



SERVICE NOTES

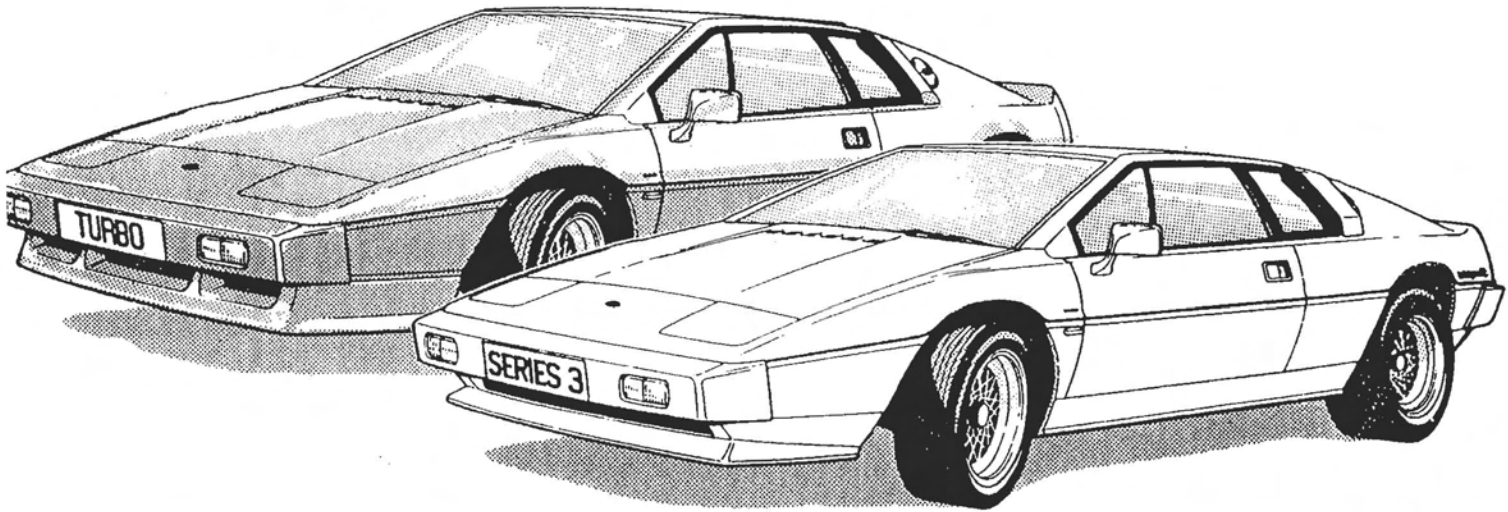
turbo + esprit esprit S3

1980 - 87 Model Years





turbo + esprit
esprit S3



SERVICE NOTES

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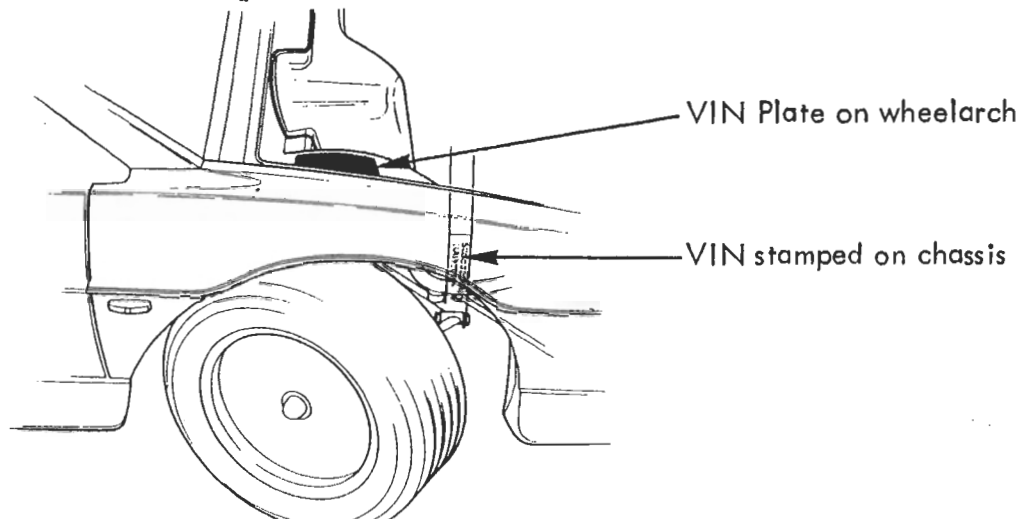
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CONTENTSTURBO ESPRIT & ESPRIT S3 (Prior '88 M.Y.)

<u>Subject</u>	<u>Section</u>
Vehicle Identification	See overleaf
Technical Data - Engine - Esprit S3	TDA
- Engine - Turbo	TDB
- Vehicle	TDD
Body - Paint Procedure	BA
- Bodycare & Repair	BB
- Body Fittings	BD
Front Suspension - Prior to '85 M.Y.	CB
- '85 M.Y. onwards	CC
Rear Suspension	DB
Engine	EB
Engine Management - USA Turbo, carburettor (Prior to '86 M.Y.)	EMA
- Turbo HC, Dom/Exp '87 M.Y. onwards	EMC
- Esprit HC, '87 M.Y. onwards	EMD
Transmission	FB
Steering	HB
Brakes - Prior to '85 M.Y.	JB
- '85 M.Y. onwards	JC
Cooling System	KB
Fuel System - Esprit S3	LA
- Turbo, Dom/Export	LB
- USA Turbo, Carburettor	LC
- USA Turbo, Fuel Injection (Bosch K Jetronic)	LD
Electrical - Esprit S3 & Turbo, Dom/Export	MB
- USA Turbo, Prior '86 M.Y.	MC
- USA Turbo, '86 M.Y. onwards	ME
Maintenance & Lubrication - Esprit S3 & Turbo, Dom/Export	OB
- USA Turbo	OC
Heater & Air Conditioning	PB
Clutch	QB
Interior Trim	VB

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) is stamped on a plate fixed to the right or left hand front wheelarch inside the front luggage compartment. This number is repeated on the right hand side of the chassis front frame, visible from within the right hand front wheelarch.



This number, together with the engine number (see TDA or TDB) should be quoted in all enquiries regarding the vehicle.

There are two variations of the VIN, one being for Domestic and export markets other than for the USA, which complies with European Economic Community (EEC) directives, and one for the USA which complies with requirements laid down by the National Highway Traffic Safety Association (NHTSA).

The seventeen characters of the VIN are coded as follows:

NOTES

1. USA VIN character 6:

501 = Basic Elite	521 = Basic Eclat	701 = Basic Esprit
502 = Elite A/C	522 = Eclat A/C	702 = Esprit A/C
503 = Elite A/C & PAS	523 = Eclat A/C & PAS	701 Comm = Esprit Commemorative
504 = Elite Auto	524 = Eclat Auto	702 Comm = Esprit Comm. A/C
A/C & PAS	A/C & PAS	

2. Separate serial number sequences are used for the following groups of chassis market (character 12);

D
A, E, G, H, S
B, C, F, K

3. For change point identification in Service Notes, Parts Lists and Service Bulletins, the following VIN characters ONLY will be quoted;

Domestic & Export - 5, 6, 12, 14 to 17
USA - 4, 12, 14 to 17

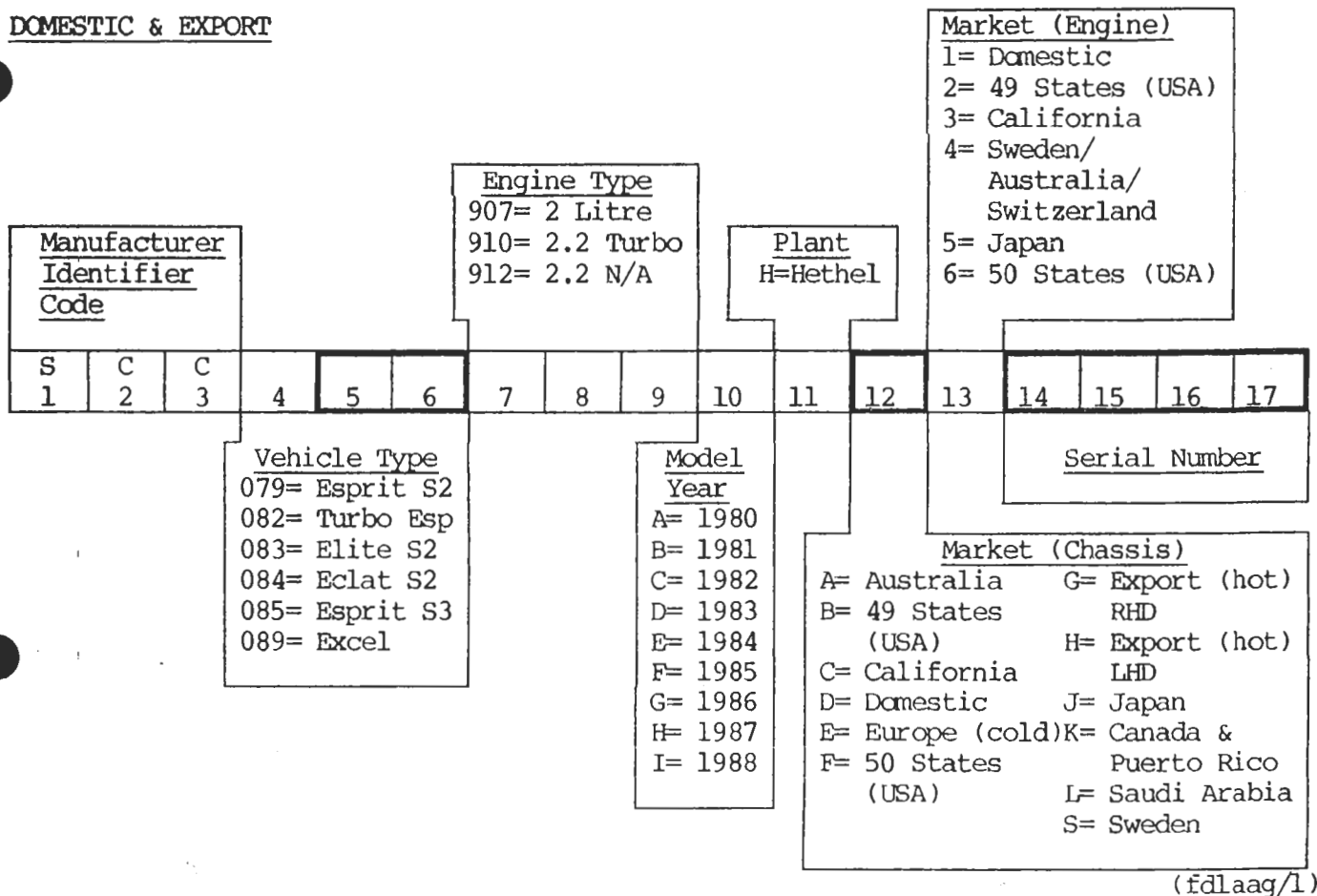
Example A typical change point could be listed as follows;

82 D 1100 (Domestic Turbo 1100)
82 A/E/G/H/S 0341 (Export Turbo 0341)
F B/C/F/K 0265 (USA Turbo 0265)

Note that three numbers are needed to identify the single change point due to the different serial number sequences outlined in note 2.

If a dash is used in place of the chassis market letter code (e.g. 82 - 0341 or F - 0265), this is the change point for all markets in that serial number sequence not otherwise listed.

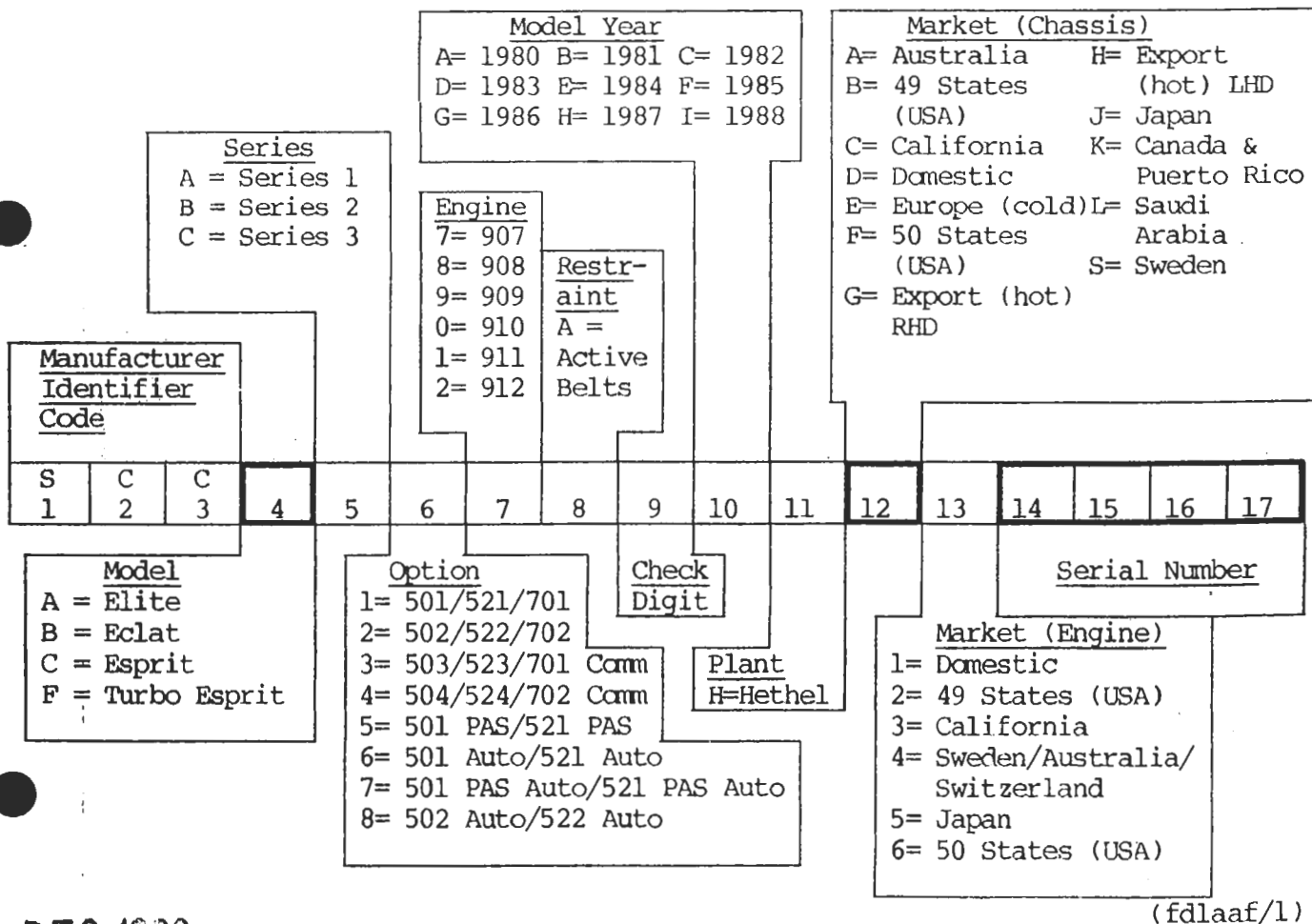
DOMESTIC & EXPORT



USA

(also Domestic & Export up to serial nos.;

Elite 1718 (Dom) 0236 (Exp), Eclat 1034 (Dom) 0205 (Exp), Esprit 0934 (Dom) 0307 (Exp))



TECHNICAL DATA**SECTION TD A - ENGINE TYPE 907/912**

	<u>Page</u>
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Engine Specification	4
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Gudgeon Pin	9
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Before commencing work on any Lotus engine, first check the engine number and prefix letters to establish the engine specification. This number is stamped on the right hand rear of the cylinder block, above the starter motor, and is duplicated on the vehicle identification plate fixed to either the right or left hand inner wheelarch under the front bonnet.

Example

D	C	907	76	06	12844
		<i>Basic engine build specification</i>	<i>Where applicable</i>	<i>Engine equipment variation</i>	<i>Engine type</i>
			<i>907-2 litre, 912-2.2 litre</i>	<i>Year of manufacture</i>	<i>Month of manufacture (01 to 12)</i>
					<i>Serial number</i>
					<i>(earlier engines only 4 digit)</i>

For the purpose of clarification in the TECHNICAL DATA SECTION ONLY, a specification number is allocated to various specifications as listed below. In some countries, prefix letters may differ from those listed, in which case reference should be made to the Lotus Distributor of that country for the relevant specification.

FIRST PREFIX LETTER	SECOND PREFIX LETTER	REMARKS	TECHNICAL DATA SECTION SPEC. NO.
(907) D - Domestic Std. G - Domestic A/C J - Domestic A/C & PAS	Single Prefix Letter Only.	1974	1
(907) F - U.S.A. Std. I - U.S.A. A/C K - U.S.A. A/C & PAS	Single Prefix Letter Only.	U.S.A. 1974	2

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FIRST PREFIX LETTER	SECOND PREFIX LETTER	REMARKS	TECHNICAL DATA SECTION SPEC. NO.
(907) X - Domestic Std. W - Domestic A/C Y - Domestic PAS L - Domestic A/C & PAS AML - Domestic A/C, PAS & Auto.	Single Prefix Letter Only.	1975	3
(907) P - U.S.A. Std. N - U.S.A. A/C Z - U.S.A. PAS M - U.S.A. A/C & PAS	Single Prefix Letter Only.	U.S.A. 1975	4
(907) C - Esprit D - Elite/Eclat	C - Std. D - A/C Z - PAS L - A/C & PAS R - Auto. S - Auto. & A/C T - Auto. & PAS M - Auto, A/C & PAS	EUROPEAN 1976 - '80	5
(907) A - Esprit B - Elite/Eclat	C,D,Z,L, R,S,T,M, as for Spec. 5	CALIFORNIA '76-'79 49-STATES '76-'77	6
(907) G - Elite/Eclat H - Esprit	C,D,Z,L, R,S,T,M, as for Spec. 5	49-STATES 1978-'80	7
(907) J - Esprit K - Elite/Eclat	C,D,Z,L, R,S,T,M, as for Spec. 5	1980 CALIFORNIA	8
(912) C - Esprit D - Elite/Eclat/Excel	C,D,Z,L, R,S,T,M, as for Spec. 5	EUROPEAN 1980 ONWARDS	9
(912) C - Esprit D - Excel	A - H.C. B - H.C. PAS N - H.C. PAS & A/C P - H.C. & A/C Y - H.C. PAS & A/C & Auto.	EUROPEAN HIGH COMPRESSION Excel 86 MY Option Esprit Feb. 1987	10

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ENGINE

Max. rpm of engine		7,000
No. of cylinders		4
Firing order		1,3,4,2
Capacity - type 907		1973cc (120.4 cu.in.)
- type 912		2174cc (132.8 cu.in.)
Stroke - type 907		69.2mm (2.72 in.)
- type 912		76.2mm (3.00 in.)
Bore (nominal)		95.29mm (3.75 in.)
Compression ratio	spec. 1,3,5	9.5 : 1
	spec. 2,4,6,7,8	8.4 : 1
	spec. 9	9.44 : 1
	spec. 10	10.9 : 1
Compression pressure	spec. 1,3,5,9	11.2 - 12.6 bar (165 - 185 lb/in ²)
	spec. 2,4,6,7,8	10.2 - 11.6 bar (150 - 170 lb/in ²)
	spec. 10	11.5 - 13.0 bar (170 - 190 lb/in ²)
Engine number location		On top of cylinder block adjacent to starter mounting
Engine belt tensions - Toothed timing belt, using Burroughs gauge part number T000T0025J, 90 - 95 units cold (60°F/20°C) See Section EA.8.		

Total movement using moderate finger pressure on longest belt run.	(-	Alternator 'V' belt	12 mm (0.5 in.)	(½ in.)
	(-	Compressor 'V' belt (A/C)	9 mm (0.35 in.)	(3/8 in.)
	(-	Power steering pump 'V' belt	12 mm (0.5 in.)	(½ in.)
	(

CYLINDER HEAD

Material	Aluminium alloy
Gasket	Steel / Asbestos
Combustion Chamber Depth (nos. 1 & 4)	12.32-12.57mm(0.485-0.500 in)

CAMSHAFTS AND VALVE TIMING

Cam Type Designation		Identif. on shank between pulley & cam hsg.	Duration (crank degrees)		Inlet M.O.P. ATDC*	Cam Pulley Timing Dot	Exhaust M.O.P. BTDC*	Cam Pulley Timing Dot
Spec.No.				Lift				
1	D	1 groove	270°	0.350"	110°	red	110°	red
2,3,7	C	plain	272°	0.340"	110°	red	110°	red
4,6	C	plain	272°	0.340"	100°	blue	110°	red
5	E	2 groove	260°	0.344"	102½°	yellow	102½°	yellow
8	C	plain	272°	0.340"	102½°	yellow	110°	red
9,10(EX)	107	777....	252°	0.378"	104°	green	104°	green
10(IN)	104	444....	272°	0.410"	104°	green	104°	green

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* All cams are symmetrical opening closing

VALVES

Angle of valve seats and faces

45°

Head diameter - Inlet

35.47 - 35.65 mm (1.396 - 1.404 in.)

- Exhaust

30.73 - 30.91 mm (1.210 - 1.217 in.)

Stem diameter - Inlet & Exhaust

7.125 - 7.137 mm (0.2805 - 0.2810 in.)

Stem clearance in guide - Inlet & exhaust

0.008 - 0.046 mm (0.0003 - 0.0018 in.)

Valve clearance (cold)

Spec. 1. ('D' Cams) - Inlet

0.10 - 0.15 mm (0.004 - 0.006 in.)

- Exhaust

0.20 - 0.25 mm (0.008 - 0.010 in.)

Spec 2,3,4,5,6,7,8,9,10 - Inlet

0.13 - 0.18 mm (0.005 - 0.007 in.)

- Exhaust

0.25 - 0.31 mm (0.010 - 0.012 in.)

Valve Seat Inserts

Bore in head:

Standard

- Inlet

37.235/37.260 mm. (1.466/1.467 in.)

- Exhaust

34.290/34.315 mm. (1.350/1.351 in.)

Valve seat insert bore (cont.)

± 0.025 mm (0.001 in)	- Inlet	37.260/37.285 mm. (1.467/1.468 in.)
	- Exhaust	34.315/34.340 mm. (1.351/1.352 in.)
± 0.050 mm (0.002 in)	- Inlet	37.285/37.315 mm. (1.468/1.469 in.)
	- Exhaust	34.340/34.365 mm. (1.352/1.353 in.)
± 0.127 mm (0.005 in)	- Inlet	37.365/37.390 mm. (1.471/1.472 in.)
	- Exhaust	34.415/34.440 mm. (1.355/1.356 in.)

Outside diameter of seat

Standard	- Inlet	37.325/37.350 mm. (1.4695/1.4705 in.)
	- Exhaust	34.380/34.405 mm. (1.3535/1.3545 in.)
± 0.025 mm (0.001 in)	- Inlet	37.350/37.375 mm. (1.4705/1.4715 in.)
	- Exhaust	34.405/34.430 mm. (1.1345/1.3555 in.)
± 0.050 mm (0.002 in)	- Inlet	37.375/37.400 mm. (1.4715/1.4725 in.)
	- Exhaust	34.430/34.455 mm. (1.3555/1.3565 in.)
± 0.127 mm (0.005 in)	- Inlet	37.450/37.475 mm..(1.4745/1.4755 in.)
	- Exhaust	34.505/34.530 mm. (1.3585/1.3595 in.)

Valve Springs

Type

Dual

Type	Free Length		Rate	
	Inner	Outer	Inner	Outer
All 907 engines plus 912 up to eng. no. 18104	37.5 mm (1.48 in)	46.9 mm (1.85 in)	10.7 kg/cm (60 lb/in)	22.4 kg/cm (126 lb/in)
912 engines 18105 on	42.2 mm (1.66 in)	48.5 mm (1.91 in)	11.0 kg/cm (61.5 lb/in)	22.5 kg/cm (126 lb/in)

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Valve Guides

Length - Inlet

53.34 mm. (2.100 in.)

- Exhaust

53.34 mm. (2.100 in.)

Internal diameter (to ream after fitting)

7.145 - 7.170 mm. (0.2813 - 0.2823 in.)

Bore in head - Inlet and Exhaust

Standard

11.915 - 11.925 mm. (0.4690 - 0.4695 in.)

+ 0.025 mm. (0.001 in.)

11.940 - 11.950 mm. (0.4700 - 0.4705 in.)

+ 0.050 mm. (0.002 in.)

11.965 - 11.975 mm. (0.4710 - 0.4715 in.)

+ 0.127 mm. (0.005 in.)

12.040 - 12.050 mm. (0.4740 - 0.4745 in.)

Outside diameter of guide

Standard

11.940 - 11.950 mm. (0.4700 - 0.4705 in.)

+ 0.025 mm. (0.001 in.)

11.965 - 11.975 mm. (0.4710 - 0.4715 in.)

+ 0.050 mm. (0.002 in.)

11.990 - 12.000 mm. (0.4720 - 0.4725 in.)

+ 0.127 mm. (0.005 in.)

12.065 - 12.080 mm. (0.4750 - 0.4755 in.)

Camshafts

End float - Dimension

0.03 - 0.20 mm. (0.001 - 0.008 in.)

- Controlled by

Selective thrust washers

Running clearance (except front)

0.050 - 0.090 mm (0.0020 - 0.0035 in.)

(front only)

0.075 - 0.115 mm (0.0030 - 0.0040 in)

Cam Followers

Bore in camshaft housings

34.925 - 34.940 mm. (1.3750 - 1.3756 in.)

Outside diameter

34.904 - 34.912 mm. (1.3742 - 1.3745 in.)

Auxiliary Shaft

Running clearance

0.025 - 0.065 mm. (0.0009 - 0.0025 in.)

End float

0.013 - 0.038 mm. (0.0005 - 0.0015 in.)

Crankshaft

Balance (inc. flywheel and clutch)	Within 15 gr.cm. (0.2 oz.in.)
Diameter - Main journal (No.1. to 4 inc.)	63.487 - 63.513 mm. (2.4995 - 2.5005 in.)
- Main journal (No. 5 only)	63.500 - 63.513 mm. (2.5000 - 2.5005 in.)
- Crankpin	50.736 - 50.762 mm. (1.9975 - 1.9985 in.)
End float - Dimension	0.08 - 0.20 mm. (0.003 - 0.008 in.)
- Max wear limit	0.30 mm. (0.012 in.)
- Controlled by	Selective thrust washers on rear main bearing
Bearings (main) - Number	5
- Type	Steel backed, leaded bronze
- Static clearance*	0.013 - 0.056 mm. (0.0005 - 0.0022 in.)
Max. undersize for regrind	0.508 mm. (0.0200 in.)

* Bearing clearance is measured with Plastigage.

MAIN BEARING SHELL CONFIGURATION

ENGINE TYPE		MAIN BEARING NUMBER				
		FRONT 1	2	CENTRE 3	4	REAR 5
07 Elite/Eclat 07 Esprit with ION X-drilled crank	UPPER	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole
	LOWER	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole
07 Esprit with X-drilled crank 012 Esprit	UPPER	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole	Groove/Hole
	LOWER	Plain	Plain	Plain	Plain	Plain
012 Elite/Eclat 012 Excel with ION X-drilled crank	UPPER	Groove/Hole	Groove/Hole	Plain/Hole	Groove/Hole	Groove/Hole
	LOWER	Groove/Hole	Groove/Hole	Plain	Groove/Hole	Groove/Hole
012 Excel with X-drilled crank 012 Esprit HC	UPPER	Groove/Hole	Groove/Hole	Plain/Hole	Groove/Hole	Groove/Hole
	LOWER	Plain	Plain	Plain	Plain	Plain

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Flywheel (fixed)

Max run out (lateral)	0.10 mm. (0.004 in.)
Starter ring gear - run out - lateral	0.41 mm. (0.016 in.)
- radial	0.15 mm. (0.006 in.)

Flexplate Flywheel

Max. run out (radial)	0.18 mm. (0.007 in.)
Max. run out (lateral) at clutch face	0.13 mm. (0.005 in.)

Connecting Rod

Type	'I' section
Material	Steel forging
Distance between centres	139.70 mm. (5.500 in.) + 0.25 mm. (0.001 in.)
Bearings (big end) - Type	Steel backed, leaded bronze
- Static clearance *	0.025 - 0.081 mm. (0.0010 - 0.0032 in.)
- End float on crankpin	0.10 - 0.25 mm. (0.004 - 0.010 in.)
Small end bore (bushed)	25.405/25.410 mm. (1.0002 - 1.0004 in.)
Permissible weight variation between rods	2 grammes (in any set)
* Bearing clearance is measured with Plastigage	

Gudgeon (Piston) Pin

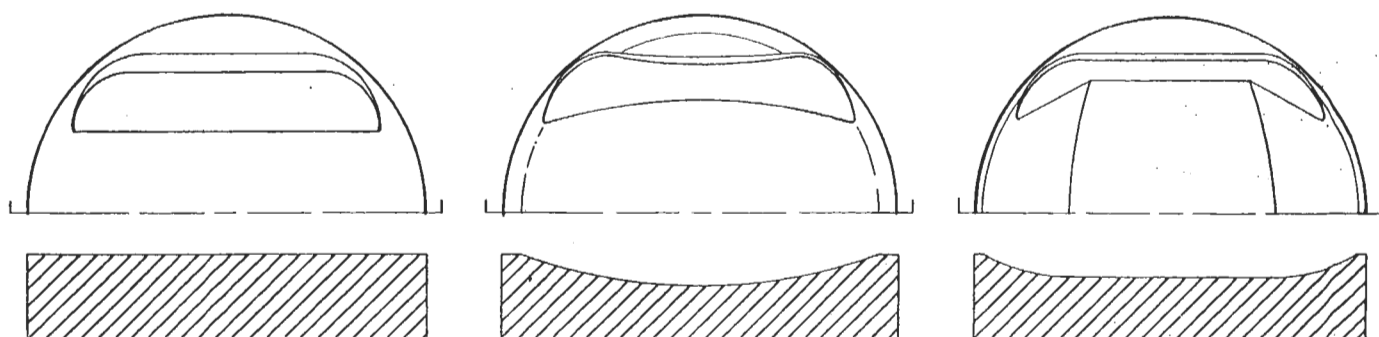
Type	Fully floating
Location	Circlips
Diameter	25.40 mm. (1.00 in.)
Class of fit	Finger push fit at 20°C (68° F)

Piston and Liner

Piston - Type	Solid skirt
- Material	Die-cast aluminium alloy
- 907/912	Forged aluminium alloy
- 912 HC	

Piston - (Cont.)

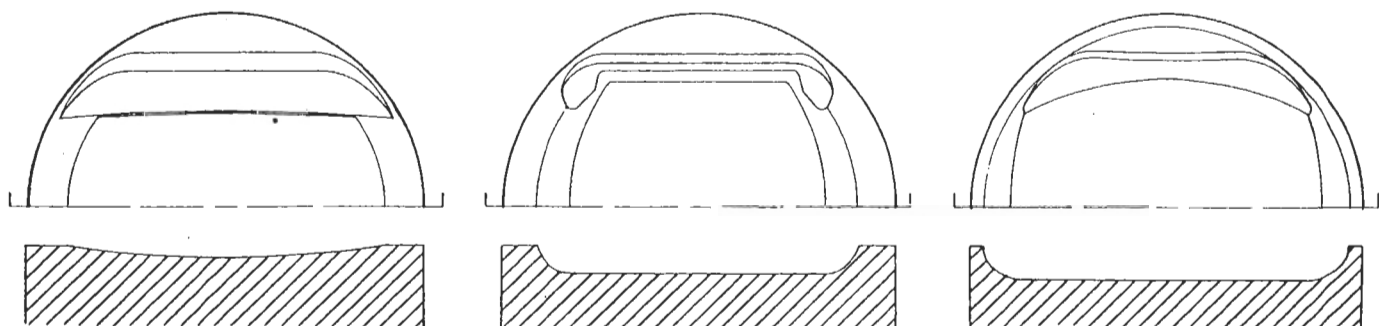
Identification



2.0 LITRE 907
95:1CR.

2.0 LITRE 907
84:1CR.

2.2 LITRE 912
944:1CR.



2.2 LITRE 912
10.9:1CR.

2.2 LITRE 910
75:1CR.

2.2 LITRE 910
8.0:1CR.

- Rings 2 compression, 1 oil control
- Diameter
 - 907 - grade 'A' 95.166/95.179 mm (3.7467/3.7472 in)
 - 907 - grade 'B' 95.179/95.192 mm (3.7472/3.7477 in)
 - 912 Std - grade 'A' 95.148/95.161 mm (3.7460/3.7465 in)
 - 912 Std - grade 'B' 95.161/95.174 mm (3.7465/3.7470 in)
 - 912 HC - grade 'A' 95.205/95.219 mm (3.7482/3.7488 in)
 - 912 HC - grade 'B' 95.217/95.231 mm (3.7487/3.7493 in)
- Grade diameter - 907/912 Std 15 mm (0.6 in) up from skirt edge } 90° to
 - 912 HC 10.2mm (0.4 in) up from skirt edge } pin axis
- Gudgeon pin bore offset 907/912 Std 1.52 mm (0.060 in) towards thrust face
 912 HC 1.50 mm (0.059 in) towards thrust face
- Permissible weight variation
 - between pistons 907/912 Std 3.5 grammes
 - 912 HC 3.0 grammes
- Ring gap 907/912 Std - top 0.38/0.51 mm (0.015/0.020 in)
 - second 0.48/0.61 mm (0.019/0.024 in)
 - scraper (rails) 0.38/1.14 mm (0.015/0.045 in)
- 912 HC
 - top & second 0.40/0.65 mm (0.016/0.026 in)
 - oil control 0.30/0.60 mm (0.012/0.024 in)

Piston (cont.)

-Piston ring to groove clearance

907/912 Std	- Compression	0.038/0.089 mm (0.0015/0.0035 in)
	- Oil control	0.038/0.064 mm (0.0015/0.0025 in)
912 HC	- Compression	0.040/0.072 mm (0.0016/0.0028 in)
	- Oil control	0.020/0.052 mm (0.0008/0.0020 in)

Cylinder Liner

- Type Wet, slip fit

- Material - 907/912 Std Cast Iron

- 912 HC Nikasil coated, forged aluminium alloy

- Internal diameter

907/912 Std	Measured 50mm from top across thrust axis
Grade 'A'	95.275/95.288 mm (3.7510/3.7515 in)
Grade 'B'	95.288/95.308 mm (3.7515/3.7520 in)
912 HC	Measured 70mm from top across thrust axis
Grade 'A'	95.255/95.269 mm (3.7502/3.7507 in)
Grade 'B'	95.267/95.281 mm (3.7507/3.7512 in)

- Fitted height above block - 907/912 Std ('nip')

0.10/0.15 mm (0.004/0.006 in) ×
up to engine number 124770.025/0.13 mm (0.001/0.005 in) 001/003
from engine number 12478

- 912 HC

minus 0.025 to + 0.050mm
(minus 0.001 to + 0.002 in)

- Permissible variation between liners

0.03 mm (0.001 in) ✓

- Piston clearance in cylinder liner 907

0.10/0.13mm (0.004/0.005 in)

912 Std 0.11/0.15mm (0.005/0.006 in)

912 HC 0.05/0.08mm (0.002/0.003 in)

Lubrication System

Oil pressure under normal running condition (hot)

- Not below 5 lb/sq.in. (0.35 kg./sq.cm.) at idle speed
- Not below 35 lb/sq.in. (2.5 kg./sq.cm.) at 3,500 rpm
- Not below 45 lb/sq.in. (3.2 kg./sq.cm.) at 6,500 rpm

Filter

Full-flow, disposable canister
type with anti-flow back valve)

Pump - type

Eccentric rotor

- Drive

Toothed belt

- Rotor/annulus tip clearance

0.05 - 0.15 mm (0.002 - 0.006 in)

- Annulus end float

0.03 - 0.08 mm (0.001 - 0.003 in)

- Rotor end float

0.06 - 0.09 mm (0.0025 - 0.0035 in)

- Annulus to housing clearance

0.18 - 0.30 mm (0.007 - 0.012 in)

APR 1987

Dipstick tube stand out from M.B.P.

119.5mm

FUEL SYSTEM

Dellorto Carburettors

Carburettor Type (2 off)
 Lotus Part No. (Front)
 (Rear)
 Tag No. (Front)
 (Rear)
 Paint Spot on 'Dellorto'
 Choke
 Main Jet
 Main Air Corrector Jet
 Main Emulsion Tube
 Idle Jet
 Idle Jet Holder
 Float Weight
 Float Setting Height (mm)
 Float Needle Valve
 Pump Jet
 Starter Jet
 Starter Emulsion Tube
 Power Jet
 Slow Running Speed (rpm)
 Idle CO Level (hot)

Spec 1	Spec 3	Spec 5	Elite) Eclat)man. Excel Std. Spec 9	Elite) Eclat)auto Esp.S3 Std Spec 9	Excel HC manual Spec 10	Excel HC auto Spec 10	Esprit S3 HC Spec 10
DHLA 45E B907E0789W B907E0790W - - - 38 mm 142 110 7772-5 55L 7850-1 10g 16.5-17.0 170 45 70 7482-1 - 900-1000 2.0-3.0%	DHLA 45E D907E0789W D907E0790W - - - 35 mm 130 110 7772-5 56 7850-6 10g 16.5-17.0 170 45 70 7482-1 - 900-1000 2.0-3.0%	DHLA 45E E907E0789F E907E0790W 5295A 5294P Green 36 mm 160 230 7772-8 50 7850-7 10g 16.5-17.0 170 38V 42H 70 7482-1 - 900-1000 2.0-3.0%	DHLA 45E A912E0789F A912E0790F 5324A 5323P Blue+Black 37 mm 160 230 7772-8 58 7850-9 8.5g 14.5-15.0 170 50H 95 7482-3 - 850-950 0.7-1.5%	DHLA 45E A912E0940J A912E0941J 5324A 5324P Blue 37 mm 160 230 7772-8 55 7850-9 8.5g 14.5-15.0 170 50H 95 7482-3 - 850-950 0.7-1.5%	DHLA 45D A912E9207F A912E9208F 5382A 5381P Black 37 mm 135 150 7772-8 55 7850-9 8.5g 14.5-15.0 170 45H 95(R/B 80) 7482-3 70 900-1000 0.5-1.5%	DHLA 45D A912E9226 A912E9227 5387A 5386P 37 mm 135 150 7772-8 55 7850-9 8.5g 14.5-15.0 170 33 80 7482-3 70 900-1000 0.5-1.5%	DHLA45D A912E2336F A912E2337F 5395A 5394P Black 37 mm 135 150 7772-8 56 7850-9 8.5g 14.5-15.0 170 45H 80 7482-3 70 900-1000 0.5-1.5%

fdlaas/1

Zenith Carburettors

Type and number

Zenith 175/CD SE (two)

Needle

B I D K

Spring Colour

Blue

Damper Oil

SAE 20W/50

Lotus part number - Spec 2

front B907E0791W

rear B907E0792W

- Spec 4,6,7,8

front C907E0791F*

rear C907E0792F*

* Red paint spot on air valve housing. These carbs are to the same specification as the B prefix carbs, except for the inclusion of internal/external float vent valves.

Fast idle setting (engine warm)

- Spec 2

2.16 - 2.41 mm. (0.085 - 0.095 in.)

between starter cam and screw

head in 'off' position

- Spec 4,6,7,8

1.27 mm. (0.050 in.)

Slow running speed

950 - 1000 rpm

Idle CO level (normal running temperature)

- Spec 2

(without air injection) 2.5 - 4.0 % CO

- Spec 4, 6

This must be checked with the air injection disconnected and a reading taken via a sample pipe before the catalyst. To disconnect the air injection remove the air outlet hose (between outlet and non-return valve) from the air pump, and blank off the hose. Adaptor and sample pipe - Part No. T000T0321A. Blanking plug (for air hose) - Part No. T000T0322A
Setting 3.5 - 4.5% CO

- Spec 7

with air pump (and no catalyst)

Tailpipe idle check - less than 1.0% C.O. with air on, 2.0 - 3.5% C.O. with air off.

- Spec 7

With pulse air injection system

Upstream of catalyst 0.2 - 1.0% C.O.

IGNITION SYSTEM

Type	<ul style="list-style-type: none"> - Spec 1,2,3,4,5,6 - Spec 7, 8, 9 (Esprit up to 1983. Not Excel) - Spec 9 (Esprit 1983 on and Excel only) 	Coil and Distributor Coil and distributor with infra-red solid state 'Lumenition' system. Coil and distributor with Lucas Constant Energy System
Number 1 cylinder		Toward front
Ignition advance control		Fully automatic
Sparkling plugs:		
With Lucas ignition leads - spec 1,3,5		NGK BP6ES
- spec 2,4,6,7		NGK BP5ES
With NGK ignition leads - spec 1,3,5,9		NGK BPR6ES
- spec 2,4,6,7,8		NGK BPR5ES
- spec 10		NGK BPR7ES
Spark plug gap - with contact breaker	0.6 mm. (0.023 in.)	
- with high energy ignition	0.9 mm. (0.035 in.)	

DISTRIBUTOR & IGNITION TIMING (All figures + 2°)

	Distributor Type	Vacuum Capsule (crank°)	Static Ignition Timing BTDC	Idle Speed Ignition Timing BTDC	Centrifugal Advance Characteristics (vacuum disconnected) crank rpm	crank° ± 2°	Ignition Timing to be set at
Spec 1	25D (41584)	8° Retard	12°	4°	Below 1,000 2,000 3,000	nil 8° 16°	28° BTDC @ 3,500 - 4,000 rpm (vacuum disconnected)
Spec 2	25D (41584)	8° Retard	8°	0°	as Spec 1		24° BTDC @ 3,500 - 4,000 rpm (vacuum disconnected)
Spec 3	25D (41584)	blanked off	16°	16°	as Spec 1		32 - 34° BTDC @ 3,500 - 4,000 rpm (vacuum disconnected)
Spec 4,6	25D (41634A) or 45D (41626)	8° Retard	8°	0°	Below 1,000 2,000 4,000 5,000 6,000	nil 8° 18° 22° 26°	22 - 24° BTDC @ 3,000 rpm (vacuum disconnected)
Spec 5	23D4 or 43D (41623)	-	9°	-	as Spec 1		25° BTDC @ 3,500 - 4,000 rpm
Spec 7,8	45D (41626) with Lumenition	8° Retard	10°	2°	as Spec 4,6		24 - 26° BTDC @ 3,000 rpm (vacuum disconnected)
Spec 9	43D with Lumenition or Constant Energy Ign.	-	9°	-	as Spec 1		25° BTDC @ 3,500 - 4,000 rpm
Spec 10	45D (41946) Constant Energy Ign.	22° Advance	10°	10° (hot)	as Spec 1		10° BTDC @ hot idle 950 ± 50 rpm

FD1AAA/4

Distributor

Direction of rotation (from drive end)	Clockwise
Drive	Offset dog
Contact breaker gap (where fitted)	0.35 - 0.40 mm. (0.014 - 0.016 in.)
Contact breaker spring tension (measured at contact points)	0.51 - 0.68 kg.f. (18 - 24 oz.f.)
Cam dwell angle	
- 25D, 23D	$60^{\circ} \pm 3^{\circ}$ changed during 1978 to $64^{\circ} \pm 3^{\circ}$
- 45D, 43D	$52^{\circ} \pm 4^{\circ}$ changed during 1978 to $60^{\circ} \pm 3^{\circ}$
Firing angles	0° , 90° , 180° , 270° , $\pm 1^{\circ}$
Capacitor value	0.18 - 0.23 Microfarad

Cooling System

Type	Centrifugal pump and electric fan
Header tank cap relief valve pressure	0.7 kg/cm^2 (10 lb/in^2) or 1.1 kg/cm^2 (15 lb/in^2)
Thermostat - (Temperate climates)	82°C
- (High ambient temperatures)	74°C
Impellor vanes to water pump housing clearance	907 : 0.50 - 0.75 mm (0.020 - 0.030 in) 912 : 0.25 - 0.40 mm (0.010 - 0.016 in)
Cooling system anti-freeze/inhibitor (year round)	'Shell Safe' or Union Carbide 'UT 184' minimum 25% maximum 60%

TORQUE LOADING FIGURES

ENGINE	<u>kgf.m</u>	<u>lbf.ft</u>
Cylinder head (tighten cold)		
both pairs (front and rear) nuts (oiled thread)	9.7	70
3 pairs (in middle) nuts (oiled threads)	10.4	75
Sparking plugs	3.3 - 3.9	24 - 28
Camshaft covers	0.40 - 0.55	3 - 4
Camshaft housing	1.9 - 2.2	14 - 16
Camshaft sprockets	3.5	25
Main bearing housing - 907 - 12mm	7.6	55
(oiled threads) - 912 - 12mm	9.0	65
- 907/912 - 8mm	1.9 - 2.2	14 - 16
Crankshaft pulley	8.0 - 8.3	58 - 60
Connecting rod (big end) caps (oiled thread)	11.6 - 11.9	84 - 86
Fixed Flywheel - 907/912	6.5 - 6.8	47 - 49
Flexplate flywheel (inc. auto flexplate)	7.6	55
Clutch assembly	2.3 - 2.6	17 - 19
Torque convertor to flexplate	3.5	25
Oil sump to main bearing housing - 907	1.0 - 1.1	7 - 8
Oil sump to main bearing housing - 912	2.2 - 2.5	16 - 18
Auxiliary housing to cylinder block	1.8 - 2.1	13 - 15
Auxiliary shaft sprocket	3.5	25
Oil pick-up pipe union	7.6	55
Retaining nut (belt tensioner)	3.5 - 4.2	25 - 30
All other 6mm nuts or setscrews	1.0 - 1.1	7 - 8
Stud - Cylinder head to cylinder block - 12mm	4.1	30
- Main bearing housing - 8mm	1.7	12
- Main bearing housing - 12mm	5.5	40
- Camshaft housing to cylinder head - 8mm	1.7	12
- Sump to main bearing housing - 6mm	0.7	5
- All other non-specified 8mm studs	1.7	12
Exhaust manifold to cylinder head	1.9 - 2.2	14 - 16
Inlet manifold to cylinder head	1.9 - 2.2	14 - 16
Banjo bolt (fuel line to carburettors)	2.2	16
Purge pump thermal switch	2.1	15

Zenith Carburettors

Type and number

Zenith 175/CD SE (two)

Needle

B I D K

Spring Colour

Blue

Damper Oil

SAE 20W/50

Lotus part number - Spec 2

front B907E0791W

rear B907E0792W

- Spec 4,6,7,8

front C907E0791F*

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- * Red paint spot on air valve housing. These carbs are to the same specification as the B prefix carbs, except for the inclusion of internal/external float vent valves.

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between starter cam and screw
head in 'off' position

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1.27 mm. (0.050 in.)

Slow running speed

950 - 1000 rpm

Idle CO level (normal running temperature)

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(without air injection) 2.5 - 4.0 % CO

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Setting 3.5 - 4.5% CO

- Spec 7

with air pump (and no catalyst)
Tailpipe idle check - less than 1.0% C.O. with air on, 2.0 - 3.5% C.O. with air off.

- Spec 7

With pulse air injection system
Upstream of catalyst 0.2 - 1.0% C.O.

IGNITION SYSTEM

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Number 1 cylinder		Toward front
Ignition advance control		Fully automatic
Spark plug:		
With Lucas ignition leads - spec 1,3,5		NGK BP6ES
- spec 2,4,6,7		NGK BP5ES
With NGK ignition leads - spec 1,3,5,9		NGK BPR6ES
- spec 2,4,6,7,8		NGK BPR5ES
- spec 10		NGK BPR7ES
Spark plug gap - with contact breaker	0.6 mm. (0.023 in.)	
- with high energy ignition	0.9 mm. (0.035 in.)	

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Spec 9 41646	43D with Lumenition or Constant Energy Ign.	-	9°	-	as Spec 1		25° BTDC @ 3,500 - 4,000 rpm
Spec 10 41636	45D (41626) Constant Energy Ign.	22° Advance	10°	10° (hot)	as Spec 1		10° BTDC @ hot idle 950 ± 50 rpm

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Distributor

Direction of rotation (from drive end)	Clockwise
Drive	Offset dog
Contact breaker gap (where fitted)	0.35 - 0.40 mm. (0.014 - 0.016 in.)
Contact breaker spring tension (measured at contact points)	0.51 - 0.68 kg.f. (18 - 24 oz.f.)
Cam dwell angle	
- 25D, 23D	$60^{\circ} \pm 3^{\circ}$ changed during 1978 to $64^{\circ} \pm 3^{\circ}$
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Firing angles	$0^{\circ}, 90^{\circ}, 180^{\circ}, 270^{\circ}, \pm 1^{\circ}$
Capacitor value	0.18 - 0.23 Microfarad

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Type	Centrifugal pump and electric fan
Header tank cap relief valve pressure	0.7kg/cm^2 (10lb/in^2) or 1.1kg/cm^2 (15lb/in^2)
Thermostat - (Temperate climates)	82°C
- (High ambient temperatures)	74°C
Impellor vanes to water pump housing clearance	907 : 0.50 - 0.75 mm (0.020 - 0.030 in) 912 : 0.25 - 0.40 mm (0.010 - 0.016 in)
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both pairs (front and rear) nuts (oiled thread)	9.7	70
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Camshaft housing	1.9 - 2.2	14 - 16
Camshaft sprockets	3.5	25
Main bearing housing - 907 - 12mm	7.6	55
(oiled threads) - 912 - 12mm	9.0	65
- 907/912 - 8mm	1.9 - 2.2	14 - 16
Crankshaft pulley	8.0 - 8.3	58 - 60
Connecting rod (big end) caps (oiled thread)	11.6 - 11.9	84 - 86
Fixed Flywheel - 907/912	6.5 - 6.8	47 - 49
Flexplate flywheel (inc. auto flexplate)	7.6	55
Clutch assembly	2.3 - 2.6	17 - 19
Torque convertor to flexplate	3.5	25
Oil sump to main bearing housing - 907	1.0 - 1.1	7 - 8
Oil sump to main bearing housing - 912	2.2 - 2.5	16 - 18
Auxiliary housing to cylinder block	1.8 - 2.1	13 - 15
Auxiliary shaft sprocket	3.5	25
Oil pick-up pipe union	7.6	55
Retaining nut (belt tensioner)	3.5 - 4.2	25 - 30
All other 6mm nuts or setscrews	1.0 - 1.1	7 - 8
Stud - Cylinder head to cylinder block - 12mm	4.1	30
- Main bearing housing - 8mm	1.7	12
- Main bearing housing - 12mm	5.5	40
- Camshaft housing to cylinder head - 8mm	1.7	12
- Sump to main bearing housing - 6mm	0.7	5
- All other non-specified 8mm studs	1.7	12
Exhaust manifold to cylinder head	1.9 - 2.2	14 - 16
Inlet manifold to cylinder head	1.9 - 2.2	14 - 16
Banjo bolt (fuel line to carburettors)	2.2	16
Purge pump thermal switch	2.1	15

TECHNICAL DATA**SECTION TD B - ENGINE TYPE 910**

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Before commencing work on any Lotus engine, first check the engine number and prefix letters to establish the engine specification. This number is stamped on the right hand rear of the cylinder block, above the starter motor, and is duplicated on the vehicle identification plate fixed to either the right or left hand inner wheelarch under the front bonnet.

Example

Market
L D 910 82 10 20520

Engine Equipment
(2.2 litre turbo = 910)

Year of manufacture
Month of manufacture (01 to 12)

Serial number

Market

A = Japan
C = Europe
F = Sweden/Australia/Switzerland
H = Canada/49 States N. America
J = California
L = 50-States N. America

Engine Equipment

C = Standard
D = Air Conditioning
A = High Compression
P = High Compression / Air Conditioning

Wet Sump Introduction

From 1980 until late 1981/early 1982, all Turbo Esprit engines (type 910) were built with a 'dry sump' lubrication system. Cars not fitted with air conditioning were changed to a 'wet sump' configuration in late 1981, followed by air conditioned cars in early 1982.

Wet sump introductory VIN's are as follows:

Domestic heater 82D1193
Domestic air conditioning 82D1261
ROW (air conditioning) 82 A/E/G/H/S 0399

All Federal cars are wet sump.

ENGINE

Type designation	910
Max. rpm of engine	7,000
No. of cylinders	4
Firing order	1,3,4,2
Capacity	2174cc (132.6 cu.in.)
Stroke	76.2mm (3.00 in.)
Bore (nominal)	95.29mm (3.75 in.)
Compression ratio	- Std. 7.5 : 1
	- H.C. 8.0 : 1
Compression pressure	- Std. 8.8 bar (130 lb/in ²) minimum
	- H.C. 9.5 bar (140 lb/in ²) minimum
Maximum boost pressure	- Std. 0.55 bar (8.0 lb/in ²)
	- H.C. 0.65 bar (9.5 lb/in ²)
Engine number location	On top rear of cylinder block near starter mounting

Engine belt tensions - Toothed timing belt, using Burroughs gauge part number

T000G0025J, 90 - 95 units cold (60°F/20°C) See Section EA.9.

	(- Alternator 'V' belt	12 mm (0.5 in.) (½ in.)
Total movement	(- Compressor 'V' belt)	
using moderate	(A/C)	
finger pressure	(- Vacuum Pump 'V' belt)	9 mm (0.35 in.) (3/8 in.)
on longest	()	
belt run.	(- Air Pump 'V' belt)	
	()	

CYLINDER HEAD

Material	Aluminium alloy
Gasket	Steel/asbestos

Combustion chamber depth (nos. 1 & 4)	12.19 - 12.57 mm (0.485 - 0.500 in.)
---------------------------------------	--------------------------------------

CAMSHAFTS AND VALVE TIMING

Cam Type Designation		Identif. on shank between pulley & cam hsg.	Duration (crank degrees)		Inlet M.O.P. ATDC*	Cam Pulley Timing Dot	Exhaust M.O.P BTDC*	Cam Pulley Timing Dot
Spec.No.				Lift				
Domestic & Export	107	777....	252°	0.378"	104°	green	104°	green
USA (Carb)	107	777....	252°	0.378"	110°	red	104°	green
USA (HCI)	107	777....	252°	0.378"	110°	red	100°	blue

FD1AAC/1

* All cams are symmetrical opening/closing

VALVES

Angle of valve seats and faces	45°
Head diameter - Inlet	35.47 - 35.65 mm (1.396 - 1.404 in.)
- Exhaust	30.70 - 30.90 mm (1.209 - 1.217 in.)
Stem diameter - Inlet	7.125 - 7.137 mm (0.2805 - 0.2810 in.)
- Exhaust	7.955 - 7.970 mm (0.3132 - 0.3138 in.)
Stem clearance in guide - Inlet	0.008 - 0.046 mm (0.0003 - 0.0018 in.)
- Exhaust	0.030 - 0.070 mm (0.0012 - 0.0027 in.)
Valve clearance (cold) - Inlet	0.13 - 0.18 mm (0.005 - 0.007 in.)
- Exhaust	0.25 - 0.31 mm (0.010 - 0.012 in.)

Valve Seat Inserts

Bore in head:

Standard	- Inlet	37.235/37.260 mm. (1.466/1.467 in.)
	- Exhaust	34.290/34.315 mm. (1.350/1.351 in.)
+ 0.025 mm (0.001 in)	- Inlet	37.260/37.285 mm. (1.467/1.468 in.)
	- Exhaust	34.315/34.340 mm. (1.351/1.352 in.)
+ 0.050 mm (0.002 in)	- Inlet	37.285/37.315 mm. (1.468/1.469 in.)
	- Exhaust	34.340/34.365 mm. (1.352/1.353 in.)
+ 0.127 mm (0.005 in)	- Inlet	37.365/37.390 mm. (1.471/1.472 in.)
	- Exhaust	34.415/34.440 mm. (1.355/1.356 in.)

Outside diameter of seat

Standard	- Inlet	37.325/37.350 mm. (1.4695/1.4705 in.)
	- Exhaust	34.380/34.405 mm. (1.3535/1.3545 in.)
+ 0.025 mm (0.001 in)	- Inlet	37.350/37.375 mm. (1.4705/1.4715 in.)
	- Exhaust	34.405/34.430 mm. (1.1345/1.3555 in.)
+ 0.050 mm (0.002 in)	- Inlet	37.375/37.400 mm. (1.4715/1.4725 in.)
	- Exhaust	34.430/34.455 mm. (1.3555/1.3565 in.)
+ 0.127 mm (0.005 in)	- Inlet	37.450/37.475 mm..(1.4745/1.4755 in.)
	- Exhaust	34.505/34.530 mm. (1.3585/1.3595 in.)

Valve Springs

Type

Dual

Free Length		Rate	
Inner	Outer	Inner	Outer
42.2 mm (1.66 in.)	48.5 mm (1.91 in.)	11.0 kg/cm (61.5 lb/in)	22.5 kg/cm (126 lb/in)

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Valve Guides

Length - Inlet and Exhaust	53.34 mm. (2.100 in.)
Internal diameter (to ream after fitting) - Inlet	7.145 - 7.170 mm. (0.2813 - 0.2823 in.)
- Exhaust	8.000 - 8.025 mm. (0.3150 - 0.3159 in.)
Bore in head - Inlet and Exhaust	
Standard	11.915 - 11.925 mm. (0.4690 - 0.4695 in.)
+ 0.025 mm. (0.001 in.)	11.940 - 11.950 mm. (0.4700 - 0.4705 in.)
+ 0.050 mm. (0.002 in.)	11.965 - 11.975 mm. (0.4710 - 0.4715 in.)
+ 0.127 mm. (0.005 in.)	12.040 - 12.050 mm. (0.4740 - 0.4745 in.)
Outside diameter of guide	
Standard	11.940 - 11.950 mm. (0.4700 - 0.4705 in.)
+ 0.025 mm. (0.001 in.)	11.965 - 11.975 mm. (0.4710 - 0.4715 in.)
+ 0.050 mm. (0.002 in.)	11.990 - 12.000 mm. (0.4720 - 0.4725 in.)
+ 0.127 mm. (0.005 in.)	12.065 - 12.080 mm. (0.4750 - 0.4755 in.)

Camshafts

End float - Dimension	0.03 - 0.20 mm. (0.001 - 0.008 in.)
- Controlled by	Selective thrust washers
Running clearance (except front)	0.050 - 0.090 mm (0.0020 - 0.0035 in.)
(front only)	0.075 - 0.115 mm (0.0030 - 0.0040 in.)

Cam Followers

Bore in camshaft housings	34.925 - 34.940 mm. (1.3750 - 1.3756 in.)
Outside diameter	34.904 - 34.912 mm. (1.3742 - 1.3745 in.)

AUXILIARY SHAFT

Running Clearance	0.025 - 0.065 mm. (0.0009 - 0.0025 in.)
End Float	0.013 - 0.038 mm. (0.0005 - 0.0015 in.)

CRANKSHAFT

Balance (inc. flywheel and clutch)	Within 15 gr.cm. (0.2 oz.in.)
Diameter - Main journal (No.1 .to 4 inc.)	63.487 - 63.513 mm. (2.4995 - 2.5005 in.)
- Main journal (No. 5 only)	63.500 - 63.513 mm. (2.5000 - 2.5005 in.)
- Crankpin	50.736 - 50.762 mm. (1.9975 - 1.9985 in.)
End float - Dimension	0.08 - 0.20 mm. (0.003 - 0.008 in.)
- Controlled by	Selective thrust washers on rear main bearing
Bearings (main) - Number	5
- Type	Steel backed, leaded bronze
- Static clearance*	0.013 - 0.056 mm. (0.0005 - 0.0022 in.)
Max. undersize for regrind	0.508 mm. (0.0200 in.)

* Bearing clearance is measured with Plastigage.

MAIN BEARING CONFIGURATION

ENGINE TYPE		FRONT 1	2	CENTRE 3	4	REAR 5
910 Turbo	Upper	Groove/ Hole	Groove/ Hole	Plain/ Hole	Groove/ Hole	Groove/ Hole
Dry/Wet Sump	Lower	Plain	Plain	Plain	Plain	Plain

FLYWHEEL

Max. axial run-out over clutch face

0.05 mm. (0.002 in.)

CONNECTING ROD

Type

'I' section

Material

Steel forging

Distance between centres

139.70 mm. (5.500 in.)

\pm 0.25 mm. (0.001 in.)

Bearings (big end) - Type

Steel backed, leaded bronze

- Static clearance *

0.025 - 0.081 mm. (0.0010 - 0.0032 in.)

- End float on crankpin

0.10 - 0.25 mm. (0.004 - 0.010 in.)

Small end bore (bushed)

25.405/25.410 mm. (1.0002 - 1.0004 in.)

Permissible weight variation between rods 2 grammes (in any set)

* Bearing clearance is measured with Plastigage

GUDGEON PIN

Type

Fully floating

Location

Circlips

Diameter

25.40 mm. (1.00 in.)

Class of fit

Finger push fit at 20°C (68°F)

PISTON AND LINER

Piston - Type

Solid skirt

- Material

Aluminium alloy

- Rings

2 compression, 1 oil control

- Diameter 910 Std - grade 'A'

95.148/95.161 mm (3.7460/3.7465 in)

910 Std - grade 'B'

95.161/95.174 mm (3.7465/3.7470 in)

910 HC - grade 'A'

95.205/95.219 mm (3.7482/3.7488 in)

910 HC - grade 'B'

95.217/95.231 mm (3.7487/3.7493 in)

- Grade diameter - 910 Std

15 mm (0.6 in) up from skirt edge } 90° to

- 910 HC

10.2mm (0.4 in) up from skirt edge } pin axis

- Gudgeon pin bore offset - 910 Std

1.52 mm (0.060 in) towards thrust face

- 910 HC

Zero

- Permissible weight variation
between pistons

3 grammes

- Ring gap 910 Std.	- top	0.38/0.51 mm (0.015/0.020 in)
	- second	0.48/0.61 mm (0.019/0.024 in)
	- scraper (rails)	0.38/1.14 mm (0.015/0.045 in)
	910 HC	- top & second 0.40/0.65 mm (0.016/0.026 in)
	- oil control	0.30/0.60 mm (0.012/0.024 in)
-Piston ring to groove clearance		
910 Std.	- Compression	0.038/0.089 mm (0.0015/0.0035 in)
	- Oil control	0.038/0.064 mm (0.0015/0.0025 in)
910 HC	- Compression	0.040/0.072 mm (0.0016/0.0028 in)
	- Oil control	0.020/0.052 mm (0.0008/0.0020 in)
Cylinder Liner	- Type	Wet, slip fit
	- Material - 910 Std.	Cast Iron
		- 910 HC Nikosil coated, forged aluminium alloy
	- Internal diameter	
	- 910 Std.	Measured 50mm from top across thrust axis
	Grade 'A'	95.275/95.288 mm (3.7510/3.7515 in)
	Grade 'B'	95.288/95.308 mm (3.7515/3.7520 in)
	- 910 HC	Measured 70mm from top across thrust axis
	Grade 'A'	95.255/95.269 mm (3.7502/3.7507 in)
	Grade 'B'	95.267/95.281 mm (3.7507/3.7512 in)
- Fitted height above block - 910 Std.	0.025/0.13 mm (0.001/0.005 in)	
	('nip')	
- 910 HC	minus 0.025 to + 0.050mm	
	(minus 0.001 to + 0.002 in)	
- Permissible variation between liners	0.03 mm (0.001 in)	
- Piston clearance in cylinder liner 910 Std.	0.11/0.15 mm (0.005/0.006 in)	
	910 HC	0.048/0.076 mm (0.002/0.003 in)

LUBRICATION SYSTEM

Minimum oil pressure under normal working conditions (hot);

	Wet Sump	Dry Sump
- at idle speed	5 lb/in ² (0.35 kg/cm ²)	5 lb/in ² (0.35 kg/cm ²)
- at 3,500 rpm	35 (2.5)	40 (2.8)
- at 6,500 rpm	45 (3.2)	50 (3.6)

Filter

Full flow disposable canister type
with anti-flow back valve

Dry Sump

Pump - type

Eccentric rotor, 2 scavenge & 1 pressure
pump in common unit driven by toothed belt

Wet Sump

Pump

type

Eccentric rotor. Driven by cam belt

- rotor/annulus tip clearance

0.05/0.15 mm (0.002/0.006 in)

- annulus end float

0.03/0.08 mm (0.001/0.003 in)

- rotor end float

0.06/0.09 mm (0.0025/0.0035 in)

- annulus to housing clearance

0.18/0.30 mm (0.007/0.012 in)

<u>DELLORTO CARBURETTORS</u>	Domestic/ Export 'Std'	Domestic/ Export 'HC'	USA
Carburettor Type (2 off)	DHLA 40H	DHLA 45M	DHLA 45M
Tag No. - Front	5322A	5390A	
- Rear	5321P	5389P	
Lotus Part No. - Front	B910E0926F	A910E6855F	A910E6633
- Rear	B910E0925F	A910E6856F	A910E6632
Choke	36 mm	35 mm	37 mm
Main Jet	185	160	165
Main Air Corrector Jet	200	180	230
Main Emulsion Tube	7772-12	7772-14	7772-13
Idle Jet	40	58	52
Idle Jet Holder	7850-7	7850-9	7850-9
Float Weight	8.5g	8.5g	8.5g
Float Setting Height	14.5-15.0mm	14.5-15.0mm	14.5-15.0mm
Needle Valve	200	200	200
Pump Jet	48H (special)	35	38H
Starter Jet	80	80	80
Starter Emulsion Tube	7482-3	7482-3	7482-3
Slow Running Speed	850 rpm	850-950 rpm	950 rpm
Idle CO Level (hot)	1.0 + 0.5 %	1.0 + 0.5 %	0.8 %
Pump Delivery	7cc/20 stks.	8cc/20 stks.	8cc/20 stks.
Power Jet	-	Blank	110
Fuel Delivery Pressure (at idle speed)	4.0 ± 0.5 psi	4.0 ± 0.5 psi	4.0 - 4.5 psi

FD1AAE/1

IGNITION SYSTEM

Type - Domestic/ROW 1980 - early 1983

Coil and distributor with infra-red solid state 'Lumenition' system

- 1983 on + Federal

Coil and distributor with Lucas 'Constant Energy' ignition system

Number 1 cylinder

Toward front

Sparking Plugs - Domestic/ROW (Std.)

NGK BPR 6ES

- Federal & 'HC'

NGK BPR 6EY

Spark Plug Gap

0.9 mm (0.035 in.)

Distributor

Direction of rotation (from drive end)

Clockwise

Drive

Offset dog

DISTRIBUTOR & IGNITION TIMING (all figures $\pm 2^\circ$)

Market	Distributor Type	Vacuum Capsule crank $^\circ$	Static Ign. Timing	Idle Speed Ign. Timing	Centrifugal Advance Characteristics crank rpm crank $^\circ$		Ignition Timing to be set at
Dcm/ Export Prior '87 MY	43D Lumenition or Lucas Constant Energy	-	12 $^\circ$ BTDC	12 $^\circ$ BTDC	Below 1,000 2,000 3,000	nil 8 $^\circ$ 16 $^\circ$	28 $^\circ$ @ 3,500/ 4,000rpm
USA Prior '86 MY (Carb)	45DM4 Lucas Constant Energy	18 $^\circ$ Advance	1 $^\circ$ BTDC	1 $^\circ$ BTDC	Below 1,000 1,500 2,100 2,800 5,000	nil 3 $^\circ$ 12 $^\circ$ 15 $^\circ$ 16 $^\circ$	Idle (950rpm)
USA '86 MY onward (HCI)	45DM4 Lucas Constant Energy	28 $^\circ$ Advance	15 $^\circ$ BTDC	15 $^\circ$ BTDC	2,500 5,000	minus 3 $^\circ$ minus 6 $^\circ$	Idle (900 - 1000rpm)
Dcm/ Export '87 MY onward	45DM4 Lucas Constant Energy	28 $^\circ$ Advance	10 $^\circ$ BTDC	10 $^\circ$ BTDC	Below 1,000 2,000 5,000	nil 11 $^\circ$ 8 $^\circ$	Hot Idle (850 - 950 rpm)

(fdlaam/1)

TORQUE LOADING FIGURES

ENGINE	<u>kgf.m</u>	<u>lbf.ft</u>
Cylinder head (tighten cold)		
both pairs (front and rear) nuts	9.7	70
3 pairs (in middle) nuts	10.4	75
Sparking plugs	2.5	18
Camshaft covers	0.40-0.55	3-4
Camshaft housings	1.9-2.2	14-16
Camshaft sprockets	3.5	25
Main bearing housing - 12 mm (Dry Sump)	10.4	75
Main bearing housing - 12 mm (Wet Sump)	9.0	65
- 8 mm	1.9-2.2	14-16
Crankshaft pulley	8.0-8.3	58-60
Connecting rod (big end) caps	11.6-11.9	84-86
Flywheel	7.6	55
Clutch Assembly	2.3-2.6	17-19
Oil sump to main bearing housing (all)	2.2-2.5	16-18
Auxiliary housing to cylinder block	1.8-2.1	13-15
Auxiliary shaft sprocket	3.5	25
Oil pick-up pipe union	7.6	55
Retaining nut (belt tensioner)	3.5-4.2	25-30
All other 6 mm nuts or setscrews	1.0-1.1	7-8
Stud - Cylinder head to cylinder block - 12 mm	5.5	40
- Main bearing housing - 8 mm	1.7	12
- Main bearing housing - 12 mm	5.5	40
- Camshaft housing to cylinder head - 8 mm	1.7	12
- Sump to main bearing housing	0.7	5
- Wastegate to adaptor (10mm)	4.8	35
All other non-specified 8mm studs	1.7	12
Exhaust manifold to cylinder head	1.9-2.2	14-16
Wastegate to adaptor	4.8	35
Inlet manifold to cylinder head	1.9-2.2	14-16
Engine mounting legs to rubbers	5.5-6.2	40-45
Mounting rubbers to chassis	3.5	25

TECHNICAL DATA**SECTION TD D - VEHICLE, ESPRIT S3 & TURBO**

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DIMENSIONS

Overall Length	(Series 3)	4225 mm (166.3 in.)
	(Turbo)	4290 mm (169 in.)
Overall Width		1860 mm (73.3 in.)
Overall Height	(Series 3)	1111 mm (43.7 in.)
	(Turbo - European)	1118 mm (44.0 in.)
	(Turbo - Federal)	1130 mm (44.5 in.)
Wheelbase		2438 mm (96.0 in.)
Front Track	(14 in. Wheels)	1544 mm (60.8 in.)
	(15 in. Compomotive Wheels)	1536 mm (60.5 in.)
	(15 in. BBS Wheels)	1524 mm (60.0 in.)
Rear Track		1554 mm (61.2 in.)
Ground Clearance, Federal Spec.		146 mm (5.8 in.) approx. Below rad. duct with driver only
Turning Circle	(between kerbs)	10.6 m (34 ft 9 in)
Kerb Weight	(Series 3 prior to '85 MY)	1100 kg (2425 lb)
(with a/c)	(Series 3 '85 MY on)	1130 kg (2492 lb)
	(Turbo Dom/Exp prior '85 MY)	1200 kg (2645 lb)
	(Turbo Dom/Exp '85 MY on)	1225 kg (2701 lb)
	(Turbo USA)	1226 kg (2703 lb)
Gross Weight	(Series 3)	1340 kg (2955 lb)
	(Turbo Dom/Exp prior to '85 MY)	1389 kg (3063 lb)
	(Turbo Dom/Exp '85 MY on)	1452 kg (3202 lb)
	(Turbo USA)	1453 kg (3200 lb)
	41c select	

weight distribution
FRONT 446
Rear 654
weight distribution
FRONT 517
Rear 708

CAPACITIES

Except Dry Sump Turbo

Engine (inc. filter) - Dry	6.5 litre (11.4 imp. pt. 13.7 U.S. pt.)
- Refill	5.4 litre (9.4 imp. pt. 11.4 U.S. pt.)
Difference between high and low dipstick marks	0.85 litre (1.5 imp. pt. 1.8 U.S. pt.)

Dry Sump Turbo

Engine (inc. filter) - Dry	6.5 litre (11.4 imp. pt. 13.7 U.S. pt.)
- Refill	5.0 litre (8.8 imp. pt. 10.6 U.S. pt.)
Difference between high and low dipstick marks	1.0 litre (1.8 imp. pt. 2.1 U.S. pt.)

Transmission	2.25 litre (4.8 U.S. pt.)
Cooling System - Series 3	10.8 litre (19 imp. pt. 22.8 U.S. pt.)
- Turbo	12 litre (21 imp. pt. 25 U.S. pt.)

Fuel System - Series 3	67 litre (14.8 imp. gall. 17.7 U.S. gall.)
- Turbo	86 litre (18.9 imp. gall. 22.7 U.S. gall.)

SUSPENSIONFront (Prior to '85 M.Y.);

Upper wishbone and lower transverse link with anti-roll.
Co-axial coil spring and telescopic damper.

Chassis height below chassis front crossmember 170 mm
for checking suspension geometry.

Camber	$0^{\circ} 30'$ negative $\pm 0^{\circ} 15'$
Castor	$3^{\circ} \pm 0^{\circ} 30'$ (within $0^{\circ} 30'$ side to side)
Toe-in	2mm overall ± 1 mm
Steering Axis Inclination (K.P.I.)	9° nominal
Front Hub Endfloat	0.08 - 0.13 mm (0.003 - 0.005 in.)

Front ('85 M.Y. on);

Upper and lower wishbones. Co-axial coil spring and telescopic damper.
Anti-roll bar.

Chassis height below chassis front crossmember 170 mm
for checking suspension geometry

Camber	$0^{\circ} 30'$ negative $\pm 0^{\circ} 30'$
Castor	min $1^{\circ} 45'$ max 3° (within $0^{\circ} 30'$ side to side)
Toe in	1.6mm each side, + 0 - 1 mm
Steering Axis Inclination (K.P.I.)	$9^{\circ} 23'$ nominal
Front Hub Endfloat	0.05mm (0.002 in) maximum

Rear: Upper and lower transverse link with box section trailing radius arm.
Co-axial coil spring and damper

Chassis height below rear lower link chassis 170 mm
brackets for checking geometry

Camber	$0^{\circ} 30'$ negative $\pm 0^{\circ} 15'$
Toe in	1.5mm each side ± 0.5 mm

STEERING

Type	Manual rack and pinion with energy absorbing collapsible steering column
------	--

Turns, lock to lock	2.9
---------------------	-----

CLUTCH

Type	Single dry plate , Diaphragm spring Hydraulic
Release mechanism	
Master cylinder bore diameter (not LHD S3)	15.88 mm (0.625 in.)
LHD S3	17.78 mm (0.700 in.)
Slave cylinder bore diameter	22.23 mm (0.875 in.)
Friction plate - diameter - S3	216 mm (8.5 in.)
- Turbo	241 mm (9.5 in.)
- Number of springs	6
Free Play at release lever - S3 (prior to '85)	3 mm (0.12 in.)
- S3 ('85 on) & Turbo	Self adjusting slave cylinder

TRANSMISSION

Type	Manual . 5 forward gears (all syncromesh) and reverse
------	--

Gear	Internal Ratio	Speed in mph (kph) per 1000 rpm	
		14 in wheels	15 in wheels
Fifth	0.76:1	21.85 (35.16)	22.58 (36.35)
Fourth	0.97:1	17.15 (27.59)	17.69 (28.48)
Third	1.32:1	12.58 (20.24)	13.00 (20.93)
Second	1.94:1	8.56 (13.77)	8.84 (14.23)
First	2.92:1	5.69 (9.15)	5.88 (9.47)
Reverse	3.46:1	- -	- -
Final Drive	4.375:1	- -	- -

Speedometer gears - Driving gear	5 teeth
- Driven gear	17 teeth

COOLING SYSTEM

Type	Centrifugal water pump. Electric cooling fans with thermal switch.
Header Tank Cap Relief Valve Pressure	0.7 kg/cm ² (10 lb/in ²) or 1.1 kg/cm ² (15 lb/in ²)
Thermostat nominal opening temperature	74°C S3 hot climates 82°C S3 temperate climates and Turbo
Impellor Vanes to water pump housing clearance	0.25 - 0.40 mm (0.010 - 0.016 in.)
Cooling system anti-freeze/corrosion inhibitor	Minimum 25% strength. Up to 60% in cold climates.

BRAKES

Type Disc front, inboard disc rear, servo assisted dual hydraulic circuit.

Brake Discs

Diameter

Thickness,
nominalThickness,
minimumRun-out,
maximum

Up to '84 model year		'85 model year	
Solid Front	Solid Rear	Ventilated Front	Solid Rear
265mm (10.4 in)	275mm (10.8 in)	258mm (10.2 in)	275mm (10.8 in)
12.7mm (0.50 in)	10.0mm (0.39 in)	20.0mm (0.79 in)	12.0mm (0.47 in)
11.4mm (0.45 in)	9.0mm (0.35 in)	19.0mm (0.75 in)	11.0mm (0.43 in)
0.09mm (0.0035 in)	0.09mm (0.0035 in)	0.15mm (0.006)	0.2mm (0.008 in)

Handbrake -

Mechanical operation of rear pads. Self adjusting

WHEELS & TYRESSeries 3 with 14" wheels

Wheels - Type

- Size - front
- rear

Tyres - Type

- Size - front
- rear
- spare (if fitted)

- Pressure - front
- rear
- spare

Light alloy Speedline

7 JK x 14

7.5 JK x 14

Goodyear 'NCT' or 'Eagle NCT'

205/60 VR14

205/70 VR14

185/70 HR13

1.40 kg/cm² (1.35 bar, 20 lb/in²)1.90 kg/cm² (1.85 bar, 27 lb/in²)2.10 kg/cm² (2.05 bar, 30 lb/in²)Series 3 with 15" wheels, and Turbo

Wheels - Type - early Turbo

- all others

- Size - front
- rear

Tyres - Type

- Size - front
- rear
- spare (if fitted)

3-piece, light alloy Compomotive

Light alloy BBS

7 J x 15

8 J x 15

Goodyear 'NCT' or 'Eagle NCT'

195/60 VR 15

235/60 VR 15

175/70 SR14

15" Tyre Replacement

Cars 1985 Model Year onwards: Goodyear 'NCT' tyres of a new specification were introduced on 1985 Model Year Esprit S3 and Turbo models, together with a revised front suspension. For 1985 M.Y. and later models it is essential that ONLY either the new specification Goodyear 'NCT' tyres or Goodyear 'Eagle NCT' tyres are fitted. These two tyres differ in name only and may be safely mixed, but tyres made to the pre '85 specification should not be used. For identification of tyre specification see below.

Tyre Pressures - front	1.45 bar	(21 lb/in ²)
- rear	1.70 bar	(25 lb/in ²)
- spare	2.05 bar	(30 lb/in ²)

Cars Prior to 1985 Model Year: If tyres to the pre '85 specification are not available, the later type Goodyear 'NCT' or 'Eagle NCT' may be used but only in axle sets, and with the tyre pressures of only the later spec. tyres increased as below.

Tyre Pressures-

Pre '85 M.Y. car with
Pre '85 spec. tyre
 front 1.45 bar (21 lb/in²)
 rear 1.70 bar (25 lb/in²)
 spare 2.05 bar (30 lb/in²)

Pre '85 car with
'85 onwards spec. tyre
 front 1.60 bar (23 lb/in²)
 rear 1.90 bar (27 lb/in²)
 spare 2.05 bar (30 lb/in²)

Identification of tyre spec.

Embossed in the sidewall of each tyre, on one side only, are the letters D.O.T. followed by a series of numbers and letters. This format is the date coding employed by tyre manufacturers to identify the time and place of build of each tyre. Goodyear also include a coding which identifies the make up of each tyre.

Reference need only be made to the last three digits.

DOT **** *** 384
 / \
 Week Year
 of of
 Build Build

Any tyre manufactured on or after week number 38 of year 4 is to 1985 specification.

Unused 1985 spec. tyres also have in the tread area 2 identifying circumferential yellow colour bands.

ELECTRICAL EQUIPMENT

Alternator	- Series 3 & Dom/Exp Turbo	Motorola 70 amp
	- USA Turbo	Motorola 90 amp
Starter Motor	- type	Lucas 2M100
	- drive	pre-engaged
	- brush spring tension	1.02 kgf (36 ozf)
	- light running current	40 amp @ 6,000 rpm
	- lock torque	1.99 kgf.m (14.4 lbf.ft)
		@ 463 amps
Battery - type	- Dom/Exp prior '85 MY	Chloride type 385
	- Dom/Exp '85 & '86 MY }	Tungstone type 065
	- USA prior '86 MY }	
	- Dom/Exp '87 MY on }	Tungstone type 088
	- USA '86 MY on }	
	- performance	55 amp hr
	- Chloride type 385	255 amp cold start*
	- Tungstone type 065	330 amp cold start*
	- Tungstone type 088	* 1 min @ -18°C to 1.4 VPC

TORQUE SETTINGSFront Suspension (Prior to '85 M.Y.)

	kgf.m	lbf. ft.
Stub axle to vertical link	11.0-15.0	80-110
*Upper wishbone to chassis	5.5-6.2	40-45
Upper ball joint to wishbone	1.4-1.8	10-13
Ball joint to vertical link	5.3-5.8	38-42
Steering arm to vertical link	3.6-4.7	26-34
Caliper mounting plate to vertical link	2.5-3.0	18-22
*Lower link to chassis	5.5-6.2	40-45
Lower link to trunnion	4.4-4.7	32-34
Anti-roll bar to lower link	0.8-1.4	6-10
Anti roll bar to chassis	6.9-8.3	50-60
*Damper to lower link	6.9-8.3	50-60
xDamper top stem to chassis	see below	
Wheel nuts or bolts	9.0	65

Front Suspension (1985 M.Y. onwards)

*Upper wishbone to chassis	6.9	50
Upper ball joint to wishbone	2.1	15
Upper ball joint to vertical link	5.5	40
Steering arm to vertical link	9.0	65
*Lower wishbone to chassis	6.9	50
Lower ball joint to vertical link	9.0	65
Anti-roll bar to chassis	9.0	65
*Damper to lower wishbone	6.9	50
xDamper top stem to spring plate	see below	
Spring top plate to chassis	2.1	15
Wheel bolts	9.0	65

<u>Rear Suspension & Drive Shafts</u>		<u>kgf.m</u>	<u>lbf.ft.</u>
*	Radius arm to rubber mounting	5.5-6.2	40-45
	Radius arm to hub carrier	4.2-4.8	30-35
*	Top link to chassis	6.9	50
*	Top link to hub carrier	6.9	50
*	Lower link to chassis	6.9	50
*	Lower link to hub carrier	6.9	50
	Drive Shaft bolts	8.3	60
	Drive shaft adaptor to gearbox	8.3-11.0	60-80
	Radius arm mounting to chassis	3.5	25
x	Damper top stem	See below	
	Rear hub nut	28	200
	Wheel nuts or bolts	9.0	65

*	Tighten only with suspension at ride height.
x	Nut is 'nipped' to shoulder on stem, holding top of stem with spanner, then locknut tightened.
	Spring must be in compressed condition during this operation.

<u>Steering</u>	<u>kgf.m</u>	<u>lbf.ft.</u>
Steering rack assembly to chassis	1.7-1.9	12-14
Upper column lower bolts	1.1-1.7	8-12
Steering column lock bolts	"Break off" type	
Steering wheel to column	4.2-4.8	30-35
Universal joint clamp bolts	2.2-2.8	16-20
Tie rod locknuts	6.9-8.3	50-60
Tie rod end to steering arm	4.2-4.8	30-35

Brakes (Prior to '85 MY)

	<u>kgf.m</u>	<u>lbf.ft.</u>
Front brake caliper mounting	6.9-8.3	50-60
Rear brake caliper mounting	4.2-4.8	30-35
Rear caliper mounting bracket to transmission	11.7-13.8	85-100
Brake servo to pedal box	1.1-1.4	8-10
Master cylinder to servo	2.1-2.6	15-19
Front brake disc to hub	3.6-4.7	26-34
10 mm pipe nuts - male	0.9-1.1	6.5-8
- female	1.1-1.4	8-10
10 mm hose end	1.0-1.2	7.5-9
7 mm bleed screw	0.4-0.6	3-4
Rear caliper pipe adaptor	2.0-2.1	14.5-15.0

Brakes (1985 MY onwards)

	<u>kgf.m</u>	<u>lbf. ft</u>
Front brake caliper mounting	9.0	65
Rear brake caliper mounting	6.6	48
Brake servo to mounting bracket	1.4	10
Master cylinder to servo	1.4	10
Front brake disc to hub	6.9	50

<u>Chassis</u>	<u>kgf.m</u>	<u>lbf. ft</u>
Rear crossmember	4.2 - 4.8	30 - 35

BODYPAINT PROCEDURESECTION BA - ALL MODELS

	<u>Operation</u>	<u>Page</u>
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Essential Working Practice	BA 2	7/8
Preparation for Primer	BA 3	8/9
Polyurethane Primer Sprayer	BA 4	9 to 11
Preparation for Colour Coat	BA 5	11
Nitro-Cellulose Colour Spraying	BA 6	12 to 14
P420/P421 Acrylic Polyurethane Spraying	BA 7	14 to 16
P422 Acrylic Polyurethane Spraying	BA 8	16 to 18
Intercoat Rectification	BA 9	19 to 21
Nitro-Cellulose Paint Rectification	BA 10	21 to 24
Acrylic Polyurethane Paint Rectification	BA 11	25 to 27
RRIM Paint Procedure	BA 12	27 to 29
Pearlescent White Paint Procedure	BA 13	29/30
Paint Removal	BA 14	30

The paint procedure contained in this section is based on that used in the manufacture of Lotus Cars and commences with the bare composite bodysell. It is included here only for general guidance in repair work, and it should be noted that different oven temperatures and thinners may be necessary dependant on the level of trim of the body, and type of oven etc..

BA 1 - PAINT CODES

Before commencing any paint work on a Lotus car, first check the paint code number stamped on the lower left hand corner of the vehicle identification plate under the front bonnet.

Paint codes with an 'I.' prefix indicate nitro-cellulose paint for which two suppliers reference numbers are sometimes quoted - International Paint (formerly Pinchin and Johnson) and ICI.

'A' prefix paint codes are used for cars finished in ICI 2K two pack acrylic polyurethane paints of the P420/421/422 line.

'S' prefix paint codes were used for a short period only (1976/77) and indicate that the body was moulded with integral colour using ICI 2K two pack polyurethane paint of the P407 line. These cars may be repaired using ICI P030 line nitro-cellulose.

ICI Paint Reference Number

ICI paint reference number prefix groups indicate the following paint types.

P 030	Mono colour nitro-cellulose
P 031	Metallic nitro cellulose
P 407	2 pack acrylic polyurethane
P 420	Mono colour 2 pack acrylic polyurethane
P 421	Metallic 2 pack acrylic polyurethane
P 422	Basecoat/clear 2 pack acrylic polyurethane

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<u>PAINT CODE</u>	<u>COLOUR</u>	<u>SUPPLIER SPEC NO.</u>	<u>LOTUS PART NO.</u>	<u>REMARKS</u>
L 01	British Racing Green	PJ 6170Y2790 ICI P0302854	A036B6315V	
L 02	French Blue	PJ 6170Z1280 ICI P0307210	A036B6316V	
L 03	Wedgewood Blue	PJ 6170Z1290	A036B6317V	
L 04	Cirrus White	PJ 6170X0540 ICI P0309049	A036B6318V	
L 05	Carnival Red	PJ 6170X5350 ICI P0308385	A036B6319V B036B6319V	
L 06	Burnt Sand	PJ 6170X4570 ICI P0306853	A036B6320V	
L 07	Lotus Yellow	PJ 6170X3940 ICI P0309547	A036B6321V B036B6321V	
L 08	Matt Black	PJ 0235X9050RZ ICI Non Gloss	A036B6312V	
L 09	Royal Blue	PJ 6170Z1920 ICI P0307557	A036B6322V	
L 10	Bahama Yellow	PJ 6170Y3140 ICI P0306854	A036B6323V	
L 11	Regency Red	PJ 6170Y5960 ICI P0309053	A036B6356V B036B6356V	
L 12	Lagoon Blue	PJ 6170A1130 ICI P0314339	A036B6357V	
L 13	Pistachio Lime Green	PJ 6170W2230R1 ICI P0309052	A036B6349V	
L 14	Colarado Orange	PJ 6170Z5980RJ ICI P0309055	A036B6350V	
L 15	Black Gloss	ICI P030122	A036B6397V	
L 16	Ford Tawny	PJ 6170A4330 ICI P0313626	A036B6399V	
L 17	Renault Mid Green	PJ 6170A2580	A036B6426V	
L 18	Glacier Blue	ICI P0794403	A050B6223V	
L 19	Sable	ICI P0307604	A050B6225V	
L 20	Indigo Blue		A050B6226V	

<u>PAINT CODE</u>	<u>COLOUR</u>	<u>SUPPLIER SPEC. NO</u>	<u>LOTUS PART NO.</u>	<u>REMARKS</u>
L 21	Purple	ICI P0314963	B050B6228V	
L 22	Bitter Green	PJ 6170X2097 ICI P0309501	A050B6229V	
L 23	Sepia Brown	PJ 6170Y4817 ICI P030TW25028	A050B6230V	
L 24	Firecracker	PJ 6170X5150 ICI P0308662	A050B6231V	
L 25	Monaco White	ICI P0307517	B050B6232V	
L 26	Olympic Blue	ICI P0309257	A050B6233V	
L 27	Gunmetal	ICI P0313141	B075B6096V	
L 28	Rover Brown			
L 29	Mint Green	ICI P030DC27	A075B6116V	
L 30	Garnet	ICI P0314984	A075B6117V	
L 31	Lemon Yellow	ICI P0300455	A075B6141V	
L 32	Oxford Blue	ICI P030113	A075B6170V	
L 33	Ford Signal Orange	ICI DA 21		
L 34	Roman Bronze	ICI P0315050	A075B6143V	
L 35	Brazil	ICI P0314563		
L 36	Silver	ICI P0315699		
L 37	Jupiter Basecoat	ICI P031 9235		
L 38	Garnet Basecoat	ICI P0319142		
L 39	Versailles Red			
L 40	Midnight Blue	ICI P0304647		
L 41	Crystal Blue			
L 42	Calypso Red	ICI P030GJ23	A075B6178V	
L 43	Martini Green			
L 44	Essex Blue	ICI P031 9176		
L 45	British Racing Green	ICI P030CC43		
L 46	British Racing Green	ICI P0308120		
L 47	British Racing Green	ICI P0308461		

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<u>PAINT CODE</u>	<u>COLOUR</u>	<u>SUPPLIER SPEC.NO.</u>	<u>LOTUS PART NO.</u>	<u>REMARKS</u>
	Gold Laquer	PJ 6170A3130	A036B6345V	Elan sprint bumpers
	Silver Laquer	PJ 6170A8020	A036B6313V	Elan bumpers
	Silver		A036B6355V	+ 2S roof
	Metallic Jewels		A050B6222V	
S 01	White	ICI P407701	A076B6024V	
	Repair Cellulose	ICI P030101		
S 02	Signal Red	ICI P407717	A076B6025V	
	Repair Cellulose	ICI P030437		
S 03	Lemon Yellow	ICI P407783	A076B6026V	
	Repair Cellulose	ICI P030455		
S 04	Orange	ICI P407720	A076B6034V	
	Repair Cellulose	ICI P030457		
S 05	Oxford Blue	ICI P407738		
	Repair Cellulose	ICI P030113		
A 01	Blue Oxford	ICI P420113	A076B6060	+ clear
A 02	Black	ICI P420122	A089B6151V	+ clear
A 03	Silver Diamond	ICI P4229167	A076B6067	
A 04	Gold	ICI P4229638	A076B6071	
A 05	Viper Green	ICI P4229289		
A 06	Bermuda Blue	ICI P4229288	A076B6072	
A 07	Roman Bronze	ICI P4229468	A076B6075	
A 08	Lotus Bronze	ICI P4229756	A076B6076	
A 09	Martini Green	IPJ		
A 10	Metallic Black	ICI P4229719		
A 11	Martini Green	ICI P422 9890		
A 12	Onyx	ICI P4229809		

<u>PAINT CODE</u>	<u>COLOUR</u>	<u>SUPPLIER SPEC. NO.</u>	<u>LOTUS PART NO.</u>	<u>REMARKS</u>
A 13	Tabac	ICI P4229781	A076B6080	
A 14	Altair Green	ICI P4220182	A076B6101V	
A 15	Helleblau	ICI P4220183	A076B6102V	
A 16	Essex Blue	ICI P4220146	A076B6100V	
A 17	Essex Blue	IPJ 2 Pack		
A 18	Tissot Blue			
A 19	Copper Fire Metallic	ICI P4220311	A076B6107V	
A 20	Gold	Sikkens F158979		
A 21	Monaco White	ICI P4207517	A089B6149V	+ clear
A 22	Lotus Yellow	ICI P4200455	A089B6148V	+ clear
A 23	Calpyso Red	ICI P420GJ23	A089B6150V	+ clear
A 24	Gunmetal			
A 25	New Gold	ICI P4220628B	A076B6110V	
A 26	Copper			
A 27	Toyota Red	ICI P4220691		
A 28	Ruben Red	ICI P4229373		
A 29	Copper	ICI P421 5031		+ clear
A 30	Jupiter Red	ICI P4216056	A076B6119V	+ clear
A 31	Copper	ICI P4217222	B076B6107V	+ clear
A 32	Mediterranean Blue	ICI P4217215		+ clear
A 33	Ice Blue	ICI P4217220	B076B6102V	+ clear
A 34	Dark Blue (Essex)	ICI P4217219	B076B6100V	+ clear
A 35	Silver	ICI P4217379	B076B6067V	+ clear
A 36	New Gold	ICI P4217221	B076B6110V	+ clear
A 37	Fiat Grey	ICI P4214491		+ clear
A 38	Chrysler Steel Grey	ICI P4215310	A089B6113V	+ clear Excel bumpers and sills
A 39	Ice Blue	ICI P032		+ clear
A 40	Silver	ICI P032-918		+ clear
A 41	Silver			
A 42	British Racing Green	ICI P4216490	A082B6088V	+ clear
A 43	Gold (Oyster)	ICI P4215888		
A 44	Glacier Blue	ICI P4210757	A082B6086V	+ clear
A 45	Silver Frost	ICI P4217805	A082B6087V	+ clear

BA 2 - ESSENTIAL WORKING PRACTICE**1. Caution**

Autocolour 2K hardener P210-760 (used with all ICI two pack acrylic-polyurethane systems) contains reactive isocyanate, a small portion of which is volatile. Vapour should not be allowed to accumulate in a confined or badly ventilated space. The spray mist is harmful by inhalation and contact with skin and eyes.

Autocolour 2K should only be used in a well ventilated area, preferably a suitable spray booth with efficient exhaust ventilation. Spray operators should wear air line breathing apparatus to BS4467 Part 3, maintained according to BS4275. People entering the spraying area for short periods (up to 15 mins) should wear a respirator to BS2091 with type CC canister.

Before spraying AutoColour 2K, operators should refer to ICI Health and Safety Information Sheet PV1. Store thinners in accordance with the Petroleum (Consolidation) Act 1928 and the Petroleum Mixtures Order 1929; and in a cool place. Store paint, hardener and clearcoat in accordance with the Highly Inflammable Liquids and Liquified Petroleum Gas Regulations 1972. Use only a non-smoking area, and away from all sources of ignition. Take precautionary measures against static discharge. In case of fire, use foam or dry agent extinguishers. Contain any spillage with sand or earth. Do not allow to enter a drain or water course.

2. All air used for spraying or blow down should be filtered before use.
3. All precautions should be taken to ensure there is no oil or water contamination in the paint containers and air supply lines.
4. A high standard of cleanliness must be maintained with all spray equipment, frequent cleaning of guns and the surrounding area and booth is necessary.

5. Oven temperatures, and temperatures in the spray booth, Tak Rag booth and main working areas should be checked daily, and periodic measurements of panel temperature carried out.
6. It is absolutely essential that any surface to be sprayed is absolutely clean, dry and free from dust or sludge.
7. After any and each surface covering treatment including P38 filler, cellulose stopper, polyurethane primer, primer/surfacer, colour paint and clear laquer, it is essential that these be fully cured using a bank of infra red lights giving a 60°C panel temperature for the duration specified for the operation. This then must be allowed to air cool before further work.
8. Polyurethane primer must not be sprayed on top of a colour coat and left to form a sandwich of paint/primer/paint.

BA 3 - BODY AND COMPONENT PREPARATION FOR PRIMER COATING

1. Dry flat the entire surface area using 240 grade paper (Carborundum type) to ensure that there is no trace of wax or gloss. The operation is a cleaning process in order to provide a suitable surface for painting. The flatting is for the removal of protrusions and must present a completely scrubbed surface to key the polyurethane. Flatting should be carried out with an orbital sander on flat surfaces and a flat pad in more restricted areas. During this operation all distortions must be removed. Extra care is necessary to avoid gel coat rub through on sharp corners.
2. Enter the body stoving oven. Stove cure to give a panel temperature of 100°C (210°F) for a minimum of 10 minutes. Ensure that the external oven temperature gauge reads 93°C (200°F) minimum before body entry and close the oven door immediately after body entry.

3. Exit oven and allow to air cool. While the mouldings are still warm prick out and mark all defects. When cool rectify the defects with P38 filler. Dry rub down with 80 grade paper (Carborundum) confining flatting to the rectified surface only. Dry flat the entire area with 240 grade paper (Carborundum). Before polyurethane primer spraying the car must be thoroughly vacuum cleaned and all foreign bodies must be removed.

BA 4 - BODY AND COMPONENT POLYURETHANE PRIMER

1. Ensure that the body and components are fully vacuum cleaned. Enter the Tak Rag booth and thoroughly solvent wipe the entire car and component surfaces to be painted. The solvent to be used is Flowline Wax and Grease Remover.

Ensure that new cloths of woven material are used and that they are changed frequently during use so as to ensure surface cleanliness, remove all traces of rubbing down sludge.

2. Thoroughly Tak Rag all surfaces that are to be painted to remove all traces of dust.
3. Spray one straight coat and one cross coat of polyurethane mixed as below:-

P.U. Primer	A075B6124	25 parts by volume
P.U. Catalyst	X036B6137	5 parts by volume
P.U. Retarder	A075B6172	2 parts by volume

Thin to 45 seconds B.S.4. Cup at 18-20°C (64-68°F) using thinner A075B6125. Spray using a Binks Bullows pressure pot gun with material nozzle 2059, needle 59 and pressure cap 63 PB.

Allow to flash off for 10 minutes at 21°C (70°F).

Wet film thickness 6 thou.

4. Enter the curing oven for a minimum of 20 minutes at 88°C (190°F) panel temperature. Exit oven and allow to air cool.
5. Inspect and rectify any further surface defects with P38 filler. Dry flat the filler with a flat pad of 80 grade paper (Carborundum) confine this to the filled area only. Finally dry flat the entire polyurethane surface with 240 grade paper to provide a scrubbed surface for the second pass of polyurethane. Where possible the primer coat should remain unbroken, rub throughs being kept to a minimum.
6. Loosen dust using an airline and thoroughly vacuum clean to remove all dust from the inside and outside of the body and its components. Enter the booth and Tak Rag the body and components fully removing all traces of dust and sludge from the surfaces to be sprayed.
7. Immediately after the Tak Rag operation enter the spray booth and spray one straight coat and one cross coat of grey polyurethane primer mixed as below:-

P.U. Primer	A075B6124	25 parts by volume
P.U. Catalyst	X036B6137	5 parts by volume
P.U. Retarder	A075B6172	2 parts by volume

Thin to 45 seconds BS 4 Cup at 18-20°C (64-68°F) using P.U. Thinner A075B6125. Spray using a Binks Bullows pressure pot gun with material nozzle 2059, needle 59 and pressure cap 63PB.

Wet film thickness 6 thou.

Allow to flash off for a minimum of 10 minutes at 21°C (70°F).

8. Transfer the body and components into the curing oven for a minimum of 20 minutes at 88°C (190°F) panel temperature. Exit oven and allow to air cool.

9. Wet flat with hand blocks using 360 grade paper (Carborundum) removing all traces of orange peel. Do not rub through the polyurethane as this will mean a recycle of the body or component. The wet flatting medium should be 1/8 pint of Finadet No. 1 to 2 gallons clean water for this operation. This solution should be changed frequently so as to avoid sludge contamination.
10. Wash off all rubbing sludge using clear running water (hose and brush). Do not allow sludge to dry on the body surface as this will seriously impair intercoat adhesion.
11. The final wash down must be carried out with de-ionised water. Dry off thoroughly.
12. Before colour coating it is essential that the body and components have a properly cured, smooth, unbroken and clean polyurethane surface, and that they are kept dry, under cover, and out of direct rainfall.

BA 5 - BODY & COMPONENT PREPARATION FOR COLOUR COATING

1. Thoroughly vacuum the inside and outside of the body and its components. Ensure that the body and all components are completely dry before entering the Tak Rag Booth.
2. Enter the Tak Rag booth and solvent wipe the entire surface to be painted using Flowline Wax and Grease Remover.

Remove the solvent with clean woven cloth and give all surfaces a thorough Tak Rag to remove dust.

BA 6 - BODY & COMPONENT NITRO-CELLULOSE COLOUR COAT

Mono Colours: ICI P030 Type low bake cellulose

Metallic colours: ICI P031 Type low bake cellulose

1. Mix paint as follows:-

Mono Colours - ICI P030 paint 1 part by volume
ICI P105 0082 converter thinner 1 part
by volume.

Viscosity 23 to 27 seconds BS 4 cup at 18 °C (65°F) material temperature. If necessary add more P105 0082 converter thinner to achieve this viscosity.

Metallic colours -

1st pass - ICI P031 paint/thinners 1:1 as above

2nd pass - ICI P031 paint 1 part

Low Bake convertor clear P017-708 1 part

Thin resultant mixture 1:1 with converter thinners P105-0082.

Viscosity 23 to 27 seconds BS 4 cup at 18°C (65°F) material temperature. If necessary, add more P105 0082 converter thinner to achieve this viscosity.

2. Immediately after the Tak Rag operation enter the paint spray booth and spray a light mist coat inside the body. With spray gun air only, blow down the outside surfaces.
3. Spray one single coat, allow solvents to flash off the 10 minutes, one cross coat and a final single coat. Leave in the flash booth for 30 minutes to allow solvent flash off. During spraying care should be taken that paint covers all areas, in particular those areas of a defect nature; apertures, door shuts, body and bonnet edges etc.. The booth temperature should be 20-21°C (68-70°F). Spray gun settings should be air pressure 65 - 70 psi and material pressure 12 - 15 psi to give a 7'6" throw P test. Ensure that the mixing pot filters are fitted and clean (these are to be cleaned daily and as required).

3. cont.....

Spraying should be carried out with a Binks Bullows 230 gun set up as follows:-

Deionised air noxxle	- Polonium 210 (to be changed yearly)
Material nozzle	- 446
Needle valve	- 49
Air nozzle	- 63PE

Wet film thickness 5 thou.

4. Transfer the body and components to the curing oven and cure for 50 minutes at 82°C (180°F) panel temperature.
5. Exit oven and inspect. Rectify as described in section BA - 8.
6. Enter spray booth and solvent wipe using Isopropanol mixed 1:1 with clean water. Remove solvent with clean new Kimwipes, changing regularly. Tak Rag thoroughly to remove all traces of surface dust.
7. Mix paint as in (2) and thin to the recommendation.
8. Apply one coat of paint over all rectification areas, wheel arches and apertures, and allow 10 minutes flash off. Continue to cover all surface area to be painted with one single coat. Allow 10 minutes flash off and spray one cross coat to all surfaces of body and components. Wet film thickness 6 thou.
9. Allow 30 minutes for solvent flash off in the flash booth.
10. Enter curing oven for 50 mins at 80°C (176°F) panel temperature.
11. Exit oven and allow to air cool to room temperature. Flat the painted surface using Wet 1200 grade paper (3M). The flatting medium for this operation is 1/4 pint Finadet No. 1 to 2 gallons of clean water. Flatting is only necessary in areas where normal compounding will not rectify i.e. the top half of the car.

12. Using I.C.I. 2B rubbing compound machine polish the entire painted surfaces. Keep the polishing mop moist, do not allow compound to dry on the mop as scratching may result. Clean the mop frequently, where possible the mop should be moved in a fore and aft direction.
13. Hand polish the body and components using clean woven cloth and mirrorglaze MGM8 polish.

BA 7 - BODY COMPONENT P420/421 ACRYLIC POLYURETHANE COLOUR COAT & CLEAR.

1. Enter the Tak Rag booth and solvent wipe using Isopropanol mixed 1 : 1 with de-ionised water. Remove solvent with clean new woven cloths - changing regularly.

2. Mix colour paint as below:-

For Mono colours:

ICI P420 Paint	4 parts by volume
ICI P210/0760 Hardener	2 parts by volume
ICI P850/1196 Thinner	1 part by volume

For Metallic colours:

ICI P421 Paint	4 parts by volume
ICI P210/0760 Hardener	2 parts by volume
ICI P850/1196 Thinner	2 parts by volume

Spraying viscosity is 17-21 seconds BSB4 cup at 18°C material temperature.

If found necessary, during hot weather replace P850/1196 thinner with P850/1212 to overcome solvent boil.

3. Spray using a Binks Bullows gun set up as follows:-

Air Nozzle	63 PB
Fluid Nozzle	446
Needle	18.01.00
Fluid Pressure	30 p.s.i.
Air Pressure	70 p.s.i.
Fan Angle	35°

- Use two operators with guns balanced at 6 ft 'P' test
- Blow down interior surfaces with filtered air
- Spray a mist coat inside the body to lay remaining dust
- Tak Rag to remove all traces of surface dust
- Blow down external surfaces with filtered air.
- Spray one single coat
- Allow to flash off for 10 minutes.

For solid colours:

Spray second single coat
Allow 10 minutes flash off
Spray third single coat
Allow 30 minutes flash off

For metallic colours:

Spray second single coat
Allow 10 minutes flash off
Spray double dust coat
Allow 45 minutes flash off

4. Mix clear coat as follows:-

ICI P190/0379 Clear Coat	4 parts by volume
ICI P210/0760 Hardener	2 parts by volume
ICI P851/0727 Retarder	$\frac{1}{2}$ part by volume
ICI P850/1212 Thinner	$1\frac{1}{2}$ parts by volume

Spraying viscosity is 14 to 16 seconds BSB4 cup at 18° material temperature.

Spray one single laquer coat over all painted areas, wet film thickness, 5 thou.

Allow 10 minutes to flash off

Spray second single coat, wet film thickness 5 thou.

Allow 30 minutes flash off in the flash off area.

5. Transfer body and components to the paint curing oven and cure for 50 minutes at 180°F (80°C).

6. Exit oven and allow to air cool. Flat the painted surface using 1200 grade paper (3M). Use 1/4 pint Finadet No. 1 to 2 gallons of clean water as the flatting medium.
7. Using ICI 2B rubbing compound, machine polish the entire painted surface. Keep the polishing mop moist, do not allow polish to dry on the mop as scratching may result. Clean the mop frequently, where possible the mop should be used in a fore and aft direction.
8. Matt black and hammerite to current specification.
9. Hand polish the body and components using clean woven cloth and Mirrorglaze MGM8 polish.

BA 8 - P422 LINE 2 PACK ACRYLIC POLYURETHANE SPRAYING

If a car finished in ICI P422 line acrylic polyurethane is to be totally resprayed, either P422 or P421 line paint systems may be used, the latter having an improved resistance to paint chipping.

If P421 is to be used, first strip the lacquer and basecoat P422 completely down to the Monaco White 'undercoat', and then flat thoroughly with P800 grade paper. Continue with P421 paint procedure BA 7.

For P422 line paint application, proceed as follows:-

1. Mix 420 Line Monaco White Paint

ICI P420 7517 Monaco White	4 parts by volume
ICI P210 760 Hardener	2 parts
ICI 850 1197 Thinners to 20 sec BS4 cup 1 part	

N.B. This paint is a curing material with a pot life of 5 hours.

2. Using a pressure pot system & and Binks 230 spray gun:

Spray 2 single coats leaving 5 minutes flash off between coats.

Leave 30 minutes, flash off.

Oven 50 minutes at 80-85°C.

Allow to cool.

3. Inspect and rectify as described in BA 9.

4. Wet flat using 360 grit paper to leave a scratch free surface.

Special care must be taken in all areas as the basecoat clear system accentuates any scratch marks.

5. Enter spray booth and solvent wipe using Isopropanol mixed 1:1 with clean water. Remove solvent with clean new woven cloths changing regularly. Tak Rag thoroughly to remove all traces of surface dust.

6. Basecoat

ICI 422	Colour Paint	2 parts
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ICI 850 1197	Thinners	3 parts
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To give 18 secs BS 4.

7. Spray three single coats leaving 5 - 10 minutes, flash off between coats.

Apply a dust coat to remove all patchiness.

8. Inspect.

Leave 20 minutes to flash off before applying clear coat.

9. Mix clear lacquer as below:-

ICI	P190 0379 Clear coat	4 parts by volume
ICI	P210 0760 Hardener	2 parts by volume
ICI	P850 1212 Thinner	2 parts by volume

Viscosity 23 to 27 seconds BS4 cup at 18°C (65°F) material temperature. If necessary add more P850 - 1212 thinner to achieve this viscosity.
10. Spray one single lacquer coat over all painted areas. Wet film thickness 5 thou.
11. Allow 10 minutes to flash off in the spray booth.
12. Spray second single lacquer coat.
Wet film thickness 5 thou.
13. Leave to flash off for 30 minutes in the flash booth.
14. Transfer body and components to the paint curing oven and cure for 50 minutes at 80°C (176°F) panel temperature.
15. Exit oven and allow to air cool to room temperature. Flat the painted surface using wet 1200 grade paper (3M). The flatting medium for this operation is 1/4 pint Finadet No. 1 to 2 gallons of clean water.
16. Using I.C.I. 2B rubbing compound, machine polish the entire painted surface. Keep the polishing mop moist, do not allow compound to dry on the mop as scratching may result.
Clean the mop frequently, where possible the mop should be moved in a fore and aft direction.
17. Hand polish the body and components using clean woven cloth and mirrorglaze MGM 8 polish.

BA 9 BODY & COMPONENT INTERCOAT RECTIFICATION PROCEDURES

1. For small area rectification problems remove the gloss from the area to be filled using 400 grade paper (3M) wet. Dry thoroughly and apply cellulose stopper A036B6327. This must be left for a minimum period of 30 minutes at shop temperature 16°C (60°F). Wet flat using a block and 400 grade paper (3M). Confine flatting to the rectification and immediate surroundings only. Flatting medium is 1/4 pint Finadet No. 1 to 2 gallons clean water.

2. Larger defects must be filled using P38 filler X036B6203. P 38 must never be used to fill on top of colour coats. Remove the defect and surrounding area of colour coats using 240 grade paper (3M) wet. Dry thoroughly, mix filler and hardener and apply to the defect. Allow the filler to gel and become hard to the touch (10-15 minutes). Apply infra red lamps to cure the filler for 30 minutes at 24 inches from the panel surface. When cool wet flat the repaired area using 240 grade paper (3M) and small hand blocks. Confine flatting to the filled area only. Flatting medium is 1/4 pint Finadet No. 1 to 2 gallons clean water.

3. Gel crack defects, where possible should be returned to the body preparation area. If gel cracks become apparent after the first colour paint pass in the paint shop, the following procedure must be adopted. The crack mark and an area of $\frac{1}{2}$ inch surrounding the mark must be removed with a router down to the base of the gel coat. With an airline blow out dust traces and check that no dust remains. Using P38 filler mixed with hardener fill the defect. Allow the filler to gel and become hard to the touch (10-15 minutes).

Apply infra red lamps to cure the filler for 30 minutes at 24 inches from the panel surface. When cool wet flat the repaired area using 240 grade paper (3M) and small hand blocks. Confine flatting to the filled areas only. Flatting medium is 1/4 pint Finadet No. 1 to 2 gallons clean water.

4. Thoroughly dry the body and components after filler/stopper rectification and solvent wipe the rectified areas using Flowline Wax and Grease Remover. Tak Rag these areas to remove all traces of dust.

5. Mix polyurethane primer as below:-

P.U. Primer	A075B6124	25 parts by volume
P.U. Catalyst	X036B6137	5 parts by volume
P.U. Retarder	A075B6172	2 parts by volume

Thin to 45 seconds BS4 cup at 18-20°C (64-68°F) material temperature using PU Thinner A075B6172. Spray with A.I.D. L2 pressure pot gun with material No. 6, needle No. 6, and pressure cap No. 8..

6. Spot prime spray the rectified areas to blend in with surrounding body surfaces. Allow to flash off for 10 minutes and apply infra red lamps to cure the primer for 30 minutes at 24 inches from the panel surface. Wet flat the rectified areas using 400 grade paper (3M). Do not rub through the polyurethane.

7. Mix primer surfacer as below:-

Surfacer 22 white A036B6396 and thinner 222 A036B6385 to 25-28 seconds BS4 cup at 18-20°C, (64-68°F), material temperature. Spray with I.A.D. L2 gun with material nozzle No. 6, needle No. 6. and pressure cap No. 8. Build up 2 to 3 full coats allowing 10 - 15 minutes drying time between each coat at 18 °C (65°F).

8. Apply infra red lamps to cure the rectified area for 30 minutes at 24 inches from the panel surface. Allow to cool and wet flat using 400 grade paper (3M). Use 1/4 pint Finadet No. 1 to 2 gallons clean water, change this solution frequently to avoid sludge contamination. All flatting must be done in a fore and aft direction using hand held blocks. Care must be taken to avoid rubbing through either the colour film or the polyurethane repair.

9. Wash off with clean water (hose and brush) and remove all traces of rubbing sludge. Dry thoroughly inside and out and ensure that all traces of water is removed from all fixtures and bobbins as this will cause blistering on the 2nd colour pass. Thoroughly vacuum both inside and outside of the car and components before colour coating.

BA 10 - NITRO-CELLULOSE PAINT RECTIFICATION

A. Orange Peel or scratches caused by compounding

If these defects are heavy they should be removed by wet flatting using 1200 grade paper (3M). Flatting medium is 1/4 pint Finadet No. 1 to 2 gallons of clean water. Always flat in a fore and aft direction. Thoroughly wash down the flatted surface using running water (hose and brush) removing all traces of rubbing sludge and dust. When completely dry using ICI 2B rubbing compound machine polish the panels. Keep the polishing mop moist and do not allow the compound to dry on the mop as scratching may result. Clean the mops frequently, where possible the mop should be moved in a fore and aft direction. Using a clean dry mop lightly buff to complete.

Continue polishing the panel using 'T-cut'. Using a fresh polishing mop again keeping the mop moist and moving in a fore and aft direction. Finally hand polish the car using clean cloths and Mirrorglaze MGM8 polish.

B. Scars or sinkages

Normally these can be dealt with using the flat and polish procedures detailed in 'A' above. If they are heavy however, the sunken surface must be brought up to the level of the surrounding paintwork with cellulose stopper. Remove the gloss from the defect using 400 grade paper (3M) hand flatting.

B. Scars or sinkages cont....

Ensure the area is dust free and screed the defect with cellulose stopper A036B6327. Allow to cure under infra red heating at 24 inches from the surface at a panel temperature of 60°C, (140°F) for 30 minutes. Allow to air cool and wet flat using soap lubricant, hand block with 400 grade paper (3M). Blow in the rectified area with primer surfacer 22 A036B6396 to bring the defect surface level up to that of the surrounding paintwork. If several coats are necessary allow 10-15 minutes drying time between each coat at 18°C (65°F). Allow a further 30 minutes drying time prior to applying infra red heating for 15 minutes at 24 inches from the panel giving a surface temperature of 60°C (140°F). Allow to air cool and wet flat the area using hand block, lubricant and 600 grade paper (3M) to complete.

Mix paint as follows:-

P030 type mono paint	40 parts by volume
A036B6385 222 thinner	60 parts by volume

to give 22 secs BS4 cup at 21°C (70°F). This to be sprayed using a Binks Bullows pressure pot gun. Spray light coats to obtain desired colour matching. Continue to complete as in 'A' above.

C. Gel Cracks

Remove the paint, primer and gel coat over the cracked area and 1/2 inch surrounding this feathering back to the paint surface over a further 1/2 inch. Use a machine router and disc sander for this purpose. Blow out dust, mix P38 filler and fill the defect back to surface layer. Allow the filler to cure until dry to the touch, approximately 15 minutes at 20°C (80°F). Apply infra red lamps to fully cure the filler for 30 minutes at 24 inches from the panel giving a surface temperature of 60°C (140°F). Allow to air cool, wet flat the filled area using small hand blocks, lubricant and 320 grade paper (3M) confining flatting to the filled area only.

C. Gel Cracks cont....

The next operation is polyurethane primer spraying. It is important that all cellulose is removed from areas which require polyurethane. Dry the area fully and solvent wipe using isopropanol. Tak Rag thoroughly to remove surface dust.

Mix polyurethane primer as follows:-

P.U.Primer	A075B6124	25 parts by volume
P.U.Catalyst	X036B6137	5 parts by volume
P.U.Retarder	A075B6172	2 parts by volume

Thin to 45 seconds BS4 cup at 18-20°C (64-68°F) using P.U. thinner A075B6125. Spray using a Binks Bullows pressure pot gun with material nozzle 2059, needle 59 and pressure cap 63 PB. Allow to flash off the 10 minutes at 21°C (70°F) and then apply Infra red lamps to obtain panel temperature of 60°C (140°F) for 20 minutes. Allow to air cool and wet flat the rectified area using hand blocks, lubricant and 400 grade paper (3M). Do not rub through the polyurethane. If the polyurethane surface is pierced it will be necessary to repeat the priming procedure. Dry thoroughly degrease using Flowline wax and grease remover, and proceed on to primer/surfacer painting and polishing treatments detailed in A & B above.

D. Blisters

Rout out the blister just deep enough to expose the blister cavity.

If the defect is contained within the paint film thickness it will be necessary to use cellulose stopper followed by primer/surfacer and paint as detailed in B above.

If the defect extends down to the polyurethane it will be necessary to use P38, polyurethane primer, primer/surfacer and paint as in C above.

If the defect extends into the gel coat it will be necessary to use P38, polyurethane primer, primer/surfacer and paint as in C above.

E. Chips and Scratches

Edge/corner chips

These should be touched in with an artist brush using paint mixed as follows:-

P030 type paint - 40 parts by volume

A036B6385 222 thinner 60 parts by volume

Allow to air dry then fully cure using Infra red lamps 24 inches from panel surface giving 60°C (140°F) for 30 minutes allow to air cool and wet flat using 800 grade paper (Norton) with lubricant. Dry thoroughly and carry on to rubbing compound and polishing treatments as in A above.

Panel Chips

If these chips are down into the gel coat it is necessary to use P38, polyurethane primer, primer/surfacer and paint as described in C above.

Scratches-minor

These should be treated as for edge and corner chips above i.e. touched in with an artist brush, wet flatted and polished.

Scratches-major

These should be treated with cellulose stopper, polyurethane primer, primer surfacer and paint as in B above.

BA 11 - ACRYLIC POLYURETHANE PAINT RECTIFICATIONA. Orange Peel or scratches caused by compounding

These defects should be removed using ICI 2B rubbing compound. Use a machine mop keeping the mop moist and where possible moving the mop in a fore and aft direction.

Continue the polishing using 'T-Cut', and a fresh polishing mop, again keeping the mop moist and moving in a fore and aft direction. Finally hand polish the car using clean cloths and Mirrorglaze MGM8 polish.

B. Scars or sinkages

These defects should be removed by wet flatting the lacquer using hand blocks, lubricant and 1200 grade paper (3M). Great care must be taken not to flat through the lacquer coat. If this treatment is successful the panel can be compounded and polished as above. If the problem is such that it cannot be removed by flatting then the area should be thoroughly dried and Tak Rag prepared. Clear lacquer should be mixed as follows:-

ICI P190-0379	Clear coat	4 parts by volume
ICI P210-0760	Hardener	2 parts by volume
ICI P850-1212	Thinner	2 parts by volume

Viscosity 23 to 27 seconds BS4 cup at 18°C (64°F), material temperature. If necessary add more P850-1212 thinner to achieve this viscosity. Mask off area immediately surrounding the faulty area and build up the minimum number of coats of lacquer required to disguise the defect. 10 minutes should be allowed between coats for flash off at 18°C (64°F). Leave the final coat to flash off for 30 minutes at 18°C (64°F), then apply Infra red lamps to fully cure the lacquer for 30 minutes at 60°C (140°F). The rectified area can then be wet flatted compounded and polished as above.

If by error the metallic paint under the lacquer is broken into by flatting then it will be necessary to spray fresh colour coat and lacquer over this area. Wet flat the area using 400 grade paper (3M), lubricant and hand block. Dry thoroughly and Tak Rag.

B. Scars or sinkages cont....

Mix colour paint as follows:-

ICI P421	paint	4 parts by volume
ICI P210 760	hardener	2 parts by volume
ICI P850 1212	thinner	2 parts by volume.

Viscosity 23-27 seconds BS4 cup at 18°C material temperature.

If necessary add more P850-1212 thinner to achieve this viscosity.

Mix clear lacquer as follows:-

ICI P190-0379	clear coat	4 parts by volume
ICI P210-0760	hardener	2 parts by volume
ICI P850-1212	thinner	2 parts by volume

Viscosity 23-27 seconds BS4 cup at 18°C (64°F) material temperature. If necessary add more P850-1212 thinner to achieve this viscosity. Mark off the area immediately surrounding the faulty area. Spray one single coat of colour paint and allow 30 minutes to flash off at 18°C (64°F). Spray one single coat of clear lacquer allow 15 minutes to flash off at 18°C (64°F) and spray the final lacquer coat. Leave to flash off for 30 minutes at 18°C (64°F) and then apply infra red heating for 30 minutes at a panel temperature of 60°C (140°F). Allow to air cool and then wet flat using 1200 grade paper (3M) followed by compound and polishing as in A above.

C. Gel Cracks

Remove the paint, primer and gel coat over the cracked area and 1/2 inch surrounding this, feathering back to the paint surface over a further 1/2 inch. Apply P38, polyurethane primer and primer/surface as described in BA 10 - Part C, and continue to paint and finish as in A & B above.

D. Blisters

Rout out the blister just deep enough to expose the blister cavity.

If the defect is contained within the paint film thickness it will be necessary to respray locally both colour paint and clear lacquer as described in B above.

D. Blisters cont....

If the defect extends lower than the paint film it will be necessary to use P38, polyurethane primer, primer/surfacer and paint as for the gel crack defect described in C above.

E. Chips and Scratches

Where possible these can be treated by respraying both colour and clear lacquer as in B above but if necessary the full body surfacing treatment must be given as in C above.

BA 12 - PAINT PROCEDURE FOR RRIM COMPONENTS

Excel front and rear bumpers, sills and rear valences are Reinforced Reaction Injection Mouldings (RRIM) and are supplied only in primer for finishing in the colour required. Refer to the paint code stamped on the vehicle identification plate.

1982/83 model year Excels.

RRIM parts are painted in Steel Grey metallic Lotus part no. A089B6113V , ICI P421/5310 and clear laquer, using a flex aid additive in both colour and clear coats.

1984 model year Excels.

On metallic cars, RRIM parts are painted in the same P421 line paint as is the body, together with a clear laquer and flex aid additive.

On mono colour cars finished in nitro cellulose ('L' paint code prefix) the RRIM parts are painted using P420 line 2-pack acrylic polyurethane paint with a flex aid additive, but NO clear laquer.

Paint part numbers as follows:-

VIN Plate Body Paint Code	Colour	RRIM Paint Part Numbers	
		Lotus	ICI
Nitro - Cellulose	(L31 Lemon Yellow	A089B6148V	P420/0455)
	(L25 Monaco White	A089B6149V	P420/7517)
	(L42 Calypso Red	A089B6150V	P420/GJ23)
	(L15 Black	A089B6151V	P420/0122)

2 - Pack
Poly.

On mono colour cars finished in acrylic polyurethane

('A' paint code prefix), RRIM parts are painted in the same P420 line paint as is the body, together with a clear laquer and flex aid additive.

1. Preparation.

Use 400 grit carburundum paper to wet flat the panel and remove all surface irregularities. Do not rub through the primer (A082B4429V, ICI P571/5000).

2. Colour Paint Application.

For metallic colours:

Colour paint		P421	5 parts by volume
Flex Aid	A089B6121V	P100/2001	1 part by volume
Hardener	A076B6061V	P210/0760	3 parts by volume
Thinner	A076B6077V	P850/1212	To spraying Viscosity

For mono colours:

Colour paint		P420	5 parts by volume
Flex Aid	A089B6121V	P100/2001	1 part by volume
Hardener	A076B6061V	P210/0760	3 parts by volume
Thinner	A076B6077V	P850/1212	To spraying Viscosity

For either system, spray one single coat, allow 10 minutes to flash off, and spray one cross coat. Allow 30 minutes flash off before stoving at 80°C for 50 minutes. Rectify minor blemishes with cellulose stopper and prepare for spraying second coat.

Spray second coat as above, and if necessary with metallic colours, a dust coat to minimise shading. For mono colours, allow 30 minutes flash off before stoving at 80°C for 50 minutes.

3. Clear Coat Application. (Not used on 'L' paint code cars)

Clear Coat	A076B6069V	P190/0379	5 parts by volume
Flex Aid	A089B6121V	P100/2001	1 part by volume
Hardener	A076B6061V	P210/0760	3 parts by volume
Thinner	A076B6077V	P850/1212	To spraying Viscosity

Spray one single coat of clear coat, allow 10 minutes to flash off, and spray one double coat. Allow 30 minutes to flash off before stoving at 80°C for 50 minutes.

NOTE: RRIM components can only be stoved if jig supports are used to prevent distortion. Where jigs are not available, the paint may be air dried at room temperature for 10 to 12 hours minimum. Parts should not be fitted for 24 hours.

BA13 - PEARLESCENT WHITE PAINT PROCEDURE

Cars finished in 'Pearlescent White' with paint code P02 should be painted as follows:

1. Follow procedures BA2, BA3 BA4 and BA5 to apply polyurethane primer and to prepare for the colour coat.
2. Follow procedure BA7 stages 1, 2 and 3 to apply Monaco White, ICI P420-7517, and allow 45 min. flash off before applying the pearlescent coat.
3. Pearlescent Finish: A089B6184V ICI P421-7865
Mixing Ratio: Pearlescent 4 parts by volume
Hardener P210-760 1 parts by volume
Thinners P850-1212 4 parts by volume

Spraying viscosity is 16-18 secs. BS4 cup at 18°C material temperature. Pressure at the gun 60 psi.

Spray 2 single passes to obtain a film thickness of 1 thou. approx. 5 min. flash off between coats.
Flash off 30-45 min. before clearcoat application.

4. Follow procedure BA7 stages 4 to 9 to apply clearcoat and to polish.

RRIM COMPONENTS IN PEARLESCENT WHITE

1. Follow procedure BA12 to apply a colour coat of Monaco White ICI P420-7517.

2. Pearlescent Finish: A089B6184V ICI P421-7865
- Mixing Ratio: Pearlescent 5 pbv
Flexaid P100 2001 1 pbv
Hardener P210 0760 1.5 pbv
Thinners P850 1212 to spraying viscosity
- Spraying viscosity is 16-18 secs. BS4 cup at 18°C material temperature.
- Spray 2 single passes to obtain a film thickness of 1 thou. approx. 5 min flash off between coats.
- Flash off 30-45 mins before clearcoat application.
3. Follow procedure BA12 to apply a clear coat of ICI P190-0379.

BA 14 - PAINT REMOVAL

Under no circumstances must "Paint Stripper" be used to remove paint from glass fibre reinforced plastic (G.F.R.P.) bodies as this will attack the gel-coat, which MUST of course remain intact.

The recommended procedure for removing paint is:-

1. Wash off with a slow thinner,
or
2. Wet flat with an appropriate grade of paper dependent on the amount of paint to be removed.
Paper heavier than "240" grade must not be used.

JUL 1985

BODY

BODYCARE AND REPAIR

SECTION BB - ALL MODELS

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BB 1 - LOTUS COMPOSITE BODY FEATURES

(Owners Handbook Extract)

Lotus Cars Limited are acknowledged leaders in the field of composite moulding design and manufacturing techniques, having developed methods which are now used under license throughout the world.

These brief notes introduce some features of the construction and service properties of composites as applied to vehicle bodies.

Composite materials have major advantages for specialist vehicle bodies;-

Composites will not corrode. The strength of composite components is retained regardless of age, unless physical damage is sustained.

The Manufacturing process enables the thickness of composite mouldings to be varied throughout the bodyshell and components to provide efficient structures, of high strength and low weight.

The passenger compartment in all Lotus models is enclosed by protective structural beams, built into the bodyshell and doors which combine to provide maximum occupant protection.

Composites have the ability to absorb high impact loads by progressive collapse and impact damage is localised. In accident situations this protects occupants from injurious shock loads and greatly reduces the danger of entrapment by deformation of body panels, or jammed doors. This behaviour also facilitates repair by integrating replacement body sections with the undamaged part, using recognised approved methods which will restore the body to original condition without residual strain or distortion.

cont.....

The outer surface of a composite panel is sealed by a thin layer of 'gel coat'. If the panel is deflected beyond its limits of flexibility the gel coat will be overstressed and cracks will result, although the panel will return to its original shape.

A steel panel similarly treated would become permanently dented.

The cracking may be confined to the surface gel coat, with no reduction in panel strength, but if damage is more severe the composite structure below the gel coat may be weakened.

Localised repairs can be made in either case. Gel cracks may not appear immediately after overstressing because the effect can be masked by the flexibility of the paint finish which covers the gel coat. In some instances gel cracks can take as long as three months to appear.

Gel cracks can be caused by, for example:-

Sitting or leaning heavily on the bonnet or any other flexible panel.

Knocking doors against obstructions when opening.

Dropping a sharp or heavy object on a panel.

Allowing unsecured items to slide about in the boot (trunk).

Closing bonnet (hood) or boot (trunk) onto projecting objects, e.g. luggage or tools.

Attempting to deflect or remove, by force, parts attached to composite panels e.g. mirrors, locks, aerial etc., (action by vandals or even some mechanical car washes).

Incorrect jacking.

Collision with heavy rigid object.

Note that bumpers are sacrificial members which will absorb shock loads, thus protecting body panels. Exceeding bumper load factor may cause gel crazing of body panels.

BB 2 - BODYCARE

(Owners Handbook Extract)

The finish of your Lotus is extremely resistant to all normal forms of atmospheric attack. Provided the simple maintenance procedure summarised below is followed, it will retain its gloss, colour and protective properties throughout the life of the vehicle.

However, car finishes are not chemically resistant. Severe local contamination of an acid or an alkaline character can occur. If it is left in contact with the paint film for any length of time, it may cause pitting and colour change.

Washing

Many contaminants which will attack a paint film are water soluble. They will be removed before any harm occurs by thorough washing with plenty of water, to which is added a few drops of liquid detergent. Frequent washing is the best safeguard against unseen contaminants; at the same time ensuring the regular removal of dirt, dust and traffic film.

If washing with cold water is not effective, warm water and detergent will remove the gummy deposits exuded by some trees in the summer months. Petrol or white spirit will remove stains of the tar, bitumen and grease type.

Polishing

Eventually some loss of gloss, and an accumulation of traffic film, will occur. At this stage, after the normal washing, a polish with a good quality liquid polish will restore the original lustre of the paint film.

Higher gloss of the paint film, and added protection against contamination, can be obtained by wax polishing. But it must be remembered that a wax polish can only be used successfully on a clean surface, and that the previous application must first be removed with white spirit or a liquid polish cleaner before re-waxing.

Ventilation

Water lying on the paint surface for lengthy periods will penetrate the paint film. Although the effects will not be visible immediately, this will in fact cause a deterioration in the protective properties of the paint film.

If a car is garaged, good ventilation must be provided. Otherwise storage outside on a hard standing or under a carport is preferable.

Summary

1. Wash frequently, using cold water with a few drops of liquid detergent added.
2. Inspect after a normal washing, and remove any local contamination with warm water, petrol or white spirit as appropriate.
3. Use a good quality liquid polish infrequently - say, twice a year - to restore high gloss and to remove accumulated traffic film and scum.
4. Park on a hard standing, and under conditions of good ventilation if a covered area is used.

Windscreen

When washing the windscreen, the wiper blade may only be lifted away from the screen a small distance, to avoid damaging the pantograph mechanism. Wash the wiper blade with clean water.

Bright Metal

The attractive appearance of bright metal can be preserved if it is cleaned regularly.

Each week wash with a soap and water solution, rinse thoroughly with clean water and dry off. For further protection, apply a good quality wax polish.

Alloy Wheels

It is recommended that these are washed with the preparation as is used to wash the bodywork. Use a brush having nylon bristles only. During the winter months, particularly when salt has been used on the roads for the dispersal of snow and ice, remove all wheels, including spare, and wash thoroughly to remove all accumulated road filth from wheels and tyres.

Upholstery and roof lining

Normal cleaning consists of an occasional light wipe over with a cloth dampened in a mild soap and water solution; it is important that the cloth is only dampened, not soaked.

Leather Upholstery

The leather should be wiped over occasionally with a cloth dampened in warm soapy water. Repeat the operation using a fresh cloth and water only - avoid flooding the leather - finish by drying and polishing with a soft dry cloth.

It is important to use a mild, non caustic soap of the toilet kind (or 'Lux' soap flakes) and to avoid the use of petrol or detergents, furniture creams and polishes.

An occasional use of Cee Bee Hide Food is recommended after the leather has been in use for a year or two.

Seat Belts cleaning

The most suitable cleaner for seat belts is a mild soap and water solution since terylene does not absorb water to any extent and therefore will dry quite quickly.

Fluids which are harmful to terylene are those containing mineral acids and MUST NOT be used.

BB 3 - GENERAL DESCRIPTION

The basis of the vehicle comprises a one piece moulded composite material bodyshell which straddles a fabricated steel backbone chassis, and is bolted to it via integral alloy bobbins at several widespread mounting points.

Whilst the chassis carries all the major structural loads, the body is used to carry or transfer the remainder, and when the body and chassis are mounted together each contributes to the strength and torsional stiffness of each other. The bodyshell is moulded in two major sections, a topshell and undertray which are bonded together around the 'waistline'.

Specific properties, where required, are incorporated within the moulded sections by utilizing the high tensile and strength characteristics of the various types of fibre reinforcement used.

BB 4 - ACCIDENT DAMAGE ASSESSMENT

All damage to the body must be classed as structural. However, inside this broad classification the damaged area can be further defined as either:-

a) High stressed, b) Moderate stressed, or c) Low stressed, and on that definition depends the original construction and therefore the repair method to be employed.

As a general rule there should be a bond wherever two panels touch, or wherever they close on important points. It is usually possible to check these bonds both visually and physically for fractures or breaks. Ascertain the cause of damage and the direction of impact and examine all panels or bonds which may have been affected.

A front end impact, for example, may easily cause the bonds at the bulkhead to split without the defect being easily visible.

To facilitate a closer examination it may be necessary to remove parts and components to determine the extent of the damage. When determining the size of the replacement panels to be ordered, make sure the new panels, when cut-in, will be attached to firm GFRP material; avoid badly crazed areas and badly burnt areas.

Fire damage is the most difficult to assess but generally only the obviously burnt or charred sections will need to be replaced or reinforced.

BB 5 - RESIN MIX (Accelerated Hand Lay-Up)

Resin - Part Number X036 B 6206V

Catalyst - Part Number X036 B 6344V (Butinox M50)

Mix hardener (catalyst) into the resin in the proportions of 15cc of catalyst to 1 kg (2lb) or resin. Mix ratio (1:150)

For Gel coats mix 20cc of catalyst with 1 kg (2 lb) of gel.

BB 6 - BASIC BONDS AND JOINTS

Cut off the damaged portion after marking for re-positioning of the new panel. Clean and prepare both existing and new panels, removing all road filth and underseal from the existing panel. Cut the new panel to fit, lining up with the previously marked positioning lines. Mate the two parts to be joined, using packing as necessary to achieve a perfect match. Joining plates (of angled section) should be attached to the exterior of the panel with the aid of self-tapping screws. Using chopped-strand glass fibre mat of 3oz weight, together with the resin and hardener, lay-up by hand from the underside of the joint, ensuring an overlap of 3 - 4 in (8-10 cm), and leave to harden in a temperature of not less than 15°C.

When the repair has fully cured (hardened), and NOT BEFORE, remove the joining plates from the exterior surface. Sand out the top exposed joint, feathering outwards from the join line, removing any old paint in the process. Fill the depression with rovings and resin, and whilst still wet, lay over a thin layer of chopped-strand mat and apply more resin and hardner (1 oz weight). Allow to dry and fully cure. Sand down and fill any imperfections with filler (Part No. A036B 6203V), and allow to dry. Finally, sand down with carborundum paper to prepare for painting.

BB 7 - HEADLAMP BOWLS AND SURROUNDS

Where severe damage to the headlamp bowl and surround has occurred it is generally found more economical to fit a replacement bowl and section. It is essential for the correct operation of the headlamp assembly that the replacement section is correctly positioned, the bowl being attached to the pivot bobbins of the new section and tested for clearance in the up-and-down position before being bonded to the car.

The bowl should be fixed in the most convenient position by taping in place before laminating in the new section. Accessibility is restricted in this area and it may be found more advantageous to work through the actual lamp unit hole.

Alternatively where a less serious impact has occurred and the lamp surround can be satisfactorily repaired without resorting to a replacement section it is recommended that a small jig be made to embrace both pivot mounting bolts of the bowl width. These can be screwed into the body bobbins serving to correctly locate them whilst providing sufficient access to bond them in and perform the desired repair.

SUPERFICIAL DEFECT REPAIRS

BB 8 - PIN HOLES OR AIR VOIDS

It is difficult to overcome air voids and pin holes when a hand lay-up repair is carried out, but, as all body components are heated to 82°C (180°F), the maximum service temperature, before painting, these imperfections will show up. Any air voids located in this manner can be opened up from the surface and filled with a stopper or filler.

The air voids and pin holes can be opened up using one or both of the following methods:

- a) Enlarging the hole by gouging or 'picking-out'
- b) Drilling or routing out, leaving a large hole with near parallel sides.

If after repairing pin holes the paint surface sinks over the repair, this may have been caused by the filler shrinking.

When cellulose paint stopper is used, overfill as this stopper has a high rate of shrinkage. Depressions in the paint surface when using a polyester stopper are usually caused by painting too soon after the repair. Therefore, before rubbing down and painting make sure the stopper has cured completely, leave for as long as possible before rubbing down. See Section BA.

BB 9 - DISTORTION OR WRINKLING

Distortion or wrinkling are usually caused by exposure to severe heat. This can cause the resin to soften slightly and in doing so give way to any inbuilt or associated stresses. In all such cases technical advice should be sought from Lotus Cars Limited.

BB 10 - SPLIT BONDS

Small splits in bonds, such as those around the door can occur and are caused mainly by excessive flexing of the panels or by vibration; these should be arrested before

they can extend and become serious. The split should be peeled open a little further, roughen up the inside flange surfaces with a hacksaw blade and insert the appropriate type of bonding resin before clamping up. Clamping pressure should always be applied evenly, using a small slip of wood or metal if dimpling of the panel surface is to be avoided. Where possible, all splits should be laminated from the inside.

BB 11 - REPLACEMENT SECTIONS

Where the repair of a damaged vehicle calls for replacement sections or panels it is recommended that these be obtained direct from Lotus Cars Limited.

Standard sectional repair moulds cater for the repair of damage in any area of the body unit. These are so designed that they can be used individually or connected together for the manufacture of the required section of the body. These are also used for locating new sections correctly relative to the existing panels. These moulds are deliberately left unframed so as to accommodate slight discrepancies and have been made on a standard painted body shell to allow for average paint thickness.

Due to the material used in construction of the body unit, cases of severe damage can often be economically repaired i.e. where damage has been severe enough to destroy virtually the whole front end of the vehicle, as far as the bulkhead for instance, it is possible to graft on a new complete section.

Before cutting away the damaged parts or ordering replacement sections, the proposed method of repair, positioning of joint lines, overlaps etc., should be ascertained. Determine a method for the correct positioning of replacement sections and before cutting away damaged parts check on any prominent features from which measurements can be made and scribe these clearly on to the panels which are to be left intact. Use masking tape or chalk to define the lines on which it is

proposed to cut the panels and study these lines thoroughly to see that:-

- a) any damaged or slightly damaged panel which would be useful in the aligning of another major panel will not be removed or,
- b) on single skinned areas in particular the proposed outline traverses longitudinal, lateral and horizontal definition points to assist easy lining up of the new panel in all three places.

When repairs have been carried out in the vicinity of the front wheelarches, ensure the tyres do not foul the front lower flange when the wheels are on full lock.

Underseal the wheelarch area to a depth of 1/8th in (3mm) using "3M" material, or its equivalent in consistency, to prevent gel-coat crazing caused by small stones etc., thrown up by the wheels.

BB 12 - POSITIONING REPLACEMENT PANELS

- a) Line up flat surface (e.g. undertray or floor area) using long wooden beams bolted to undamaged area.
- b) Line up main contours (e.g. wing sections) using splints and bolt into position with flat or curved steel straps.

BB 13 - BOBBINS (METAL INSERTS)

Considerable use is made of die-cast metal inserts, which are oval in configuration and commonly known as 'bobbins'.

These are designed to carry high loads in most directions and also offer the advantage of being accurately located in the mountings.

Two basic forms are employed as follows:-

Large (structural) bobbins - with 3/8 in or 7/16 in holes (plain or threaded).

Small (semi-structural) bobbins - with 1/4 in or 5/16 in holes (plain or threaded).

The following advice is given on dealing with bobbin failures:-

Bobbins Pulling Out

This could be caused by overloading e.g. accident damage. Where the bobbin and its surrounding area is accessible from the rough side of the laminates either naturally or by cutting non-weakening access holes, the remedy is to improvise a local mould in wood or glass fibre of the body surrounding the finished side of the bobbin.

Difficulty may be experienced in temporary re-locating the bobbin and its surrounding laminate in its original position. A local mould of the smooth side of the surrounding area (for example 6 in (15 cm) beyond in all directions) should eliminate this trouble. Re-registering can be achieved by drilling holes through mould and body and through the bobbin before removing the repair mould.

Additional 4 in (10 cm) square patches to make to up:-
1/4 in and 5/16 in bobbins: the equivalent of 5 x 1½ oz layers.

3/8 in and 7/16 in bobbins: the equivalent of 7 x 1.4 oz layers.

NOTE: Number of patches to be determined from the above.

The bobbin can then be directly laminated on the old mounting by using the techniques described and overlapping the new laminate on to the old by several inches (centimetres) whenever possible.

The larger bobbins are used only where the loadings are known to be high, e.g. body mountings, seat attachments, etc.. Smaller bobbins are used as a locatory point or a blind attachment point.

Typical instances such as non-structural applications are headlamp pivots. In these cases loose bobbins can be repaired by more localised and less exacting means, e.g. forcing in a dough mixture around and behind the bobbin; winding tape around it, etc..

Stripped Threads

Whilst their oval section will prevent these bobbins from turning in normal use they may loosen if too much tightening pressure is applied, or when an attempt is made to tap them out to a large diameter. If a thread is damaged or stripped an attempt should be made to drill the thread clear and use a bolt and lock nut or drill oversize and fit helicoil insert. When fitting an initial check should be made with each bolt before tightening. Only U.N.C. bobbins are employed and particular care should be paid to fit only U.N.C. bolts to them. Where the bolts are particularly tight this may be due to resin within the threaded portion of the bobbin which can be remedied by tapping out.

Only the correct length of the bolt should be used, i.e. those whose thread engages with the full depth of the bobbin. No attempt should be made to pull items up under heady load with a small engagement of thread. To avoid tightening up onto the plain shank of the bolt it is recommended that only setscrews be used, i.e. those threaded all the way up to the head.

Laminating New Bobbin

Firstly the laminates from the basic mounting surface must overlap and interleave with the laminates around the bobbins. Secondly the laminate must be well built up under the bobbin to prevent the bobbin from pulling out in a downward direction. This surrounding laminate should in itself comprise a tight ring around the bobbin to prevent it from bursting out under diagonal loads but if in doubt one or two layers of tape or cloth should be wound round the waist of the bobbin. Finally plasticine or similar plugs should be used during laminating to keep the resin out of the bobbin threads. When properly laid the visible rough side wall will be nearly vertical in line with the bobbin top profile. In effect a strong reinforcing ring of laminate surrounds the bobbin and this ring must be properly connected to the basic laminate.

Layup Around Bobbins

- a) it is important that build-up around bobbins is as previously described as bobbins by nature of their application are subjected to high loads, and will break out of the surrounding fibre glass if not bonded in correctly.
- b) Bobbins must be bolted to mould after "mould release agent" has been applied and prior to Gel-coat application. Care must be taken to ensure that it sits well down on to the mould, and that the bobbin is positioned correctly in accordance with the specification concerned.
DO NOT apply Gel-coat to the bobbin surface or sides.
It is essential to keep the Gel-coat to a minimum thickness to prevent "crazing" and desirable that the general layup thickness tapers gradually away from the bobbins.
Remember that tensile applications are the most demanding and require continuity of lay-up, that the above instructions be strictly adhered to, that the safety of the vehicle may be dependent upon the correctness of the application of these operations.

BB 14 - BODY MOUNTING POINTS

When mounting the body to the chassis, it may be necessary to use spacing washers between certain mounting points in order to level the body and/or prevent pre-stressing the body structure, with subsequent distortion and gel crazing.

Excel

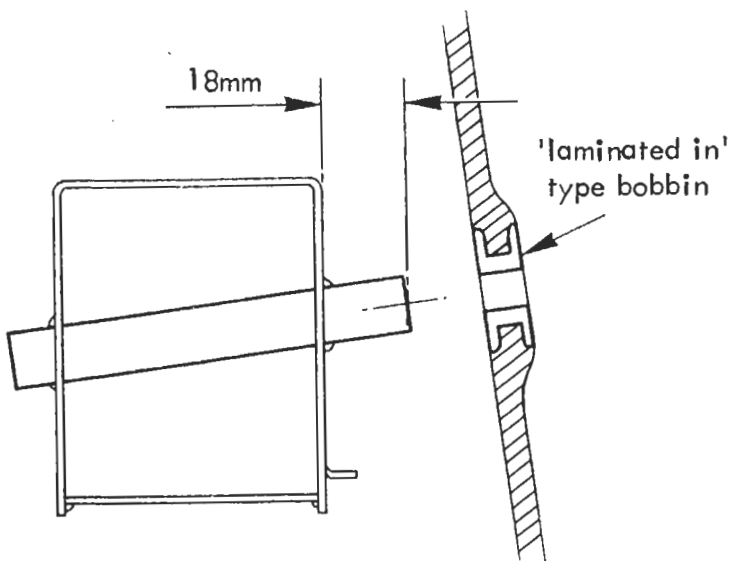
Twelve fixings are used to attach the body to the chassis. All chassis fixingpoints are plain holes, those along the centre backbone lower flange being drilled with the body in position. Aluminium 'bobbins' are used in the body at all mounting points. All have plain holes except for numbers 9 and 10. These bobbins are tapped M10 and must have the holes in the chassis drilled before the body is finally fitted.

After lowering the body onto the chassis, locate the body using fixings 1, 2, 3, 4, 11, 12. Use washers where necessary to avoid straining any of the mountings and drill the chassis fixing holes at points 5, 6, 7, and 8 by using a drill through the body bobbins at these points. Raise the body off the chassis once again, and, on the old chassis, measure the position of fixing holes 9 & 10 relative to holes 7 & 8. Transfer this dimension onto the new chassis, and drill fixing holes 9 & 10.

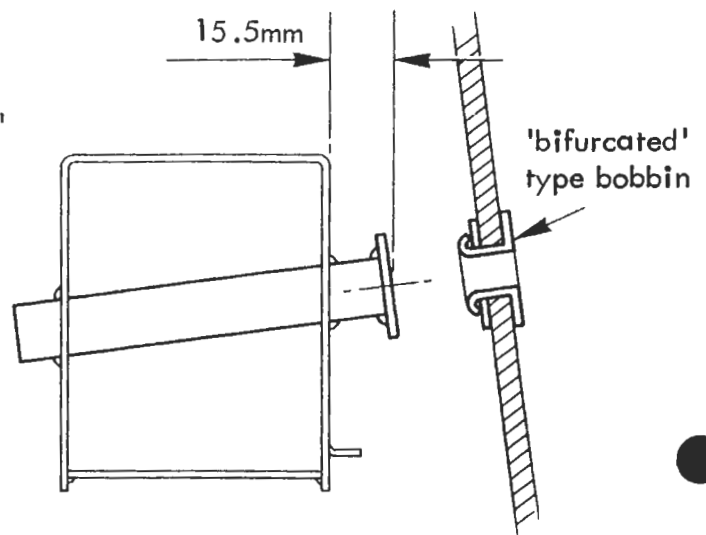
Refit the body and tighten all fixings. Note that fixings 1 & 2 also secure the anti-roll bar clamps. Fixings 1, 2, 5, 6, 7, 8, 11 & 12 should have the nuts fitted on the inside of the car.

The body to chassis mounting bobbins in the body rear section, front of boot, were changed in 1984 from the 'laminated in' type to the 'bifurcated' type. The body mounting tubes on the chassis rear crossmember were also changed to suit.

Old body on old chassis
(for reference only)



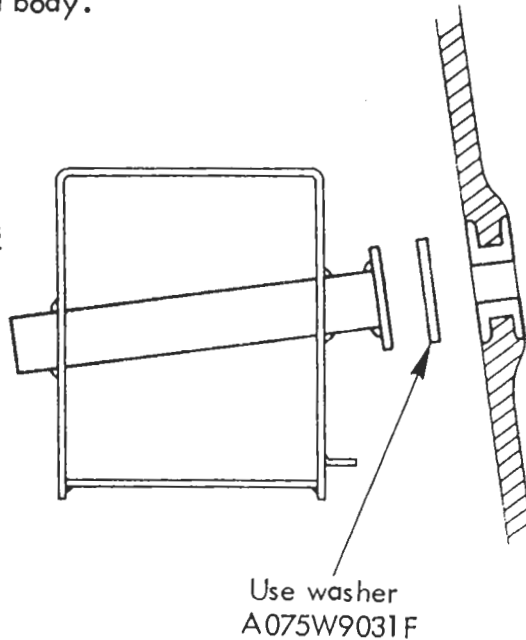
New body on new chassis
(for reference only)



When fitting an old body onto a new chassis, or new body or body section onto an old chassis, care must be taken to attain compatability by one of the following methods.

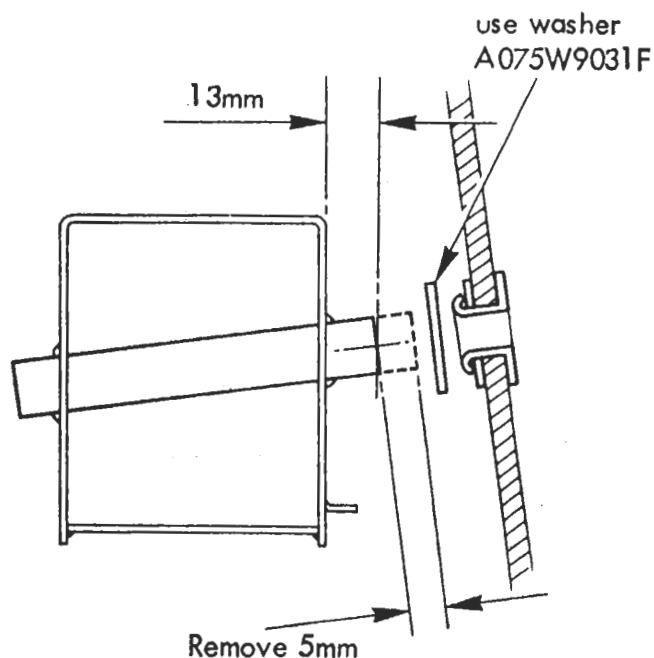
- a) 'Old' body ('laminated in' type bobbins) onto new chassis:
Fit 12 x 28 x 2.5 plain washer A075W9031F between chassis and body.

Old body
on new chassis



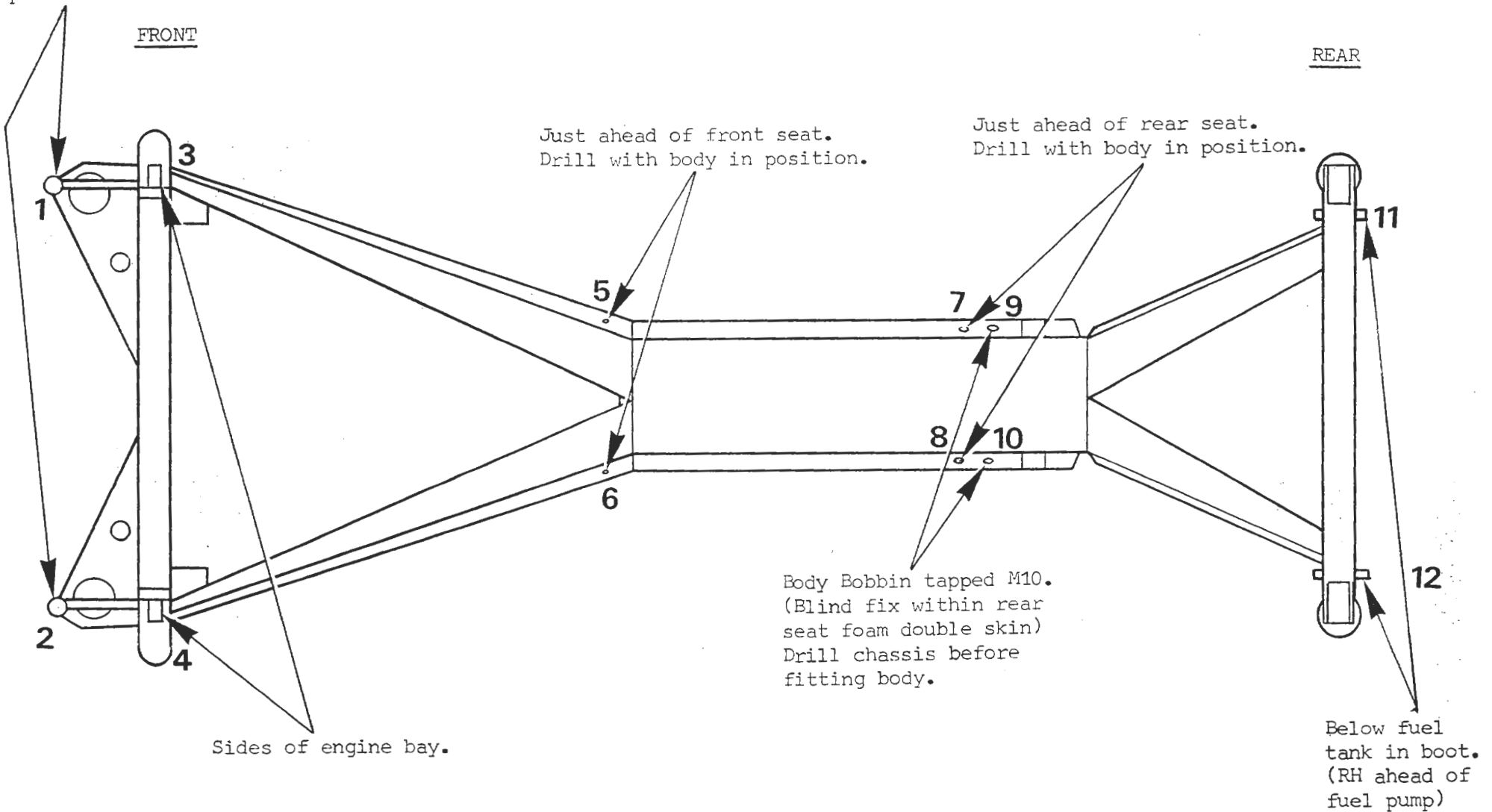
- b) New body or body section (bifurcated bobbins) onto old chassis:
Cut 5 mm from the rear end of the crossmember tubes, and fit a 12 x 28 x 2.5 plain washer A075W9031F between chassis and body.

New body
on old chassis



EXCEL

Also anti-roll bar
fixing. Access to nut
from within headlamp
pod well.



Esprit.

Twelve fixings are used to attach the body to the chassis. All chassis fixing points are plain holes except numbers 13 & 14 (Federal only) which are tapped M10. Holes 1 & 2 (8mm) and 3 & 4 (10mm) are drilled with the body in position.

Aluminium 'bobbins' are used in the body at all mounting points except 9 & 10 which holes are drilled through the timber/composite rear bulkhead.

After lowering the body onto the chassis, check that the pedal box mounting bosses are not fouling the body. Locate the body by inserting fixings 11 & 12 (13 & 14 on Federal cars) but do not tighten.

Insert spacers if necessary between the body and chassis at points 1 & 2 and drill chassis at these points through the body bobbins. Insert fixing bolts.

Similarly drill chassis at points 3 & 4 and insert fixings using spacer washers if necessary. Insert remaining fixings and tighten from the front of car rearwards.

FRONT

ESPRIT

REAR

Page 20

In front luggage compartment.
Chassis holes drilled with body in position.

Federal
In rear luggage compartment.
Chassis tapped M10.

Cabin rear bulkhead.

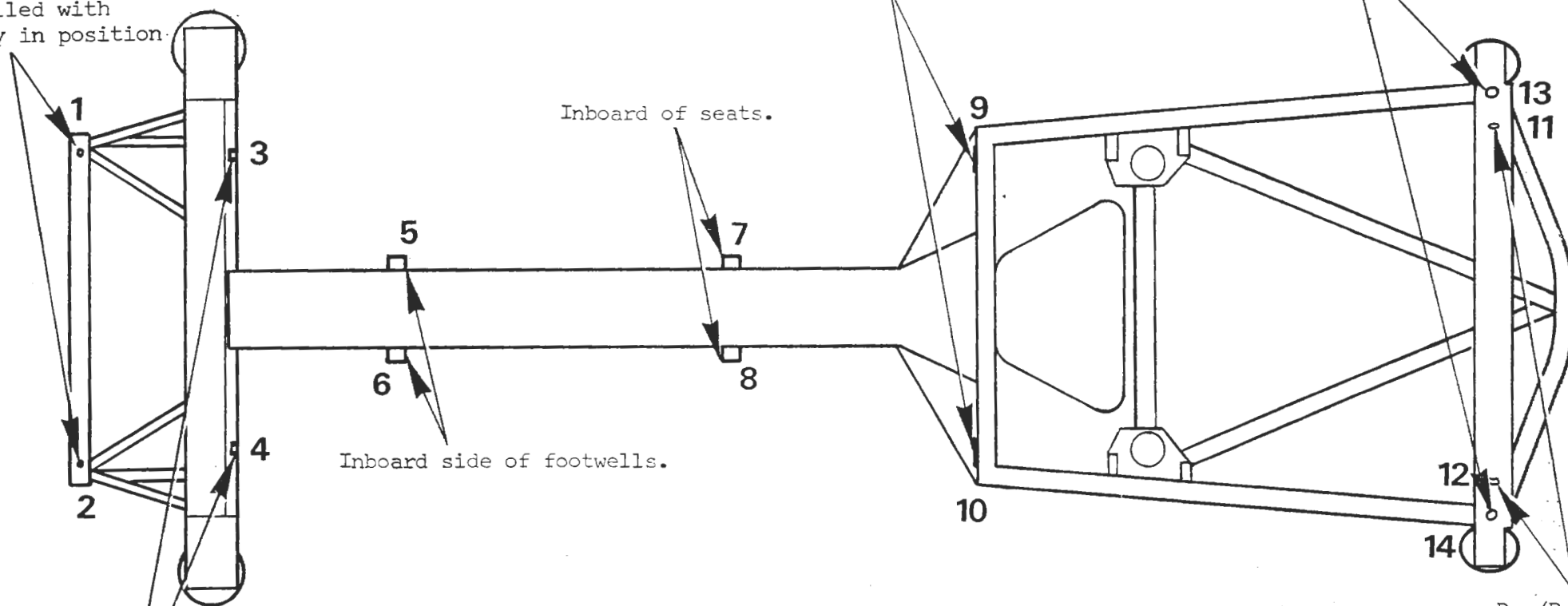
Inboard of seats.

Inboard side of footwells.

Front of footwells.
Chassis drilled with body in position.

Dom/Row
In rear luggage compartment

SECTION
BB



BODYSECTION BD - ESPRIT S3 & TURBO

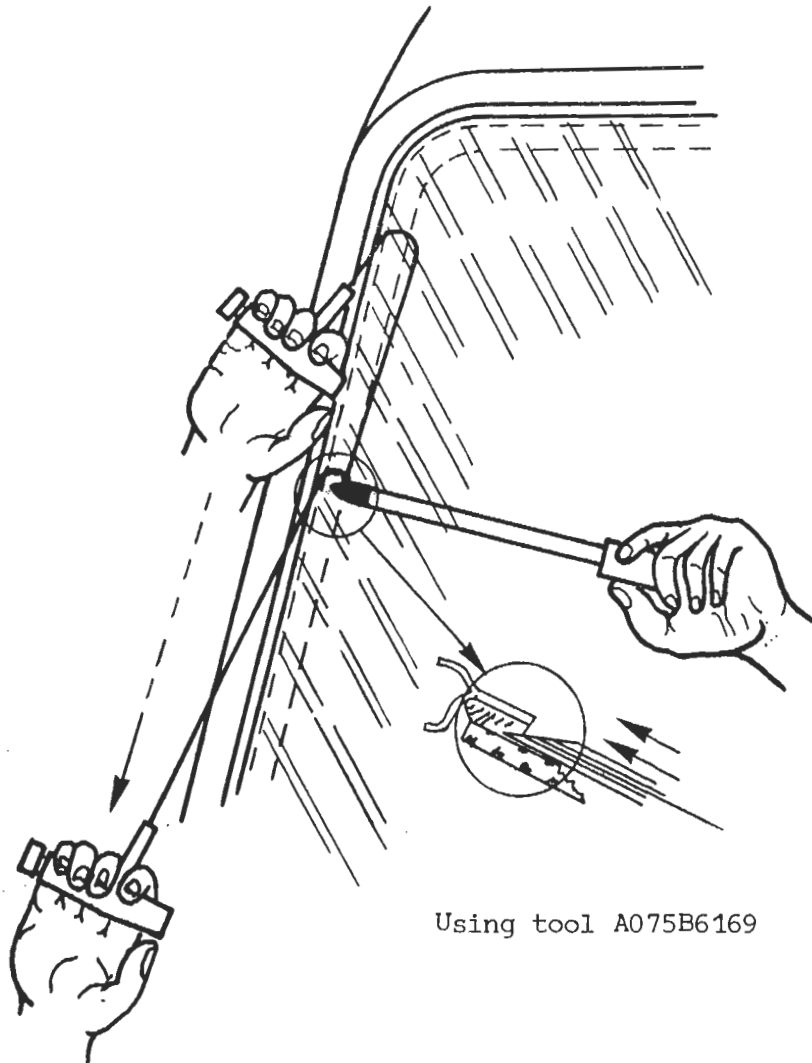
	<u>Operation</u>	<u>Page</u>
Windscreen Replacement	BD.1	2 to 7
Tailgate Glass and Finishers	BD.2	7
Rear Bulkhead Glass	BD.3	8
Rear Quarter Glass	BD.4	8/9
Door Window Frame	BD.5	9/10
Door Drop Glass	BD.6	10/11
Door Glass External Weatherstrip	BD.7	11/12
Door Quarter Light Glass	BD.8	12/13
Door Shell	BD.9	13
Headlamp Pods	BD.10	13 to 15
Front Bonnet Panel	BD.11	15
Tailgate	BD.12	15 to 17
Front Bumper	BD.13	17
Rear Bumper and Spoiler	BD.14	17/18
Engine Bay Ventilation	BD.15	18/19
Decal Positioning	BD.16	20 to 25
Glass Roof Abutment	BD.17	26

BD.1 - WINDSCREEN REPLACEMENT.

The windscreen is bonded to the body aperture with "Betaseal" adhesive/sealant. The following procedure must be adhered to in detail, paying particular attention to the cleaning and priming operations and using materials supplied with Betaseal Kit, A075B6158J.

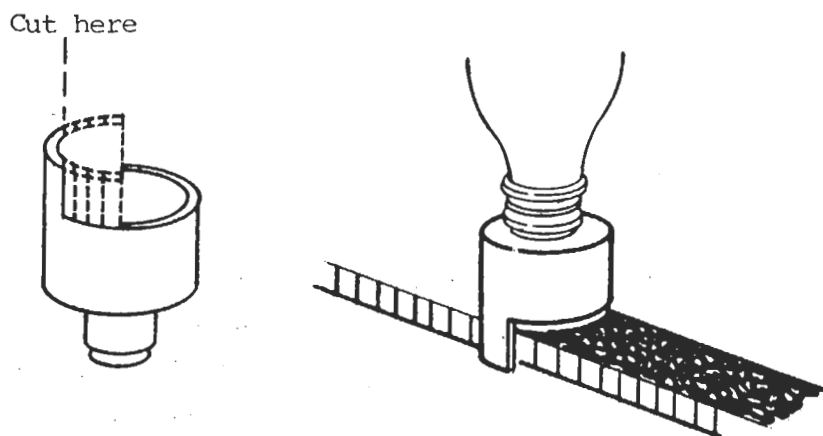
NOTE: It is likely that the screen bright finishers will have to be renewed on screen replacement.

1. Remove the interior 'A' post finishers, and screen header rail. (see section 'V')
2. Remove windscreen exterior bright trim and wiper arm.
3. Bore a small hole through the Betaseal and insert a length of piano wire or similar (supplied in Betaseal Kit) approx. 1 metre long, through the hole. With the aid of an assistant inside the car, use a sawing action to cut through the Betaseal and free the screen from the car. Alternatively, use cutting out tool A075B6169. Take great care not to damage the interior trim or paintwork during this operation.



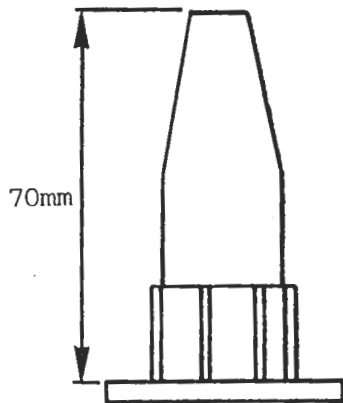
Using tool A075B6169

4. Remove excess Betaseal from the screen aperture with a sharp blade. Note that it is not necessary to remove all traces of the sealant but a uniform surface must be available for bonding the new screen.
5. Dry fit the screen and examine the screen/body joint conformity. If necessary, use props to support the central portion of the aperture top flange. Mark any areas of significant non-conformity in order that an additional bead of Betaseal may be applied to the body flange in that local area only, before screen fitment.
6. Make up the two spacers to support the screen in its aperture and provide a 6 - 7 mm gap between screen top edge and body.
7. Clean up the laminated edge of the glass with a sharp knife.
8. Cut the special paper provided in the Betaseal Kit into two. With one half use Wipe Cleaner No. 4 to clean the perimeter of the glass and the whole bonding area of the body flange. With the other half, wipe dry the surfaces cleaned.
9. Remove the grooved sections from the primer applicator guide to obtain a 20 mm width band. (i.e. full applicator width.)

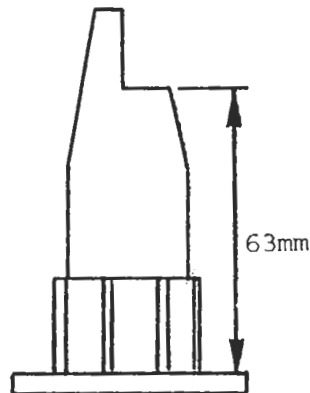


10. Shake glass primer container for at least 30 seconds before opening. Pour glass primer into plastic bottle and fit applicator guide and felt pad. Apply primer around perimeter and laminated edge of glass. Also, prime whole of body aperture flange.

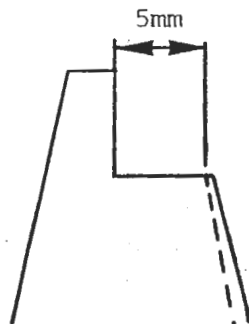
11. Cut the Betaseal application nozzle as shown below.



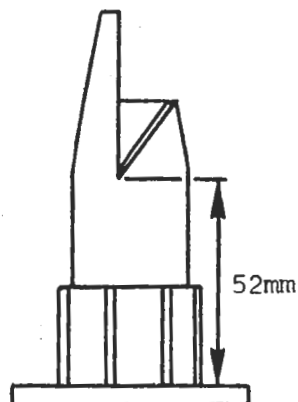
- A. Cut off top of nozzle at a height of 70 mm as shown.



- B. At a height of 63mm cut horizontally across to the centre line. From the top, cut vertically downwards along the centre line to meet first cut as shown.

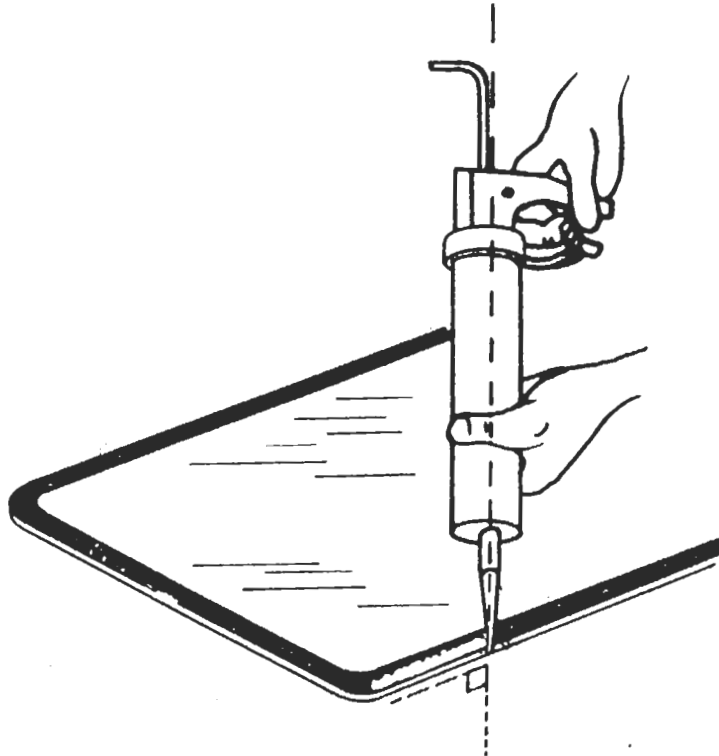


- C. Measure width of horizontal cut from inside surface to the plane of the vertical cut. If this dimension is less than 5mm cut further across (at 63mm height) and then downwards as in b) until a width of 5mm is achieved.



- D. Cut a 'V' notch as shown by continuing one side of the vertical cut downwards to a height of 52mm, and intersect with a diagonal cut from the point of maximum width.

12. Push in bottom of Betaseal cartridge and remove desiccant. Pierce membrane in cartridge thread, screw on application nozzle and insert in cartridge gun.
13. Holding the gun at a right angle to the edge of the glass and leaning slightly inboard, extrude a continuous bead of Betaseal on the perimeter of the glass, using the edge of the glass and shape of the nozzle as a guide. This method will give the bead the correct dimensions and also make the top of the bead collapse inboard, reducing the amount of material squeezed out of the joint on assembly.

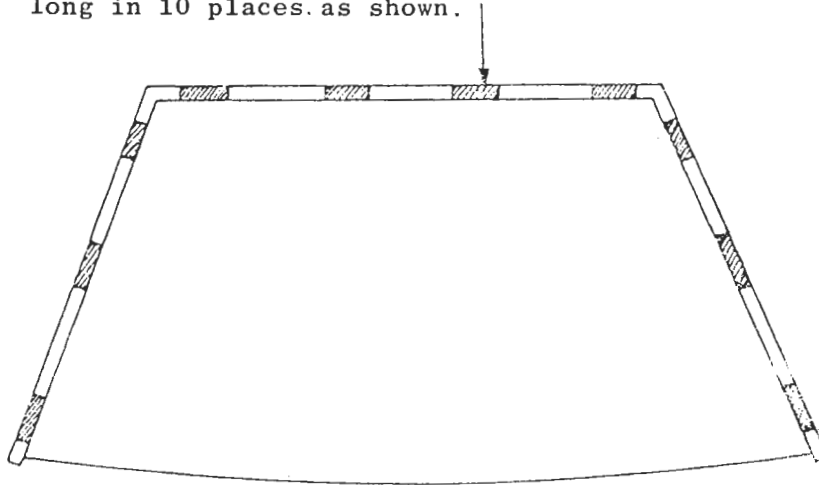


14. Push eight 4 mm spacer blocks A075U0588Z into the Betaseal from the inside of the bead in the positions shown.
15. Fit the screen onto the body and use the two spacers made in paragraph 6 to support the glass whilst the Betaseal cures. Press gently all round the edge of the glass to ensure uniform compression of the joint.
16. Water test before fitting bright trim. If any leakage is found, mark the spot and dry the bead with a blow dryer or similar. Extrude a small amount of Betaseal from the outside on the suspected area in order to ensure the vehicle is waterproof.

Do not fit screen bright trim until the Betaseal is sufficiently cured not to be disturbed. This may take up to 6 hours depending on atmospheric conditions.

17. Dry fit the screen bright finishers and adjust the length and corners of the top finisher if required. Abrade the underside of the finishers to remove the anodised surface and then score to produce a key for the adhesive. Degrease surfaces using acetone or methylated spirit.
18. Adhesive to be used is 3M's 8101 parts A & B, part numbers A075U6073F and A075U6074F respectively.

Mix parts A & B of adhesive in equal parts until a uniform colour. Apply a short bead of adhesive approximately 40 mm long in 10 places as shown.



19. Fit the three sections of trim and tape firmly in position. Wipe off excess adhesive. The adhesive will cure within one hour to provide handling strength at 73°F, whilst 8 hours is required for full cure. Curing will be slower at cooler temperatures.

NOTE: Under no circumstances must silicon, dust, wax etc. be present in the atmosphere during bonding.

20. After curing apply black "Silastic" around the bright trim outer edge to seal, and black strip A082U6072V to the lower edge of the glass. Refit wiper arm and interior trim.

Spillage of material.

- a) Any spillage of Betaseal onto unprimed glass can be readily peeled off after it has cured.
- b) Any spillage onto the body can be removed with either Wipe Cleaner No. 4, or white spirit.

Shelf life.

- a) Betaseal has a shelf life of over 6 months at ambient temperature in the original unopened package.
- b) Glass primer becomes spongy after a period of time when exposed to the air. If the material is spongy DO NOT USE.

Always use glass primer immediately on opening, and replace lid after use.

Contents of Betaseal Kit A075B6158J.

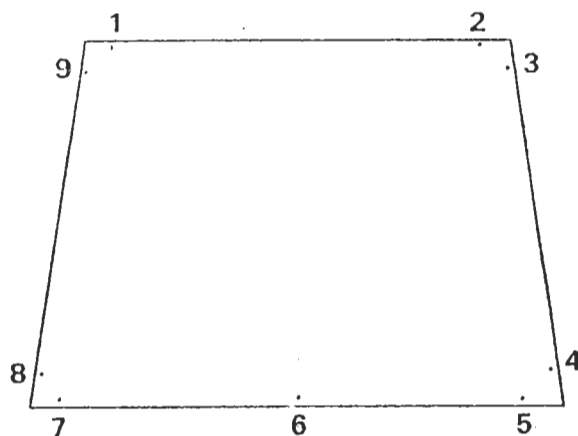
- i) One part adhesive sealant Betaseal 71904 in a 300 cc cartridge, standard viscosity.
- ii) Cartridge applicator nozzle.
- iii) Glass primer applicator bottle.
- iv) Glass primer applicator head.
- v) Glass primer applicator felt pad.
- vi) Glass primer, black, 84132-11.
- vii) Wipe Cleaner No. 4.
- viii) Piano wire 0.6 mm diameter x 120 cm long.
- ix) Special cleaning paper.
- x) 4 off rubber spacing blocks, approximate size 10 x 14 x 20 mm.

BD.2 - TAILGATE GLASS.

Series 3.

The tailgate glass is fitted using Betaseal in a similar manner to the windscreen.

To replace a tailgate glass and finishers, follow the windscreen replacement procedure BD.1. but position the spacer blocks A075U0588Z as follows.



Turbo.

The tailgate glass is fitted using Betaseal in a similar manner to the windscreen. To replace a tailgate glass, follow the windscreen procedure BD.1. with the following notes.

- i) The ABS moulding around the inside of the aperture is secured using black Silastic.
- ii) Six spacer blocks, A075U0588F are used around the periphery of the glass.

BD.3. - REAR BULKHEAD GLASS.

The rear bulkhead glass is bonded to its composite surround using either Solbit thermo-electric or Betaseal polyurethane bonding medium. The surround is then screwed to the timber bulkhead.

To replace glass.

1. Release both seatbelts from their sill mounting points, and on Federal cars, the tailgate release handle assembly.
2. Pull off the door seals from the top rear of each door aperture, release the screws securing the rear bulkhead trim panel, and remove the panel, disconnecting the interior lamp.
3. Release the screws securing the glass surround to the bulkhead, and remove.
4. It may prove possible (dependant on length of service) to push out the glass from the surround after re-heating the Solbit by applying 19 volts to the Solbit ends for several minutes. Alternatively use 'piano' wire to cut out the glass.
5. Remove remaining bonding medium from surround and glass.
6. Follow the Betaseal procedure detailed in BD.1. to clean, prime and bond the glass to its surround, using six spacer blocks A075U0588Z around the periphery of the glass.
7. Refit the surround to the bulkhead, using black Silastic to seal.
8. Refit trim panels, seat belts, etc.

BD.4. - REAR QUARTER LIGHT GLASS.

The rear quarter windows are fitted using 'Solbit' thermo-electric bonding medium.

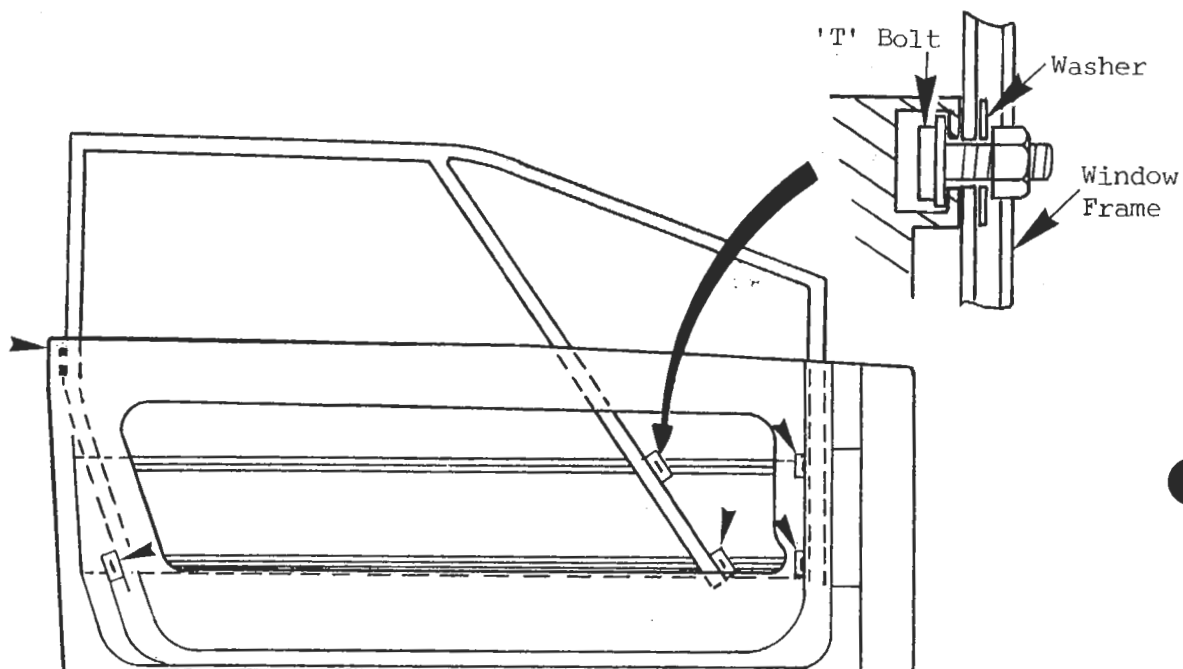
To replace.

1. Carefully remove the ABS finisher which is stuck to the glass with double sided tape.
2. It may prove possible (dependant on length of service) to push out the glass after re-heating the Solbit by applying 9 volts to the Solbit ends for several minutes. Alternatively use 'piano' wire to cut out the glass, but first remove the air scoop/extractor and take precautions as necessary to protect the paintwork.
3. Remove remaining Solbit from the body and glass.
4. Clean the inside periphery of the glass, and the whole of the body bonding area with methylated spirit, and wipe dry.
5. Apply Solbit Primer to the areas cleaned in 4.

6. Cut a 1.3 metre length of 8 mm Solbit and strip each end to expose 12 mm (0.5 in.) of the internal copper wire. Connect the ends to a variable transformer and apply 9 volts to the Solbit until its surface is tacky. Disconnect Solbit from power source.
7. Starting at the centre top, apply the Solbit around the quarter light aperture and cross over at the end. Fit two spacer blocks A075U0588F into the top of the Solbit strip along the aperture lower edge.
8. Fit the glass onto the aperture and reconnect the Solbit to the 9 volt power source. Apply gentle pressure to the glass. After about two minutes, the Solbit will start to flow and the glass will be felt to move slowly inwards. When the lower edge of the glass is felt to contact the spacers and the rest of the Solbit is similarly compressed STOP applying pressure but continue to apply current for a further ten minutes whilst supporting the glass using tank tape. Smooth off or remove excess extruded Solbit.
9. Clean the outside perimeter of the glass, and inside surface of the ABS finisher with methylated spirit. Wipe dry.
10. Apply Solbit Primer to the inside surface of the ABS finisher, and when dry, apply double sided tape B075U6070V. Peel off the backing paper and fit the finisher to the glass.
11. Refit the air scoop/extractor.

BD.5. - DOOR WINDOW FRAME.

1. To remove:- Peel back the trim material inside the interior door handle and loosen the three screws securing the handle assembly to the door. Slide out the upper and lower halves of the door handle plastic surround.
2. Remove the screw securing the lower front and lower rear of the trim panel, and unhook top lip of panel from door top edge.
3. Remove PVC sheeting from door shell. Disconnect window motor wires, release the four nuts securing motor bracket to door beam and remove window motor, sliding its operating arm from the drop glass channel.
4. Release the two M6 nuts securing the carriage plate to the drop glass channel and separate. Tape the drop glass to the window frame.
5. Remove the five nuts securing the window channel to the door beam and the two screws securing the channel to the upper rear of the door shell. Note that the bolt heads are retained

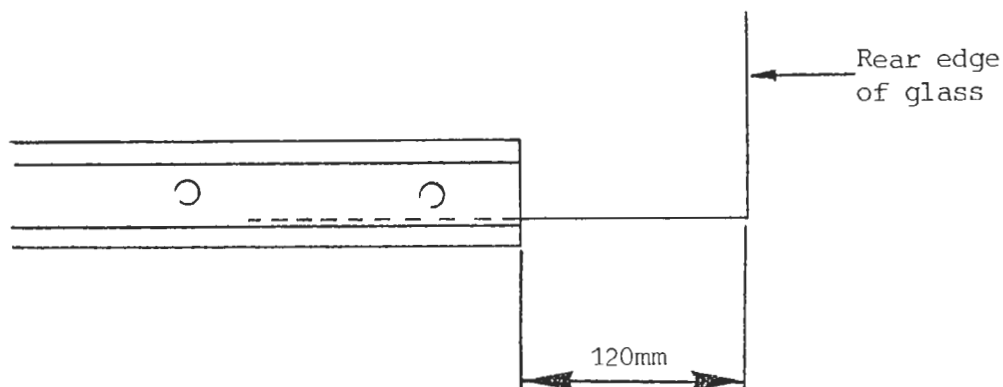


in longitudinal channels on the door beam so that the window frame must be eased off the bolts before it may be withdrawn with glass, from the door.

BD.6. - DOOR DROP GLASS.

1. Remove the door window frame from the door (BD.5.)
2. It may prove possible to remove the lift channel from the glass after applying 3 volts to the Solbit thermo-electric bonding medium for several minutes.
3. Before fitting a lift channel to the glass, thoroughly clean the lower edge and sides of the glass and inside channel, with methylated spirit.
4. Apply Solbit Primer to the lower edge and both lower sides of glass in a band 12 mm ($\frac{1}{2}$ in.) wide. Also apply to whole inside surface of channel. Allow to dry.
5. Strip both ends of a 450 mm (18 in.) length of 10 mm diameter Solbit to expose 12 mm ($\frac{1}{2}$ in.) of internal copper wire. Connect to a variable transformer and apply 3 volts to the Solbit until its surface becomes tacky (10 - 13 secs.) . Disconnect supply and place Solbit into lift channel.

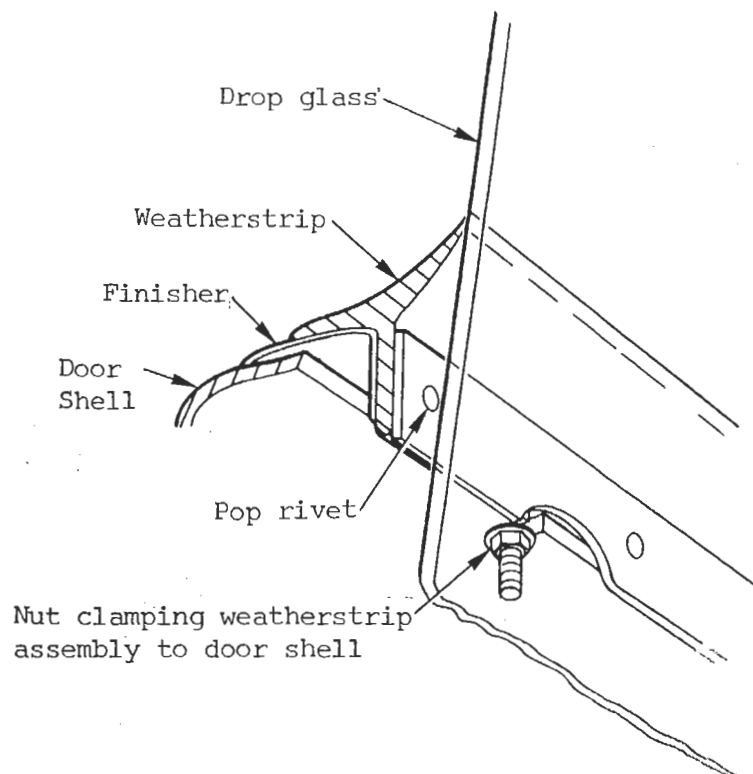
6. Position channel on lower edge of glass with operating arm guide to the inside (carriage plate bracket to rear) and the rear end of channel 120 mm from rear edge of glass.



7. Reconnect electrical supply to the Solbit and as it starts to flow, push channel fully onto glass. Continue to apply current for a further five minutes while removing or smoothing out extruded Solbit. Disconnect supply.
8. Fit drop glass into frame and refit door window frame into door. Adjust carriage plate to obtain smooth rise and fall of the drop glass before installing window motor. Refit door trim.

BD.7. - DOOR GLASS EXTERNAL WEATHERSTRIP.

To remove weatherstrip, first remove the door interior trim panel (see section BC.5.) to gain access to the three nuts clamping the weatherstrip assembly to the door shell. Loosen the nuts and ease the assembly away from the door.

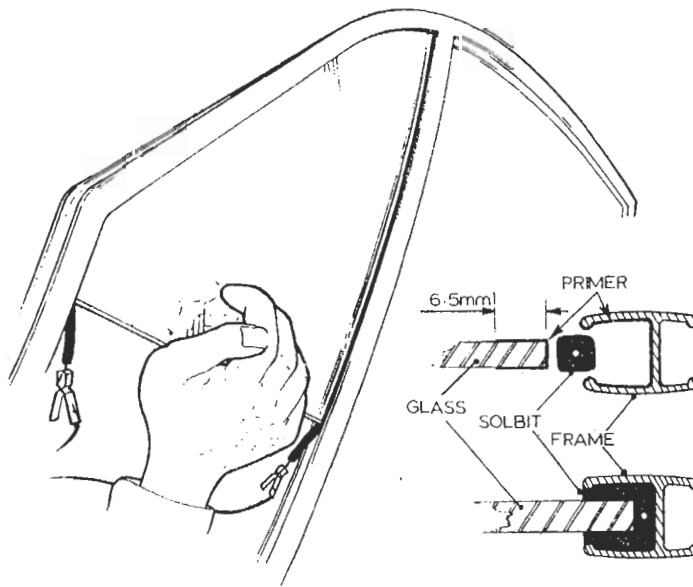


Drill out the pop rivets to replace the rubber seal.

When refitting, apply a thin bead of Silastic to the top edge of the door shell before installing the weatherstrip assembly. Ensure the seal lies against the glass before tightening nuts. Overtightening nuts will distort the finisher.

BD.8. - DOOR QUARTER LIGHT GLASS.

1. to remove: Remove the door window frame from the door (Section BD.5.). It is not normally possible to remove the quarter glass from the frame without breakage.
2. Remove remaining glass and Solbit from inside the quarter glass channels.
3. To replace: Clean the front and rear edges and periphery of new glass with methylated spirit. Also inside window frame channel.
4. Apply Solbit Primer to the edge of the glass and a 6 mm (1/4 in.) wide band on both sides of the front and rear edge of the glass. Apply Solbit Primer to all surfaces inside the frame channel.
5. Strip both ends of a 1.4 mm (4 ft 6 in) length of 10 mm Solbit to expose 12 mm (1/2 in.) of internal copper wire and connect to a variable transformer or 6v battery. Apply 6 volts to the Solbit until its surface becomes tacky.
6. Disconnect the power source and position the Solbit on the primed edge of the glass. Introduce glass and Solbit into the window frame and push home, until the Solbit contacts the window frame.



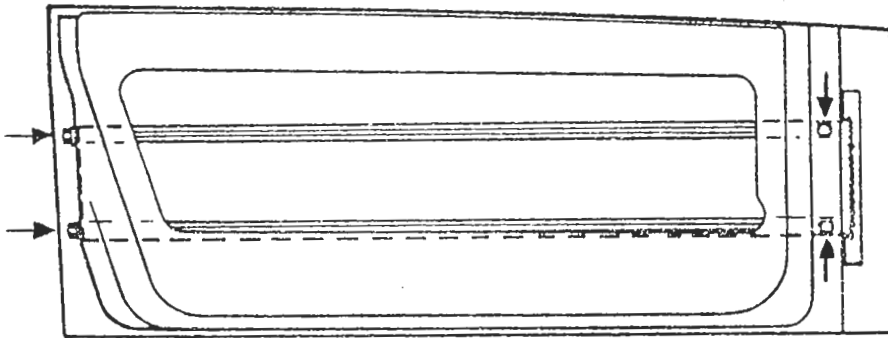
7. Connect the Solbit to the 6volt power source and apply pressure to the lower edge of the glass, and as the Solbit starts to flow, push the glass fully into the

window frame. Continue to apply current for a further six minutes whilst keeping the glass central in the frame channel and smoothing out excessive Solbit to leave a smooth surface level with the edge of the window frame.

8. Disconnect power source, cut Solbit ends flush with the corners of the glass and replace door window frame.

BD.9. - DOOR SHELL.

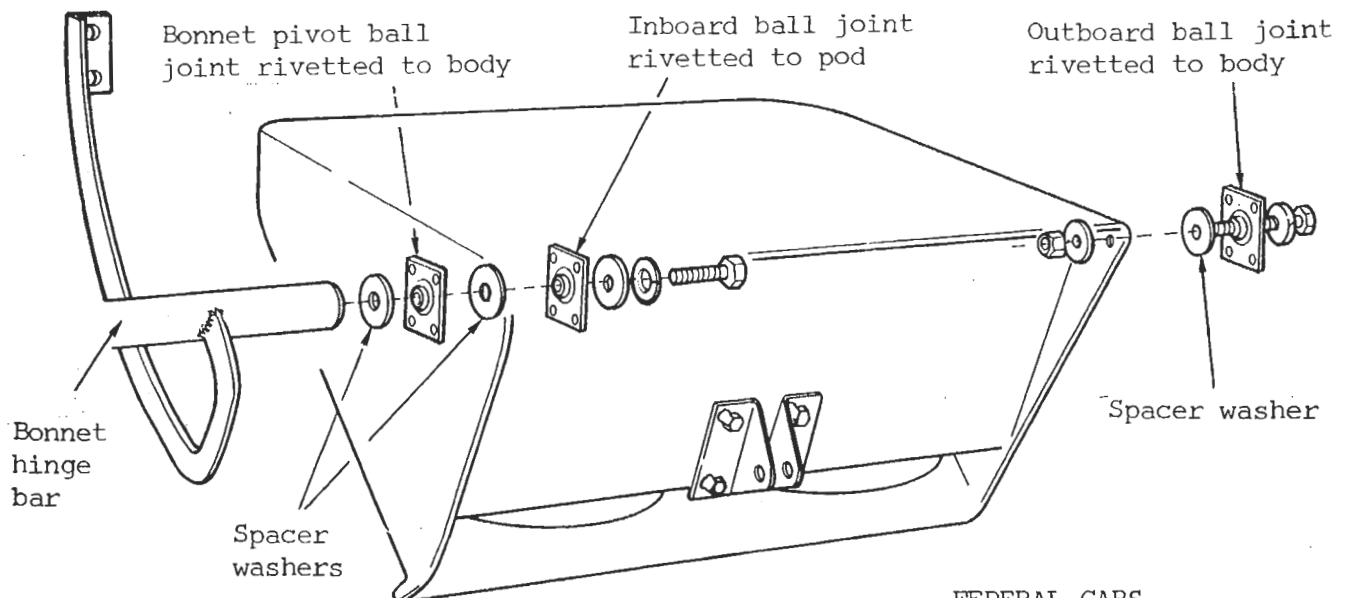
The GRP door shell is secured to the alloy door beam by four bolts as shown and may be removed from the car by sliding off the door beam (in situ) after removing the door window frame (BD.5) and latch mechanism.



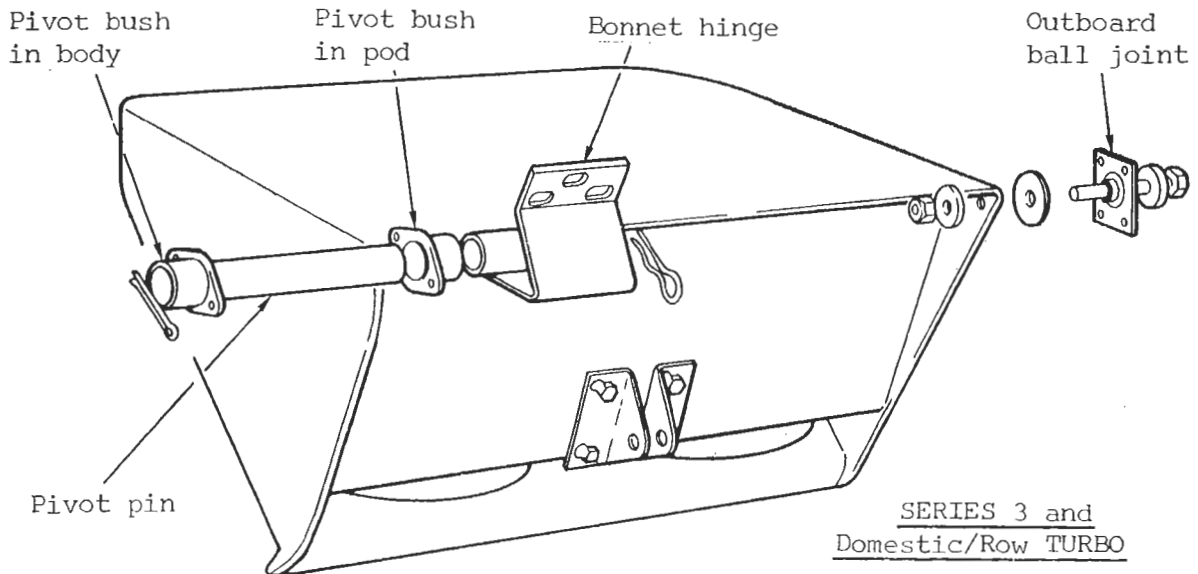
BD.10 - HEADLAMP PODS.

Pivot.

Federal cars use a pod pivot ball joint at each side of each pod, the outboard ball joint being rivetted to the body, whilst the inboard ball joint is fixed to the pod. The inboard pivot bolt passes through the pod ball joint and then through the bonnet ball joint (fixed to the body) before threading into the bonnet hinge bar.



Domestic and RoW cars use a body mounted ball joint on the outboard side, and on the inboard side, a hinge pin pivoting in bushes mounted both in the pod and body, and carrying on its 'overhung' outboard end, the bonnet hinge.



To remove.

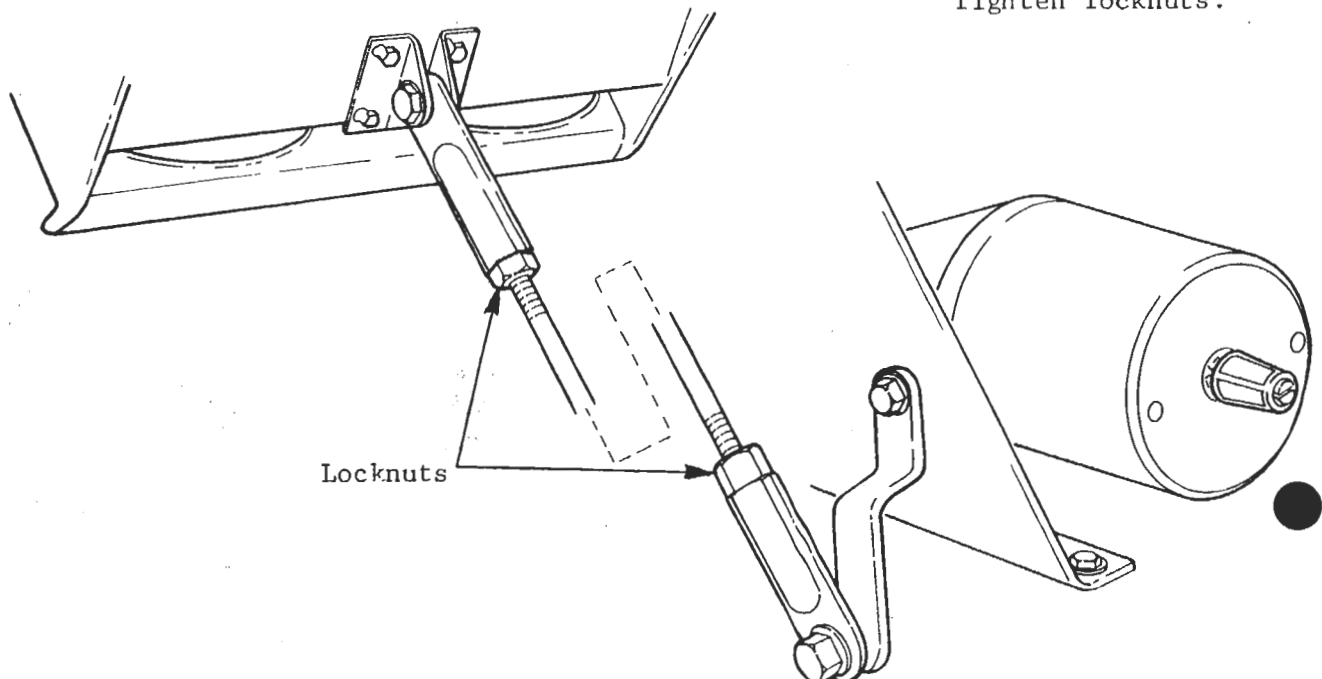
To remove a headlamp pod, unplug the bulb connectors and release the pod actuating link. Release the pod outboard pivot bolt and support the bonnet panel before releasing the inboard pivot bolt (Federal) or removing the split pin and sliding out the hinge pin (DOM/ROW).

On refitting ensure that the pod is located centrally using spacer washers if necessary, and that the pod pivots freely before connecting the actuating link.

Adjustment

The pod down position is adjusted by altering the actuating link length. Slacken the locknut at each end of the actuating link and turn the link rod to change its effective length as required.

Tighten locknuts.



Always check headlamp beam setting after any pod adjustment is made since the pod up position will also be altered.

BD.11 - FRONT BONNET PANEL.

The front bonnet panel is hinged at its front edge by two individual hinges on DOM/ROW cars and by a cross linkage bar on Federal vehicles. The hinge pivots are incorporated with the headlamp pod inboard pivots. (see section BD.8.)

The striker hoops fitted at each rear corner of the bonnet panel engage with two catch discs mounted on the bulkhead. The catch discs are connected via adjustable link rods to a cross bar with a release handle on the drivers side.

Adjustment.

The shut gap and height of the bonnet front edge may be adjusted via hinge slots and spacer plates. The sideways fit of the panel is controlled by spacer washers at the hinge pivots.

At the rear edge, the catch disc position should be similar on both sides with the slot pointing slightly upwards in the 'released' setting. Striker plate spacers and slots are used to adjust the bonnet rear edge height and catch engagement respectively.

BD.12. - TAILGATE

The tailgate panel is hinged at each top corner (except on sun roof models) to a bobbin bonded into the roof structure. On sun roof models each hinge pivot takes the form of a bracket bolted to the roof.

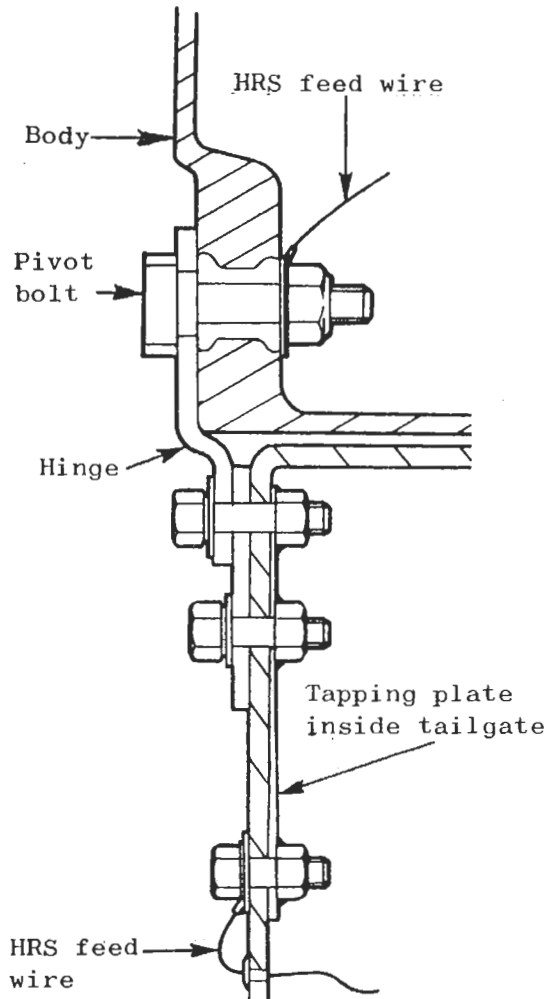
Three types of tailgate latching system have been employed. Domestic/R.O.W. Turbo models have a key lockable external release knob on the rear spoiler, which is connected via a link rod to the right hand tailgate latch. Right and left hand latches are interconnected by a cross bar and when released allow the tailgate to be opened, assisted by two gas struts. On early cars, the struts were anchored in the tailgate aperture, but later cars used an anchor position at the front of the engine bay for greater opening assistance.

Series 3 models use a cable operated release activated via a pull handle in the drivers door 'B' post. Prior to 1985, a spring plunger alongside each catch, raised the tailgate on release sufficiently to enable it to be opened fully by hand. From 1985, the spring plungers were deleted and a recess provided in the tailgate lower edge and body to permit a handhold

U.S.A. Turbo models utilise a cable release activated via a pull lever in the drivers side rear bulkhead. This is connected to a catch plate in each lower corner of the tailgate aperture. Two gas struts are used to assist tailgate opening and support it in the fully open position.

The release lever pivot is secured by a nut and integral stud which passes through the bulkhead just outboard of the seat belt reel.

anchorage position of the gas struts was changed from the tailgate aperture (early models) to the front engine bay in order to improve opening assistance.



Removal The tailgate is most easily removed by releasing the gas struts and then removing the hinge blade to tailgate bolts. Note that the tapping plate for the hinges is retained in the tailgate by a third fixing further along (gas strut anchor S3 and early Turbo). On no account should all three fixings be removed at the same time since the plate is captive within the tailgate double skin and may not easily be repositioned.

Removal of the hinge blade pivot bolts will (except on glass roof models) necessitate removal of the exterior capping rail and interior rear bulkhead trim. The capping rail is fixed by screws and Silastic along its lower edge and retained along its top edge by the lip of the bright finisher strip. After removing the capping rail and rear bulkhead trim panel (VB.8) the Nyloc pivot bolt nuts may be released and the pivot bolts withdrawn.

Note that the hinges are used to transmit current to the heated rear screen, with one wire on each side being fitted beneath the pivot bolt nut and then taken from the tailgate tapping screw to the screen.

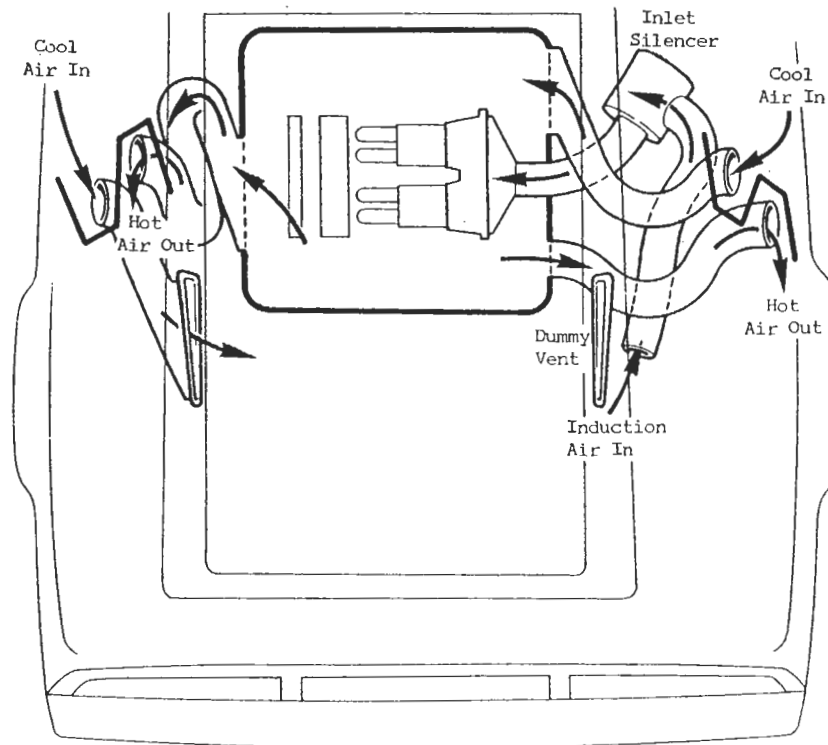
On 'glass roof' cars a pivot bracket is bolted to the roof on each side so that after removal of the tailgate and pivot brackets the hinge pivot bolt may be removed without disturbing the capping rail.

Latch adjustment.

On Series 3 tailgates, slots and shim plates are provided for adjusting striker position and depth. The height of each catch assembly may be adjusted after slackening the catch to body screws and catch bracket to rear panel support strut screws. A single cable is used to release both catches and is adjusted to remove slack by means of a solderless nipple at the left hand catch.

Federal Turbo models use striker pins in the tailgate panel adjustable for height after slackening the locknut. The catch assemblies in each rear corner of the tailgate aperture are adjustable for position after slackening their two mounting screws. The single release cable abuts against the left hand catch before being retained at the right hand catch by a solderless nipple.

The carburettor air box is fed with air via an intake silencer located above the right hand fuel tank and a Venturi hose strapped to the wheelarch. Air is thus drawn from the rear luggage compartment into which is fed fresh



air from the left hand luggage compartment vent, connected to the left hand 'ear' intake vent. In this way an airflow is maintained through the luggage compartment, aiding demisting of the tailgate glass.

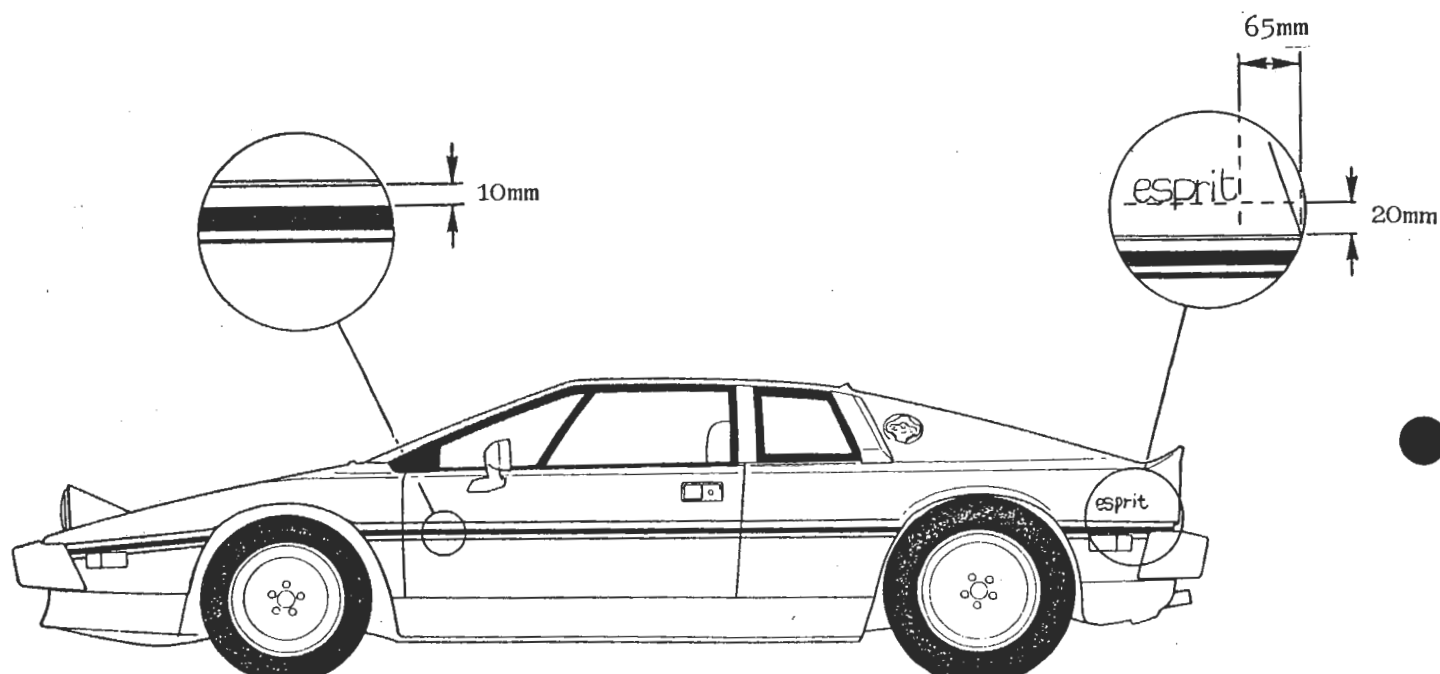
Turbo.

On Turbo models, the louvered tailgate panel seals around the engine lid aperture and draws air out from the engine bay when the car is moving. Cool air is fed into the bottom of the engine bay via the NACA duct in each sill. The engine airbox is fed from the right hand intake vent 'ear' behind the rear quarter window.

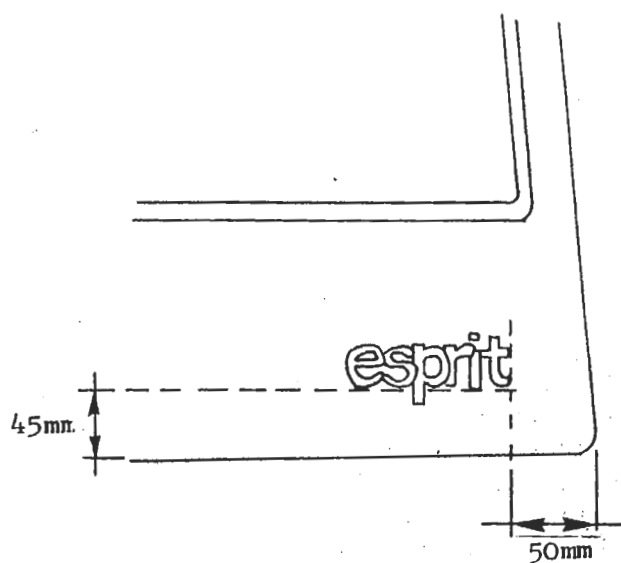
On Federal cars the left hand intake 'ear' is used to supply additional cooling air to the carburettor area via a duct within the engine cover lid. The engine bay cooling fan fitted in the engine cover lid is designed to aid cooling after the engine has been switched off, by blowing air down over the carburettors. The fan will operate during a period of 15 minutes after switching off the ignition if engine bay temperature exceeds 85°C (thermal switch fitted to left hand front underside of engine cover lid). An inhibitor switch fitted into the top of the ignition box isolates this circuit when the engine lid is raised.

BD.16. - DECAL POSITIONING

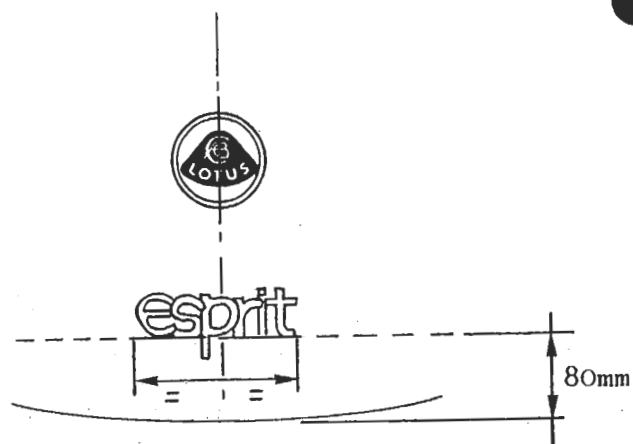
ESPRIT S3 - Early '84 Model Year



TAILGATE



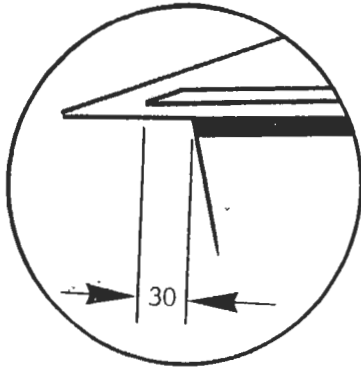
NOSE



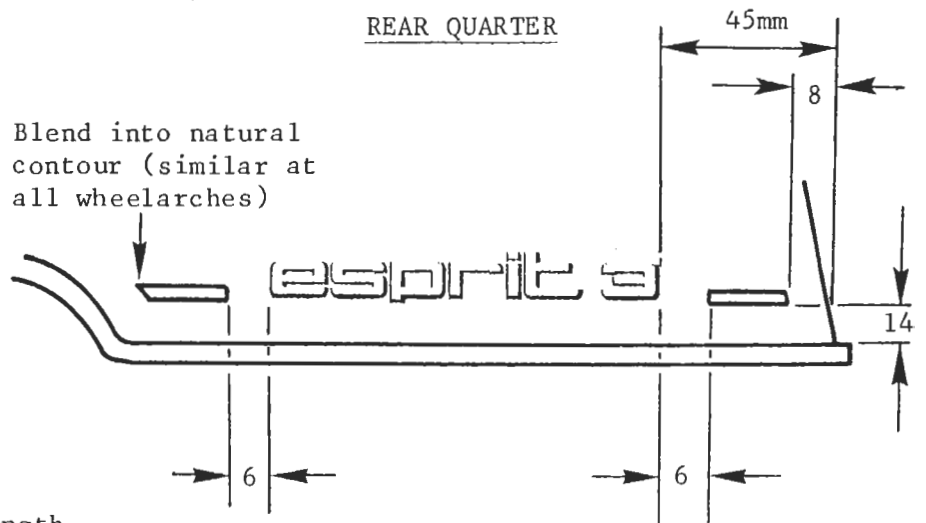
SECTION BD

ESPRIT S3 - Prior to '85 Model Year (Except Early '84 Model Year)

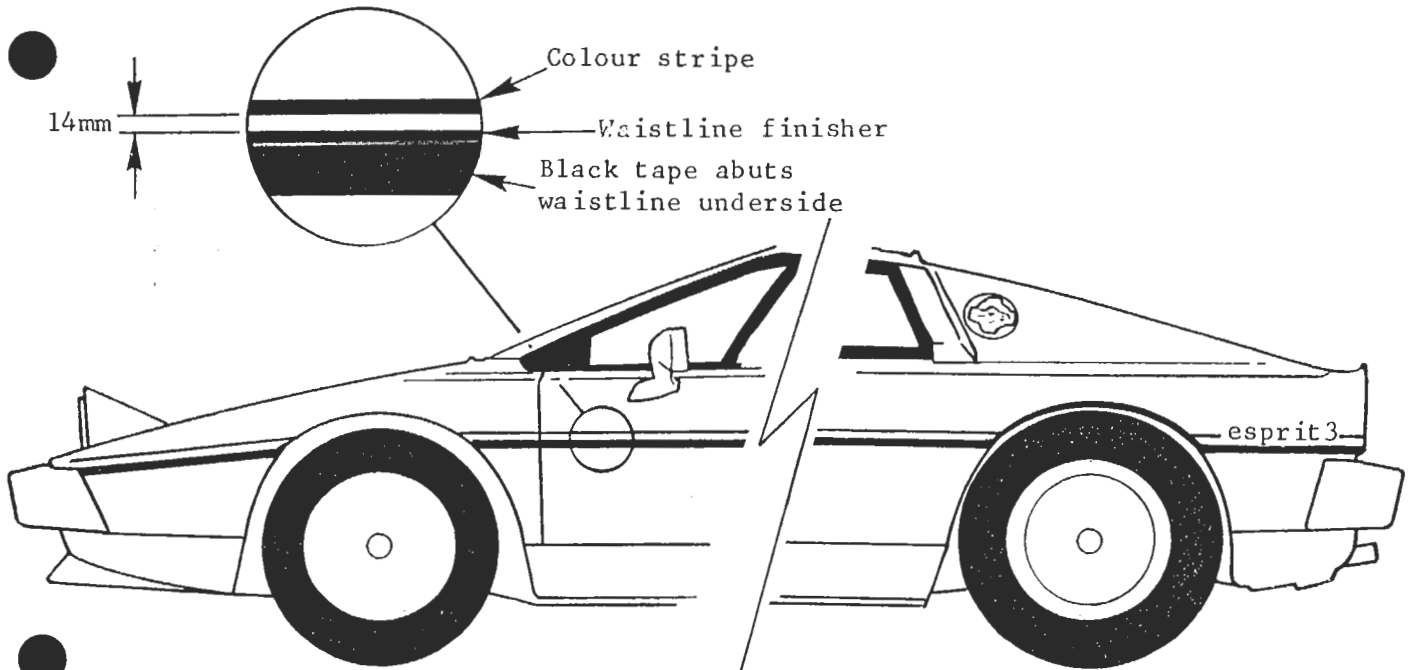
FRONT



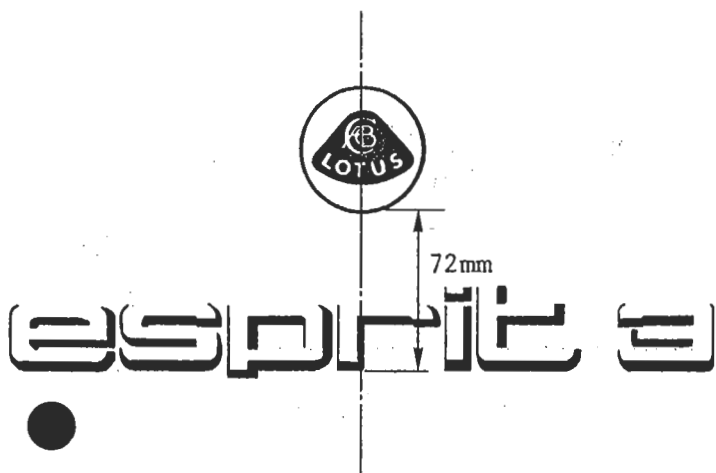
REAR QUARTER



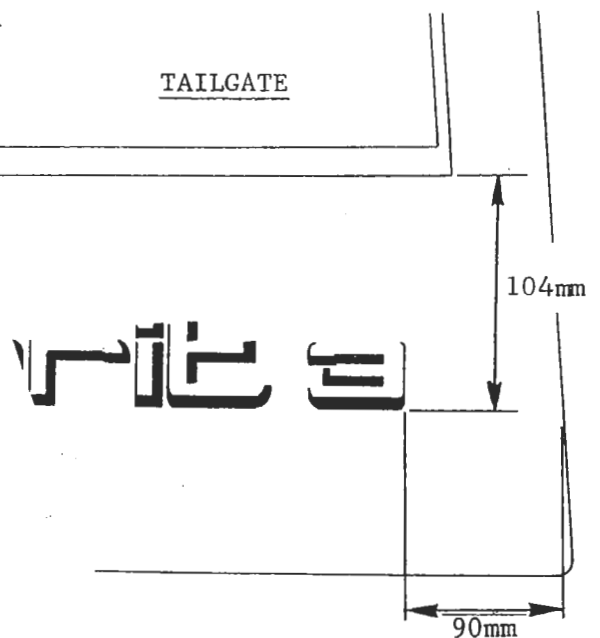
Similar for whole length



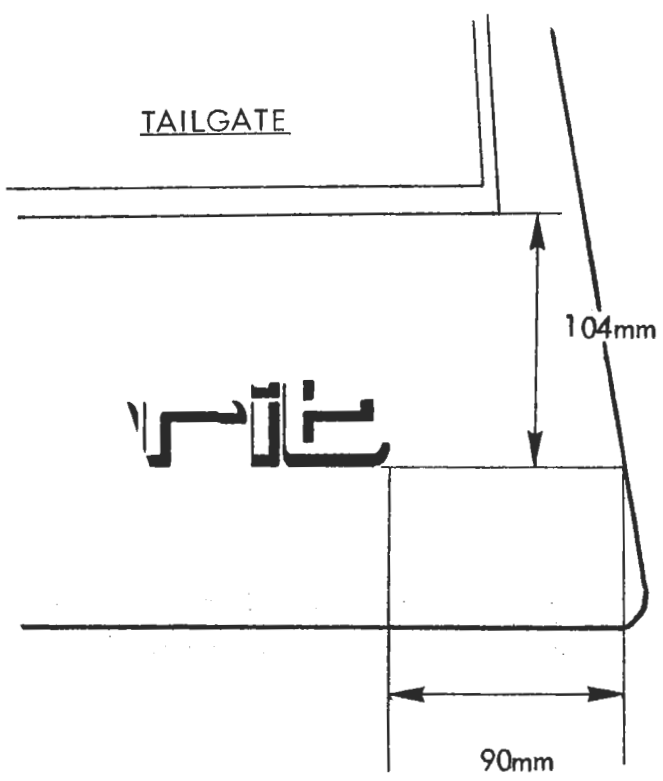
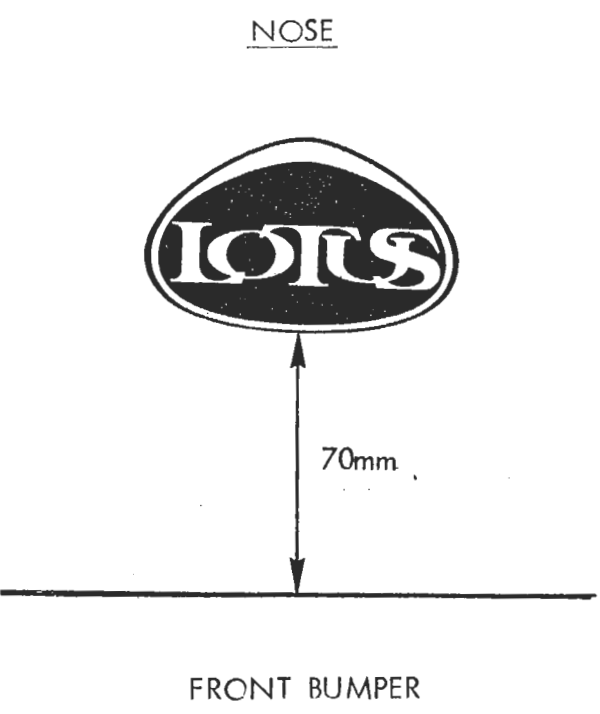
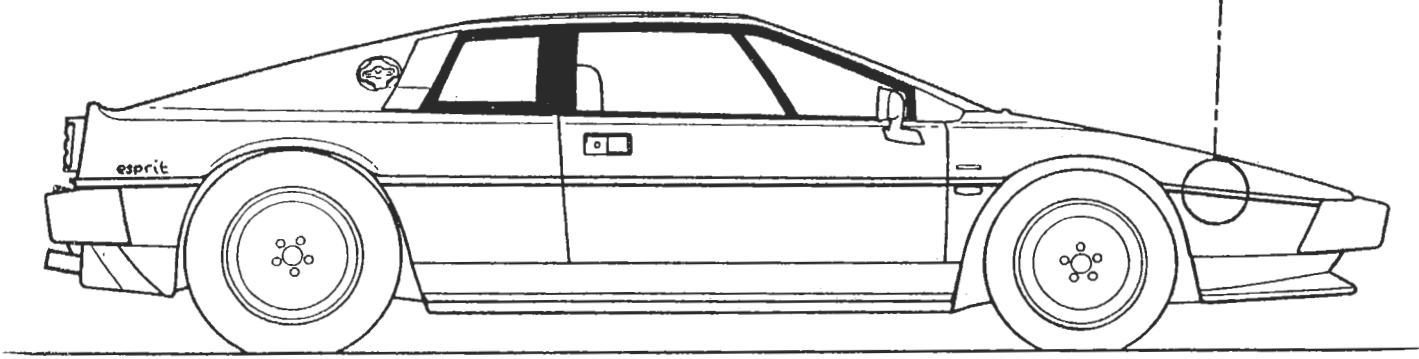
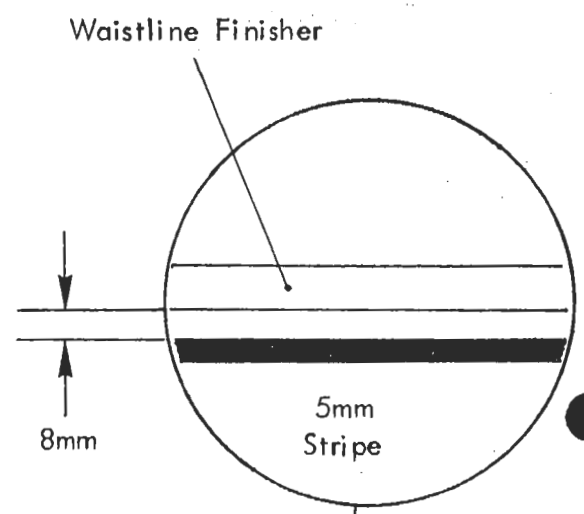
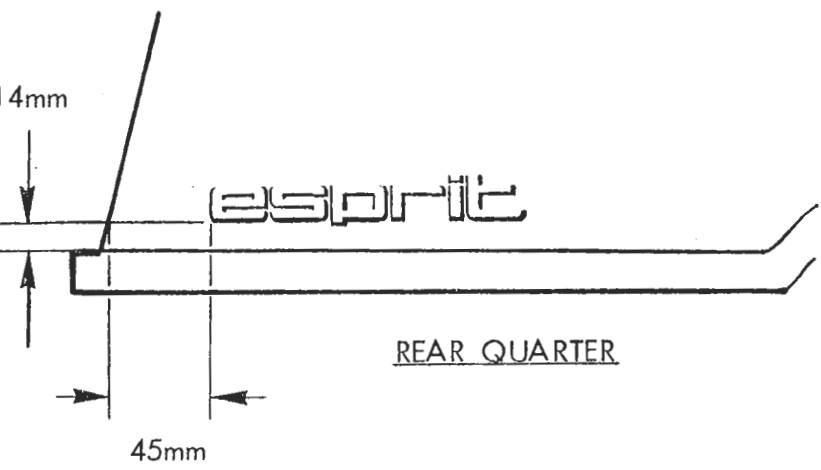
NOSE



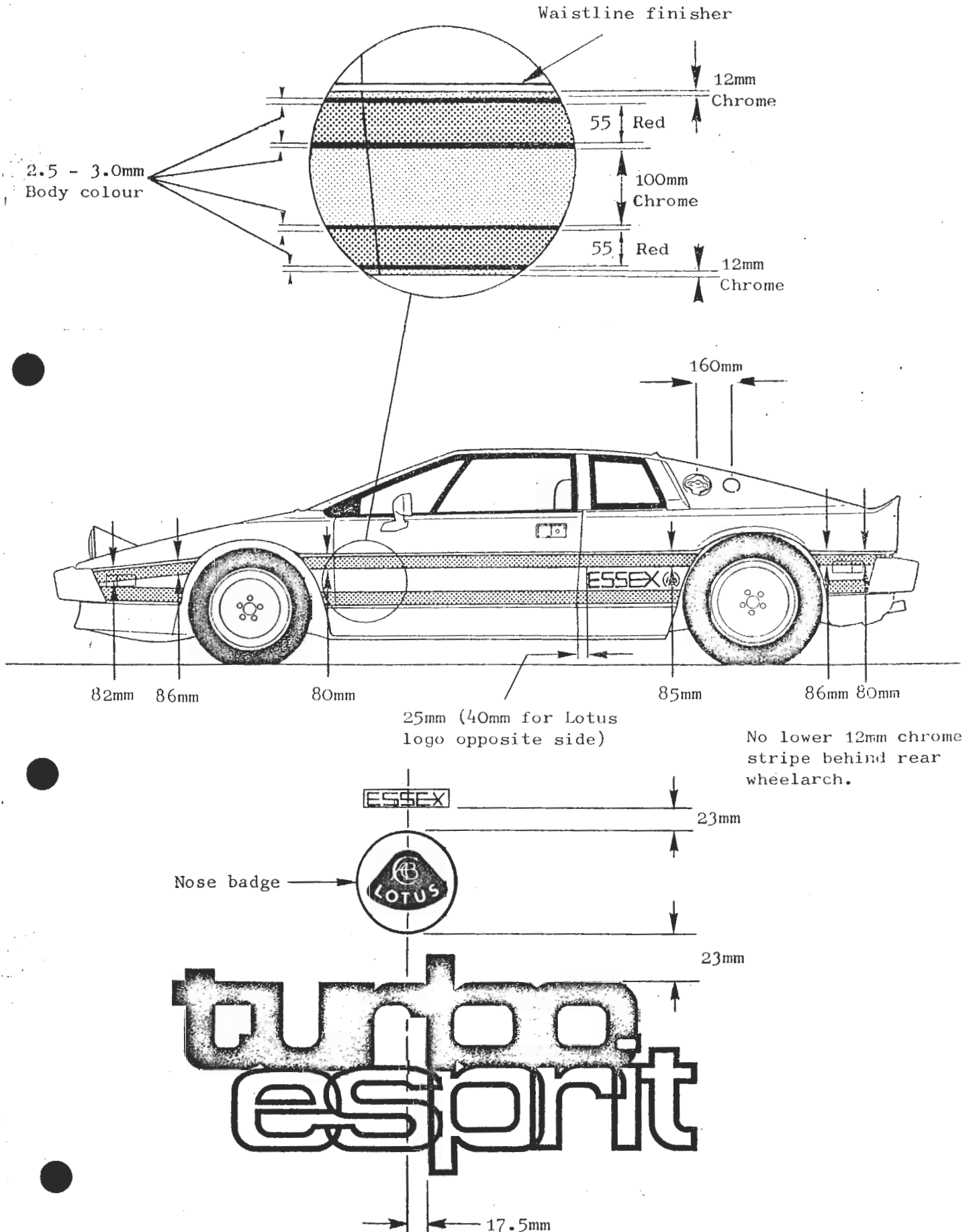
TAILGATE



ESPRIT S3 - '85 Model Year On

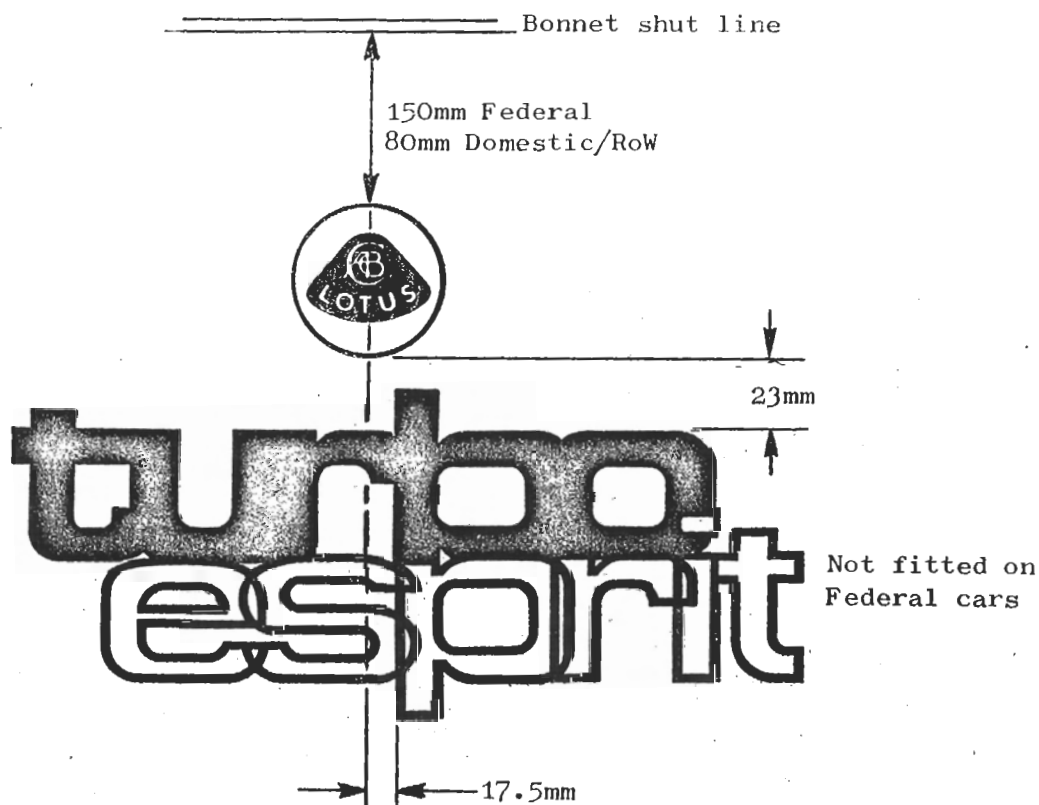
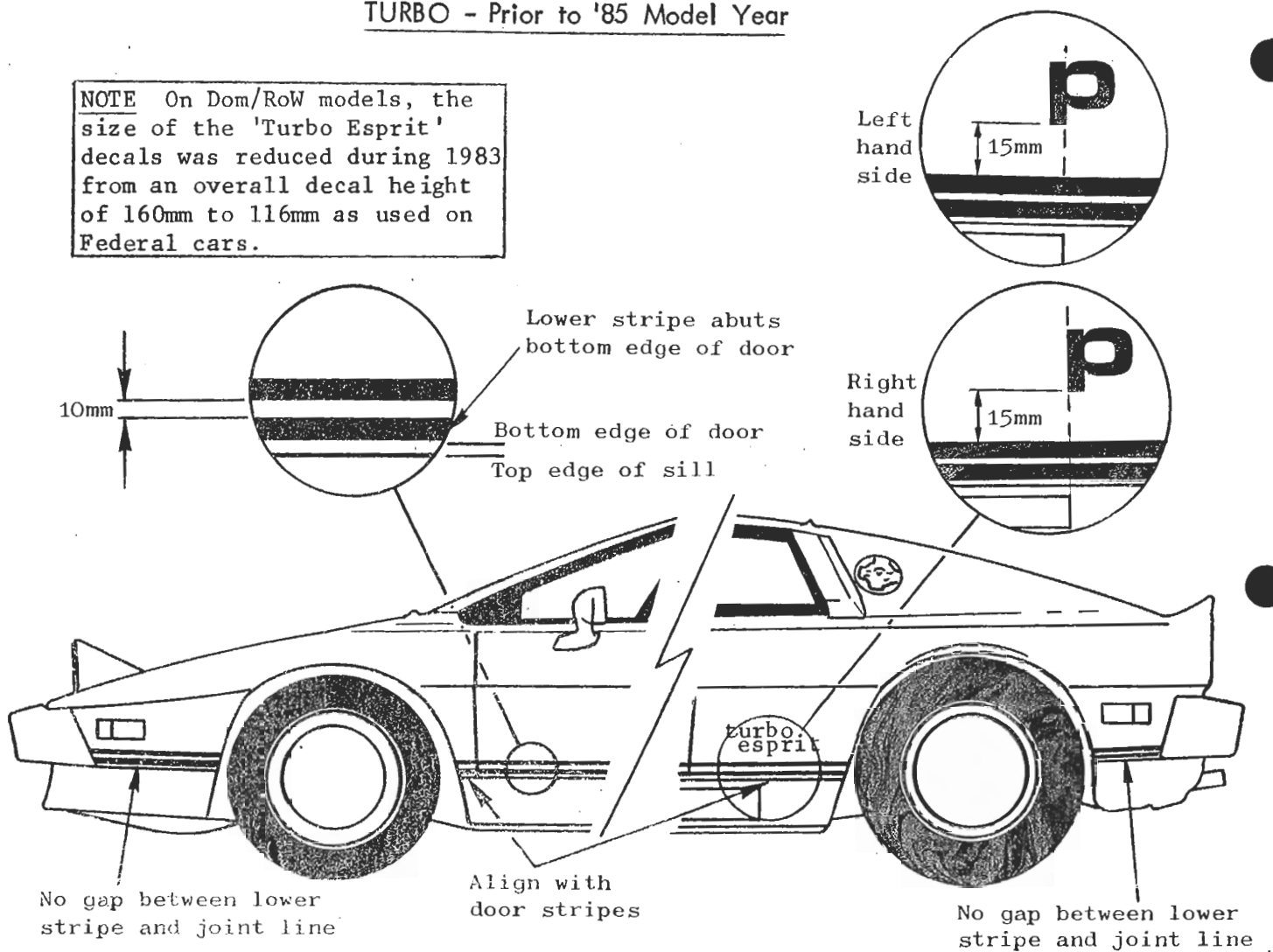


ESSEX TURBO

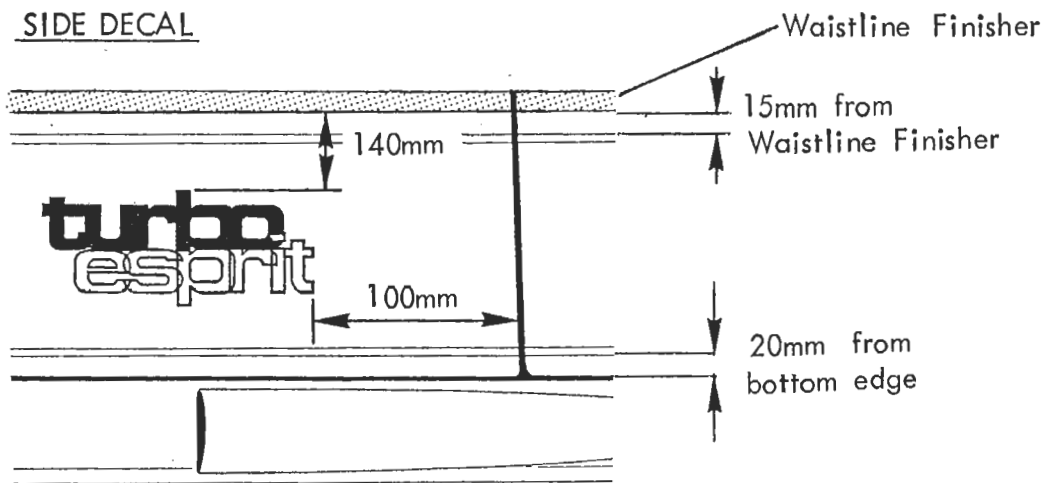


TURBO - Prior to '85 Model Year

NOTE On Dom/RoW models, the size of the 'Turbo Esprit' decals was reduced during 1983 from an overall decal height of 160mm to 116mm as used on Federal cars.



SIDE DECAL



Stripe
Wrapped around
Wheelarch

Stripe
Wrapped around
Wheelarch

Cut Flush to
Bumper edges

Cut Flush to
Bumper edges

NOSE



Nose Badge

70mm

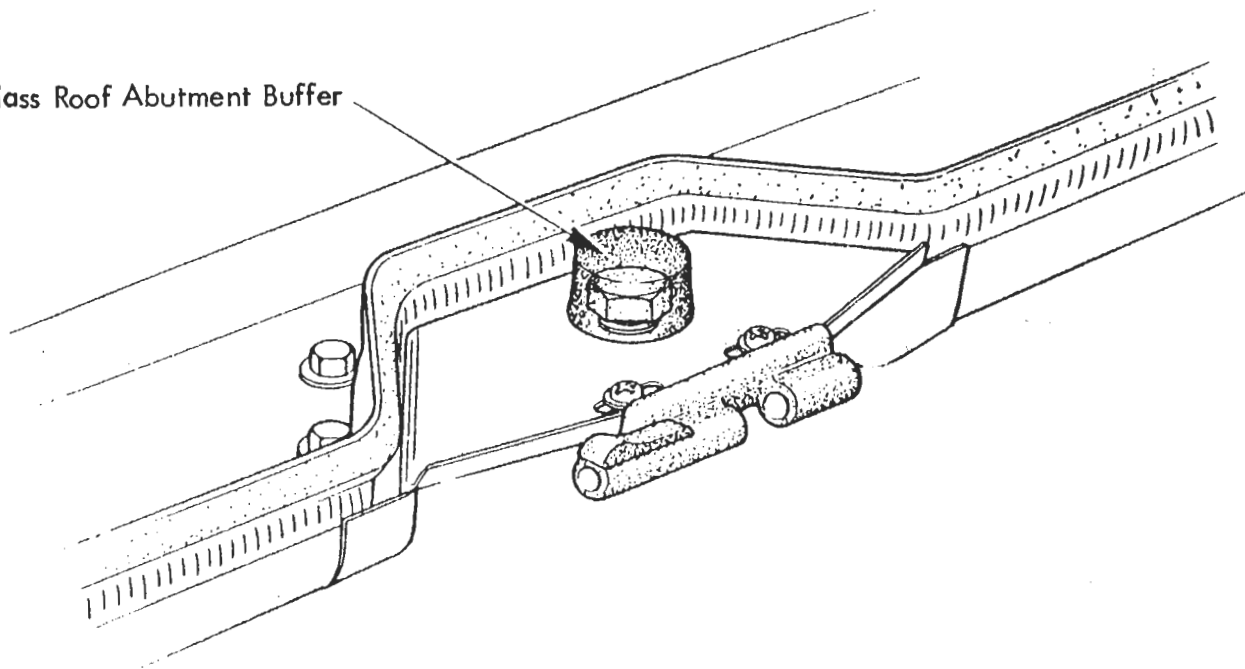
FRONT BUMPER

BD.17 - GLASS ROOF ABUTMENT

In early 1985, a positive stop abutment was added to the glass roof rear catch support brackets, such that the roof is clamped shut against two rubber buffers. An improved 'over centre' catch action results in more rigid retention of the roof panel with less liability for rattles and squeaks. The shimming of the rear catch support brackets to the body may then be adjusted for optimum panel height and seat compression.

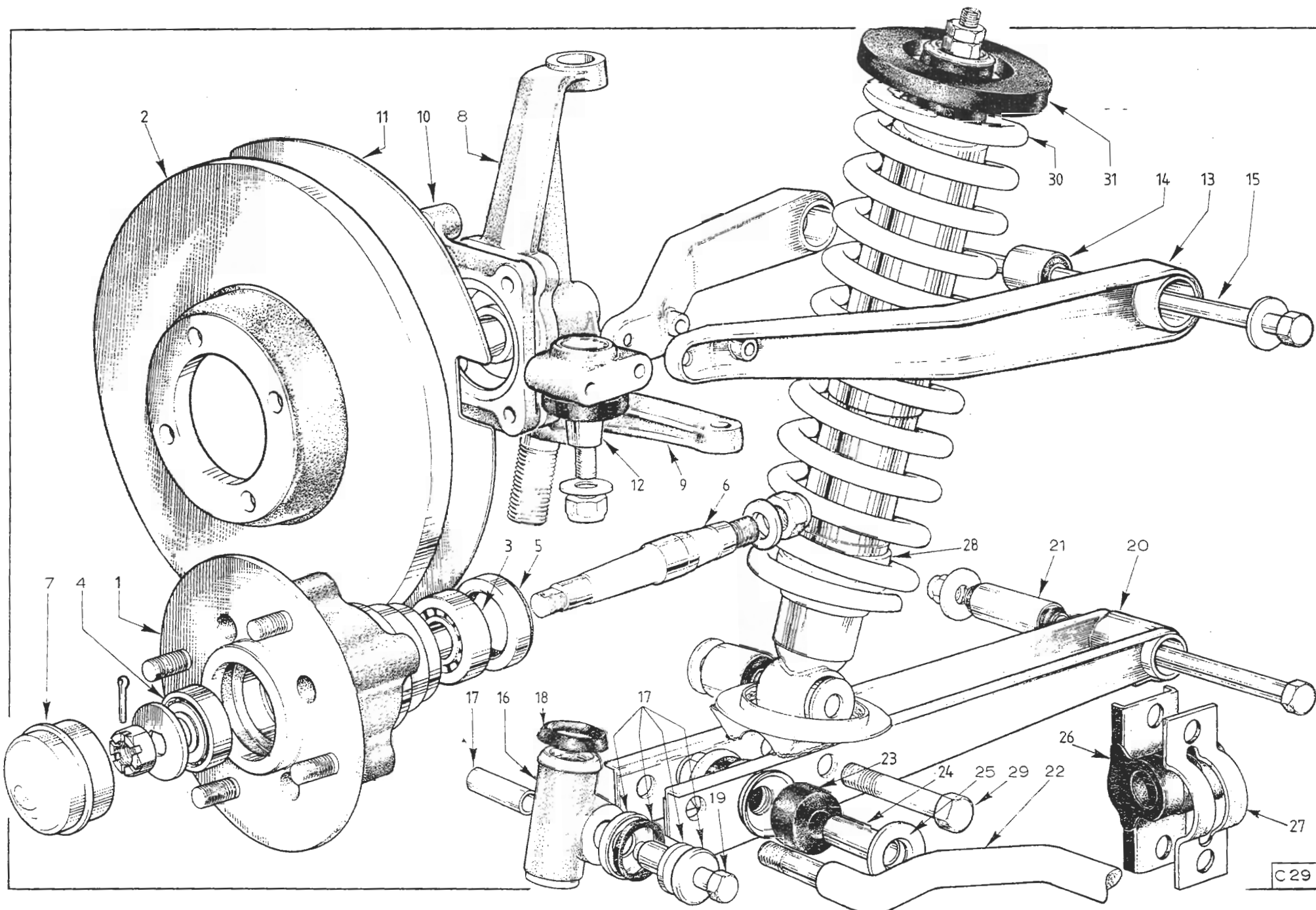
The revised catch support brackets (D082U4974F) and rubber buffers (X046B6113Z) are directly interchangeable with the earlier brackets.

Glass Roof Abutment Buffer



FRONT SUSPENSIONSECTION CB - ESPRIT S3 & TURBO : PRIOR TO '85 MODEL YEAR

	<u>Operation</u>	<u>Page</u>
General Description	-	2/3
Lubrication	CB1	4
Geometry	CB2	4
Castor Adjustment	CB3	5
Front Wheel Alignment	CB4	6
Front Suspension Disassembly	CB5	6
Front Hub Adjustment	CB6	6
Wheel Bearing Replacement	CB7	7



Front Suspension - General Layout

C 29

GENERAL DESCRIPTION

The front suspension is fully independent with upper wishbones, single lower links, and an anti-roll bar providing longitudinal location for the lower links. Co-axial coil springs and oil filled telescopic dampers react on the lower link.

A stub axle secured in each vertical link, carries the wheel hub on two taper roller bearings, adjustable for endfloat.

Key to Front Suspension General Layout Drawing

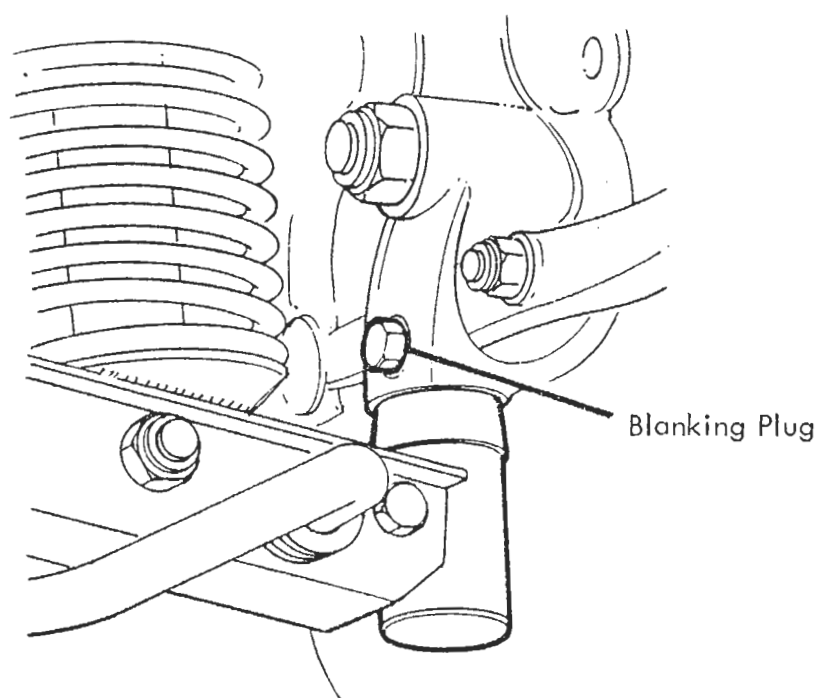
- | | |
|----------------------------|---|
| 1. Front Hub | 16. Lower Trunnion |
| 2. Brake Disc | 17. Bush Kit, Lower Trunnion |
| 3. Wheel Bearing, inner | 18. Seal, Trunnion Top |
| 4. Wheel Bearing, outer | 19. Bolt, Trunnion to Lower Link |
| 5. Oil Seal, Front Hub | 20. Lower Link Assembly. |
| 6. Stub Axle | 21. Bush, Lower Link Pivot |
| 7. Dust Cap | 22. Anti-Roll Bar |
| 8. Vertical Link | 23. Bush, Anti-Roll Bar to Lower Link |
| 9. Steering Arm | 24. Distance Tube |
| 10. Caliper Mounting Plate | 25. Washer, Anti Roll Bar to Lower Link Bush |
| 11. Dust Shield | 26. Mounting Rubber, Anti Roll Bar to Chassis |
| 12. Upper Ball Joint | 27. Clamp Plate |
| 13. Wishbone Arm | 28. Damper Assembly |
| 14. Pivot Bush, Wishbone | 29. Bolt, Damper to Lower Link |
| 15. Stud, Wishbone Pivot | 30. Road Spring |
| | 31. Spring Seat |

CB.1. - LUBRICATION

The only items of the front suspension requiring periodic lubrication, are the front wheel bearings and the lower trunnion swivel joint.

At the recommended service interval, repack the hub with grease, (See Section C and lubricate the lower trunnions.

Lower Trunnions: It is ESSENTIAL that a recommended EP90 grade oil is used to lubricate the trunnions, and NOT grease. Remove the plug shown arrowed, and fit a threaded grease nipple into the vertical link. Apply an oil filled grease gun to the nipple, and pump until oil exudes from the trunnion top seal.

CB.2. - GEOMETRY

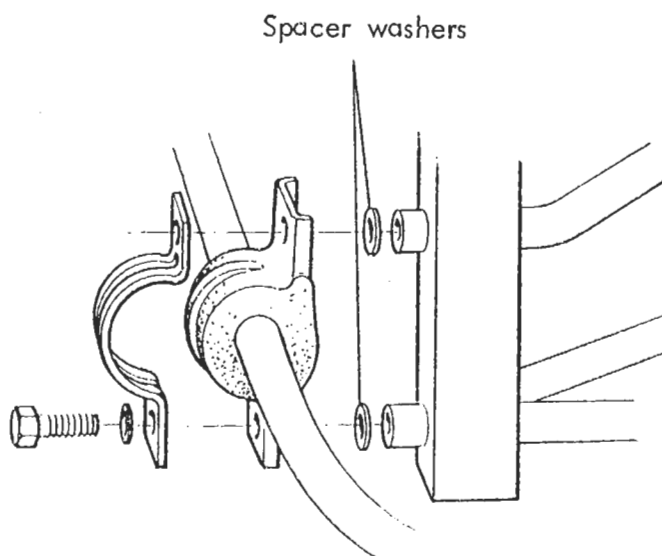
Under normal service conditions, it should only be necessary to check the front wheel alignment. A full geometry check is only necessary following front suspension repair, or if excessive tyre wear is evident, or steering difficulties experienced. Both wheel alignment and castor angle are adjustable, but camber and steering axis inclination (K.P.I.) are set during manufacture, and are non-adjustable.

At ride height of 170mm	:-	Measured at front chassis box section
Camber		min $0^{\circ} 30'$ \pm $0^{\circ} 15'$
Castor		$3^{\circ} \pm 0^{\circ} 30'$ (within $0^{\circ} 30'$ side to side)
K.P.I.		$9^{\circ} \pm 0^{\circ} 30'$
Toe-in		2mm overall \pm 1mm

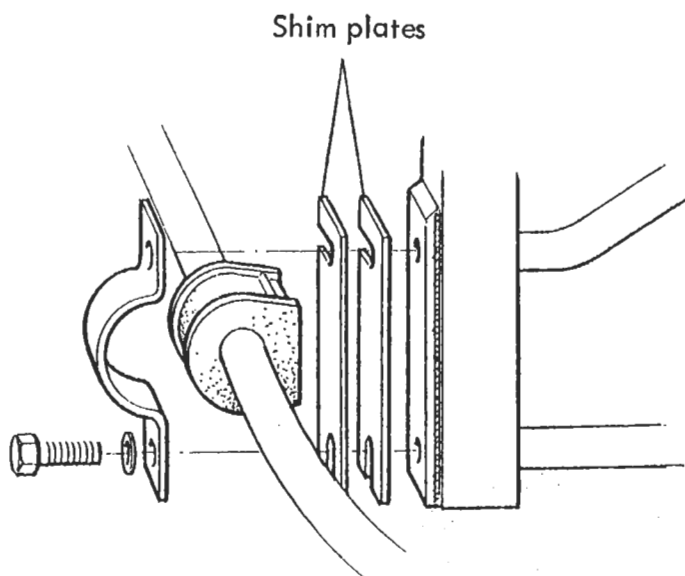
CB.3. - CASTOR ADJUSTMENT

Castor adjustment is affected by fitting shims between the anti-roll bar mountings and the chassis. Two types of mounting have been used.

- i). Up to VIN 82/85D 1262, 82/85 A/E/G/H/S0410 exc. 0399 and 0400 C/F, B/C/F/K 0103.
Spacer washers A075W4028Z, 2.5 mm thick, are fitted between the mounting and chassis, on both upper and lower bolts. On each side of the car, an equal number of washers must be used top and bottom, up to a maximum thickness of three washers.



- ii). From VIN 82/85D 1263, 82/85 A/E/G/H/S 0411 plus 0399 and 0400 C/F B/C/F/K 0104.
Shim plates A082C4052, 2mm thick, may be slid in behind the mountings after slackening the bolts. Up to four shims may be used on each side.



