SCAN" switch (16) (the LED under the switch will come on) to listen to the beginning of all the tracks on all the compact discs in the loader starting from the one selected previously for 10 seconds each.



P4A514L01

NOTE *It is possible to reverse the search direction several times by pressing the "MODE +" (9) or "MODE -" (7) switches.*

- press the "SCAN" switch (16) again to interrupt the scanning whilst listening to a track: the LED under the switch will go out and the compact disc will be played starting from that track.



P4A519L02

Track repetition (REPEAT Function)

Press the "TRK" switch (10) briefly (the LED under the switch will come on) to listen to the last track played several times.

NOTE *If in the meantime another track is selected whilst remaining in the track repeat mode, it will be played again several times.*

- press the "TRK" switch (10) briefly (the LED under the switch will go out) to exit from this mode.

4A229L

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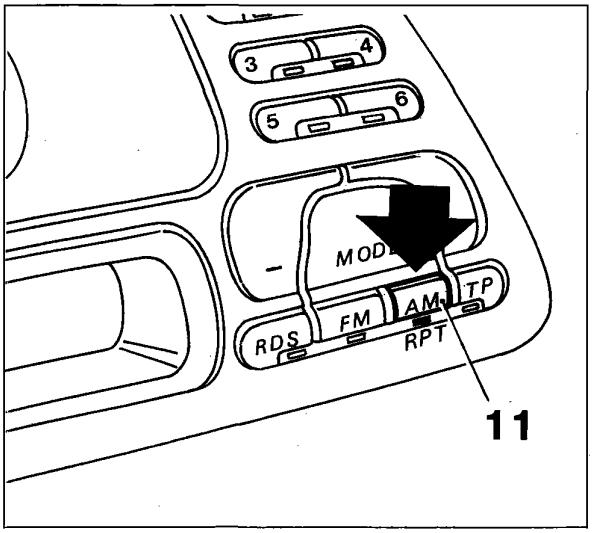


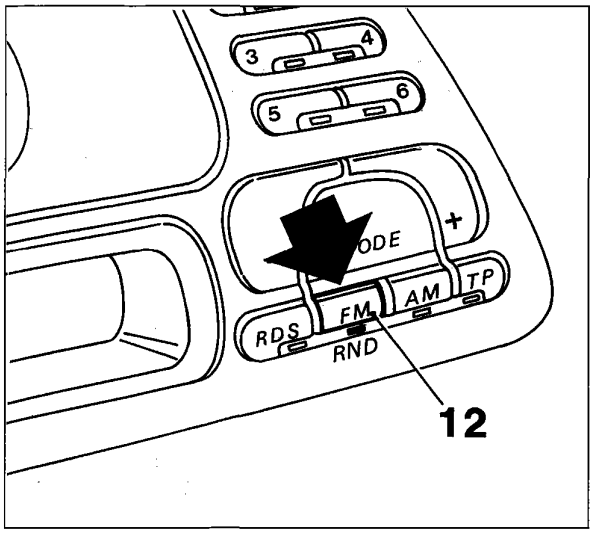
P4A520L01

CD Repetition (REPEAT Function)

Press the "RPT" switch (11) (the LED under the switch will come on) to listen several times to the last compact disc played.

NOTE *If in the meantime another compact disc is selected, whilst remaining in the CD repeat mode, it will be played again several times.*

- press the "RPT" switch (11) again (the LED under the switch will go out) to exit from this mode.



P4A520L02

Random playing of tracks (RRANDOM Function)

If the "RND" switch (12) is pressed (the LED under the switch will come on) a compact disc from those present in the loader will be selected at random and all the tracks on this compact disc will be played at random.

Once all the tracks have been played, another compact disc is selected and so on. Once all the discs have been heard, the random playing starts again in the same way.

NOTE *If the "CD Repeat" mode has been selected previously, all the tracks on the disc selected are played at random.*

- press the "RND" switch (12) again (the LED under the switch will go out) to exit from the "Random playing" mode.

Never expose discs to heat or direct sunlight, they must be stored in an appropriate container after use.
Compact discs should be kept away from dust and you should never touch the surface of the discs with your fingers and care should be taken to ensure they are not scratched as this will affect the sound reproduction.
If the surfaces of a disc is dirty, it should be cleaned with a soft cloth, working from the centre outwards. Do not insert damaged or distorted discs into the loader.

4A230L

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CLOCK FUNCTION

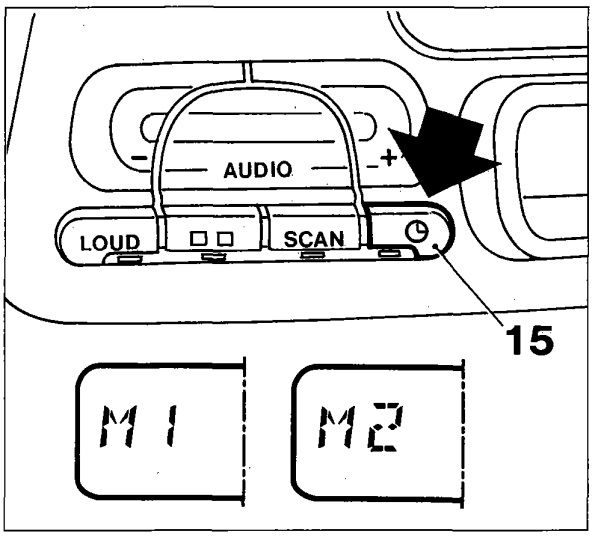
This function makes it possible to display the hours and minutes.
A double point, between the hours and the minutes, flashes once a second on the display.
With the radio on, if the clock appears on the display, whilst the time is being adjusted or a display mode is being selected, the LED under the switch (15) comes on.
With the radio off, the clock is always displayed.

Display modes

When the radio is on, there are two display modes with the following features:

a) Mode 1 (M1)

The clock is displayed in place of the main messages relating to the Radio functions (reception frequency), Audio cassette (word TAPE) or Compact Disc (number of track and playing time).
When the radio is switched on or any Radio, Cassette or Compact Disc function is selected, the messages for the function selected are displayed for around 10 seconds, after which the clock reappears.



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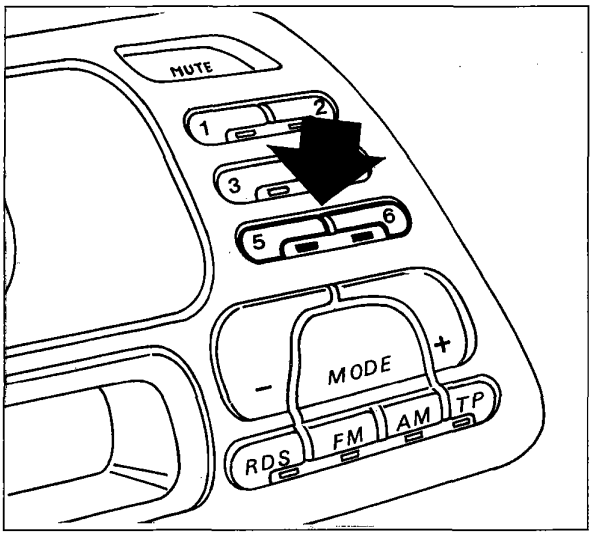

P4A521L02

4A231L

a) Mode 2 (M2)

The messages relating to the Radio, Cassette or Compact Disc functions are displayed in place of the clock.

When the radio is switched on, the mode present before the switching off is automatically selected.

Selecting display modes

- Keep the switch (15) pressed until the double point on the display, between the hours and the minutes, stops flashing and the words "M1" or "M2" appear, depending on the display mode selected;
- press switch (5) or (6) to select display Mode 1 or Mode 2, respectively (the words "M1" or "M2", respectively will appear on the display);
- press switch (15) again briefly to confirm the selection; the double point between the hours and the minutes will start to flash again and the words "M1" or "M2" will disappear.

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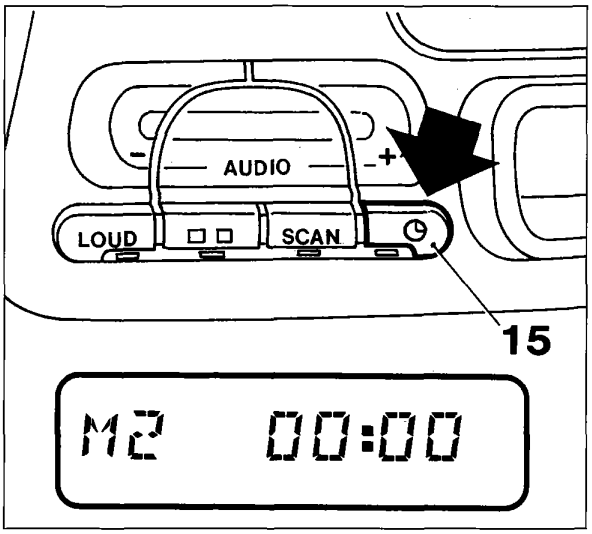

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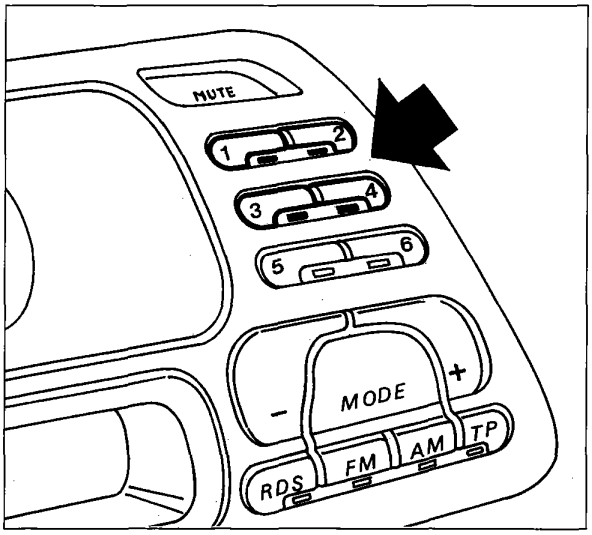

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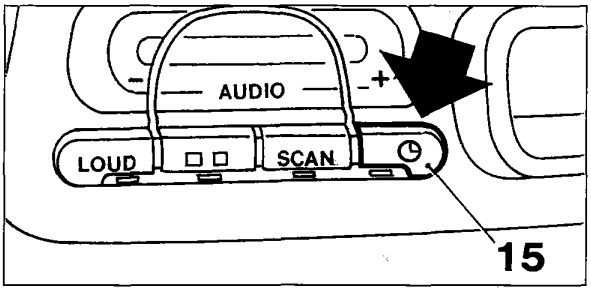
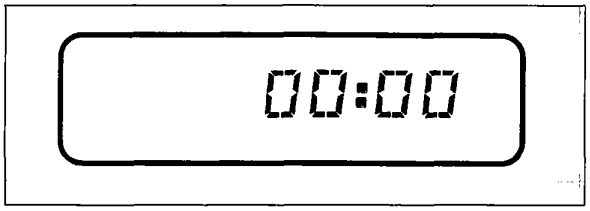


P4A522L03



P4A522L04

4A232L

Setting the exact time

- Keep the switch (15) pressed until the double point on the display, between the hours and the minutes, stops flashing and the words "M1" or "M2" appear on the display depending on the display mode selected;
- adjust the hours and minutes indicated on the display, proceeding as described below:
- decrease the hours by pressing switch (1);
- increase the hours by pressing switch (2);
- decrease the minutes by pressing switch (3);
- increase the minutes by pressing switch (4);

NOTE *By pressing the switches briefly, the hours and minutes are increased/decreased by one unit whilst by pressing them for longer the hours/minutes display is changed rapidly.*

- Once the exact time is set, press the switch (15) again briefly; the counting of the time is started beginning from 0 seconds and it is therefore possible to adjust the clock exactly. The double point, between the hours and the minutes, will start to flash and the words "M1" or "M2" will appear on the display.

Switching priority - time/frequency

Press switch (15) briefly to switch between the display of the clock and the messages relating to the Radio, Cassette or Compact Disc functions for a duration of 10 seconds, after which the indication, which has priority according to the display mode selected, will reappear automatically.

Disconnecting from the supply

If the radio is disconnected from the supply (even for a short period) when it is connected once again the display will show "00 : 00" with the figures flashing and the double point fixed to indicate that the clock must be adjusted once again.

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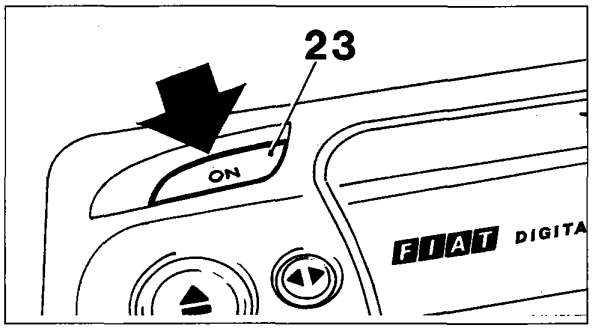
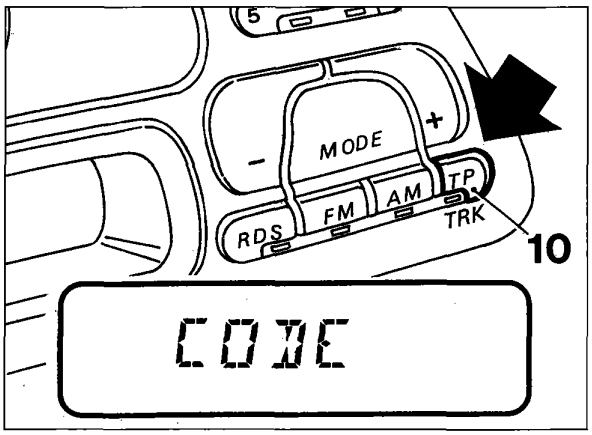
P4A051L03



P4A503L01



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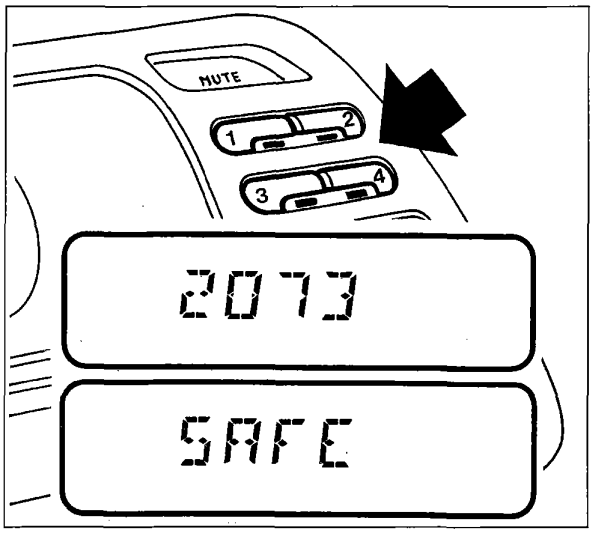

P4A051L05

ANTI-THEFT PROTECTION

The radio is equipped with an anti-theft protection system composed of a secret 4 figure code.

The protection system means that the radio cannot be used once it is removed from the dashboard if it is stolen.

Secret code

The secret 4 figure code is given on the "Security Code card" which comes together with the "Fiat Code Card" for the vehicle. The secret code should be kept in a safe place (for example together with the vehicle documents), **but not in the vehicle.**

Entering the secret code

The activation of the code in the radio becomes necessary:

a) when the vehicle is handed over by the dealer;
b) after each time the battery supply is interrupted.

Initial entering of secret code

NOTE *In order to clarify the procedure, make a note that the number of the secret code on the "Security Code Card" is 2073.*

- Switch on the radio by pressing the "ON" button (23);
- keep the "TP" button (10) pressed until the word "CODE" appears on the display for about 3 seconds;
- press button "1" twice. The number "2" should appear on the display;
- press button "2" seven times. The number "27" should appear on the display;
- press button "3" ten times. The number "270" should appear on the display;
- lastly, press button "4" three times. The number "2703" should appear on the display;
- confirm the code number by keeping button "TP" (10) pressed until the word "SAFE" appears on the display;
- after about 3 seconds the radio is operational and the code is activated.

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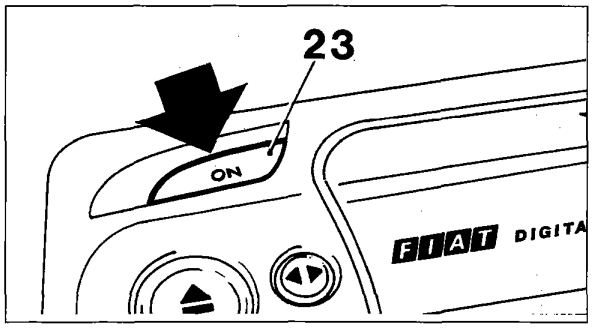
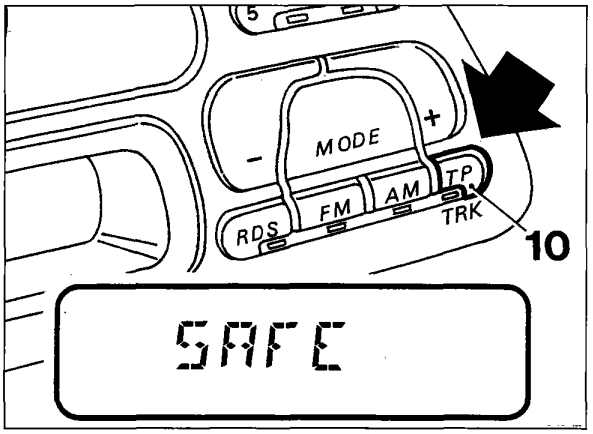


P4A503L01



P4A052L02

Number of attempts (on the display)	Waiting time (approx)
-	21 secs
1	1.5 mins
2	5.5 mins
3	22 mins
4	1.5 hours
5	6 hours
6	24 hours
7	24 hours

Re-entering the code

Proceed as follows:
- Switch on the radio by pressing the "ON" button (23), the word "SAFE" should appear for around 3 seconds on the display;
- key in the code number following the procedure used for entering the code initially;
- confirm the code number by keeping the "TP" button (10) pressed until the word "SAFE" appears on the display;
- after about 3 seconds the radio is operational and the code is activated.

If an incorrect code has been introduced, the radio remains locked and the word "SAFE" appears permanently on the displaye.

As a further deterrent against theft, the system prevents repeated attempts at entering the code with increasing longer intervals between one attempt and the next.

During these intervals the radio will not work until the word "SAFE" disappears from the display and the number of attempts appears in its place. The table at the side indicates the intervals between the individual attempts.

Eliminating anti-theft protection

It is possible to eliminate the anti-theft protection by de-activating the radio code:
- switch on the radio by pressing the "ON" button (23);
- Keep the "TP" button (10) pressed until the word "SAFE" appears on the display for around 3 seconds;
- key in the code number working as described previously (see previous page);
- confirm the code number by keeping the "TP" button (10) pressed) until the word "CODE" appears on the display;
- after around 3 seconds the radio is operational and the code is de-activated.

If an incorrect code is entered, the word "SAFE" will appear on the display". If this is the case, try again observing the intervals between the individual attempts.

Checking the activation state of the code

To check whether the radio code is activated, proceed as follows:
- switch on the radio by pressing the "ON" button" (23);
- press button "TP" (10) until something appears on the display;
- if the word "SAFE" appears, the code is activated, if, on the other hand, the word "CODE" appears then the code is not activated; by switching the radio off and then on again, the word "SAFE" or "CODE" will disappear.

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TECHNICAL INFORMATION

Aerial

The vehicle is equipped with an aerial located on the roof.

Electrically operated aerial and external amplifier (available on request for the AD182H radio)

The radio comes with an automatic electrically operated aerial (which works as soon as the radio is switched on and lowers when it is switched off) and an external amplifier.
The switching voltage for the aerial is at contact 5 (connector "A") for the radio and the switching voltage for the amplifier is at contact 3 (connector "A").
The switching voltage for both outlets is + 12 V with a maximum current of 0.5 A.

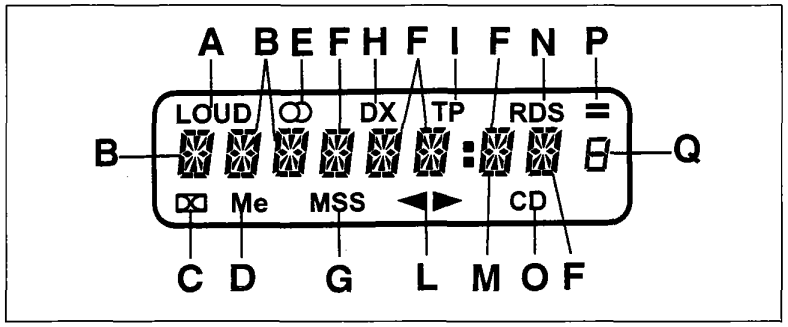
Speakers for AD182H radio system

The acoustic system is composed of:
- 2 130 x 180 mm elliptical diffusers 30 W max. power each;
- 2 tweeter-dome diffusers 40 W max power each;
- 2 103 mm diffusers 30 W max power each.

Fuses

The radio is equipped with a 10 A protective fuse.

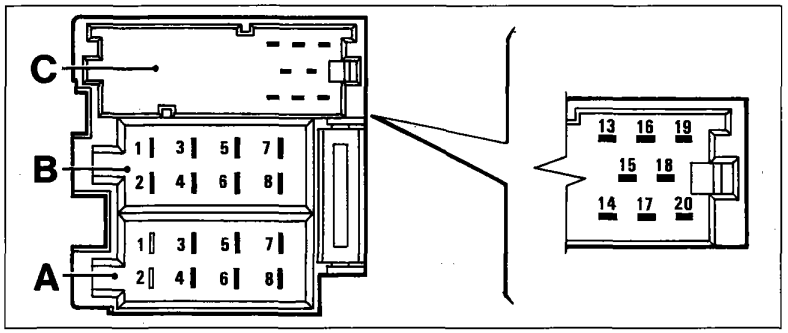
Information displayed



P4A053L02

A. Loudness
B. RDS
C. Dolby
D. "Metal" band
E. Stereo signal
F. RDS - FREQIE
G. Skip search
H. Search sensitivity
I. Traffic Programme
L. Tape direction
M. Frequency point
N. RDS reception
O. CD mode
P. RDS1 -; RDS2 =; RDS LEVEL
Q. Pre-section no.

Partial view of the rear of the radio



P4A053L03

TECHNICAL SPECIFICATIONS	
N° of output channels	4
Musical power output	About 30W peak (for each channel)
Nominal power output	⩽ at 15W RMS
Impedance	4 Ohm

CON. A HOUSING	
Pin N°	**Connection**
1	NC
2	NC
3	+ Service
4	+ Controlled by ig.
5	+ Service
6	+ Lighting
7	Supply + 30
8	Right dashboard earth

CON. B HOUSING	
Pin N°	**Connection**
1	+ Right rear speaker
2	- Right rear speaker
3	+ Right front speaker
4	- Right front speaker
5	+ Left front speaker
6	- Left front speaker
7	+ Left rear speaker
8	- Left rear speaker

CON. C HOUSING	
Pin N°	**Connection**
13	CD data input CD (CD BUS)
14	NC
15	Earth CD
16	+ Supply CD
17	+ Service
18	Earth CD AF
19	Left channel CD
20	Right channel CD

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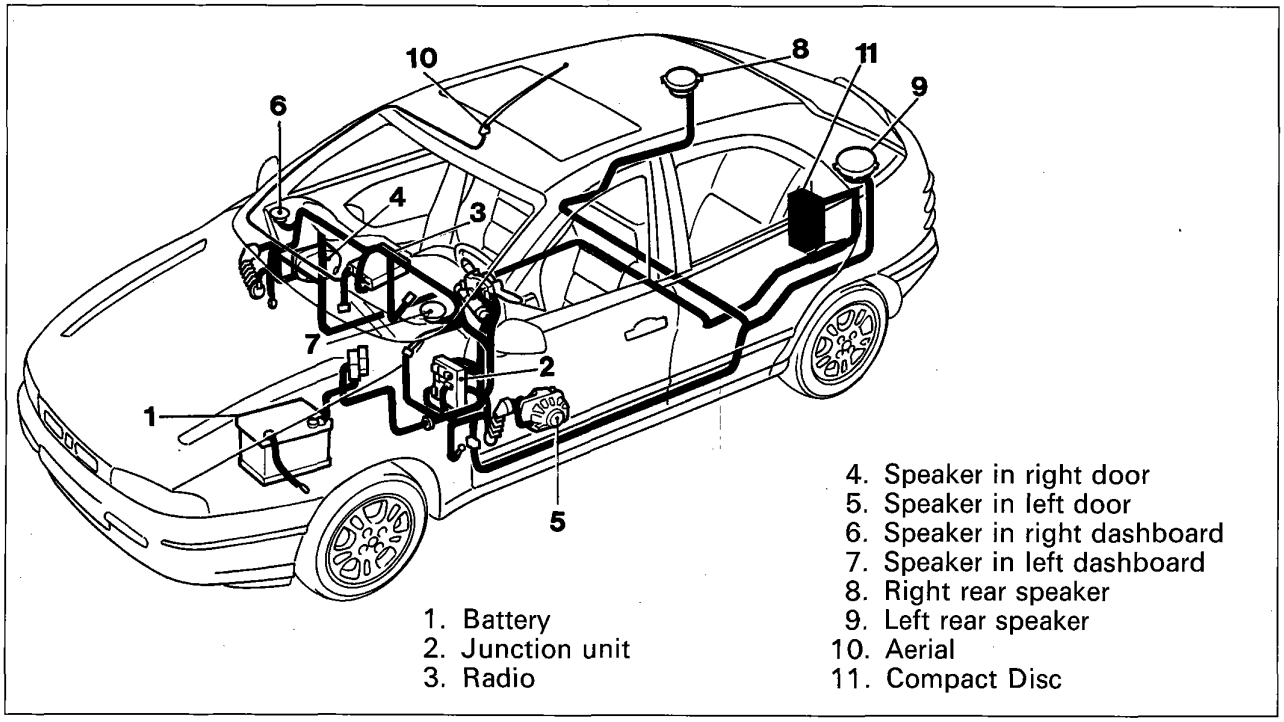
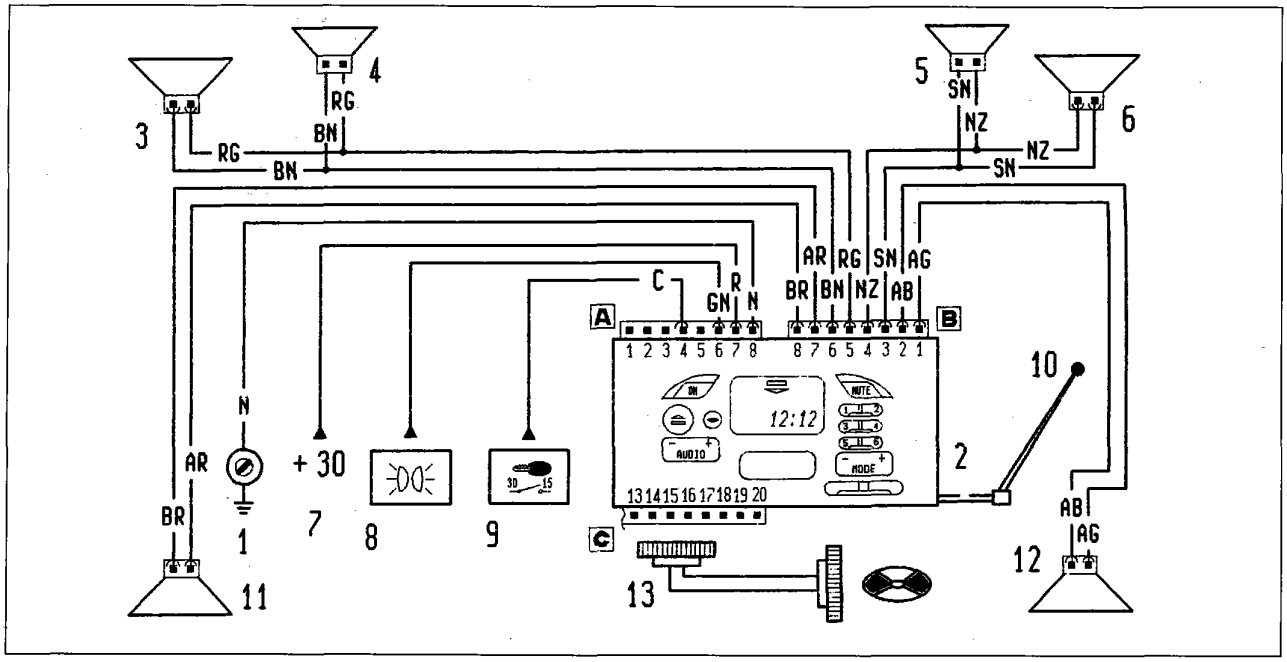
LOCATION OF RADIO SYSTEM COMPONENTS FOR MODEL AD 182 H



1. Battery
2. Junction unit
3. Radio
4. Speaker in right door
5. Speaker in left door
6. Speaker in right dashboard
7. Speaker in left dashboard
8. Right rear speaker
9. Left rear speaker
10. Aerial
11. Compact Disc

P4A054L06

Wiring diagram



P4A054L07

1. Earth in right dashboard
2. Radio
3. Speaker in left door
4. Speaker on left side of dashboard
5. Speaker on right side of dashboard
6. Speaker in right door
7. Battery supply (+30)
8. Lighting supply
9. Key supply (+15)
10. Aerial
11. Left rear speaker
12. Right rear speaker
13. Connection with compact disc

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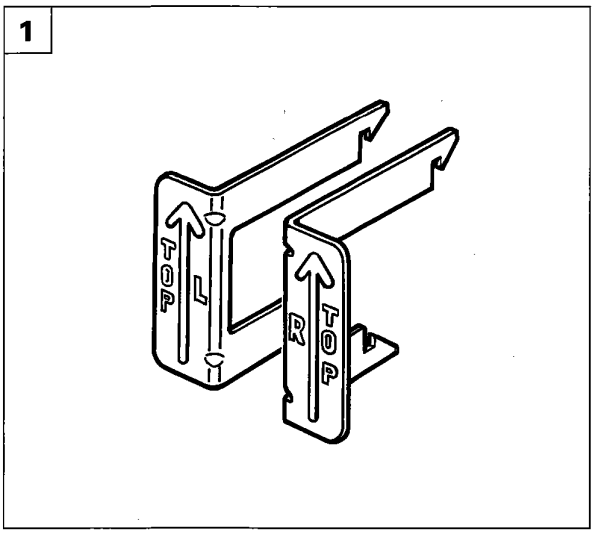
REMOVING RADIO MODEL AD 182 L

1



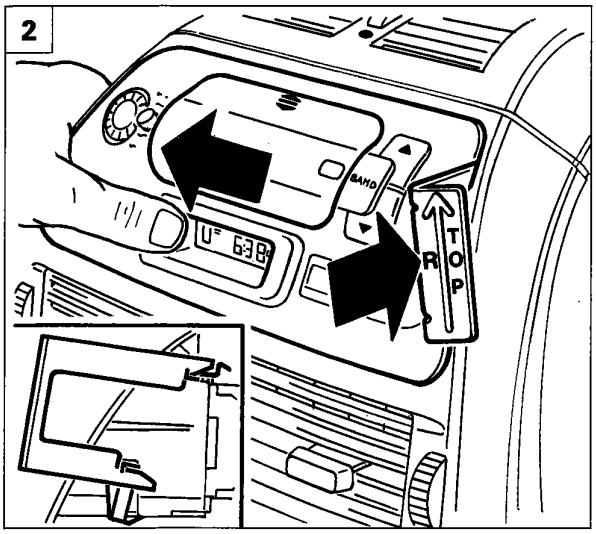
P4A055L03

1. Tool 1860897000, which should be used to remove the radio, is composed of a right element and a left one, marked with the letters R and L, respectively.

NOTE *The correct direction in which to use each element is shown by an arrow.*

To facilitate the removal operations it is advisable to work from the passenger side.

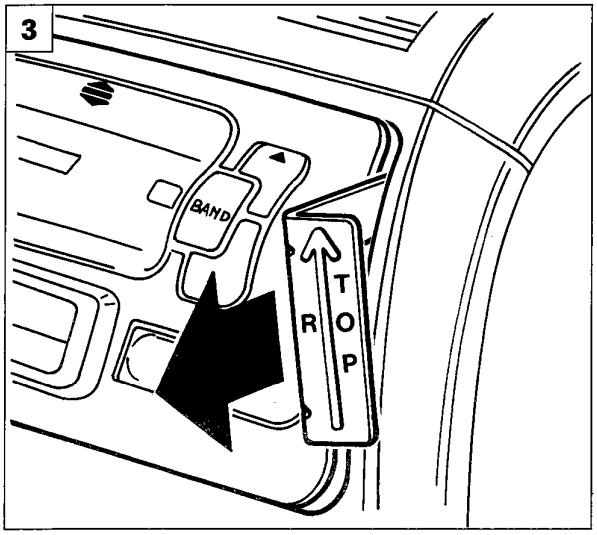
2



P4A055L04

2. More the radio towards the left, as illustrated in the diagram, then carefully insert the right element (R) of tool 1860897000 until it can be heard to engage the with the actual radio springs (see inset).
3. Using the right element (R) of the tool described above, slightly extract the right part of the radio in the direction shown by the arrow.
4. Move the radio towards the right as illustrated in the diagram, then carefully insert the left element (L) of tool 1860897000 until it can be heard engaging with the radio springs.

3



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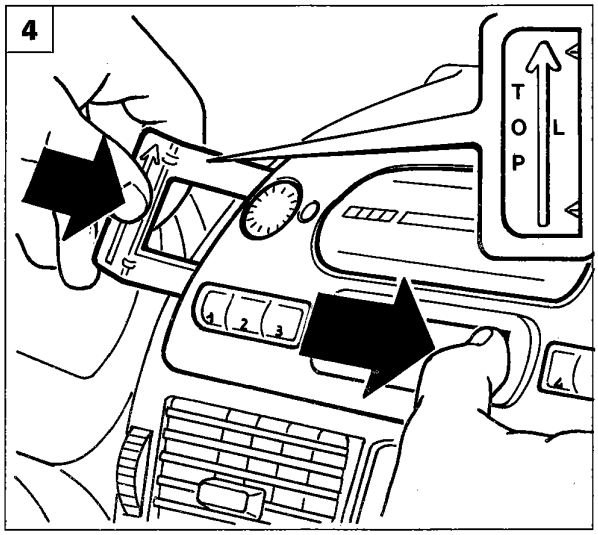
4



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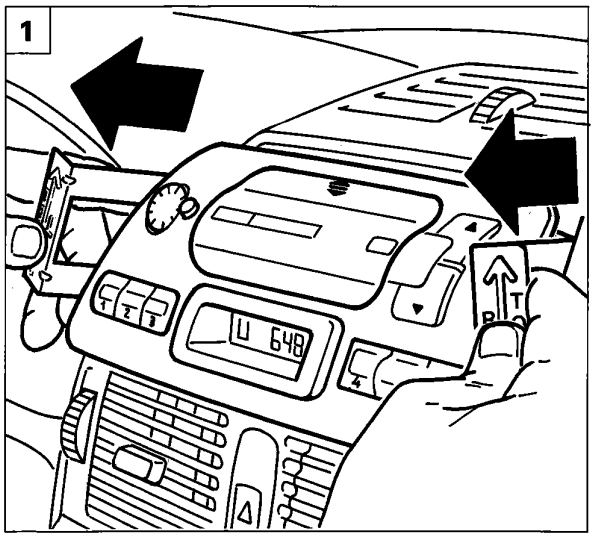
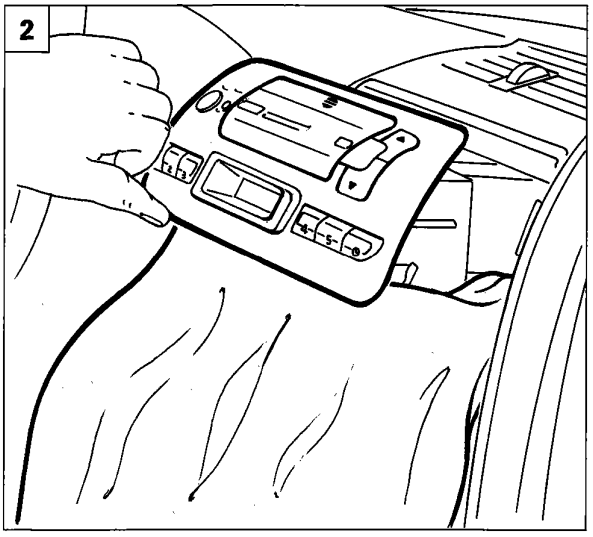


P4A055L07

1. Grip both elements of tool 1860897000 and partly extrac the radio, then release the two elements of the above tool from the radio.

DO NOT extract the radio working working from the glove compartment, but only use the two elements of tool 1860897000, following the procedure described previously.

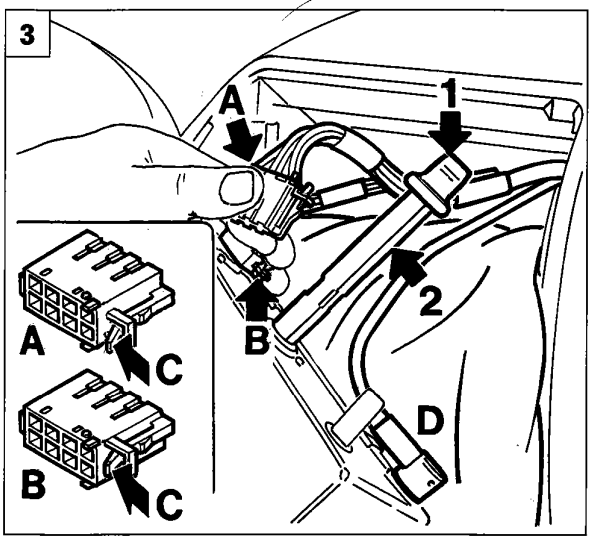
2. Protect the area of the dashboard under the radio using a cloth as illustrated in the diagram.
3. Completely extract the radio; disconnect connection D for the aerial cable and connectors A and B working in the following way: push connectors A and B towards the radio and press on the retaining springs C shown in the inset and extract them from the housing; then remove the radio from the vehicle.
   If the rubber terminal (1) for the centering pin (2) remains inserted in the dashboard cross member, remove it and fit it on the actual pin.



P4A055L08

REMOVING RADIO MODEL AD182H

4. Follow the same procedure described for the removal of the radio model AD 182 L until the disconnection of connectors A and B, then disconnect the connector for the Compact Disc (CD) (which can be recognized by the three different colours) acting, at the same time, on the retaining springs shown in the inset.



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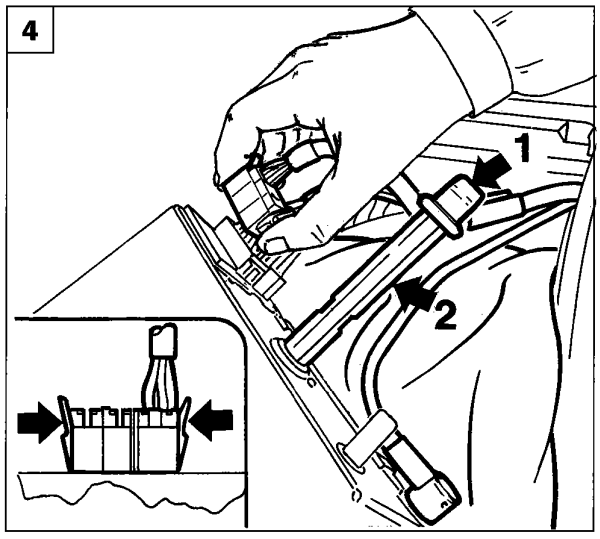

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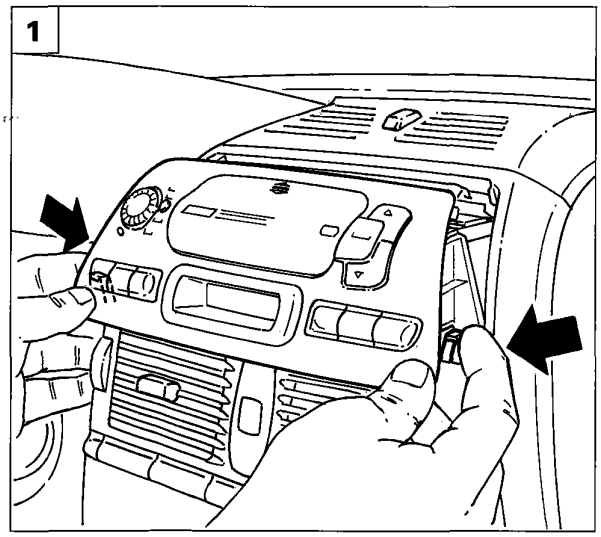
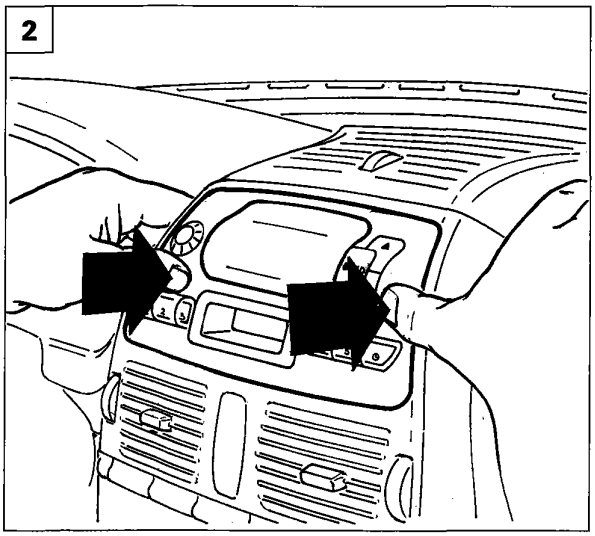


P4A055L11

REFITTING RADIO MODELS AD 182 L - AD 182 H

1. To refit suitably reverse the operations carried out for the removal, making sure that the rubber terminal (1) is correctly fitted on the centering pin (2). When refitting the radio in its housing, place the cloth on the cowling whilst connecting the connectors and take care to correctly match the centering pin in the housing in the dashboard; introduce the radio slowly into its housing, keeping the two lower springs suitably loaded so that when they enter the housing they do not scratch the dashboard cowling.

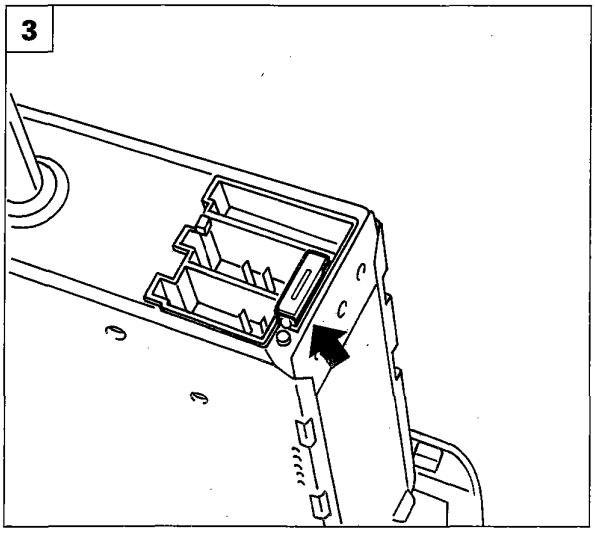


P4A055L12

2. At this point press on the radio cowling as illustrated in the diagram, until the retaining springs are heard to click avoiding using force on the control switches.

REPLACING RADIO MODELS AD 182 L - AD 182 H

3. If there is a problem with the radio or a break in the protective fuse, shown in the diagram, DO NOT CARRY OUT ANY TYPE OF REPAIR AND/OR REPLACEMENT OPERATION, but proceed as illustrated below.
4. Undo the centering pin and attach it as illustrated in the diagram, then send the complete radio to the Supplier.



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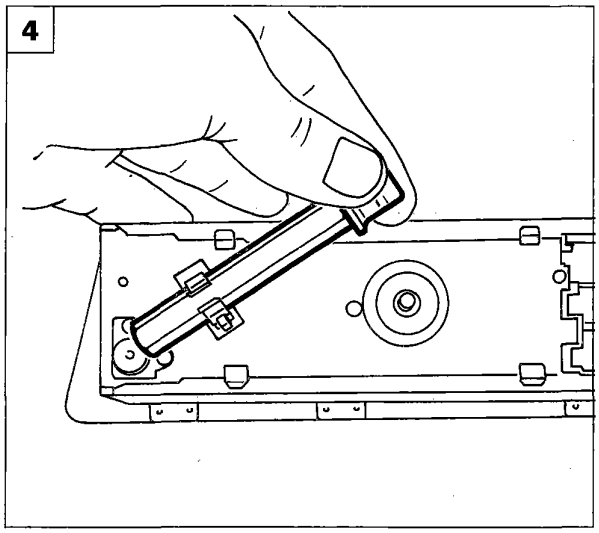

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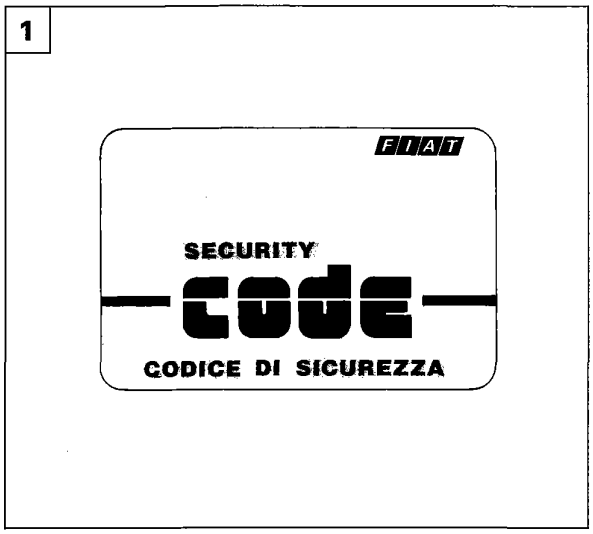
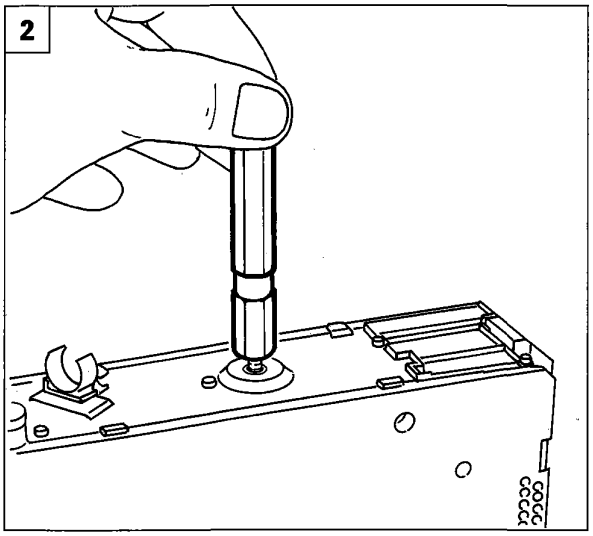


P4A055L15

1. For the AD 182 H model it is necessary to take out the Security Code Card for the radio removed from the Fiat Card envelope and replace it with the one enclosed with the new radio. Attach the old Code Card to the radio replaced.
2. Take a new radio, then attach the centering pin complete with rubber terminal and tighten it in the threaded housing at the bottom of the radio. Proceed with the fitting, following the instructions given on the previous page.



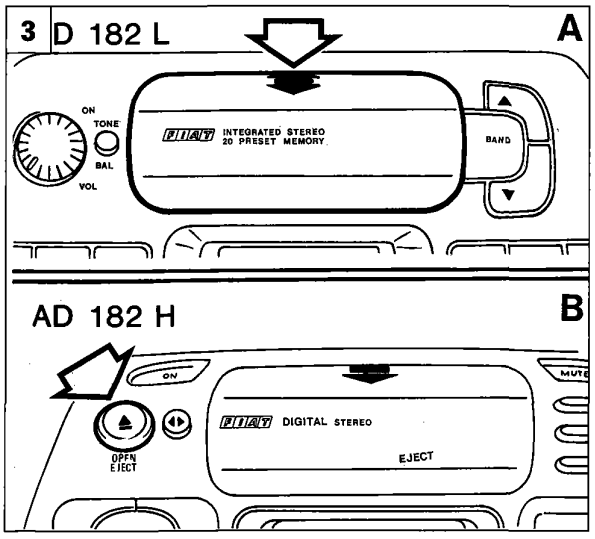
P4A055L16

OPENING/CLOSING CASSETTE HOUSING FLAP

3. The operation of opening the cassette housing access flap differs for the two models:

- AD182L: exert pressure from the top downwards at the point shown in the diagram until the click of the flap releasing can be heard.
- AD182H: press the button shown to automatically open the flap.

4. In order to close the flap (for both the AD182L model and the AD182H model), exert slight pressure at the point shown in the diagram until the click of the flap attaching can be heard.



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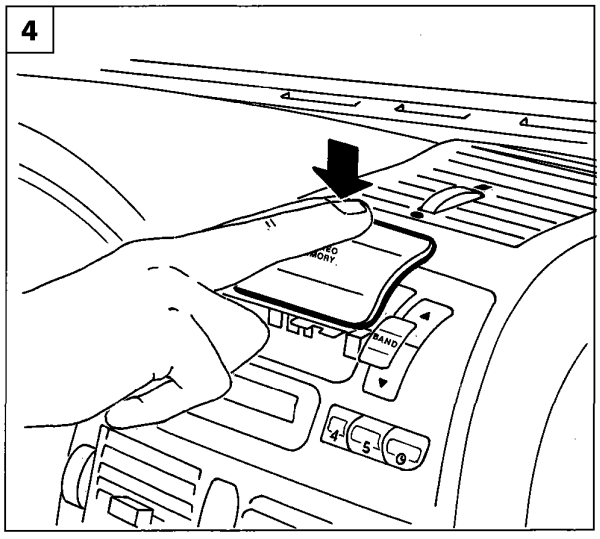

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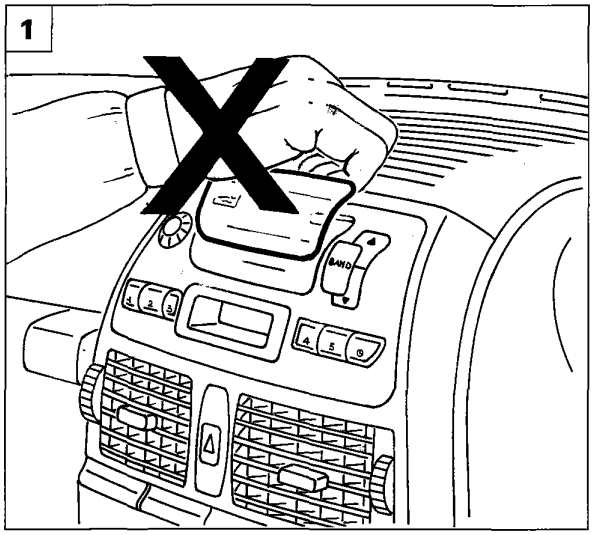
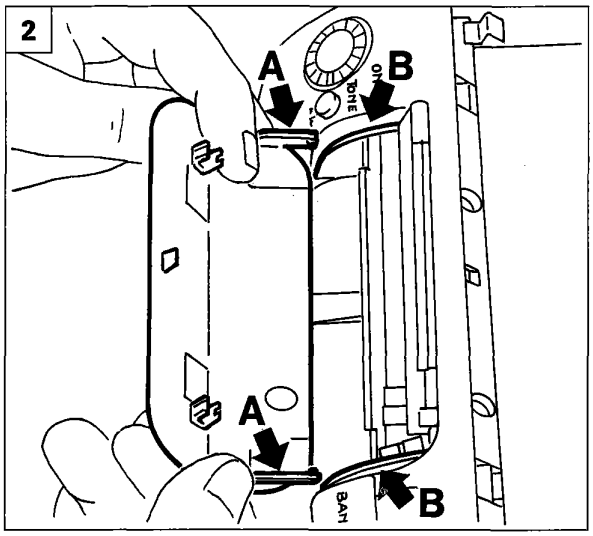


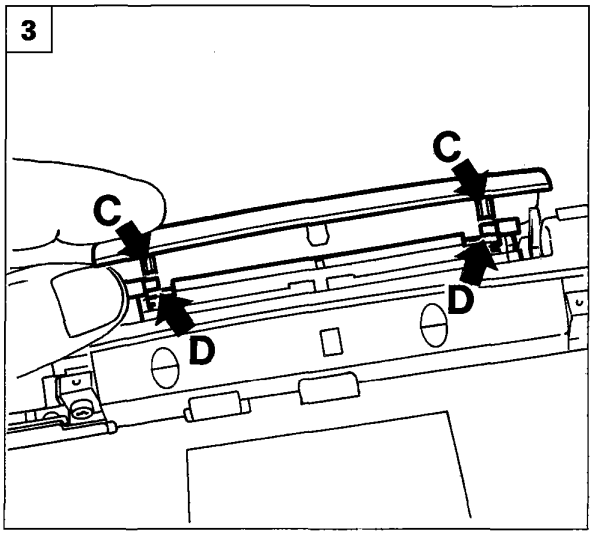
1. DO NOT CLOSE THE CASSETTE HOUSING ACCESS FLAP WORKING AS ILLUSTRATED IN THE DIAGRAM, in order not to cause the actual flap to become detached and cause possible damage to the guides.

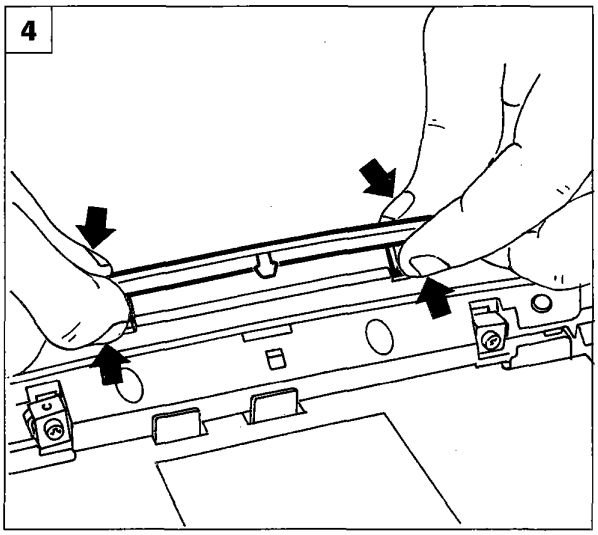
Refitting cassette housing access flap

If the flap becomes detached and there is not damage to the guides or the joints, proceed with the refitting working as described below (for greater clarity the operations have been carried out with the radio not in its housing):

2. Insert the lower guides A for the flap in the sliding slots B in the radio.
3. Turn the flap making the springs C on the lower face of the actual flap coincide with the pints D for the rotating arm.
4. Simultaneously press the two sides of the flap between your thumb and index finger to complete the fitting.







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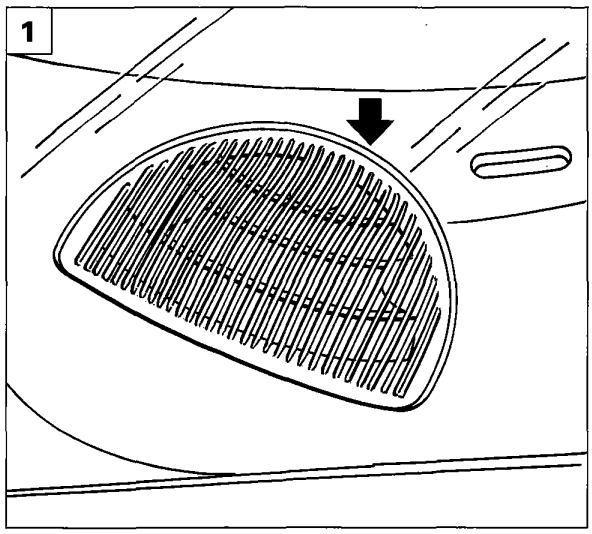

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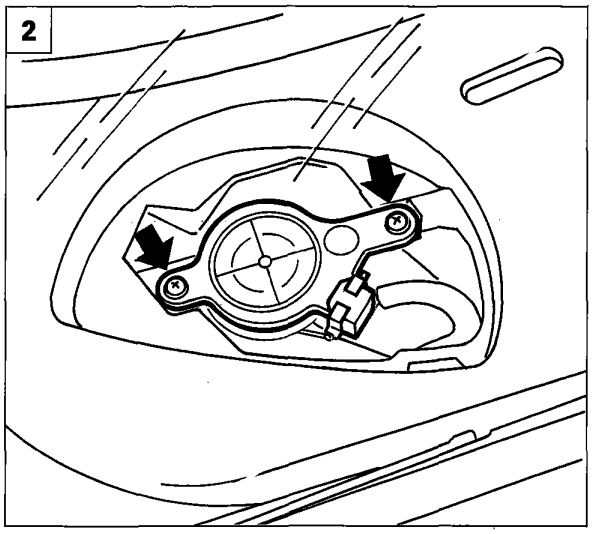


P4A056L02

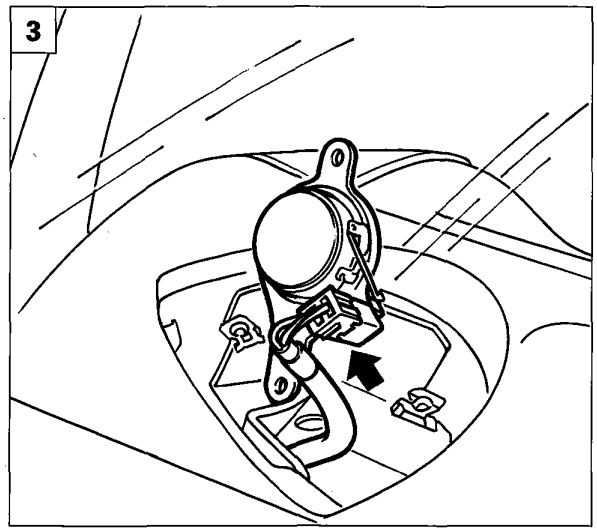
REMOVING-REFITTING SPEAKERS

Speakers in dashboard

1. Remove the protective grille from the dashboard using a screwdriver at the point shown by the arrow.
2. Undo the bolts fixing the speaker to the dashboard.
3. Disconnect the electrical connection and remove the Speaker from the vehicle.

Rear speaker

4. Undo the bolts fixing the speaker, and remove it from the vehicle after having disconnected the electrical connection for the supply cables.



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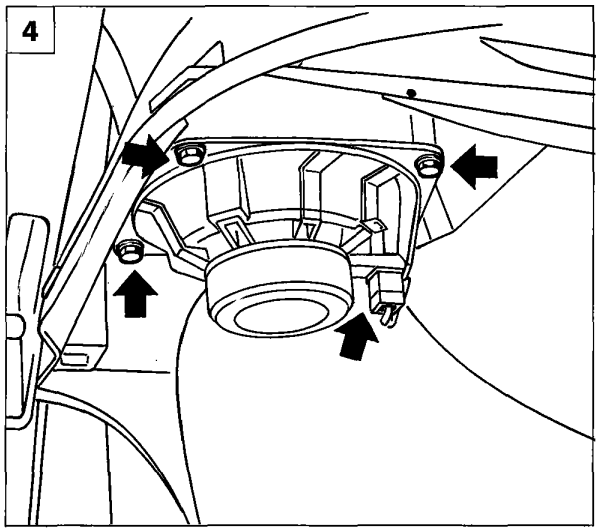

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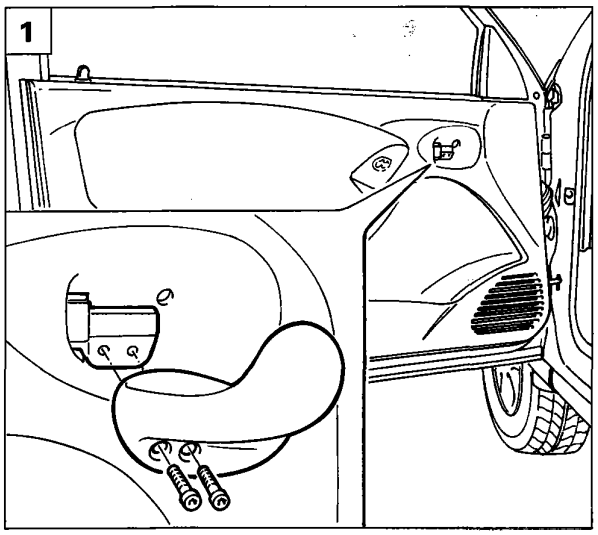

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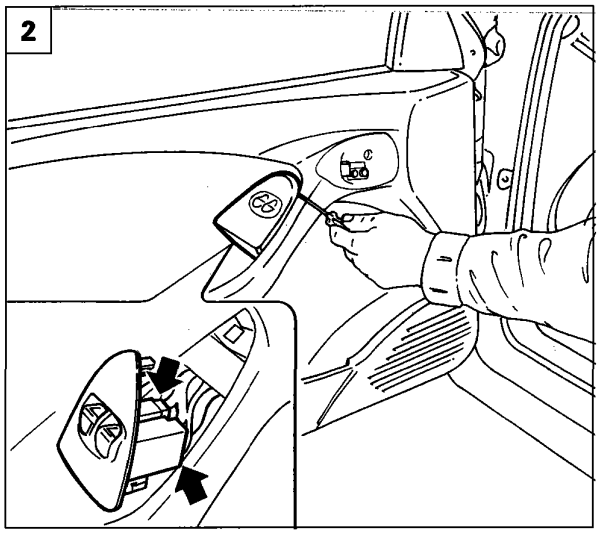

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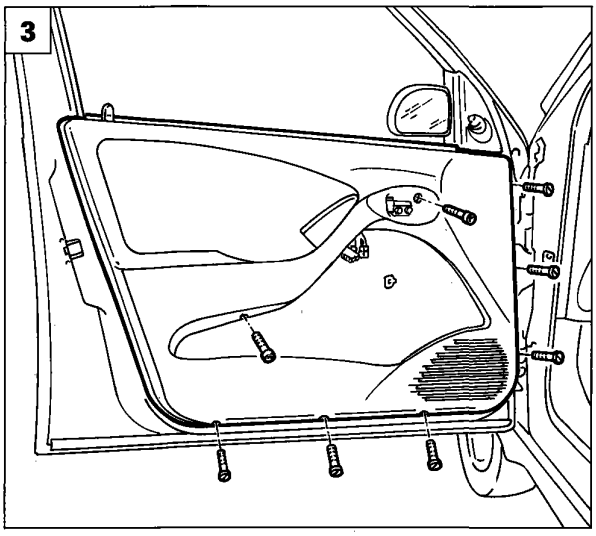
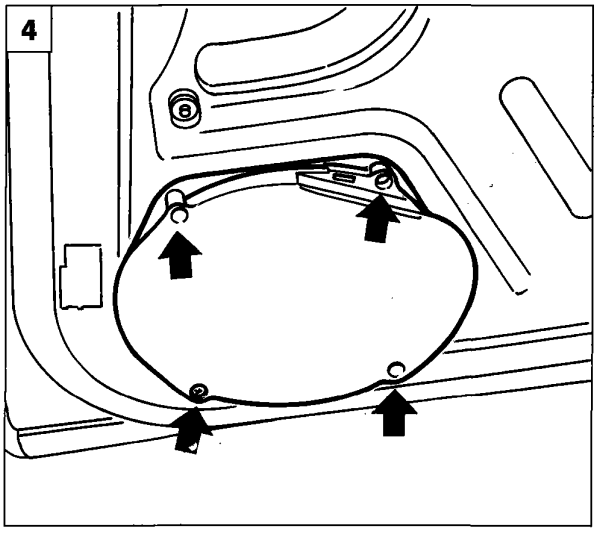


P4A057L03

Loudspeakers on front door

1. Remove the door lever by undoing the screws indicated.
2. Remove the electric windows pushbutton unit and disconnect the electrical wiring.
3. Remove the door panel by undoing the attachment screws.
4. Undo the screws securing the loudspeaker assembly and remove it from the car.
5. Separate the protective grille from the loudspeaker by releasing the retaining lugs.



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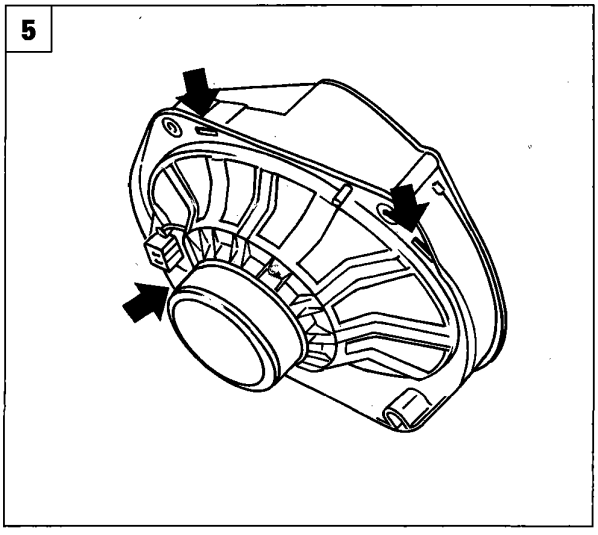

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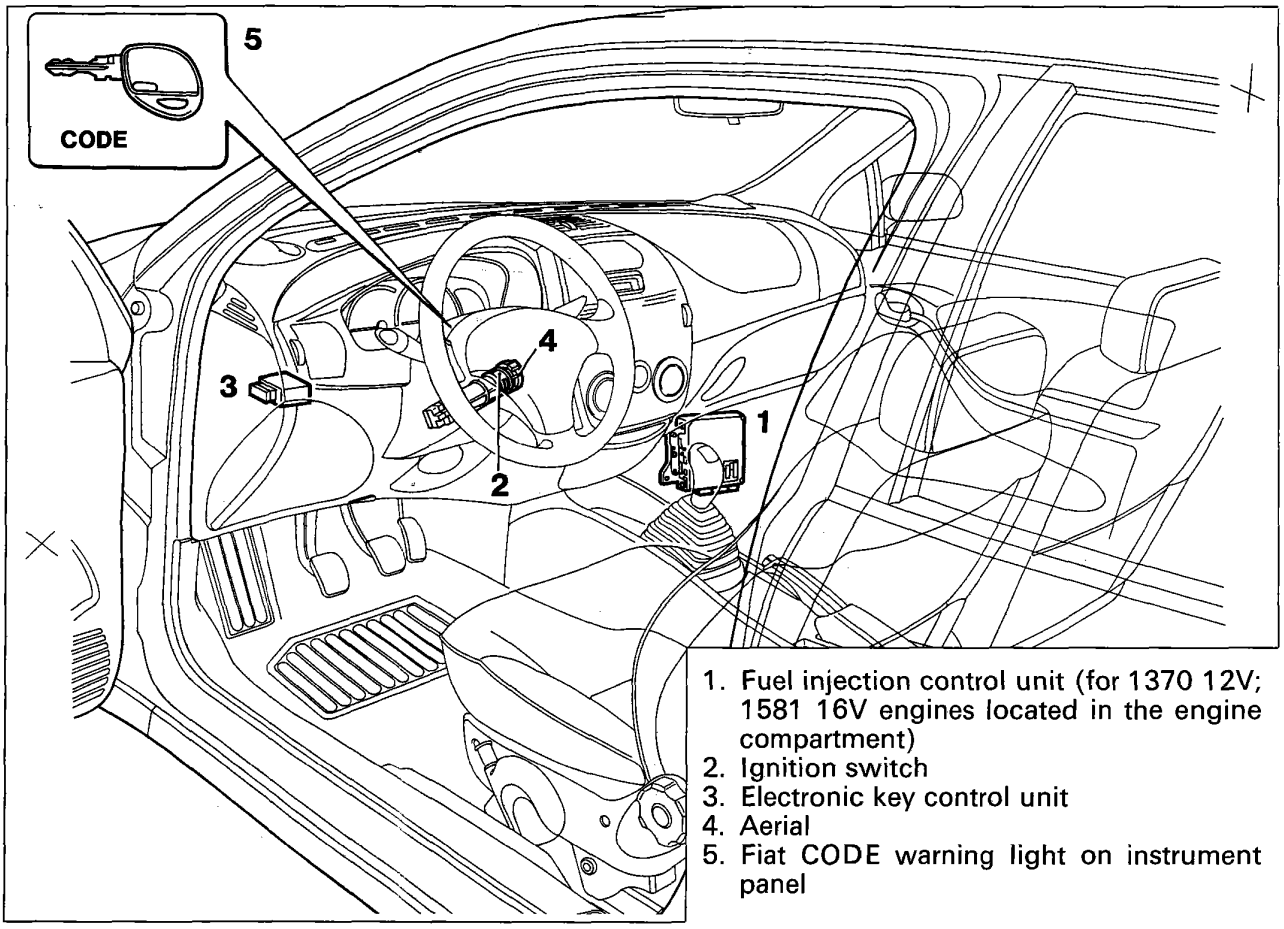
55.

INTRODUCTION

To increase protection against attempted theft, the cars are fitted with an electronic system for blocking the engine, called "Fiat CODE", which is automatically activated when the ignition key is withdrawn. The keys are fitted with a device which transmits a coded signal to the Fiat CODE control unit which, only if it recognizes the signal, permits engine starting.

The Fiat CODE (immobilizer) system comprises:
- Fiat CODE control unit;
- electronic keys (three or four depending on the car model) containing a device which emits an electronic code;
- specific aerial on ignition switch;
- engine control unit with serial line for communication with the Fiat CODE control unit;
- Code Card with secret code for the emergency starting procedure;
- CODE warning light.



P4A058L01

1. Fuel injection control unit (for 1370 12V; 1581 16V engines located in the engine compartment)
2. Ignition switch
3. Electronic key control unit
4. Aerial
5. Fiat CODE warning light on instrument panel

The functions of the Fiat CODE control unit are:
- to recognize the introduction and rotation of a key in the ignition switch;
- to emit an electromagnetic field to give power to and activate the key's TRANSPONDER (code emitter);
- to receive the secret code emitted from the key;
- to memorize a maximum of 8 keys with 8 electronic codes;
- to manage the checking/processing of the codes;
- to manage a single-wire bidirectional serial communication towards the engine control unit;
- to manage the lighting up of a special warning light;
- to recognize the connection with the Fiat/Lancia Tester and, for some versions, to prepare the use of the serial line for the diagnosis function.

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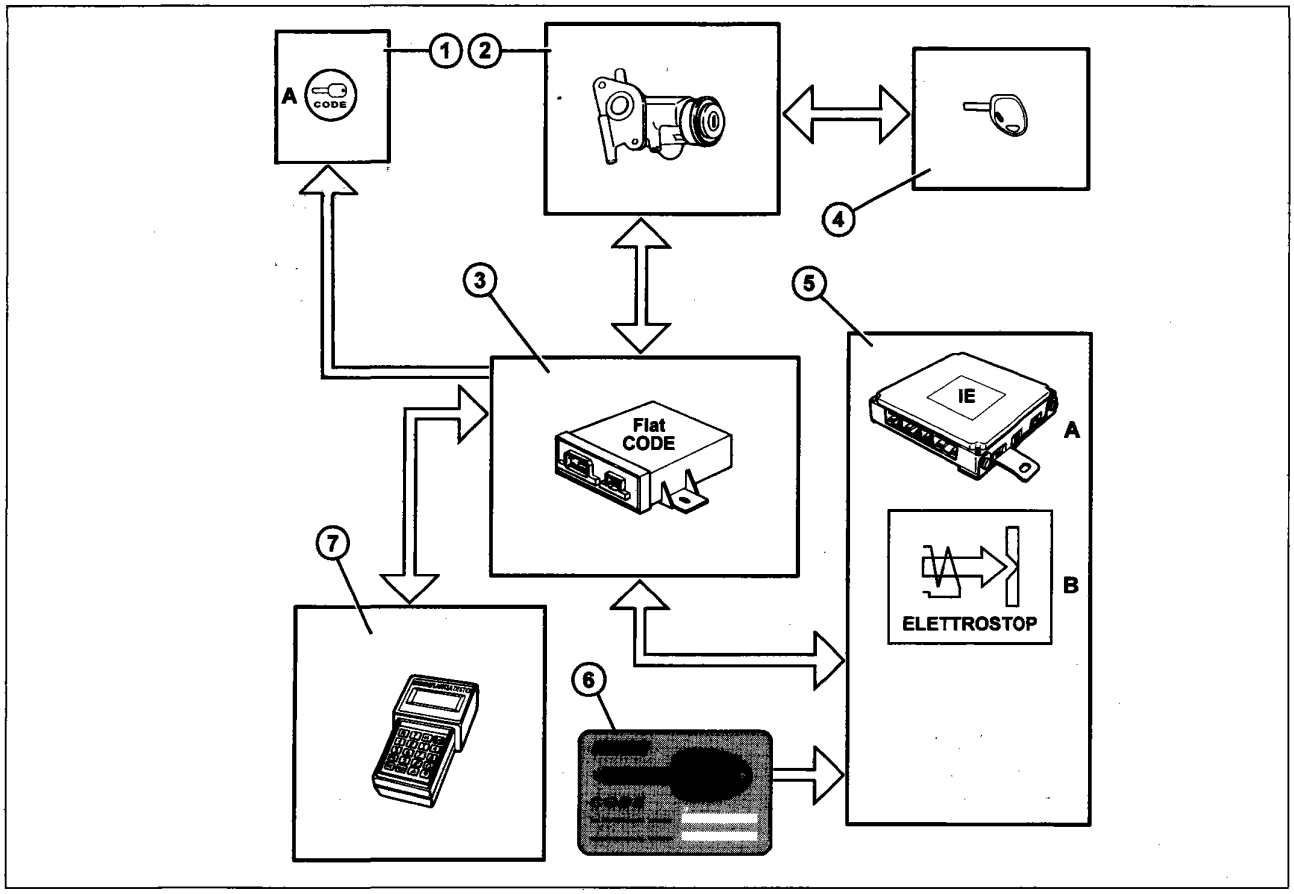
The Fiat CODE system enables the operation of the engine control unit by means of an exchange of codes.
When the ignition is ON (+15), the engine control unit sends a code request to the Fiat CODE control unit; the latter responds and sends a secret code only after recognizing (via an aerial) a known electronic key entered in the ignition switch.
After recognizing the code, the engine control unit changes over to the engine starting enablement condition.
The engine control unit can only memorize the secret code by means of a particular procedure.



P4A059L01

1. CODE warning light on instrument panel
2. Ignition switch with aerial
3. Fiat CODE control unit
4. Key with transponder
5. Engine control unit
   A. Fuel injection/ignition control unit (petrol) or fuel injection pump control unit (diesel)
   B. Electrostop (diesel)
6. CODE Card
7. Fiat/Lancia Tester

DESCRIPTION OF SYSTEM

Engine control unit

The engine control unit is the fundamental component of the Fiat CODE system as it contains the main code (Master Code).
Depending on the model/version, the engine control unit consists of the following devices:
- Electronic fuel injection-ignition control unit for petrol versions with integrated fuel injection/ignition system.
- Electronic fuel injection control unit for diesel versions with electronic pump.
- Electronic device integrated in the electrostop valve for diesel versions with mechanical fuel injection pump.

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When the ignition is switched ON (+15), the engine control unit requests a code from the Fiat CODE control unit; after receiving the code, it compares it with the Master Code stored in memory. If the comparison of the code gives a positive result, the engine control unit permits starting and normal operation of the engine.

If the Fiat CODE control unit is faulty, the engine control unit manages the emergency starting procedure activated by the Fiat Lancia Tester or (for petrol versions with integrated fuel injection/ignition systems and diesel versions with electronic fuel injection) by means of the accelerator pedal.

Under no circumstances may engine control units be exchanged between cars to check whether they are working.

During diagnosis, before replacing the engine control unit, make sure that the component under examination really is faulty, because when the new engine control unit is supplied, the Master Code will be memorized, rendering it entirely unusable on other cars.

Fiat CODE control unit

The main function of the Fiat CODE is to recognize the keys inserted in the ignition switch.

At the request of the engine control unit, the Fiat CODE unit sends to the former:

- the Master Code (key recognized), enabling starting and normal operation of the engine;
- the diagnosis code (key not recognized) preventing engine starting.

The Fiat CODE control unit also has to do the following:

- manage the memorization or rememorization of the keys;
- memorize the Master Code in the engine control unit (at the request of the engine control unit);
- manage the CODE warning light.

There are two procedures for dialogue between the Fiat CODE control unit and the engine control unit:

a. after the Fiat CODE control unit has memorized the keys, dialogue with the UNUSED engine control unit begins. The exchange of information (registration of the code) between the engine control unit and the Fiat CODE control unit is guided only by the engine control unit; the Fiat CODE control unit is only enabled to respond to interrogations from the engine control unit;

b. checking the code is a standard procedure which is repeated whenever the user inserts the electronic key in the ignition switch block and turns it to the ON (+15) position; the checking procedure also continues when the user moves the key to the START (+50) position.

With the key at the ON (+15) position, the Fiat CODE control unit must recognize the electronic key with its relevant code. There will be two possibilities:

- recognition of the code by the Fiat CODE control unit; the engine code control unit enables starting and engine operation (the CODE warning light goes out);
- if the code recognition is negative, the Fiat CODE control unit will send a code to the engine control unit which will not permit engine starting (CODE warning light is on permanently).

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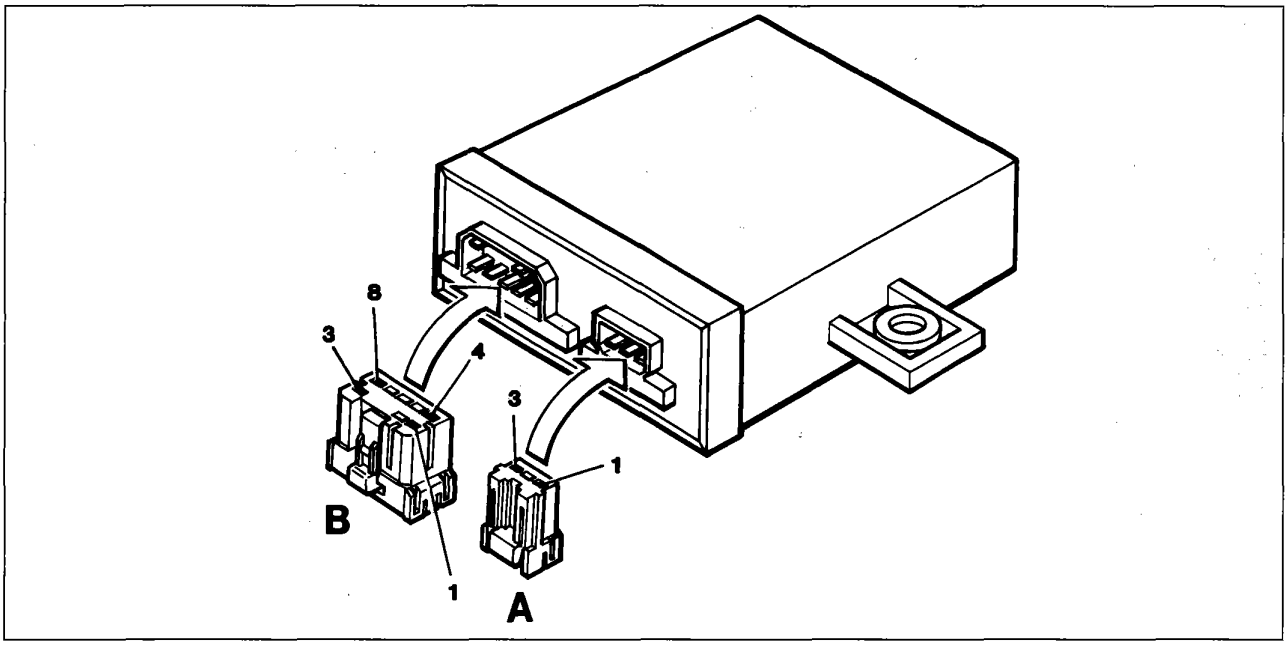
Perspective view of the Fiat CODE control unit and relevant connectors



P4A061L01

Identification of connector pins

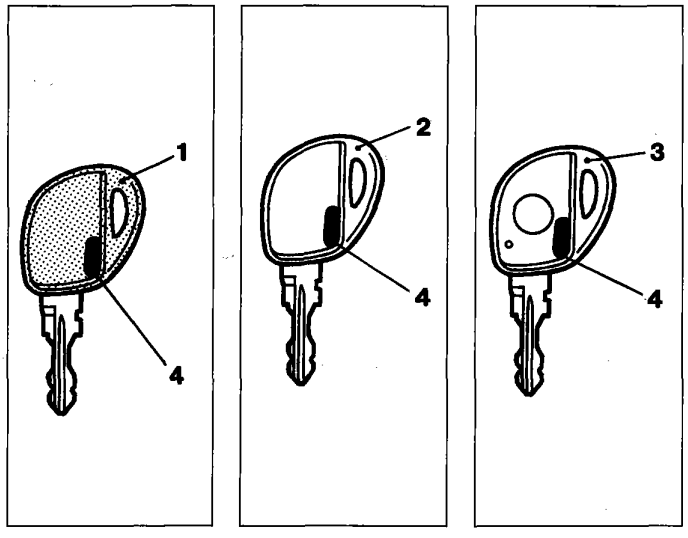
Connector A

1. Aerial
2. Not connected
3. Aerial earth

Connector B

1. Not connected
2. CODE warning light
3. +12 V from battery (+30)
4. Earth
5. Not connected
6. Serial line to fuel injectioin control unit
7. Not connected
8. +12 V with key in ON position (+15)

Electronic keys



P4A061L02 P4A061L03 P4A061L04

1. Master key (maroon colour)
2. Main key
3. Key with remote control
4. Transponder

Two types of key are supplied with the car. The key (1) with maroon handle is the MASTER key; a single copy is supplied and it is used to memorize the other keys.

The Master key can also carry out all the functions of the main key; however, it is not advisable to use it except in cases of emergency.

The key (2) is the key for normal use (main key); two copies are supplied and it serves for starting and opening/closing the front doors, tailgate and glove compartment, if the latter has a lock.
For cars with remote control, the key (3) is supplied instead of key (2).

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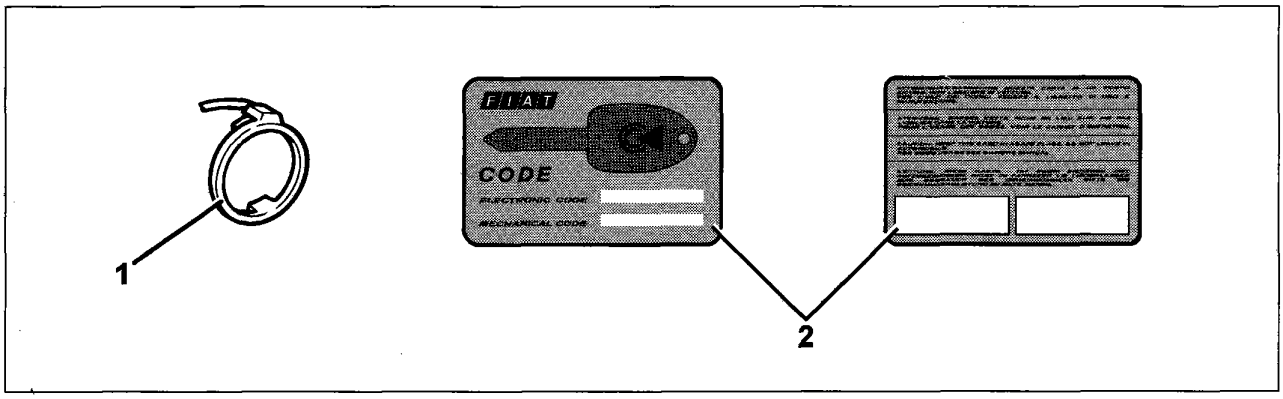
The key handle contains a Transponder, an electronic device NOT supplied by the battery; it contains a code and effects transmission by ether.
When the key is inserted in the ignition switch, the Transponder is activated by the aerial by radio waves and responds automatically by emitting a code.
Each key contains a Transponder with a secret code. The MASTER key (maroon key) contains the Master Code and should be used ONLY for the key memorization procedure.

The code of the MASTER key is the Master Code memorized in the engine control unit and Fiat CODE control unit; this links the engine control unit and the MASTER key so that they are inseparable. If the MASTER key is lost or damaged, no further new key memorization procedures will be possible; a subsequent fault in the Fiat CODE control unit will make it necessary, in the absence of the MASTER key, to replace the Fiat CODE control unit and engine control unit.

The owner of the car is advised to CLOSELY follow the instructions below:

- *the MASTER key must be stored in a safe place (not in the car);*
- *the MASTER key must be used only to memorize new keys;*
- *the CODE Card with the secret code must not be left in the car in case of theft; at the same time it must be available for emergency starting;*
- *the MASTER key is the right of ownership of the car; if the vehicle is sold, the MASTER key and CODE Card must be handed over to the new owner.*



P4A062L01

1. Aerial
2. CODE Card with the secret code

Aerial

The aerial has to do the following:
- supply energy to the Transponder for sending the code;
- receive the code from the Transponder and send it to the Fiat CODE control unit.

Since the aerial has to be close to the Transponder (because of the electromagnetic immunity, small size and limited range of action of the Transponder), it is fitted coaxially in relation to the ignition switch.

CODE Card

The CODE Card is supplied in two copies, containing the following:
- Electronic CODE, 5-digit code for the emergency starting procedure using the Fiat Lancia Tester or, for models where this is possible, using the accelerator pedal;
- Mechanical CODE, should the mechanical part of the key need to be duplicated.

On the back of the card, there are two spaces for applying the self-adhesive labels with any remote controls with the transmitter code (password).

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Warning light of the Fiat CODE system

The CODE warning light is managed by the Fiat CODE control unit. The CODE warning light consists of a lamp on the instrument panel. When the ignition is switched on (+15), the warning light can indicate one of the following conditions:

- ON briefly (0.7s) and then OFF: key recognized, correct operation of the system;
- FLASHING: both the engine control unit and the Fiat CODE control unit do not have any code memorized (unused system); for a description of the various flashing modes, refer to the "Manual Diagnosis" sub-section.
- ON: if the warning light comes on permanently when the ignition is ON (+15), this indicates one of the following faults:
  a. key not recognized by the Fiat CODE control unit (engine management prohibited);
  b. serial line not connected or the engine control unit and Fiat CODE control unit have not succeeded in establishing communication;
  c. key rememorization procedure not carried out correctly.

If the CODE warning light comes on temporarily or permanently during driving or starting of the car, this does not necessarily mean a fault in the system but, in certain cases, this indicates a condition that may be interpreted as a tampering attempt by a thief.

If this happens, to carry out a proper test on the system, stop the car, switch off the engine and switch the ignition off (STOP position). Turn the ignition on again: the CODE warning light should come on and go out again after about 1 second.

If the CODE warning light stays on after this procedure, repeat the operation, waiting with the ignition off (STOP position) for more than 30 seconds. If the Code warning light stays permanently on when the ignition is on even after this attempt, conduct a diagnosis on the Fiat CODE system.

KEY MEMORIZATION

First key memorization

The first key memorization is carried out in the factory.
To check that memorization has been effected, insert a key in the ignition switch and turn the ignition ON (+15):
- if the CODE warning light goes out, memorization has been effected;
- if after about 2.5 seconds the CODE warning light starts flashing again at a higher frequency, the system is still unused.

The condition of unused Fiat CODE control unit can also be checked by the Fiat Lancia Tester during diagnosis of the engine control unit.

Key memorization with unused system

An unused system means the simultaneous presence on the car of an engine control unit and a Fiat CODE control unit which have NO memorized code (for example following an intervention which has required the replacement of both control units).

Before starting this procedure, make sure that the Fiat CODE control unit is really unused. The use of a Fiat CODE control unit which is faulty or already memorized involves the irreversible memorization of an incorrect code in the engine control unit which will then be unusable in the future on other cars.

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The key memorization procedure is divided into two successive stages:
a. the secret code of the electronic keys is memorized in the Fiat CODE control unit;

b. the Fiat CODE control unit manages the memorization of the Master Code in the engine control unit (when the latter is unused).

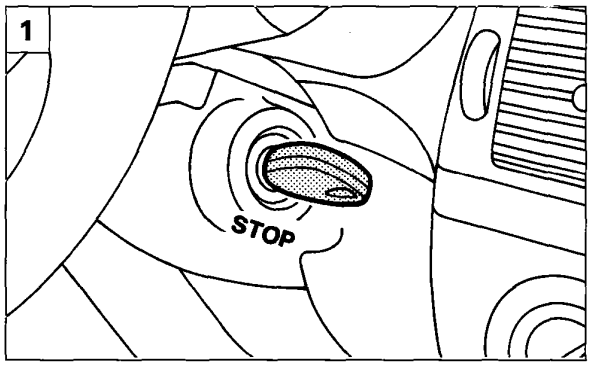
This second stage is carried out automatically when the first has been completed successfully, when the ignition is switched ON again.

The procedure permits the memorization of up to a maximum of 8 and minimum of 3 keys, including the MASTER key.

The memorization procedure can only be used after the test carried out by the control unit ensures that everything is properly connected and operating (universal code activated and so car not protected).

The presence of the universal code can be checked by the flashing of the Code warning light; it has a frequency of 1.6 Hz and it starts 2.5 seconds after the ignition has been switched on (+15). After this check, the memorization procedure may be commenced.

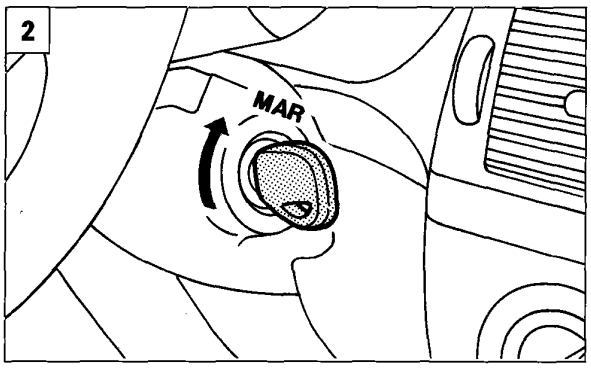
To avoid errors in the key memorization procedure, the procedure described on the next page should be carried out thoroughly, before being carried out on the car.



P4A066L02

All the keys in the user's possession should be memorized in this procedure.

Insert the MASTER key (maroon) in the ignition switch, in the off (STOP) position.



P4A064L02

Turn the MASTER key to the ignition on (+15) position; the CODE warning light comes on for 0.7 s.

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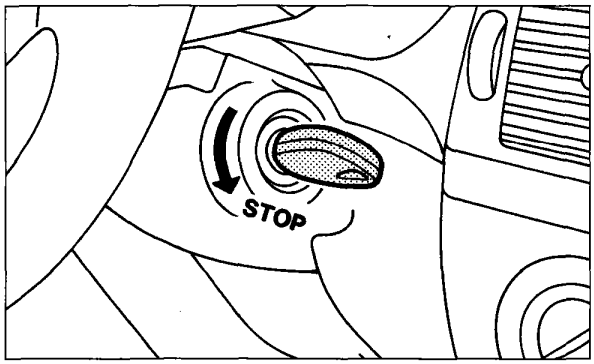
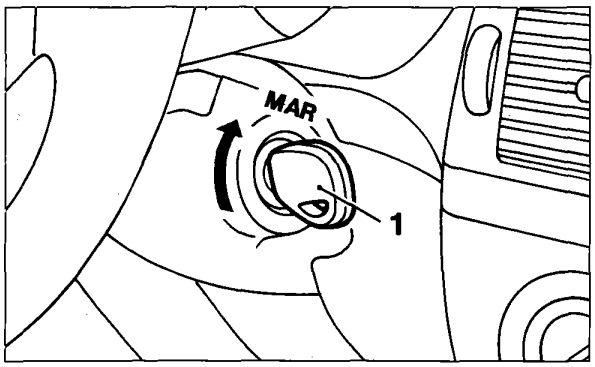


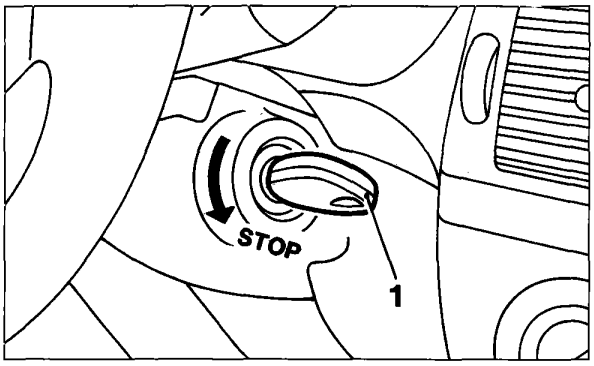
P4A064L01

When the CODE warning light goes out, turn the MASTER key to the ignition off (STOP) position.



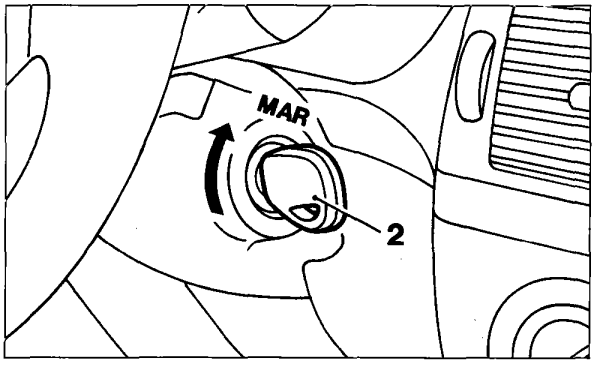
P4A065L01

Within 10 seconds:
- withdraw the MASTER key from the ignition switch block;
- insert a new key (1) in the ignition switch block and turn it to the on (+15), position; the CODE warning light will come on for 0.7 s.



P4A065L02

When the CODE warning light goes out, turn the key (1) to the ignition off (STOP) position.



P4A065L03

Within 10 seconds:
- withdraw the key (1) from the ignition switch block;
- insert a new key (2) in the ignition switch block and turn it to the on position (+15); the CODE warning light will come on for 0.7 s.
  When the CODE warning light goes out, turn the key (2) to the off (STOP) position.

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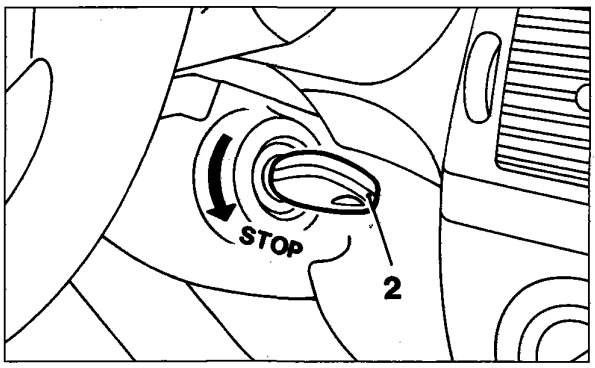
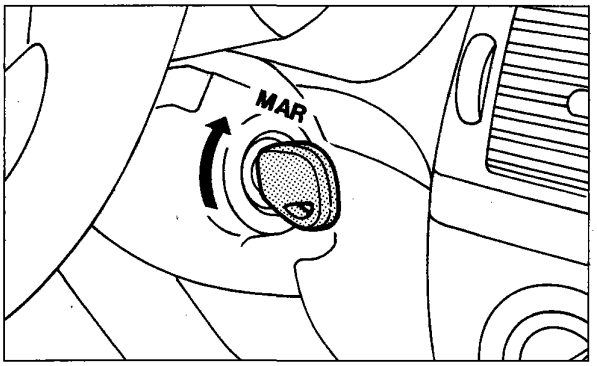


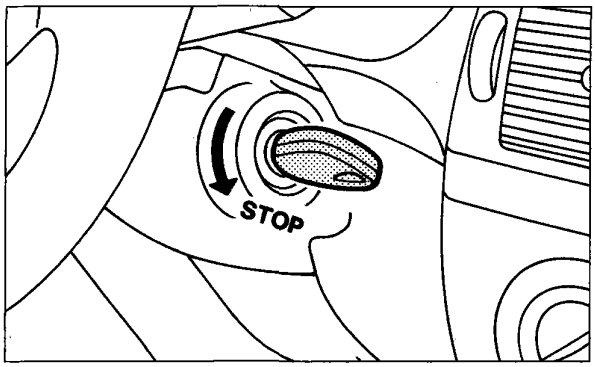
P4A066L01

When the CODE warning light goes out, turn the key (2) to the ignition off (STOP) position.



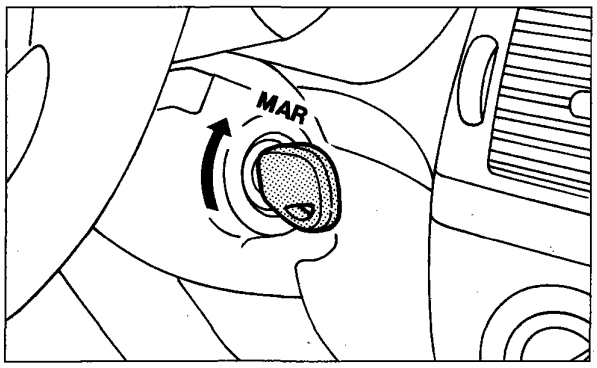
P4A064L02

Within 10 seconds:
- withdraw the keky (2) from the ignition switch block;
- insert the MASTER key in the ignition switch block again and turn it to the ON position (+15); the CODE warning light comes on for 0.7 s.



P4A064L01

When the CODE warning light goes out, turn the MASTER key to the off (STOP) position.



The memorization procedure is completed (memorization of the Master Code in the engine control unit) as follows:
- turn the MASTER key to the ignition on (+15) position;
- keep the MASTER key at the ON position for about 3 seconds;
- the CODE warning light comes on for 0.7 s and goes out definitively if the procedure has been successful (positive result);
- the CODE warning light comes on for 0.7 s and starts flashing again after about 2 seconds if the memorization has NOT been successful (negative result). In this case, withdraw the MASTER key and repeat the key memorization procedure from the beginning.

Also refer to the diagram on the next page.

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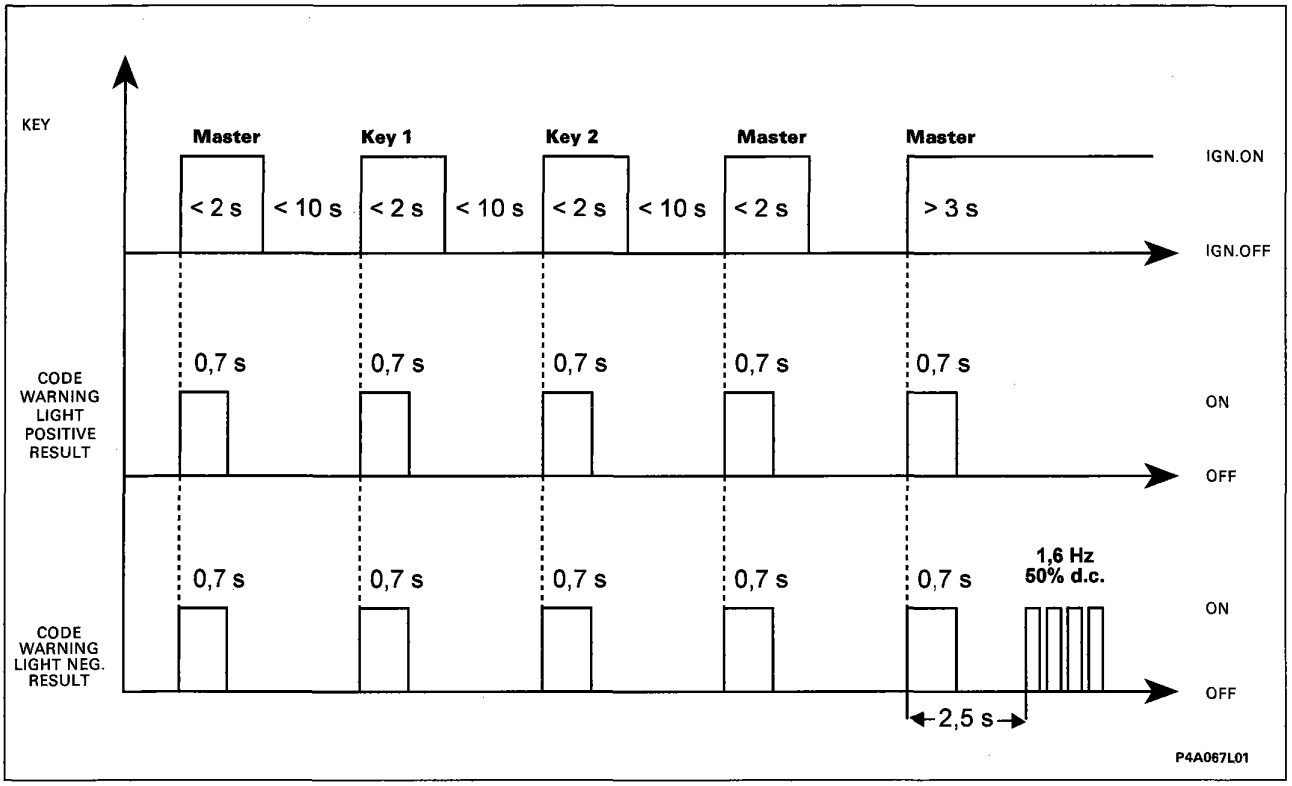
The key memorization procedure on an unused system is not successful if:
- a key is inserted for 2 consecutive times;
- the same key is inserted 2 or more times between 2 insertions of a MASTER key;
- a period when the key is at the ignition on position (+15) lasts for more than 2 seconds;
- a period when the key is at the STOP position lasts more than 10 seconds.

On completion of memorization, ensure that all the keys supplied start the engine; if one of the keys does not start the engine, repeat the key memorization procedure.

NOTE *The memorization procedure has been described for 3 keys (including the MASTER), but should be applied to all the keys supplied with the vehicle, plus any additional keys.*

- If the procedure has not been carried out correctly, the memorization procedure should be repeated very carefully.
- If for any reason and at any time during the key memorization procedure you notice that you have made a mistake, move the key to the on (+15) position for over 2 s or to the off (STOP) position for over 10 s, then start the key memorization procedure from the beginning.



The diagram shows how the CODE warning light comes on depending on the key memorization.

Key memorization with UNUSED Fiat CODE control unit and USED electronic fuel injection control unit

For the key memorization procedure with unused Fiat CODE control unit and used electronic fuel injection control unit, follow the instructions given in the "key memorization with unused system" described above.

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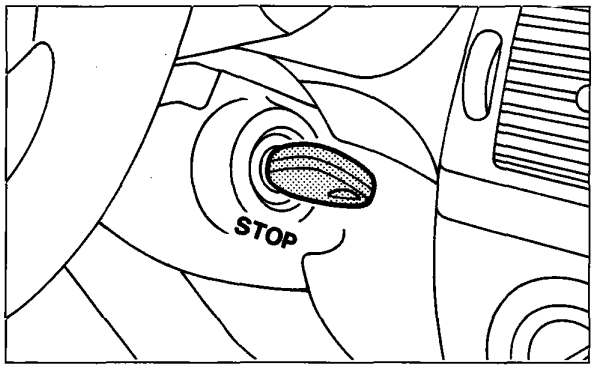
Key memorization procedure with USED Fiat CODE and electronic fuel injection control units

This procedure is necessary if further keys need to be memorized, or if the key set has to be reset because the notches have been replaced. The procedure consists of memorizing up to a maximum of 8 and a minimum of 3 different keys (MASTER key included).

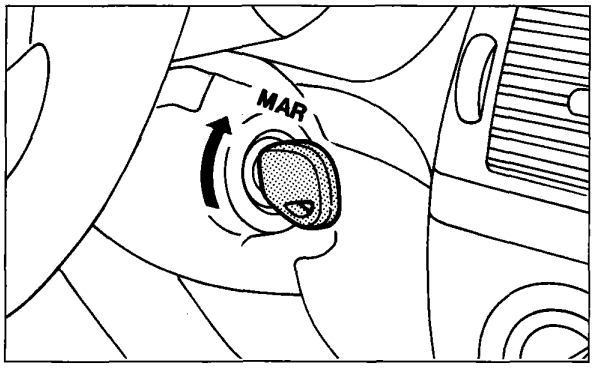
To avoid errors in the key memorization procedure, the procedure described below should be read carefully before being carried out on the car.



P4A066L02

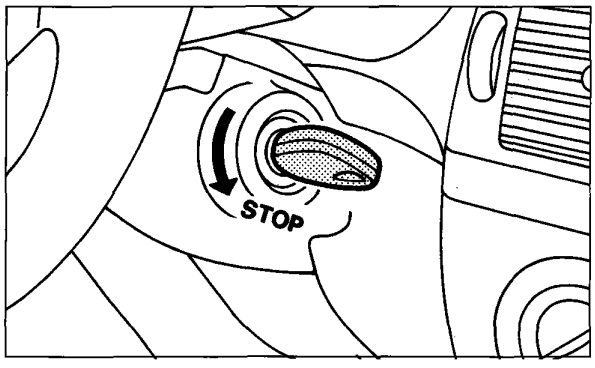
Adding a new key necessarily involves rememorizing all the existing keys, as the keys not used during this procedure are deleted from memory.

Insert the MASTER key in the ignition switch at the ignition off (STOP) position.



P4A064L02

Turn the MASTER key to the on position (+15); the CODE warning light should come on for 0.7 s.



P4A064L01

When the CODE warning light goes out, turn the MASTER key to the off (STOP) position.

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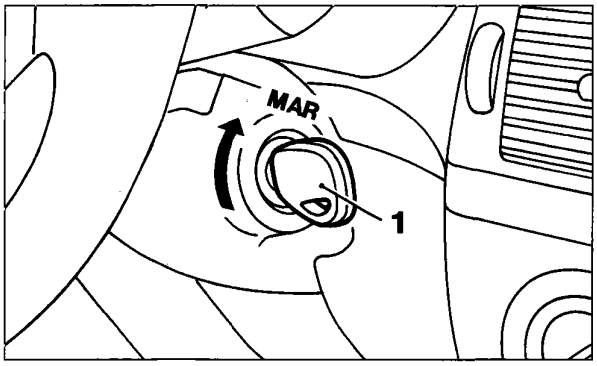
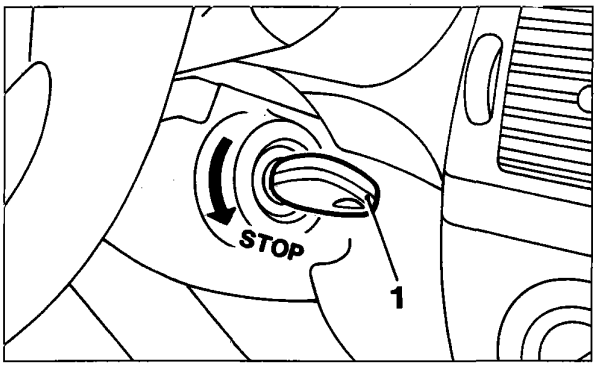


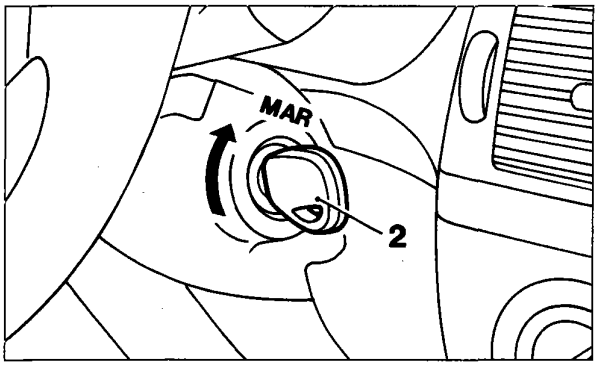
P4A065L01

Within 10 seconds:
- withdraw the MASTER key from the ignition switch block;
- insert a new key (1) in the ignition switch block and turn it to the ignition on (+15) position; the CODE warning light comes on for 0.7 s.



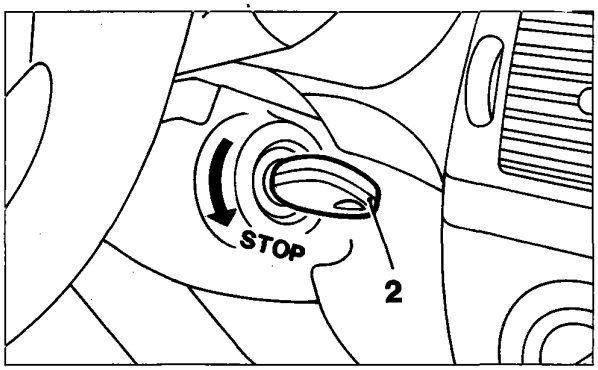
P4A065L02

When the CODE warning light goes out, turn the key (1) to the off (STOP) position.



P4A065L03

Within 10 seconds:
- withdraw the key (1) from the ignition switch block;
- insert a new key (2) in the ignition switch block and turn it to the ignition on position (+15); the CODE warning light comes on for 0.7 s.



P4A066L01

When the CODE warning light goes out, turn the key (2) to the ignition off (STOP) position.

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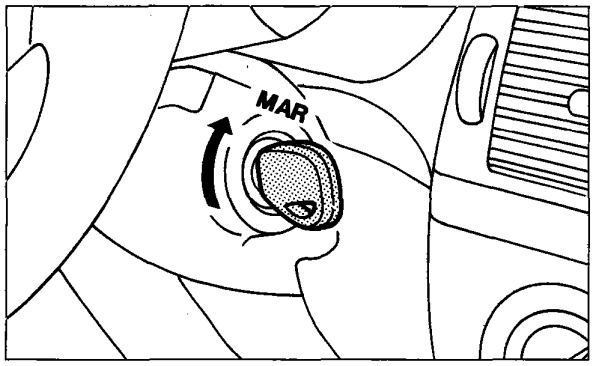
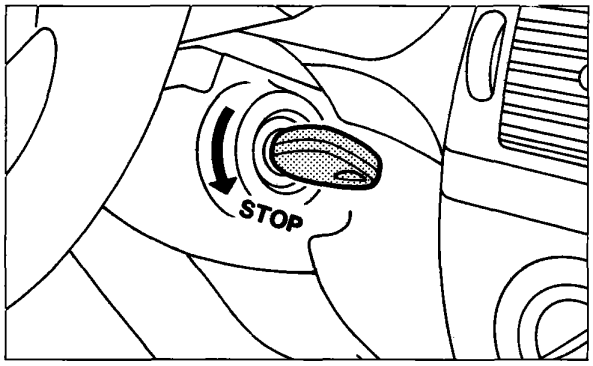


P4A064L02

Within 10 seconds:
- disconnect from the key (2) from the ignition switch block;
- insert the MASTER key in the ignition switch block again and turn it to the on (+15) position; the CODE warning light comes on for 0.7 s.



P4A064L01

When the CODE warning light goes out, turn the MASTER key to the off (STOP) position.

On completion of memorization, make sure that all the keys supplied start the engine; if one of the keys does not start the engine, repeat the key memorization procedure.

This procedure cancels the recognition of the keys previously memorized and keeps the MASTER key with the keys just memorized.

The key rememorization procedure is not successful in the following cases:
- a key is inserted for 2 successive times;
- the same key is inserted 2 or more times between 2 insertions of a MASTER key;
- a period when the key is at the on (+15) position lasts more than 2 seconds;
- a period when the key is at the STOP position lasts more than 10 seconds.

If the procedure has not been carried out correctly, repeate the memorization procedure very carefully.

If for any reason and at any time during the memorization procedure you notice that you have made a mistake, move the key to the ignition on (+15) position for over 2 s or to the STOP position for over 10 s, then start the key memorization procedure from the beginning.

If the CODE warning light comes on permanently during the rememorization procedure, this means that the procedure has been interrupted as it has not been carried out correctly; in this case, start the procedure from the beginning.

If the CODE warning light comes on permanently (with MASTER key at the ignition on position) at the second consecutive insertion of the MASTER key, this does not indicate a malfunction of the system, but that the rememorization procedure has been opened (1st insertion) and then interrupted (2nd insertion). To restore correct operation of the CODE warning light, return the MASTER key to the STOP position.

NOTE *The memorization procedure has been described for 3 keys (including the MASTER), but should be applied to all the keys supplied with the vehicle, plus any additional keys.*

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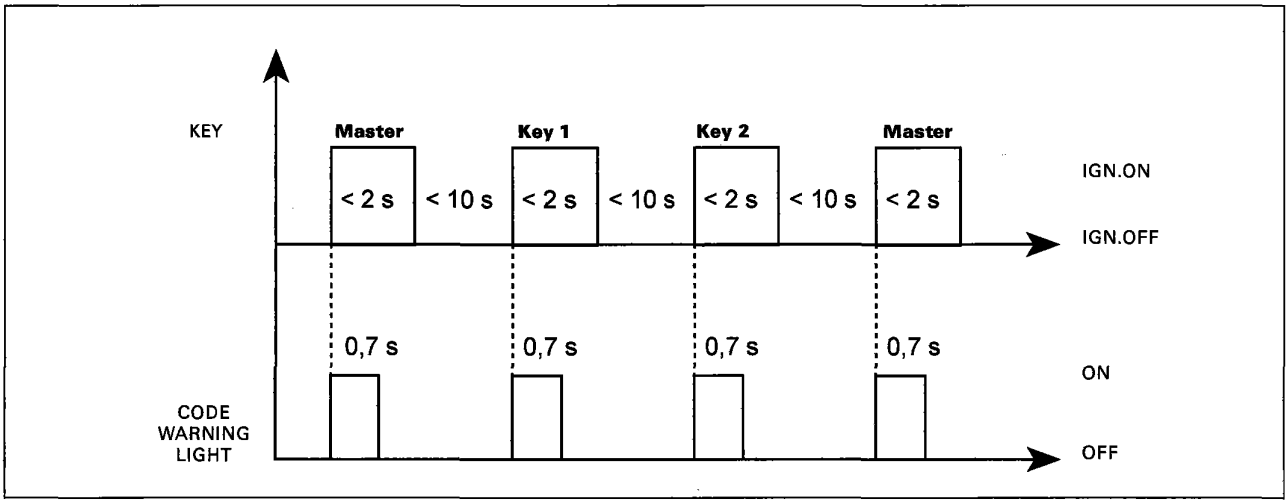

The diagram shows how the CODE warning light comes on depending on the key memorization

Key memorization with USED Fiat CODE control unit and UNUSED electronic fuel injection control unit

If the electronic fuel injection control unit has to be replaced, the Master Code inside it has to be memorized.
To memorize the Master Code in the electronic fuel injection control unit, simply turn a key to the ignition on (+15) position, after checking that the Fiat CODE control unit is working correctly.

Under no circumstances may electronic fuel injection control units be exchanged between cars to check whether they are working.
During diagnosis, before replacing the electronic fuel injection control unit, make sure that the component under examination really is faulty, because when the new electronic fuel injection control unit is supplied, the Master Code will be memorized, rendering it entirely unusable on other cars.

CONNECTION BETWEEN FIAT CODE CONTROL UNIT AND ENGINE CONTROL UNIT

The Fiat CODE control unit and engine control unit dialogue via a serial line consisting of a single cable.

The serial cable is of the bidirectional type; this means that the information travels in a sequential manner from the engine control unit to the Fiat CODE control unit and vice versa.
The information exchanged between control units can relate to the following operating conditions:

A. Code check - whenever the key is turned to the ignition on position (even during starting), the engine control unit, before starting engine management, requests the MASTER CODE from the Fiat CODE control unit.
B. Code memorization - These operating stages concern the system when at least one control unit is unused. The following cases may be distinguished:
   - Unused engine control unit and Fiat CODE control unit.
   - Used Fiat CODE control unit and unused engine control unit.
   - Unused Fiat CODE control unit and used engine control unit.

Refer to the "Key Memorization" sub-section for the procedures to be adopted.

C. Sharing the serial line for diagnosis - Depending on the version, the connection between the Fiat CODE control unit and the diagnostic socket may be configured as follows:
   - For petrol versions with Bosch Monomotronic, IAW, Hitachi integrated fuel injection-ignition system, the Fiat CODE system does not have its own diagnostic socket (Figure A next page). To check the operation of the system, conduct a diagnosis on the engine control unit.

   - For diesel versions with mechanical fuel injection pump, the Fiat CODE system has its own diagnostic socket.

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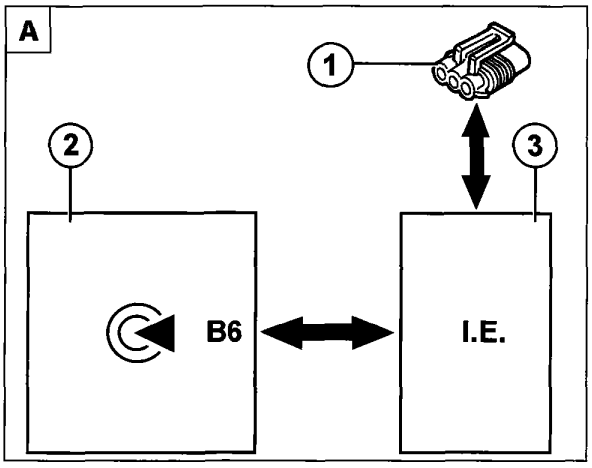
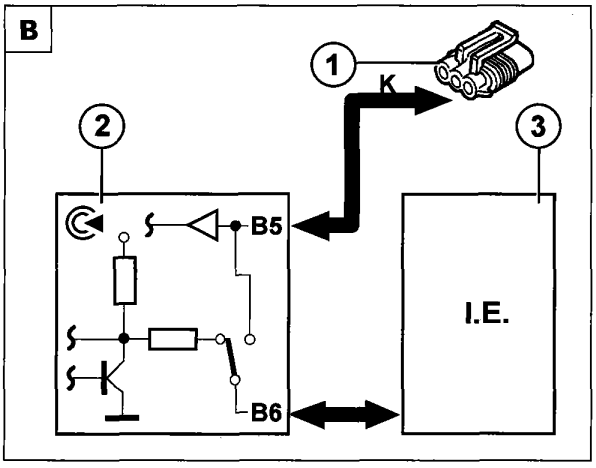
- For petrol versions with Bosch Motronic system and diesel with electronic fuel injection pump, the Fiat CODE control unit shares the diagnosis line K with the engine control unit (Fig.B).
Within the Fiat CODE control unit there is a remote control switch which changes over the connection between the engine control unit and diagnostic socket or Fiat CODE control unit.
The switch normally permits dialogue between Fiat CODE control unit and engine control unit (Default condition).
At the start of diagnosis, when the Fiat/Lancia Tester is connected and the ignition is switched on, the Fiat CODE control unit recognizes the diagnosis condition and drives the remote control switch so as to connect pins B5 and B6 to each other, enabling dialogue between the Fiat/Lancia Tester and the engine control unit.
The Fiat CODE control unit permits connection with the Fiat/Lancia Tester only if:
  - Thre is no activity on the serial line between the Fiat CODE control unit and the engine control unit.
  - There is a low voltage level on pin B5 for a period of time between 500 ms and 5 s (a low level for a period exceeding 5 s is considered to be a short circuit to earth).

The remote control switch returns to the "Default" position when there is no activity on pin B5 for over 30 s.
When the control unit recognizes that the Fiat/Lancia Tester has been connected, it activates the CODE warning light, indicated that the remote control switch has changed over correctly.





1. Diagnostic socket
2. Fiat CODE control unit
3. Engine control unit

MANUAL DIAGNOSIS

When the CODE warning light stays on permanently with the ignition key at the on position (+15), the problems may be as follows:
- key not recognized by the Fiat CODE control unit;
- serial line not connected;
- key rememorization procedure not carried out correctly (procedure interrupted).

Unused system and ignition on

An unused system means the simultaneous presence on the car of an electronic fuel injection system and a Fiat CODE control unit which do NOT have any memorized codes (for example following an intervention which has required the replacement of both control units). In this case, when the ignition is switched on, the CODE warning light can indicate one of the following conditions also shown on the diagram below:

a. When the CODE warning light comes on for 0.7 seconds and after about 2 seconds it starts flashing, everything is properly connected and working, the car is not protected, the universal code is active.
b. When the CODE warning light flashes with code 1 (1 flash, pause, 1 flash, etc.), this means that the serial line is not connected or that the two control units have not succeeded in establishing communication.

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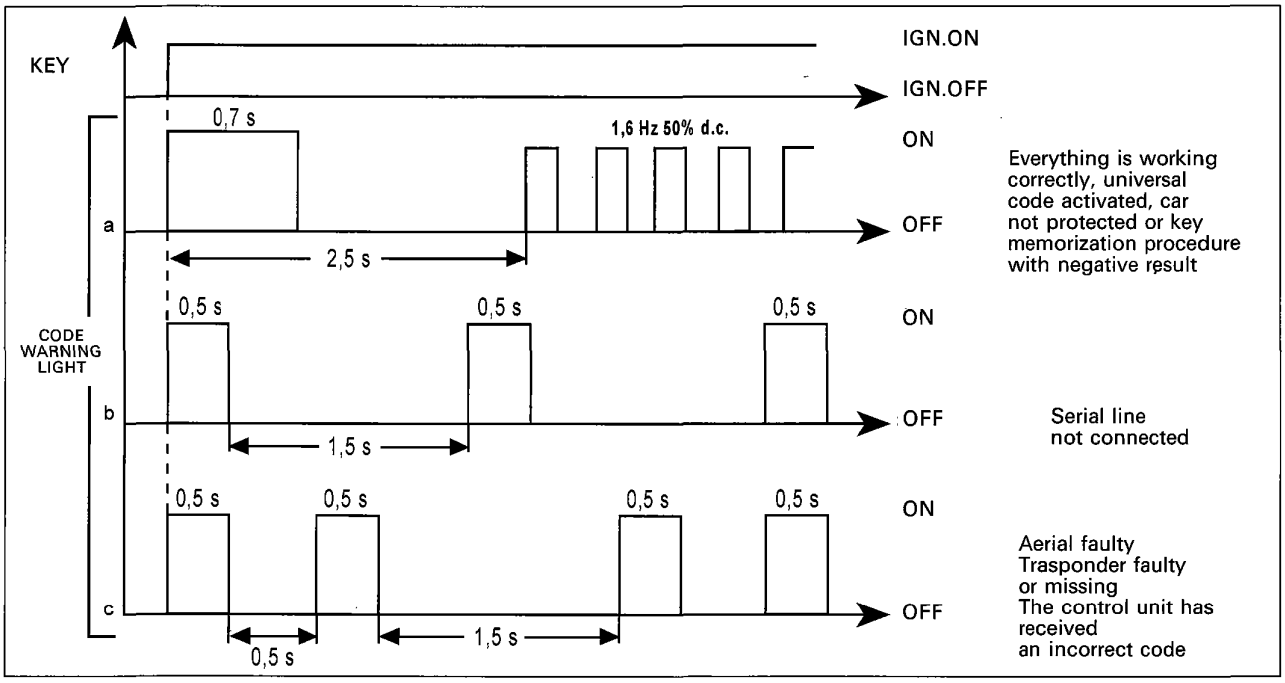
c. When the CODE warning light flashes with code 2 (2 flashes, pause, 2 flashes, etc.), this means one of the following conditions:
- aerial faulty;
- Transponder faulty;
- Transponder missing;
- the electronic fuel injection control unit has received an incorrect code.

Manual diagnosis for unused system



Unused Fiat CODE control unit and ignition on

In the case of cars with unused Fiat CODE control unit and used electronic fuel injection control unit, when the CODE warning light comes on permanently and the ignition is switched on, this indicates one of the following problems:
- aerial faulty;
- Transponder faulty;
- Transponder missing.

FAULT DIAGNOSIS WITH FIAT LANCIA TESTER

For petrol cars fitted with an integrated fuel injection - ignition system and diesel cars with electronic fuel injection pump, the Fiat CODE system does not have its own diagnostic socket. To check whether the system is operating, diagnosis should be conducted on the electronic fuel injection - ignition control unit (petrol cars) or fuel injection control unit (diesel cars).
The following can be measured with the Fiat Lancia Tester:

Parameters
- STARTING PERMITTED/NOT PERMITTED
  This means that the engine control unit has recognized the code permitting engine starting.
- PROGRAMMED/NOT PROGRAMMED STATUS OF ELECTRONIC KEY
  The indication NOT PROGRAMMED means that both fuel injection and Fiat CODE control units are unused (no memorized code).

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Error

- ELECTRONIC KEY ERROR
  When diagnosed, the error can be classified as PRESENT or INTERMITTENT.
  Continuing the diagnosis, it is possible to distinguish whether the error is due to exchanged fuel injection control units or to a malfunction of the system's components.
  Analysing the various screens displayed one after the other, you reach the "DO YOU WANT TO UNBLOCK THE ELECTRONIC KEY?" screen, which permits engine starting by entering the 5-digit code (ELECTRONIC CODE) stated on the Code Card.

EMERGENCY STARTING PROCEDURE

The emergency starting procedure makes it possible to start the engine if there is a problem in the Fiat CODE system (Fiat CODE control unit faulty, keys unusable, etc.).
The emergency procedure can only be activated if the engine control unit is in the *"engine management prohibited"* status. This procedure can be carried out with the Fiat Lancia Tester or, for some versions, also using the accelerator pedal. This operation is useful for starting the engine and driving the car to the closest authorized workshop for repair of the fault.

Emergency starting with Fiat Lancia Tester

The procedure is activated by entering, on the Fiat Lancia Tester, the 5-digit code (ELECTRONIC CODE) on the Code Card.
After an emergency start, when the ignition is switched off (STOP position), the fuel injection control unit returns to the engine starting blocked condition, so to start the engine, the emergency starting procedure must be carried out again.

Emergency starting procedure using accelerator pedal

This procedure is applicable only to petrol cars with integrated fuel injection - ignition system and diesel cars with electronic fuel injection pump.
By means of this procedure it is possible, by using the accelerator pedal, to transmit the electronic code to the electronic fuel injection control unit which in turn detects it via the potentiometer located on the throttle valve (petrol version or accelerator pedal (diesel version).

Carry out the following operations in sequence:

1. Read the 5-digit Electronic Code on the Code Card.
2. Switch the ignition on, press and hold down the accelerator pedal. The fuel injection system warning light comes on for 4 s, then goes out briefly (about 150 ms) and then comes on again for a further 4 s.
3. When the warning light goes out, release the accelerator pedal.
4. When the accelerator pedal is released, the warning light starts flashing (flashing frequency 0.8 Hz with duty - cycle 25% ON).
5. After a number of flashes equal to the first digit of the code read on the Code Card, fully depress and hold down the accelerator pedal.
6. The fuel injection fault warning light comes on again for 4 s and then goes out (first digit acquired).
7. When the warning light goes out, release the accelerator pedal.
8. When the accelerator pedal is released, the warning light again starts flashing as described in point 4.
9. After a number of flashes equal to the second digit of the code, press the accelerator pedal; the warning light comes on for 4 s (second digit acquired), and then release the accelerator.
10. Repeat the operations in points 4,5,6 and 7 for the remaining digits of the electronic code.
11. When the accelerator pedal is released, after the last digit has been acquired, the warning light will flash for 4 s at a frequency of 1.6 Hz with duty - cycle 50% indicating that the code has been accepted, or will remain permanently lit if the code has been refused. If the code has been accepted, start the engine, otherwise switch the ignition off (STOP position) and repeat the procedure.

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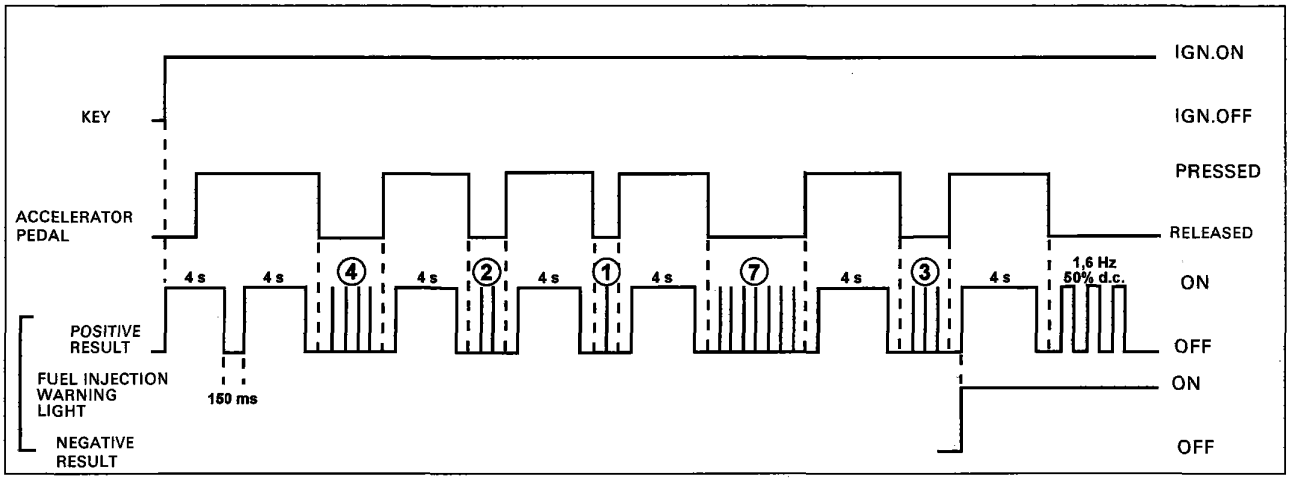

NOTE *The diagram illustrates the actions on the accelerator pedal and the lighting up of the fuel injection fault warning light relating to an example code 42173 (Electronic Code)*

This procedure makes it possible to start the engine only once, but it can be repeated an unlimited number of times.

After the code has been acquired, the electronic control unit permits engine starting for a period of 10 minutes, after which it returns to the blocked starting status.

IMPORTANT NOTES CONCERNING THE REPLACEMENT OF COMPONENTS OF THE FIAT CODE SYSTEM

The Fiat CODE system consists of various components connected to each other. Care should be taken when working on and replacing one of these parts.

Engine control unit

Under no circumstances may engine control units be exchanged between cars to check whether they are working.

During diagnosis, before replacing the engine control unit, make sure that the component under examination really is faulty, because when the the new control unit is supplied, the Master Code is memorized rendering it entirely unusable on other cars.

Fiat CODE control unit

Replacing the Fiat CODE control unit entails the rememorization of the electronic keys following the "Key memorization with unused system" procedure.

Notches kits and new keys

If the ignition switch block has to be replaced, remove the transponder from the old MASTER key and insert it in the new key (see next page), then carry out the "Key memorization procedure for used Fiat CODE and electronic fuel injection control units".

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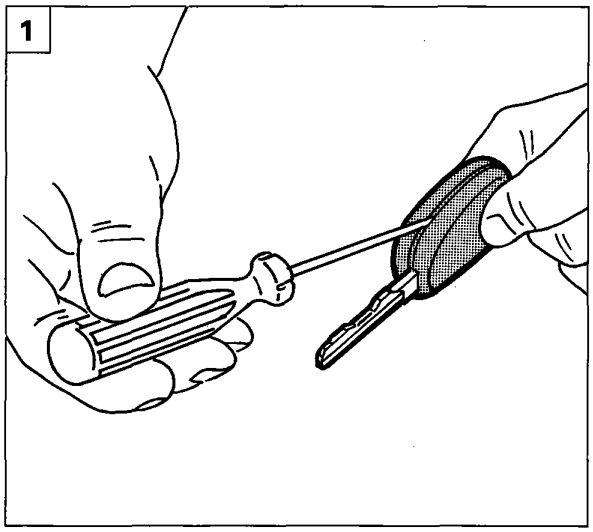

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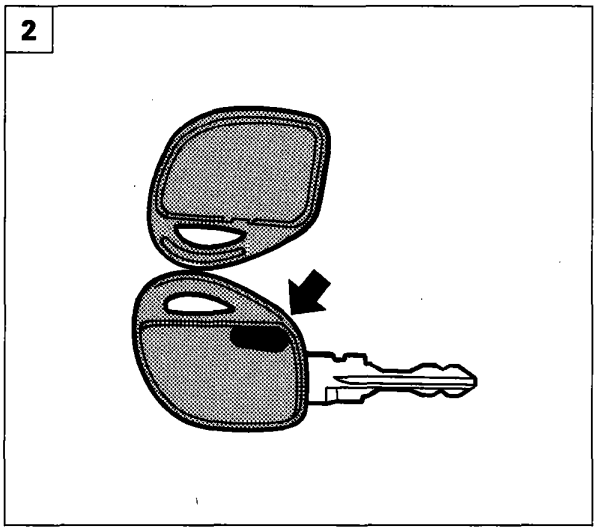

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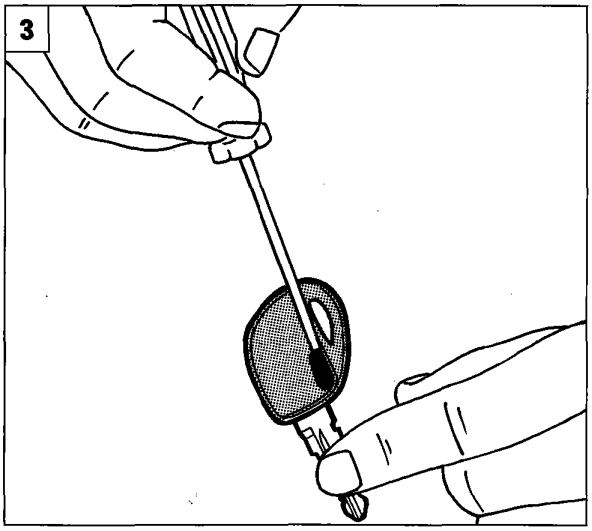

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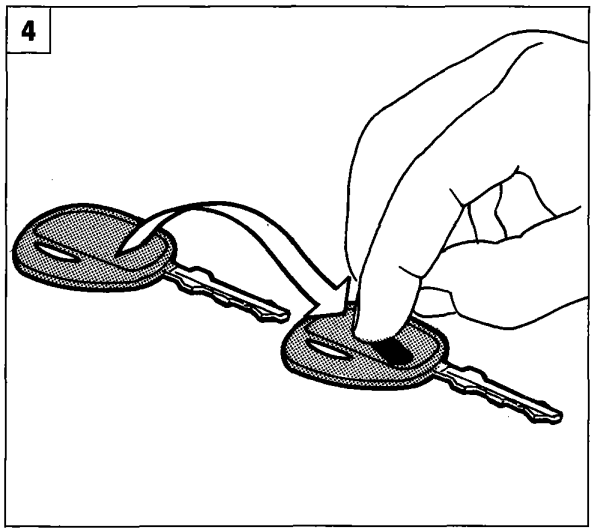
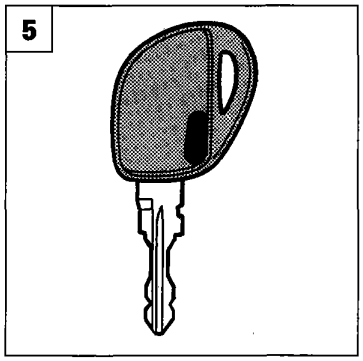


P4A076L04

REPLACING TRANSPONDER

Use the maximum caution to avoid breakage or loss of the Transponder (carry out the dismantling operations on a table).

1. Insert a small screwdriver in the key slot and use it as a lever;
2. Open the MASTER key with care, as it consists of two half casings; the Transponder is shown by the arrow;
3. Remove the Transponder from its seating in the OLD MASTER key using a small screwdriver or point;
4.5. Fit the Transponder from the OLD MASTER key in the seating in the NEW MASTER key, positioning it as illustrated in the figure above, taking care not to damage the electrical component;



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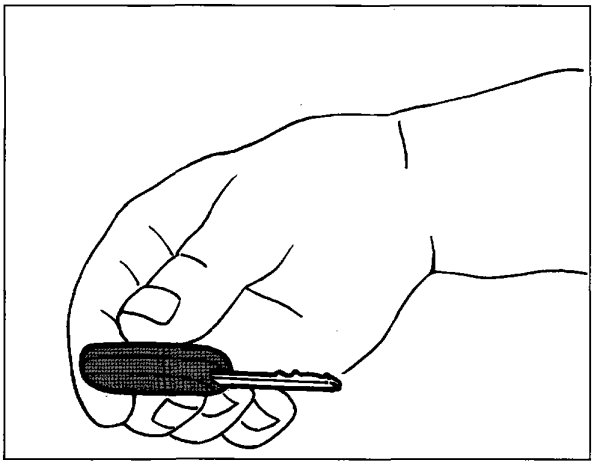

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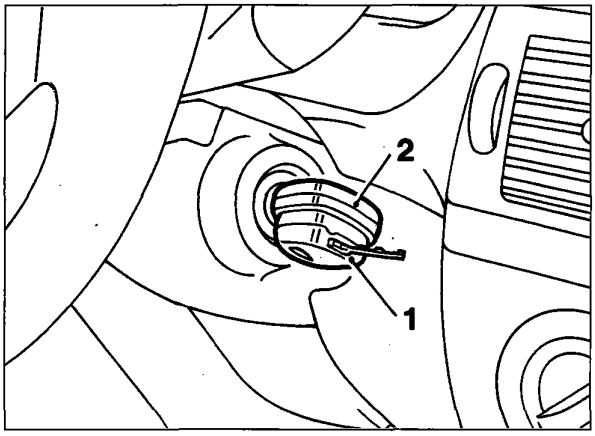

P4A077L02

- exert light pressure and join the two half casings of the NEW MASTER key;
- after carrying out the above-mentioned operation, carry out the procedure for memorizing the new set of keys.

If the ignition switch block has been damaged a long distance away from the place where the MASTER key is stored, the following emergency procedure must be carried out:

- replace the damaged switch block;
- insert the new MASTER key (1) without the Transponder in the ignition switch block;
- bring the old key (2) with Transponder in contact with the new MASTER key (1) without Transponder inserted in the ignition switch block.
- Turn the key, keeping the handles in contact for starting.

The Transponder contained in the OLD MASTER key must be transferred to the seating in the handle of the NEW MASTER key as soon as possible.

MASTER key (maroon)

If the MASTER key is unavailable, it will be impossible to memorize new keys which permit engine starting.

If the MASTER key is lost or its Transponder is broken/lost, the following must be replaced:

- *notches kit and new keys (including the CODE CARD);*
- *Fiat CODE control unit;*
- *electronic fuel injection control unit.*

This replacement of components is carried out at the first service intervention where the MASTER key has to be used (for example breakage of the ignition switch block).

Transponder

Under no circumstances may the key Transponders be handled, replaced or exchanged (except in cases of replacing the notches kit and new keys, and only the MASTER key).

Addition of a new key to the keys supplied with the car

Adding a new key involves the rememorization of all the existing keys supplied with the car, as keys not used during this procedure are deleted from memory.

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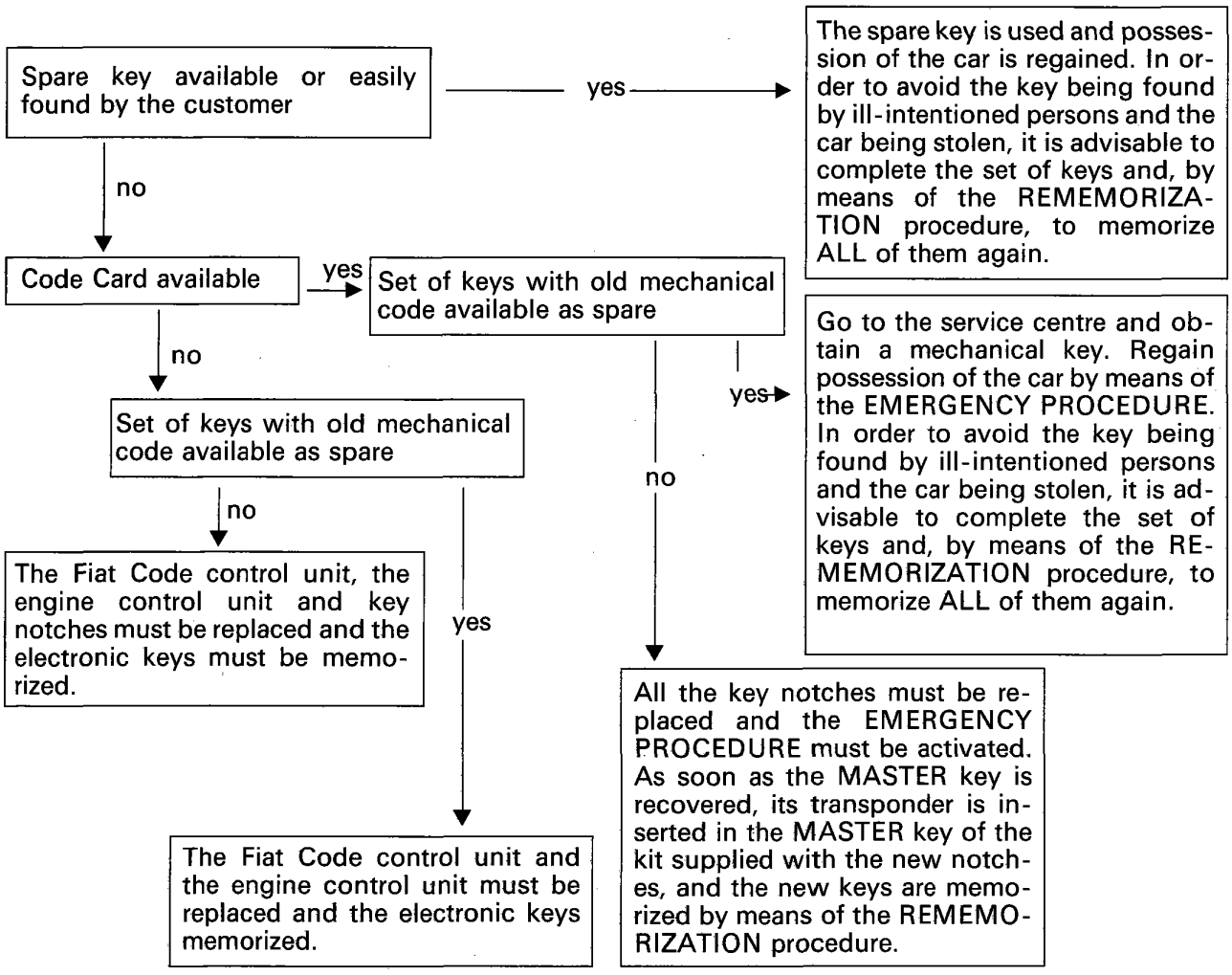
55.

FLOW CHARTS OF FAULT REPAIRS ON FIAT CODE SYSTEM

Master key

Lost	A subsequent fault to the Fiat Code control unit which entails the latter's replacement will also entail replacement of the Engine Control Unit and reprogramming of the system.
Electronic fault (Transponder)	A subsequent fault to the Fiat Code Control Unit which entails the latter's replacement will also entail replacement of the Engine Control Unit and reprogramming of the system.
Mechanical breakage	The transponder from the broken MASTER key is inserted in the handle of the MASTER key in the new set.

Loss of main key



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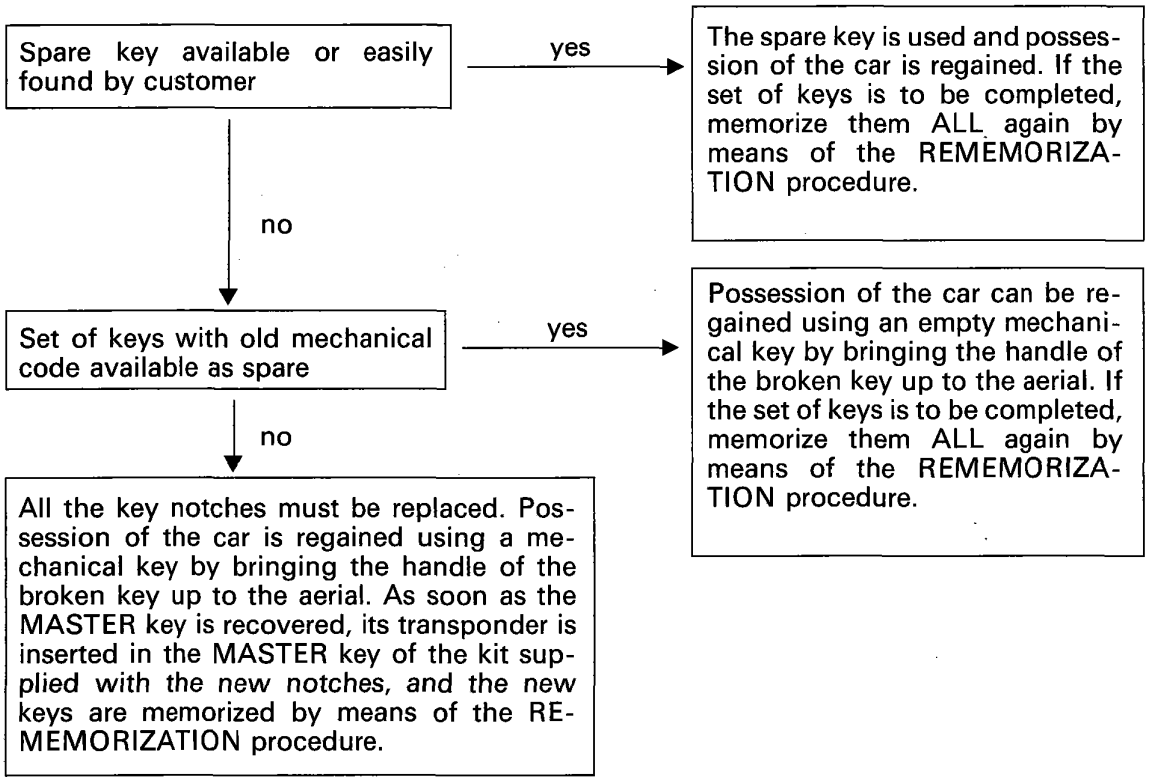
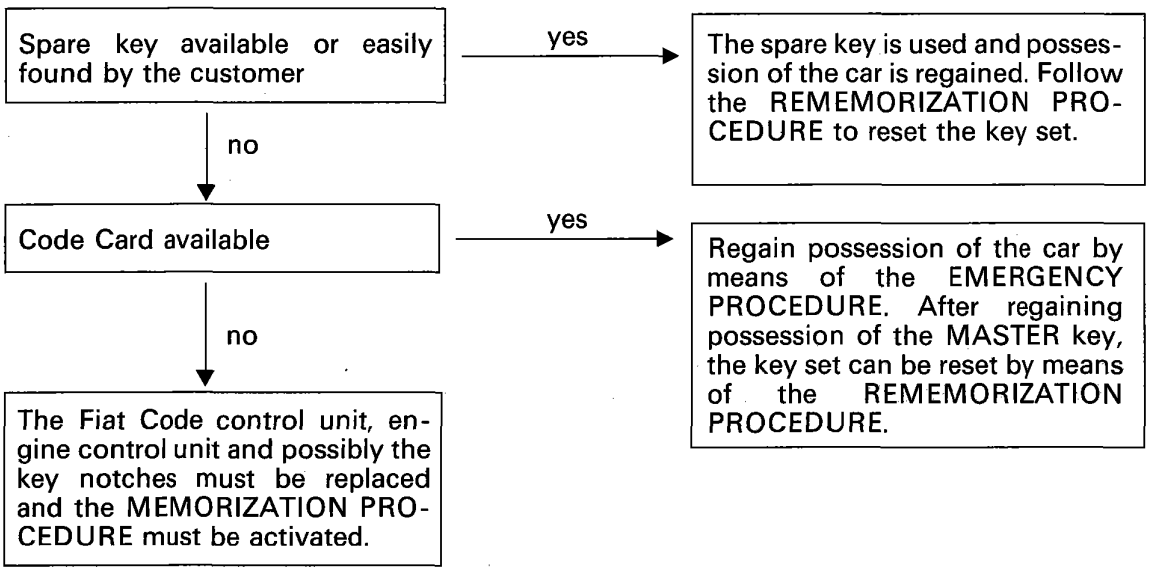
Mechanical breakage of main key (not in notch)



Electronic fault (transponder) main key



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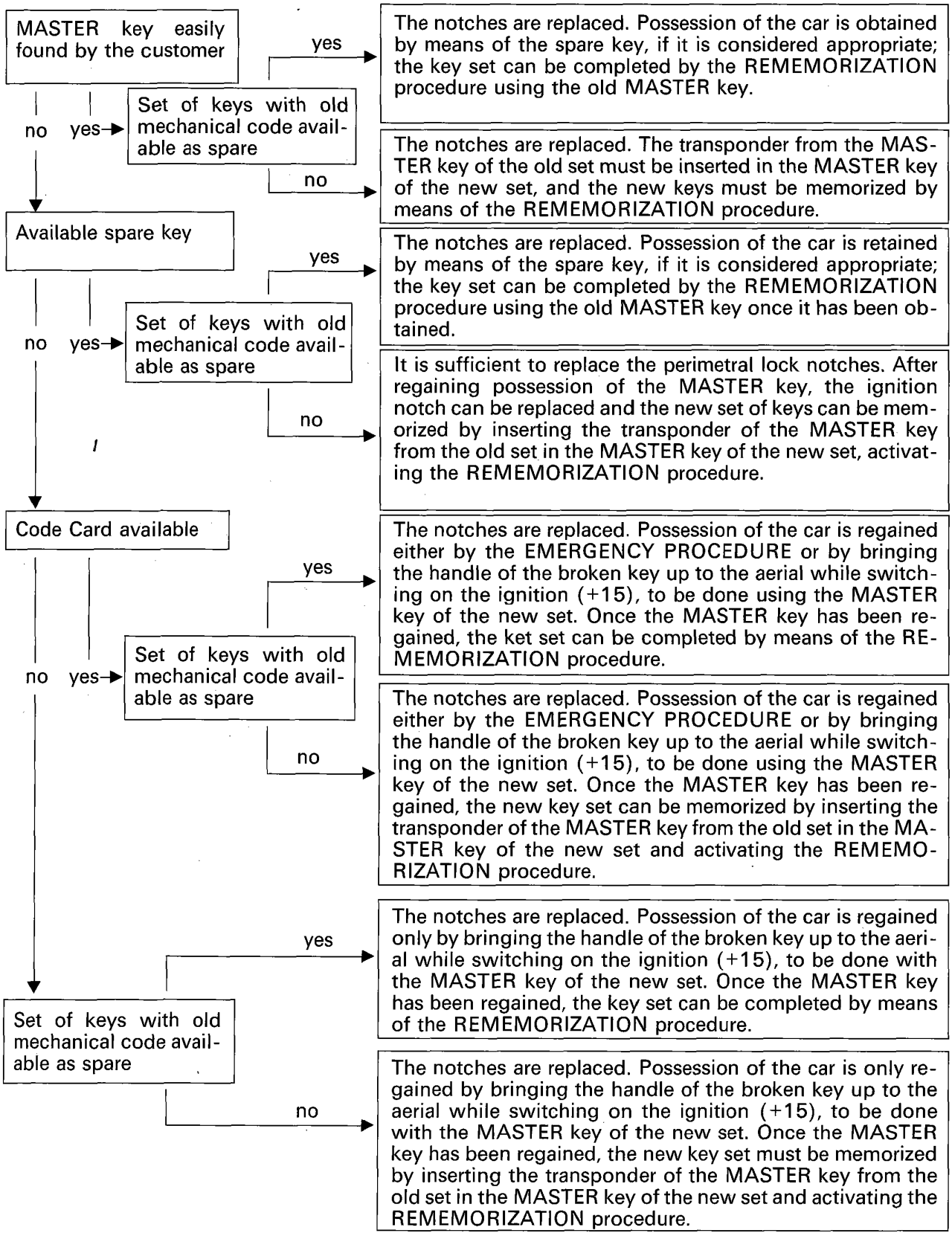
Mechanical breakage of main key in door / bonnet lock notch



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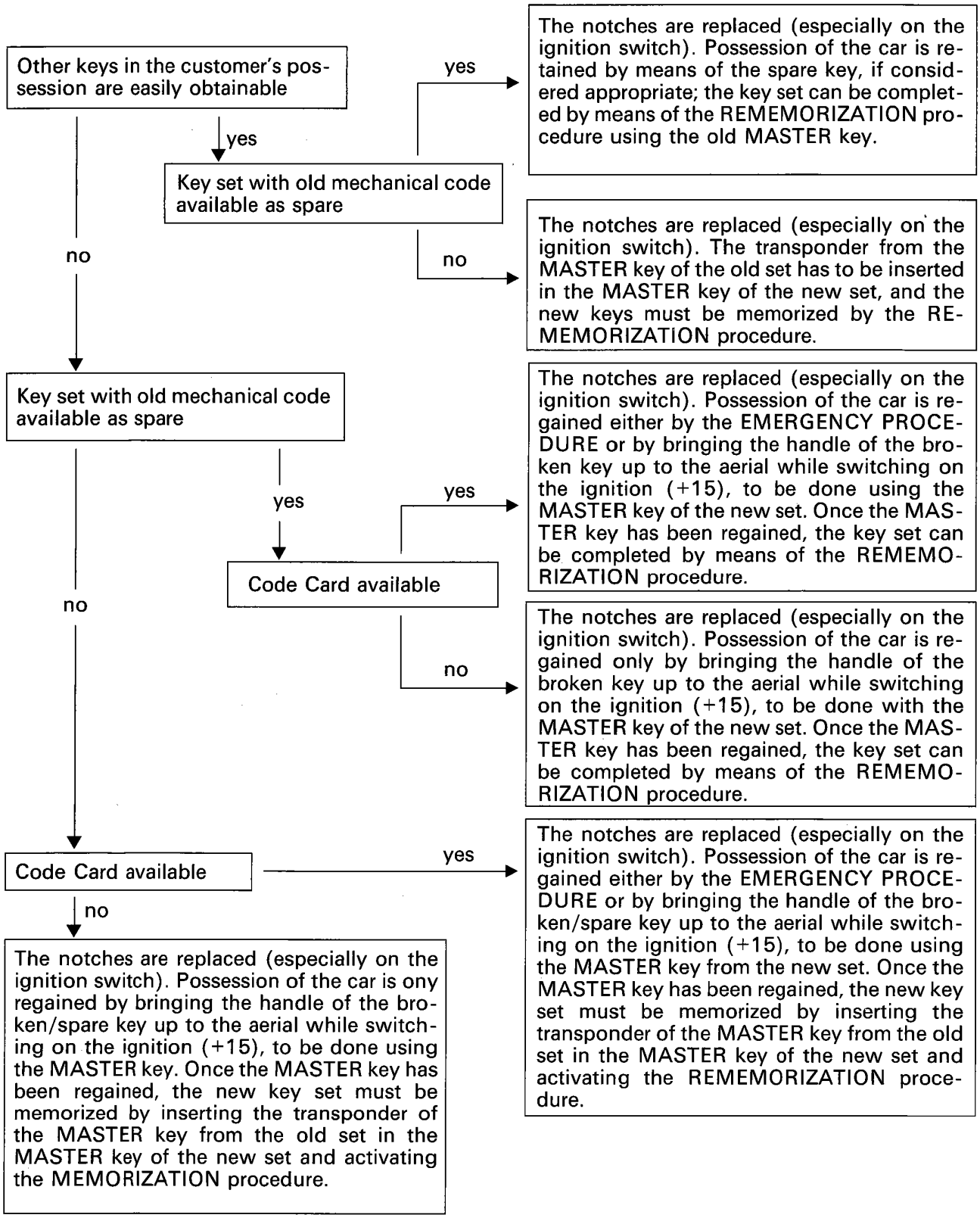
Mechanical breakage of main key in ignition switch notch



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55.