CB.4. - FRONT WHEEL ALIGNMENT

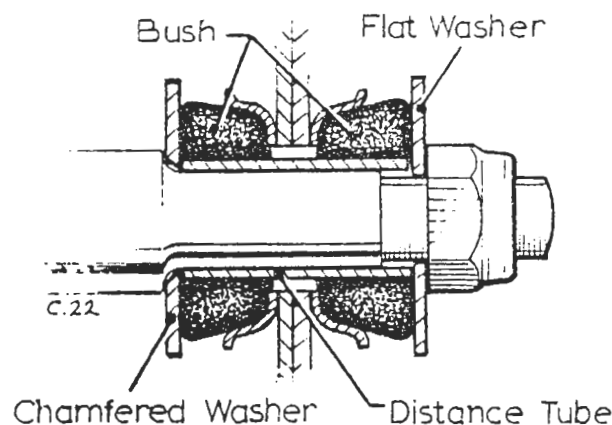
To adjust the front wheel alignment, slacken the track rod end locknuts and steering rack bellows outer clips. Turn each track rod the same amount, without damaging the surface and after tightening the locknuts check that the same number of threads are left showing at each side. When the adjustment is correct tighten the bellows clamps.

CB.5. - FRONT SUSPENSION DISASSEMBLY

CAUTION: Because the upper and lower road spring abutments are the chassis and lower link respectively, it is **ESSENTIAL** that spring compressors are used before disconnecting either end of the damper, or the lower link from the chassis. Failure to do so could result in personal injury.

All suspension rubber bush pivots, must be tightened only at ride height (150 and 175 mm at front and rear of chassis centre box section).

On the anti-roll bar to lower link bush fixing, note that a special chamfered washer is fitted between the anti-roll bar and the lower link front bush, in order to provide for fillet clearance. Ensure this washer is fitted the correct way round.



Note when fitting the damper that a flat washer is used on both sides of the damper lower bush inside the lower link.

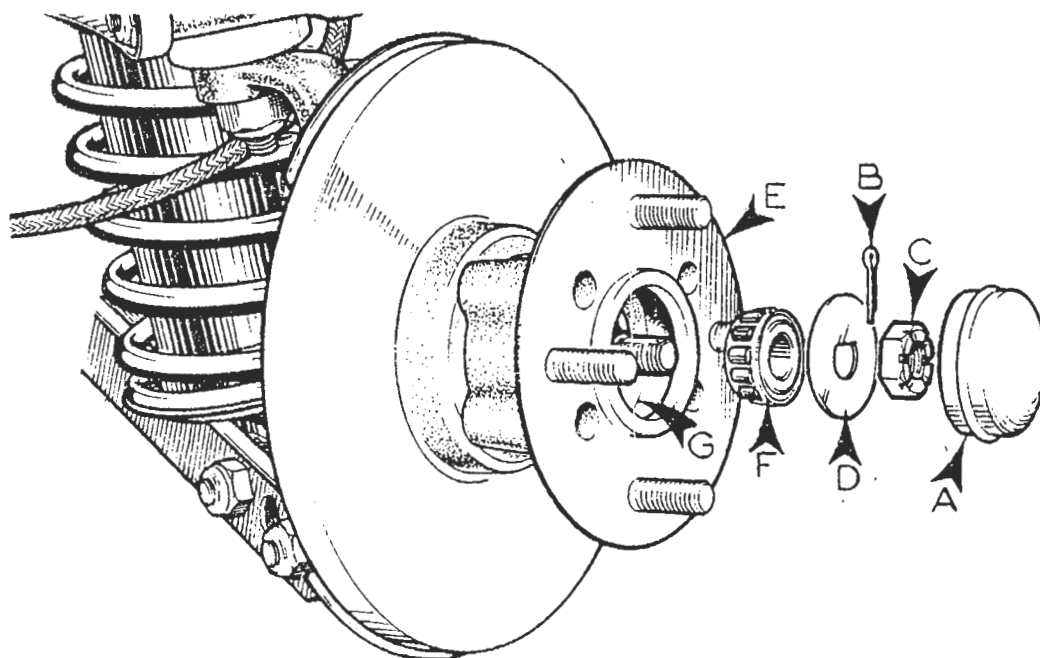
CB.6. - FRONT HUB ADJUSTMENT

Adjustment: Remove the road wheel followed by the hub dust cover (A) and split pin (B).

Tighten the hub nut to 0.7 - 0.8 kgf.m. (5 - 6 lbf.ft.) whilst rotating the hub to ensure bedding of the taper roller bearings. Slacken the nut sufficiently to obtain a hub endfloat of 0.08 - 0.13 mm (0.003 - 0.005 in.) measured with a dial gauge. Insert the split pin and refit the hub dust cover.

CB.7. - WHEEL BEARING REPLACEMENT

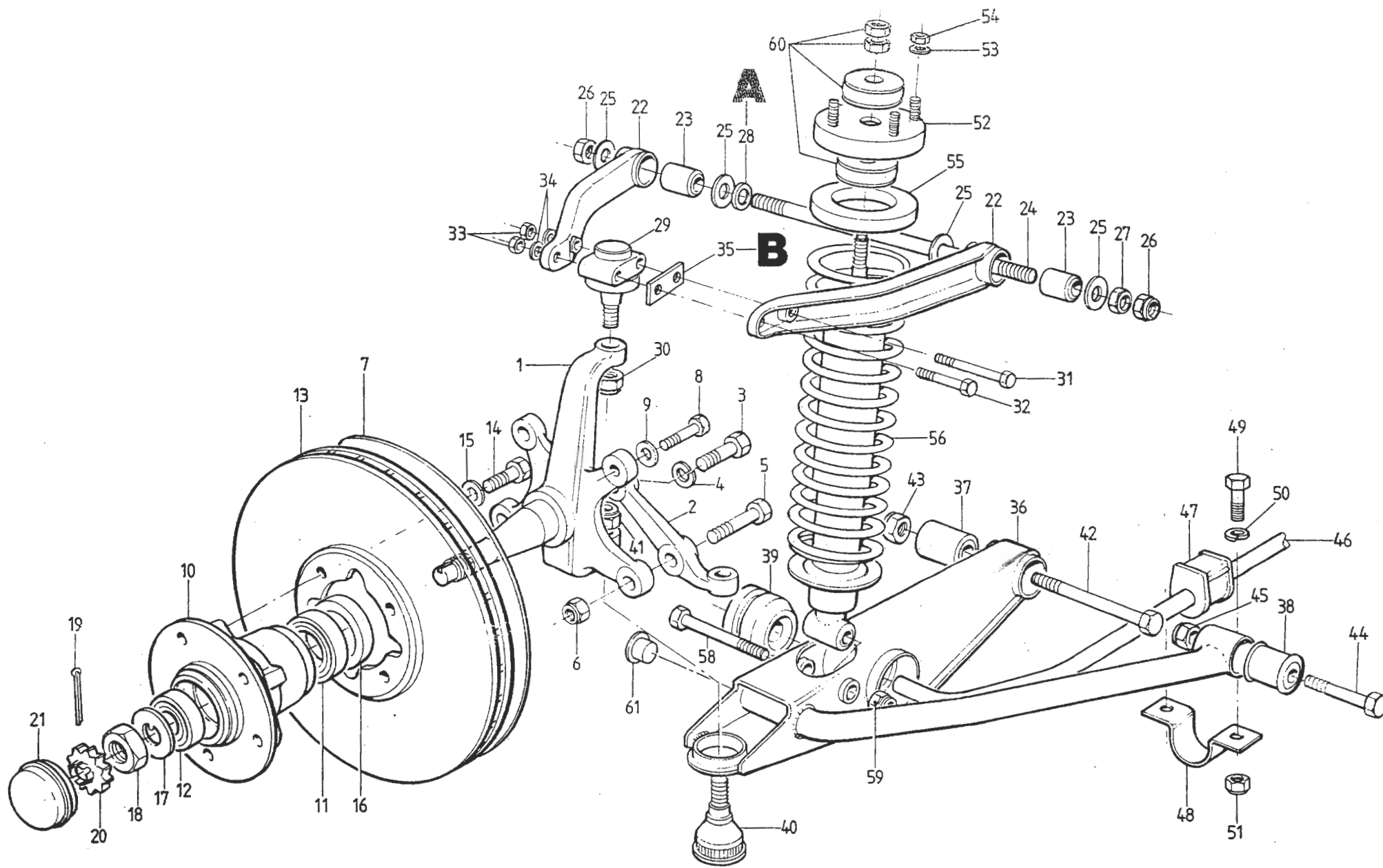
1. Remove the road wheel. Release the caliper fixing bolts, and support caliper clear of disc without straining brake hose.
2. Remove hub dust cap (A) split pin (B), nut (C), washer (D) and pull off the hub assembly (E) complete with bearings.



3. Prise out the oil seal from the inboard side of the hub, and remove the inboard inner race and roller assembly. Both outer races may now be driven from the hub using a soft metal drift at alternate sides of each race.
4. Fit new outer races into the hub using a press.
5. Pack the new bearings with an approved Lithium based wheel bearing grease, and work well into the roller cages. Coat the inside of the hub outer races and cap with grease.
6. Insert the inboard bearing roller assembly and inner race, and retain with new oil seal.
7. Mount the hub assembly onto the spindle and fit the outboard roller assembly and race, retaining washer and nut, and adjust the bearings (see above) before fitting split pin and dust cap.
8. Refit brake caliper, torque tightening fixing bolts to 8.3 kgf.m. (60 lbf.ft.) and road wheel.
9. Torque wheel retaining bolts to 9.0 kgf.m (65 lbf.ft.).

FRONT SUSPENSIONSECTION CC - ESPRIT S3 & TURBO: 1985 MODEL YEAR ONWARDS

	<u>Operation</u>	<u>Page</u>
General Description	-	2 to 4
Geometry	CC1	4
Castor Adjustment	CC2	4/5
Suspension Disassembly	CC3	5/6
Front Wheel Bearings	CC4	6/7



Layout of Front Suspension

Key to Suspension Layout Diagram

- | | | |
|------------------------------------|-------------------------------------|--|
| 1. Vertical Link | 20. Locking Cap, Bearing Nut | 40. Ball Joint, Lower |
| 2. Steering Arm | 21. Grease Cap, Hub Bearing | 41. Nut, Nyloc, M14 |
| 3. Setscrew, M12 x 35, Arm/Link | 22. Arm, Upper Wishbone | 42. Pivot Bolt $\frac{1}{2}$ " UNF x 6" |
| 4. Spring Washer, Arm/Link | 23. Pivot Bush, Upper Wishbone | 43. Nut, Nyloc, $\frac{1}{2}$ " UNF |
| 5. Bolt, M12 x 45, Arm/Link | 24. Stud, Upper Wishbone Pivot | 44. Pivot Bolt, $\frac{1}{2}$ " UNF x $2\frac{3}{4}$ " |
| 6. Nut, Nyloc, M12 | 25. Buffer Washer, Pivot Bush | 45. Nut, Nyloc, $\frac{1}{2}$ " UNF |
| 7. Shield, Brake Disc | 26. Nut, Nyloc, $\frac{1}{2}$ " UNF | 46. Anti-Roll Bar |
| 8. Setscrew, Disc Shield | 27. Locknut, $\frac{1}{2}$ " UNF | 47. Bush, ARB/Chassis |
| 9. Flat Washer, Disc Shield | 28. Shim Washer, Castor Adjust | 48. Clamp, ARB/Chassis |
| 10. Front Hub | 29. Ball Joint, Upper | 49. Setscrew, M12 x 35 |
| 11. Inboard Bearing, Front Hub | 30. Nut, torqloc, 7/16" UNF | 50. Washer |
| 12. Outboard Bearing, Front Hub | 31. Bolt, M8 x 100, Ball Joint | 51. Nut, Nyloc, M12 |
| 13. Brake Disc, Ventilated | 32. Bolt, M8 x 60/65, Ball Joint | 52. Abutment Plate, Spring/Damper |
| 14. Bolt, Brake Disc to Hub | 33. Nut, Nyloc, M8 | 53. Washer, Plate/Chassis |
| 15. Washer, Disc to Hub | 34. Washer, Plain | 54. Nut, M8 Plate Chassis |
| 16. Grease Seal, Front Hub | 35. Shimplate, Castor Adjust | 55. Insulator, Spring Top |
| 17. Claw Washer, bearing Retaining | 36. Lower Wishbone | 56. Road Spring |
| 18. Nut, Bearing, Retaining | 37. Pivot Bush, Wishbone Rear | 57. Damper |
| 19. Split Pin, Locking Cap | 38. Pivot Bush, Wishbone Front | 58. Bolt, $\frac{1}{2}$ " UNF x $3\frac{1}{2}$ " |
| | 39. Bush, ARB/Wishbone | 59. Nut, Nyloc, $\frac{1}{2}$ " UNF |
| | | 60. Bush Kit, Damper Top Stem |
| | | 61. Blanking Plug, Plastic |

GENERAL DESCRIPTION

The front suspension is fully independent with upper and lower wishbones together with concentric damper/spring assemblies and an anti-roll bar.

A stub axle, integral with the non-handed vertical link (hub carrier) carries each front hub on two taper roller bearings, adjustable for endfloat.

CC. 1 - GEOMETRY

Under normal service conditions, it should only be necessary to check the front wheel alignment. A full geometry check is only necessary following front suspension repair or if excessive tyre wear is evident, or steering difficulties experienced.

The recommended method of measuring front wheel alignment is by the use of parallel bars as described in section DB so that the rear wheel alignment may be checked at the same time.

Before measuring suspension geometry set car to ride height of 170mm below chassis front cross member, 170mm below rear lower link chassis brackets.

Camber	0° 30' negative \pm 0° 30'
Castor	min 1° 45' max 3° (Within 0° 30' side to side)
K.P.I.	9° 23' nominal
Toe-in	1.6mm each side + 0 - 1mm

CC. 2 - CASTOR ADJUSTMENT

Cars prior to VIN 82/85 D 1937 (Dom) FF 0602 (U.S.A.) may be fitted with castor adjustment shims 'A' and 'B' as illustrated. These shims are available in various thicknesses:

Shim Washer	'A' 1.5mm	A082C4091
" "	'A' 3.0mm	A082C4092
" "	'A' 6.0mm	A082C4093
Shim Plate	'B' 1.5mm	A082C4090
" "	'B' 3.0mm	A082C4089

Shims may be fitted up to a maximum thickness of 6.0mm to correct castor if necessary.

Important The same thickness shim pack must be used at location 'A' and 'B'. As a rough guide, fitment of 3.0mm shims at 'A' and 'B' will result in an increase in castor of approx. $\frac{1}{2}^{\circ}$.

Cars from and including VIN 82/85 D 1937 (Dom) FF0602 (USA) have a shortened chassis fixing tube for the top wishbone pivot stud, and 6mm of shim washers 'A' distributed between the front and rear of the chassis at this point. In extreme cases, these cars may be fitted with additional shims 'A' and 'B' as detailed above.

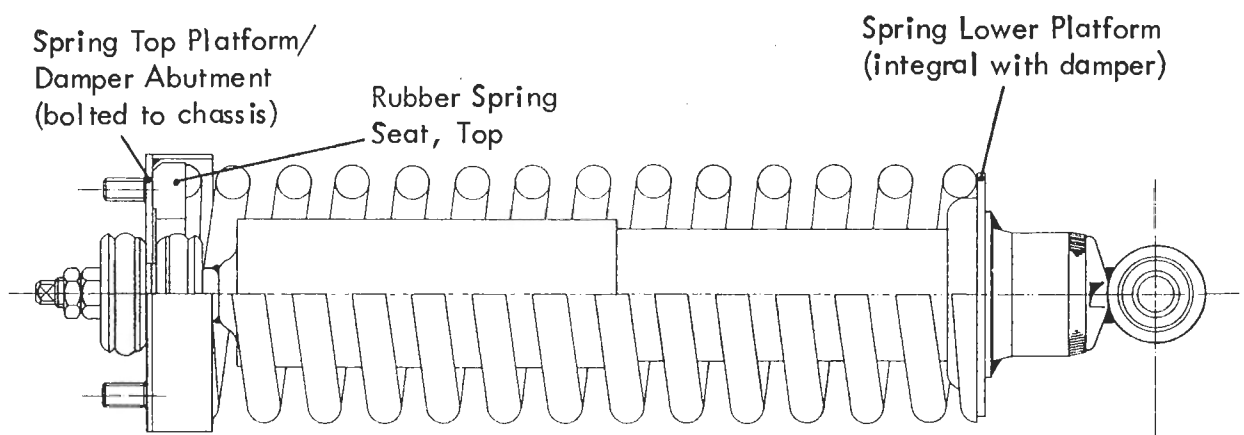
Caution in all cases ensure that the top wishbone pivot stud and ball joint bolts have sufficient engagement through their Nyloc nuts. If necessary, replace the pivot bolt front Nyloc and locknut with two locknuts (i.e. one Nyloc at rear and two locknuts at front). A 5mm longer ball joint outer bolt (M8 x 65) is available part no. A075W2044.

CC. 3 - SUSPENSION DISASSEMBLY

See exploded diagram for general layout

Caution The road spring lower platform is integral with the damper lower body, while the spring top platform/damper abutment is bolted to the chassis. Under no circumstances therefore may the damper top stem nuts be removed unless the spring/damper assembly is removed from the vehicle and the spring compressed in an hydraulic press or similar.

Spring/damper removal: These two components must be removed from the vehicle as an assembly. Release the damper to lower wishbone fixing, and the four nuts securing the spring top platform to the chassis, and remove assembly to bench.



Note that early '85 MY cars used parallel coil springs, which were superseded by conical springs with the greater diameter fitted lowermost. The diameter of the spring seat on the damper body is correspondingly increased for use with conical springs. If replacing a spring or a damper of the earlier 'parallel spring' type, then the later 'conical spring' type components should be fitted as an assembly.

Before the spring/damper assembly may be further dismantled, it is necessary to compress the spring. Conventional spring compressor clamps may not be suitable due to the close coiled nature of the compressed spring. Use special tool T000 or hydraulic press with suitable adaptors to compress the spring before removing the damper top stem nuts and rubber bush. After unloading the spring, the individual components may be replaced.

The anti-roll bar fixing into the lower wishbone is by push fit only. Use rubber grease on assembly. If replacing the lower wishbone anti-roll bar bush, ensure that the larger portion (in relation to its location groove) is fitted towards the front.

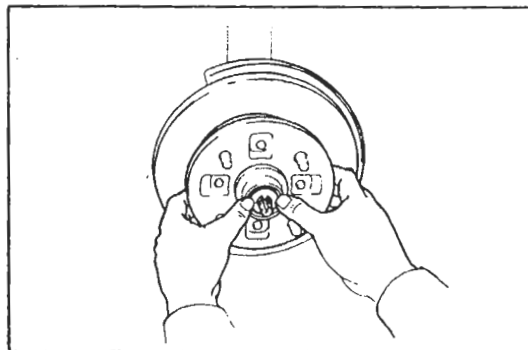
Suspension Re-assembly

On re-assembly, ensure that the upper and lower wishbone to chassis pivot bolts, and the damper to lower wishbone bolts, are tightened only with the car at ride height.

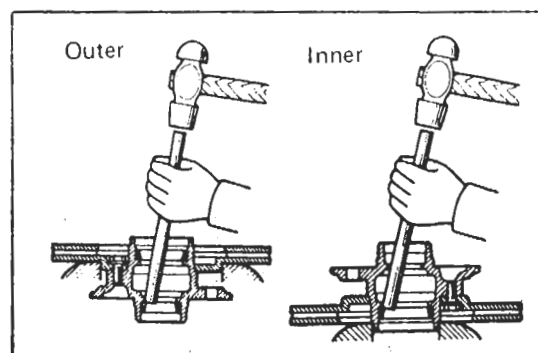
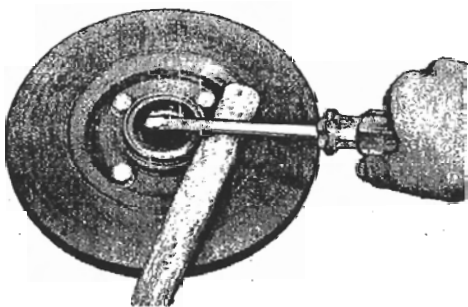
Ensure that plastic blanking plug A089U6089F is fitted into the open rear end of the lower wishbone front tube.

CC. 4 - FRONT WHEEL BEARINGS

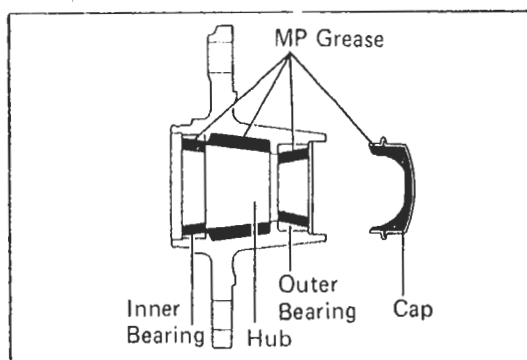
1. The brake caliper must first be removed. In order to extract the caliper uppermost fixing bolt, it is necessary first to remove the cylinder swing release bolt, and swing up the cylinder until the brake pipe clears the caliper top fixing bolt.
2. Remove the hub nut and pull off the hub complete with brake disc.



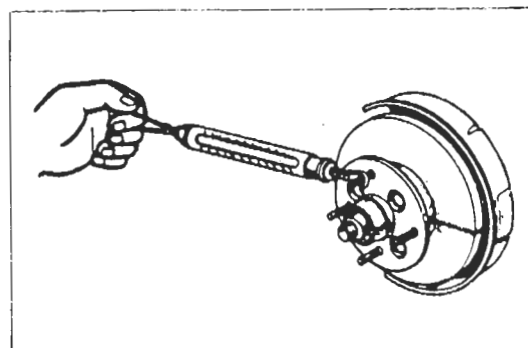
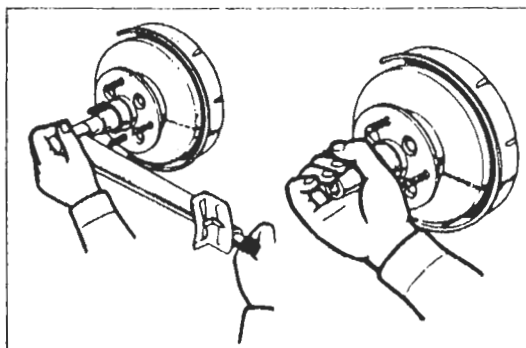
3. Prise out the inner oil seal and remove the centre assembly of the inboard bearing.



4. The outer races of both bearings may be removed from the hub using a drift as shown at alternate sides of the race.
5. Using a press, fit the outer races into the hub.
6. Pack the new bearings with a Lithium base wheel bearing grease and work well into the roller cages. Coat the inside of the hub, outer races, and cap with grease.



7. Insert the inboard bearing centre and retain by pressing in the inner oil seal.
8. Refit the hub onto the stub axle. Torque spindle nut to 3.0 kgf.m (22 lbf.ft) whilst rotating the hub to centralise the bearings. Loosen the nut, and retighten using only your hand on the 30mm socket. With a suitable spring balance, check the force needed to rotate the hub.



Preload:

With new oil seal	350 - 875g (0.8 - 1.9 lb)
With used oil seal	50 - 500g (0.1 - 1.1 lb)

9. Using a dial gauge, measure the hub end float.
Maximum = 0.05mm (0.002 in.).

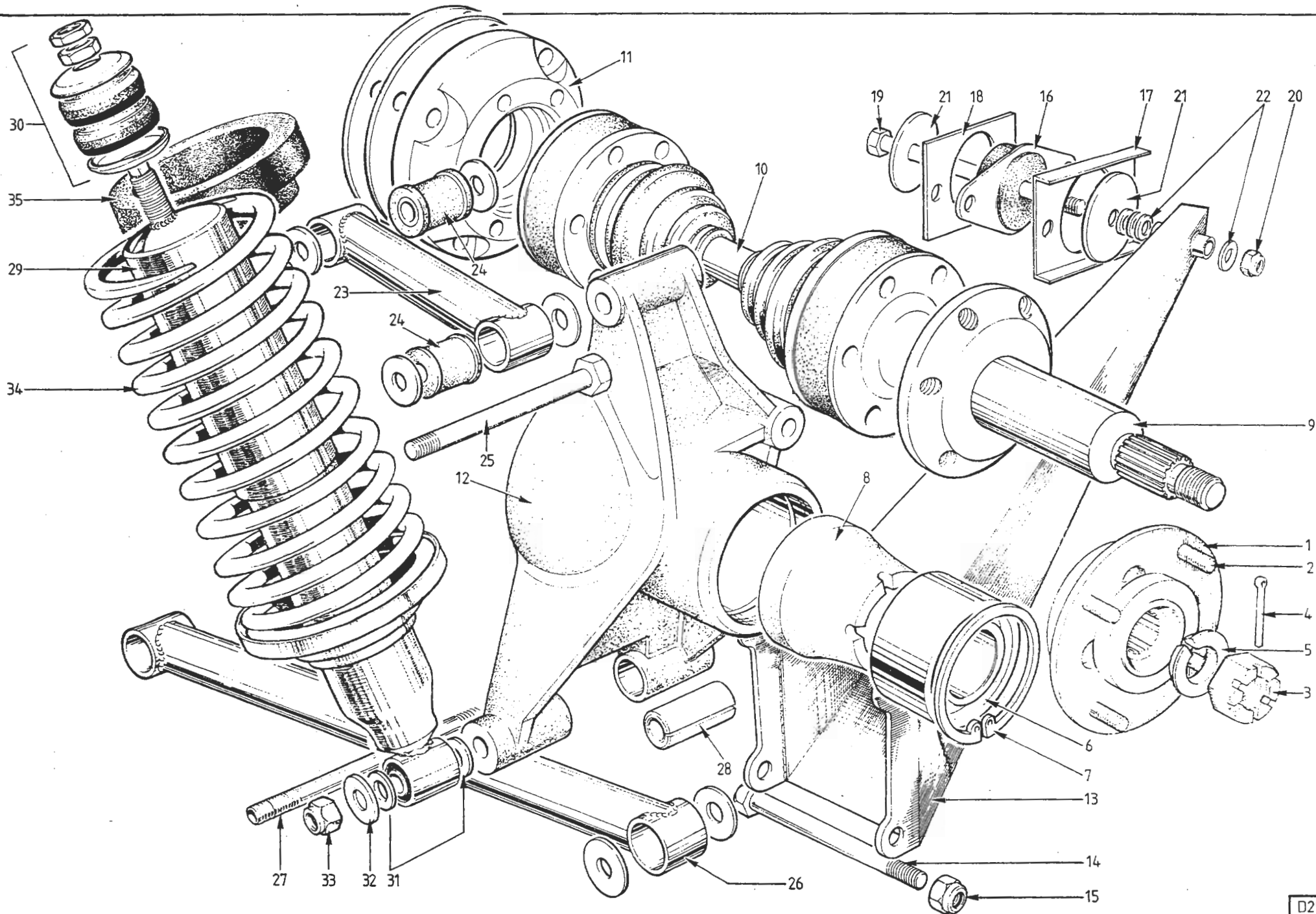
Install the lock ring and split pin, if necessary tightening the hub nut further by the smallest amount required.

Refit brake caliper and torque bolts -

Caliper to vertical link 9.0kgf.m. (65 lbf.ft)
Cylinder swing release 1.6 - 2.4 kgf.m. (12 - 17 lbf.ft)

REAR SUSPENSION
SECTION DB - ESPRIT S3 & TURBO

	<u>Operation</u>	<u>Page</u>
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Drive Shaft C.V. Joint Boot Replacement	DB6	7/8

SECTION DB

Rear Suspension - General Layout

D29

Key to Rear Suspension General Layout Drawing

SECTION DB

- | | |
|--|--|
| 1. Rear Hub | 19. Bolt, Radius Arm to Mounting |
| 2. Stud, Wheel | 20. Nut, Nyloc, Radius Arm to Mounting |
| 3. Nut, Hub Retaining | 21. Washer, Large |
| 4. Split Pin, Hub Nut | 22. Washer, Toe-In Adjustment |
| 5. Cone, Hub Retention | 23. Top Link |
| 6. Bearing, Rear Wheel | 24. Rubber Bush, Top Link |
| 7. Circlip, Bearing Retaining | 25. Bolt, Top Link to Hub Carrier |
| 8. Spacer, Driveshaft/Bearing | 26. Lower Link |
| 9. Drive Shaft, Outboard | 27. Stud, Lower Link to Hub Carrier |
| 10. Drive Shaft, Intermediate | 28. Split Spacer, Hub Carrier |
| 11. Adaptor, Driveshaft | 29. Damper Assembly |
| 12. Hub Carrier | 30. Bush Kit, Damper Top Stem |
| 13. Radius Arm | 31. Spacer Washer, Damper to Hub Carrier |
| 14. Bolt, Radius Arm to Hub Carrier | 32. Washer, Plain, Damper to Hub Carrier |
| 15. Nut, Nyloc, Arm to Hub Carrier | 33. Nut, Nyloc, Damper to Hub Carrier |
| 16. Mounting Rubber, Radius Arm Front | 34. Road Spring |
| 17. Reinforcing Plate, Radius Arm Mounting | 35. Insulator, Road Spring |
| 18. Spacer, Radius Arm Mounting | |

GENERAL DESCRIPTION

The rear suspension is fully independent with single upper and lower transverse links and box section trailing radius arms. Co-axial coil springs and oil filled telescopic dampers act on the aluminium alloy hub carrier.

An outboard drive shaft is carried in each hub carrier on a single sealed for life dual race angular contact ball bearing.

DB.1. - GEOMETRY

At ride height (170mm below rear lower link chassis brackets);

Camber : minus $0^{\circ}30' \pm 0^{\circ}15'$

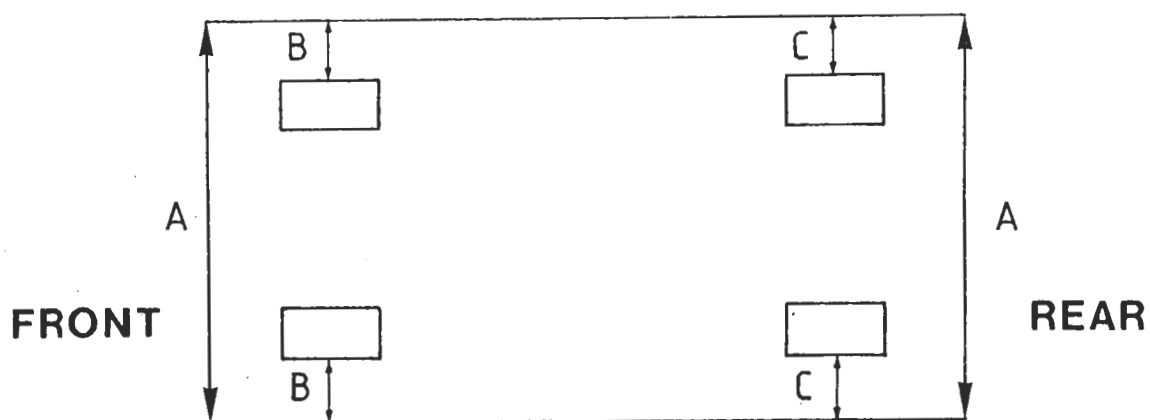
Toe-In : 1.5mm each side ± 0.5 mm

DB.2. - REAR WHEEL ALIGNMENT

It is essential that rear wheel alignment is checked using equipment which measures individual wheel alignment. The most reliable and accurate method is considered to be the use of parallel bars, as used on production.

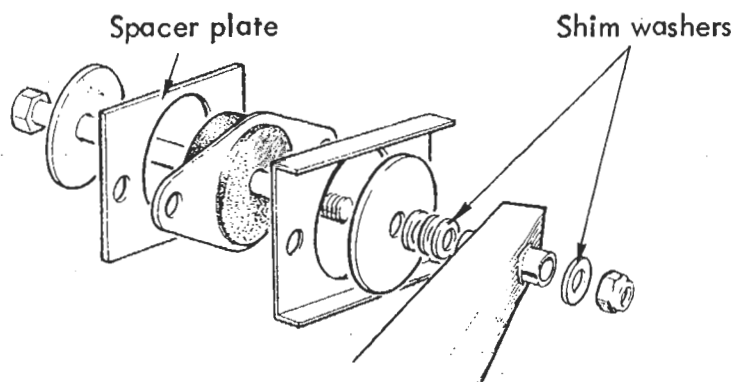
Two bars which are longer than the overall length of the car, and 4 axle stands are required. The bars should be obtained locally and should be of 'T' or square section and be sufficiently rigid to avoid significant bending or sagging between supports.

Set up the two bars on each side of the car at wheel centre height as shown in the diagram, so that A equals A, B equals B and C equals C.



Measure the distance from the bar to the RIM of the wheel concerned at front and rear of the centre line of the wheel. If the front dimension is greater than the rear dimension, the wheel has TOE-IN. If the rear dimension is greater than the front dimension, the wheel has TOE-OUT. The difference between the two measurements is the amount the wheel has TOE-IN or TOE-OUT.

Rear wheel alignment is adjusted by transferring shim washers between the inner and outer sides of the radius arm at its front mounting.



If correct adjustment cannot be obtained by transference of the shim washers, spacer plates may be used between the radius arm mounting and the chassis in the following combinations, in order to bring the correct setting within the range of adjustment afforded by the shim washers.

EITHER	-	One 2mm spacer	A079D4051K
OR	-	Two 2mm spacer	A079D4051K
OR	-	One 6mm spacer	B079D4051K
OR	-	(One 2mm spacer (Plus One 6mm spacer	A079D4051K) B079D4051K)

Ensure at all times that the mounting to chassis fixing bolts are of sufficient length to ensure full engagement of the nyloc fixing nuts.

NOTE : On final assembly, use a new nyloc nut on the bolt securing the radius arm to the rubber mounting, and torque tighten to 5.5 - 6.2 kgf.m (40 - 45 lbf.ft.) with the car at ride height.

DB.3. - REAR SUSPENSION REASSEMBLY

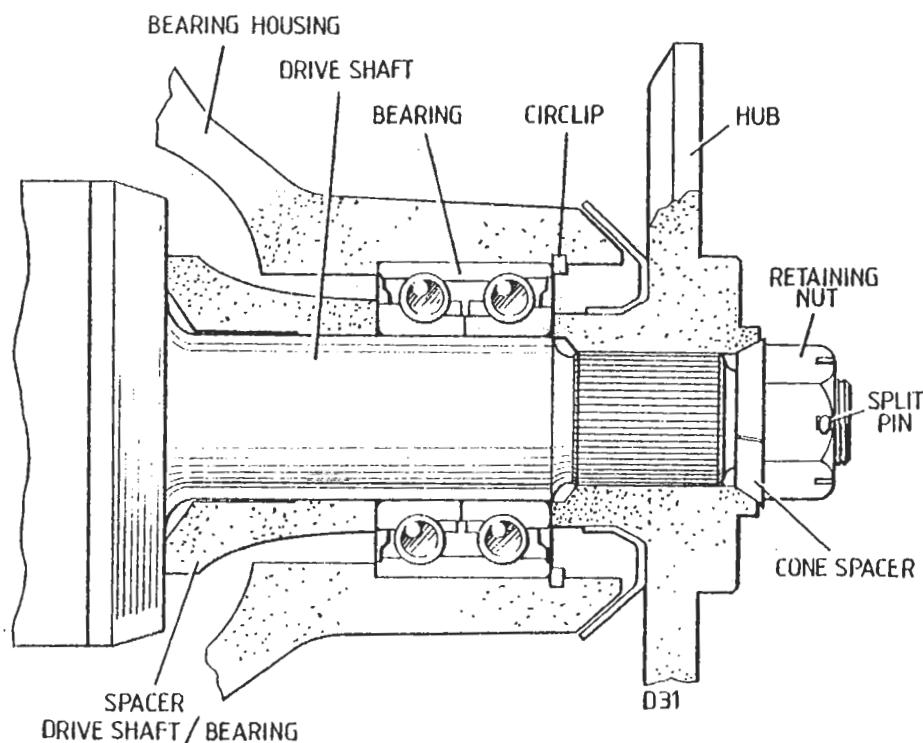
On reassembly of the rear suspension after component replacement or overhaul, check the rear wheel toe-in and adjust if necessary.

Tighten all upper and lower link pivot bolts and radius arm pivot bolt only with the car at ride height.

Note positions and assembly sequence of all pivot bolt washers before dismantling. Check general layout drawing at front of this section for damper to hub carrier fitment.

DB.4. - REAR WHEEL BEARING REMOVAL

1. Remove hub carrier assembly from car.
2. Remove split pin and hub retaining nut. Tap loose and remove the conical spacer.
3. Using a suitable puller remove the hub.
4. With the hub carrier on the bed of a press, press out the outboard driveshaft and spacer.
5. Remove circlip retaining bearing in hub carrier, and press out the bearing.



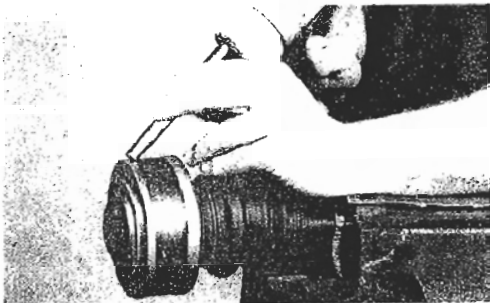
DB.5. - REAR WHEEL BEARING INSTALLATION

1. Thoroughly degrease hub carrier (bearing housing) and outer surface of new hub bearing.
2. Before fitting the new bearing in the housing, preheat the hub carrier to approx. 100° C and soak at that temperature for 5 to 10 mins. A convenient method is to immerse the casting for 10 minutes in boiling water. Do not exceed a temperature of 150° C.
3. Allow moisture to evaporate from the hub carrier, then apply a thin coat of Permabond A148 (Part No. A082V6107) to the mating surfaces of the bearing and housing. Do NOT contaminate any moving parts of the bearing.
4. Press in the new bearing from the hub side of the housing, until the bearing is in contact

with the shoulder in the housing. Apply load to the outer track of the bearing only.

5. Fit a new bearing retention circlip into the housing and allow to cool naturally to ambient temperature.
6. Support the outboard driveshaft on the bed of a press, and fit the spacer over the shaft, larger end towards the flange.
7. Press the hub carrier assembly onto the driveshaft, applying load to the inner track of the bearing only.
8. Fit the hub onto the driveshaft splines. Check that the mating faces of the conical washer and hub are scrupulously clean before fitting the washer and hub nut. Tighten the nut to 28 kgf.m (200 lbf.ft.) and then if necessary tighten further to enable the split pin to be fitted. It is most important that the nut is not slackened to insert the pin.
9. Refit the hub carrier assembly to car. **TIGHTEN ALL BOLTS/NUTS TO THEIR SPECIFIED TORQUE LOADING** (Refer to Service Notes Technical Data)

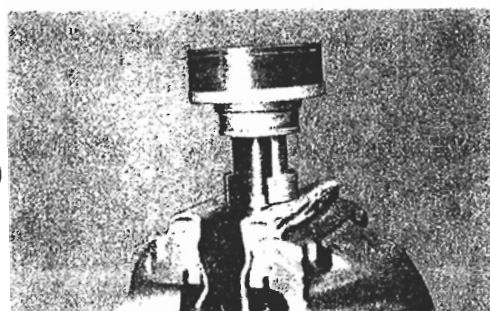
DB.6. - DRIVE SHAFT C.V. JOINT BOOT REPLACEMENT



1. Remove drive shaft assembly from vehicle.



2. Remove the two boot retaining clips and tap off end closure plate.



3. Remove and discard circlip retaining ball hub on shaft. Slide boot along shaft, away from joint.

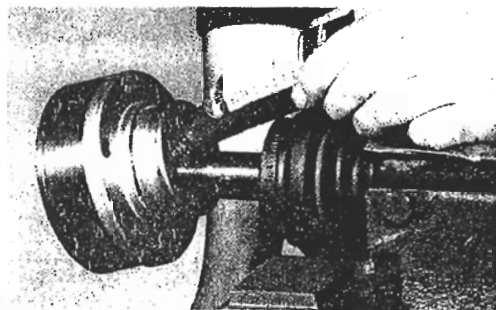
4. Support ball hub with suitable distance piece and knock or press drive shaft from joint. Remove boot.

5. Wash out joint with degreasing fluid and dry off.

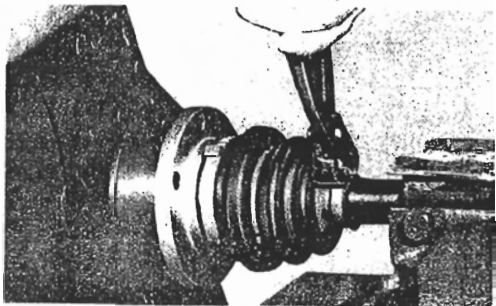
6. Fit new boot onto shaft. Drive ball hub carefully onto shaft up to limit position.



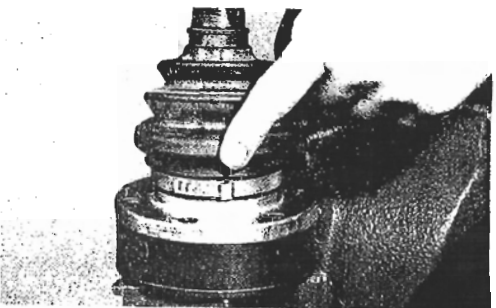
7. Fit new circlip supplied in boot kit and ensure it is fully seated in shaft groove.



8. Use half grease supplied to pack inboard (rubber boot) side of joint, and fit rubber boot onto joint ensuring smaller end of boot is seated in shaft groove.



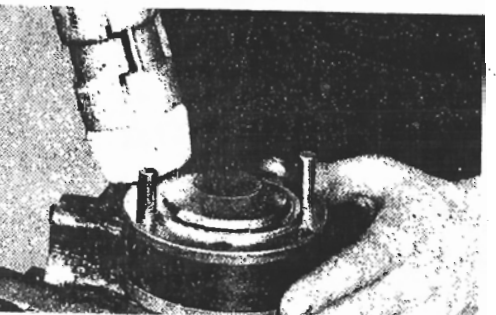
9. Fit both boot retaining clips as tightly as possible by hand before crimping with pliers.



10. Ensure that crimp position of larger clip does not interfere with bolt hole access.



11. Pack outer end of joint with remaining grease.

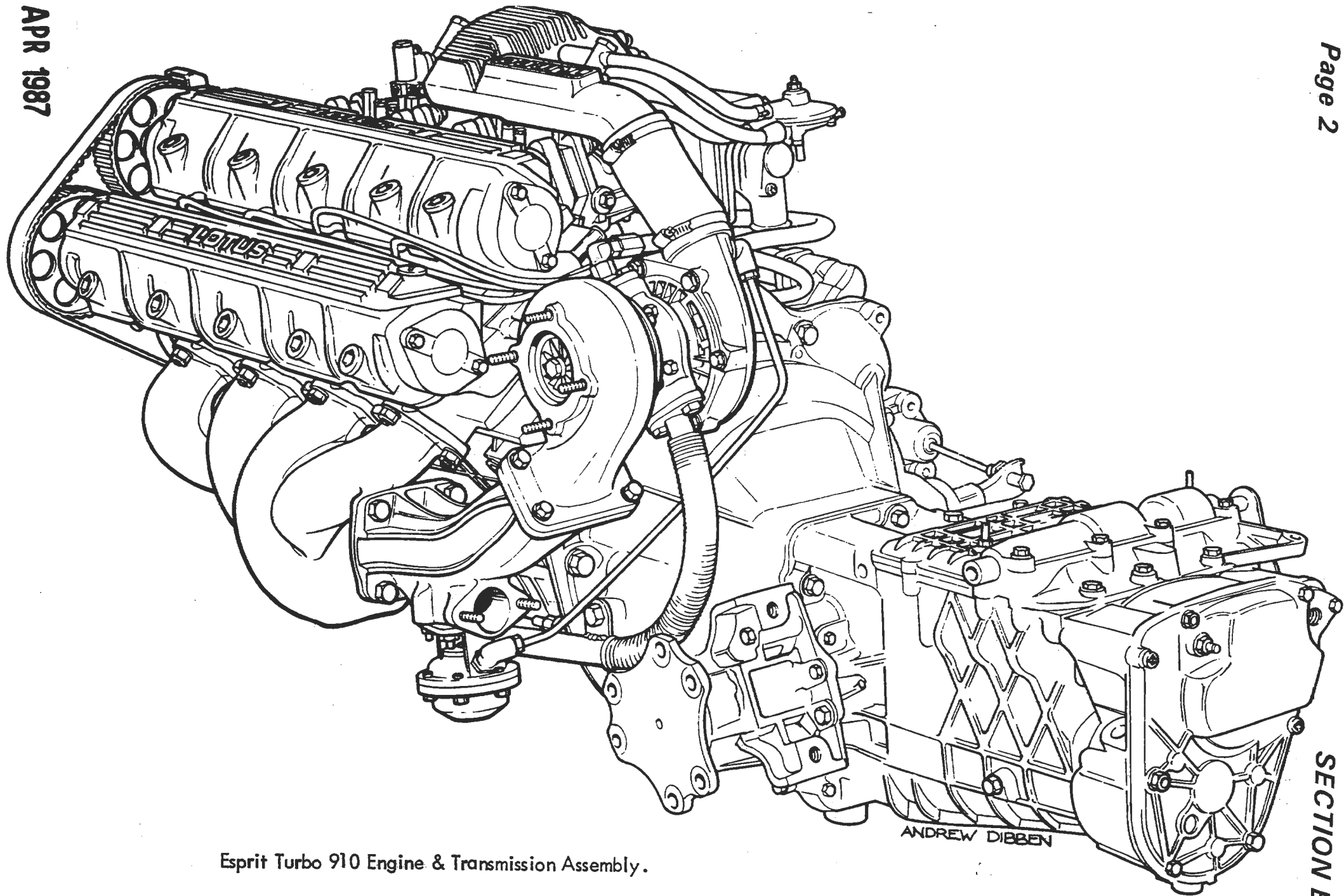


12. Fit new end closure plate ensuring bolt holes are aligned.

13. Refit driveshaft assembly to vehicle, torque load all driveshaft socket head bolts to 80 Nm (8.3 kgf.m 60 lbf.ft.).

ENGINESECTION EA - 907/912/910 inc. FEDERAL

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Esprit Turbo 910 Engine & Transmission Assembly.

GENERAL DESCRIPTION

The engine which is inclined at 45° is a die-cast all alloy 4 cylinder, with wet cylinder liners and twin overhead camshaft in a cross flow cylinder head.

Pent roof combustion chambers are used with 4 valves (two inlet and two exhaust) having separate ports, per cylinder. The valves have replaceable guides and seat inserts and are at an inclusive angle of 38° . They are operated by the camshafts acting directly on the cam followers (tappets), the camshafts being driven at half engine speed by a toothed belt. The camshafts end float is taken by a thrust washer at the rear end of each shaft. The toothed driving belt also drives the auxiliary shaft, this in turn driving the oil pump and ignition distributor.

The crankshaft, of cast iron construction and dynamically balanced, runs in 5 steel-backed leaded bronze lined main bearings, end float being controlled by split thrust washers located in the cylinder block on either side of the rear main bearing.

The connecting rods of 'I' section forgings have steel backed bronze little end bushes and steel-backed leaded bronze lined big-end bearings, the big-end bearing caps being located by dowels and retained by bolts. Solid skirt aluminium alloy pistons with two compression and one oil control ring, situated above the gudgeon pin, are used. The gudgeon pins are retained in position by circlips installed in grooves at each end of the gudgeon pin bore.

A cast iron flywheel incorporating a steel ring driving gear for the starter, is located on the crankshaft flange and retained by two dowels and six bolts fitted without lockwashers.

EA.1. - LUBRICATIONGeneral

The lubrication system is of the forced feed type, the oil being circulated by a mechanically driven oil pump. The pump, of the eccentric bi-rotor type which incorporates a non-adjustable plunger type relief valve, is driven by an auxiliary shaft this being contained in the auxiliary housing bolted to the right-hand side of the cylinder block.

Oil is drawn from the sump up a pick-up pipe and into the pump. When the relief valve opens, oil is passed back into the inlet side of pump. From the pump the pressurised oil flows through the oil cooler and full-flow filter to the oil gallery. The oil gallery passes along the right-hand side of the engine, from where oil is taken to feed the crankshaft main bearings and through drillings in the webs of the crankshaft, to the big-end bearings. The oil gallery also takes oil forward to the auxiliary shaft, then subsequently to the camshaft bearings and valve gear. Lubrication of the little end bushes, the gudgeon pins and the non-thrust sides of the cylinder liners is by oil mist.

An oil gallery cover opposite fourth main bearing provides take offs for the oil pressure gauge, turbocharger oil feed and low temperature switch (H.C.I.)

On dry sump Turbo Esprit models a separate belt driven oil pump assembly is used, fixed to the right hand side of the main bearing panel.

The assembly consists of two scavenge pumps and a pressure pump all mounted on a common axis and supported by the scavenge manifold.

The two scavenge pumps draw oil out from the sump via the scavenge manifold, one pump drawing from ducts 1 and 3, the other from ducts 2 and 4. The oil/air mixture is pumped through the oil cooler and into the oil tank oil/air separator. The pressure pump draws oil from the tank and feeds it via a cylinder block passage into the auxiliary housing. A pressure relief valve is incorporated into the scavenge manifold and bleeds oil back into the inlet side of the pump on opening.

The auxiliary housing passageways are modified to direct the oil into the oil filter, (bypassing the pump housing) and thence into the oil gallery.

All Esprit models (except early Series 1) use a 'cross drilled' crankshaft to enable plain lower main bearing shells to be fitted and increase load capacity.

Oil Level

NOT Dry Sump Turbo: Before checking oil level, allow a full five minutes for oil to return to sump. The correct oil level is to the upper mark on the dipstick with the car on a level surface. Add oil if necessary through the filler neck on the inlet camshaft cover. Do NOT overfill. Replace filler cap securely.

The engine oil should be changed and a new filter fitted at the recommended service intervals. Sump capacity is listed in TECHNICAL DATA, and should be drained when the oil is warm and impurities are held in suspension.

Dry Sump Turbo: Check the oil level in the tank at the right hand side of the engine bay **WITHIN TWO MINUTES** of switching off. Oil will drain back from the tank into the sump when left standing and if the level is checked before the scavenge pumps have returned this oil to the tank, overfilling will result.

The oil should be changed and a new filter fitted at the recommended service intervals. The tank drain plug is located in the right hand rear wheel arch reached after removal of the road wheel. Drain the tank when the oil is warm and impurities are held in suspension. Fill the tank with new oil to the top mark on the dipstick and run the engine for 2 - 3 minutes at 1500 rpm. Switch off and check level within 2 minutes, topping up if necessary.

Oil Filter

A full flow filter of the 'throw-away' canister type, incorporating an anti-drain back valve, is screwed onto the rear of the auxiliary housing.

EA.2. - ENGINE TUNE (NOT Federal Turbo)

1. Pull off the sparking plug leads and remove the plugs. Check the cylinder compressions. Clean the plugs and reset the gaps to the dimensions given in TECHNICAL DATA, or if the electrodes are badly burnt, fit new plugs and re-connect the leads.
If contact breaker points are fitted:
2. Remove the ignition distributor and examine the contact-breaker points. Replace the points if badly burnt, or excessive metal transfer is evident. Adjust the points gap to the dimension given in TECHNICAL DATA and refit the distributor.
3. Remove the air cleaner element and clean (or replace if necessary).
4. Disconnect the fuel feed pipe at the carburetters and check the fuel flow.
Fuel pressure on Turbo engines = 4.5 lb/in^2 above boost pressure.
5. Dellorto Carburetters - Remove float chamber cover. Withdraw the float assembly. Remove all jets and blow them clear with the assistance of an air line. Do NOT use wire as this will enlarge the jet orifice. Remove the needle valve and valve body and blow clean with an air line. Clean the float and float chamber using clean petrol. Replace all jets, needle valve body and needle valve. Using a new gasket, fit to float chamber cover, replace float assembly. Check float setting. Refit float chamber cover.
6. Zenith-Stromberg Carburetters - Remove carburetters from the engine to a clean bench. Release centre-plug from the base of each carburetter. Remove float chambers by releasing the retaining screws and withdrawing in a vertical motion to avoid damage to the float mechanism. Remove float chamber gasket and take out floats. Remove needle valve from float chamber cover. Remove 'O' ring from base centre-plug. Thoroughly wash all removed parts in clean petrol. Refit needle valve into float chamber cover using a new washer. Replace float assembly. Refit float chambers with a new gasket. Fit new 'O' ring to base centre-plug and replace securely. Refit carburetters to engine using new gaskets. Top up damper reservoirs with oil.
7. Re-connect the fuel pipes at the carburetters.
8. Check valve timing, toothed belt tension and condition, valve clearances, adjust as necessary.
9. Check the ignition timing, adjusting if necessary.
10. Adjust the engine slow-running speed and mixture (see TECHNICAL DATA).

EA.3. - COMPRESSION CHECK

1. Warm the engine to its normal operating temperature. Switch 'off' the engine and remove all sparking plugs. Note: before removing spark plugs ensure that plug wells are free of any foreign matter. Set throttles to fully open position.
2. Using proprietary compression testing equipment, place the gauge in a convenient position to be observed and insert the conical-ended rubber tube in the No.1 sparking plug orifice. The normal compression pressure with an engine that has been 'run-in' correctly is given in TECHNICAL DATA. At altitudes above sea-level, proportionally lower pressures will be obtained. Compression is checked with the starter motor turning the engine at approximately 200 r.p.m. Battery and starter motor must of course, be in good condition.
3. Test the remaining cylinders in a similar manner.
4. Replace sparking plugs and re-connect the sparking plug leads.

EA.4. - CAMSHAFT COVERS

Three different types of camshaft cover have been used:

1. All 907 engines, and naturally aspirated 912 engines prior to 1986, use a 'saddle' type cover with a curved joint face. When refitting this type of cover, it is essential to use Silastic RTV 732 on the joint face of both housing and cover together with a new gasket. Do not overtighten the fixings (See Torque loadings) On some models it may be necessary to place the bolts into the cover before fitting to the engine.
2. Turbo 910 engines prior to mid '86 and early '86 M.Y. Excel engines, use flat type cam covers with a three eared filler cap at the front of the inlet cover. Use Hylomar if necessary to retain the gasket whilst fitting. tighten the three slot head retaining nuts with their rubber washers.
3. U.S.A. Turbo H.C.I. and other engine variants at later dates, use covers similar to (2) but with the oil filler at the rear of the inlet cover. the gaskets on these engines are retained by spirol pins and the covers by socket head screws and 'O' rings.

EA.5. - CAMSHAFTS

To Remove

1. Remove upper section of belt guard(Section EA.7.)(front engined cars only)
2. Remove the camshaft covers (Section EA.4.)
3. Check all valve clearances(Section EA.6.)noting any which require adjustment.
4. Remove the timing belt (Section EA.8.) On engines equipped with air injection, remove the air injection rail from the cylinder head.
5. Insert small bar magnets across each of two cam followers, to hold the cam followers in their respective bores. Note: Use magnets only for removal.

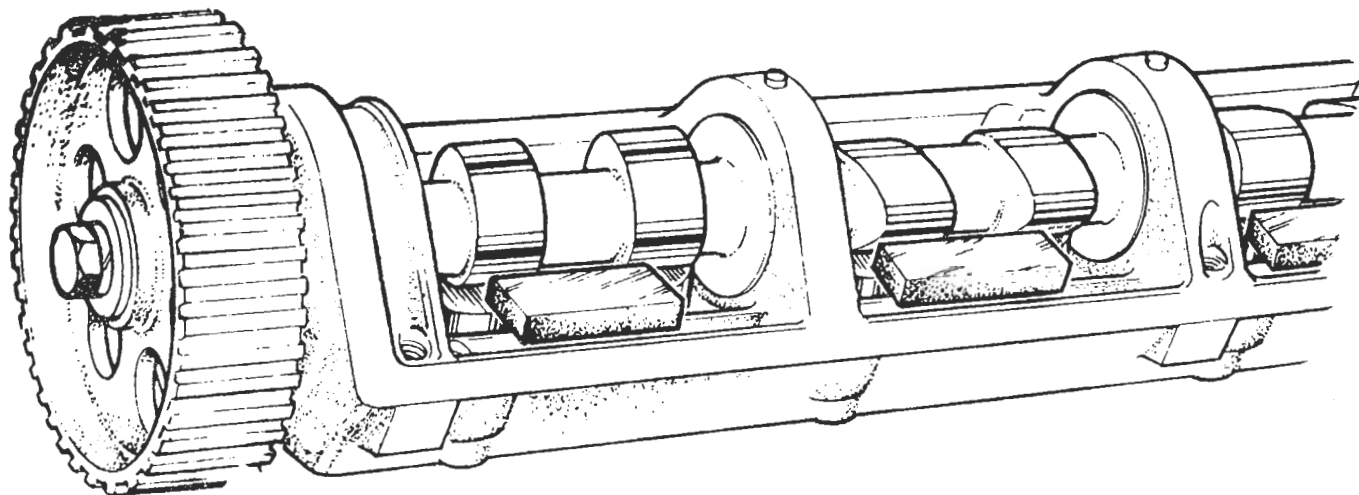


Fig. 1 - View showing cam followers held by magnets

6. Remove the ten nuts and washers (release the nuts diagonally inwards from the outside) securing the camshaft housing. Care **MUST** be taken to avoid dropping any nuts or washers down the inside front of the camshaft housing. Remove the housing and discard the gasket. (if fitted).

On Turbo engines, it is necessary to remove the socket head access plugs and then to use 'Torx' socket T000T0443 on the cam housing bolts.

7. Repeat the process for the other housing. On front engined cars, release the cooling system header tank before removing the exhaust camshaft housing.

On engines equipped with an air pump, remove the air pump belt guard and belt before removing the exhaust camshaft housing.

8. Remove the magnets and release cam followers from their locations. Place them in their respective fitting positions, noting that the cam follower shims are almost always 'stuck' to the underside of the cam follower. If they are not, then they will be 'stuck' to the top of the valve stems. Keep the shim with its respective cam follower.

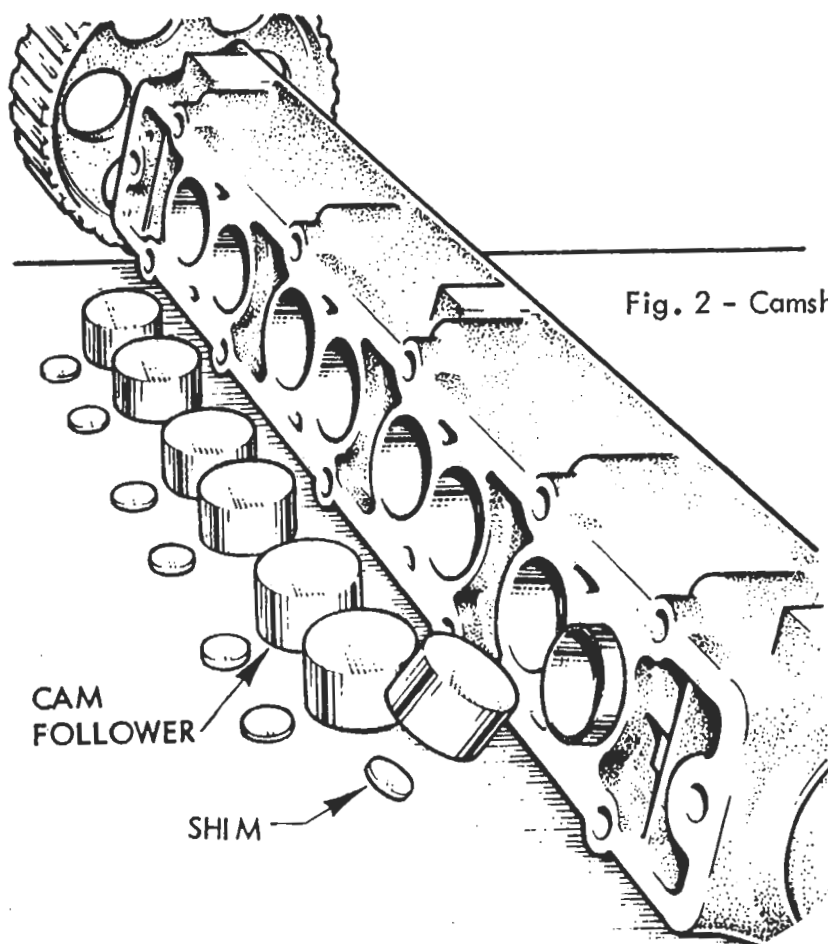


Fig. 2 - Camshaft housing, cam followers & shims

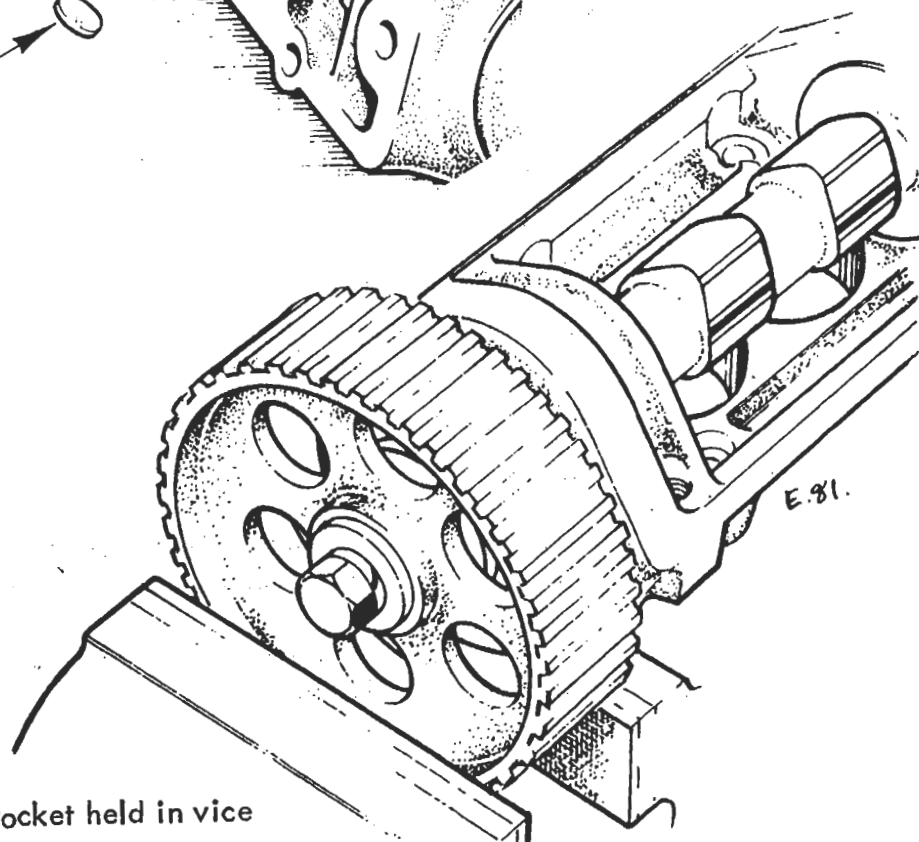
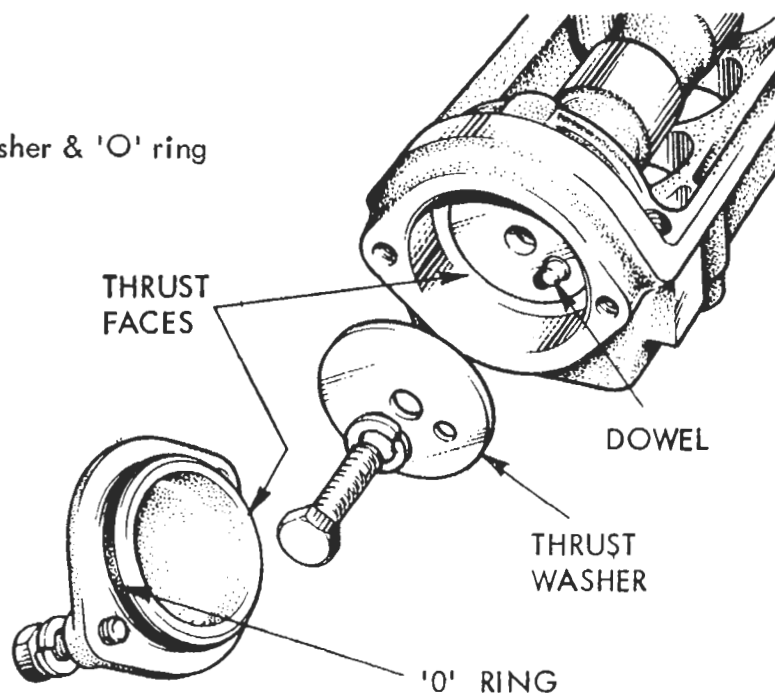


Fig. 3 - Camshaft sprocket held in vice

9. Hold the camshaft sprocket in a vice having fibre protected jaws, and support the camshaft with the other hand.
 On engines equipped with an air pump, release the nut, and pull off the 'V' pulley with hub, from the rear end of the camshaft.
 Remove the two bolts and washers which secure the rear cover to the housing, and remove cover with its 'O' ring. Release the thrust washer retaining bolt and washer, or 'V' pulley adaptor spindle, and remove thrust washer. Remove bolt and washers securing the toothed sprocket to the camshaft.

Fig. 4 - Camshaft thrust washer & 'O' ring



10. Remove the assembly from the vice, and pull off the camshaft sprocket.
11. Remove the toothed belt snubber (where fitted) from the front of the inlet camshaft housing, by releasing the two M8 nuts, noting the eccentric sleeve fitted on the lower stud.
12. With the aid of a two-legged puller, attached to the rear of the camshaft housing, screw in the centre bolt to push out the camshaft towards the front of housing, together with its oil seal.
13. Repeat the process for the other camshaft and sprocket.

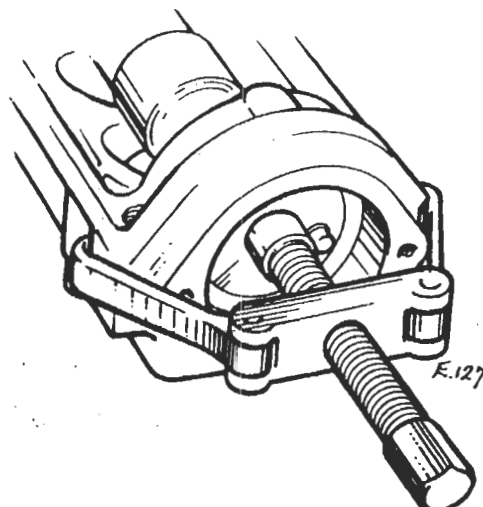


Fig. 5 - Releasing the camshaft

To Replace

1. Smear a little graphite grease on the bearing surfaces of the camshaft housing, insert camshaft into its housing from the front and fit a new front oil seal.

Fig. 6 - Using Tool '72A' to align camshaft oil seal

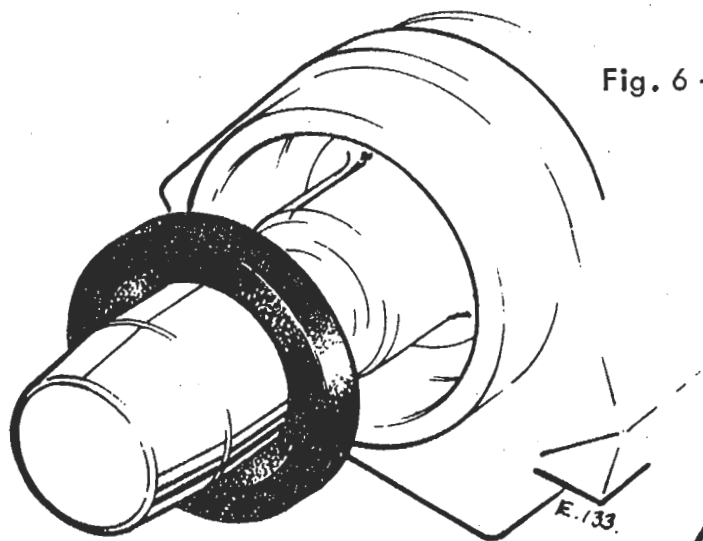


Fig. 7 - Using Tool '10A' to insert camshaft oil seal

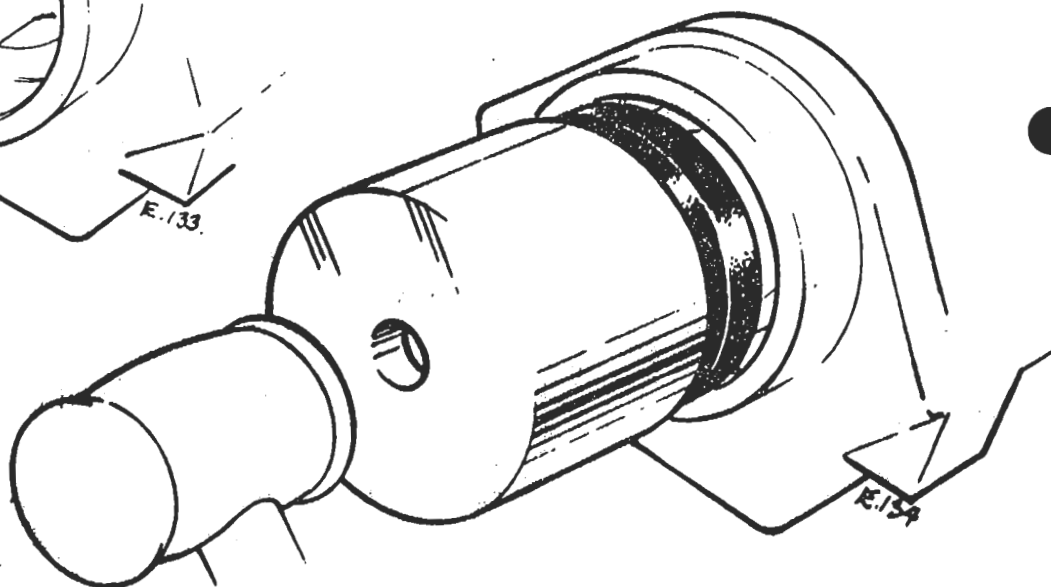
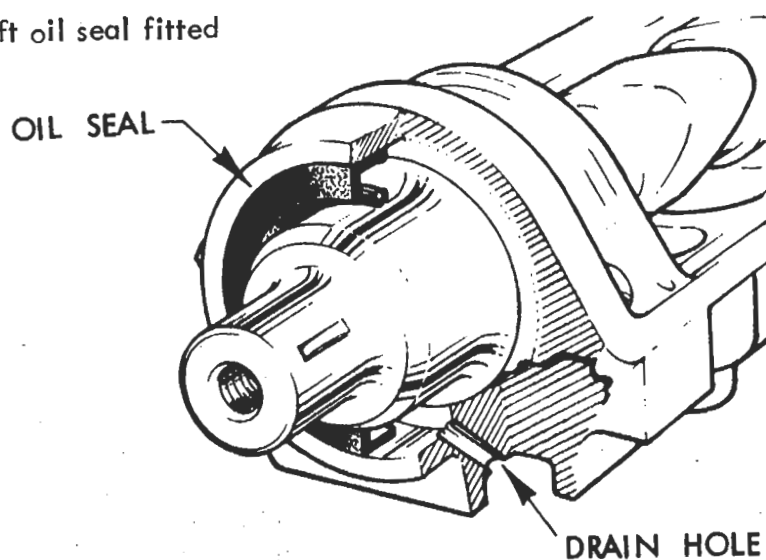


Fig. 8 - Camshaft oil seal fitted

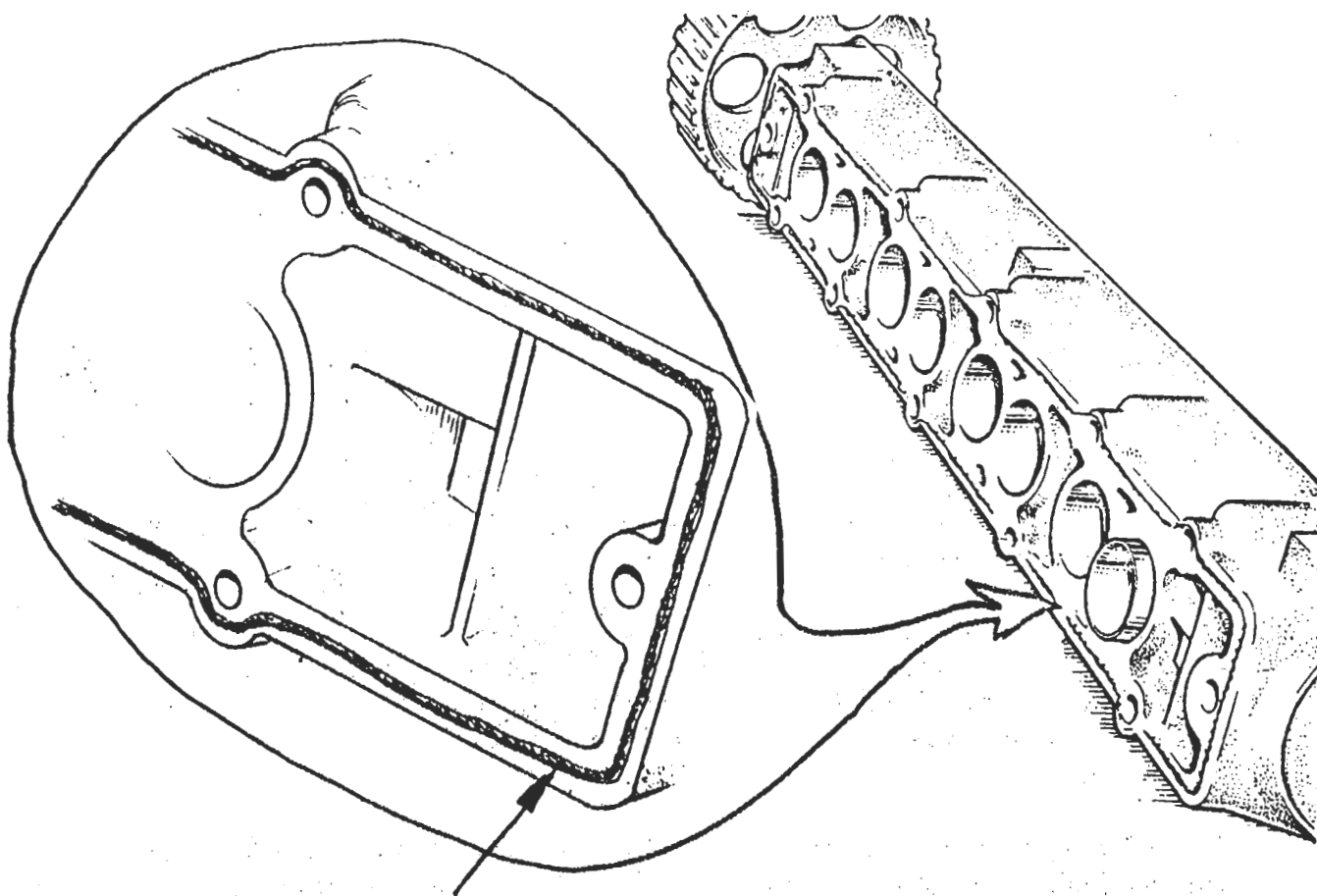


Ensure oil seal is flush with outer face of housing. If seal is fitted to the shoulder inside housing the oil drain hole would be blocked.

2. Refit the toothed belt snubber (where fitted) loosely onto inlet camshaft housing, with the eccentric sleeve fitted on the lower stud, and 'Loctite' applied to the nut threads.
 3. If it has been removed, refit the woodruff key to the front end of the camshaft, and replace camshaft sprocket together with its large plain washer spring washer and retaining bolt. It is ESSENTIAL that the sprockets are fitted the correct way round on each camshaft, i.e. "IN - coloured dot" facing forward on inlet camshaft and "EX - coloured dot" facing forward on exhaust camshaft. See 'TECHNICAL DATA' for correct specification.
 4. On engines without air pump: fit the selective thrust washer with its retaining bolt, and spring washer, ensuring that it is located on the dowel protruding from the rear end of the camshaft. Hold the camshaft sprocket in the vice (fig.3.). Tighten thrust washer and sprocket retaining bolt to specified loading (see TECHNICAL DATA). Replace rear cover with new 'O' ring, tightening the bolts to their specified torque loading. Check the Camshaft end-float (see TECHNICAL DATA). If the end-float is outside this tolerance, replace the selective thrust washer.
 5. On engines equipped with an air pump: apply PermaBond A138 thread locking compound to the threads of the 'V' pulley adaptor spindle, and screw into the rear of the camshaft securely. Fit the selective thrust washer over its locating dowel, and fit the rear seal housing using a new 'O' ring and oil seal. Apply Silastic RTV 732 into the inside of the 'V' pulley hub, and fit onto the adaptor spindle, ensuring that the dowel engages into the hub correctly. Fit the 'V' pulley onto the hub with the drive line inset towards the engine, fit the M8 washer and self locking nut and torque tighten (see TECHNICAL DATA). Check the camshaft end float - 0.03 - 0.20 mm (0.001 - 0.008 in.). If outside of tolerance, replace selective thrust washer.
- Fit the four washers and setscrews securing the 'V' pulley to the pulley hub and tighten.
6. Replace cam follower shims onto the ends of the valve stems, these being greased (with graphogen grease) on the valve stem side. Replace the cam followers into their respective bores in the camshaft housing, after an application of graphogen grease.
 7. In order to avoid damaging the valves when the camshaft housings are replaced, it is ESSENTIAL that the crankshaft is turned BACK approximately 90° from its TDC position, to bring the pistons half way down the cylinders. Do not turn the crankshaft more than 90° back as this may also cause the valves to be damaged.
 8. On engines up to engine number 11276, using a new gasket, which is DRY and kept FREE OF OIL, replace the camshaft housing with its securing washers and nuts. Tighten the nuts to their specified loadings diagonally outwards from the centre.

On engines from engine number 11276, and earlier engines if fitted with the later camshaft housing with a recess machined around the oil feed for an 'O' ring:

Seal between the cylinder head and cam housing with Loctite 504 gasket eliminator and an 'O' ring fitted over the roll pin dowel. Before applying new gasket eliminator ensure all old gasket eliminator is removed from the mating surfaces of the cylinder head and cam housing. Take care not to scratch sealing surfaces - use a blunt scraper such as the flat end of a steel rule. Degrease and clean the mating surfaces using methylated spirit or similar. Lay a thin continuous bead of gasket eliminator (approx 1/16 to 3/32 in. wide) in the middle of the sealing surface on the cam housing, following the outer surface around the stud holes. Fit 'O' ring on cylinder head dowel and carefully place cam housing on cylinder head studs and secure with washers and nuts. Tighten the nuts to the specified torque loading diagonally outwards from the centre.

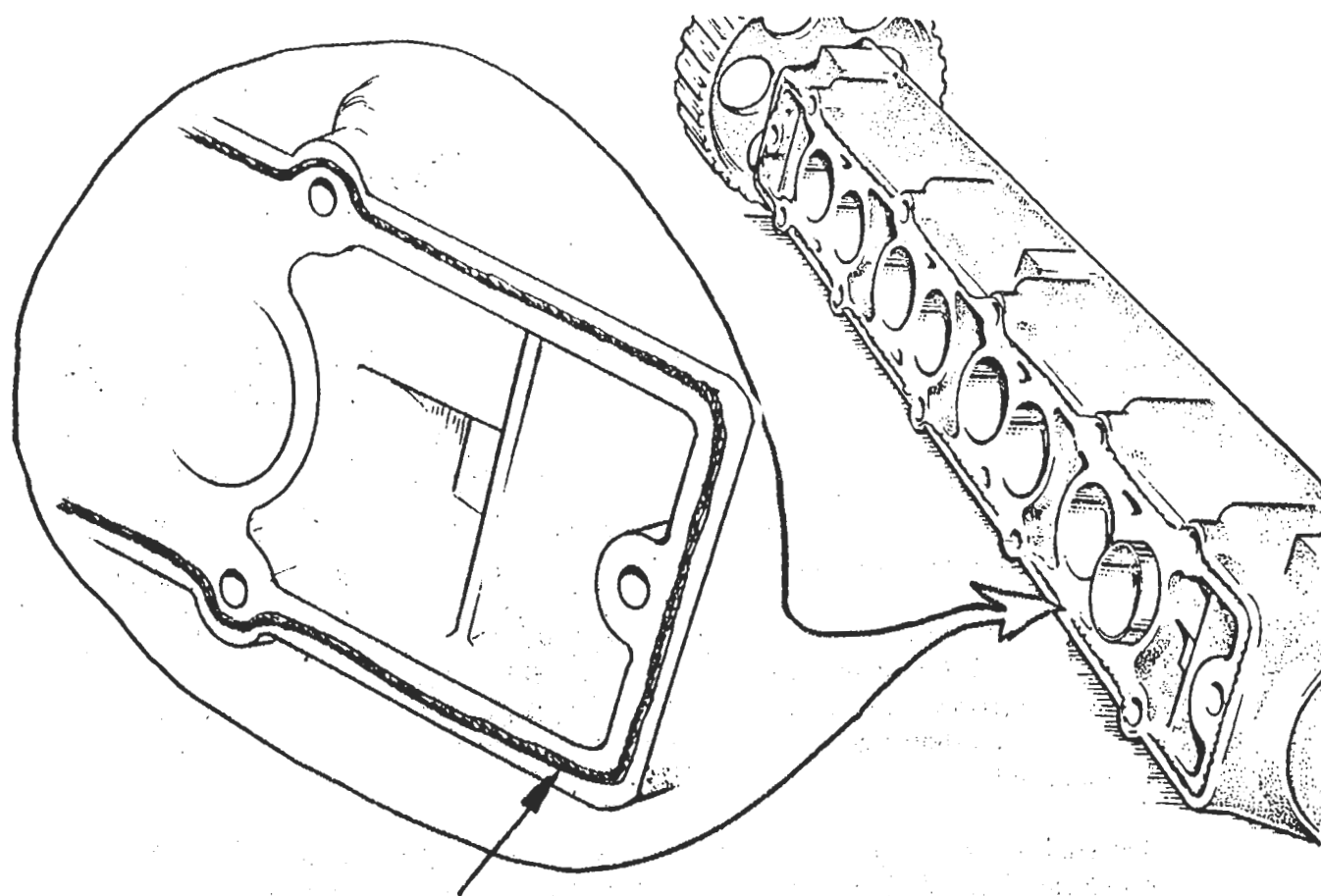


Continuous bead of Loctite 504 Gasket Eliminator.

2. Refit the toothed belt snubber (where fitted) loosely onto inlet camshaft housing, with the eccentric sleeve fitted on the lower stud, and 'Loctite' applied to the nut threads.
 3. If it has been removed, refit the woodruff key to the front end of the camshaft, and replace camshaft sprocket together with its large plain washer spring washer and retaining bolt. It is **ESSENTIAL** that the sprockets are fitted the correct way round on each camshaft, i.e. 'IN - coloured dot' facing forward on inlet camshaft and 'EX - coloured dot' facing forward on exhaust camshaft. See 'TECHNICAL DATA' for correct specification.
 4. On engines without air pump: fit the selective thrust washer with its retaining bolt, and spring washer, ensuring that it is located on the dowel protruding from the rear end of the camshaft. Hold the camshaft sprocket in the vice (fig.3.). Tighten thrust washer and sprocket retaining bolt to specified loading (see TECHNICAL DATA). Replace rear cover with new 'O' ring, tightening the bolts to their specified torque loading. Check the Camshaft end-float (see TECHNICAL DATA). If the end-float is outside this tolerance, replace the selective thrust washer.
 5. On engines equipped with an air pump: apply Perma-bond A138 thread locking compound to the threads of the 'V' pulley adaptor spindle, and screw into the rear of the camshaft securely. Fit the selective thrust washer over its locating dowel, and fit the rear seal housing using a new 'O' ring and oil seal. Apply Silastic RTV 732 into the inside of the 'V' pulley hub, and fit onto the adaptor spindle, ensuring that the dowel engages into the hub correctly. Fit the 'V' pulley onto the hub with the drive line inset towards the engine, fit the M8 washer and self locking nut and torque tighten (see TECHNICAL DATA). Check the camshaft end float - 0.03 - 0.20 mm (0.001 - 0.008 in.). If outside of tolerance, replace selective thrust washer.
- Fit the four washers and setscrews securing the 'V' pulley to the pulley hub and tighten.
6. Replace cam follower shims onto the ends of the valve stems, these being greased (with graphogen grease) on the valve stem side. Replace the cam followers into their respective bores in the camshaft housing, after an application of graphogen grease.
 7. In order to avoid damaging the valves when the camshaft housings are replaced, it is **ESSENTIAL** that the crankshaft is turned **BACK** approximately 90° from its TDC position, to bring the pistons half way down the cylinders. Do not turn the crankshaft more than 90° back as this may also cause the valves to be damaged.
 8. On engines up to engine number 11276, using a new gasket, which is **DRY** and kept **FREE OF OIL**, replace the camshaft housing with its securing washers and nuts. Tighten the nuts to their specified loadings diagonally outwards from the centre.

On engines from engine number 11276, and earlier engines if fitted with the later camshaft housing with a recess machined around the oil feed for an 'O' ring:

Seal between the cylinder head and cam housing with Loctite 504 gasket eliminator and an 'O' ring fitted over the roll pin dowel. Before applying new gasket eliminator ensure all old gasket eliminator is removed from the mating surfaces of the cylinder head and cam housing. Take care not to scratch sealing surfaces - use a blunt scraper such as the flat end of a steel rule. Degrease and clean the mating surfaces using methylated spirit or similar. Lay a thin continuous bead of gasket eliminator (approx 1/16 to 3/32 in. wide) in the middle of the sealing surface on the cam housing, following the outer surface around the stud holes. Fit 'O' ring on cylinder head dowel and carefully place cam housing on cylinder head studs and secure with washers and nuts. Tighten the nuts to the specified torque loading diagonally outwards from the centre.



Continuous bead of Loctite 504 Gasket Eliminator.

9. Check valve clearances and adjust if necessary (Section EA.6.)
10. Replace camshaft covers (Section EA.4.)
11. Re-align timing marks on the camshaft sprockets (Fig. 13)
12. Turn the crankshaft back to TDC, and the timing sprocket to align the rotor arm with the previously made reference mark.
13. Fit the toothed belt onto the sprocket with the shafts in this position.
Pull the belt sufficiently to force the pulley wheel towards the tensioner body. Remove the locking pin and release pressure on the belt. Re-check all the relative sprocket positions. Check toothed belt tension (Section EA.8.)
Check ignition timing and adjust if necessary.
14. Adjust the inlet pulley snubber (where fitted) for a clearance of 0.50 - 0.75 mm (0.020 - 0.030 in.) between the back of the toothed belt and the snubber bracket. Tighten the securing nuts via the pulley holes to 2.2 - 2.5 kg.m. (15 - 18 lbs.ft.).
15. Replace 'V' belts and belt guard (Section EA.7.)

EA.6. - VALVE CLEARANCES

To Check

1. Remove both camshaft covers (Section EA.4.)
2. Turn engine until heel of camshaft is on the cam follower (of the valve to be checked). Using a feeler gauge, determine the clearance between the cam

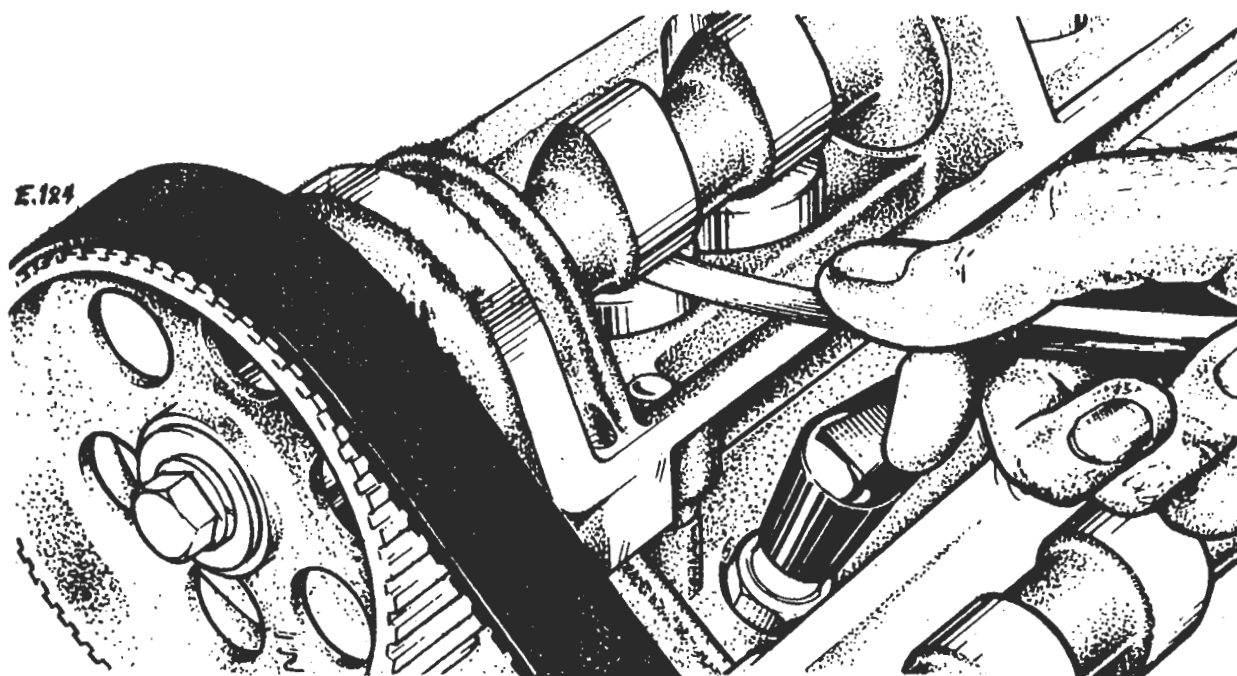


Fig. 9 - Checking cam follower clearances.

follower and the camshaft heel. The correct clearance is given in TECHNICAL DATA.

3. Check all valve clearances, noting any which require adjustment.

To Adjust

1. Remove the camshafts intact in their housings. (refer to Section EA.5.)
2. Remove each adjusting shim where the clearance requires adjustment. Substitute a shim giving the correct clearance, which has been greased on its face abutting the valve stem. ONLY use ONE shim to each valve.
NOTE: A Thinner shim will increase the valve clearance, whereas a thicker shim will decrease the clearance.

3. Replace the camshafts (Section EA.5.) after adjustment and recheck the clearance. If the clearance is still incorrect, then the whole of the above procedure MUST be carried out again.

NOTE: Do NOT turn the camshafts with No.1 piston at T.D.C., as this will cause the valves to be bent. Turn the crankshaft back through 90° to bring the pistons half-way down the cylinders. Do NOT turn the crankshaft BEYOND 90° back, as this will also cause the valves to be bent whilst the camshaft driving belt is off.

If, on the later type of camshaft housings (with 'O' ring and no gasket) the valve clearances are to be verified before application of Loctite 504 gasket eliminator, allow 0.0015 in. for this thickness.

EA.7. - TOOTHED BELT GUARD (front engined cars - early type)

To Remove

Upper Section:

1. Release the bolt, plain and spring washer on RH side.
2. Release bolt, plain and spring washer on inner of LH side, securing the guard to its mounting bracket.
3. Release nyloc nut and plain washer in centre of section, taking care NOT to misplace the distance piece between guard and engine when removing the guard.

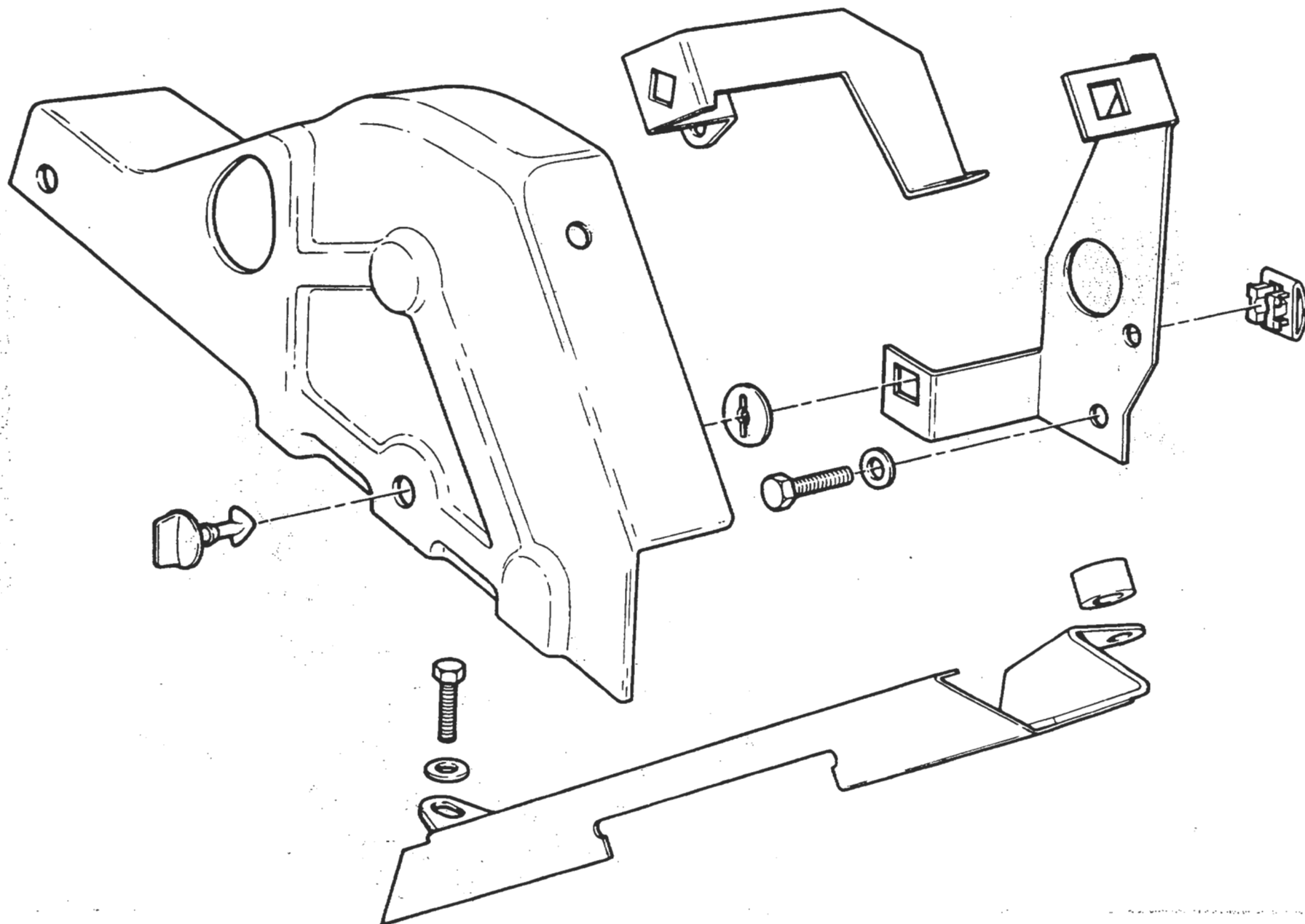


Fig. 10a - Belt guard components (late models)

E 187

4. Remove bolt on inlet camshaft cover, securing the belt guard bracket to the engine, and remove upper section.

Lower Section

1. Remove the air duct from between the engine and the radiator (see Section 'K').
2. Remove the top section of the guard.
3. Remove the alternator drive belt and if fitted, the air conditioning compressor pump belt, and power-assisted steering pump drive belt.
4. Release the bolt securing the guard bracket to the thermostat housing.
5. Remove the nyloc nuts and plain washers from both sides at the bottom of the guard, taking care NOT to misplace the distance pieces (one on each stud).

To Replace

1. Replacement of both upper and lower sections of the belt guard is a reversal of the removal instructions, NOT forgetting the distance pieces in their correct locations.

EA.8. - CAMSHAFT DRIVING BELT (TOOTHED BELT)

Prior to '86 M.Y. all engines use a trapezoidal (nearly square) tooth profile belt with originally, a manually adjusted eccentric belt tensioner, and later a semi-automatic spring loaded tensioner. 1986 M.Y. Excel and U.S.A. Turbo H.C.I. models and other engines at a later date use an H.T.D. (High Torque Drive) cam belt and pulley set, having a rounded tooth profile. A manually adjusted eccentric belt tensioner is generally used with the H.T.D. belt, and no snubbers are necessary.

TO ADJUST

Do NOT attempt to tension a hot engine. Only carry out this adjustment at an engine (ambient) temperature of between 15° - 25°C.

Use cantilevered Burroughs Gauge T000G0025J between the auxiliary and inlet camshaft pulleys in the following manner, removing the belt guard upper section and such ancillary equipment as may be necessary to gain access.

Fully extend the hook by pushing the handle completely down before inserting the belt between the nose piece and hook, ensuring that the hook is between the belt teeth. Release the handle with a rapid action. A slow release will result in a HIGH reading owing to the small amount of internal friction present stopping the hook from fully returning. Note the indicator dial reading. Repeat action several times to 'get the feel'.

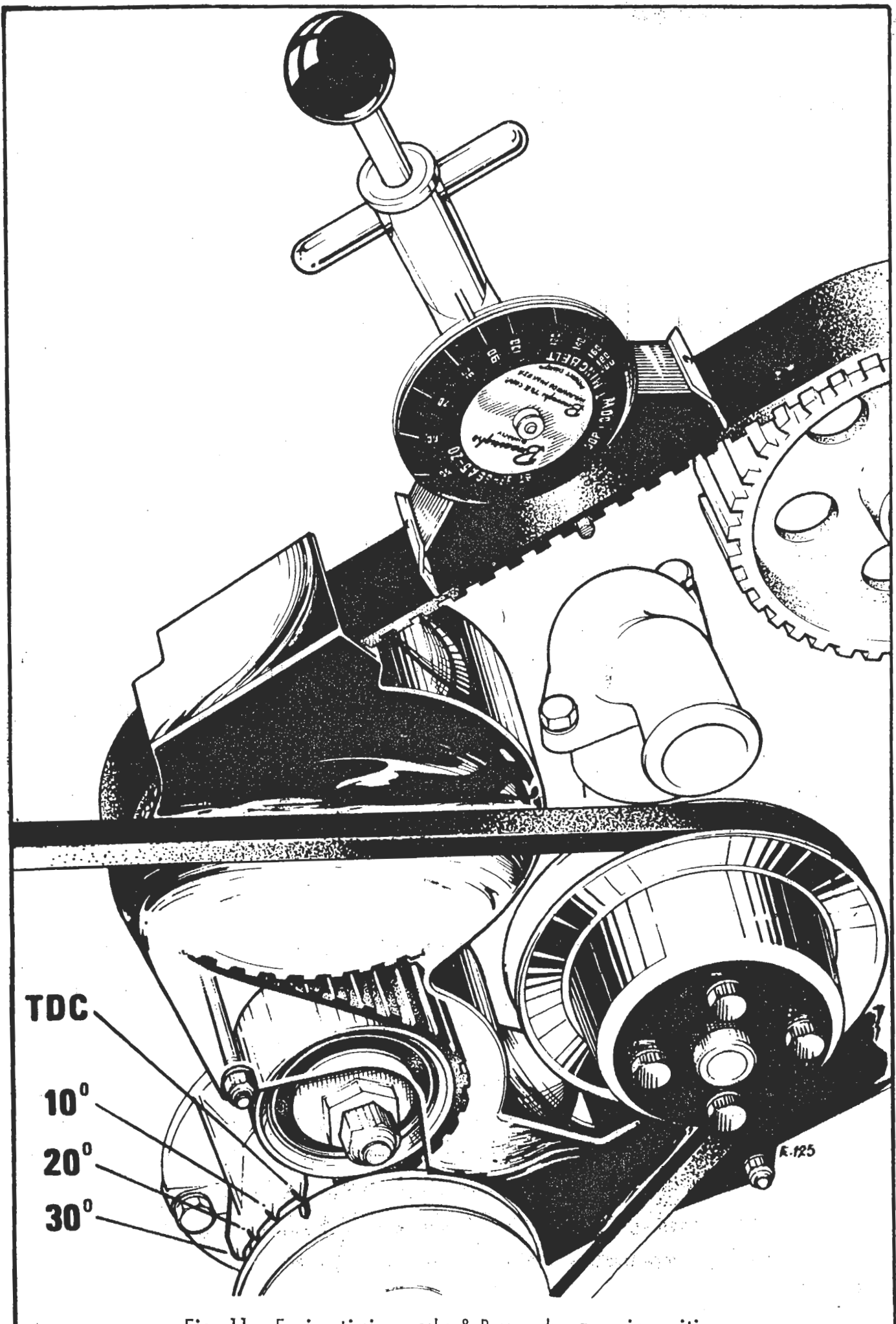


Fig. 11 - Engine timing marks & Burroughs gauge in position

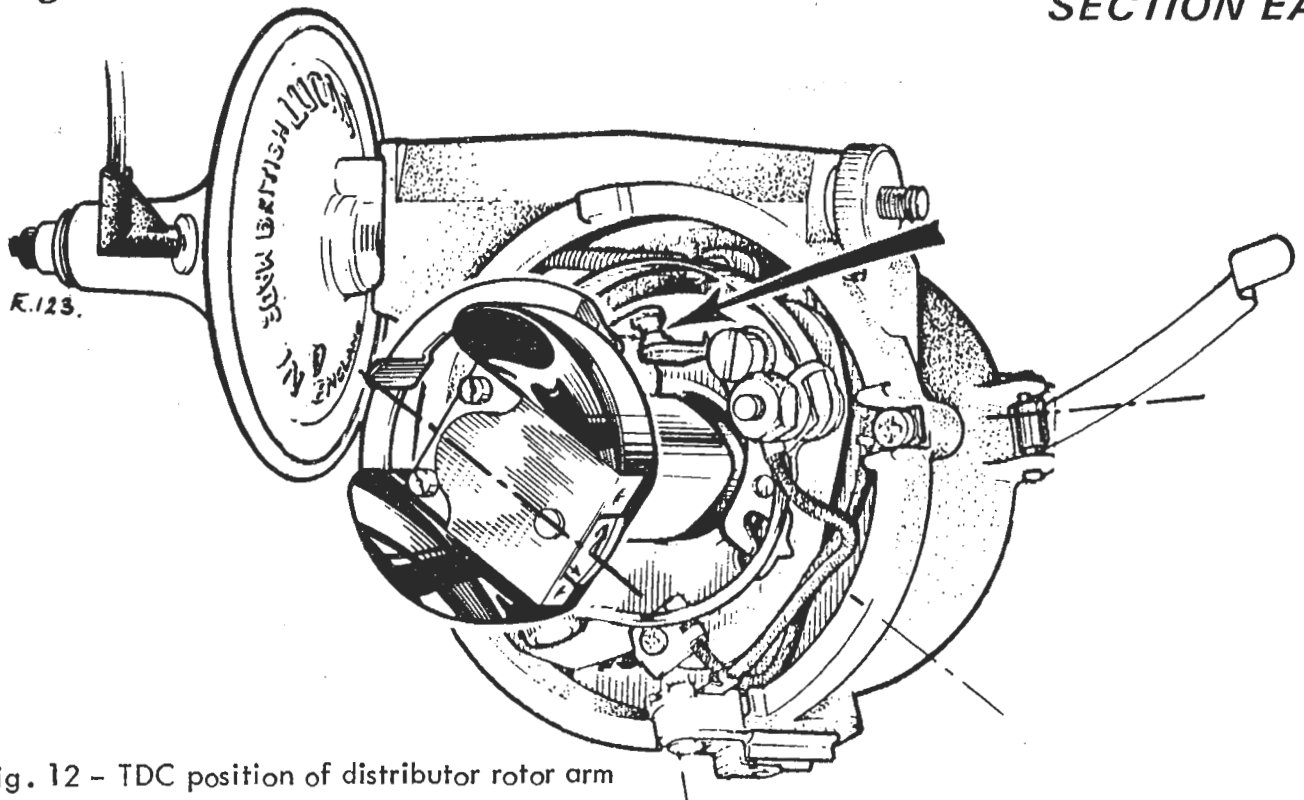


Fig. 12 - TDC position of distributor rotor arm

RED DOT: 110° M.O.P.
 BLUE DOT: 100° M.O.P.
 YELLOW DOT: $102\frac{1}{2}^{\circ}$ M.O.P.
 GREEN DOT: 104° M.O.P.

Timing marks in line through centre of pulleys
 refer to technical data for relevant specification.

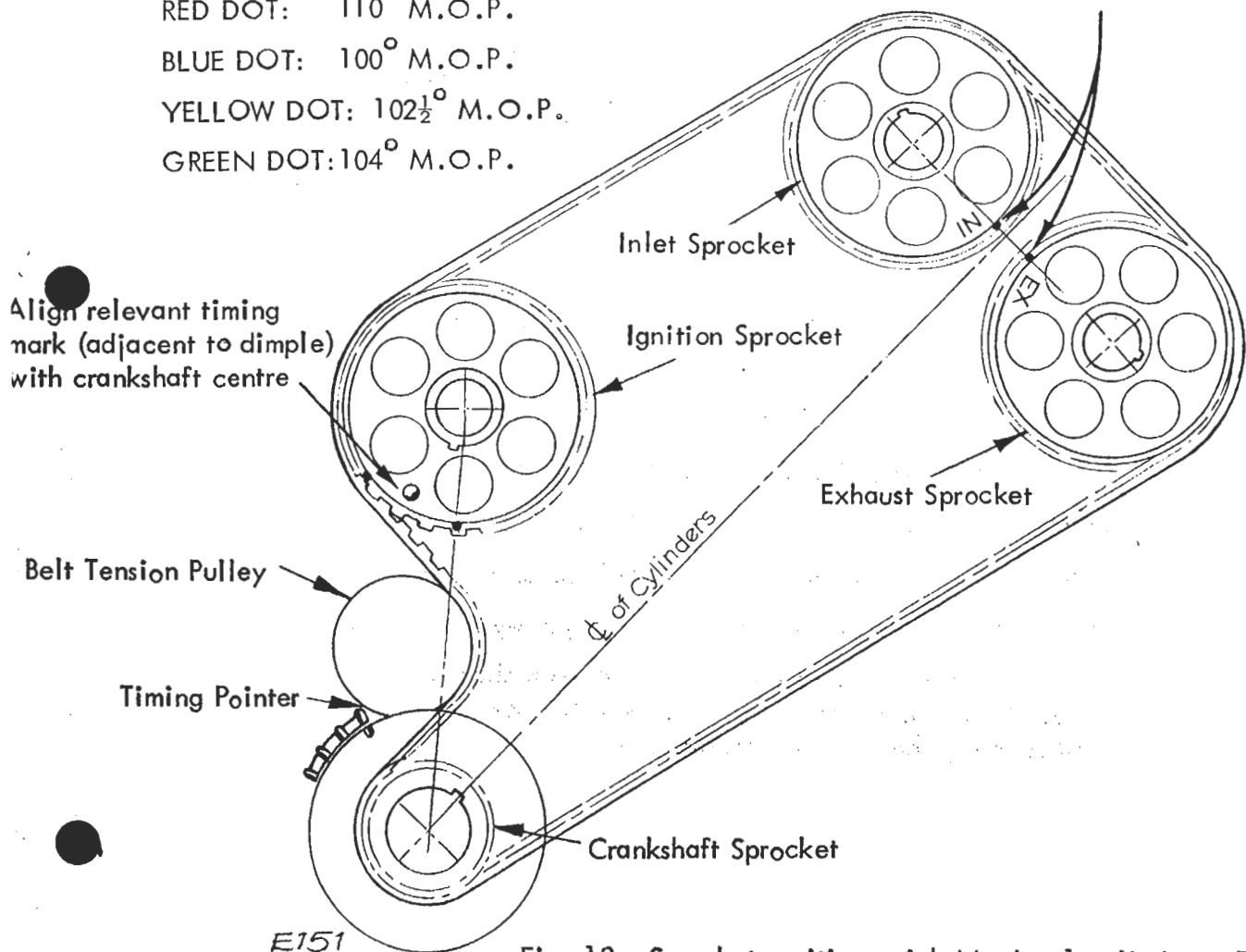


Fig. 13 - Sprocket positions with Number 1 cylinder at TDC.

Take a further two readings at intervals of 120 crankshaft degrees, turning only in normal operating direction.

The correct belt tension setting for all engines where NO air pump is driven off the back of the belt is: 90 - 95 units, cold. (120 - 125 units hot). If the reading falls outside this range, adjust the tension as follows with No. 1 piston at TDC after rotating the crankshaft a minimum of one turn clockwise

Manual tensioner: Slacken the nut securing the pulley, and by means of the hexagon on the front of the pulley, adjust the tension of the belt. Tighten the pulley securing nut. After adjustment, re-check the tension with the Burroughs gauge.

Semi-automatic tensioner: Where no air pump is driven off the back of the toothed belt, slacken the locknut, and screw the spring seat (adjusting screw) in or out to obtain the correct Burroughs gauge reading. Tighten the locknut.

On Federal engines where an air pump is driven off the back of the toothed belt, first slacken off the air pump fixings. Screw the spring seat (adjusting screw) clockwise until only one or two threads are showing above the locknut, and tighten locknut. Tension the air pump to 5.5 kg.m (40 lbs.ft.) using special tool part number T000T0320A and a dial torque wrench. Entirely release load on air pump and then re-torque to a final tension of 2.8 kg.m (20 lbs.ft.) and tighten all air pump mountings in that position.

To Remove

1. Remove both upper and lower sections of the belt guard (Section EA.7.)
Remove all 'V' belts.
2. Set the engine in the timing position with No. 1 piston at T.D.C. Align the timing mark on the crankshaft 'V' pulley with the mark on the front cover. At this point the marks on the camshaft sprockets should also be aligned with each other. Remove the crankshaft 'V' pulley. (Section EA.15.)
3. Mark the position of the auxiliary shaft sprocket against the belt snubber, (or similar) as with the belt removed, the shaft will almost certainly turn, thus losing the correct ignition timing.

4. a). Release the belt tension by releasing the securing nut on manual tensioners.
- b). On semi-automatic tensioners, release the alternator and adjusting strap if necessary to gain access to the tensioner adjusting screw.
- c). Slacken off locknut and release adjusting screw (spring seat) by turning it anti-clockwise until the adjusting screw is protruding a MAXIMUM of 12 mm ($\frac{1}{2}$ in) from the tensioner housing.

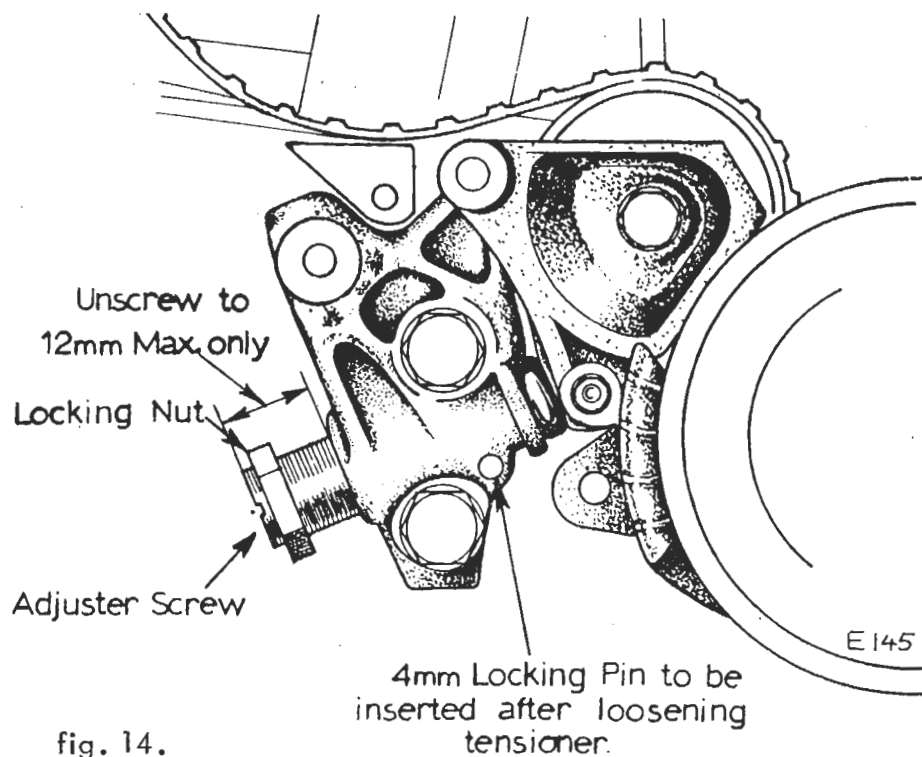


fig. 14.

- d). Force idler towards tensioner body (merely tension timing belt by hand) until groove on piston aligns with locking pin hole in housing, and insert a 4mm diameter pin. This locking pin hole may be located on the lower side of the piston bore, or on the upper side, obscured by the upper fixing bolt/nut washer, which must therefore be removed.
- The pin is inserted to prevent the springs pushing the assembly apart and consequently losing all the parts.

IMPORTANT: The locking pin must be fitted to the tensioner housing every time the toothed belt is being removed or slackened off. This

also applies to engines where the air pump is driven from the back of the toothed belt.

Do not under any circumstances attempt to remove locking pin from the tensioner assembly, other than when unit is installed on an engine with timing belt in position.

5. Remove toothed belt from sprockets.

NOTE: Do NOT turn the camshafts with No.1 piston at T.D.C. as this will cause the valves to be bent. Turn the crankshaft back through 90° to bring the pistons half-way down the cylinders. Do not turn the crankshaft BEYOND 90° back whilst the camshaft driving (toothed) belt is OFF otherwise there is danger of the pistons contacting any valves which may be off their seats.

To Replace

1. Reverse the removal procedure. Before fitting belt, ensure correct position of crankshaft, camshafts and auxiliary shaft sprocket (fig.13).
2. After fitment, adjust belt tension, and check ignition timing. If a new belt has been fitted, run the engine for a minimum of two minutes, switch off and recheck tension.

EA.9. - DRIVING BELT TENSIONER

To Remove

Carry out the procedure detailed in Section EA.8. for removing the camshaft drive belt, although it will not be necessary to actually remove the belt. Release the bolts or bolt and nut securing the tensioner assembly, making careful note of all the bracket positions and spacer washers. Remove the tensioner.

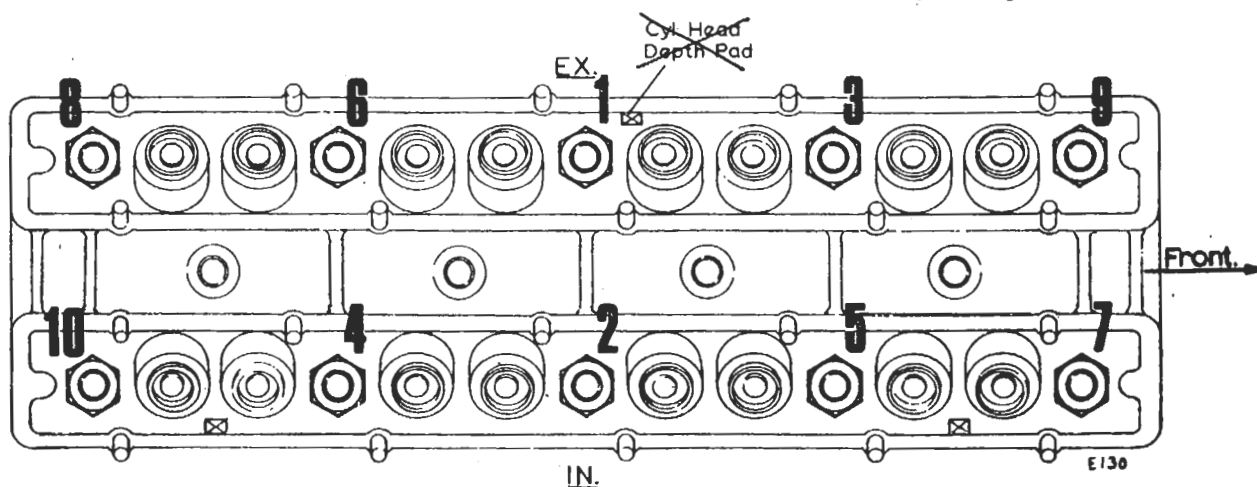
On some cars (i.e. air conditioned) with two bolts securing the tensioner, it may not be necessary to remove the crankshaft 'V' pulley.

To Replace

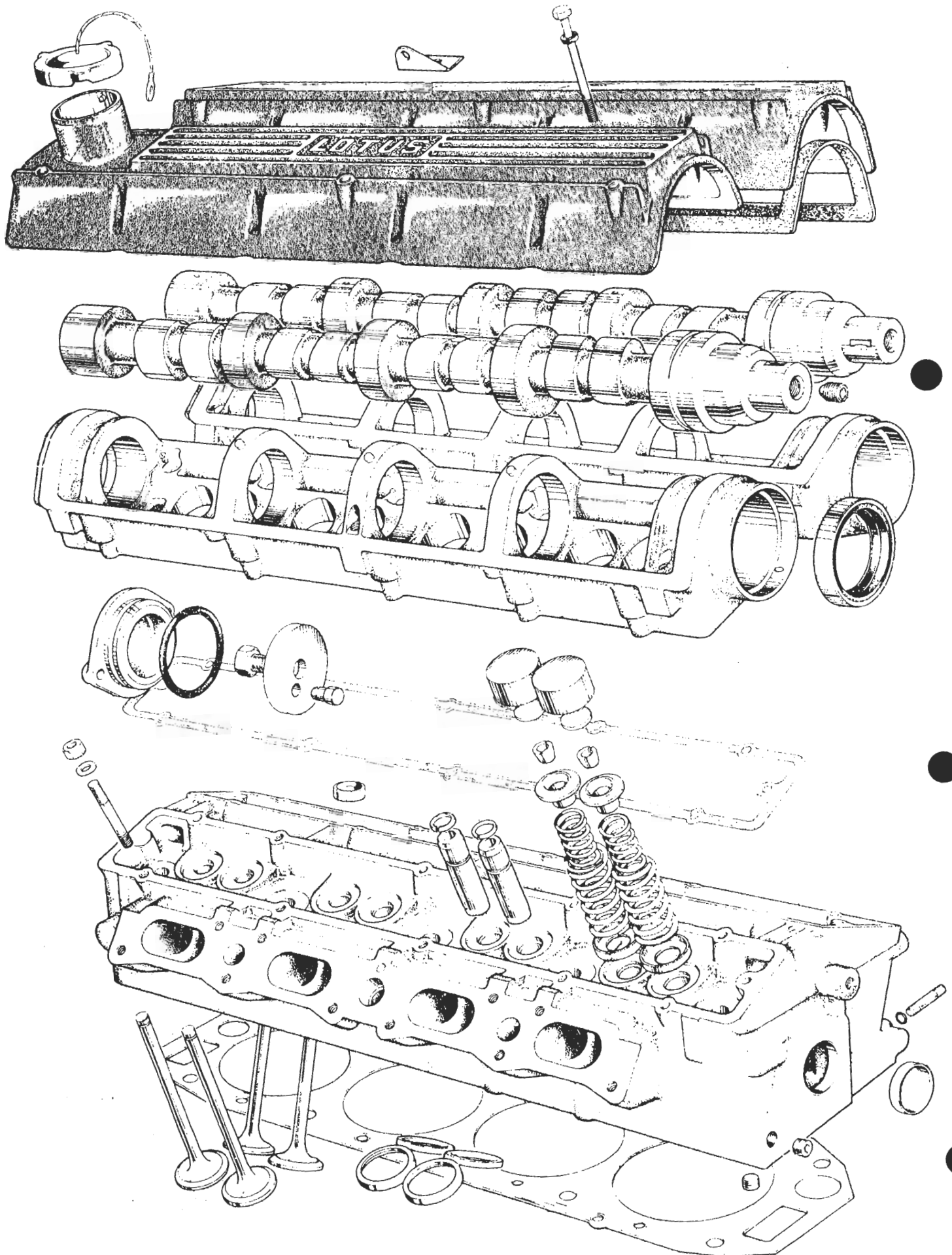
Reverse the removal procedure checking the valve timing, ignition timing and belt tension and adjusting as necessary. Adjust the auxiliary pulley snubber for a clearance of 0.4 ± 0.1 mm (0.016 ± 0.004 in.) between the pad and toothed belt.

EA.10. - CYLINDER HEADTo Remove (Naturally Aspirated)

1. Disconnect the battery (see Section 'M').
2. Drain the cooling system (see Section 'K').
3. Remove the air duct from in front of the engine (see Section 'K').
(Elite/Eclat).
4. Release the clip securing the air trunking to the airbox and remove airbox outer cover, together with the air cleaner element, after releasing its securing bolts and washers, or fastening clips.
5. Remove the complete belt guard (Section EA.7.) (front engined cars).
6. Disconnect the water hoses from their connections on the cylinder head and on the inlet manifold.
7. Remove the inlet manifold together with the carburettors (Section EA.22).
8. Remove the spark plug leads from the plugs and secure out of the way of cylinder head removal.
9. Release the exhaust downpipe from the exhaust manifold and remove manifold, (see Section 'S').
10. Some engines, fitted with the non air conditioning type water pump may require removal of the water pump before the cylinder head may be lifted.
11. Remove the cam covers and check the valve clearances (Section EA.6.) noting any which require adjustment.
12. Remove the camshaft housings with cams (Section EA.5.)
13. Release the cylinder head nuts evenly and progressively, working diagonally inwards from outside. Remove the nuts with their washers. Remove the



- Cylinder head nut tightening/releasing sequence

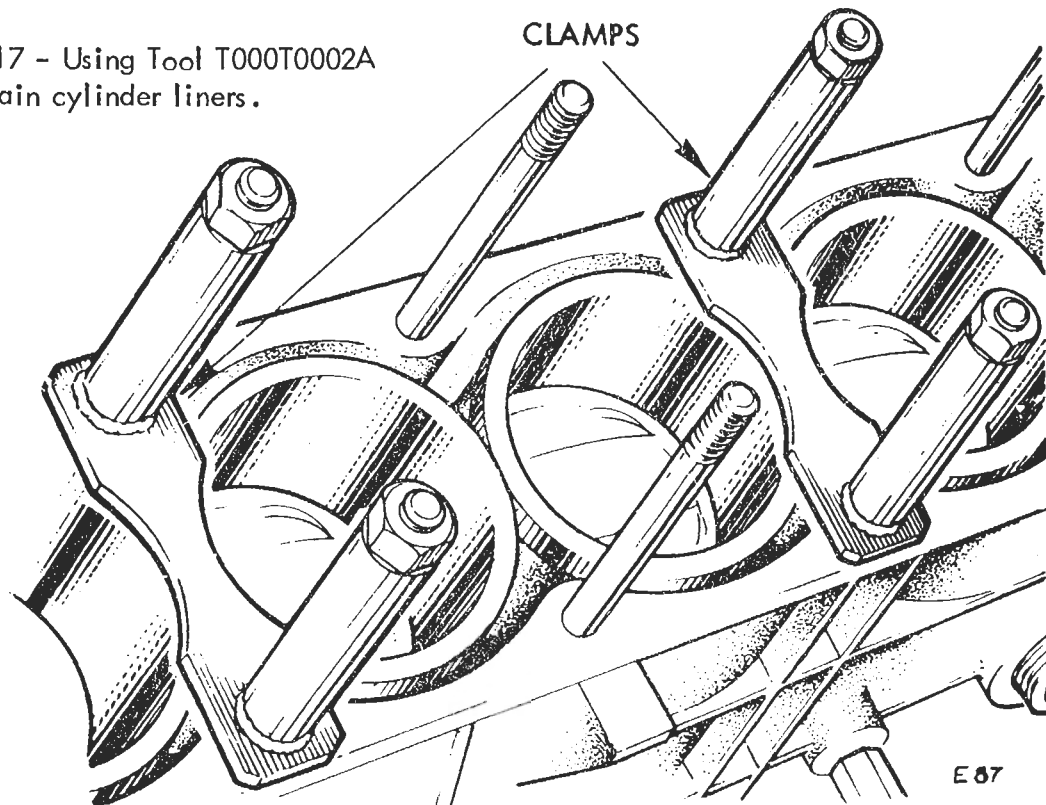


907/912 Cylinder Head & Cam Housings.

cylinder head and retain the head gasket on 912 engines for reference on rebuild. Do NOT lay the cylinder head face down on the bench without first covering the bench with a protective material otherwise the mating face of the cylinder head could be damaged.

14. Do NOT turn the engine without FIRST fitting cylinder liner clamps otherwise the liners could be pushed from their locations.

Fig. 17 - Using Tool T000T0002A to retain cylinder liners.



To Remove (Esprit Turbo)

NOTE: On Turbo models cylinder head removal is more easily carried out with the engine removed from the car (Section EA.25.)

1. Remove the inlet manifold and carburettors assembly (See Section EA.22.)
2. Remove the oil feed and drain pipes from the turbocharger, and remove the exhaust manifold complete with wastegate and turbo. On air injection engines, remove the air pump 'V' belt guard, and air injection rail.
3. Remove the cam covers and check the valve clearances (Section EA.6.) noting any which require adjustment.
4. Remove the camshaft housings with cams (Section EA.5.)
5. Release the cylinder head nuts evenly and progressively, working diagonally inwards from outside. Remove the nuts with their washers. Remove the cylinder head with its gasket. Do NOT lay the cylinder

head face down on the bench without first covering the bench with a protective material, otherwise the mating face of the cylinder head could be damaged.

Do NOT turn the engine without first fitting cylinder liner clamps, otherwise the liners could be pushed from their locations.

To Replace

1. Remove the cylinder liner clamps. Thoroughly clean both the cylinder block and cylinder head mating faces (use Trichlorethelene or petrol).
2. Fit new cylinder head gasket. The gasket is fitted with 'Wellseal' applied around the periphery of both sides of the oil pressure hole.

912 Head Gasket Selection

When replacing the head gasket on a 9.44:1 CR 912 engine (ie: NOT H.C.), note the type of gasket fitted, (ie. count laminations) or the part number stamped thereon, and replace with the same type.

If the cylinder liners, crankshaft or reciprocating components have been changed, the piston standout above the liner flange must be measured. If the standout is measured at right angles to the gudgeon pin, the height on both sides of the piston must be measured and then averaged. Select a gasket from the following table based on the highest standout.

<u>Standout</u>	<u>Description</u>	<u>Part No</u>
Less than 0.014 in.	No extra laminations	A907E0026
0.014 - 0.023 in.	One extra lamination	B911E1291
0.023 - 0.032 in.	Two extra laminations	B911E1292

3. Fit the cylinder head assembly, plain washers and nuts. Tighten all nuts in stages to the specified torque loading working diagonally outward from the centre.
4. Replace both camshaft carrier housings. Check valve clearances. (Section EA.5. and EA.6.).
5. Replace camshaft drive (toothed) belt, spark plug leads and set static ignition timing (Section EA.8.)
6. Refit ancillaries in reverse order to disassembly.

7. Close coolant drain tap on radiator and refill the cooling system, with a inhibitor/anti freeze solution.
8. Check engine oil, start engine and allow to reach its normal operating temperature. Adjust slow running speed and mixture, and ignition timing. Check for oil and coolant leaks while engine is running. Thoroughly check fuel system for leaks and security of joints.

EA.11. - VALVES

To Remove

1. Remove the cylinder head (Section EA.10.)
2. Using a suitable valve spring compressor, compress the valve springs and extract the split collets. Release the valve spring compressor, and remove the valve spring retainer, valve springs and spring seat from each valve. Remove the valve.
3. Repeat the process for the remaining valves. Label each valve with its location.

To Replace

1. Check the valve seats for condition, re-cutting as necessary, and check condition of valve guides. Grind in all valves.
2. Lightly lubricate the stem of the valve and insert into its guide.
3. Fit spring seat, valve springs, spring retainer. Place the valve spring compressor in position and compress the valve springs sufficiently to fit the split collets. Release the valve spring compressor.
4. Repeat the process for the remaining valves.
5. Replace the cylinder head followed by the camshaft housings. Re-check the valve clearances.
6. Replace ancillaries.

EA.12. - DECARBONISE CYLINDER HEAD & PISTONS

To Remove

1. Remove cylinder head to a clean covered bench. (Section EA.10.)
2. Remove the valves (Section EA.11.)

3. Remove all carbon deposits from the cylinder head combustion chamber faces, inlet and exhaust ports, piston crowns and valve heads. A ring of carbon should be left around the periphery of each piston crown. The TOP of the cylinder liners should NOT be touched.
4. Clean each valve thoroughly and carefully examine for pitting. Valves in a pitted condition should be refaced with a suitable grinder or new valves should be fitted. If the valve seats show any signs of pitting, or unevenness, they should be trued by the use of service cutting tools. When using a cutting tool take care to remove only as much metal as is necessary to ensure a true surface. The removal of too much metal could cause difficulty in achieving the required valve clearance.
5. When grinding a valve onto its seating the valve should be smeared lightly with 'fine' or 'medium' carborundum paste and then lapped in with a suction type grinder after oiling the valve stem. Avoid the use of excessive quantities of grinding paste and ENSURE that it remains in the region of the valve seating only. A light coil spring placed under the head of the valve will assist considerably in the process of grinding. The valve should be ground to its seat with a semi-rotary motion and occasionally allowed to rise by the pressure of the light coil spring. This action assists in speeding the grinding operation until a dull, even, matt finish, free from any blemishes is achieved on the valve seat and valve face. On completion, the valve seats, guides and ports, should be cleaned with petrol then blown dry and clean with compressed air. The valves should be washed in petrol and all traces of grinding paste removed. Ensure that no grinding paste has entered the valve guides.
6. Lightly oil the valve stems, and re-assemble the valves to cylinder head.
7. Refit cylinder head, camshaft housings not forgetting to check the valve clearances, camshaft covers, inlet and exhaust manifolds, carburetters, etc.,

EA.13. - VALVE SEAT INSERTS

To Remove

1. Remove the cylinder head and dismantle as for decarbonising (Section EA.12.)
2. Remove the valve seat inserts by milling through, or almost through (dependant upon the skill of the operator), the edge of the insert, whereupon the seat should

collapse . In the case of a stubborn seat, it is permissible after milling to start the seat on its way to removal by inserting a suitable drift through the appropriate port and gently tapping the seat from its recess . Ensure that the recess in the cylinder head is ENTIRELY FREE OF FOREIGN MATTER, otherwise the new insert will NOT seat fully in the recess .

To Replace

1. Check the combustion chamber adjacent to the respective seat for a '1', '2', or '5' stamping, (or alternatively 'C', 'D', or 'E') this indicating that an oversize valve seat was fitted in production (0.001 in, 0.002 in and 0.005 in respectively).

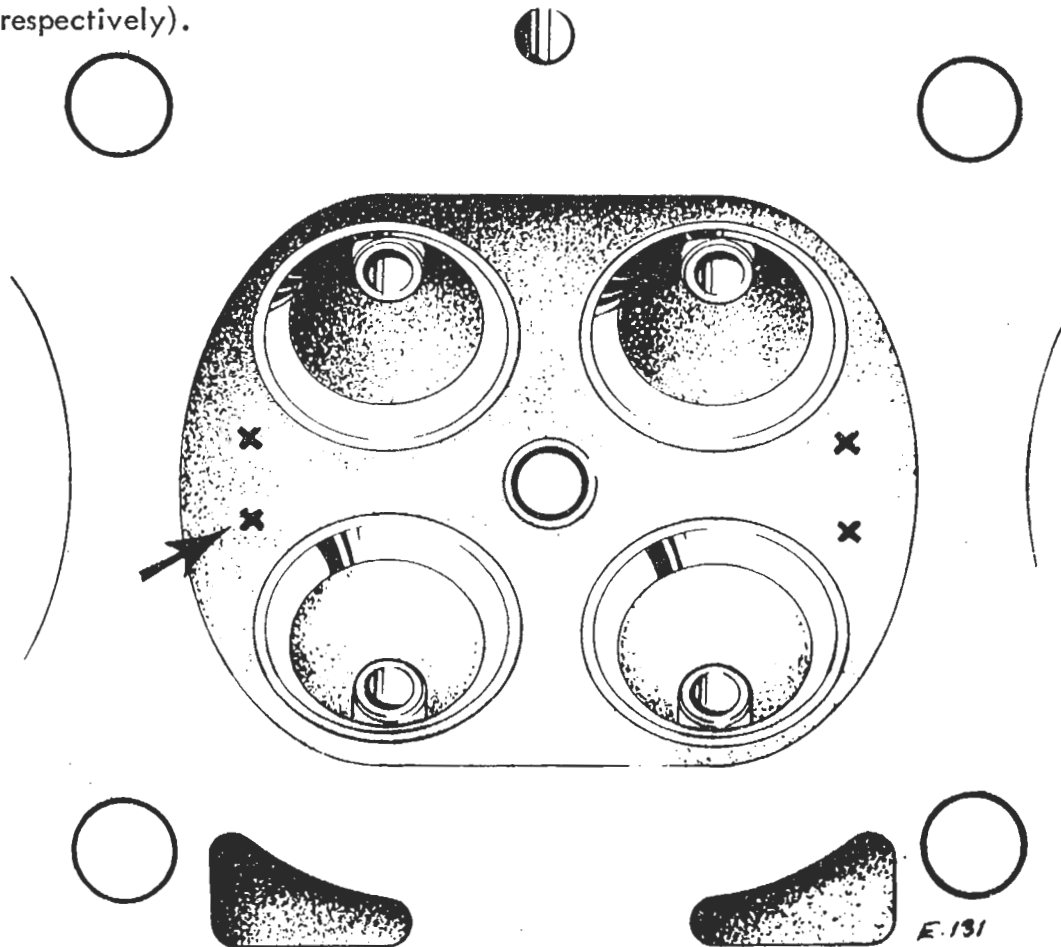


Fig.18 - Location of valve seat oversize stamping

If this stamping is visible then that size (or larger) seat **MUST** be used as replacements . The letters 'C', 'D', or 'E' refer to the prefix letters of the respective part numbers .

2. Heat the whole cylinder head to a temperature NOT EXCEEDING 200°C. and freeze the insert with dry ice to a temperature NOT LESS THAN minus 80°C.

3. With the aid of Special Tool (05A or 06A), press the insert into place, ensuring that the seat **FACES TOWARDS** the combustion chamber. Allow the cylinder head to cool naturally in the air.
4. Re-build and refit the cylinder head.

EA.14. - VALVE GUIDES

Check the valve spring seat adjacent to each guide bore for a '1', '2' or '5' stamping. This refers to the amount of oversize of the guide (.001 in, .002 in, and .005 in. respectively).

If this stamping is visible, then that size or larger guide **MUST** be used as replacements.

To Remove

1. Remove the cylinder head and dismantle as for decarbonising. (Section EA.12.)
2. Heat the whole cylinder head to a temperature of between 100/150° C. (212/303°F.). and, with Special Tool (04A), knock the guides out of the head from the combustion chamber side.

To Replace

1. Heat the cylinder head to a temperature of between 100/150°C. (212/303°F.).
2. Locate a new circlip on the new guide and press the guide into its bore from the top, until the circlip seats completely in its recess. Care must be taken that the guides are **NOT** driven in further than this point. See **TECHNICAL DATA** for fitted height.
3. Ream the guide **AFTER** fitting, to the dimension given in **TECHNICAL DATA**. Recut the valve seat to ensure that it is concentric with the valve stem bore.
4. Re-build and refit the cylinder head to the engine.

EA.15. - CRANKSHAFT 'V' PULLEY

To Remove

1. Remove all the 'V' belts.
2. Remove the set screw, and special washer from the centre of the pulley. Pull off pulley, using a proprietary puller if necessary.

To Replace

1. Reverse the removal procedure. Torque retaining screw to 7.6 - 9.3 kg.m. (55 - 60 lbs.ft.). Check all 'V' belt tensions after replacing.

EA.16. - CRANKSHAFT SPROCKETTo Remove

1. Remove the belt guard(Section EA.7.)and set the engine in the timing position (Section EA.8.)
 2. Remove the camshafts driving belt (toothed belt) (Section EA.8.)
 3. With the aid of Special Tool T000T0170A, pull off the crankshaft toothed pulley followed by the belt guide flange. Tighten the tool bolts finger-tight only.
- NOTE: On dry sump Turbo models first remove the oil pump drive sprocket.

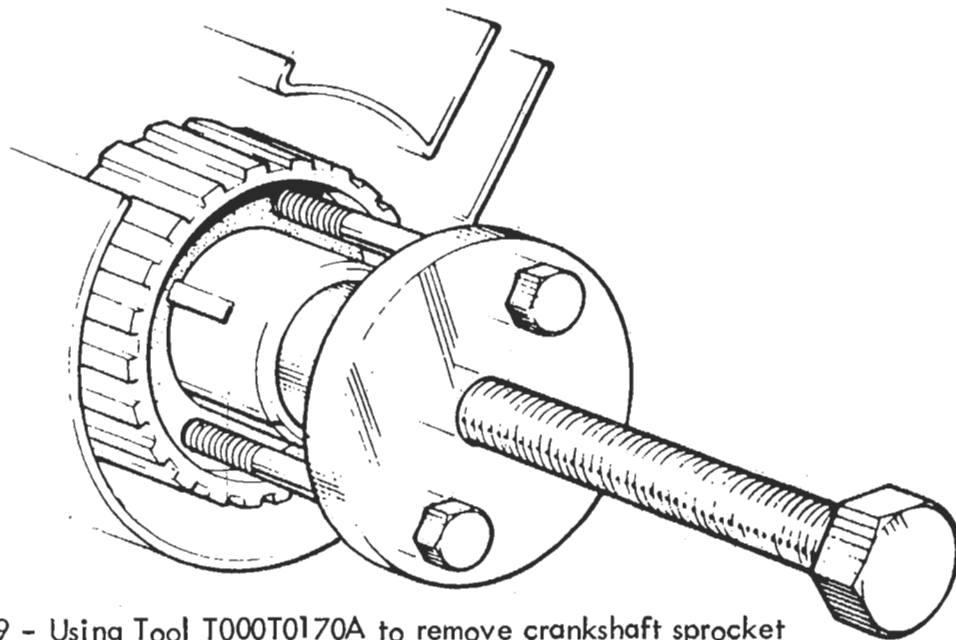


Fig. 19 - Using Tool T000T0170A to remove crankshaft sprocket

To Replace

1. Ensure that the engine has not been turned from the timing position.
2. Reverse the removal procedure.

EA.17. - FRONT COVER & OIL SEALTo Remove

1. Remove the belt guard (Section EA.7.) and set the engine in the timing position (Section EA.8.)

2. Remove the camshafts driving belt (toothed belt) (Section EA.8.).
3. Remove the crankshaft sprocket (Section EA.16.).
4. Remove the camshafts driving belt tensioner (Section EA.9.).
5. Release the set-screws with their plain washers from around the periphery of the cover. Pull off cover and gasket.
6. Remove the oil seal from the cover by pushing from its location.

To Replace

1. Using a new oil seal, with 'Wellseal' sealing compound applied to its outer diameter, insert into the front cover until flush with the rear face.
2. Apply jointing compound to both faces of a new gasket and replace front cover, with the aid of Special Tool T000T0009A. On early engines, ensure that the stud which retains the camshafts driving belt tensioner is centralised in the hole of the front cover. Secure cover with its set-screws and plain washers, tightening the screws to the specified torque loading (see TECHNICAL DATA).

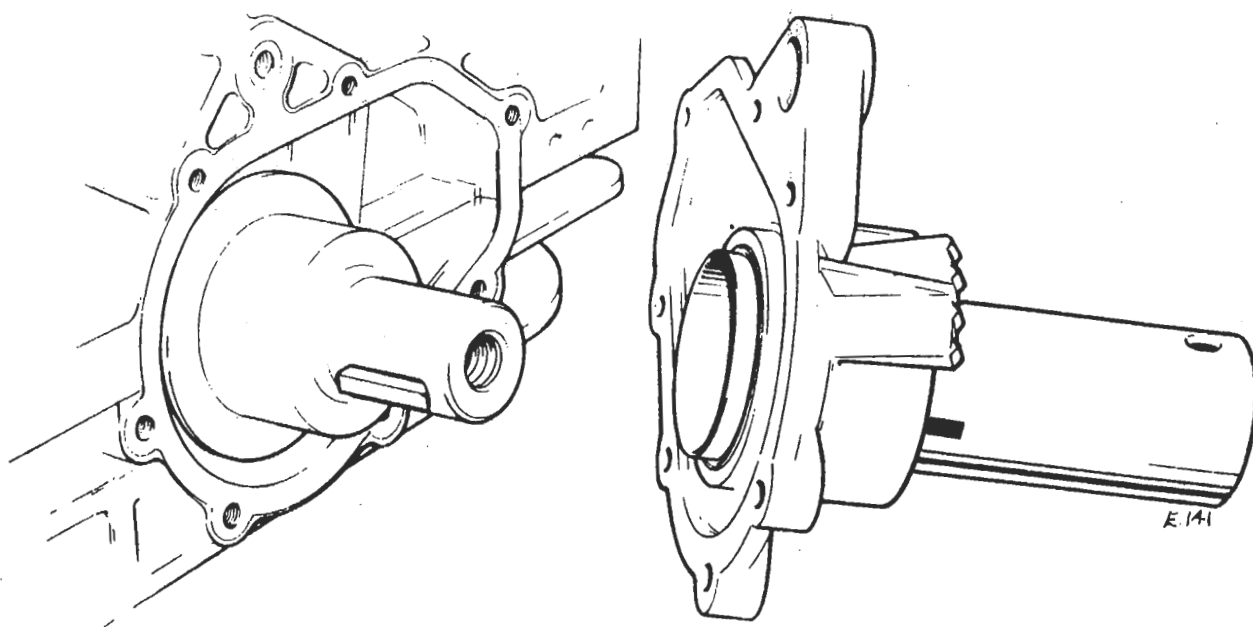
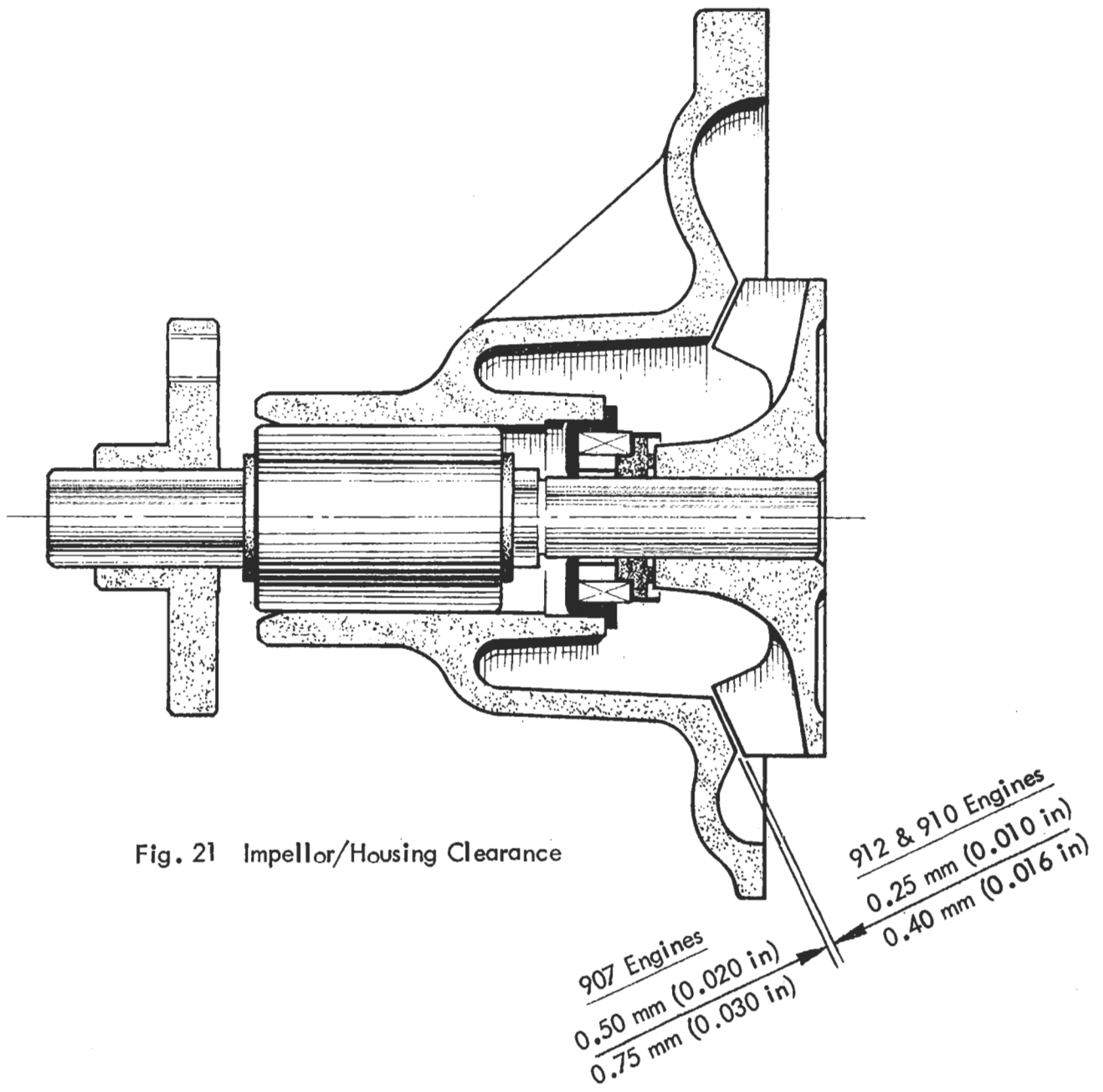


Fig. 20 - Using Tool T000T0009A to locate front cover

3. Replace the remainder of the removed parts by reversing the removal procedure.

EA.18. - WATER PUMPTo Remove

1. Drain the cooling system .
2. Remove the complete belt guard (Section EA.7.) and the water pump 'V' belt.
3. Release the clips and remove all hoses from the water pump housing.
4. Where power steering is fitted, remove the power steering pump mounting bracket and secure (with hoses attached) clear of water pump.
5. Release the water pump fixing bolts, and remove bolts and washers together with the water pump housing and gasket. Discard the gasket.



NOTE: On some engines it may be necessary to first remove the auxiliary shaft pulley, in order to gain access to the water pump retaining bolts. In such cases, take the necessary precautions to ensure that valve and ignition timing are not lost by referring to Section EA.8.

Before discarding the water pump, measure the dimension from pulley mounting face on hub, to pump body mounting face, in order that the new pump may be assembled correctly.

To Replace

1. If fitting a new water pump to a 907 engine, press a new pulley hub onto the shaft to achieve the dimension measured in EA.18. Press only on the hub and opposite end of the shaft (NOT impellor). Check impellor/housing clearance is to dimension shown in Fig.21.
2. Using a new gasket, to which a suitable jointing compound has been used on both sides, refit the housing assembly to the engine, tightening all bolts to their specified torque loadings (see TECHNICAL DATA).
3. Replace all ancillaries.
4. Refill the cooling system, and check for water leaks with the engine running.

EXCEL MODELS - 1985 MODEL YEAR ONWARD

On these cars, no gasket is fitted, but Permabond A136 is used in the following manner.

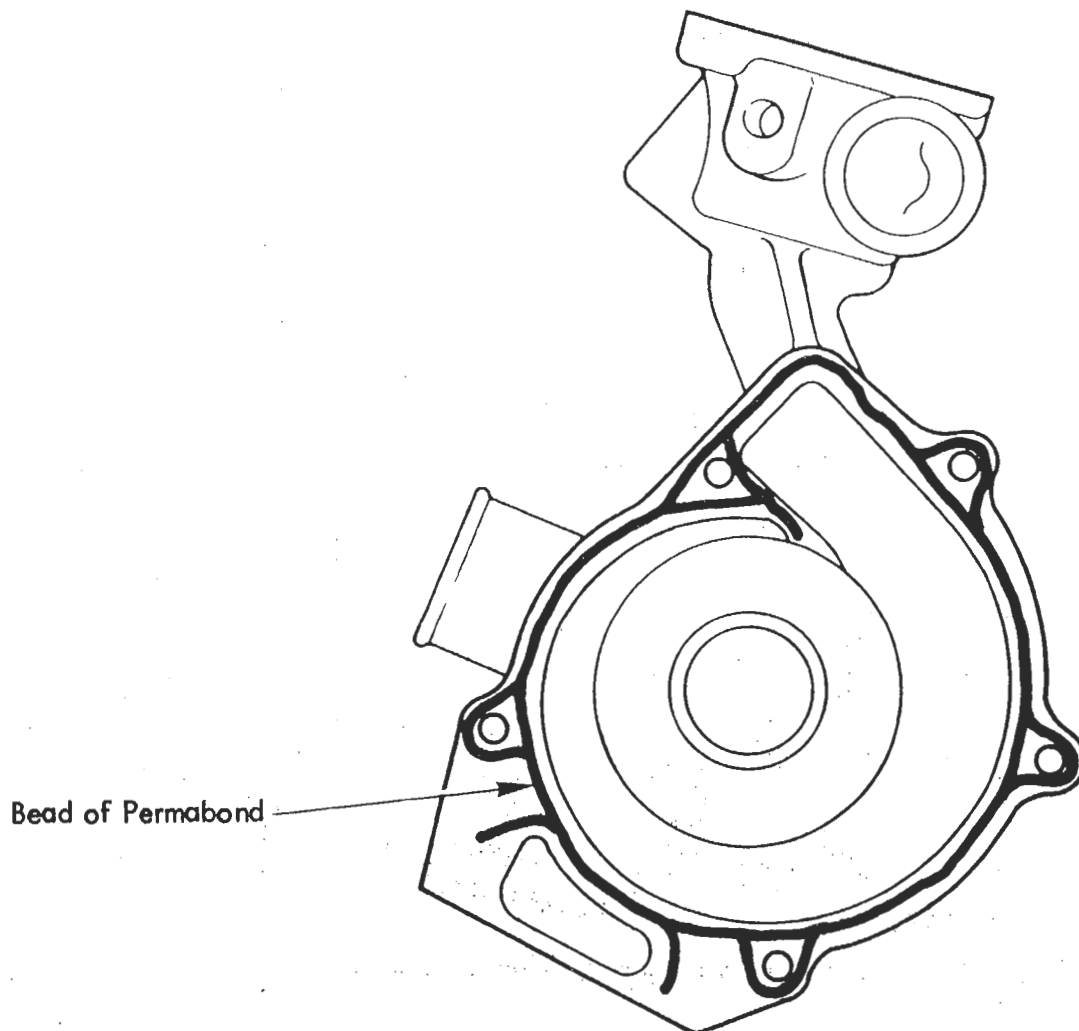
1. Clean the joint faces on both water pump and cylinder block.
2. Spray both joint faces with Permabond A905 Surface Conditioner (A912E6759)
3. Apply a 3-4 mm wide bead of Permabond A136 (A912E6421) to the water pump joint face as shown in the diagram.

4. Take care when fitting the water pump not to break the bead of Permabond.
Fit the water pump fixing bolts and washers and torque tighten to 0.8 - 1.1 kgf.m. (6 - 8 lbf.ft)
5. The system may be refilled with coolant immediately after reconnecting hoses.

Parts Required

Permabond A136 Adhesive
Surface Conditioner A905

A912E6421
A912E6759



EA.19. - OIL FILTER

To Remove

1. To remove the filter, use a suitable filter removal tool and turn in an anti-clockwise (towards the cylinder block) direction. Discard the filter. Ensure the oil cooler adaptor is not disturbed during this operation.

To Replace

1. Clean the mating face on the oil pump body. Add a small amount of clean engine oil into the filter then, apply a film of engine oil to the new seal (supplied with the new filter) which is in contact with the oil pump body, locate filter on its adaptor and screw on by HAND in a clockwise direction. When the filter 'seats' continue turning the filter for a further two-thirds to three-quarters of a turn to ensure an oil tight joint.

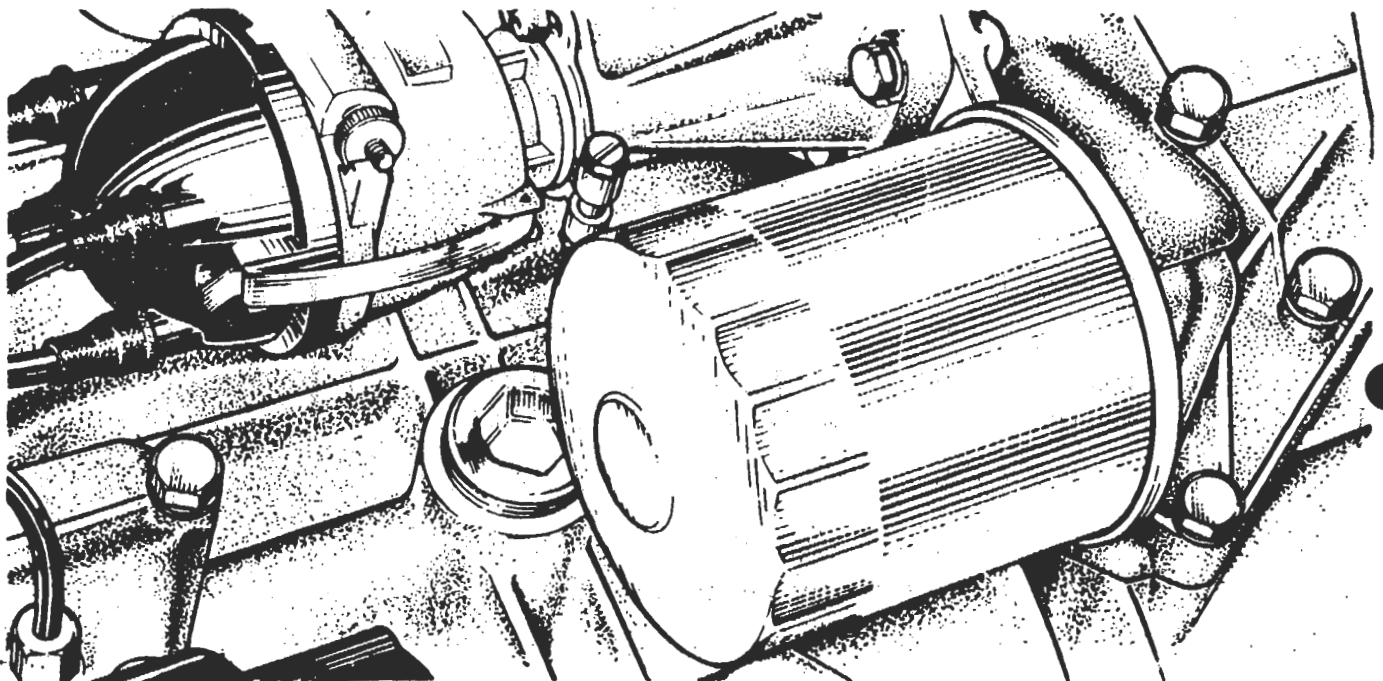


Fig. 22 - View showing oil pump, filter & ignition distributor

Where an oil cooler is fitted, ensure that the adaptor is not disturbed from its seating on the auxiliary housing during this operation.

2. Start the engine and check for oil leaks at the filter to oil pump joint, if necessary tightening the filter further to give an oil tight joint.

All '86 Model Year and some late '85 Model Year cars are fitted with engine oil filter B907E 6000 which differs from filter A907E 6000 in the following respects:

- i) Provision of 'flats' on canister to aid removal with oil filter spanner.
- ii) Slightly shorter canister to provide fitting clearance for spanner.
- iii) Revised end plate with less thread protrusion

In order to provide sufficient thread engagement as a result of iii) above, the oil filter union extension has been increased in length by 3mm.

- a) 1986 USA Turbo H.C.I. models should only be fitted with B907E 6000 due to the restricted access.
- b) All other 1986 Model Year cars may be fitted with either 'A' or 'B' prefix filters.
- c) ALL CARS PRIOR TO '86 M.Y. MUST BE FITTED WITH FILTER A907E 6000.

Fitment of 'B' filter to these cars may result in insufficient thread engagement with consequent danger of the filter working loose.

In order to avoid any confusion in the U.K. it is recommended that U.K. dealers stock only 'A' prefix filters which are suitable for all cars.

EA.20. - IGNITION DISTRIBUTOR

To Remove

- 1. Turn engine until at the timing position. (Section EA.8.)
- 2. Remove the distributor cap.
- 3. Disconnect the low tension cable (points) or trigger lead connector block (electronic)
- 4. Disconnect the vacuum pipe to distributor (if fitted)
- 5. Mark the position of the distributor body against the oil pump housing, release the nut securing the distributor clamp to the oil pump housing, and withdraw distributor.

Note: Special socket spanner required on 1983 on Federal cars - T000T0503.

- 6. Ensure the spring is retained in the dog drive slot.

To Replace

- 1. Before fitting the distributor, ensure that the contact breaker points (if fitted) are in good condition and correctly adjusted (see Technical Data).

2. Note that the driving dog on the distributor shaft is offset, and that it must be turned to match the offset slot in the auxiliary shaft before fitting. Insert the distributor, ensuring that the drive dogs are fully engaged, align the reference marks made previously on the distributor body and auxiliary housing, and secure the clamp. DO NOT OVERTIGHTEN.
3. Reconnect the vacuum pipe, (if fitted) the low tension lead or trigger lead, and the distributor cap. Check the static ignition timing at the coil negative terminal.
4. Run the engine and check/adjust the ignition timing as specified in TECHNICAL DATA.

EA.21. - OIL PUMP & AUXILIARY HOUSING

To Remove

1. Set the engine to the timing position and remove camshaft driving belt (Section EA.8.)
2. Remove the carburetters airbox backplate or plenum chamber (Turbo).
3. Remove distributor (Section E A.20.)
4. Remove the oil filter, and alternator.
5. Where applicable, remove the compressor rear mounting bracket.
6. Fully release all the bolts securing the housing to the cylinder block, noting the position of the various bolts (some are longer than others) and remove housing together with its gasket. Discard the gasket.
7. With the assembly on a clean bench, remove the auxiliary shaft sprocket by releasing its central retaining bolt and washer.
8. Remove the bolts and washers retaining the oil pump body to the auxiliary housing and remove body with its gasket. Take care that the spring in the end of the auxiliary shaft, and the annulus (not fitted in Dry Sump Turbo models) is not misplaced during this operation. Discard the oil pump body gasket.
9. Remove the spring from the oil pump end of the auxiliary shaft. Remove the circlip securing the inner rotor of the oil pump to the shaft. Remove the circlip from the forward end of the shaft. Push shaft out of housing from the front end. Using a suitable drift, remove the front oil seal. Dry Sump Turbo models are also fitted with a rear oil seal.

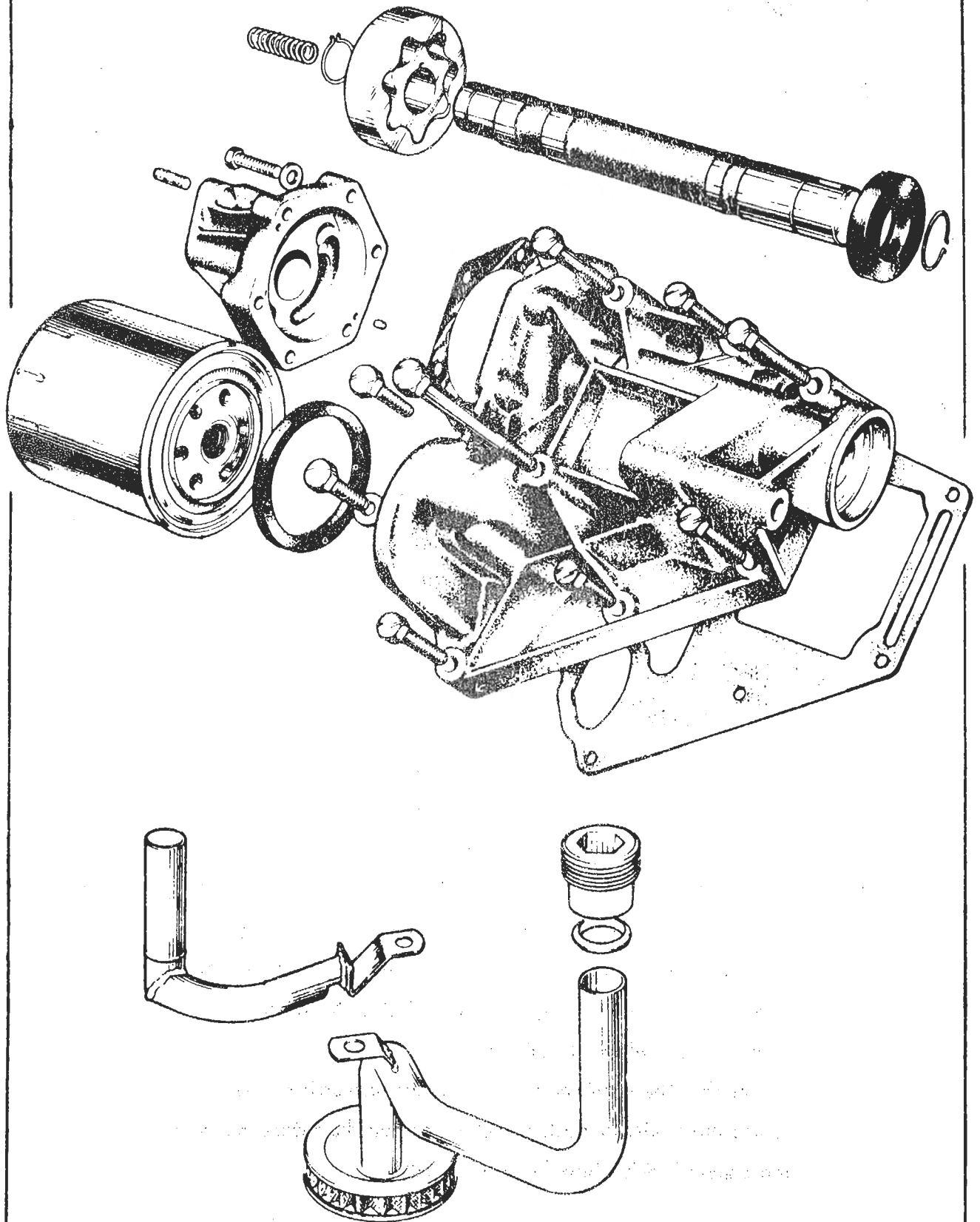


Fig. 23 - Oil pump/auxiliary housing components

To Replace

1. Using a new oil seal, press it into its location. The lip of the seal should of course be towards the housing.
2. Fit new key to the oil pump end of the shaft and using the new oil pump rotors, fit the inner one to the shaft. Fit a new circlip to secure.
3. Push the shaft into the housing from the oil pump end so that the shaft protrudes through the oil seal at the front end. Fit circlip.
4. Insert the ignition distributor shaft loading spring into the oil pump end of the auxiliary shaft. Fit a new oil pump annulus (outer rotor) into the pump body (Except dry sump Turbo). Fit the oil pump to the auxiliary housing using a NEW gasket which is fitted DRY. Tighten all bolts to the specified torque loading (see Technical Data).
5. Using a new gasket to which a suitable compound has been added to both faces, refit the auxiliary housing to the cylinder block. On engines fitted with an 'adaptable' type auxiliary housing with seperate alternator bracket (i.e. with air conditioning) note that the mating faces between the alternator mounting bracket and auxiliary housing are not touching, and MUST be sealed with "Silastic." Apply a bead of "Silastic" to either one mating face, enough to form an approximate 0.5mm thick gasket when the parts are fitted.

Ensure that the retaining bolts are replaced in their original locations, and that the spacer is fitted between the alternator bracket and auxiliary housing on the lower front bolt. Tighten bolts to torque loading given in TECHNICAL DATA.

6. Replace the auxiliary shaft sprocket on the shaft using a new key and with the relevant timing mark facing forward (see fig. 13). Apply thread locking compound to the special securing bolt, and fit with special washer, torque tightening to specified figure (see TECHNICAL DATA).
7. Replace the ignition distributor.
8. Ensure that the crankshaft and camshafts are still at the timing position, rotate the auxiliary shaft sprocket to align the reference mark, and replace the camshaft drive belt (Section EA.8.)

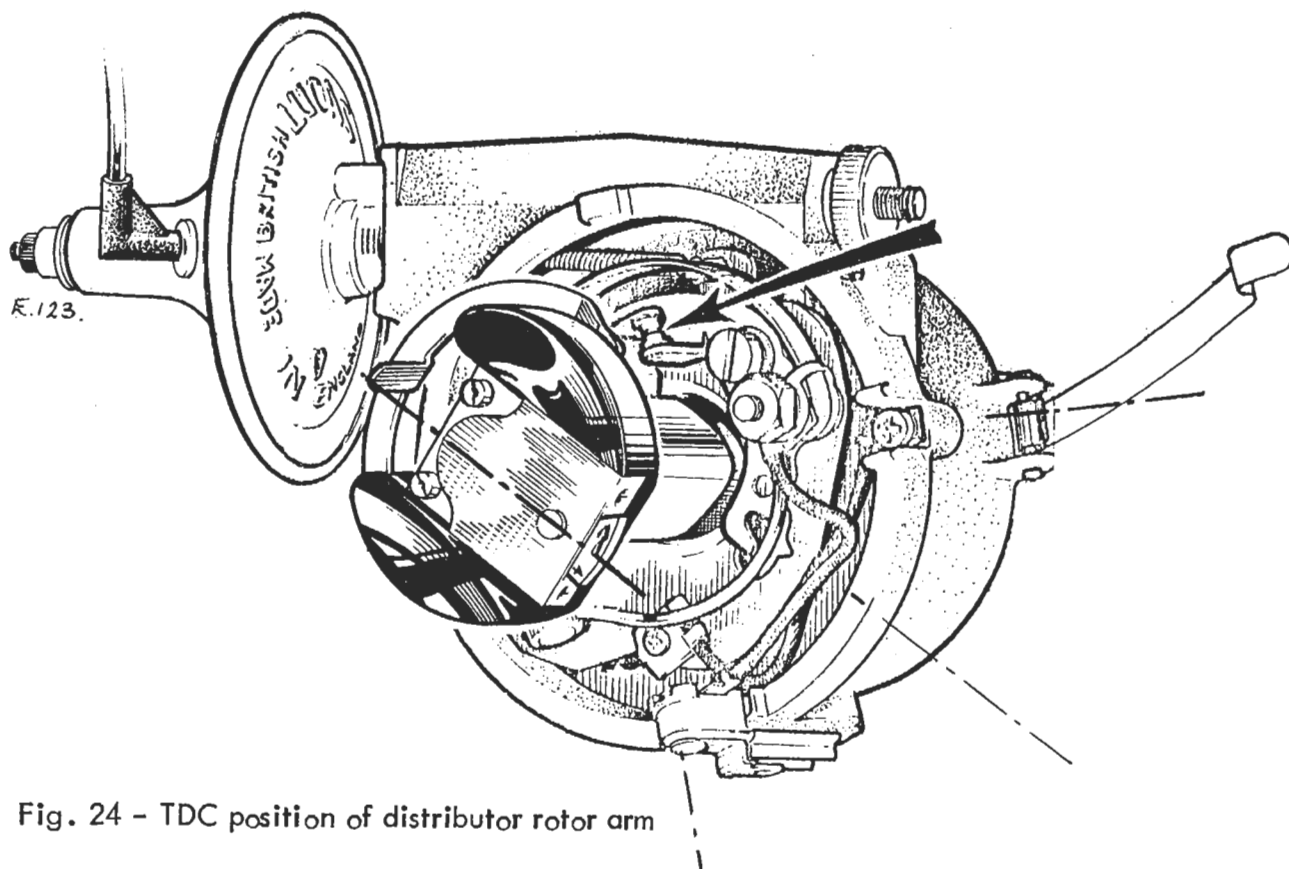


Fig. 24 - TDC position of distributor rotor arm

9. Replace the low tension cable and the distributor cap. Replace oil filter and the alternator. Replace the carburettors airbox assembly. Re-check ignition timing.

EA.22. - INLET MANIFOLD & CARBURETTORS

To Remove (Naturally Aspirated)

1. Drain the cooling system (see Section 'K').
2. Remove the airbox outer cover (see Section 'L').
3. Disconnect the water hoses from the manifold.
4. Disconnect the breather pipe from the flame trap at the rear end of the airbox backplate. Disconnect the throttle and choke cables, and the vacuum pipes.
5. Disconnect the fuel feed pipe to the carburettors, and fit plug to main fuel pipe to prevent fuel draining from the tank.
6. Release the nuts and washers securing the manifold, and remove manifold.
7. Further dismantling of the manifold, such as removing the carburettors, may be carried out as desired on the bench.

To Remove (Esprit Turbo)

1. Drain the cooling system.
2. Disconnect throttle and choke cables.
3. Disconnect fuel pipes from pressure regulator.
4. Release water hose(s) from inlet manifold or water rail.
5. Release vacuum connections from inlet manifold or vacuum rail.
6. Disconnect diffuser from turbocharger and seal turbo compressor outlet immediately.
7. Release fuel pressure regulator from plenum chamber. Release evaporative loss hose from front of plenum, and also electrical connections and vacuum pipes as necessary.
8. Release heater water transfer pipe from plenum chamber.
9. Remove manifold to head nuts and washers and remove complete assembly to bench.

To Replace

1. Reverse the removal procedure, but use a new gasket. Tighten all nuts to the specified torque loadings (see TECHNICAL DATA).

EA.23. - OIL SUMP (NOT Dry Sump Turbo)

To Remove

On front engined cars it is necessary to disconnect the downpipes from the manifold, release the engine mountings and raise the engine 2 - 3 inches (5 - 8 cm) to gain sufficient sump to crossmember clearance.

1. Using a suitable receptacle, release the drain plug and allow oil to drain from the sump. Remove the dipstick.
2. From around the periphery of the sump, remove the setscrews and nuts with their plain washers securing the sump to the main bearing housing. Release the clutch housing to sump bolts, noting any shim washers fitted.

Remove the sump by tilting it slightly towards the exhaustside of the engine in order to clear the oil strainer and pick up pipe assembly.

To Replace

1. Thoroughly remove any sludge which may have collected in the sump, BEFORE replacing the sump.
2. On 907 engines, use a new gasket with jointing compound applied to both faces. No gasket is used on 912 engines but Perma Bond A 136 (A912E6421) should be used in the following manner. Apply a 1.0 - 1.5 mm bead of Perma Bond to the joint face on both the sump and main bearing housing, with the bead passing to the inside of the fixingholes. Also, on 912 engines, check that the 'O' ring is fitted over the dipstick tube inside the main bearing housing.

On 912 and Wet Sump 910 engines, check underside of the sump by clutch housing fixings for shim marking '000' - no shim, '020' - one shim, '040' - two 0.020" shims. These shims to be fitted between clutch housing and sump.

Fit sump and tighten fixings to their specified torque loadings (see TECHNICAL DATA).

3. Refill the engine with the recommended oil.

NOTE: If a new sump is to be fitted on a 912 or Wet Sump 910 engine, carry out the following Sump Alignment Procedure.

- i) With the clutch housing fitted to the engine, fit the sump to the main bearing housing, but do not tighten fixings. Pull the sump rearwards, towards the clutch housing, and measure the clearance between sump bosses and clutch housing.
- ii) If less than 0.010" torque up sump bolts with sump in rearmost position. If clearance is greater than 0.010", fit shims at the two fixing points as follows.

<u>Clearance</u>	<u>Shim</u>
0.010"-0.030"	one 0.020"
0.030"-0.050"	two 0.020" (0.040")

EA.24. - CONNECTING ROD (BIG-END) BEARINGS (Dry Sump Turbo see Section EA. - 28)

To Remove

1. Remove the sump. (Section EA.23.)
2. Commencing with No.1 (from front end) connecting rod, turn the crankshaft to facilitate removal of cap. Mark cap and rod.
3. Release the bolts by two or three turns and tap them to release the cap. Fully release the bolts and remove the cap.
4. Remove the upper and lower big-end bearing shells from both the connecting rod and the connecting rod cap.

To Replace

1. Replace the upper and lower big-end bearing shells by new parts in their appropriate locations.
2. Fit the cap to the connecting rod and tighten the bolts to the torque loading given in TECHNICAL DATA.
3. Replace the remaining big-end bearings by repeating the above process.
4. Replace the oil sump assembly.

EA.25. - ENGINE ASSEMBLY

The engine and gearbox should be removed as a complete assembly.

To Remove - Front engined cars

1. Remove the bonnet (see Section 'B').
2. Drain the cooling system (see Section 'K').

3. Drain the oil from the gearbox (see Section 'F').
4. Disconnect the battery (see Section 'M').
5. In the engine compartment, disconnect the following:

All water hoses, throttle and choke cables; fuel feed pipe to the carburettors; vacuum connections to manifold; cables from alternator, starter motor, ignition distributor and temperature sender unit; oil pressure pipe, oil cooler pipes.

On cars fitted with air conditioning equipment DO NOT disconnect the pipes from the compressor, but remove the compressor complete with pipes from its mounting bracket and secure away from the engine.

On cars fitted with power steering, disconnect the hoses from the pump, and collect the oil in a clean container.

6. Remove the airflow duct from in front of engine.
7. Disconnect air trunking and remove airbox.
8. From beneath the car, disconnect the clutch cable at its mounting on the bell housing, together with its bracket on the main bearing housing or remove clutch slave cylinder from gearbox. Remove the speedometer cable from the gearbox. Disconnect the downpipe from the exhaust manifold (see Section 'S'). Disconnect the engine earth strap. Release the reverse lamp switch cables at the gearbox. Release the propshaft from the final drive.
9. For all cars except Elite/Eclat Series Two with Getrag gearbox : Remove gear lever assembly (See section 'F').

With Getrag gearbox : Remove gear lever knob and gaiters only.

10. Fit slings and support the weight of the engine/gearbox assembly.
11. Remove the gearbox mounting crossmember. Remove the engine mountings and right hand engine mounting leg, and withdraw the engine/gearbox unit from the car.

To Remove - mid engined cars

On Series One and Two Esprit models, the engine/transmission unit is removed from the car from underneath, whilst on Series Three and Turbo models, the unit is removed from above.

1. Disconnect the battery.
2. Remove the tailgate.

3. Remove the engine compartment floor and sidewalls.
4. Drain the cooling system.
5. In the engine compartment, disconnect the following:

All water hoses, throttle and choke cables, fuel feed pipe to carburetors (naturally aspirated) or feed and return pipes to fuel pressure regulator (Turbo), vacuum pipes from manifold or vacuum rail, cables from alternator, starter motor, ignition distributor and temperature sender unit. Disconnect air trunking and remove airbox. Disconnect engine earth strap. Remove cooling system header tank. Disconnect crankcase breather to oil tank (Dry Sump Turbo).

On Federal Turbo disconnect diverter valve hoses, plenum chamber emissions hose, air pump inlet pipe, emissions system vacuum pipes.
6. Remove the clutch slave cylinder from the clutch housing. Disconnect the crossgate cable from the gearbox and clutch housing.
7. Disconnect the gearshift linkage from the selector lever on the transmission, and both links from the gearchange relay lever. Disconnect the speedo cable from the transmission.
8. Remove the rear valance, silencer and downpipes.
9. Disconnect the driveshafts, and handbrake cables and remove the rear calipers and brake discs.
10. Disconnect oil cooler hoses. On Dry Sump Turbo disconnect the scavenge pump outlet pipe (to cooler) and the oil supply pipe from tank to pump. Remove A/C compressor (where fitted) from engine without disturbing pipes, and secure away from engine.
11. On Series Three and Turbo models, remove the chassis rear crossmember.
12. Fit slings and support the weight of the engine/transmission unit on suitable tackle.
13. On Series One and Two models; release the transmission unit mountings from the brackets on the chassis. Note the number of shims between transmission and chassis mounting brackets for replacement.

Remove the bolts/nuts securing the engine mountings to the chassis, and remove the right hand engine mounting leg from the engine. Lower the gearbox end of the assembly and remove whole assembly from under the rear end of the vehicle.

14. On Series Three and Turbo models : Remove the bolts securing the four mountings to the engine/transmission unit, remove the two engine mounting front legs from the cylinder block, and lift out the assembly from the car.

To Replace (all models)

Replacement is a reversal of the removal procedure, but the following points should be observed:

- (a). On 912 and Wet Sump 910 engines, check underside of sump by clutch housing fixings for shim marking. '000' - no shim, '020' - one 0.020" shim, '040' - two 0.020" shims. These shims to be fitted between clutch housing and sump.
- (b). On Series One and Two Esprit models ; Insert the same number of shims between the transmission and chassis mounting brackets as noted on removal. Connect the front engine mountings first, and shim the rear mountings if necessary to avoid preloading the mountings.
- (c). (Not Turbo models) Adjust clutch release mechanism to clearance given in 'Technical Data'.
- (d). Close the radiator drain tap, and refill the cooling system.
- (e). Check security of gearbox drain plug. Refill gearbox if necessary with recommended oil and replace filler/level plug.
- (f). Check security of sump drain plug. Refill engine with one of the recommended oils if necessary. Replace filler cap securely (double notch), otherwise an oil loss could occur.
- (g). Esprit models : Check the gear linkage and cross-gate cable adjustments for correct selection of all gears, and adjust if necessary.
- (h). Check security of all fuel pipe connections.
- (i). Check and adjust ignition timing, slow running speed and idle mixture.
- (j). Check tension of all 'V' belts.
- (k). Check engine/gearbox assembly for oil, water and exhaust leaks, rectifying where necessary.
- (l). Road test car and check operation of all engine/gearbox ancillaries and instruments, including operation of the headlamps.

NOTE:

Elite/Eclats manufactured from the beginning of September 1978 with chassis number 7809 onwards have a revised left hand engine mounting heat shield fitted, which should be fitted to all vehicles when the opportunity arises.

This improved heatshield is fitted to the chassis as shown, instead of to the engine mounting bracket as formerly.

3. Remove the engine compartment floor and sidewalls.
4. Drain the cooling system.
5. In the engine compartment, disconnect the following:

All water hoses, throttle and choke cables, fuel feed pipe to carburettors (naturally aspirated) or feed and return pipes to fuel pressure regulator (Turbo), vacuum pipes from manifold or vacuum rail, cables from alternator, starter motor, ignition distributor and temperature sender unit. Disconnect air trunking and remove airbox. Disconnect engine earth strap. Remove cooling system header tank. Disconnect crankcase breather to oil tank (Dry Sump Turbo).

On Federal Turbo disconnect diverter valve hoses, plenum chamber emissions hose, air pump inlet pipe, emissions system vacuum pipes.
6. Remove the clutch slave cylinder from the clutch housing. Disconnect the crossgate cable from the gearbox and clutch housing.
7. Disconnect the gearshift linkage from the selector lever on the transmission, and both links from the gearchange relay lever. Disconnect the speedo cable from the transmission.
8. Remove the rear valance, silencer and downpipes.
9. Disconnect the driveshafts, and handbrake cables and remove the rear calipers and brake discs.
10. Disconnect oil cooler hoses. On Dry Sump Turbo disconnect the scavenge pump outlet pipe (to cooler) and the oil supply pipe from tank to pump. Remove A/C compressor (where fitted) from engine without disturbing pipes, and secure away from engine.
11. On Series Three and Turbo models, remove the chassis rear crossmember.
12. Fit slings and support the weight of the engine/transmission unit on suitable tackle.
13. On Series One and Two models ; release the transmission unit mountings from the brackets on the chassis. Note the number of shims between transmission and chassis mounting brackets for replacement.

Remove the bolts/nuts securing the engine mountings to the chassis, and remove the right hand engine mounting leg from the engine. Lower the gearbox end of the assembly and remove whole assembly from under the rear end of the vehicle.

14. On Series Three and Turbo models : Remove the bolts securing the four mountings to the engine/transmission unit, remove the two engine mounting front legs from the cylinder block, and lift out the assembly from the car.

To Replace (all models)

Replacement is a reversal of the removal procedure, but the following points should be observed:

- (a). On 912 and Wet Sump 910 engines, check underside of sump by clutch housing fixings for shim marking. '000' - no shim, '020' - one 0.020" shim, '040' - two 0.020" shims. These shims to be fitted between clutch housing and sump.
- (b). On Series One and Two Esprit models ; Insert the same number of shims between the transmission and chassis mounting brackets as noted on removal. Connect the front engine mountings first, and shim the rear mountings if necessary to avoid preloading the mountings.
- (c). (Not Turbo models) Adjust clutch release mechanism to clearance given in 'Technical Data'.
- (d). Close the radiator drain tap, and refill the cooling system.
- (e). Check security of gearbox drain plug. Refill gearbox if necessary with recommended oil and replace filler/level plug.
- (f). Check security of sump drain plug. Refill engine with one of the recommended oils if necessary. Replace filler cap securely (double notch), otherwise an oil loss could occur.
- (g). Esprit models : Check the gear linkage and cross-gate cable adjustments for correct selection of all gears, and adjust if necessary.
- (h). Check security of all fuel pipe connections.
- (i). Check and adjust ignition timing, slow running speed and idle mixture.
- (j). Check tension of all 'V' belts.
- (k). Check engine/gearbox assembly for oil, water and exhaust leaks, rectifying where necessary.
- (l). Road test car and check operation of all engine/gearbox ancillaries and instruments, including operation of the headlamps.

NOTE:

Elite/Eclats manufactured from the beginning of September 1978 with chassis number 7809 onwards have a revised left hand engine mounting heat shield fitted, which should be fitted to all vehicles when the opportunity arises.

This improved heatshield is fitted to the chassis as shown, instead of to the engine mounting bracket as formerly.

Parts Required:

Heatshield	A907E1247F	1 off
Nyloc nut M8	A075W3010Z	2 off
Screw 8m x 20	A075W1038Z	2 off
Washer 8m x 25 o/d	A075W4021Z	2 off

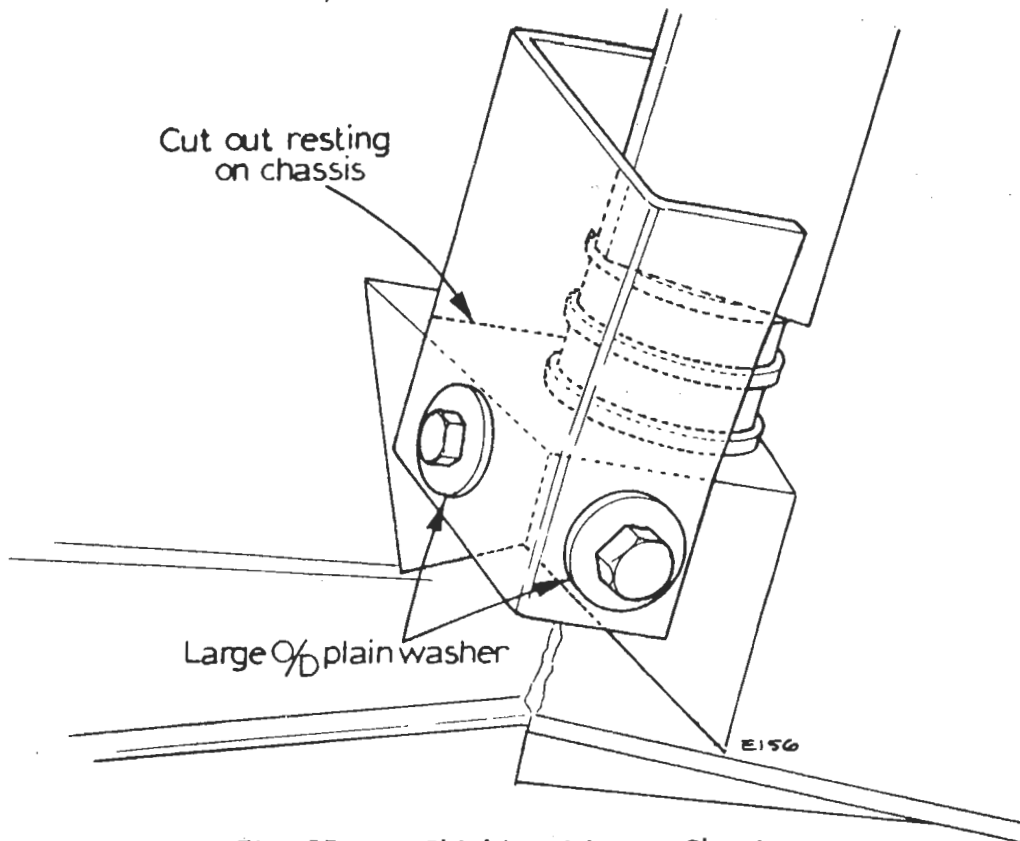


Fig. 25 Heat Shield position on Chassis

To Fit Heatshield

- i). Remove the existing heatshield.
- ii). Use the illustration as a guide and place the heatshield over the left hand side engine mounting on to the chassis. Once in the correct position use the shield as a template and drill two 8mm clearance holes into the chassis.
- iii). Secure the heatshield with two bolts, large plain washers and nyloc nuts in the following order : Bolt head on outside - large o/d plain washer - heatshield - chassis - nyloc nut.

EA.26. - FLYWHEEL & RING GEAR (Manual Transmission)

Since shortly after its introduction, 912 engines have been fitted with a 'flexplate' flywheel' which incorporates a flat steel disc bolted to the crankshaft, the flywheel itself bolting to the outside of the disc. The disc/flywheel assembly is balanced as a unit, and the bolts securing the two parts should never be disturbed.

To Remove

1. Remove the clutch assembly from the flywheel (see Section 'Q').
2. Release the bolts from the centre of the flywheel and pull flywheel from its locating dowels on the crankshaft.
3. Cut between two adjacent teeth on the ring gear with a hacksaw and split the gear with a chisel.

NOTE: Under NO CIRCUMSTANCES must pressure be applied in attempting to remove the gear for re-positioning the gear on the flywheel.

To Replace

1. Check the face of the flywheel for signs of damage from the clutch driven plate. If evident, fit a new flywheel.
2. Heat the new ring gear evenly, to a temperature NOT EXCEEDING 315°C. (600°F). Do NOT heat beyond this point, otherwise the wear resistance properties of the gear will be destroyed. Fit the gear to the flywheel with the chamfers on the leading face of the teeth relative to the normal direction of rotation. Allow the ring gear to cool naturally in the air. DO NOT QUENCH.
3. Locate the flywheel squarely on the crankshaft flange and upon the locating dowels.
4. Apply the Loctite 'AV' to threads in crankshaft, then insert the securing bolts and tighten to the specified torque loading (see TECHNICAL DATA).
5. Check the flywheel run-out using a proprietary dial gauge. The total run-out should NOT EXCEED the figure given in TECHNICAL DATA.
6. Replace the clutch assembly.

EA.27. - CRANKSHAFT REAR OIL SEAL

To Remove

1. One front engined cars, remove the engine/gearbox assembly from the car (Section EA.25.) part gearbox from engine, and mount engine on a suitable stand. On mid engined cars, remove the transmission from the car.
2. Remove the flywheel (Section EA.26.)
3. Remove the rear oil seal housing by releasing its eight securing setscrews.
4. Remove seal from the housing. Discard the gasket.

To Replace

1. With the lip of the seal towards the inner machined face of the housing, insert the new seal with the aid of a press, until its inner face is 2.5 mm. (.10 in.) from the machined face, ensuring during this operation that the seal is entered squarely.

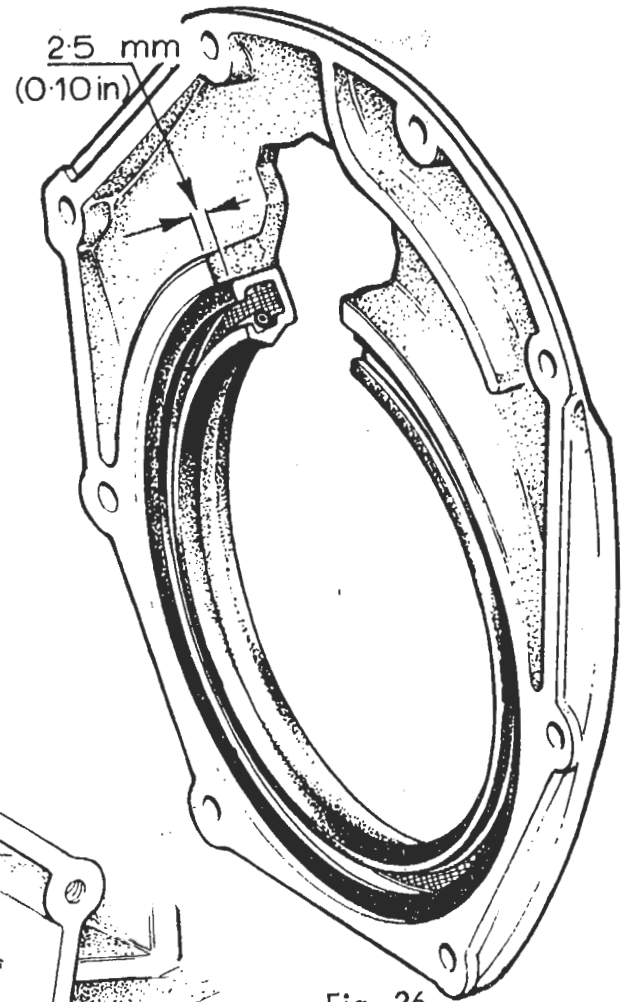


Fig. 26
Rear oil seal and housing

2. Ensure the spray shield is in its correct location on the cylinder block and main bearing housing, with its flange positioned between the two webs on the bearing housing.

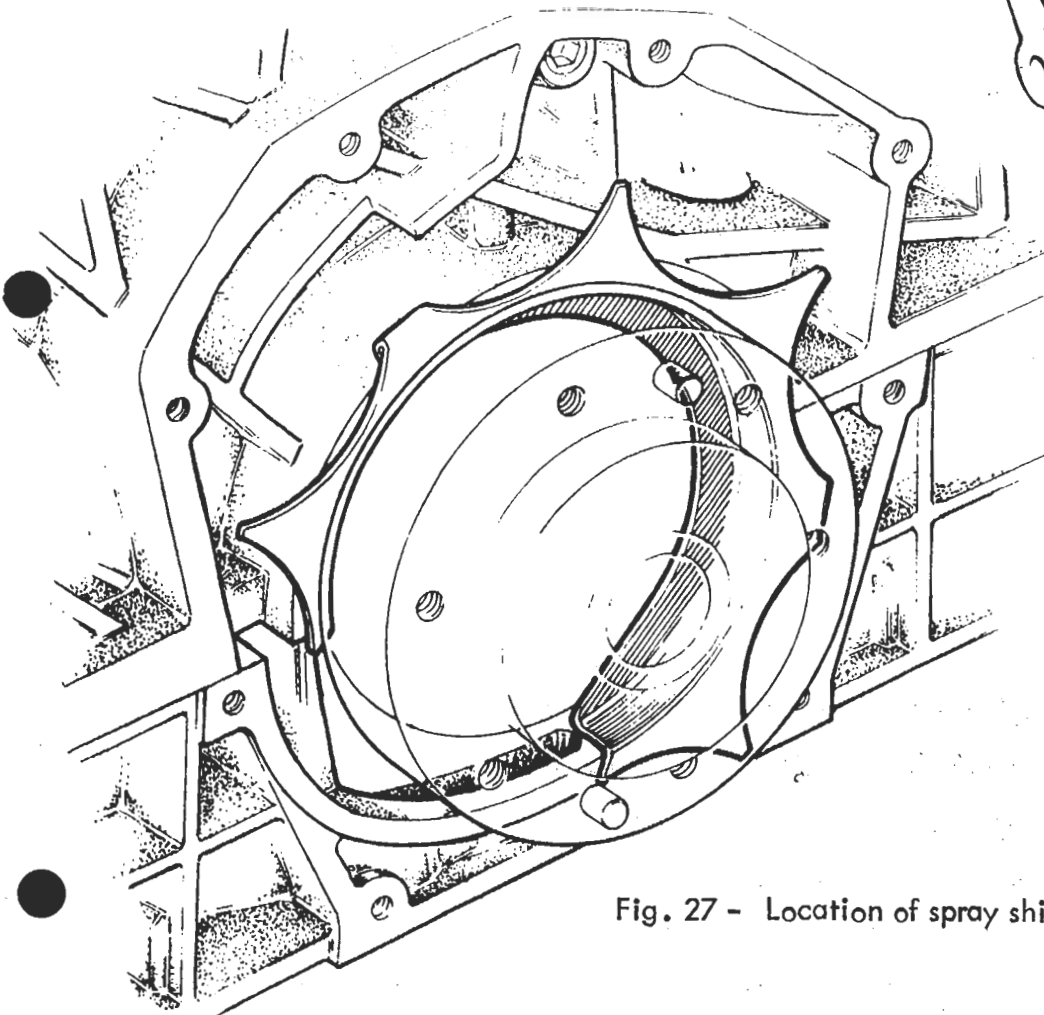


Fig. 27 - Location of spray shield

Lightly lubricate the lip of the seal, apply 'Wellseal' to both sides of a new gasket, and with the aid of Special Tool (84A), fit the oil seal housing over the flywheel flange of the crankshaft, securing with its setscrews. Tighten the setscrews to the torque loading given in TECHNICAL DATA.

NOTE: The lower four screws and washers (into main bearing panel) are special, having a 'thinner' head.

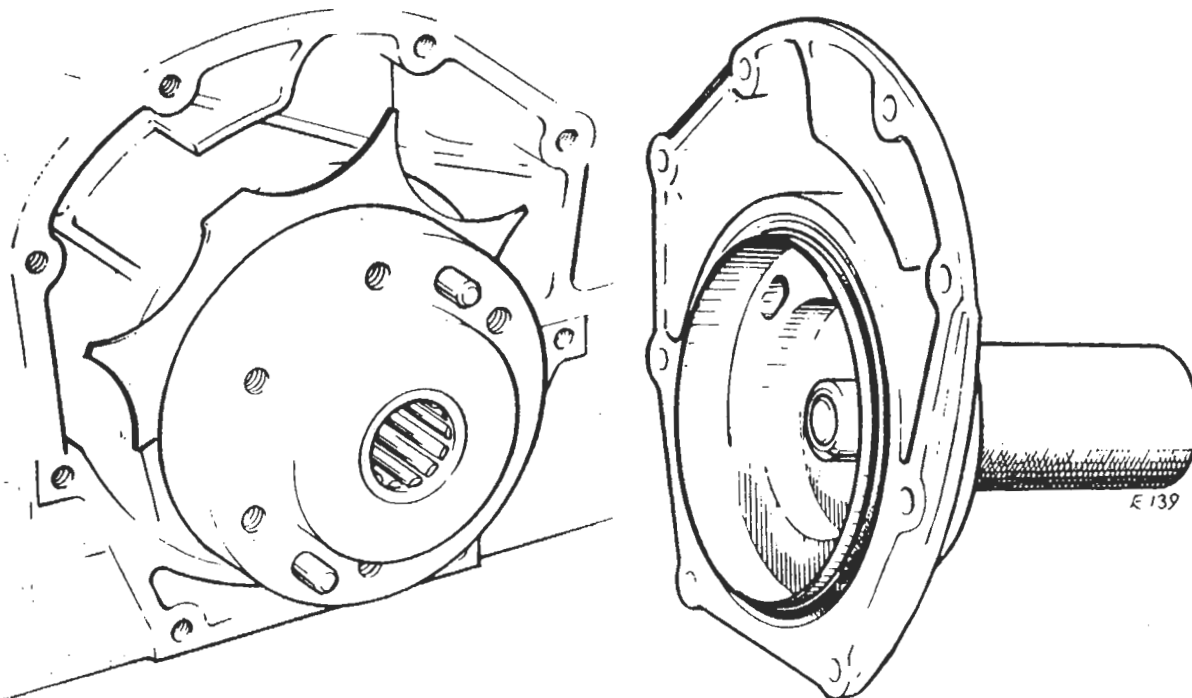


Fig. 28 - Using Tool '84A' to fit rear oil seal housing

3. Replace the flywheel.
4. Re-assemble the gear box to the engine, and replace engine/gearbox assembly in the car.

EA.28. - CRANKSHAFT

To Remove

1. Remove the engine/gearbox assembly from the car (Section EA.25.) part gearbox from engine, and mount engine on a suitable stand.
2. Remove the sump (Section EA.23.) (NOT Dry Sump Turbo).
3. Remove the front cover (Section EA.17.)
4. Remove the rear oil seal housing (Section EA.27.)
5. Dry Sump Turbo Only. Remove the 8mm nuts and washers from around the outside of the main bearing panel, followed by the ten large nuts and

washers adjacent to the main journals ; all nuts should be released in sequence, working diagonally inwards from the outside. Lift off the main bearing housing. If the housing is tight, it is permissible to tap lightly with a rubber mallet to ease removal. Remove the sprayshield from the rear of the cylinder block.

6. Identify each connecting rod bearing cap with its rod, and then unscrew the connecting rod bearing cap bolts by two or three turns, and tap them to release the caps. Push the pistons up into the cylinder liners.
7. Remove the auxiliary housing (Section EA.21.) With the aid of Special Tool (83A) remove the union screw securing the oil pick-up pipe in the cylinder block.

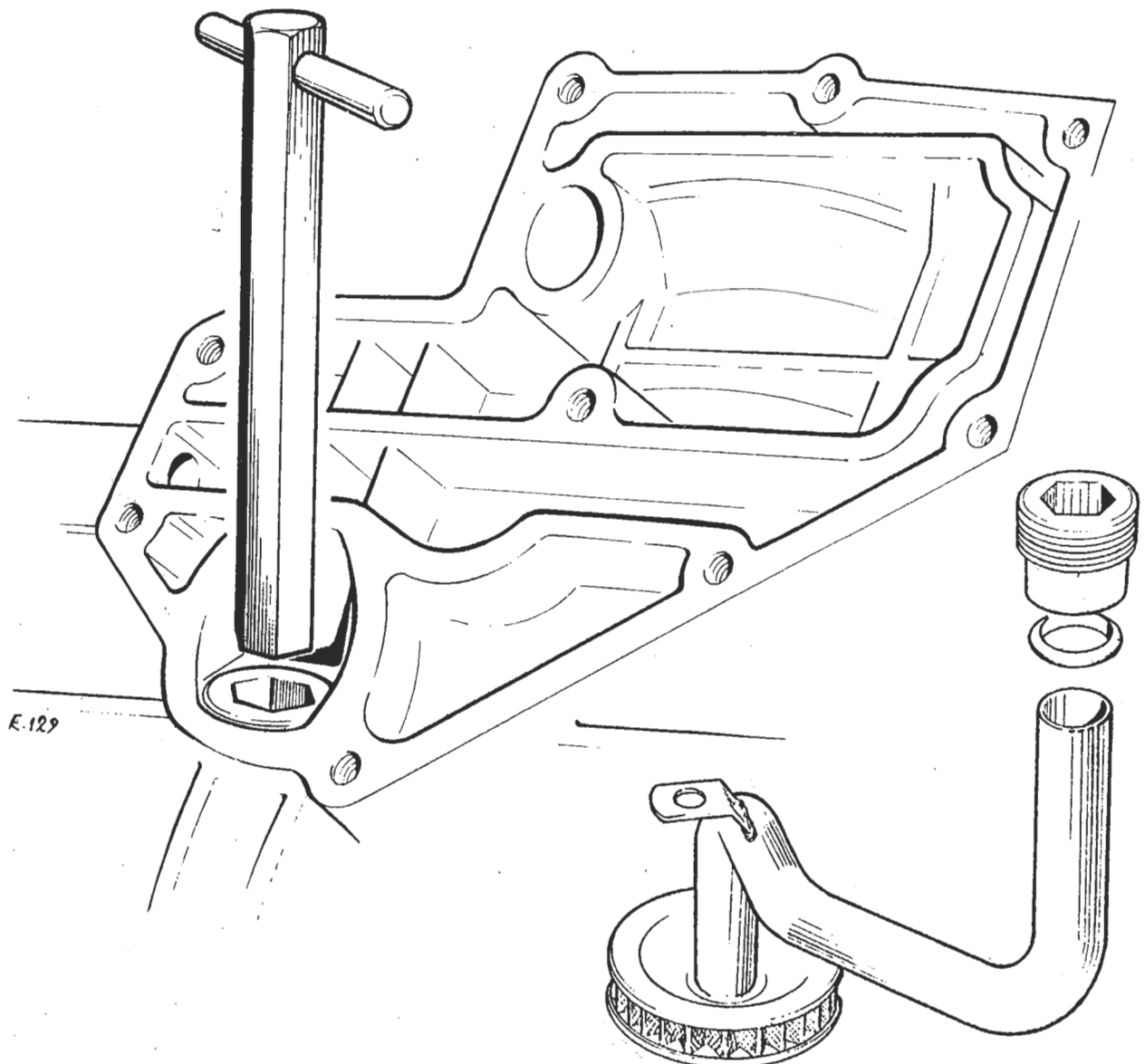


Fig. 29 - Oil pick-up pipe and union spanner

8. (NOT Dry Sump Turbo)

Remove the ten nuts and washers to the outside of the sump mounting face, followed by the ten large nuts and washers adjacent to the main journals; all nuts should be released in sequence working diagonally inwards from the outside. Remove the oil pick-up pipe and breather pipe from their locations in the main bearing housing and cylinder block. Lift off the main bearing housing. If the housing is tight, it is permissible to tap lightly with a rubber mallet to ease removal. Remove the spray shield from the rear of the cylinder block.

9. Lift out the crankshaft. Remove the main shell bearings from both the bearing housing and the cylinder block. Remove the thrust washers from the rear main bearing locations in the cylinder block.

To Replace

1. Fit a new key to the front of the crankshaft to retain the sprocket.
2. Fit a new spigot bearing and new flywheel dowels in the rear (flywheel) end of the crankshaft.

Cross-drilled crankshafts

The 'standard' or non cross drilled crankshaft as fitted to all front engined cars prior to engine no. 23749 (March 1987) has drillings from main bearings 1,2,4 & 5 through to crankpins 1,2,3 & 4 to provide big end lubrication. Both upper and lower shells for these main bearings are provided with a hole to admit oil from a drilling in the block, and a groove to provide an oil channel around which oil may flow to the big end feed drilling in the journal.

The 'cross-drilled' crankshaft is similar in the above respect, but differs as follows: In order to permit the use of plain lower main bearing shells with their increased load bearing area, crank journals 1,2,4 & 5 are also 'cross-drilled' diametrically across from the point where the big end feed drilling emerges. One end of this cross drilling is therefore always in communication with the oil supply channel in the grooved upper main bearing shell, maintaining big end lubrication throughout 360° crankshaft rotation.

This 'cross-drilled' crankshaft is fitted to all Esprit variants from engine no. 13277 (1976), and to Excel models from engine no. 23749 (1987). It is MOST IMPORTANT to refer to the table in section TDA (N/A) or TDB (Turbo) for the correct main bearing shell configuration.

Oversize outside diameter main bearing shells

Whenever main bearing shells are to be replaced on any 907/912/910 engines, it is most important to check whether the block assembly has been bored to accept +0.015 oversize outside diameter mainbearing shells on production.

Remove the main bearing shells, refit the main bearing panel, and measure the main bearing bore diameter.

Standard bore diameter	2.6655 - 2.6660 in. (67.704 - 67.716mm)
------------------------	--

+0.015" O/D bore diameter	2.6805 - 2.6810 in. (68.085 - 68.097mm)
---------------------------	--

As a cross check, look for the number stamped on the outside of any main bearing shell with a GROOVE and HOLE

'5690' = Standard Outside Diameter

'5946' = +0.015" Outside Diameter

Block assemblies bored +0.015" oversize on production are normally identified as follows:

907 Engines

'+015' stamped externally on flank at rear of main bearing housing, together with red paint.

912 and 910 Wet Sump Engines

'15' stamped on 4th or 5th main bearing 'cap' (along with another 4 or 5 digit number). Block may also be stamped in the region of engine number (above starter motor).

910 Dry Sump Engine

Stamped externally on side of M.B.P. above rear of scavenge manifold.

Undersize inside diameter shells to suit reground crankshafts are available for both standard and +0.015" overbored blocks. See Parts List.

MODIFICATION OF 910/912 MAIN BEARING PANEL, PRIOR TO ENG. NO 20875

All 912 (naturally aspirated 2.2 litre) and 910 (turbocharged 2.2 litre) engines from engine number 20875, incorporate a revised main bearing panel casting to enable the rear face of No. 5 main bearing to be fully machined in order to reduce oil drain off from the thrust washer face. This panel does not have the chamfer on No.5 main bearing as detailed below.

All engines prior to 20875 should have the following modification carried out ONLY if stripped for any other reason, and show evidence of crankshaft thrust collar wear.

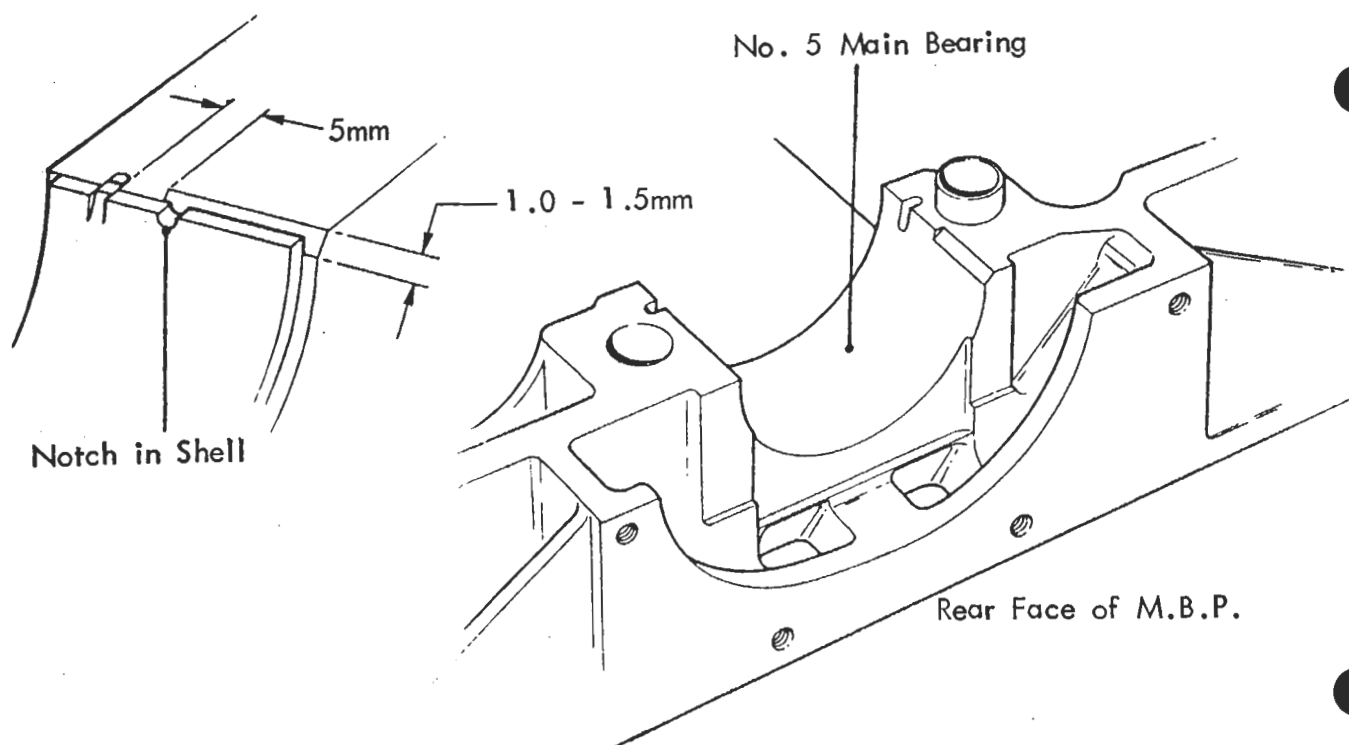
- 1) Engines with numbers 20793 to 20874 inclusive have been modified in accordance with these instructions at the factory, together with approximately thirty engines prior to 20793. These engines require no further action but care should be taken to order the correct main bearing shells (see paragraph 3).

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- ii) On all unmodified engines up to No. 20793, remove the main bearing shells from the main bearing panel (M.B.P.) and modify the panel at No.5 (rear) bearing as shown in the diagram.

Using a very fine needle file, carefully form a small chamfer on the right hand corner of the bearing 'cap' from the centre to the rear edge, until the width of the chamfer is 1 - 1.5mm and is approximately 45° to the joint face. take care not to mark any other M.B.P. face with the file.

Thoroughly clean all swarf from the panel.



- iii) On reassembly, ensure that the correct notched shell is fitted to No.5 (rear) main bearing in the panel.

Part Numbers for the notched bearing shell (ONLY fitted to No.5 bearing LOWER half) are as follows:

<u>Grooved/Hole (912 Elite/Eclat/Excel)</u>		
Std O/D	(Std I/D	A912E1987S
	(- 0.010" I/D	A912E1988S
	(- 0.020" I/D	A912E1989S
+ 0.015" O/D	(Std I/D	A912E1990S
	(- 0.010" I/D	A912E1991S
	(- 0.020" I/D	A912E1992S

Plain (912 Esprit S3, 910 Esprit Turbo)

Std O/D	(Std I/D	A912E1993S
	(- 0.010" I/D	A912E1994S
	(- 0.020" I/D	A912E1995S
+ 0.015" O/D	(Std I/D	A912E1996S
	(- 0.010" I/D	A912E1997S
	(- 0.020" I/D	A912E1998S

NOTE: Engines from Number 20875, with the revised main bearing panel (without chamfer) do not use the notched bearing shell.

NOTE: 907 (2 litre) engines use a main bearing panel similar to the revised 912 panel and are therefore unaffected by this bulletin.

3. Ensure the correct bearing shell configuration is fitted by referring to the table in Technical Data.

Ensure that both the cylinder block and the main bearing housings are clean, then fit new bearing shells. Apply a small amount of graphogen grease to the bearing shells.

4. Ensure that the crankshaft main journals are clean, then fit the crankshaft. Spin the crankshaft to ensure even distribution of the graphogen grease. Fit new selective thrustwashers to the rear main bearing so that the oil grooves (the 'copper' side) are towards the crankshaft. Check the end-float between the crankshaft and the thrustwashers (see TECHNICAL DATA). If the end-float is outside this tolerance, replace the selective thrust washers.
5. Dry Sump Turbo Only : Ensure the crankshaft connecting rod journals and the connecting rods and caps are clean then fit new bearing shells. Refit the connecting rods and their caps to their respective journals after applying graphogen grease to the bearings. Tighten the bolts to their specified torque loading (see TECHNICAL DATA).

Ensure the scavenge manifold and sump ducts are fitted and the stud locknuts retained with thread locking compound and their locktabs. Insert the oil feed pipe into the block with a 'new 'O' ring fitted on its lower end. Oil the 'O' ring.

6. Ensure all the main bearing panel to block locating dowels are in place, and clean the joint face on both parts before applying only 'WELLSEAL' (zero

clearance) compound around the periphery of the joint. Fit the main bearing housing, using a pair of nuts to pull up the joint over the dowels if necessary. Do not tap the housing, as the bearing shells may be disturbed.

7. Fit the nuts and washers tightening the 8mm nuts first, followed by the 12mm nuts in pairs in a sequence outwards from the centre. For torque figures see Technical Data.

8. (Not Dry Sump Turbo)

Ensure that the crankshaft connecting rod journals and the connecting rods and caps are clean, then fit new bearing shells. Refit the connecting rods and their caps to their respective journals, after applying Graphogen grease to the bearings. Tighten the bolts to their specified torque loadings (see TECHNICAL DATA).

9. (Not Dry Sump Turbo)

To enable the oil pick up pipe, and the crankcase breather pipe (all 907 and early 912) to be fitted, it is necessary to remove both 12mm nuts from main bearing No. 4. Fit the breather pipe by pushing into its drilling at the rear of the MBH, and refit the 12mm nut end washer to retain. Push the oil pick up pipe into its drilling at the front of the MBH and retain with the main bearing nut and washer. Torque tighten the two main bearing nuts.

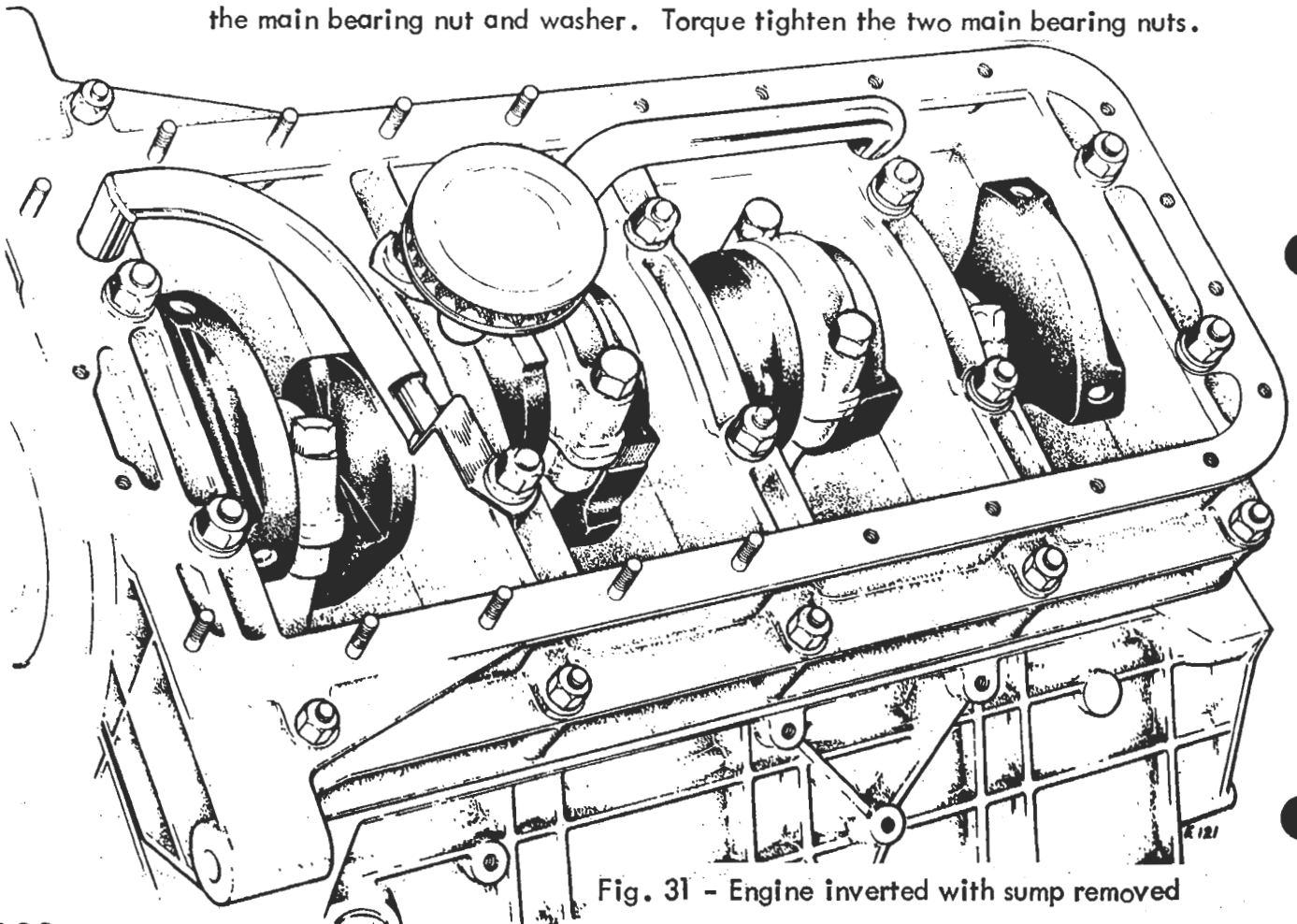


Fig. 31 - Engine inverted with sump removed

10. Coat a new plastic compression olive with engine oil, and from the auxiliary housing chamber, push over the oil pick up pipe/feed pipe and fit the union screw. With the aid of special tool T000T0083A, tighten the union screw to its specified torque loading (see Technical Data).
11. Ensure spray shield is in its correct location on cylinder block and main bearing housing, with its flange positioned between the two webs on the main bearing housing. Replace the crankshaft rear oil seal (Section EA.27.)
12. Replace the front cover, crankshaft sprocket, sump and flywheel.
13. When a new cylinder block is being used, it will be necessary to fit the breather spout at the top of the right hand side below the inlet manifold. Fit the bush, with its flange uppermost, into its location. Tap the breather tube into the bush until approximately 25mm. (1.0 in.) is left protruding. Ensure oil gallery and water jacket plugs are also fitted.
14. Re-assemble the gearbox to the engine, and replace engine/gearbox assembly in the car.

EA.29. - PISTONS, PISTON RINGS, CONNECTING RODS & CYLINDER LINERS

To Remove

1. Remove engine/gearbox assembly (Section EA.25.)
2. Remove cylinder head (Section EA.10.)
3. Remove the oil sump (Section EA.23.)
4. Remove the connecting rod bearing caps. Remove the ring of carbon from the top of liner wall. Push the piston up and out of the cylinder liner, by its connecting rod. Remove the assembly to a bench.
5. Remove the piston rings. Extract the gudgeon pin circlips and push the pin out of the piston, thus releasing the connecting rod. Mark all components in relation to each other, and to the cylinder from which they were removed.
6. Using Special Tool T000T0012ZA, withdraw the liners from the cylinder block.

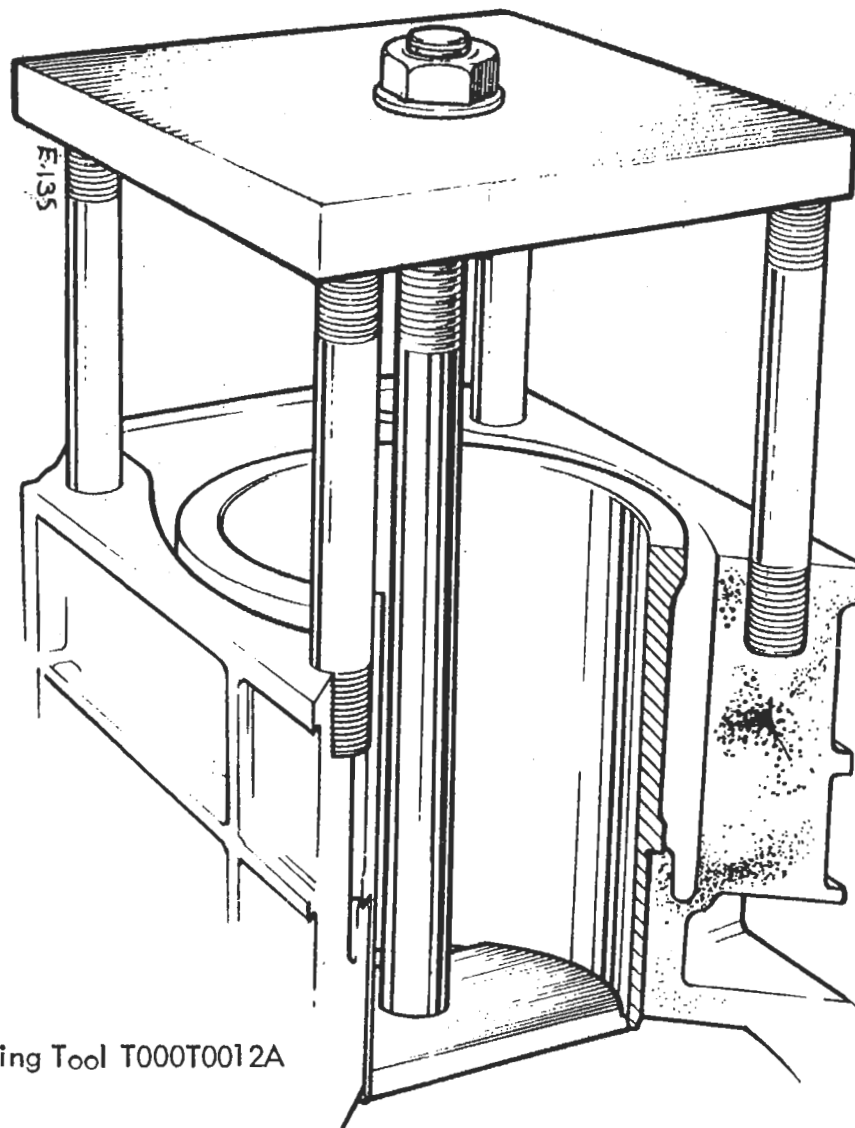


Fig. 32 - Using Tool T000T0012A

To Replace

1. The liners are fitted into the cylinder block with their 'flats' in a front-to-rear line. When replacing liners in the cylinder block, they **MUST FIRST** be fitted clean and dry, and pushed fully into their locations. At this point, the liner 'nip' should be checked; the 'nip' is the height of the liners **ABOVE** the cylinder block face and the height of the liners in relation to each other (see TECHNICAL DATA).

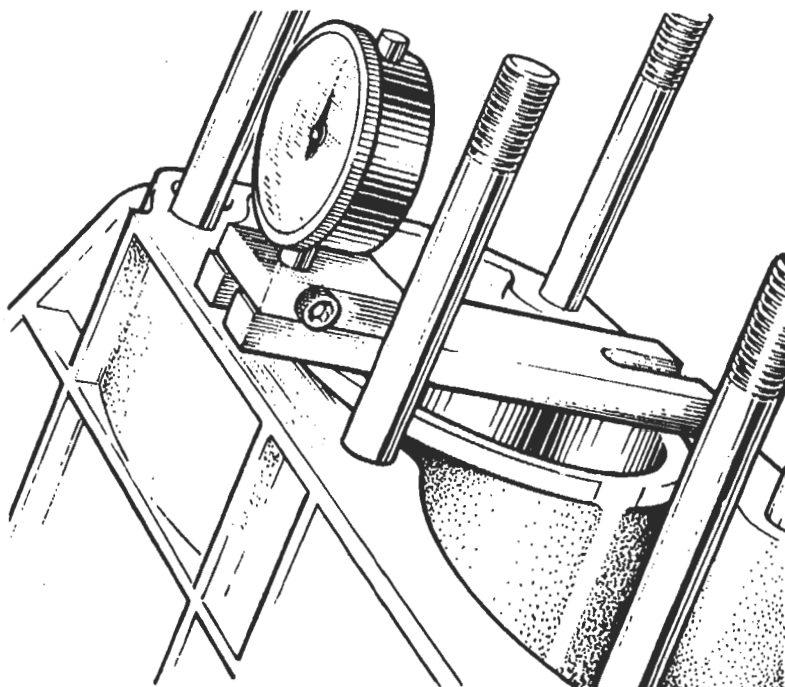


Fig. 33 - Using Tool T000T0003A to check cylinder liner height

2. When liner nip is correct, withdraw the liners, apply 'Hylomar' on the liner flange to cylinder block mating face and replace liners.
3. If replacement parts are to be fitted, ensure that the pistons and the connecting rods are both balanced sets.

Note that all 907 and standard 912/910 engines use cast iron cylinder liners with cast aluminium alloy pistons. 912/910 'high compression' engines use forged aluminium alloy cylinder liners with a 'Nikosil' coated bore, together with forged aluminium alloy pistons. The alloy liners have a larger spigot diameter and cannot be fitted to standard engines.

Pistons and liners are only supplied together as matched pairs. Two grade diameters are used, 'A' and 'B' with 'A' piston (marked as crown) fitted into 'A' liners (marked on liner top rim or on side flat) and 'B' into 'B'. Pistons are also weight graded in 3.5 gram (cast pistons) or 3.0 gram (forged pistons) increments, and are marked in the following manner: Cast pistons; coloured paint spot on crown, with corresponding initial letter(s) engraved on gudgeon pin boss underside.

Forged pistons: stamped on crown with 2+, 1+, 0, 1- or 2-. Each engine uses 4 pistons of the same weight grade but may mix 'A' and 'B' piston/liner assemblies. Similarly, connecting rods are weight graded into 2 gram matched sets, and identified by a letter code etched or painted below the forged 'FRONT' mark on the rod.

If ordering an individual connecting rod or piston/liner, the weight grade symbols must be quoted.

Fit each connecting rod to its piston with both 'front' marks facing the same way (forged pistons have arrow stamped on crown pointing forwards) and install the gudgeon pin and circlips.

- i) Fit the oil control rings:
907/910/912 Std: The oil control rings consist of an expander ring and two steel rails which are fitted above and below the expander ring. They MUST always be fitted BEFORE the compression rings, working downwards from the piston crown. Fit the expander ring on the piston and ensure that the coloured ends are butting. Fit one end of a steel rail into the groove below the expander ring, holding the rail end with a thumb whilst easing the rail over the piston and into its location, and repeat to fit the other steel rail above the expander. Position the gaps in the two rails, 25mm each side of the expander gap.

912/910 'HC': Fit the expander spring first, followed by the one piece oil control ring, and position the ends of each to be diametrically opposite

- ii) Fit the lower compression ring:
 907: The step on the outer edge is lowermost
 912/910 Std: The chamfer on the inner edge is uppermost.
 912/910 'HC': The face is tapered towards the side of the ring marked 'TOP'.
- iii) Fit the chrome plated top compression ring
 907: May be fitted either way up
 912/910 Std: The chamfer on the inner edge is uppermost
 912/910 'HC': May be fitted either way up
- iv) Position the oil control ring gap to the rear, and the two compression ring gaps 120° to either side.

Running In:

When new rings, or piston/liner sets have been fitted, the running-in period must be 800 kilometres (500 miles), (see Section 'O').

- 4. Using a piston ring compressor, insert the piston into the liner with the 'FRONT' mark towards the front of the cylinder block. Fit cylinder liner clamps after replacing the pistons in the liners.
- 5. Fit new bearing shells to both connecting rod caps securing with their bolts. Tighten all bolts to the specified torque loading (see TECHNICAL DATA).
- 6. Replace the oil sump.
- 7. Replace the cylinder head, after removing the cylinder liner clamps.
- 8. Replace engine/gearbox assembly (Section EA.25.)

EA.30. - CONNECTION OF OIL COOLER THERMOSTAT

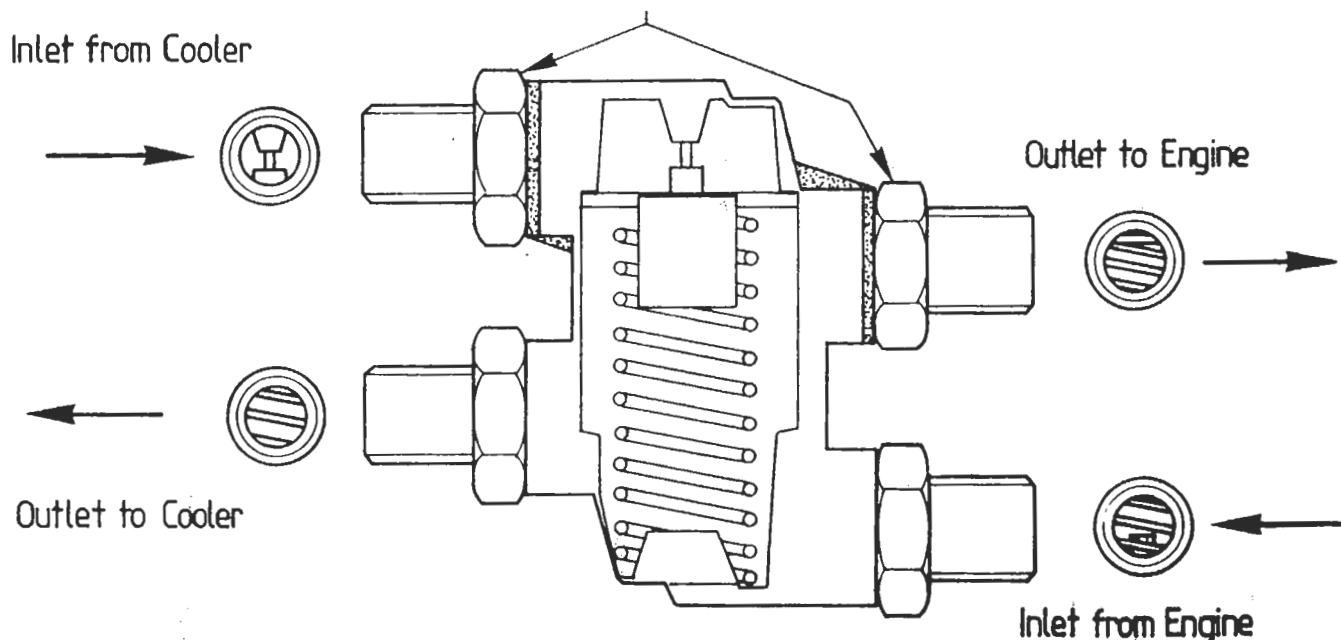
Oil cooler thermostats are fitted to late dry sump Turbos and all wet sump Turbos prior to 1986.

Early wet sump cars are fitted with thermostat A910E6550F having 4 5/8" BSP connections, whilst all other cars have thermostat A082E6016F, with 3 x 5/8" BSP connections and 1 x 3/4" BSP connection.

The large 3/4" BSP connection is always the inlet connection from the engine, ie from either the scavenge pump (dry sump) or upper connection on oil filter sandwich plate (wet sump)

Thermostats with 4 x 5/8" BSP connections must be viewed down each port and the diagram used below to identify the connections.

Unions clamping the mounting bracket to be coated with 'Omni-Fit' thread lock and torque tightened to 11 kgf.m. (80 lbf.ft) (Dry sump bracket shown)

EA.31. - LUBRICATION SYSTEM PRECAUTIONS

In the event of engine failure involving the possibility of debris entering the lubrication system, it is essential that the following precautions are taken before re-assembly:

- i) Clean and inspect all engine oilways inblock, crankshaft, cylinder head etc.
- ii) Clean and inspect oil pump, pick up pipe and strainer and auxiliary housing.
- iii) On 'dry sump' Turbo models, clean and inspect the oil tank and strainer.
- iv) Thoroughly flush out oil cooler hoses and clean and inspect oil cooler thermostat.
- v) In view of the difficulty of ensuring no debris is retained in the oil cooler, this item must always be replaced in such circumstances.

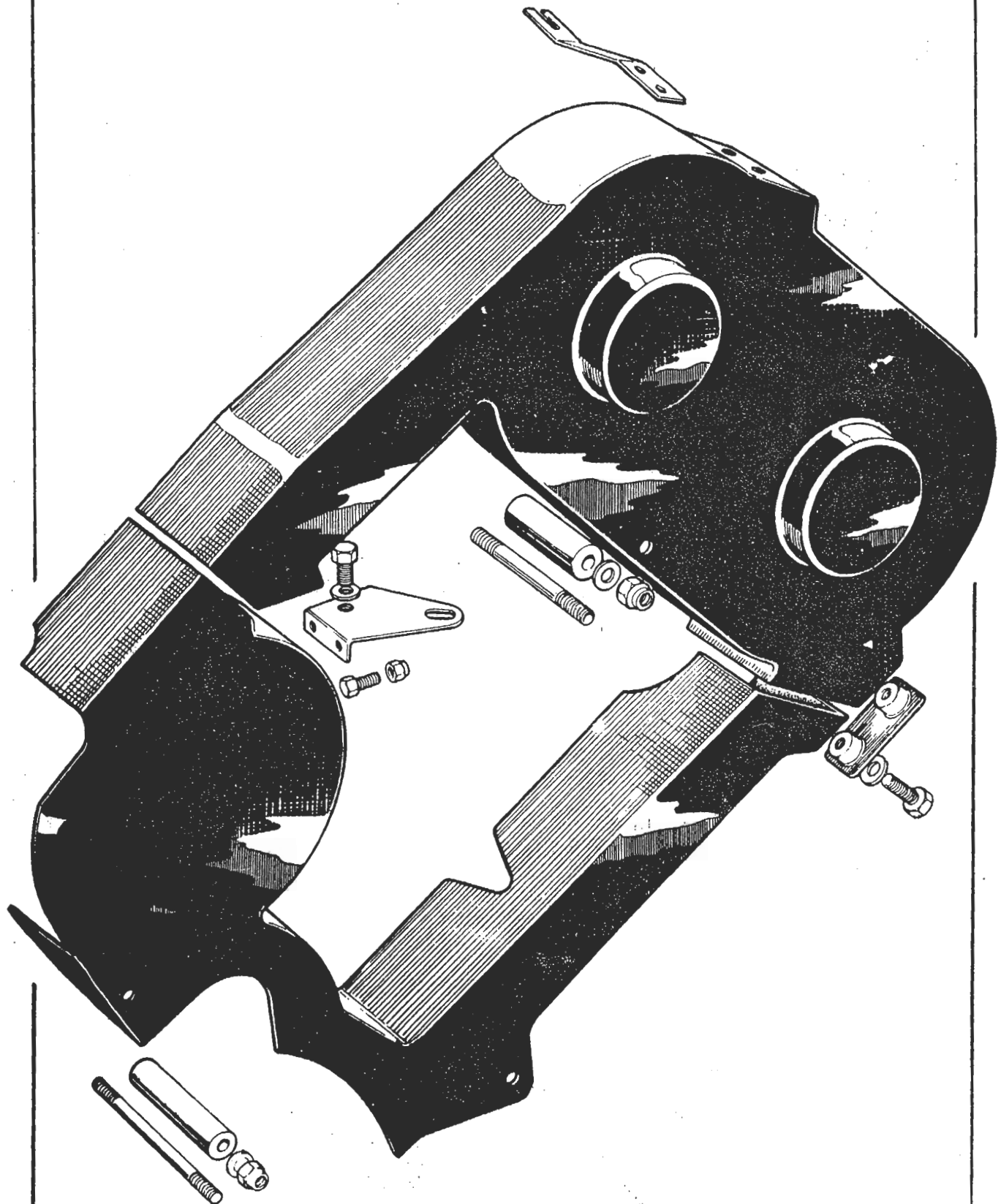
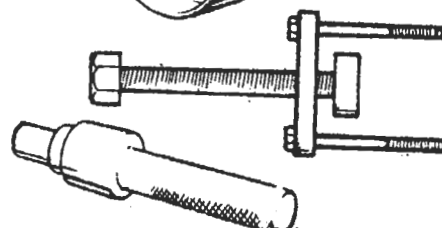
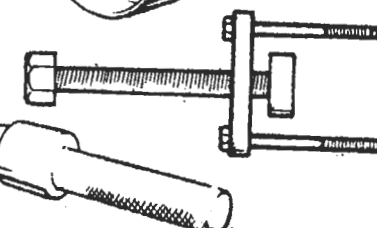
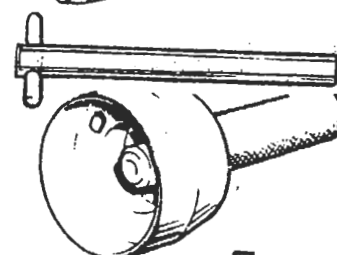
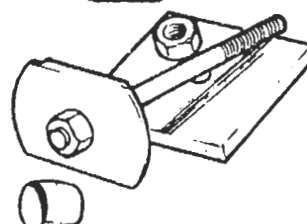
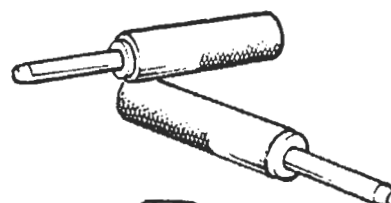
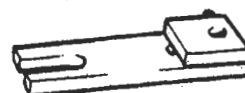
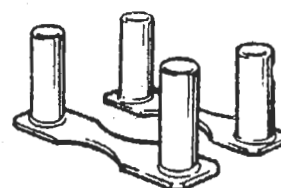


Fig. 10 - Belt guard components (early models)

EA.32. - SPECIAL TOOLS

T000 T 0002A	Cylinder Liner Clamps to retain cylinder liners
T000 G 0003A	Cylinder Liner Nip Gauge To check liner height
T000 T 0004A	Valve Guide Drift To assemble/remove guides
T000 T 0093A	Inlet Valve Seat Drift
T000 T 0094A	Exhaust Valve Seat Drift For inserting valve seat
T000 T 0009A	Front Cover Pilot To locate front cover
T000 T 0010A	Camshaft Oil Seal Inserter For inserting oil seal
T000 T 0011A	Camshaft Oil Seal Extractor For extracting oil seal
T000 T 0012A	Cylinder Liner Extractor For extracting liners
T000 T 0072A	Camshaft Oil Seal Sleeve For locating oil seal
T000 T 0083A	Oil Pick-Up Pipe Union Spanner For tightening union nut
T000 T 0084A	Rear Oil Seal Housing Pilot To locate housing on re-assembly
T000 T 0170A	Crankshaft Sprocket Remover For removal of sprocket
T000 T 0242A	Spigot Bearing Inserter For inserting spigot bearing/ aligning clutch assembly
	Magnet Assembly (4 off x 2 in long)
T000 T 0290A	Borroughs Gauge
T000 T 0443	'Torx' socket



To retain cam followers during dismantling

For checking timing belt tension

Turbo cam housing bolts

EA.33. - SEALANTS, ADHESIVES

<u>Part Number</u>	<u>Product</u>	<u>Application</u>
A036E6038VJ	Silastic RTV 732 (315.5 ml)	907 Cam Covers
A907E6257VF	Loctite 504 Gasket Eliminator	Cam Housings
A907E6178V	Cyless	Crank Journals
A907E6565V	Molypaul GP2000	Cam Followers & Shims
A907E6119ZA	Wellseal	Crank Rear Seal Housing Gasket
		Sump Joint, Cylinder Head Gasket
		Main Bearing Housing
A036S6175VH	Hylomar PL32 Medium (100g)	Cylinder Liners to Block
A036B6370V	Permabond A115 (50 ml)	Thread locking
A074B6009V	Permabond A138	Push fits
A912E6421V	Permabond A136 (200 ml)	912 Sump Joint
A907E6252V	Permabond A121 Pipesal (50ml)	Dipstick Tube

Note

Do NOT apply thread locking compound to the following studs:

- a. Cylinder Head to Block (12 mm)
- b. Main Bearing Housing (12 mm)
- c. Main Bearing Housing (8 mm)
- d. Cam Housing to Cylinder Head (8 mm)

ENGINE MANAGEMENT

SECTION EMA - U.S.A. ESPRIT TURBO (Prior to '86 M.Y.)

	<u>Operation</u>	<u>Page</u>
Engine Control Components	EMA.1	2/3
Engine Management System Check/ Set Up Procedure	EMA.2	3 to 8
Engine Diagnostic Procedure	EMA.3	9 to 23

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EMA. 1. - ENGINE CONTROL COMPONENTSIgnition Solenoid

Located beneath front of plenum chamber. Function is to advance ignition on operation of choke. A micro-switch operated by the dashboard end of the choke cable (which also operates the choke tell tale lamp) energises the ignition solenoid. The signal to the distributor vacuum advance capsule (normally connected to No. 1 cylinder throttle edge drilling) is then switched to the vacuum pump, and thus full ignition advance is achieved, together with an increase in engine idle speed.

Fuel Pressure Solenoid

Located beneath rear of plenum chamber. Function is to reduce fuel pressure on 'overrun' and idle. A micro-switch, mounted on the front of the front carburettor, and operated by the throttle lever in its fully closed position, energises the fuel pressure solenoid. The signal to the fuel pressure regulator (normally connected to boost pressure in the plenum chamber) is then switched to No. 1 cylinder inlet manifold depression, thus reducing fuel pressure to the carburettors and mixture strength under closed throttle 'overrun' conditions.

Throttle Jack Solenoid

Located on the front of the front carburettor. Function is to increase engine idle speed when engine is cold or air conditioning switched on, and also to open throttle on hot start cranking mode. A thermostatic switch fitted into the rear of the inlet manifold water rail, makes contact at water temperature below 70°C, and energises the throttle jack solenoid. To aid cold starting the solenoid is de-energised whilst in the cranking mode. At water temperature above 70°C, the solenoid is energised ONLY whilst cranking to aid hot starting. The solenoid is also energised when the ACU is switched on.

Air Pump & Divertor Valve

The air pump is mounted on the rear of the engine and driven by 'V' belt from the exhaust camshaft. The divertor valve is fitted on the outside of the engine bay left hand wall.

Their function is to provide additional air into either the exhaust ports, or the exhaust catalyst, and reduce engine emissions.

The air pump draws air from a filter located on the right hand rear wheel arch and supplies it to the divertor valve. The divertor valve is spring loaded so as to supply air to the exhaust ports via a non-return valve, and air injection manifold.

When engine coolant temperature reaches 70°C, a solenoid on the divertor valve is energised, and connects a diaphragm chamber on the valve with vacuum supplied by the engine driven pump. This vacuum is used to overcome spring pressure and divert air flow via a non return valve to the exhaust catalyst.

Evaporative Control System

Fuel vapour from the fuel tanks is piped into the catch tank, in which the vapour condenses into liquid fuel and residual vapour. The level of liquid fuel in the catch tank is controlled by the catch tank inlet tube. Any increase in level above this tube and the fuel is induced back into the main tanks. The vapour outlet pipe from the catch tank is routed via a rollover valve to connection 'T' on the vapour (charcoal) canister.

With the ignition switched off, the carburettors are vented via the plenum chamber and carb. vent valve to connection 'C' on the vapour canister. When the ignition is switched on, the carb vent valve solenoid is energised and the pipe is sealed.

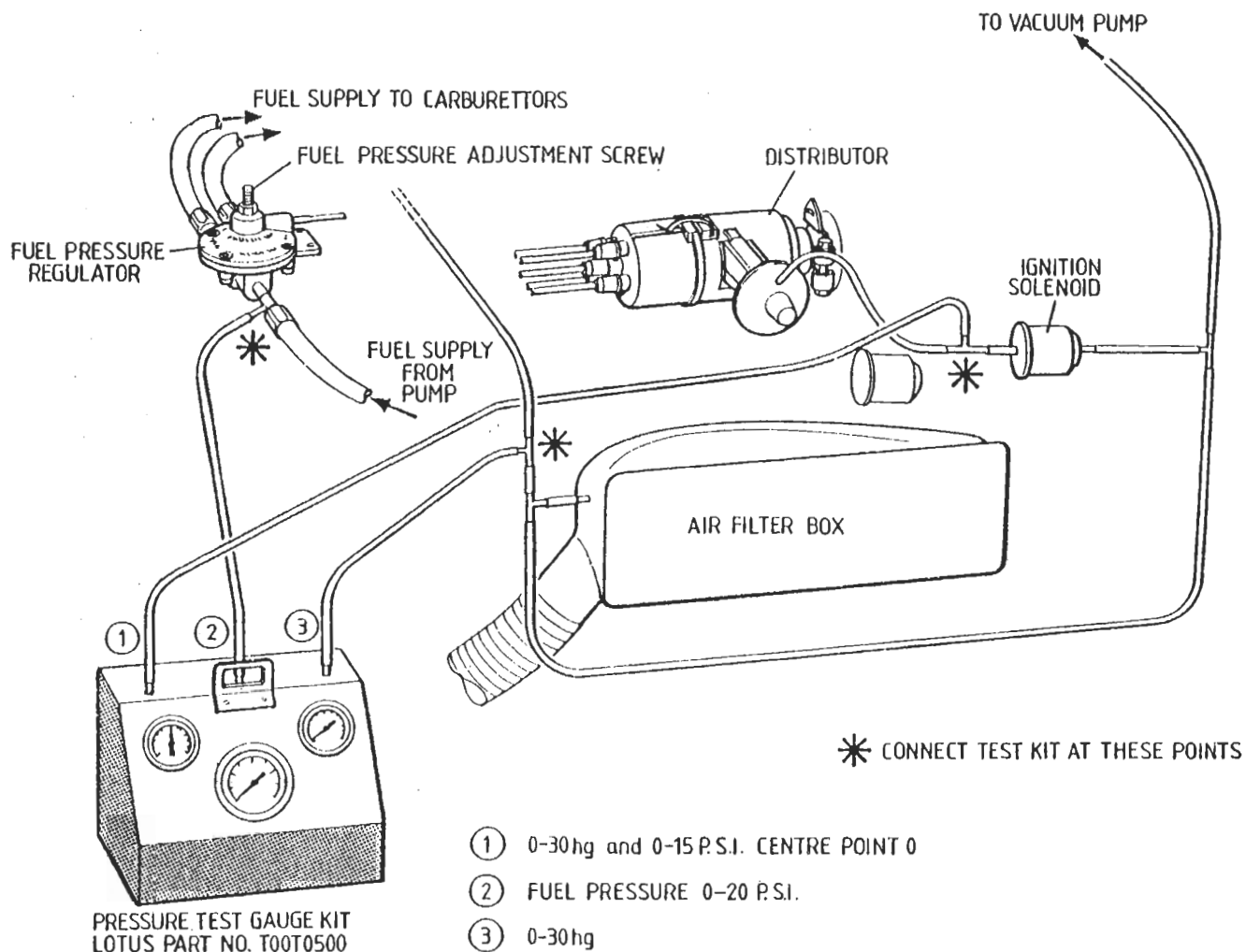
The purge connection on the vapour canister (port 'P') is piped to a venturi 'T' piece fitted between the air pump and filter. In this way, when the engine is running air is drawn in through the bottom of the canister, to replace gasoline vapours consumed by the air pump and fed into the exhaust system for oxidation.

EMA. 2. - ENGINE MANAGEMENT SYSTEM CHECK/SET UP PROCEDURESpecial Tools Required

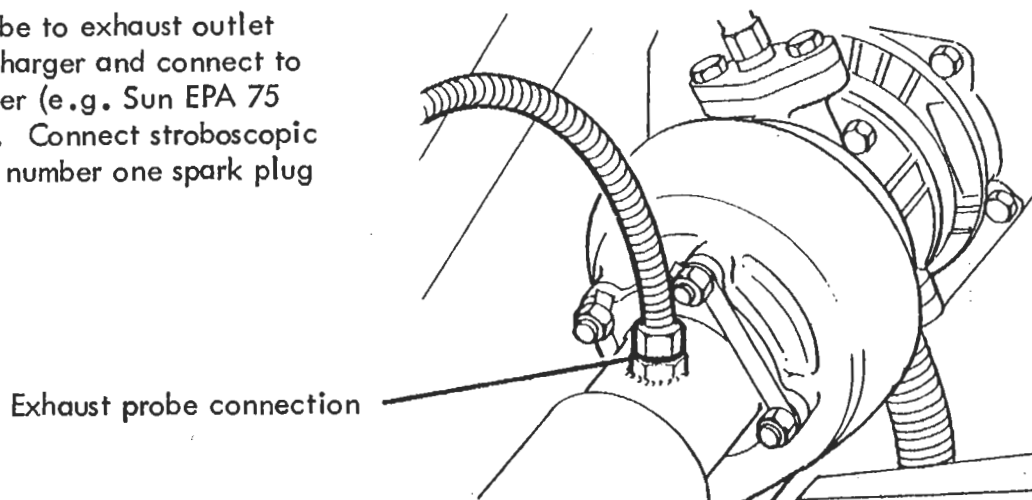
	Lotus Part No:
1. Carburettor Balance Tubes	T000T0496
2. Carburettor Idle Mixture Adjuster	T000T0497
3. Carburettor Float Setting Bar	T000T0498
4. Carburettor Manometer	T000T0499
5. Pressure Test Gauge Kit	T000T0500
6. Exhaust Sample Probe	T000T0501
7. Throttle Damper Setting Bar.	T000T0502
8. Special Socket for anti-tamper Distributor Clamp	T000T0503

1. Remove vacuum tapping screws, fit carburettor balancing tubes and connect to manometer.

Connect pressure test gauge kit as shown in diagram.

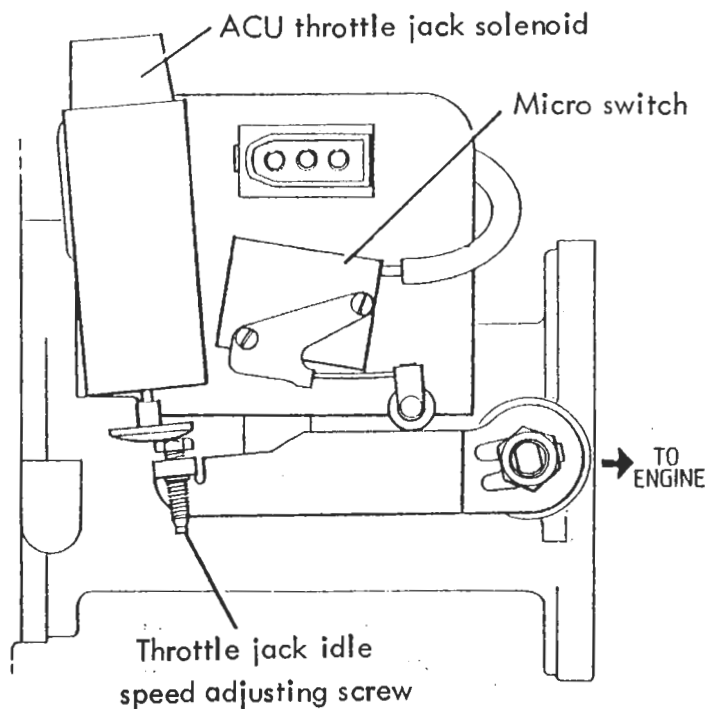


Fit exhaust probe to exhaust outlet pipe of turbo charger and connect to CO/HC analyser (e.g. Sun EPA 75 or equivalent). Connect stroboscopic timing lamp to number one spark plug lead.



COLD Engine

2. Switch on ignition and check that fuel pressure at fuel regulator gauge is to specification 4.0 - 4.5 p.s.i. - if outside specification contact the Service Department of Lotus Performance Cars, L.P.; 530 Walnut Street, Norwood, New Jersey 07648, quoting VIN and engine numbers.
3. Fully operate choke, open throttle fully and release. Start engine and check the following.
 - i). Vacuum at pump gauge. Minimum = 20" Hg.
 - ii). Vacuum at ignition solenoid gauge. Minimum 20" Hg.
 - iii). Position of diffuser flap valve. Should be fully open.
 - iv). Engine speed rises to approximately 2,500 rpm.
4. Return choke fully after 20 - 100 seconds (dependant on temperature) and adjust idle speed at the throttle lever on the front of the carburettors, bearing on the throttle jack solenoid, to 1000 rpm (basic setting).



VIEW FROM FRONT

Disconnect the hose to the air rail pulse valve and check that air is supplied from the hose and reconnect hose.

When a water temperature of 70°C is attained, check that the throttle jack solenoid is deactivated and switches out and check that the air supply to the injection rail hose ceases by temporarily disconnecting hose to the air rail pulse valve. (i.e. air supply is diverted to catalyst).

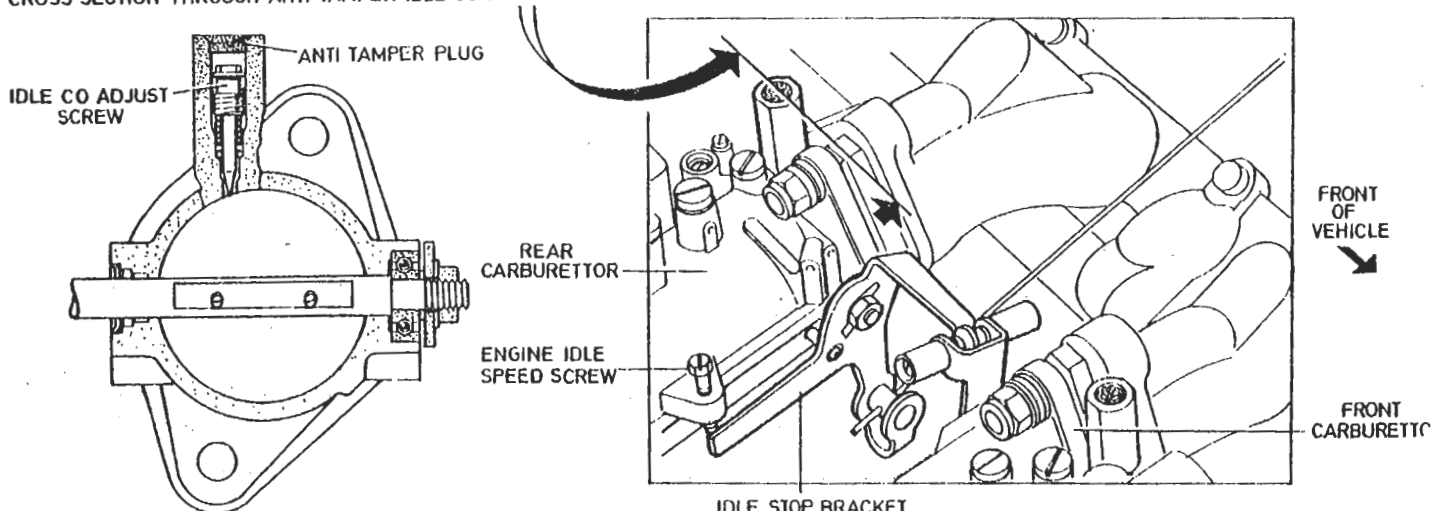
Allow engine to reach normal running temperature i.e. oil and coolant should be stabilised.

5.
 - i). Adjust idle speed to 950 ± 50 rpm.
 - ii). Adjust ignition timing to 1° BTDC $\pm 1^\circ$.
 - iii). Check carburettor balance at manometer. Check that all 4 columns are balanced within 3mm, if not re-balance the carburettors. (see Carburettor Balancing Procedure).
 - iv). Check fuel pressure at the regulator - this should be lower than 3.5 psi at idle. If the pressure is higher the micro switch position on the front carb bracket will require adjustment. Rotate the switch down towards the lever until switch contact is made. Manifold pressure will now be connected to the fuel regulator via the regulator solenoid.
6. Mixture setting - with the carbs balanced and rpm and fuel pressure set, the idle mixture can be sampled and adjustment made if required.
 - i). Switch analyser to sample mode and check readings.

NOTE: Do not touch idle adjustment screws until CO reading has stabilised. The carburettors have been flow tested and only minor adjustment will be required, if any.

- ii). CO reading should be within 0.2 to 1.2%. If higher or lower levels are found, remove anti-tamper plugs and move each mixture screw a $\frac{1}{4}$ of a turn in or out as the reading dictates, check the CO reading and repeat until the tune specification is reached. A balance between CO and HC is required and the hexane level should be below 550 ppm for a 'new engine' and below 350 ppm for a run-in engine. When adjustment is complete fit anti-tamper plugs.

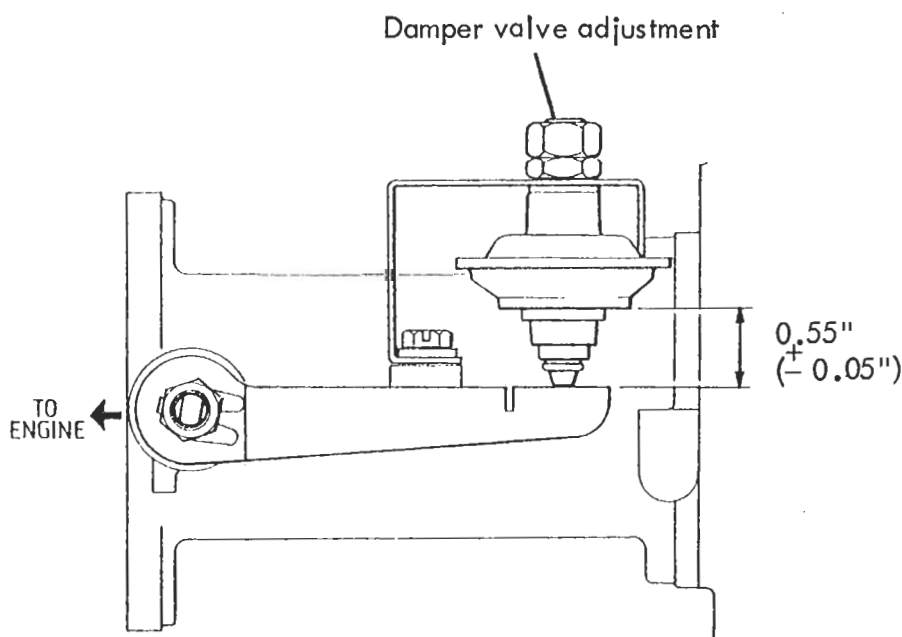
CROSS SECTION THROUGH ANTI TAMPER IDLE CO ADJUSTER



7. Fuel regulator micro switch - with the switch set at idle and fuel pressure recorded as in operation 5, open throttle to 2500 rpm and then return throttle to idle position. Check that when the engine speed is above 1800 rpm, the micro switch is deactivated allowing fuel pressure to increase to 4.0 - 5.0 psi. Repeat this test and check that pressure differences are maintained.

NOTE

- (1). Failure to change pressure is a serious malfunction. Check pipework and electrical circuit for defects. Rework the defective items before further testing.
- (2). The throttle will be delayed in returning to the idle position due to the action of the damper valve (see number 8).
8. Damper valve - with adjustments 1-7 carried out the throttle damper can now be adjusted. With the engine at idle rpm rotate the damper until a distance between damper body and lever is 0.55 \pm .05 in. Lock up the retaining nut, open throttle to 2500 rpm and release. Idle rpm should be attained within 0.8 to 2.0 seconds.