Aerial on ignition switch faulty

Replace the aerial

Loss of Code Card

Code available (transcribed elsewhere) — yes → It is not possible to have a duplicate. If necessary, it is possible to activate the emergency procedure

no ↓

It is not possible to have a duplicate. It is impossible to activate the emergency procedure

CODE warning light not working

Replace the warning light; meanwhile it is not possible to activate the rememorization procedure in a guided manner

Fuel injection fault warning light not working

Replace the warning light; meanwhile it is not possible to activate the EMERGENCY procedure from the accelerator pedal

Fiat Code control unit faulty

Replace the Fiat Code control unit and carry out the REMEMORIZATION procedure, memorizing the keys again

Engine control unit faulty

Replace the engine control unit (the code memorization is automatic)

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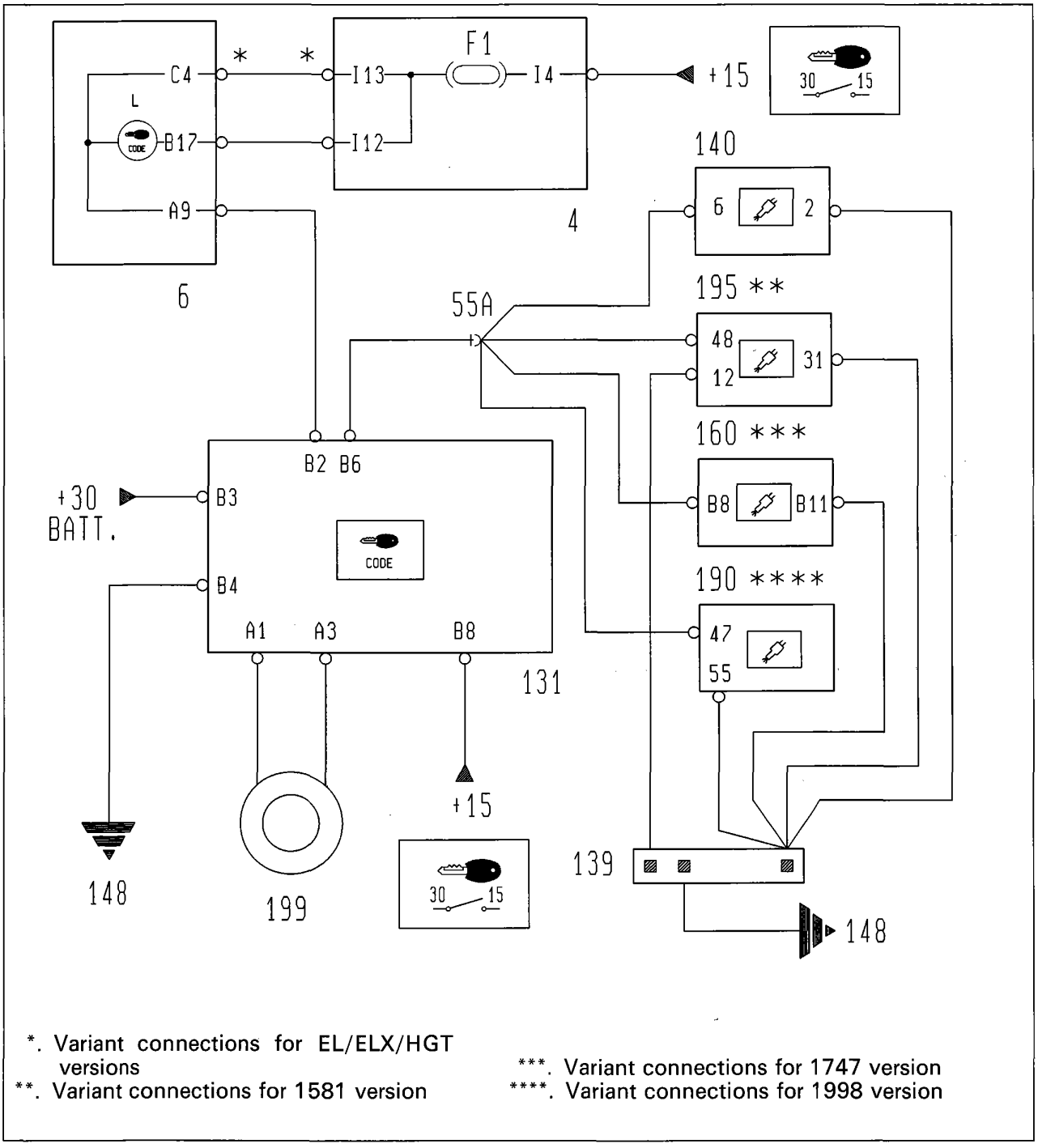
WIRING DIAGRAM OF FIAT CODE SYSTEM (petrol versions)



*. Variant connections for EL/ELX/HGT versions
**. Variant connections for 1581 version
***. Variant connections for 1747 version
****. Variant connections for 1998 version

P4A083L01

4. Fuse and relay unit
6. Instrument panel
131. Fiat CODE electronic control unit
139. Fuel injection diagnostic socket
140. Fuel injection/ignition control unit (1370 cc)
148. Earth for electronic fuel injection
160. Fuel injection/ignition control unit (1747 cc)
190. Fuel injection/ignition control unit (1998 cc)
195. Fuel injection/ignition control unit (1581 cc)
199. Aerial for Fiat CODE system

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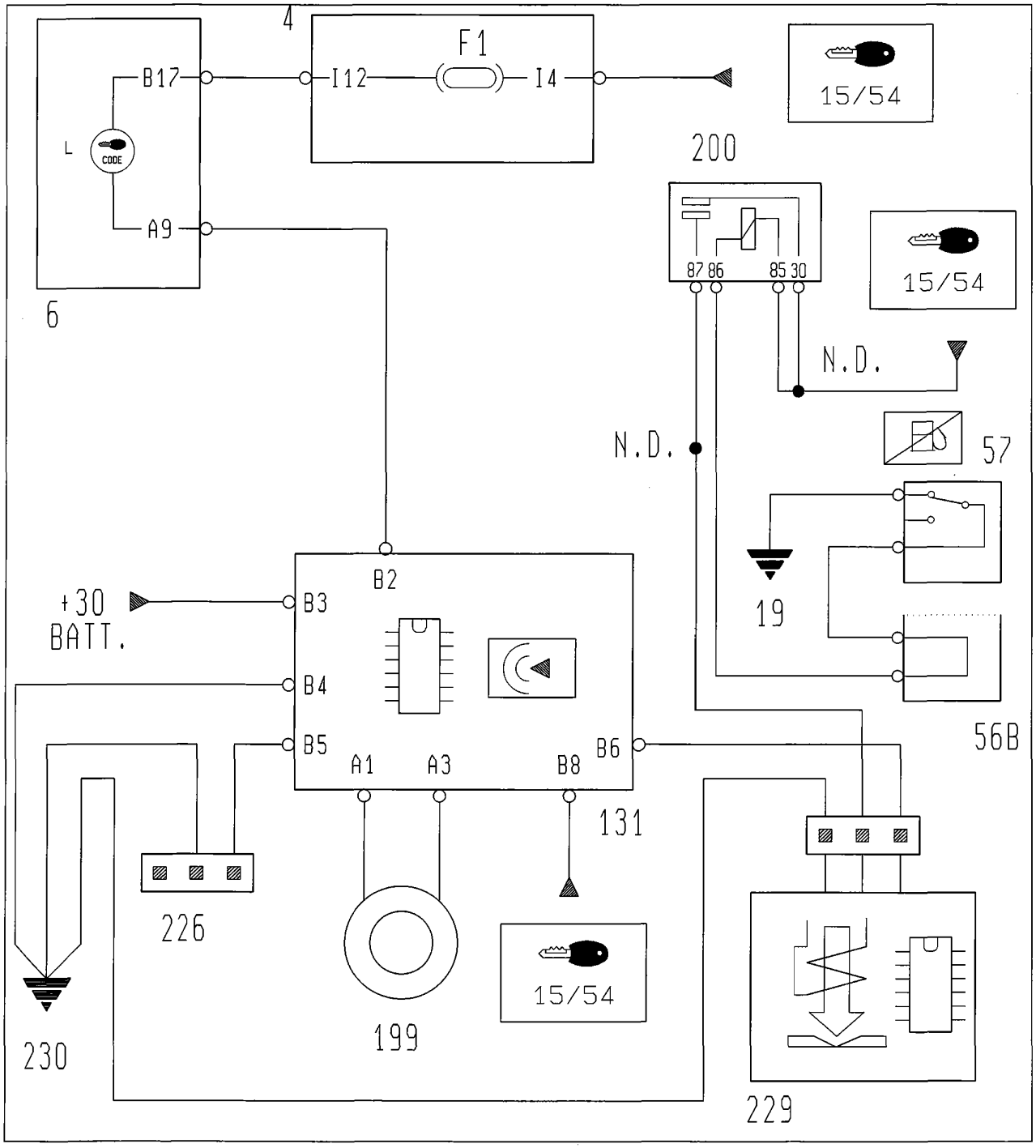
WIRING DIAGRAM OF FIAT CODE SYSTEM (diesel versions)



4. Fuse and relay unit
6. Instrument panel
19. Rear earth
56B. Connection between front right cables/engine
57. Inertial switch
131. Fiat CODE electronic control unit
199. Aerial for Fiat CODE system
200. Inertial switch relay
226. Fiat CODE diagnostic socket
229. Engine cut-out electrostop
230. Earth for Fiat CODE

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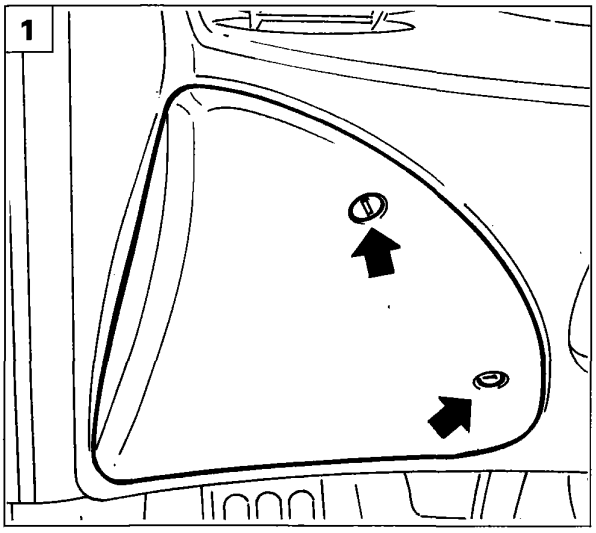

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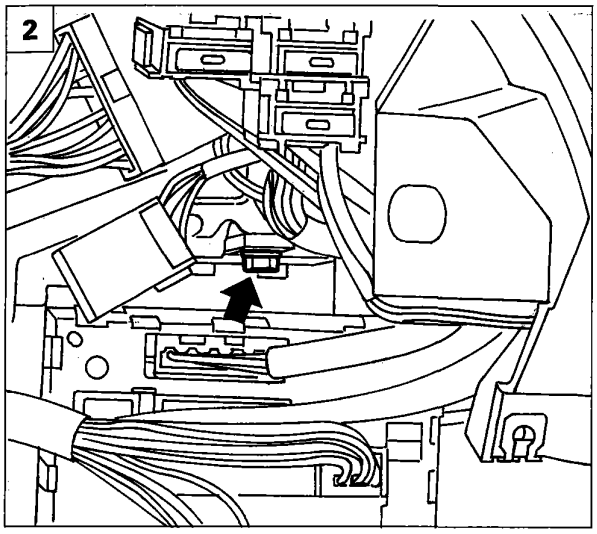
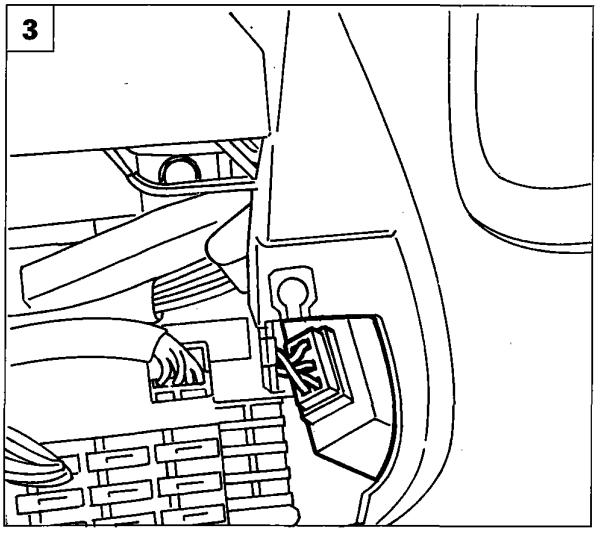


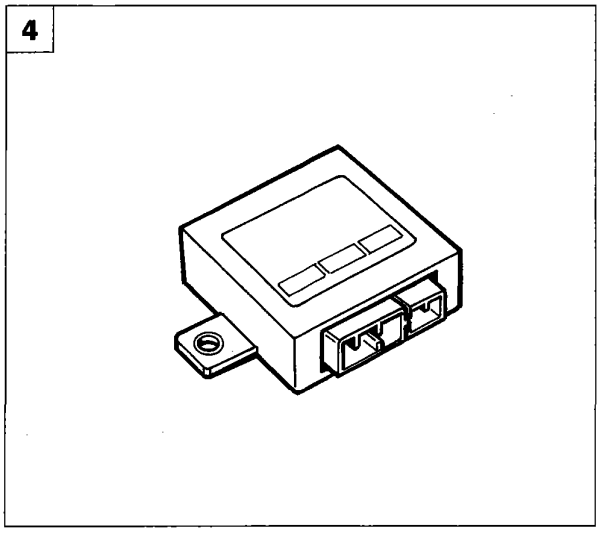
P4A085L02

REMOVING-REFITTING Fiat CODE CONTROL UNIT

1. Disconnect the battery's negative terminal, then remove the protection.
2. Undo the bolt securing the Fiat CODE control unit and push it towards the engine.
3. Disconnect the electrical connection from the control unit.
4. Remove the control unit from the car.



P4A085L03



P4A085L04

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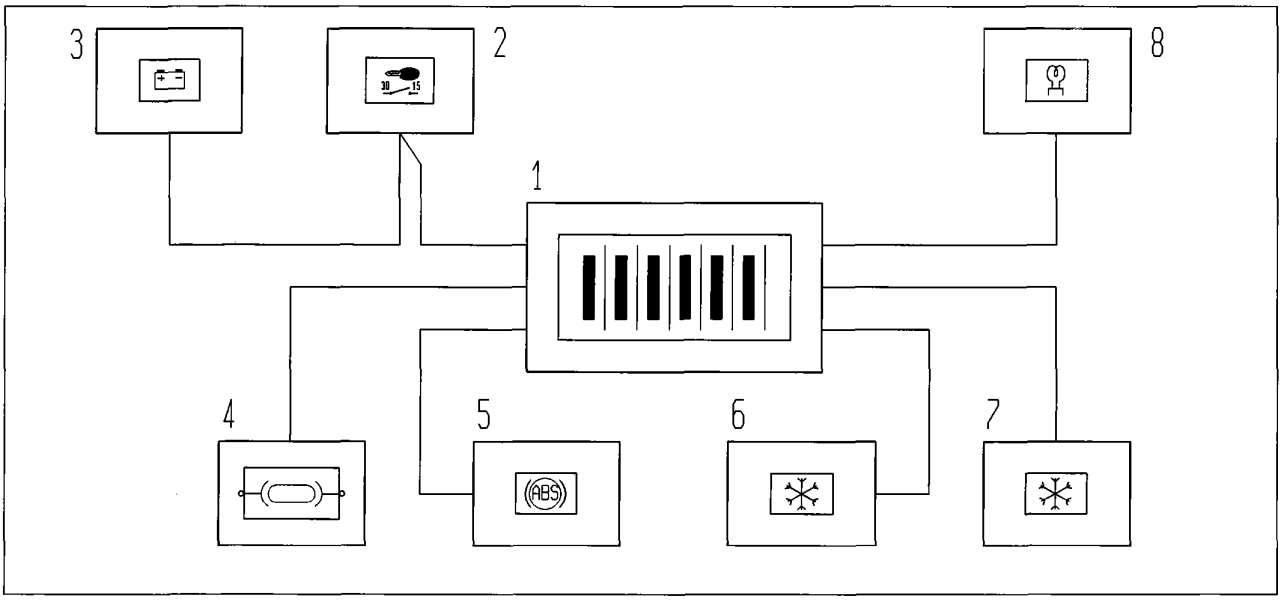
55.

HOT WIRE SAFETY DEVICE

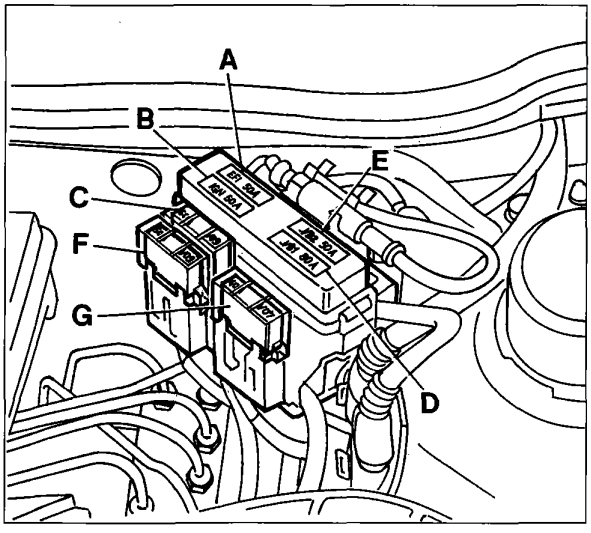
The voltage is distributed in the electrical system using cables suitable for withstanding the current absorbed by the electrical devices. The cables are increased by safety coefficients, so that they are safe to use.
The safety devices with hot wires protect the car from possible overloads, which can damage the whole electrical system at the points where they are not protected in the conventional manner.

The term "hot wire" means those cables which connect the battery positive to the electrical device without the help of fuse protection; this is possible thanks to the special sheath which covers them.



P4A086L01

There are seven hot wires on this car, and they involve the following components:
- Connection between the battery positive (1) and starter motor (2).
- Connection between starter motor (2) and alternator (3).
- Connection between the battery positive (1) and maxi fuse box (4).
- Connection between battery positive (1) and ABS fuse (5).
- Connection between battery positive (1) and air conditioning system fuse (6).
- Connection between battery positive (1) and fuse for radiator/condenser fan (7).
- Connection between battery positive (1) and preheating control unit (8) (diesel versions).



P4A086L02

This car is fitted with a protection system using a maxi fuse box (containing six fuses, of which three are optional depending on the version of car).
This system is different from the previous systems which used a single fuse, because it manages the various activities separately, so as to avoid seizure of the car if a fault occurs.

The fuses used are:
A. Fuel injection (30A; 60A for Diesel)
B. Ignition (40A)
C. Radiator fan (40A)
D. Fuse unit (80A)
E. Additional optional extra (60A)
F. Air conditioner (50A)
G. Antiskid (60A)

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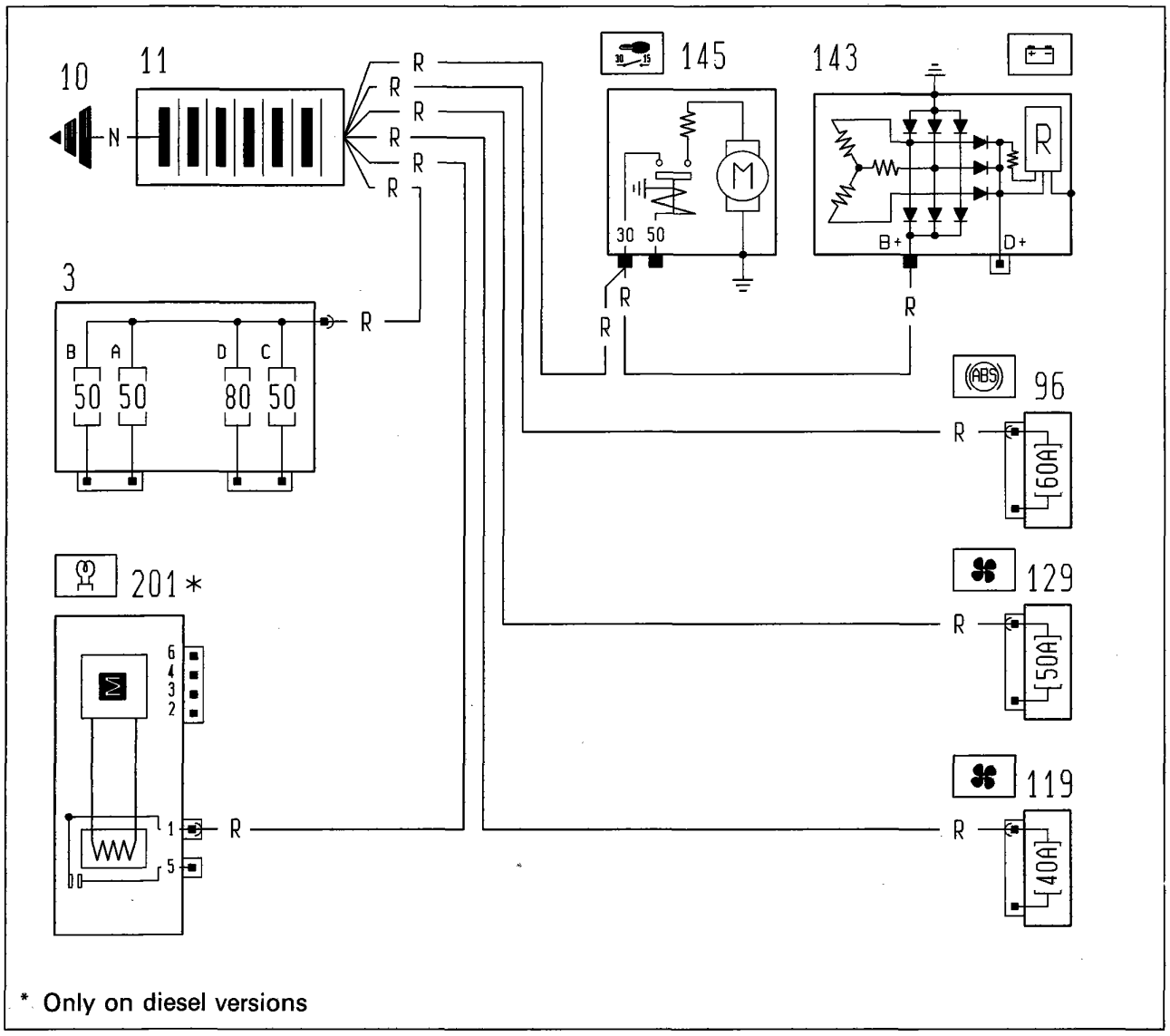
Diagram of hot-wire device



P4A087L01

3. Power fuse box
10. Battery earth on body shell
11. Battery
96. 60A power fuse protecting electrical system
119. 30A fuse protecting air conditioning system
129. 50A power fuse protecting engine cooling fan
143. Alternator
145. Starter motor
201. Plug preheating control unit

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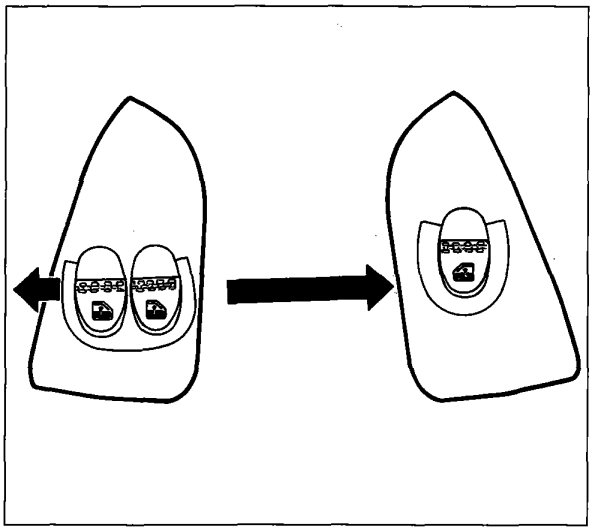
OPERATION

The electronic control unit on the car checks the operation of the driver's electric window motor (controlled both manually and automatically) and the passenger's electric window motor (only controlled manually).
Manual mode is the start-up and stopping of the window lift motor determined by the user manually by prolonged pressure on the control buttons (period between 60 and 300 ms).
Automatic mode is the start-up of the window lift motor after a pulse (of over 300 ms) has been supplied. The window will return to the rest position once the window has completed its travel. The window can nevertheless be stopped during this stage by again pressing one of the two buttons.

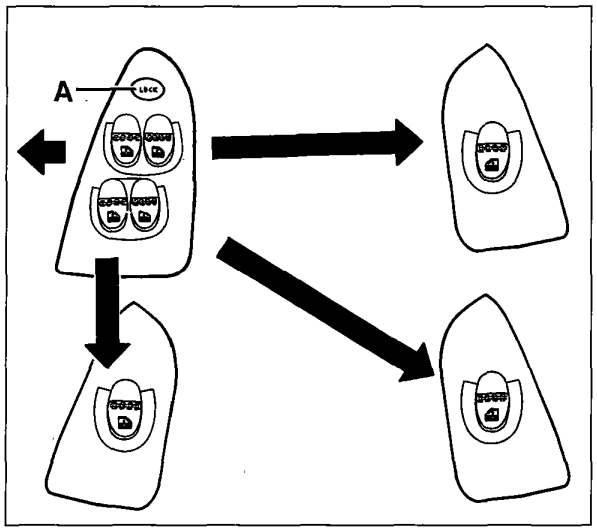
The driver's pushbutton unit is double, and so can control the passenger's window, only in manual (with the ignition on).
The passenger's pushbutton unit is single and only carries out the manual function.
On the FASTBACK version, the driver's pushbutton unit has the rear window control always on manual. It can also exclude the rear window pushbutton units (button A).

The pushbutton units on the rear doors work in the same way as the one on the front passenger side.



P4A088L01

Bravo version



P4A088L02

Brava version

NOISE DETECTOR safety system

If the control switch is pressed when the window has reached the end-of-travel position, the electronic control unit automatically cuts off the supply to the motor. This condition is recognized by an electronic circuit called "NOISE DETECTOR", which can act by analysing the frequency of the disturbance generated by the motor brushes during rotation.

When the motor is turning it generates, by means of the commutation arising between the brushes and commutator, a disturbance signal which is transmitted to the control unit via the supply line, and whose frequency is proportional to the engine speed.
If the frequency of this signal exceeds 15 ± 5 Hz, the control unit recognizes that the motor is turning freely.
When the window reaches the end-of-travel position or tends to jam for mechanical reasons, such as to drastically reduce the normal speed of rotation, the frequency of the disturbance signal is reduced proportionally. When this frequency falls below the specified threshold (15 ± 5 Hz), the NOISE DETECTOR cuts off the supply.

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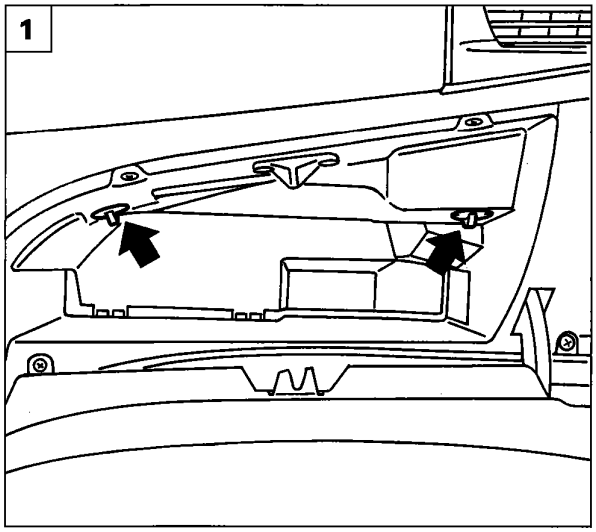
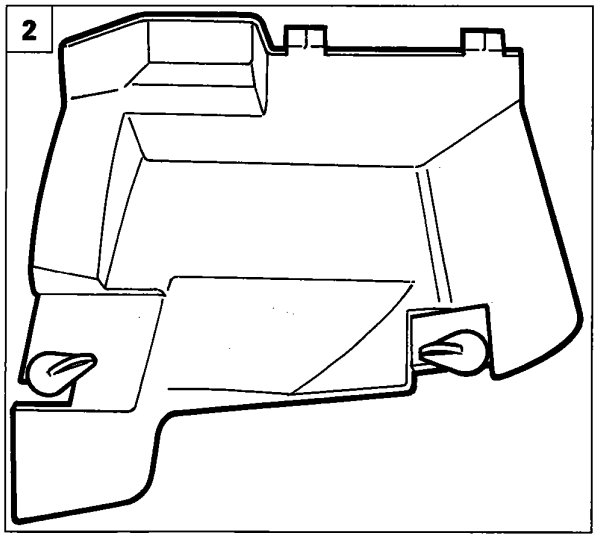


P4A089L01

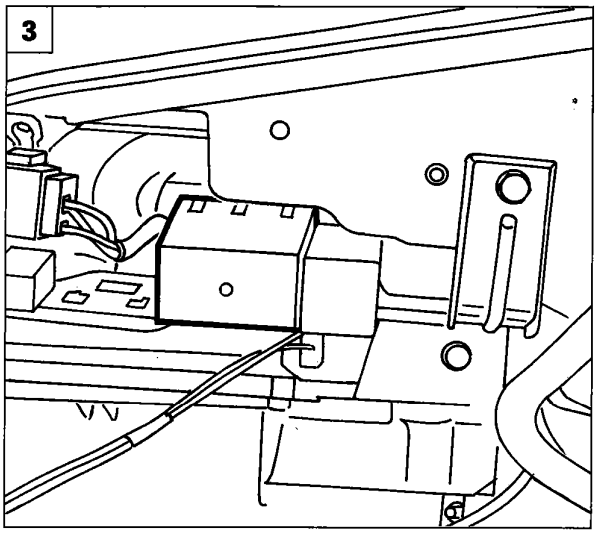


P4A089L02

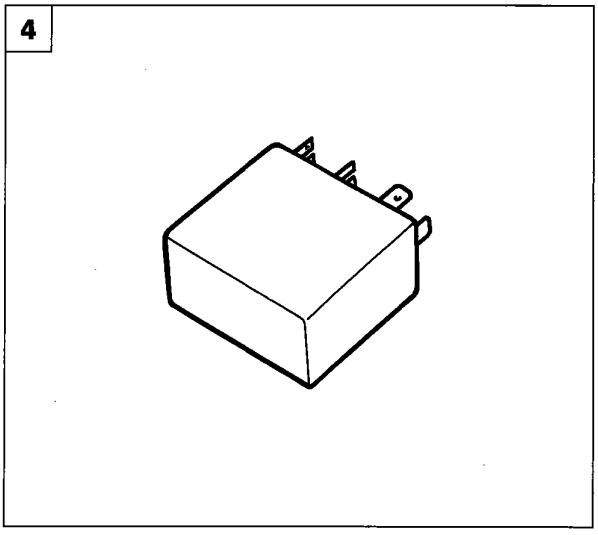
REMOVING-REFITTING ELECTRIC WINDOWS CONTROL UNIT

1. Open the glove compartment and turn the levers (arrowed).
2. Remove the compartment trim from the car.

3-4. Withdraw the control unit from its seating.



P4A089L03



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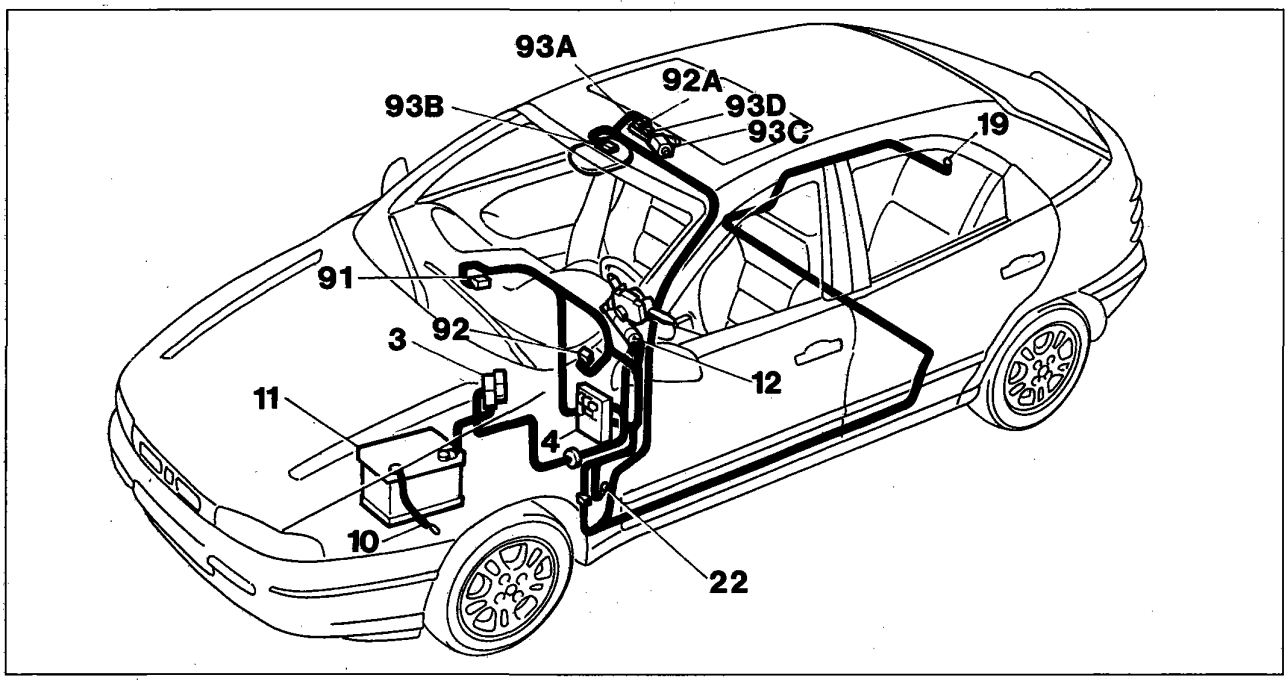
55.

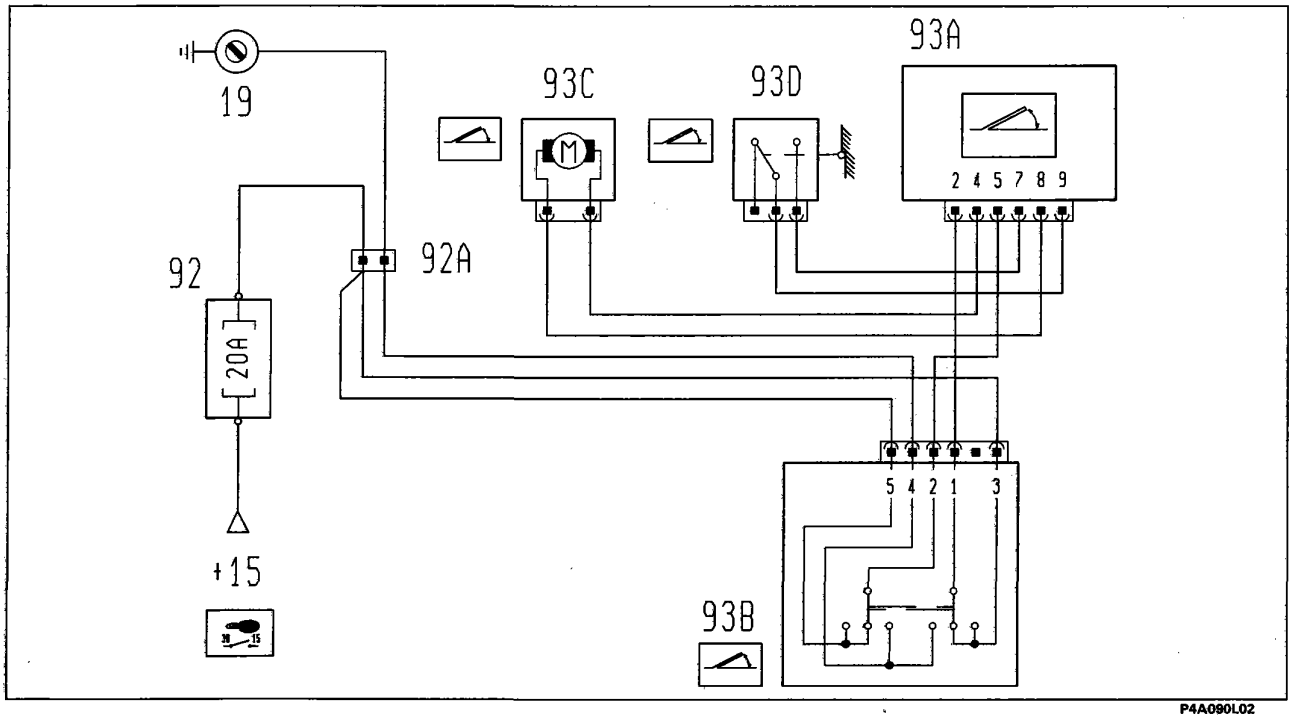
LOCATION OF COMPONENTS AND WIRING LOOM



P4A090L01

3. Power fuse box
4. Fuse and relay unit
10. Battery earth
11. Battery
12. Ignition switch
19. Rear earth
22. Right dashboard earth
91. Power relay
92. 20A fuse
92A. Cable connection with sunroof
93A. Sunroof control unit
93B. Sunroof control button
93C. Sunroof motor
9Bravo. End-of-travel switch

Wiring diagram



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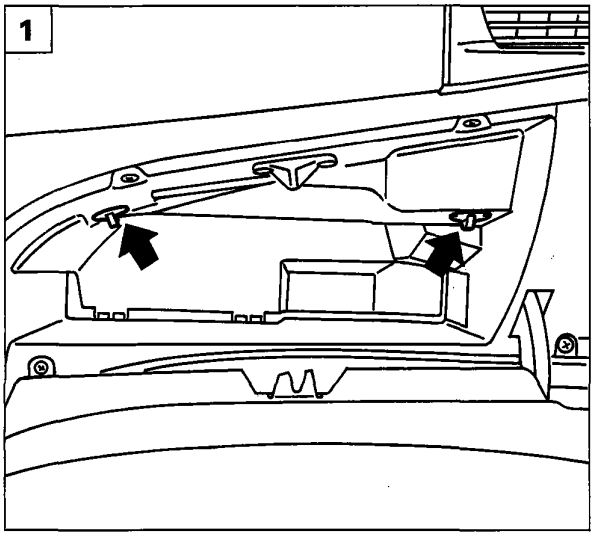

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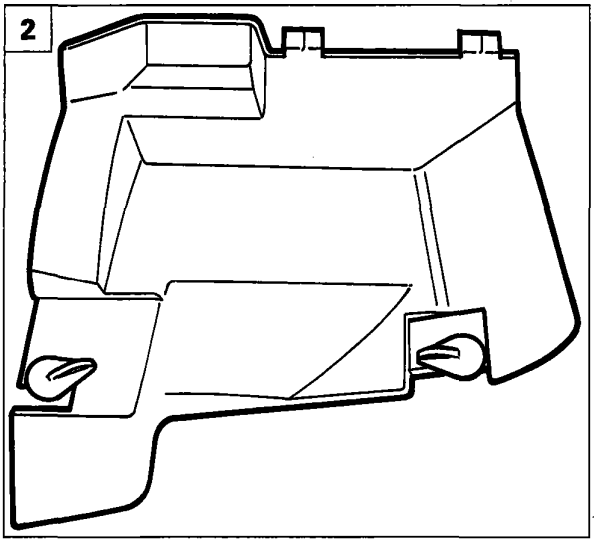
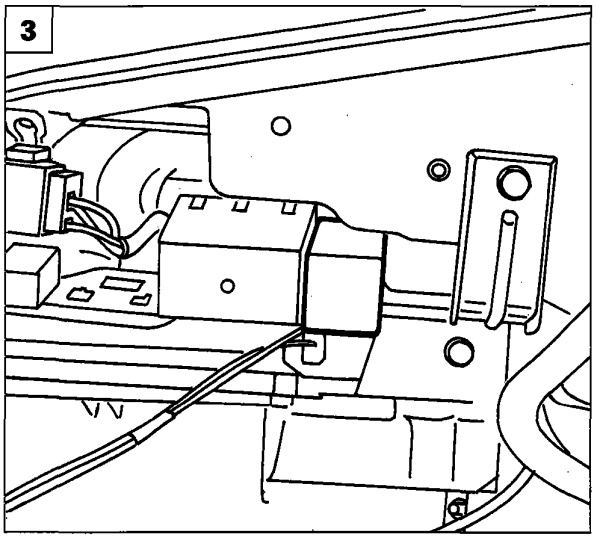


P4A089L02

REMOVING-REFITTING CENTRAL LOCKING ECU

1. Open the glove compartment and turn the levers shown.
2. Remove the compartment lining from the car.

3-4. Disconnect control unit from its housing.



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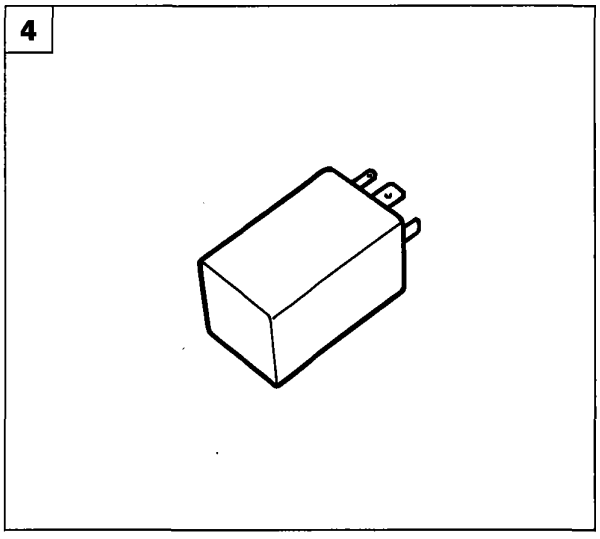

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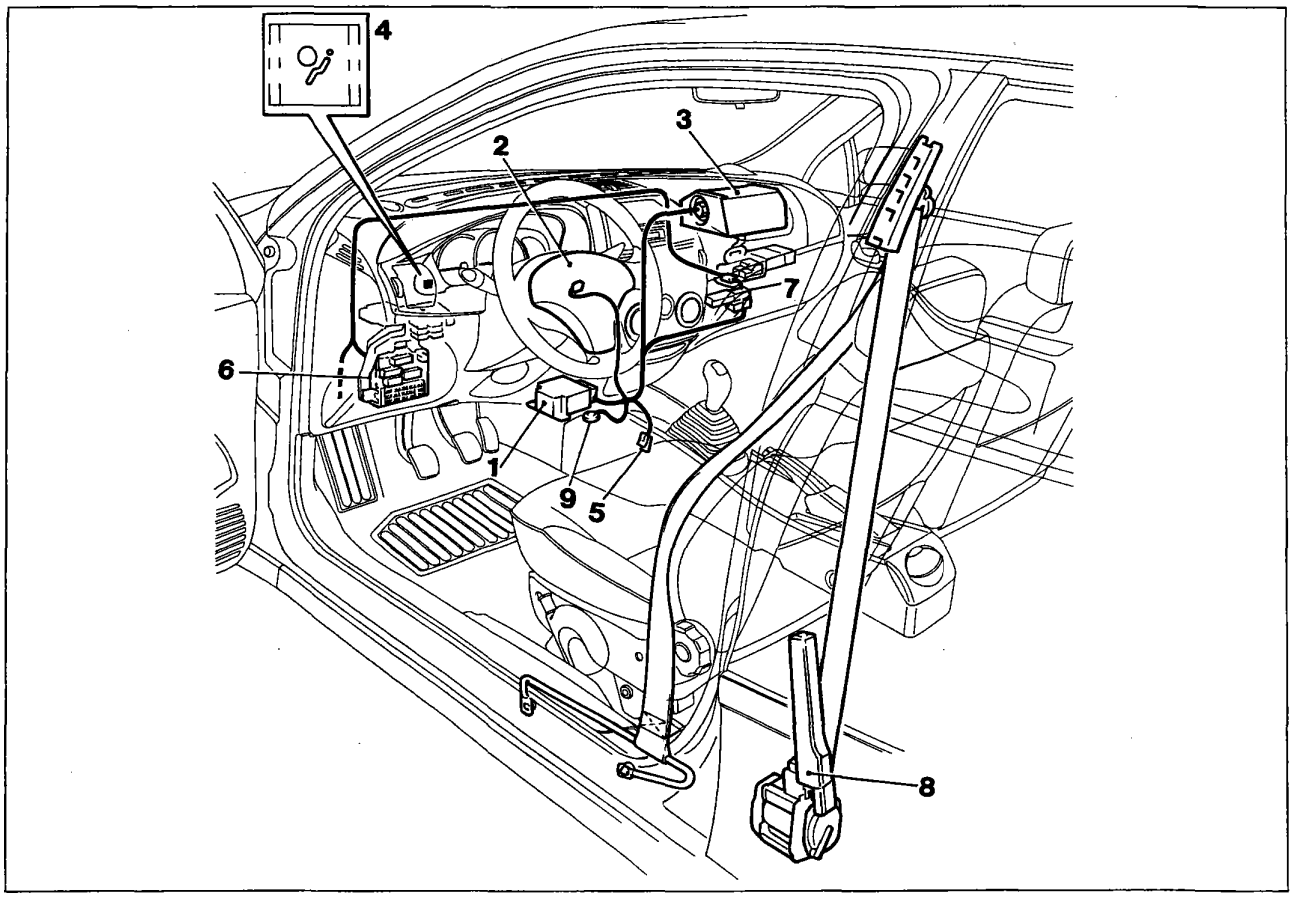
INTRODUCTION

An AIR BAG is a passive safety device consisting of a bag which automatically inflates in the case of frontal impact in order to form a barrier between the driver's body and car structures.
This device will not work to maximum efficiency unless the driver is also secured by seat belts with pre-tensioners.
Deceleration sensors located inside the electronic control unit are specially adjusted to detect crash conditions. The electronic control unit triggers a reaction with a chemical compound (sodium azide), which produces a gas consisting mainly of nitrogen. This gas instantly inflates synthetic fabric bags housed in the middle of the steering wheel and above the glove compartment in front of the passenger.



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An air bag system consists of the following parts:
1. Electronic control unit:
   - contains an electronic circuit with two deceleration sensors;
   - assesses crash situation, implements intervention strategies, detects and stores faults.
2. Driver's side air bag module
3. Passenger side air bag module (options)
4. Red warning light on instrument panel indicating system faults and test codes
5. Socket for connecting Fiat Lancia Tester
6. Junction unit
7. Relay unit
8. Mechanical pretensioners
9. Air bag earth

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ELECTRONIC CONTROL UNIT

The electronic control unit (page 95 reference 1) is located in the car console housing and fastened rigidly to the floor pan.
It is fitted with a 30 pin connector (page 95 reference 2). Nine pins are used for connection to the electrical system. It is supplied with 12 V when the ignition key is turned to MARCIA, but is able to continue working for about 100 ms after the power is cut off, if this should occur as the result of a crash.

This is possible due to the presence of a buffer condenser inside the electronic unit. This accumulates electrical energy to allow the electronic control unit to work normally and to generate the ignition signal required to set off the explosive capsule.

Air-bag operation is therefore ensured even if impact causes system power to be cut off (e.g. damaged or broken battery, broken supply leads etc.).

The control unit must be positioned with arrow (3) facing in the vehicle's direction of motion.
This position must be STRICTLY OBSERVED, because it determines the direction in which the deceleration signal is detected and is used to assess impact status and thus cause the air bag to operate.

The control unit contains an accelerometric sensor. This produces a signal which is processed by a microprocessor to reveal the severity of impact. The microprocessor then determines whether to set off the pretensioners and air bags.

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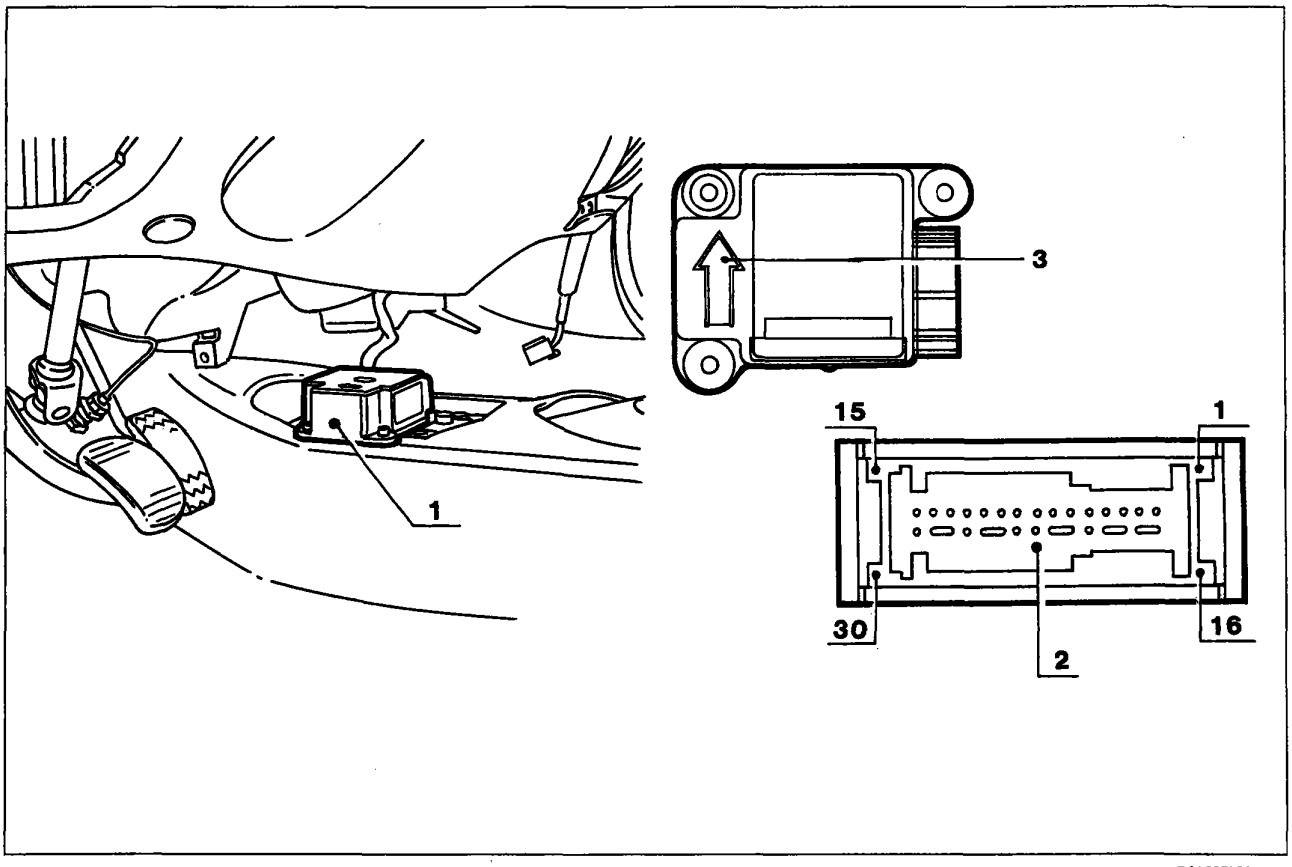
Fault memory

Throughout the period the vehicle is in motion, the electron control unit continually monitors the system to check the continuity of circuits and components.
Detected faults are stored and an "air bag failure" warning light comes on on the instrument panel.
The FAULT MEMORY may be consulted during Service by connecting a FIAT/LANCIA-TESTER to the tester point (see details below)

Crash memory

As mentioned previously, the complex microprocessor and control unit software monitors the signal from the accelerometric sensor and identifies impact severity level.
If the impact is sufficiently severe, and the safety sensor sends an enablement signal, an activation signal is sent to the pretensioners or air bags.
This activation order is stored in a special crash memory that contains records of intervention threshold violations and safety sensor enablement signals.



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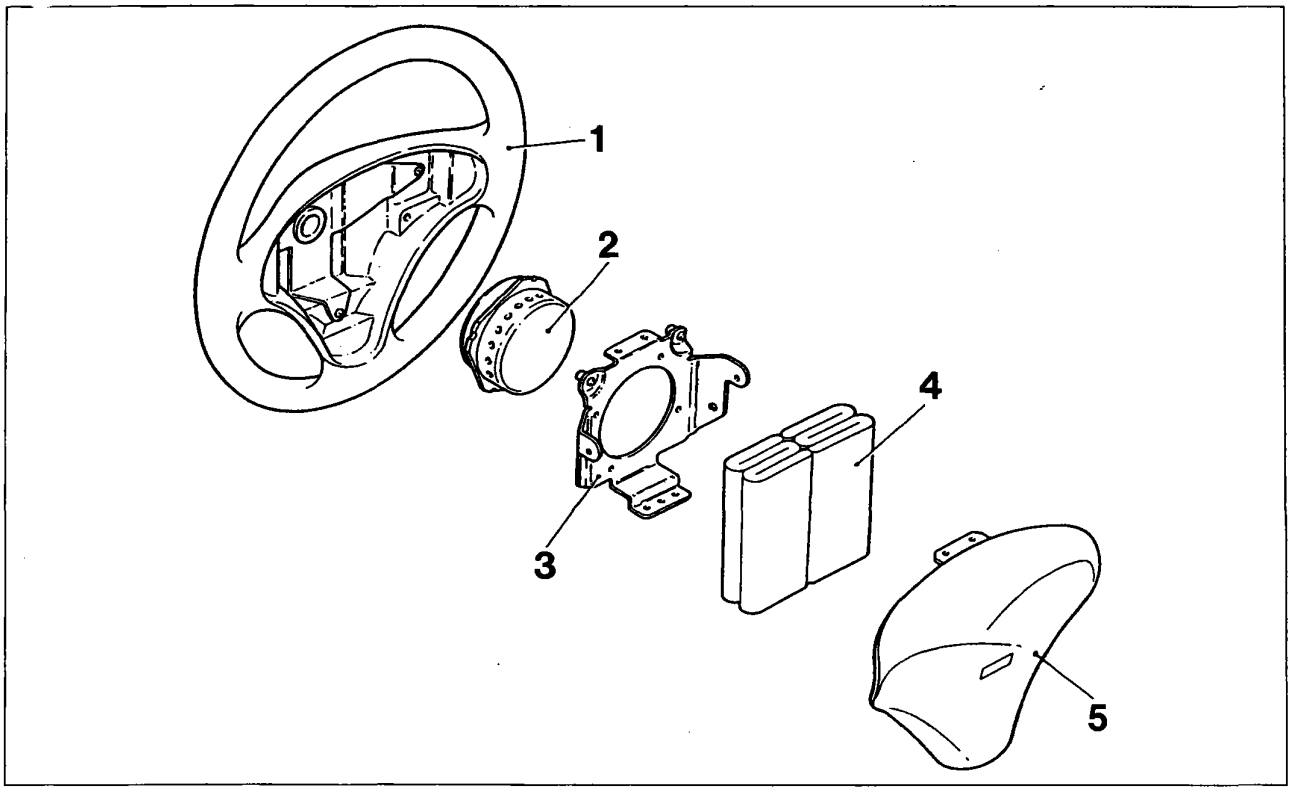
DRIVER'S SIDE AIR BAG MODULE

The bag is made out of silicon-coated nylon. Inner volume is 40 litres when the bag is fully inflated. The bag is folded into a plastic case in the steering wheel hub.

The case is fitted with a cover with pre-established break lines in the middle. This allows the central part to break out so that the bag can emerge.

Because the cover is plastic, it must under no circumstances be cleaned with acids, abrasives or substances that could damage the surface and affect operation in any way.
The gas generator is pyrotechnic and looks like a ring-shaped aluminium solid.

The generator consists of the following parts:
- aluminium container in two halves. The half turned toward the car interior is perforated to allow gas to emerge. The entire system is sealed.
- the sodium azide is contained in a ring-shaped solid and produces a considerable quantity of gas when heated. The detonator triggers the chemical reaction to inflate the bag.



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1. Steering wheel
2. Gas generator
3. Air bag installation plate
4. Bag
5. Bag cover

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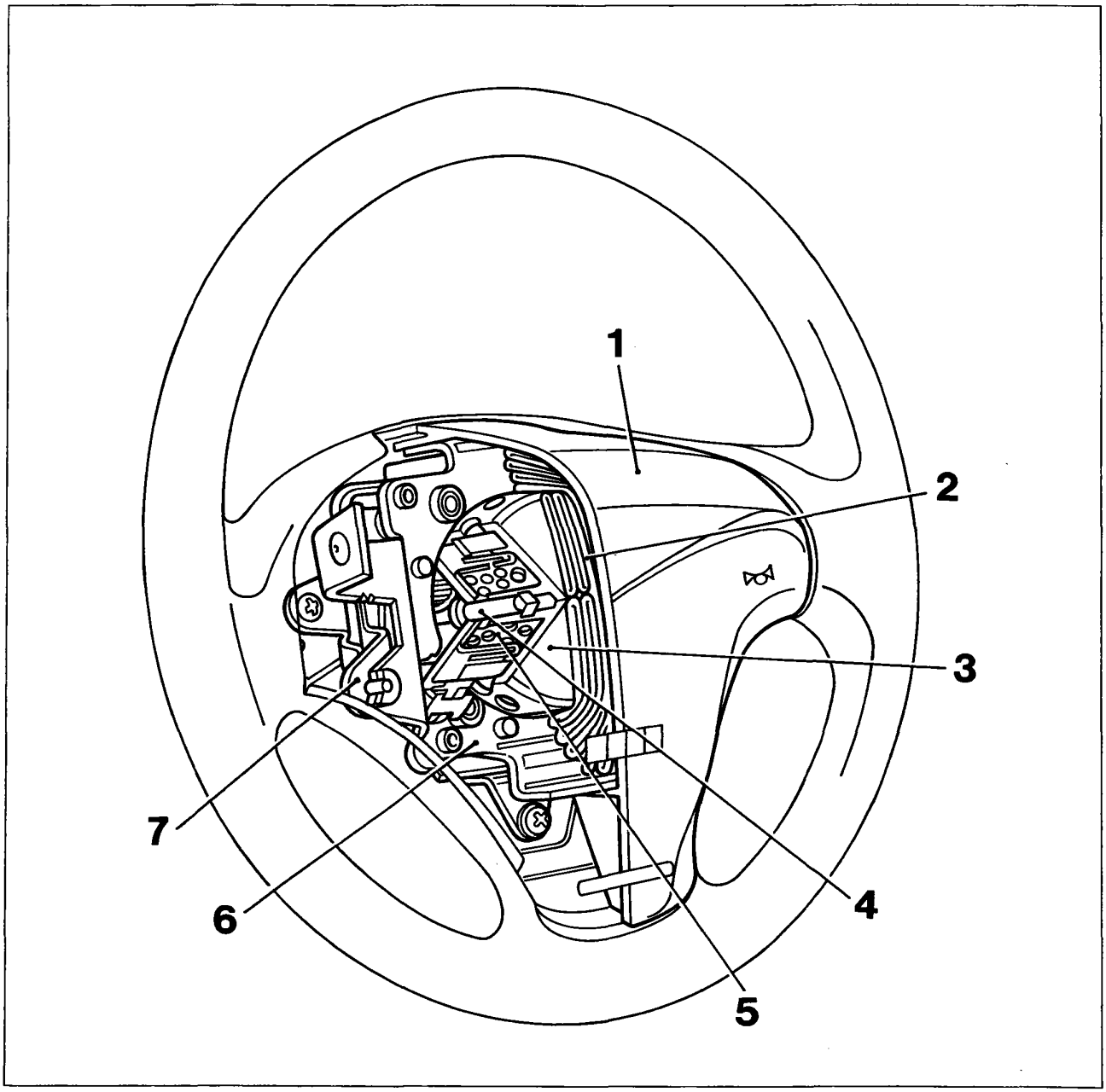

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1. Air Bag module
2. Cushion
3. Inflation device
4. Triggering device
5. Explosive charge (sodium nitride)
6. Gas generator mounting plate
7. Tilting plate for horn

The innovation on this steering wheel is the horn control, which is in a central position and is of the tilting type.
The horn is housed in the centre and, by means of a tilting plate secured to the bottom of the Air Bag protection, it permits operation of the device. Four springs located on the ends provide the electrical contacts.

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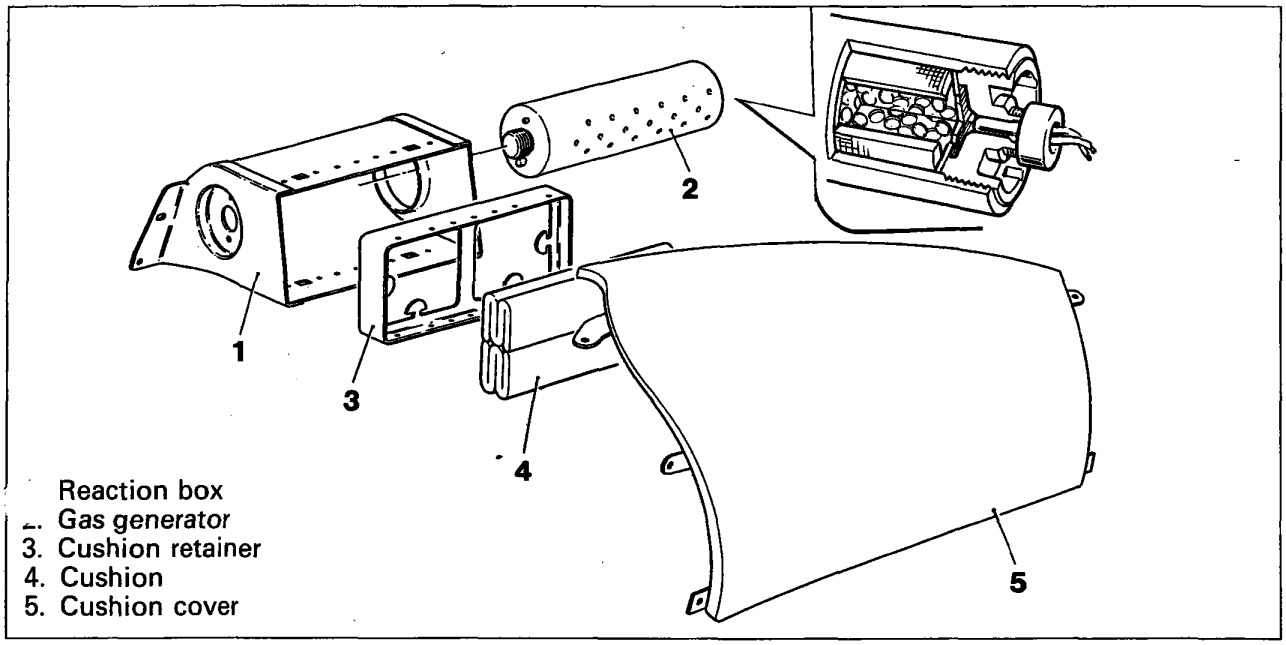
PASSENGER'S AIR BAG MODULE



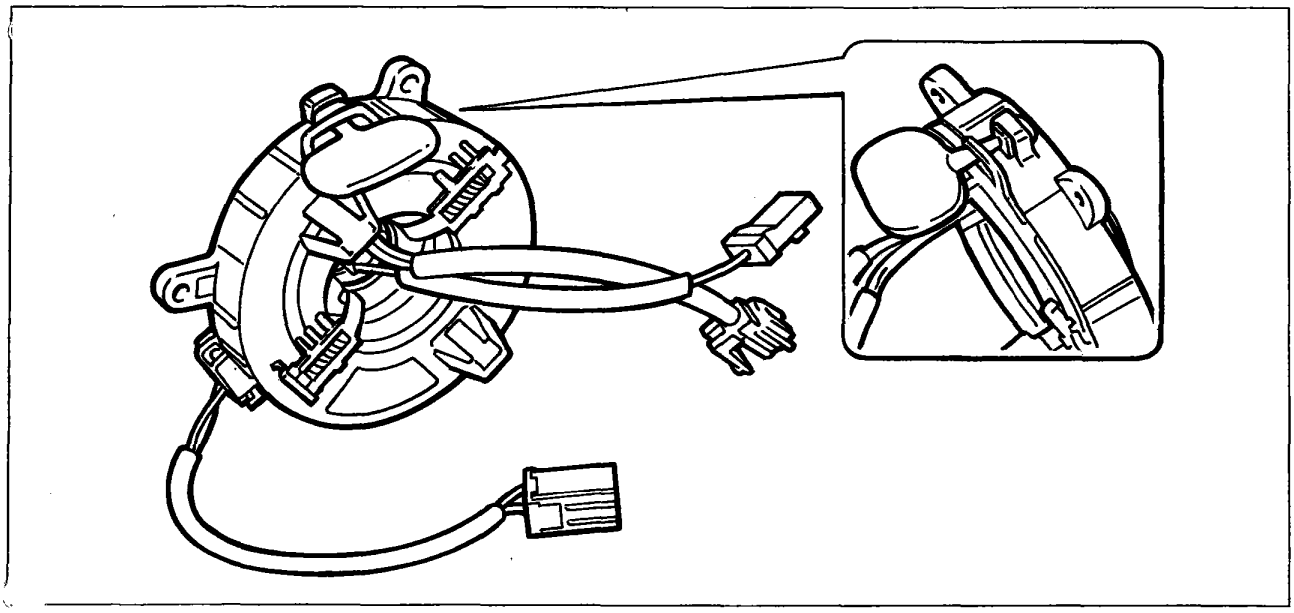
1. Reaction box
2. Gas generator
3. Cushion retainer
4. Cushion
5. Cushion cover

P4A098L01

The passenger's Air Bag is enclosed in a container which is secured to a metal frame. The components and principle of operation are the same as for the driver's Air Bag.
The cushion is made of silicone-coated nylon, and when fully inflated its internal volume is about 90 litres. It is folded in a special casing installed above the glove compartment in the dashboard.

At the centre of the casing there are pre-determined fracture lines which allow the centre of the casing to break and the cushion to emerge.
Since the cover is made of plastic, under no circumstances should it be cleaned with acids, abrasives or substances which could in any way attack the surface and impair its functionality.
The gas generator is of the pyrotechnic type and is a solid aluminium cylindrical element.

DEVICE WITH SPIRAL CABLE (CLOCK SPRING)



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The CLOCK SPRING is a part connected to the stalk unit. It allows the steering wheel to turn while ensuring electrical continuity between the driver's side air bag module and its wiring.

The clock spring consists of a container with three leads emerging from it. One lead is connected to electrical wires from the control unit while the other two leads are turned toward the car interior, where they are connected to the horn and the air bag module.
Inside the two plates, the module and horn button connection leads are wound up into a coil so that they can follow steering wheel movements.
The clock spring is fitted with a device which automatically prevents it from turning when the steering wheel is removed. This action prevents the upper plate, now no longer secured to the steering wheel, from turning freely to wind up or unwind the leads and lead to the possibility of breakage.

When the steering wheel is fitted, the device is automatically released.

When removing-refitting the clock spring, ensure that the spring is refitted in its original position.

If for some reason the upper plate of the clock spring turns in relation to the lower plate so that the position upon removal can no longer be determined, it is absolutely necessary to replace the clock spring.

If replacement is required, the clock spring is supplied together with the stalk unit. THE UNIT MUST BE INSTALLED WITH THE WHEELS ALIGNED WITH THE VEHICLE'S LONGITUDINAL AXIS (STRAIGHT AHEAD), because this is the corresponding position of a new part. A new device is fitted with an safety key which keeps it locked. This key must be removed when the steering wheel is installed to allow the system to turn correctly.

FAULT DIAGNOSIS

While the vehicle is in motion, the electronic control unit automatically monitors the air bag system and stores any faults. When a fault is detected, the unit stores it and turns on the air bag warning light on the instrument panel.The warning light comes on for about 4 seconds (initial test stage) upon start up and then goes off. If the warning light does NOT come on or does NOT go off after 4 seconds, the air bag system must be faulty. System activations following crashes of particular severity are also stored in the control unit.

Diagnosis using a Fiat/Lancia Tester

Faults stored in the control unit can be analysed using a FIAT/LANCIA TESTER or other diagnostic tool. Anomalies stored in the control unit may be deleted once the fault has been repaired using a FIAT/LANCIA TESTER or another diagnostic tool.

NOTE *If a crash causes the system to be activated, the control unit memory cannot be deleted and the unit must be replaced in all cases. The control panel warning light also stays on permanently.*

If module lines need to be tested for breaks during fault diagnosis, the modules must be disconnected from the wiring and replaced with appropriate dummy resistances.

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SAFETY PRECAUTIONS TO BE OBSERVED WHEN WORKING ON VEHICLES WITH AIR-BAG SYSTEM

*The following regulations **MUST ABSOLUTELY BE OBSERVED** during any operations carried out on vehicles fitted with an air bag.*

INTERVENTIONS ON VEHICLE

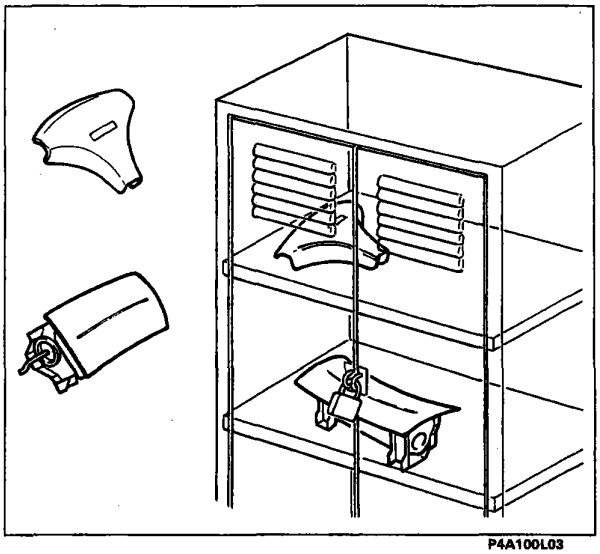
Note that air bag modules should be handled with caution. Their use, transport and storage are governed by legal regulations covering explosives applicable in the country where the vehicle is sold.

Before beginning to carry out:
- repairs to the body;
- welding work;
- work where it is necessary to remove the air bag modules, pretensioners or the control unit.

A Turn the ignition key to STOP and remove. Disconnect the battery, i.e. DISCONNECT TERMINALS (- and +) from their respective poles and THOROUGHLY INSULATE using tape.
B Disconnect the control unit connector and wait for at least 10 minutes after removing the battery.

If an air bag inflation device is removed, strictly observe the following procedure:

1. Wait for at least 10 minutes after disconnecting the battery before beginning to remove the module.
2. Unscrew the retaining bolts.
3. Disconnect connector pin of inflation devices.
4. Replace the devices with the cover facing up, in a locked steel cabinet. This cabinet is designed solely for this purpose and should never be used to store other types of materials, particularly if inflammable. The cabinet must be designed to store pyrotechnic charges (steel, impact-resistant cabinet with grilles to allow natural ventilation inside). It must be marked in accordance with current legislative requirements (DANGER EXPLOSIVES - DO NOT USE NAKED FLAMES - NOT TO BE OPENED BY UNAUTHORIZED PERSONNEL).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NOTE *All connectors wired to air bag modules contain a short-circuit clip. The unit cannot be activated in any way until the air bag modules are connected to an appropriate power source by means of the proper connector.*

If any system component is NOT activated as a result of an accident, it must be considered still active. Components which are unexploded due to faults, because they have reached the end of their warranty term or because they require replacement for other reasons must be returned to the centre using the procedure described below.

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Safety system components must be fitted and removed ONLY by skilled, authorised technical personnel.
The system could be activated when not required and lead to personal injury or unnecessary repairs to the system if the following rules are not respected.
IT IS STRICTLY PROHIBITED TO DISMANTLE AIR BAG MODULES

NOTE *All system components have been designed specifically to work on a car of a particular make and type. Modules and pretensioners cannot therefore be adapted, reused or installed on other cars, but only on the cars for which they have been designed and built.*
Any attempt to re-use, adapt or install on another type of vehicle may lead to injury to occupants in the case of an accident.

Replacing an Air Bag (due to defects or warranty expiry)

If an air bag module is replaced due to defects or expiry of the term of warranty, proceed as follows:
1. Remove the adhesive label from the new module, apply to a special file (charge/discharge register) with the vehicle data (chassis no. registration date, model etc.) and add the old module serial number. The file with the registration data must be kept for the purposes of future checks.
2. Before the plate is stuck over the original plate, it must be perforated for the month and year ten years after module installation date (e.g. the year 2006 when the module is fitted in 1996).
3. Connect the module to the connector which emerges from the steering wheel.
4. Fit the air bag module in its housing on the steering wheel and check that the connection lead is properly arranged. Tighten retaining bolts to the specified torque.

Replacing control unit

The electronic control unit must ALWAYS be replaced in the case of a crash involving activation of the system.

Never attempt to reuse the electronic control unit in any way.

If the control unit is replaced, remove the adhesive label from the control unit and stick in the appropriate file as described above.

NOTE *After working on the system, check operation by means of a FIAT/LANCIA TESTER.*

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Action following an accident

If any component of the safety system is damaged following an accident, it MUST be replaced.
Never attempt to repair the control unit, clock spring or air bag modules.

Accidents with or without activation of the air bag system

Some components of the safety system should be inspected if the system has been activated, if the system has been only partly activated or if the system has not be activated at all.
These components are as follows:
- steering column;
- steering column mounts;
- electronic control unit and module anchorage area;
- clock spring contact;
- facia (in passenger air bag module area).

The component should be replaced if found to be distorted, broken or bent.

Accidents involving activation of the air bag system

Some components of the safety system must be replaced if the vehicle experiences a head-on collision involving activation of the safety system.
These components are as follows:
- air bag modules;
- electronic control unit.

Wiring and connectors must be inspected to identify signs of burning, melted outer insulation or damage due to excess heat.
Components must be replaced if signs of damage are noted on the clock spring and electronic control unit or air bag module anchorage areas.

Painting operations

No particular safety precautions need to observed in the case of painting and subsequent stove drying, because the safety system (air bags and pretensioners) is designed to remain undamaged when the outside vehicle surfaces are heated using normal paint drying systems.

It is forbidden to use naked flames near to modules.
All electronic control units (including the air bag system control unit) must nevertheless be removed if there is a likelihood of their being heated to 85°C or over).

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DANGER TO HEALTH

Observe the following precautions when handling activated modules:
1. Use protective gloves and safety goggles.
2. Wash hands and exposed body parts after touching an activated air bag.

EFFECTS OF OVER-EXPOSURE

There is no potential risk of exposure to propellant because the system is fully sealed.
The propellant mixture is in the solid state and cannot be inhaled even if the gas generator cartridge should break.
There is no danger to human health if any gas should emerge.
As a precaution, avoid contact wtih the skin and do not ingest the propellant.

In the case of
- ***Contact with the skin:*** *wash immediately with soap and water.*
- ***Contact with eyes:*** *rinse the eyes immediately with running water for at least 15 minutes.*
- ***Inhalation:*** *take the patient out into the open air immediately.*
- ***Swallowing:*** *induce vomiting if the person is conscious.*
  Always call a doctor under these circumstances.

SAFETY REGULATIONS FOR HANDLING AIR BAG MODULES

Under normal conditions, driver and passenger side air bags are activated after receiving an electronic trigger command during impact. The gas produced under these conditions is mainly non-toxic nitrogen.
It is therefore important to ensure that personnel carrying out work on the device when fitted to the vehicle carefully observe the following safety reglations.
Personnel working on the devices must be specially trained.

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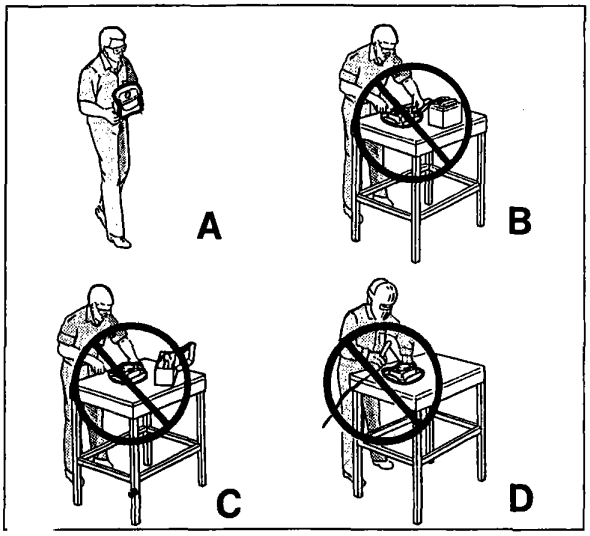

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- When removing and replacing open (exploded) air bag modules, handle only one module at a time and use gloves and goggles for removal.
  After the operations are completed, wash hands thoroughly using neutral soap and rinse eyes immediately in plenty of running water if they come into contact with powder residues.
  The metallic parts of a recently detonated air bag are very hot. Avoid touching these components for several minutes (about 20 minutes) after the Air-Bag is activated.

A When removing and replacing UNEXPLODED air bags, always rest the air bag module with the opening flap and pre-marked tear lines turned upward. Never place anything above the flap.

B Do not supply the air bag module with electric current in any way.

It is prohibited to test the continuity of system components unless modules have been replaced by dummy resistances.

C Never repair Air Bag modules. Send all defective modules to the supplier.

D Do not heat the air bag module, e.g. by welding, percusion, drilling, machining etc.

- Never install air bag modules on a vehicle once they have been dropped or show any signs of damage.
- is forbidden to keep air bag modules together with inflammable material or fuel.
- The gas generators must not come into contact with acid, grease or heavy metals. Contact with such substances could lead to the production of poisonous or harmful gas and explosive compounds.
- Store parts in their original packing. During temporary storage, follow the same procedure for an air bag module removed from the vehicle but not activated, i.e. always use a locked steel cabinet which is suitably designed (steel impact-resistant cabinet with grilles to allow natural ventilation inside).The cabinet must be equipped with special warning signs (DANGER EXPLOSIVES - DO NOT USE NAKED FLAMES - NOT TO BE OPENED BY UNAUTHORIZED PERSONNEL).
- No-one working on a version fitted with an air bag is allowed to work from the front seats without firstly rendering the system inoperative by turning the ignition key to STOP and then disconnecting and insulating the battery, and then waiting for 10 minutes.
- If water and mud reach the level of device components as a result of exceptional atmospheric conditions (floods, high tides etc.), the device must be replaced.

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DISPOSING OF USED AIR BAG MODULES

Air bag modules fitted to a vehicle must not be demolished with the vehicle but must be removed beforehand.
Air bags cannot be scrapped without first being activated.
If the air bag module does not go off during an accident, the device must be considered still set to go off.
All unexploded material must be sent to GEMCA in Chivasso, indicating the following wording on the delivery note:
"AIR BAG/PRETENSIONER DEVICE CONTAINING PYROTECHNIC CHARGE TO BE DE-ACTIVATED".

Devices must be sent to GEMCA in the original packs in which the parts were received. If these are not available, the empty pack can be ordered from the Volvera parts store.
If air bag - pretensioner devices are replaced, the original pack must be kept to use when forwarding unactivated devices to GEMCA.

Foreign markets

Check current local legislation for foreign markets and inform dealers.

Failure to respect the instructions listed here may cause air bags to be activated when not required and lead to personal injury. Unactivated air bags must NOT be disposed of via the normal refuse disposal channels. Unactivated air bags contain harmful substances that could cause personal injury if the sealed container is damaged during disposal. Failure to dispose of air bags in accordance with these instructions could constitute a breach of current legislation.

Ordering procedure

If necessary, devices may be ordered as required from the Parts After-sale department in Volvera using only the VOR procedure because Dealers should not hold a stock of such parts. In any case, during internal handling they should be entered in a charge/discharge register which shows module identification numbers and vehicle data (chassis no., registration data, model etc.)

NOTE *For foreign markets, check current legislation and inform dealers accordingly.*

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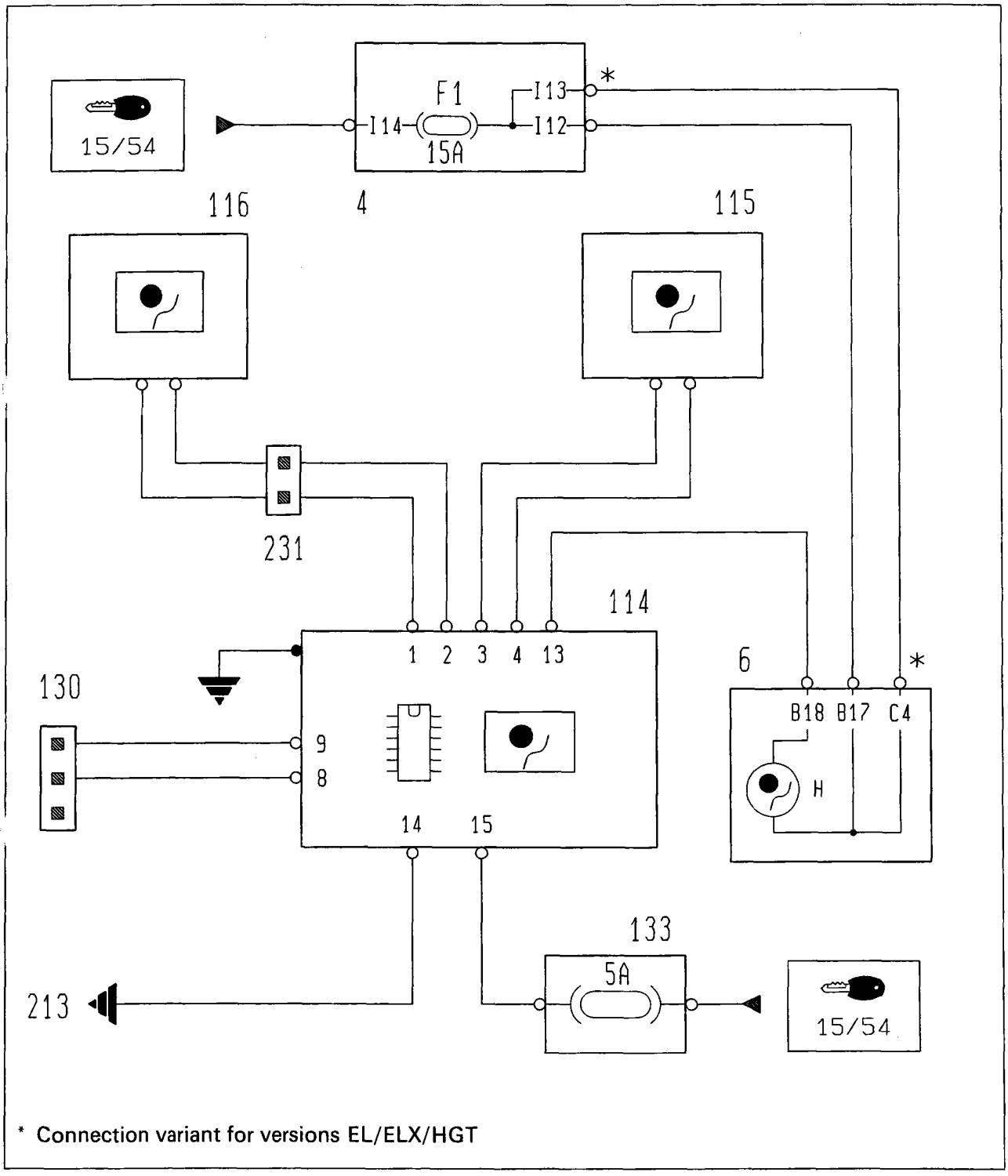
WIRING DIAGRAM



P4A106L03

4. Junction unit
6. Instrument panel
114. Air bag control unit
5. Passenger's air bag
116. Driver's air bag
130. Tester socket for air bag
133. 5A fuse for air bag system
213. Air bag earth
231. Clock spring connection

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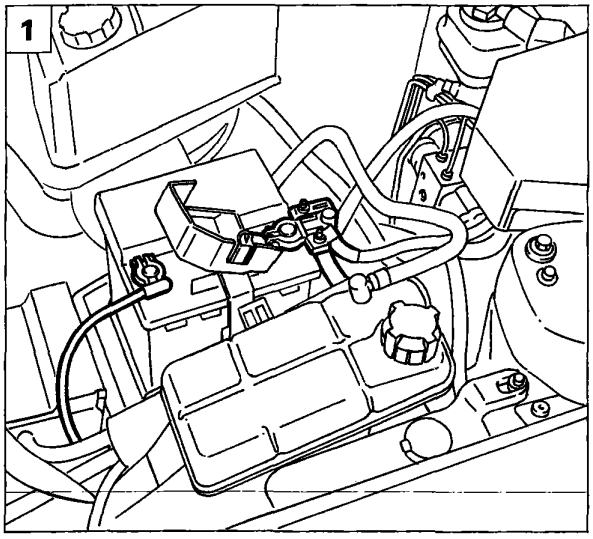

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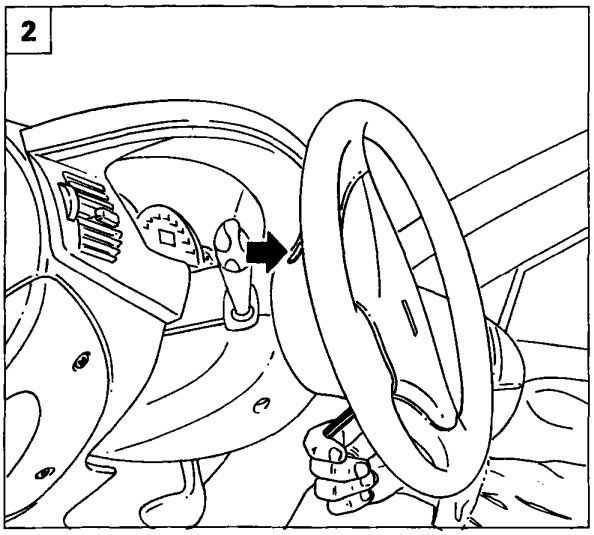
REMOVING DRIVER'S SIDE AIR BAG

Safety measures

Operations on air bag system components must be carried out by specially trained personnel and the following safety measures must be STRICTLY adhered to. During removal and replacement operations, it is necessary to use polythene gloves and protective goggles. Do not use naked flames near the air bag and air bag system components. The metal components of an air bag are very hot immediately after activation. Wait at least 20 minutes following activation before touching these parts. Individual damaged or defective parts must not be repaired or tampered with in any way but replaced as a whole unit.

See section beginning on page 99 for further information on safety procedures.



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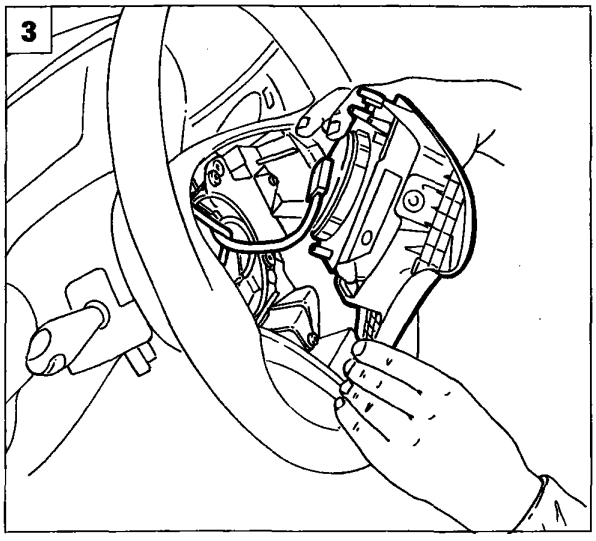
Operation sequence

1. Disconnect battery terminals and protect with insulating tape. Wait 10 minutes and then proceed as follows.
2. Unscrew the two 5 mm hexagonal-headed socket screws located to the rear of the steering wheel. Turn the steering wheel and position as shown in the figure to gain access to each screw.
3. Lift the air bag out of the steering wheel.
4. Turn the air bag and maintain in a vertical position. Then disconnect the yellow two-way connector.



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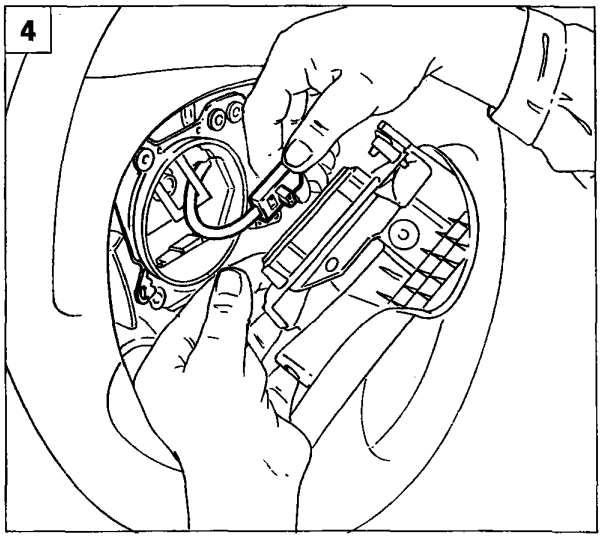

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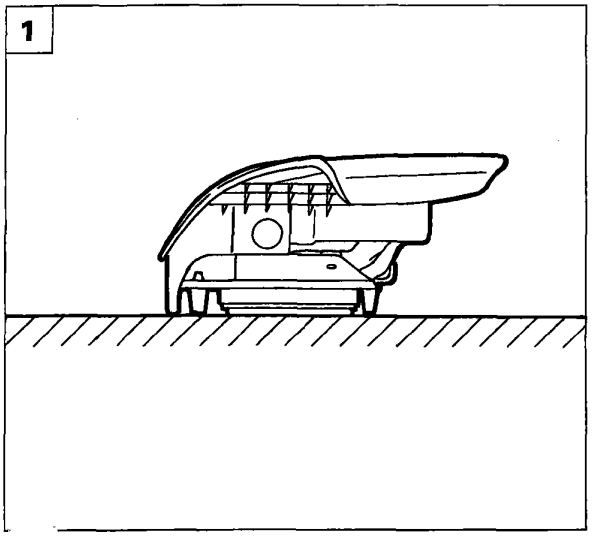

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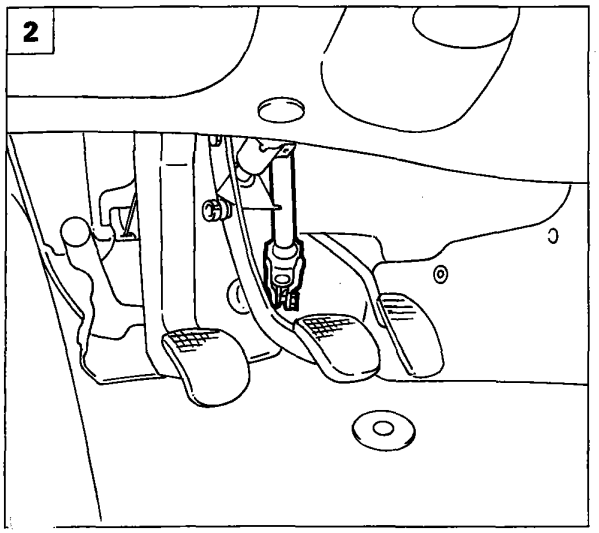
1. Remove the air bag from the steering wheel.

Following removal, unactivated air bag modules should immediately be placed in a specially marked cabinet and locked away.
The module should be placed with the metal part resting on the surface as shown in the figure.



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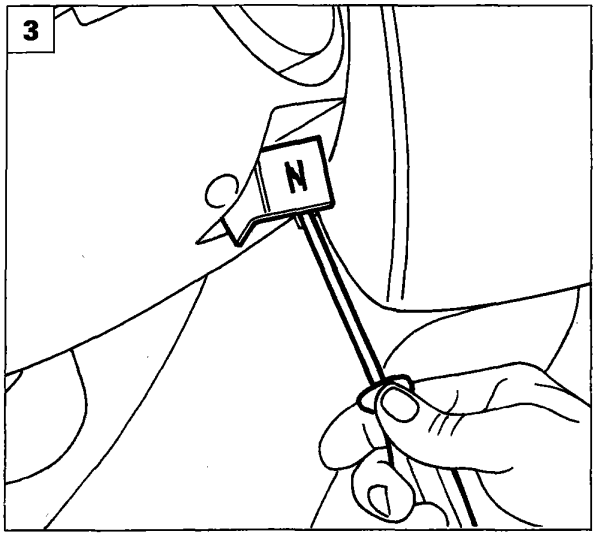
REMOVING CLOCK SPRING

Preliminary operations

Remove the air bag as described on the previous page. Then proceed as follows.

2. Align the wheels and lock the steering column throughout all clock spring removal and refitting operations.
3. **Diesel versions:** unscrew screw retaining advance handle to allow removal of the lower steering column trim.
4. Disconnect the lower steering column trim and unscrew the three cross-headed screws indicated by the arrows.



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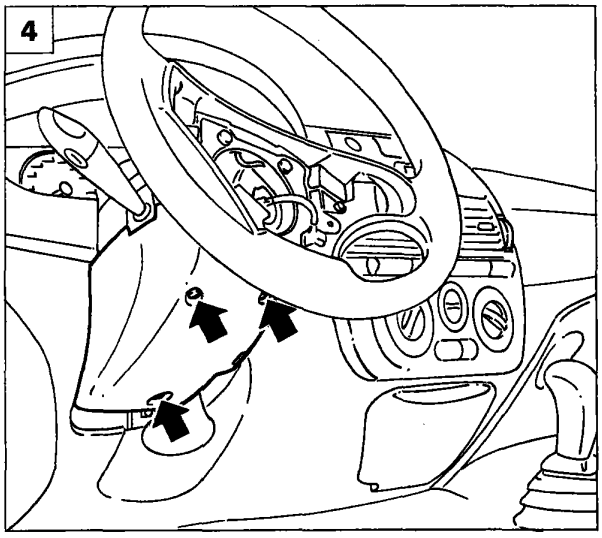

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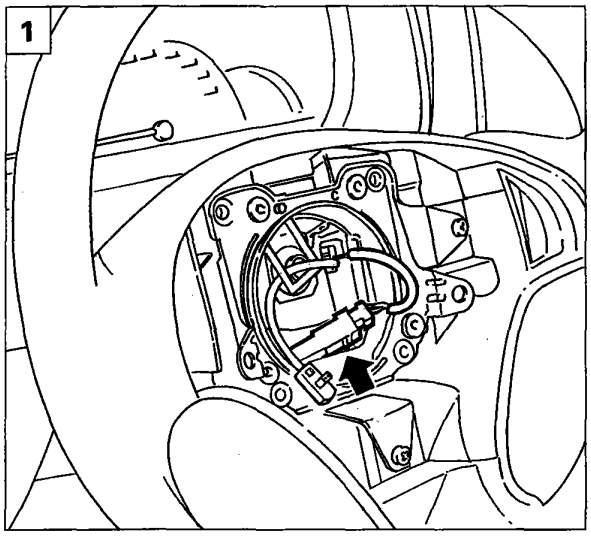

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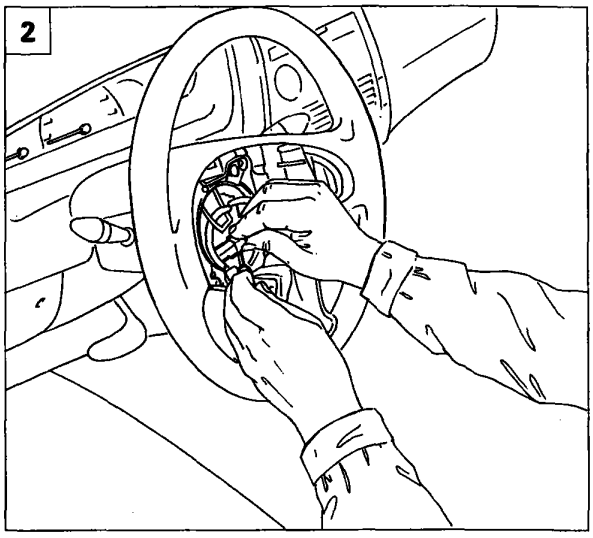

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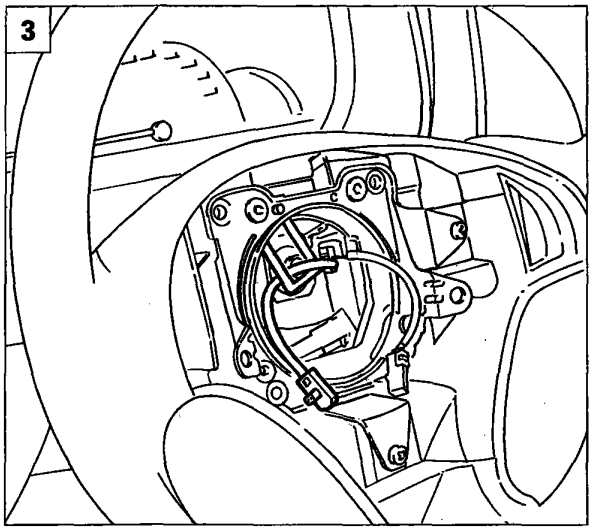
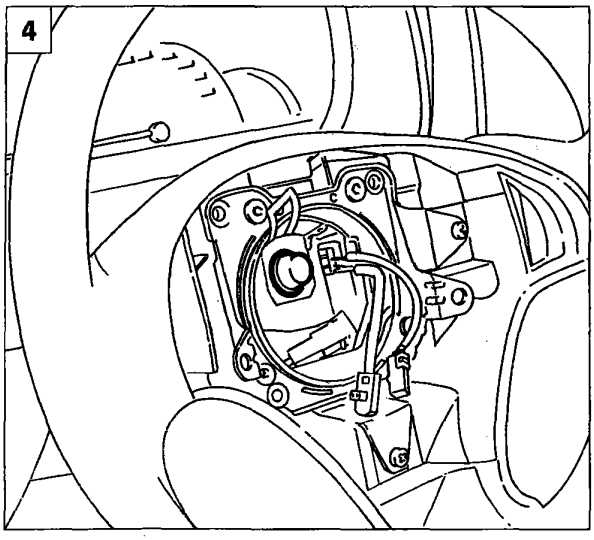


P4A109L07

Removing the steering wheel

Proceed with great care when carrying out the following operations.

1. Remove the horn connector from its seat.
2. Disconnect the horn connector.
3. Withdraw the yellow cable from the rubber slot.
4. Remove the rubber cover fitted to the nut retaining the steering wheel to the steering column.
5. Unscrew nut retaining the steering wheel to the steering column.



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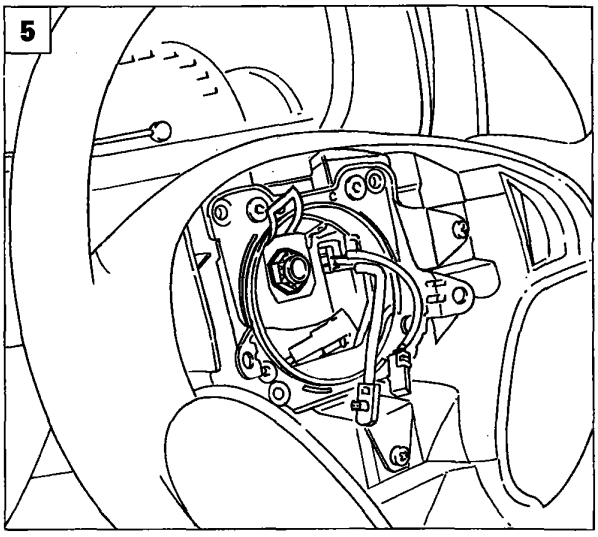

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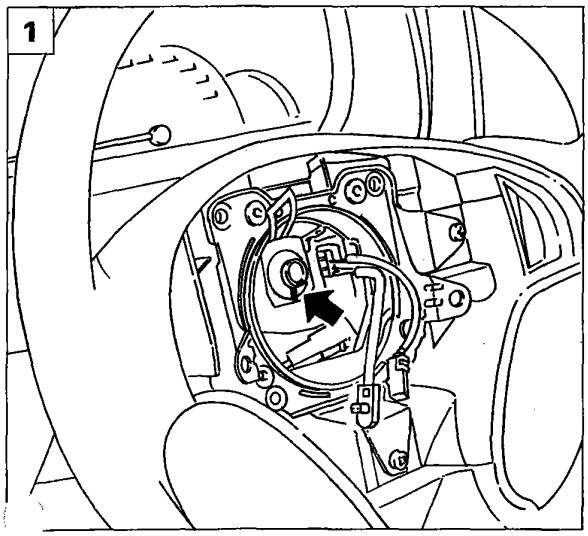

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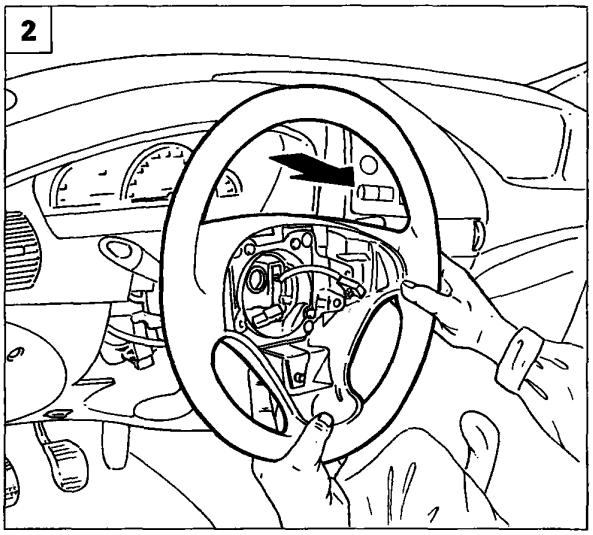
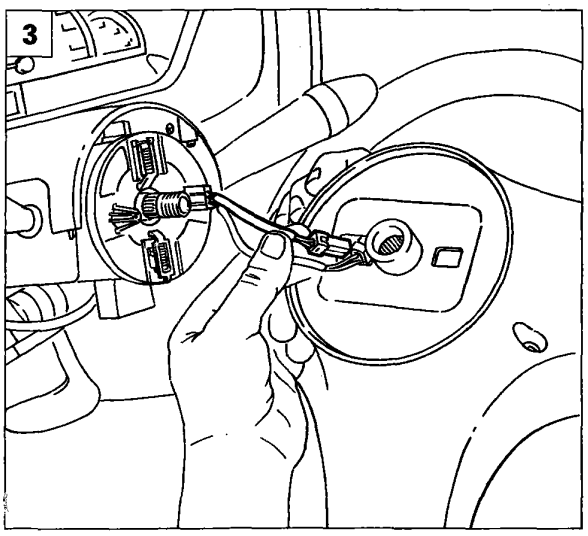


P4A110L06

1. Mark the position of the steering wheel hub in relation to the steering column.
2. Fully remove the steering wheel. Take care not to withdraw the two clock spring leads.

Take care not to knock the steering wheel during the removal operation.

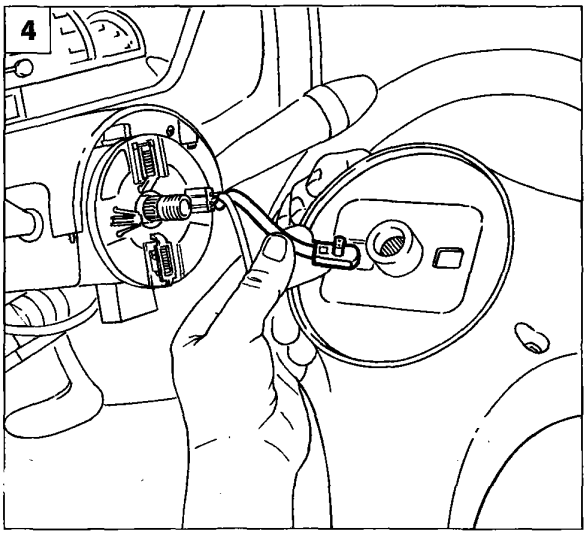
3. Remove the horn supply lead with the white connector from the slot on the steering wheel hub.
4. Remove the air bag supply lead with the yellow two-way connector from the slot on the steering wheel hub and remove the steering wheel from the vehicle.



P4A110L07

Removing watch spring

5. Remove the upper steering column trim by unscrewing both cross-headed retaining screws.



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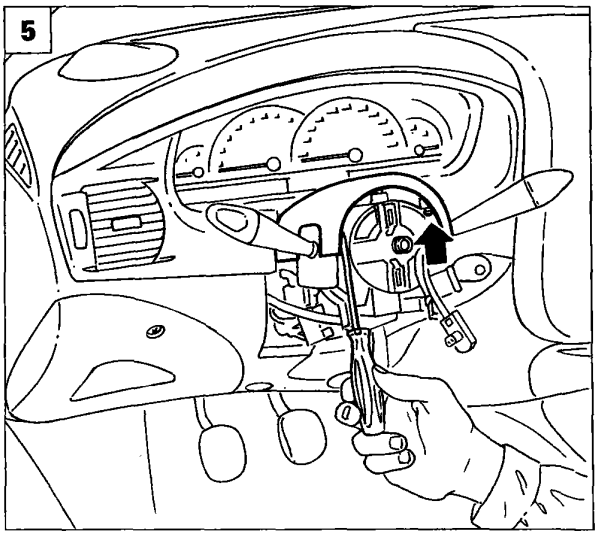

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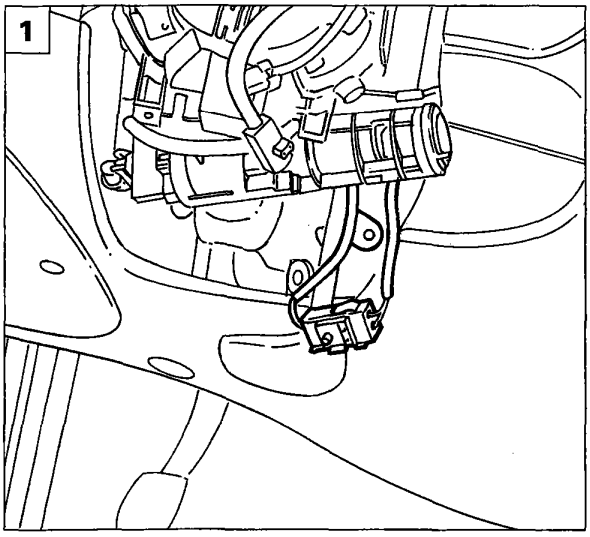

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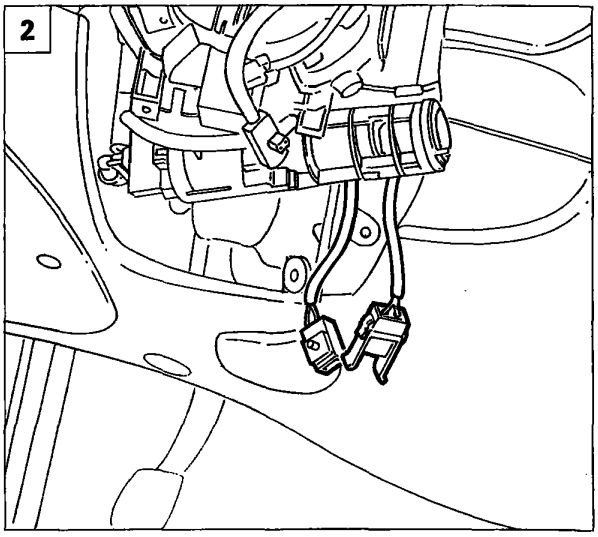

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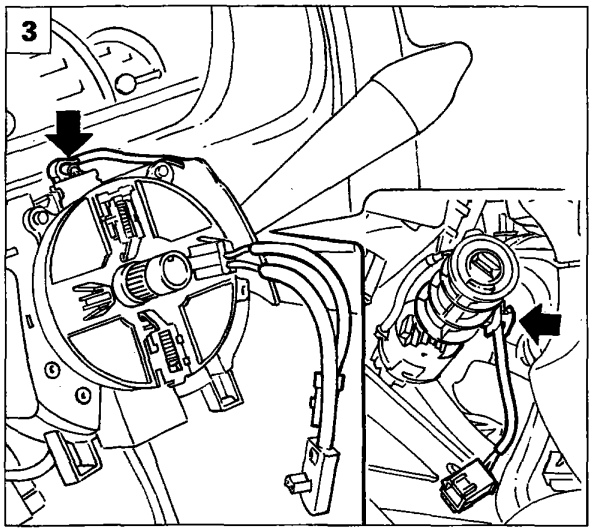
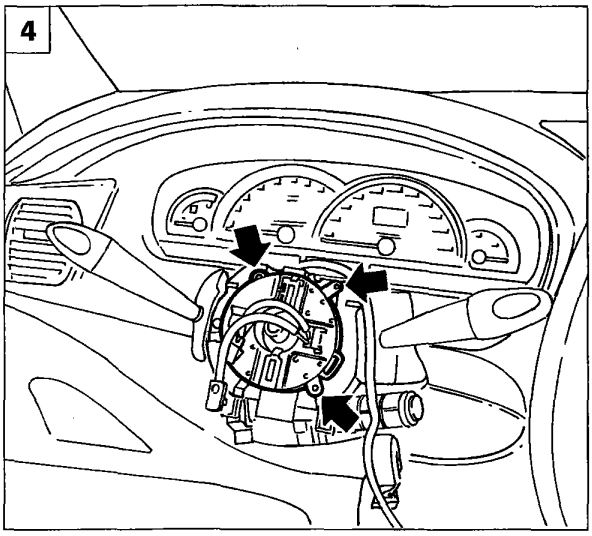


P4A110L13

1. Disconnect the yellow connector from the ignition switch bracket.
2. Disconnect the yellow connector connecting the air bag control unit to the clock spring.
3. Release the clock spring lead from its retaining leads.
4. Undo the three cross-headed screws retaining the clock spring and remove from the vehicle.

The clock spring is fitted with a system to prevent rotation (clip A fig. 5). This operates when the steering wheel is removed.

5. For greater safety, prevent the clock spring from turning by using a clip or adhesive tape as indicated by the arrow.



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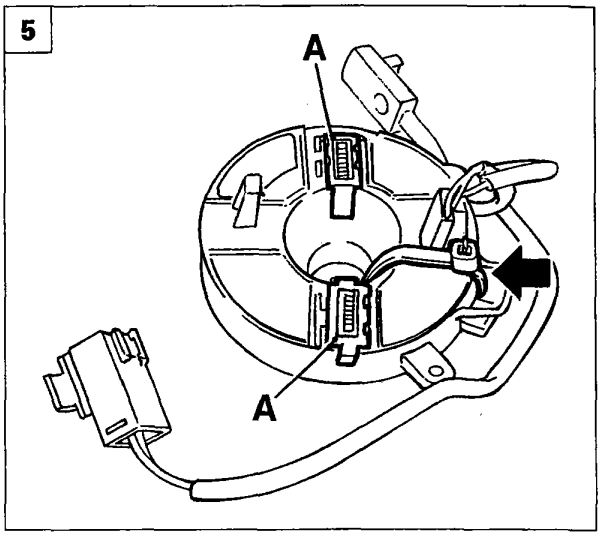

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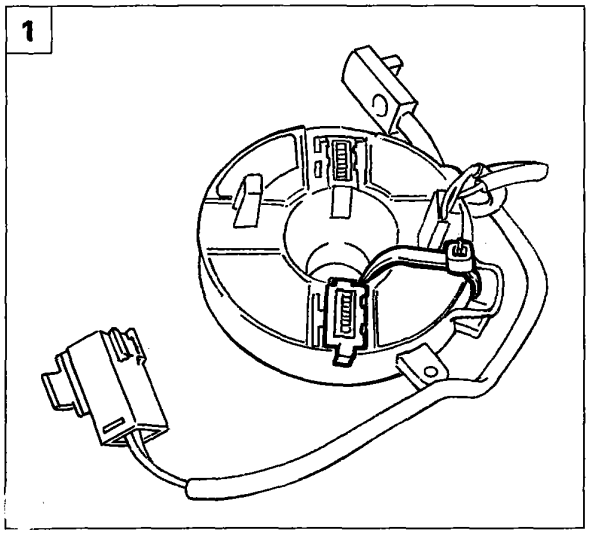
35.

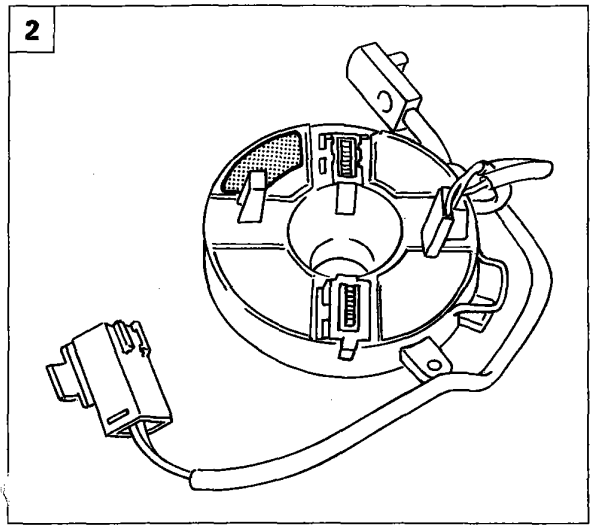
1



P4A110L16

REFITTING CLOCK SPRING

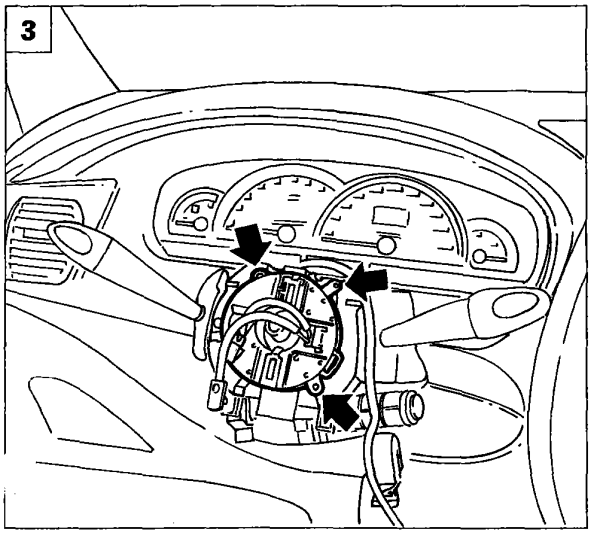
2



P4A110L17

1. If the clock spring does not require replacement, remove the adhesive tape or clip fitted previously without turning the upper ring.
2. The upper clock spring case is identified by one of two different colours:
   -Green for vehicles with power steering.
   -Red for vehicle without power steering.
3. Position the clock spring on the stalk unit, then fasten by tightening the three cross--headed screws.
4. If a new clock spring is fitted, turn the safety key until it comes completely away after fastening the spring to the stalk unit.

3



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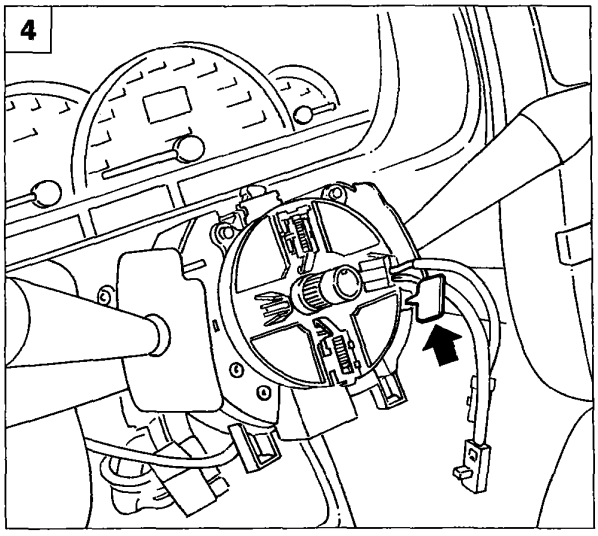

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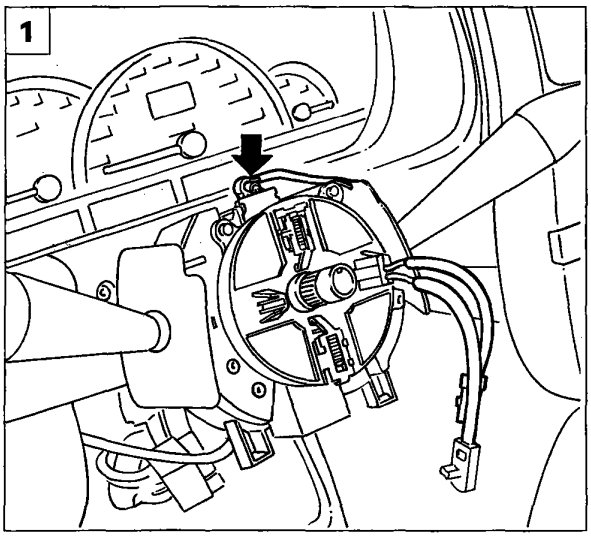

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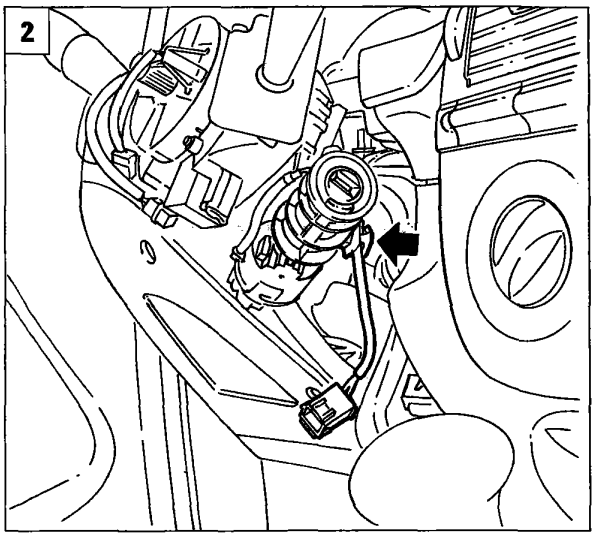

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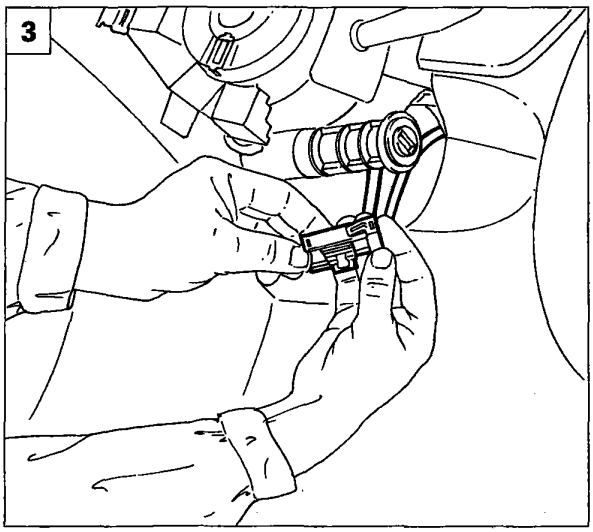
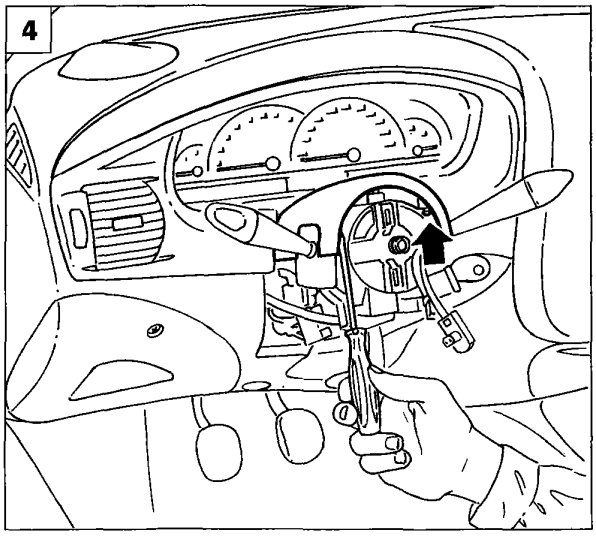


P4A110L21

1. Reposition the yellow connection lead in the retaining clip on the stalk unit.
2. Secure the connection lead to the retaining block on the ignition.
3. Connect the clock spring lead to the connection leading from the air bag control unit and secure to the bracket.
4. Refit the upper steering column trim by screwing in the two cross-headed retaining screws.

Refitting the steering wheel

5. Carefully thread the yellow air bag supply lead through the square slot on the steering wheel hub.



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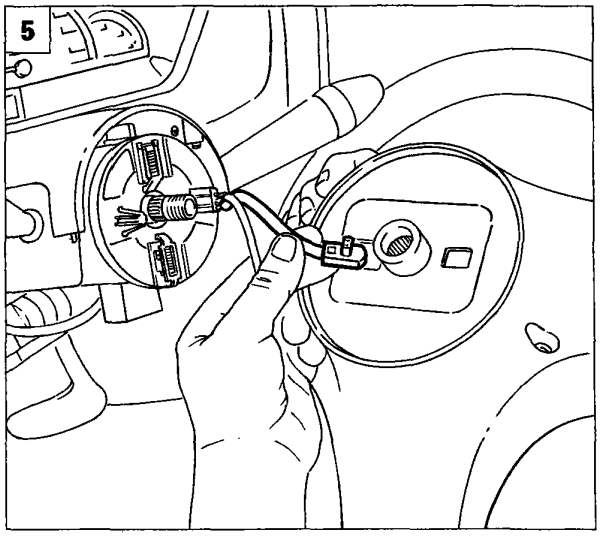

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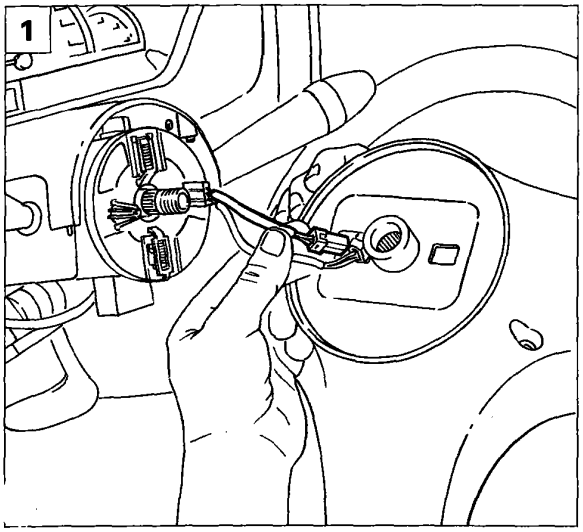

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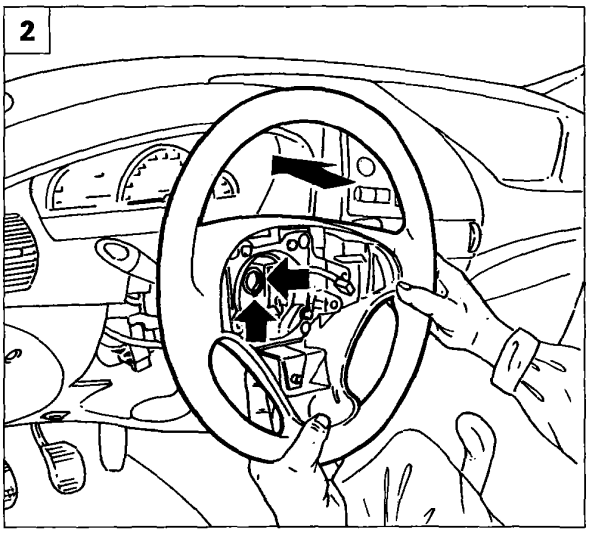

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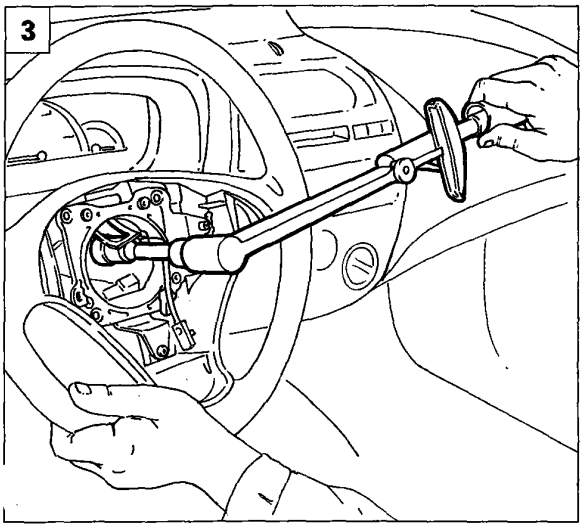
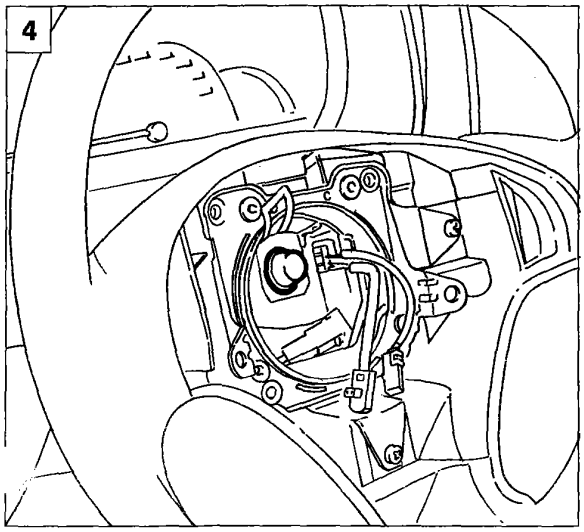


P4A110L23

1. Carefully thread the horn supply lead through the same slot on the steering wheel.
2. Fit the steering wheel and align the reference marks made previously.
3. Fit the steering wheel retaining nut and tighten to a torque of 5.5 da Nm.
4. Fit the rubber cover over the steering wheel retaining nut.
5. Connect the connector shown in the figure to the horn connector.

Thread the horn lead through the fittings around the edge of the steering wheel compartment to avoid fouling.



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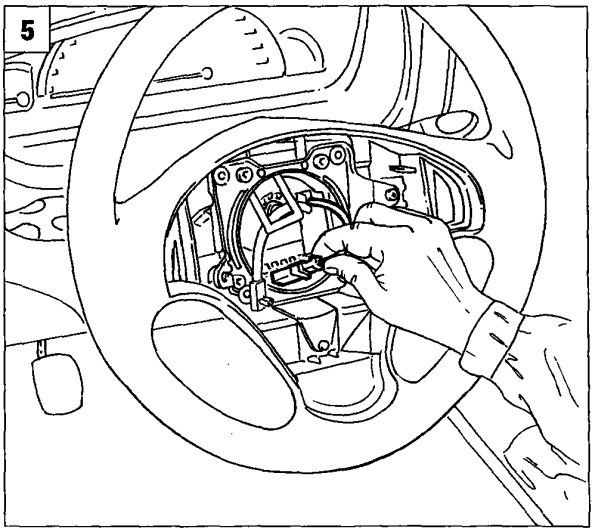

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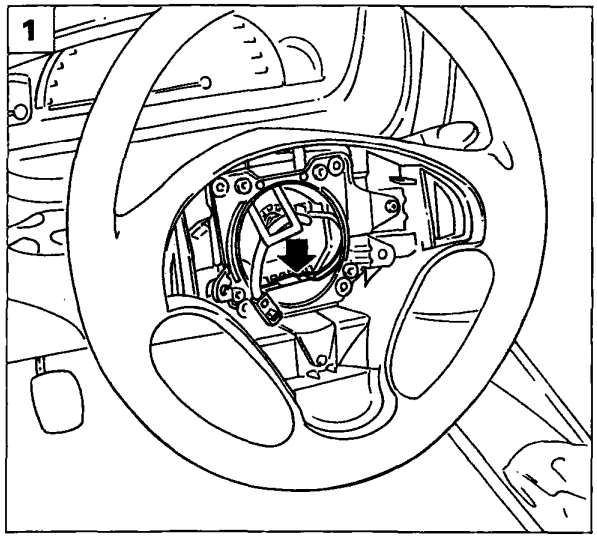

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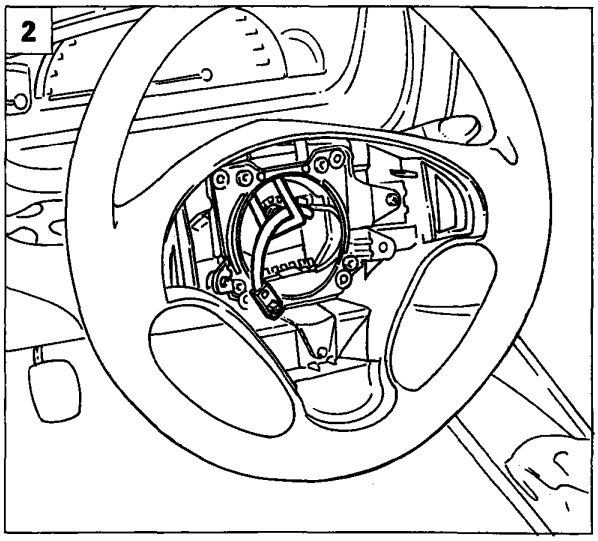

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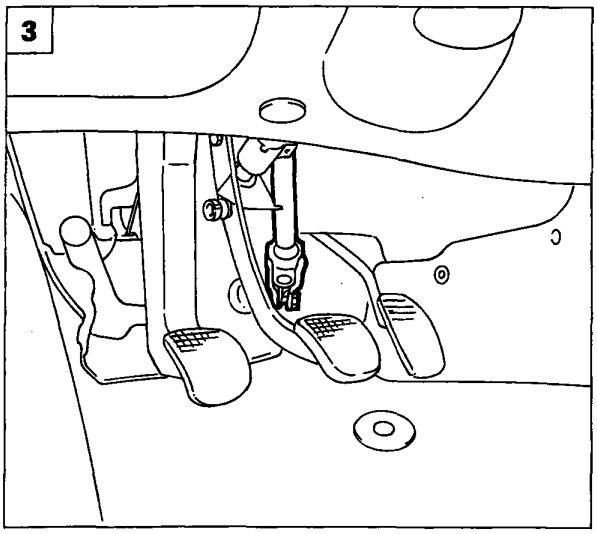
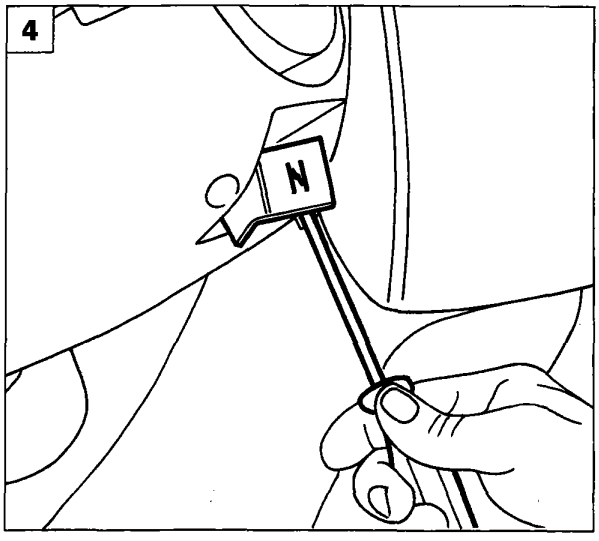


P4A108L07

Completing assembly

1. Fit the connector and connection lead into their seat under the horn plate.
2. Carefully pass the yellow two-way air bag supply line through the rubber slot.
3. Release the steering column.
4. **Diesel versions:** tighten the advance handle retaining bolt.
5. Refit the lower steering shaft trim and tighten the three cross-headed bolts indicated by arrows.



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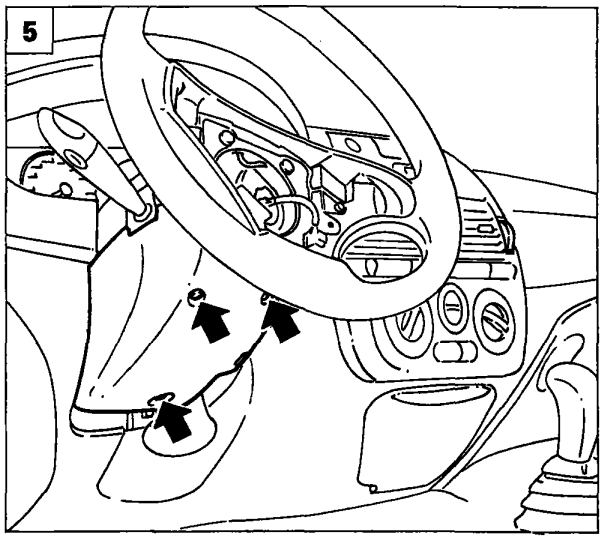

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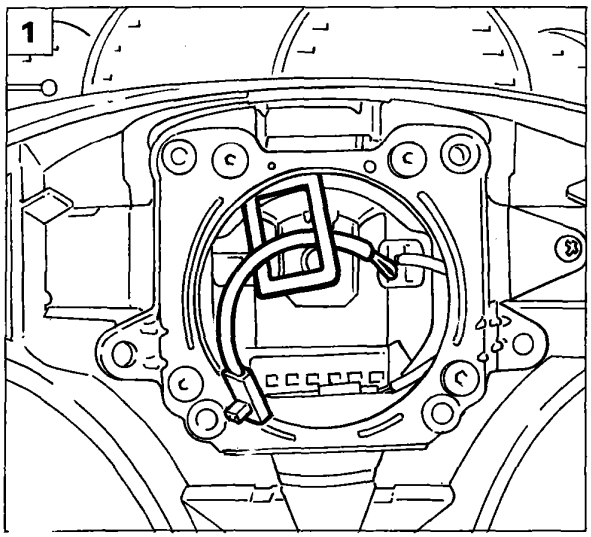

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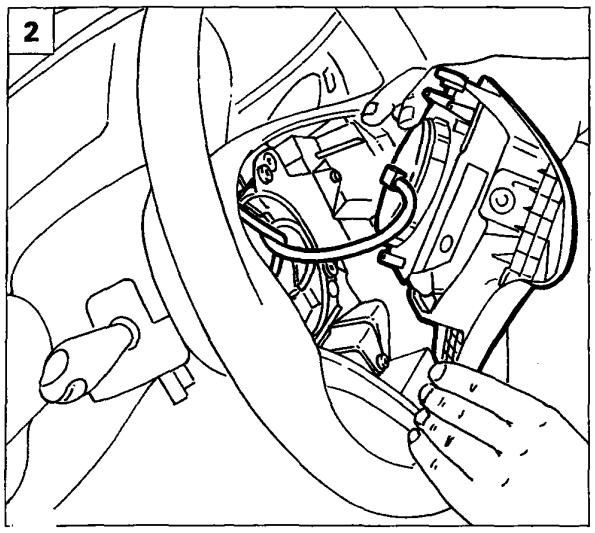


P4A110L32

REFITTING AIR BAG

Safety measures

Operations on air bag system components must be carried out by specially trained personnel and safety measures set out in the section beginning on page 99 must be STRICTLY adhered to.

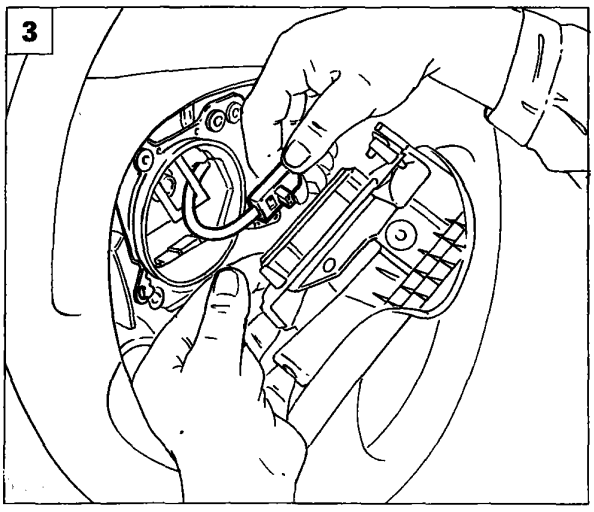
Operation sequence

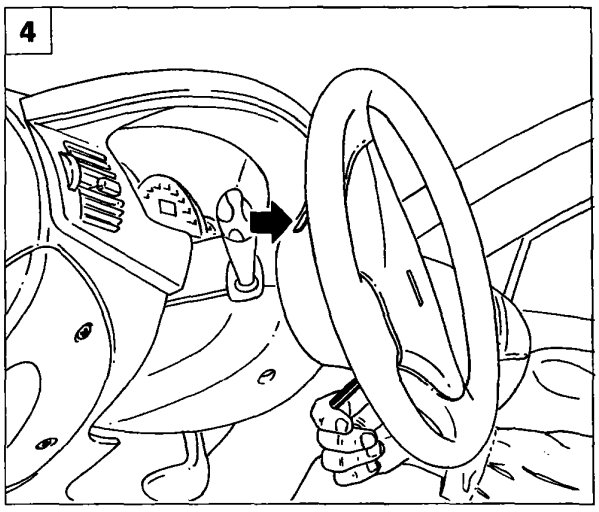
1. Before refitting the air bag, check that the yellow lead attached to the clock spring passes through the rubber slot.
2. Bring the driver's air bag up to its fitting position on the steering wheel and tilt as necessary.
3. Connect the yellow two-way connector leading from the clock spring to the air bag connector.
4. Position the air bag carefully in its seat and then tighten both 5 mm hexagonal-headed socket screws retaining the air bag to the steering wheel.

Check system operation by ensuring panel warning light goes off.

NEVER CONNECT THE BATTERY UNTIL INSTALLATION IS COMPLETE.

NOTA *After refitting, check the system is working properly by means of a FIAT/ LANCIA TESTER or other diagnostic instrument.*





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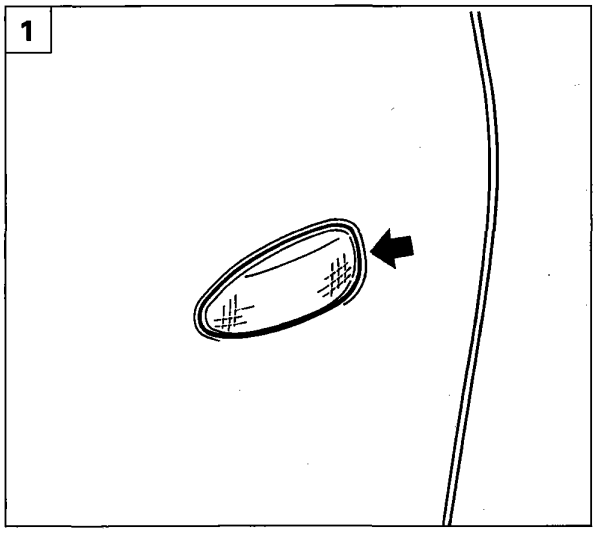

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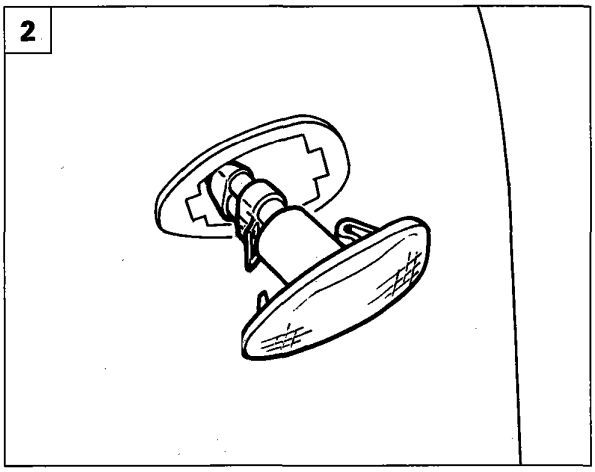
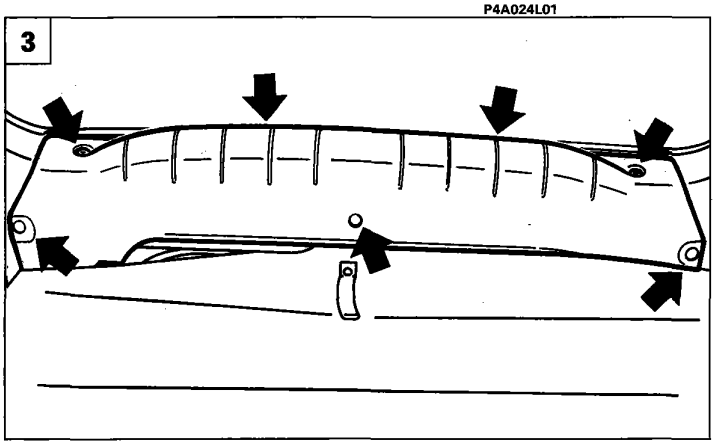


P4A024L02

SIDE REPEATER

Removing-refitting

1. Use a screwdriver at the point shown by the arrow to disengage the side repeater from the body shell.
2. Disconnect the supply cables connector from the bulb holder, and rotate the holder to release it from the lens.

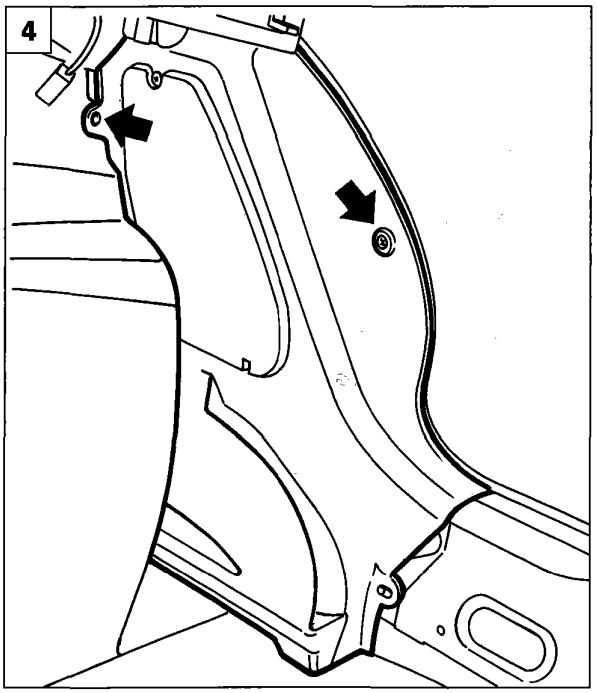


P4A024L03

REAR LIGHTS CLUSTER

Removing-refitting rear lights cluster (3-door version)

3. Undo the screws and remove the buttons securing the rear crossmember trim and remove the trim.
4. Undo the screws (arrowed) and remove the lights cluster trim.
5. Undo the nuts indicated and remove the lights cluster from its seating.



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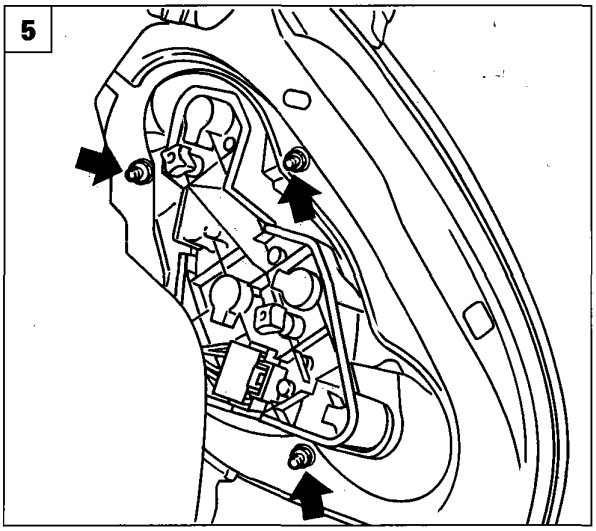

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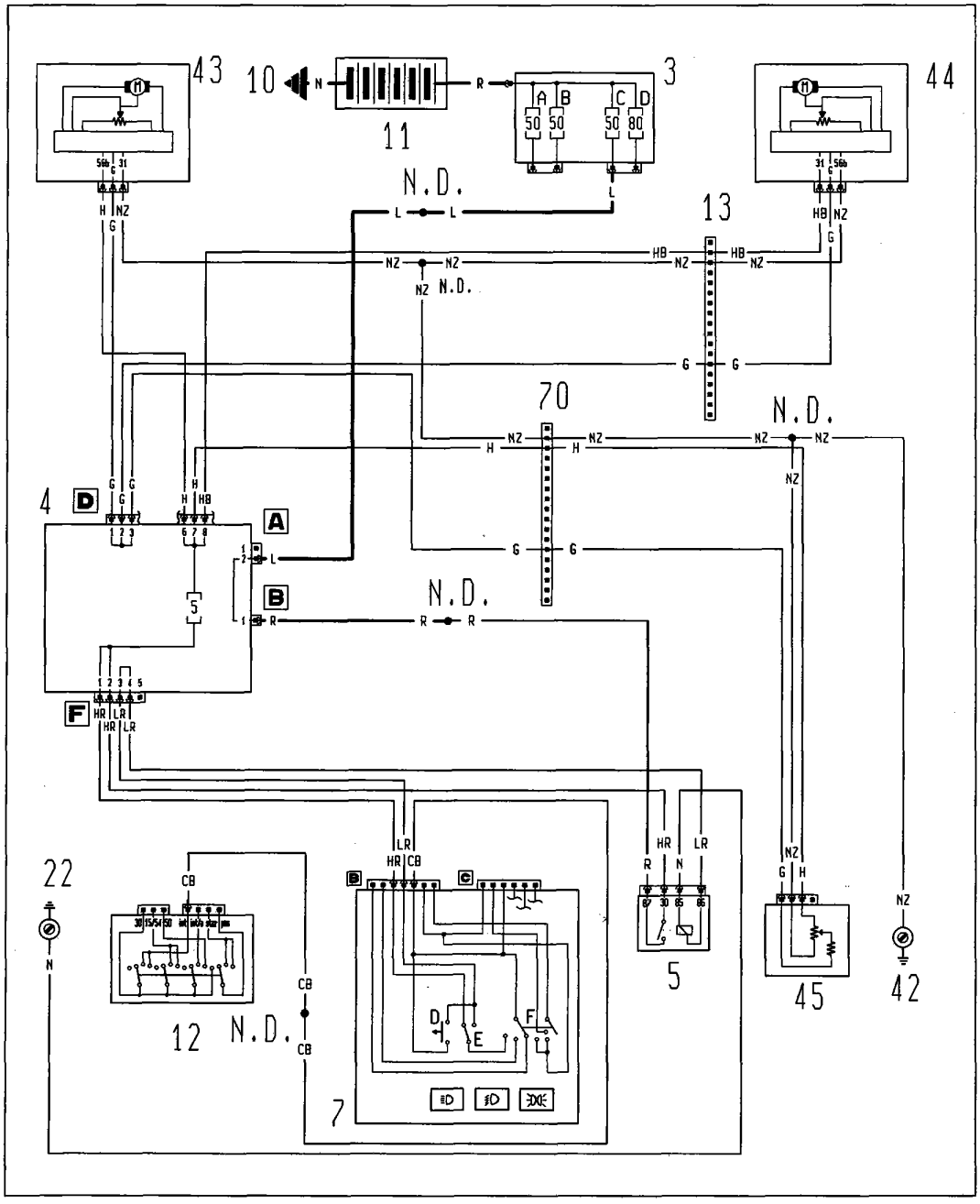
Operation

Adjustment is electrical and is effected when the dipped beam headlamps are switched on. The movement is achieved by two motors (43-44) mounted directly on the light clusters. The control (45) is a potentiometer controlled by a knob located on the dashboard, which can be set to four different positions corresponding to the four positions that can be assumed by the lights clusters. The wiring diagram shows the connections of the various devices which constitute the system.
The system is supplied by a voltae of 12 V coming from the ignition switch, and is protected by the fuse (F5) located on the fuse and relay unit (4). The actuator consists of a motor on which a potentiometric position transducer is mounted, and an electronic control unit.

Wiring diagram showing connection of headlamp alignment device



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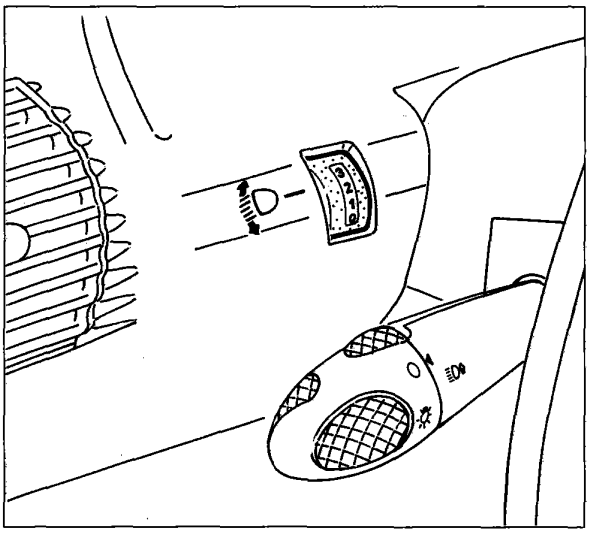
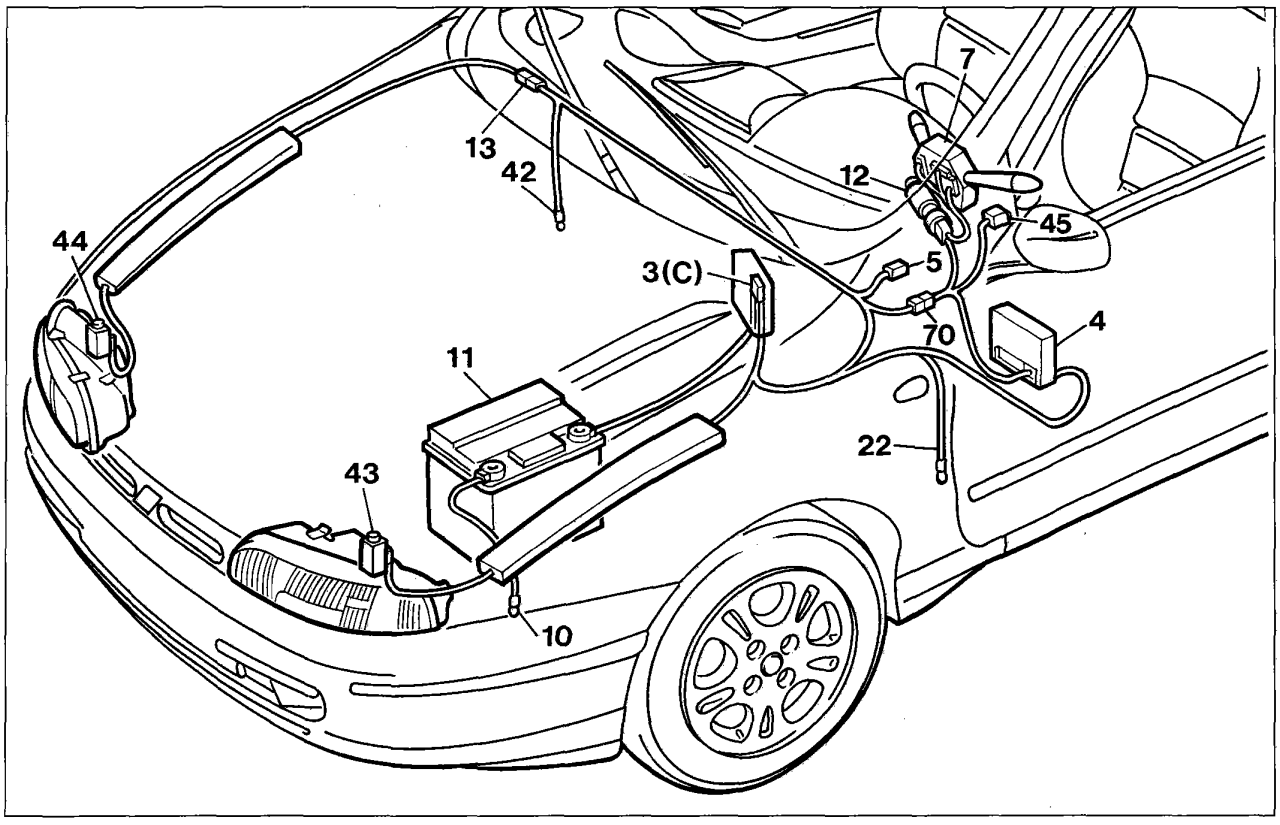

P4A022L01

ELECTRIC HEADLAMP ADJUSTER

The vertical alignment of the front lights clusters is adjusted in accordance with the car load by means of a potentiometer located on the instrument panel.
Four numbers are engraved on this potentiometer, corresponding to four different load conditions.

- **Position 0:**
  driver only or with passenger on front seat.
- **Position 1:**
  all seats occupied (5 persons).
- **Position 2:**
  all seats occupied plus load in the luggage compartment.
- **Position 3:**
  driver plus maximum permitted load in luggage compartment.

Location of components and wiring loom for electric headlamp adjuster



P4A022L02

3(C). 50A fuse protection additional optional extras
4. Fuse and relay unit
5. Main beam relay
7. Stalk unit
10. Battery earth on body shell
11. Battery
12. Ignition switch
13. Right/left cable connection
22. Left dashboard earth
42. Right dashboard earth
43. Left headlamp adjustment motor
44. Right headlamp adjustment motor
45. Headlamp adjuster control

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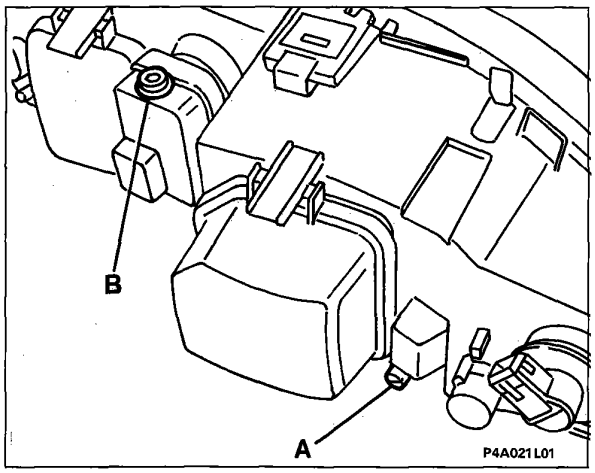

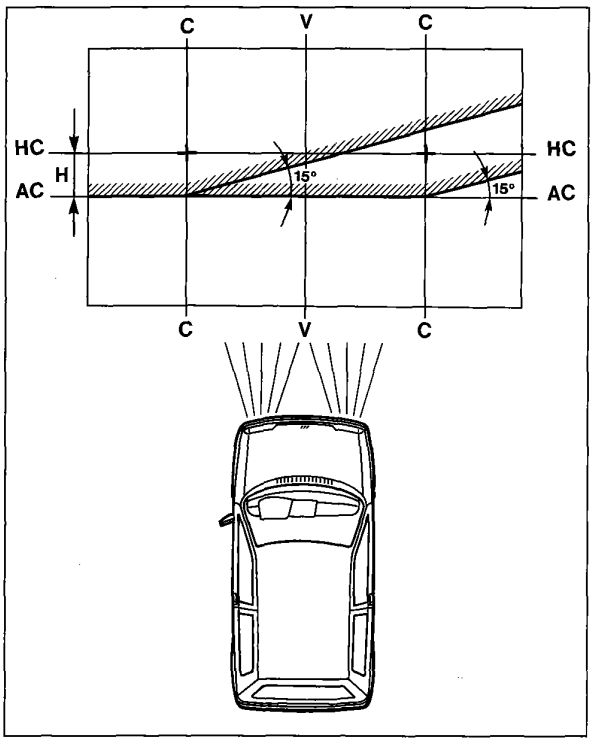

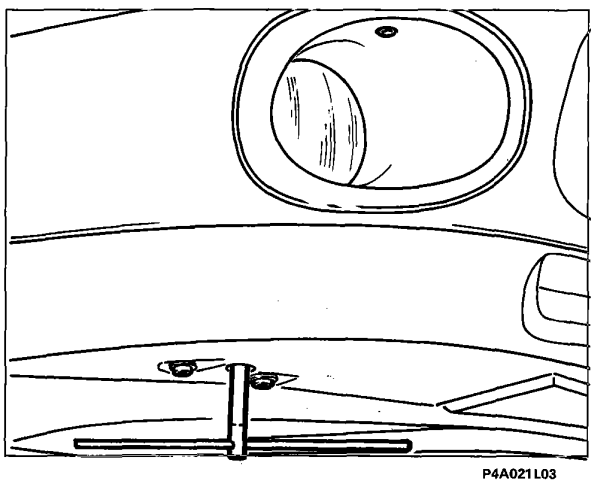

HEADLAMP ALIGNMENT

A. Screw for horizontal headlamp beam adjustment
B. Screw for vertical headlamp beam adjustment.

The car must be complete with spare wheel, tools, fluids and fuel reserve, the tyres must be at normal operating pressure and the driver must be on board.

Place the car on flat ground with the lights cluster lenses 10 m away from a screen or opaque surface on which the following lines have been drawn:
V - V: vertical line corresponding to the plane of symmetry of the car.
C - C: corresponding to the vertical planes passing through the reference centres of the lights clusters.
HC-HC: horizontal line corresponding to the height from the ground of the reference centres of the lights clusters.
AC-AC: horizontal line 10 cm below the line Hc-Hc (value for cars which are new, but settled down, corresponding to a 1% drop).

Align the lights clusters on the dipped beam. Using the headlamp alignment device, proceed as follows:

Vertical alignment

Line up the horizontal section of the demarcating line between the dark area and the area illuminated by the light beam, with the line **AC-AC** drawn on the screen.

Horizontal alignment

Line up the intersecting point of the two demarcating lines, the horizontal line and the angled line, with the respective intersections of the lines **C-C and AC-AC** on the screen. If the screen has to be placed at a shorter distance, this value must be reduced proportionally.

Manual adjustment of front fog lamps

The front fog lamp beam is adtusted using a wrench which should be inserted in the appropriatelhole (see Figure).

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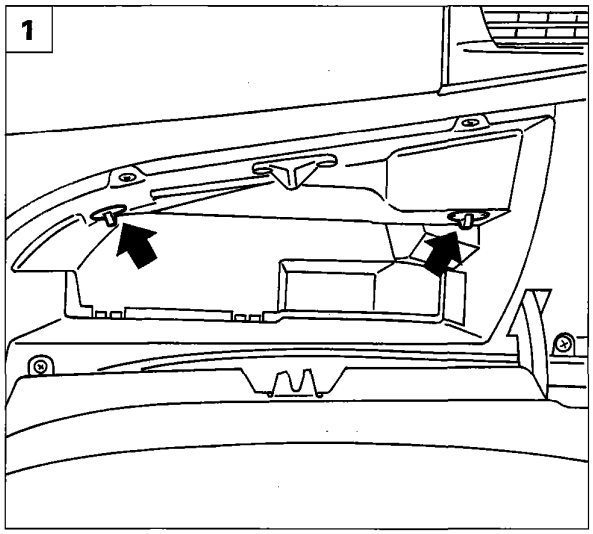

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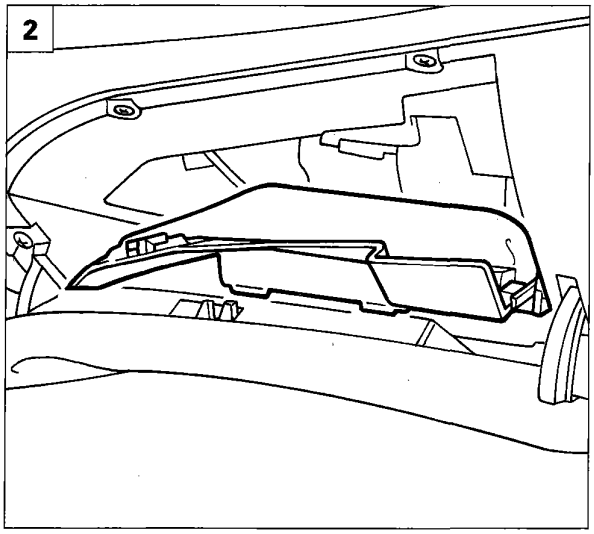
REMOVING-REFITTING PASSENGER SIDE AIR BAG

Safety measures

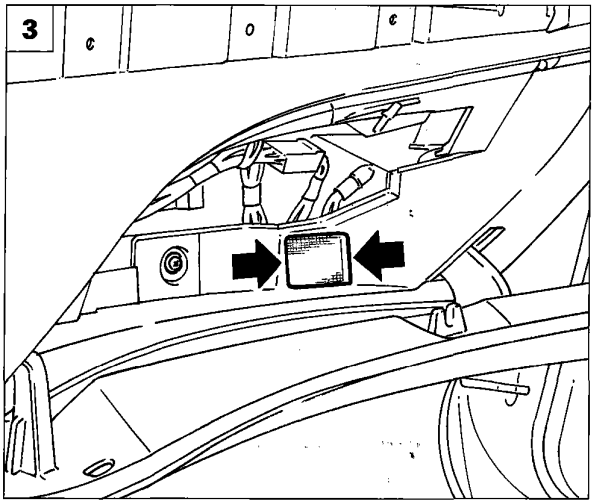
Operations on air bag system components must be carried out by specially trained personnel and the following safety measures must be STRICTLY adhered. During removal and replacement operations, it is necessary to use polythene gloves and protective goggles. Do not use naked flames near the air bag and air bag system components. The metal parts of a recently-detonated air bag are very hot, avoid touching these parts for at least 20 minutes after bag activatIndividual damaged or defective parts must not be repaired or tampered with in any way but replaced as a whole uniSee section beginning on page 99 for further information on safety procedures.

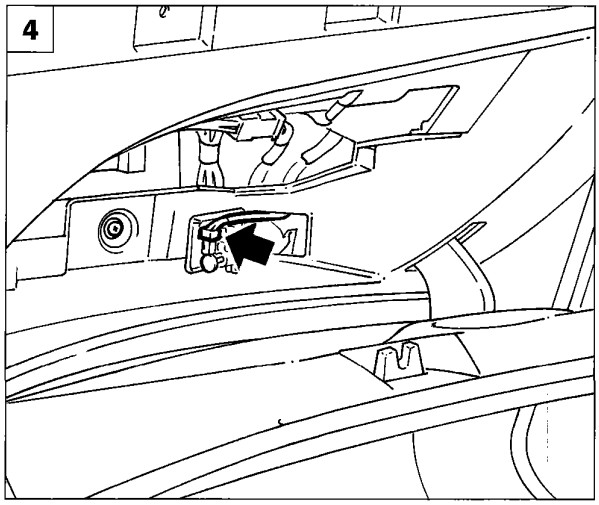


P4A109L03

Operation sequence

1. Disconnect and insulate battery terminals. Wait 10 minutes. Then open the glove compartment and turn the knobs shown in the figure.
2. Remove the upper part of the trim from inside the glove compartment.
3. Prise off the courtesy light in the glove compartment by means of the retaining tabs.
4. Disconnect the glove compartment courtesy light after disconnecting the connector shown in the figure.





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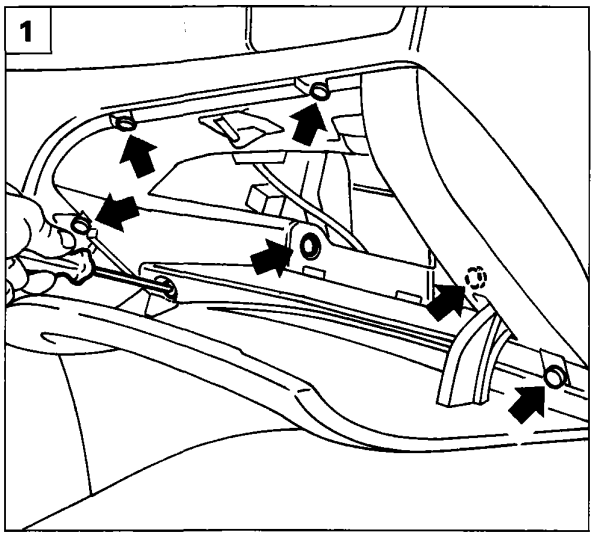
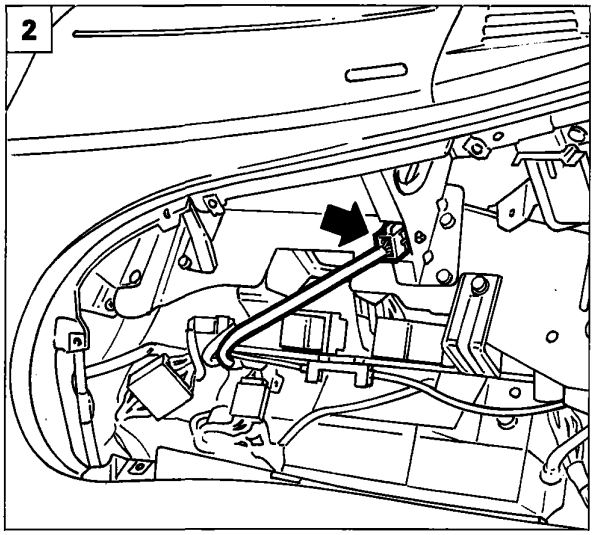


P4A109L04

1. Unscrew the bolts fastening the glove compartment and remove from the car.
2. Disconnect supply connector leading from the control unit.
3. Unscrew the bolts fastening the air bag to the body.
4. Remove the air bag from the car.

Following removal, unactivated air bag modules should immediately be placed in a specially marked cabinet and locked away.
The module should be placed with the metal part resting on the surface as shown in the figure.

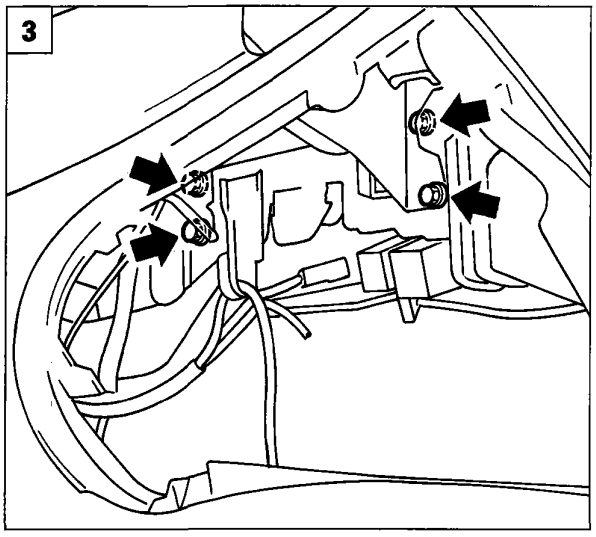


P4A110L35

NOTE *Refit the air bag by carrying out removal instructions in reverse order.*

NEVER CONNECT THE BATTERY UNTIL INSTALLATION IS COMPLETE

NOTE *After refitting, check system operation by means of a FIAT/ LANCIA TESTER or other diagnostic instrument.*



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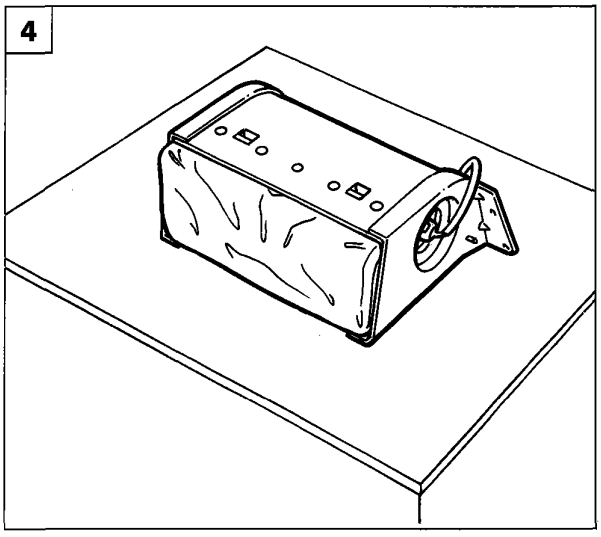

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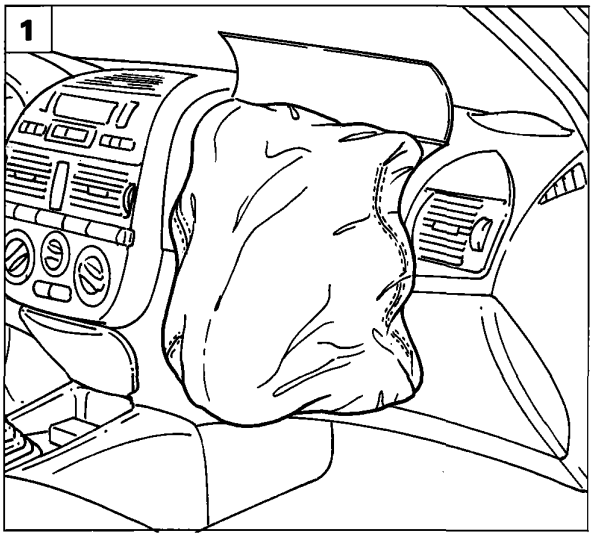

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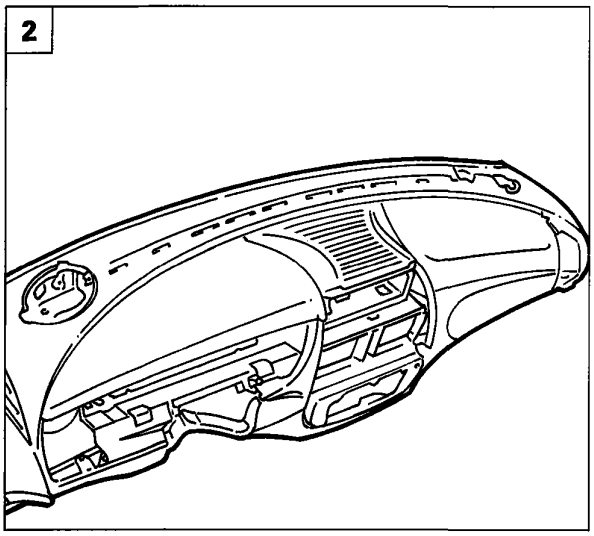

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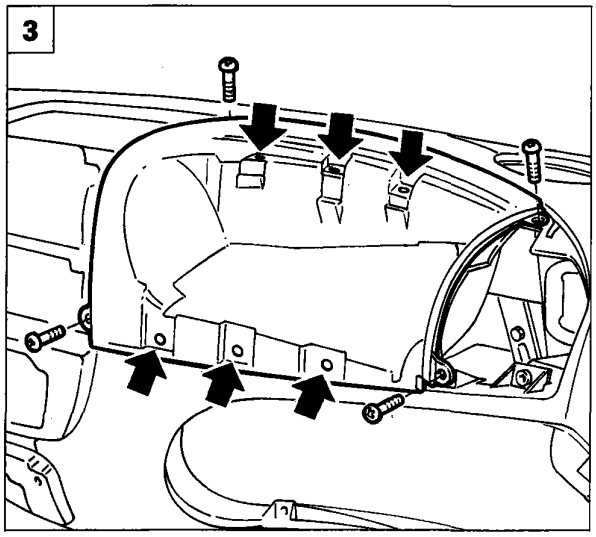

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4A249L

REPLACING PASSENGER SIDE AIR BAG TRIM

Safety measures

Operations on air bag system components must be carried out by specially trained personnel and the following safety measures must be STRICTLY adhered to.
During removal and replacement operations, it is necessary to use polythene gloves and protective goggles.
Do not use naked flames near the air bag and air bag system components.
Individual damaged or defective parts must not be repaired or tampered with in any way but replaced as a whole unitSee page 99 onward for further information on safety procedures.

Operation sequence

The metal parts of a recently-detonated air bag are very hot. Avoid touching these parts for at least 20 minutes after bag activation.

1. Remove the air bag as described from page 110/8 onward.
2. Remove the facia trim as described from page 30 onward in Section 70 - Bodywork.
3. Remove the passenger side air bag trim by unscrewing the four cross-headed screws and six retaining rivets indicated.

Carefully check that the seats of the four bolts and six rivets on the facia trim are undamaged. Also check that the trim itself is undamaged.
Never fit a new air bag trm to a damaged facia trim. In this case, always replace the facia trim.

NOTE *Refit the air bag trim by carrying out removal instructions in reverse order.*

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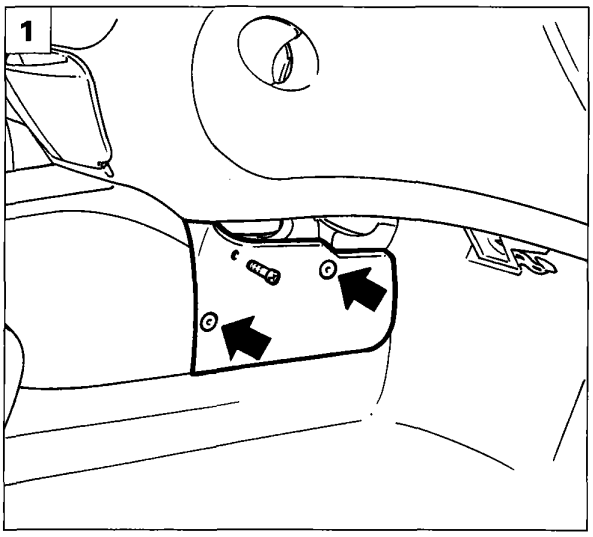
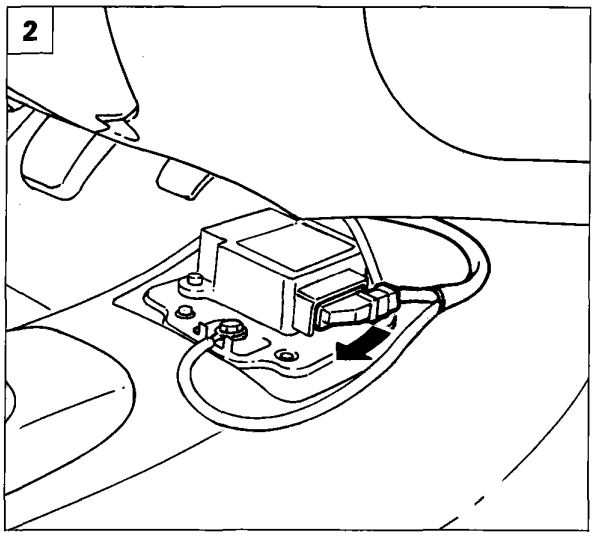


P4A110L43

REMOVING-REFITTING CONTROL UNIT AIR BAG SYSTEM

Disconnect and insulate the battery terminals, then carefully observe the safety rules described from page 99 onward.

1. Unscrew the bolt and undo the fastening studs. Then disconnect the trim panel located beneath the instrument facia (the right hand panel is shown in the figure. Repeat the procedure for the left hand panel).



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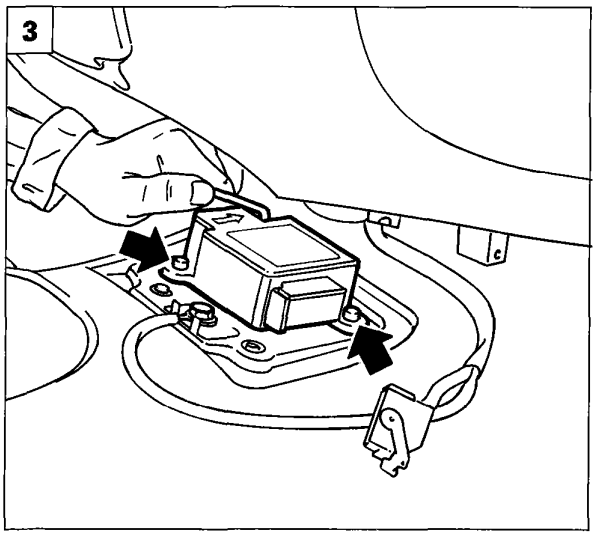
2. Remove the tunnel trim from the car as described on page 30 of Section 70 - Bodywork, then disconnect the connection by turning the retaining lever in the arrowed direction.



P4A110L45

3. Disconnect the electronic control unit by undoing the three 5 mm hexagonal-headed socket screws.

Tighten the control unit retaining bolts to a torque of 0.8 daNm.

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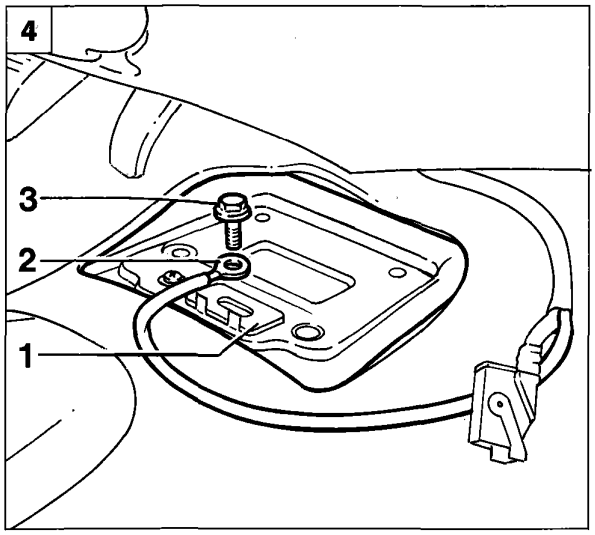

P4A110L46

NOTE *After the operation, check the system using a FIAT/LANCIA TESTER or other diagnostic tool.*

NOTE *Check the insulation retaining bracket is correctly positioned, then refit the control unit by carrying out removal instructions in reverse order.*

Operation sequence for fitting control unit earth lead braid

4. Proceed as follows to fit the control unit earth lead braid: insulation retaining bracket (1) -
Earth braid (2) - Screw (3).

Tighten bolt (3) to a torque of 0.8 daNm. Pass the earth terminal between the two anti-rotation tabs on the sound insulation retaining bracket.

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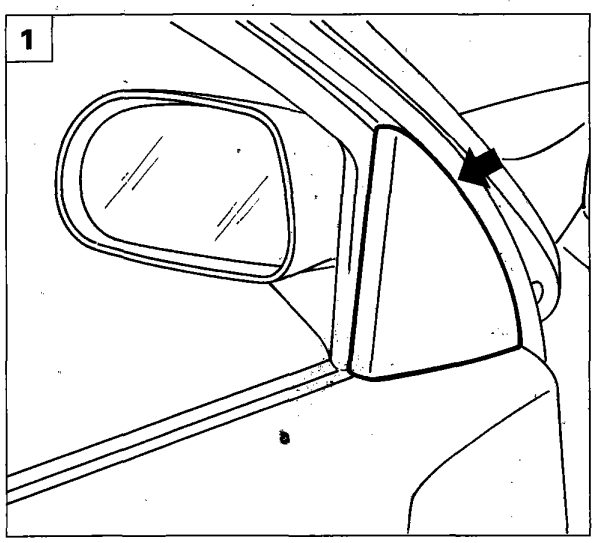
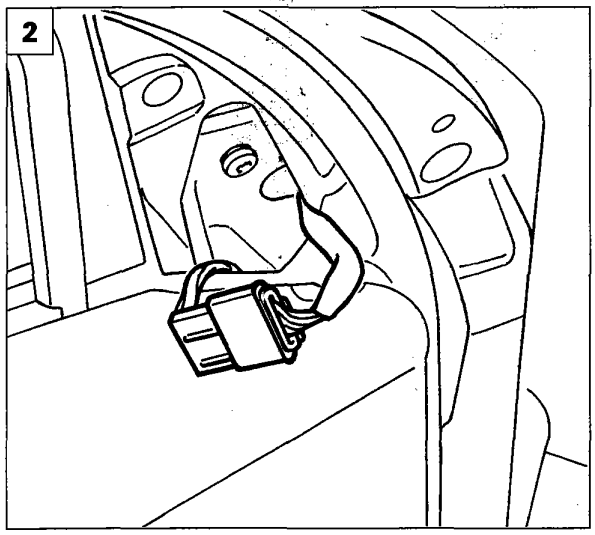


P4A107L01

REMOVING-REFITTING EXTERNAL REARVIEW MIRROR

1. Remove the internal trim of the rearview mirror.



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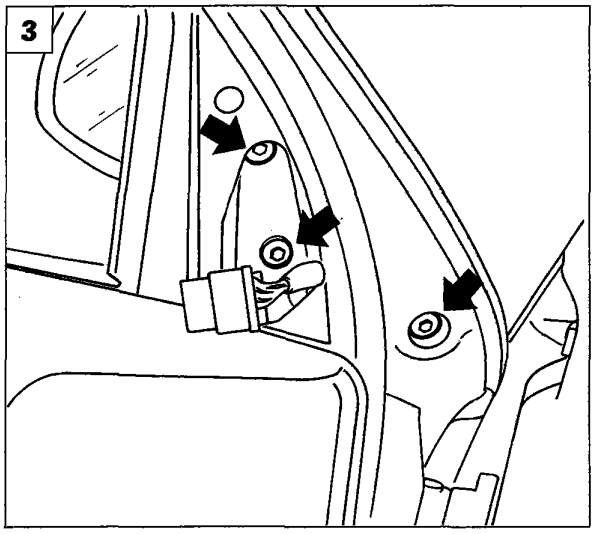
2. Disconnect the electrical supply connector.



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3. Undo the screws securing the rearview mirror to the door and remove it.

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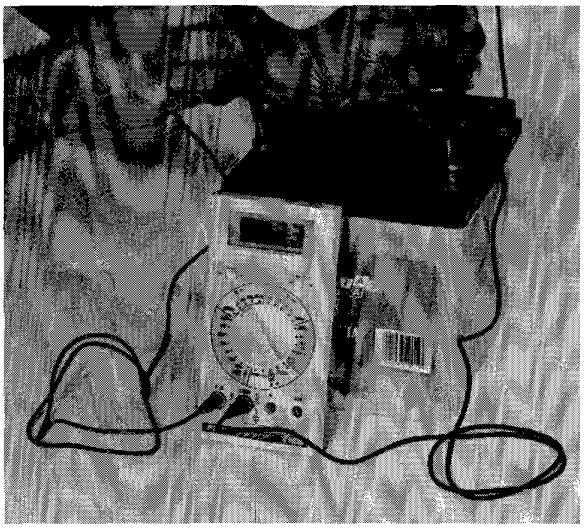

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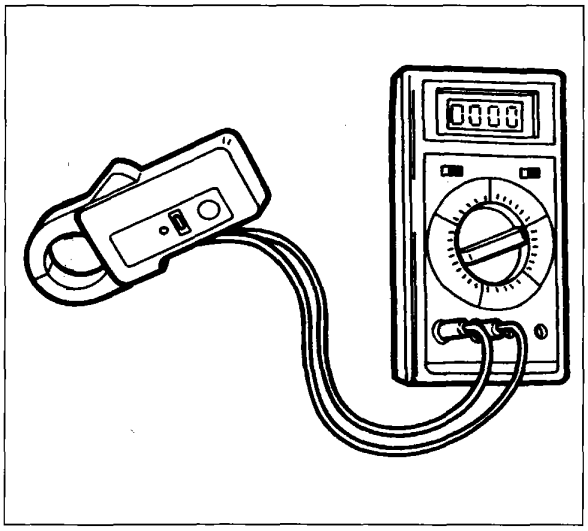
BATTERY

The batteries fitted on all versions of this vehicle are the ES type (Energia Sigillata - Sealed Energy) and are maintenance-free.
These type of battery have the following advantages compared with conventional ones:
- reduced electrolyte consumption due to the use of a new type of alloy in the construction of the grilles and the plates;
- reduced self-discharge which improves starting for a period of 7 months and therefore these batteries lend themselves to prolonged storage (at temperatures below 28°C);
- a reduced volume of gases developed during charging which are the ones which cause corrosion and consequent poor contact at the terminal poles.

If the battery appears to be discharged, **after having left it with an open circuit for at least two hours**, measure the voltage with no load, connecting a digital voltmeter to the terminals: if it is less than 12.30 V it is 50% charged; if it reaches 12.48 V it is 75% charged; if it reaches 12.66 V it is 100% charged.

If the level of the electrolyte in one or more of the battery cells is lower than the minimum level line on the plastic container, open the cover on the series of caps and add distilled, de-ionized water (as for ordinary batteries).

NOTE *Never subject the battery to rapid recharging at voltages in excess of 15.5 V, nor high currents or high recharging amperages.*



P4A112L01

ALTERNATOR

Check the voltage and the maximum current intensity supplied by the alternator using a digital multimeter and a HALL effect ammeter pliers.

Description and use of ammeter pliers
These are pliers connected to a multimeter which make it possible to measure: the battery charge and discharge current, the current controlled by the SCR (silicon controlled diode), current absorbed by starter motors, from 10 to 600A without having to interrupt the circuit. Before starting the measurements it is necessary to:
- place the 'LO-HI' high switch on "LO" for measurements of up to 200A or on "HI" for measurements of between 200 and 600A.
  The reading is obtained in both positions for any value, but the change in position is necessary to ensure greater precision of the display reading.
- With the pliers connected to the multimeter it is necessary to set the multimeter at the range 200mV or 2V, alternating or direct according to the current to be measured.
  If the range selected is 200mV then the reading will be in Ampere, if the range is 2V then the reading will be multiplied by a thousand.
- At this point it is necessary to zero the reading acting on the "ZERO ADJUST" knob. When there is reason to suspect the existence of magnetic fields it is advisable to adjust the zeroing knob with the pliers between 5 and 10 cm from the conductor.
  In the case of direct current measurements, the phenomenon of hysteresis make make it impossible to zero the device. In such a case, open and close the pliers several times and then carry out the zeroing.

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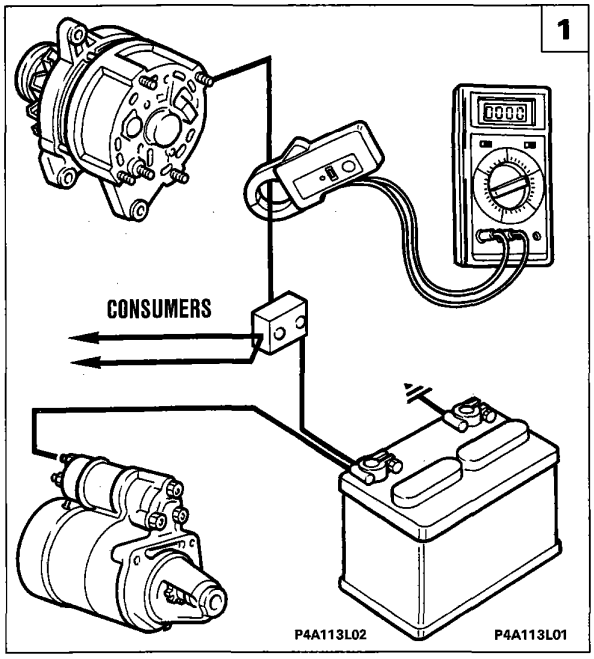
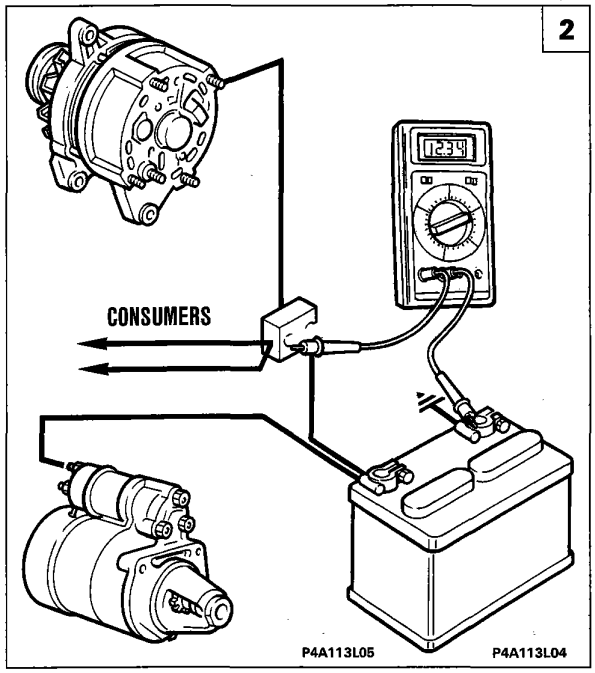
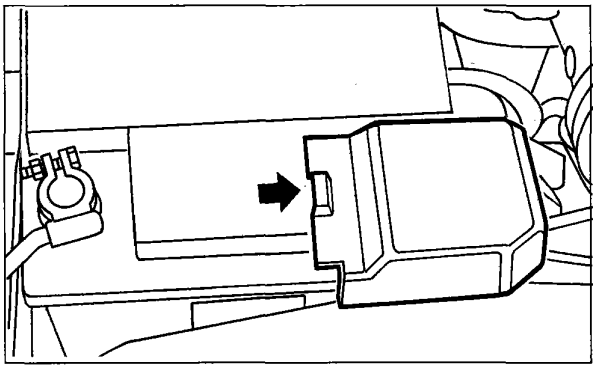






NOTE *To remove the cover (1) (positioned on the positive battery terminal), act gently using a screwdriver in the position shown by the arrow, until the fixing pins come out.*

1. Checking current intensity

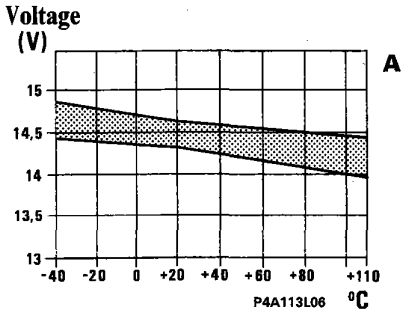
- Fit the ammeter plierson the alternator cable/junction unit
- start up the engine and let it run at between 3000 and 4000 rpm;
- switch on all the available consumers;
- measure the maximum current intensity supplied on the multimeter display.

If this value is more than 5A below the recommended figure, overhaul the alternator.

2. Checking voltage

- Place the multimeter probes in contact with the battery terminals;
- start up the engine and let it run at between 3000 and 4000 rpm;
- gradually switch on several consumers until the absorbtion is about half the maximum load.

Under these circumstances the voltage reading should be between the maximum and minimum values (see diagrams) depending on the ambient temperature of the electronic regulator (alternator).



Electronic regulator ambient temperature

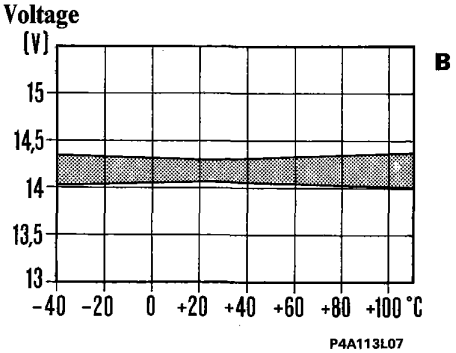


Diagram A refers to an RT 121A electronic regulator which is incorporated in M. Marelli alternators, whilst diagram B refers to the EL 14V 4C electronic regulator which is incorporated in Bosch alternators.

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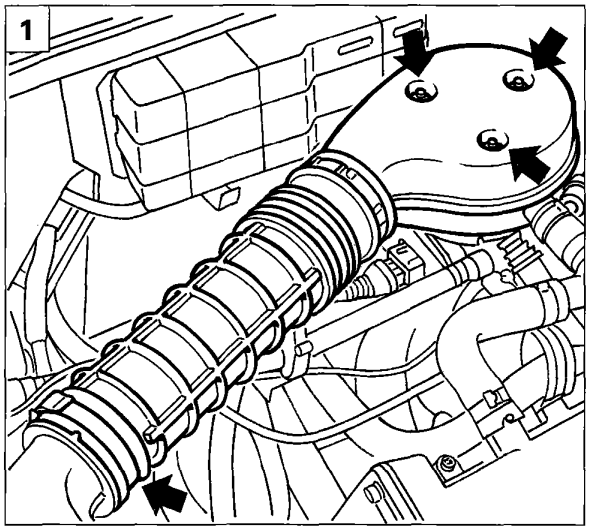

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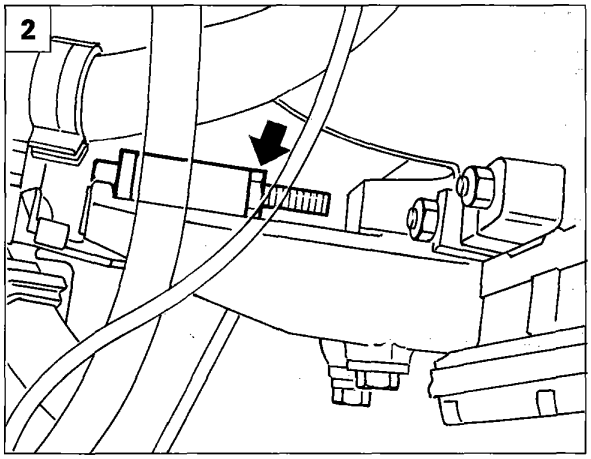
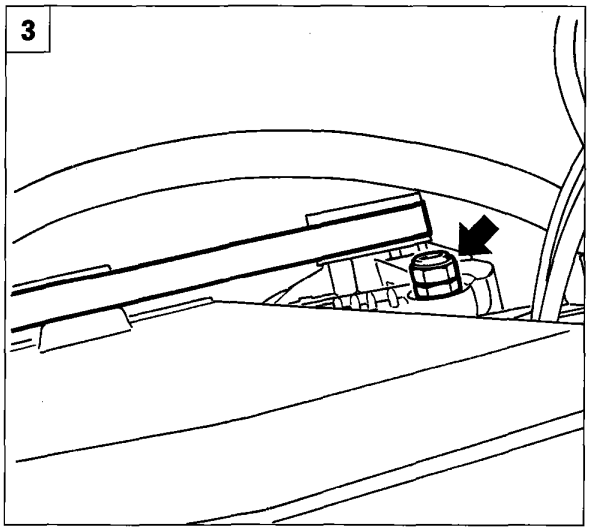


P4A114L02

Before carrying out the removal procedures, described in this chapter, disconnect the negative battery terminal.

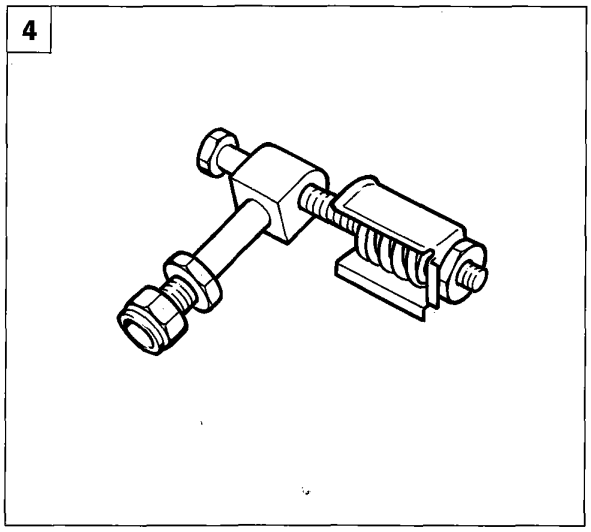


P4A114L03

MARELLI A115I 14V 38/65A ALTERNATOR (on 1370 12V; 1929D versions)

Removing-refitting (1370 12V)

1. Move the air inlet hose away, undoing the nuts and the band shown.
2. Loosen the tension of the belt undoing the nut fixing the belt tensioner.
3. Undo the nut fixing the alternator mounting bracket and the nut fixing the latter to the engine at the top.
4. Remove the belt tensioner from the engine and remove the belt from the pullies.
5. Undo the lower fixing bolt, disconnect the electrical connection, then remove the alternator from the vehicle.



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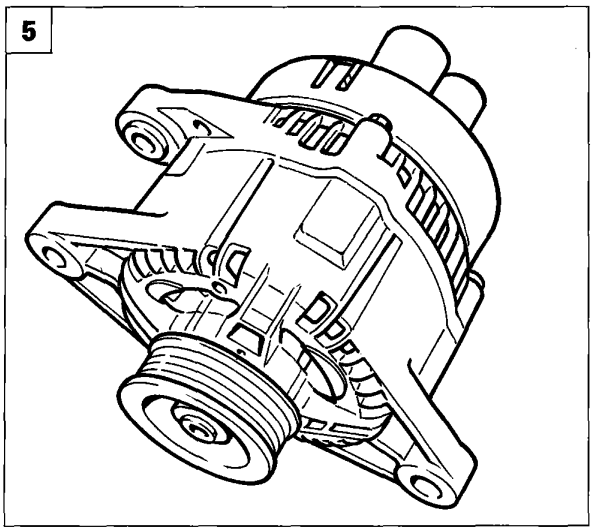

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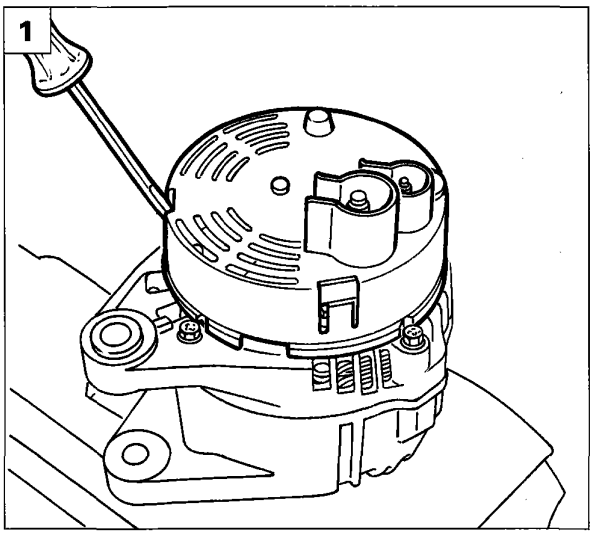

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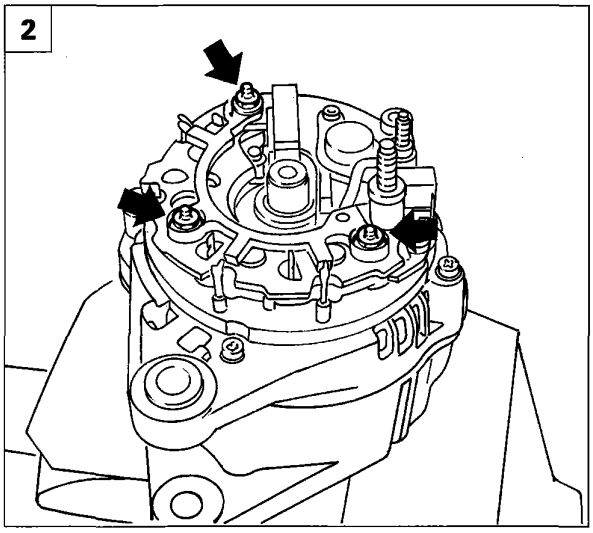


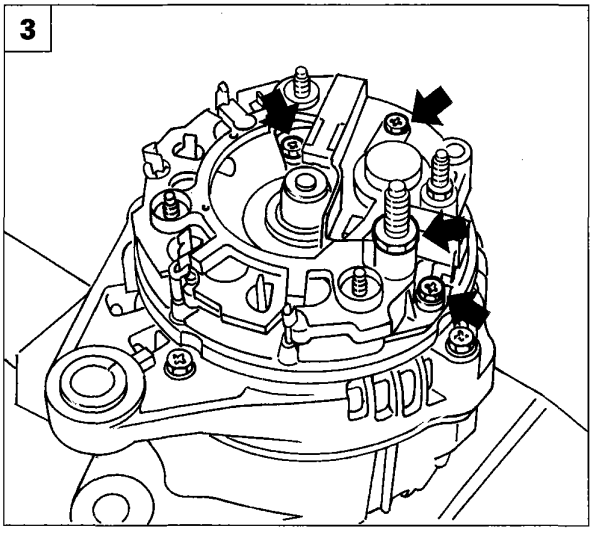
P4A115L02

Overhauling

In the case of failed or irregular alternator recharging, completely dismantle the alternator and carry out the following checks:

- check the belt tension;
- check the tightening of the nut at the positive alternator terminal (B+), making sure that the washer is fitted;
- check the tightening of the nut at the energizing terminal (D+), making sure that the washer is fitted;
- check the tightening of the nuts at the positive connector block in the engine compartment;
- check the tightening of the bolts fixing the negative battery terminal on the bodyshell;
- check that the battery terminals are clean and properly tightened.

1. Position the alternator as shown and remove the plastic protection acting on the tabs shown.
2. Undo the nuts shown in the diagram;.
3. Undo the bolts shown in the diagram.
4. Using a metal-cutter disconnect all the contacts shown and remove the plate.



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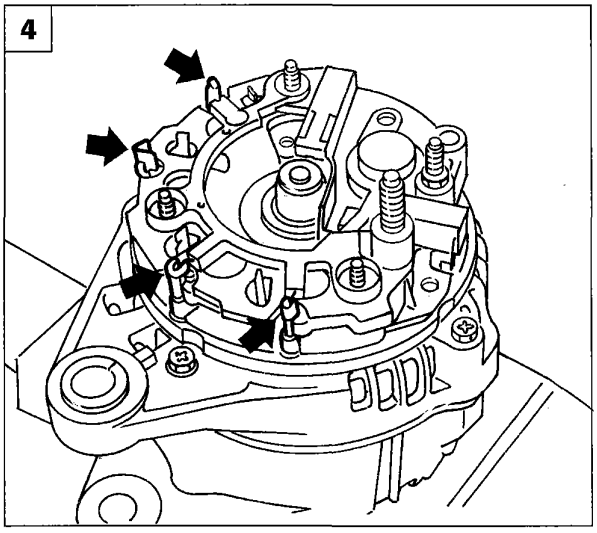

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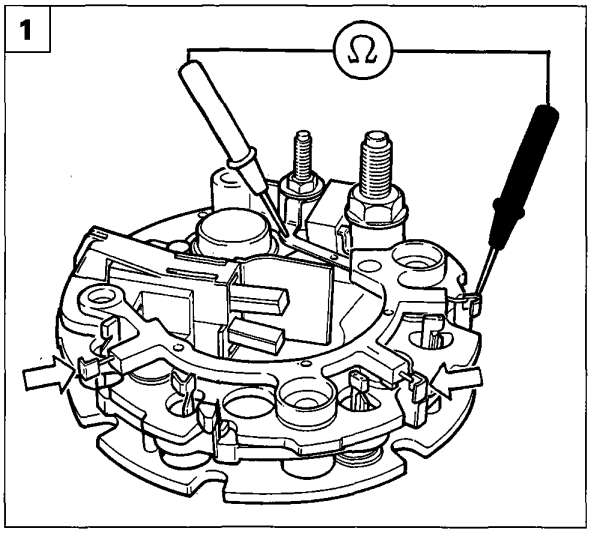

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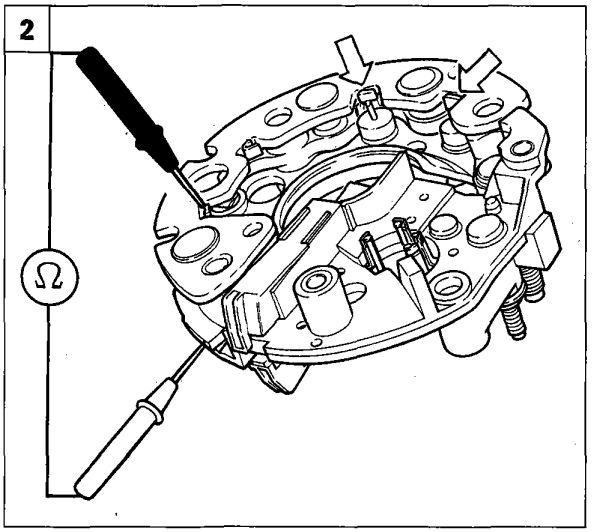

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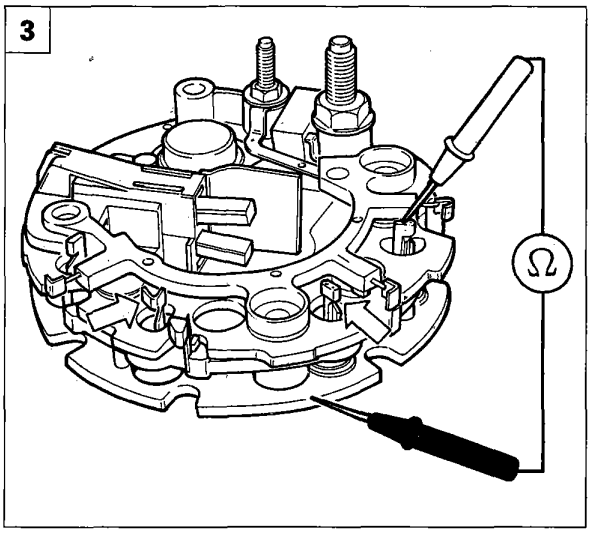


P4A116L03

Checking diodes

Checking exciter diodes

1. Insert the probes of an ohmmeter as illustrated in the diagram.

NOTE *The readings at the three exciter diode terminals should show infinite resistance (the current does not flow). Reversing the position of the instrument probes should give the diode resistance reading (the current does flow).*

Checking positive diodes

2. Turn the diode plate. Insert the probes of an ohmmeter as illustrated in the diagram.

NOTE *The readings at the three positive diode terminals should show infinite resistance (the current does not flow). Reversing the position of the instrument probes will give the diode resistance reading (the current does flow).*

Checking negative diodes

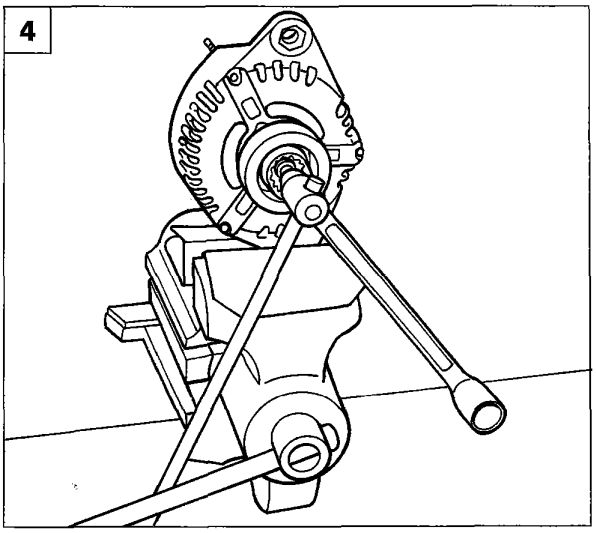
3. Insert the probes of an ohmmeter as illustrated in the diagram.

NOTE *The readings at the three positive diode terminals show show infinite resistance (the current does not flow). Reversing the position of the instrument probes should give the diode resistance value (the current does flow).*

Dismantling

4. Proceed as shown in the diagram in order to undo the nut fixing the pulley and then remove the latter.

4



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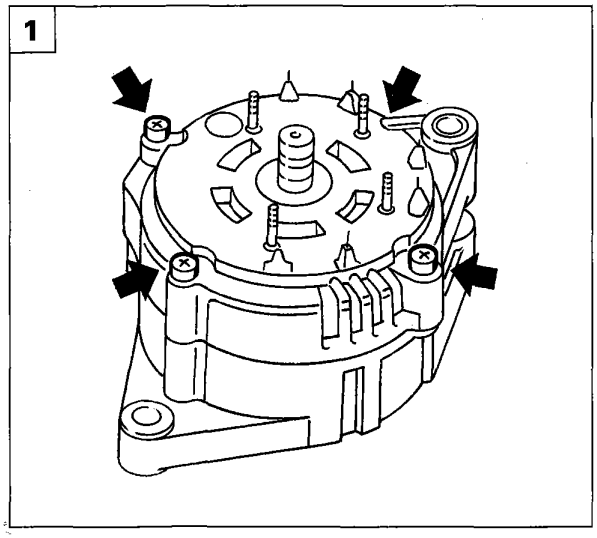


P4A117L01

1. Undo the bolts shown fixing the alternator assembly.
2. Dismantle the following alternator components:
   A. Rear support plate with stator windings
   B. Rotor
   C. Front support plate

3. Checking inductor (rotor) winding resistance at the slip rings

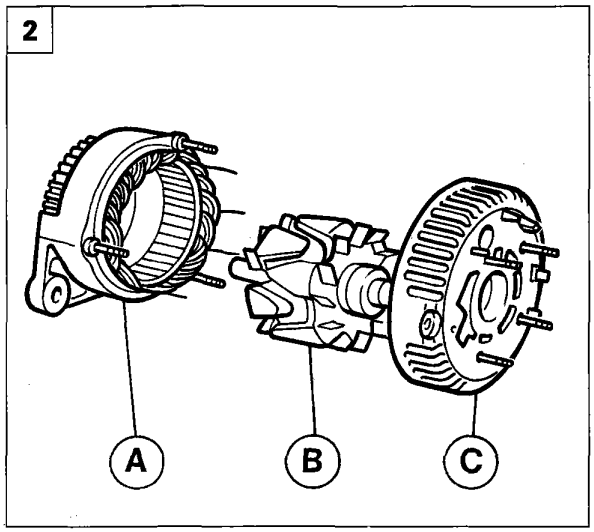
- Place the two probes of an ohmmeter (set on a scale of Ω x 1) in contact with the rotor slip rings (shown by the arrows): the instrument reading should show a certain resistance value.

NOTE *If the resistance value is infinite (broken circuit)rrotto), then the rotor has to be replaced.*

4. Checking stator winding insulation

- Place the two probes of an ohmmeter (set on a scale of Ω x 1) in contact with the windings and the stator casing, respectively;
- the resistance reading on the instrument should be infinite, if this is not the case replace the rotor.

2



P4A117L02

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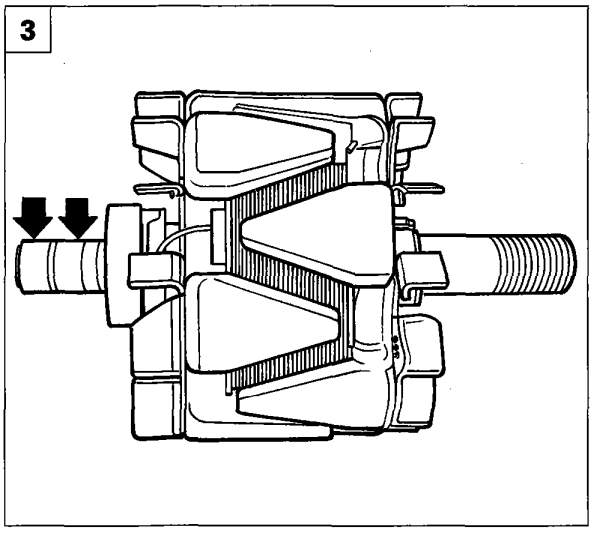

P4A117L03

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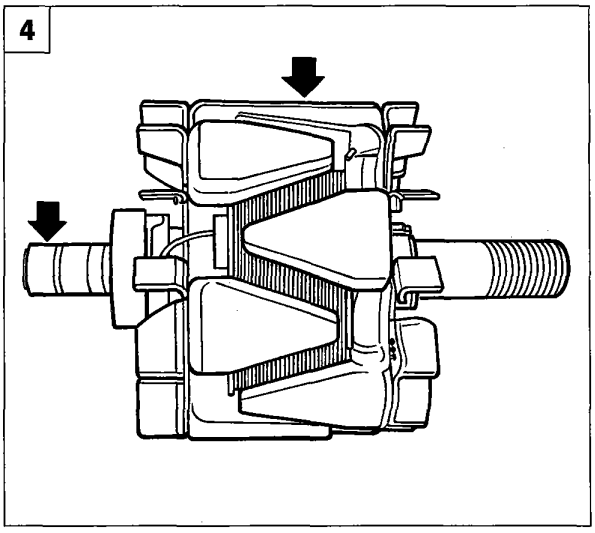

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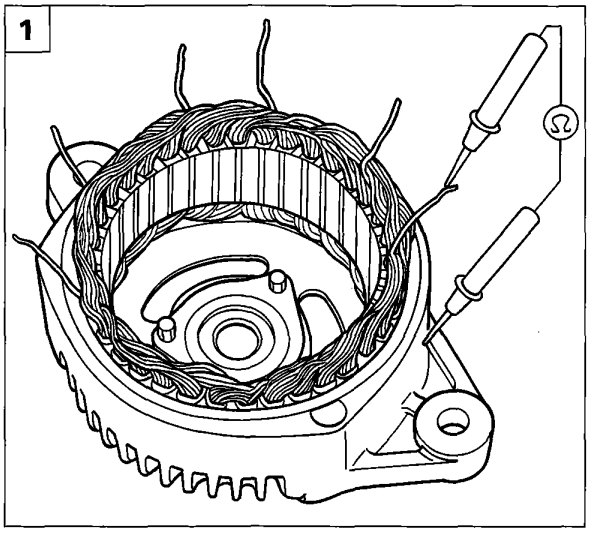
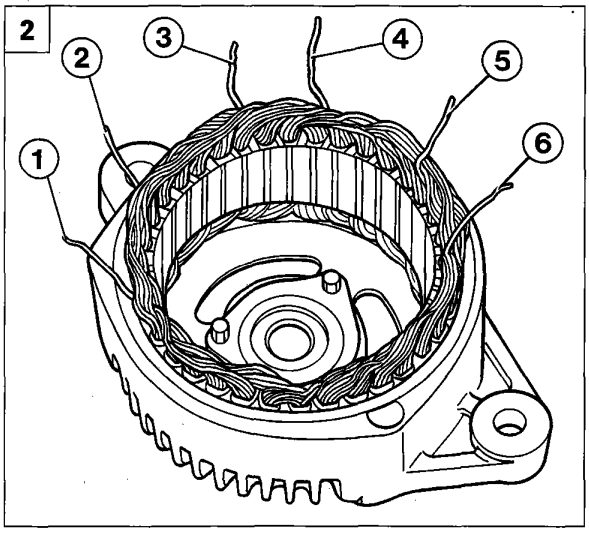


P4A118L01

1. Checking insulation of stator windings:
   - place the probes of an ohmmeter (set on a scale of Ω x 1) in contact with the windings and the stator casing;
   - the reading on the instrument should be infinite resistance, if this is not the case replace the rotor.
2. Checking continuity of stator windings:
   - place the probes of an ohmmeter (set on a scale of Ω x 1) in contact with the stator windings (1-2), (3-4), (5-6);
   - for each measurement there should be a certain resistance reading on the instrument.



P4A118L02

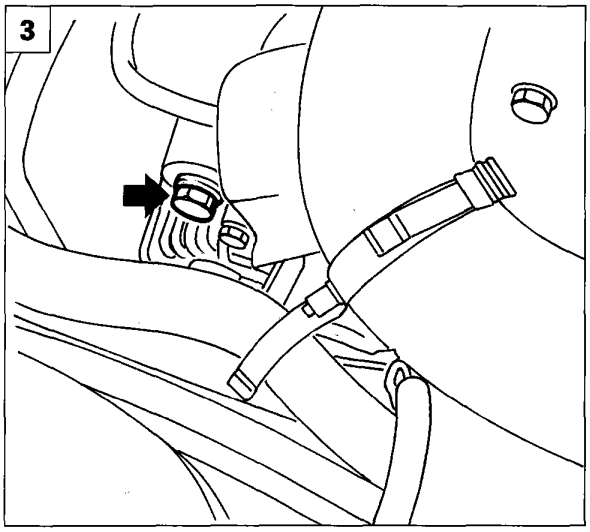
If the resistance value does not move from the start of the scale (infinite resistance) or reaches the end of the scale (nil resistance) then this means that the phase being measured is broken or short circuited and that the stator must be replaced.

MARELLI A115I 14V 40/75A ALTERNATOR
(versions with 1580 16V; 1747 16V engines)

Removing-refitting *(1580 16V version)*

Position the vehicle on a lift and remove the right wheel.

3. Undo the upper bolt fixing the alternator.
4. Raise the vehicle and remove the wheel arch liner after having undone the fixing bolts.



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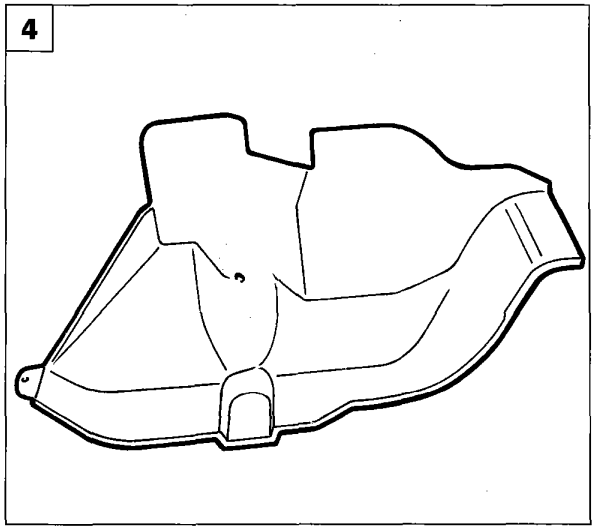

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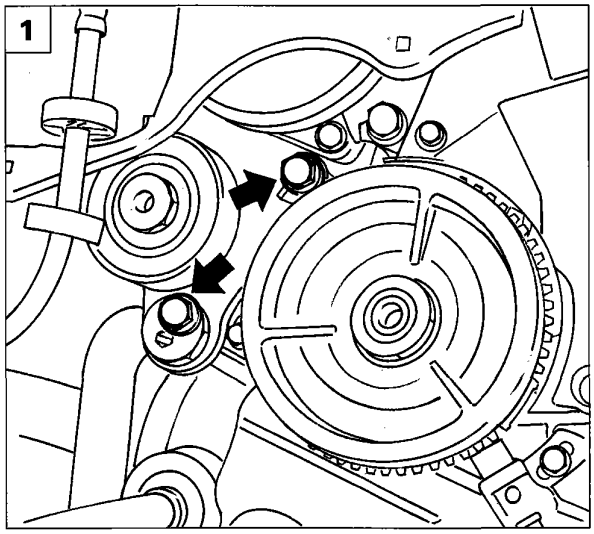

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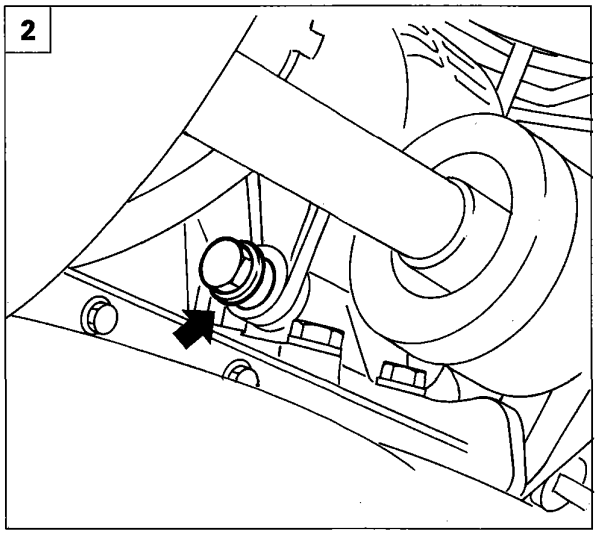

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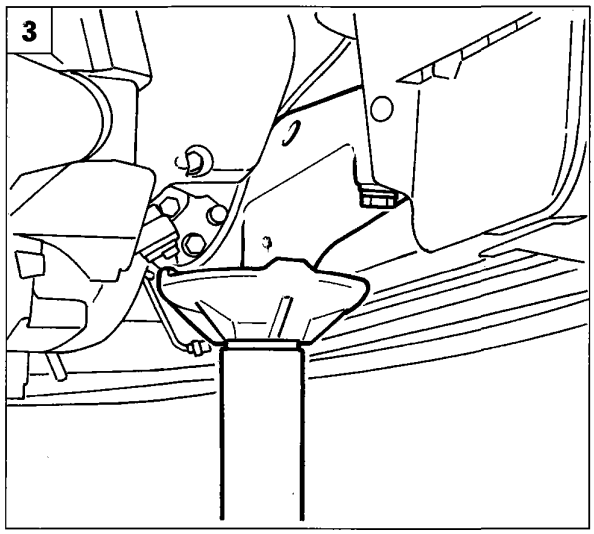
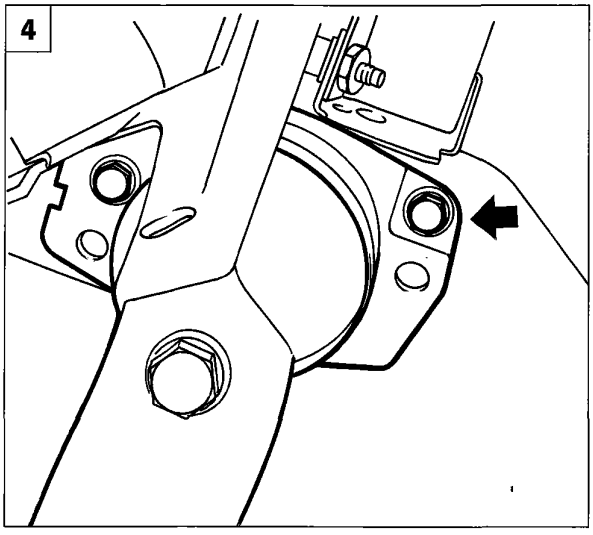


P4A119L03

1. Loosen the bolts fixing the belt tensioner bearing, release the belt and remove it from the vehicle.
2. Disconnect the electrical connections, then undo the lower bolt fixing the alternator.
3. Position the hydraulic jack below the engine support as illustrated in the diagram.
4. Undo the bolts fixing the engine support to the bodyshell.
5. Lower the hydraulic jack to allow the removal of the alternator.



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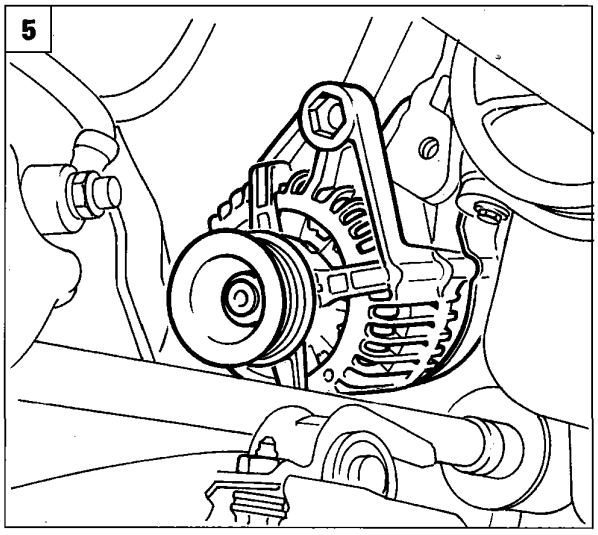

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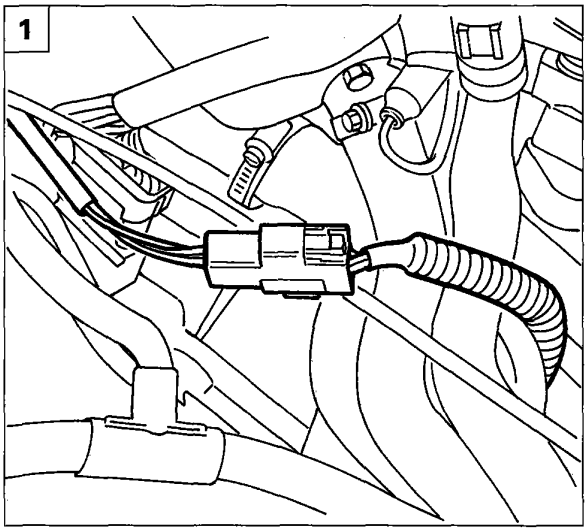

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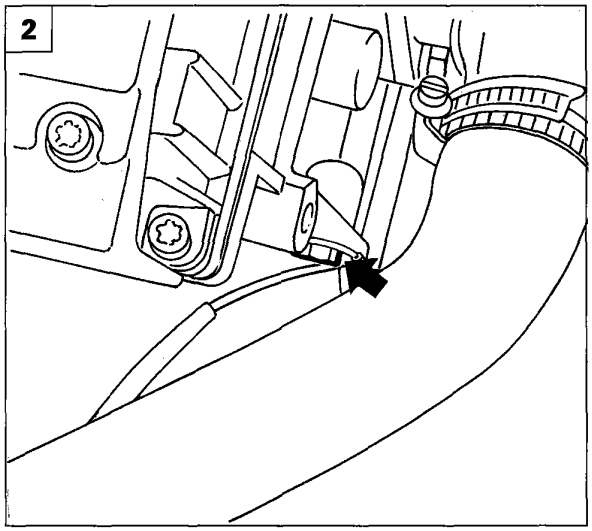

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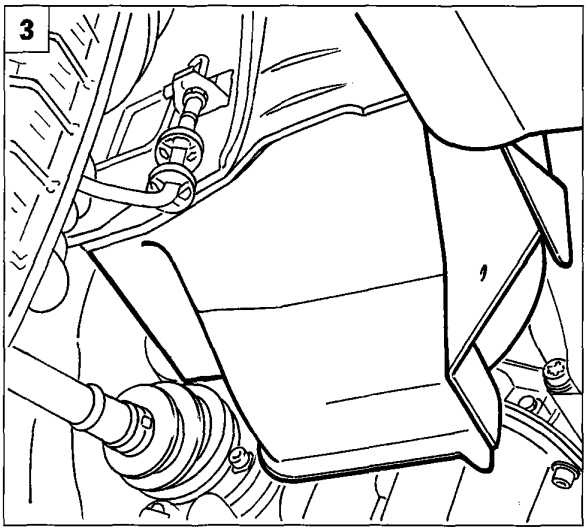


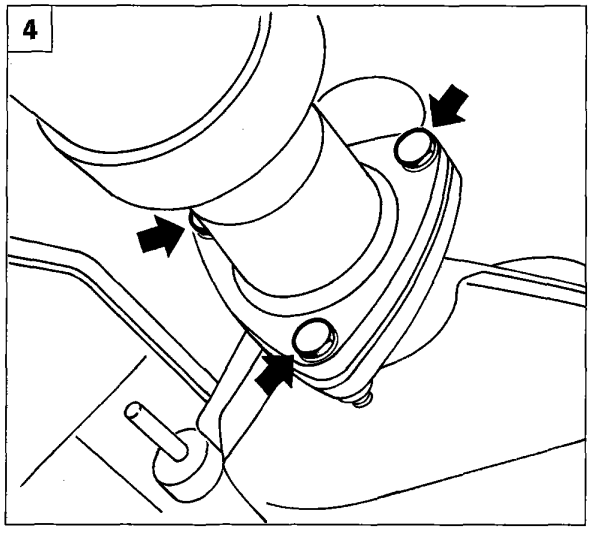
P4A120L03

MARELLI A127I 14V 50/85A ALTERNATOR

(versions with 1747 16V; 1998 20V; 1910 TD engines)

Removing-refitting *(1747 16V version)*

1. Position the vehicle on a lift and disconnect the connector for the Lambda sensor.
2. Undo the bolt shown and release the wiring for the Lambda sensor.
3. Raise the vehicle and remove the wheel arch liner after having undone the fixing bolts, then remove the belt.
4. Remove the fixing the first section of the exhaust pipe to the catalytic converter.
5. Undo the nuts fixing the first section of the exhaust pipe to the exhaust manifold.



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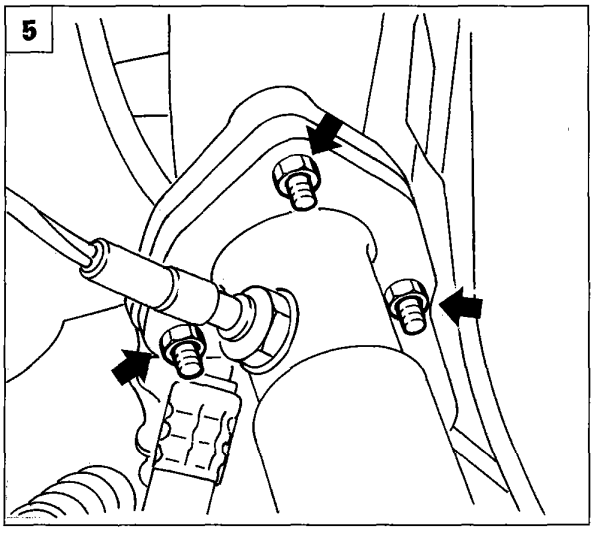

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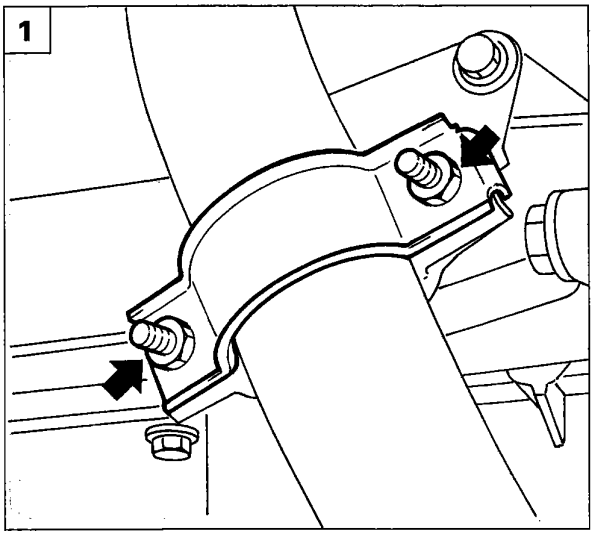

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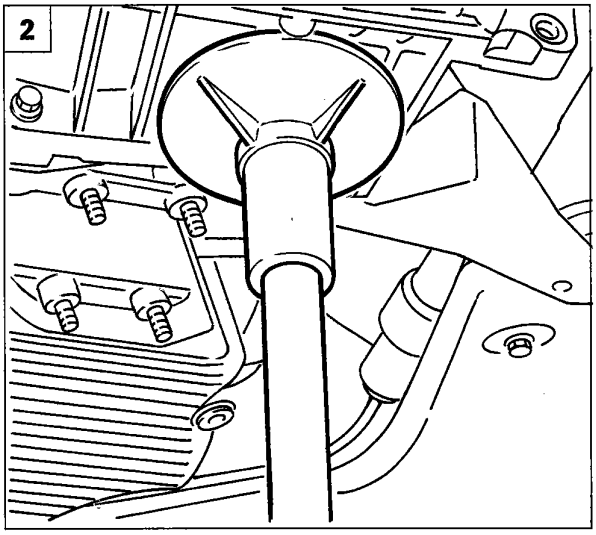

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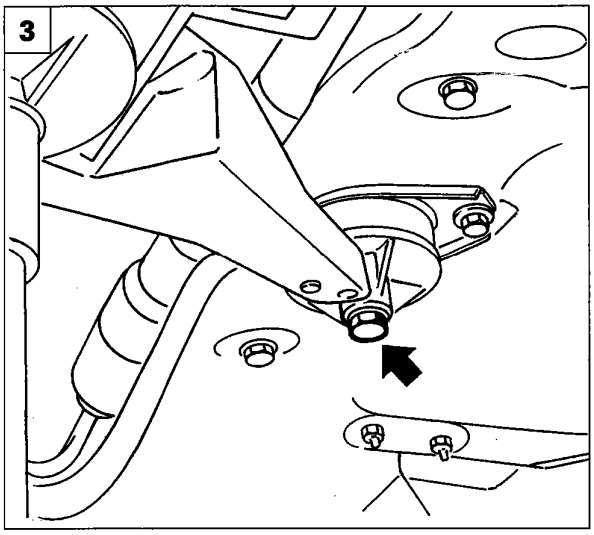
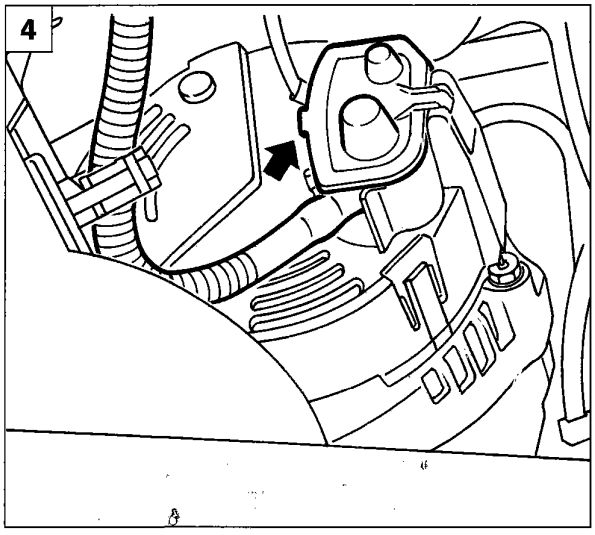


P4A121L03

1. Undo the nuts fixing the first section of the exhaust pipe to the power unit and remove it from the vehicle.
2. Position the hydraulic jack under the power unit as shown in the diagram.
3. Undo the reaction support bolt. Lower the hydraulic jack to allow the power unit to be moved to extract the alternator.
4. Open the protective cover and disconnect the electrical connections for the alternator.
5. Undo the bolts fixing the alternator to the power unit and remove it from the vehicle.



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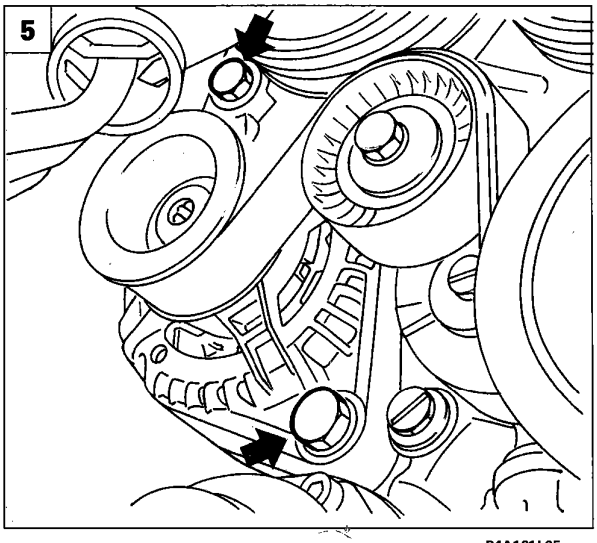

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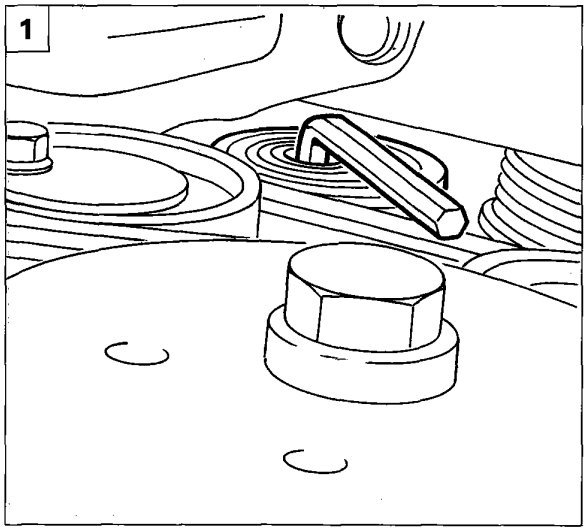

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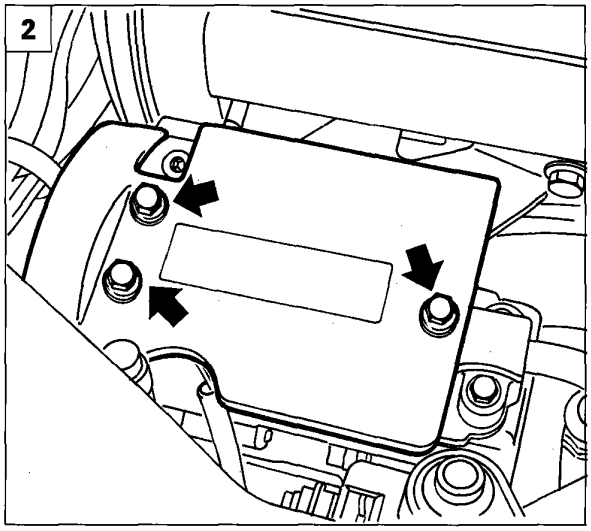


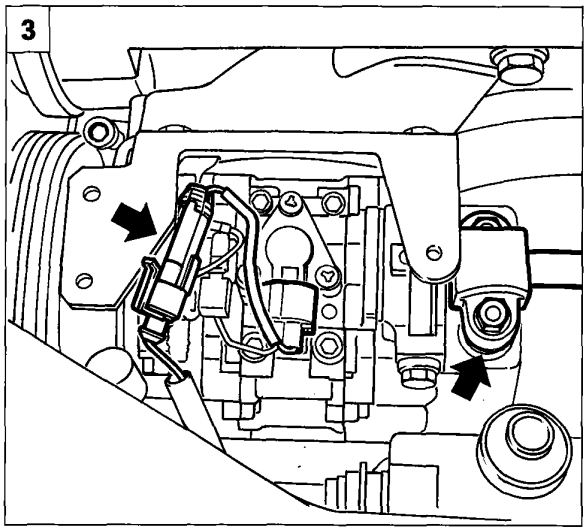
P4A122L02

Removing-refitting *(1998 20V version)*

Position the vehicle on a lift and drain the climate control system (see section 50 - Auxiliary units).

Remove the right light cluster following the instructions given on page 19.

1. Raise the vehicle and loosen the belt tensioner bearing, after having removed the lower protective shield (see page 45).
2. Lower the vehicle and remove compressor protection shown in the diagram.
3. Disconnect the electrical connection and the pipe for the climate control system shown.
4. Disconnect the pipe for the climate control system from the compressor, working from the housing for the light cluster previously removed.
5. Loosen the fixing bolt for the alternator mounting bracket.



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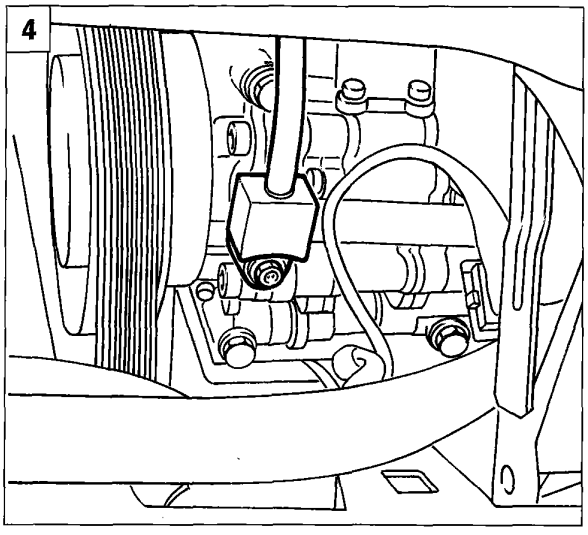

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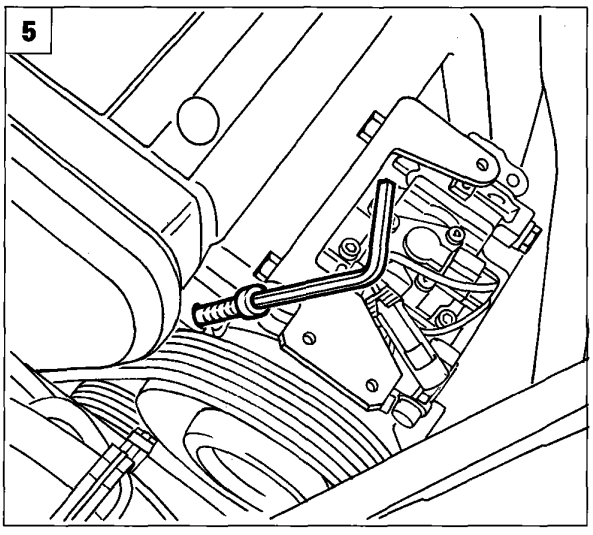

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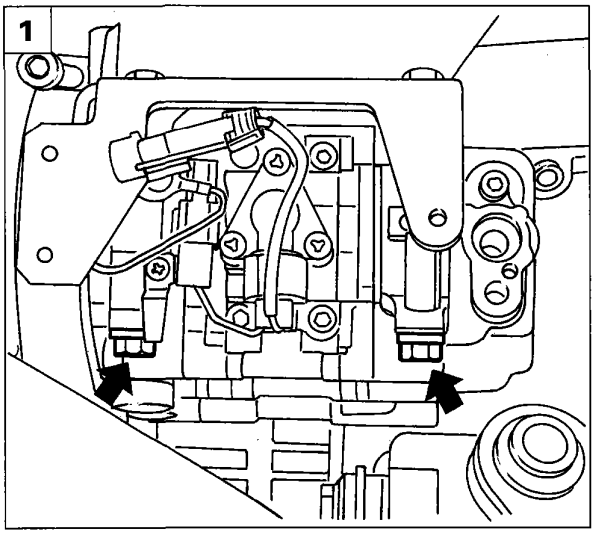

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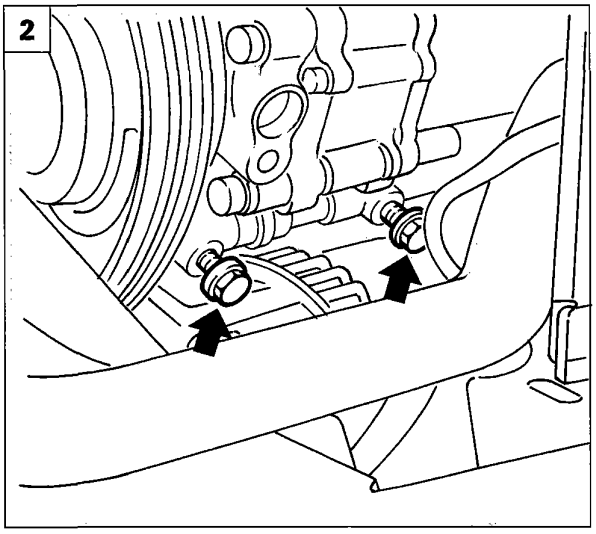

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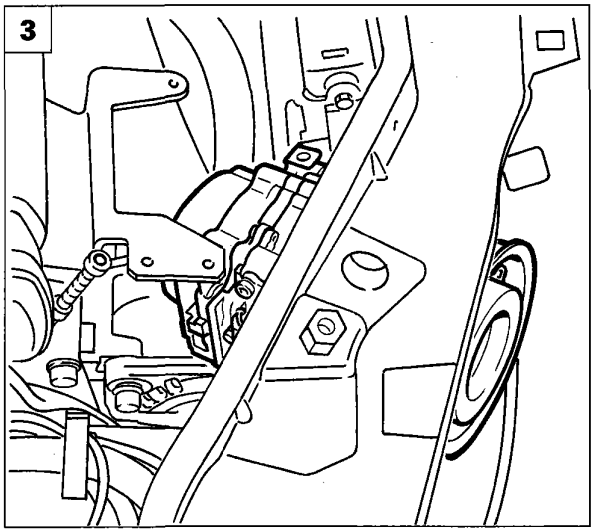
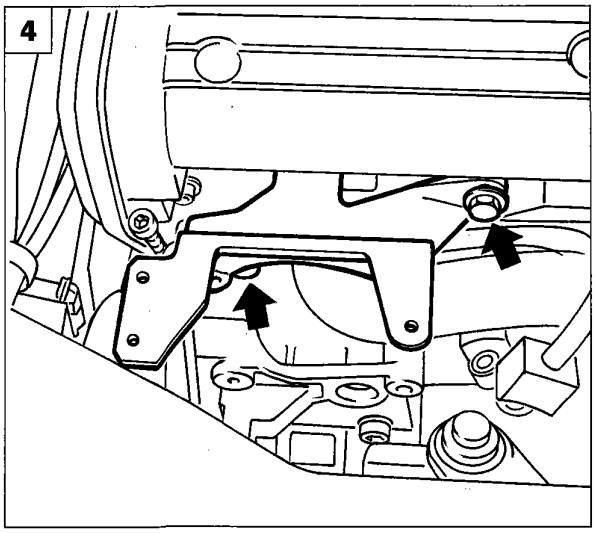


P4A123L03

1. Undo the upper bolts fixing the compressor.
2. Undo the lower bolts fixing the compressor.
3. Remove the belt and extract the compressor from the right light cluster housing.

4.5. Undo the bolts fixing the compressor support plate and move it slightly to one side.



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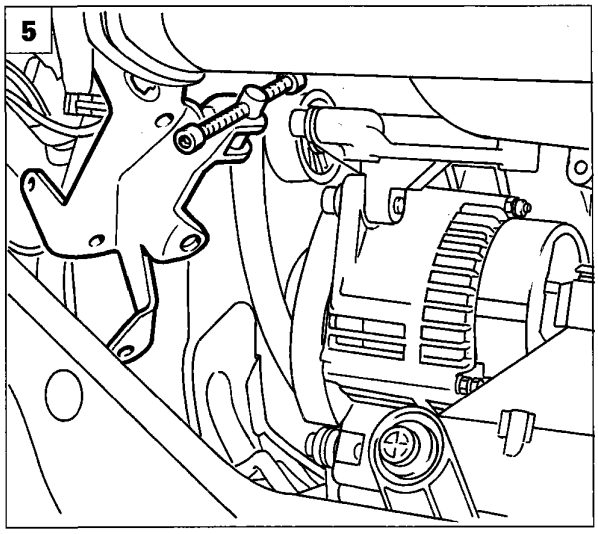

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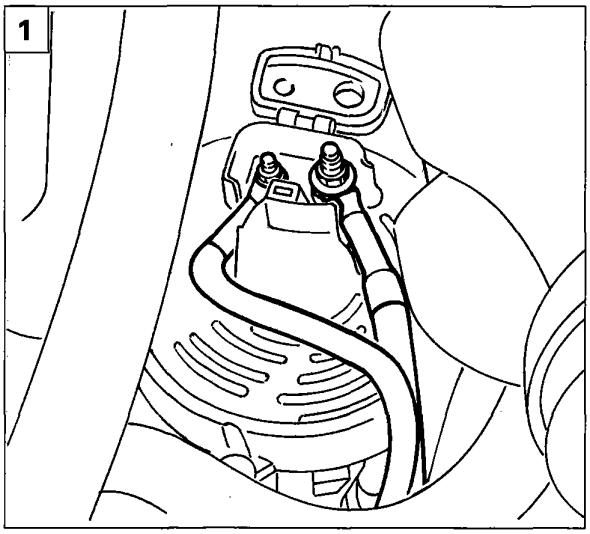
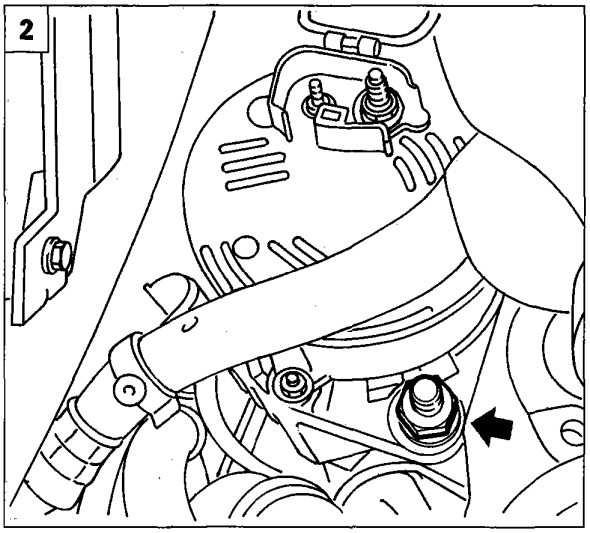


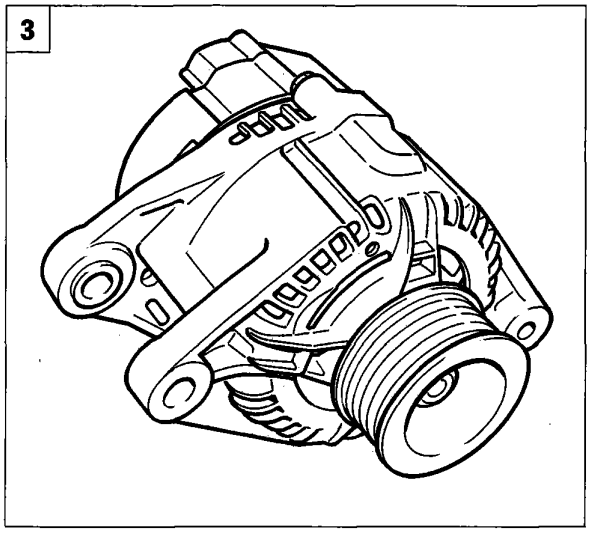
P4A124L01

1. Raise the vehicle and disconnect the electrical connections for the alternator.



P4A124L02

2. Undo the lower bolt fixing the alternator.



P4A124L03

3. Lower the vehicle and remove the upper bolt fixing the alternator, then extract it from the vehicle.

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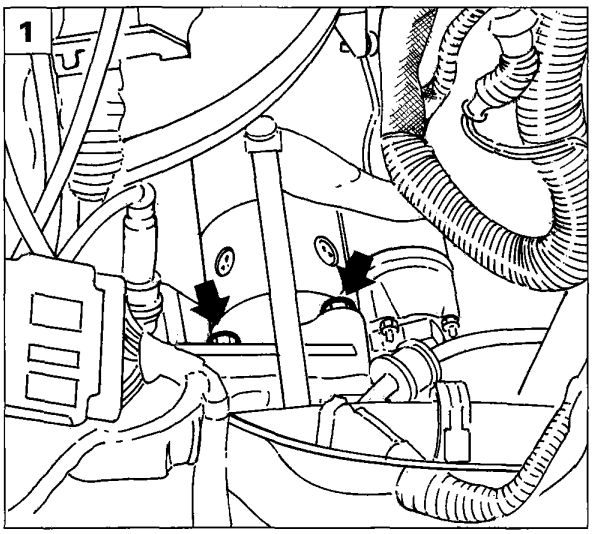
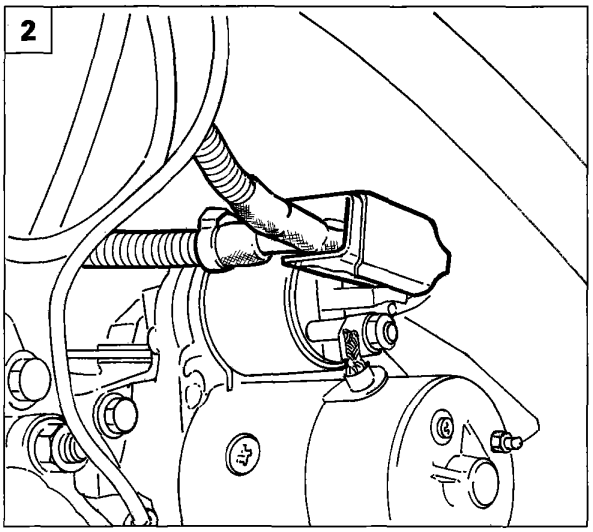


P4A125L01

Before carrying out the removal procedures, described in this chapter, disconnect the negative battery terminal.

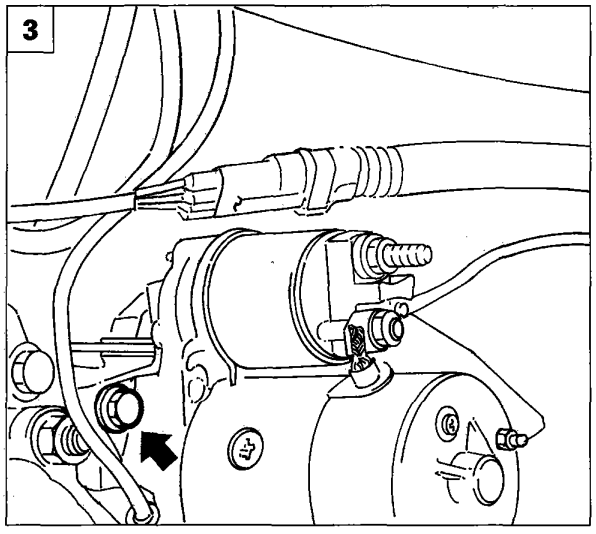


P4A125L02

M.MARELLI E80-0.9/12 STATER MOTOR
(versions with 1370 12V; 1580 16V engine)

Removing-refitting *(1370 12V engine)*

1. Position the vehicle on a lift and lift up the bonnet. Undo the upper bolts fixing the starter motor to the power unit.
2. Raise the vehicle, then disconnect the electrical connections for the starter motor.
3. Undo the lower bolt fixing the starter motor to the power unit.
4. Extract the starter motor from the vehicle.



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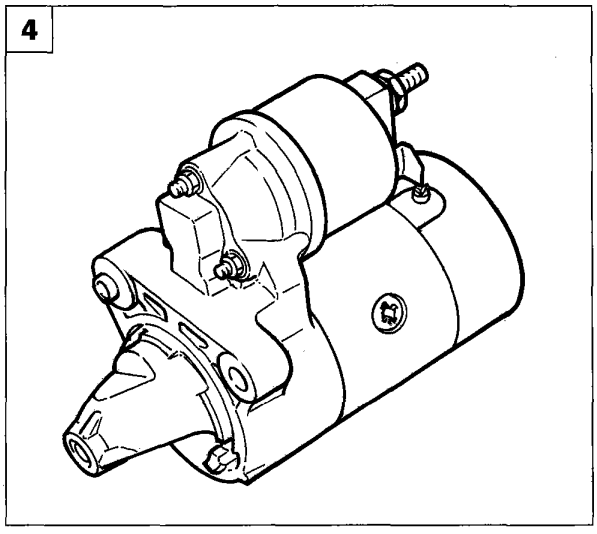

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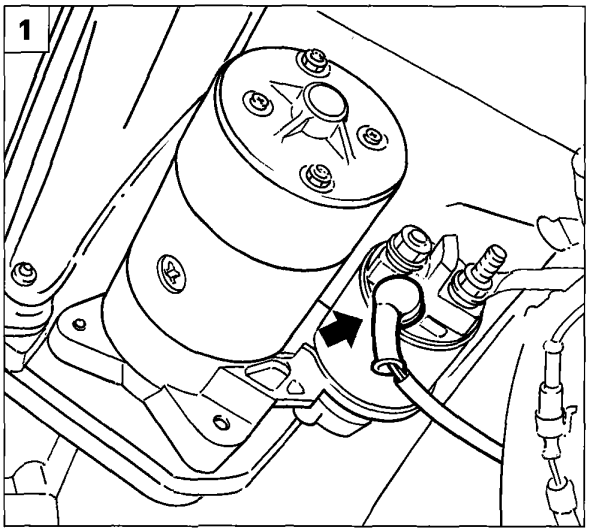
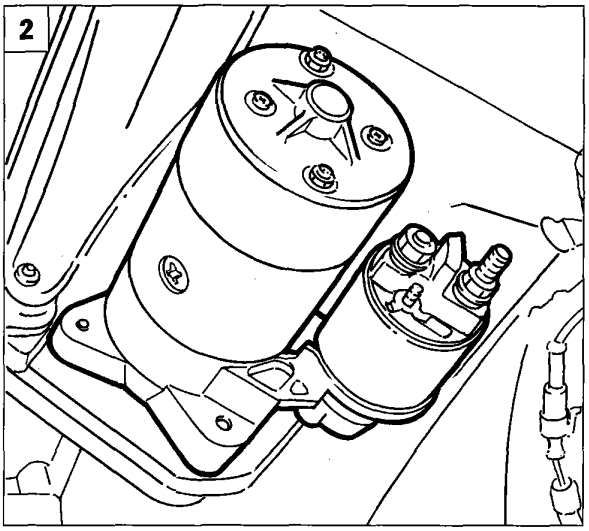


P4A126L01

Removing-refitting *(1580 16V engine)*

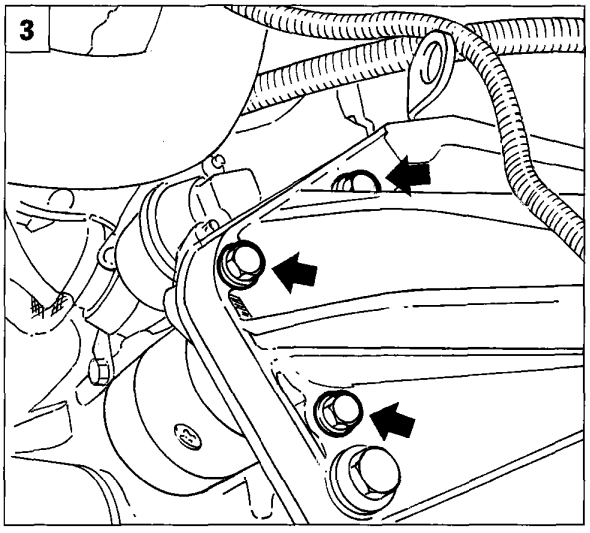
Position the vehicle on a lift.

1. Raise the vehicle and move aside the protective boot for the starter motor supply contacts.



P4A126L02

2. Disconnect the supply contacts for the starter motor.



P4A126L03

3. Undo the bolts fixing the starter motor to the power unit and remove it from the vehicle.

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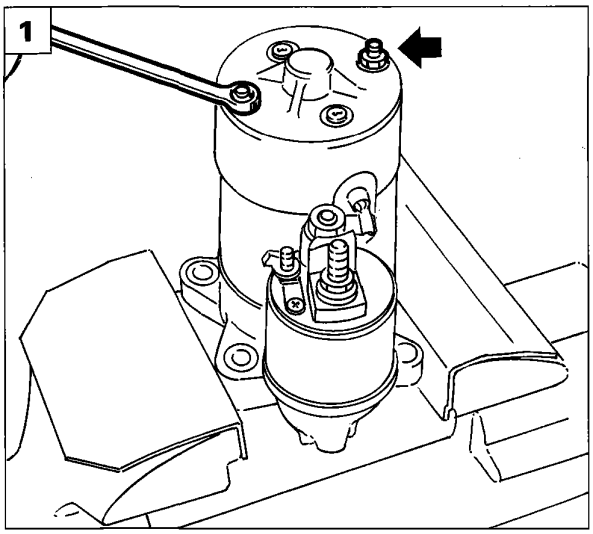
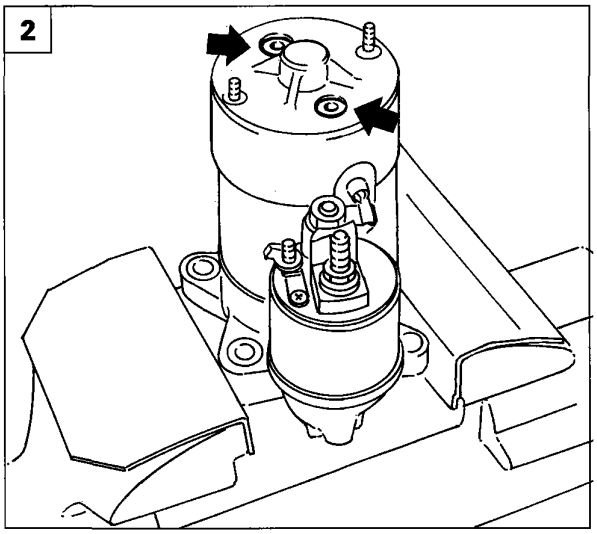


P4A127L01



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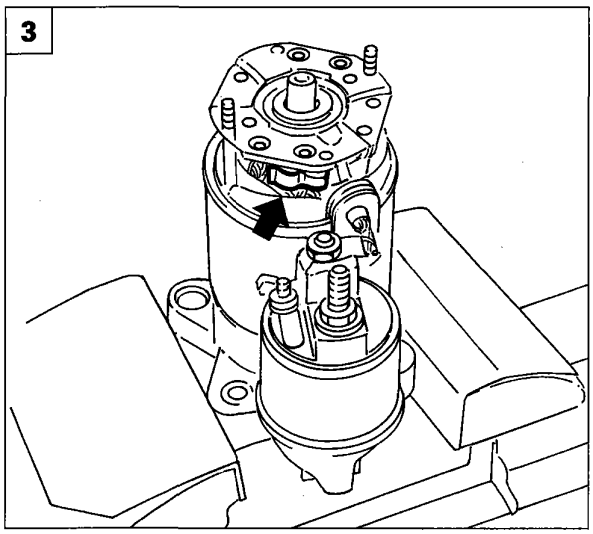

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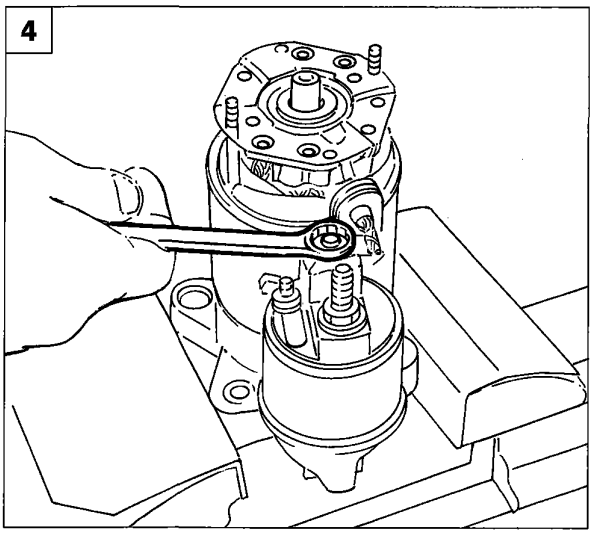

P4A127L04

Overhauling at the bench

1. Position the starter motor as shown in the diagram and undo the nuts shown.
2. Undo the bolts shown and remove the metal protection for the starter motor.
3. Remove the pressure exerted on the blades positioning the tabs as illustrated in the diagram.
4. Undo the nut shown fixing the electrical connection.

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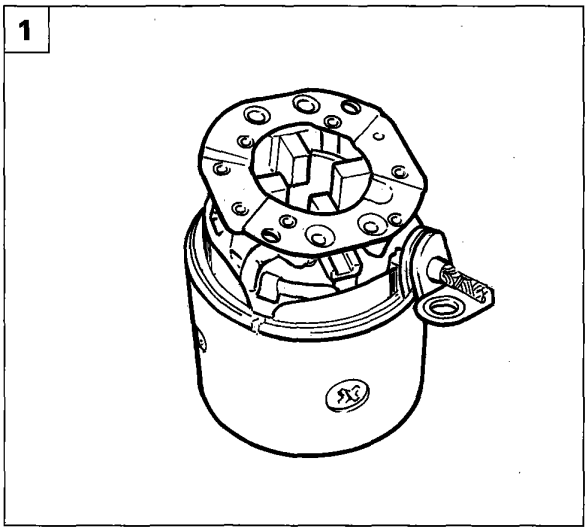
1



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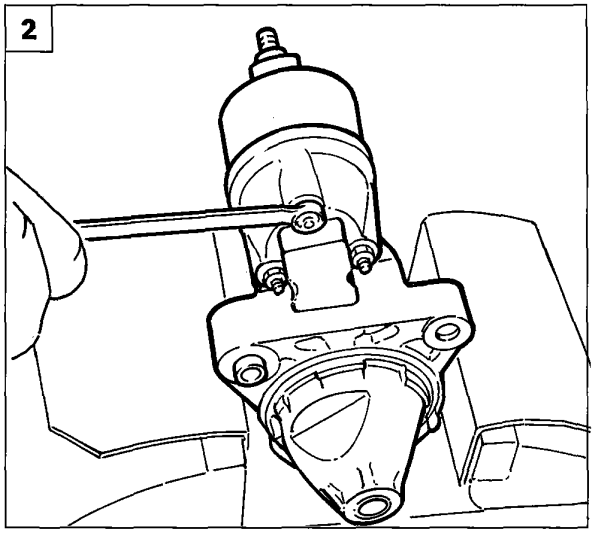

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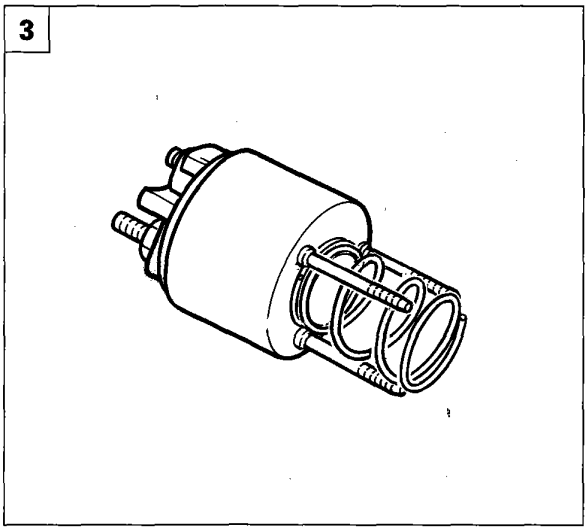
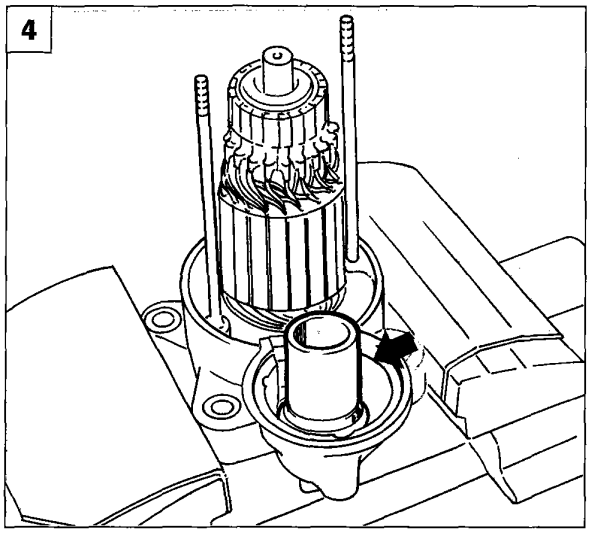


P4A128L03

1. Remove the stator/plate brush holder assembly from the starter motor.
2. Undo the nuts shown fixing the electro-magnet to the starter motor.
3. Remove the electro-magnet.
4. Extract the spring guide bush from the starter motor.
5. Using a screwdriver, remove and extract the rotor/pinion engagement fork assembly from the starter motor front support.

4



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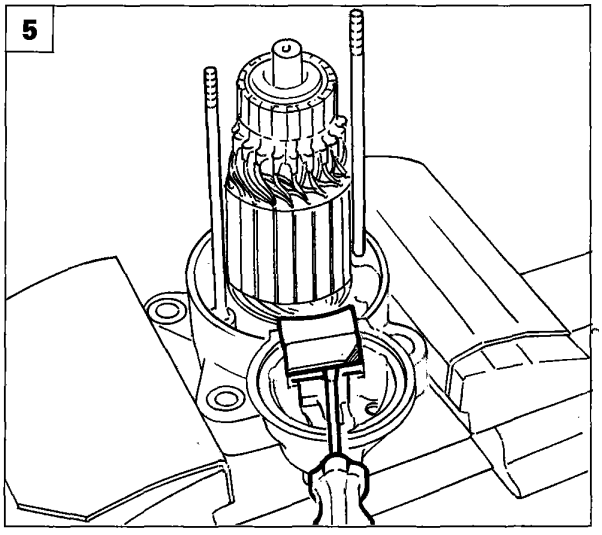

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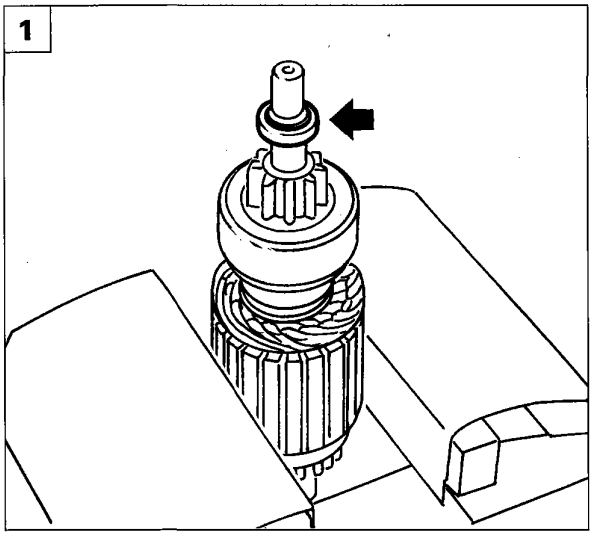

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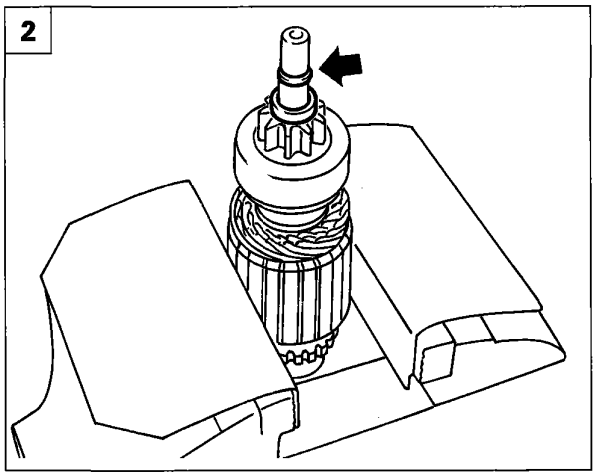
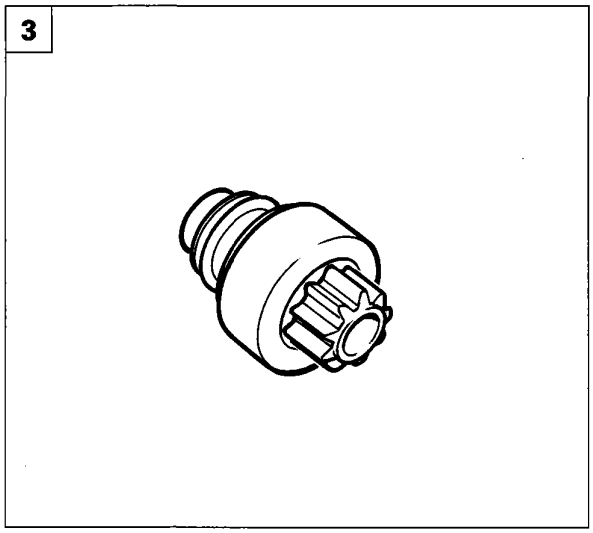


P4A129L02

1. Remove and lower the safety ring shown.
2. Remove the circlip from the rotor shaft.
3. Remove the free wheel with pinion from the rotor.

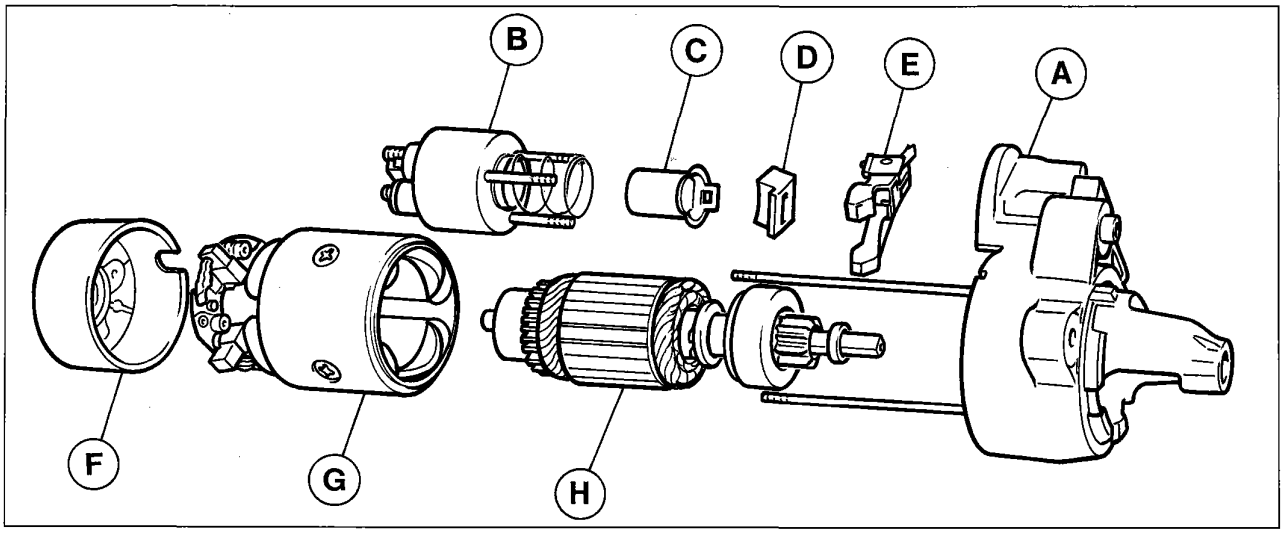


P4A129L03

When refitting, reverse the order of the operations carried out for the removal.

Starter motor components

A. Front support
B. Electro-magnet
C. Spring guide bush
D. Saftey buffer
E. Pinion engagement fork
F. Rear support
G. Stator/brush holder plate assembly
H. Rotor/pinion with free wheel assembly



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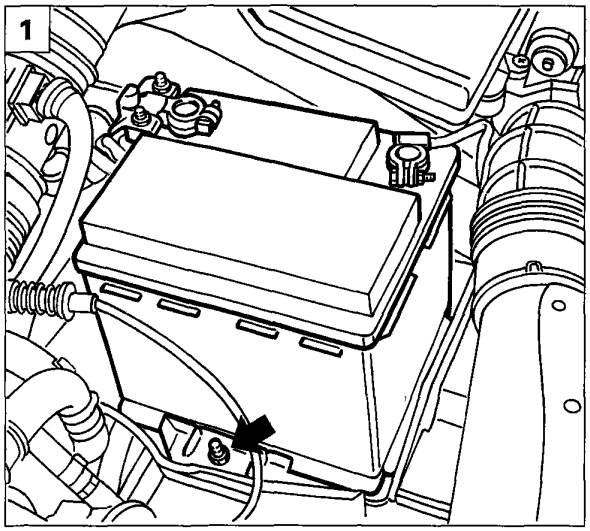
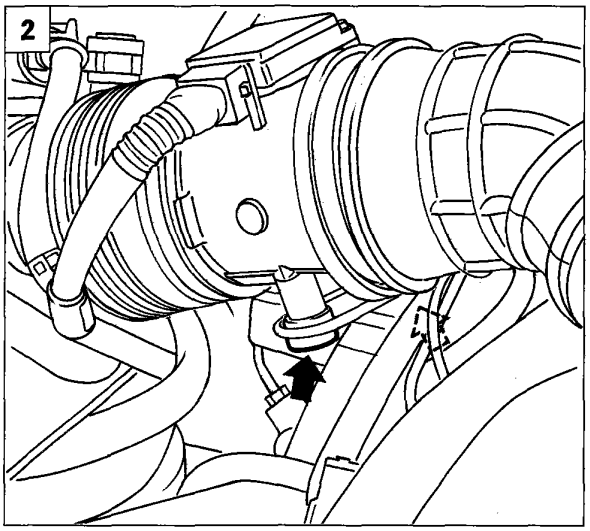


P4A130L01

MARELLI STARTER MOTOR M 70 R-1.4/12 *(versions with 1747 16V; 1998 20V engines)*



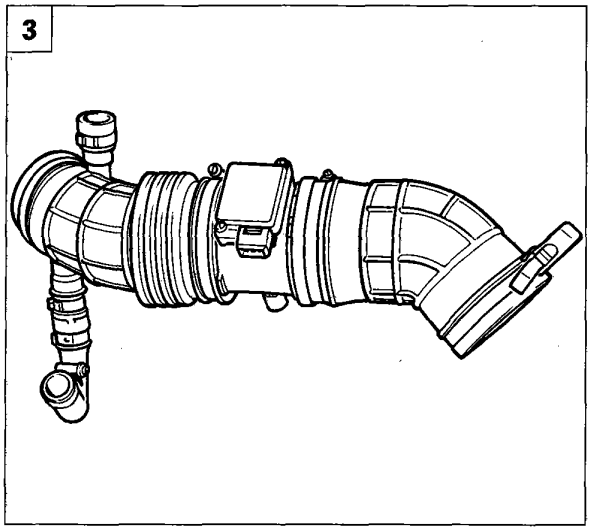
P4A130L02

Removing-refitting *(1747 16V engine)*

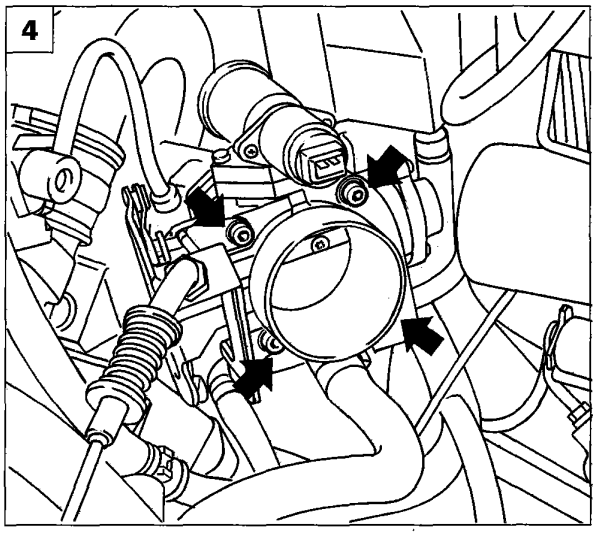
1. Undo the nut shown and remove the battery from the vehicle.

NOTE *When removing the cover positioned on the positive battery terminal, act as described on page 113.*

2. Remove the flow meter from the bodyshell undoing the bolts shown.
3. Disconnect the connections and the bands, then remove the flow meter complete with pipes from the vehicle.
4. Undo the bolts fixing the butterfly casing and move it aside.



P4A130L03



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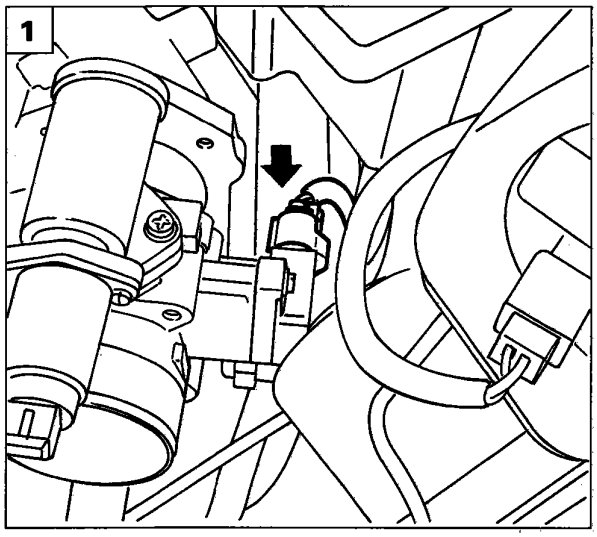

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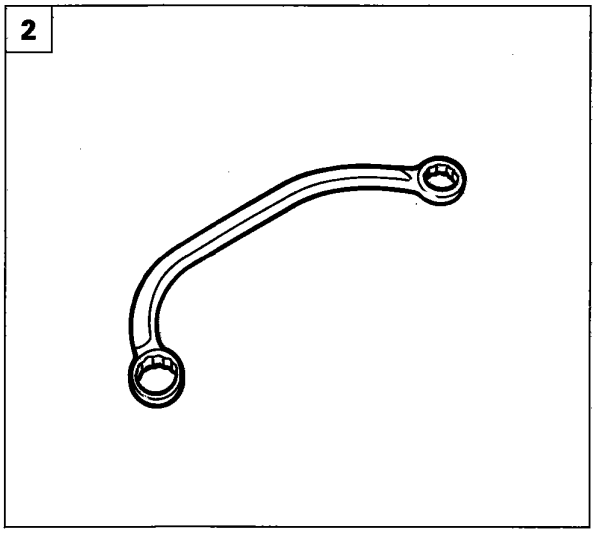
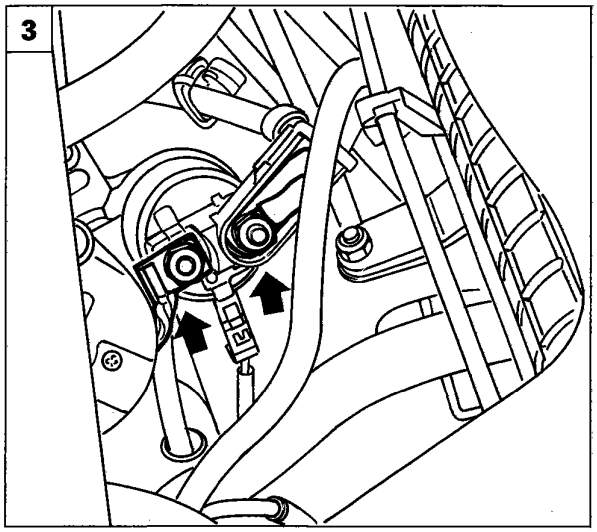


P4A131L02

1. Disconnect the connector shown and move the butterfly casing in such a way as to be able to gain access to the starter motor.
2. Use tool 1850167000 to undo the upper bolts fixing the starter motor to the power unit.
3. Raise the vehicle and undo the lower bolt fixing the starter motor to the power unit.
4. Remove the starter motor from the vehicle.



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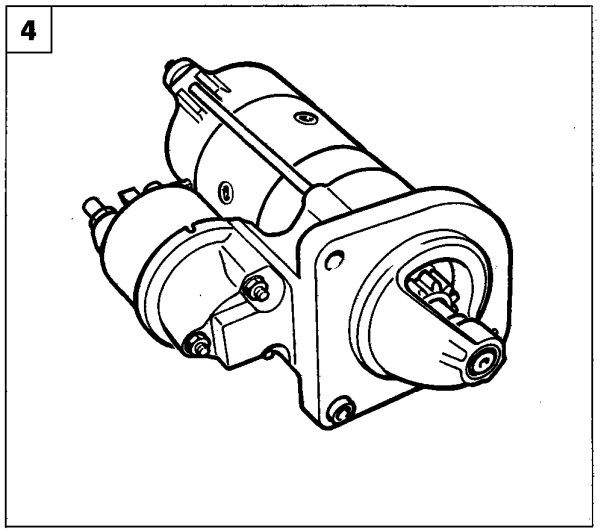

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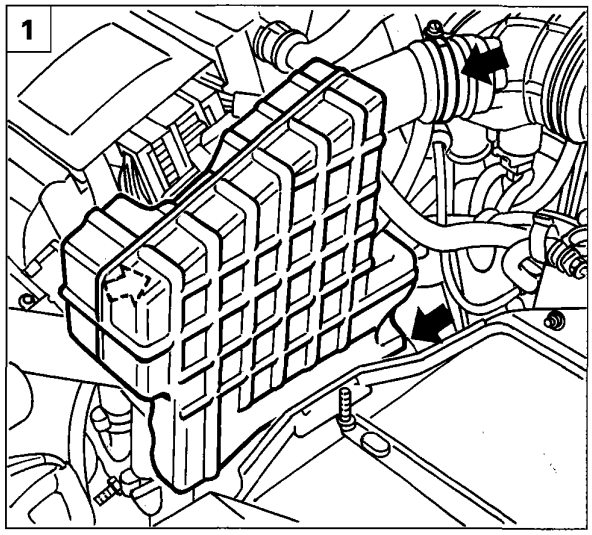

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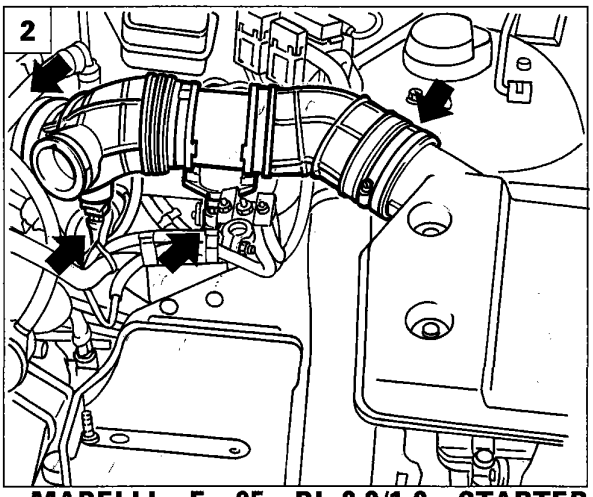


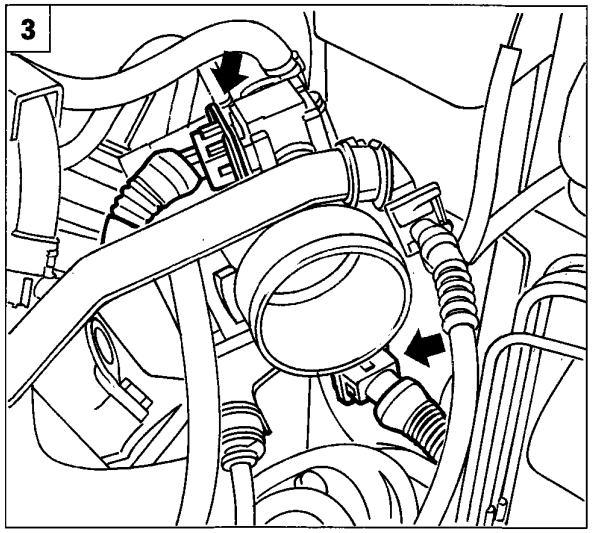
MARELLI E 95 RL-2.2/1.2 STARTER MOTOR *(versions with 1747 16V; 1998 20V; 1910 TD engines)*

Removing-refitting*(1998 20V engine)*

1. Remove the battery, undo the bolts and the band shown and extract the resonator.

NOTE *When removing the cover positioned on the positive battery terminal, act as described on page 113.*

2. Undo the bands and disconnect the connections shown, then extract the air duct which connects the flow meter to the air filter.
3. Disconnect the connections at the flow meter.
4. Undo the bolts fixing the flow meter, move it aside and unto the upper bolts fixing the starter motor.
5. Raise the vehicle remove the supply connections, undo the lower fixing bolt and remove the starter motor from the vehicle.



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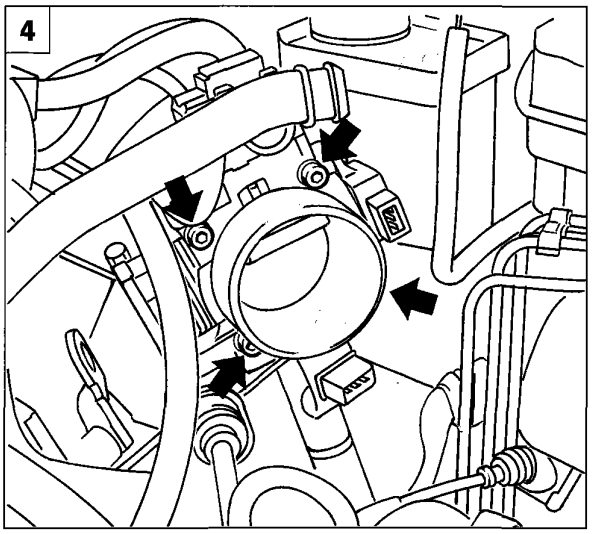

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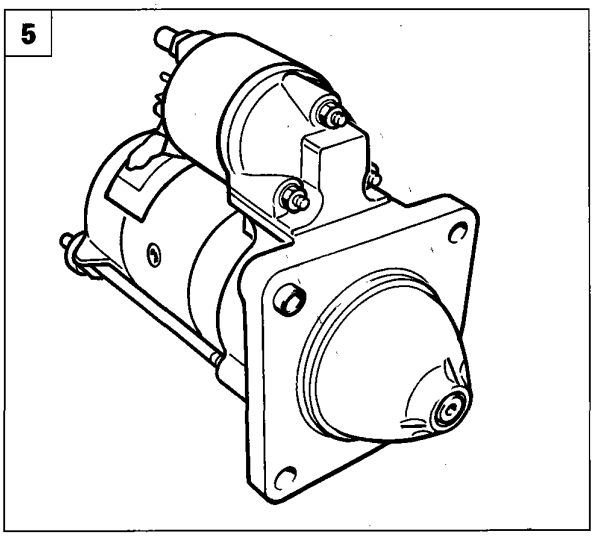

P4A132L05

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CHECKS

The starter motor components should be subjected to the tests listed below:

rotor: contintuity test, short circuit and insulation to earth
stator: continuity test and insulation to earth
brush holder support: insulation to earth
solenoid valve: continuity test and insulation to earth

Each time the starter motor makes noises during starting, the pinion/free wheel must be replaced.

STARTER MOTOR OPERATIONAL FAULT DIAGNOSIS

1. The motor does not rotate

The cause may be:

- the battery terminals are oxidized;
- starter motor supply cable terminal slack;
- starter motor supply cable terminal broken or oxidized;
- battery completely discharged;
- lack of contact for rotor arms at commutator;
- positive rotor arm short circuited;
- starter switch contacts oxidized, worn or insulated through fragments;
- rotor or inductor to earth;
- rotor or commutator centrifuged;
- pinion engagement solenoid winding broken or to earth.

2. The motor rotates very slowly

The cause may be:

- commutator brushes and blades worn;
- part of inductor or rotor winding coils short circuited;
- battery terminals oxidized;
- battery state of charge very low or one or more elements deteriorated.

3. Excessive noise during starting

The cause may be:

- pinion free wheel mechanism worn;
- poor alignment between motor and flywheel ring gear;
- several flywheel ring gear teeth excessively worn on the engagement side;
- speed reduction gear defective or excessively worn.

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INTRODUCTION

The alarm is a system which offers volumetric and perimeter protection: in effect it is capable of carrying out a check on the position of the doors and for the presence of a moving object inside the passenger compartment. In addition, it can carry out the function of excluding the audible alarm (siren) and that of signalling that the remote control battery is discharged by the LED in the remote control and the one in the dashboard coming on.
In particular it is capable of:

- adapting its operation to the laws in force in the various markets governing the use of alarm systems;
- distinguishing permanent or intermittent errors or faults;
- memorizing the number of alarms implemented;
- detecting faults or problems at the connecting cables for the switch and key for de-activating the system.

The alarm system basically comprises: a radio frequency receiver located in the courtesy light, a radio frequency transmitter in the ignition keys which come with the vehicle, two volumetric sensors and switches on the doors and the bonnet and boot lids and lastly the electronic control unit (located in the driver's side wheel arch) which is integrated with an alarm siren.

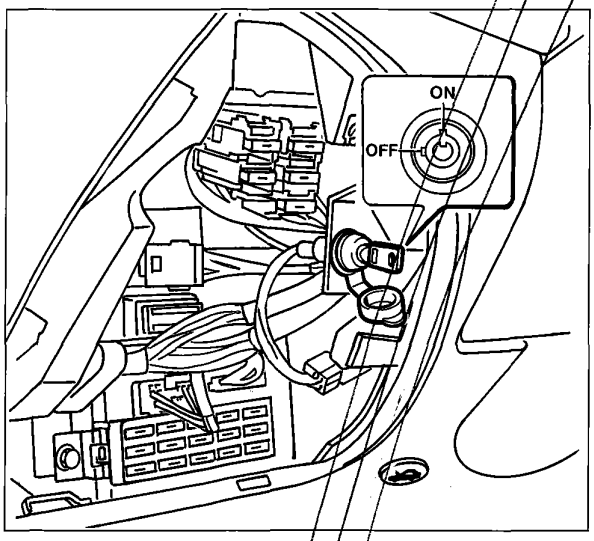
The alarm is excluded by pressing the remote control button for a long time when the alarm switches on (see page 134/2).

EMERGENCY KEY

The switch and key for the emergency circuit are located near the junction unit.
This makes it possible to exclude the alarm if it is activated on account of a fault in the system.

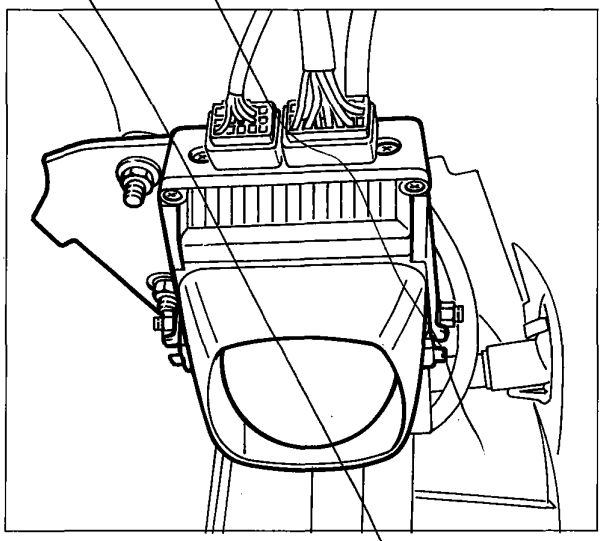
De-activation By turning the emergency key the control unit emits an audible signal to indicate that the alarm is de-activated (OFF position).

Activation By turning the emergency key the control unit remains silent indicating that the alarm is activated (ON position).



P4A16AL01

Location of emergency circuit switch with key



P4A16AL02

Location of electronic control unit and alarm in left wheel arch

NOTE *The emergency circuit switch is only accessible after having removed the lower dashboard cover, driver's side.*

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OPERATION

Switching on - Switching off

The alarm is switched on by pressing the transmitter (remote control) switch and the fact that it is on is signalled by the direction indicators coming on for around 2.5 seconds and a corresponding audible signal (beep).
The operating range is about 10 metres.

The alarm is switched off by the transmitter (remote control) switch being pressed again and this is signalled by the direction indicators flashing twice for 0.5 seconds and two corresponding audible signals (beeps).

It is not possible to switch on the alarm with the ignition switch in the ON position, but only in the OFF or PARK positions.

The switching on or off is also signalled by the LEDs and, in countries where the law permits, also by the above mentioned visual and audible signals (for example: Italy).

Excluding the system

If the transmitter batteries are discharged or the system fails it is possible to deactivate the alarm using the emergency key located behind the lower dashboard cover, driver's side (OFF position).

When the vehicle is delivered, check that the emergency key is in the ON position.
Turn the key to the OFF position if the vehicle is not used for long periods (more than a month).

By placing the key in the ON position again, if the battery is not sufficiently charged or if the control unit has been disconnected, the alarm will give an intermittent audible signal lasting 10 beeps (excluding certain countries where this is not allowed).

Surveillance

During surveillance the LED flashes at a frequency of 0.8 Hz.
In this state the alarm system surveys:
- the doors, the bonnet lid and the boot lid;
- one disconnection of the battery/cables cut;
- the non authorized insertion of the ignition switch;
- movements inside the passenger compartment (volumetric surveillance).

Alarm state

The alarm is triggered off when one of the surveillance sensors (see previous list) detects an irregular situation.
The alarm state is displayed by the activating of the alarm for a maximum of 3 26 second cycles, only if the cause of the alarm persists and by the direction indicators for a maximum of 4.7 minutes still if the cause of the alarm persists (only in countries where the law permits).
To exit from the alarm situation:
- press the transmitter button;
- use the emergency key (N.B. The alarm on condition, however, remains memorized inside the control unit. Only use this procedure if you do not manage to escape from the alarm situation).

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SWITCHING ON ALARM EXCLUSION (To be carried out compulsorily each time it is switched on)

It is possible to exclude the operation of the alarm when switching on the alarm by pressing the remote control switch for 4 seconds. Straight after the audible/visual signals that it has been switched on (see previous page) to indicate that it has been excluded 5 audible signals (beeps) follow in quick succession.

SIGNALLING REMOTE CONTROL BATTERIES DISCHARGED

The fact that the remote control batteries are discharged is signalled by a single 200 ms (millisecond) flash of the remote control LED each time the switch is pressed.

When this signal occurs it is necessary to change the remote control batteries as soon as possible

DISTANCE BETWEEN TRANSMITTER AND RECEIVER DURING PROGRAMMING

The distance of the remote control from the receiver in the courtesy light is about 40 cm.

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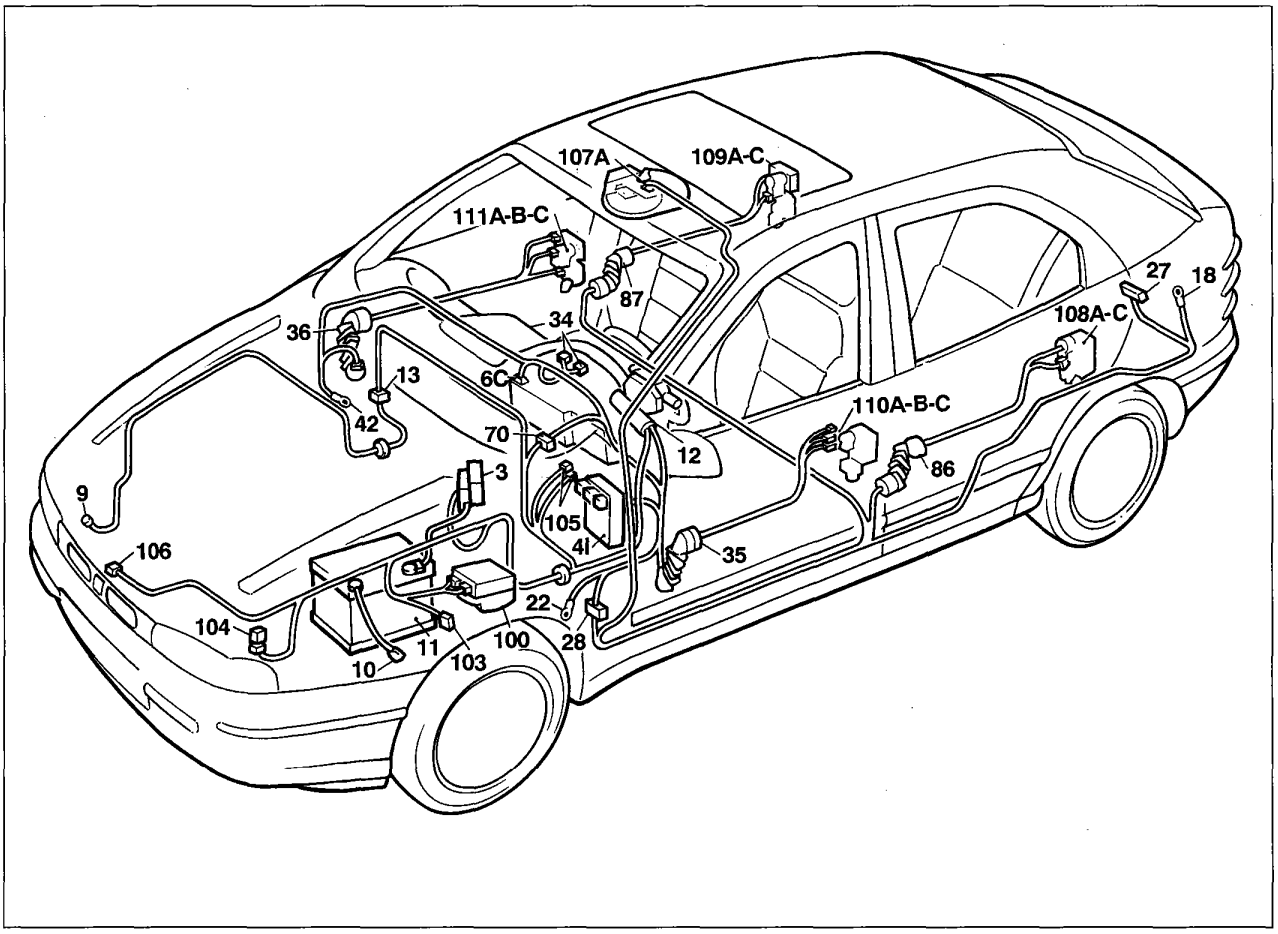
LOCATION OF COMPONENTS



P4A17AL01

3. Power fuse box
4I. Junction unit
6C. Instrument panel (connector C)
9. Right front earth
10. Earth for battery on bodyshell
11. Battery
12. Ignition switch
13. Front right/left cables connection
18. Left rear earth
22. Left dashboard earth
27. Rear connections contact board with luggage compartment light switch incorporated
28. Dashboard/longitudinal cables connection
34. Switch control unit
35. Dashboard/left front door cables connection
36. Dashboard/right front door cables connection
42. Right dashboard earth
70. Dashboard/front cables connection
86. Longitudinal/left rear door cables connection
87. Longitudinal/right rear door cables connection
100. Alarm device electronic control unit
103. Diagnostic socket for alarm
104. Alarm 15A protective fuse
105. Alarm device off switch
106. Alarm on switch
107A. Central locking remote control receiver
108. Left rear central locking/alarm on switch
109. Right rear central locking/alarm on switch
110. Left front central locking/alarm on switch
111. Right front central locking/alarm on switch

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PROGRAMMING

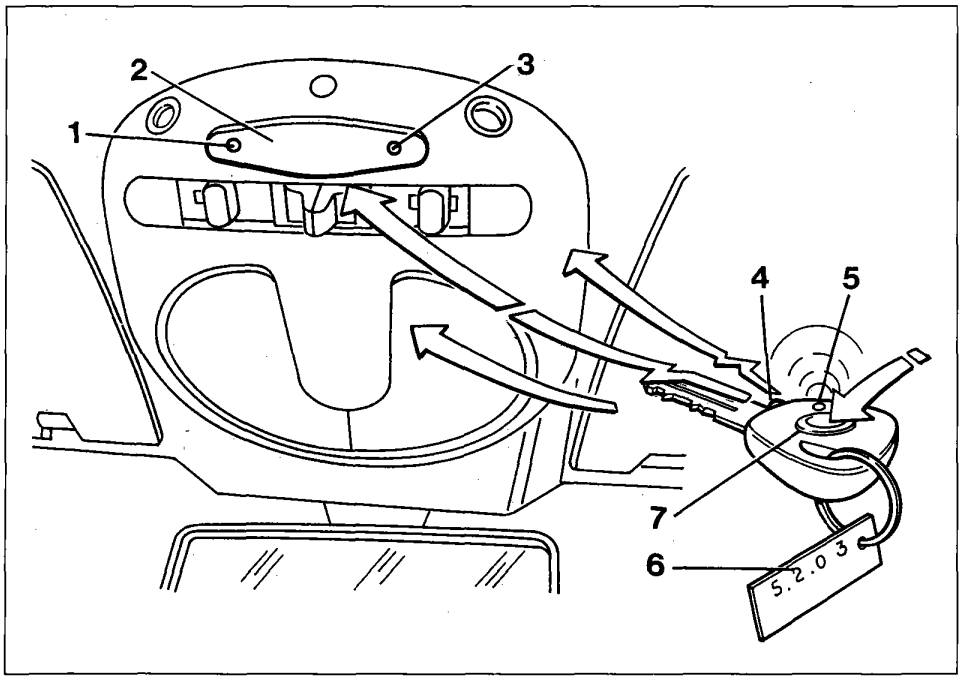
Initially the vehicle alarm system comes with a code which is activated by a universal remote control which allows the vehicle to be tested and moved inside the factory.
During the pre-delivery stage it is therefore necessary to programme the receiver with the code for the transmitter which comes with the vehicle.
The alarm signal modes may vary according to the laws in force in the country of registration. It may therefore be necessary to programme the system by entering the Country code.
There are two programming modes:
- before entering the password: SIMPLIFIED PROGRAMMING
- after entering the password: PROTECTED PROGRAMMING.

Each transmitter has a paper card with the four figure password for protection against non authorized programming (protected programming). This card should be removed by the customer at the time of purchase and placed in the special space at the back of the Code Card.

- *Given the importance of programming it is advisable to carry out the operations, at least initially, with the help of a second person.*
- *The programming of remote controls should be carried out with the doors of the vehicle closed.*

Simplified programming

At the time of delivery the alarm commands for the vehicle should be memorized.



P4A18AL02

1. Programming button
2. Radio frequency receiver in courtesy light
3. LED in courtesy light
4. Radio frequency remote control
5. Transmitter LED
6. Password code (4 numbers)
7. Control button on transmitter

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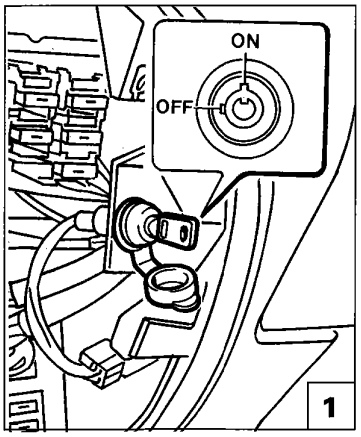
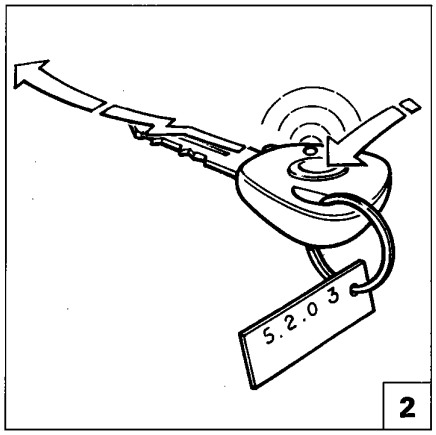
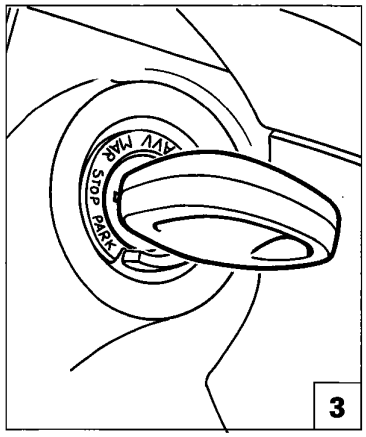


P4A19AL01



P4A19AL08



P4A19AL03

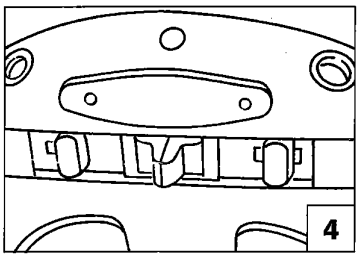
The programming of a transmitter should be carried out with the:

1) the emergency key is in the ON position;

2) *the anti-theft device is switched off via the remote control;*

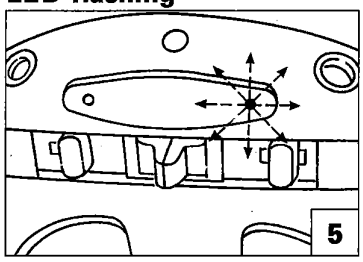
3) *the igntion key is in the OFF position or has been removed.*

LED off



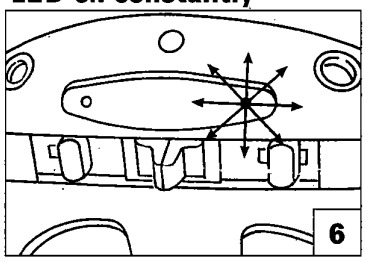
P4A19AL04

LED flashing



P4A19AL05

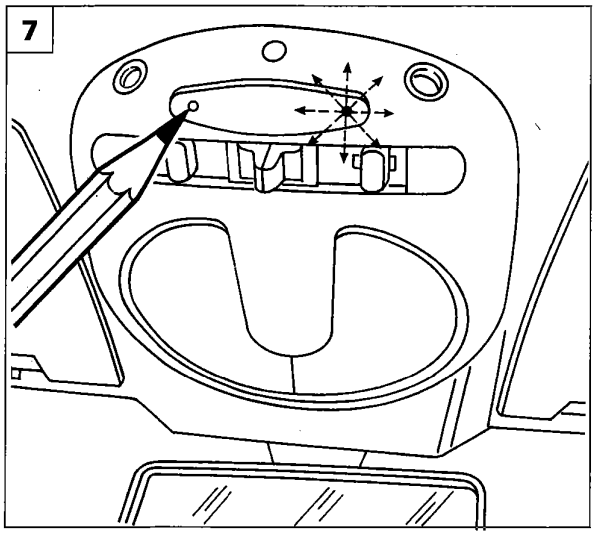
LED on constantly



P4A19AL06

Start of simplified programming (first remote control)

The simplified programming can only be used when the memory has not yet been closed (see chapter on "Protected programming"). The system "recognizes" the code for an unlimited number of remote controls, but only the last eight remote controls remain programmed (when the 9th remote control is entered the first one is expelled from the memory).