VIEW FROM REAR

9. ACU throttle jack solenoid - with adjustments 1 - 8 carried out, switch on air conditioning and then disconnect red wire from compressor where it joins the pink/blue at the right hand front of the engine bay. Note engine rpm.

Initial adjustment was completed in paragraph 4. The engine speed should rise to 1100 rpm (\pm 25 rpm). If further adjustment is required, adjust on the front carburettor lever. After completion, reconnect compressor lead.

10. Flap valve actuator - with all adjustments completed switch off engine and check that the diffuser flap valve closes fully within 15 secs.
11. Hot restart - crank over engine and check that the throttle jack solenoid is operating in the cranking mode.
12. To check maximum vacuum from vacuum pump, clamp off the vacuum hose at air box to 'T'-connection and note increase in pump vacuum. This should rise by approximately 3" Hg.
13. On completion disconnect pressure test gauge kit from components and re-connect fuel and vacuum pipes securely. When connecting vacuum pipes spray connections with a "silicone" aerosol and push on connections firmly. Disconnect manometer, remove balancing tubes and replace vacuum tapping screws securely. Fit new anti-tamper plugs to both throttle coupling screws, 4 balancing screws and 4 mixture screws.

EMA.3. - ENGINE DIAGNOSTIC PROCEDURE

Before carrying out detailed diagnostic check, ensure engine management system is within specification.

<u>COLD START PROBLEMS</u>	Sub-Group
Possible causes:	
Weak battery (recharge or replace)	J
Fuel pump electrical circuit	I
Leak in intake manifold	A
Distributor cap High tension leads Rotor Spark plugs	B
Cold start maladjustment	C
Cam timing incorrect	D
Control pressure, too low Fuel pump capacity unsatisfactory Fuel lines (filter) clogged	E
CO misadjustment	G
Thermal switch incorrect	H

<u>HOT START PROBLEMS</u>	Sub-Group
Possible causes:	
Fuel pump electrical circuit	I
Leak in intake manifold	A
Spark plugs	B
Cold start maladjustment	C
Cam timing incorrect	D
Control pressure incorrect Fuel system, external leakage Fuel system internal leakage	E
CO maladjustment	G
Thermal switch incorrect	H

Before carrying out detailed diagnostic check, ensure engine management system is within specification.

<u>UNEVEN RUNNING</u> Possible causes:	Sub-Group
Leak in intake system	A
Distributor cap High tension leads Cylinder compression Spark plugs	B
Cold start maladjustment	C
Cam timing incorrect	D
Incorrect control pressure Fuel lines (filters) clogged Fuel pump capacity unsatisfactory	E
Throttle or throttle linkage misadjustment Incorrect balance	F
CO maladjustment	G

<u>ENGINE STALLS</u> Possible causes:	Sub-Group
Fuel pump electrical circuit	I
Leak in intake system	A
Distributor cap High tension leads	B
Fuel lines (filters) clogged Fuel pump capacity unsatisfactory	E
CO maladjustment	G

<u>POOR PERFORMANCE, LOW TOP SPEED</u> Possible causes:	Sub-Group
Leak in intake system Air filter clogged	A
Distributor cap High tension leads Cylinder compression Spark plugs Ignition timing incorrect	B
Cold start maladjustment	C
Cam timing incorrect	D
Control pressure maladjustment Fuel lines (filters) clogged Fuel pump capacity unsatisfactory Incorrect vacuum control of the control pressure	E
Throttle or linkage maladjustment	F
CO maladjustment	G

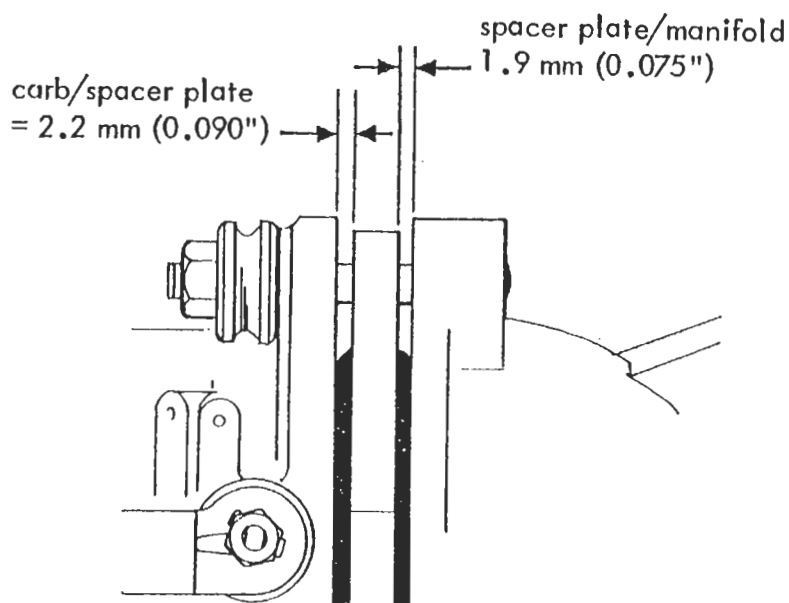
<u>EXCESSIVE FUEL CONSUMPTION</u> Possible causes:	Sub-Group
Cylinder compression	B
Cold start maladjustment	C
Control pressure incorrect	E
Ignition timing incorrect	B
CO maladjustment	G

SUB GROUP 'A' - Intake Manifold Leaks & Air Filter Inspection

1. Check for air leaks at the carburettor to manifold joint.

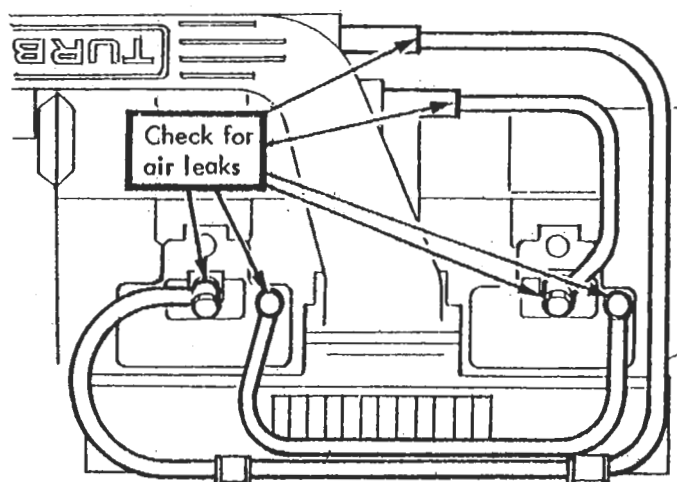
The spacer plates and 'O' rings used at this joint act as insulators to absorb vibration and prevent frothing of fuel in the float chambers. It is essential that the carburettor mountings are not overtightened, as the 'O' rings may be displaced with a resultant air leak.

A uniform gap between spacer plate and carburettor, and between spacer plate and inlet manifold must be maintained as shown below.



2. Check for air leaks at carburettor balance pipe connections, and at cold start air intake pipe connections to carbs and diffuser.

Check torque of banjo bolts : 2.2 kgf.m (16 lbf.ft)

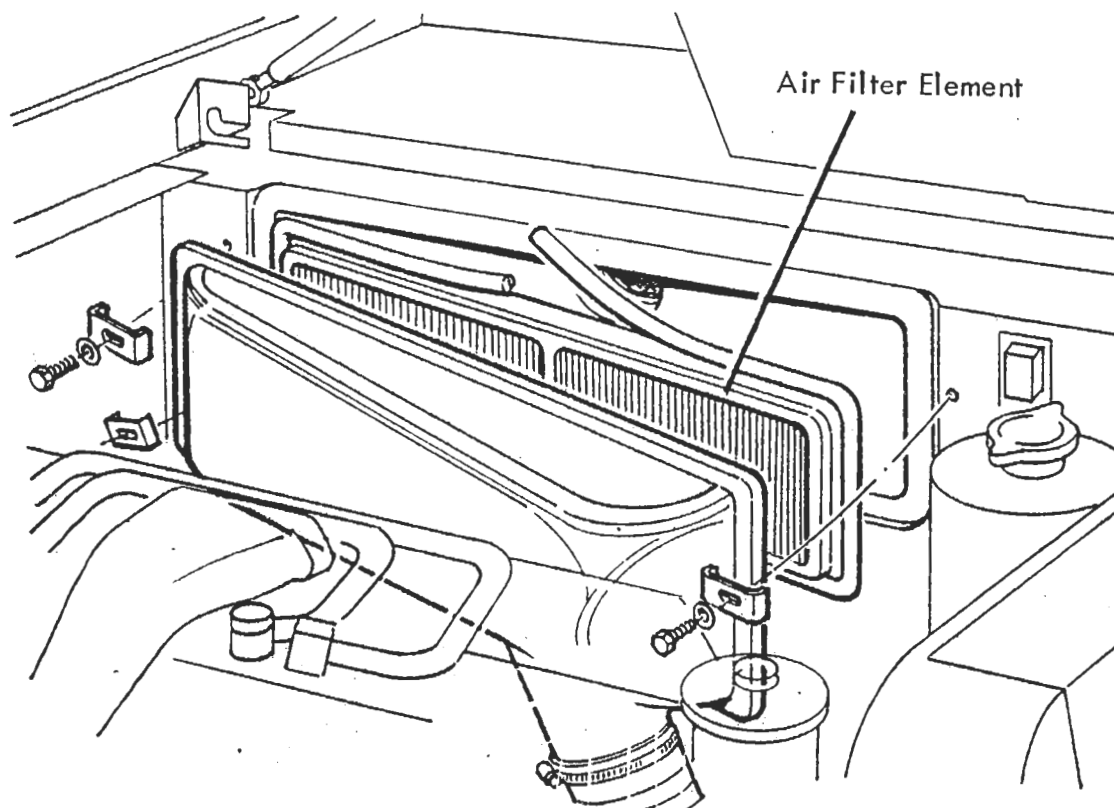


3. Check for air leaks at the inlet manifold to cylinder head joint.
4. Check for air leak from inlet manifold pressure take off adaptor (no. 1 cylinder) and for leak or disconnection of pipe from adaptor to fuel pressure regulator solenoid.
5. Inspect the air filter element.

Release the filter cover from the engine bay wall, leave the hoses attached and pull open. Remove the cleaner element and inspect condition.

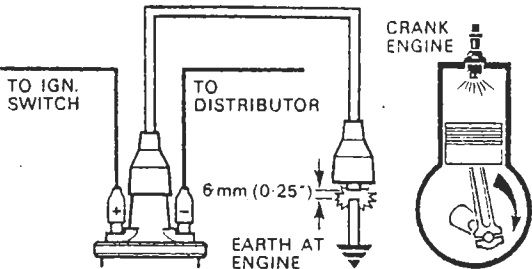
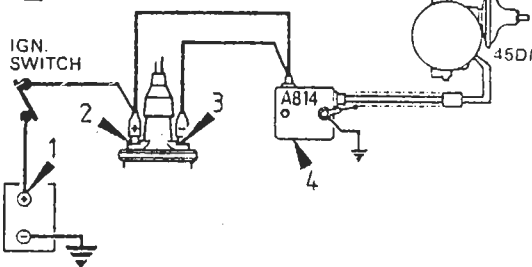
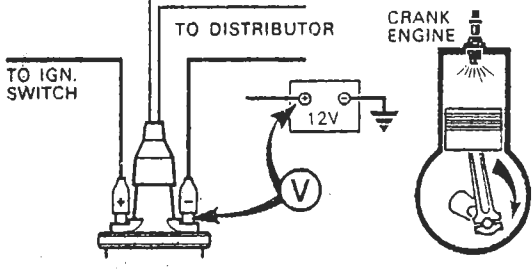
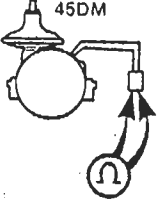
If necessary, remove the rubber seal, and discard the element. Ensure the seal is in good condition (replace if necessary) and fit in position on the new element.

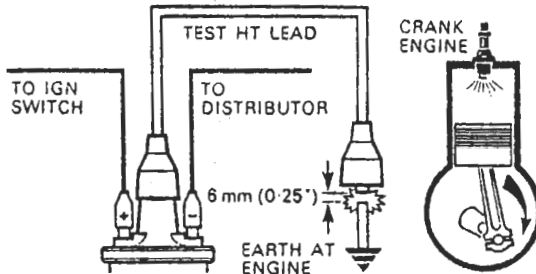
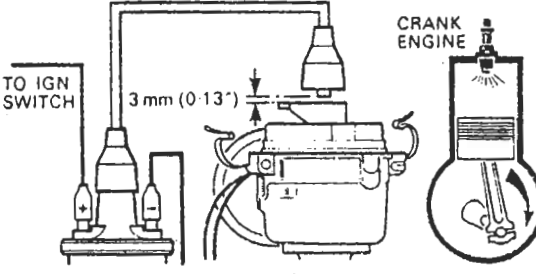
Note: The seal joint must be at the centre top. Clean the inside of the air cleaner body and cover, keeping dust out of the intake trunking. Fit new element with its metal face towards the carburettors and replace cover.



SUB GROUP B - Ignition System & Cylinder Compressions

- A). Check for a spark at each plug lead. If all are sparking, remove plugs and check condition. If serviceable, clean and gap to 0.9 mm (0.035"). Before replacing plugs, check cylinder compressions as (B). If no spark at leads, procede as TEST 1.

TEST				RESULT
1 CHECK HT SPARKING 				Should be: Regular sparking → TEST 6 No sparking → TEST 2
2 AMPLIFIER STATIC CHECKS 				Measure voltages at 1-4 incl. should be: 1 - More than 11.5V 2 - 1V max. below V at 1 3 - 1V max. below V at 1 4 - 0V-0.1V All correct → TEST 3 Incorrect reading(s) → SEE CHART
1	2	3	4	SUSPECT
LOW	✓	✓	✓	Battery discharged
✓	LOW	LOW	✓	Ignition switch and/or wiring
✓	✓	LOW	✓	Coil or amplifier
✓	✓	✓	HIGH	Amplifier earth (ground)
3 CHECK AMPLIFIER SWITCHING 				Voltage increases while cranking → TEST 5 Voltage does not increase while cranking → TEST 4
4 PICK-UP COIL RESISTANCE 				Ohmmeter should show 2-5 kΩ Correct Change amplifier If engine will not start → TEST 5 Incorrect Change pick-up If engine will not start → TEST 5

<p>5 CHECK HT SPARKING</p> 	<p>Should be good HT sparking Repeat with original HT lead Good sparking If engine will not start — TEST 6</p> <p>No sparking, replace HT lead If engine will not start — TEST 6</p> <p>No sparking Replace coil If engine will not start — TEST 6</p>
<p>6 CHECK ROTOR ARM</p> 	<p>Should be: No sparking — TEST 7</p> <p>HT sparking Replace rotor arm/rotor vane If engine will not start — TEST 7</p>
<p>7 VISUAL AND HT CABLE CHECKS</p> <p>EXAMINE</p> <ol style="list-style-type: none"> 1 Distributor Cover 2 Coil Top 3 H.T. Cable Insulation 4 H.T. Cable Continuity 5 Spark Plugs 	<p>Should be:</p> <ol style="list-style-type: none"> 1 Clean, dry, no tracking marks 2 Clean, dry, no tracking marks 3 Must not be cracked, chafed or perished 4 Must not be open circuit 5 Clean, dry, and set to correct gap

- B). Check cylinder compressions: Remove spark plugs. Connect a remote control switch to battery and starter motor solenoid.

Use a compression tester to measure cylinder compressions with throttle fully open.

Check that cylinder compressions are fairly even.

Cold engine (dry bores)	-	120 p.s.i. minimum	(at sea level)
Hot engine	-	130 p.s.i. minimum	(at sea level)

- C). Check ignition timing:

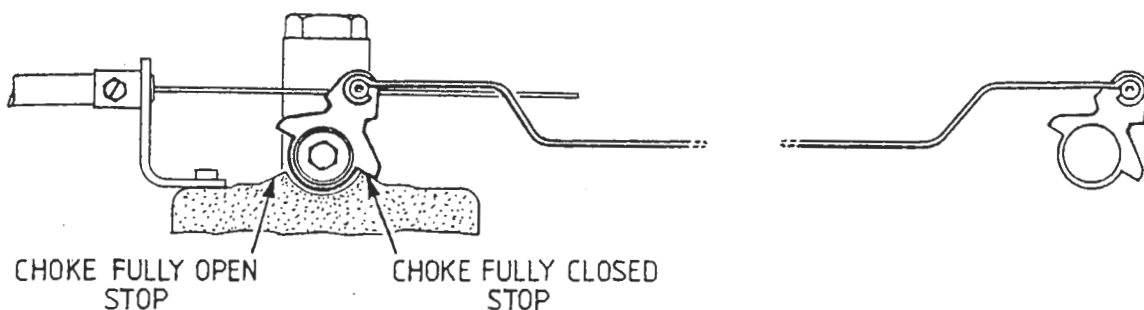
Nominal static and idle: 1° BTDC ($\pm 1^{\circ}$)

@ 4,000 rpm with vacuum pipes disconnected from capsule: 17° BTDC ($\pm 2^{\circ}$)

SUB GROUP C - Cold Start System Maladjustment

1. Check that operation of the choke control results in full travel of the carburettor cold start levers.

With the choke control in the 'off' position both carb levers should contact their closed 'stops' on the carburettor tops. With the choke control operated fully, check that both levers are against their fully open stops. Adjust the choke cable at the carburettor, and linkage if necessary.



SUB GROUP D - Check Cam Timing

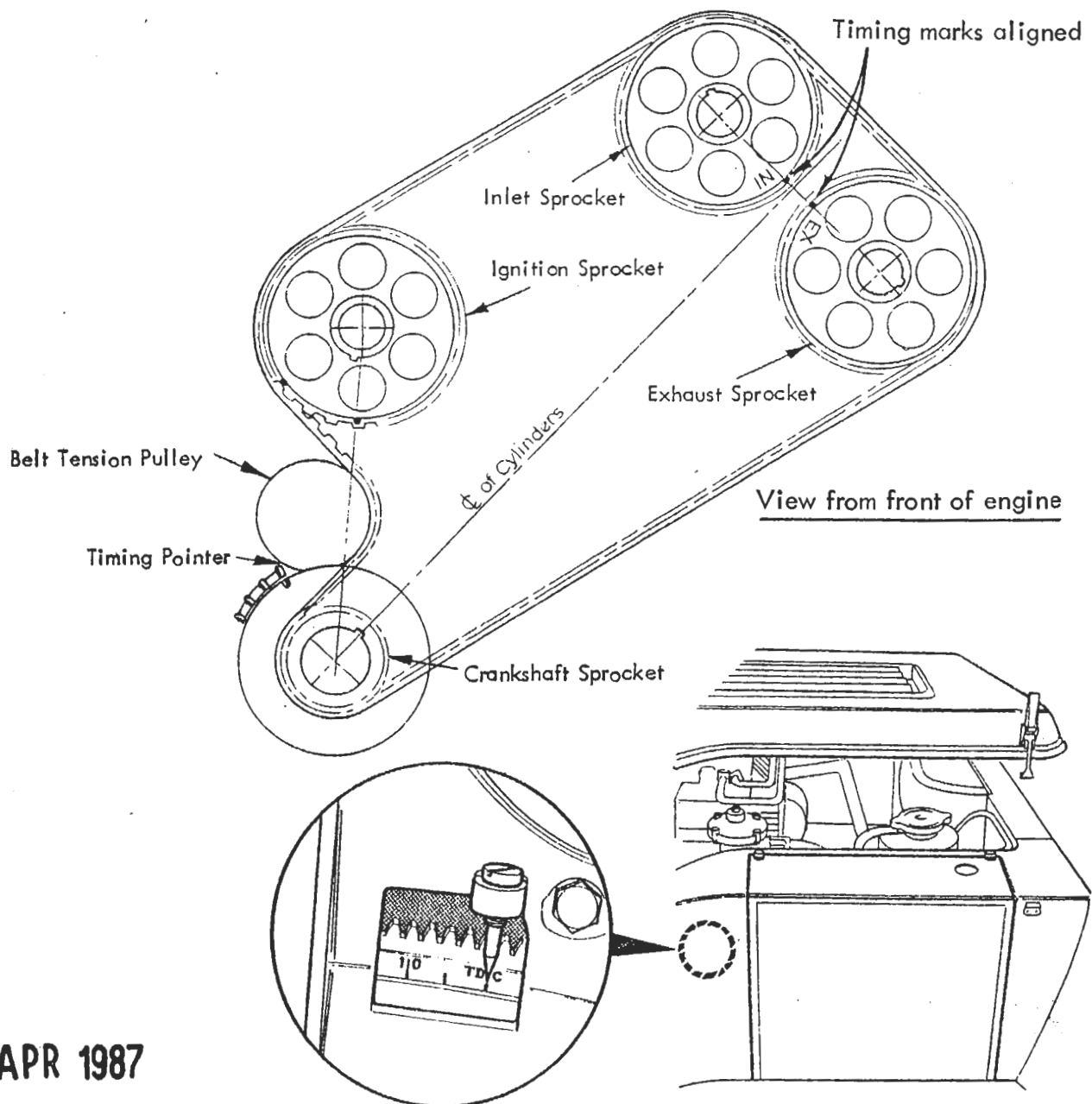
1. Turn the engine to No. 1 cylinder TDC with the camshaft toothed pulley timing marks facing EACH OTHER innermost.

Note: The engine may be set at TDC by reference to the timing marks on the flywheel, and pointer located at the top of the clutch housing, as shown.

2. Check that the pulley dots (red on inlet, green on exhaust) are aligned with a line through the camshaft pulley centres. These dots may be viewed from either the front side (using a mirror) or the rear side.

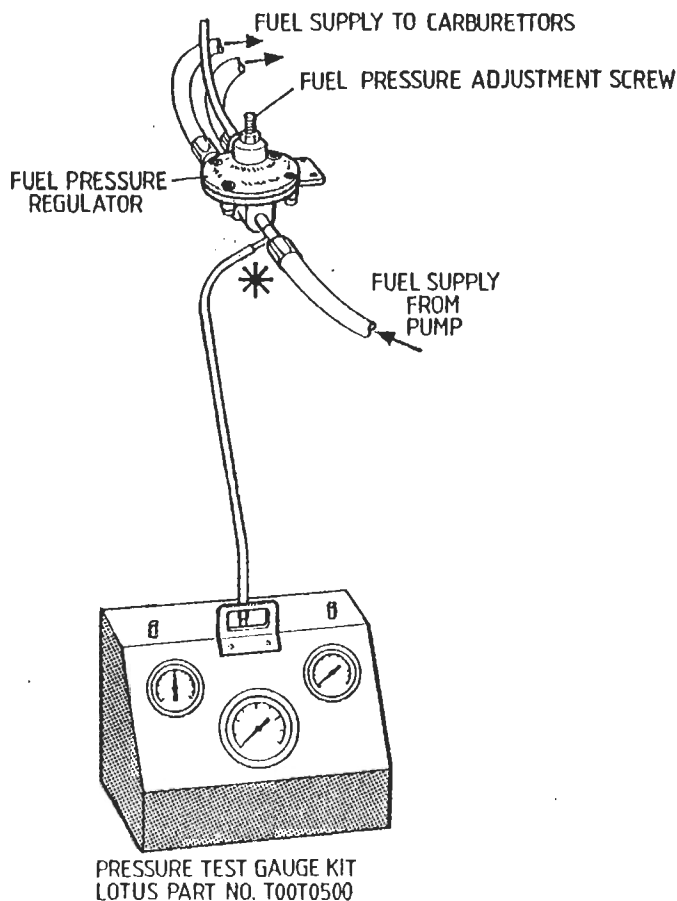
If the engine is running, the rear side of the pulleys may be viewed with a stroboscope set at TDC or No. 1 cylinder.

Note: It is most important that each camshaft toothed pulley is fitted the correct way round, i.e. 'IN' facing forward on inlet camshaft and 'EX' facing forward on exhaust camshaft. Marks on the reverse side of the pulley will be reversed.



SUB GROUP E - Fuel Control Pressure

1. Connect fuel pressure test gauge as shown below.



Switch on ignition and check fuel pressure = 4.0 - 4.5 p.s.i. If outside specification, remove anti-tamper plug from fuel pressure regulator adjustment screw, and adjust as necessary.

If the pressure reading is too high, and cannot readily be adjusted to specification, a restriction in the return line is indicated. Rectify as necessary.

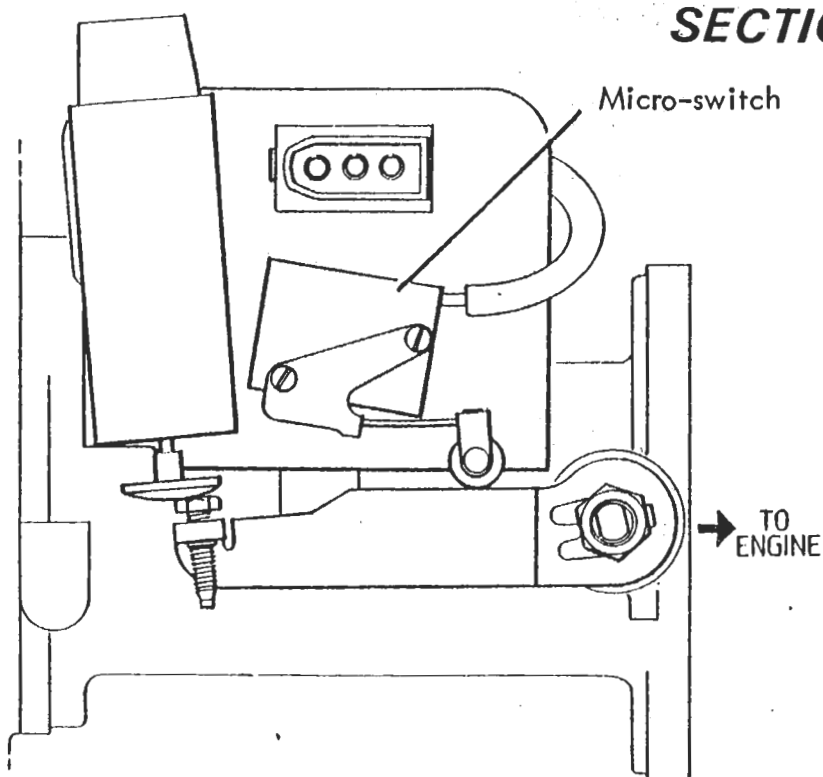
If the pressure reading is too low, and cannot readily be adjusted to specification, a restriction in the supply line, or faulty fuel pump is indicated.

Check for an unrestricted supply to the fuel pump, and for fuel filter restriction.
Test fuel pump

2. Start engine and allow to reach normal running temperature.

Check fuel pressure at the regulator. This should be lower than 3.5 p.s.i. at idle (950 \pm 50 rpm). If above specification, check that the micro-switch on the front of the front carburettor is activated. If not, rotate the switch down towards the lever until switch contact is made.

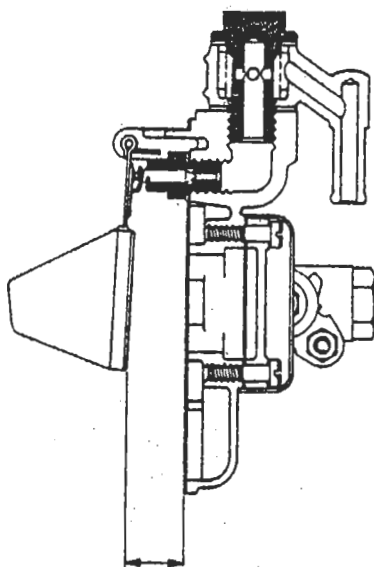
View from front



If switch adjustment is carried out, open throttle to 2500 rpm and then return throttle to idle position. Check that when engine speed is above 1800 rpm, the micro-switch is deactivated allowing fuel pressure to increase to 4.0 - 5.0 p.s.i. Repeat this test and check that pressure differences are maintained. Adjust switch position if necessary but always ensure that idle pressure requirements are met.

If switch contact is made at idle, but fuel pressure remains above 3.5 p.s.i., check fuel pressure regulator solenoid pipework and wiring for leakage or disconnection. If no fault is found, replace fuel pressure regulator solenoid valve.

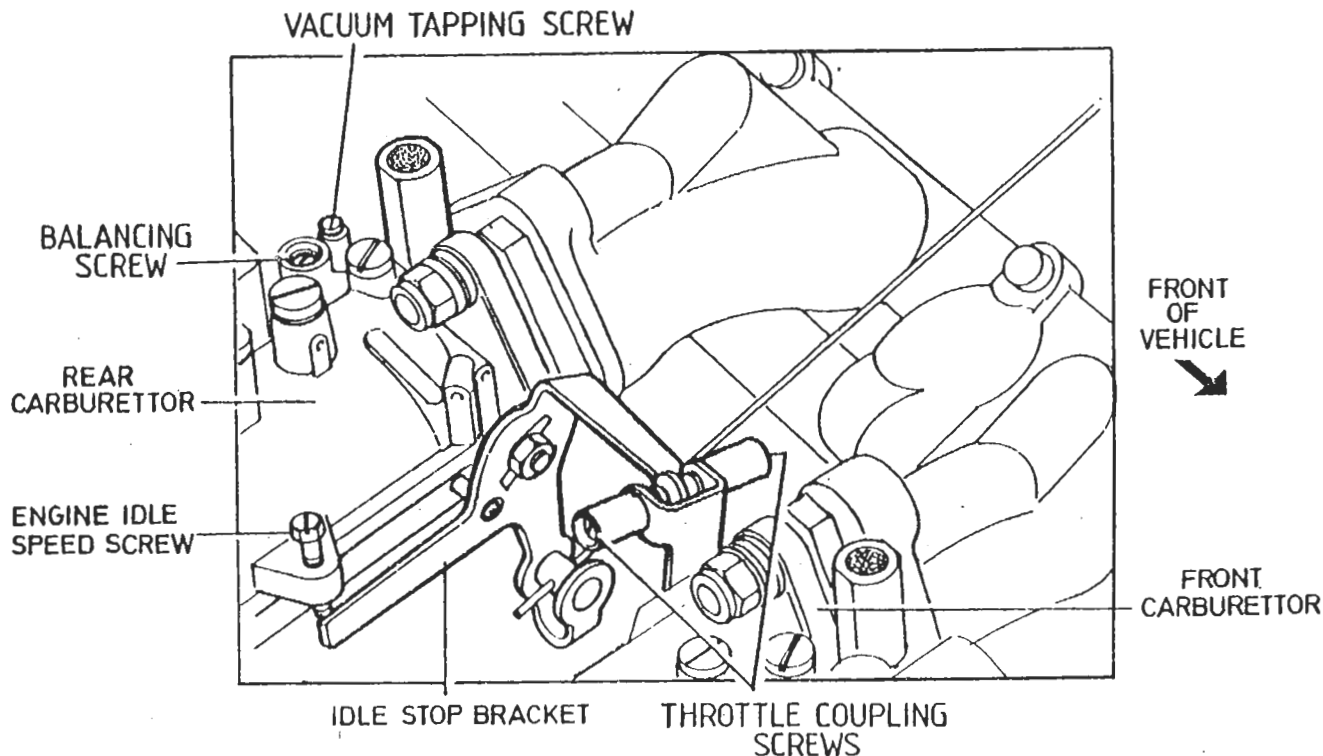
3. If pressures are found to be correct, remove carburettor tops and check fuel inlet filters, cleaning if necessary. Remove float needle valves and inspect seating. Replace if necessary. Check float height setting = 14.5 - 15.0 mm.



Float height with
gasket in position

SUB GROUP F - Carburettor Balance

1. Remove vacuum tapping screws, fit carburettor balancing tubes and connect to manometer.
2. Adjust throttle stop screw to give specified idle speed of 950 ± 50 r.p.m. with engine at normal operating temperature. Check that all 4 columns are balanced within 3mm. If not continue balancing procedure.



3. Remove anti-tamper plugs to gain access to the throttle coupling and balancing screws.

Ensure that all balancing screws are closed. (do not graunch).

4. Whilst maintaining idle speed, adjust throttle coupling screws to balance lower of columns 1, 2 with lower of column 3,4.

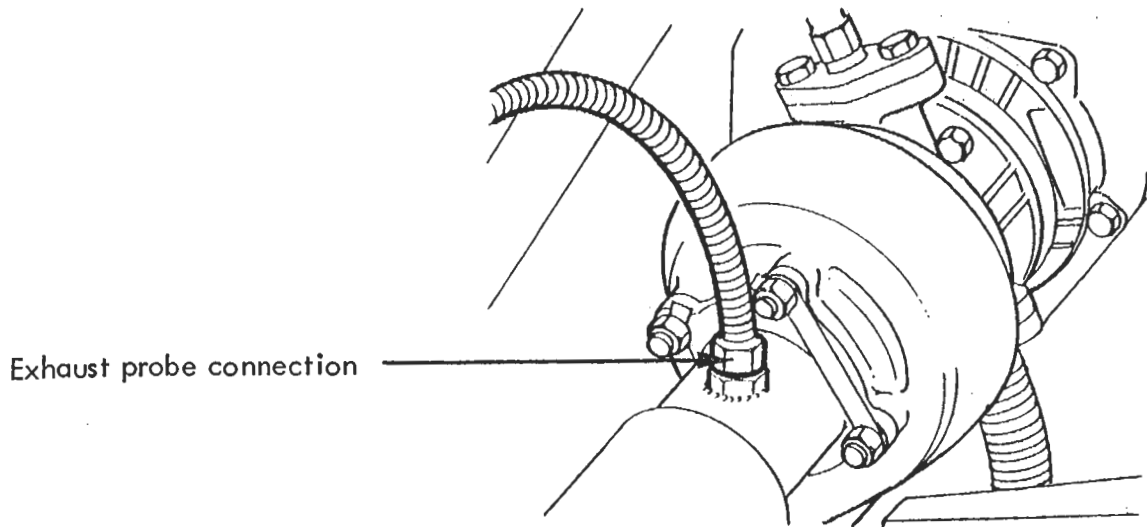
NOTE: Ensure that both clamping screws on the balance lever are in secure contact with the balance arm.

5. Considering the carburettor barrels in pairs (1, 2 and 3,4) note which of the two mercury columns for each pair is higher and gradually move only the corresponding balancing screw until the two mercury columns of each pair are balanced within 3mm. Maintain correct idle speed and ensure that all 4 mercury columns are within 3mm.
6. On completion disconnect manometer and remove balancing tubes and replace vacuum tapping screws securely. Fit new anti-tamper plugs to both throttle coupling screws, 4 balancing screws and 4 mixture screws.

Ensure that fuel pipe connections are secure.

SUB GROUP G - CO Adjustment

1. Fit exhaust probe to exhaust outlet pipe of turbocharger and connect to CO/HC analyser (e.g. Sun EPA 75 or equivalent).



Start engine and allow to reach normal running temperature i.e. oil and coolant temperatures stabilised.

2. Switch analyser to sample mode and check readings.

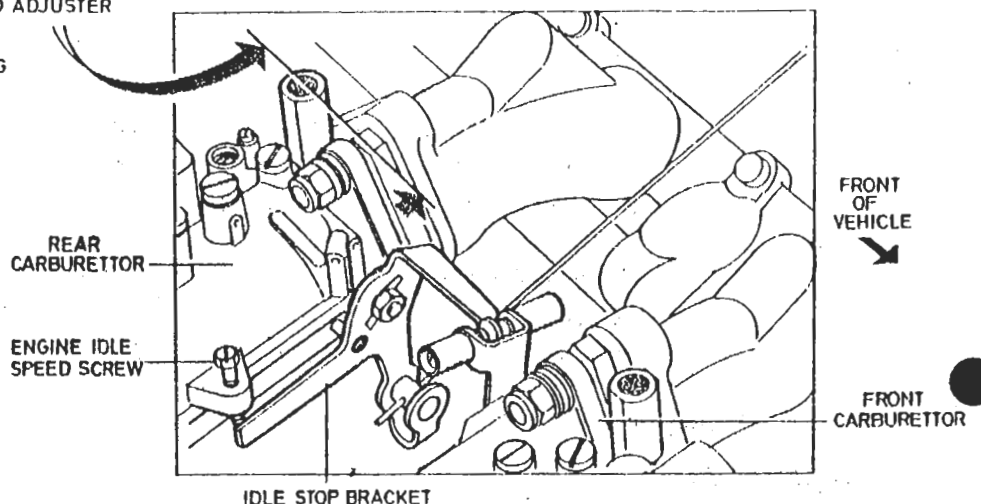
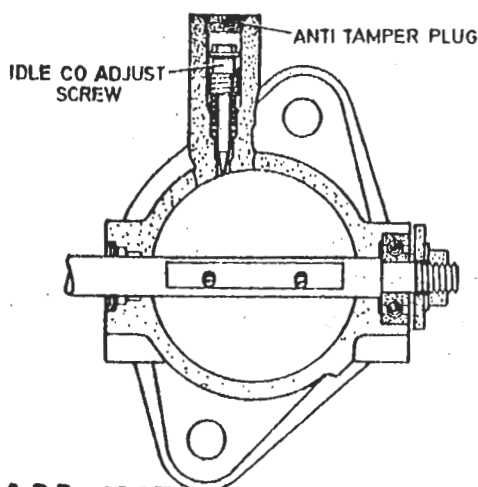
Note: Do not touch idle adjustment screws until CO reading has stabilised.

CO reading should be between 0.2 - 1.2%. If higher or lower levels are found ensure carburettors are balanced (see Sub Group F) before continuing.

Remove anti-tamper plugs and move each mixture screw $\frac{1}{4}$ of a turn in or out as the reading dictates. Check the CO reading and repeat procedure until correct specification is achieved. A balance between CO and HC is required, and the Hexane level should be below 550 ppm for a 'new' engine and below 350 ppm for a 'run-in' engine.

3. When adjustment is complete, fit anti-tamper plugs.

CROSS SECTION THROUGH ANTI TAMPER IDLE CO ADJUSTER



SUB GROUP H - Thermal Switch

1. In order to test correct operation of the thermal switch, sufficient coolant must first be drained from the cooling system to permit the removal of the switch from the rear of the inlet manifold.
2. Place the switch bulb in a pan of water, with a battery and bulb connected across the switch terminals and a thermometer measuring water temperature. Heat the water and check make and break temperatures meet specification.

Maximum break on rise	=	70°C
Minimum make on fall	=	60°C

SUB GROUP J - Battery Re-charging Procedure

Instructions for Tungstone Powermaster Maintenance Free Batteries.

To determine the state of charge of the battery, apply a brief discharge of no more than ten seconds duration (e.g. turn on headlights) with the engine off, and then allow to stand on open circuit for two to three minutes.

Measure the terminal voltage of the battery.

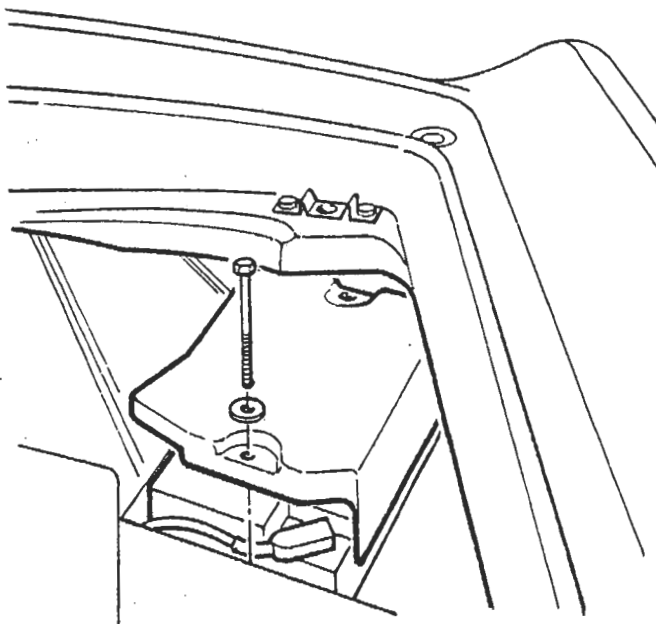
If steady voltage is below 12.4 Volts, recharge battery as follows.

Note: The battery must not be boost charged.

If necessary, fit a replacement battery to the vehicle, whilst original battery is charged as follows.

Remove battery from vehicle.

- a). Constant Current: The battery must be charged at a maximum of 5 amps until the battery terminal voltage (on charge) has stabilised over a one hour period, at which time the voltage will be in the range 16.0 - 16.5 V. At this stage the battery must be taken off charge IMMEDIATELY, to prevent excess gassing with resulting water loss which will ultimately reduce the guaranteed service life.
- b). Constant Voltage: The battery may be charged at a voltage up to a maximum of 15.8V providing the current is carefully monitored and the charge terminated when the current has tapered off and changes by less than 0.1 amp over a period of one hour. If it is not possible to monitor the current during charging, then the voltage must be restricted to 14.4 V maximum.

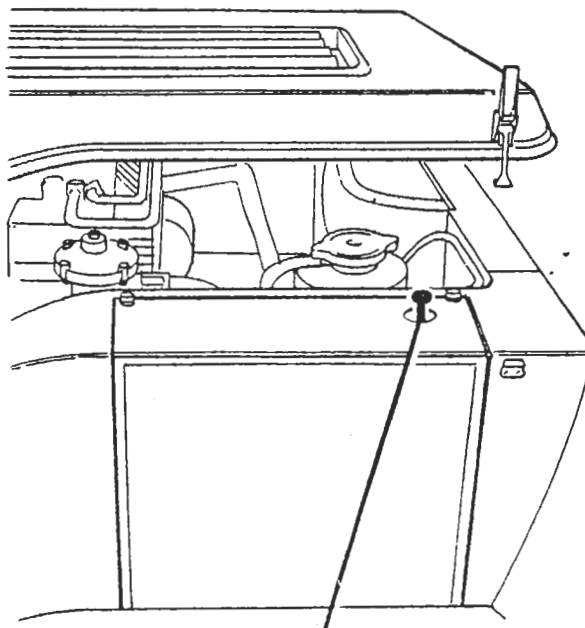


Battery access

SUB SECTION I - Fuel Pump Electrical Circuit

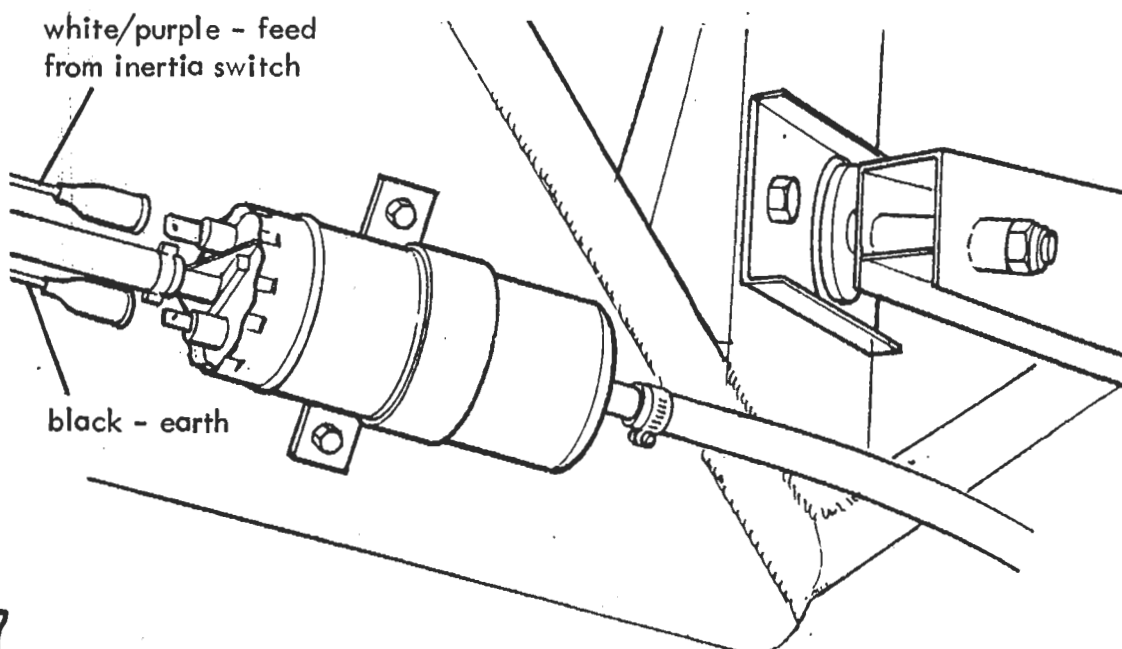
1. Check safety inertia switch has not been activated.

The switch is located in the ignition box at the rear of the engine bay. To re-set the switch, press down the plunger appearing through the hole in the top of the ignition box.



Inertia switch

Check for electrical feed at fuel pump terminals with ignition switched on.

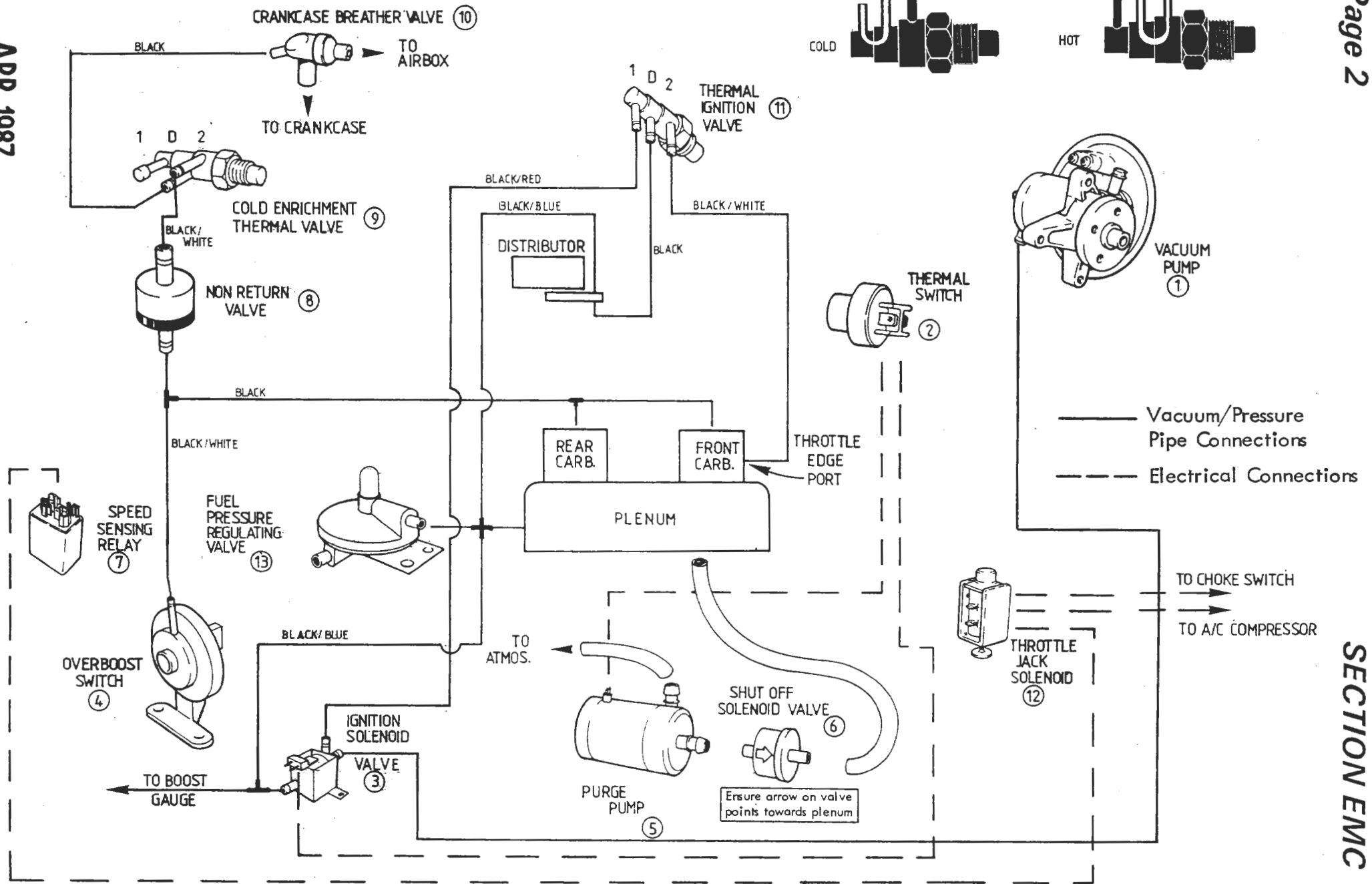


ENGINE MANAGEMENTSECTION EMC - ESPRIT TURBO 1987 MODEL YEAR (Domestic & Export)

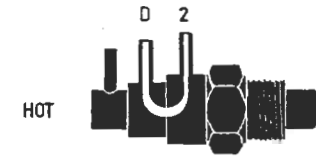
	<u>Operation</u>	<u>Page</u>
Vacuum Connection Diagram	EMC.1	2/3
Thermal Ignition Advance	EMC.2	4 to 6
Crankcase Breather Valve	EMC.3	6
Cold Enrichment Thermal Valve	EMC.4	7
Plenum Purge	EMC.5	7
Throttle Jack Solenoid	EMC.6	7/8
Overboost Switch	EMC.7	8
Idle Speed & Ignition Timing Setting Procedure	EMC.8	8 to 10

EMC.1. - ENGINE MANAGEMENT VACUUM CONNECTION DIAGRAM

APR 1987



THERMAL SWITCH OPERATION



1. Vacuum Pump: Mounted L.H. side of crankcase. Driven by 'V' belt from crankshaft. Supplies vacuum for engine management, brake servo and heater/a.c.
2. Thermal Switch: Fitted in thermostat outlet water pipe. M.O.R. 70°C. B.O.F. 60°C. Switches I.S.V. and purge pump. See EMC.2.
3. Ignition Solenoid Valve I.S.V.: Fitted on top of R.H. fuel tank board. Controlled by thermal switch (item 2). Removes vacuum signal to distributor during cold cranking, (aids start up) and at water temps. above 70°C, (safeguard in case of T.I.V. failure) See EMC.2.
4. Overboost Switch: Fitted on top of R.H. fuel tank board. Cuts out ignition if overboost is detected (wastegate failure). See EMC.7.
5. Purge Pump: Fitted to tailgate aperture R.H. stiffener bracket. Controlled by thermal switch (item 2) Operates at water temps. above 70°C. with ignition off, to aid hot re-start. See EMC.5.
6. Shut Off Solenoid Valve: Fitted adjacent to purge pump. Shuts off purge pump line with ignition on to prevent loss of boost pressure through purge pump. See EMC.5.
7. Engine Speed Sensing Relay: Fitted inside R.H. wheelarch in rear luggage compartment Energises throttle jack above 1400 rpm on fall (1600 rpm on rise) to reduce emissions on overrun. See EMC.6.
8. Non Return Valve: Fitted in line, between thermal valve and carbs. Prevents boost pressure blowing off through thermal valve. See EMC.3.
9. Cold Enrichment Thermal Valve: Fitted into rear of inlet manifold water rail. At water temps below 53°C, valve shuts off crankcase breather bleed, to enrich fuelling. See EMC.4.
10. Crankcase Breather Valve: Fitted at top rear of crankcase. Vents crankcase emissions to airbox with bleed to carbs. See EMC.3.
11. Thermal Ignition Valve: Fitted to centre of inlet manifold water rail. Below 60°C directs vacuum pump signal to distributor for full advance to aid cold idle and driveability. See EMC.2.
12. Throttle Jack Solenoid: Fitted to front of front carburettor. Controlled by speed sensing relay (item 7), choke switch and a.c. switch. Energised above 1400 rpm to reduce emissions on overrun and when choke/a.c. operated to raise/maintain idle speed. See EMC.6.
13. Fuel Pressure Regulation Valve: Mounted to rear of carb. plenum. Adds boost pressure to fuel delivery pressure from pump to maintain fuel delivery to carbs. at 0.27 ± 0.02 bar (4.0 ± 0.25 lb/in²) above boost pressure. See LB.1.

EMC.2. - THERMAL IGNITION ADVANCE

The thermal ignition advance system is designed to provide maximum ignition advance at low engine temperature to aid cold driveability and increase idle speed.

The distributor is fitted with a double sided vacuum advance capsule, one side of which is permanently connected to the plenum chamber (boost pressure). The opposite side of the capsule is connected, via the Thermal Ignition Valve (T.I.V.) and Ignition Solenoid Valve (I.S.V.) to either the vacuum pump or throttle edge drilling.

The T.I.V. is fitted into the centre of the inlet manifold water rail, and at coolant temperatures below 60°C, connects ports 'D' and '1'. Above 60°C, ports 'D' and '2' are connected.

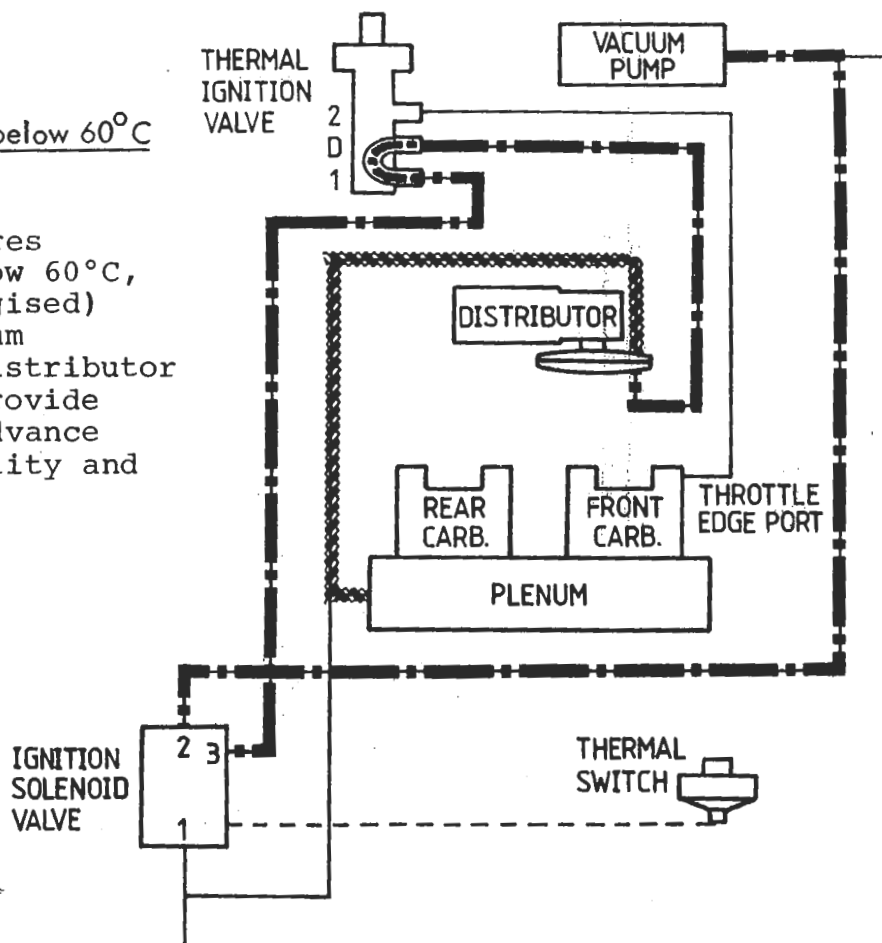
The I.S.V. is mounted on top of the right hand fuel tank board and is controlled by a thermal switch fitted into the thermostat housing outlet pipe at the front of the engine bay. At coolant temperatures below 70°C (on rise) the I.S.V. is energised and connects ports '2' and '3'. Above 70°C the solenoid is de-energised and connects ports '1' and '3'.

The I.S.V. is de-energised during engine cranking regardless of coolant temperature.

Vacuum Circuits

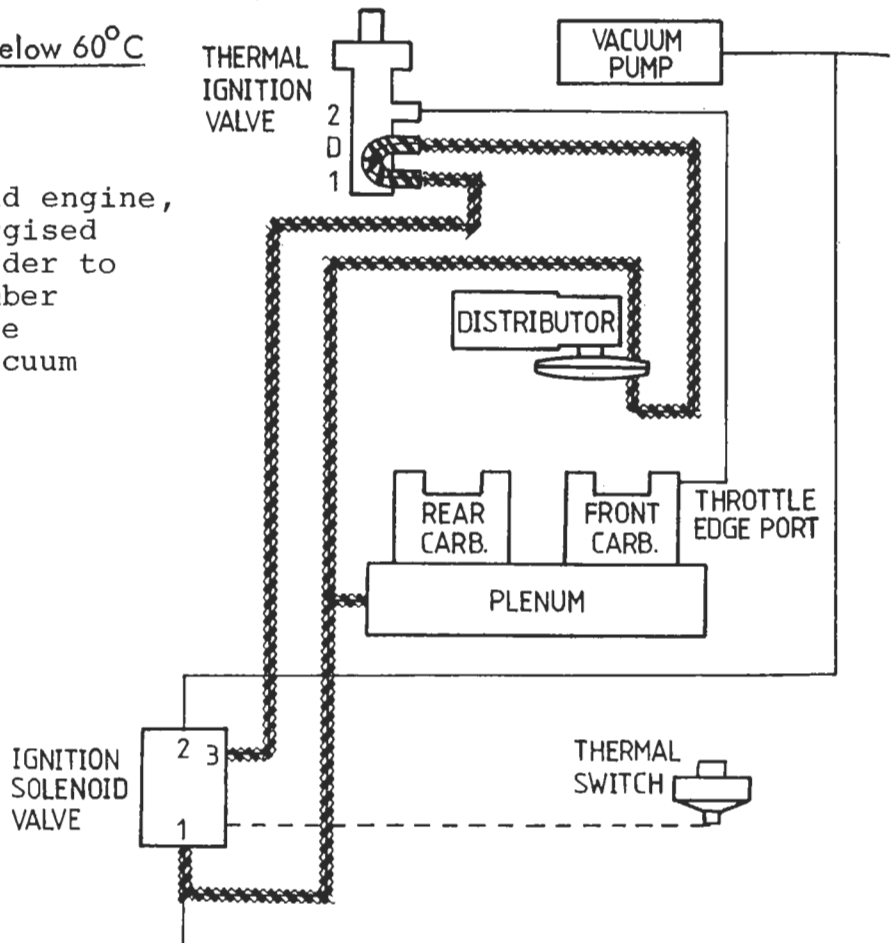
Water Temp: inlet manifold below 60°C

At coolant temperatures (inlet manifold) below 60°C, the T.I.V. and (energised) I.S.V. direct a vacuum pump signal to the distributor advance capsule to provide over 30°C ignition advance to aid cold driveability and increase idle speed.



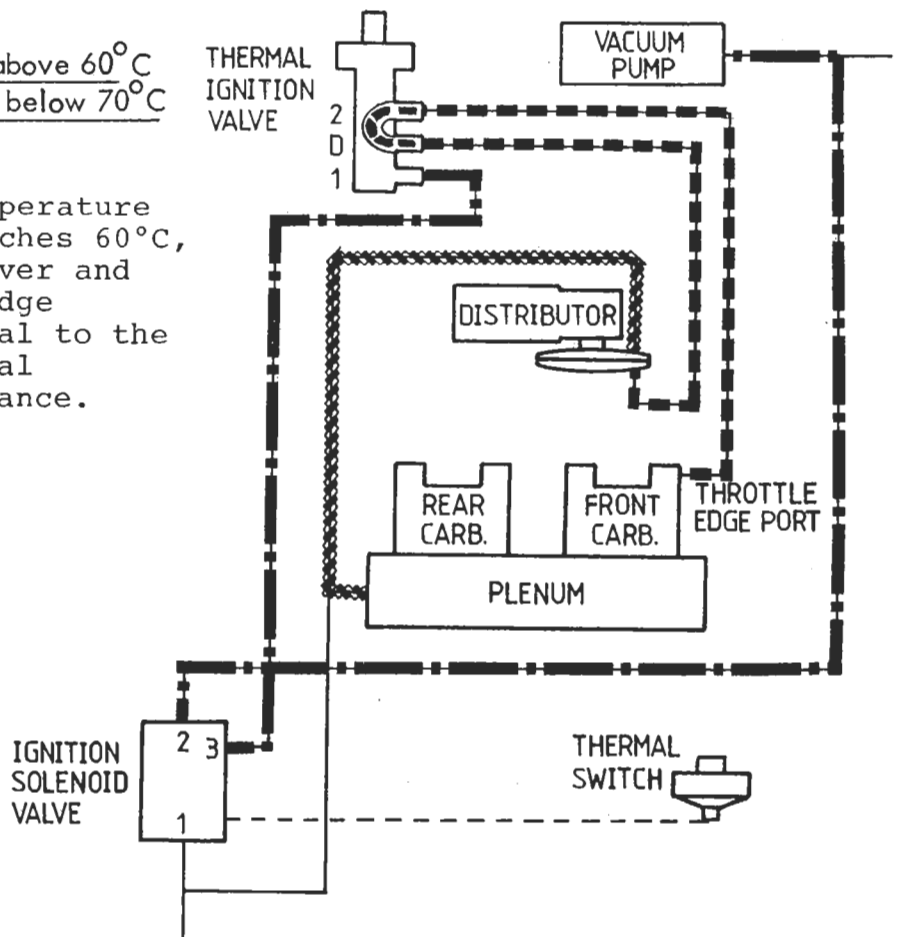
Water Temp: inlet manifold below 60°C
Engine Cranking

To aid starting a cold engine, the I.S.V. is de-energised during cranking in order to provide a plenum chamber pressure signal to the distributor for no vacuum advance.



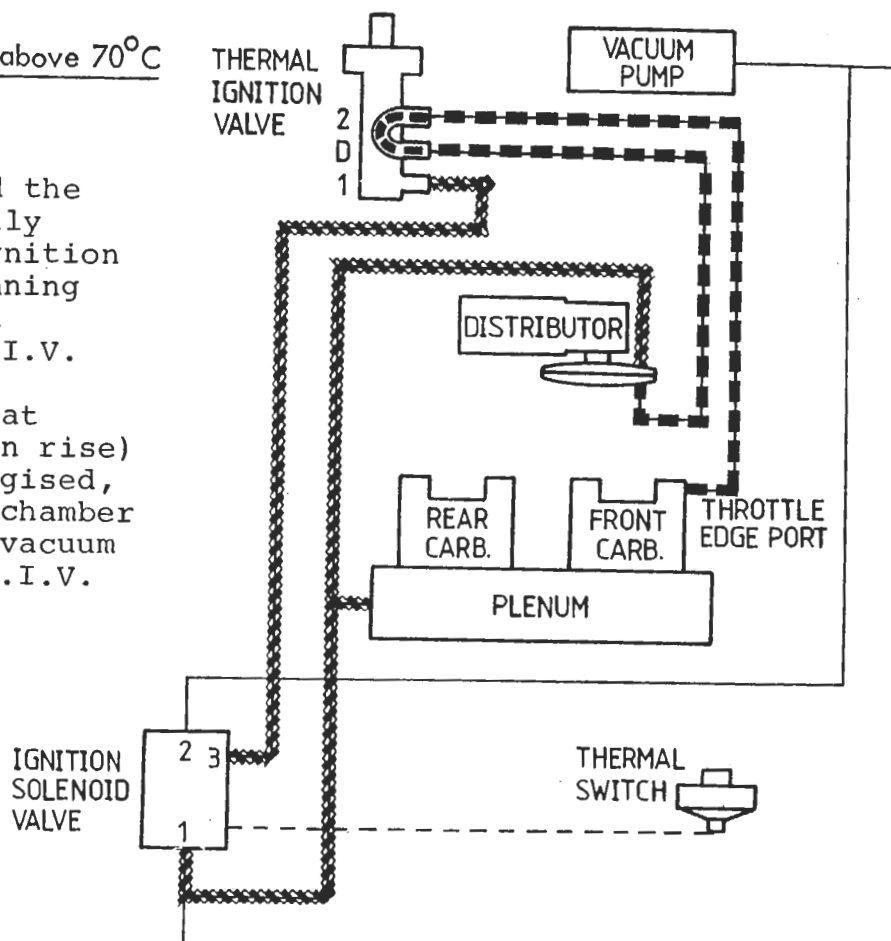
Water Temp: inlet manifold above 60°C
thermostat pipe below 70°C

When the coolant temperature (inlet manifold) reaches 60°C, the T.I.V. changes over and directs a throttle edge drilling vacuum signal to the distributor for normal running ignition advance.



Water Temp: thermostat pipe above 70°C

In order to safeguard the engine from potentially damaging excessive ignition advance at normal running temperature, should a malfunction of the T.I.V. occur: When coolant temperature (thermostat pipe) reaches 70°C (on rise) the I.S.V. is de-energised, and directs a plenum chamber pressure (instead of vacuum pump) signal to the T.I.V.



EMC.3. - CRANKCASE BREATHER VALVE

A one way breather valve is connected between the crankcase breather spigot at the rear of the block, and the airbox. Crankcase emissions developed during normal running are able to vent through the one way valve into the airbox.

In order to prevent these fumes, under low airflow engine idle conditions, escaping through the inlet trunking to atmosphere the valve is also connected via a small bore hose to the carburettors. This enables the small quantity of crankcase fumes at idle to pass directly into the carburettors and intake tract and supresses opening of the breather valve.

The carburation is calibrated to compensate for this degree of airflow by-passing the venturis.

A one way (non-return) valve is fitted between the breather valve and carbs. to prevent reverse flow when boost pressure exceeds crankcase pressure. The black side of the valve must be fitted towards the carburettors.

EMC.4. - COLD ENRICHMENT THERMAL VALVE

The cold enrichment thermal valve is designed to enrich fuelling at low engine temperatures to improve driveability.

The valve is fitted into the rear of the inlet manifold water rail. Port 'D' is connected with port '1' at coolant temperatures below 53°C and with port '2' above 53°.

The small bore crankcase breather pipe between breather valve and carburettors is connected to the thermal valve via ports 'D' and '2', with port '1' being blanked off. Thus at low engine temperature, the breather circuit to the carbs is shut off, and enriched fuelling results from the decrease in calibrated airflow past the throttle plates. At higher temperatures the breather line is restored and fuelling returns to normal.

EMC.5. - PLENUM PURGE

The purge pump is designed to induce ambient air into the carburettor plenum chamber of a hot engine when switched off. This improves hot starting of the engine.

The pump is fitted on the tailgate aperture R.H. support bracket, behind the quarter window trim panel in the rear luggage compartment, and is operative only when the ignition is switched off. A thermal switch in the thermostat outlet pipe (also used for the ignition solenoid valve) energises the purge pump at water temperatures above 70°C (on rise) until coolant temperature falls to 60°C.

A solenoid valve mounted just below the purge pump, is energised with the ignition on, to shut off the purge line, and prevent boost pressure blowing off through the pump.

EMC.6. - THROTTLE JACK SOLENOID

The throttle jack solenoid is designed to

- i) prevent complete throttle closure on overrun to reduce emissions and inhibit stalling.
- ii) increase idle speed when the choke control is operated
- iii) maintain idle speed when the air conditioning (if fitted) is operating

The solenoid is fitted to the front of the front carburettor and operates a lever attached to the front end of the throttle spindle.

The solenoid is energised under any of the following conditions:

- a) Above engine speed of 1400 rpm on fall (1600 rpm on rise) as sensed by the engine speed sensing relay, to prevent complete throttle closure on overrun to reduce hydrocarbon emissions and inhibit stalling. The relay is mounted on the wheelarch alongside the R.H. rear of the engine bay.
- b) When the choke control is operated, to increase idle speed. The choke micro-switch is integral with the choke cable assembly at the fascia end, and is also used to operate the choke tell tale. This switch operates a throttle jack relay located adjacent to the engine speed sensing relay.
- c) When the air ocnditioning (if fitted) compressor is operating, in order to maintain idle speed.

To set up: With the engine at normal running temperature, without the air conditioning switched on, check/adjust idle speed at the normal stop screw on the front of the rear carburettor. Correct setting 850-950 rpm.

Energise the solenoid with 12 volts and adjust the lever screw (against which the solenoid button operates) to obtain an engine speed of 1200 rpm and then de-energise.

Test each of the three activating systems and observe the action of the solenoid.

EMC.7. - OVERBOOST SWITCH

The overboost switch is fitted to safeguard the engine against excessive boost pressure in the event of wastegate failure by cutting out the ignition.

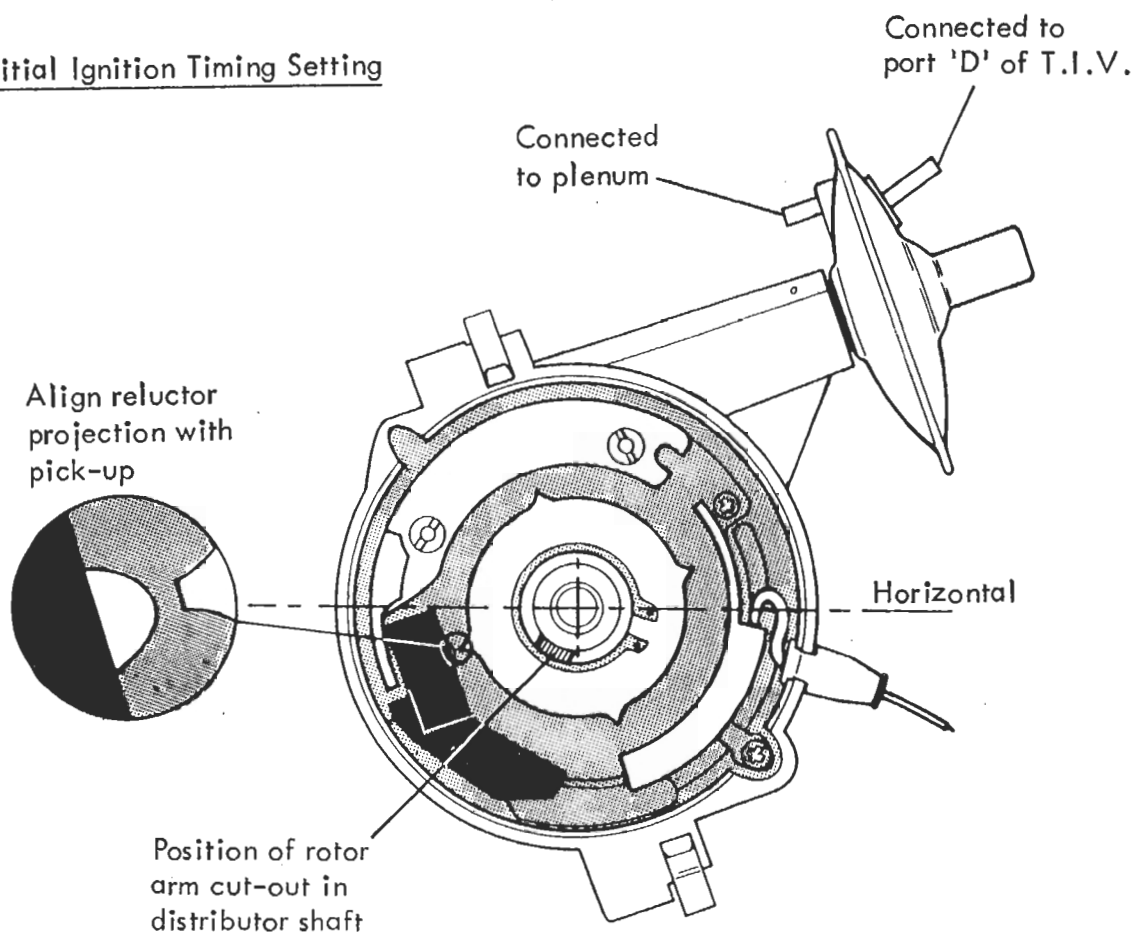
The switch is mounted on the right hand fuel tank board and is connected to the crankcase breather bleed/cold enrichment system in order to monitor the boost pressure signal downstream of the throttle butterflies. If a pressure greater then 0.71 bar (10.5 lb/in²) is sensed, the switch cuts out the feed to the ignition coil.

EMC.8. IDLE SPEED & IGNITION TIMING SETTING PROCEDURE

i) Ignition Timing Initial Setting:

If the engine has been rebuilt, or the distributor replaced, an initial setting of the ignition timing must be made to enable the engine to run. Set the crankshaft to 10° BTDC using the timing marks on the flywheel and clutch housing with the rotor arm pointing towards no.1 terminal on the distributor cap. Pull off the rotor arm and plastic shield and turn the distributor body to align the pick up sensor with the adjacent projection on the reluctor (equivalent to the cam on a contact breaker system). The engine may now be started and run up to normal operating temperature.

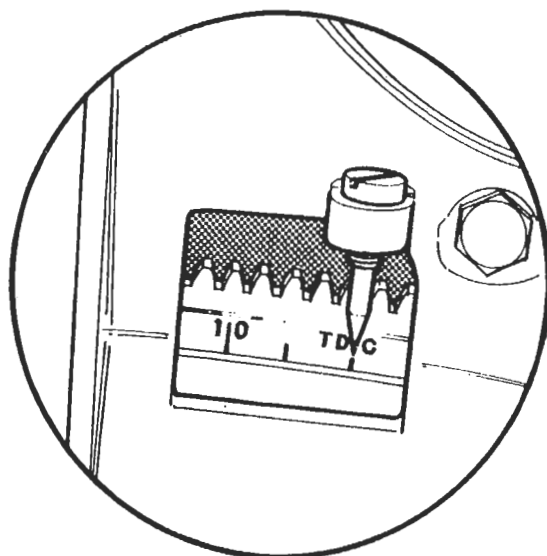
Initial Ignition Timing Setting



ii) Check/Adjust Ignition Timing:

Start the engine and run up to normal operating temperature to ensure the T.I.V. switches the distributor capsule to the throttle edge port.

Using a stroboscope, check/adjust the ignition timing to 10° BTDC at hot idle. Timing marks are provided on the flywheel rim, with an aperture and pointer in the top of the clutch housing, adjacent to the starter motor. Pull out the protective grommet, and refit after adjustment.



To check the centrifugal advance operation, first disconnect and plug, or clamp off the vacuum hose from the distributor capsule.

Check centrifugal advance characteristics are as follows:

<u>crank rpm</u>	<u>crank ° ($\pm 2^\circ$)</u>
Below 1,000	nil
2,000	11°
5,000	8°

iii) Check/Adjust Idle Speed:

Start engine and run up to normal operating temperature.

Check that the air conditioning (if fitted) is switched off.

Adjust idle speed, at the stop screw, on the front of the rear carburettor, to 900 ± 50 rpm.

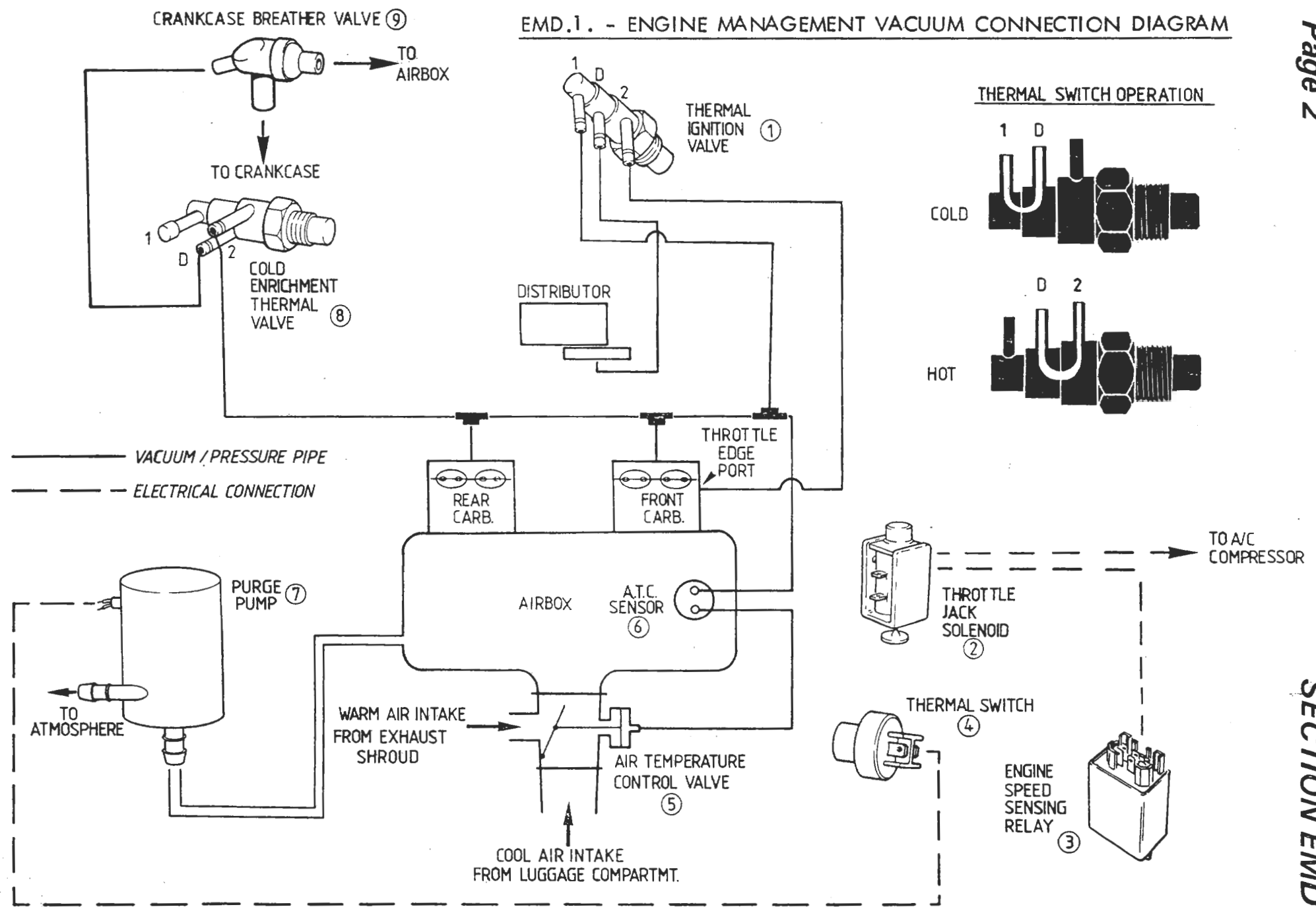
Use the cable adjuster at the anchor bracket on the cam cover to remove throttle cable slack, and then with the aid of an assistant check that full throttle can be achieved. The throttle pedal downstop should be adjusted such that the carburettor throttle levers may be held against their full throttle stops without allowing the cable to be overstrained.

To adjust throttle jack solenoid, see EMC.6.

ENGINE MANAGEMENTSECTION EMD - ESPRIT S3 'HC' 1987 MODEL YEAR (Domestic & Export)

	<u>Operation</u>	<u>Page</u>
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EMD.1. - ENGINE MANAGEMENT VACUUM CONNECTION DIAGRAM



1. Thermal Ignition Valve: Fitted to centre of inlet manifold water rail. Below 60°C, directs inlet manifold pressure signal to distributor for full advance to aid cold idle and driveability. See EMD.2.
2. Throttle Jack Solenoid: Fitted to front of front carburettor. Controlled by speed sensing relay (item 3), choke switch and a.c. switch. Energised above 1400 rpm to reduce emissions on overrun and when choke/a.c. operated to raise/maintain idle speed. See EMD.6.
3. Engine Speed Sensing Relay: Fitted inside R.H. wheelarch in rear luggage compartment Energises throttle jack above 1600 rpm (on rise) and de-energises below 1400 rpm (on fall) to reduce emissions on overrun (see EMD.6.)
4. Thermal Switch: Fitted in thermostat outlet water pipe. M.O.R. 70°C B.O.F. 60°C. Switches airbox purge pump. See EMD.5.
5. Air Temperature Control (ATC) Valve: Switches air intake to warm air supply from exhaust downpipe shroud at low airbox temps. for improved cold running. See EMD.7.
6. Air Temperature Control (ATC) Sensor: Regulates vacuum supply to ATC valve dependent on airbox temperature. See EMD.7.
7. Purge Pump: Fitted to tailgate aperture R.H. stiffener bracket. Controlled by thermal switch (item 4) Operates at water temps above 70°C with ignition off, to aid hot re-start. See EMD.5.
8. Cold Enrichment Thermal Valve: Fitted into rear of inlet manifold water rail. At water temps. below 35°C, valve shuts off crankcase breather bleed to enrich fuelling. See EMD.4.
9. Crankcase Breather Valve: Fitted at top rear of crankcase. Vents crankcase fumes to airbox with bleed to carbs. See EMD.3.

EMD.2. - THERMAL IGNITION ADVANCE

The thermal ignition advance system is designed to aid driveability and idle speed when cold and light load economy when warm.

The distributor is fitted with a vacuum advance capsule connected via the Thermal Ignition Valve (T.I.V.) to either one of two pressure sensing ports on the carburettors. The T.I.V. is fitted into the centre of the inlet manifold water rail and senses engine coolant temperature.

At coolant temperatures below 60°C, the T.I.V. connects port 'D' (connected to distributor) to port '1' (connected to carburettor ports downstream of throttle plates) to direct an inlet manifold depression signal to the distributor capsule. This provides over 30° ignition advance at cold idle to raise idle speed and improve driveability.

At coolant temperatures above 60°C the T.I.V. connects port 'D' with port '2' (connected to throttle edge drilling on carburettor barrel no. 1) to provide ignition advance at part throttle for improved light load economy.

EMD.3. - CRANKCASE BREATHER VALVE

A one way breather valve is connected between the crankcase breather spigot at the rear of the block, and the airbox. Crankcase emissions developed during normal running are able to vent through the one way valve into the airbox.

In order to prevent these fumes, under low airflow engine idle conditions, escaping through the inlet trunking to atmosphere, the valve is also connected via a small bore hose to the carburettors. This enables the small quantity of crankcase fumes at idle to pass directly into the carburettors and intake tract and suppresses opening of the breather valve.

The carburation is calibrated to compensate for this degree of airflow by-passing the venturis.

EMD.4. - COLD ENRICHMENT THERMAL VALVE

The cold enrichment thermal valve is designed to enrich fuelling at low engine temperatures to improve driveability.

The valve (brown) is fitted into the rear of the inlet manifold water rail. Port 'D' is connected with port '1' at coolant temperatures below 35°C and with port '2' above 35°C.

The small bore crankcase breather pipe between breather valve and carburettors is connected to the thermal valve via ports 'D' and '2', with port '1' being blanked off. Thus at low engine temperature, the breather circuit to the carbs is

shut off, and enriched fuelling results from the decrease in calibrated airflow past the throttle plates. At higher temperatures the breather line is restored and fuelling returns to normal.

EMD.5. - PLENUM PURGE

The purge pump is designed to induce ambient air into the carburettor plenum chamber of a hot engine when switched off. This improves hot starting of the engine.

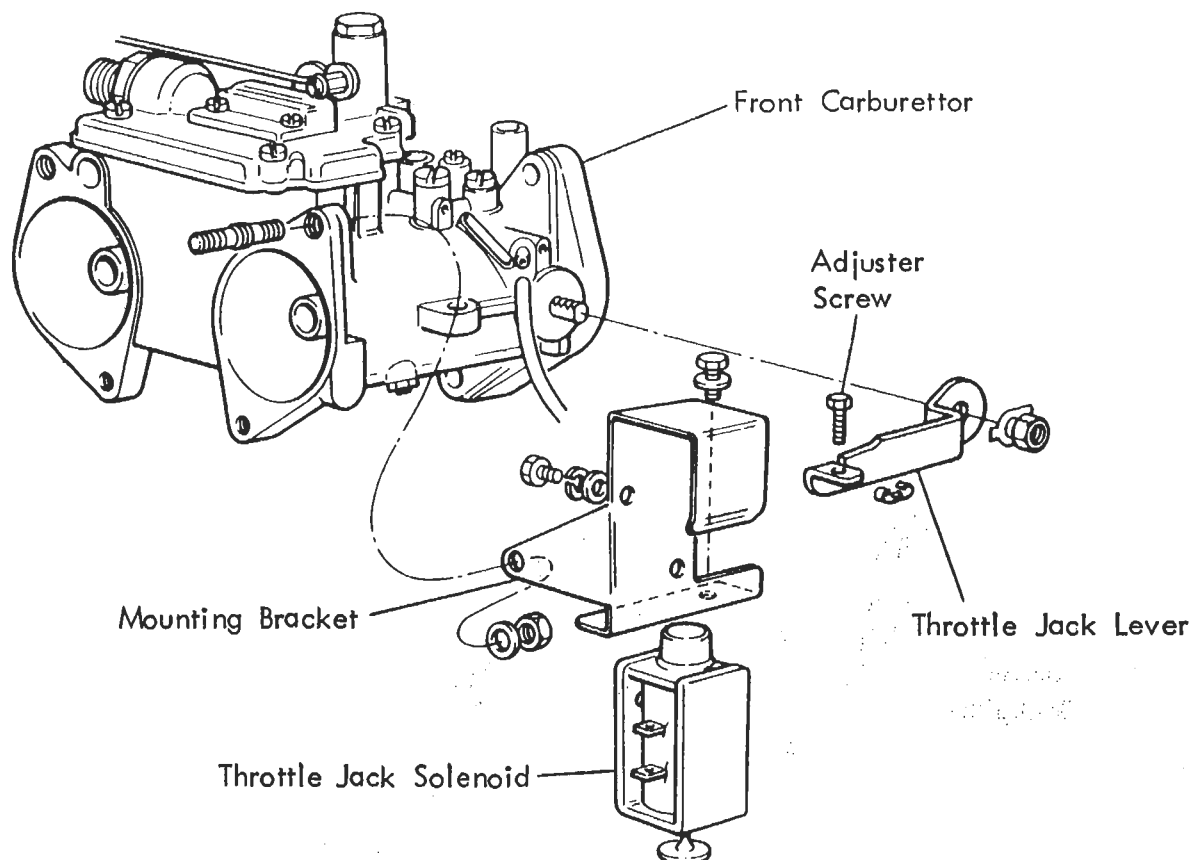
The pump is fitted on the tailgate aperture R.H. support bracket behind the quarter window trim panel in the rear luggage compartment, and is operative only when the ignition is switched off. A thermal switch in the thermostat outlet pipe energises the purge pump at water temperatures above 70°C (on rise) until coolant temperature falls to 60°C.

EMD.6. - THROTTLE JACK SOLENOID

The throttle jack solenoid is designed to

- i) prevent complete throttle closure on overrun to reduce emissions and inhibit stalling.
- ii) increase idle speed when the choke control is operated
- iii) maintain idle speed when the air conditioning (if fitted) is operating.

The solenoid is fitted to the front of the front carburettor and operates a lever attached to the front end of the throttle spindle.



The solenoid is energised under any of the following conditions:

- a) Above engine speed of 1600 rpm on rise (1400 rpm on fall) as sensed by the engine speed sensing relay, to prevent complete throttle closure on overrun to reduce hydrocarbon emissions and inhibit stalling. The relay is mounted on the wheelarch alongside the R.H. rear of the engine bay.
- b) When the choke control is operated, to increase idle speed. The choke micro-switch is integral with the choke cable assembly at the fascia end, and is also used to operate the choke tell tale. This switch operates a throttle jack relay located adjacent to the engine speed sensing relay.
- c) When air conditioning (if fitted) compressor is operating in order to maintain idle speed.

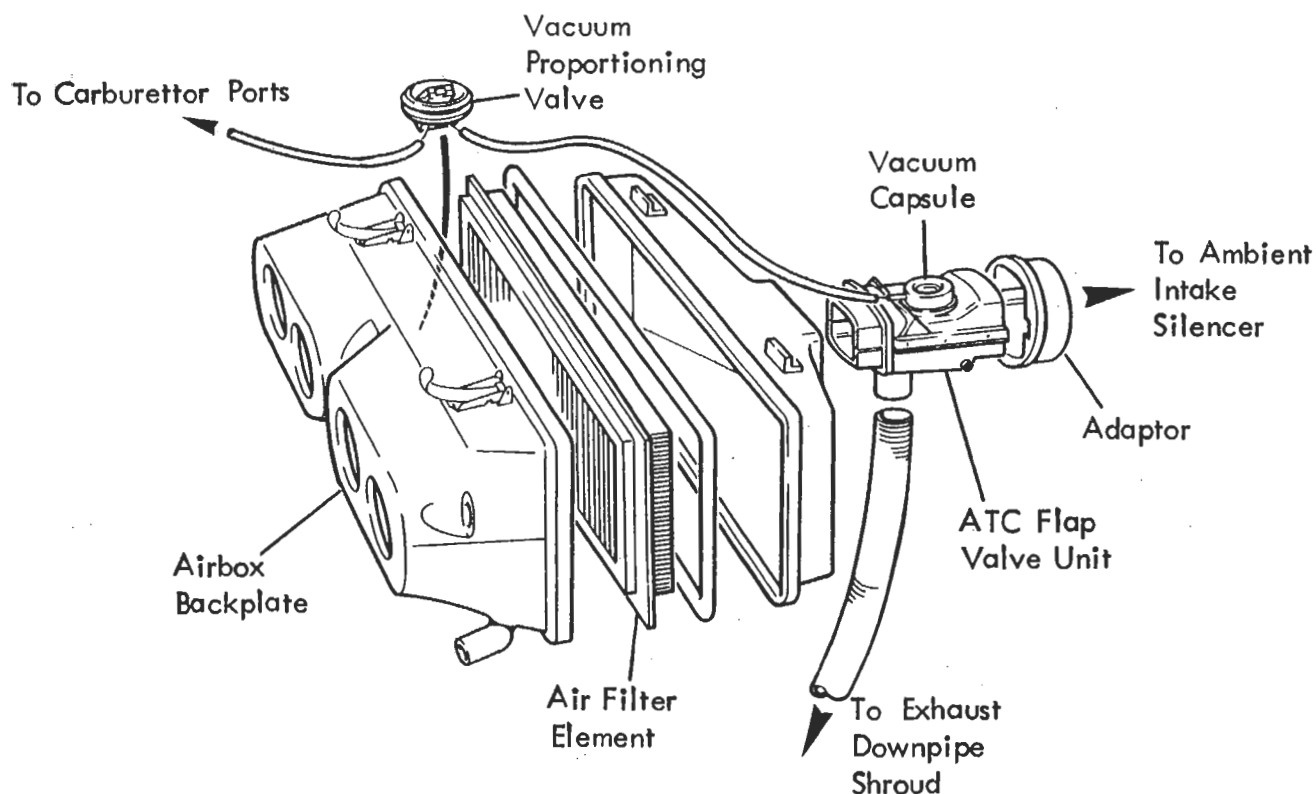
To set up: With the engine at normal running temperature, without the air conditioning switched on, check/adjust idle speed at the normal stop screw on the front of the rear carburettor. Correct setting 950 ± 50 rpm.

Energise the solenoid with 12 volts and adjust the lever screw (against which the solenoid button operates) to obtain an engine speed of 1100 rpm and then de-energise.

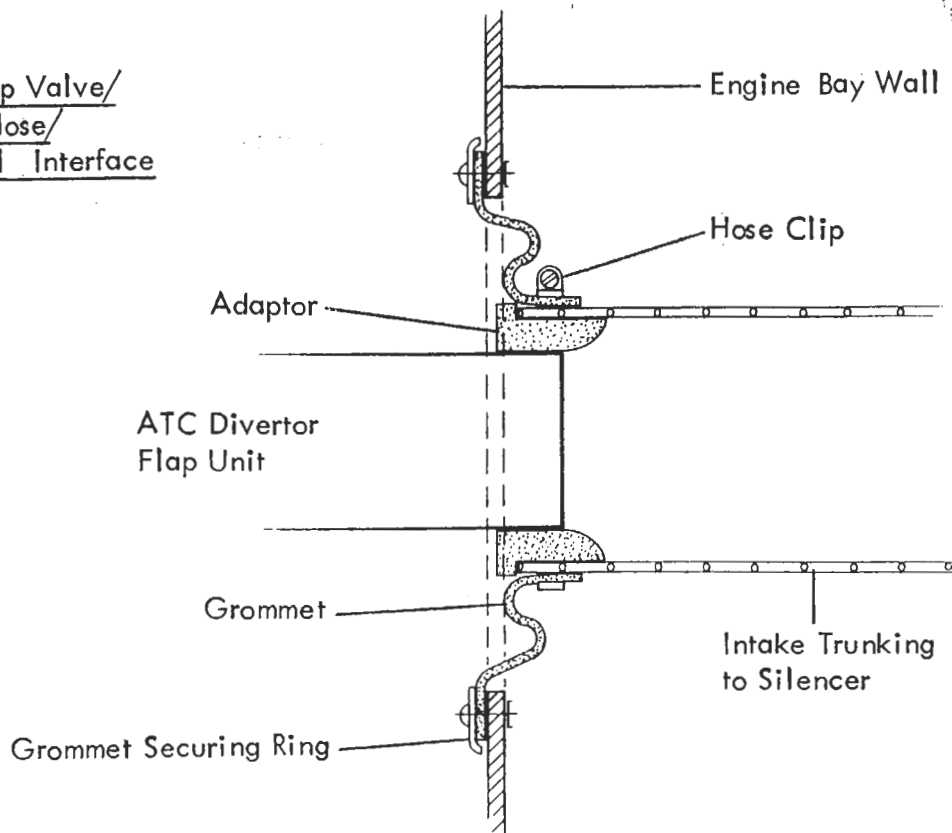
Test each of the three activating systems and observe the action of the solenoid.

EMD.7. - AIR INLET TEMPERATURE CONTROL SYSTEM

The Air Inlet Temperature Control (ATC) system comprises an ATC flap valve unit on the airbox inlet and an ATC sensor fitted into the bottom of the airbox.

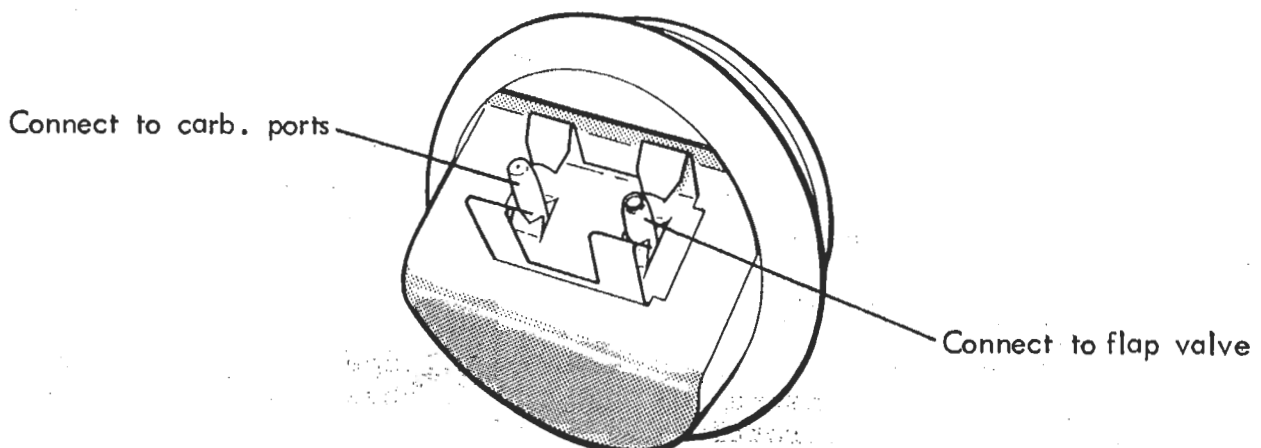


ATC Flap Valve/ Intake Hose/ Sidewall Interface



The ATC flap valve unit consists of a vacuum diaphragm operated flap mounted on the inlet of the carburettor airbox, controlling the air supply thereto. At moderate ambient temperatures the airbox is supplied with cool air from the rear luggage compartment via the intake silencer. In cold ambient conditions, when air temperature inside the carburettor airbox is below 20°C, the ATC flap valve is moved to admit a proportion of warm air drawn from a shroud around the exhaust downpipe. The colder the airbox temperature, the greater the proportion of warm air directed to the airbox.

The ATC sensor mounted by a rubber grommet into the bottom of the airbox is a thermostatically controlled vacuum proportion valve connected between the carburettor ports downstream of the throttle plates, and the ATC flap valve. At airbox temperatures above 20°C the valve is shut, but at lower temperatures a proportion of the inlet manifold depression is directed to the ATC flap valve to open the warm air supply. The sensor connection with the larger hole must be connected to the flap valve.



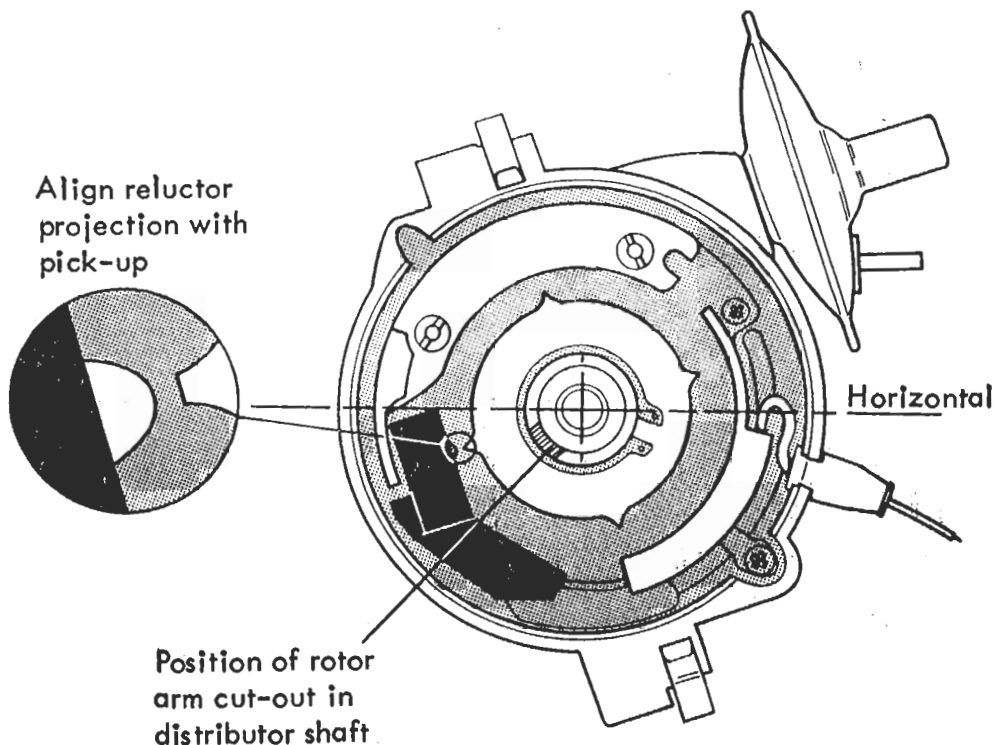
To check that the system is functioning correctly, disconnect the cold air supply trunking from the flap valve and use a mirror to establish the flap position at warm and cold ambient conditions. The flap valve itself may be tested by applying vacuum directly to its vacuum capsule:

more than 100 mm Hg - warm air supply fully open
less than 30 mm Hg - warm air supply fully closed.

EMD.8. - IDLE SPEED & IGNITION TIMING SETTING PROCEDURE

i) Ignition Timing Initial Setting:

If the engine has been rebuilt, or the distributor replaced, an initial setting of the ignition timing must be made to enable the engine to run. Set the crankshaft to 10° BTDC using the timing marks and pointer on the flywheel and clutch housing with the rotor arm pointing towards no. 1 terminal on the distributor cap. Pull off the rotor arm and plastic shield and turn the distributor body to align the pick up sensor with the adjacent projection on the reluctor (equivalent to

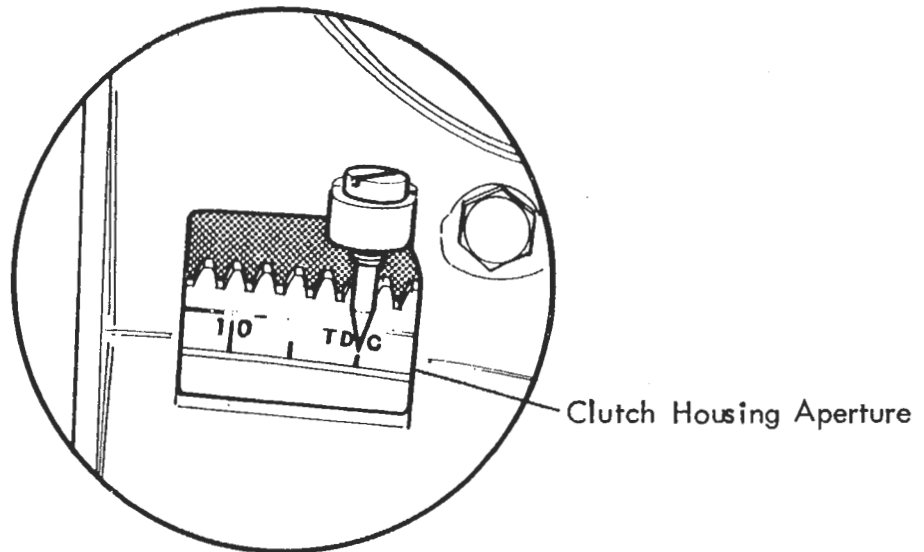


the cam on a contact breaker system). The engine may now be started and run up to normal operating temperature before adjusting ignition timing as in ii)

ii) Check/Adjust Ignition Timing:

Start the engine and run up to normal operating temperature to ensure the T.I.V. switches the distributor capsule to the throttle edge port.

Using a stroboscope, check/adjust the ignition timing to 10° BTDC at hot idle. Timing marks are provided on the flywheel rim, with an aperture and pointer in the top of the clutch housing, adjacent to the starter motor. Pull out the protective grommet, and refit after adjustment.



To check the centrifugal advance operation, first disconnect and plug, or clamp off the vacuum hose between distributor capsule and T.I.V.

Check centrifugal advance characteristics are as follows:

<u>crank rpm</u>	<u>crank ° ($\pm 2^{\circ}$)</u>
Below 1,000	nil
2,000	8°
3,000	16° (max)

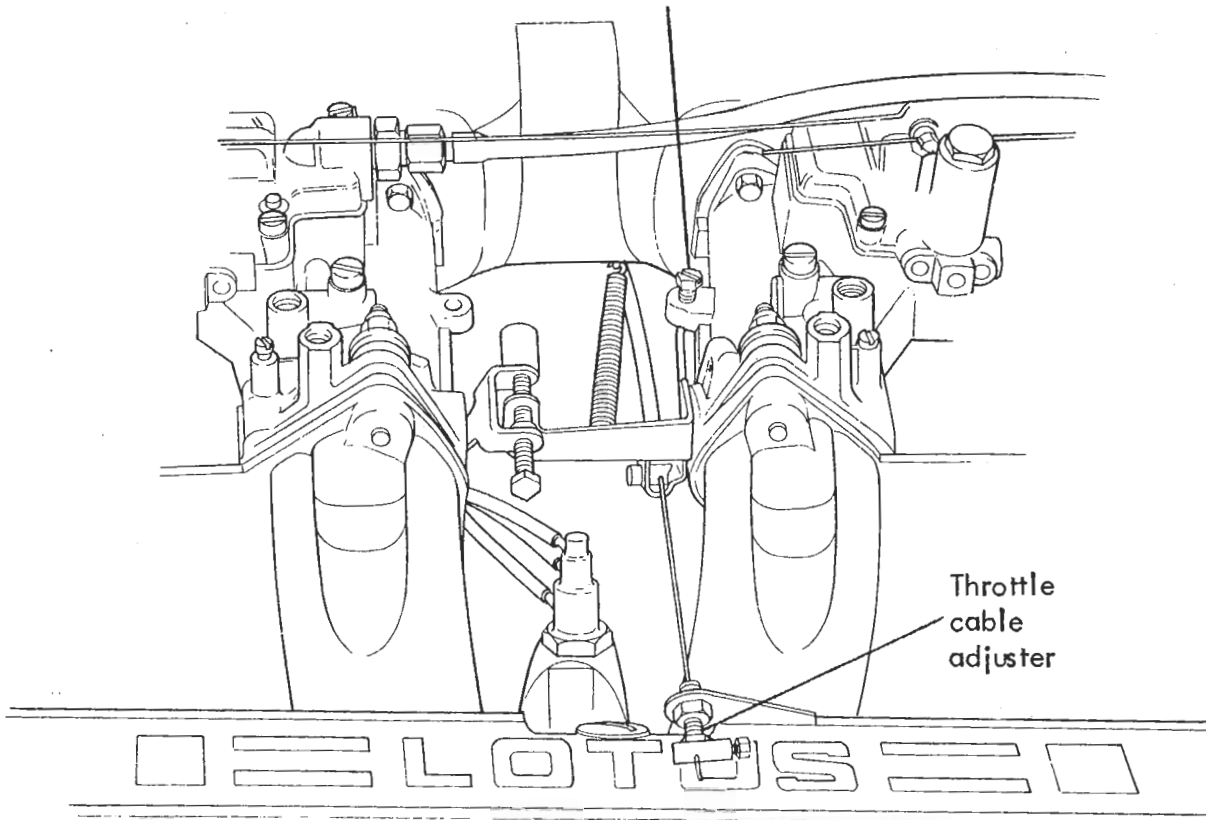
iii) Check/Adjust Idle Speed

Start engine and run up to normal operating temperatures.

Check that the air conditioning (if fitted) is switched off.

Adjust idle speed, at the stop screw, on the front of the rear carburettor, to 950 ± 50 rpm. Stop engine.

Idle speed adjustment screw

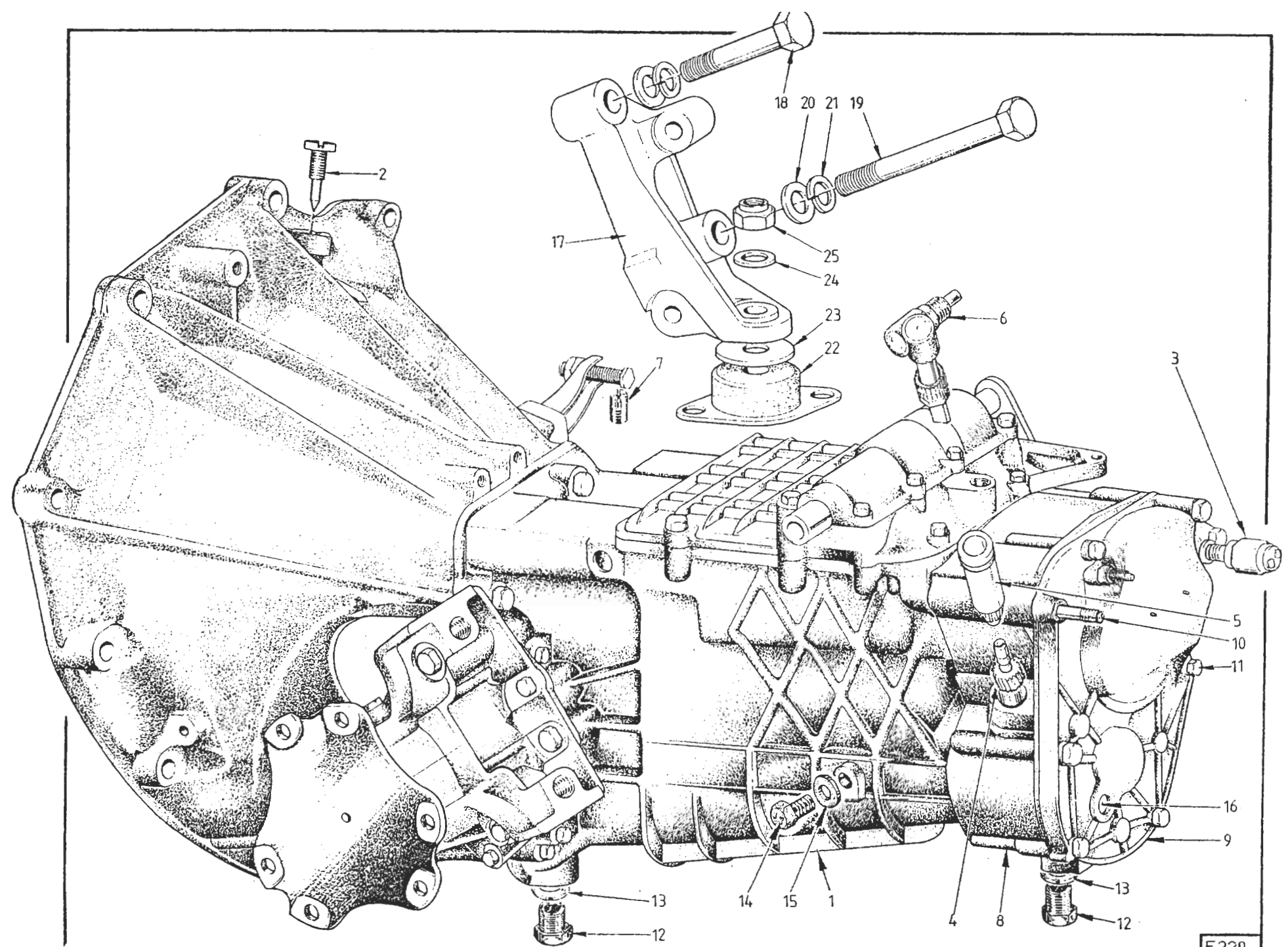


Use the cable adjuster at the anchor bracket on the cam cover to remove throttle cable slack, and then with the aid of an assistant check that full throttle can be achieved. The throttle pedal downstop should be adjusted such that the carburettor throttle levers may be held against their full throttle stops without allowing the cable to be overstrained.

To adjust throttle jack solenoid, see EMD.6.

GEARBOX/TRANSMISSIONSECTION FB - ESPRIT

	<u>Operation</u>	<u>Page</u>
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Gearshift Lever & Gearchange Linkage	FB 1	3 to 7
Transmission Assembly	FB 2	8
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Clutch Shaft	FB 4	9
Gearbox Rear Housing	FB 5	10
Gear Selector Removal	FB 6	11/12
Gear Selector Replacement	FB 7	12 to 15
Primary Shaft	FB 8	15 to 20
Bevel Pinion Shaft	FB 9	20 to 23
Differential Shaft (Drive Shafts)	FB 10	23 to 25
Differential Crownwheel & Pinion	FB 11	25/26
Differential Bearings Adjustment	FB 12	26 to 29
Backlash Adjustment	FB 13	29 to 31



Transmission Assembly

F 229

KEY TO TRANSMISSION ASSEMBLY DRAWING

- | | |
|---|--|
| 1. Gearbox & Clutch Housing Assembly | 14. Level Plug |
| 2. Pointer, Engine Timing | 15. Washer, Level Plug |
| 3. Switch, Reverse Light | 16. Stop, Speedo Pinion |
| 4. Speedo Driven Gear | 17. Bracket, Gearbox/Caliper Mounting RH |
| 5. Nylon Bush, Speedo Driven Gear | 18. Bolt, Bracket to Gearbox |
| 6. Right Angle Drive, Speedo | 19. Bolt, Bracket to Gearbox |
| 7. Air Vent, Breather | 20. Washer, Flat, Bracket to Gearbox |
| 8. End Housing | 21. Washer, Spring, Bracket to Gearbox |
| 9. End Cover | 22. Mounting, Engine/Gearbox rear |
| 10. Stud, Silencer/Gearbox Mounting Bracket | 23. Washer, Snubber |
| 11. Bolt, Silencer Mounting Bracket | 24. Washer, Flat |
| 12. Drain Plug | 25. Nut, Nyloc 7/16" UNF |
| 13. Washer, Drain Plug | |

GENERAL DESCRIPTION

The transmission is a single unit comprising a manual 5-speed, all indirect gearbox with integral final drive unit, and the clutch bellhousing containing the clutch release mechanism.

The gearbox has five forward gears, all equipped with syncromesh, and a reverse gear of the spur gear type.

A clutch shaft transmits the drive from the clutch to the gearbox primary shaft, which is supported by a ball bearing at its front and a double ball bearing at the rear. The primary shaft carries the 3rd/4th synchroniser assembly, and on its overhung rear end, the 5th gear synchroniser assembly. The lower, secondary, shaft incorporates the final drive pinion gear on its front end, is supported by a roller bearing at the front, and a double ball bearing at the rear, and carries the 1st/2nd synchroniser assembly. A reverse idler gear on a separate spindle may be engaged with spur gears integral with the primary shaft and with the 1st/2nd synchroniser assembly.

The final drive assembly is contained between the clutch housing and gearbox. Two short output shafts supported by their own housings, bolted to each side of the transmission, use a double ball bearing on their outboard ends, and a taper roller bearing at the inboard ends, where they carry the crownwheel and differential assembly.

Four selector shafts across the top of the gearbox, control 1st/2nd, 3rd/4th 5th and reverse gears and are operated by a cross shaft which may be rotated and moved axially by the remote gear lever.

'C35' Introduction

In early 1984, the 'C35' type gearbox assembly was introduced. This differs only in detail from the earlier type, with most internal components being unchanged or improved and directly interchangeable with the earlier part. See parts list for details.

All Esprit gearboxes are stamped with a Lotus serial number, repeated on its matched clutch housing. All gearboxes stamped with a 'C' prefix to the serial number are type C35.

Gearboxes with the following serial numbers (without 'C' prefix) are also type C35.

2914 to 2920
2954 to 2974
3023 and 3024
3028 to 3029
3044 to 3152

All numbers are inclusive and are to be found on the top front of the gearbox and adjacent surface of the clutch housing.

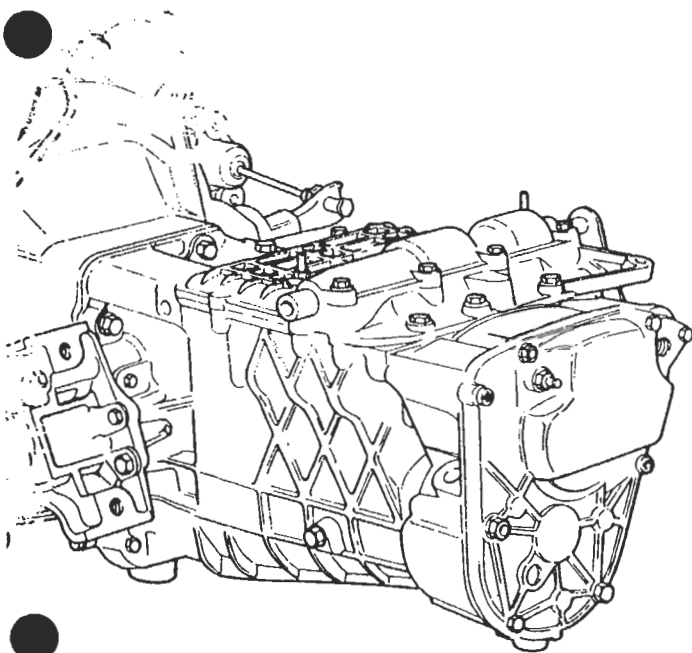
Drain and Level Plug

C35 type gearboxes have only one oil drain plug which is situated beneath the main case. They are not fitted with the additional rear case drain plug as used on previous type gearboxes.

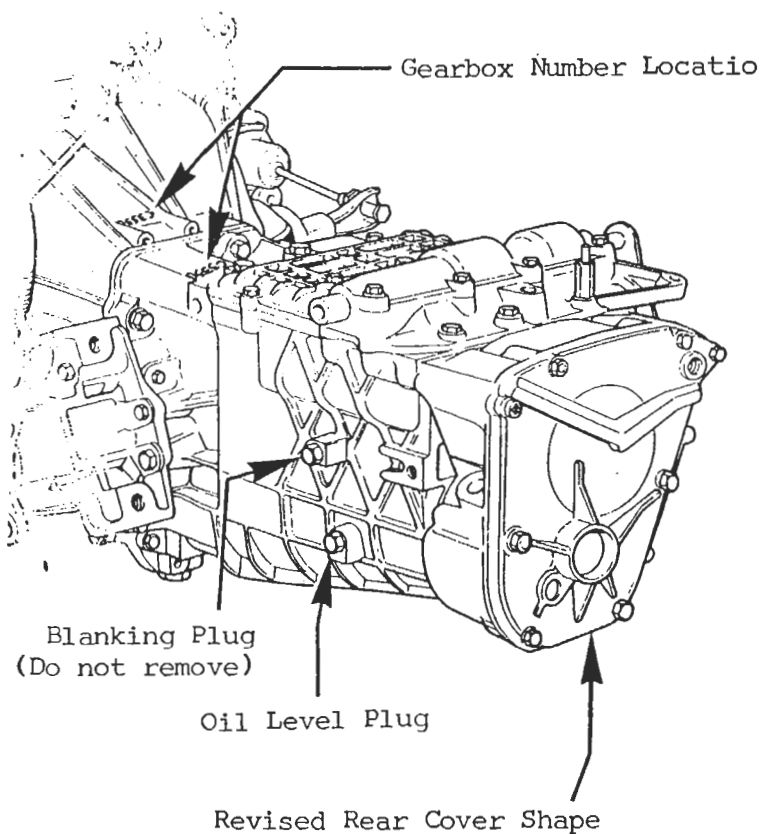
The oil level plug (painted yellow) is fitted in the left hand side of the case, as before, and should not be confused with a similar plug (blanking) positioned higher up on the same side of the gearbox.

The different rear cover shape necessitates a revised silencer mounting bracket and the clutch release bearing assembly on Series 3 cars is changed. See Parts List for details.

PREVIOUS TYPE



NEW 'C35' TYPE



FB.1. - GEARSHIFT LEVER AND GEAR CHANGE LINKAGE

The gearshift lever operation controls two functions on the gearbox cross-shaft; movement of the lever forward and backward moves the cross-shaft radially and movement from side-to-side moves the cross-shaft across the gearbox.

When the cross-shaft is in an out of gear position the gearshift lever will take up a neutral centre position in the gate, held there by springs on the gearbox cross-shaft.

The tubular linkage transmits fore-aft movement of the gear lever into radial movement of the gearbox cross shaft. Crossgate movement of the gearlever is translated into axial cross shaft motion by a bowden cable connected between a bellcrank on the gearshift assembly and a bellcrank on the gearbox casing.

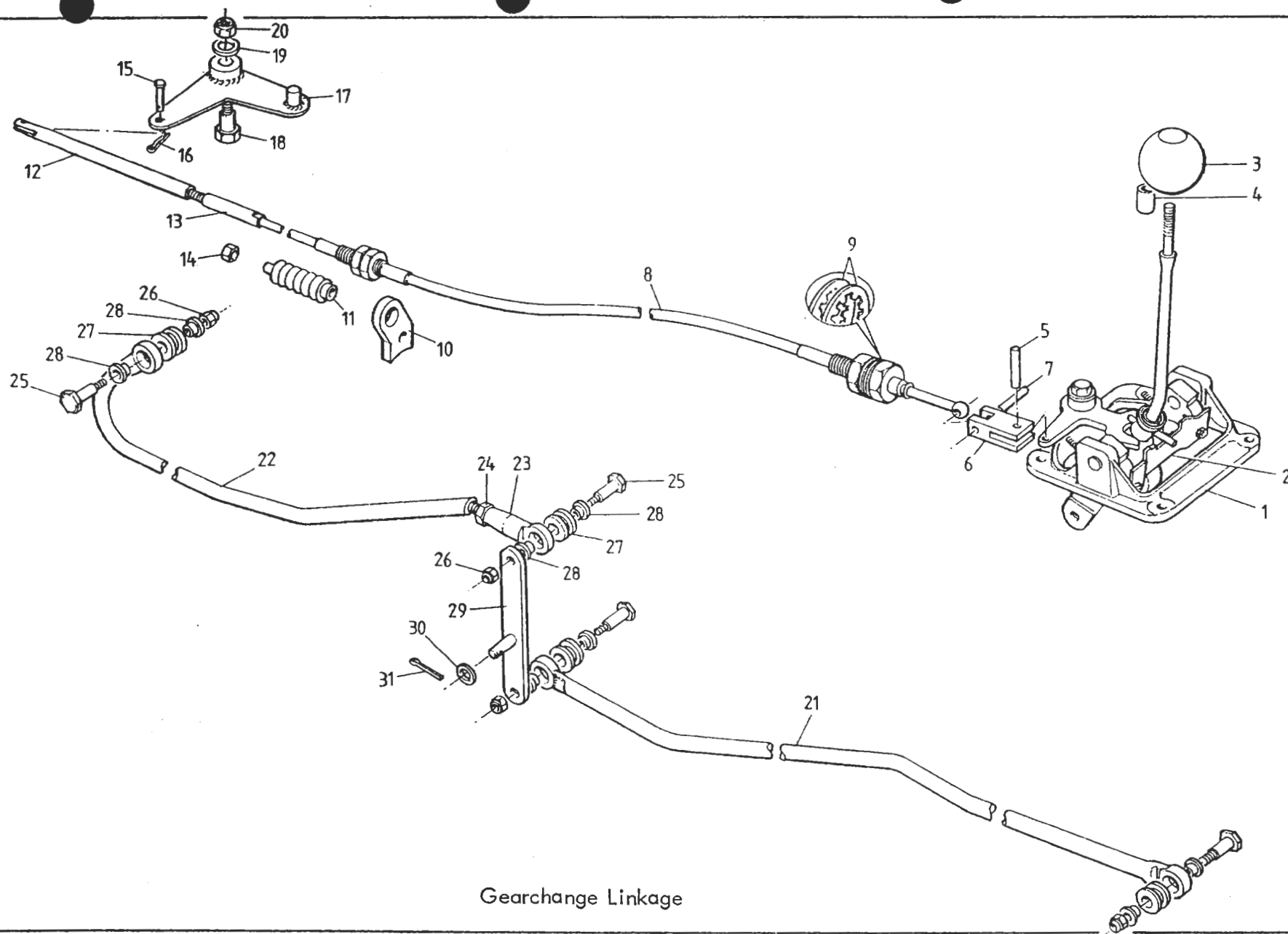
To Remove

1. Remove the centre tunnel top assembly.
2. Unscrew the six screws securing the cover plate covering the recess in the chassis, which contains the gearshift assembly.
3. Remove the spirol pin connecting the bowden cable to the cross-gate lever clevis on the gear shift lever assembly.
4. Unscrew the four bolts holding down the gearshift lever assembly to the chassis.
5. Lift the assembly sufficiently to enable the front linkage tube to be disconnected from the lever assembly.
6. Release the front tube from the relay lever, and withdraw tube from chassis. Release rear tube from relay lever and cross shaft lever.
7. Remove the spring clip and clevis pin, securing the crossgate cable extension to the crossgate bellcrank lever. Remove the nut and washer securing the crossgate cable to the bellhousing.
8. To the gear lever end of the cable, attach a wire 'pull through' to aid reassembly. Remove the nut and washer securing the cable in the gearshift lever recess, and withdraw cable.

To Replace

Reverse the removal procedure, noting the following points:

1. When fitting the crossgate cable at its front end into the chassis abutment, ensure that the two cable nuts with shakeproof washers, are locked in a position such that the minimum amount of outer cable protrudes forwards of the front lock nut. Otherwise, contact with the gearlever bellcrank lever may baulk selection of fifth and reverse gears.
2. On cars with a 0.86:1 ratio relay lever, ensure that the longest arm of the lever is positioned uppermost. Later cars have a 1:1 relay lever.



Gearchange Linkage

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Key to Gearchange Linkage Drawing

- | | |
|--|-----------------------------------|
| 1. Gear Lever Assembly. | 17. Bellcrank Lever, Cross-shaft. |
| 2. Reverse Gate. | 18. Pivot Pin, Bellcrank. |
| 3. Knob, Gearlever. | 19. Washer, Pivot Pin. |
| 4. Spacer, Gearlever Knob. | 20. Nut, Nyloc, Pivot Pin. |
| 5. Spirol Pin, Bellcrank to Yoke. | 21. Tube, Gearchange, Front. |
| 6. Connector Yoke, Cable to Bellcrank. | 22. Tube, Gearchange, Rear. |
| 7. Spirol Pin, Cable to Yoke. | 23. Adjuster, Gearchange Tube. |
| 8. Crossgate Cable. | 24. Locknut, Gearchange Adjuster. |
| 9. Washer, Shakeproof. | 25. Pivot Pin, Gearchange Tubes. |
| 10. Abutment Bracket, Rear. | 26. Nut, Pivot Pin. |
| 11. Dust Cover, Cable Rear. | 27. Bush, Rubber, Tube End. |
| 12. Rod, Crossgate Cable Extension. | 28. Bearing, Plastic, Tube End. |
| 13. Locknut, Cable Stiffener. | 29. Relay Lever. |
| 14. Locknut, Plain. | 30. Washer, Relay Lever Pivot. |
| 15. Clevis Pin, Rod to Bellcrank. | 31. Split Pin, Relay Lever Pivot. |
| 16. Spring Clip, Clevis Pin. | |

AdjustmentTube Linkage Basic Setting:

With the linkage connected, and the transmission in neutral, check the position of the relay lever on the RH engine mounting leg. The lever should be vertical, or leaning very slightly backwards at the top. If necessary, disconnect the rear tube from the relay lever, and adjust length to suit. Tighten the locknut after adjustment, but before reconnecting to relay lever, check that full travel of the gear lever both fore and aft provides movement at the relay lever exceeding that required by the rear tube for complete selection of gears.

Crossgate Cable Basic Setting:

The crossgate cable, outer casing should be fitted at its rear end into the clutch housing abutment with the adjustment at its mid position. Tighten the locknuts.

With the transmission in neutral and the cable connected, check the position of the gear lever. The lever should be vertical or leaning very slightly to the right. If necessary, disconnect the cable extension rod from the cross shaft bellcrank lever and after slackening the locknut, screw the extension rod on or off the cable to achieve the correct setting. Tighten locknut.

Before finally connecting extension rod to the bellcrank lever, check that full travel of the gear lever side to side provides movement of the extension rod exceeding that required by the bellcrank for full axial cross shaft movement.

NOTE: On cars up to 1983 fitted with a 240mm crossgate cable extension rod, a special stiffening locknut (A082F4066F) may be fitted in place of the plain nut to increase stiffness of the crossgate cable.

Later cars, and Federal cars have a shorter crossgate cable and 442 mm extension rod.

FB.2. - TRANSMISSION ASSEMBLYTo Remove

1. Remove engine compartment rear floor and chassis crossmember.
2. Drain gearbox oil.
3. Remove silencer.
4. Disconnect drive shafts and remove adaptors and brake discs.
5. Release brake caliper mounting bolts and support calipers clear.
6. Support rear of gearbox and remove gearbox mounting brackets complete with rubber mountings.
7. Disconnect the gearbox linkage from the gearbox and clutch housing.
8. Remove the turbocharger oil drain pipe and boost sensing pipe. (Turbo only).
9. Release the reverse light switch wires.
10. Disconnect the speedo drive cable.
11. Release the lower clutch housing to engine bolts.
12. Remove the air pump (Federal cars).
13. Release the Turbo air inlet hose and adaptor (Turbo only).
14. Release the clutch slave cylinder.
15. Remove the starter motor.
16. Support the engine and release the remaining clutch housing to engine bolts.
Carefully withdraw the gearbox assembly rearwards to disengage the clutch shaft and lift out.

To Replace

Reverse the removal procedure, noting the following:

- a). (NOT Dry Sump Turbo) - Check underside of engine sump by clutch housing fixings for shim marking. '000' - no shim, '020' - one 0.020" shim, '040' - two 0.020" shims. These shims to be fitted between clutch housing and sump.
- b). Adjust gearchange linkage as in FB.1.
- c). Check/refill with gearbox oil as necessary.
- d). Pump brake pedal to restore rear brake pad position.

SECTION FB

FB.3. - CLUTCH BELLHOUSING

To Remove

1. Remove the transmission assembly and driveshaft bearing housing assemblies.
2. From inside the bellhousing remove the four nuts and washers on the studs attached to the gearbox casting.
3. Remove the ten bolts securing the outer edge of the gearbox casting to the bellhousing.
4. Hold the differential in position against the bellhousing and pull away from the gearbox casting. Place the bellhousing on the bench with the differential uppermost and lift out the differential.

Dismantling

1. Slide off the fork arm the rubber dust excluder.
2. From inside the bellhousing remove the retaining spring and the thrust bearing assembly.
3. Remove the pin securing the fork to the ball joint and withdraw the fork.

To Replace

1. Reverse the dismantling and removal procedures for the clutch bellhousing. Seal the mating faces with "Silastic". Tighten all bolts to specified torque.

FB.4. - CLUTCH SHAFT

To Remove

1. Remove the clutch bellhousing as previously described.
2. Remove the tube enclosing the clutch shaft together with the two 'O' rings. The tube should pull out from the oil return flange, but may come away attached to the flange.
3. Remove the oil return flange.

4. Remove the circlip retaining the clutch shaft in the primary shaft. Take care not to lose the spring between the clutch shaft and primary shaft. If the circlip is very difficult to remove and further dismantling is intended, then remove clutch shaft complete with primary shaft. It will be easier to remove the circlip on the bench.

To Replace

1. Reverse the removal procedure for the clutch shaft and clutch bellhousing.

Note: When replacing the release bearing guide tube, that the chamfered end is fitted towards the clutch housing.

FB.5. - GEARBOX REAR HOUSING

To Remove

1. Remove the transmission unit as previously described.
2. Remove the rear and top cover on the gearbox.
3. Remove the bolt securing the 5th gear synchro assembly together with the deflector. To assist in the removal of the bolt, slacken the screws securing the reverse gear fork and engage two gears, e.g. 1st gear and reverse gear.
4. Remove the locking wire through the screw securing the 5th gear fork and remove the screw.
5. Remove the 5th gear synchro assembly and the 5th gear fork.
6. Remove the speedometer driven gear and connection socket.
7. Remove the eight screws securing the rear housing and withdraw the rear housing.

To Replace

1. Reverse the removal procedure taking care to fix a locking wire to the 5th gear fork fixing screw. Tighten retaining bolt for the synchro assembly to 14.5-16.5 kgf.m (105-120 lbf.ft). Seal all mating faces with "Silastic".

FB.6. - GEAR SELECTORS REMOVAL

1. Remove the transmission unit and gearbox rear housing as previously described.
Remove the gearbox top cover together with the selector crossshaft.

Reverse Gear Selector

1. Slacken the screws securing the fork (A) and the operating dog (B), first removing the locking wire, to the selector shaft.
2. Withdraw the selector shaft, removing the fork, the operating dog and shaft locking ball and spring.

5th Gear Selector

1. Slacken the screw securing the 5th gear operating dog (C), after removing the locking wire.

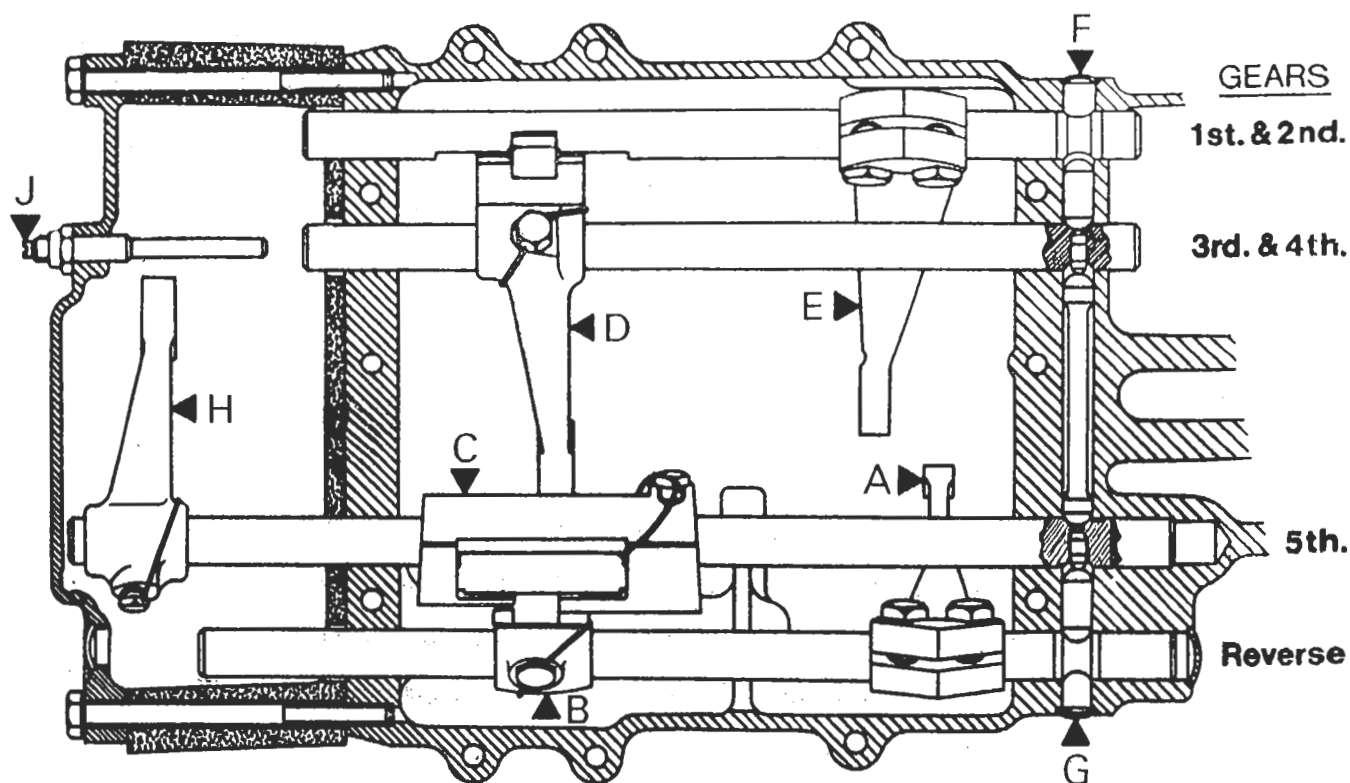


Fig.5 Gear selectors

2. Remove the shaft, the operating dog and shaft locking ball and spring, and the small interlock plunger inside the front end of the shaft.

3rd and 4th Gear Selector

1. Slacken the screw securing the fork (D) after removing the locking wire.
2. Remove the shaft, the fork, the shaft locking ball and spring, and the small interlock plunger inside the front end of the shaft.

1st and 2nd Gear Selector

1. Slacken the screws securing the fork (E).
2. Remove the shaft and the shaft locking ball and spring; the fork cannot be removed at this stage.

Interlock plungers

To Remove

1. Prise out the blanking plugs at positions (F) & (G) and push out the interlock plungers, taking care to note the order and position of the plungers.

NOTE: One long plunger between 3rd/4th and 5th selector shafts and shorter plungers between 1st/2nd and 3rd/4th selector shafts and 5th and reverse selector shafts.

FB.7. - GEAR SELECTOR REPLACEMENT

1st and 2nd Gear Selector

1. Locate the locking ball and spring in position.
2. Compress the spring and ball assembly, using a 6mm diameter rod.
3. Insert the gear selector shaft through the gearbox outer casting, the operating fork and into the differential end of the gearbox casting up to the neutral position.
4. Using a set of 1st and 2nd synchro gauges T000T0618 locate the fork in the neutral position. The sets of gauges are available in different thicknesses, select a set of gauges giving the least movement of the fork.
5. Tighten the two screws securing the fork to a torque of 4kgf.m (29 lbf. ft) and remove the gauges.

3rd and 4th Gear Selector

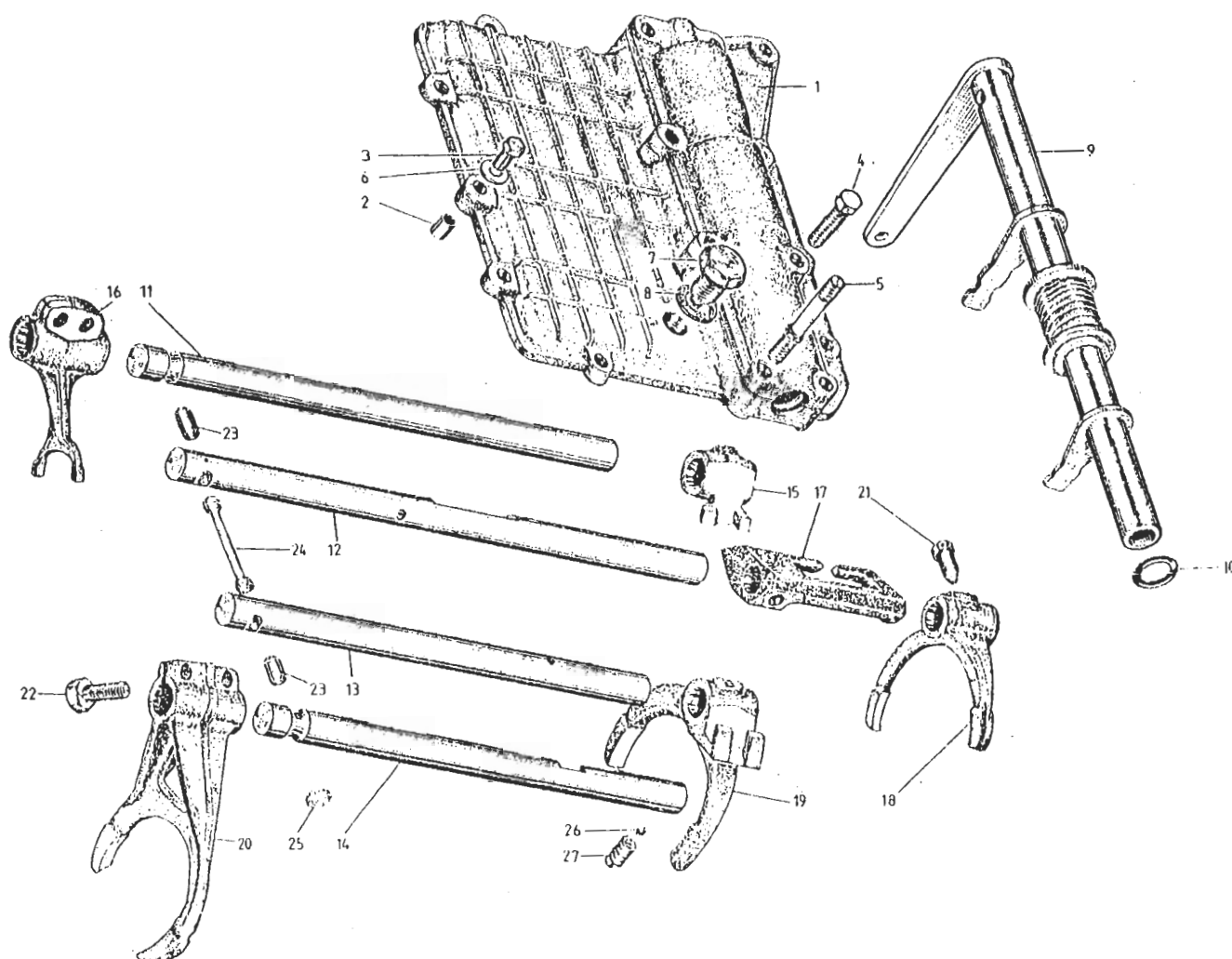
1. Place the first interlock plunger in from the opening at (F) figure 5 and locate in the 1st and 2nd selector shaft notch.
2. Insert the gear selector shaft through the gearbox outer casting, fit locking ball and spring as previously described, the operating fork and into the differential end of the gearbox casting, taking care to correctly locate the small plunger inside the front end of the selector shaft.
3. Locate the operating fork on the selector shaft so that the notch on the shaft lines up with the screw hole and screw down the grub screw, lock with wire.

5th Gear Selector

1. Place the long interlock plunger in from the opening at (G) figure 5 and ensure that the fitted selector shafts are located in the 'neutral' position. This will allow the 5th gear selector shaft to be inserted into the differential end of the gearbox.
2. Insert the gear selector shaft through the gearbox outer casting, fit the locking ball and spring as previously described, the 5th gear operating block and into the differential end of the gearbox casting, ensuring that the small interlock plunger is located inside the front end of the selector shaft.
3. Locate the 5th gear operating block on the selector shaft so that the notch on the shaft lines up with the screw hole in the block. Screw down the grub screw and lock with wire.

Reverse Gear Selector

1. Place the last interlock plunger in from the opening at (G) figure 5 and ensure that the fitted selector shafts are located in the 'neutral' position.
2. Insert the gear selector shaft through the gearbox outer casting, fit the locking ball and spring as previously described, the operating dog, the reverse gear fork and into the differential end of the gearbox casting.
3. Locate the reverse operating dog on the selector shaft so that the notch on the shaft lines up with the screw hole in the operating dog. Screw down the grub screw and lock with wire.
4. Position the reverse selector shaft in the neutral position with the notch in the operating dog vertical. Place the gauge T000T0619 (3mm) against the 1st gear idler and move the reverse intermediate gear, together with the reverse



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Gear Selector Mechanism

- | | |
|--|---|
| 1. Top Cover and Cross Shaft Bearing cap | 15. Relay Dog, Reverse Selector Shaft. |
| 2. Dowel, Top Cover locating. | 16. Selector Fork, reverse. |
| 3. Setscrew, Top Cover to Gearbox. | 17. Relay Dog, 5th Selector Shaft. |
| 4. Setscrew, Bearing Cap to Cover. | 18. Selector Fork, 5th. |
| 5. Shouldered Stud. | 19. Selector Fork, 3rd and 4th. |
| 6. Washer. | 20. Selector Fork, 1st and 2nd. |
| 7. Filler Plug. | 21. Locking Screw, Fork/Relay to Shaft. |
| 8. Gasket Filler Plug | 22. Setscrew, Fork Clamping. |
| 9. Cross Shaft Spindle Assembly. | 23. Interlock Plunger, short. |
| 10. 'O' Ring, Cross Shaft Spindle. | 24. Interlock Plunger, long. |
| 11. Selector Shaft, reverse. | 25. Blanking Plug, Interlock Bore. |
| 12. Selector Shaft, 5th. | 26. Detent Ball, Selector Shaft. |
| 13. Selector Shaft, 3rd and 4th. | 27. Spring Detent Ball. |
| 14. Selector Shaft, 1st and 2nd. | |

fork, up against the gauge. Tighten the two locking screws to a torque of 4 kgf.m (29 lbf.ft).

4th Gear Stop Adjustment

1. Replace the 'Gearbox Rear Housing' as previously described.
2. Engage the 4th gear.
3. Gently push the slider against the fork. Measure the clearance 'Y' between the slider and the 4th gear pinion, using feeler gauges.
4. Place a shim of thickness 'Y' +0.5 mm between the pinion and slider. Tighten the screw of the stop (J in fig.5) until it bears against the shaft of the 3rd and 4th gear fork.
5. Tighten the locknut on the stop and check the clearance.

Interlock Plungers

To Replace

1. Smear the bores of the interlock plungers with a sealing compound and knock in the blanking plugs at positions (F) and (G).

Final Assembly

1. Fit top cover on the gearbox and replace the transmission unit as previously described.

FB.8. - PRIMARY SHAFT

To Remove

1. Remove the Gear Selectors and the clutch shaft as previously described.
2. Remove the speedometer drive wheel using spanner T000T0617 and pull the 5th gear driven pinion off the splined pinion shaft.
3. Release the forward bearing (bellhousing end) on the primary shaft by gently tapping the rear end of the primary shaft.

4. Release the rear bearing on the primary shaft using a puller if necessary. Take care not to lose the balls from the race.

NOTE: The inner bearing rings are in two halves on the primary shaft rear end and care should be taken to note where each is fitted.

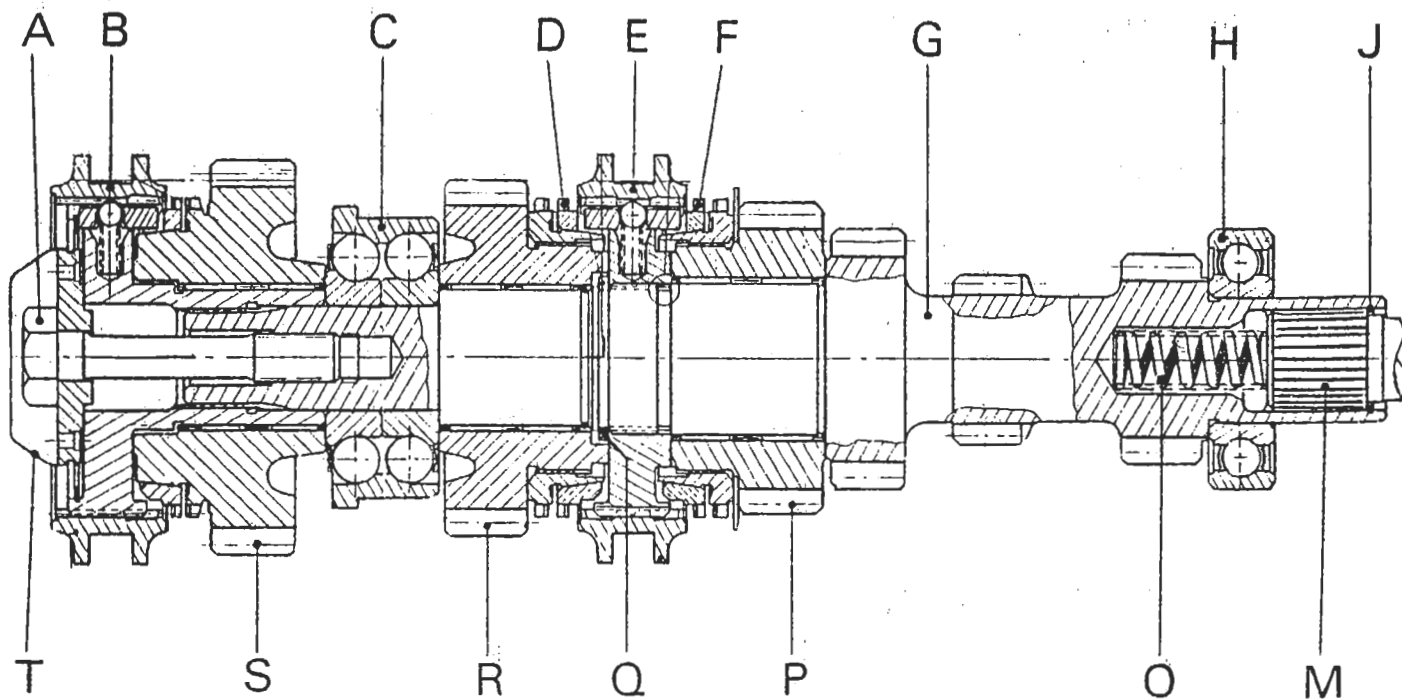


Fig.7 Primary shaft assembly

5. Move the primary shaft towards the bellhousing, separating the 4th gear drive pinion to gain access to the synchro hub assembly retaining circlip. Remove the circlip from the shaft using circlip pliers 3253-T, taking care to note the direction in which it is fitted.
6. Move the pinion shaft towards the bellhousing as described under heading 'Bevel Pinion' and allow gears to rest in the bottom of the casing to provide additional space to withdraw the primary shaft.
7. The primary shaft can now be moved towards the bellhousing end until the rear end of the shaft is clear of the casing. Lift out the primary shaft assembly.
8. Remove the 1st and 2nd gear selector fork, (E) figure 5.

Dismantling

1. Slide off the 4th gear drive pinion with the synchro ring and the needle bearing cage.
2. Remove the synchroniser.

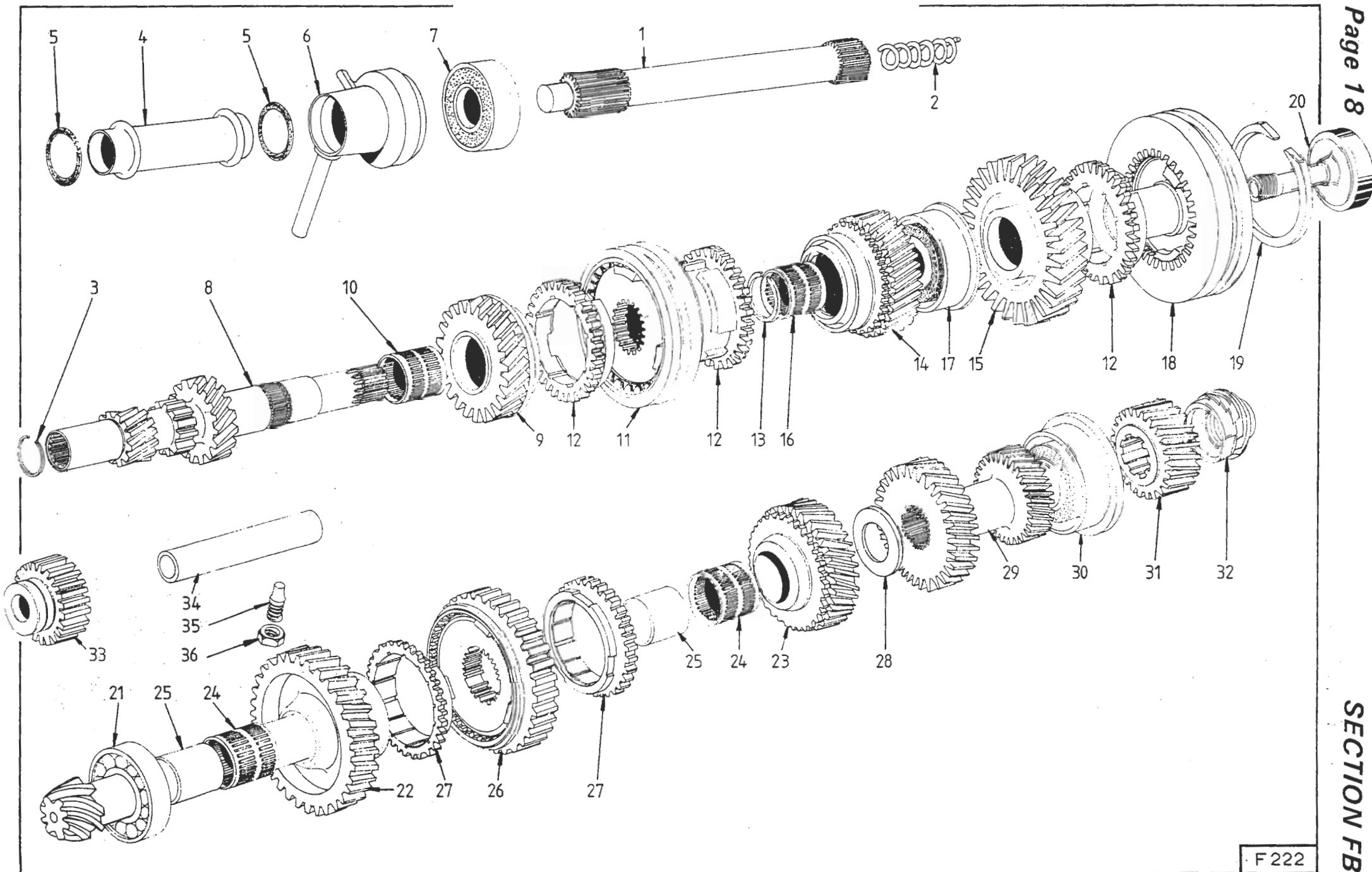
3. Slide off the 3rd gear drive pinion with the synchro ring and the needle bearing cage.
4. If the clutch shaft is fitted, remove the circlip securing the clutchshaft to the primary shaft and remove the clutch shaft and spring.

To Replace

1. If the clutch shaft is disconnected, fit the spring (O), then the clutch shaft (M) and secure with the circlip (J).
2. Fit the following onto the primary shaft in the order shown.
 - (a). 3rd drive gear (P) together with its needle bearing cage coated with transmission oil.
 - (b). Synchro ring (F).
 - (c). Synchroniser (E) ensuring that the collar with a groove is towards the 3rd drive gear (P).
 - (d). Using the circlip pliers T000T0620 fit the circlip (Q). Make sure circlip is fitted in the direction noted when removed.

IMPORTANT: The maximum movement of the synchroniser (E) on the shaft must not exceed 0.10 mm. Adjustment of this movement is achieved by changing the circlip (Q) for one of a different thickness.

- (e). Synchro ring (D).
 - (f). 4th drive gear (R) together with its needle bearing cage coated with transmission oil. Slide the synchroniser (E) across to engage the 4th drive gear.
3. Pass the input shaft end of the assembly through the top opening of the gearbox, then forward through the bearing opening into the differential compartment and locate circlip in its groove. It may be necessary to remove the pinion shaft to provide additional space to move the primary shaft down into the casing. See under heading 'Bevel Pinion Shaft'.
4. Fit the double rear bearing (C) and the front bearing (H) using a tube 30 mm internal diameter, 300 mm long.
5. Replace the bevel pinion, see 'Bevel pinion Shaft'.
6. Place the reverse gear wheel down into the gearbox with the fork groove towards the differential. Insert the intermediate shaft and line up the recess in



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Gearbox Shafts and Gears

Key to Gearbox Shafts & Gears Drawing

- | | |
|--|--|
| 1. Clutch Shaft. | 19. Circlip, 5th synchroniser. |
| 2. Spring, Clutch Shaft endthrust. | 20. Screw, 5th Hub to Primary Shaft. |
| 3. Circlip, Clutch Shaft retention. | 21. Roller Bearing, Secondary Shaft front. |
| 4. Support Tube, Clutch Release Bearing. | 22. 1st Speed Driven Pinion. |
| 5. Sealing Ring, Support Tube. | 23. 2nd Speed Driven Pinion. |
| 6. Scroll and Housing. | 24. Needle Roller Bearing. |
| 7. Ball Bearing, Primary Shaft front | 25. Sleeve, 1st/2nd Pinion Bearing. |
| 8. Primary Shaft. | 26. Synchroniser Assembly 1st/2nd. |
| 9. 3rd Speed Drive Pinion. | 27. Synchroniser Ring, 1st and 2nd. |
| 10. Needle Roller Bearing, 3rd Pinion. | 28. Spacer Washer, Selective. |
| 11. Synchroniser Assembly, 3rd and 4th. | 29. 3rd and 4th Speed Driven Pinion. |
| 12. Synchroniser Ring, 3rd, 4th and 5th. | 30. Double Ball Bearing, Secondary Shaft rear. |
| 13. Stop Ring, 3rd and 4th, Syncro. | 31. 5th Speed Driven Pinion. |
| 14. 4th Speed Drive Pinion. | 32. Nut/Speedo Drive Gear. |
| 15. 5th Speed Drive Pinion. | 33. Reverse Idler Gear. |
| 16. Needle Roller Bearing, 4th and 5th Pinion. | 34. Spindle, Reverse Idler Gear. |
| 17. Double Ball Bearing, Primary Shaft rear | 35. Screw, Reverse Gear Spindle. |
| 18. Synchroniser Assembly, 5th. | 36. Nut, reverse spindle screw. |

the shaft with the grub screw. Smear the threads of the grub screw with a locking compound and tighten screw and lock with nut.

7. Fit the 5th drive gear (S) together with its needle roller cage coated with transmission oil, synchroniser (B) and operating fork assembly on the primary shaft. Secure with the deflector (T) and bolt (A) and tighten to 14.5 - 16.5 kgf.m (105 - 119 lbf.ft).

FB.9. - BEVEL PINION SHAFT

To Remove

1. Remove the Primary Shaft as previously described.
2. Withdraw the bevel pinion through the gearbox casing into the differential housing.
3. As the bevel pinion is drawn through the casing, remove the 3rd & 4th driven gear pair, adjusting washer, 1st and 2nd syncro hub assembly with gears and needle roller bearings.

NOTE: The two rear ball races and the inner bearing rings must be replaced in the same order, fix labels to indicate positions.

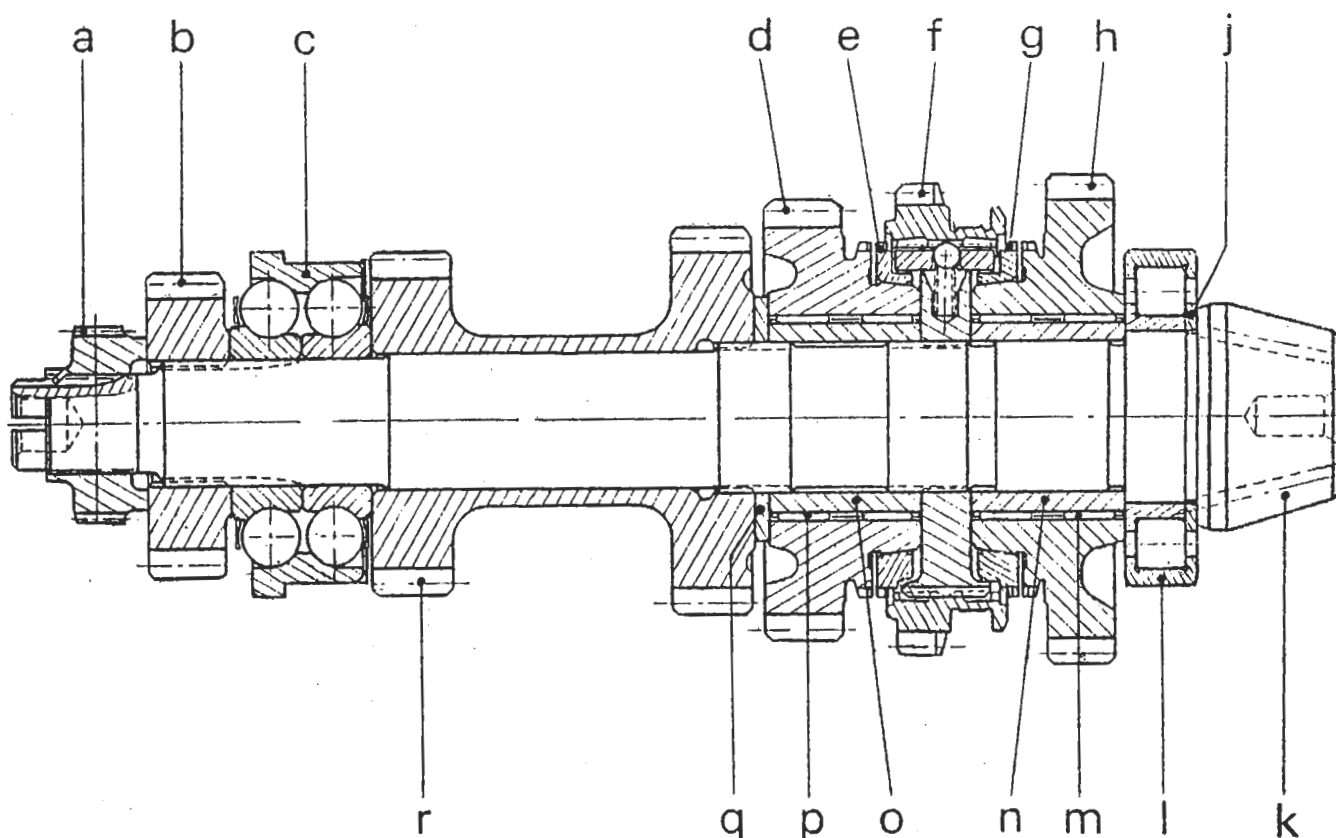


Fig.8 Bevel pinion assembly

To Replace

1. Check all parts are clean and there are no abrasive or metal particles adhering to the parts.
2. Fit the front roller bearing (l) on the pinion (k) using a suitable length (240 mm) of tubing (inside diameter 44 mm). Make sure the washer (j) is fitted against the pinion before pressing on bearing.
3. Feed the pinion shaft through the opening in the gearbox casing from the differential end.
4. Onto the shaft inside the gearbox casting first place the 1st speed driven pinion (h), together with its needle bearing cage (m) and inner bearing sleeve (n). Coat the bearing before fitting with transmission oil.
5. Next place onto the shaft the syncro ring (g), the synchroniser (f) with the reverse gear teeth towards the back of the gearbox and the syncro ring (e).
6. Now slide on the 2nd speed driven pinion (d) together with its needle bearing cage (p) and inner bearing sleeve (o). Coat the bearing before fitting with transmission oil.
7. Finally place on the shaft the adjusting washer (q) and the double pinion (r) and push the shaft to the rear of the gearbox.
8. Fit the rear double bearing (c), taking care to assemble the double bearing races and bearing ring in the original positions.
9. Fit the 5th gear pinion (b) with the small shoulder on the pinion against the double bearing.
10. Using spanner T000T0617, Lock the shaft and tighten the threaded speedometer drive wheel (A) to a torque of 20 to 22 kgf.m (145 to 160 lbf .ft). If both shafts are fitted, then the shafts can be locked by selecting the reverse gear and any other gear. Do not lock nut at this stage.
11. Before fitting the primary shaft and covers to the gearbox, check the pinion cone setting as detailed in "Adjustments".

Adjustments

On the ground face of the bevel pinion is engraved a figure in millimetres. This figure represents the distance, which must be maintained after adjustment, between the differential centre line and the ground face of the bevel pinion.

This distance is different for each bevel pinion and is checked using the distance gauge fixture T000T0616 fitted with dial gauge T000T0615. The fixture is designed so that the distance between the centre line of the ground contact faces (drive shaft bearing surfaces) and the faces of the probes is 60 mm. This figure is engraved on the fixture between the probes.

1. First calibrate the fixture.

- (a). Clean the bearing surfaces and the ground contact faces of the fixing.
- (b). Place the fixture on a surface plate.
- (c). Zero the dial gauge with the large needle on 0.
- (d). Note the position of the totalising needle.

Totalising needle between 4 and 5.

Large needle at 0.

2. Offer the fixture up to the bearing surfaces of the drive shafts with the dial gauge stem not in contact with the ground face of the bevel pinion, unlock the gauge stem.

3. Rotate the fixture in the bearing surfaces, so the gauge stem passes over the ground face of the pinion, until the large needle of the dial gauge is about to change direction. Lock the needle positions and note the readings.

Example: Totalising needle between 0 and 1.

Large needle at 86.

4. Remove the fixture and place once again on the surface plate. Allow the dial gauge stem to return slowly, so the full revolutions can be counted. When the gauge stem comes to rest on the surface plate the measurement of the part revolution can be made.

If the measurements for the examples are:

$$\text{Conic distance } 60 + 3.86 = 63.86 \text{ mm.}$$

5. If the dimension engraved on the pinion for this example is 63.95 mm then the bevel pinion must be moved away from the differential centre line by:

$$63.95 - 63.86 = 0.09 \text{ mm.}$$

6. To adjust the bevel pinion remove the rear housing, the speedometer drive wheel and the 5th gear pinion.

7. Remove the bevel pinion as previously described.

8. Measure the thickness of the adjusting washer (q) figure 8 which for this example is: 2.81 mm. Replace this washer by another with a thickness calculated in the following manner:
$$2.81 - 0.09 = 2.72 \text{ mm}$$

As washers are available in thickness from 1.65 mm to 3.13 mm in steps of 0.04 mm, the nearest to the calculated thickness is 2.73 mm.
9. Fit the new adjusting washer (q) and replace the bevel pinion as previously described.
10. Check the adjustment, repeat instructions 1 to 4.
11. If adjustment is within the tolerance $\pm 0.02 \text{ mm}$ fit the 1st and 2nd gear operating fork.

Final Replacement

1. Replace the primary shaft as previously described, tighten speedometer drive wheel nut to specified torque as described in "bevel pinion shaft" and lock nut by peening it to the pinion.
2. Check that the pinions rotate freely when out of gear.
3. Apply sealing compound to cover mating surfaces and tighten all securing screws to the torque specified in the TECHNICAL DATA.

FB.10. - DIFFERENTIAL SHAFTS (Drive Shafts)

Dismantle

1. Remove and dismantle the 'Clutch Bellhousing' as previously described.
2. Remove the grub screw securing the large nut which locks the bearing to the shaft.
3. Using the box spanner T000T0612 unscrew and remove the large nut.
4. Drive the shaft out through the bearing.
5. Remove the grub screw in the top of the shaft housing and using the special spanner T000T0613, remove the locking ring securing the bearing to the shaft housing.
6. Gently tap out the two ball races.

NOTE: The two ball races must be replaced in the same order, fix labels to indicate positions.

7. Drive out the double ball bearing outer ring using a tube of 65 mm external diameter.
8. Using a suitable extractor, draw the inner bearing rings from the shaft.
Note positions.
9. Remove the sealing ring from the shaft housing.
10. Remove the oil retaining washer and bearing distance bush assembly from the shaft.

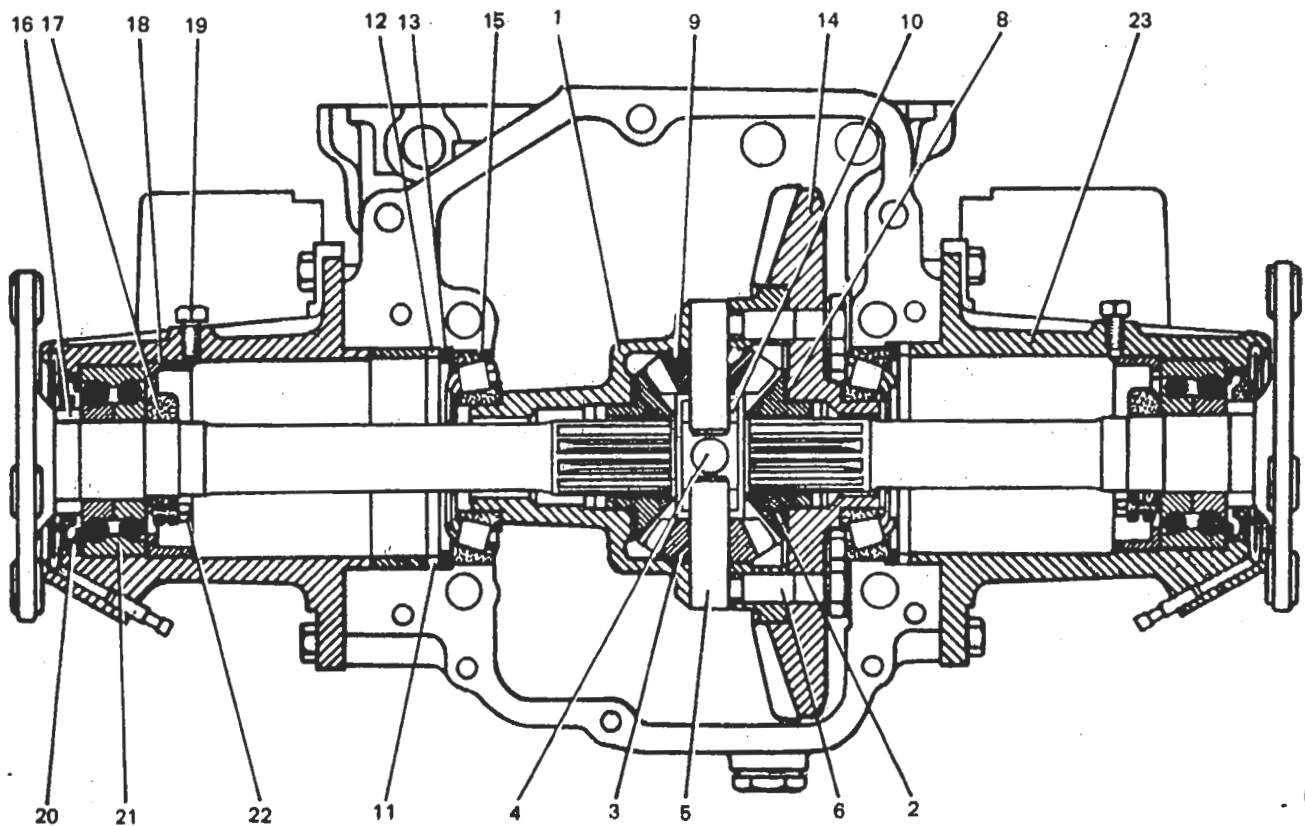


Fig.9 Differential assembly

- | | |
|-----------------------------|--------------------------|
| 1. Satellite housing | 13. Adjusting washer |
| 2. Planet wheel | 14. Crown wheel |
| 3. Satellite gear | 15. Roller bearing |
| 4. Satellite spindle, long | 16. Spacer |
| 5. Satellite spindle, short | 17. Locking nut |
| 6. Screw with dowel | 18. Nut |
| 7. Crown wheel screw | 19. Grub screw |
| 8. Planet wheel washer | 20. Oil seal |
| 9. Satellite gear washer | 21. Bearing |
| 10. Crosshead bush | 22. Grub Screw |
| 11. Distance piece | 23. Output shaft housing |
| 12. Distance washer | |

To Assemble

NOTE: The differential drive shaft on the left-hand side of gearbox is the shorter.

1. Fit the bearing (21) in the housing and tighten the nut (18) to 10 kgf.m (72 lbf.ft) using the spanner T000T0612. Lock the nut using the grub screw (19).
2. Fit the oil seal (20) using a suitable tool.
3. Position the oil retaining washer on the shaft. Fit the spacer (16), and ensuring that the washer is centralised, press on the spacer.
4. Fit the differential shaft into the housing and position using a tube of 30 mm inside diameter under a press. Tighten the bearing locking nut (17) to 15 kgf.m (108 lbf.ft). Tighten the grub screw (22) in the locking nut.
5. Assemble and replace the 'Clutch Bellhousing' as previously described.

FB.11. - DIFFERENTIAL CROWNWHEEL & PINIONTo Remove

1. Dismantle the 'Differential Shafts' as previously described.
2. Using a suitable extractor remove the tapered roller bearings from each end of the crown wheel assembly.
3. Remove the eight screws (6) securing the crown wheel to the housing and remove the following:
 - (a) Crown wheel (14)
 - (b) Satellite spindle (4)
 - (c) Planet wheel (2) and thrust washer (8)
 - (d) Two satellite spindles (5)
 - (e) Satellite gears (3) and stop washers (9)
 - (f) Crosshead (10)
 - (g) Other planet wheel and thrust washer.

To Replace

1. Place in the satellite housing a thrust washer (8), one planet wheel (2), one fixed thrust washer (9), one satellite gear (3) and the long spindle (4).
2. Rotate the planet wheel and check that the point of minimum clearance is

- 0.1 mm. If this is not so replace thrust washers until the minimum clearance is achieved. Remove the satellite and thrust washer making a note of the position in the housing.
3. Repeat 1 and 2 for each satellite gear, taking care to fit the crosshead bush (10) to support the short satellite spindles (5). Fit the dowel pin screws temporarily to locate the short satellite spindles.
 4. Fit all the satellite gears and thrust washers.
 5. Place the second planet wheel with thrust washer in the crown wheel.
 6. Locate the satellite housing in recess in the crown wheel and fit the eight screws. Take care the dowel screws are fitted in the correct holes. Gradually tighten the screws, checking the pinions rotate freely, to a torque of 11.5 to 13 kgf.m (83 to 94 lbf.ft).
 7. Check the minimum clearance of the second planet wheel and this should be 0.1 mm. Change the thrust washer to achieve this clearance.
 8. Using an oil gun, inject gearbox oil into the satellite housing lubricating all parts inside.
 9. Fit the bearings on the satellite housing and crown wheel using a suitable mandrel.

FB.12. - DIFFERENTIAL BEARINGS ADJUSTMENT

There are two methods by which adjustments can be made to the differential bearings. The first method uses a dial gauge to measure the thickness of the adjusting washers, which is directly related to the bearing stress. The second method measures the torque required to rotate the differential using a spring balance.

Method 1

1. Position the differential and bearings.
 - (a) Place the differential together with bearings in the end of the gearbox casing.
 - (b) Place the adjusting washer (13) and the distance washer (12), with a total thickness of 7 mm, against the left-hand differential bearing.
 - (c) Secure the differential in place using clamps as necessary.
 - (d) Place a new paper gasket on the left-hand differential shaft housing,

locate the drive shaft in the planet wheel and align the screw holes.

Fit screws, taking care to fit the correct lengths and tighten.

- (e) Place the gearbox casting on its left-hand side, supporting it in this position.
- (f) Place against the right-hand differential bearing the adjusting washer (13) followed by the distance washer (12) and the distance piece (11). The total thickness (12) and (13) should not be less than 9 mm.
- (g) Locate the right-hand differential drive shaft in the planet wheel and align the screw holes. Without a gasket fitted on housing, fit the assembly in position and tap lightly on the differential shaft.
- (h) Remove the right-hand drive shaft, adjusting washers and distance piece.

2. Adjust the pre-load on the differential bearings.

NOTE: The bearings must be fitted with a specified pre-load.

- (a) Place gauge support T000T0614, fitted with dial gauge T000T0615, on the collar of the right-hand drive shaft housing. Allow the probe of the gauge to touch the bearing face of the housing. Bring the zero of the movable dial of the gauge in line with the large needle. Note the position of the needle.

Example: Large needle reading = 0

Small needle reading = 0

- (b) Place the dial gauge and support on the gearbox casting with the probe bearing on the distance piece. Take two measurements.

Example: Measurement A = 7.76 mm

Measurement B = 7.80 mm

Average A and B = $\frac{7.76 + 7.80}{2} = 7.78 \text{ mm}$

- (c) Add to the average measurements the following items:

Thickness of the seal = 0.10 mm

Stress on the bearing = 0.30 mm

Total = 0.40 mm

Example: $7.78 + 0.40 = 8.18 \text{ mm}$

Select an adjusting washer and a distance washer with a total thickness nearest to the calculated thickness. This would be for the example

used 8.20 mm (the adjusting washer has a smaller inside diameter).

- (d) Place the selected washers on the right-hand bearing, with the adjusting washer next to the bearing. Fit the distance piece and fit the right-hand drive shaft housing with a paper gasket between the mating surfaces.

IMPORTANT: The thickness of the washers fitted against the left-hand and right-hand bearings corresponds to the setting of the bearing stress only.

To adjust the backlash these washers must be redistributed to the left and to the right, without changing the overall thickness.

Example: Left-hand bearing washers	=	7.00 mm
Right-hand bearing washers	=	8.20 mm
Overall thickness	=	<u>15.20 mm</u>

Method 2

1. Fitting the differential assembly.

- (a) Place the differential, fitted with bearings, in the end of the gearbox casting.
- (b) Secure the differential in place using clamps as necessary.
- (c) Place new paper gaskets on the left-hand and right-hand drive shafts assemblies, together with any shims removed during dismantling. Locate the drive shafts in the planet wheel and align the screw holes. Fit screws, taking care to fit the correct lengths and tighten.

2. Adjust the pre-load on the bearings.

NOTE: The bearings must be fitted with a specific pre-load. This can be checked by measuring the torque required to turn the differential.

- (a) To measure the torque fix and wind a length of cord around the differential satellite housing. Attach to the free end of the cord to a spring balance so the satellite housing can be rotated when the spring balance is pulled.
- (b) Take a reading from the balance when the satellite housing is just about to rotate. This reading should be within the following limits

given for bearings which have previously been used and new bearings.

- (i) Bearings previously used should be within 4 to 6 kg. If the reading is less than 4 kg, increase the thickness of the adjusting washers. For readings in excess of 6 kg reduce the thickness of the adjusting washers.
- (ii) New bearings should be within 6 to 9 kg. If the reading is less than 6 kg, increase the thickness of the adjusting washers. For readings in excess of 9 kg reduce the thickness of the adjusting washers.

NOTE: An adjusting washer 0.10 mm thick corresponds approximately to a bearing stress of:

0.250 kg for new bearings
0.500 kg for used bearings

IMPORTANT: The thickness of the washers fitted against the left-hand and right-hand bearings corresponds to the setting of the bearing stress only.

To adjust the backlash these washers must be redistributed to the left and right, without changing the overall thickness.

FB.13. - BACKLASH ADJUSTMENT

To check the backlash adjustment both drive shaft housings must be fitted.

1. Measure the clearance between the crown wheel and pinion teeth i.e. backlash.

- (a) Fit a dial gauge T000T0615 to a support, fixed to the gearbox casting.
- (b) Adjust the position of the dial gauge so that the measuring probe touches the flank of a tooth at heel (outer edge of crown wheel) see figure 10. This should be achieved somewhere near maximum diameter of the crown wheel.
- (c) Move the crown wheel to the extent of the backlash several times and measure the difference on the dial gauge.

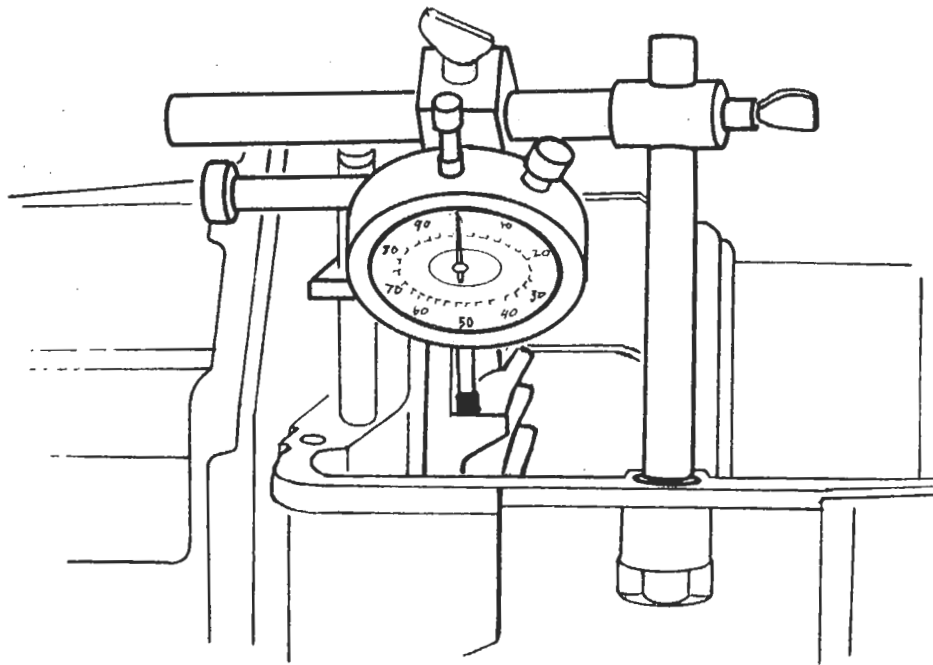


Fig.10 Measuring crown wheel backlash

- (d) Repeat the procedure on teeth at about 90° , 180° and 270° around the crown wheel from the first measurement. The difference between any two measurements should not exceed 0.10 mm. If a reading exceeds this figure it will indicate the crown wheel is running out of true or is badly fitted.
- (e) Make a note of the minimum clearance.
Example clearance = 0.73 mm

2. Adjust the backlash.

IMPORTANT: The clearance between the teeth is adjusted by redistributing the adjusting washers against the left-hand and right-hand bearings. Under no circumstances must the overall thickness of the washers be altered, see DIFFERENTIAL BEARINGS ADJUSTMENT.

- (a) The clearance must be adjusted to within the limits 0.16 mm and 0.24 mm. Aim for an average clearance of 0.20 mm.
- (b) Subtract this average clearance from the minimum reading noted; for the example given, this will be:

$$0.73 - 0.20 = 0.53 \text{ mm}$$

therefore, for this example the clearance must be reduced by 0.53 mm.

NOTE: Moving a 0.15 mm adjusting washer from one side to the other, will change the clearance by 0.10 mm.

For the example therefore, the thickness of the washers to be moved

$$\frac{0.53 \times 0.15}{0.10} = 0.79 \text{ mm}$$

- (c) In the example chosen, it is necessary to move the crown wheel towards the pinion by a distance of 0.79 mm.

To achieve this, the thickness of the washers against the right-hand bearing should be reduced to:

$$8.20 - 0.79 = 7.41 \text{ mm,}$$

and the thickness of the washers against the left-hand bearings should be increased by the same amount.

$$7.00 + 0.79 = 7.79 \text{ mm}$$

- (d) Recheck the backlash measurement to verify that the difference between any two measurements, around the crown wheel, does not exceed 0.10 mm.

3. If backlash is within the tolerance, assemble the differential assembly, replace the Clutch Bellhousing and refit Transmission Unit.

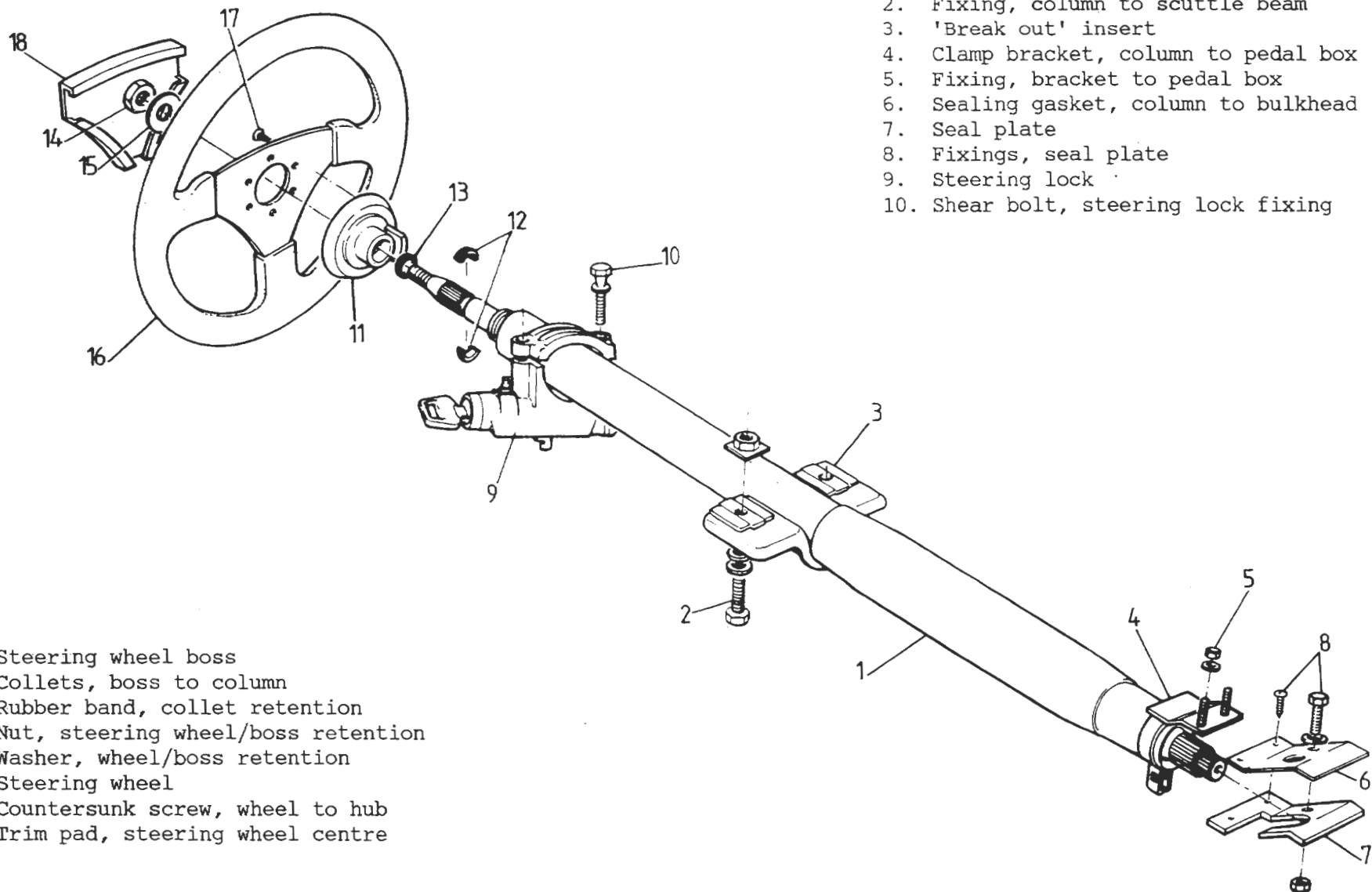
STEERINGSECTION HB - ESPRIT '88 M.Y. Onwards

	<u>Sub-Section</u>	<u>Page</u>
General Description	HB.1	5
Steering Wheel	HB.2	6
Upper Steering Column Assembly	HB.3	8
Intermediate Steering Column Assembly	HB.4	15
Track Rod Ends & Toe-in Adjustment	HB.5	19
Steering Rack Gaiters	HB.6	20
Rack & Pinion Assembly	HB.7	21

NON-S.I.R. TYPE UPPER STEERING COLUMN

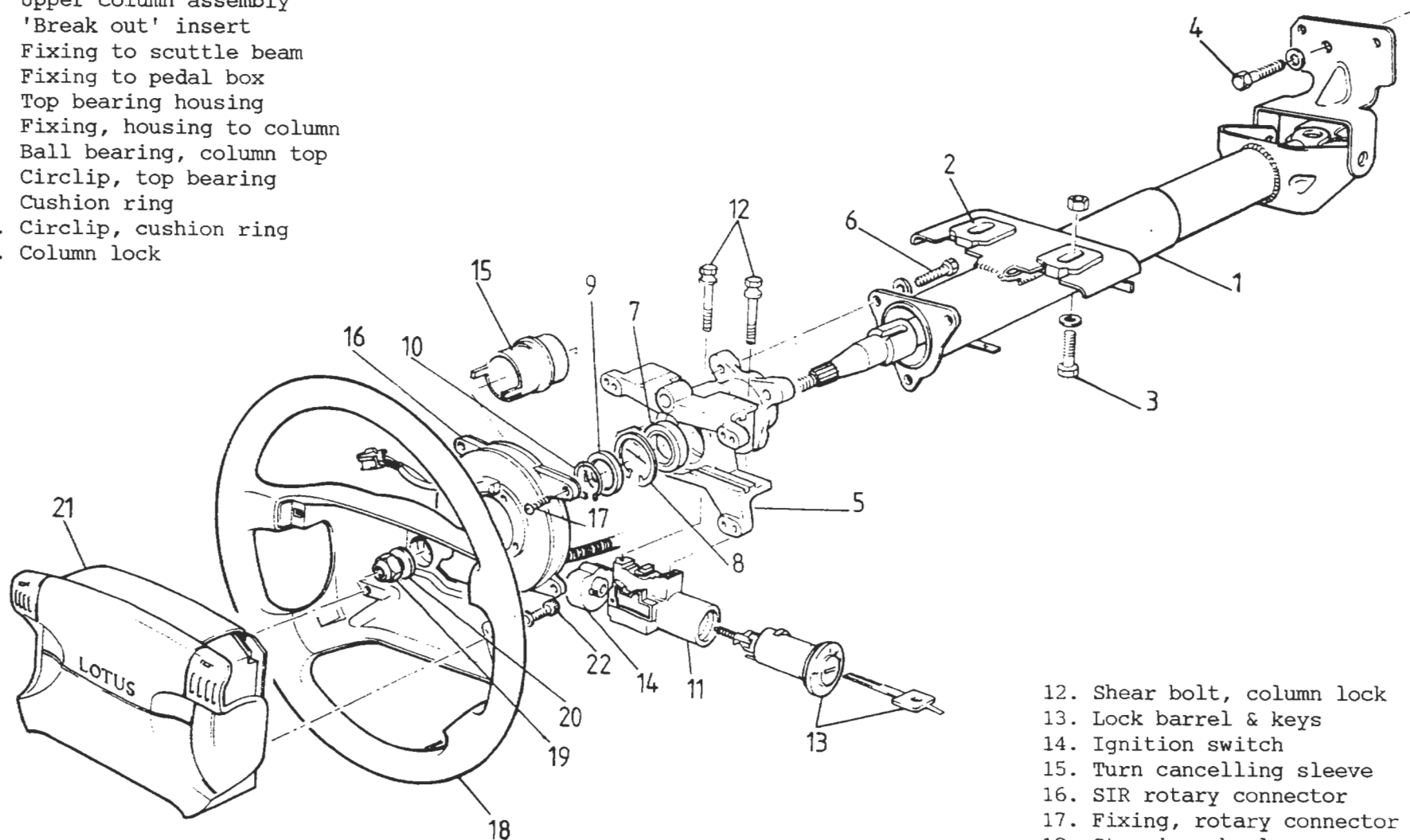
1. Steering column assembly
2. Fixing, column to scuttle beam
3. 'Break out' insert
4. Clamp bracket, column to pedal box
5. Fixing, bracket to pedal box
6. Sealing gasket, column to bulkhead
7. Seal plate
8. Fixings, seal plate
9. Steering lock
10. Shear bolt, steering lock fixing

11. Steering wheel boss
12. Collets, boss to column
13. Rubber band, collet retention
14. Nut, steering wheel/boss retention
15. Washer, wheel/boss retention
16. Steering wheel
17. Countersunk screw, wheel to hub
18. Trim pad, steering wheel centre



S.I.R. TYPE UPPER STEERING COLUMN

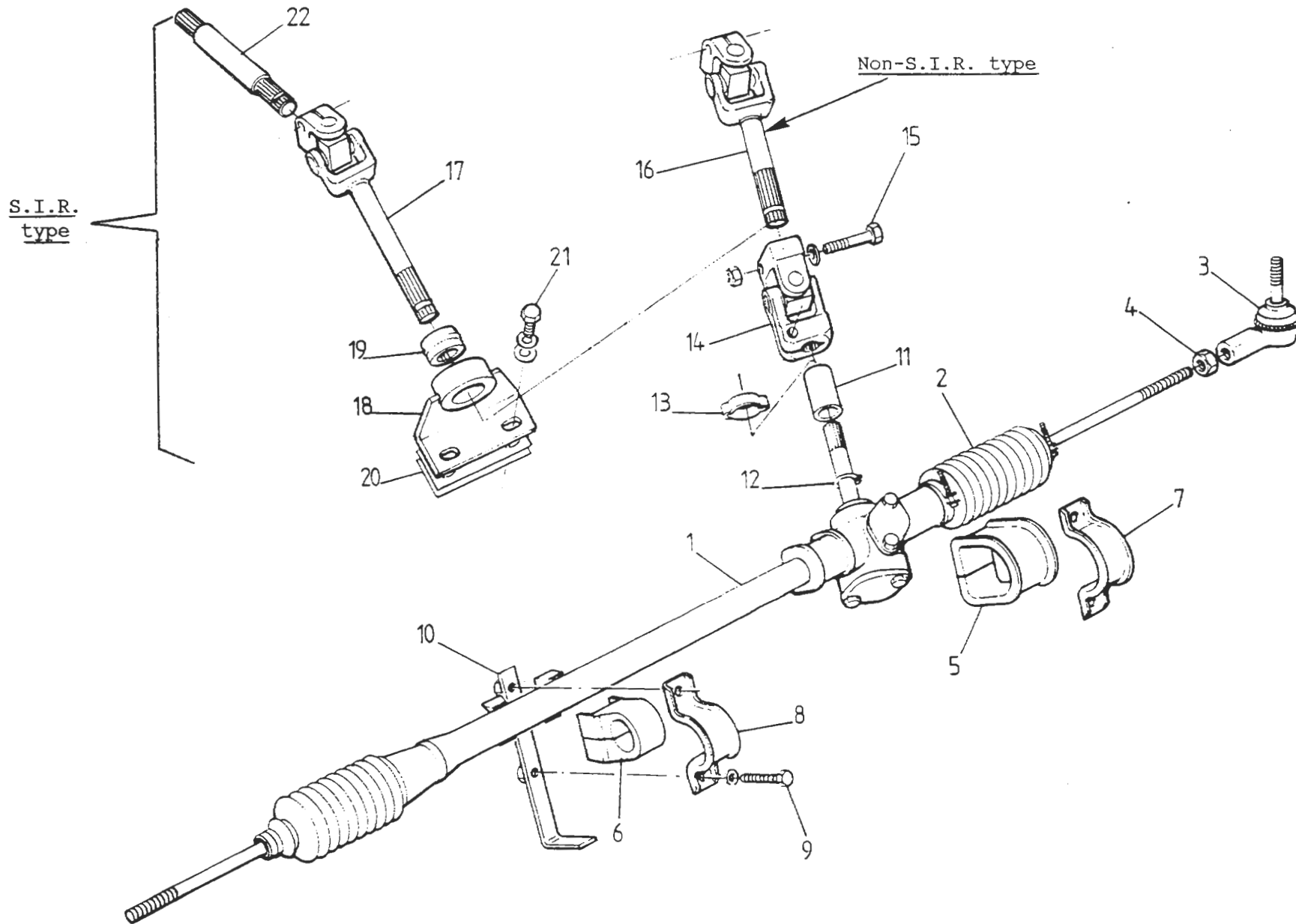
1. Upper column assembly
2. 'Break out' insert
3. Fixing to scuttle beam
4. Fixing to pedal box
5. Top bearing housing
6. Fixing, housing to column
7. Ball bearing, column top
8. Circlip, top bearing
9. Cushion ring
10. Circlip, cushion ring
11. Column lock



12. Shear bolt, column lock
13. Lock barrel & keys
14. Ignition switch
15. Turn cancelling sleeve
16. SIR rotary connector
17. Fixing, rotary connector
18. Steering wheel
19. Nut, wheel to column
20. Washer, wheel to column
21. SIR inflator module
22. Fixing, inflator module



INTERMEDIATE COLUMN & RACK & PINION ASSEMBLY

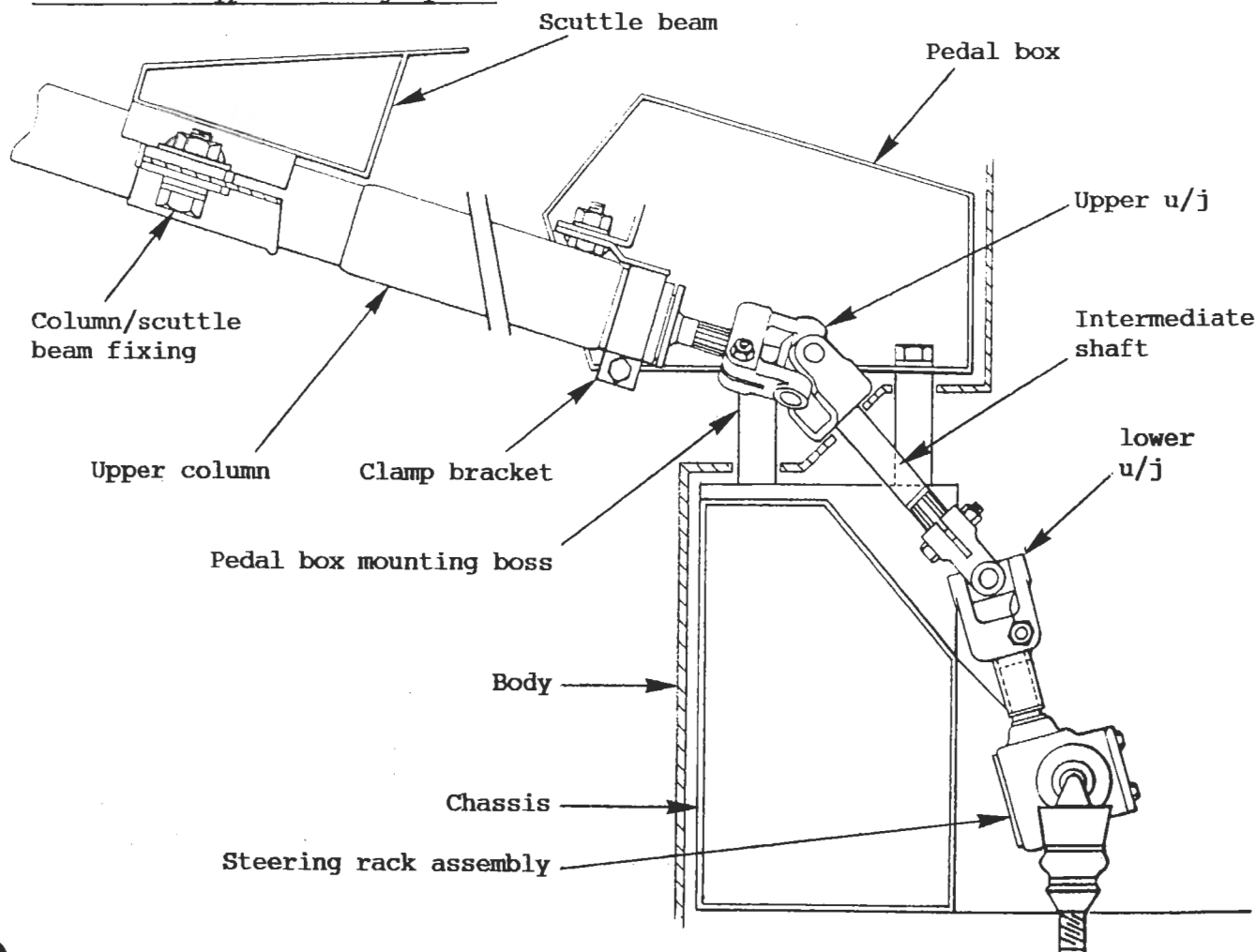


Key to Intermediate Column & Rack & Pinion Assembly Drawing

- | | |
|---|--------------------------------------|
| 1. Rack & Pinion assembly | 12. Circlip, spacer tube stop |
| 2. Gaiter (supplied as kit of 2 gaiters with clips) | 13. Clip, spacer tube fix |
| 3. Track rod end | 14. Lower universal joint (u/j) |
| 4. Locknut, track rod end | 15. Pinch bolt, lower u/j |
| 5. Rack assembly LH rubber mounting | 16. Non-SIR intermediate shaft |
| 7. Clamp bracket, LH mounting | 17. SIR lower intermediate shaft |
| 8. Rack assembly RH rubber mounting | 18. Steady bracket, int. shaft |
| 9. Clamp bracket, RH rubber mounting | 19. Bush, steady bracket |
| 10. Tapping plate, rack assy mounting | 20. Shim (if fitted), steady bracket |
| 11. Spacer tube, lower u/j | 21. Fixing, steady bracket |
| | 22. SIR upper intermediate shaft |

HB.1 - GENERAL DESCRIPTION

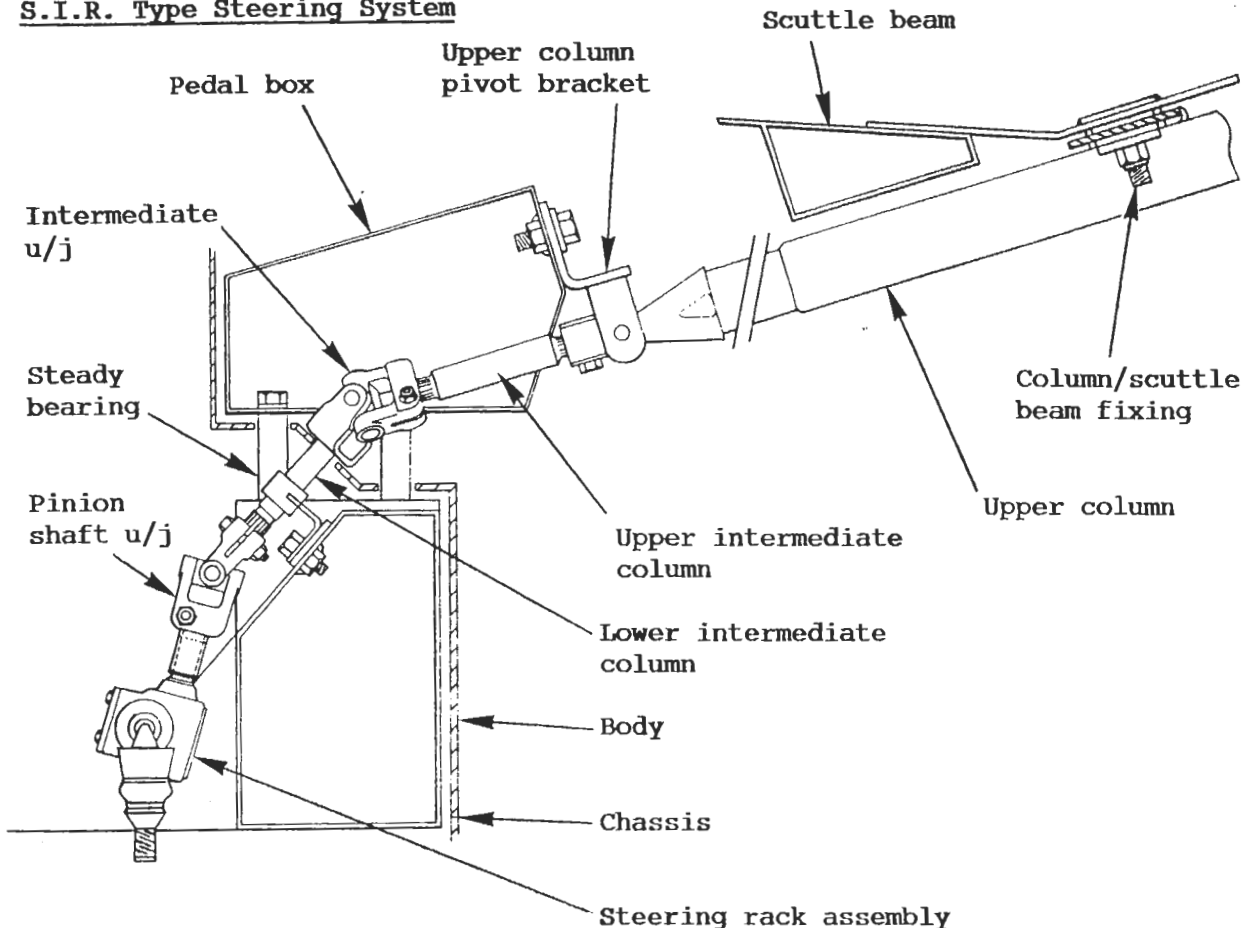
A rack and pinion steering system is used on the Esprit, with the steering rack assembly clamped to the the chassis front crossmember behind the front axle line. On cars without a Supplementary Inflatable Restraint (S.I.R.), the collapsible upper steering column assembly is connected with the rack pinion shaft via a short intermediate shaft and two universal joints.

Non-S.I.R. Type Steering System



On S.I.R. equipped cars, a shorter upper column assembly requires two short intermediate shafts, the lower of which is supported in a chassis mounted bearing, and three universal joints to connect with the rack assembly.

S.I.R. Type Steering System



HB.2 - STEERING WHEEL

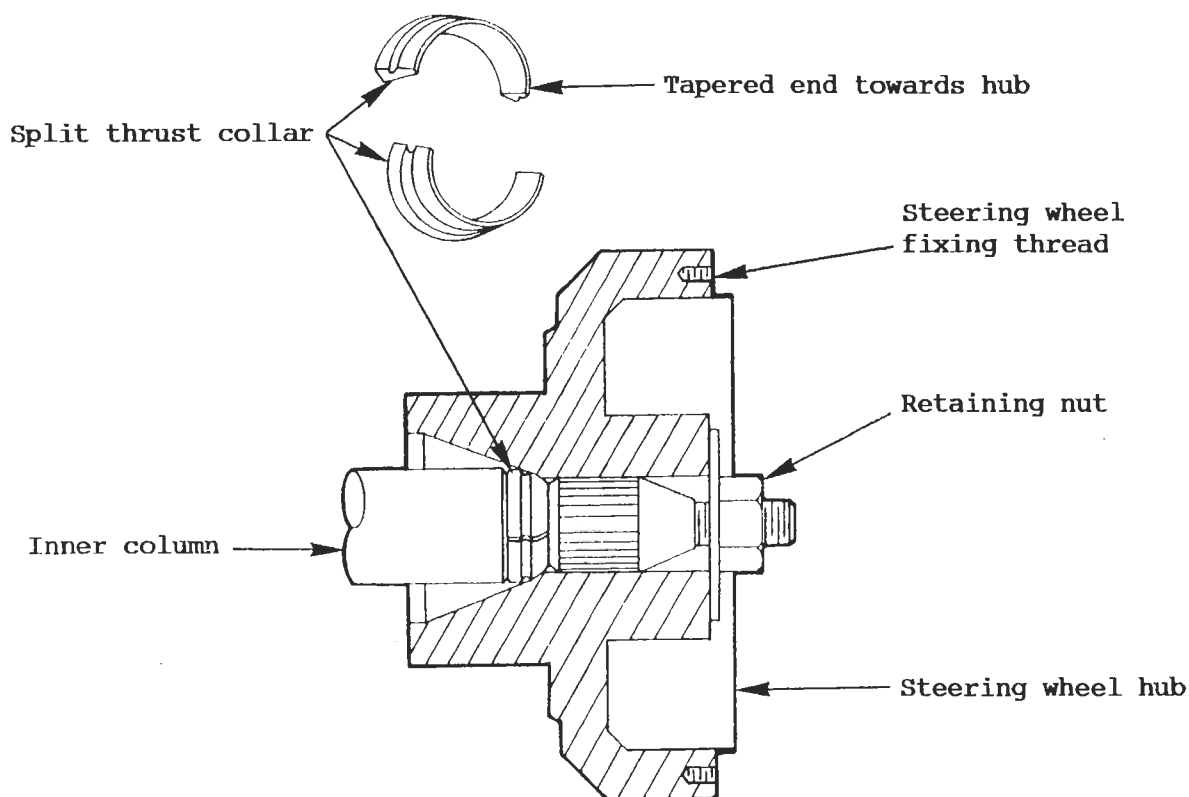
On non-S.I.R. (Supplementary Inflatable Restraint) cars, the three spoke steering wheel is secured to an alloy hub by six countersunk screws. The hub is splined to the inner steering column, and a tongue on the back of the boss serves to operate the cancelling mechanism for the turn indicator switch.

On S.I.R. equipped cars (primarily USA), the the steering wheel and hub are integrated into a single unit which houses an inflator module (air bag) at its centre, concealed beneath a moulded trim cover. The padded cover is designed to split open when the inflator module is deployed (air bag inflated). The spokes of the steering wheel also incorporate a pair of horn buttons.

WARNING: Any work on, or removal of the steering wheel on S.I.R. cars requires that rigorous safety precautions be taken in order to safeguard against unintentional deployment of the inflator module. Do not attempt any work on the steering wheel of an S.I.R. equipped car without referring to Sub-Section WA.3 - J in the separate manual 'Section WA', part no. E082T0327J.

To Remove Wheel & Hub Assy.: Non-S.I.R. Cars

- Pull off the trim pad from the centre of the wheel.
- Remove the nut and washer retaining the wheel.
- Match mark the relative positions of the steering wheel hub and inner column.
- Pull the wheel off the column using minimum force, if necessary using a suitable puller. **DO NOT** apply excessive axial force to the steering wheel, or inner or outer columns without the use of a puller, or the mechanism retaining the telescopic length of the column may be overridden, necessitating column replacement.
- Take care not to misplace the split thrust collar from the top of the column.

To Refit Wheel & Hub Assy.: Non-S.I.R. Cars

- Apply a small amount of PBC grease to the column splines to aid subsequent steering wheel removal, but ensure that the **threaded section is thoroughly degreased;**
- Check that the split thrust collar is held in position (by a rubber band) in the groove in the column just below the splines, with the tapered faces towards the steering wheel as shown;
- Taking care not to damage the turn indicator switch cancelling fingers, refit the steering wheel assembly with the match marks aligned, fit the washer and retaining nut and tighten to 41 - 47 Nm (30 - 35 lbf.ft).

To Remove & Refit Wheel & Hub Assy.: S.I.R. Cars

See Sub-Section WA.3 - J in separate manual 'Section WA' part no. E082T0327J.

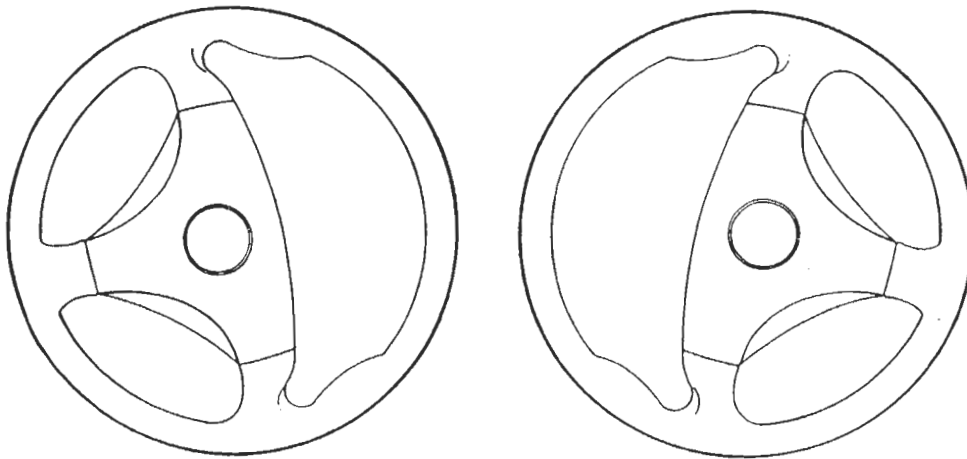
Steering Wheel Alignment

If the steering wheel alignment requires re-setting, or if there are no wheel to column reference marks available when fitting a steering wheel, proceed as follows:



1. In order to maintain the required bump steer characteristic, it is important to ensure that the steering rack is centralised in the straight ahead position, i.e. both track rods are the same length. Measure the amount of visible thread at each track rod, and if necessary equalise by adjusting an equal and opposite amount at each side.
2. Slide the steering wheel onto the column splines in an approximate straight ahead position. Rotate the wheel to full left hand lock and then to right hand lock, and check that the two extreme steering wheel positions are the mirror image of each other. If necessary, reposition the wheel on the column until this is achieved. Fit and tighten the steering wheel nut as above.

Typical 'full lock' steering wheel positions



3. Road test the car to check steering wheel alignment. It should not be necessary to reposition the wheel by more than one spline to achieve alignment to within 5°. Complete alignment is achieved by adjustment at the track rod ends, an equal and opposite amount at each side to maintain the toe-in setting.
4. Check front wheel toe-in.

HB.3 - UPPER STEERING COLUMN ASSEMBLY

On non-S.I.R. (Supplementary Inflatable Restraint) cars, the upper steering column assembly comprises inner and outer columns, both of which are telescopically collapsible if an axial load above a specified figure is applied to the column in the course of an accident. The lower end of the outer column is secured to the pedal box via a clamp bracket, and the top end of the column is secured to the scuttle beam via two fixing bolts and 'break out' inserts, which are retained in slots in the column brackets by nylon pins. These pins are designed to shear in an accident, and allow the upper half of the column to break free of the scuttle beam and telescope downwards, this movement being accommodated by the deformation of an open mesh crumple section (covered by a rubber sleeve) at the bottom of the column.

The telescopic inner column assembly is supported in ball bearings and provided with splines at the top end for the steering wheel, and splines at the bottom end for connection with the intermediate column. The upper part of the



inner column is provided with a slot into which the steering lock engages.

On S.I.R. equipped cars (primarily USA), a different column is used, but the same principles apply. The same 'break out' fixings are used at the scuttle beam, but the lower end of the column is secured to the pedal box via a hinge bracket and a single fixing bolt. The two parts of the outer column are connected by grip collars and the assembly must be replaced if collapsed. The two parts of the inner column are connected by a telescopic joint, the length of which is fixed by plastic buttons locating in grooves, which may be overridden by a specified force. The assembly must be replaced if collapsed.

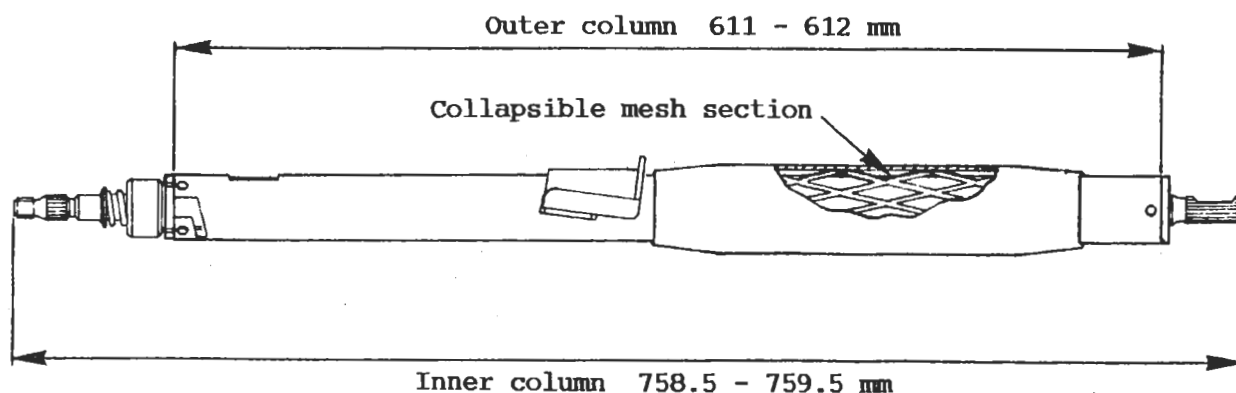
WARNING: Any work on, or removal of the steering column on S.I.R. cars requires that rigorous safety precautions be taken in order to safeguard against unintentional deployment of the inflator module. Do not attempt any work on the steering column of an S.I.R. equipped car without referring to Sub-Section WA.3 - L in the separate manual 'Section WA', part no. E082T0327J.

Post Accident Inspection

If the vehicle has been involved in an accident, or if there is any other reason to suspect that the upper column assembly may have collapsed, carry out the following inspection:

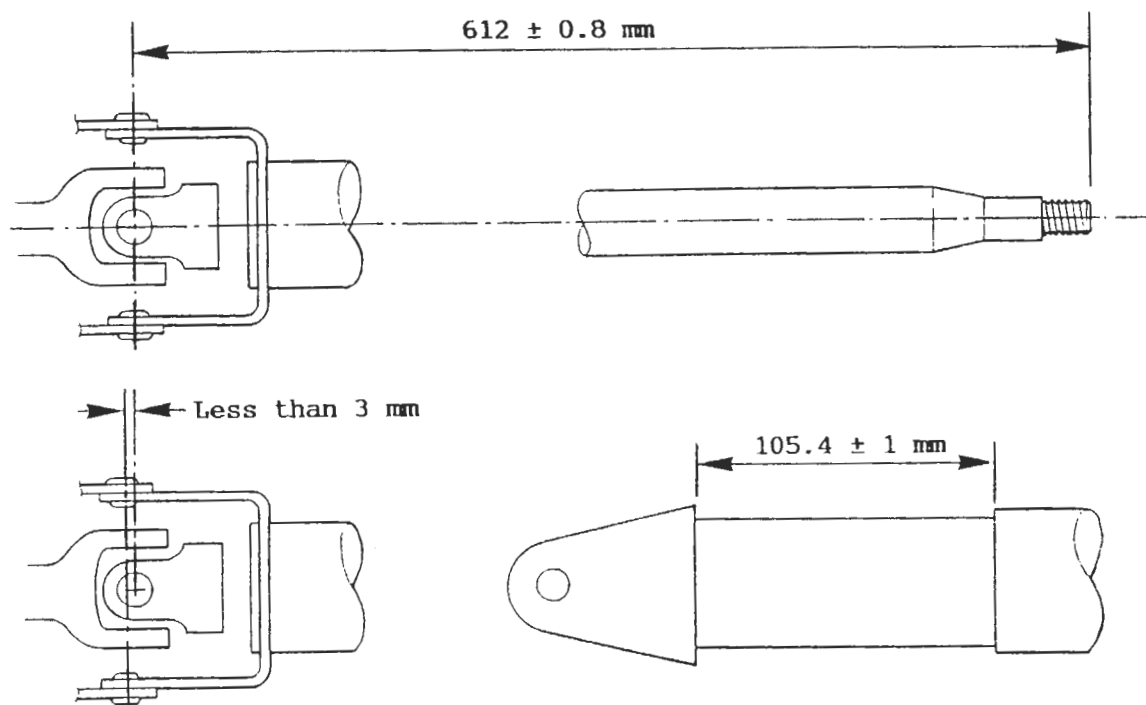
Non-S.I.R. Cars: Remove the steering wheel (see above), remove the column shrouds, and separate the lower end of the column from the intermediate shaft universal joint.

- i) Loosen the column to scuttle beam fixing bolts and check that the two alloy 'break out' inserts are securely attached to the column flange.
- ii) Measure the overall length of the inner column as shown in the diagram.
Specification = 758.5 - 759.5 mm
Replace the column if outside specification.
- iii) Measure the overall length of the outer column tube, excluding the bearing housing flanges as shown in the diagram.
Specification = 611 - 612 mm
Replace the column if outside specification.
- iv) If there is any discernible axial play in the column (along the direction of the column), the inner column telescopic retention mechanism has been overridden, and the column assembly should be replaced.



**S.I.R. Cars:**

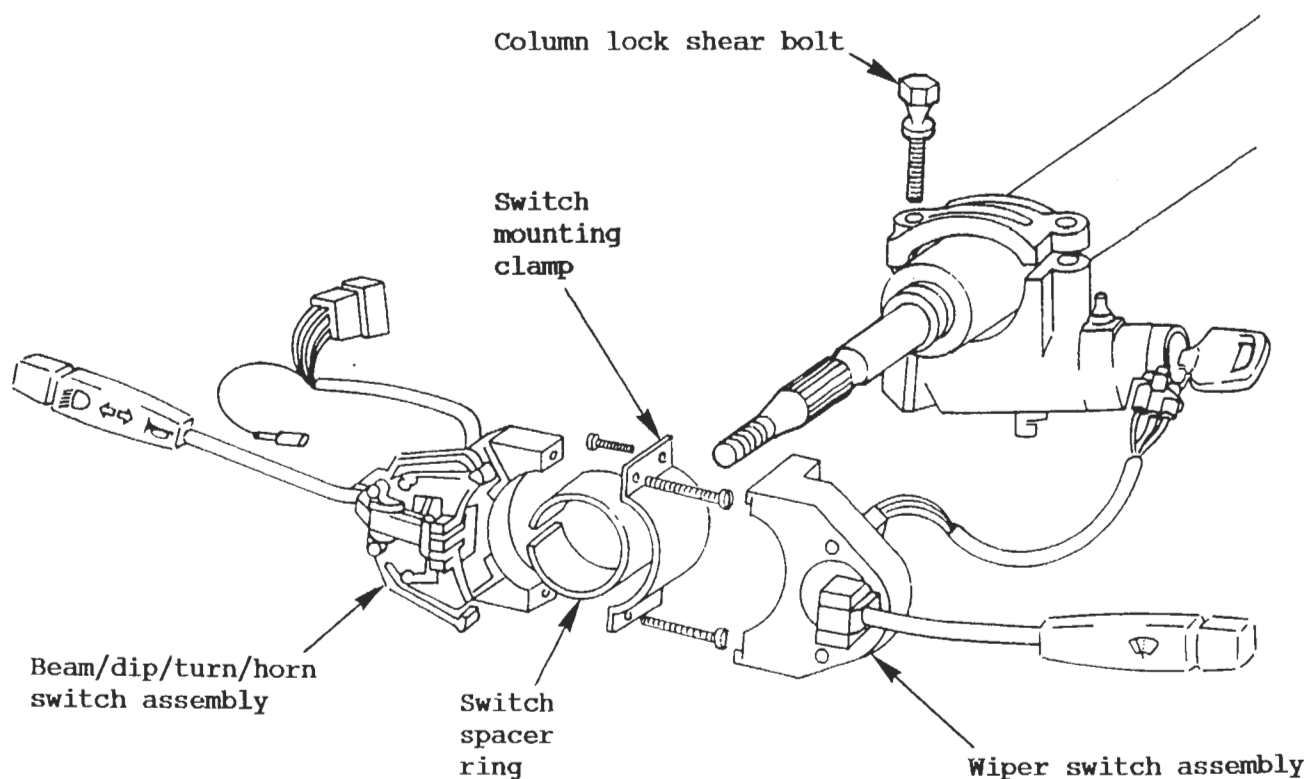
- i) Remove the column shrouds, loosen the column to scuttle beam fixing bolts and check that the two alloy 'break out' inserts are securely attached to the column flange.
- ii) Check that the centreline of the u/j at the lower end of the column is within 3 mm of the pivot point of the outer column lower bracket. If greater than 3 mm, replace the column assembly.
- iii) Measure the length of the lower part of the outer column as shown in the diagram.
Specification = 105.4 ± 1 mm
If outside specification, replace the column assembly.



- iv) If there is any discernible axial play in the column (along the direction of the column), the inner column telescopic retention mechanism has been overridden, and the column assembly should be replaced.

To Remove Upper Steering Column Assembly: Non-S.I.R. cars

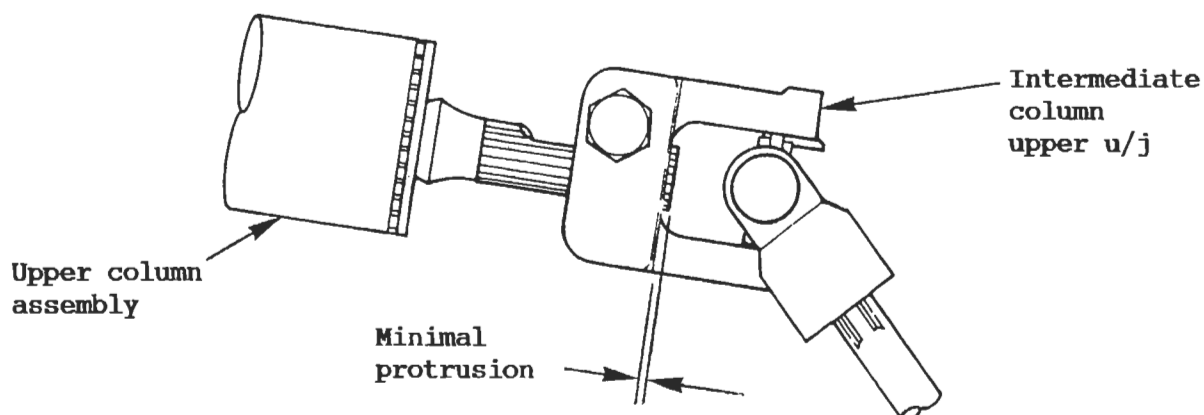
1. Remove the steering wheel (see Sub-Section HB.2).
2. Remove the column shrouds: Release the two screws at each side, securing the upper to the lower shroud. Release the single screw and washer from beneath, securing the lower shroud to the column lock.
3. Remove the column switches: From beneath the fascia, disconnect the column switch and ignition switch connector blocks, and all tie wraps securing wiring and heater ducting to the column. Release the two screws securing the wiper control switch and remove both column switch assemblies. Slide off the switch spacer ring from the column.



4. From within the footwell, remove the pinch bolt securing the universal joint to the bottom of the upper column assembly.
5. Slacken the clamp securing the column assembly lower end to the pedal box, and remove the two M10 bolts fixing the column upper end to the scuttle beam. Withdraw the complete column assembly through the fascia.
6. Carefully drill out the shear bolt heads securing the column lock assembly to the column and remove the lock. Remove and discard the shear bolt threads.

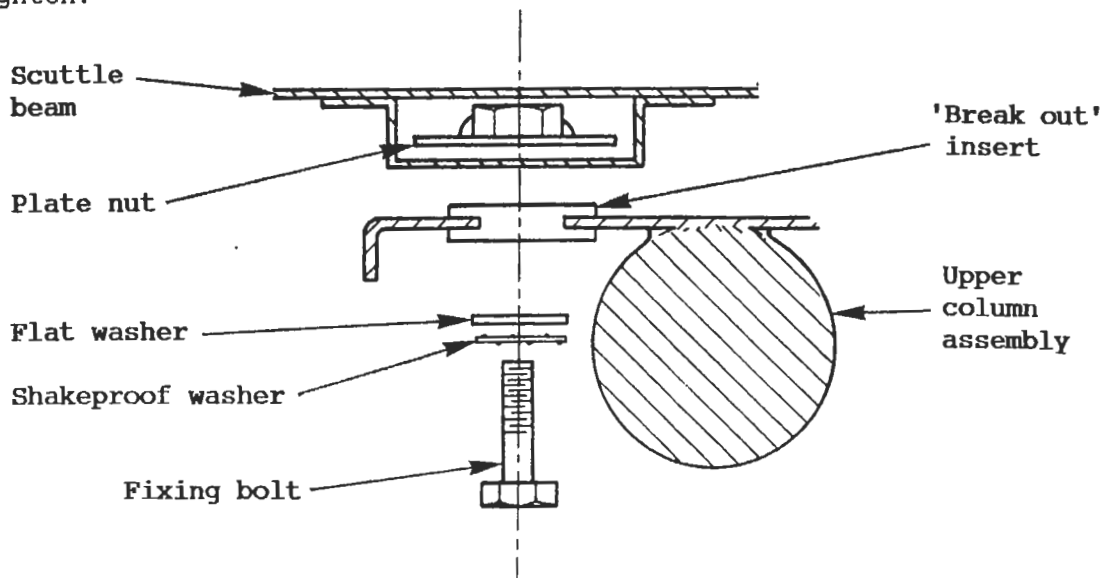
To Refit Upper Steering Column Assembly: Non-S.I.R. cars

1. Feed the column through the fascia and into the pedal box clamp bracket and intermediate column upper u/j. Take care to align the flat on the column with the pinch bolt hole in the u/j. Ensure that only a **minimal** amount of shaft is allowed to protrude through the joint yoke as shown in the diagram. Fit and tighten the pinch bolt using a new M8 'P' type Nyloc nut (A907E6284F) to 22 - 27 Nm (16 - 20 lbf.ft).





2. Fit the upper end of the column to the scuttle beam using the two M10 bolts with new shakeproof washers A075W4049Z and existing flat washers. Finger tighten.

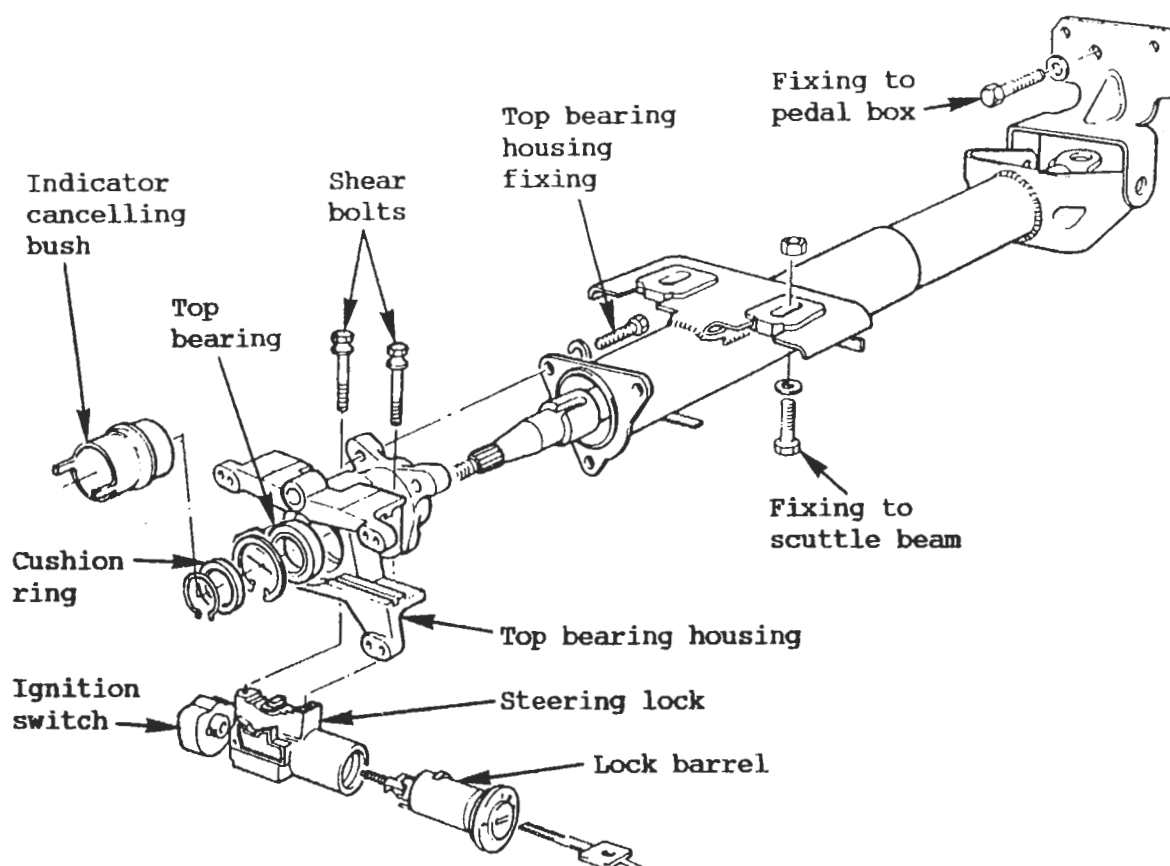
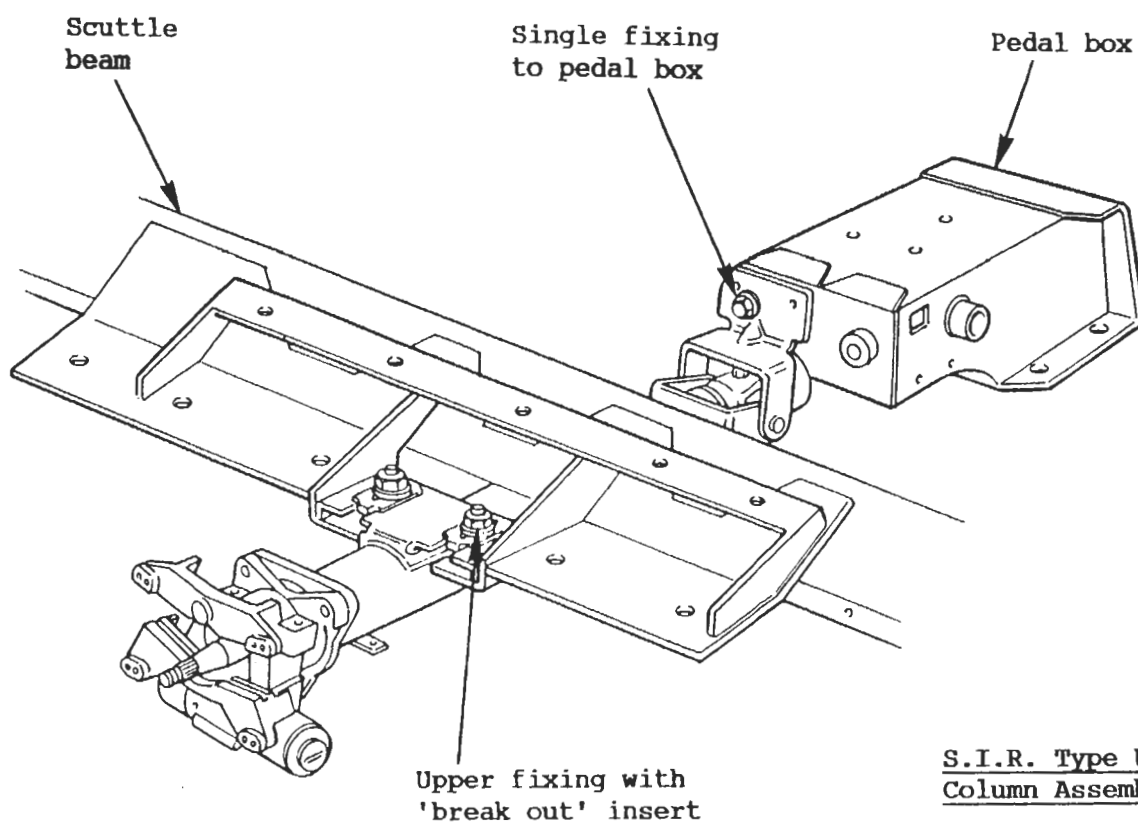


3. Tighten the lower clamp bracket to the column, to 11 - 16 Nm (8 - 12 lbf.ft) before tightening the upper bolts to the scuttle beam to 28 - 30 Nm (20 - 22 lbf.ft).
4. Fit the steering column lock/ignition switch assembly to the column using new shear bolts A079H6008F and tighten until sheared.
5. Fit the switch spacer ring to the top of the column with the split on the left hand side, and clamp the two column switches into position with the pip on the indicator switch located in the spacer ring slot. Mate the connector blocks from the column switches and ignition switch, and fit tie wraps as necessary to secure harnesses and heater ducting to the column.
6. Fit the column lower shroud with screw and washer to the column lock, and then the upper shroud with its four screws.
7. Refit the steering wheel (see Sub-Section HB.2).

To Remove Upper Steering Column Assembly: S.I.R. Cars

WARNING: Any work on, or removal of the steering column on S.I.R. cars requires that rigorous safety precautions be taken in order to safeguard against unintentional deployment of the inflator module. Do not attempt any work on the steering column of an S.I.R. equipped car without referring to Sub-Section WA.3 - L in the separate manual 'Section WA', part no. E082T0327J.

1. Refer to separate manual 'Section WA' to:
 - remove the inflator module (Sub-Section WA.3 - I)
 - remove the steering wheel (Sub-Section WA.3 - J)
 - remove the rotary connector (Sub-Section WA.3 - K)
 - remove the knee bolster (Sub-Section WA.3 - C)
2. Unplug the block connectors and release the harnesses for the column switches. Depress the retaining prongs, and slide out the column switches



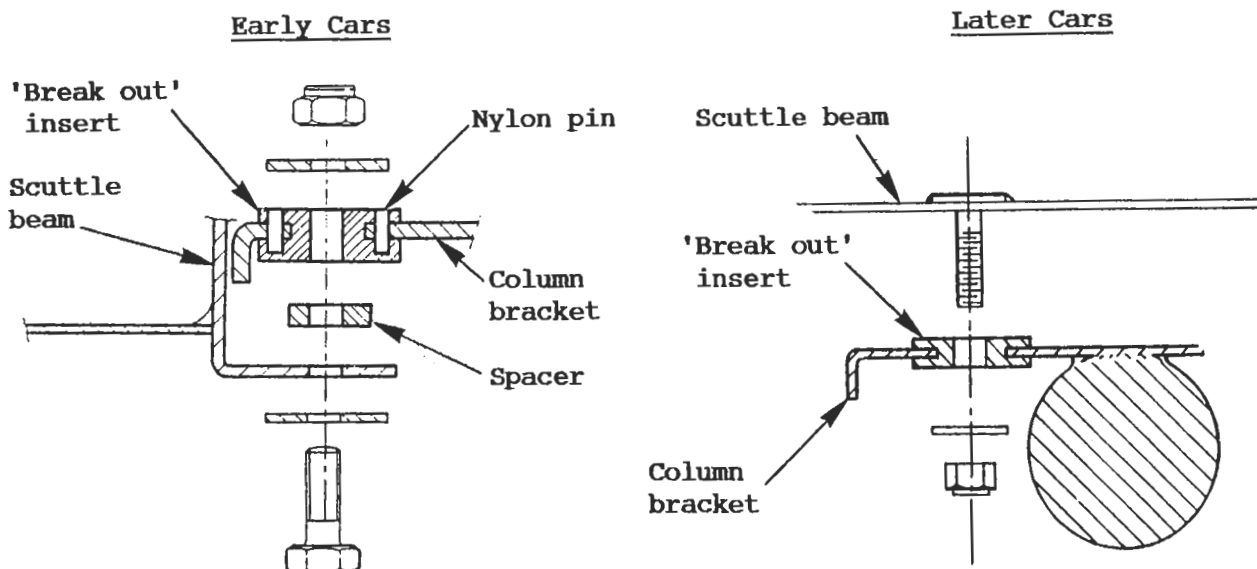


from the column top bearing carrier. Release the small grub screw at the bottom left hand rear of the steering lock body, and pull out the ignition switch.

3. If necessary, remove the steering lock mechanism either by unscrewing the two shear bolts using a hammer and punch, or by drilling out the bolt heads.
4. Remove the pinch bolt from the u/j at the bottom end of the steering column, and remove the bolt securing the column lower mounting bracket to the pedal box.
5. Remove the two nuts and bolts securing the top end of the column to the scuttle beam, and withdraw the column assembly from the upper intermediate shaft.
6. If necessary, the column assembly may be dismantled:
 - Remove the circlip from the top end of the column, followed by the cushion ring, and withdraw the inner column from the bottom end of the outer column.
 - If necessary, remove the three bolts securing the top bearing housing to the outer column. Remove the circlip, and press out the ball bearing assembly.

To Refit Upper Steering Column Assembly: S.I.R. cars

1. If necessary, reassemble the column assembly:
 - Fit the ball bearing into the top bearing housing using a press, and fit the retaining circlip. Fit the bearing housing to the top of the column, and retain with the three M6 setscrews and spring washers. Tighten the three screws.
 - Fit the inner column into the outer, and fit the cushion ring over the top end, followed by the retaining circlip.
2. Fit the upper column assembly into position.
 - Engage the upper intermediate shaft into the upper column u/j, with the flat on the shaft aligned with the pinch bolt hole. Fit the spring washer to the special M10 pinch bolt, and thread into the upper u/j but do not tighten at this stage.
 - Two variations of scuttle beam mounting platform have been used:





On early cars, the column must be passed beneath the scuttle beam before pulling back onto the scuttle beam platforms. Fit the spacer washers between column flange and beam, and retain with fixings shown but do not tighten.

On later cars, the scuttle beam incorporates two weld studs onto which the upper column flange is fitted from beneath and retained with washers and Nyloc nuts. Do not tighten.

3. Secure the column assembly lower bracket to the pedal box with the single M8 bolt with shakeproof and flat washer.
4. Tighten the steering column fixings in the following order:
 - column to pedal box; 24 Nm (17.5 lbf.ft).
 - column to scuttle beam (2 off); 15 Nm (11 lbf.ft).
 - upper column u/j to upper intermediate shaft; 40 Nm (30 lbf.ft).
5. Fit the steering lock to the top bearing housing using new shear bolts, and tighten until the bolt heads shear.
6. Fit the ignition switch and retain with the grub screw. Slide the two column switches into the column top bearing carrier and plug in their block connectors.
7. Refer to separate manual 'Section WA' (E082T0327J) to:
 - refit the knee bolster (Sub-Section WA.3 - C)
 - refit the rotary connector (Sub-Section WA.3 - K)
 - refit the steering wheel (Sub-Section WA.3 - J)
 - refit the inflator module (Sub-Section WA.3 - I)

HB.4 - INTERMEDIATE STEERING COLUMN ASSEMBLY

On non-S.I.R. cars, a single intermediate column is used together with two universal joints to transmit the motion of the upper steering column to the steering rack pinion shaft. When refitting the intermediate column, it is most important that the two joints are correctly phased with respect to each other.

On cars fitted with S.I.R. (Supplementary Inflatable Restraint), the shorter upper steering column assembly necessitates the use of two intermediate columns and three universal joints, with the lower intermediate column supported in a chassis mounted bearing. The design of the intermediate column system is such as to permit assembly only with the correct phasing of the three universal joints.

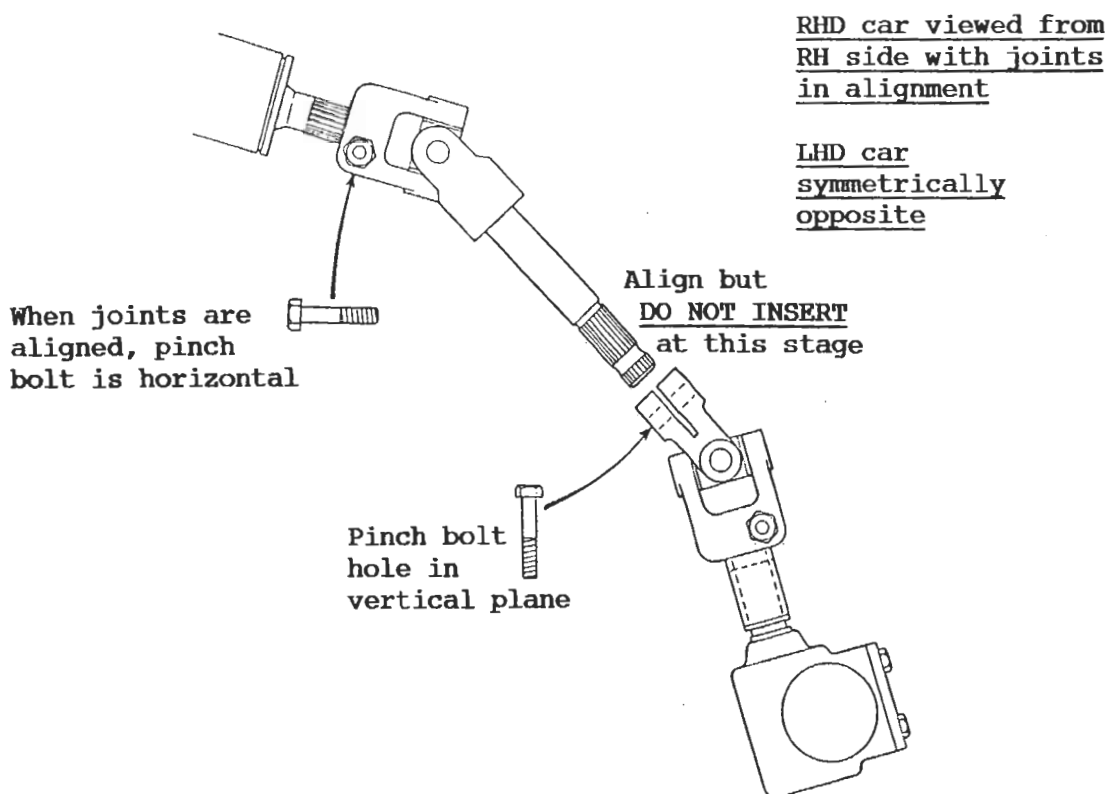
To Remove Intermediate Steering Column Assembly: Non-S.I.R. cars

1. Remove the pinch bolt securing the upper u/j to the upper column.
2. Remove the two nuts and bolts securing the upper column assembly to the scuttle beam, and slacken the clamp bolt securing the lower end of the column to the pedal box. Draw the upper column assembly into the car only sufficiently to disengage the inner column from the upper u/j.
3. From beneath the car, remove the pinch bolt securing the lower u/j to the intermediate column and withdraw the intermediate column into the car.
4. If necessary, remove the pinch bolt securing the lower u/j to the steering rack pinion shaft, and remove the lower u/j.

To Refit Intermediate Steering Column Assembly: Non-S.I.R. cars

When refitting the intermediate column, it is most important to follow the correct procedure to 'phase' the upper and lower u/j's i.e. orientate the the two joints in a particular manner with respect to each other. This setting provides the optimum steering 'feel', with minimum cyclical force variation as the wheel is turned.

1. In order to ensure that the lower u/j is not slid too far onto the pinion shaft, with the consequent danger of the shaft end fouling the u/j spider, or of the u/j fouling the chassis, a circlip is fitted onto the pinion shaft followed by a rubber spacer tube.
Align the pinch bolt hole in the lower u/j with the flat on the pinion shaft and fit the u/j onto the shaft to abut the spacer tube, or until the shaft end is flush with the inside of the u/j yoke. Fit the pinch bolt and tighten to 22 - 27 Nm (16 - 20 lbf.ft).
2. From inside the car, feed the intermediate column through the bulkhead seal (but **not** into the lower u/j) before sliding onto the (unfixed) upper column assembly, with the pinch bolt hole aligned with the column flat. Fit the pinch bolt but do not tighten at this stage.
3. Turn the front wheels until the axis of the pinch bolt hole in the **upper** part of the lower u/j is in a vertical fore/aft plane as shown in the diagram.
4. Turn the steering wheel until the pinch bolt securing the upper column to the upper u/j is horizontal, and the upper and lower u/j's are aligned 'back to back' as shown.

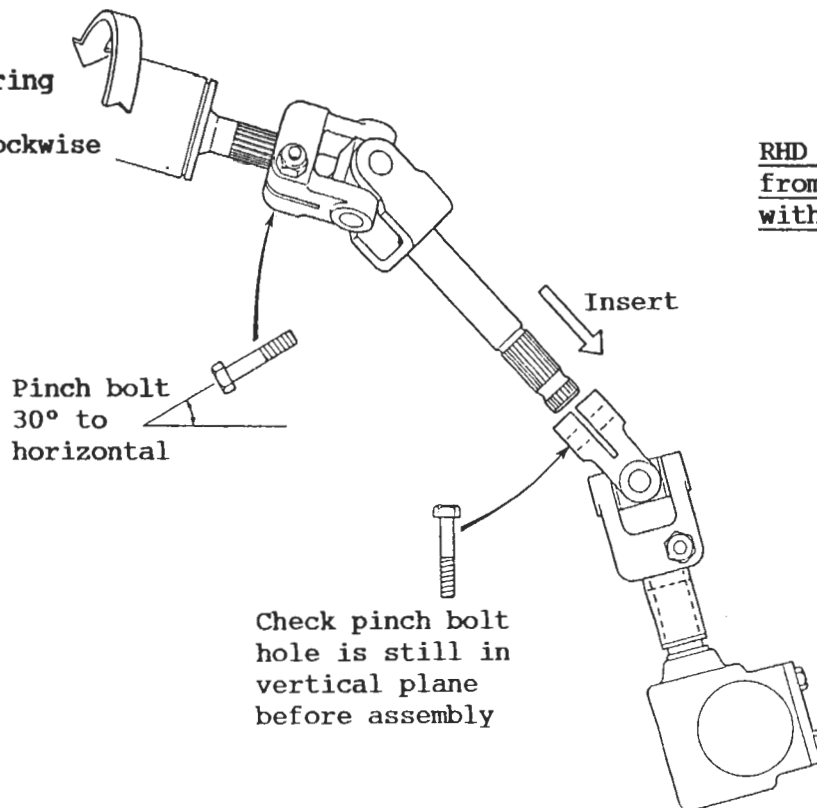




5. From this position, turn the steering wheel 30° (3 splines) as follows:
RHD - counterclockwise
LHD - clockwise
before inserting the intermediate shaft into the lower u/j. Fit the pinch bolt and tighten to 22 - 27 Nm (16 - 20 lbf.ft).

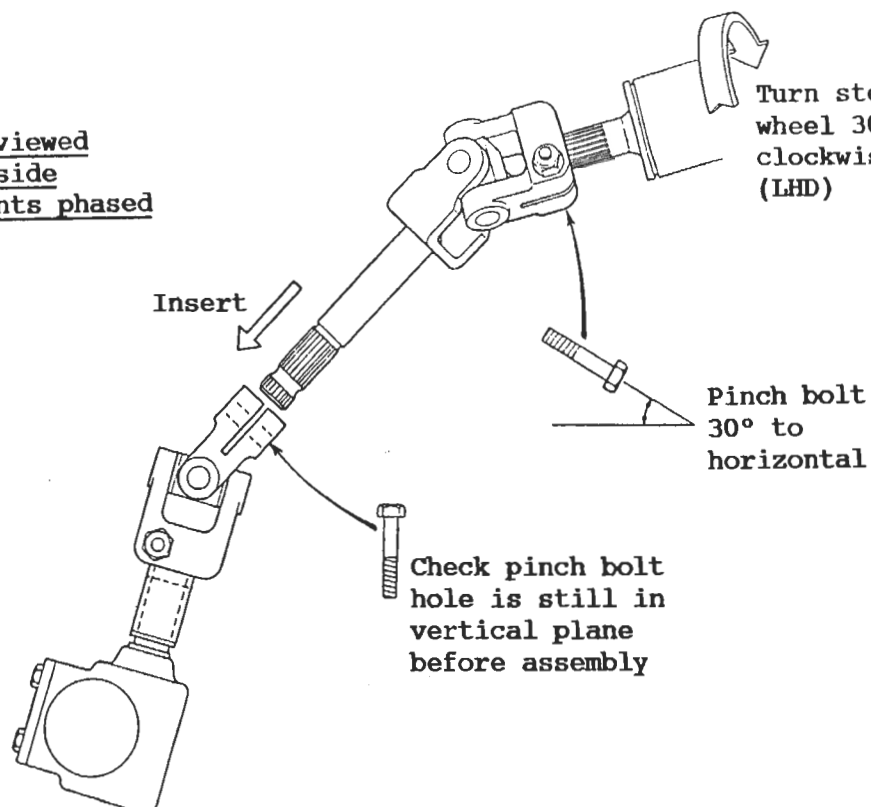
Turn steering
wheel 30°
counterclockwise
(RHD)

RHD car viewed
from RH side
with joints phased



LHD car viewed
from LH side
with joints phased

Turn steering
wheel 30°
clockwise
(LHD)



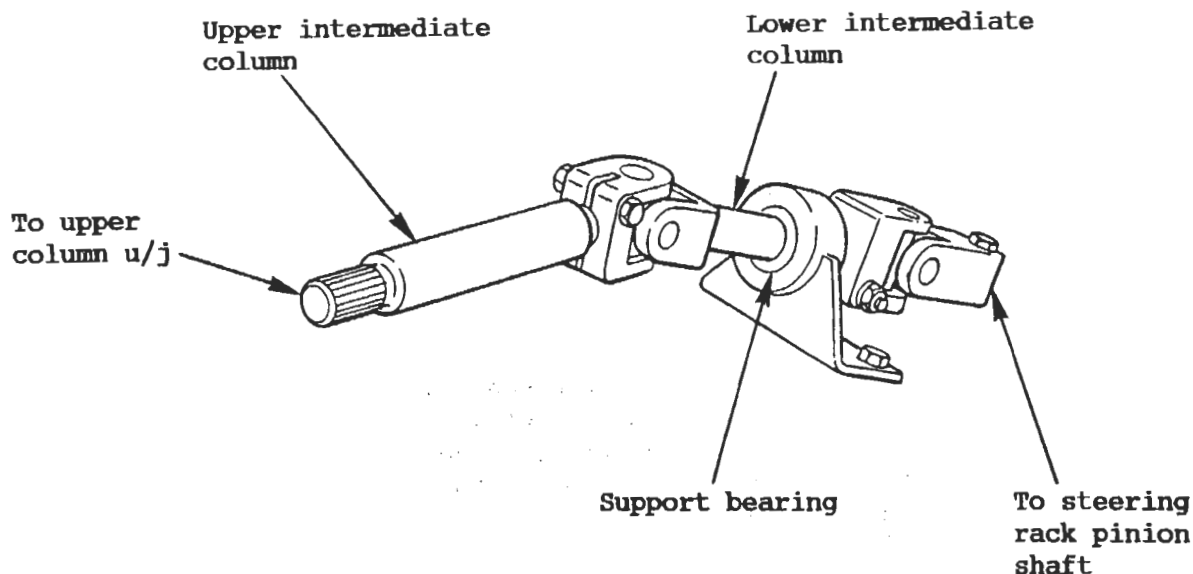


6. Tighten the upper column fixings as follows:
Ensure that only a **minimal** amount of intermediate shaft is allowed to protrude through the upper u/j before tightening the pinch bolt to 22 - 27 Nm (16 - 20 lbf.ft).
Column to scuttle beam: 28 - 30 Nm (20 - 22 lbf.ft)
Column clamp bolt: 11 - 16 Nm (8 - 12 lbf.ft)
7. Road test and check the alignment of the steering wheel. Realign if necessary as detailed in sub-section HB.2.

To Remove Intermediate Steering Column Assembly: With S.I.R.

WARNING: Any work on, or removal of the steering column on S.I.R. cars requires that rigorous safety precautions be taken in order to safeguard against unintentional deployment of the inflator module with consequent risk of personal injury or unnecessary S.I.R. system repairs. Follow the procedures below in the order listed to temporarily disable the S.I.R. system and prevent false codes from setting.

- a) Turn off ignition.
 - b) Disconnect the negative battery cable, and tape back to ensure that it cannot contact the battery terminal.
 - c) From beneath the passenger side fascia, locate and disconnect the six way SIR fascia harness connector block.
 - d) Unplug the orange 3-way connectoe to the inflator.
1. Remove the upper steering column assembly (see sub-section HB.3).
 2. From beneath the vehicle, remove the pinch bolt securing the lower intermediate shaft to the lower u/j. From inside the vehicle, withdraw the intermediate shaft assembly from the steady bearing and body grommet.
 3. If necessary, remove the pinch bolt securing the lower intermediate shaft u/j to the upper intermediate shaft, and withdraw the upper shaft.
 4. If necessary, remove the pinch bolt securing the lower u/j to the steering rack pinion shaft, and withdraw the u/j.





The lower intermediate shaft steady bearing, is an oil impregnated synthetic (Railko) bush pressed into a bracket bolted to the chassis front crossmember. The position of the bracket is set by jig during vehicle manufacture, and should not be disturbed unless the bush is to be replaced.

To replace the bush, remove the two screws securing the bracket, and press out the bush. Press the new bush into position, where it is retained by a rib around the outside of the bush locating in a groove in the housing. The oil impregnated bush is self-lubricating. Fit the bracket to the chassis with the two bolts, but do not tighten at this stage.

To Refit Intermediate Steering Column Assembly: With S.I.R.

1. In order to ensure that the lower u/j is not slid too far onto the pinion shaft, with the consequent danger of the shaft end fouling the u/j spider, or of the u/j fouling the chassis, a circlip is fitted onto the pinion shaft followed by a rubber spacer tube.
Align the pinch bolt hole in the lower u/j with the flat on the pinion shaft and fit the u/j onto the shaft to abut the spacer tube, or until the shaft end is flush with the inside of the u/j yoke. Fit the pinch bolt and tighten to 22 - 27 Nm (16 - 20 lbf.ft).
2. Fit the shorter end of the upper intermediate shaft into the lower intermediate shaft u/j with the flat aligned with the pinch bolt hole. Retain with the pinch bolt and a new Nyloc nut and tighten to 24 Nm (18 lbf.ft).
3. Fit the intermediate shaft assembly through the bulkhead seal, through the steady bearing, and into the lower u/j with the flat on the splines aligned with the pinch bolt hole. Fit the pinch bolt and retain with a new M8 Nyloc half nut. Tighten to 24 Nm (18 lbf.ft).
4. Refit the upper steering column assembly (see sub-section HB.3).
5. Temporarily fit the steering wheel and turn as necessary to find the point of minimum clearance between the intermediate shaft assembly and the fully depressed clutch pedal:
 - If the lower shaft steady bearing was not disturbed, check that there is a minimum clearance of 5 mm at this point.
 - If the lower shaft steady bearing has been renewed or disturbed, adjust the position of the bracket on the chassis to achieve a clearance of 5 - 7 mm before tightening the steady bearing fixing bolts to 11 Nm (8 lbf.ft).

HB.5 - TRACK ROD ENDS & TOE-IN ADJUSTMENT

The track rod ends (outer ball joints) are threaded onto the ends of the track rods, and are secured to the hub carrier steering arms by tapered ball pin shanks and Nyloc nuts. By screwing the track rods in or out of the rod ends, the effective length of the track rods is altered, thereby providing a means of toe-in adjustment for the front wheels.

In order to maintain the required bump steer characteristic, it is important to ensure that the steering rack is centralised in the straight ahead position, i.e. both track rods are the same length, within the limitations of steering wheel alignment (see sub-section HB.2).

Toe-in adjustment: Before measuring the front wheel alignment, set the car to a ride height of 170 mm below the chassis front crossmember.



Toe-in: 1.6mm each side; +0, -1mm 0.1 to 1.9mm overall



the steering unit if necessary. If the assembly is serviceable, clean off any dirt if necessary before lubricating the rack with either EP90 oil (early cars) or, on later cars, Texaco CUP 2 grease or equivalent (lime based, water resistant).

5. At each side, fit the new gaiter and clips over the track rod, locate the large end in the groove on the rack housing (pinion end) or just inboard of the end bush locating holes, and secure with the clip. To aid track rod adjustment, apply a small amount of red rubber grease to the track rod groove before locating the outboard end of the gaiter. Do not tighten the clip at this stage.
6. At each side, fit the locknut and track rod end onto the track rod, and screw on to the same position as noted prior to removal. Tighten the locknut to 70 - 80 Nm (50 - 60 lbf.ft).
7. Fit each track rod end into its hub carrier steering arm, and secure with a new Nyloc nut, tightening to 41 - 47 Nm (30 - 35 lbf.ft). Tighten the gaiter outer clips.
8. Check front wheel alignment.

HB.7 - RACK & PINION ASSEMBLY

The manual steering rack and pinion assembly fitted to the Esprit, is maintenance free, and with the exception of the track rod gaiters, is a non-serviceable unit which must be renewed if excessive play develops, exemplified by 'clonking' noises, wheel shimmy, or any more than the smallest amount of free play at the steering wheel. Any attempt to compensate for wear in the straight ahead position by re-shimming the rack thrust pad, may result in tightness or jamming at some other point of rack travel.

The ratio of the rack and pinion gear is 45:1 (45 mm rack travel per pinion revolution), and the ratio of the complete steering system is 15.4:1 (angular movement of steering wheel : angular movement of road wheel).

The rack and pinion assembly is secured to two plinths on the front of the chassis front crossmember via a pair of two bolt clamp brackets and rubber isolator bushes. Lateral location of the unit is assured by a pair of lugs on the non-pinion end of the rack housing, which straddle the chassis plinth.

To Remove Rack & Pinion Assembly

1. Remove the front road wheels and disconnect the track rod ends from the hub carrier steering arms.
2. Remove the pinch bolt securing the u/j to the steering rack pinion shaft.
3. Release the two bolts securing each of the two steering unit clamp brackets, and remove the clamp brackets, rubber mountings, and loose tapping plates.
4. Withdraw the pinion shaft from the u/j, and manoeuvre the unit out from the chassis towards the driver's side.

To Refit Rack & Pinion Assembly

1. Before fitting the steering unit, check the following points:
 - both gaiters are undamaged and correctly located and sealed; squeeze each gaiter to check for air leaks from gaiters, joints or housing.