P4A19AL07

1) Press the programming button on the receiver; the LED for the receiver will start to FLASH indicating "awaiting to receive a code";

If the LED remains off when the button is pressed, this means that:
a) the alarm is ON. If this is the case, it can only be switched off using the UNIVERSAL REMOTE CONTROL;
b) the receiver is faulty or there is no supply.

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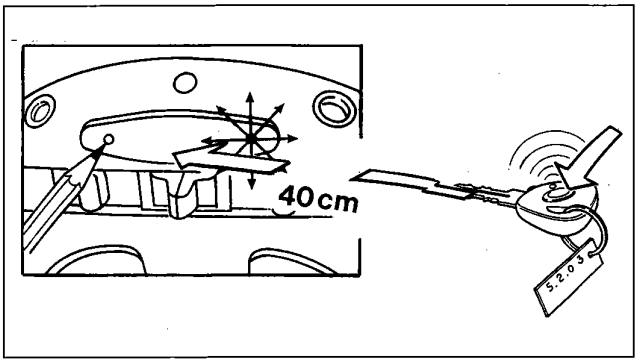
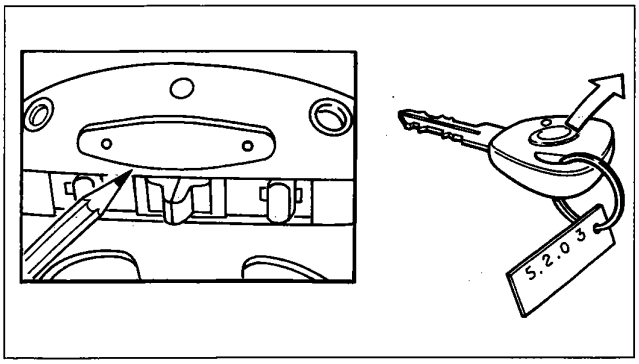


P4A20AL04

2) - Keep the receiver button pressed;
- hold the remote control about 40 cm away;
- press and release the remote control button;
- the LED in the courtesy light comes on constantly signalling that the code has been programmed.

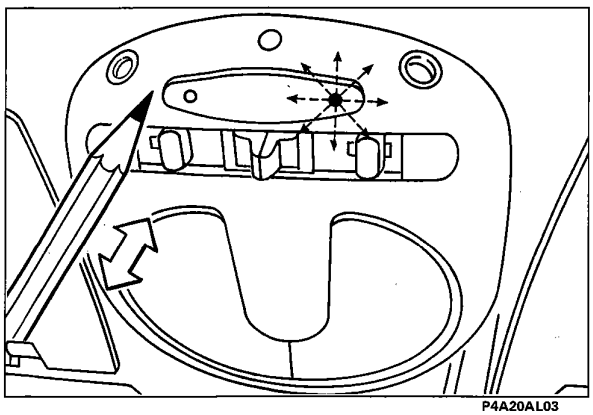


P4A20AL05

3) When the button for the receiver is released the LED in the courtesy light goes out. At this point there are two possibiities:
a) To programme the alarm to operate in the country where it will be working (country code).
b) Not to modify the previously programmed operation.
To maintain the default operating mode (ITALY)

Code	Country	Code	Country
1	Italy	6	Belgium
2	Germany	7	Holland
3	France	8	EEC (Europe)
4	Switzerland	9	TURIN (toned down al.)
5	United Kingdom	10	TEST

In order to programme the alarm following the instructions in point "a" it is necessary to press the programming button, within three seconds of the LED going out, as many times as indicated in the table at the side.


P4A20AL03

Each time it is pressed the LED will flash.

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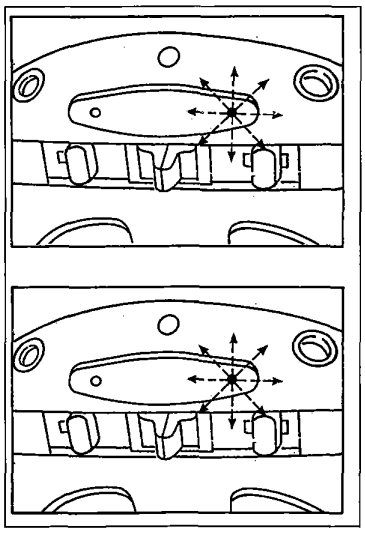


P4A21AL01

x 6 = OK

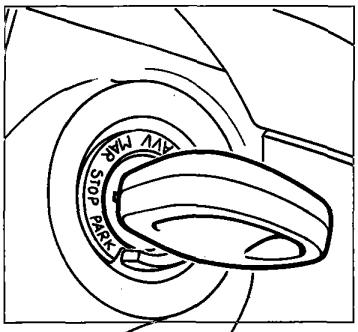
x 18 = NO OK

At the end of the procedure if the LED:

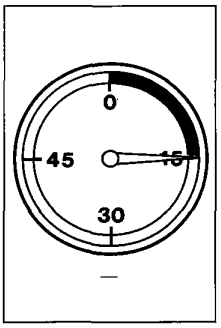
- FLASHES 6 times, this means that the code has been correctly programmed;
- FLASHES 18 times, this means that the serial line between the receiver and the alarm is broken or that a previously programmed code has remained in the alarmmemory (failure to accept new code). If this should occur, proceed as described below.

If the programming button in the courtesy light is not pressed the ITALY operating mode will be recognized automatically if this operation is being carried out for the first time. If, on the other hand, this operation has already been carried out previously, then the system will arrange the mode already programmed.

NOTE *In order to programme the country code and recognize the operating mode of the actual Country, use the following procedure.*



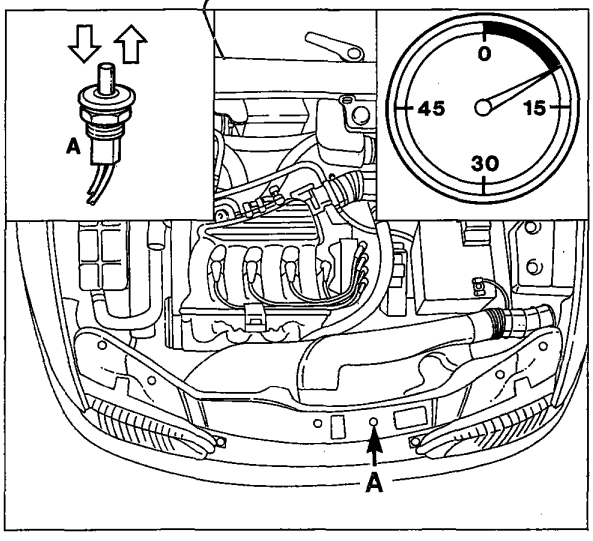
P4A19AL03



P4A21AL02

P4A21AL03

P4A21AL04



P4A21AL05

1) - Open the bonnet lid;
2) - turn the ignition key from the ON position to the OFF position;
3) - within 15 seconds move on to the next operation;

- press the bonnet lid button (A) 7 times in rapid succession;

This last manoeuvre should be carried out in less than 10 seconds.

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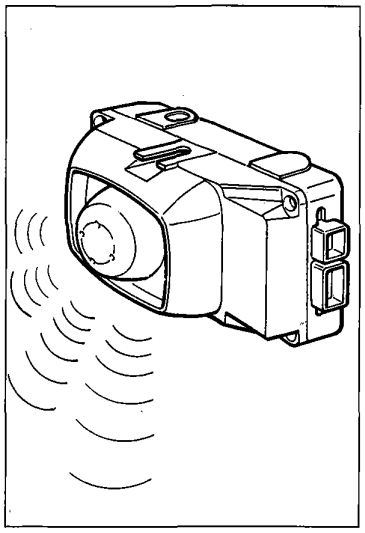
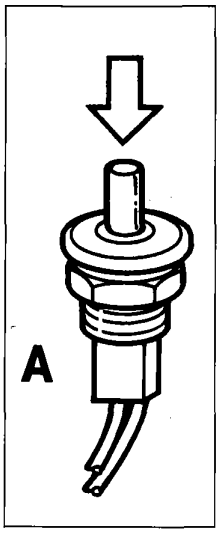


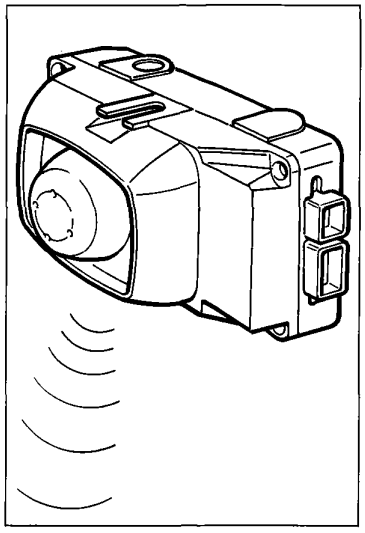
P4A22AL01



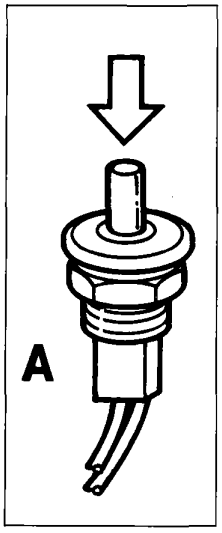
P4A22AL02

- 5 audible signals indicate the entry into MANUAL DIAGNOSIS;

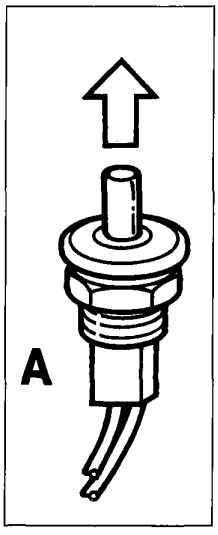
4) - during these 5 audible signals press the bonnet lid switch (A) and keep it pressed;
- a last "beep" will signal that this manouevre has been accepted;



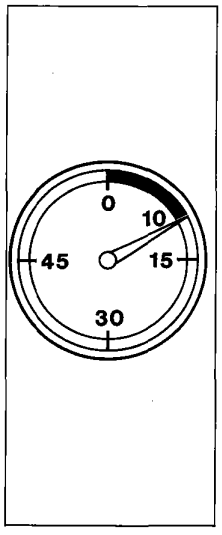
P4A22AL03



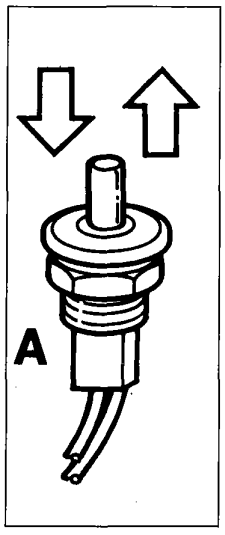
5) - keep the switch (A) pressed for the entire duration of the last "beep": this operation signals the entry into the Country programming state and consequently the possibiity of entering the country code (see table on page 138);



P4A22AL04



P4A22AL05



P4A22AL06

- release switch A;
- within the next 10 seconds press and release the switch following the instructions given in the table on page 138 (each time the button is pressed there will be an audible confirmation).

NOTE *In order to programme the country code it is possible to use the procedure with the Fiat-Lancia Tester.*

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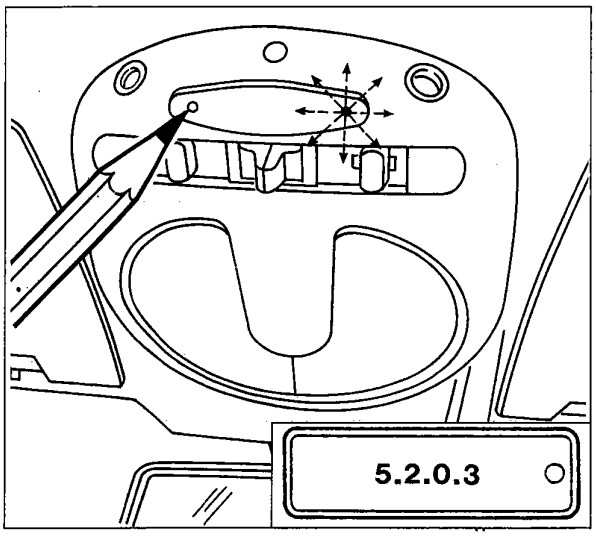
PROGRAMMING FURTHER REMOTE CONTROLS USING THE SIMPLIFIED PROCEDURE

In order to programme further remote controls, repeat the procedure for the simplified programming. It is possible to programme an unlimited number of remote controls, but the courtesy light will only keep the last eight in its memory.
This procedure is valid until the following conditions occur:
a) the central locking/alarm system has been switched on/switched off correctly via the remote control 256 times;
b) the password for one of the remote controls already programmed has been entere (see paragraph on MANUAL ACCESS PROGRAMMING).

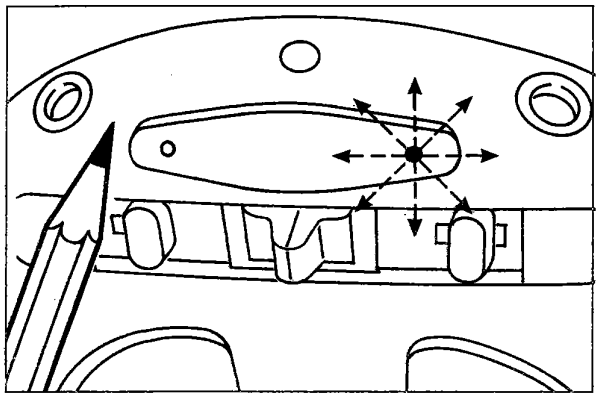
The simplified programming procedure definitvely cancels the universal codes present in the courtesy light and alarm control unit.

Protected programming-manual closing of the memory

In order to prevent strangers from being able to enter their code it is necessary to protect (close) the memory. This operation takes place:
a) automatically after the alarm system has been switched on/switched off 256 times;
b) if the user so desires by entering the password (4 figure code on the transmitter card) before the alarm has been switched on/off 256 times, for example on a new vehicle after all the remote control codes given to the Customer have been introduced.



P4A19AL07 P4A23AL03


P4A23AL02

Entering the password

- The method for entering the password (see lower inset) is as follows:

1. Press the button on the receiver for around 2 seconds: the LED should flash.

2. Release the button: after around 2 seconds the LED should flash briefly indicating that it is possible to enter the first figure of the password.

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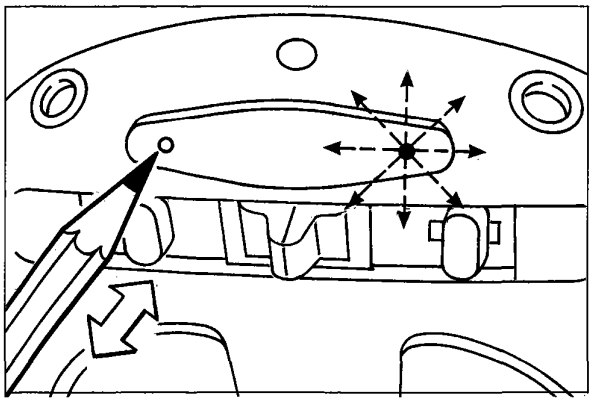
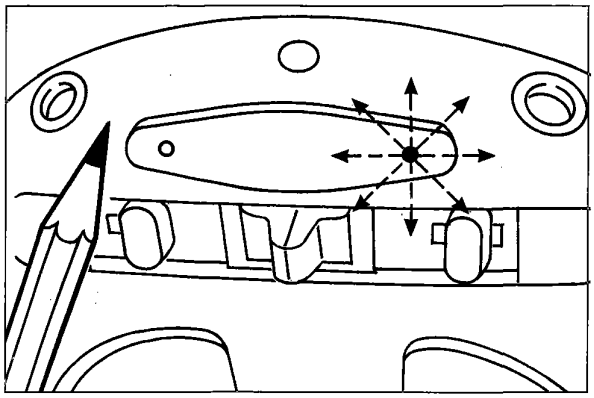


P4A24AL01

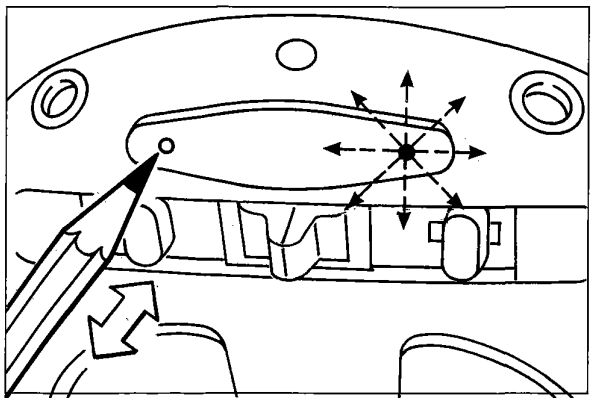
5 impulses

3. Immediately press the button for the receiver as many times as indicated by the first digit of the password (for example: 5 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.



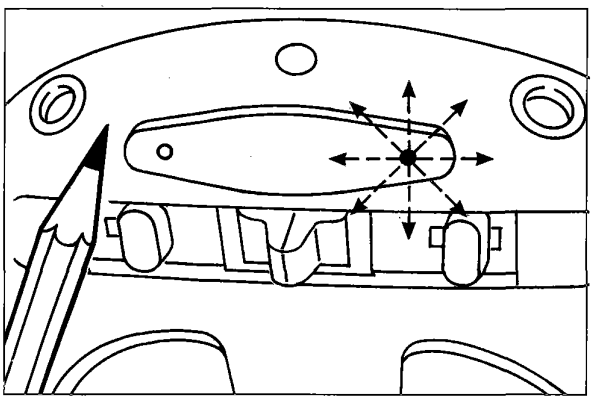
P4A23AL02

4. About 2 seconds after the last impulse (the fifth in the example) the LED will emit another flash to request the input of the next figure (the 2).



2 impulses

5. Immediately press the button for the receiver as many times as indicated by the second digit of the password (for example: 2 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.



6. About 2 seconds after the last impulse (the second in the example) the LED will emit another flash to request the input of the next figure (the zero).

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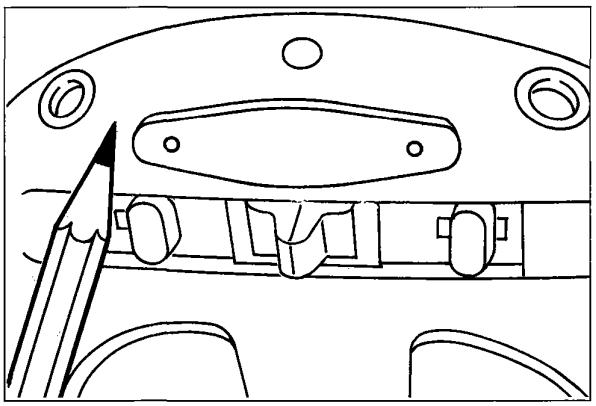
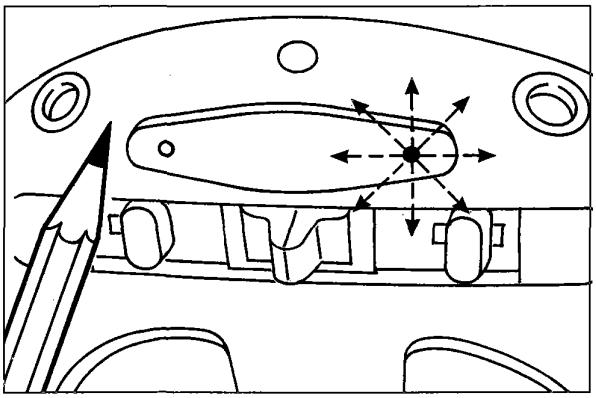


P4A25AL01

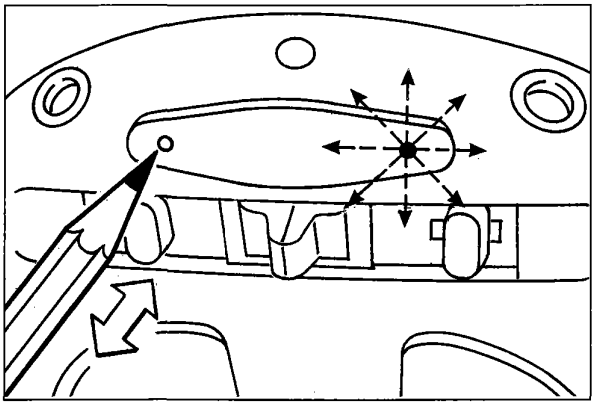
0 impulses

7. When a "zero" appears in the password, the button in the receiver should not be pressed, but you should wait for a new request to enter the figure indicated by the flashing.



P4A23AL02

8. After about 2 seconds the LED will emit another flash to request the input of the last figure (the 3).



P4A24AL01

3 impulses

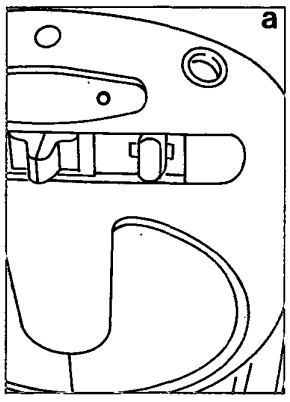
9. Immediately press the button for the receiver as many times as indicated by the last digit of the password (for example: 3 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.

After having entered the four figures of the password, the LED in the receiver may behave in the following way:

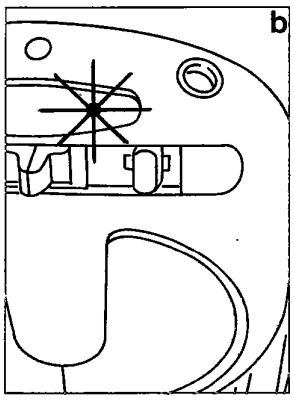
a) come on flashing (for 10 secs); this indicates that the Password has been entered correctly and belongs to one of the codes for the remote controls programmed;

b) come on constantly for several seconds (10 secs) to indicate that the password has not been correctly entered or that it does not correspond to any of the codes for the remote controls programmed. If this is the case, after the LED goes out, the correct password should be reintroduced starting from point 1;

- when the password has been correctly entered, the memory will be "closed".



P4A25AL02



P4A25AL03

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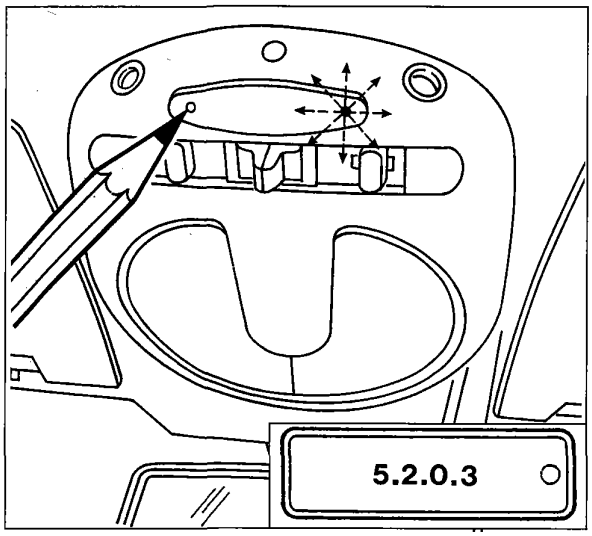
55.

CHECKING THAT THE MEMORY IS CLOSED

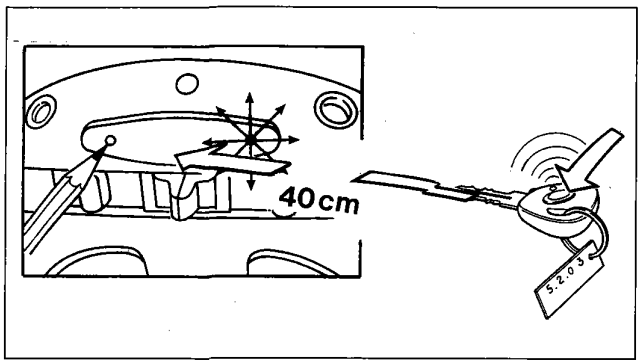
If a remote control is programmed with the memory closed, as illustrated below, at the end of the operations the LED will remain off indicating that the operation has not been accepted.



P4A19AL07 P4A23AL03

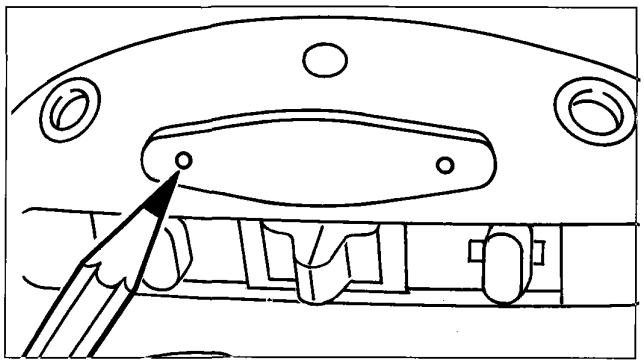
For example

1. Press the programming button in the receiver. The LED for the receiver will start to flash indicating "waiting to receive a code".



P4A20AL04

2. The operator, still keeping the receiver button pressed, should press and release the button for one of the remote controls which come with the vehicle (keeping it about 40 cm away).



P4A26AL01

3. After having transmitted the new code the LED in the courtesy light will stop flashing indicating the failure of the operation. If this is the case, in order to enter the code for a new remote control it is necessary to use the code programming with manual access.

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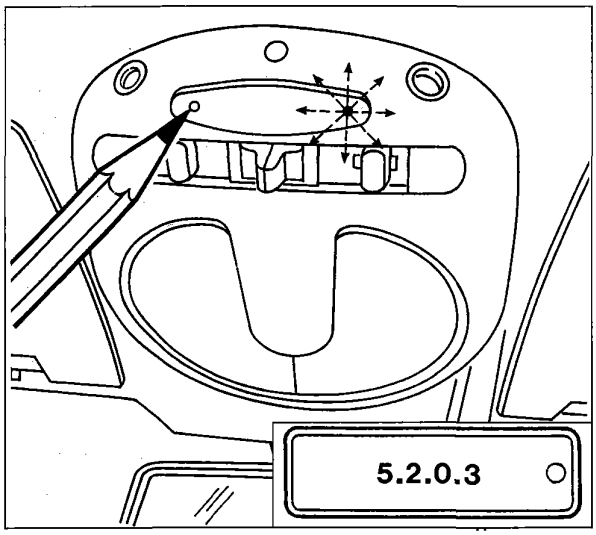
PROGRAMMING CODES WITH MANUAL ACCESS

From the moment the memory is "closed", the introduction of further remote control codes takes place by "manually opening the memory". This opening should be carried out following the instructions given in points 1 to 12 working in rapid succession.

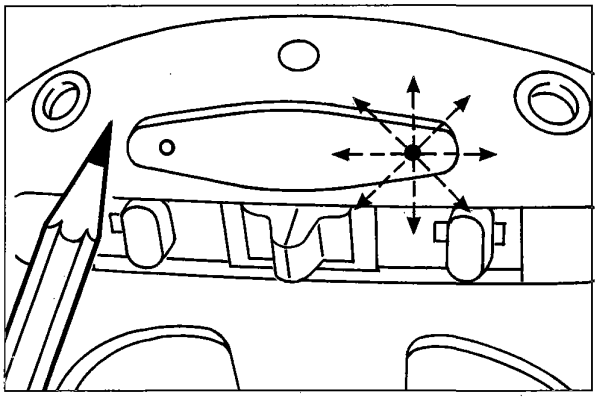


P4A19AL07 P4A23AL03

Start of manual opening of the memory (entering a known password)

- The method for entering the password is as follows:

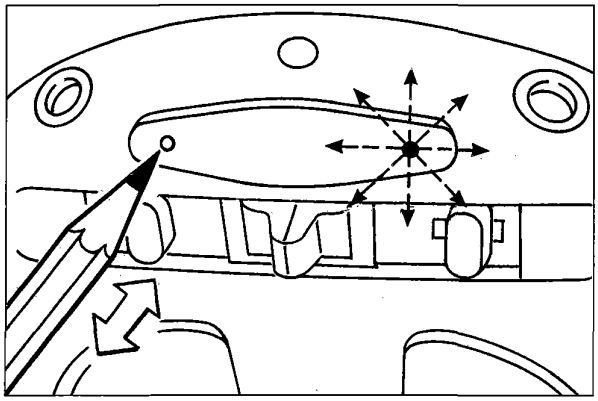
1. Press the button in the receiver for around 2 seconds: the LED should flash.



P4A23AL02

2. Release the button: after about 2 seconds the LED will flash briefly indicating that it is possible to introduce the first figure of the password.

5 impulses



P4A24AL01

3. Immediately press the button for the receiver as many times as indicated by the first digit of the password (for example: 5 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.

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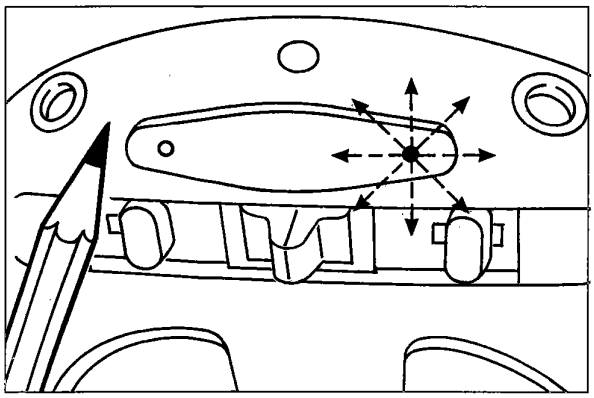
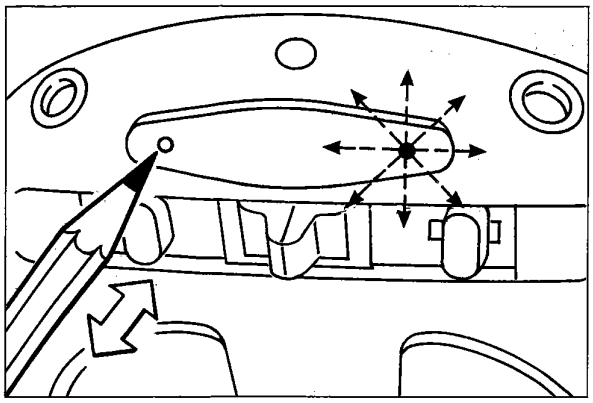


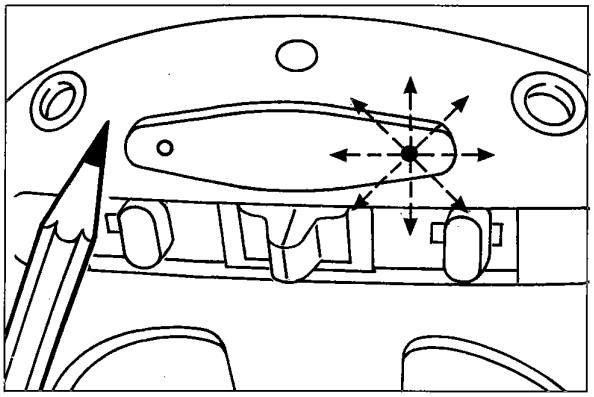
4. About 2 seconds after the last impulse (the fifth in the example) the LED will emit another flash to request the input of the next figure (the 2).

2 impulses



P4A24AL01

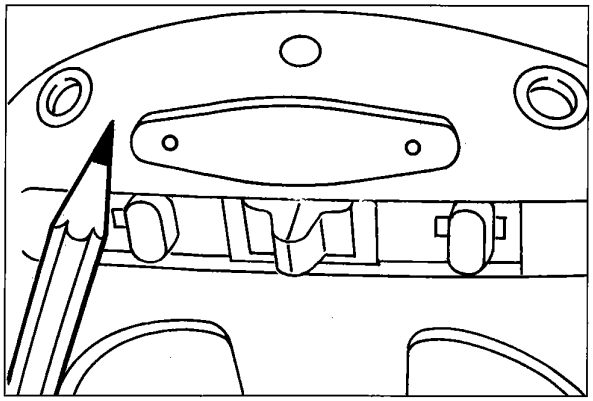
5. Immediately press the button for the receiver as many times as indicated by the second digit of the password (for example: 2 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.



P4A23AL02

6. About 2 seconds after the last impulse (the second in the example) the LED will emit another flash to request the input of the next figure (the zero).

0 impulses



P4A25AL01

7. *When a "zero" appears in the password" the button in the receiver should not be pressed, but you should wait for a new request to enter the figure indicated by the subsequent flashing.*

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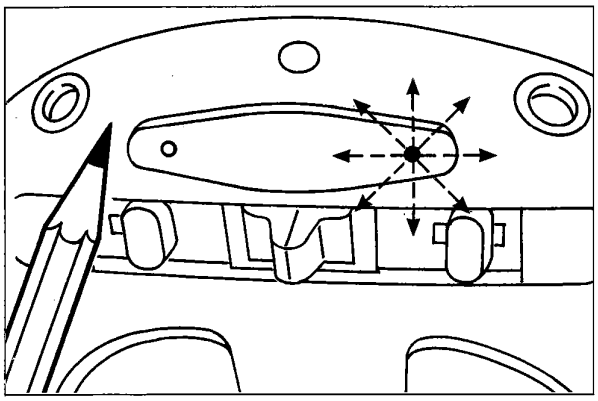
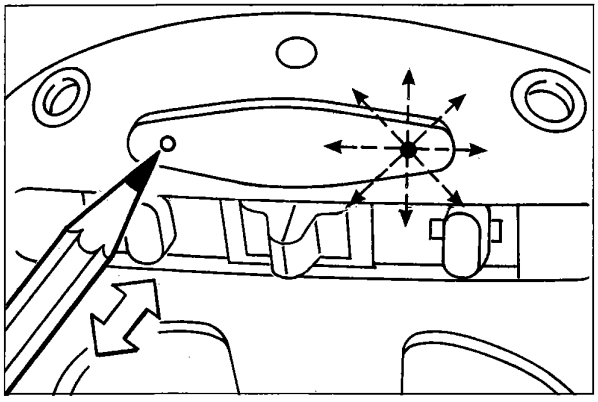


P4A23AL02

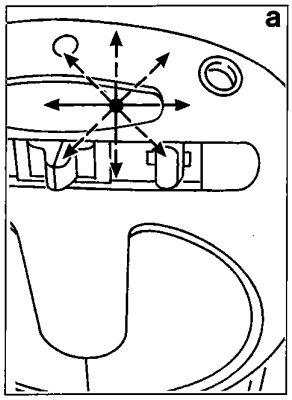
8. After about 2 seconds the LED will emit another flash to request the input of the last figure (the 3).



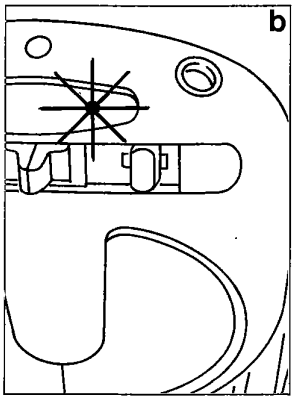
P4A24AL01

3 impulses

9. Immediately press the button for the receiver as many times as indicated by the last digit of the password (for example: 3 times);
it should be noted that for each impulse the LED will come on briefly to give a visual confirmation.



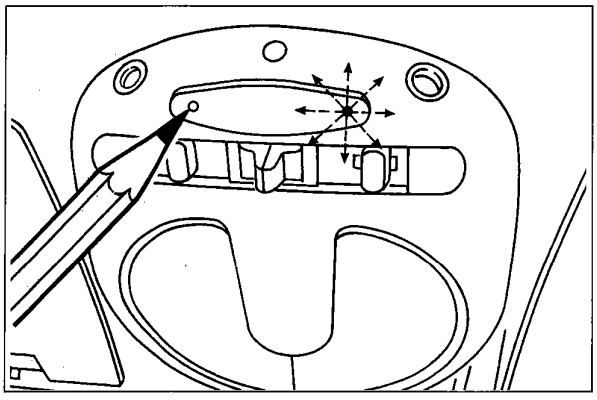
P4A29AL01



P4A25AL03

After having entered the four figures of the password, the LED in the receiver should behave in the following way:

a) it should start to flash for 10 secs if the password has been correctly entered (opening of the memory);
b) it should come on constantly for 10 seconds to indicate that the password has not been correctly entered or that it does not correspond to any of the codes for the remote controls programmed. If this is the case, after the LED goes out, the correct password should be reintroduced starting from point 1.



P4A19AL07

10. Whilst the LED is flashing, press the button in the courtesy light and keep it pressed; the LED should continue to flash.

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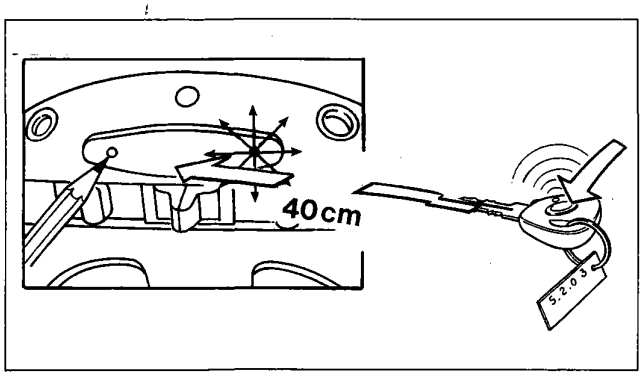
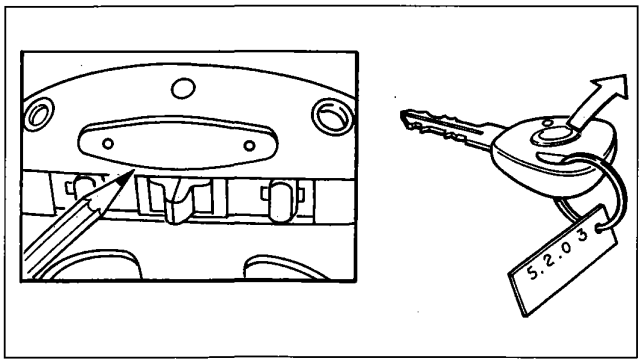
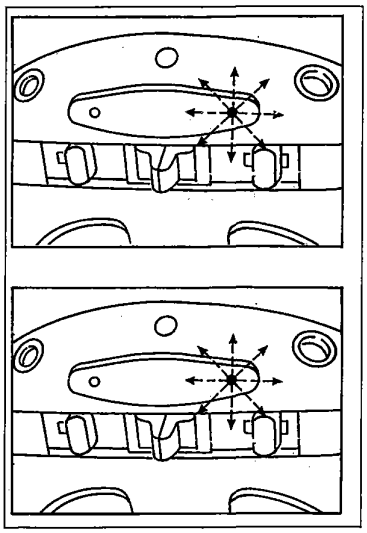


P4A20AL04



P4A20AL05



P4A21AL01

11. Still keeping the receiver button pressed, the operator should hold the new remote control about 40 cm away; then they should press and release the remote control button.
The LED in the courtesy light should come on constantly signalling that the code has been programmed.

12. Release the button: the LED in the courtesy light should GO OFF.

x 6 = OK

x 18 = NOT OK

At the end of the procedure if the LED:
- FLASHES 6 times then the code has been correctly programmed;
- FLASHES 18 times, then this means that the serial line between the receiver and the alarm is broken.

After having entered the new remote control code the memory becomes closed again automatically. In order to enter a new remote control repeat the procedure from point 1.

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ELECTRONIC AUTO-SWITCHING ON FUNCTION (Belgian and United Kingdom markets only)

Vehicles with electronic alarms for the Belgian and United Kingdom markets are equipped with a **"passive"**auto-switching on function. This function ensures that the alarm is automatically switched on shortly (28 seconds) after the vehicle is left by the user.

The surveillance in the **"passive"** operating mode is exactly the same as for the normal one, it can be activated via the remote control, but the doors are not locked.

The automatic switching on takes place 28 seconds after the following conditions are established:

- ignition key turned from ON to OFF;
- opening and subsequent closing of the last door.

The opening of the driver's door or the bonnet lid, before the delay period (28 seconds) has elapsed, stops the counting. The counting starts again from zero when the door/lid is closed.

In order to regain possession of the vehicle after the auto-switching on, the user should press the button in the trnasmitter remote control once.

NOTES AND SPECIAL FEATURES

The alarm system is capable of signalling any irregularities in the system to the User by the LED coming on constantly or flashing. The transmitter signals that the battery is discharged by its own LED flashing once quickly when the remote control button is pressed.

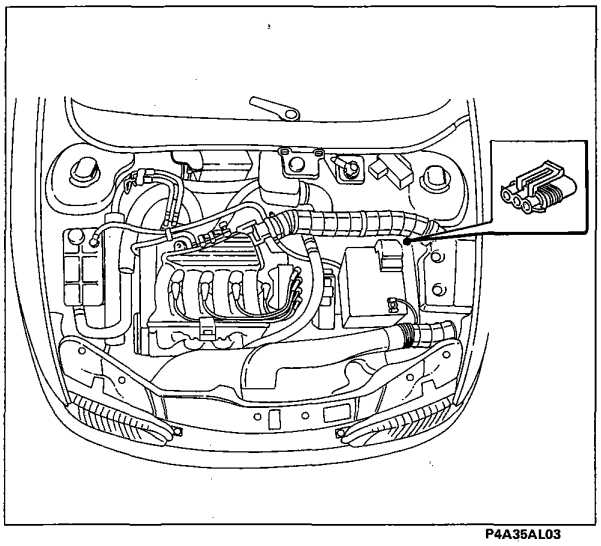
1. When switching on:
   - LED on constantly to indicate faults in the volumetric sensor circuits;
   - LED on intermittently slowly for faults with the door and lid buttons;

2. When switching off:
   - impulse cycles (number of impulses from 1 to 10) toindicate the cause of the alarm (see decoding in table 2 on page 150).

If the LED signals irregularities, the User should seek assistance from the Fiat Service Network.

The LED coming on constantly indicates that the remote control batteries are discharged.
The signal lasts around 2 minutes.

It should be borne in mind that each individual component (in the alarm system) fitted on the vehicle becomes an integral part of it, therefore it should not be fitted or tested on other vehicles, even if they are the same model.



Location of alarm system diagnostic socket

FAULT DIAGNOSIS

Fault diagnosis with the Fiat-Lancia Tester

The system is equipped with a special diagnostic socket for connection with the Fiat-Lancia-Tester.

Before connecting the Fiat-Lancia-Tester make sure that the emergency switch key is in the ON position.

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Autodiagnosis
When switched on the system carries out an autodiagnosis which can be recognized by the LED flashing at 4 Hz and if there is a problem or fault in the system, the LED will signal it in accordance with the methods described in table 1.

Table 1. Autodiagnosis display

BLINK CODES	MEANING
8 Hz, duration 2.5 secs	Door/bonnet/boot left open or switch faulty
Light constant, duration 2.5 secs	Volumetric sensors faulty

If a fault is detected for the volumetric sensors, then the appropriate sensor is excluded from the surveillance and an audible warning signal (beep) is emitted a second after switching on.

When it is switched off, the system indicates, via the flashing of the LED, which sensor has set off the alarm during the surveillance (see table 2).

Table 2. Signalling cause of alarm

N° of IMPULSES	MEANING
1 impulse	Right front door
2 impulses	Left front door
3 impulses	Right rear door
4 impulses	Left rear door
5 impulses	Additional sensors - volumetric sensors
6 impulses	Bonnet
7 impulses	Boot
8 impulses	+15
9 impulses	+30
10 impulses	At least 3 causes of alarm
Light constant	Transmitter battery discharged

The blink codes are given in order.
These codes have an interval of 1.5 seconds between them.

Manual diagnosis

It is also possible to carry out a MANUAL DIAGNOSIS by opening the lid and turning the ignition key from the ON position to the OFF position; the lid protective button must be pressed within 15 seconds 7 times in rapid succession in less than 10 seconds; 5 beeps will signal the start of the manual diagnosis procedure. After 10 seconds the LED or the direction indicators will flash once.
By entering into this mode the autodiagnostic procedure for the volumetric sensors connected to the control unit will automatically be activated.
If the test does not indicate irregularities, then the direction indicators will flash 3 times and there will be 3 beeps of the alarm.
After this first stage, each time the state of the switches is altered there will be a corresponding quick flash of the direction indicators and a beep, accompanied by the LED in the centre console flashing.
If the key is turned to the ON position, the alarm will sound briefly (500 msecs) and the direction indicators will flash (2.5 secs).
This last operation indicates the exit from manual diagnosis procedure. It is also possible to leave the MANUAL DIAGNOSIS by not carrying out any actions for 30 seconds: the exit is signalled by the direction indicators coming on for around 2.5 secs and a beep.

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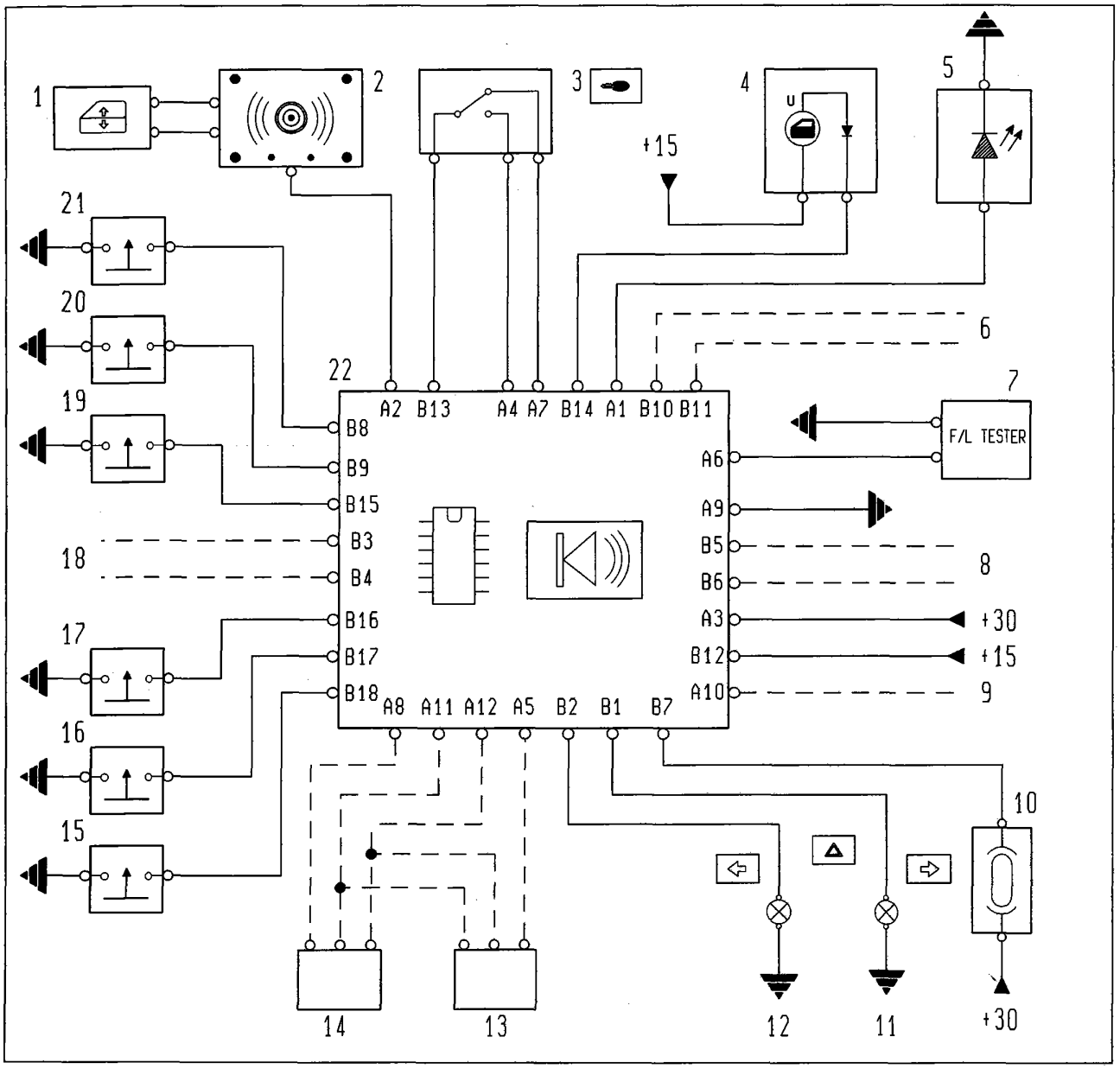
MAIN WIRING DIAGRAM



P4A36AL01

1. Central locking control unit
2. Courtesy light with receiver, ultrasound sensors
3. Ignition switch
4. Check panel
5. Warning light (LED) signalling anti-theft device on
6. Function for twin LED (function not activated)
7. Diagnostic socket for Fiat-Lancia-Tester
8. Preparation for relay (outlet +50 starter motor supply)
9. Preparation for serial line (injection control unit)
10. Anti-theft device 15A protective fuse
11. Right direction indicators
12. Left direction indicators
13. Anti-lifting
14. Expansions
15. Switch signalling bonnet lid open
16. Switch signalling boot lid open
17. Switch signalling right rear door
18. Preparation for relay (inhibiting diesel pump electrostop, heater plugs/+15 injection wiring, fuel pump)
19. Switch signalling left rear door
20. Switch signalling right front door
21. Switch signalling left front door
22. V.A.S. anti-theft device control unit

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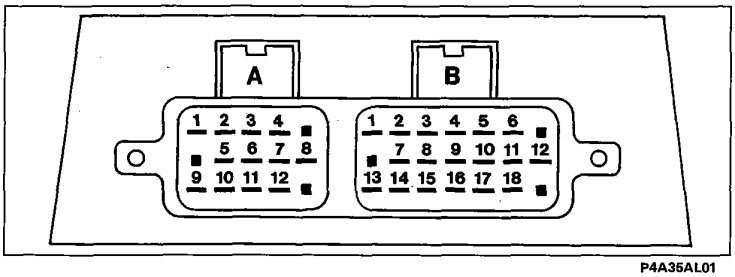
INPUT AND OUTPUT SIGNALS FROM THE ANTI-THEFT DEVICE CONTROL UNIT

PIN	I/O	I Max (A)	FUNCTION
B1	OUT	6	Relay n.a. contact: right direction indicators operation
B2	OUT	6	Relay n.a. contact: left direction indicators operation
B3	OUT	8	Preparation for relay n.c. contat: inhibition of diesel pump electrostop + heater plugs / +15 injection wiring / petrol pump
B4	IN	8	Preparation for relay n.c. contact: +15 for B3
B5	OUT	8	Preparation for relay n.c. contact: outlet +50 starter motor supply
B6	IN	8	Preparation for relay n.c. contact: +50 for B5 and B10
B7	IN	12	Direction indicators relay common contact: +30 direction indicators supply
B8	IN	*	Left front door open (=closed) switch
B9	IN	*	Right front door open (=closed) switch
B10	OUT	0,04	Preparation for two coloured LED operation
B11	IN	0,04	Preparation required for operating two coloured LED by Fiat CODE
B12	IN	2	Positive controlled by the ignition (+15)
B13	IN	*	Remote key: common
B14	OUT	0,3	Operation of check: signalling door/s open
B15	IN	*	Switch signalling left rear door open (=closed)
B16	IN	*	Switch signalling right rear door open (=closed)
B17	IN	*	Switch signalling boot lid open (=closed)
B18	IN	*	Switch signalling bonnet lid open (=closed)
A1	OUT	0,04	Operation of (two coloured) LED flashing
A2	I/O	*	VAS serial line from courtesy light
A3	IN	*	Direct positive supply (+30)
A4	IN	*	Remote key: internal supply
A5	OUT	0,03	Anti-lifting modules positive supply
A6	I/O	*	Line K-Fiat tester
A7	OUT	*	Remote key: external supply
A8	OUT	0,03	Volumetric modules supply positive
A9	IN	2	VAS control unit earth
A10	I/O	*	Preparation for serial line (supply control unit)
A11	OUT	0,06	External modules earth
A12	IN	*	Alarm signal from external modules (low = alarm)

* Signal current > 0,3 mA, < 10mA.



Alarm control unit input and output signals

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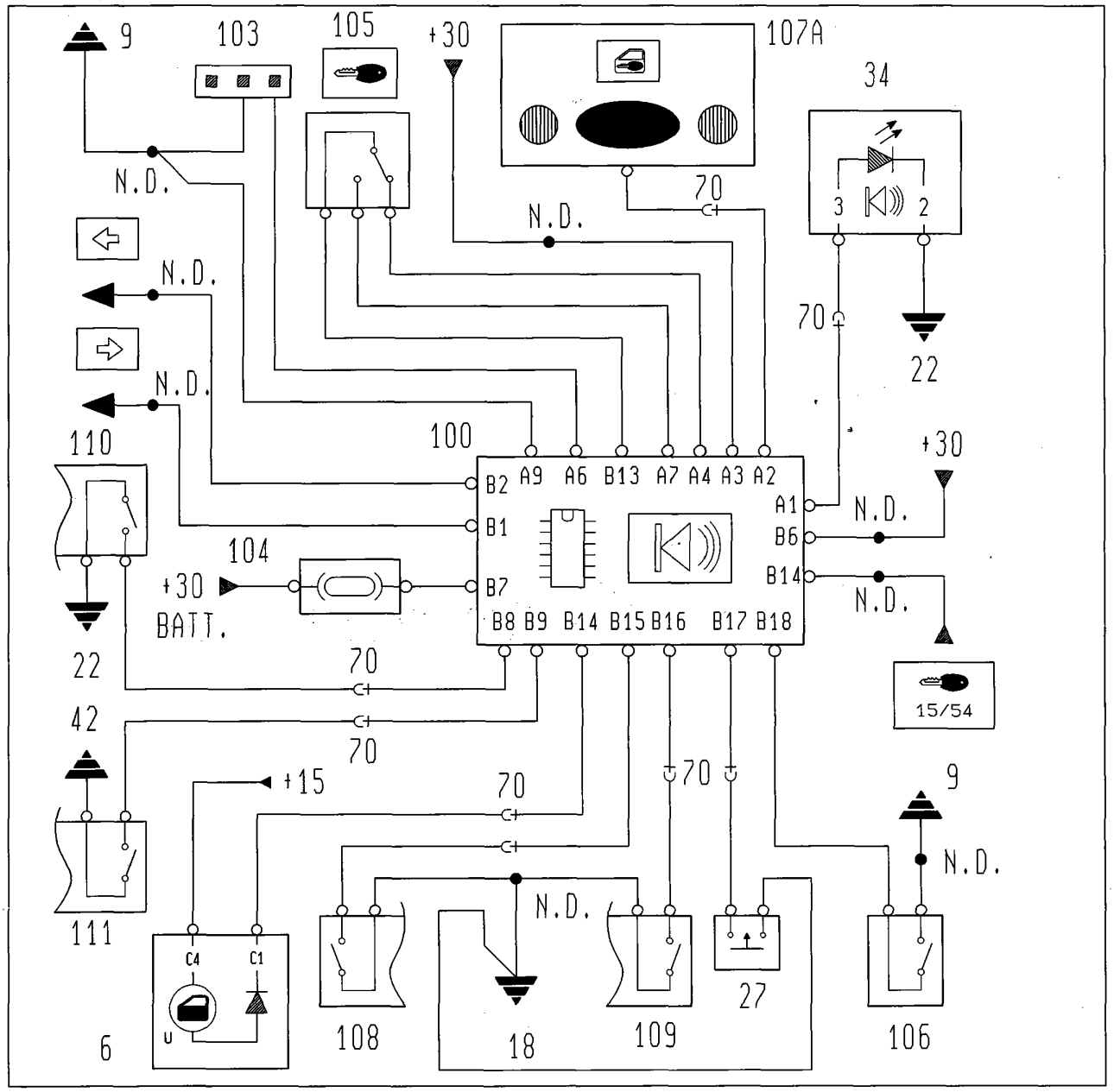
WIRING DIAGRAM



P4A37AL01

6. Instrument panel
9. Right front earth
18. Left rear earth
22. Left dashboard earth
27. Contact board for rear connections with luggage compartment light switch incorporated
34. Switch unit: alarm warning light on
42. Right dashboard earth
70. Connection for dashboard cables/front
100. Alarm electronic control unit
103. Diagnostic socket for alarm
104. Alarm 15A protective fuse
105. Alarm off switch
106. Alarm on switch
107A. Central locking remote control receiver
108. Left rear central locking/alarm on switch
109. Right rear central locking/alarm on switch
110. Left front central locking/alarm on switch
111. Right front central locking/alarm on switch

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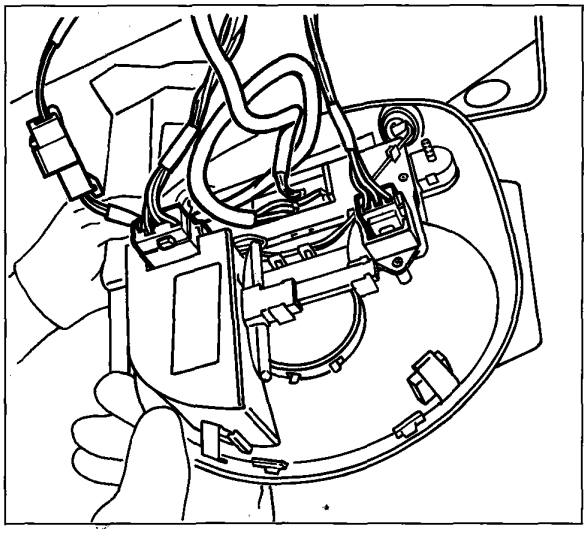
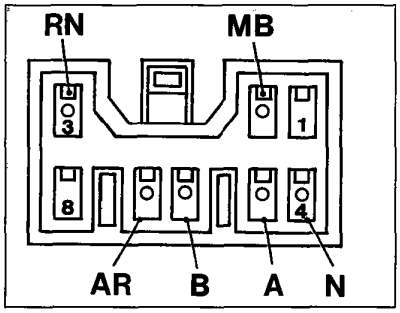


P4A031L05

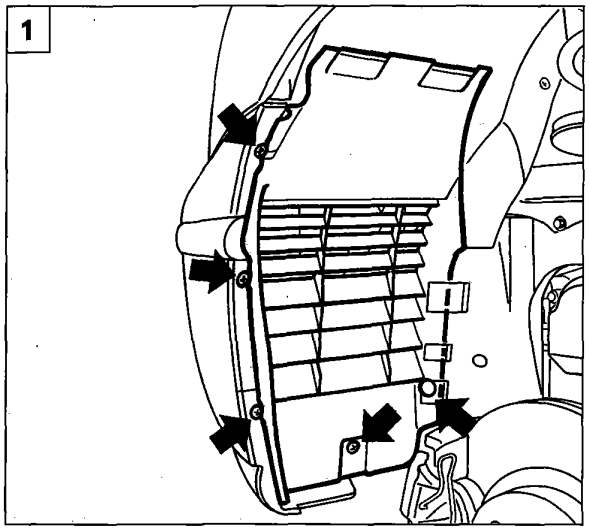


P4A35AL02

RECEIVER CONNECTOR

The receiver is a module housed in the roof of the vehicle behind the courtesy light, which-has an 8 way connector with the following connections:

1. Not connected
2. Serial line towards the anti-theft device
3. Positive from battery (+30)
4. Earth
5. Command to central locking to unlock
6. Command to central locking to lock
7. Positive from ignition switch (+15)
8. Not connected

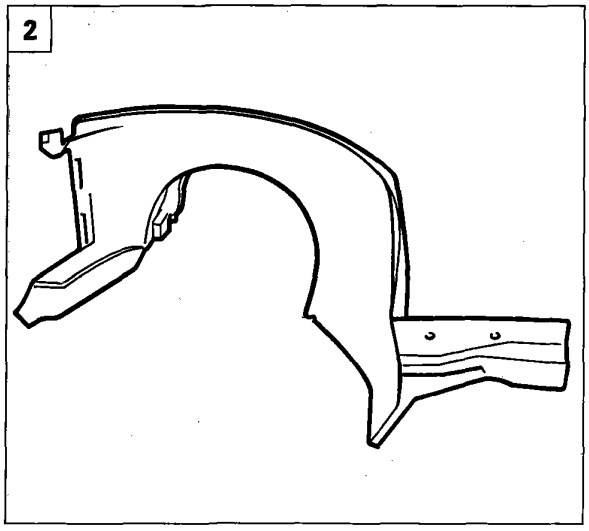


P4A154L01

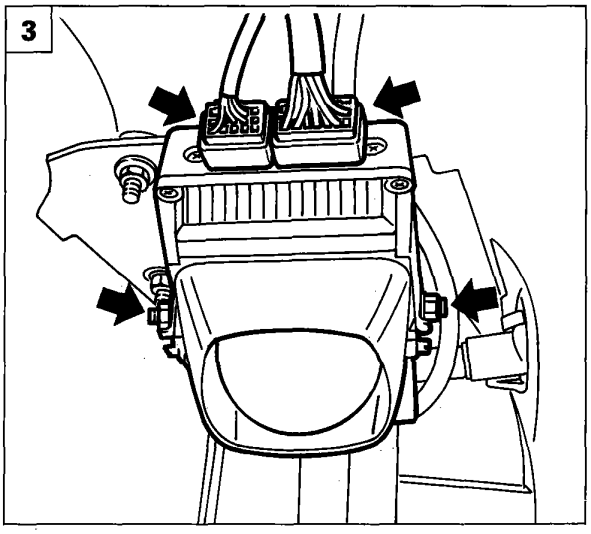
REMOVING-REFITTING ALARM CONTROL UNIT

Position the vehicle on a lift and remove the left wheel.

1. Undo the fixing bolts and remove the front section of the wheel arch liner.
2. Undo the fixing bolts and remove the remaining part of the wheel arch liner.
3. Disconnect the electrical connections, undo the nuts shown and remove the alarm control unit from the vehicle.



P4A154L02



P4A154L03

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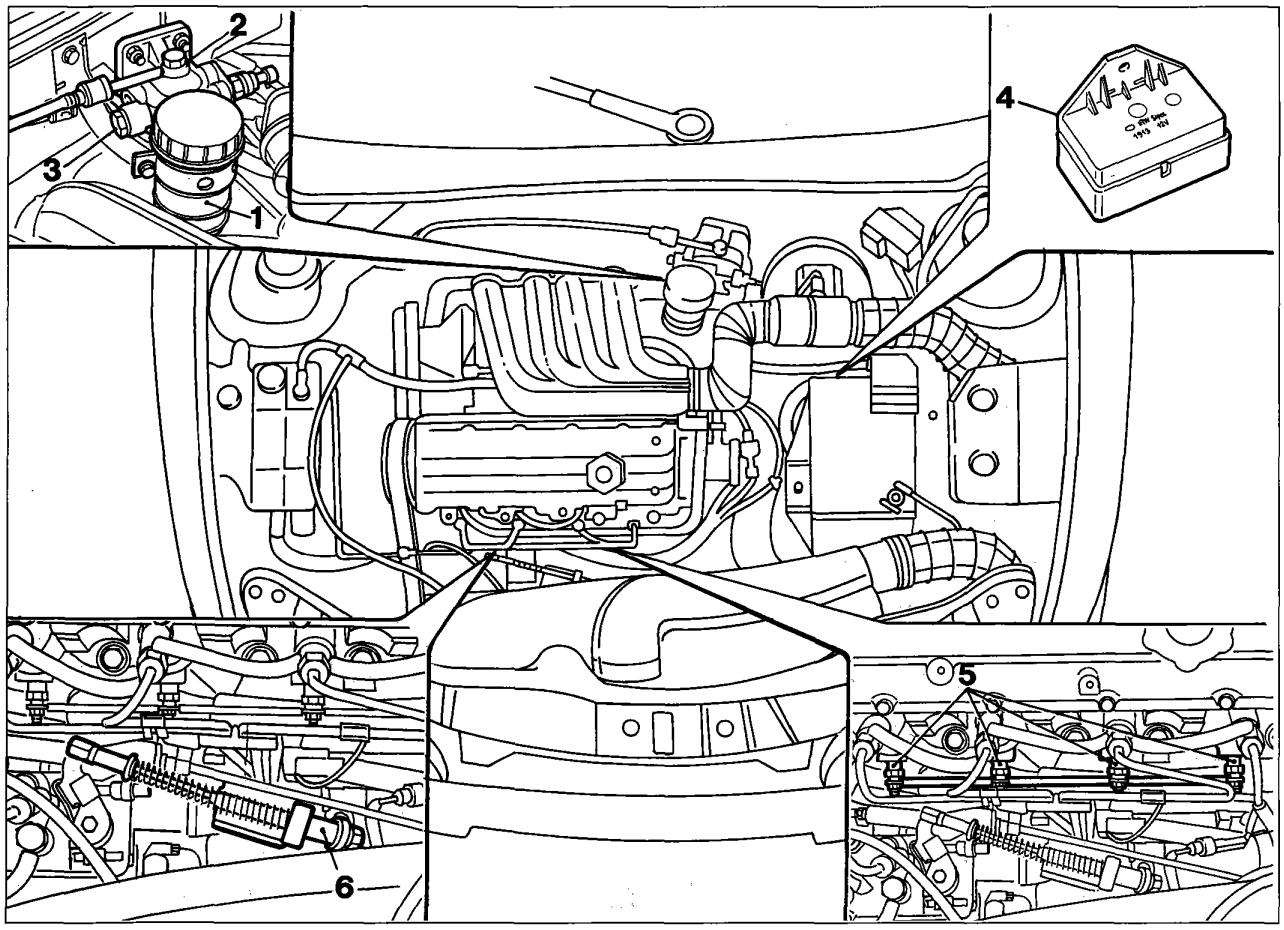
INTRODUCTION

The preheating control system brings the temperature of the prechambers up to a temperature to permit self-ignition, and it consists of the following components:
- a preheating electronic control unit located in the engine compartment;
- four rapid glow plugs;
- a wait-to-start warning light located on the instrument panel.

Location of preheating components in car



1. Fuel filter
2. Fuel outlet
3. Fuel inlet
4. Preheating control unit
5. Glow plugs
6. Manual device for injection advance when cold

PREHEATING ELECTRONIC CONTROL UNIT

The purpose of the electronic control unit in the engine compartment is to carry out the following:
- deliver current from the battery to the spark plugs for a length of time varying in accordance with the engine compartment temperature, before starting. This temperature is recorded by a negative temperature coefficient (NTC) gauge located in the electronic control unit;
- keep the wait-to-start warning light on for a period of time depending on the engine compartment temperature (from 1.5 to 4.5 seconds at a temperature of 70°C, from 20 to 27 seconds at a temperature of -20°C);
- ensure for a so-called "distraction" time (about 20 seconds) that the glow plugs remain supplied if the engine does not start, and if the engine does start, to interrupt the delivery of current at the end of the distraction time;
- if one of the glow plugs or the current cable accidentally shorts to earth, immediately stop the delivery of current.

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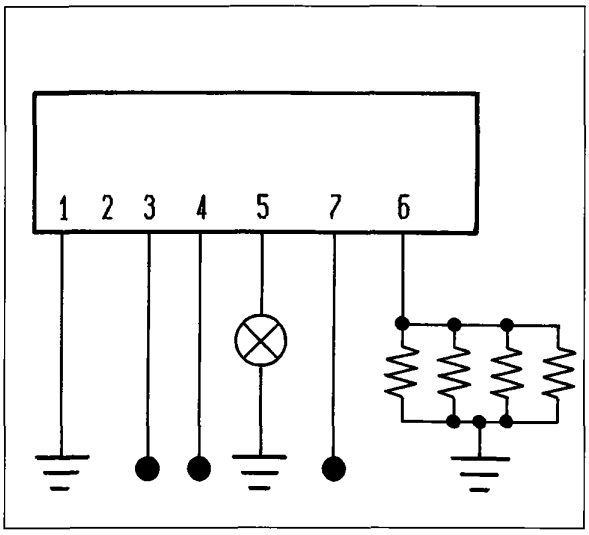
Wiring diagram



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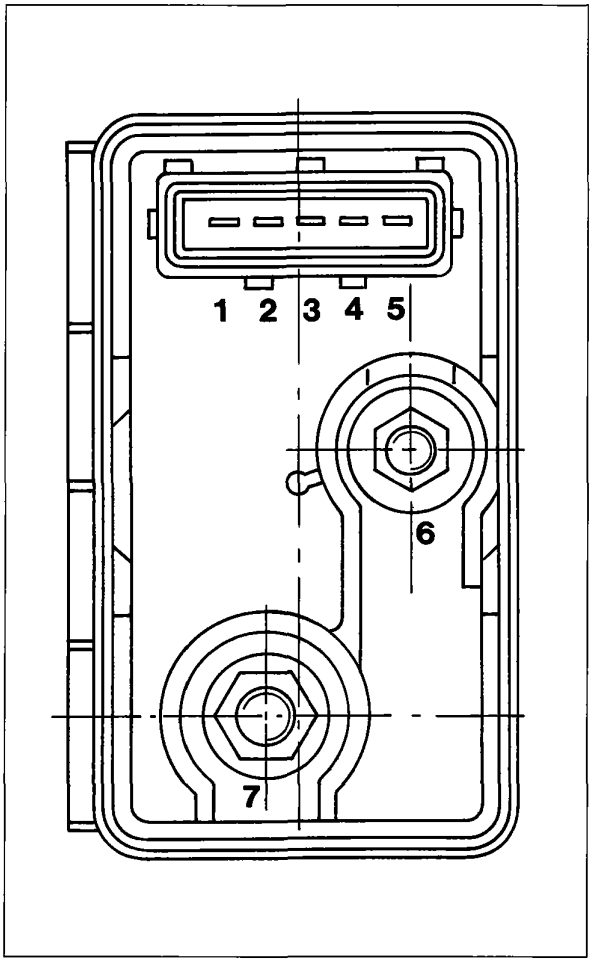
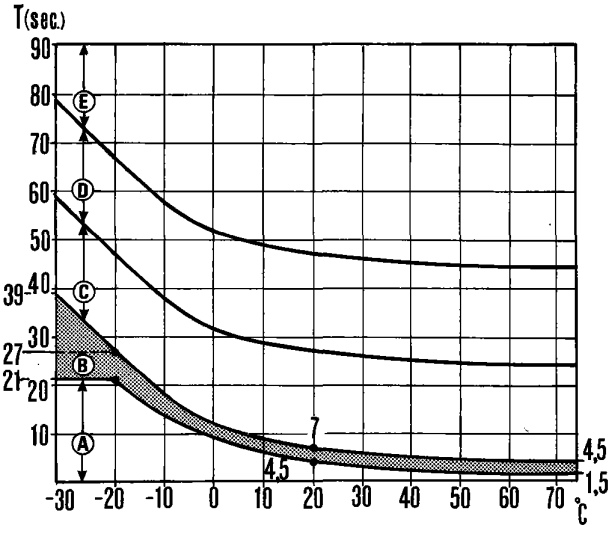


P4A156L02

Pin No.	Wire colour	Circuit involved
1	N	Car earth
2	-	Not connected
3	C	Ignition switch (+15)
4	R	Ignition switch (+50)
5	CL	Wait-to-start warning light
6	M	Glow plugs
7	R	Battery positive

Changes in preheating time of the glow plugs

A. Time period during which the warning light is on and preheating is on.
B. Tolerance range in which the warning light goes out, with preheating on.
C. Period with preheating on and warning light off. This stage is characterized by a period of 15 - 20 seconds of constant intervention, and is counted from the moment when the warning light goes out.
D. POST-HEATING period, with glow plugs on and warning light off. This stage, characterized by a period of 15 - 20 seconds of constant intervention, is counted from the end of the starting phase with the engine running.
E. Period with warning light off and post--heating off.



P4A156L03

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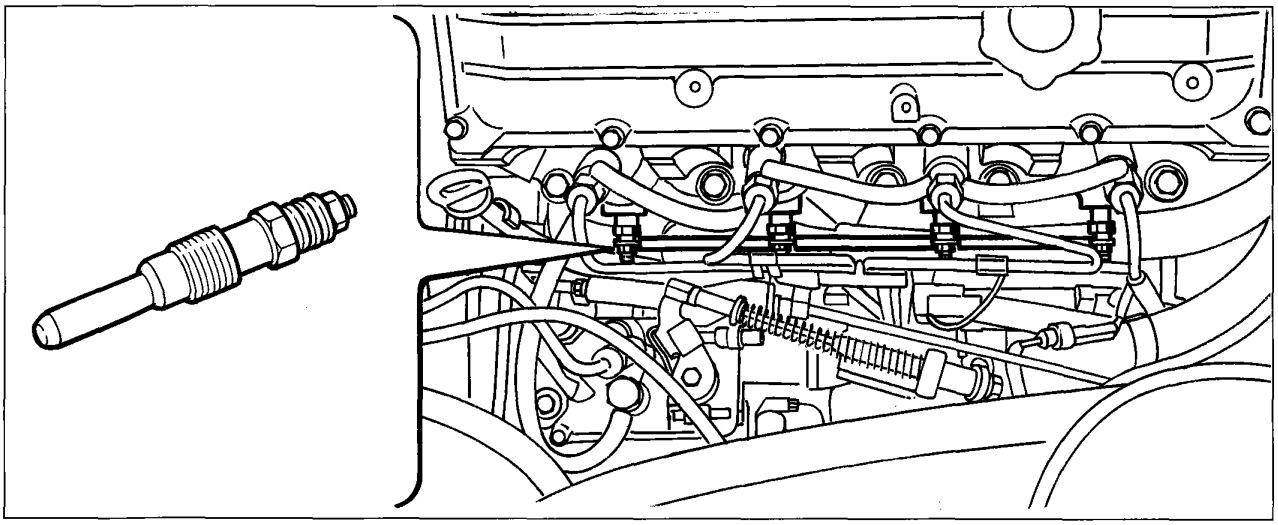
CHECKING GLOW PLUGS

If there are difficulties in starting, make sure that all the plugs are working properly. The electrical continuity of each plug should be checked using a digital ohmmeter (Ohm=0.6 at 20°C). It is advisable to carry out this check with the plugs fitted to the cylinder head, as the faulty plug may not appear to be faulty if checked when dismantled from its seating, without the deforming effect caused by the pressure of assembly. Also check that the engine stop solenoid on the fuel injection pump is not short-circuited, broken or disconnected.

NOTE *Remember that difficulties in starting may be due to an engine with excessively worn seals, a faulty starter motor or a discharged or badly connected battery.*



P4A157L01

MAIN OPERATING FAULTS IN THE PREHEATING SYSTEM

Fault	Cause	Remedy
Wait-to-start warning light does not come on	Warning light bulb blown	Replace bulb
	Connecting cable between warning light and pin 5 of the control unit broken	Clean corroded cable ends or replace cable
The engine has difficuly in starting	Faulty control unit giving insufficient preheating times	Replace control unit
The engine does not start	Electronic control unit not earthed	Check that pin 1 of the control unit is earthed
	One or several plugs faulty	Replace faulty plugs
	Circuit between ignition switch and tag terminal 3 (+15) of control unit broken	Restore the connection
	Circuit between ignition switch and engine stop solenoid on pump broken	Replace ignition switch
	Ignition switch faulty	

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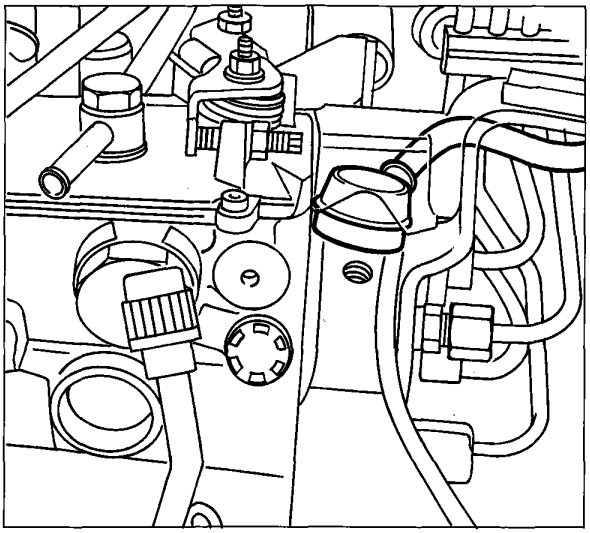


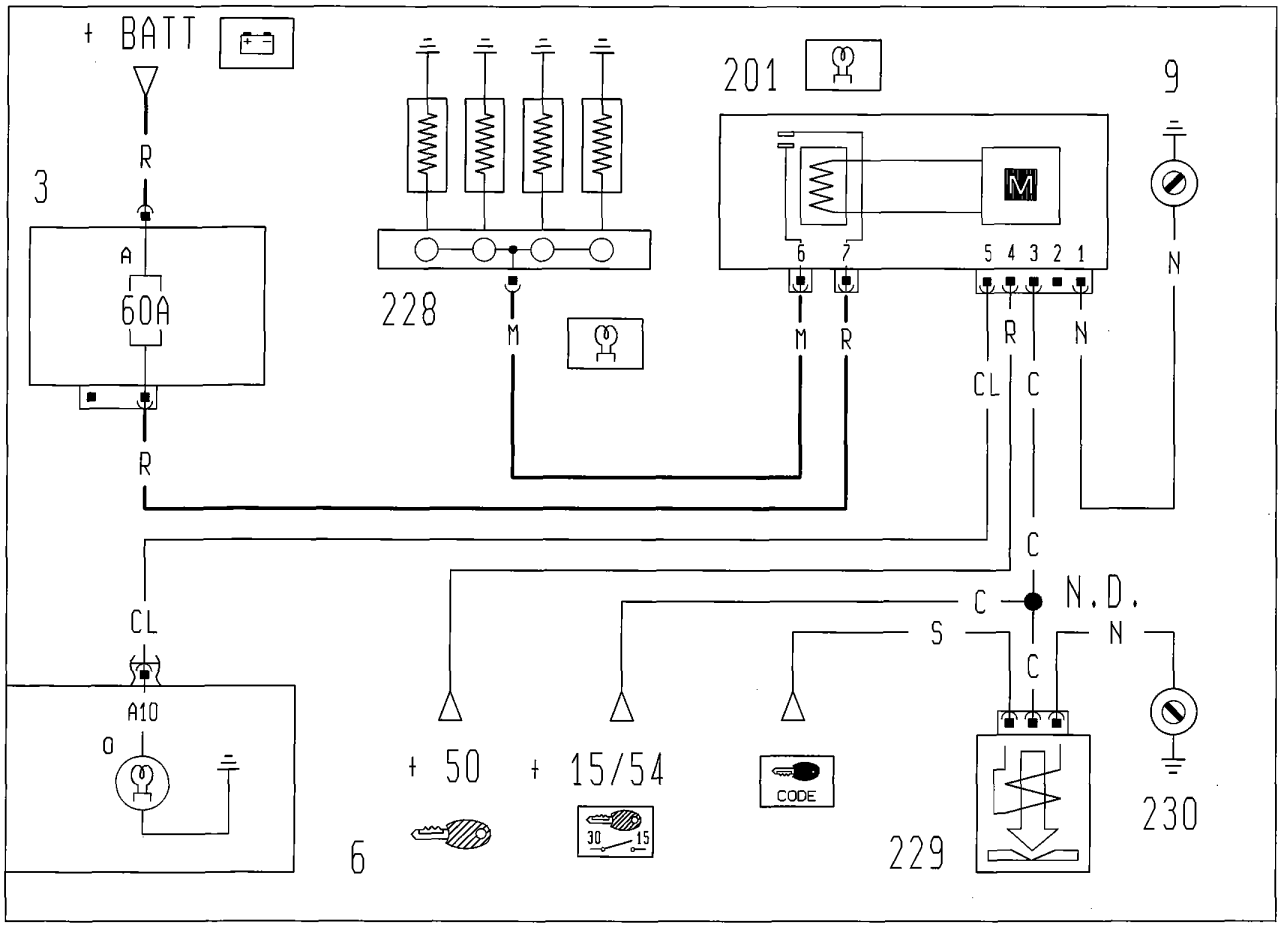
P4A158L01

ENGINE CUT-OUT SOLENOID

Checking operation of engine cut-out solenoid (on fuel injection pump)

Turn the ignition on to energize the engine cut-out solenoid on the fuel injection pump. The sound of the solenoid clicking should be perceived from the engine compartment. If not, check the operation of the solenoid and, if this is satisfactory, check whether the connecting cable between the ignition switch and engine cut-out solenoid is broken.

Wiring diagram



P4A158L02

3. Power fusebox
A. 60A fuse protecting fuel injection system
6. Instrument panel
O. Heater plugs warning light
9. Front right earth
201. Preheating control unit
228. Glow plugs
229. Engine cut-out electrostop (Fiat code)
230. Earth for Fiat code
N.D. Ultrasound-soldered joint taped in wiring loom

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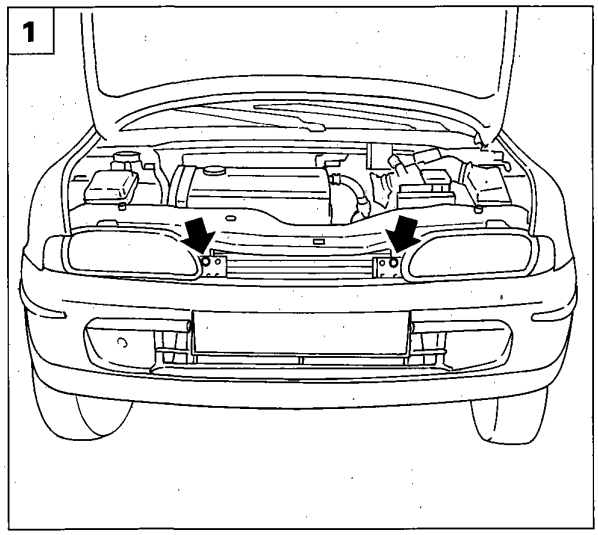

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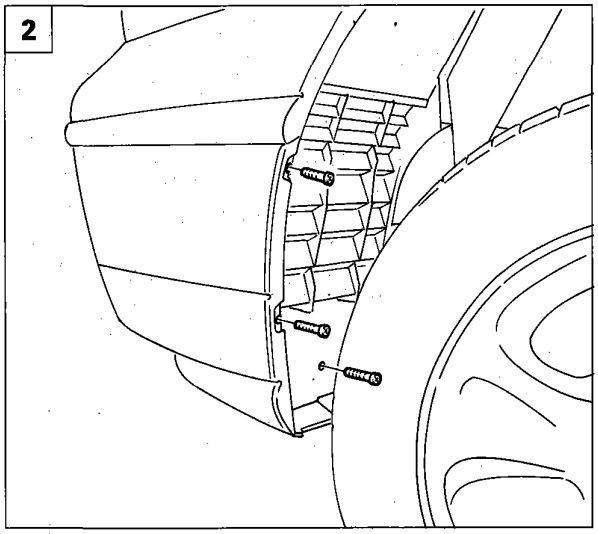

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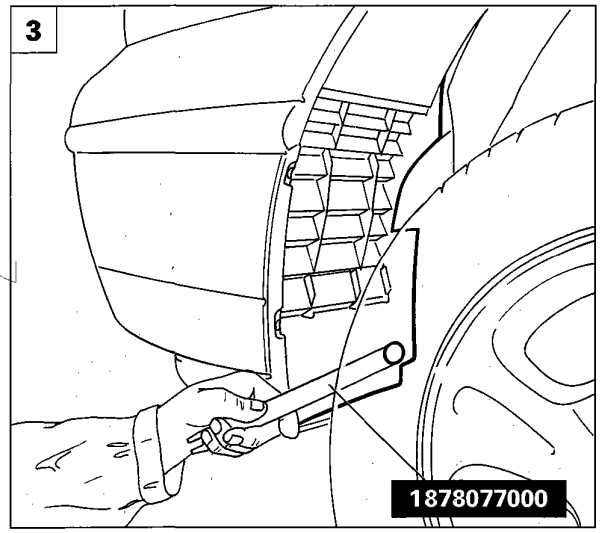


P4A001M03

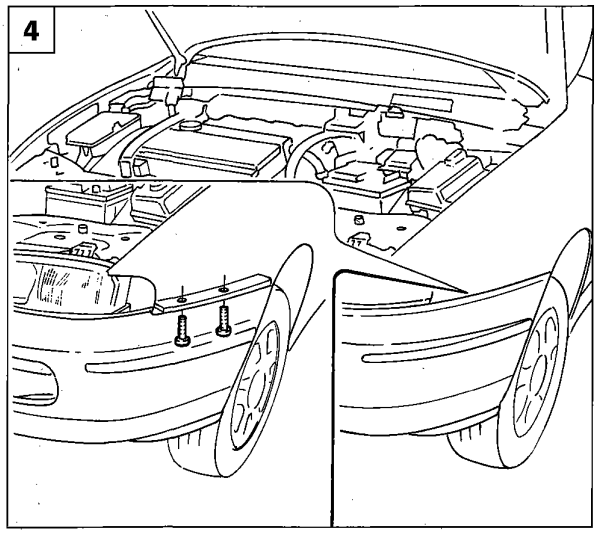
FRONT BUMPER

Removing-refitting

1. Raise the bonnet lid, then undo the upper bolts fixing the bumpers to the front cross member cover.
2. Undo the bolts fixing the front wheel arch liner.
3. Using tool 1878077000 remove the fixing button and extract the front wheel arch liner.
4. Undo the bolts fixing the bumper to the front wing.
5. Remove the front bumper from the bodyshell, undoing the lower fixing bolts shown by the arrows.

NOTE *To refit, simply reverse the order of the operations carried out for the removal.*

4



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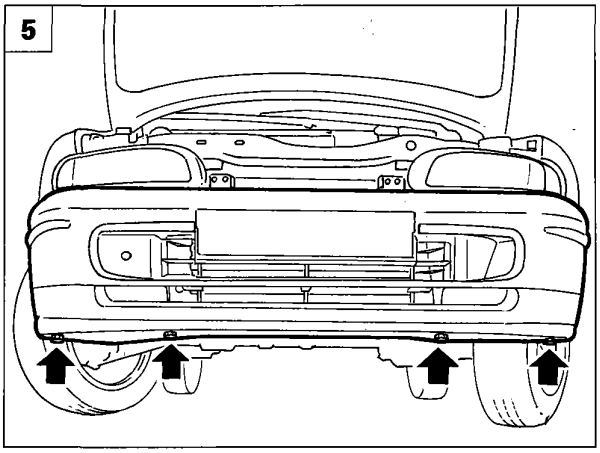

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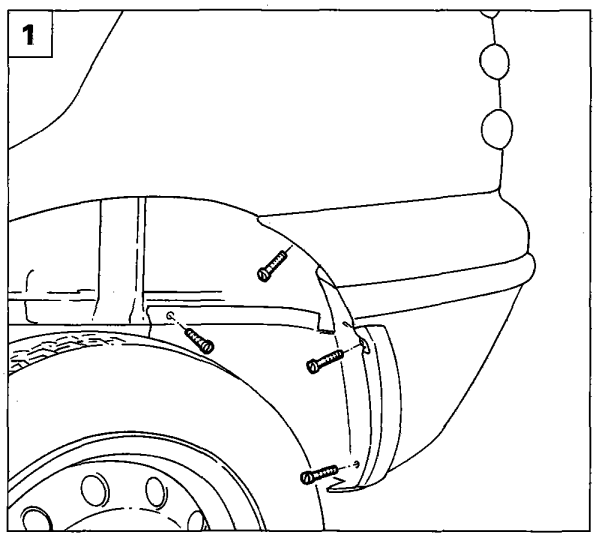

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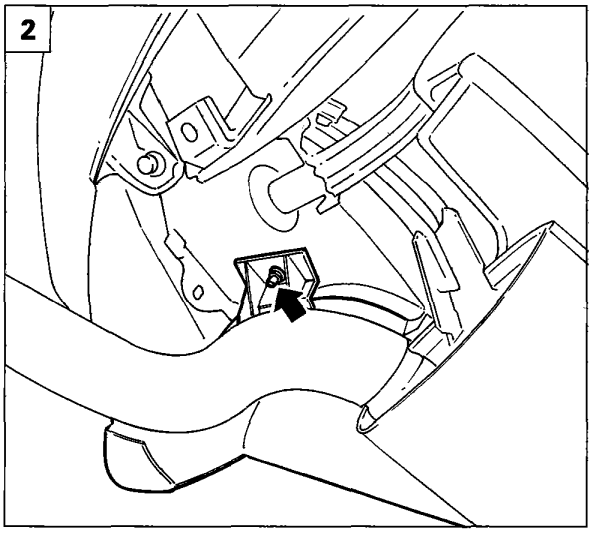

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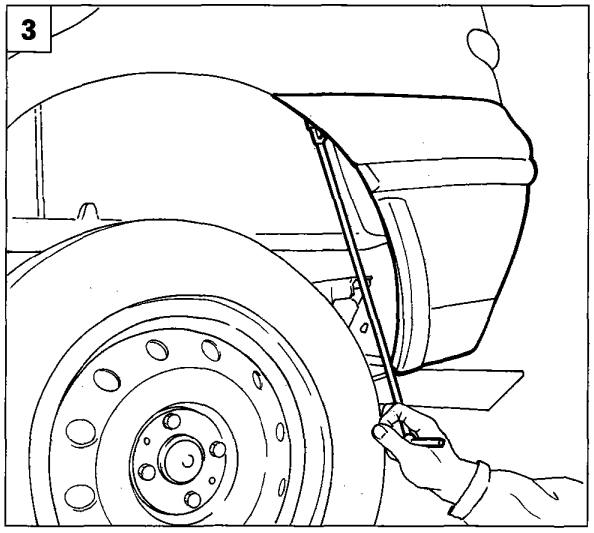


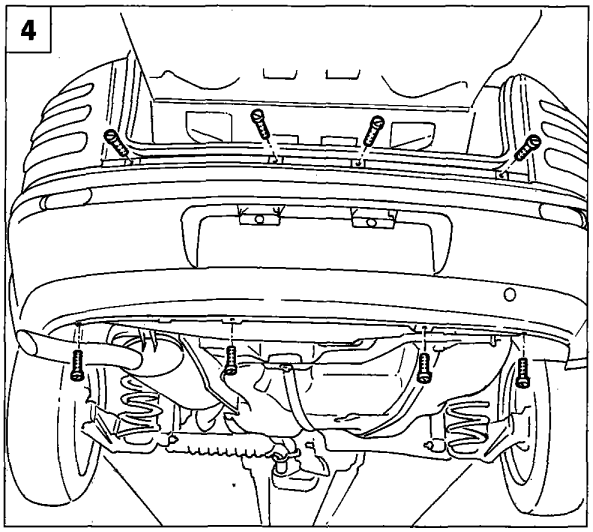
P4A002M03

REAR BUMPER

Removing-refitting

1. Undo the bolts fixing the bumpers to the wheel arch liner.
2. Remove the wheel arch liner, undoing the fixing nut shown by the arrow.
3. Undo the bolt fixing the bumpers to the rear wing.
4. Lift up the boot lid, then undo the bolts fixing the bumpers to the rear cross member cover.
5. Remove the bumpers after having disconnected the connections for the number plate lights.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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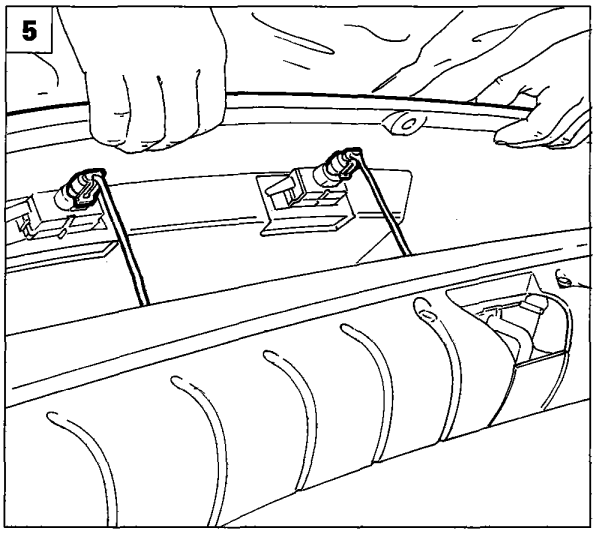

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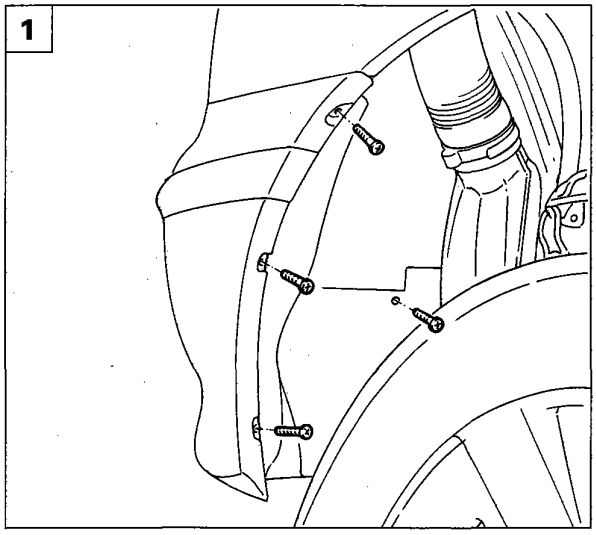

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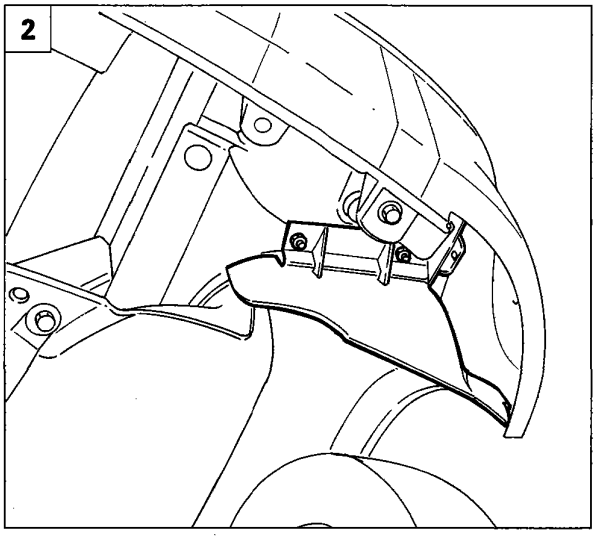

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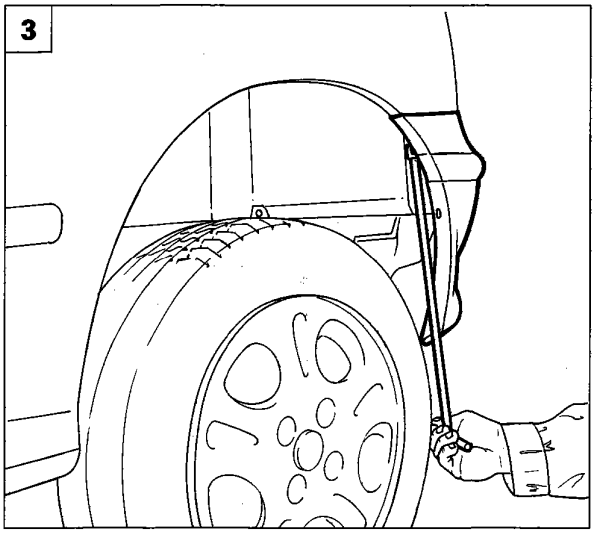


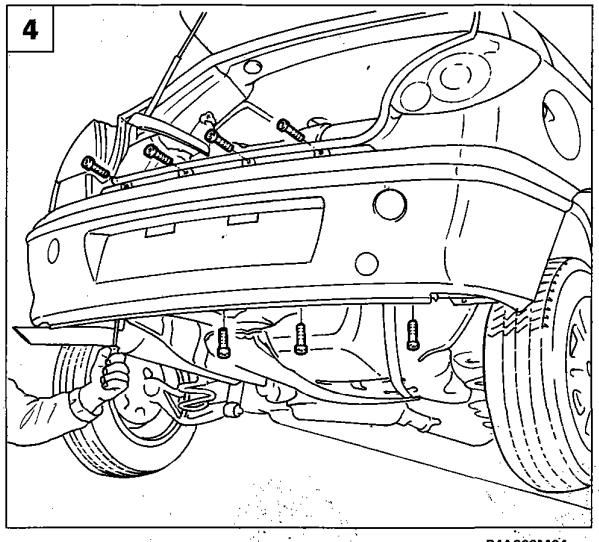
P4A003M03

REAR BUMPER

Removing-refitting

1. Undo the bolts fixing the bumper to the wheel arch liner.
2. Remove the wheel arch liner, undoing the fixing nuts.
3. Undo the bolt fixing the bumper to the rear wing.
4. Lift up the rear tailgate, then undo the bolts fixing the bumper to the rear cross member lining.
5. Remove the bumpers after having disconnected the connections for the number plate lights.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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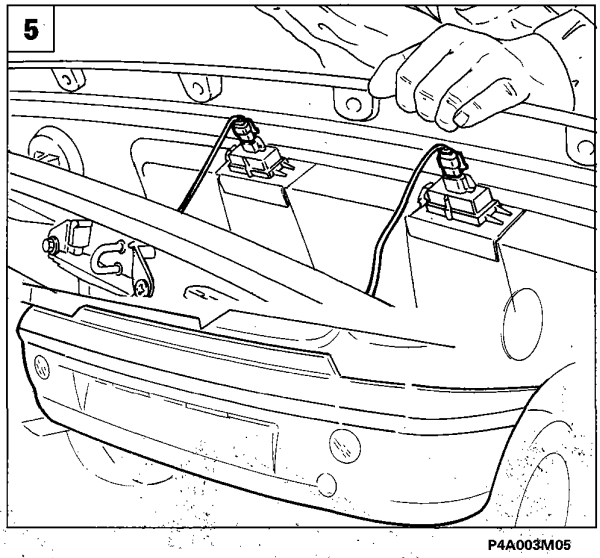

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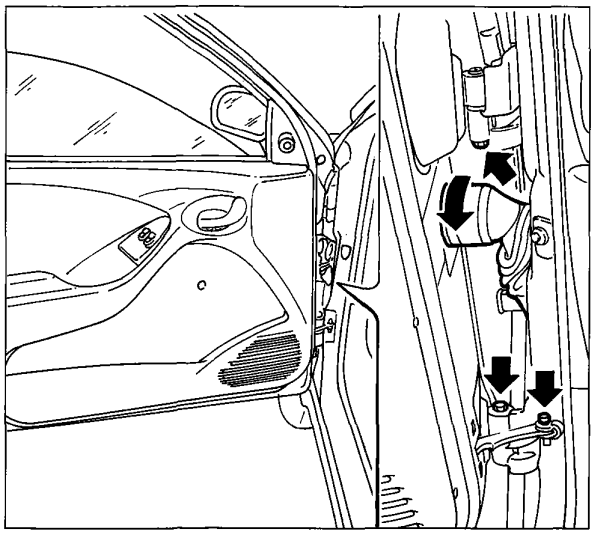
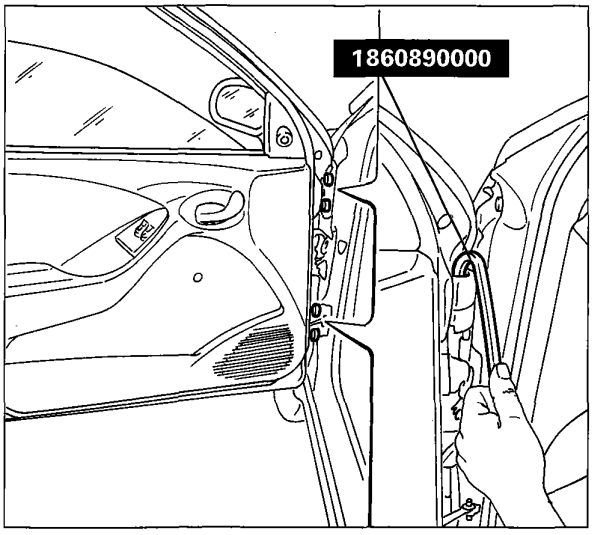


P4A004M01

REMOVING-REFITTING DOOR

- Disconnect the supply connector for the door electrical devices;
- remove the flexible pin for the door check strap, using tool 1878081000;
- remove the door after having undone the fixing bolts shown;

NOTE *To refit, simply reverse the order of the operations carried out for the removal, tightening the bolts fixing the hinges to the door to the recommended torque (1.5 daNm).*



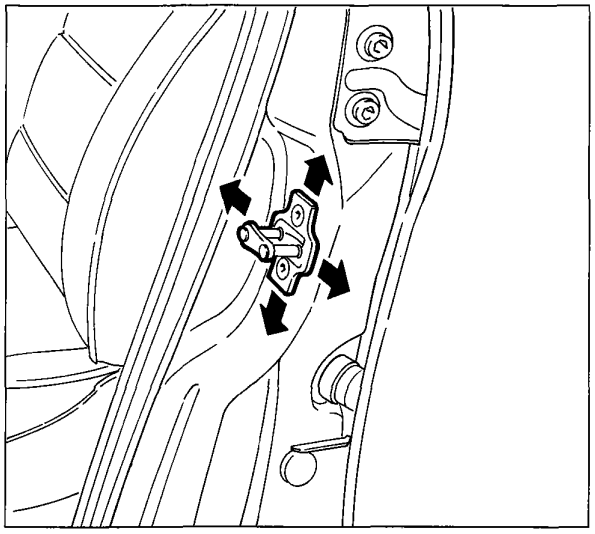
P4A004M02

ADJUSTMENTS

Adjusting front door

- Loosen the nuts fixing the hinge to the door, using tool 1860890000.
- adjust the position of the door;
- when the adjustment has been carried out, tighten the nuts fixing the hinge to the door to the recommended torque (4.5 daNm).

NOTE *The arrows indicate the possible movements for the adjustment.*



P4A004M03

Adjusting position of door lock striker

- Loosen the bolts fixing the striker and adjust its position;
- when the adjustment has been carried out, fully tighten the striker fixing bolts.

NOTE *The arrows indicate the possible movements for the adjustment.*

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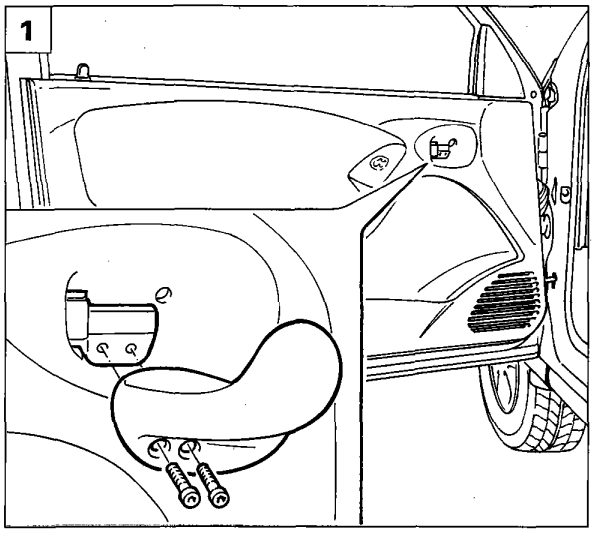
1



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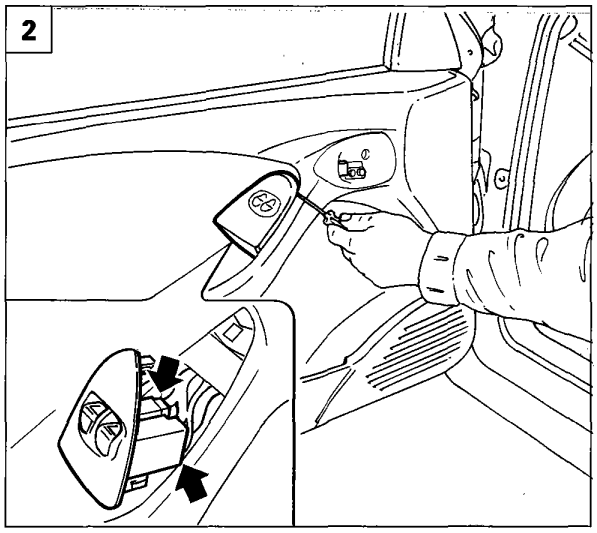

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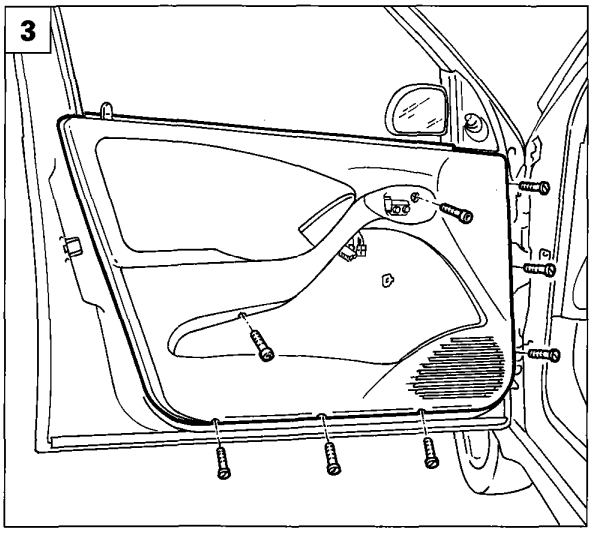


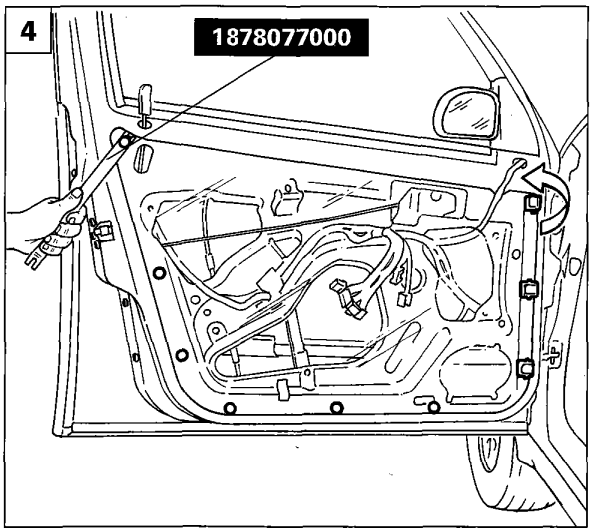
P4A005M03

REMOVING-REFITTING DOOR PANEL AND PROTECTIVE LINING

1. Remove the door opening control lever undoing the fixing bolts shown in the diagram.
2. Remove the window opening control panel, then disconnect the relevant connections.
3. Remove the door lining panel, undoing the fixing bolts shown in the diagram.
4. Using tool 1878077000, remove the fixing buttons shown, extract the side blocks from the door, turning them as shown in the diagram.
5. Remove the protective door lining.

NOTE *To refit, simply reverse the order of the operations carried out for the removal.*

4



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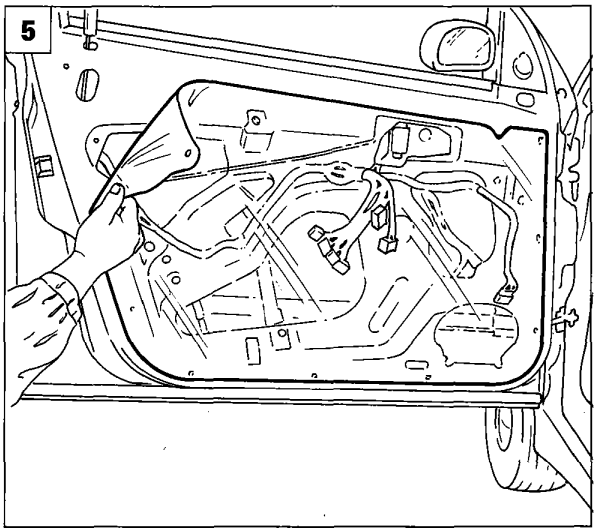

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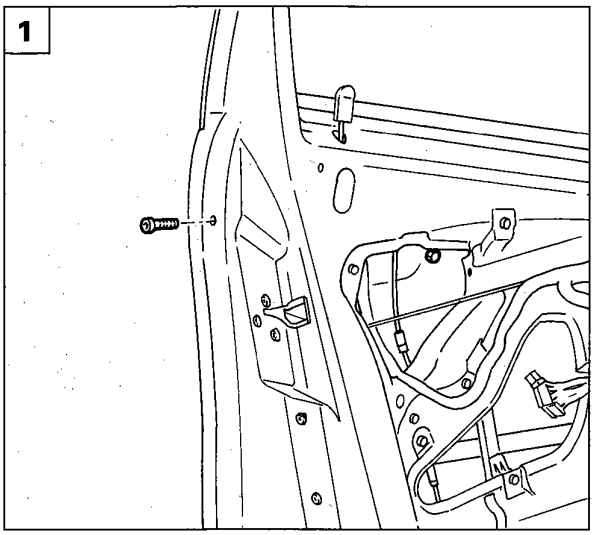


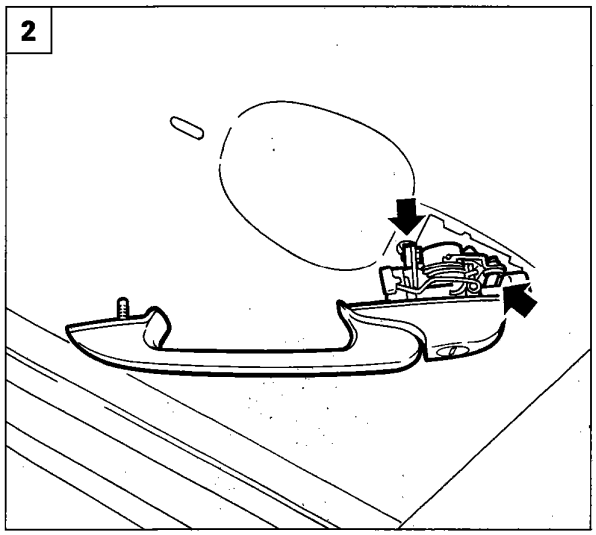
P4A006M01

REMOVING-REFITTING OUTER DOOR HANDLE

Remove the door panel lining as described on page 5.

1. Undo the bolt and the nut fixing the handle to the door.
2. Disconnect the door opening control rods releasing them from the attachment points, then remove the handle from the door.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

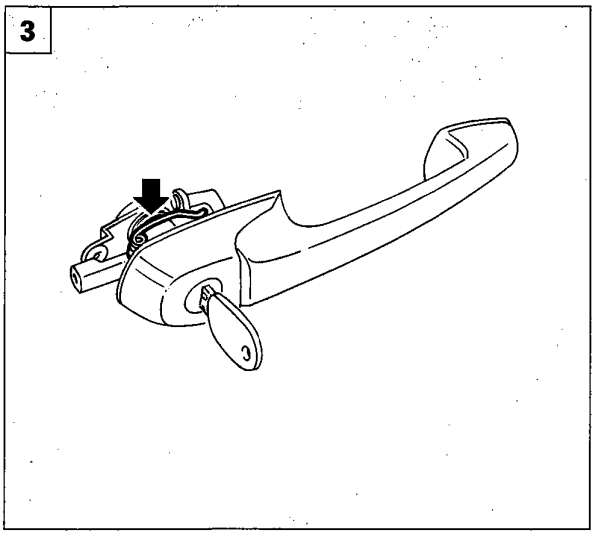


P4A006M02

REPLACING DOOR LOCK BARREL

3. Remove the outer door handle following the instructions given above, insert the key in the lock barrel, then remove the fixing spring.
4. Remove the retaining spring, then extract the lock barrel.

NOTE *When refitting suitably reverse the order of the operations carried out for the removal.*



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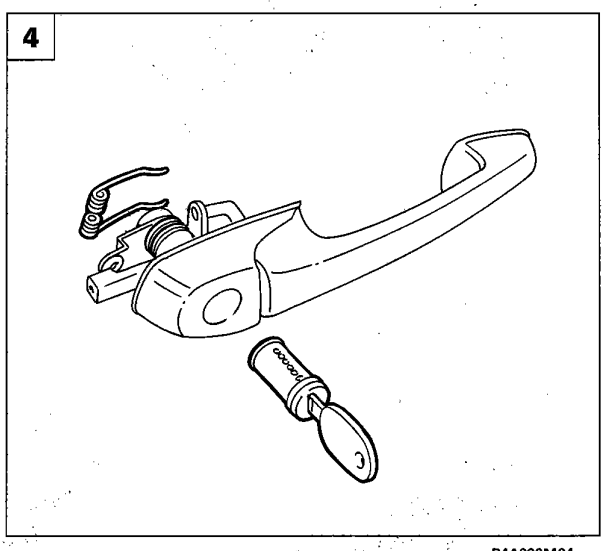

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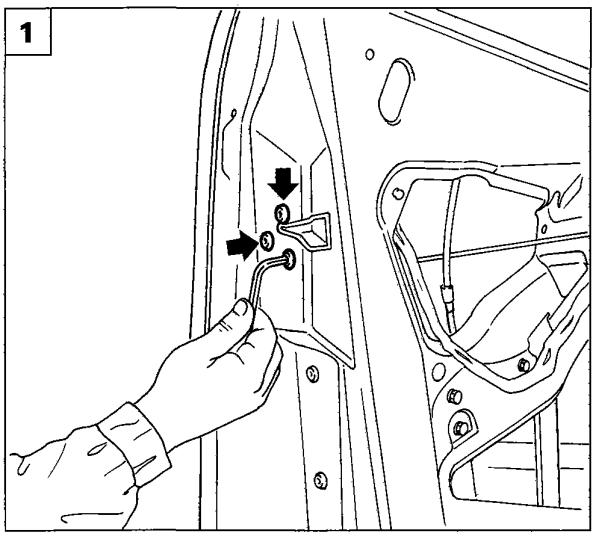


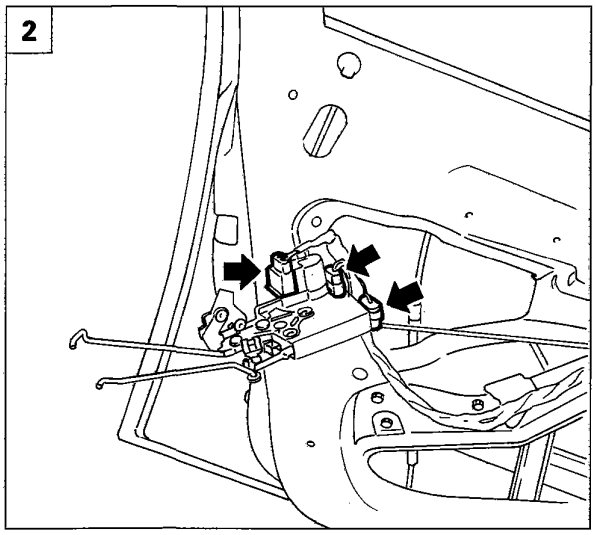
P4A007M01

REMOVING-REFITTING DOOR LOCK

Remove the outer door handle following the instructions given on page 6.

1. Undo the bolts fixing the lock to the door.
2. Remove the lock from the door disconnecting the connectors shown by the arrows and the door opening control rod.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



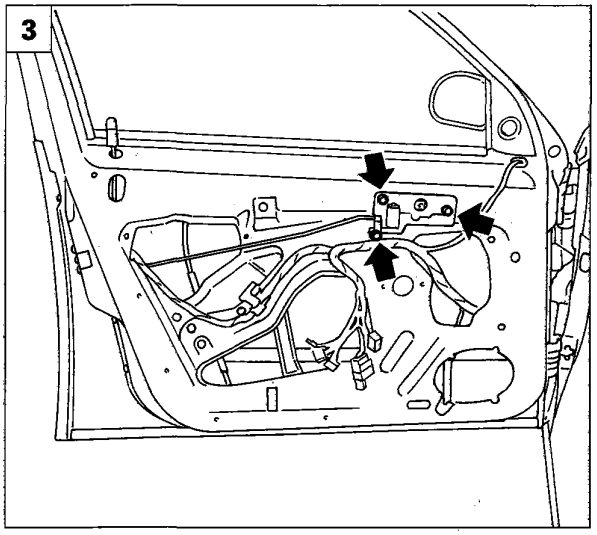
P4A007M02

REMOVING-REFITTING DOOR OPENING LEVER

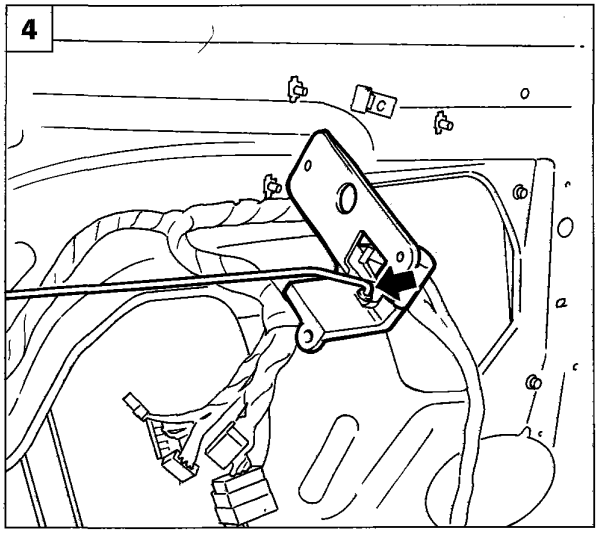
Remove the door panel lining following the instructions given on page 5.

3. Undo the nuts fixing the door opening control lever.
4. Remove the door opening control lever from its housing releasing it from the lock operating rod shown.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



P4A007M03



P4A007M04

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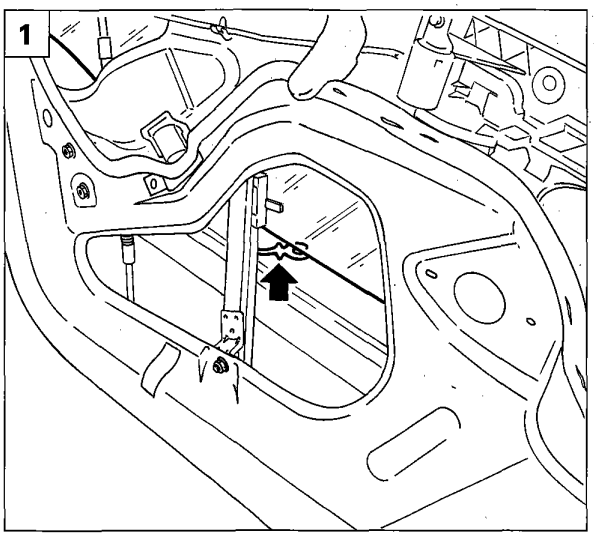


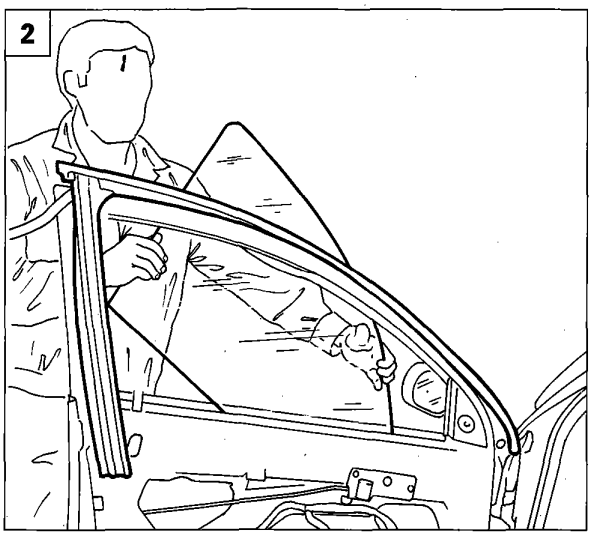
P4A008M01

REMOVING-REFITTING LOWERING WINDOW GLASS

Remove the door panel and protective cover, as shown on page 5.

1. Release the window from its device.
2. Remove the outer and inner door perimeter trim, then extract the window.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

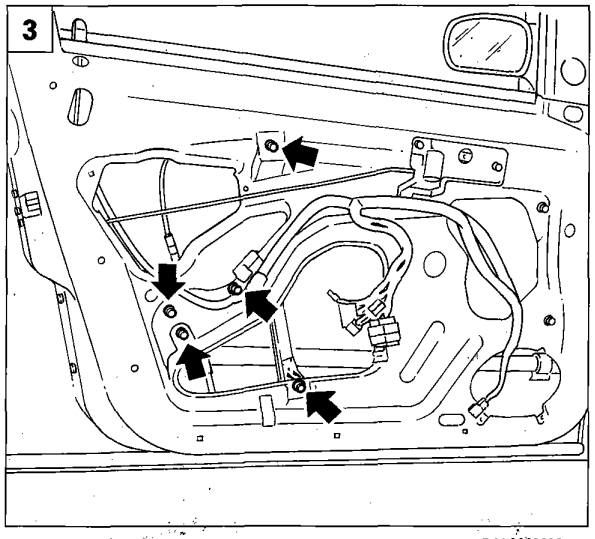


P4A008M02

REMOVING-REFITTING WINDOW OPENING DEVICE

3. Release the window from its device as described above, then undo the boltsfixing the window opening device to the door.
4. Extract the window opening device from its housing.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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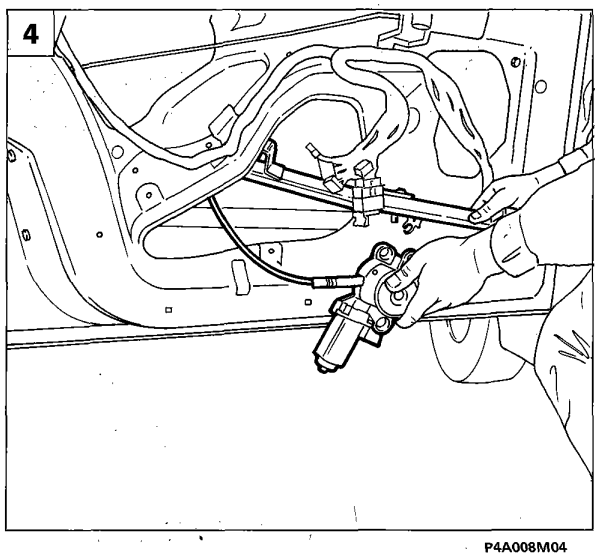

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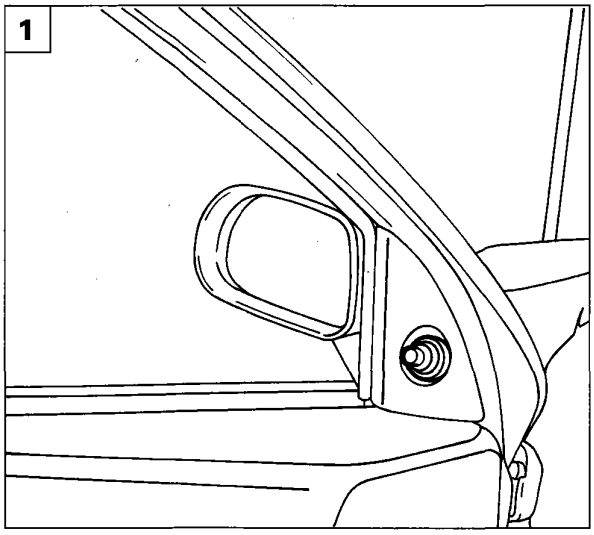

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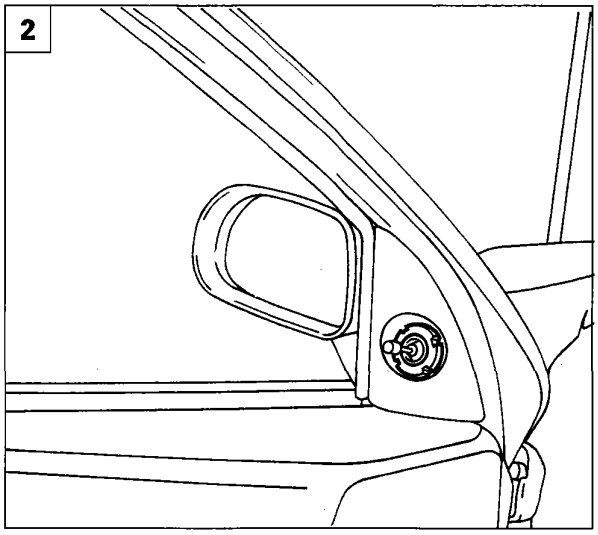

P4A009M02

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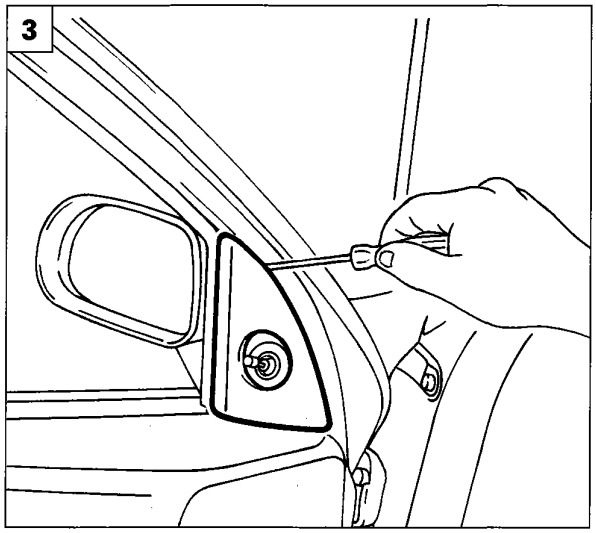


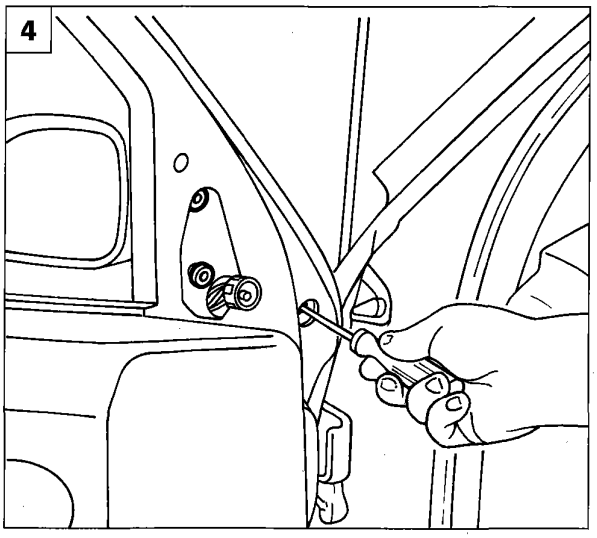
P4A009M03

REMOVING-REFITTING EXTERNAL REAR VIEW MIRROR

1. Remove the rubber trim.
2. Undo the fixing ring nut shown in the diagram.
3. Remove the fixing cover for the mirror acting on the retaining tabs.
4. Undo the bolts fixing the mirror to the bodyshell.
5. Remove the external rear view mirror complete with plastic trim.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

4



P4A009M04

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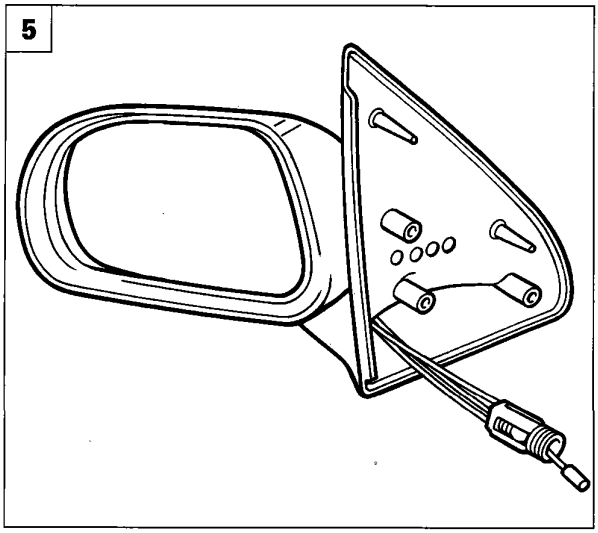

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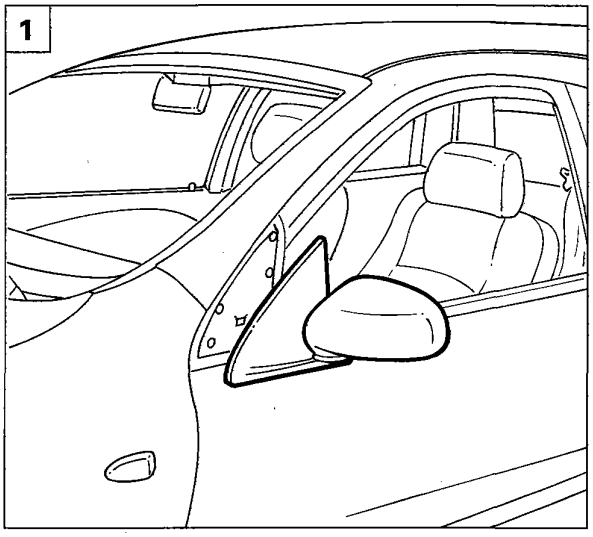
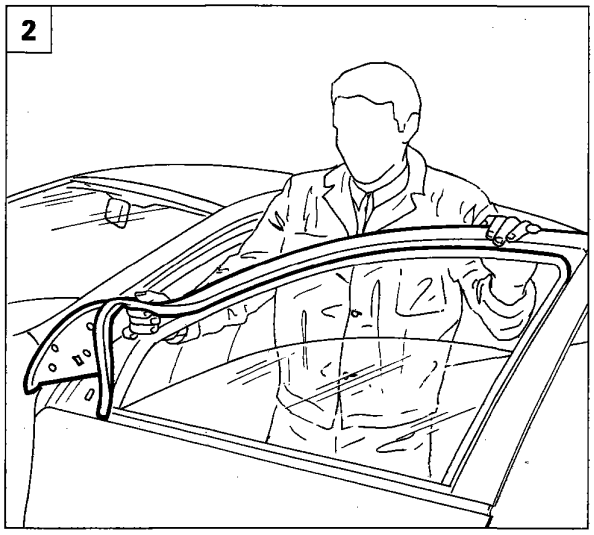


P4A010M01

REMOVING-REFITTING DOOR TRIM

1. Remove the external rear view mirror following the instructions given on the previous page.
2. Remove the trim from the door.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

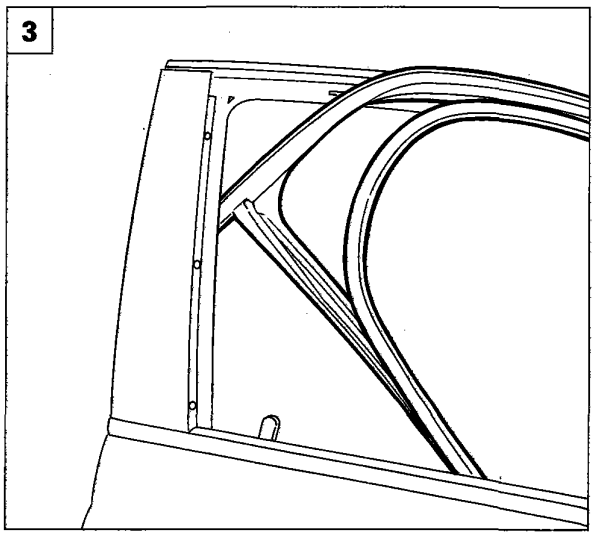


P4A010M02

REMOVING-REFITTING DOOR REAR PILLAR TRIM

3. Working from the outside of the car, move the trims and the perimeter trim for the window housing partly to one side.
4. Remove the door trim undoing the fixing bolts shown by the arrows.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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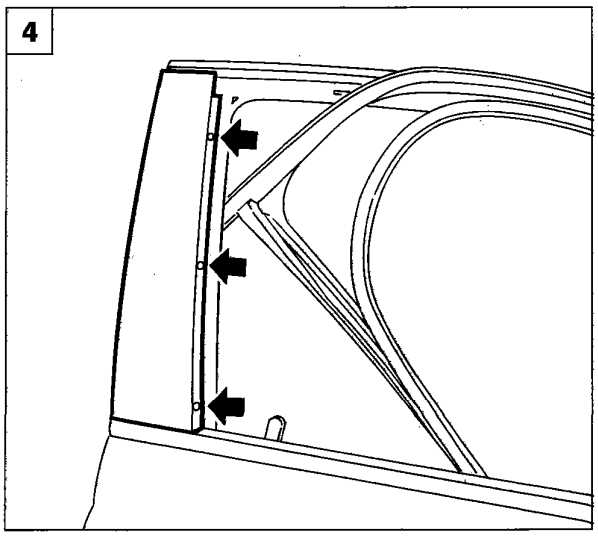

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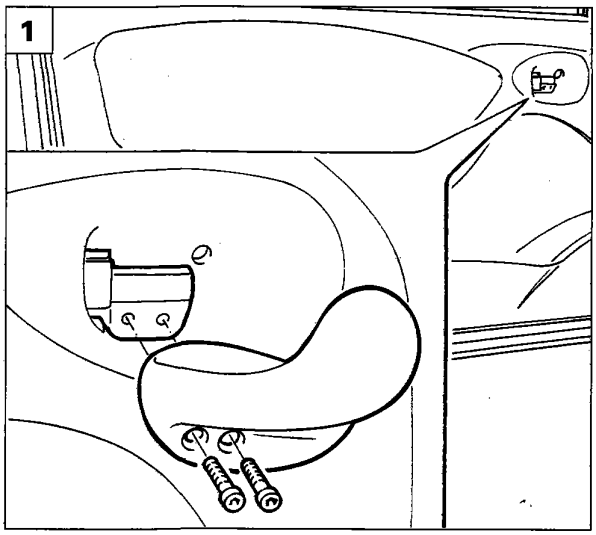
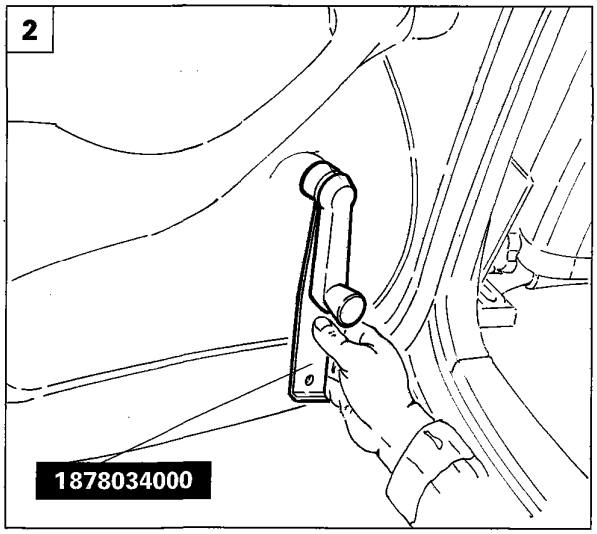


P4A011M01

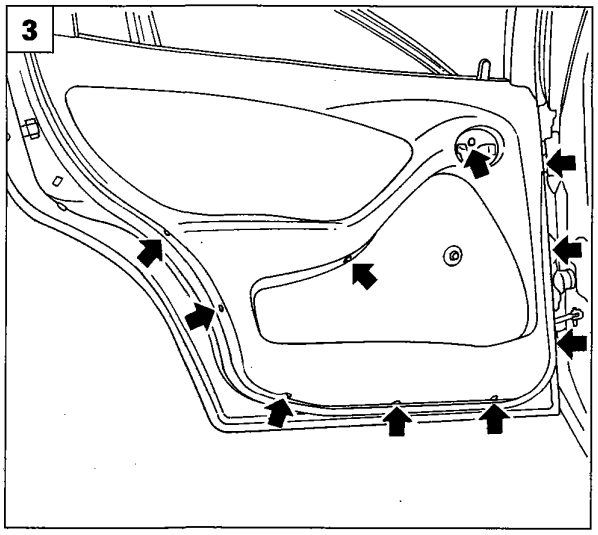
REMOVING-REFITTING DOOR PANEL AND PROTECTIVE LINING



P4A011M02

1. Remove the door opening control lever undoing the fixing bolts shown in the diagram.
2. Using tool 1878034000, remove the split pin retaining the crank to the window opening pin.
3. Undo the bolts fixing the door lining panel.
4. Using tool 1878077000, remove the buttons fixing the lining panel to the door, then remove the protective door lining.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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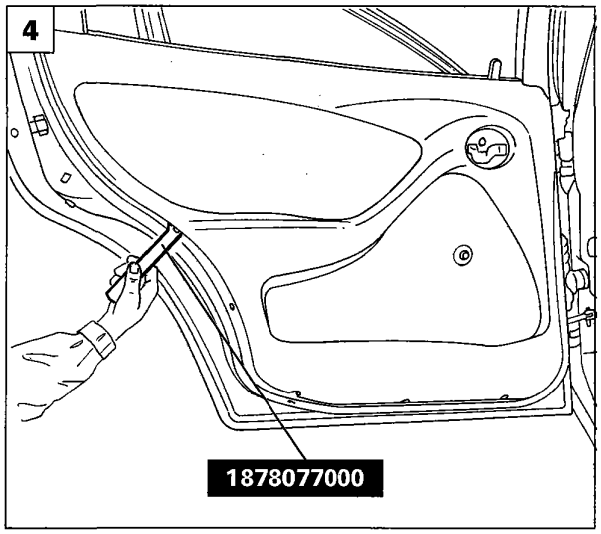

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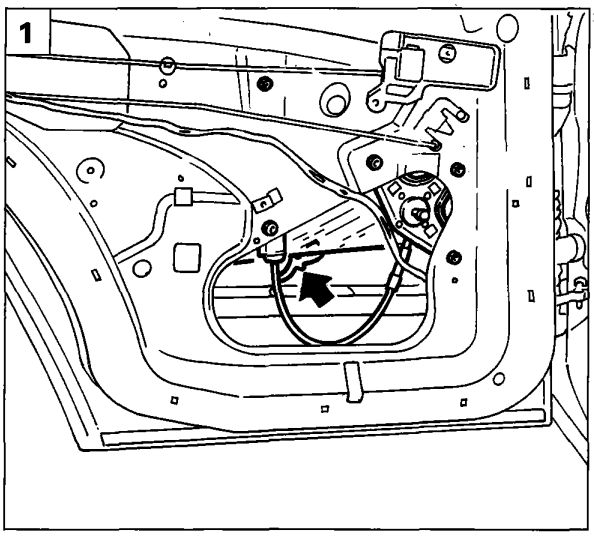


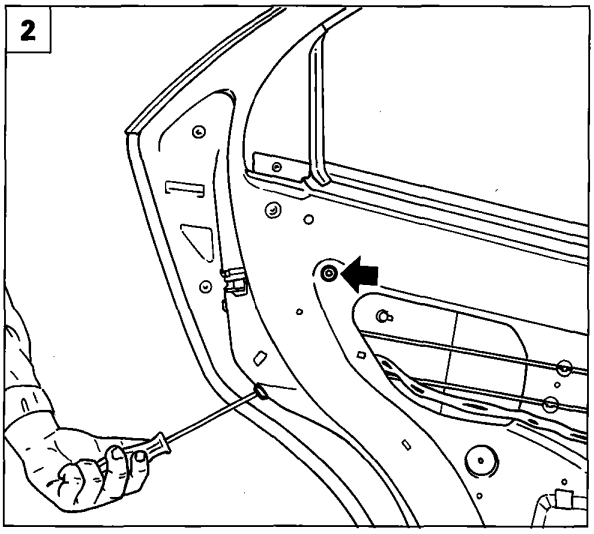
P4A012M01

REMOVING-REFITTING LOWERING WINDOW GLASS

Remove the door panel and protective cover, proceeding as described on page 11.

1. Release the window from its device.
2. Loosen the fixing bolts shown by the arrows and extract the window guide.
3. Remove the door outer and inner perimeter trim, then extract the window.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

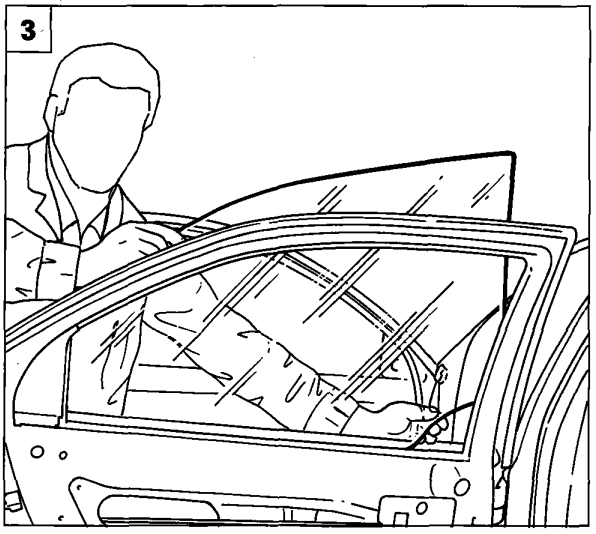


P4A012M02

REMOVING-REFITTING WINDOW OPENING DEVICE

4. Release the window from the window opening device acting as described above, then undo the fixing nuts shown by the arrows and extract the window opening device.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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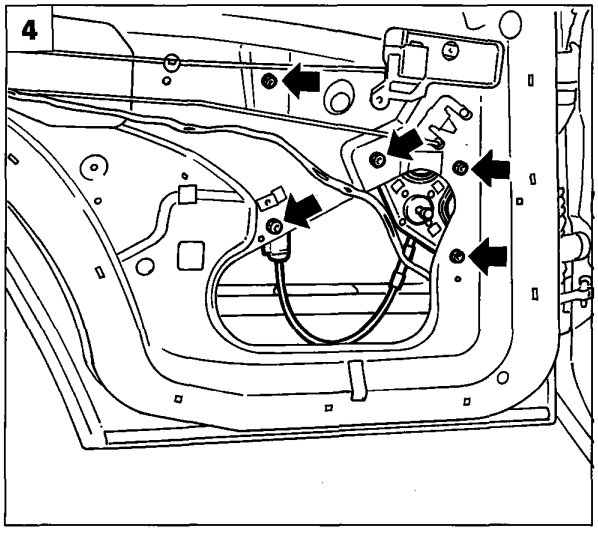

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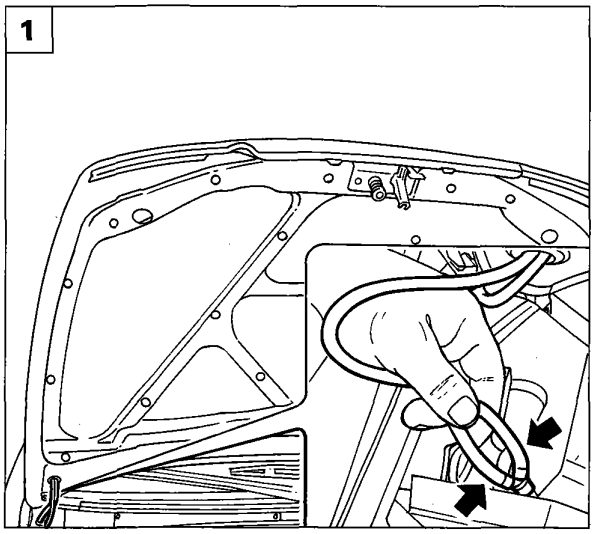


P4A013M01

REMOVING-REFITTING BONNET LID

1. Raise the bonnet lid then disconnect the windscreen washer pipes.
2. Undo the bolts fixing the hinges shown by the arrows then, with the help of a second operator, remove the bonnet lid from the vehicle.

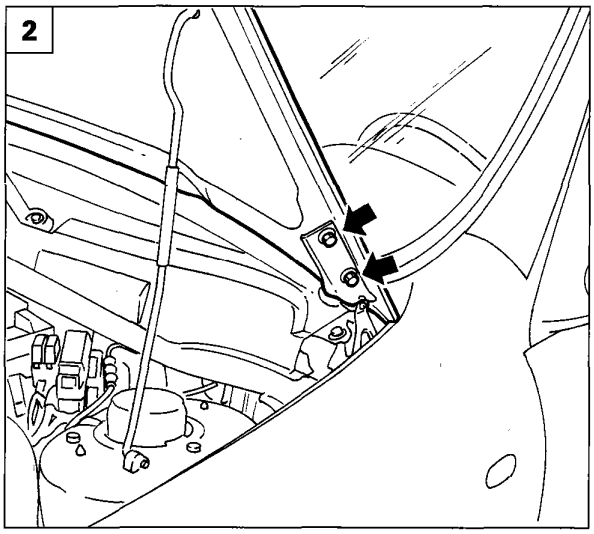
NOTE *To refit simply reverse the order of the operations carried out for the removal.*

ADJUSTMENTS

Adjusting bonnet lid position

3. Loosen the bolts fixing the hinges, then adjust the position of the bonnet lid.

NOTE *The arrows indicate the possible movements for the adjustment.*

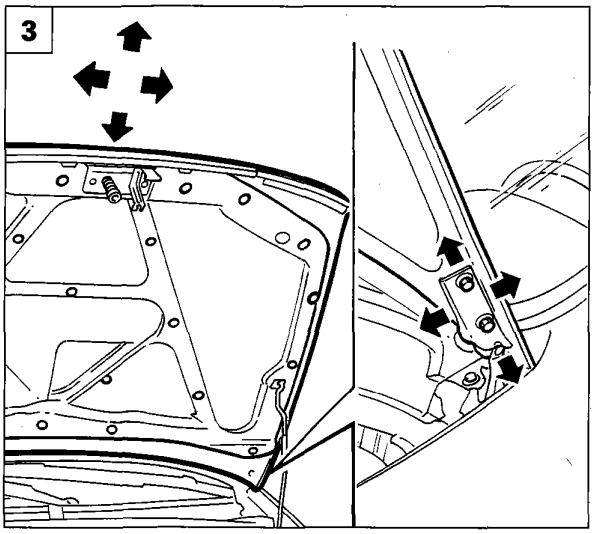


P4A013M02

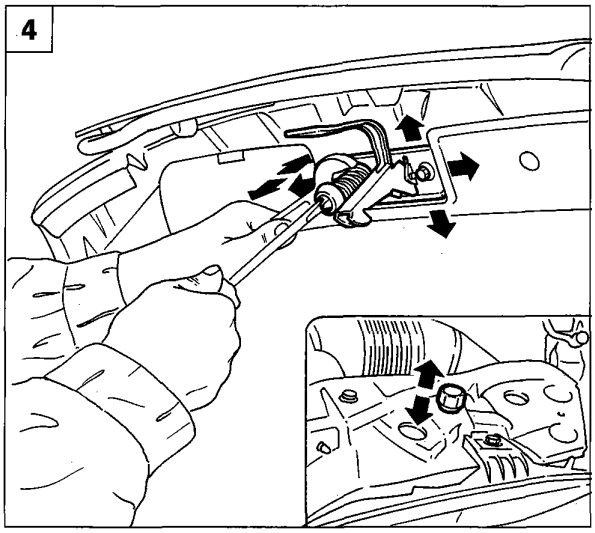
Adjusting bonnet lid closing device

4. Working as illustrated in the diagram, adjust the vertical position of the bonnet lid; this adjustment can also be carried out by rotating the rubber mountings at the edges of the engine compartment.

NOTE *The arrows indicate the possible movements for the adjustment.*



P4A013M03



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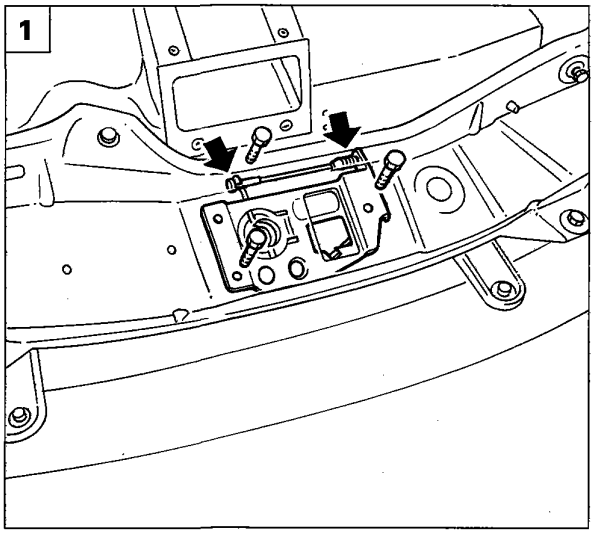


P4A014M01

REMOVING-REFITTING BONNET LID STRIKER

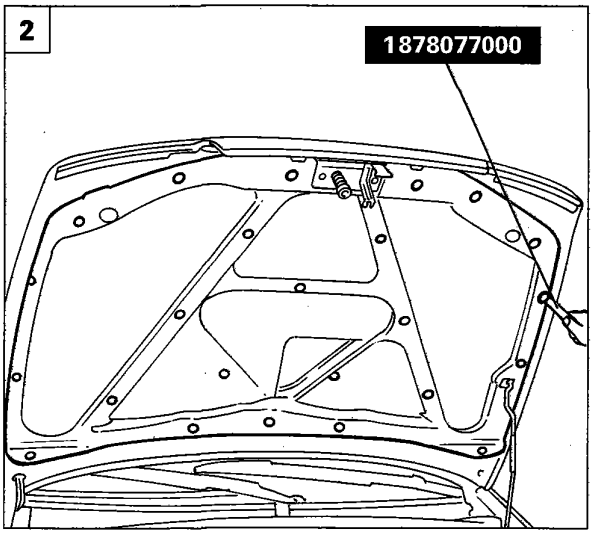
1. Disconnect the bonnet release, then remove the striker undoing the fixing bolt.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

REMOVING-REFITTING WINDSCREEN WASHER PIPES

2. Using tool 1878077000, remove the fixing buttons and remove the sound-insulation lining for the bonnet lid.
3. Remove the windscreen washer pipes, releasing them from the bonnet lid after having removed the bands and having disconnected them from the jets.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

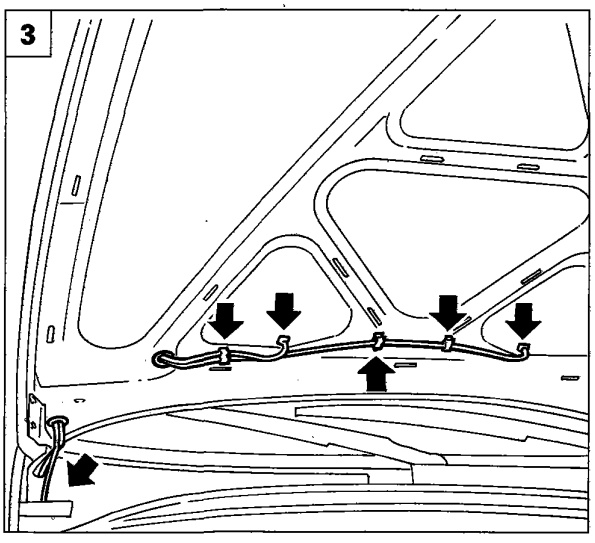


P4A014M02

REMOVING-REFITTING FRONT GRILLE

4. Raise the bonnet lid, then remove the front grille undoing the fixing nuts shown in the diagram.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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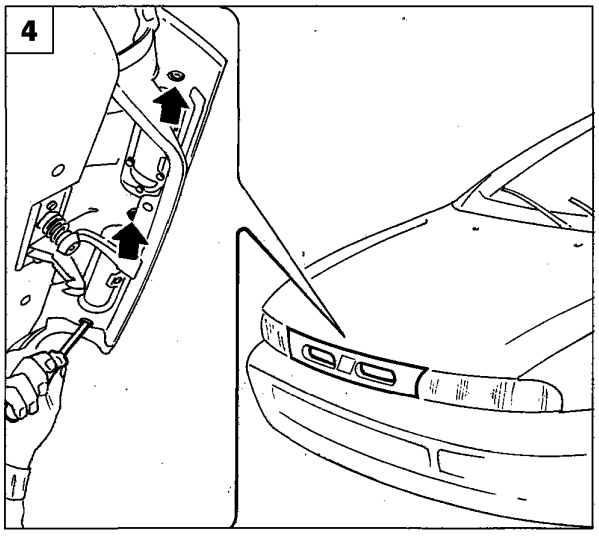

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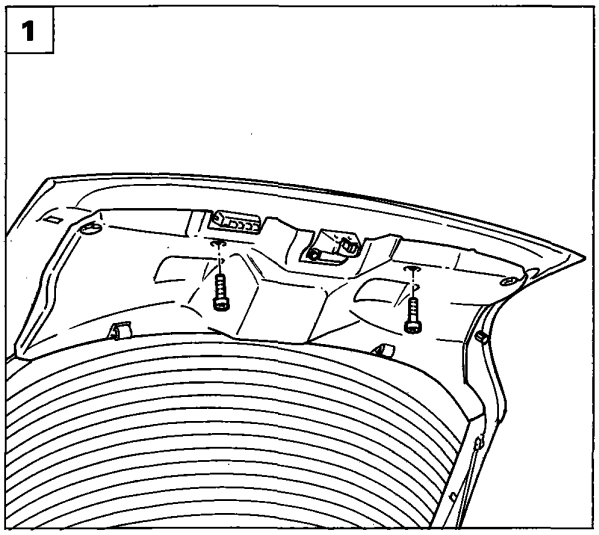

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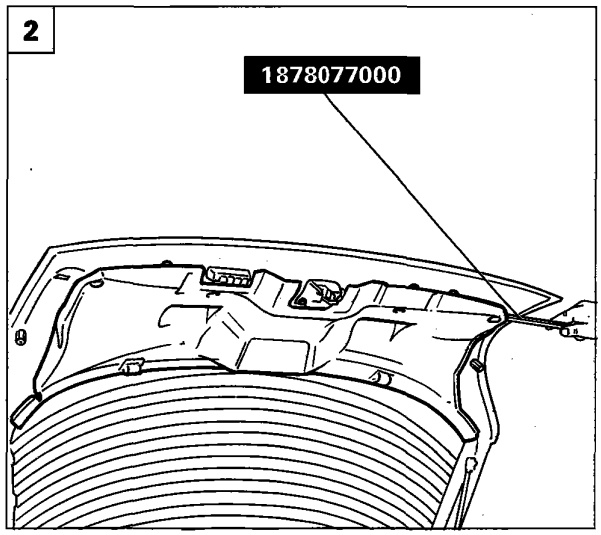

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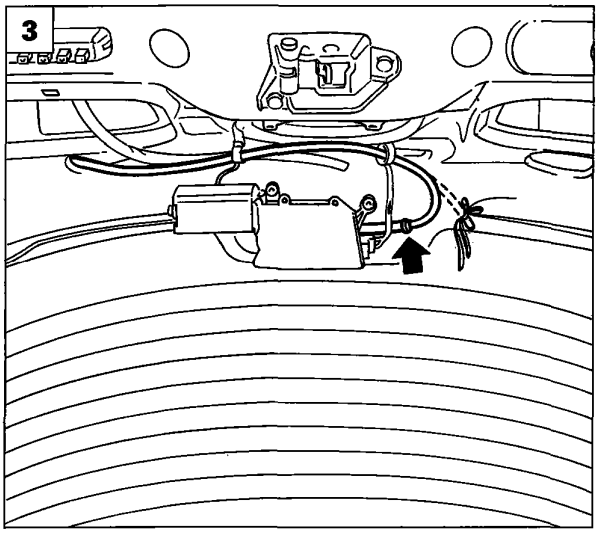
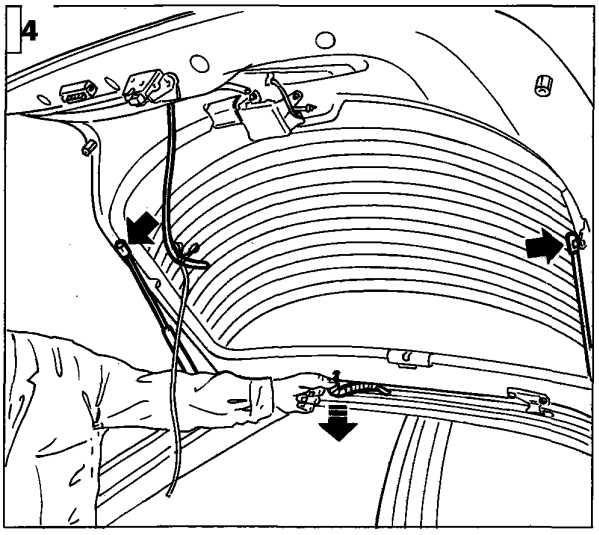


P4A015M03

REMOVING-REFITTING TAILGATE

1. Undo the bolts fixing the tailgate inner lining.
2. Remove the tailgate inner lining, removing the fixing buttons using tool 1878077000.
3. Disconnect the pipe from the rearscreen washer, then fasten appropriately to facilitate the subsequent refitting inside the tailgate.
4. Remove the pipe from the rearscreen washer, then disconnect the shock absorbers supporint the tailgate from the upper mounting.
5. Undo the bolts fixing the hinges shown by the arrows, then remove the tailgate, with the help of a second operator.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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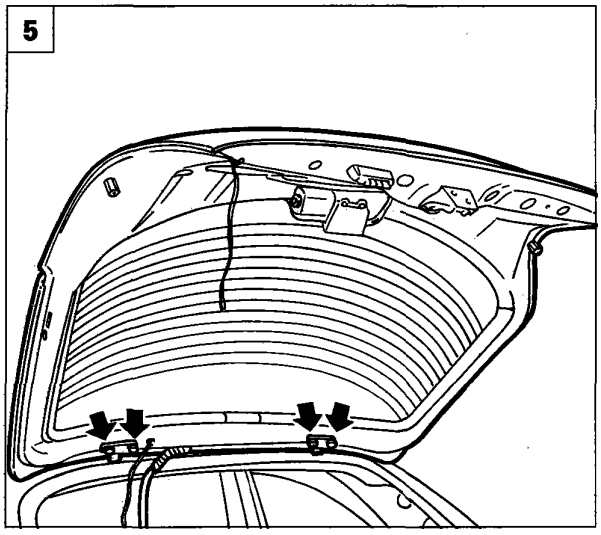

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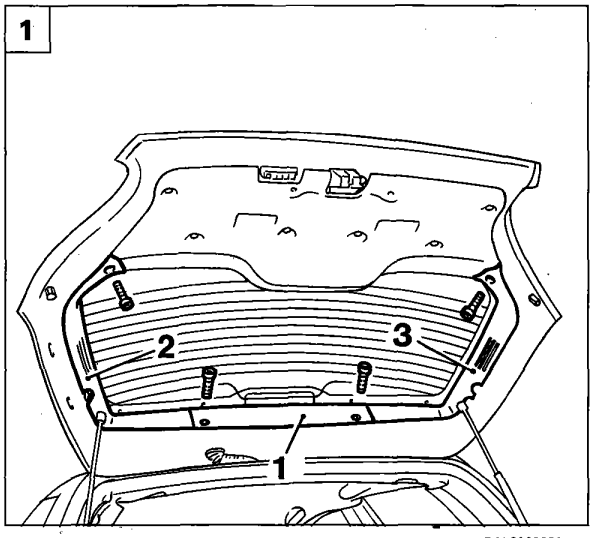

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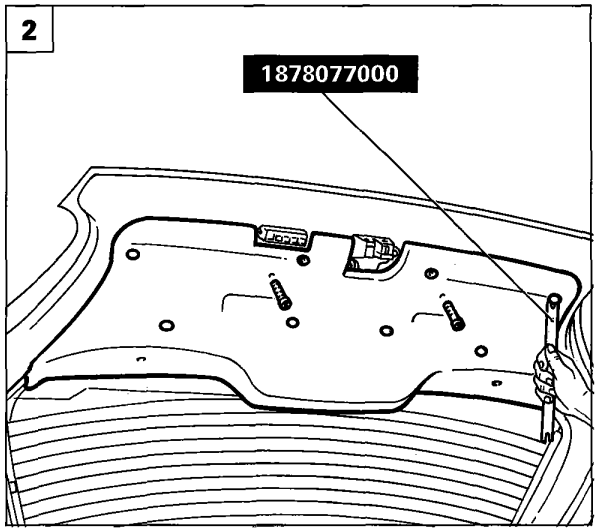

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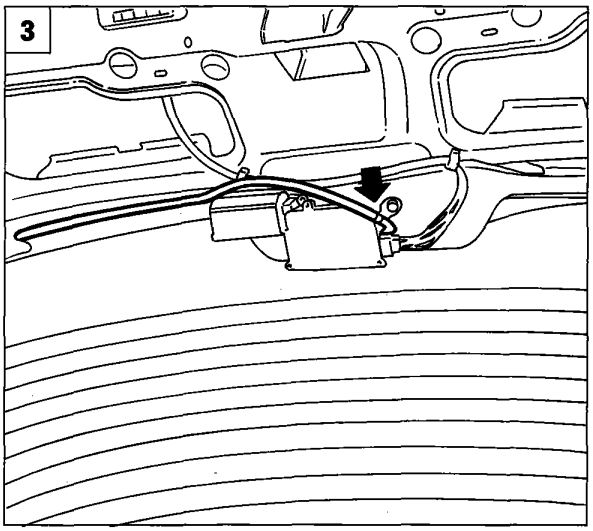
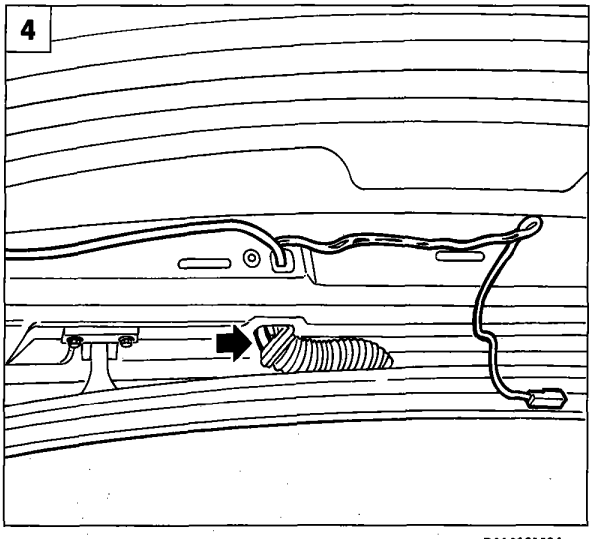


P4A016M03

REMOVING-REFITTING TAILGATE

1. Undo the bolts fixing the tailgate perimeter interior linings and remove them in the order given.
2. Remove the tailgate inner lining removing the fixing buttons using tool 1878077000 and undoing the fixing bolts.
3. Disconnect the pipe for the rearscreen washer from the operating motor.
4. Remove the pipe for the rearscreen washer and the wiring for the additional brake lights from the inside of the tailgate.
5. Disconnect the shock absorbers supporing the tailgate from the upper mounting, then remove the rear tailgate with the help of a second operator.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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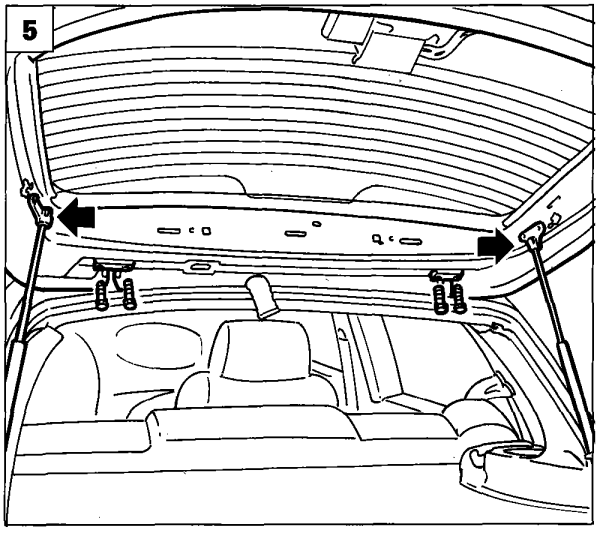

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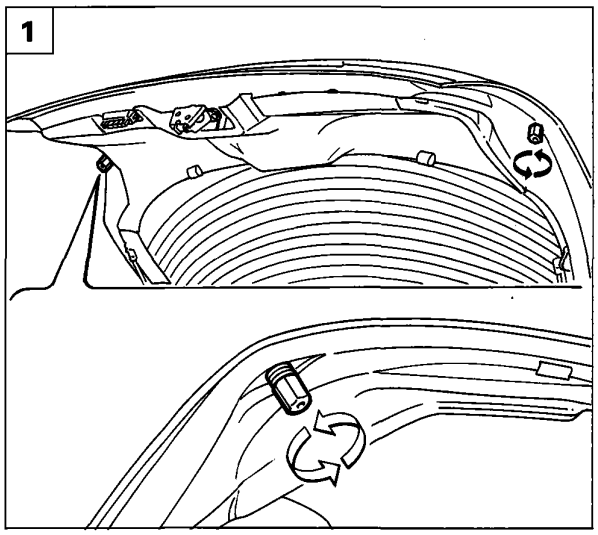
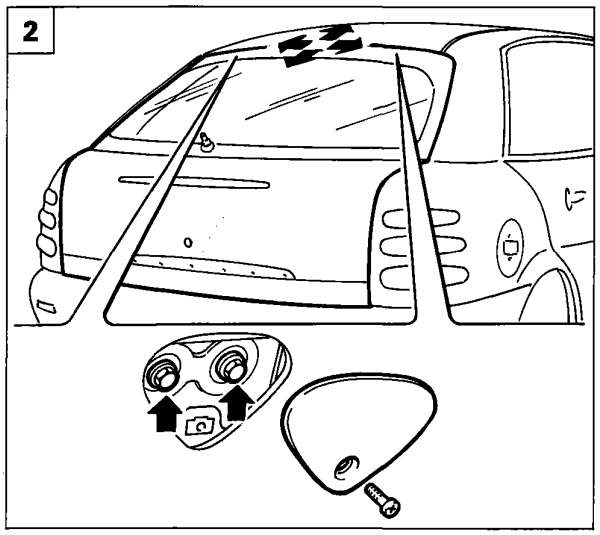


P4A017M01



P4A017M02

ADJUSTMENTS

Adjusting position of tailgate buffers

1. Rotate the rubber mountings positioned at the edges of the tailgate .

An incorrect adjustment of the buffers involves forcing the tailgate or clearance for the closing mechanism, causing damage to the tailgate.

Adjusting horizontal position of tailgate

2. Undo the bolts fixing the trims on the roof lining, then loosen the bolts fixing the hinges and adjust the position of the tailgate.

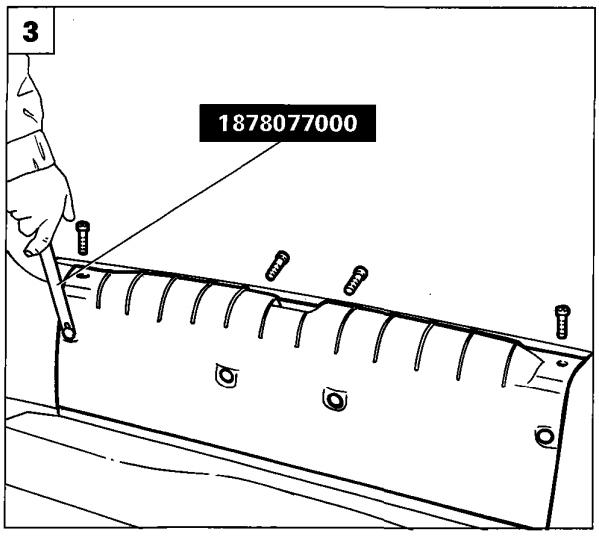
NOTE *The arrows indicate the possible movements for the adjustment.*

If the hinges are removed-refitted, it is necessary to apply a suitable air drying acrylic sealant such as IVI 854.210 or an equivalent product between the hinges and the bodyshell; if only the tailgate is being adjusted, apply the sealant along the perimeter of the hinge with the bodyshell, after having removed the old sealant.

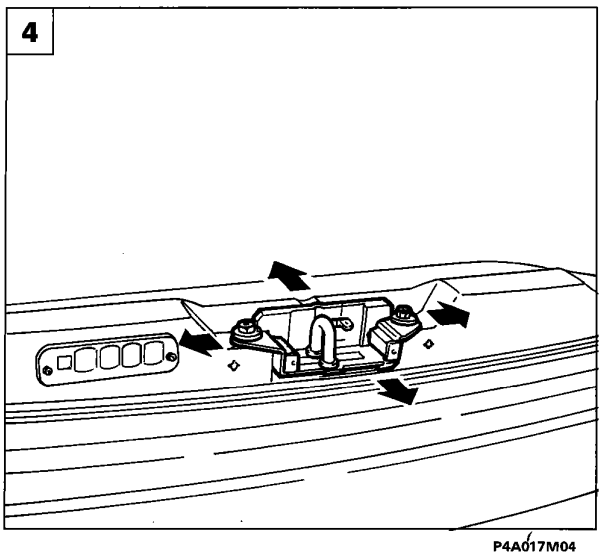
Adjusting position of tailgate lock striker

3. Undo the fixing bolts and using tool 18778077000 remove the fixing buttons, then remove the luggage compartment lining.
4. Loosen the bolts fixing the striker and adjust its position.

NOTE *The arrows indicate the possible movements for the adjustment.*



P4A017M03



P4A017M04

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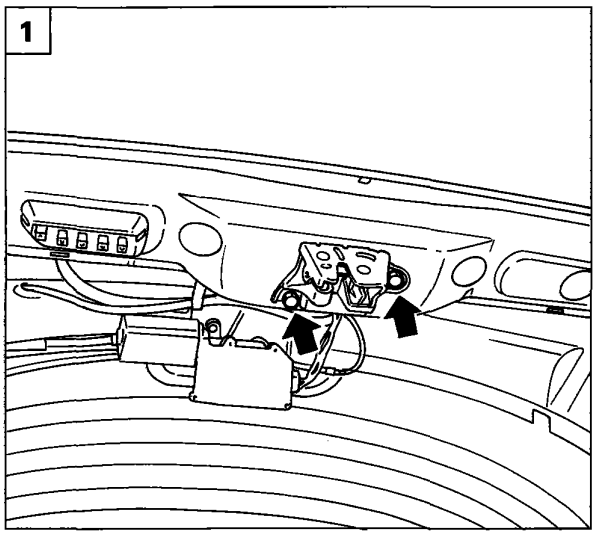


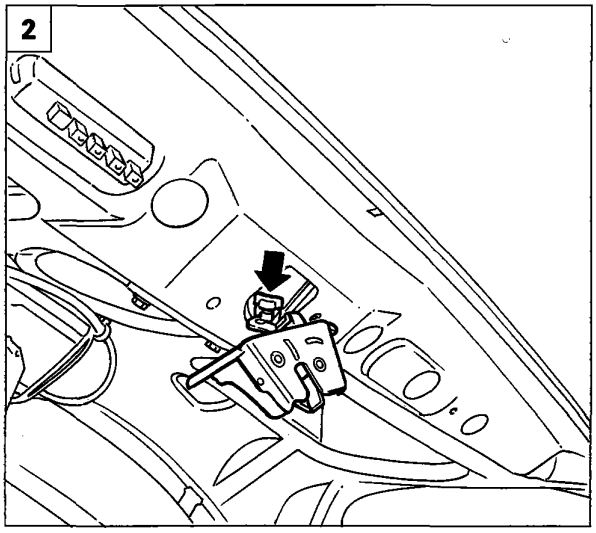
P4A018M01

REMOVING-REFITTING TAILGATE LOCK

The procedure is carried out on the 5 door version; as far as the 3 door version is concerned, the procedure is the same.

1. Remove the tailgate inner lining (see page 15), then undo the bolts fixing the lock shown by the arrows.
2. Remove the lock releasing the rod joined with the lock barrel.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*

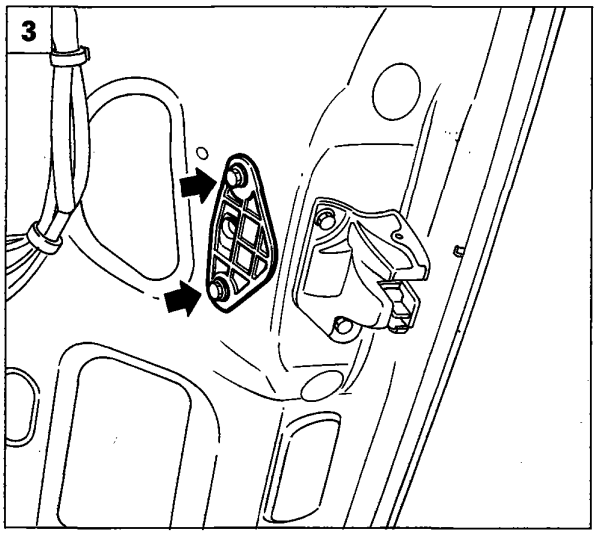


P4A018M02

REPLACING LOCK BARREL

3. Remove the tailgate inner lining (see page 15), loosen the fixing bolts shown by the arrows, then remove the barrel from the lock disconnecting the joining rod.
4. Insert the key in the barrel, lift up the retaining spring shown by the arrow, then extract the barrel and replace it.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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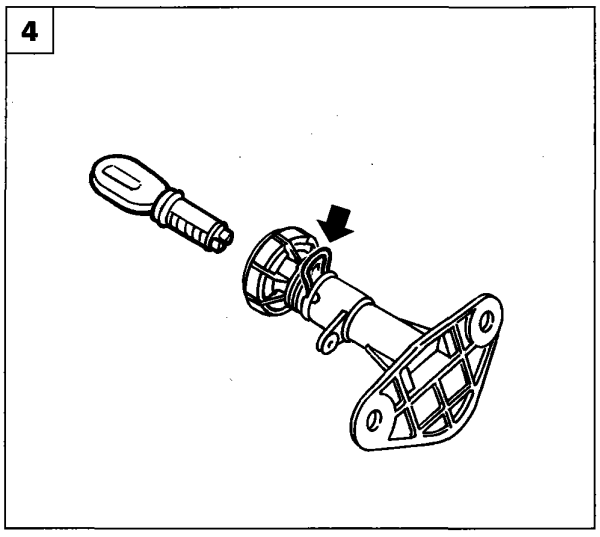

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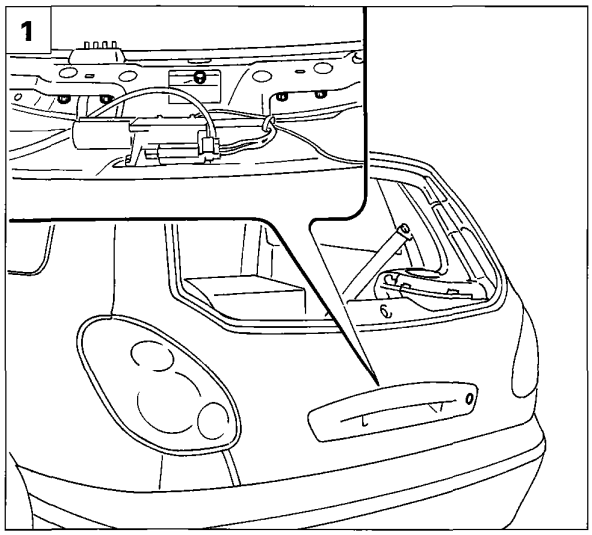
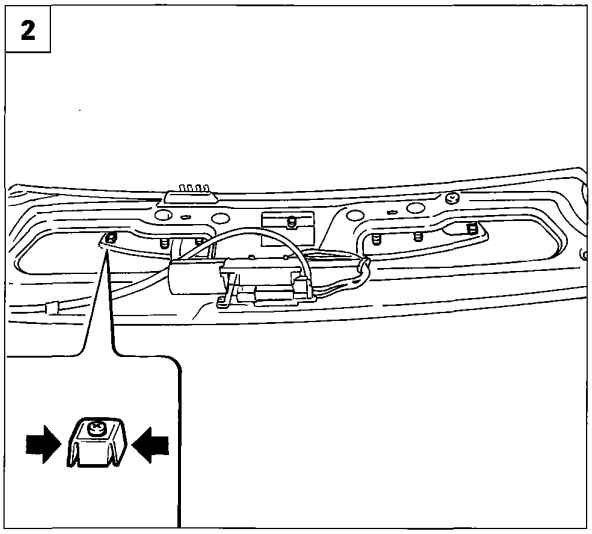


P4A019M01

REPLACING LOCK BARREL

2

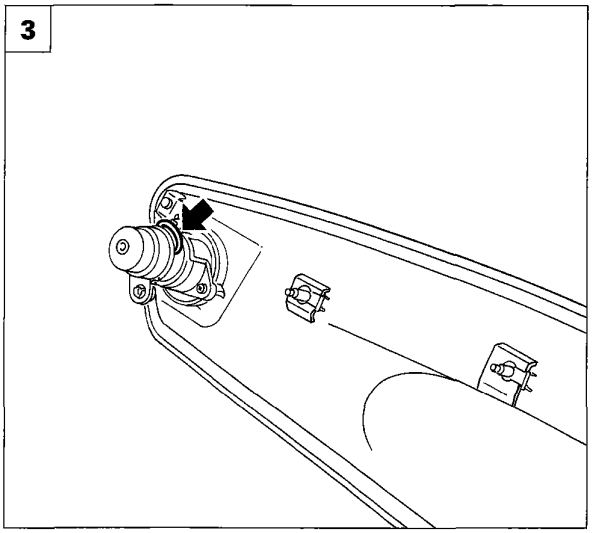


P4A019M02

1. Remove the tail-gate interior trim as described on page 16 and the lock as described on pgae 18. Then work from inside the tail gate to unscrew the opening handle retaining bolts.
2. Undo the fastening block tabs and remove the tail-gate opening handle.
3. Insert the key in the lock barrel, then lift the retaining clip indicated by the arrow.
4. Remove the lock barrel and replace.

NOTE *Reverse removal operation sequence to refit.*

3



P4A019M03

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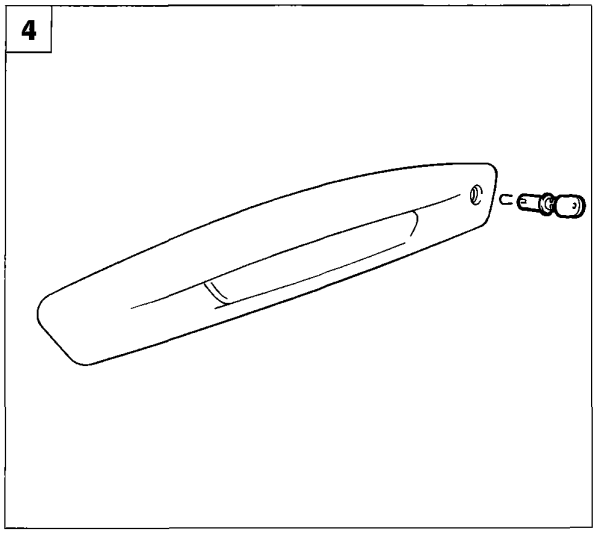

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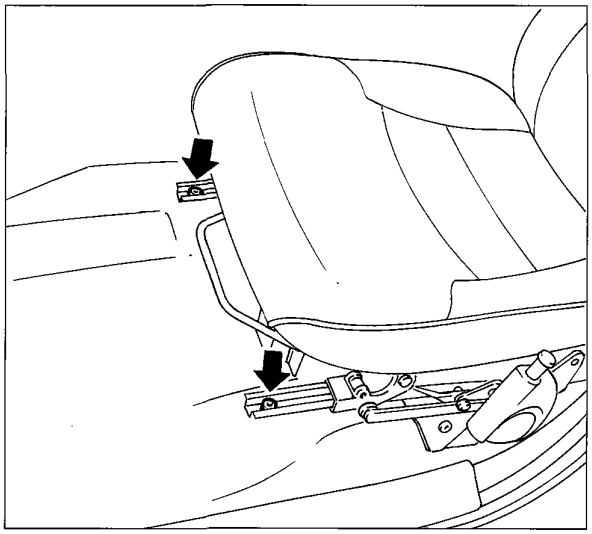
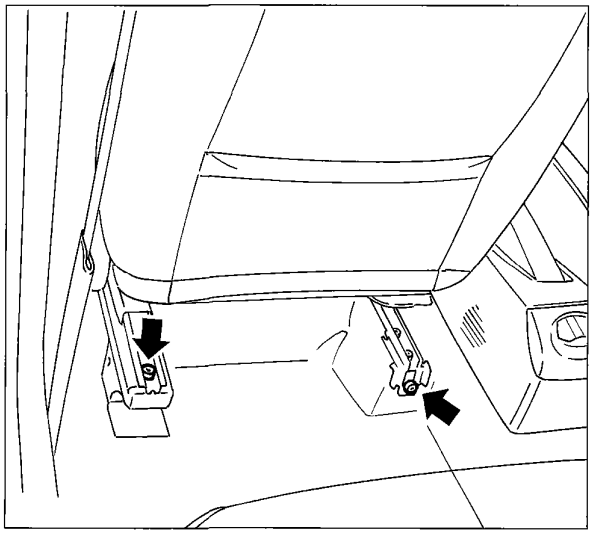


P4A020M01

REMOVING-REFITTING SEAT FRONT

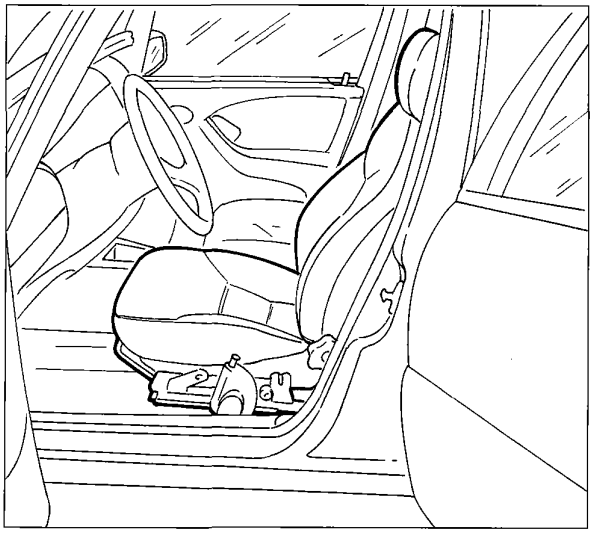
Operation sequence

- Move the seat fully backward to the end of its travel, then unscrew the bolts retaining the seat guides to the floorpan;



P4A020M02

- move the seat fully forward to the end of its travel, then unscrew the bolts retaining the seat guide to the floorpan;



P4A020M03

- remove the seat from the car .

NOTE *Reverse the order of removal operations to refit. Tighten the retaining bolts to a torque of 2.4 daNm.*

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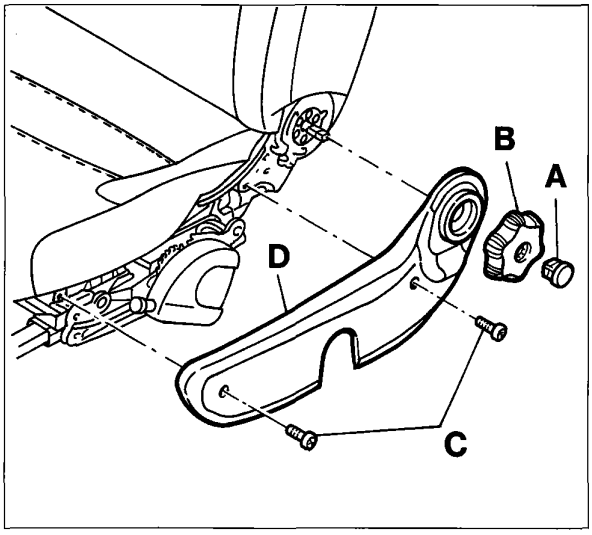


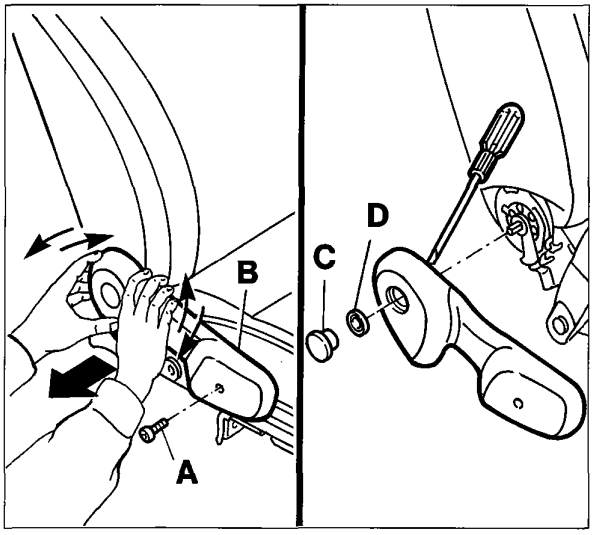
P4A021M06

DISMANTLING-FITTING FRONT SEAT COVERS

Operation sequence

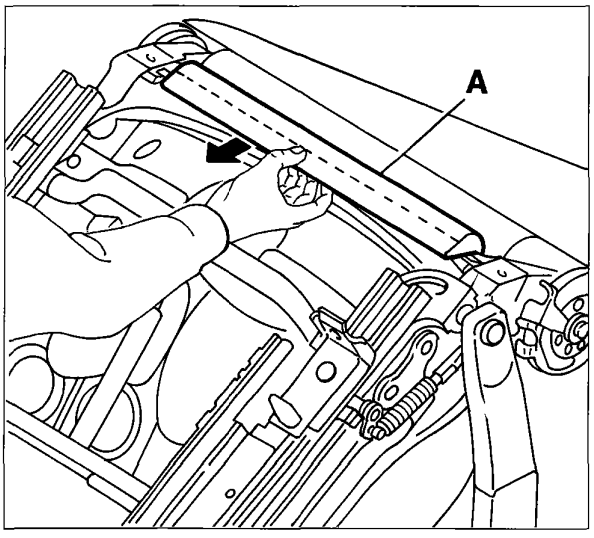
Remove the seat assembly from the car, then proceed as follows:

1. Remove cap A and squab adjustment knob B. Unscrew bolts C retaining exterior trim D, then remove.



P4A021M07

2. Unscrew screw A retaining interior trim B. Remove trim B to remove washer D. Take care not to break. Push cap C out from the inside after removing the trim. Recover washer D.
3. Take off the plastic moulding from the rear as shown in the figure.
4. Remove plastic moulding B, beginning at the rear side. Release with the aid of a screwdriver, then remove the cushion.



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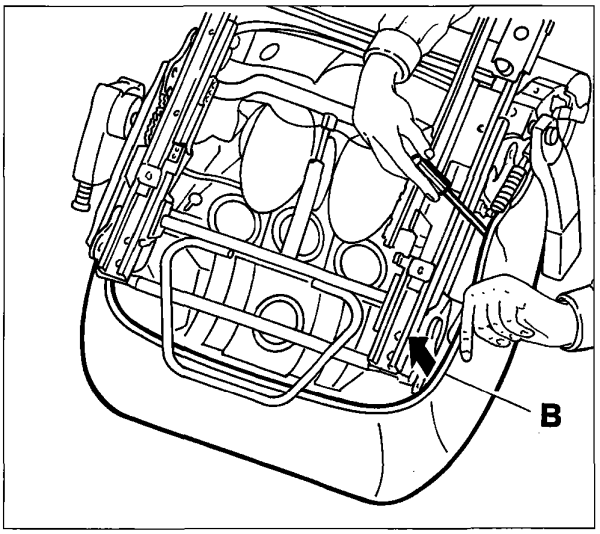

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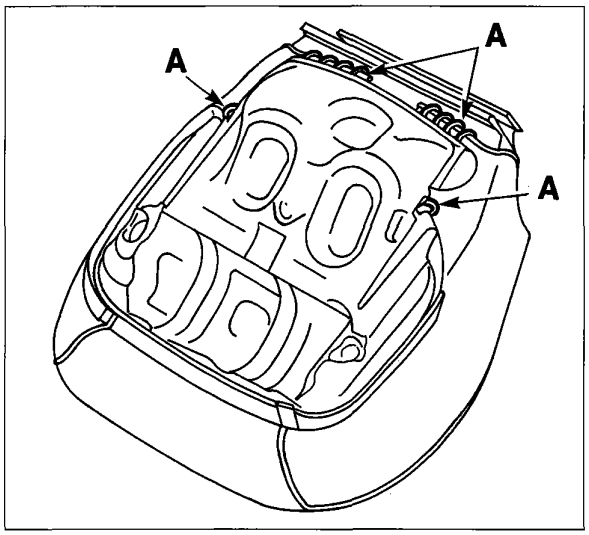
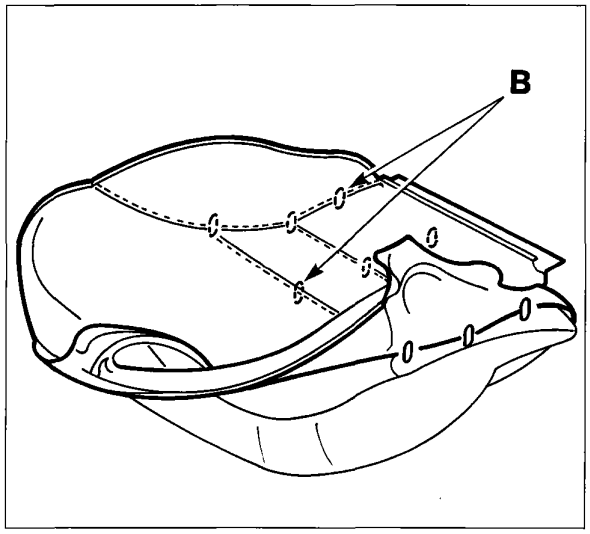


P4A022M06

1. Use cutting pliers to remove retaining hooks A securing the cover to the padding.

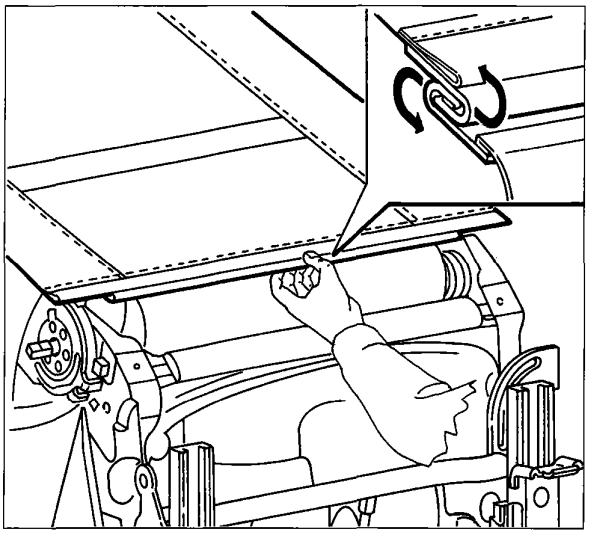


P4A022M07

2. Fold back the cover and remove retaining hooks B positioned around the upholstered edges.

Remove any remaining parts of the hooks connected to the padding to prevent damage to the new cover.

3. Remove the edge of the squab cover from its fasteners.
4. Disconnect the seat tensioners.



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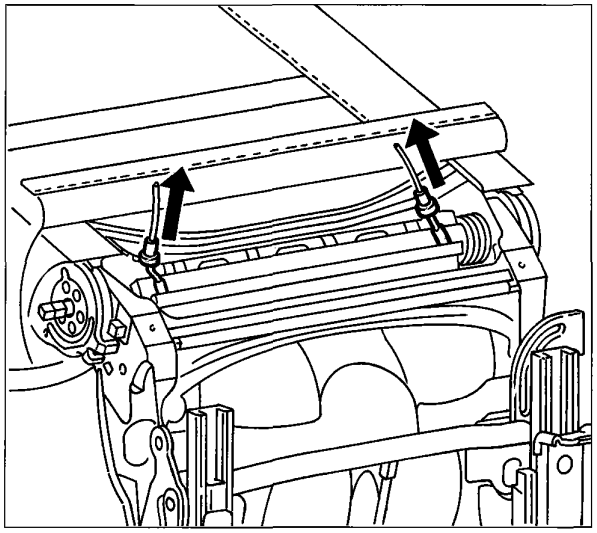

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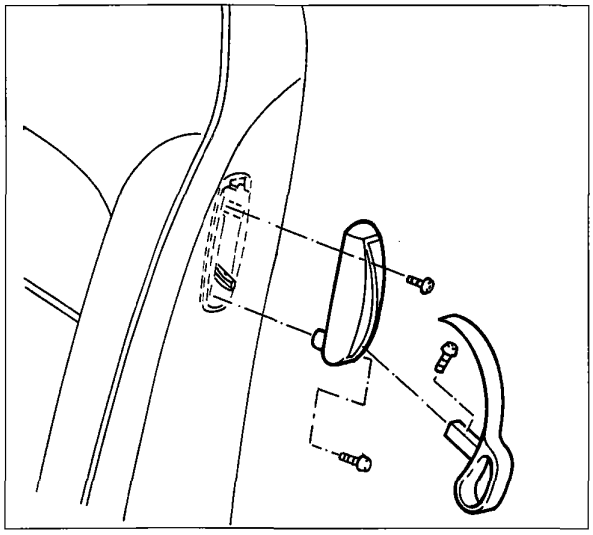
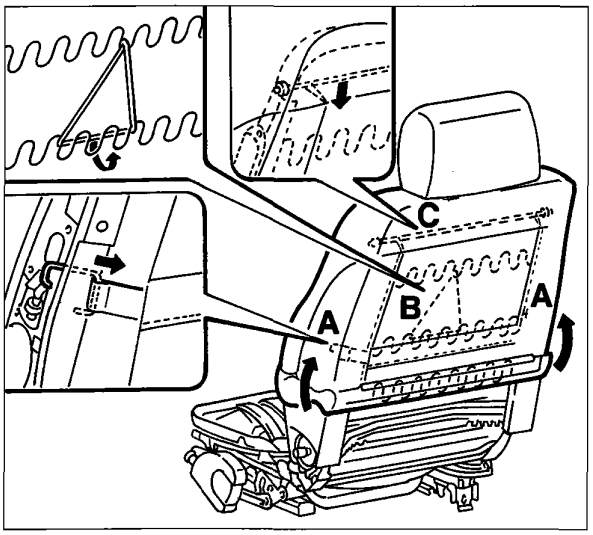


P4A023M06

1. Release the squab recline handle. Unscrew bolt A, remove handle B and unscrew bolts C. Remove panel D (only for BRAVO version).

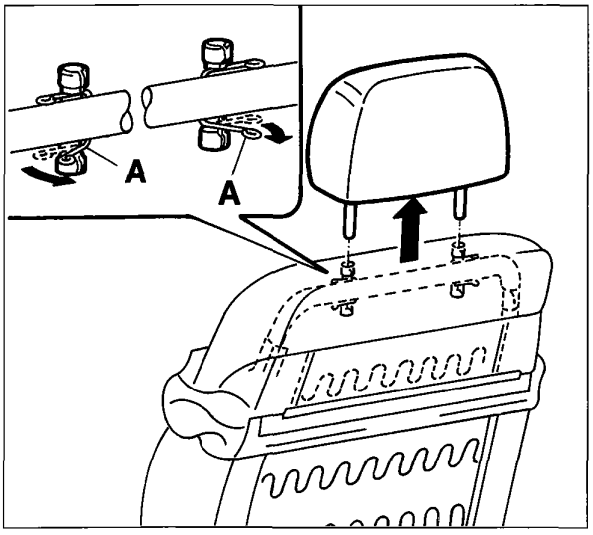


P4A023M07

2. Withdraw the cover, then remove retaining hooks A; release elastic B and then upper edge C.
3. Turn springs and head restraint A, then remove head restraint.
4. Release both links A from the pipe and remove the cover.

NOTE *Reverse removal instructions to refit. Fasten cushion hooks using tool 1878077000.*

Use new hooks.



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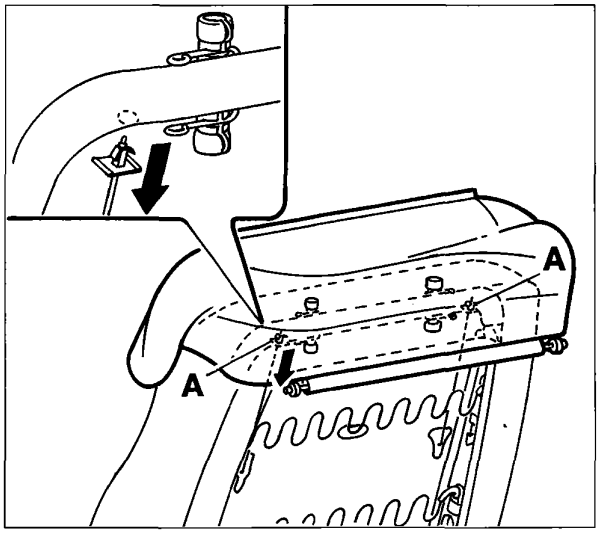

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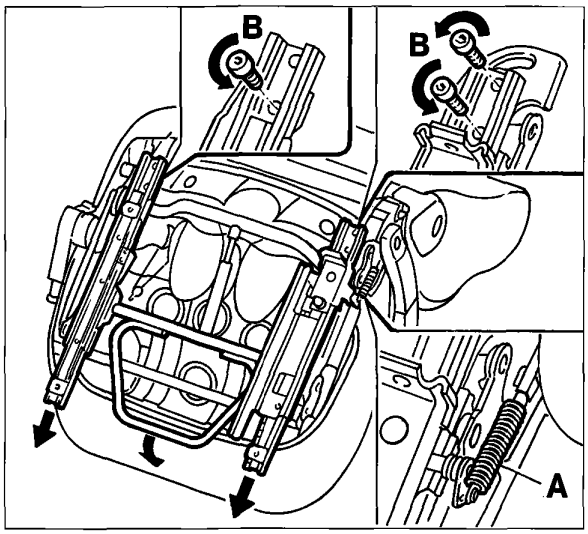
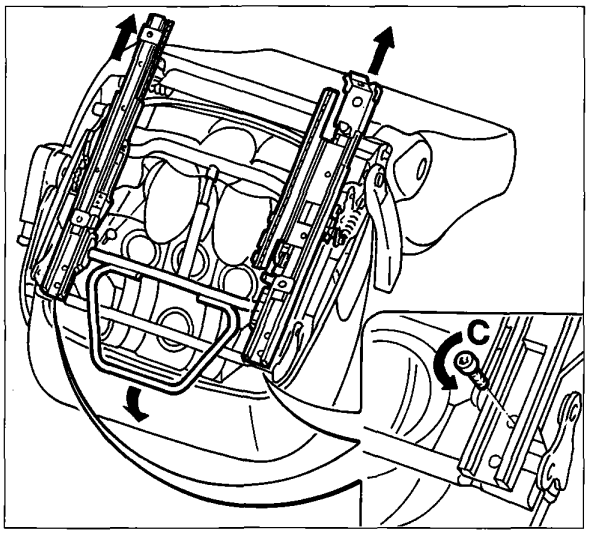


P4A024M06

REMOVING-REFITTING FRONT SEAT GUIDES

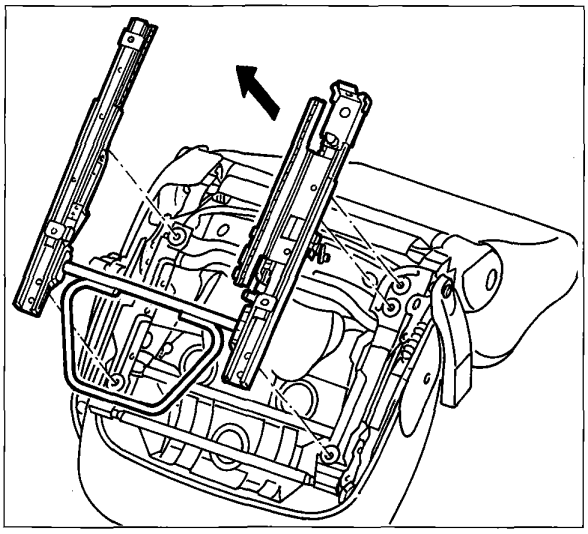
NOTE *Upholstering operations are not required.*

1. Remove the seat from the car. Position the seat on the bench. Push the guides forward using a release control bow. Only for BRAVO version, release memory A control lever spring using appropriate pliers. Unscrew rear guide retaining bolts B.



P4A024M07

2. Move the guides back using the release control bow. Unscrew front bolts C retaining the guides on the inside and outside.



P4A024M08

3. Remove the guides.

Do not remove the control bow before removing the guides in order to prevent deformation that could impair operation.

NOTE *Reverse removal instructions to refit. Tighten retaining bolts to a torque of 2.4 daNm.*

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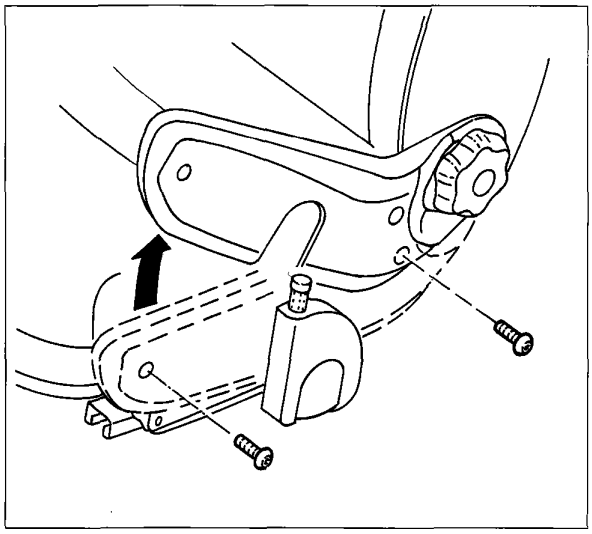
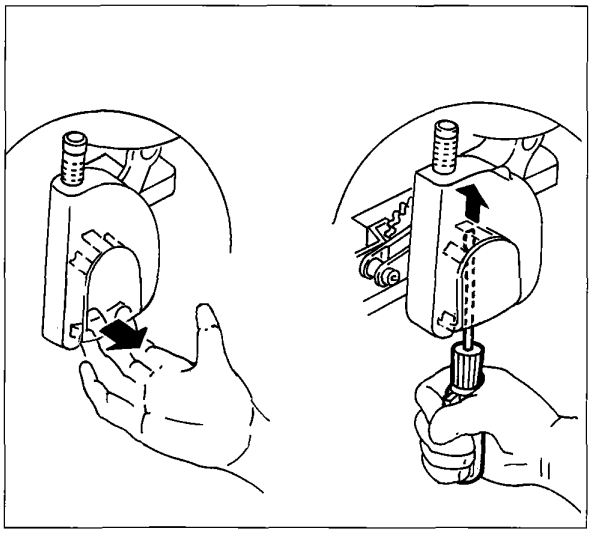


P4A024M09

REMOVING-REFITTING SEAT RAISE DEVICE

The seat need not be removed from the car .

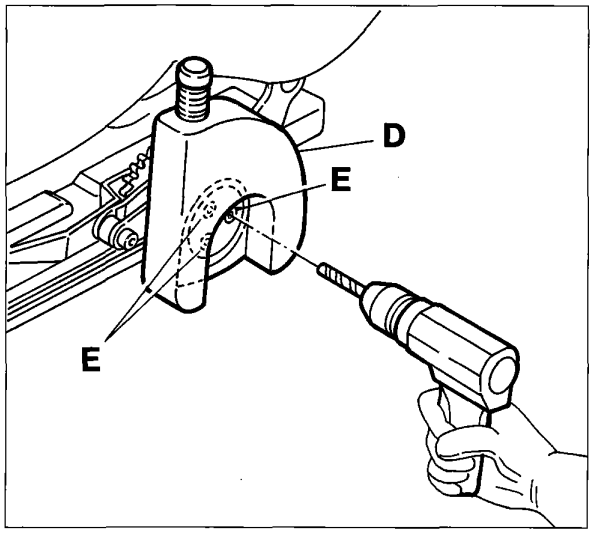
1. Position the seat fully forward and fully raised. Unscrew screws retaining outer trim A. Turn trim B upward.



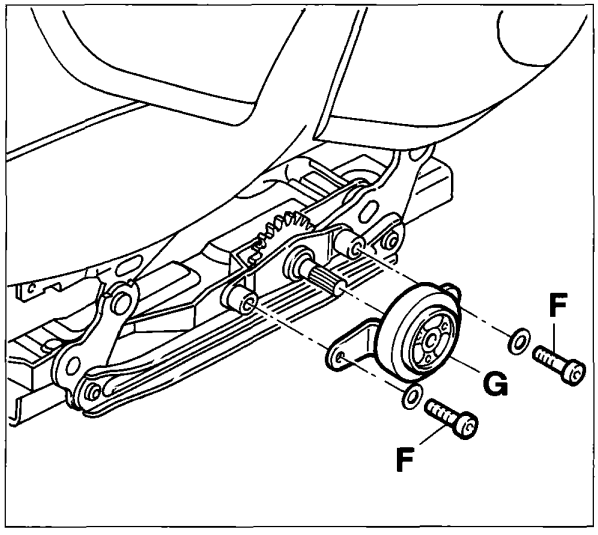
P4A024M10

2. Remove panel C covering seat raise lever fastener. Take care not to break the tabs. Remove the lower part by hand (box 1) and then use a screwdriver to prise up the upper tab (box 2) and remove the panel.
3. Remove lever D and drill off the head of rivets E.
4. Unscrew bolts F retaining the seat raise device and then remove.

NOTE *Reverse removal instructions to refit. Tighten retaining bolts to a torque of 1.2 daNm.*



P4A024M11



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4A197M

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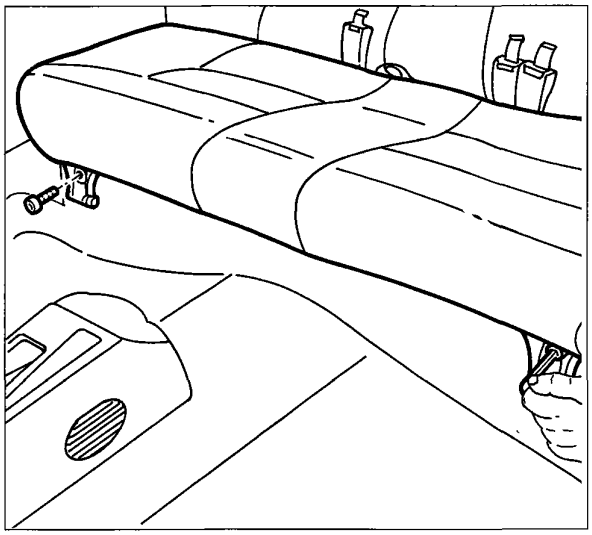
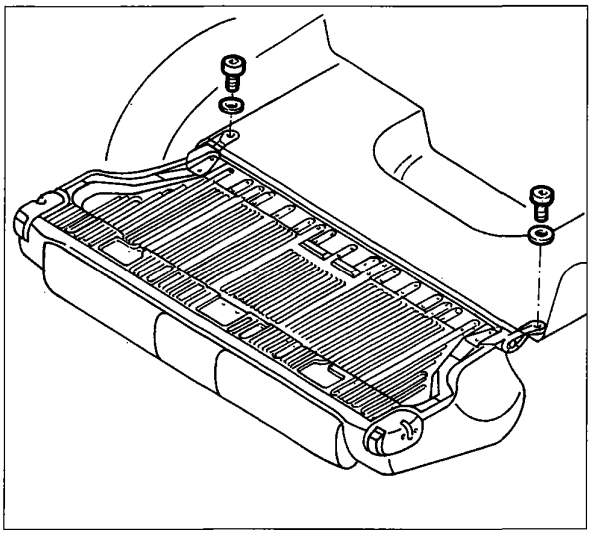


P4A024M13

REMOVING-REFITTING REAR SEAT

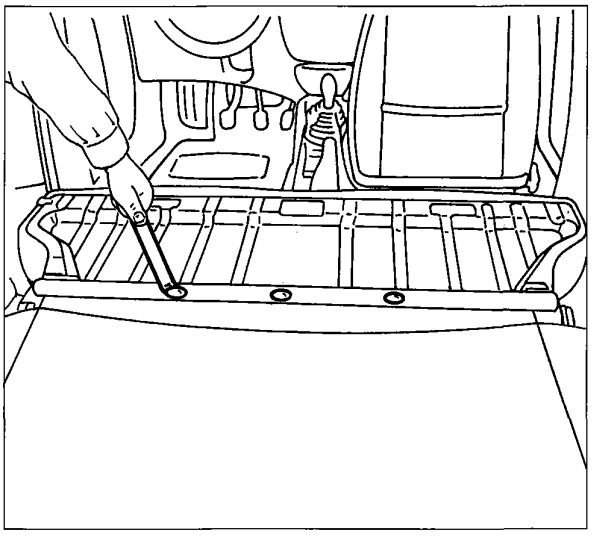
1. Unscrew the bolts fastening the cushion to the body, then take out of the car.



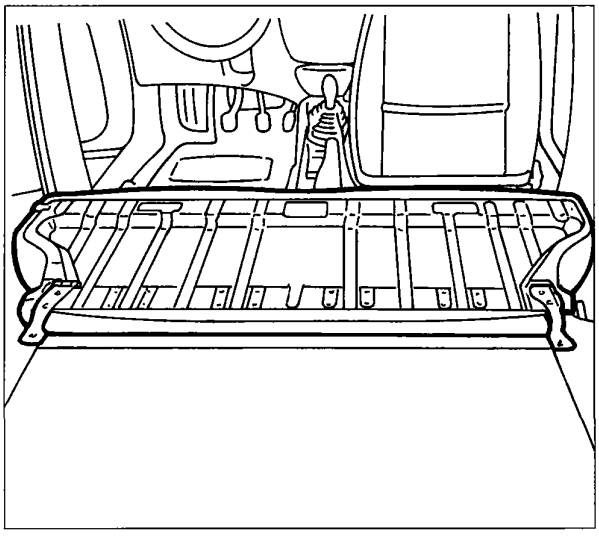
P4A024M14

2. Lower the squab, then unscrew the bolts with associated washers.
3. Use tool 1878077000 to undo the studs fastening the boot trim to the squab.
4. Remove the squab from the car.

NOTE *To refit, carry out removal instructions in reverse order. Tighten retaining bolts to a torque of 2.4 daNm.*



P4A024M15



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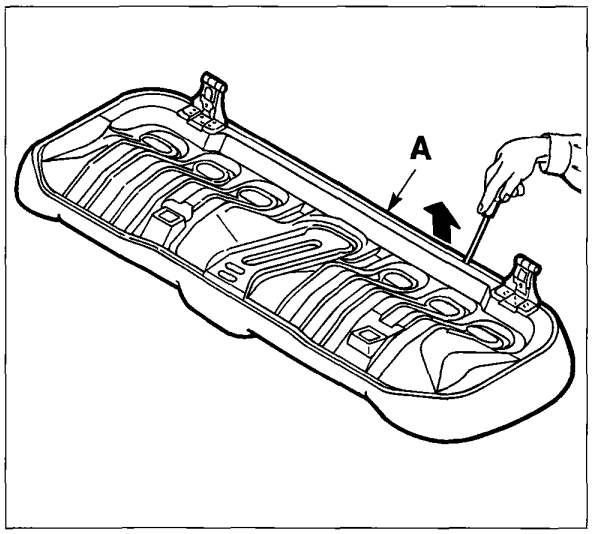
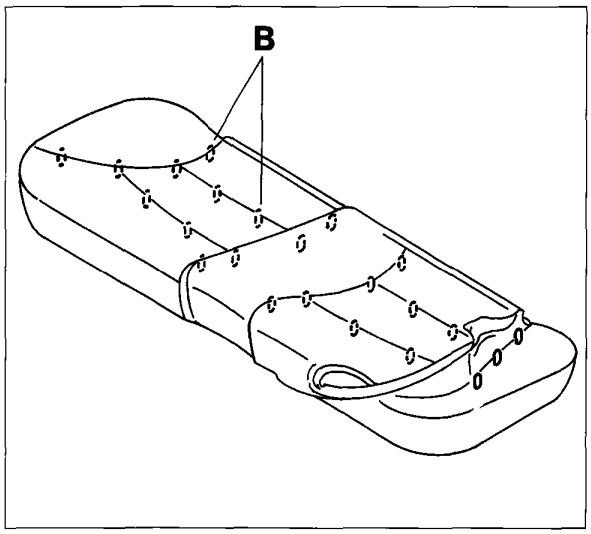


P4A024M17

DISMANTLING-FITTING ONE-PIECE REAR CUSHION

1. Remove the cushion from the car (see previous page). Release plastic moulding A as shown in the figure. Remove upholstered cushion.



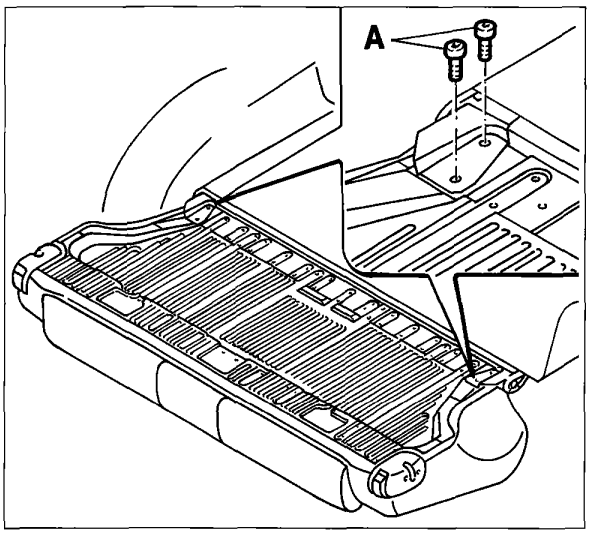
P4A024M18

2. Fold back the cover and use cutting pliers to cut hooks B fastening the padding cover around the edges of the upholstery.

Then remove all residual parts of the hooks attached to the padding to prevent damage to the new cover.

NOTE *Use tool 1878077000 when refitting to fasten the cushion hooks*

Use new hooks.



P4A024M19

4A199M

DISMANTLING-FITTING ONE-PIECE REAR SQUAB

1. Fold down the squab. Unscrew bolts A retaining the squab to the bracket, then remove the squab from the car.

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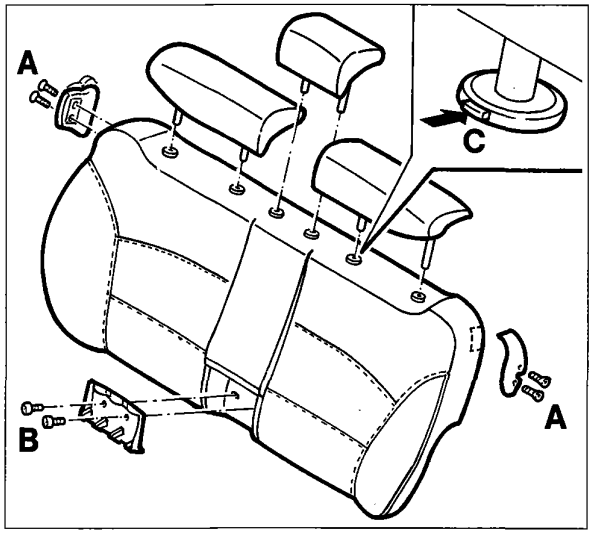
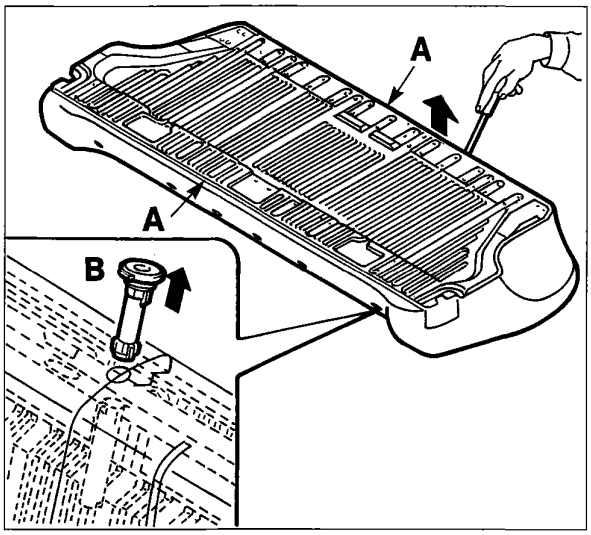


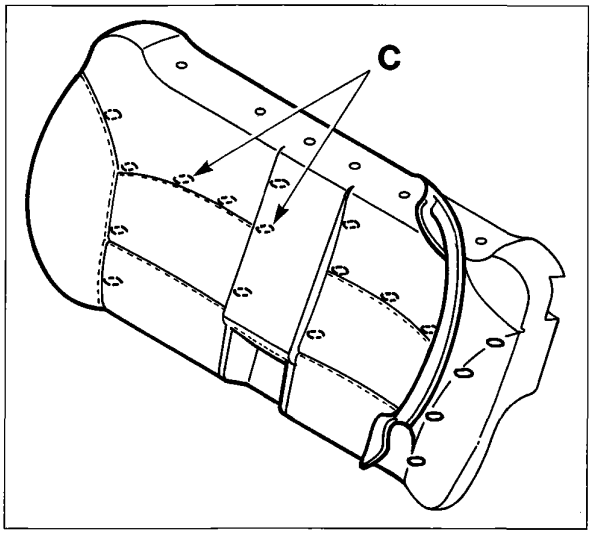
P4A024M20

1. Remove side fasteners by unscrewing bolts A. Take off the central belt carrier by unscrewing bolts B. Remove thetwo side head restraints and the central head restraint by pushing key C on the plastic bushes.



P4A024M21

2. Release cover plastic mouldings A from the reinforcement channel. Remove plastic bushes B by moving the padding and undoing the clip. Remove the upholstered squab module.



P4A024M22

3. Fold back the cover and cut hooks C retaining the cover to the padding around the edge of the upholstery.

Remove all residual parts of hooks attached to the padding to prevent damage to the new cover.

NOTE *Reverse order of removal instructions to refit. Fasten the hooks using tool 1878077000.*

Use new hooks.

4A200M

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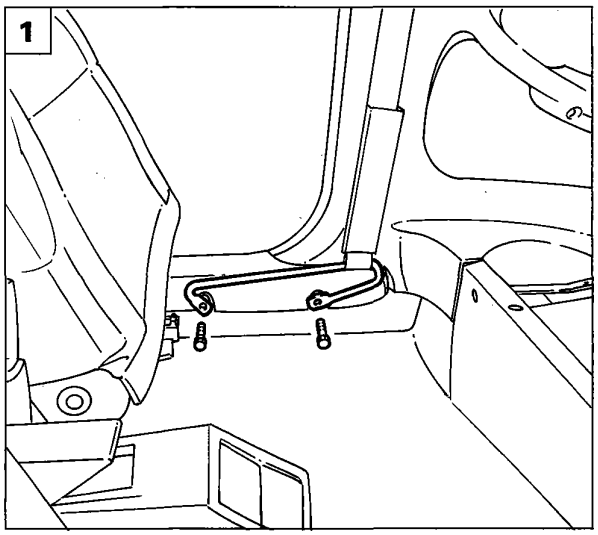

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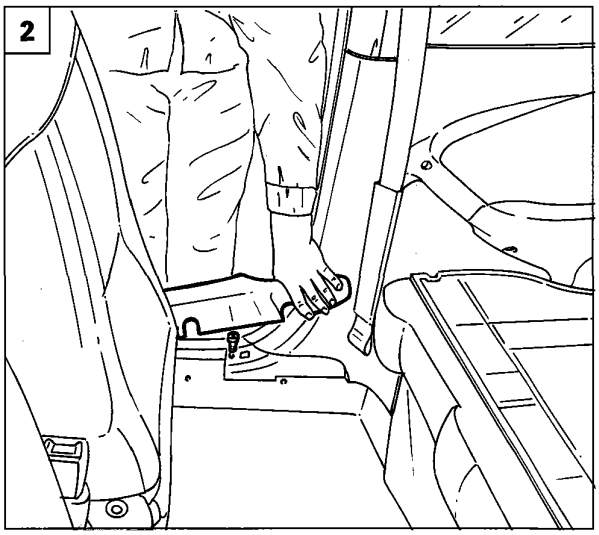

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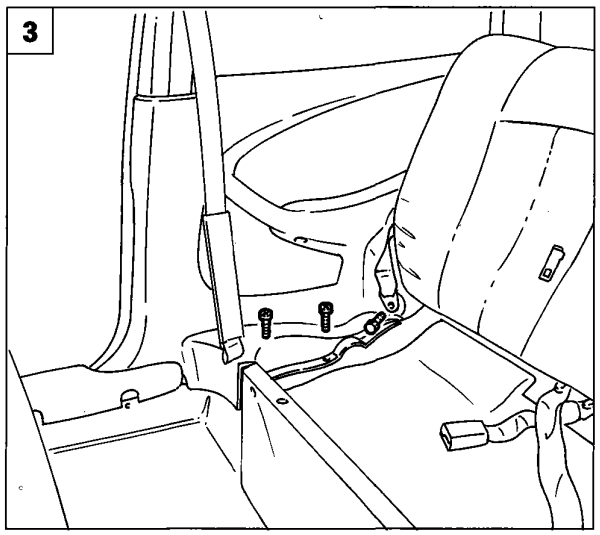
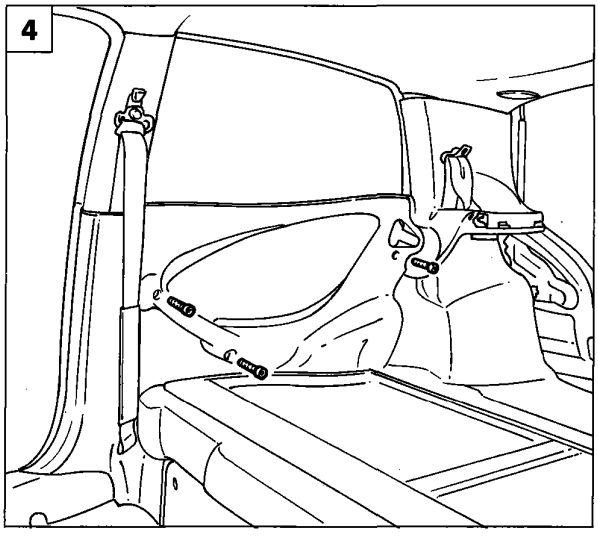


P4A025M03

REMOVING-REFITTING REAR SIDE PANEL

1. Remove the seat cushion following the instructions given on the previous page, then remove the seat belt attachment bracket undoing the fixing bolts.
2. Lift up the running board trim, then undo the bolt underneath.
3. Undo the bolt fixing the rear seat belt and the bolts fixing the panel to the floor.
4. Lower the seat backrest, then undo the bolts fixing the panel to the bodyshell.
5. Gently remove the door seal, then using tool 1878077000 remove the rear side panel from the vehicle.

NOTE *To refit simply reverse the order of the operations carried out for the removal.*



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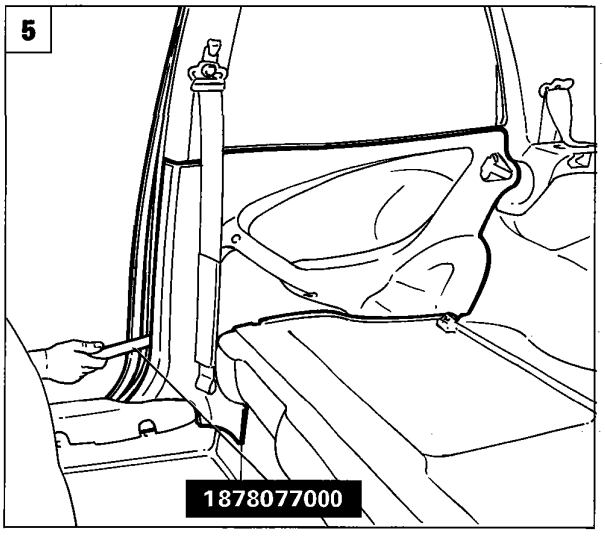

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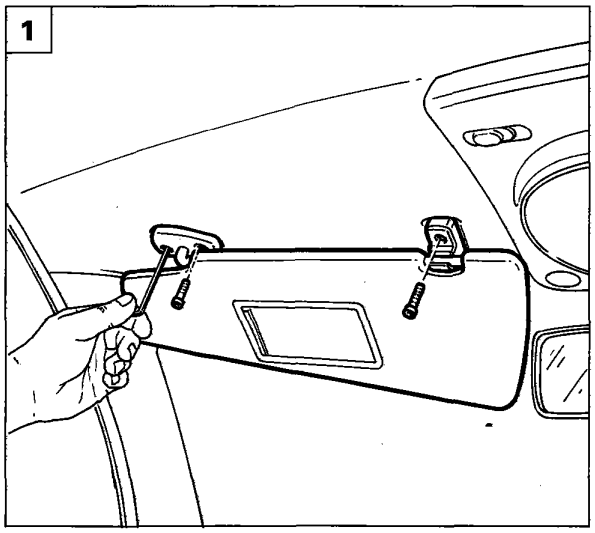

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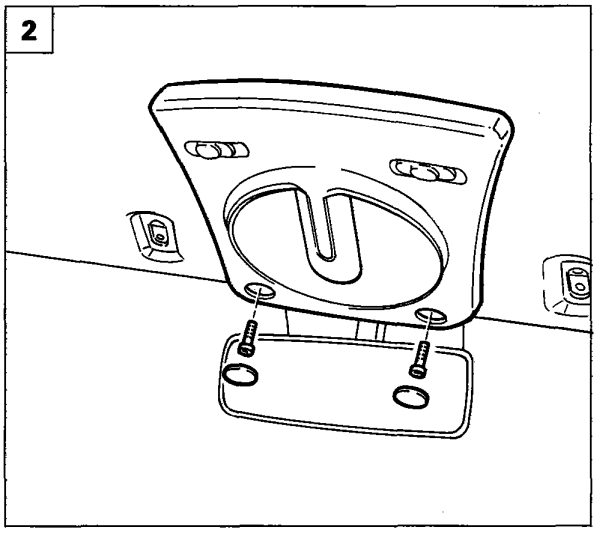

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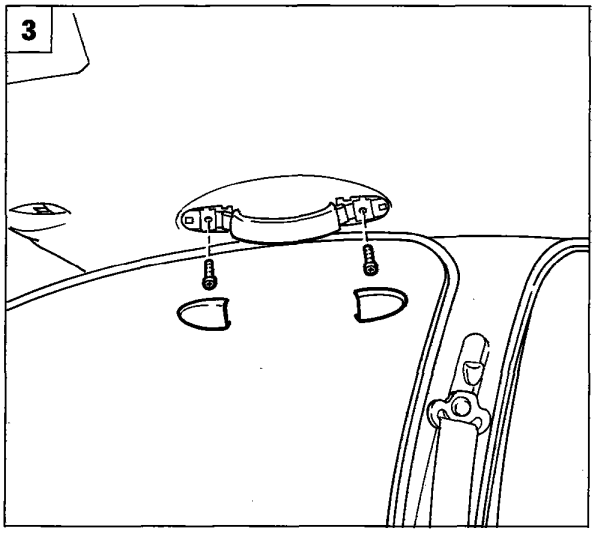


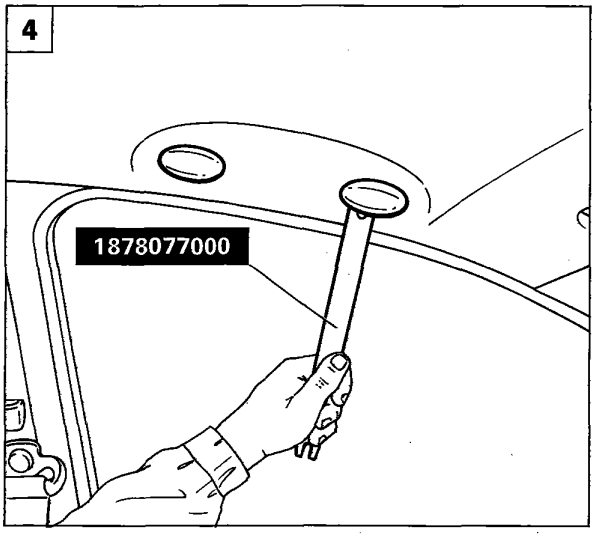
P4A026M03

ROOF LINING

Removing

The procedure is carried out on the 5 door version; as far as the 3 door version is concerned, the procedure is the same.

1. Undo the fixing bolts shown and remove the sun visors with the relevant attachment systems.
2. Remove the fixing covers and undo the bolts underneath then remove the courtesy light disconnecting the appropriate connector.
3. Remove the fixing covers and undo the bolts underneath, then remove the passenger grab handles.
4. Using tool 1878077000 remove the buttons fixing the roof lining to the bodyshell.
5. Move the door housing trim aside and use tool 1878077000 to remove the front pillar covers.



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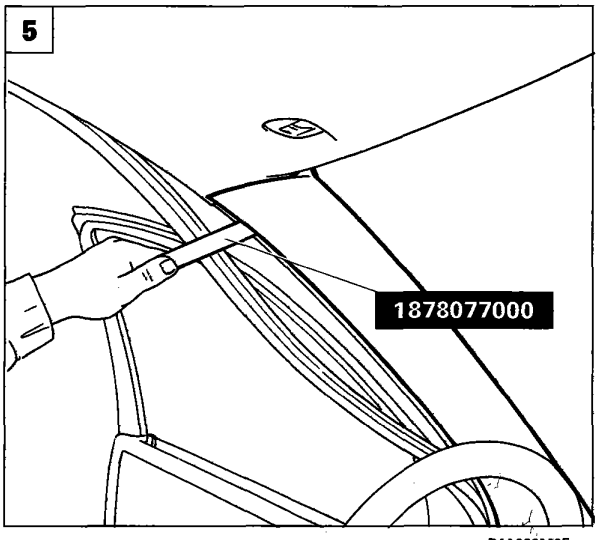

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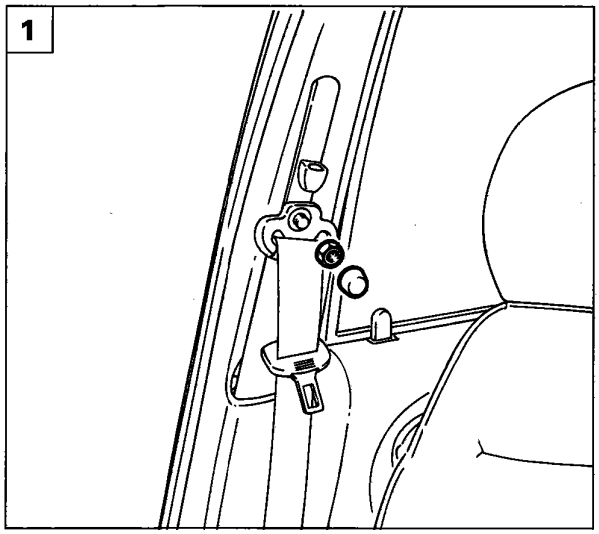

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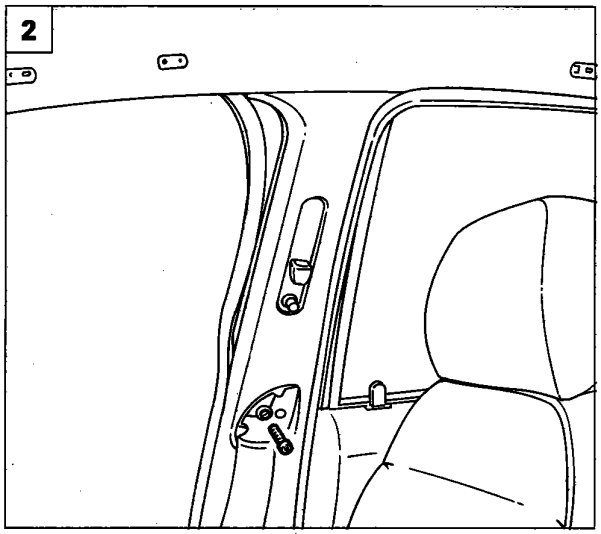

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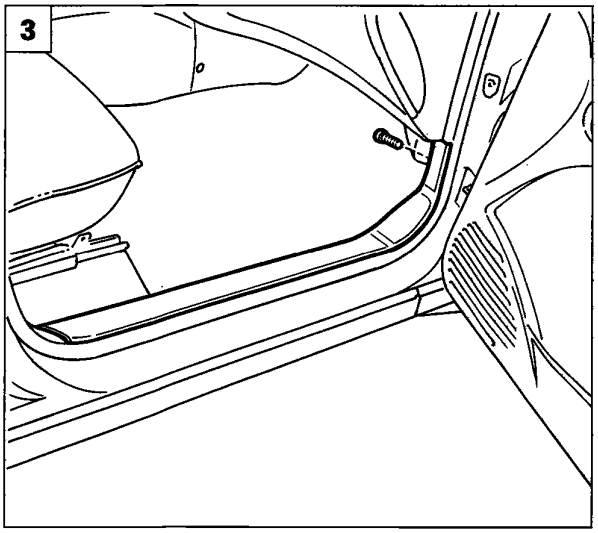
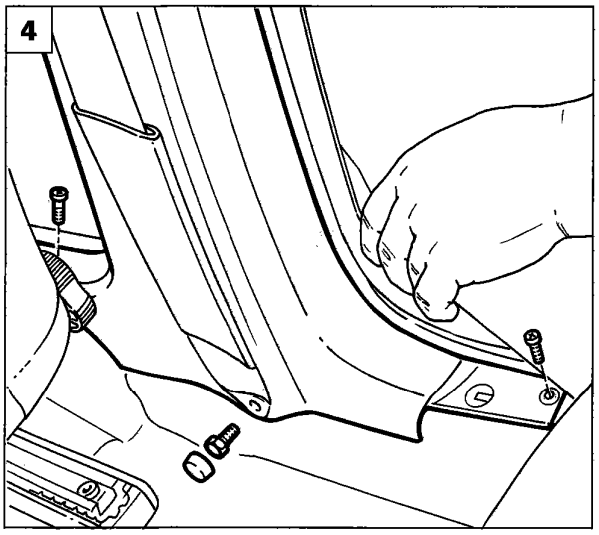


P4A027M03

1. Remove the fixing cover and undo the front seat belt height adjustment nut.
2. Undo the bolt fixing the pillar cover.
3. Undo the bolt fixing the running board.
4. Undo the lower bolts fixing the centre pillar cover and the bolt fixing the seat belt.
5. Remove the centre pillar cover using tool 1878077000.



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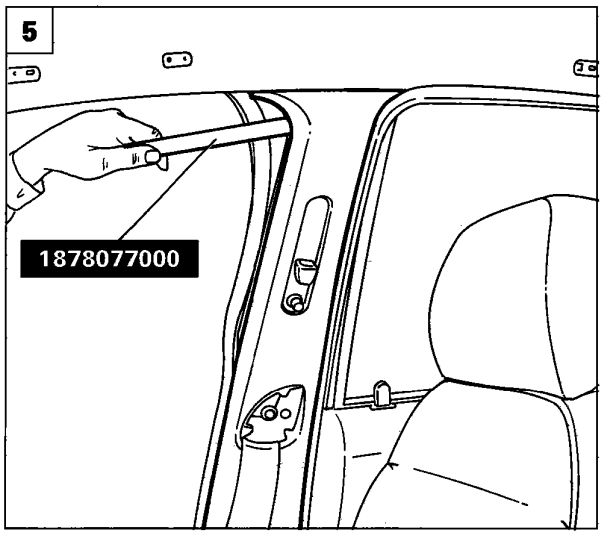

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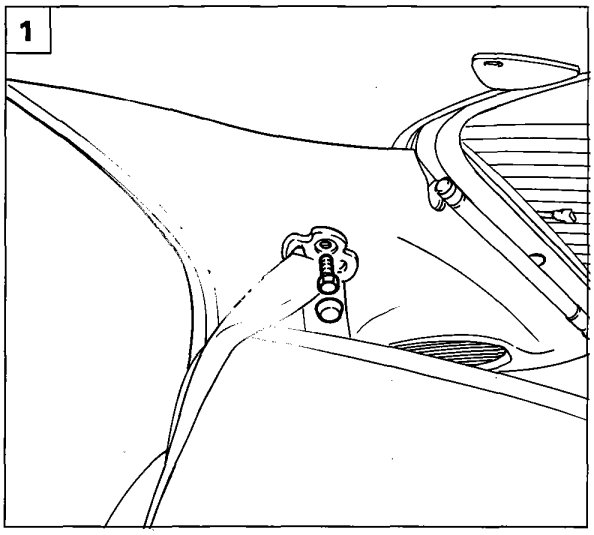

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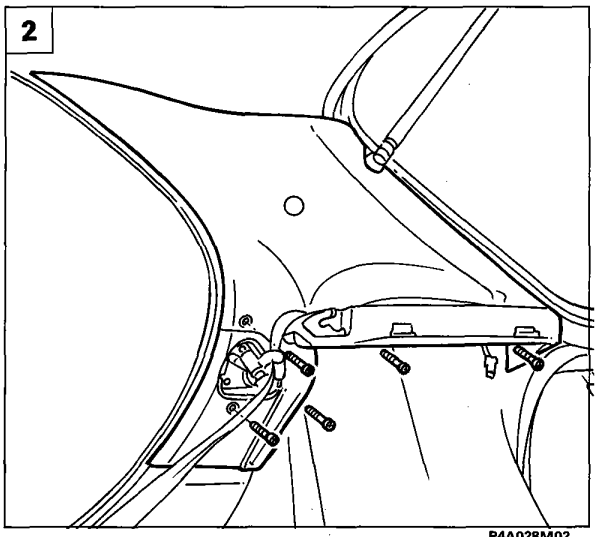
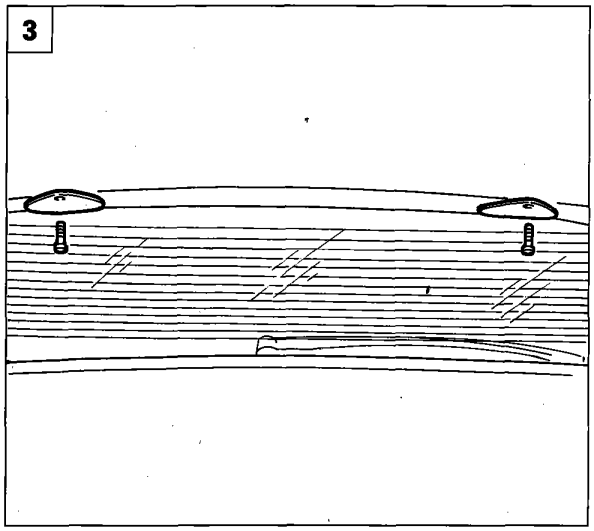


P4A028M02

1. Remove the fixing cover and undo the bolt fixing the rear seat belt.
2. Undo the bolts shown and remove the rear pillar cover.
3. Undo the bolts shown and remove the rear access trims for the tailgate hinge fixings.
4. Heat the roof from the outside using an infra red lamp to assist with the separation of the bodyshell lining:

Avoid temperatures exceeding 90°C in order not to damage the paintwork.

5. Cut the lining in a longitudinal direction to allow the subsequent removal of the roof panel from the vehicle, then extract it through the tailgate housing. (Do not pull the roof panel downwards so as not to distort it).



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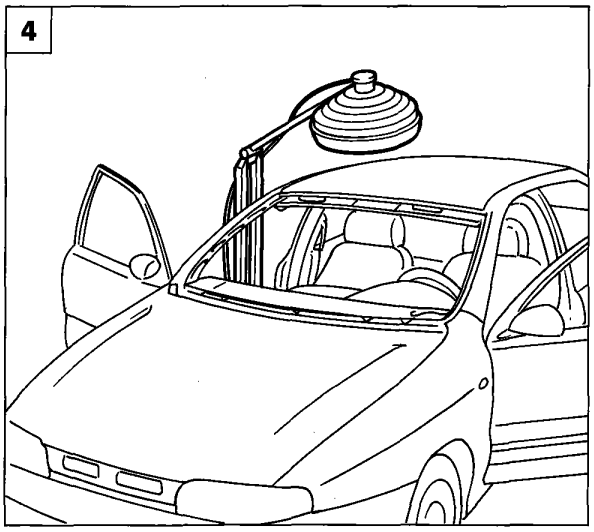

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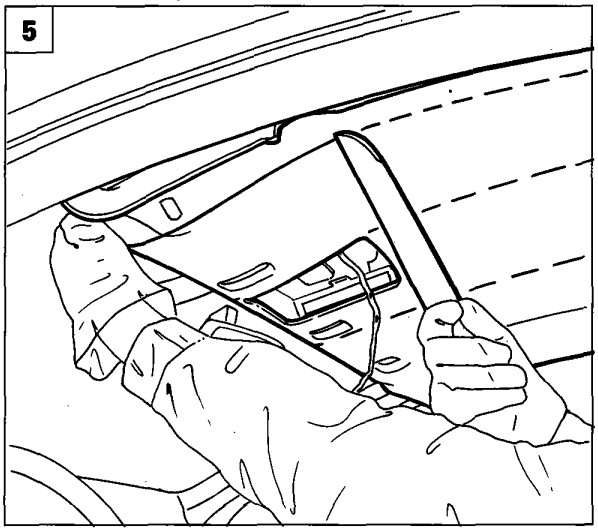

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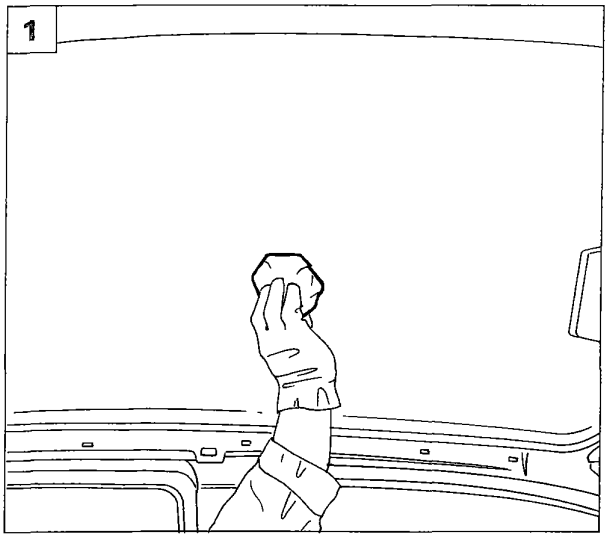

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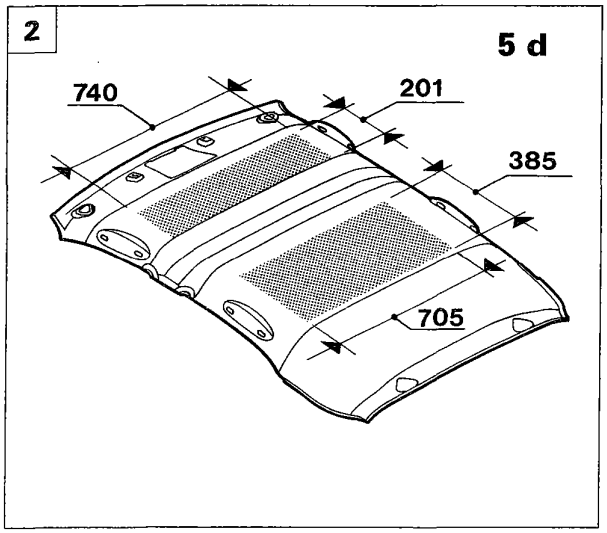

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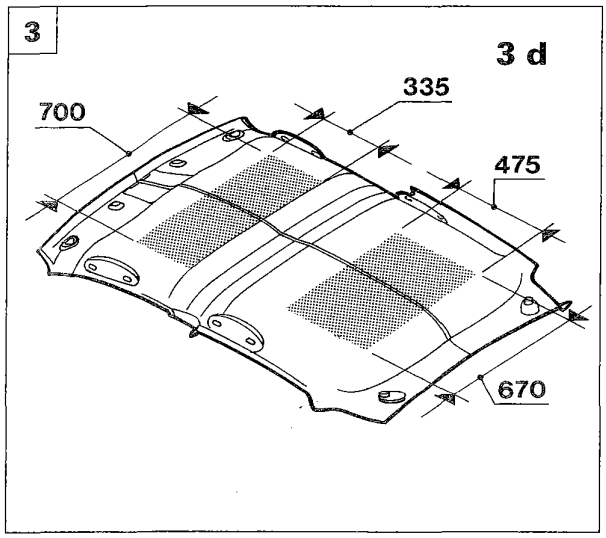

P4A029M03

4A029M

Refitting

1. Clean the roof panel thoroughly using disposable paper impregnated in heptane.

2.3 Apply the specified adhesive to the area shaded in the figure. Observe the dimensions shown.

NOTE *It is advisable to use a water-based adhesive, e.g. TIVOCOLL 4769/59 manufactured by TIVOLI, or an equivalent GURIT or ESSEX product.*

2.3 Heat the roof panel trim for about 5-6 minutes using an infra-red lamp and position the trim on the roof panel.

Do not allow the temperature to exceed 90°C, then fit the passenger grap handles and retaining studs. Press the trim so that it adheres to the roof, working from the centre outwards, then finish refitting by reversing removal instructions.

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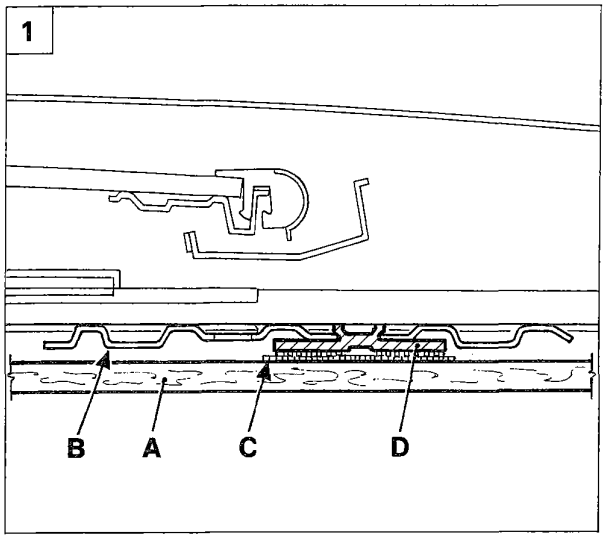
1



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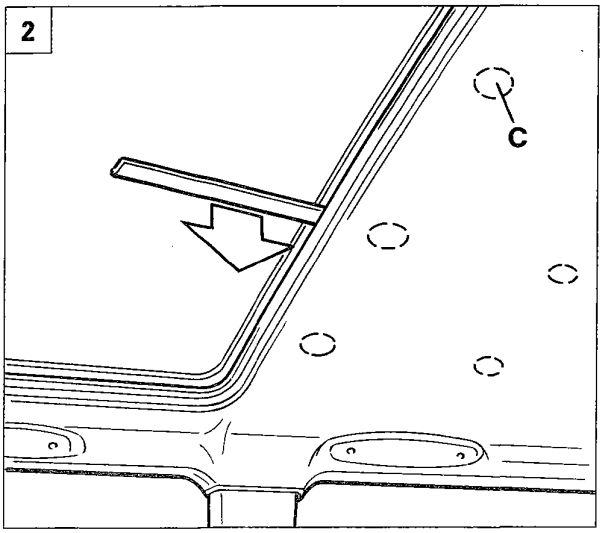

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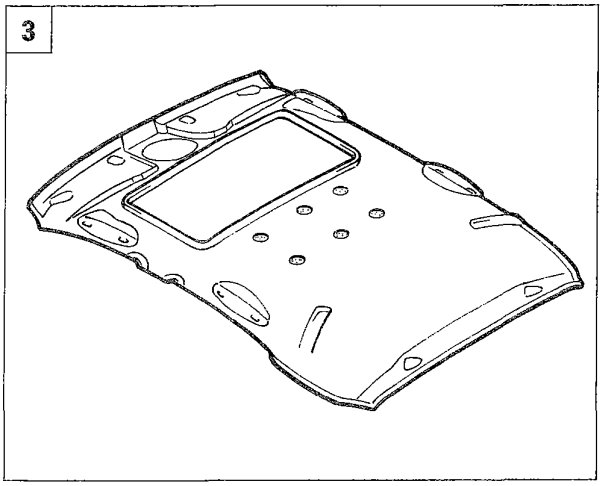


P4A029M07

Detail of roof panel trim

4A230M

ROOF PANEL TRIM FOR VERSIONS WITH SUN-ROOF

The roof panel trim (A) for versions with sun--roof is fastened round the outside as in other versions and in the centre (as shown in cross section in figure 1) by means of six velcro circles (C) arranged in two parallel lines (figure 3), which are joined to the same number of blocks (D) (with velcro) fitted on beam (B)) of the sun-roof assembly.
This type of fastening allows the roof panel trim to be reused when the sun-roof assembly is repaired and it is able to absorb vibrations.

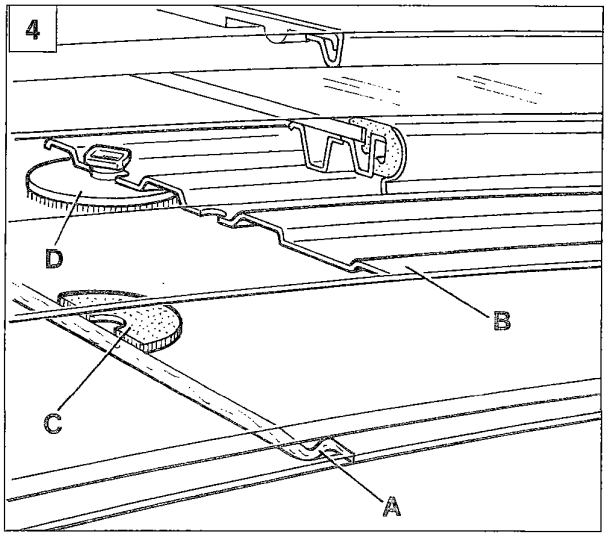
Removing

After removing the various parts described on the previous pages, insert a 4-5 cm wide blade between the sun-roof frame and the roof panel trim (figure 2). Taking care not to damage the trim, separate the velcro inserts (C) from the blocks (D).
Then remove the roof panel trim from the vehicle through the rear tail-gate compartment (see page 60)

Refitting

Position roof panel trim (4) correctly inside the vehicle roof, and then fasten around the edge after pressing velcro application points (C). Refit the various parts by carrying out the operations described in the previous pages in reverse order.

4



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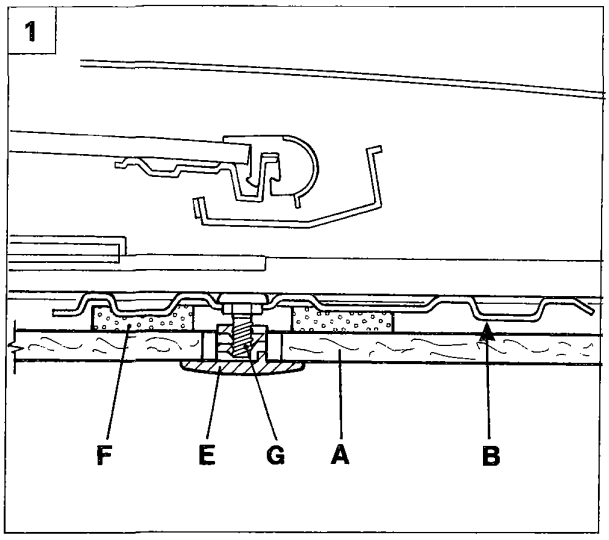

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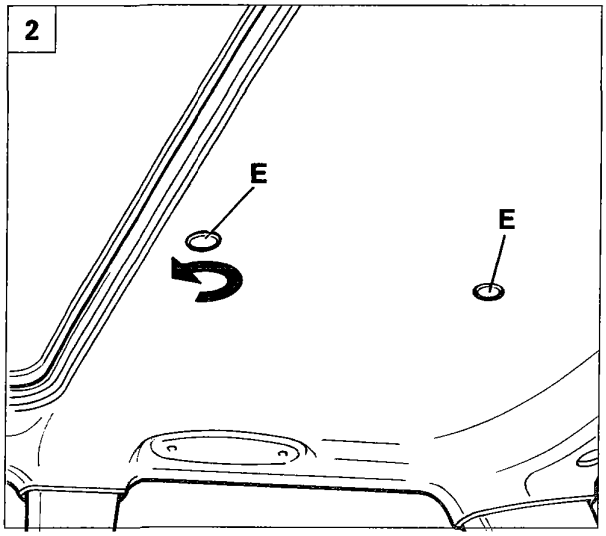

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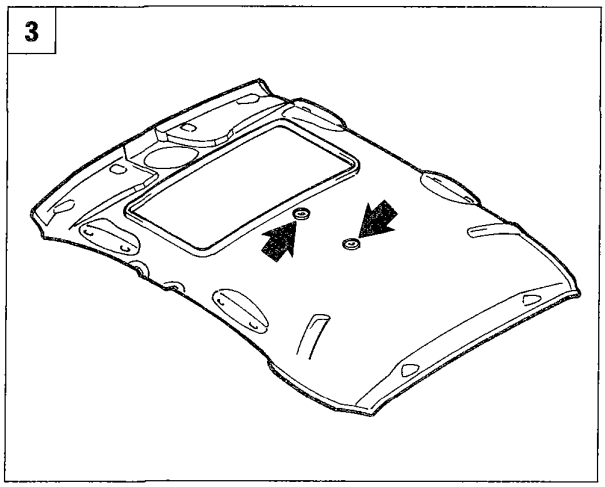


P4A029M11

Detail of roof panel trim

4A231M

The roof panel trim (A) is now fastened round the edge as with the other versions and in the centre (as shown in cross section in figure 1) by means of two studs that screw into bolts (G) applied to beams (B) of the sun-roof assembly.

Two vibration-damping foam washers (F) are fastened to the roof panel trim on the through holes used for the fastening studs.

Removing

Remove the various parts described in the previous pages, which are used to fasten the roof panel trim round then edge. Then unscrew studs (E, figure 2) retaining the trim to the sun-roof beam, taking care not to damage the trim.

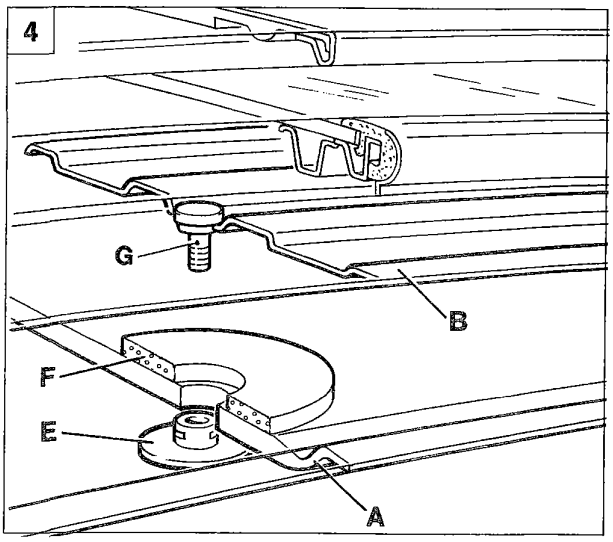
Lastly, remove the roof panel trim from the vehicle through the tail-gate compartment (see illustration on page 60).

Refitting

Postion the roof panel trim correctly inside the vehicle roof so that the two holes (arrowed in figure 3) coincide with bolts (G) applied to beams (B) of the sun-roof assembly.

Fit studs (E) onto bolts (G) and then carry on fastening the roof trim by refitting the various parts described previously and carrying out the operations described on the previous pages in reverse order.

4



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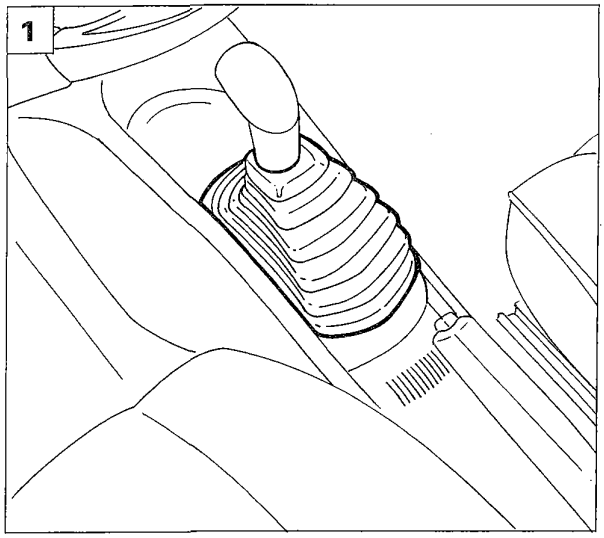

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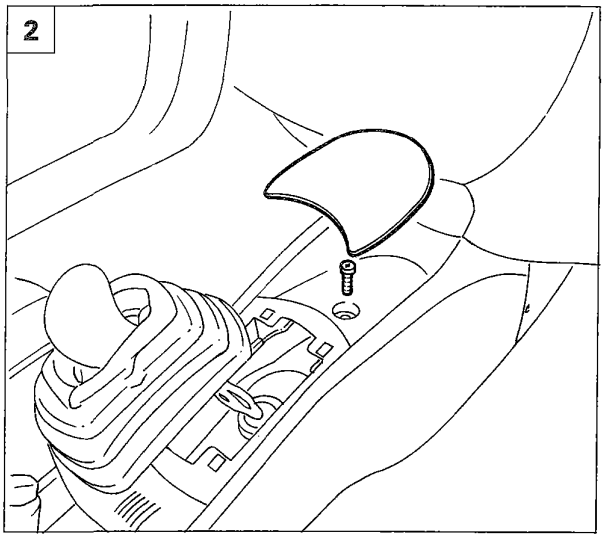

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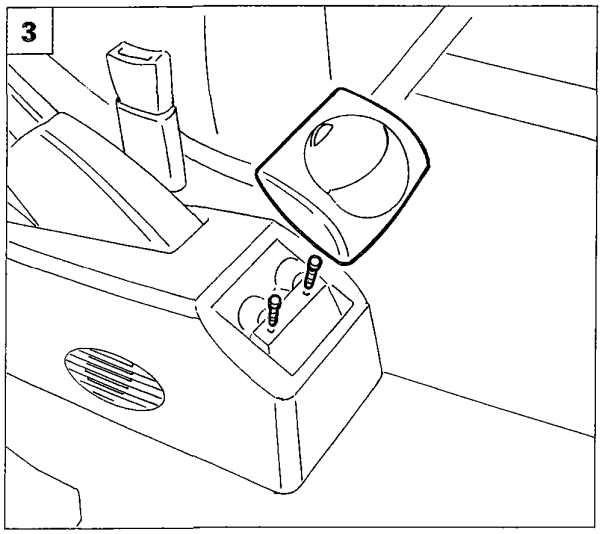
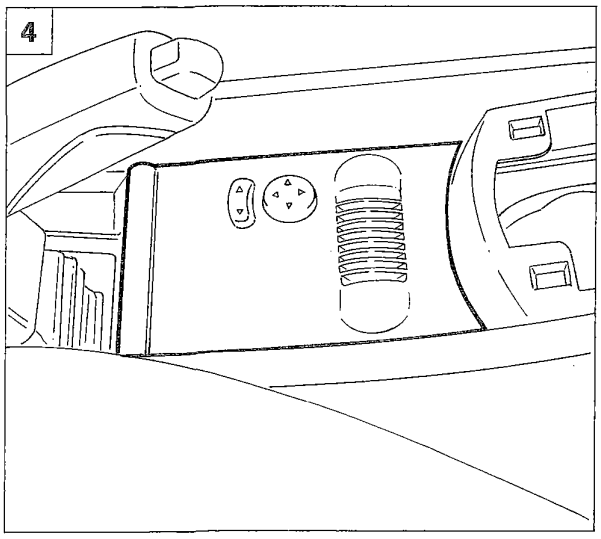


P4A030M03

REMOVING-REFITTING DASHBOARD

Remove the stalk unit from the vehicle as described in section 55 - Electrical equipment.

1. Prise the protective boot from the gear lever.
2. Lift the object mat and unscrew the underlying bolt.
3. Remove the ashtray and unscrew the underlying bolts.
4. Undo the retaining tabs and lift the panel shown.
5. Disconnect the door mirror control connector and remove the panel.



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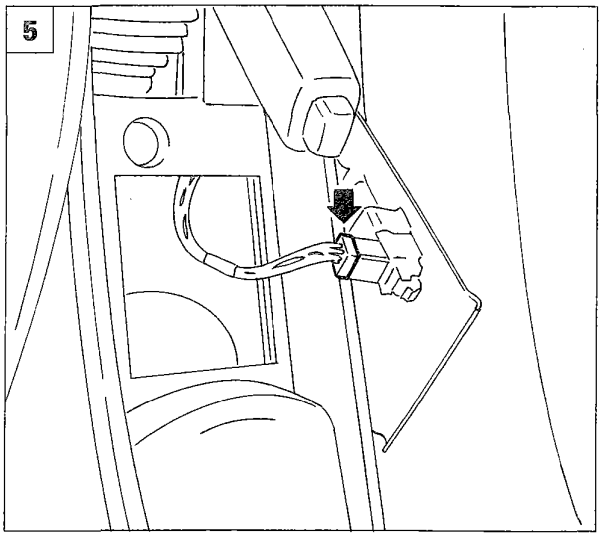

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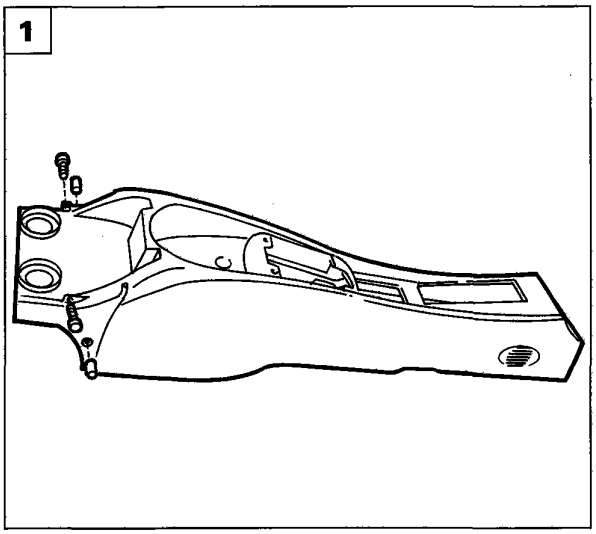

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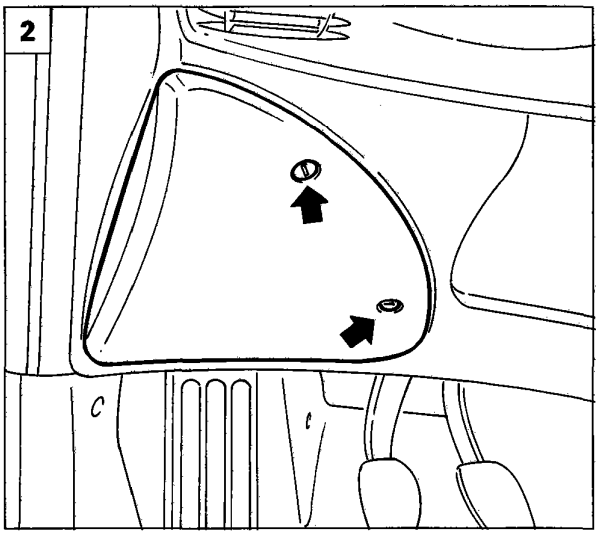

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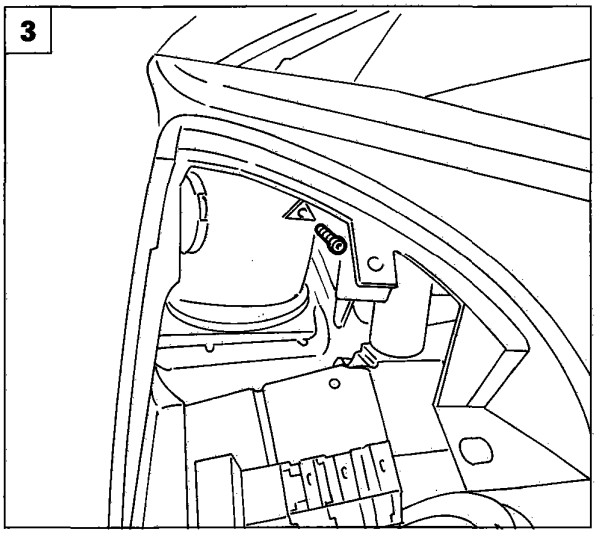

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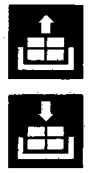
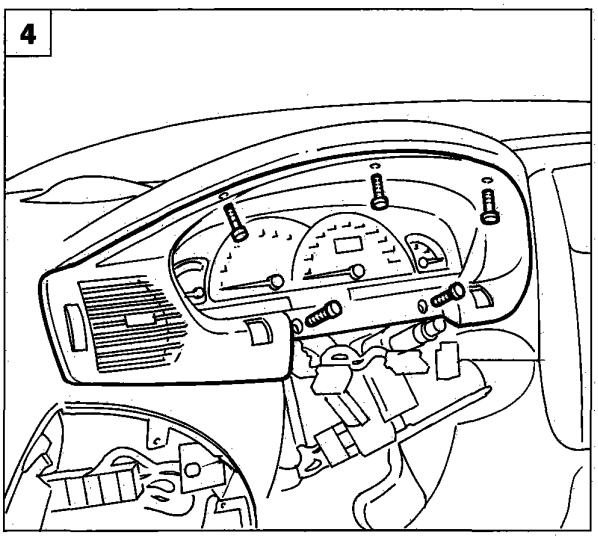


1. Remove the clips, undo the bolts shown and remove the tunnel cover from the vehicle.
2. Acting at the points shown, remove the protection for the junction unit.
3. Undo the bolt inside the junction unit protection.
4. Undo the bolts shown, then remove the instrument panel cowling.
5. Loosen the fixing bolts shown, disconnect the connectors at the rear of the instrument panel, then remove the latter from the dashboard.



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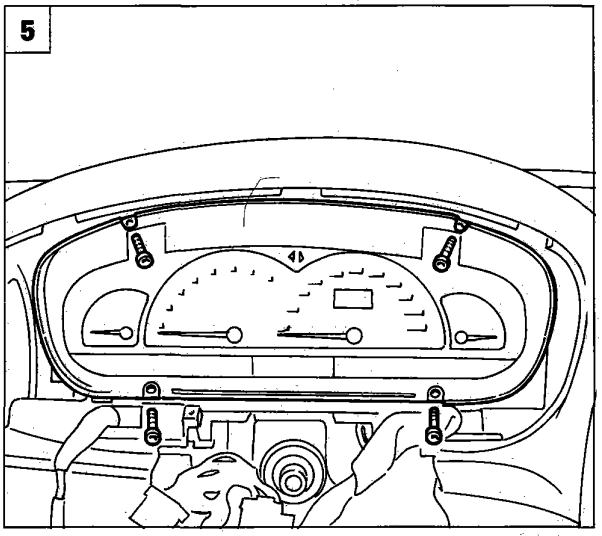

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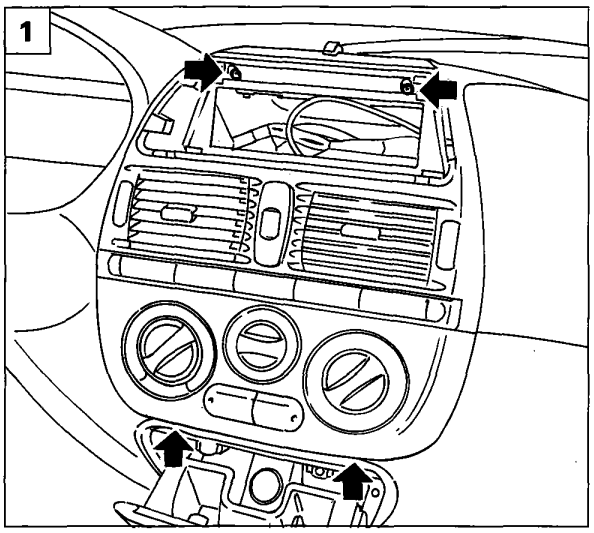

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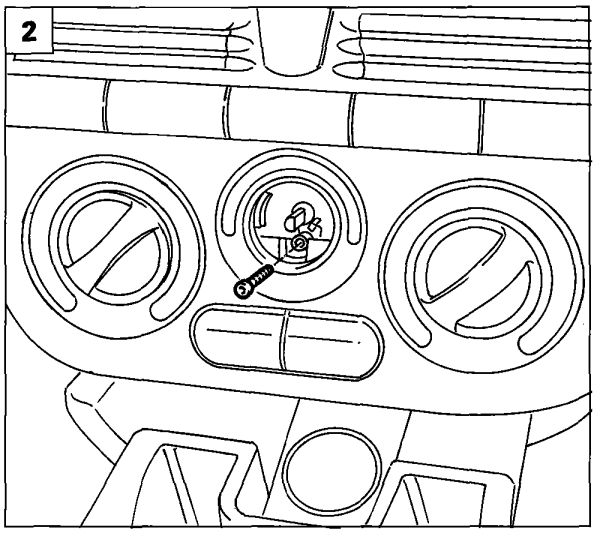

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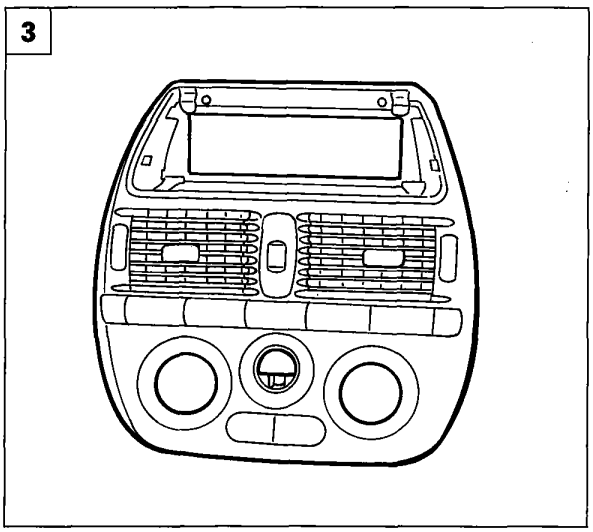

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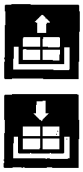
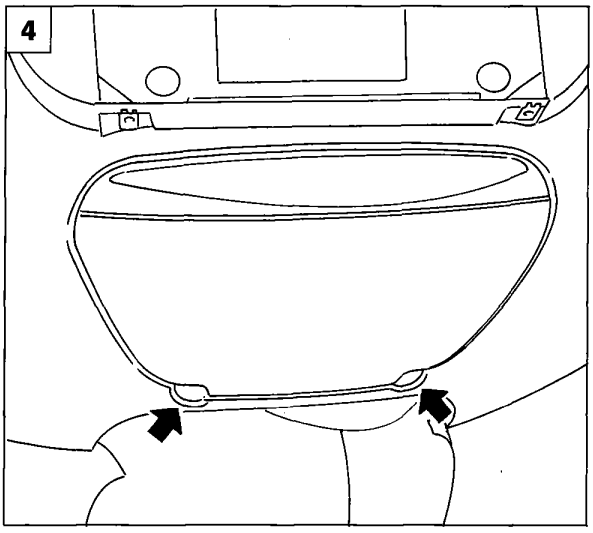


Remove the radio from the vehicle following the instructions in section 55 - Electrical equipment.

1. Undo the bolts fixing the heater control panel and various switches.
2. Extract the ventilation control knob then undo the bolt underneath.
3. Remove the heater control panel and various switches from the dashboard after having disconnected the relevant connections.
4. Undo the lower bolts fixing the ashtray to the dashboard.
5. Undo the upper bolts shown in the diagram, disconnect the connector for the cigar lighter, then remove the ashtray from the dashboard.



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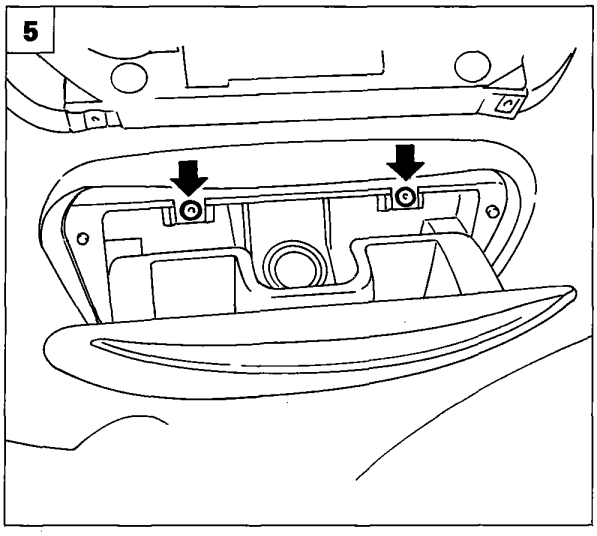

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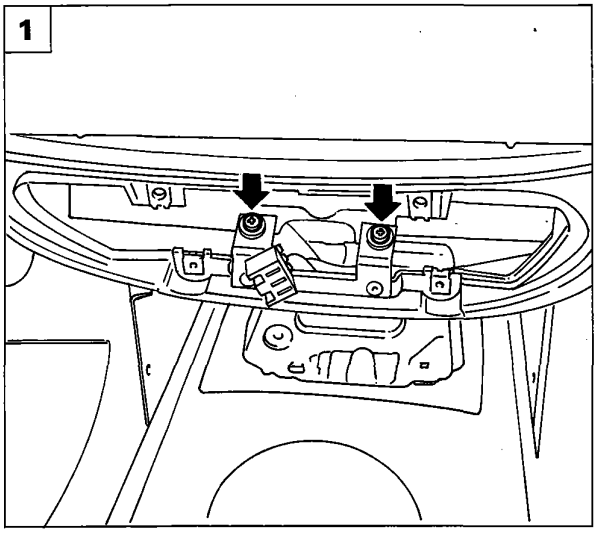

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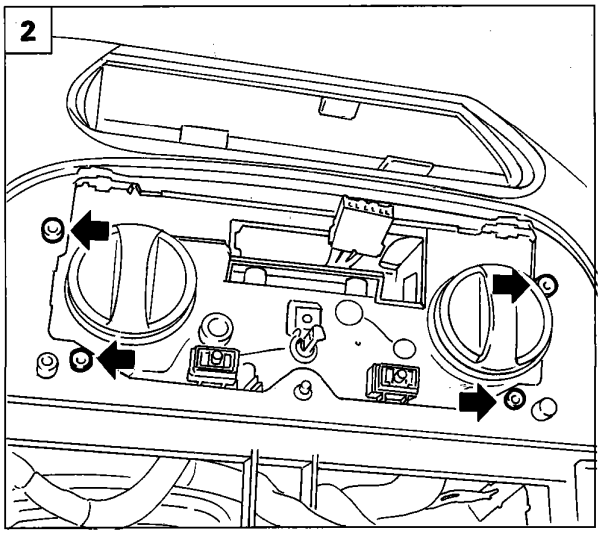

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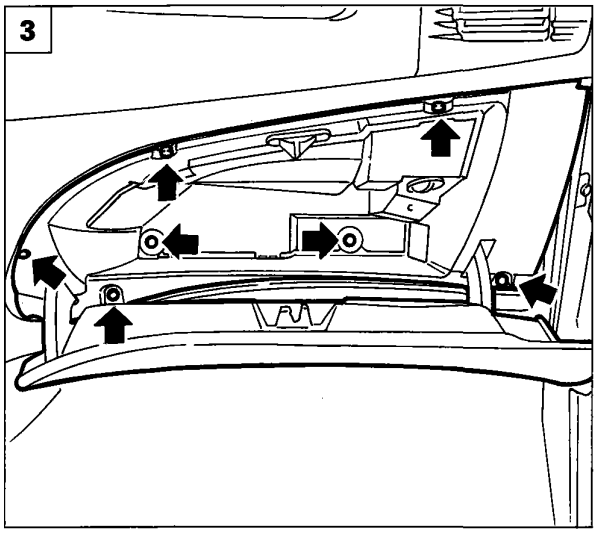

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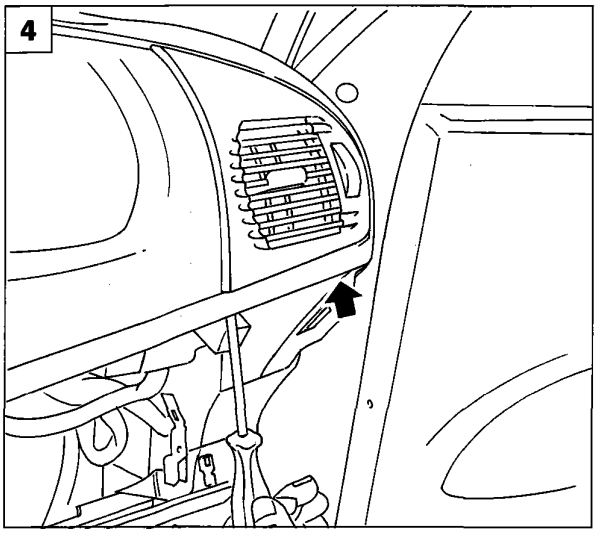
1. Undo the bolts in the ashtray housing fixing the dashboard to the heater.
2. Undo the bolts fixing the dashboard to the heater.
3. Loosen the fixing bolts shown in the diagram and remove the glove compartment.
4. Remove the left and right side air vents undoing the fixing bolts.
5. Undo the bolt shown fixing the dashboard to the bodyshell on both sides.



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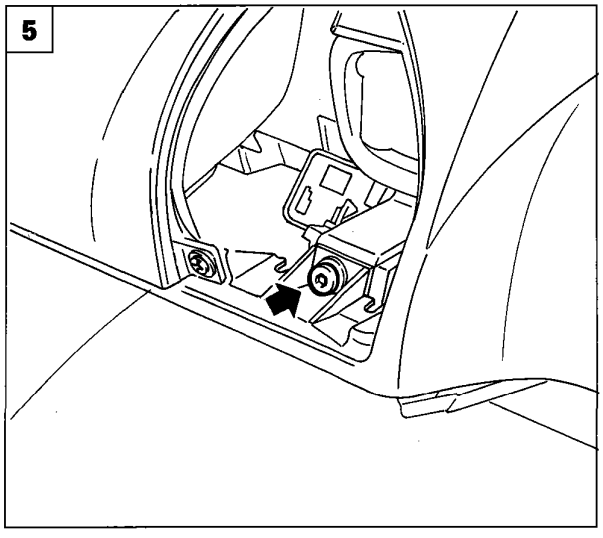

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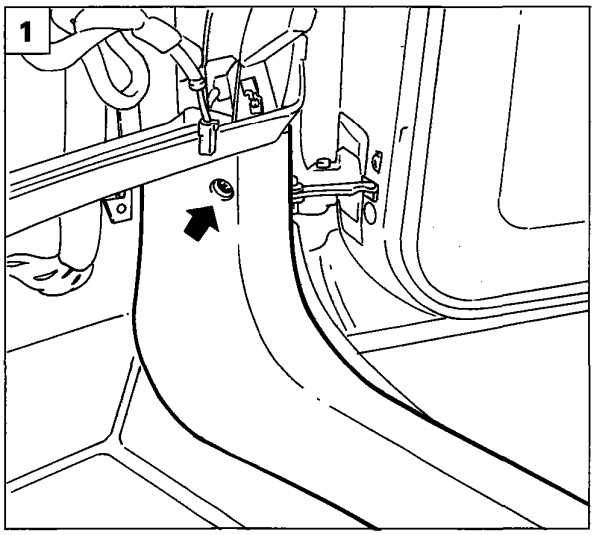

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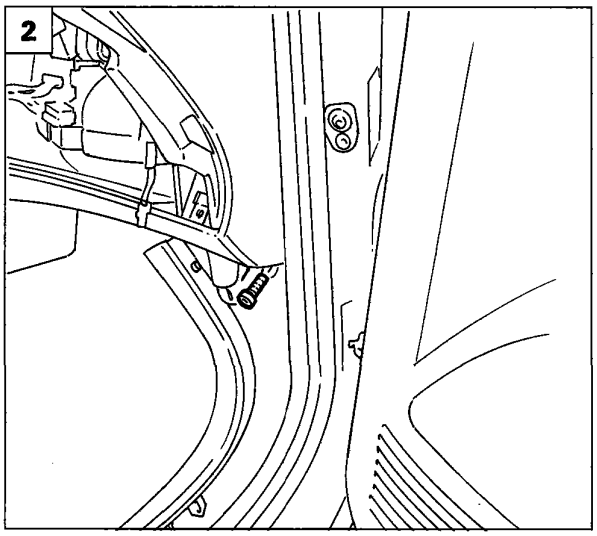

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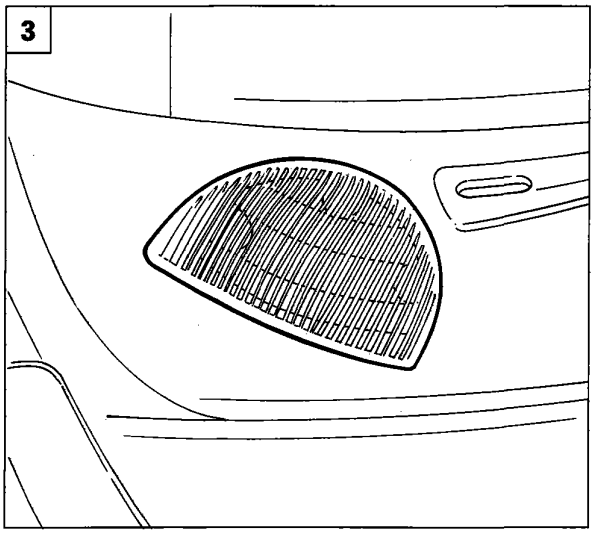

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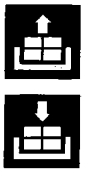
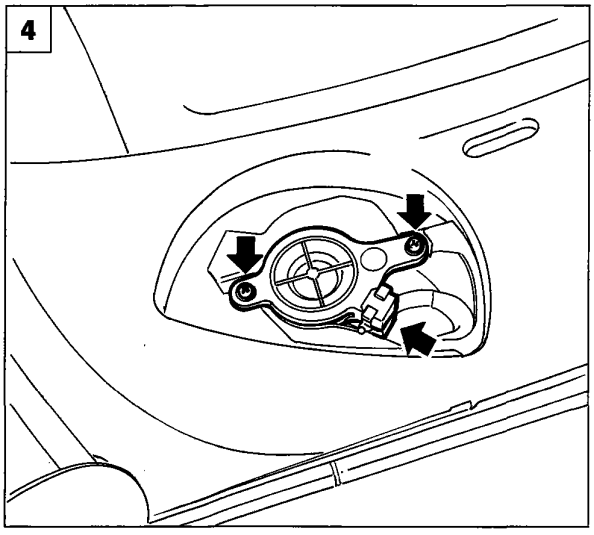


1. Undo the bolt shown and move the underdoor lining from both sides to one side.
2. Working as appropriate, undo the bolt underneath the underdoor lining from both sides fixing the dashboard to the bodyshell.
3. Acting on the retaining tabs, remove the speaker grille from both sides.
4. Remove the left and right speakers, undoing the fixing bolts and connectors.
5. Undo the bolt in left and right speaker housings fixing the dashboard to the bodyshell.



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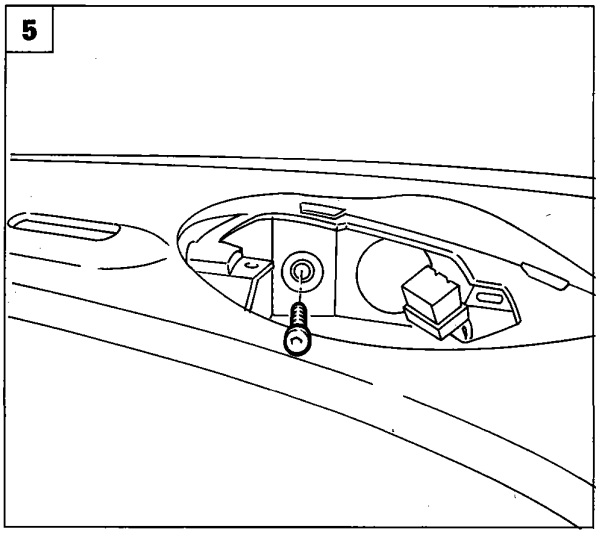

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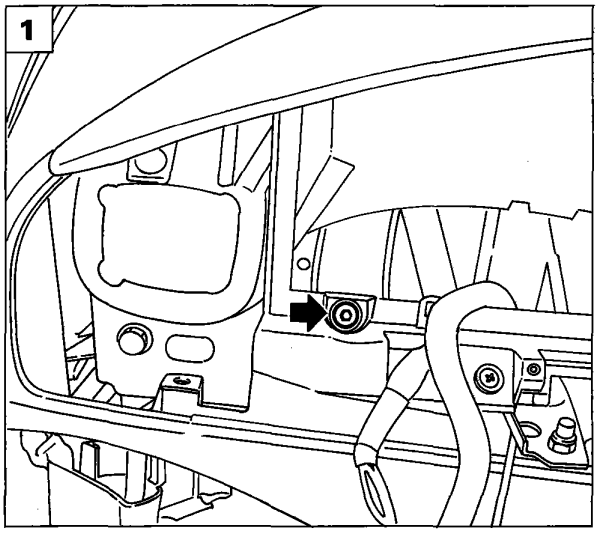

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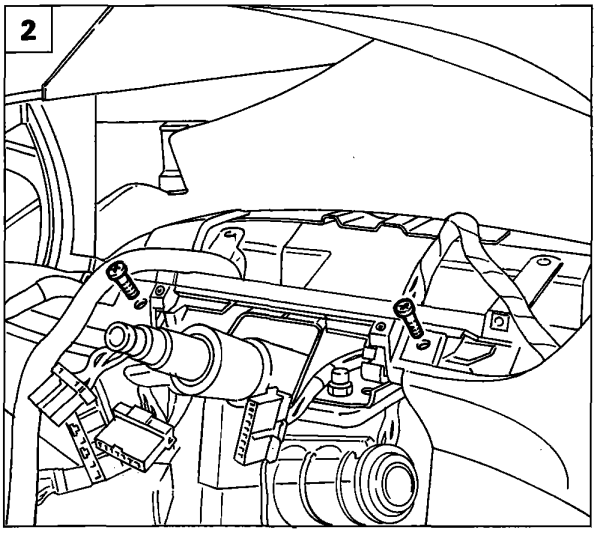
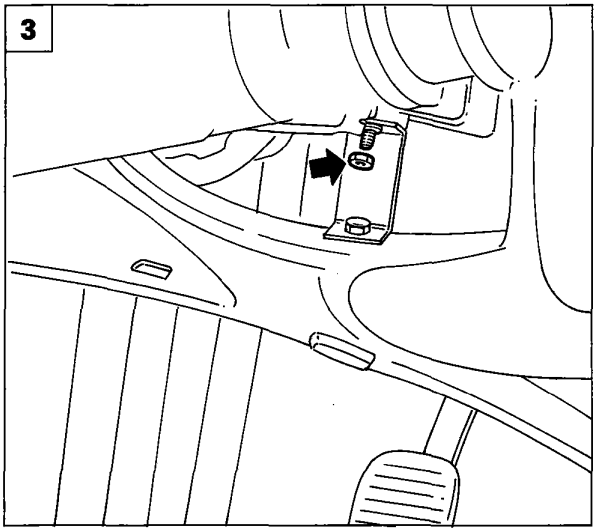


P4A035M02

1. Undo the bolt fixing the dashboard to the bodyshell at the centre and at the top (the diagram shows the centre fixing bolt).
2. Undo the bolts fixing the dashboard to the steering column.
3. Undo the nut fixing the bracket connecting the dashboard and the bodyshell.
4. Remove the dashboard from the vehicle, with the help of a second operator.



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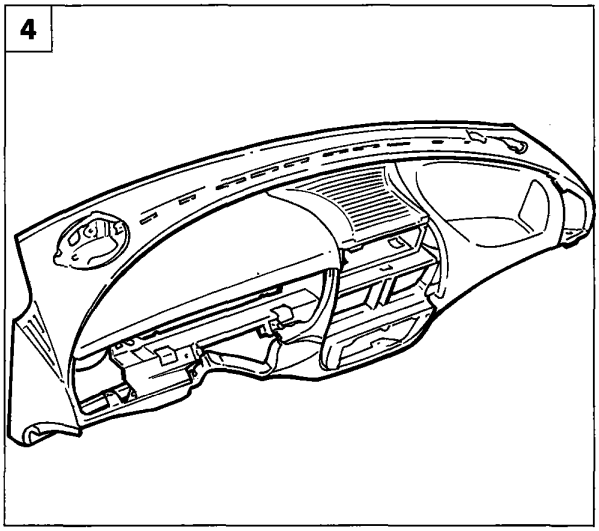

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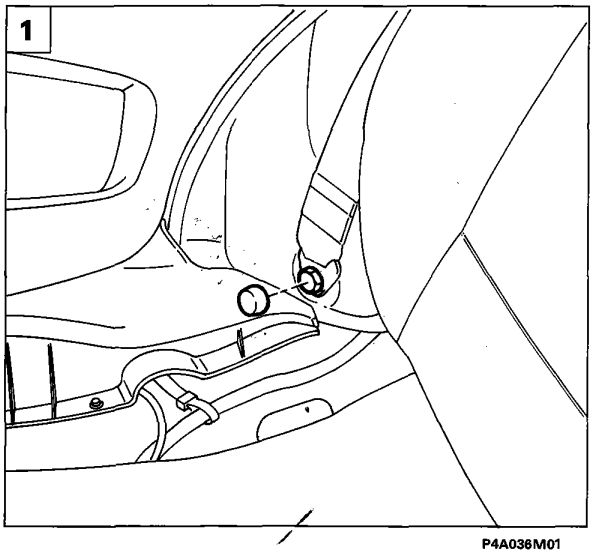

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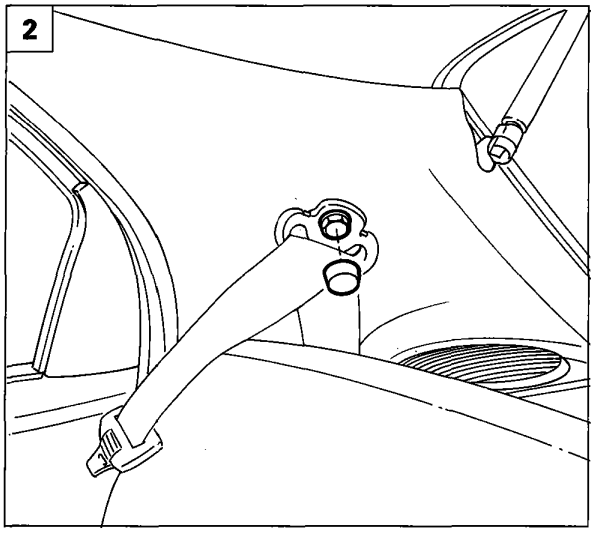

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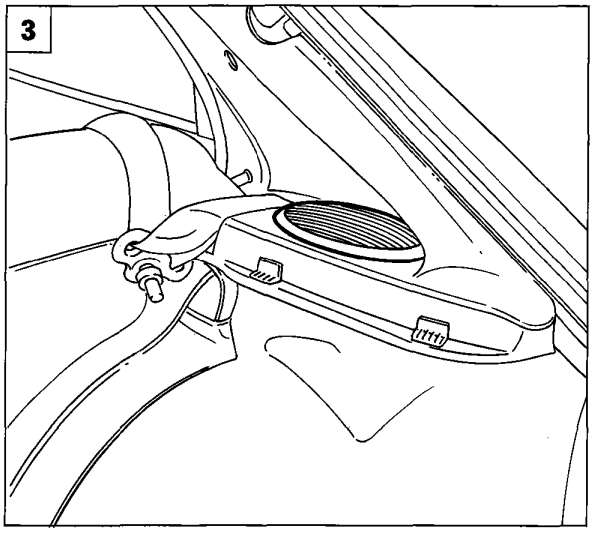
REMOVING-REFITTING REAR SEAT BELTS

The procedure is carried out on the 5 door version; as far as the 3 door version is concerned, the procedure is the same.

1. Fold over the rear seat cushion and remove the fixing cover shown, then undo the lower bolt fixing the belt.
2. Remove the fixing cover and undo the upper bolt fixing the belt.
3. Remove the speaker griller, acting on the appropriate retaining tabs.
4. Move the luggage compartment inner lining aside, then undo the bolt fixing the reel.
5. Remove the belt through the slot in the rear pillar cover, then remove the belt complete with reel.



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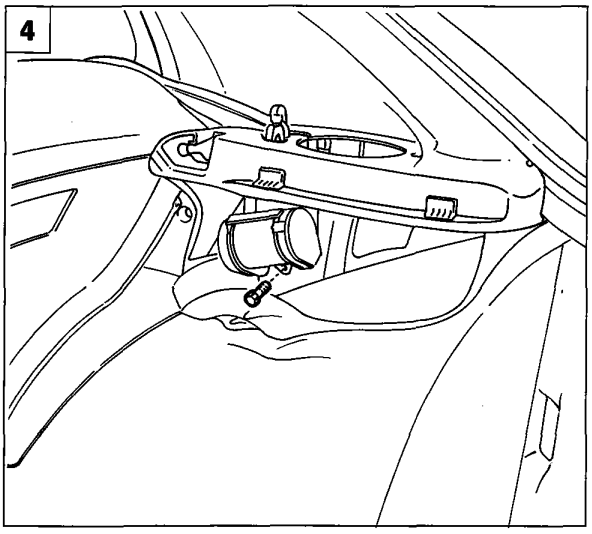

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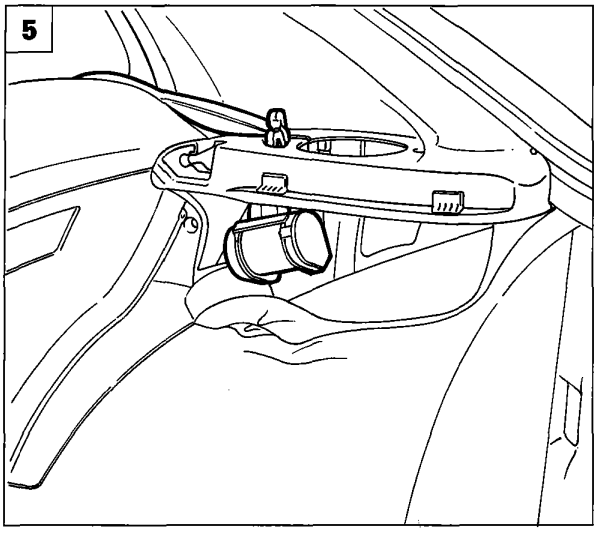

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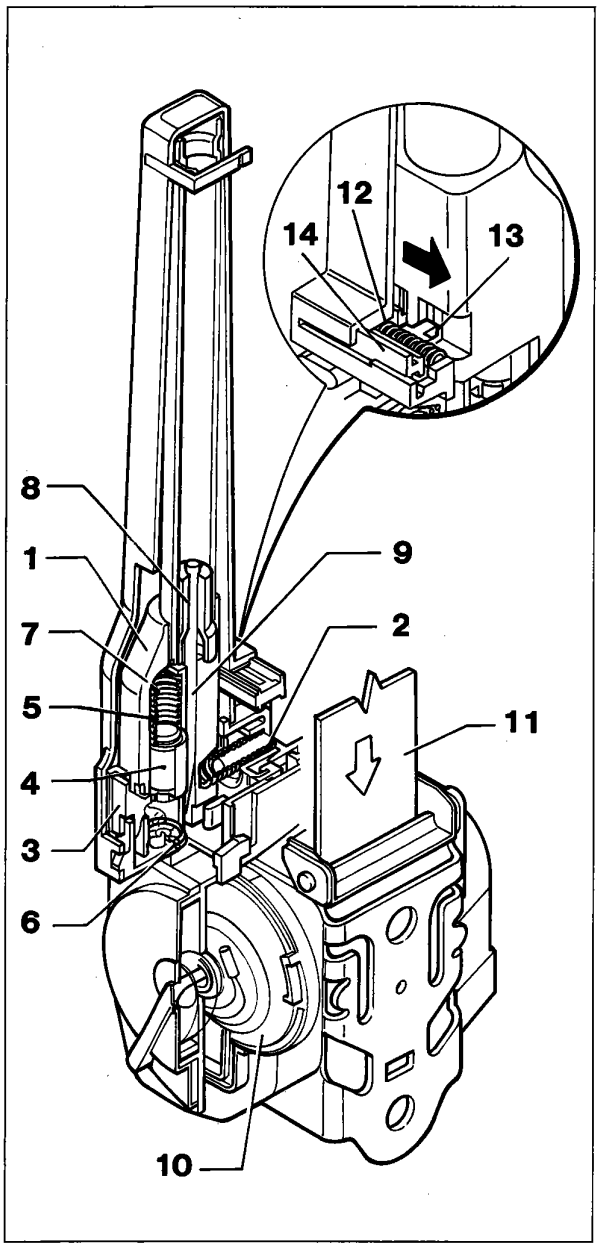
INTRODUCTION

The seat belt PRE-TENSIONER is a device integrated in the reel which, in the case of a frontal impact, recovers the inevitable lengthening of the belt due to the action of the weight of the body of the person in the seat, ensuring that they adhere to the backrest.
It is, in effect, vital that the belt remains adhering as closely as possible to the body of the person in order to gradually absorb the kinetic energy assumed during the impact.
The lengthening of the belt can be due to the following causes:
- delay in the operation of the inertia locking device;
- stretching of the belt fibres;
- wrapping of the belt around the reel (spooling effect);
- garments of a certain thickness which increase the distance between the belt and the chest.



P4A037M01

Diagram showing operation of pre-tensioner

OPERATION

The pre-tensioner fitted on the vehicle is equipped with a bracket (see page 38) which has the task of making the system active.
This takes place because the end of the above mentioned bracket acts on the pulley (14) overcoming the spring (12) loading and pushing the pulley (14) tooth (13) in the direction of the arrow shown in detail in the diagram, releasing the oscillating mass (1) thereby allowing it to act.
Sudden deceleration, caused by an impact, causes the advance of the oscillating mass (1) and the compression of the opposing spring (2). In the case of sufficiently rapid deceleration the oscillating mass is placed in such a position that the gas generator (4) is released from its retaining system (3) and moves downwards through the action of the thrust spring (5) and impacts with the percussion-pin (6) which causes the engagement of the ignition charge
This gives rise to the combustion of the pyrotechnic charge which activates the main charge and the development of the gas in the chamber (7) which flows through the special opening to the piston (8) causing the rapid movement along the expansion chamber.
The metal rod (9), fixed on one side to the piston and on the other wrapped around a pulley fitted on the same axis of the belt (11) winding (10) roller, causes the rotary movement required for the latter to rewind.
At the end of the operation the reel locks in the maximum return position for the actual belt on the body of the occupant of the appropriate seat.

The locked belt is an indication that the pre-tensioner has been activated, or of a malfunction of the reel. In both cases, the device must be replaced by authorized personnel.

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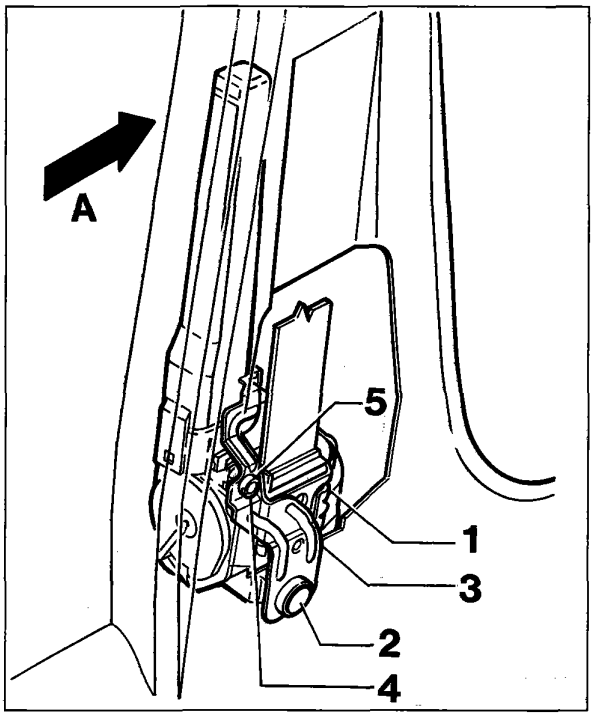
REMOVING BRACKET

The removal of the bracket (3 in the diagram overleaf) prevents the pyrotechnic device from accidentally being activated. This operation ***should be carried out*** *each time a service operation which may cause the accidental activation of the device is carried out. The bracket should ALWAYS ONLY BE REFITTED with the pre-tensioner unit fitted on the vehicle in order to prevent injury to the personnel carrying out the operation*

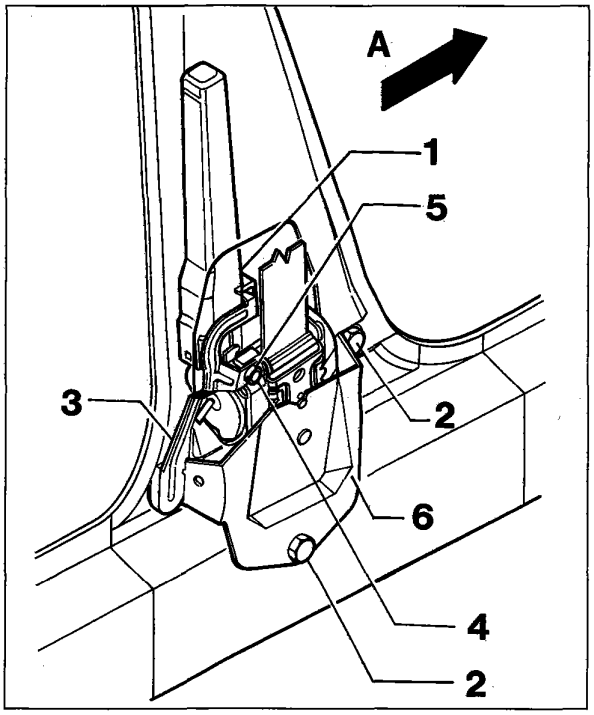


P4A038M01

3 door version

(A) Direction of travel

Break the protective collar (5) (guarantee seal), undo the fixing bolt (4) and remove the bracket (3) (also see diagram at the top of the page overleaf).
Undo the bolt (2) which fixes the pre-tensioner (1) to the bodyshell and extract the pre-tensioner from inside the pillar.



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5 door version

(A) Direction of travel

Break the protective collar (5) (guarantee seal), undo the fixing bolt (4) and remove the bracket (3) (see diagram atthe foot of the page overleaf).
Undo the bolts (2) fixing the pre-tensioner support to the bodyshell and remove the support (6) assembly and the pre-tensioner (1) from the pillar and separate the two components.

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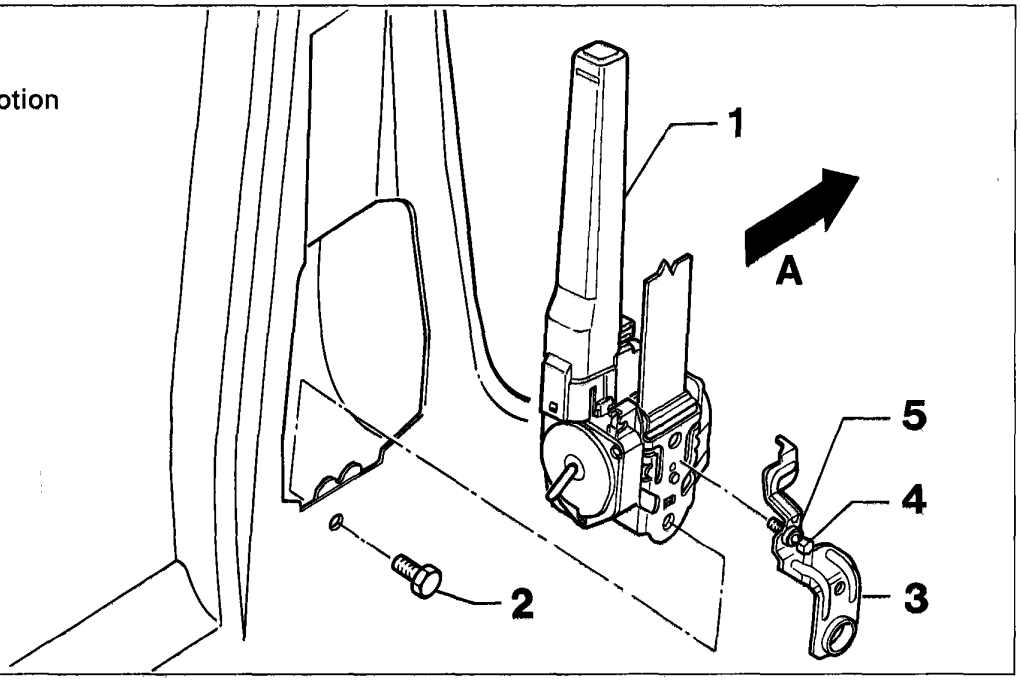
FITTING SEAT BELT WITH PRETENSIONER

When fitting pretensioner assembly (1) to the car, firstly secure pretensioner (1) and bracket (6) (the latter is only fitted on the 5 door version) to the body by means of bolts (2), which must be tightened to a torque of 4 daNm. Then secure firing bracket (3) by means of double-headed bolt with pre-established break point (4). Tighten to 0.4 daNm.