- the circlip and spacer tube are fitted onto the pinion shaft.
- 2. Feed the unit into position in the chassis from the driver's side and slide the pinion shaft into the u/j with the pinch bolt hole aligned with the flat on the shaft.
- 3. Fit the mounting rubbers around the rack housing, and secure the unit with the two clamp brackets, inserting the tapping plates into the chassis plinths. Tighten the fixings to 16 - 19 Nm (12 - 14 lbf.ft).
- 4. Fit the pinch bolt and new Nyloc nut to secure the lower u/j to the pinion shaft, and tighten to 22 - 27 Nm (16 - 20 lbf.ft).
- 5. Fit each track rod end into its hub carrier steering arm, and secure with a new Nyloc nut, tightening to 41 - 47 Nm (30 - 35 lbf.ft).
- 6. Check front wheel alignment.

BRAKES**SECTION JB - ESPRIT S3 & TURBO: PRIOR TO '85 MODEL YEAR**

This section is applicable to cars up to and including 1984 Model Year which use solid brake discs and Girling calipers front and rear.

	<u>Section</u>	<u>Page</u>
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Rear Brake Pad Replacement	JB2	3/4
Handbrake	JB3	4/5
Front Brake Caliper Overhaul	JB4	5
Rear Caliper Overhaul	JB5	5/6
Brake Discs	JB6	7
Master Cylinder	JB7	7 to 9
Servo Unit	JB8	10

GENERAL DESCRIPTION

The braking system consists of a Girling Type 28 Supervac servo unit attached to a tandem master cylinder with a bore of 19.05mm (0.75 in.) operating type GA2, calipers with 250mm (9.7 in.) diameter discs at the front, and type 9CH sliding caliper with 275mm (10.82 in.) diameter discs at the rear. The rear brakes are mounted inboard.

The separate front/rear hydraulic circuits share a brake fluid reservoir fitted with a low fluid level warning switch. This circuit, which operates a fascia tell tale lamp, may be checked by depressing the test button on the reservoir cap.

The handbrake lever connects via individual cables to each rear brake caliper, and mechanically operates their hydraulic pistons. Each piston incorporates a self adjusting mechanism which operates on footbrake application to compensate for brake pad wear.

JB. 1 - FRONT BRAKE PAD REPLACEMENT

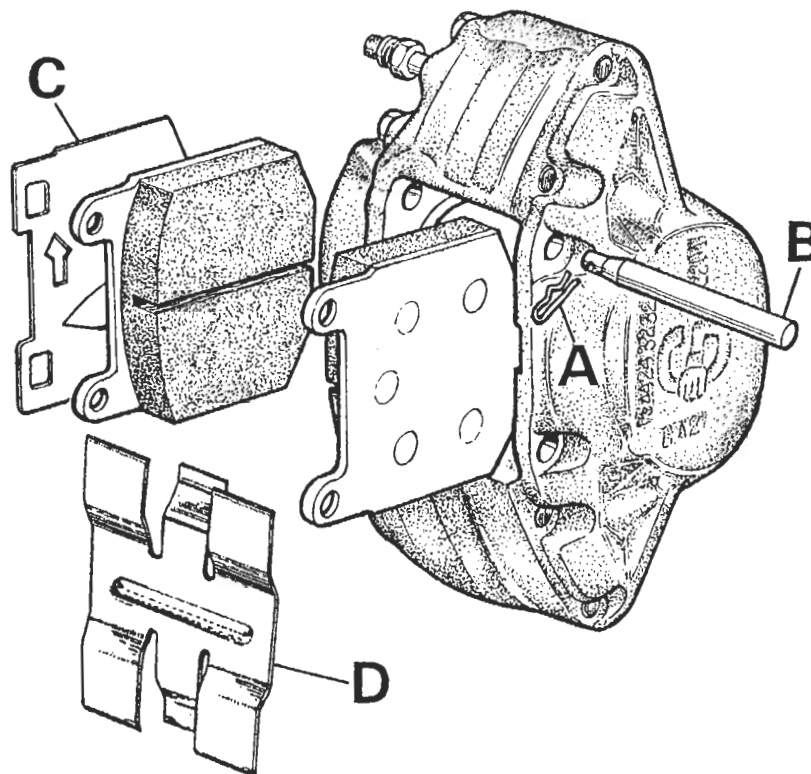
Minimum pad thickness = 3mm

Always change brake pads in axle sets.

1. After raising the front of the vehicle, remove the front wheels:

WARNING: When both front wheels are raised, do NOT move the road wheels quickly from lock to lock, as this will cause hydraulic pressure to build up within the steering gear, which may cause the rubber bellows to burst or blow off.

2. Remove any accumulated road filth from the area of the brake pad.
3. Pull out the pad retaining pin clips (A), withdraw the retaining pins (B) and remove the brake pads with the shims (C). Note the position of the dust shield (D) fitted over the brake pads.



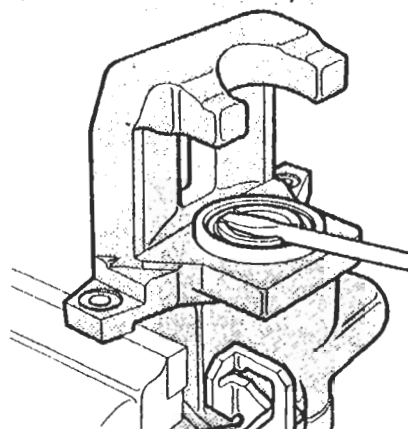
4. To enable the new pads to be fitted, push the pistons in the calipers back into the bores. This action will cause hydraulic fluid to be returned to the master cylinder, which if it has recently been topped-up, may overflow. To avoid this, examine the fluid level and if necessary, remove a quantity of fluid BEFORE pushing the pistons back into the bores. DO NOT USE REMOVED FLUID FOR TOPPING-UP PURPOSES.
5. Fit the new brake pads with the shims taking care that both are fitted correctly. The shims are marked with an arrow which MUST point in the direction of forward rotation of the wheel. Replace the dust shield, refit the retaining pins and the locking clips.
6. Operate the brake pedal several times to bring the pads into correct operating position. Check that the pads are free to move and that the retaining pins are not fouling the pads.
7. Replace the road wheels, lower the vehicle to the ground, check the brake fluid and top up if necessary. Tighten the wheel nuts to the specified torque loading.

CAUTION: The brakes will not work at full efficiency until the new brake pads have bedded-in. If, initially, the brakes are used too heavily, the surface of the pads will burn and irregular braking result. Use the brakes gently for the first few miles and gradually build up brake effort.

JB. 2 - REAR BRAKE PAD REPLACEMENT

Minimum pad thickness = 3mm

1. Remove the two self locking screws securing the caliper body to the two guide pins, whilst holding the guide pins stationary with a spanner to prevent damage to their dust covers.
2. Remove the caliper body and support to avoid straining the flexible hose. Remove the pads and clean the pad abutment areas taking care not to damage the guide pin or piston dust covers.
3. Before fitting new pads, the piston must be pushed back into the caliper and the handbrake auto-adjust mechanism reset. Fit a screwdriver against the piston and turn the piston 45° to disengage the adjuster ratchet. Press back the piston (take care that the fluid reservoir does not overflow), and then turn the piston back 45° to re-engage the ratchet.



4. Fit new pads and damper spring into the caliper bracket, and refit the caliper body, aligning the slot in the piston with the lug on the brake pad backplate.
5. Fit new self locking bolts to secure the caliper body to the guide pins. Fit the top bolt first, then compress the pad damper spring and fit the lower bolt. Torque tighten both bolts to 3.2 - 3.6 kgf.m. (23-26 lbf.ft.).
6. Operate the footbrake several times to bring the pads to their correct working position and to take up the handbrake adjustment.

CAUTION: The brakes will not work at full efficiency until the new brake pads have bedded-in. If, initially, the brakes are used too heavily, the surface of the pads will burn and irregular braking result. Use the brakes gently for the first few miles and gradually build up brake effort.

JB. 3 - HANDBRAKE

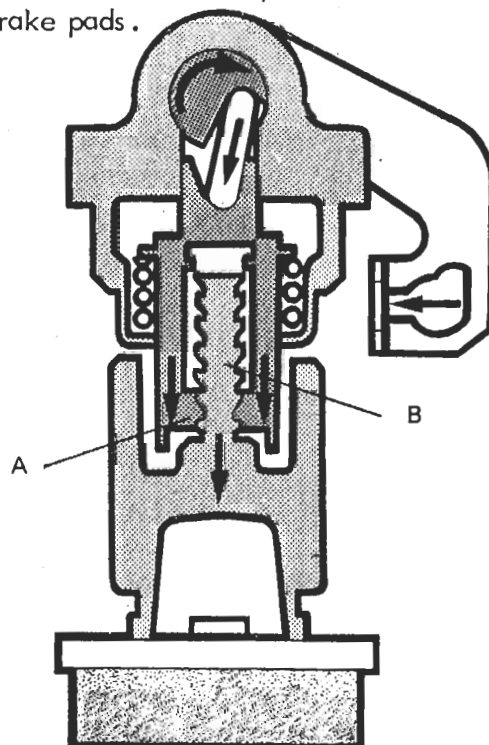
The handbrake lever connects to an actuating link which uses a compensator lever to balance the force applied to each handbrake cable. Late cars may be fitted with a multiplier lever pivoting on the handbrake lever mounting plate, in order to increase the leverage and reduce operator effort.

Access to the handbrake cable adjusters is made via an aperture in the rear end of the sill trim panel, covered by carpet.

The cables should be adjusted to obtain a vertical position of the compensator when the handbrake is applied.

The cylinder end covers on the brake caliper assemblies, contain a handbrake automatic adjustment mechanism to accommodate brake pad wear. Movement of the caliper lever causes a cam to rotate and exert a force via a pushrod and adjuster mechanism, on the caliper piston and brake pads.

The 'relaxed' position of the piston is controlled by the piston seal in the cylinder wall, which pulls the piston back a specified amount after each brake application. As the brake pad wears, and the piston moves outwards accordingly, the ratchet teeth 'B' are pulled past the pawl 'A', so keeping the handbrake mechanism in constant adjustment.



A small amount of lost motion is permitted which prevents over-adjustment, and permits proper relaxation of the pads after each brake application.

In order to press the piston back into its bore (necessary when fitting new brake pads) or to eject the piston from the cylinder (during caliper overhaul), the ratchet mechanism must be disengaged. To do this, rotate the piston 45° in either direction. Turn back to re-engage the ratchet, and align piston slot with the lug on the brake pad backplate.

JB. 4 - FRONT BRAKE CALIPER OVERHAUL

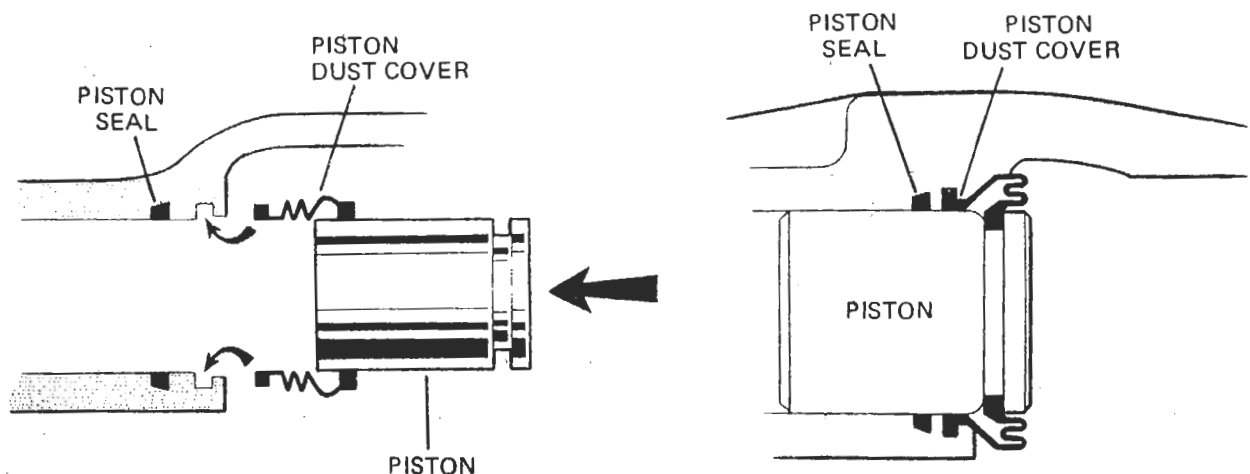
Note: No attempt should be made to remove the bolts and separate the two halves of the caliper body.

1. Disconnect the flexible hose from the caliper and remove caliper from the vertical link. Drain brake fluid from the caliper.
2. Remove the brake pads as in JB.1 and pull off the piston dust covers.
3. Using rag to protect from brake fluid spray, and keeping fingers well clear, use compressed air to eject the pistons from their cylinders.
4. Remove the sealing rings from the cylinders taking care not to damage the bores or grooves.
5. Clean all parts thoroughly with Girling Cleaning Fluid or unused brake fluid. Examine cylinder bores and piston for any signs of scoring, scuffing or corrosion. Replace the pistons or complete caliper if there is any doubt.
6. Lubricate the cylinders and new sealing rings with clean brake fluid and fit the seals into their grooves.
7. Fit the pistons and dust covers.
8. Refit the calipers (see TDD for torque loading) and brake pads (see JB. 1).
9. Reconnect the flexible hose and bleed the hydraulic system.

JB. 5 - REAR CALIPER OVERHAUL

1. Disconnect the flexible hose and handbrake cable and remove the brakepads (JB. 2).
2. Pull the guide pin dust covers from the caliper bracket, and withdraw the guide pins. Inspect guide pins for any signs of corrosion or seizing, and replace with new parts if in any doubt. Note that the guide pin with the bushing, is fitted to the bottom (trailing) end of the caliper and the plain steel pin to the top (leading) end. Grease the guide pins and check that they slide easily in the caliper bracket. Locate the guide pin dust covers.

3. Turn the piston 45° to disengage the handbrake adjustment ratchet mechanism, before using compressed air to eject the piston from the cylinder. Use rag to protect from brake fluid spray and keep fingers well clear.
4. The handbrake mechanism can be separated from the cylinder body after releasing the three bolts on its cover plate.
IMPORTANT No attempt should be made to dismantle the auto-adjust mechanism. If it is faulty, a complete new unit must be fitted.
5. Remove the sealing ring from the cylinder, and clear all parts with fresh brake fluid. Examine cylinder bores and pistons for any signs of scoring, scuffing or corrosion and replace pistons or caliper if in any doubt.
6. Lubricate a new piston seal with clean brake fluid and fit into its groove in the cylinder wall.
7. Lubricate the piston, and fit the dust cover onto the piston as shown. Offer the piston and dust cover assembly to the cylinder with the piston orientated to clear the handbrake auto adjust (see JB. 2). Locate the lip of the dust cover into the cylinder groove and carefully push the piston fully home through the dust cover. Ensure the dust cover is not trapped between the piston and the bore and that the inner lip of the dust cover is located in the piston groove.



8. Turn the piston 45° to engage the handbrake adjustment ratchet and refit the brake pads and caliper to the car.
9. Reconnect handbrake cable and flexible hose and bleed brake system.
OPERATE THE BRAKE PEDAL SEVERAL TIMES TO BRING THE PADS TO THEIR CORRECT OPERATING POSITION.

JB. 6 - BRAKE DISCS

Check the braking surface on both sides of the brake discs for scoring or corrosion. Replace if in doubt.

Measure the disc thickness and run-out.

	<u>Front</u>	<u>Rear</u>
Thickness, nominal	12.7 mm (0.50 in.)	10.00 mm (0.39 in.)
Thickness, minimum	11.4 mm (0.45 in.)	9.00 mm (0.35 in.)
Run-out maximum	0.09 mm (0.0035 in.)	0.09 mm (0.0035 in.)

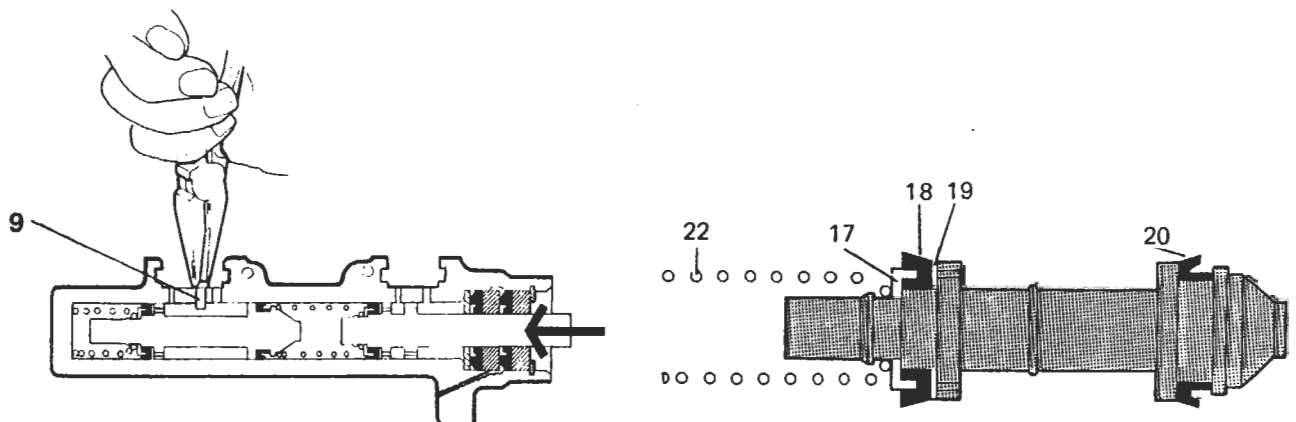
If the run-out is excessive, replace the disc.

NOTE: Ensure the front wheel bearings are correctly adjusted before measuring front disc run-out.

JB. 7 - MASTER CYLINDER

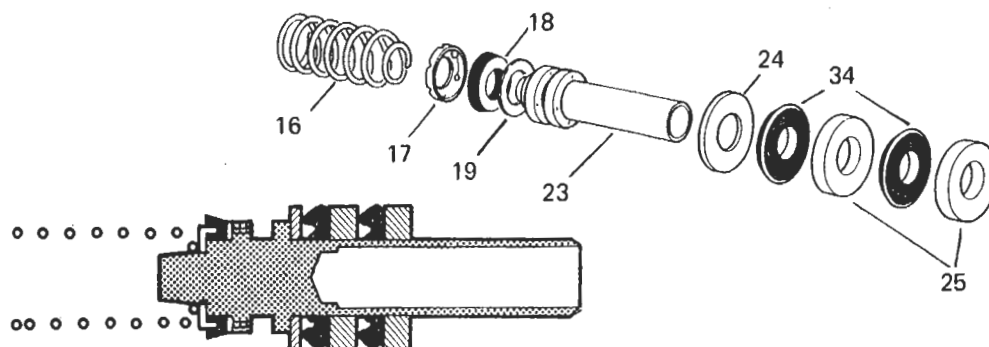
To Overhaul

1. Drain brake fluid from the reservoir, disconnect the brake pipes and remove master cylinder assembly to a clean work area.
2. Remove the reservoir retaining pins, and carefully pull the reservoir from the master cylinder. Lever out the two seals.
3. Push the plunger down the cylinder and withdraw the secondary plunger stop pin. (9)

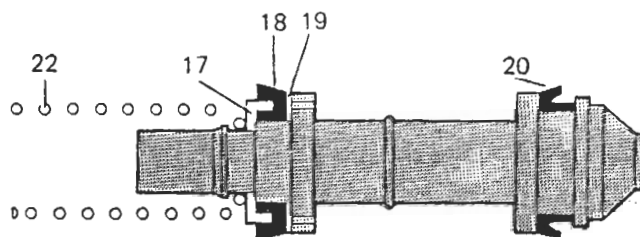


4. Remove the retaining circlip and withdraw the primary plunger assembly. Use low pressure compressed air to eject the secondary plunger assembly.
5. Remove the secondary plunger spring, (22) seal retainer (17) recuperating seal (18) and washer (19). Taking care not to damage the plunger, remove the seal (20). Keep the plunger and its spring together at all times.

6. Remove the primary plunger spring (16), seal retainer (17) recuperating seal (18) and washer (19). Slide off the vacuum seals (34) and spacers (24) and (25). Keep the plunger and its spring together at all times.

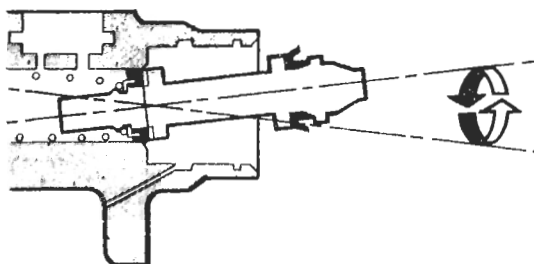


7. Check that the breather hole at the rear underside of the cylinder is clear and wash with Girling Cleansing Fluid if necessary.
8. The new parts supplied in the overhaul kit indicate which old parts are to be discarded. Clean all remaining parts with Girling Cleaning Fluid, or new brake fluid and examine the cylinder bore meticulously. Unless unmarked, a complete new unit should be fitted.
TO HELP PREVENT DAMAGE, IT IS ESSENTIAL THAT GENEROUS AMOUNTS OF UNUSED GIRLING BRAKE FLUID ARE USED AT ALL STAGES OF SEAL ASSEMBLY.
9. Fit secondary plunger seal (20) by squeezing between finger and thumb to stretch over plunger lip. Fit washer (19) recuperating seal (18) seal retainer (17) and spring (22). Ensure seals are correctly fitted as shown.

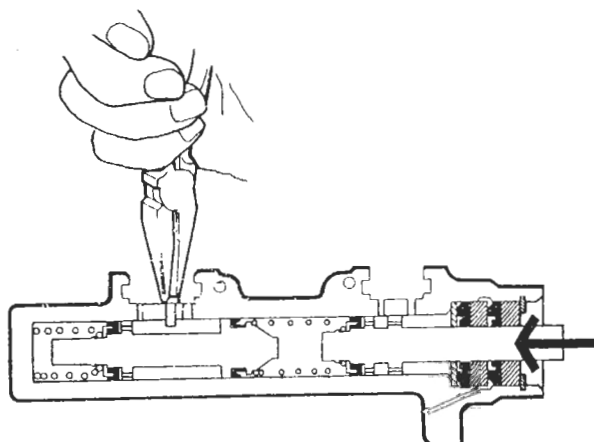


10. Fit the primary piston washer, recuperating seal, seal retainer and spring in a similar manner.
11. Use the special BMS grease provided to lubricate the inside diameter of the vacuum seals and spacers, and the corresponding outer surface of the primary plunger.
IT IS VITAL THAT THE FOLLOWING INSTRUCTIONS ARE CARRIED OUT PRECISELY OTHERWISE DAMAGE WILL ENSUE TO THE NEW SEALS WHEN INSERTING THE PLUNGERS INTO THE CYLINDER BORE.
12. Clamp cylinder in vice, and copiously lubricate cylinder bore and secondary plunger assembly with unused Girling Brake Fluid. Offer the plunger assembly to the cylinder until the recuperation seal is

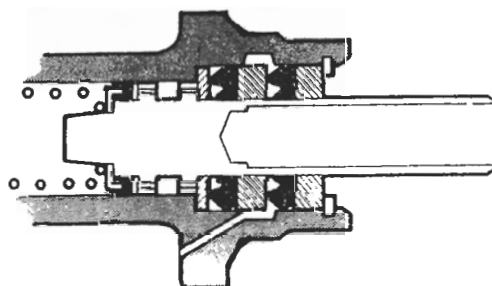
resting centrally in the mouth of the bore. Ensuring the seal is not trapped whilst so doing, GENTLY introduce the plunger with a circular rocking motion as illustrated to ease the seal, then SLOWLY push the plunger down the bore in one continuous movement.



13. Repeat this lubricating and fitting procedure exactly for the primary plunger assembly.
14. Press the plunger down the bore to enable the secondary plunger stop pin to be fitted as shown.



15. Whilst holding the plunger pressed in, fit the thin vacuum seal spacer into the end of the cylinder, followed by one vacuum seal (lip side first), a thick spacer, the other seal and thick spacer, and retain with the circlip.



16. Lubricate new reservoir seals with brake fluid, and fit into the cylinder. Press the reservoir into position and fit the reservoir retaining pins.
17. Use a new master cylinder/servo 'O' ring, and refit the master cylinder assembly to the servo, torque tightening the two nuts to 2.1 - 2.6 kgf. m (15 - 19 lbf. ft.).
18. Reconnect the brake pipes, refill the reservoir, and bleed the entire system.

JB. 8 - BRAKE SERVO UNIT

The 'Supervac' brake servo is, with the exception of the air filter and non return valve, a non-servicable sealed unit which must be replaced if found to be faulty.

The air filter (surrounds input push rod) should be replaced whenever the brake system is overhauled, and cleaned or replaced more frequently if the vehicle is operated in dusty conditions. The filter is supplied together with the input dust cover and servo/master cylinder 'O' ring in the servo 'service kit' A075J6033F.

The vacuum non-return valve is incorporated into the vacuum hose elbow connector in the front case of the servo unit. The valve is a push fit into a grommet, and is supplied complete with new grommet. Use the grease supplied to lubricate the ribs of the NRV before assembly.

As a quick check of servo operation proceed as follows:

With engine stopped, press the brake pedal several times to exhaust the servo unit of vacuum. Keeping the pedal pressed (which should be 'hard' and 'high') start the engine; the pedal should drop slightly as the servo vacuum builds up.

BRAKESSECTION JC - ESPRIT S3 & TURBO: 1985 MODEL YEAR ONWARDS

This section is applicable to 1985 Model Year Esprit variants which use ventilated front disc brake assemblies similar to those used on Excel models and Bendix Series 3 ACG rear disc brake assemblies.

	<u>Section</u>	<u>Page</u>
General Description	-	2
Front Brake Pad Replacement	JC1	2/3
Rear Brake Pad Replacement	JC2	3 to 5
Handbrake Adjustment	JC3	5/6
Front Caliper Overhaul	JC4	6/7
Rear Caliper Overhaul	JC5	7/8
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Master Cylinder	JC8	9/10

GENERAL DESCRIPTION

The braking system comprises a Bendix 'Master Vac' servo unit and tandem master cylinder operating single piston sliding calipers on each wheel with ventilated front and solid rear discs. The separate front/rear hydraulic circuits share a brake fluid reservoir which incorporates a 'Nivocode' low fluid level warning switch. This circuit, which operates a fascia tell-tale lamp, may be checked by depressing the test button on the reservoir cap.

The handbrake lever connects via individual cables to each rear brake caliper, and mechanically operates their hydraulic pistons via a self adjusting mechanism.

JC. 1 - FRONT BRAKE PAD REPLACEMENT

Pad thickness may be checked using the inspection hole in the caliper.

Standard pad thickness	-	10.5mm (0.41 in.)
Minimum pad thickness	-	2 mm (0.08 in.)

To remove pads

1. Remove the bolt from the lower of the two caliper sliding pins, and swing up the caliper to allow access to the pads. The caliper may be supported in the raised position by inserting a bolt into the torque plate hole.
2. Slide out both brake pads. Referring to the illustration remove each anti-rattle spring/guide plate/support plate ONE AT A TIME, and replace with the new item supplied with the new pad set.

NOTE: Pay special attention to the correct assembly of anti-rattle springs and pad guide plates to the caliper. Most of these are handed.

Note that the inner pad guide plate forms a solid abutment and is fitted to the top (or thrust) end of the caliper, whilst the inner pad anti-rattle spring is fitted to the lower end.

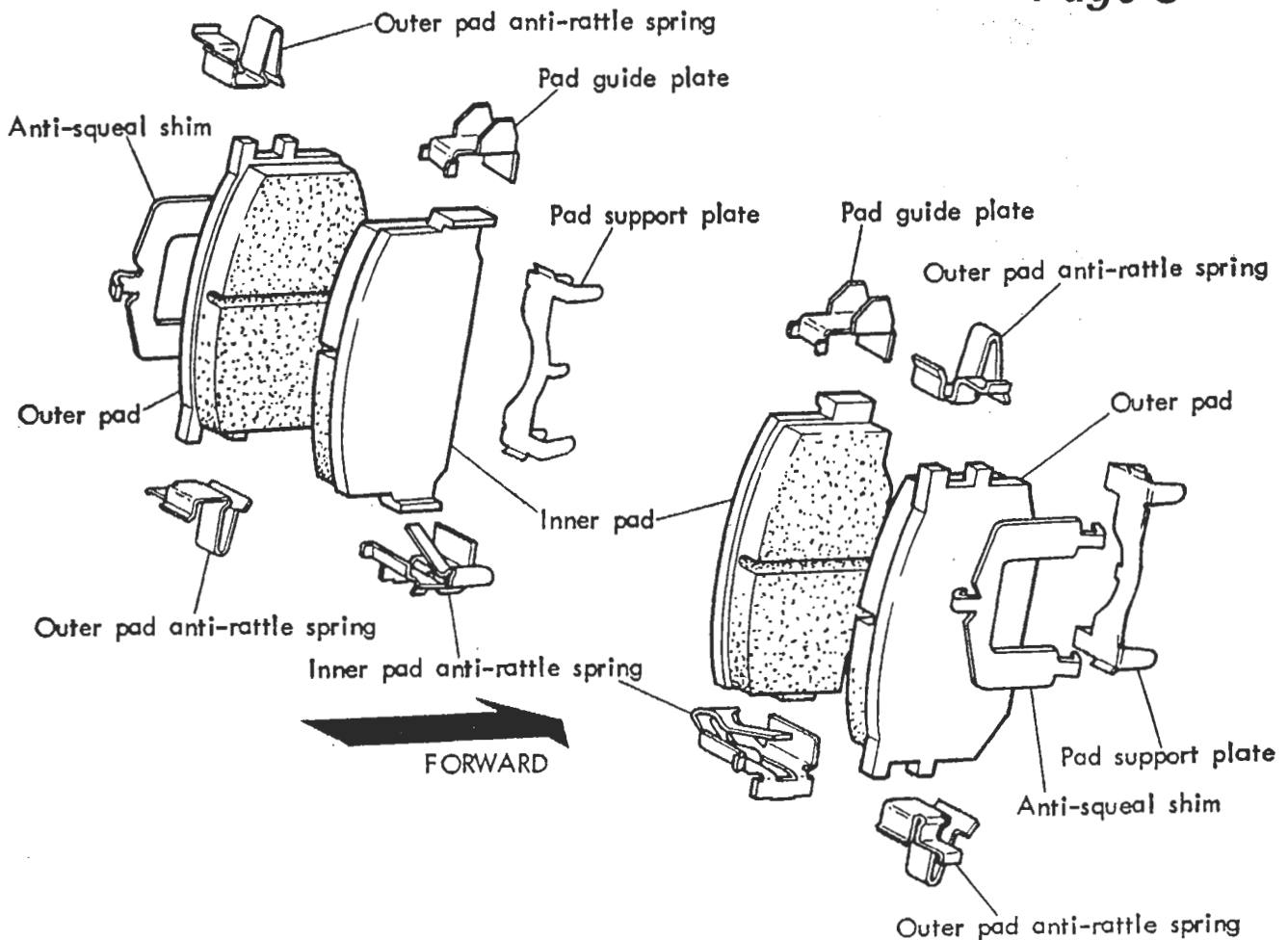
3. Fit the anti-squeal shim to the outer pad and insert into the caliper, ensuring that the anti-rattle spring tongues are tucked into the brake pad backplate slots.

Insert the inner pad into the caliper.

4. Lower the caliper cylinder, and secure with the lower sliding pin bolt, torque tightening to 1.6 - 2.4 kgf. m. (12 - 17 lbf. ft).

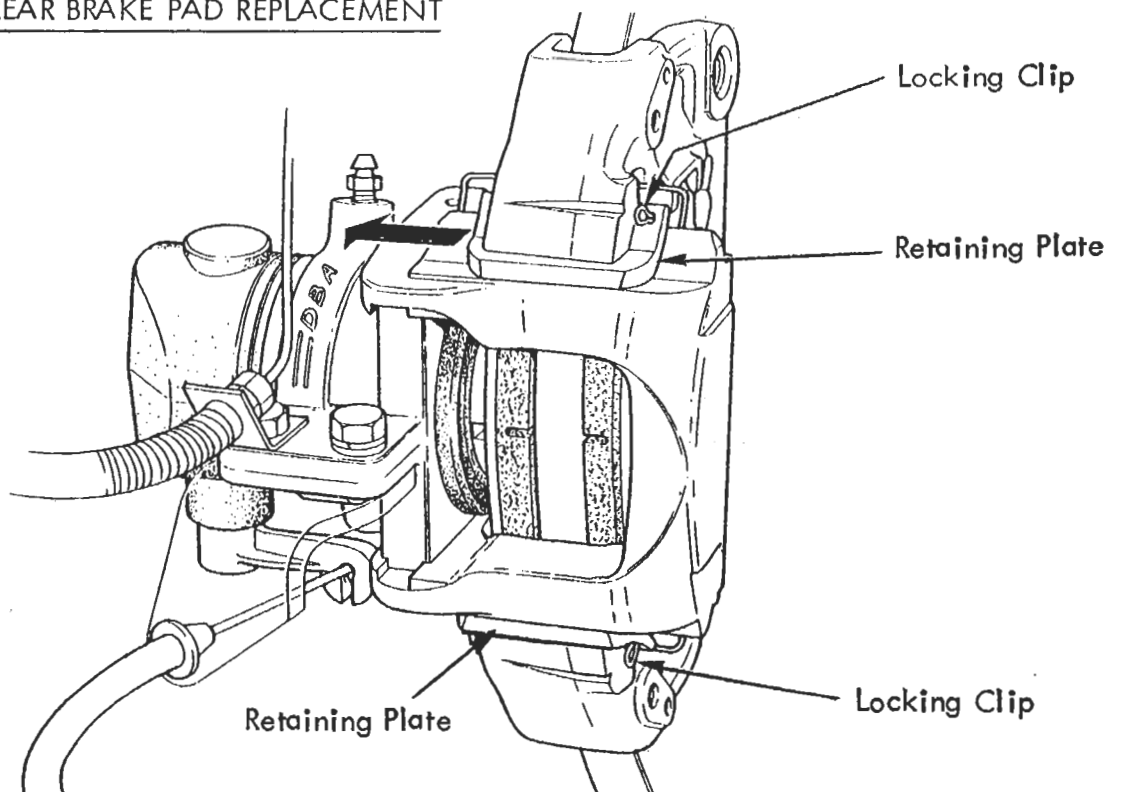
NOTE: If new pads are fitted it will be necessary to push the piston back into the caliper bore. This action will return fluid to the master cylinder, which may, if it has been topped up, overflow. Remove fluid from the master cylinder reservoir beforehand if necessary.

5. Press the brake pedal several times to bring the pads to their correct running position.

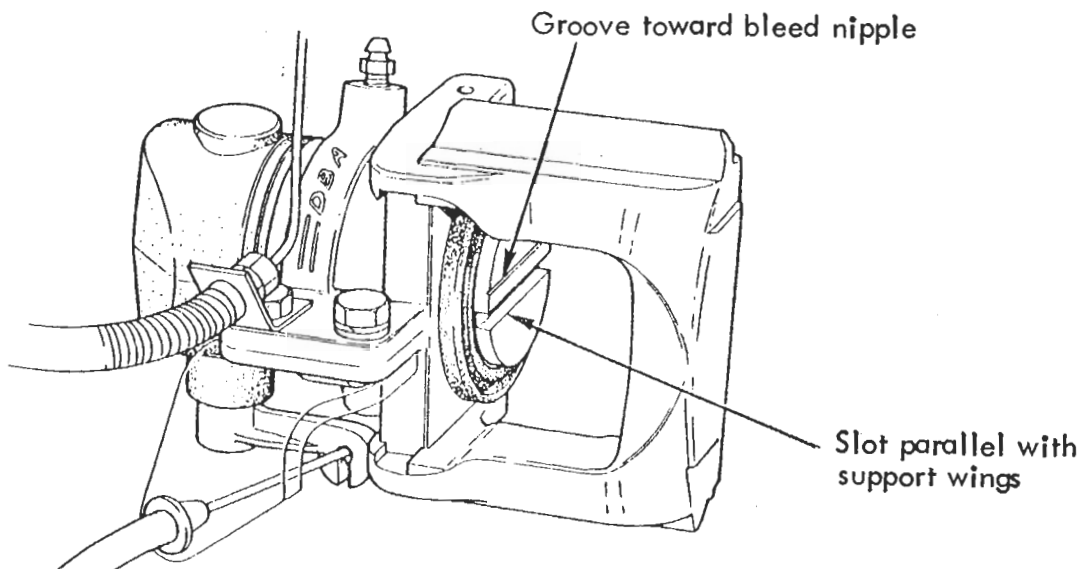


CAUTION The brakes will not work at full efficiency until the new brake pads have bedded-in. If initially, the brakes are used too heavily, the surface of the pads will burn and irregular braking result. Use the brakes gently for the first few miles and gradually build up brake effort.

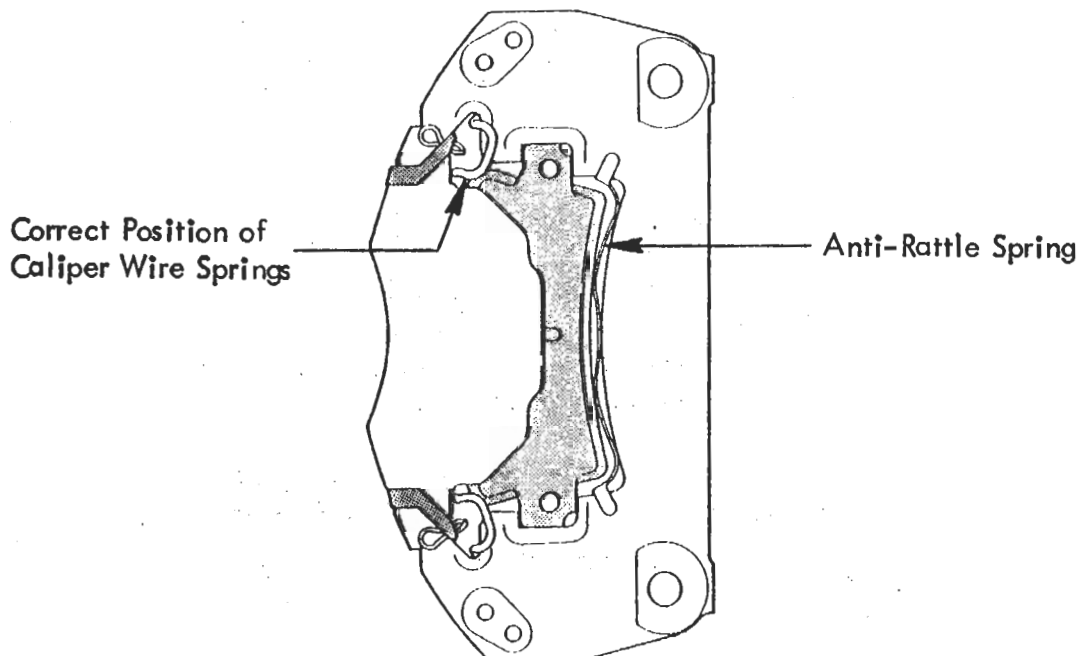
JC. 2 - REAR BRAKE PAD REPLACEMENT



1. Pull out the locking clips from both caliper retaining plates.
2. Using a pin drift, drive out one retaining plate, and then remove the other.
3. Lift away the caliper, and support clear without stressing flexible hose.
4. Remove the brake pads and anti-rattle springs.
5. Before fitting new pads, it is necessary to retract the caliper piston in its bore. To do this, use a $\frac{1}{4}$ " drive ratchet in the slot of the piston to screw the piston clockwise down its handbrake adjuster mechanism. Take care that the fluid reservoir does not overflow during this operation. When fully retracted, screw out again until the slot is parallel with the two support wings, and the groove is toward the bleed nipple as shown.



6. Fit the brake pads, with their anti-rattle springs into the caliper bracket
7. Refit the caliper over the pads ensuring that the caliper wire springs are located correctly, and slide in both retaining plates. Fit the locking clips.



8. Operate the footbrake several times to bring the pads to their correct working position and to take up the handbrake adjustment.

JC 3. - HANDBRAKE ADJUSTMENT

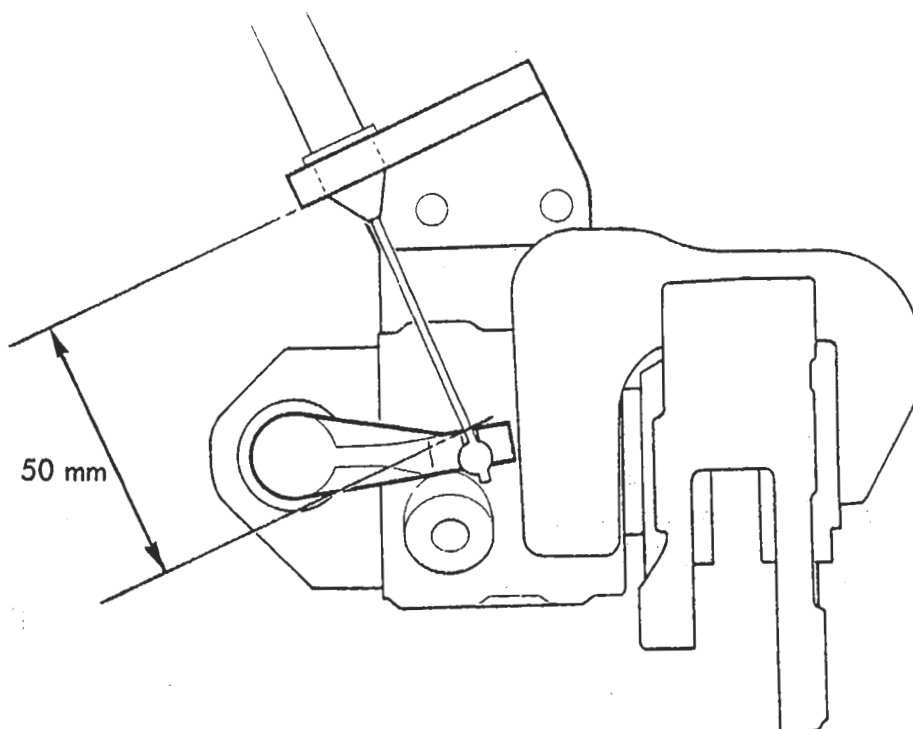
It is a feature of the Bendix handbrake mechanism that a large amount of handbrake lever travel is required in order for the handbrake to work efficiently and for the automatic adjustment to function. For this reason, a 'fold down' type handbrake lever is used to ease driver entry/exit.

The handbrake is applied by pulling the lever upwards in the usual manner. After application, the lever may be pushed down again (WITHOUT pressing release button in end of handgrip) whilst the fascia tell tale lamp warns of handbrake application. To release the handbrake, pull lever up, press release button and HOLDING BUTTON PRESSED IN, lower lever fully.

The handbrake lever is connected via a short link to a multiplier lever to increase leverage and reduce operator effort. The multiplier lever connects to an actuating link which uses a compensator lever to balance the force applied to each handbrake cable.

The Bendix calipers incorporate a screw thread self adjusting mechanism within their hydraulic cylinders, which keeps the mechanical handbrake linkage adjusted with each application of the footbrake. For this system to function correctly, it is essential that each caliper handbrake lever is allowed to return fully, and is not prevented from doing so by maladjustment of the handbrake cable.

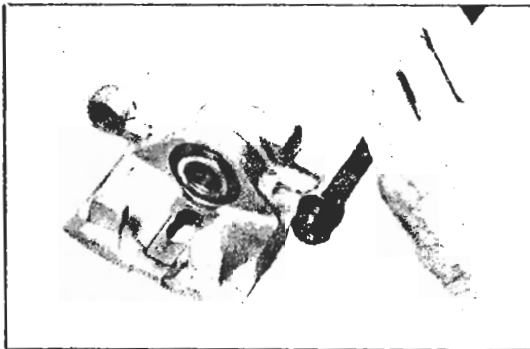
To check that this condition is achieved, with the handbrake 'off', measure the distance between the cable abutment and caliper lever as shown.



After verifying this dimension, any slack in the cables may be adjusted out at their forward abutment inside the driver's sill trim panel. For access, slide the driver's seat fully forward and lift the rear end of the sill carpet to expose the trim panel aperture. After adjustment, re-check the caliper lever 'off' dimension as above.

JC.4 - FRONT CALIPER OVERHAUL

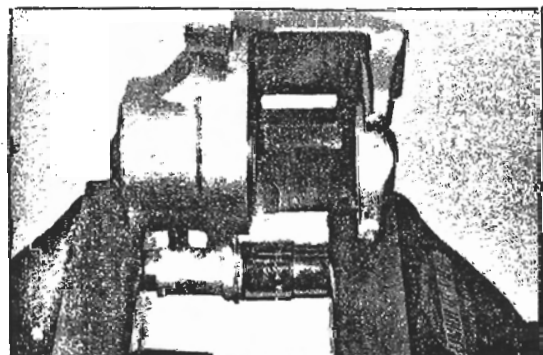
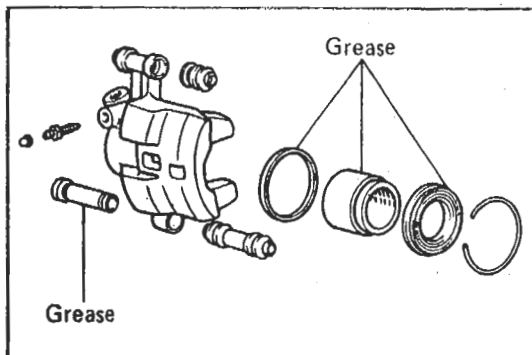
1. Disconnect the brake hose from the caliper brake pipe and bracket. Remove the caliper swing release bolt, raise the caliper and draw off from the top slide pin.
2. Remove the sliding bush and its rubber boots.
3. Remove the top pin boot from the caliper using a small chisel as shown.



4. Remove the spring ring and boot from the piston bore and use compressed air to eject the piston from the cylinder.

WARNING: Keep fingers well clear during this operation, and use rags to guard against brake fluid spray.

5. Remove piston seal from cylinder.
6. Reassembly. Apply rubber grease to parts as indicated.
7. Instal piston seal into cylinder bore, and insert piston. Fit cylinder dust boot, and retain with spring ring.



8. Fit the top slide pin boot by using a 21mm socket as shown.
9. Fit the sliding bush with its two boots.

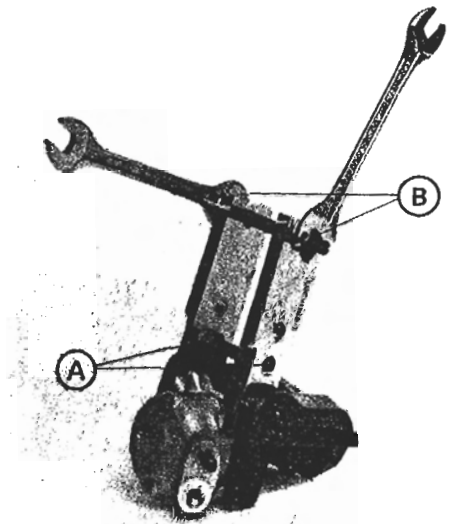
10. Install the caliper onto the top slide pin, swing down, and refit the caliper swing release bolt. Torque tighten to 1.6 - 2.4 kgf.m. (12 - 17 lbf.ft.).
11. Reconnect the brake hose, and bleed the brakes.

JC. 5 - REAR CALIPER OVERHAUL

1. Disconnect the handbrake cable and brake hose from the caliper.
2. Remove the locking clips, slide out the caliper retaining plates, and remove caliper to bench.
3. Clean the caliper thoroughly. Remove piston boot. Using a $\frac{1}{4}$ " drive ratchet, unscrew the piston from the handbrake adjustment mechanism.
4. Using a rag to protect against brake fluid spray, and keeping fingers well clear, use compressed air to eject the piston from the cylinder. Remove seal from groove in cylinder.
5. Clean the groove, cylinder bore and piston with methylated spirit and dry with compressed air. Inspect the groove, bore and piston surface for any signs of scratching or pitting. If any such signs are apparent, a replacement cylinder assembly should be fitted.
6. Fit a new seal into the cylinder groove. Lubricate the piston and bore with brake fluid and press the piston into the cylinder.
7. Smear the exposed part of the piston with the special Lockheed grease supplied in the seal kit, and fit a new dust boot.
8. Screw the piston fully in along the handbrake adjuster mechanism, and then position with the piston slot parallel with the two support wings and the groove toward the bleed nipple side. (See brake pad replacement procedure JC. 1).

Cylinder Removal If it is necessary to replace a cylinder assembly, special spreader tool T000T0556 must be used to avoid damaging the special protective coating on the cylinder and wings of the carrier bracket:

- a) Position the tool as shown and turn the screws (A) to adjust the alignment of its two arms against the two wings of the carrier bracket.
- b) Gradually tighten the two nuts (B) until the cylinder is no longer gripped by the carrier bracket. It may be necessary to re-position the tool to enable the cylinder to move easily.
- c) Using a 3mm allen key or similar, depress the spring loaded pawl and slide the cylinder out of the carrier.



Replacement

- d) With the tool holding the wings of the carrier apart, slide the new cylinder into the carrier bracket whilst depressing the locking pawl
Note Check that the cylinder is fitted the correct way up.
- e) Ensure that the pawl locks into the carrier bracket locating hole and remove the spreader tool.

JC. 6 - BRAKE DISCS

Check the braking surface on both sides of the brake discs for scoring or corrosion. Replace if in doubt.

Measure the disc thickness and run-out:

	<u>Front</u>	<u>Rear</u>
Thickness, nominal	20.0 mm (0.79 in.)	12.0 mm (0.47 in.)
Thickness, minimum	19.0 mm (0.75 in.)	11.0 mm (0.43 in.)
Run-out, maximum	0.15 mm (0.006 in.)	0.20 mm (0.008 in.)

If the run-out is excessive, replace the disc.

NOTE Ensure the front wheel bearings are correctly adjusted before measuring front disc run-out.

JC. 7 - BRAKE SERVO UNIT

The 'Master-Vac' brake servo is , with the exception of the air filter and non return valve, a non- serviceable sealed unit which must be replaced if found to be faulty.

The air filter (surrounds input push rod) should be replaced whenever the brake system is overhauled, and cleaned or replaced more frequently if the vehicle is operated in dusty conditions.

The vacuum non-return valve is incorporated into the vacuum hose elbow connector in the front case of the servo unit. The valve is a push fit into a grommet, and is supplied complete with new grommet.

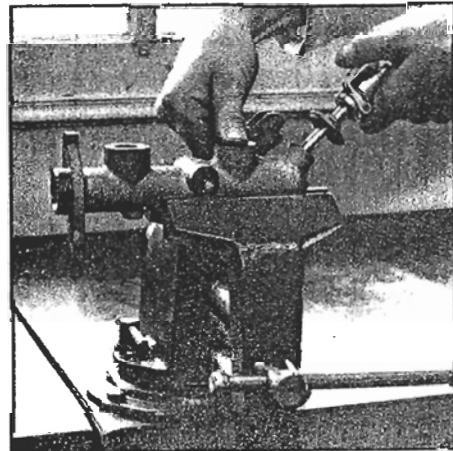
As a quick check of servo operation proceed as follows:

With engine stopped, press the brake pedal several times to exhaust the servo unit of vacuum. Keeping the pedal pressed (which should be 'hard' and 'high') start the engine; the pedal should drop slightly as the servo vacuum builds up.

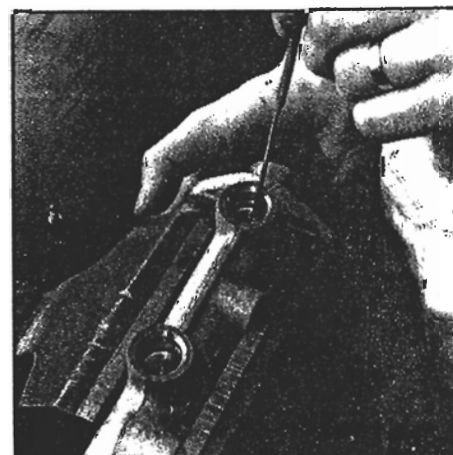
When replacing a servo unit, ensure that the input pushrod is located in the brake pedal lower hole marked 'B' (Brake) and not in the upper hole 'C' (Clutch)

JC. 8 - MASTER CYLINDER OVERHAUL

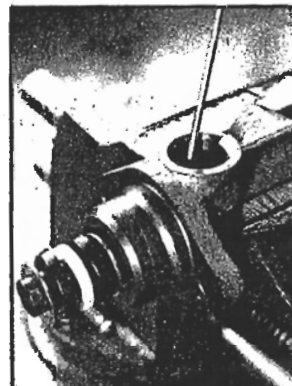
1. Disconnect the fluid level switch leads, release the three brake pipes from the cylinder and remove the two nuts and washers securing the master cylinder to the servo. Remove the master cylinder assembly from the vehicle to a clean workplace before further dismantling.
2. Drain the reservoir and pull out from its two master cylinder grommets.
3. Push on the primary piston and remove the stop screw from the underside of the cylinder, and circlip from the cylinder end.
4. Withdraw the primary piston assembly and eject the secondary piston assembly and spring using compressed air (max 3 bar). Never tap or strike the master cylinder to remove the piston.



5. Clean all parts with methylated spirit or brake system cleaning fluid and inspect. If the master cylinder bore shows any signs whatever of scoring, wear, or corrosion, the complete unit should be replaced.
Note: The screw securing the return spring to the primary piston is factory set and must not be disturbed.
6. Coat both new piston assemblies from a master cylinder repair kit with clean brake fluid and insert the secondary piston assembly with its spring into the cylinder. Use a screwdriver with rounded blade to ease sealing washer entry into the bore, and a rounded end 3mm diameter brass rod to ease the seals past the reservoir ports and stop screw hole.
7. Fit the primary piston assembly and spring in a similar manner, and retain in the cylinder by inserting the brass rod through the rearmost reservoir port, whilst pushing on the piston.



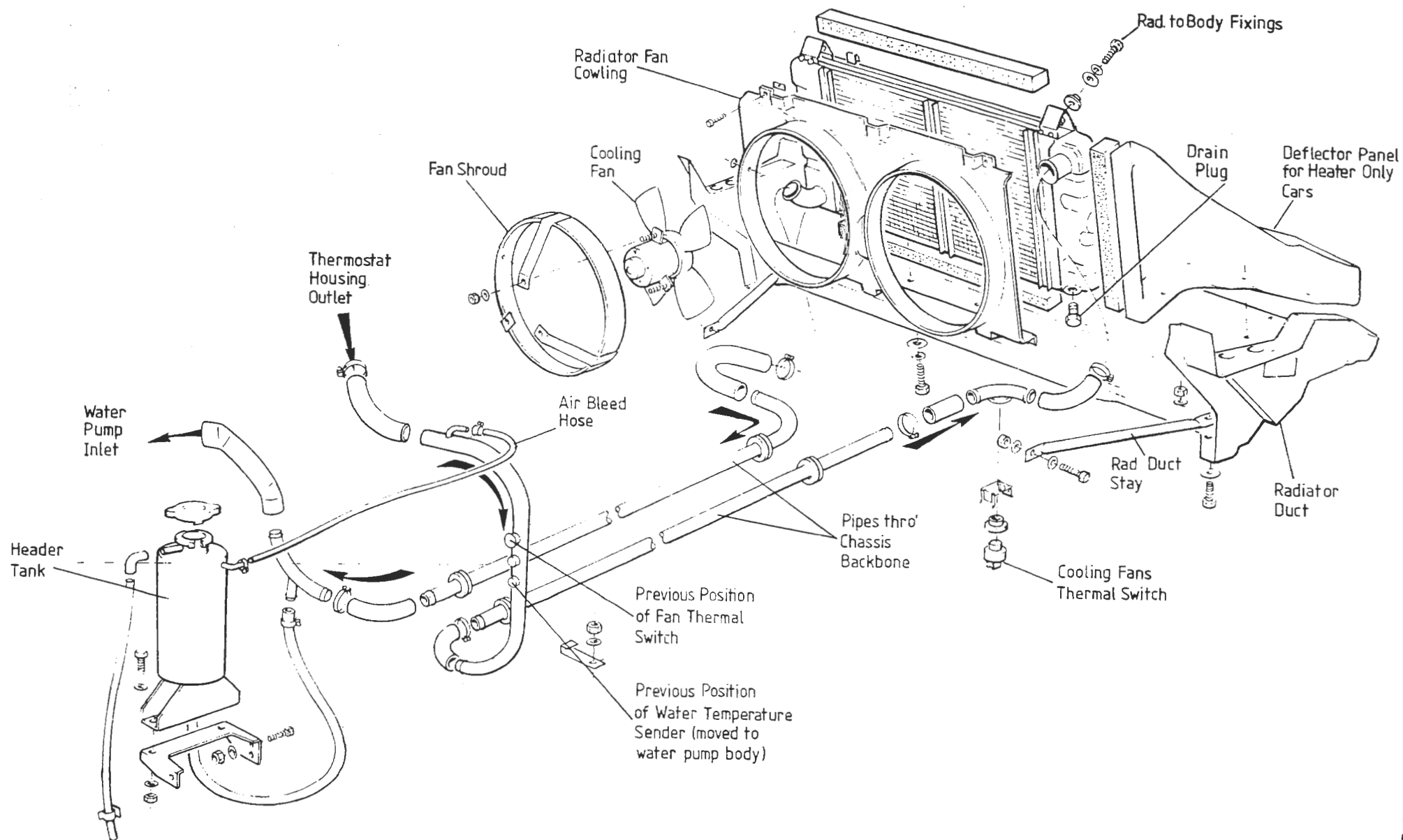
8. Coat the exterior of the projecting primary piston tube, vacuum sealing washers, and guide bush with the silicone grease provided in the repair kit.
9. Fit a stop washer and one vacuum sealing washer (lip side first) over the piston tube and insert into the cylinder using a rounded blade. Fit the guide bush, second vacuum sealing washer (lip side first) and second stop washer in a similar manner, and retain with the new circlip.



10. Using a new sealing washer, fit the secondary piston stop screw into the cylinder body. Tighten to 1 kgf.m. (7.5 lbf. ft.). Press on the primary piston, and remove the brass rod from the reservoir port.
11. Refit the reservoir assembly to the master cylinder using new grommets.
12. Refit the master cylinder to the servo, using a new 'O' ring and tightening the two nuts to 1.4 kgf. m (10 lbf. ft.).
13. Refit the brake pipes into the master cylinder ports, refill the reservoir with the specified brake fluid, and bleed the complete system. Connect the low fluid level switch leads.

COOLING SYSTEMSECTION KB - ESPRIT S3 & TURBO

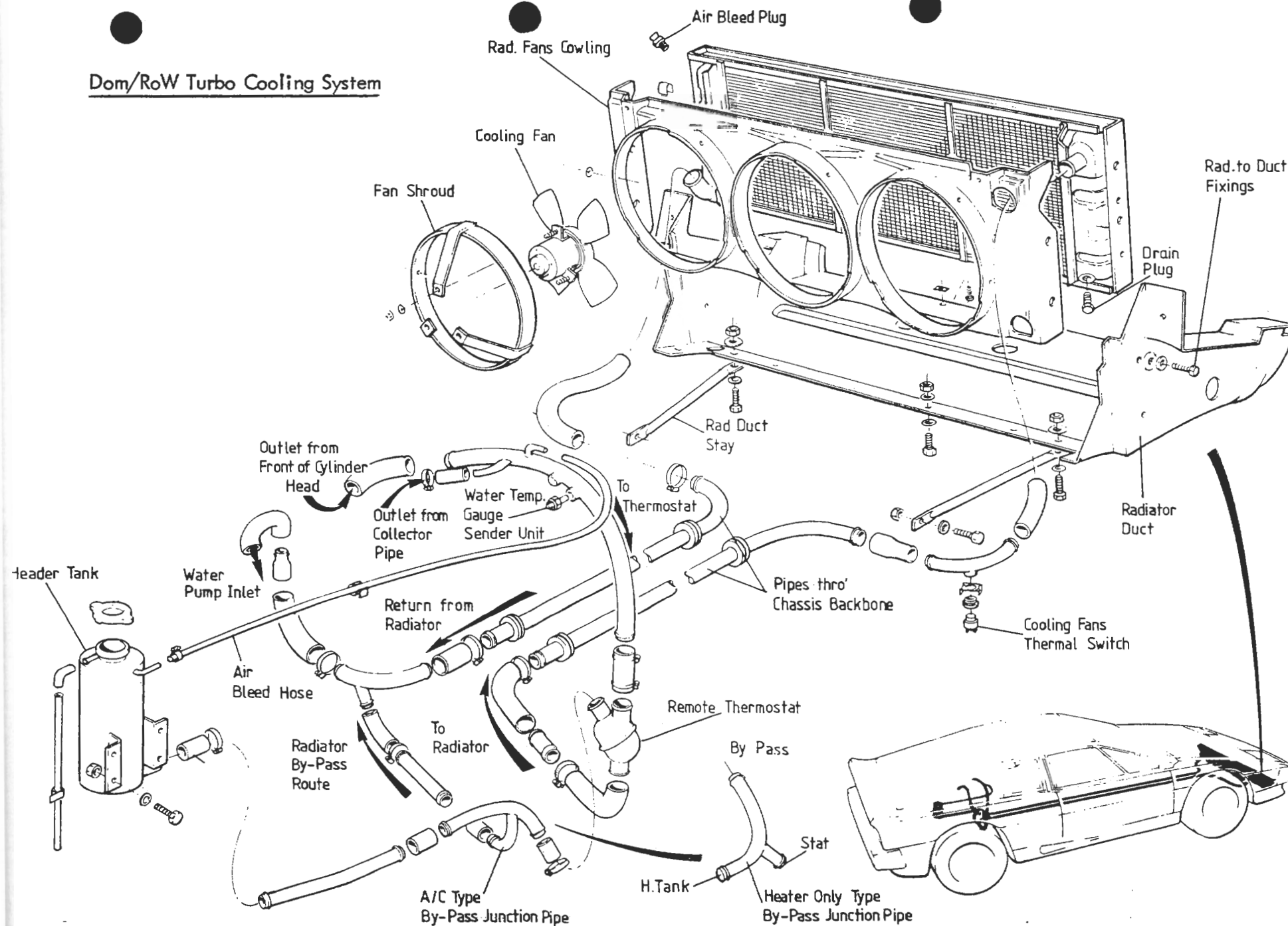
	<u>Operation</u>	<u>Page</u>
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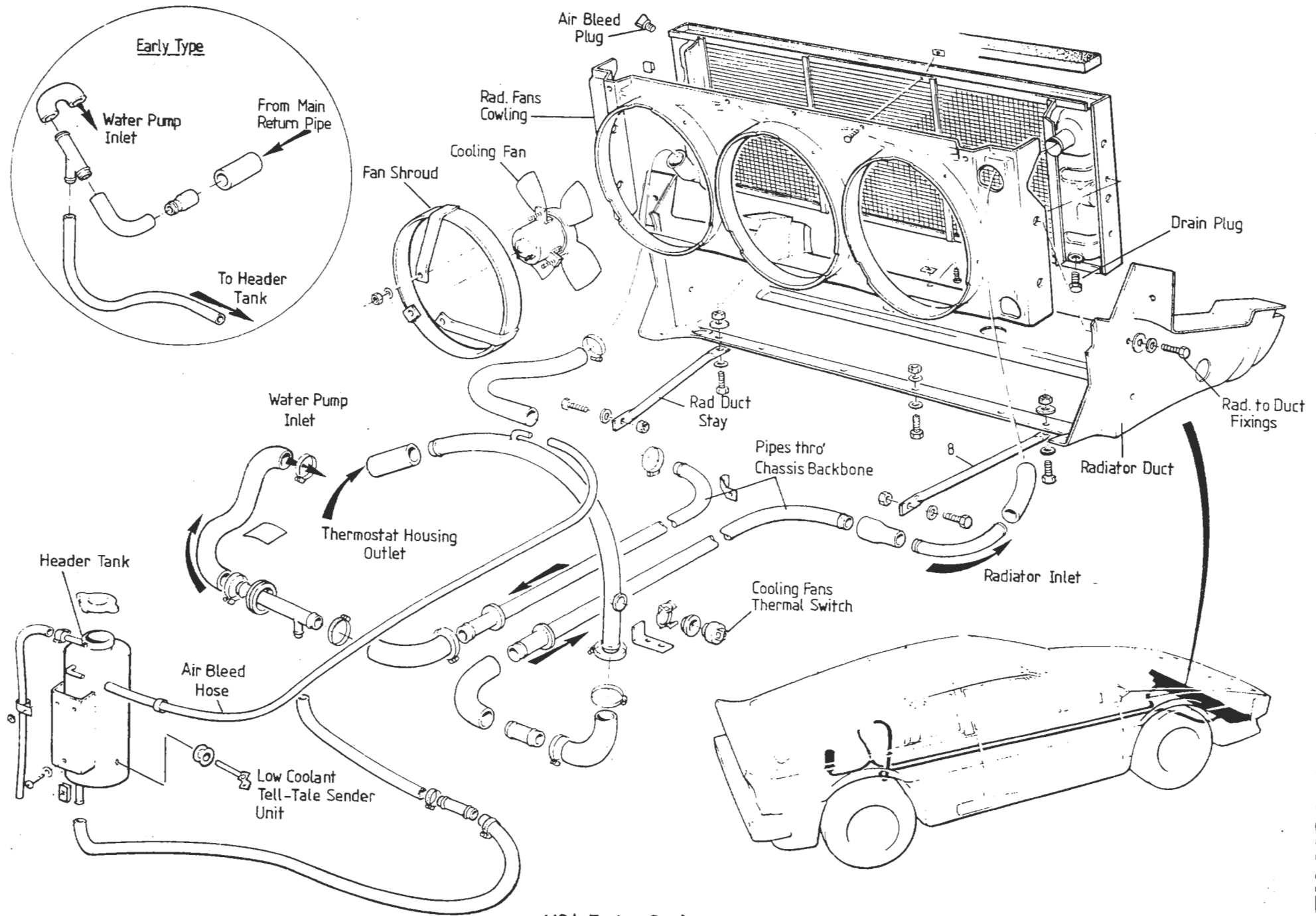


Esprit S3 Cooling System

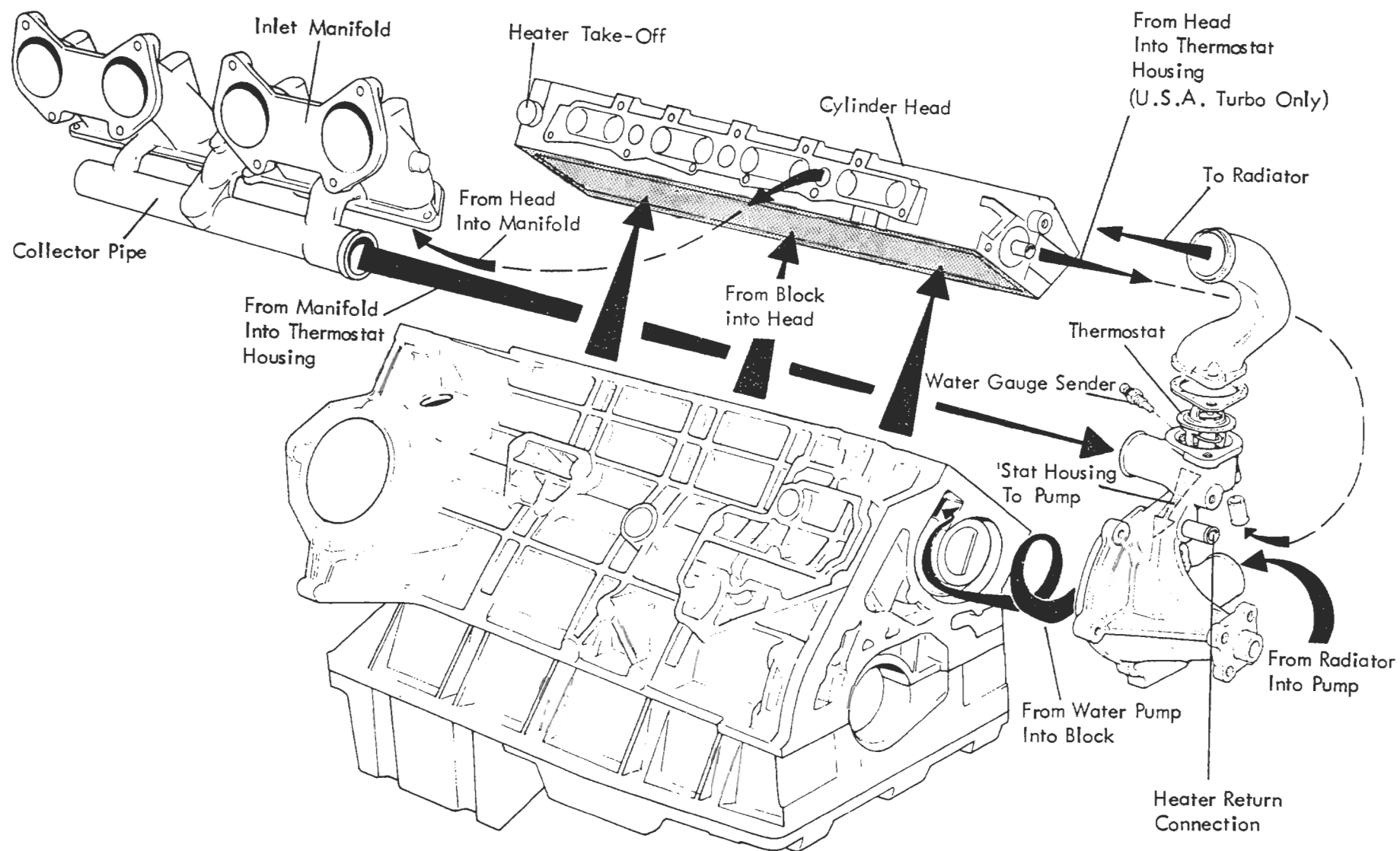
Dom/RoW Turbo Cooling System

SECTION KB

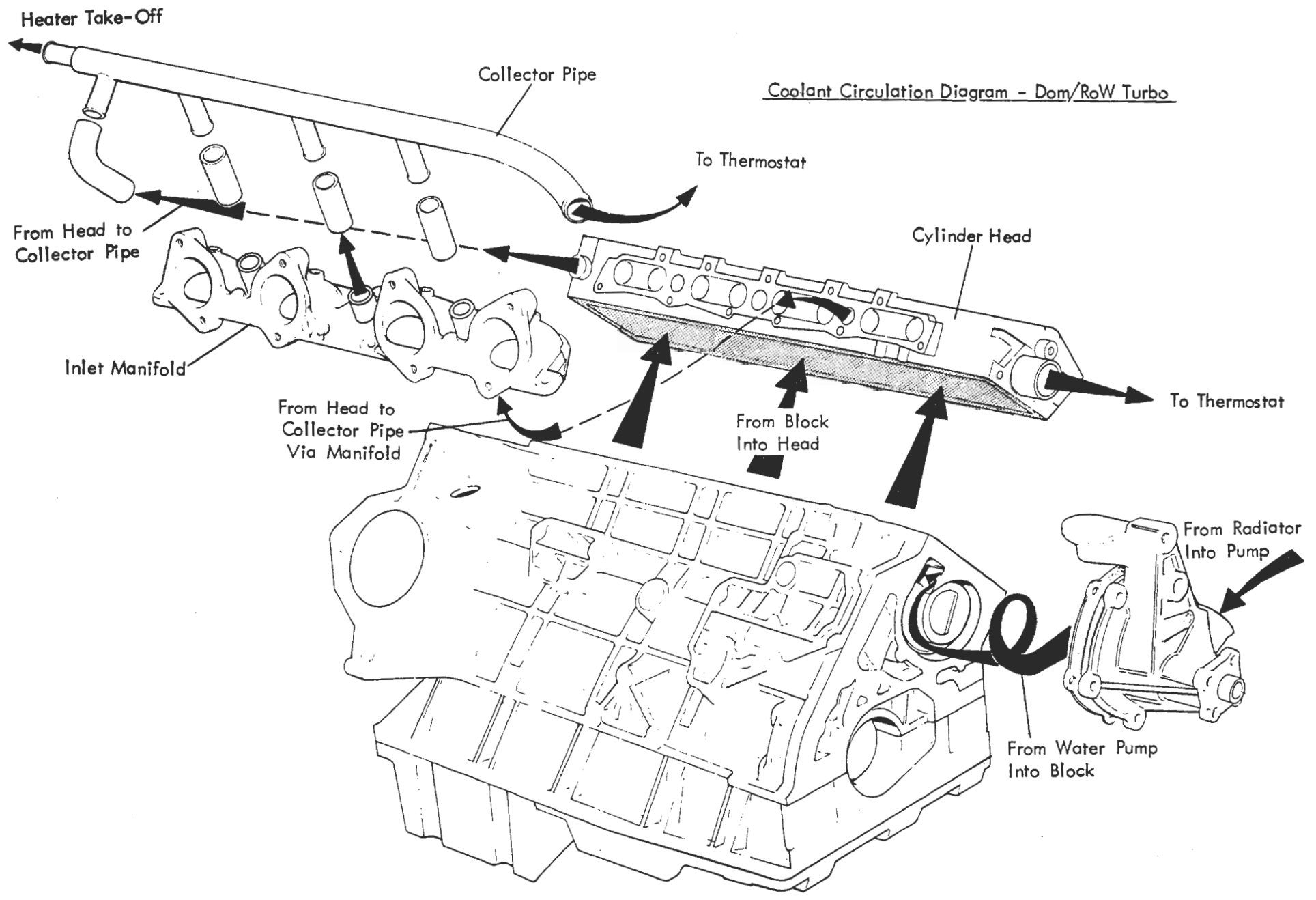




USA Turbo Cooling System



Coolant Circulation Diagram - Esprit S3 & U.S.A. Turbo



KB.1 - GENERAL DESCRIPTION

A centrifugal water pump is mounted on the front face of the cylinder block and is driven by a single 'V' belt from the crankshaft. Coolant is pumped by the impellor into the front of the block, around the 'wet' cylinder liners and into the cylinder head.

Esprit S3 and U.S.A. Turbo: Water leaves the cylinder head via a pipe cast integrally with the inlet manifold, with, on U.S.A. Turbo models, an additional offtake from the front face of the head, and flows into the thermostat housing which is above and integral with the water pump housing. When the thermostat is closed, water flows downwards back into the water pump to commence another cycle. When the thermostat opens, this route is closed off and water is directed upwards past the thermostat and into pipework leading to the front mounted radiator. Coolant returning from the radiator flows back into the water pump impellor housing to commence another cycle.

DOM/ROW Turbo: On these cars, water leaves the cylinder head from a pipe in its front face and via outlets between the inlet ports linked by an external collector pipe. These two streams converge and flow to a remotely mounted thermostat at the right hand front of the engine bay. When the thermostat is closed, water is directed via a 'by-pass' pipework route back to the water pump, but when the thermostat opens, coolant flows forward to the front mounted radiator before returning to the water pump.

A header tank is fitted at the right hand rear of the engine bay and is connected with the water pump inlet pipework (S3 & USA) or the by-pass pipework (DOM/ROW Turbo).

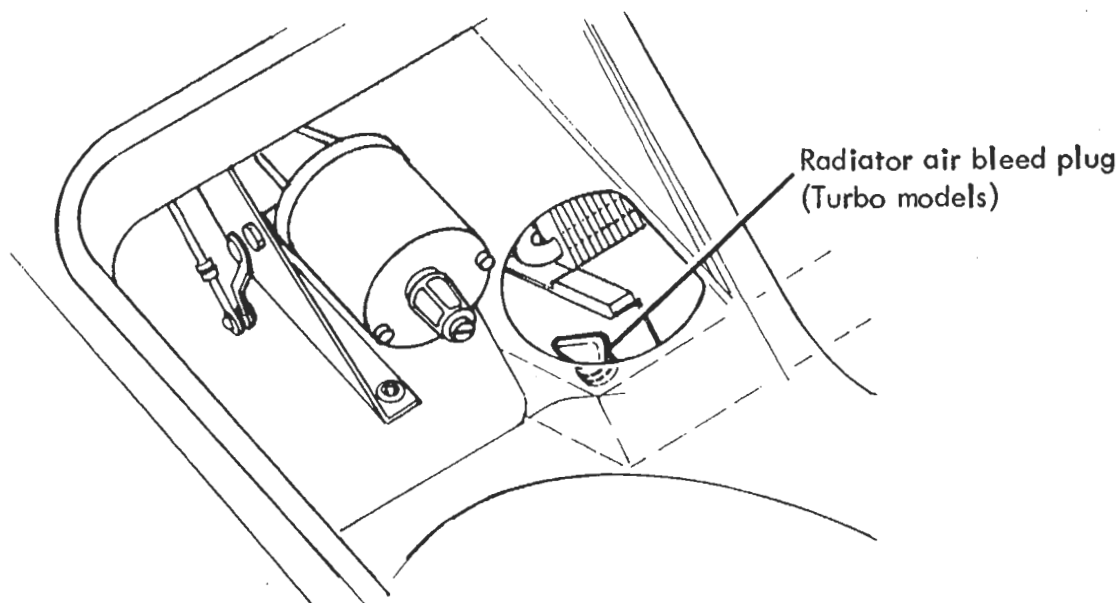
The radiator is located in the nose of the car and is mounted into a G.R.P. rad. duct fixed to the underside of the spoiler and front luggage compartment. Turbo models use a full width radiator provided with 3 cooling fans whilst Series 3 vehicles use a smaller 2/3 width radiator with 2 cooling fans. Series 3 cars with air conditioning have a similarly sized condensor mounted ahead of the radiator and offset to the opposite side of the rad. duct with the non overlapping portion provided with its own condensor cooling fan.

KB.2 - DRAIN/REFILL PROCEDURE

It is most important that the coolant contains a corrosion inhibitor to protect the aluminium alloy of the Lotus engine. A minimum of 25% inhibitor/anti freeze should be used all year round with up to 60% in the coldest climates. All cars are filled with a 40% mix at the factory.

To drain the system, set the heater temperature control to hot, release the header tank cap and remove the radiator drain plug. Also release hose connections in the engine bay as necessary to fully drain pipework. To refill the system, refit hose connections securely, replace drain plug and, on Turbo models, open the radiator bleed plug from inside the front luggage compartment.

Fill with coolant until a steady stream flows from the bleed. Close the bleed and add coolant until the system is fully filled. Run the engine to operating temperature and open the bleed until a continuous stream of water flows out. Close the bleed, allow the engine to cool, and fill to within 50mm (2 in.) of the bottom of the header tank neck.



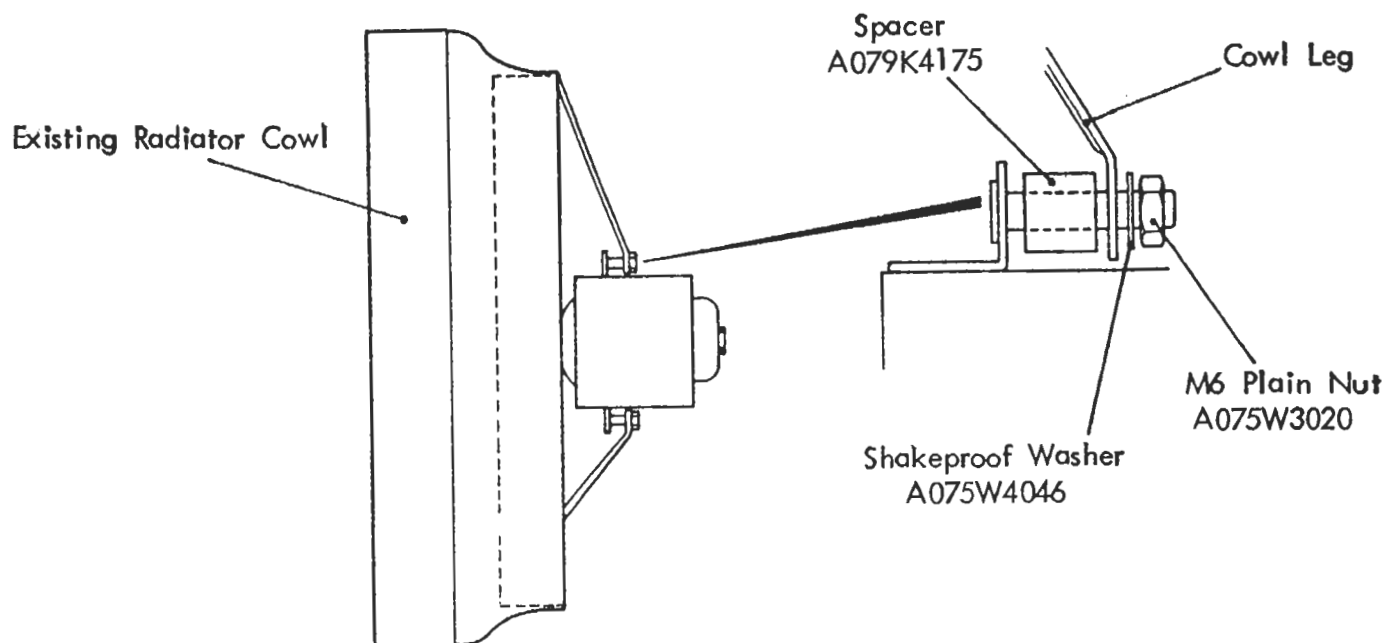
KB.3 - COOLING FANS - REPLACEMENT OF EARLY TYPE MOTORS.

Early Series 3 and Turbo models (prior to mid '83) used cooling fan motors A074M6027Z with rivetted metal fan blades, whilst later cars use a fan motor assembly with an orange plastic blade. If it is necessary to replace an earlier type fan motor, it is recommended to fit the later type fan motor assembly in the following manner.

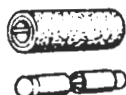
<u>Parts Required</u>			<u>Qty. per Motor</u>
Fan Motor	A082K6026H		A/R
Fan, rad. cooling (plastic)	A082K6027H		1
Circlip, fan to motor	A082K6029F		1
Washer, fan to motor	A082K6028F		1
Spacer, motor to mtg.	A079K4175		3
Washer, shakeproof	A075W4046Z		3
Nut, plain, M6	A075W3020Z		3
Permabond, A136	A074B6009V		A/R
Extension lead (S3)	A085M4194F		1
Reverse Polarity Lead (Turbo)	A082M4193F		1

1. Remove the old fan and motor from its mounting shroud.
2. Enlarge the fan motor fixing holes in the shroud legs to 6mm clearance.

3. Fit the new fan and motor assembly, using spacers A079K4175 between the motor and shroud legs as shown, and Permabond A136 on the fan motor mounting studs.



4. On Series 3 models, discard the existing reverse polarity connection



and connect to loom using extension lead A082M4194.

On Turbo models connect motor to loom using reverse polarity lead A082M4193.

5. Switch on fans (bridge 'Otter' switch) and check correct direction of rotation of each individual fan, ie: draws air through radiator and blows backwards, rotating anti-clockwise when viewed from behind.

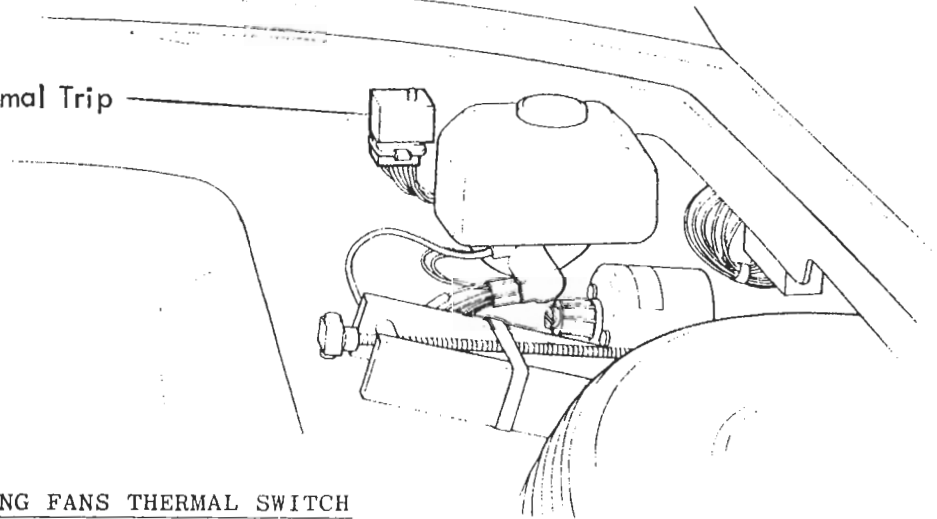
The fan fail tell-tale will function as previously.

KB.4 - COOLING FANS THERMAL TRIP

Early Turbo models, S3 cars with air conditioning, and Series 3 cars with heater prior to commonisation with Turbo fascia (mid '85) used a fused relay in the cooling fan circuit located at the left hand front of the front luggage compartment. Later cars were fitted with a revised circuit to incorporate a double pole relay and a modular three pole thermal circuit breaker with manual reset. On these cars, an excess current in any one or more motors will cause its own thermal circuit breaker to operate. If any

thermal trip is open, or any motor fails to rotate at an effective speed, an earth path or voltage difference is created and the fan failure tell tale will light. Pressing down the red reset button on the trip housing (adjacent to windscreen washer reservoir) will restore any tripped circuit.

Cooling Fans Thermal Trip



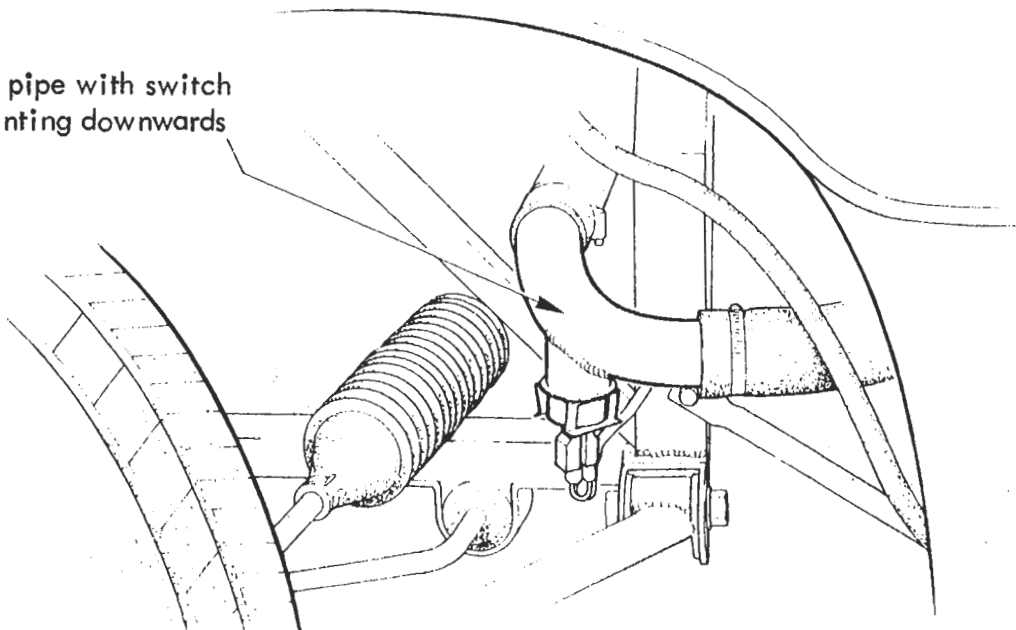
KB.5 - COOLING FANS THERMAL SWITCH

The cooling fans thermal switch (sometimes referred to by its manufacturers name, 'Otter') is fitted into a water pipe between the thermostat outlet and radiator inlet, using a special grommet and spring clip. Never re-use a grommet, but renew each time the switch is removed.

Cars used in hot climates are fitted with a blue colour coded switch which makes/breaks at temperatures of 82/72°C. The switching point for cars in temperate climates was raised from 86/76 to the 92/82 of the current green colour coded switch.

On DOM/ROW Turbo models the switch is fitted in the radiator inlet elbow pipe. Until Dec. '84, the pipe was fitted with the switch pointing upwards but the possibility of an air pocket being trapped around the switch and the consequent erroneous temperature sensing, led to the pipe and switch being inverted.

Fit pipe with switch pointing downwards



On an earlier car, if inconsistent fan operation is experienced, or if the thermal switch or water-pipe is disturbed for any reason, the elbow pipe should be re-fitted in the 'inverted' position as shown.

Esprit S3 cars prior to mid '85 and U.S.A. Turbo models have the switch fitted horizontally into the water pump outlet pipe. Later S3 cars adopted the radiator inlet pipe location of the Dom. Turbo.

KB.6 - REPLACEMENT OF EARLY TYPE RAD. DUCT STAYS

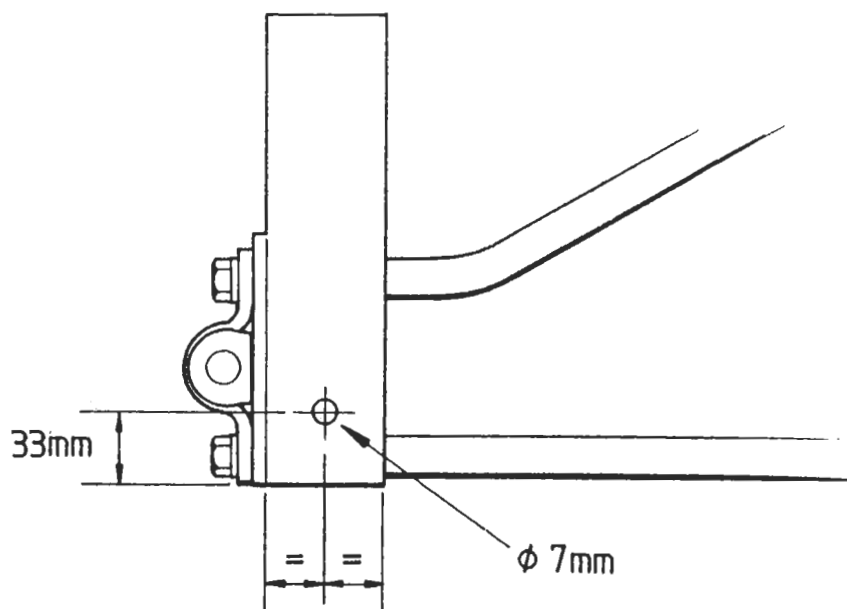
Early Series 3 and DOM/ROW Turbo cars used radiator duct stays fabricated from 'U' section channel and using an 'L' bracket to fix the stay to the chassis. Later cars used a more durable tubular stay which may be fitted to earlier cars in the following manner.

Parts Required

Rad. Duct Support Tube, RH	A082K4188K	1
Rad. Duct Support Tube, LH	A082K4189K	1
Setscrew, M6 x 20, Tube/Chassis	A075W1030Z	2
Washer, flat, Tube/Chassis	A075W4013Z	2
Nut, Nyloc, M6, Tube/Chassis	A075W3009Z	2

Remove and discard existing stays and 'L' brackets.

Drill a 7mm diameter hole each side of the chassis front frame as shown, and paint with a zinc rich primer.



Fit the rear end of each tube to the chassis at this point using the fixings listed, and secure the front end to the rad. duct with the existing fixings, re-drilling if necessary.

FUEL SYSTEMSECTION LA - EXCEL & ESPRIT S3

	<u>Operation</u>	<u>Page</u>
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LA.1. - GENERAL DESCRIPTION

Esprit Series 3

Two fuel tanks are fitted, one ahead of each rear wheel arch. A separate filler neck with lockable cap is provided for each tank, and the two tanks are interconnected by a balance pipe. A single sender unit for the fuel gauge is fitted into the top of the right hand tank.

Fuel is fed from the left hand tank to an electric fuel pump fitted beneath the left hand front corner of the engine bay. From here fuel is pumped through a line filter at the left hand front of the engine bay, to a 'Flowlock' valve at the right hand side of the engine bay. The 'Flowlock' valve is a solenoid operated fuel line valve designed to shut off the fuel supply to the engine except when the solenoid is energised by switching on the ignition. A plastic fuel pipe then carries fuel to the carburettors.

EXCEL

A single fuel tank is fitted between the rear wheel arches at the front of the boot and is provided with a filler neck and lockable cap on the left hand side. The fuel gauge sender unit is fitted into the top of the tank. On cars prior to mid '85, fuel is drawn through a gauze filter incorporated into the banjo bolt fuel take off, and through a 'Flowlock' valve before reaching the electric pump. Both pump and 'Flowlock' valve are contained within the spare wheel well at the front of the boot. Fuel is then pumped through a plastic pipe running through the chassis backbone and into the carburettors.

Early cars were fitted with a filter in the fuel pipe to carburettor adaptor. This was later replaced by a float needle valve filter within the carburettor.

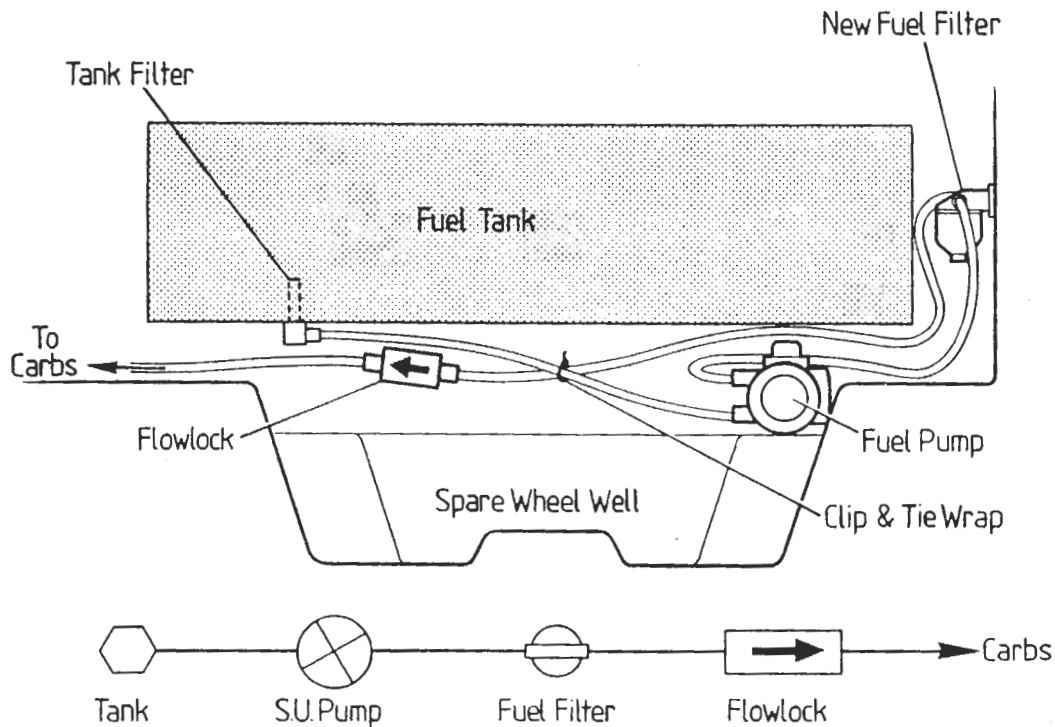
From mid '85 onwards, a revised fuel filtration system was fitted incorporating a replaceable paper element fuel filter. With this system a coarser mesh filter (450 microns) is used on the tank banjo bolt, from which fuel flows to the fuel pump. Fuel is then pumped through a filtration unit mounted to the right of the fuel tank, then through the flowlock valve and to the carburettors.

On earlier Excel models, where a history of persistent fuel starvation problems have been experienced, the revised fuel filtration system can be installed.

LA.1A. - INSTALLATION OF REVISED FUEL FILTRATION SYSTEM

<u>PARTS</u>	Banjo Bolt/Filter Assy.	C084L0181F	1 off
<u>REQUIRED:</u>	Crush Washer (Banjo/Filter Assy.)	A075L6022F	2 off
	Fuel Pipe - Tank to Pump	A089L0211F	1 off
	Fuel Pipe - Pump to Filter	A089L0212F	1 off
	Fuel Filter Assy.	A089L6012F	1 off
	Fuel Pipe - Filter to Flowlock	A089L0213F	1 off
	Set Screw M6 x 20	A075W1030F	2 off
	Washer 6 x 20 x 2.5	A075W4016F	2 off
	Nyloc Nut M6	A075W3009F	2 off

- 5) Remove existing fuel pipe from tank to flow lock and flowlock to pump and discard.
Disconnect fuel pipe from pump outlet.
Fit new banjo bolt/filter assy. (C084L0181F) using new crush washers and new fuel pipe (A089L0211F) from tank to pump inlet.
Torque tighten banjo bolt/filter assy. to 2.8 kgf.m (20 lbf. ft.).



Fuel System Schematic Layout

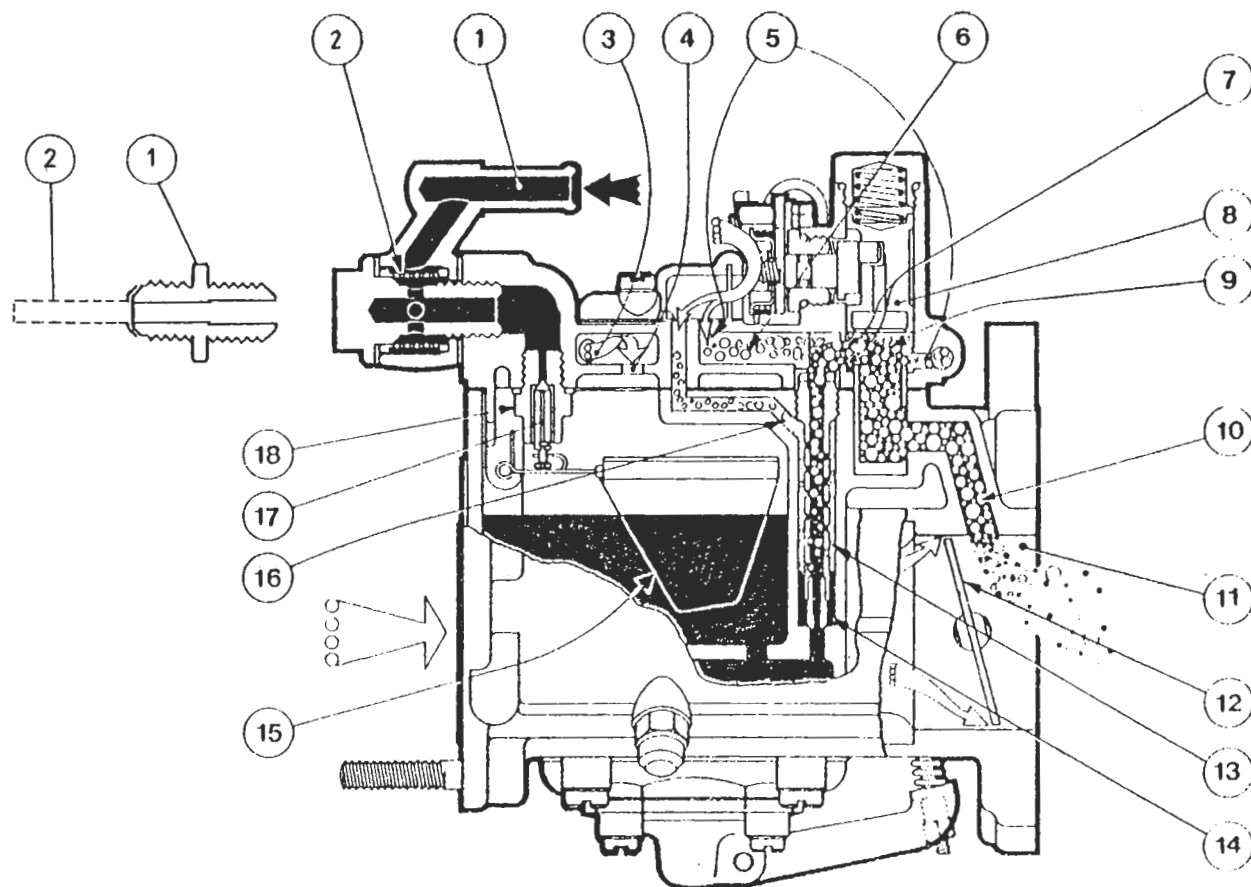
- 6) Fit new fuel pipe (A089L0212F) from pump outlet to filter inlet (rearmost connection).
Reverse the flowlock on its existing mounting (direction of flow arrow towards engine) and fit new fuel pipe (A089L0213F) from filter to flowlock. Clip/tie wrap pipe as shown.
Connect the existing (front to rear) fuel pipe to the flowlock.
Route pipe in a loop inside boot - do not push pipe forward through grommet in body.
- 7) When refilling the tank, strain the drained petrol through a fine mesh filter (e.g. ladies stocking or tights) to avoid any contaminated fuel entering the tank.
ENSURE THAT ALL FUEL PIPE CONNECTIONS ARE SECURE AND THAT THERE ARE NO FUEL LEAKS
8. Refit tank board, spare wheel, boot floor, RH rear wheel and reconnect battery.

LA.2. - CARBURETTOR THEORY OF OPERATION

Carburettor Type - Standard Engines - Dellorto DHLA 45E
- 'H.C.' Engines - Dellorto DHLA 45D

Fuel Supply

Fuel from the union (1) passes through the filter (2) and reaches the needle valve seat (18), where the needle valve (17) attached to the float (15), controls the

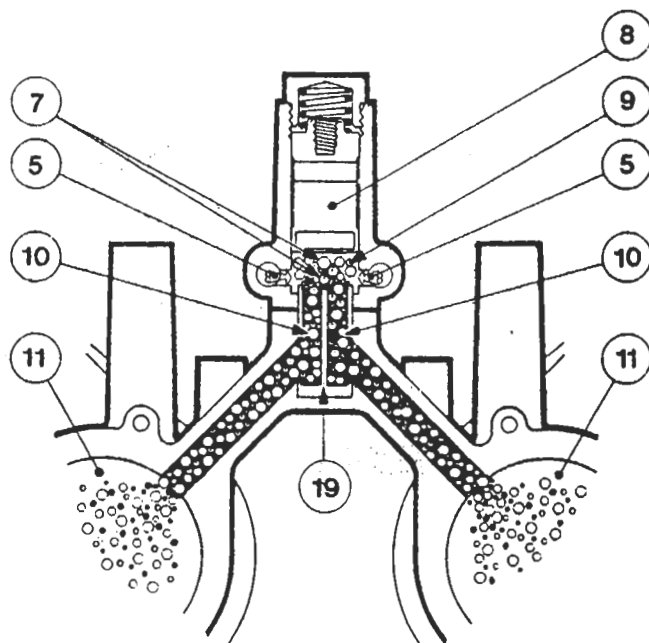


fuel flow into the float chamber, thereby maintaining a constant level.

The float chamber is vented to atmosphere (via the airbox) through the hole (4) in the chamber (3).

Starting

With the choke valve (8) opened fuel metered through jet (14) passes into the emulsion tube (13), where it mixes with air from the channel (16), communicating with the float chamber top through hole (6). The mixture formed flows, through holes (7), into the valve chamber (9), further mixing with air from the two channels (5).



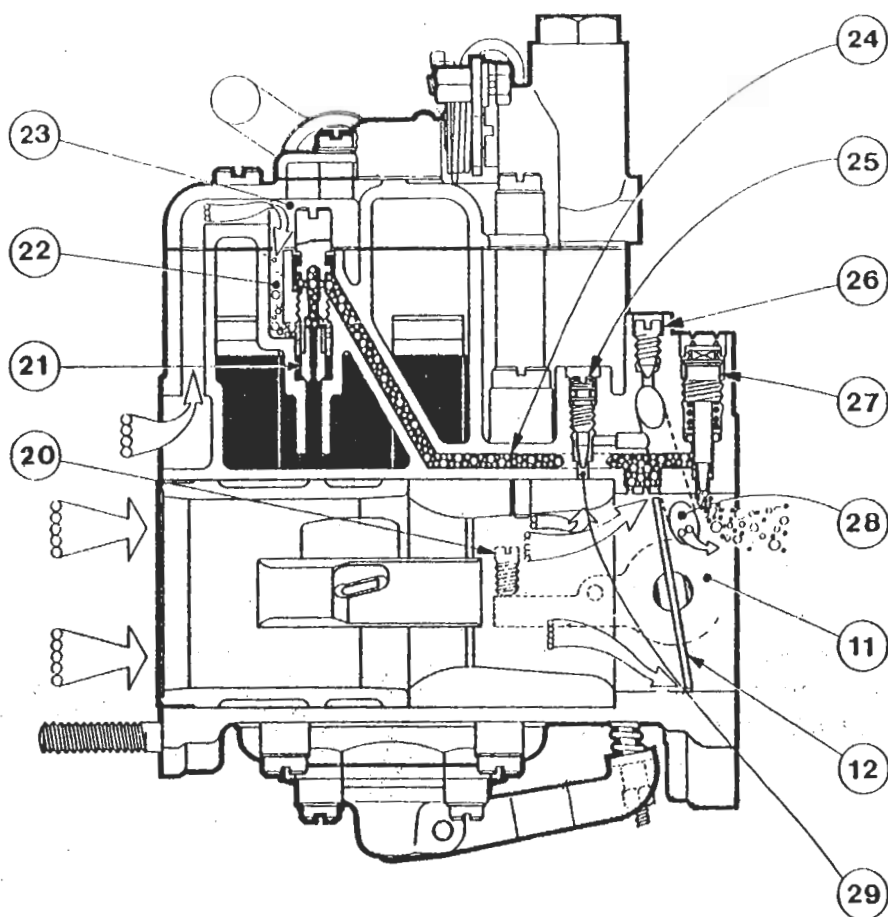
With the choke valve (8) partially closed, when a leaner mixture is required, mixture flows into the valve chamber (9) through one of the two outlet ports (7), further mixing with air from the two channels (5), which, in this condition, are partially closed.

With the choke valve (8) closed, communication between the main barrels and the starting circuit is cut off as is also communication between the two barrels by means of the dividing bushing (19).

Idling

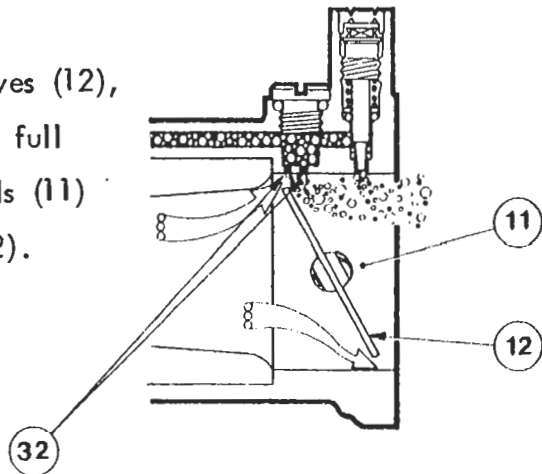
Fuel coming from the float chamber, metered by the idle jets (21), mixes with the air from the well (23) through channels (22); the mixture thus formed, through channels (24) arrives to the adjustment screw (27) and then, metered, flows into the main barrels (11) downstream the throttle valve (12).

Replacing the plug (26) with an adaptor connected to a suitable manometer it is possible to check, through channel (28) the pressure existing in the barrels (11) with the throttle valve (12) in idling position and equalize the air flow adjusting the bypass screw (25) which controls the hole (29).



Progression

On first opening the throttle valves (12), that is when passing from idle to full throttle, mixture arrives to barrels (11) also through progression holes (32).



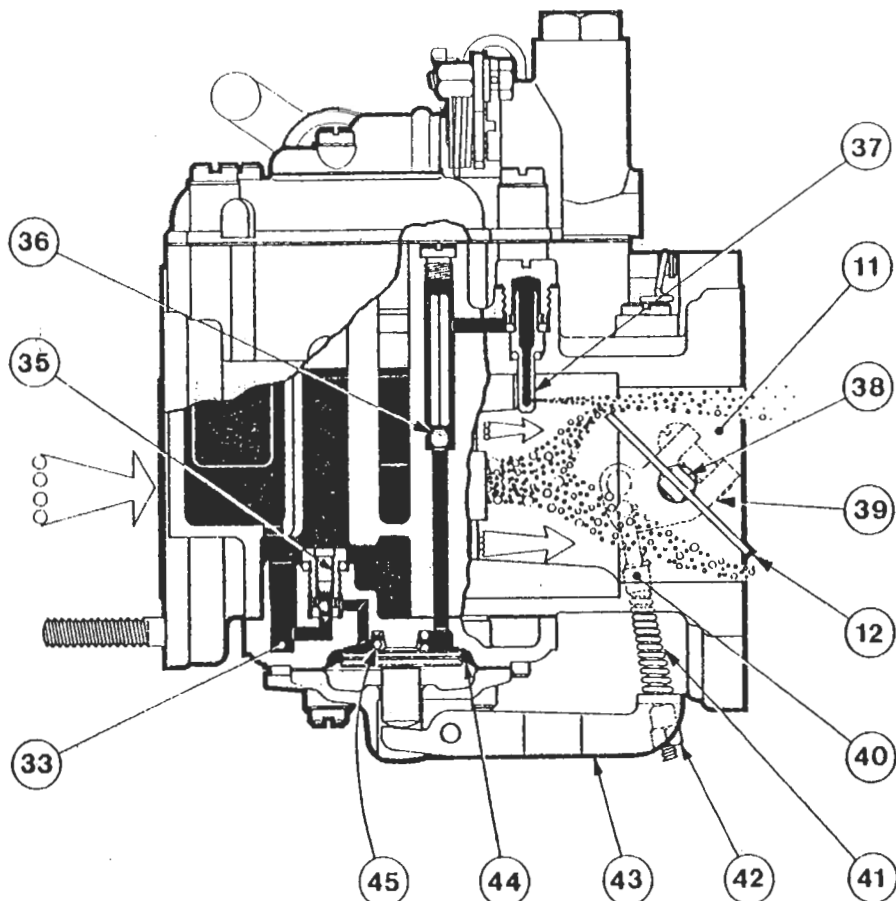
Acceleration

On opening of throttle valves (12), lever (39) attached to spindle (38), by means of the rod (40) and the spring (41) pushes the pump lever (43) which acts directly on the diaphragm (44) held out by the spring (45).

Moving pf the diaphragm (44) causes delivery of fuel to the main barrels (11) through the respective valves (36) and jets (37).

On closing of throttle valves (12), diaphragm (44) returns to the original position pushed by the spring (45) and draws fresh fuel from the fuel well (33) through the valve (35).

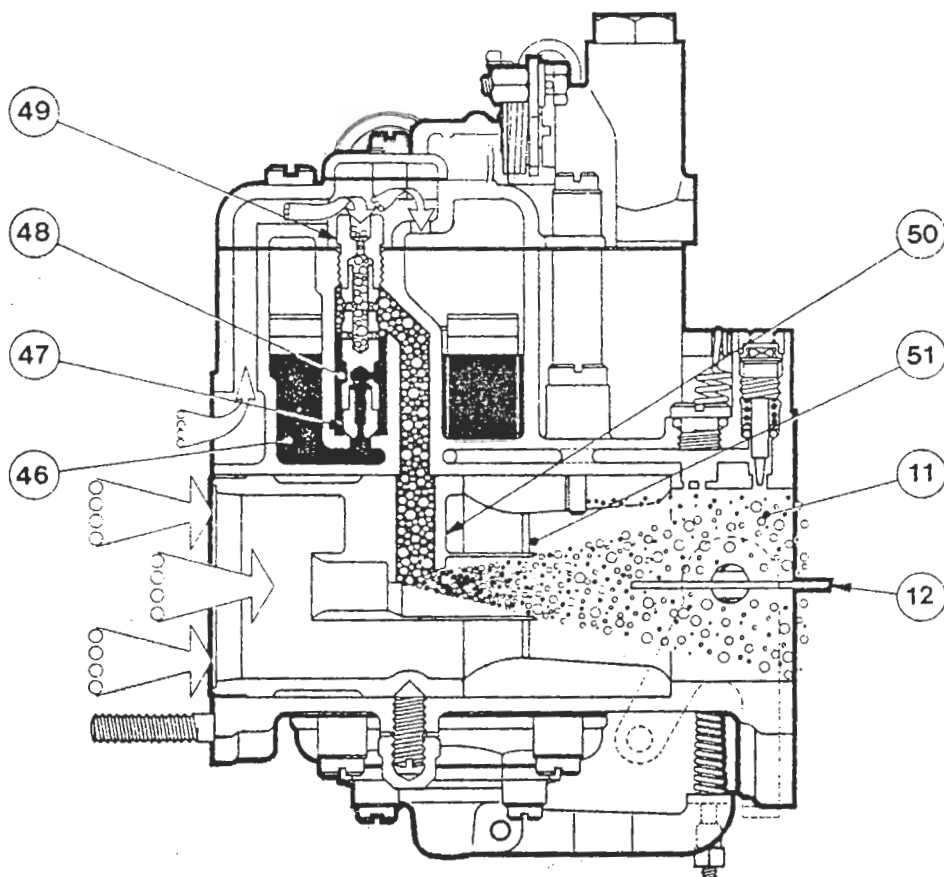
The pump injection quantity can be adjusted by nut (42).



Full Throttle

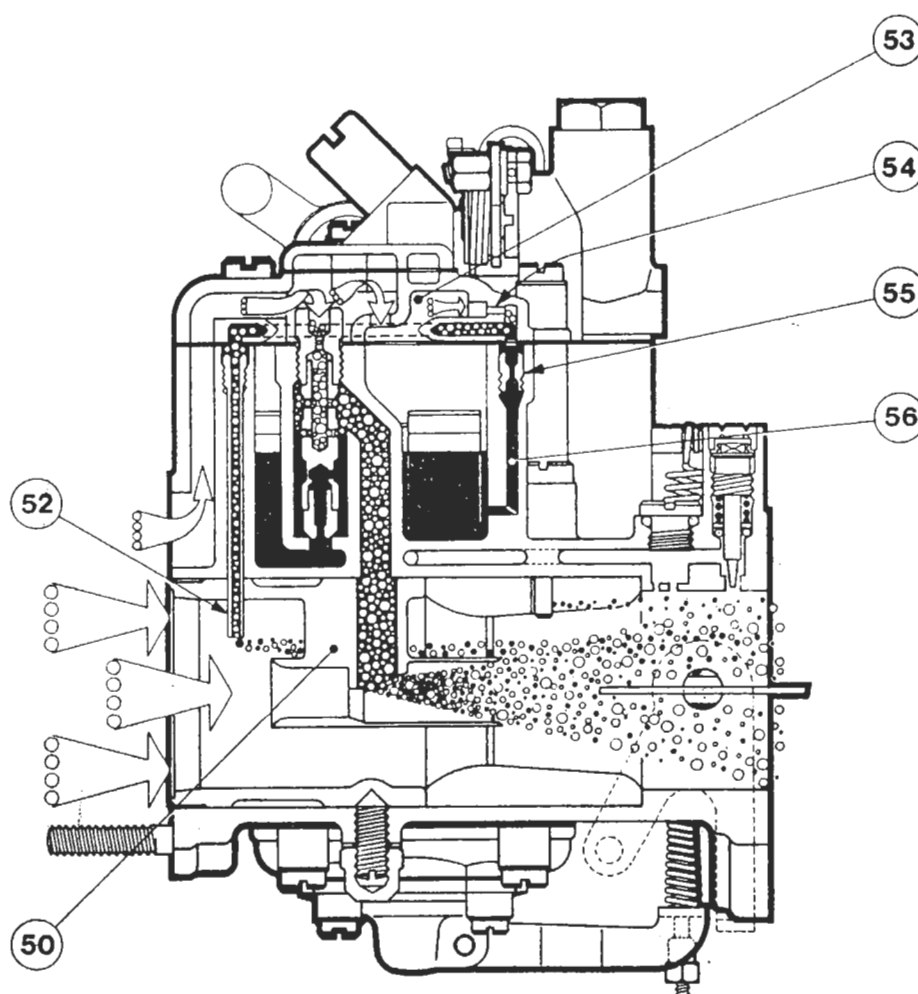
With the throttle valves (12) opened, fuel from the float chamber (46) metered by the jets (47), enters the well (48) and mixes with air metered by the air corrector (49).

The mixture thus formed, passes through the inner venturi (50) where it further mixes with air drawn through the main barrel of the carburettor, flows into the venturis (51) and then, through the main barrels (11) reaches the engine.



Power Jet Operation (H.C. engines only)

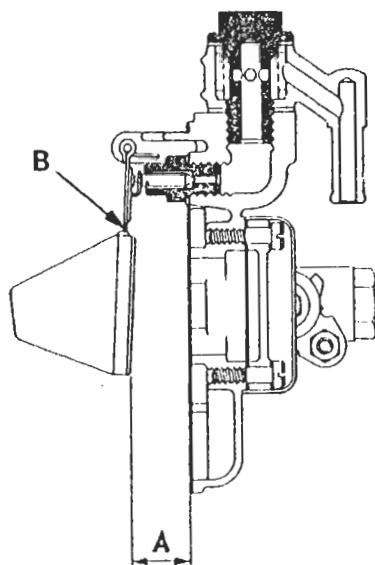
At high engine speeds, an additional amount of mixture flows through the needle jet (52), upstream the inner venturi (50); mixture is composed of fuel drawn from the float chamber through channel (56) and metered by the jet (55), mixed with air metered by the calibrated passage (54) and drawn from the float chamber top (53).



LA.3. - FLOAT LEVEL CHECKING

Remove the carburettor top complete with float assembly. Ensure the correct weight of 8.5g is indicated on the float, and that the float assembly pivots freely on its pin. Hold the cover vertical with the float hanging downwards and in light contact with the needle.

Measure the dimension 'A' between float and gasket as shown in the diagram, for each float of the assembly, and if necessary carefully bend the float arm at 'B' to correct.

**LA.4. - CARBURETTOR BALANCING PROCEDURE**

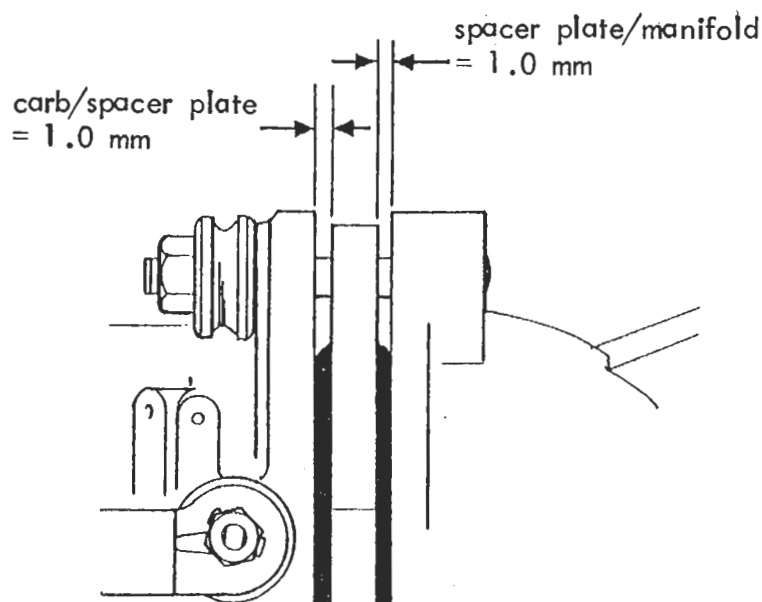
1. Ensure ignition timing is correct and the air filter and all trunking etc. fitted.
2. Remove anti-tamper caps from idle CO adjustment screws and balancing screws.
3. Replace vacuum tapping screws with manometer adaptors T000T0498 and connect to manometer T000T0499.
4. Fully close all balancing screws (do not 'graunch').
5. Set idle CO adjustment screws $6 \times \frac{1}{2}$ turns open, and start engine.
6. With engine at normal running temperature with ACU off and cooling fans on, adjust throttle stop screw to give specified idle speed of 850 to 950 rpm.

7. Adjust throttle coupling screw to balance lower of mercury columns 1 and 2 with lower of mercury columns 3 and 4 to within 3 mm.
8. Considering the front carburettors, gradually unscrew the air bleed balancing screw of ONLY the carb. barrel with the highest mercury column, until it is balanced with the lower column to within 3 mm.
9. Carry out the same procedure for the rear carburettor, and if necessary re-adjust the throttle coupling screw to balance all columns to within 3 mm. Ensure correct idle speed is maintained.
10. Correct exhaust gas analyser to the exhaust tailpipe and check CO reading. Move all idle CO adjustment screws the same amount in or out $\frac{1}{4}$ of a turn at a time to bring CO level within the range 0.7 - 1.5%.
11. Disconnect manometer and adaptors, and replace blanking screws. Fit new anti tamper caps where necessary. Ensure all fuel pipe connections are secure.

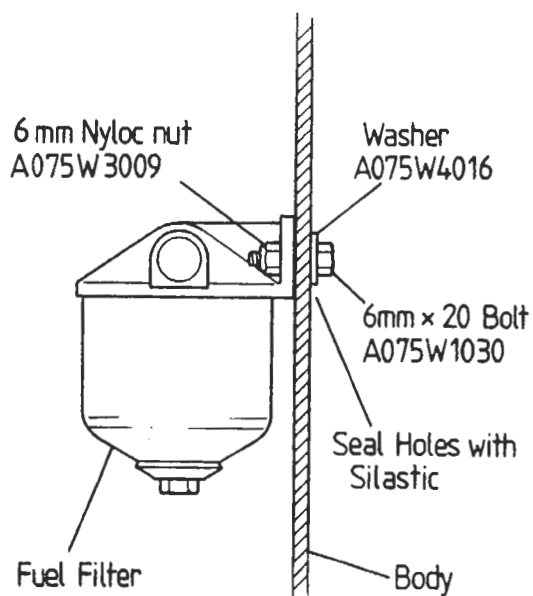
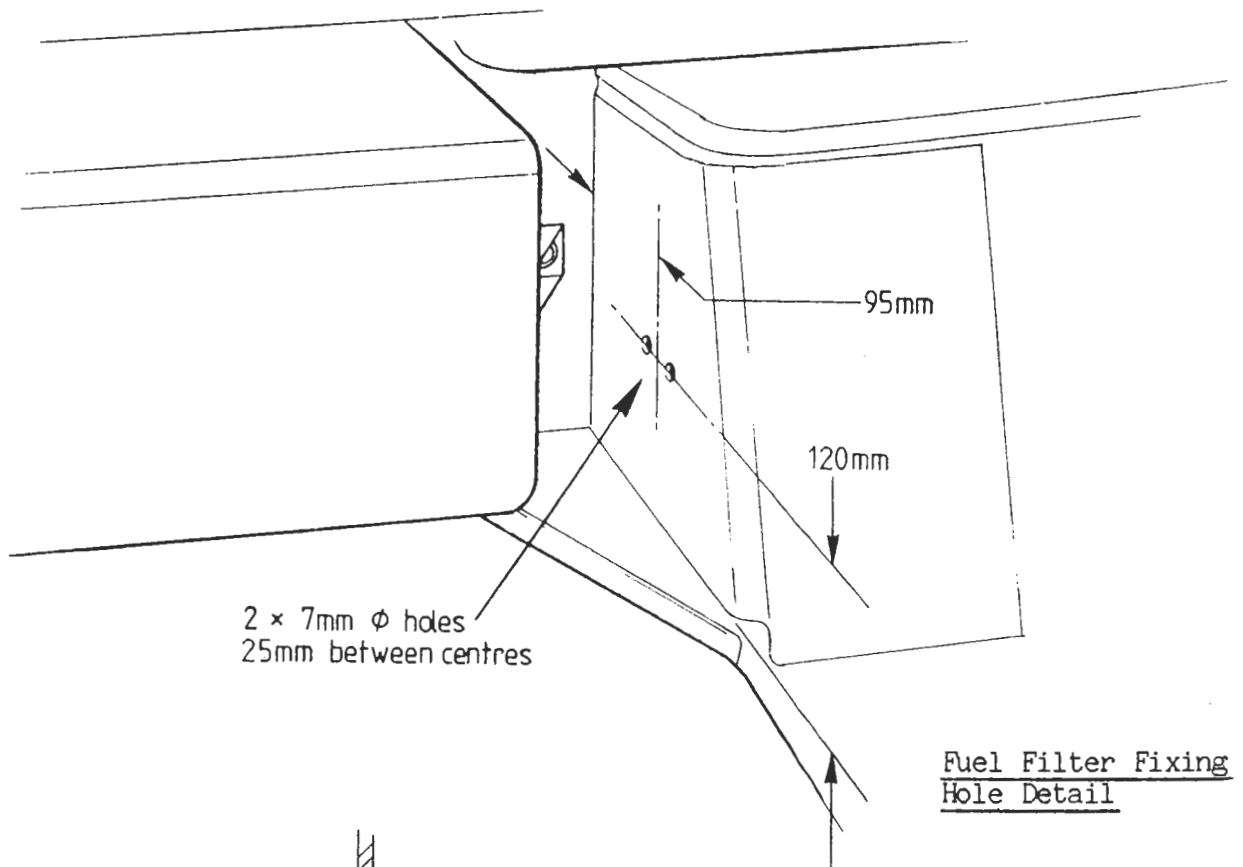
LA.5. - CARBURETTOR MOUNTING

The spacer plates and 'O' rings used at this joint act as insulators to absorb vibration and prevent frothing of fuel in the float chambers. It is essential that the carburettor mountings are not overtightened, as the 'O' rings may be displaced with a resultant air leak.

A uniform 1 mm gap must be maintained between carburettor and spacer plate, and between spacer plate and manifold as shown.



- 1) Disconnect the battery
- 2) Remove fuel tank board, boot floor and spare wheel
- 3) Take necessary precautions to avoid fuel spillage, remove banjo bolt/filter assembly and drain tank COMPLETELY. Discard removed banjo bolt/filter assy.
- 4) Use the illustration as a guide and fit the new fuel filter assy. (A089L6012F) to the body panel on the right hand side of the fuel tank.
Remove the RH rear wheel for easier access.



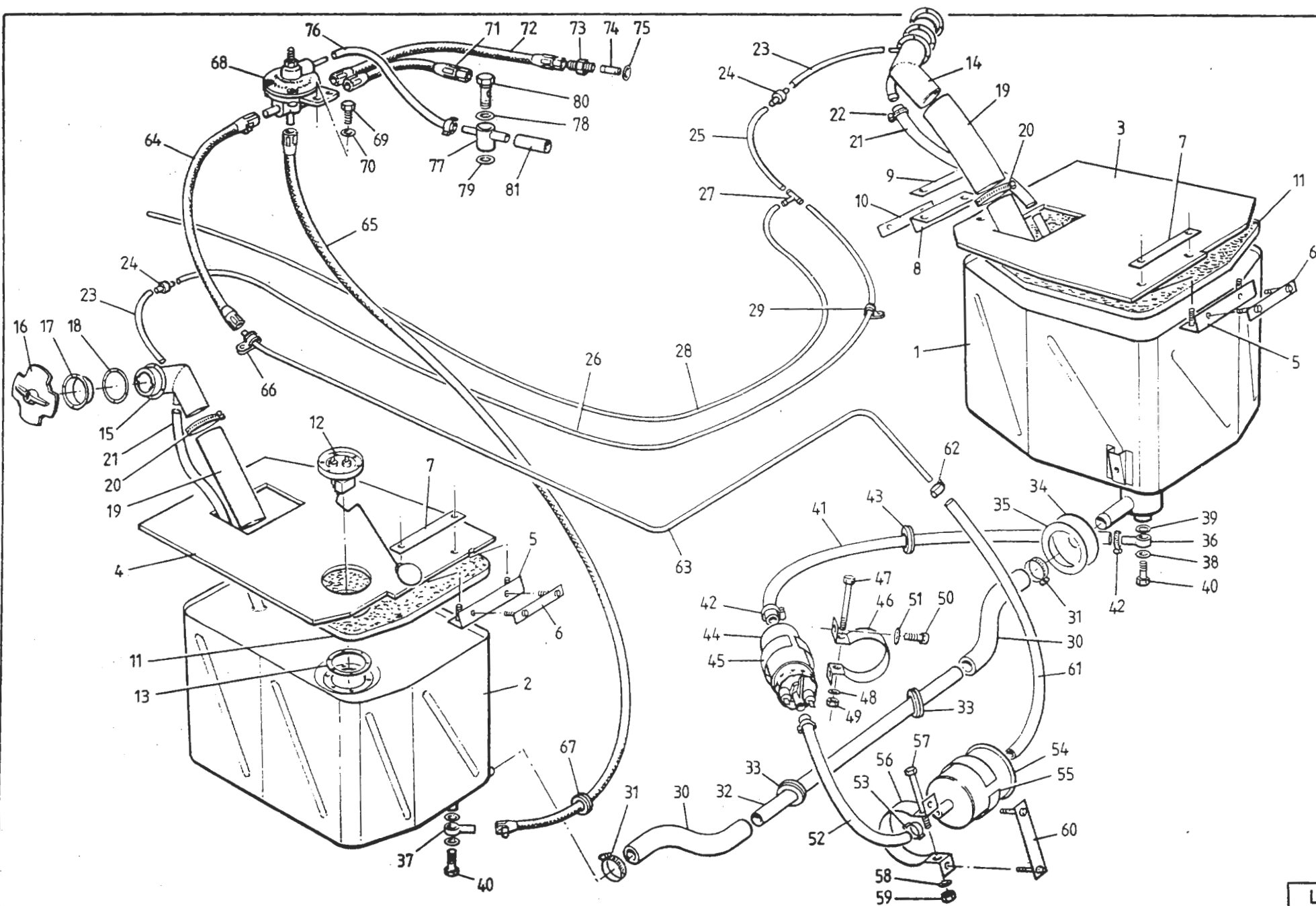
Fuel Filter Mounting

Key to Fuel System Diagram

- | | | |
|-----------------------------------|-------------------------------|-------------------------------------|
| 1. LH Fuel Tank | 28. Breather Hose 3.2 m | 55. Insulator Strip |
| 2. RH Fuel Tank | 29. 'P' Clip | 56. Fuel Filter Clamp |
| 3. LH Tank Top Board | 30. Hose, Tank Crossover | 57. Clamping Bolt |
| 4. RH Tank Top Board | 31. Hose Clip | 58. Plain Washer |
| 5. Bracket, Board to Bulkhead | 32. Crossover Pipe | 59. Nyloc Nut |
| 6. Studplate, Bracket to Bulkhead | 33. Grommet, c/o Pipe | 60. Studplate, Filter Clamp |
| 7. Washer Plate | 34. Grommet, c/o Pipe | 61. Fuel Pipe, Filter to Bundy |
| 8. Bracket, Board to Wheelarch | 35. Ring, Grommet Fixing | 62. Clip, Fuel Pipe |
| 9. Washer Plate | 36. Fuel Feed Banjo | 63. Fuel Bundy Pipe |
| 10. Washer Plate | 37. Fuel Return Banjo | 64. Fuel Pipe, Bundy to P.R.V. |
| 11. Foam, Tank Clamping | 38. Copper Washer, Banjo | 65. Fuel Pipe, Return |
| 12. Sender Unit, Fuel Gauge | 39. Crush Washer, Banjo | 66. 'P' Clip |
| 13. Gasket, Sender Unit | 40. Banjo Bolt | 67. Grommet, Return Pipe |
| 14. LH Filler Neck | 41. Fuel Pipe, Tank to Pump | 68. Fuel Pressure Regulating Valve |
| 15. RH Filler Neck | 42. Clip, Fuel Pipe | 69. Screw, P.R.V. Fixing |
| 16. Filler Cap | 43. Grommet, Fuel Pipe | 70. Spring Washer |
| 17. Clamp Ring, Filler Neck | 44. Fuel Pump | 71. Fuel Pipe, P.R.V. to Rear Carb |
| 18. Gasket, Clamp Ring | 45. Insulator Strip | 72. Fuel Pipe, P.R.V. to Front Carb |
| 19. Hose, Filler to Tank | 46. Fuel Pump Clamp | 73. Adaptor, Fuel Pipe to Carb |
| 20. Hose Clip | 47. Clamping Bolt | 74. Filter, Carb Inlet |
| 21. Vent Hose, Tank to Neck | 48. Plain Washer | 75. Sealing Washer |
| 22. Hose Clip | 49. Nyloc Nut | 76. Pressure Hose, P.R.V. to Banjo |
| 23. Breather Hose, 260 mm | 50. Bolt, Clamp to Chassis | 77. Banjo, Rear Carb |
| 24. Anti-Surge Valve | 51. Washer | 78. Washer, Large |
| 25. Breather Hose 200 mm | 52. Fuel Pipe, Pump to Filter | 79. Washer, Small |
| 26. Breather Hose 2 m | 53. Clip, Fuel Pipe | 80. Bolt, Banjo |
| 27. 'T' Piece | 54. Fuel Filter | 81. Hose, Banjo to Diffuser |

FUEL SYSTEMSECTION LB - ESPRIT TURBO, DOM/ROW

	<u>Operation</u>	<u>Page</u>
General Description	LB1	2 to 4
Carburettor Theory of Operation	LB2	4 to 8
Float Level Checking	LB3	9
Carburettor Balancing Procedure	LB4	9/10
Carburettor Mounting	LB5	10



L58

LB.1. - GENERAL DESCRIPTION

Two fuel tanks are fitted, one ahead of each rear wheelarch. A separate filler neck with lockable cap is provided for each tank, and the two tanks are interconnected by a large bore balance pipe. A single sender unit for the fuel gauge is fitted into the top of the right hand tank.

Fuel is fed from the left hand tank to a high pressure turbine type fuel pump capable of delivering 100 litres/hour. Fuel is then fed through a canister filter, also fitted beneath the left hand front corner of the engine bay, and then to the fuel pressure regulating valve mounted on the rear of the carburettor plenum chamber.

A spring and diaphragm system in the regulating valve, is adjusted to set fuel pressure to 3.5 lb/in^2 during idle and light load conditions, but as inlet boost pressure is developed, a sensing pipe from the diffuser (via the rear carb. cold start banjo) adds a boost pressure signal to the spring pressure to ensure that fuel pressure is maintained at 3.5 lb/in^2 above boost pressure.

Excess fuel supplied to the regulating valve is returned via a port in the bottom of the valve to the right hand tank, whilst two separate pipes from the valve carry fuel to the front and rear carburettors.

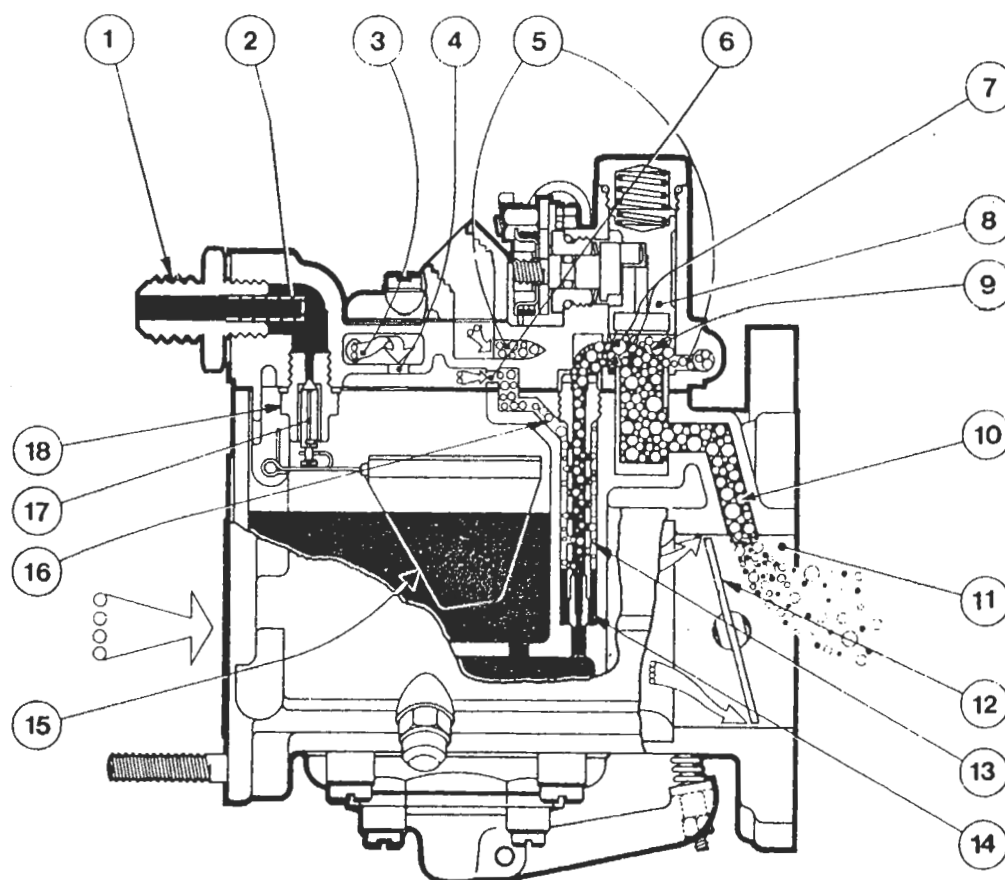
LB.2. - CARBURETTOR THEORY OF OPERATION

Carburettor Type - Dellorto DHLA 40H (2 off)

Fuel Supply

Fuel from the union (1) passes through the filter (2) and reaches the needle valve seat (18), where the needle valve (17), attached to the float (15), controls the fuel flow into the float chamber, thereby maintaining a constant level.

The float chamber is vented to the plenum chamber through the hole (4) in the chamber (3).

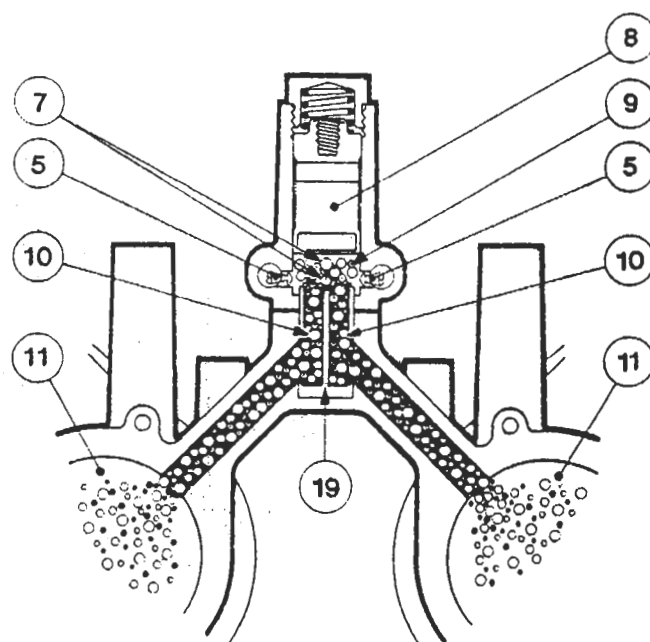


Starting

With the choke valve (8) opened, fuel metered through jet (14), passes into the emulsion tube (13), where it mixes with air from the channel (16), communicating with the float chamber top through hole (6).

The mixture formed flows, through holes (7), into the valve chamber (9), further mixing with air from the two channels (5).

From the valve chamber (9), mixture is divided into the two channels (10) which lead into the main barrels (11) downstream of the throttle valves (12).



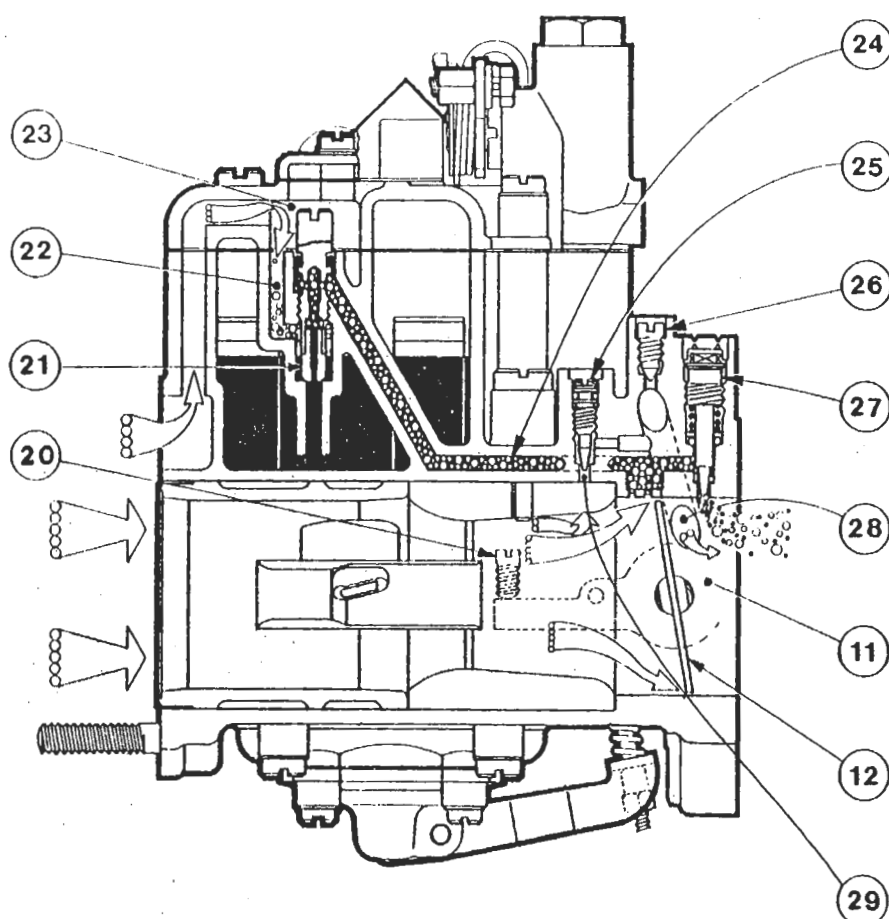
With the choke valve (8) partially closed, when a leaner mixture is required, mixture flows into the valve chamber (9) through one of the two outlet ports (7), further mixing with air from the two channels (5), which, in this condition, are partially closed.

With the choke valve (8) closed, communication between the main barrels and the starting circuit is cut off as is also communication between the two barrels by means of the dividing bushing (19).

Idling

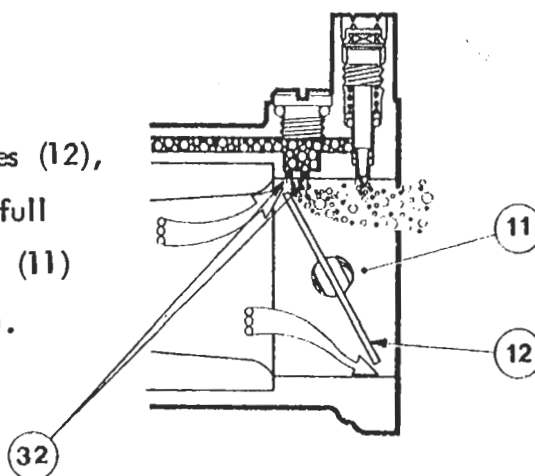
Fuel coming from the float chamber, metered by the idle jets (21), mixes with the air from the well (23) through channels (22); the mixture thus formed, through channels (24) arrives to the adjustment screw (27) and then, metered, flows into the main barrels (11) downstream the throttle valve (12).

Replacing the plug (26) with an adaptor connected to a suitable manometer, it is possible to check, through channel (28) the pressure existing in the barrels (11) with throttle valve (12) in idling position and equalize the air flow adjusting the bypass screw (25) which controls the hole (29).



Progression

On first opening the throttle valves (12), that is when passing from idle to full throttle, mixture arrives to barrels (11) also through progression holes (32).



Acceleration

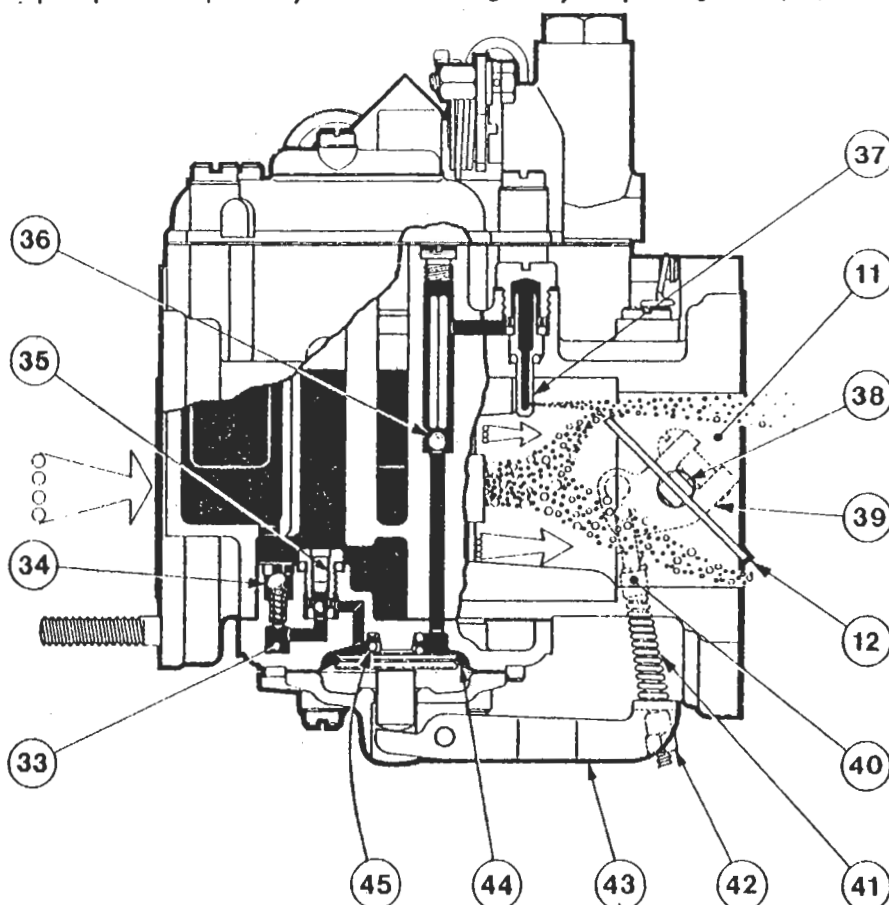
On opening of throttle valves (12), lever (39) attached to spindle (38), by means of the rod (40) and the spring (41) pushes the pump lever (43) which acts directly on the diaphragm (44) held out by the spring (45).

Moving of the diaphragm (44) causes delivery of fuel to the main barrels (11) through the respective valves (36) and jets (37).

On closing of throttle valves (12), diaphragm (44) returns to the original position pushed by the spring (45) and draws fresh fuel from the fuel well (33) through the valve (35).

The ball valve (34) ensures that the pump circuit is cut off when the turbo-charger starts operating.

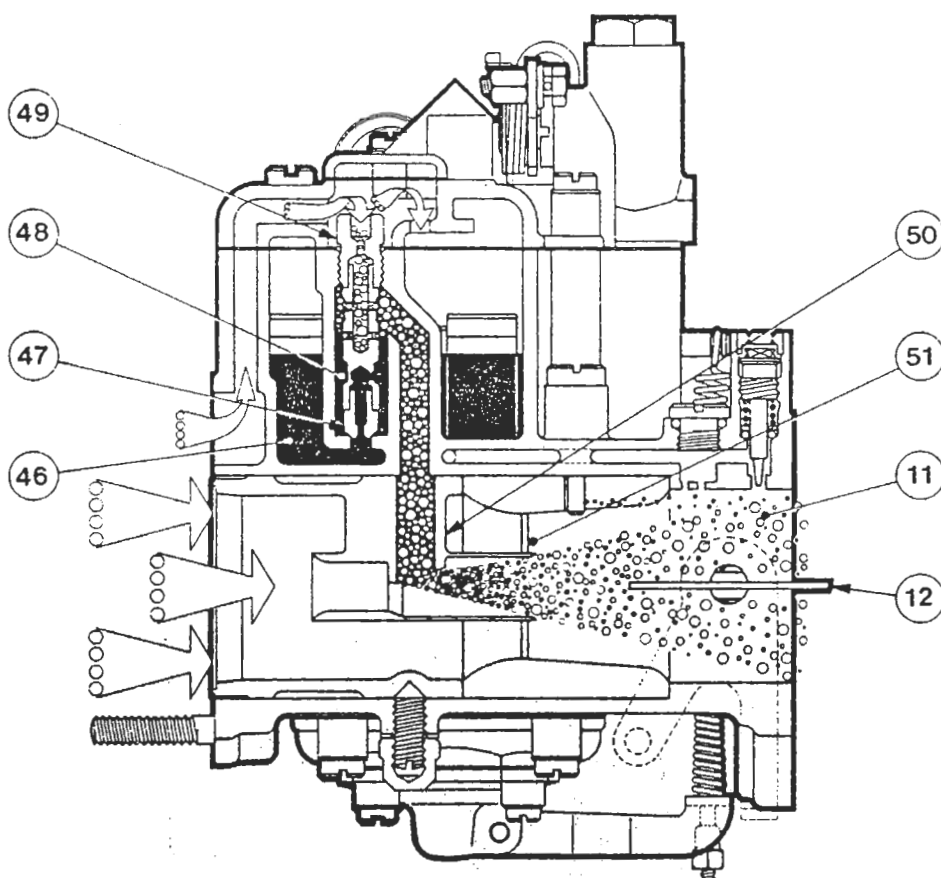
The pump injection quantity can be changed by adjusting nut (42).



Full Throttle

With the throttle valves (12) opened, fuel from the float chamber (46) metered by the jets (47), enters the well (48) and mixes with air metered by the air corrector (49).

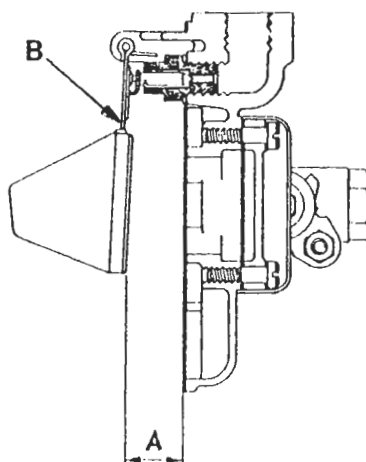
The mixture thus formed, passes through the inner venturi (50) where it further mixes with air drawn through the main barrel of the carburettor, flows into the venturis (51) and then, through the main barrels (11) reaches the engine.



LB.3. - FLOAT LEVEL CHECKING

Remove the carburettor top complete with float assembly. Ensure the correct weight of 8.5 g is indicated on the float, and that the float assembly pivots freely on its pin. Hold the cover vertical with the float hanging downwards and in light contact with the needle.

Measure the dimension 'A' between float and gasket as shown in the diagram, for each float of the assembly, and if necessary carefully bend the float arm at 'B' to correct.

**LB.4. - CARBURETTOR BALANCING PROCEDURE**

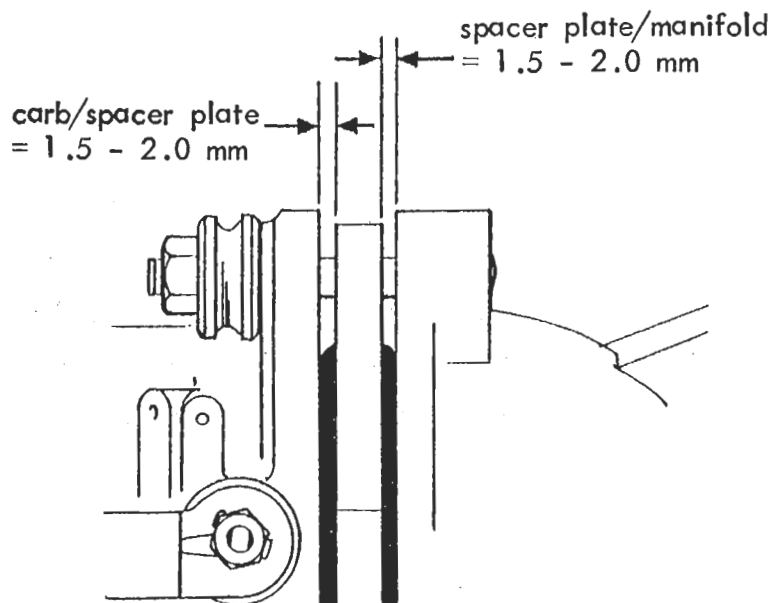
1. Ensure ignition timing is correct and the air filter and all trunking etc. fitted.
2. Remove anti-tamper caps from idle CO adjustment screws and balancing screws.
3. Replace vacuum tapping screws with manometer adaptors T000T0496 and correct to manometer T000T0499.
4. Fully close all balancing screws (do not graunch).
5. Set idle CO adjustment screws $6 \times \frac{1}{2}$ turns open, and start engine.
6. With engine at normal running temperature with ACU off and cooling fans on, adjust throttle stop screw to give specified idle speed of 850 rpm.
7. Adjust throttle coupling screw to balance lower of mercury columns 1 and 2 with lower of mercury columns 3 & 4, to within 3 mm.

8. Considering the front carburettor, gradually unscrew the air bleed balancing screw of ONLY the carburettor barrel with the highest mercury column, until it is balanced with the lower column to within 3 mm.
9. Carry out the same procedure for the rear carburettor, and if necessary re-adjust the throttle coupling screw to balance all columns to within 3 mm. Ensure correct idle speed is maintained.
10. Connect exhaust gas analyser to the inboard (Turbine) exhaust tailpipe and note 'CO' and 'HC' readings. Screw down each idle CO adjustment screw in turn until 'HC' reading starts to increase, then return (unscrew) again by a $\frac{1}{4}$ turn. 'HC', as hexane, should normally be not more than 400 ppm. CO maximum is 1.0%. Maintain idle speed and manometer balance throughout.
11. Disconnect manometer and adaptors and replace blanking screws. Fit new anti-tamper caps where necessary. Ensure all fuel pipe connections are secure.

LB.5. - CARBURETTOR MOUNTING

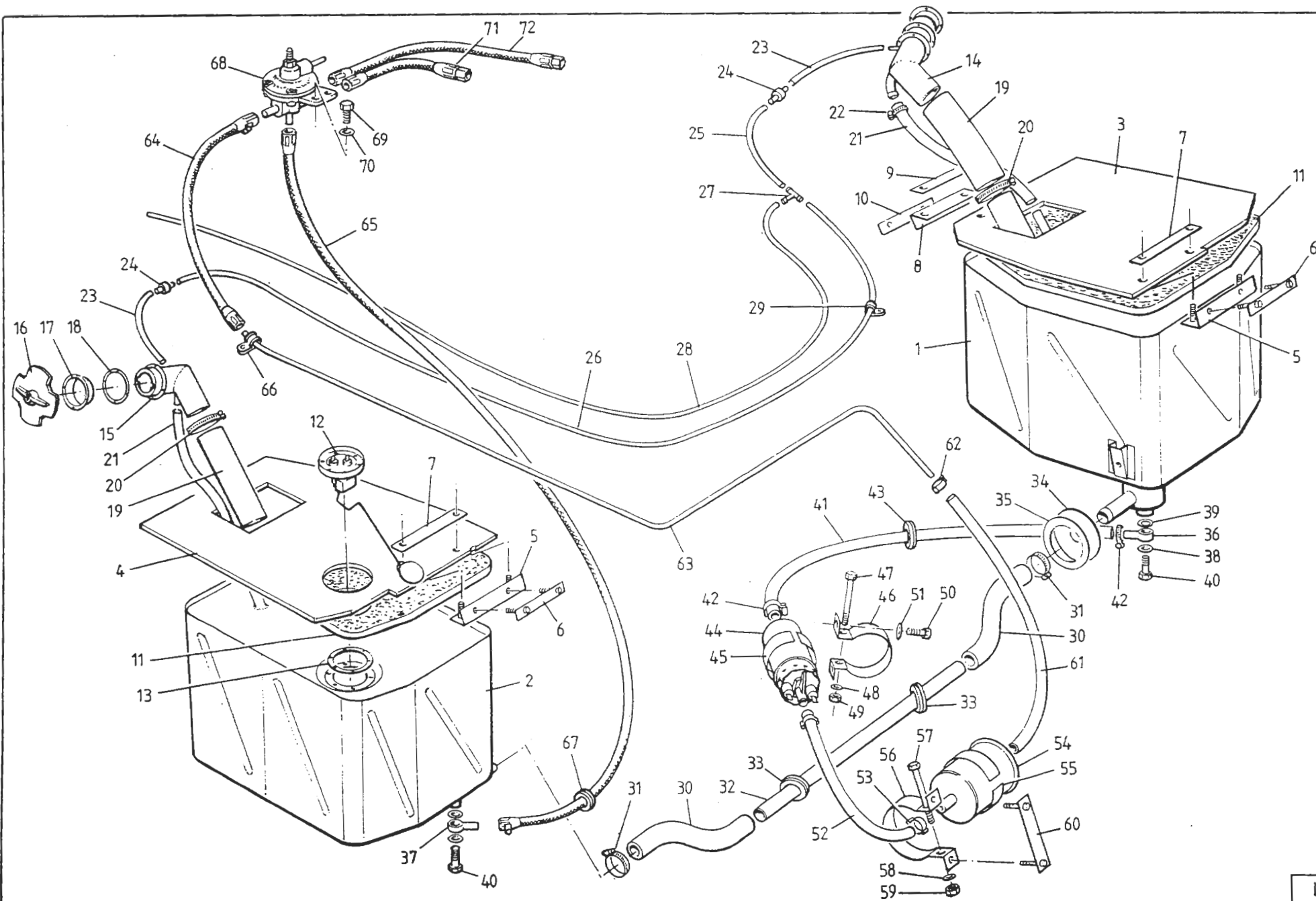
The spacer plates and 'O' rings used at this joint act as insulators to absorb vibration and prevent frothing of fuel in the float chambers. It is essential that the carburettor mountings are not overtightened, as the 'O' rings may be displaced with a resultant air leak.

A uniform 1.5 - 2.0 mm gap must be maintained between carburettor and spacer plate, and between spacer plate and manifold as shown.



FUEL SYSTEM**SECTION LC - U.S.A. ESPRIT TURBO - CARBURETTOR**

	<u>Operation</u>	<u>Page</u>
General Description	LC1	2 to 4
Carburettor Theory of Operation	LC2	4 to 9
Fuel Control Pressure	LC3	10/11
Float Level Checking	LC4	11
Carburettor Balancing Procedure	LC5	12/13
Carburettor Mounting	LC6	13



Key to Fuel System Diagram

- | | | |
|-----------------------------------|-------------------------------|-------------------------------------|
| 1. LH Fuel Tank | 28. Breather Hose 3.2 m | 55. Insulator Strip |
| 2. RH Fuel Tank | 29. 'P' Clip | 56. Fuel Filter Clamp |
| 3. LH Tank Top Board | 30. Hose, Tank Crossover | 57. Clamping Bolt |
| 4. RH Tank Top Board | 31. Hose Clip | 58. Plain Washer |
| 5. Bracket, Board to Bulkhead | 32. Crossover Pipe | 59. Nyloc Nut |
| 6. Studplate, Bracket to Bulkhead | 33. Grommet, c/o Pipe | 60. Studplate, Filter Clamp |
| 7. Washer Plate | 34. Grommet, c/o Pipe | 61. Fuel Pipe, Filter to Bundy |
| 8. Bracket, Board to Wheelarch | 35. Ring, Grommet Fixing | 62. Clip, Fuel Pipe |
| 9. Washer Plate | 36. Fuel Feed Banjo | 63. Fuel Bundy Pipe |
| 10. Washer Plate | 37. Fuel Return Banjo | 64. Fuel Pipe, Bundy to P.R.V. |
| 11. Foam, Tank Clamping | 38. Copper Washer, Banjo | 65. Fuel Pipe, Return |
| 12. Sender Unit, Fuel Gauge | 39. Crush Washer, Banjo | 66. 'P' Clip |
| 13. Gasket, Sender Unit | 40. Banjo Bolt | 67. Grommet, Return Pipe |
| 14. LH Filler Neck | 41. Fuel Pipe, Tank to Pump | 68. Fuel Pressure Regulating Valve |
| 15. RH Filler Neck | 42. Clip, Fuel Pipe | 69. Screw, P.R.V. Fixing |
| 16. Filler Cap | 43. Grommet, Fuel Pipe | 70. Spring Washer |
| 17. Clamp Ring, Filler Neck | 44. Fuel Pump | 71. Fuel Pipe, P.R.V. to Rear Carb |
| 18. Gasket, Clamp Ring | 45. Insulator Strip | 72. Fuel Pipe, P.R.V. to Front Carb |
| 19. Hose, Filler to Tank | 46. Fuel Pump Clamp | |
| 20. Hose Clip | 47. Clamping Bolt | |
| 21. Vent Hose, Tank to Neck | 48. Plain Washer | |
| 22. Hose Clip | 49. Nyloc Nut | |
| 23. Breather Hose, 260 mm | 50. Bolt, Clamp to Chassis | |
| 24. Anti-Surge Valve | 51. Washer | |
| 25. Breather Hose 200 mm | 52. Fuel Pipe, Pump to Filter | |
| 26. Breather Hose 2 m | 53. Clip, Fuel Pipe | |
| 27. 'T' Piece | 54. Fuel Filter | |

LC.1 - GENERAL DESCRIPTION

Two fuel tanks are fitted, one ahead of each rear wheelarch. A separate filler neck with lockable cap is provided for each tank, and the two tanks are interconnected by a large bore balance pipe. A single sender unit for the fuel gauge is fitted into the top of the right hand tank.

Fuel is fed from the left hand tank to a high pressure turbine type fuel pump capable of delivering 100 litres/hour. Fuel is then fed through a canister filter also fitted beneath the left hand front corner of the engine bay, and then to the fuel pressure regulating valve mounted on the rear of the carburettor plenum chamber.

A spring and diaphragm system in the regulating valve is adjusted to set fuel pressure to $4.0 - 4.5 \text{ lb/in}^2$ under light load conditions, but as inlet boost pressure is developed, a sensing pipe from the plenum chamber adds a boost pressure signal to the spring pressure to ensure that fuel pressure is maintained at $4.0 - 4.5 \text{ lb/in}^2$ above boost pressure. However, a micro-switch mounted on the front of the front carburettor and operated by the throttle lever in its fully closed position energises the fuel pressure solenoid, fitted beneath the rear of the plenum chamber. The signal to the fuel pressure regulator is then switched to number one cylinder inlet manifold depression, thus reducing fuel pressure to the carburettors and mixture strength under closed throttle 'overrun' conditions.

Excess fuel supplied to the regulating valve is returned via a port in the bottom of the valve to the right hand tank, whilst two separate pipes from the valve, carry fuel to the front and rear carburettors.

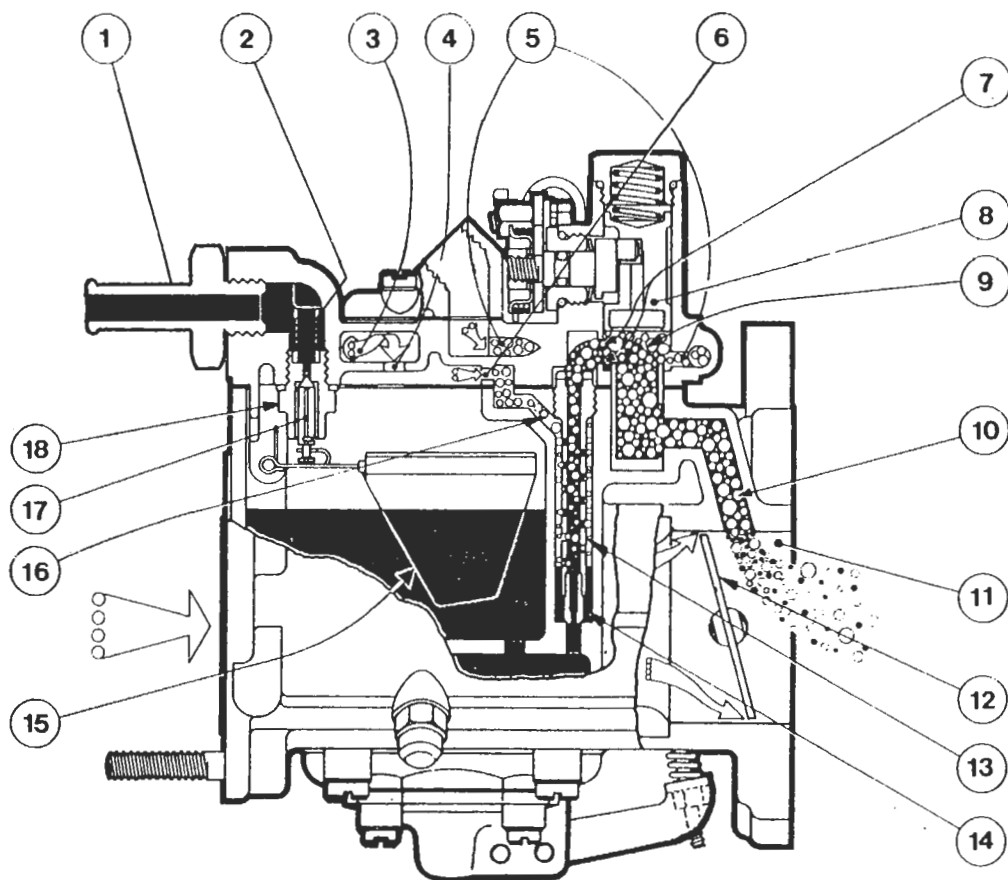
LC.2 - CARBURETTOR THEORY OF OPERATION

Carburettor Type - Dellorto DHLA 45M (2 off)

Fuel Supply

Fuel from the union (1) passes through the filter (2) and reaches the needle valve seat (18), where the needle valve (17), attached to the float (15), controls the fuel flow into the float chamber, thereby maintaining a constant level.

The float chamber is vented to the plenum chamber through the hole (4) in the chamber (3).

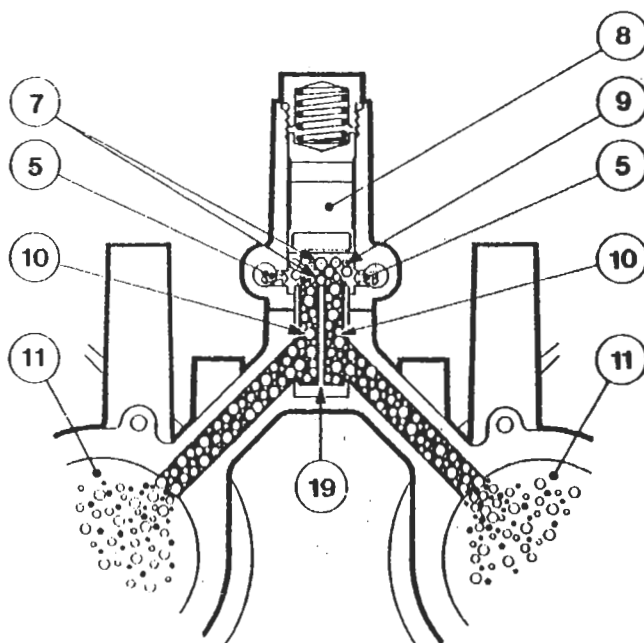


Starting

With the choke valve (8) opened, fuel metered through jet (14), passes into the emulsion tube (13), where it mixes with air from the channel (16), communicating with the float chamber top through hole (6).

The mixture formed flows, through holes (7), into the valve chamber (9), further mixing with air from the two channels (5).

From the valve chamber (9), mixture is divided into the two channels (10) which lead into the main barrels (11) downstream of the throttle valves (12).



With the choke valve (8) partially closed, when a leaner mixture is required, mixture flows into the valve chamber (9) through one of the two outlets ports (7), further mixing with air from the two channels (5), which, in this condition, are partially closed.

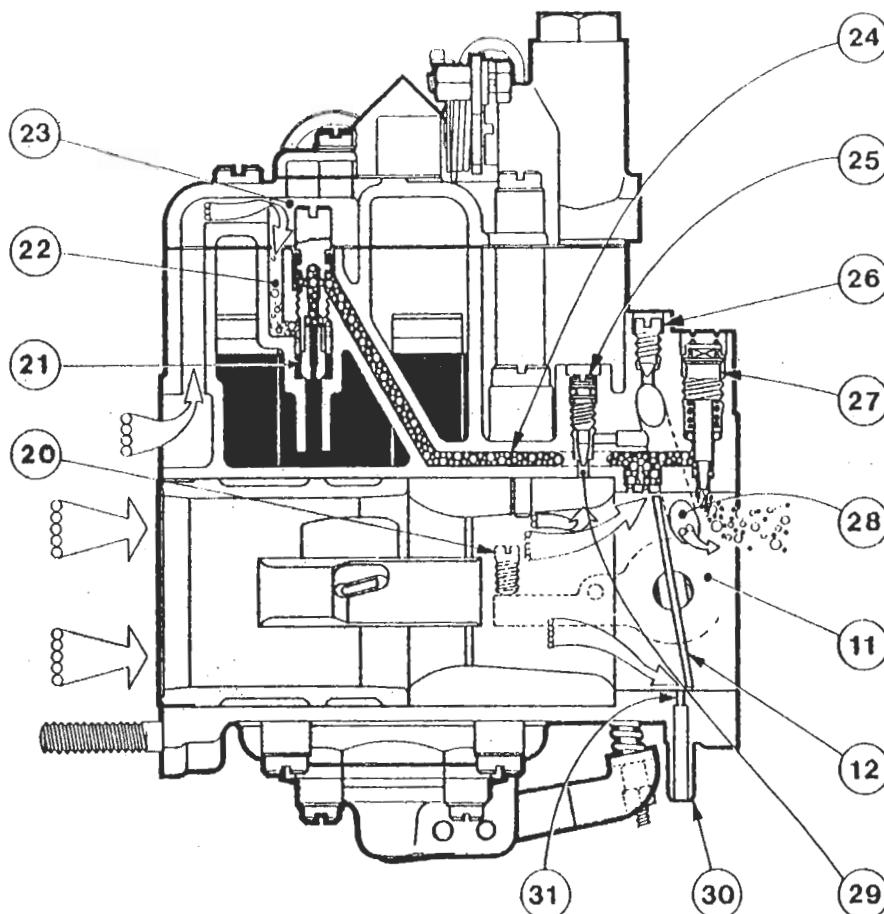
With the choke valve (8) closed, communication between the main barrels and the starting circuit is cut off as is also communication between the two barrels by means of the dividing bushing (19).

Idling

Fuel coming from the float chamber, metered by the idle jets (21), mixes with the air from the well (23) through channels (22); the mixture thus formed through channels (24) arrives to the adjustment screw (27) and then, metred, flows into the main barrels (11) downstream the throttle valve (12).

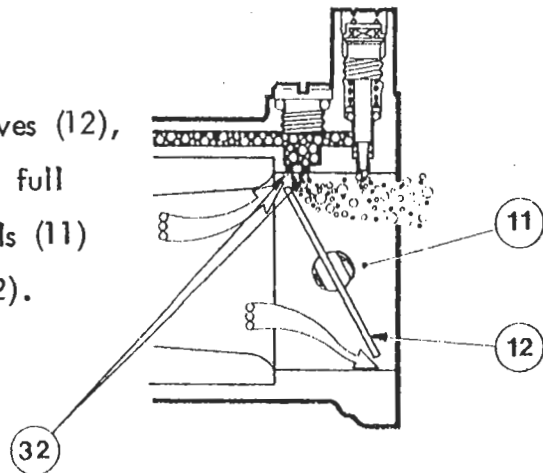
Replacing the plug (26) with an adaptor connected to a suitable manometer, it is possible to check, through channel (28) the pressure existing in the barrels (11) with throttle valve (12) in idling position and equalize the air flow adjusting the bypass screw (25) which controls the hole (29).

The vacuum advance is connected through the calibrated hole (31) by the union (30). Screw (20) adjusts opening of the throttle valves at idle.



Progression

On first opening the throttle valves (12), that is when passing from idle to full throttle, mixture arrives to barrels (11) also through progression holes (32).



Acceleration

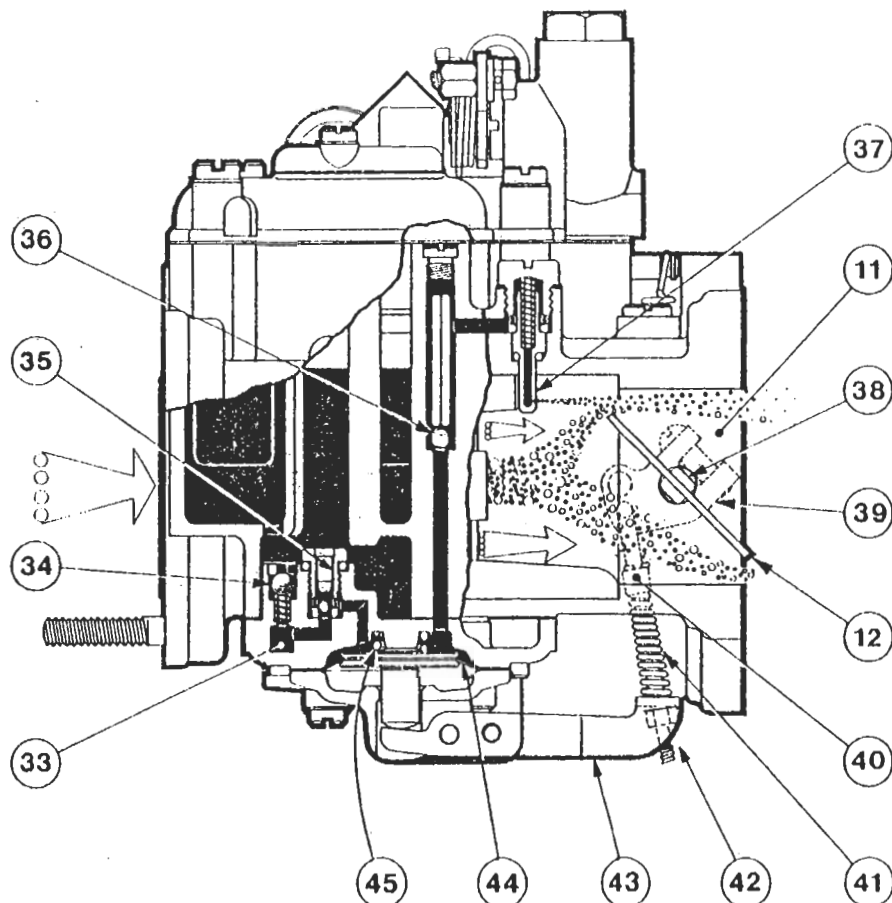
On opening of throttle valves (12), lever (39) attached to spindle (38), by means of the rod (40) and the spring (41) pushes the pump lever (43) which acts directly on the diaphragm (44) held out by the spring (45).

Moving of the diaphragm (44) causes delivery of fuel to the main barrels (11) through the respective valves (36) and jets (37).

On closing of throttle valves (12), diaphragm (44) returns to the original position pushed by the spring (45) and draws fresh fuel from the fuel well (33) through the valve (35).

The ball valve (34) ensures that the pump circuit is cut off when the turbocharger starts operating.

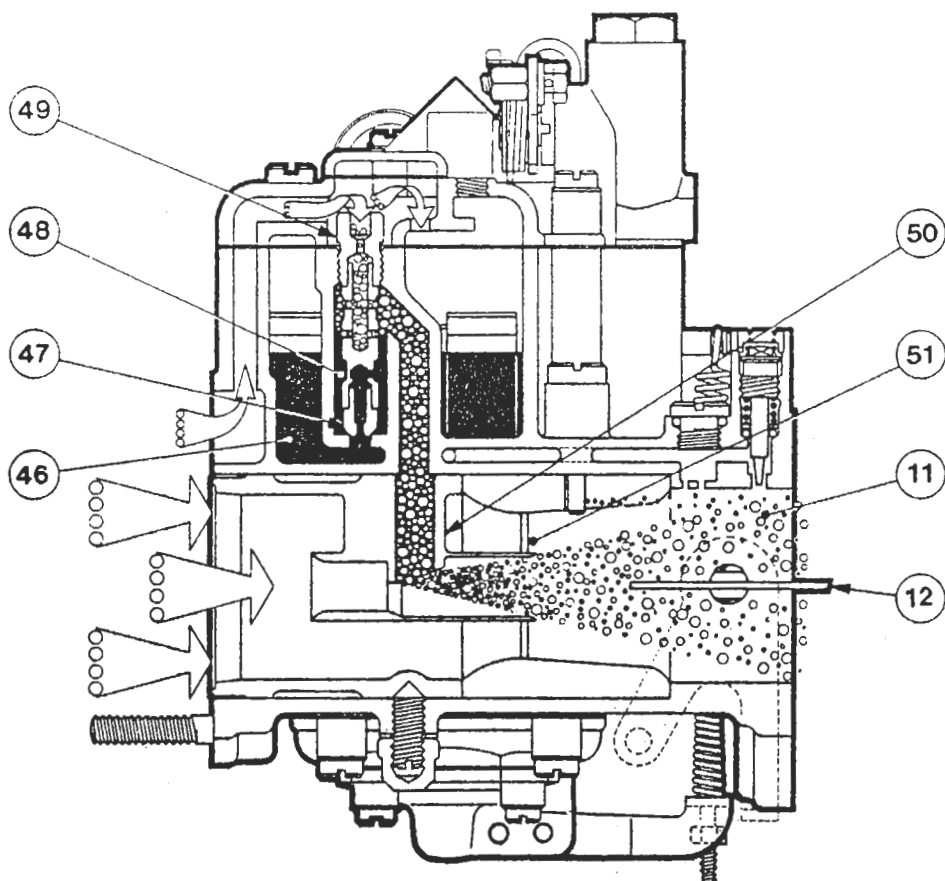
The clearance between pump diaphragm and lever can be adjusted by nut (42).



Whereas on Domestic/RoW Turbo and 912 engine carburettors the volume of fuel delivered by the accelerator pump is adjusted by nut (42), on Federal Turbo DHLA 45M carburettors, the volume delivered is fixed, but the point of delivery commencement is adjustable. The correct setting is such that with the throttle closed, there is a clearance of $0.6 \pm 0.1\text{mm}$ between the end of the pump lever and the diaphragm plunger.

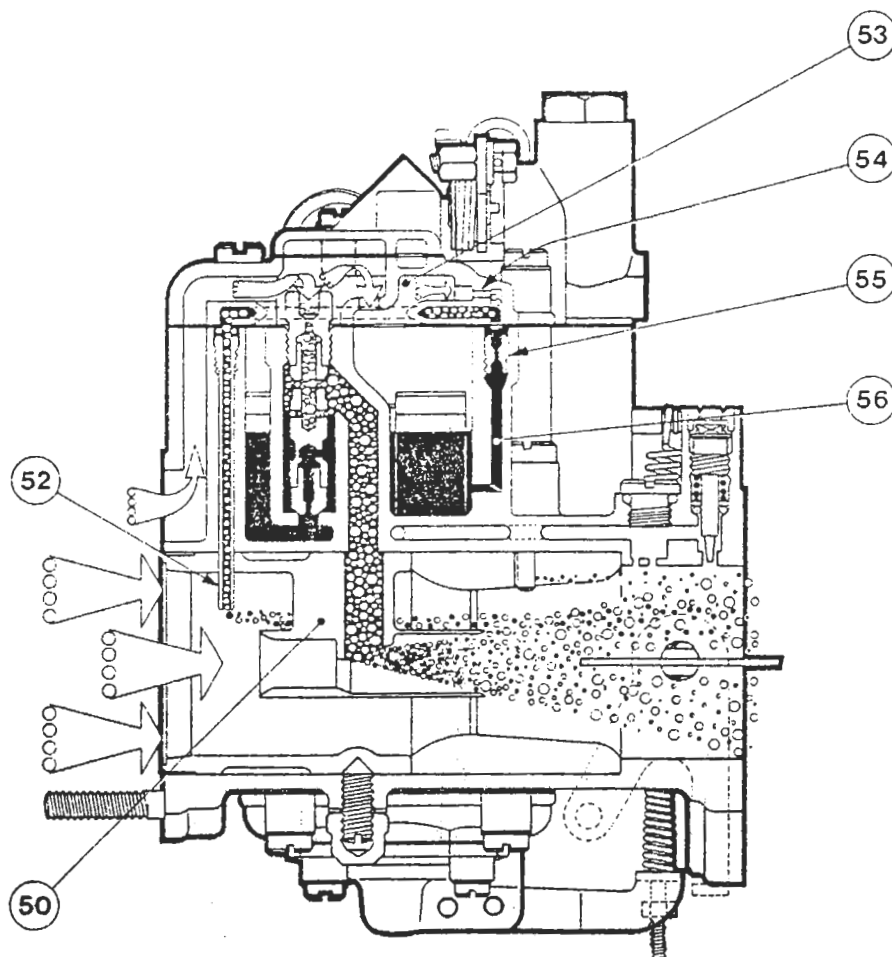
Full Throttle

With the throttle valves (12) opened, fuel from the float chamber (46) metered by the jets (47), enters the well (48) and mixes with air metered by the air corrector (49). The mixture thus formed, passes through the inner venturi (50) where it further mixes with air drawn through the main barrel of the carburettor, flows into the venturis (51) and then, through the main barrels (11) reaches the engine.



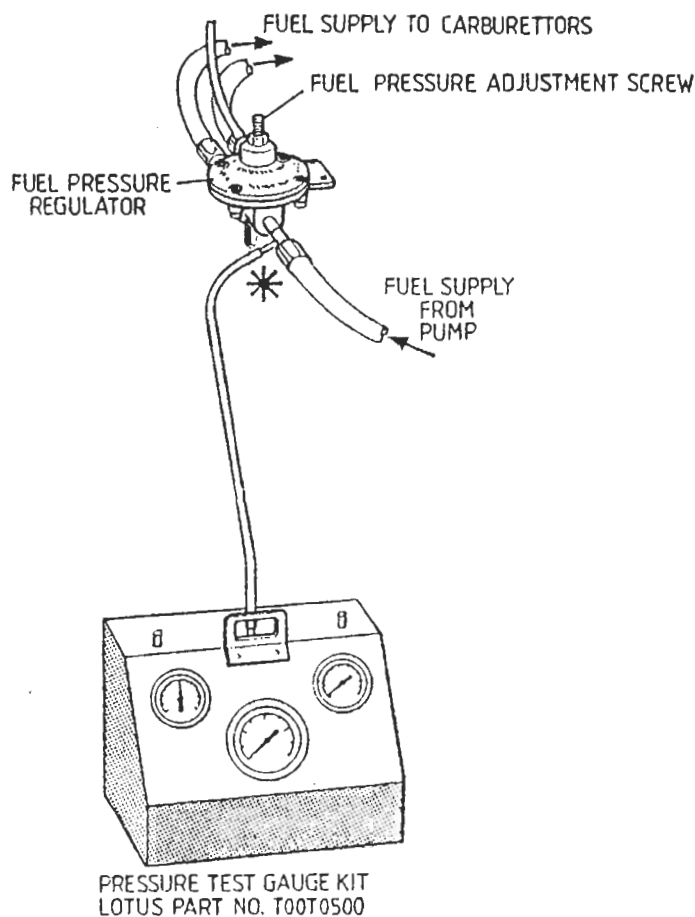
Power Jet Operation

At high engine speeds, an additional amount of mixture flows through the needle jet (52), upstream the inner venturi (50); mixture is composed of fuel drawn from the float chamber through channel (56) and metered by the jet (55), mixed with air metered by the calibrated passage (54) and drawn from the float chamber top (53).



LC.3 - FUEL CONTROL PRESSURE

1. Connect fuel pressure test gauge as shown below.



Switch on ignition and check fuel pressure = 4.0 - 4.5 p.s.i. If outside specification, remove anti-tamper plug from fuel pressure regulator adjustment screw, and adjust as necessary.

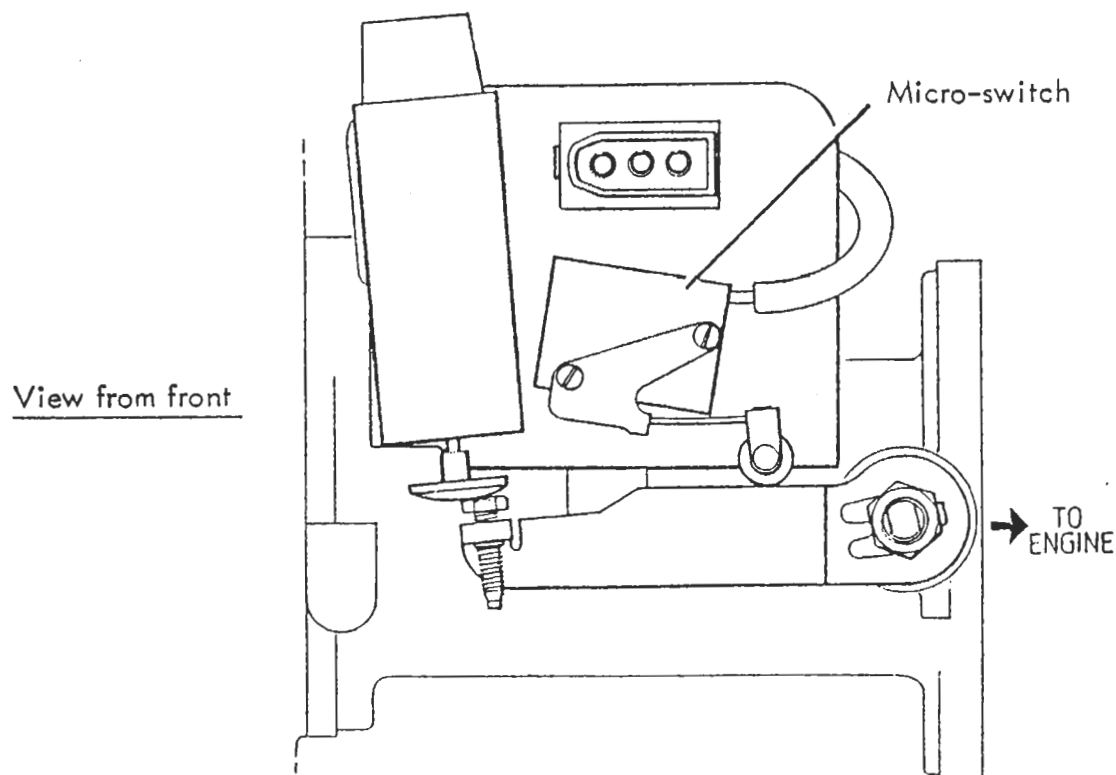
If the pressure reading is too high, and cannot readily be adjusted to specification, a restriction in the return line is indicated. Rectify as necessary.

If the pressure reading is too low, and cannot readily be adjusted to specification, a restriction in the supply line, or faulty fuel pump is indicated.

Check for an unrestricted supply to the fuel pump, and for fuel filter restriction.
Test fuel pump

2. Start engine and allow to reach normal running temperature.

Check fuel pressure at the regulator. This should be lower than 3.5 p.s.i. at idle (950 ± 50 rpm). If above specification, check that the micro-switch on the front of the front carburettor is activated. If not, rotate the switch down towards the lever until switch contact is made.



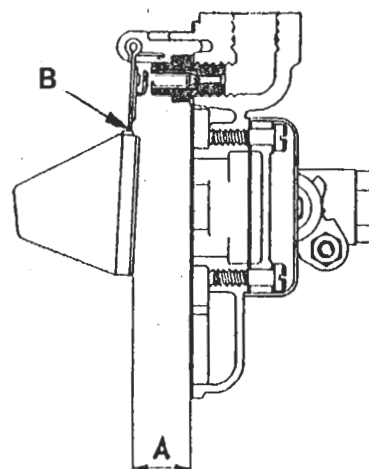
If switch adjustment is carried out, open throttle to 2500 rpm and then return throttle to idle position. Check that when engine speed is above 1800 rpm, the micro-switch is deactivated allowing fuel pressure to increase to 4.0 - 5.0 p.s.i. Repeat this test and check that pressure differences are maintained. Adjust switch position if necessary but always ensure that idle pressure requirements are met.

If switch contact is made at idle, but fuel pressure remains above 3.5 p.s.i, check fuel pressure regulator solenoid pipework and wiring for leakage or disconnection. If no fault is found, replace fuel pressure regulator solenoid valve.

LC.4 - FLOAT LEVEL CHECKING

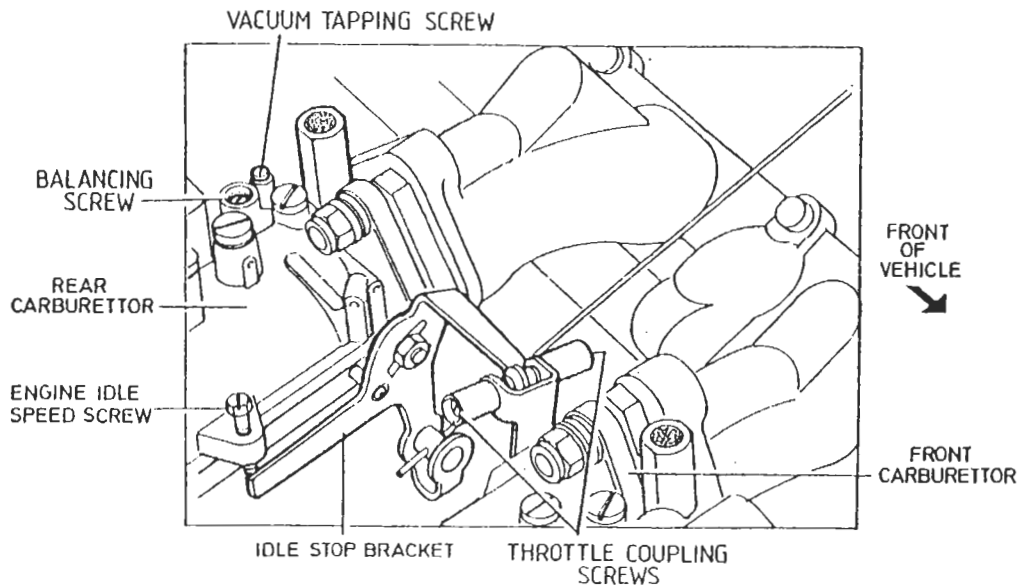
Remove the carburettor top complete with float assembly. Ensure the correct weight of 8.5 g is indicated on the float, and that the float assembly pivots freely on its pin. Hold the cover vertical with the float hanging downwards and in light contact with the needle.

Measure the dimension 'A' between float and gasket as shown in the diagram, for each float of the assembly, and if necessary carefully bend float arm at 'B' to correct.



LC.5 - CARBURETTOR BALANCING PROCEDURE

1. Ensure ignition timing is correct and the air filter and all trunking etc, fitted.
2. Remove anti-tamper caps from idle CO adjustment screws, air bleed balancing screws, and throttle coupling screws.



3. Replace vacuum tapping screws with manometer adaptors T000T0496 and connect to manometer T000T0499. Fit exhaust probe to exhaust outlet pipe of turbocharger and connect to CO/HC analyser (e.g. Sun EPA 75 or equivalent).
4. Fully close all balancing screws (do not 'graunch').
5. Set idle CO adjustment screws $6 \times \frac{1}{2}$ turns open, and start engine.
6. With engine at normal running temperature with ACU off and cooling fans on, adjust throttle stop screw to give specified idle speed of 950 ± 50 rpm.
7. Adjust throttle coupling to balance lower of mercury columns 1 and 2 with lower of mercury columns 3 and 4 to within 3 mm, ensuring that the two coupling screws securely clamp against the throttle lever.
8. Considering the front carburettor, gradually unscrew the air bleed balancing screw of ONLY the carburettor barrel with the highest mercury column, until it is balanced with the lower column to within 3 mm.
9. Carry out the same procedure for the rear carburettor, and if necessary re-adjust the throttle coupling to balance all columns to within 3 mm. Ensure correct idle speed is maintained.

10. Switch analyser to sample mode and check readings.

Note: Do not touch idle adjustment screws until CO reading has stabilised.

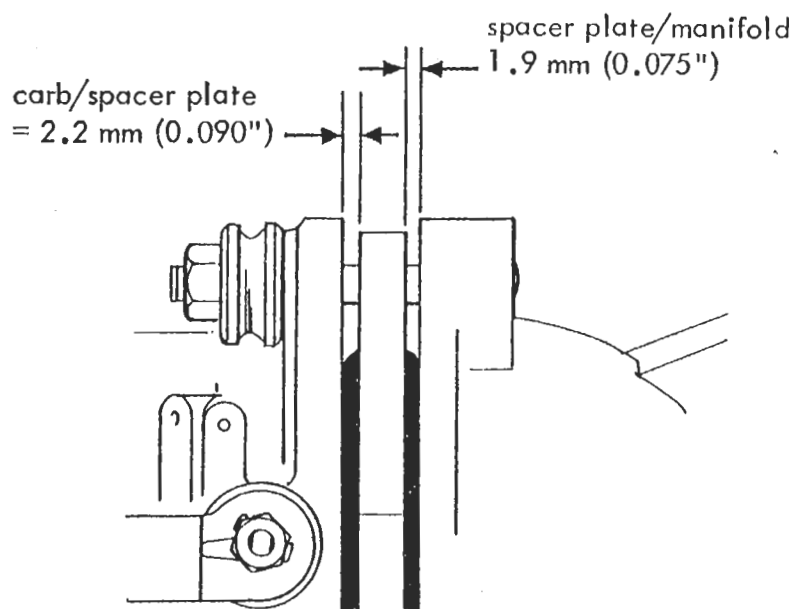
CO reading should be between 0.2 - 1.2%. If higher or lower levels are found, move each mixture screw $\frac{1}{4}$ of a turn in or out as the reading dictates. Check the CO reading and repeat procedure until correct specification is achieved. A balance between CO and HC is required, and the Hexane level should be below 550 ppm for a 'new' engine and below 350 ppm for a 'run-in' engine.

11. Disconnect manometer and adaptors, and replace blanking screws. Fit new anti-tamper caps where necessary. Ensure all fuel pipe connections are secure. Disconnect exhaust sample probe, and refit blanking plug securely.

LC.6 - CARBURETTOR MOUNTING

The spacer plates and 'O' rings used at this joint act as insulators to absorb vibration and prevent frothing of fuel in the float chambers. It is essential that the carburettor mountings are not overtightened, as the 'O' rings may be displaced with a resultant air leak.

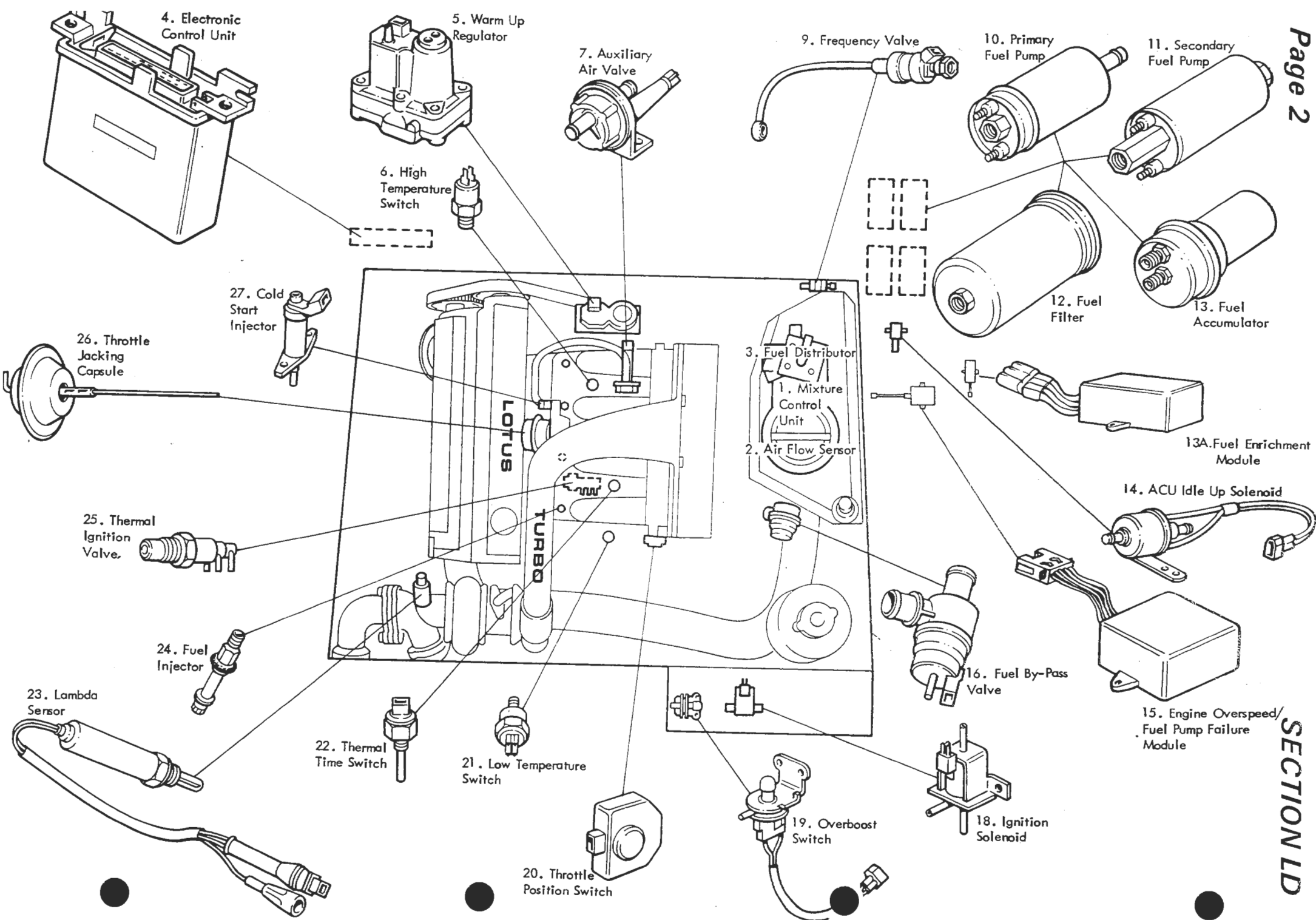
A uniform gap must be maintained between carburettor and spacer plate, and between spacer plate and manifold as shown.



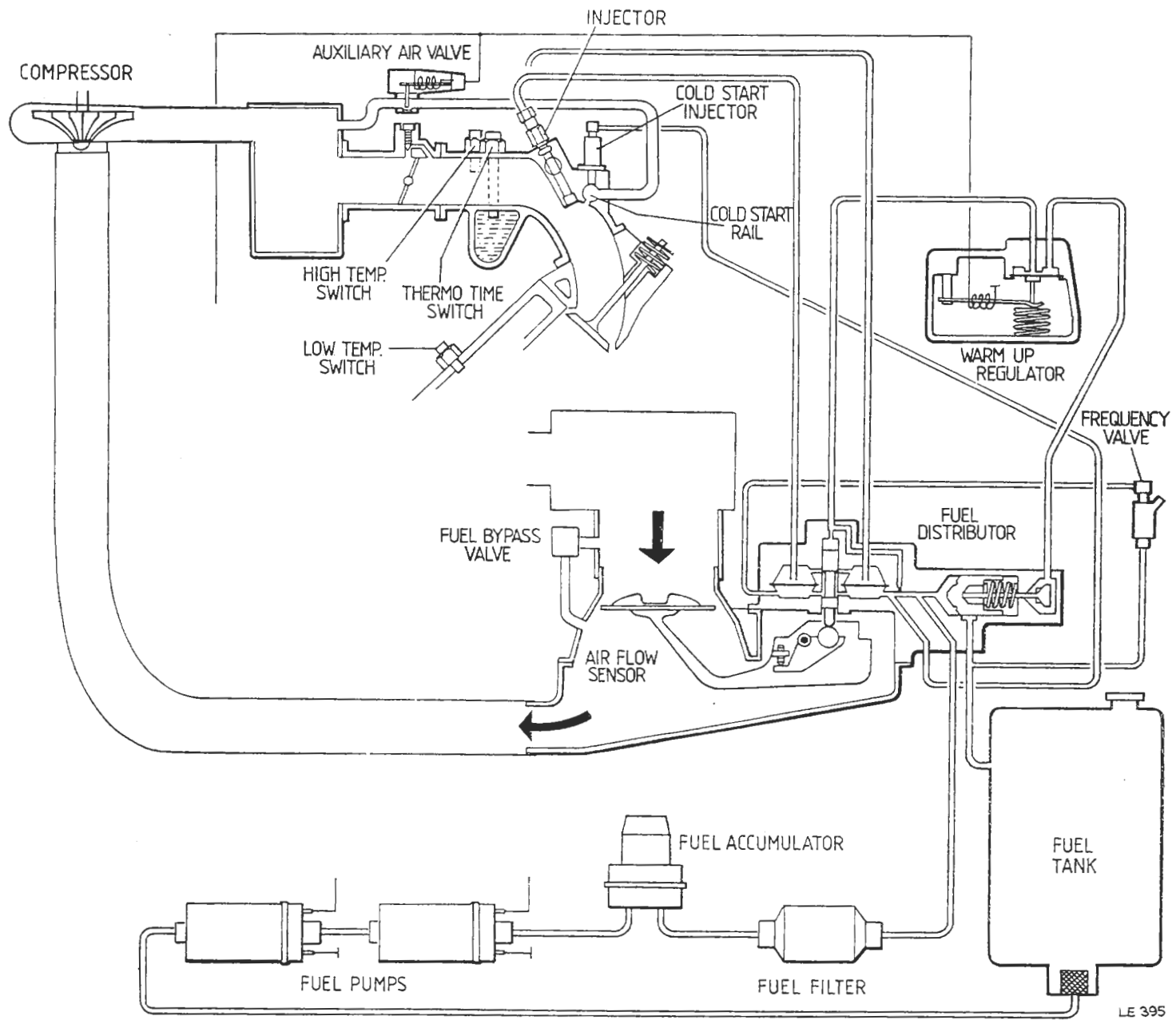


FUEL SYSTEMSECTION LD - USA ESPRIT TURBO H.C.I.

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1. Mixture Control Unit Comprises of the Air Flow Sensor and Fuel Distributor. (LD.4)
2. Air Flow Sensor Measures air flow into the engine and moves fuel distributor control valve accordingly.
3. Fuel Distributor Comprises:
 - i) Primary Pressure Regulator to control pressure of fuel delivered by pumps.
 - ii) Control valve to regulate fuel delivered to injectors dependent on air flow.
 - iii) Four Distributor Differential Valves to maintain constant pressure drop across each control valve slit.
4. Electronic Control Unit (E.C.U.) Controls Frequency Valve cycle rate. (LD.15)
5. Warm Up Regulator Enriches air/fuel ratio during engine warm up. Compensates for high altitude conditions. (LD.10)
6. High Temperature Switch Switches Ignition Solenoid at water temperatures below 70°C (increased ignition advance) (LD.18)
7. Auxiliary Air Valve Supplies extra air (and fuel) to cold engine to improve driveability and idling (LD.9)
9. Frequency Valve Amends mixture strength dependent on exhaust oxygen content to reduce harmful emissions. (LD.14)
- 10/ Fuel Pumps Feed fuel from the tanks to the fuel distributor (LD.3)
11. Fuel Filter Protects system from impurities. (LD.3)
13. Fuel Accumulator Maintains fuel system pressure after engine switch off to aid re-starting. (LD.3)
- 13A. Fuel Enrichment Module Supplies signal to E.C.U. (enrichment) at engine speeds over 3250 rpm (LD.15)
14. A.C.U. Idle Up Solenoid Maintains idle speed when air conditioning is operating. (LD.19)
15. Engine Overspeed/Fuel Pump Failure Module Limits normal max. rpm to 7,000 reducing to 2,800 if one fuel pump fails (LD.3)
16. Fuel By-Pass Valve Allows air to by-pass Airflow Sensor, thus shutting off fuel supply, on closed throttle engine overrun conditions (LD.16)
18. Ignition Solenoid Operates Throttle Jacking Capsule at water temperatures below 60°C (increased idle speed). (LD.18)
19. Overboost Switch Cuts out fuel pumps if overboost is detected (LD.3)
20. Throttle Position Switch Switches a signal to the electronic control unit and engine management system at idle, off idle to 30° throttle, and over 30° throttle opening. (LD.15,16)
21. Low Temperature Switch makes on fall below 25°C oil temp. and switches E.C.U. for cold enrichment. Breaks on rise @ 35°C (LD.15)
22. Thermal Time Switch Regulates cold start injection time dependent on water temperature. (LD.8)
23. Lambda Sensor Senses oxygen content in exhaust for Frequency Valve. (LD.13)
24. Fuel Injector One in each manifold port, continuously inject fuel supplied by distributor. Surrounded by air stream. (LD.5)
25. Thermal Ignition Valve Increases ignition advance at water temperature below 53°C (cold driveability). (LD.18)
26. Throttle Jacking Capsule Increases cold engine idle speed (LD.18)
27. Cold Start Injector Supplies cold engine with extra fuel for short period whilst cranking to aid starting. (LD.7)



FUEL SYSTEM- SCHEMATIC DIAGRAM

LD . 1. - GENERAL DESCRIPTION

Two fuel tanks are fitted, one ahead of each rear wheelarch. A separate filler neck with lockable cap is provided for each tank, and the two tanks are interconnected by a large bore balance pipe. A single sender unit for the fuel gauge is fitted into the top of the RH tank.

Fuel is fed from the RH tank through an integral strainer to the fuel pumps and injection system, with excess fuel being returned into the top of the RH tank.

Filling of the fuel tanks is best achieved by twisting the pump nozzle 45° to allow it to be inserted fully around the bend in the filler neck.

LD. 2. - FUEL INJECTION SYSTEM DESCRIPTION

Lotus fuel injection engines use a Bosch K-Jetronic system to provide an optimum air-fuel mixture under all operating conditions. The system is based on the principle of continuous injection of fuel into the intake port of each cylinder, and derives its designation 'K' from the German word for 'continuous'. The fuel injection may be said to operate mechanically, with the quantity of fuel delivered being regulated by the amount of air drawn in by the engine.

The basic system is regulated to provide the correct air/fuel ratio for normal running conditions, and full power running. Various supplementary devices are used to modify this ratio to achieve efficient overall performance when cold, decelerating, starting, idling, operation at high altitude etc.

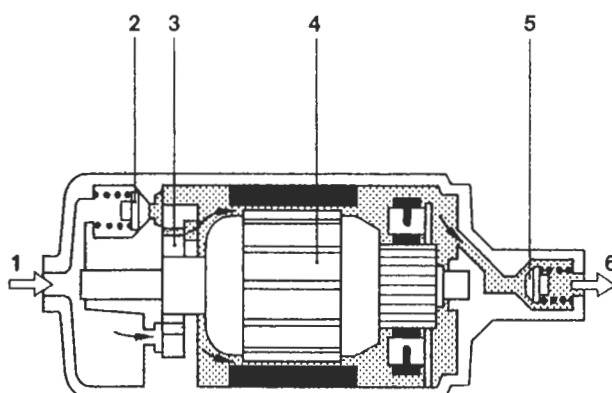
An oxygen sensor in the exhaust system is used to determine the mixture strength being supplied to the engine, and an electronic control unit makes corrections accordingly.

LD. 3. - FUEL FEED

The fuel feed system comprises the fuel pumps, fuel accumulator, and fuel filter. All these components are fitted at the RH front underside of the engine bay.

Fuel Pumps Two fuel pumps, connected in series, draw fuel from the RH petrol tank and supply it via the fuel accumulator and filter to the fuel distributor.

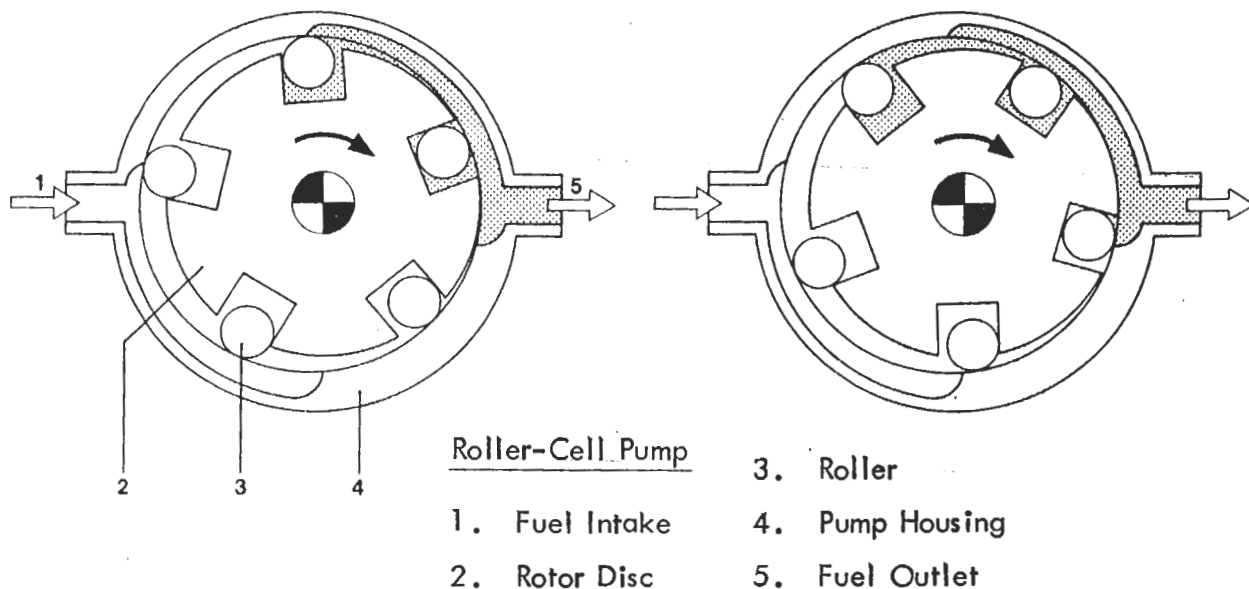
Both pumps are fitted with non-return valves in their outlet connections,



Electric Fuel Pump

1. Fuel Intake
2. Excess Pressure Valve
3. Roller-Cell Pump
4. Electric Motor Armature
5. Non-Return Valve
6. Fuel Outlet

The pumps are permanent magnet electric motor roller-cell type, wherein the fuel flows past the motor itself to a roller cell pump chamber. A motor driven disc mounted eccentrically in this chamber, uses rollers contained in slots around its circumference and thrown out by centrifugal force against the wall of the eccentric chamber, to transfer fuel from the motor side of the chamber into the fuel feed pipeline.



The lack of an ignitable air/fuel mixture in the pump prevents any explosion. The pumps operate whilst the engine is cranking or running, but do not operate in the stalled engine condition. The combined output of both pumps is more than the maximum requirement of the engine, excess fuel being returned to the tank via the primary pressure regulator. In order to protect the engine from damage if one pump fails, the engine overspeed/fuel pump failure module senses the failure and limits maximum engine speed to approx. 2,800 rpm by cutting out the remaining pump when this speed is reached.

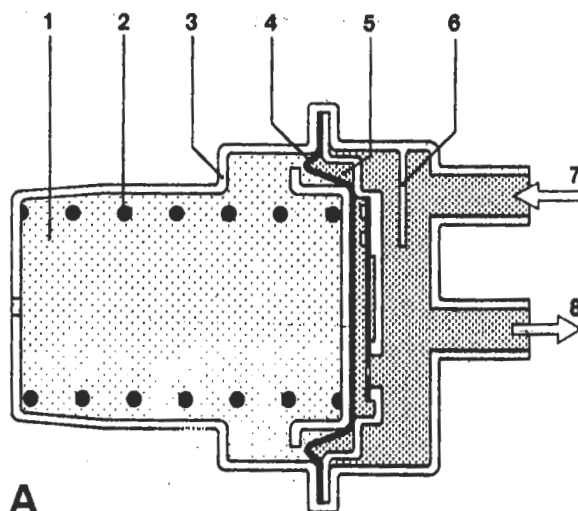
The fuel pumps are also cut out if the Overboost Switch senses too great a boost pressure at the inlet manifold cold start air rail (i.e. exhaust wastegate failure).

Fuel Accumulator The fuel accumulator is fitted between the fuel pumps and fuel filter and is designed to maintain fuel pressure in the system after the engine has been switched off in order to aid re-starting and prevent vapour locks forming.

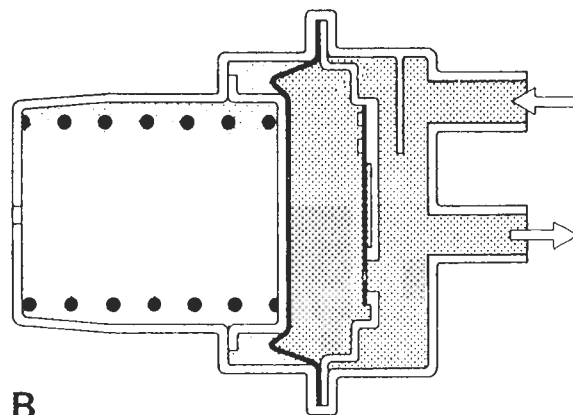
The accumulator also serves to deaden any noise arising from pulsations in the fuel line. The accumulator consists of a fuel storage chamber and spring loaded diaphragm.

Diagram A shows the storage chamber empty and the diaphragm pushed by its spring against the divider plate.

- | | |
|-------------------|--------------------|
| 1. Spring Chamber | 5. Storage Chamber |
| 2. Spring | 6. Baffle |
| 3. Stop (full) | 7. Fuel Entry |
| 4. Diaphragm | 8. Fuel Exit |



When the fuel pumps are running, the pressure of fuel pushes the diaphragm back against its spring until the storage chamber is filled as in diagram B.



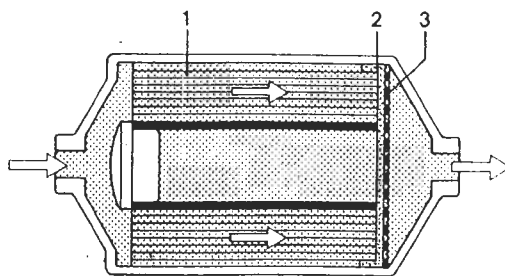
B

When the pumps are switched off, the non-return valve fitted in the outlet of the second pump, prevents fuel returning to the tank, through the pumps, and the fuel distributor primary pressure regulator shuts off the fuel return pipeline.

The accumulator spring then maintains a rest pressure in the system for sufficient time to aid hot re-start.

Fuel Filter The fuel filter is fitted between the fuel accumulator and fuel distributor. Due to the extremely close tolerances of the injection equipment, a special fine filter is fitted to protect the system from impurities in the fuel.

The filter consists of a sealed cannister containing a paper filter element backed up by a lintor fluff filter, and a restraining strainer.

Fuel Filter

1. Paper Element
2. Lint or Fluff Filter
3. Strainer

It is most important that the filter is fitted with the arrow stamped on the body pointing in the direction of fuel flow. The connections are arranged to permit only the correct fitment.

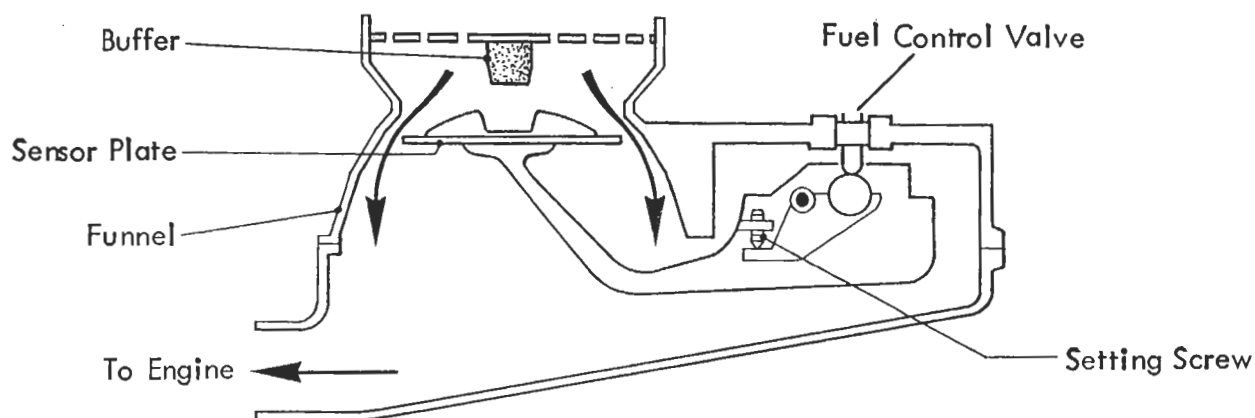
LD. 4. - MIXTURE CONTROL UNIT

The Mixture control unit is the heart of the fuel injection system, and comprises an air flow sensor and fuel distributor.

The air flow sensor is fitted between the air filter and turbocharger, and senses the amount of air being drawn into the engine. This measurement is used to move a control valve in the fuel distributor which regulates fuel delivery to the injectors.

Air Flow Sensor The air flow sensor consists of a sensor plate mounted on a counterbalanced lever, operating the fuel distributor control valve.

The sensor plate is positioned in an air funnel and operates on the suspended body principle such that the greater the quantity of air drawn in by the engine, the greater the sensor plate movement. The funnel is specially shaped to provide the necessary sensor plate movement and fuel delivery characteristics.



In order to prevent damage to the sensor in case of pressure shocks in the intake system (backfiring) etc.) provision is made for the sensor to swing upward and open a relief cross-section in the funnel before being restrained by a buffer. The rest position of the sensor is controlled by a preset spring pin.

The screw setting the fuel control valve operating arm is preset and requires no adjustment under normal operating conditions.

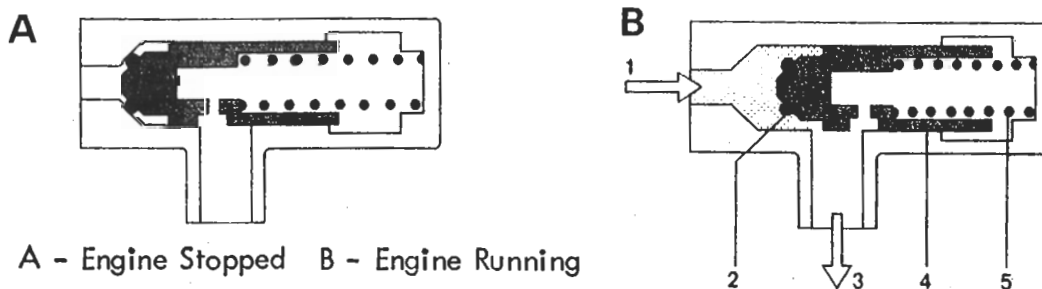
Fuel Distributor The fuel distributor comprises:

- i) Primary Pressure Regulator (System Pressure)
- ii) Fuel Control Valve
- iii) Four Distributor Differential Valves

i) Primary Pressure Regulator

The primary pressure regulator is incorporated into the body of the fuel distributor and takes the form of a spring loaded plunger.

Fuel is delivered by the pumps into the fuel distributor and exerts a force on the pressure regulator valve which is calibrated to maintain a primary fuel pressure of 6.0 Bar with excess fuel being returned to the tank.

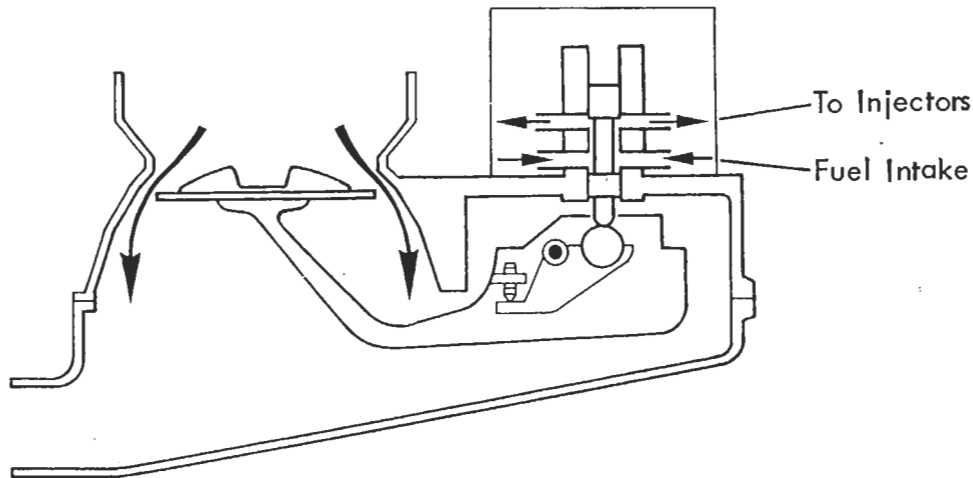


- 1. Primary Pressure Input
- 2. Seal
- 3. Return to Tank
- 4. Plunger
- 5. Regulator Spring

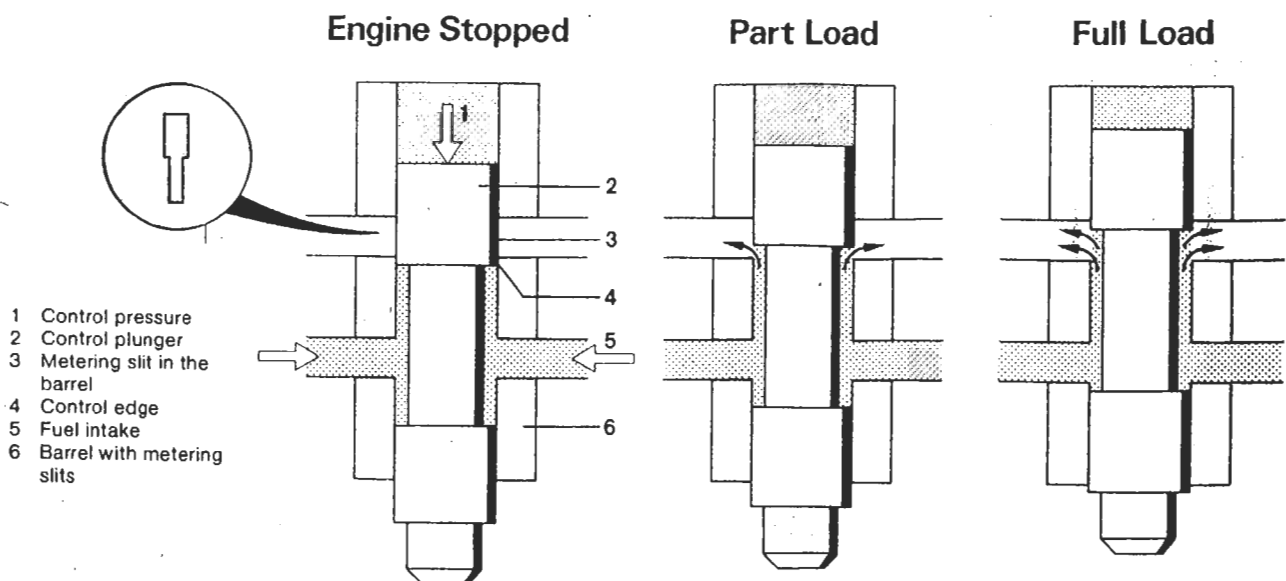
When the engine is stopped, the fuel pumps are switched off and the pressure drops below injector opening pressure. The primary pressure regulator then seats fully under the action of its spring, and prevents further pressure reduction in the primary system.

ii) Fuel Control Valve

The fuel control valve is located centrally in the fuel distributor, and controls the fuel delivery to the injectors relative to the air flow sensor position.

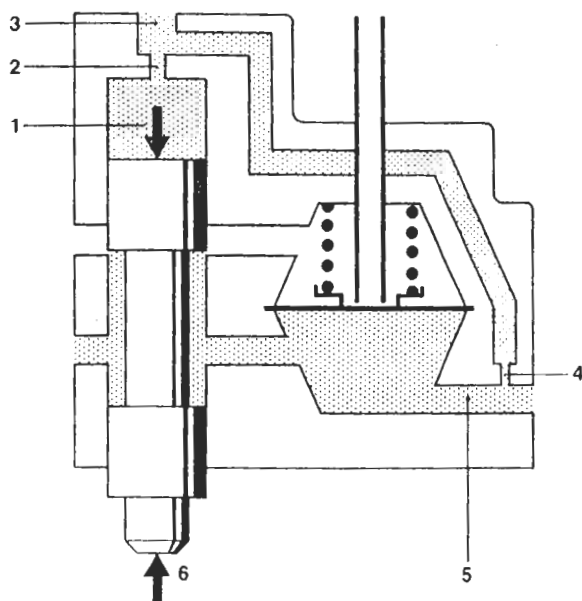


The control valve slides inside a barrel into which is fed fuel at primary pressure. The fuel then flows through 4 metering slits to the distributor differential valves and then to the fuel injectors. As the air flow sensor is deflected further by an increasing airflow, so the control valve is raised in its barrel, progressively opening a larger proportion of the metering slits, and increasing fuel flow to the injectors.



The Lotus fuel distributor has metering slits with two different widths, the smaller, standard section for light and part load running and the larger width for mid to full power running.

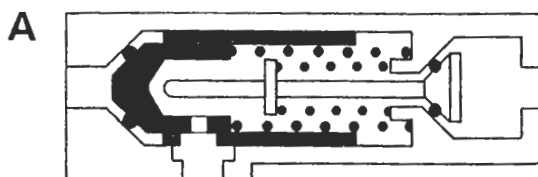
Control Pressure In order to damp any tendency of the control valve and air flow sensor to oscillate, and to provide a means whereby the movement of the control valve relative to the airflow may be varied to suit different operation conditions, a 'control pressure' is arranged to act on the top of the control valve and oppose the force applied to it by the airflow sensor.



1. Control Pressure Force
2. Damping Restriction
3. To Warm Up Regulator
4. Control Pressure Take Off Orifice
5. Fuel at Primary Pressure
6. Force from Airflow Sensor

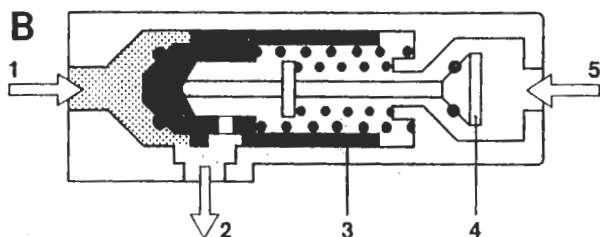
A small bore take off from the primary pressure supply directs fuel at a reduced pressure into the top of the fuel control valve cylinder. This 'control pressure' is regulated by the warm up regulator (see later) which reduces the control pressure when the engine is cold. This reduced force above the control valve, allows the airflow sensor and control valve to move a greater distance for a given airflow, and expose a greater proportion of the metering slits. More fuel then flows to the injectors to achieve a richer cold running mixture.

The warm up regulator achieves this control pressure regulation by allowing a proportion of the fuel to return to the tank, but in order to maintain control pressure after engine switch off, and to aid re-start, the return line from the warm up regulator is fitted with a shut off valve which closes when the engine is stopped.



Primary Pressure Regulator With Control Pressure Shut Off Valve

- A - Engine Stopped
B - Engine Running

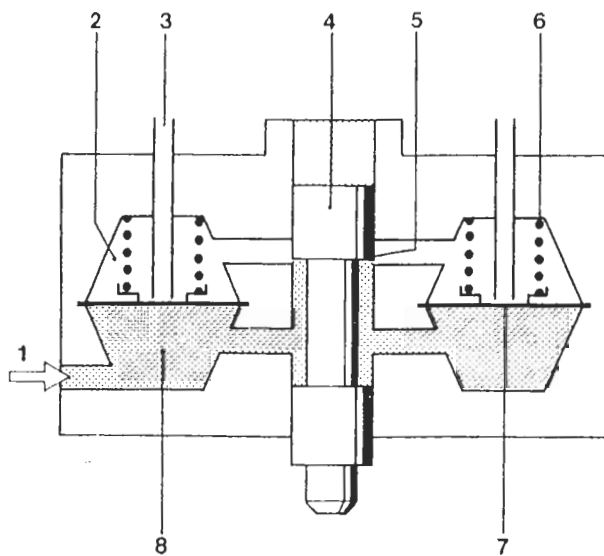


1. Primary Pressure
2. Return to Tank
3. Plunger
4. Shut Off Valve
5. Control Pressure

This shut off valve is incorporated into the primary pressure regulator such that it is held open against spring pressure only whilst the primary pressure regulator is operating (i.e. engine running).

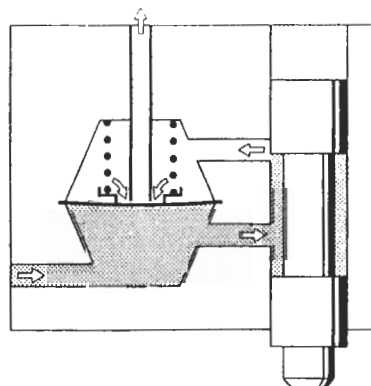
Distributor Differential Valves One distributor differential valve for each engine cylinder is incorporated in the fuel distributor to maintain a constant pressure drop across the metering slits regardless of their opening. This is necessary in order to ensure that the fuel flow to the injectors is dependant only on the length of metering slit exposed, and also is not affected by any variation in primary pressure.

The valves are mounted in 4 cavities inside the fuel distributor. Each cavity is divided into upper and lower chambers by a steel diaphragm. All the lower chambers are interconnected by a ring main and are supplied with fuel at primary pressure from the pumps. The upper chambers are isolated from each other and each is connected individually to one of the metering slits. Each diaphragm is spring loaded downwards away from a flat seat valve leading to one of the fuel injectors.

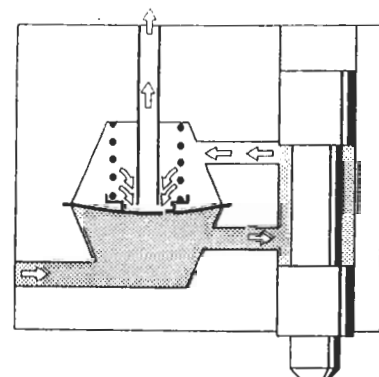


1. Fuel Intake at Primary Pressure
2. Upper Chamber
3. To Fuel Injector
4. Control Valve
5. Metering Slit
6. Helical Spring
7. Steel Diaphragm
8. Lower Chamber

LOW
FUEL
DELIVERY



HIGH
FUEL
DELIVERY



As the metering slit is opened, and the upper chamber pressure tends to increase, the diaphragm is pushed downwards increasing the flat seat valve opening to the injector line such that the upper chamber pressure remains at 0.1 bar below that of the lower chamber. This pressure differential is set by the helical spring. Hence, during operation, the diaphragm is held in equilibrium by the force of the primary fuel pressure on the underside, and by the upper chamber pressure plus the spring pressure on the top side.

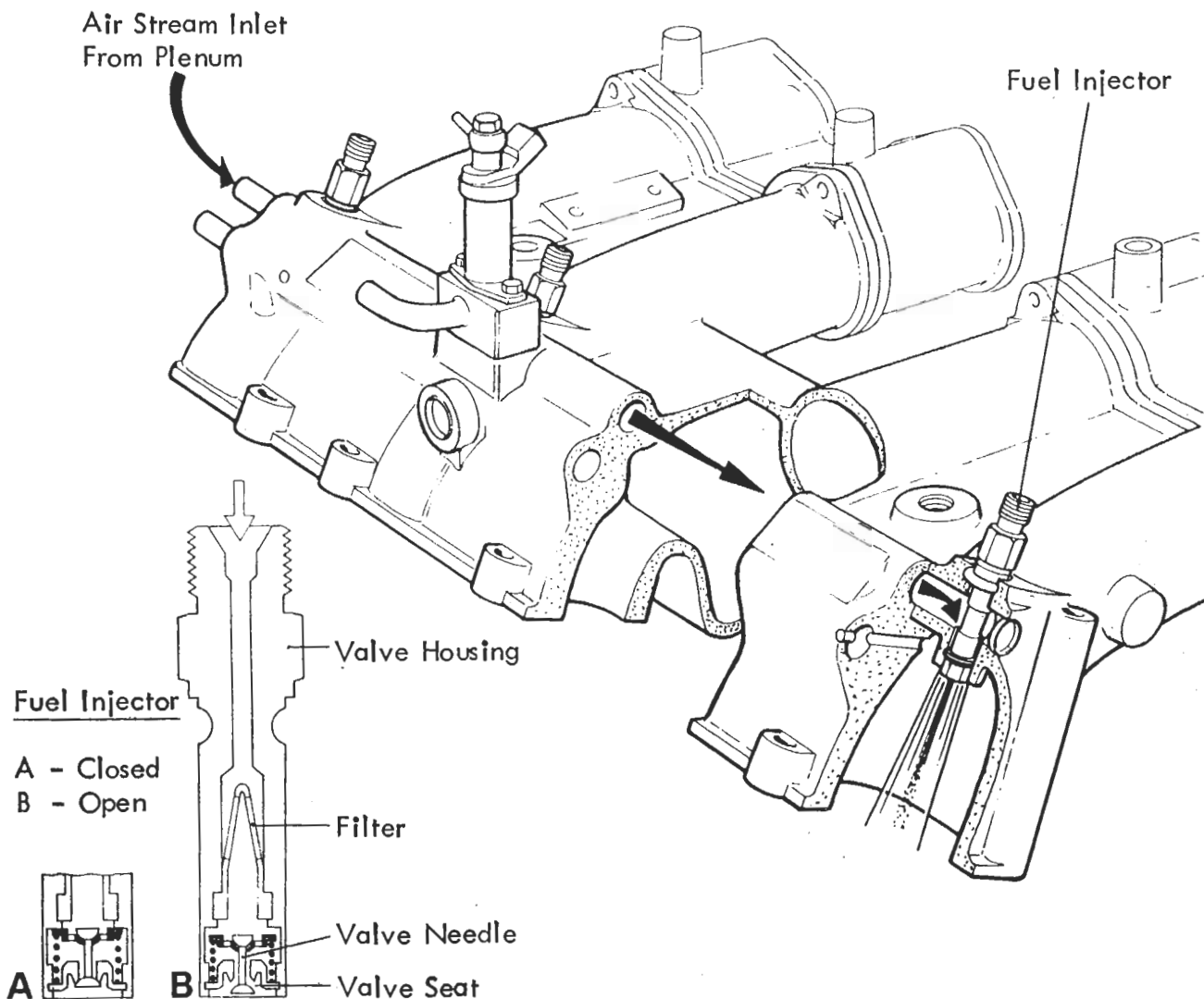
LD. 5. - FUEL INJECTORS

The fuel injectors are fitted into the inlet manifold, and continuously inject fuel into the intake parts whilst the engine is running.

The injectors have no metering function but open at a specified pressure and inject the fuel allocated to them by the fuel distributor.

The injector nozzles are fitted with a valve needle which vibrates at high frequency as the fuel flow pressure lifts the valve on and off its seat, producing a finely atomised spray.

Fuel atomisation is further aided, especially at low engine speeds, by an air stream flowing around the injector. This air stream is supplied via a passageway running across the top of the inlet manifold, and a hose connecting with the intake plenum.



When the engine inlet valves are closed, the air/fuel vapour cloud formed, is stored in the intake port, to be drawn into the cylinder when the inlet valves open again.

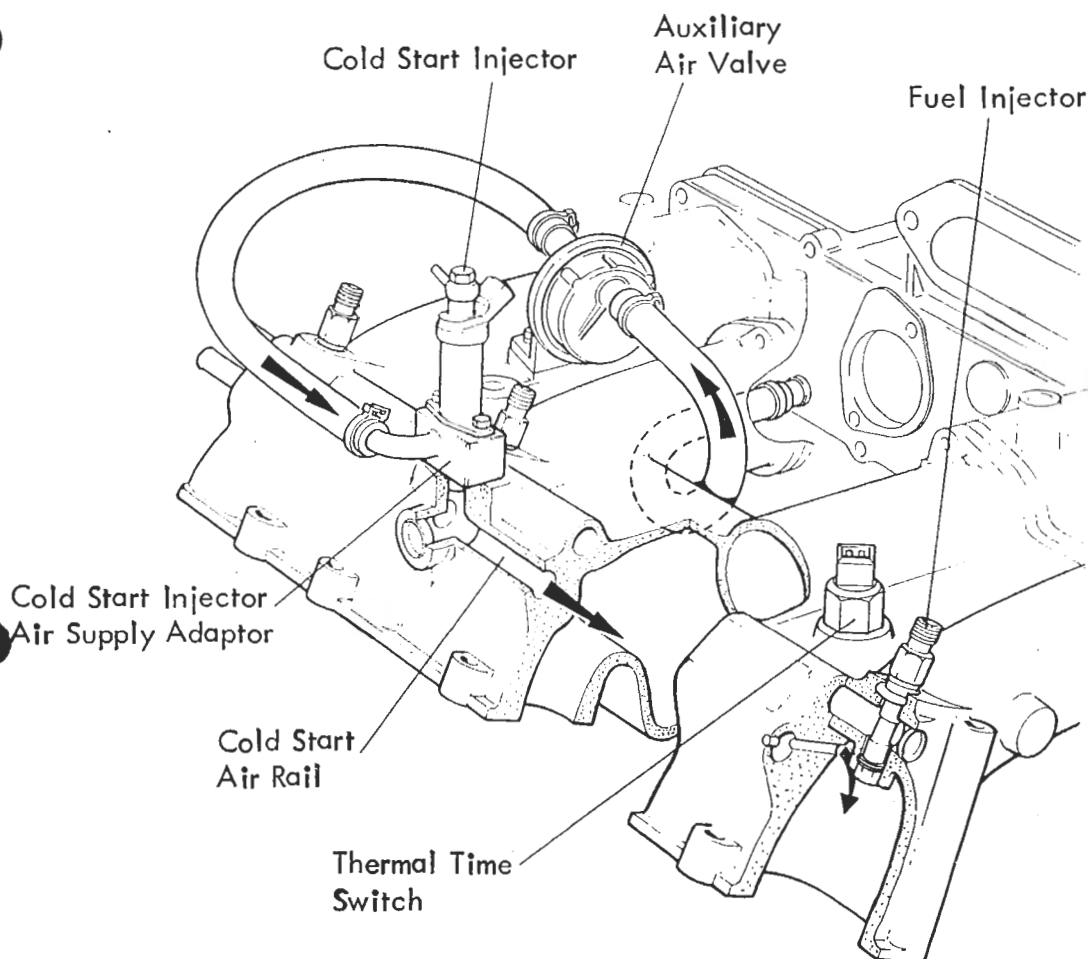
When the engine is stopped, the fuel pressure drops below that required to open the injector valves, so shutting the valves and preventing fuel dripping into the ports.

LD. 6 - MIXTURE ADAPTATION

The system so far described provides a fuel/ air mixture suitable for normal running. Various supplementary devices are required in order to adapt the mixture strength for differing climatic, transient and emissions related conditions. These components include those providing enriched mixture strength for cold starting and running, fuel cut-off on overrun, and adjustment of mixture to achieve minimal harmful emissions.

LD. 7 - COLD START INJECTOR

When starting a cold engine, the cranking speed induces very low air flow with resulting low fuel delivery to the injectors. The additional fuel necessary for cold starting is supplied by the cold start injector only at cranking, and for a maximum duration of between 0.1 and 8.0 seconds dependant on coolant temperature.



The single cold start injector is fitted into an air rail running alongside the fuel injector air stream rail on the inlet manifold. Connecting passages join this air rail with each intake tract. A hose from the auxiliary air valve allows a flow of air to be drawn around the cold start injector on engine cranking to finely atomise the fuel sprayed from its nozzle.

The cold start injector is a solenoid valve supplied with fuel at primary pressure from the fuel distributor, and is opened by a current supplied via, and for a time period governed by the thermal time switch.

LD. 8. - THERMAL TIME SWITCH

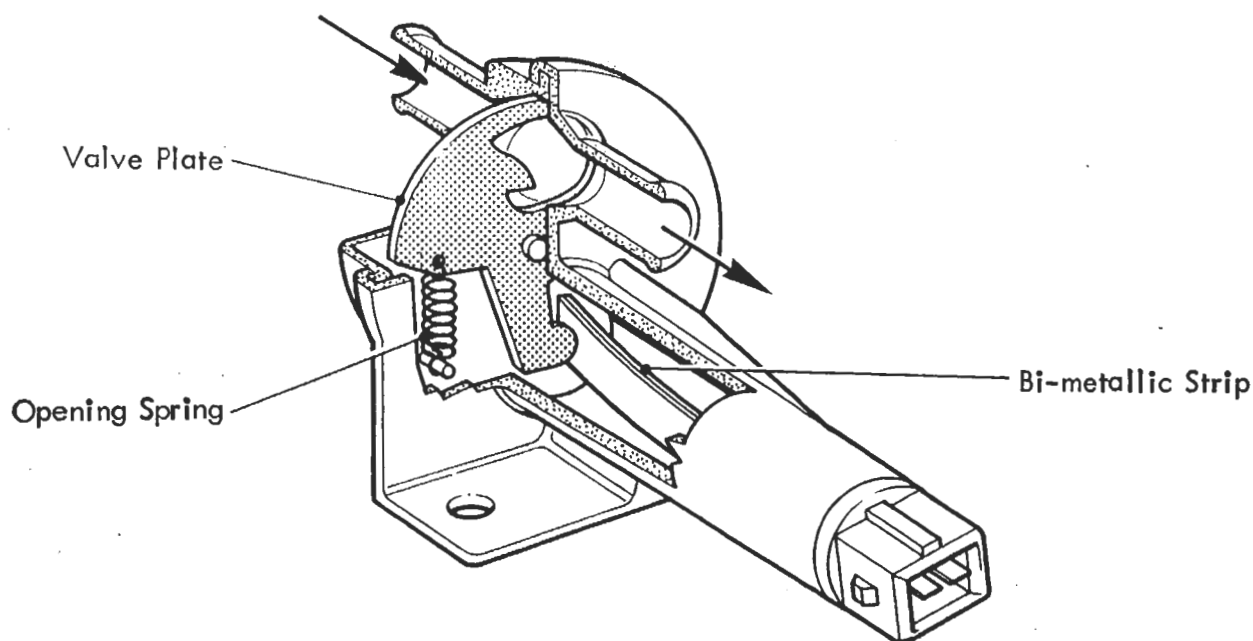
The thermal time switch is fitted into the inlet manifold water jacket between tracts 3 & 4. Its function is to control the injection time of the cold start injector dependent on engine temperature.

The switch consists of a hollow tube, inside which is mounted an electrical contact controlled by a bimetallic strip wound with a heating coil.

The current, supplied to the thermal time switch only whilst the engine is cranked, is passed through the heating coil, and switch contacts to the cold start injector. As the bimetal strip heats up, it bends and opens the contacts, shutting off the injector. Maximum injection time, at -20°C is approx. 8 secs. The warmer the engine is, the more heat is absorbed by the bimetal strip, so that a shorter electrical heating time is needed to break the contact. When the engine is at normal running temperature the switch absorbs sufficient heat to keep the contacts open rendering the cold start injector inoperative.

LD. 9 - AUXILIARY AIR VALVE

In order to overcome the increased friction present in a cold engine, and enable the engine to idle satisfactorily after cold start-up, an auxiliary air valve is fitted between the plenum chamber and cold start air rail to by-pass the throttle butterflies and provide an additional air flow to the engine. Since this air is drawn through the airflow sensor, additional fuel is injected accordingly.



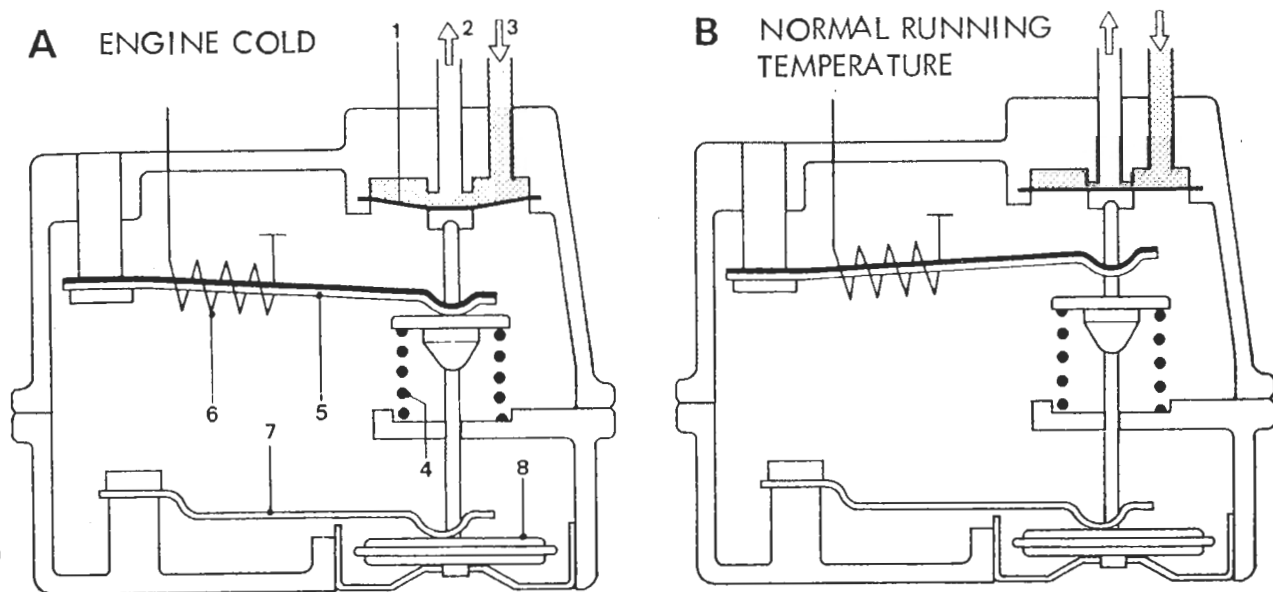
The auxiliary air valve consists of a pivoted plate provided with a specially shaped aperture such that by moving the plate the by-pass air supply line may be regulated between fully open and fully closed. Movement of the disc is controlled by an opening spring and a closing, heating coil wound, bimetal strip.

In the cold engine condition the plate adopts a position fully opening the by-pass line. As soon as the ignition is switched on, current flows through the heating coil and gradually causes the bimetal strip to bend and rotate the plate, reducing the by-pass aperture. As the engine warms, and its heat is absorbed by the valve body, the heating effect of the coil is augmented and the plate is rotated further to fully close the by-pass. Engine heat alone is sufficient to ensure that the by-pass remains closed when the engine is warm.

LD.10 - WARM UP REGULATOR

In order to compensate for the condensation of fuel on the inlet tract and cylinder walls whilst the engine is running cold, and to maintain driveability until normal running temperature is reached, it is necessary to enrich the fuel/air mixture during this period.

The warm up regulator fulfils this function by reducing the control pressure by an amount dependent on engine temperature. When the control pressure is reduced, the fuel control valve in the distributor is allowed to move further for a given airflow and open a greater proportion of the metering slits, increasing fuel flow to the injectors.



- | | | |
|---------------------|-------------------|--------------------|
| 1. Valve Diaphragm | 4. Valve Spring | 7. Spring |
| 2. Return to Tank | 5. Bimetal Spring | 8. Aneroid Capsule |
| 3. Control Pressure | 6. Heating Coil | |

The warm up regulator consists of a flat seat valve controlling the return of fuel from the control pressure line to the tank. The valve is held closed by a coil spring, but this is opposed by a bimetallic spring wound with a heating element which is fed with current whilst the ignition is switched on.

When cold, the bimetal spring overcomes the coil spring and opens the valve, such that the control pressure is low, and the mixture rich on engine start up. As the engine runs, the bimetal spring is heated, both by its heating coil, and by engine heat absorbed by the regulator, and gradually reduces its opening force on the valve. Finally, when the engine reaches normal running temperature, the bimetal spring is sufficiently heated to lift clear of the valve rod so that the control pressure is controlled only by the coil spring.

LD. 11. - HIGH ALTITUDE COMPENSATION

Operating the engine at high altitude where the air density is lower, requires that some compensation be made by the fuel metering system to prevent the mixture becoming too rich.

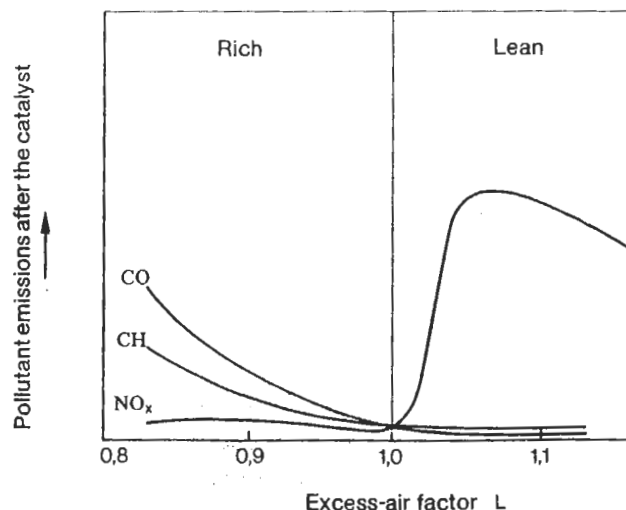
This compensation is achieved by incorporating an aneroid capsule into the base of the warm up regulator. The valve rod is extended to abut against the capsule, which is held in a 'flattened' condition by atmospheric pressure and a leaf spring as shown in the warm up regulator diagram. At high altitude, the reduced atmospheric pressure results in the aneroid capsule 'expanding' and exerting an additional closing force on the control pressure valve, raising the control pressure and compensating the mixture strength for altitude.

LD. 12 - EXHAUST EMISSION CONTROL

The minimum production of harmful exhaust gas emissions is achieved primarily through the use of starter and main 'three way' catalysts combined with very accurate fuel metering.

The optimum air/fuel ratio for minimum emission of all three noxious components - carbon monoxide CO, unburnt hydrocarbons HC, and nitrogen oxide NO_x, and also for minimum fuel consumption with maximum driveability, is about 14 to 1 by weight. This is sometimes referred to as the 'stoichiometric ratio'.

The air/fuel ratio may also be represented by expressing the amount of air present in the mixture as a proportion of that amount required for a stoichiometric ratio. This proportion, the excess air factor, when used in connection with Bosch fuel injection, is referred to by the Greek letter Lambda (λ). Thus, when Lambda (λ) = 1, the correct amount of air is present, and the air/fuel ratio = 14 to 1.



When L is greater than 1, too much air is present and the mixture is lean. When L is less than one, too little air is present, and the mixture rich.

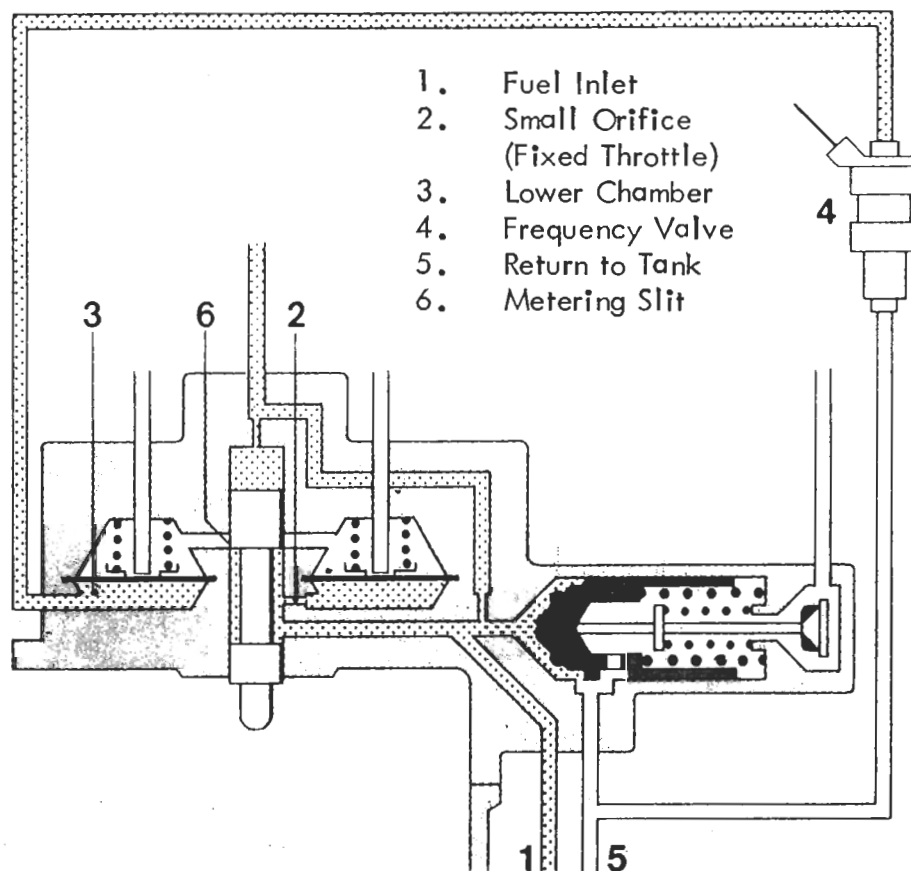
LD. 13 - LAMBDA SENSOR

It is possible to determine the excess air factor of the mixture being delivered to the cylinders by measuring the oxygen content of the exhaust gas before the catalyst. This is achieved by fitting a Lambda sensor into the exhaust system between the turbocharger and catalyst.

The Lambda sensor is calibrated such that deviations from $L = 1$ (the desired air/fuel ratio) result in a sudden change to its output voltage signal. This signal is used by an electronic control unit to determine the fuel delivery correction necessary. This correction is made via a 'Frequency Valve' fitted between the fuel distributor and tank. The sensor is fitted with its own heating coil which is used to heat the sensor to operating temperature after engine start up. Signals from the sensor are only processed at engine oil temperatures above 35°C .

LD. 14 - FREQUENCY VALVE (Timing Valve)

Corrections to the fuel delivery as determined by the Lambda sensor and electronic control unit (E.C.U.), are made by altering the fuel pressure beneath the diaphragms of the differential valves in the fuel distributor.



In order that the pressure in these lower chambers may be varied, the connection between their ring main and the regulated primary pressure is fitted with a small orifice (fixed throttle), and a return line from the lower chambers to the tank is provided with a variable throttle. In this way, if the variable throttle is closed, regulated primary pressure will be present in the lower chambers, whilst opening the variable throttle allows fuel in the lower chambers to bleed off back to the tank, hence lowering the pressure.

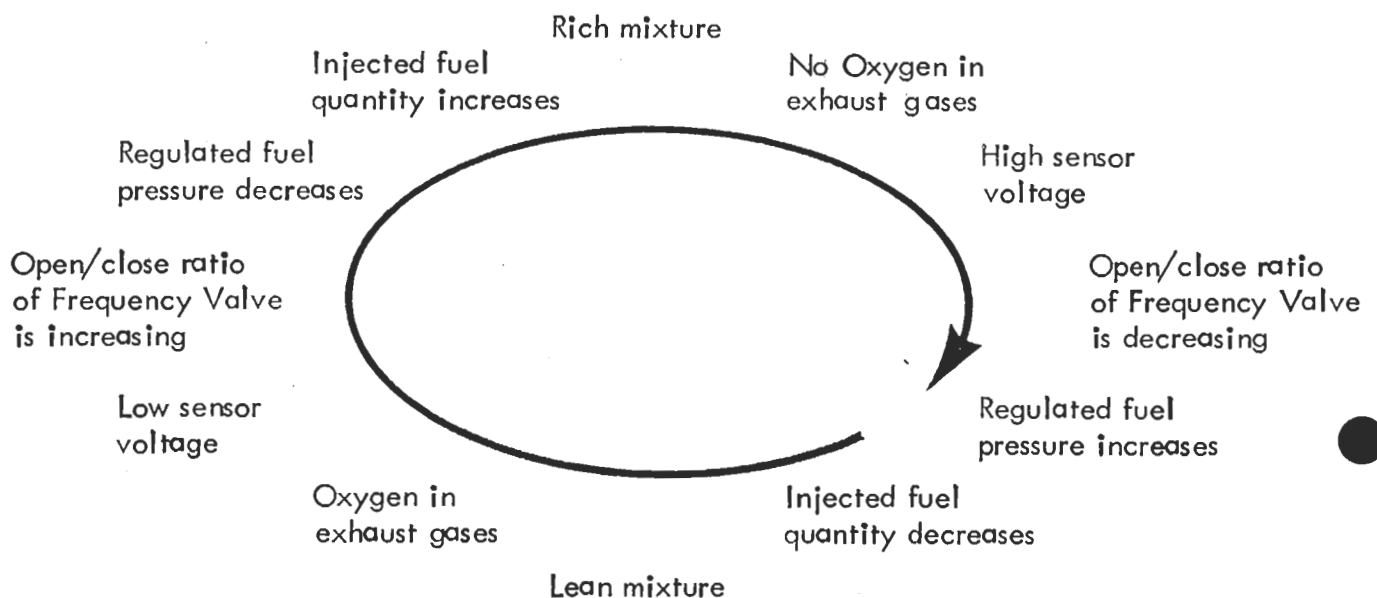
Lowering the pressure beneath the diaphragms will increase the pressure differential across the metering slits and increase fuel delivery to the injectors.

The variable throttle takes the form of a Frequency Valve, which continuously cycles open/closed, with the ratio between open and closed periods being determined by the electronic control unit.

LD. 15 - ELECTRONIC CONTROL UNIT (E.C.U.)

The function of the electronic control unit is to process information fed to it by various sensors including the exhaust gas Lambda sensor, and set an open/close ratio for the frequency valve.

This method of regulating the air/fuel ratio to $\text{Lambda} = 1.0$ by continuously monitoring exhaust gas oxygen content, is called Lambda closed loop control, and may be represented by the following flow chart.



Certain operating conditions require different air/fuel ratios, and it is necessary to switch to an open loop control system with a preset frequency valve open/close ratio.

The open/close ratio of the solenoid operated frequency valve is controlled by an electrical pulse sent to open the valve many times a second. Under normal running conditions, the valve is opened for about 50% of the time, and the pulse rate supplied to it is referred to as 50% duty cycle. 100% duty cycle would mean the valve is held permanently open.

The E.C.U. sets fixed duty cycles under the following conditions:

- i) 75% duty cycle at engine oil temperatures below 35°C as sensed by the low temperature switch.
- ii) 65% duty cycle on engine overrun, when fuel by-pass valve (LD.16) is operating.
- iii) 65% duty cycle at throttle butterfly openings of more than 30°, as sensed by the throttle position switch.
- iv) 65% duty cycle at engine speeds higher than 3250 rpm as sensed by 'fuel enrichment module' mounted on RH fuel tank board.
- v) 50% duty cycle if a defect in the Lambda sensor is detected (unless conditions i, ii, iii or iv above apply).

At idle speed, the E.C.U. updates the closed loop duty cycle rate more quickly in order to stabilize idle rpm.

LD. 16 - FUEL BY-PASS VALVE

The fuel shut off valve has been incorporated into the fuel system to improve economy during engine overrun by returning the air sensor plate to its rest position, shutting off the fuel supply. This is achieved by collapsing the depression below the sensor plate by allowing air from the air cleaner housing to be fed directly into the air ducting below the plate.

The valve is controlled by an electric power supply and manifold vacuum but governed by the engine coolant temperature, engine speed and the position of the throttle. The valve has an air inlet and outlet with the inlet spigot pressed into a grommet in the air cleaner main body while the outlet is connected by hose to the air flow sensor lower housing. When the valve is triggered to its open position air will be drawn through the valve into the lower housing collapsing the vacuum below the plate. The sensor plate movement will be restored as soon as the valve closes.

The following conditions must occur for the valve to be activated:

The coolant temperature, sensed by the high temperature switch must be above 70°C. This is to ensure that the driveability is not affected during engine warm up.

The throttle must be 'closed'. A throttle position switch controls this operation ensuring that the by-pass valve only operates in the idle position.

The engine must be decelerating from a speed greater than 1600 rpm. Two critical speeds control the valve operation. It will not be activated unless the engine is decelerating from above 1600 rpm and it will cut out once the speed drops down to 1400 rpm. The engine speeds are monitored by a speed sensing relay, mounted in the ignition box at the rear of the engine bay.

LD. 18 - VACUUM OPERATED ENGINE MANAGEMENT DEVICES

These include the Thermal Ignition Valve, (T.I.V.) Ignition Solenoid, and Throttle Jacking Capsule.

Thermal Ignition Valve (T.I.V.)

The T.I.V. is fitted into the inlet manifold water rail and controls the vacuum feed to the distributor advance capsule (D.A.C.). At water temperatures below 53° C, the T.I.V. directs a vacuum pump feed to the distributor advance capsule to improve cold driveability, but changes the feed above this temperature to a throttle edge drilling on no. 3 intake tract.

Ignition Solenoid & Throttle Jacking Capsule (T.J.C.)

The ignition solenoid controls the vacuum supply to the throttle jacking capsule, and is switched by an electrical feed from the high temperature switch, fitted into the inlet manifold water jacket between tracts 1 & 2.

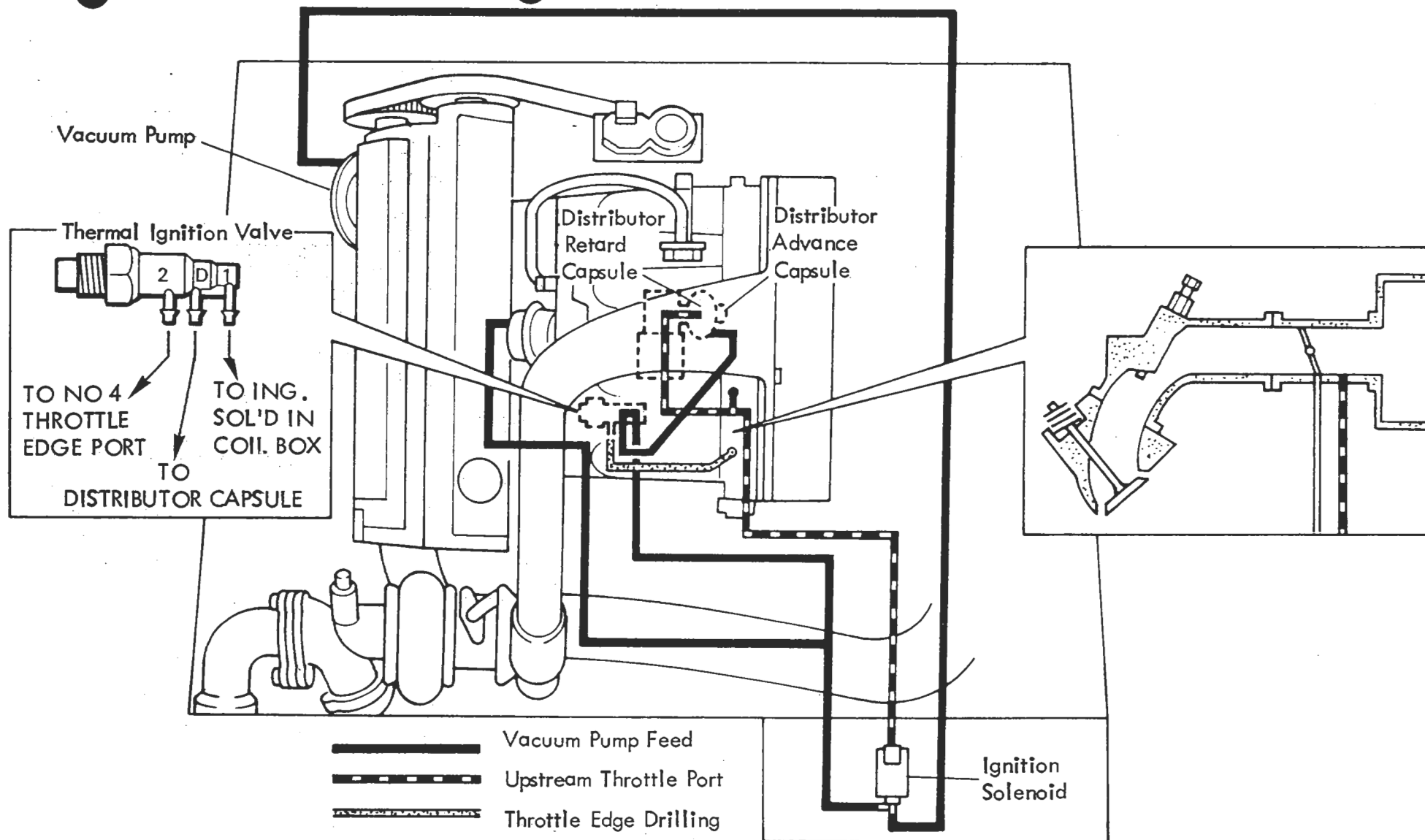
At water temperatures below 70° C the high temperature switch supplies current to the ignition solenoid, which then directs a vacuum pump feed to the T.J.C. to increase cold engine idle speed. Above 70° C the solenoid is de-energised and the T.J.C. connected with the upstream throttle port.

LD. 19 - AIR CONDITIONING IDLE UP SOLENOID

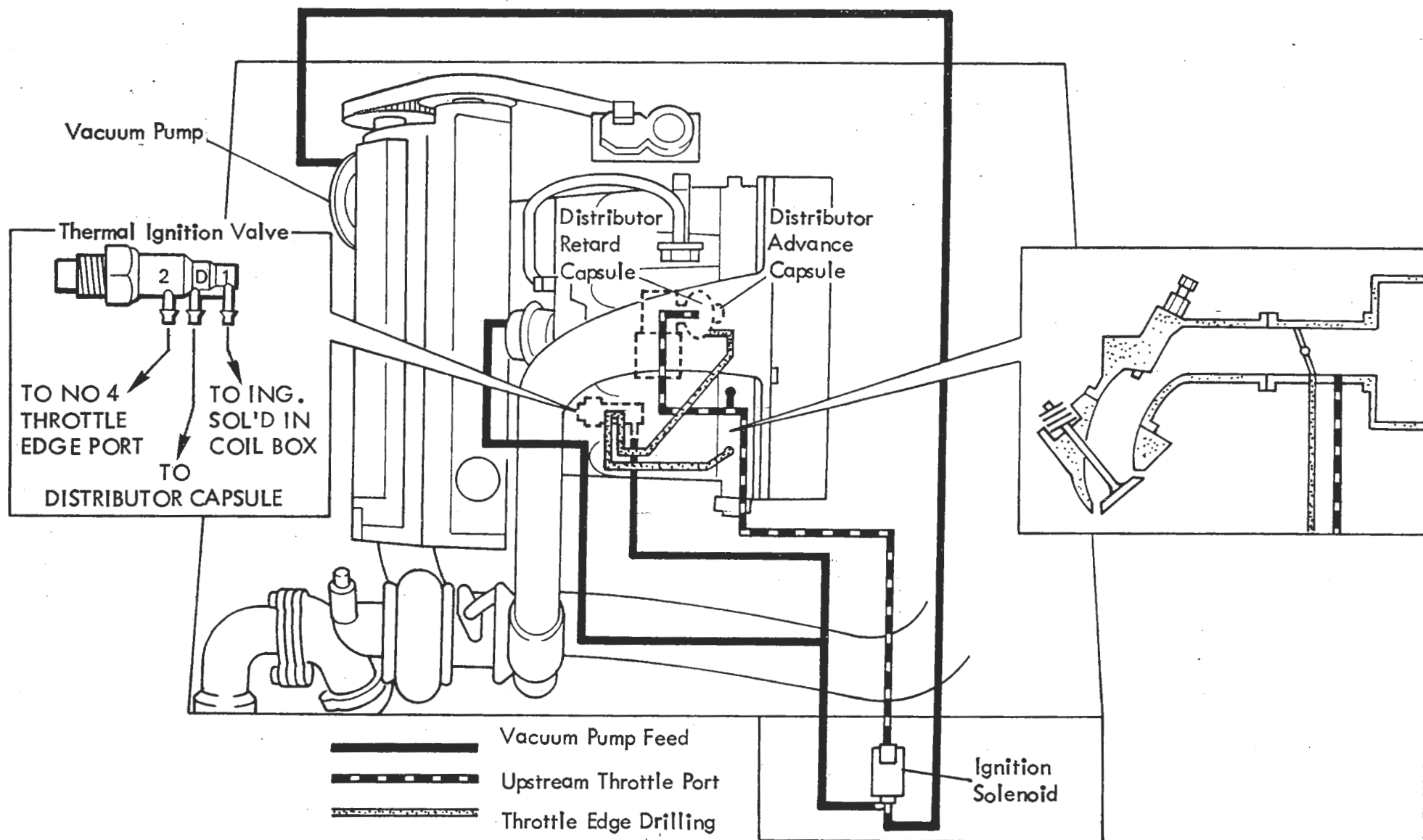
The purpose of the A/C idle up solenoid is to maintain engine idle speed when the air conditioning compressor is operating.

The solenoid is fitted on the RH fuel tank board, and connected by hose between the inlet manifold cold start air rail and the underside of the airflow sensor. The valve is of the 'normally open' type, and is closed when the solenoid is energised.

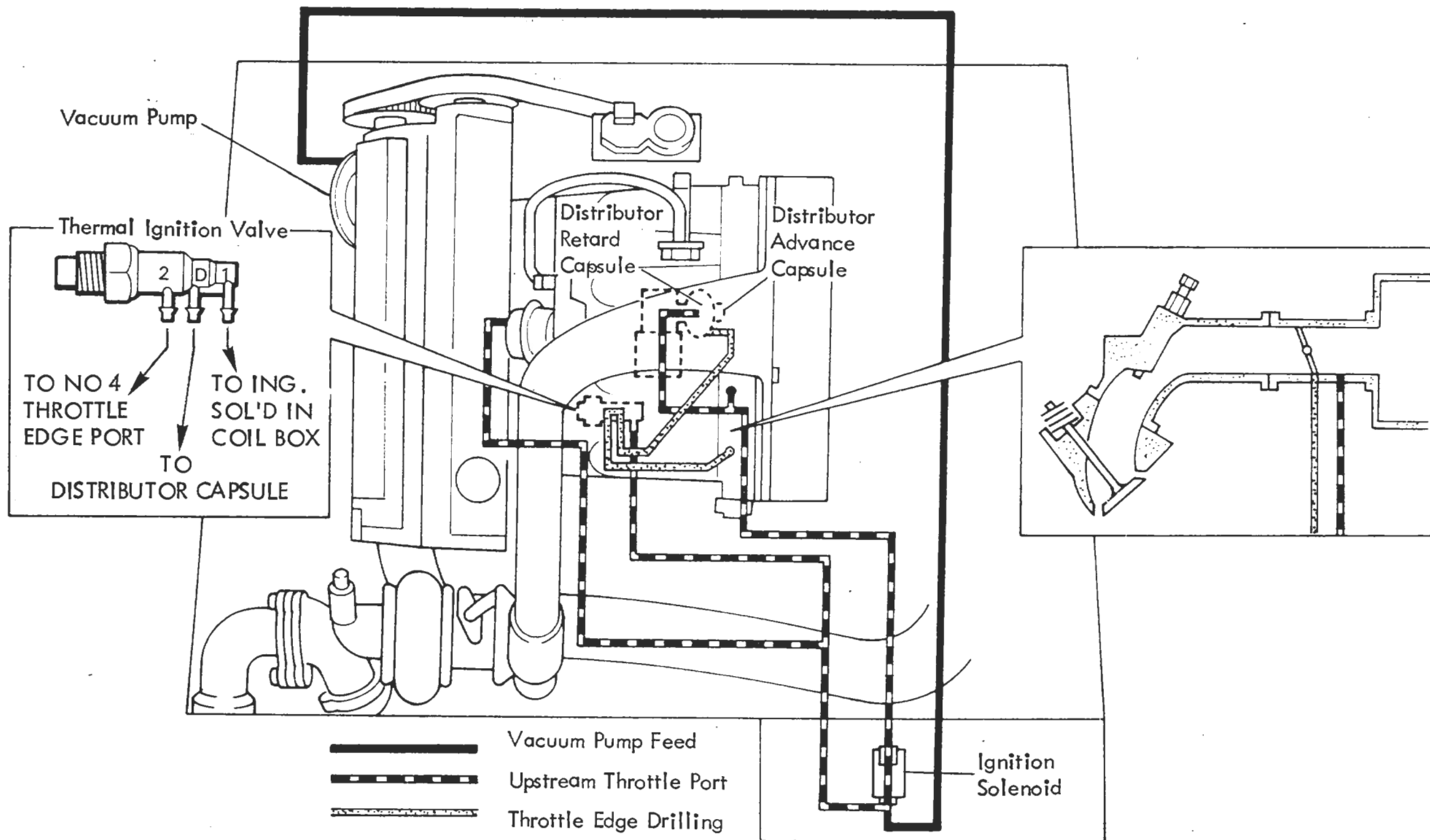
At water temperatures below 70° C the valve is open at all times, to aid cold running and idling. At water temperatures above 70° C the solenoid is energised and the valve shuts. If however, the air conditioning compressor is operating, the solenoid valve de-energises and opens whenever engine speed is below 1400 rpm. (Controlled by the fuel by-pass relay).



VACUUM SWITCHING DIAGRAM - BELOW 53° C WATER TEMP.



VACUUM SWITCHING DIAGRAM - BETWEEN 53° - 70° C WATER TEMP.



VACUUM SWITCHING DIAGRAM - ABOVE 70° C WATER TEMP.

LD. 20 - EVAPORATIVE LOSS SYSTEM

The fuel evaporative loss system includes a charcoal canister, one way valve, and crankcase breather valve.

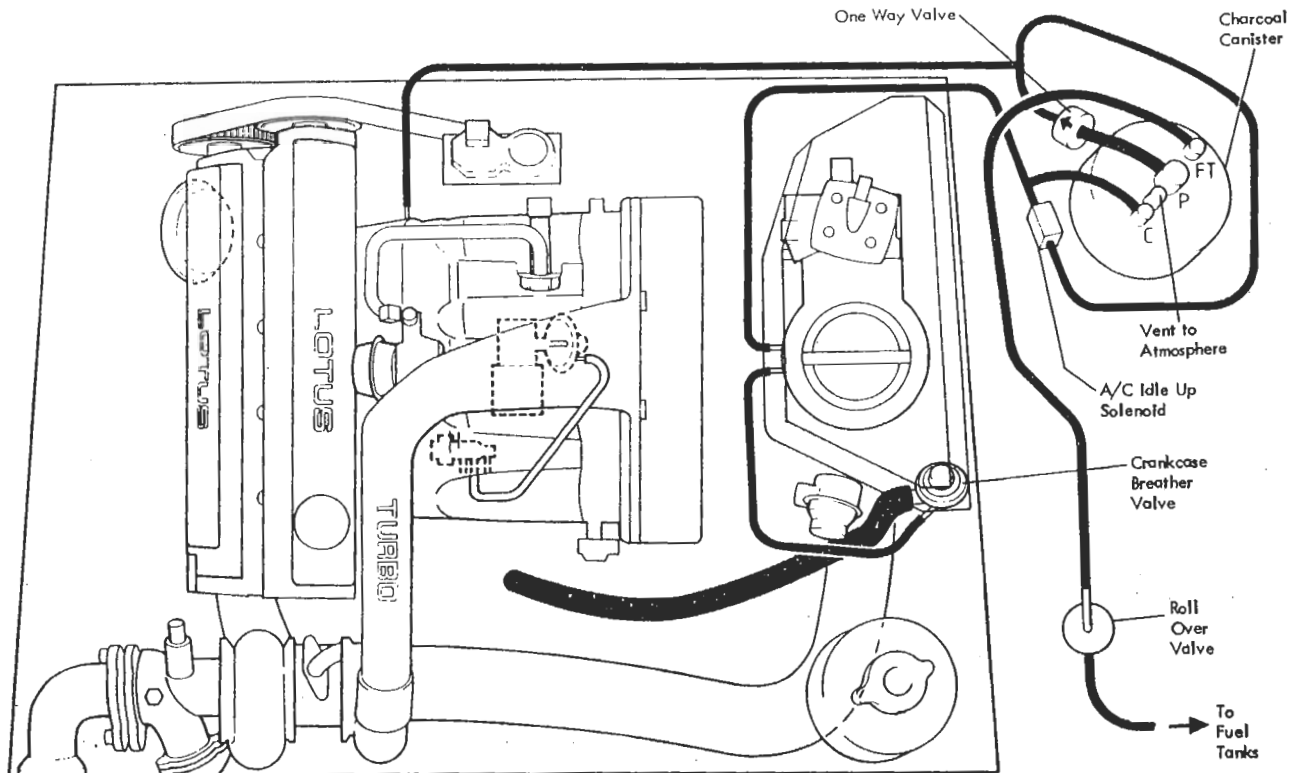
Charcoal Canister

The breather pipes from the fuel tank filler necks are routed via a roll-over valve (to prevent fuel spillage if the car is inverted) to port 'FT' on the charcoal canister, where the fumes are absorbed in charcoal before being purged into the engine.

Similarly, when the engine is stopped, fumes from the intake system are vented to the canister via a hose linking the airflow sensor lower body to canister port 'C'.

In order to cleanse the charcoal of fuel absorbed in this manner, arrangements are made for fresh air to be drawn through the canister and consumed by the engine. Two different connections are used to purge the canister under different engine operating conditions.

Port 'P' on the canister is connected via a one way valve to the inlet manifold cold start air rail, such that when the engine is running at small throttle opening, or on overrun, (i.e. with high manifold vacuum) air is drawn through the canister and one way valve into the inlet manifold, and is then consumed by the engine.



In addition, the small depression below the airflow sensor causes a lesser purge to take place through canister port 'C'.

At water temperatures above 70° C, with wide throttle openings and high rpm, when turbo boost pressure is developed, inlet manifold pressure becomes positive, and the manifold air rail hose is sealed by the one way valve, and A/C idle up solenoid (will not open above 1400 rpm). Purging now takes place through canister port 'C' to the depression (greater now with increased airflow) below the airflow sensor.

Crankcase Breather Valve.

Crankcase fumes are ventilated via the crankcase breather valve into the air cleaner housing. Positive crankcase pressure developed during normal running, is able to vent through the one way breather valve into the air cleaner housing.

In order to prevent these fumes, under low airflow engine idle conditions, escaping through the inlet trunking to atmosphere, the valve is also connected via a smaller bore hose, to the mild depression below the airflow sensor. This enables crankcase fumes at idle to pass directly into the intake tract and suppresses opening of the breather valve.

LD. 21 - ENGINE WARM UP SUMMARY

Engine Cranking

As soon as engine cranking takes place, the rpm relay switches on the fuel pumps and the system is pressurised to 6.5 bar main primary pressure. Air induced into the engine moves the airflow sensor which opens the fuel control valve and allows fuel to be delivered to the injectors. In addition, fuel is supplied by the cold start injector for a period controlled by the thermal time switch. Air by-passes the throttle butterflies via the auxiliary air valve and a/c idle up solenoid valve.

Cold Run - Below 35° C Oil Temp.

When the engine starts, the cold start injector closes, if it has not already done so, but air continues to flow via the auxiliary air valve, which closes as the engine warms. The ignition solenoid directs a vacuum pump supply to the throttle jacking capsule, and to the thermal ignition valve which itself directs the supply to the distributor advance capsule.

The control pressure set by the warm up regulator, is low, but increasing as the engine warms.

The frequency valve is set to run open loop @ 75% duty cycle rate.

Cold Run - Above 35° C Oil Temp., Below 53° C Water Temperature

As 35° C oil temperature is reached, the E.C.U. switches the frequency valve to run 'closed loop' (i.e. controlled by Lambda sensor @ around 50% duty cycle for $L = 1$).

Cold Run - Between 53° and 70° C Water Temp.

When 53° C water temp. is reached, the thermal ignition valve cuts off the vacuum pump supply to the D.A.C. and connects it with the throttle edge drilling.

Normal Running - Above 70° C Water Temp.

When 70° C water temp. is reached, the ignition solenoid cuts off the vacuum pump supply to the throttle jacking capsule.

The a/c idle up solenoid valve opens only at idle with the compressor operating.

LD 22 - FUEL SYSTEM PRECAUTIONS

Always ensure absolute cleanliness when working on any part of the fuel system.

Thoroughly clean around any joint before disconnecting a component.

Pressure is maintained in the fuel system after the ignition is switched off by the action of the fuel accumulator, primary pressure regulator and control pressure shut-off valve. Therefore whenever disconnecting a fuel system joint, take care to use an absorbent cloth to protect from spray, and soak up the small amount of fuel released.

Take all necessary precautions to prevent sparks occurring whilst a fuel joint is disconnected.

Ensure that new sealing washers and gaskets are used on re-assembly, and that all joints are torque tightened in accordance with Section LD 25.

When fuel system tests are being performed involving the collection of fuel from fuel pumps, fuel injectors etc., the very strictest precautions must be taken to prevent sparks occurring in the vicinity of the working area. Any electrical switching necessary in the course of these tests should be performed by the ignition switch, or fuel pump inertia switches.

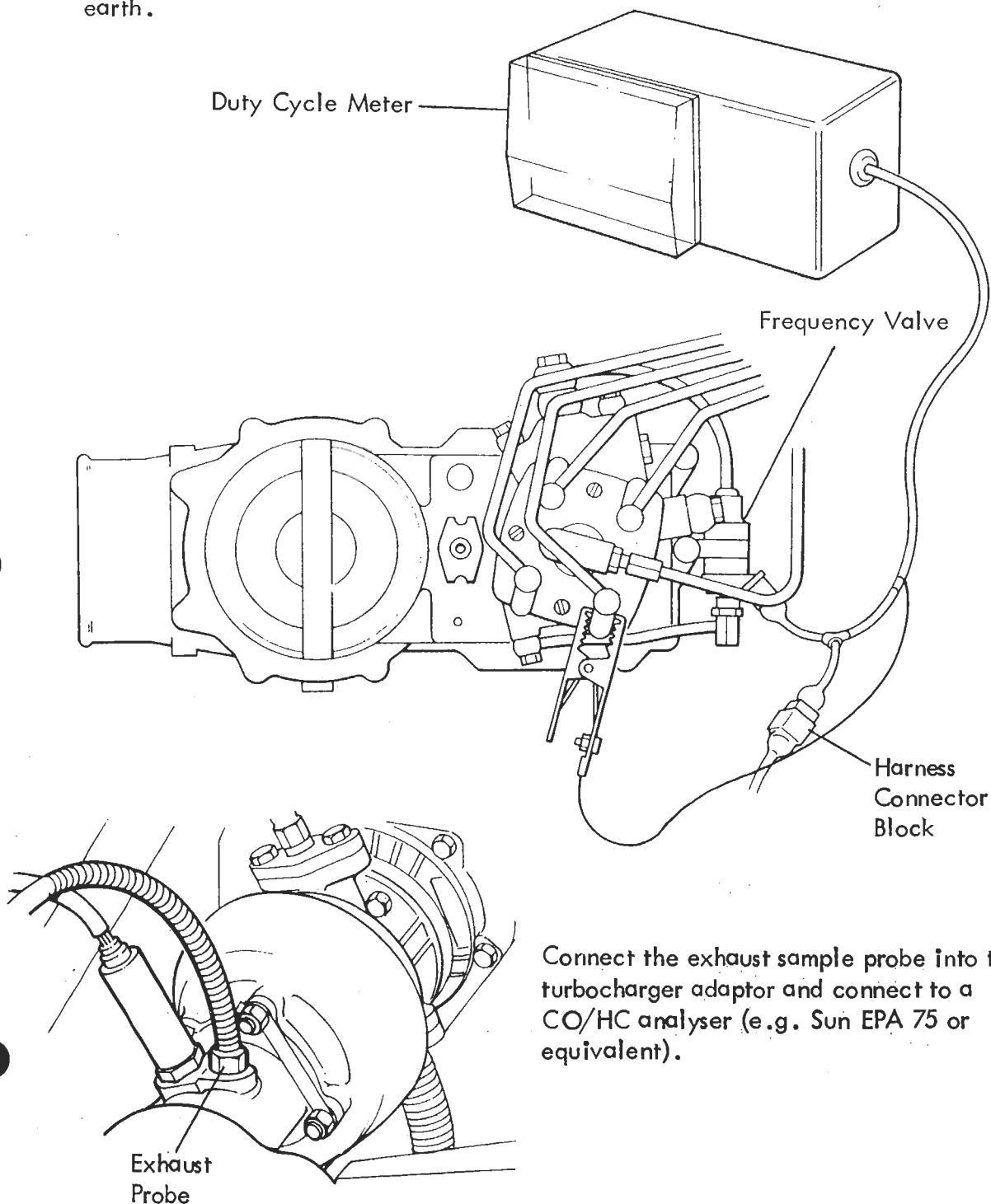
Ensure the working area is well ventilated

LD 23 ENGINE MANAGEMENT SYSTEM CHECK/SET UP PROCEDURE

Tools Required

- i) Duty Cycle Meter T000T0567
- ii) Continuity Meter T000T0568
- iii) Exhaust Sample Probe T000T0501
- iv) Stroboscopic Timing Light (proprietary)

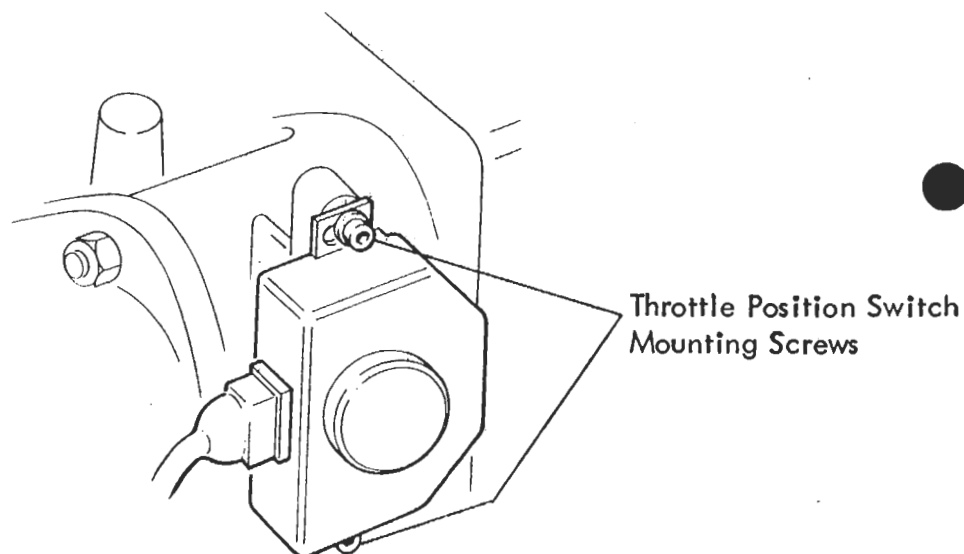
1. Connect the duty cycle meter to the frequency valve:
The frequency valve is located ahead of the fuel distributor. Disconnect the electrical plug from the valve and plug in the meter to both the valve, and the harness connector block as shown. Connect the crocodile clip to a good earth.



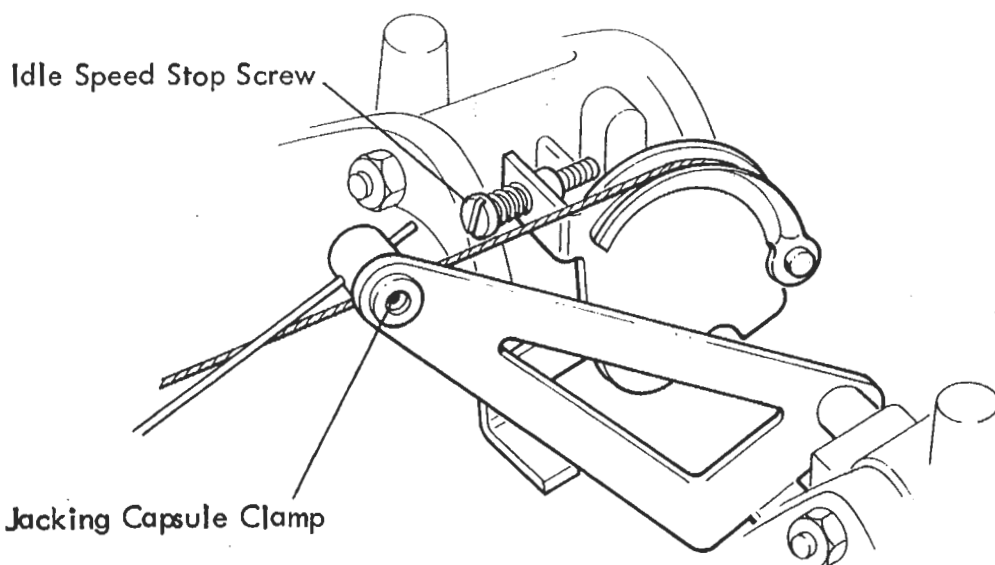
Connect a stroboscopic timing lamp to No. 1 spark plug lead and remove grommet from clutch bell housing.

Start engine and run until normal operating temperature is reached (water temp. above 80°C).

2. Check idle speed. 950 ± 50 rpm.
DO NOT ADJUST IDLE SPEED WITHOUT FIRST SLACKENING THROTTLE POSITION SWITCH MOUNTING SCREWS ON REAR OF No. 3/4 THROTTLE BODY.



If adjustment is required, first slacken the throttle position switch screws, and then adjust idle speed at the stop screw between throttle bodies 2 and 3.

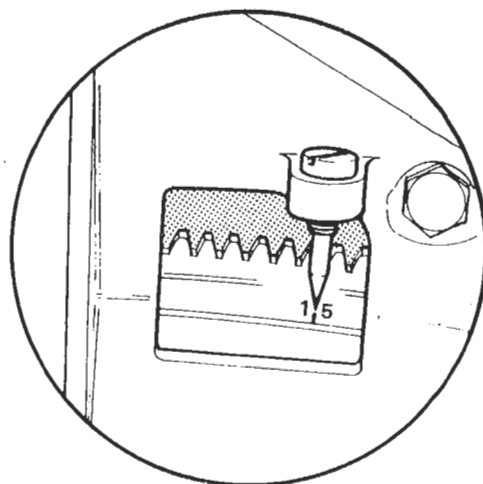


Adjust throttle cable to suit if necessary.

After adjustment, connect continuity meter T000T0568 to the throttle position switch, and rotate switch until continuity is JUST made. Tighten screws and recheck setting.

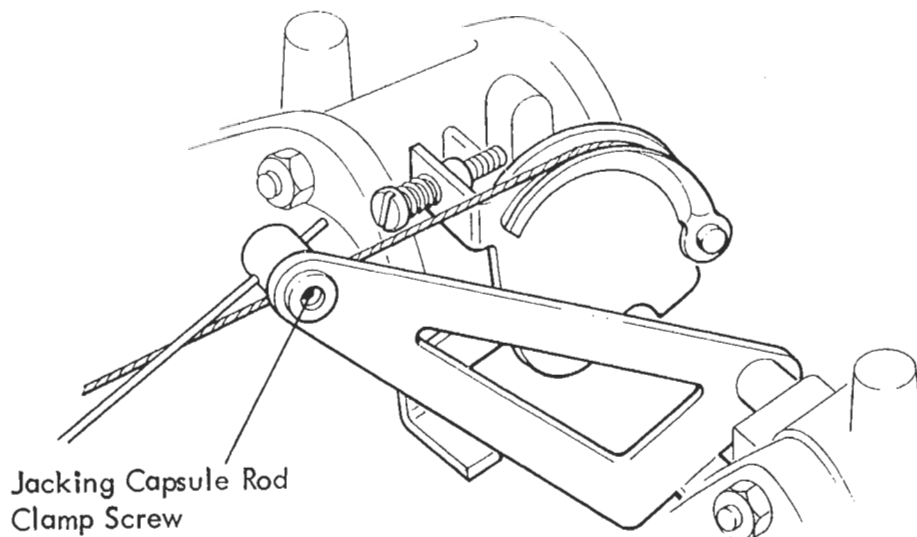
3. Check ignition timing at idle: 15° BTDC using the strobe and flywheel timing mark.

View of Clutch Housing Timing Aperture



Adjust, if necessary, at the distributor clamp. (Special Socket T000T0503)

4. Check throttle jacking capsule adjustment:
Bridge connections to inlet manifold high temperature switch (use a spare fuse) to activate the capsule. Engine speed should hold at 1300 to 1500 rpm. Adjust if necessary at the clamp between capsule rod and throttle lever.
Remove electrical bridge and re-check idle speed.



5. Check duty cycle is between 45 - 55% with a 5 to 6% cyclic variation. The cyclic variation (flicking back and forth over a 5 to 6% range) indicates that the 'closed loop' feedback system is operating with the mixture strength constantly being amended by the frequency valve in conjunction with the Lambda sensor and E.C.U.
A steady reading indicates that an open loop circuit is operating (see Electronic Control Unit and wiring diagrams).
Check the CO level is 0.8% \pm 0.5% and the HC level, as Hexane, is less than 500 ppm.

If the duty cycle or exhaust gas analysis are outside specification, remove the wiring grommet from the LH engine bay wall, and extract the Lambda sensor electrical connector. Disconnect the single spade connector to obtain an open loop exhaust gas reading. (Larger connector block is Lambda heating coil). If the mixture setting is correct disconnecting the Lambda sensor should have no effect on idle rpm.

Refer to the following table:

Closed Loop Duty Cycle	CO Readings		Remark	See Section
	Closed Loop	Open Loop		
45 - 55 %	O.K.	O.K.	System Satisfactory	
	High	High	i) Sensor Faulty	
			ii) Injector Distribution	LD 24E 3
			iii) Throttle Imbalance	LD 24P
Over 55%	O.K.	Low	i) M.C.U. Setting too Lean	LD 24H
			ii) Inlet System Air Leak	LD 24O
	High	O.K.	i) Exhaust System Leaking	LD 24O
			ii) Sensor Faulty	
Under 45%	O.K.	High	M.C.U. Setting too Rich	LD 24H
	Low	O.K.	Sensor Faulty	

LD 24 - FUEL INJECTION FAULT DIAGNOSIS

Note: When using this chart it is assumed that the general engine condition is satisfactory and ignition system is adjusted correctly. It is also assumed that the electrical system, including the safety cut-out circuit for the petrol injection system, has been checked and is in good working condition.

SYMPTOM

POSSIBLE CAUSE

Engine does not start in cold condition	Engine does not start in warm condition	Engine starts poorly in cold condition	Engine starts poorly in warm condition	Irregular idling during warm-up phase (shakes)	Engine backfires into intake manifold	Engine backfires into exhaust system	Driving performance unsatisfactory	Engine runs 'on'	High petrol consumption	CO level during idling too high	CO level during idling too low	Idle-speed cannot be adjusted (too high)
o	o											
		o		o								
			o	o	o			o				
			o	o	o							o
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Electric fuel pump faulty
 'Cold' control pressure outside specification
 'Warm' control pressure too high
 'Warm' control pressure too low
 Auxiliary air valve does not close
 Auxiliary air valve does not open
 Cold start injector does not operate
 Cold start injector leaking
 Primary fuel pressure outside specification
 Sensor plate rest position incorrect
 Sensor plate and/or control plunger sticking
 Vacuum system leaking
 Overall fuel system leaking
 Fuel injector(s) leaking or opening pressure low
 Basic mixture adjustment too rich
 Basic mixture adjustment too lean
 Throttle does not open/close completely
 Thermo time switch does not close
 Fuel by-pass valve
 Throttle jacking capsule
 Throttle position switch
 Air leaks in exhaust/inlet
 Throttle imbalance
 E.C.U. faulty. See electrical LD 26/27/28

See Sub-Section

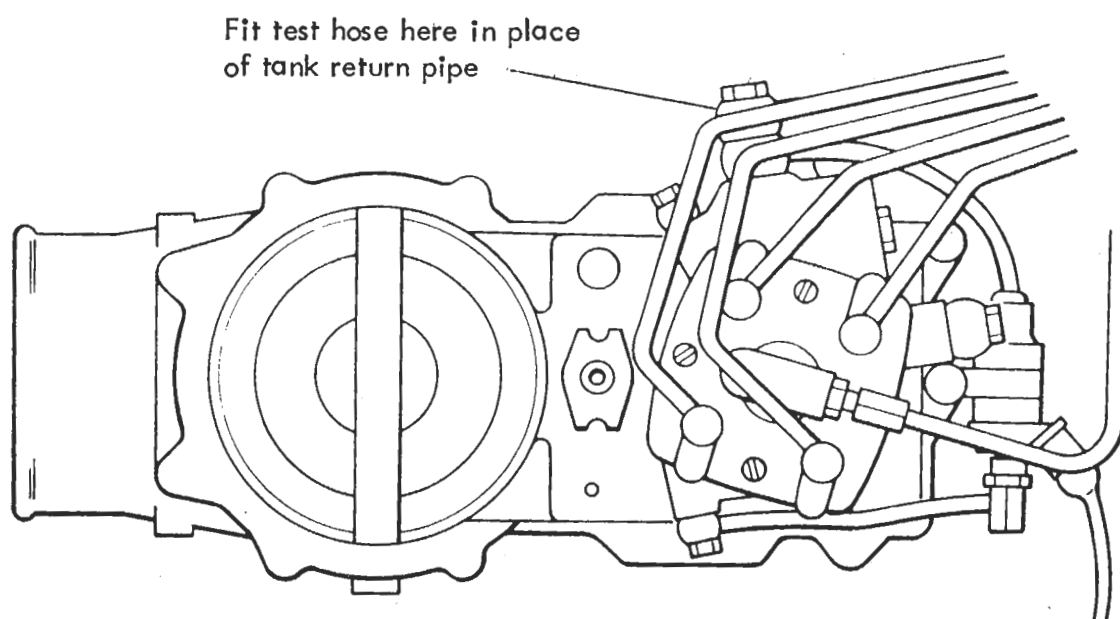
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A - FUEL PUMPS

1. Check inertia switch and fuel pump fuses. (LD 26).
2. Remove fuel pump control relays and fit electrical test bridges T000T0569. The fuel pumps should be heard running. If no sound is heard, refer to LD 26/27/28 for electrical diagnosis.
3. With pumps running, check voltage drop at terminals of both pumps. Minimum = Engine Running: 11.5 V, Engine Stopped: 10.0 V. Remove test bridges from pump control relay bases. To check that sufficient fuel is supplied to the injection system:

Tools required:	Test Hose	T000T0579
	Graduated Flask	T000T0582
	Electrical Test Bridges	T000T0569

4. Check Fuel Return Quantity from Distributor
Fit the test hose T000T0579 to the fuel distributor return connection (see Fuel System Precautions LD 22) and place into graduated flask

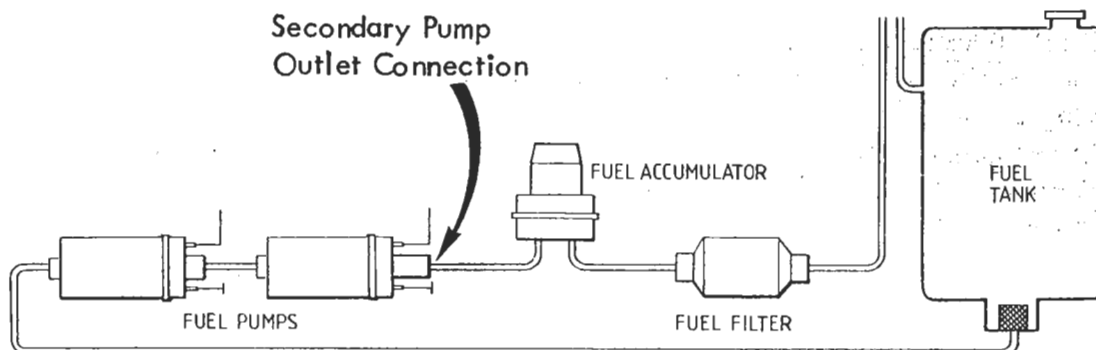


Trip inertia switch and fit electrical test bridges T000T0569 to fuel pump control relay bases.
Press down inertia switch for a short time to prime the system. Empty flask.
Press down inertia switch for exactly 30 seconds and measure quantity of fuel delivered.
Specification: 1250 \pm 100cc

If the quantity is insufficient:

5. Check Fuel Delivery Quantity at Secondary Pump Outlet:

Fit the test hose to the secondary fuel pump outlet connection, and place end in graduated flask.



Trip inertia switch and fit electrical test bridges to fuel pump control relay bases. Press down inertia switch for exactly 30 seconds, and measure fuel quantity delivered.

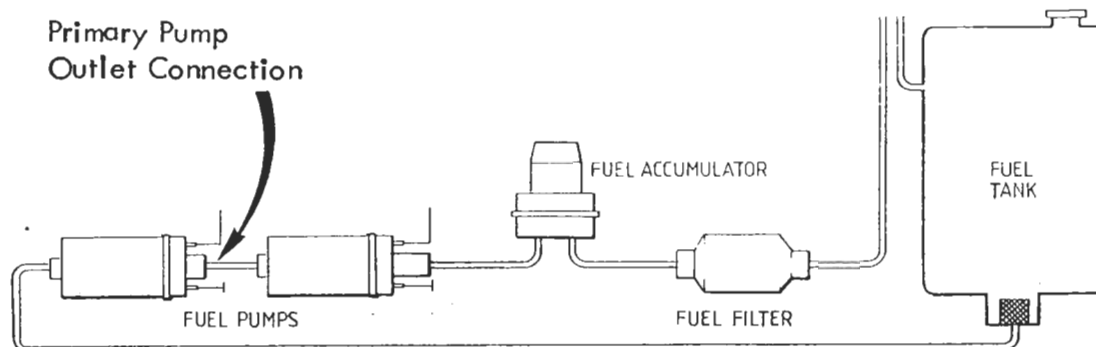
Specification: $1850 \pm 100\text{cc}$

If delivery is OK, replace the fuel filter.

If below specification:

6. Check Fuel Delivery Quantity at primary Pump Outlet

Fit the test hose to the primary pump outlet connection, and place end in graduated flask.



With electrical test bridges fitted, press down inertia switch for exactly 30 seconds and measure fuel quantity delivered.

Specification: $1800 \pm 100\text{cc}$

If delivery is below specification, disconnect supply pipe from pump and provide with alternative known supply. Repeat test.

If delivery is now OK, clean, repair or replace tank. If delivery insufficient replace primary fuel pump.

B - FUEL PRESSURES

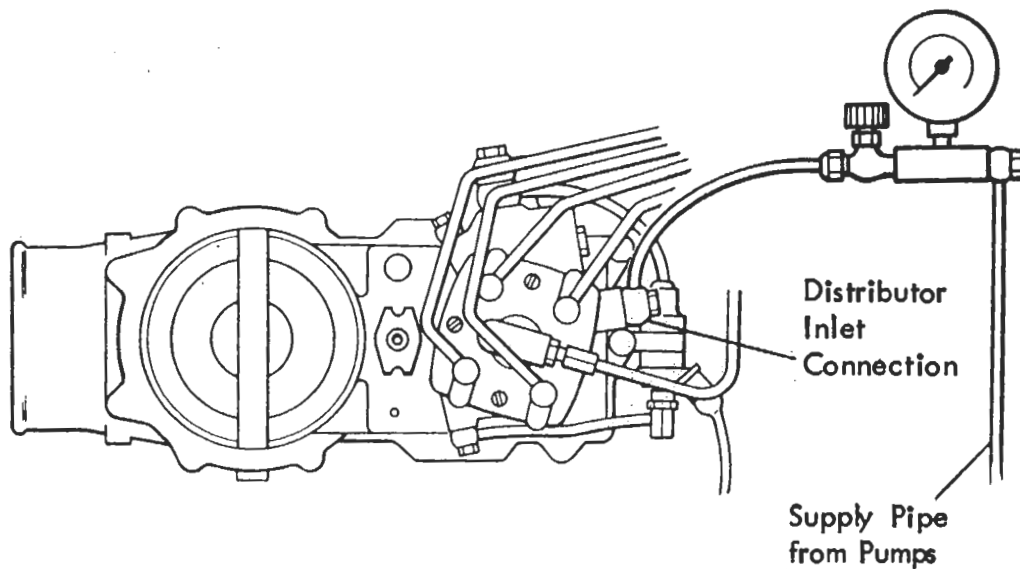
Tools required: Test Gauge T000T0575
Electrical Test Bridges T000T0569

1. Check Primary Pressure

Trip inertia switch, remove fuel pump control relays and fit electrical test bridges into relay bases.

Fit test gauge to fuel distributor inlet connection with gauge valve toward distributor. (see Fuel System Precautions LD.22)

Ensure gauge valve is OPEN



Press down inertia switch and record primary fuel pressure from gauge.

Trip inertia switch.

Specification: 6.0 - 6.8 Bar @ 20°C

If pressure is below specification:

2. Check Supply Pressure to Fuel Distributor

i) Check gauge valve is fully open.

ii) Press down inertia switch and gradually close gauge valve very slowly until pressure rises to 10.0 Bar. DO NOT close gauge valve further as pressures in excess of 10 Bar are liable to cause damage to the system and/or gauge.

iii) Trip inertia switch

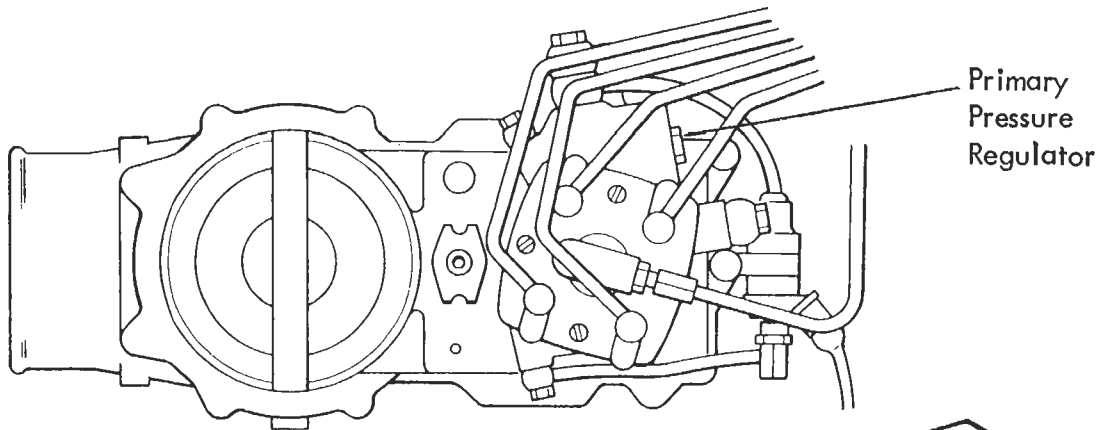
Specification: At least 10.0 Bar

If pressure is below specification, check quantity of fuel delivered at secondary fuel pump outlet (see LD 24 A5).

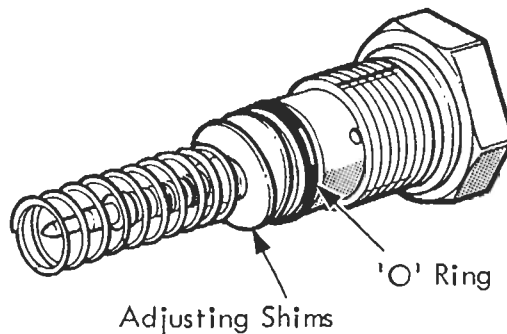
If supply pressure to distributor is OK, but primary pressure too low:

3. Adjust Primary Pressure Regulator

Remove the pressure regulator from the fuel distributor by unscrewing the hexagonal nut shown (see Fuel System Precautions LD. 22).



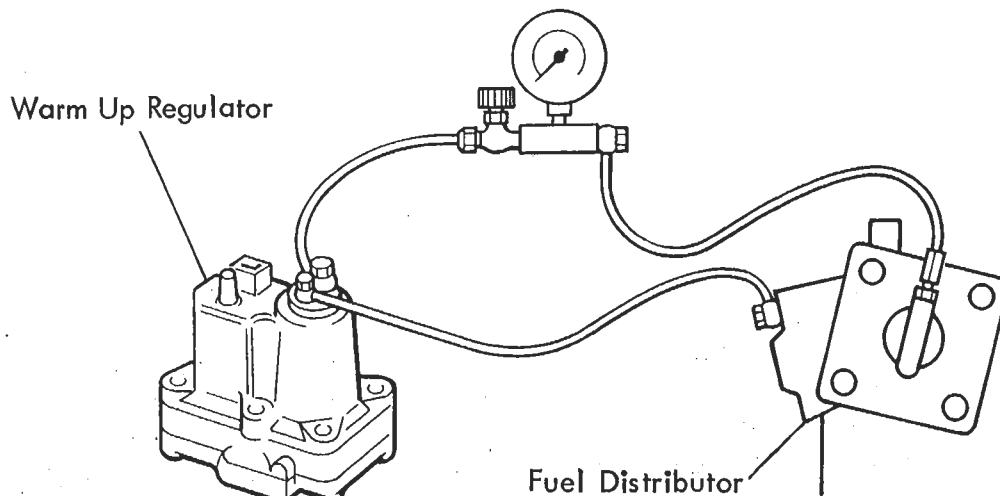
NOTE
THIS ITEM SHOULD NEVER
REQUIRE ATTENTION UNDER
NORMAL CIRCUMSTANCES



Adjust the shim pack as necessary to correct primary pressure - adding 0.1mm shim thickness increases pressure by about 0.15 bar.
Renew 'O' ring and replace regulator into distributor.
Re-test primary pressure.

4. Check Cold Control Pressure

Carry out this test ONLY at an ambient temperature of 30°C or lower.
Fit the test gauge to the warm up regulator as shown.
(See Fuel System Precautions LD.22).

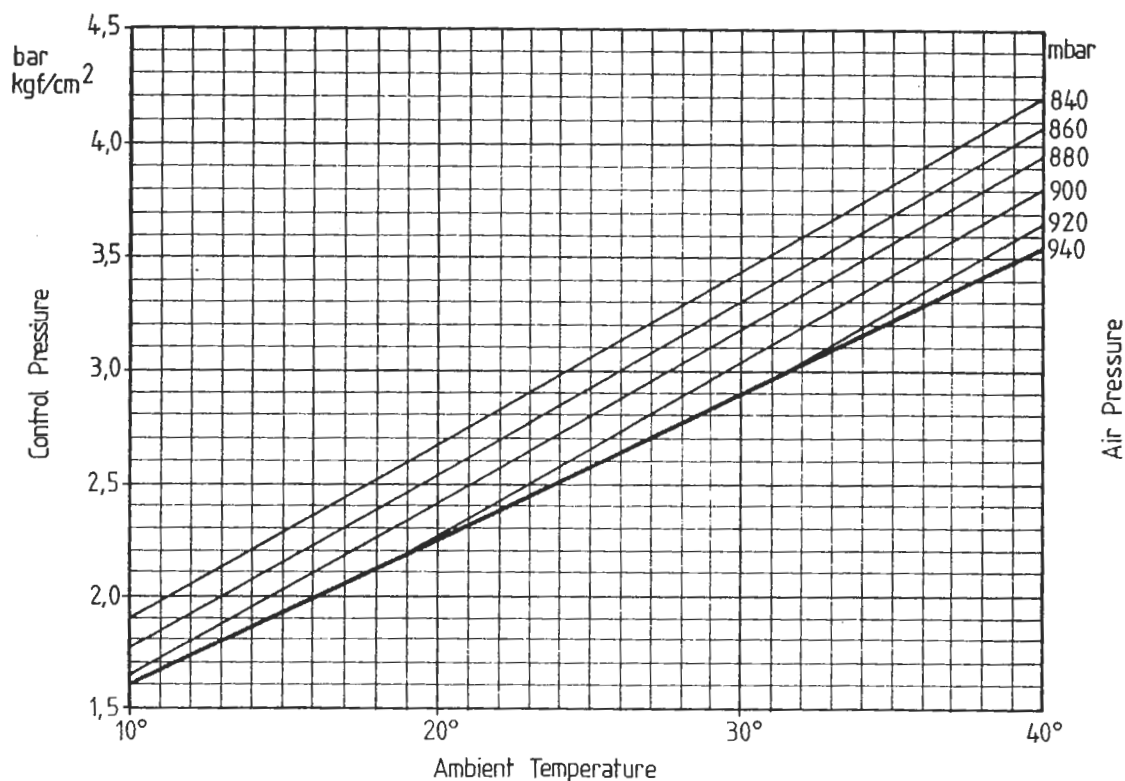


Open gauge valve.

With test bridge fitted, see (1), press down inertia switch and record cold control pressure from gauge. Trip inertia switch.

Compare the reading obtained with the graph shown.

"Cold" Control Pressure



The basic curve applies for an air pressure of 947 mbar and higher (corresponding to sea level up to an altitude of about 600 m above sea level).

Permissible tolerance of the basic curve: ± 0.2 bar.

If the site where the measurements are made is located at higher altitudes, it is essential that the exact air pressure is known on the day when the measurements are made in order to determine the correct control pressure. (Use an accurate barometer, or ask the weather bureau or an airport if one or the other is near and at the same altitude).

Tolerance of the control-pressure altitude curves: ± 0.25 bar.

If the "cold" control pressure differs from the nominal value, replace the warm-up regulator.

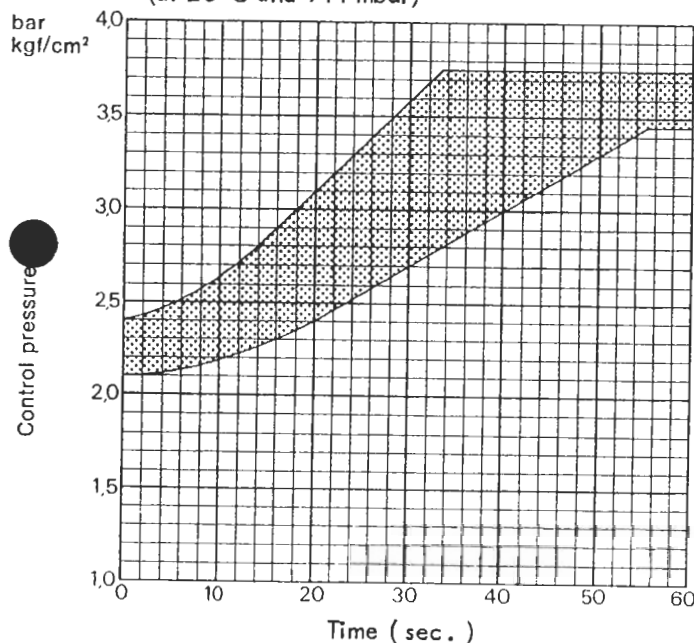
5. Check Warm Control Pressure

With the test gauge fitted as in (4), (gauge valve open) remove the electrical test bridges, refit fuel pump control relays, and press down inertia switch. Start engine and observe gradual rise in control pressure. When the warm up regulator bimetal strip is fully heated the pressure will stabilise. Record reading and switch off.

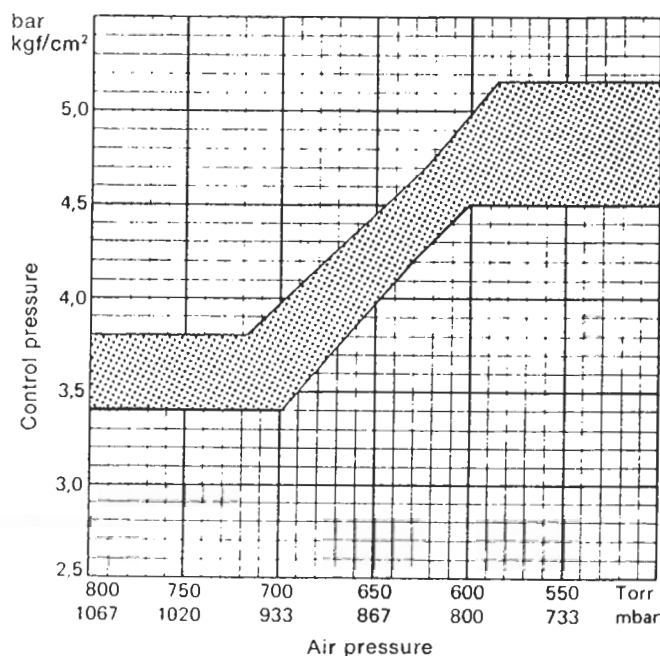
The nominal control pressure should be read from the curve in accordance with the air pressure.

The effect of the altitude compensation begins at an air pressure of about 933 mbar, i.e. starting at about 600 m. At higher altitudes it is essential that the exact air pressure is known on the day when the measurements are made. (Use an accurate barometer, or ask the weather bureau or an airport if one or the other is near and at the same altitude).

Time taken to achieve Warm Control Pressure
(at 20°C and 944 mbar)



Effect of Altitude on Warm Control Pressure



If the control pressure does not rise from the cold setting, check the feed and earth connections at the warm up regulator.

If warm control pressure is outside specification, replace warm-up regulator.

6. Check for Fuel System Leaks, Internal & External

With the fuel pumps running, carry out a thorough visual inspection of all fuel system connections.

With the test gauge fitted as in (4) and with the gauge valve open, start engine and switch off when 'warm' control pressure is reached. Observe and record the drop in pressure with time.

Specification: Minimum 3.0 Bar after 30 mins.

If the pressure drops too quickly, repeat the test, closing the gauge valve as the engine is switched off, thus isolating the control pressure circuit.

If the same result is found, the leak is in the primary pressure circuit. If however, the second result is within specification, the leak is in the control pressure circuit.

Possible causes of primary pressure leak:

- i) Non return valve in secondary fuel pump. Replace pump.
- ii) Leak from cold start valve or fuel injector. (see Section D & G).
- iii) 'O' ring in primary pressure regulator leaking. Replace 'O' ring.
- iv) Fuel accumulator leaking past diaphragm. Replace.

Fit the pressure gauge at the fuel distributor inlet connection, and at the secondary fuel pump outlet connection (see Section 'A') and record rate of pressure drop to establish faulty component.

Possible causes of control pressure leak:

- i) Control pressure shut off valve leaking. Replace.

Use new sealing washers whenever re-making a fuel system connection, and refer to fuel system torque settings Section LD 25.

C - AUXILIARY AIR VALVE

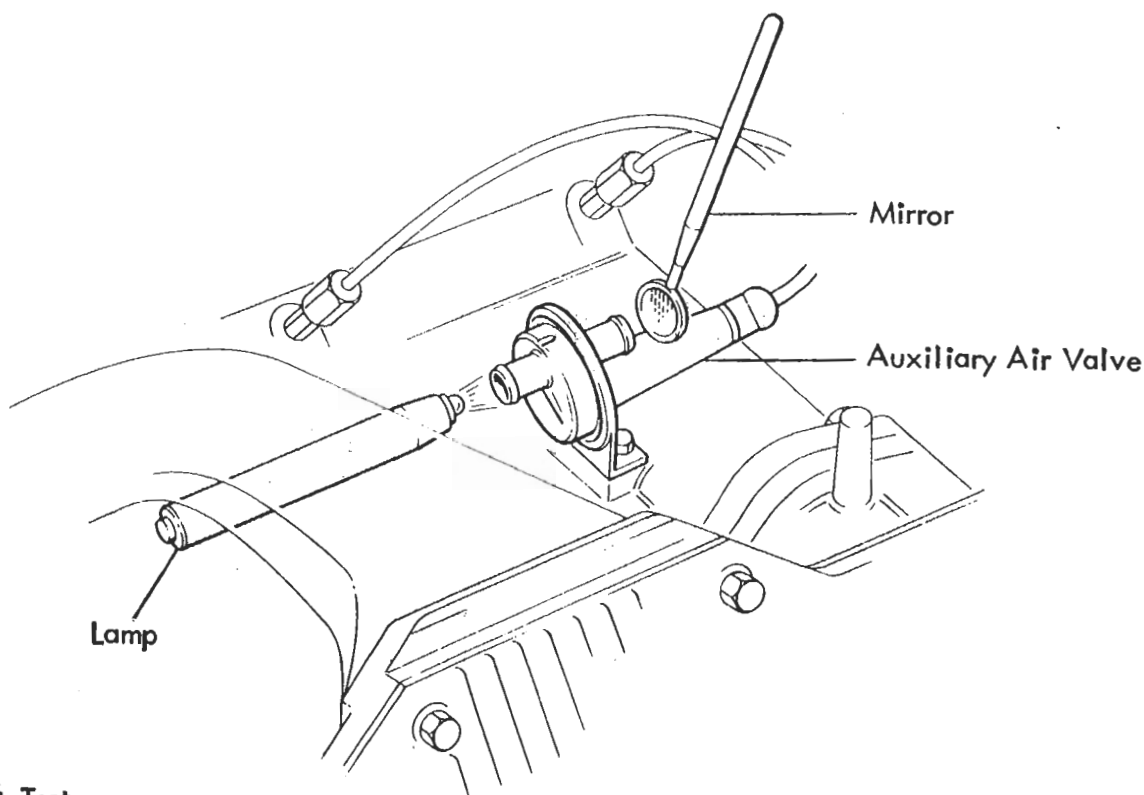
Cold Test

If the engine is not cold, the valve may be removed and cooled by freezer.

Remove both hoses from the unit, and with the aid of a mirror and lamp, observe the position of the valve plate, which should be partially open, dependent on temperature.

If the valve is completely closed, replace the auxiliary air valve.

Quick Test: Clamping off an air valve hose on a cold engine should reduce idle rpm.



Hot Test

Disconnect RPM relay and bridge connector block terminals 30 and 87.

After a maximum of 5 minutes the auxiliary air valve must be completely closed aided if necessary by tapping the valve assembly with a soft faced mallet to compensate for lack of engine vibration.

If the valve does not close completely, check the electrical feed to the valve and resistance of the valve heating coil for open circuit. Replace if defective.

Quick Test: Clamping off an air valve hose on a warm engine should have no effect on idle rpm.

D - COLD START INJECTOR

Disconnect the cold start injector electrical plug and release injector, with pipe attached, from inlet manifold. Taking care not to kink the fuel pipe, place the injector in a glass jar, or graduate, and fit electrical test lead T000T0570. Connect test leads to ignition coil terminals. Switch on ignition and press test lead button. Fuel should spray from the injector. If no spray, check electrical feed and, if necessary, renew cold start injector.

If spray is OK, switch off ignition and wipe injector nozzle clean. Remove electrical test lead and refit cold start injector plug. Switch on ignition and observe valve for one minute, during which time no fuel should be seen to seep from the valve. Refit injector to manifold.

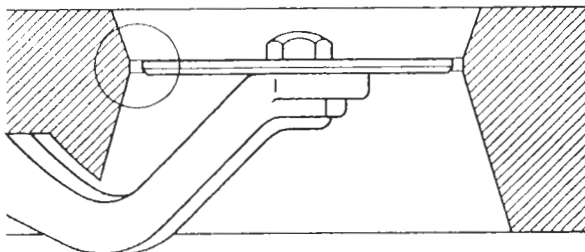
E - SENSOR PLATE

1. Remove the air cleaner body for access to the sensor plate. Check that the sensor plate is concentric with and can move freely through the narrowest part of the air funnel.

Re-position if necessary after loosening the plate fastening screw, and re-tighten to 0.51 - 0.56 kgf.m (3.7 - 4.1 lbf. ft.).

2. Remove fuel pump control relays, and fit electrical test bridges T000T0569 into relay bases for about 10 seconds to run the fuel pumps and apply control pressure to the fuel control valve in the fuel distributor. Remove test bridges.

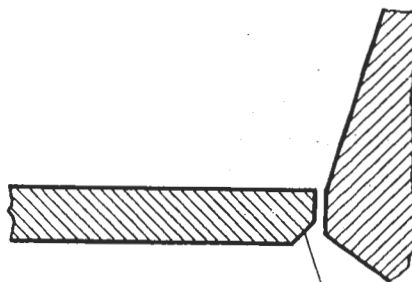
Check the rest position of the sensor plate.



The upper edge of the sensor plate must be flush with the top edge of the funnel's narrowest section, as shown. A position up to a maximum of 0.5 mm higher is permissible, but the lower edge of the sensor plate must not project at any point on its circumference above the funnel narrow section.

NOTE:

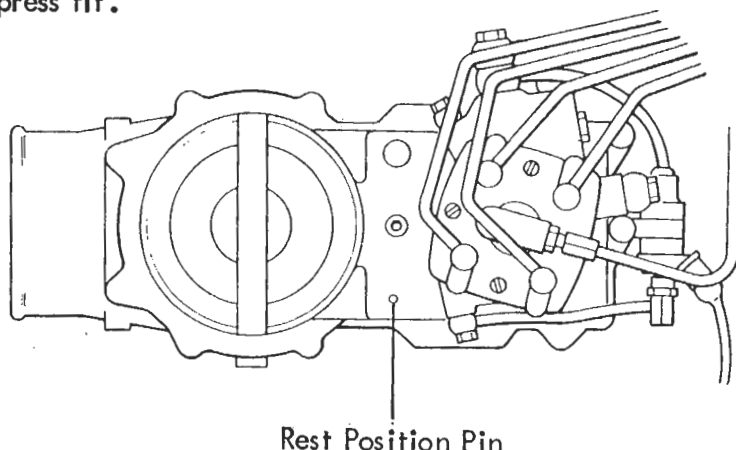
The lower edge of the sensor plate is chamfered. Ensure the plate is fitted the correct way up, with the word 'TOP' uppermost and the chamfered edge on the underside.



Chamfered edge on bottom

If the sensor plate rest position is too high, the stop pin for the rest position spring may be adjusted by the careful use of a pin punch and light hammer.

CAUTION: Take care not to over adjust, as the mixture control unit must then be removed for the pin to be knocked back. Repeated adjustments will loosen press fit.



Rest Position Pin

If adjustment has to be made, also check ignition system as the likely cause of sensor plate mal-adjustment is backfire down inlet system.

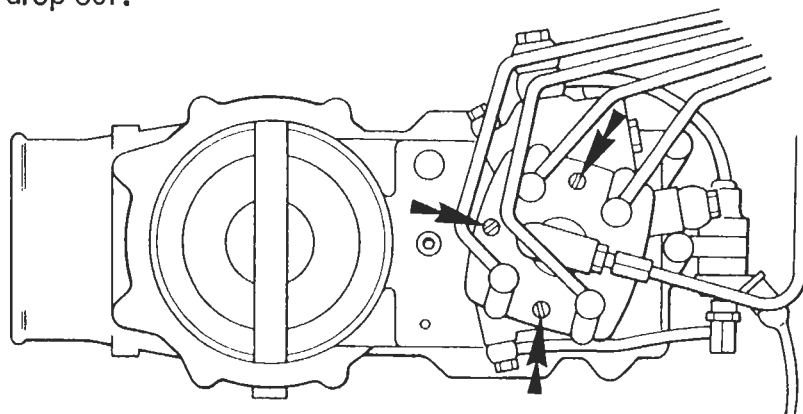
3. Check the free movement of the airflow sensor and fuel distributor control valve, and comparative fuel delivery between injectors. Remove each injector from manifold (leave pipe attached) and place in graduated flask T000T0594J. Trip inertia switch. Remove fuel pump control relays and fit electrical test bridges T000T0569 into relay bases. Depress inertia switch.
 - a) Press down the airflow sensor. The same resistance must be felt over the entire movement.
Move the sensor plate rapidly back to a position just in front of the zero stop. The control plunger follows this rapid movement of the sensor plate only sluggishly, and therefore initially loses contact with the sensor plate lever. It must be possible, however, to feel the plunger make contact with this lever again. If this condition is fulfilled, the control plunger can be considered to move freely.
 - b) Check that the control lever moves freely; press the sensor plate to its full deflection again, and then release it. The sensor plate should snap back to the zero position and bounce up about twice from the spring-loaded stop.
 - c) Trip inertia switch and remove test bridges.
Compare quantity of fuel delivered from each injector.
Maximum permissible difference between any two injectors: 7.0 %
If this tolerance is exceeded, interchange injectors and/or injector feed pipes, and repeat test to establish whether fault lies with injector, feed pipe, or fuel distributor. Replace parts as necessary.

If the sensor control lever is found not to move freely, free pivot as necessary, or replace airflow sensor.

If the control plunger does not move freely, remove fuel distributor for access to plunger:

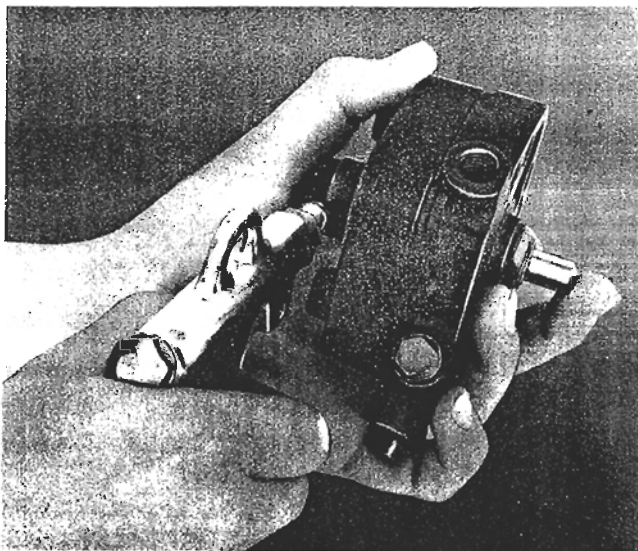
See Fuel System Precautions LD. 22

- i) Use a cloth to absorb the small amount of pressurised fuel released when the warm up regulator feed pipe is gradually slackened from the distributor. Release all other fuel pipe connections to the fuel distributor taking all precautions necessary to minimise fire hazard.
- ii) Release the three screws securing the distributor to the air flow sensor body and remove distributor taking care that the control valve does not drop out.



Distributor
Fixing
Screws

- iii) Remove the plunger - under certain conditions, in order to do this it may be necessary to blow compressed air against the plunger through the control - pressure connection hole. Hold the plunger with your hand while doing this.



Clean the plunger thoroughly with petrol. If the plunger still does not move freely, replace the fuel distributor.

- iv) Refit the fuel distributor using a new sealing ring between distributor and airflow sensor body. Tighten the three fixing screws to 0.32 - 0.38 kgf.m (2.3 - 2.7 lbf. ft.). Refit fuel pipes to distributor using new sealing washers and tightening M8 bolts to 8.3 kgf. m (7 lbf. ft.), M10 bolts to 2.0 kgf.m (15 lbf. ft.).
- v) Carry out the mixture setting up procedure described in LD 23 - H.

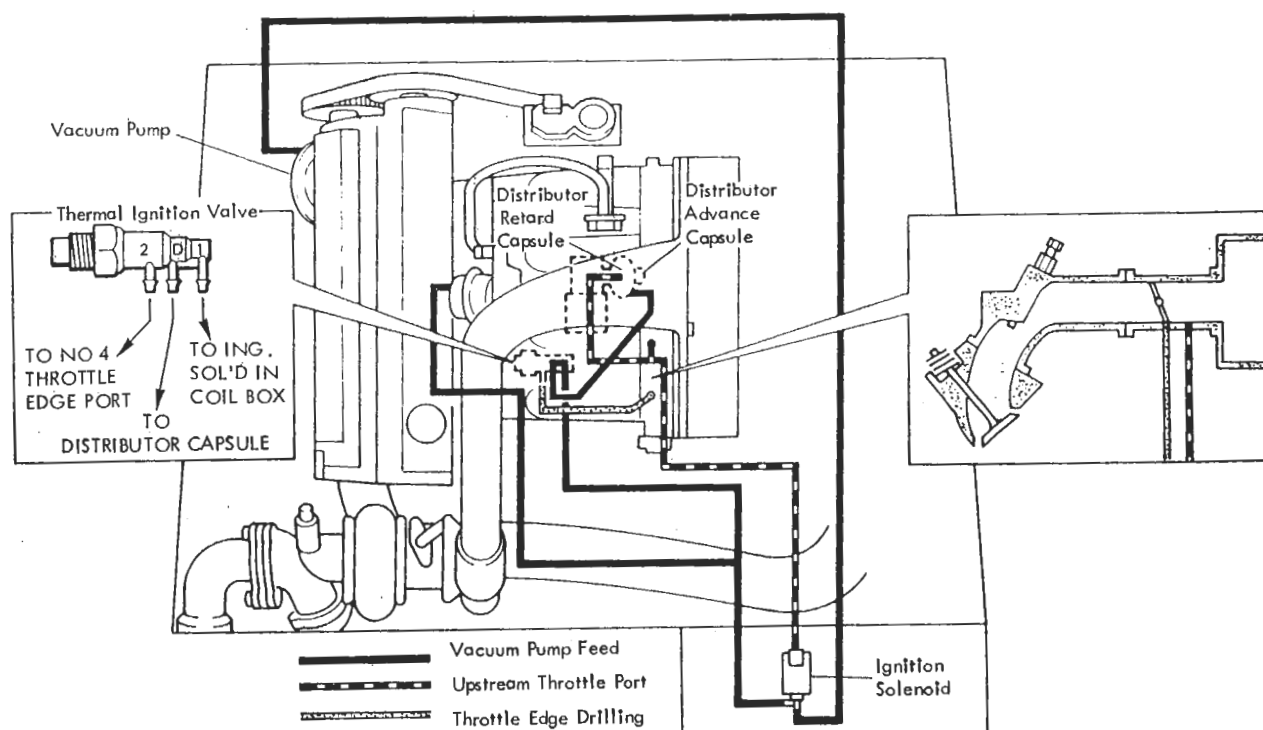
F - VACUUM SUPPLY

Use the vacuum switching diagram and a 0.30 in. Hg vacuum gauge to measure the vacuum available at the ignition solenoid, throttle jacking capsule, thermal ignition valve, and distributor advance capsule under the different engine coolant temperatures. A minimum of 18 in. Hg should be recorded at any point in the vacuum line switched to the vacuum pump (with engine running).

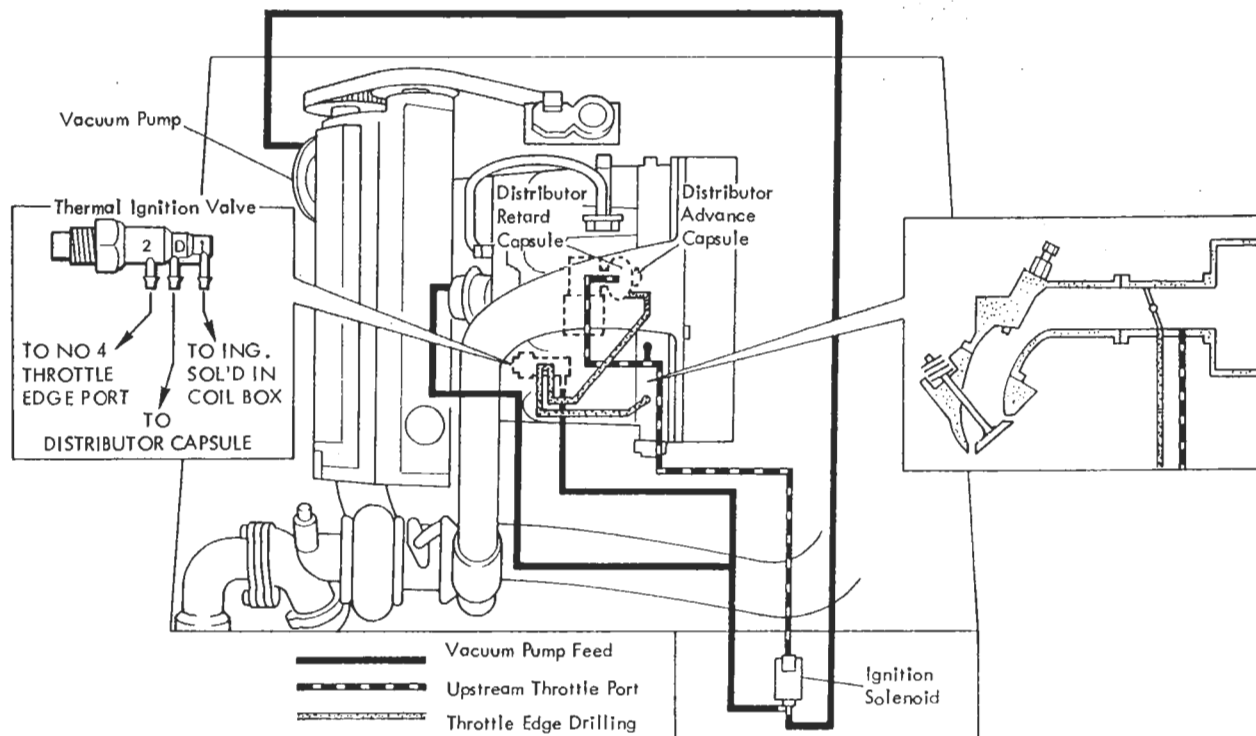
If a lesser figure is obtained, check at the vacuum pump. If pump performance is below specification, check vac. pump exhaust pipe for restriction, and 'V' belt drive for fault.

Replace pump if necessary.

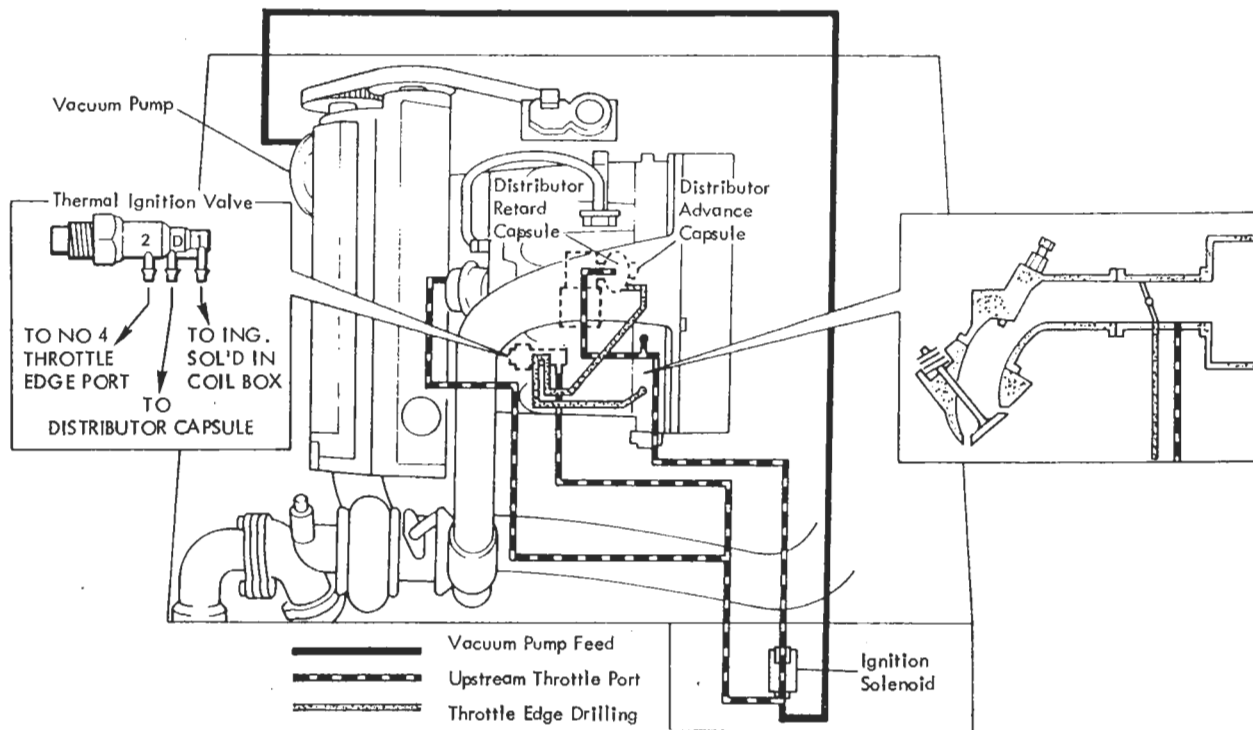
With satisfactory vacuum pump performance, clamp off, or disconnect individual components to isolate leaks and replace pipes or components as necessary. Check secure fit of all vacuum pipes.



VACUUM SWITCHING DIAGRAM - BELOW 53° C WATER TEMP.



VACUUM SWITCHING DIAGRAM - BETWEEN 53° - 70° C WATER TEMP.

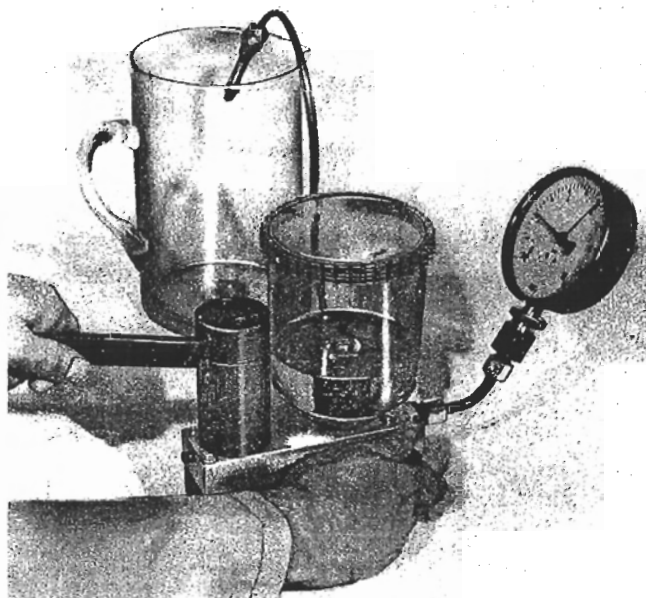


VACUUM SWITCHING DIAGRAM - ABOVE 70° C WATER TEMP.

G - FUEL INJECTORS

1. Remove the injectors from the inlet manifold (see Fuel System Precautions LD 22) and test individually using tool T000T0580 and white spirit.
2. Connect an injection valve to the valve tester and bleed the discharge tubing by moving the lever back and forth several times with the union nut open. Then tighten the union nut.
3. Check for dirt.

Move the hand lever slowly (about 2 seconds per stroke) back and forth with the stopcock on the pressure gauge open. If the pressure does not build up to 1 - 1.5 bar, the injection valve has a leak, caused possibly by dirt in the valve.

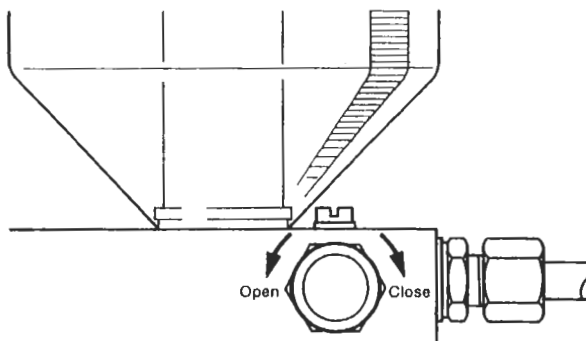


Attempt to flush the injection valve clear by moving the lever back and forth several times vigorously.

If this attempt is successful, continue the test. If it is not possible to flush the valve clear, replace it.

4. Test the opening pressure.

With the stopcock closed, flush the valve out and bleed it with several rapid movements of the lever.



Open the stopcock and test the opening pressure by moving the lever slowly (about 2 seconds per stroke).

Injector opening pressure: 3.5 ± 0.6 Bar

If the opening pressure is outside tolerance, replace the injection valve.

Individual valves can be changed within a set.

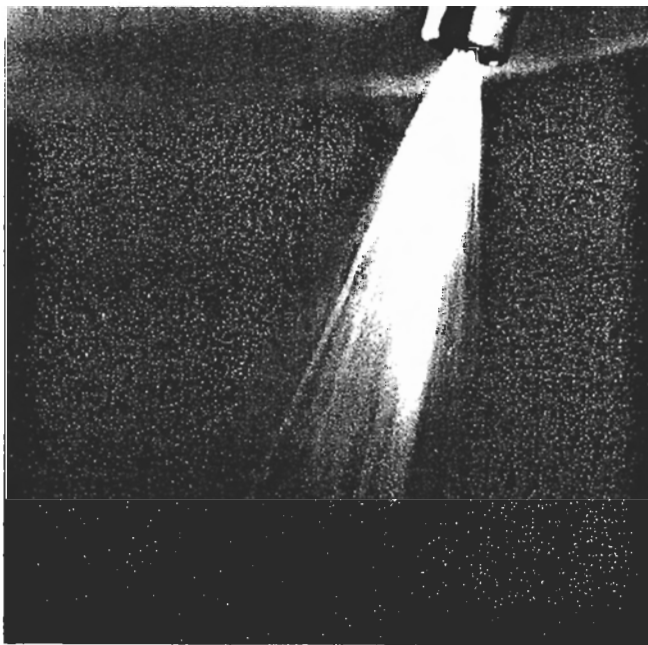
5. Leakage test.

Open the stopcock, build the pressure up slowly to a value 0.5 Bar under the opening pressure determined previously and hold it constant at that level. The injector must not drip for at least 15 seconds.

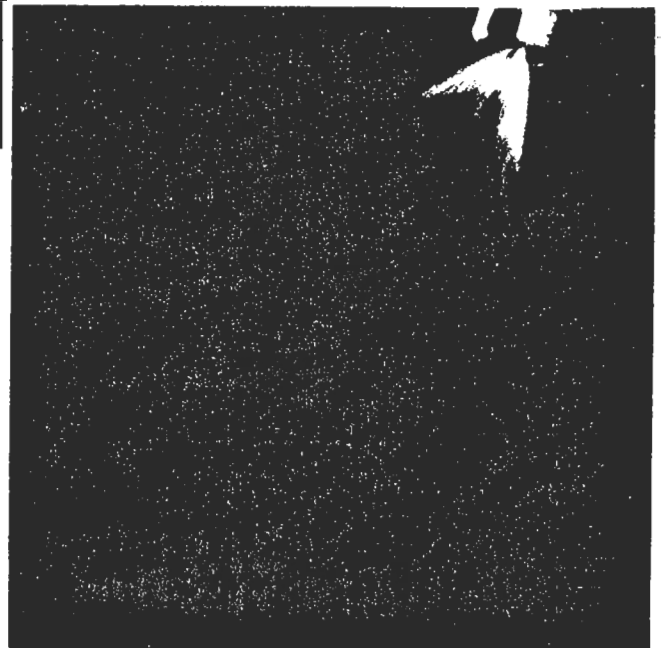
6. Chatter test, evaluation of spray.

Move the lever back and forth at about 1 stroke per second. As this is done, the valve must chatter. No drops of fuel must form at the mouth of the valve.

The valve must not produce a "cord spray". Formation of a single-sided atomized spray within an overall spray angle of about 35° is permissible (see example given in illustrations).

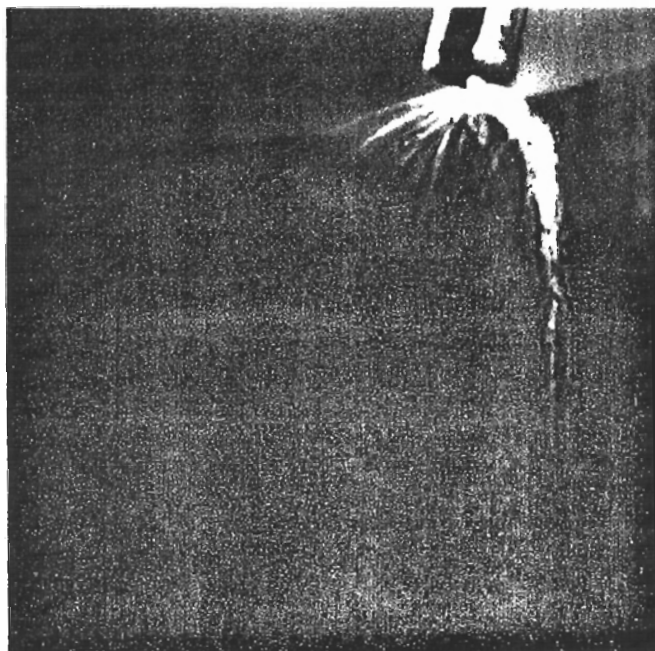


Good spray formation .

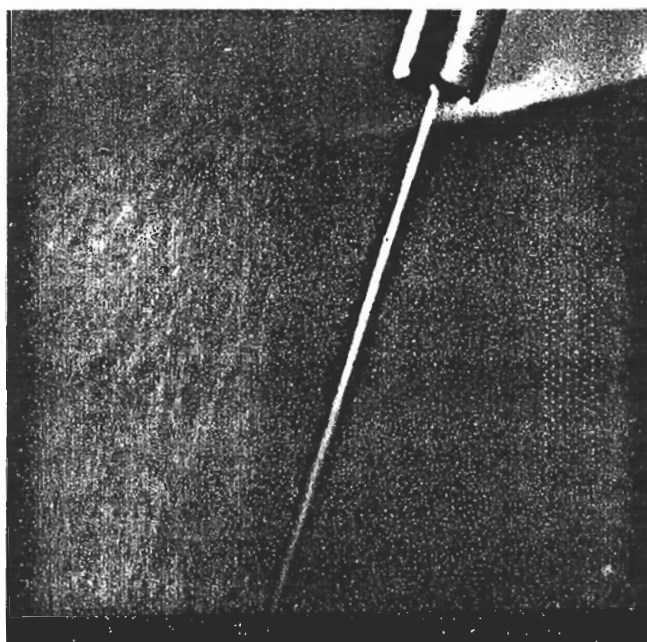


Single-sided but nevertheless good spray formation.

Poor spray formation; replace injection valves.



Drop formation



"Cord" spray



"Spray in strands"

7. Refitting fuel injectors:

Ensure 'O' rings are undamaged. Lubricate the manifold injector hole with a silicone spray and carefully slide the injector down the hole pressing it away from the air rail cross-drilling hole.

Push the larger 'O' ring into its recess using a tube of suitable diameter so that pressure is applied directly to the 'O' ring.

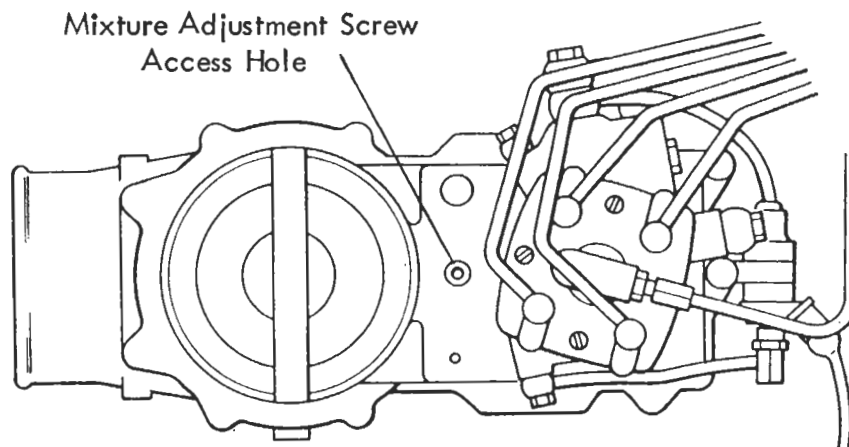
Fit and tighten the injector retaining clamp.

Torque tighten fuel pipe connection to 2.0 kgf.m (15 lbf.ft.).

H - BASIC MIXTURE ADJUSTMENT

Refer to section LD 23 to establish whether the basic mixture setting requires adjustment, or some other component is the cause of an out of specification duty cycle reading.

If adjustment is required:



Remove the anti-tamper plug from the mixture control unit, and use a 3 mm allen key to turn the airflow sensor lever adjusting screw clockwise to reduce the duty cycle rate, or counterclockwise to increase the duty cycle meter reading. Turn only a small amount at a time, and blank off the access hole (with finger) between adjustments. 'Blip' the throttle and re-check duty cycle reading.

When adjustment is completed, refit the anti tamper plug to the access hole. Repeat LD 23 checking procedure.

If a new mixture control unit, or component thereof, is fitted to the engine, or if, for whatever other reason the setting of the basic mixture adjustment screw is unknown or in doubt, it is essential to carry out the following procedure to prevent the possibility of the engine hydraulic locking and causing extensive internal damage.

Disconnect one injector pipe and fit a slave injector, placing into a glass jar or graduate. Trip inertia switch. Remove fuel pump control relays and fit electrical test bridges T000T0569 into relay bases.

Remove anti-tamper plug from mixture adjustment screw access hole.

Press down inertia switch and briefly press down airflow sensor to prime fuel injector.

Using a 3mm allen key, turn the mixture adjustment screw, without pressing down the airflow sensor, until fuel can just be seen to drip from the injector. Turn the screw $\frac{1}{2}$ turn counterclockwise. Trip inertia switch and remove electrical test bridges. Refit fuel pump control relays, and reset inertia switch. Remove slave injector and re-connect injector pipe.

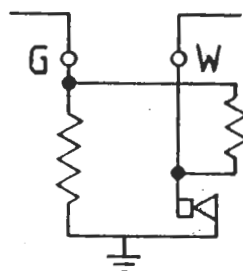
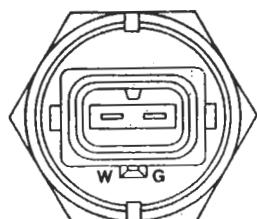
Temporarily blank off mixture screw access hole whilst following LD 23 procedure to check duty cycle rate, and adjust if necessary as above.

I - THROTTLE DOES NOT OPEN COMPLETELY

Check that with the accelerator pedal pressed to its fullest extent, the full throttle stop bracket on the butterfly spindle is in contact with the throttle body abutment. Adjust throttle pedal downstop as necessary.

J - THERMO-TIME SWITCH

To test the switch, remove from the manifold and plug the hole to prevent coolant loss. The switching temperature and time period at -20°C are stamped on one of the switch hexagon flats.



Design	At a temperature		Resistance measurement in ohms between		
	under $^{\circ}\text{C}$	over $^{\circ}\text{C}$	Therm 'G' and 'Ground' (Housing)	Term 'W' and 'Ground'	Term 'G' and term 'W'
38 $^{\circ}\text{C}/8\text{s}$	+30	+40	25...40	0	25...40
			50...80	100...160	50...80

Measure the resistance between the connection listed in the table after standing the switch in water at the appropriate temperature for 10 minutes. Replace switch if necessary.

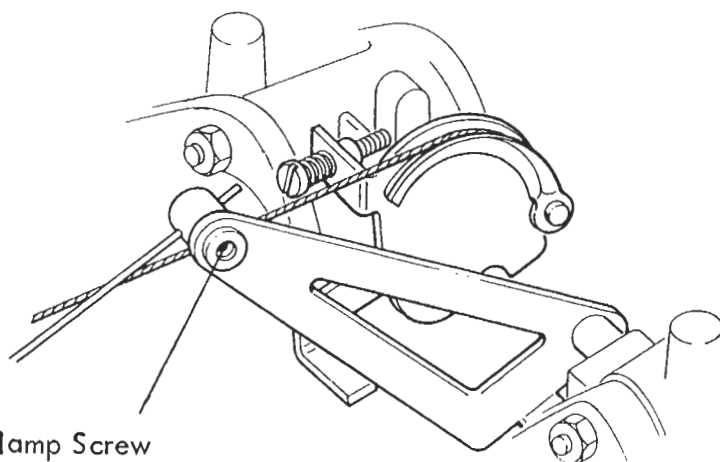
L - FUEL BY-PASS VALVE

With the engine at normal running temperature, remove the valve from the air filter box, and observe the valve action on closed throttle engine overrun conditions. If the valve does not open, check electrical feed and refer to electrical sections LD. 26/27/28.

Check the closed valve position by blowing down the pipe.

M - THROTTLE JACKING CAPSULE

With engine idling at normal operating temperature, check first that idle speed is correct @ 950 ± 50 rpm. Do not adjust without first referring to Section LD 23.



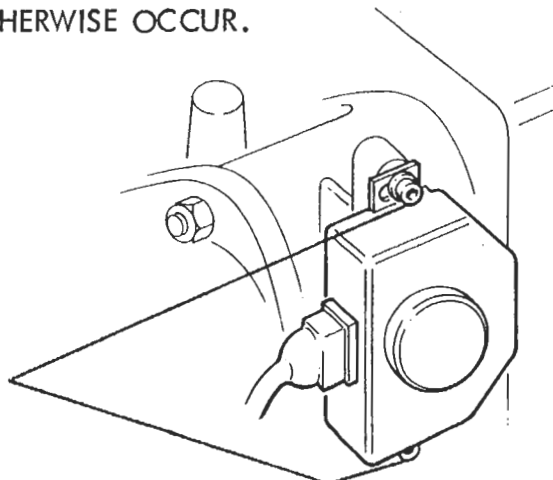
Capsule Rod Clamp Screw

Bridge connections to high temperature switch in inlet manifold (use a spare fuse) to activate the capsule. Engine speed should hold at 1300 to 1500 rpm. Adjust if necessary at the clamp between capsule rod and throttle lever. Remove electrical bridge and re-check idle speed.

N - THROTTLE POSITION SWITCH

Connect continuity meter T000T0568 to the throttle position switch. With the throttles shut the meter should indicate continuity by buzzing, which should stop at the smallest throttle opening. At about 30° of throttle angle, continuity should again be made.

IT IS ESSENTIAL TO SLACKEN THE THROTTLE POSITION SWITCH MOUNTING SCREWS BEFORE ADJUSTING ENGINE IDLE SPEED. IMBALANCE OF THE THROTTLE BUTTERFLIES MAY OTHERWISE OCCUR.



Throttle Position Switch
Mounting Screws

If the throttle position switch requires adjustment, check first that the warm idle speed is correct. Slacken the throttle position switch mounting screws before making any idle speed adjustment. When completed, rotate the position switch slowly until continuity is JUST made, and tighten screws. Recheck setting.

O - AIR LEAKS IN EXHAUST/INLET

To check for air leaks in the exhaust and inlet system:

Disconnect the turbo to diffuser hose, and apply an airline with a suitable sealing adaptor into the diffuser. Seal the exhaust tailpipe with a bung.

Paint all inlet/exhaust system joints and seals with a soap & water solution and check for leaks whilst applying an air pressure of 5 lb/in² into the diffuser.

P - THROTTLE IMBALANCE

If throttle imbalance is diagnosed in procedure LD23, check the throttle position switch adjustment (LD24N).

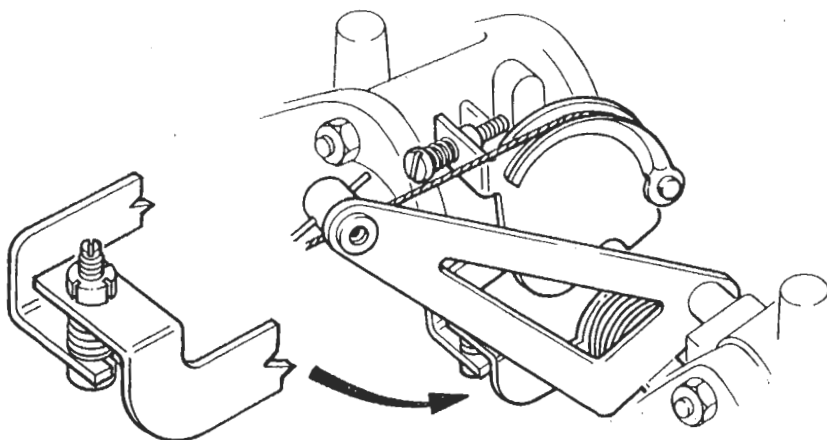
CAUTION The throttle bodies and inlet manifold assembly are balanced as a car set by mass flow, and the throttle bleed channels permanently sealed at the factory. Although provision is made for measuring the inlet manifold depression on cylinders 2 & 3 and adjusting the throttle spindle coupling, this setting should not be disturbed unless essential.

Throttle imbalance can only be caused by abuse of the throttle spindle assembly, or replacement of a throttle lever or return spring.

Investigate all other potential causes of incorrect CO levels before proceeding.

Tools required:	Special Diffuser	T000T0583
	Coupling Spanner	T000T0584
	Manometer	T000T0499
	Balance Tubes	T000T0496 (2)

Remove the blanking plugs from inlet tracts 2 and 3 and fit the balance tubes T000T0496. Connect to manometer. Remove diffuser, and fit special diffuser T000T0583 in its place.



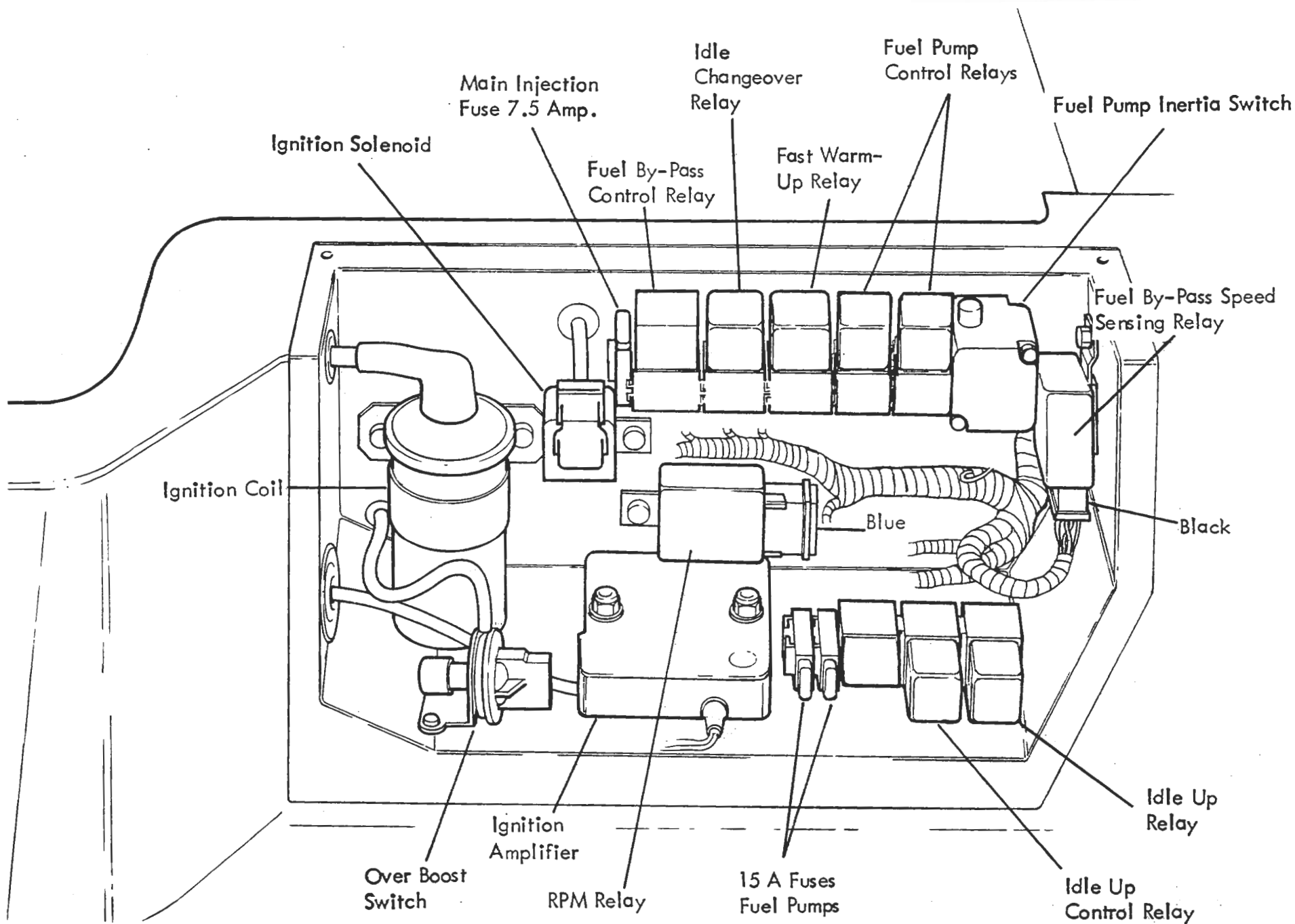
With engine idling at normal running temperature examine the depression in tracts 2 and 3. Use spanner T000T0584 to slacken the coupling locknut and adjust coupling screw, to obtain optimum balance between mercury columns. Re-tighten locknut and re-check balance.

Remove special tools, and return to procedure LD23. If throttle imbalance is still indicated as the cause of high CO readings, the throttle bodies and manifold assembly must be replaced as a set, mass flowed at the factory.

LD 25 - TORQUE SETTINGS - FUEL SYSTEM

Fuel Distributor	8 x 1	9 Nm	0.9 kgf.m	7 lbf.ft.
	12 x 1.5	20 Nm	2.0 kgf.m	15 lbf.ft.
Fuel Injectors		20 Nm	2.0 kgf.m	15 lbf.ft.
Cold Start Injector		9 Nm	0.9 kgf.m	7 lbf.ft.
Warm Up Regulator	8 x 1	9 Nm	0.9 kgf.m	7 lbf.ft.
	10 x 1	14 Nm	1.4 kgf.m	10 lbf.ft.
Frequency Valve		12 Nm	1.2 kgf.m	9 lbf.ft.
Fuel Pump		22 Nm	2.2 kgf.m	16 lbf.ft.
Fuel Accumulator		25 Nm	2.6 kgf.m	18 lbf.ft.
Fuel Filter - in		26 Nm	2.7 kgf.m	19 lbf.ft.
- out		35 Nm	3.6 kgf.m	26 lbf.ft.
Fuel Tank (in & out)		22 Nm	2.2 kgf.m	16 lbf.ft.

REPLACE SEALING WASHERS EVERY TIME A JOINT IS BROKEN



LD 27 - WIRING DIAGRAM SCHEMATICS - FUEL INJECTIONCircuit Descriptions1. Base Circuit. Ignition Off. Cold Engine (Below 35°C)

A positive feed is provided to the RPM relay.

2. Cold Crank. Below 35°C Oil Temp.

When the ignition is switched on, the Lambda sensor heating coil is operated, and the fuel by-pass control relay activated via the throttle position switch earth circuit. An ignition feed is also provided to terminal 15 of the rpm relay.

When the engine is cranked, a negative signal from the ignition coil activates the electronic control in the RPM relay allowing the ignition feed to operate the relay coil, and earth via terminal 31. The relay contacts now connect the positive feed from terminal 30 to the fuel pumps via terminal 87b, and to the injection control circuit via terminal 87.

The injection control circuit supplies a positive feed to terminal 8 of the E.C.U., the frequency valve and the heating coils of the auxiliary air valve and warm up regulator.

The closed high temp. switch supplies the fast warm up relay. See circuit (3).

A feed from the cold start contact on the starter motor solenoid supplies the cold start injector which is controlled by the thermal time switch.

Earth signals are supplied to terminals 12 and 6 of the E.C.U. via the low temp. switch and fuel by-pass control relay (via idle changeover relay).

3. Cold Run & Idle. Below 35°C Oil Temp.

Similar to circuit (2) except:

The cranking circuit feed to the thermal time switch and cold start injector is switched off.

The fast warm up relay, activated by the closed high temperature switch, provides an earth circuit for the ignition solenoid which receives a feed from the ignition auxiliary circuit. The ignition solenoid operates the throttle jacking capsule which, at idle, prevents the throttle position switch 'closed' contact closing. No earth signal is supplied to E.C.U. terminal 6.

4. Cold Run & Idle. Above 35°C Oil Temp. Below 70°C Water Temp.

Similar to circuit (3) except:

Low temp. switch opens and cuts off earth signal to E.C.U. terminal 12. Lambda sensor operational.

5. Normal Idle. Above 70° C Water Temp.

Similar to circuit (4) except:

High temp. switch opens and de-energises the fast warm up relay. This relay now provides an earth (via the idle up relay) for the idle up solenoid which is energised and closes.

The ignition solenoid is de-energised, which de-activates the throttle jacking capsule (vacuum operated) allowing the throttle position switch to close. The throttle position switch energises the fuel by-pass control relay, which provides an earth signal (via idle changeover relay) to E.C.U. terminal 6.

6. Normal Run. Above 1600 rpm. Above 70°C Water Temp. Below 30° Throttle Angle

Similar to circuit (5) except:

Throttle position switch is open. No earth signal to E.C.U. terminal 6. Negative feed from ignition coil activates speed sensing module in fuel by-pass speed sensing relay and allows ignition feed from terminal 15 to energise the relay and earth via terminal 31 and the fast warm up relay. Terminal 88a of the fuel by-pass speed sensing relay, supplies a 12 volt positive to the idle up control relay, which prevents the a/c idle up solenoid opening, and to the idle changeover relay.

7. Normal Run. Above 70° C Water Temp. Over 30° Throttle Angle.

Similar to circuit (6) except:

Throttle position switch supplies earth signal to E.C.U. terminal 7.

8. Overrun. Above 1400 RPM. Decelerating from over 1600 RPM

Similar to circuit (6) except:

Throttle position switch is closed energising the fuel by pass-control relay. This provides an earth signal via the idle changeover relay to E.C.U. terminal 7.

The energised fuel by-pass control relay also provides an earth circuit for the fuel by-pass valve and 'ECON' lamp.

Below 1400 rpm, the fuel by-pass speed sensing relay drops out, and circuit (5) applies.

9. Air Conditioning Compressor Operating. At Idle. Above 70° C Water Temp.

Similar to circuit (5) except:

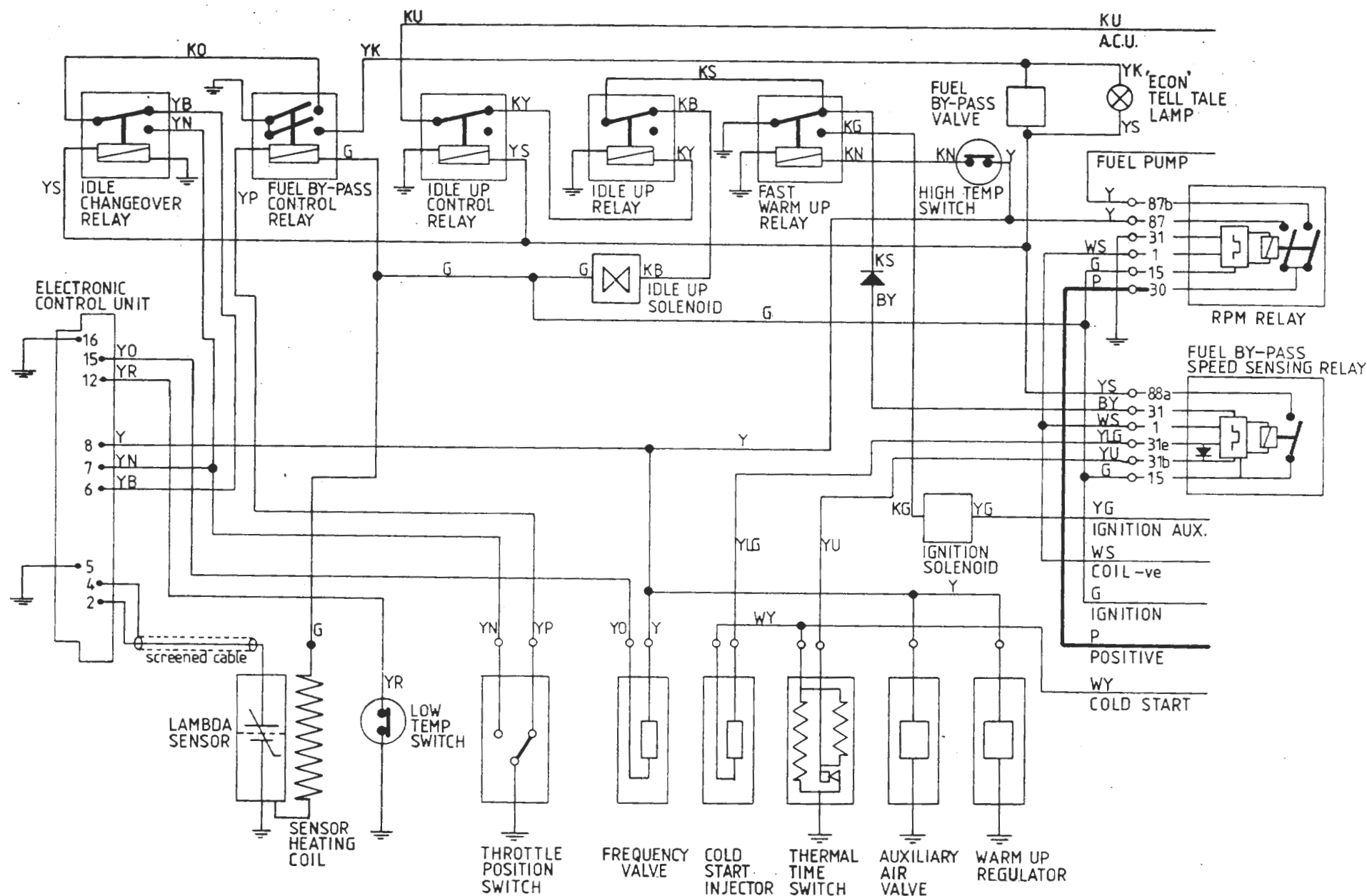
A feed from the compressor circuit is directed via the idle up control relay to energise the idle up relay. This cuts off the earth circuit for the a/c idle up solenoid, which is de-energised and opened.

This circuit only operates below 1400 rpm.

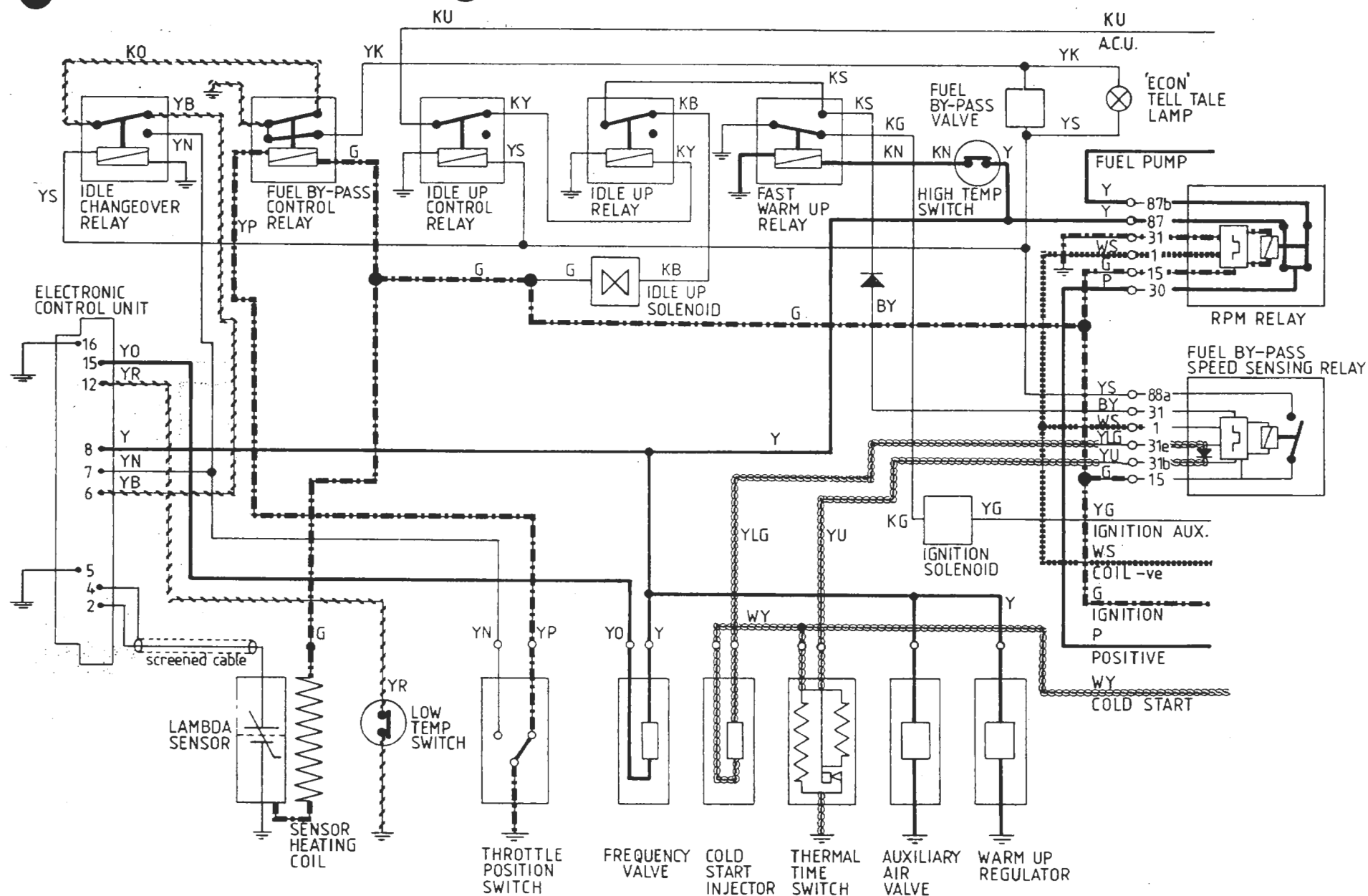
10. Light Throttle. Over 3250 RPM

Similar to circuit (6) except:

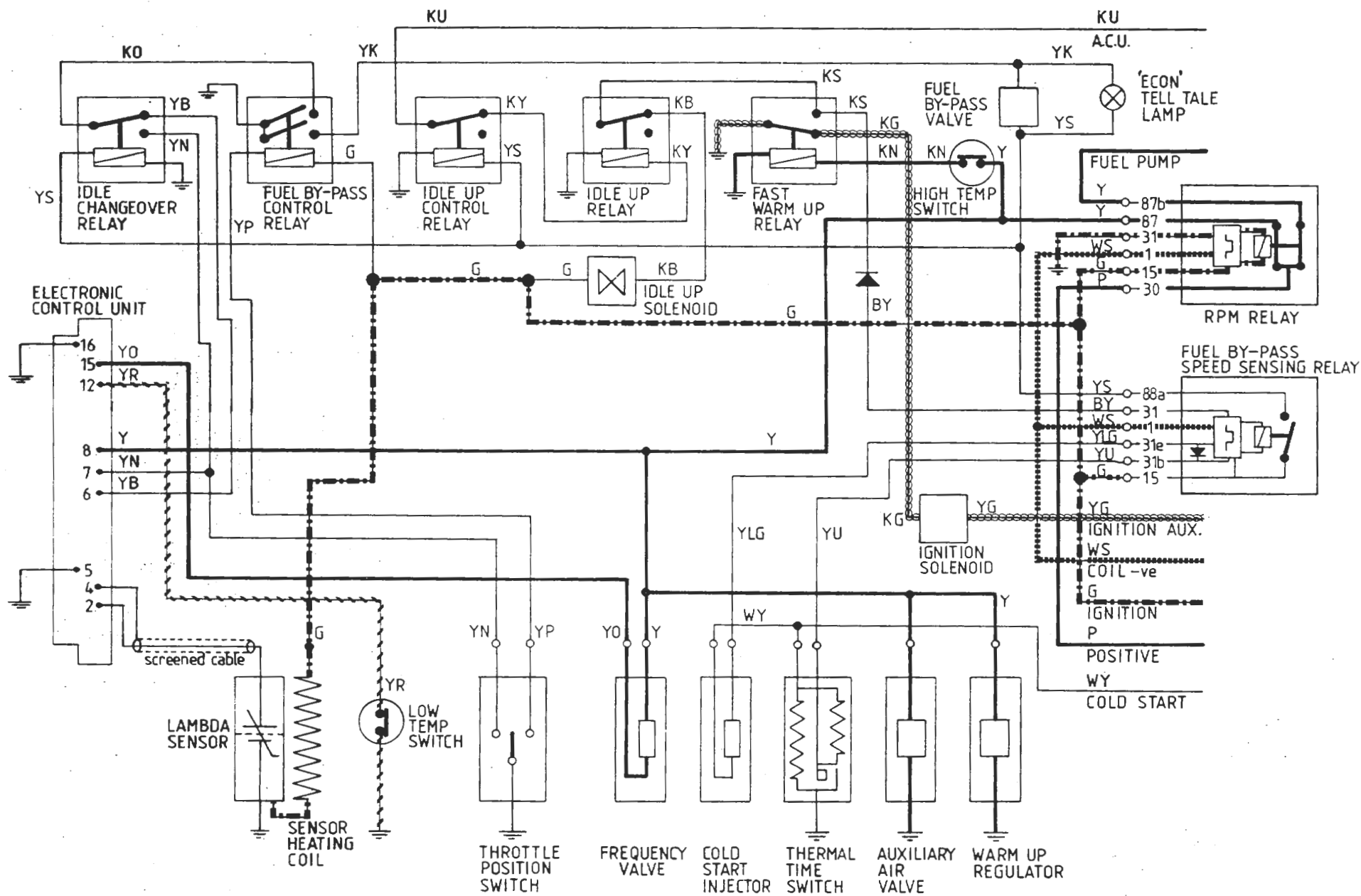
The fuel enrichment module, supplied with a negative feed from the ignition coil, senses when an engine speed of 3250 rpm is reached, and allows an ignition feed to operate the relay coil and close the relay contacts. This provides an earth signal to E.C.U. terminal 7.



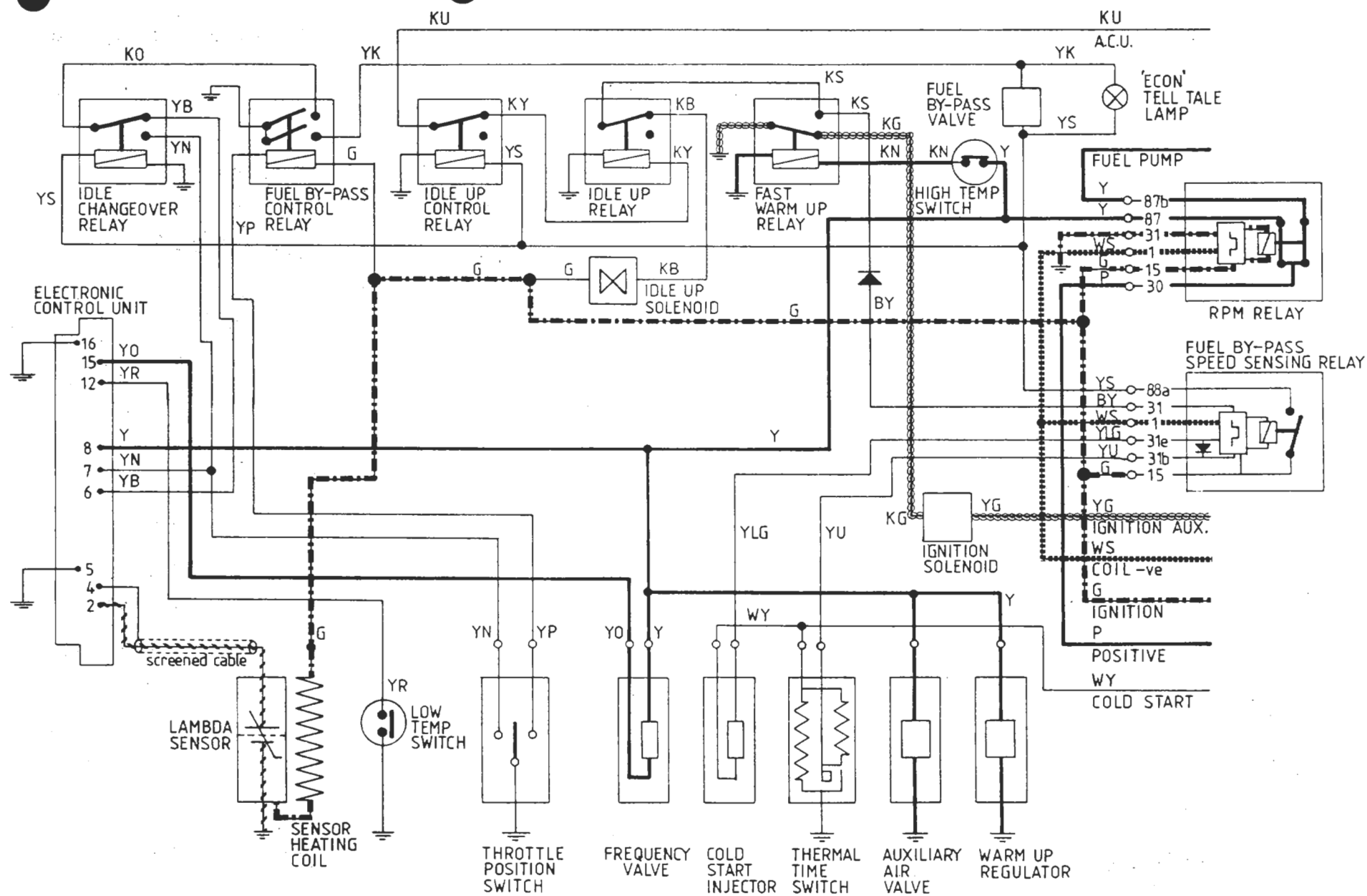
1. BASE CIRCUIT. IGNITION OFF. COLD ENGINE (BELOW 35°C)



2. COLD CRANK. BELOW 35°C OIL TEMP.

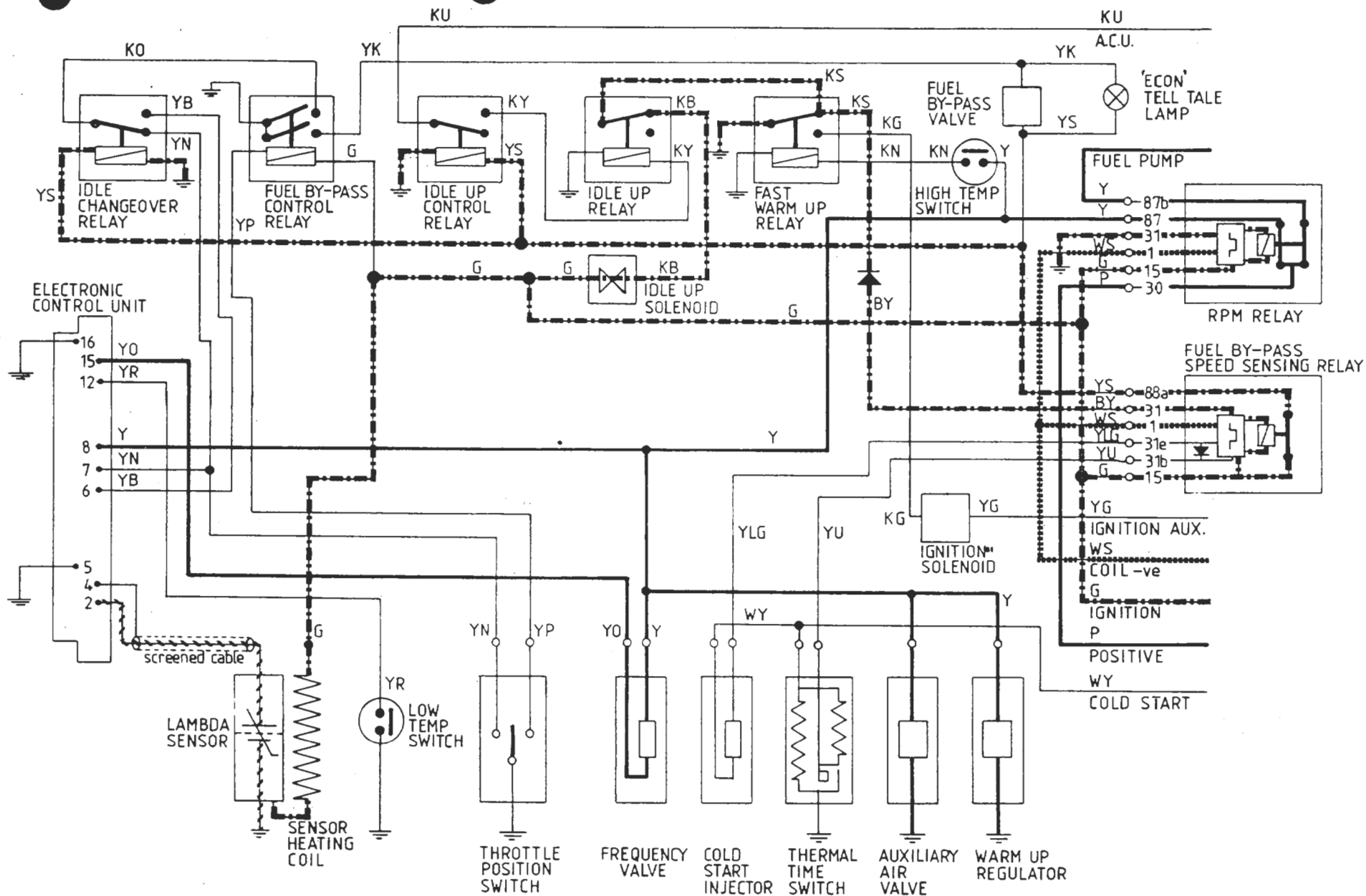


3. COLD RUN & IDLE. BELOW 35°C OIL TEMP.

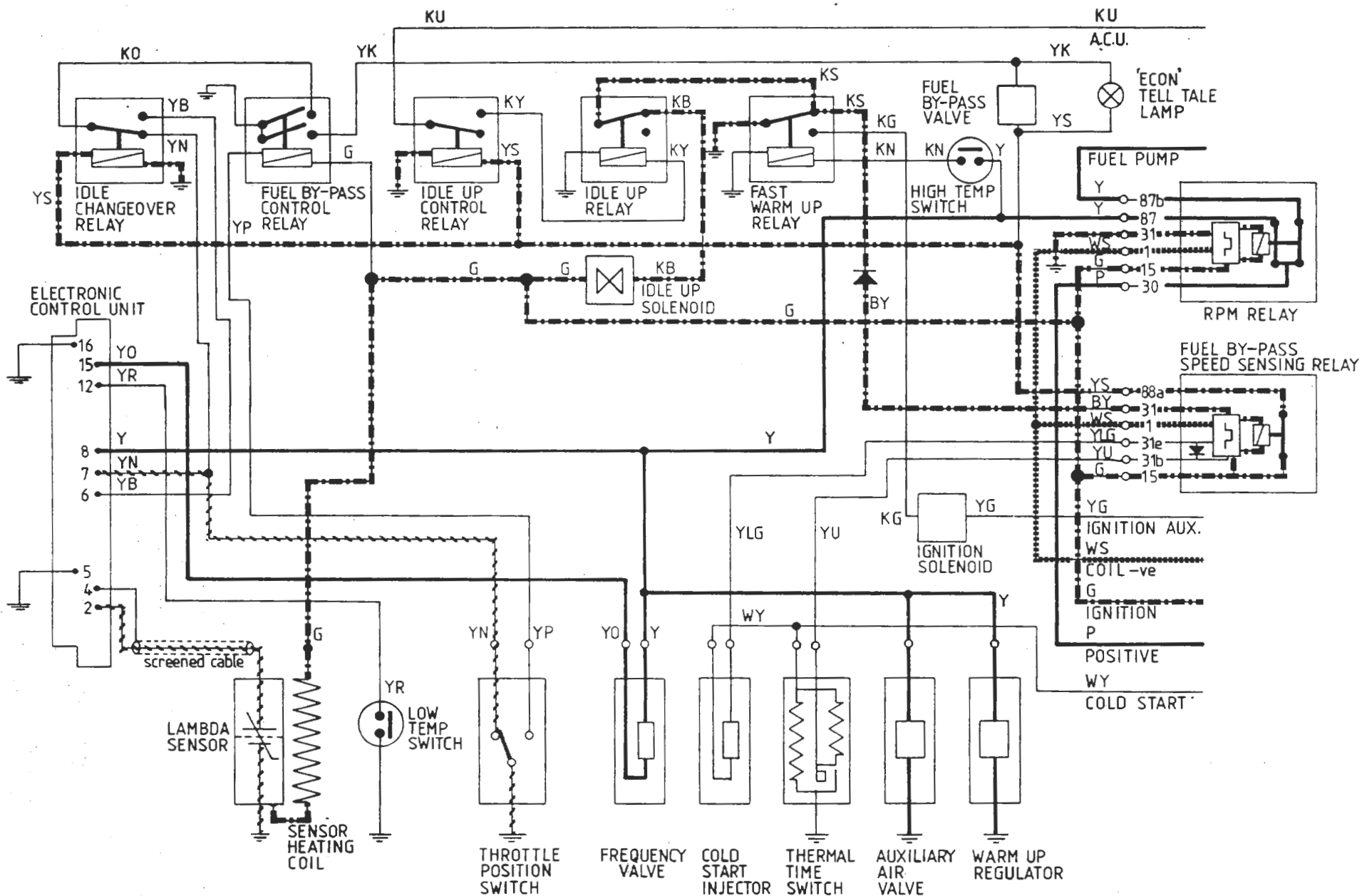


4. COLD RUN & IDLE. ABOVE 35°C OIL TEMP. BELOW 70°C WATER TEMP.

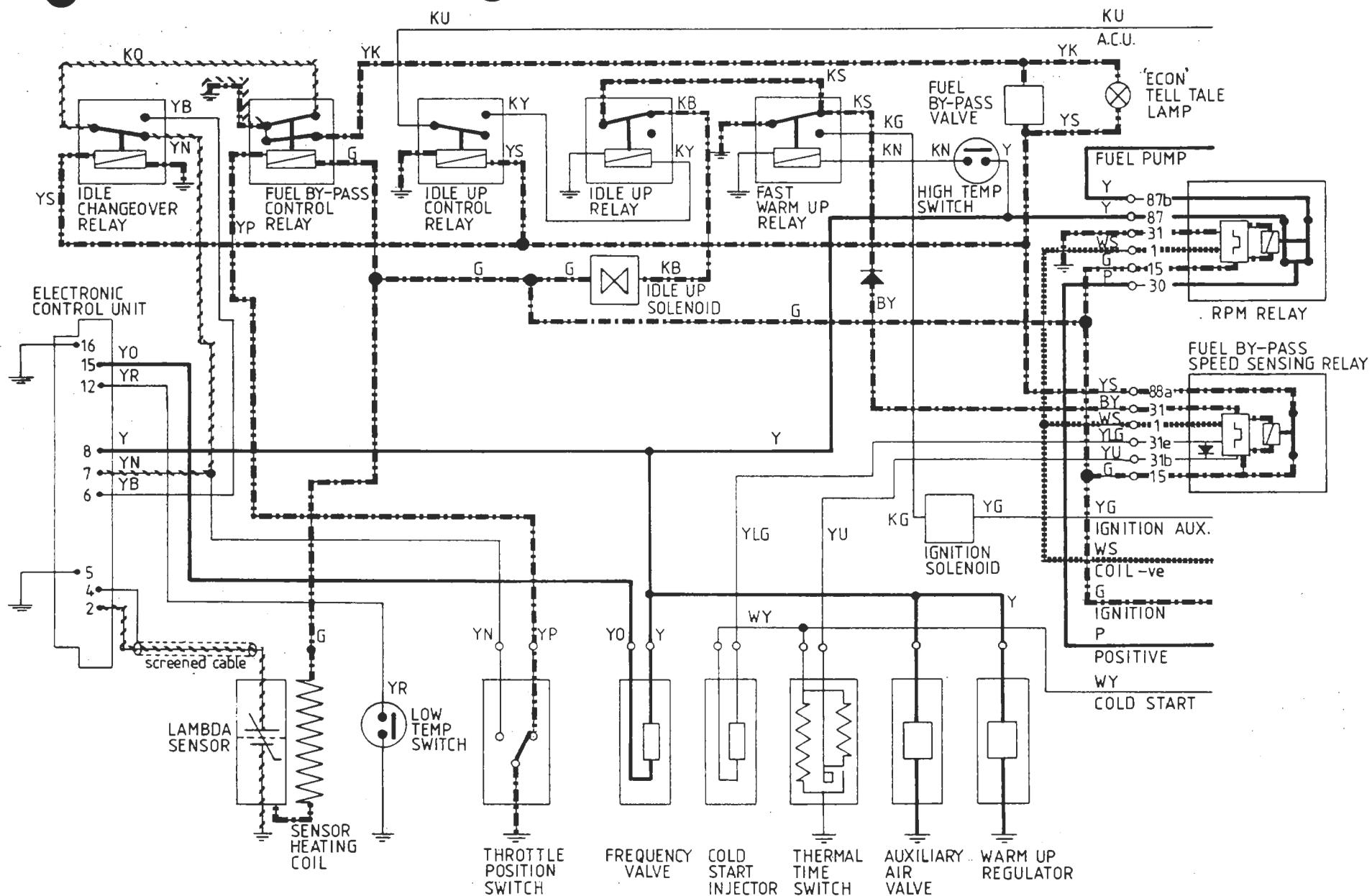




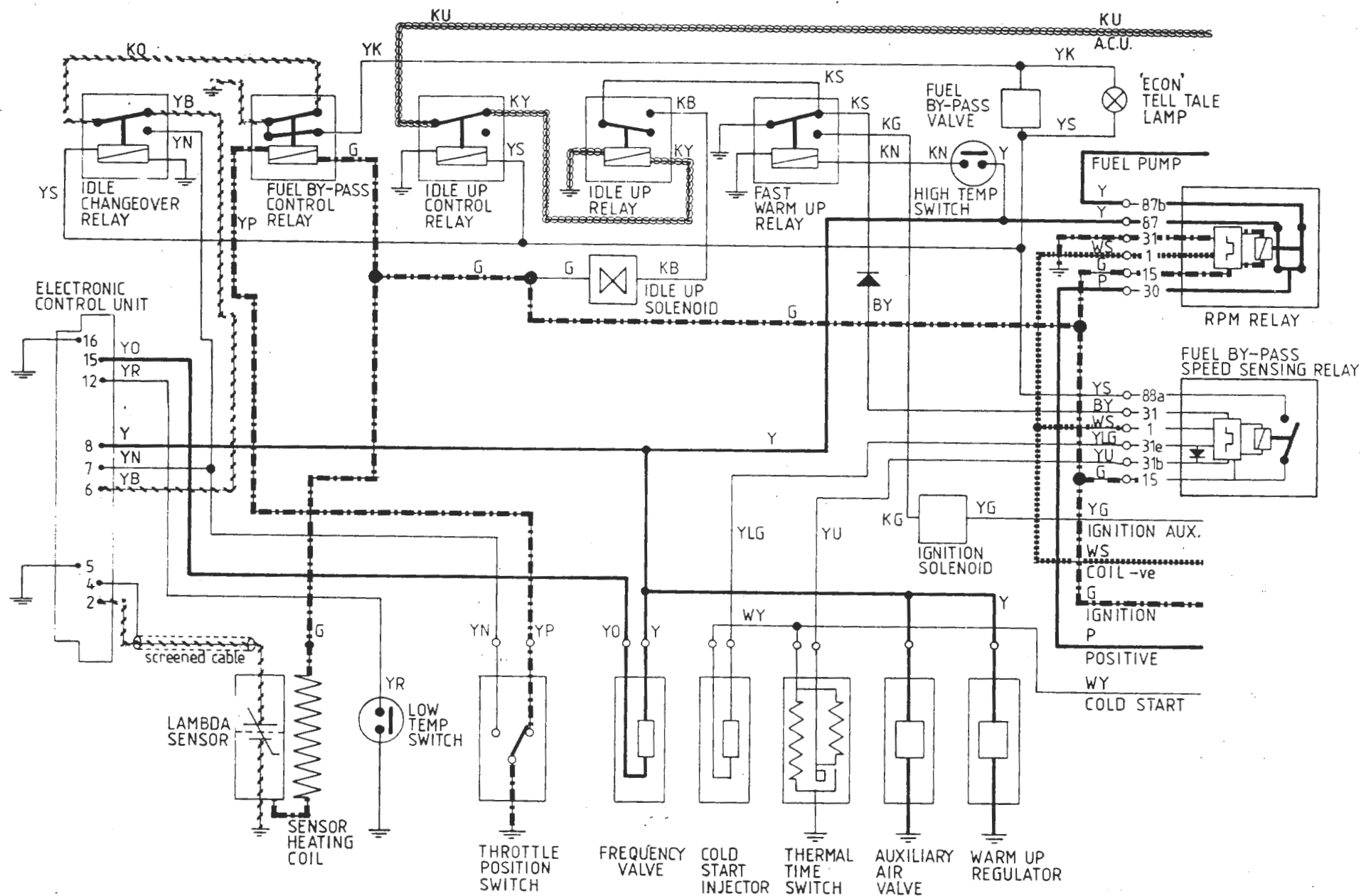
6. NORMAL RUN, ABOVE 70°C WATER TEMP. ABOVE 1600 rpm. BELOW 30° THROTTLE ANGLE



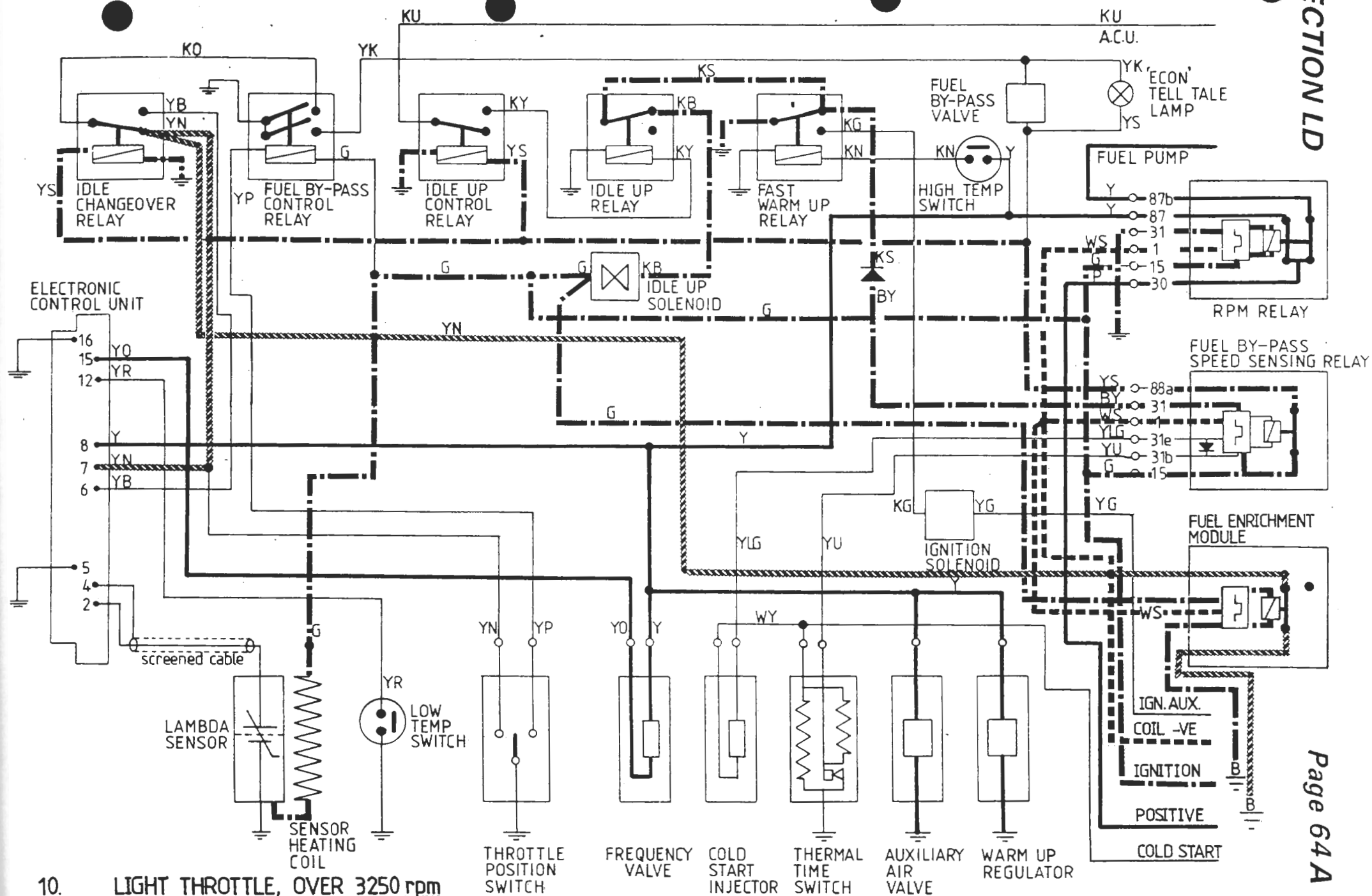
7. NORMAL RUN. ABOVE 70°C WATER TEMP. OVER 30° THROTTLE ANGLE

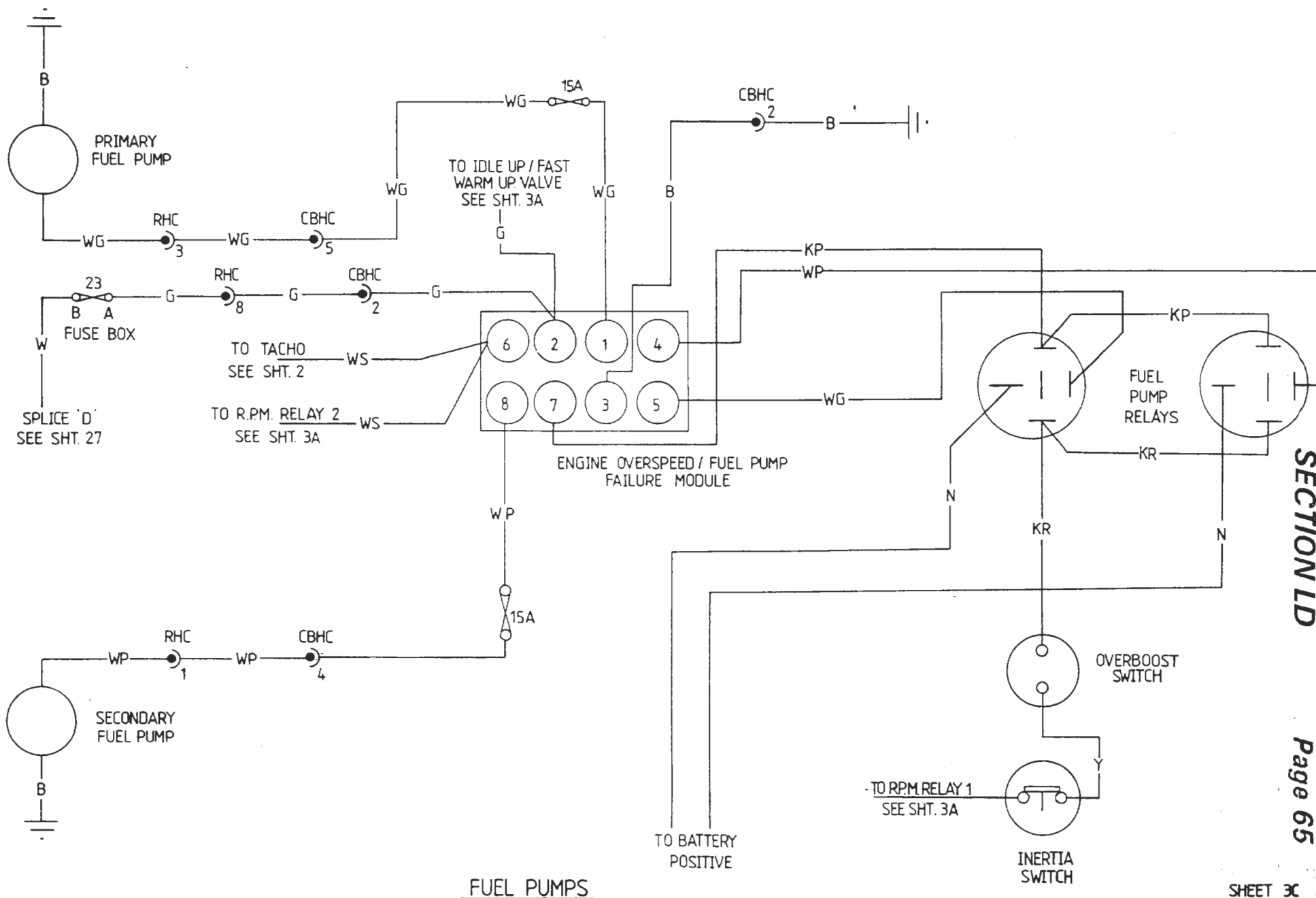


8. OVERUN. ABOVE 1400 rpm DECELERATING FROM ABOVE 1600 rpm



9. AIR CONDITIONING COMPRESSOR OPERATING . AT IDLE . ABOVE 70°C WATER TEMP.





LD. 28 - ELECTRICAL COMPONENT FUNCTION & FAULT DIAGNOSIS

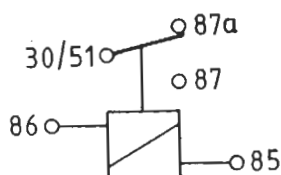
1. Idle Change Over Relay

Location: Coil box

Mating connector colour: Black

Change over relay controlled by fuel by-pass speed sensing relay, energised when R.P.M. has exceeded 1600 R.P.M. and de-energised below 1400 R.P.M.

Switches pin 7 of electronic control unit to ground, when fuel by-pass control relay is energised, on deceleration until 1400 R.P.M. when it changes over to switch pin 6 of electronic control unit to ground

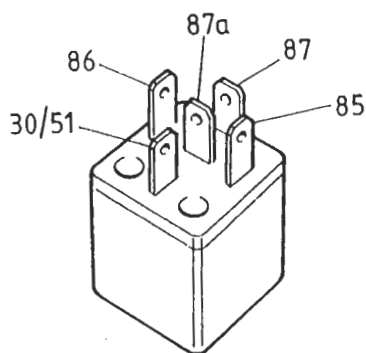


Normally open change over relay

Terminals 85 and 86 relay windings

Terminals 30/51, 87A and 87 switching contacts

Lotus Part A079M6141F
(Silver)



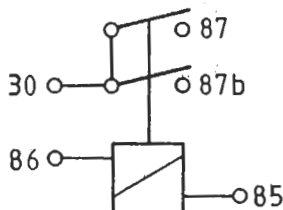
2) Fuel By-Pass Control Relay

Location: Coil box

Mating connector colour: Blue

Double contact relay controlled by ignition (fuse 23 in fusebox) and throttle position switch. Energised when throttle is in the closed position.

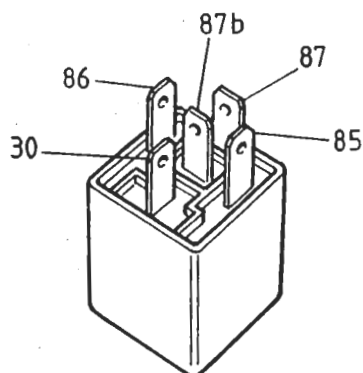
Switches idle change over relay and fuel by-pass valve to ground when ignition is on and throttles are in the closed position.



Terminals 85 and 86 relay windings

Terminals 30, 87 and 87b switching contacts

Lotus Part A082M6182
(Grey)



3. Idle Up Relay

Location: Coil box

Mating connector colour: Black

Change over relay (schimatic as shown item one). Controlled by idle up control relay. De-energises idle up solenoid, when air condition compressor is operating, below 1400 R.P.M.

4. Fast Warm Up Relay

Location: Coil box

Mating connector colour: Black

Changeover relay (schimatic as shown item one). Controlled by high temperature switch energises ignition solenoid when the high temeprature switch is closed circuit. Energises idle up solenoid and fuel by-pass speed sensing relay when the high temperature switch is open circuit.

5. Idle Up Control Relay

Location: Coil box

Mating connector colour: Black

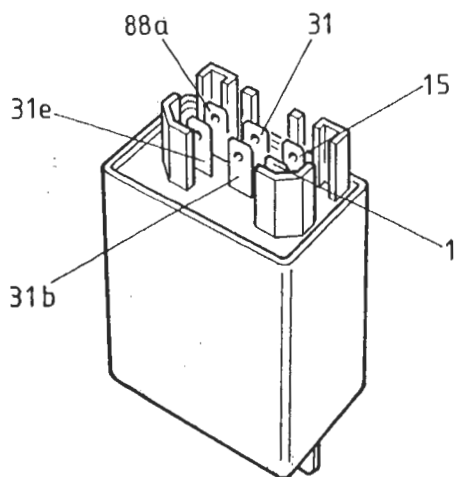
Changeover relay (schimatic as shown in itemone). Controlled by fuel by-pass speed sensing relay.

Energised when R.P.M. has exceeded 1600 and de-energised below 1400 R.P.M. Switches out idle up relay above 1600 R.P.M.

6. Fuel By-Pass Speed Sensing Relay

Location: Coil box

Mating connector colour: Black. Additional information see LD 16.



Controlled by low tension ignition pulses to give engine speed sensing, also thermally inhibited operation by fast warm up relay.

Energises fuel by-pass valve and econ tell-tale on deceleration from an engine R.P.M. of greater than 1600 until 1400 R.P.M. when the throttles are closed. This unit also supplies a 12 volt posotive to the idle changeover relay and idle up control relay supply when engine R.P.M. has exceeded 1600 and maintains that supply until engine R.P.M. has dropped to 1400.

7. Fuel By-Pass Valve

Location: Rear of induction air box

Mating connector colour: Black. Additional information see LD 16.

Electrically controlled vacuum/air valve, controlled by the fuel by-pass speed sensing relay in conjunction with the fuel by-pass control relay.

8. "Econ" Tell-Tale Lamp

Location: Right hand bank of tell tale lamps on instrument binnacle.

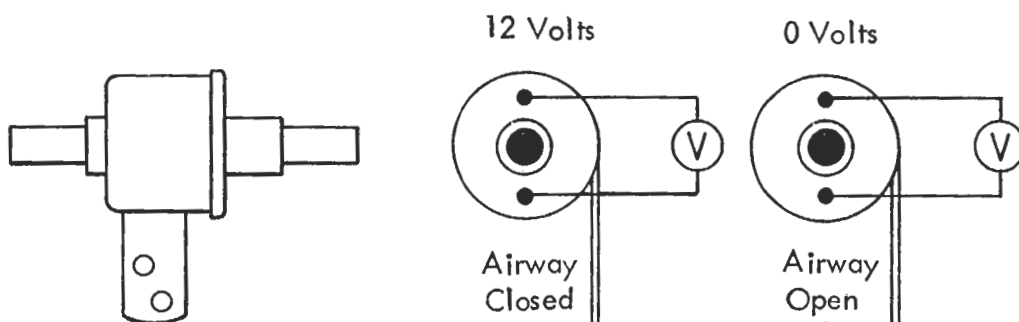
Tell-tale lamp to indicate to the driver when the fuel by-pass valve is operating.

9. High Temperature Switch

Location: Water rail, inlet manifold. Additional information see LD 18.
Controls fast warm up relay. Sensing coolant temperature goes open circuit on raising temperature at 70° C and closed circuit on falling temperature at 60° C.

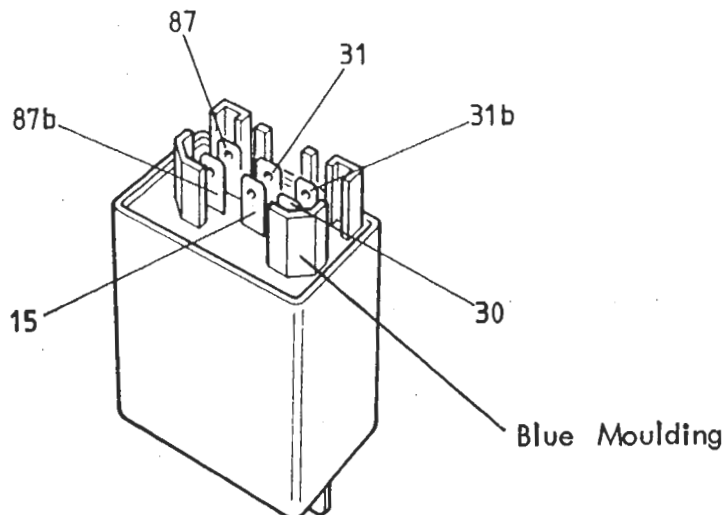
10. Idle Up Solenoid

Location: Right hand fuel tank board. Additional information see LD 19.
Electrically operated air valve. Air way open when valve is electrically de-energised. Controlled electrically by the idle up relay and fast warm up relay.



11. R.P.M. Relay

Location: Coil box
Mating connector colour: Blue



Senses ignition pulses in the low tension circuit and requires a minimum of 4 R.P.M. before making contact and thereby energising the fuel pump and injection circuits. There is an inbuilt delay in the relay that allows the contacts to remain closed for approx. 5 seconds after the low tension circuit has ceased to function.

12. Ignition Solenoid

Location: Coil box

Mating connector colour: Black. Additional information see LD 18.

Electrically controlled vacuum solenoid valve. Controls distributor advance by vacuum. See engine operating spec. Controlled by ignition auxiliary (fuse 22 fusebox) being switched also by the fast warm up relay. (Does not operate during starter motor cranking).

13. Low Temperature Switch

Location: Oil gallery cover. Additional information see LD 15.

Senses oil temperature, grounds pin 12 of the electronic control unit when closed circuit.

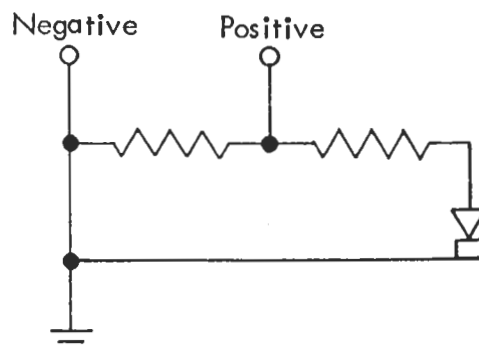
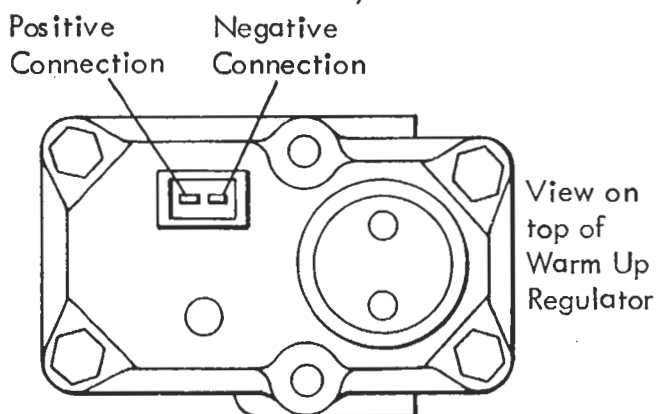
Open circuit on rising temperature at 35°C, closed circuit on falling temperature at 25°C.

15. Warm Up Regulator

Location: Bolted to alternator bracket

Mating connector colour: Grey. Additional information see LD 10.

Electrical/thermal fuel pressure control valve, feed 12 volts positive from the R.P.M. relay.



16. Auxiliary Air Valve

Location: Inlet manifold

Mating connector colour: Black. Additional information see LD 9.

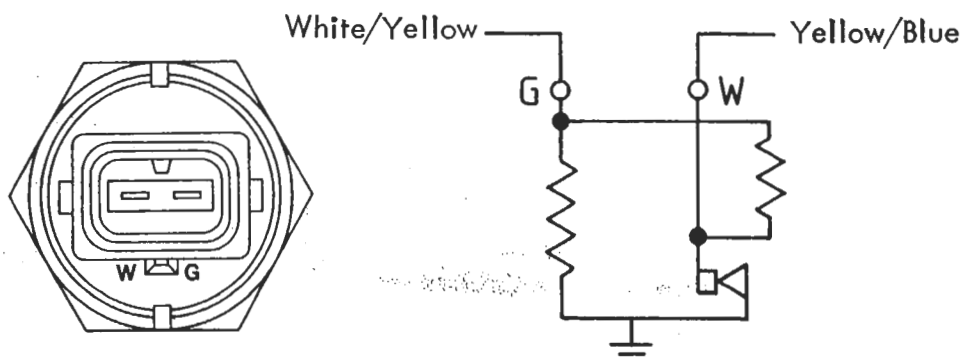
Electrically operated air valve. Feed 12 volts positive from the R.P.M. relay.

17. Thermal Time Switch

Location: Screwed into water jacket inlet manifold

Mating connector colour: Brown. Additional information see LD 8.

Electrical/thermal switch which control the time period the cold start injector is operating during engine cranking.



Design	At a temperature		Resistance measurement in ohms between		
	under °C	over °C	Therm 'G' and 'Ground' (Housing)	Term 'W' and 'Ground'	Term 'G' and term 'W'
38°C/8s	+30		25...40	0	25...40
		+40	50...80	100...160	50...80

18. Cold Start Injector

Location: Cold start adaptor, inlet manifold

Mating connector colour: Blue. Additional information see LD 7.

Electrically controlled injector. Positive feed supplied from cold start contact of starter motor during cranking, negative supplied by the thermal time switch to control injection period.

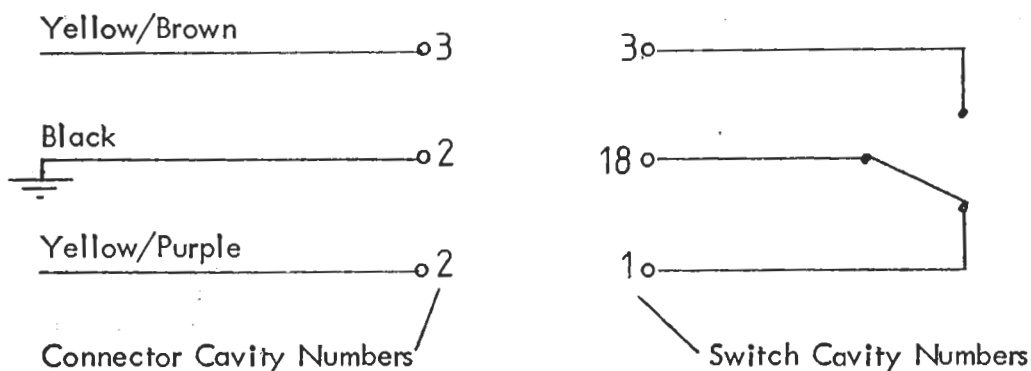
19. Throttle Position Switch

Location: Rear of throttle body spindle

Mating connector colour: Black. Additional information see LD 15 & LD 16.

A two contact rotary switch used to ground the fuel by-pass control relay windings at closed throttle and ground both pin 7, of the electronic control unit, and contact 87, of the idle change over relay at a throttle opening of 29° and above.

Schematic shown in closed throttle position



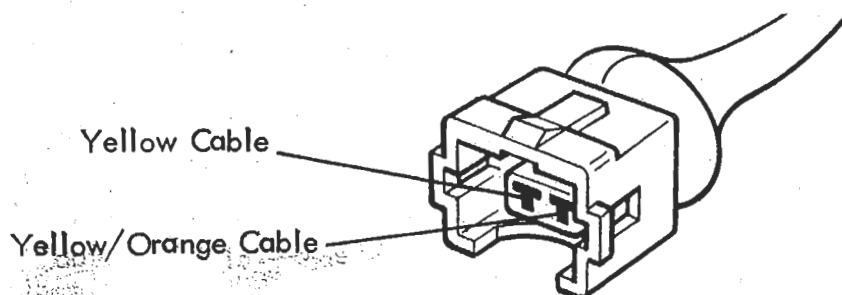
20. Frequency Valve

Location: Front of mixture control unit

Mating connector colour: White. Additional information see LD 14.

Electrically controlled fuel valve. Receives positive feed from the R.P.M. relay and the negative is controlled by the electronic control unit.

Although the frequency valve itself is not polarity conscious for correct operation of the test equipment i.e. duty cycle meter, it is essential that the cables into the connector are in the correct orientation, shown below.



21. Electronic Control Unit

Location: Inside cabin mounted to the bulkhead behind the driver's seat

Mating connector colour: Black. Additional information see LD 15.

Electronic control unit for exhausts emission control. This unit processes information supplied by various sensors/switches and controls the operation of the frequency valve.

Connect as below. (Cavity numbers are moulded into connector)

Cavity 2	Cable to Lambda probe)	co-axial cable
Cavity 4	Screen for Lambda probe cable)	
Cavity 5	Unit ground. Black cable to ground at engine via wiring harnesses.	
Cavity 6	Yellow/black cable grounded at idle via the idle change over relay and fuel by-pass control relay to give a faster update time and therefore stabilises idle speed.	
Cavity 7	Yellow/brown cable. Give a fixed duty cycle of 65% when grounded by the idle change over relay and fuel by-pass relay under deceleration, and the throttle position switch on throttle openings of 29° and above. Also at engine speeds over 3250 rpm.	
Cavity 8	Yellow cable. 12 volts positive supply to electronic control unit from the R.P.M. relay.	
Cavity 12	Yellow/red cable switched to ground, to give a 75% duty cycle, by the low temperature switch.	
Cavity 15	Yellow/orange cable controls the duty cycle (open/close ratio) of the frequency valve.	
Cavity 16	Unit ground. Black cable to ground at engine via wiring harnesses.	

22. Fuel Pumps

Location: Underside of body R.H. rear. Additional information see LD 3.

Twin fuel pump installation electrically connected in parallel through individual fuses, the engine overspeed/fuel pump failure module, and fuel pump control relays.

23. Inertia Switch

Location: Coil box

Mating connector colour: Grey

The safety inertia switch is designed to operate on impact, such as would occur in an accident, to disconnect the fuel pumps and minimise any fire hazard.

To reset the switch, in the event of its tripping, press down the reset plunger on the top.

24. Engine Overspeed/Fuel Pump Failure Module

Location: Top of right hand tank board. (Under filler neck)

Mating connector colour: Natural. Additional information see LD 3.

The module senses low tension ignition pulses and supplies a negative to the fuel pump control relay winding.

In the event of excessive engine speed ($7,000 \pm 50$ R.P.M.) this feed is removed thereby stopping the injection system operating and limiting engine R.P.M.

Also in the event of one of the two fuel pumps failing to operate the maximum engine R.P.M. is restricted to $2,800 \pm 50$ R.P.M. This is achieved by monitoring the current drawn by each pump and removing the negative to the fuel pump control relay windings at $2,800 \pm 50$ R.P.M. in the event of one pump failing to draw any current. Therefore any part of the circuit between the module and the pump, going open circuit, will be detected and engine R.P.M. restricted. (This unit will therefore sense blown fuse, broken or disconnected fuel pump wiring.)

Disconnection of the module will not allow the fuel pumps to operate. Single pump failure may cause the fuse in the other pump circuit to blow due to the increased load imposed on it (dependent on position in which failed pump fails).

This circuit is designed as a "get you home" aid in the event of failed fuel pump but the vehicle require attention to the fuel pump system as soon as possible.

25. Fuel Pump Control Relays (2)

Location: Coil box

Mating connector colour: Black

Double contact relay (schematic as shown in item 1).

Controlled by the engine overspeed/fuel pump failure module, overboost switch and inertia switch. Switches positive feed, via 15 amp fuses to individual fuel pump circuits.

26. Overboost Switch

Location: Coil box

Mating connector colour: White. Additional information see LD 3.

Supplies, via terminal 87b of the R.P.M. relay, a positive feed to the winding of the fuel pump control relay. This feed is removed, thereby de-energising the fuel pumps, in the event of an engine fault condition of excessive turbo boost pressure.

27. Fuel Enrichment Module

Location: Top of right hand fuel tank board.

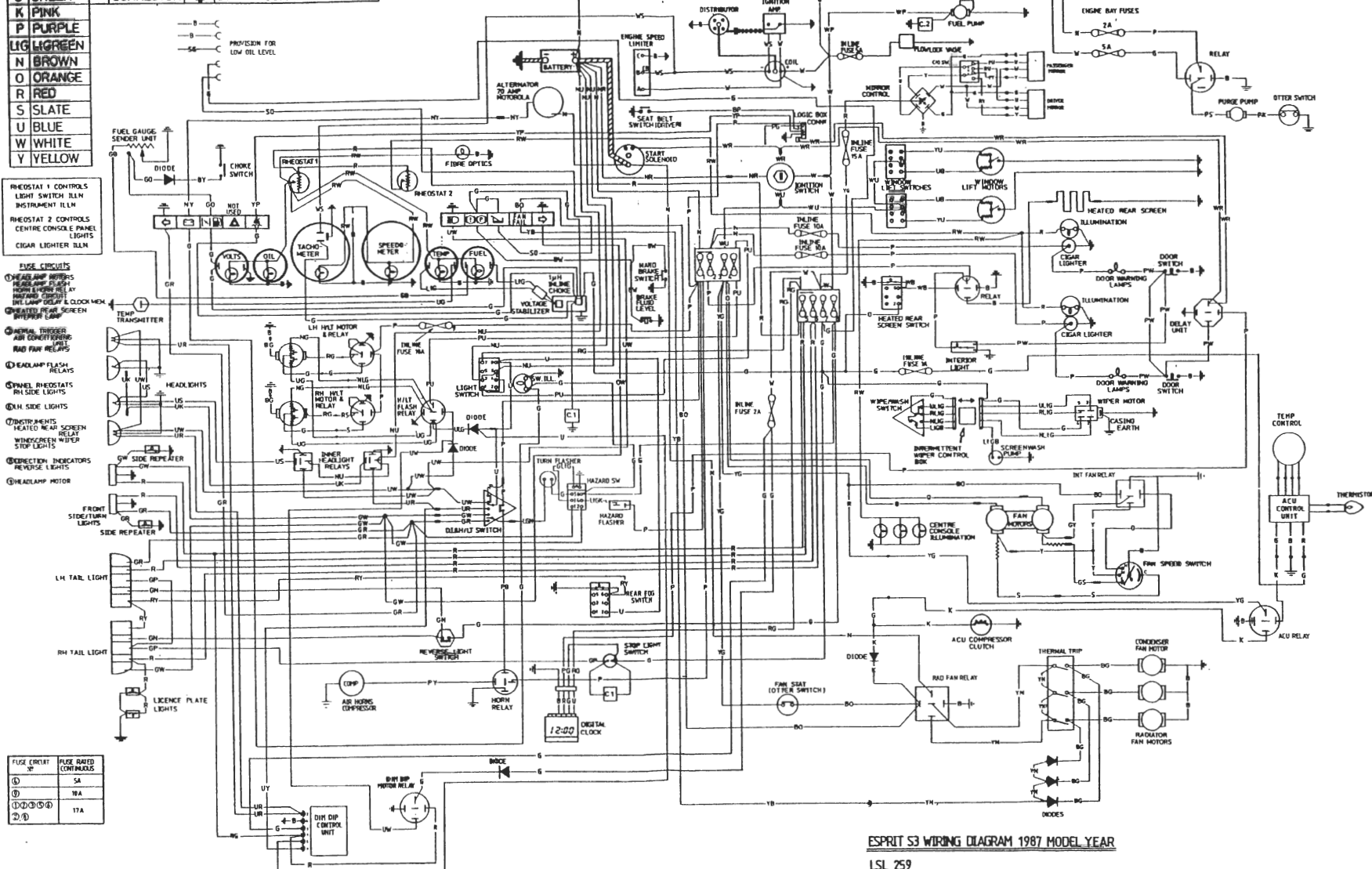
Mating connector colour: White. Additional information see LD 27 - 10

Senses engine speed of 3250 rpm via negative feed from ignition coil, and switches ignition feed to operate relay coil and close relay contacts. This provides earth signal to E.C.U. terminal 7.

ELECTRICALSECTION MB - ESPRIT S3 & TURBO (Dom/Row)

	<u>Section</u>	<u>Sheet/Page</u>
Circuit Diagrams:	MB.1	
S3 - Lumenition & Fused Fan Relay		LSL 249
S3 - A/C, Constant Energy & Thermal Trip		LSL 250
S3 - A/C, EEC (Symbol) Switches		LSL 251
S3 - From VIN 85D2153 (July '85)		LSL 254
S3 - '87 M.Y. onwards		LSL 259
Turbo - Commemorative, Lumenition		LSL 239
Turbo - Constant Energy, Fused Fan Relay		LSL 247
Turbo - Constant Energy, Thermal Trip		LSL 248
Turbo - '87 M.Y. onwards		LSL 258
Component Location Diagram	MB.2	9/9A
Harness Routing Diagram	MB.3	10
Lumenition Ignition System	MB.4	11 to 14
Lucas Constant Energy Ignition	MB.5	15/16
'Maintenance Free' Battery Charging		
Procedure	MB.6	17
Dim-Dip Headlamp System (U.K. models)	MB.7	18/19

B BLACK	• SPLICE	RADIO INTERFERENCE
G GREEN	— CONNECTOR	SUPPRESSION WITH VALUE
K PINK		
P PURPLE		
LG LIGHT GREEN		
N BROWN		
O ORANGE		
R RED		
S SLATE		
U BLUE		
W WHITE		
Y YELLOW		



ESPRIT S3 WIRING DIAGRAM 1987 MODEL YEAR

LSL 259

B BLACK • **SPICE** **RADIO INTERFERENCE**
G GREEN — **CONNECTOR** **SUPPRESSION WITH VALVE**

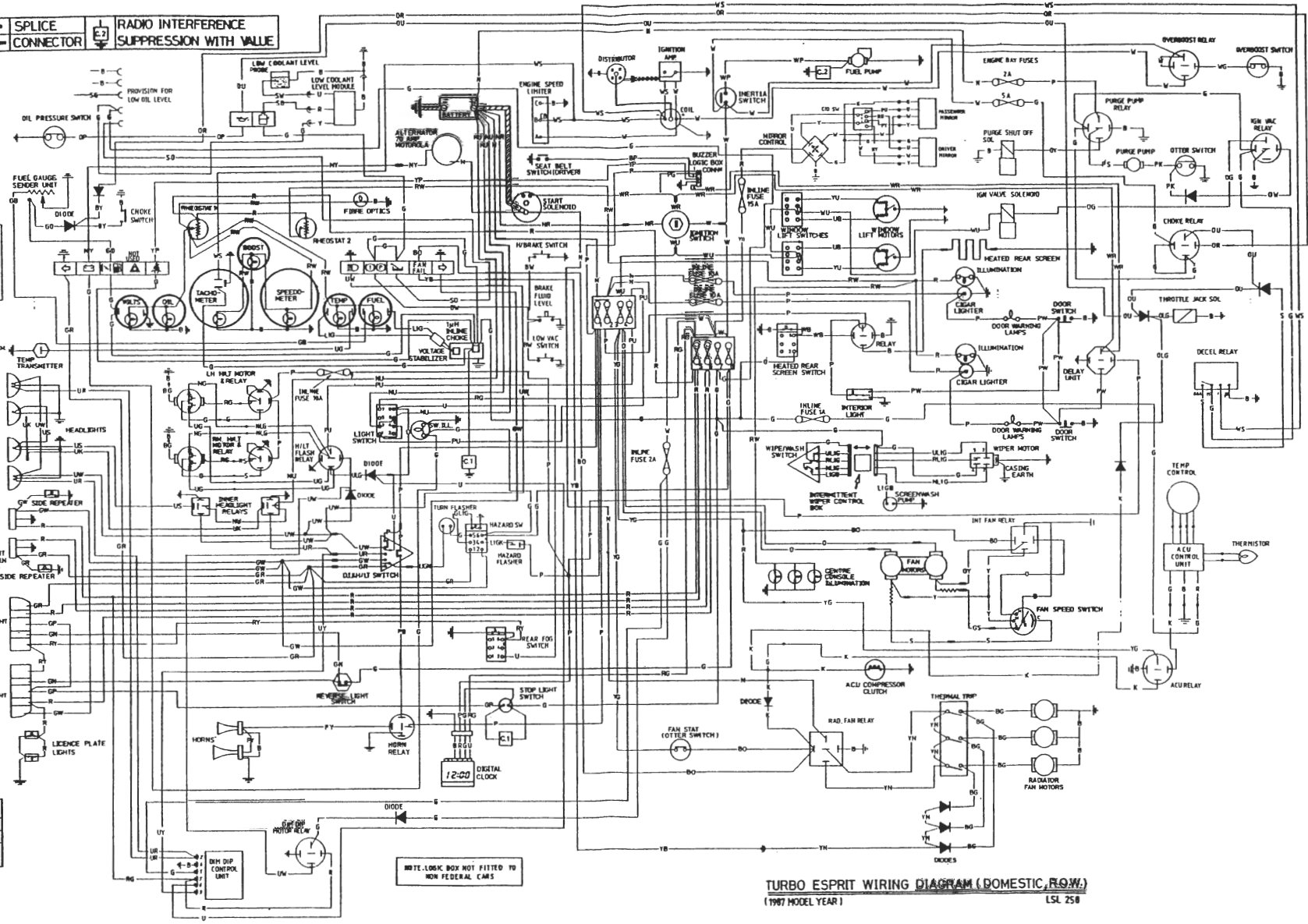
K PINK
P PURPLE
LIG LIGREEN
N BROWN
O ORANGE
R RED
S SLATE
U BLUE
W WHITE
Y YELLOW

RHEOSTAT 1 CONTROLS
 LIGHT SWITCH ILLM.
 INSTRUMENT ILLM.
 RHEOSTAT 2 CONTROLS
 CENTRE CONSOLE PANEL
 LIGHTS
 CIGAR LIGHTER ILLM.


FUSE CIRCUITS
 HEADLAMP MOTORS
 HEADLAMP FLASH
 HORN & HORN RELAY
 HAZARD CIRCUIT
 CIGAR LIGHTER ILLM. & CIGAR MOTOR
 HEATED REAR SCREEN
 INTERIOR LAMP
 CENTRAL THROTTLE
 AIR CONDITIONING UNIT
 RAD FAN RELAYS
 HEADLAMP FLASH
 RELAYS
 SPINNEL RHEOSTATS
 RH SIDE LIGHTS
 LH SIDE LIGHTS
 INSTRUMENTS
 HEATED REAR SCREEN
 RELAY
 WINDSCREEN WIPER
 STOP LIGHTS
 CORRECTION INDICATORS
 REVERSE LIGHTS
 HEADLAMP MOTOR

FRONT SIDE/TURN
 LIGHTS
 SIDE REPEATER
 LH TAIL LIGHT
 RH TAIL LIGHT
 LICENCE PLATE
 LIGHTS

FUSE CIRCUIT	FUSE RATED
1	5A
2	10A
3	17A



TURBO ESPRIT WIRING DIAGRAM (DOMESTIC ROW.)
 (1987 MODEL YEAR) LSL 258

B	BLACK	•	SPLICE	 RADIO INTERFERENCE SUPPRESSION WITH VALUE
G	GREEN	—	CONNECTOR	

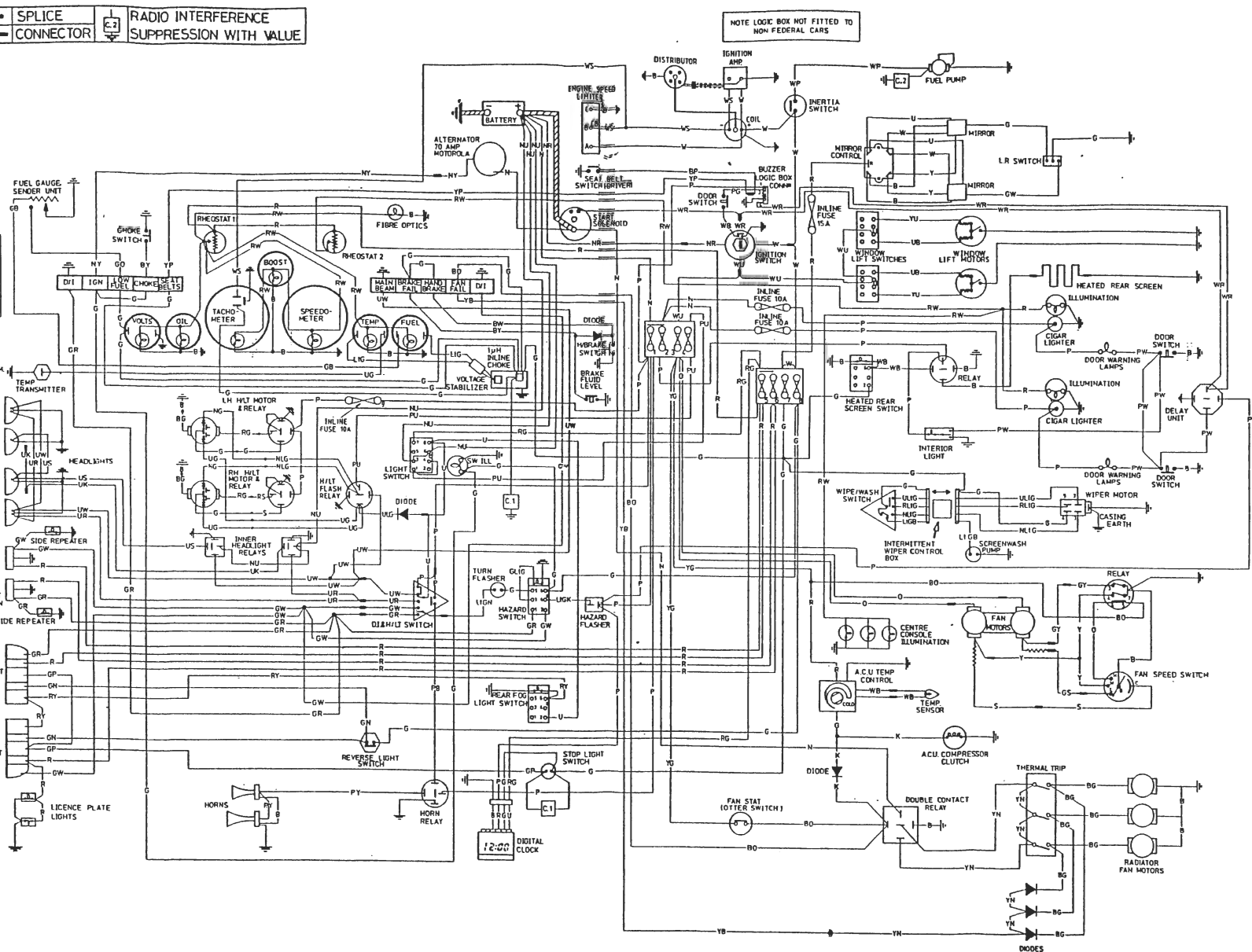
K	PINK
P	PURPLE
LIG	LIGREEN
N	BROWN
O	ORANGE
R	RED
S	SLATE
U	BLUE
W	WHITE
Y	YELLOW


RHEOSTAT 1 CONTROLS
LIGHT SWITCH ILLN
INSTRUMENT ILLN

RHEOSTAT 2 CONTROLS
CENTRE CONSOLE PANEL
LIGHTS
CIGAR LIGHTER ILLN

- ① HEADLAMP MOTORS
- ② HEADLAMP FLASH
HORN/LIGHT RELAY
HAZARD CIRCUIT
INT. LAMP DELAY & CLOCK MOD.
- ③ HEATED REAR SCREEN
INTERIOR LAMP
- ④ AERIAL TRIGGER
AIR CONDITIONING
LIFT
RAD FAN RELAYS
- ⑤ HEADLAMP FLASH
RELAYS
- ⑥ PANEL RHEDSTARS
RH SIDE LIGHTS.
- ⑦ LH SIDE LIGHTS
- ⑧ INSTRUMENTS
HEATED REAR SCREEN
RELAY
WINDSCREEN WIPER
STOP LIGHTS
- ⑨ DIRECTION INDICATORS
REVERSE LIGHTS
- ⑩ HEADLAMP MOTOR

FUSE CIRCUIT NO.	FUSE RATED CONTINUOUS
⑤	5A
⑦	10A
①②③④⑥⑦⑧	17A

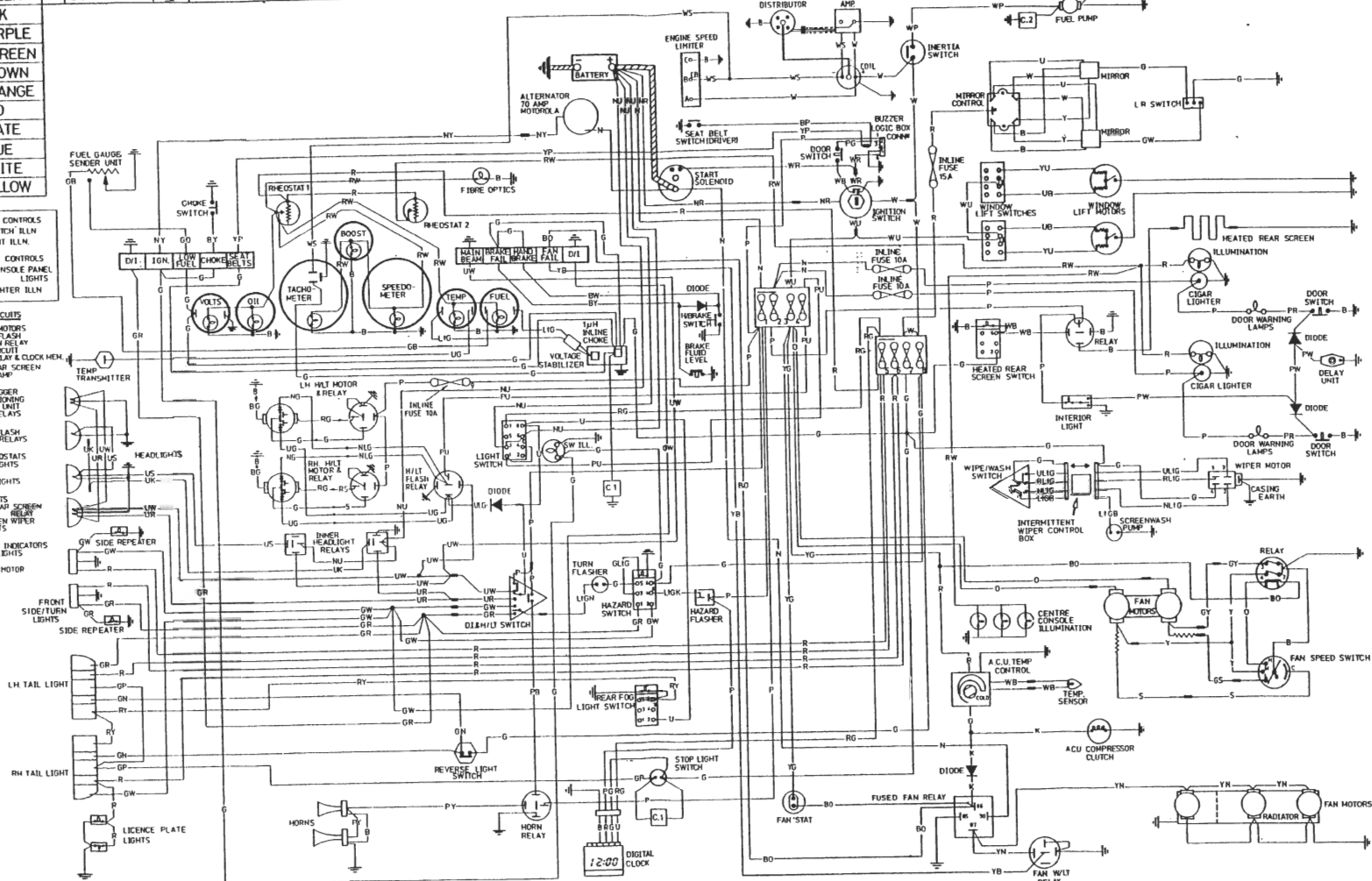


B	BLACK	•	SPLICE		RADIO INTERFERENCE SUPPRESSION WITH VALUE
G	GREEN	—	CONNECTOR		

RHEOSTAT 1 CONTROLS
LIGHT SWITCH ILLN
INSTRUMENT ILLN
RHEOSTAT 2 CONTROLS
CENTRE CONSOLE PANEL
LIGHTS
CIGAR LIGHTER ILLN

FUSE CIRCUITS



- HEADLAMP MOTORS
HEADLAMP FLASH
HORN & HORN RELAY
HAZARD CIRCUIT
INT. LAMP DELAY & CLOCK MEH.
- HEATED REAR SCREEN
INTERIOR LAMP
- MERIAL TRIGGER
AIR CONDITIONING
UNIT
RAD FAN RELAYS
- HEADLAMP FLASH
RELAYS
- PANEL RHEOSTATS
RH SIDE LIGHTS
- LH SIDE LIGHTS
- INSTRUMENTS
HEATED REAR SCREEN
WINDSCREEN WIPER
STOP LIGHTS
- DIRECTION INDICATORS
REVERSE LIGHTS
- HEADLAMP MOTOR

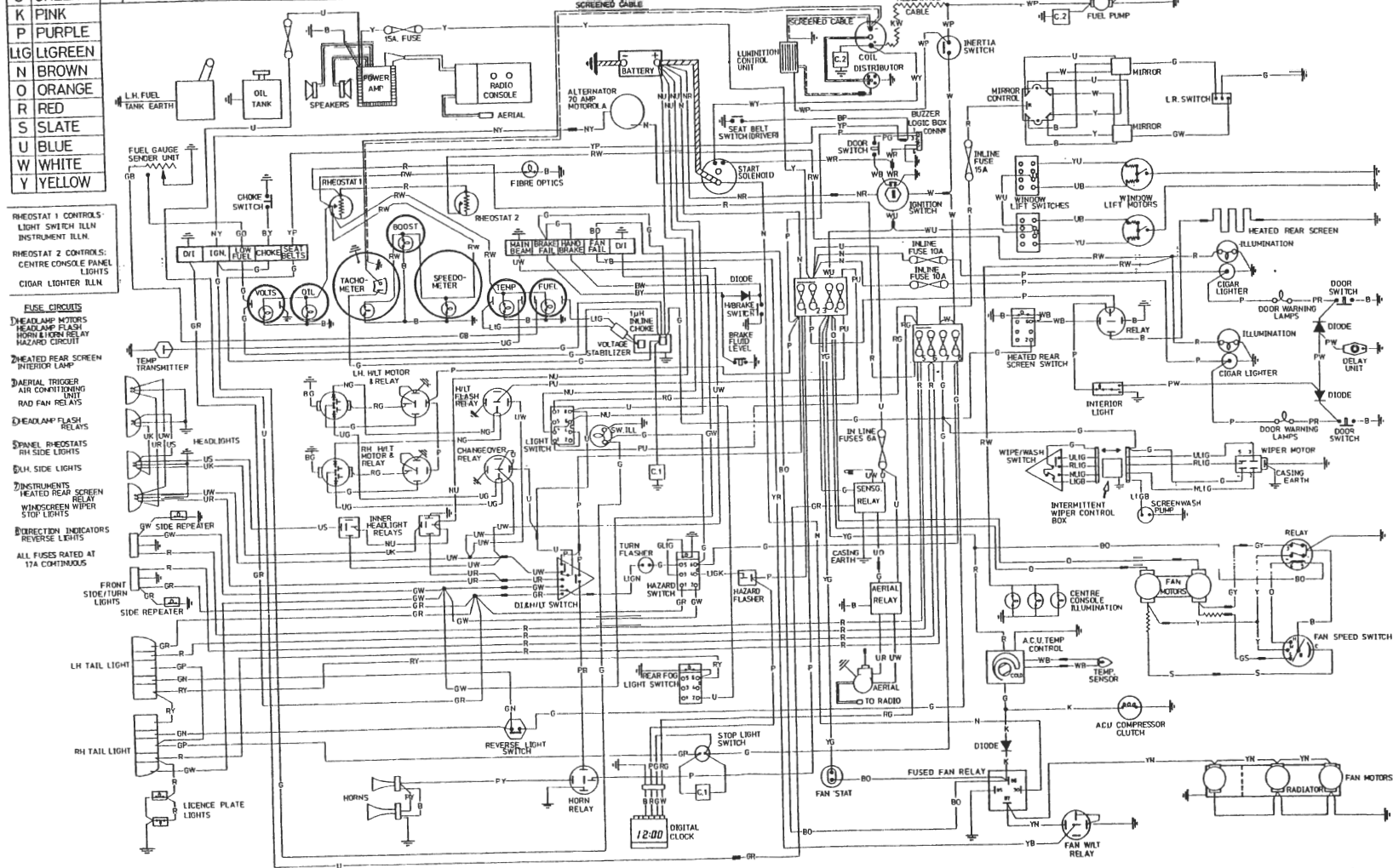


FUSE CIRCUIT	FUSE RATED CONTINUOUS
1	5A
2	10A
3	17A

TURBO ESPRIT WIRING DIAGRAM (DOMESTIC, R.O.W.)

WITH CONSTANT ENERGY IGNITION & FUSED RADIATOR FAN RELAY. LSL 247

B	BLACK	•	SPLICE		RADIO INTERFERENCE
G	GREEN	—	CONNECTOR		SUPPRESSION WITH VALUE



ESSEX COMMEMORATIVE TURBO ESPRIT WIRING DIAGRAM (DOMESTIC, R.O.W.)
WITH LUMINATION & FUSED RADIATOR FAN RELAY

L51 239

B BLACK	• SPLICE	RADIO INTERFERENCE
G GREEN	— CONNECTOR	SUPPRESSION WITH VALUE
K PINK		
P PURPLE		
LIG LIGREEN		
N BROWN		
O ORANGE		
R RED		
S SLATE		
U BLUE		
W WHITE		
Y YELLOW		

RHEOSTAT 1 CONTROLS
LIGHT SWITCH ILL
INSTRUMENT ILL
RHEOSTAT 2 CONTROLS
CENTRE CONSOLE PANEL
LIGHTS
CIGAR LIGHTER ILL

- FUSE CIRCUITS
- HEADLAMP MOTORS
HEADLAMP FLASH
HORN/HORN RELAY
HAZARD CIRCUIT
INT LAMP DELAY & CLOCK MCH
 - HEATED REAR SCREEN
INTERIOR LAMP
 - AERIAL TRIGGER
AIR CONDITIONING UNIT
RAD FAN RELAYS
 - HEADLAMP FLASH
RELAYS
 - PANEL RHEOSTATS
RHS SIDE LIGHTS
 - LH SIDE LIGHTS
 - INSTRUMENTS
HEATED REAR SCREEN
RELAY
WINDSCREEN WIPER
STOP LIGHTS
 - CORRECTION INDICATORS
REVERSE LIGHTS
 - HEADLAMP MOTOR

FRONT
SIDE/TURN
LIGHTS

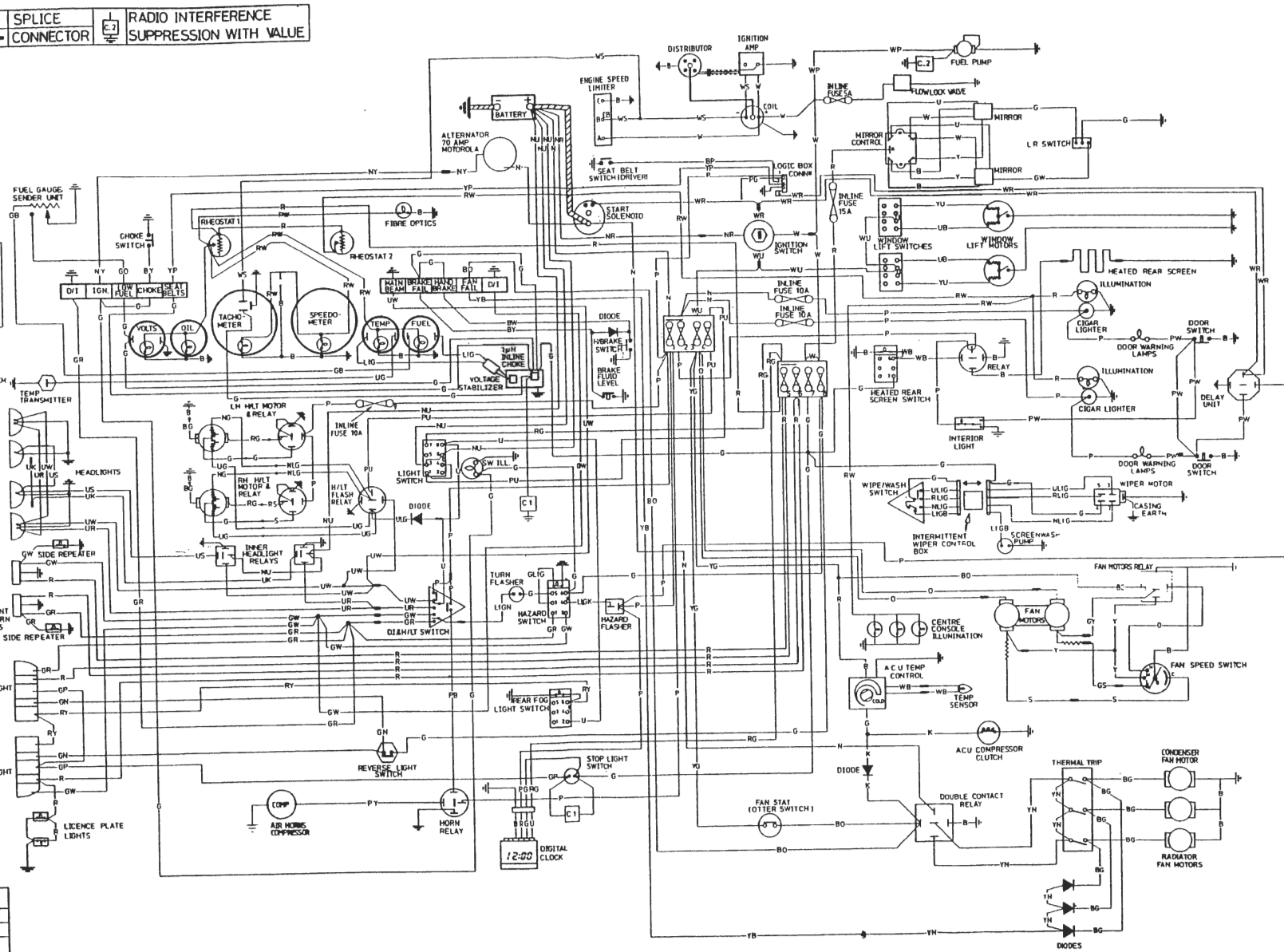
SIDE REPEATER

LH TAIL LIGHT

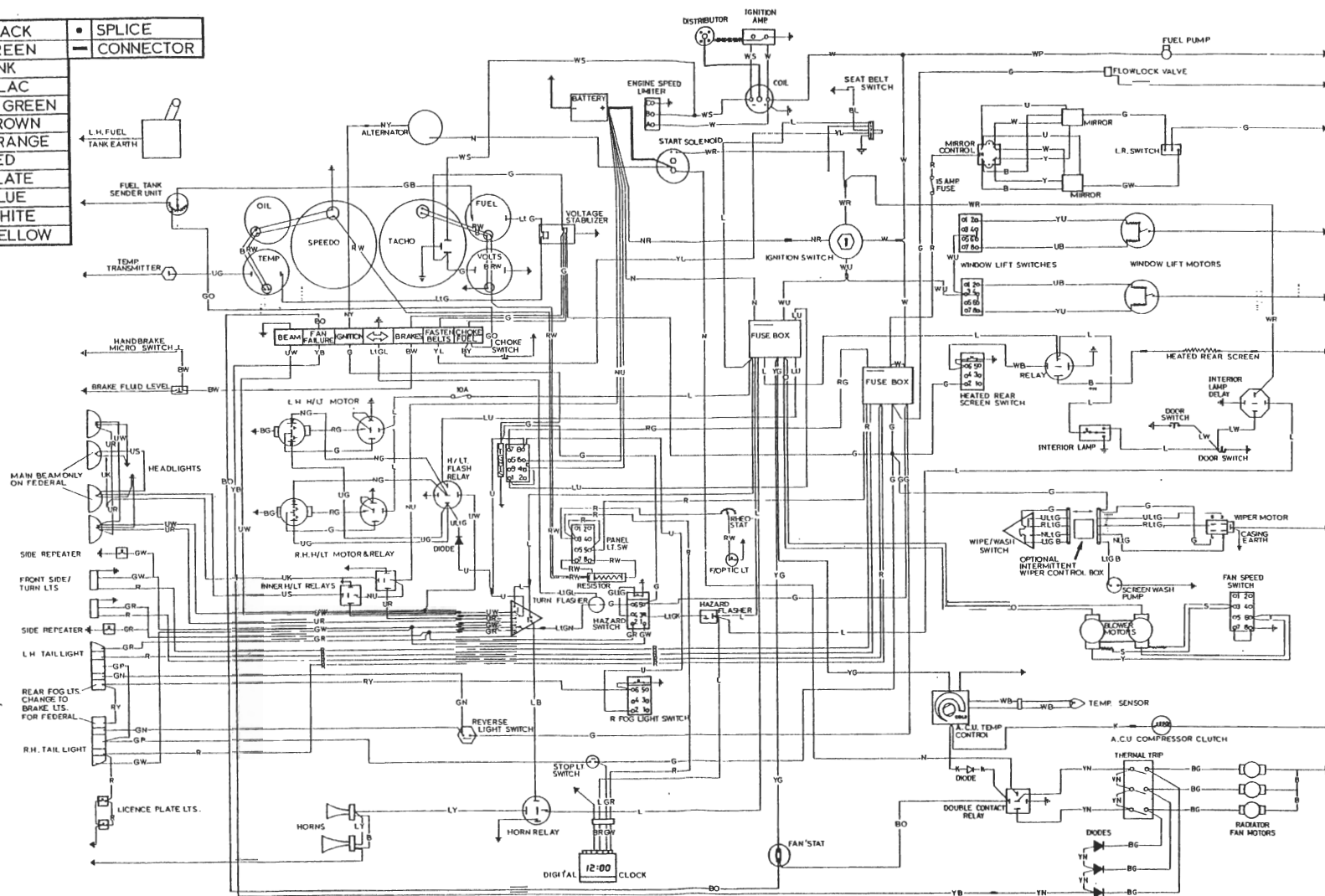
RH TAIL LIGHT

LICENCE PLATE
LIGHTS

FUSE CIRCUIT NR	FUSE RATED CONTINUOUS
①	5A
②	10A
③④⑤⑥⑦	17A

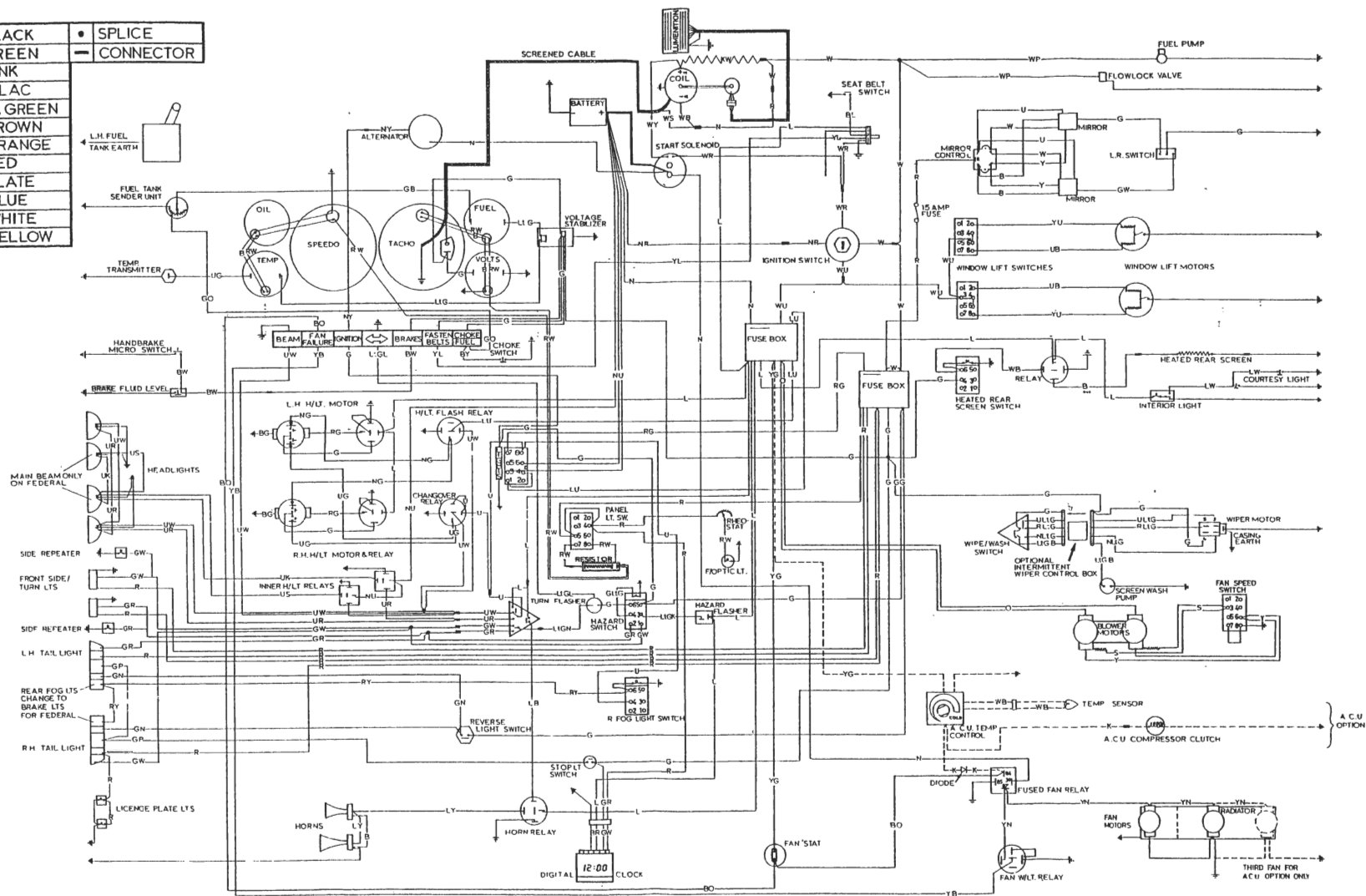


B	BLACK	• SPLICE
G	GREEN	— CONNECTOR
K	PINK	
L	LILAC	
LtG	Lt. GREEN	
N	BROWN	
O	ORANGE	
R	RED	
S	SLATE	
U	BLUE	
W	WHITE	
Y	YELLOW	



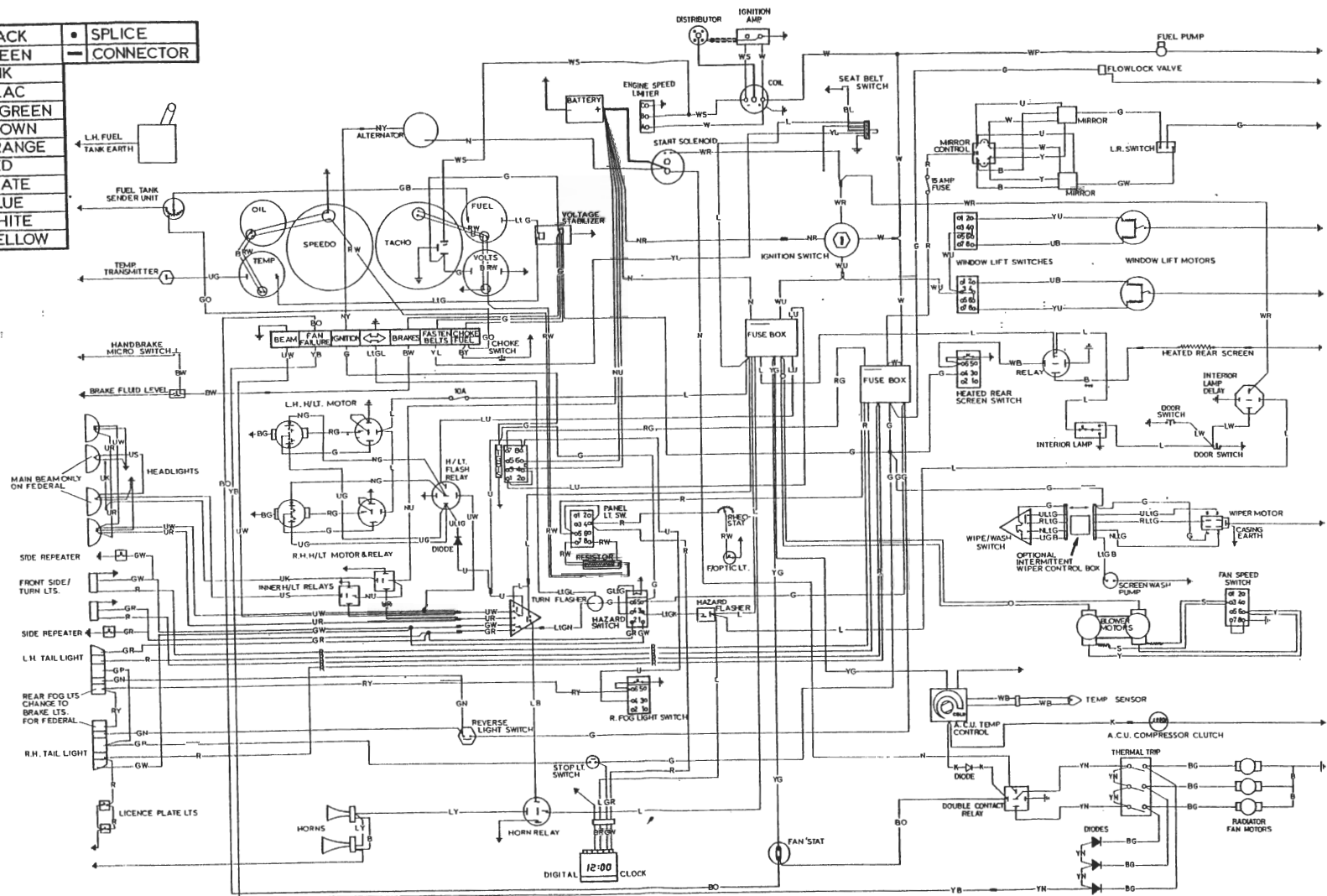
S3 ESPRIT WIRING DIAGRAM (DOMESTIC R.O.W.) WITH ACU
WITH CONSTANT ENERGY IGNITION & RAD. FAN THERMAL TRIP, & E.E.C. (SYMBOL) SWITCHES

B	BLACK	•	SPLICE
G	GREEN	—	CONNECTOR
K	PINK		
L	LILAC		
LtG	Lt. GREEN		
N	BROWN		
O	ORANGE		
R	RED		
S	SLATE		
U	BLUE		
W	WHITE		
Y	YELLOW		



S3 ESPRIT WIRING DIAGRAM (DOMESTIC, R.O.W.)
WITH LUMINATION AND FUSED FAN RELAY. LSL 249

B	BLACK	• SPLICE
G	GREEN	— CONNECTOR
K	PINK	
L	LILAC	
LtG	Lt. GREEN	
N	BROWN	
O	ORANGE	
R	RED	
S	SLATE	
U	BLUE	
W	WHITE	
Y	YELLOW	



S3 ESPRIT WIRING DIAGRAM (DOMESTIC ROW) WITH ACU
WITH CONSTANT ENERGY IGNITION & RADIATOR FAN THERMAL TRIP
LSL 250

DEC 1986

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RADIATOR FANS THERMAL SWITCH
TURBO & LATE S3
(Rad. inlet elbow)

WINDSCREEN WIPER
MOTOR

DIM DIP MODULE

IGNITION SOLENOID
VALVE

OVERBOOST SWITCH

PURGE PUMP &
SHUT OFF VALVE

INERTIA
SWITCH

HEADLAMP LIFT MOTOR

FAN
THERMAL TRIP

INTERIOR
FAN MOTOR

H.R.S. RELAY
(Top of 'B' post)

IGNITION
COIL

IGNITION
AMPLIFIER

BRAKE FLUID LEVEL
WARNING SWITCH

RADIO AERIAL
MOTOR

TURBO RELAYS-'87 MODEL YEAR ON

R.P.M. THROTTLE PURGE IGN. OVERBOOST
RELAY JACK PUMP SOLND. SWITCH

ENGINE
MANAG.
FUSE (5A.)

PURGE PUMP
FUSE (2A.)

ENGINE SPEED
LIMITER

BATTERY

FUEL SENDER UNIT

REVERSING LAMPS
SWITCH

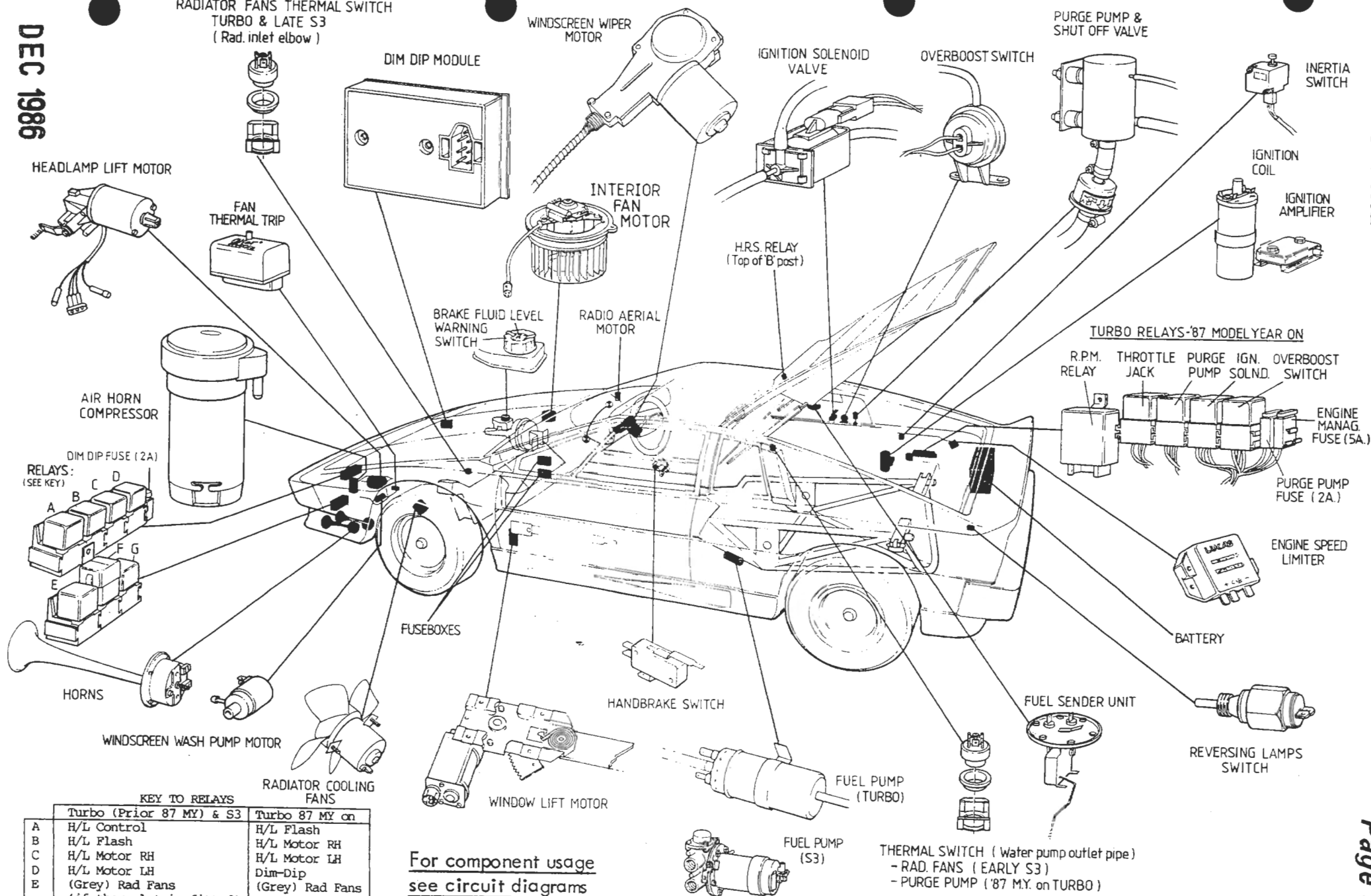
THERMAL SWITCH (Water pump outlet pipe)
- RAD. FANS (EARLY S3)
- PURGE PUMP ('87 M.Y. on TURBO)

For component usage
see circuit diagrams

MB.2. - COMPONENT LOCATION DIAGRAM

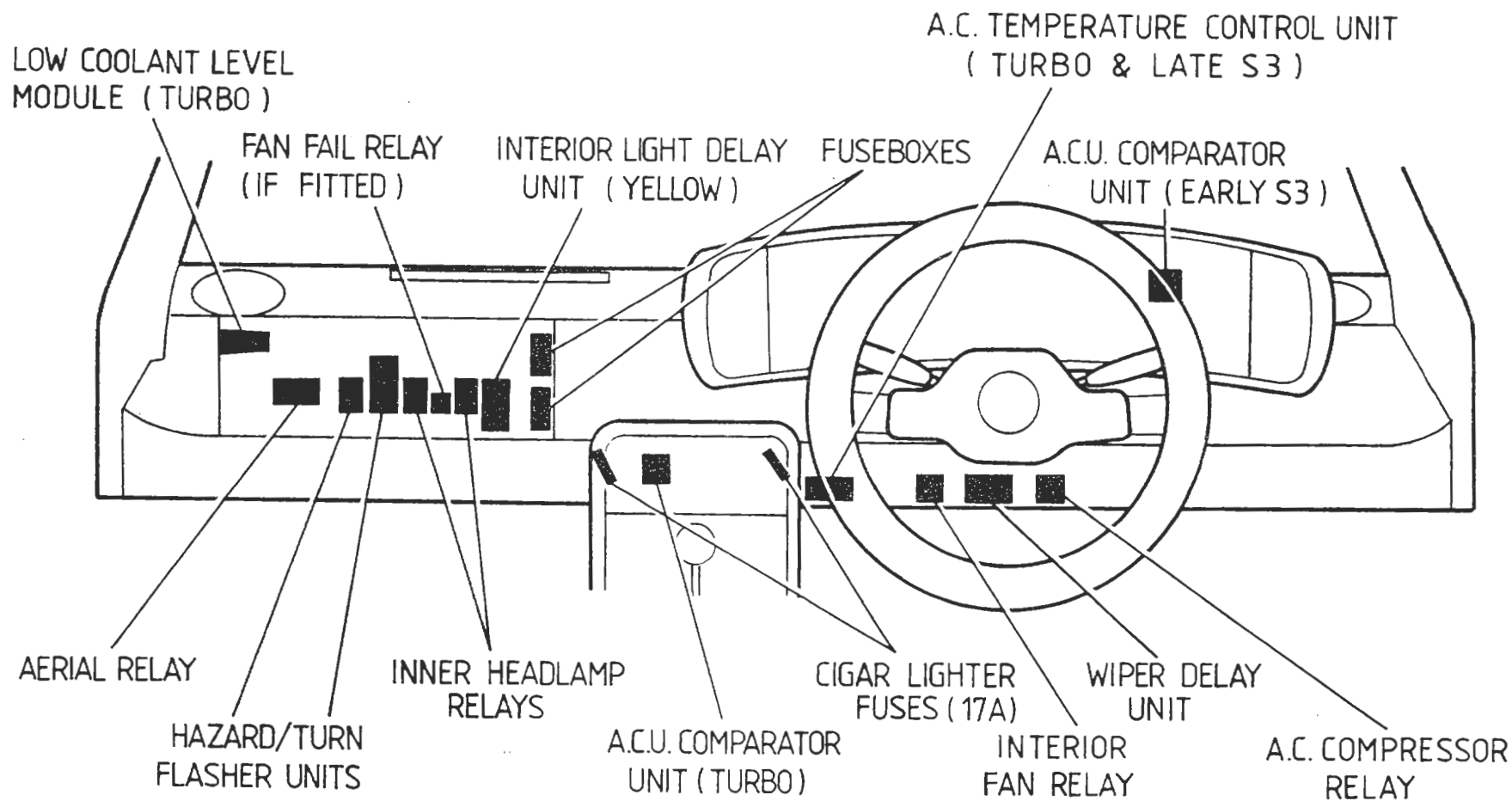
KEY TO RELAYS

	Turbo (Prior 87 MY) & S3	Turbo 87 MY on
A	H/L Control	H/L Flash
B	H/L Flash	H/L Motor RH
C	H/L Motor RH	H/L Motor LH
D	H/L Motor LH	Dim-Dip
E	(Grey) Rad Fans (if thermal trip fitted)	(Grey) Rad Fans
F	(Fused) Rad Fans (if no thermal trip)	R/B Bridge Plug
G	Horn	Horn



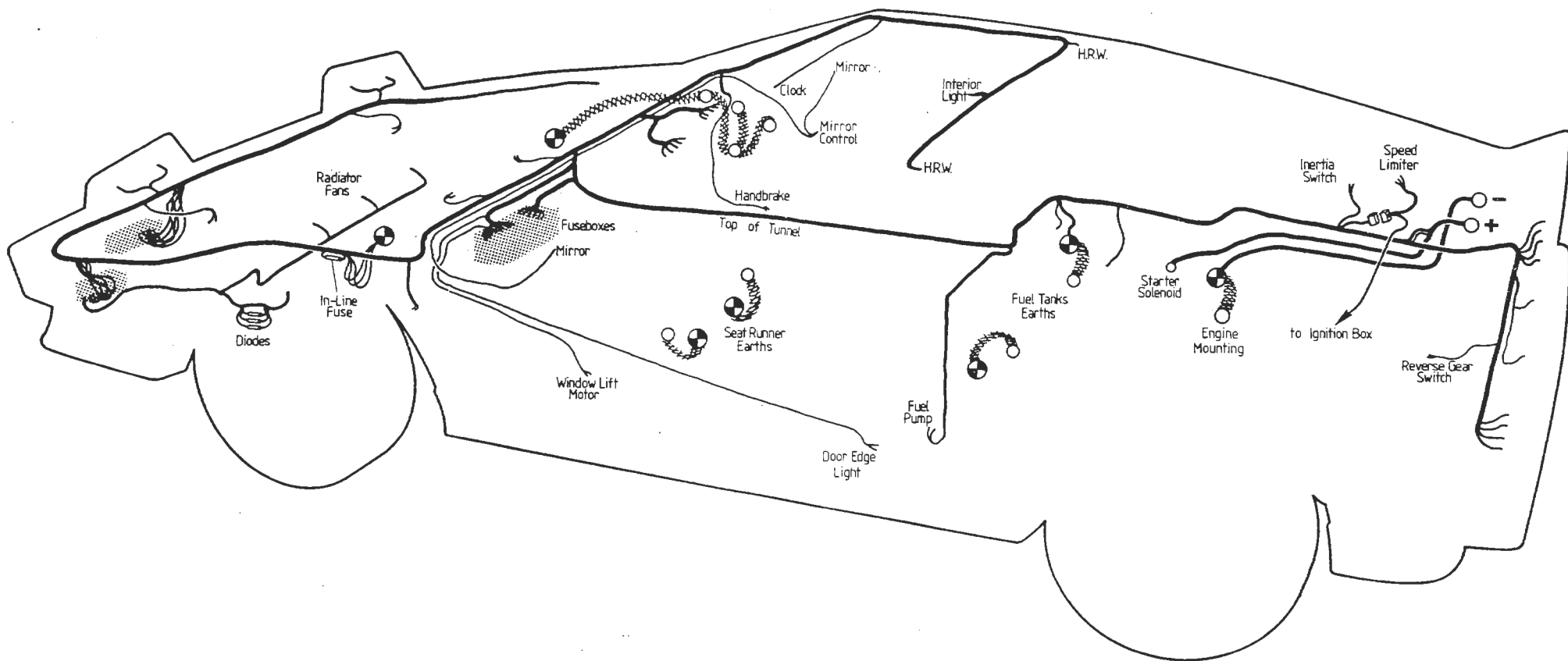
DEC 1986

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MB.2. - COMPONENT LOCATION DIAGRAM - Fascia

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MB.3. - HARNESS ROUTING DIAGRAM

MB.4. - LUMENITION IGNITION SYSTEM

Early Series 3 and Turbo models used Lumenition infra red solid state contact breakerless ignition. On early Turbo models, the Lumenition power module was mounted on the engine bay side of the right hand fuel tank well, but was moved on introduction of the Esprit S3, to the ignition box at the rear of the engine bay.

An optical switch is fitted in the otherwise standard distributor and is operated by a 4 - blade chopper fitted over the distributor cam. A special fibre washer is sometimes used below the chopper blade to achieve the correct blade height through the optical switch.

Two types of Lumenition system have been used, the earlier Mk 16 type being superceded by the Mk 17 type, during 1980 as a running change on production. Components of either type are not individually compatible.

Identification - Power Module

Identification of power modules is only possible by the colour of the resin or plastic block sealing the wires into the module unit.

Mk16 units are sealed with red or black resin. Mk17 units are sealed by a white plastic clamp.

- Optical Switch

Mk 16 optical switch units are marked with numbers similar to 8240, the 8 and 0 being the year and 24 the week of production.

Mk 17 optical switch units were also produced in 1980 but have a 17 preceding the number i.e. 17 8240.

All units produced in 1981 are Mk 17 with numbers similar to 8124, with 81 being the year and 24 the week of production. In the event of an ambiguous date code (e.g. 8120) contact the Lotus Service Department for advice.

Replacement

If a new power module for a Mk 16 system is required, it can only be replaced with a Mk 17 power module in conjunction with a Mk 17 optical switch.

If a Mk 16 optical switch is to be replaced, it can only be replaced with a Mk 17 optical switch, which, if the Mk 16 power module is to be retained, will necessitate the use of convertor unit A083M6305F fitted between the Mk 16 power module and Mk 17 optical switch.

Summary:

Power Module Type	Part Number	Connector Block Shape	Colour of Seal	Length of Lead *	Compatible Optical Switch
Mk 16 (No longer available)	A075M0335F	Rectangular	Red or Black	790 mm	A907E6331F (Mk 16) or B907E6331F (MK 17) + A083M6305F (Convertor)
Mk 17	A083M0384F	Oval or Rectangular	White	790 mm	B907E6331F (Mk 17)
Mk 17	B083M0384F	Oval or Rectangular	White	470 mm	B907E6331F (Mk 17)

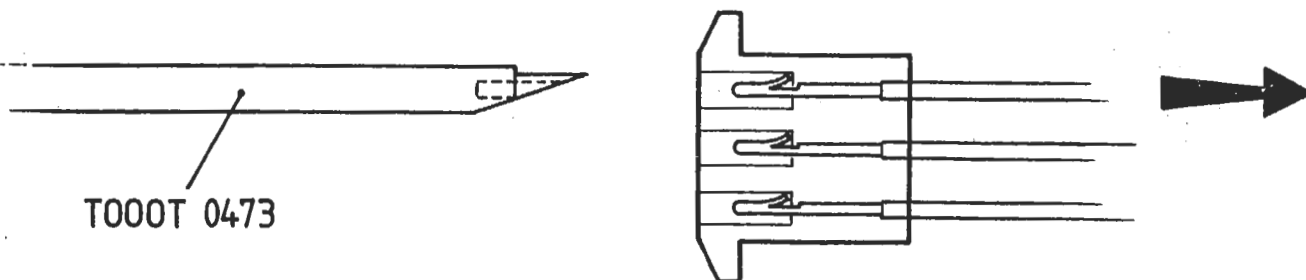
* With power module by RH fuel tank - 790 mm
With power module in ignition box - 470 mm

Connector Blocks

Mk 16 systems used a rectangular connector block between the optical switch and power module. Mk 17 systems used an oval connector block with retaining prongs, which was subsequently found to be less durable than the earlier rectangular type.

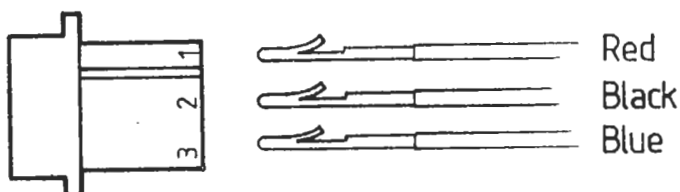
All service replacement components are supplied fitted with the rectangular type connector, and include the opposite 'half' of the connector block which may be used if necessary to replace the remaining oval connector. viz:-

1. Use special tool T000T0473 to close locking tag on pin and remove from wire end of connector block by pulling. **MOST IMPORTANT** - open tag to original locking angle.



2. Having made certain tags are in locking position, push each pin in the correct tunnel of the new connector block until the tag clicks into position.

The connector is numbered as illustration



NOTE: On no account must Mk 17 power modules be connected with Mk 16 optical switches. Also, Mk 16 modules must not be connected to Mk 17 optical switches without use of adaptor A083M6305F.

TESTING INSTRUCTIONS FOR "LUMENITION" MK 16 AND MK 17 IGNITION SYSTEMS

All tests are carried out with ignition switched on and centre HT lead removed from the distributor and held approximately 6.5 mm (1/4 inch) from an earth point such as the engine, but away from the carburettors region.

CAUTION: HT can be dangerous and can jump 25 mm (1 inch). Leads should be handled carefully.

1. To test the complete system -

With the distributor cap removed and out of strong sunlight, pass a piece of opaque material, such as a piece of black card between the lenses of the optical switch - this should produce a spark from the HT lead to earth.

2. To test power module (and coil) -

- a). Unplug 3-way connector leading to the distributor.
- b). Connect (by means of a small piece of wire) -

On Mk 16 the blue to the red
On Mk 17 the blue to the black

wire leading to the power module. As this connection is made a spark is produced at the HT lead. If no spark is produced the power module is suspect. If a weak spark is produced - the coil may be suspect.

3. To test the optical switch -

The optical switch must be connected to a good power module. With a sensitive voltmeter measure the voltage between blue and black leads. With infra red beam not interrupted, the voltage is approximately -

Mk 17 (2.7V) Mk 16 (1.8V) - this drops to
Mk 17 (1.0V) Mk 16 (0.3V) - with beam interrupted.

N.B. The voltage on the red lead is approximately 7.5V.

4. Do not leave the ignition on for a long time (max 15 mins) with the optical switch assembly disconnected.

NOTE: Under no circumstances should:

- a). A full positive feed be applied to any connection other than the red positive wire of the power module supplied with a male Lucas terminal.
- b). The coil terminals be short circuited or the brown wire (coil - VE) of the power module be connected to full positive feed.

Failure to observe the notes above will result in catastrophic damage to the power module, invalidating the warranty.

MB.5. - LUCAS CONSTANT ENERGY IGNITION

The Lucas constant energy ignition system is an inductive system in which the energy stored in the coil is maintained constant over a wide range of engine speeds, thereby providing consistently high output voltages. The system comprises a distributor model 45 DM, and ignition coil model 32 C5, an ignition amplifier model AB 14 and an electronic rev. limiter.

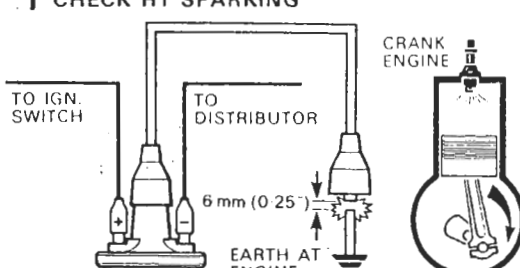
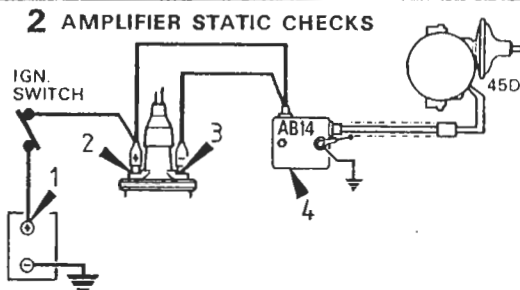
The distributor incorporates a variable-reluctance position transducer (pick up) to provide a basic timing waveform. The sintered reluctor has four projections which correspond in function with the cam lobes of a conventional distributor. The pick up comprises a coil and magnet assembly, the pick up air gap (0.20 - 0.35 mm.) being set during manufacture and requiring no subsequent adjustment.

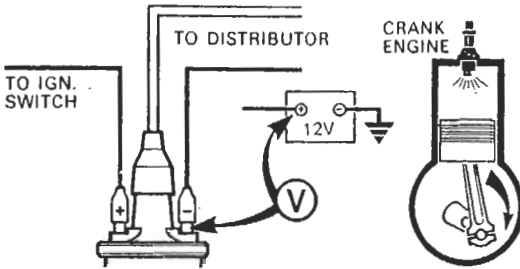
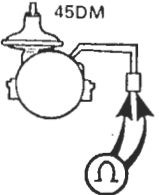
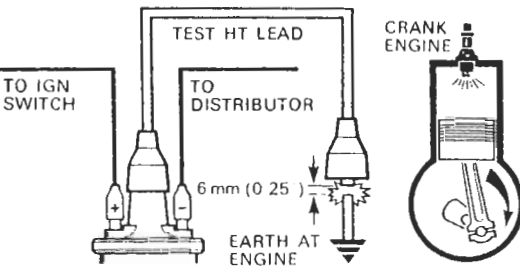
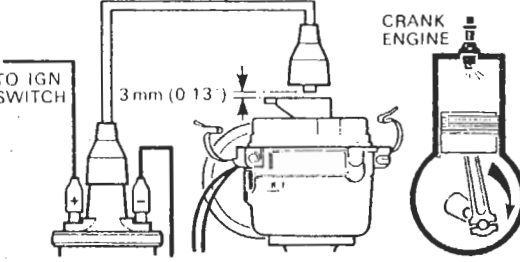
A conventional type rotor arm is fitted, moulded (as is the distributor cap) from track retardant material. The two cables connecting the distributor to the ignition amplifier terminate in a non-reversible "shur plug".

The high energy coil (model 32 C5) is specially designed to achieve the very fast current rise times required for this system. The coil requires no ballast and consumes no current in the stalled engine condition.

The ignition amplifier (AB14) is mounted in the ignition box whilst the electronic rev. limiter unit is fitted on the RH fuel tank board.

The ignition must be switched on for the following checks.

TEST				RESULT
1 CHECK HT SPARKING 				Should be: Regular sparking → TEST 6 No sparking → TEST 2
2 AMPLIFIER STATIC CHECKS 				Measure voltages at 1-4 incl. should be: 1 - More than 11.5V 2 - 1V max. below V at 1 3 - 1V max. below V at 1 4 - 0V-0.1V All correct → TEST 3 Incorrect reading(s) → SEE CHART
1	2	3	4	SUSPECT
LOW	✓	✓	✓	Battery discharged
✓	LOW	LOW	✓	Ignition switch and/or wiring
✓	✓	LOW	✓	Coil or amplifier
✓	✓	✓	HIGH	Amplifier earth (ground)

<p>3 CHECK AMPLIFIER SWITCHING</p> 	<p>Voltage increases while cranking ————— TEST 5</p> <p>Voltage does not increase while cranking ————— TEST 4</p>
<p>4 PICK-UP COIL RESISTANCE</p> 	<p>Ohmmeter should show 2-5 kΩ</p> <p>Correct Change amplifier If engine will not start ————— TEST 5</p> <p>Incorrect Change pick-up If engine will not start ————— TEST 5</p>
<p>5 CHECK HT SPARKING</p> 	<p>Should be good HT sparking Repeat with original HT lead Good sparking If engine will not start ————— TEST 6</p> <p>No sparking, replace HT lead If engine will not start ————— TEST 6</p> <p>No sparking Replace coil If engine will not start ————— TEST 6</p>
<p>6 CHECK ROTOR ARM</p> 	<p>Should be: No sparking ————— TEST 7</p> <p>HT sparking Replace rotor arm/rotor vane If engine will not start ————— TEST 7</p>
<p>7 VISUAL AND HT CABLE CHECKS</p> <p>EXAMINE</p> <ol style="list-style-type: none"> 1 Distributor Cover 2 Coil Top 3 H.T. Cable Insulation 4 H.T. Cable Continuity 5 Spark Plugs 	<p>Should be:</p> <ol style="list-style-type: none"> 1 Clean, dry, no tracking marks 2 Clean, dry, no tracking marks 3 Must not be cracked, chafed or perished 4 Must not be open circuit 5 Clean, dry, and set to correct gap

Recommended Test Equipment

DC moving coil voltmeter, scale 0 - 20V
 DC moving coil ohmmeter
 HT jumper cable

MB.6. - 'MAINTENANCE FREE' BATTERY CHARGING PROCEDURE

Instructions for Tungstone Powermaster Maintenance Free Batteries.

To determine the state of charge of the battery, apply a brief discharge of no more than ten seconds duration (e.g. turn on headlights) with the engine off, and then allow to stand on open circuit for two to three minutes.

Measure the terminal voltage of the battery.

If steady voltage is below 12.4 Volts, recharge battery as follows.

Note: The battery must not be boost charged.

If necessary, fit a replacement battery to the vehicle, whilst original battery is charged as follows.

Remove battery from vehicle.

- a). Constant Current: The battery must be charged at a maximum of 5 amps until the battery terminal voltage (on charge) has stabilised over a one hour period, at which time the voltage will be in the range 16.0 - 16.5 V. At this stage the battery must be taken off charge IMMEDIATELY, to prevent excess gassing with resulting water loss which will ultimately reduce the guaranteed service life.
- b). Constant Voltage: The battery may be charged at a voltage up to a maximum of 15.8V providing the current is carefully monitored and the charge terminated when the current has tapered off and changes by less than 0.1 amp over a period of one hour. If it is not possible to monitor the current during charging, then the voltage must be restricted to 14.4 V maximum.

MB.7. - DIM-DIP HEADLAMP SYSTEM (U.K. Models)

The Motor Vehicles (Dim-Dip Lighting Devices) Regulations 1983 of the Road Traffic Act, decrees that cars manufactured on or after 1st October 1986 for use in the U.K. and first registered on or after 1st April 1987, shall be fitted with Dim-Dip lighting systems.

The Dim-Dip system must operate as follows:

If, with the vehicle sidelamps lit, the ignition is switched on, the headlamp dip beams (halogen) will operate on a reduced current to provide 10% of their normal intensity.

All 1987 Model Year Domestic cars are fitted with Dim-Dip systems which operate as follows:

The lighting switch is located at the left hand top of the fascia binnacle.

With this switch in the 'up' position, all lights are off.

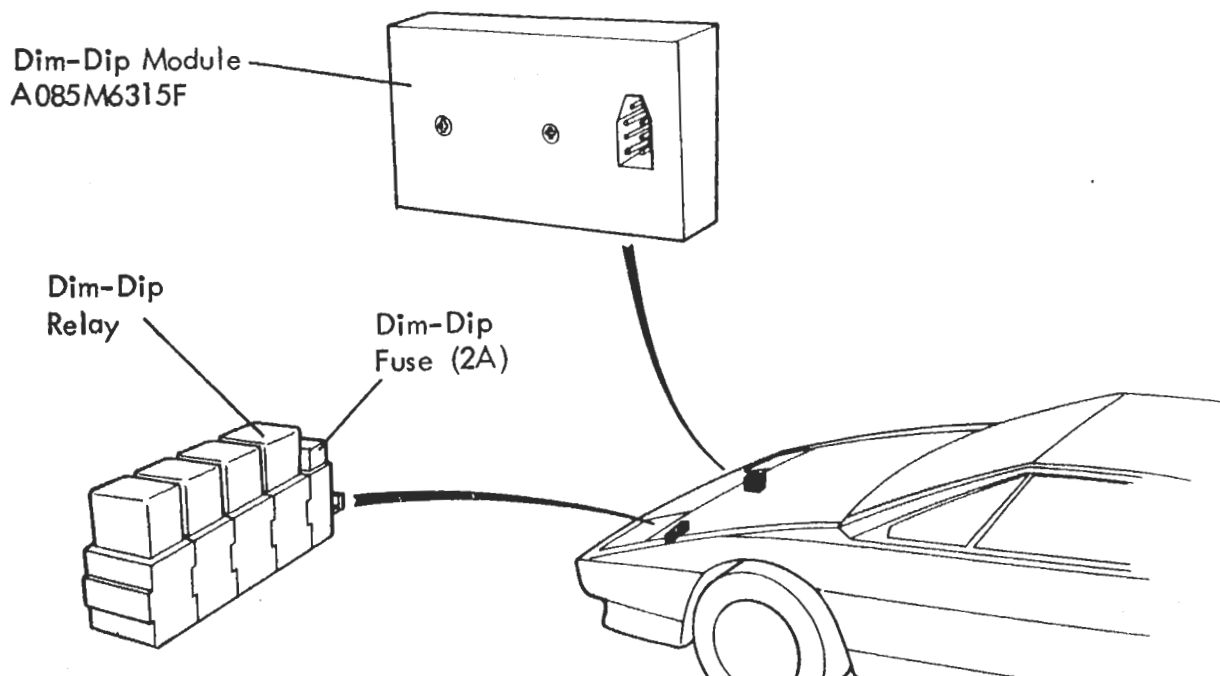
In the centre position, the side, rear and panel lights are switched on. On U.K. market cars fitted with 'Dim-Dip' headlamps switching on the ignition will raise the headlamp pods with the dip beams operating in 'dim' mode.

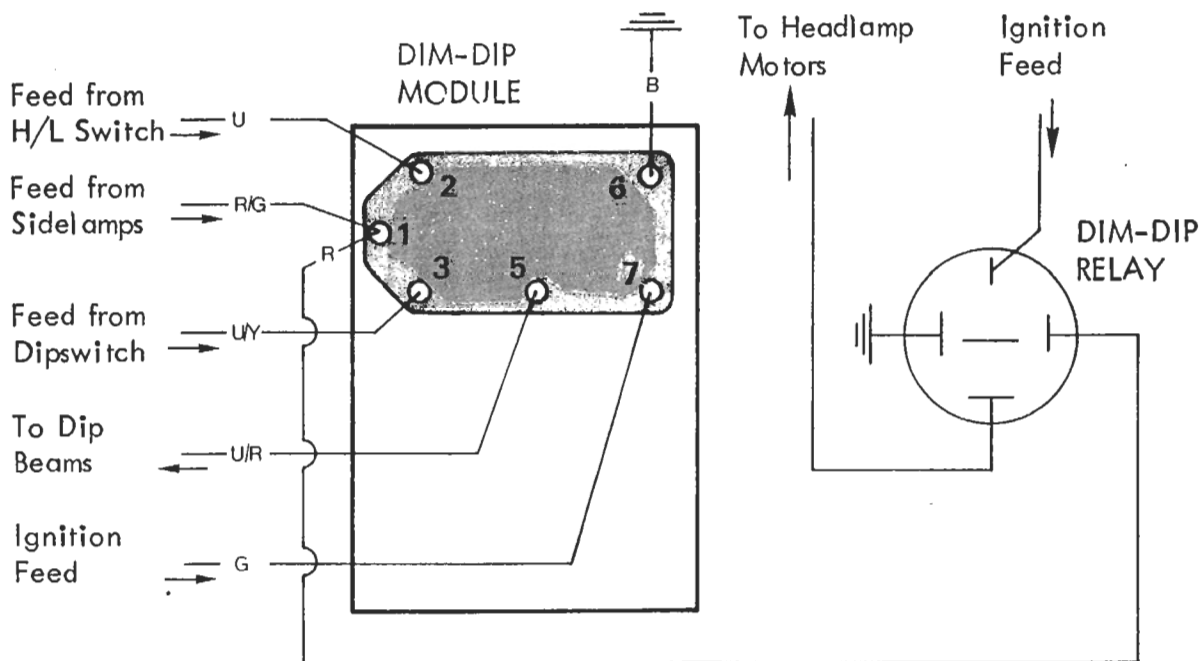
With the switch in the 'down' position the headlamp pods are raised with the headlamps lit.

Dip and flash control is unchanged and operates as previously.

Component Location

The dim-dip module is mounted inboard of the right hand headlamp pod well, and the fuse and relay alongside the existing headlamp relays, behind the left hand pod.





- i) With sidelamps switched on, a feed is supplied to module terminal 1 and the relay is energised.
- ii) When the ignition is switched on, a feed is supplied through the energised relay to the headlamp motors to raise the pods. In addition, a feed is supplied to module terminal 7. The module processes the signals received via terminals 1 and 7 to output a 10% voltage feed to the dip beams via terminal 5.
- iii) With the headlamps switched on, a feed from the headlamp switch is supplied to module terminal 2. When dip beam is selected, an additional feed is supplied to module terminal 3. The module processes the signals received and either supplies no output to terminal 5 (when main beam is operating) or full voltage (when dip beam selected).