NOTE *Note that the system will only work correctly if the head of bolt (4) breaks in the required area. The bolt and firing bracket (3) are supplied as a single part and must be replaced whenever the pretensioner is removed.*

3 door version

(A) Direction of motion



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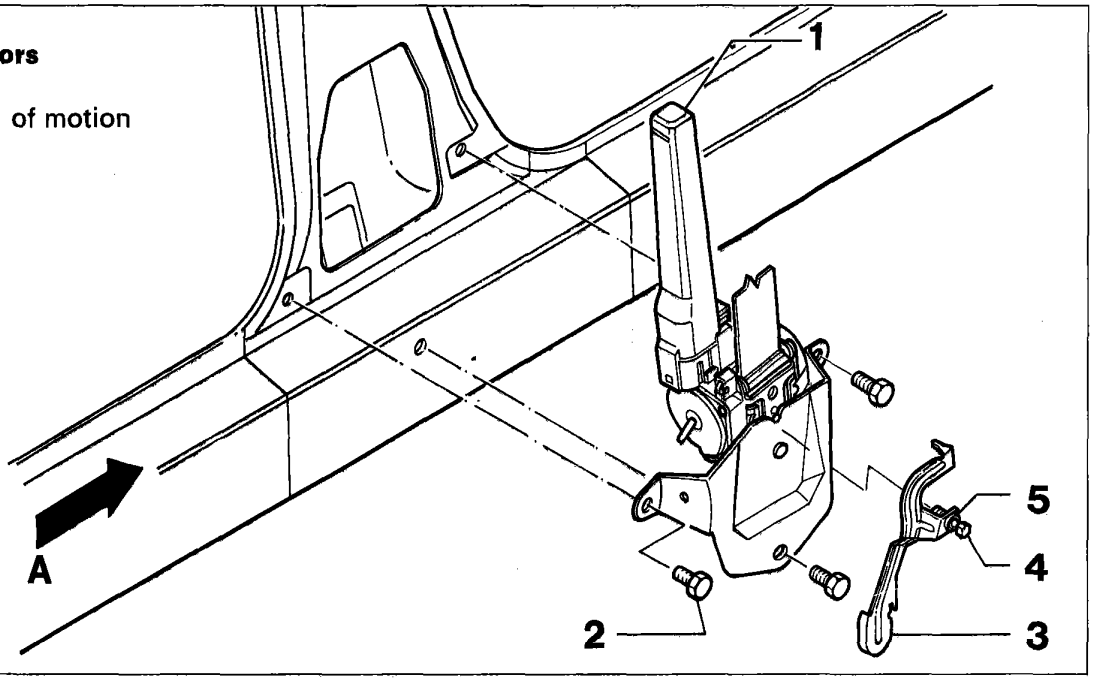
Version 5 doors

(A) Direction of motion



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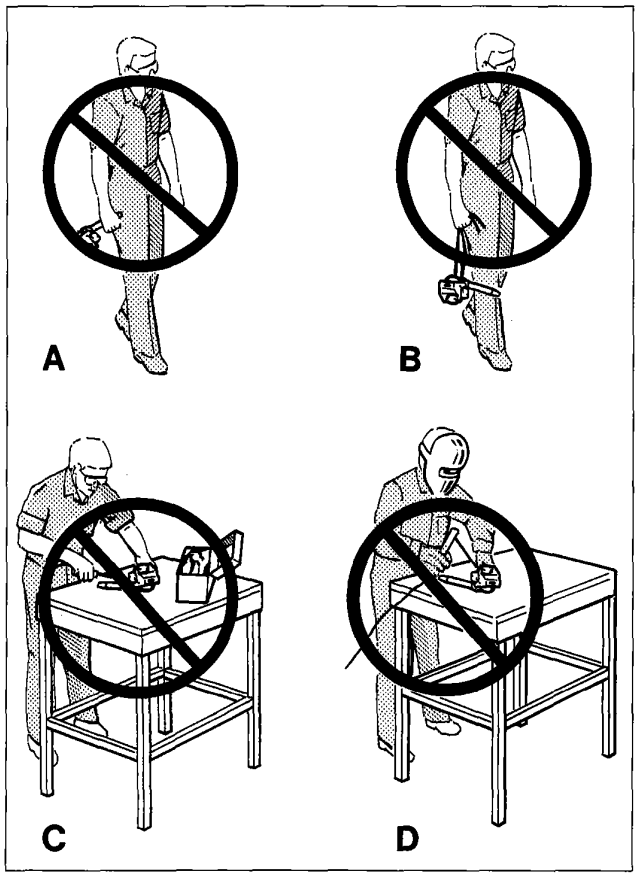
SAFETY RULES FOR HANDLING SEAT BELT UNIT WITH PRETENSIONER

Pretensioners are explosive parts and must therefore be handled, moved and stored correctly in order to prevent damage or injury



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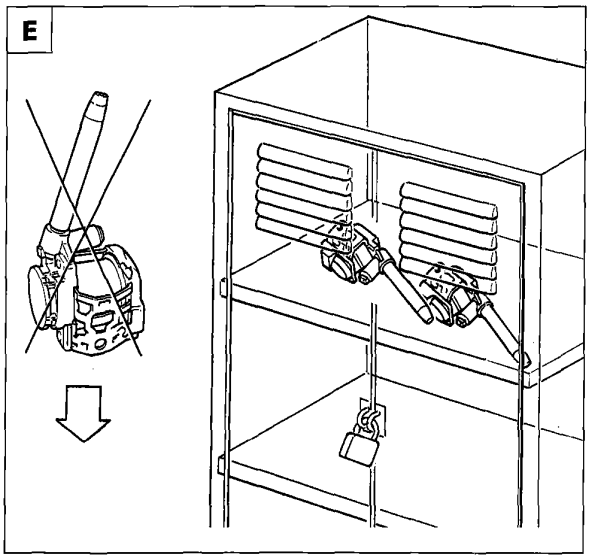

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Under normal conditions, the pretensioner is activated only during impact. The gas produced under these conditions is mainly non-toxic nitrogen.

The following rules must ABSOLUTELY be observed to ensure operator safety and prevent damage to the seat belt pretensioner unit. Remove the firing bracket before each intervention.

A. Never move pretensioners by holding them by the pipe.
B. Never move the pretensioner by holding the belt.
C. Never tamper with pretensioners or attempt to repair them. Send all defective pretensioners back to the manufacturer.
D. Never subject pretensioners to percussion, drilling, machining or heating due to welding.
E. Never allow the unit to drop or subject it to impact. Pretensioners which have been dropped from a height greater than 1 metre must not be used but sent back to the manufacturer.
When operations carried out on a vehicle require temporary removal of the unit, use a steel cabinet which meets legal requirements for the housing of explosive charges.
F. Never bring naked flames, liquids, solvents or lubricants close to the device and do not expose to a temperature higher than 110° C. With temperatures higher than 180° C, the gas generator may self-ignite.
When handling a device that has been activated, use gloves and protective goggles. If the device has gone off, ALWAYS leave at least 20 minutes following activation before touching the device.
Wash hands with soap and water after handling the device.

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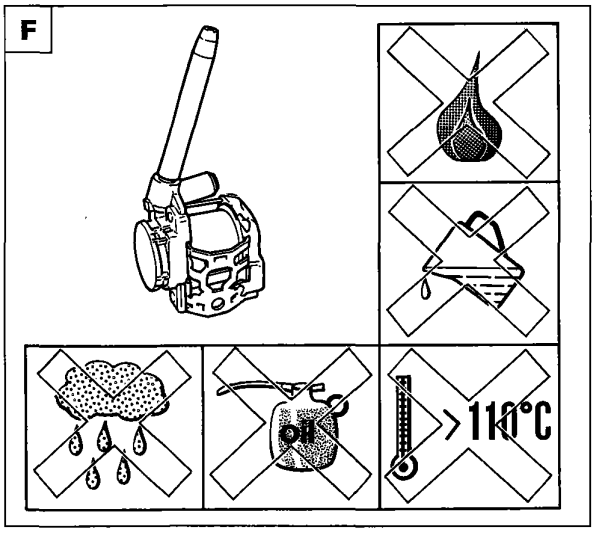

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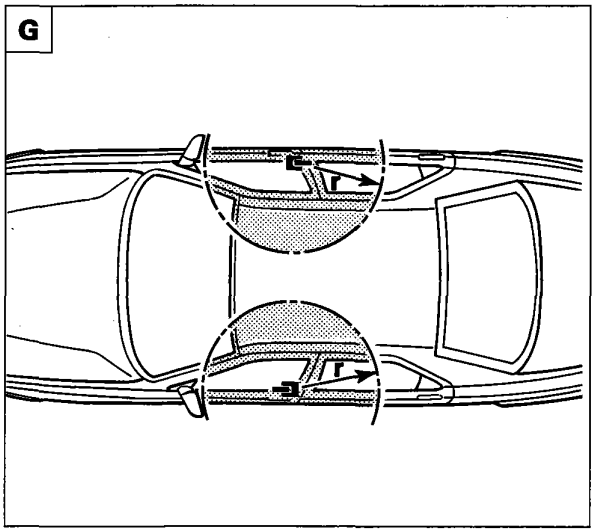

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If on account of exceptional atmospheric conditions (floods, sea-storms etc.) the water and mud reaches such a height that the device components are affected, it must be replaced.
The pre-tensioner is maintenance-free and should definitely not be lubricated. Any modifications invalidate its efficiency.

Bodywork operations

G. Do not subject the area surrounding the pre-tensioner (60-70 cm radius) to great impacts due to bodywork repairs (for example the use of a hammer; if necessary, remove the complete pre-tensioner unit.
If it is necessary to use heating lamps on the paintwork in the area surrounding the pre-tensioner or to carry out welding or brazing, then the complete pre-tensioner reel assembly has to be removed.

If a vehicle with one or more pre-tensioners has to be moved, then they should be placed in the luggage compartment and not in the passenger compartment which is forbidden.
A pre-tensioner which has not been activated in the case of an accident should be considered still active; therefore if they have not exploded because they are defective or have reached the end of their warranty or for other reasons, they should be replaced and returned (the complete device) to the special Centre following the same procedure as described for Air Bag modules (see section 55 - Electrical equipment).

Ordering instructions

Follow the same procedures already described for ordering Air Bag modules (see section 55 - Electrical equipment).

NOTE *Pre-tensioners have been specially designed to be fitted on each individual type and marque of vehicle on account of which they cannot be adapted, reused or fitted on other vehicles, but only on those for which they were designed and produced. Any attempts to reuse, adapt or fit pre-tensioners on different types of vehicles could cause serious or fatal injuries to the occupants of the vehicle both in the case of an accident or in the case of normal usage. After being fitted the pre-tensioner bracket can be activated if it receives an impact of sufficient force.*

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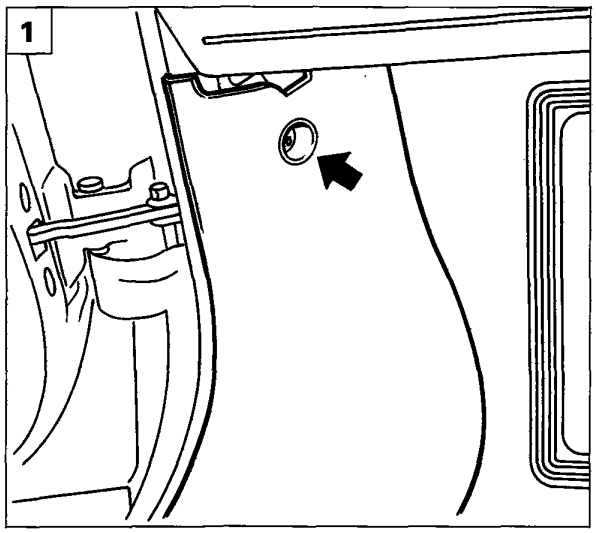

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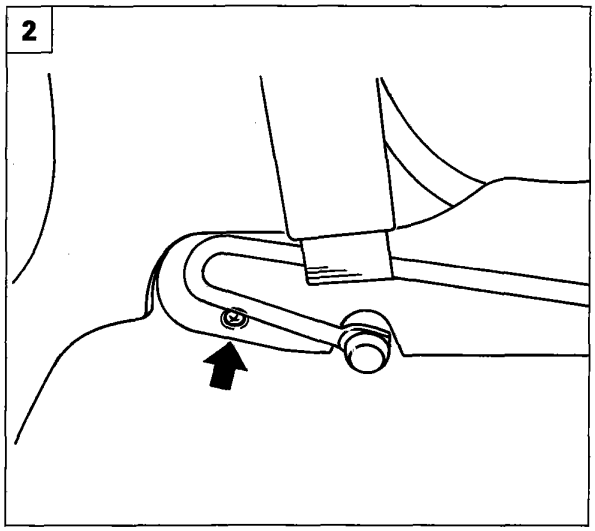
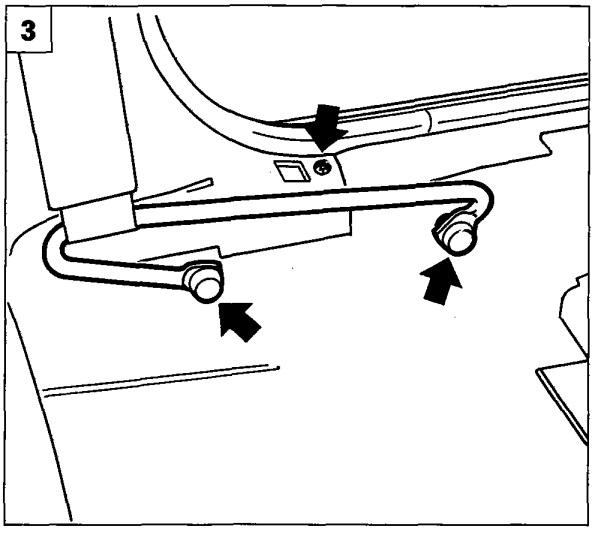


P4A042M02

REMOVING-REFITTING (3 door version)

1. Undo the bolt which fixes the underdoor lining at the front to the bodyshell which is located under the left lower part of the dashboard.
2. Undo the bolt shown which fixes the underdoor lining tothe bodyshell at the rear and remove the lining from the vehicle.
3. Undo the bolts shown which fix the pillar cover and the seat belt lower fixing bracket to the bodyshell. Access can be gained to the fixing bolts after removing the bolt covers.
4. Remove the rear seat cushion and disconnect the connector for the ABS system (if fitted).



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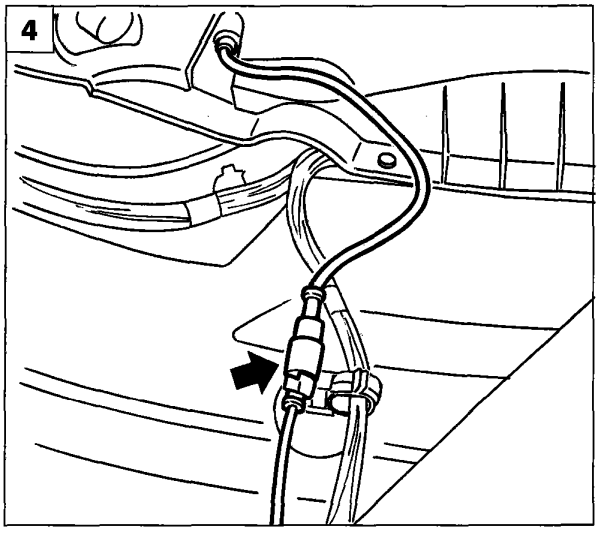

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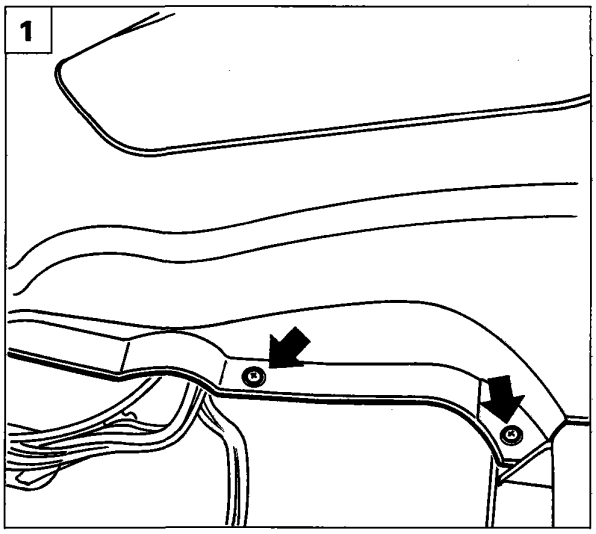

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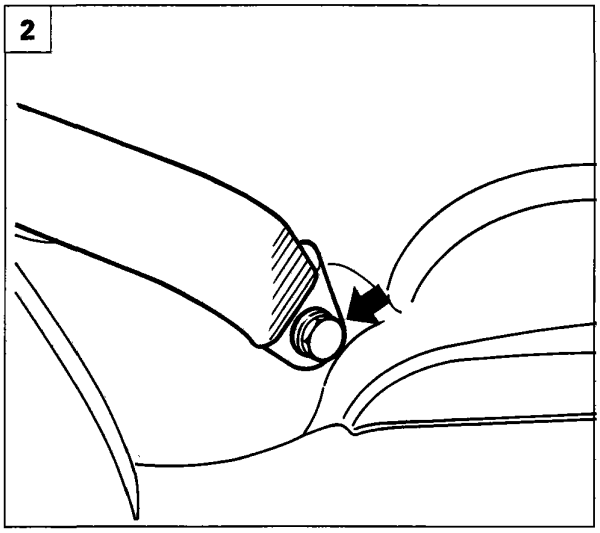

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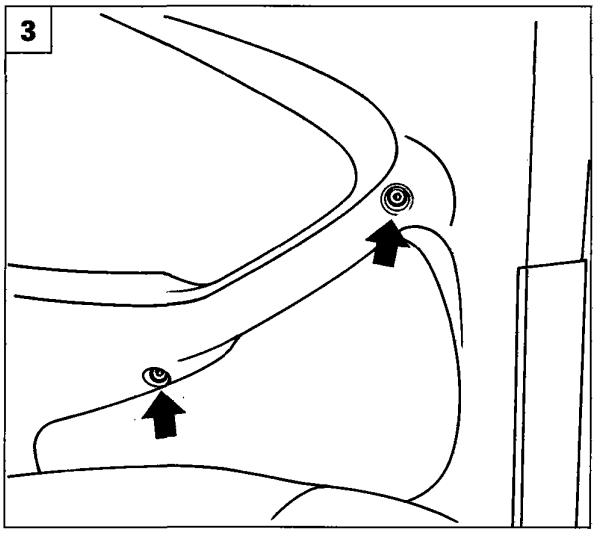
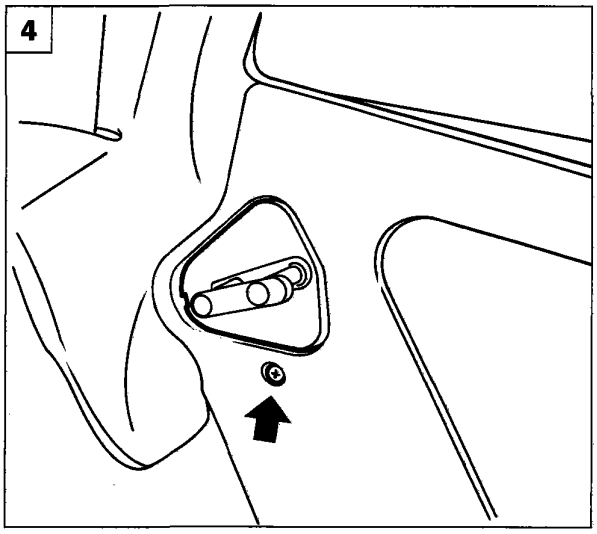


P4A043M03

1. Undo the lower bolts fixing the side panel.
2. Remove the protective trim and undo the lower bolt underneath fixing the seat belt.
3. Remove the trims and undo the bolts underneath which fix the side panel at the centre.
4. Undo the bolt fixing the side lining and move the seat attachment device trim to one side.
5. Undo the bolts fixing the seat attachment device.



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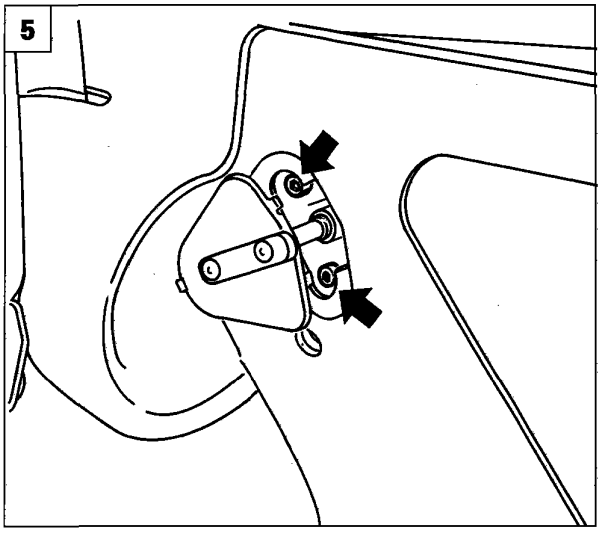

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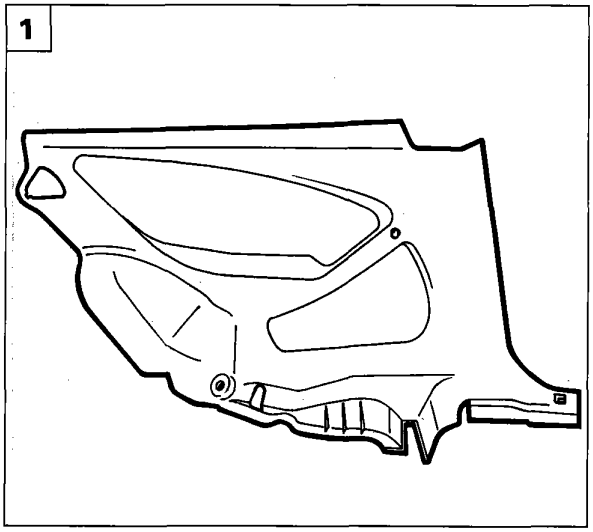

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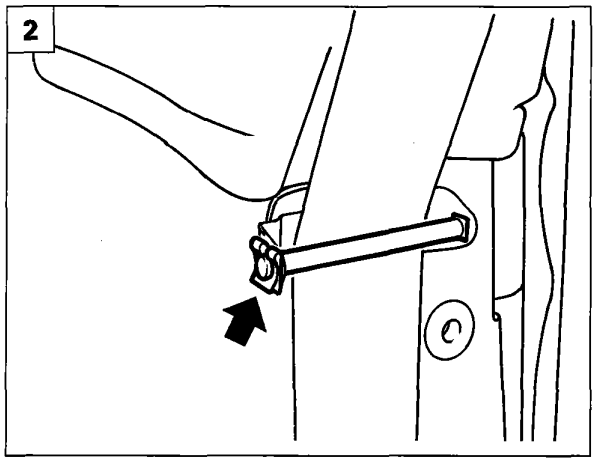
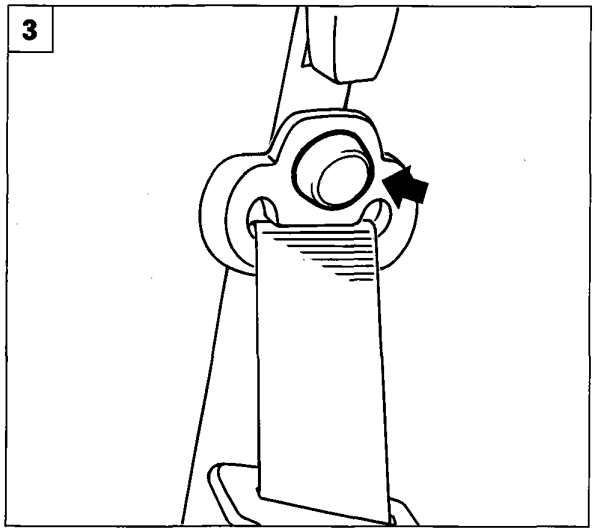


P4A044M02

1. Remove the side panel from the vehicle.
2. Remove the spring and remove the retaining pin shown, then release the belt.
3. Remove the upper trim for the seat belt and undo the fixing nut underneath.
4. Undo the bolt fixing the pre-tensioner to the bodyshell (to remove the bracket, proceed as described on page 38).
5. Remove the pre-tensioner from the vehicle.



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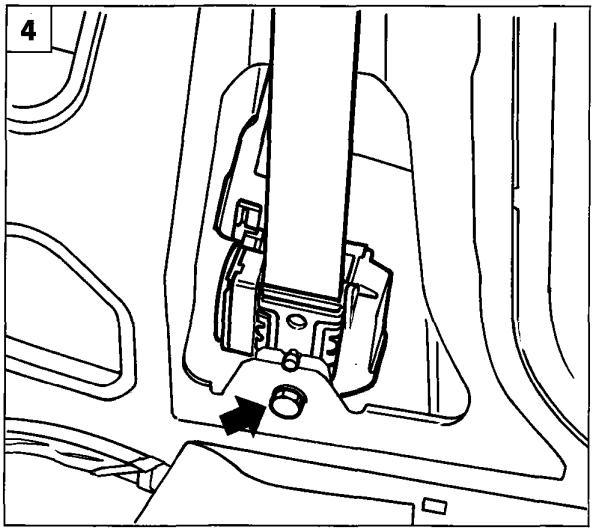

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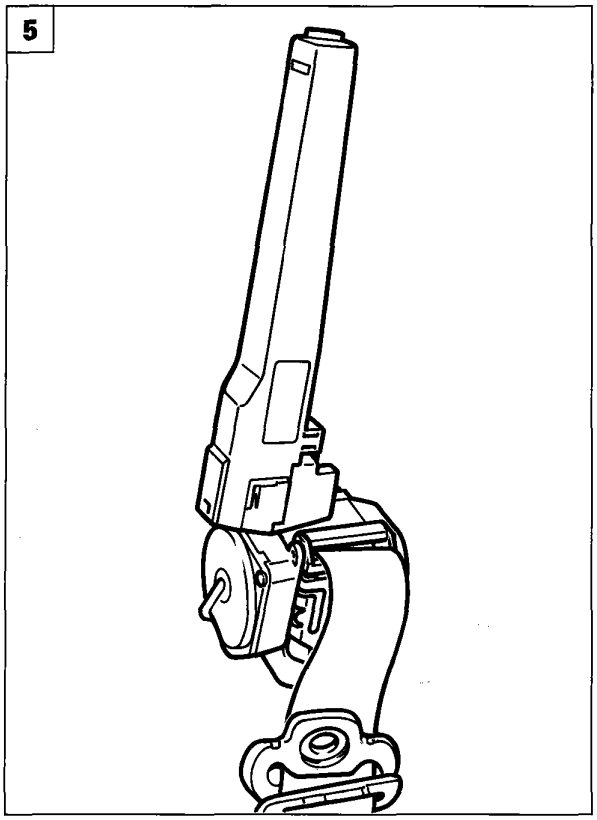

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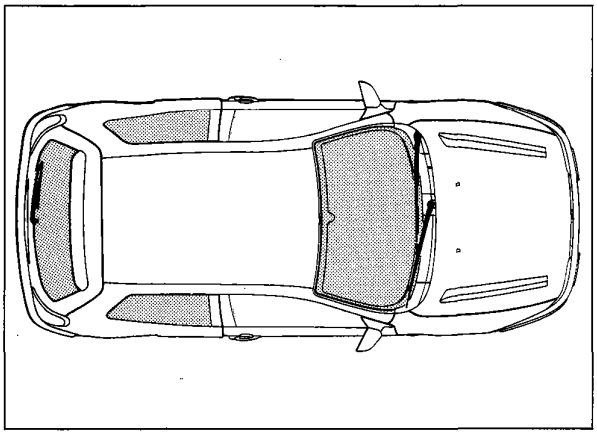


P4A045M01

INTRODUCTION

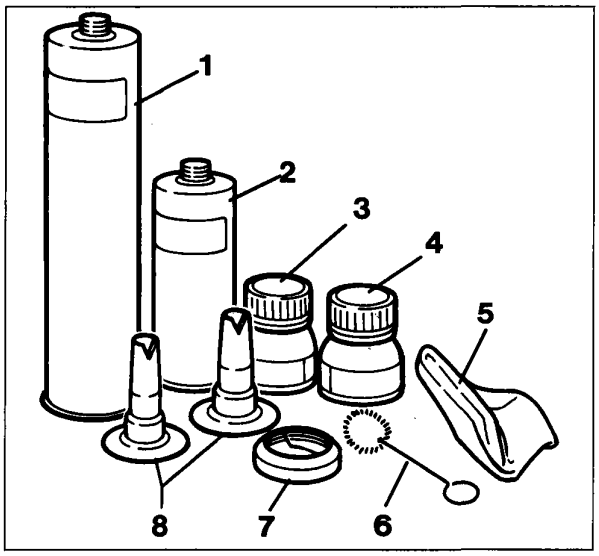
The windows on the Bravo-Brava meet industrial standards concerning the methods of removing/refitting fixed window glasses.
This system is greatly advantageous, both in terms of quality because it ensures perfect permeability and resistance to air and in terms of safety because it makes the structure stronger and quieter.
In addition to the windscreen and the rearscreen the 3 door version also has bonded side rear windows.

EQUIPMENT

In order to remove and refit bonded windows the products and equipment described below must be used

Composition of Kit

1. Cartridge of GURIT BETASEAL sealant
2. 1/2 Cartridge of GURIT BETASEAL sealant
3. Adhesion promoter (primer) for glass
4. Container of de-greasing product
5. Cloth for de-greasing
6. Wad for applying adhesion promoter (primer)
7. Wire
8. N° 2 diffusors



P4A045M02

The previous adhesive marketed by Direzione Marketing e Commerciale Volvera has been replaced with an improved product. It is BETASEAL 1703 Sprint, in single compound polyurethane with rapid polymerization.
This is undoubtedly an advantage because the greater the hardening speed of the adhesive, the less time the window has to be retained with special equipment. In addition the repaired vehicle can be returned sooner to the Customer.
The mechanical characteristcis conform with Capitolato Fiat Auto S.P.A.

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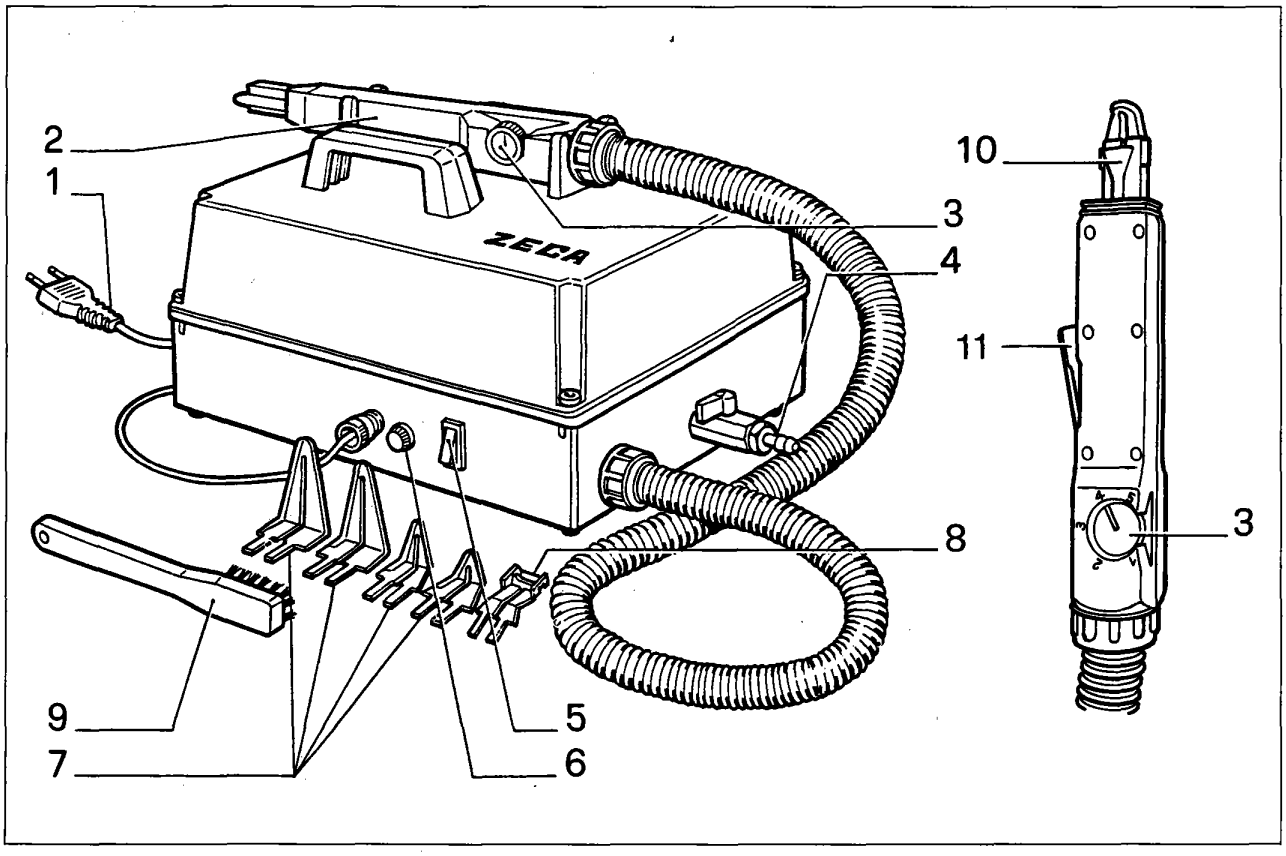
Thermal knife

This consists of a piece of equipment which thermally heats a blade to facilitate cutting the sealant.
It is possible to adjust the temperature of the blade up to 700 °C, but it is advisable to limit the temperature of the knife in use to around 150°C to avoid burning the sealant and producing harmful fumes. The knife is equipped with a fume aspiration system.
Different shaped blades are available to suit different cutting conditions.
It is important during cutting that the blade should always be kept perfectly parallel to the window to prevent excessive force and the risk of breaking the actual window.



P4A046M01

1. Supply pin
2. Knife body
3. Temperature adjustment knob
4. Compressed air tap
5. On switch
6. Protective fuse
7. Blades for cutting
8. Blade for levelling
9. Blade cleaning brush
10. Fume inlet
11. Contact lever

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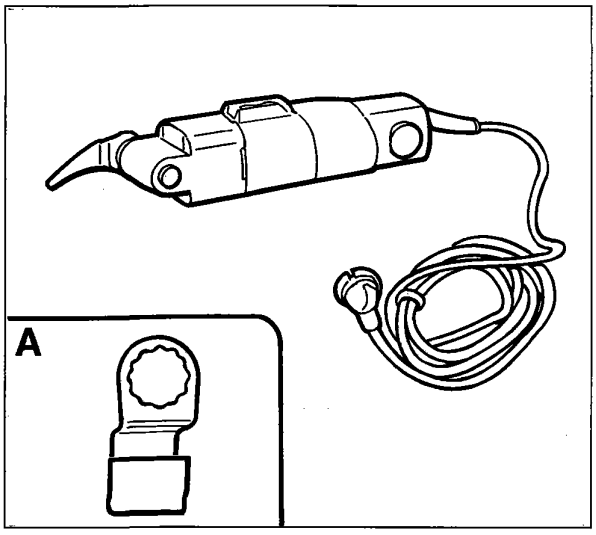

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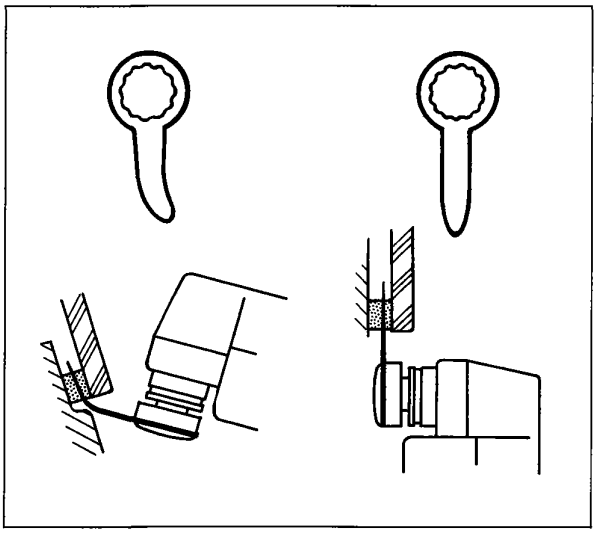

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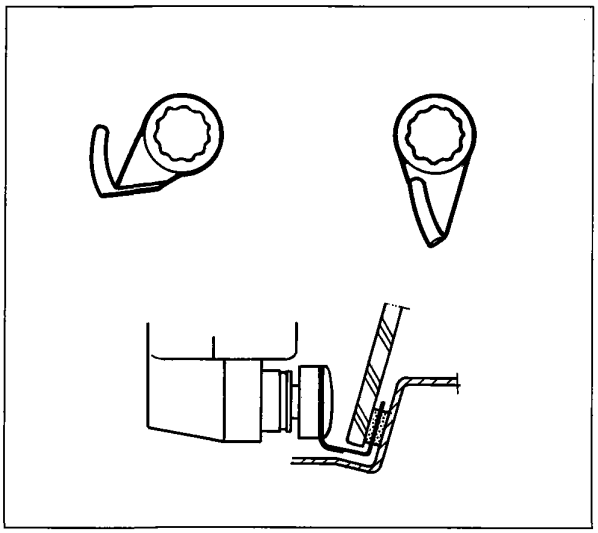

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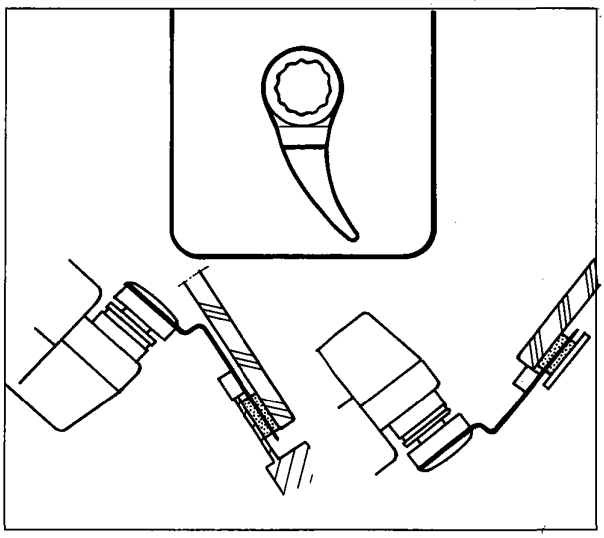

P4A047M04

Vibrating knife

The vibrating knife is made up of special shears and a suitable set of vibrating blades with electrically adjustable oscillation numbers.
It can be used to cut polyurethane sealants.
It is important that when cutting the blade is always kept parallel to the window and to the bodywork, to prevent breaking the blade.

To prevent the shears from overheating it is useful to adjust the advance and the number of oscillations according to the usage conditions.
Detail A shows the scraper to be fitted to the vibrating shears to level the residues of sealant.

Do not use lubricants during cutting.
The blades should always be sharpened.

The diagrams at the side and underneath illustrate certain situations which recur when cutting bonded windows with the appropriate type of blade.

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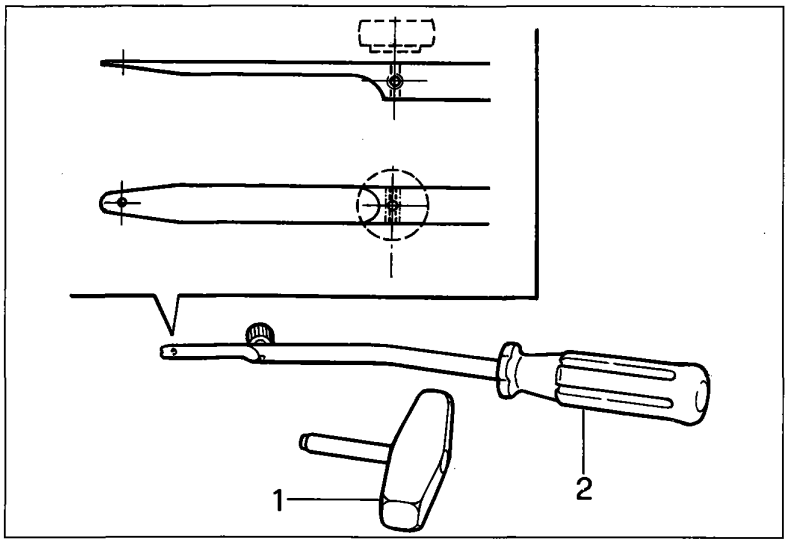
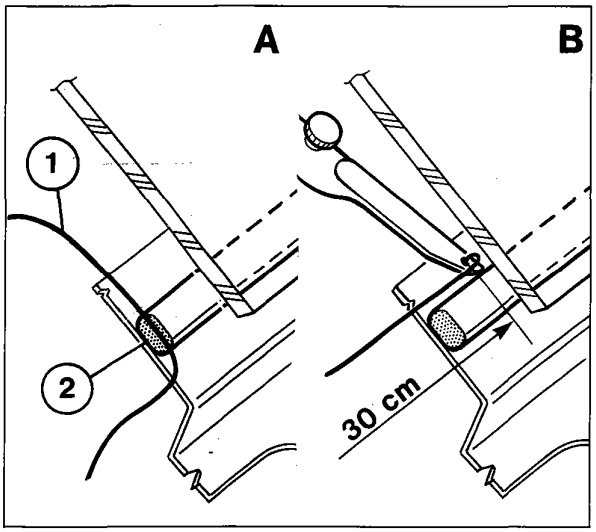


P4A048M01

Wire

The tool illustrated in the diagram must be used to cut the bead of sealant with the wire.

1. Traction handle
2. Retaining tool



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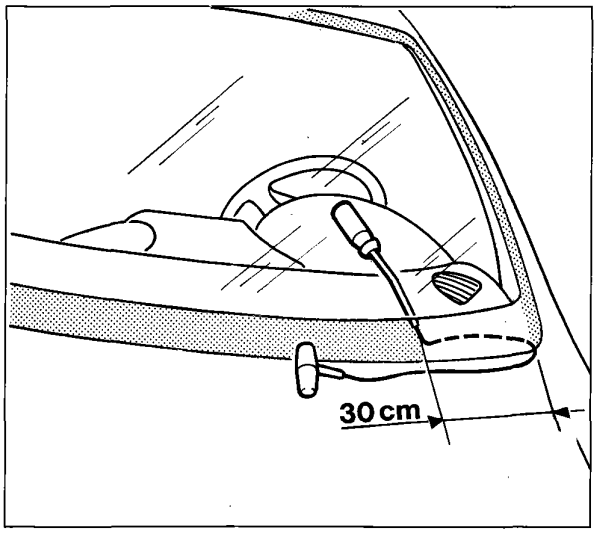

P4A048M03

Instructions for using wire contained in Kit

Cut a segment of wire about 50 cm long and introduce one end of the wire (part 1 detail A) through the bead of sealant (heat the wire and use pliers to facilitate this operation).

Fix the end of the wire to the retaining tool inside the vehicle and the other end to the traction handle outside the vehicle. The operator inside the vehicle should introduce the retaining tool into the bead of sealant (FIG. B) about 30 cm from the point where the wire passes (detail A).

The other operator outside the vehicle should pull the handle following the line of the windscreen surround and cut the bead of sealant.

Repeat the operation at 30 cm sections, suitably reducing the length at the corners of the window, until the sealant bead is completely cut.

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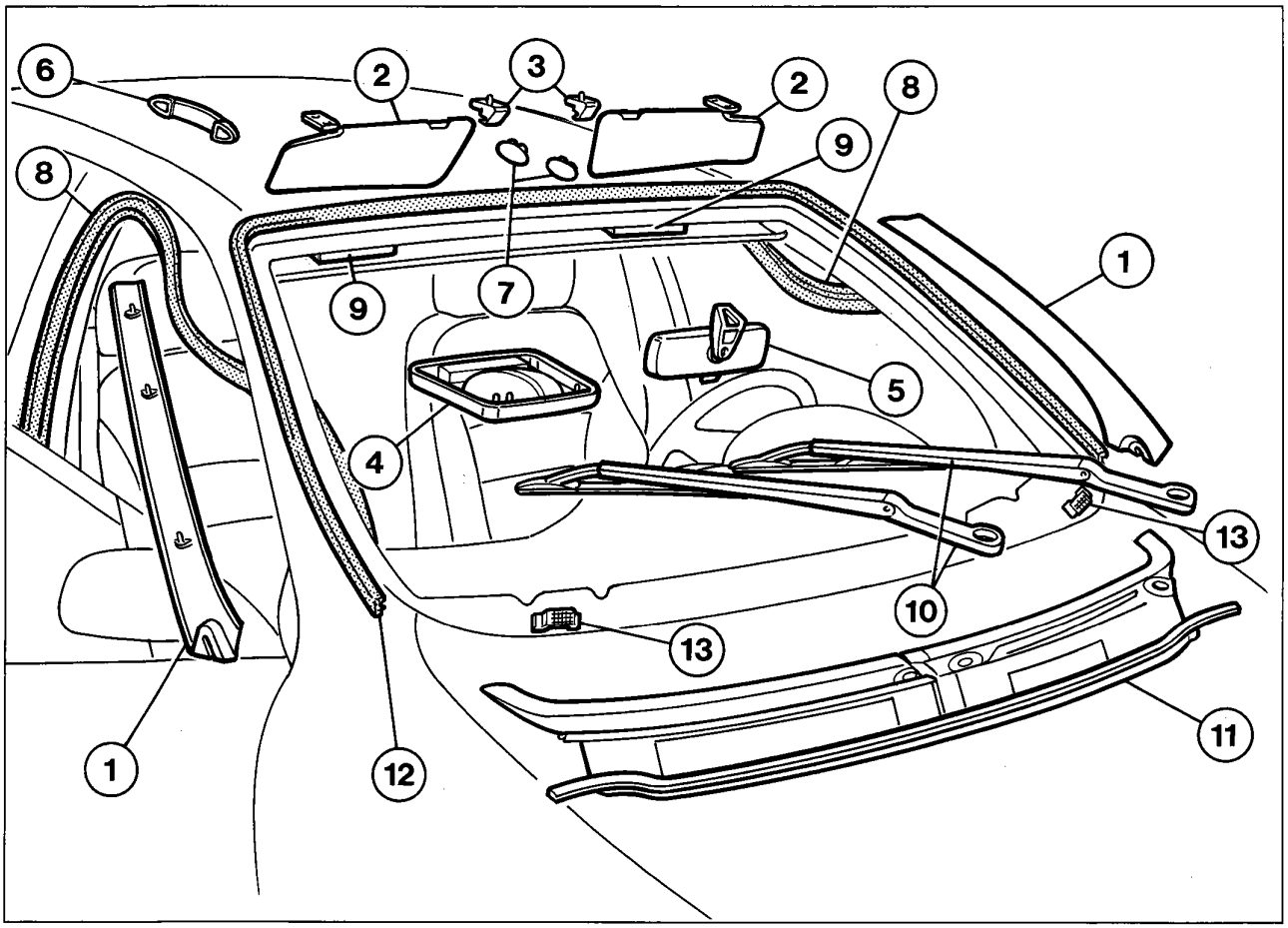
REPLACING FRONT WINDOW GLASS (WINDSCREEN)

Removing vehicle trims and protection

The components shown in the exploded diagram are numbered in the order in which they should be removed.



P4A049M01

1. Pillar covers
2. Sun visors
3. Sun blind attachment
4. Courtesy light
5. Rear view mirror
6. Grab handle
7. Roof fixing trim
8. Door seal
9. Spacers
10. Windscreen wiper blades
11. Lower window trim
12. Window perimeter trim
13. Retaining mountings

- Slightly lower the lining under the roof without distorting it
- Protect the dashboard and the seats with a cover or suitable paper.
- Press on the retaining mountings (3) and move them downwards.
- Protect the perimeter of the windscreen housing with adhesive tape

The window perimeter trim should always be replaced.

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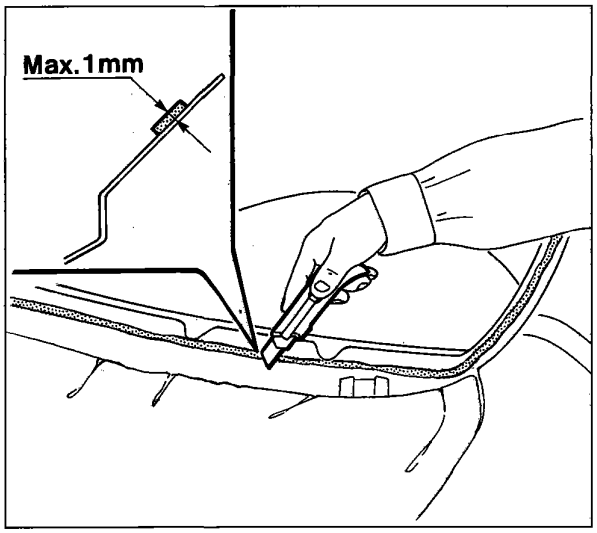

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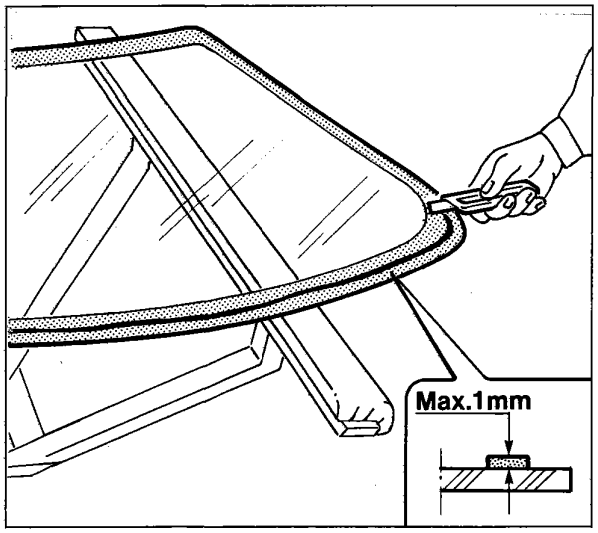


P4A050M02

Preparing the windscreen housing

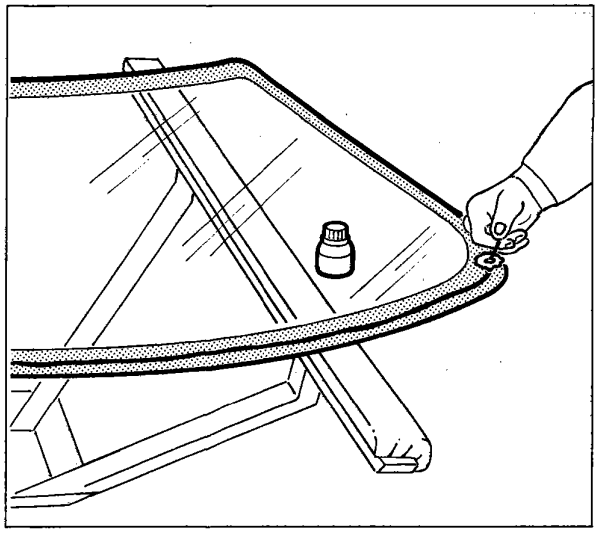
Using a suitable blade, cut and level the sealant for the windscreen housing, leaving a thickness of between 0.25 and 1 mm without reaching the paint and scratching it.

NOTE *The film of sealant remaining on the windscreen housing will act as a support for the subsequent adhesion.*

Preparing the windscreen

If the window which has been removed is being reused:

- Using a suitable blade, cut and level the bead of sealant trying to reduce the thickness to a minimum. It is not necessary to remove the sealant completely.
  Avoid touching the surfaces of the sealant remaining. Take care not to damage the black serigraphy on the window perimeter.
- De-grease the serigraphed section of the windscreen using heptane.
- Apply the adhesion promoter (primer) for glass to the serigraphed area using the wad supplied in the kit. The product does not have to be applied to the remaining sealant.
- Wait for 15 minutes before proceeding with the operations to allow the evaporation of the adhesion promoter (primer) thinner.



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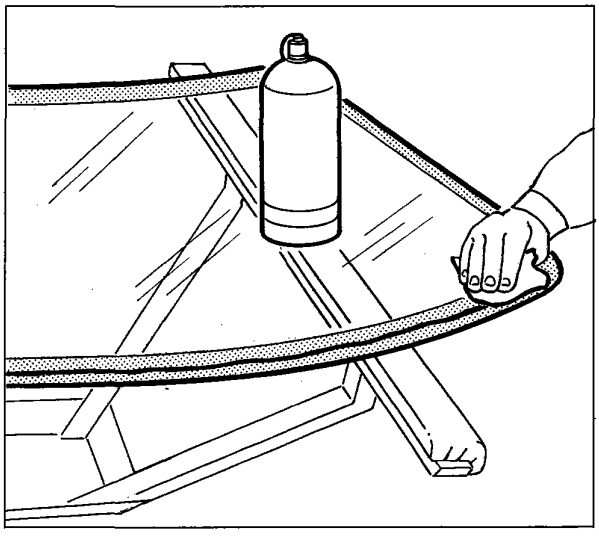

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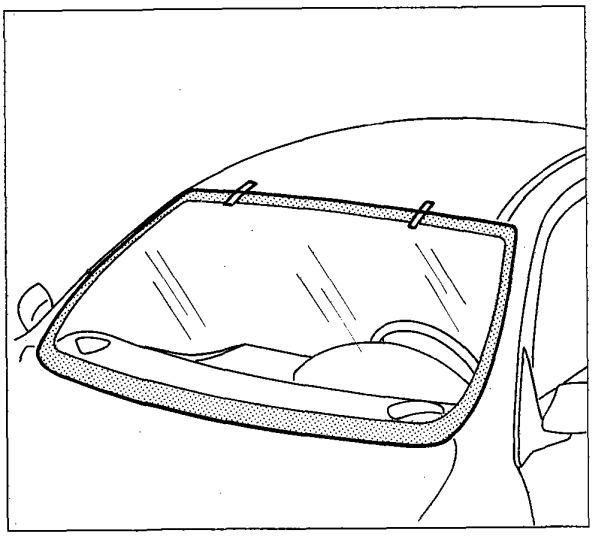
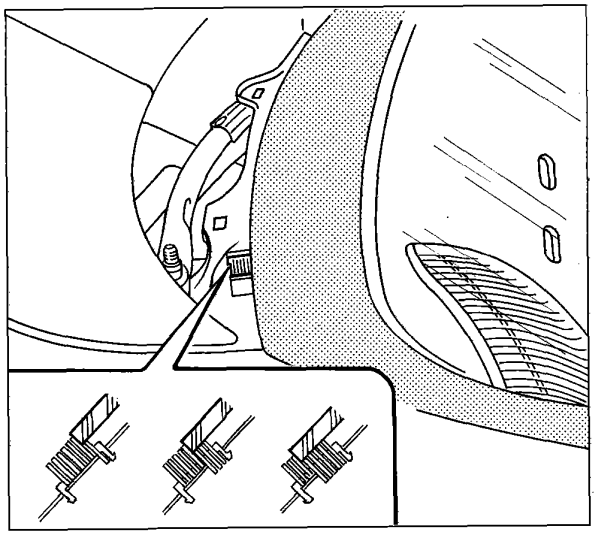


P4A051M01

Refitting

- Fit the trim on the windscreen avoiding touching the area where the adhesion promoter (primer) has been applied with your fingers.
- Carry out a test fitting to centre the windscreen perfectly and make reference marks.

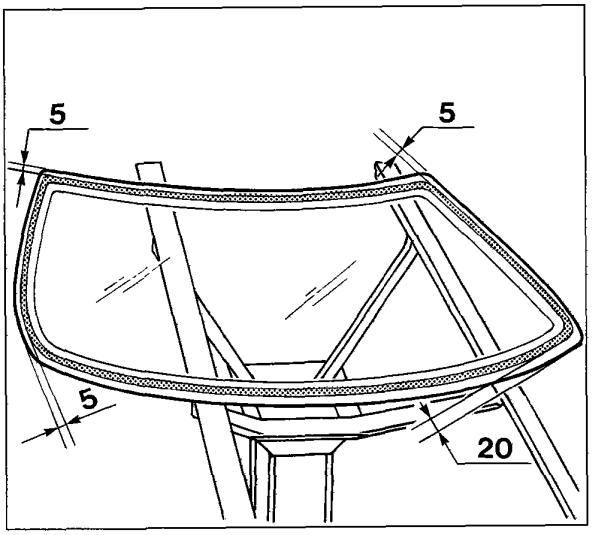
The sliding retaining mountings located in the lower part should support the windscreen towards the top and keep it aligned with the roof.



P4A051M02

- Using a pneumatic gun, extrude a bead of sealant along the perimeter of the windscreen as evenly as possible (if there is excess, level the bead using a slice of potato).

In the lower part of the windscreen apply the sealant scrupulously following the figures given in the diagram to prevent it ending up on the retaining mountings.



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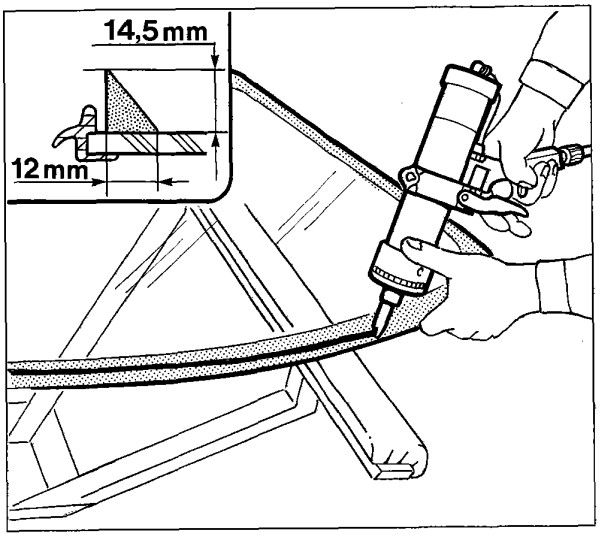

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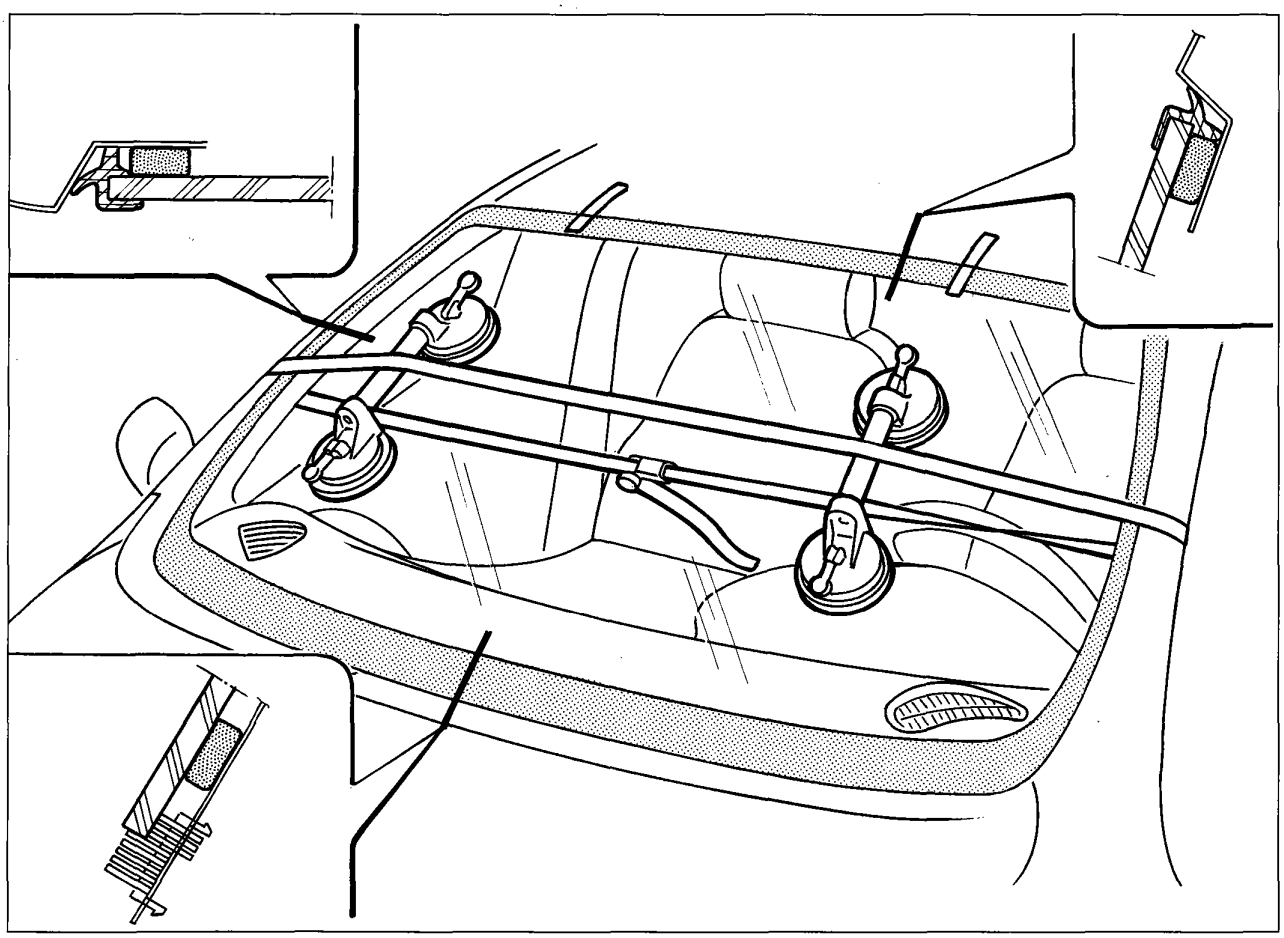
- Using the special suction pads, place the windscreen in position immediately after applying the sealant.
- Using suitable belts and shims, exert slight pressure on the windscreen so that the trim is correctly aligned with the pillars.

Keep the glass under pressure for at least 1 hour. During this period it is possible to let water run over the window to locate any possible penetration points and accelerate the polymerization of the sealant.



P4A052M01

- Any excess sealant inside the pillars can be removed when the sealant has hardened, cutting it with a blade and removing it with pliers.

Take care not to damage the serigraphed area of the windscreen with the blade.

- Refit the elements removed previously and clean the window.

The vehicle should not be handed back for at least 15 hours after the windscreen has been stuck.

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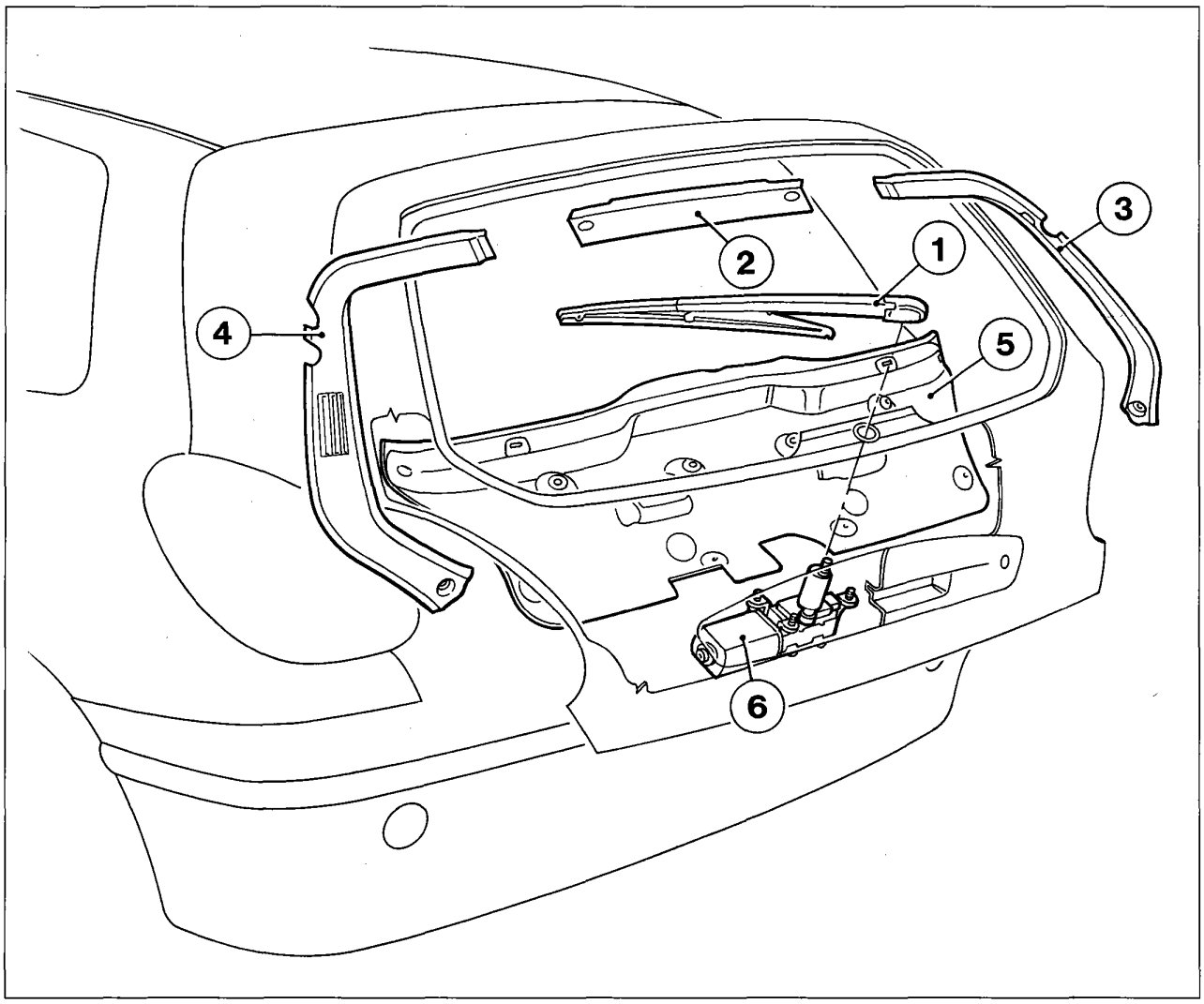
REPLACING REAR WINDOW GLASS (REARSCREEN)

Removing vehicle trims and protection

The components shown in the exploded diagram are numbered in the order in which they are removed.



P4A053M01

1. Rearscreen wiper blad
2. Tailgate interior centre lining
3. Tailgate interior right side lining
4. Tailgate interior left side lining
5. Tailgate interior lining
6. Windscreen wiper motor

- Protect the perimeter of the rearscreen housing with adhesive tape
- Protect the carpets with a cloth or suitable paper.

NOTE *If the rearscreen is being reused, cut the adhesive with the vibrating knife working from inside the tailgate so as not to ruin the pressed perimeter seal.*

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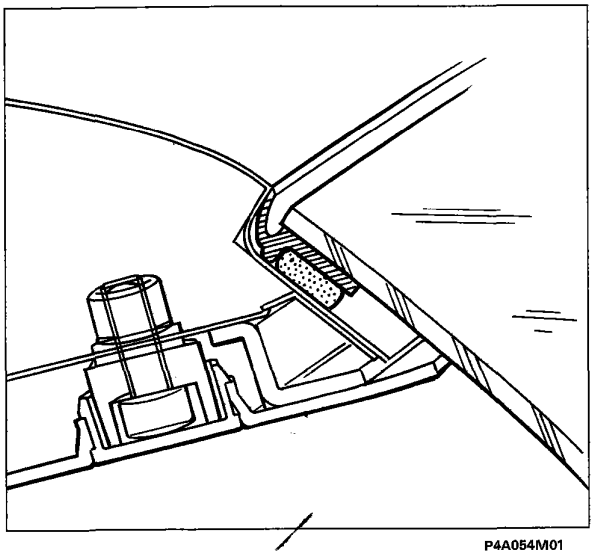
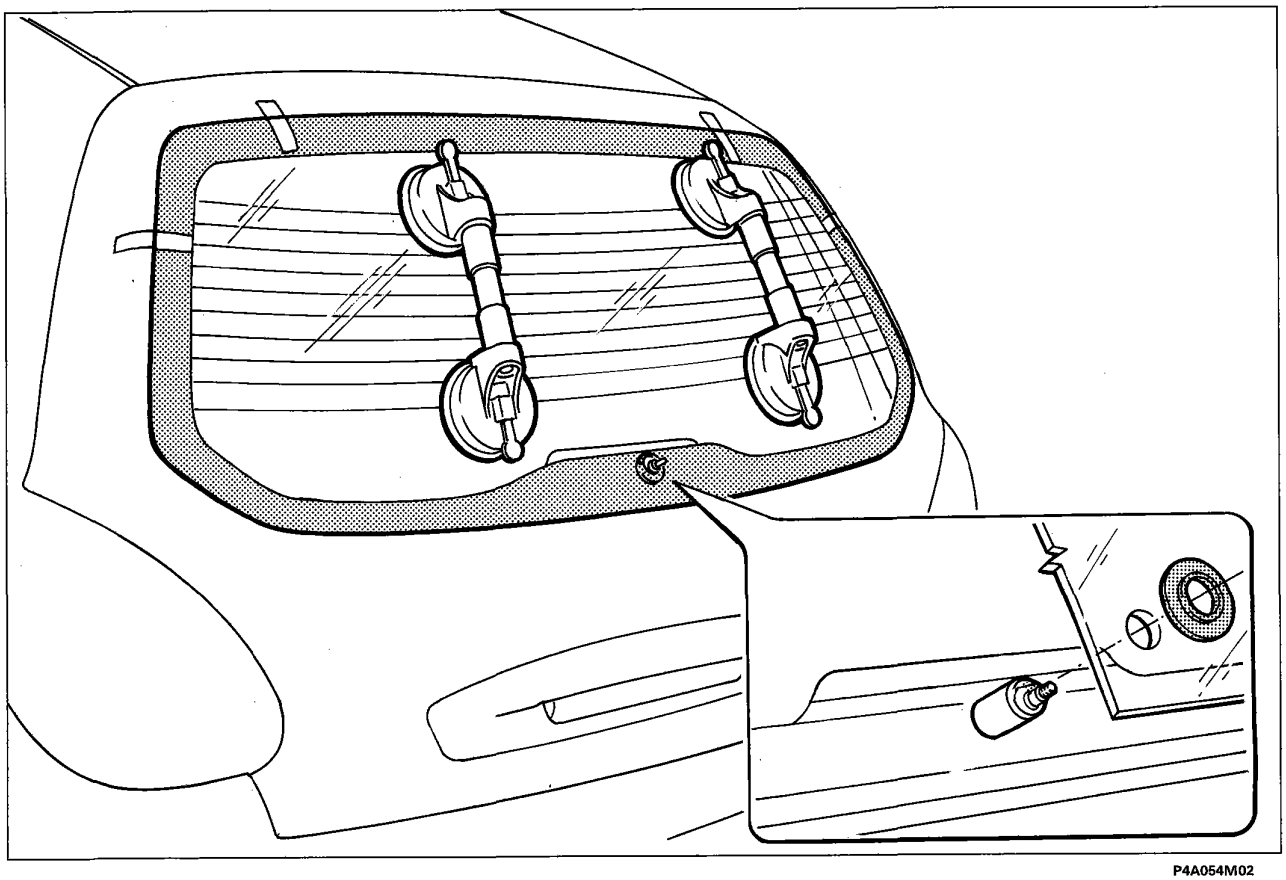

P4A054M01

Refitting

- In order to prepare the tailgate window to be refitted, follow the instructions given for the windscreen (see page 50).
- As far as applying the sealant is concerned, there are no difficulties relating to the distance to be maintained from the edge of the window. In effect, the sealant is applied directly on the inner edge of the seal which is the pressed type.


P4A054M02

Position the crystal in the tailgate housing using the centering references, above all taking into account the opening for the windscreen wiper motor.

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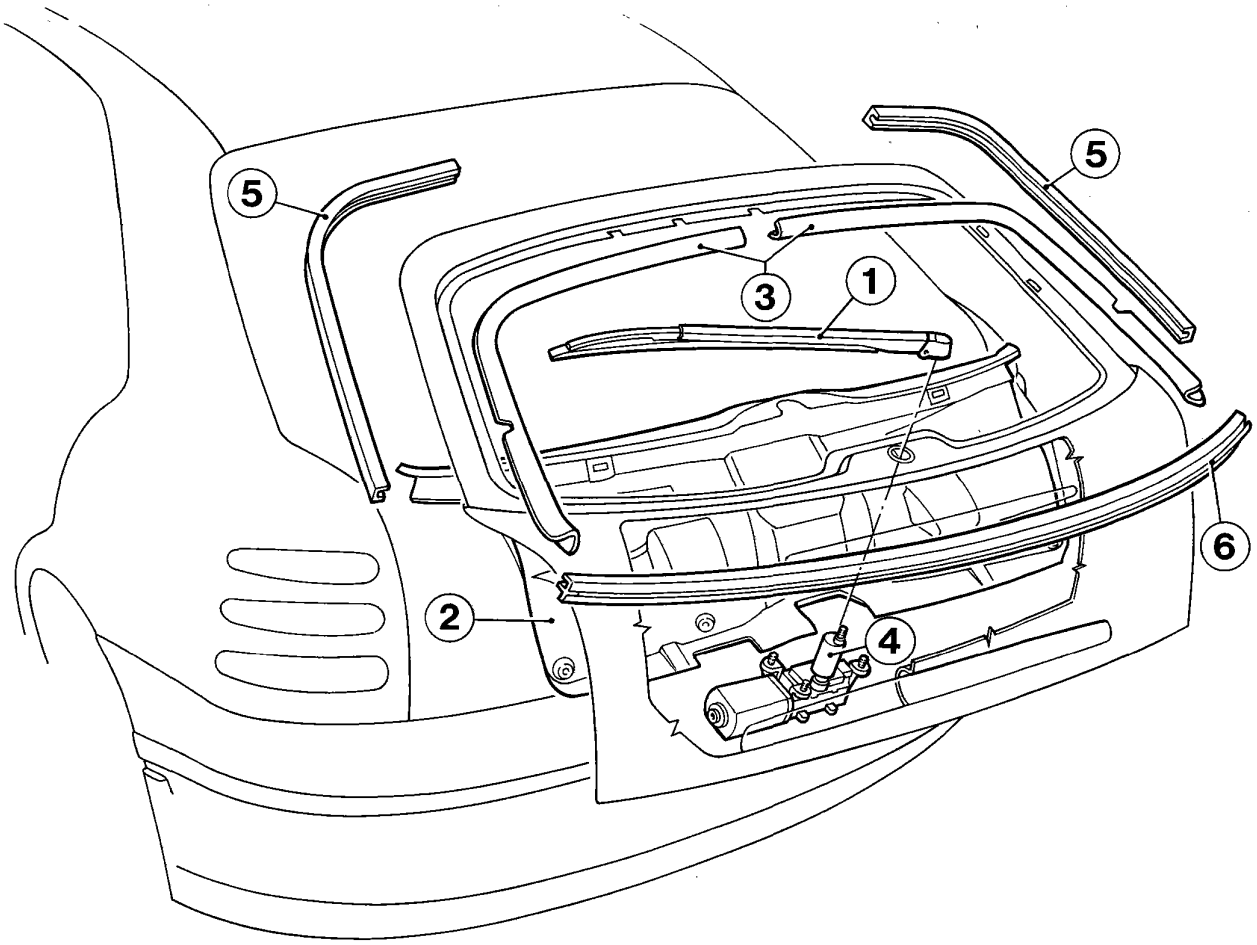
REPLACING REAR WINDOW GLASS (REARSCREEN)

Removing vehicle trims and protection

The components shown in the exploded diagram are numbered in the order in which they are removed.



P4A055M01

1. Rearscreen wiper blade
2. Tailgate interior lining
3. Tailgate interior trim
4. Windscreen wiper motor
5. Tailgate side trims
6. Lower window trim

- Protect the perimeter of the rearscreen housing with adhesive tape.
- Protect the carpets with a cover or suitable paper.

NOTE *If the window is being reused, cut the sealant with the vibrating knife working from inside the tailgate.*

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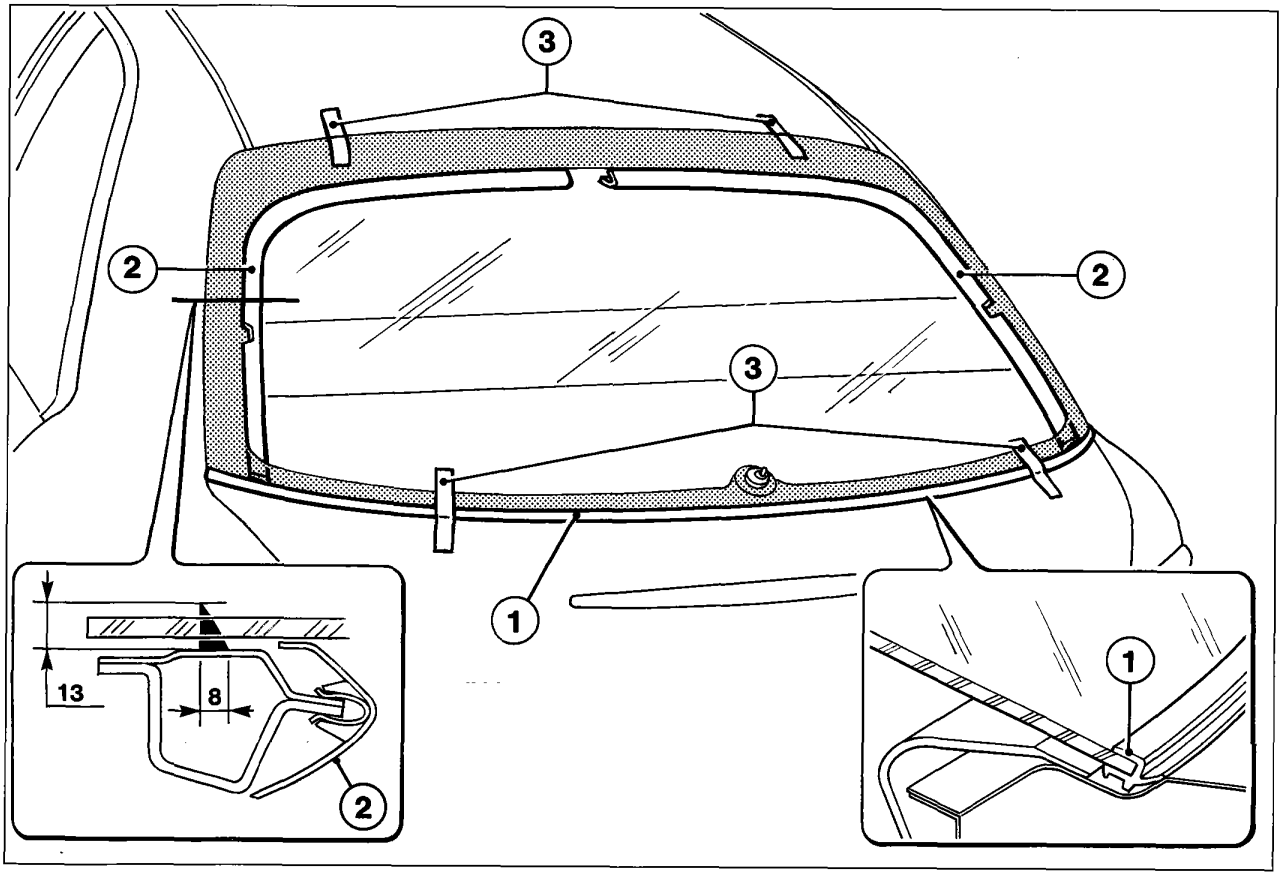
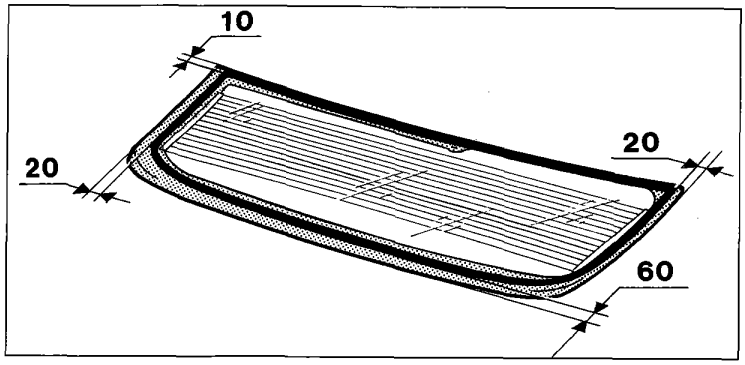
Refitting

Before refitting, prepare both the window and the housing in the tailgate, following the instructions for the windscreen (see page 50).
To ensure that the rearscreen is correctly aligned with the bodyshell, refit the trim (1) at the base of the window and the trims (2) at the inner edges of the tailgate. Take the position of the opening in the windscreen wiper motor pin into consideration. Then apply the references (3).



P4A056M01



P4A056M02

- Extrude a bead of sealant, along the perimeter of the rearscreen scrupulously following the figures given in the diagrams.

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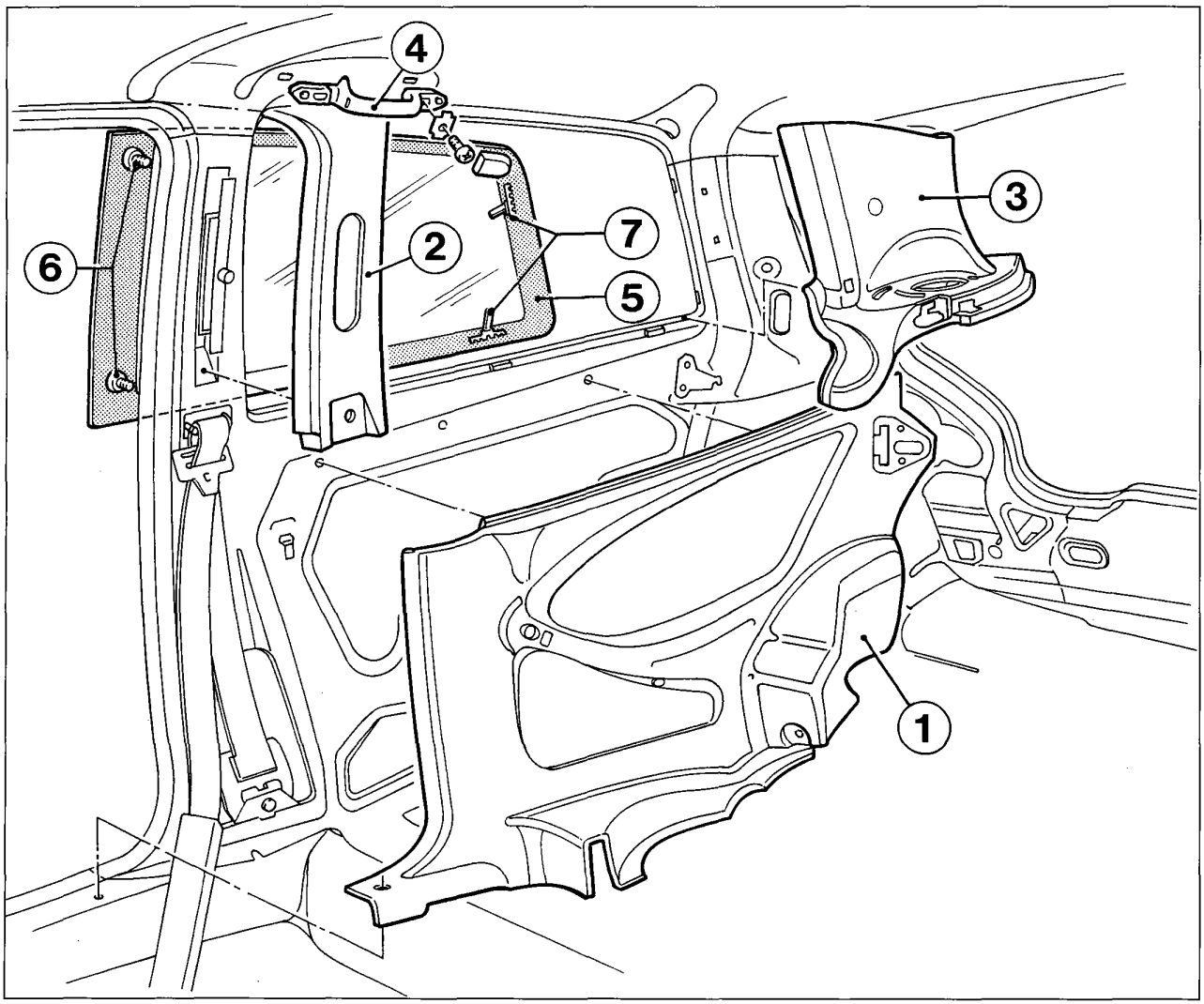
REPLACING THIRD FIXED WINDOW

Removing trim and protection from vehicle

The diagram below shows the components to be removed before moving onto the subsequent preparation stages.

- Protect the outer perimeter of the third glass housing with adhesive tape
- Slightly lower the roof lining, then position the appropriate spacers.



P4A057M01

1. Rear panel inner lining
2. Centre pillar cover
3. Rear pillar cover
4. Passenger grab handle
5. Fixed glass
6. Threaded reference pins
7. Retaining clips

NOTE *It is preferable to cut the sealant working from inside the vehicle using an appropriate blade to prevent scratching the bodywork.*

Open the retaining clips (7) before cutting the sealant.

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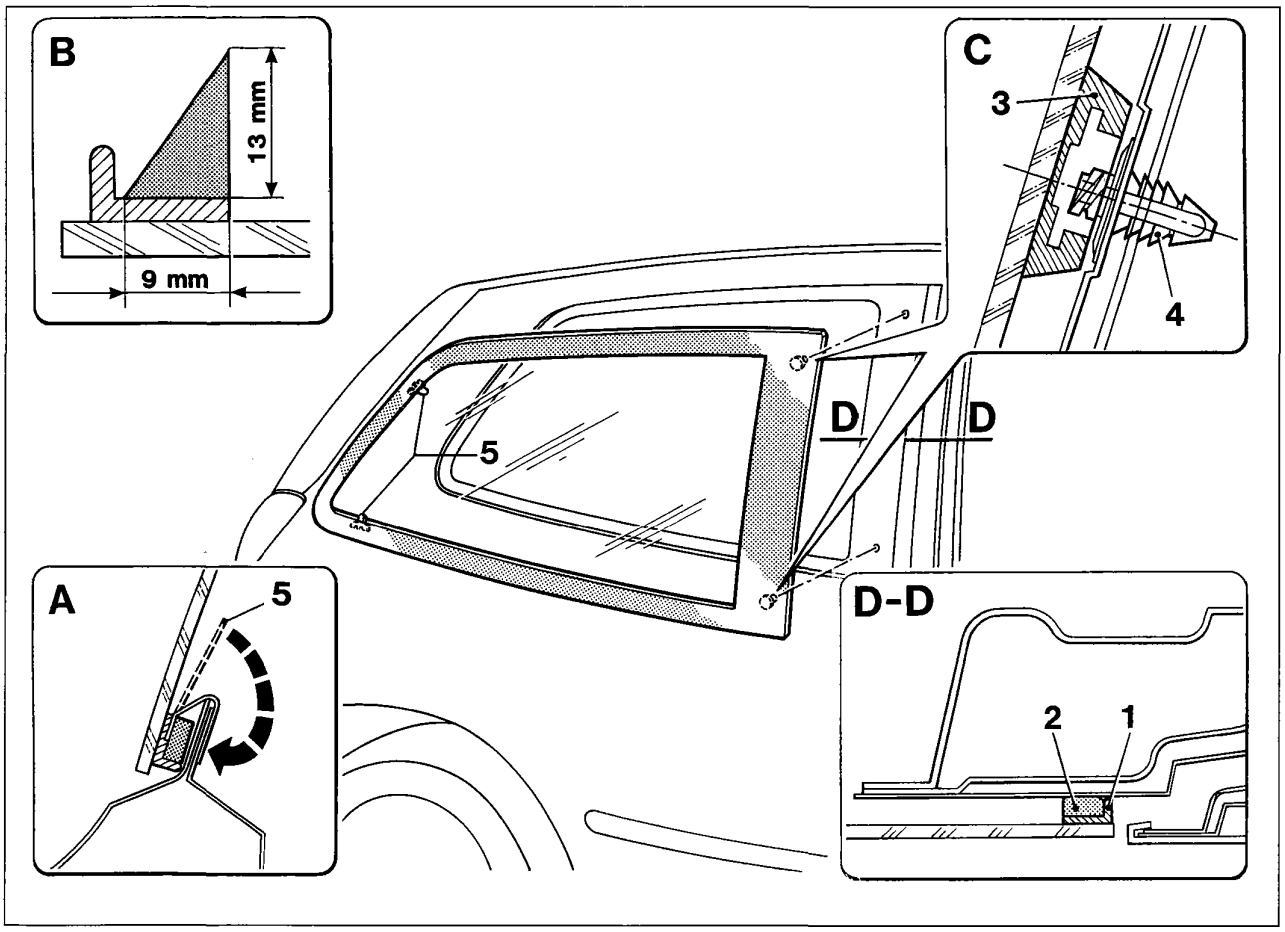
Refitting

For the preparation of the glass and the housing, refer to the instructions already described previously (see page 50).

The rear window glass has an extruded trim (1) along the entire perimeter. The sealant (2) which sticks the window glass to the bodyshell is applied to the trim in a continuous bead along the entire perimeter. The measurements for the dimensions of the bead and the distance from the edge of the trim are given in inset B.



P4A058M01

There are two housings (3) at the two front corners of the window for fitting the threaded pins (4) which act as references for the centering. The section of the window corresponding to the threaded pins is shown in inset C.

The threaded pins are available as spares and it is advisable to modify two of them, removing the tabs to use them as reference pins during the operation of offering up the window when dry.

To lock the window, during the hardening of the sealant, fold back the clips (5) as shown in inset A.

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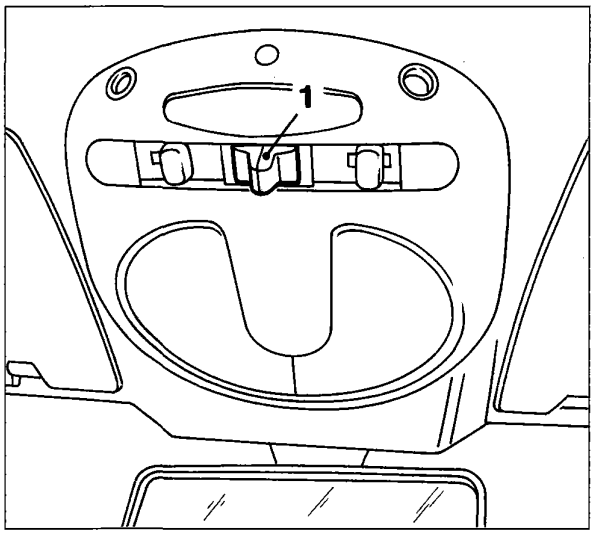
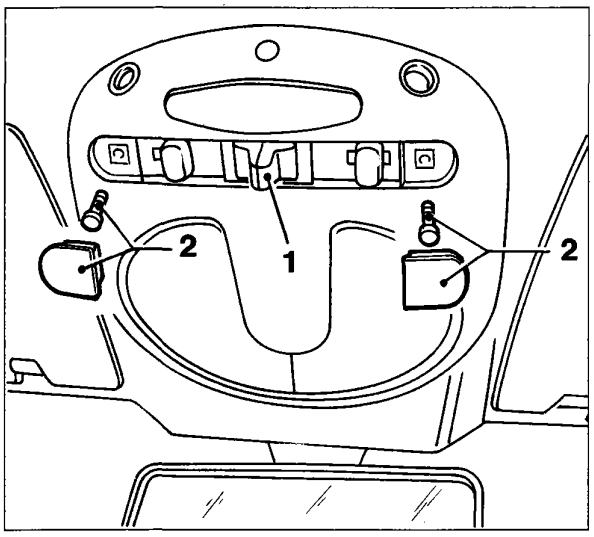


P4A059M01

INTRODUCTION

The sun roof is electrically operated. The closing flap is in glass which means that the transmission of light and energy equals 25%. It can be opened, completely or partly, by a push button (1) positioned on the upper courtesy light.

The sun blind is opened manually and irrespectively of the operation of the sun roof.

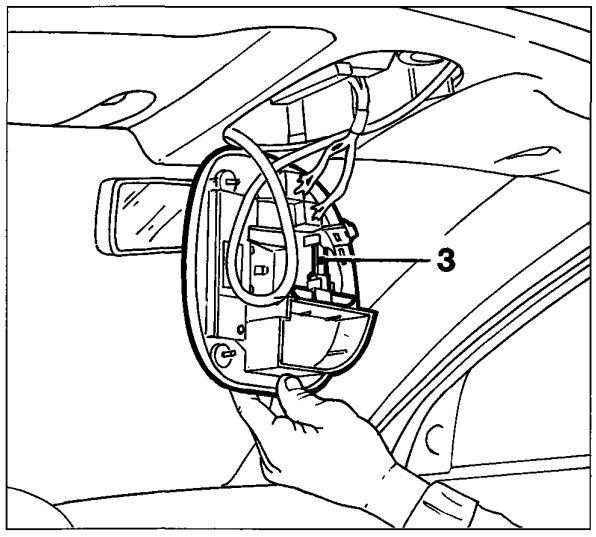


P4A059M02

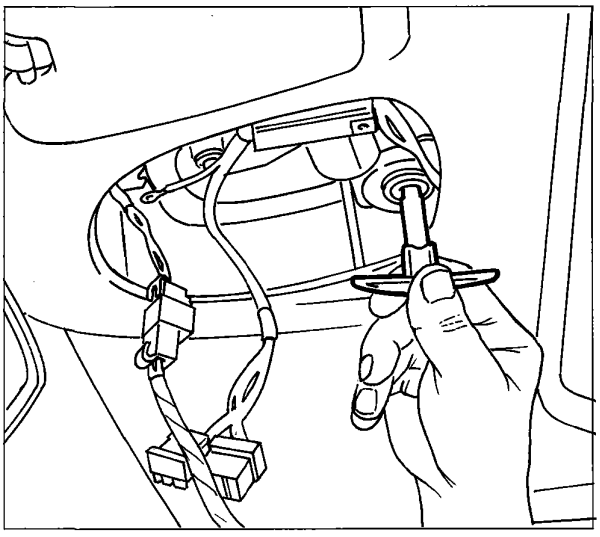
Emergency procedure

If the electrically operated device fails, it is possible to operate the sun roof manually, proceeding as follows:

- remove the seals and bolts (2);
- extract the special key (3) from inside the courtesy light;
- insert it in the special splining for the electric motor, then rotate and move the roof.



P4A059M03



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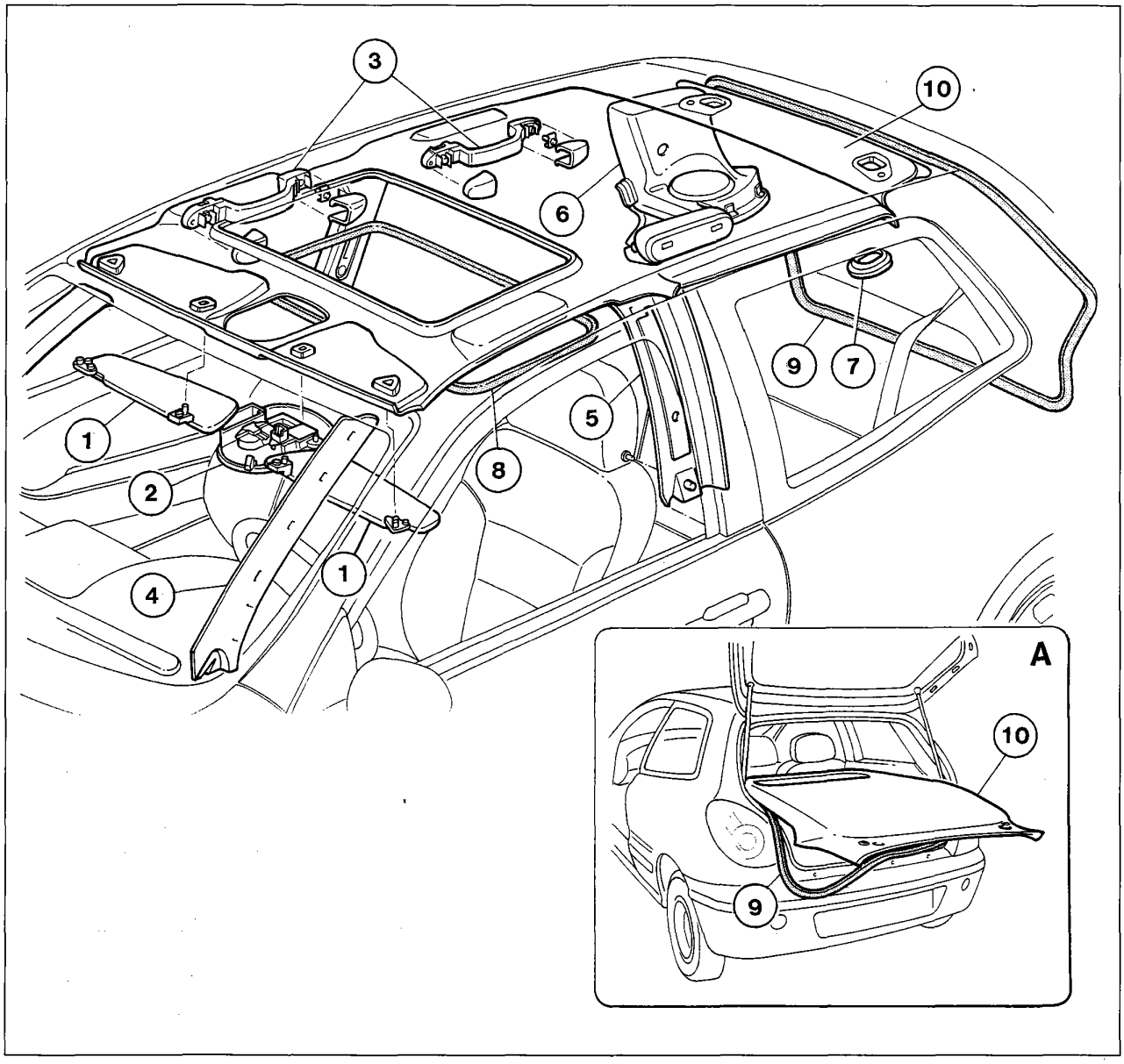
70.

Removing trim

To remove the trim for the sun roof, remove the components shown in the diagram.



P4A060M01

1. Sun visors
2. Courtesy light
3. Grab handles
4. Windscreen pillar covers
5. Centre pillar covers
6. Rearscreen pillar covers
7. Tailgate hinge covers and roof lining fixing plugs
8. Flap trim
9. Tailgate housing trim
10. Roof lining

NOTE *Extract the roof lining from the passenger compartment passing it through the tailgate housing after having removed the upper and side part of the trim (see detail A).*

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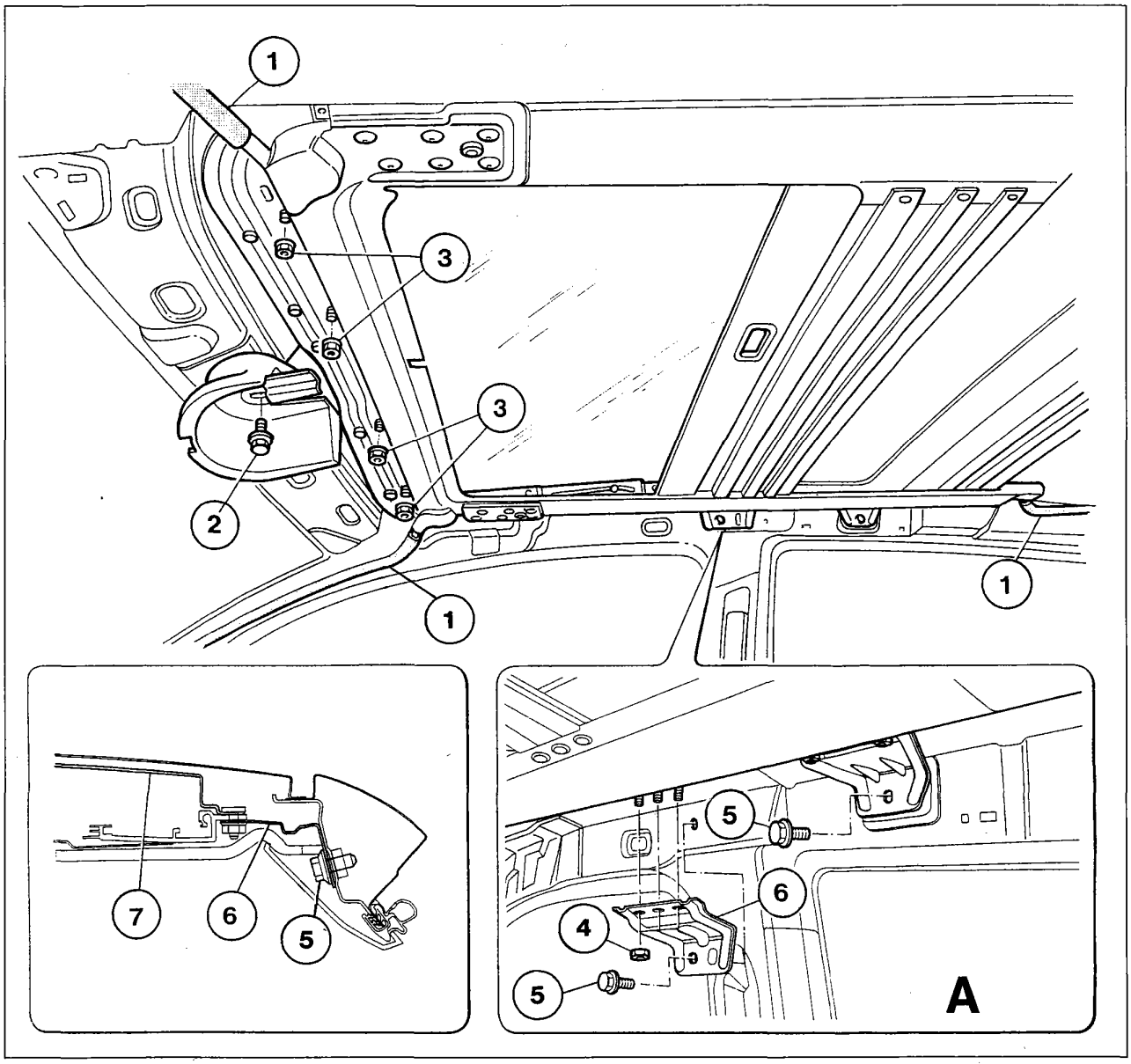
REMOVING-REFITTING COMPLETE ROOF

After removing the trim for the internal components (see previous page), proceed with the removal of the complete roof, following the instructions given below:

- disconnect the water drainage pipes (1);
- on the front cross member for the frame undo the centre bolt (2) and the nuts (3);
- working from the side, remove the nuts (4) and the bolts (5);



P4A061M01

NOTE *The centre brackets (6) are connected to the roof rib (7); to remove the sun roof frame they must be completely disconnected (see detail A)*

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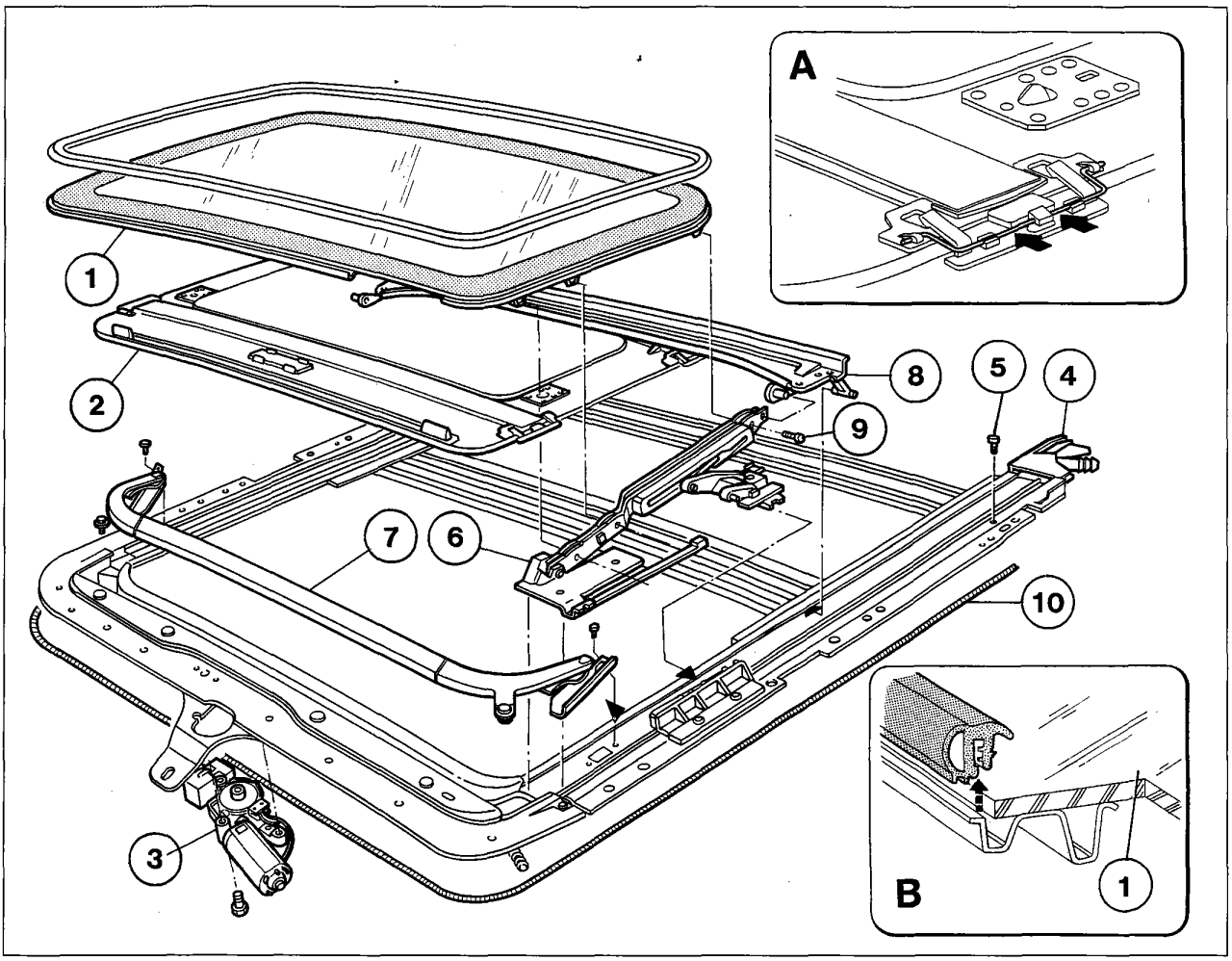
70.

DISMANTLING-REASSEMBLING COMPLETE ROOF

To dismantle the sun roof, proceed as described below:

- Remove the crystal (1) from the pullies (6) through the bolts (9). Remove the rain gutter (8). Remove the sun visor panel (2) releasing it from the guides (see detail A).
- Remove the electric motor (3).
- Remove the terminals (4) (water drainage) stuck with Betaseal type polyurethane sealant.
- Undo the two end of travel bolts (5).
- Extract the pullies (6) after having moved them into theend of travel position.
- Remove the bowden cable (10).
- Remove the deflector (7).



P4A062M01

The bolts (9) securing the glass are treated with special glue.
After the bolt has completed six travels this feature is worn out. ONLY THESE SPECIAL BOLTS SHOULD BE USED.

NOTE *The following components can be removed with the assembly fitted on the vehicle: crystal (1); trim (detail B); electric motor (3); sun blind panel (2).*

When refitting lubricate the sliding components with MOLYHOTE PG 30 L type grease or an equivalent product.

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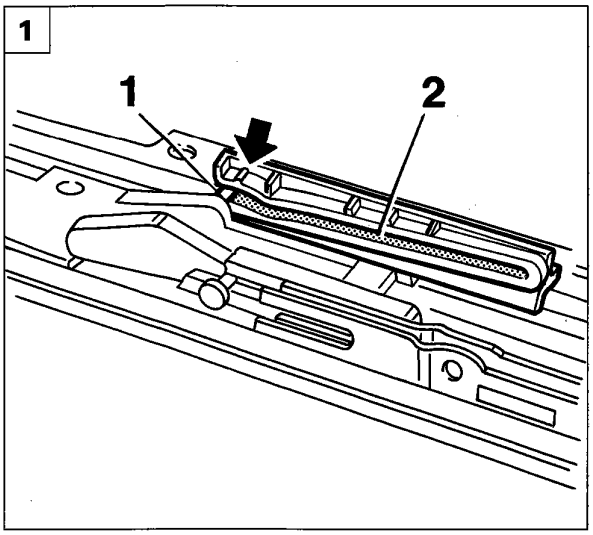
1



P4A063M01

ADJUSTMENTS DURING REFITTING

Adjustment of opening device.

For a correct synchronism between the electrical operation and the opening/closing of the roof the parts concerned must be adjusted as follows:

1. position the rollers (1) for the pullies exactly at the start of the sliding duct (2), before the reference mark shown by the arrow;
2. refit the electric motor with reference A corresponding to the micro-switch (3);

- lastly, refit the window.

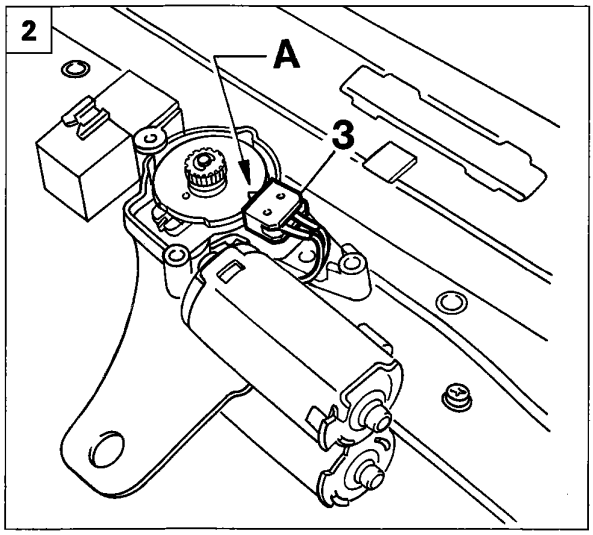
Adjusting the window

3. If necessary, adjust the alignment of the window with the profile of the roof using the slots in the frame (4).

Adjusting the spoiler

4. At the edges of the spoiler (5) there are two openings with slots (shown by the arrows) for fixing and alignment with the vehicle profile.

2



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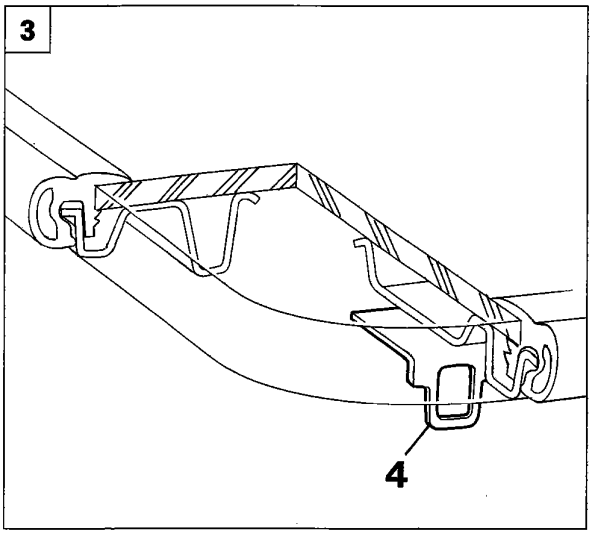

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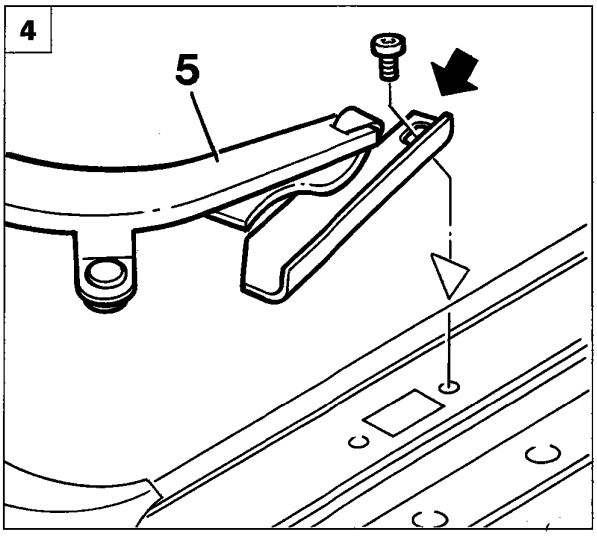

P4A063M04

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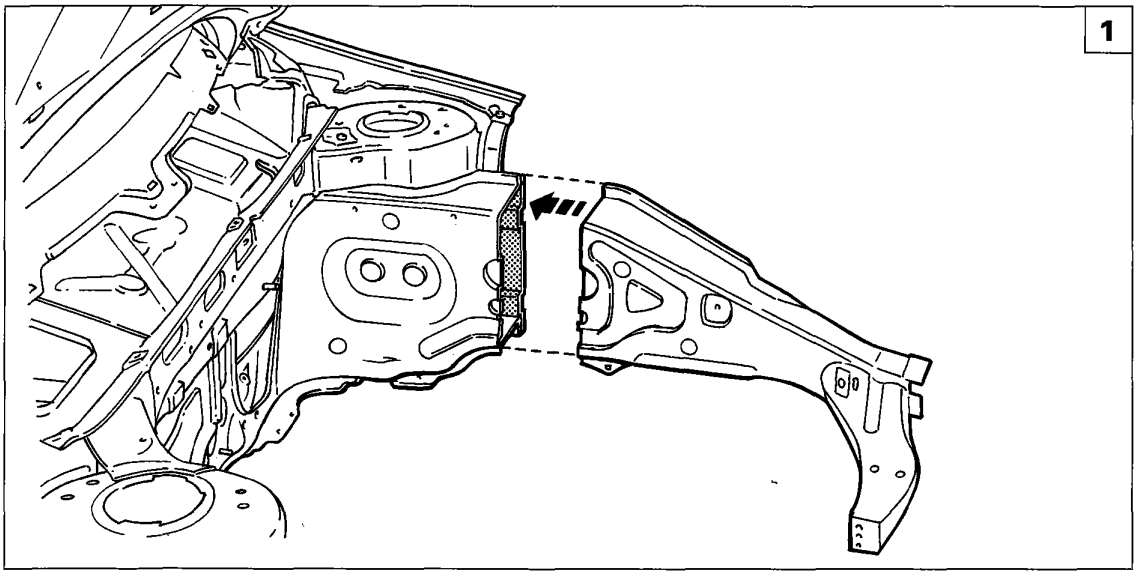
INTRODUCTION

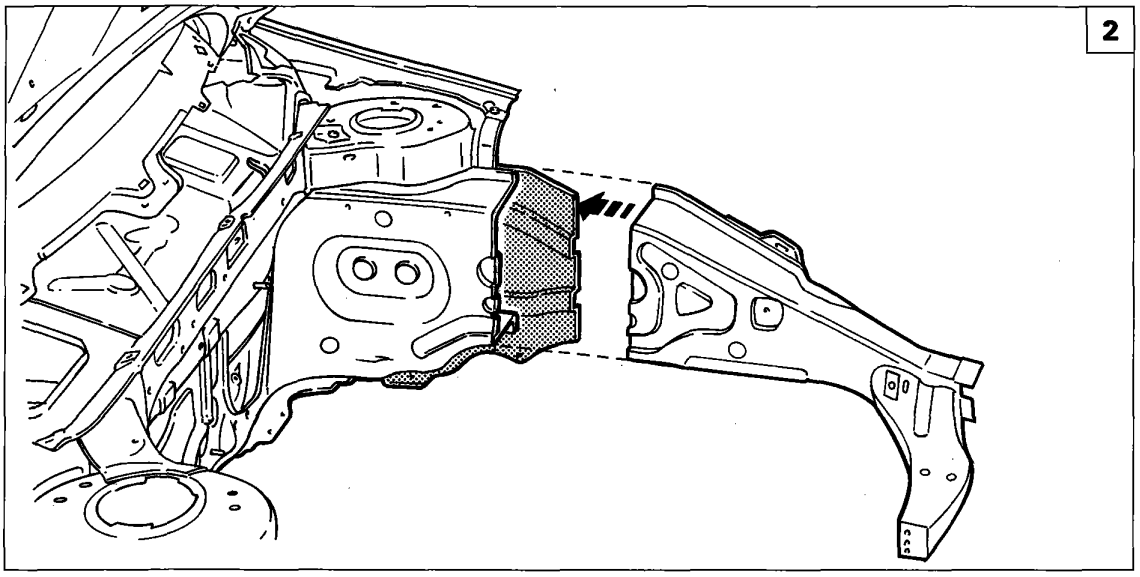
General instructions for the repair

For safety reasons and for a better quality repair, it is forbidden:

- To replace a side member, half block or block, without using a repair bench. The use of the bench makes it possible to ensure the restructuring of the vehicles with the original manufacturing distances, ensuring the correct positioning of the elements of both the front section and the rear section.
- Cut and weld any element of the bodywork and its reinforcement, edge to edge, along the same line (see figure 1).
- Heat the side members for straightening.



P4A064M01



P4A064M02

When carried out correctly the operation will involve an excess of several centimetres between the two cutting lines in order to distribute the points created by welding (see figure 2).

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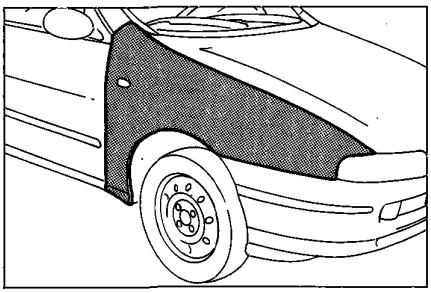
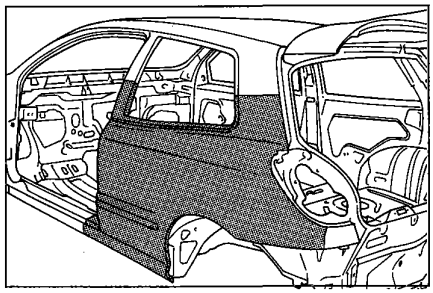
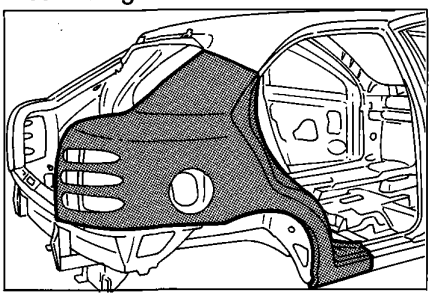
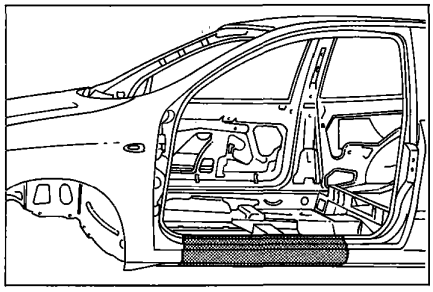
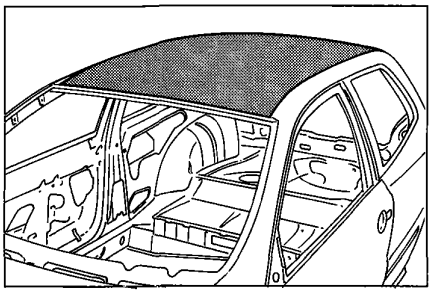
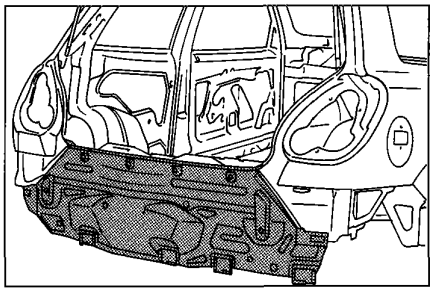
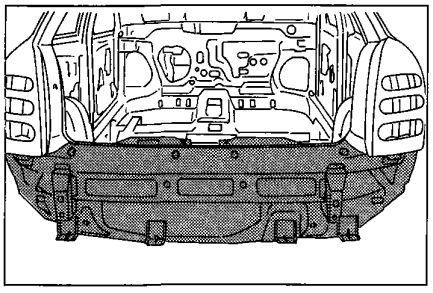
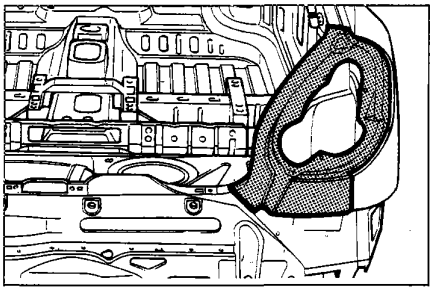
GRAPHIC INDEX

Replacement operation		Reference in Manual
Front wing  P4A065MO1	Rear wing 3 P  P4A065MO2	Replacing body panels page 67 3 door version: page 69
Rear wing 5 P  P4A065MO3	Underdoor side member lining  P4A065MO4	Replacing body panels 5 door version: page 81 3 door version: page 85
Replacing roof panel  P4A065MO5	Rear cross member cover 3 P  P4A065MO6	Replacing body panels 5 door version: page 89 3 door version: page 93
Rear cross member cover 5 P  P4A065MO7	Rear light cluster housing 3P  P4A065MO8	Replacing body panels 5 door version: page 97 3 door version: page 101

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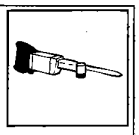
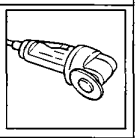
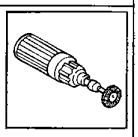
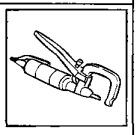
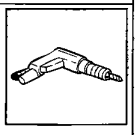
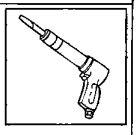
SYMBOLS

CUTTING WITH HACK SAWING MACHINE	
CUTTING WITH CIRCULAR BLADE SAW	
CLEANING WITH ROTARY BRUSH	
REMOVING SPOT WELDS WITH CHAMFERING MACHINE	
REMOVING SPOT WELDS WITH DRILL DRILLING FOR MIG WELDING	
REMOVING PANEL WITH CHISEL DRILLING FOR MIG WELDING	
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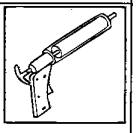
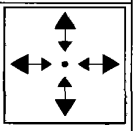
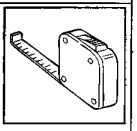
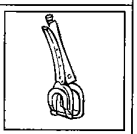
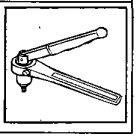
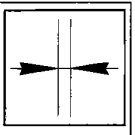
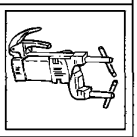
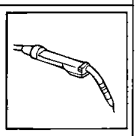
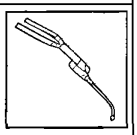
APPLYING HIGH THICKNESS ELECTRO-WELDABLE PROTECTIVES	
CENTERING COMPONENTS	
MEASURING	
FIXING COMPONENTS	
FIXING THREADED RIVETS	

CHECKING GAPS AND ALIGNMENTS	
SPOT WELDING	
MIG WELDING	
WELDING WITH OXYACETY-LENE CANISTER	
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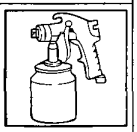
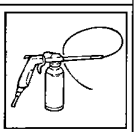
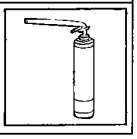
APPLYING UNDERBODY PROTECTIVES	
APPLYING PAINTS	
APPLYING WAX BASED PRO-TECTIVES	
APPLYING FOAM PRODUCTS	

SYMBOLS IN ILLUSTRATIONS

- - - - CUTTING LINE
● ● ● ● SPOT WELDING
▪ ▪ ▪ ▪ MIG WELDING FOR FILLING
UUUUUU CONTINUOUS MIG WELDING
XXXXXXX BRAZING

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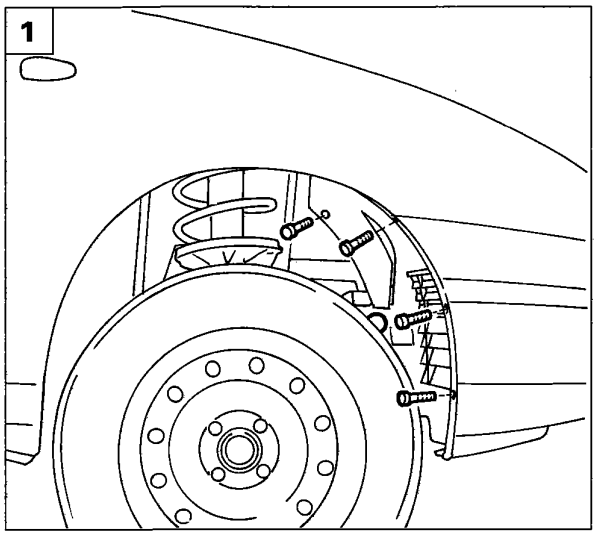

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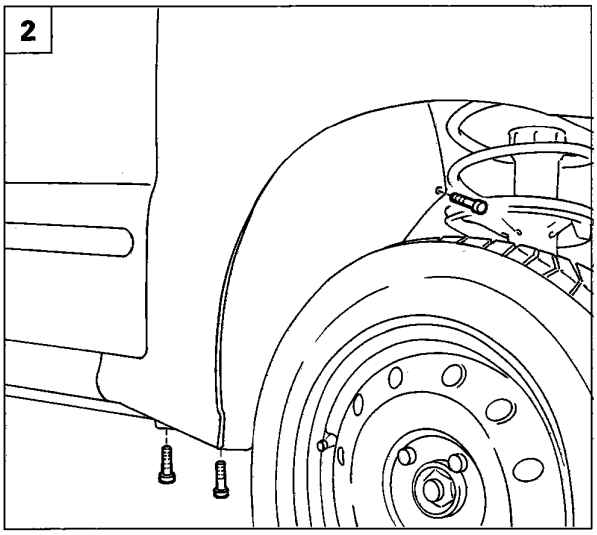

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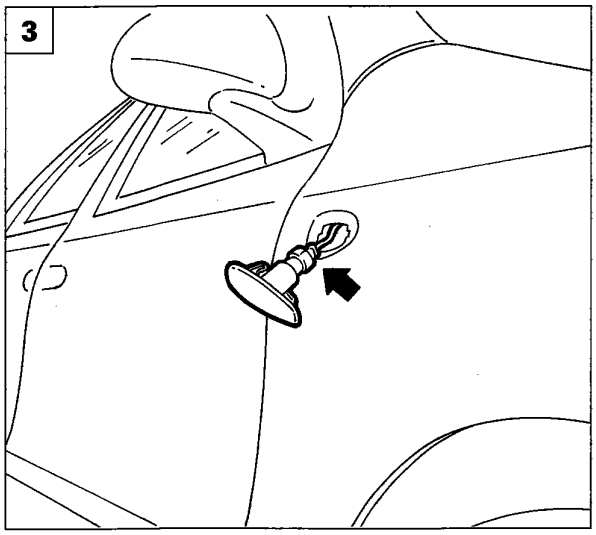


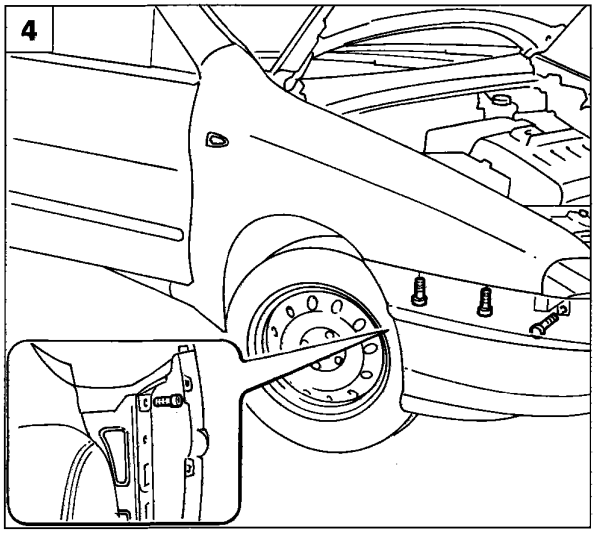
P4A067M03

FRONT WING

Removing

Remove the front light cluster as shown in Section 55 - Electrical equipment.

1. Undo the bolts and the button fixing the front wheel arch liner using tool 1878077000.
2. Remove the front wheel arch liner, undoing the fixing bolts.
3. Remove the side direction indicator acting on the retaining tabs and disconnecting the connector.
4. Undo the bolts fixing the bumpers to the front wing and the bolts fixing the wing to the front side panel.
5. Undo the bolts fixing the wing to the underdoor lining.



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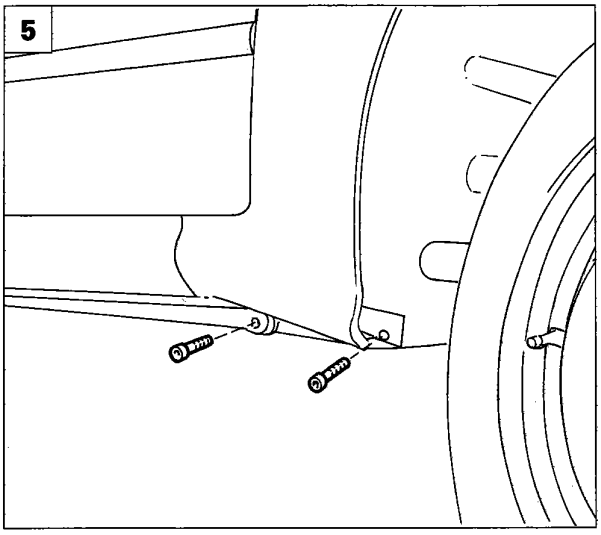

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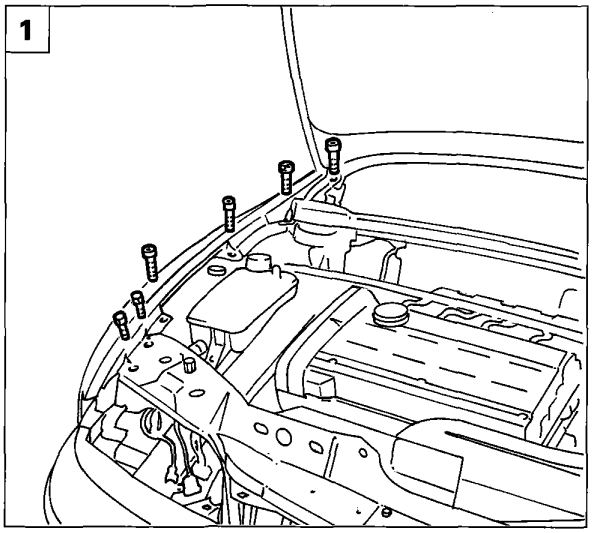
Replacing body panels

70.



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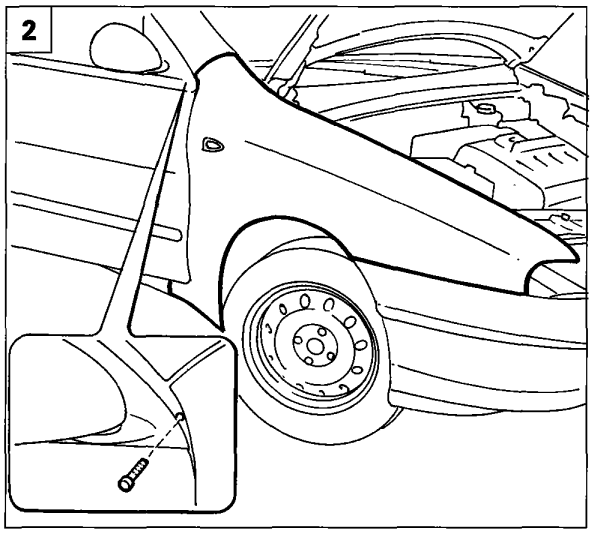

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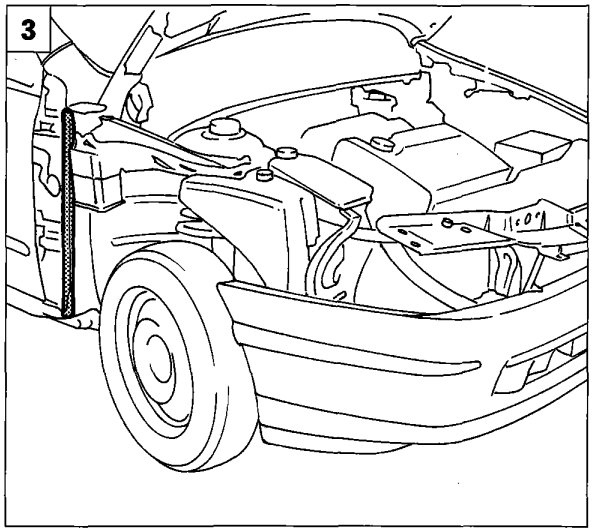


P4A068M03

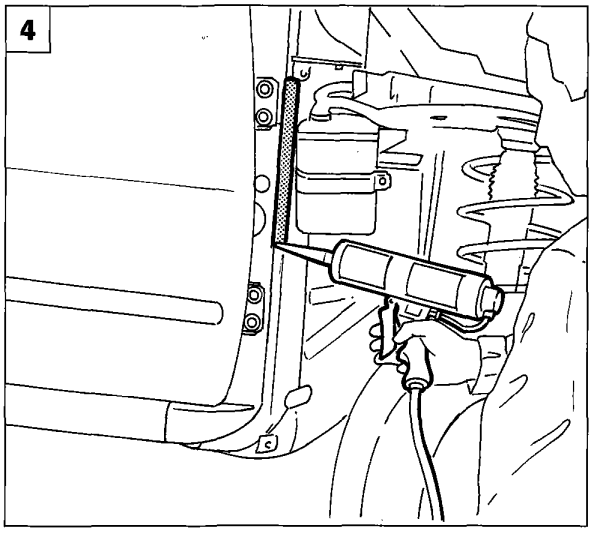
1. Undo the upper bolts fixing the wing to the vehicle and the lower window lining.

2. Undo the bolt fixing the wing to the front pillar cover, then separate the wing from the adhesive sealant.

Refitting

3. Remove the old sealant from the area in contact with the vehicle.
4. Apply sealant to the contact area between the wing and the vehicle.
5. Place the replacement part in position, tighten the bolts fixing the wing to the vehicle, then refit all the components previously removed.

NOTE *Use SIKAFLEX 221 (made by SIKA) sealant which hardens at ambient temperature or an equivalent product.*



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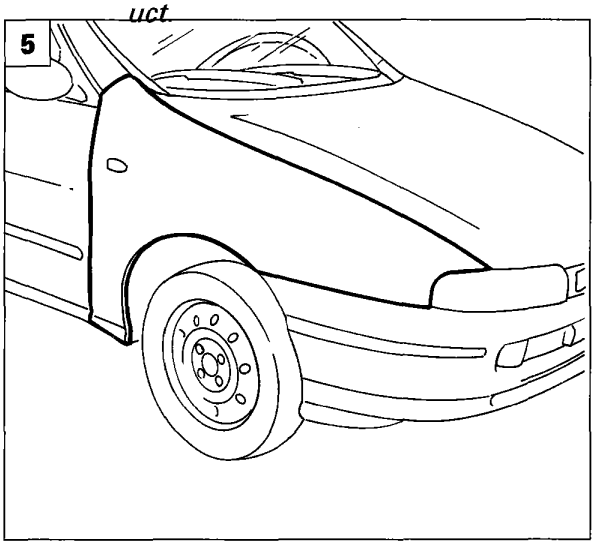

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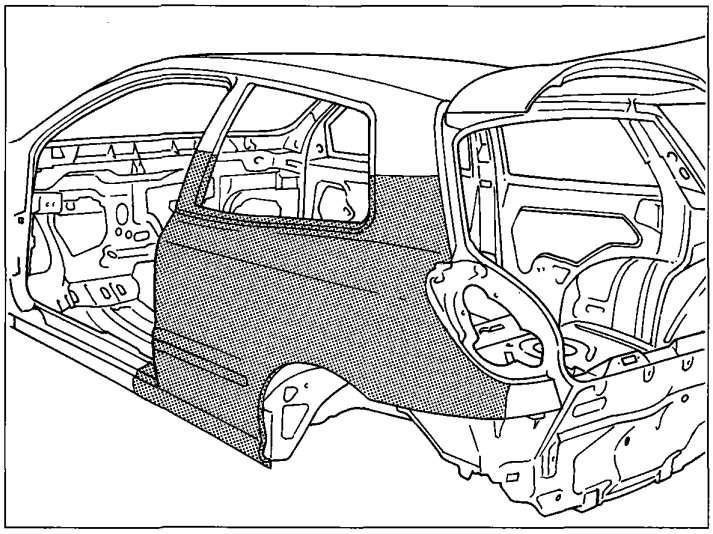


P4A069M01

REPLACING REAR WING (7090A 54)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighed in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures.
Carry out any straightening operations required to the bodyshell using suitable methods (jigs, templates or gauges), before cutting the component. After this operation check that the components not being replaced are intact.

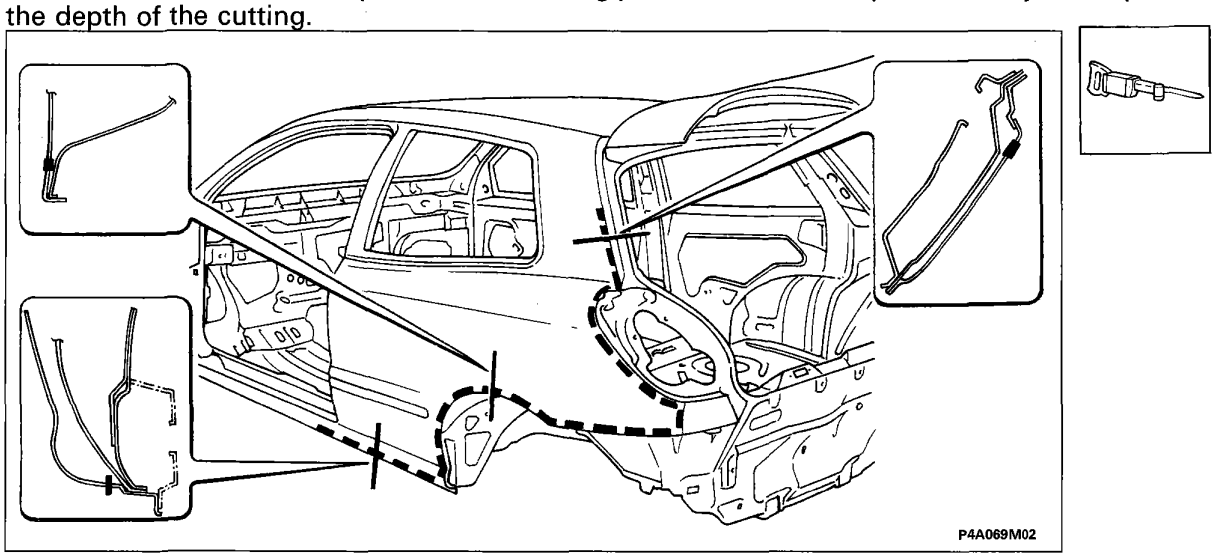
PRECAUTIONS/WARNINGS AND PRELIMINARY DISMANTLING

Protect the seats and the parts which could be damaged using cloths.
Remove the fuel tank, disconnect the battery and all the electrical and electronic components because the currents produced during the welding operations could cause serious damage.

REMOVING AND REFITTING OPERATING CYCLE

The replacement of the panels can be "total or "partial"; this second solution is preferable when trying to avoid damage to another panel which has been assembled through welding. Cut the wing using a power saw following the dotted lines shown in the diagram below.

We show the sections of the panels at the cutting points to allow the operator to adjust the position and the depth of the cutting.



P4A069M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, masks and gloves during the welding and painting operations.

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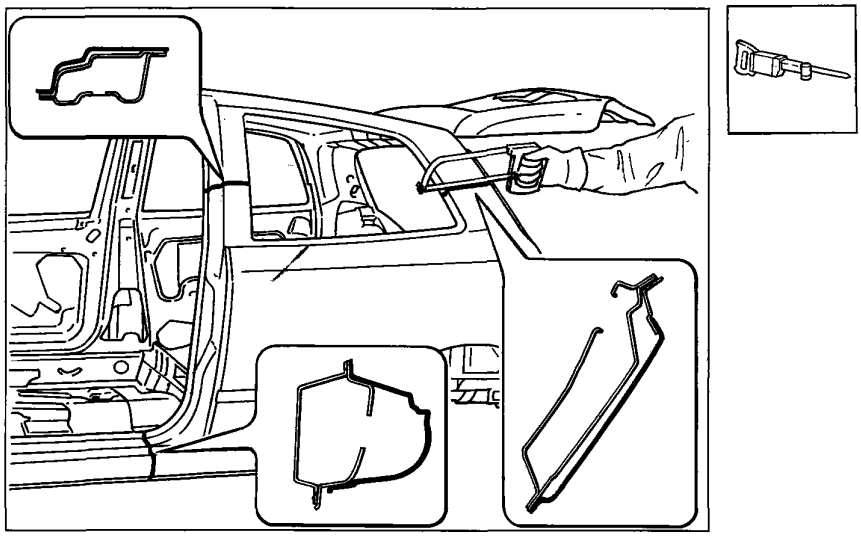
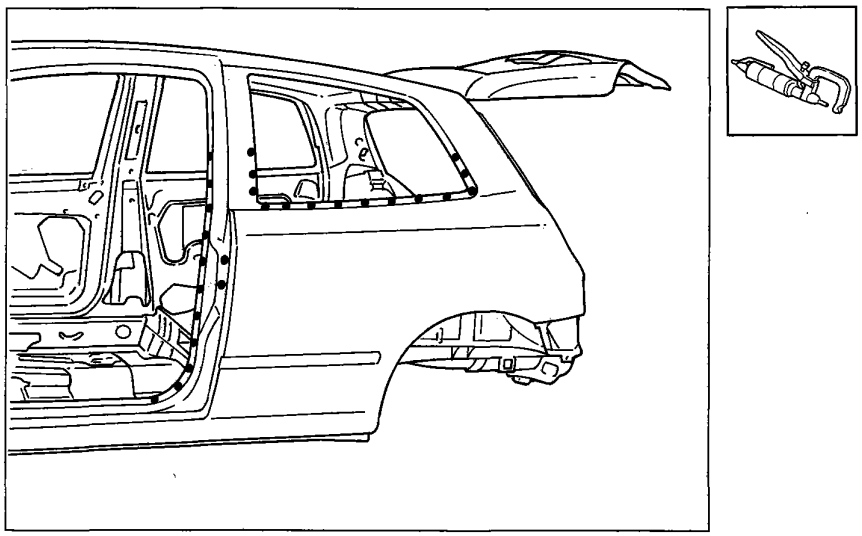
Using the saw, cut the underdoor side member, the centre and rear pillars; these parts will be later welded "edge to edge" using the continuous welding machine.

It is advisable to cut the wing using a hand saw so as not to affect the reinforcements underneath.



P4A070M01

Remove the spot welds using a special remover.
The cutter for removing the spot welds acts on the panel which makes up the element to be replaced as far as the panel underneath thereby eliminating the weld spot as shown in the right inset.



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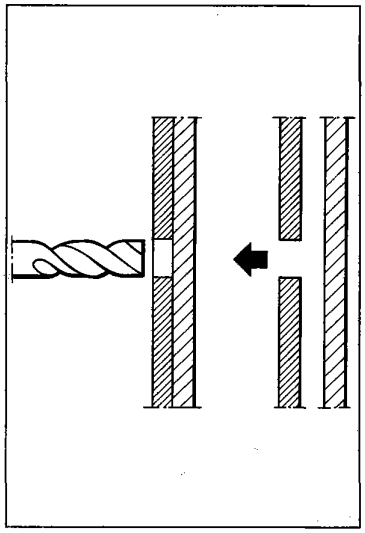

P4A070M03

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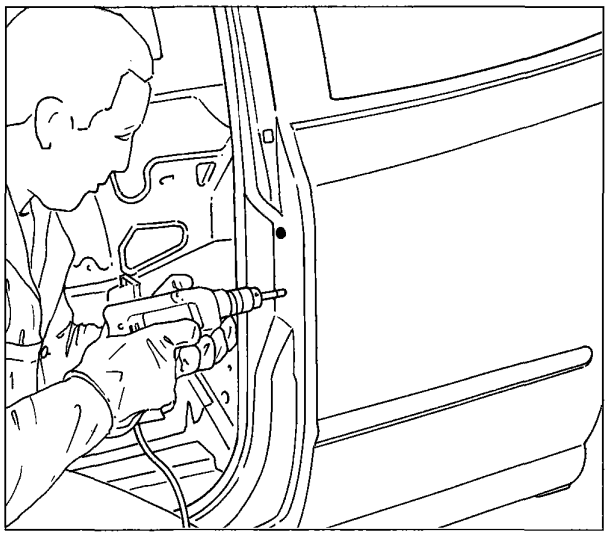
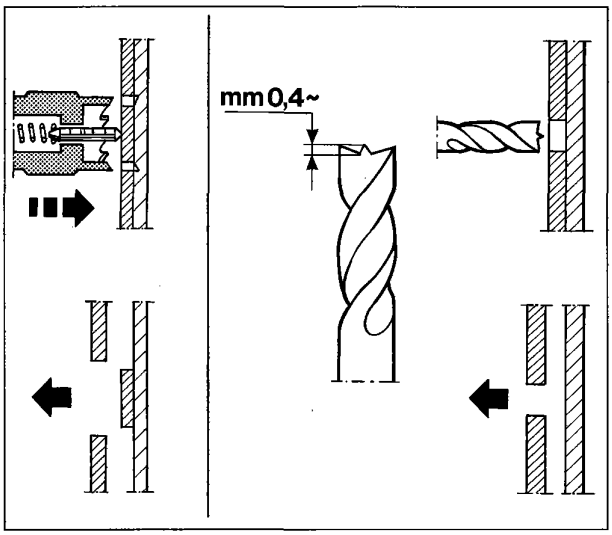
Where it is not possible to use a spot weld remover, use a special cutter and an ordinary drill (it is also possible to use a normal drill modified as shown in the diagram underneath.

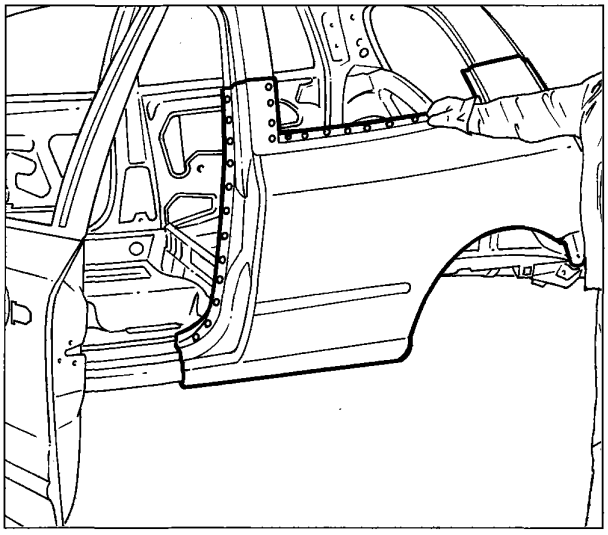


P4A071M01



P4A071M02

Remove the rear wing taking care not to distort the inner frames.



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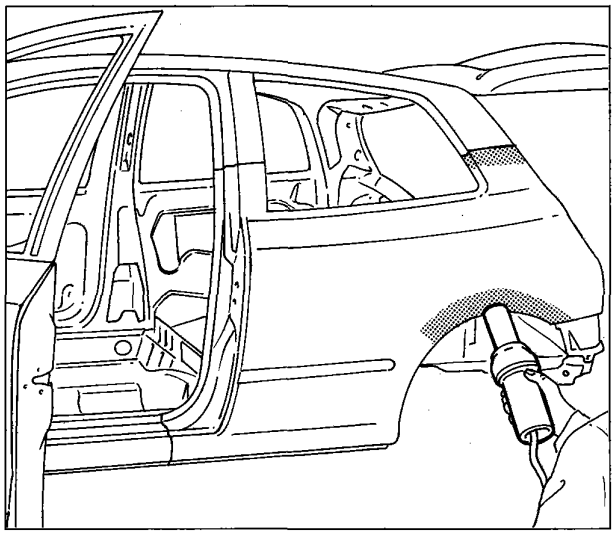

P4A071M04

If there are difficulties when removing the wing, it is advisable to heat the section of sealant in the area of the wheel arch and the foam in the upper part of the rear pillar using a hot air blower.

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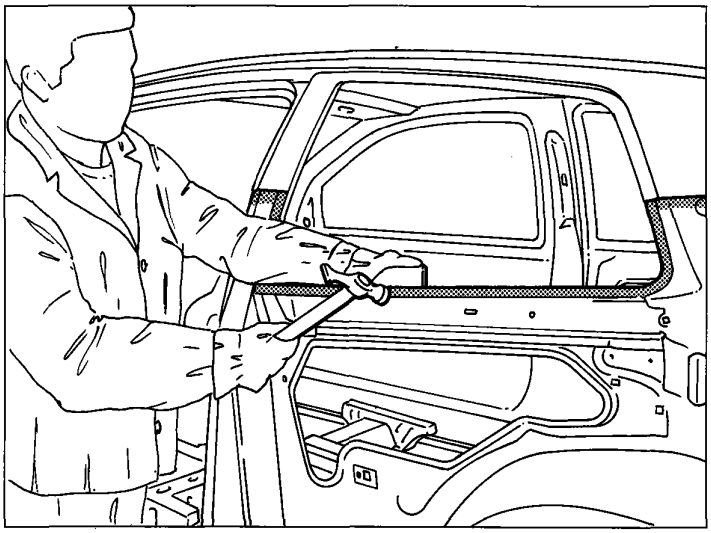
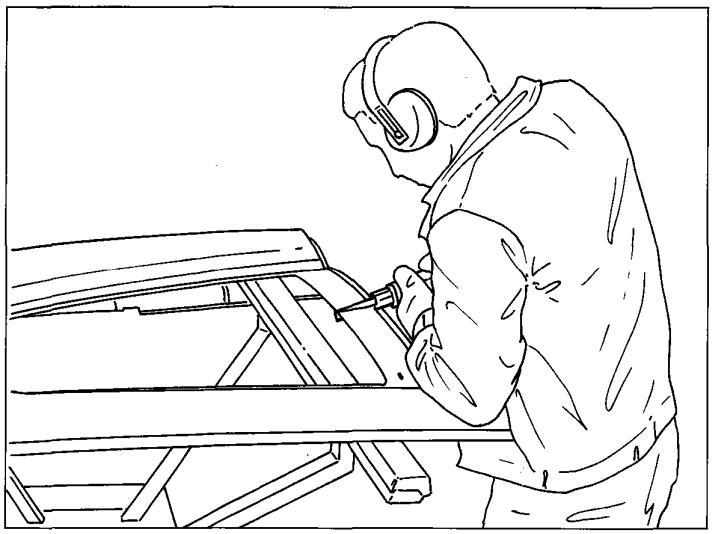


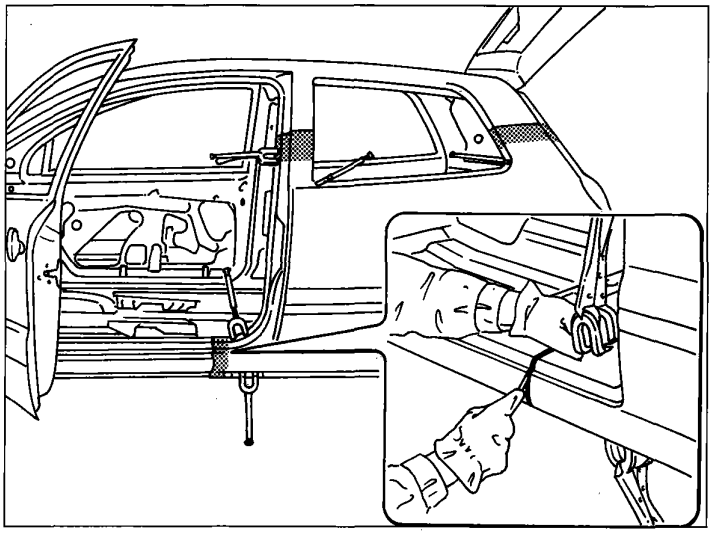
P4A072M01

- Using a hammer and dolly block straighten the edges of the vehicle.



P4A072M02

- Remove the excess parts from the replacement part so that the replacement pillars are about 50 mm longer than the part removed from the vehicle.



P4A072M03

- Place the spare part in position on the vehicle and check the alignment with the adjacent elements, then fix it using the special self-locking clamps;
- after having made sure that it is perfectly superimposed (pillar and underdoor panel), mark the parts to be removed on the bodyshell using a tracer point.

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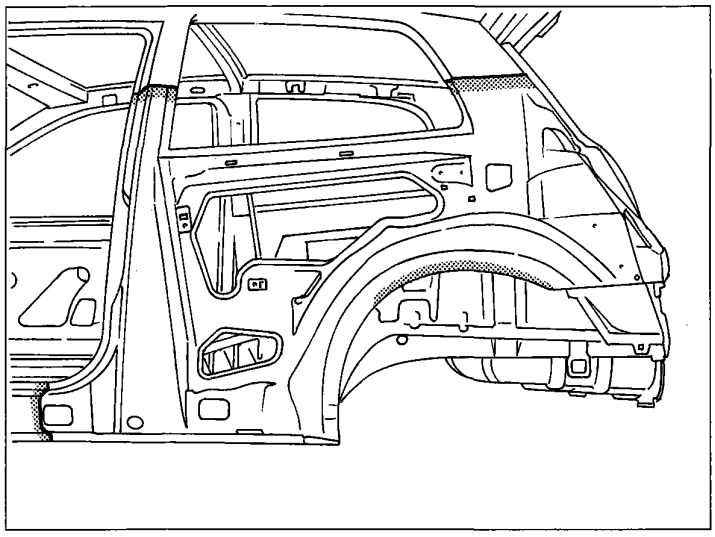
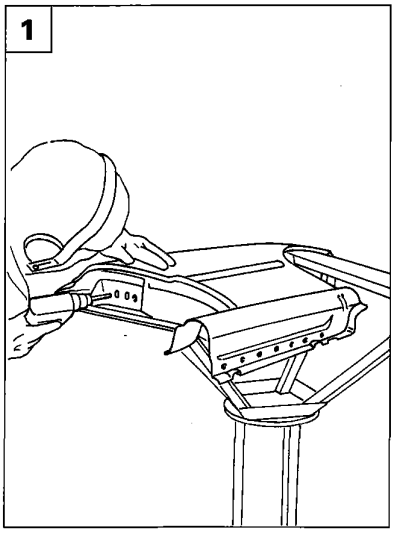
Remove the replacement part from the vehicle and remove the offcuts from the pillars and the underdoor panel.