ELECTRICALSECTION MC - ESPRIT TURBO U.S.A. (Prior to '86 M.Y.)Sheet/Page

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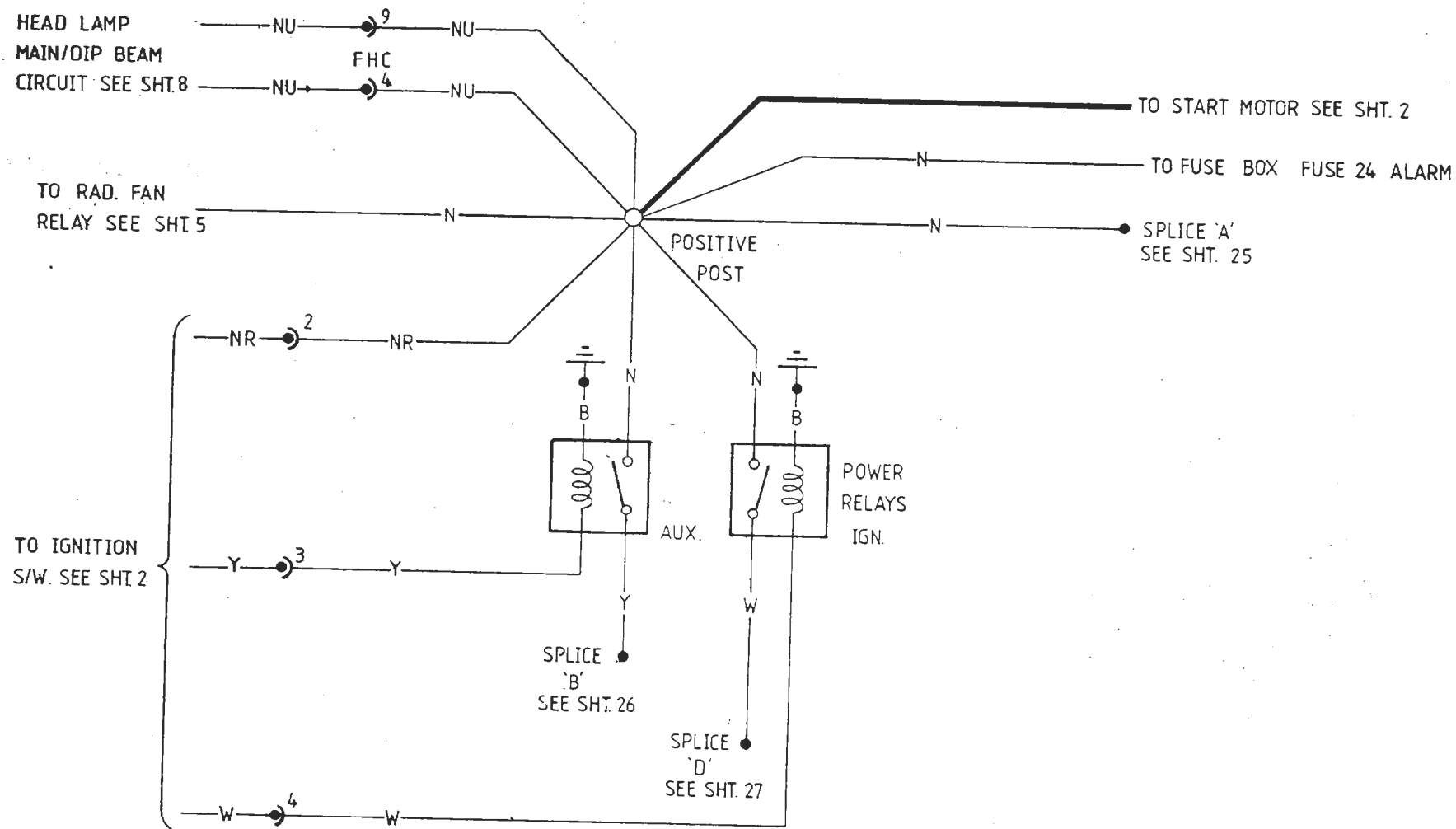
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LEGEND

BIN	Binnacle Connector
D.H.C.	Door Harness Connector
D.I.	Direction Indicator
E.B.C.	Engine Bulkhead Connector
E.H.C.	Engine Harness Connector
F.H.C.	Front Harness Connector
L.H.	Left Hand
P.H.C.	Pumps Harness Connector
R.H.	Right Hand
R.H.C.	Rear Harness Connector
SOL	Solenoid
S/W	Switch
W/LT.	Warning Light
C.C.C.	Centre Console Connector
M.H.C.	Manifold Harness Connector
C.F.H.C.	Cooling Fans Harness Connector

Cable Colour Code

B	Black	O	Orange
G	Green	R	Red
K	Pink	S	Slate
P	Purple	U	Blue
LTG	Light Green	W	White
N	Brown	Y	Yellow



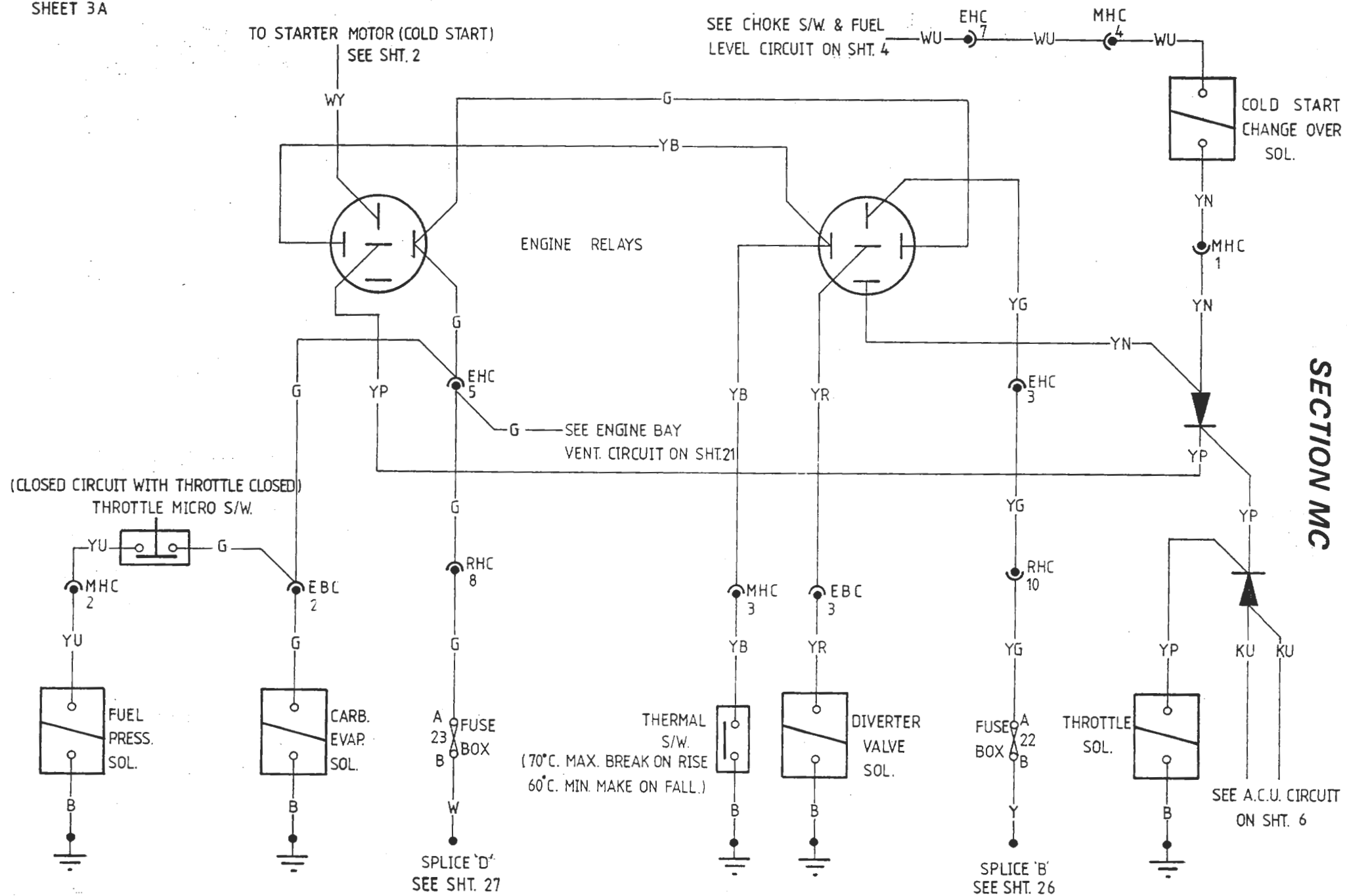
SECTION MC

SUPPLIES

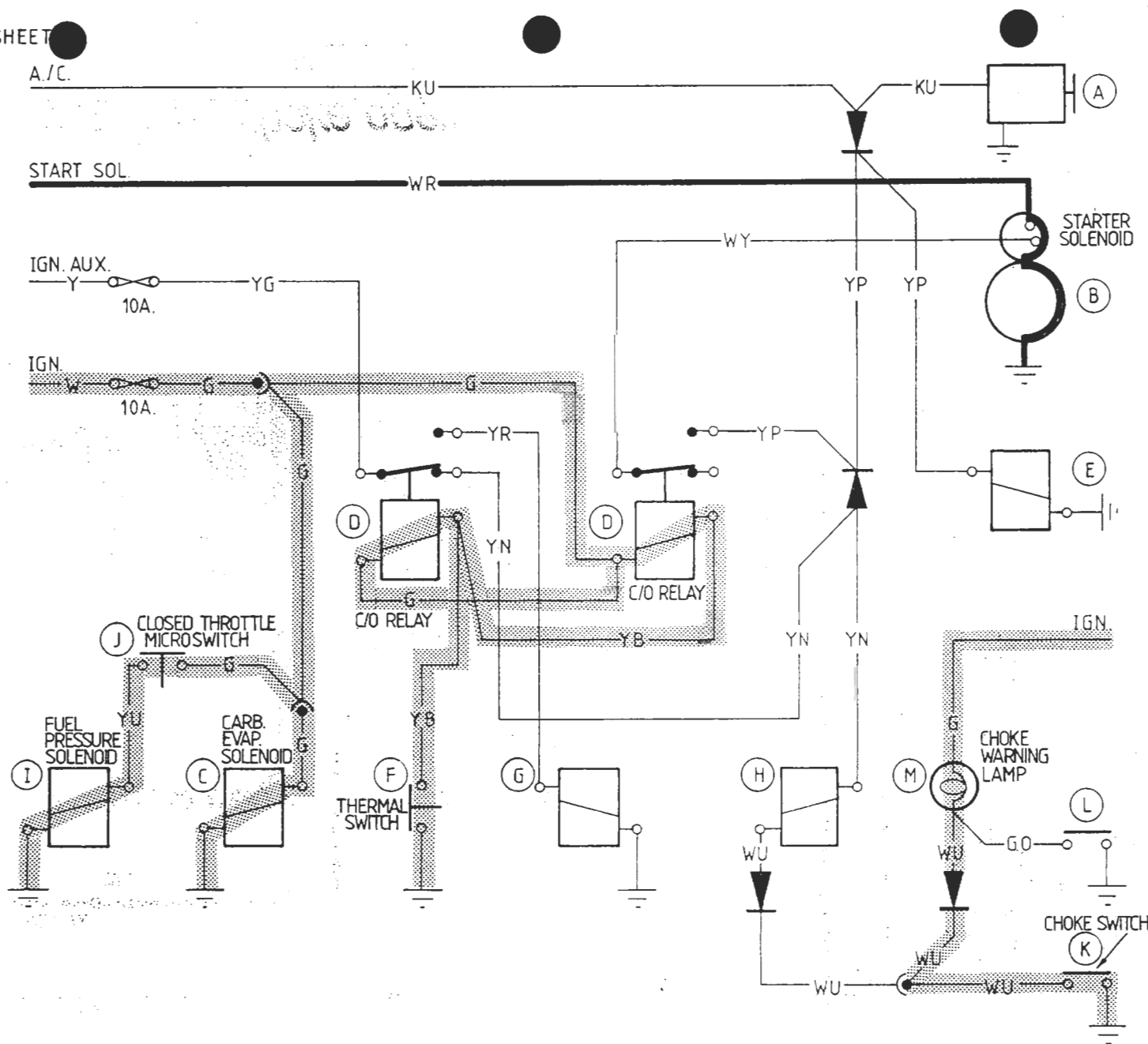


TO STARTER MOTOR (COLD START)
SEE SHT. 2

SEE CHOKE S/W. & FUEL
LEVEL CIRCUIT ON SHT. 4



ENGINE MANAGEMENT



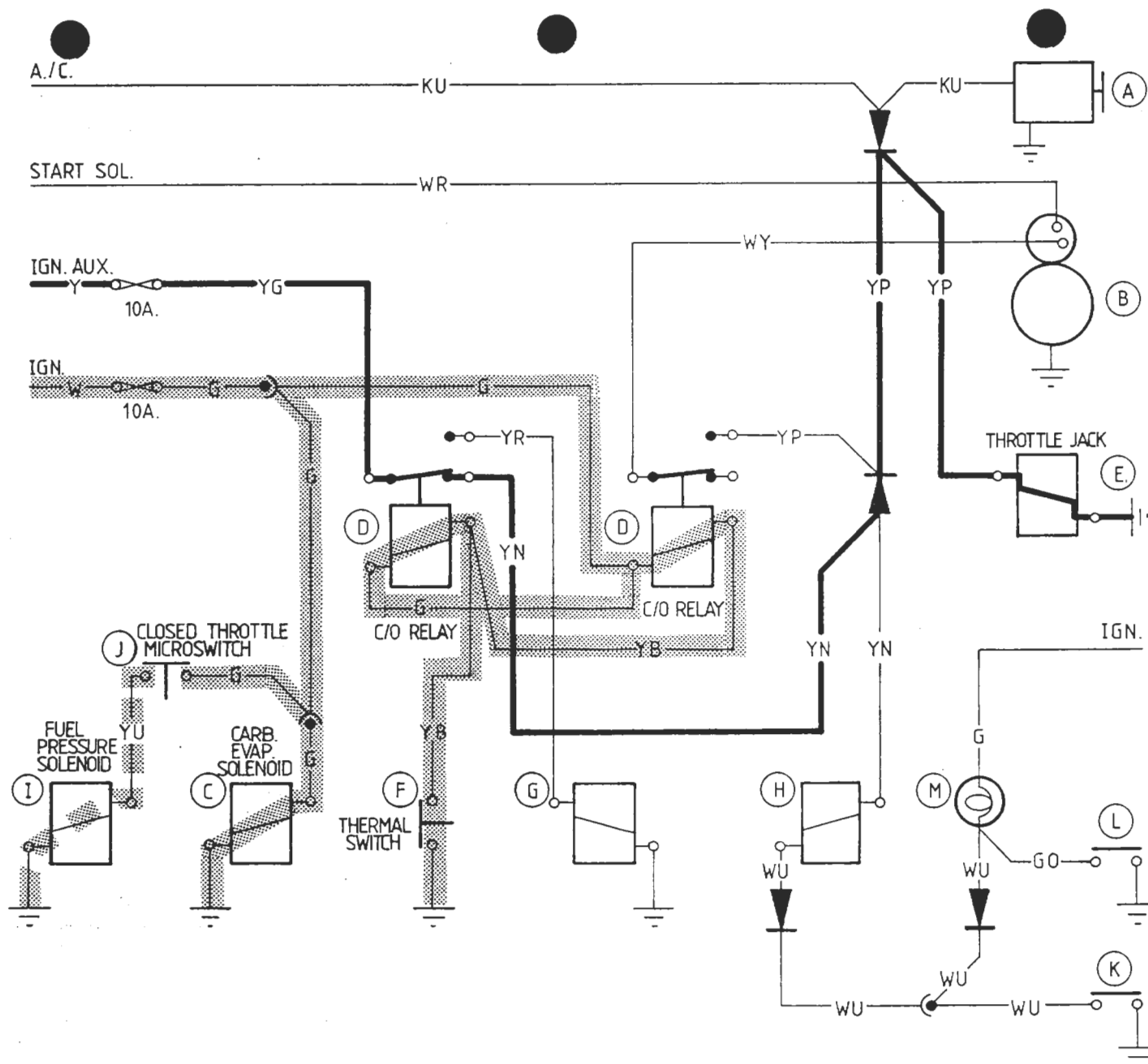
ENGINE MANAGEMENT OPERATION

- A A/C. COMPRESSOR.
- B STARTER MOTOR.
- C CARB. EVAP. SOLENOID:
CLOSED WHEN
IGNITION OFF, OPEN WHEN IGNITION ON.
- D TEMP. CHANGE OVER RELAYS:
CONTROLLED BY THERMAL SWITCH 'F'
- E THROTTLE SOLENOID: TO OPERATE WHEN;
1. A/C. COMPRESSOR IS ENERGISED.
2. STARTER MOTOR CRANKING ON HOT START.
3. COLD STARTING EXCEPT DURING CRANKING.
- F THERMAL SWITCH:
MAX. BREAK ON RISE 70° C.
MIN. MAKE ON FALL 60° C.
- G DIVERTER VALVE:
ENERGISED WHEN COOLANT TEMP ABOVE 60°C
- H COLD START CHANGE OVER SOLENOID:
ENERGISED WHEN CHOKE IS USED BUT NOT
WHILST CRANKING.
- I FUEL PRESSURE SOLENOID:
ENERGISED BY THROTTLE MICRO SWITCH 'J'
- J THROTTLE MICRO SWITCH
- K CHOKE SWITCH
- L LOW FUEL SWITCH
- M CHOKE/LOW FUEL WARNING LAMP

Cold Start. Choke operated & cranking

- MC**

 - A A/C. COMPRESSOR.
 - B STARTER MOTOR.
 - C CARB. EVAP. SOLENOID:
CLOSED WHEN
IGNITION OFF, OPEN WHEN IGNITION ON.
 - D TEMP CHANGE OVER RELAYS:
CONTROLLED BY THERMAL SWITCH 'F'
 - E THROTTLE SOLENOID: TO OPERATE WHEN;
1. A/C. COMPRESSOR IS ENERGISED.
2. STARTER MOTOR CRANKING ON HOT START.
3. COLD STARTING EXCEPT DURING CRANKING.
 - F THERMAL SWITCH:
MAX. BREAK ON RISE 70° C.
MIN. MAKE ON FALL 60° C.
 - G DIVERTER VALVE:
ENERGISED WHEN COOLANT TEMP ABOVE 60°C
 - H COLD START CHANGE OVER SOLENOID:
ENERGISED WHEN CHOKE IS USED BUT NOT
WHILST CRANKING.
 - I FUEL PRESSURE SOLENOID:
ENERGISED BY THROTTLE MICRO SWITCH 'J'
 - J THROTTLE MICRO SWITCH.
 - K CHOKE SWITCH.
 - L LOW FUEL SWITCH.
 - M CHOKE/LOW FUEL WARNING LAMP



ENGINE MANAGEMENT OPERATION

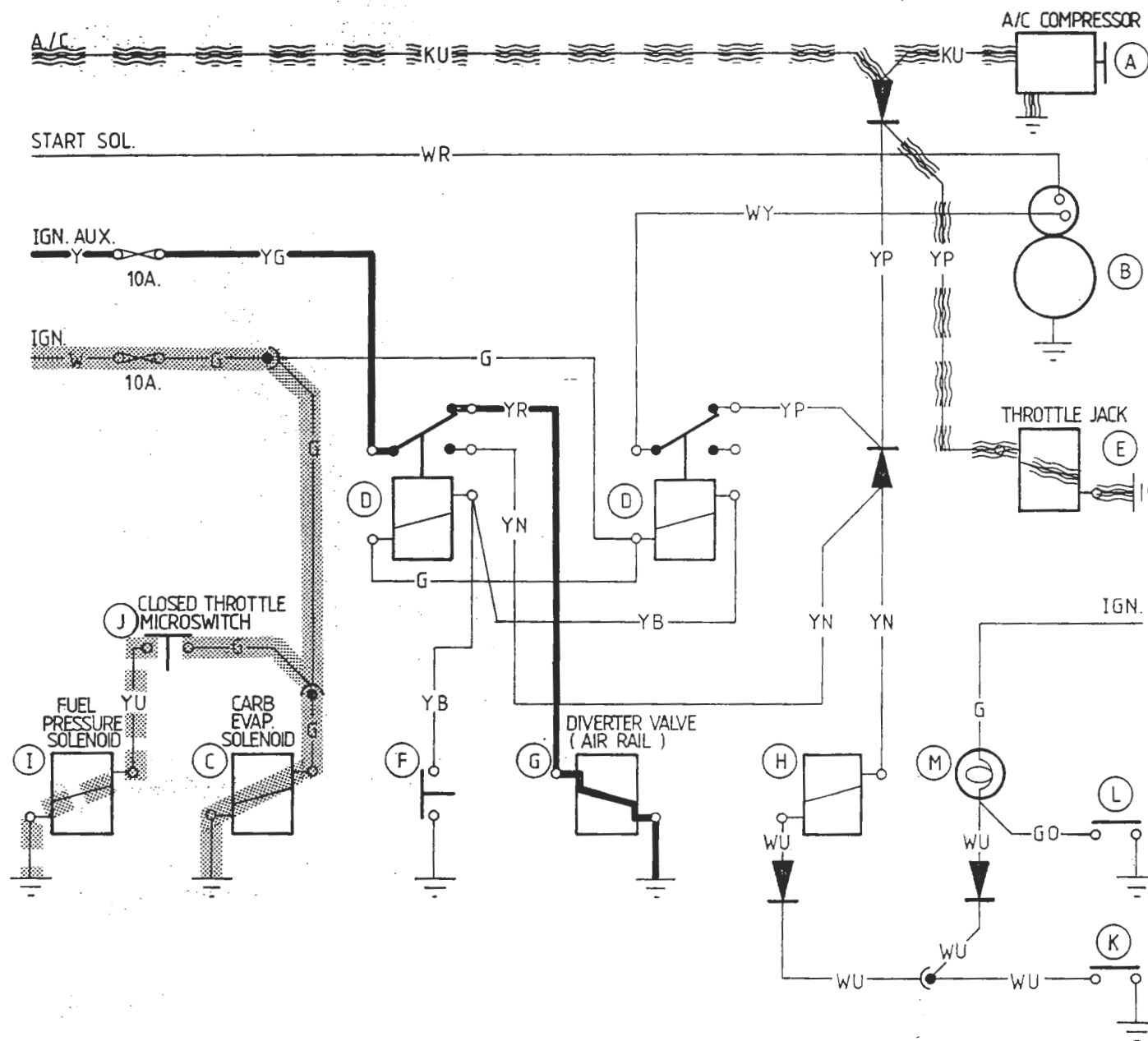
- A A/C. COMPRESSOR.
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- C CARB. EVAP. SOLENOID:
CLOSED WHEN IGNITION OFF, OPEN WHEN IGNITION ON.
- D TEMP CHANGE OVER RELAYS:
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- H COLD START CHANGE OVER SOLENOID:
ENERGISED WHEN CHOKE IS USED BUT NOT WHILST CRANKING.
- I FUEL PRESSURE SOLENOID:
ENERGISED BY THROTTLE MICRO SWITCH 'J'
- J THROTTLE MICRO SWITCH.
- K CHOKE SWITCH.
- L LOW FUEL SWITCH.
- M CHOKE/LOW FUEL WARNING LAMP

Cold Run (below 70°C.)

ENGINE MANAGEMENT CIRCUIT - FEDERAL

SHEET 3D

MC



Hot Run (above 70°C.)

ENGINE MANAGEMENT CIRCUIT - FEDERAL

SHEET 3E

ENGINE MANAGEMENT OPERATION

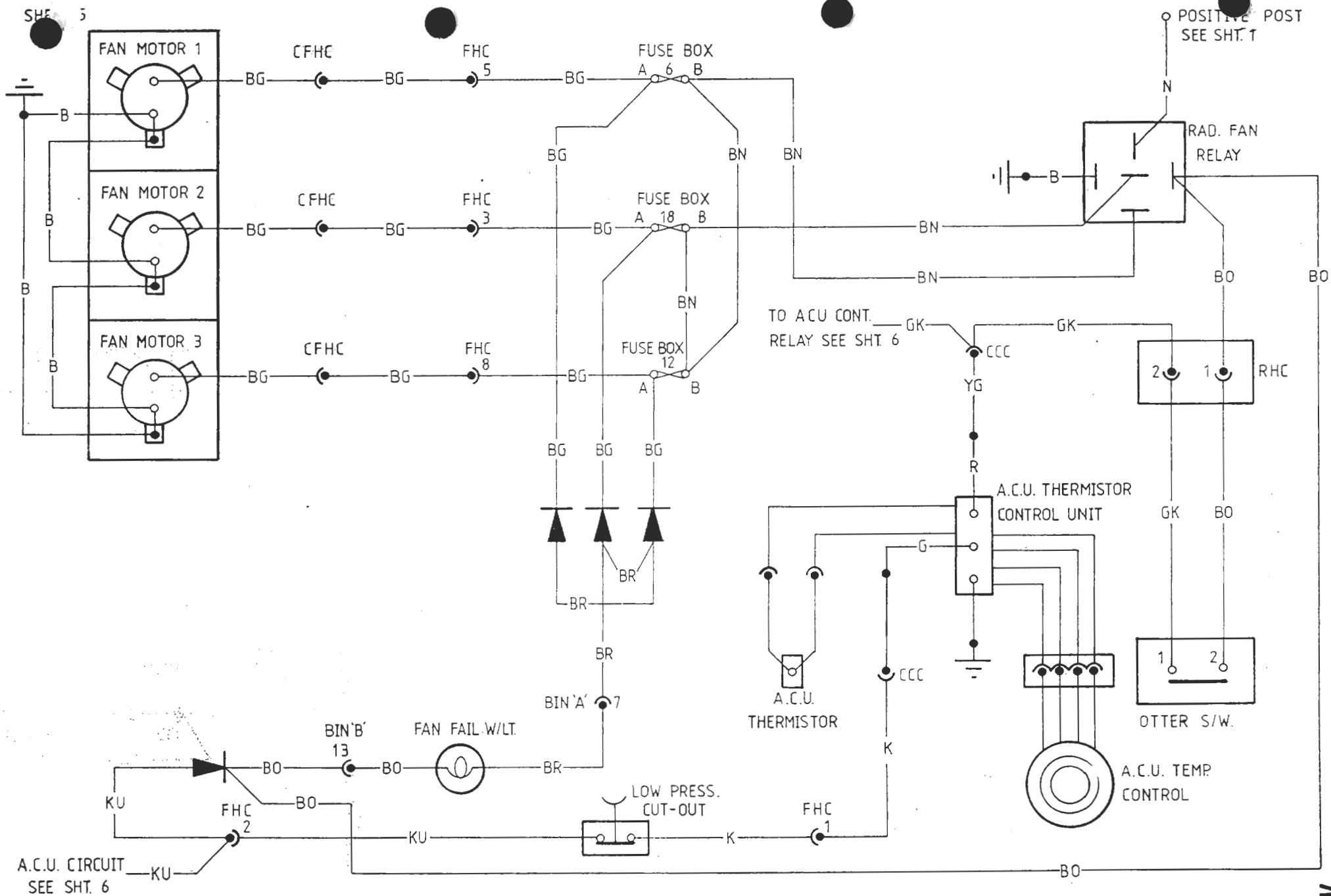
- A** A/C. COMPRESSOR.
- B** STARTER MOTOR.
- C** CARB. EVAP. SOLENOID:
CLOSED WHEN
IGNITION OFF, OPEN WHEN IGNITION ON.
- D** TEMP CHANGE OVER RELAYS:
CONTROLLED BY THERMAL SWITCH 'F'
- E** THROTTLE SOLENOID: TO OPERATE WHEN;
1. A/C. COMPRESSOR IS ENERGISED.
2. STARTER MOTOR CRANKING ON HOT START.
3. COLD STARTING EXCEPT DURING CRANKING.
- F** THERMAL SWITCH:
MAX. BREAK ON RISE 70° C.
MIN. MAKE ON FALL 60° C.
- G** DIVERTER VALVE:
ENERGISED WHEN COOLANT TEMP ABOVE 60°C.
- H** COLD START CHANGE OVER SOLENOID:
ENERGISED WHEN CHOKE IS USED BUT NOT
WHILST CRANKING.
- I** FUEL PRESSURE SOLENOID:
ENERGISED BY THROTTLE MICRO SWITCH 'J'
- J** THROTTLE MICRO SWITCH.
- K** CHOKE SWITCH.
- L** LOW FUEL SWITCH.
- M** CHOKE/LOW FUEL WARNING LAMP.

MC

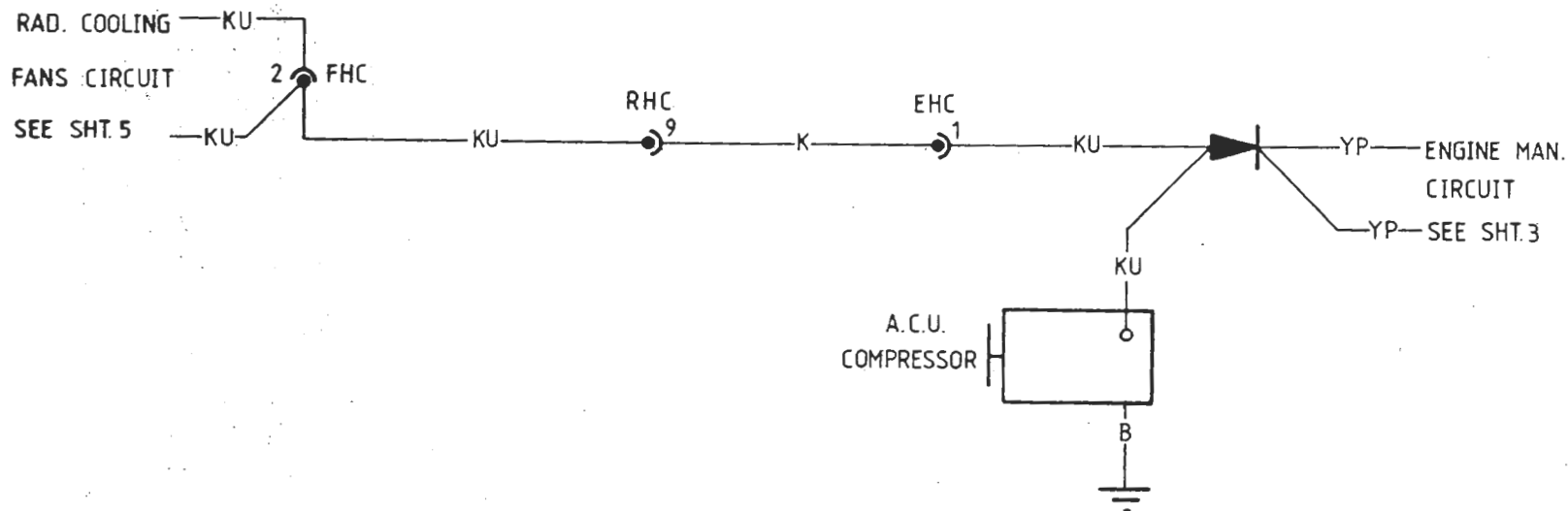
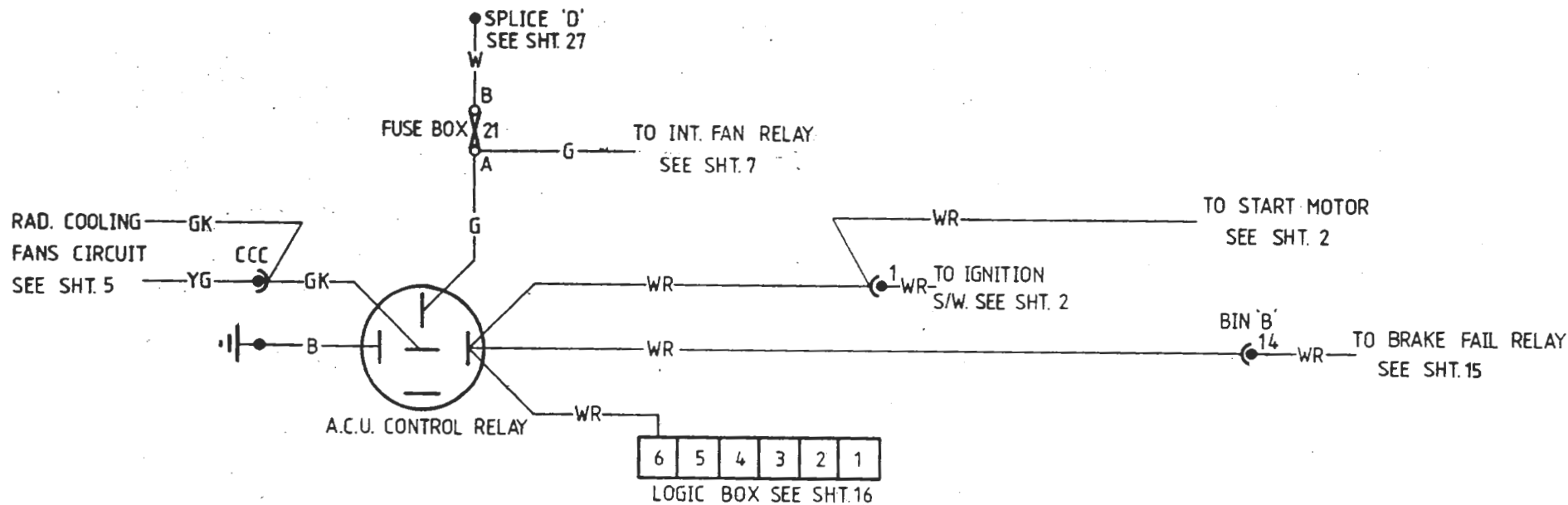


SHEET 3F

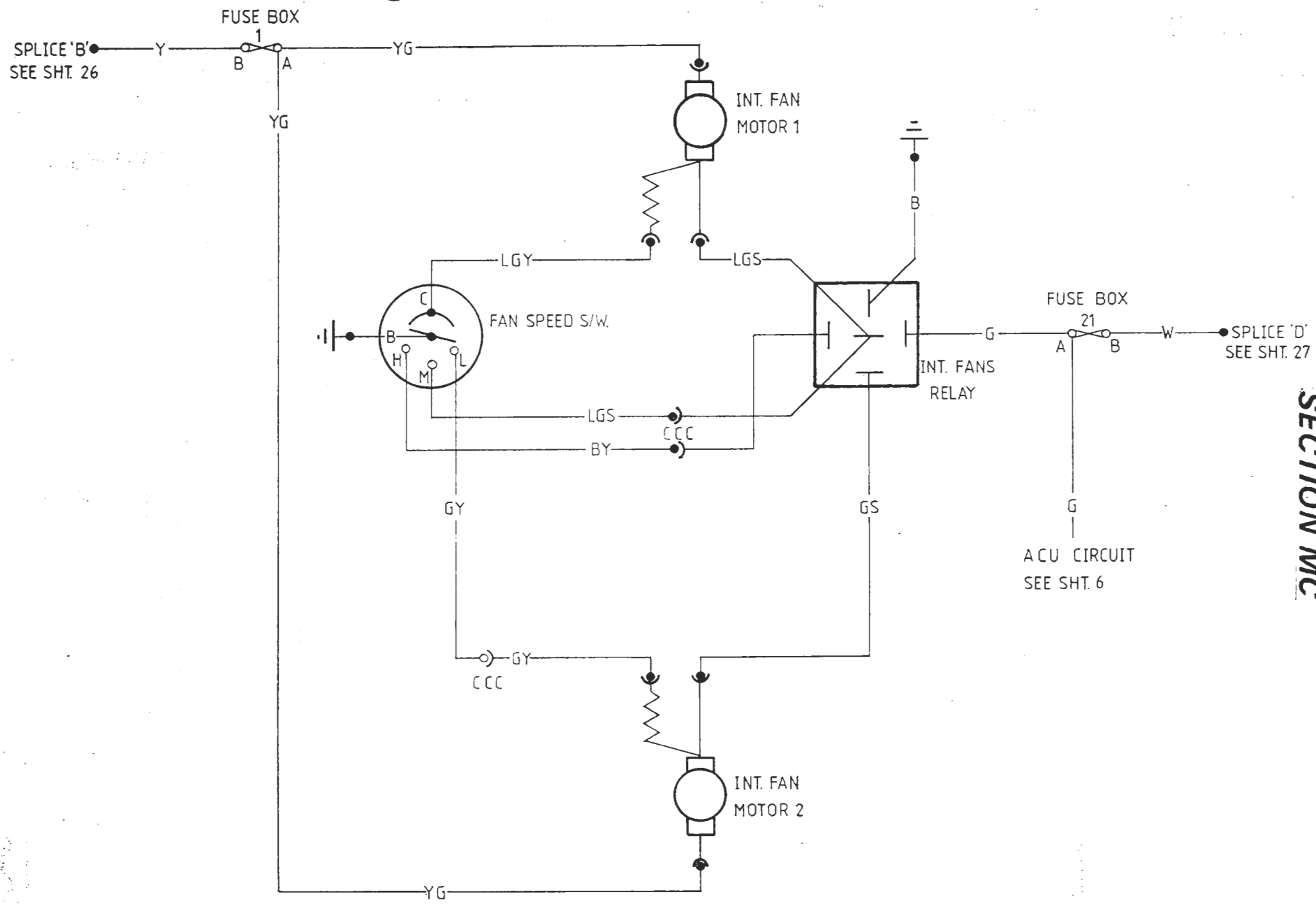




RADIATOR COOLING FANS

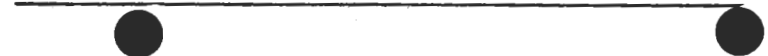


AIR CONDITIONING



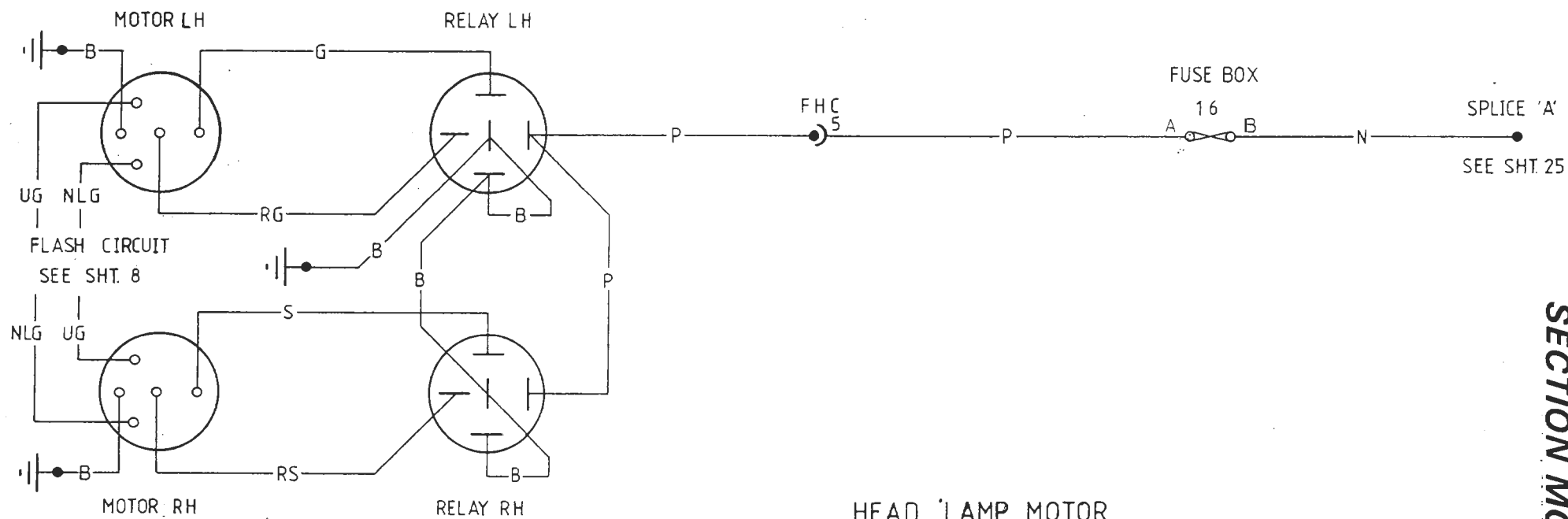
INTERNAL FANS

SECTION MC

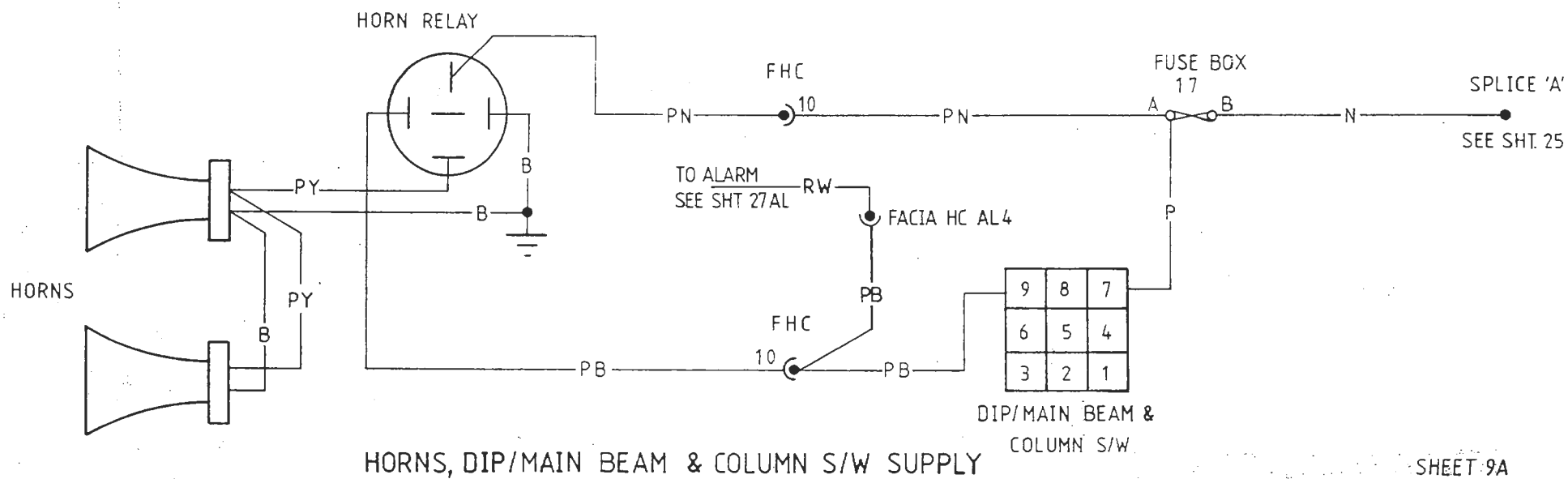


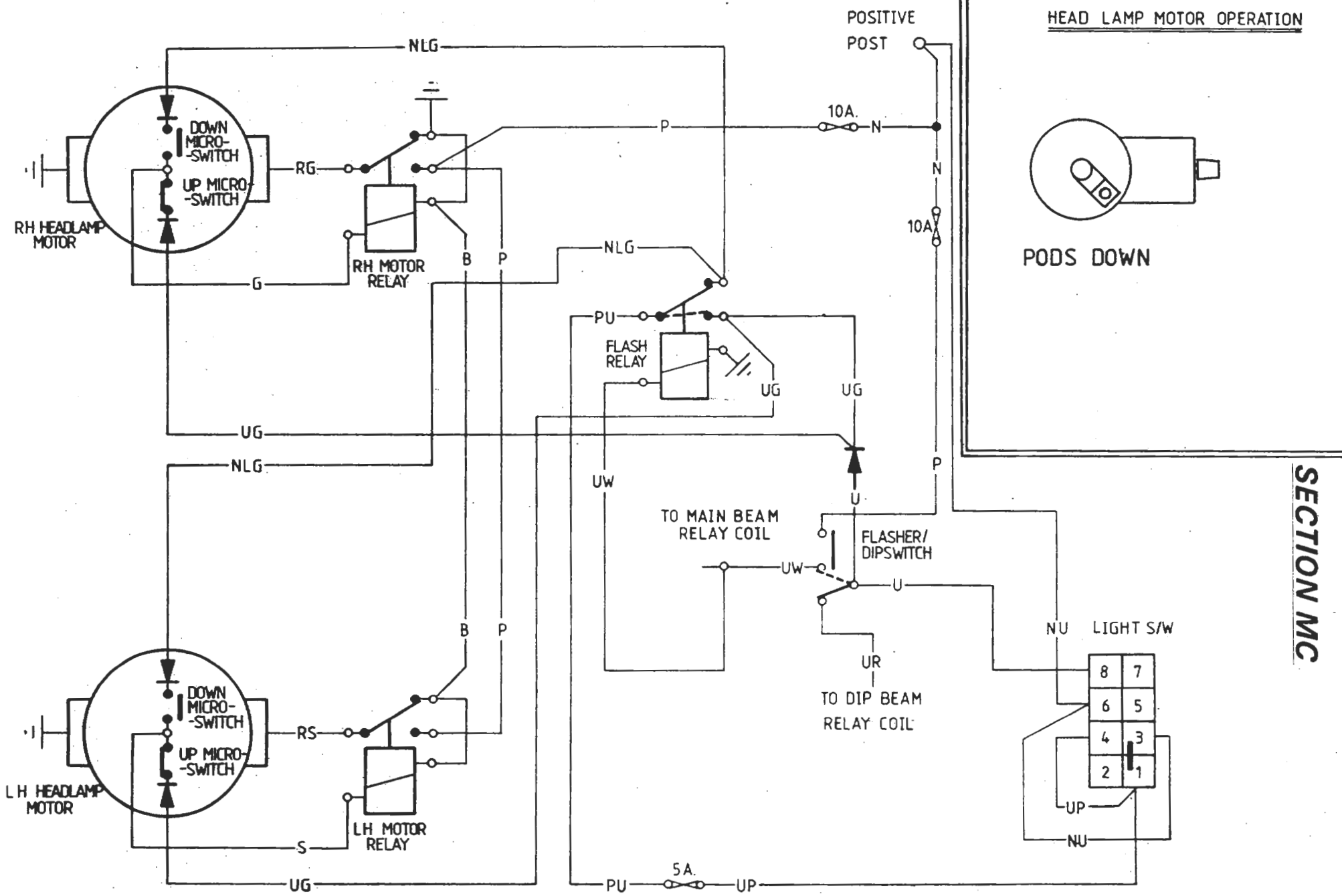
SECTION MC

SHEET 8



SECTION MC

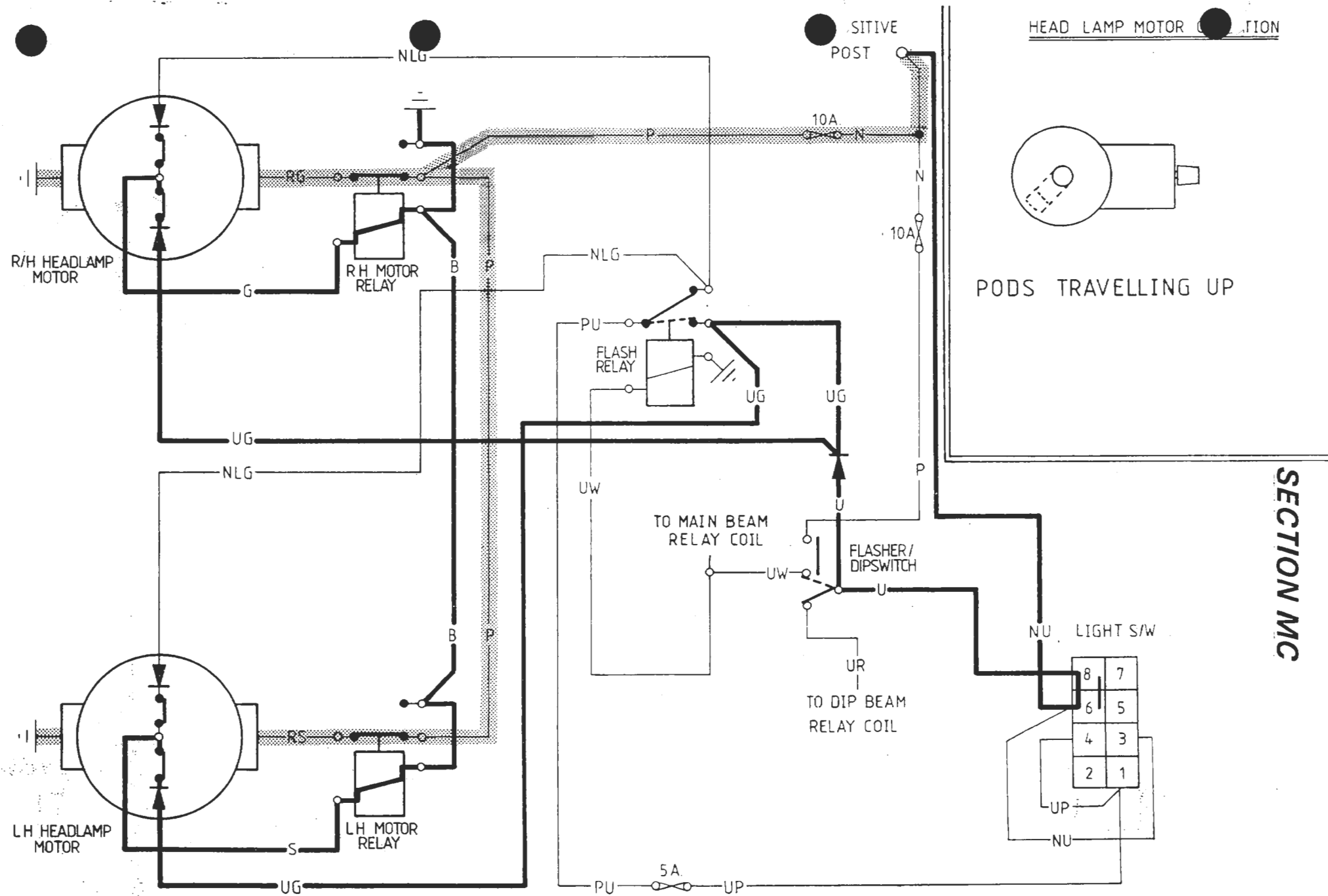




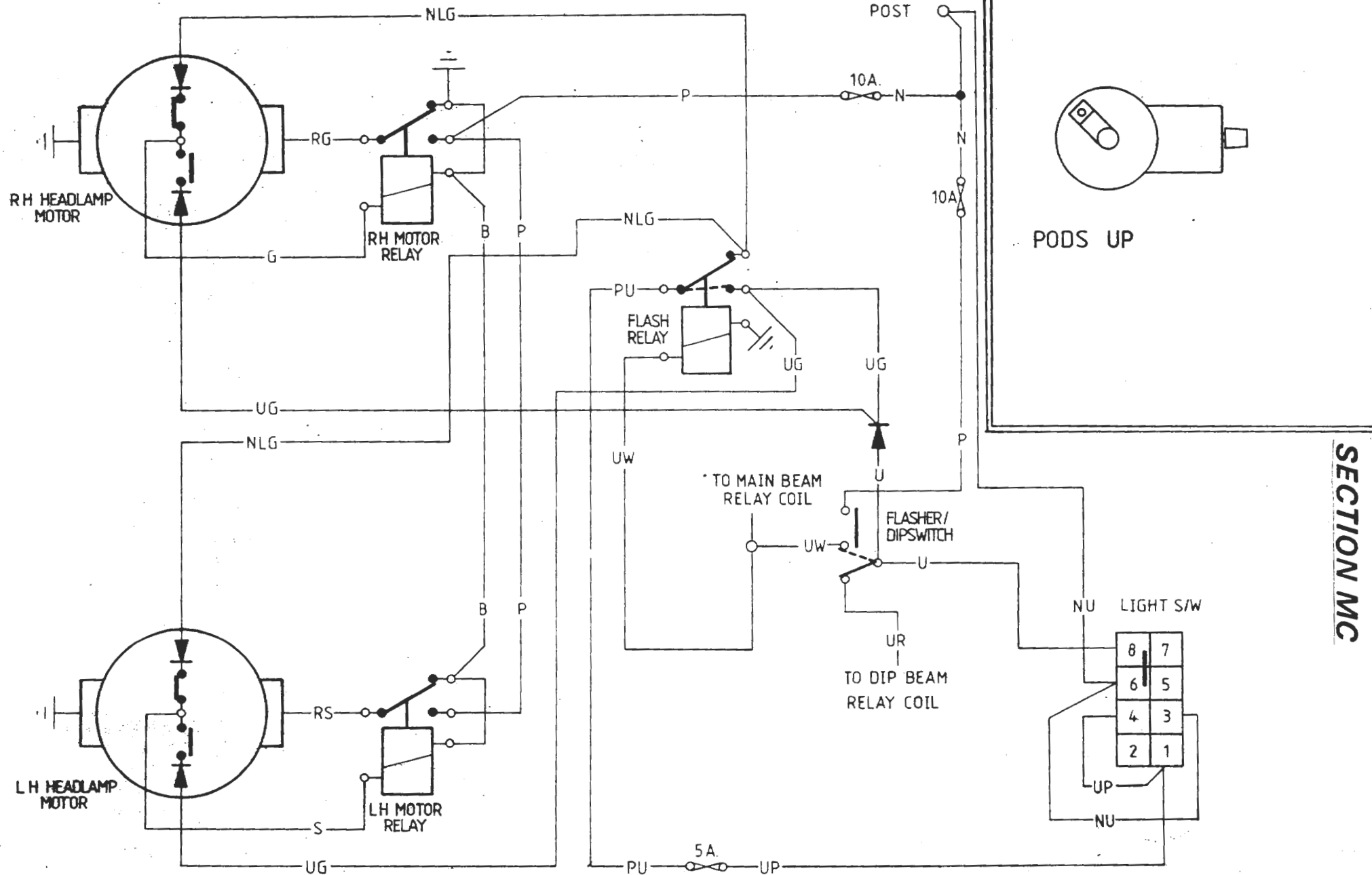
HEAD LAMP MOTOR OPERATION

SECTION MC

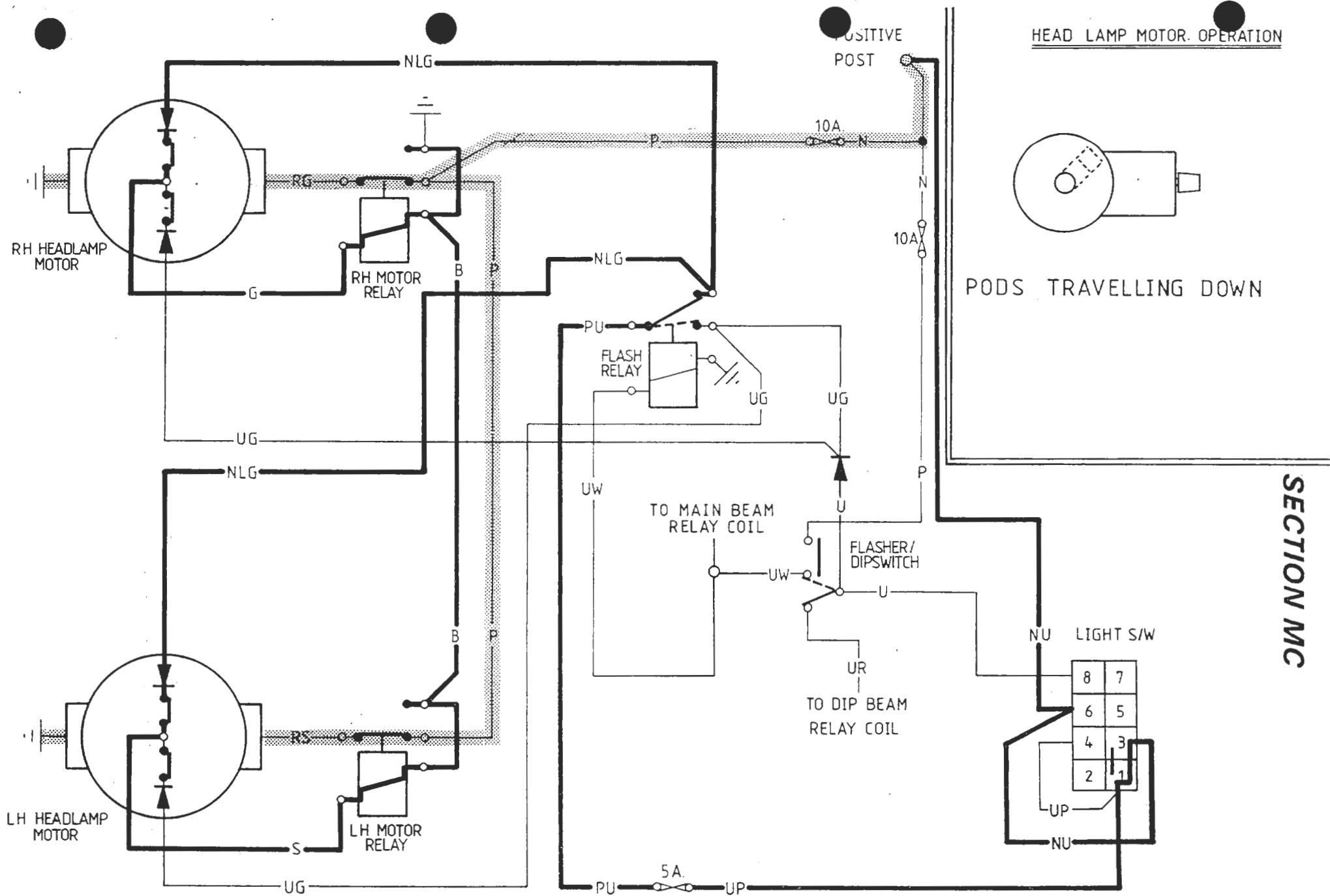
HEAD LAMP MOTOR CIRCUIT



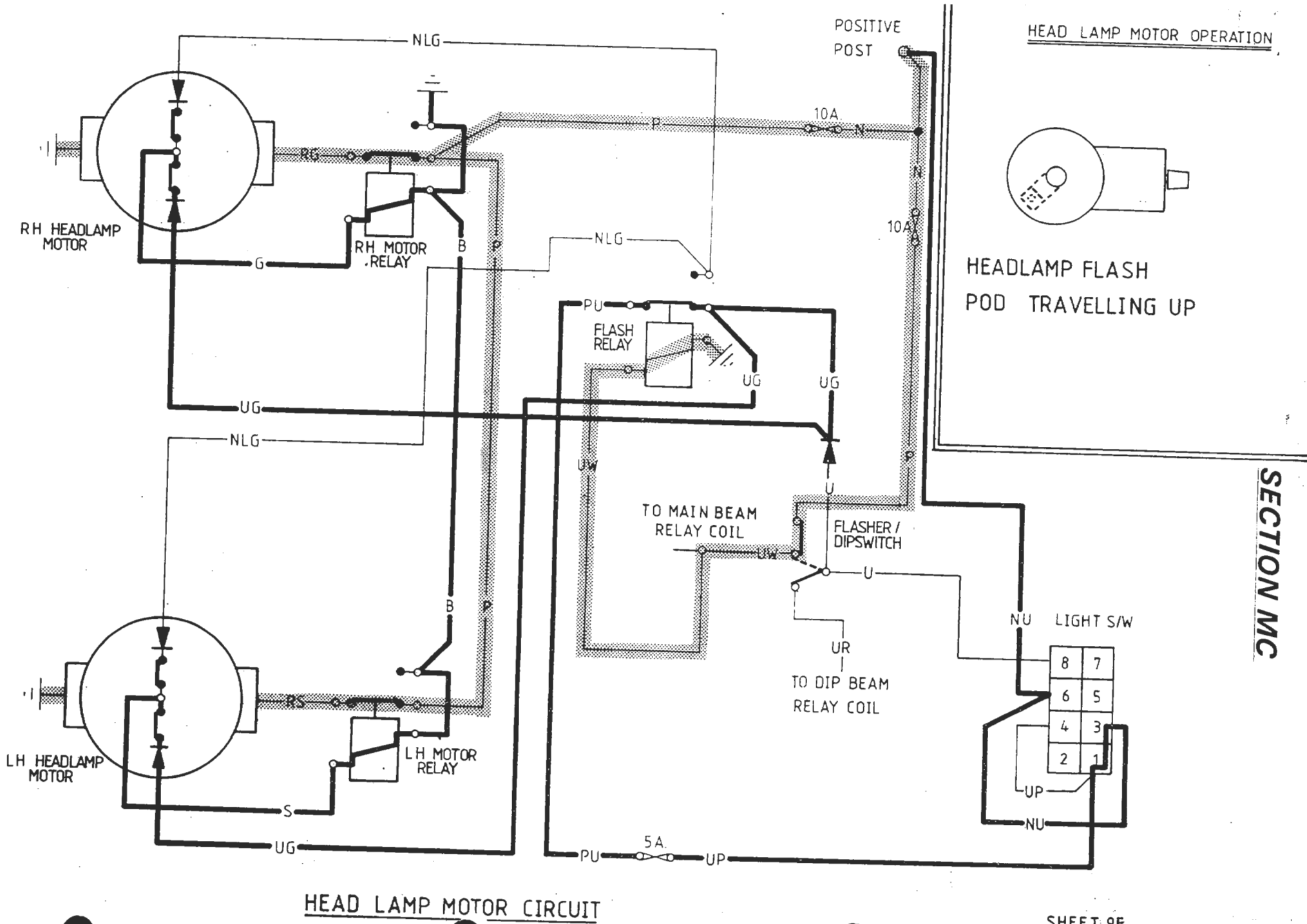
HEAD LAMP MOTOR CIRCUIT



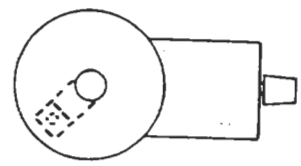
HEAD LAMP MOTOR CIRCUIT



HEAD LAMP MOTOR CIRCUIT



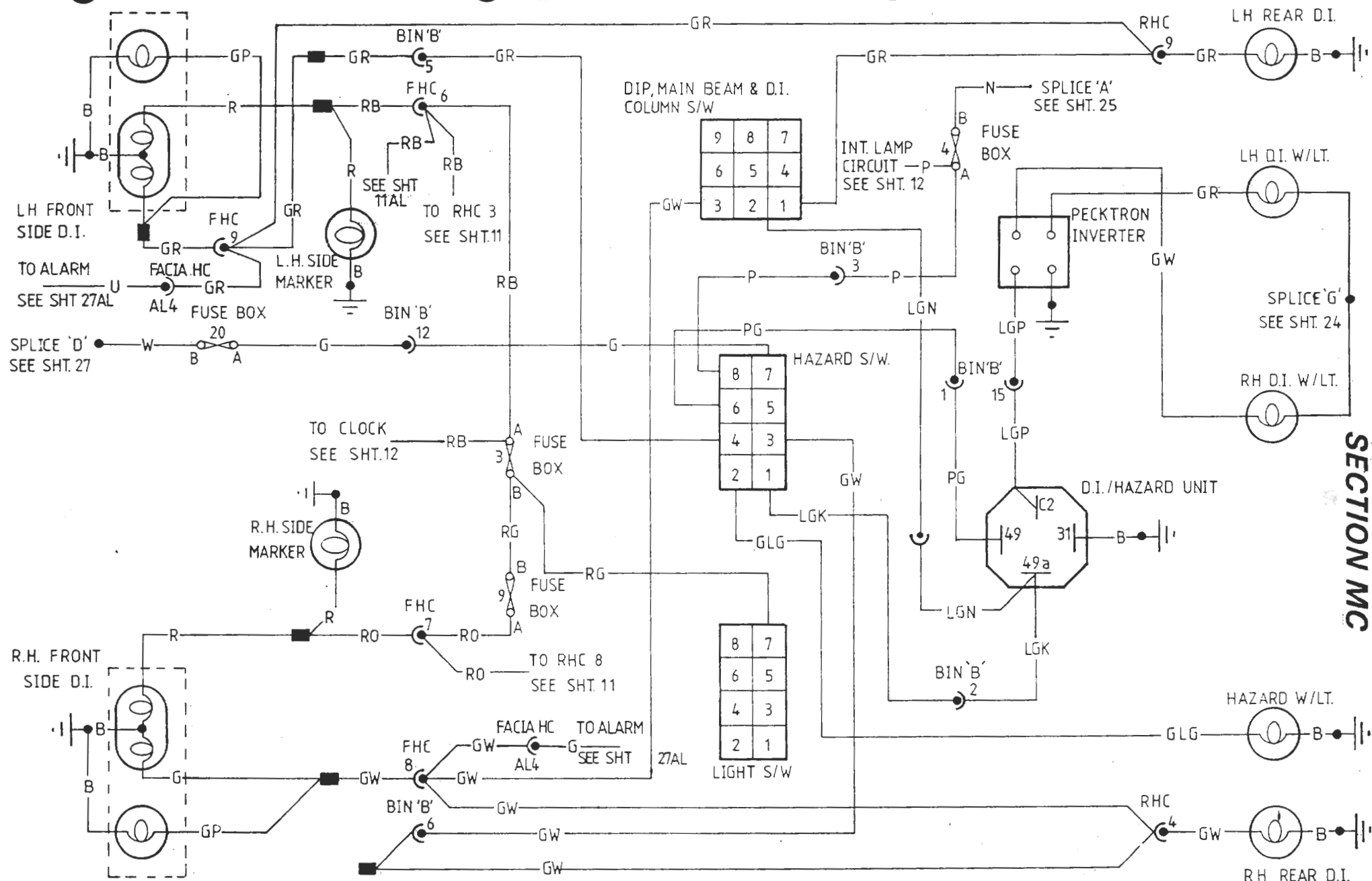
HEAD LAMP MOTOR OPERATION



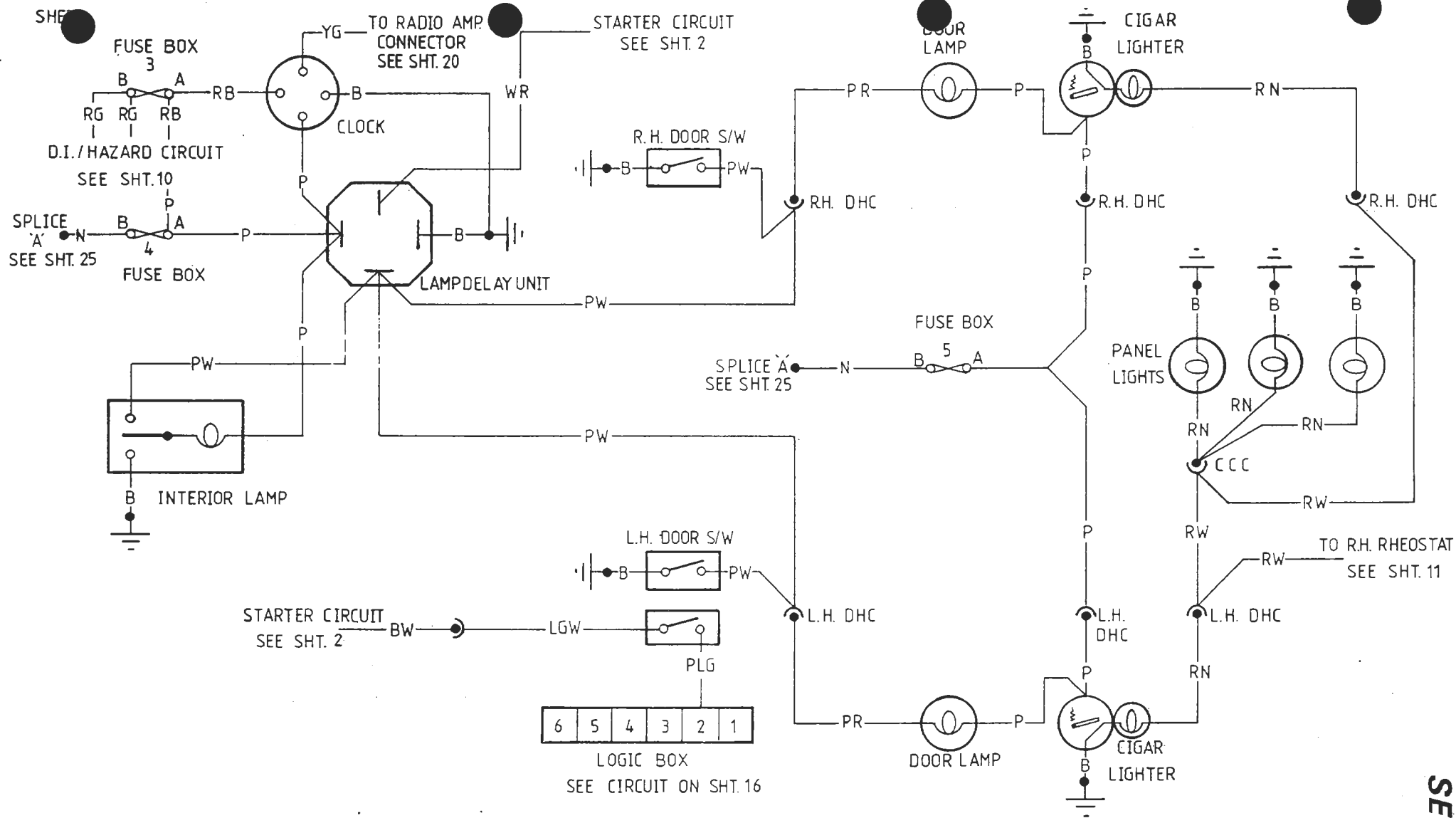
HEADLAMP FLASH
POD TRAVELLING UP

SECTION MC

HEAD LAMP MOTOR CIRCUIT



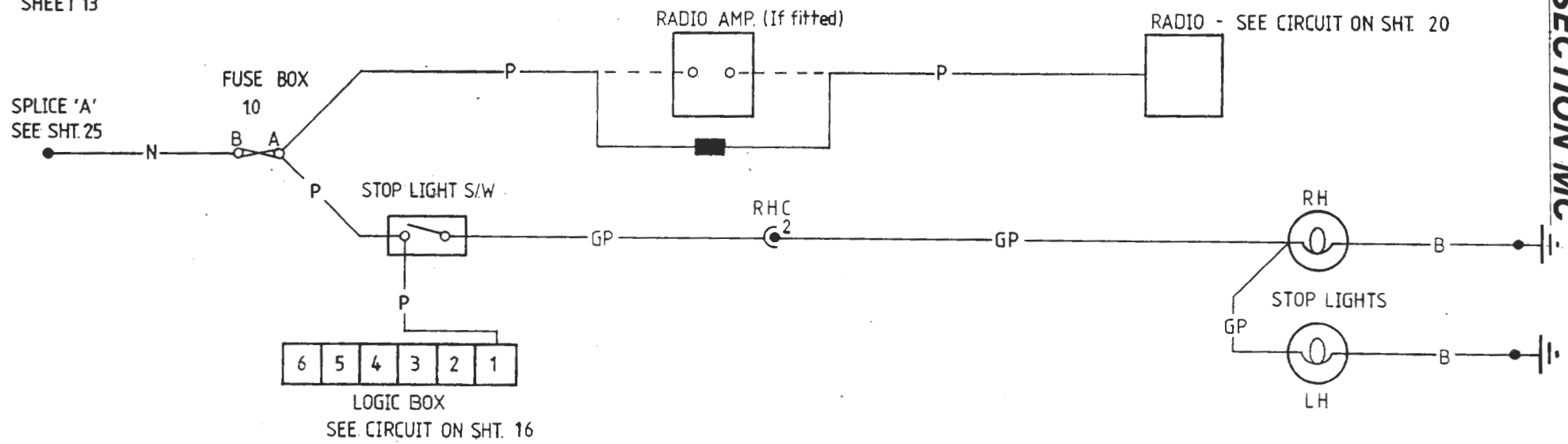
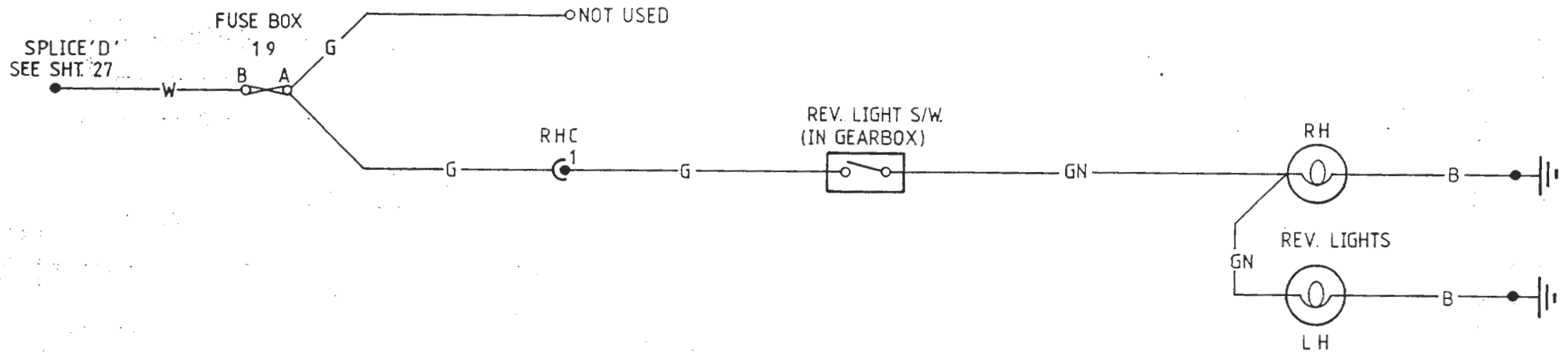


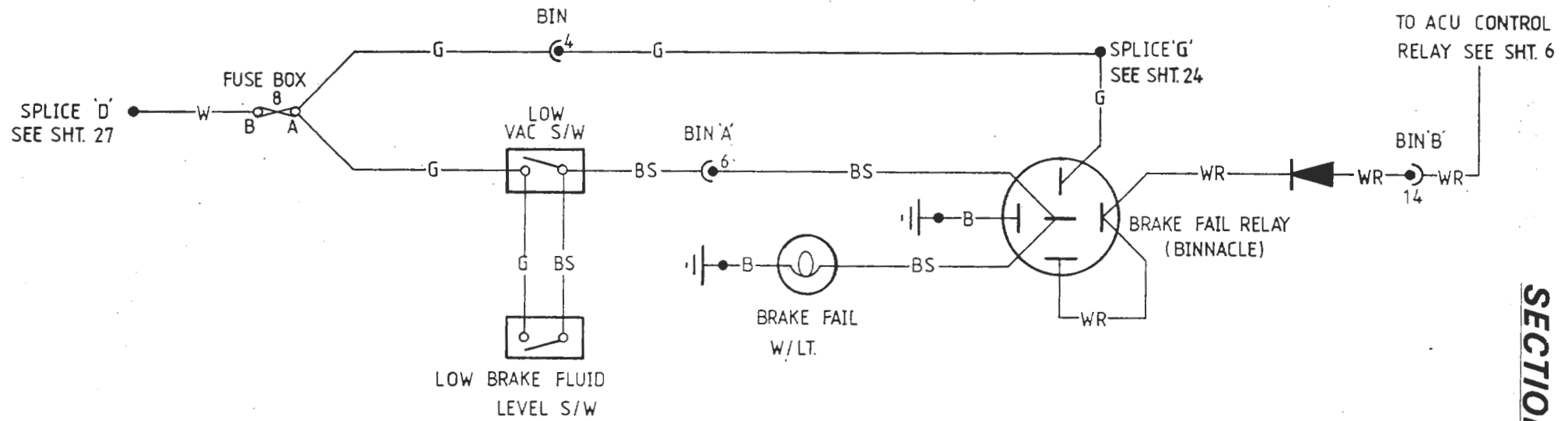


SECTION MC

CLOCK, DOOR WARNING & INTERNAL LAMPS

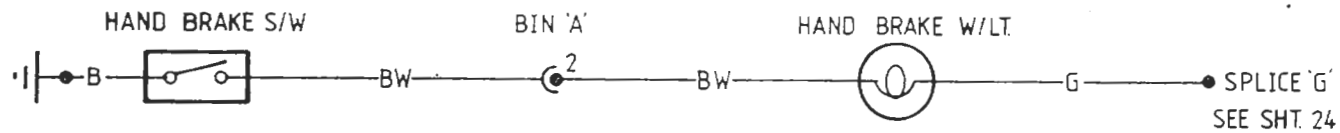
SHEET 12

STOP LIGHTREVERSE LIGHT

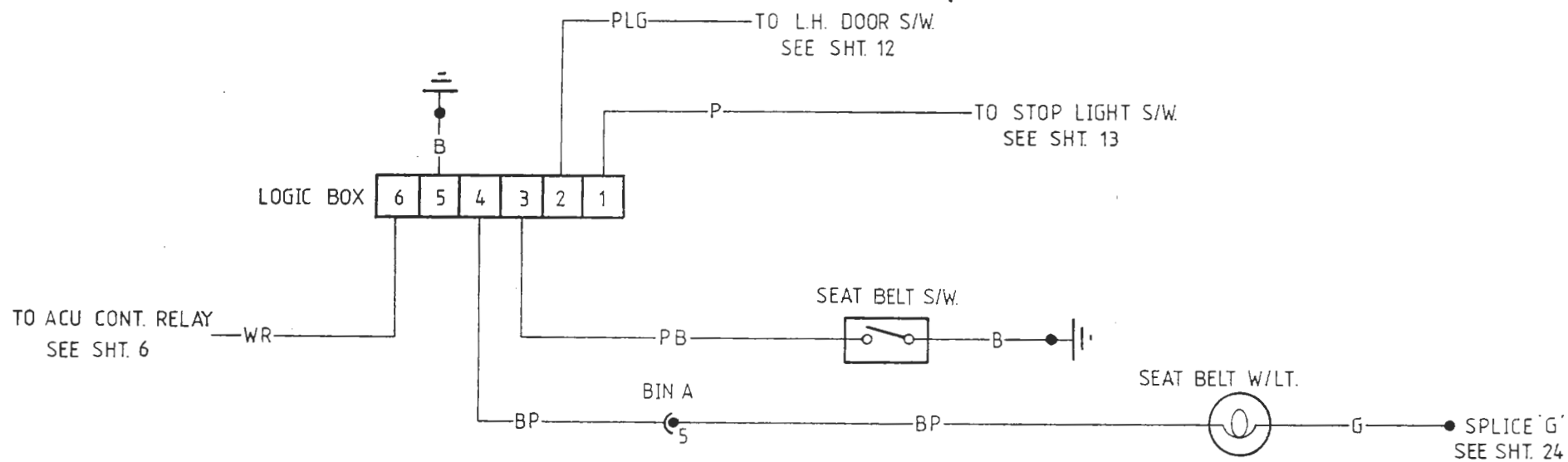


SECTION MC

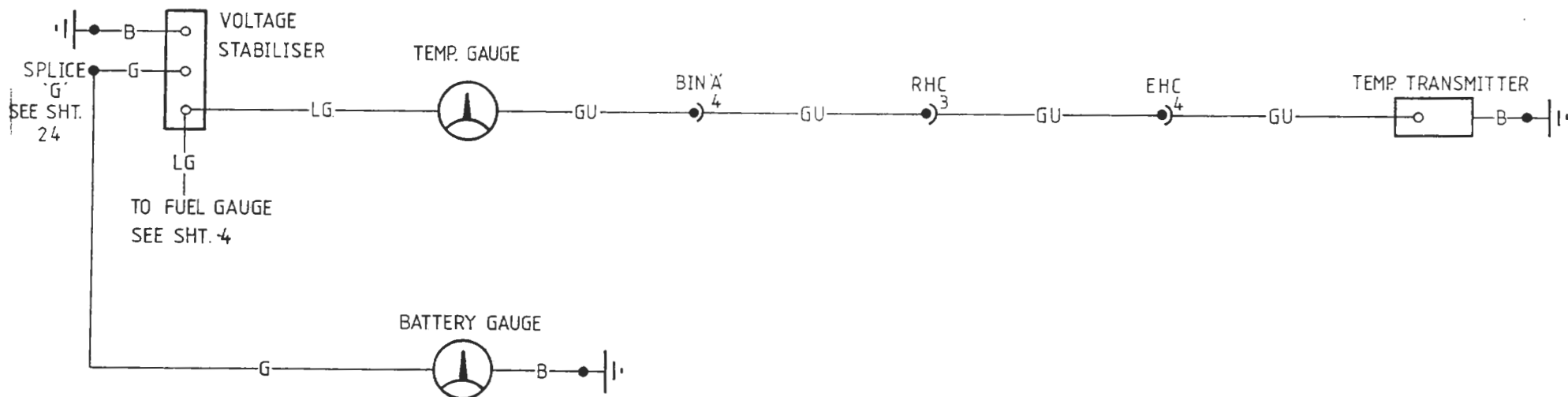
BRAKE FAILURE WARNING



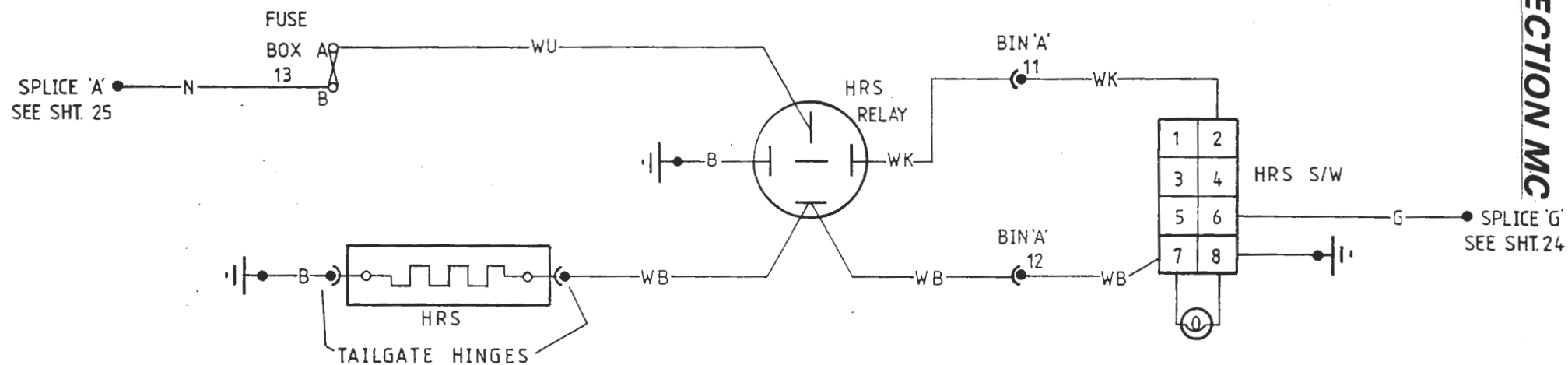
HAND BRAKE WARNING

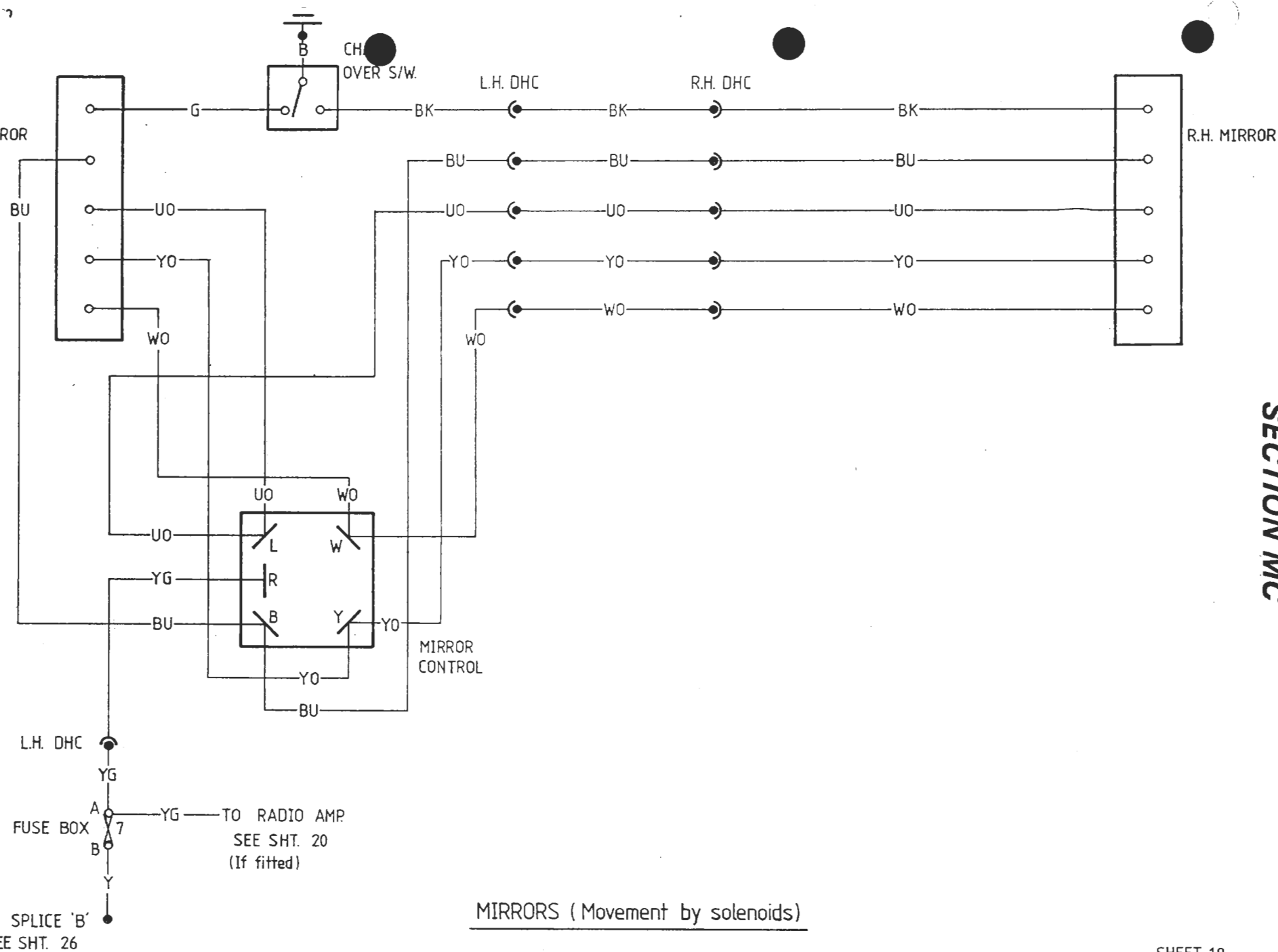


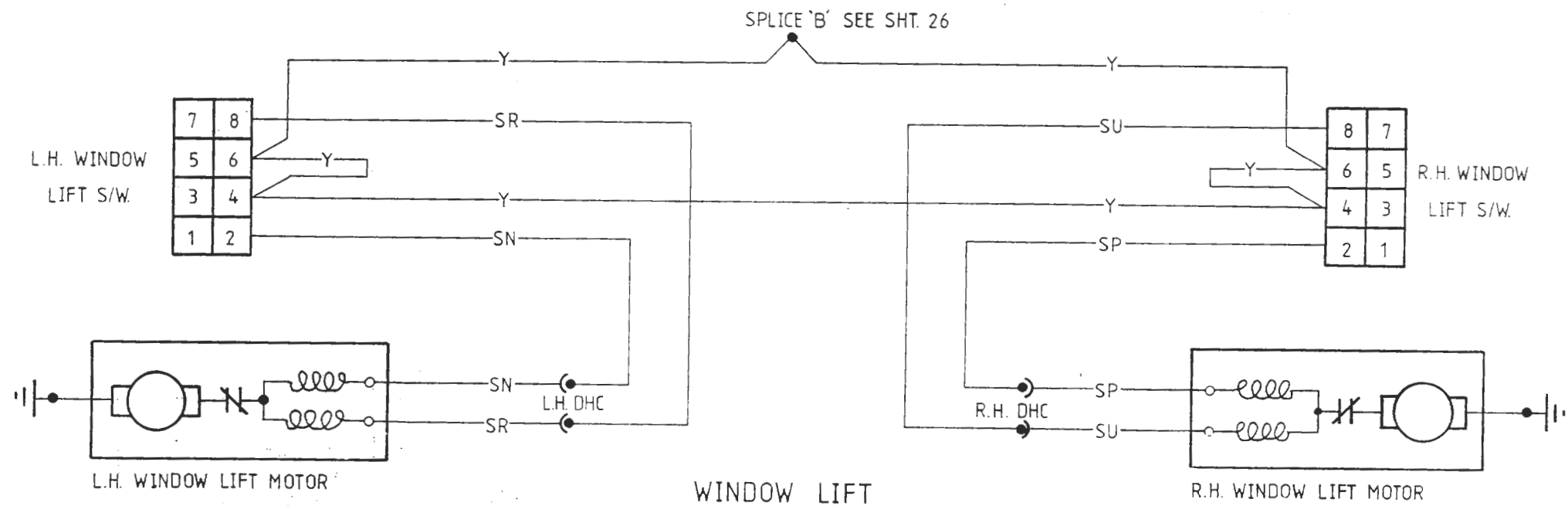
SEAT BELT / LOGIC

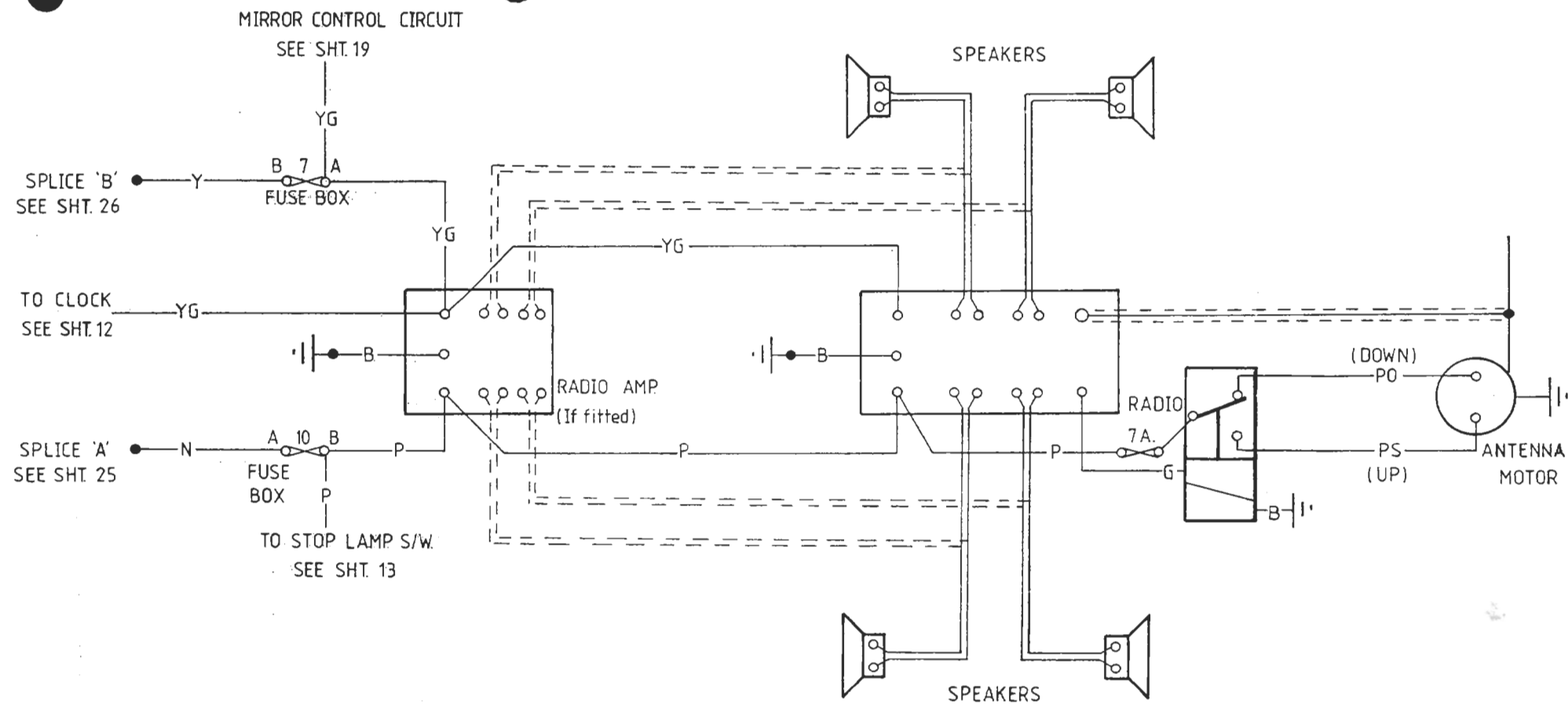


WATER TEMPERATURE & BATTERY GAUGES

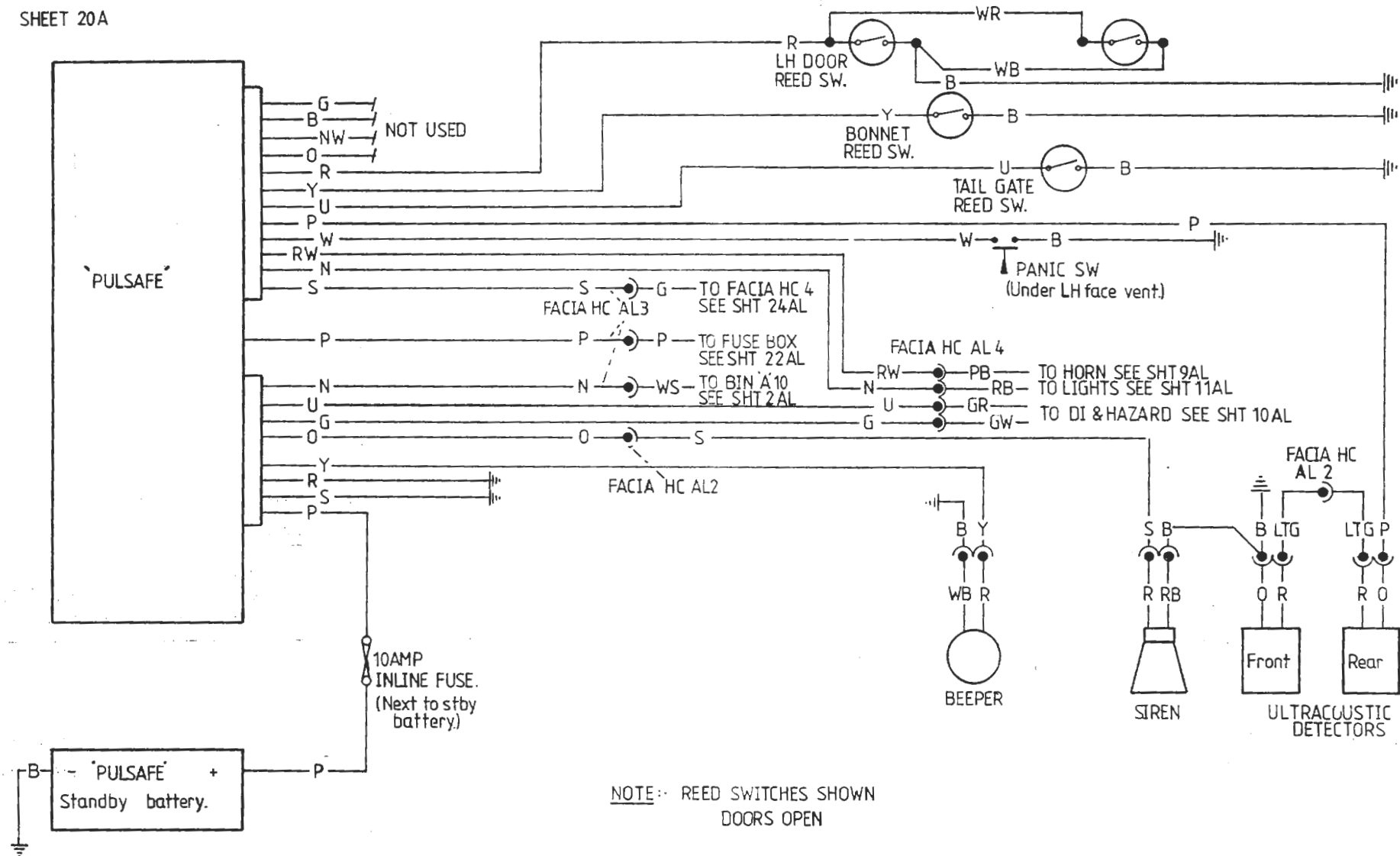
HEATED REAR SCREEN (HRS)







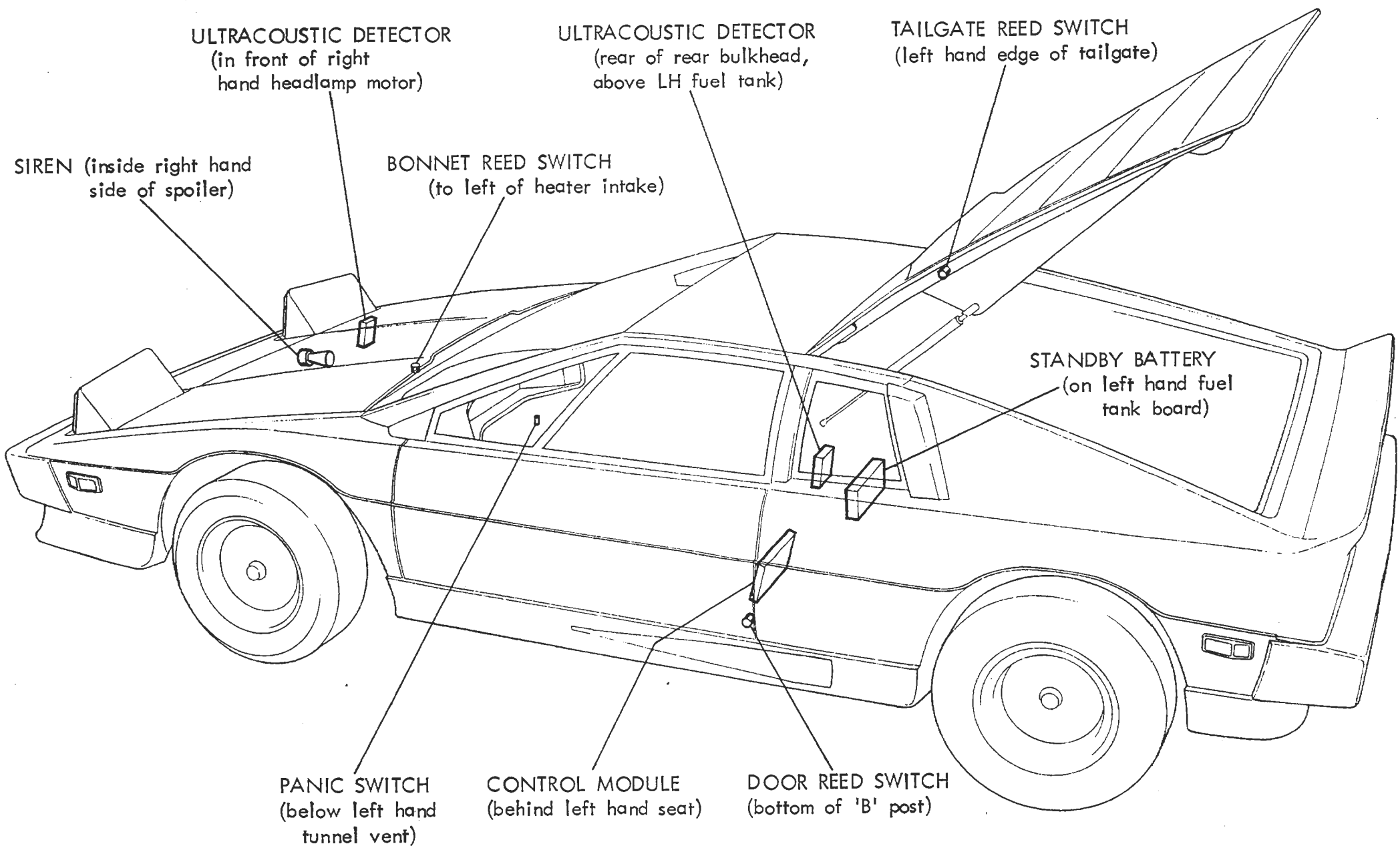
RADIO & RADIO AMP (If fitted)



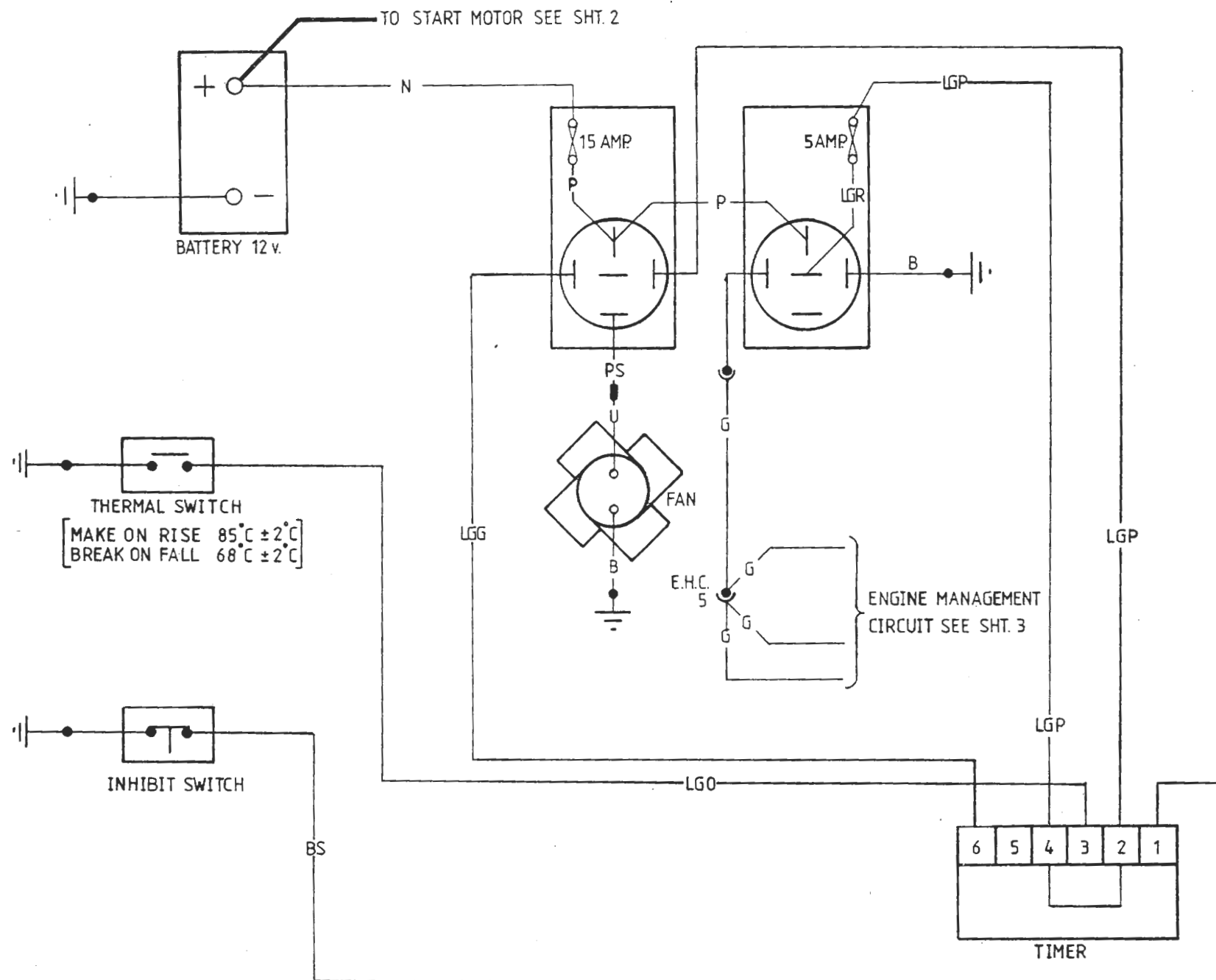
SECTION MC

PULSAFE ALARM

ULSAFE ALARM COMPONENT LOCATION



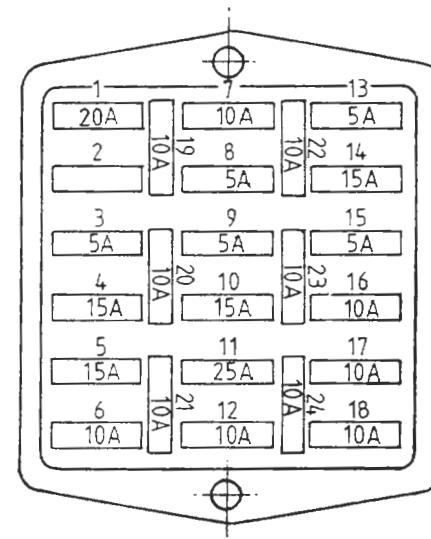
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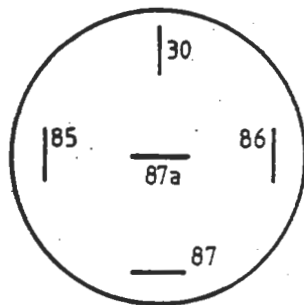
SECTION MC

ENGINE BAY VENTILATION

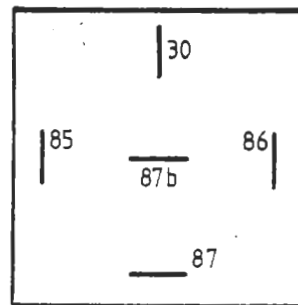
NO.	FUSE RATING	CIRCUIT
1	20A.	INTERIOR FANS
2		
3	5A.	L.H. SIDE / TAIL / NO. PLATE LAMPS
4	15A.	HAZARD LAMPS / INTERIOR LAMP / CLOCK
5	15A.	CIGAR LIGHTERS / DOOR LAMPS
6	10A.	RADIATOR FAN NO.1
7	10A.	DOOR MIRRORS / RADIO (AUX.) RADIO AMP (AUX.) [If fitted]
8	5A.	INSTRUMENTS & WARNING LAMPS
9	5A.	R.H. SIDE / TAIL / LICENCE NO. PLATE LAMPS
10	15A.	STOP LAMPS / SEAT BELT BUZ RADIO (Mem.) RADIO AMP (If fitted) ANTENNA
11	25A.	HEAD LAMP WASH
12	10A.	RADIATOR FAN NO. 3
13	5A.	HEATED REAR SCREEN
14	15A.	WIPER MOTOR / SCREEN WASH
15	5A.	HEAD LAMP MOTORS (DOWN CONTROL)
16	10A.	HEAD LAMP MOTORS
17	10A.	HORN / HEAD LAMP FLASH
18	10A.	RADIATOR FAN NO. 2
19	10A.	REVERSE LAMPS
20	10A.	INDICATORS
21	10A.	A.C.U. COMPRESSOR / A.C.U.- RADIATOR FANS CONTROL
22	10A.	ENGINE CONTROL (AUX.)
23	10A.	ENGINE CONTROL (IGN.)
24	10A	ALARM



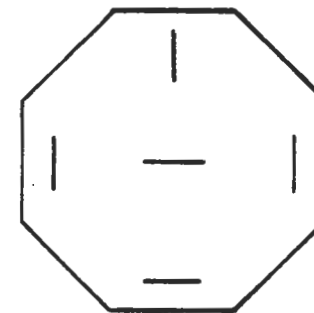
SECTION MC



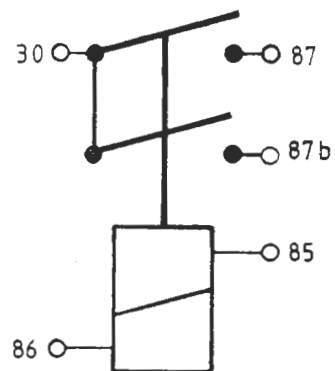
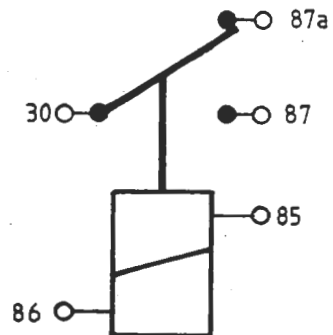
CHANGEOVER



DOUBLE CONTACT

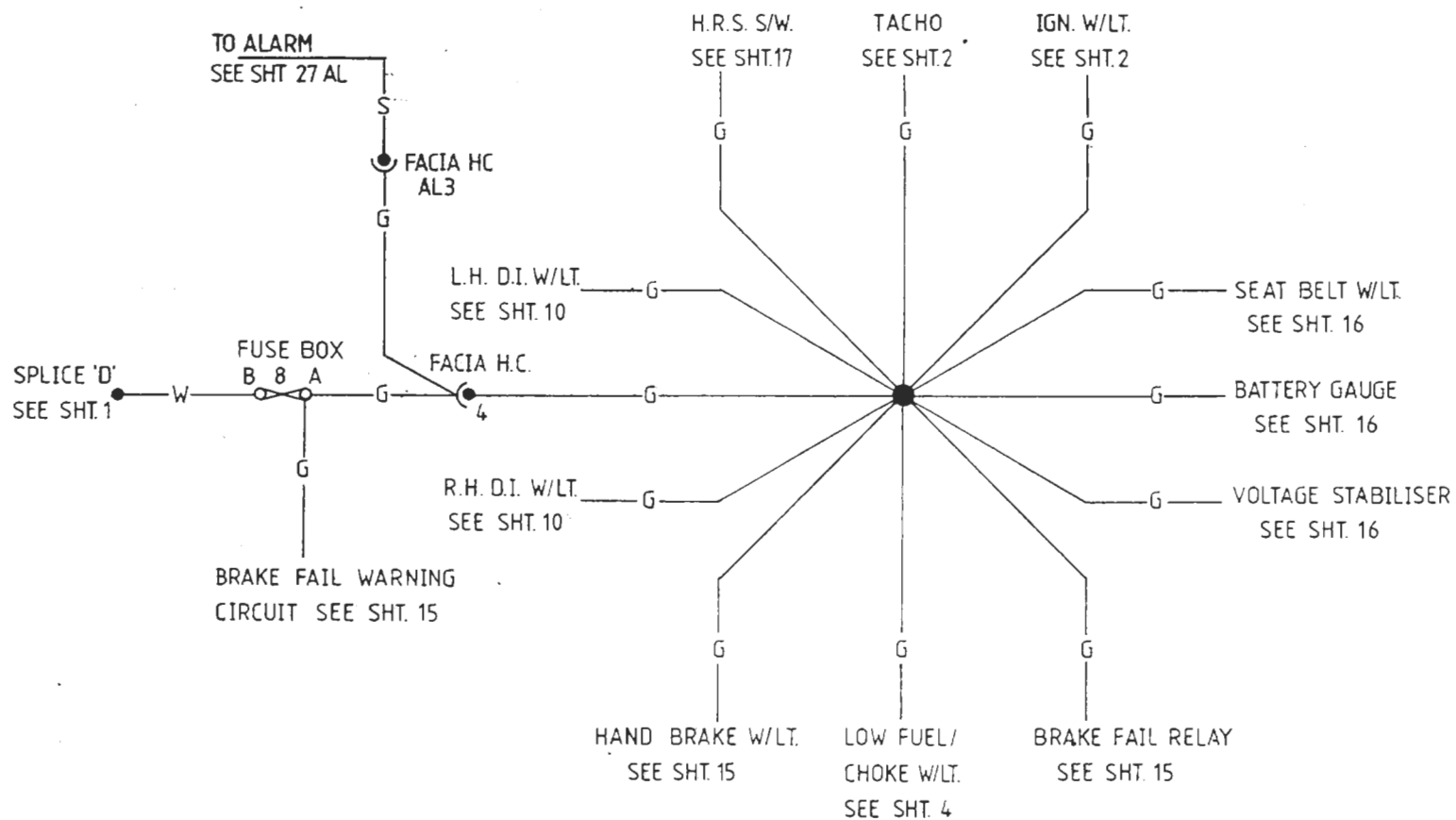


ELECTRONIC UNIT



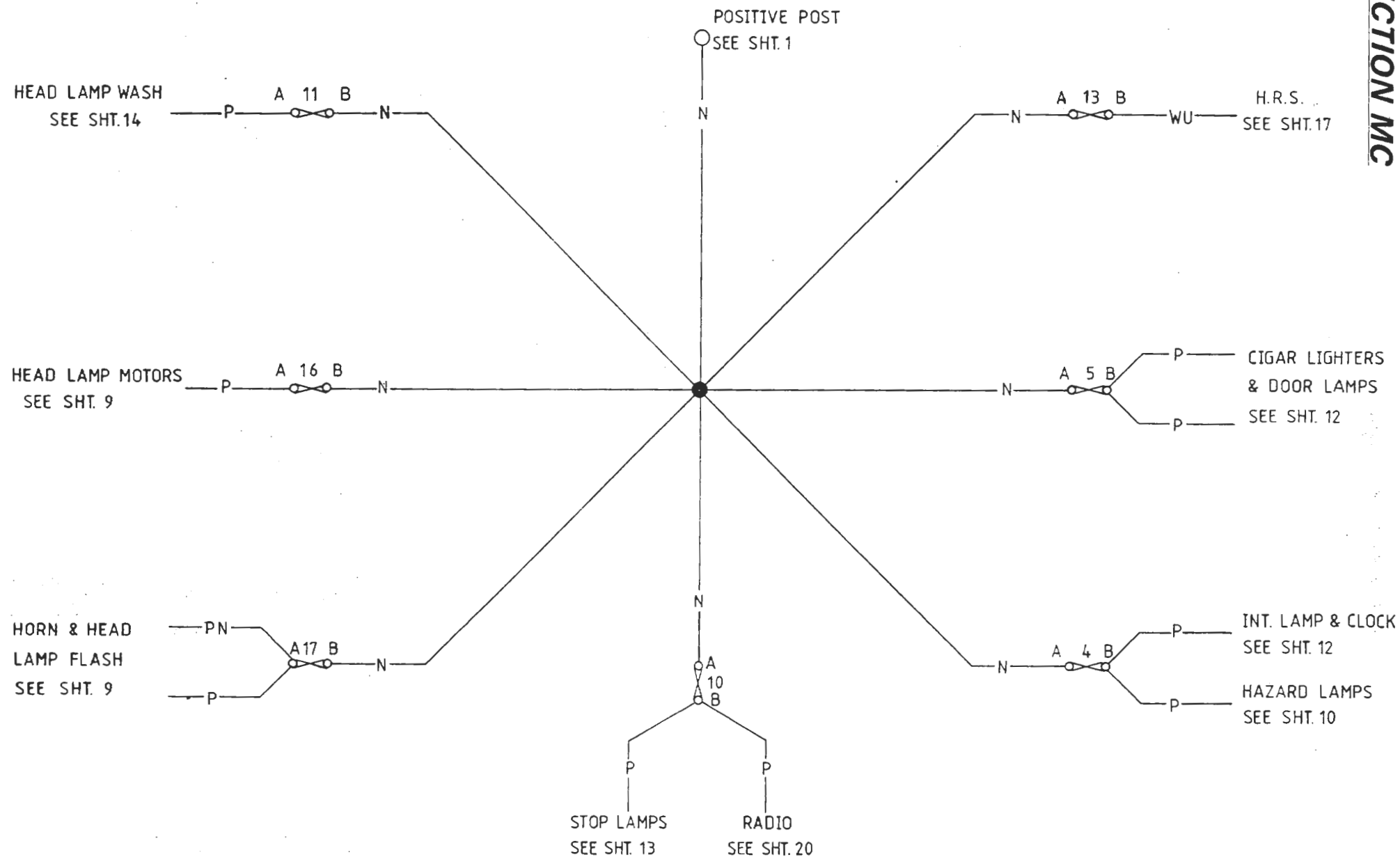
RELAY CONNECTIONS

SECTION MC



SECTION MC

SPLICE 'G'

SPLICE 'A'

POWER RELAY (AUX.)
SEE SHT. 1

WINDOW LIFT
SEE SHT. 18

DOOR MIRRORS
SEE SHT. 19

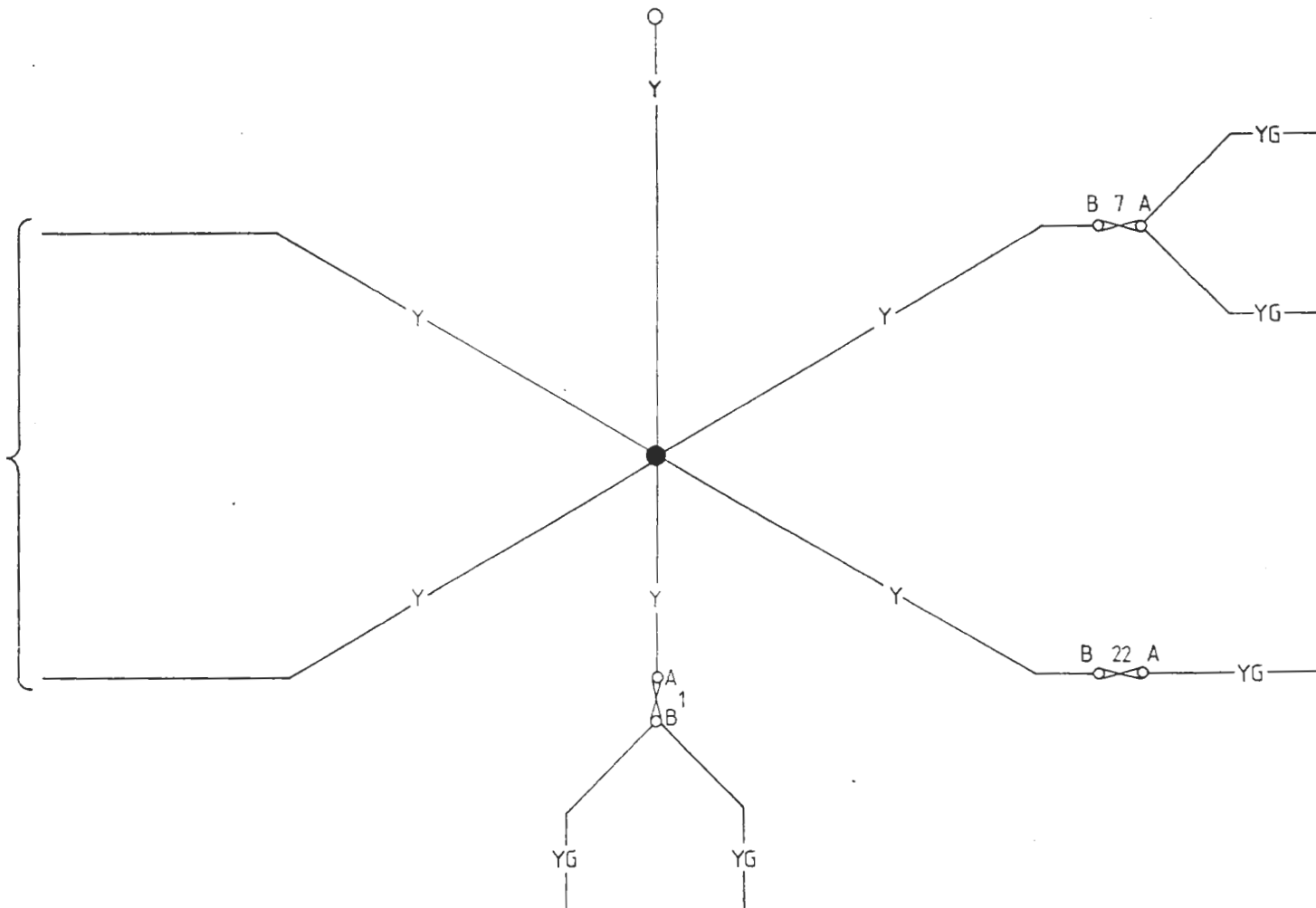
RADIO
SEE SHT. 20

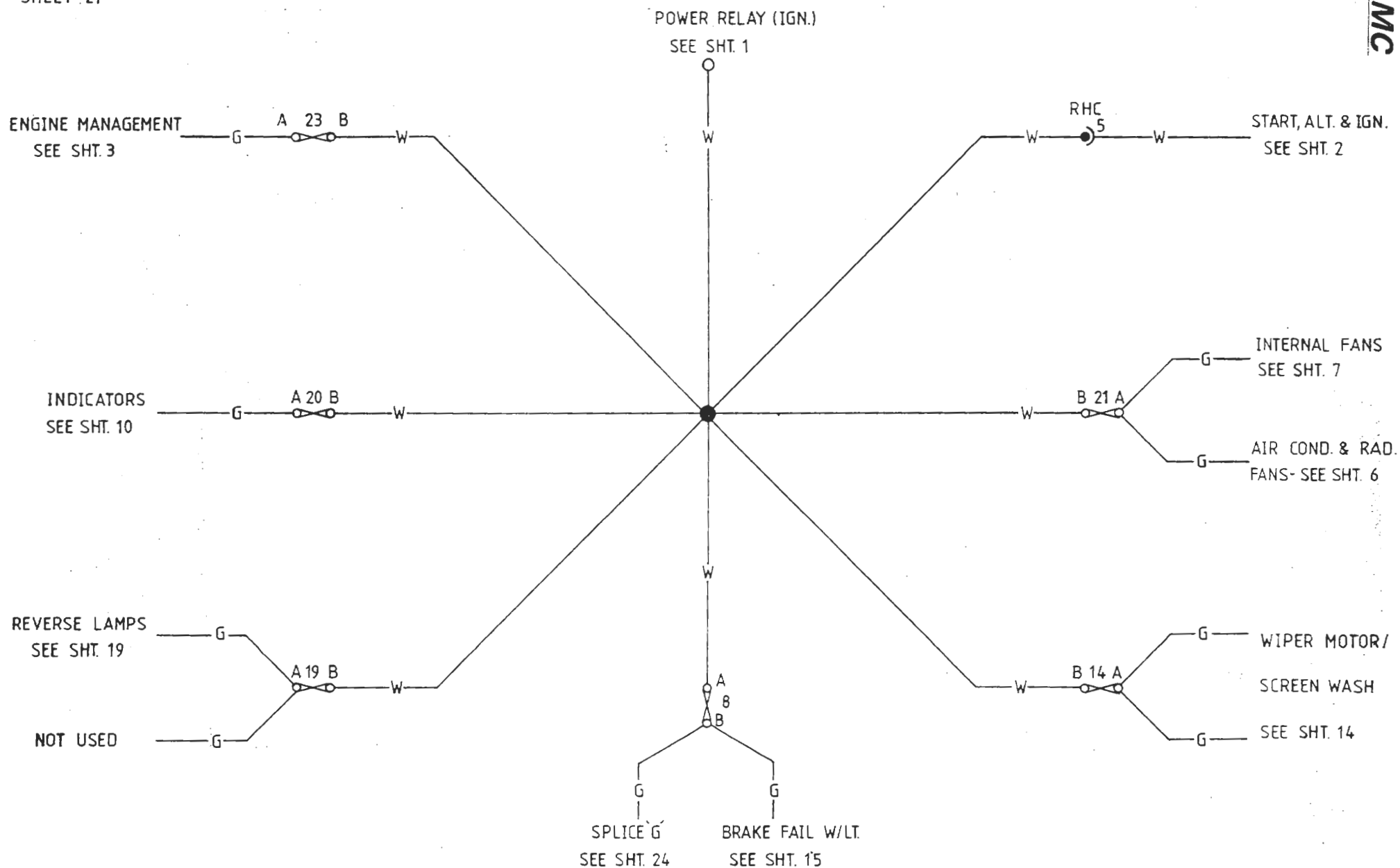
ENGINE MANAGEMENT
SEE SHT. 3

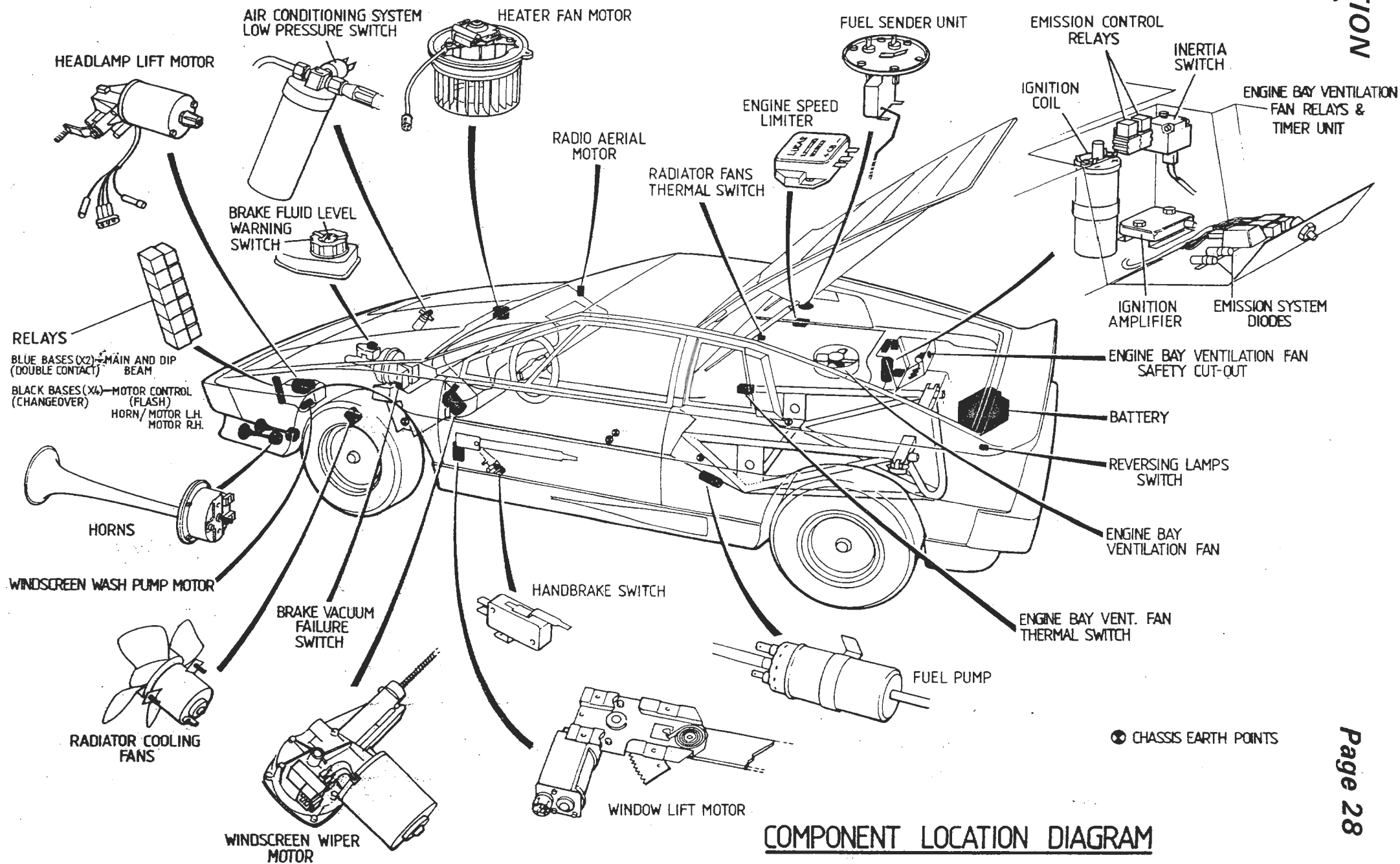
INTERNAL FANS
SEE SHT. 7

SPLICE 'B'

SECTION MC



SPLICE 'D'

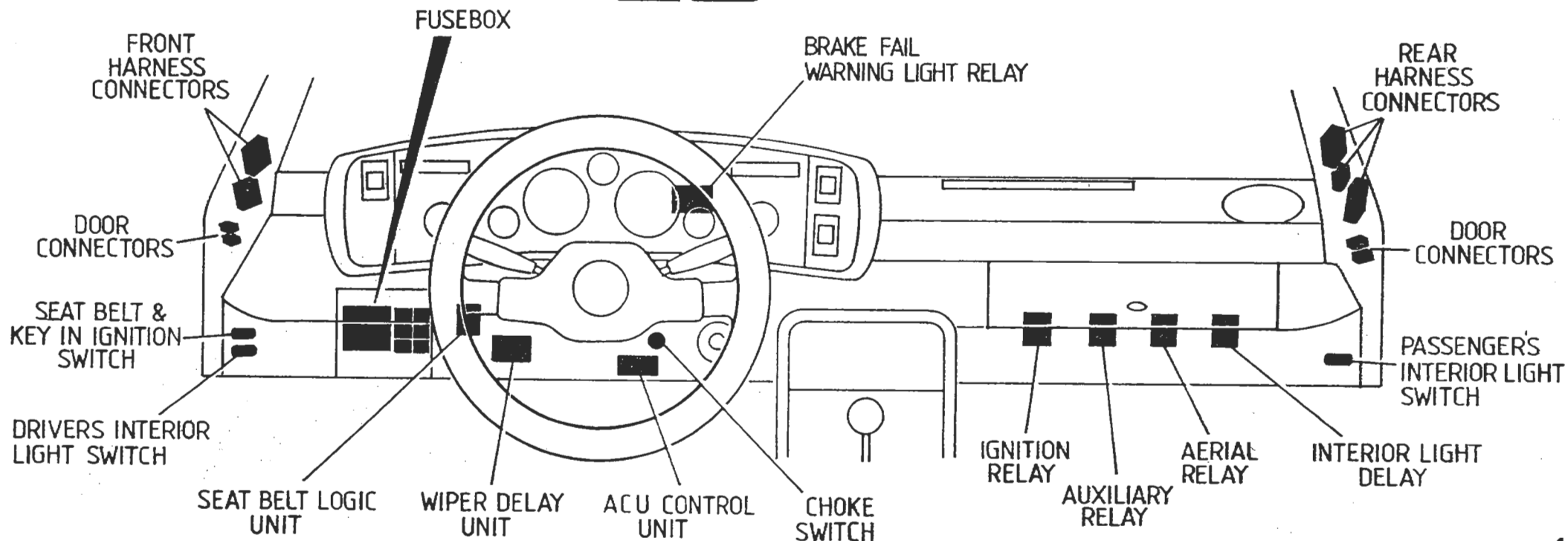


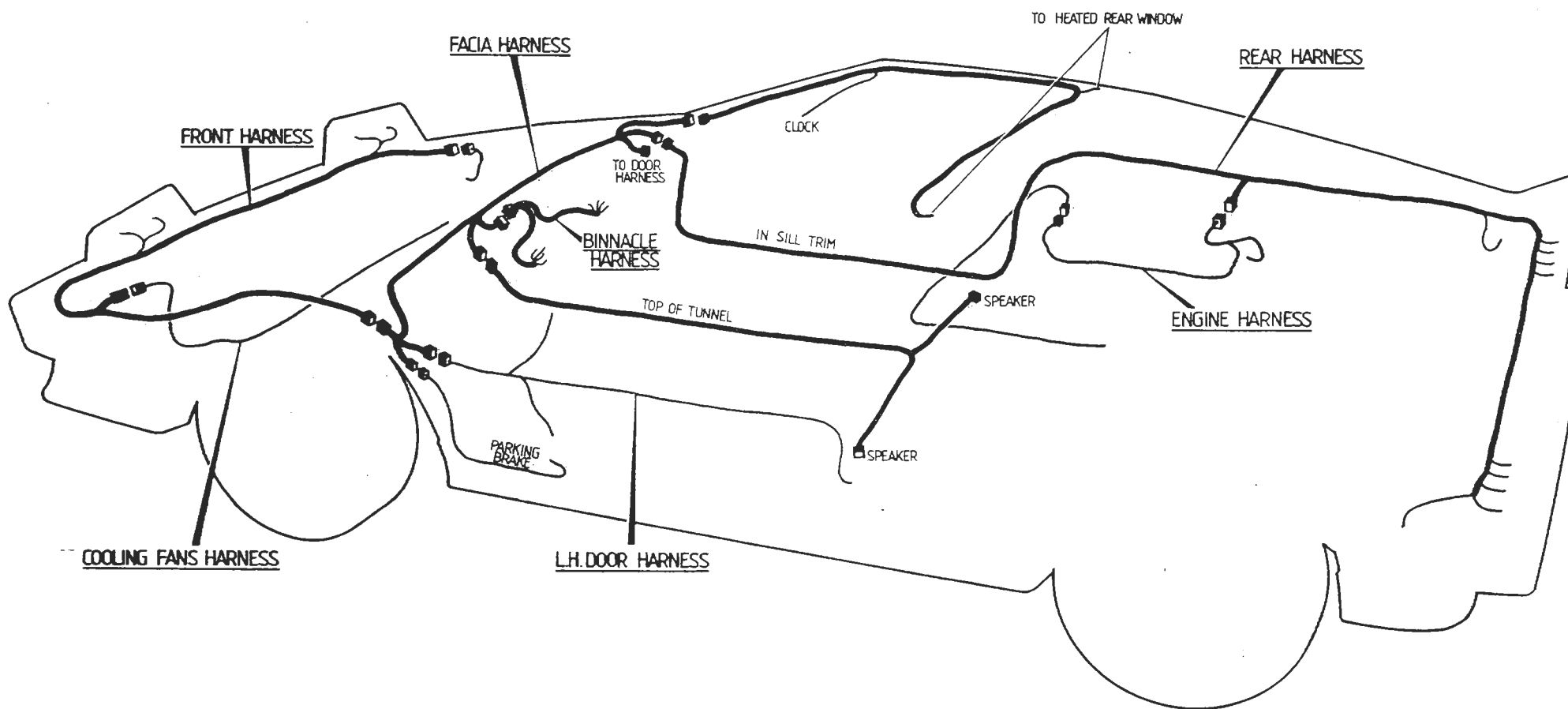
COMPONENT LOCATION DIAGRAM

1 15A	7 10A	13 5A
2 5A	8 5A	14 15A
3 5A	9 5A	15 5A
4 15A	10 15A	16 10A
5 15A	11 25A	17 10A
6 10A	12 10A	18 10A

A	B
C	D
E	F

- A — HEADLAMP POWERWASH TIMER (IF FITTED)
 B — TURN INDICATORS/HAZARD LAMPS FLASHER UNIT
 C — HEATED REAR SCREEN RELAY
 D — AIR CONDITIONING 'DROP OUT' RELAY
 E — INTERIOR FANS RELAY
 F — RADIATOR FANS RELAY





HARNESS ROUTING DIAGRAM

INSTRUMENT BINNACLE REMOVAL

The instrument binnacle contains a centre panel housing the main instruments, and two side panels housing the tell tale lamps, switches and volt and fuel gauges.

The side panels may be removed with the binnacle 'in situ' by removing the four screws securing the centre panel ABS trim, followed by the single screw securing each side panel at its outermost edge. Access to the fibre optic light source (switch illumination) may be obtained after removal of the right hand side panel. Voltmeter and fuel gauge illumination bulbs may also be replaced after removal of the appropriate side panel. The Brake fail warning lamp relay may also be reached after removal of the left hand side panel.

For access to an instrument housed in the centre panel, it is necessary first to remove the binnacle assembly from the fascia. After removal of the four M6 bolts securing the binnacle assembly to the scuttle crossbeam (accessible from beneath) the binnacle may be raised sufficiently to enable the three wiring loom block connectors to be unplugged, the speedo cable to be released, and the boost and oil pressure gauge pipes to be disconnected. Also release the demist vent duct from the binnacle adaptor.

LUCAS CONSTANT ENERGY IGNITION

The Lucas constant energy ignition system is an inductive system in which the energy stored in the coil is maintained constant over a wide range of engine speeds, thereby providing consistently high output voltages. The system comprises a distributor model 45 DM, and ignition coil model 32 C5, an ignition amplifier model AB 14 and an electronic rev. limiter.

The distributor incorporates a variable-reluctance position transducer (pick up) to provide a basic timing waveform. The sintered reluctor has four projections which correspond in function with the cam lobes of a conventional distributor. The pick up comprises a coil and magnet assembly, the pick up air gap (0.20 - 0.35 mm.) being set during manufacture and requiring no subsequent adjustment.

A conventional type rotor arm is fitted, moulded (as is the distributor cap) from track retardant material. The two cables connecting the distributor to the ignition amplifier terminate in a non-reversible "shur plug".

The high energy coil (model 32 C5) is specially designed to achieve the very fast current rise times required for this system. The coil requires no ballast and consumes no current in the stalled engine condition.

The ignition amplifier (AB 14) is mounted in the ignition box whilst the electronic rev. limiter unit is fitted on the RH fuel tank board.

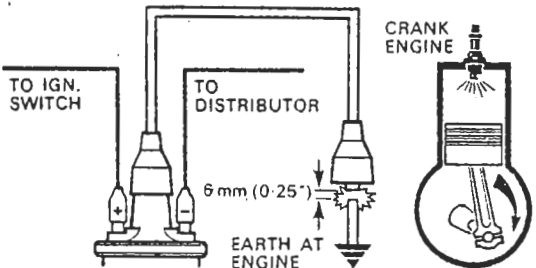
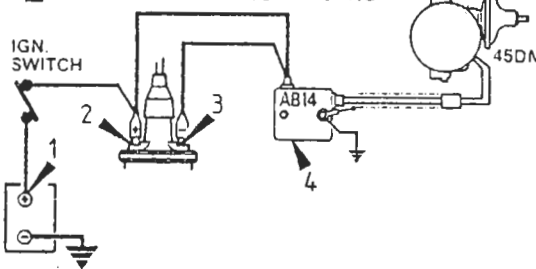
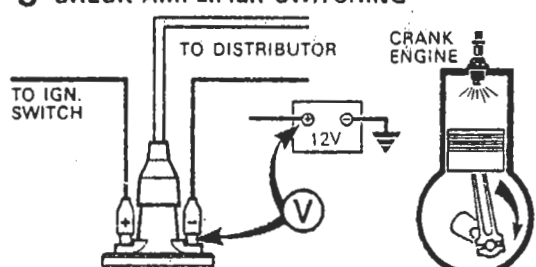
The ignition must be switched on for the following checks.

Recommended Test Equipment

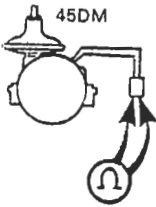
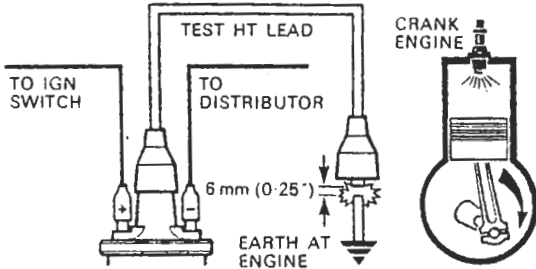
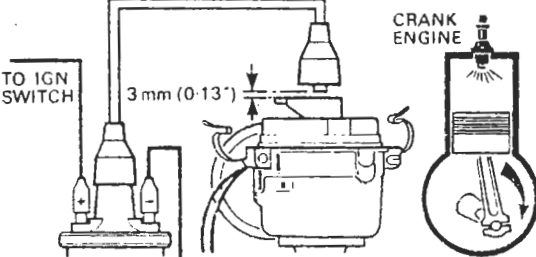
DC moving coil voltmeter, scale 0 - 20V

DC moving coil ohmmeter

HT jumper cable

TEST				RESULT
1 CHECK HT SPARKING 				Should be: Regular sparking → TEST 6 No sparking → TEST 2
2 AMPLIFIER STATIC CHECKS 				Measure voltages at 1-4 incl. should be: 1 - More than 11.5V 2 - 1V max. below V at 1 3 - 1V max. below V at 1 4 - 0V - 0.1V All correct → TEST 3 Incorrect reading(s) → SEE CHART
1	2	3	4	SUSPECT
LOW	✓	✓	✓	Battery discharged
✓	LOW	LOW	✓	Ignition switch and/or wiring
✓	✓	LOW	✓	Coil or amplifier
✓	✓	✓	HIGH	Amplifier earth (ground)
3 CHECK AMPLIFIER SWITCHING 				Voltage increases while cranking → TEST 5 Voltage does not increase while cranking → TEST 4

/Continued.....

<p>4 PICK-UP COIL RESISTANCE</p> 	<p>Ohmmeter should show 2-5 kΩ</p> <p>Correct Change amplifier If engine will not start ————— TEST 5</p> <p>Incorrect Change pick-up If engine will not start ————— TEST 5</p>
<p>5 CHECK HT SPARKING</p> 	<p>Should be good HT sparking Repeat with original HT lead</p> <p>Good sparking If engine will not start ————— TEST 6</p> <p>No sparking, replace HT lead If engine will not start ————— TEST 6</p> <p>No sparking Replace coil If engine will not start ————— TEST 6</p>
<p>6 CHECK ROTOR ARM</p> 	<p>Should be: No sparking ————— TEST 7</p> <p>HT sparking Replace rotor arm/rotor vane If engine will not start ————— TEST 7</p>
<p>7 VISUAL AND HT CABLE CHECKS</p> <p>EXAMINE</p> <ol style="list-style-type: none"> 1 Distributor Cover 2 Coil Top 3 H.T. Cable Insulation 4 H.T. Cable Continuity 5 Spark Plugs 	<p>Should be:</p> <ol style="list-style-type: none"> 1 Clean, dry, no tracking marks 2 Clean, dry, no tracking marks 3 Must not be cracked, chafed or perished 4 Must not be open circuit 5 Clean, dry, and set to correct gap

Note: If a fault is diagnosed with the distributor pick up assembly, the complete distributor must be replaced as without the specialist equipment required for correct adjustment, extensive engine damage could result from any attempt to replace internal components.

BATTERY RE-CHARGING PROCEDURE

Instructions for Tungstone Powermaster Maintenance Free Batteries.

To determine the state of charge of the battery, apply a brief discharge of no more than ten seconds duration (e.g. turn on headlights) with the engine off, and then allow to stand on open circuit for two to three minutes.

Measure the terminal voltage of the battery.

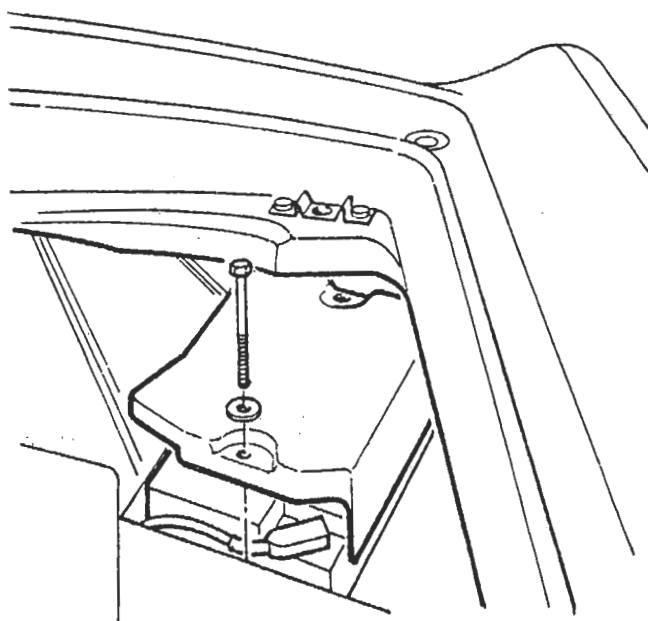
If steady voltage is below 12.4 Volts, recharge battery as follows.

Note: The battery must not be boost charged.

If necessary, fit a replacement battery to the vehicle, whilst original battery is charged as follows.

Remove battery from vehicle.

- a). Constant Current: The battery must be charged at a maximum of 5 amps until the battery terminal voltage (on charge) has stabilised over a one hour period, at which time the voltage will be in the range 16.0 - 16.5 V. At this stage the battery must be taken off charge IMMEDIATELY, to prevent excess gassing with resulting water loss which will ultimately reduce the guaranteed service life.
- b). Constant Voltage: The battery may be charged at a voltage up to a maximum of 15.8V providing the current is carefully monitored and the charge terminated when the current has tapered off and changes by less than 0.1 amp over a period of one hour. If it is not possible to monitor the current during charging, then the voltage must be restricted to 14.4 V maximum.



Battery access

ELECTRICAL

SECTION ME - USA ESPRIT TURBO, '86 M.Y. ON (H.C.I.)

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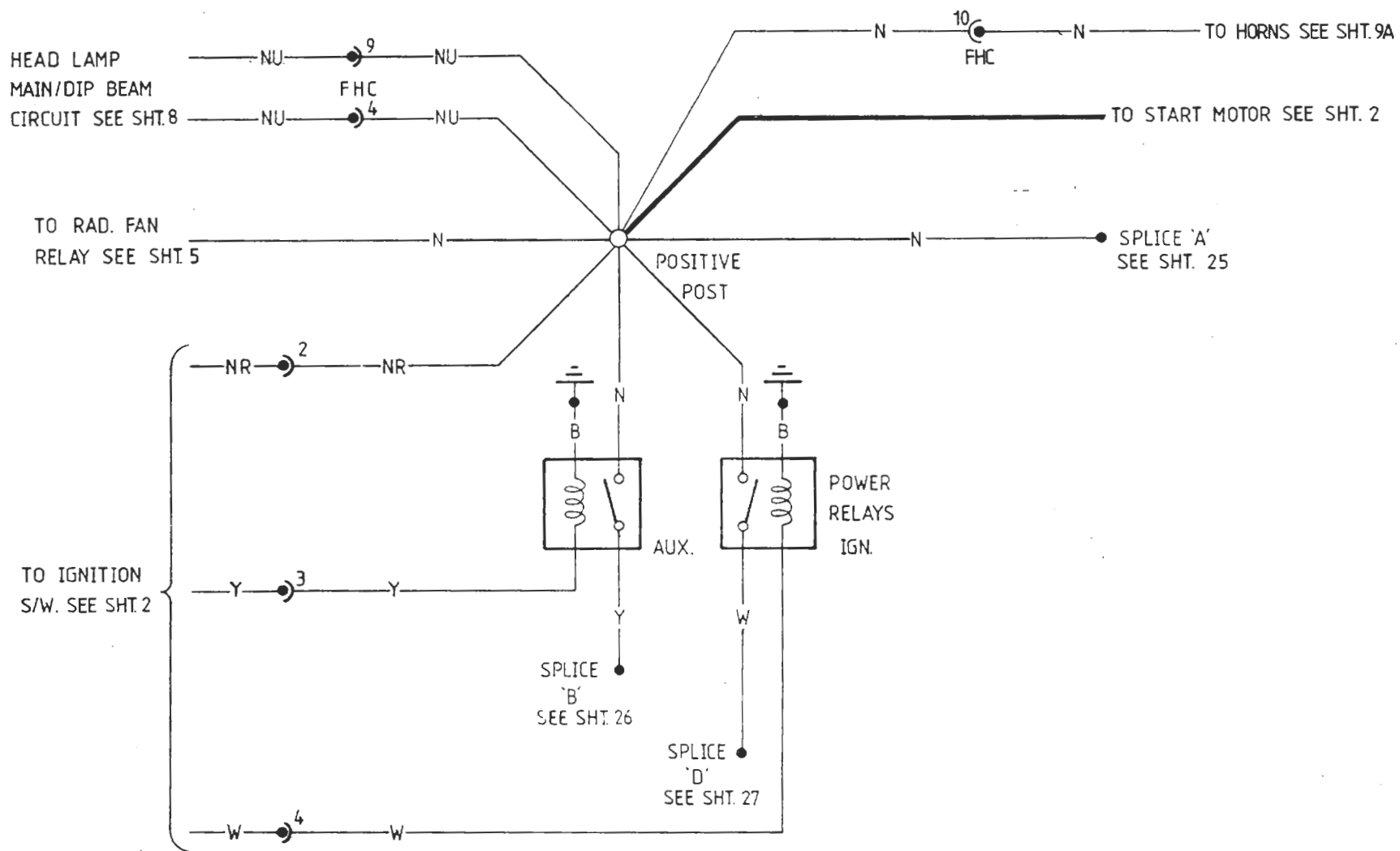
SECTION ME

LEGEND

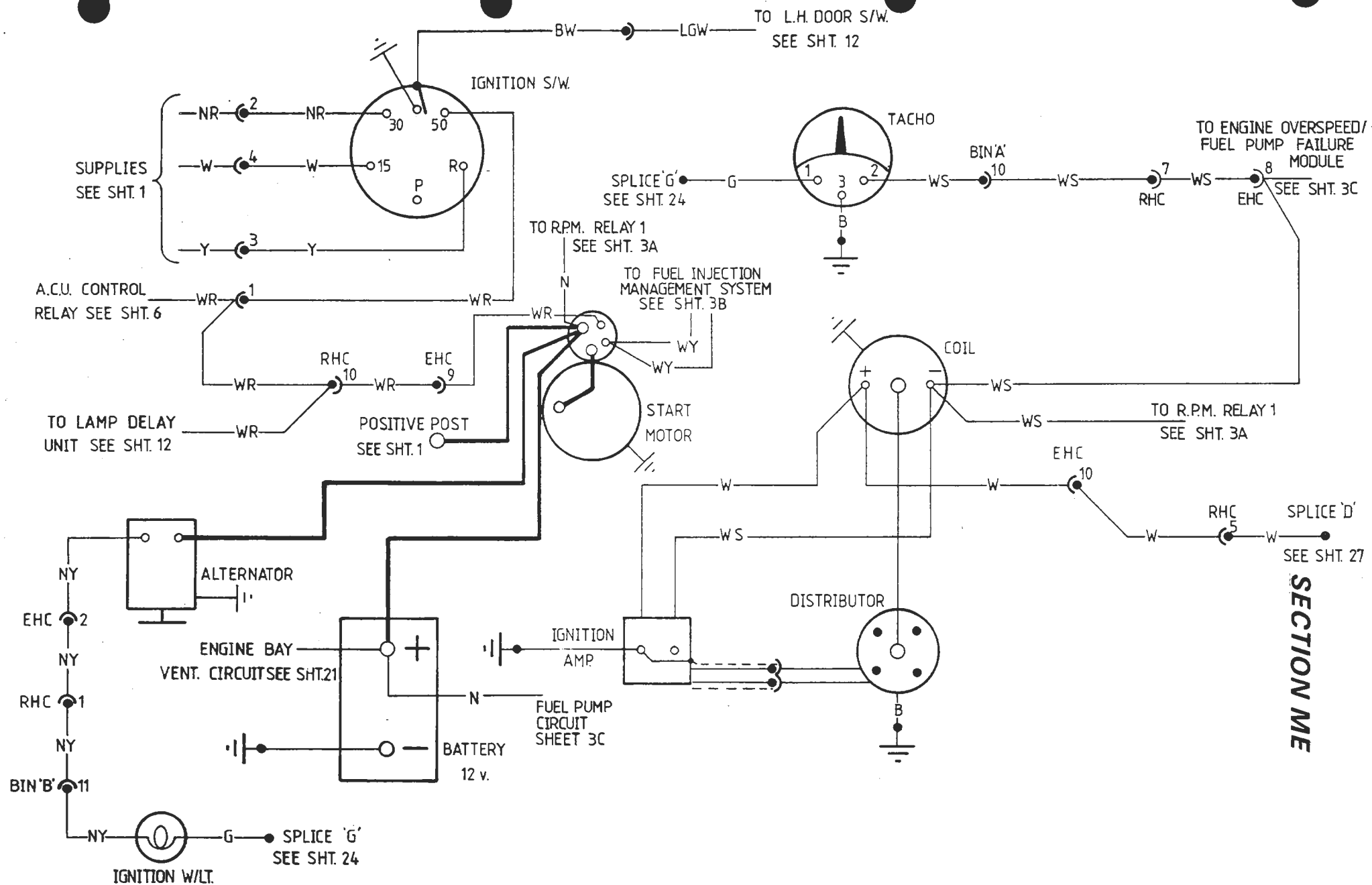
BIN	Binnacle Connector
D.H.C.	Door Harness Connector
D.I.	Direction Indicator
E.B.C.	Engine Bulkhead Connector
E.H.C.	Engine Harness Connector
F.H.C.	Front Harness Connector
L.H.	Left Hand
P.H.C.	Pumps Harness Connector
R.H.	Right Hand
R.H.C.	Rear Harness Connector
SOL	Solenoid
S/W	Switch
W/LT.	Warning Light
C.C.C.	Centre Console Connector
M.H.C.	Manifold Harness Connector
C.F.H.C.	Cooling Fans Harness Connector
C.B.H.C.	Coil Box Harness Connector

Cable Colour Code

B	Black	O	Orange
G	Green	R	Red
K	Pink	S	Slate
P	Purple	U	Blue
LTG	Light Green	W	White
N	Brown	Y	Yellow



SECTION ME



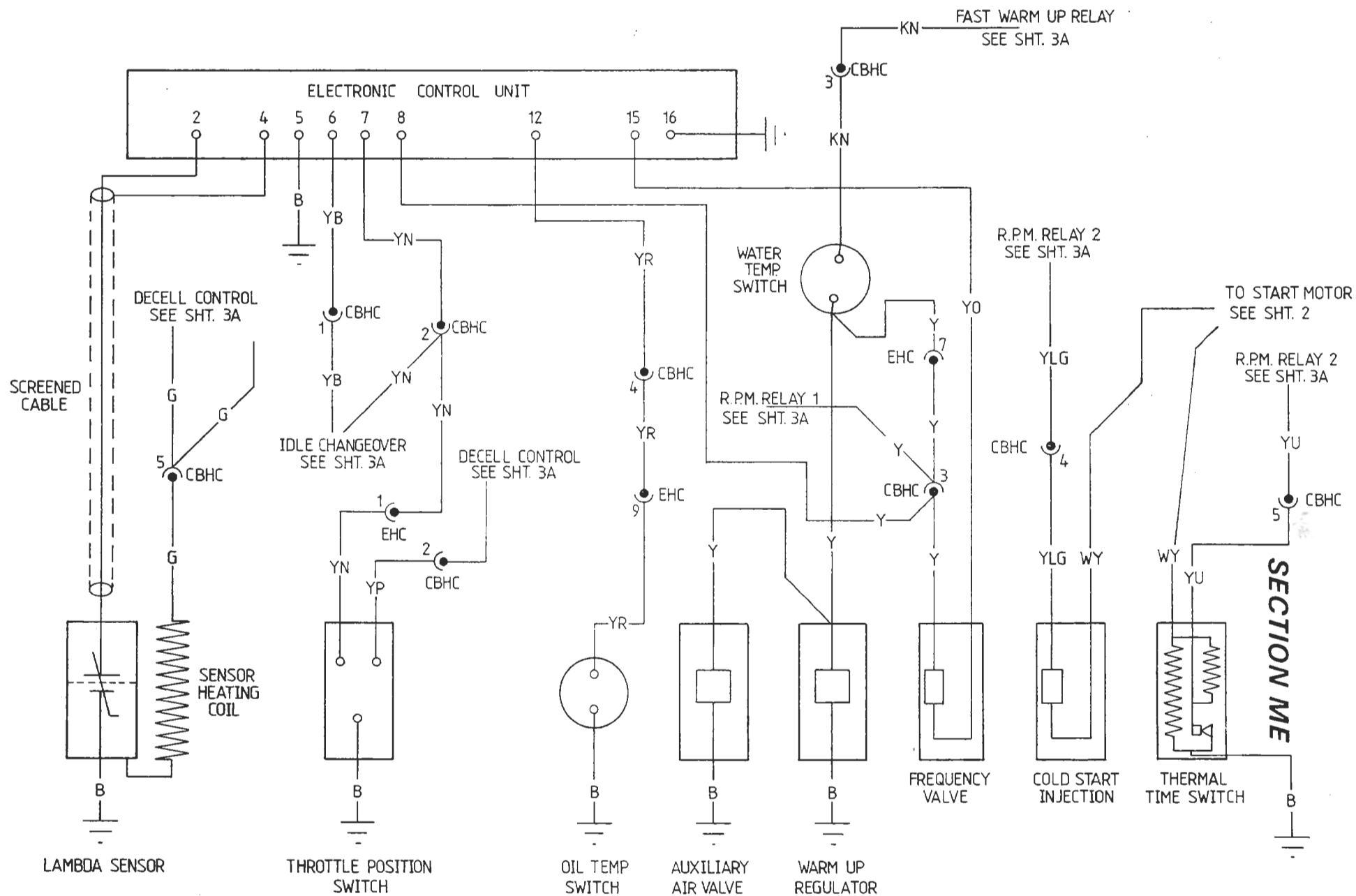
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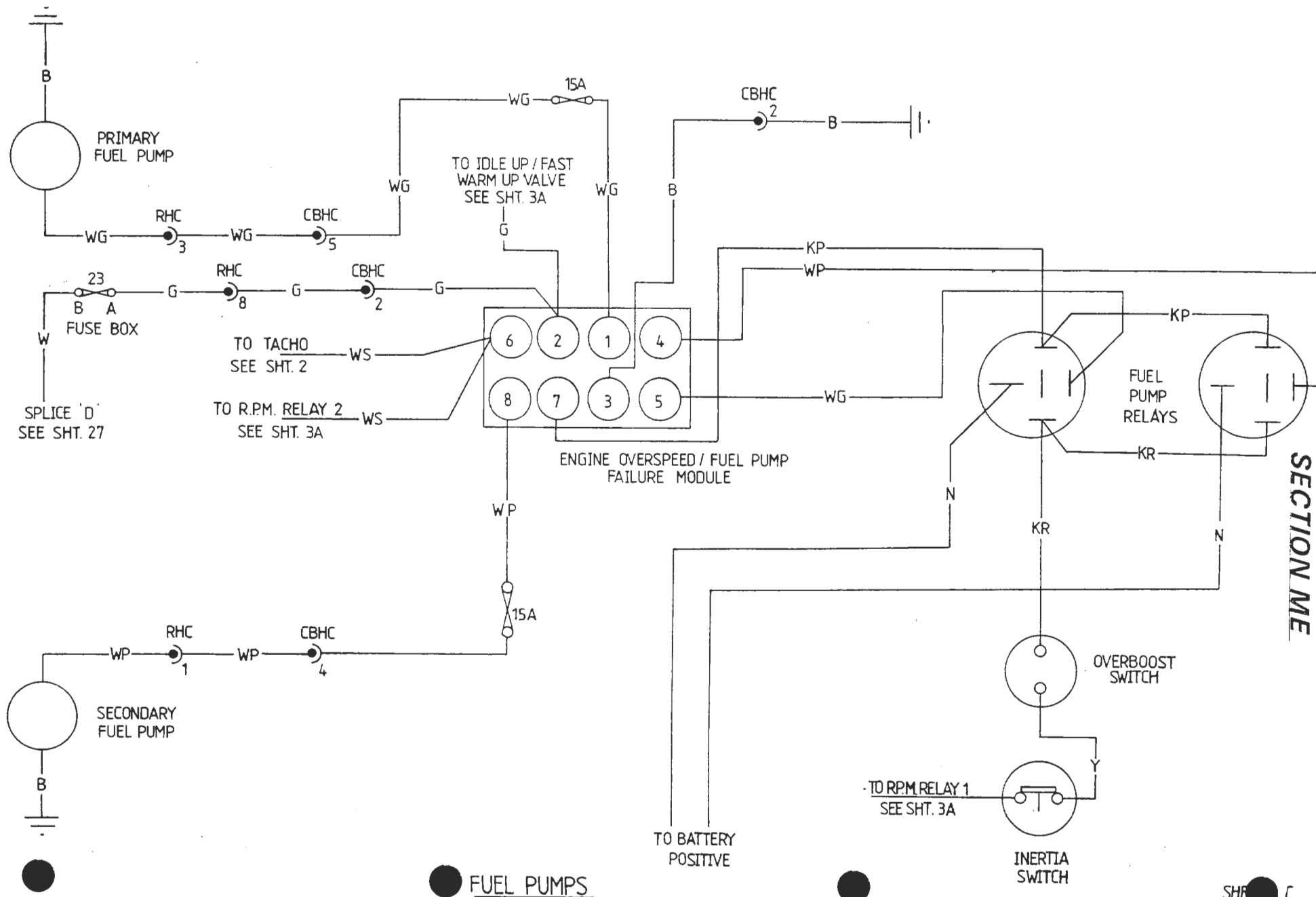
START, ALTERNATOR & IGNITION

SECTION ME

R.P.M. RELAY 2

R.P.M. RELAY 1

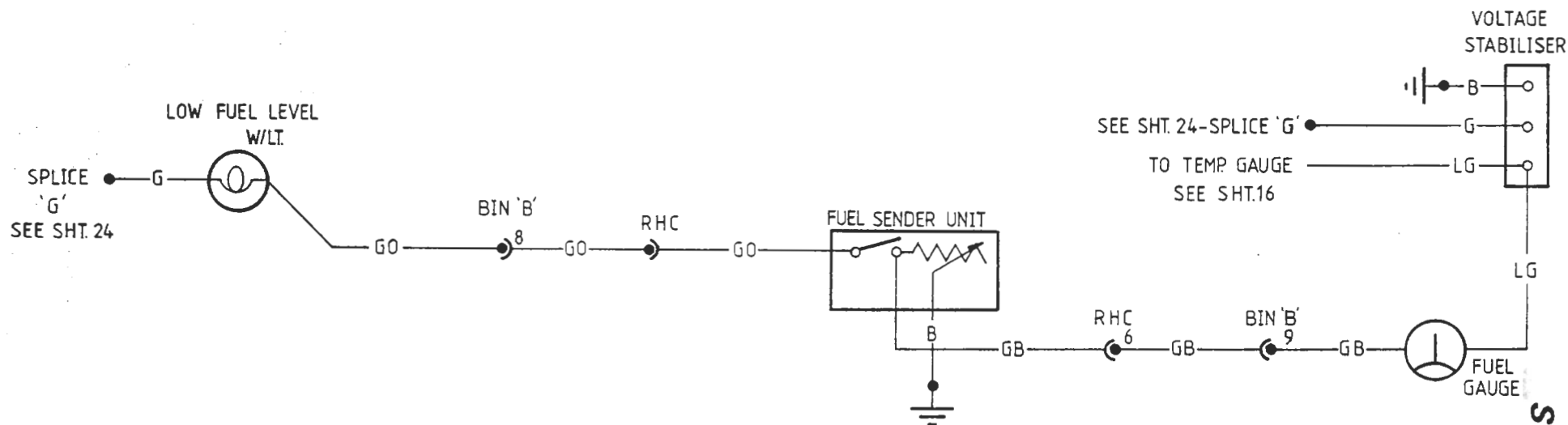


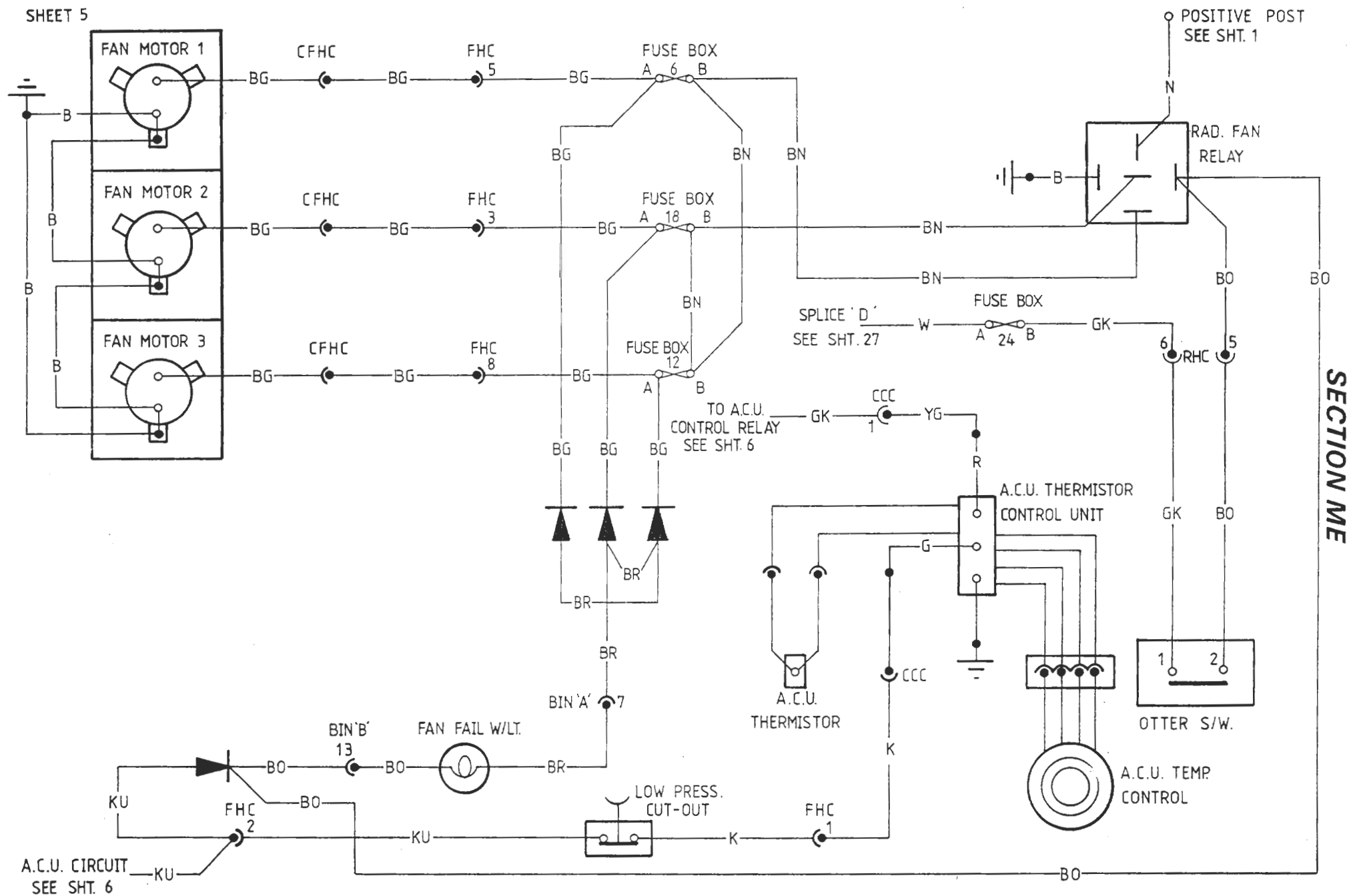


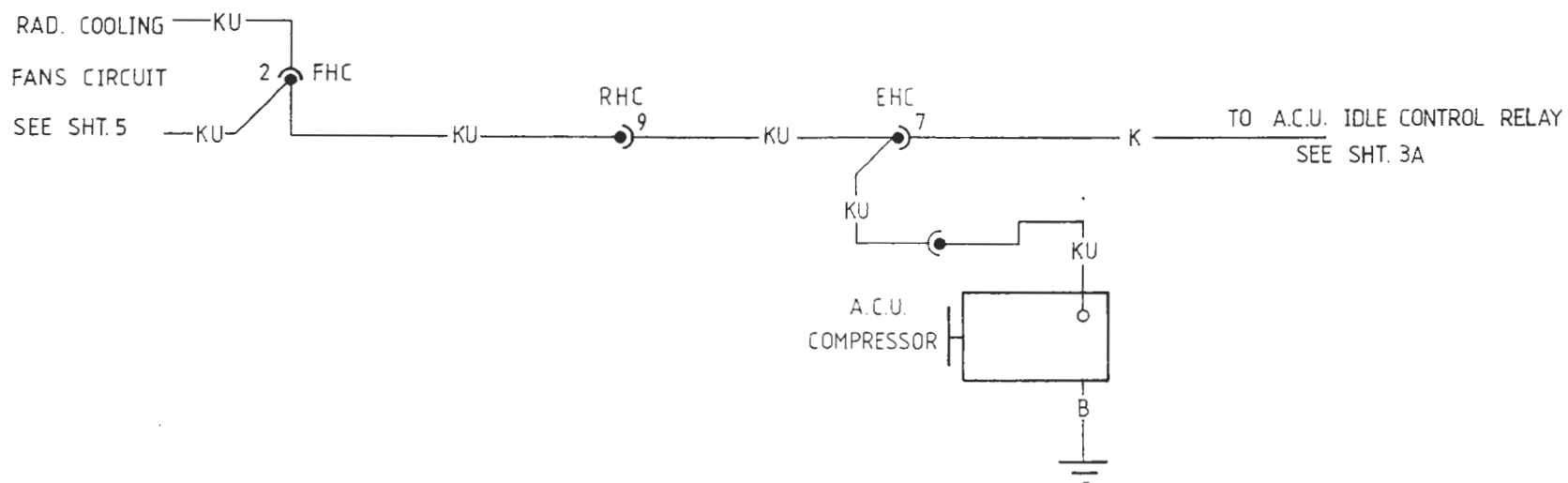
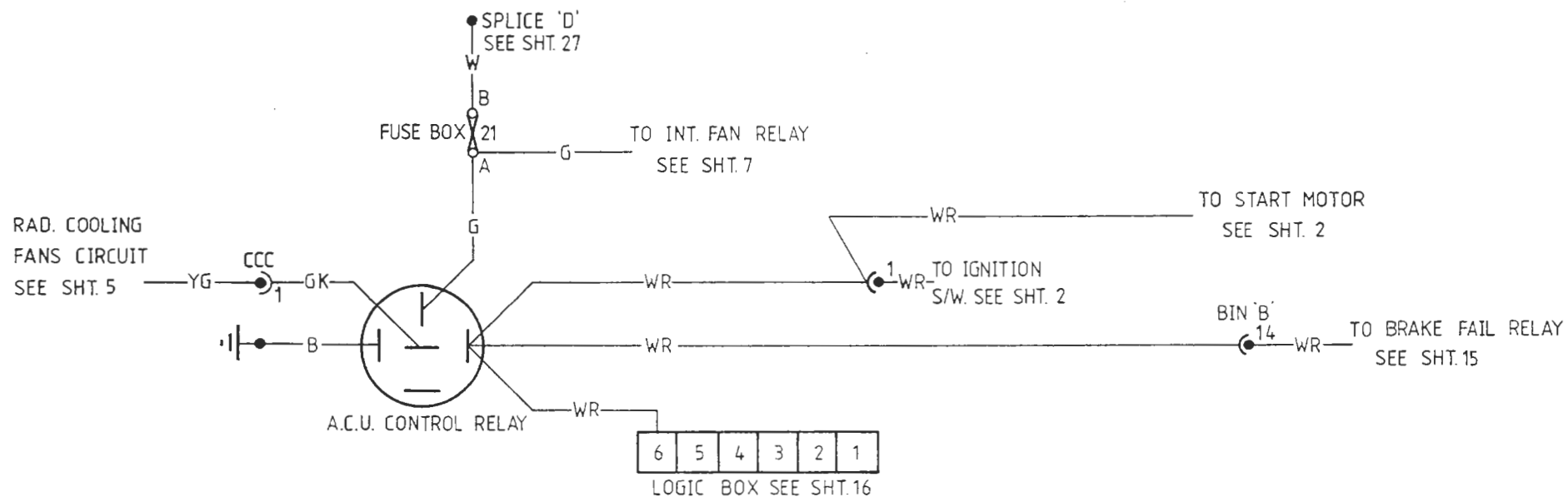
SECTION ME

FUEL PUMPS

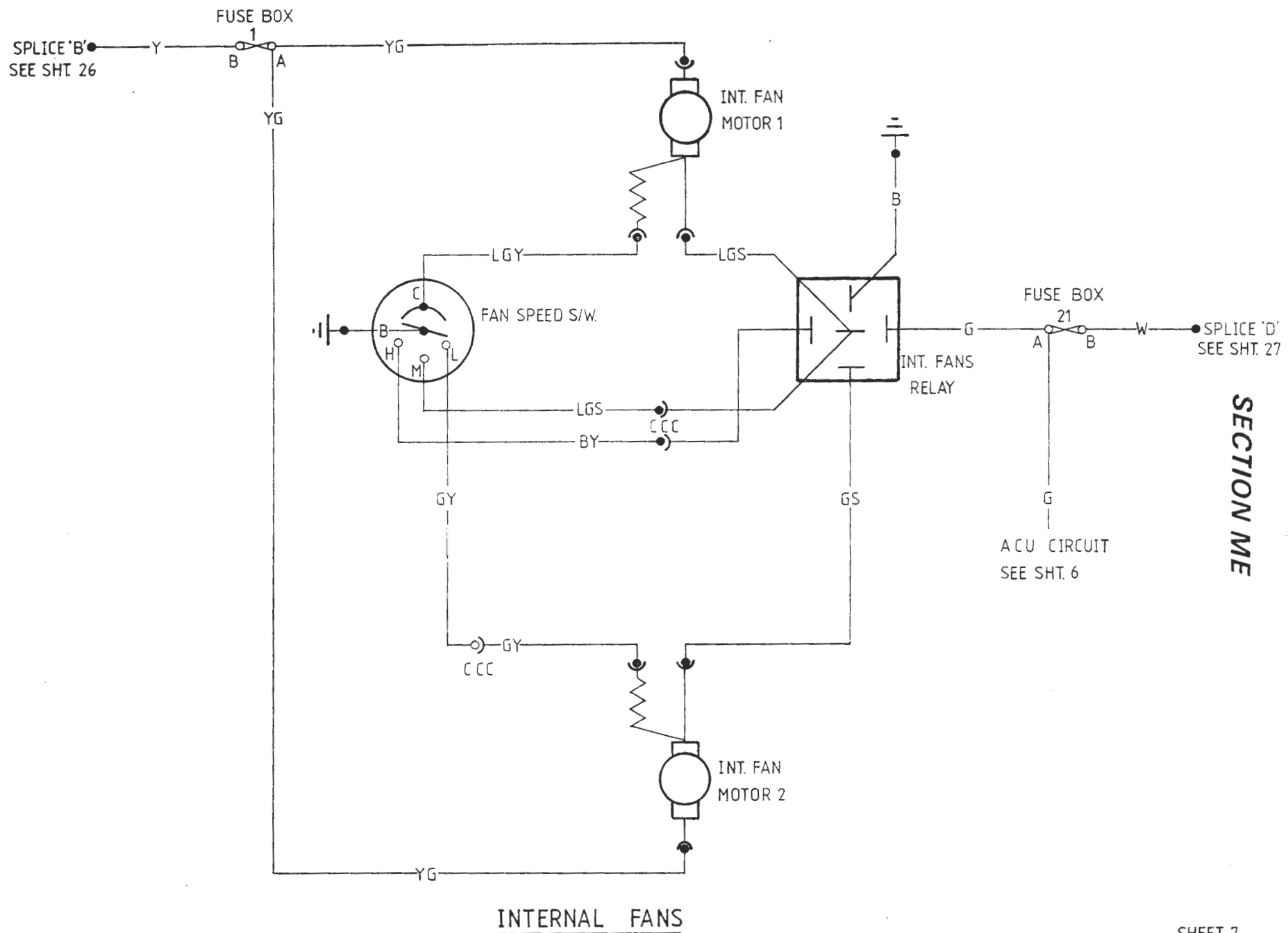
SHEET 3C

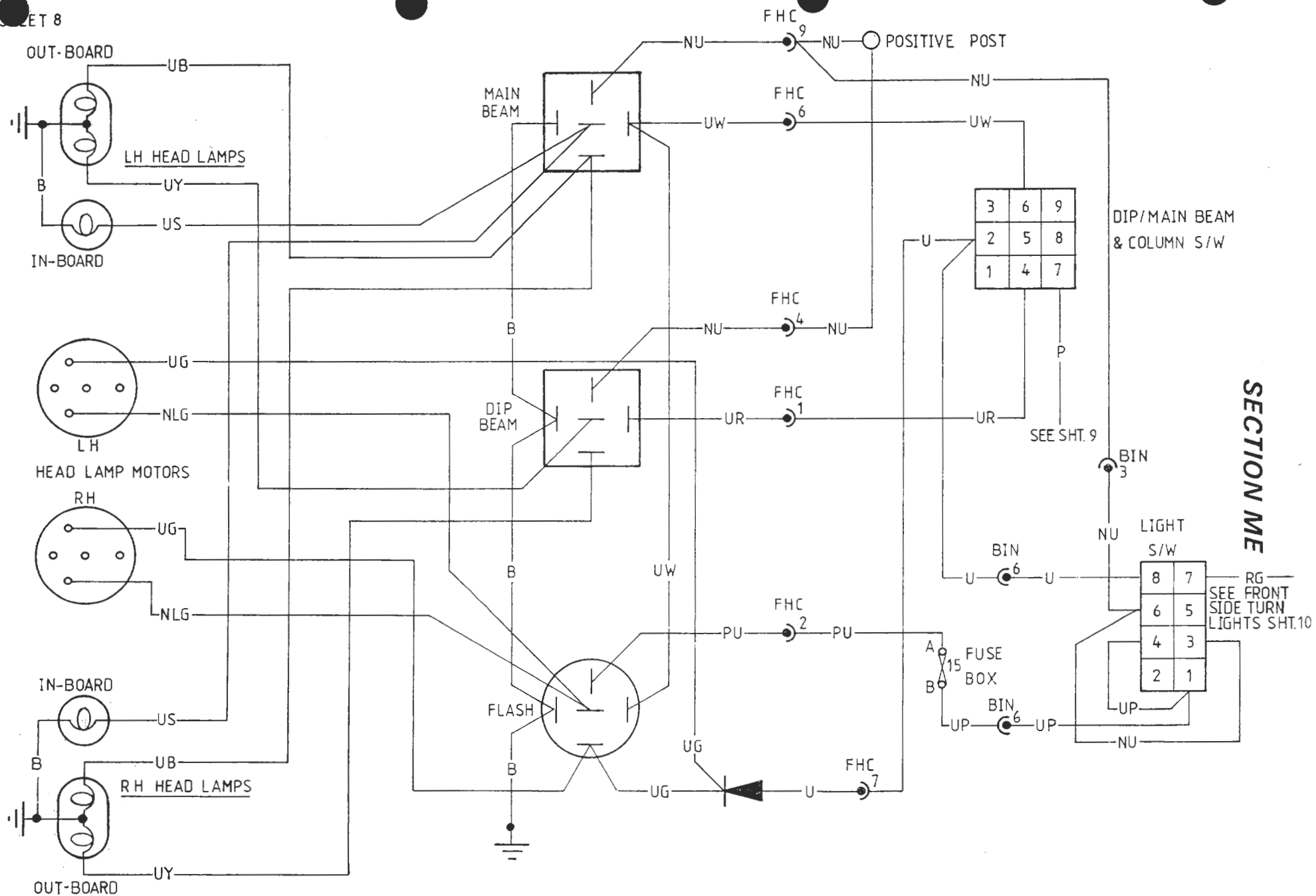




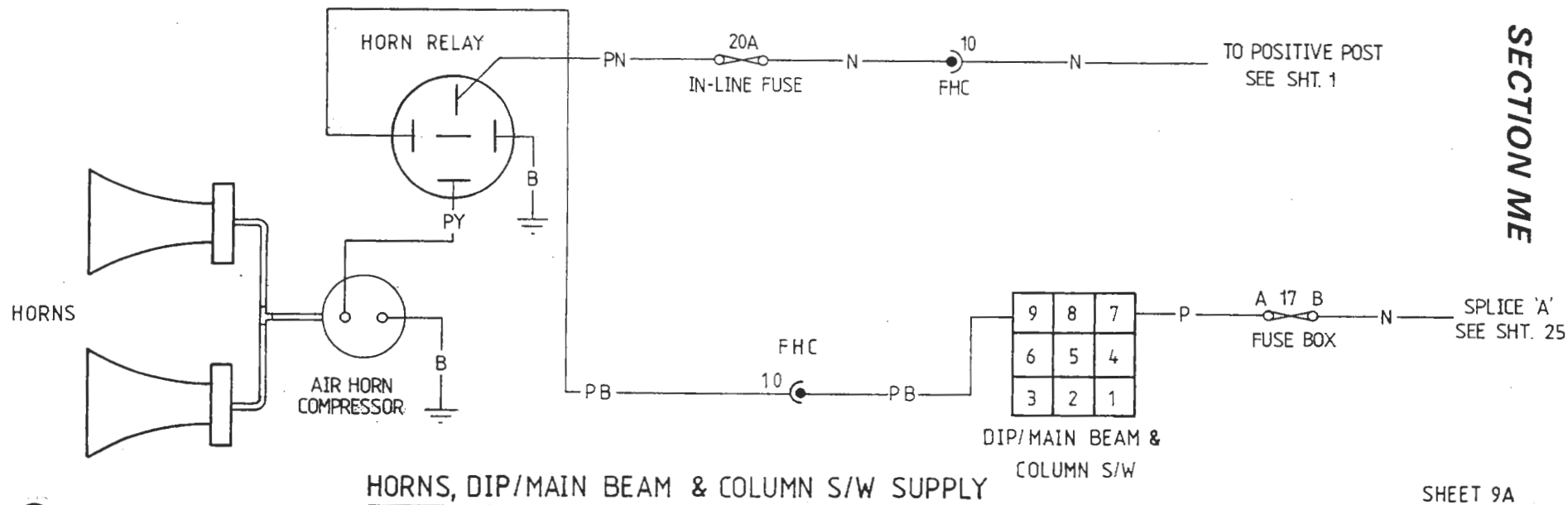
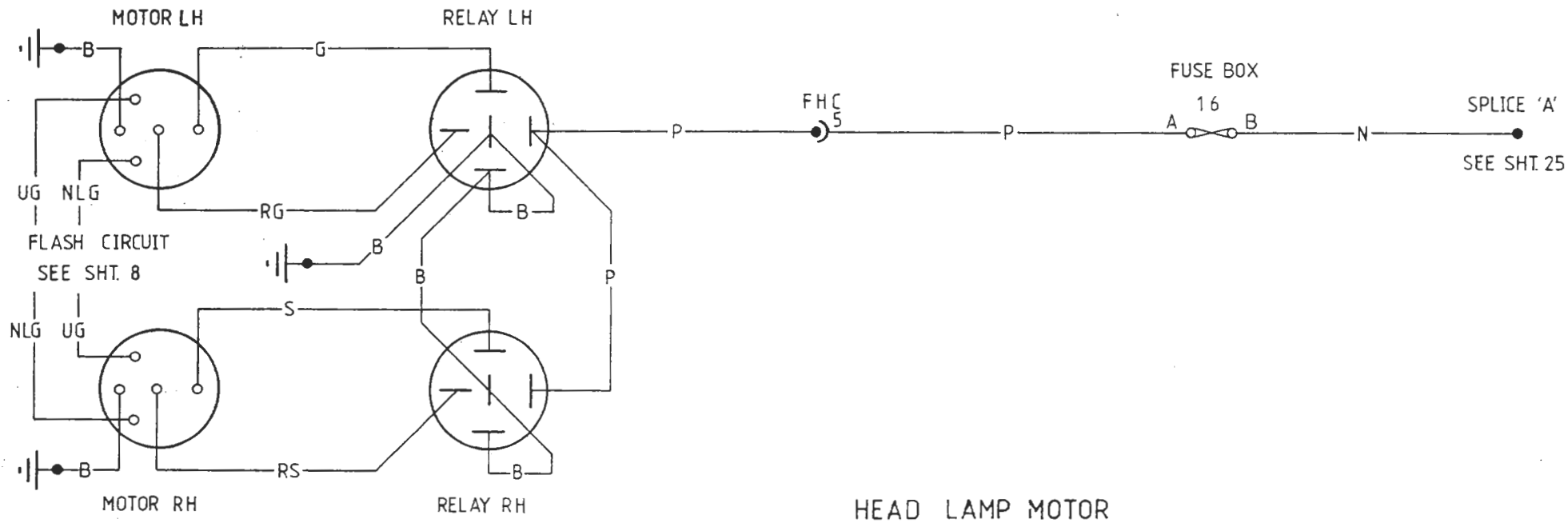


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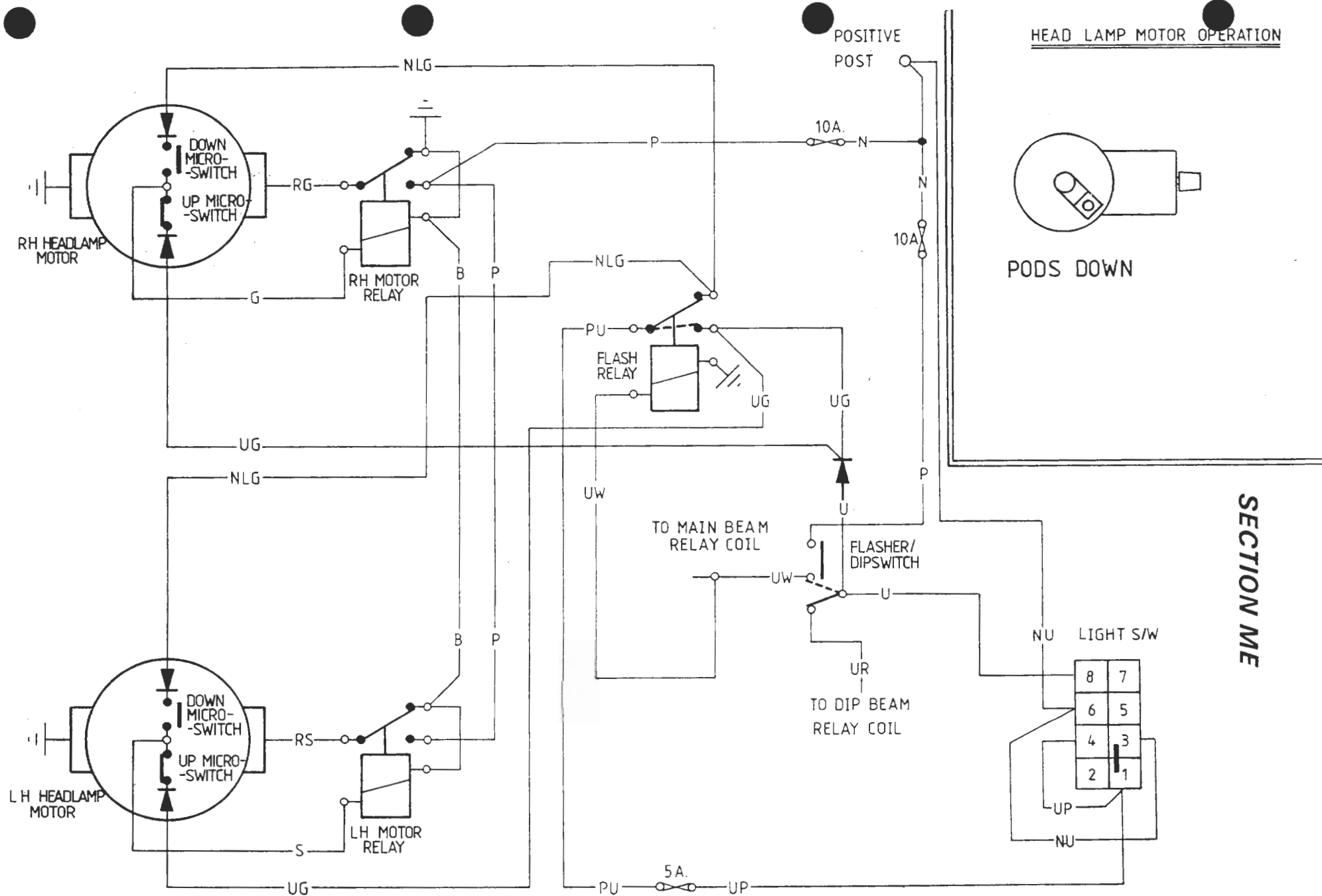




HEAD LAMP MAIN BEAM, DIP BEAM & FLASH

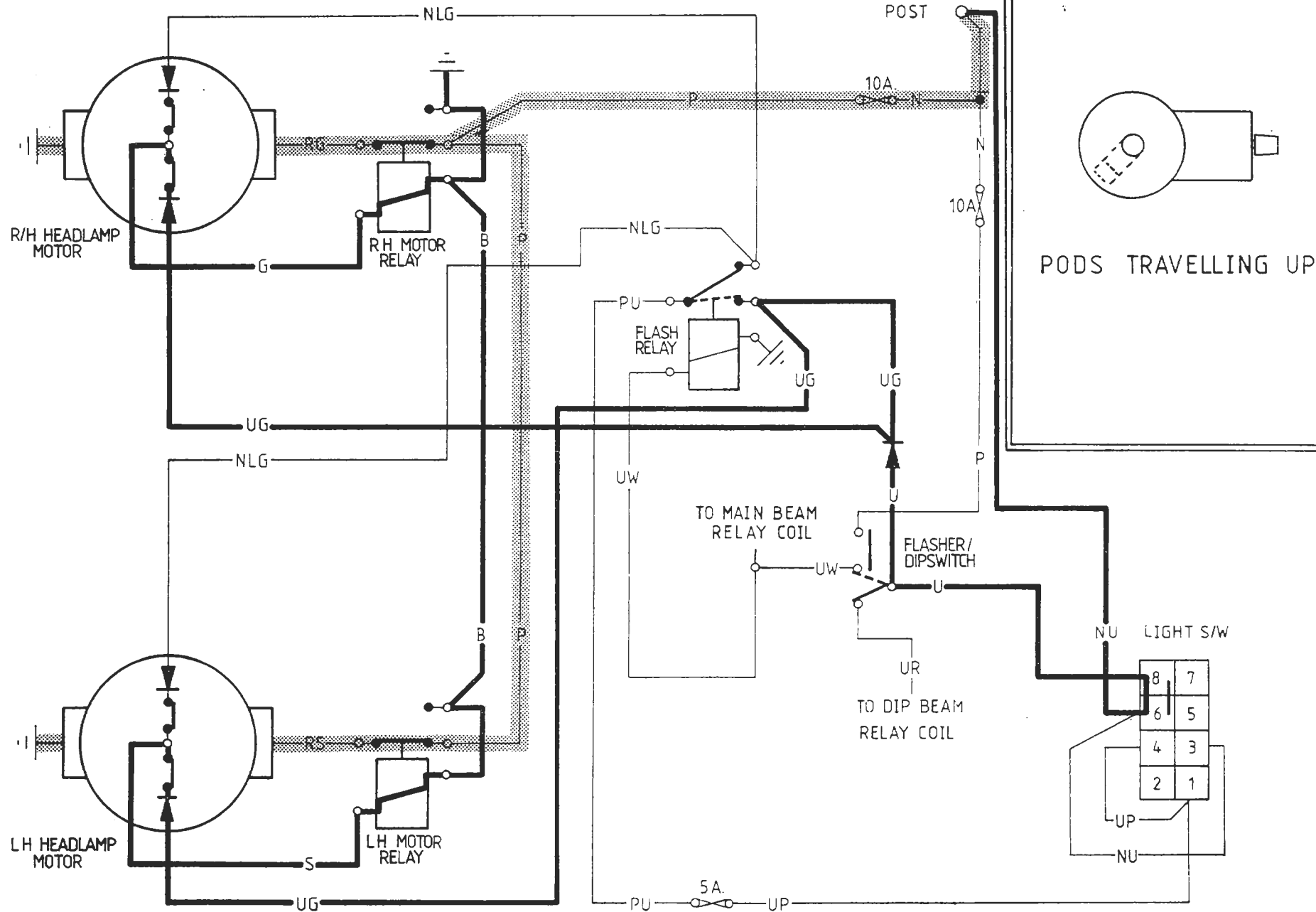


SECTION ME



HEAD LAMP MOTOR CIRCUIT

SECTION ME

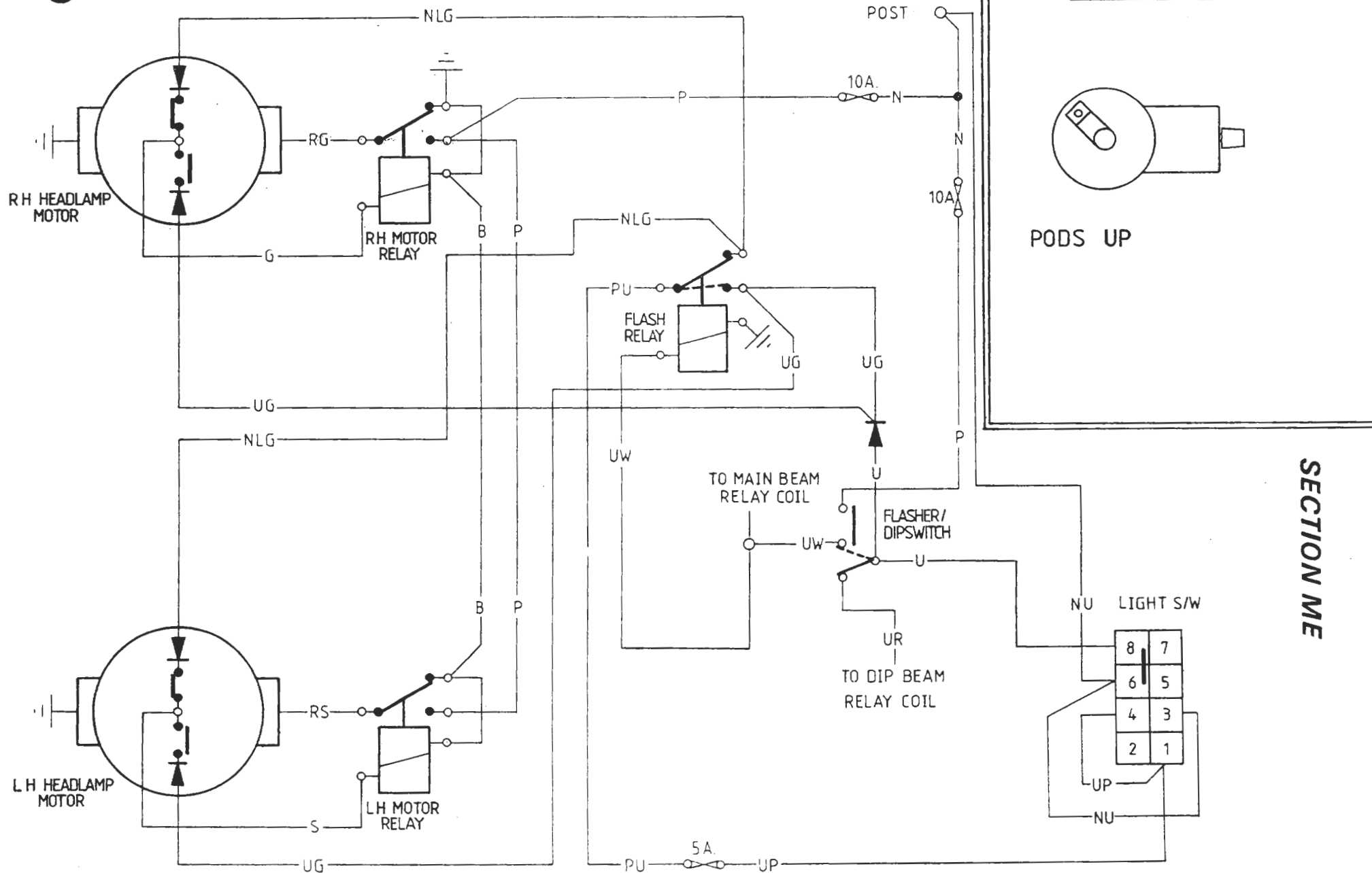


HEAD LAMP MOTOR OPERATION

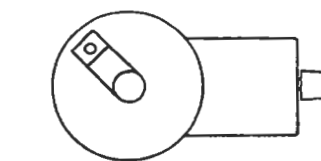
PODS TRAVELLING UP

SECTION ME

HEAD LAMP MOTOR CIRCUIT



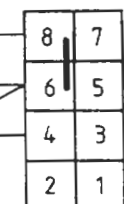
HEAD LAMP MOTOR OPERATION

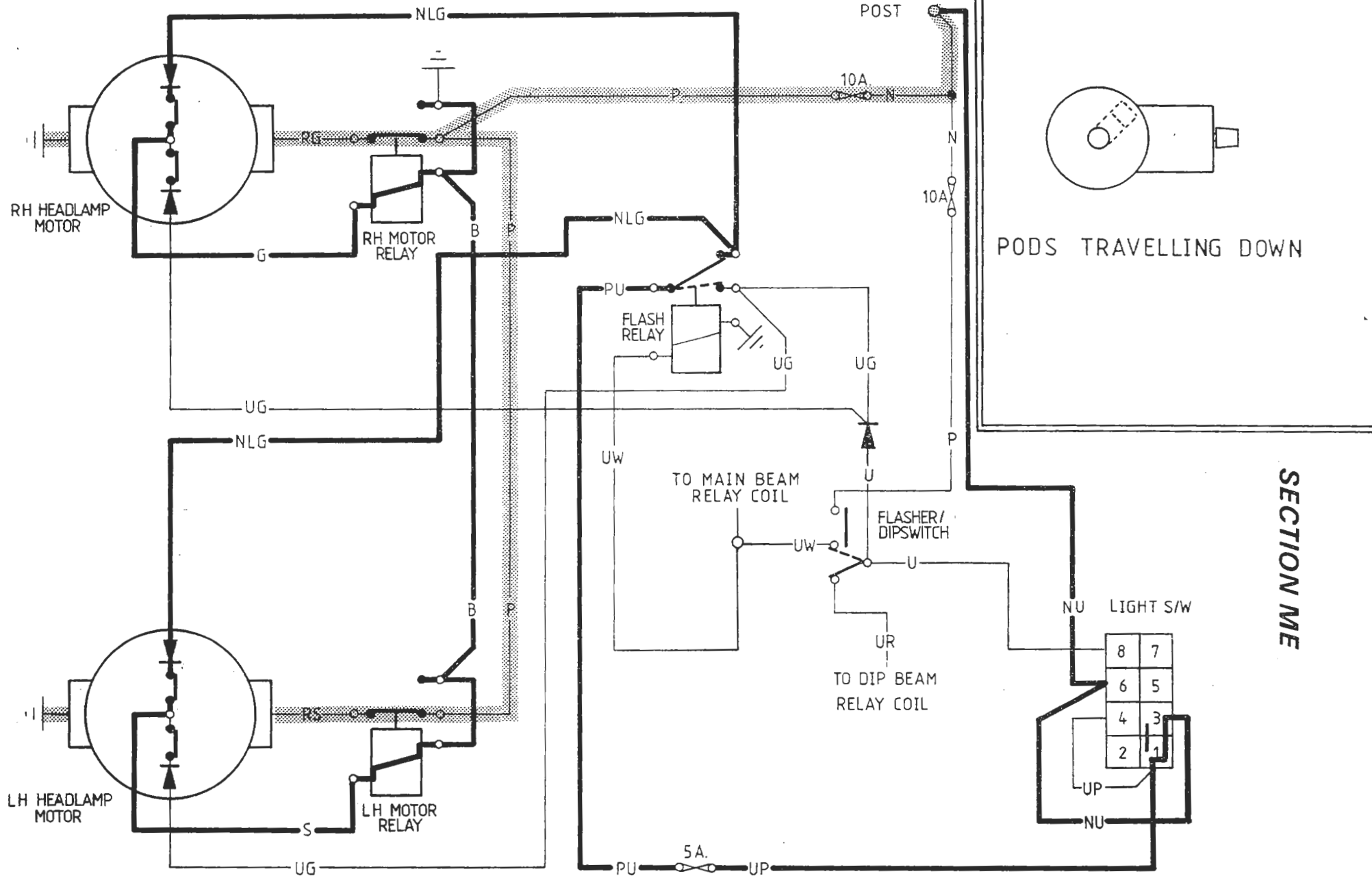


PODS UP

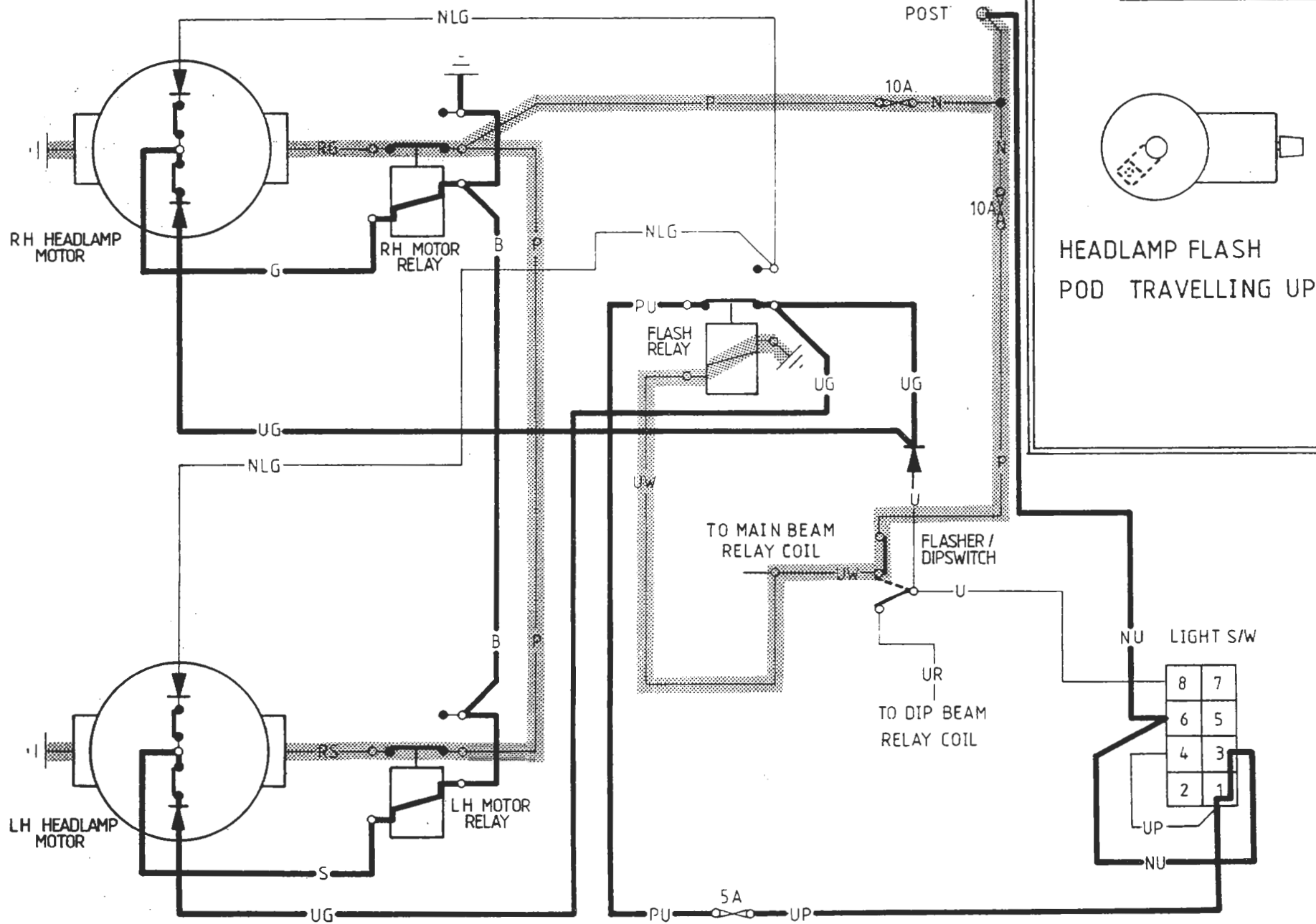
SECTION ME

NU LIGHT S/W



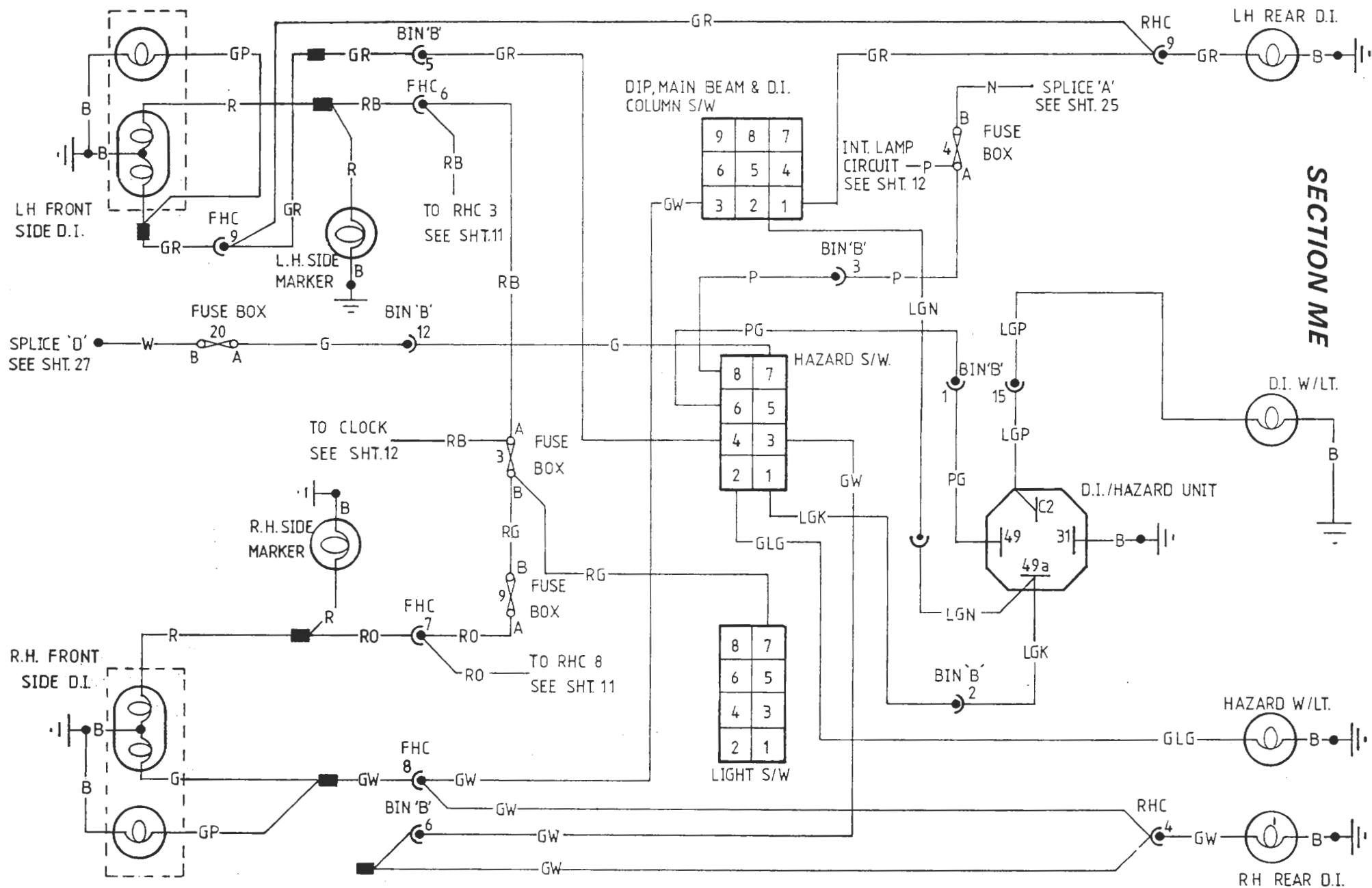


HEAD LAMP MOTOR CIRCUIT

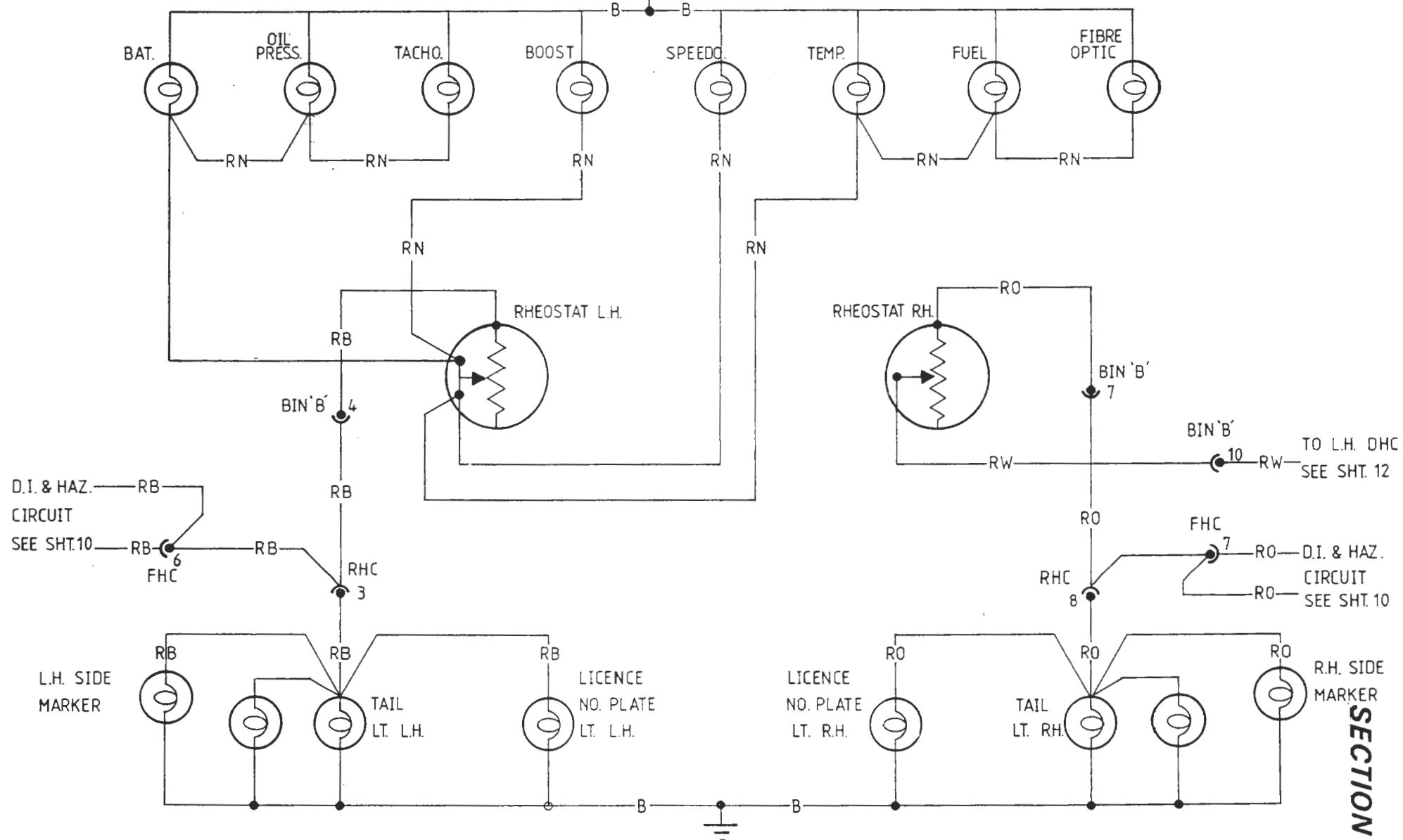


HEAD LAMP MOTOR CIRCUIT

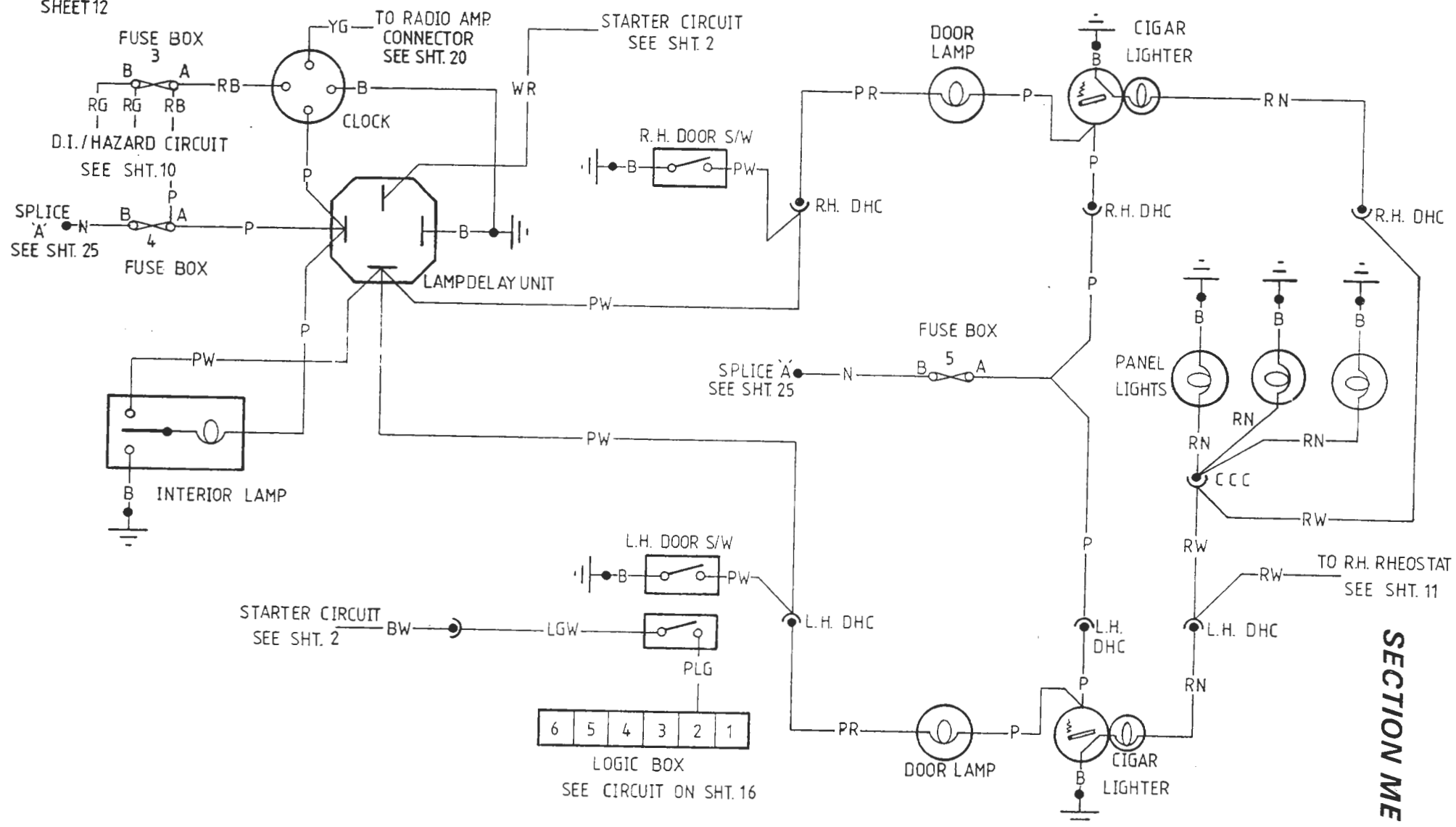
SECTION ME



INSTRUMENT ILLUMINATION

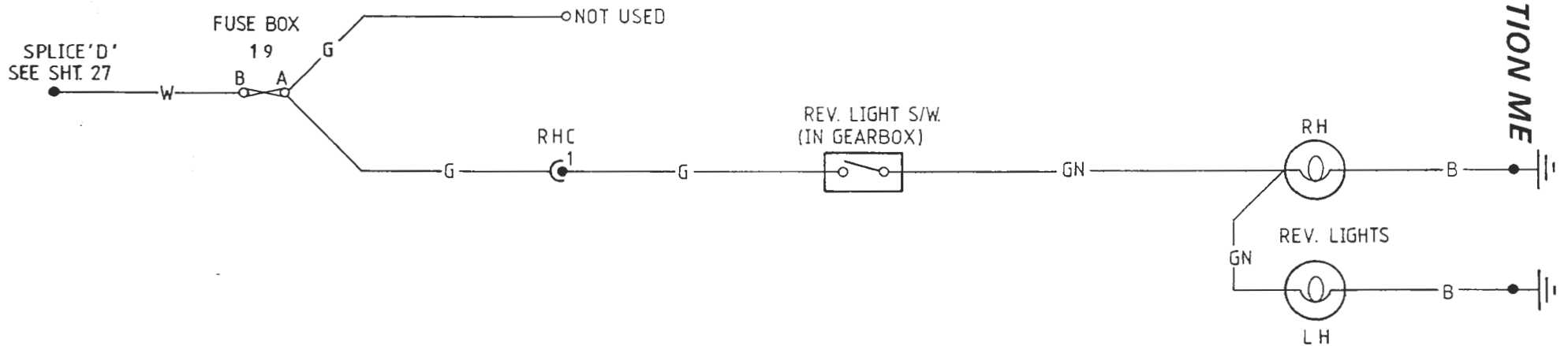
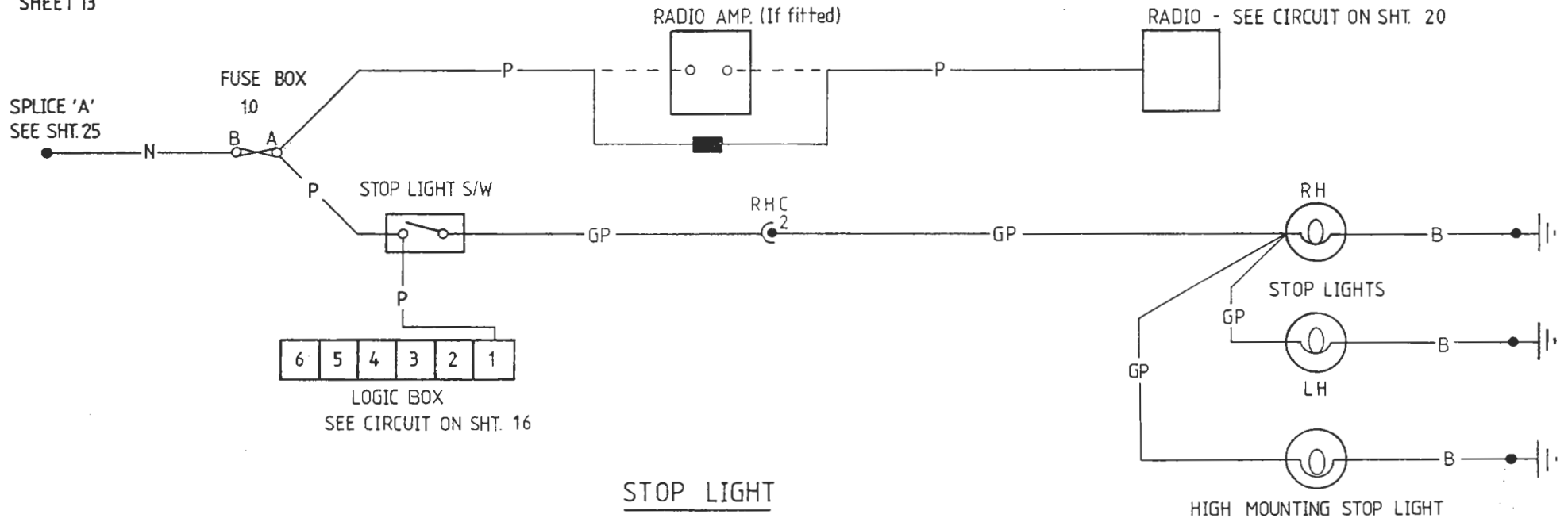


REAR LIGHTS & INSTRUMENT ILLUMINATION



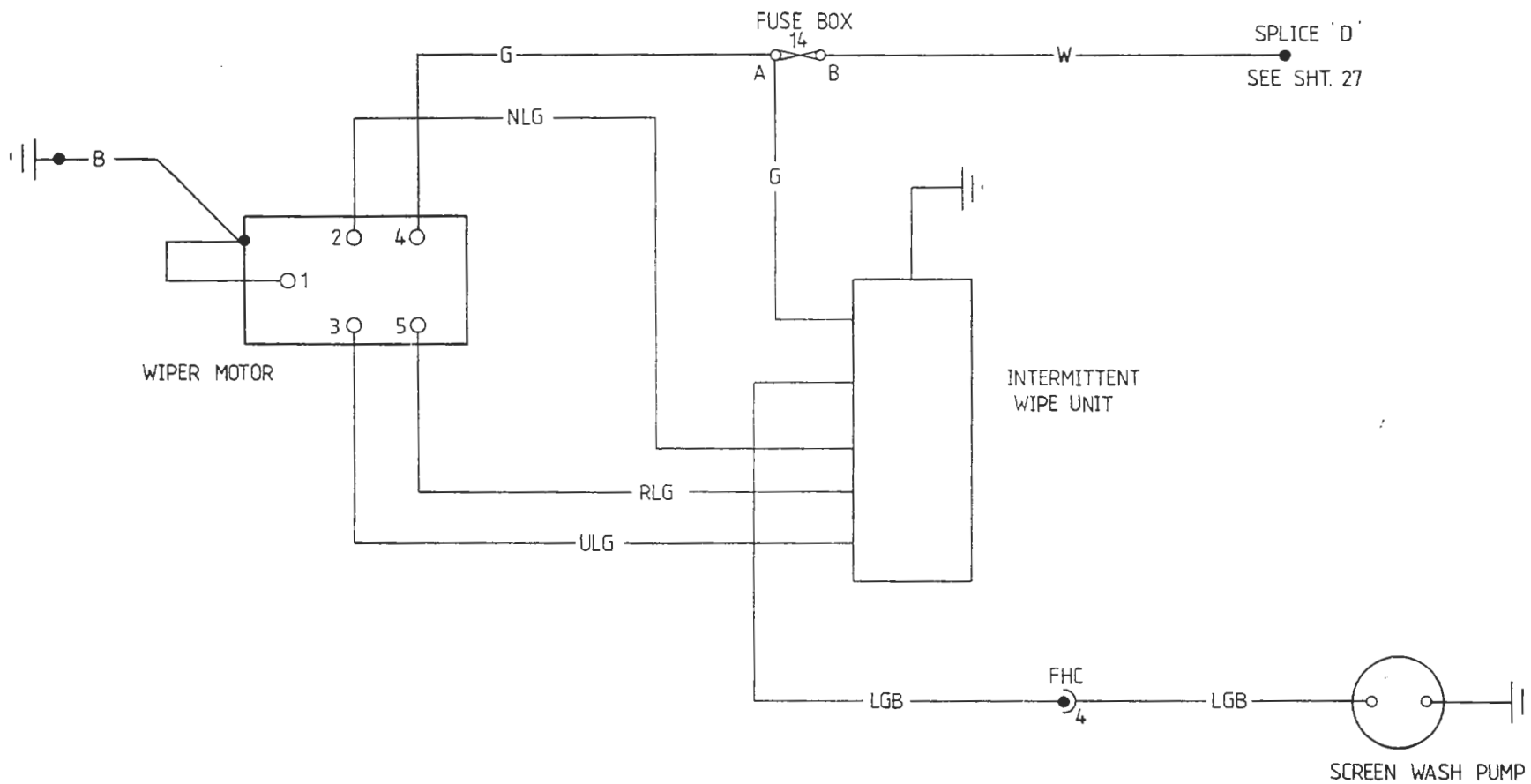
SECTION ME

CLOCK, DOOR WARNING & INTERNAL LAMPS



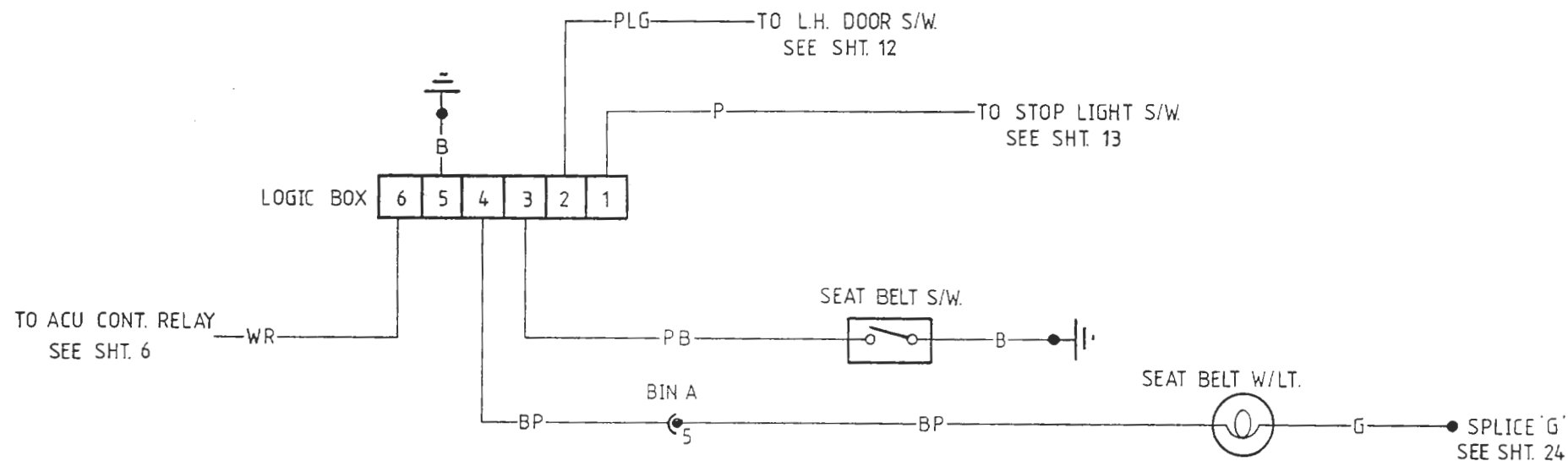
REVERSE LIGHT

SECTION ME

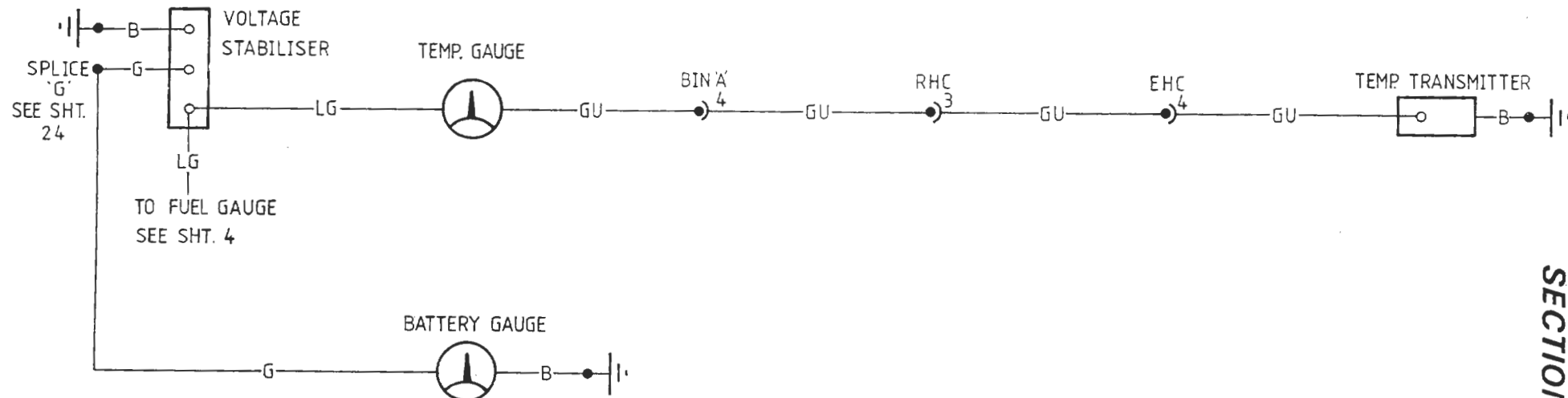


SECTION ME

WIPERS

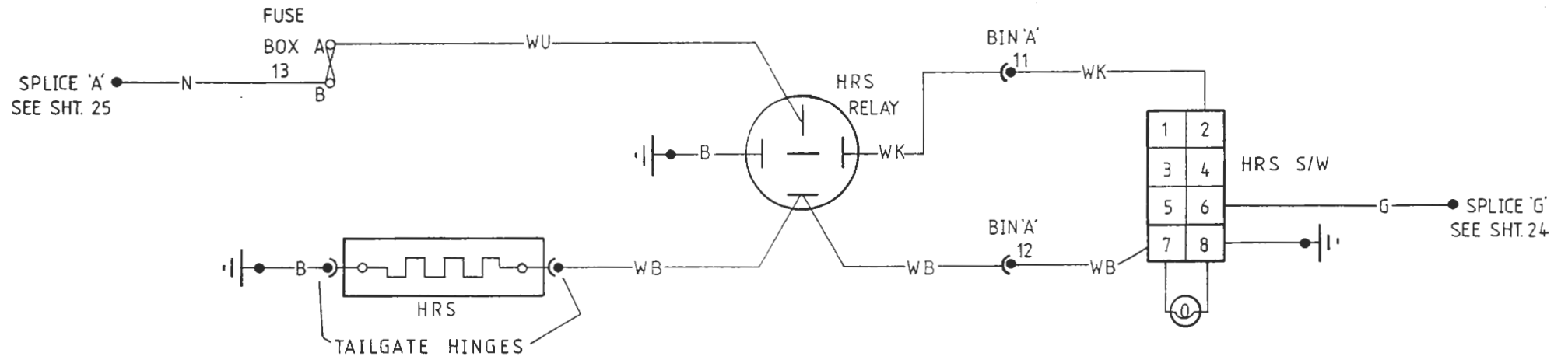


SEAT BELT / LOGIC



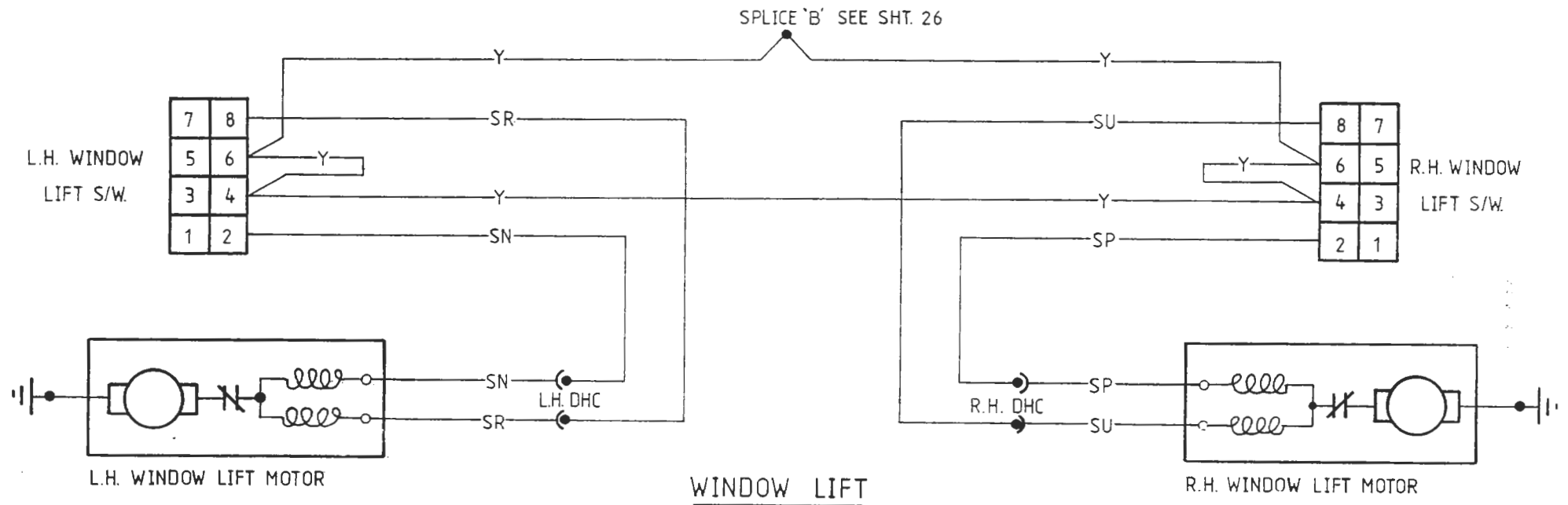
WATER TEMPERATURE & BATTERY GAUGES

SECTION ME

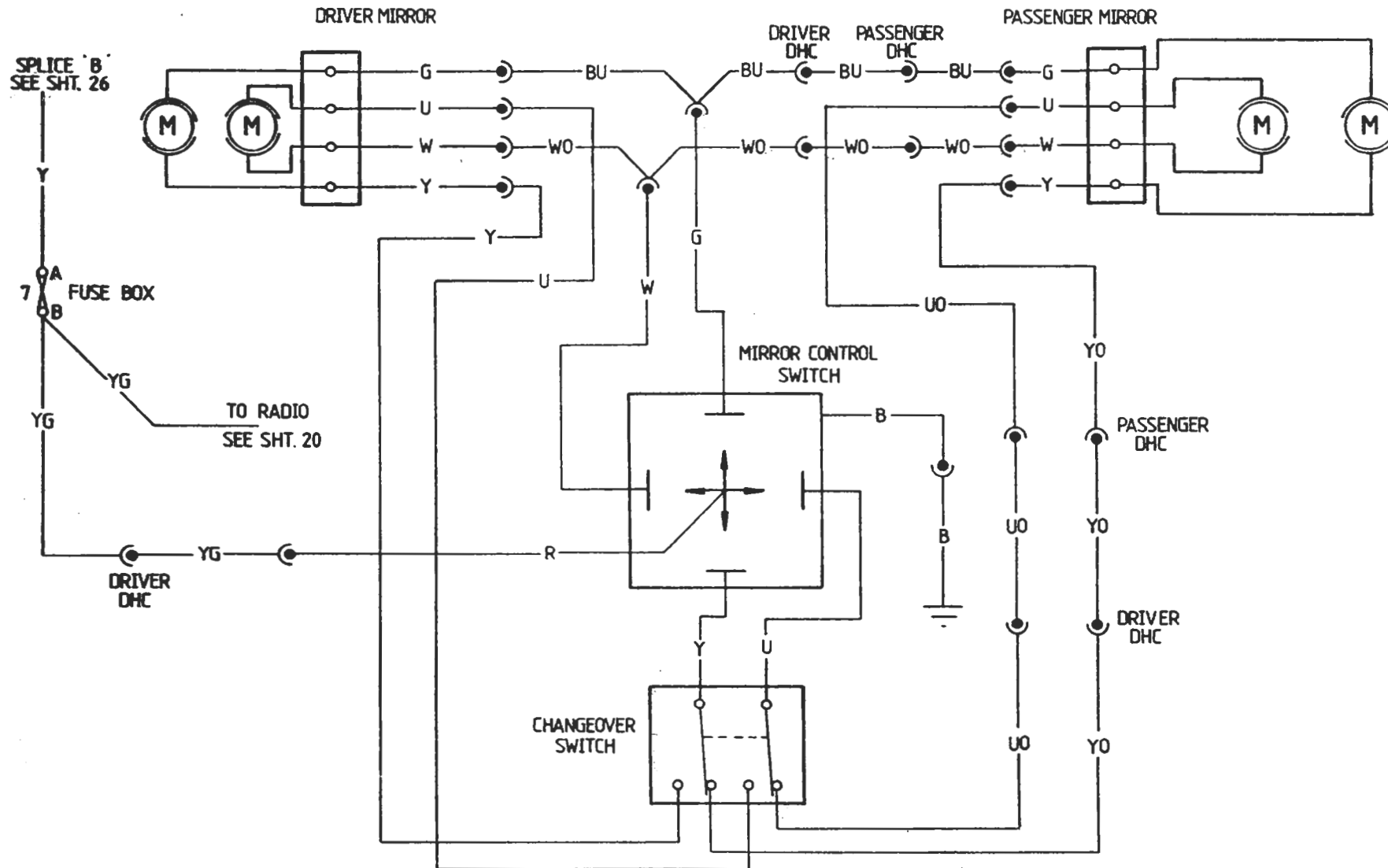


HEATED REAR SCREEN (HRS)

SECTION ME

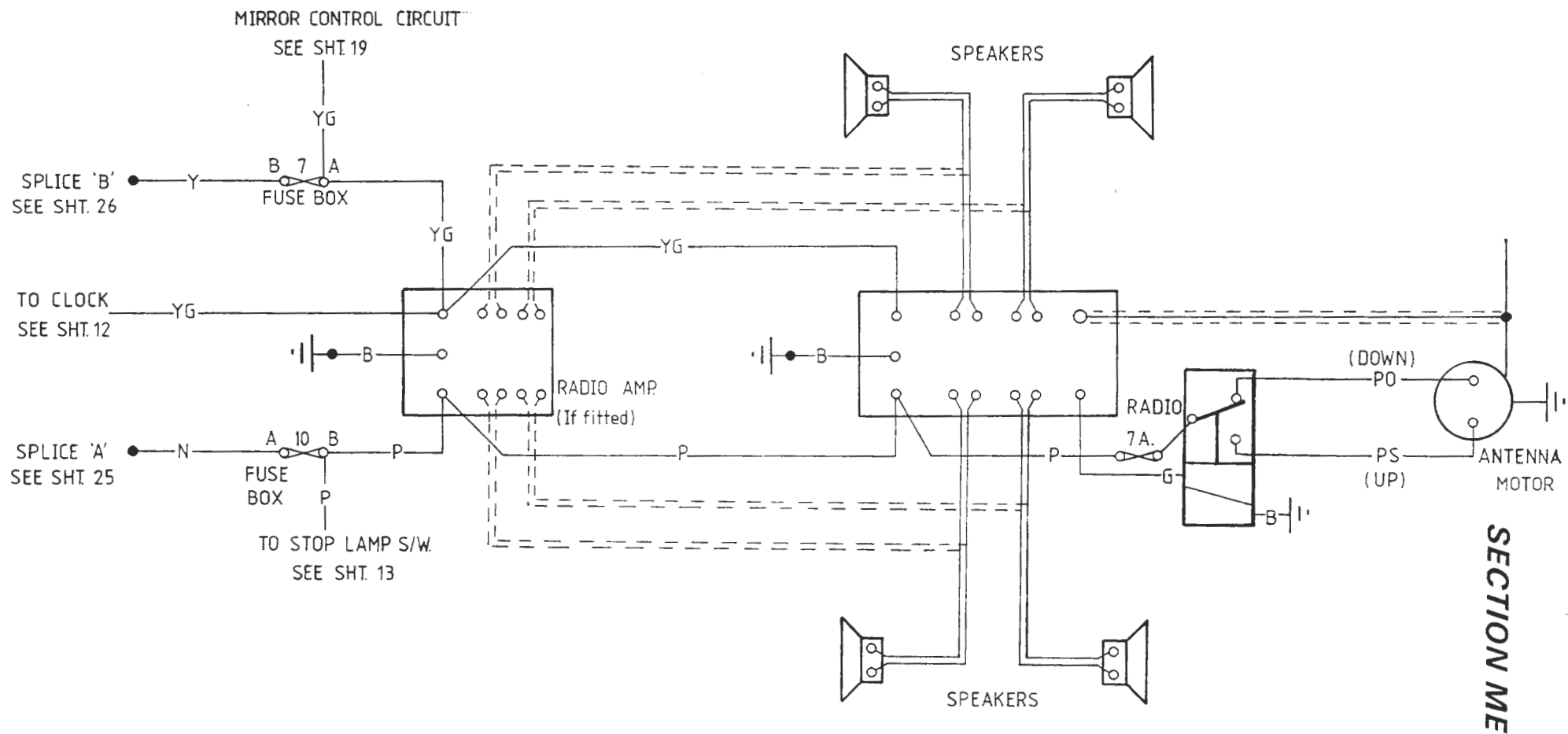


SECTION ME

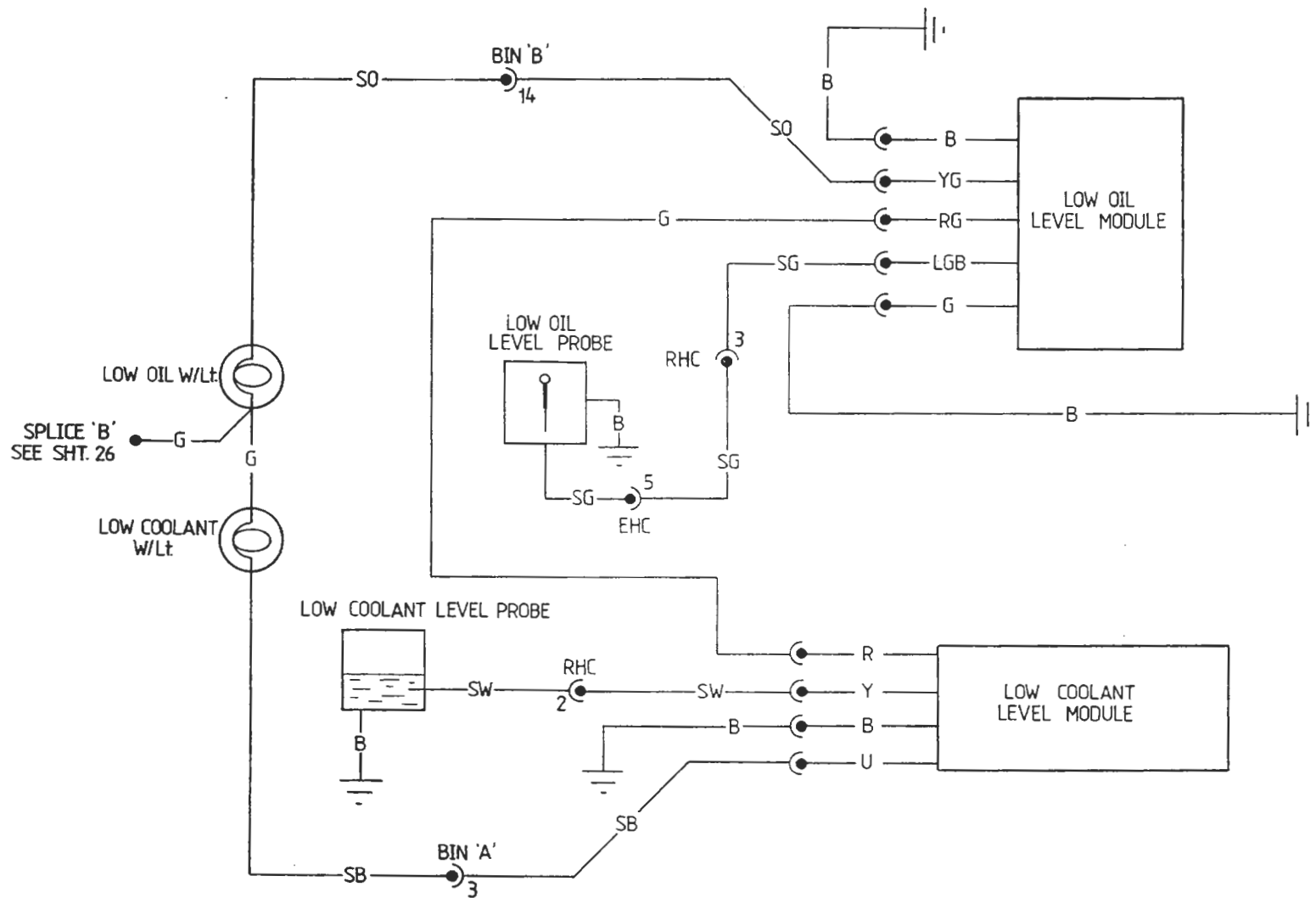


SECTION ME

MIRRORS (Movement by motors)



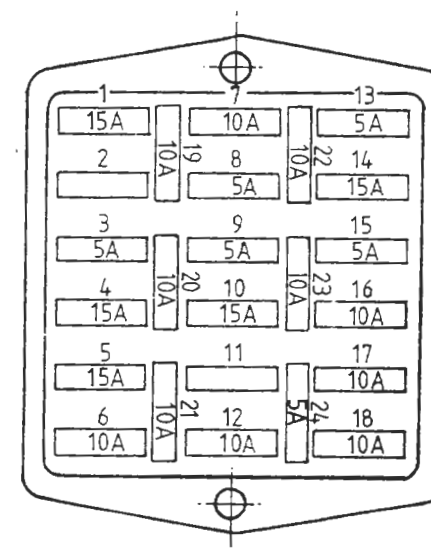
RADIO & RADIO AMP (If fitted)



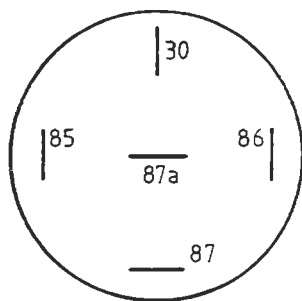
LOW OIL & COOLANT WARNING

SECTION ME

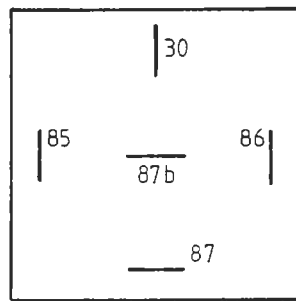
NO.	FUSE RATING	CIRCUIT
1	15 A.	INTERIOR FANS
2		
3	5 A.	L.H. SIDE / TAIL / NO. PLATE LAMPS
4	15 A.	HAZARD LAMPS / INTERIOR LAMP / CLOCK
5	15 A.	CIGAR LIGHTERS / DOOR LAMPS
6	10 A.	RADIATOR FAN NO. 1
7	10 A.	DOOR MIRRORS / RADIO (AUX.) RADIO AMP (AUX.) (If fitted)
8	5 A.	INSTRUMENTS & WARNING LAMPS
9	5 A.	R.H. SIDE / TAIL / LICENCE NO. PLATE LAMPS
10	15 A.	STOP LAMPS / SEAT BELT BUZ RADIO (Mem.) RADIO AMP (If fitted) ANTENNA
11		
12	10 A.	RADIATOR FAN NO. 3
13	5 A.	HEATED REAR SCREEN
14	15 A.	WIPER MOTOR / SCREEN WASH
15	5 A.	HEAD LAMP MOTORS (DOWN CONTROL)
16	10 A.	HEAD LAMP MOTORS
17	10 A.	HEAD LAMP FLASH (early cars 20A to include horn - no line fuse)
18	10 A.	RADIATOR FAN NO. 2
19	10 A.	REVERSE LAMPS
20	10 A.	INDICATORS
21	10 A.	A.C.U. COMPRESSOR / A.C.U. - CONTROL
22	10 A.	ENGINE CONTROL (AUX.)
23	10 A.	ENGINE CONTROL (IGN.)
24	5 A.	RADIATOR FANS CONTROL



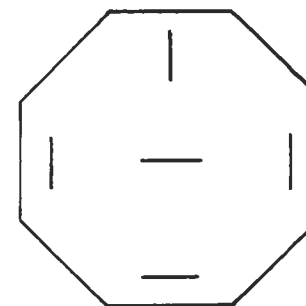
SECTION ME



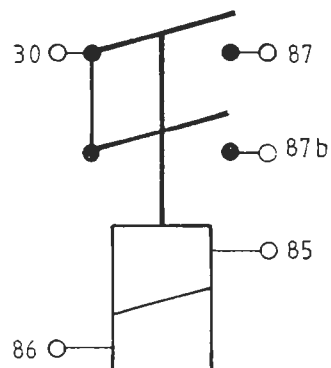
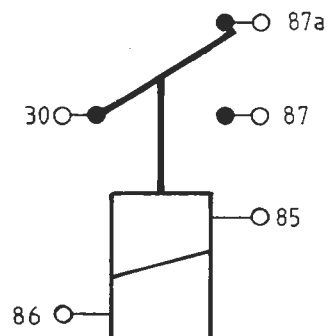
CHANGEOVER



DOUBLE CONTACT

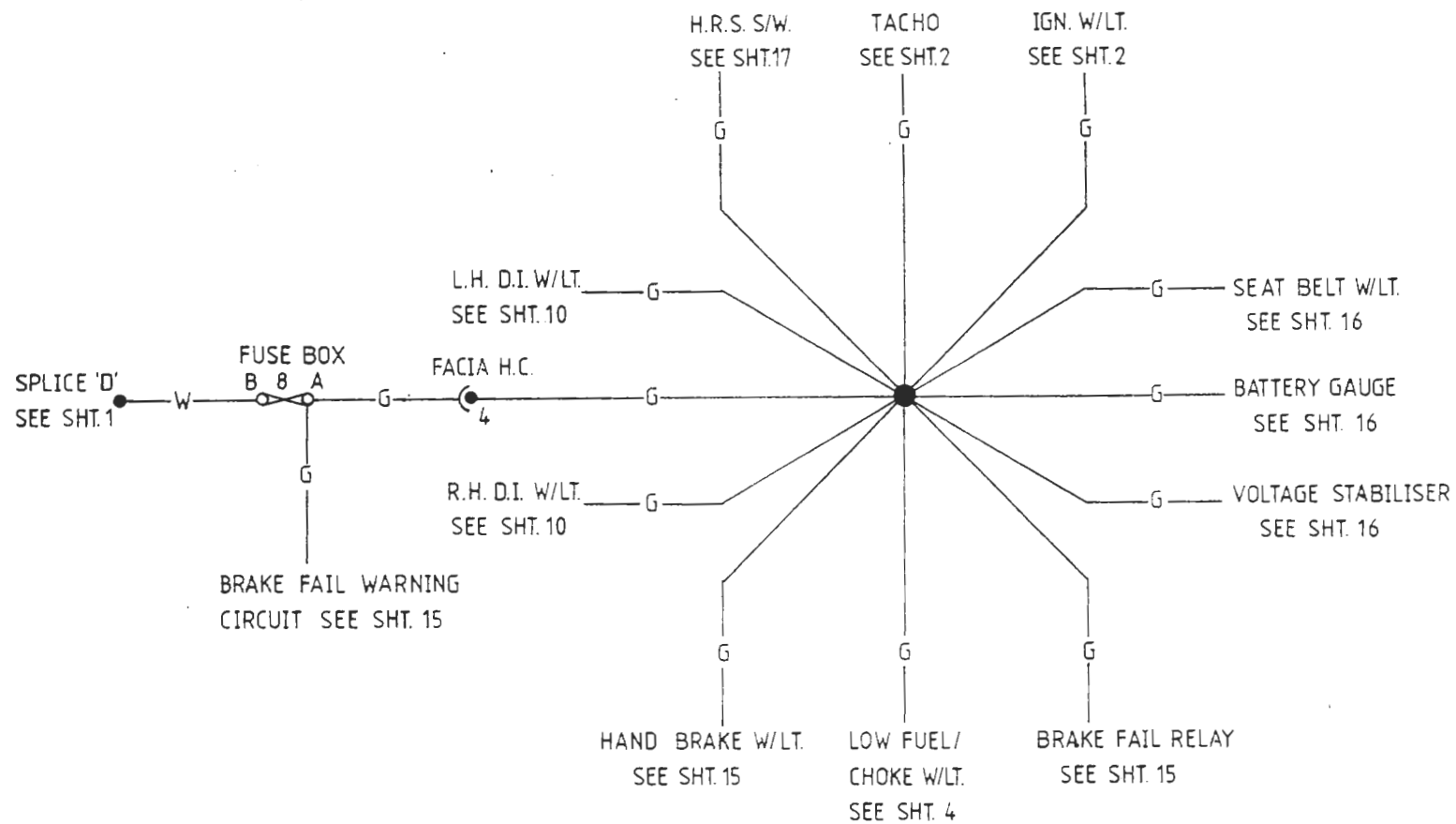


ELECTRONIC UNIT



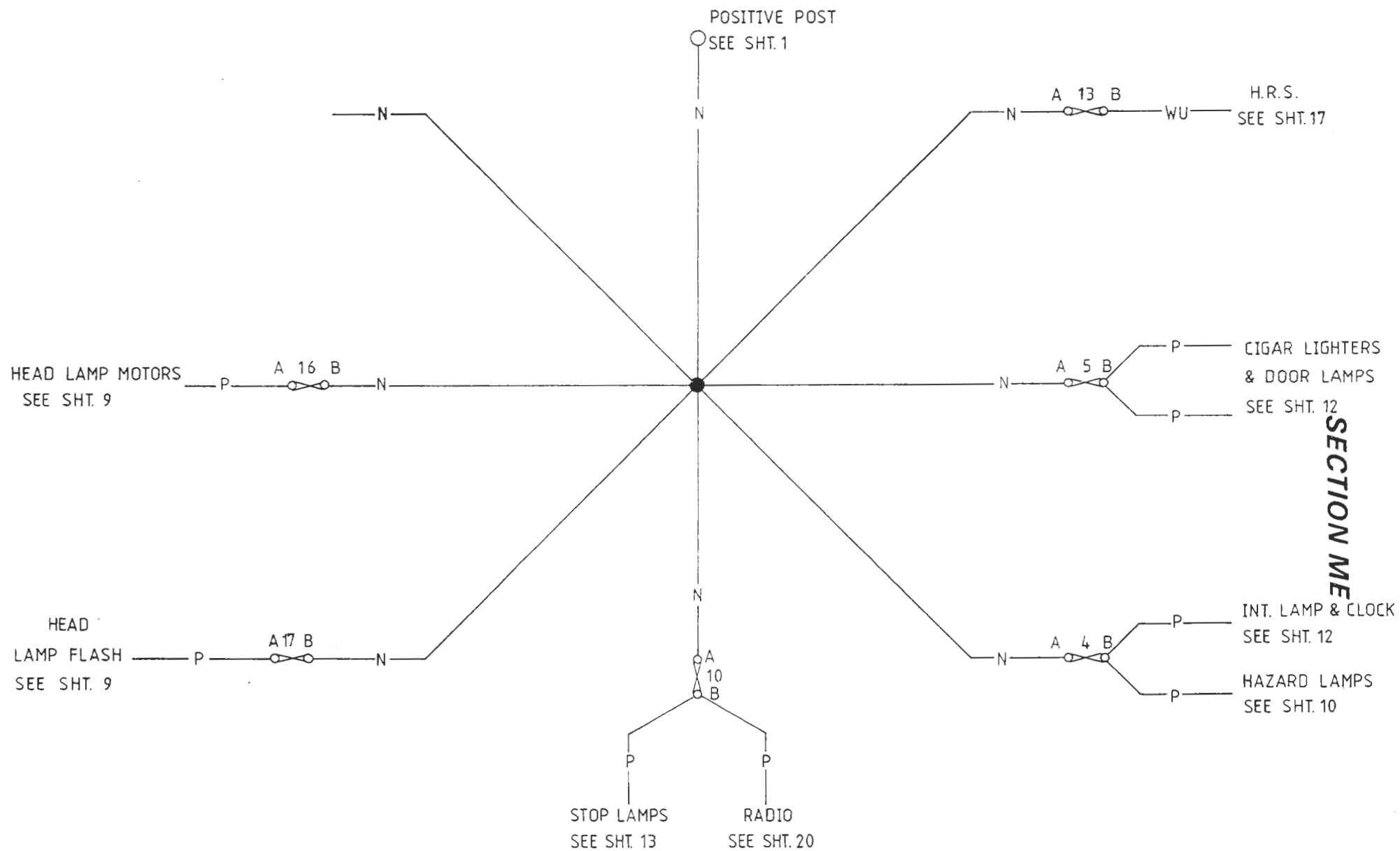
RELAY CONNECTIONS

SECTION ME



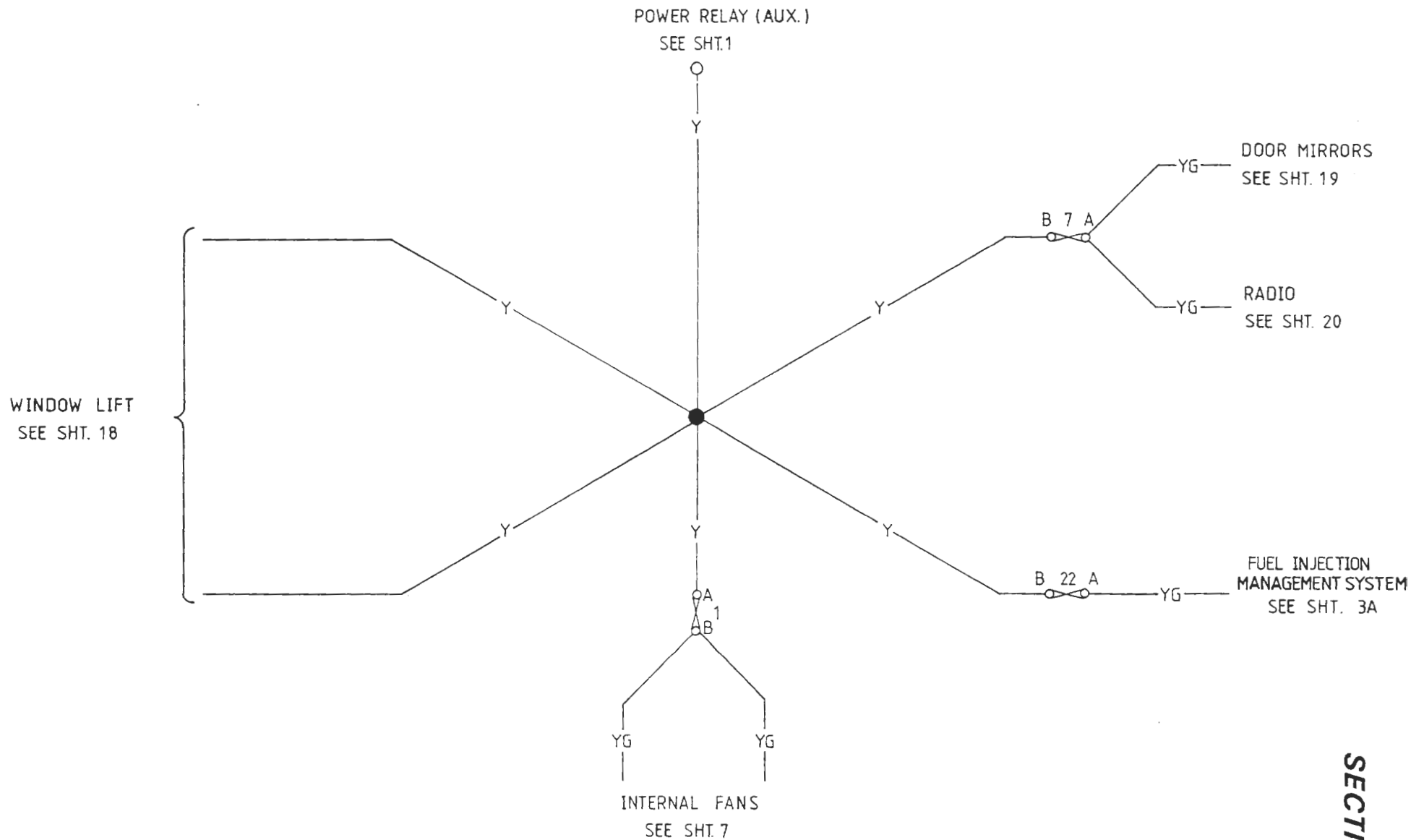
SECTION ME

SPLICE 'G'

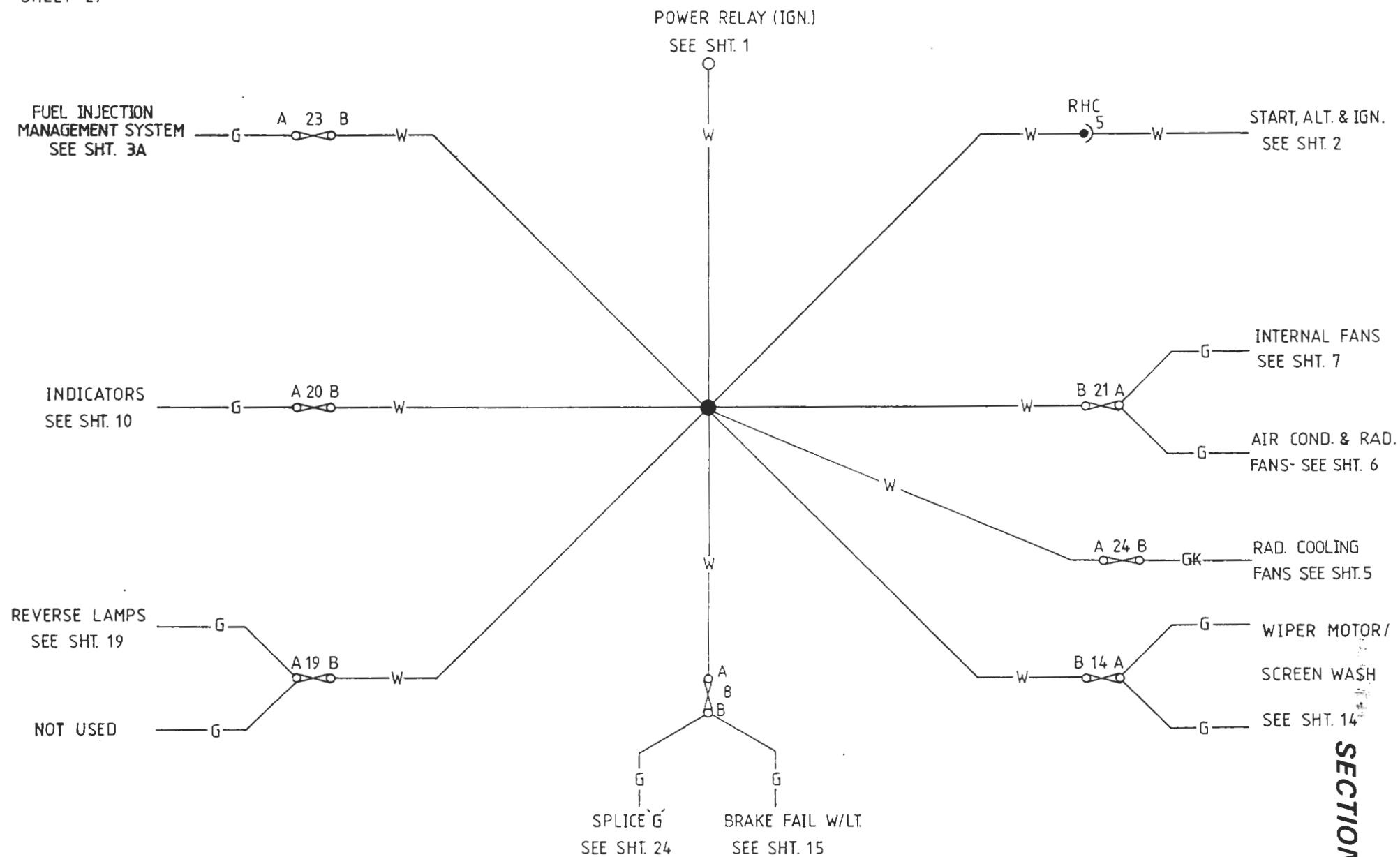


SECTION ME

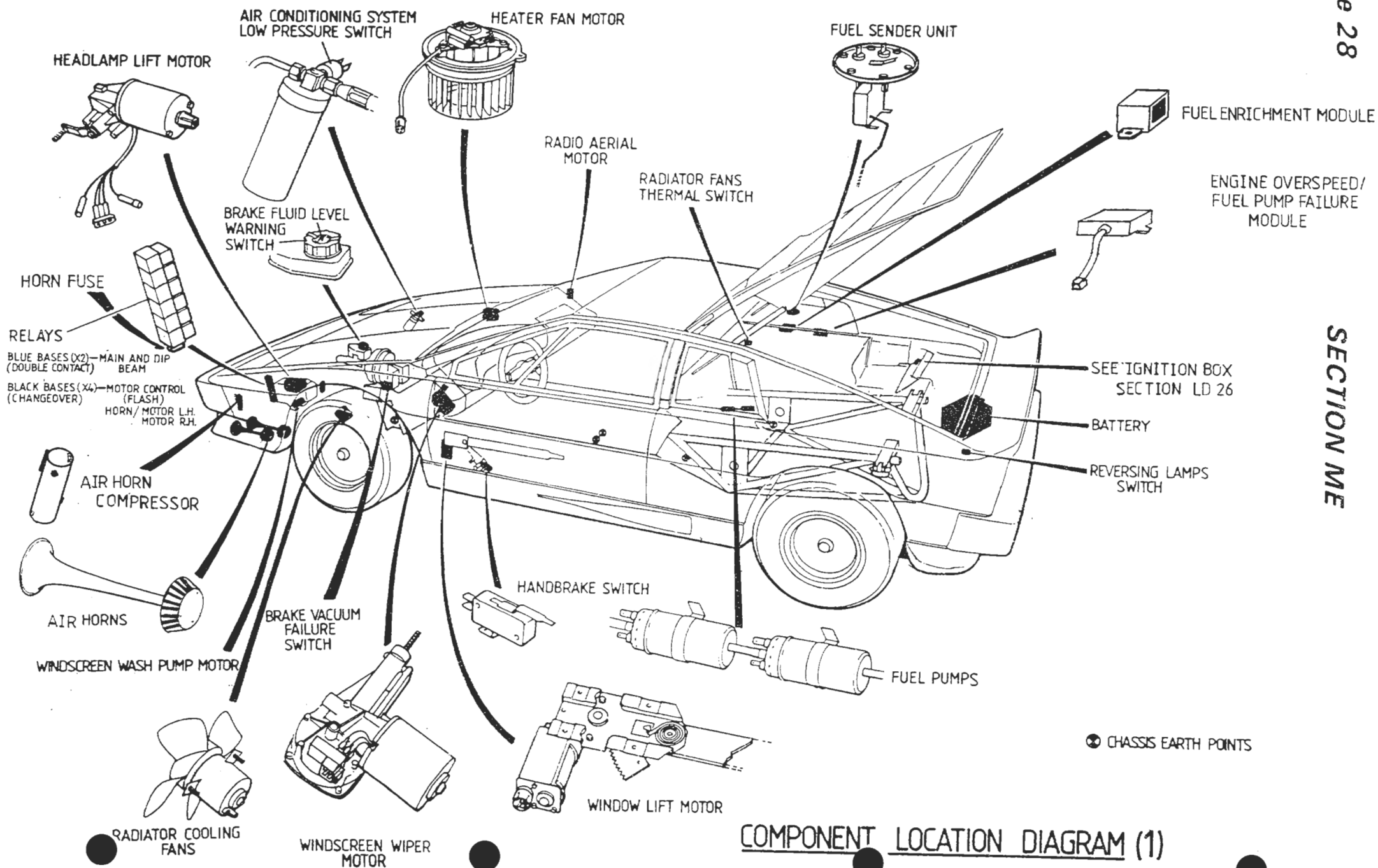
SPLICE 'A'

SPLICE 'B'

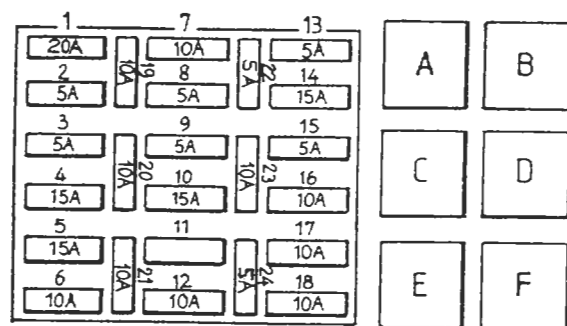
SECTION ME



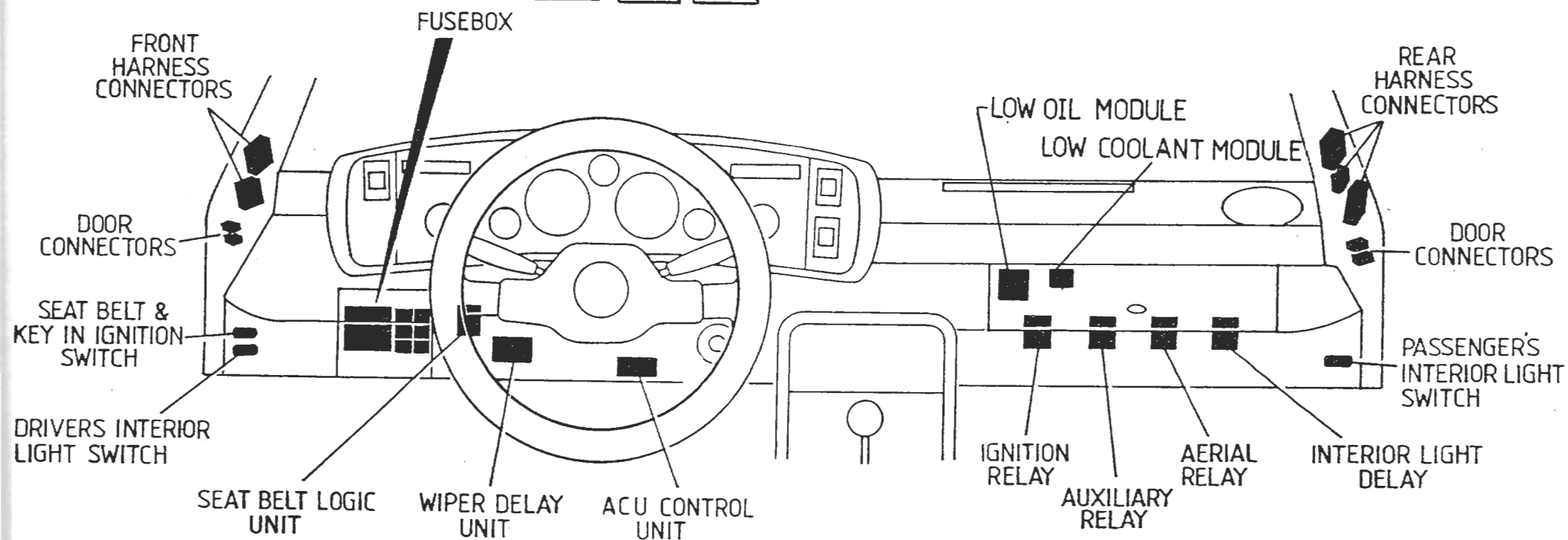
SPLICE D



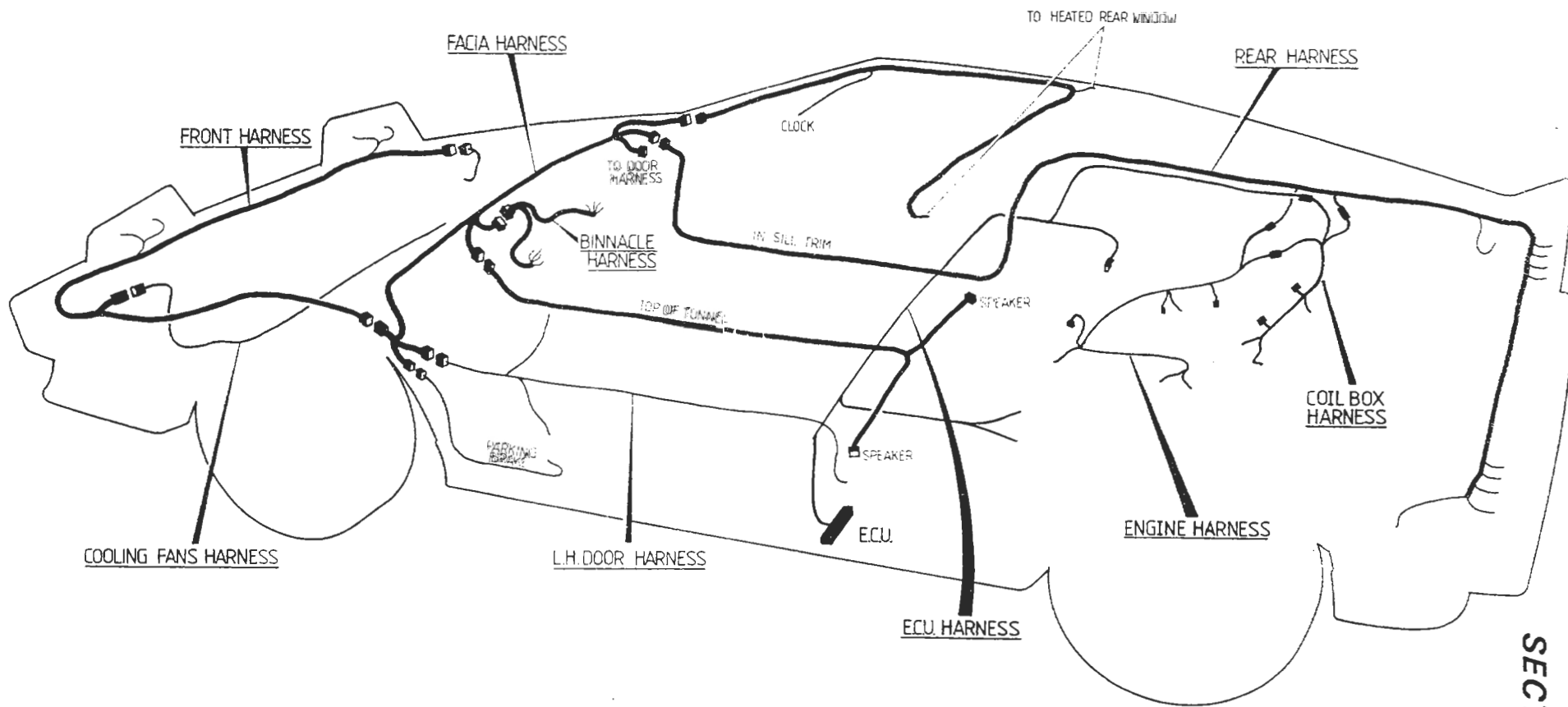
COMPONENT LOCATION DIAGRAM (1)



- A BRAKE W/L RELAY
 B — TURN INDICATORS/HAZARD LAMPS FLASHER UNIT
 C — HEATED REAR SCREEN RELAY
 D — AIR CONDITIONING 'DROP OUT' RELAY
 E — INTERIOR FANS RELAY
 F — RADIATOR FANS RELAY



COMPONENT LOCATION DIAGRAM (2)



HARNESS ROUTING DIAGRAM

INSTRUMENT BINNACLE REMOVAL

The instrument binnacle contains a centre panel housing the main instruments, and two side panels housing the tell tale lamps, switches and volt and fuel gauges.

The side panels may be removed with the binnacle 'in situ' by removing the four screws securing the centre panel ABS trim, followed by the single screw securing each side panel at its outermost edge. Access to the fibre optic light source (switch illumination) may be obtained after removal of the right hand side panel. Voltmeter and fuel gauge illumination bulbs may also be replaced after removal of the appropriate side panel. The Brake fail warning lamp relay may also be reached after removal of the left hand side panel.

For access to an instrument housed in the centre panel, it is necessary first to remove the binnacle assembly from the fascia. After removal of the four M6 bolts securing the binnacle assembly to the scuttle crossbeam (accessible from beneath) the binnacle may be raised sufficiently to enable the three wiring loom block connectors to be unplugged, the speedo cable to be released, and the boost and oil pressure gauge pipes to be disconnected. Also release the demist vent duct from the binnacle adaptor.

MAINTENANCE & LUBRICATION

SECTION OB - ESPRIT S3 & TURBO (Domestic/Export)

	<u>Page</u>
Recommended Lubricants	2
Bodywork Defects Sample Sheet	3/4
Pre-Delivery Inspection Sample Worksheet	5/6
First After Sales Service Sample Worksheet	7
Maintenance Plan Sample Worksheet	9/10

RECOMMENDED LUBRICANTS

ENGINE: Lotus Cars Ltd. strongly recommend that the following engine lubricants are used at oil changes, and where possible/practical between services.

Above 0°C	Valvoline HP Racing	SAE 20W/50
	Elf Competition	SAE 20W/50
	Mobil 1 Rally Formula	SAE 5W/50
Below 0°C	Valvoline XLD	SAE 15W/40
	Elf Sporti	SAE 15W/40
	Mobil 1 Rally Formula	SAE 5W/50

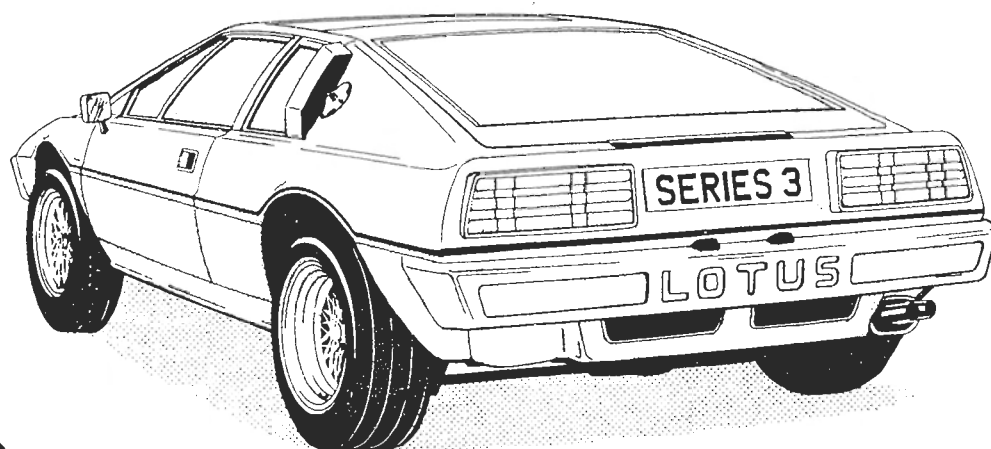
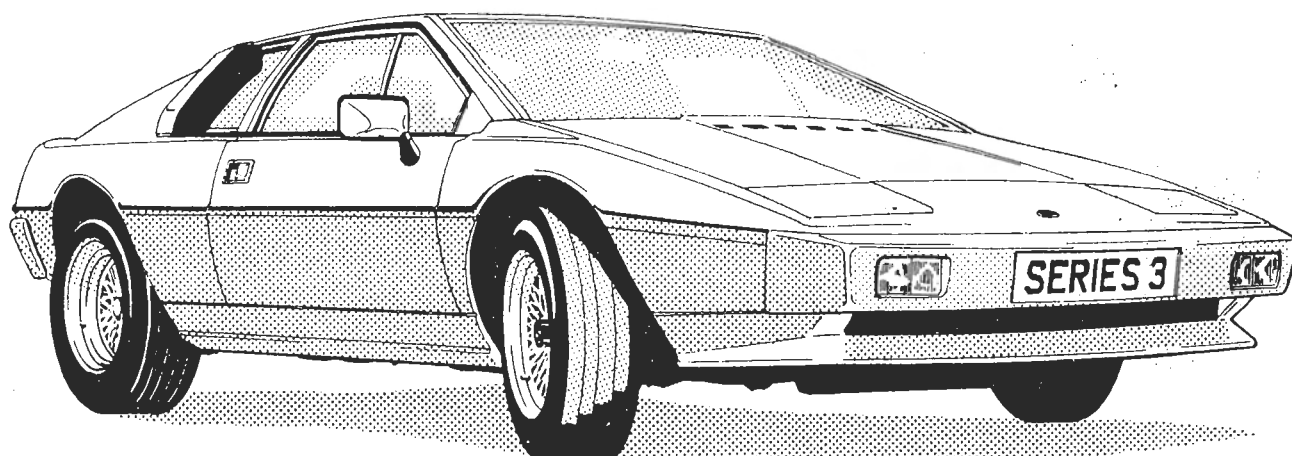
In severe winter conditions below -15°C a SAE 10W/40 Oil or Mobil 1 Rally Formula SAE 5W/50 is recommended.

When recommended products are unobtainable, engine lubricants meeting the following specifications may be used.

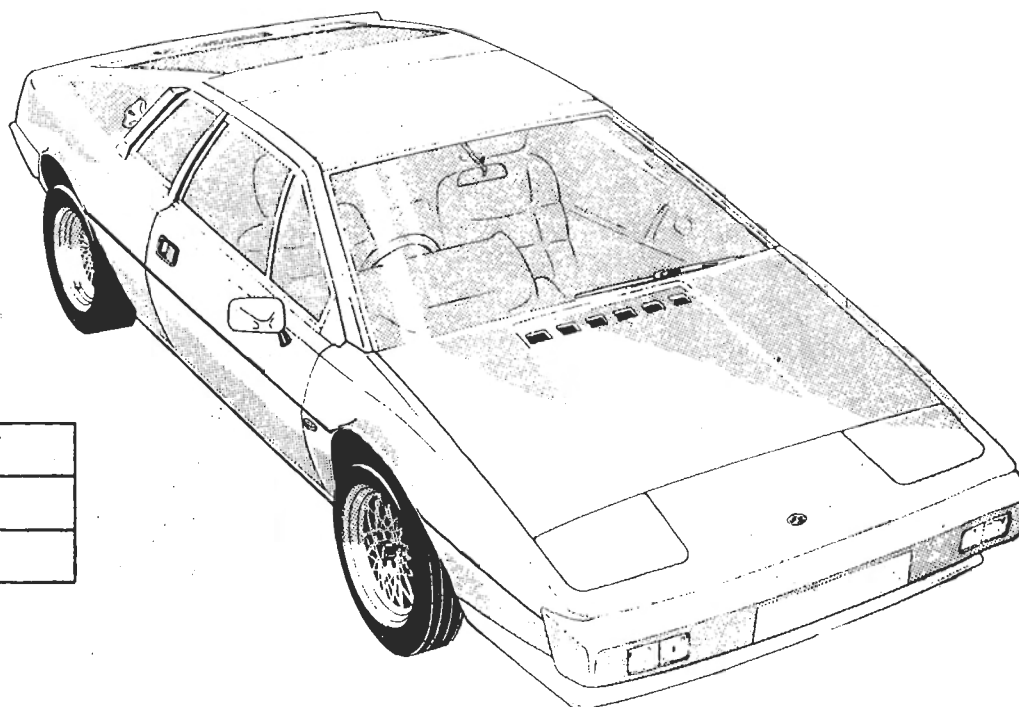
	<u>VISCOSITY</u>	<u>PERFORMANCE</u>
Above 0°C	SAE 20W/50	API Service SF
Below 0°C	SAE 15W/40	API Service SF
Below -15°C	SAE 10W/40	API Service SF
TRANSMISSION	SAE 80	API GL5
FRONT HUBS	Lithium base wheel bearing grease	NLGI No.2
STEERING SWIVELS (Prior '85 MY)	SAE 90	API GL5
BRAKE & CLUTCH HYDRAULICS	-	DOT 3 or DOT 4



Bodywork Defects Sheet

**DEFECT CODE**

A	SCRATCHES
B	OVERSPRAY
C	DIRT UNDER PAINT
D	RUN
E	SINKAGE
F	THIN PAINT
G	GEL CRAZING
H	CHIPS
J	PIN HOLES
K	FLAKING



UNIT No.

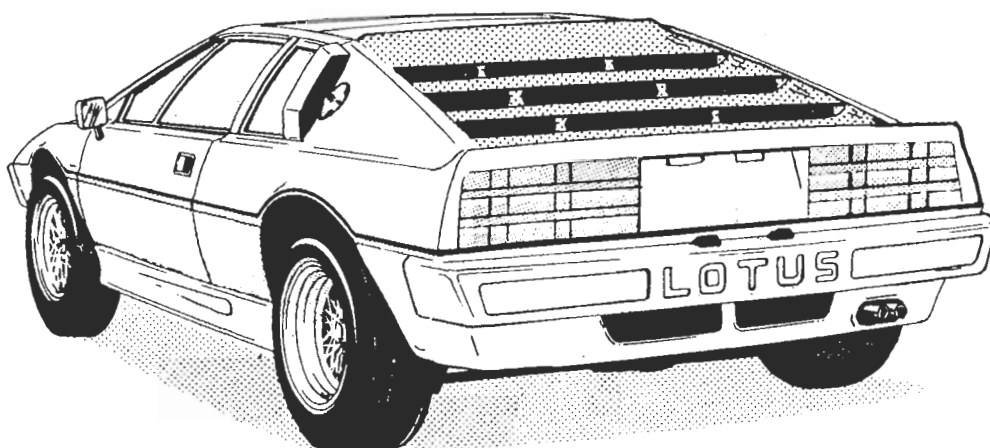
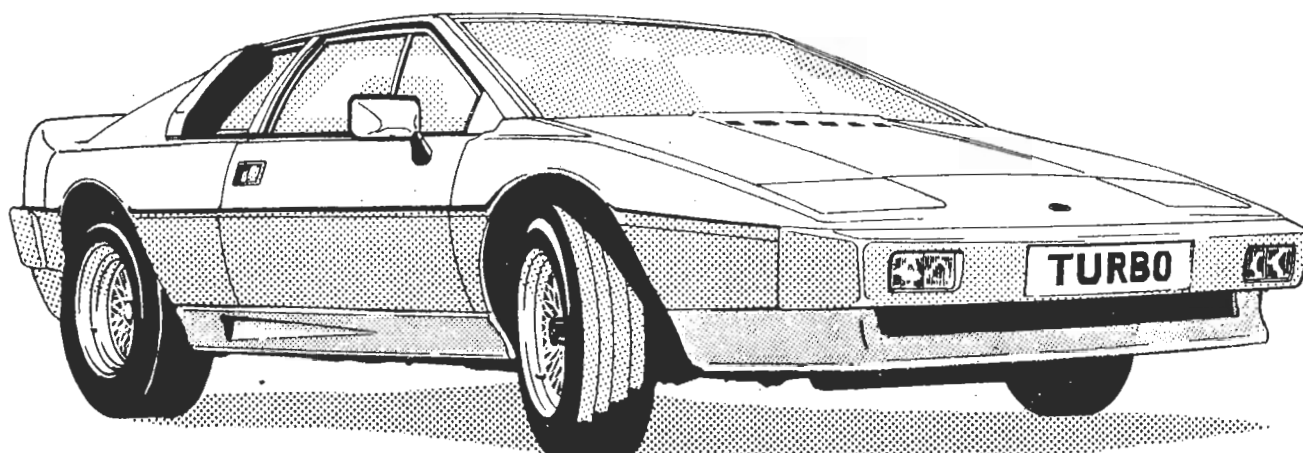
COLOUR

OWNER

APR 1987

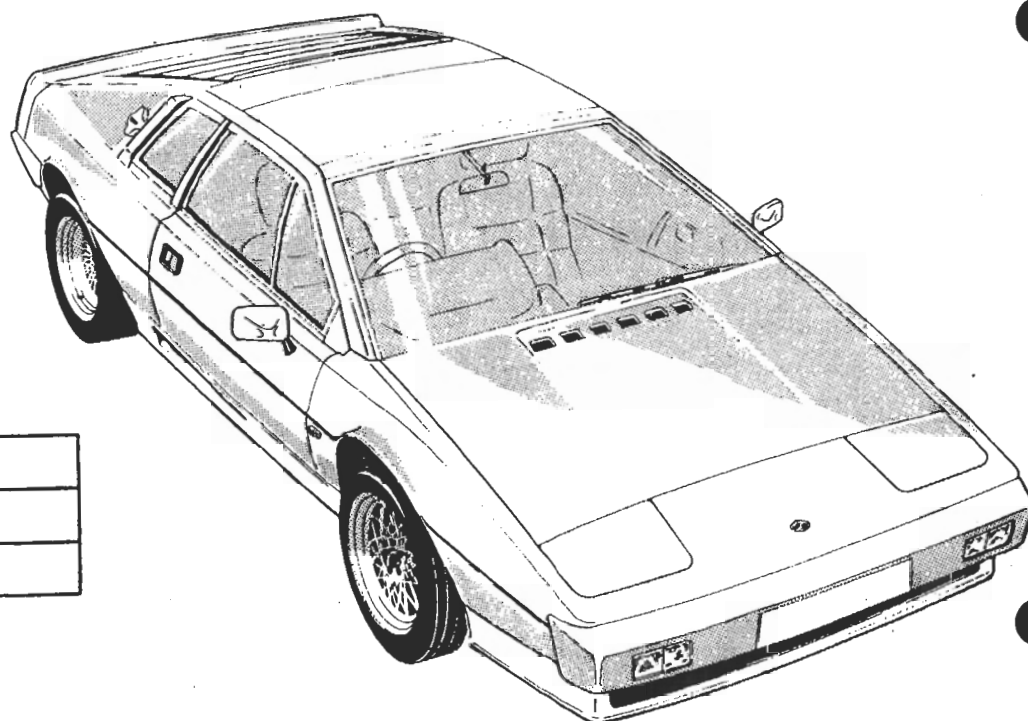


Bodywork Defects Sheet



DEFECT CODE

A	SCRATCHES
B	OVERSPRAY
C	DIRT UNDER PAINT
D	RUN
E	SINKAGE
F	THIN PAINT
G	GEL CRAZING
H	CHIPS
J	PIN HOLES
K	FLAKING



UNIT No.

COLOUR

OWNER

APR 1987



PRE-DELIVERY INSPECTION - ALL MODELS

MODEL

VIN:
ENGINE NO.

OPERATIONS - Tick box if O.K.
- X box if additional work reqd. - submit defect report

OPERATOR
INITIALS

MECHANICAL

Check coolant level and check system for leaks.		
Renew engine oil and filter (Federal only)		
Check engine, gearbox and rear axle oil levels and check for leaks.		
Check security of engine oil filter.		
Check brake/clutch fluid reservoir level.		
Check fuel system for leaks.		
Completely fill fuel tanks and check for leaks.		
Check clutch adjustment.		
Check tightness of wheel nuts/bolts.		
Check tyre pressure including spare.		
Check engine idling speed.		
Check power assisted steering fluid level and system for leaks (when fitted).		
Check automatic transmission fluid level (when fitted).		

ELECTRICAL

Check security of battery terminals.		
Check operation of all lamps.		
Check operation of horns and direction indicators.		
Check operation and park position of screen wipers.		
Check operation of windscreen washers.		
Check operation of all instruments.		
Check operation of headlamps and door windows.		
Check operation of heater and fan.		
Check headlamp alignment.		
Check operation of air conditioning equipment (when fitted).		

BODY

Check operation of doors and locks.		
Check bonnet and tailgate release mechanism.		
Check interior trim for damage and cleanliness.		
Check operation of seat belts.		
Check all bright work and paint for condition.		
Check presence of tool kit and literature pack.		

APR 1987

Road Test

Carry out brief road test and submit report with any additional attention required. Submit a defect report where necessary.

The pre-delivery inspection is subject to the following conditions:

- (a) It is the responsibility of the supplying Distributor/importer/dealer to ensure that the car is delivered to the customer in the best possible condition.
- (b) All costs incurred during the inspection are the responsibility of the supplying distributor/importer/dealer.
- (c) Failure to return a signed copy of this inspection to Lotus Cars Limited by the distributor/importer/dealer, may result in warranty claims on the particular car being rejected.

DATE:

DEALERS STAMP AND SIGNATURE:

APR 1987



First After Sales Service

LSL 246B

(NOT U.S.A.)

excel esprit S3 esprit turbo

Owner's name Date

Registration No. Job no.

V.I.N. Mileage

Mark as follows:

Adjustments made ☒O.K. ☒Repairs desirable ☒
(See separate sheet)To be carried out at:
500-1000 miles
(800-1600 km)

MAINTENANCE NOTES:

"Inspect" means check for correct operation or condition — if wrong, advise before carrying out repairs or adjustments at extra time.

"Check" means test and adjust/fill or tighten as necessary.

excel	esprit		excel	esprit	
●	●	<input type="checkbox"/> Install protective covers	●	●	<input type="checkbox"/> Check clutch operation and adjust if necessary
●	●	<input type="checkbox"/> Renew engine oil and filter, ensuring filter seals fully	●	●	<input type="checkbox"/> Check security of front and rear suspension, and steering column and steering rack assembly
●	●	<input type="checkbox"/> Renew manual gearbox/transaxle oil	●	●	<input type="checkbox"/> Check front wheel alignment
●	●	<input type="checkbox"/> Check auto. transmission fluid level	●	●	<input type="checkbox"/> Inspect rear wheel toe-in
●	●	<input type="checkbox"/> Renew final drive oil	●	●	<input type="checkbox"/> Check security of propshaft bolts
●	●	<input type="checkbox"/> Lubricate propeller shaft universal joints	●	●	<input type="checkbox"/> Check front hub bearing adjustment
●	●	<input type="checkbox"/> Lubricate lower steering swivels (if applicable)	●	●	<input type="checkbox"/> Inspect operation of all electrical equipment
●	●	<input type="checkbox"/> Lubricate throttle linkage and controls	●	●	<input type="checkbox"/> Check battery electrolyte level, security of terminals and main earth connections
●	●	<input type="checkbox"/> Lubricate door locks and bonnet catches	●	●	<input type="checkbox"/> Check headlamp alignment
●	●	<input type="checkbox"/> Lubricate headlamp pod pivots	●	●	<input type="checkbox"/> Inspect all tyres for damage, and set tyre pressures
●	●	<input type="checkbox"/> Check camshaft toothed belt tension and inspect valve timing	●	●	<input type="checkbox"/> Tighten all wheel nuts to specified torque loading
●	●	<input type="checkbox"/> Check ignition timing and advance operation	●	●	<input type="checkbox"/> Check body condition generally, including door adjustments, bonnet and tailgate/boot adjustment (opening and closing), operation of door locks and tailgate/boot lock
●	●	<input type="checkbox"/> Check all V-belt tensions	●	●	<input type="checkbox"/> Inspect seat adjustment mechanism and operation of seat belts
●	●	<input type="checkbox"/> Check security of all fixings, especially engine mounting bolts, exhaust manifold and system, and inlet manifold and carburettor mountings	●	●	<input type="checkbox"/> Inspect operation of heater/air conditioning and controls
●	●	<input type="checkbox"/> Check and adjust idle speed and CO level	●	●	<input type="checkbox"/> Check final drive, gearbox and drive shaft mounting bolts to specified torque loadings
●	●	<input type="checkbox"/> Check security and cleanliness of ignition harness joints including alternator and starter motor connections	●	●	<input type="checkbox"/> Ensure upholstery and driving controls are clean
●	●	<input type="checkbox"/> Top up cooling system and check security of all water hose connections	●	●	<input type="checkbox"/> Top up screen washer reservoir
●	●	<input type="checkbox"/> Inspect fuel system for leaks and check fuel pipe connections on carburettors			
●	●	<input type="checkbox"/> Inspect foot brake system for leaks and correct operation			
●	●	<input type="checkbox"/> Check handbrake adjustment and operation			
●	●	<input type="checkbox"/> Inspect all brake pipes and vacuum pipes and connections for damage, chafing, or leaks			
●	●	<input type="checkbox"/> Check brake, clutch and P.A.S. fluid reservoir levels			
●	●	<input type="checkbox"/> Inspect operation of brake fail/handbrake warning lamp			

Work completed by

Road Test Performance

Engine performance ☐Clutch operation ☐Gearbox operation/noise ☐Drive line noise/vibration ☐Suspension noises ☐Brake performance ☐Wheel balance ☐Steering performance ☐Turbo boost pressure ☐Light operation ☐

Work completed by

APR 1987

LSL 245B



Maintenance Plan (Not USA)

excel ————— *esprit S3* ————— *esprit turbo*

Owner's name Date
 Registration No. Job no.
 V.I.N. Mileage

Mark as follows:

Adjustments made ☒O.K. ☒Repairs desirable ☒

(See separate sheet)

Please tick Service required:

A — ☐B — ☐C — ☐

For intervals see overleaf

MAINTENANCE NOTES:

"Inspect" means check for correct operation or condition — if wrong, advise before carrying out repairs or adjustments at extra time.

"Check" means test and adjust/fill or tighten as necessary.

esprit					excel esprit				
A	B	C			A	B	C		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Install protective covers		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect exhaust system condition, mountings and joints	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Renew engine oil and filter		<input type="checkbox"/>	<input type="checkbox"/>		Check brake fluid level	
<input type="checkbox"/>	<input type="checkbox"/>		Check manual gearbox oil, inspect for leaks		<input type="checkbox"/>	<input type="checkbox"/>		Renew brake fluid & check seals	
<input type="checkbox"/>	<input type="checkbox"/>		Check auto. trans. fluid level, inspect for leaks			<input type="checkbox"/>			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Renew manual gearbox oil, inspect for leaks		48,000 mls.				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Renew auto. trans. fluid and clean filter, inspect for leaks		intervals			Renew all brake system rubber parts & hoses	
<input type="checkbox"/>			Check final drive oil, inspect for leaks		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect brake system for leaks & damage	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Renew final drive oil, inspect for leaks		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect pads & linings for wear	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate propshaft universal joints		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check adjustment of handbrake	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate speedo angle drive		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect brakes tell tale	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oil front trunnions (if applicable)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check/adjust clutch	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check P.A.S. fluid level		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect for clutch fluid leaks	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect PAS for leaks & damage		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check steering U/J clamp tightness	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate handbrake linkage				<input type="checkbox"/>	Inspect condition of steering joints and gaiters	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate locks, hinges & catches				<input type="checkbox"/>	Renew trunnion bushes (if applicable)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate throttle linkage & other controls			<input type="checkbox"/>	<input type="checkbox"/>	Inspect condition of all suspension rubber bushes	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lubricate headlamp pivots			<input type="checkbox"/>	<input type="checkbox"/>	Check security of front & rear suspension	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check coolant level and strength			<input type="checkbox"/>	<input type="checkbox"/>	Inspect dampers for leaks & performance	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect cooling system for leaks/damage				<input type="checkbox"/>	Check/adjust front hubs	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect engine mounting rubbers				<input type="checkbox"/>	Check condition front hub bearings & seals.	
<input type="checkbox"/>	<input type="checkbox"/>		Check/adjust cam-belt. Inspect valve timing					Repack grease	
<input type="checkbox"/>	<input type="checkbox"/>		Renew cam-belt		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect tyre condition, set pressures (incl. spare)	
<input type="checkbox"/>	<input type="checkbox"/>		Inspect cam-belt tensioner		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect road wheel balance	
<input type="checkbox"/>	<input type="checkbox"/>		Check/adjust V-belts condition & tension		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check/tighten wheel nuts to spec. torque	
<input type="checkbox"/>	<input type="checkbox"/>		Renew all V-belts		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect front & rear wheel toe-in	
<input type="checkbox"/>	<input type="checkbox"/>		Renew spark plugs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check security of propshaft bolts	
<input type="checkbox"/>	<input type="checkbox"/>		Check/adjust ignition timing & advance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check battery (except 'maintenance free')	
<input type="checkbox"/>	<input type="checkbox"/>		Check engine ancillaries for security		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remove battery leads, clean & inhibit	
<input type="checkbox"/>	<input type="checkbox"/>		Inspect valve clearances (extra time to adjust)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clean Electric aerial	
<input type="checkbox"/>	<input type="checkbox"/>		Renew air cleaner element		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check engine bay earth leads	
<input type="checkbox"/>	<input type="checkbox"/>		Renew fuel filter (Nat. Aspirated models)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect operation of all lights	
36,000 mls.					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check/adjust headlamps	
intervals					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect operation of all electrics	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Renew fuel filter (Turbocharged models)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect operation of A.C.U.	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check fuel connections to carburettors		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Top up screen wash reservoir	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check security of all fuel system connections		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check/adjust door lock strikers	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check throttle/kickdown/cruise control cable adjustment		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect seat belts condition & operation	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check/adjust idle speed & CO level		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clean all drain holes, check drains	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inspect operation/condition of cooling fans		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check security of major unit mountings	

Work completed by

Road Test Performance

Engine performance ☐ Suspension noises ☐ Turbo boost pressure ☐
 Clutch operation ☐ Brake performance ☐ Light operation ☐
 Gearbox operation/noise ☐ Wheel balance ☐
 Drive line noise/vibration ☐ Steering performance ☐

Work completed by

APR 1987

A SERVICE At 6,000 mls./10,000 km. or 6 months from Registration (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
B SERVICE AT 12,000 mls./20,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
A SERVICE At 18,000 mls./30,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
C SERVICE AT 24,000 mls./40,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:

A SERVICE At 30,000 mls./50,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
B SERVICE AT 36,000 mls./60,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
A SERVICE At 42,000 mls./70,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:
C SERVICE AT 48,000 mls./80,000 km. or 6 months from last Service (whichever sooner) Mileage: Date:	This service has been completed in accordance with the Maintenance Schedule. Dealer's Stamp: Signature:

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SECTION 0B

MAINTENANCE & LUBRICATION

SECTION OC - U.S.A. ESPRIT TURBO

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Pre-Delivery Inspection Sample Worksheet	3/4
Bodywork Defects Sample Sheet	5
Maintenance Schedule - Except California	7/8
Maintenance Schedule - California	9/10

RECOMMENDED LUBRICANTS

ENGINE: Lotus Cars Ltd. strongly recommend that the following engine lubricants are used at oil changes, and where possible/practical between services.

Above 0°C	Valvoline HP Racing	SAE 20W/50
	Elf Competition	SAE 20W/50
	Mobil 1 Rally Formula	SAE 5W/50
Below 0°C	Valvoline XLD	SAE 15W/40
	Elf Sporti	SAE 15W/40
	Mobil 1 Rally Formula	SAE 5W/50

In severe winter conditions below -15°C a SAE 10W/40 Oil or Mobil 1 Rally Formula SAE 5W/50 is recommended.

When recommended products are unobtainable, engine lubricants meeting the following specifications may be used.

	<u>VISCOSITY</u>	<u>PERFORMANCE</u>
Above 0°C	SAE 20W/50	API Service SF
Below 0°C	SAE 15W/40	API Service SF
Below -15°C	SAE 10W/40	API Service SF

TRANSMISSION	SAE 80	API GL5
FRONT HUBS	Lithium base wheel bearing grease	NLGI No.2
STEERING SWIVELS (Prior '85 MY)	SAE 90	API GL5
BRAKE & CLUTCH HYDRAULICS	-	DOT 3 or DOT 4



PRE-DELIVERY INSPECTION - ALL MODELS

MODEL

VIN:
ENGINE NO.

OPERATIONS - Tick box if O.K.
- X box if additional work reqd. - submit defect report

OPERATOR
INITIALS

MECHANICAL

Check coolant level and check system for leaks.		
Renew engine oil and filter (Federal only)		
Check engine, gearbox and rear axle oil levels and check for leaks.		
Check security of engine oil filter.		
Check brake/clutch fluid reservoir level.		
Check fuel system for leaks.		
Completely fill fuel tanks and check for leaks.		
Check clutch adjustment.		
Check tightness of wheel nuts/bolts.		
Check tyre pressure including spare.		
Check engine idling speed.		
Check power assisted steering fluid level and system for leaks (when fitted).		
Check automatic transmission fluid level (when fitted).		

ELECTRICAL

Check security of battery terminals.		
Check operation of all lamps.		
Check operation of horns and direction indicators.		
Check operation and park position of screen wipers.		
Check operation of windscreen washers.		
Check operation of all instruments.		
Check operation of headlamps and door windows.		
Check operation of heater and fan.		
Check headlamp alignment.		
Check operation of air conditioning equipment (when fitted).		

BODY

Check operation of doors and locks.		
Check bonnet and tailgate release mechanism.		
Check interior trim for damage and cleanliness.		
Check operation of seat belts.		
Check all bright work and paint for condition.		
Check presence of tool kit and literature pack.		

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Road Test

Carry out brief road test and submit report with any additional attention required. Submit a defect report where necessary.

The pre-delivery inspection is subject to the following conditions:

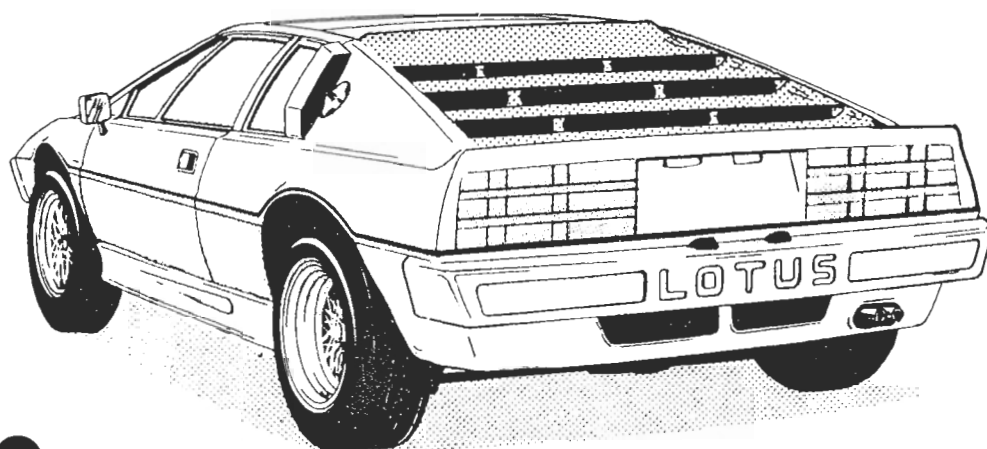
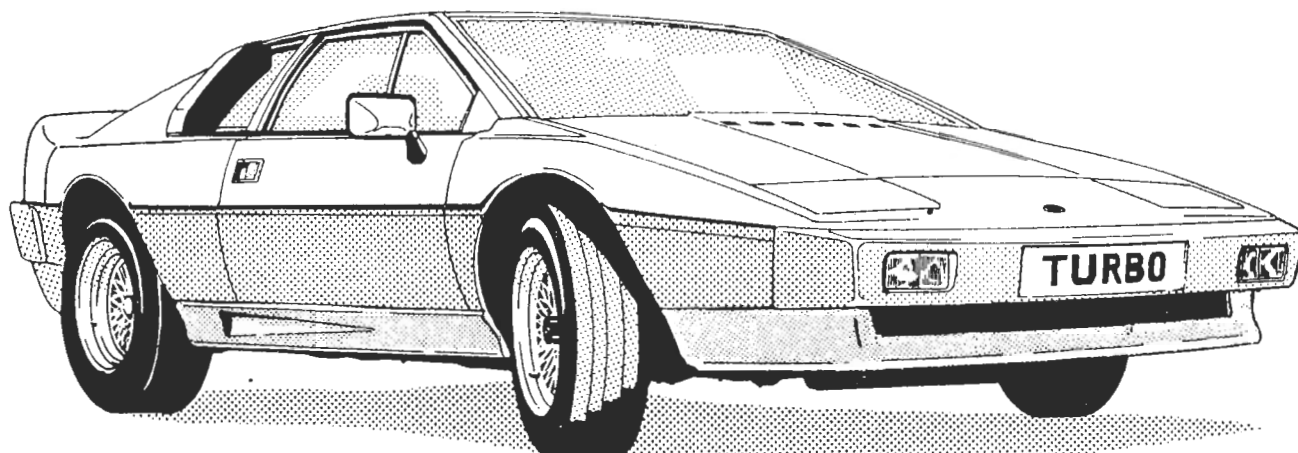
- (a) It is the responsibility of the supplying Distributor/importer/dealer to ensure that the car is delivered to the customer in the best possible condition.
- (b) All costs incurred during the inspection are the responsibility of the supplying distributor/importer/dealer.
- (c) Failure to return a signed copy of this inspection to Lotus Cars Limited by the distributor/importer/dealer, may result in warranty claims on the particular car being rejected.

DATE:

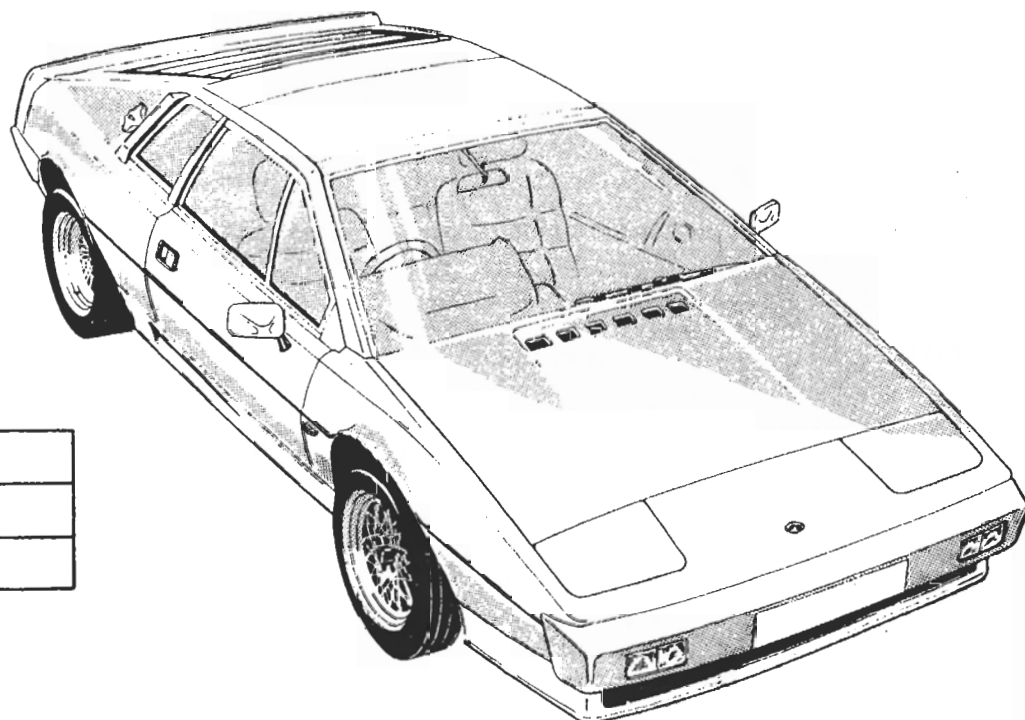
DEALERS STAMP AND SIGNATURE:



Bodywork Defects Sheet

**DEFECT CODE**

A	SCRATCHES
B	OVERSPRAY
C	DIRT UNDER PAINT
D	RUN
E	SINKAGE
F	THIN PAINT
G	GEL CRAZING
H	CHIPS
J	PIN HOLES
K	FLAKING



UNIT No.

COLOUR

OWNER

APR 1987

MAINTENANCE SCHEDULE EXCEPT CALIFORNIA

The operations listed below should be carried out at the mileage shown.

DESCRIPTION OF OPERATION	Free Service 1500 Miles	A Service 6000 Miles	B Service 12,500 Miles	A Service 18,500 Miles	C Service 25,000 Miles	A Service 31,000 Miles	B Service 37,500 Miles	A Service 43,500 Miles	C Service 50,000 Miles
ENGINE									
Check and if necessary top up coolant.	x	x	x	x	x	x	x	x	x
Inspect cooling system hoses and connections.	x		x		x		x		x
Check valve clearances, adjust if necessary			x		x		x		x
Renew spark plugs.			x		x		x		x
Check operation of engine management Systems.	x		x		x		x		x
Check toothed timing belt condition and tension, adjust if necessary.	x		x				x		
Renew toothed timing belt.					x				x
Check all "V" belt condition and tension, adjust if necessary.	x		x		x		x		x
Renew air cleaner elements.			x		x		x		x
Renew fuel filter. (x* NOT HCl models)					x*				x
Inspect fuel system cap, tank, lines and connections.	x		x		x		x		x
Torque exhaust system mounting bolts.	x								
Renew exhaust catalyst.									x
LUBRICATION									
Renew engine oil and filter.	x	x	x	x	x	x	x	x	x
Renew transmission oil.	x		x		x		x		x
Check and if necessary top up transmission oil.		x		x		x		x	
Lubricate lower steering swivels. (if applicable)	x	x	x	x	x	x	x	x	x
Lubricate locks, hinges and catches.		x	x	x	x	x	x	x	x
Lubricate speedo angle drive.		x	x	x	x	x	x	x	x
Repack front hubs.					x				x
BRAKING SYSTEM									
Check brake fluid level.	x	x	x	x	x	x	x	x	x
Check entire system for leaks and damage to pipes.	x		x		x		x		x
Renew hydraulic fluid and seals.									x
Check brake pads/linings for wear.		x	x	x	x	x	x	x	x
Check operation of brake fail warning lamp.	x	x	x	x	x	x	x	x	x
Check torque of caliper mounting bolts.	x		x		x		x		x
Check handbrake adjustment.	x	x	x	x	x	x	x	x	x
CLUTCH									
Check and adjust if necessary.	x	x	x	x	x	x	x	x	x
Check clutch fluid level.	x	x	x	x	x	x	x	x	x
STEERING AND SUSPENSION									
Check security of all steering connections and mountings.	x		x		x		x		x
Check anti roll bar connections and rubber mountings.	x		x		x		x		x
Check torque of front and rear suspension and damper bolts.	x		x		x		x		x
Check all moving parts for wear and bellows for oil leaks.		x	x	x	x	x	x	x	x
Check front wheel bearing adjustment.	x		x		x		x		x
Check torque loading of drive shaft bolts.	x		x		x		x		x
Check dampers for leaks and deterioration.			x		x		x		x
Check front and rear wheel alignment.	x		x		x		x		x
ELECTRICAL									
Check security of battery and earth connections and (if applicable)	x		x		x		x		x
Check operation of all lights. electrolyte level.	x	x	x	x	x	x	x	x	x
Check headlamp alignment.	x		x		x		x		x
Check operation of all electrical equipment and instruments.	x	x	x	x	x	x	x	x	x

MAINTENANCE SCHEDULE EXCEPT CALIFORNIA -Continued

The operations listed below should be carried out at the mileage shown.

DESCRIPTION OF OPERATION	Free Service 1500 Miles	A Service 6000 Miles	B Service 12,500 Miles	A Service 18,500 Miles	C Service 25,000 Miles	A Service 31,000 Miles	B Service 37,500 Miles	A Service 43,500 Miles	C Service 50,000 Miles
WHEELS AND TYRES									
Check tyre condition and pressures, including spare.	x	x	x	x	x	x	x	x	x
Check torque of all wheel nuts.	x	x	x	x	x	x	x	x	x
Check road wheel balance.			x		x		x		x
BODY									
Check all hinge and lock operations.	x		x		x		x		x
Check seat belts and seat adjustments.	x	x	x	x	x	x	x	x	x
Check air conditioning operation.	x		x		x		x		x
Top up screen washer reservoirs.	x	x	x	x	x	x	x	x	x
GENERAL									
Inspect condition of all major unit mounting rubbers.			x		x		x		x
Check torque loading of major unit mounting bolts.			x		x		x		x

MAINTENANCE SCHEDULE CALIFORNIA

The operations listed below should be carried out at the mileage shown.

Recommended Maintenance x

Lotus Cars Ltd. urges that these maintenance operations and checks should be made either by you or a qualified technician at the frequencies indicated to help ensure proper safety, emissions performance and dependability of your vehicle. Take any problems to your dealer for service advice. Whenever repairs are necessary, have them completed at once.

Required Engine Maintenance •

These operations are the minimum required intervals necessary for compliance with California emissions regulations.

DESCRIPTION OF OPERATION	Free Service 1500 Miles	A Service 6000 Miles	B Service 12,500 Miles	A Service 18,500 Miles	C Service 25,000 Miles	A Service 31,000 Miles	B Service 37,500 Miles	A Service 43,500 Miles	C Service 50,000 Miles
ENGINE									
Check and if necessary top up coolant.	x	x	x	x	x	x	x	x	x
Inspect cooling system hoses and connections.	•		x		x		x		x
Check valve clearances, adjust if necessary			x	•	x		•		x
Renew spark plugs.			x		x	•	x		x
Check operation of engine management Systems.	•		x		x		x		•
Check toothed timing belt condition and tension, adjust if necessary.	•		x	•	x		•		x
Renew toothed timing belt.						x			
Check all "V" belt condition and tension, adjust if necessary.	x		x		x	•	x		x
Renew air cleaner elements.			x		x	•	x		x
Renew fuel filter. (x* NOT HCl models)						x*			x
Inspect fuel system cap, tank, lines and connections.	•								•
Torque exhaust system mounting bolts.	•								
LUBRICATION									
Renew engine oil and filter.	•	•	•	•	•	•	•	•	•
Renew transmission oil.	x		x		x		x*		x
Check and if necessary top up transmission oil.		x		x		x		x	
Lubricate lower steering swivels. (if applicable)	x	x	x	x	x	x	x	x	x
Lubricate locks, hinges and catches.		x	x	x	x	x	x	x	x
Lubricate speedo angle drive.		x	x	x	x	x	x	x	x
Repack front hubs.					x				x
BRAKING SYSTEM									
Check brake fluid level.	x	x	x	x	x	x	x	x	x
Check entire system for leaks and damage to pipes.	x		x		x		x		x
Renew hydraulic fluid and seals.									x
Check brake pads/linings for wear.		x	x	x	x	x	x	x	x
Check operation of brake fail warning lamp.	x	x	x	x	x	x	x	x	x
Check torque of caliper mounting bolts.	x		x		x		x		x
Check handbrake adjustment.	x	x	x	x	x	x	x	x	x
CLUTCH									
Check and adjust if necessary.	x	x	x	x	x	x	x	x	x
Check clutch fluid level.	x	x	x	x	x	x	x	x	x
STEERING AND SUSPENSION									
Check security of all steering connections and mountings.	x		x		x		x		x
Check anti roll bar connections and rubber mountings.	x		x		x		x		x
Check torque of front and rear suspension and damper bolts.	x		x		x		x		x
Check all moving parts for wear and bellows for oil leaks.		x	x	x	x	x	x	x	x
Check front wheel bearing adjustment.	x		x		x		x		x
Check torque loading of drive shaft bolts.	x		x		x		x		x
Check dampers for leaks and deterioration.			x		x		x		x
Check front and rear wheel alignment.	x		x		x		x		x

Continued overleaf

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MAINTENANCE SCHEDULE CALIFORNIA -Continued

The operations listed below should be carried out at the mileage shown.

DESCRIPTION OF OPERATION	Free Service 1500 Miles	A Service 6000 Miles	B Service 12,500 Miles	A Service 18,500 Miles	C Service 25,000 Miles	A Service 31,000 Miles	B Service 37,500 Miles	A Service 43,500 Miles	C Service 50,000 Miles
ELECTRICAL									
Check security of battery and earth connections and (if applicable) electrolyte level.	x		x		x		x		x
Check operation of all lights.	x	x	x	x	x	x	x	x	x
Check headlamp alignment.	x		x		x		x		x
Check operation of all electrical equipment and instruments.	x	x	x	x	x	x	x	x	x
WHEELS AND TYRES									
Check tyre condition and pressures, including spare.	x	x	x	x	x	x	x	x	x
Check torque of all wheel nuts.	x	x	x	x	x	x	x	x	x
Check road wheel balance.			x		x		x		x
BODY									
Check all hinge and lock operations.	x		x		x		x		x
Check seat belts and seat adjustments.	x	x	x	x	x	x	x	x	x
Check air conditioning operation.	x		x		x		x		x
Top up screen washer reservoirs.	x	x	x	x	x	x	x	x	x
GENERAL									
Inspect condition of all major unit mounting rubbers.			x		x		x		x
Check torque loading of major unit mounting bolts.			x		x		x		x

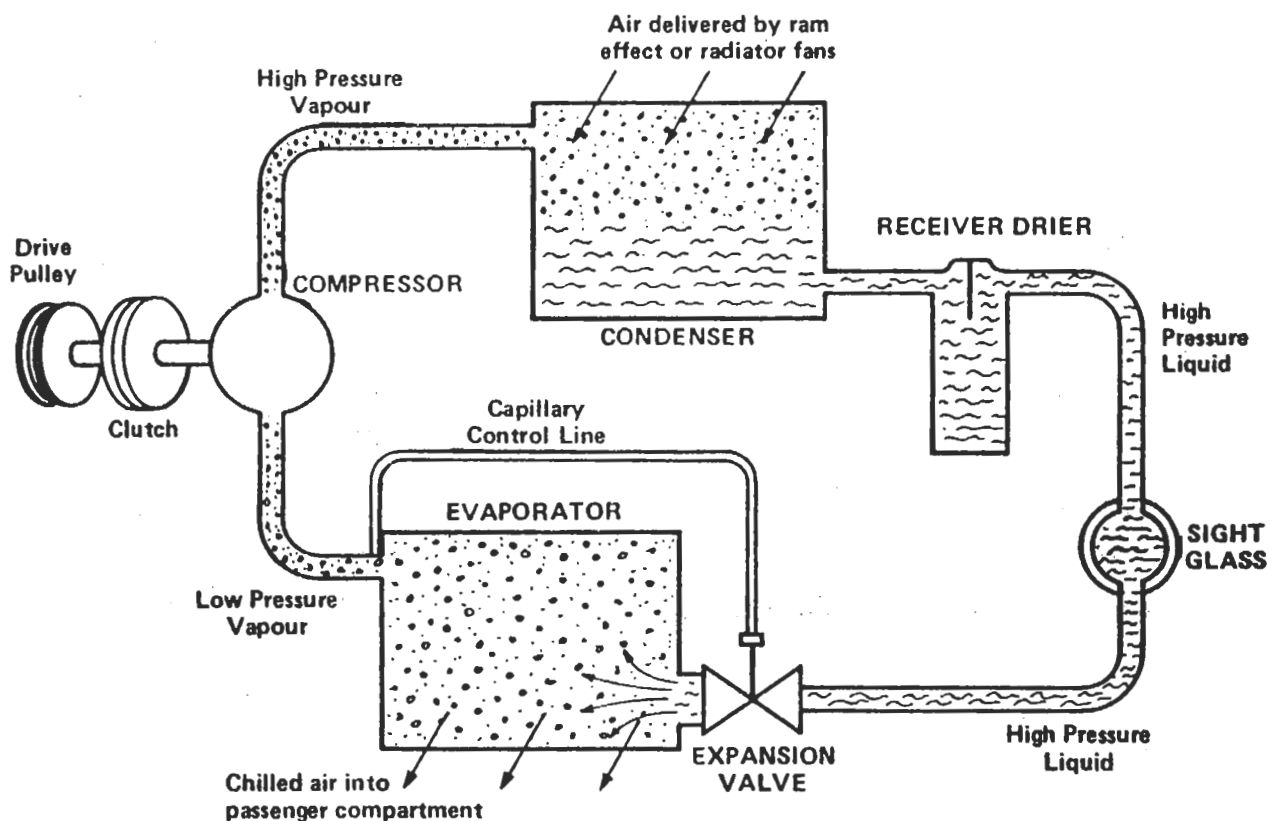
HEATER/AIR CONDITIONING**SECTION PB - ESPRIT S3 & TURBO**

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Airflow Distribution	PB2	4 to 8
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PB.1 - AIR CONDITIONING OPERATING PRINCIPLES

With the air conditioning control 'ON' and engine running, the compressor clutch operates engaging the compressor. Low pressure vapour entering the compressor is converted into high pressure vapour at the output and discharged into a condenser. The vapour is cooled in the condenser changing into a liquid, from here it flows into the receiver-drier, where any foreign matter is expelled.

A sight glass following the receiver-drier provides a means of checking the system is full of refrigerant and operating correctly. High pressure liquid enters the expansion valve where it expands rapidly changing from high to low pressure liquid. As the refrigerant expands in the evaporator it begins to boil, absorbing heat from the core and cooling the air passing through to the passenger compartment. The compressor draws off the low pressure vapour completing the closed circuit and recycling the refrigerant.



Condenser

The condenser is located in front of engine radiator. Air passes over the condenser cooling fins, cooling the 'hot' high pressure refrigerant vapour and condensing it into

a high pressure liquid. The construction of the condenser is similar to the engine radiator but is designed to withstand higher pressures.

Receiver-Drier

Located in the front compartment on the right hand side its purpose is to ensure a supply of liquid refrigerant to the expansion valve in an operational condition. A drier is incorporated in the base of Receiver-drier which absorbs any moisture that entered the system during assembly. Any foreign matter in the refrigerant will also be trapped in the drier.

Some models are fitted with a low pressure cut out switch at the receiver-drier to prevent damage to the compressor due to lack of lubrication from running with a discharged system.

Expansion Valve

The expansion valve is located at the side of the evaporator and thermostatically meters the flow of high pressure liquid refrigerant into the evaporator. The refrigerant supply is controlled by a capillary tube strapped to the outlet pipe of the evaporator, as the temperature changes at the outlet pipe so the refrigerant flow through the valve changes. When liquid to the core of the evaporator exceeds requirement the outlet temperature drops, this is sensed via the capillary tube, closing down the expansion valve and reducing the flow of liquid refrigerant. The expansion valve is pre-set internally and has no external adjustment.

Temperature Control Switch

Turning the control clockwise to the required temperature position will engage the compressor clutch and drive the compressor. On some models when the compressor is running a red light (a light emitting diode above the temperature control switch) is illuminated.

The output from the temperature sensor in the evaporator is compared by an electronic comparator with the setting made on the temperature control switch. When the temperature sensed is greater than the setting, the compressor is engaged via the clutch and the red light is illuminated. The clutch will disengage when the temperature is reached and the red light will extinguish.

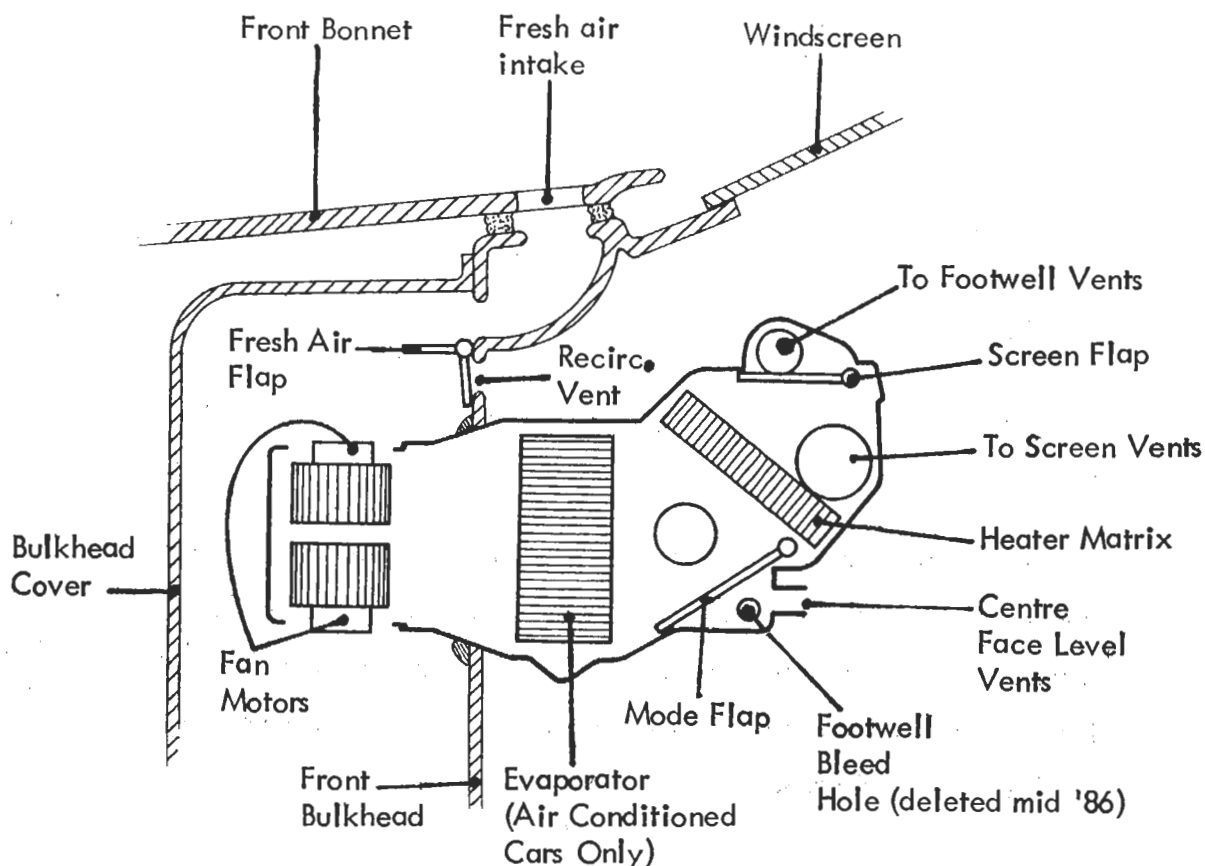
The electronic comparator is fitted to the rear of the temperature control switch.

PB2 - AIRFLOW DISTRIBUTION

The heater/air conditioning unit is located beneath the fascia and contains a heater matrix fed with engine coolant via a cable/thermostat operated water valve and a refrigerant evaporator.

Two fan motors are contained behind a cover in the front luggage compartment on the bulkhead. Fresh air is drawn into this cover from a chamber at the base of the windscreen via a fresh air flap, and is then blown into the heater/air conditioning unit for heating/refrigeration and distribution to the various outlet vents. The heater/air conditioning unit itself contains two flaps, a mode flap, controlling airflow through the heater matrix, and a screen flap controlling airflow to the windscreen vents. The fresh air flap and mode flap are operated by vacuum actuators supplied with vacuum on Domestic and ROW cars by the inlet manifold via a non-return valve and reservoir mounted on the left hand fuel tank board, whilst Federal Esprit Turbo's are supplied with vacuum from an engine driven pump.

The vacuum supply is controlled by two valves mounted on a control plate and operated by a cam connected by cable to the distribution control knob. The screen flap is mechanically operated via the distribution control cable, and a bellcrank lever and link.



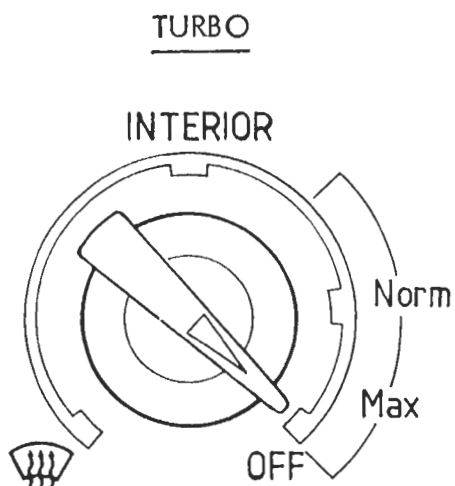
OFF

In the 'OFF' position, the fresh air vent is closed and the re-circulation vent open.

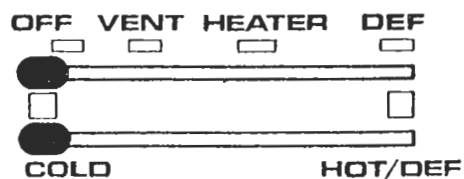
All heater functions are off.

This setting should be used during city driving to avoid drawing traffic fumes into the car.

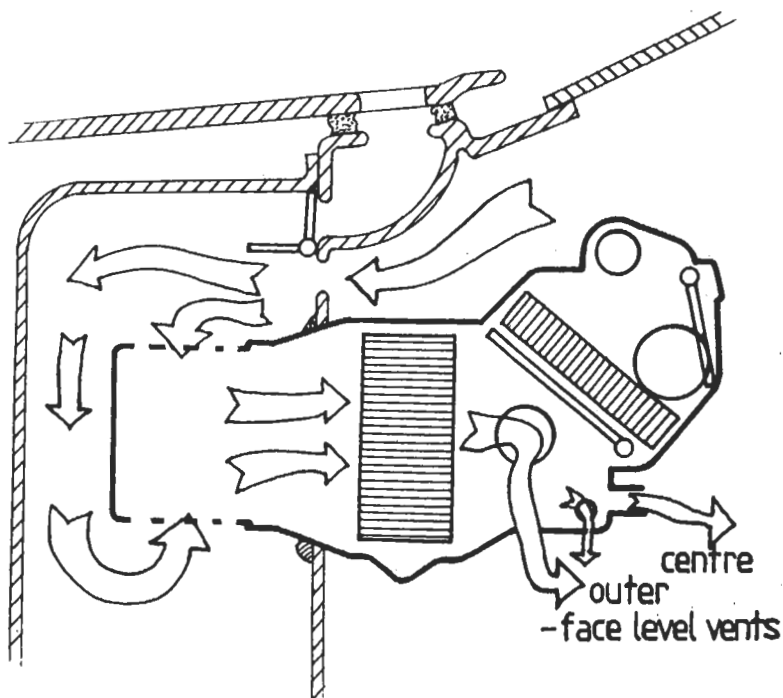
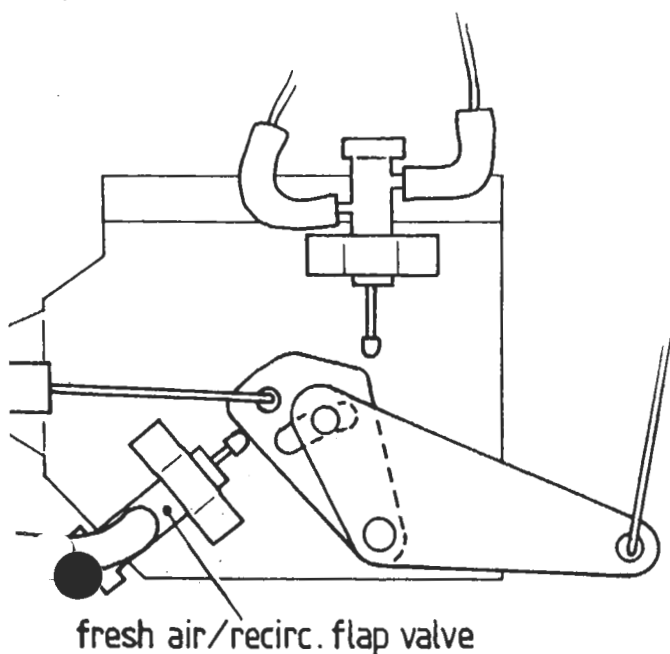
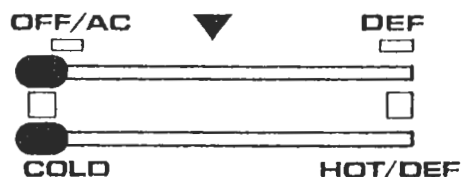
With the air conditioning switched on, this is the maximum refrigeration' setting. Air is drawn by the fan from the interior of the car through the re-circulation vent, and is blown through the evaporator to the centre and outer face level vents. Also through the footwell bleed holes (deleted mid '86).



SERIES 3 HEATER ONLY



SERIES 3 WITH A/C



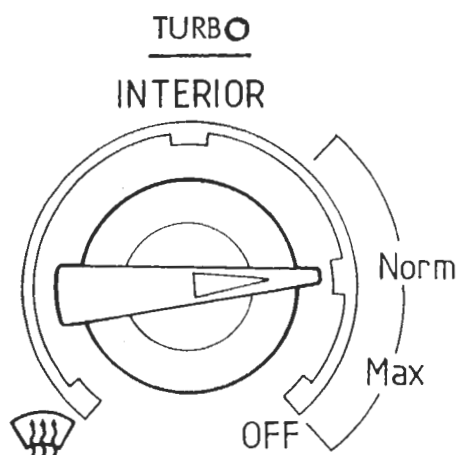
NORM/VENT

The control cam releases the fresh air/re-circulation flap valve, thus closing the re-circulation vent and opening the fresh air vent.

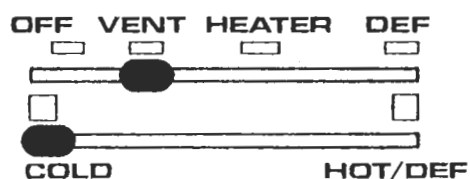
All heater functions remain off.

Fresh air at ambient temperature is supplied to the outer and centre face level vents.

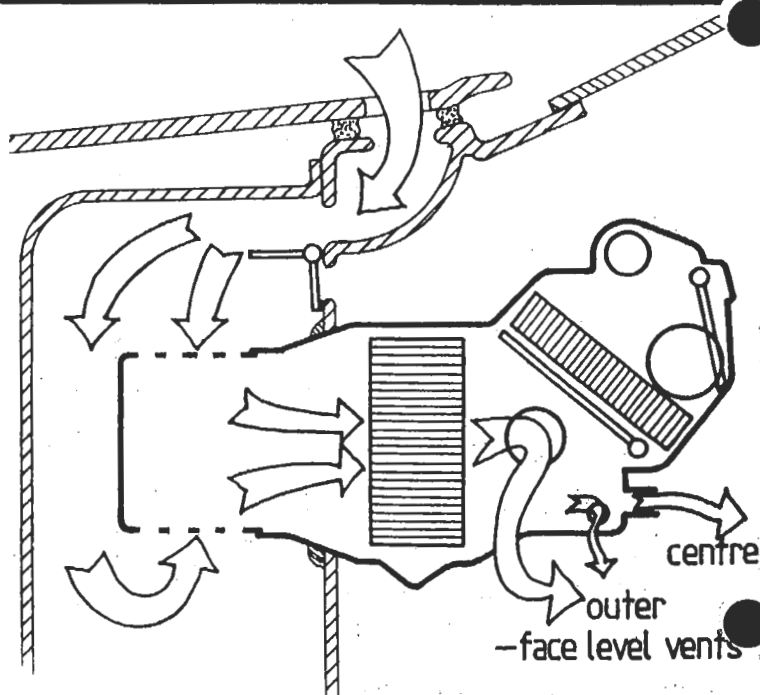
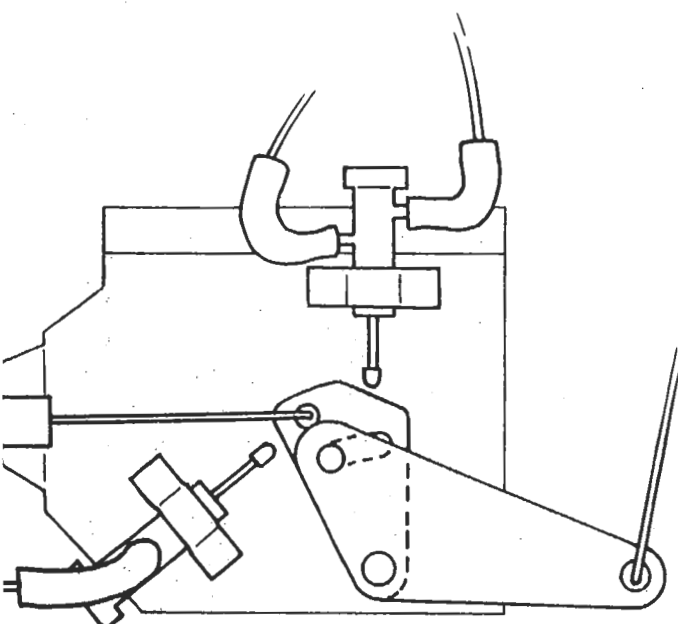
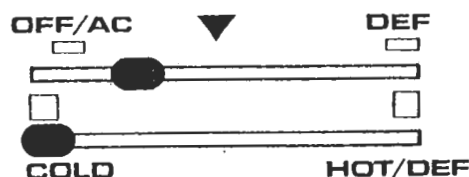
With the air conditioning switched on this is the 'normal' refrigeration setting, supplying refrigerated fresh air to the centre and outer face level vents either by 'ram' effect or fan assisted.



SERIES 3 HEATER ONLY



SERIES 3 WITH A/C

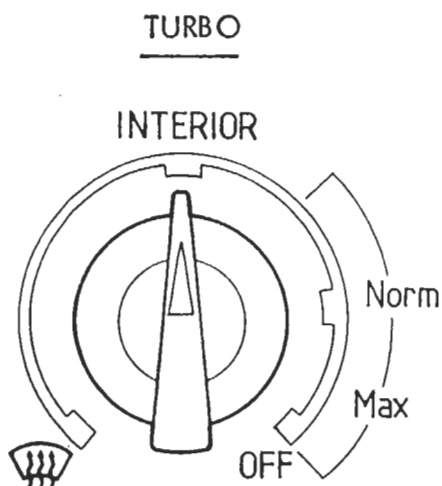
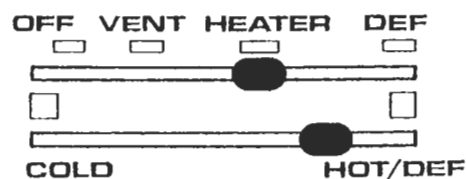
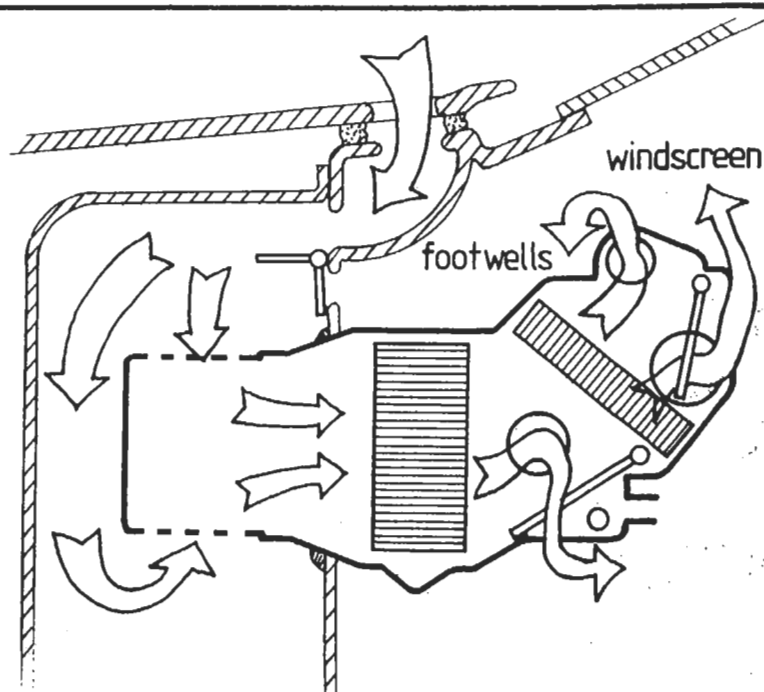
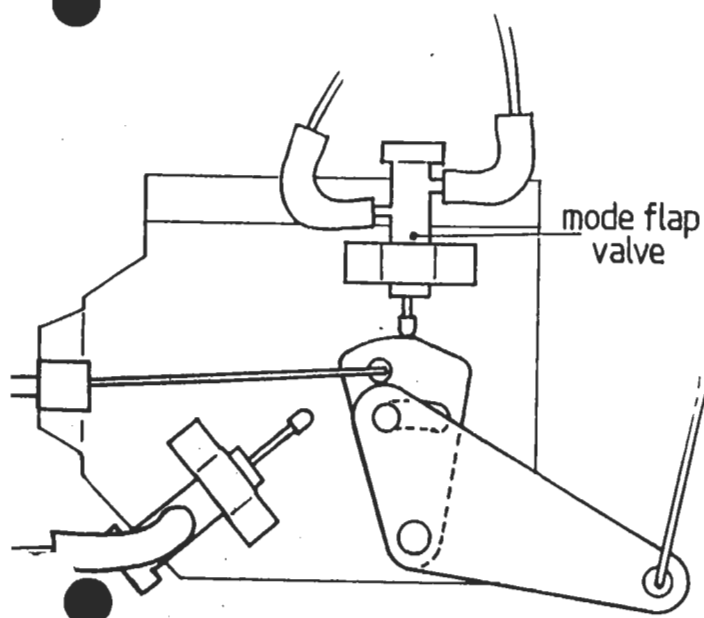
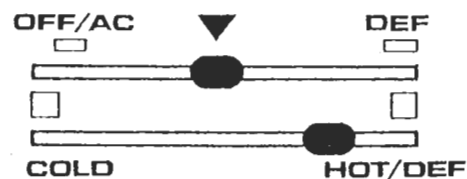


INTERIOR/HEATER

The control cam operates the mode flap valve and starts to move the screen flap link. The mode flap opens the heater matrix and shuts off the centre face level vents. The screen flap moves half way.

With the temperature control in the red sector, heated fresh air is supplied by ram effect or fan assisted, to both screen and footwell vents. Ambient air is still available from the outer face level vents.

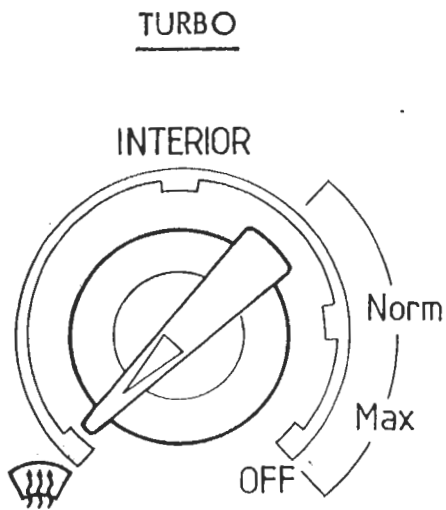
The air conditioning may be used with this setting to produce de-humidified air. Close off the outer face level vents for optimum performance.

SERIES 3 HEATER ONLYSERIES 3 WITH A/C

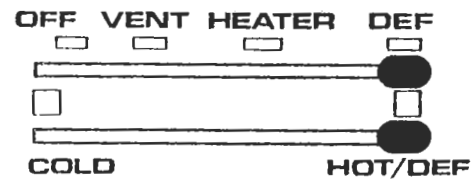
DEFROST

The screen flap is moved full travel to shut off the footwell vent, and direct all air to the windscreen vents.

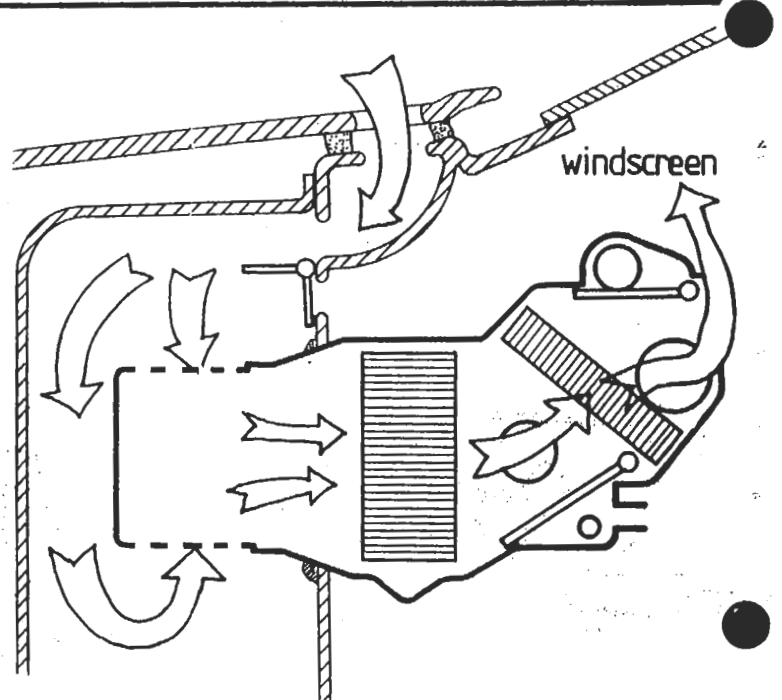
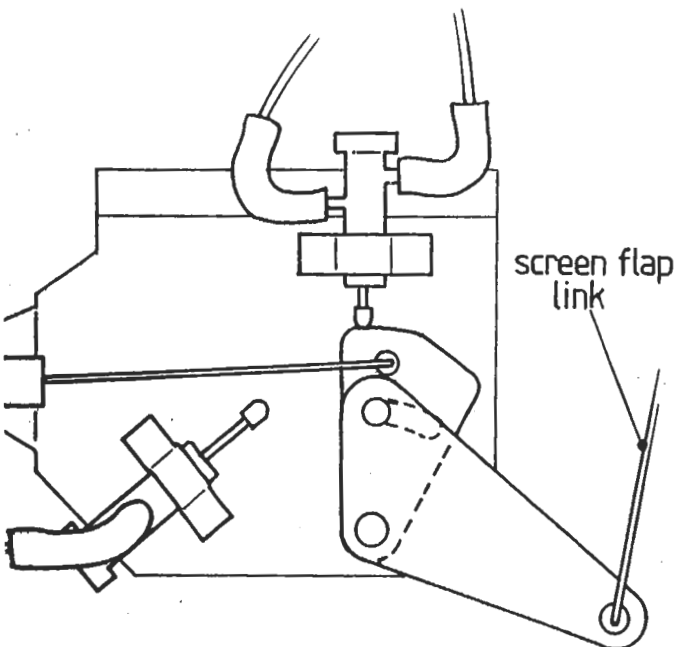
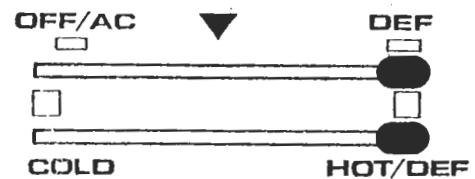
This is the defrost position. With the temperature control in the red sector, heated air is supplied solely to the screen. (keep outer face level vents closed).



SERIES 3 HEATER ONLY



SERIES 3 WITH A/C



PB.3 - REFRIGERANT HANDLING

The refrigerant used in the air conditioning system is 'Freon 12' and the following precautions **MUST ALWAYS BE OBSERVED**.

1. Do NOT leave refrigerant drums open - always make sure the caps are securely closed.
2. Do NOT transport drums of refrigerant in the passenger compartment of a car.
3. Do NOT expose refrigerant drums to high temperature.
4. Do NOT weld or use a steam cleaner in close proximity of the air conditioning unit.
5. Do NOT discharge refrigerant vapour into an enclosed area where there is a naked flame. Heavy concentrations of refrigerant when exposed to a naked flame produces a toxic gas, which will also attack metal.
6. Do NOT expose the eyes to vapourised or liquid refrigerant - **ALWAYS** wear safety goggles when handling refrigerant.

PB.4 - REFRIGERANT PIPEWORK PRECAUTIONS

The following precautions should be read carefully before carrying out any work on the refrigerant pipework.

1. When disconnecting any pipe or flexible connection, the system **MUST FIRST BE DISCHARGED OF ALL PRESSURE**.
Open either connection of receiver-drier **SLOWLY**, cover union with a cloth, so that no injury will occur if liquid is present in the pipe. If pressure is noticed, **ALLOW TO BLEED SLOWLY** - slacken the union nuts a 'flat' at a time; allow pressure to bleed, slacken the nut a further 'flat', allow pressure to bleed, and so on until all pressure has been expelled (approximately 2 to 3 minutes).
ALWAYS WEAR SAFETY GOGGLES WHEN OPENING REFRIGERANT CONNECTIONS.

2. Pipes, flexible end connections and components, MUST be capped immediately they are opened to prevent the ingress of moisture and/or dirt.
3. All replacement components and flexible end connections are sealed when new, and should only be opened IMMEDIATELY PRIOR TO FITTING, AND AT ROOM TEMPERATURE, to prevent condensation of any moisture which may enter when the sealing is removed.
4. The receiver-drier should be the LAST component to be connected, this is to ENSURE optimum dehydration and maximum moisture protection of the system.
5. Precautions MUST be taken to prevent damage to fittings and connections; minute damage could cause a leak due to the high pressures used in the system. ALWAYS USE TWO SPANNERS OF THE CORRECT SIZE (one on each union nut), when releasing or tightening pipes, or connections. This is particularly important with the pipes on the condenser as this unit is constructed from aluminium.
6. All joints should be coated with refrigeration oil BEFORE making any connections, as this will aid seating.
7. All pipes and hoses MUST BE FREE from any kinking. The efficiency of the system can be impaired by a single kink, or restriction. Flexible hoses should not be bent to a radius which is less than ten times the diameter of the hose.

PB.5 - CHARGING UNIT WITH REFRIGERANT

The procedure for charging the air conditon system is supplied by the manufacturer of the charging trolley used; follow this procedure carefully.

Before charging the system it is first necessary to evacuate the system for the following reasons:

1. All air is removed from the system to ensure it can be fully charged.
2. All moisture is removed, which could be harmful to the system.
3. It provides a means of checking for leaks, which may occur in a faulty connection.

Evacuate the system to a vacuum to 28 inches of mercury (28in Hg) for NOT LESS THAN 20 minutes. The hold period of 20 minutes will allow any leaks to be seen easily and purge the system of any moisture.

The system is charged with 1.4kg (3 lbs) of 'Refrigerant 12', which is made up from 'Freon 12' and 'Arcton 12'. After charging the system it must be checked for gassing, using the following procedure:

1. Start the engine and adjust engine speed to 1200 r.p.m.
2. Turn the air conditioning switch fully clockwise, and the fan speed switch to fast. Check that the engine cooling fans have automatically switched on.
3. View the refrigerant through the sight glass on the top of the receiver-drier, after 5 minutes running there should be no bubbles visible (gassing); an occasional bubble is however acceptable. If the ambient temperature is below 4°C, continuous gassing may occur, it is therefore advised to carry out the checks in a covered garage.
4. Increase the engine speed to 2000 r.p.m. and check that the refrigerant passing the sight glass is clear of bubbles. If a continuous stream of bubbles still persists then, the refrigerant charge should be increased until the bubbles are no longer present.
5. Before disconnecting the service valves from the compressor, check the system for leaks using a leak detector capable of detecting a leak of 1 lb in 32 years. This leak standard applies to all connections except the following:

1. Compressor front seal
2. Uncapped Schraeder valves
3. Sight glass

The leak standard for the above is 1 lb in 10 years. It will therefore be necessary to have a leak detector capable of covering both standards. It is recommended that the leak test be performed in a halogen-free atmosphere with no significant draughts of air.

PB.6 - REFRIGERANT QUICK-CHECK PROCEDURE

The following procedure can be used to quickly determine if the air conditioning system has its required charge of refrigerant. This check facilitates system diagnosis by pinpointing the problem to the amount of charge in the system, or by eliminating this possibility from the overall diagnosis.

Start engine and 'run' at 1200 r.p.m. Set controls for maximum cold, with fan at fast speed

<u>Symptom</u>	<u>Cause</u>	<u>Remedy</u>
a) Continous bubbles present in sight glass	System low on charge.	Check with leak detector. Correct leak, if any, and fill system to correct charge.
b) No bubbles. Sight glass clear.	System is either fully charged or empty.	Feel high and low pressure pipes of compressor. High pressure pipe should be warm, low pressure pipe should be cold.
c) No appreciable temperature differential noted	System empty, or nearly empty.	Switch 'off' engine. Re-charge system with refrigerant, and check with leak detector.
d) Temperature differential noted at compressor.	Even though a differential is noted, there exists a possibility of overcharge. An overcharge filled system will result in poor cooling.	Check by disconnecting the compressor clutch connection (at upper front) while observing the sight glass.
Refrigerant in sight glass remains clear for more than 45 secs., before foaming and settling away from glass.	System over-charged.	Verify with performance checks.
Refrigerant foams and settles away from sight glass in less than 45 secs.	System correctly charged.	Continue checking out system using checks as previously given.

PB.7 - RECOMMENDED REFRIGERANT OIL

The refrigerant oil recommended for use in the compressor and to lubricate flared pipe ends and union threads are:

Frigidair 525
Shell Clavus Oil 33
Texaco Capella E (Waxfree)
Sunisco 5
BP Energol LPT 500

- NOTE:
- (a) The above oils are not given in any order of preference and all are equally suitable.
 - (b) Keep the oil container tightly capped at all times.

Add additional oil in the following amounts for any of the system components listed which are being replaced:

Receiver-Driver	1 fluid oz .
Condenser	1 fluid oz .
Evaporator (air conditioning unit)	3 fluid ozs .

PB.8 - REFRIGERANT OIL LEVEL CHECKING PROCEDURE

To check the refrigerant oil level during servicing of the Compressor or the system, proceed in the following manner:

1. Run the compressor at the engine idle speed for 10 minutes.
2. Recover all the refrigerant 12 from the compressor, being careful not to lose any oil.
3. Place the angle gauge (Sankyo Part No. 32448) across the top of the top two mounting lugs. Centre the bubble in the level indicator and read off the mounting angle of the compressor to the nearest degree.
4. Remove the oil filler plug and looking through the plug hole, centre the internal parts as they move towards the rear of the compressor (discharge stroke). This will allow the dipstick to be inserted to its full length.

5. Insert dipstick (Sankyo tool number 32447) with the angled 'stop' towards highest part of compressor, just inside the plug hole. Align the angled bottom of the 'stop' with the top surface of the oil filler hole, and insert the dipstick until it reaches the 'stop'
6. Remove the dipstick and count the number of increments covered with oil.
7. Compare the measurement taken in 3 (compressor angle) and the oil level increment with those shown in following table.

Mounting Angle in Degrees	Acceptable oil level in Increments
0	4 to 6
10	6 to 8
20	7 to 9
30	8 to 10
40	9 to 11
50	9 to 11
60	9 to 12

8. If the increments indicated on the dipstick do not fall between the figures given in the above table, add or subtract oil until the mid-range figure is achieved.
9. Refit oil filler plug and tighten to 6 to 9 ft. lbs. (0.8 to 1.2 kg-m). Ensure the O-ring is not twisted and that the O-ring seating is clean before fitting. Do not overtighten if plug leaks, fit a new O-ring. Re-charge the system with refrigerant as previously described.

PB.9 - COMPRESSOR

The compressor is factory charged with 6 ± 0.5 fluid ounces ($175 \pm 15\text{cc}$) of refrigerant oil with a viscosity of 500. Only oils listed under RECOMMENDED REFRIGERANT OIL should be used when adding or changing the oil.

To Remove

1. Depressurise the air conditioning system by slackening the union nut securing the pipe to the receiver-drier. Take the necessary precautions described under the heading 'Refrigerant Pipework'.
2. Remove the pipe connections to the Compressor, taking the necessary precautions described under the heading 'Refrigerant Pipework'.
3. Loosen and remove the compressor drive belt and disconnect the electrical connections to the compressor clutch.
4. Remove the two nuts and bolts securing the compressor to the mounting bracket. Drain the oil from the compressor and measure the amount drained. Make a note of the amount of oil drained as this information is required when replacing the compressor.

To Replace

1. Reverse the removal procedure. Refill the compressor with the same amount of new oil as that drained during removal, plus an additional one fluid ounce. Before assembling the pipework lubricate the flared ends and union threads with refrigerant oil.
2. Recharge the system as previously described.
3. The compressor drive belt should be correctly tensioned to give a total movement of 9 mm (0.35 ins) on the longest run of belt.

Fitting a New Compressor

The following procedure is to be used when replacing a compressor containing uncontaminated oil with a new compressor, when there is no evidence of oil having escaped from the system.

1. Drain the oil from the new compressor.
2. Drain and measure the oil from the old compressor.

3. Refill the new compressor with an amount of new oil equal to that drained from the old compressor, plus an additional one fluid ounce (30 cc) of new oil.

After a major failure involving total loss of fluid and a replacement compressor, it is necessary to add an extra 2.7 fluid oz. (80 cc) of oil to the 6 fluid oz. (175 cc) of oil supplied in the new compressor.

NOTE: Satisfactory operation of the compressor depends on there being sufficient oil in the system. However too much oil decreases the cooling efficiency of the installation.

PB.10 - REMOVAL OF HEATER/AIR CONDITIONING ASSEMBLY

To Remove:

1. Disconnect battery. Drain cooling system. Depressurise refrigerant system.
2. From inside front luggage compartment:
Remove bulkhead ABS cover. Disconnect both fan motors, release the two screws and remove the motor scroll casing from the unit.
3. Remove the re-circulation vent flap, and through the aperture exposed, disconnect the inlet water hose from the water valve. Disconnect the control cable to the valve, and release the valve from the pedal box.
4. Release the dividing panel fixings: Two pop rivets along inner edge of aperture; flap bracket lower fixing; two additional screws.
5. From inside vehicle:
Remove the binnacle, fascia and tunnel trim assemblies together with the radio, if fitted.
6. Remove passenger side demist vent. Remove the front bonnet release bar. Release the return water hose from the heater matrix.
7. Remove the centre face level vent nozzle from the unit, and through the aperture exposed, release the two screws securing the unit to the tunnel top bracket.

8. Remove the two screws in the passenger footwell securing the lower edge of the bulkhead divider panel. Disconnect the washer tubing and front wiring harness and feed through the divider panel. With sharp knife, cut round the divider panel sealant, and withdraw the panel into the front luggage compartment.
9. Disconnect the two refrigerant pipes to the evaporator, taking precautions detailed in REFRIGERANT PIPEWORK.
10. Release the vacuum supply pipe and fresh air flap actuator vacuum pipe. Release drain pipe from beneath unit.
11. Carefully withdraw unit towards passenger side of vehicle, taking care not to damage the water valve capillary tube.

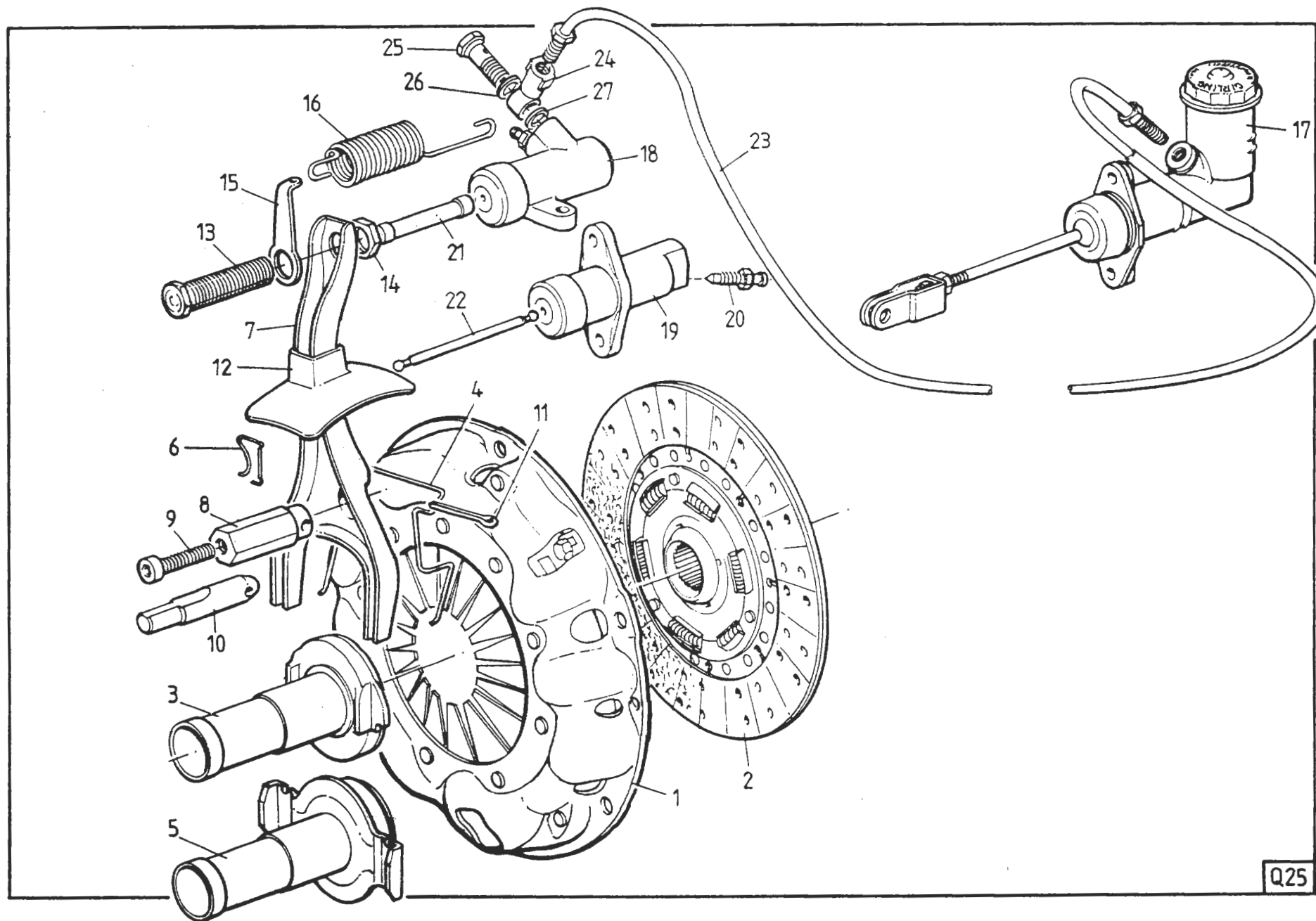
To Replace:

Reverse the removal procedure, positioning the unit such that the dimension from the inboard edge of the large hole in the bulkhead (passengers side) to the end of the unit (where fan motor scroll fits) is approx. 150 mm. Also ensure that there is clearance between the vacuum control valve assembly and the bonnet release bar.

If a new evaporator is fitted, see section PB.7. for additional oil quantity.

CLUTCHSECTION QB - ESPRIT S3 AND TURBO

	<u>Operation</u>	<u>Page</u>
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Hydraulic Units	QB 2	5
Clutch Assembly	QB 3	6
Release Bearing	QB 4	6/7
Spigot Bearing	QB 5	7
Clutch Shaft	QB 6	8



CLUTCH SYSTEM DIAGRAM

Key to Clutch System Drawing

- | | |
|--|-----------------------------------|
| 1. Cover/Pressure Plate Assembly. | 13. Adjuster Screw, Release Fork. |
| 2. Centre Plate. | 14. Locknut, Adjuster. |
| 3. Release Bearing/Carrier Assembly.
(Cast Type) | 15. Lug, Return spring. |
| 4. Spring, Fork to Carrier. | 16. Return Spring, Release Fork. |
| 5. Release Bearing/Carrier Assembly
(Fabricated Type) | 17. Master Cylinder. |
| 6. Spring, Fork to Carrier. | 18. Slave Cylinder, S3. |
| 7. Release Fork. | 19. Slave Cylinder, Turbo. |
| 8. Pivot, Release Fork, S3 | 20. Bleed Nipple. |
| 9. Screw, Pivot Ball. | 21. Pushrod, S3. |
| 10. Pivot, Release Fork, Turbo. | 22. Pushrod, Turbo. |
| 11. Split Pin, Fork to Pivot. | 23. Flexible Hydraulic Pipe. |
| 12. Grommet, Release Fork. | 24. Banjo. |
| | 25. Banjo Bolt. |
| | 26. Washer, Large. |
| | 27. Washer, Small. |

GENERAL DESCRIPTION

The clutch assembly comprises a diaphragm spring pressure plate with a single driven, dry friction plate. The friction plate is free to slide along the splines of the clutch shaft whose rear end is splined into the gearbox primary shaft and whose front end is supported by a needle roller bearing in the rear of the crankshaft.

The clutch release is operated hydraulically via a master cylinder at the pedal box and a slave cylinder on the clutch bellhousing. On Series 3 models until late '84, the slave cylinder is mounted on top of the clutch housing together with a release fork 'pull off' spring. Series 3 cars from late '84 and all Turbo models use a self adjusting slave cylinder mounted on the right hand side of the clutch housing.

QB 1 - ADJUSTMENT1 Pedal

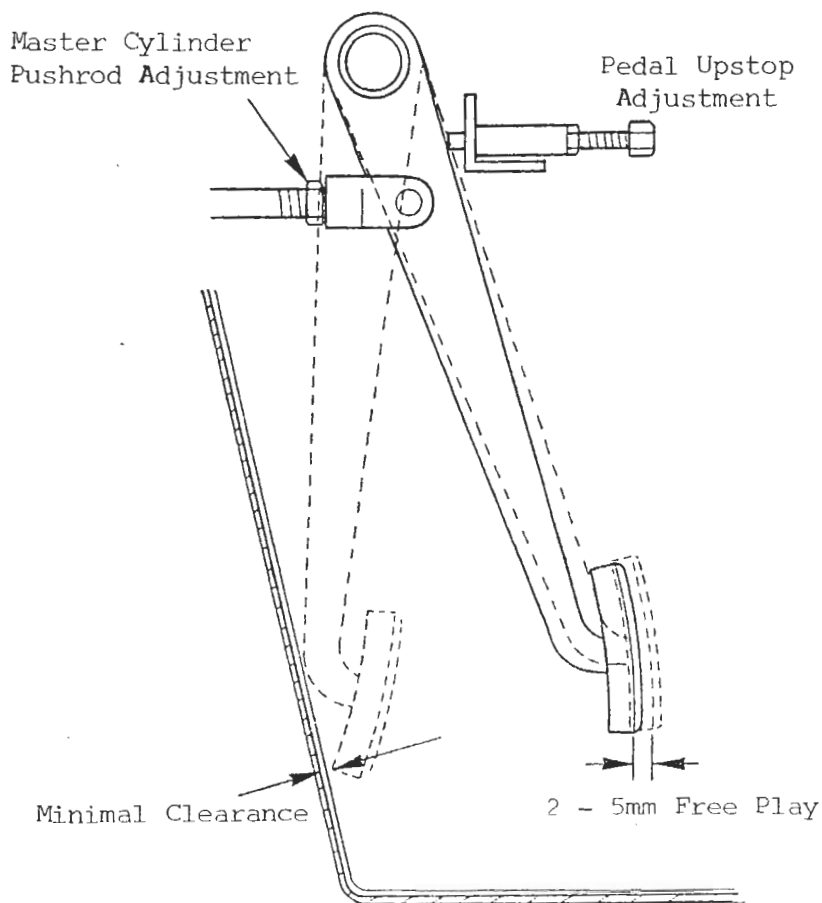
With the clutch pedal fully depressed and the master cylinder bottoming out, check the clearance between the lower edge of the clutch pedal pad (metal) and the GRP body. If necessary, adjust the clutch master cylinder pushrod length to achieve a clearance of 2 - 5 mm, i.e. the pedal should just touch the carpet.

2. With the clutch pedal released, adjust the pedal upstop (if fitted), or discard if necessary to achieve 2 - 5 mm upward free play of the pedal, i.e. the master cylinder is 'topping out'.

If the master cylinder piston is restricted from reaching its full travel in either direction clutch drag and/or slip will result.

If necessary, adjust the brake pedal pushrod length to obtain compatible pedal heights.

Thus set up the clutch pedal should require adjustment only after replacement of a pedal box component.

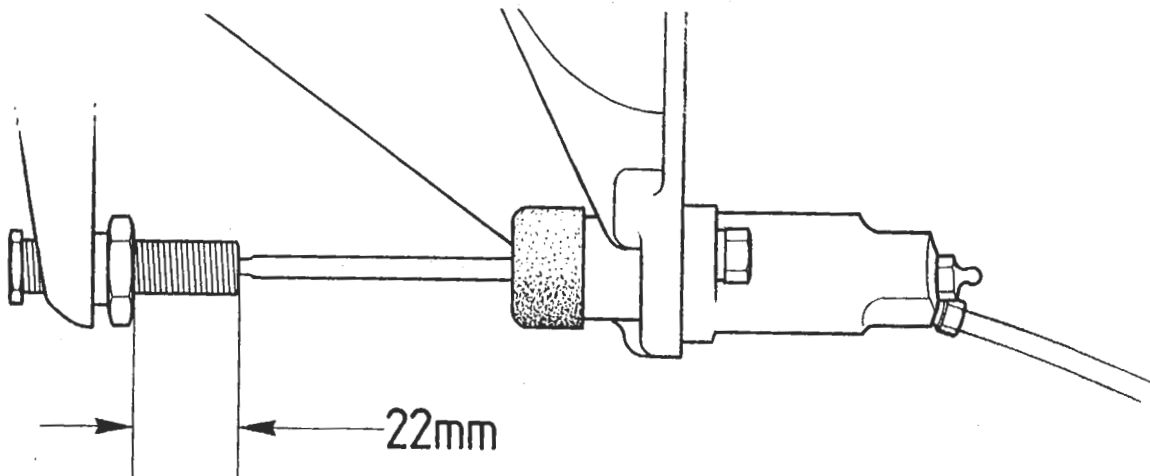


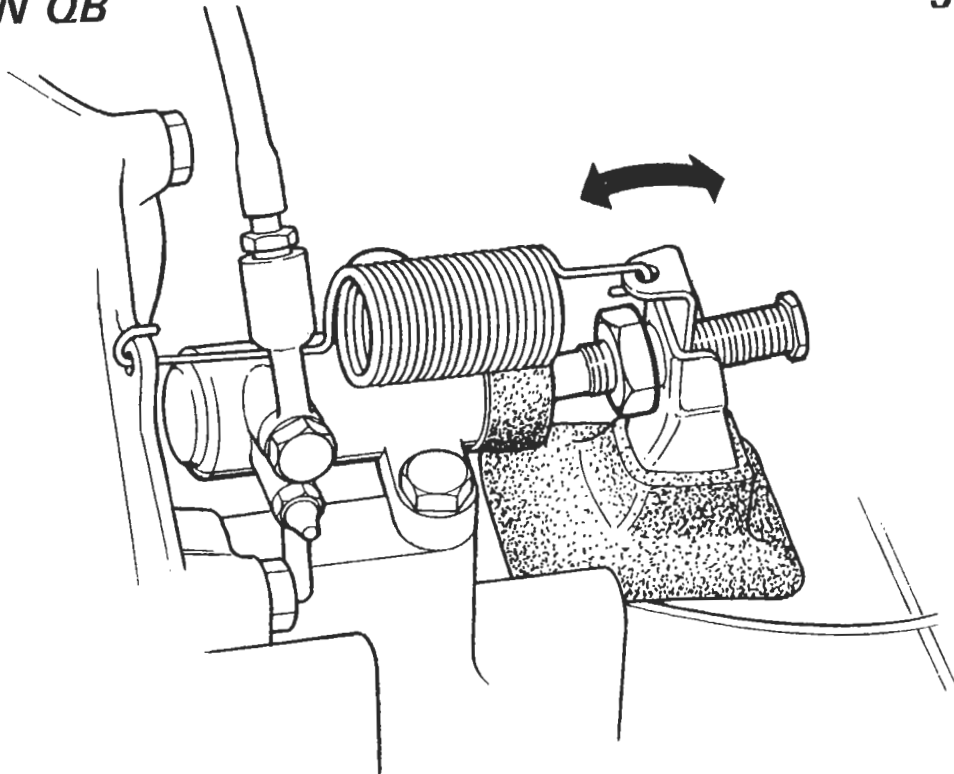
RELEASE FORK

The side mounted clutch slave cylinder (Series 3 after late '84 and all Turbos) is self adjusting, with fluid being returned to the master cylinder as the friction plate wears in service and the slave cylinder piston is pushed progressively further back on its return stroke. The "adjuster" in the release fork end should be set such that 22mm of adjuster projects beyond the locknut as shown in the diagram.

NOTE A previous specification called for the "adjuster" to be screwed in fully. However, the 22mm setting allows a greater degree of clutch friction plate wear to take place before the slave cylinder piston 'tops out' on its return stroke causing clutch slip and indicating that clutch replacement is necessary.

CAUTION: An adjuster setting of less than 22mm may cause damage to pressure plate and flywheel, and/or incomplete disengagement.





Series 3 cars up to late '84 with the top mounted slave cylinder, require checking for release fork clearance at service intervals in the following manner:

- i) At the slave cylinder end, unhook the release fork spring, and measure the free play at the end of the release fork.
- ii) If necessary, slacken the locknut and adjust to obtain 3 mm movement. Early Series 3 cars were not fitted with a locknut, but their use is recommended to improve adjustment retention.
- iii) After adjustment, tighten locknut and refit spring. As the centre plate wears in service the clearance will reduce.

QB 2 - HYDRAULIC UNITS

Service kits are available for both the master and slave cylinders.

Before commencing work on the hydraulic system, take precautions as necessary to protect paintwork from brake fluid spillage.

NOTE: For cleaning purposes use ONLY commercial alchohol, methylated spirit or brake fluid. On no account should mineral based fluids such as petrol or paraffin be used.

On reassembly, coat the piston seals with rubber grease before inserting into the cylinder, refit the cylinder and bleed the hydraulic system of air.

QB 3 - CLUTCH ASSEMBLY

The gearbox or engine/gearbox assembly must first be removed from the vehicle before access to the clutch centre plate or spring/pressure plate may be obtained. If the gearbox assembly is to be removed from a Turbo model, it may be found easier if the turbocharger is first removed.

Before re-assembly, ensure that the spigot bearing and Nylatron thrust washers are correctly fitted (see QB 5), and that a small quantity of molybdenum disulphide lithium base grease (NLG1 No. 2) is applied to the clutch splines.

Torque the clutch assembly to flywheel bolts to 2.3 - 2.6 kg f.m (17 - 19 lbf ft).

Note that if the clutch housing is to be replaced, the gearbox casing must be returned to the factory for mating and machining.

A revised clutch cover (pressure plate assembly) has been fitted to all Esprit Turbo models from engine number 22728.

This new cover has a diaphragm spring with curved fingers, instead of straight as used previously. This necessitates a corresponding change to the release bearing assembly from a curved thrust face to a flat face.

It is most important that 'old' and 'new' specification components are not mixed on the same vehicle although later type covers and release bearings may be used as a pair on any car.

QB.4 - RELEASE BEARING

Several different types of release bearing have been used, and great care must be taken to ensure the correct fitment.

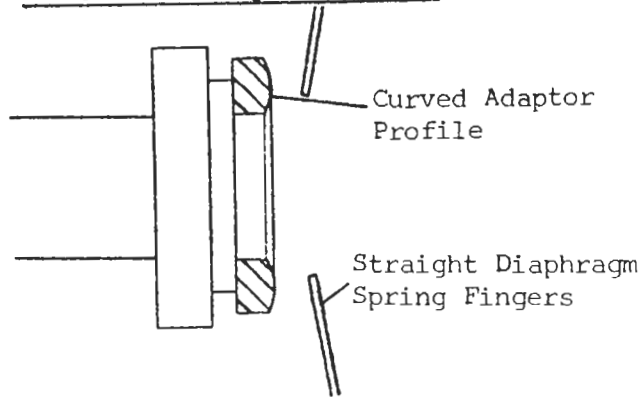
Summary - Series 3: Prior to the introduction of the C35 type gearbox (late 1983) Series 3 cars were fitted with a cast iron release bearing carrier, whereas C35 equipped cars use a fabricated carrier. Both types use a flat face adaptor profile.

Turbo: All Turbo models use the fabricated type release bearing carrier, but with two types of adaptor profile. Prior to Eng. No. 22728, a curved profile was used (for straight diaphragm fingers) whilst later cars use a flat profile (for curved fingers). Earlier cars may however be fitted with the later clutch cover and release bearing as a pair. See Parts List for details.

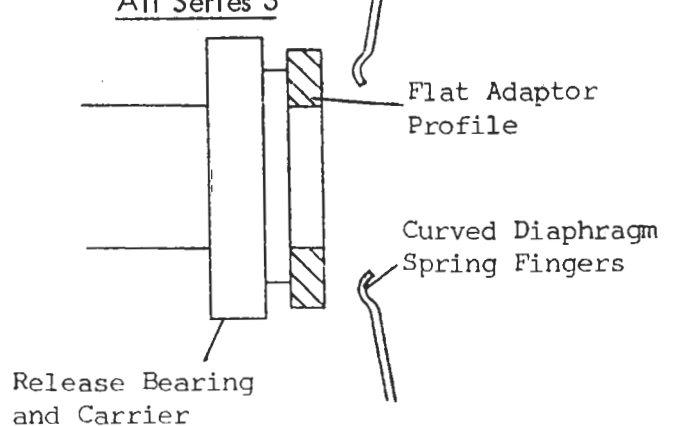
On reassembly, lubricate the outer surface of the release bearing carrier with molybdenum disulphide, lithium base grease (NLG1 No.2) and apply also to the contact points of release arm and carrier, release arm pivot, release arm adjuster to pushrod, and sparingly to the front face of the release bearing.

Fit the bearing carrier into the guide tube and clip to the release arm.

Turbo Prior to Eng. No. 22728

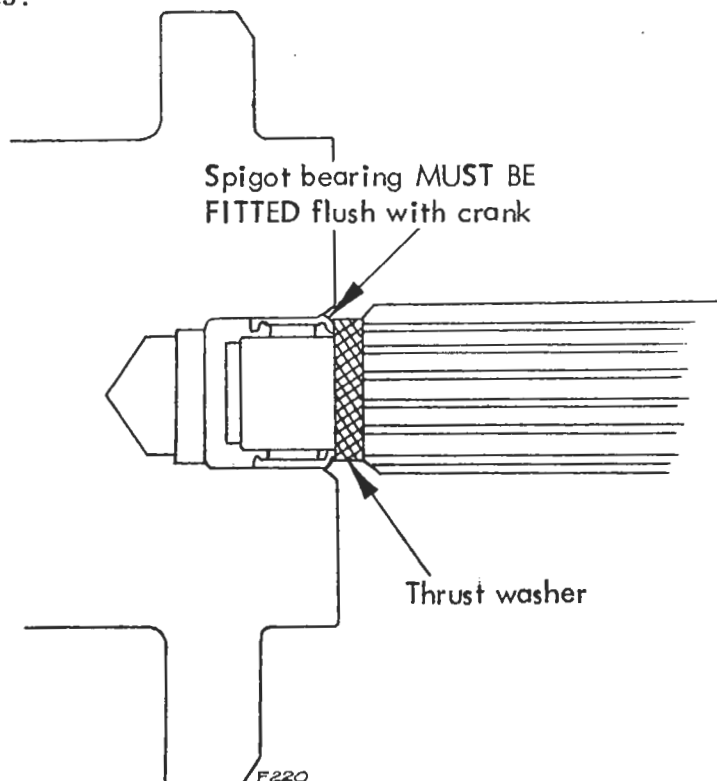


Turbo After Eng. No. 22728
All Series 3



QB 5 - SPIGOT BEARING

The spigot bearing (A907E 6319F) must be fitted into the crank with its identifying numbers facing outwards (i.e. towards gearbox), and pressed in ONLY UNTIL FLUSH with the rear face of the crank. Ensure the bearing is lubricated with either Esso Unirex N3, or Shell Alvania R2 or R3.



It is essential that the Nylatron thrust washer (A079F 4029F) is fitted between clutch shaft and spigot bearing as shown.

QB 6 - CLUTCH SHAFT

The clutch shaft is splined into the gearbox primary shaft and retained by a circlip and spring.

Old type clutch shaft A079F 6066F has been replaced by modified shaft B085F 4068J which incorporates a hardened steel sleeve (A089F 0404F), to run inside the spigot bearing. This sleeve is fitted to the shaft using Permabond A148, and if there is any doubt about the security of the sleeve, it should be removed and refitted as follows:-

- i) Roughen inside surface of sleeve with 320 grade emery paper. Degrease, clean and dry.
- ii) Apply Permabond A148 (A089F 6060) to spigot shaft and inside surface of sleeve. Fit sleeve onto shaft and rotate two or three times to ensure even distribution of adhesive.
- iii) Remove sleeve, re-apply adhesive and repeat ii)
- iv) To ensure sleeve to shaft concentricity, the final fitting should be performed with the spigot shaft in a vertical position and left in this position until cured i.e. cannot be moved with light finger pressure (approximately $\frac{1}{2}$ - 1 hour).

NOTE: Ensure that all traces of adhesive are removed from the clutch shaft splines before re-assembly of the clutch.

NOTE: Earlier modified shaft A085F 4068J used a shorter (15mm) sleeve A089F 0400F, which may be replaced by the longer (18.5) sleeve A089F 0404F.

INTERIOR TRIM

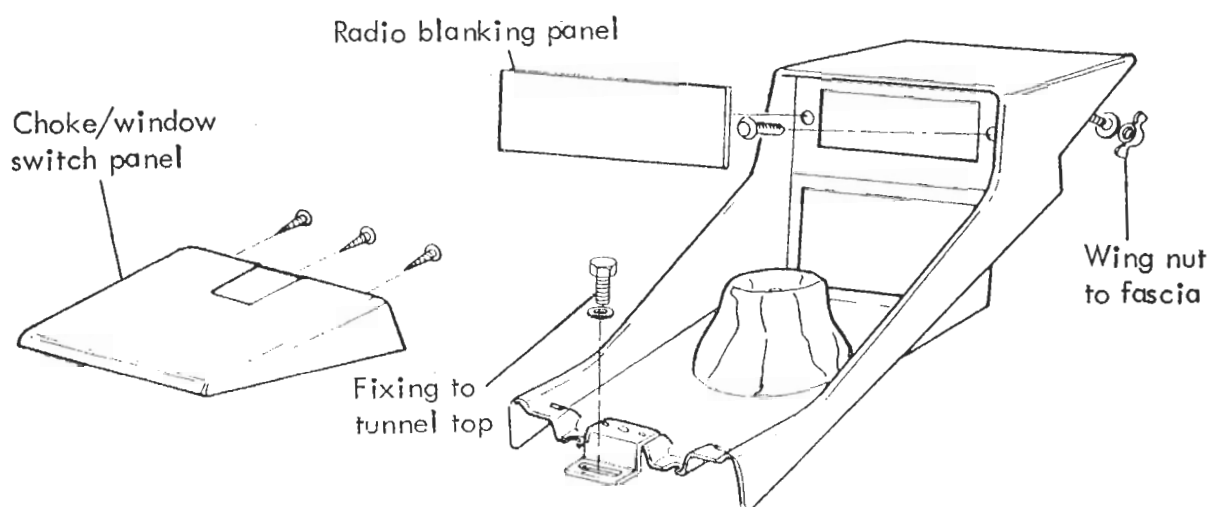
SECTION VB - ESPRIT S3 & TURBO

	<u>Operation</u>	<u>Page</u>
Centre Console	VB 1	2
Tunnel Sides	VB 2	2
Instrument Binnacle	VB 3	3/4
Fascia	VB 4	4
Cant Rails	VB 5	5
'A' Post Covers	VB 6	5
Windscreen Header Rail	VB 7	5
Rear Bulkhead Trim	VB 8	5/6
Door Trim Panel	VB 9	6

VB.1. - CENTRE CONSOLE

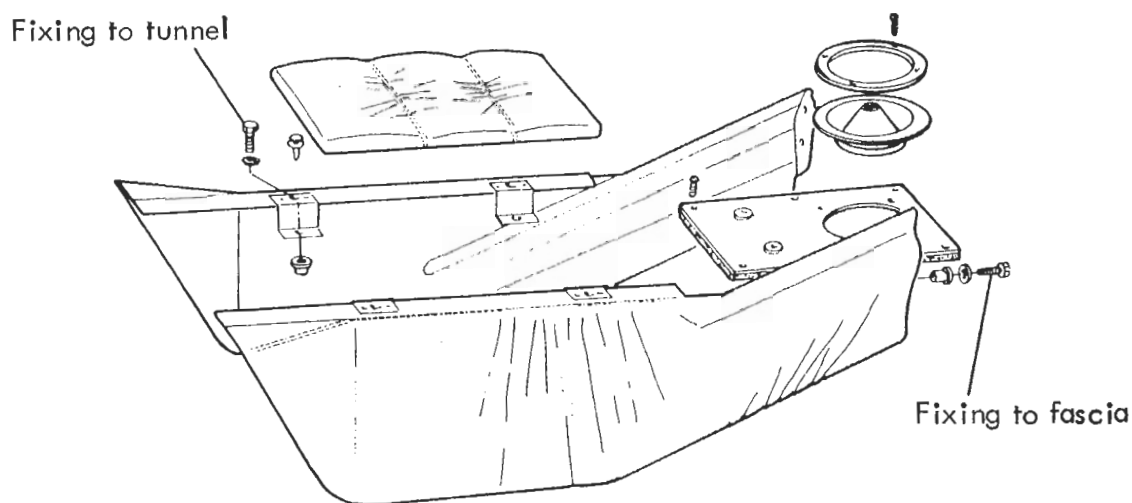
To remove:

1. Pull off centre tunnel top armrest.
2. Release three screws securing choke/window switch panel and lay aside.
3. Remove radio, or radio blanking panel and release knobs from heater a/c control panel. Remove graphic control panel.
4. On cars prior to VIN 82/85 D2153, release the heater a/c controls from their light box.
5. On cars after VIN 82/85 D2270, release the two wing nuts, via the radio aperture, securing the top of the centre console.
6. Release the fixing at the rear of the console and remove the gear lever knob. Withdraw the console, unhooking the tongue at its front end from the fascia.



VB.2. - TUNNEL SIDES

After removing the centre console (VB.1) release the two screws each side securing the tunnel side to the fascia, and four screws into the tunnel top. Release the rear bulkhead trim fixings if necessary to enable the rear end of the tunnel side to be withdrawn.

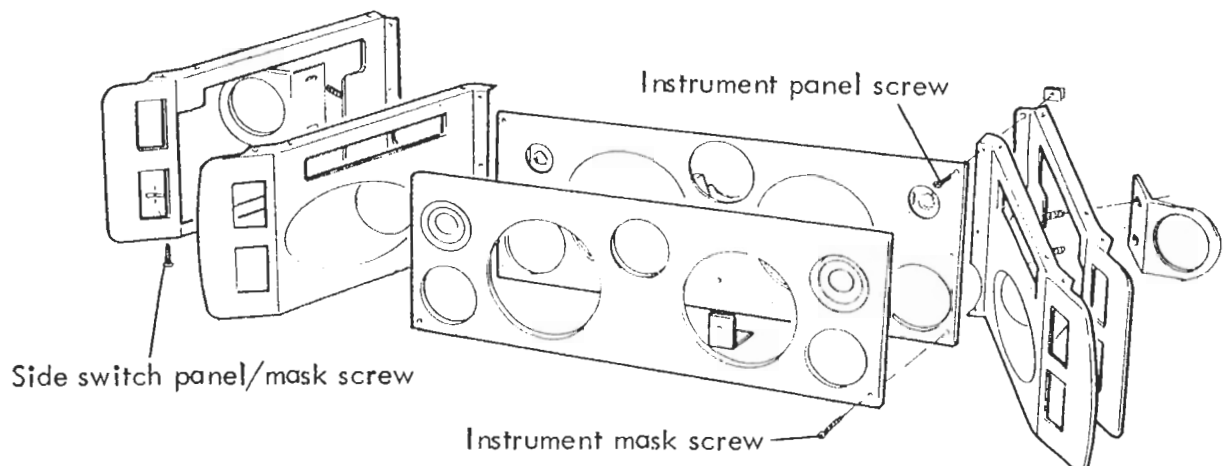


VB.3. - INSTRUMENT BINNACLE

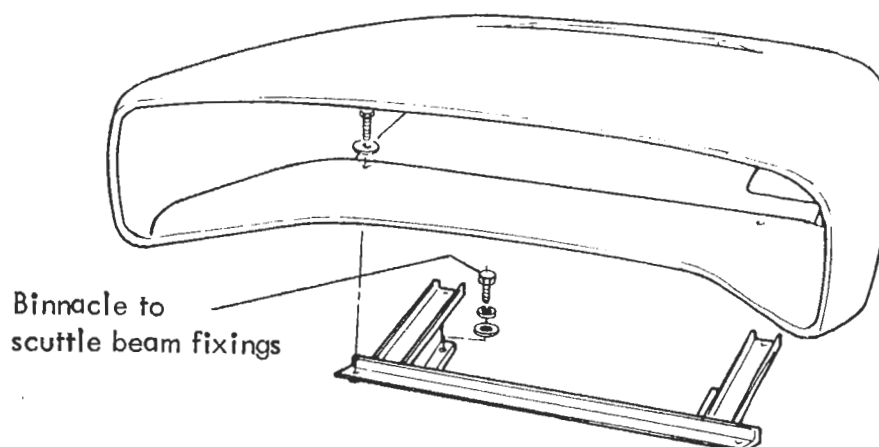
Domestic & R.O.W. cars . Before the binnacle may be removed, it is necessary to dismantle the instrument/switch panels in order to disconnect the wiring harness, speedo cable, oil and boost pipes, and screen vent ducting.

Prior to 1985, Series 3 cars used a binnacle layout similar to that of S2 models, with slider type heater controls in the right hand side, and a face level vent in the left. The centre instrument panel and side switch panels must be released and the wires marked and disconnected from the switches and gauges. Release the speedo cable, oil pressure gauge pipe, heater cables and vent ducting.

During 1985, the Series 3 fascia and binnacle was changed to that of the DOM/ROW Turbo type. On these cars, the rheostat knobs are pulled off to reveal two of the four instrument mask screws. After removing the instrument mask and mounting panel the switch side panels and masks are released by removing the screws on the binnacle underside.

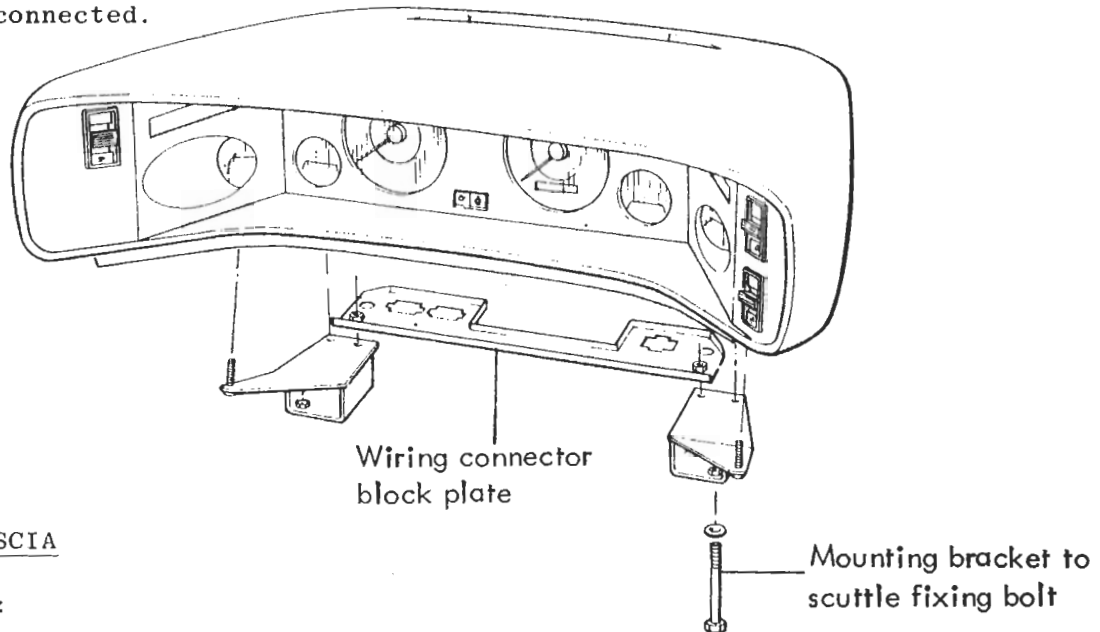


The binnacle, complete with mounting bracket, is removed by releasing the four bolts securing the mounting bracket to the scuttle cross beam, accessible from within the binnacle.



U.S.A (Federal) Models

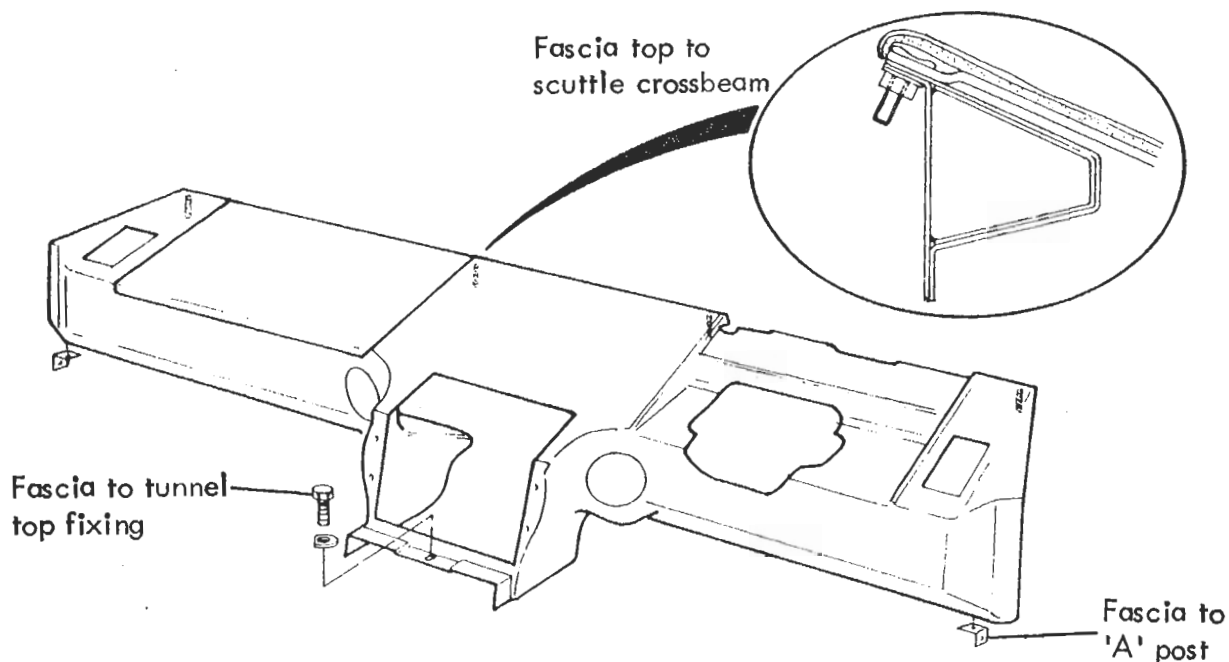
On these cars it is not necessary to dismantle the instrument panels to remove the binnacle. Release the four bolts beneath the fascia securing the binnacle mounting bracket to the scuttle cross beam. Raise the binnacle sufficiently to enable the wiring connector blocks speedo cable, oil pressure and boost gauge pipes and demist vent hose to be disconnected.



VB.4 - FASCIA

To Remove:

1. Remove centre console (VB.1), steering wheel, column shrouds column switches.
2. Remove instrument binnacle (U.S.A.) or dismantle instrument/switch plates (DOM/ROW) to disconnect harness, pipes and cables.
3. Release the three fixings securing the glovebox floor to the fascia and remove the 'A' post covers (VB.6)
4. Release the four M6 nuts securing the fascia to the scuttle beam, and the two screws securing the lower edge of the fascia to the 'A' post. Release the single fixing on the tunnel top.
5. Withdraw the fascia whilst disconnecting face level vent hoses, courtesy light switch leads, wiring harness clips etc. Leave glovebox fixed to scuttle beam.



VB.5. - CANT RAILS

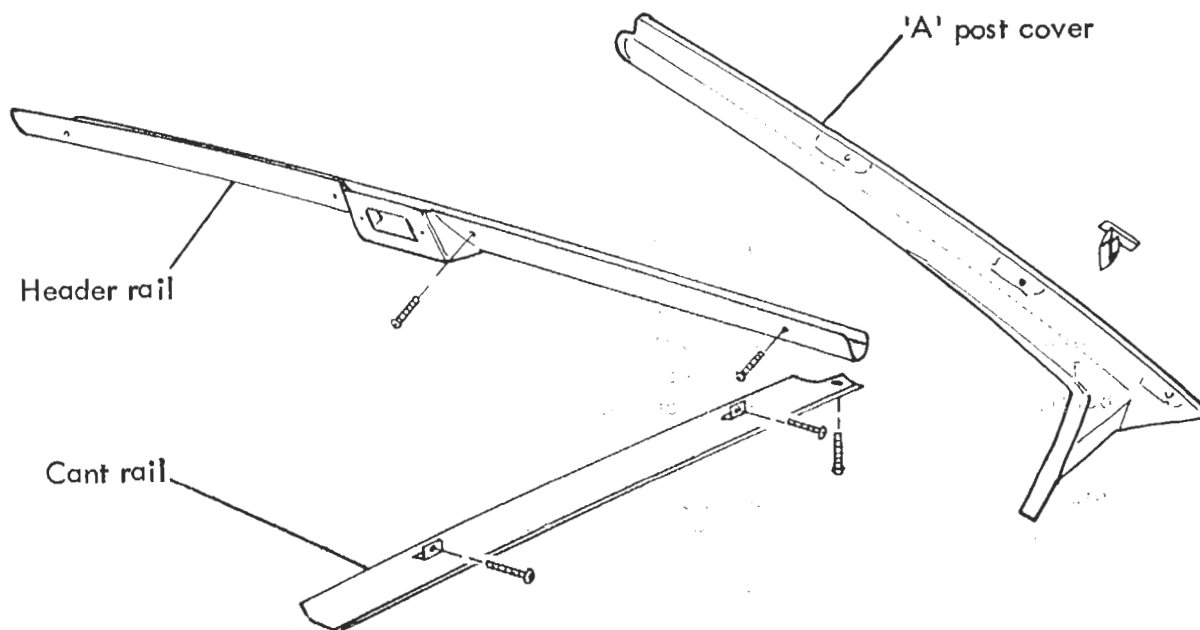
The cant rails are secured by a single screw at their front end, by two screws from outside the door aperture and, on sunroof models, by the trim material wrapped into the roof aperture.

VB.6. - 'A' POST COVERS

Remove cant rail (VB.5) and pull off door seal from around front of door aperture. Peel off 'A' post trim from aperture and pull trim cover out, sideways from its three push fixings.

VB.7. - WINDSCREEN HEADER RAIL

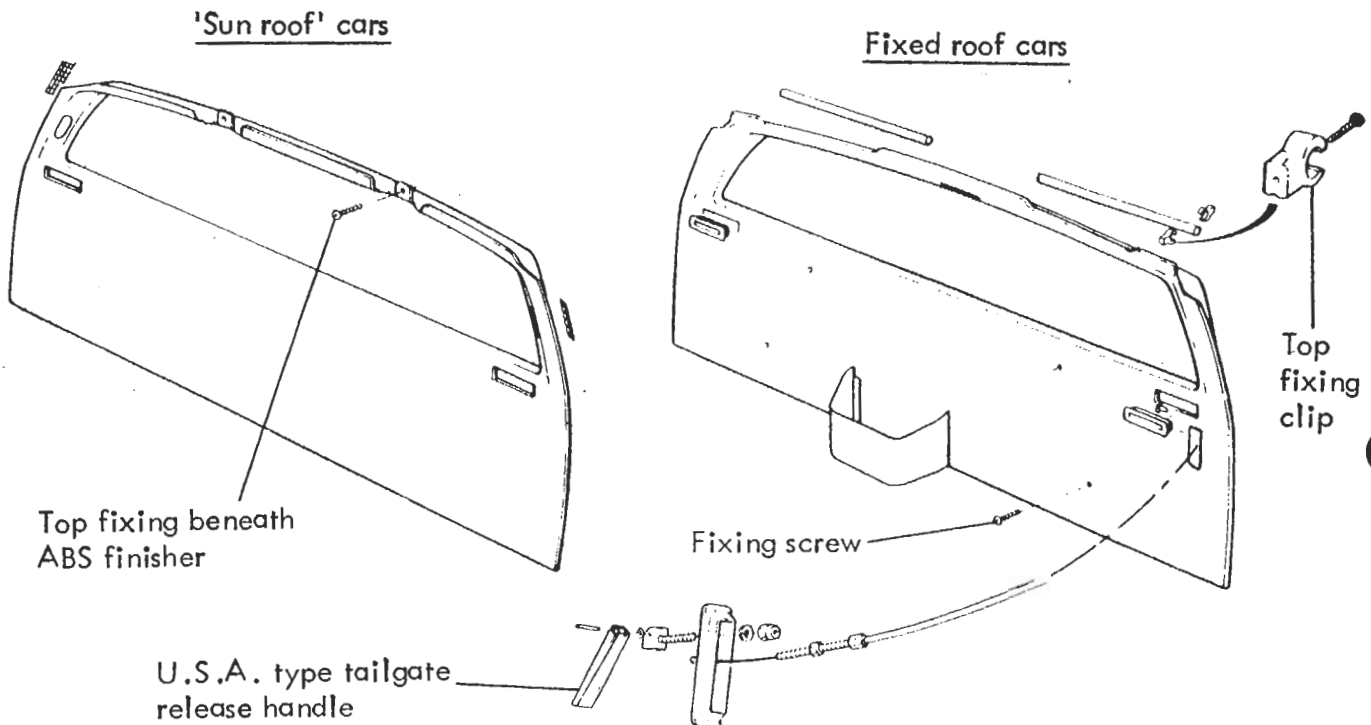
On cars with a glass, or removeable roof panel pull off the weatherstrip from the front of the aperture and peel off the header rail trim material. Remove one cant rail (VB.5) and release the top of that sides 'A' post cover. Release the four screws securing the header rail and withdraw, whilst disconnecting the clock leads.



VB.8 - REAR BULKHEAD TRIM

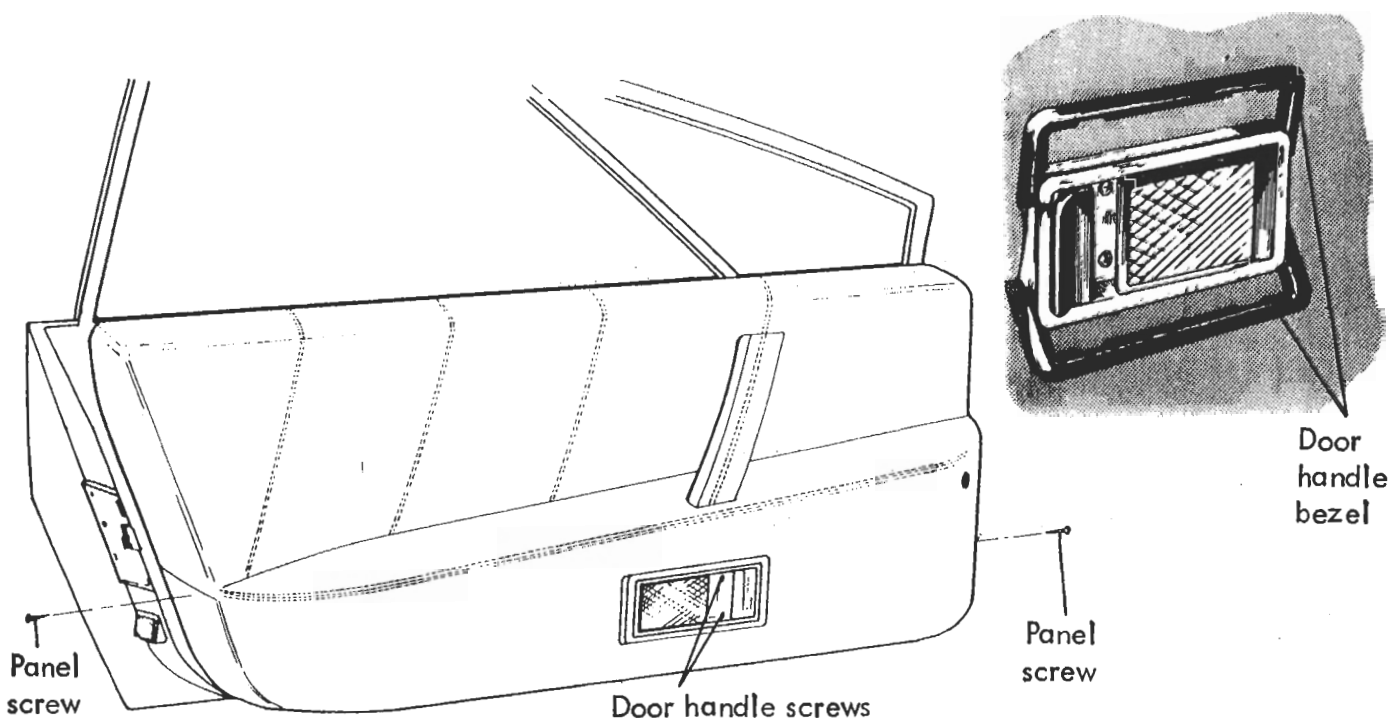
Pull off the weatherstrip from around the rear of both door apertures, and on glass or removeable roof cars, from the rear of the roof aperture, and peel off the trim material. Release seat belt fixing from sill.

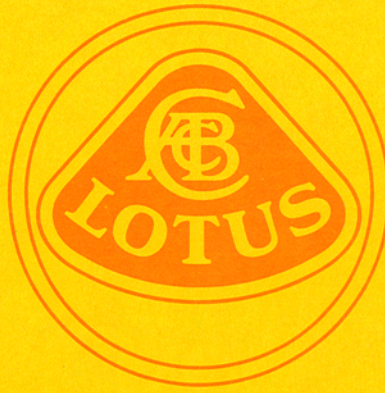
On U.S.A. cars, the tailgate release handle must be released from the bulkhead (see BD.12). Remove the four screws securing the trim panel to the bulkhead, and on sun roof models, the screw above each roof catch, concealed by the ABS trim. Withdraw the bulkhead trim, unclipping the top edge on solid roof cars from the fixing dowling.



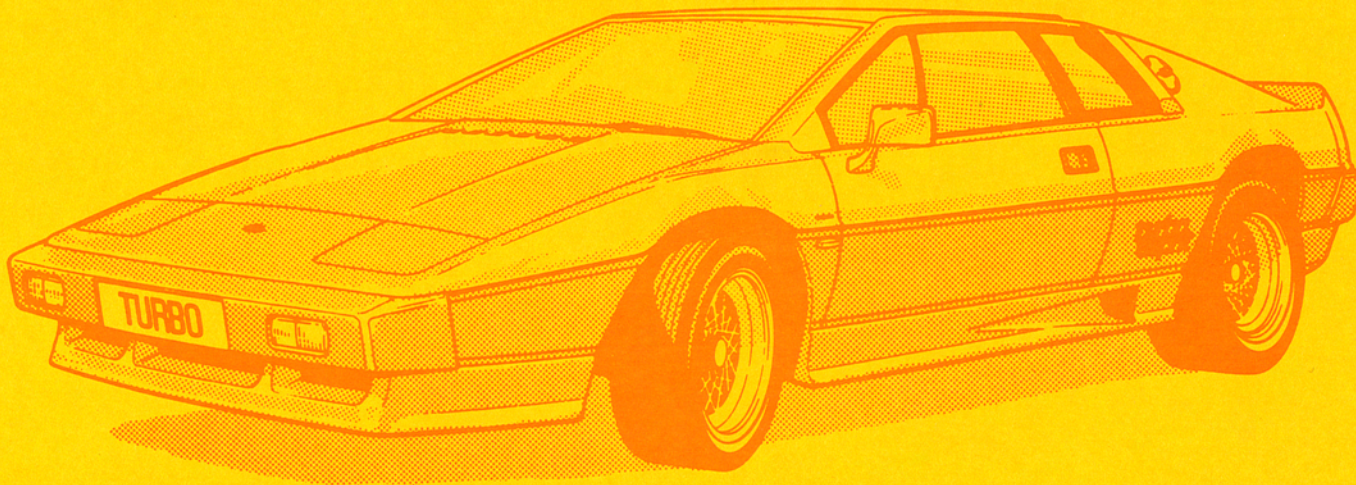
VB. 9 - DOOR TRIM PANEL

The trim panel is secured by a single screw at the front and rear of the panel, a lip along the top edge and the interior release handle bezel. To remove the bezel, slacken the two screws securing the handle to the door and slide out the two halves of the bezel.





turbo
espirit



SERVICE PARTS LIST

1980-87 Model Years

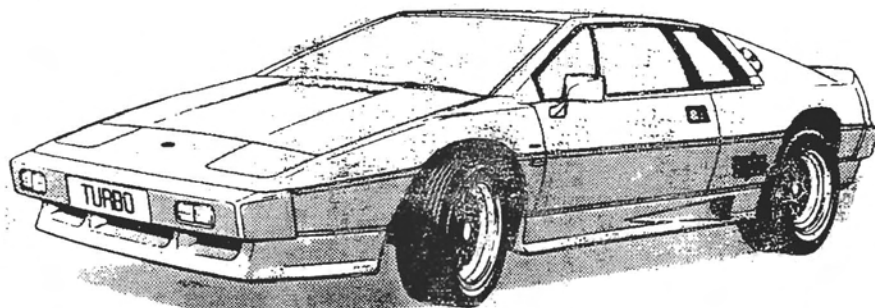


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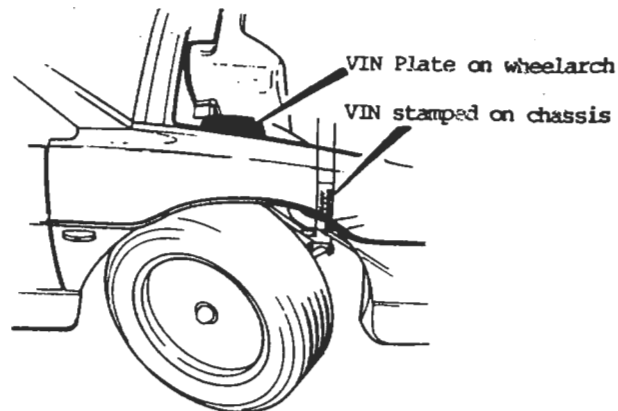
turbo
esprit



SERVICE PARTS LIST

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) is stamped on a plate fixed to the right or left hand front wheelarch inside the front luggage compartment. This number is repeated on the right hand side of the chassis frame, visible from within the right hand front wheelarch. This number should be quoted in all enquires regarding the vehicle. The seventeen characters of the VIN are coded in accordance with EEC directives as follows:



NOTES

1. Separate serial number sequences are used for the following groups of chassis market (character 12);
D
A,E,G,H,S
2. For change point identification in Service Notes, Parts Lists and Service Bulletins, the following VIN characters ONLY will be quoted;

Domestic & Export - 5,6,12,14 to 17

Example A typical change point could be listed as follows;

82 D 1100 (Domestic Turbo 1100)

82 A/E/G/H/S 0341 (Export Turbo 0341)

Note that two Numbers are needed to identify the single change point due to the different serial number sequences outlined in note 1.

If a dash is used in place of the chassis market letter code (e.g. 82 - 0341), this is the change point for all markets not otherwise listed.

<u>Manufacturer Identifier Code</u>			<u>Engine Type</u>			<u>Plant</u>		<u>Market (Engine)</u>								
S	C	C	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	2	3														
			<u>Vehicle Type</u>					<u>Model Year</u>				<u>Serial Number</u>				
			079= Esprit S2					A= 1980				<u>Market (Chassis)</u>				
			082= Turbo Esp					B= 1981				A= Australia G= Export (hot)				
			083= Elite S2					C= 1982				B= 49 States RHD				
			084= Eclat S2					D= 1983				(USA) H= Export (hot)				
			085= Esprit S3					E= 1984				C= California LHD				
			089= Excel					F= 1985				D= Domestic J= Japan				
								G= 1986				E= Europe (cold) K= Canada &				
								H= 1987				F= 50 States Puerto Rico				
								J= 1988				(USA) L= Saudi Arabia				
												S= Sweden				

Function Code	Contents	Function Code	Contents
10.00	<u>BODY STRUCTURE</u>	34.00	<u>WHEELS & TYRES</u>
10.01A	Body Repair Sections, Front	34.01A	Wheels, Tyres, Spare Wheel Retention
10.02A	Body Repair Sections, Rear	40.00	<u>ENGINE</u>
10.05A	Timber Bulkhead, Speaker Bins	40.01A	Block, Main Bearing Housing, Mountings
10.07A	Seat Belt Mounting Beam, Scuttle Beam, Jacking	40.03A	(Wet Sump Only) Sump
10.09A	Plates, Seat Belt Sill Plates	40.05A	Cylinder Head
10.11A	Headlamp Pods, Pod Pivots	40.07A	Prior '87 M.Y. Camshafts, Cam Housings
10.13A	Front Bonnet & Release Mechanism	40.07B	'87 M.Y. On. Camshafts, Cam Housings
10.15A	Tailgate & Release Mechanism	40.09A	Pistons & Liners. Con. Rods
10.17A	Engine Compartment	40.11A	Crankshaft & Flywheel
10.23A	Door Shell, Door Beam, Hinge Post	40.13A	Water Pump
11.00	Door Handles, Lock Mechanism, Striker Post	40.15A	Aux. Hsg. Oil Pump, Filter, Turbo Lubrication
11.01A	Bumpers, Sills, Valence, Spoiler	40.15B	(Dry Sump Only) Scavenge Manifold, Oil Pump,
11.02A	<u>GLAZING, DOOR WEATHERSTRIPS, WINDOW LIFT</u>		Oil Tank
11.05A	Glass, Finishers, Door Weatherstrips	40.17A	Distributor, Ignition System, Coil Box
12.00	Door Window Frame, Lift Mechanism	40.19A	Alternator, Starter Motor
12.01A	'Glass Roof'	40.21A	Exhaust Manifold, Turbocharger, Wastegate
12.05A	<u>EXTERIOR HARDWARE & TRIMS</u>	40.23A	A/C Compressor
12.09A	Capp. Rails, Air Scoops, 'B'Post Fin. Wind Defl.	40.27A	'87 M.Y. On. Vacuum Pump, Brackets, Pulley
13.00	Waistband Finisher, Decals	40.28A	Engine Upper Gasket Set
13.03A	Door Mirrors	40.28B	Engine Lower Gasket Set
13.09A	<u>SEATS & SEAT BELTS</u>	41.00	<u>BELTS & PULLEYS</u>
13.11A	Seat Frames & Runners	41.01A	Prior '87 M.Y. Camshaft Belt, Pulleys, Tensioner
13.17A	Seat Foams, Suspension & Backboard	41.01B	'87 M.Y. On. Camshaft Belt, Pulleys, Tensioner
13.27A	Trimmed Seats, Trimmed Backboard	41.03A	Auxiliary Belts, Pulleys
14.00	Seat Belts, Reel Cover	42.00	<u>INDUCTION SYSTEM</u>
14.01A	<u>PEDAL BOX & FASCIA</u>	42.01A	Airbox, Diffuser, Plenum Chamber, Engine Bay Ducting
14.01B	RHD Pedal Box, Throttle & Choke Cables	42.03A	Carburettor Assys. Fuel Regulating Valve
14.05A	LHD Pedal Box, Throttle & Choke Cables	42.04A	Carburettor Internal Components
14.07A	Fascia Trimmed Panels. Column Shroud	42.07A	Prior '87 M.Y. Inlet Manifold, Water Rail, Vacuum Rail
14.08A	Binnacle Instrument Panels & Masks	42.07B	'87 M.Y. On. Inlet Manifold
14.10A	Centre Console, Light Box, G/Lever Gaiter	43.00	<u>EMISSION EQUIPMENT</u>
14.12A	Trimmed Instrument Binnacle	43.03A	'87 M.Y. On. Engine Management System, Vacuum Pipes
15.00	Glovebox	44.00	<u>FUEL SYSTEM</u>
15.01A	<u>INTERIOR TRIM</u>	44.01A	Fuel Tanks, Fillers, Sender Unit
15.11A	Roof Trim, Mirror, Sun Visors	44.03A	Pump, Filter, Pipes
15.13A	Rear Bulkhead Trim	44.05A	Fuel Tank Breather System
15.19A	Door Trim, (Ashtray in Door)	45.00	<u>EXHAUST</u>
15.24A	Tunnel Trim, G/Lever Lower Gaiter	45.03A	Exhaust System, Mountings
15.30A	Rear Luggage Compartment Carpet	45.05A	Heat Shields
16.00	Passenger Compartment Carpet. H/Brake Gaiter	46.00	<u>COOLING</u>
16.01A	<u>SOUND INSULATION</u>	46.01A	Prior '87 M.Y. Radiator Fans, Pipes, Header Tank, Rad. Duct
16.02A	Passenger Compartment Insulation	46.01B	'87 M.Y. On. Radiator Fans, Pipes, Header Tank, Rad.
17.00	Duct Body Underside Insulation	46.03A	Oil Cooler, Hoses, Thermostat
17.01A	<u>ELECTRICAL</u>	47.00	<u>TRANSMISSION</u>
17.03A	Harness & Leads	47.01A	Clutch, Release Mechanism
17.05A	Relays, Delay Units, Horns	47.02A	'C35' Gearbox Identification
17.07A	Switches, Fibre Optics	47.03A	G/Box Assy. Mountings, Clutch Housing, Speedo Drive
17.09A	Instruments, Tell Tale Lamps	47.05A	Gear Lever, External Gearchange Linkage
17.11A	Speedo Cable, Oil/Boost Pipes	47.06A	Top Cover, Selector Mechanism (Internal)
17.13A	Exterior Lamps, Except Headlamps	47.07A	Gears, Shafts, Bearings
17.15A	Headlamps & Surrounds	47.11A	Crownwheel & Pinion, Differential
17.17A	Headlamp Lift Mechanism	47.15A	Output Shafts, Housings, Bearings
17.19A	Interior Lamp, Courtesy Switches	60.00	<u>TOOLS</u>
17.21A	Fuse Boxes, Thermal Trip, Inertia Switch	60.01A	Tool Kit, Jack & Stowage
17.27A	Windscreen Wiper & Washer	60.02A	Special Tools
17.29A	Radio/Cassette, Speakers, Aerial	60.04A	Transmission Tools -
17.31A	Suppression Devices	80.00	<u>BULK ITEMS</u>
18.00	Battery, Battery Cables	80.20A	Paint Codes & Touch-in Paint
18.01A	<u>HEATER/AIR CONDITIONING</u>		
18.03A	Heater A/C Casing		
18.05A	Air Conditioning Plumbing		
18.07A	Heater Plumbing		
18.09A	Blower Motors		
18.11A	Mechanically Operated Parts & Controls		
18.13A	Vacuum Operated Parts & Controls		
30.00	Trunking, Vents, Plenum Chamber		
30.01A	<u>CHASSIS</u>		
31.00	Chassis Frame		
31.01A	<u>SUSPENSION</u>		
31.01B	Prior to '85 M.Y. Front Suspension		
31.03A	'85 M.Y. On. Front Suspension		
32.00	Rear Suspension & Drive Shafts		
32.01A	<u>STEERING</u>		
32.05A	Steering Rack Assy. Intermediate Column		
33.00	Steering Column, Lock, Wheel		
33.01A	<u>BRAKES</u>		
33.01B	Prior to '85 M.Y. Calipers & Discs		
33.03A	'85 M.Y. On. Calipers & Discs		
33.03B	Prior to '85 M.Y. Hydraulic System, Servo		
33.05A	'85 M.Y. On. Hydraulic System, Servo		
	Handbrake		

PART NUMBERS

All part numbers commence with the vehicle type number, indicating the type of Lotus model on which the part was first used:

26,36,45,500.....ELAN
50.....ELAN +2
46,54,65,74.....EUROPA
75.....ELITE S1
76.....ECLAT S1
79.....ESPRIT S1/S2/S2.2
82.....ESPRIT TURBO
83.....ELITE S2
84.....ECLAT S2
85.....ESPRIT S3
89.....EXCEL

STANDARD HARDWARE PART NUMBERS

All standard finish bolts, screws, studs, nuts & washers, carry part numbers including the prefix A075W, B075W etc.,

ENGINE PART NUMBERS

All engine part numbers commence with the engine type number on which the part was first used:

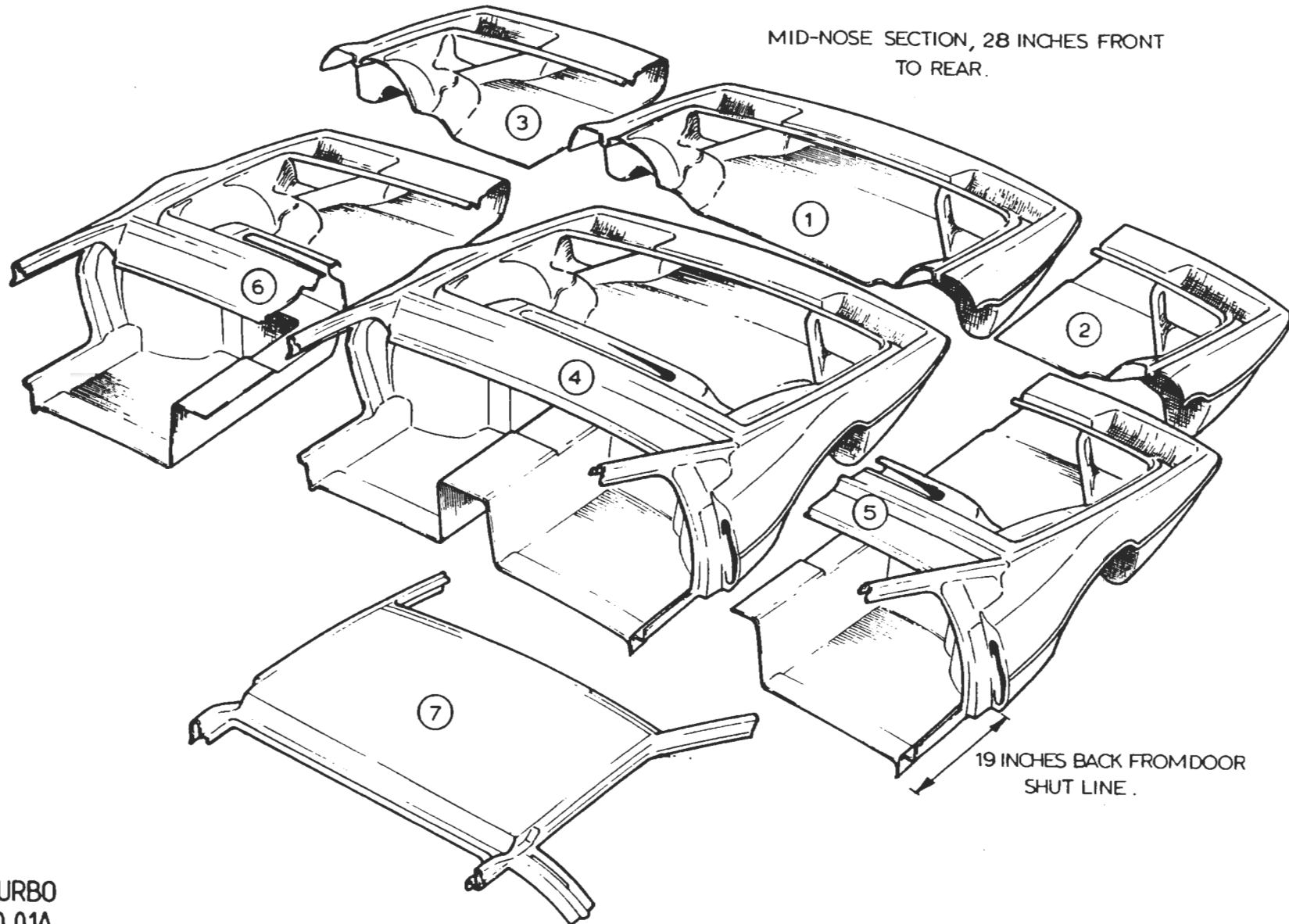
907 - 2 Litre Naturally Aspirated	911 - 2.2 Litre Naturally Aspirated (Talbot)
910 - 2.2 Litre Turbocharged	912 - 2.2 Litre Naturally Aspirated (Lotus)

* * * * *

This publication has been designed primarily for Lotus Dealers, and will be updated by issue of Service Bulletins to Lotus Dealers when necessary. Lotus policy is one of continuous product improvement and the right is reserved to alter specifications at any time without prior notice.

Whilst every care has been taken to ensure correctness of information, it is impossible to guarantee complete freedom from omissions and errors, or to accept liability arising from such omissions and errors, but nothing contained herein shall affect your statutory rights.

* * * * *



MID-NOSE SECTION, 28 INCHES FRONT
TO REAR.

19 INCHES BACK FROM DOOR
SHUT LINE.

TURBO
10.01A

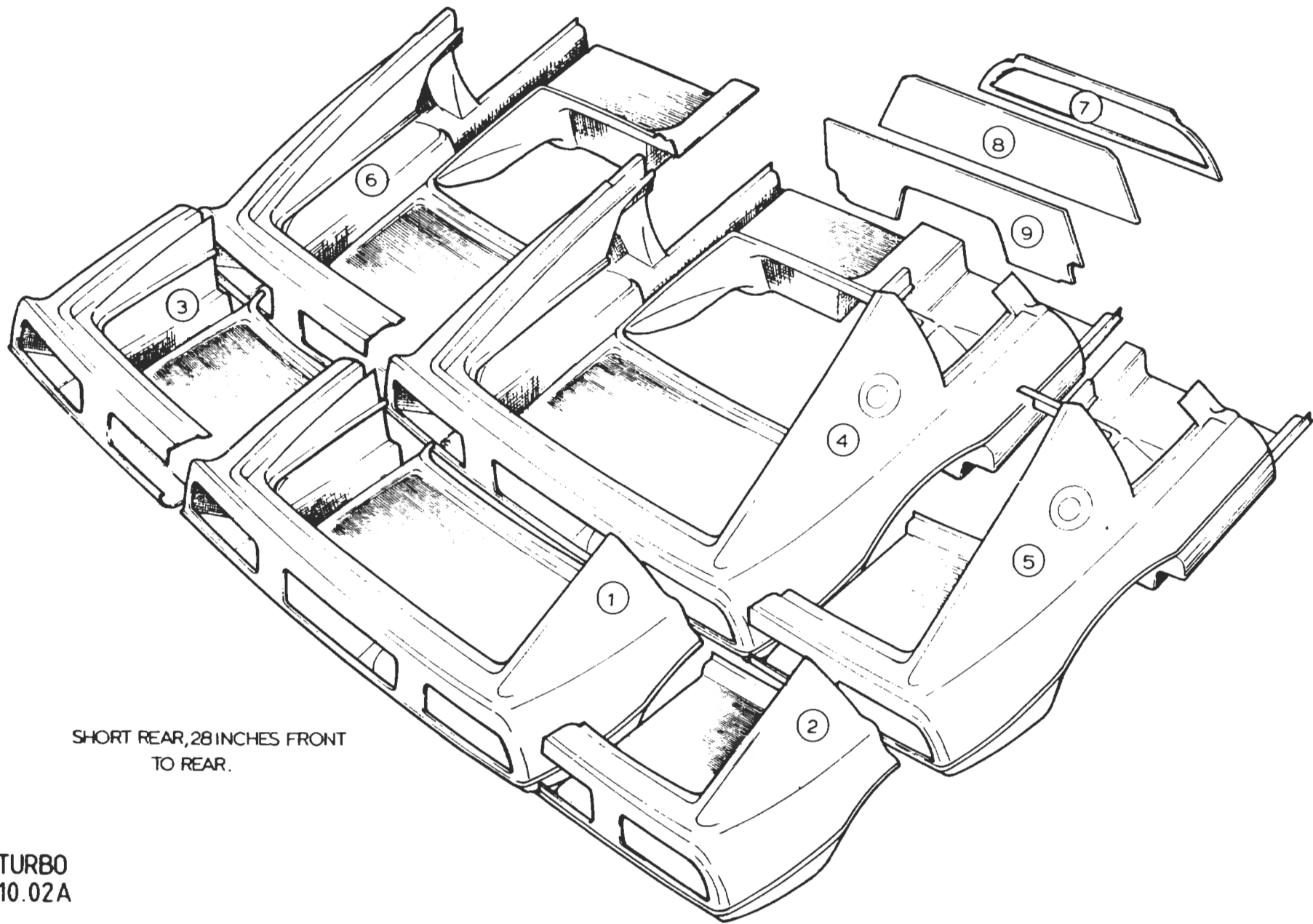
ILLUS
NO.



MAY 1991

ILLUS NO.	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			RHD	LHD	
10.01A					
	Bodyshell (inc. sills)	A082B4228K	1		NOT 'Glass Roof'
	" " " " "	A082B4516K	1		'Glass Roof'
	" " " " "	A082B4229K		1	NOT 'Glass Roof'
	" " " " "	A082B4517K		1	'Glass Roof'
1	Body Section, Mid Nose, Full Width	A082B4305K	1		
	" " " " " " "	A082B4306K		1	
2	Body Section, Mid Nose, RH Half	A082B4308K	1		
	" " " " " " "	A082B4309K		1	
3	Body Section, Mid Nose, LH Half	A082B4311K	1		
	" " " " " " "	A082B4312K		1	
4	Body Section, Full Nose, Full Width	A082B4314K	1		
	" " " " " " "	A082B4315K		1	
5	Body Section, Full Nose, RH Half	A082B4317K	1		
	" " " " " " "	A082B4318K		1	
6	Body Section, Full Nose, LH Half	A082B4320K	1		
	" " " " " " "	A082B4321K		1	
7	Body Section, Roof (NOT 'Glass' Roof)	A082B4323K	1	1	
	Body Section, Roof ('Glass Roof' Models)	A082B4584K	1	1	

Turbo 10.01A



SHORT REAR, 28 INCHES FRONT
TO REAR.

TURBO
10.02A

ILLUS
NO.



QUANTITY

MAY 1991

10.02A

DESCRIPTION

PART NUMBER

ALL

REMARKS

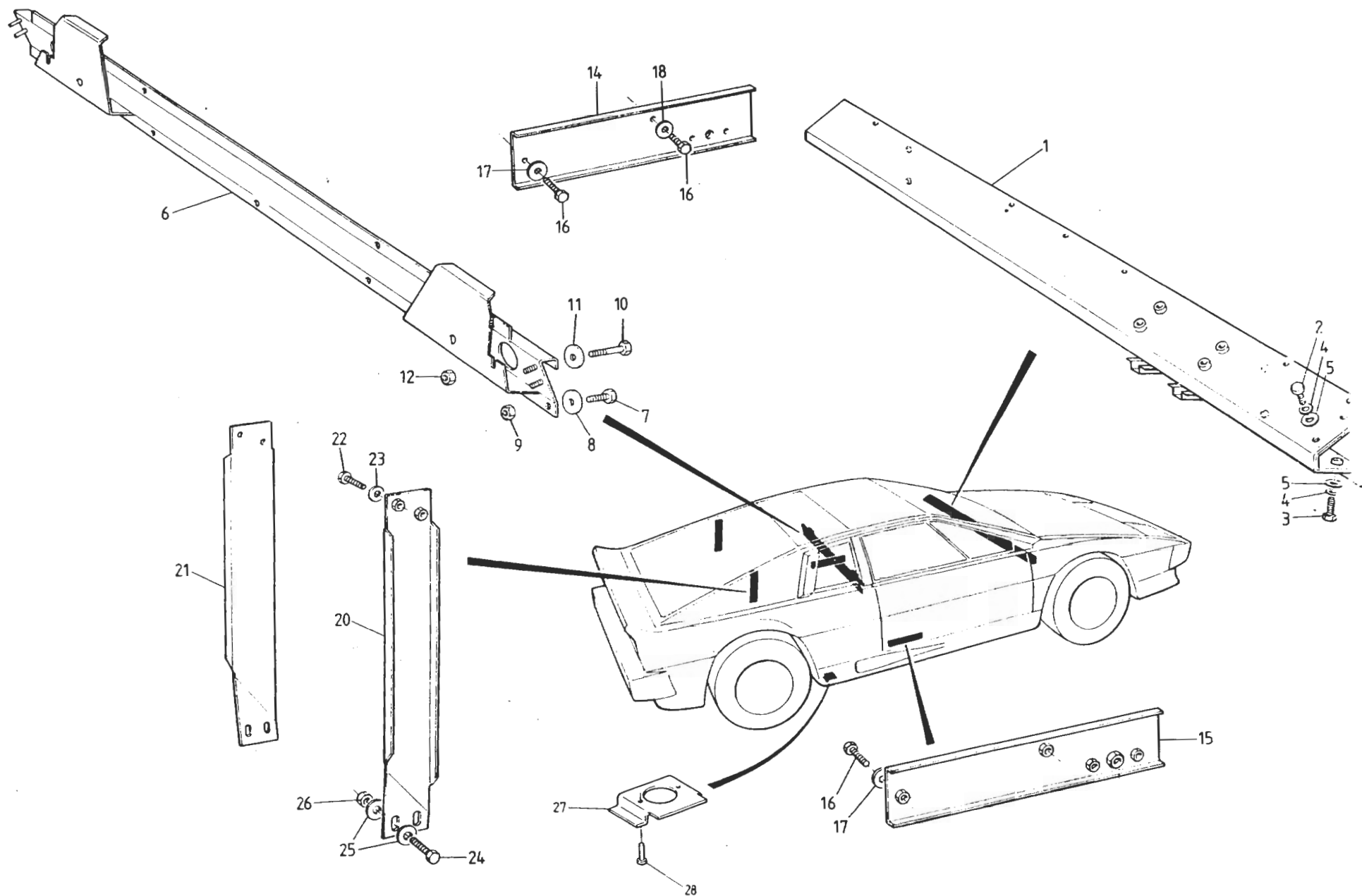
- 1 Body Section, Short Rear, Full Width
- 2 Body Section, Short Rear, RH Half
- 3 Body Section, Short Rear, LH Half
- 4 Body Section, Full Rear, Full Width
- 5 Body Section, Full Rear, RH Half
- 6 Body Section, Full Rear, LH Half
- 7 Bulkhead, Upper, (Timber)
- 8 Bulkhead, Upper, (Timber)
- 9 Bulkhead, Centre, (Timber)
- 9 Bulkhead, Lower, (Timber)
- Speaker Enclosure, Rear Bulkhead (ABS)

A082B4324K
A082B4326K
A082B4328K
A082B4330K
A082B4332K
A082B4334K
G079B4000F
B082B4497F
F079B4001F
J079B4002F
A082B4302K

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2

Not 'Glass Roof'
'Glass Roof' Models

Turbo 10.02A



TURBO
10.05 A

ILLUS
NO.

QUANTITY

MAY 1981

10.05A

DESCRIPTION

PART NUMBER

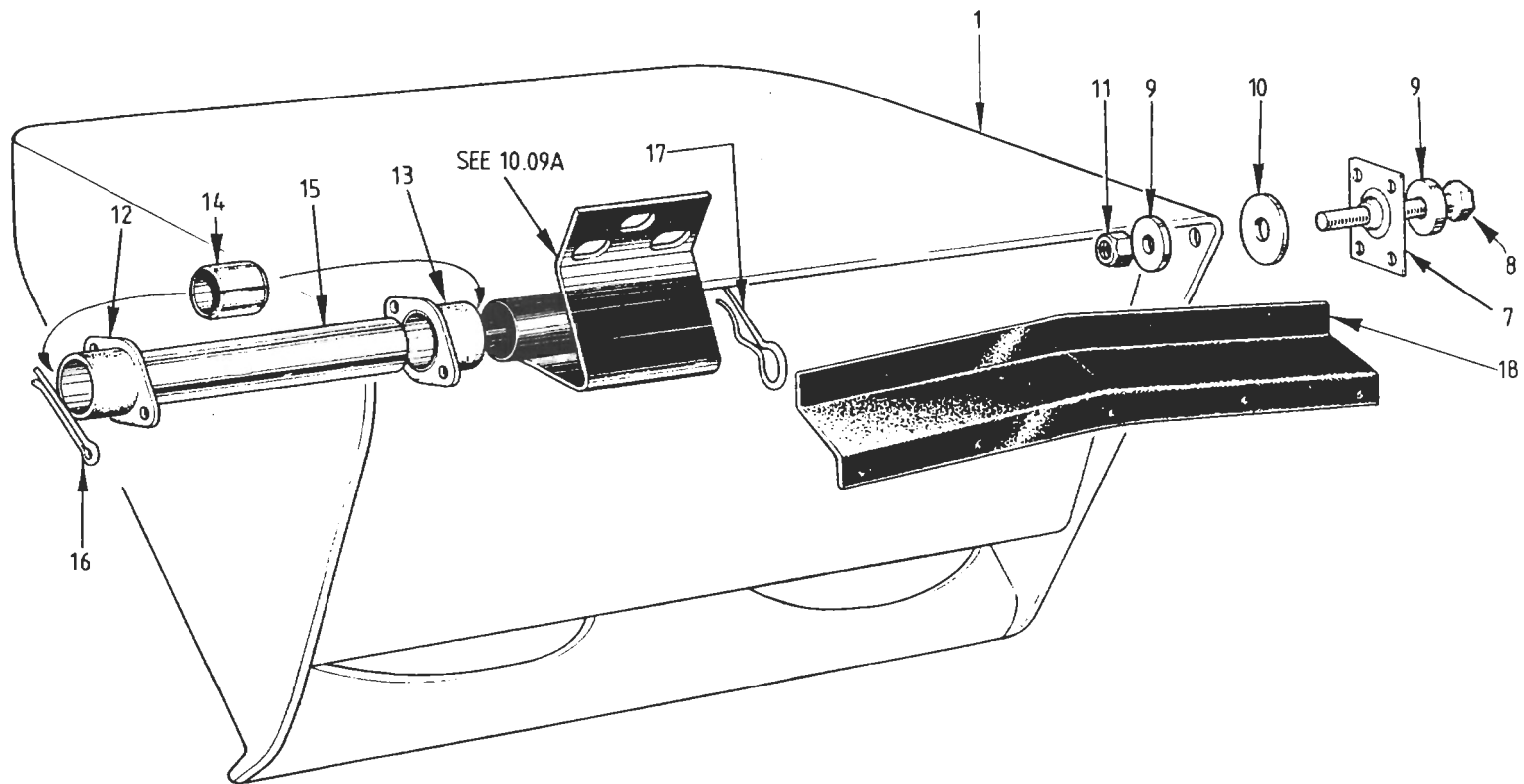
ALL

REMARKS

1	Cross Beam, Scuttle, RHD	E079U4196J	1		
	Cross Beam, Scuttle, LHD	E079U4097J	1		
2	Setscrew, M8 x 25, Beam to Hinge Post	A075W1039F	4		
3	Setscrew, M8 x 20, Beam to Hinge Post	A075W1038F	2		
4	Washer, Spring, Beam to Hinge Post	A075W4036F	6		
5	Washer, Plain, Beam to Hinge Post	A075W4020F	6		
6	Crossbeam, Rear Bulkhead, Seat Belt Mtg.	J079U4309J	1		
7	Bolt, Thinhead, Beam End to Door Aperture	A079U4317F	4		
8	Washer, Large O/D	A075W4021F	4		
9	Nut, M8	A075W3021F	2		
10	Setscrew, M6 x 25, Beam to Bulkhead	A075W1031F	12		
11	Washer, Large O/D	A075W4017F	12		
12	Nut, Nyloc, M6	A075W3009F	7		
14	Plate, Seat Belt Mounting to Sill, LH	D079U4213K	1		
15	Plate, Seat Belt Mounting to Sill, RH	D079U4214K	1		
16	Bolt, M8 x 25, Mounting Plate to Sill	A075W1039F	6		
17	Washer, Large O/D Special	A075W4021F	2		
18	Washer, Flat	A075W4002F	4		
	Stiffener Bracket, Tailgate Aperture, RH	B082U4739K	1		Dry Sump Cars
20	Stiffener Bracket, Tailgate Aperture, RH	A085U4824K	1		Wet Sump Cars Prior '87 M.Y.
	Stiffener Bracket, Tailgate Aperture, RH	A085U5727K	1		'87 M.Y. on, With Purge Pump Bracket
21	Stiffener Bracket, Tailgate Aperture, LH	C082U4710K	1		
22	Setscrew, Thinhead, M8, Brkt/Aperture	A075W1081F	4		2 Only if Gas Struts anchored in aperture
23	Washer, Flat	A075W4002Z	4		
24	Setscrew, M8 x 25, Brkt/Body	A075W1039Z	4		Brkt/Oil Tank on Dry Sump Cars
25	Washer, Large O/D, Brkt/Body	A075W4021Z	8		6 On Dry Sump Cars
26	Nut, Nyloc, M8, Brkt/Body	A075W3010F	4		2 On Dry Sump Cars
27	Jacking Plate	A085U4792F	4		'85 M.Y. on
	Jacking Plate	A082U5023J	4		With Stepped Joint Face Prior to Body Mod.
28	Pop Rivet, Jacking Plate to Body	A075W6092F	8		
	Tow Eye, Front	A085B4399F	1)
	Reinforcing Plate, Tow Eye	A085B4398F	1)
	Setscrew, M6 x 20, Tow Eye	A075W1030Z	5		)Germany Only
	Washer, Flat, Tow Eye	A075W4013Z	5)

d4p3

Turbo 10.05A



TURBO
10.07A

ILLUS
NO.

QUANTITY

MAY 1991

10.07A

DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Headlamp Pod, RH	A082B4468J	1	Lucas/Hella Headlamps
	Headlamp Pod, RH	A085B4378J*	1	Cibie Headlamps
	Headlamp Pod, LH	A082B4469J	1	Lucas/Hella Headlamps
	Headlamp Pod, LH	A085B4379J*	1	Cibie Headlamps
7	Ball Joint, Pod Outer Pivot	A079U4652F	2	
	Pop Rivet, Ball Joint Fixing	A075W6090Z	8	
8	Setscrew, M6 x 30, Pod Outer Pivot	A075W1032Z	2	
9	Washer, Flat, Pod Outer Pivot	A075W4015Z	4	
10	Washer, Large O/D, Pod Outer Pivot	A075W4065Z	2	
11	Nut, Nyloc, M6, Pod Outer Pivot	A075W3009Z	2	
12	Bearing Housing, LH Outer/RH Inner	A079U4451F	2	
13	Bearing Housing, RH Outer/LH Inner	A079U4452F	2	
	Pop Rivet, Bearing Housing Fix	A075W6090Z	8	
14	Bearing Bush, Pod Inboard Pivot	A079U6030F	4	
15	Hinge Pin, Pod/Bonnet	A079U4456F	2	
16	Split Pin, Hinge Pin Retention	A075W6009Z	2	
17	'R' Pin, Hinge Pin	A079W6177F	2	
18	Water Shield	B079U4459K	2	
	Pop Rivet, Shield to Body	A075W6094Z	6	

* Cars prior VIN 82 D 2265

82 - 0624

Will also require new Headlamp
surround. 17.13A

Turbo 10.07A

ILLUS
NO.

QUANTITY

MAY 1991

10.09A

DESCRIPTION

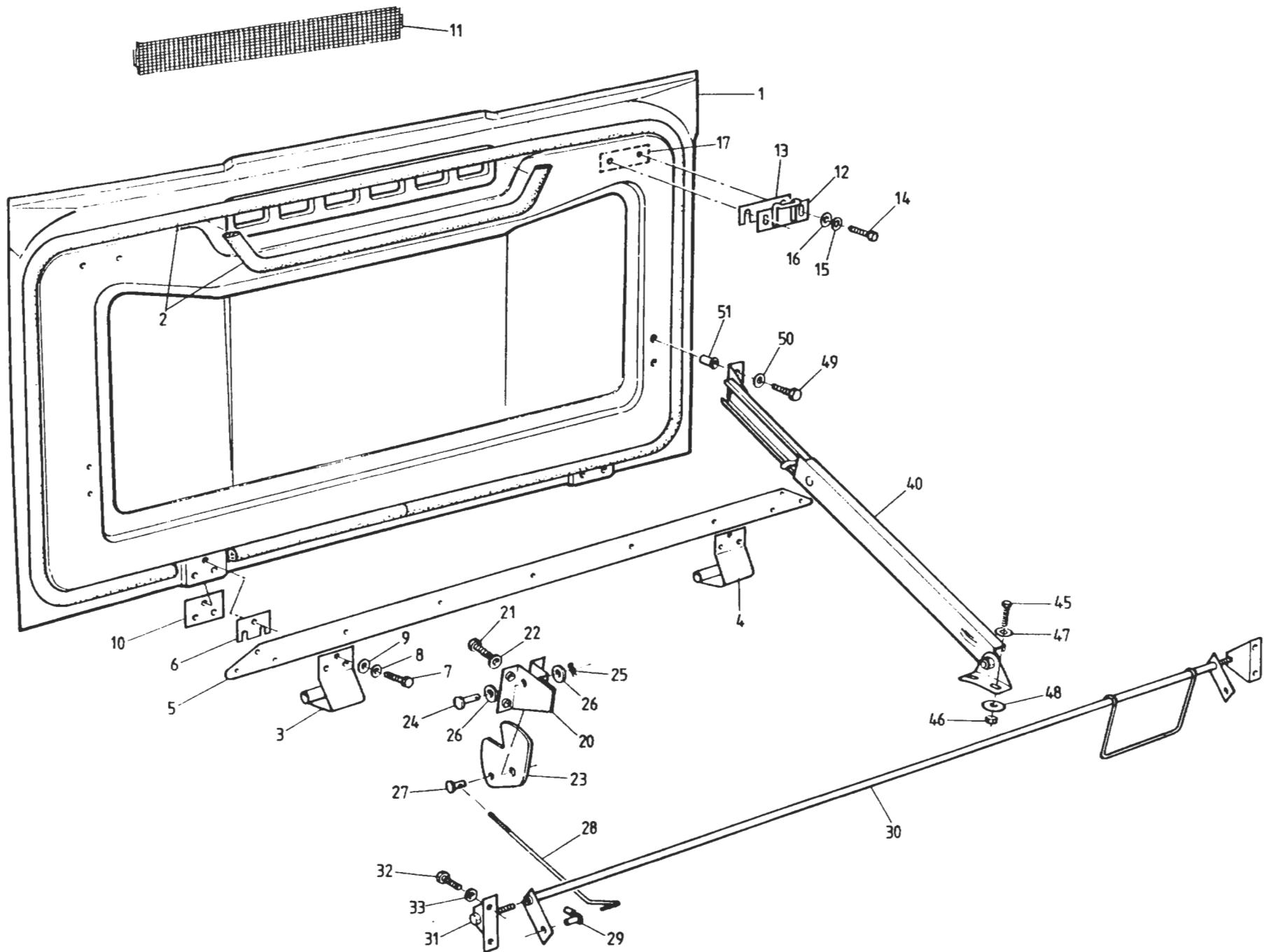
PART NUMBER

ALL

REMARKS

1	Bonnet Panel	A079B4024J	1	)Up to VIN 82 D 1060
2	Seal Bonnet	A079U4007F	1	) 82 - 0337
3	Hinge, Bonnet, LH	A079U4480F	1)
4	Hinge, Bonnet, RH	B079U4457F	1	) R/B Bonnet B085B4357J
				) with Seal and Hinges
1	Bonnet Panel, Six Slot	B085B4357J	1	>From VIN 82 D 1061
	Bonnet Panel, Two Slot	C082B4629J	1	
2	Seal, Bonnet	A082U6077F	1	> 82 - 0338
3	Hinge, Bonnet, LH	B085U4797K	1	>
4	Hinge, Bonnet, RH	B085U4798K	1	>
5	Stiffener, Bonnet, Front Edge Curvature	A079B4064F	1	R/B B082B4473F
	Stiffener, Bonnet, Front Edge Curvature	B082B4473F	1	Included in Bonnet Panel
6	Shim Plate, Hinge to Bonnet	C079U4484K	A/R	
7	Setscrew, M6 x 18, Hinge to Bonnet	A075W1029Z	6)
	Setscrew, M6 x 16, Hinge to Bonnet	A075W1026Z	6	)Alternatives
8	Washer, Shakeproof, Hinge to Bonnet	A075W4046Z	6	
9	Washer, Flat, Hinge to Bonnet	A075W4065Z	6	
10	Tapping Plate, Bonnet Hinge	A079U4458K	2	
11	Grille, Bonnet	C079U4227F	1	
	Screw, Grille to Bonnet	A075W5014Z	5)
	Insert Bush, Grille to Bonnet	A075W6042Z	5	)R/B Betaseal
12	Striker, Bonnet Catch	A079U4266F	2	
13	Shim Plate, Striker to Bonnet	A076U0618Z	A/R	
14	Setscrew, M8 x 25, Striker to Bonnet	A075W1039Z	4	
15	Washer, Spring, Striker to Bonnet	A075W4036Z	4	
16	Washer, Flat, Striker to Bonnet	A075W4020Z	4	
17	Tapping Plate, Bonnet Striker	A079U4487F	2	
20	Bracket, Bonnet Latch Disc Mounting	A079U4208F	2	
21	Setscrew, 10 UNF x 3/4", Bracket/Body	A075W5061Z	6	
22	Washer, Flat, Bracket/Body	A075W4000Z	6	

Turbo 10.09A
Page 1



TURBO
10.09A

ILLUS
NO.



QUANTITY

MAY 1991

10.09A

DESCRIPTION

PART NUMBER

ALL

REMARKS

23 Latch Disc, Bonnet Lock
24 Clevis Pin, Latch Disc to Bracket
25 'R' Pin, Latch Disc Clevis
26 Washer, Flat, Disc to Bracket
27 Clevis Pin, Latch Rod to Disc
28 Rod, Bonnet Latch Operating
29 Bush & Clip, Rod to Cross Shaft
30 Cross-Shaft, Bonnet Lock, RHD
Cross-Shaft, Bonnet Lock, LHD
31 Bracket, Cross-Shaft Pivot
32 Setscrew, M6 x 12, Bracket to Body
33 Washer, Flat, Bracket to Body
40 Stay, Telescopic, Bonnet Support
Stay, Telescopic, Bonnet Support
Bracket, Bonnet Stay to Bonnet
Gas Strut, Bonnet Support
Bracket, Gas Strut to Bonnet & Wheelarch
Washer, Flat, Strut to Brackets
Nut, Nyloc, Strut to Brackets
45 Setscrew, Strut/Stay Bracket to Wheelarch
46 Nut, Nyloc, M5 " " "
47 Washer, Flat " " " "
48 Washer, Large O/D " " " "
49 Setscrew, M5 x 12, Brkt. to Bonnet
50 Washer, Shakeproof, Brkt. to Bonnet
51 Jacknut, M5 " " "

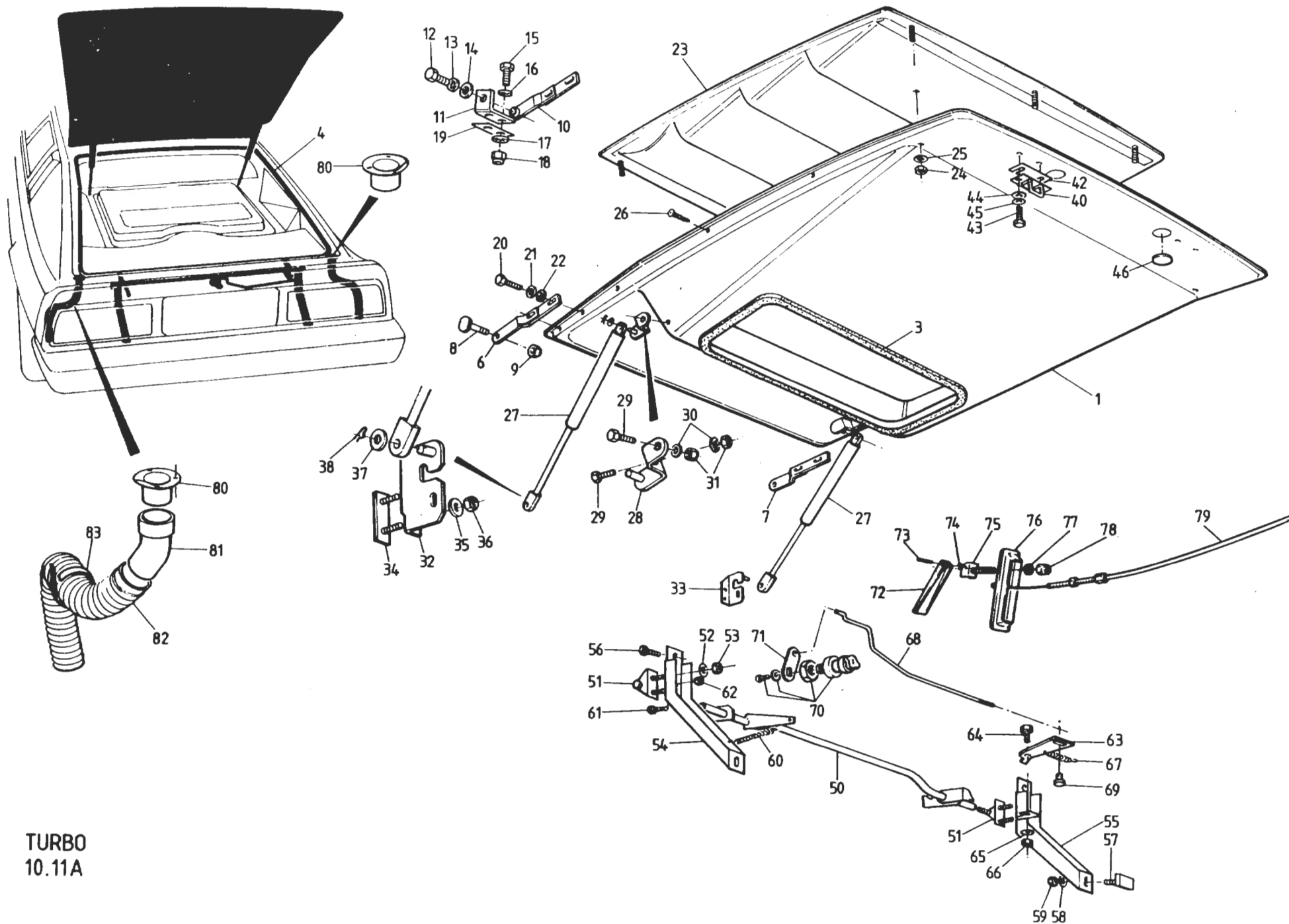
B079U4218F
A075W6033Z
A075W6175Z
A075W4020Z
B079U4219F
C079U4222F
A075U6033K
A079U4221F
A079U4363F
A079U4220F
A075W1027Z
A075W4013Z
A079U4277K
B079U4277K
A075U0385Z
C075U6032F
A075U0385Z
A075W4020Z
A075W3010Z
A075W1025F
A075W3008Z
A075W4011Z
A075W4009Z
A075W5085Z
A075W4045Z
A076W3043F

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)Top Bracket Rivetted to Stay
)Top Bracket Bolted to Stay
)Use With B079U4277K
)Alternative

M5 x 20

Turbo 10.09A
Page 2



TURBO
10.11A

ILLUS
NO.

QUANTITY

MAY 1991

10.11A

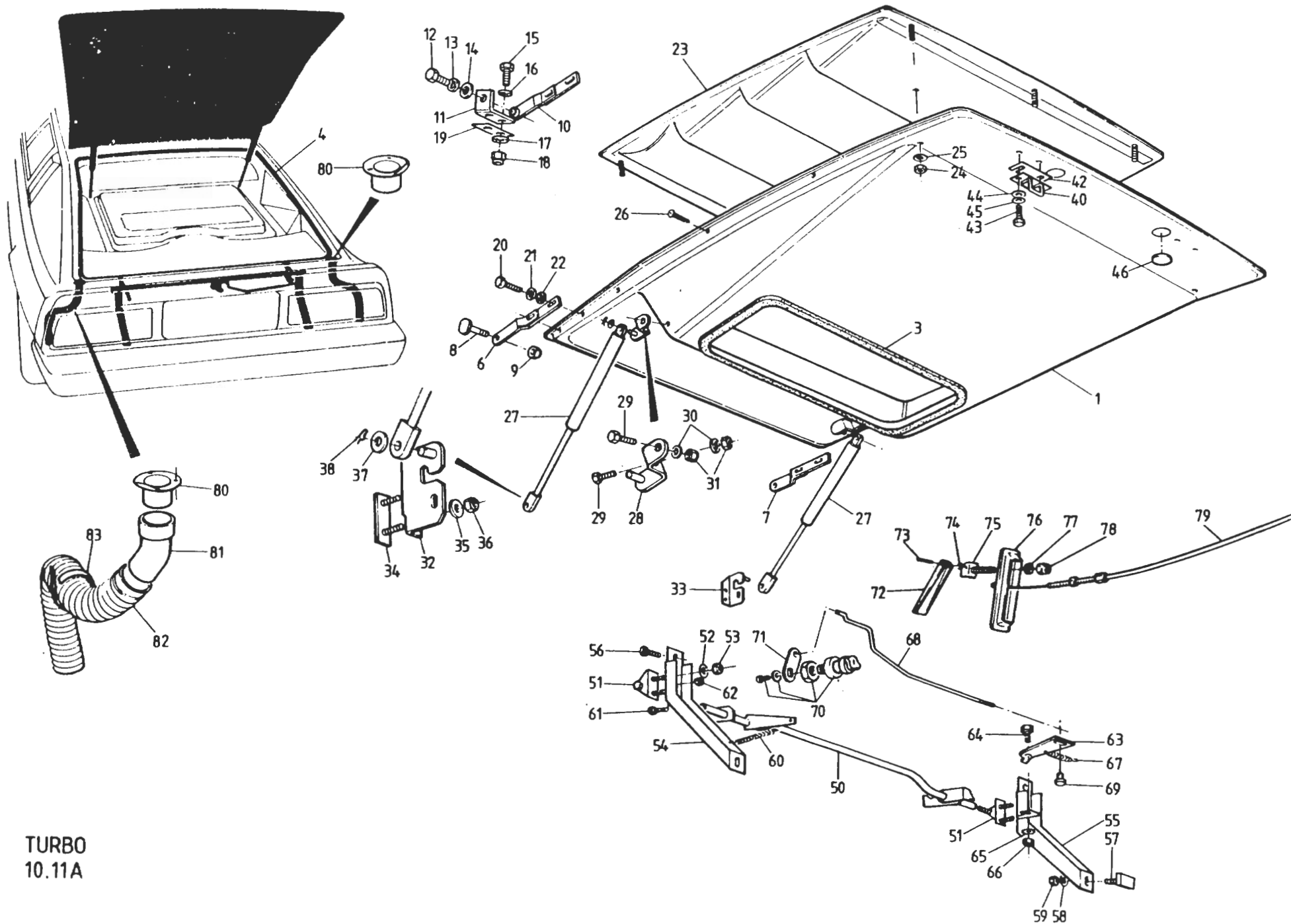
DESCRIPTION

PART NUMBER

FIXED
ROOFGLASS
ROOF

REMARKS

1	Tailgate Panel	A082B4263K	1	1	On Body On Tailgate. If Fitted
3	Foam Seal, Tailgate to Engine Lid	A082U6065V	2m	2m	
4	Seal, Tailgate to Body	A079B4074F	A/R	A/R	
	Foam Strip, Tailgate to Body	A082U6067V	A/R	A/R	
6	Hinge Blade, Tailgate, LH	E079U4061K	1		
7	Hinge Blade, Tailgate, RH	E079U4062K	1		
8	Bolt, Hinge Pivot	A079U4516F	2		
9	Nut, Nyloc, M10, Hinge Pivot	A075W3011F	2		
10	Hinge Blade, Tailgate, LH	A082U4969F		1	
	Hinge Blade, Tailgate, RH	A082U4970F		1	
11	Bracket, Tailgate Hinge to Body	A082U4972F		2	Inside Tailgate Panel Inside Tailgate Panel
12	Setscrew, Tailgate Hinge Pivot	A082W1077F		2	
13	Washer, Shakeproof, T/Gate Hinge Pivot	A075W4049Z		2	
14	Washer, Flat, T/Gate Hinge Pivot	A075W4024F		4	
15	Setscrew, M8 x 25, Bracket to Body	A075W1039Z		4	
16	Washer, Flat, Bracket to Body	A075W4020F		4	
17	Washer, Large O/D, Bracket to Body	A075W4021F		4	
18	Nut, Nyloc, M8, Bracket to Body	A075W3010Z		4	
19	Gasket, Bracket to Body	A082U4973F		2	
20	Setscrew, M8 x 25, Hinge Blade/Tailgate	A075W1029Z	4	4	
21	Washer, Spring, Hinge Blade/Tailgate	A075W4036Z	4	4	With Anchors on Body Aperture and Tailgate Edge With Anchors on Cabin Bulkhead and Tailgate Inner Skin
22	Washer, Flat, Hinge Blade/Tailgate	A075W4020Z	4	4	
	Tapping Plate, Hinge Blade, LH	B079U4063K	1	1	
	Tapping Plate, Hinge Blade, RH	B079U4198K	1	1	
23	Louvre, Tailgate	C082B4282K	1	1	
24	Nut, Nyloc, M6	A907E6285F	6	6	
25	Washer, Flat	B082W4018F	6	6	
	Grommet, Louvre, Front Edge Fixings	A054J6005Z	3	3	
26	Screw, Louvre, Side Fixing	A075W5027Z	4	4	
	Gas Strut, Tailgate Support	A079U6013F	2		
27	Gas Strut, Tailgate Support	A082U6074F	2	2	



TURBO
10.11A

ILLUS
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MAY 1991

10.11A

DESCRIPTION

PART NUMBER

FIXED
ROOFGLASS
ROOF

REMARKS

28	Bracket, LH, Gas Strut to Tailgate	B082U4767F	1	1)
	Bracket, RH, Gas Strut to Tailgate	B082U4768F	1	1)
29	Setscrew, M6 x 30, Bracket to Tailgate	A075W1032F	4	4)
30	Washer, Flat, Bracket to Tailgate	A075W4015F	4	4)
31	Nut, Nyloc, M6, Bracket to Tailgate	A075W3009F	4	4)
32	Bracket, LH, Gas Strut to Cabin Bulkhead	B082U4765F	1	1)
33	Bracket, RH, Gas Strut to Cabin Bulkhead	B082U4766F	1	1	)For Use With Strut A082U6074F
34	Studplate, Bracket to Bulkhead	A082U4852F	2	2)
35	Washer, Flat, Bracket Fixing	A075W4013F	4	4)
36	Nut, Nyloc, M6, Bracket Fixing	A075W3009F	4	4)
37	Washer, Flat, Strut to Bracket	A075W4020F	4	4)
38	'R' Pin, Strut to Bracket	A075W6175F	4	4)
40	Striker, Tailgate Latch	A079U4500F	2	2	
	Tapping Plate, Striker	A079U4487F	2	2	Inside Tailgate Panel
42	Shim Plate, Striker Adjustment	A076U0618F	A/R	A/R	
43	Setscrew, M8 x 20, Striker Fix	A075W1038Z	4	4	
44	Washer Flat, Striker Fix	A075W4020F	4	4	
45	Washer, Spring, Striker Fix	A075W4036Z	4	4	
46	Grommet, Tapping Plate Access	A054J6005Z	2	2	
50	Cross Shaft, Tailgate Latch	A082U4703F	1	1	
51	Bearing Bracket, Cross Shaft	B079U4501K	2	2	
52	Washer, Flat, Bearing Bracket Fix	A075W4020F	4	4	
53	Nut, Nyloc, M8, Bearing Bracket Fix	A075W3010F	4	4	
	Support Bracket, LH, Latch Cross-Shaft	A079U4505K	1		)Lower End Fixes to Floor
	Support Bracket, RH, Latch Cross-Shaft	A082U4700K	1)
54	Support Bracket, LH, Latch Cross-Shaft	A082U4989K	1	1	)Lower End Fixes to
55	Support Bracket, RH, Latch Cross-Shaft	A082U4990K	1	1	Prior to '87 M.Y.)Rear Lamp Aperture
	Support Bracket, RH, Latch Cross-Shaft	B082U4990K	1	1	'87 M.Y. on)
56	Screw, Thinhead, M6, Support Brkt. Top	A075W1026F	2	2	
57	Studplate, M6 x 16, Support Brkt. Bottom	B079U4011F	2	2	
58	Washer, Flat, Support Brkt. Fixing	A075W4015F	4	4	
59	Nut, Nyloc, M6	A075W3009F	4	4	
	Spring, Tailgate Latch Opening	A079Q6005F	1		Used With Support Brkt. A079U4505K
60	Spring, Tailgate Latch Opening	A075J6028Z	1	1	Used With Support Brkt. A082U4989K
61	Setscrew, M6 x 20, Latch Upstop	A075W1030F	1	1	Turbo 10.11A

d4p8

ILLUS
NO.

QUANTITY

MAY 1991

DESCRIPTION

PART NUMBER

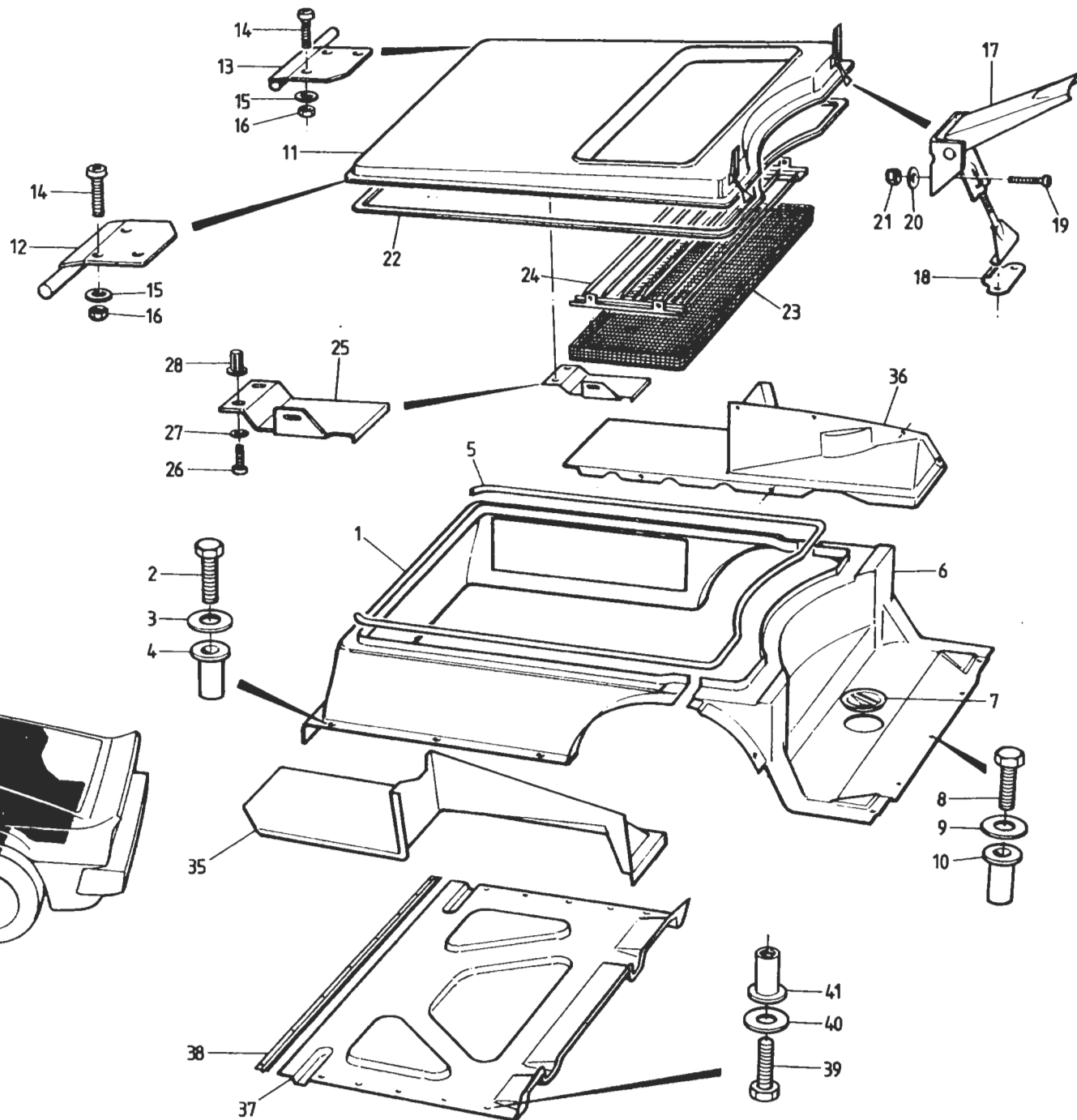
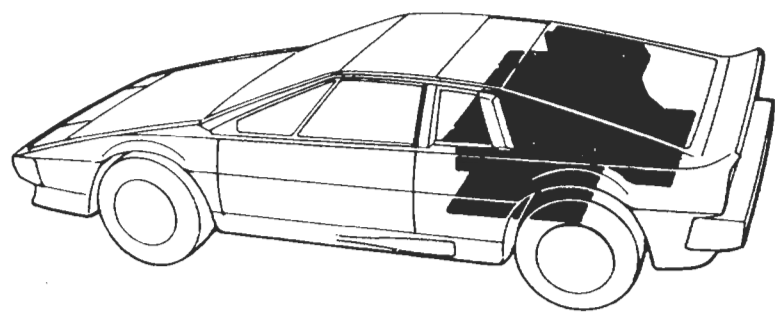
FIXED
ROOFGLASS
ROOF

REMARKS

10.11A

62	Nut, Nyloc, M6, Latch Upstop	A075W3009F	1	1	
63	Release Lever, Tailgate Latch	A082U4706F	1	1	Prior '87 M.Y.
	Release Lever, Tailgate Latch	A082U5732F	1	1	'87 M.Y. on
64	Screw, Release Lever Pivot	B079U4503K	1	1	
65	Washer, Flat, Release Lever Pivot	A075W4013F	1	1	
66	Nut, Nyloc, M6, Release Lever Pivot	A075W3009F	1	1	
67	Spring, Release Lever	A075J6029Z	1	1	
68	Rod, Lock to Release Lever	C082U4713F	1	1	>
69	Trunnion, Rod to Release Lever	A075U1116F	1	1	> Prior to '87 M.Y.
70	Lock Assembly & Keys, Tailgate	A083U6093F	1	1	>
71	Lever Arm, Tailgate Lock	B082U4716K	1	1	>
72	Lever, Tailgate Internal Release	B082U4916F	1	1)
73	Spirol Pin, 5 x 30, Lever Pivot	A082W6235F	1	1)
74	Washer, Lever to Bracket	A075W4011Z	2	2)
75	Hinge Bracket, Release Lever	A082U4915F	1	1	) '87 M.Y. on
76	Recess, Release Lever, ABS	A082U5758K	1	1	RHD)
	Recess, Release Lever, ABS	A082U5759K	1	1	LHD)
77	Washer, Flat, Brkt. & Recess to Bulkhead	A075W4015Z	1	1)
78	Nut, Nyloc, M6, Brkt. & Recess to Bulkhead	A075W3009Z	1	1)
79	Cable, Tailgate Release	A082U5734F	1	1	RHD)
	Cable, Tailgate Release	A082U5735F	1	1	LHD)
	Adaptor, Tailgate Channel Drain, LH	A079B4110K	1	1]
	Adaptor, Tailgate Channel Drain, RH	A079B4111K	1	1]
80	Adaptor, Tailgate Channel Drain	A085U4813K	2	2]
	Pop Rivet, Drain Adaptor Fix	A075W6070Z	6	6	
81	Elbow, Tailgate Channel Drain	A082B6079F	2	2	
82	Hose, Tailgate Channel Drain	A075P6066V	1.5m	1.5m	
83	Clip, Drain Hose Securing	A075W6236F	2	2	

Turbo 10.11A
Page 3



TURBO
10.13A

ILLUS
NO.

QUANTITY

MAY 1991

10.13A

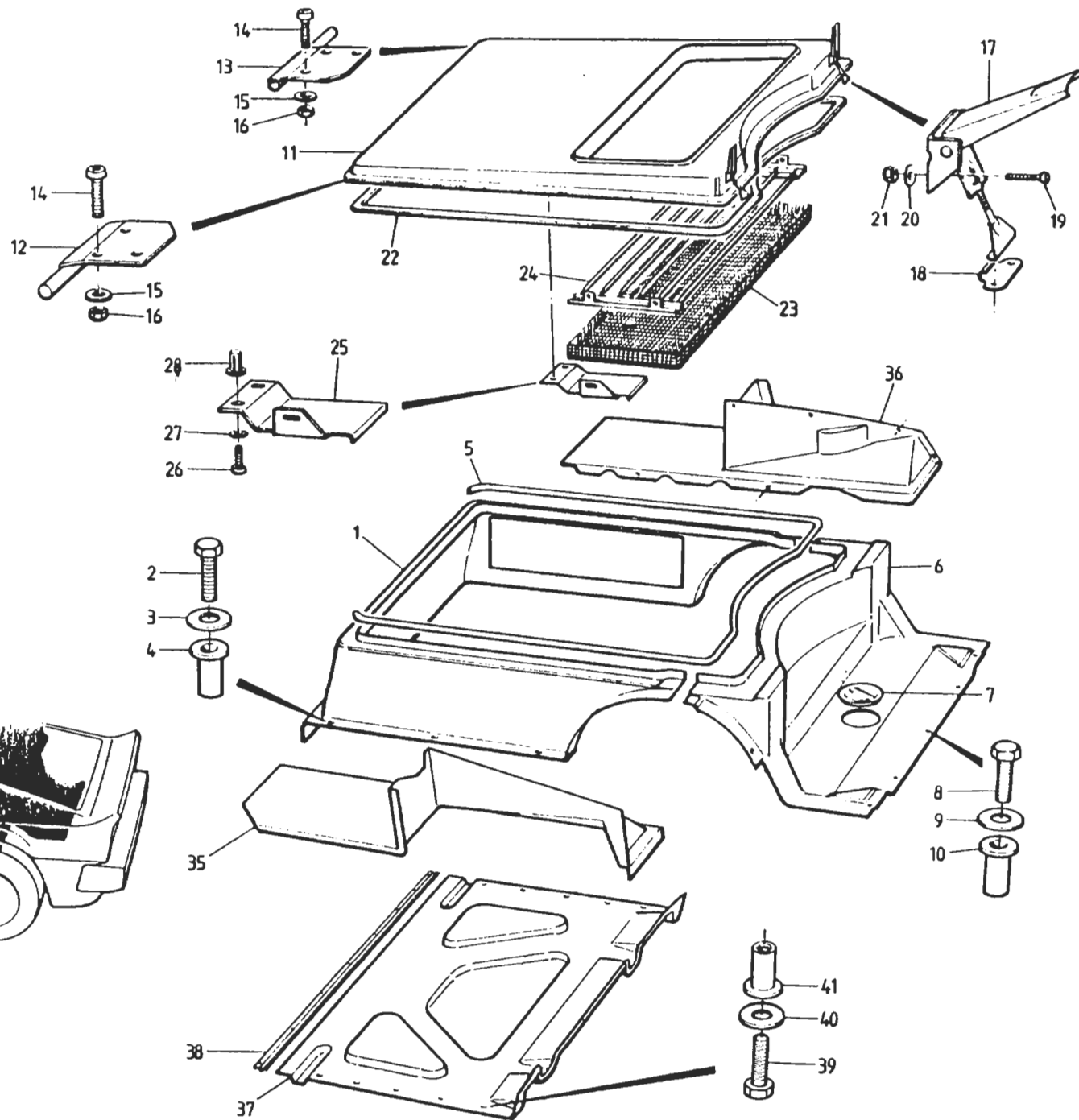
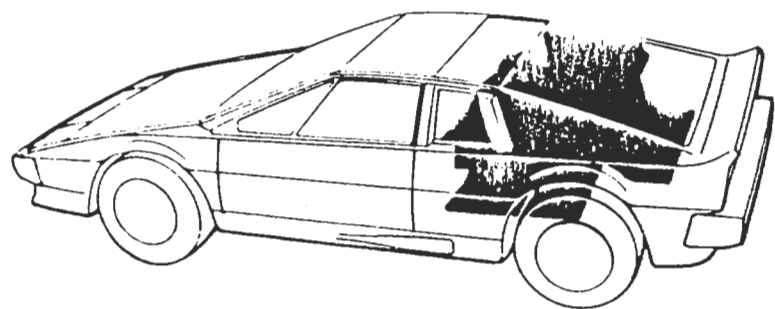
DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Engine Bay Sidewall	A082B4286K	1		For Twist Lock Engine Lid Fasteners
	Engine Bay Sidewall	B082B4286K	1		For Overcentre Engine Lid Fasteners
	Engine Bay Sidewall	C082B4286K	1		'87 M.Y. on
2	Screw, M6 x 25, Sidewall to Body	A075W5089Z	8		
3	Washer, Flat, Sidewall to Body	A075W4013Z	8		
4	Pulsert, M6, Sidewall to Body	A079W6156F	8		
	Setscrew, M6 x 25, Sidewall to Front Hinge Brkt.	A075W1031F	2		
	Washer, Large, O/D	A075W4016Z	2		
	Nut, Nyloc, M6	A075W3009Z	2		
5	Edge Finisher	C082U4775F	3M		
	Rear Wall/Floor, Engine Bay	A082B4287K	1		For Twist Lock Engine Lid Fasteners
	Rear Wall/Floor, Engine Bay	A082B4386K	1		Early Canadian Cars Only. Twist Lock Fasteners
6	Rear Wall/Floor, Engine Bay	B082B4287K	1		For Overcentre Engine Lid Fasteners
	Foam Strip, Rear Floor to Body	A082U6067F	3m		
	Studplate, M6 x 20, Coilbox Fix	A082U5081F	4		
	Pop Rivet, Studplate Fix	A075W6090F	8		
	Washer, Pop Rivet	A075W4001F	8		
7	Grommet, Gearbox Filler Access	X026B0371Z	1		
8	Setscrew, M6 x 25, Floor to Body	A075W5089Z	11		
9	Washer, Flat, Floor to Body	A085W4013Z	11		
10	Pulsert, M6, Floor to Body	A079W6156F	11		
	Lid, Engine Bay	A082B4288K	1		For Twist Lock Engine Lid Fasteners
11	Lid, Engine Bay	B082B4288K	1		For Overcentre Engine Lid Fasteners
	Tongue, Engine Lid Front Hinge	A082B4280K	2)
	Eye, Engine Lid Front Hinge	A082B4281K	2)
	Setscrew, 10 UNF x 1/2", Tongue/Eye	A075W1002F	8)
	Washer	A075W4011F	8		)For Use With Lid A082B4288K
	Nut, Nyloc, 10 UNF	A075W3000F	8)
	Twist Lock Catch, Male, Engine Lid	B082B6051F	4)
	Rubber Washer, Male Catch	B082B6052F	4		) Turbo 10.13A
	Twist Lock Catch, Female, Engine Lid	A082B6054F	4		) Page 1
	Pop Rivet, Catch Fixing	A075W6071F	8)



TURBO
10.13A

ILLUS
NO.

QUANTITY

MAY 1991

10.13A

DESCRIPTION

PART NUMBER

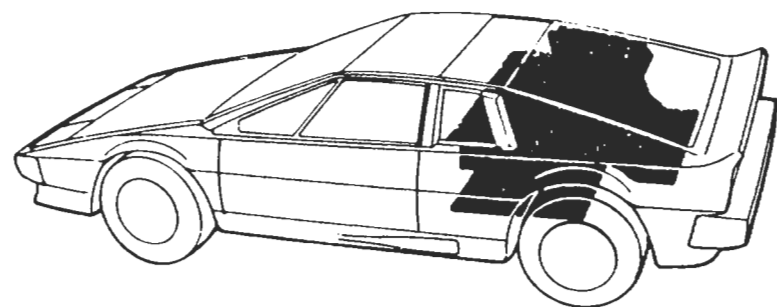
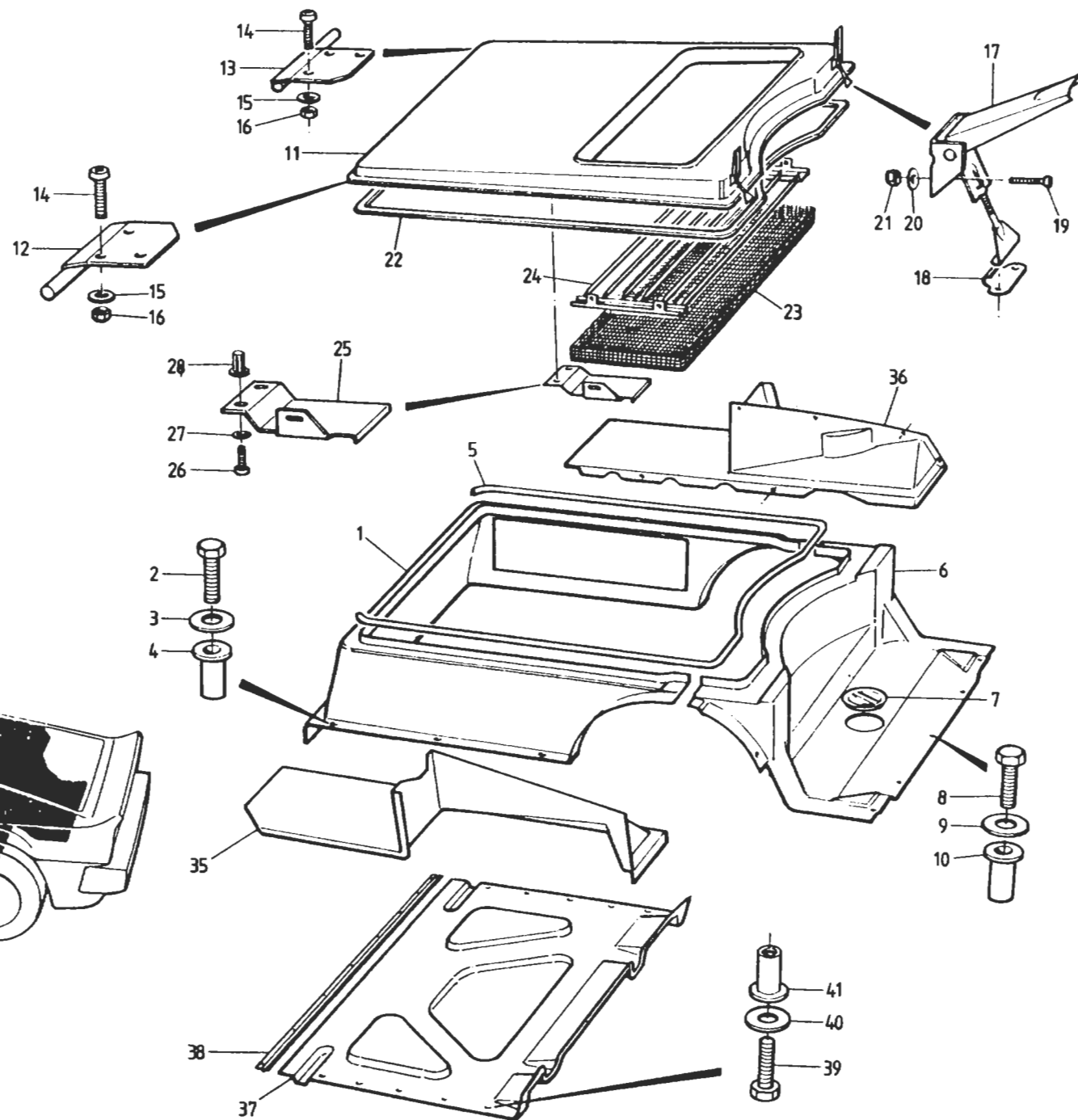
ALL

REMARKS

12	Hinge, LH, Engine Lid	A082U4769F	1)	
13	Hinge, RH, Engine Lid	A082U4770F	1)	
14	Screw, 10 UNF x 1/2", Hinge to Lid	A075W1002F	6)	
15	Washer, Flat, Hinge to Lid	A075W4011F	6)	
16	Nut, Nyloc, 10 UNF, Hinge to Lid	A075W3000F	6)	
17	Catch, Overcentre, Engine Lid	A079B6048F	2	)	)Chrome)For Use With Lid B082B4288K
18	Striker, Overcentre Catch	A907E6303F	2))
	Catch, Overcentre, Engine Lid	A082B6095F	2	)	>Zinc)
	Striker, Overcentre, Catch	A082B6096F	2)	>)
19	Screw, 4BA, Catch/Striker Fix	A075W5049F	8))
20	Washer, Flat, Catch/Striker Fix	A075W4001F	8))
21	Nut, 4BA, Catch/Striker Fix	A079W3057F	8))
	Rivet, Zinc Striker Fix	A075W6090Z	4		
22	Foam Seal, Engine Lid	A082U6065V	3M		
23	Mesh, Engine Lid Aperture	A082B4259K	1		
24	Slat Assembly, Engine Lid Aperture	B082B4262J	1		
	Screw, Mesh and Slat Fixing	A075W5015Z	10		
	Spire Nut, Mesh and Slat Fixing	A075W6013Z	10		
25	Water Shield, Engine Lid Aperture	A082B4338K	1		
26	Screw, M6 x 12, Water Shield Fix	A075W1027Z	2		
27	Washer, Shakeproof, Water Shield Fix	A075W4046Z	2		
28	Jacknut, M6, Water Shield Fix	A075W3031Z	2		
35	Trim Panel, Rear 1/4, LH	A082B4289K	1		NOT 'Glass Roof' >Including
	Trim Panel, Rear 1/4, LH	B082B4289K	1		'Glass Roof' >Carpet
36	Trim Panel, Rear 1/4, RH	A082B4290K	1		Dry Sump Only >
	Trim Panel, Rear 1/4, RH	B082B4290K	1		Wet Sump. NOT 'Glass Roof' >For Carpet
	Trim Panel, Rear 1/4, RH	C082B4290K	1		'Glass Roof' >See 15.24A
	Clip Bracket, Trim Panel to T/Gate Aperture	A082B4304K	8))
	Pop Rivet, Brkt. to Panel	A075W6092Z	16))
	Screw, Brkt. to Body	A075W5028Z	8))
	Spire Nut, Brkt. to Body	A075W6014Z	8))
	Screw, Panel to Engine Bay	A075W5037Z	4))
	Washer, Flat, Panel to Engine Bay	A075W4000Z	4))
	Spire Nut, Panel to Engine Bay	A075W6016Z	4))

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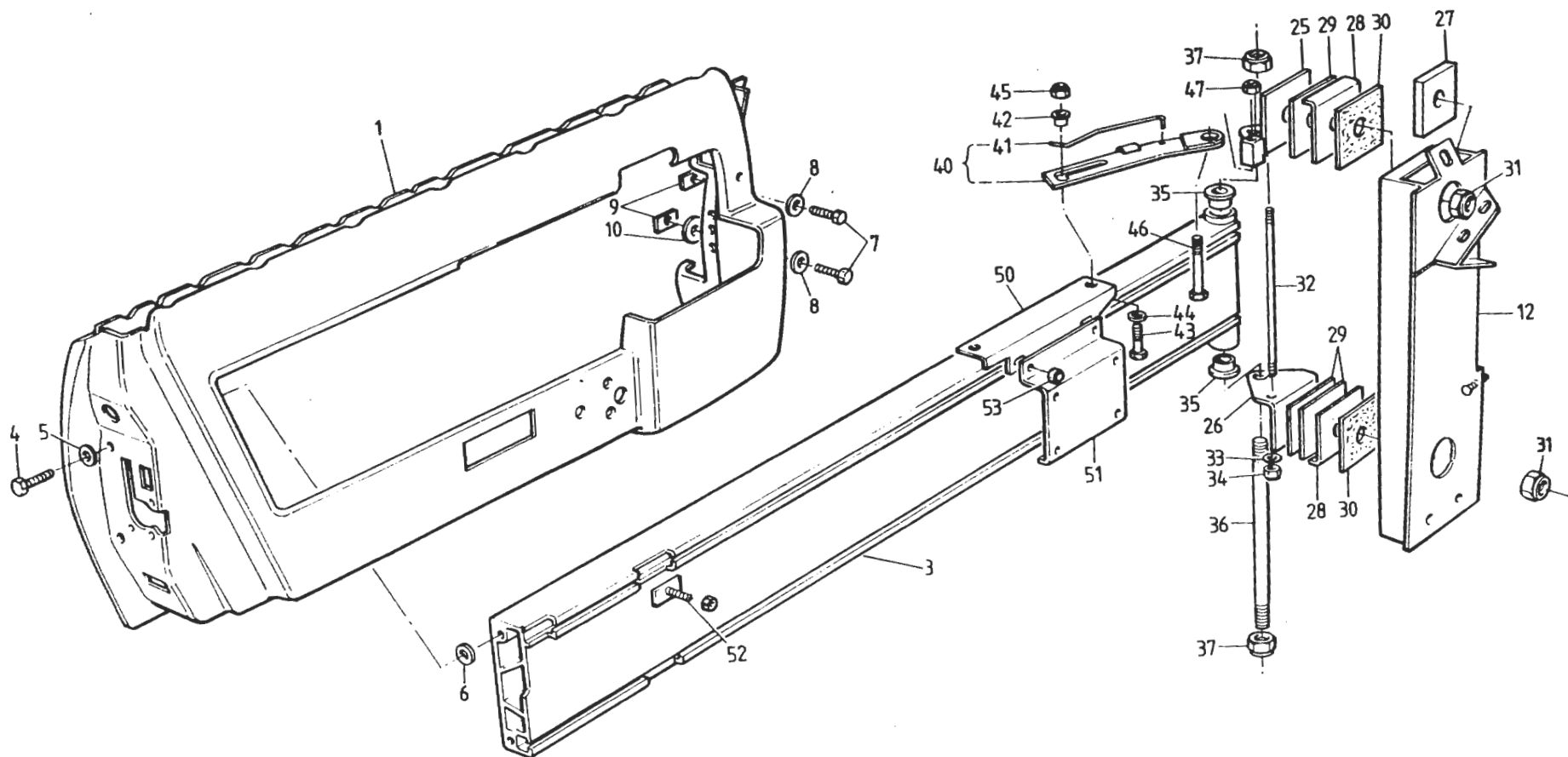
DESCRIPTION

PART NUMBER

ALL

REMARKS

	Spire Clip 'U' Nut, Trim Panel to Body	A082W6255F	4		
	Spire Nut, Flat, Trim Panel to Body	A075W6013Z	6		
	Spire Nut, Trim Panel to Engine Bay	A075W6016Z	4		
	Screw, Panel to Body & Engine Bay	A075W5028Z	14		
	Setscrew, M5 x 20, Panel Rear to Engine Bay	A075W1025F	2		
	Jacknut, M5, Panel Rear to Eng. Bay	A076W3043F	2		
	Washer, Flat, Panel to Engine Bay	A075W4000Z	6		
37	Undertray, Engine Bay	A082B4292K	1		R/B Shorter Undertray B082B4292K
	Undertray, Engine Bay	B082B4292K	1		R/B A082B4559K
	Undertray, Engine Bay	A082B4559K	1		
38	Retaining Strip, Undertray Front	A082U4748K	1		
	Pop Rivet, Retainer to Body	A075W6089Z	8		
39	Setscrew, M6 x 20, Undertray Fixing	A075W1030Z	12		
40	Washer, Flat, Undertray Fixing	A075W4013Z	12		
41	Pulsert, M6, Undertray Fixing	A079W6156F	12		



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DESCRIPTION

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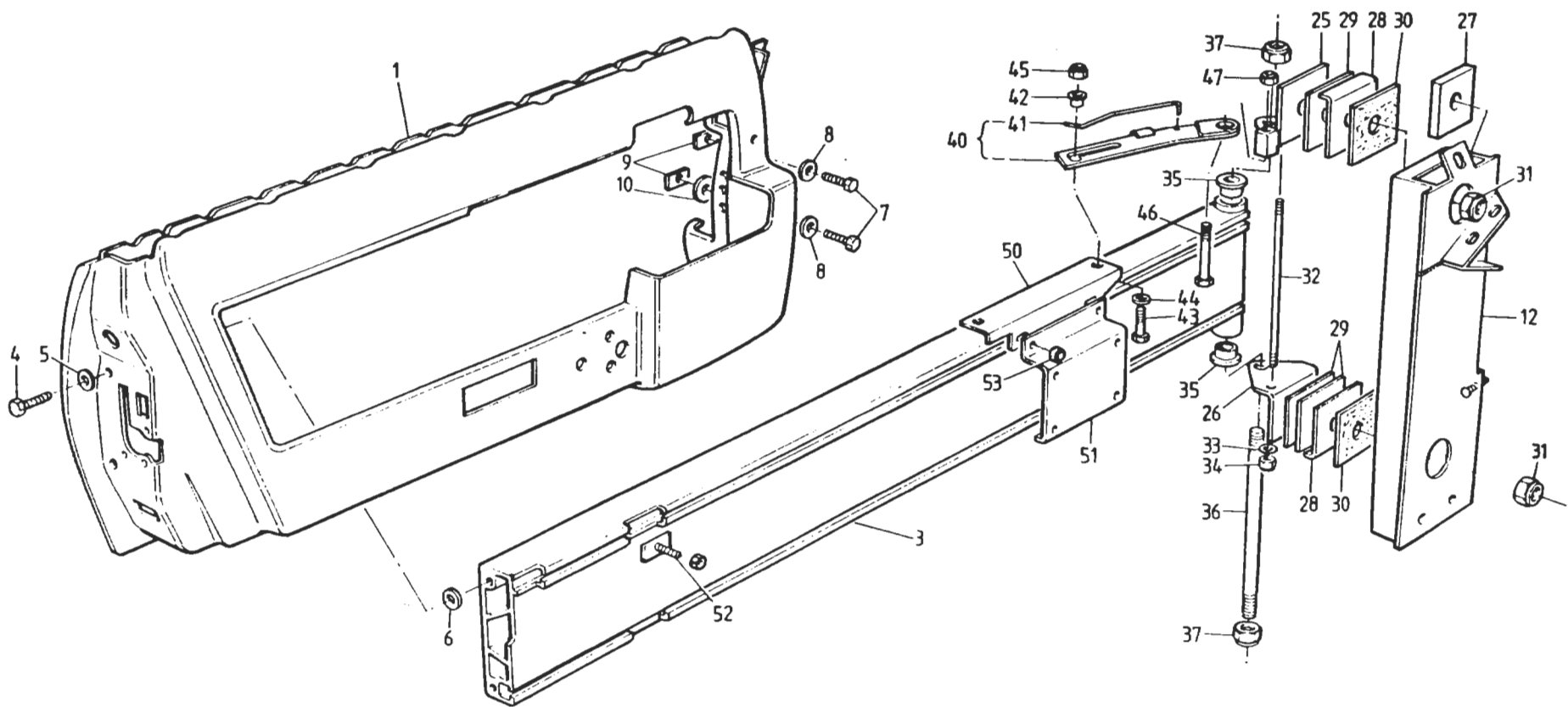
ALL

REMARKS

1	Door Shell, LH	A079B4185J	1		Prior Change Point *
	Door Shell, LH, RHD	A082B4586J	1		> From Change Point *
	Door Shell, LH, LHD	A082B4588J	1		>
	Door Shell, RH	A079B4186J	1		Prior Change Point *
	Door Shell, RH, RHD	A082B4585J	1		> From Change Point *
	Door Shell, RH, LHD	A082B4587J	1		>
3	Door Beam, LH	L079U4109K	1		
	Door Beam, RH	L079U4110K	1		* Change Point VIN 82 D 2137
4	Setscrew, M8 x 20, Door Rear to Beam	A075W1038Z	4		82 - 0606
5	Washer, Large O/D, " " " "	A075W4021Z	4		
6	Washer, Spacing, Door Rear to Beam	A075W4003Z	A/R		If Fitted
7	Setscrew, M6 x 16, Door Front to Beam	A075W1028Z	4		
8	Washer, Large O/D, Door Front to Beam	A075W4017Z	4		
9	Fixing Plate, M6, Door Front to Beam	A079U4329K	4		
10	Washer, Spacing, Shutline Adjust	A075W4022Z	A/R		If Fitted
12	Hinge Post, Door, LH	D079U4405K	1		In Body 'A' Post
	Hinge Post, Door, RH	D079U4404K	1		In Body 'A' Post
	Reinforcing Bracket, Hinge Post to Sill	A079U4409K	2)
	Setscrew, M8 x 16, Bracket to Post	A075W1036F	4)
	Washer, Plain, Bracket to Post	A075W4020F	4)
	Washer, Spring, Bracket to Post	A075W4036F	4		)If Fitted
	Tapping Plate, Bracket to Sill	A079U4410F	2)
	Setscrew, M8 x 20, Bracket to Sill	A075W1038F	4)
	Washer, Plain, Bracket to Sill	A075W4020F	4)
	Washer, Spring, Bracket to Sill	A075W4036F	4)
25	Hinge Bracket, Upper, LH	H079U4087F	1		
	Hinge Bracket, Upper, RH	H079U4088F	1		
26	Hinge Bracket, Lower	G079U4089F	2		
27	Clamp Plate, Door Hinge	E079U4340F	4		
28	Shim, 18 swg, Hinge to Body	C079U4090F	4		
29	Shim, 18 swg, Hinge to Body	C079U4092F	A/R		Slotted
	Shim, 12 swg, Hinge to Body	C079U4091F	A/R		Slotted
30	Shim, Abrasive, Hinge to Body	B079U4094F	4		
31	Nut, Nyloc, 1/2" UNF, Hinge to Body	A079W3056F	4		
32	Tie Rod, Upper to Lower Hinge	A079U4326F	2		

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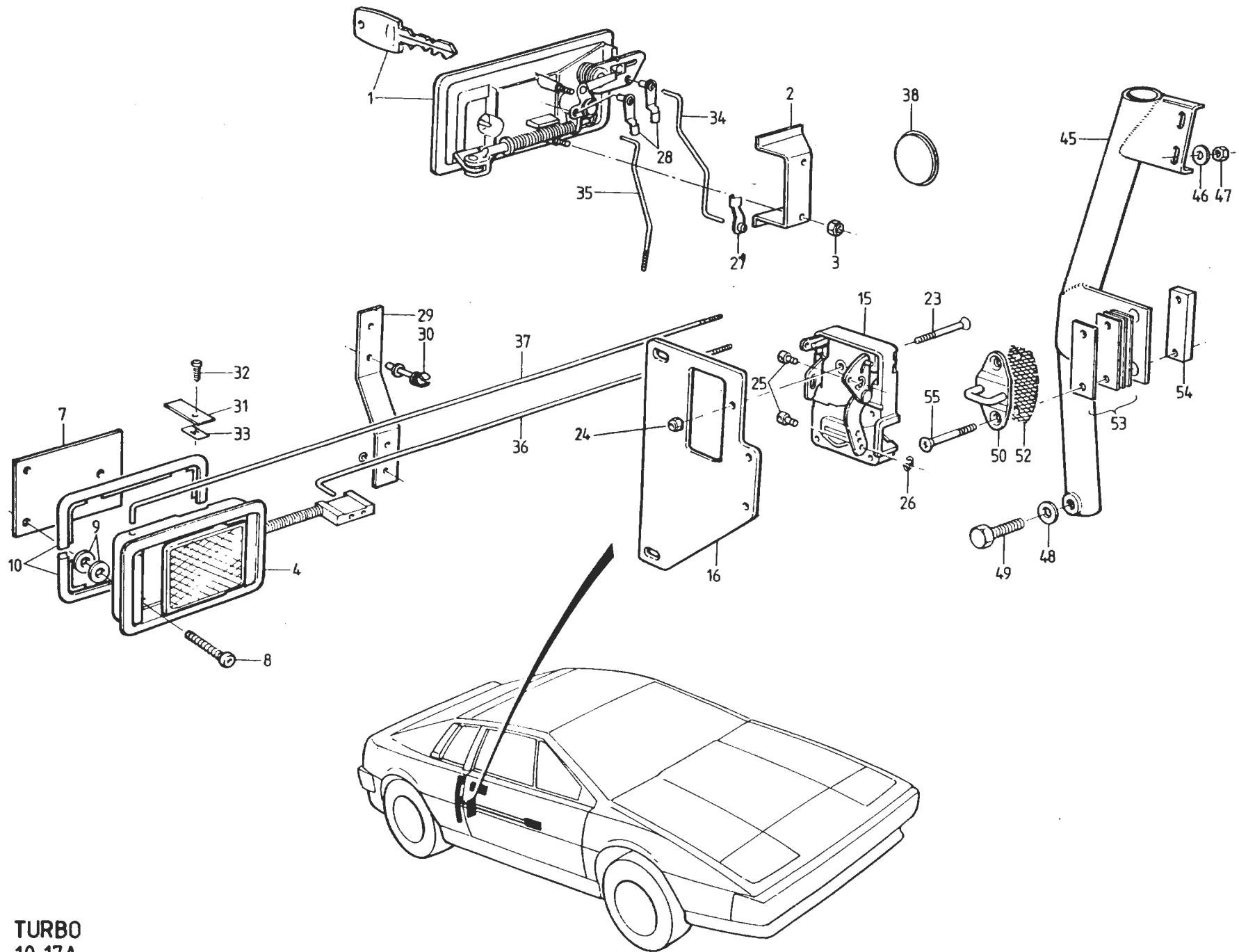
ALL

REMARKS

33	Washer, Tie Rod to Hinge	A075W4020F	4		
34	Nut, Nyloc, M8, Tie Rod to Hinge	A075W3010Z	4		
35	Pivot Bush, Door Beam	C079U4189F	4		
36	Pivot Pin, Door Beam	A079U4558F	2		
37	Nut, Nyloc, M12, Pivot Pin	A075W3012F	4		
	Check Strap, LH	B075U0455J	1)
	Check Strap, RH	B075U0456J	1)
	Bolt, M8 x 45, Strap to Hinge Brkt.	A075W2040F	2)
	Nut, Nyloc, M8, Strap to Hinge	A075W3010F	2)
	Guide Assy. Check Strap Slider, LH	A075U0709W	1		)Earlier Type Check Strap With Coil
	Guide Assy. Check Strap Slider, RH	A075U0708W	1		)Spring Activated Catch
	Setscrew, M6 x 12, Guide to Bracket	A075W1027F	4)
	Washer, Shakeproof, Guide to Bracket	A075W4046F	4)
	Nut, M6, Guide to Bracket	A075W3020F	4)
40	Check Strap, inc. Spring, LH	A089U1517F	1		>
	Check Strap, inc. Spring, RH	A089U1516F	1		>
41	Spring, Door Check, LH	A089U1515F	1		>
	Spring, Door Check, RH	A089U1514F	1		>
42	Guide, Check Strap	A089U1518F	2		>Later Type Check Strap With Spring
43	Setscrew, M6 x 30, Guide to Brkt.	A075W2028Z	2		>Wire Catch
44	Washer, Plain	A075W4015F	2		>
45	Nut, Nyloc, M6, Guide to Brkt.	A075W3009F	2		>
46	Bolt, M8 x 45, Strap to Hinge	A075W2040F	2		>
47	Nut, Nyloc, M8, Strap to Hinge	A075W3010F	2		>
50	Bracket, Check Strap Guide to Beam, LH	E079U4191K	1		
	Bracket, Check Strap Guide to Beam, RH	E079U4258K	1		
51	Bracket, Window Motor Mounting, LH	B079U4205F	1		
	Bracket, Window Motor Mounting, RH	B079U4126F	1		
52	Studplate, M6, Bracket to Door Beam	B079U4011F	6		
53	Nut, Nyloc, M6, Bracket to Door Beam	A075W3009F	6		

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DESCRIPTION

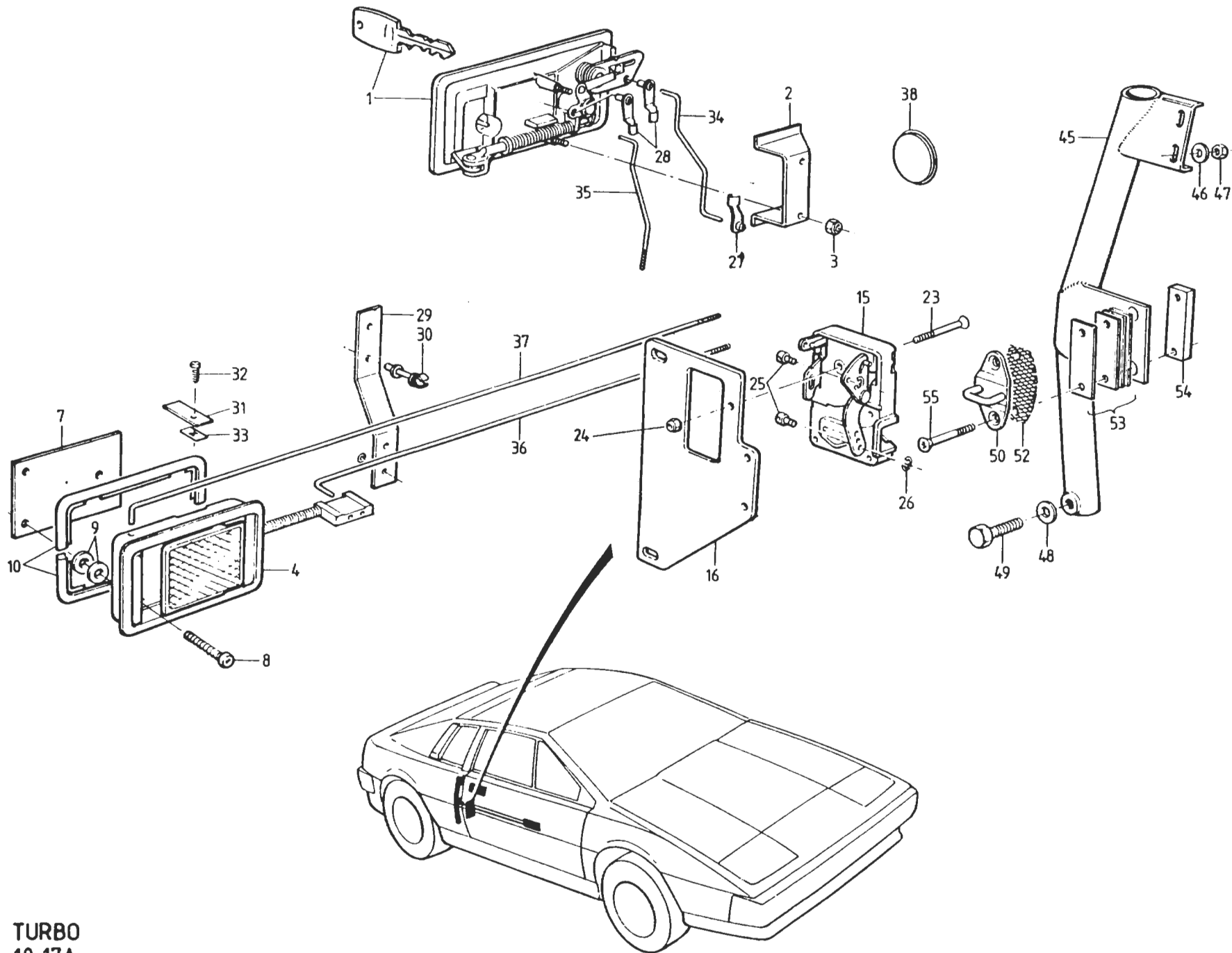
PART NUMBER

ALL

REMARKS

	Exterior Door Handle Set (Black)	B079U4634F	1		Comprises LH & RH Door Handles, Federal Cubby Box Lock & Keys Comprises LH & RH Door Handles & Keys
1	Exterior Door Handle Set (Silver & Black)	B075U0705W	1		
	Door Handle, Exterior, RH, (Black)	B079U4630F	1		
	Door Handle, Exterior, RH, (Silver & Black)	B075U6018Z	1		
	Door Handle, Exterior, LH, (Black)	B079U4631F	1		
	Door Handle, Exterior, LH, (Silver & Black)	B075U6019Z	1		
2	Clamp Bracket, Handle to Door	A079U4661K	2		
3	Nut, 10 UNF, Handle to Clamp	A075W3000F	4		
	Washer, 3/16", Handle to Clamp	A075W4000F	4		
4	Door Handle, Interior, RH	B075U1076F	1		
	Door Handle, Interior, LH	B075U1075F	1		
7	Tapping Plate, Door Handle to Door	A075U4061F	2		
8	Screw, 10 UNF x 3/4", Handle to Door	A075W5061F	6		R/B A076W5062F
	Screw, 10 UNF x 1", Handle to Door	A076W5062F	6		
9	Washer, Handle to Door	A075W4016F	12		
10	Bezel, Door Handle	X054B6059F	4		
15	Latch Mechanism, Door Lock, RH	A079U4628F	1		
	Latch Mechanism, Door Lock, LH	A079U4629F	1		
16	Plate, Latch to Door Beam	A079U4616F	2		
23	Bolt, M6 x 45, Latch to Beam	A075W7004Z	8		
24	Nut, Nyloc, M6, Latch to Beam	A075W3009Z	8		
25	Trunnion, Rods to Latch	A079U4620F	6		
26	Circlip, Latch Trunnions	A079U6059F	6		
27	Clip, Rod End, Ext. Release to Latch	A079W6153F	2		
28	Clip, Rod End, Exterior Handle	A075U6033Z	4		
29	Bracket, Rod Guide	A079U4255K	2		
30	Guide Clip, Interior Handle Rods	A075J6027Z	4		
	Pop Rivet, Guide Bracket to Door	A075W6071Z	4		
	Washer, Pop Rivet	A075W4001Z	4		

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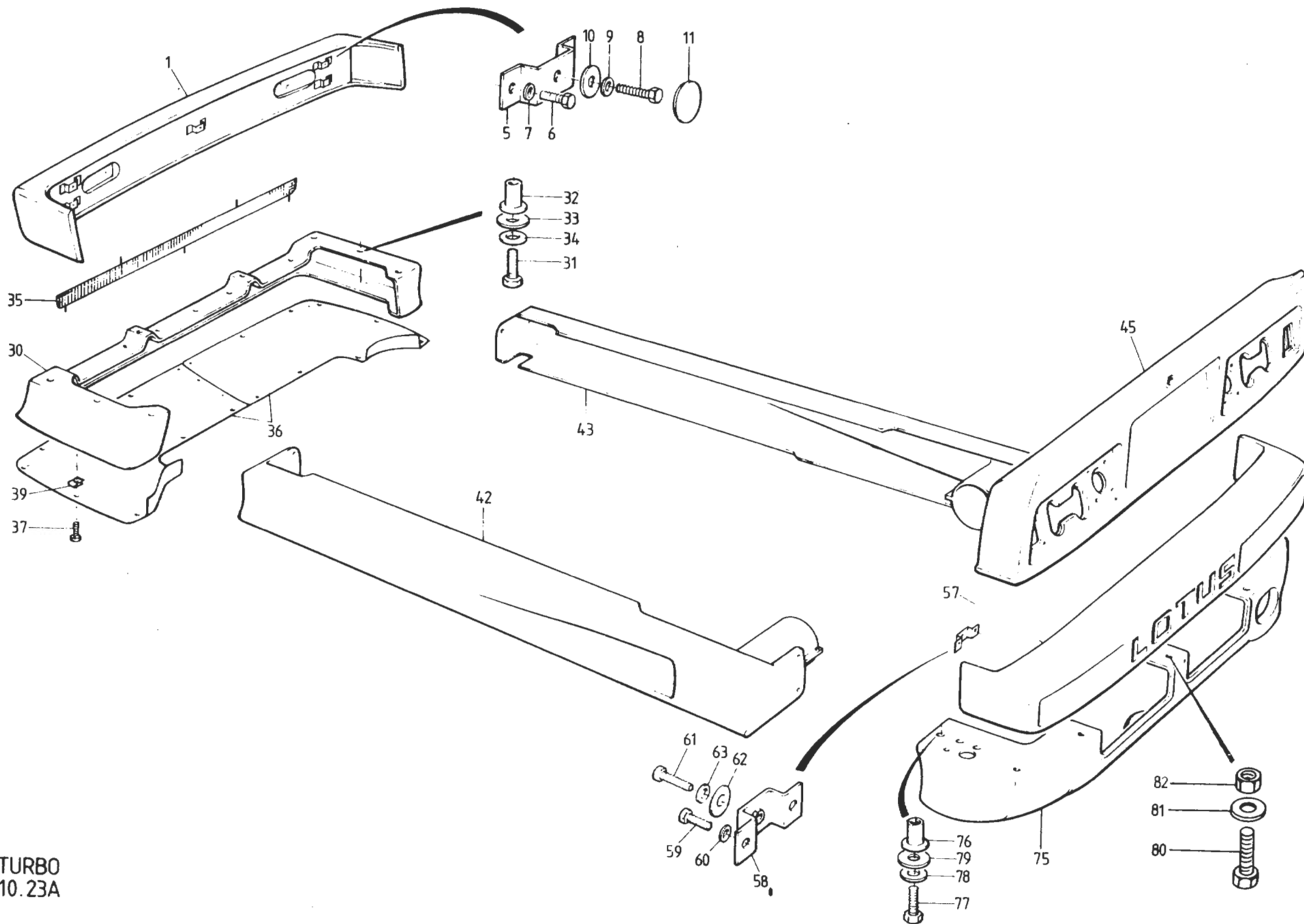
ALL

REMARKS

31	Plate, Interior Lock Rod Retaining	A079U4337K	2		
32	Screw, Plate to Door	A075W5016F	2		
33	Spire Nut, Plate to Door	A075W6013F	2		
34	Rod, Exterior Release to Latch, RH	B079U4624F	1		
	Rod, Exterior Release to Latch, LH	B079U4625F	1		
35	Rod, Exterior Lock to Latch, RH	A079U4622F	1		
	Rod, Exterior Lock to Latch, LH	B079U4623F	1		
36	Rod, Interior Release to Latch	A079U4621F	2		
	Rod, Interior Lock to Latch, LH	B079U4627F	1		
37	Rod, Interior Lock to Latch	B079U4626F	2		
38	Grommet, Blanking, Lock Rod Access	X054J6005Z	2		
45	Striker Post, RH	E079U4382F	1		
	Striker Post, LH	E079U4381F	1		
46	Washer, Large O/D, Striker Post Top	A075W4021F	4		
47	Nut, Nyloc, M8, Striker Post Top	A075W3010F	4		
48	Washer, 12mm	A075W4071F	2		
49	Setscrew, M12 x 30, Striker Post Bottom	A079W1058F	2		
50	Striker Plate, Door Latch	A075U6022F	2		
	Spacer, 3mm, Striker to Body	A082U5003F	A/R		
	Spacer, 1.5mm, Striker to Body	A082U5002F	A/R		
	Abrasive Washer, Striker to Body	A075U0656Z	2		
52	Friction Plate, Striker to Body	A082U5004F	2		
53	Shim, 1.2mm, Striker Post to Body	B079U4486F	A/R		
	Shim, 3mm, Striker Post to Body	B079U4394F	A/R		
54	Tapping Plate, Door Latch Striker	B075U0333F	2		
55	Screw, M6 x 35, Striker Fixing	A082W7035F	4		

R/B B079U4626F

R/B Friction Plate A082U5004F



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REMARKS

1

Front Bumper, GRP, Inc. Brkts.

A082B4240J

1

With Linear Diffusion Pattern
Side/Turn Lamps

Front Bumper, GRP, Inc. Brkts.

A082B4533K

1

With Circular Diffusion Pattern
Side/Turn Lamps

Front Bumper, RRIM

A082B4428F

1

Front Bumper, RRIM

A082B460LJ

1

Front Bumper, RRIM

B082B460LJ

1

Prior '85 M.Y. R/B A082B460LJ (S/B 1986/0
'86 M.Y. on, with Lucas Side/Turn Lamps
'86 M.Y. on, with Cobo Side/Turn Lamps

5

Bracket, GRP Bumper Mtg.