P4A073M01

1. Drill the replacement part at the points where the continuous welding machine will insert the rivets.
2. Grind the spot weld residues and bare all the inner and outer surfaces in the areas to be welded (avoid the burnt painted box sections not perfectly anchored to the panels adversely affecting the subsequent protection operations).
3. Apply electro-weldable anti-rust protectiveto the inner edges to be welded.



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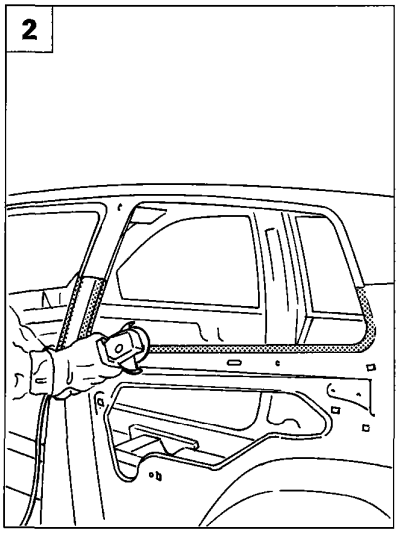

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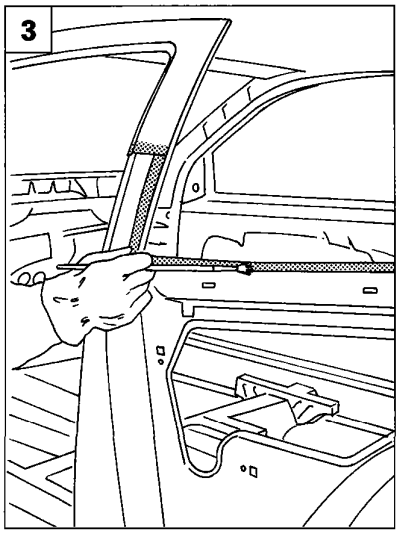

P4A073M04

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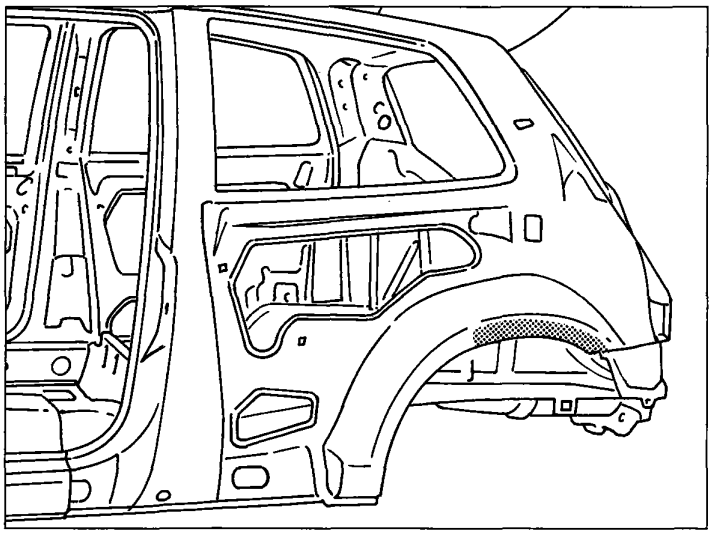
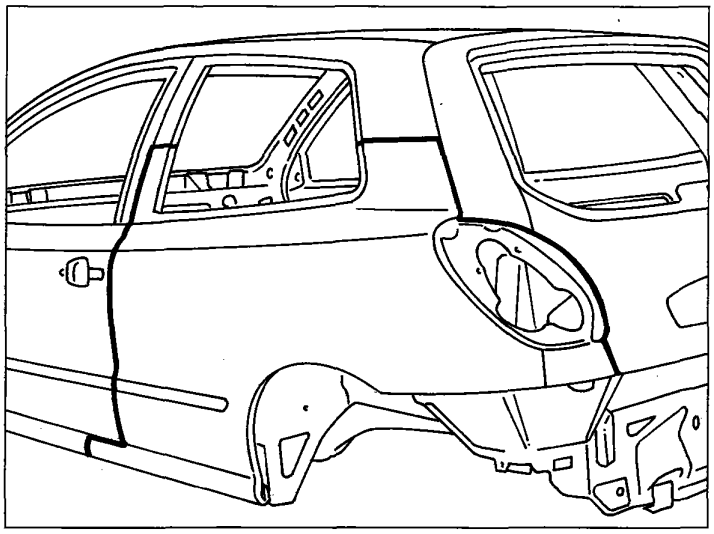
Place sealant between the wheel arch and the wing along the section indicated in the diagram.



P4A074M01

Offer up the replacement part on the vehicle, check the alignment with the adjacent elements and check that it is perfectly aligned with the components to be welded edge to edge.



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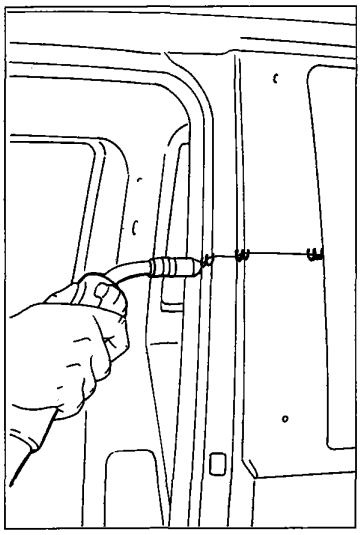
Start the welding operations using the continuous welding machine and tack the corners of the pillars and the underdoor panel.



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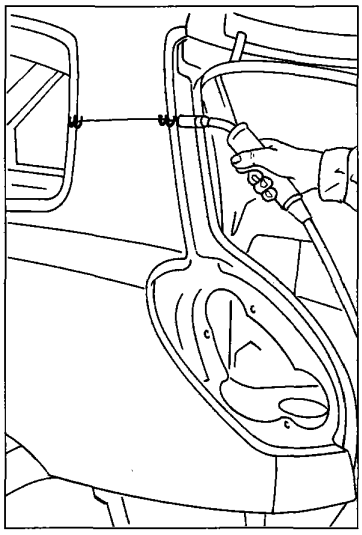

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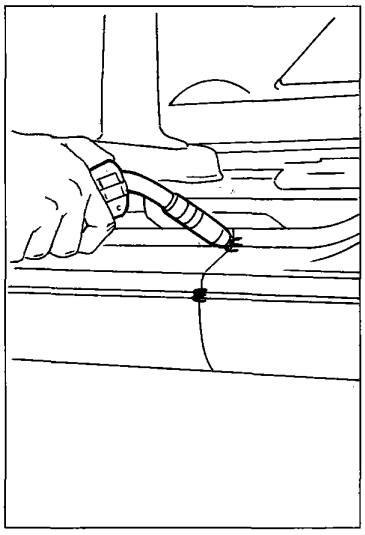
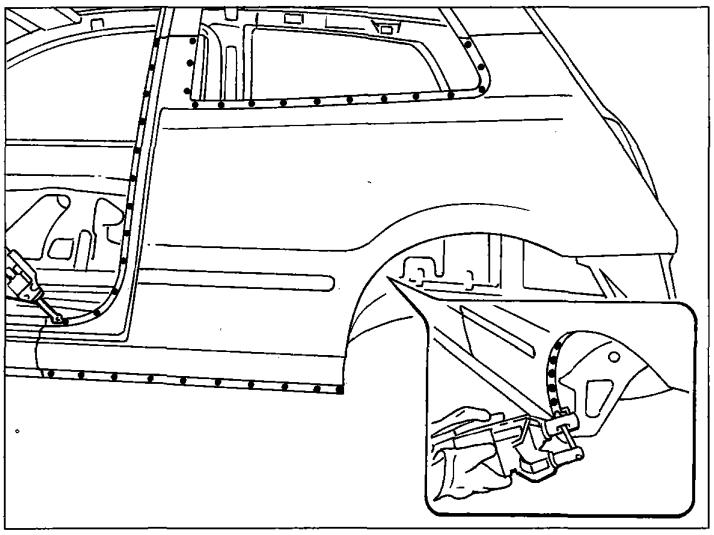


P4A075M03

Carry out electrical spot welding in the areas shown.

When carrying out electrical spot welding it is neceesary that the parts to be welded are perfectly matched and that the panels are scrupulously clean to avoid excessive resistance leading to burning and the consequent fragility of the welding.



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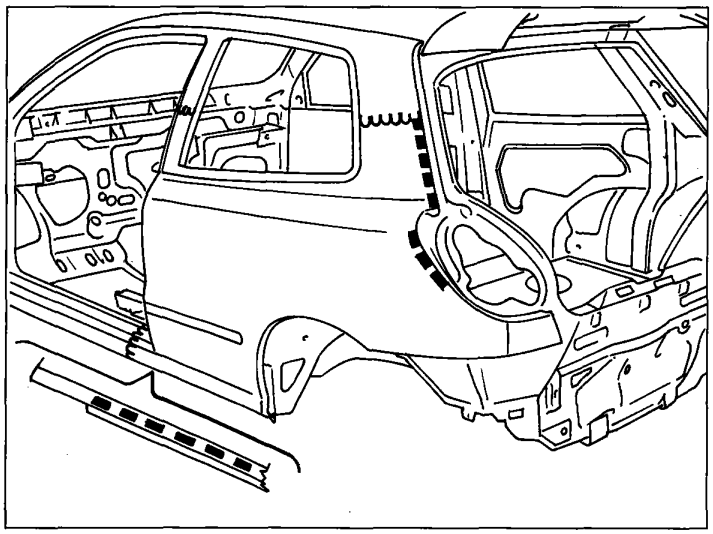
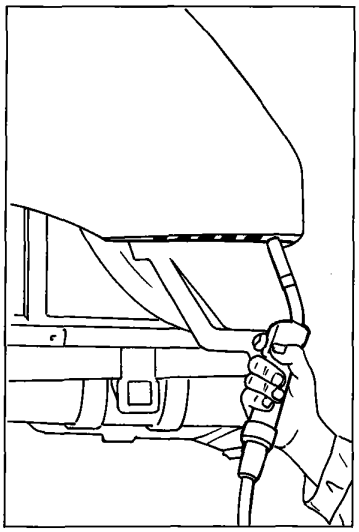
Using the continuous welding machine, weld the pillars and the underdoor panel, proceeding in chain--stitch fashion in order not to distort the panels.



P4A076M01

Carrying out the filling (riveting) in the holes made previously in the replacement part.



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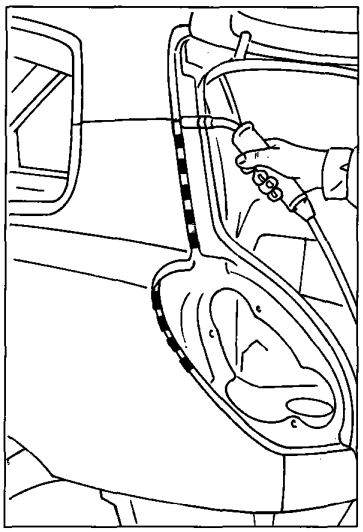

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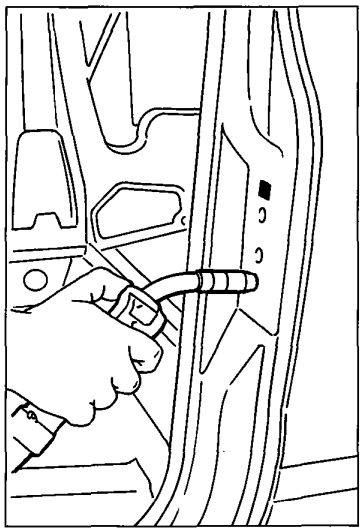

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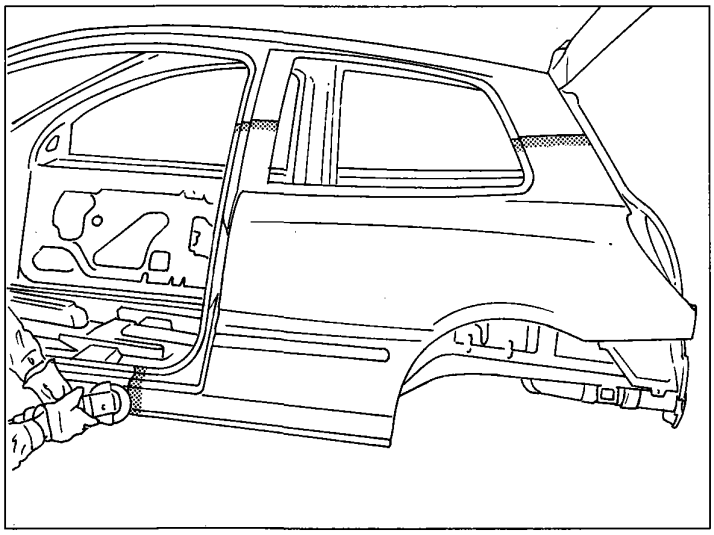
Using a disc grinder, level the weld beads made with the continuous welding machine on the pillars and underdoor panel.



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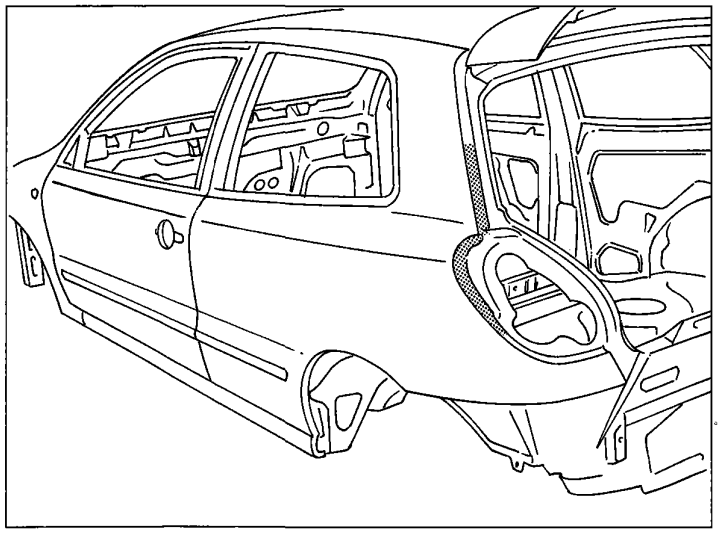
Level at the points where the filling welding (riveting) has been carried out.



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PROTECTION OF REPAIRED PARTS

To avoid any problems in the future it is important, after replacing or repairing a bodywork element, to restore the correct protection, both internal and external, so that theidentical characteristics to the original ones are restored to ensure the quality of the repair and guarantee it against corrosion.
The replacement parts are subjected to the same cycle as the bodyshell.
Per conservare le qualità anticorrosive di origine, questi elementi devono essere smerigliati solo dove strettamente necessario.

PREPARATION AND PAINTING PROCEDURE

1. Preparing the areas welded or repaird by dry sanding with P100 grade abrasive paper.
   This operation is designed to remove any layers of paint which are not properly anchored to the panel and, at the same time, to level the uneveness or "steps".

2. Dry sanding of the replaced part and the surrounding paintwork the P320 abrasive paper.
   Simply make the replacement part "opaque" and level any imperfections, grooves, lumps or scratches, avoiding, as far as possible, removing the original treatment.

3. Blow through thoroughly and wash with diluent because the dust could seriously affect the adhesion of the products to be applied.

4. Phosphating: apply an anti-rust phosphating product to the exposed areas, if necessary using a brush, which as well as preventing corrosion improves the adhesion of the subsequent products.

5. Finish off with metal filler to perfect and eliminate any grooves and/or depressions in the welded or repaird panels.
   The application using a spatula of a suitable thickness of polyester filler, is carried out in one or more goes.
   Take care not to carry out excess catalysis, which could show up on the paintwork as yellow marks due to peroxide.

6. Dry sand using P 80-100 paper.
   To remove the excess filler applied previously, work manually using rubber or wooden buffers or manual sanders. The sanding should be done skillfully, above all in the areas surrounded by paintwork to avoid large scratches. Any overhauling of uneven areas, grooves, porousness, etc. should be carried out now using the same filler to avoid later operations. Finish off with a finer grade abrasive paper (P320).
   Blow and degrease very thoroughly.

7. Finishing coat (with two components).
   Protect the parts not involved in the application of the coat. The application of the finishing base coat should be carried out following the manufacturers instructions to the letter. A very light layer of black paint, atomized by hand, applied to the base coat will show up any imperfections during the sanding so that they can be removed.

8. Dry or water sanding with P500-P600 abrasive paper.

9. Blowing/degreasing.
   (Dust and humidity have a serious adverse affect on the adhesion of the paint products).

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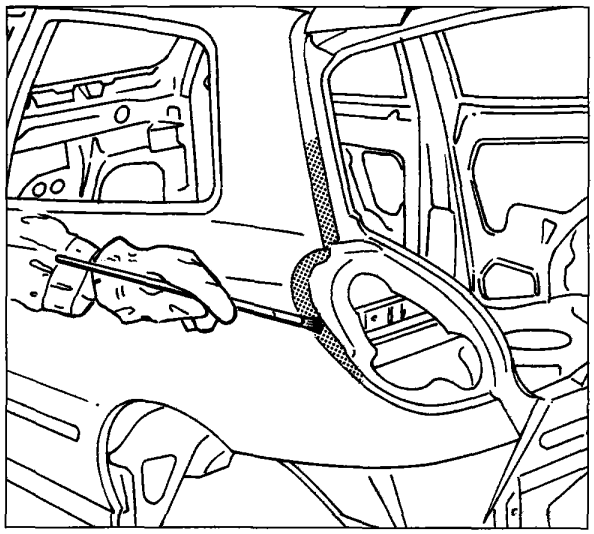
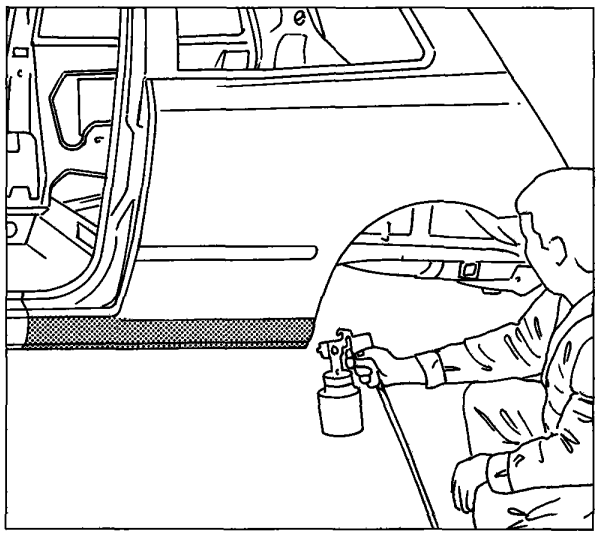
10. Sealing. Protect the joins for the components superimposed, the lower part of the wheel arch and the underdoor panel with a two component sealant, applied by brush or by spraying.

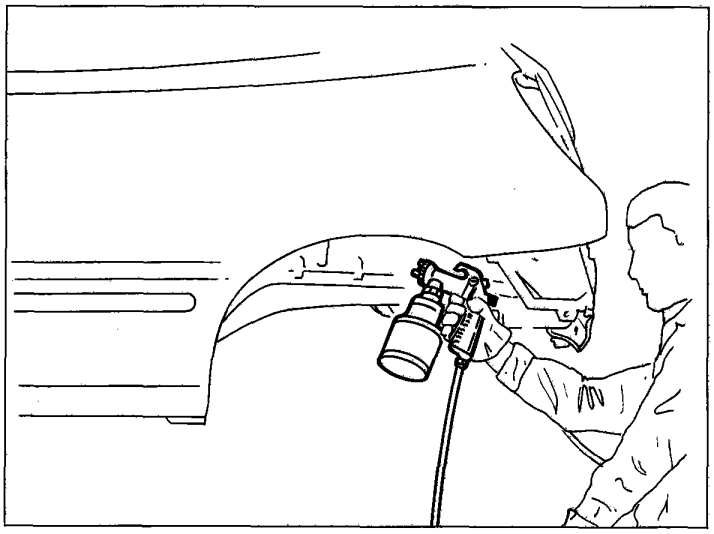


P4A079M01



P4A079M02

Apply a layer of sealant to the contact edge between the wheel arch and the rear wing using a spray gun.



P4A079M03

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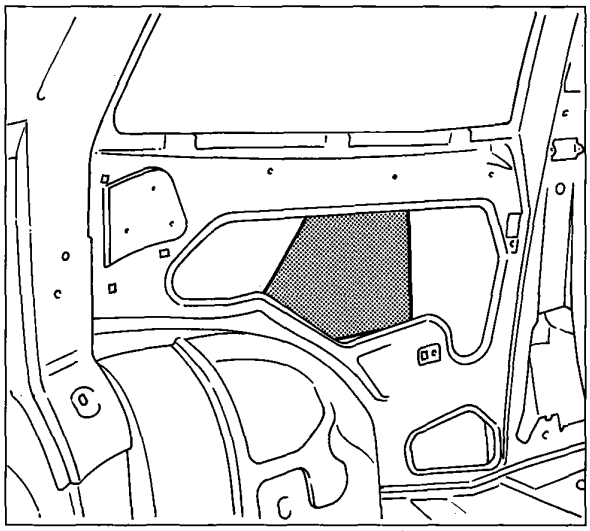
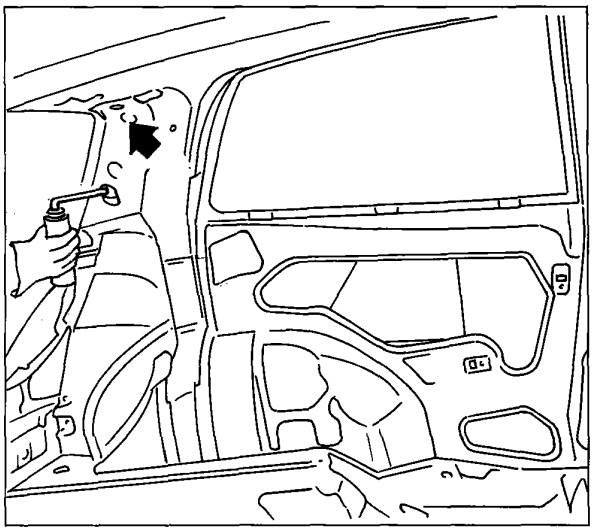

P4A080M01


P4A080M02

11. Damper panels. Fit the damping panels to the inside of the wing.

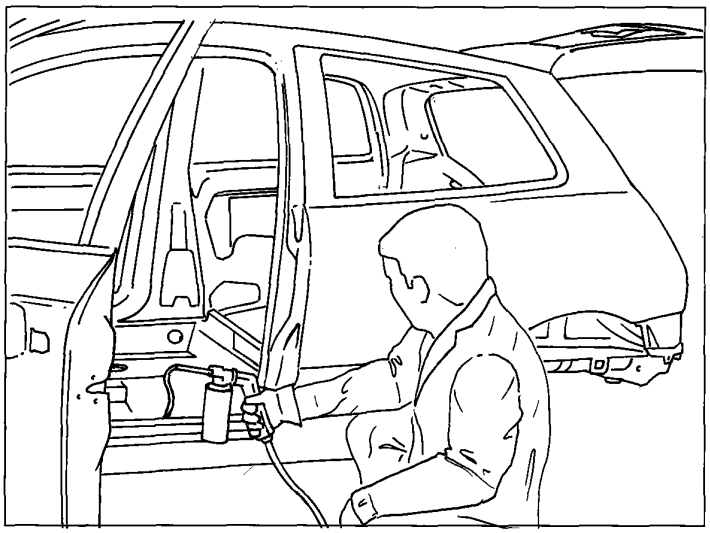
12. Foam. Apply the foam through the openings shown.

13. Preparing any joins to be shaded and/or preparing the elements adjacent to the shading, wet sanding with P1200 grade abrasive paper or with abrasive polish.

14. Protection (after checking the tint).
Use industrial paper which does not release volatile impurities.

15. Blowing and preparing for painting.
Wash with anti-silicon diluent and dry, lastly clean with a chemical wad.

16. Painting. Follow the technical specifications and the instructions for applying enamels, recommended in the technical charts from the manufacturers of the product used.


P4A080M03

17. After painting, spray the product on the parts which are not accessible, especially the continuous spot welds.

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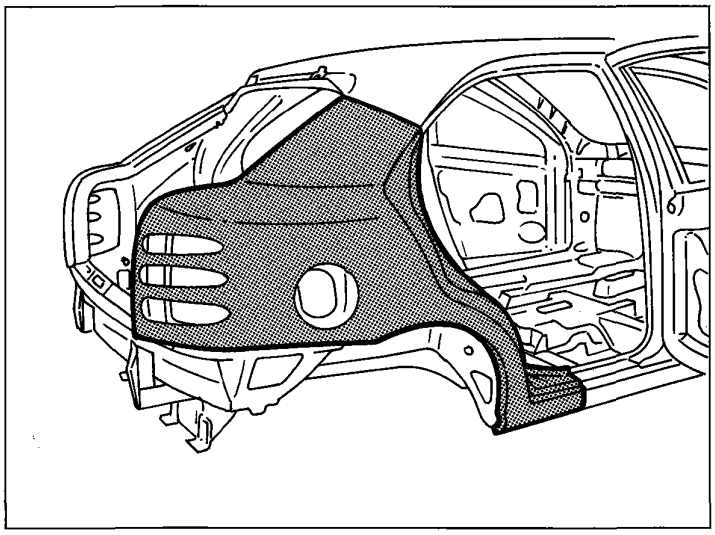


P4A081M01

REPLACING REAR WING (7090A 54)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

Carry out any straightening operations required to the bodyshell before cutting the component. After this operation check that the components not being replaced are in tact.

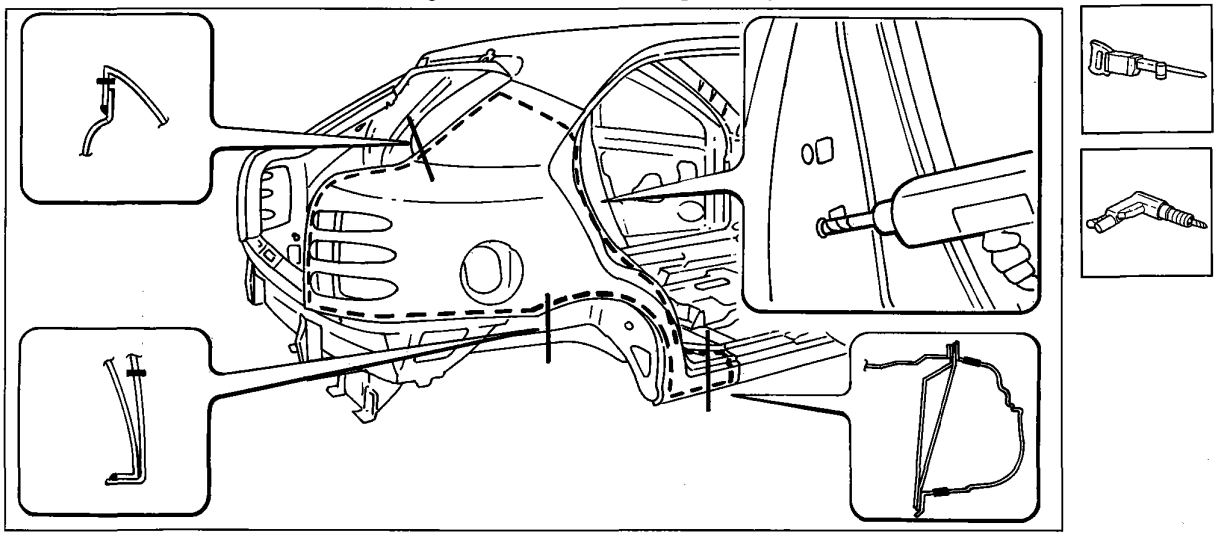
PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the rear wing of the vehicle using a power saw following the dotted lines shown in the diagram below and remove the spot welds along the section of the door striker housing.

The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A081M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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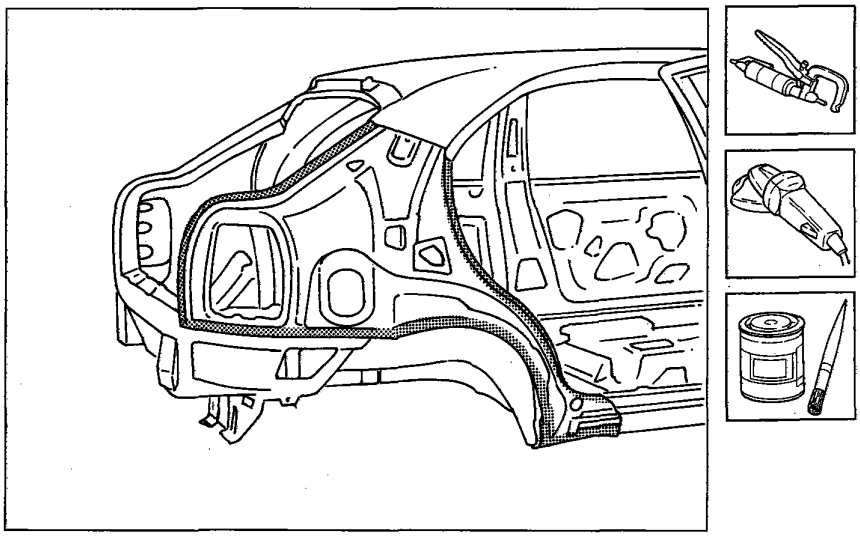
70.

Removing off cuts and preparing edges of bodyshell

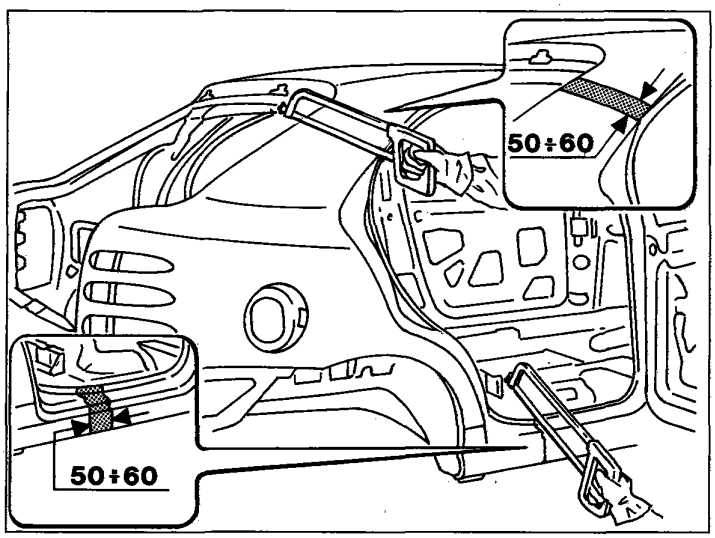
1. Remove the weld points along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A082M01

Adjusting the replacement part

1. Cut the upper section of the replacement part then place it in position so that it adheres perfectly to the bodyshell.
2. Check that the wing is superimposed 50 - 60 mm over the bodyshell.
3. Fix the replacement part using the special self-locking clamps.
4. Cut the two edges of the panel so that the join is perfectly aligned.



P4A082M02

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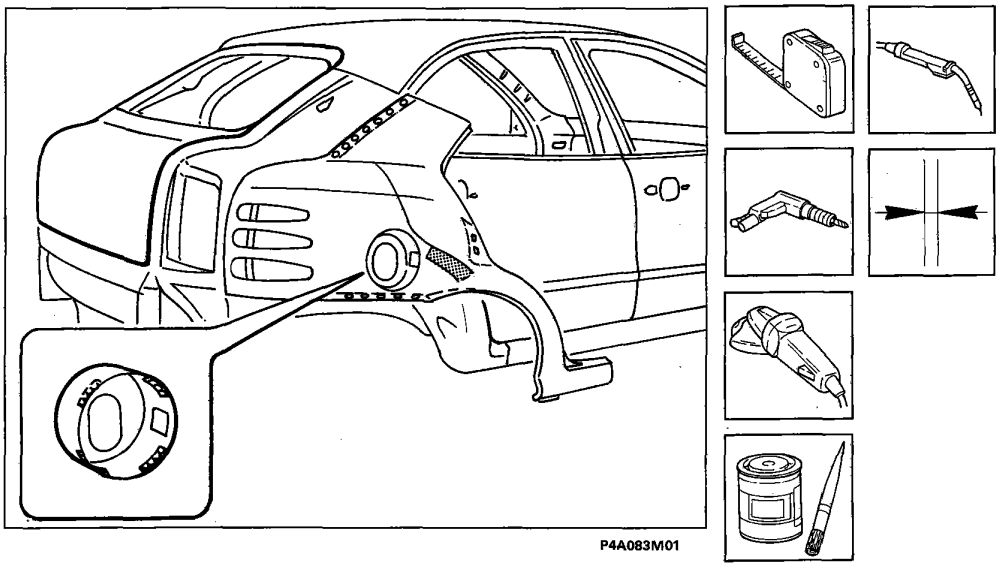
Preparing the spare part and checking that it is correctly positioned on the bodyshell

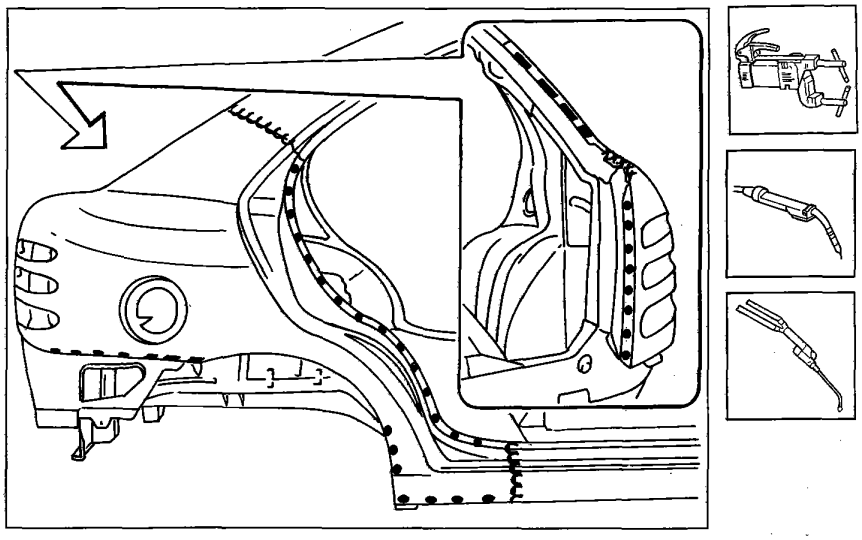
1. Make equidistant holes in the edges of the replacement part as shown in the diagram.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a special grinder.
3. Use electro-galvanizing paint on the edges in contact with the bodyshell.
4. Use the MIG welder to fill the holes made previously between the wing and the fuell filler housing.
5. Tack the replacment part using several spot welds.
6. Fit the boot lid, close the door and check the alignment and the eveness of the surrounding gap.



P4A083M01

Welding the spare part

1. Carry out spot welding along the edges of the door seal, wheel arch and rear light cluster housing.
2. Use the MIG welder between the underdoor side member and the wing and between the wing and the bodyshell.
3. Weld using brass and the oxyacetylene canister by the rearscreen housing and the luggage compartment.
4. Fill the holes made previously in the part by welding.



P4A083M02

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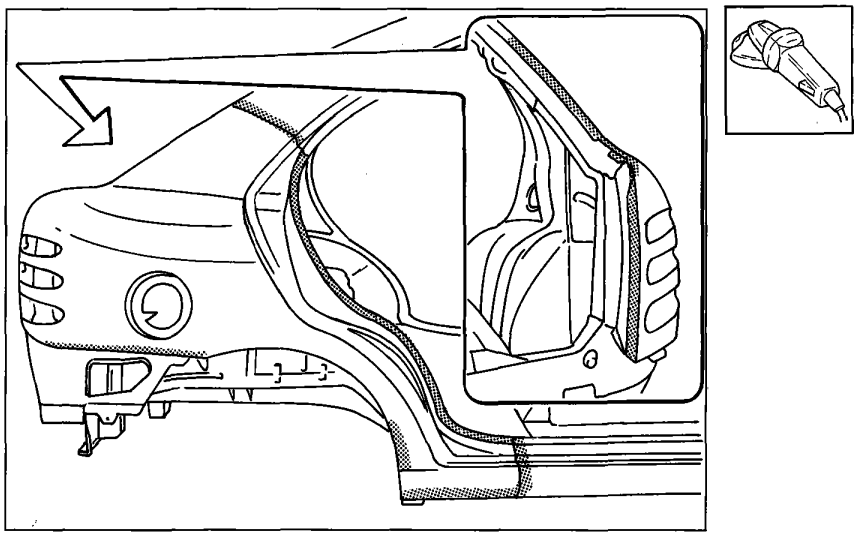
Finishing operations

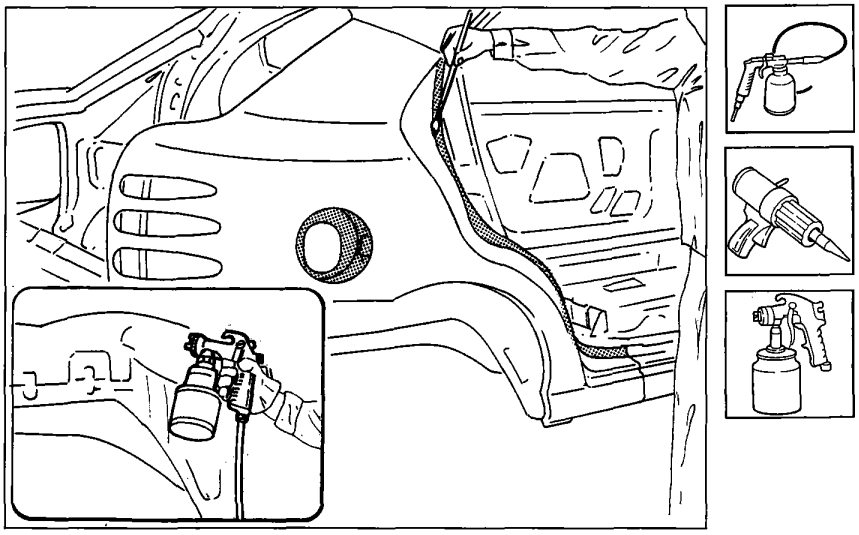
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.



P4A084M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the joins between the wing and the bodyshell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.



P4A084M02

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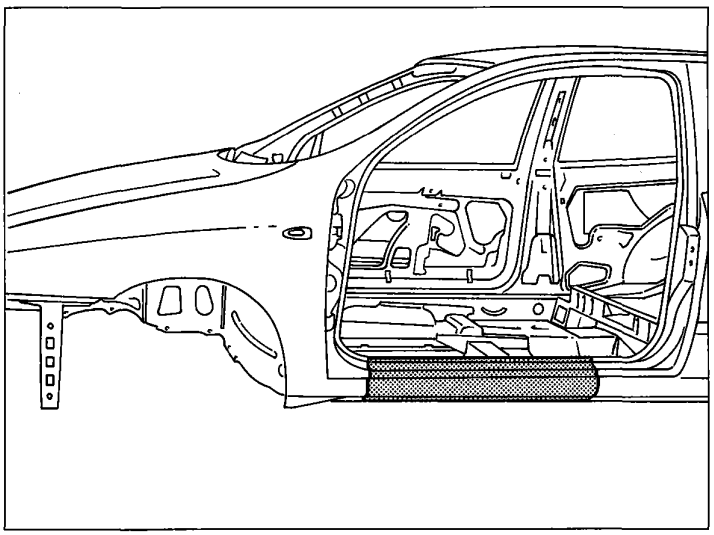


P4A085M01

REPLACING UNDERDOOR SIDE MEMBER (7090G 62)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

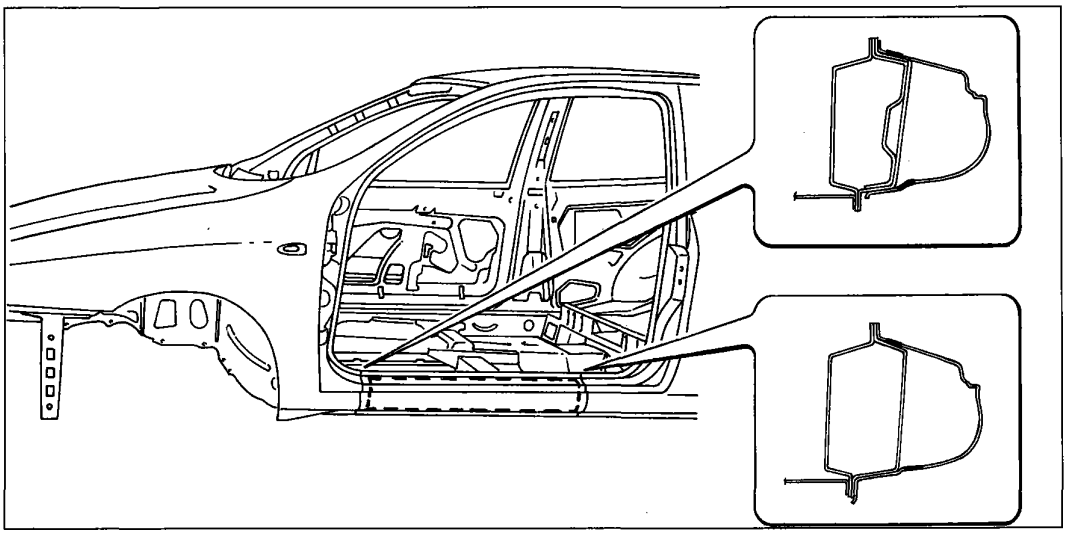
Carry out any straightening operations required to the bodyshell before cutting the component.
After this operation check that the components not being replaced are in tact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle underdoor side member using a hammer and chisel (upper area) and a power saw (lower area), following the cutting lines shown in the diagram below.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A085M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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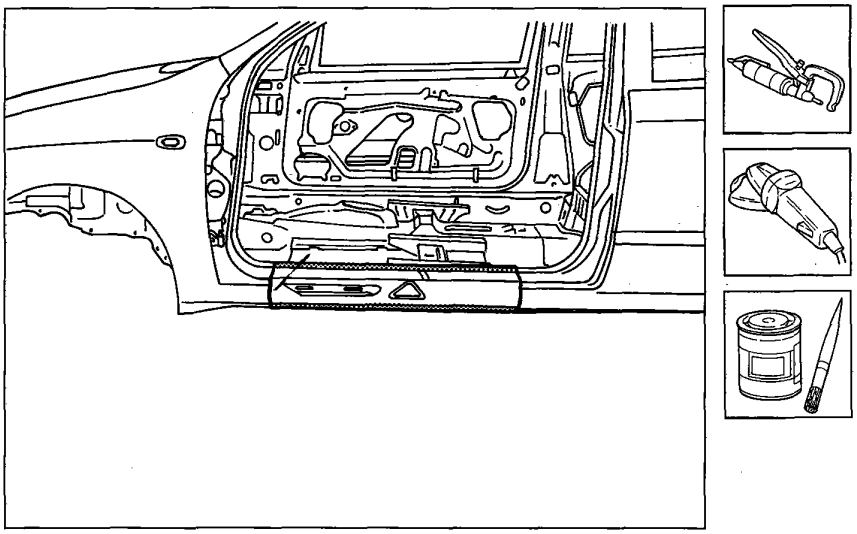
Removing off cuts and preparing edges of bodyshell

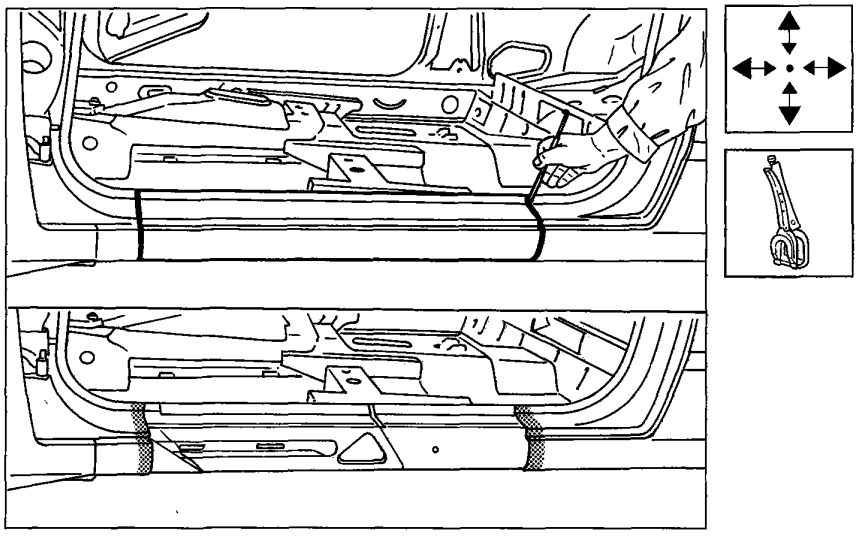
1. Remove the weld points along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A086M01

Adjusting replacement part and finishing the edges of the bodyshell

1. Place the replacement part in position after having degreased it suitably and fix it using the special self-locking clamps.
2. Trace the profile of the replacement part on the bodyshell using a tracer point.
3. Remove the replacement part and cut the excess from the edges of the bodyshell along the line drawn previously using bodywork shears.



P4A086M02

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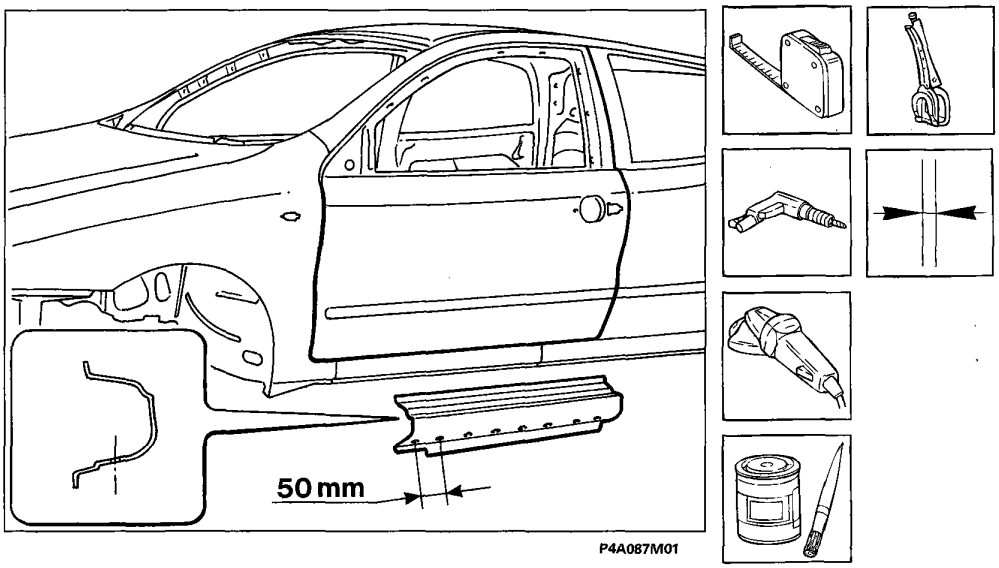
Preparing the spare part and checking that it is correctly positioned on the bodyshell

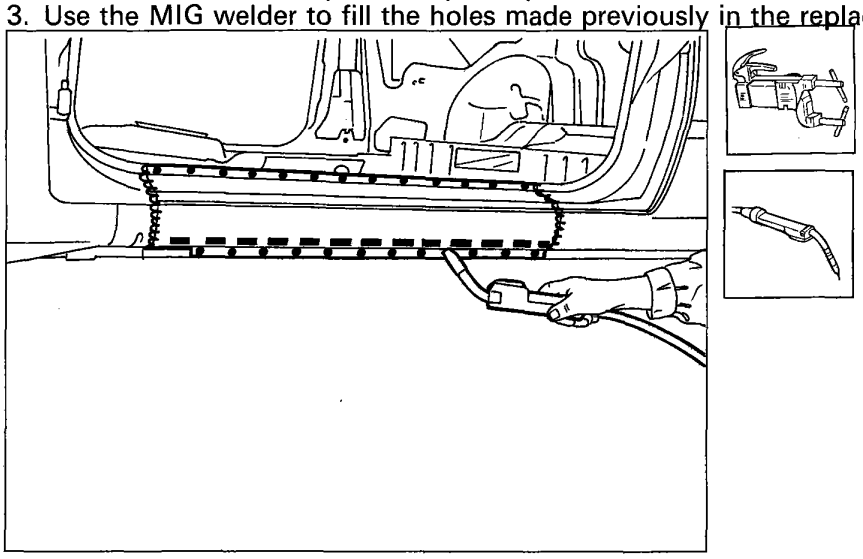
1. Make equidistant holes along the entire lower edge of the replacement part.
2. Remove the anti-corrosion treatment from the entireperimeter of the inside and the outside of the replacement part using a special grinder.
3. Use electro-galvanizing paint on the edges in contact with the bodyshell.
4. Position the replacement part in place and fix it using the special self-locking clamps.
5. Fit the door, then check the alignment and eveness of the surrounding gap.



P4A087M01

Welding the spare part

1. Carry out spot welding on the upper and lower edges of the underdoor side member welding it to the bodyshell.
2. Use the MIG welder by the bodyshell pillars.
3. Use the MIG welder to fill the holes made previously in the replacement part.



P4A087M02

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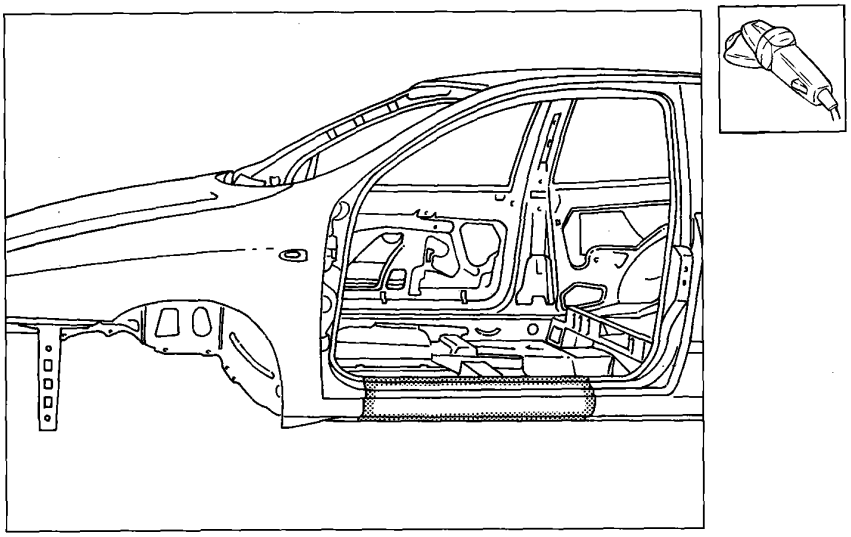
Finishing operations

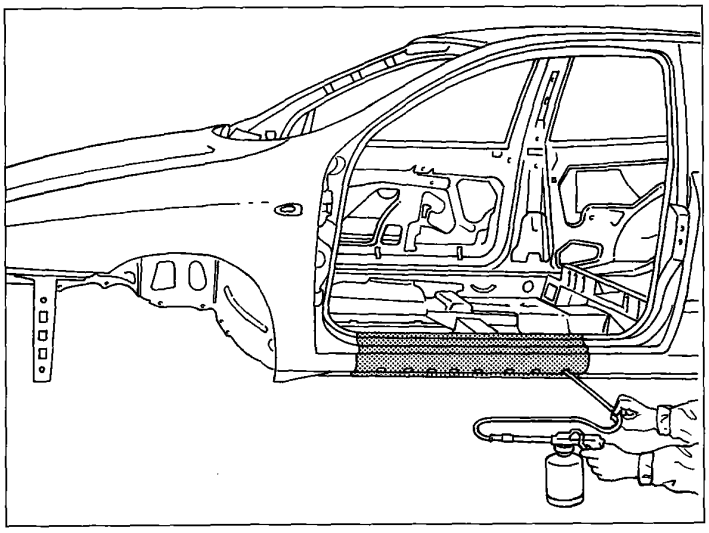
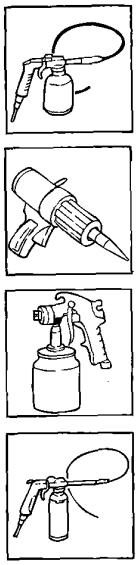
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.



P4A088M01

Protections

1. Apply the electro-phoretic treatment to the areas previously involved in the welding.
2. Seal the joins between the underdoor side member and the bodyshell, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective inside the underdoor side member.

P4A088M02

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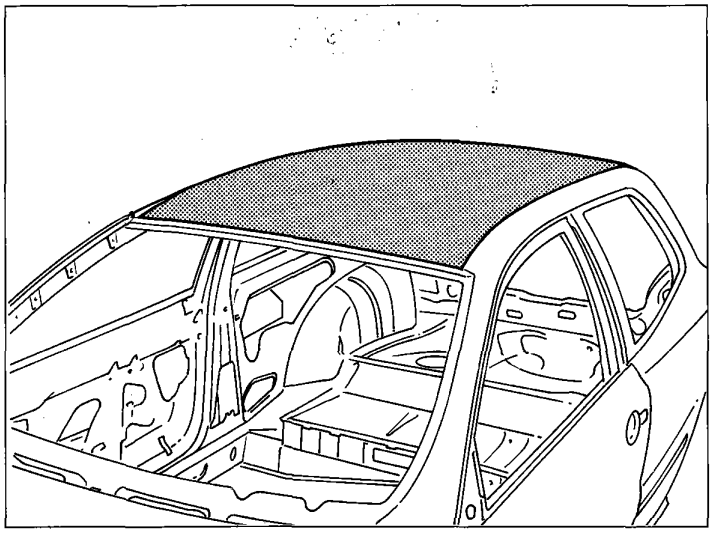


P4A089M01

REPLACING VEHICLE ROOF PANEL (7090A 58)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

Carry out any straightening operations required to the bodyshell before cutting the component. After this operation check that the components not being replaced are in tact.

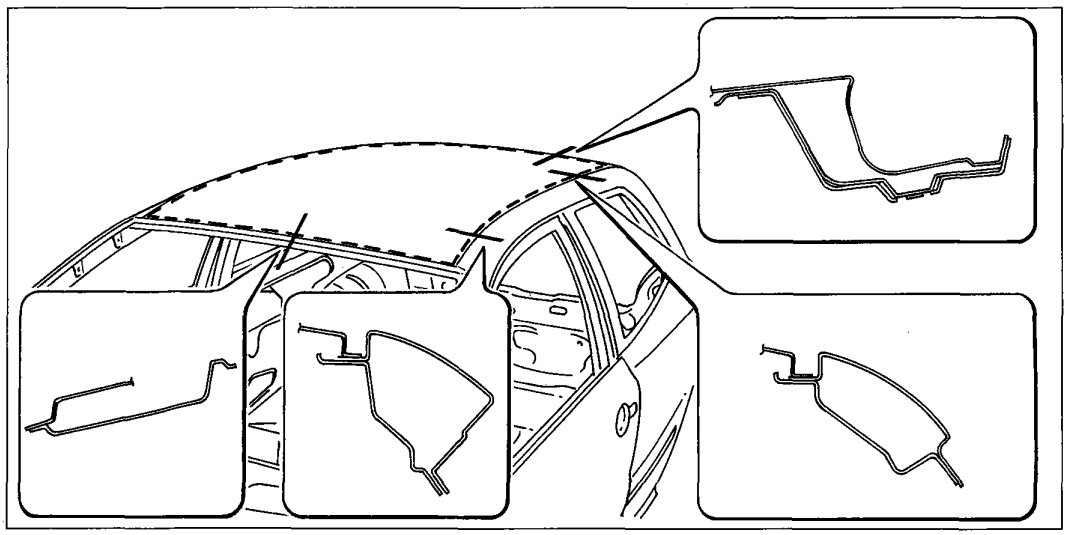
PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle roof panel using a power saw following the dotted lines shown in the diagram below.

The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A089M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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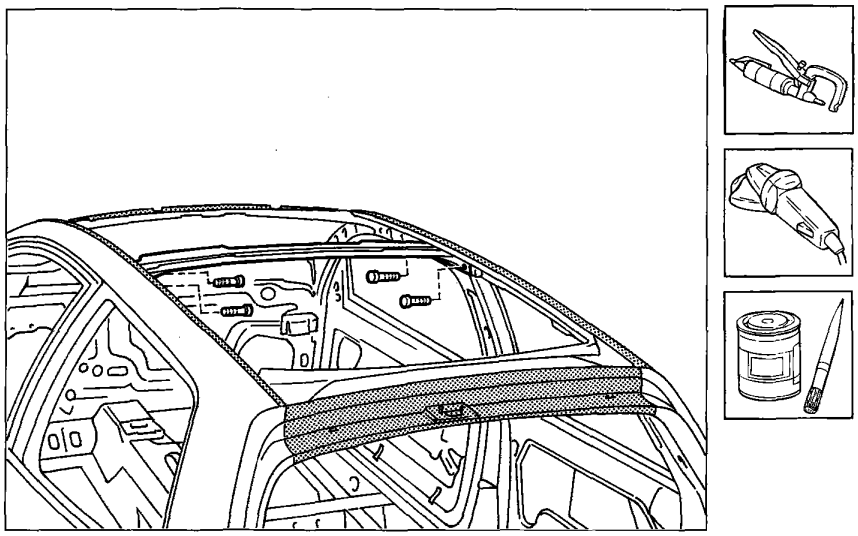
Removing off cuts and preparing edges of bodyshell

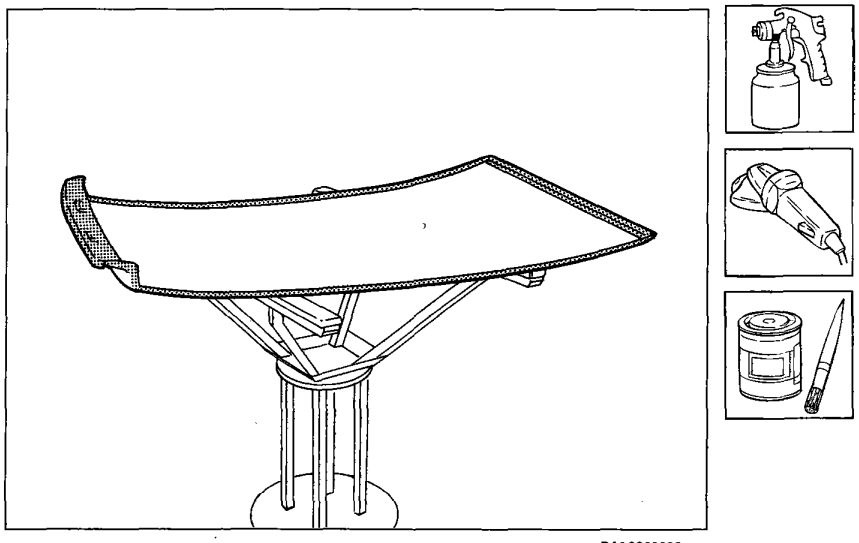
1. Remove the weld points along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Remove the centre rib, undoing the fixing bolts.
6. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A090M01

Preparing the spare part

1. Apply a base coat using a spray gun.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
3. Use electro-galvanizing paint on the edges in contact with the bodyshell.



P4A090M02

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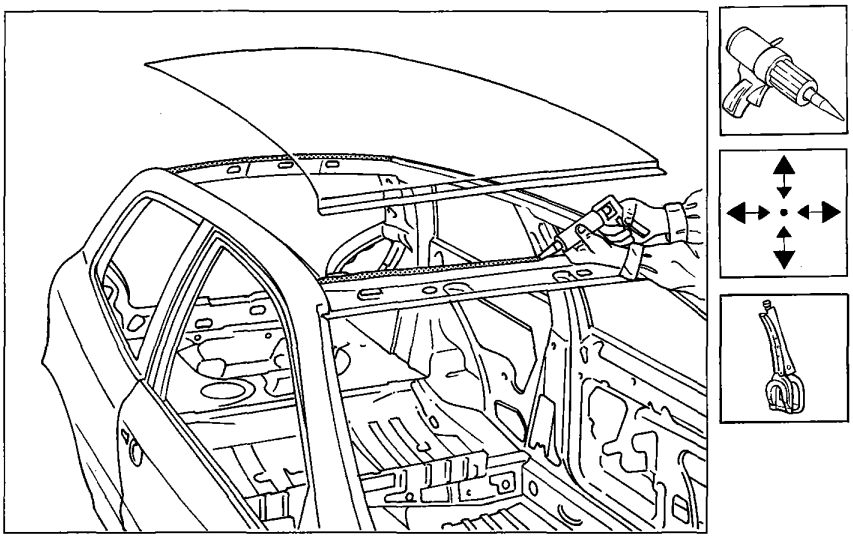
Positioning the replacement part

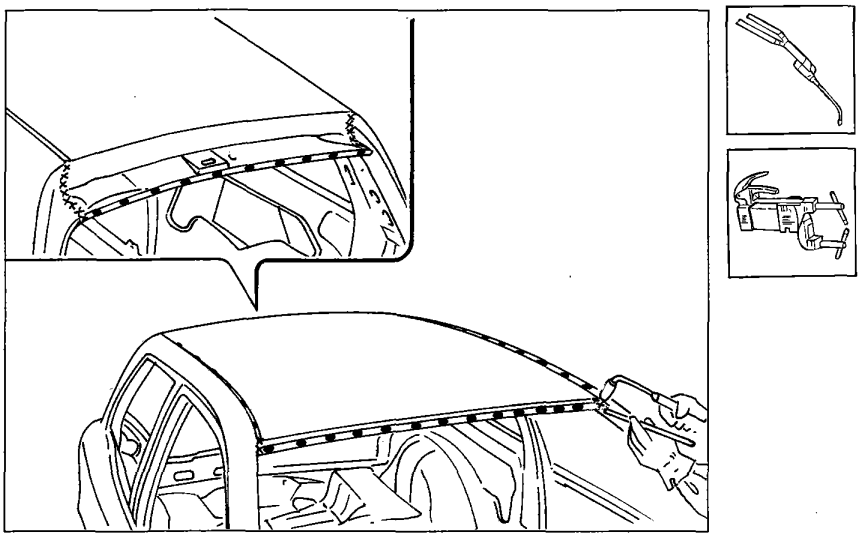
1. Renew the sealant on the bodyshell ribs, using IVI 854210 transparent acrylic sealant or an equivalent product.
2. Carefully place the replacement part in position .
3. Check that the roof panel is perfectly positioned on the bodyshell.
4. Fix the replacement part to the bodyshell using the special self-locking clamps.



P4A091M01

Welding the spare part

1. Carry out the brass welding using an oxyacetylene canister by the corners of the front and rear roof pillars.
2. Using a continuous welder continue the operation on the entire contact edge between the roof and the bodyshell.



P4A091M02

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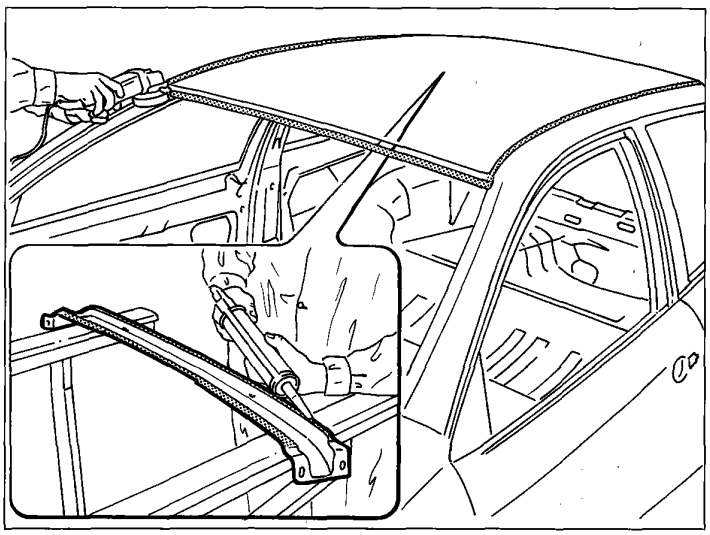
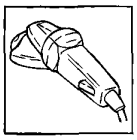
Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.
3. Renew the sealant on the rib removed previously, then refit it on the bodyshell making sure that it adheres perfectly to the roof.

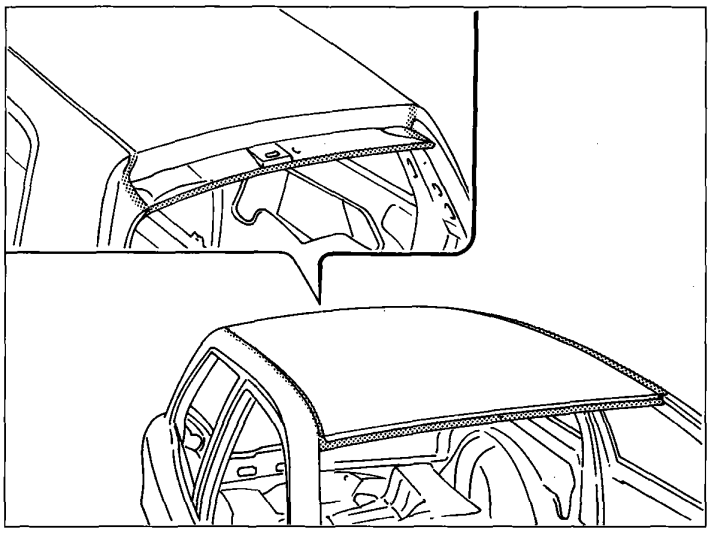


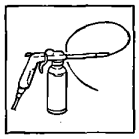


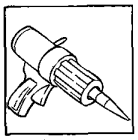
P4A092M01

Protections

1. Apply the electro-phoretic treatment to the areas previously involved in the welding.
2. Seal the joins between the roof and the bodyshell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.







P4A092M02

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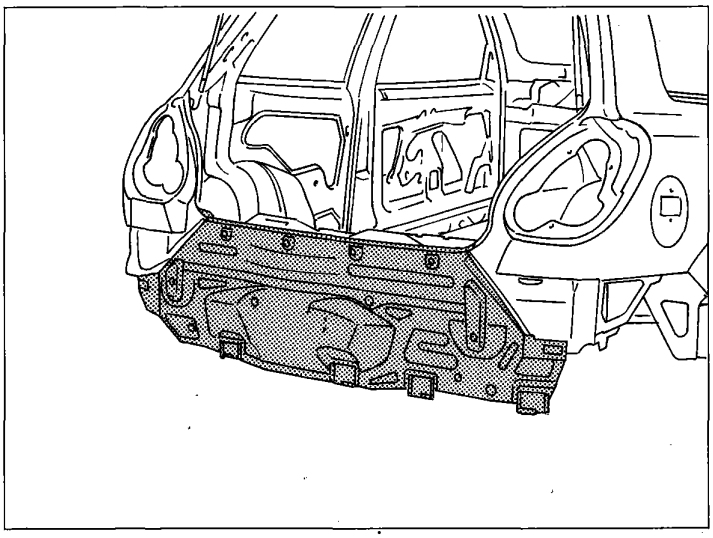


P4A093M01

REPLACING REAR CROSS MEMBER LINING (7090G 76)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

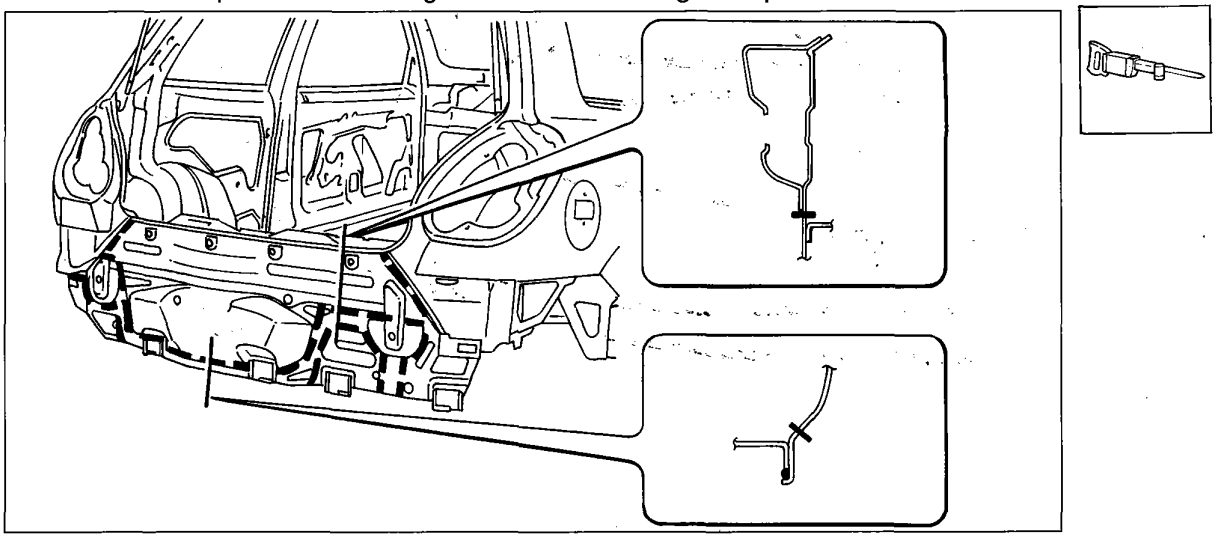
Carry out any straightening operations required to the bodyshell before cutting the component.
After this operation check that the components not being replaced are in tact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle rear cross member cover using a power saw following the dotted lines shown in the diagram below.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A093M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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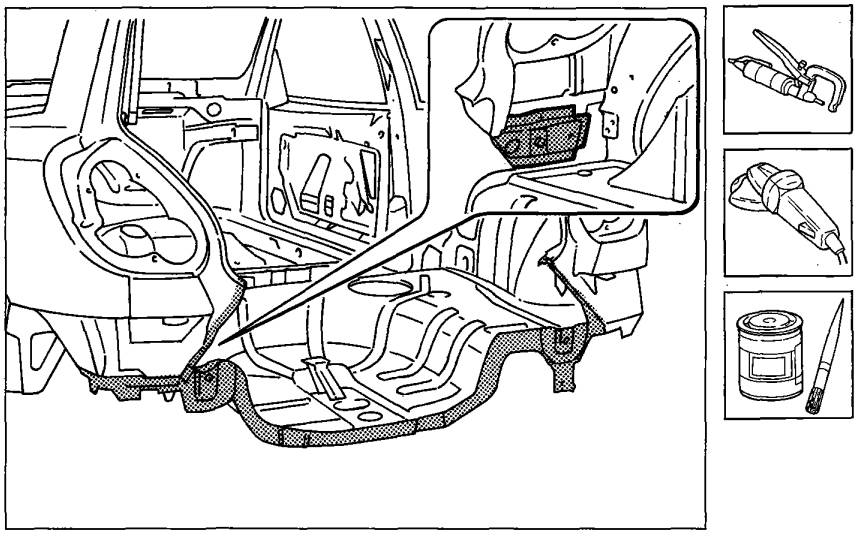
70.

Removing off cuts and preparing edges of bodyshell

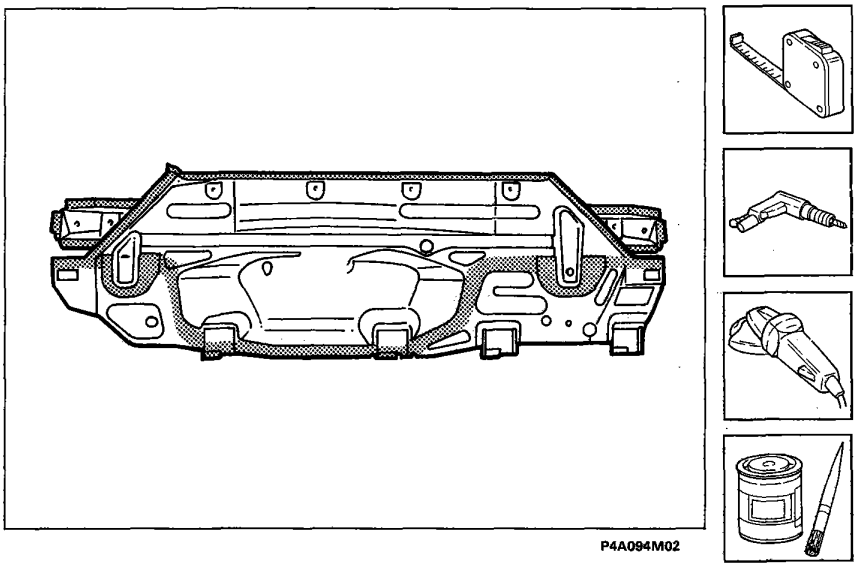
1. Remove the weld points along the entire perimeter of the edge of the bodyshell and the reinforcement below the light cluster housing as shown in the inset using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A094M01

Preparing the spare part

1. Make equidistant holes in the edges of the replacement part shown in the diagram.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
3. Use electro-galvanizing paint on the edges previously treated.



P4A094M02

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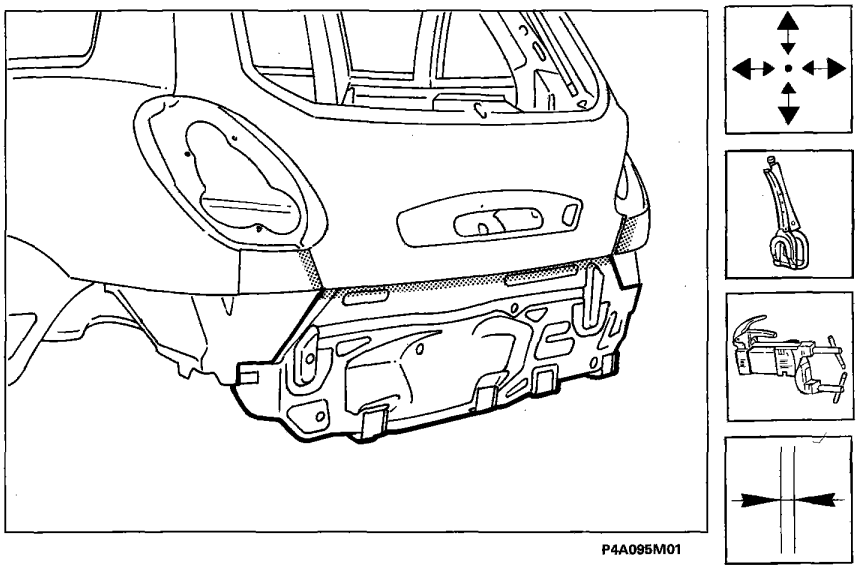
Positioning the replacement part

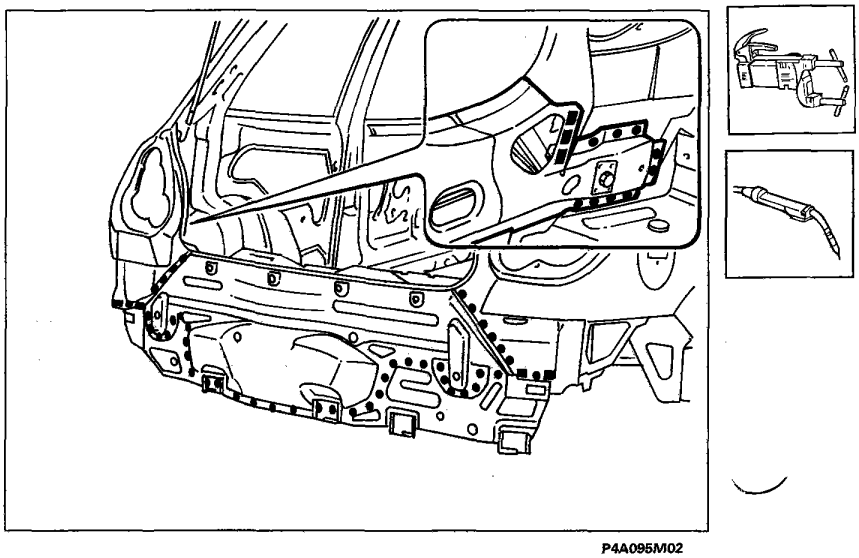
1. Carefully place the replacement part in position .
2. Check that the cross member lining is perfectly positioned.
3. Fix the replacement part to the bodyshell using the special self-locking clamps.
4. Tack the replacement part making several spot welds.
5. Close the boot lid and check the alignment and the eveness of the surrounding gap.



P4A095M01

Welding the spare part

1. Carry out spot welding at the contact edges between the rear cross member liding and the wing and the internal reinforcement.
2. Continue the spot welding on the contact edges near the spare wheel arch housing and the side edges.
3. Using a MIG welder fill the holes made previously in the replacement part.



P4A095M02

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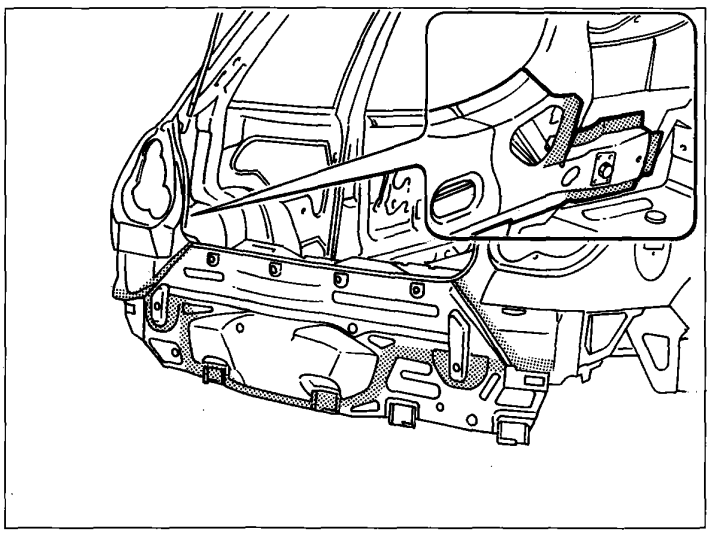
70.

Finishing operations

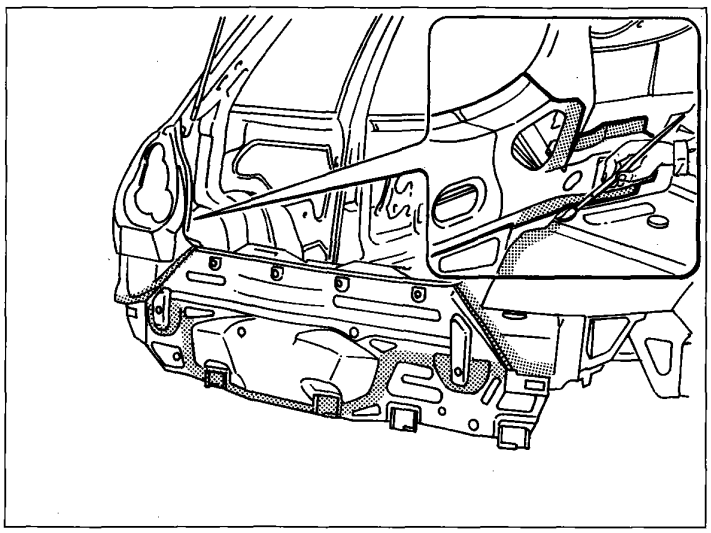
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

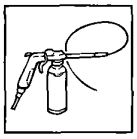


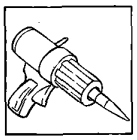
P4A096M01

Protections

1. Apply the electro-phoretic treatment to the areas previously involved in the welding.
2. Seal the joins between the rear cross member cover and the bodyshell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.







P4A096M02

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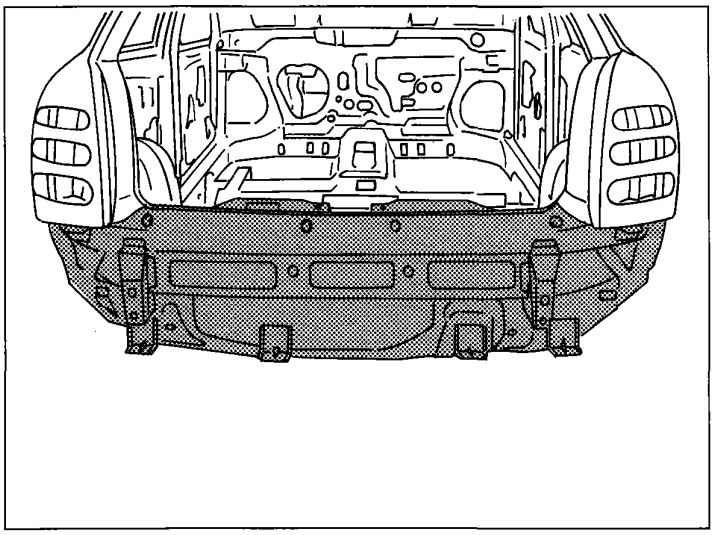


P4A097M01

REPLACING REAR CROSS MEMBER LINING (7090A 46)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

Carry out any straightening operations required to the bodyshell before cutting the component. After this operation check that the components not being replaced are in tact.

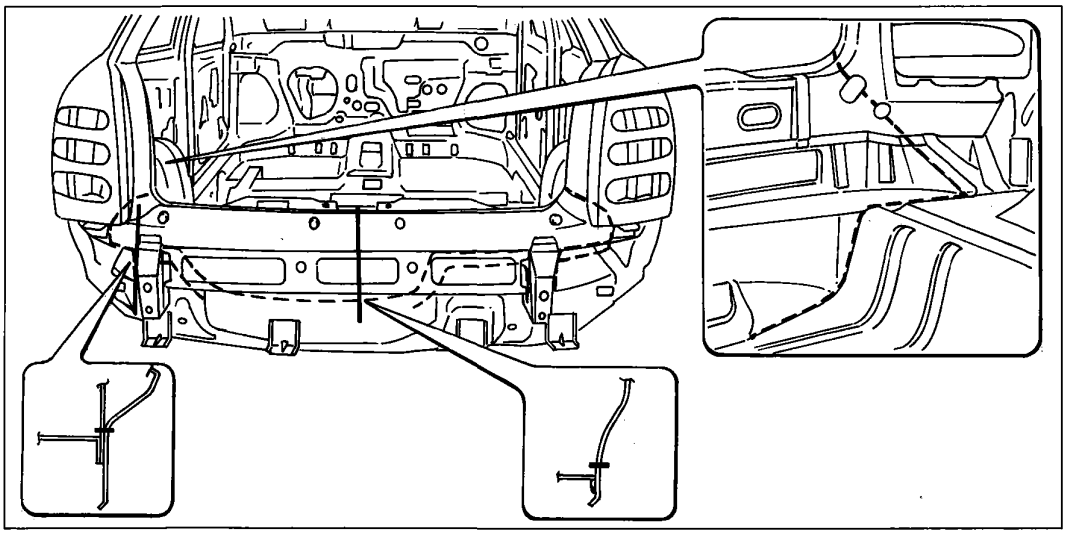
PRELIMINARY DISMANTLING

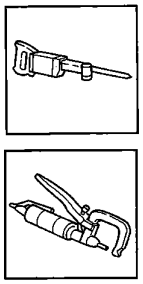
Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle rear cross member cover using a power saw following the dotted lines shown in the diagram below, remove the spot welds for the floor panel side members.

The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.





P4A097M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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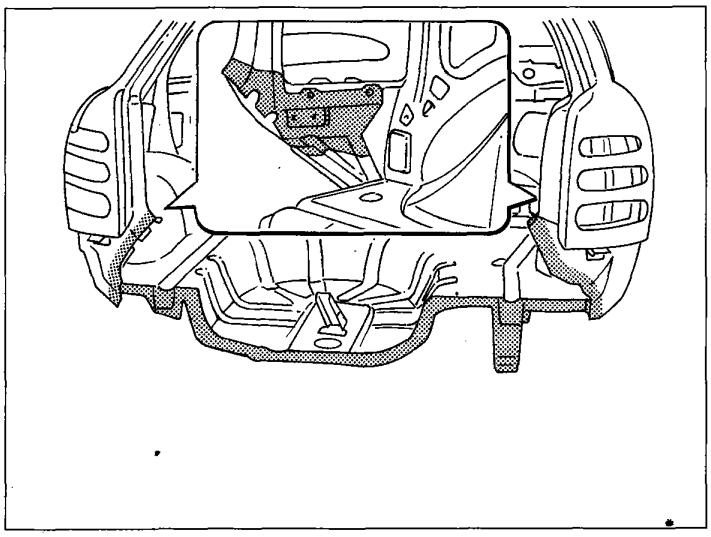
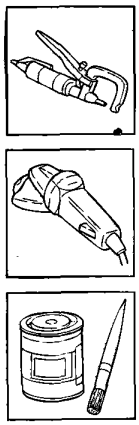
70.

Removing off cuts and preparing edges of bodyshell

1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.

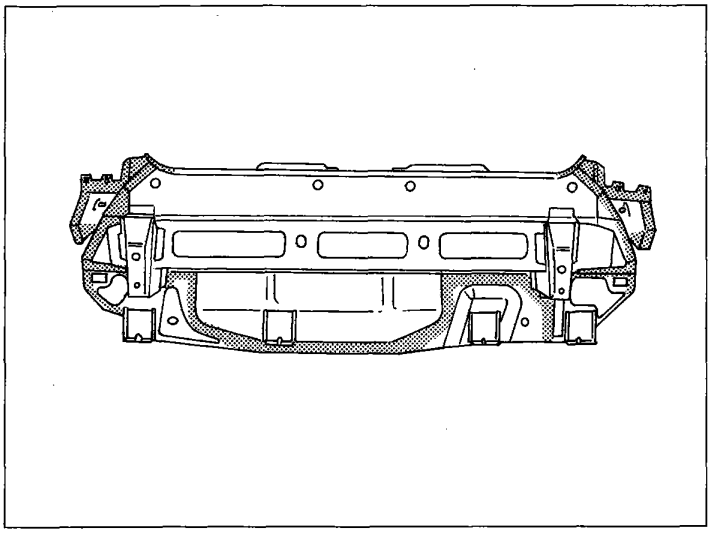


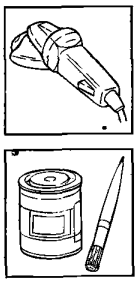


P4A098M01

Preparing the spare part

1. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
2. Use the electro-galvanizing paint on the edges previousy treated.





P4A098M02

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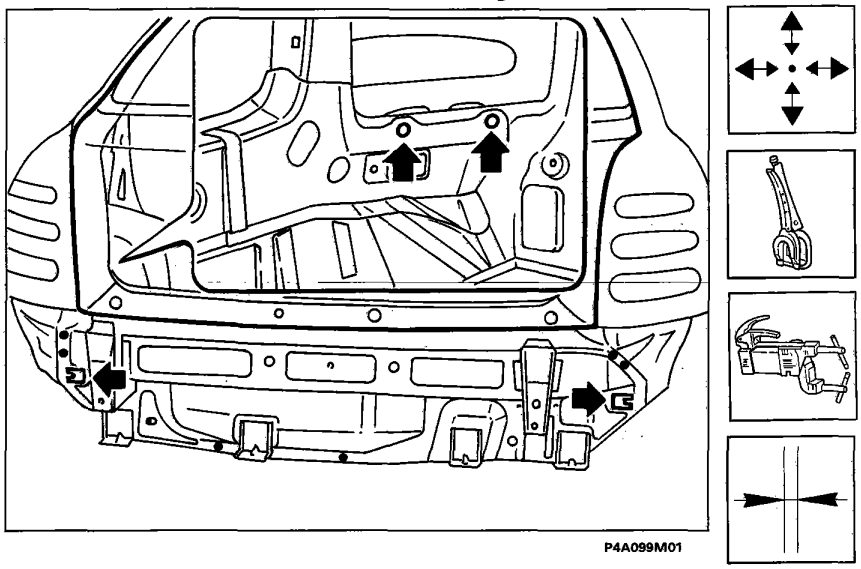
Positioning the replacement part

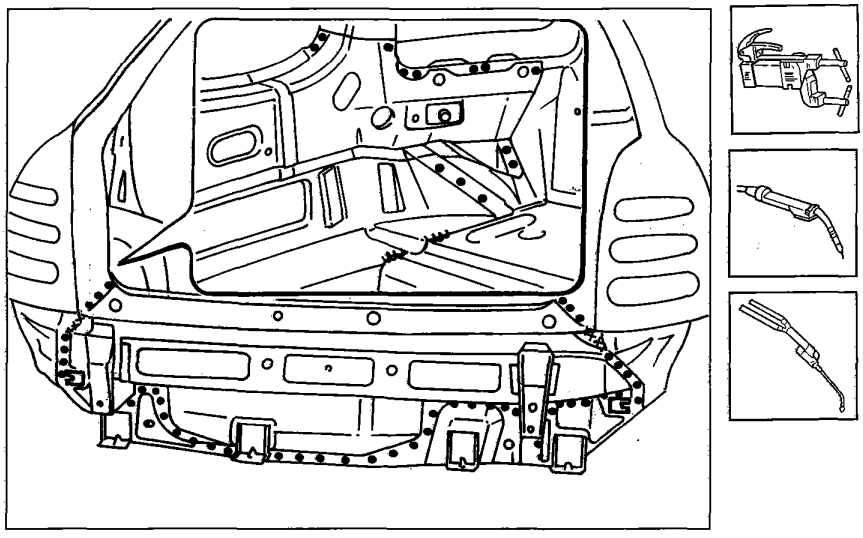
1. Carefully place the replacement part in position working from inside the luggage compartment..
2. Check that the cross member lining is correctly positioned and in particular that the tabs on the body-shell and the openings in the light cluster housing and in the cross member lining reinforcement are as shown in the inset.
3. Fix the replacement part to the bodyshell using the special self-locking clamps.
4. Tack the replacment part using several spot welds.
5. Close the boot lid and check the alignment and the eveness of the surrounding gap.



P4A099M01

Welding the spare part

1. Carry out spot welding by the light clusters.
2. Continue the spot welding at the contact edges near the spare wheel housing and the rear wings.
3. Using a MIG welder carry out continuous welding as shown in the diagram.
4. Carry out brass welding using an oxyacetylene canister by the contact edges between the cross member and the wings.



P4A099M02

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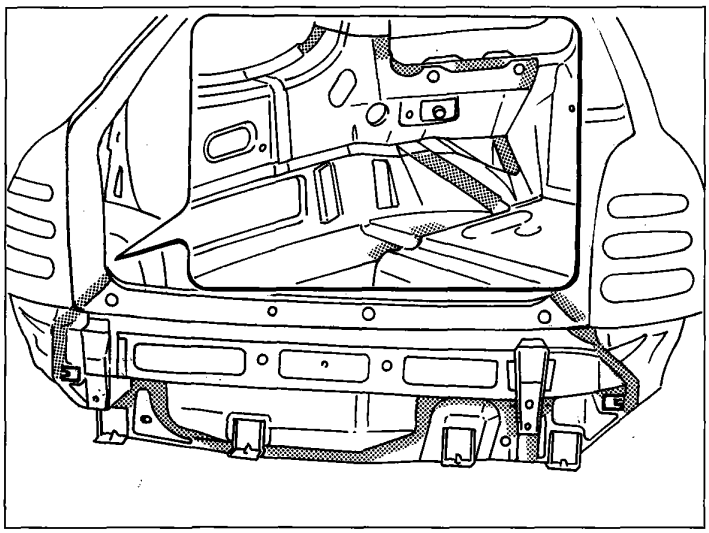
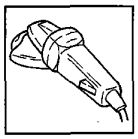
70.

Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

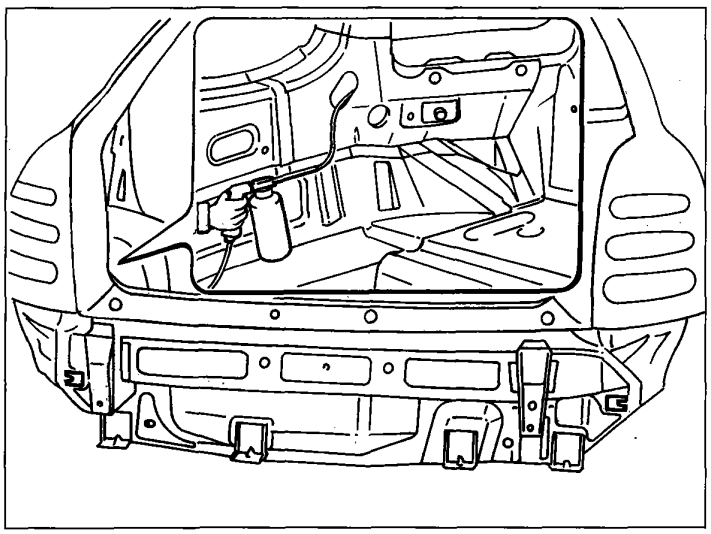




P4A100M01

Protections

1. Apply the electro-phoretic treatment to the areas previously involved in the welding.
2. Seal the joins between the rear cross member cover and the bodyshell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.



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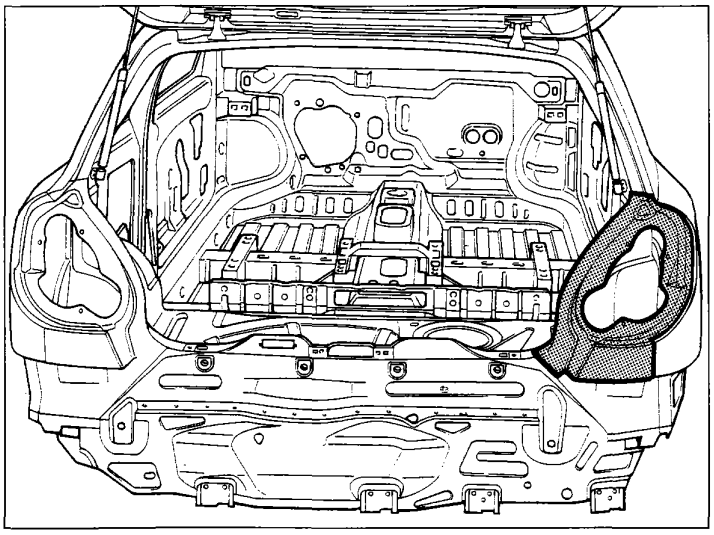


P4A100M03

REPLACING REAR LIGHT CLUSTER HOUSING (7090G 86)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighed in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures.
Carry out any straightening operations required to the bodyshell using suitable methods (jigs, templates or gauges), before cutting the component. After this operation check that the components not being replaced are in tact.

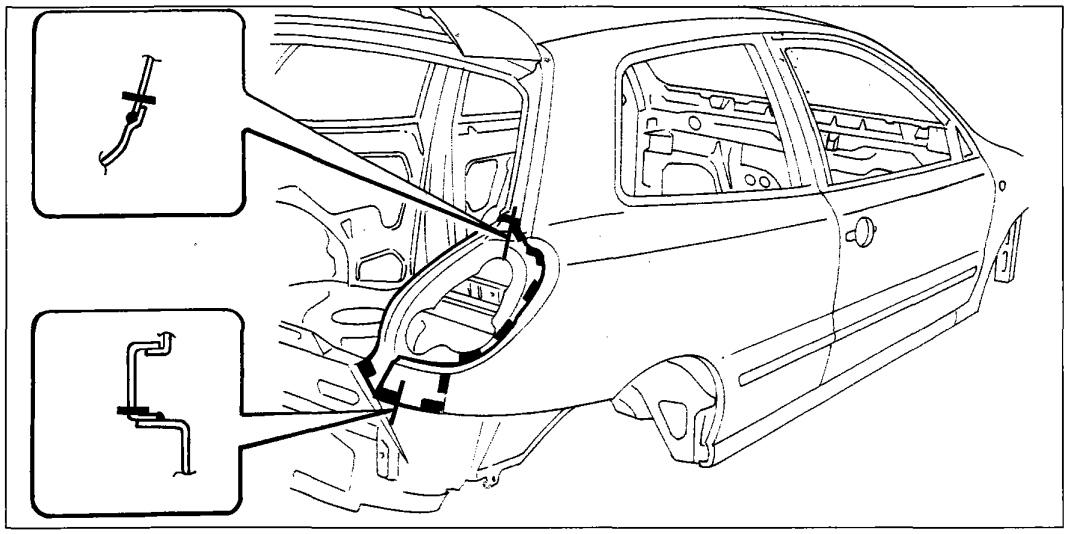
PRECAUTIONS/WARNINGS AND PRELIMINARY DISMANTLING

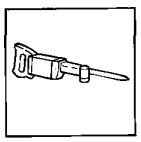
Protect the parts which could be damaged using cloths.
Remove the fuel tank, disconnect the battery and all the electrical and electronic components because the currents produced during the welding operations could cause serious damage.

REMOVING AND REFITTING OPERATING CYCLE

The replacement of the body panels can be "total or "partial"; this second solution is preferable when it prevents damage of another panel which is assembled by welding. cut the light cluster housing using a power saw following the dotted lines shown in the diagram below.

The sections of the body panels at the cutting points are given to allow the operator to adjust the position and the depth of the cutting.





P4A100M04

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, masks and gloves during the welding and painting operations.

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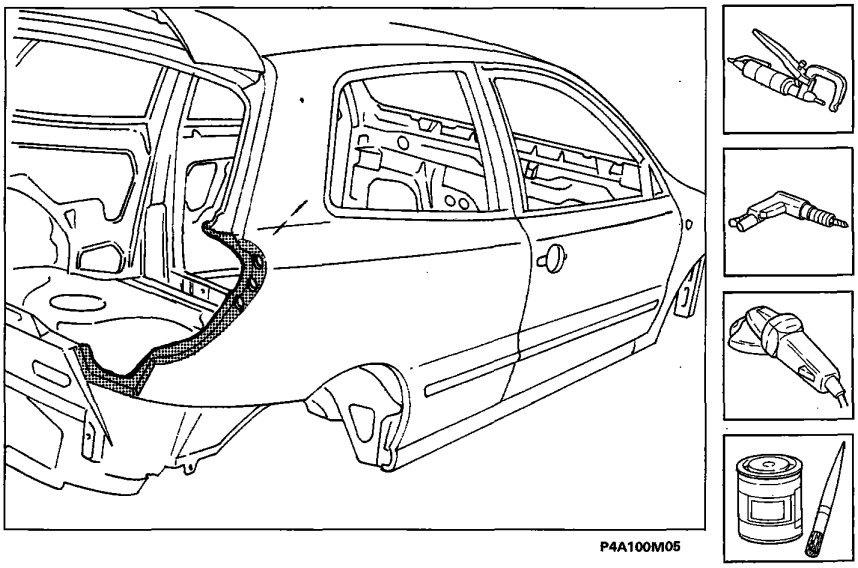
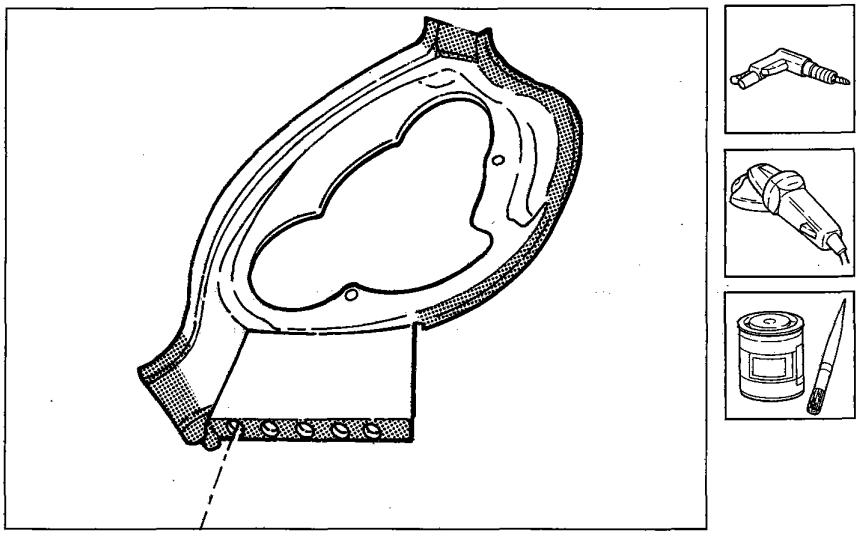
Removing off cuts and preparing edges of bodyshell

1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Make equidistant holes in the edge of the rear wing as shown in the diagram.
4. Straighten the edges with a hammer and dolly block.
5. Remove the weld residues using the disc grinder.
6. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



Preparing the spare part

1. Make equidistant holes in the edges of the replacement panel as shown in the diagram.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and outside of the replacement panel using a disc grinder.
3. Use electro-galvanizing paint on the edges previously treated.



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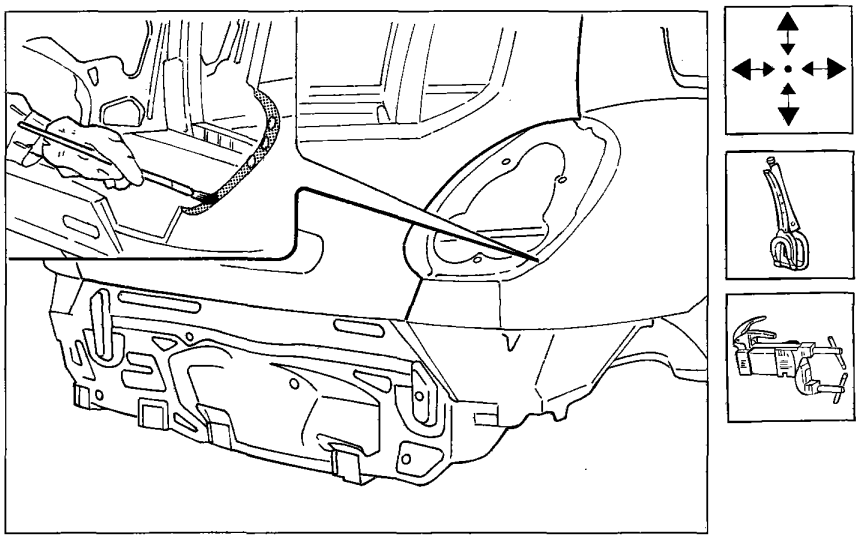
Positioning the replacement part

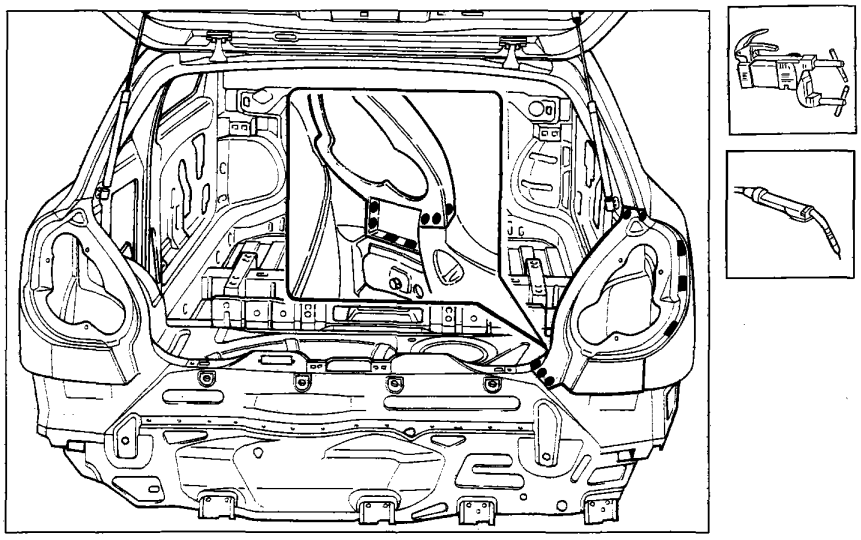
1. Place sealant on the wing along the section shown in the diagram.
2. Carefully place the replacement part in position .
3. Check that the light cluster housing is perfectly positioned.
4. Fix the replacement part to the bodyshell using the special self-locking clamps.
5. Tack the replacement part making several spot welds.
6. Close the boot lid and check the alignment and the eveness of the surrounding gap.



P4A100M07

Welding the spare part

1. Carry out spot welding on the edges as shown in the diagram.
2. Using a MIG welder fill the holes made previously in the replacement part.



P4A100M08

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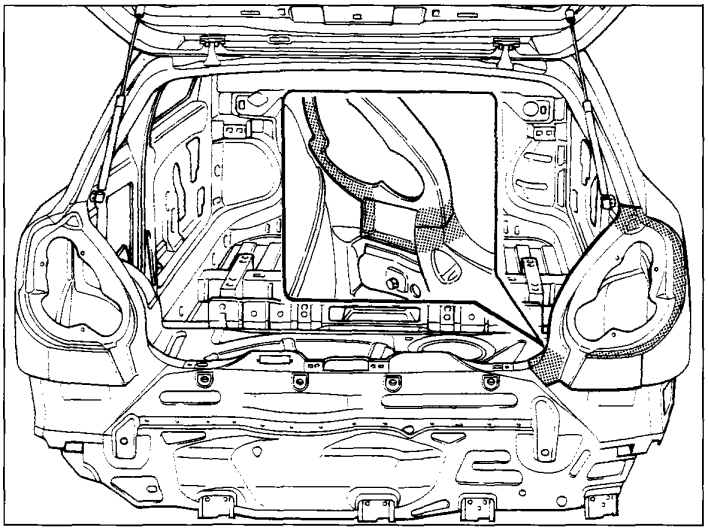
70.

Finishing operations

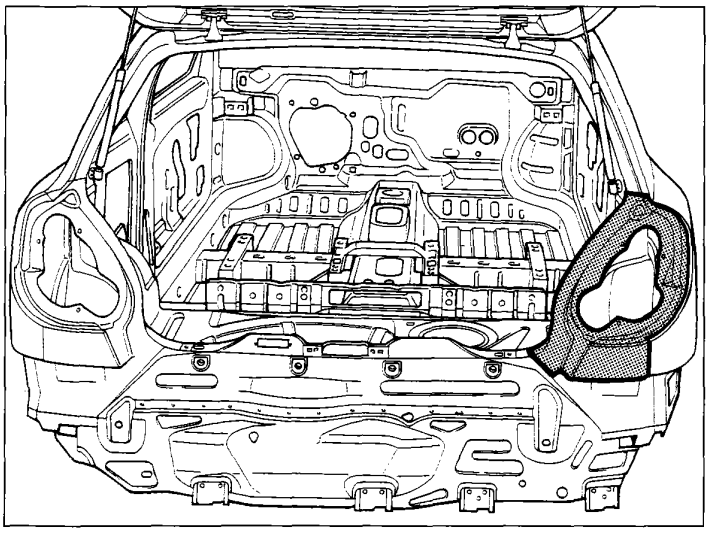
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

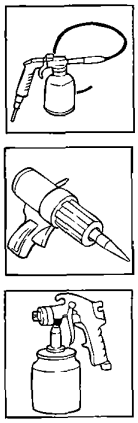


P4A100M09

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the joins between the wing and the bodyshell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.





P4A100M03

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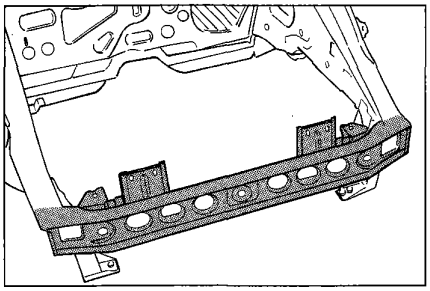
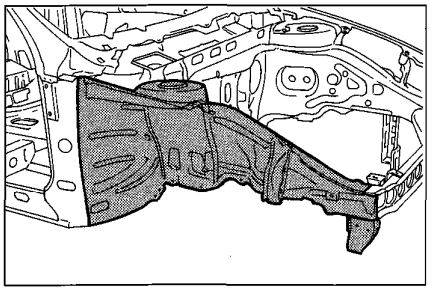
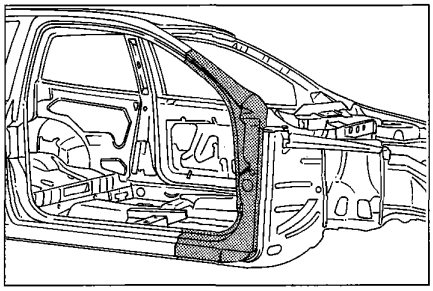
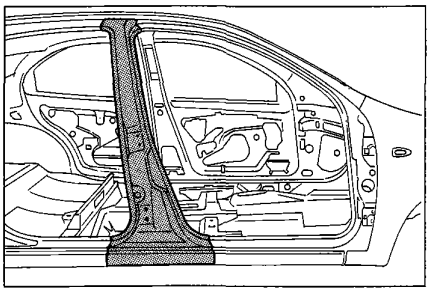
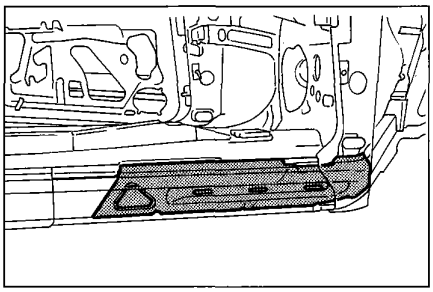
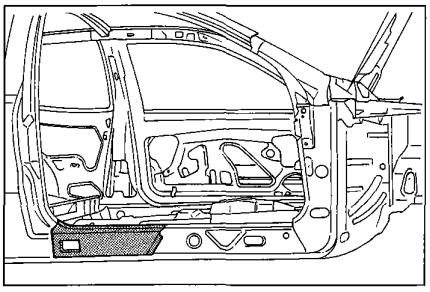
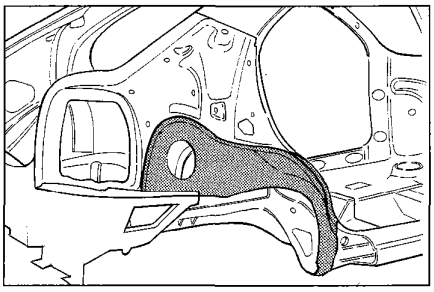
GRAPHIC INDEX

Replacement operation		Reference in Manual
Front cross member cover  P4A101MO1		Replacing body panels Structural page 107
Complet front panel  P4A101MO2	Front pillar  P4A101M03	Replacing body panels Structural page 111 page 117
Centre pillar 5 P  P4A101MO4	Underdoor front reinforcement 3 P  P4A101MO5	Replacing body panels Structural page 121 page 125
Underdoor rear reinforcement 3 P  P4A101MO6	Rear wheel arch 5 P  P4A101MO7	Replacing body panels Structural page 129 page 133

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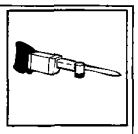
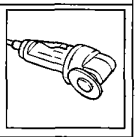
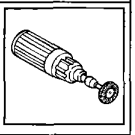
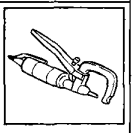
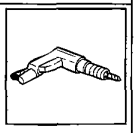
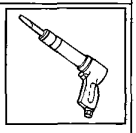
SYMBOLS

CUTTING WITH HACK SAWING MACHINE	
CUTTING WITH CIRCULAR BLADE SAW	
CLEANING WITH ROTARY BRUSH	
REMOVING SPOT WELDS WITH CHAMFERING MACHINE	
REMOVING SPOT WELDS WITH DRILL DRILLING FOR MIG WELDING	
REMOVING PANEL WITH CHISEL DRILLING FOR MIG WELDING	
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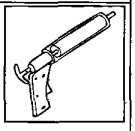
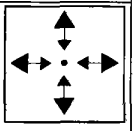
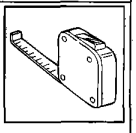
APPLICATION OF HIGH THICKNESS ELECTRO-WELDABLE PROTECTIVES	
CENTERING COMPONENTS	
MEASURING	
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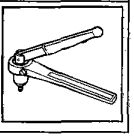
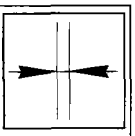
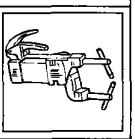
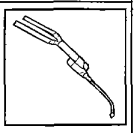
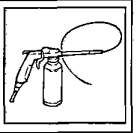
FIXING THREADED RIVETS	

CHECKING GAPS AND ALIGNMENTS	
SPOT WELDING	
MIG WELDING	
WELDING WITH OXYACETY-LENE CANISTER	
GRINDING	
APPLYING ANTI-OXIDANT PROTECTIVES	
APPLYING SEALANTS	
APPLYING UNDERBODY PROTECTIVES	
APPLYING PAINTS	
APPLYING WAX BASED PRO-TECTIVES	
APPLYING FOAM PRODUCTS	

SYMBOLS IN THE ILLUSTRATIONS

- - - - CUTTING LINE
● ● ● ● SPOT WELDING
▪ ▪ ▪ ▪ MIG WELDING FOR FILLING
UUUUUUU CONTINUOUS MIG WELDING
XXXXXXXX BRAZING

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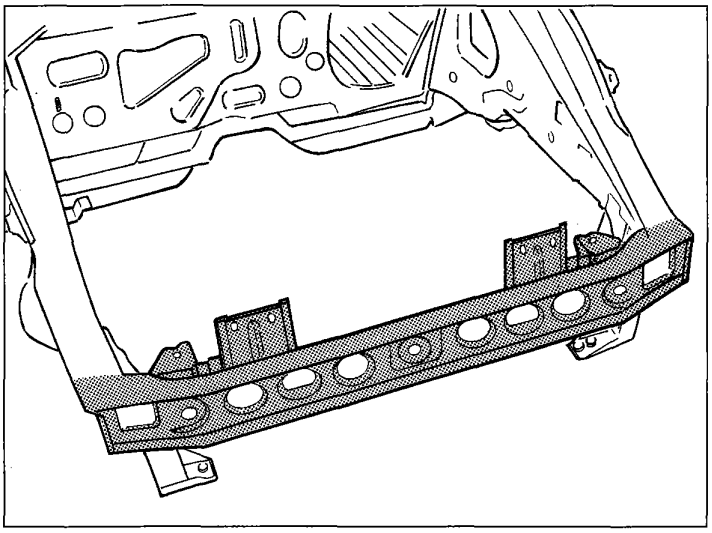


P4A103M01

REPLACING FRONT CROSS MEMBER LINING (7090G 07)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

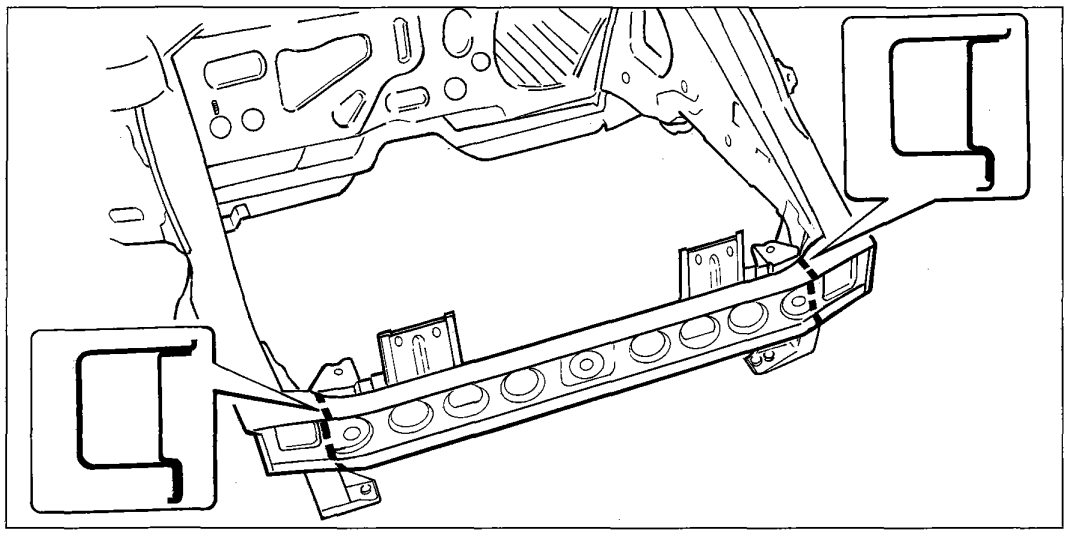
Carry out any straightening operations required to the bodyshell before cutting the component.
After this operation check that the components not being replaced are intact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle front cross member cover using a power saw following the dotted lines shown in the diagram below.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A103M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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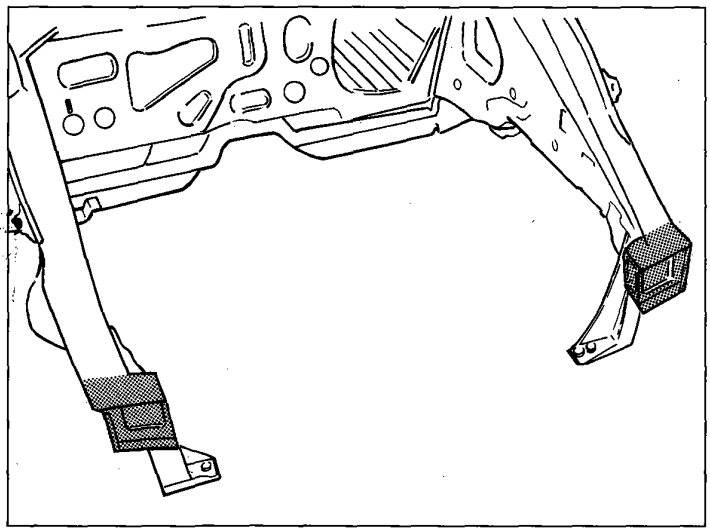
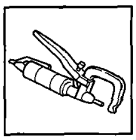
70.

Removing off cuts and preparing edges of bodyshell

1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.

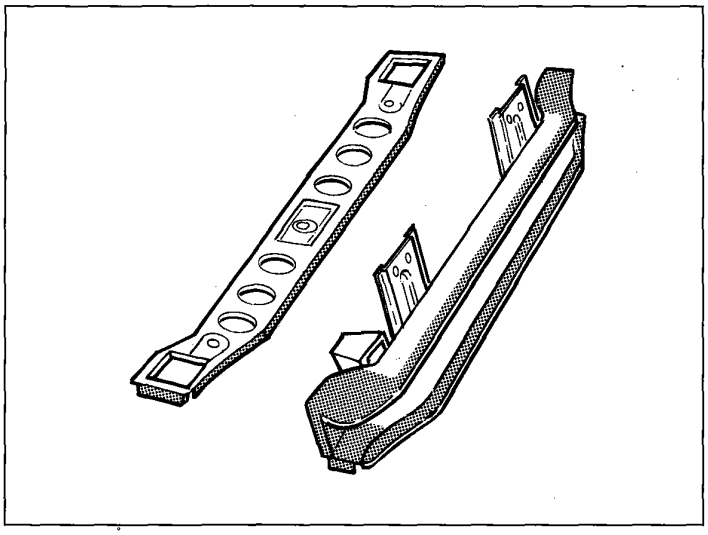


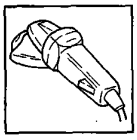


P4A104M01

Preparing the replacement parts

1. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
2. Use electro-galvanizing paint on the edges previously treated.





P4A104M02

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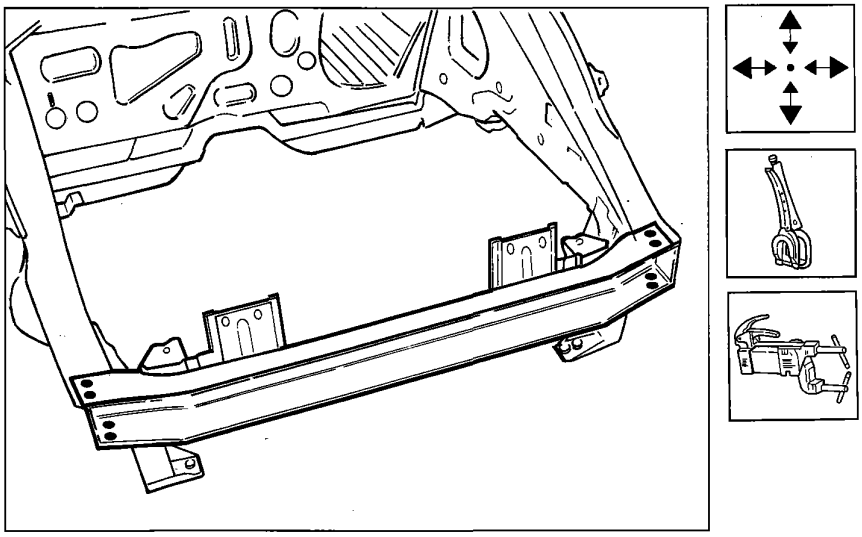
Positioning the front cross member and welding

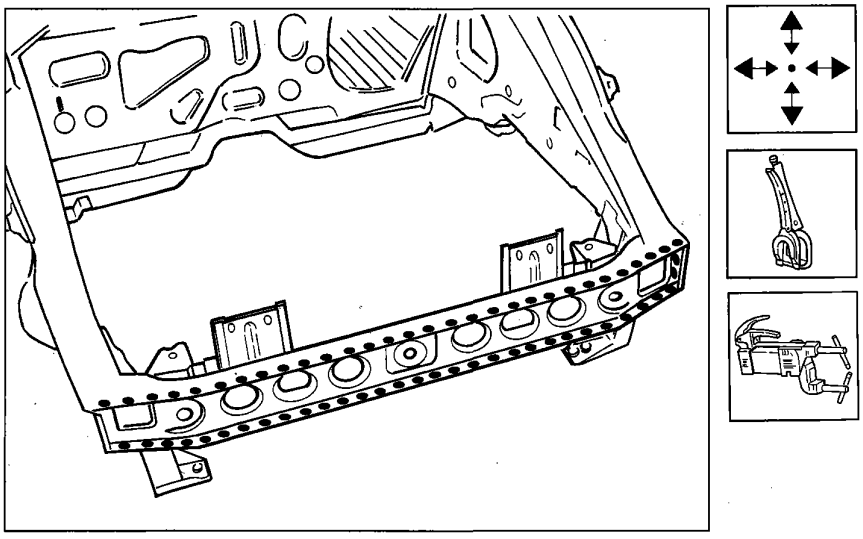
1. Correctly position the front cross member on the bodyshell.
2. Check that the replacement part is perfectly positioned.
3. Fix the replacement part to the bodyshell using the special self-locking clamps.
4. Carry out spot welding on the edges of the bodyshell.



P4A105M01

Positioning the front lining and welding

1. Correctly position the front lining on the cross member.
2. Check that the replacement part is perfectly positioned.
3. Fix the replacement part to the cross member and to the bodyshell using the special self-locking clamps.
4. Carry out spot welding on the edges of the cross member and the bodyshell.



P4A105M02

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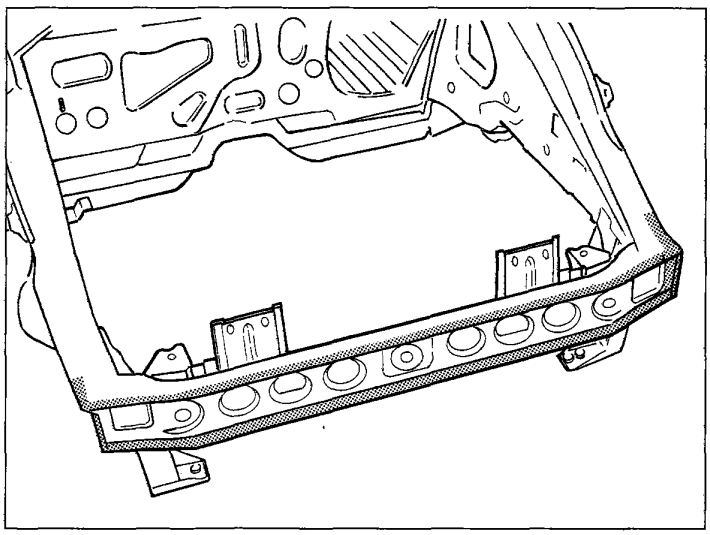
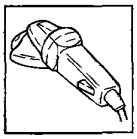
70.

Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

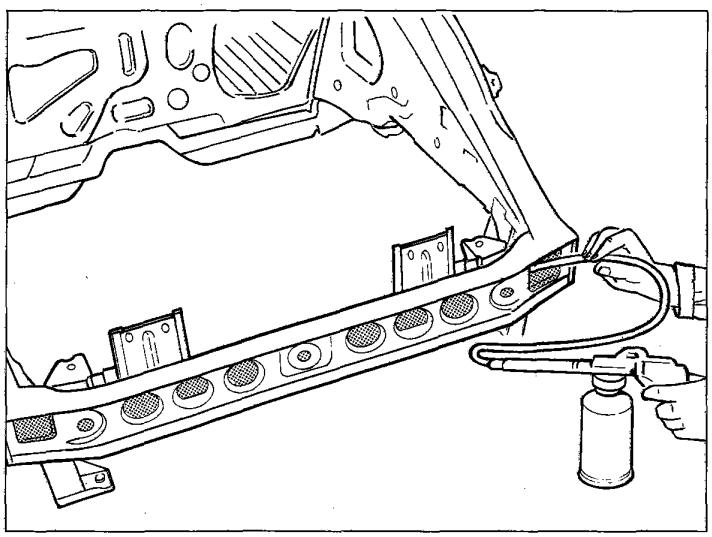


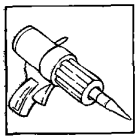


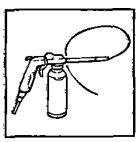
P4A106M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previouslyinvolved in the welding.
2. Seal the joins between the replacement parts and the bodyshell, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective.







P4A106M02

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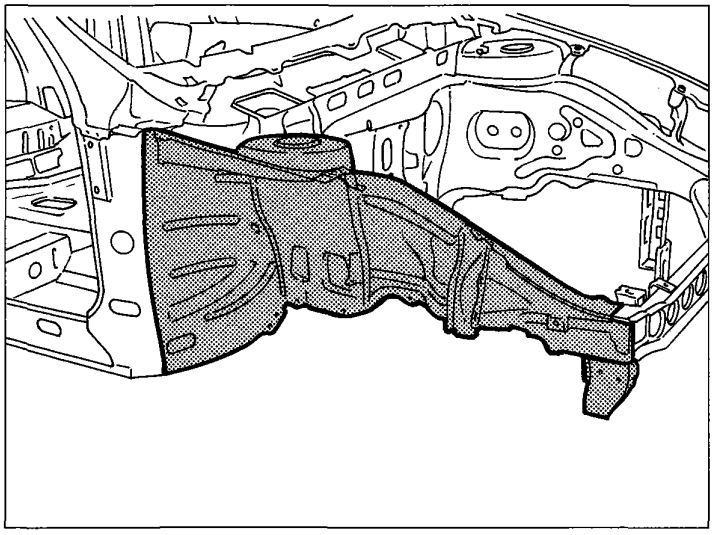


P4A107M01

REPLACING COMPLETE FRONT SIDE PANEL (7090G 10)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

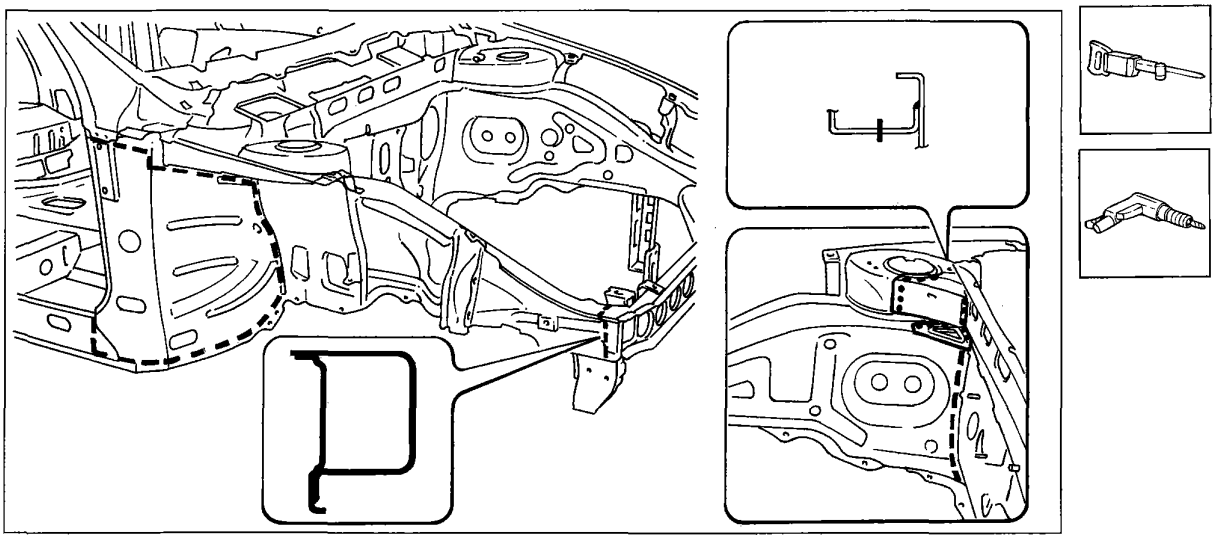
Carry out any straightening operations required to the bodyshell before cutting.
After this operation check that the components not being replaced are intact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them .
Remove the front pillar (see: "Replacing structural body panels -Replacing Front Pillar").

REMOVING

Carry out the cutting using a power saw following the dotted lines shown below and remove the brackets inside the engine compartment removing the spot welds using a drill.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A107M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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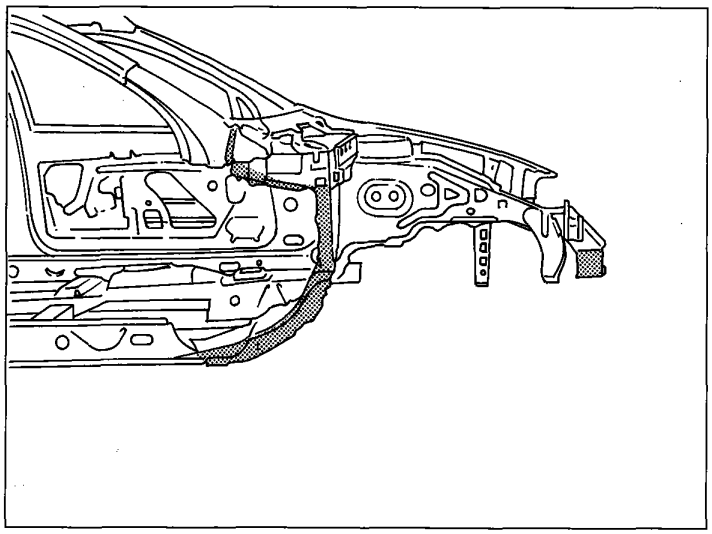
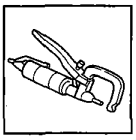
70.

Removing off cuts and preparing edges of bodyshell

1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.

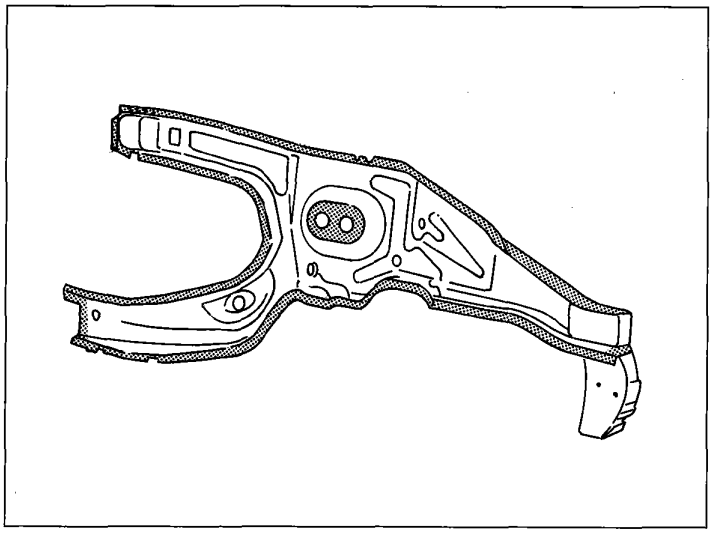




P4A108M01

Preparing the replacement internal panel

1. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
2. Use electro-galvanizing paint to the edges previously treated.



P4A108M02

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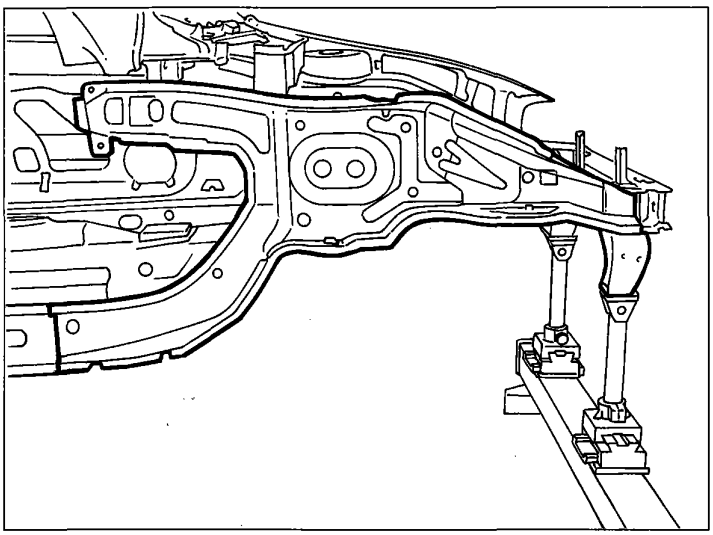
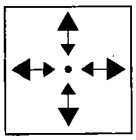
Positioning the replacement internal panel

1. Correctly position the internal panel using the template.
2. Check that the internal panel is perfectly positioned.
3. Fix the replacement part to the bodyshell using the special self-locking clamps.

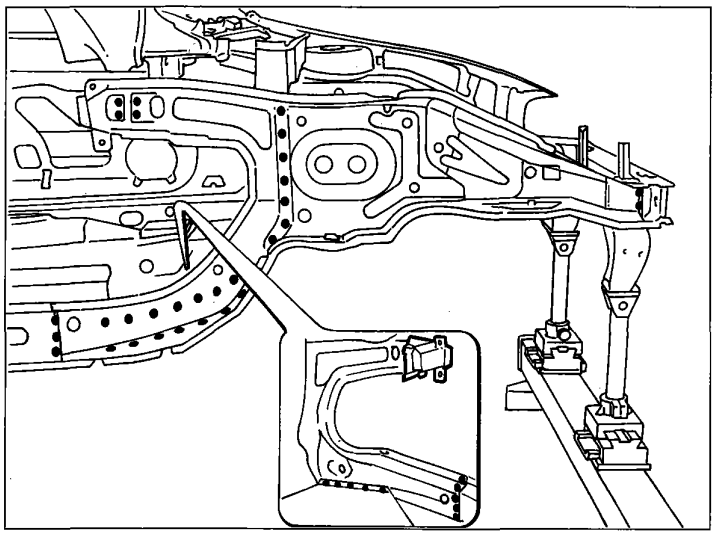


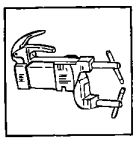


P4A109M01

Welding the replacement internal panel

1. Carry out spot welding by the floor.
2. Continue the spot welding on the edges in contact with the bodyshell.
3. Carry out spot welding on the front cross member.





P4A109M02

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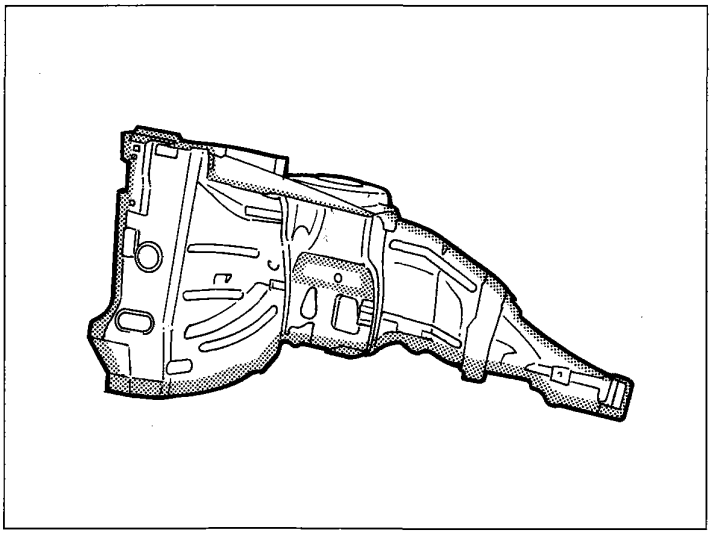
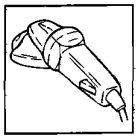
Replacing structural body panels

70.

Preparing the replacement outer panel

1. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
2. Use electro-galvanizing paint on the edges previously treated.

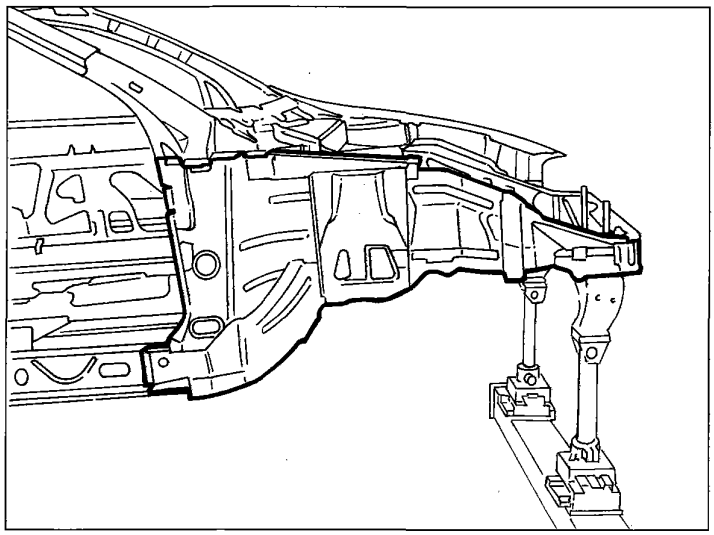


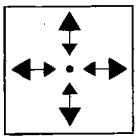


P4A110M01

Positioning the replacement outer panel

1. Correctly position the outer panel.
2. Check that the outer panel is perfectly positioned.
3. Fix the replacement part to the bodyshell using the special self-locking clamps.





P4A110M02

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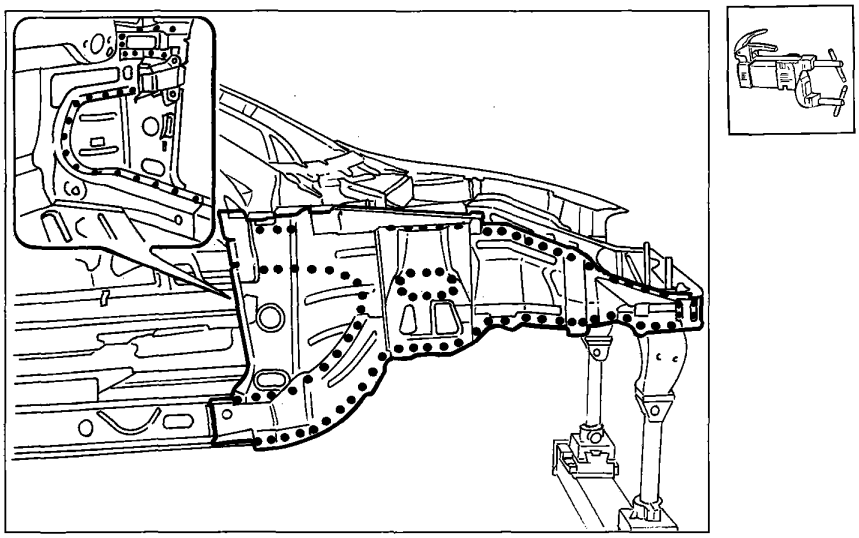
Welding replacement outer panel

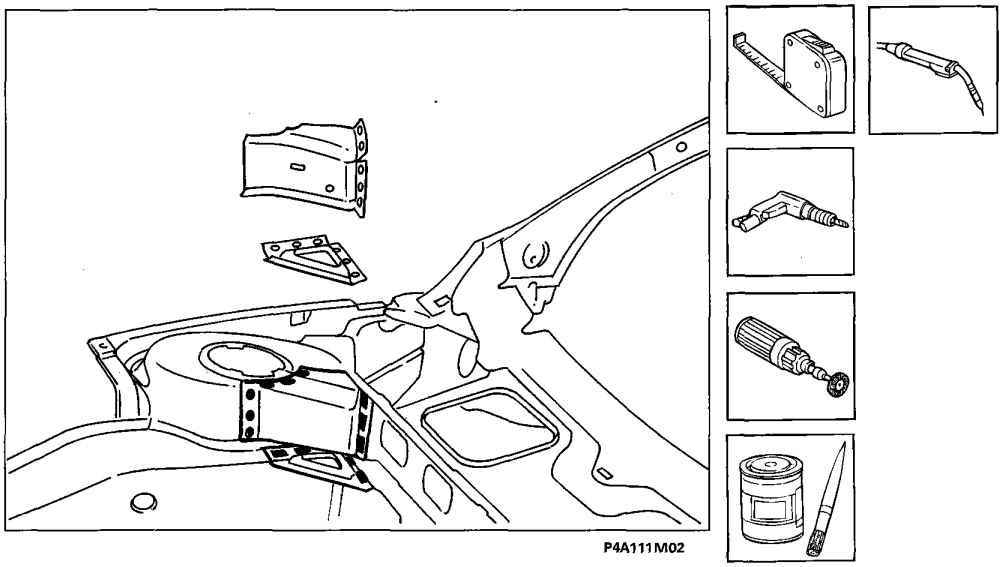
1. Carry out spot welding on the edges in contact with the internal panel.
2. Continue the spot welding working from inside the vehicle, continuing the welding on the internal panel and on the edges of the bodyshell.
3. Carry out spot welding on the edges of the front cross member.



P4A111M01

Preparing and welding the brackets

1. Make equidistant holes in the edges of the brackets.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a rotating brush.
3. Apply the electro-galvanizing paint to the areas previously treated.
3. Using the MIG welder carry out welding filling the holes made previously.



P4A111M02

Proceed with fitting the front pillar (see: "Replacing Structural Panels - Replacing Front Pillar").

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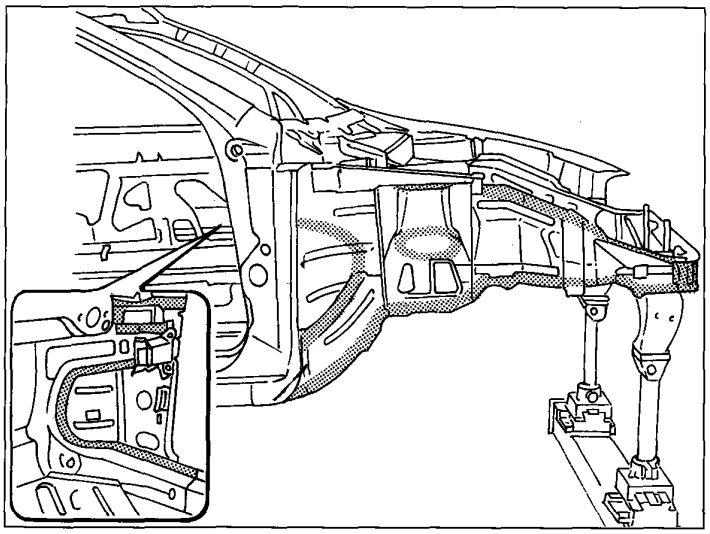
Replacing structural body panels

70.

Finishing operations

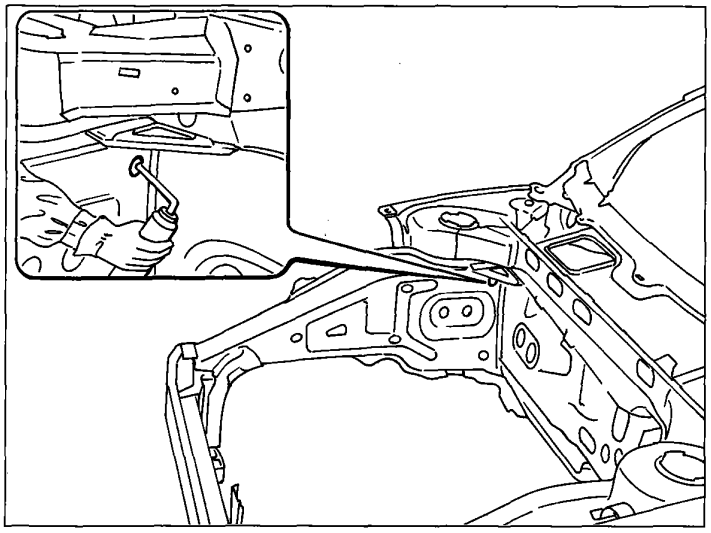
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

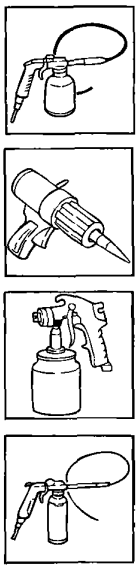


P4A112M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the joins between the replacement parts and the bodyshell, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective.





P4A112M02

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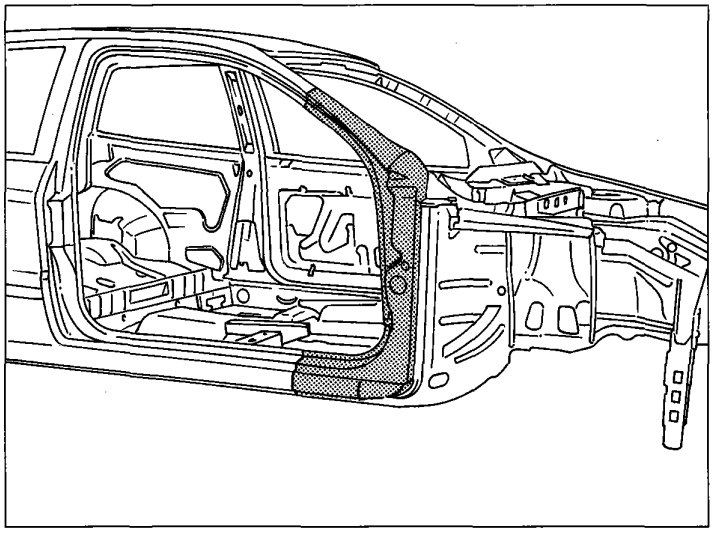


P4A113M01

REPLACING FRONT PILLAR (7090G 30)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

Carry out any straightening operations required to the bodyshell before cutting the component. After this operation check that the components not being replaced are intact.

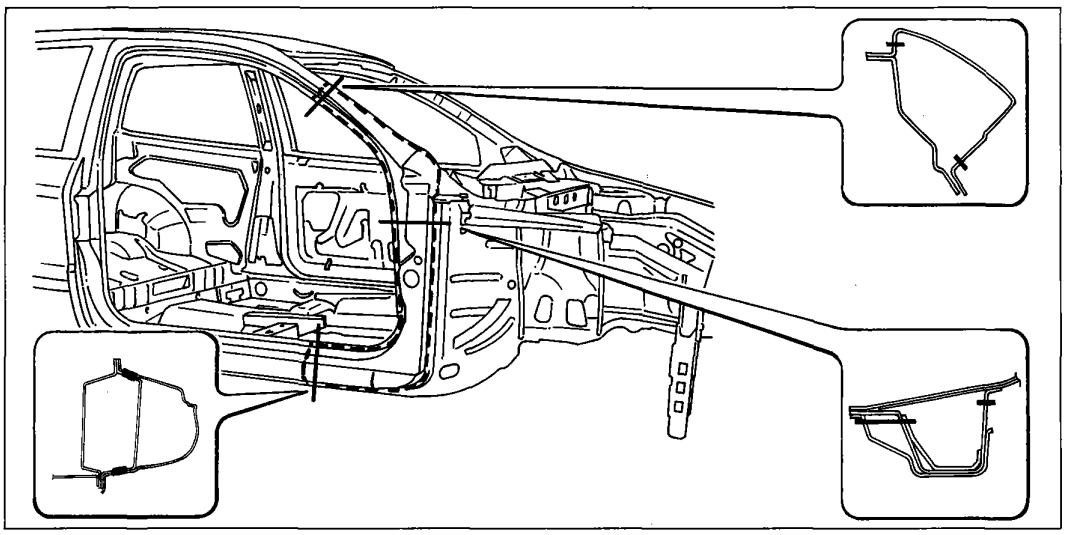
PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle front pillar using a power saw following the dotted lines shown in the diagram below.

The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A113M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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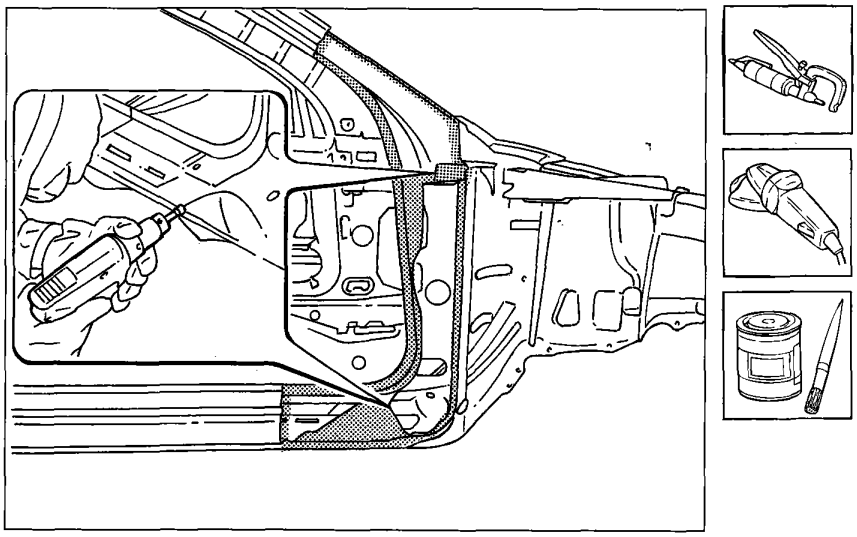
70.

Removing off cuts and preparing edges of bodyshell

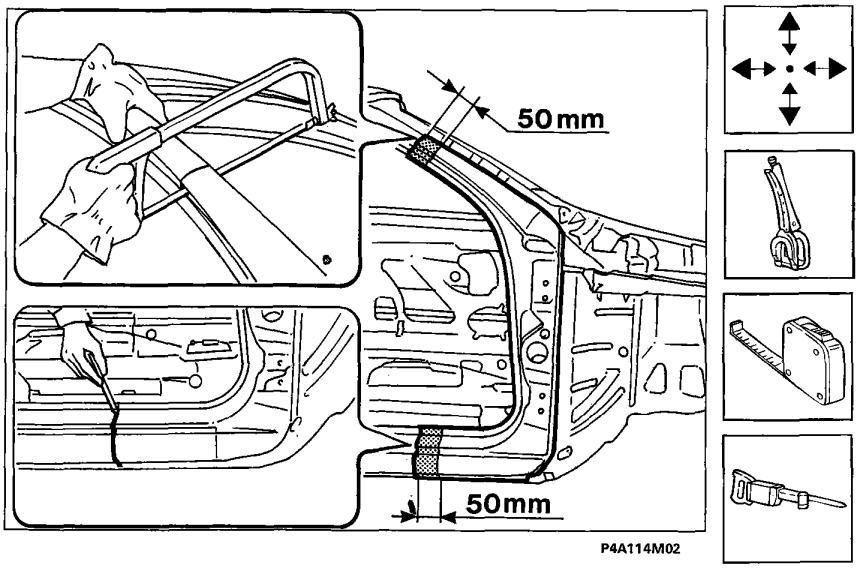
1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter and on the internal reinforcement.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A114M01

Adjusting the replacement part

1. Place the pillar in position, using the special self-locking clamps and check that the replacement part is superimposed about 50 mm beyond the bodyshell.
2. Trace the profile of the replacement part on the underdoor side member lining using a tracer point.
3. Cut the two edges of the panel on the windscreen pillar to obtain a perfect join line.
4. Remove the excess on the bodyshell.



P4A114M02

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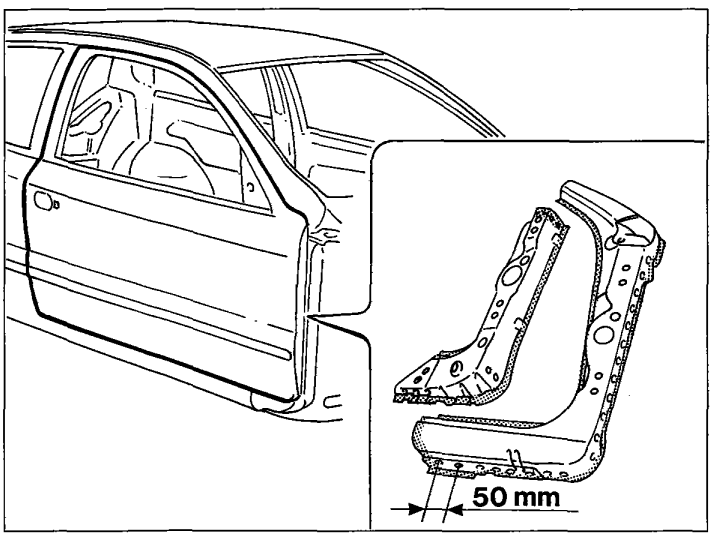
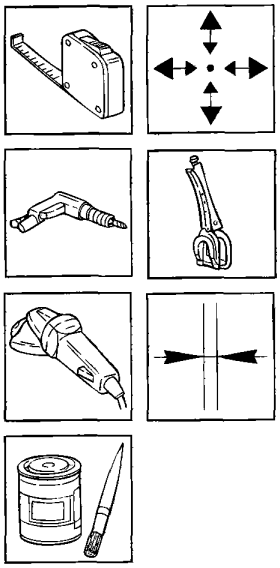
Preparing the replacement parts and check that they are correctly positioned on the bodyshell

1. Make equidistant holes in the replacement parts as shown in the diagram.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a special grinder.
3. Use electro-galvanizing paint on the edges in contact with the bodyshell.
5. Offer up the replacement parts and fix them using the special self-locking clamps
4. Fit the front door hinges and the door seal and check the alignment and the eveness of the surrounding gap.

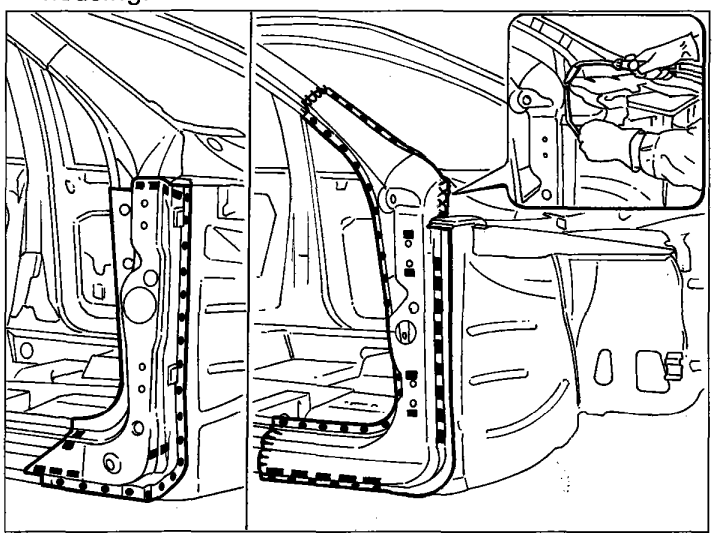


P4A115M01



Welding replacement parts

1. Place the internal reinforcement in position and spot weld the side edge.
2. Use the MIG welder and fill the holes made previously.
3. Remove any weld slag and apply the electro-weldable galvanizing paint.
4. Place the pillar in position and spot weld the perimeter edges.
5. Use the MIG welder at the edges.
6. Use the MIG welder and fill the holes made previously.
7. Carry out brass welding on the contact edges between the replacement part and the windscreen housing.



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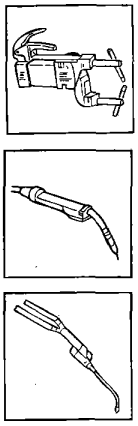

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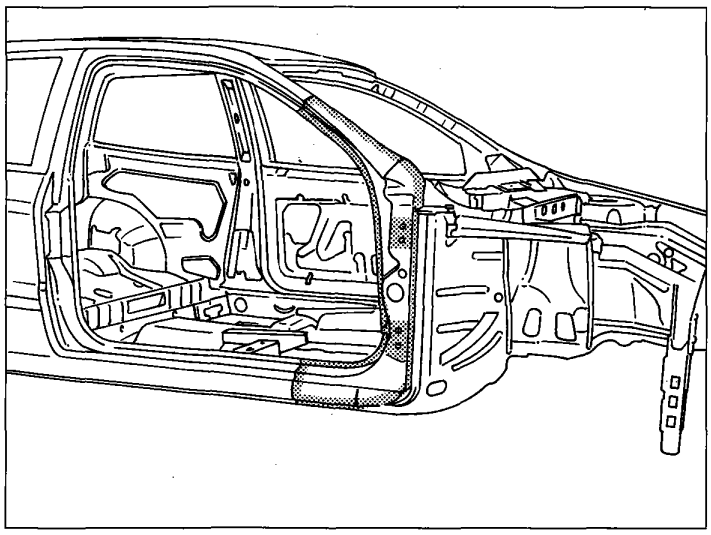
Replacing structural body panels

70.

Finishing operations

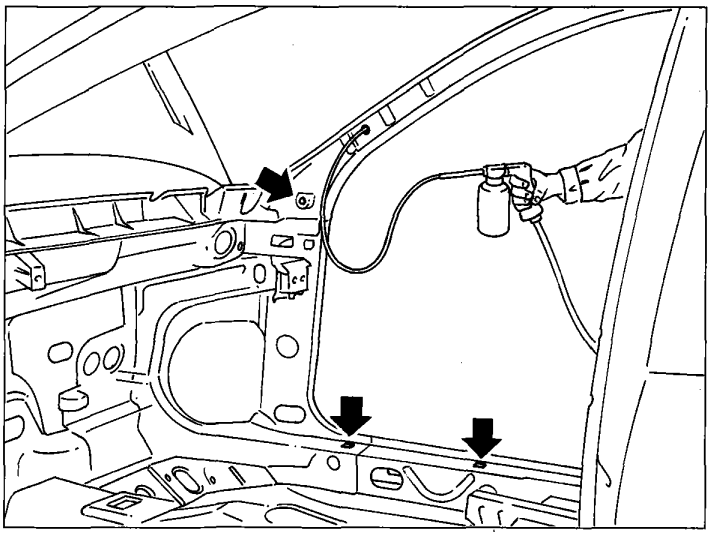
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

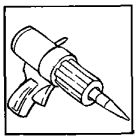


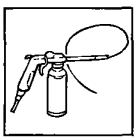
P4A116M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the joins between the front pillar and the bodyshell, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective to the inside of the front pillar.







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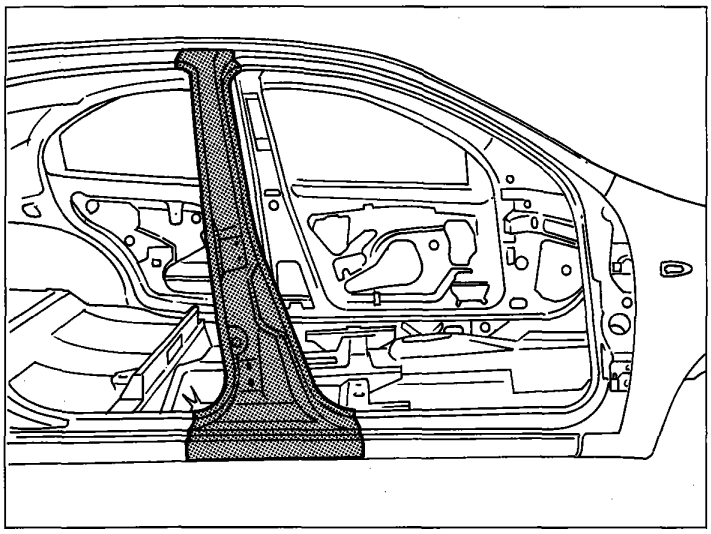


P4A117M01

REPLACING CENTRE PILLAR (7090G 40)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

Carry out any straightening operations required to the bodyshell before cutting the component. After this operation check that the components not being replaced are intact.

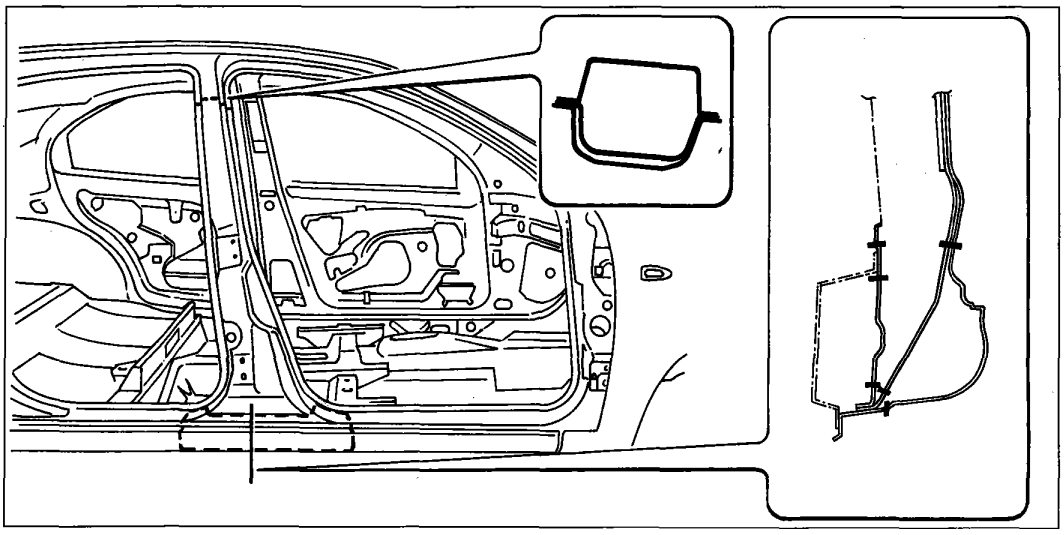
PRELIMINARY DISMANTLING

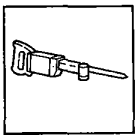
Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them.

REMOVING

Cut the vehicle centre pillar using a power saw following the dotted lines shown in the diagram below.

The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.





P4A117M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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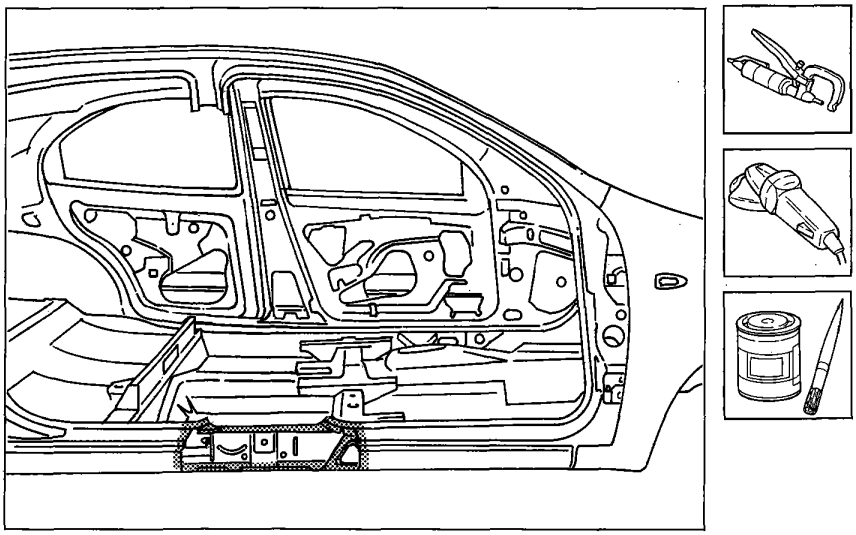
Removing off cuts and preparing edges of bodyshell

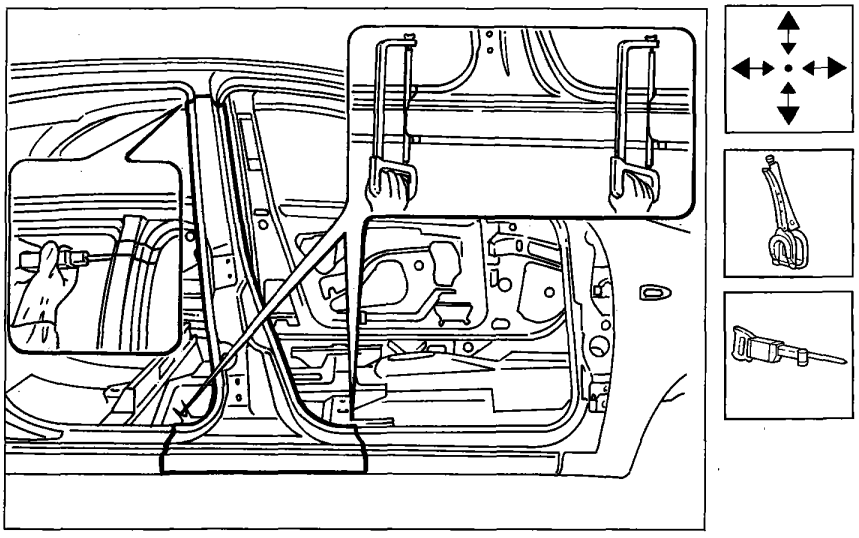
1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A118M01

Adjusting the outer centre pillar

1. Carefully position the outer centre pillar.
2. Fix the replacement part to the bodyshell and fix it using self-locking pliers.
3. Cut the edges of the excess panel superimposed on the bodyshell.



P4A118M02

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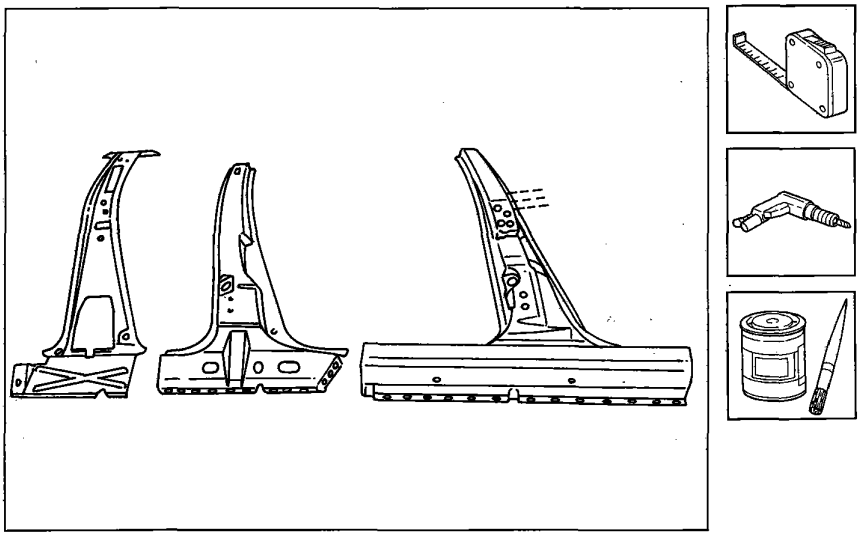
Preparing the replacement parts

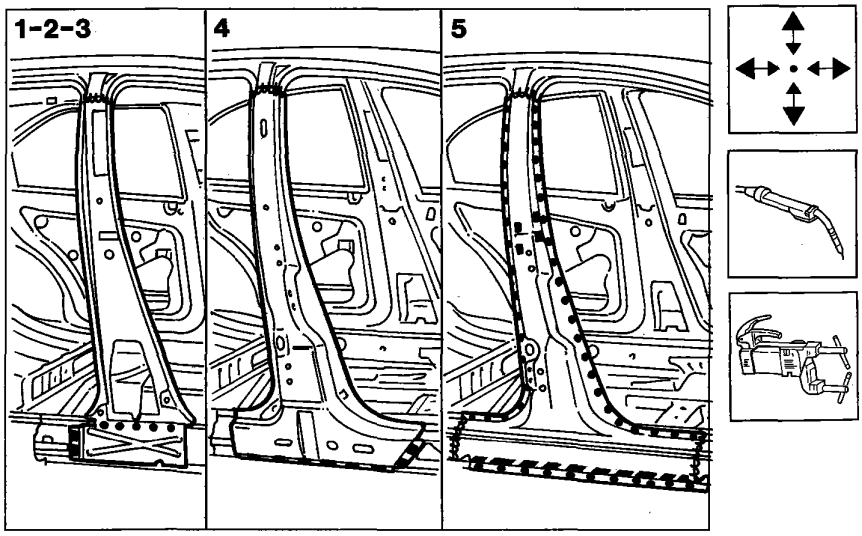
1. Make equidistant holes in the replacement parts as shown in the diagram.
2. Remove the anti-corrosion treatment from the entire perimeter of the outside of the replacement part using a disc grinder.
3. Use the electro-galvanizing paint on the edges treated previously.



P4A119M01

Welding replacement parts

1. Position the inner pillar and carry out continuous welding on the upper edge.
2. Continue the welding filling the holes made previously in the underdoor side member reinforcement.
3. Carry out spot welding on the underdoor side member edges.
4. Position the intermediate pillar inserting it inside the remains of the upper bodyshell, carry out continuous welding on the upper edge and fill the holes made previously.
5. Position the outer centre pillar and carry out continuous welding on the outer edges, filling the holes made previously in the replacement part and spot welding along the entire perimeter of the replacement part.



P4A119M02

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Replacing structural body panels

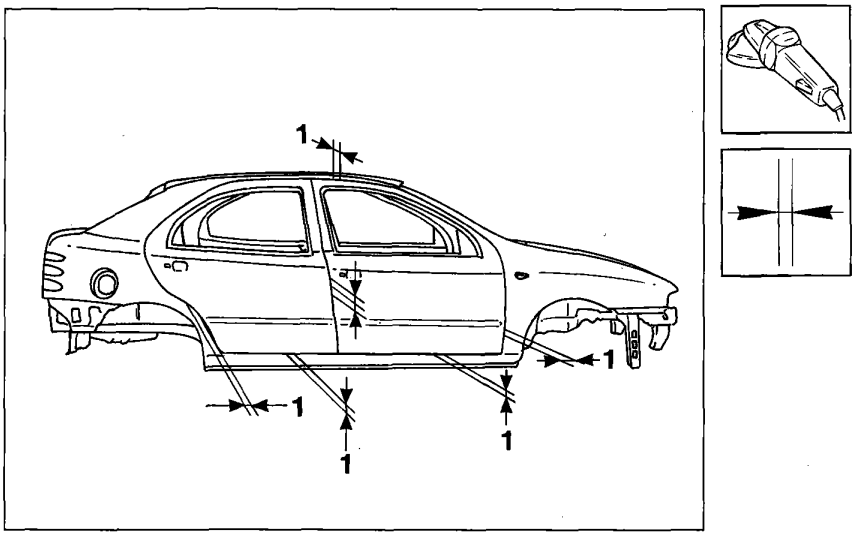
70.

Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

Checking alignments

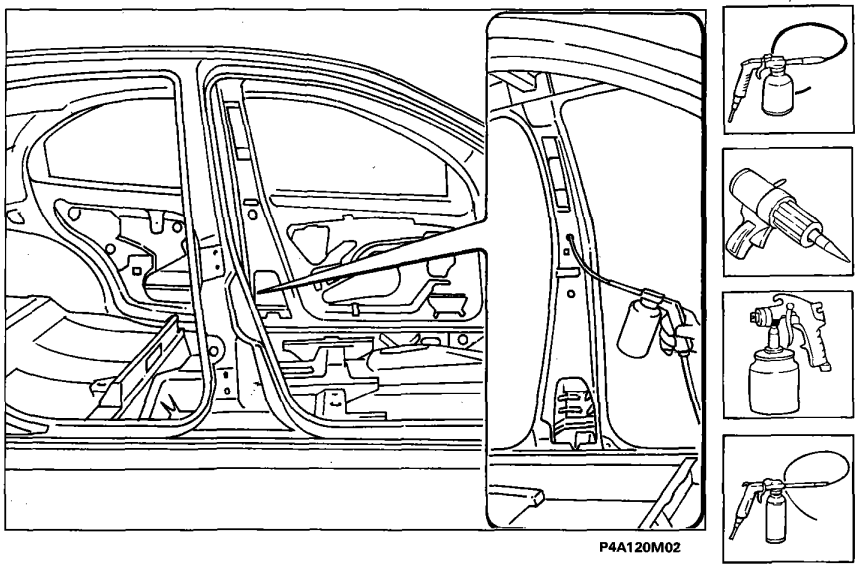
1. Check the parallelism, openings and angles (this involves fitting the moving components previously removed with seals and parts which, once fitted, make it possible to check that the operations have been carried out correctly).



P4A120M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the joins between the replacment panels and the bodyshell, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective.



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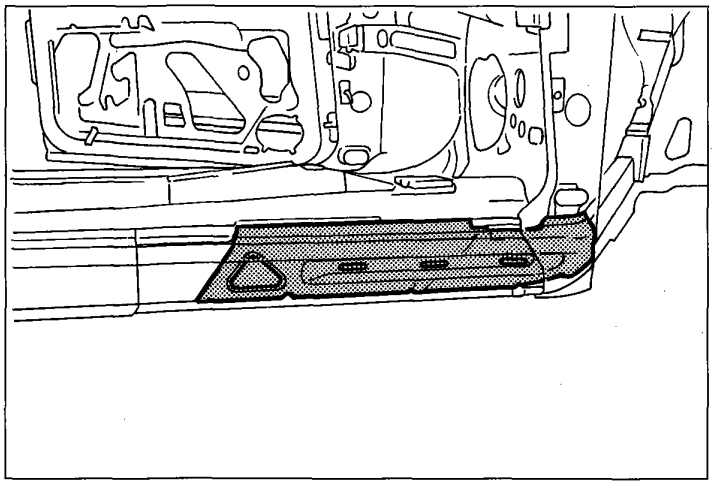


P4A121M01

REPLACING UNDERDOOR SIDE MEMBER FRONT REINFORCEMENT (7090G 30)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

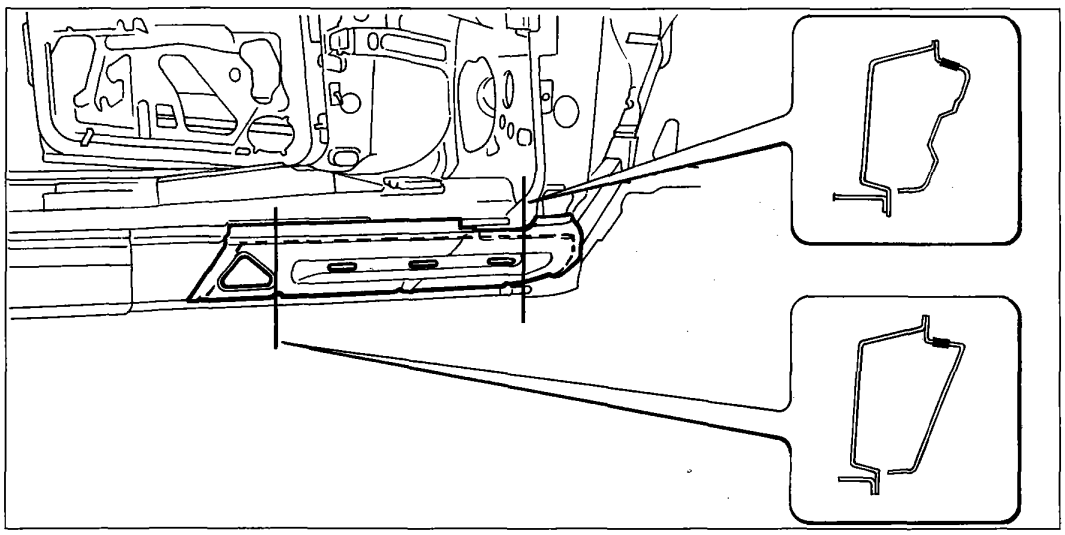
Carry out any straightening operations required to the bodyshell before cutting.
After this operation check that the components not being replaced are intact.

PRELIMINARY DISMANTLING

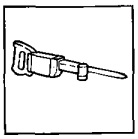
Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them .
Remove the underdoor side member (see: "Replacing body panels -Replacing Underdoor side member").
Remove the front pillar (see: "Replacing structural body panels -Replacing Front pillar").

REMOVING

Cut using the power saw following the dotted lines shown below.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A121M02



When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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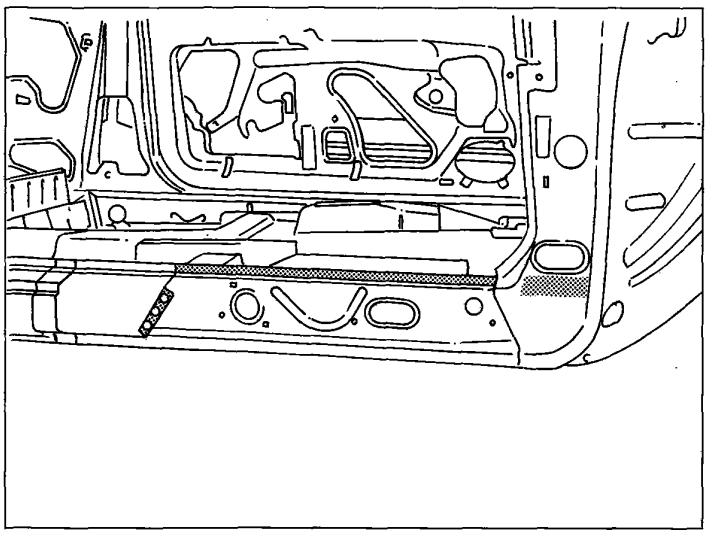
Replacing structural body panels

70.

Removing off cuts and preparing edges of bodyshell

1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Make equidistant holes in the edge of the underdoor side member rear reinforcement.
6. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



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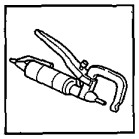
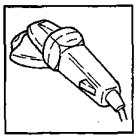
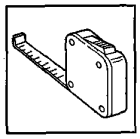
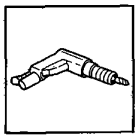


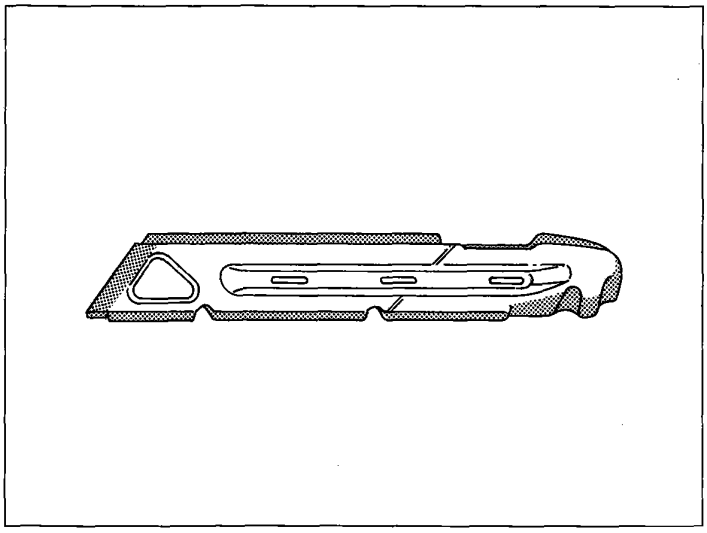




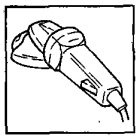


Preparing the spare part

1. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement panel using a disc grinder.
2. Use electro-galvanizing paint on the edges previously treated.



P4A122M02



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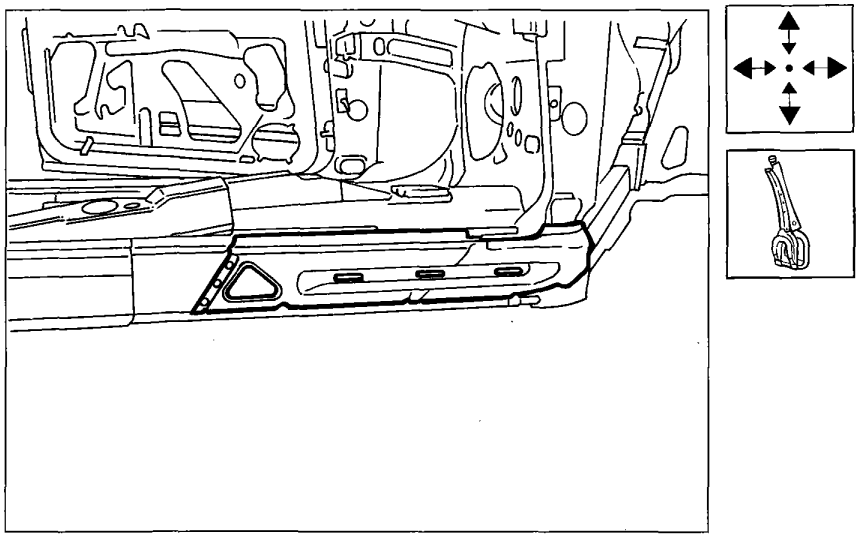
Positioning the replacement part

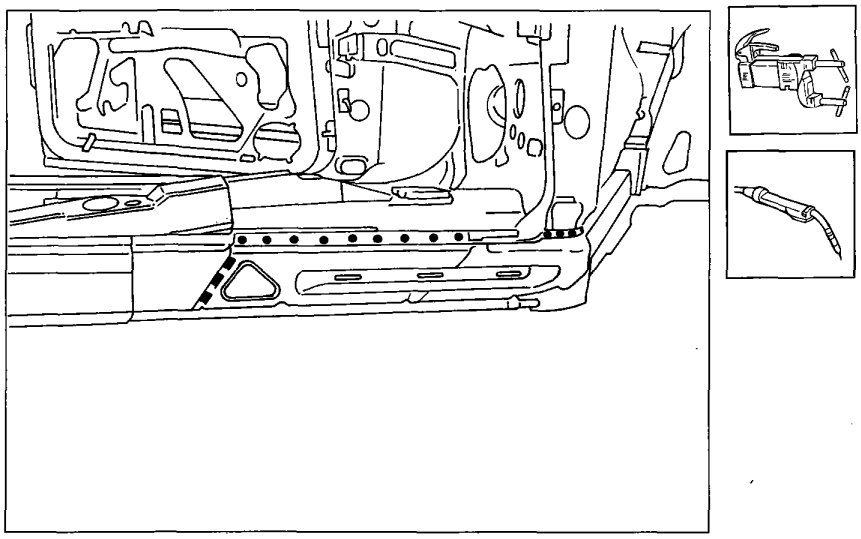
1. Carefully place the replacement part in position, from the inside of the underdoor side member rear reinforcement.
2. Fix the replacement part to the bodyshell using the special self-locking clamps.



P4A123M01

Welding the spare part

1. Carry out spot welding by the front pillar frame and the upper edges.
2. Using the MIG welder fill the holes made previously in the bodyshell.



P4A123M02

Proceed with fitting the front pillar and the underdoor side member (see: "Replacing structural body panels - Replacing Front pillar" and "Replacing body panels - Replacing underdoor side member").

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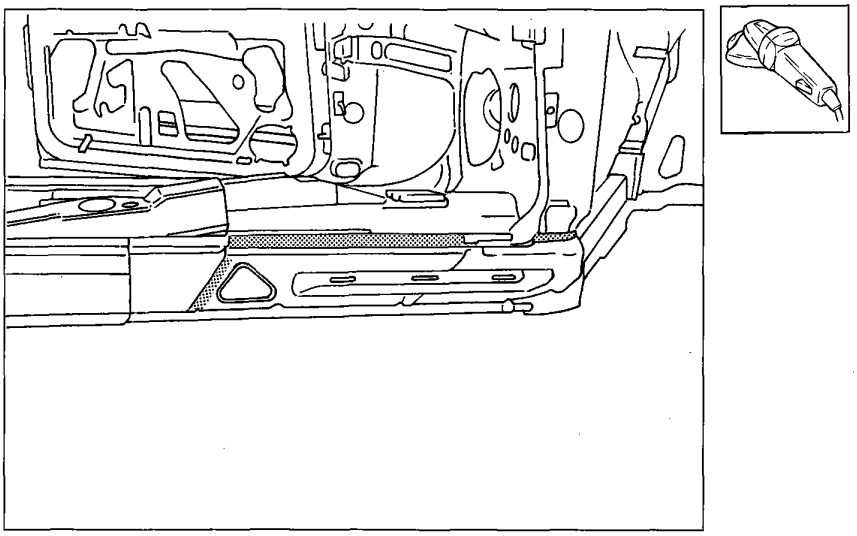
Finishing operations

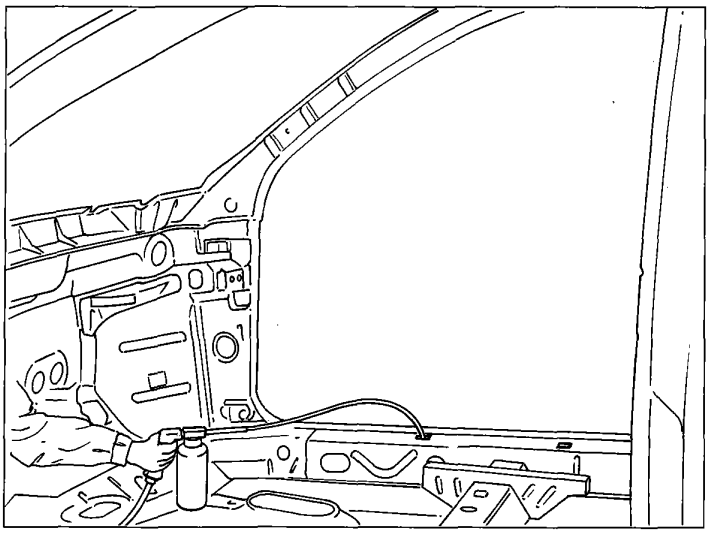
1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

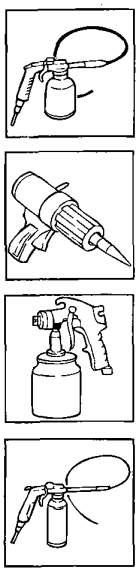


P4A124M01

Protections

1. Apply the electro-phoretic protective treatment to the reas previously involved in the welding.
2. Seal the join lines, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective to the inside of the underdoor side member.





P4A124M02

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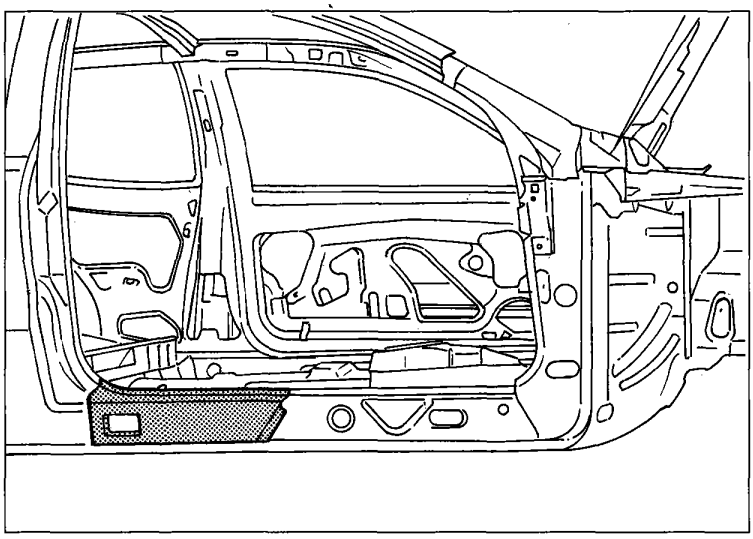


P4A125M01

REPLACING UNDERDOOR SIDE MEMBER REAR REINFORCEMENT (7090G 54)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

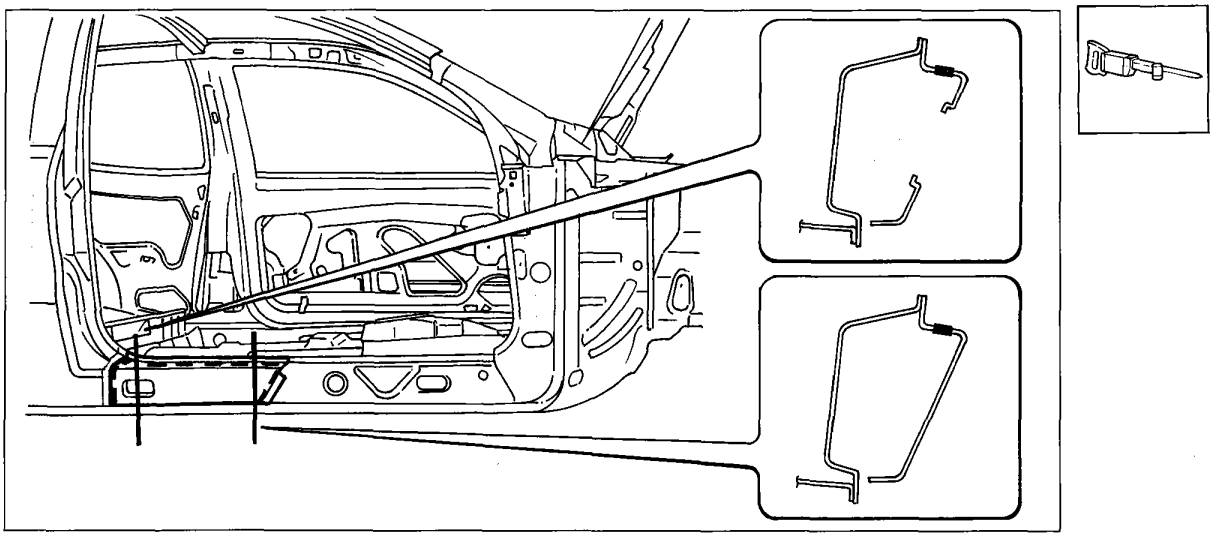
Carry out any straightening operations required to the bodyshell before cutting.
After this operation check that the components not being replaced are intact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them .
Remove the underdoor side member (see: "Replacing body panels -Replacing Underdoor side member").
Remove the rear wing (see: "Replacing body panels -Replacing rear wing").

REMOVING

Cut using a power saw following the dotted lines shown below.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A125M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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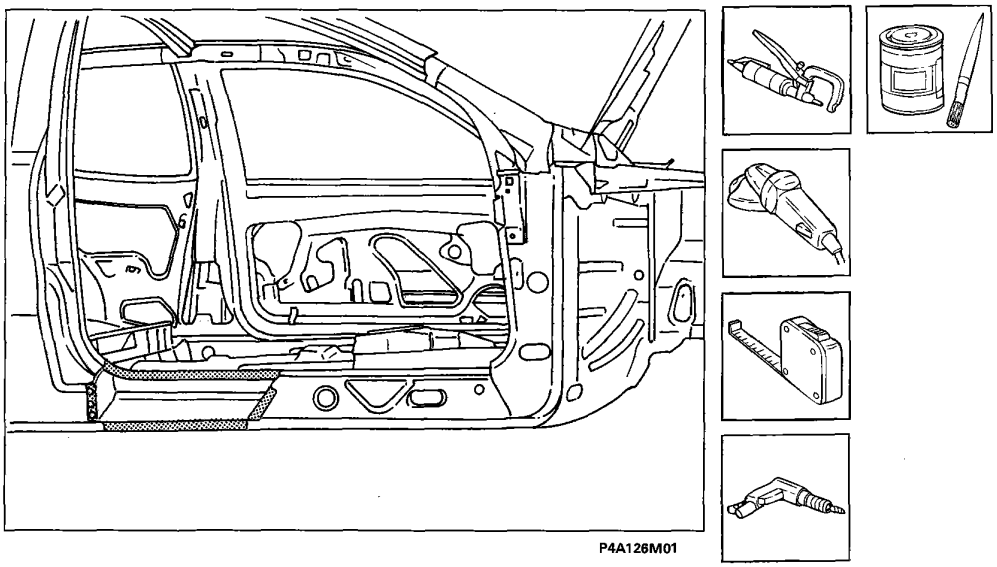
Replacing structural body panels

70.

Removing off cuts and preparing edges of bodyshell

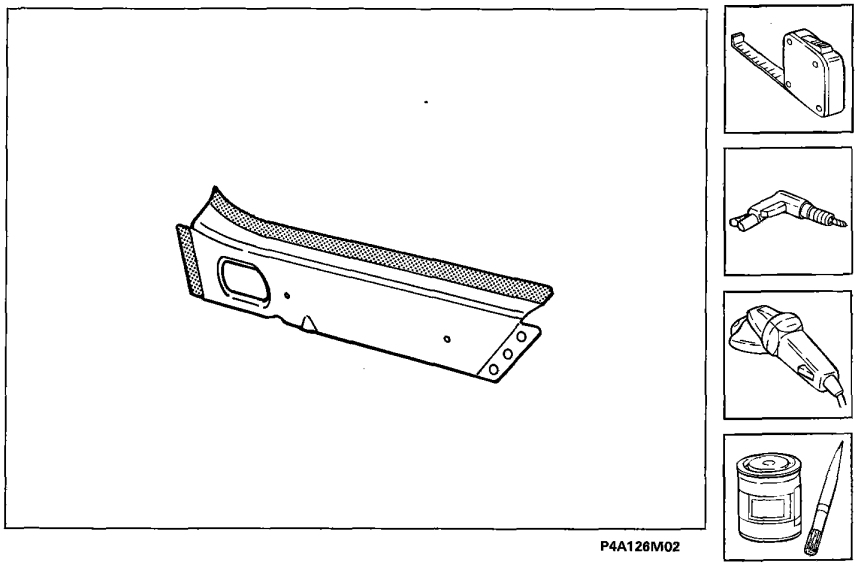
1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Make equidistant holes in the edge of the pillar reinforcement.
6. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.



P4A126M01

Preparing the spare part

1. Make equidistant holes in the side edge.
2. Remove the anti-corrosion treatment from the entire perimter of the inside and the outside of replacement part using a disc grinder.
3. Use electro-galvanizing paint on the edges previously treated.



P4A126M02

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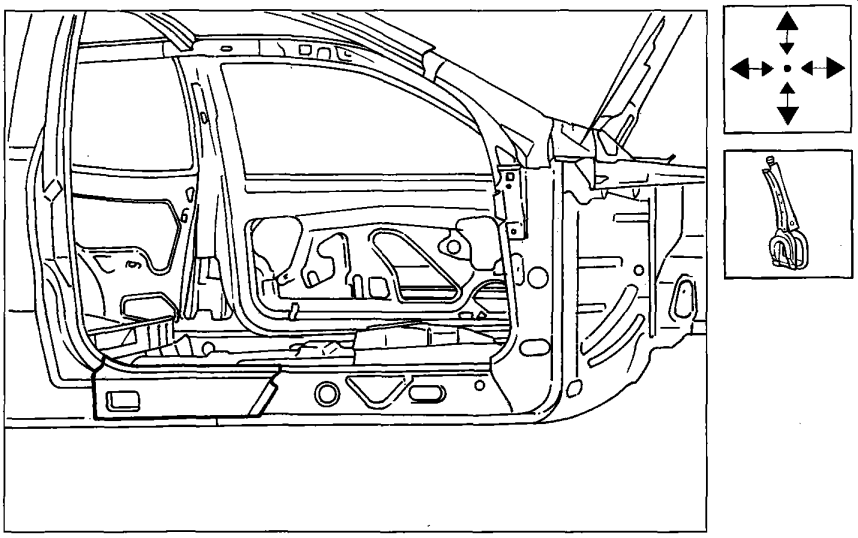
Positioning the replacement part

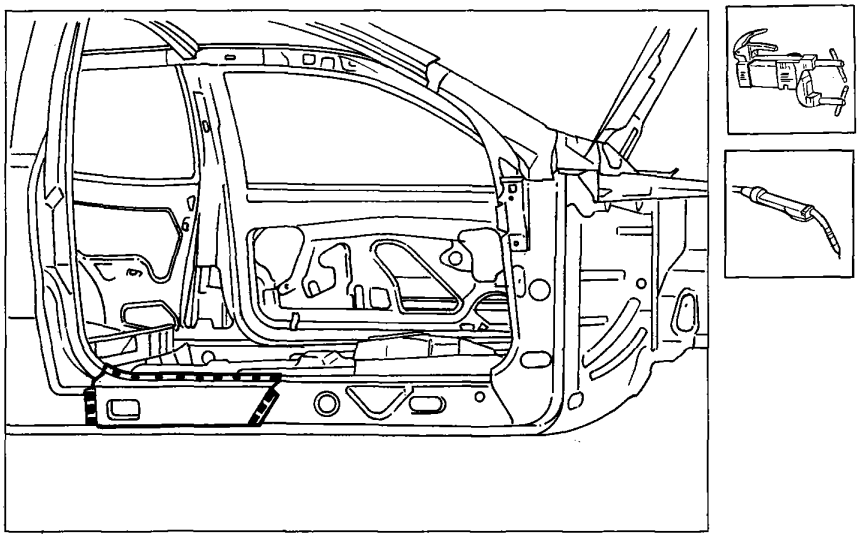
1. Carefully place the replacement part in position, from inside the pillar reinforcement.
2. Fix the replacement part to the bodyshell using the special self-locking clamps.



P4A127M01

Welding the spare part

1. Carry out spot welding by the upper edge.
2. Using the MIG welder fill the holes made previously in the bodyshell.



P4A127M02

Proceed with fiting the underdoor side member and the rear wing (see: "Replacing body panels - Replacing Underdoor side member" and - Replacing rear wing").

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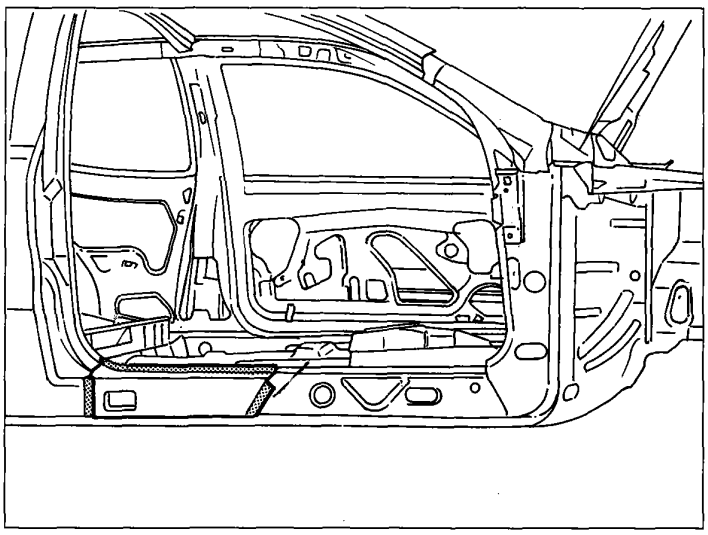
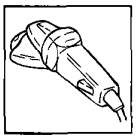
Replacing structural body panels

70.

Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

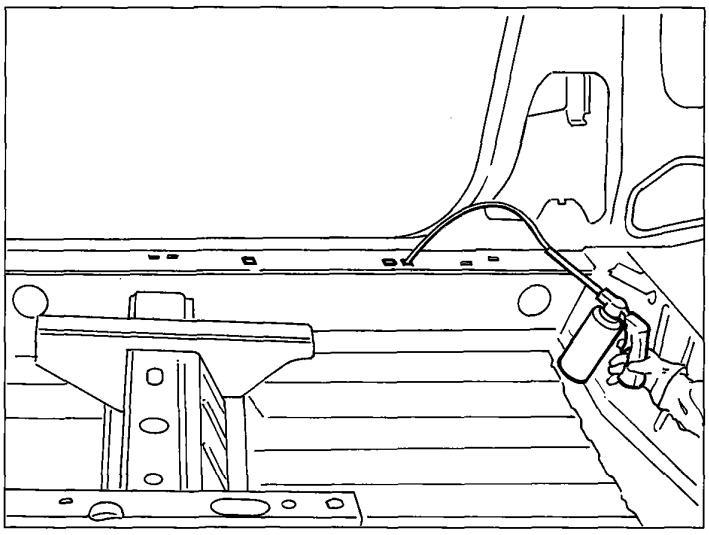


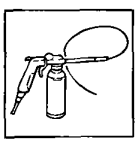


P4A128M01

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the join lines, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective to the inside of the underdoor side member.





P4A128M02

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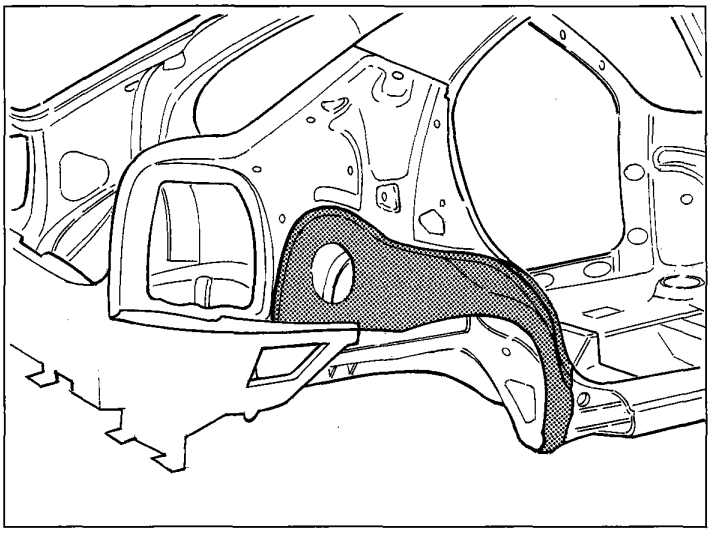


P4A129M01

REPLACING REAR WHEEL ARCH (7090G 72)*

(*) This number indicates the operation code given in the Flat rate manual.

The component for which the replacement procedure is given is highlighted in the diagram at the side.

PRELIMINARY PROCEDURES

Establish the extent of the damage, check if there are distortions to the connected components by checking the bodyshell alignment figures, using suitable methods (jigs, templates or gauges).

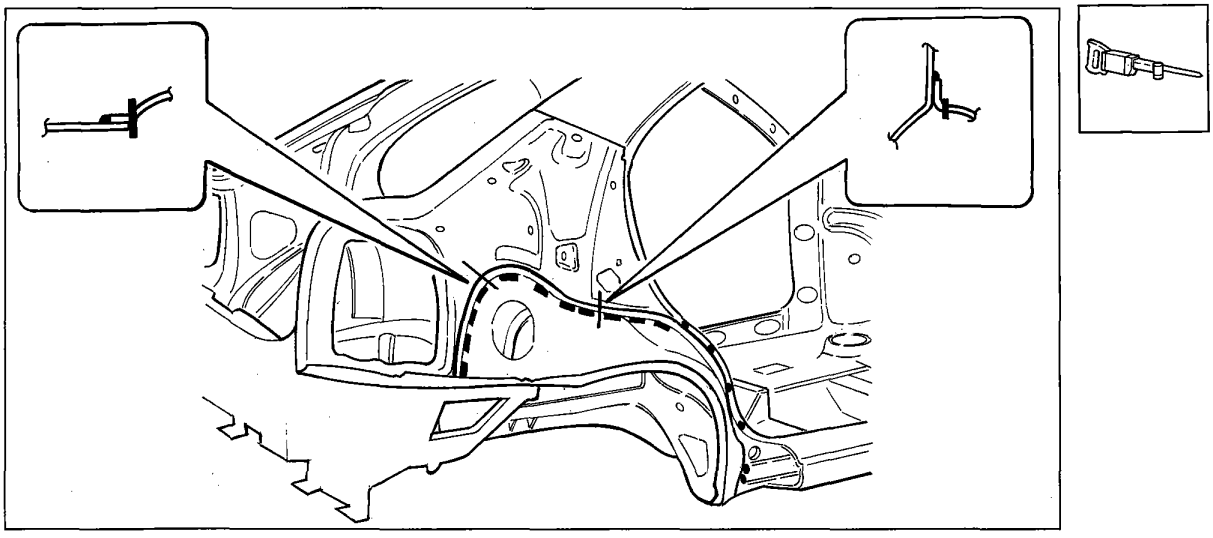
Carry out any straightening operations required to the bodyshell before cutting.
After this operation check that the components not being replaced are intact.

PRELIMINARY DISMANTLING

Remove the moving parts of the bodywork and interior fittings, which could impede the repair operations or be damaged during them .
Remove the rear wing (see: "Replacing body panels Replacing rear wing).

REMOVING

Cut using a power saw following the dotted lines shown in the diagram below, then remove the spot welds shown in the diagram.
The most important sections of the body panel are shown in order to allow the operator to adjust the position and the depth of the cutting so as not to damage the panels underneath.



P4A129M02

When carrying out the operations described, adhere strictly to the safety procedures. Protective shoes, ear-muffs and gloves should be worn during the cutting operations, welding masks and gloves during the welding operations, and a protective mask and gloves during the painting operations.

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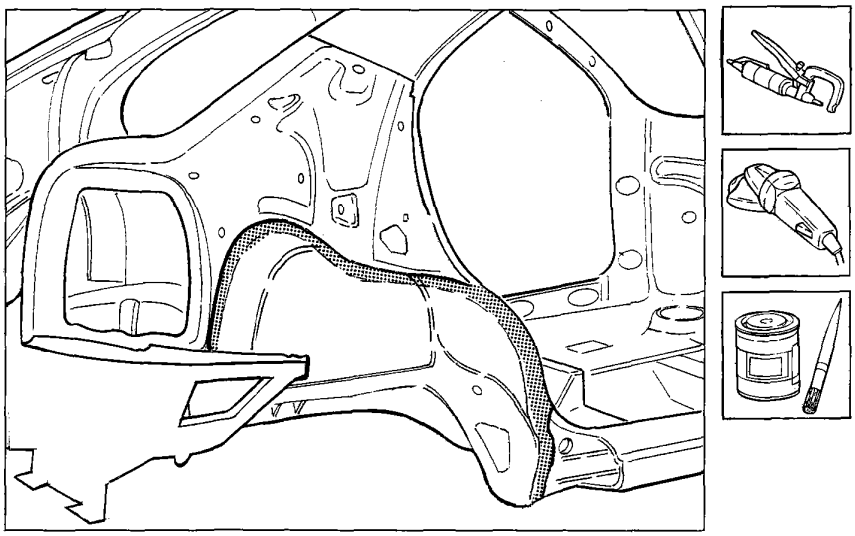
Replacing structural body panels

70.

Removing off cuts and preparing edges of bodyshell

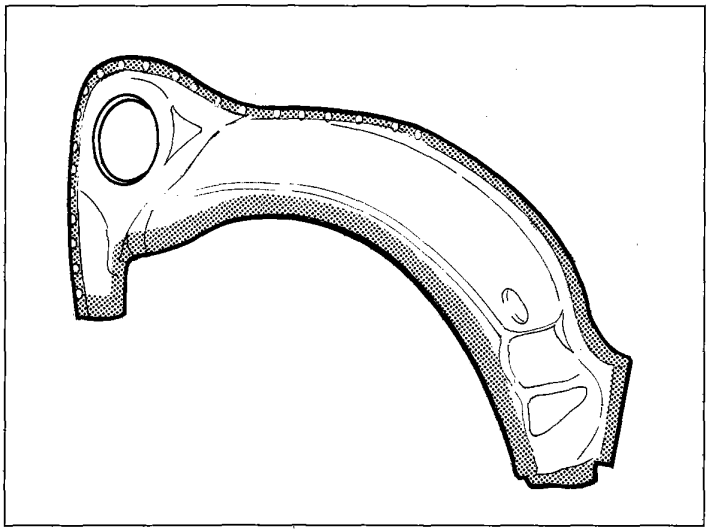
1. Remove the spot welds along the entire perimeter of the edge of the bodyshell, using a special cutter.
2. Remove the metal off cuts using pliers.
3. Straighten the edges with a hammer and dolly block.
4. Remove the weld residues using a disc grinder.
5. Apply the IVI Epox epoxide type primer or an electro-weldable galvanized paint or an equivalent product, to the areas previously ground.

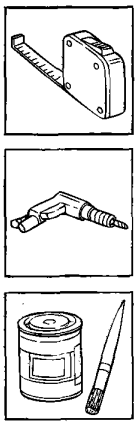


P4A130M01

Preparing the spare part

1. Make equidistant holes in the upper edge of the replacement part.
2. Remove the anti-corrosion treatment from the entire perimeter of the inside and the outside of the replacement part using a disc grinder.
3. Use electro-galvanizing paint on the edges previously treated.





P4A130M02

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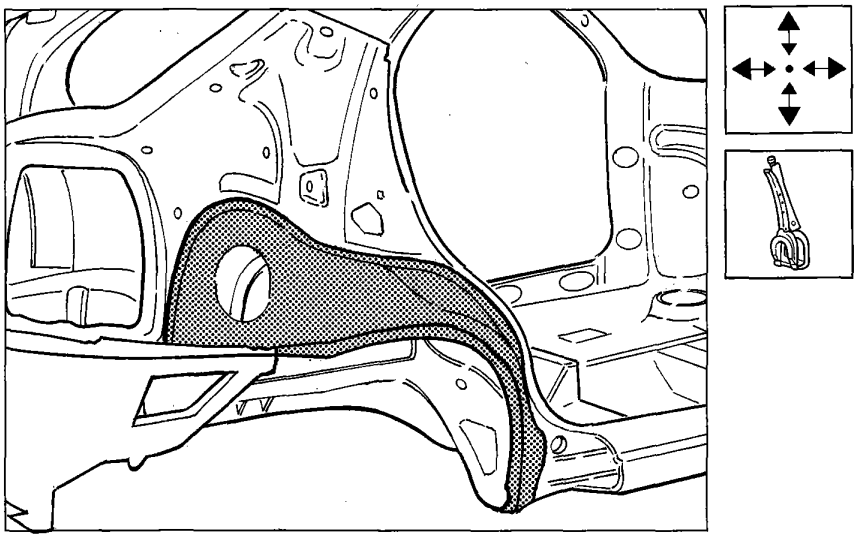
Positioning the replacement part

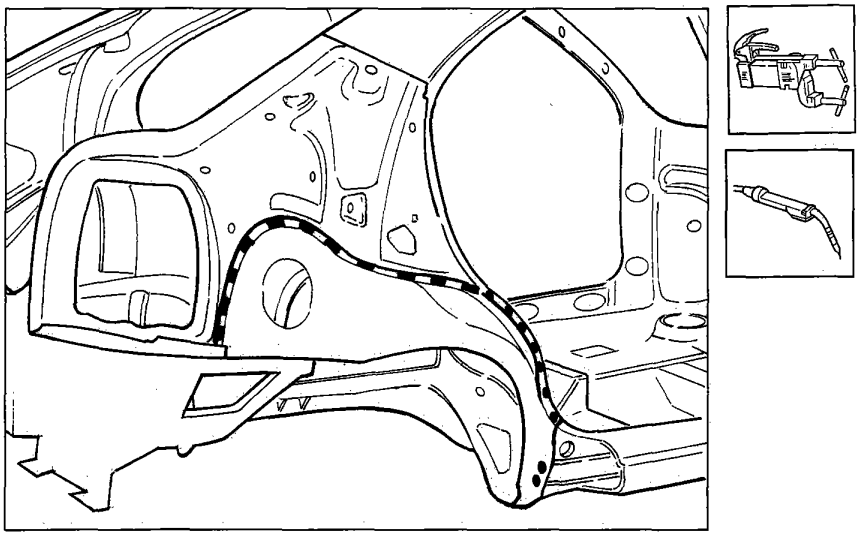
1. Carefully place the replacement part in position.
2. Fix the replacement part to the bodyshell using the special self-locking clamps.



P4A131M01

Welding the spare part

1. Carry out spot welding by the lower edge.
2. Using the MIG welder fill the holes made previously in the replacement part.



P4A131M02

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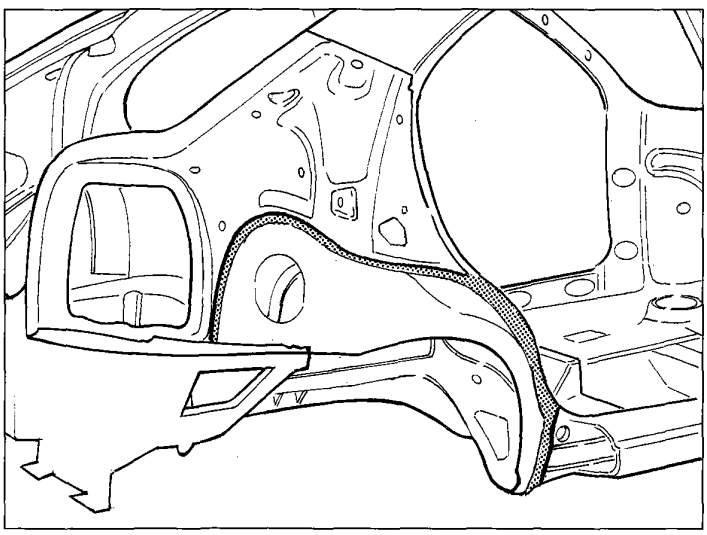
Finishing operations

1. Correct any distortions to the panel using a hammer and dolly block.
2. Remove any weld slag using a disc grinder.

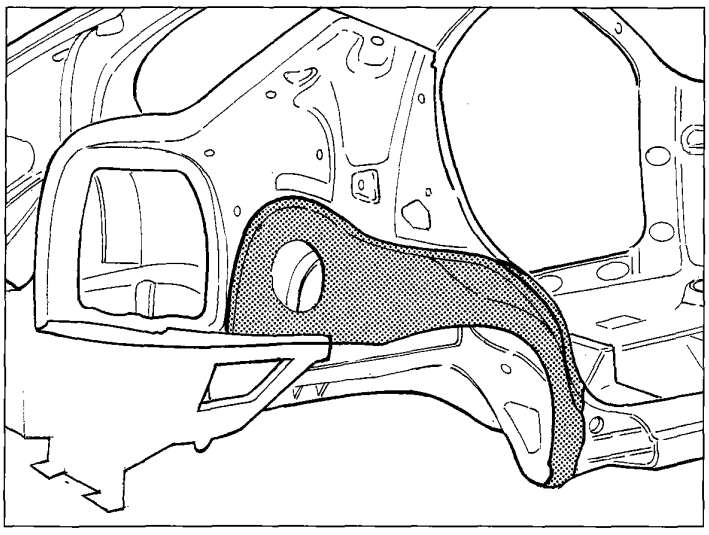


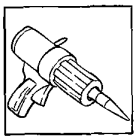
P4A132M01

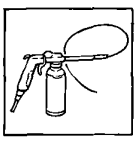
Proceed with fitting the rear wing (see: "Replacing body panels - Replacing Rear wing").

Protections

1. Apply the electro-phoretic protective treatment to the areas previously involved in the welding.
2. Seal the join lines, using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with the painting and waxing stage.
4. Apply wax based oil protective to the inside of the underdoor side member.







P4A132M02

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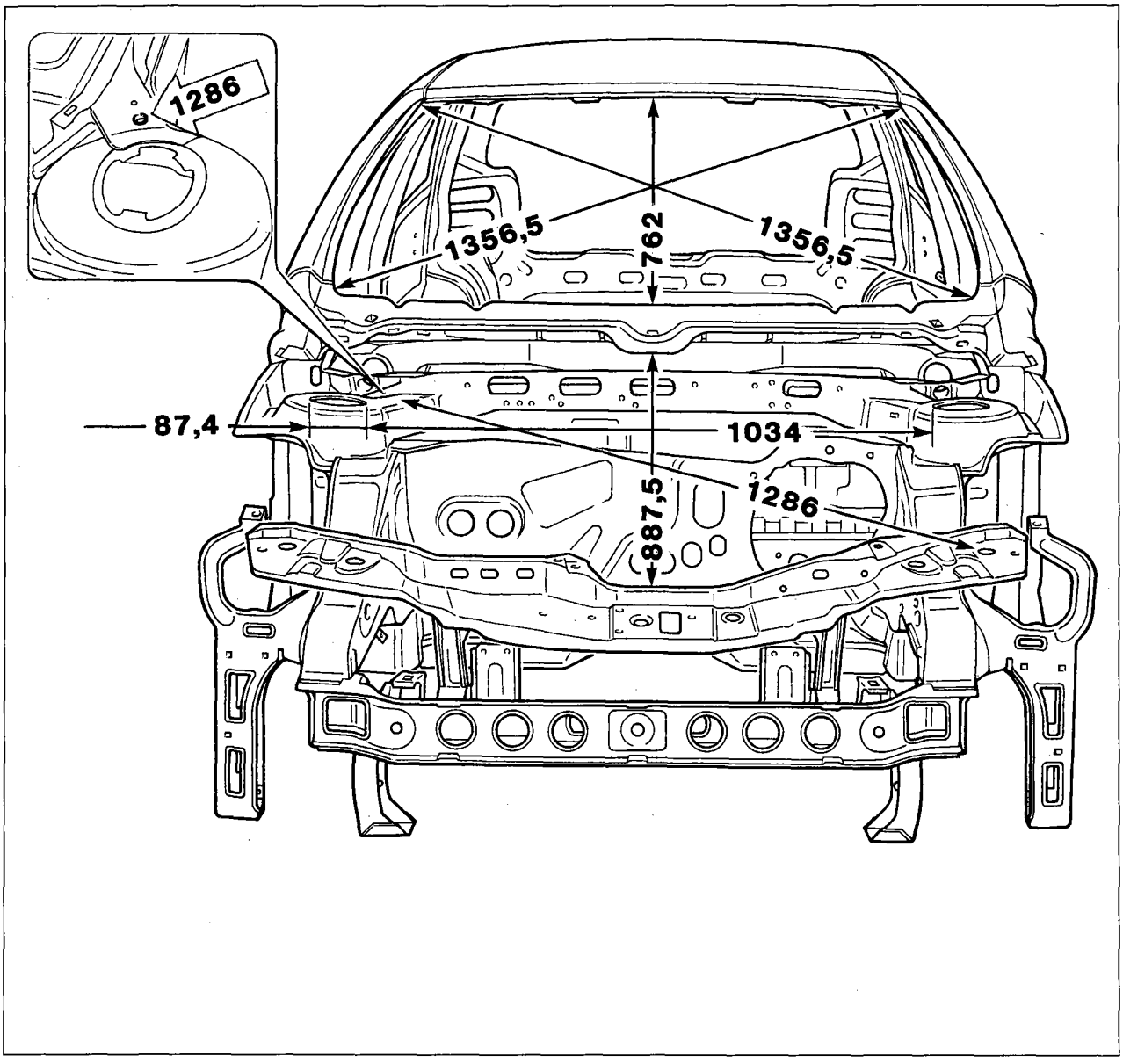
TYPICAL MEASUREMENTS

Measuring windscreen housing and engine compartment dimensions

The figures for the housings, given below, are taken from the technical designs and are subject to tolerances of around ± 2 mm.



P4A133M01

Figures for checking windscreen housing, engine compartment and distance for front shock absorber attachment turrets

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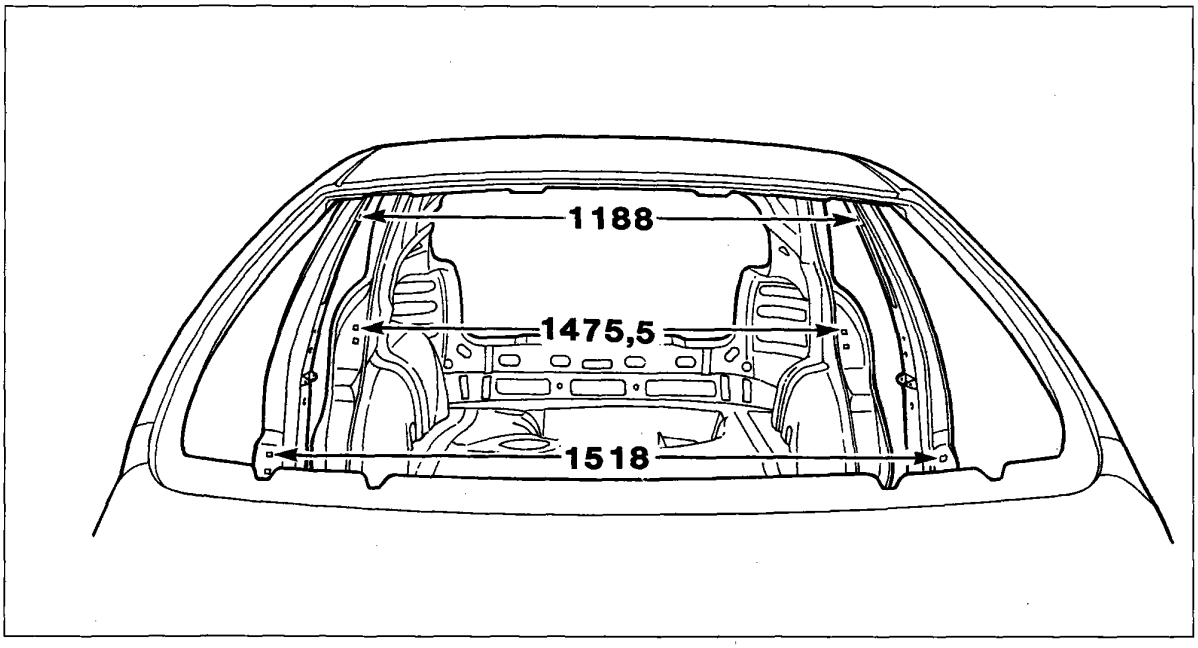
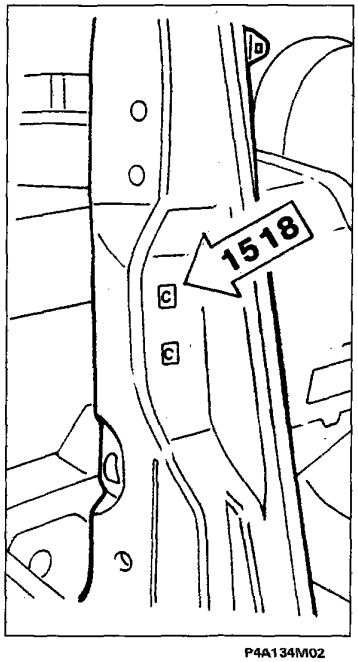
Measuring dimensions of centre and rear pillar housing (5 door version)

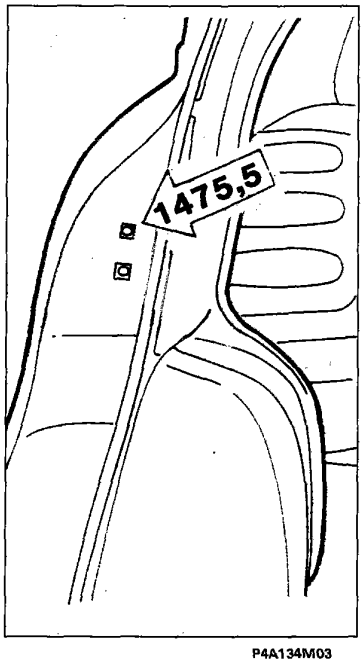


P4A134M01

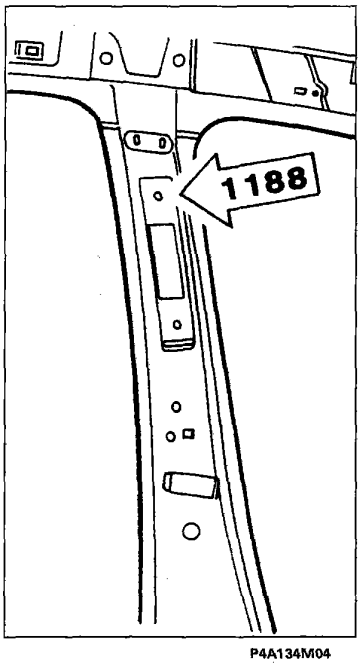
*1518 : Centre pillar
*1475,5: Rear pillar



P4A134M02



P4A134M03



P4A134M04

Figures for checking distance between centre pillars for doors measured by the seat belt attachment nuts and between the lock strikers (5 door version)

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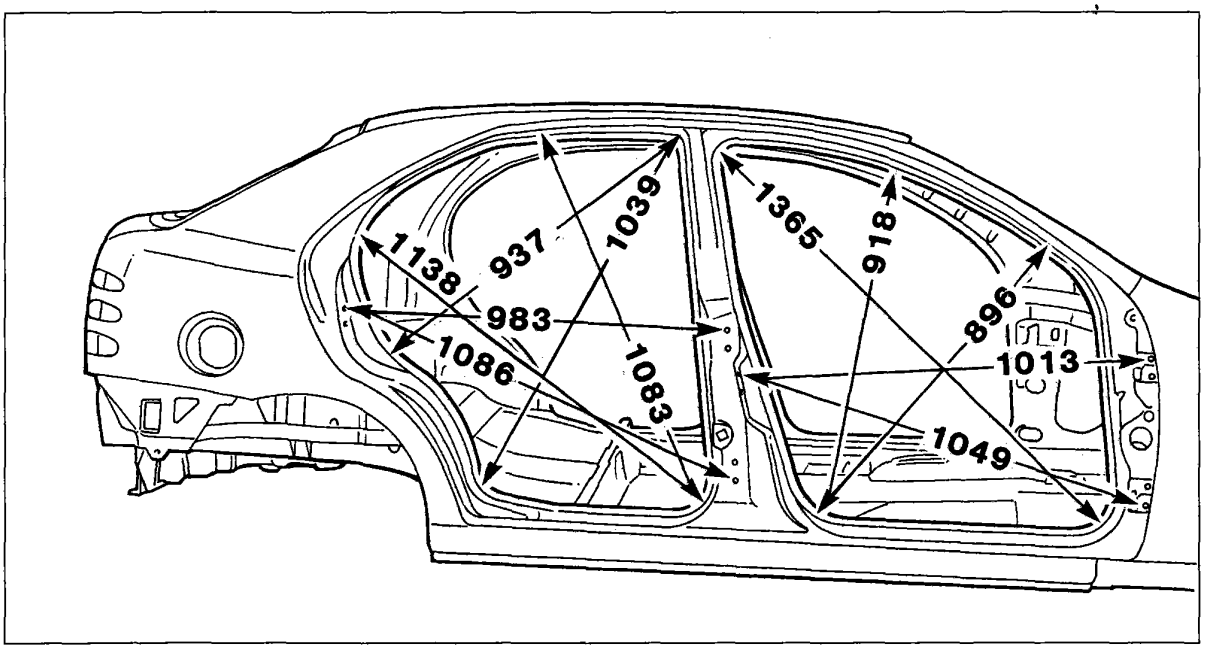
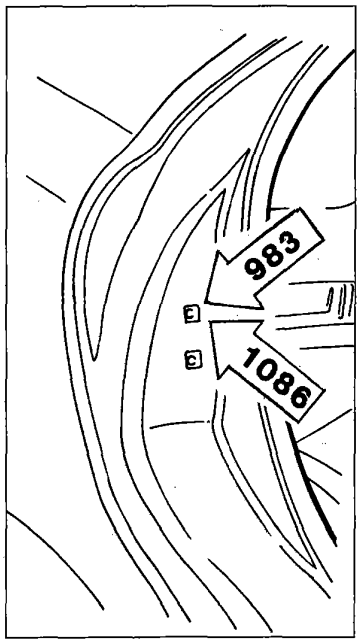
Measuring door housing dimensions



P4A135M01



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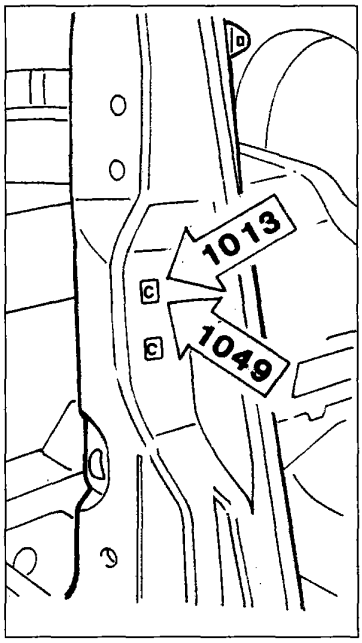

P4A135M03

Figures for checking door housings (5 door version)

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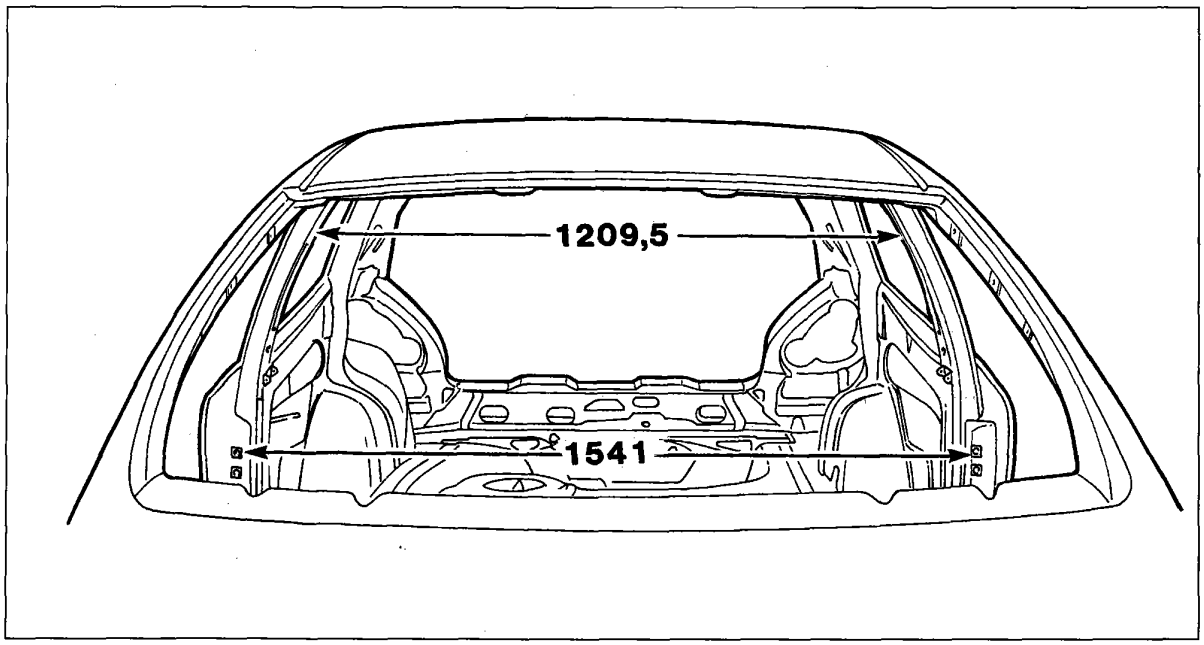
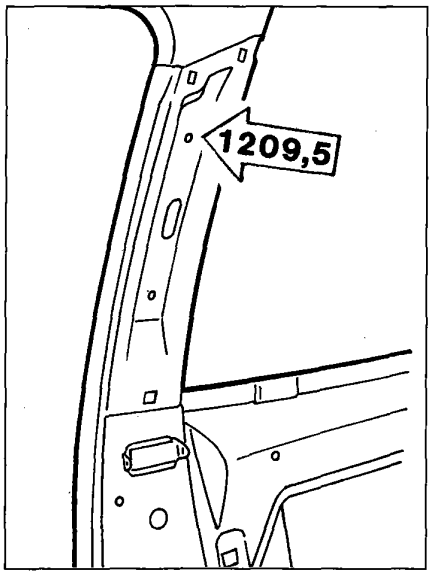
Measuring dimensions of centre pillar housing and door housings (3 door version)

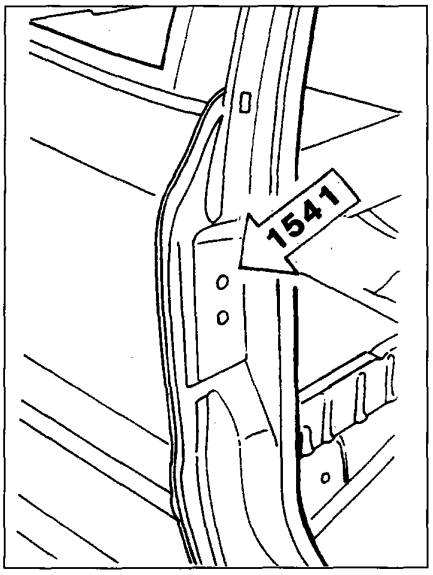


P4A136M01

Figures for checking distance between centre pillars for doors measured by the seat belt attachment nuts and between the lock strikers (3 door version)



P4A136M02



P4A136M03

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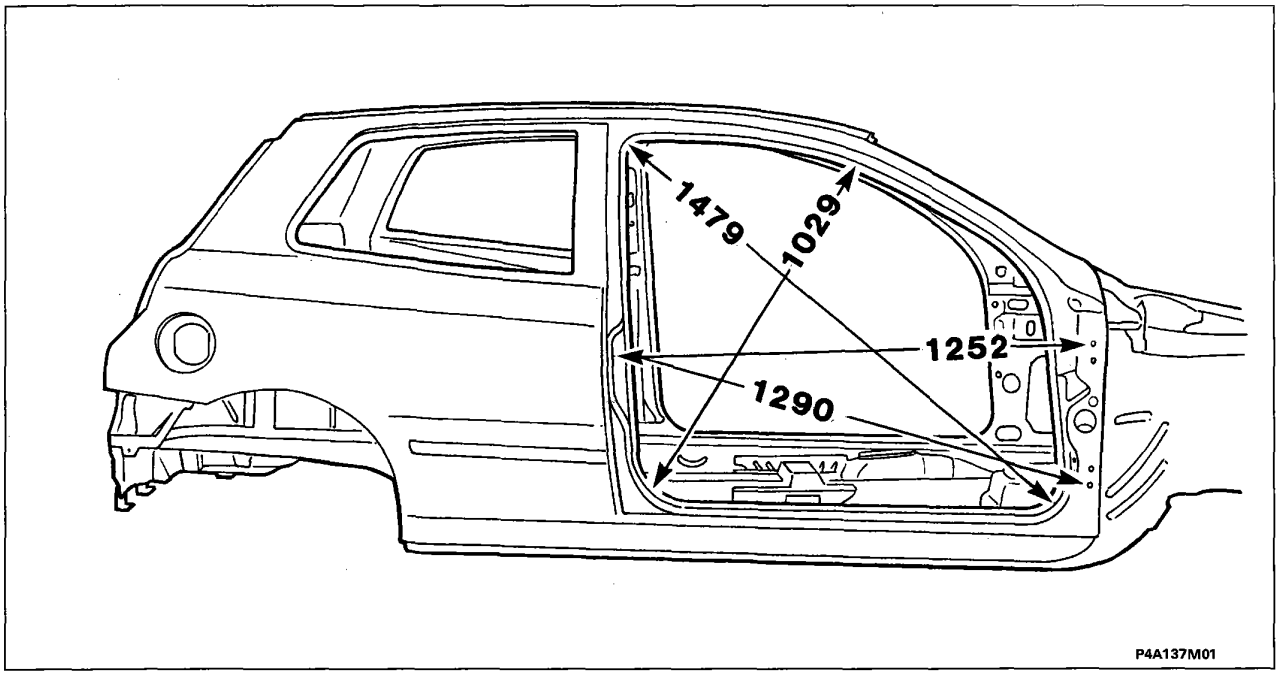
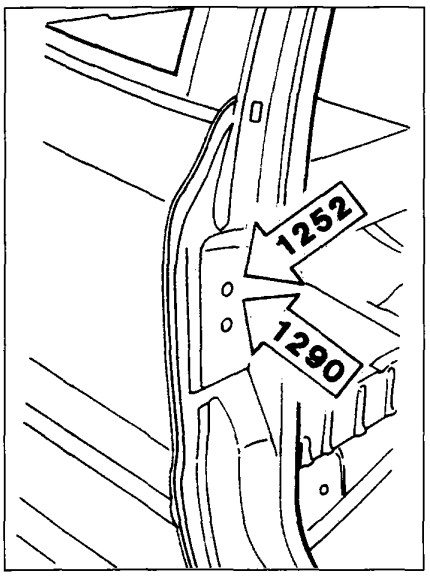
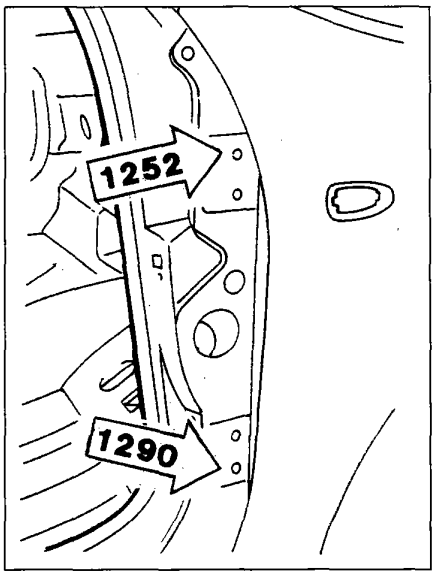
Measuring door housing dimensions







Figures for checking door housings (3 door version)

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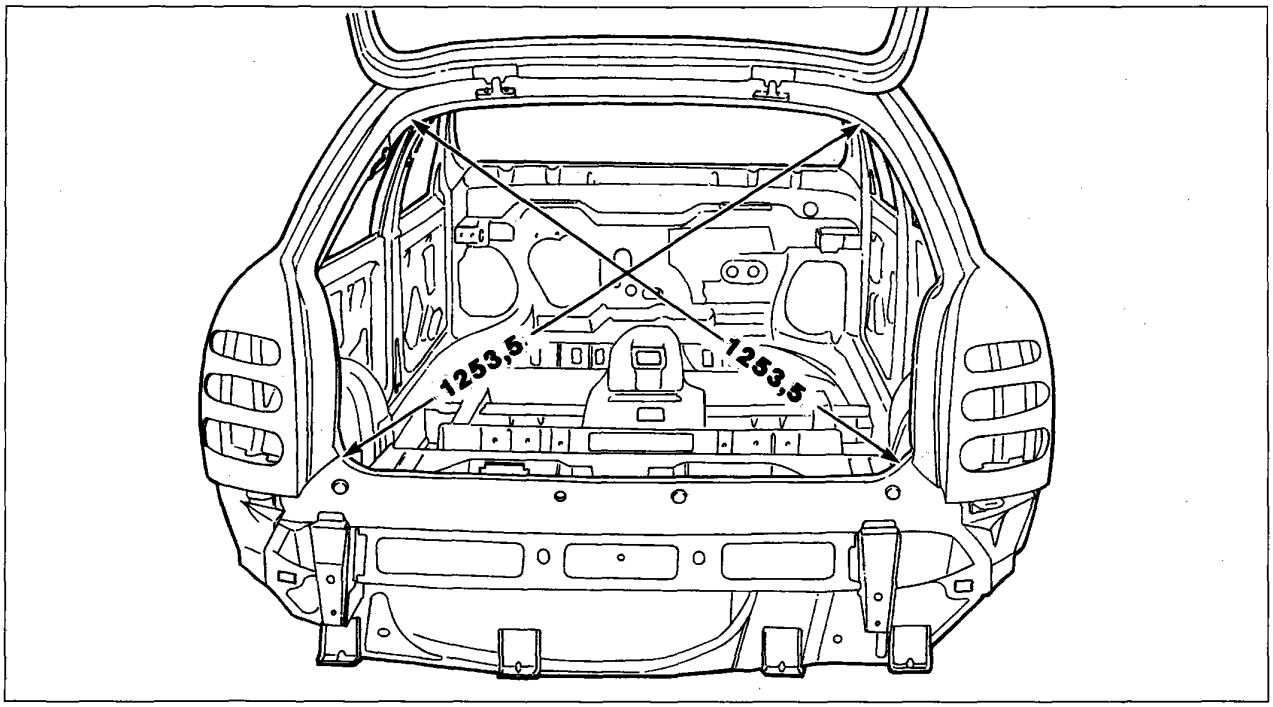
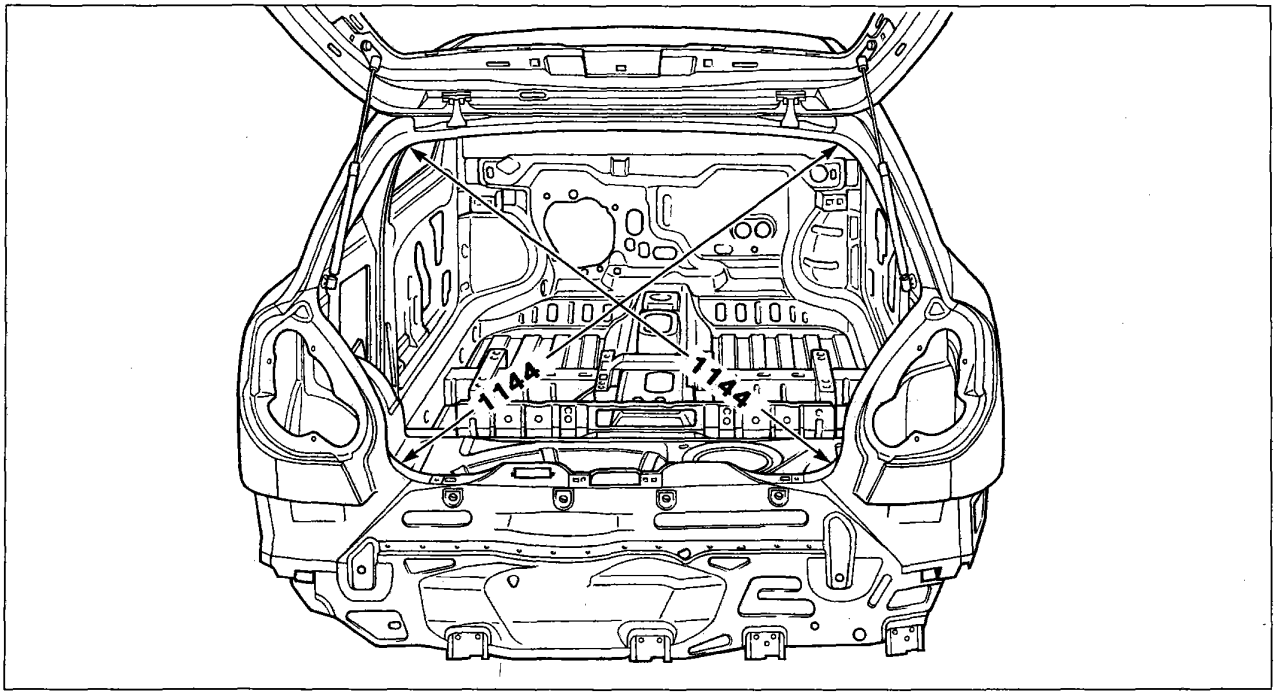
Measuring rear tailgate housing dimensions (5 door version)



P4A138M01

Measuring rear tailgate housing dimensions (3 door version)



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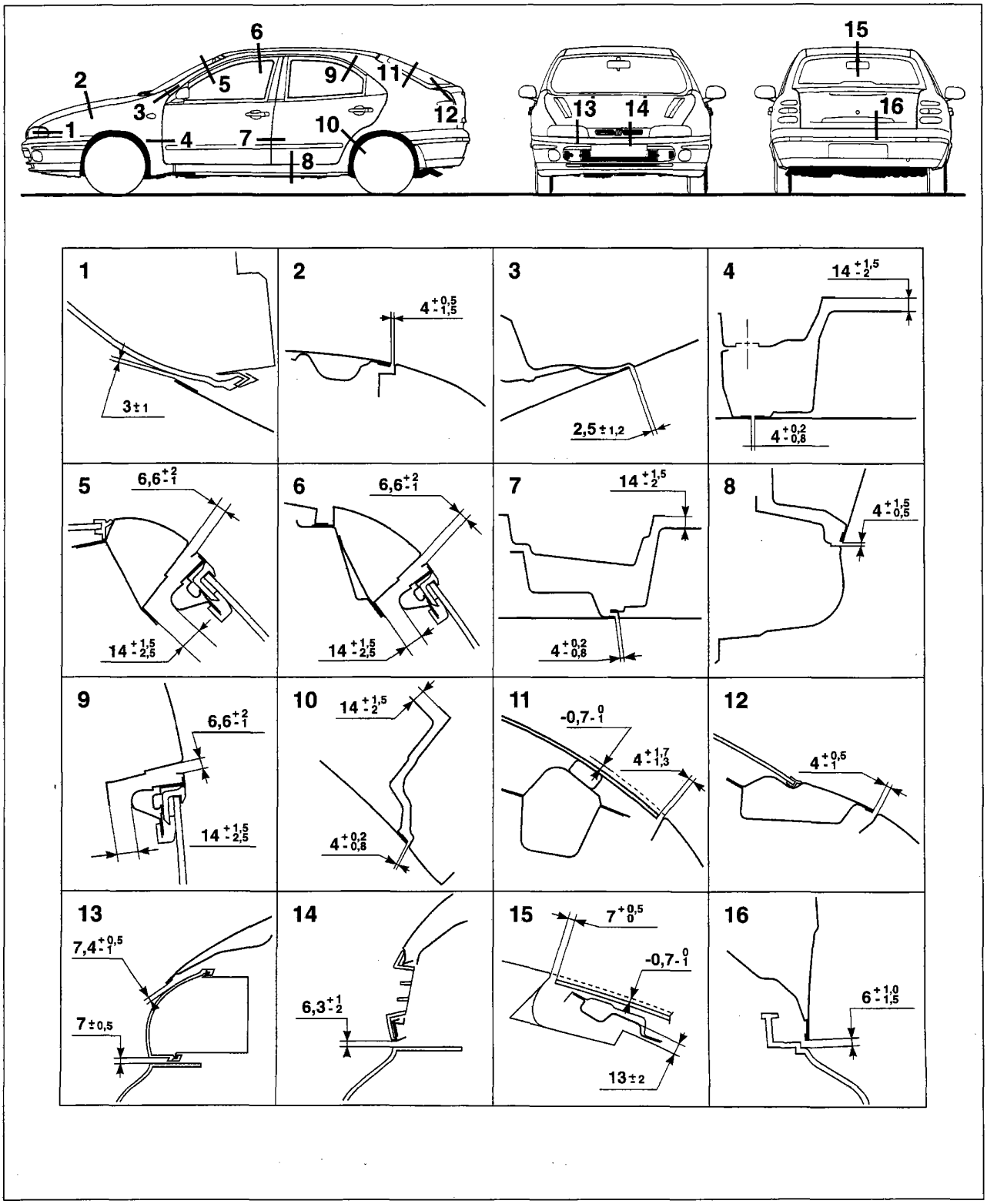
Figures for adjusting moveable parts (5 door version)



P4A139M01

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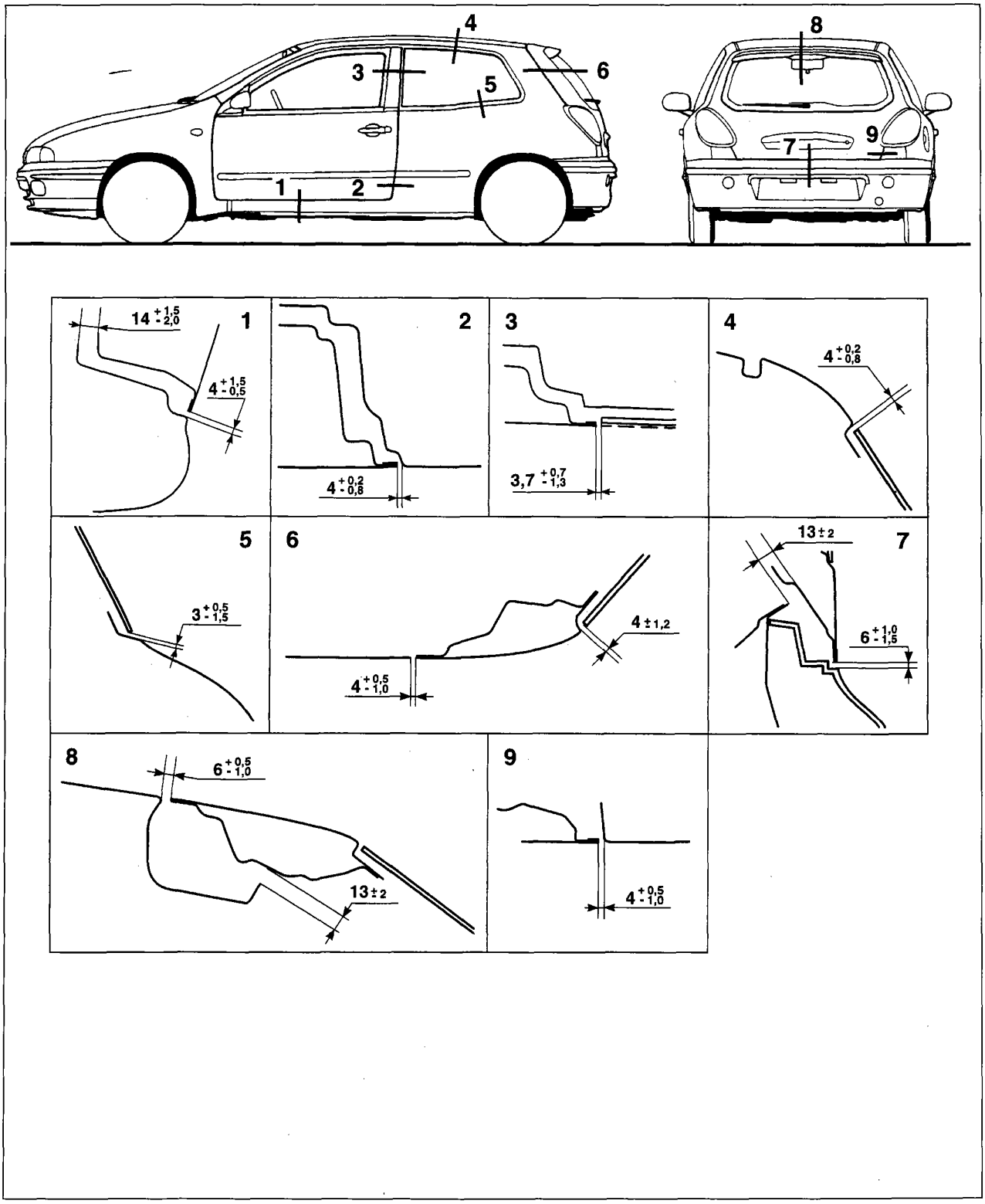
Figures for adjusting moveable parts (5 door version)



P4A140M01

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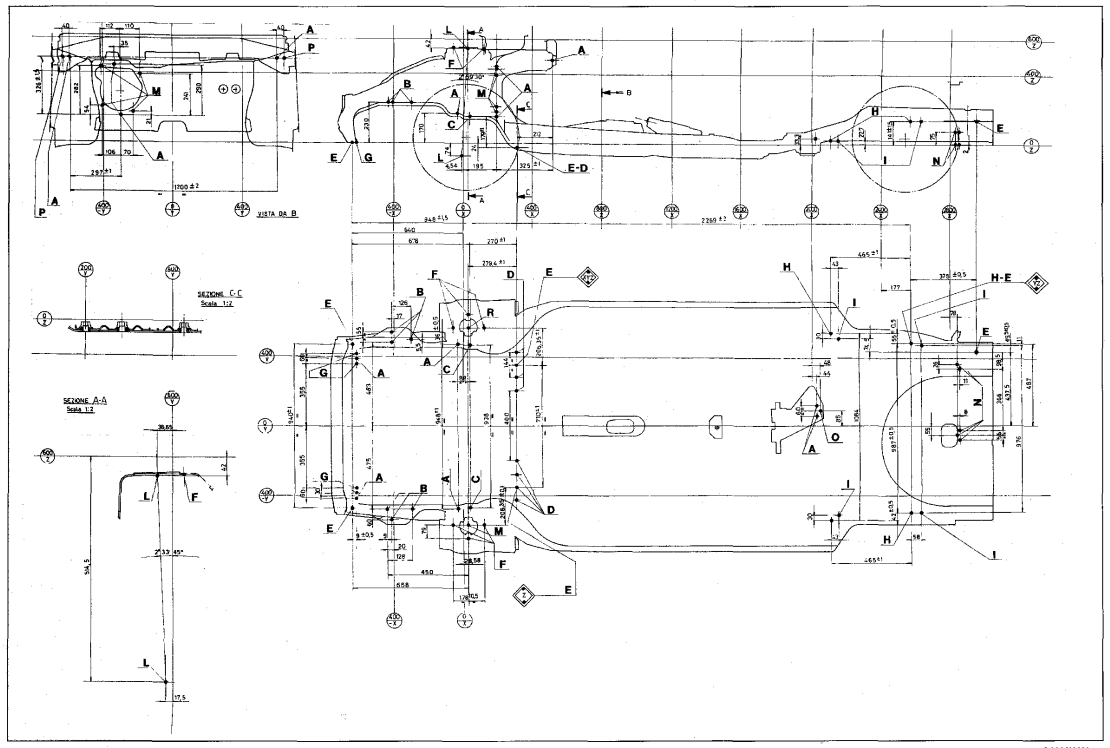
DIAGRAM FOR CHECKING THE FLOORPAN



P4A141M01

A. Reference hole for automatic screwing
B. Engine attachments
C. Suspension crossbeam front attachment
D. Suspension crossbeam rear attachment
E. Primary hole
F. Damper attachment block fitting
H. Centring holes for suspension on pallet
I. Rear suspension attachment
L. Front suspension attachment
M. Brake servo unit attachment
N. Fuel tank attachment
O. Exhaust attachment
P. Crossbeam behind dashboard and steering column attachment

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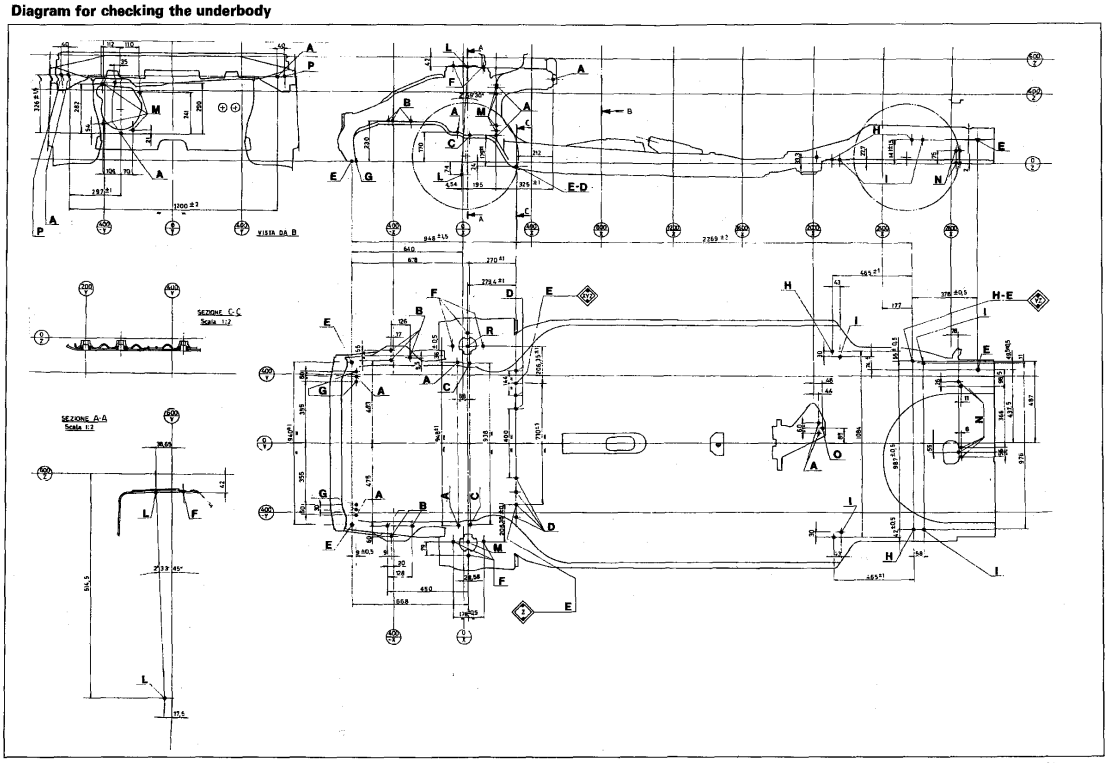
Diagram for checking the underbody



P4A141M91

A. Automatic tightening reference hole
B. Engine fastenings
C. Front suspension beam fastening
D. Rear suspension beam fastening
E. Main hole
F. Damper attachment block fastener
G. Lower radiator fastening
H. Holes for locating suspension on pallet
I. Rear suspension fastening
L. Front suspension fastening
M. Brake servo fastening
N. Tank fastening
O. Exhaust pipe fastening
P. Facia beam and steering column fastening

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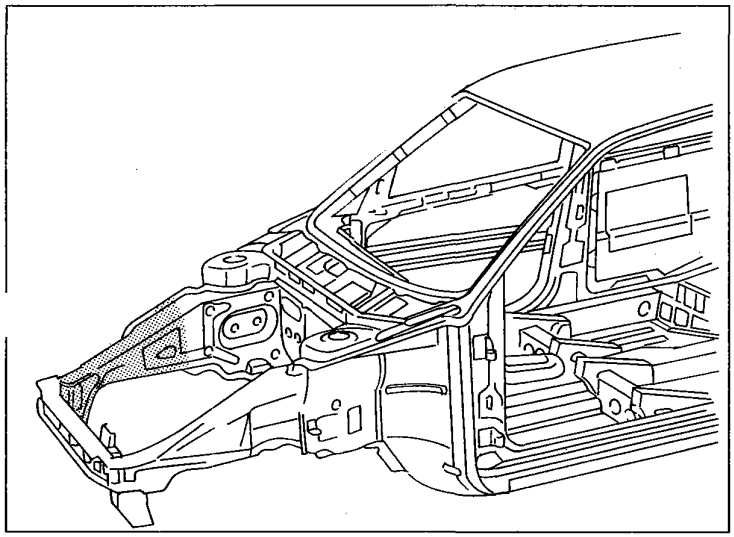
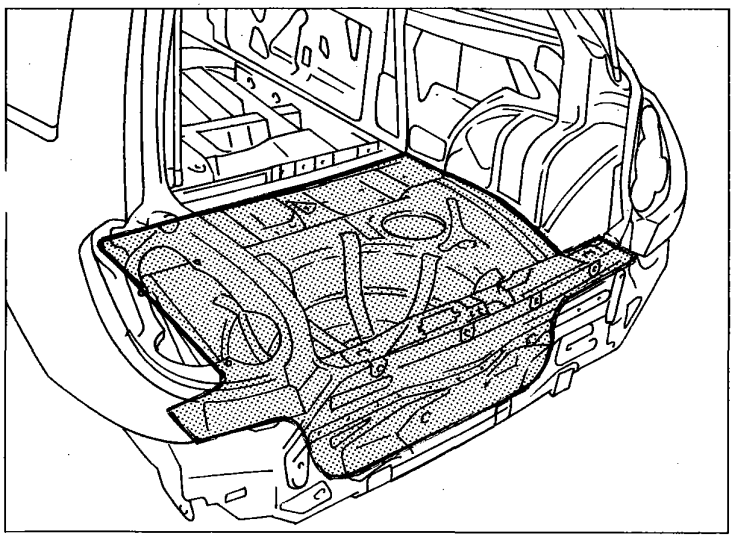
GRAPHIC INDEX

replacement operation	Reference in Manual
Partial front panel  P4A146M01	Replacing structural body panels page 147
Rear floor complete with side members  P4A146M02	Replacing structural body panels page 152

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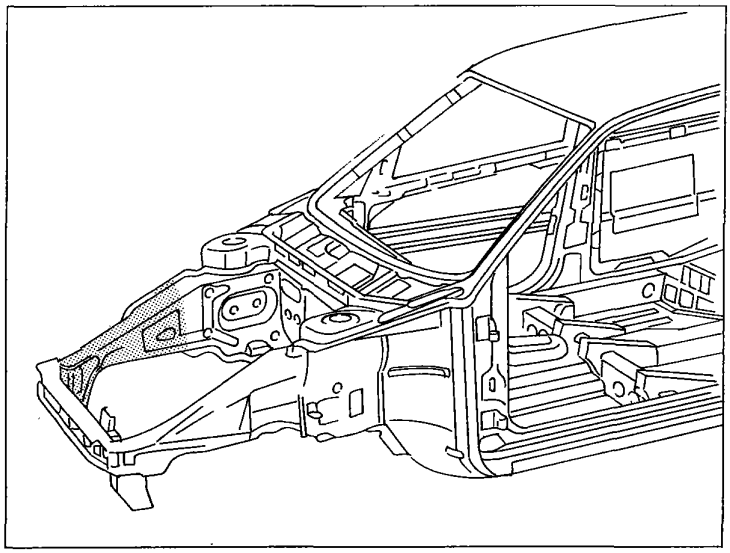


P4A146M01

PARTIAL REPLACEMENT OF FRONT PANEL

The component for which the replacement procedure is given is highlighted in the diagram at the side.

Preliminary procedures and safety regulations

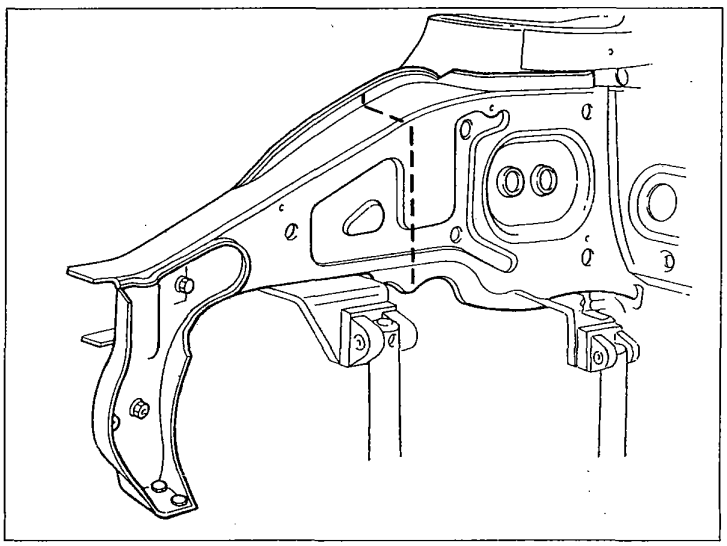
- Stick to what has been described previously for the other components.

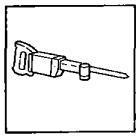
Preliminary dismantling

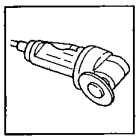
- Remove the front cross member (see: "Replacing body panels - Replacing front cross member)

Removing

- Cut the part to be replaced and remove it from the vehicle.







P4A147M01

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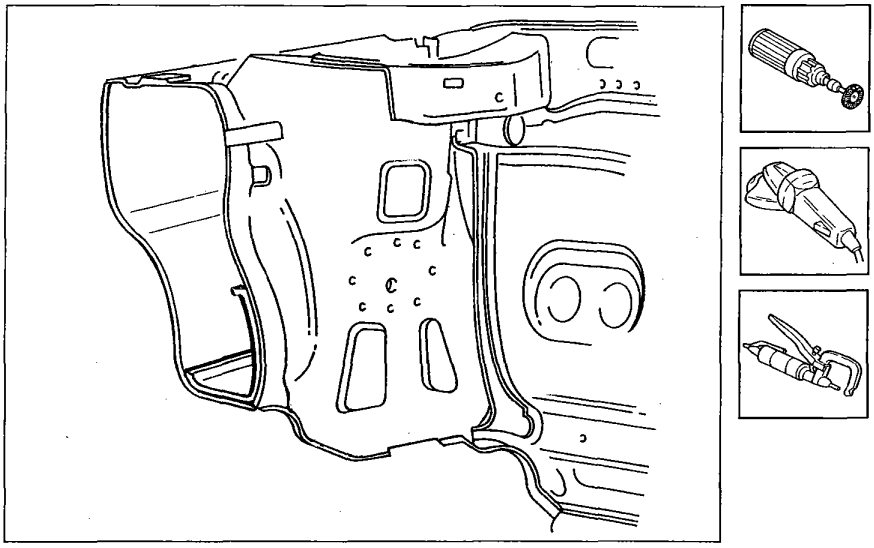
70.

Removing off cuts and preparing edges of bodyshell

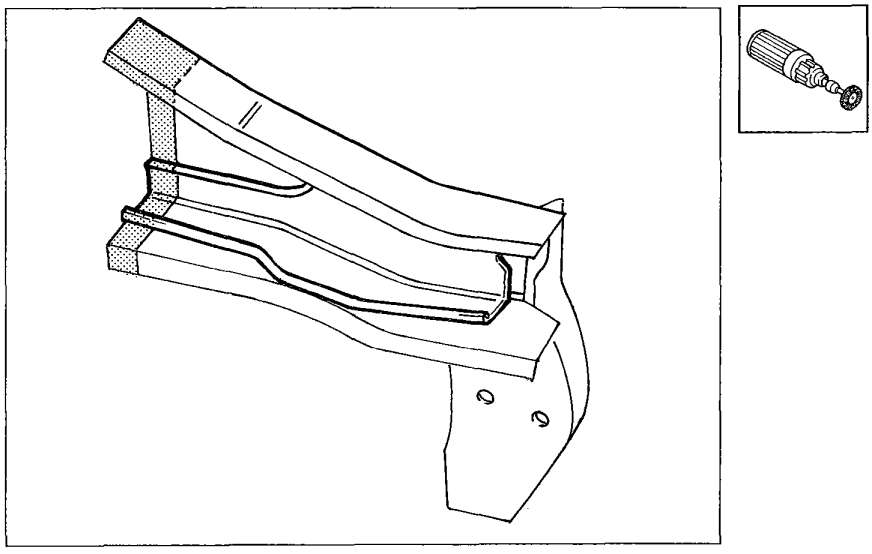
1. Straighten any distortions to the bodyshell.



P4A148M01

Preparing the spare part

1. Remove the excess from the replacement part so that it is about 20 mm longer than the part previously removed from the vehicle.



P4A148M02

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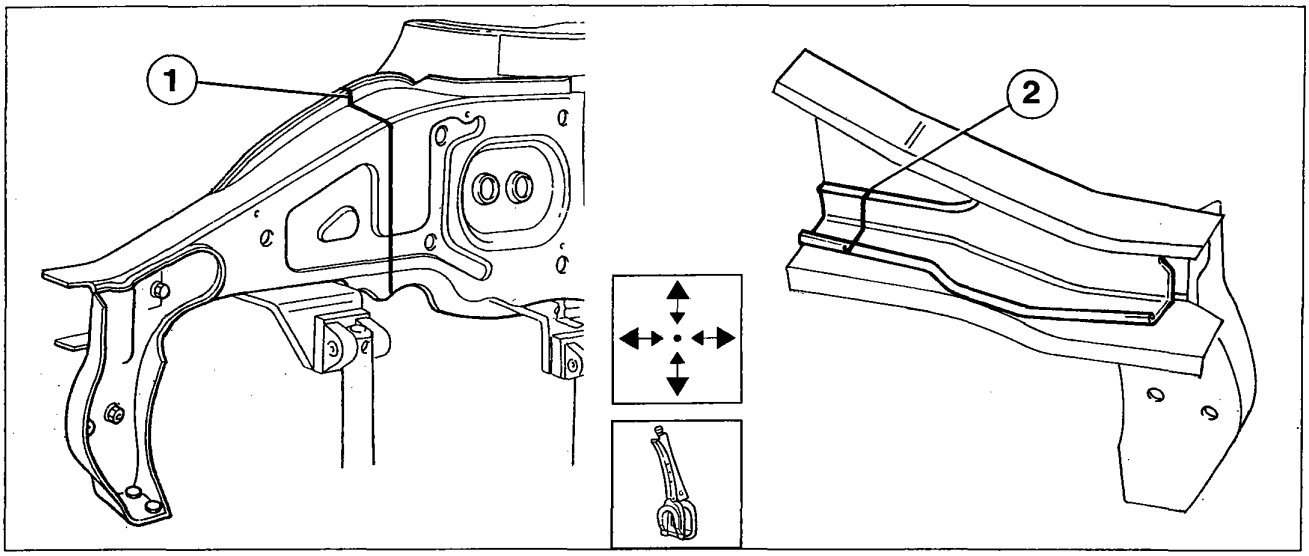
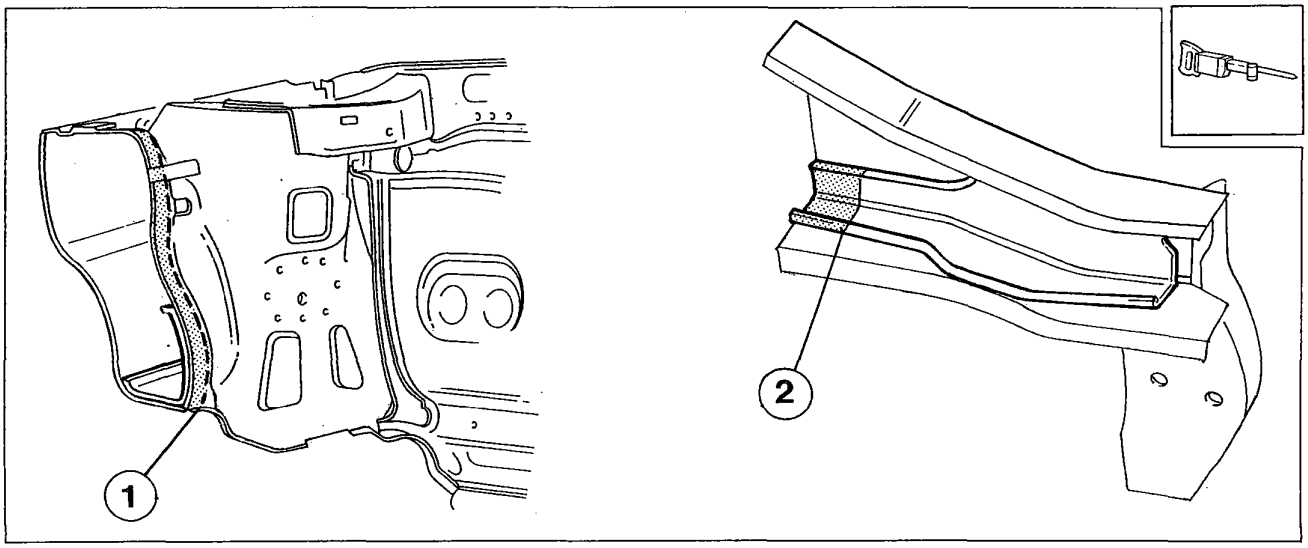
Positioning the replacement part

1. Position the replacement part on the vehicle and on the template and, after having checked that it is perfectly superimposed, mark the parts to be removed on the vehicle (1) and on the replacement reinforcement (2).



P4A149M01

2. Remove the part previously marked with the cutting line (1) from the bodyshell, taking care not to damage the internal reinforcement.
3. Remove the section of the reinforcement marked previously with the cutting line (2) from the replacement part.



P4A149M02

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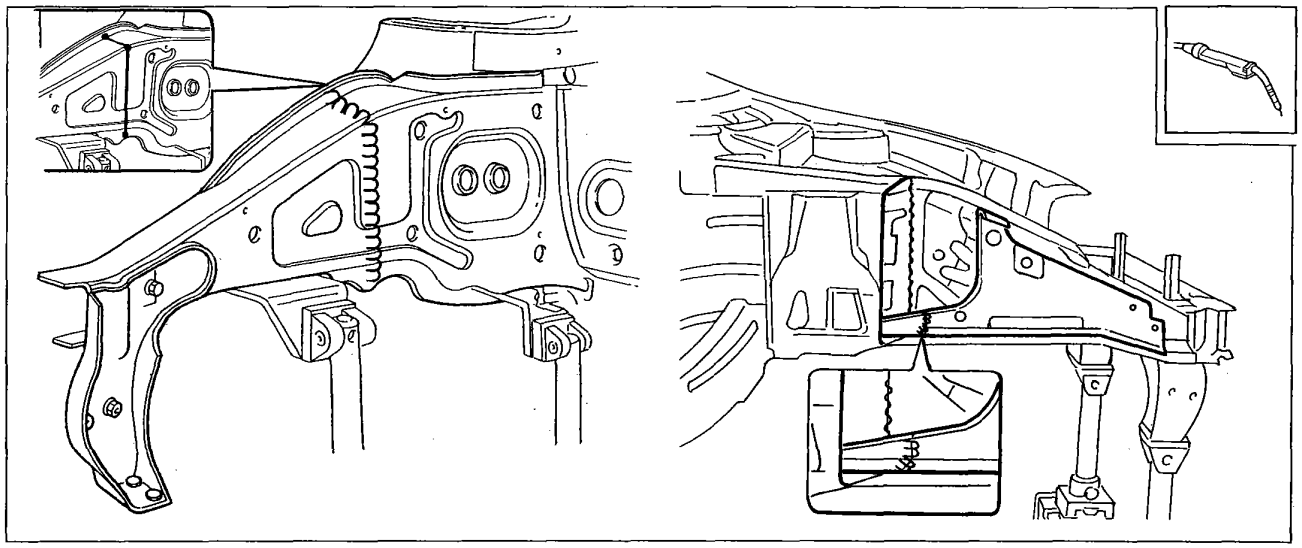
Welding the spare part

1. Reposition the replacement part on the vehicle and on the template, check that it is perfectly aligned and then weld the panel and then the reinforcement.

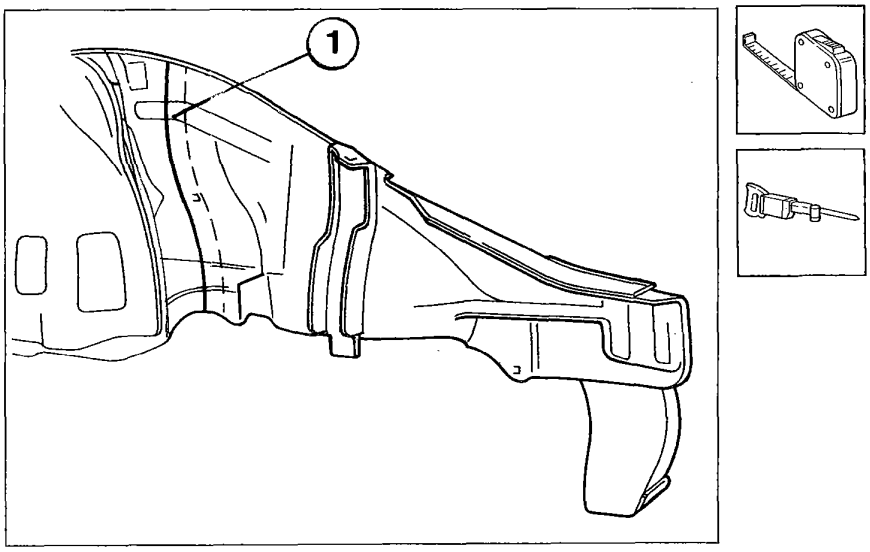


P4A150M01

UUUUUUU Continuous MIG welding

Preparing and positioning the replacement part

1. Remove the excess from the replacement part so that it is about 20 mm longer than the part previously removed from the vehicle.
2. Position on the template and on the vehicle marking it on the vehicle with the cutting line (1).
3. Remove the area previously marked by the cutting line (1) from the vehicle.



P4A150M02

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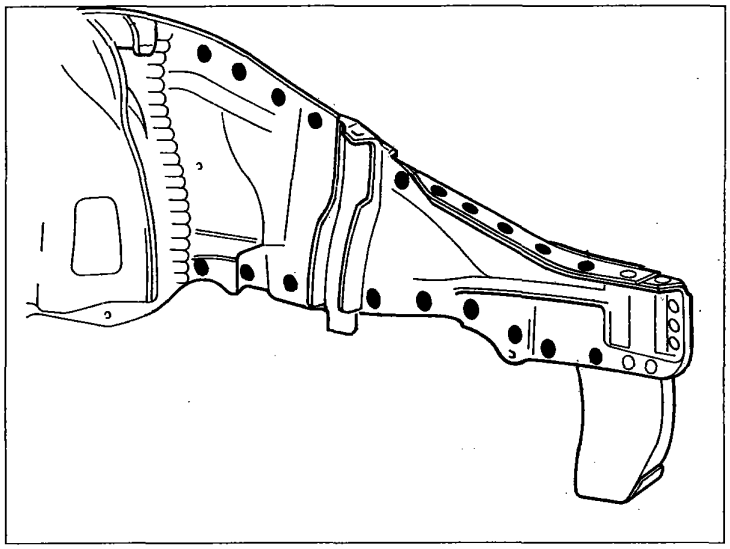
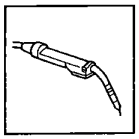
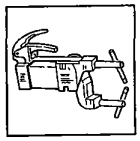
Welding the outer panel replacement part

1. Reposition the replacement part on the template and on the bodyshell, align it correctly, then weld it as illustrated in the diagram.

Carry out the three welds illustrated so that they are not positioned along the same line and are therefore offset to one another (see page 59 in this manual).





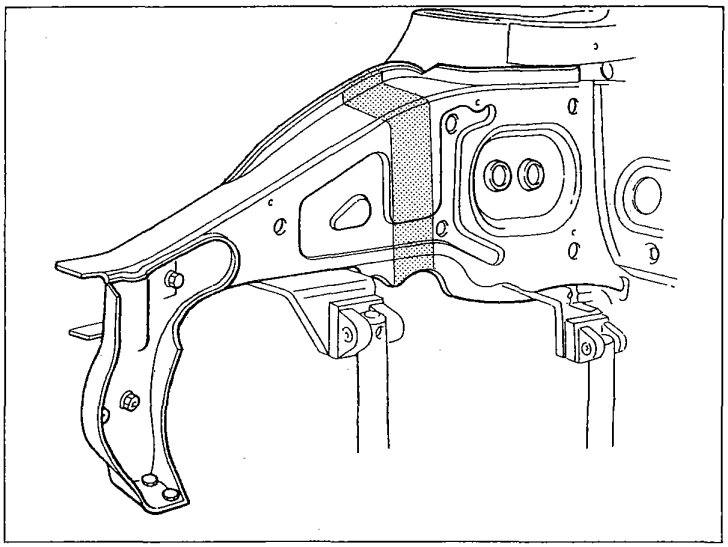


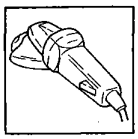
UUUUUUU Continuous MIG welding
••••• Spot welding

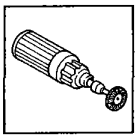
P4A151M01

Finishing operations

1. Remove and smooth out the weld residues.







P4A151M02

Proceed with fitting the front cross member (see: "Replacing front cross member")

Protections

Refer to what has been described previously for the other components.

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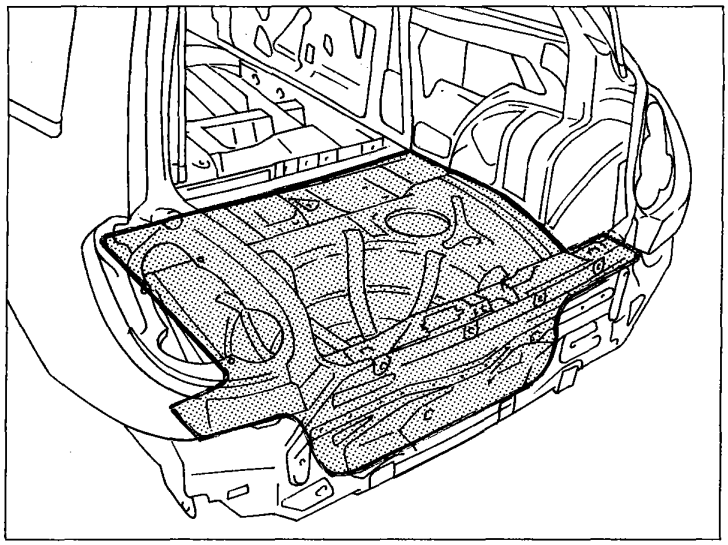


P4A146M02

PARTIAL REPLACEMENT OF REAR FLOOR

The component for which the replacement procedure is given is highlighted in the diagram at the side.

Preliminary procedures and safety regulations

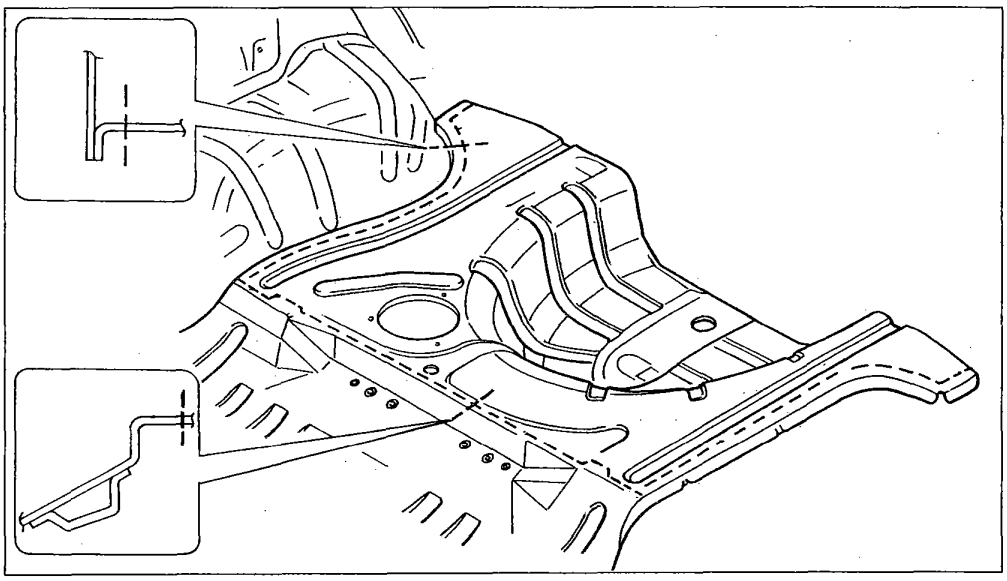
- Refer to the previous description for the other components.

Preliminary dismantling

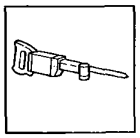
- Remove the rear cross member (see: "Replacing body panels - Replacing rear cross member)

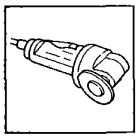
Removing

- Using a power saw, cut along the dotted lines shown below.



P4A152M01





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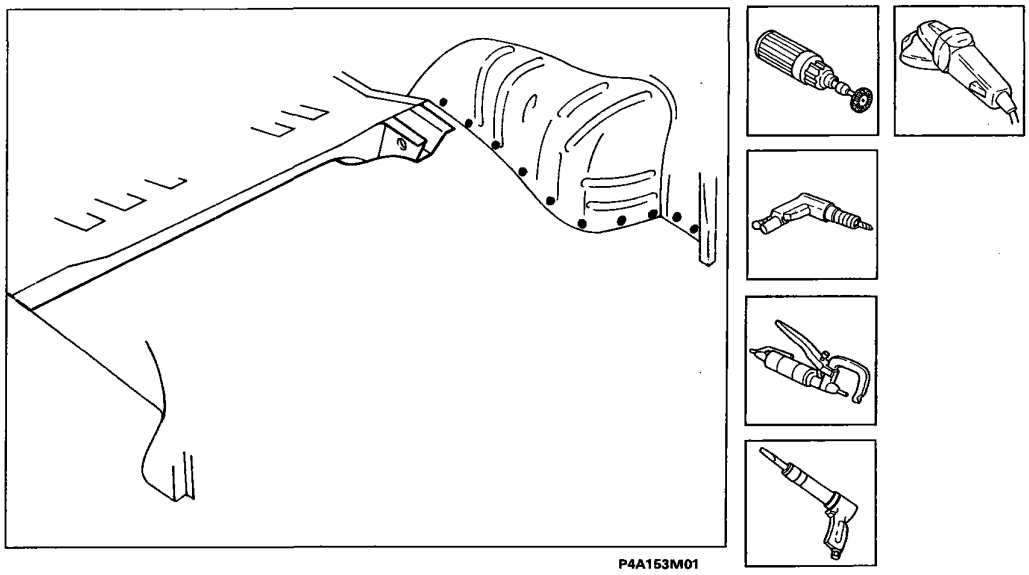
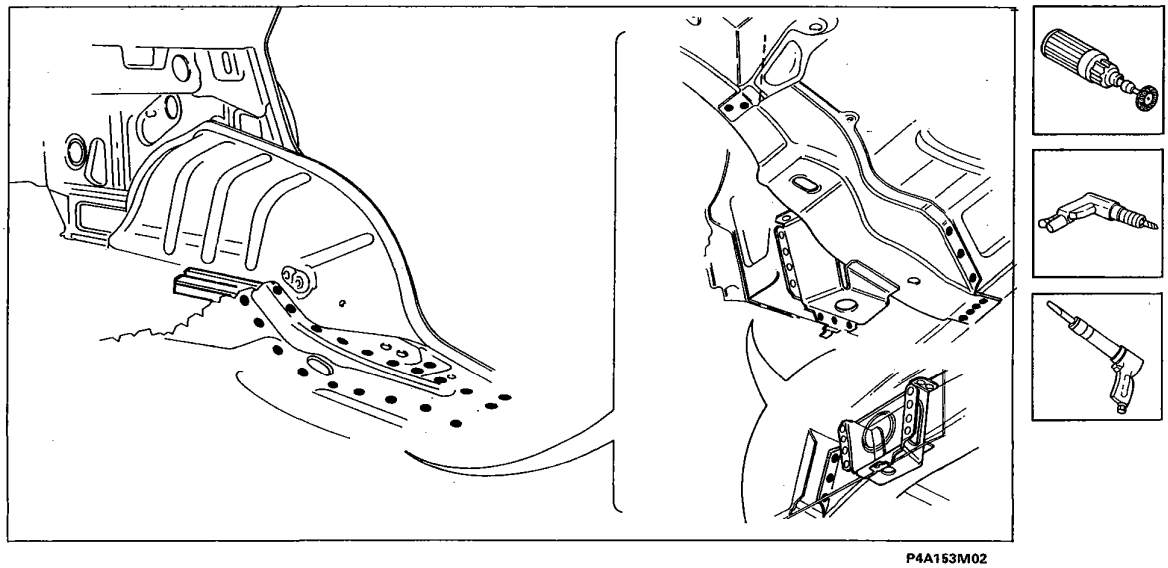
Removing the off cuts, preparing the edges of the bodyshell

1. Remove the weld points along the wheel arches.



COMPLETE REPLACEMENT OF A SIDE MEMBER

1. Remove the lower and upper spot welds for the side member.
2. Open the tab and remove the side member off cuts.
3. Straighten the edges of the bodyshell.
4. Remove the weld residues.



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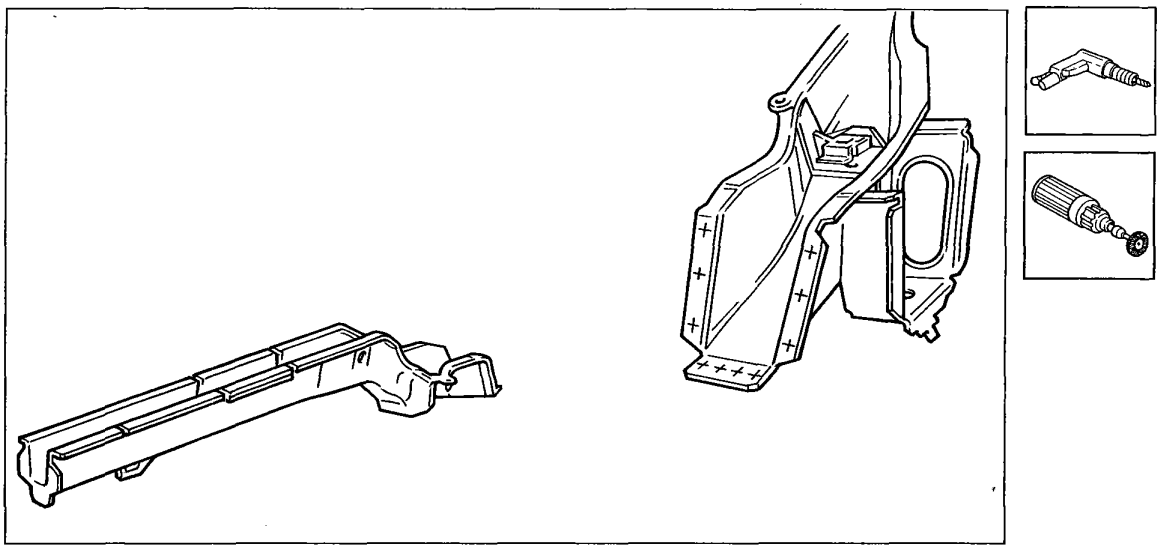
Preparing the spare part

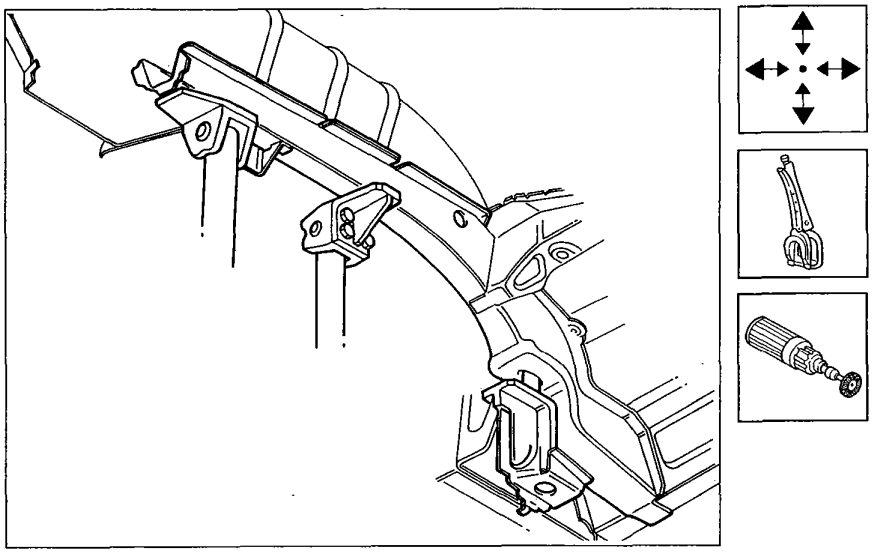
1. Trace and drill the new side member with a 5 mm point, as shown in the diagram.
2. Clean the areas affected by the welding.



P4A154M01

Positioning the replacement part

1. Correctly position the replacement part, using the templates; match and block the components to be welded, using pliers.



P4A154M02

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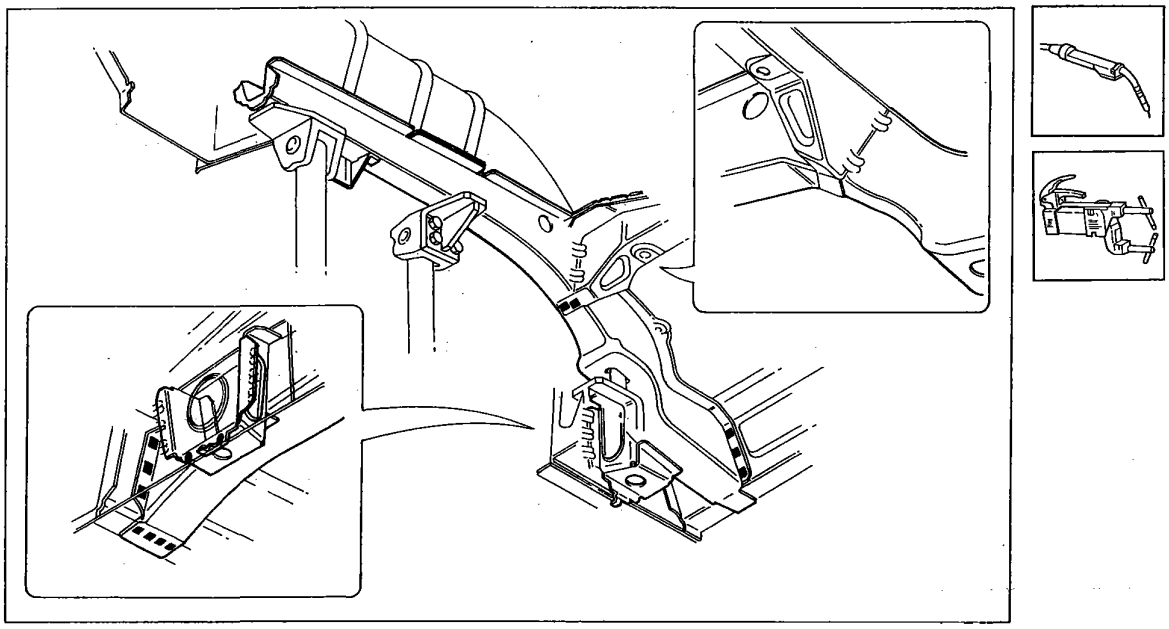
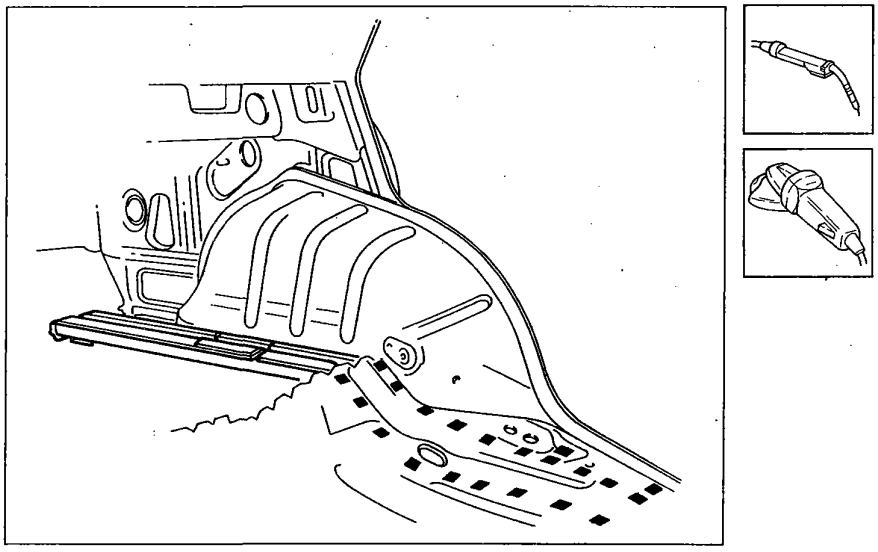
Welding the spare part

1. Carry out the specific welds as shown in the diagram.



P4A155M01

2. Carry out the welding for filling.
3. Remove and level the weld residues, using an abrasive grinder.



P4A155M02

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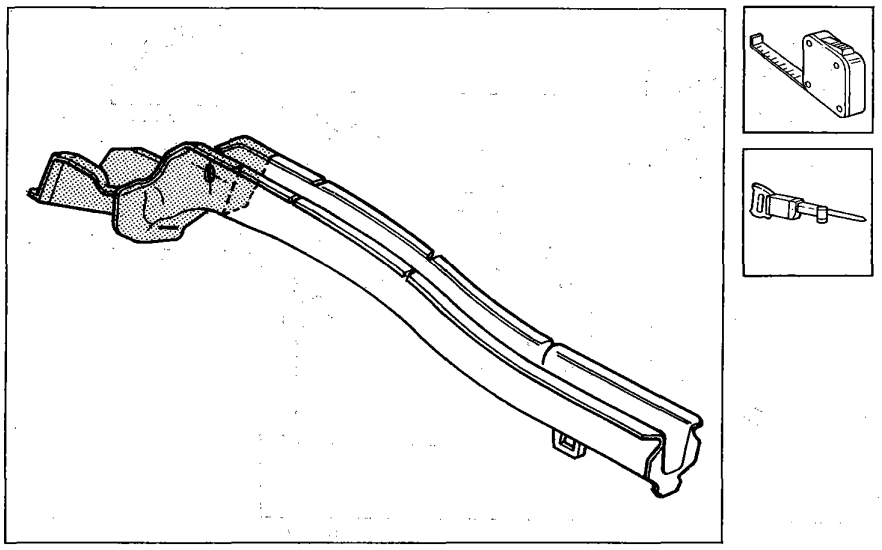
PARTIAL REPLACEMENT OF A SIDE MEMBER

Preparing the spare part

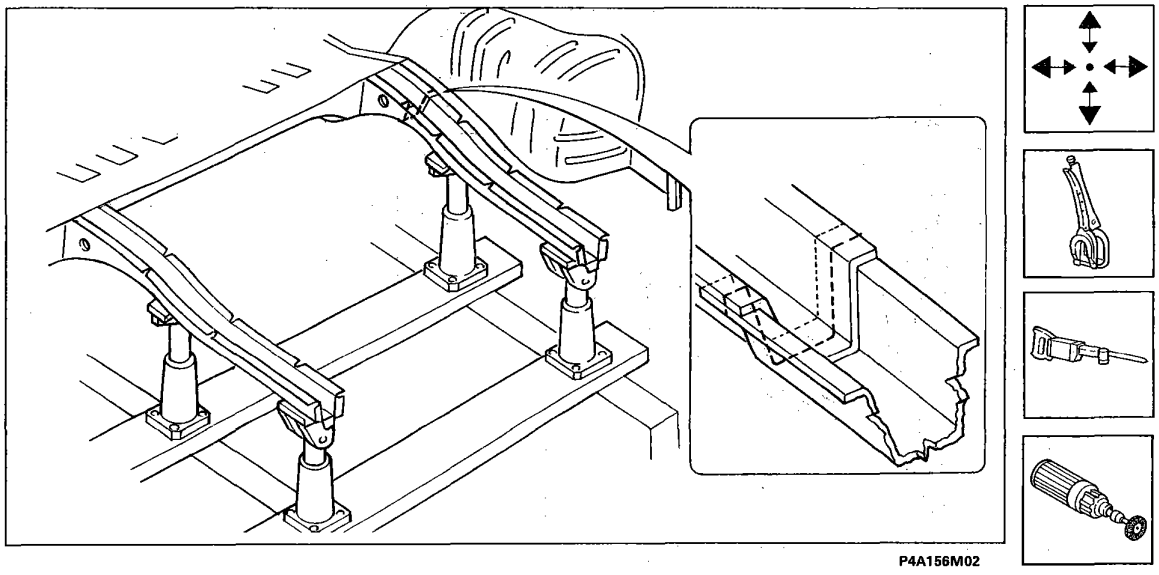
1. Remove the excess from the replacement part so that it is about 20 mm longer than the part removed from the vehicle.



P4A156M01

Positioning the replacement part

1. Correctly position the side member using the templates, superimpose it, lock it and trace the outline.
2. Trim it removing the excess parts.
3. Clean the areas affected by the welding.



P4A156M02

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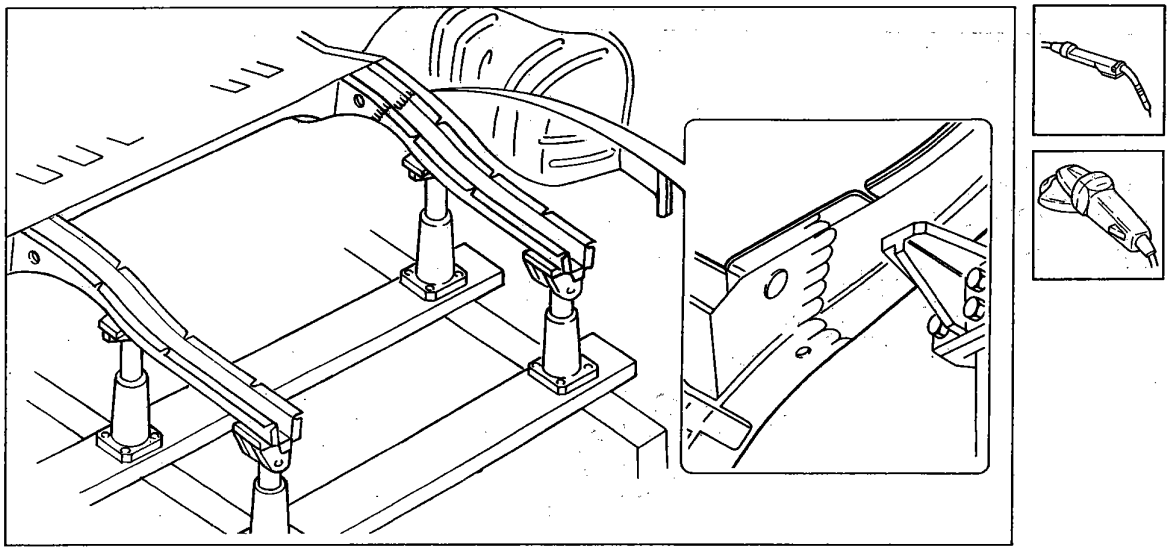
Welding the spare part and finishing off

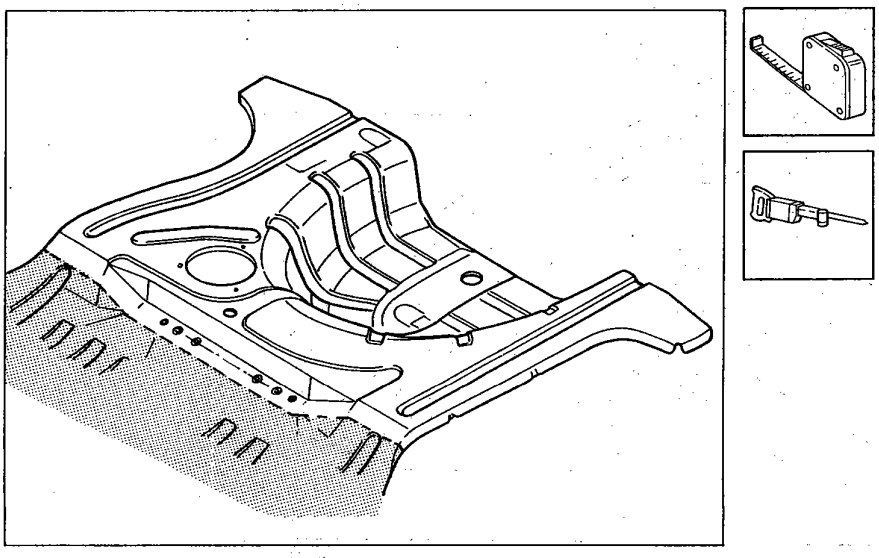
1. Proceed with the continuous MIG welding.
2. Remove and level the weld residues.



P4A157M01

Preparing the spare part

1. Remove the excess from the replacement part so that it is about 20 mm longer than the part removed from the vehicle.



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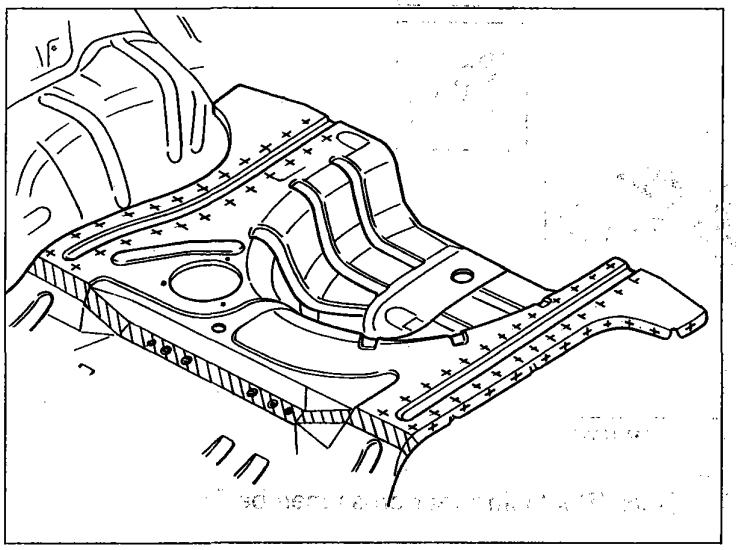
Positioning the replacement part

1. Place the rear floor in position.
2. Check that the panels are correctly superimposed in the join area.
3. Mark the part to be removed on the bodyshell.
4. Trace the points to be drilled along the contact area with the side members underneath and the wheel arches in order to be able to carry out the MIG welding for filling.
5. Remove the replacement part, remove the excess from the bodyshell and drill the spare part. Also drill the sides of the replacement part which will be subsequently welded to the wheel arches.



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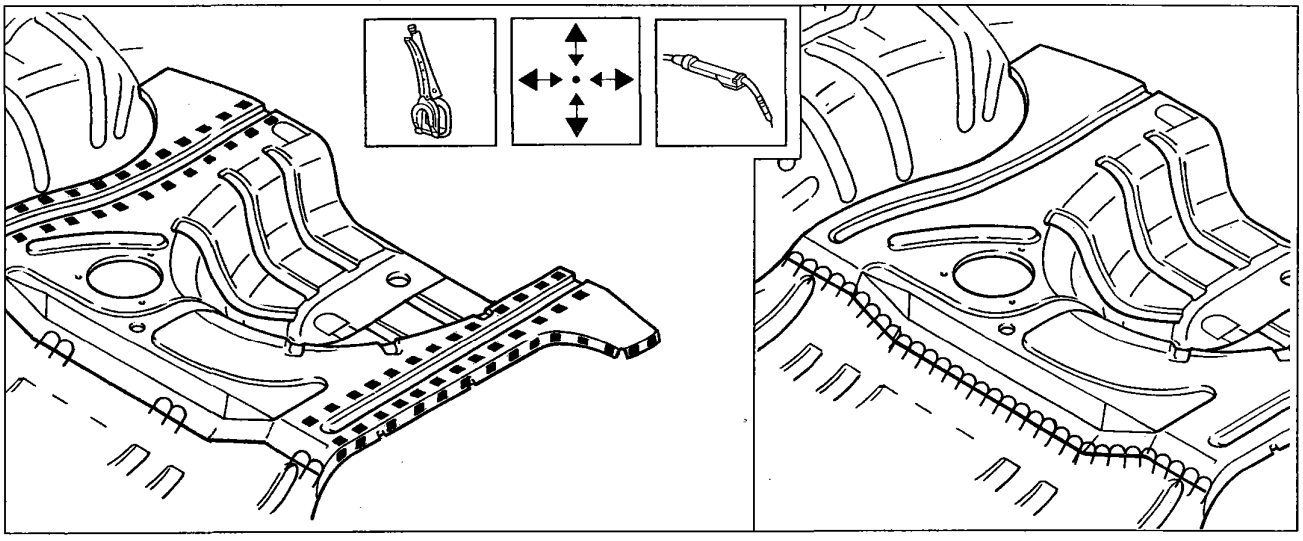
Welding the spare part

1. Correctly reposition the replacement part and lock it with clamps.
2. Fix the replacement part to the bodyshell tacking it to the parts to be welded, edge to edge.
3. Weld and fill the holes made previously in the replacement part.
4. Finish off the welding, edge to edge.



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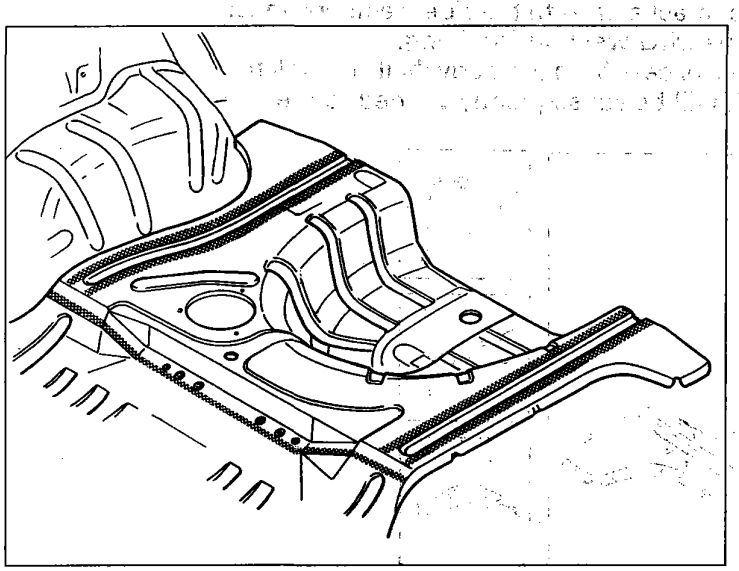
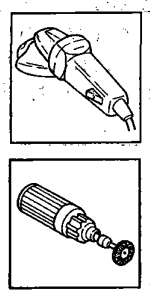
Finishing operations

1. Remove and level off the weld residues.





Proceed with refitting the rear cross member (see: "Replacing rear cross member")

Protections

Refer to to the previous description for the other components.

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