C079U4135K

5

6

Setscrew, Bracket to GRP Bumper

A075W1006Z

10

7

Washer, Spring, Bracket to GRP Bumper

A075W4035Z

10

8

Setscrew, M8 x 25, GRP Bumper to Body

A075W1039Z

5

9

Washer, Spring, GRP Bumper to Body

A075W4036Z

5

10

Washer, Large O/D, GRP Bumper to Body

A075W4003Z

5

11

Grommet, GRP Bumper Bolt Access (In Pod Well)

X054J6005Z

4

Setscrew, M8 x 25, Bumper Centre Fixing

A075W1039Z

2

Nut, Nyloc, M8, Bumper Centre Fixing

A075W3010Z

2

Washer, Flat, Bumper Centre Fixing

A075W4020Z

4

Stud, 'Bighead' M6 x 20, Outboard Fixing

A085B6078F

4

Washer, Flat, Bumper Outboard Fixing

A075W4011Z

4

Nut, Nyloc, M6, Bumper Outboard Fixing

A075W3009Z

4

Setscrew, M8 x 25, Bumper Centre Fixing

A075W1039Z

2

Washer, Flat, Bumper Centre Fixing

A075W4003Z

4

Nut, Nyloc, M8, Bumper Centre Fixing

A075W3010Z

2

Shim Plate, Bumper Outboard Fixing

A082B4603F

2

Stud, M6 x 30, Bumper Outboard Fixing

A082U6082F

4

Washer, Flat, Bumper Outboard Fixing

A075W4017Z

4

Washer, Spring, Bumper Outboard Fixing

A075W4035Z

4

Nut, Plain, M6, Bumper Outboard Fixing

A075W3020Z

4

30

Spoiler, Front

A082B4236K

1

Spoiler, Front

A082B4605K

1

Prior '87 M.Y.
'87 M.Y. on

31

Setscrew, M8 x 25, Spoiler To Body

A075W1039Z

6

32

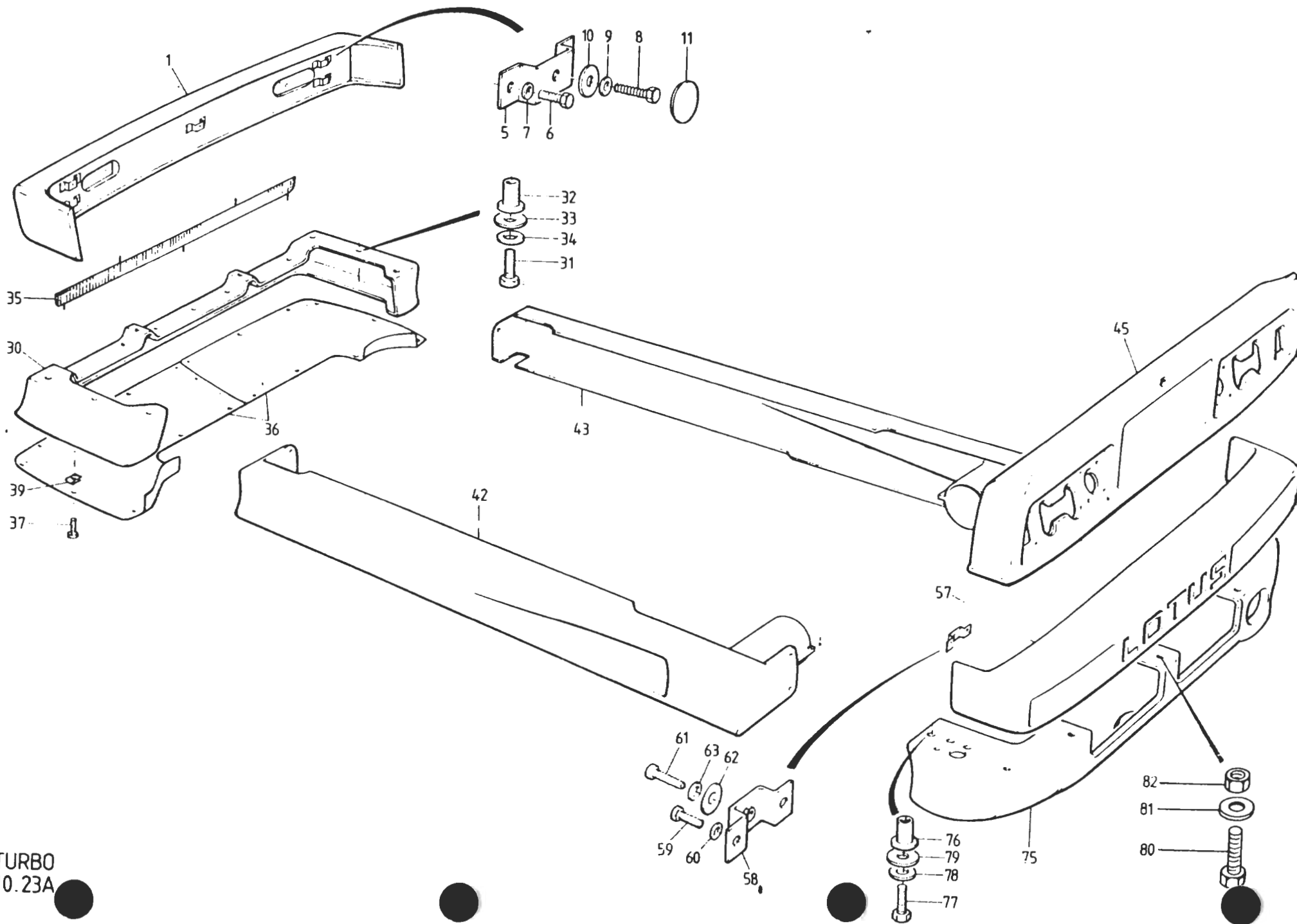
Pulsert, M8, Spoiler to Body

A075W6155F

6

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DESCRIPTION

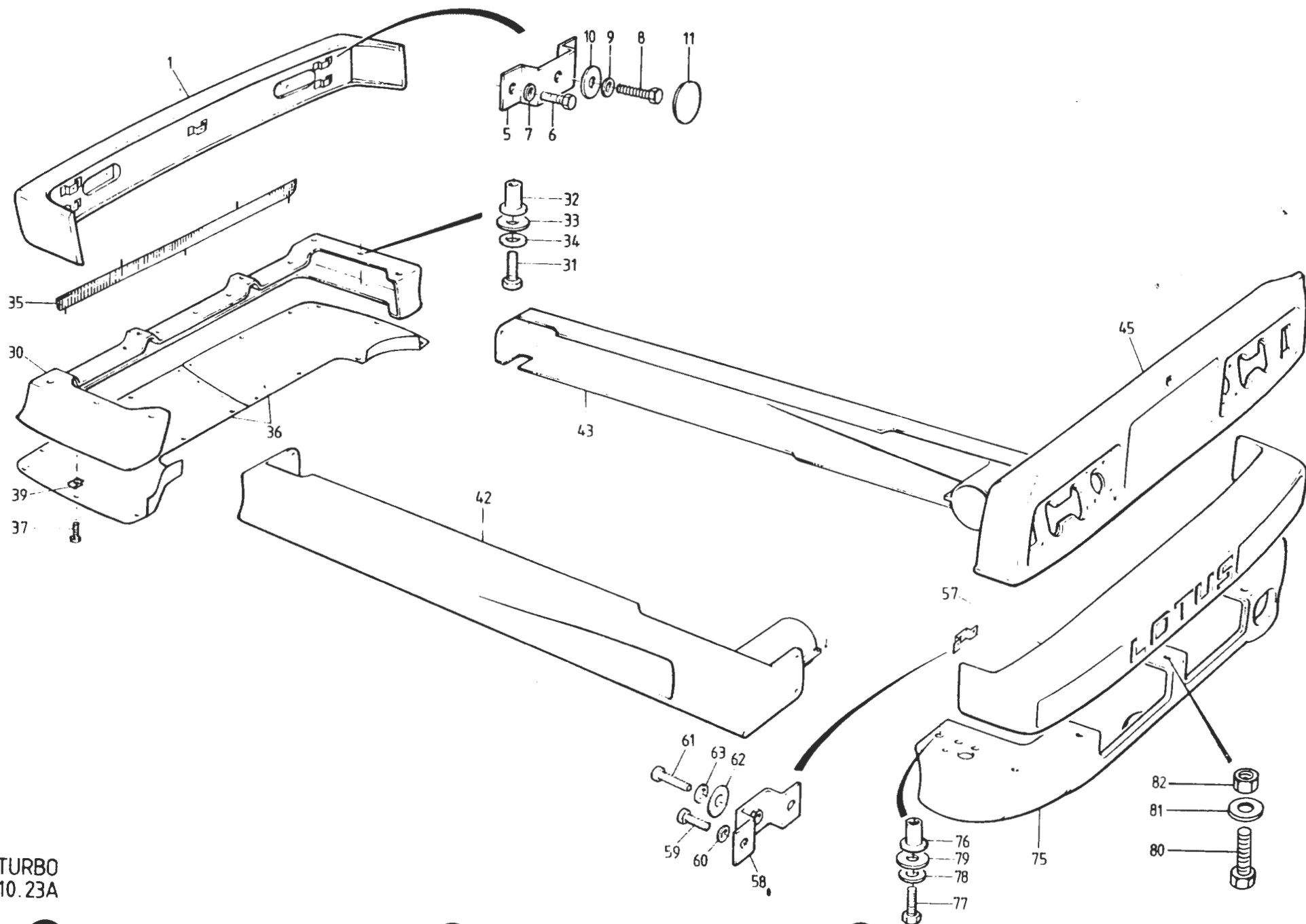
PART NUMBER

ALL

REMARKS

33	Washer, Flat, Spoiler to Body	A075W4003Z	6		
34	Washer, Spring, Spoiler to Body	A075W4036Z	6		
	Spire Bolt, Spoiler to Rad. Duct	A079W6166F	5		
	Spire Nut, Spoiler to Rad. Duct	A079W6165F	5		
	Washer, 6mm, Spoiler to Rad. Duct	A075W4015Z	5		
35	Grille, Radiator Air Intake	A079U4544F	1		Prior '87 M.Y.
	Grille, Radiator Air Intake	B082U5108F	1		'87 M.Y. on
	Nut, Nyloc, Intake Grille Fix	A075W3000F	5		
	Washer, 5mm, Grille Fix	A075W4009F	5		
36	Undershield, Front (Pair)	A082B4275K	1		Used With 306mm Rad. Duct Stays
	Undershield, Front (Pair)	A082B4492K	1		Used With 266 & 286mm Rad. Duct Stays
	Spire Bolt, Undershield Fixing	A079W6166Z	12)
	Washer, Spire Bolt	A075W4015Z	12)
	Spire Nut, 'J' Type	A079W6165F	7		)Used With Undershield A082B4275K
	Spire Nut, Flat	A079W6164F	5)
37	Screw, s/t, Undershield to Spoiler	A075W5043Z	14		>
	Screw, s/t, Undershield to Rad. Duct	A075W5041Z	6		>Used With Undershield A082B4492K
	Washer, Undershield Fix	A075W4009Z	20		>
39	Spire Nut, Undershield Fix	A075W6016Z	20		>
42	Sill, LH	C082B4239K	1		
43	Sill, RH	C082B4238K	1		
45	Spoiler, Rear	A082B4235K	1		Prior '87 M.Y.
	Spoiler, Rear	A082B4654K	1		'87 M.Y. on
	Pulsert, M6, Spoiler Fixing	A079W6156F	10		
	Setscrew, M6 x 25, Spoiler Fixing	A075W1031Z	10		
	Washer, Large O/D, Spoiler Fixing	A075W4017Z	10		
	Washer, Shakeproof, Spoiler Fixing	A075W4046Z	10		
	Screw, s/t, Spoiler Fixing	A075W5039Z	8		
	Spire Nut, Spoiler Fixing	A075W6016Z	8		
55	Foam Strip, Spoiler Seal	A082U6067F	3m		

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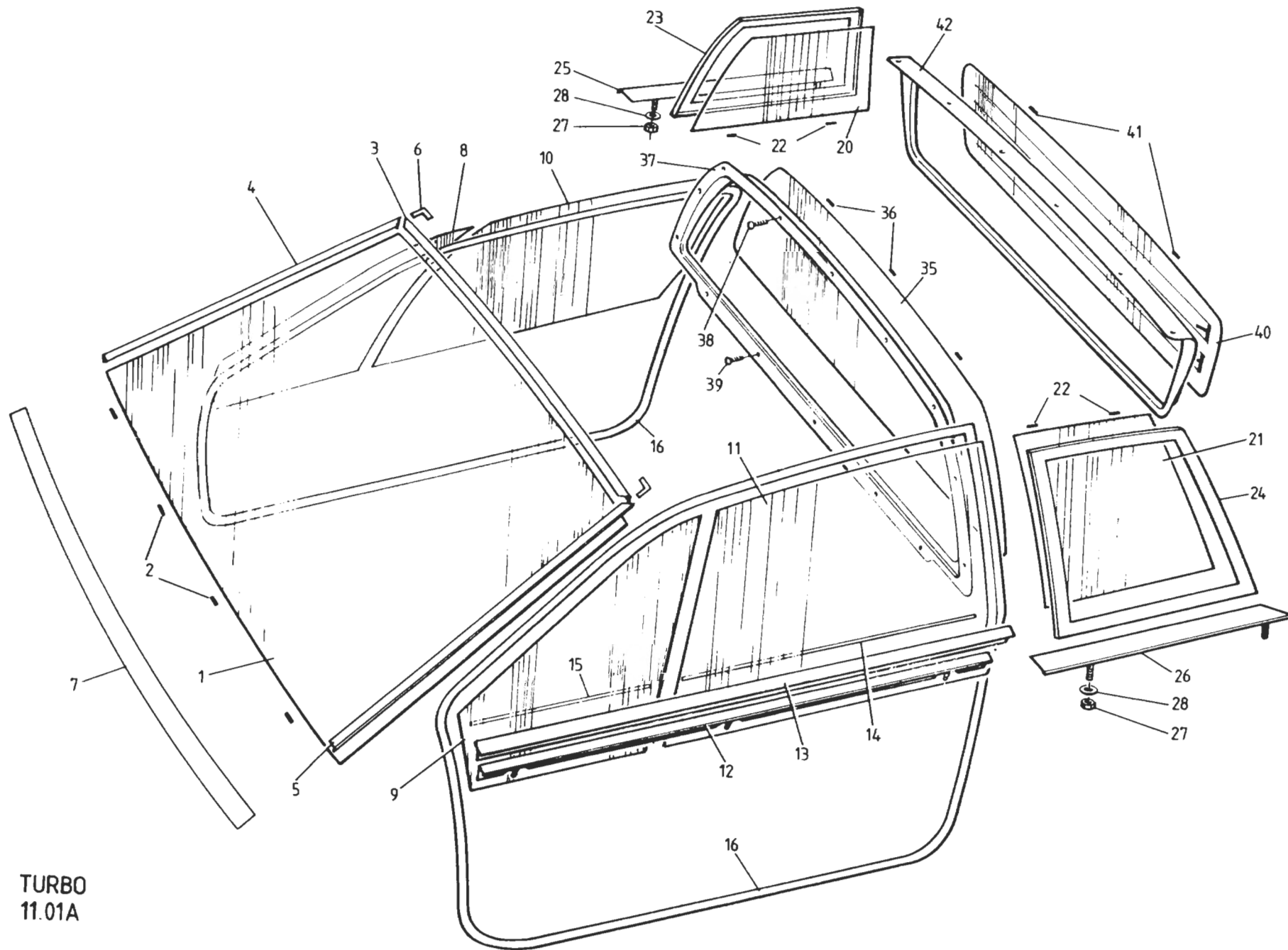
PART NUMBER

ALL

REMARKS

57	Rear Bumper (GRP) Inc. Brkts.	A082B4345J	1
58	Bracket, GRP Bumper Mounting	C079U4135K	6
59	Setscrew, Bracket to GRP Bumper	A075W1006Z	12
60	Washer, Spring, Bracket to GRP Bumper	A075W4035Z	10
61	Setscrew, M8 x 25, Bumper to Body	A075W1039Z	6
62	Washer, Flat, Bumper to Body	A075W4003Z	6
63	Washer, Spring, Bumper to Body	A075W4036Z	6
	Seal, Neoprene, Bumper to Body	B075U6054V	2.2m
75	Rear Valance	A082B4464K	1
76	Pulsert, M8, Valance to Body	A079W6155F	4
77	Setscrew, M8 x 25, Valance to Body	A075W1039Z	4
78	Washer, Spring, Valance to Body	A075W4036Z	4
79	Washer, Flat, Valance to Body	A075W4002Z	4
80	Setscrew, M8 x 20, Valance to Bumper	A075W1038Z	3
81	Washer, Flat, Valance to Bumper	A075W4020Z	6
82	Nut, Nyloc, M8, Valance to Bumper	A075W3010Z	3

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DESCRIPTION

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REMARKS

"Betaseal" Screen Fitting Kit

Comprises:

Betaseal 71904 in 300cc Cartridge
Glass Primer Applicator Bottle
Glass Primer Applicator Head and Felt Pad
Glass Primer, Black, 84132-11
Wipe Cleaner No. 4
Piano Wire 0.6mm x 120cm
Special Cleaning Paper
Spacing Blocks 10 x 14 x 20mm

A075B6158J

A/R

Used for Windscreen and Rear
Bulkhead Glass Fitment

1
1
1
1
1
1
1
4

"Solbit", Thermo-Electric Sealer, 9.5mm

A075B6121V

A/R

Replaces 8mm Solbit. Used on
Door 1/4 Light, Rear 1/4 Light, Drop
Glass and Tailgate Glass

"Solbit" Primer

A075B6012Z

A/R

Windscreen, Tinted

A079U4023F

1

Windscreen, Clear

A079U4014F

1

Spacer, 4mm, Screen to Body

A075U0588F

8

Finisher, Windscreen Top

B079U4048F

1

Finisher, Windscreen, RH

A079U4050F

1

Finisher, Windscreen, LH

A079U4049F

1

Finisher Clip, Windscreen Top Corner

A079U4051F

2

Black Strip, 1 3/4" Screen Bottom

A082U6072V

1.5m

Glass, Door 1/4 Light, RH, Tinted

A079U4026F

1

Glass, Door 1/4 Light, RH, Clear

A079U4018F

1

Glass, Door 1/4 Light, LH, Tinted

A079U4027F

1

Glass, Door 1/4 Light, LH, Clear

A079U4017F

1

Drop Glass, Door, RH, Tinted

A079U4028F

1

Drop Glass, Door, RH, Tinted

A082U5034F

1

Drop Glass, Door, RH, Clear

A079U4018F

1

Drop Glass, Door, LH, Tinted

A079U4029F

1

Drop Glass, Door, LH, Tinted

A082U5035F

1

Drop Glass, Door, LH, Clear

A079U4019F

1

Finisher, Door Top, External, RH

F079U4316F

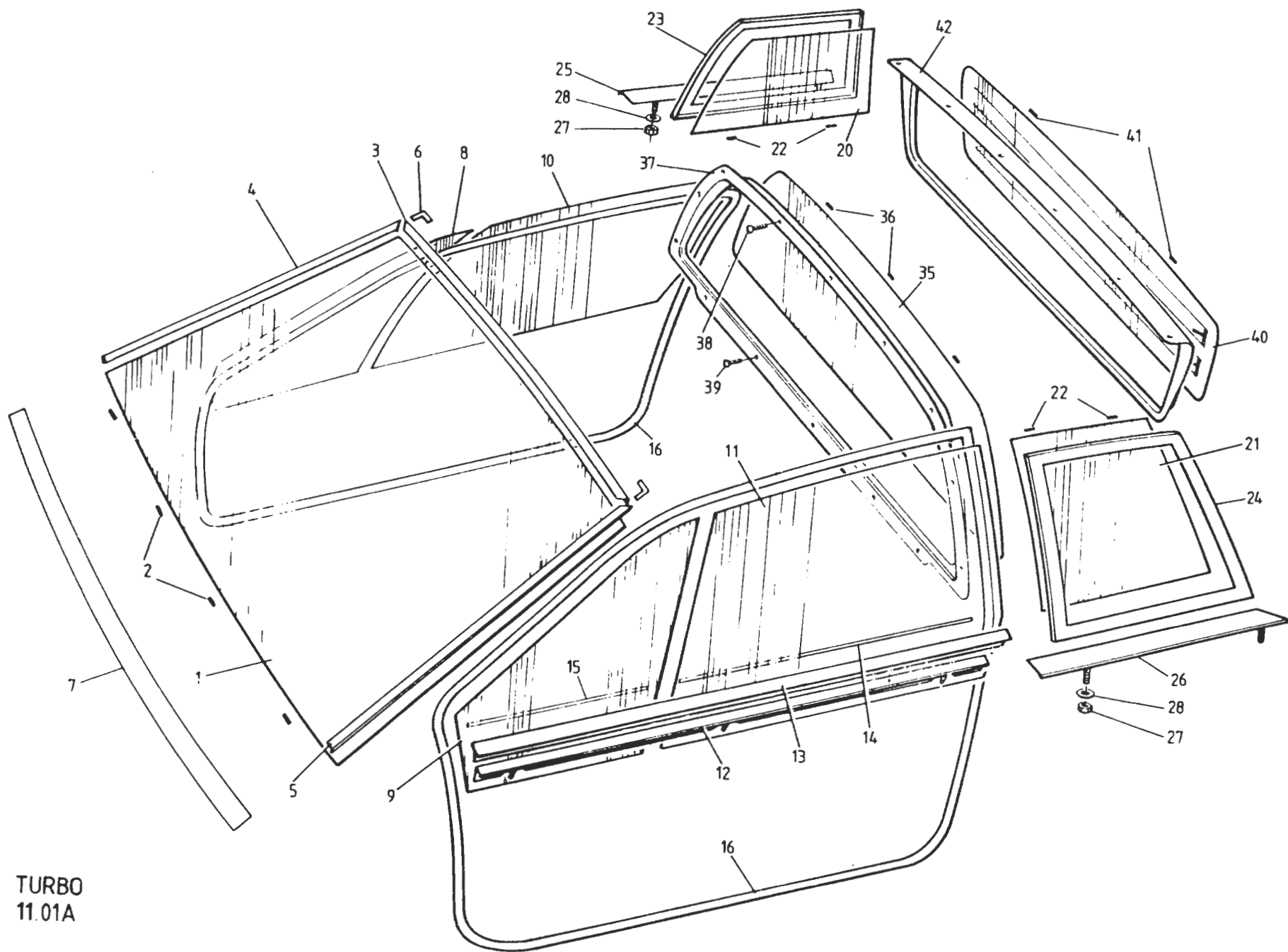
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R/B A082U5034F

R/B A082U5035F

Turbo 11.01A

Page 1



TURBO
11.01A

ILLUS
NO.

QUANTITY

MAY 1991

11.01A

DESCRIPTION

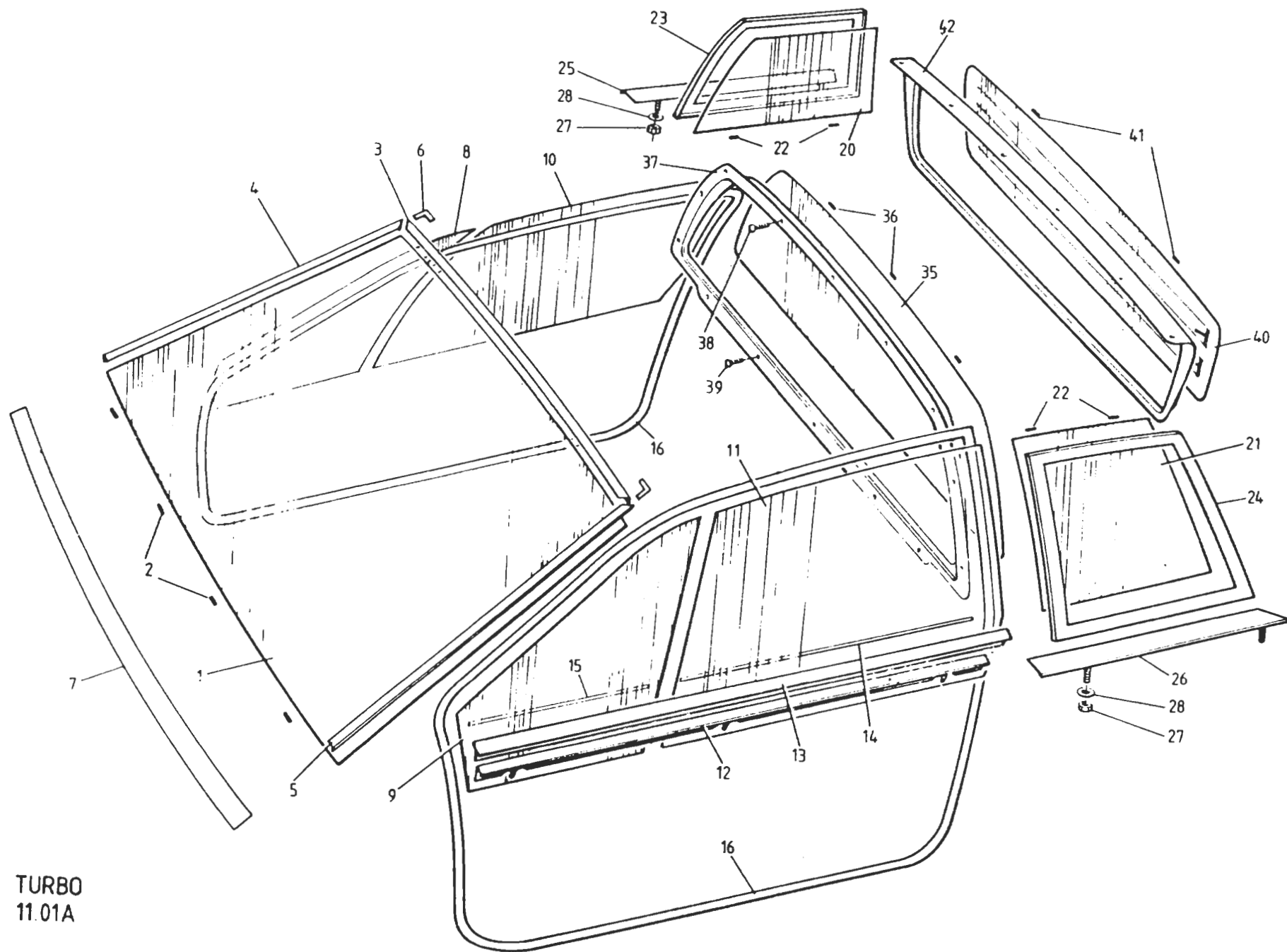
PART NUMBER

ALL

REMARKS

12	Finisher, Door Top, External LH	F079U4315F	1		
	Nut, Plain, 4BA, Finisher Fixing	A075W3057F	6		
	Washer, Flat, Finisher Fixing	A075W4001F	6		
13	Weatherstrip, Door Glass, External	C079U4434F	2		
	Backing Strip, Weatherstrip/Finisher	D079U4438K	2		
	Pop Rivet, Weatherstrip/Finisher	A075W6071F	26		
	Finisher/Weatherstrip Assy. RH	A079U4576J	1		
	Finisher/Weatherstrip Assy. LH	A079U4577J	1		
14	Seal, Drop Glass, Internal	A079U4175K	2		)Clip On, Prior VIN*
15	Seal, Door 1/4 Light, Internal	A079U4176K	2)
	Clip, Seal, to Door Trim Channel	A075W6054Z	16)
	Seal, Drop Glass, & 1/4 Light, Internal	A089V6166V	2m		)Stick On, From VIN*
16	Door Weatherstrip	A079U4197F	2		
	Secondary Door Seal (Wedge)	A082U4870F	2		
20	Glass, Rear 1/4 Light, RH, Tinted	A079U4550F	1		*VIN 82 D 2431
	Glass, Rear 1/4 Light, RH, Clear	A079U4548F	1		82 - 0721
21	Glass, Rear 1/4 Light, LH, Tinted	A079U4551F	1		
	Glass, Rear 1/4 Light, LH, Clear	A079U4599F	1		
22	Spacer, 4mm, Glass to Body	A075U0588F	8		
23	Trim, ABS, Rear 1/4 Glass, RH	B079U4570K	1		
24	Trim, ABS, Rear 1/4 Glass, LH	B079U4569K	1		
25	Sill Finisher, Rear 1/4 Glass, RH	B079U4572F	1		
26	Sill Finisher, Rear 1/4 Glass, LH	B079U4571F	1		
27	Nut, 10 UNF, Finisher Fixing	A075W3013F	4		
28	Washer, Finisher Fixing	A075W4017F	4		
35	Glass, Rear Bulkhead	A079U4032F	1		
36	Spacer, Glass to Surround	A075U0588F	6		
37	Surround, Bulkhead Glass Mounting	B079B4037K	1		Without 'Glass Roof'
	Surround, Bulkhead Glass Mounting	A082B4498K	1		With 'Glass Roof'
	Foam Strip, Surround to Body	A036B6213V	3m		
38	Screw, 1/2", Surround to Body	A075W5014Z	9		
39	Screw, 3/4", Surround to Body	A075W5028Z	5		

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Page 2



TURBO
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DESCRIPTION

PART NUMBER

ALL

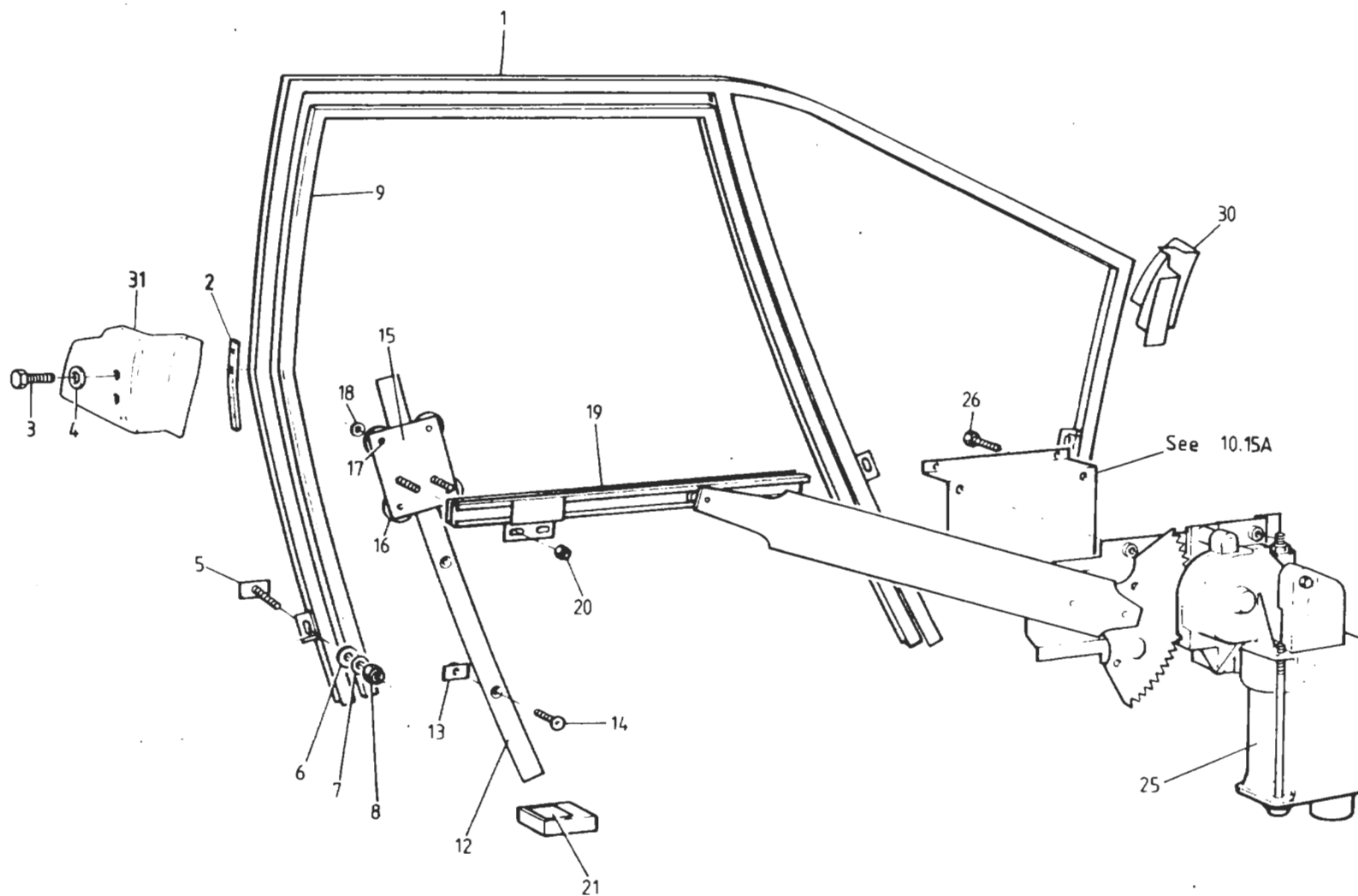
REMARKS

40 Glass, Tailgate, Heated
Glass, Tailgate, Unheated
41 Spacer, 4mm, Glass to Tailgate
42 Surround, Tailgate Glass

A082U4669F
A082U4668F
A075U0588Z
A082U4717F

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Turbo 11.01A
Page 3



TURBO
11.02A

ILLUS
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QUANTITY

MAY 1991

11.02A

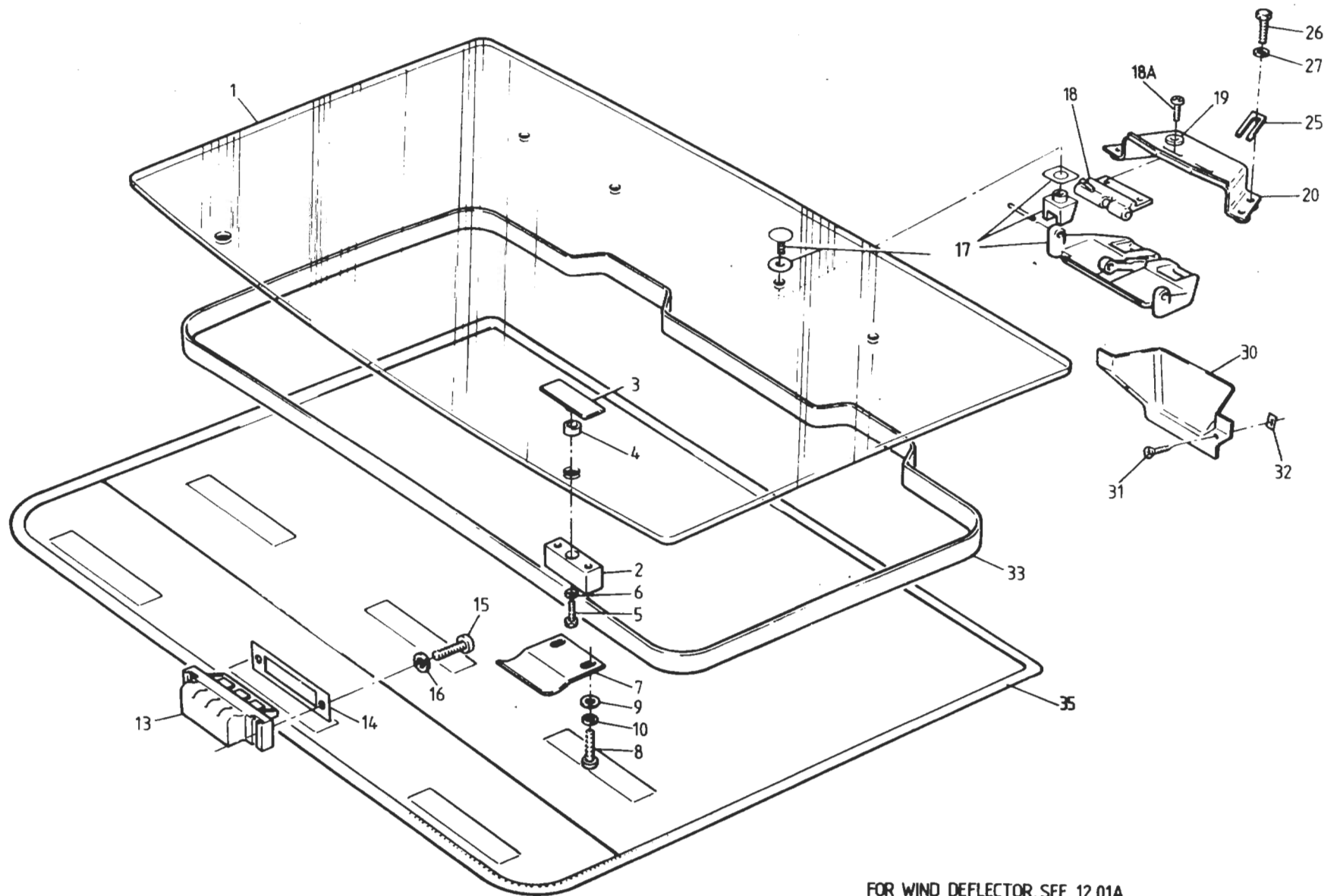
DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Door Window Frame, LH	B079U4115K	1		
	Door Window Frame, RH	B079U4116K	1		
2	Fixing Strap, Window Frame Top Rear	A079U4201F	2		
3	Screw, 10 UNF, Strap to Door Shell	A075W1002Z	4		
4	Washer, Strap to Door Shell	A075W4009Z	4		
5	Studplate, M6, Frame to Door Beam	B079U4011F	10		
6	Washer, M6 x 25 x 1.4	A075W4017F	10		
7	Washer, M6 x 20 x 2.5	A075W4016F	20		
8	Nut, Nyloc, M6	A075W3009Z	10		
9	Silent Channel, Drop Glass Guide	A079U4119K	2		
12	Guide Rail, Drop Glass, LH	B079U4249F	1		
	Guide Rail, Drop Glass, RH	B079U4250F	1		
13	Fixing Plate, M6, Guide to Beam	A079U4329K	4		
14	Screw, csk. M6 x 18, Guide to Beam	A079W7033F	4		
15	Carriage Plate, LH	B079U4253F	1		Drop Glass Channel to Guide Rail
	Carriage Plate, RH	B079U4252F	1		Drop Glass Channel to Guide Rail
16	Wheel, Carriage Plate	D036B0433Z	8		
17	Shoulder Pin, Wheel Pivot	B079U4265F	8		
18	Washer, Wheel Pivot	A075W4000Z	8		
19	Carrier Channel, Drop Glass, LH	A079U4257J	1		
	Carrier Channel, Drop Glass, RH	A079U4256J	1		
20	Nut, Nyloc, M6, Channel to Carrier	A075W3009Z	4		
21	Pad, Drop Glass Abutment	A085U4866K	2		
25	Window Motor, LH	A075M6091K	1		
	Window Motor, RH	A075M6090K	1		
26	Screw, 1/4" UNF x 1/2" Motor to Brkt.	A075W1018F	8		
30	Finisher, Front, Door Shell/Window Frame, LH	A082U5021K	1		
	Finisher, Front, Door Shell/Window Frame, RH	A082U5020K	1		
31	Finisher, Rear, Door Shell/Window Frame, LH	A082U4979K	1		
	Finisher, Rear, Door Shell/Window Frame, RH	A082U4980K	1		



FOR WIND DEFLECTOR, SEE 12.01A

TURBO
11.05A

ILLUS
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QUANTITY

1991

11.05A

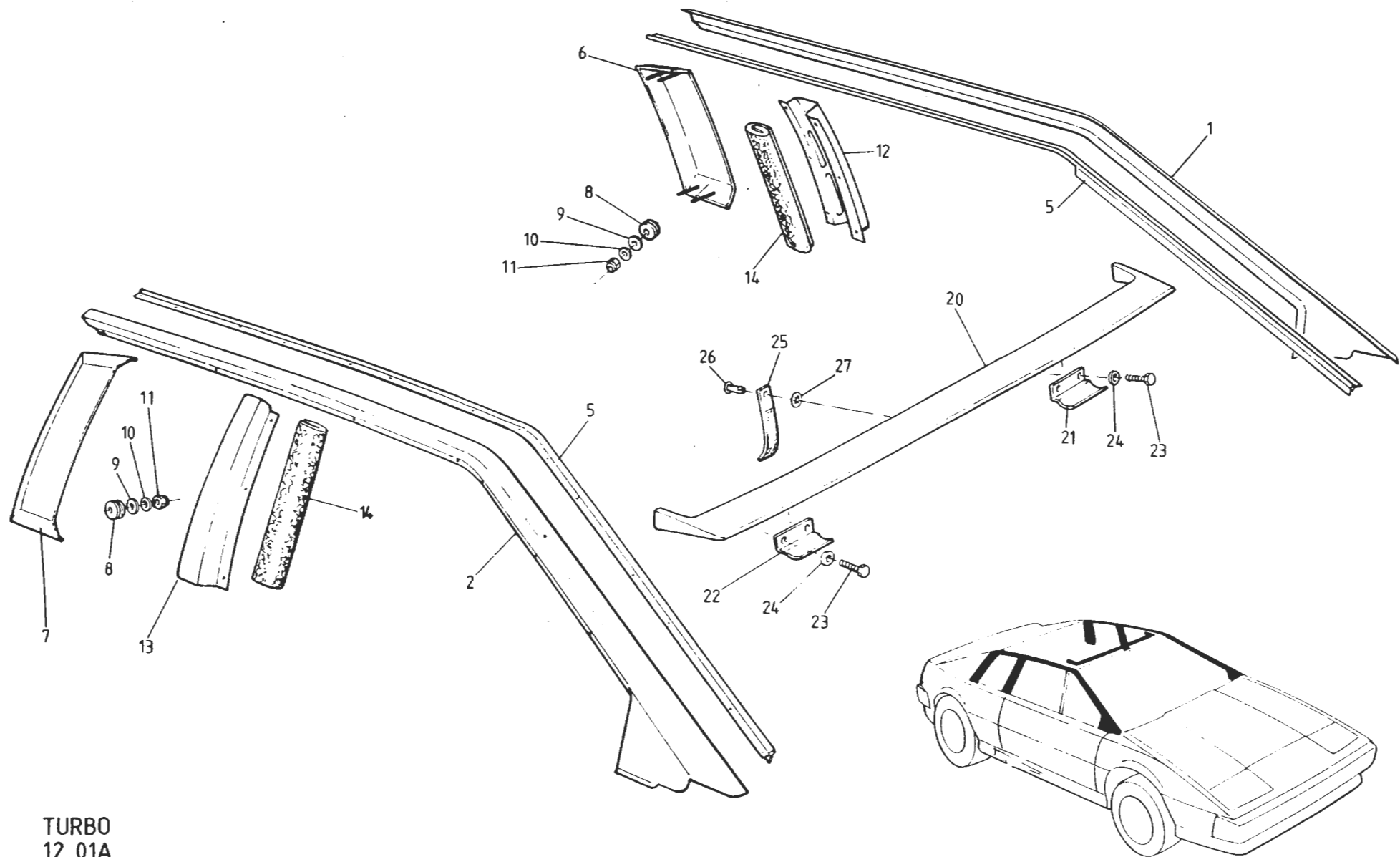
DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Glass Roof	C082U4968F	1		
2	Plinth, Tongue to Roof Glass	A082U4978F	2		
3	Tapping Plate, Tongue Plinth	A082U6100F	2		
4	Sealing Ring, Tapping Plate	A082U6103F	2		
5	Screw, Plinth to Tapping Plate	A082W5097F	2		
6	Washer, Plinth to Tapping Plate	A075W4000Z	2		
7	Tongue, Roof Glass Front	A082U6101F	2		
8	Screw, 10 UNF, Tongue to Plinth	A075W5058Z	4		
9	Washer, Flat, Tongue to Plinth	A075W4000Z	4		
10	Washer, Shakeproof, Tongue to Plinth	A075W4043Z	4		
13	Slot Recess, LH, Roof Aperture Front	A082U6097F	1		
	Slot Recess, RH, Roof Aperture Front	A082U6098F	1		
14	Gasket, Slot Recess to Body	A082U6099F	2		
	Bracket, Anti-rattle, Glass Roof	A082U5771F	2		If Fitted
15	Screw, Slot Recess to Body	A082W5115F	4		
16	Washer, Slot Recess to Body	A075W4000Z	4		
	Washer, Slot Recess to Body	A075W4036Z	4		
17	Catch Handle Assy. Roof Glass Rear	A082U6095F	2		
18	Sliding Pin Assy. Catch Handle	B082U6096F	2		
18A	Screw, M4 x 10, Sliding Pin Assy. to Brkt.	A075W5079F	4		
19	Washer, Sliding Pin Assy. to Brkt.	A075W4062F	4		
20	Mounting Bracket, Sliding Pin/Body	C082U4974F	2		R/B D082U4974F
	Mounting Bracket, Sliding Pin/Body	D082U4974F	2		With Roof Abutment Buffer
	Buffer, Rubber, Roof Abutment	X046B6113Z	2		Used With Bracket D082U4974F
25	Shim, Mounting Bracket to Body	A082U4975F	A/R		
26	Screw, M6 x 16, Brkt. to Body	A075W1028Z	8		
27	Washer, Bracket to Body	A075W4013Z	8		
30	Recess Moulding, Catch Bracket, LH	A082U4987K	1		
	Recess Moulding, Catch Bracket, RH	A082U4988K	1		
31	Screw, Moulding Fix	A075W5028Z	4		
32	Spire Nut, Moulding Fix	A075W6014Z	4		
33	Seal, Roof Glass to Body	A082U6123F	3m		
35	Bag, Roof Glass Protection	A082V7289J	1		Turbo 11.05A



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REMARKS

1	Capping Rail, LH	A079B4011K	1	With ABS Lower 'A' Post Finisher
	Capping Rail, LH	A082B4455K	1	With Integral Lower 'A' Post Finisher
	Capping Rail, RH	A079B4012K	1	With ABS Lower 'A' Post Finisher
2	Capping Rail, RH	A082B4454K	1	With Integral Lower 'A' Post Finisher
	Pop Rivet, Capping Rail to Body	A075W6066Z	14	
3	Finisher, 'A' Post Lower, LH ABS	A079U4165K	1	Used With Capping Rail A079B4011K
4	Finisher, 'A' Post Lower, RH ABS	A079U4166K	1	Used With Capping Rail A079B4012K
	Pop Rivet, Finisher Fixing	A075W6090Z	2	
	Drive Fastener, Black	A079W6159F	2	
5	Finisher Strip, Capping Rail to Body	B079U4010F	2	
	Pop Rivet, Finisher to Body	A075W6071Z	22	
6	Air Scoop, LH, Engine Bay Ventilation	A079B4127K	1	
7	Air Scoop, RH, Engine Air Intake	A079B4126K	1	
	Grille, LH, Air Scoop	A082U5117K	1	) '87 M.Y. on
	Grille, RH, Air Scoop	A082U5118K	1)
8	Grommet, Air Scoop to Body	A075U6058Z	8	
9	Rubber Washer, Air Scoop Fix	A036L6019Z	8	
10	Washer, Flat	A075W4000Z	8	
11	Nut, Nyloc, 10 UNF	A075W3000Z	8	
12	Finisher, 'B' Post, LH	B079B4035K	1	
13	Finisher, 'B' Post, RH	B079B4036K	1	
	Pop Rivet, Finisher Fix	A075W6065Z	16	
14	Foam Mesh, 'B' Post Ventilation	A082U5014K	2	
20	Wind Deflector	C082B4512K	1	In Primer. 'Glass Roof' Models
21	Retainer Tongue, LH, Wind Deflector	A082U4985F	1	
22	Retainer Tongue, RH, Wind Deflector	A082U4986F	1	
23	Screw, 10 UNF, Tongue to Deflector	A075W5059Z	4	
24	Washer, Tongue to Deflector	A075W4000Z	4	
25	Strap, Deflector Retaining	A082V7299J	1	
26	Rivet, Strap to Deflector	A079W6195Z	1	
27	Spring Clip, Strap Rivet	A075W6173F	1	

Turbo 12.01A

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turbo
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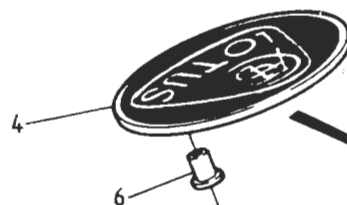
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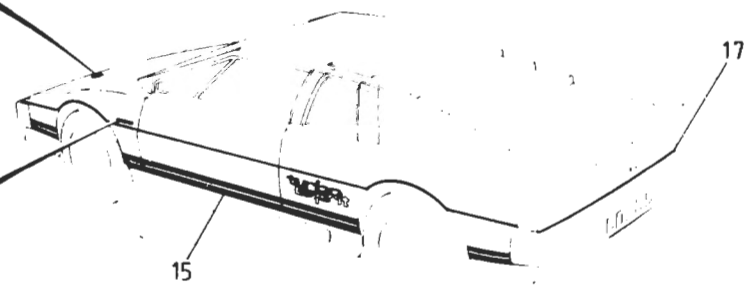
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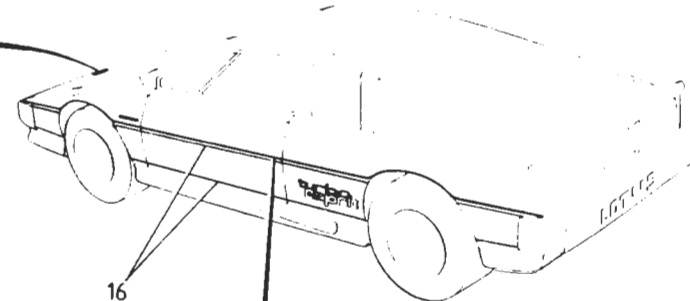
TURBO
12.05A



PRIOR TO '85 M.Y.



1985 M.Y.



22

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ILLUS
NO.

QUANTITY

MAY 1991

12.05A	DESCRIPTION	PART NUMBER	ALL	REMARKS
1	Badge 'Styled by Giugiaro'	A079U4047F	1/2	Not Essex Turbo
2	Badge, 'World Champion 1978'	A075U1160F	1	Where Fitted
3	Bezel, World Champion Badge	A036B6341Z	1	Where Fitted
4	Nose Badge, 'Old Style', Black/Silver	C036B0269F	1	
	" " " " Black/Gold	D036B0269F	1	R/B C079U4607F
	" " " " Black/Gold	C079U4607F	1	
5	Nose Badge, 'New Style', Green/Gold	A089U1550F	1	
	" " " " Black/Gold	A089U1610F	1	
6	Rawlnut, 2BA, Nose Badge Fixing	B075W6029Z	2	>As Required
	Rawlnut, M5, Nose Badge Fixing	A075W6074F	2	>
7	Decal, 'Essex Lotus'	A082U4718F	2)
8	Decal, Red 'X'	A082U4725F	2)
9	Chrome Stripe, 12 mm Wide	A082U4719F	12m)
10	Chrome Stripe, 100 mm Wide	A082U4720F	4.5m	)Essex Turbo Only
11	Red Stripe, 55 mm Wide	A082U4724F	12m)
12	Decal, Commemorative, Numbered	A082U4723F	2)
13	Decal, 'Essex', Chrome	A082U4722F	1)
14	Decal, 'Turbo Esprit', Chrome	A082U4721F	1)
	Decal, 'Turbo Esprit', Red	A082U4692F	3	Total Height of Decal 160mm)
	" " " Red	A082U4952F	2	" " " " 116mm)
	" " " Gold	A082U4773F	3	" " " " 160mm) Prior to
	" " " Gold	A082U4951F	2	" " " " 116mm) '87 M.Y.
	" " " Black	A082U4833F	3	" " " " 160mm)
	" " " Black	A082U4953F	2	" " " " 116mm)
	" " " Silver	A082U4984F	2	" " " " 116mm)
14A	Decal, 'Turbo Esprit H.C.', Gold/Red	A082U5873F	2)
	" " " " Red/Silver	A082U5874F	2)
	" " " " Blue/Silver	A082U5875F	2	) '87 M.Y. on (First Colour - Outline
	" " " " Gold/Black	A082U5876F	2	) Second Colour - Infill)
	Decal, 'Lotus', Red	A089U1771F	2	
	" " Gold	A089U1770F	2	
	" " Blue	A089U1772F	2	
	" " Silver	A089U1773F	2	

Turbo 12.05A

Page 1

turbo
esprit

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turbo
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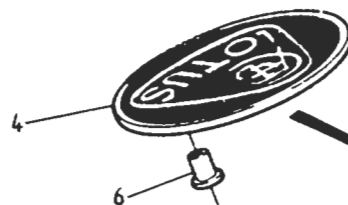
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ESSEX

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TURBO
12.05A

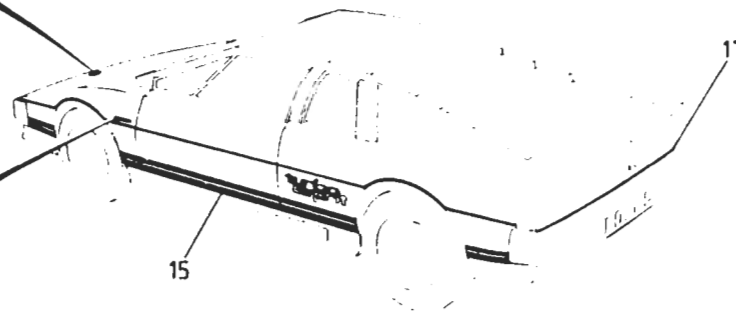


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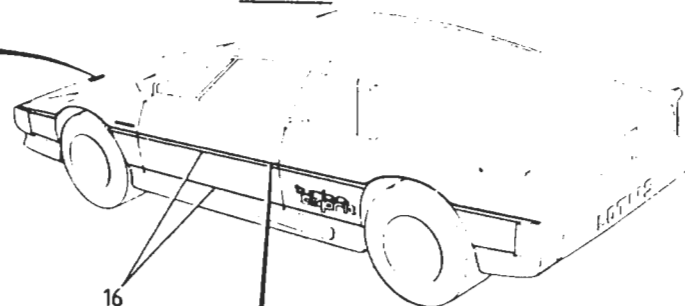
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giugiaro

PRIOR TO '85 MY



1985 MY



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ILLUS
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QUANTITY

MAY 1991

12.05A

DESCRIPTION

PART NUMBER

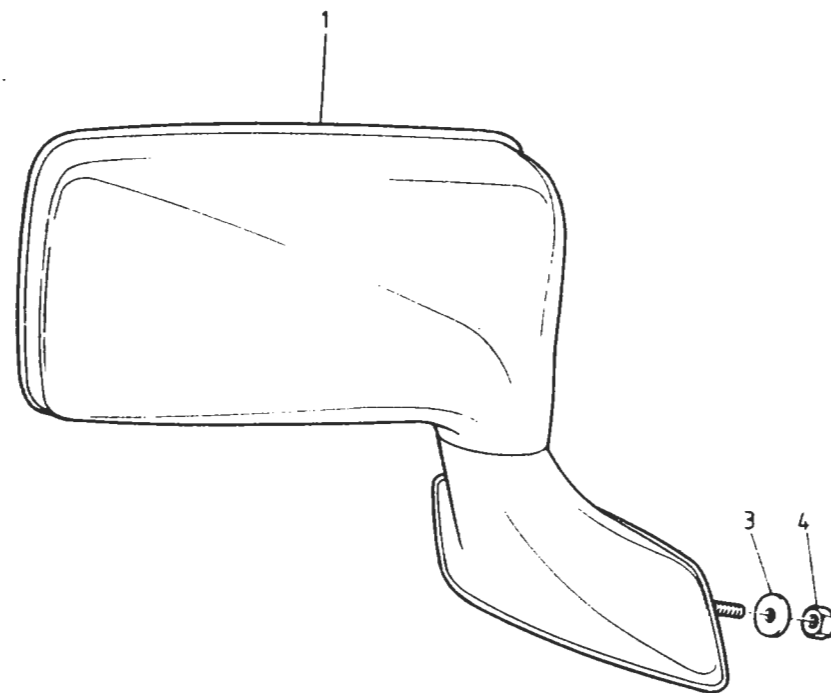
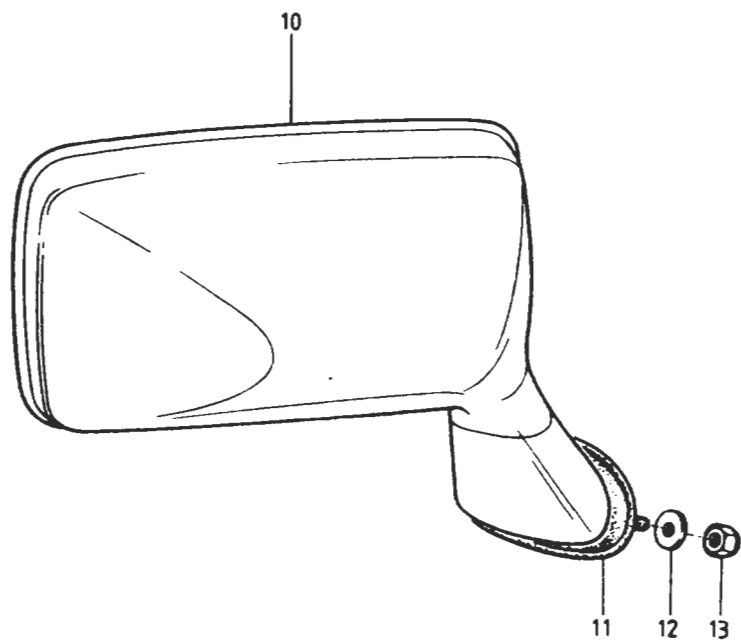
ALL

REMARKS

15	Single Stripe, 30 mm Wide, Red	A082U4867V	10m
	" " " " Gold	A082U4868V	10m
	" " " " Black	A082U4869V	10m
	" " " " Silver	A082U4884V	10m
16	Pin Stripe, 3 mm Wide, Red	A089U1699V	12m
	" " " " Gold	A089U1530V	12m
	" " " " Black	A089U1529V	12m
	" " " " Silver	A089U1769V	12m
	Pin Stripe, 3 mm Wide, Red	A089U1699V	12m
	" " " " Gold	A089U1530V	12m
	" " " " Blue	A089U1768V	12m
	" " " " Silver	A089U1769V	12m
17	Black Tape, 8 mm Wide, Spoiler/Bumper	A082U4962V	2m
20	Finisher Strip, Waistband ('Square' Profile)	B076U6005V	8m
	Finisher Strip, Waistband ('Square' Profile)	B076U6005V	10m
	Finisher Strip, Waistband ('Rounded' Profile)	A082U5105V	10m
21	Carrier, Waistband Finisher to Door	C079U4485F	2
22	Screw, s/t, Carrier to Door	A079W5004F	18
	Pop Rivet, Carrier to Door	A075W6092Z	18
	Double Sided Tape, Carrier to Door	A089U6063V	2.6m
	Adhesive, Part A, Waistband Finisher	A075U6088V	160cc
	Adhesive, Part B, Waistband Finisher	A075U6089V	40cc

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 Prior to '85 M.Y.
 Prior to '86 M.Y.
 '86 M.Y. Prior to VIN* * VIN 82 D 2360
 '86 M.Y. on From VIN* 82 - 0691
 R/B Pop Rivets

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12.09A

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DESCRIPTION

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QUANTITY

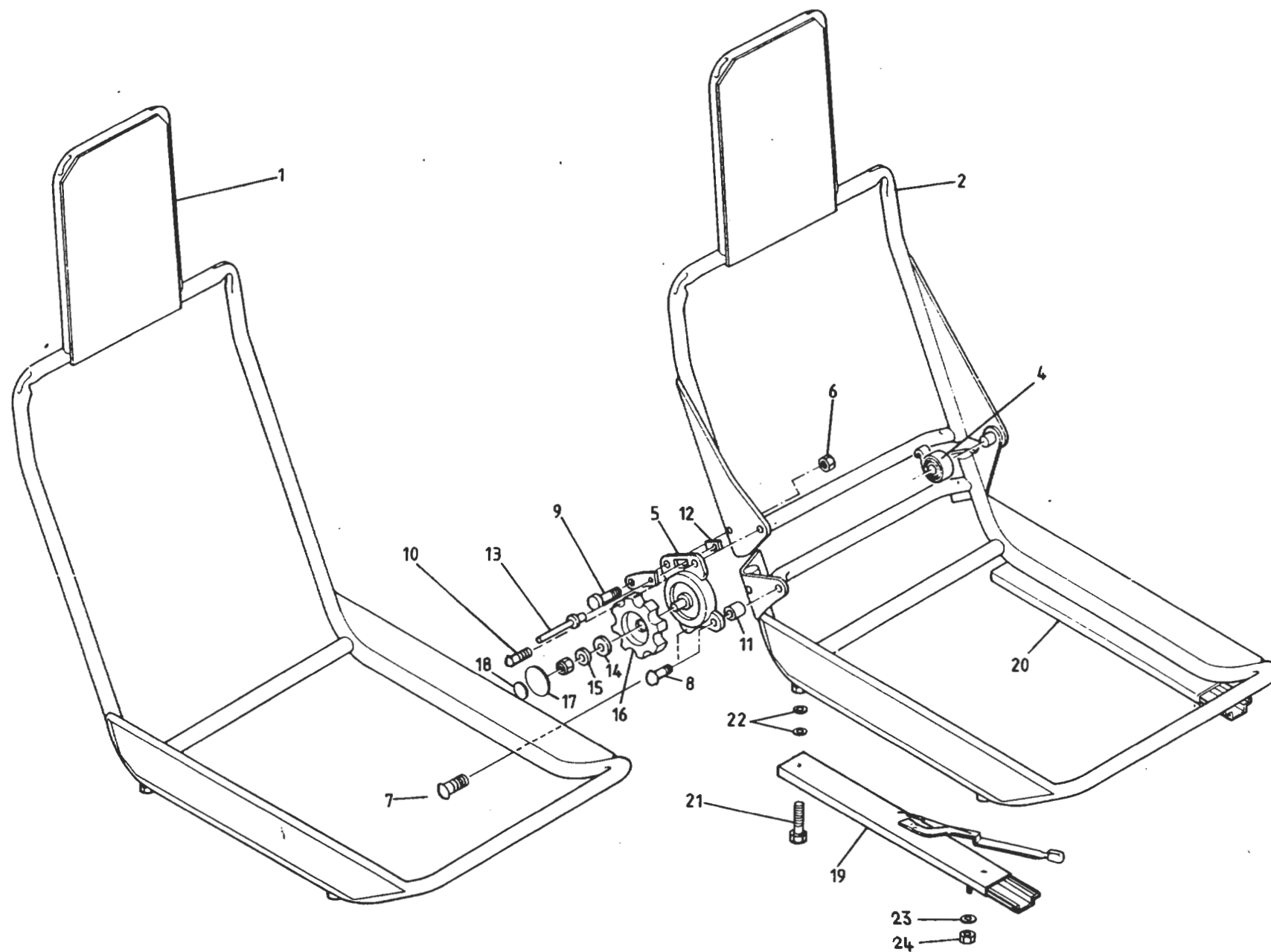
RHD

LHD

REMARKS

1	Door Mirror, RH, Convex	A079U6052F	1	1)
	Door Mirror, RH, Flat	A079U6054F	1	1	Optional)
	Door Mirror, LH, Convex	A079U6051F	1	1)
	Door Mirror, LH, Flat	A079U6053F	1	1	Optional)
3	Washer, Large O/D, Mirror to Door	A075W4017Z	4	4	) Prior to VIN 82 D 2137
4	Nut, Nyloc, M6, Mirror to Door	A075W3009Z	4	4	) 82 - 0606
	Mirror Glass, Convex	A079U6064F	2	2)
	Mirror Glass, Flat	A079U6063F	2	2)
	Bezel, Mirror	A079U6071F	2	2)
10	Door Mirror, RH, Less Mirror Glass	A082M6289F	1		>
	Door Mirror, RH, Less Mirror Glass	A082M6291F		1	>
	Door Mirror, LH, Less Mirror Glass	A082M6290F	1		>
	Door Mirror, LH, Less Mirror Glass	A082M6292F		1	> From VIN 82 D 2137
	Glass/Pad Assembly, Convex	A082M6295F	2	2	> 82 - 0606
11	Gasket, Door Mirror	A082M6305F	2	2	>
12	Washer, Mirror to Door	A075W4016Z	4	4	>
13	Nut, Nyloc, M6, Mirror to Door	A075W3009Z	4	4	>

Turbo 12.09A



TURBO
13-03A

**QUANTITY**

DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y

'87 M.Y
ON

REMARKS

1	Seat Frame
2	Seat Frame, Reclining, RH
	Seat Frame, Reclining, LH
4	Spring, Anti-Rattle
5	Seat Reclining Mechanism, RH
	Seat Reclining Mechanism, LH
6	Nut, Nyloc, M8
7	Bolt, M8 x 60, Button Head
8	Bolt, M8 x 30, Button Head
9	Stud, Pawl Pivot
10	Bolt, M8 x 20, Button Head
11	Spacer
12	Locking Plate, Tilt Pawl
13	Pop Rivet, Locking Plate Fix
14	Washer, Drive Plate Clamp
15	Washer, Recline Mechanism Shaft
16	Handwheel, Seat Recline
17	Trim, Handwheel Centre
18	Badge, Handwheel Trim Centre
19	Seat Runner, Locking
20	Seat Runner, Non-Locking
21	Setscrew, Runner to Seat Frame
22	Washer, Runner to Seat Frame
23	Washer, Flat, Large O/D, Floor Underside
24	Nut, Nyloc, M8, Runner to Floor

F079V4006F
A082V5912F
A082V5913F
A083V6091F
A083V6066F
A083V6065F
A075W3010F
A082W7051F
A082W7050F
A083V2420F
A075W7022F
A082V5921F
A082V5923F
A075W6087F
A089U6066F
A089U6065F
A083V6067F
A083V6068F
A089U1553F
A085V5721K
A085V5722K
A075W1038Z
A075W4013Z
A075W4021F
A075W3010F

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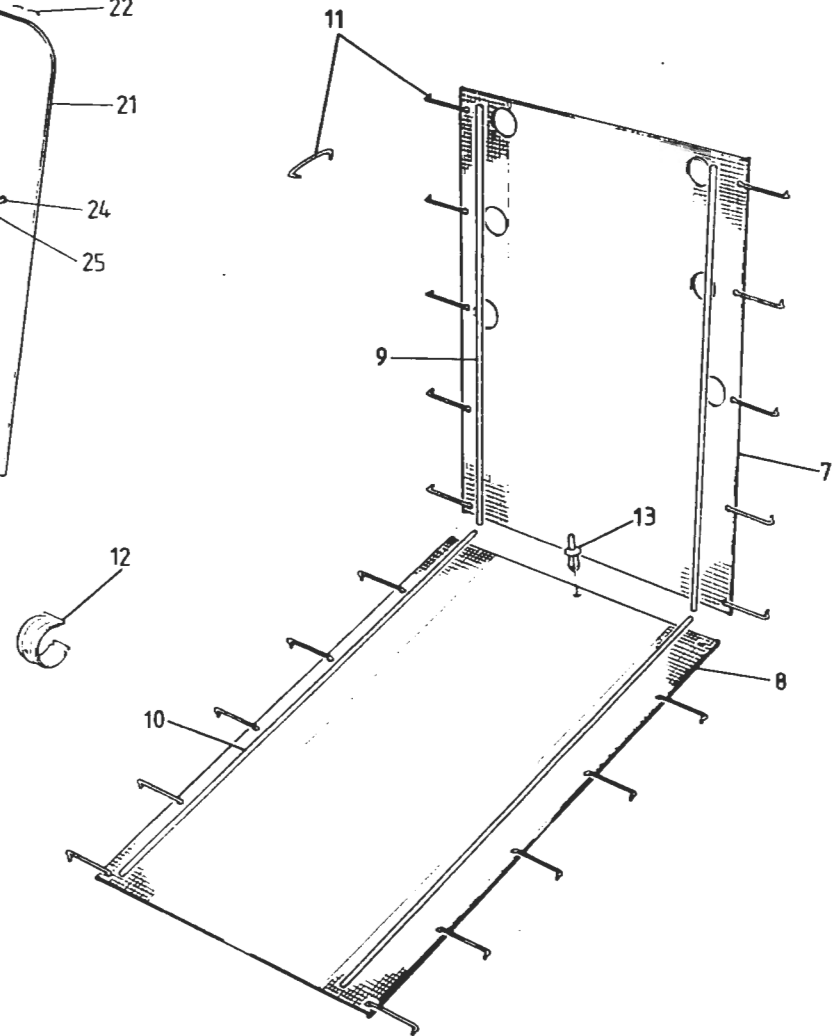
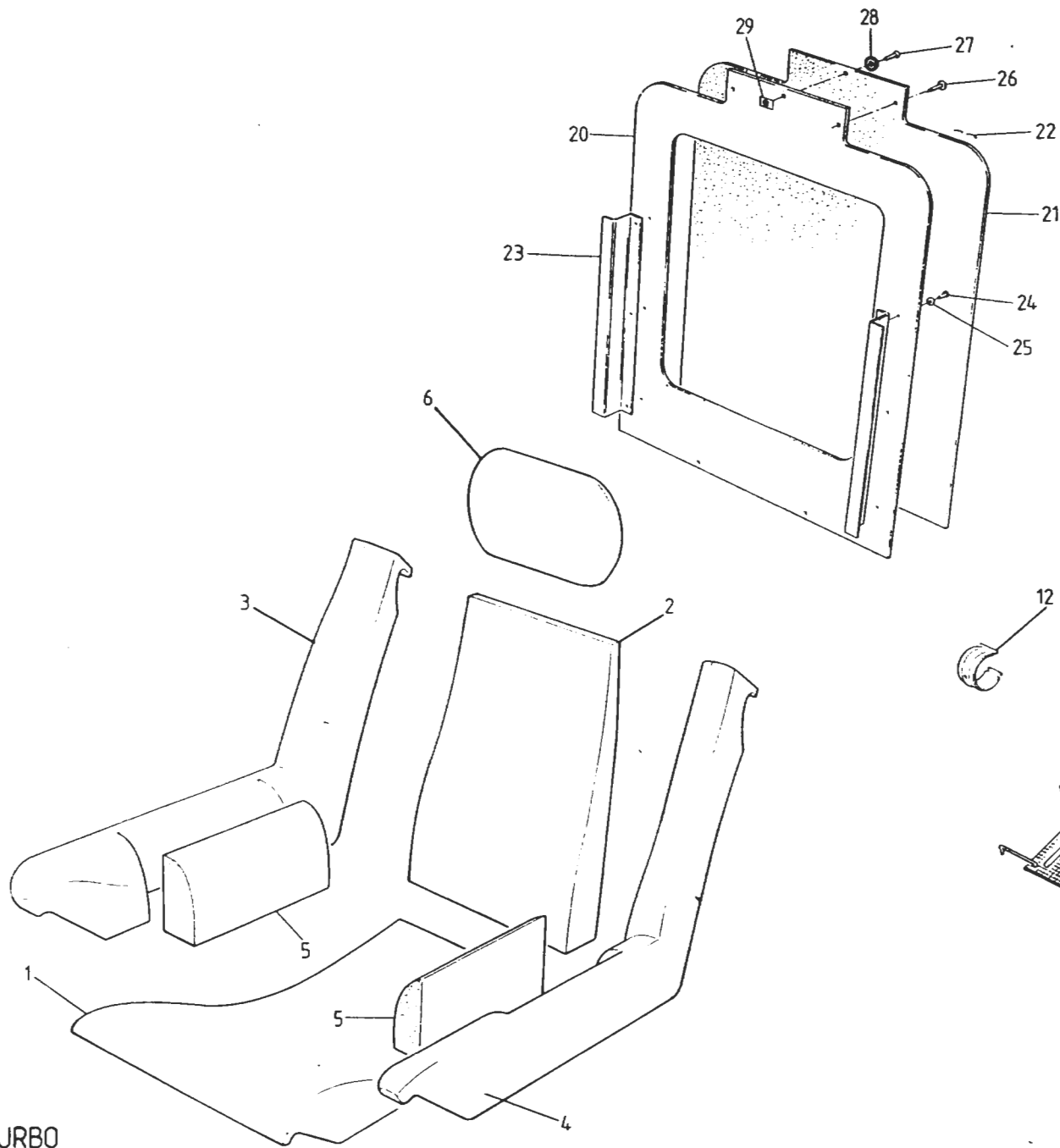
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Turbo 13.03A



ILLUS
NO.

QUANTITY

MAY 1991

13.09A

DESCRIPTION

PART NUMBER

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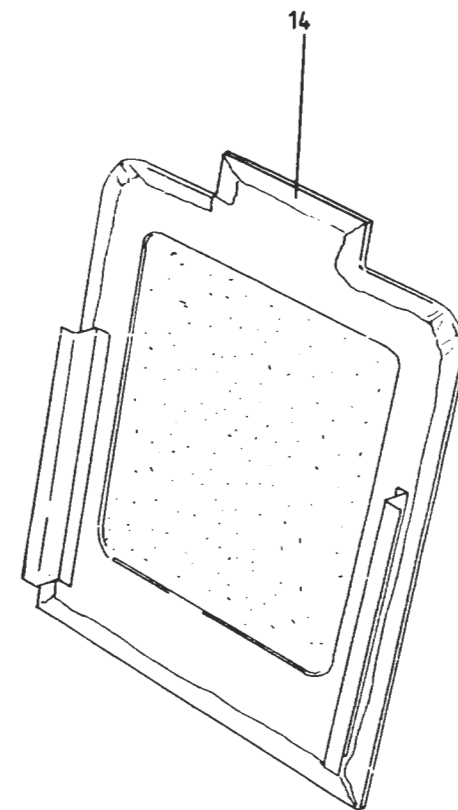
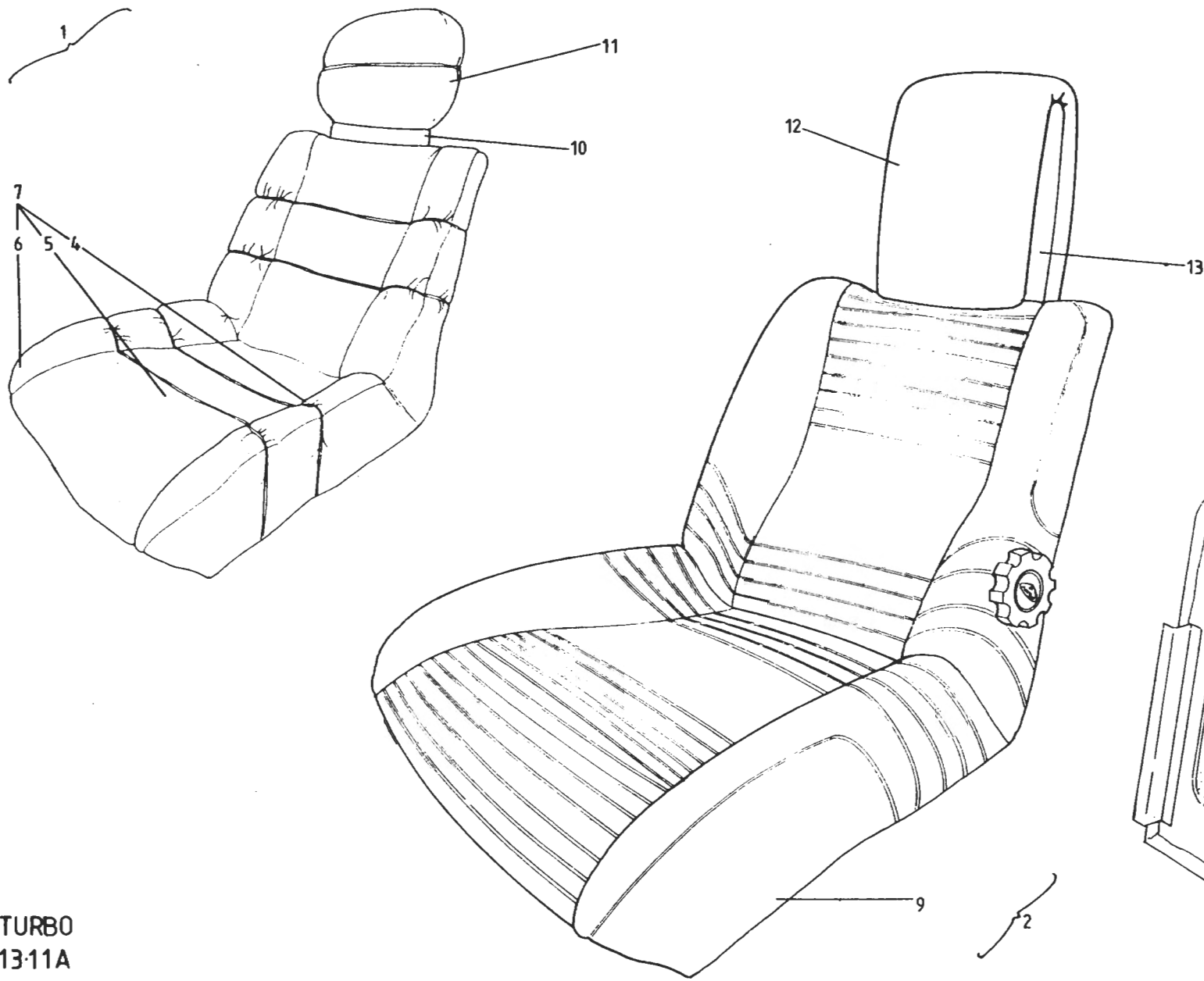
REMARKS

1	Cushion Foam	A082V4777F	2
2	Backrest Foam	A082V4778F	2
3	Armrest Foam, RH	A085V5664K	2
4	Armrest Foam, LH	A085V5665K	2
	Armrest Foam, RH	A082V7352P	2
	Armrest Foam, LH	A082V7353P	2
5	Insert, Armrest Foam	A085V5666F	4
6	Headrest Foam	A082V4779F	2
7	Suspension Unit, Backrest	B085V5663F	2
8	Suspension Unit, Cushion	B085V5662F	2
9	Flexolator, Backrest, 520mm	A082V4782F	4
10	Flexolator, Cushion, 490mm	A082V4783F	4
11	Hogring, Flexolator to Suspension Unit	A075W6076F	80
12	Tube Clip, Trim to Frame	B079W6120F	110
13	Rivet, Rokut, Cushion Unit to Frame	A079W6195F	6
20	Backboard	E079V4130F	2
21	Foam, 3mm, Seat Backboard	A079V6010V	1sq.m
22	Staple	A075W6100F	100
23	Bracket, Seat Backboard Fix	A079V4122K	4
24	Pop Rivet, Bracket to Backboard	A075W6090Z	12
25	Washer, Pop Rivet	A075W4001Z	12
26	Screw, Backboard to Seat Frame	A075W5028Z	6
27	Screw, Press Stud Fix	A075W5026Z	4
28	Press Stud, Headrest Collar Fix	A076W6111D	4
29	Spire Nut, Press Stud Fix	A075W6013Z	4

Quantities Are Per Car

)Fixed Seat. Prior '87 M.Y.
)
>Reclining Seat. '87 M.Y. on
>

Turbo 13.09A



TURBO
13:11A

ILLUS
NO.

QUANTITY

MAY 1991

13.11A

DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

1	Trimmed Seat Assembly, Complete	082V7174J*	2		Fixed Backrest.
2	Trimmed Seat Assembly, Complete, RH	082V7362J*		1	>Reclining.
	Trimmed Seat Assembly, Complete, LH	082V7363J*		1	>
4	Trim Cover, Seat LH Flank	082V7179J*	2)
5	Trim Cover, Seat Centre	082V7178J*	2		)Early Cars With 3 - Piece Seat Trim
6	Trim Cover, Seat, RH Flank	082V7177J*	2)
7	Trim Cover, Seat, Complete	082V7180J*	2		
9	Trim Cover, Seat, Complete, LH	082V7367J*		1	
	Trim Cover, Seat, Complete, RH	082V7366J*		1	
10	Collar, Seat Head Restraint	082V7183J*	2		
11	Trim Cover, Seat Head Restraint	082V7184J*	2		
12	Trim Cover, Seat Head Restraint, Removeable	082V7370J*		2	
13	Trim Cover, Head Restraint Frame	082V7379J*		2	
14	Seat Backboard, Trimmed	082V7185J*	2		
	Seat Backboard, Trimmed	082V7382J*		2	

*Prefix Trim Part Numbers With:

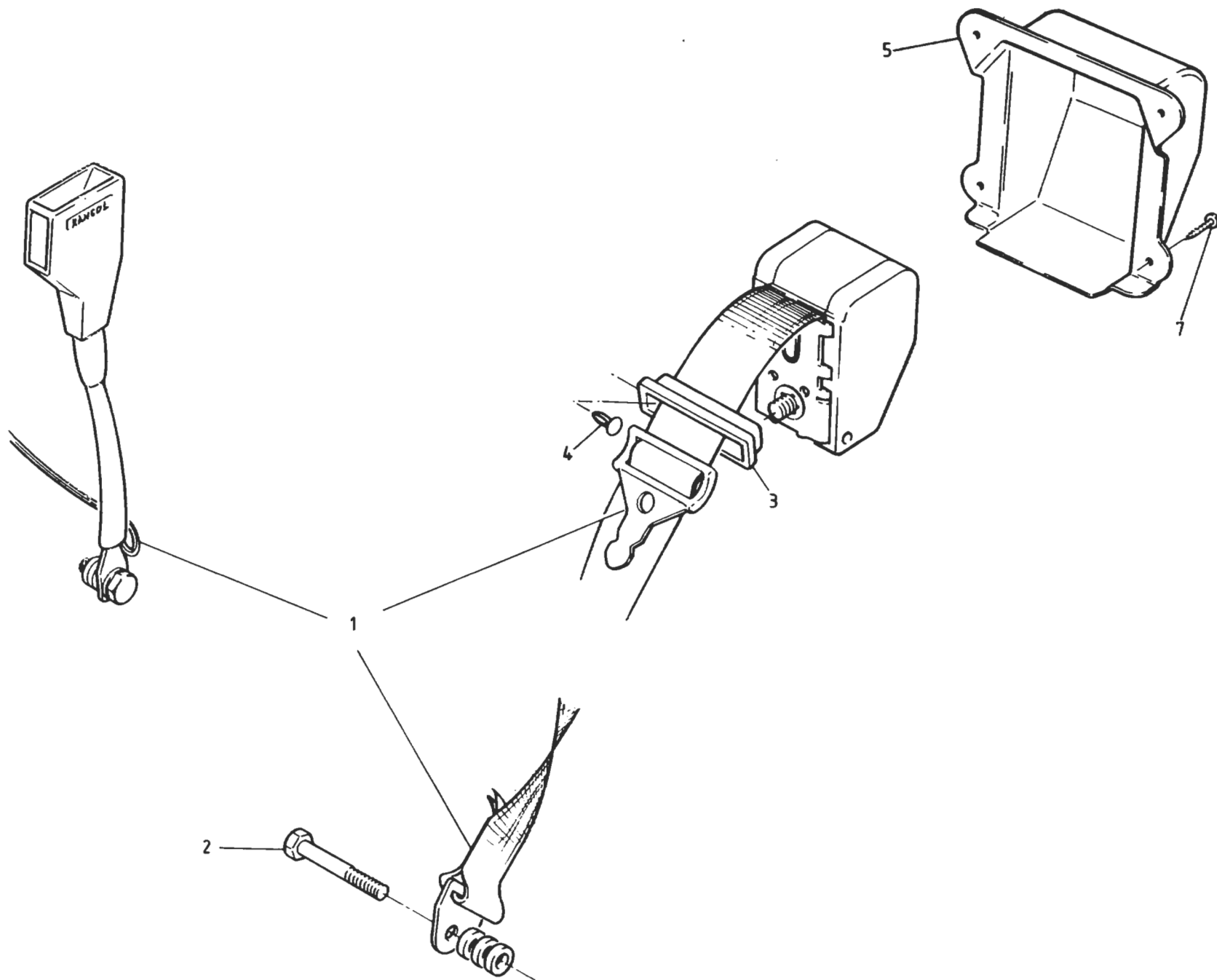
A - All Leather (State Smooth or Ruched)

B - All Cloth

F - Leather & Cloth (State Smooth or Ruched)

Also Specify or Supply Sample of Colour
and Vehicle Identification Number (VIN)

Turbo 13.11A



TURBO
13.27A

ILLUS
NO.



QUANTITY

MAY 1991

13.27A

DESCRIPTION

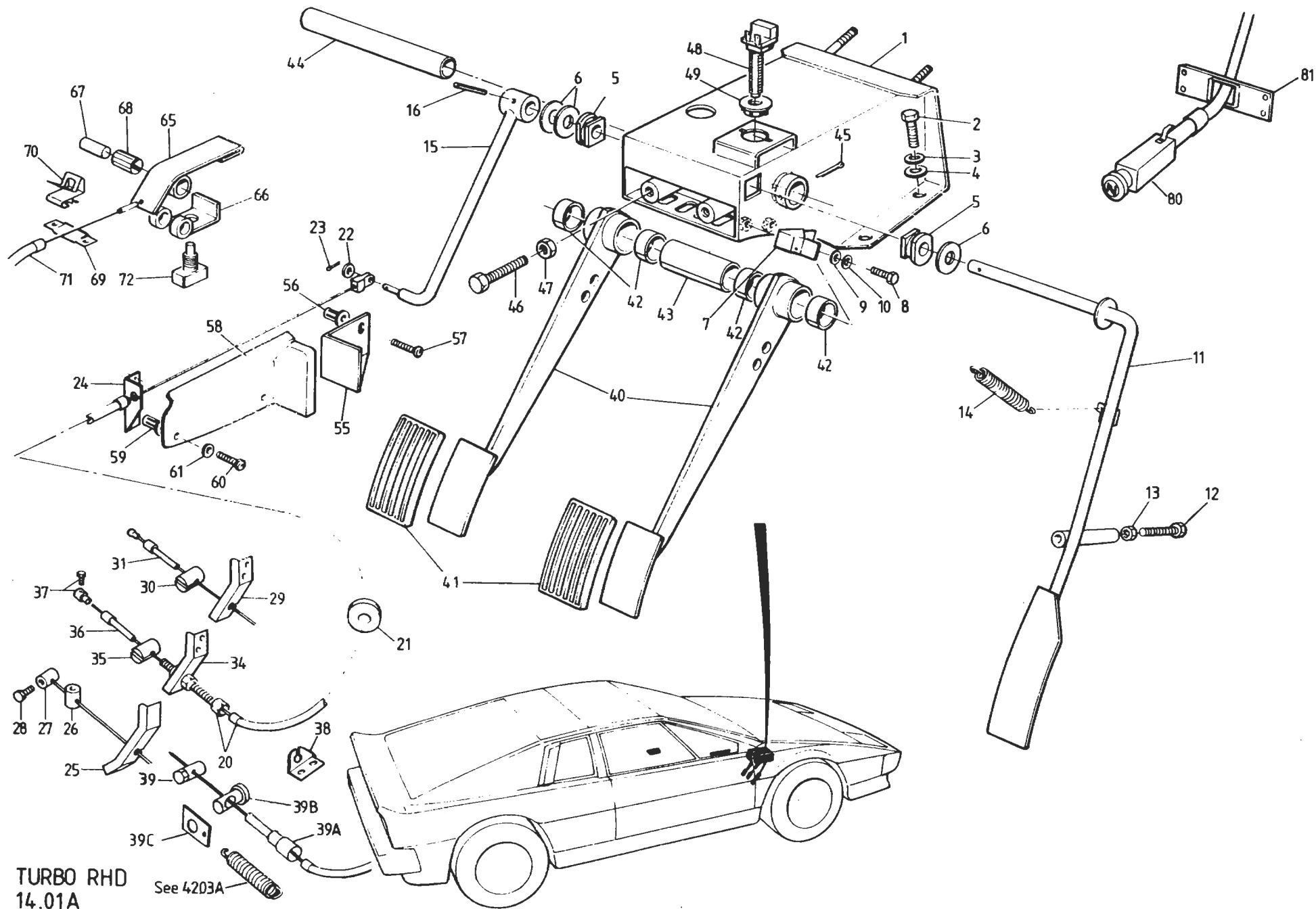
PART NUMBER

ALL

REMARKS

1	Seat Belt Assembly	B085V5730F	2	R/B A085V7166F
	Seat Belt Assembly	A085V7166F	2	R/B B085V7166F
	Seat Belt Assembly	B085V7166F	2	
3	Finisher, Seat Belt Bulkhead Slot	B075V0612K	2	
4	Button, Slot Finisher Fixing	A075W6041F	4	
5	Cover, Seat Belt Reel, ABS	A082U4740K	2	
7	Screw, Belt Reel Cover	A075W5028Z	8	

Turbo 13.27A



TURBO RHD
14.01A

See 4203A

ILLUS
NO.



QUANTITY

MAY 1991

14.01B

DESCRIPTION

PART NUMBER

LHD

REMARKS

1

Pedal Box (Uses Threaded Stop Switch)

B079J4059J

1

Pedal Box (Uses Push & Twist Stop Switch)

C079J4059J

1

Pedal Box (Uses Push & Twist Stop Switch)

D079J4059J

1

2

Setscrew, M8 x 25, Pedal Box to Chassis

A075W1039Z

4

3

Washer, Spring, Pedal Box to Chassis

A075W4048Z

4

4

Washer, Flat, Pedal Box to Chassis

A075W4020Z

4

5

Bearing, Throttle Pedal Pivot

A075J6005F

2

6

Washer, Throttle Pedal Pivot

A075W4005F

3

7

Bracket, Throttle Pedal Upstop

G079J4017F

1

8

Setscrew, M6 x 16, Upstop to P/Box

A075W1028F

2

9

Washer, Flat, Upstop Fix

A075W4013F

2

Nut, Nyloc, M6, Upstop Fix

A075W3009F

2

10

Washer, Shakeproof

A075W4046F

2

11

Throttle Pedal

A079J4062F

1

12

Split Pin, Throttle Pedal Retention

A075W6176F

1

13

Bolt, M8 x 60, Pedal Downstop

A079W1044F

1

14

Locknut, M8, Downstop

A075W3026F

1

15

Buffer, Pedal Downstop

X046B6113Z

1

16

Spring, Throttle Pedal Return

A075J6029F

1

20

Abutment Bracket, Throttle Downstop

A079J4057F

1

21

Setscrew, M6 x 16, Bracket Fix

A075W1028Z

4

22

Washer, Large O/D, Bracket Fix

A075W4017Z

4

23

Nut, Nyloc, M6, Bracket Fix

A075W3009Z

4

30

Throttle Cable, Inc. Adjuster

C079J4055F

1

31

Grommet, Throttle Cable

X050B6158Z

1

32

Clevis Pin, Cable to Pedal

A075W6030Z

1

33

Washer, Cable Clevis to Pedal

A075W4000Z

1

34

Split Pin, Clevis Retaining

A075W6005Z

1

35

Abutment, Throttle Cable

C079J4016K

1

Pop Rivet, Abutment to Body

A075W6090F

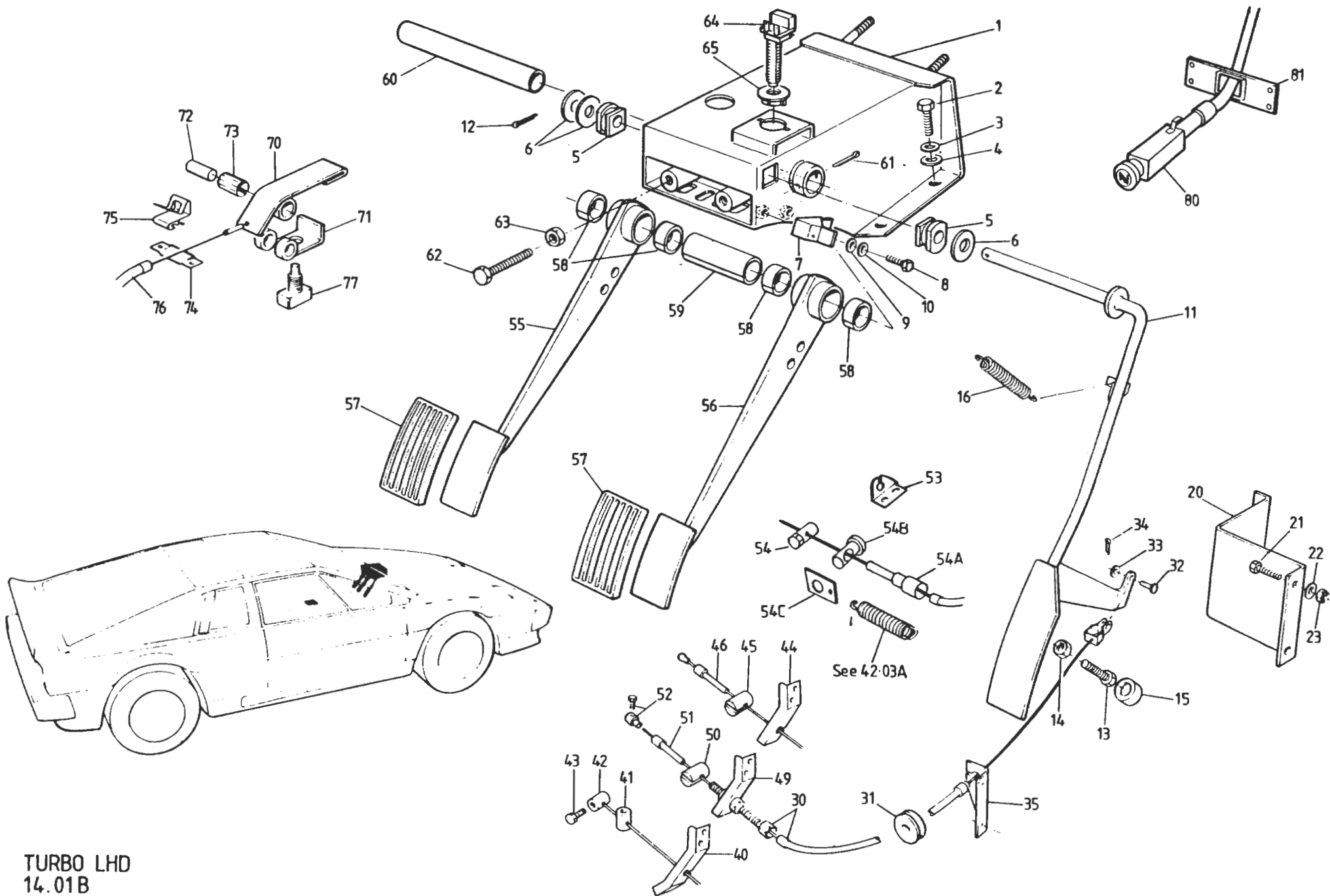
2

This Page LHD Only. For RHD See 14.01A

R/B D079J4059J with stop switch A089M6019F,
Bush A089M6020F & mtng brkt A082J4169K
With integral top mounted stop switch brkt,
R/B D079J4059J with brkt A082J4169K
Uses separate rear mounted stop switch brkt

With No Pedal Box Weldnuts
With Pedal Box Weldnuts

Turbo LHD 14.01B
Page 1



TURBO LHD
14.01B

14.01A

**QUANTITY**

MAY 1991

DESCRIPTION

PART NUMBER

RHD

REMARKS

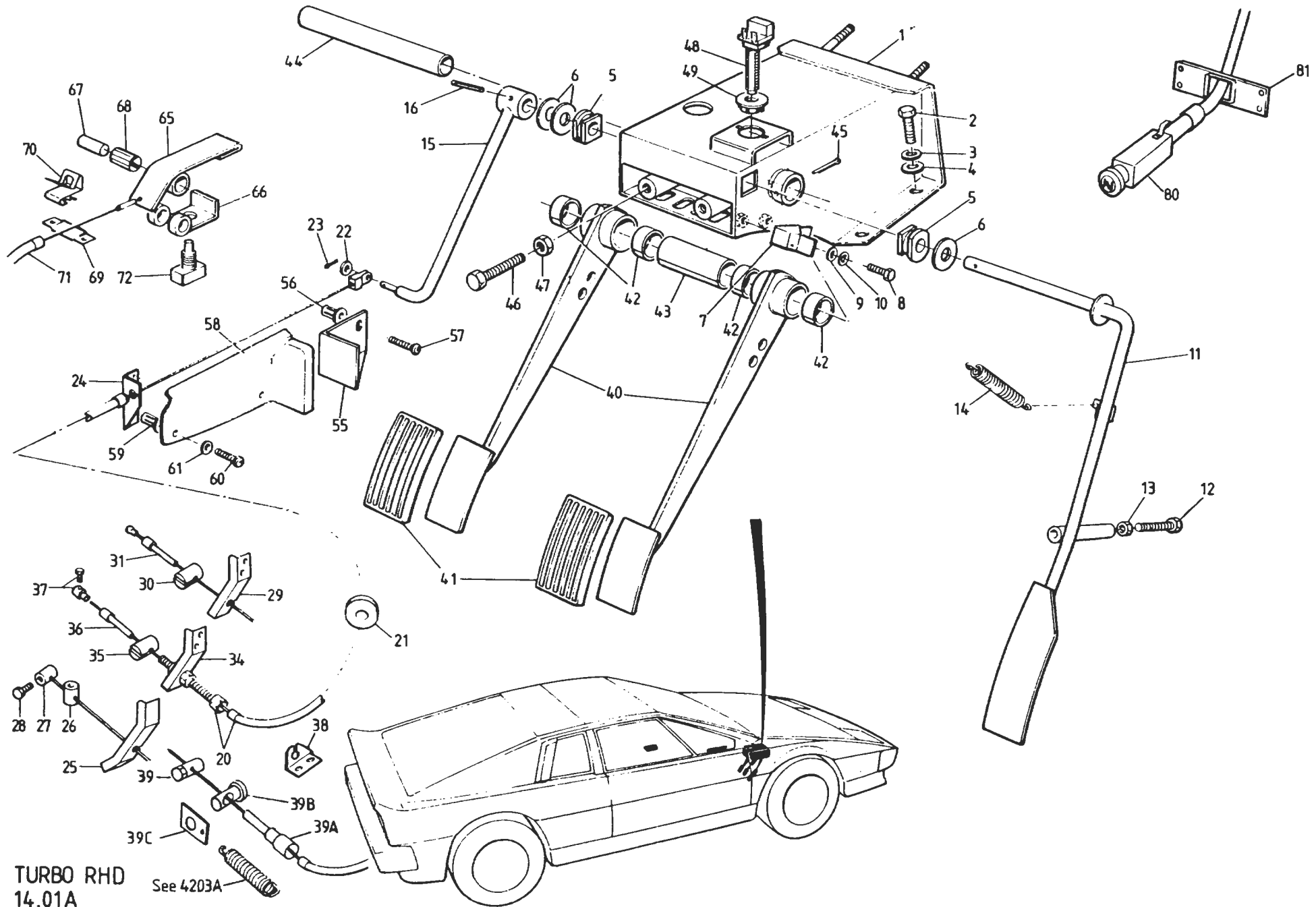
This Page RHD Only. For LHD See 14.01B

R/B D079J4059J with stop switch A089M6019F,
Bush A089M6020F & mtg brkt A082J4169K
With integral top mounted stop switch brkt
R/B D079J4059J with brkt A082J4169K
Uses separate rear mounted stop switch brkt

With No Pedal Box Weldnuts
With Pedal Box Weldnuts
R/B C079J4060F With Downstop

On Plenum B/Plate)With Hairpin
Less Clamp Screw)Type Carb.
)Lever Return
)Spring

Turbo RHD 14.01A
Page 1



TURBO RHD
14.01A

See 4203A

ILLUS
NO.

QUANTITY

MAY 1991

14.01A

DESCRIPTION

PART NUMBER

RHD

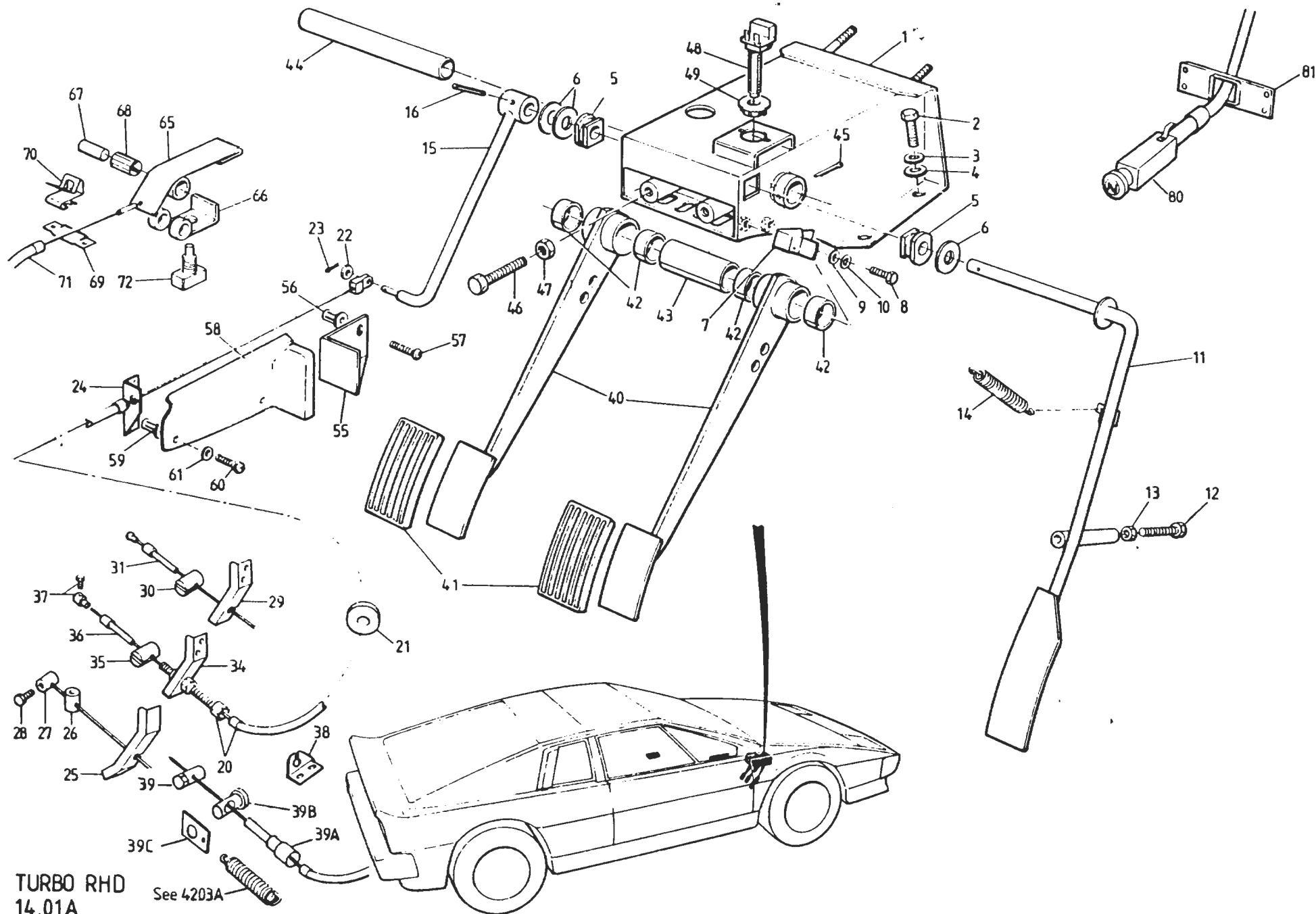
REMARKS

					<u>This Page RHD Only. For LHD See 14.01B</u>
29	Bracket, Throttle Cable Abutment	D910E1535F	1		)Used With Extension Type Carb.
30	Trunnion Barrel, Carb. Throttle Lever	A082J4118F	1		)Lever Return Spring, With S/Less
31	Spacer, Trunnion to Nipple	A082J4119F*	1		)Nipple At Pedal End. Replace Parts
	Barrel, Solderless Niple	A074K6001Z*	1		)Marked * With Parts Marked + And Fit
	Screw, Solderless Nipple	B074K6002Z*	1		)S/Less Nipple At Carb. End. Refer To
					)S/B 1985/08
34	Bracket, Throttle Cable Abutment	D910E1535F	1		>Used With Extension Type Carb.
35	Trunnion Barrel, Carb. Throttle Lever	A082J4118F	1		>Lever Return Spring, With S/Less
36	Spacer Trunnion to Nipple	A082J4119F+	1		>Nipple At Carb. End.
37	Solderless Nipple	A082J6096F+	1		>
	Setscrew, Abutment Bracket to Plenum	A075W1027Z	2		
	Washer, Spring, Abutment Bracket to Plenum	A075W4035Z	2		
38	Anchor Bracket, Throttle Cable to Cam Cover	A912E1639F	1)
	Screw, Anchor Bracket to Cam Cover	A079W7011F	2)
39	Solderless Nipple, Throttle Cable	A050B6160F	1)
39A	Cable Extension	A079J4079F	1		)'87 M.Y. on
39B	Trunnion Barrel, Carb. Throttle Lever	A079J4077F	1)
39C	Spring Plate, Throttle Return Spring	A079J4078K	1)
40	Pedal, Brake and Clutch	D079J4002F	2		Prior to '85 Model Year
	Pedal, Brake and Clutch	A082J4126F	2		'85 Model Year Onward
41	Pad, Brake & Clutch Pedals	A079J6001F	2		
42	Pivot Bush, Brake & Clutch Pedals	A079J6025F	4		
43	Spacer, Brake/Clutch Pedals	A079J4005F	1		
44	Shaft, Brake and Clutch Pedal Pivot	B079J4003J	1		
45	Split Pin, Pedal Shaft Retaining	A075W6008Z	1		
46	Setscrew, M8 x 50, Brake/Clutch Upstop	A079W1044F	2		
47	Locknut, M8, Brake/Clutch Upstop	A075W3026Z	2		'85 Model Year Onward
	Switch, Stop Light	X036M6154W	1		) Thread & Nut Fixing
	Locknut, Stop Switch	A050M6067Z	1)

d4p37

Turbo RHD 14.01A

Page 2



TURBO RHD
14.01A

See 4203A

ILLUS
NO.

QUANTITY

MAY 1991

14.01A

DESCRIPTION

PART NUMBER

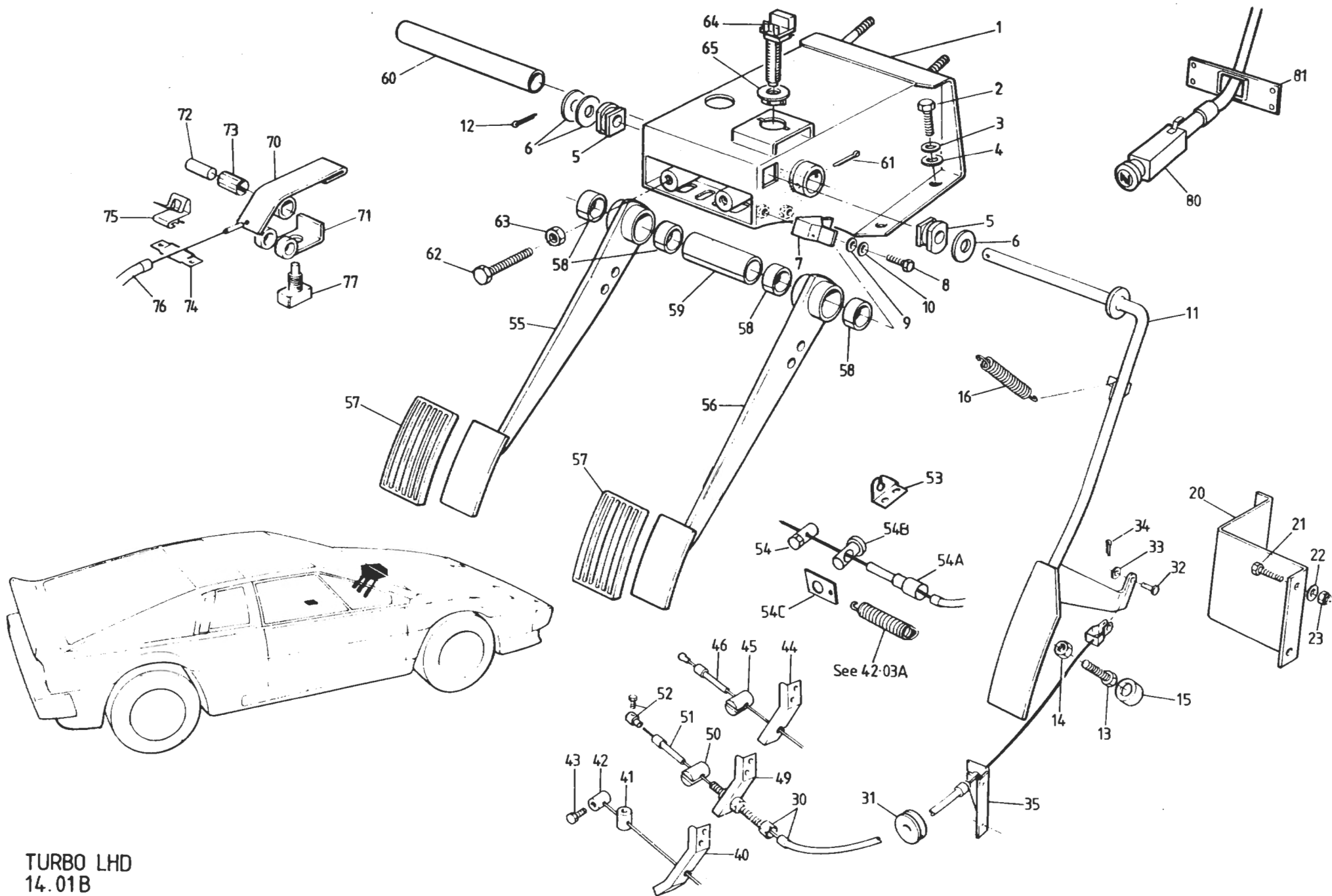
RHD

REMARKS

This Page RHD Only. For LHD See 14.01B

48	Switch, Stop Light	A089M6019F	1		>'Quickfit', Push and Twist
49	Bush, Stop Switch Retentional	A089M6020F	1		>
	Bracket, Stop Light Switch Mounting	A082J4169K	1		Used with Pedal Box D079J4059J
55	Footrest, Left FootBrake/Clutch Upstop	A079J4074K	1		
56	Jacknut, M5, Footrest Fixing	A076W3043F	2		
57	Setscrew, M5 x 12, Footrest Fixing	A075W1021F	2		
58	Cover, Footrest	B079J4075K	1		
59	Jacknut, M6, Cover Fixing	A075W3034F	2		
60	Setscrew, M6 x 12, Cover Fixing	A075W1027F	2		
61	Washer, Shakeproof Cover Fixing	A075W4046F	2		
65	Choke Lever	D079U4235F	1)
66	Bracket, Choke Lever Mounting	F079U4260F	1)
	Pop Rivet, 1/8", Bracket Fix	A075W6090Z	2)
67	Pivot Pin, Choke Lever	A079U4261F	1)
68	Bush 'Startol Ring', Choke Lever Pivot	A079U6019F	1		)With Tunnel Mounted Choke Control
69	Bracket, Choke Cable Abutment	B079U4297F	1)
70	Clip, Choke Cable Abutment	A075W6117F	1)
71	Choke Cable	A079S4008F	1)
72	Micro-Switch, Choke Warning	B075M6024F	1)
80	Choke Cable (inc. Micro Switch)	A082S4101F	1		>
81	Mounting Plate, Choke Cable to Fascia	C082U4927F	1		>With Fascia Mounted Choke Control
	Pop Rivet, Mounting Plate to Fascia	A075W6066F	4		>Prior to VIN 82 D 2402
	Clip, Choke Cable to Engine Bay Rear	A079W6124F	1		> 82 - 0708
	Choke Cable (inc. Micro Switch)	A089S0764F	1)
	Mounting Plate, Choke Cable to Fascia	A082U5116F	1		)With Fascia Mounted Choke Control
	Pop Rivet, Mounting Plate to Fascia	A075W6090Z	4		)From VIN 82 D 2402
	Washer, Pop Rivet	A075W4001Z	4		) 82 - 0708
	Clip, Choke Cable to Plate	A089W6278F	1)

Turbo RHD 14.01A
Page 3



TURBO LHD
14.01B

ILLUS
NO.

QUANTITY

MAY 1981

14.01B

DESCRIPTION

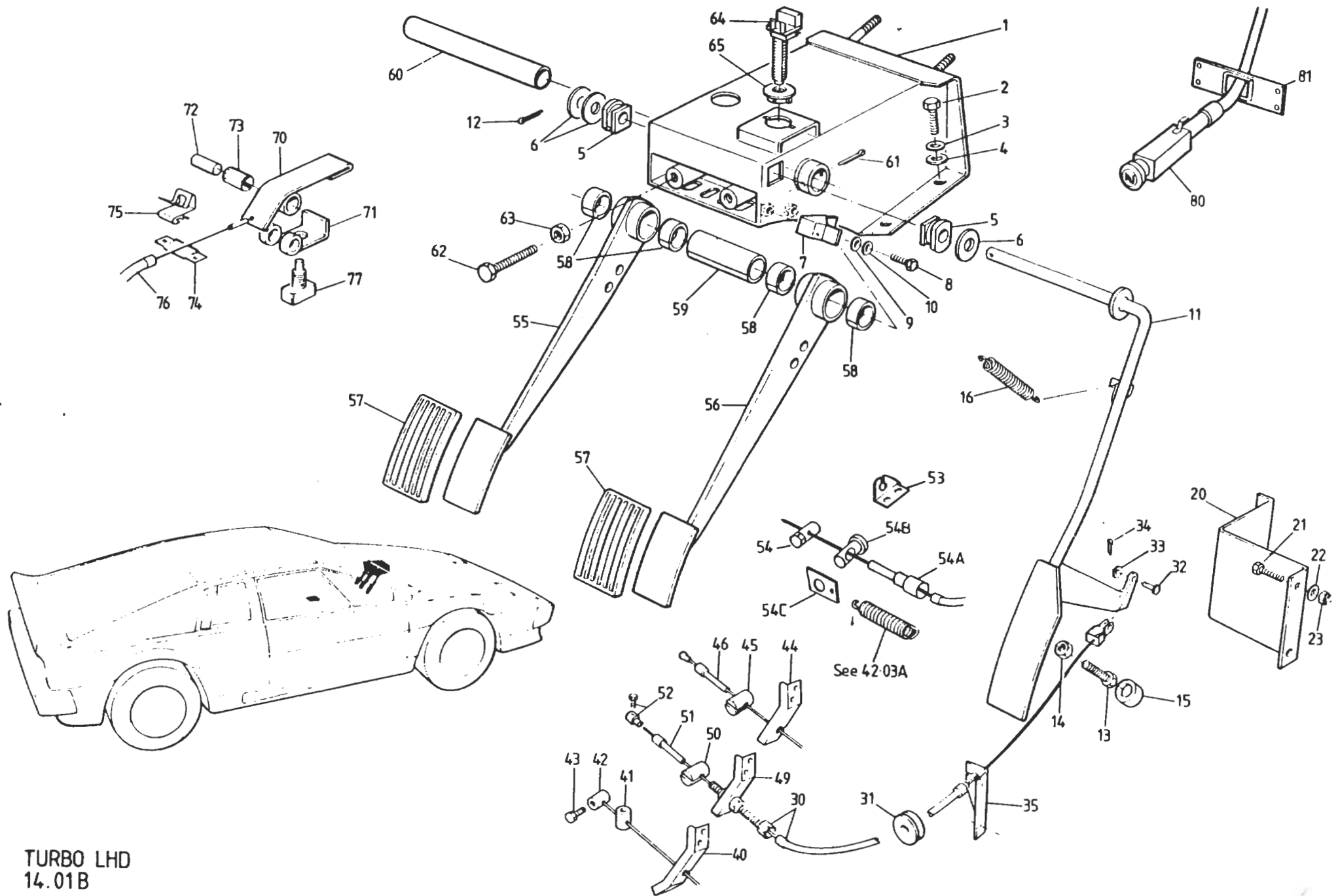
PART NUMBER

LHD

REMARKS

				<u>This Page LHD Only. For RHD See 14.01A</u>
40	Bracket, Throttle Cable Abutment	C910E1535F	1	On Plenum B/Plate)With Hairpin Type
41	Trunnion Barrel, Carb. Throttle Lever	A050B6160F	1	Less Clamp Screw)Carb. Lever Return
42	Barrel, Solderless Nipple (modify)	A074K6001Z	1	)Spring
43	Screw, Solderless Nipple	B074K6002F	1)
44	Bracket, Throttle Cable Abutment	D910E1535F	1	)Used With Extension Type Carb.Lever
45	Trunnion Barrel, Carb. Throttle Lever	A082J4118F	1	)Return Spring, With S/Less Nipple At
46	Spacer, Trunnion to Nipple	A082J4119F*	1	)Pedal End. Replace Parts Marked * With
	Barrel, Solderless Nipple	A074K6001Z*	1	)Parts Marked + And Fit S/Less Nipple At
	Screw, Solderless Nipple	B074K6002Z*	1	)Carb End. Refer To S/B 1985/08
49	Bracket, Throttle Cable Abutment	D910E1535F	1	>Used With Extension Type Carb. Lever
50	Trunnion Barrel, Carb. Throttle Lever	A082J4118F	1	>Return Spring, With S/Less Nipple At
51	Spacer Trunnion to Nipple	A082J4119F+	1	>Carb. End.
52	Solderless Nipple	A082J6096F+	1	>
	Setscrew, Abutment Bracket to Plenum	A075W1027Z	2	
	Washer, Spring, Abut. Brkt. to Plenum	A075W4035Z	2	
53	Anchor Bracket, Throttle Cable to Cam Cover	A912E1639F	1)
	Screw, Anchor Bracket to Cam Cover	A079W7011F	2)
54	Solderless Nipple, Throttle Cable	A050B6160F	1)
54A	Cable Extension	A079J4079F	1	) '87 M.Y. on
54B	Trunnion Barrel, Carb. Throttle Lever	A079J4077F	1)
54C	Spring Plate, Throttle Return Spring	A079J4078K	1)
55	Pedal, Clutch	A079J4051F	1	Prior to '85 Model Year
	Pedal, Clutch	A082J4125F	1	1985 Model Year Onwards
56	Pedal, Brake	A079J4051F	1	Prior to '85 Model Year
	Pedal, Brake	A082J4125F	1	1985 Model Year Onwards
57	Pad, Brake & Clutch Pedals	A079J6001F	2	
58	Pivot Brush, Brake & Clutch Pedals	A079J6025F	4	
59	Spacer, Brake/Clutch Pedals	A079J4005F	1	
60	Shaft, Brake & Clutch Pedal Pivot	B079J4003J	1	
61	Split Pin, Pedal Shaft Retaining	A075W6008Z	1	

Turbo LHD 14.01B
Page 2



TURBO LHD
14.01B

ILLUS
NO.



QUANTITY

MAY 1991

14.01B

DESCRIPTION

PART NUMBER

LHD

REMARKS

62 Setscrew, M8 x 50, Brake/Clutch Upstop
63 Locknut, M8, Brake/Clutch Upstop
Switch, Stop Light
Locknut, Stop Switch
64 Switch, Stop Light
65 Bush, Stop Switch Retention
Bracket, Stop Light Switch Mounting
70 Choke Lever
71 Bracket, Choke Lever Mounting
Pop Rivet 1/8" Bracket Fix
72 Pivot Pin, Choke Lever
73 Bush, 'Startol Ring' Choke Lever Pivot
74 Bracket, Choke Cable Abutment
75 Clip, Choke Cable Abutment
76 Choke Cable
77 Micro-Switch, Choke Warning
80 Choke Cable (inc. Micro Switch)
81 Mounting Plate, Choke Cable to Fascia
Pop Rivet, Mounting Plate to Fascia
Clip, Choke Cable to Engine Bay Rear
Choke Cable (inc. Micro Switch)
Mounting Plate, Choke Cable to Fascia
Pop Rivet, Mounting Plate to Fascia
Washer, Pop Rivet
Clip, Choke Cable to Plate

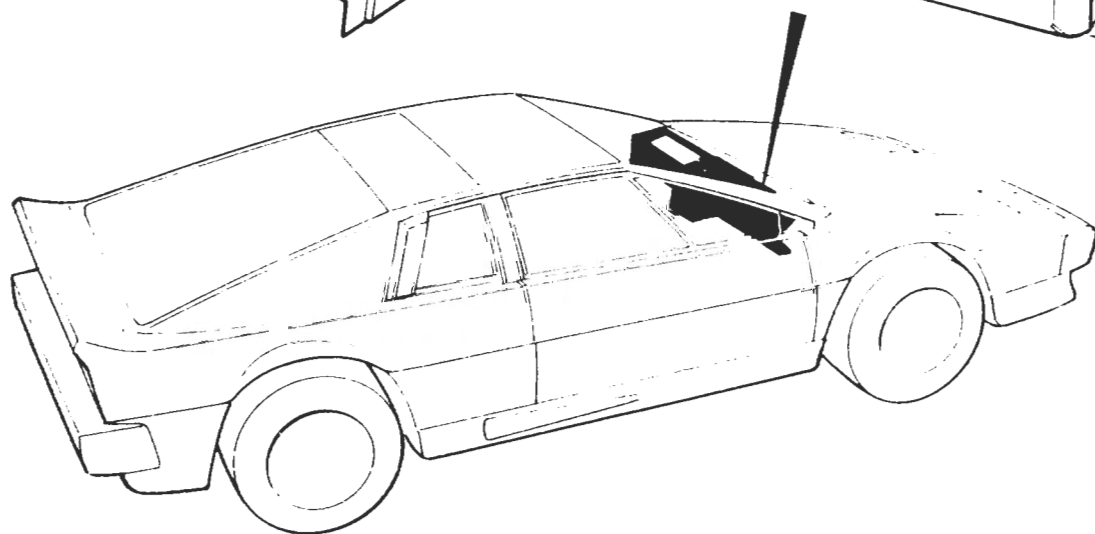
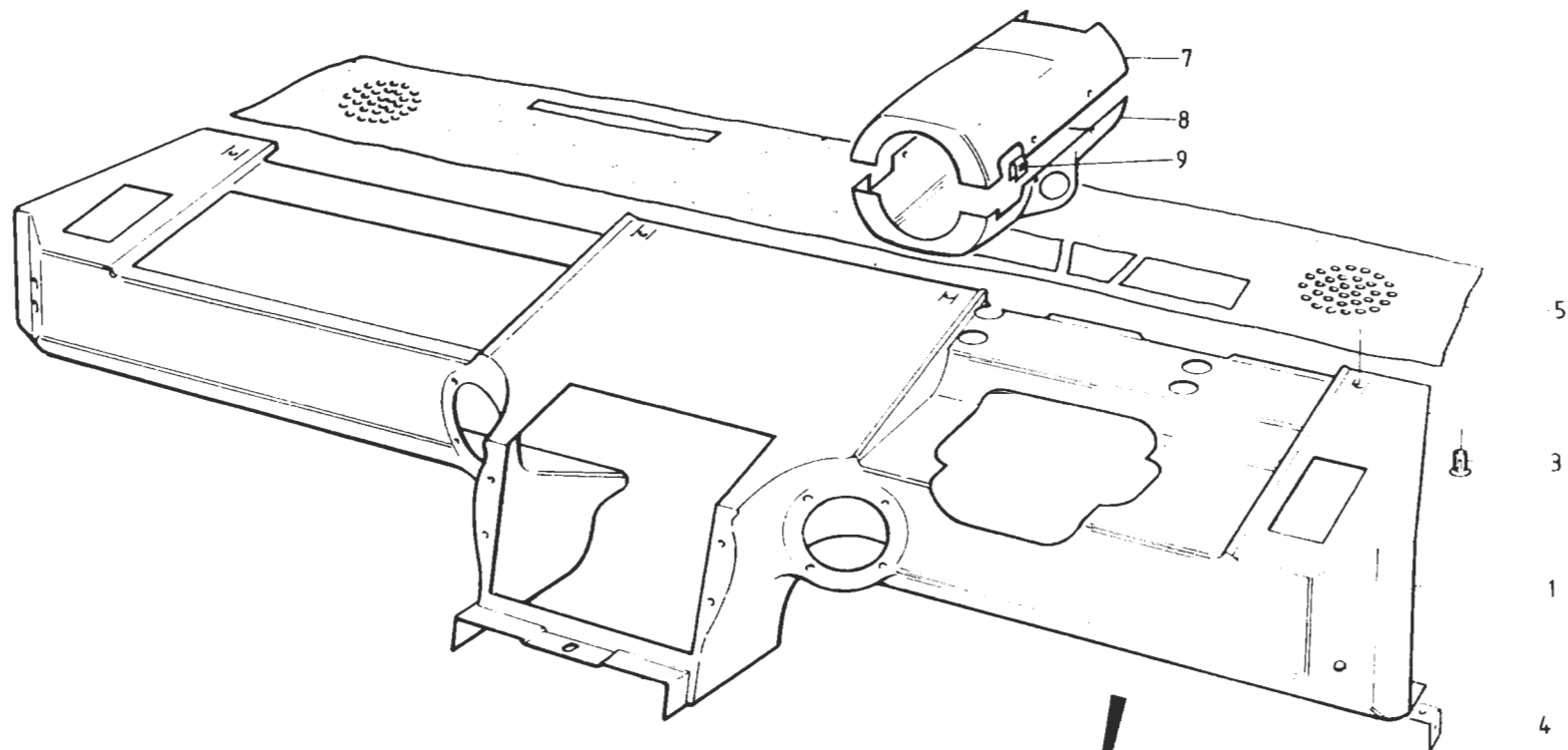
A079W1044F
A075W3026Z
X036M6154W
A050M6067Z
A089M6019F
A089M6020F
A082J4169K
D079U4235F
F079U4260F
A075W6090Z
A079U4261F
A079U6019F
B079U4297F
A075W6117F
A079S4008F
B075M6024F
A082S4101F
C082U4927F
A075W6066F
A079W6124F
A089S0764F
A082U5116F
A075W6090Z
A075W4001Z
A089W6278F

2
2
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1
1
1
1
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1

This Page LHD Only. For RHD See 14.01A

) Thread & Nut Fitting
)
>Quickfit', Push & Twist
>
Used with Pedal Box D079J4059J
)
)
)
)
)With Tunnel Mounted Choke Control
)
)
)
)
)
>
>With Fascia Mounted Choke Control
>Prior to VIN 82 D 2402 Outer Cable
> 82 - 0708 Length 3.0m
)
)With Fascia Mounted Choke Control
)From VIN 82 D 2402 Outer Cable
) 82 - 0708 Length 2.7m
)

Turbo LHD 14.01B
Page 3



TURBO
14.05A

ILLUS
NO.

QUANTITY

MAY 1991

14.05A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

1

Fascia, Trimmed
 Fascia, Trimmed
 Fascia, Trimmed, Square Choke Cable Aperture
 Fascia, Trimmed, 'D' Shape Cable Aperture
 Fascia, Trimmed
 Fascia, Trimmed
 Fascia, Trimmed, Square Choke Cable Aperture
 Fascia, Trimmed, 'D' Shape Cable Aperture

082V5170J*
 082V7188J*
 082V7287J*†
 082V7430J*†
 082V5171J*
 082V7190J*
 082V7288J*†
 082V7431J*†

1
 1
 1
 1

1
 1
 1
 1

With Rectangular Centre Vents
 With Round Centre Vents. No Choke Aperture
)Round Centre Vents. Choke Cable Aperture
)
 With Rectangular Centre Vents
 With Round Centre Vents. No Choke Aperture
)Round Centre Vents. Choke Cable Aperture
)

3

Jacknut, M6, Fascia Fixing

A075W3034Z

4

4

4

Bracket, Fascia to 'A' Post

A079U4354K

2

2

5

Trim Cover, Screen Landing

082V5206K*

1

1

Trim Cover, Screen Landing

082V7217K*

1

1

7

Column Shroud, Top, Trimmed

082V5185J*

1

1

8

Column Shroud, Bottom, Trimmed

082V5186J*

1

1

9

Spire Nut, Column Shroud Fixing

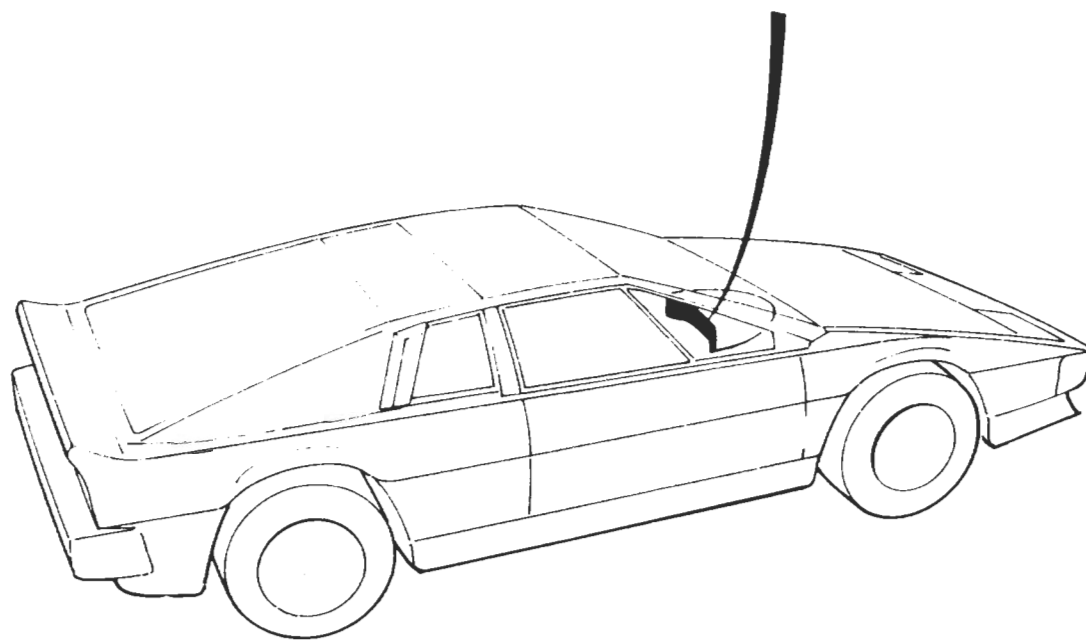
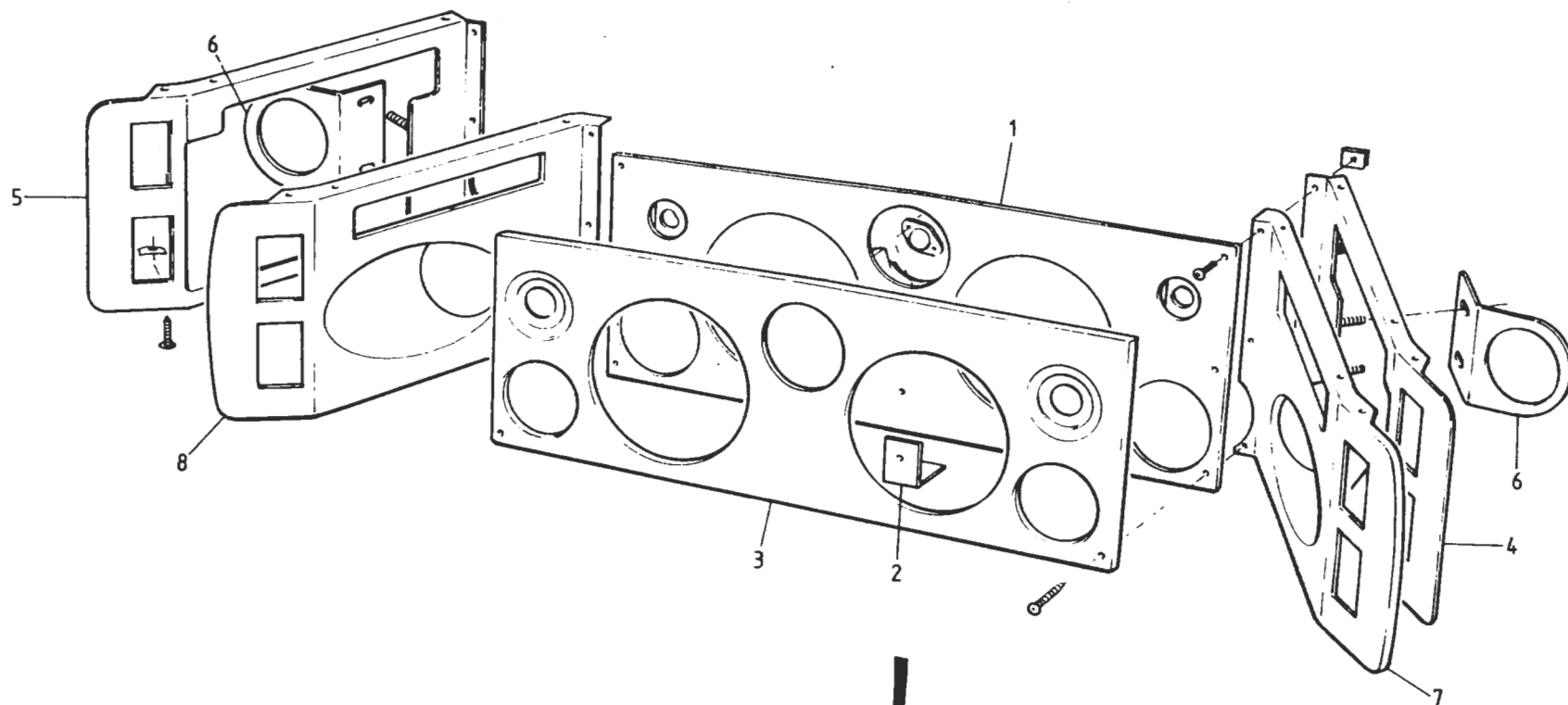
A079W6024Z

4

4

*Prefix Trim Part Numbers With:
 A - Leather (State Smooth or Ruched)
 B - Cloth (Brushed Velour)
Also Specify or Supply Sample of
Colour and Vehicle Identification
Number (VIN)

† Change Point: VIN 82 D 2402
 82 - 0708



TURBO
14.07A

ILLUS
NO.

QUANTITY

MAY 1981

14.07A

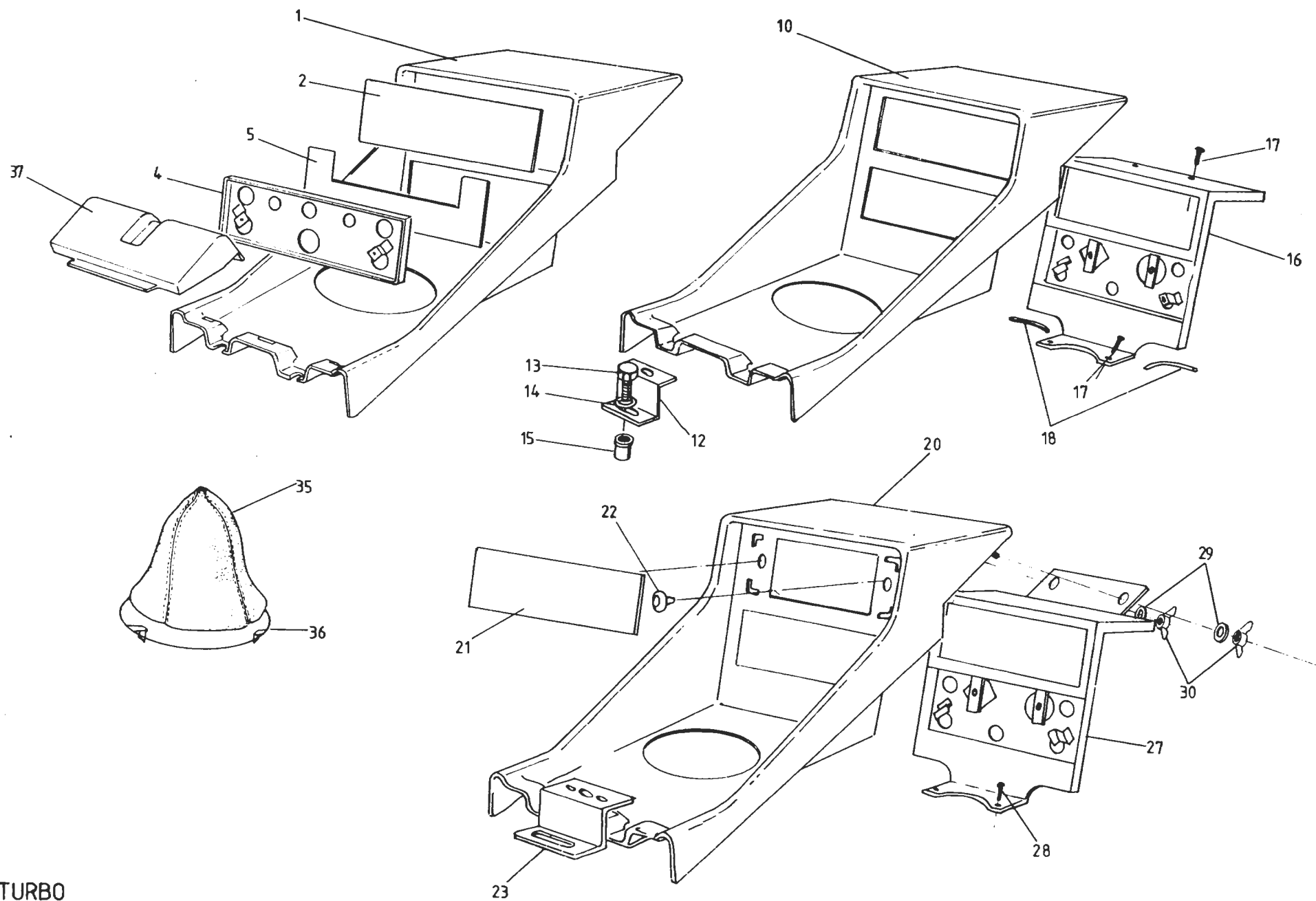
DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Instrument Mounting Panel, Steel	B082U4734J	1	White Illumination
	Instrument Mounting Panel, Steel	C082U4734J	1	Green Illumination. R/B E082U4734J
	Instrument Mounting Panel, Steel	E082U4734J	1	'87 M.Y. on
2	Bracket, Instrument Panel to Binnacle	A079U4354K	1	Prior to '87 M.Y.
	Bracket, Instrument Panel to Binnacle	A079U4393C	2)
	Clip, Instrument Panel to Bracket	A075W6117F	2	) '87 M.Y. on
	Screw, s/t, No. 6 x 1/4", Panel Fix	A075W5012F	7)
	Spire Nut, Panel Fix	A079W6024F	7)
3	Mask, Instrument Panel, ABS	B082U4664K	1	Prior to '87 M.Y.
	Mask, Instrument Panel, ABS	D082U4664K	1	'87 M.Y. on
4	Side Panel, Binnacle, RH, Steel	B082U4689K	1	
5	Side Panel, Binnacle, LH, Steel	B082U4688K	1	
6	Bracket, Fuel/Voltmeter Mounting	B082U4683C	2	
7	Mask, Side Panel, RH, ABS	A082U4662K	1	
8	Mask, Side Panel, LH, ABS	A082U4663K	1	



TURBO
14.08A

ILLUS
NO.

QUANTITY

MAY 1991

14.08A

DESCRIPTION

PART NUMBER

ALL

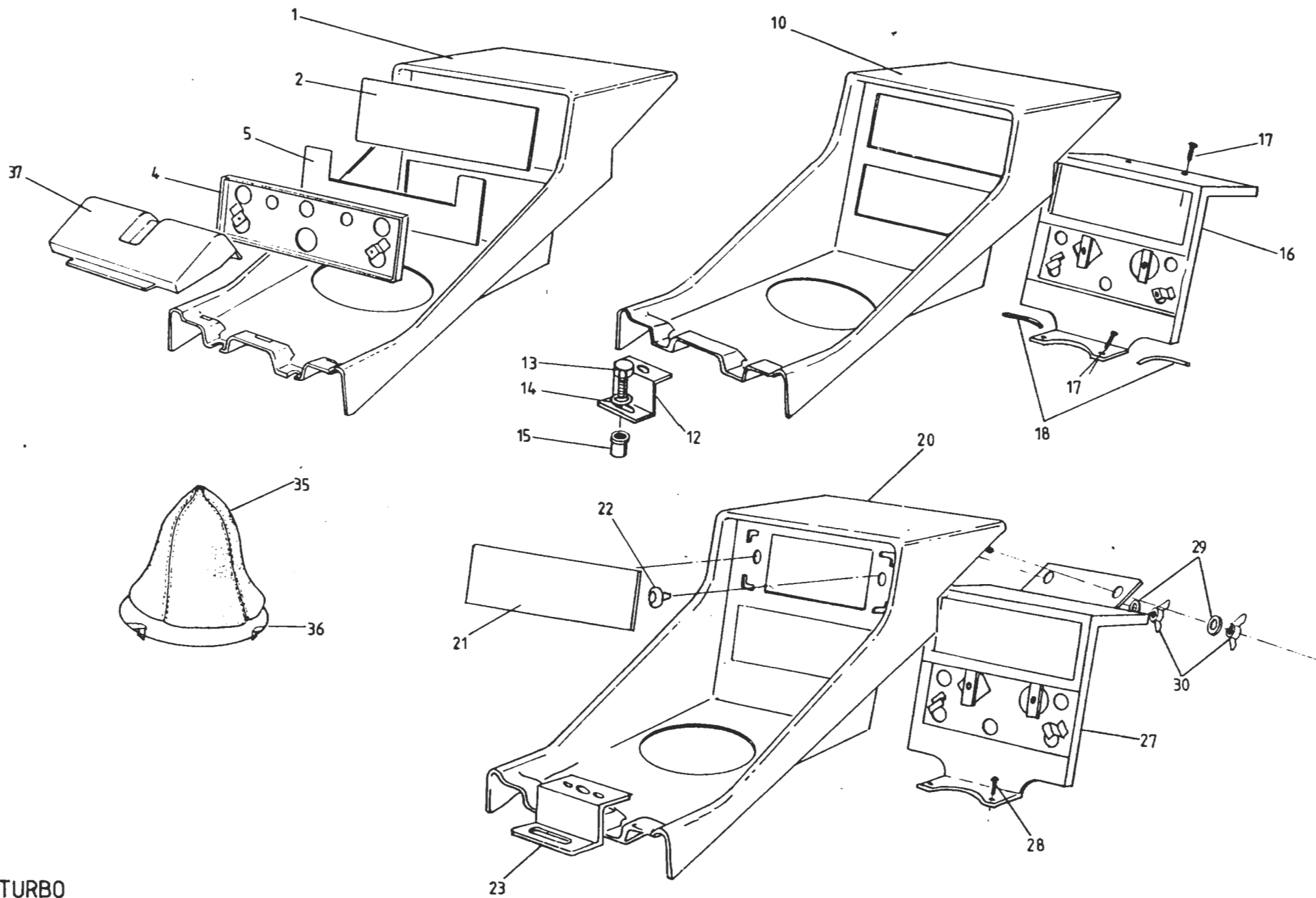
REMARKS

1	Centre Console, Trimmed, inc. Lever Gaiter	082V5193J*	1	) Fettle Radio Aperture as Required
2	Blanking Panel, Trimmed, Radio Aperture	082V5231J*	1	) <u>Prior to VIN 82 D 2153</u>
4	Light Box, Heater/A/C Controls	A082U4756J	1	) <u>82 - 0609</u>
5	Spacer, Heater/A/C Controls	A082B4216K	1)
	Clock Mounting Panel, (ABS)	A082U4753J	1	)> Essex Commemorative Only
	Cassette Storage Bin, (ABS)	A082U4754J	1)>
			1	
10	Centre Console, Trimmed, inc. Gaiter & Brkts.	082V7192J*	1	> <u>VIN 82 D 2153 to 2270</u>
	Blanking Panel, Trimmed, Radio Aperture	082V5231J*	1	> <u>82 - 0609 to 0622</u>
12	Bracket, Centre Console, Rear	A085V5723K	1	>
13	Setscrew, M6 x 20, Console to Tunnel	A075W1030Z	1	>
14	Washer, Flat, Console to Tunnel	A075W4015Z	1	>
15	Rawlnut, M6, Console to Tunnel	A075W6140Z	1	>]Alternatives
	Rawlnut, M6, 'Neoprene' Console to Tunnel	A082W6285F	1	>]
16	Mounting Bracket & Light Box, Heater/A/C Controls	A082U4918J	1	>
17	Screw, Heater/A/C Bracket Fix	A075W5027Z	4	>
	Spire Nut, Top Fix	A075W6014Z	2	>
18	Edge Protector, 'Neoprene'	B075U6054V	140mm	>
20	Centre Console, Trimmed, inc. Gaiter & Brkts.	082V7271J*	1	) <u>From VIN 82 D 2271</u>
21	Blanking Panel, Trimmed Radio Aperture	082V7272J*	1	) <u>82 - 0623</u>
22	Fastener, Blanking Panel Fix	A079W6162F	2)
23	Bracket, Centre Console, Rear	A085V5723K	1)
	Setscrew, M6 x 20, Console to Tunnel	A075W1030Z	1)
	Washer, Flat, Console to Tunnel	A075W4015Z	1)
	Rawlnut, M6, Console to Tunnel	A075W6140Z	1)

* Prefix Trim Part Numbers With :
 A - Leather (State Smooth or Ruched)
 B - Cloth (Brushed Velour)
Also Specify or Supply Sample of
Colour and Vehicle Identification
Number (VIN)

Turbo 14.08A

Page 1



TURBO
14.08A

ILLUS
NO.



QUANTITY

MAY 1991

14.08A

DESCRIPTION

PART NUMBER

ALL

REMARKS

27

Mounting Bracket & Light Box, Heater/A/C
Controls

A082U5062J

1

28

Screw, Bracket to Tunnel Top

A075W5027Z

2

29

Washer, Flat, Console/Brkt. to Fascia

A075W4009Z

2

30

Wing Nut, Console/Brkt. to Fascia

A082W3081F

2

Washer, Shakeproof, Console/Brkt. to Fascia

A075W4086Z

2

35

Gaiter, Gear Lever

A082V5196K

1

36

Retaining Ring, Gear Lever Gaiter

A085U4826K

1

37

Choke/Window Switch Panel, Trimmed

082V5203J*

1

Window Switch Panel, Trimmed

082V7260J*

1

) From VIN 82 D 2271

) 82 - 0623

)

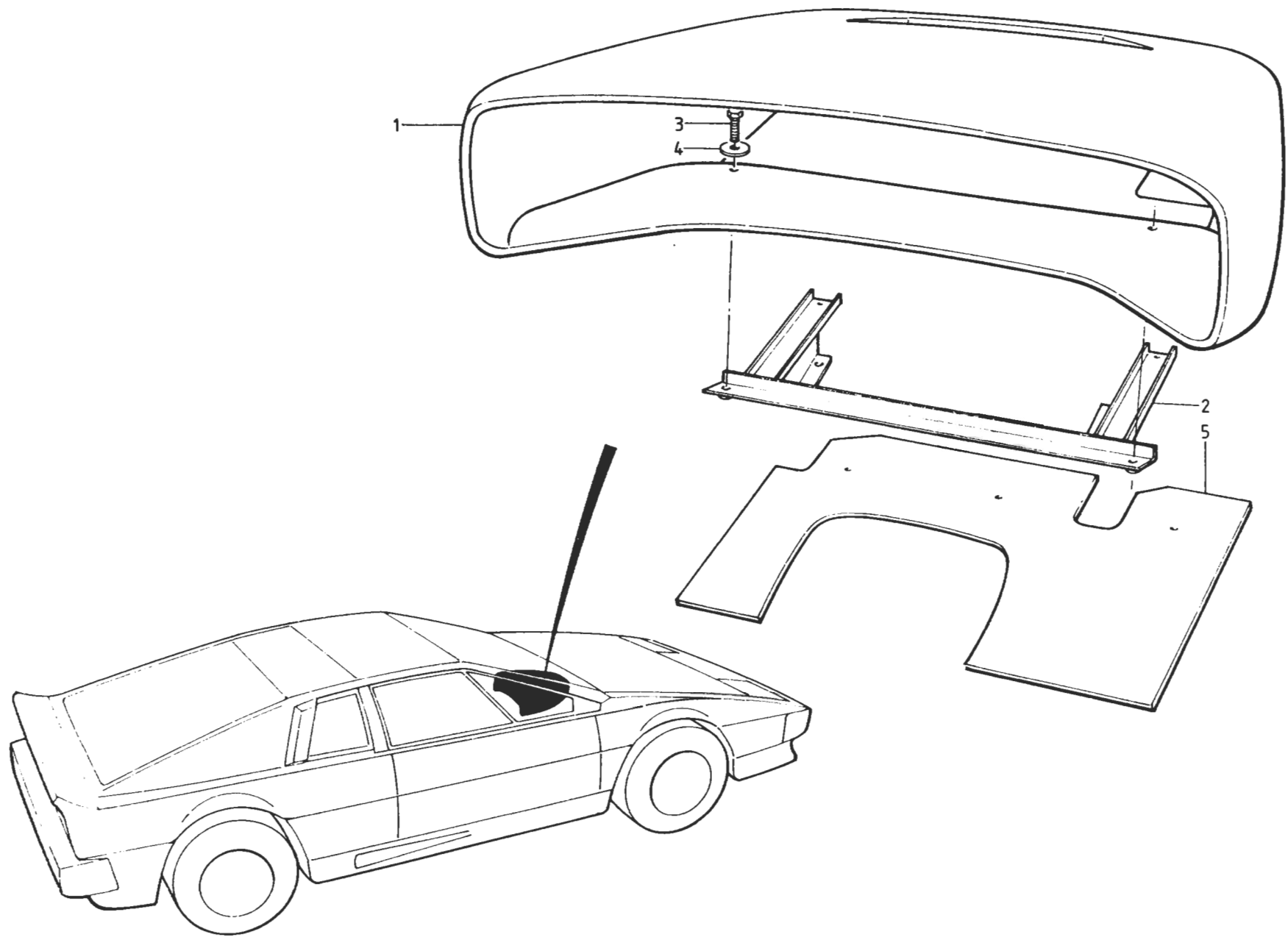
)

)

With Tunnel Mounted Choke Control

With Fascia Mounted Choke Control

* Prefix Trim Part Numbers With :
A - Leather (State Smooth or Ruched)
B - Cloth (Brushed Velour)
Also Specify or Supply Sample of
Colour and Vehicle Identification
Number (VIN)



TURBO
14.10A

ILLUS
NO.



QUANTITY

MAY 1991

14.10A

DESCRIPTION

PART NUMBER

ALL

REMARKS

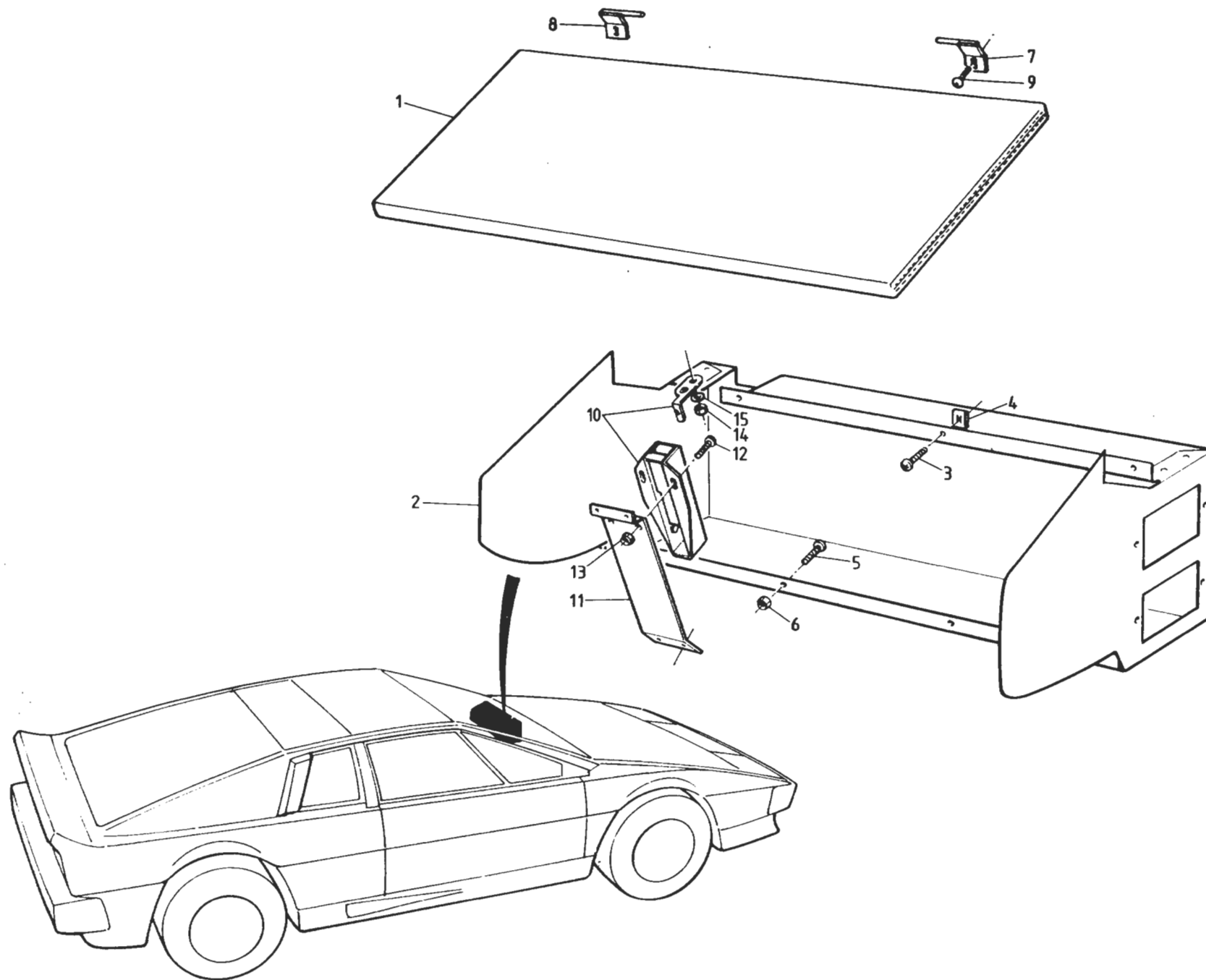
- | | |
|---|--------------------------------------|
| 1 | Instrument Binnacle, Trimmed |
| | Foam Binnacle, Interior, Anti-Rattle |
| 2 | Mounting Bracket, Binnacle to Fascia |
| 3 | Setscrew, M6 x 18, Binnacle to Brkt. |
| 4 | Washer, Large O/D, Binnacle to Brkt. |
| 5 | Fascia Blanking Panel, Trimmed, RHD |
| | Fascia Blanking Panel, Trimmed, LHD |

082V5182J*
A079V6010V
A079U4527K
A075W1029Z
A075W4017Z
082V5233J*
082V5173J*

1
A/R
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1

*Prefix Trim Part Number With:
A - Leather
B - Cloth (Brushed Velour)
Also Specify or Supply Sample of
Colour, and Vehicle Identification
Number (VIN)

Turbo 14.10A



TURBO
14.12A

ILLUS
NO.



QUANTITY

MAY 1991

14.12A

DESCRIPTION

PART NUMBER

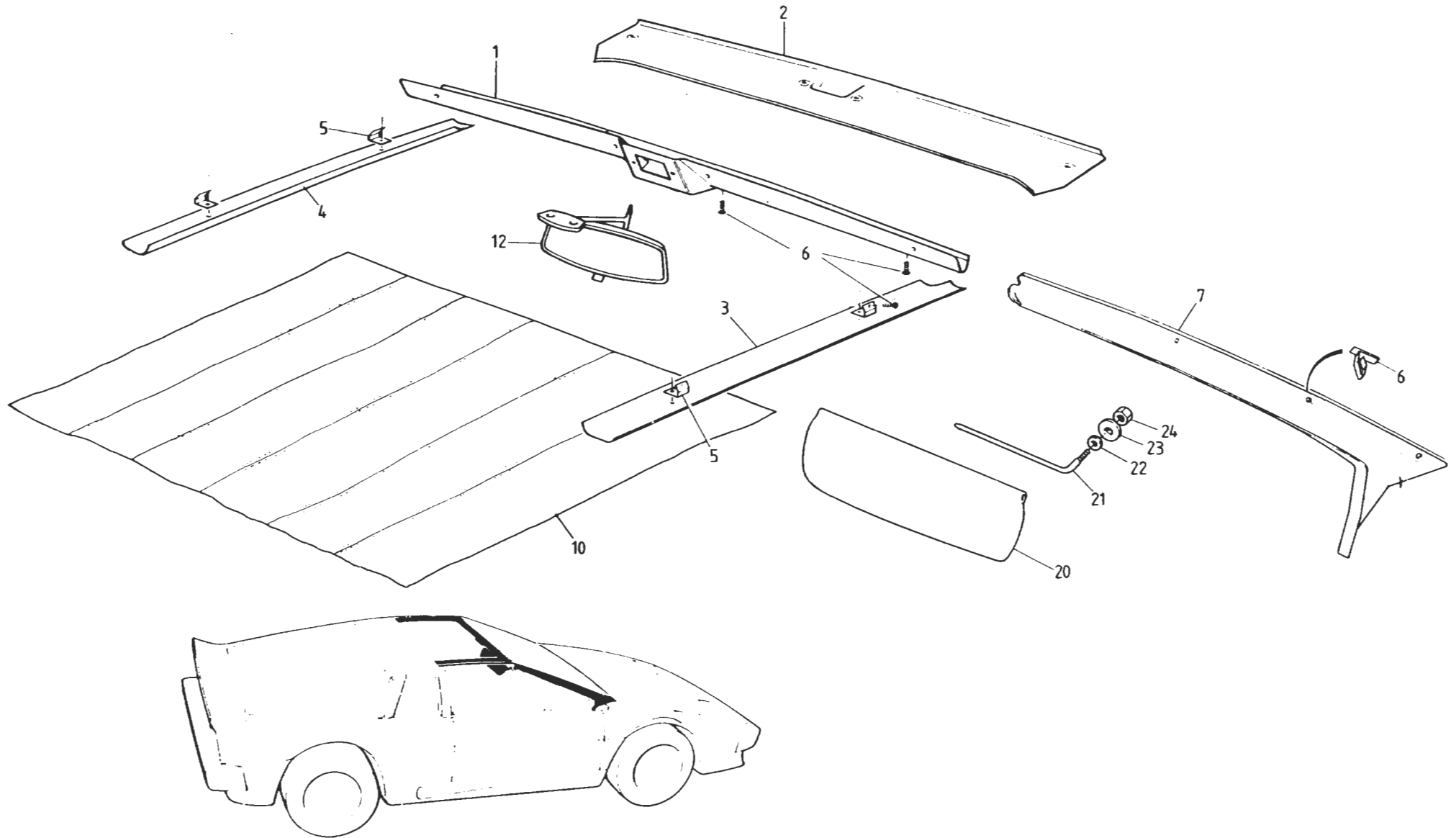
ALL

REMARKS

1	Glove Box Lid, Trimmed	082V5175J*	1
2	Glove Box Inner, RHD	C082V4790F	1
	Glove Box Inner, LHD	B082V4791F	1
3	Screw, Glove Box Inner Top Edge Fix	A075W5027Z	3
4	Spire Nut, Glove Box Top Edge Fix	A075W6014Z	3
5	Screw, 10 UNF x 1/2", Glovebox to Fascia	A075W5059Z	3
6	Nut, Nyloc, 10 UNF " " "	A075W3000Z	3
7	Hinge, Glovebox Lid, RH	B079U4436F	1
8	Hinge, Glovebox Lid, LH	B079U4435F	1
9	Screw, Hinge to Fascia Beam	A075W5012F	2
10	Latch, Glovebox Lid	A082U6130F	1
11	Bracket, Latch to Fascia	B079U4374F	1
12	Screw, Latch to Bracket	A075W5049F	2
13	Nut, 4BA, Latch to Bracket	A075W3057F	2
14	Nut, Nyloc, 6BA, Striker to Lid	A079W3058W	2
15	Washer, Striker to Lid	A075W4000W	2

*Prefix Trim Part Numbers With:
A - Leather (State Smooth or Ruched)
B - Cloth (Brushed Velour)
Also Specify or Supply Sample of
Colour and Vehicle Identification
Number (VIN)

Turbo 14.12A



TURBO
15.01A

ILLUS
NO.

QUANTITY

MAY 1991

15.01A

DESCRIPTION

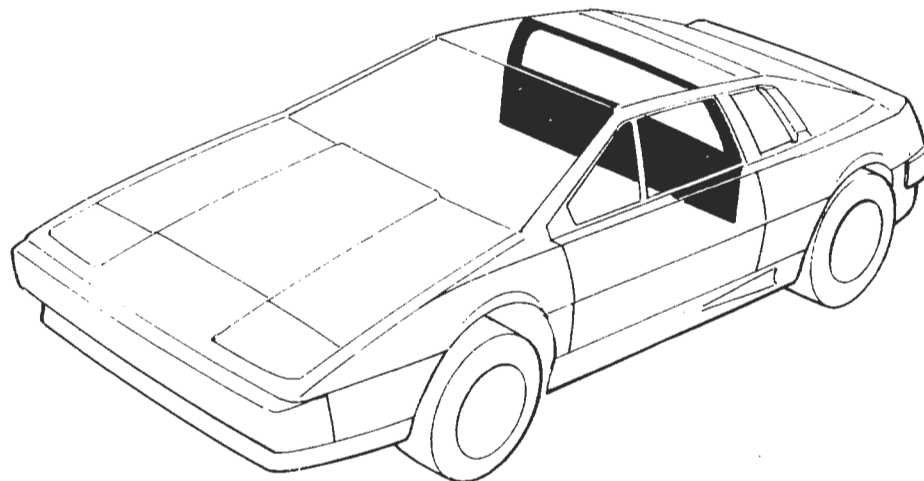
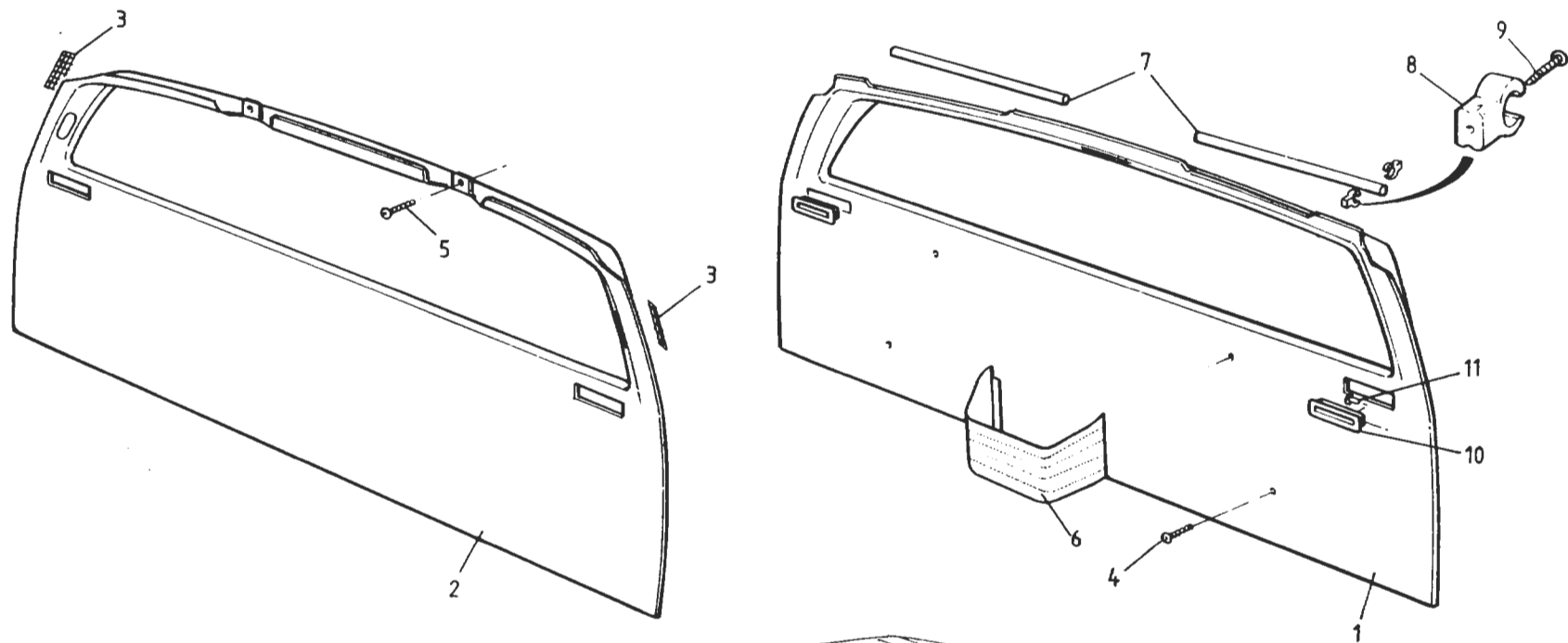
PART NUMBER

FIXED
ROOFGLASS
ROOF

REMARKS

1	Header Rail, Trimmed	A082V5227J†	1		No Clock - 'Essex' Cars Only
	Header Rail, Trimmed	A079V4496J†	1		For 'Rocking Bar' Type Clock
2	Header Rail, Trimmed	A082V7198J†	1		For 'Pin Button' Type Clock
	Header Rail, Trimmed	A082V7200J†		1	For 'Pin Button' Type Clock
	Header Rail, Trimmed	A082V7286J†		1	For 'Rocking Bar' Type Clock
3	Cant Rail, Trimmed, RH	A079V4526K†	1		
	Cant Rail, Trimmed, RH,	A082V7202J†		1	
4	Cant Rail, Trimmed, LH,	A079V4527J†	1		
	Cant Rail, Trimmed, LH,	A082V7203J†		1	
5	Bracket, Cant Rail, Fixing	A082U4992K	4	4	
6	Screw, Header & Cant Rail Fixing	A075W4028Z	6	6	
7	'A' Post Trimmed Panel, RH	A082V5190J	1		'Essex' Cars Only
	'A' Post Trimmed Panel, RH	082V7206J*	1	1	
	'A' Post Trimmed Panel, LH	A082V5189J	1		'Essex' Cars Only
	'A' Post Trimmed Panel, LH	082V7207J*	1	1	
8	Clip 'A' Post Trim Fixing	A075W6062Z	6	6	
10	Headlining,	A079V4560J†	1		
	Mirror, Interior	A079U6012F	1		Stick On
12	Mirror, Interior	A079U6044F	1	1	Screw On
	Screw, 2BA, Mirror to Header Rail	A079W5052F	2	2	
	Nut, Nyloc, 2BA, Mirror Fixing	A079W3001F	2	2	
	Washer, Mirror Fixing	A079W4011Z	2	2	
20	Sun Visor, Drivers, RHD	A079V4800J†	1	1	
	Sun Visor, Drivers, RHD, with 'Document Strap'	A082V7380J†	1	1	
	Sun Visor, Drivers, LHD	A079V4803J†	1	1	
	Sun Visor, Drivers, LHD, with 'Document Strap'	A082V7381J†	1	1	
	Sun Visor, Passenger, RHD	A079V4801J†	1	1	With Mirror
	Sun Visor, Passenger, LHD	A079V4802J†	1	1	With Mirror
21	Swivel, Sun Visor	A079V4361F	4	4	*Prefix Trim Part Numbers With:
22	Washer, Sun Visor Swivel	A075W4015Z	4	4	A - Leather
23	Washer, Sun Visor Swivel	A075W4017Z	4	4	B - Cloth (Brushed Velour)
24	Nut, Nyloc, M6, Sun Visor Swivel	A075W3009Z	4	4	Also State or Supply Sample of Colour & Vehicle Identification Number (VIN)

† State or Supply Sample of Colour
Turbo 15.01A



TURBO
15.11A

ILLUS
NO.

MAY 1991

15.11A

DESCRIPTION

PART NUMBER

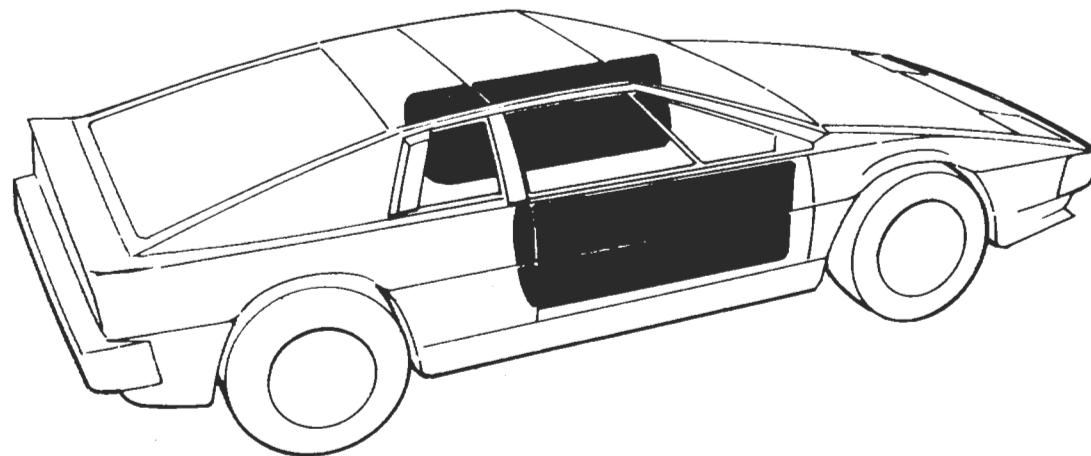
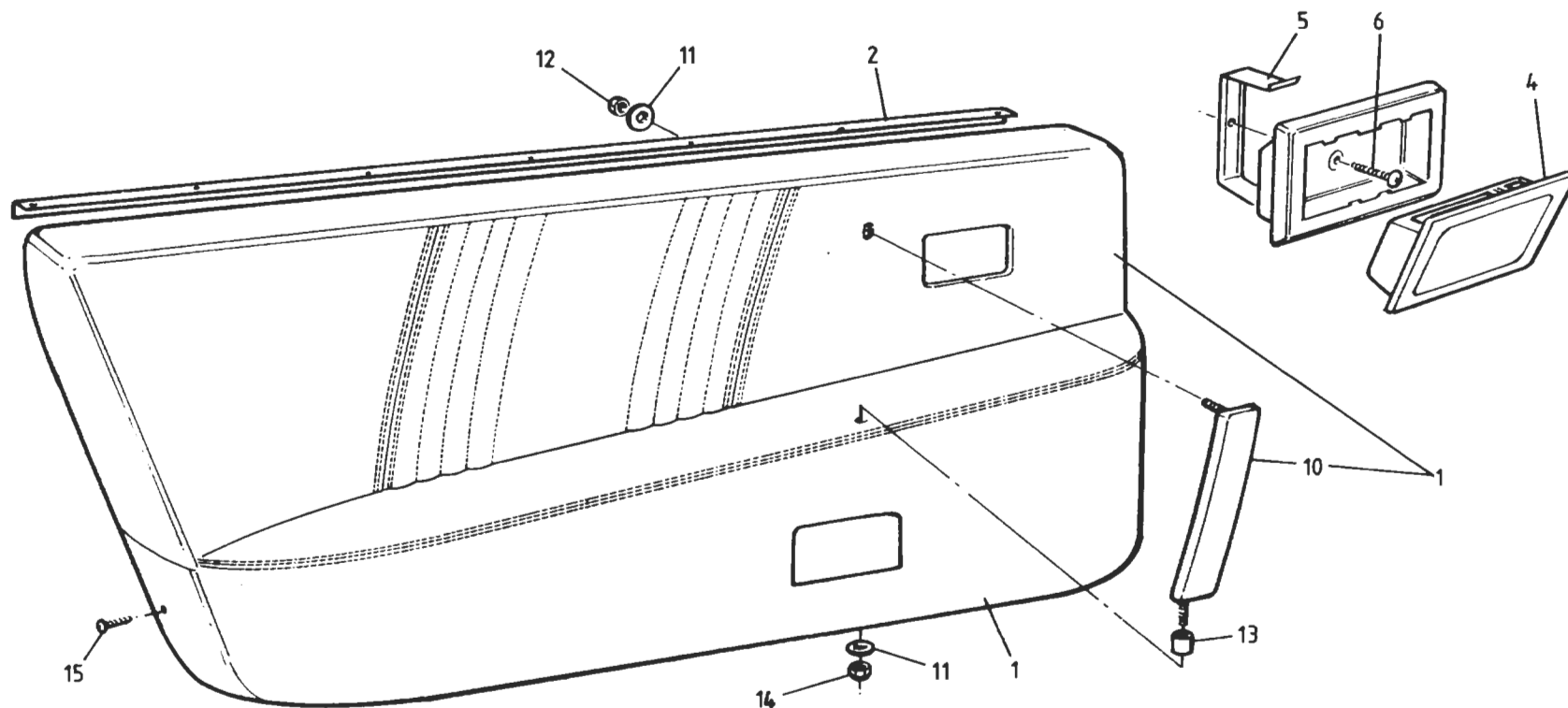
QUANTITY

FIXED
ROOFGLASS
ROOF

REMARKS

1	Bulkhead Trimmed Panel	082V5207J*	1		For Interior Lamp with Rocking Lens Switch
	Bulkhead Trimmed Panel	082V7282J*	1		For Interior Lamp with Button Switch
	Bulkhead Trimmed Panel	082V7384J*	1		'87 M.Y. on
2	Bulkhead Trimmed Panel	082V7215J*		1	For Interior Lamp with Rocking Lens Switch
	Bulkhead Trimmed Panel	082V7283J*		1	For Interior Lamp with Button Switch
	Bulkhead Trimmed Panel	082V7385J*		1	'87 MY. on
3	Grille, Rear Bulkhead, Air Outlet	A082V4780F		4	
4	Screw, Rear Bulkhead Trim Fixing	A075W5028Z	4	4	
5	Screw, Rear Bulkhead Top Fixing	A075W5028Z		2	
	Map Pocket, Trimmed	082V5205J*	1	1	Prior to '87 M.Y.
6	Map Pocket, Trimmed	082V7372J*	1	1	'87 M.Y. on
7	Doweling, Bulkhead Trim Fixing	A079U6048F	0.7m		
8	Clip, Bulkhead Trim Doweling	A079W6183F	8		
9	Screw, Clip to Bulkhead Trim	A079W5047F	4		
	Screw, Clip to Body	A075W5026Z	4		
10	Slot Finisher, Seat Belt	B075V0612K	2	2	
11	Button, Slot Finisher Retaining	A075W6041F	4	4	

*Prefix Trim Part Numbers With:
 A - Leather (State Smooth or Ruched)
 B - Cloth (Brushed Velour)
Also State or Supply Sample of Colour
& Vehicle Identification Number (VIN)



TURBO
15.13A

ILLUS
NO.



QUANTITY

MAY 1991

15.13A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH

082V5210J*
082V7219J*
082V7221J*
082V5212J*
082V5223J*
082V7225J*
082V5209J*
082V7218J*
082V7220J*
082V5211J*
082V7222J*
082V7224J*

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No Ashtray. No Speaker)
No Ashtray. Speaker Perforations)
With Ashtray. No Speaker)
No Ashtray. No Speaker)
No Ashtray. Speaker Perforations)
With Ashtray. No Speaker) †
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No Ashtray. Speaker Perforations)
With Ashtray. No Speaker)

† Prior to VIN 82 D 2137
82 - 0606

Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, LH
Door Trim Panel, Trimmed, RH
Door Trim Panel, Trimmed, RH
Stud Plate, Mirror Switch Fixing
Bracket, Mirror Control Switch Mounting
Nut, Nyloc, M5, Bracket/Stud Plate

082V7275J*
082V7277J*
082V7276J*
082V7278J*
A082U5069F
A082U5066F
A075W3008Z

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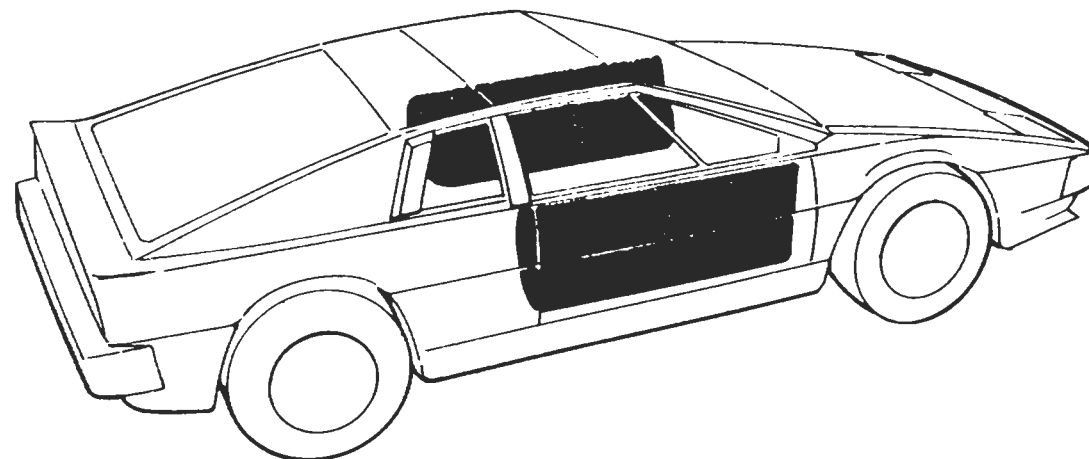
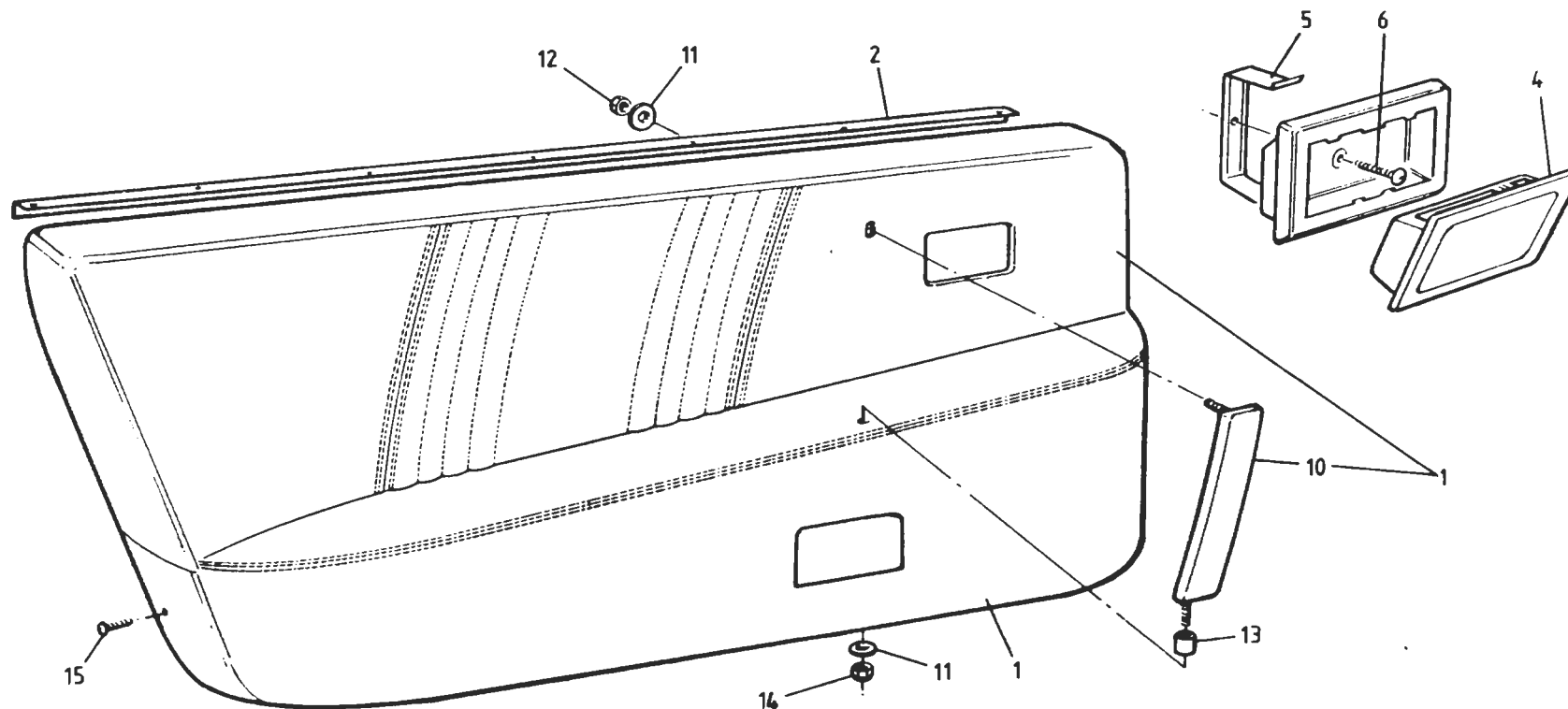
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>
> From VIN 82 D 2137
> 82 - 0606
> Prior to '87 M.Y.
>
For Sill Mounted Ashtray, See 15.30A

Prefix Trim Part Numbers With:
A - All Leather (State Smooth or Ruched)
B - All Cloth
F - Leather & Cloth (Brushed Velour)
Also State or Supply Sample of Colour
Vehicle Identification Number (VIN)

Turbo 15.13A
Page 1



TURBO
15.13A

ILLUS
NO.

QUANTITY

MAY 1991

15.13A

DESCRIPTION

PART NUMBER

RHD

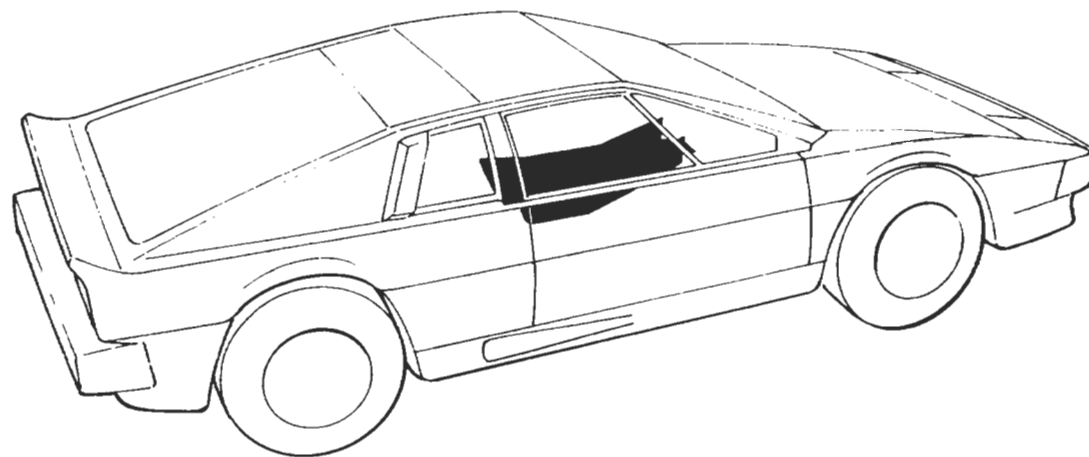
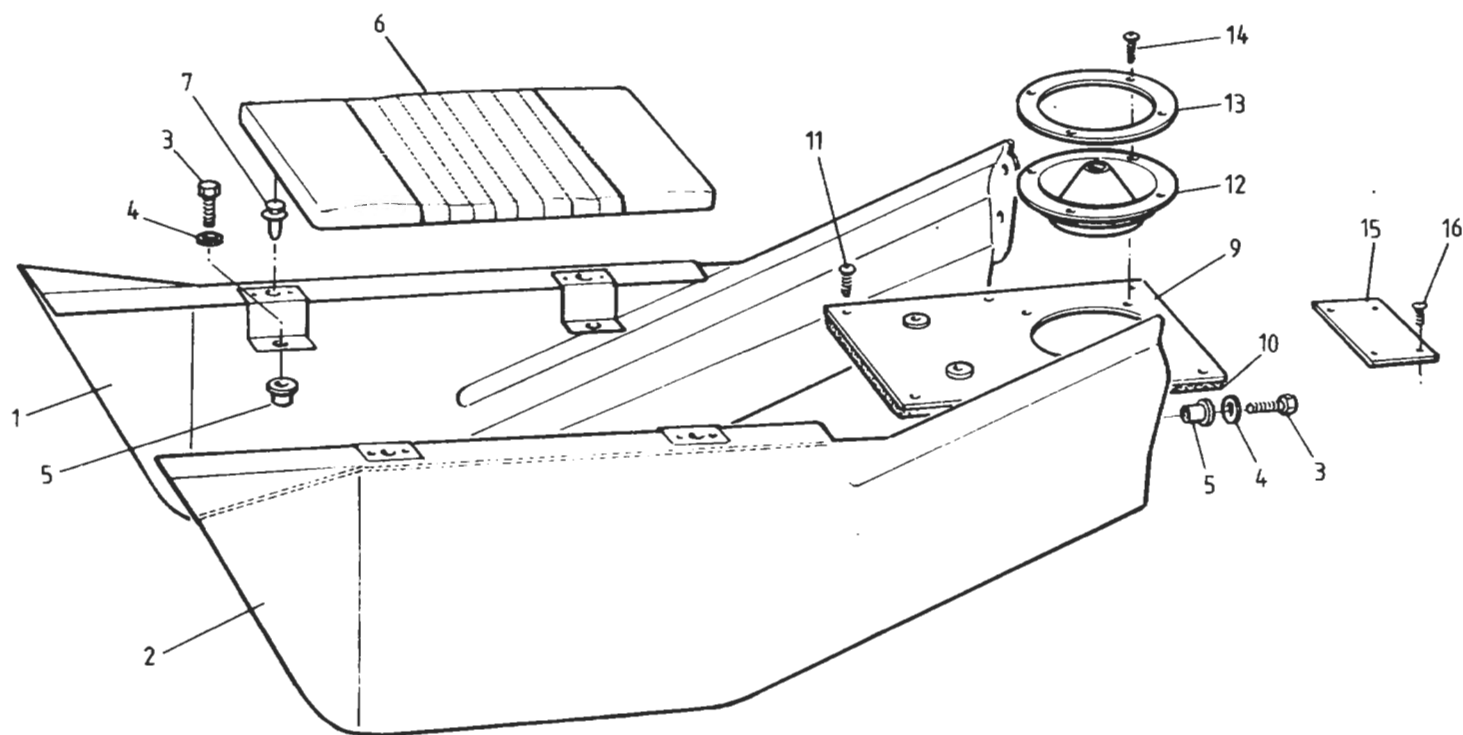
LHD

REMARKS

1	Door Trim Panel, Trimmed, LH	082V7373J*	1)
	Door Trim Panel, Trimmed, LH	082V7375J*		1)
	Door Trim Panel, Trimmed, RH	082V7374J*	1)
	Door Trim Panel, Trimmed, RH	082V7376J*		1	) '87 M.Y. on
	Stud Plate, Mirror Switch Fixing	A082U5069F	1	1)
	Bracket, Mirror Control Switch Mounting	A082U5066F	1	1)
	Nut, Nyloc, M5, Bracket to Stud Plate	A075W3008Z	3	3)
2	Flange, Window Weatherstrip Mounting	B079V4017F	2	2	For Clip on W/Strip, Inc. in Trimmed Door
	Flange, Window Weatherstrip Mounting	C079V4017F	2	2	For Stick on W/Strip, Panel
4	Ashtray Assembly (Chrome Frame)	089V3883J*	2	2	Note. All Door Trim Panels Inc. Flange
	Ashtray Assembly (Black Frame)	089V4309J*	2	2	Suitable for 'Stick on' Type Weatherstrip
5	Clamp Bracket, Ashtray	A083V2474F	2	2	A089V6166V (See 11.01 A)
6	Screw, Ashtray Fixing	A075W5028Z	2	2	
	Door Pull Handle, Trimmed, LH	082V5217J*	1	1	) Prior '87 M.Y.
	Door Pull Handle, Trimmed, RH	082V5218J*	1	1)
10	Door Pull Handle, Trimmed, LH	082V7377J*	1	1	> '87 M.Y. on
	Door Pull Handle, Trimmed, RH	082V7378J*			>
11	Washer, Door Pull Handle Fix	A075W4015F	4	4	
12	Nut, Nyloc, M6, Handle Top Fix	A075W3009F	2	2	
	Setscrew, M6 x 16, Handle Lower Fix	A075W1028F	2	2	For Female Threaded Handle
13	Spacer, Handle Lower to Door	A082V5903K	2	2)
14	Nut, Nyloc, M6, Handle Lower Fix	A075W3009F	2	2	) For Handle With Stud
15	Screw, Door Trim Panel Fixing	A075W5028F	4	4	
16	Tapping Plate, Door Panel Screws	A079U4479F	4	4	
	Pop Rivet, Tapping Plate to Door Shell	A075W6071F	8	8	For Sill Mounted Ashtray, See 15.30A

Prefix Trim Part Numbers With:
 A - All Leather (State Smooth or Ruched)
 B - All Cloth
 F - Leather & Cloth (Brushed Velour)
Also State or Supply Sample of Colour
Vehicle Identification Number (VIN)

Turbo 15.13A
 Page 2



TURBO
15.19A

ILLUS
NO.

MAY 1991

QUANTITY

15.19A

DESCRIPTION

PART NUMBER

ALL

REMARKS

1	Tunnel Side, Trimmed, LH	082V5197J*	1
2	Tunnel Side, Trimmed, RH	082V5198J*	1
3	Setscrew, M6 x 20, Tunnel Side Fixing	A075W1030Z	8
4	Washer, Tunnel Side Fixing	A075W4015Z	8
5	Rawlnut, M6 x 15, Tunnel Side Fixing	A075W6140Z	8
	Rawlnut, M6 x 15, Tunnel Side Fixing	A082W6285F	8
	Tunnel Top Armrest, Trimmed	082V5201J*	1
6	Tunnel Top Armrest, Trimmed	082V7371J*	1
7	Clip, Tunnel Armrest Fixing	A079W6162F	4
9	Plate, Gear Lever Aperture	C082U4737F	1
10	Gasket, Aperture Plate to Body	A082U4738K	1
11	Screw, Aperture Plate to Body	A075W5014Z	6
12	Gaiter, Gear Lever, Lower	A076V1444F	1
13	Clamp Ring, Gear Lever Lower Gaiter	A085U4826K	1
14	Screw, Gaiter Clamp Ring Fixing	A075W5015Z	4
15	Plate, Tunnel Loom Retaining	A082M4176K	1
16	Screw, Plate to Body	A075W5014Z	4

)Alternatives

)

Prior to '87 M.Y.

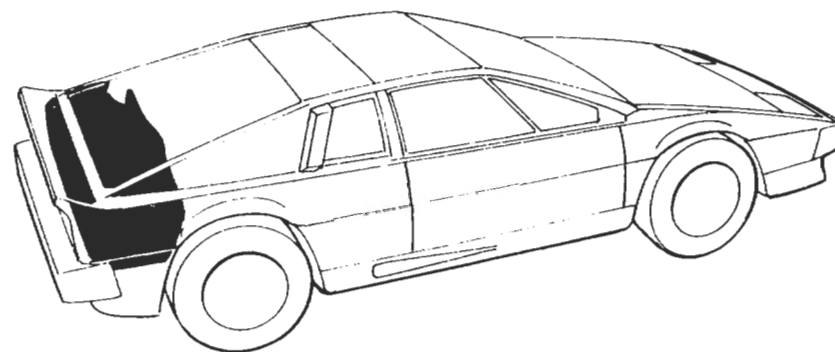
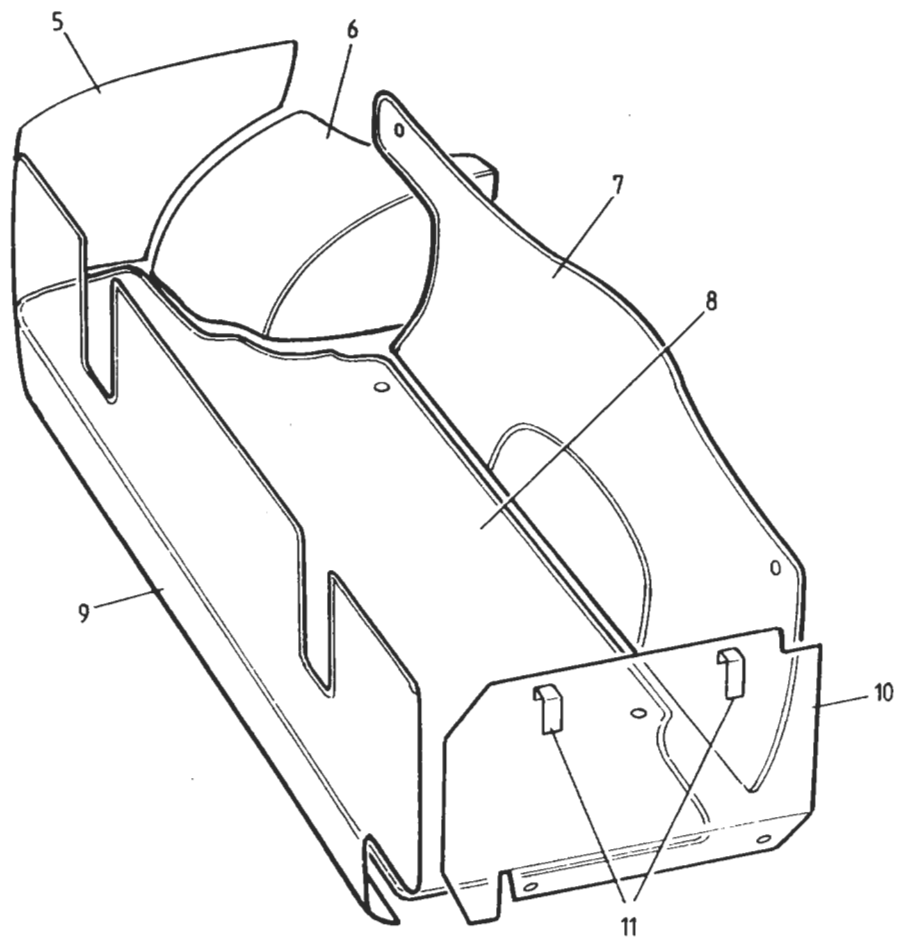
'87 M.Y. on

*Prefix Trim Part Numbers With:

A - Leather (State Smooth or Ruched)

B - Cloth (Brushed Velour)

Also State or Supply Sample of Colour
& Vehicle Identification Number (VIN)



TURBO
15.24A

ILLUS
NO.



QUANTITY

MAY 1991

15.24A

DESCRIPTION

PART NUMBER

PRIOR
85 M.Y.

1985
M.Y. ON

REMARKS

Luggage Bag Assembly
Fixing Strip, Bag to Rear Panel
Screw, Fixing Strip
Spire Nut, Fixing Strip

A082V5232J
B082V5021K
A075W5046Z
A075W6016Z

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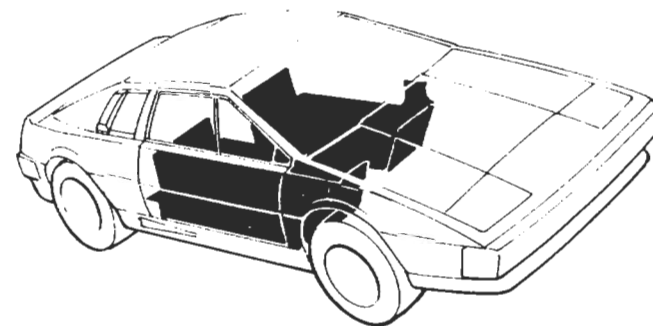
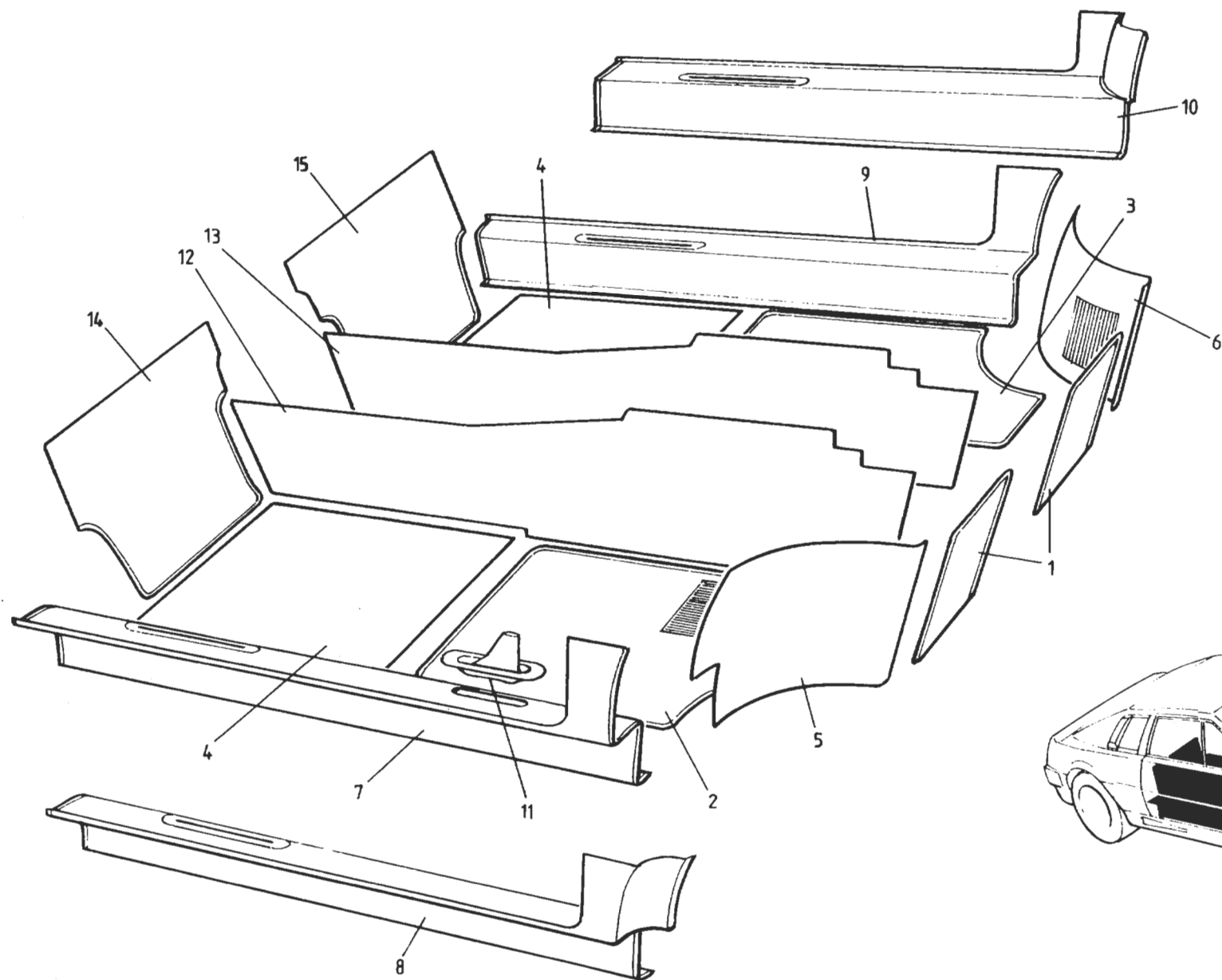
Rear Luggage Compartment Grey Fleck Carpet

5 Side, LH
6 Wheelarch, LH
7 Engine Bay Rear Wall
8 Floor
9 Rear Transom
10 Battery Board, Carpeted
Button, 'Durable Dot', Carpet Fixing
Socket, 'Durable Dot', Carpet Fixing
11 Bracket, Battery Board Top Locating
Pop Rivet, Battery Board Bracket
Washer, Pop Rivet
12 Infill Panel, LH Rear Corner
Rear, Bulkhead
Rear, Quarter Light Trim Panel, RH
Rear, Quarter Light Trim Panel, LH

A082V5877K
A082V7226J
A082V7227J
A082V7228J
A082V7229J
A082V7230J
A076W6109F
A076W6110F
A082V5882F
A075W6090F
A075W4001F
A082B4489K
A082V5897K
A082V5827K
A082V5826K

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Turbo 15.24A



TURBO
15.30A

ILLUS
NO.

15.30A

DESCRIPTION

PART NUMBER

QUANTITY

RHD

LHD

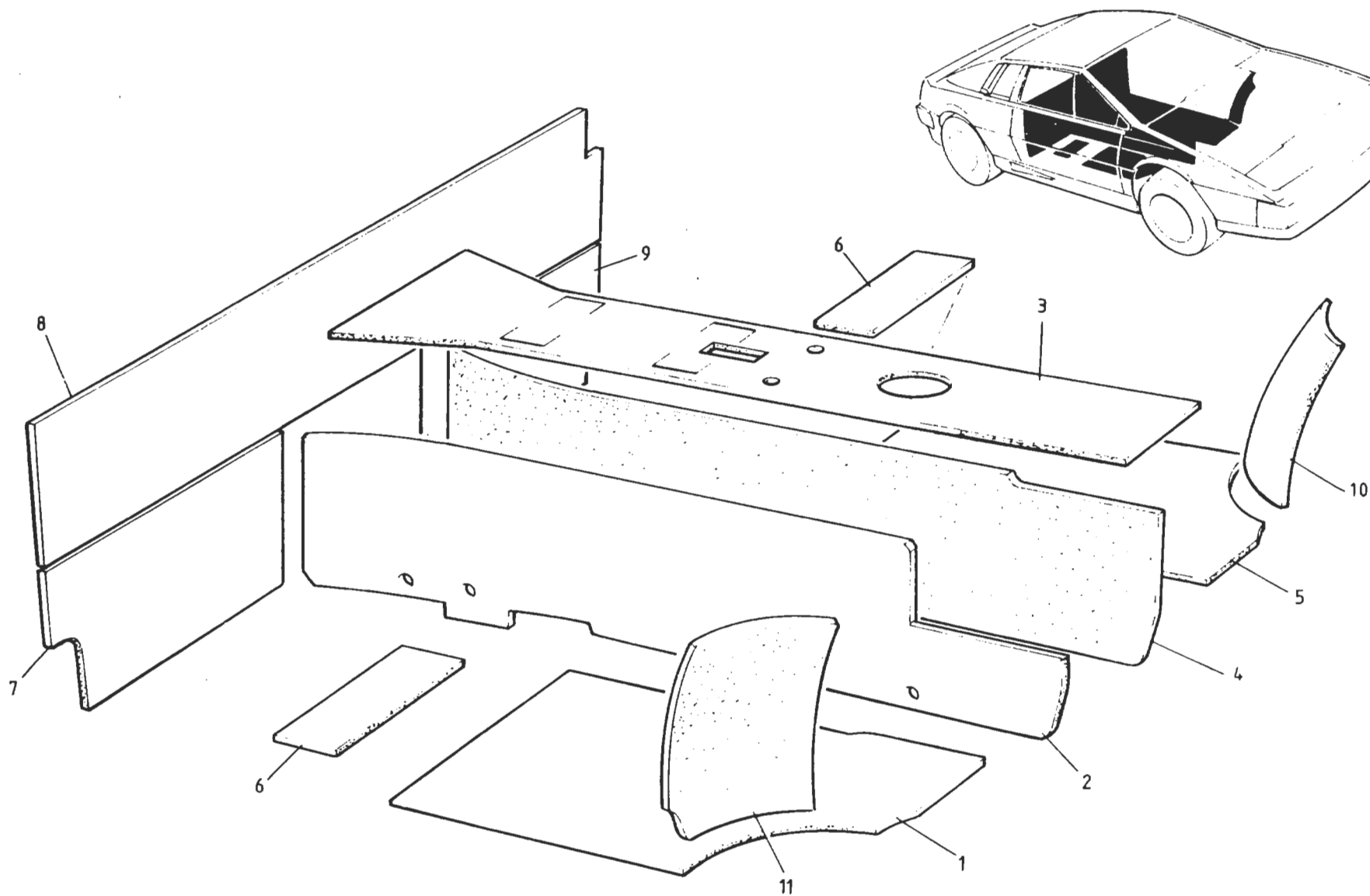
MAY 1991

REMARKS



1	Carpet, Footwell Front	A082V7231J	2	2	<u>Specify or Supply Sample of Colour & Vehicle Identification Number(VIN)</u>
2	Carpet, Front Floor, With Mat, RH	A082V7233J	1		
	Carpet, Front Floor, With Mat, RH	A082V7234J		1	
3	Carpet, Front Floor, With Mat, LH	A082V7235J	1		<u>* State if Ashtray in Sill</u>
	Carpet, Front Floor, With Mat, LH	A082V7236J		1	
4	Carpet, Underseat	A082V7239J	2	2	For Door Mounted Ashtrays, See 15.13A
5	Carpet, Front Wheelarch, With Mat, RH	A082V7240J	1	1	
6	Carpet, Front Wheelarch, With Mat, LH	A082V7241J	1	1	
7	Carpet, Sill, RH, (Inc. H/Brake Gaiter)	A082V7244J *	1		) Includes GRP
	Carpet, Sill, RH	A082V7242J *		1	
8	Carpet, Sill, RH	A082V7245J *		1	With Heater Only) Sill Panel
9	Carpet, Sill, LH	A082V7243J *	1		With a/c) and (if applicable)
10	Carpet, Sill, LH	A082V7246J *	1		With Heater Only) a/c hose ABS
	Carpet, Sill, LH, (Inc. H/Brake Gaiter)	A082V7247J *		1	With a/c) cover
11	Gaiter	A082V7261J	1	1)
12	Carpet, Tunnel Side, RH	A082V7250J	1	1	
13	Carpet, Tunnel Side, LH	A082V7251J	1	1	
14	Carpet, Rear Bulkhead, RH	A082V7252J	1	1	
15	Carpet, Rear Bulkhead, LH	A082V7253J	1	1	
	Ashtray, Sill Mounted	A079U6062F	2	2	

Turbo 15.30A



TURBO
16.01A

ILLUS
NO.



QUANTITY

MAY 1991

16.01A

DESCRIPTION

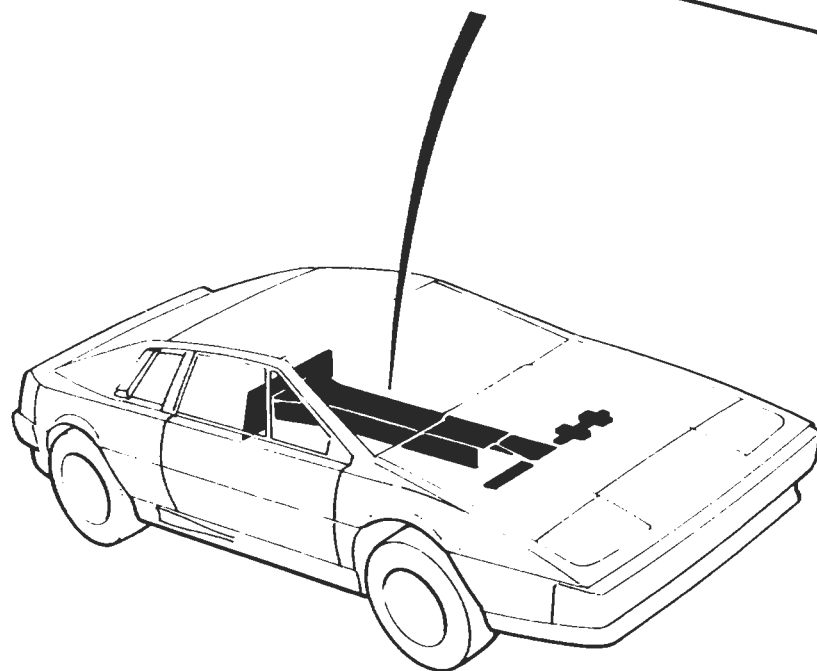
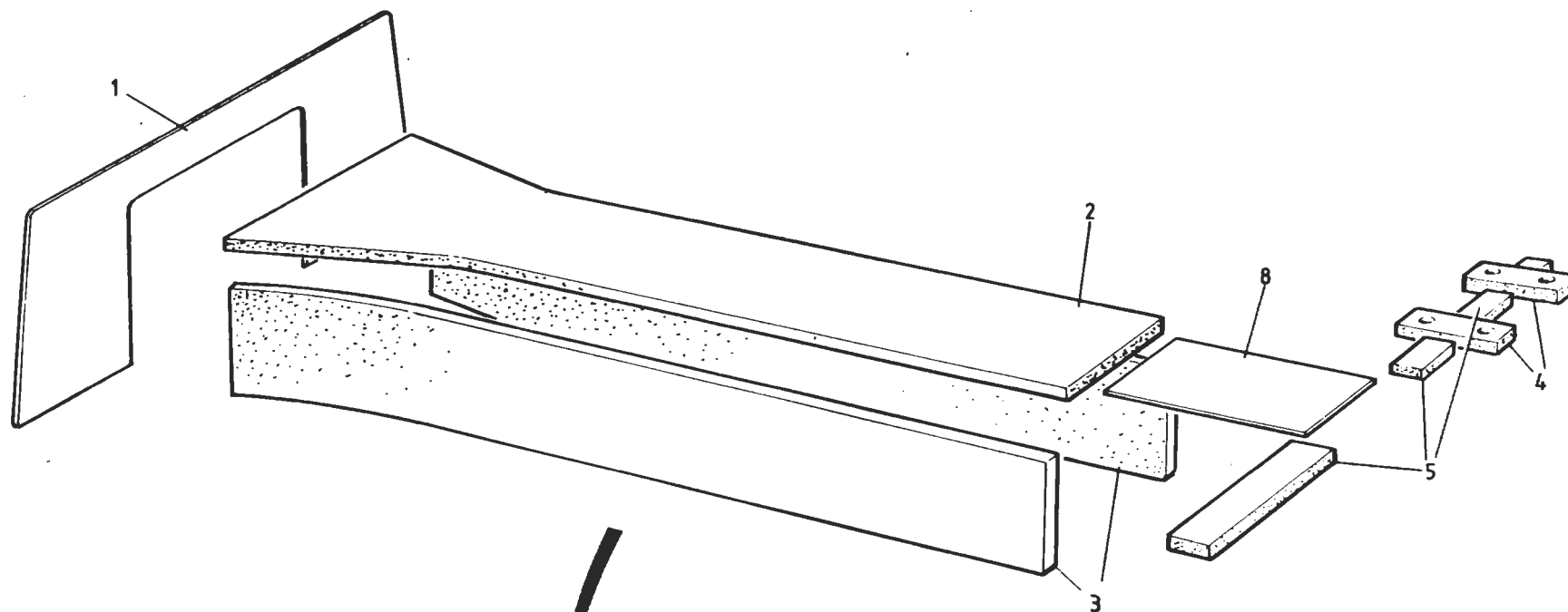
PART NUMBER

ALL

REMARKS

1	Foam, Front Floor, RH	A085V5674K	1	
2	Foam, Tunnel Side, RH	A085V5672K	1	
3	Foam, Tunnel Top	A085V5671K	1	
4	Foam, Tunnel Side, LH	A085V5673K	1	
5	Foam, Front Floor, LH	A085V5675K	1	
6	Foam, Underseat	B079V4138F	2	
7	Foam, Rear Bulkhead Lower, RH	A085V5719K	1	
8	Foam, Rear Bulkhead Upper	A085V5670K	1	
9	Foam, Rear Bulkhead Lower, LH	A085V5720K	1	
10	Felt, Wheelarch, LH	B079V4095F	1	
11	Felt, Wheelarch, RH	B079V4096F	1	

Turbo 16.01A



TURBO
16.02A

ILLUS
NO.



QUANTITY

MAY 1991

16.02A

DESCRIPTION

PART NUMBER

ALL

REMARKS

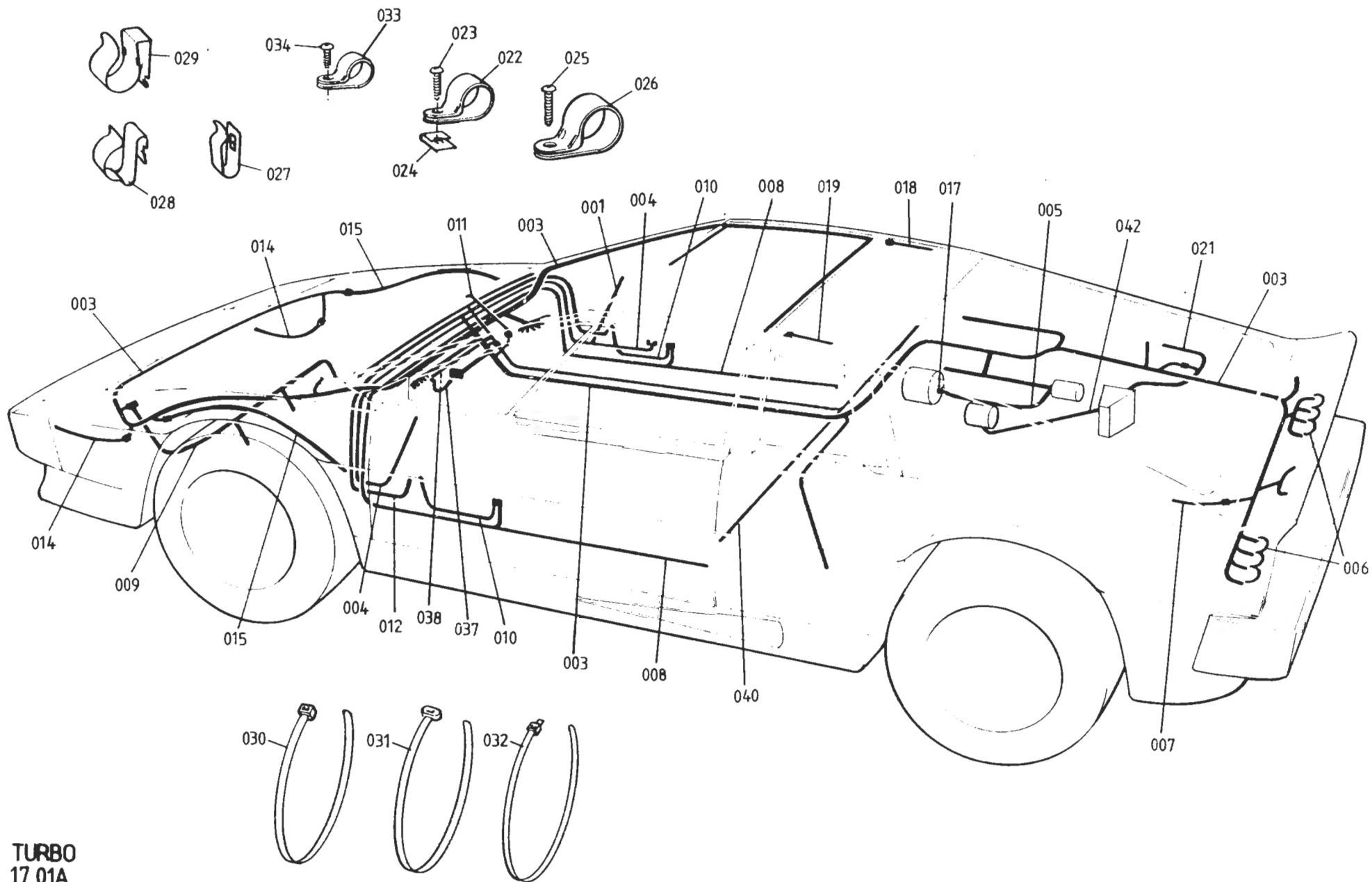
- | | |
|---|--------------------------------------|
| 1 | Sound Barrier Mat, Rear Bulkhead |
| | Screw, s/t, No. 6 x 1/4", Mat Fixing |
| | Cup Washer, Mat Fixing Screw |
| 2 | Foam, Tunnel Top Underside |
| 3 | Foam, Tunnel Side, Underside |
| 4 | Foam, Pedal Box Seal |
| 5 | Foam, Chassis Front Crossmember |
| 8 | Pad, Anti-Squeak |
| | Sound Proofing, Engine Bay Sidewall |

B079V4143K
A075W5020F
A075W6025F
A085V5724K
A085V5725K
A085V5726K
A085V5727K
A082V5759K
B082V5728K

1
14
14
1
2
2
1
1
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1

'87 M.Y. on

Turbo 16.02A



TURBO
17.01A

ILLUS
NO.

QUANTITY

MAY 1991

17.01A

DESCRIPTION

PART NUMBER

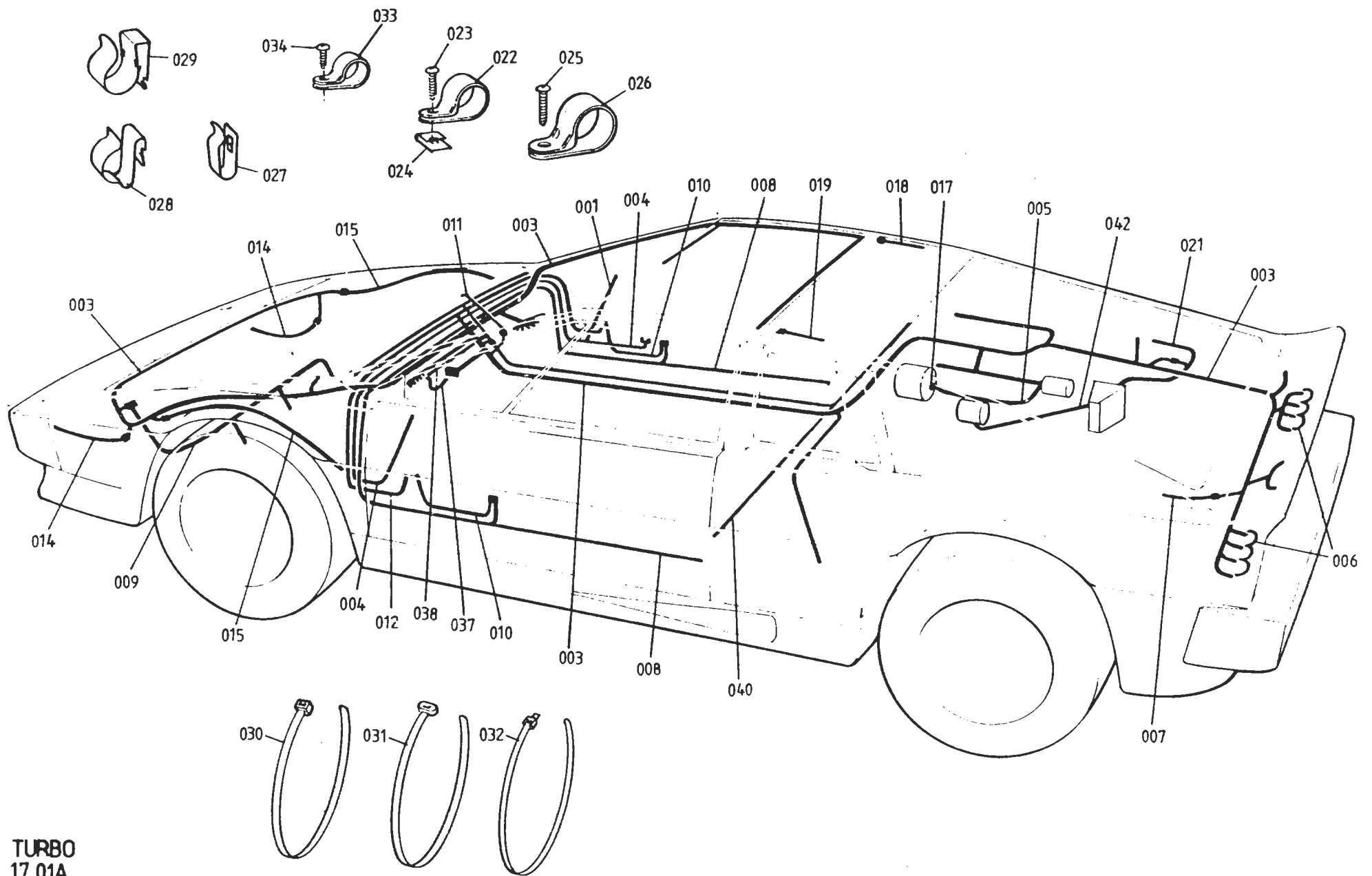
ALL

REMARKS

001	Extension Harness, Mirror	A082M4578F	1		
003	Main Harness	B082M4117F	1		Prior to '87 M.Y.
	Main Harness	C082M4117F	1)
	Grommet, Main Harness, Bulkhead & Engine Bay	A089M6115F	2		) '87 M.Y. on. H.C. Engines only
	Bush, Grommet	A089M6116F	2)
004	Door Mirror Harness	A079M4095F	1		
	Harness, Door Mirror Control	A082M4615F	1		From VIN 82 D 2137
					82 - 0606
005	Alternator Harness	A079M4060F	1		
006	Earth Lead, Tailamps	A079M4061F	2		
007	Reverse Lamp Lead	A079M4062F	1		
008	Door Ajar Lamp Harness	A085M4205F	2		
009	Rad. Fan Harness	A082M4191F	1		Used Only with Rad. Fan Thermal Trip
010	Cigar Lighter Earth Lead	A085M4206F	2		
	Cigar Lighter Harness	A079M4085F	1		
011	Air Conditioning Harness	A082M4110F	1		With Orange 'Cartier' D.P. Fan Relay
	Air Conditioning Harness	C082M4110F	1		With Double Contact Relay
	Heater Only Harness	A082M4165F	1		With Orange 'Cartier' D.P. Fan Relay
	Heater Only Harness	C082M4110F	1		With Double Contact Relay
012	Door Harness	B079M4004F	2		
014	Front Side/Turn Lamp Extension Harness	A082M6208F	2		For Circular Diffusion Pattern Lamps
016	Repeater Lamp Extension Harness	A082M4188F	2		Used Only With Later Type Repeater Lamps
017	Boot, Starter/Alternator Terminals	A075M6174F	2		
018	Lead, Heated Rear Screen	A082M4136F	1		
019	Lead, Heated Rear Screen	A082M4137F	1		
021	Ignition Harness	A082M4126Z	1		With 'Lumenition' Ignition
	Ignition Harness	A082M4198F	1		With Lucas 'Constant Energy' Ignition
022	'P' Clip, Ignition Harness to Ign. Box	A075W6000Z	1		
023	Screw, 'P' Clip Fix	A075W5015Z	1		
024	Spire Nut, 'P' Clip Fix	A079W6024Z	1		
025	Screw, No. 6 x 3/4", Loom Fix	A075W5028Z	6		
026	'P' Clip, Loom Fix	A075W6021Z	2		
	'P' Clip, Door Mirror Control Harness	A075W6228F	4		) From VIN 82 D 2137
	Pop Rivet, Clip Fix	A082W6243F	4		) 82 - 0606

Turbo 17.01A

Page 1



TURBO
17.01A

ILLUS
NO.



QUANTITY

MAY 1991

17.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

027 Clip, Loom Fix
028 Clip, Loom Fix
029 Clip, Loom Fix
030 Cable Tie, 312 mm
031 Cable Tie, 220 mm
027 Clip, Loom Fixing
028 Clip, Loom Fixing
029 Clip, Loom Fixing
030 Cable Tie, 312 mm
031 Cable Tie, 220 mm
032 Cable Tie, 455 mm
033 'P' Clip, Small
034 Screw, No. 6 x 1/4", 'P' Clip Fix
037 Harness, Radio Feed
038 Harness, Aerial Switch
Speaker Loom, Front
040 Speaker Loom, Rear
042 Lead, Ignition Amplifier to Distributor
Grommet, Ignition Box
Harness, Engine Management
Diode, 1 AMP (Black)

A075W6018Z
A079W6115F
A085W6258F
A075W6038Z
A075W6045Z
A075W6018Z
A079W6115F
A085W6258F
A075W6038Z
A075W6045Z
A079W6224F
A075W6223F
A075W5010Z
A082M4577F
A082M4579F
A082M4588F
A082M4589K
A089M6037F
A082M6286H
A085M4626F
B075M6141Z

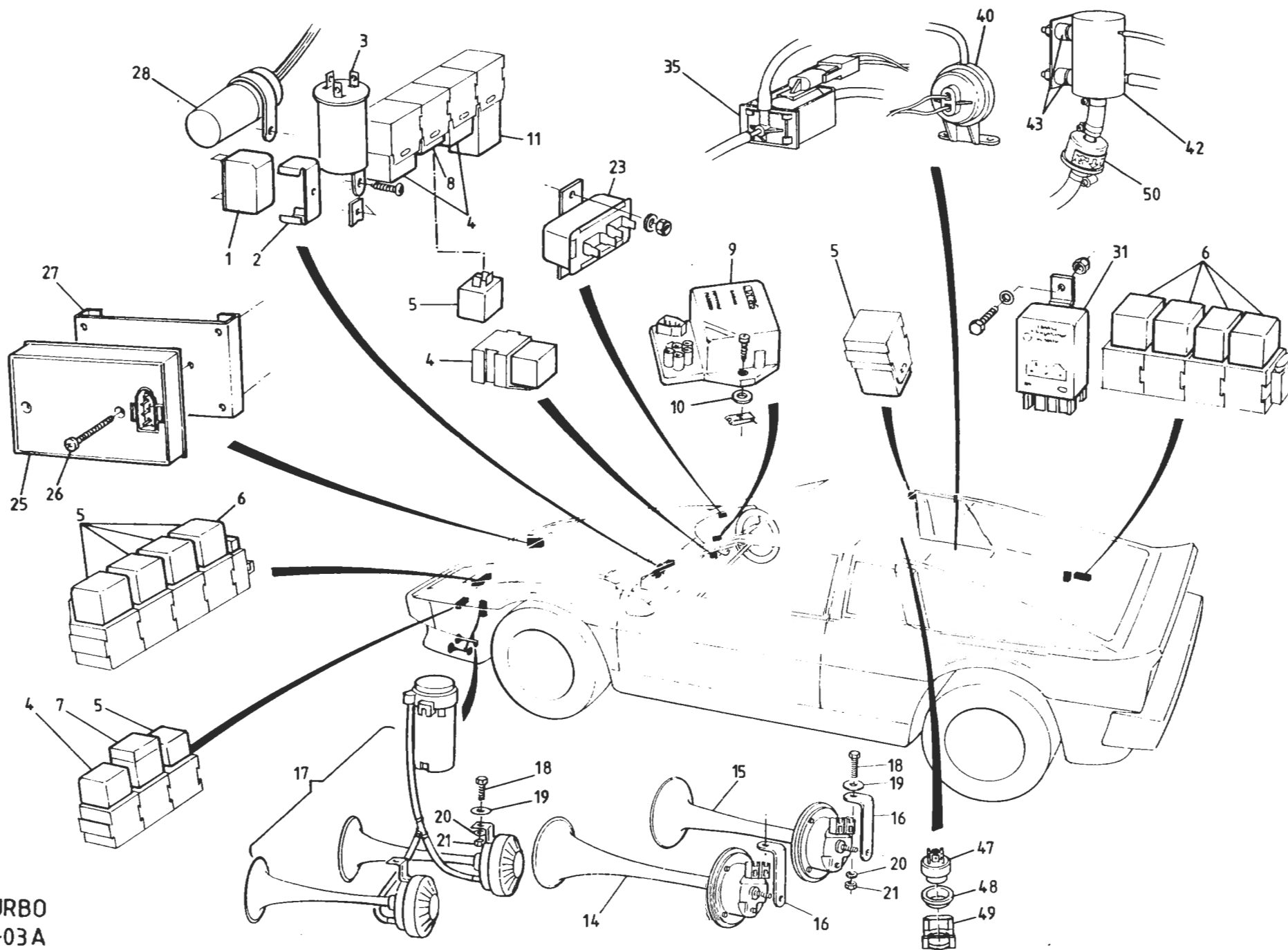
2
2
5
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A/R

Motorola, Sparkomatic, Blaupunkt

For Blaupunkt 'Quickfit' Fascia Speakers
Routed Along Tunnel
With Lucas Constant Energy Ignition

'87 M.Y. on

Turbo 17.01A
Page 2

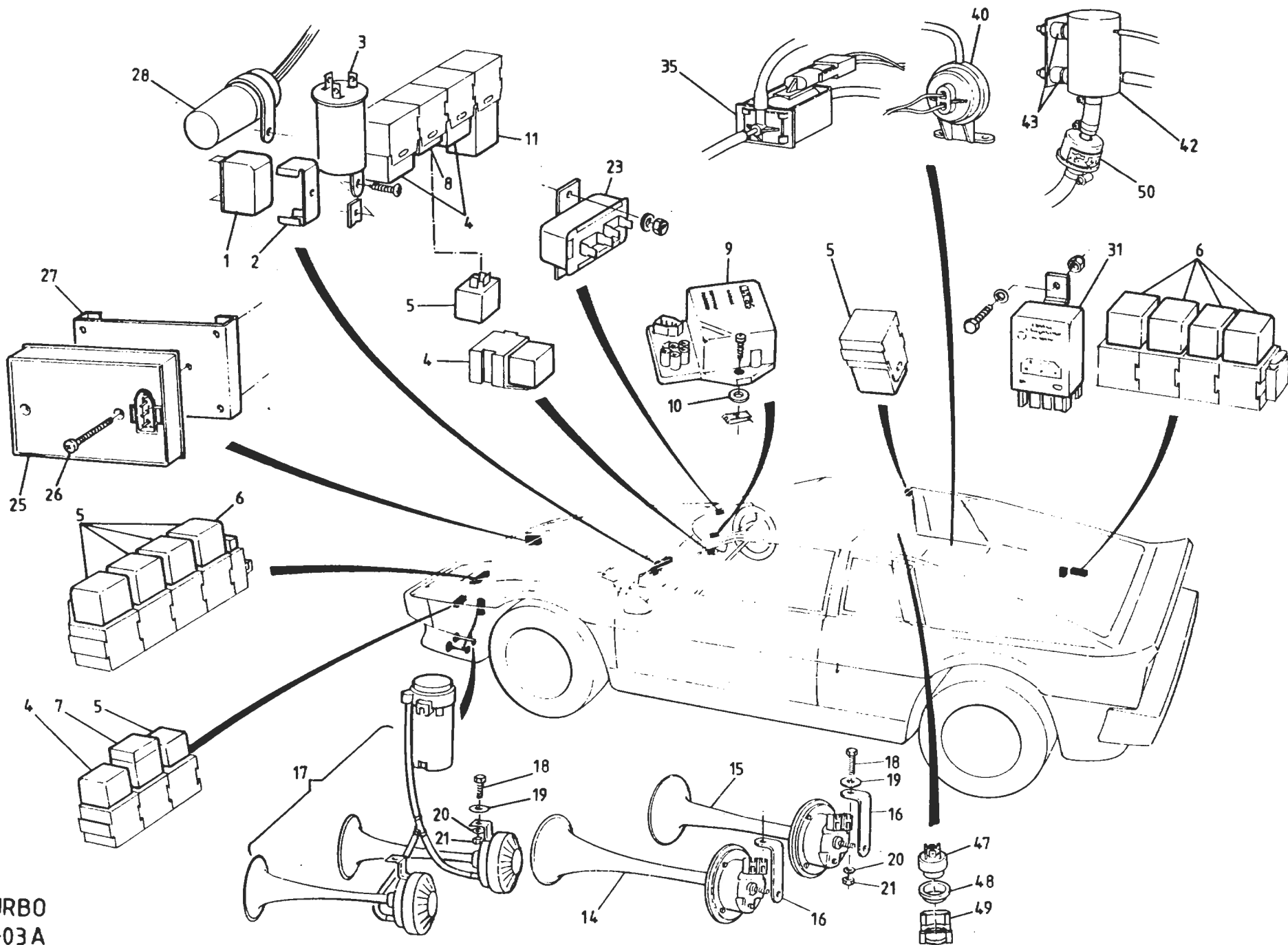


TURBO
17-03A

ILLUS
NO.

MAY 1991

17.03A	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			PRIOR '87 M.Y	'87 M.Y ON	
1	Flasher Unit, Hazard	A007M4124Z	1	1	Inner H/L (2), Rad. Fans (1) (For Cars Fitted With Thermal Trip), Interior Fans (1) (For Cars NOT Fitted With Orange 'Cartier' Relay).
2	Clip, Hazard Flasher Unit	X036M6301F	1	1	
3	Flasher Unit, Turn Indicators	A079M6018F	1	1	
	Screw, Flasher Unit Fixing	A075W5012F	1	1	
	Spire Nut, Flasher Unit Fixing	A075W6013Z	1	1	R/B B079M6141F
4	Relay, Double Contact	A082M6182F	2/3/4	4	
	Relay, Changeover, Silver 30 Amp	A079M6141F	5/6/7/8	5/6	Horn (1), H/L Control (1) (Prior to Fitment of Diode), H/L Flasher (1), H/L Motor RH (1), H/L Motor LH (1), Fan Fail (1) (Prior to Thermal Trip), HRS (1).
5	Relay, Changeover, Black 40 Amp	B079M6141F			
6	Relay, Changeover, Black 40 Amp	B079M6141F			'87 M.Y. On. Throttle Jack, Purge Pump Ignition Solenoid Valve, Overboost Switch Dim-Dip. A/C Compressor (With Switch A082M6221F)
7	Fused Relay, 4RA, Radiator Fans	A079M6101F	1		Prior to Thermal Trip
	'Cartier' Relay, Interior Fans (Orange)	A083M6218F	1		Prior to Relay A082M6182F
	Moulding 'Cartier' Relay	A083M6229F	1		
	Diode, Headlamp Changeover Circuit	B075M6141Z	1	1	Later Cars Not Using Relay B079M6141F
8	Relay Bridge, Rad. Fan Circuit	A082M4195F	1	1	With Fan Thermal Trip
9	Delay Unit, Wipers	A079M6126F	1	1	
10	Spacer, Delay Unit to Fascia	A907E0696Z	2	2	
	Delay Unit, Interior Lamp, Progressive Dimmer	A082M6143F	1		>As Fitted
11	Delay Unit, Interior Lamp, Timed Switch	A082M6220F	1	1	>
14	Horn, Low Note	A079M6086F	1)
15	Horn, High Note	A079M6087F	1		) Electric Horns
16	Bracket, Horn Mounting	A079M6089F	2)
17	Air Horn Kit	A089M6063F	1	1	With Air Horns



TURBO
17-03A

ILLUS
NO.

QUANTITY

MAY 1991

17.03A

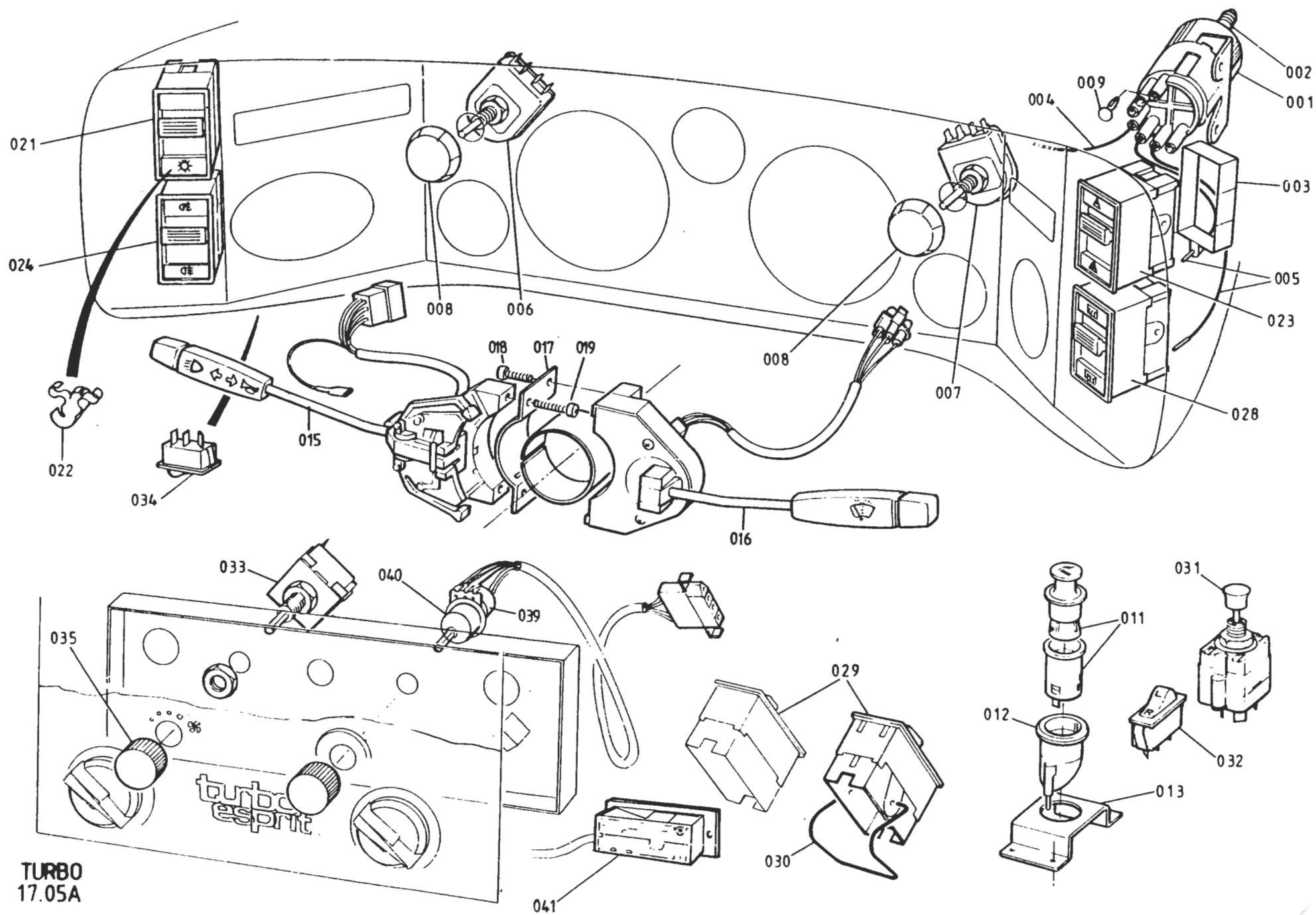
DESCRIPTION

PART NUMBER

PRIOR '87 M.Y.
'87 M.Y. ON

REMARKS

18	Setscrew, M6 x 25, Horn Brkt. to Body	A075W1031Z	2	2	
19	Washer, Flat, Brkt. Fixing	A075W4015Z	2	2	
20	Washer, 25mm O/D, Brkt Fixing	A075W4017Z	2	2	
21	Nut, Nyloc, M6, Brkt. Fixing	A075W3009Z	2	2	
23	Voltage Stabiliser	A079N6027F	1	1	
	Diode, Brake Warning Lamp	B075M6141Z	1	1	
25	Module, 'Dim-Dip'	A085M6315F		1)
26	Screw, M4 x 30, Unit Fix	A085W5112F		2	)U.K. only
27	Bracket, Relay Mounting	A085U5112F		1)
	Pop Rivet, Brkt. Fix	A075W6071F		4)
28	Module, Low Coolant	A082M6275F		1	
	Screw, s/t, Module Fix	A075W5012F		2	
	Spire Nut, Module Fix	A075W6013F		2	
	'P' Clip, Module Fix	A075W6229F		1	
31	Relay Engine Speed Sensing	A910E6757F		1	Throttle Jack Control
	Screw, Relay Fix	A075W1002Z		1	
	Nut, Nyloc, 10 UNF, Relay Fix	A075W3000Z		1	
	Washer, Relay Fix	A075W4011Z		1	
35	Ignition Solenoid Valve	A910E6764F		1	
	Screw, s/t, No. 8 x 3/8", Solenoid Fix	A075W5032Z		2	
	Washer, Solenoid Fix	A075W4011Z		2	
40	Overboost Switch	A082M4610K		1	
	Screw, No. 8 x 1/2", Switch Fix	A075W5034Z		2	
42	Purge Pump	A089M6105F		1	
43	Resilient Mounts, Purge Pump	A089M8042K		2	
	Nut, M6, Purge Pump Fix	A075W3020F		2	
	Washer, Internal Spring, Purge Pump Fix	A075W4046F		2	
47	Thermal Switch, Purge Pump Control	A082M6317F		1	MOR 70, BOF 60. Includes Grommet
48	Grommet, Purge Pump Switch	A079M6181F		1	
49	Clip, Switch Retention	A079M6138F		1	
50	Solenoid Valve, Purge Line Shut-Off	A082L4130F		1	



ILLUS
NO.

MAY 1991

QUANTITY

17.05A

DESCRIPTION

PART NUMBER

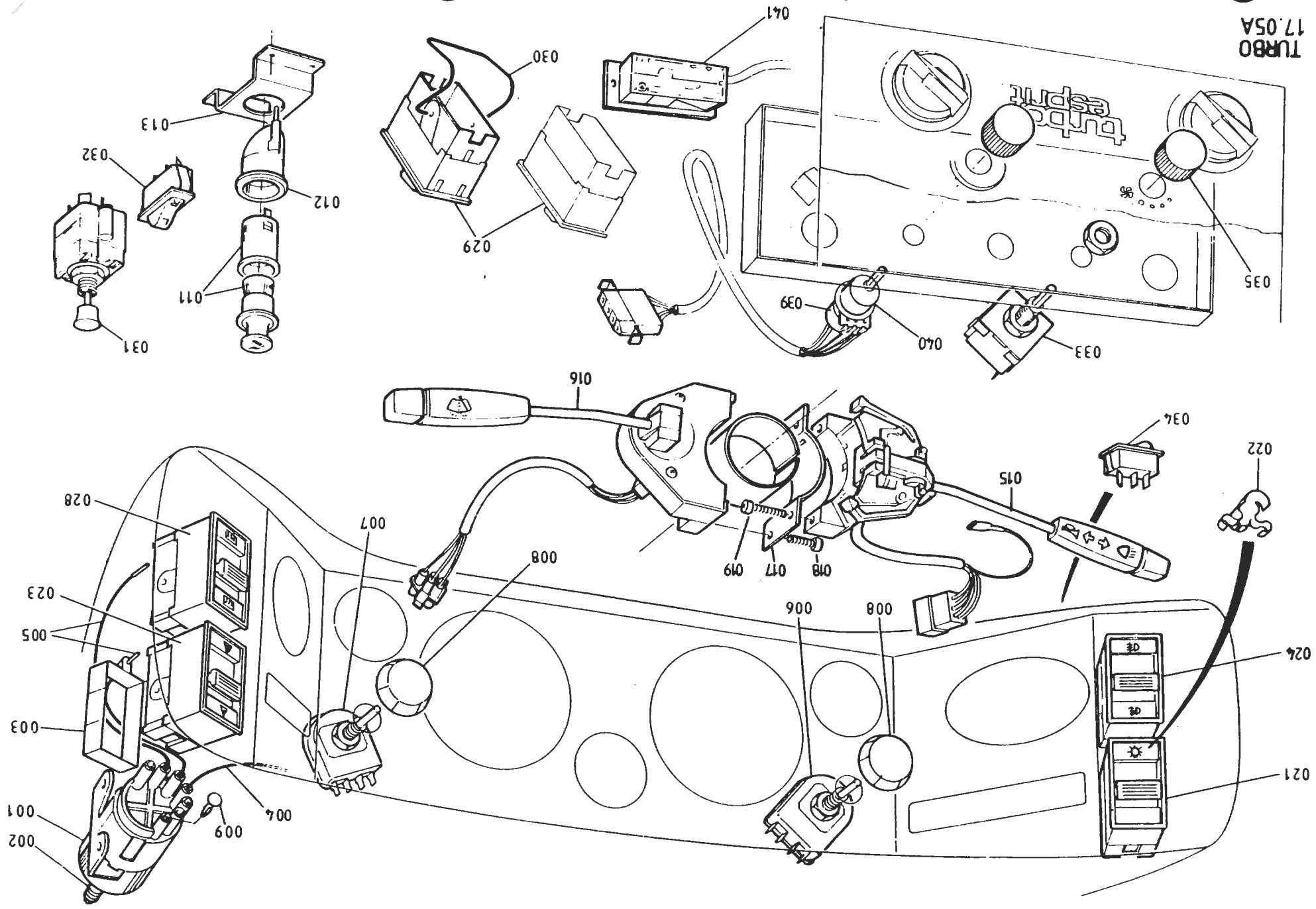
ALL

REMARKS

001	Light Source, Fibre Optics	B079M6099F	1		
002	Bulb, 12V 5W, Light Source	A075M6144F	1		
003	Clip, Fibre Optic Carrier to Switch	A079M6100F	4		
004	Fibre Optic Light Carrier, 880mm	B079M6097F	1		
005	Fibre Optic Light Carrier, 435mm	B079M6098F	2		
006	Rheostat, 27W, Binnacle/Switch Illum.	A083M6220F	1		Identification Number 78546
007	Rheostat, 19.8W, Heater/Cigar Illum.	A079M6029F	1		Identification Number 78526
008	Knob, Rheostat, Plain	A082M6153F	2		R/B A089M0490F
	Knob, Rheostat, with Graphic	A089M0490F	2		
	Heatshield, Rheostat	A083M0376K	2		If Fitted
009	Blanking Plug, Light Source	A082M6240F	4		
011	Cigar Lighter, Inner & Outer	A079M6123J	2		
012	Illumination Ring, Cigar Lighter	A079M6124F	2		
013	Bracket, Cigar Lighter Mounting	A079M4088K	2		
	Pop Rivet, Brkt. Fixing	A075W6092Z	8		
	Switch, Dip/Flash/Turn/Horn	A075M6072Z	1		On RH Side of Steering Column
015	Switch, Dip/Flash/Turn/Horn	A082M6151Z	1		On LH Side of Steering Column
	Switch, Wash/Wipe	B075M6073Z	1		On LH Side of Steering Column
016	Switch, Wash/Wipe	A082M6152Z	1		On RH Side of Steering Column
017	Bracket, Switches to Column	B075M6051Z	1		
018	Screw, 10 UNC x 119,	A075M6074Z	2		Wash/Wipe Switch to Bracket
019	Screw, 10 UNC x 135	A075M6075Z	2		Dip/Flash/Turn Switch to Bracket
020	Spacer, Switches to Column	B079M4017F	1		
021	Switch, Lighting	B079M6134F	1		
022	Clip, Bulbholder	A079M6135F	1		
023	Switch, Hazard Warning Lamps	B079M6063F	1		
024	Switch, Rear Fog Lamps	A075M6206F	1		
028	Switch, Heated Rear Screen	A075M6212F	1		
029	Switch, Window Lift	B079M6068F	2		
030	Clip, Window Switch Retention	A079U4657F	2		

Turbo 17.05A

Page 1



ILLUS
NO.



QUANTITY

MAY 1991

17.05A

DESCRIPTION

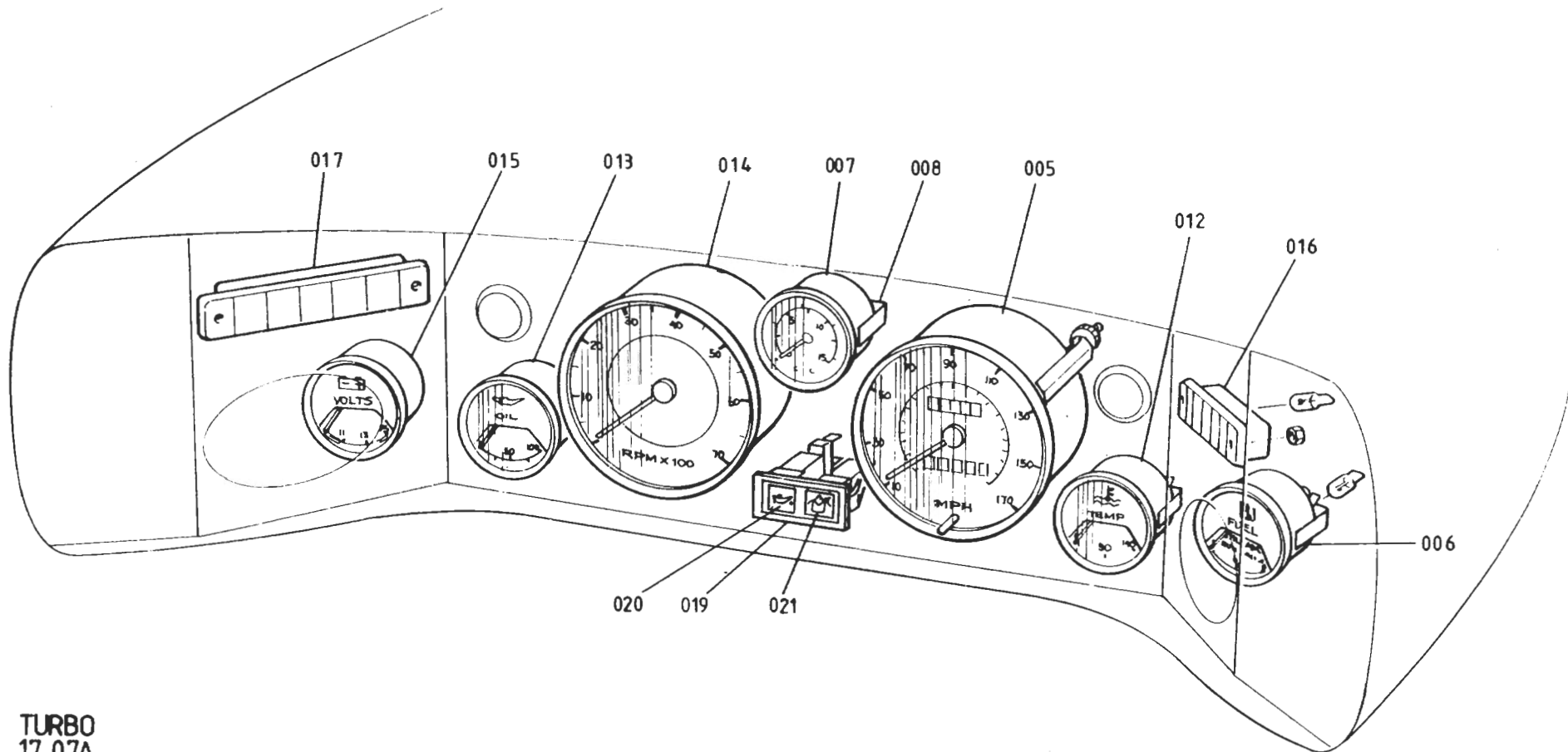
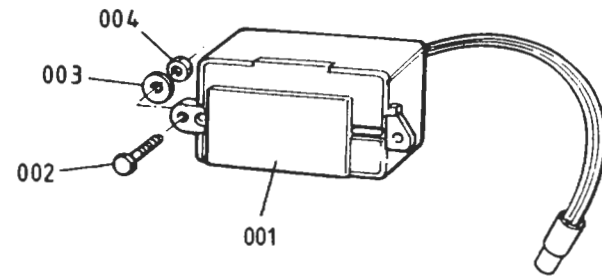
PART NUMBER

ALL

REMARKS

031	Switch, Mirror Adjust	A079M6111F	1		Prior to Change Point *
	Switch, Mirror Adjust	A082M6300F	1)
	Nut, 3/4 UNF, Switch Retaining	A082M6304F	1)
	Spacer, Mirror Adjust Switch	A082U5067F	1		)From Change Point *
	Bezel, Mirror Adjust Switch	A082U5068F	1)
	Spring Clip, Bezel Retaining	A082M6303F	1)
032	Switch, Mirror Select	A075M0339F	1		Prior to Change Point *
	Switch, Mirror Select	A082M6301F	1		From Change Point *
033	Switch, Interior Fan Speed	A082M6145F	1		R/B A082M6223F
	Switch, Interior Fan Speed	A082M6223F	1		
034	Switch, Radio Aerial	A075M0339F	1		
035	Knob, Fan Speed Switch	A082P4186F	1		R/B Knob A089P6102F & Cap A089P6103F
	Knob, Fan Speed Switch	A089P6102F	1		
	Cap, Fan Speed Switch Knob	A089P6103F	1		
	Control Switch Assy. Fridge Temp	A079P6013F	1		Prior to VIN 82 D 2153 82 - 0602
039	Control Switch, Fridge Temp	A082M6221F	1)
040	Cover, Control Switch, (ABS)	A082M4239K	1		) From VIN 82 D 2153
041	Control Unit, Fridge Temp	A082M4605F	1		) 82 - 0602
	Harness, Control Unit to Relay	A082M4585F	1		
	Knob, Fridge Switch	A082P4186F	1		R/B Knob A089P6102F & Cap A089P6103F
	Knob, Fridge Switch	A089P6102F	1		
	Cap, Fridge Switch Knob	A089P6103F	1		* Change Point VIN 82 D 2137 82 - 0606

Turbo 17.05A
Page 2



TURBO
17.07A

ILLUS
NO.

QUANTITY

MAY 1991

DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

17.07A

001

Clock, Digital,LED (Rocking Bar Adjustment)

A079M6088F

1

Early Cars, Flat Connector Block

Clock, Digital,LED (Pin Button Adjustment)

A089M6034F

1

Clock, Digital,LED (Rocking Bar Adjustment)

A082M4619F

1

Clock, Digital,LCD

A082M6341F

1

1

1986 M.Y. Round Connector Block. (R/B
A082M6341F & Jump Harness A082M4689F)

002

Screw, M4 x 20, Clock Fixing

A079W5083F

2

003

Washer, Flat, Clock Fixing

A075W4062F

2

004

Nut, Nyloc, M4, Clock Fixing

A075W3049F

2

005

Speedometer, 170 mph, RHD

A079N6032F

1

White Illumination

Speedometer, 170 mph, RHD

A082N6040F

1

1

Green Illumination

Speedometer, 265 kph, LHD

A079N6033F

1

White Illumination

Speedometer, 260 kph, LHD

A082N6041F

1

1

Green Illumination

Bulb, Speedo Illumination

A089M6047F

1

1

For Speedo A082N6040/1F

006

Fuel Gauge

A079N6024F

1

White Illumination

Fuel Gauge

A082N6044F

1

1

Green Illumination

007

Boost Gauge

A082N6035F

1

R/B A082N6047F

Boost Gauge

A082N6047F

1

1

008

Bracket, Boost Gauge Illumination

A082N4007J

1

1

Lens, Green, Illumination Bracket

A082N6049F

1

1

Check Screw, Gauge Damping

A082N6039F

1

012

Water Temperature Gauge

A079N6023F

1

White Illumination

Water Temperature Gauge

A082N6043F

1

1

Green Illumination

013

Oil Pressure Gauge

A079N6026F

1

White Illumination

Oil Pressure Gauge

A082N6046F

1

1

Green Illumination

014

Tachometer

A079N6022F

1

White Illumination

Tachometer

A082N6042F

1

1

Green Illumination

Bulb, Tacho Illumination

A089M6047F

1

1

For Tacho A082N6042F

015

Voltmeter, Battery Condition Gauge

A079N6025F

1

White Illumination

Voltmeter, Battery Condition Gauge

A082N6045F

1

1

Green Illumination

016

Tell-Tale Light Assembly, RH

A082N4004F

1

With Separate Low Fluid & Park. Brake Lamp

Tell-Tale Light Assembly, RH

B082N4004F

1

1

With Combined Low Fluid & Park. Brake Lamp

017

Tell-Tale Light Assembly, LH

A082N4005F

1

With Separate Fuel & Choke Lights

Tell-Tale Light Assembly, LH

A082N4008F

1

1

With Combined Fuel/Choke Light

019

Tell-Tale Light Assembly, Centre

A082M6278F

1

1

020

Lens, Low Oil Pressure Tell-Tale

A082M6279F

1

1

021

Lens, Low Coolant Level Tell-Tale

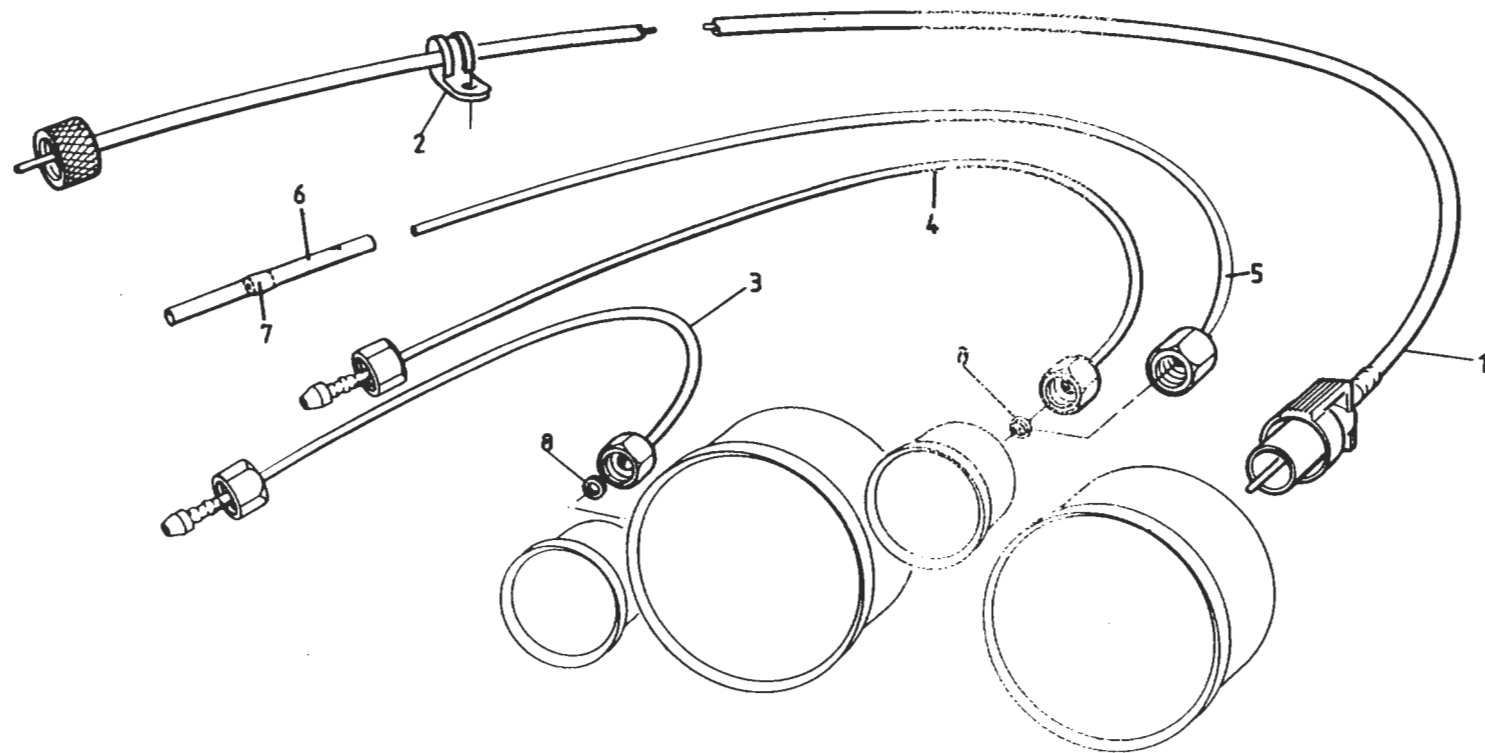
A082M6280F

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Turbo 17.07A

d4p55



TURBO
17.09A

ILLUS
NO

QUANTITY

MAY 1991

17.09A

DESCRIPTION

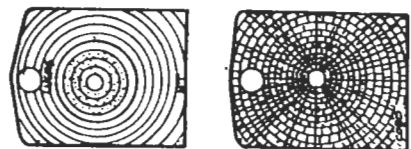
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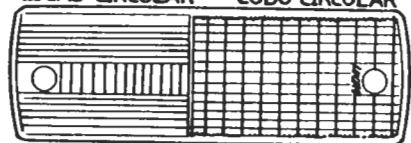
REMARKS

1	Speedo Cable	A079N6034F	1		
2	'P' Clip, Cable to Chassis	A075Q6016F	1		
3	Pipe, Oil Pressure Gauge , Nut Fitting	A079N4001F	1		
4	Pipe, Boost Gauge, Nut Fitting	A079N4001F	1		R/B Items 5,6,7 and Take-Off Elbow A910E6772 (See 42.01A)
5	Pipe, Boost Gauge, Plain End	A082N4019F	1		
6	Connector Tube, Boost Pipe to Engine	A082N4020K	1		
7	Restrictor, Boost Gauge Pipe	A912E6452H	1		
8	Washer, Oil/Boost Pipe to Gauge	A036N6000F	2		

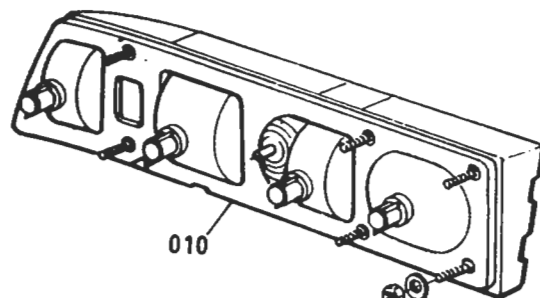
Turbo 17.09A



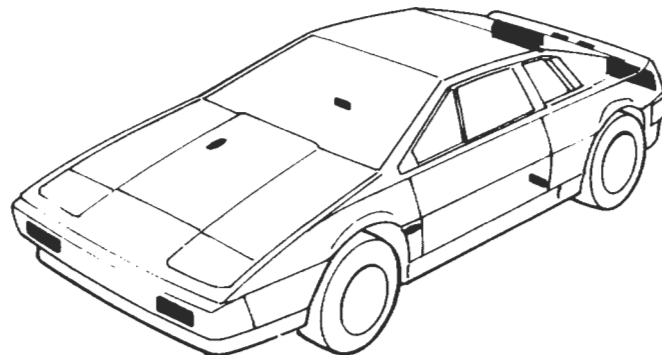
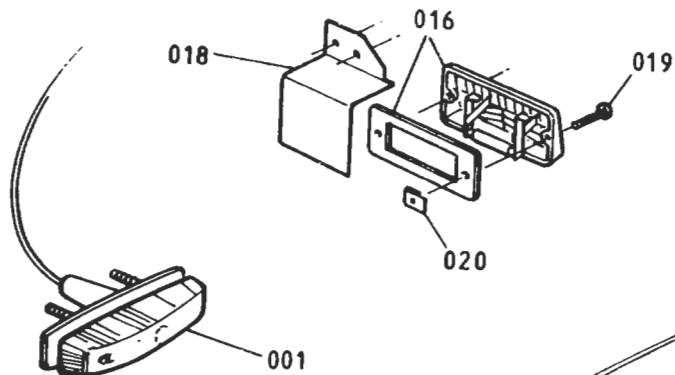
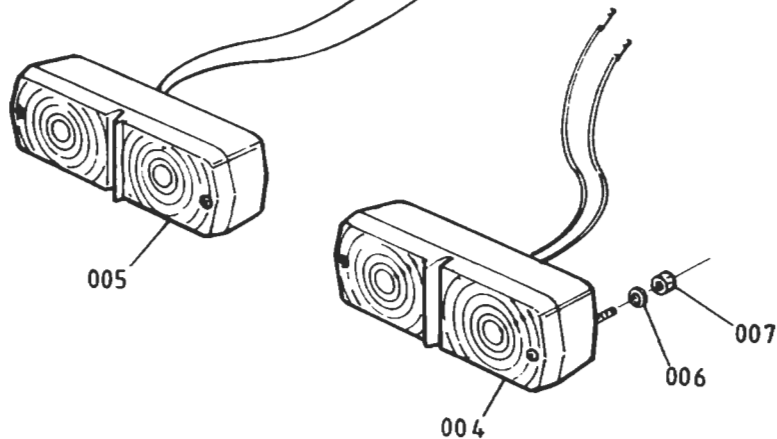
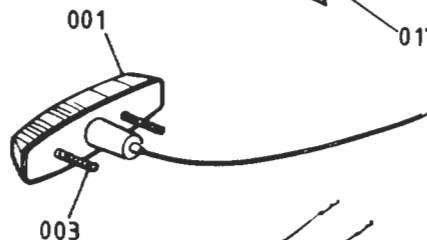
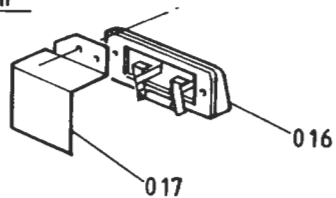
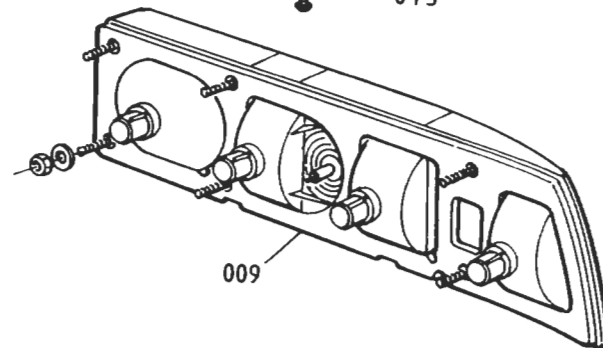
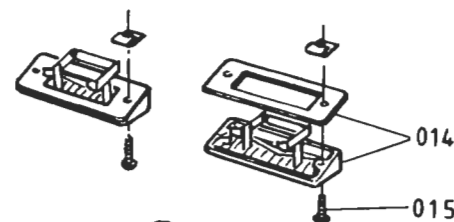
LUCAS CIRCULAR COBO CIRCULAR



LUCAS LINEAR DIFFUSION PATTERN
SIDE/TURN INDICATOR LAMP



012 013



ILLUS
NO.

MAY 1991

17.11A

DESCRIPTION

PART NUMBER

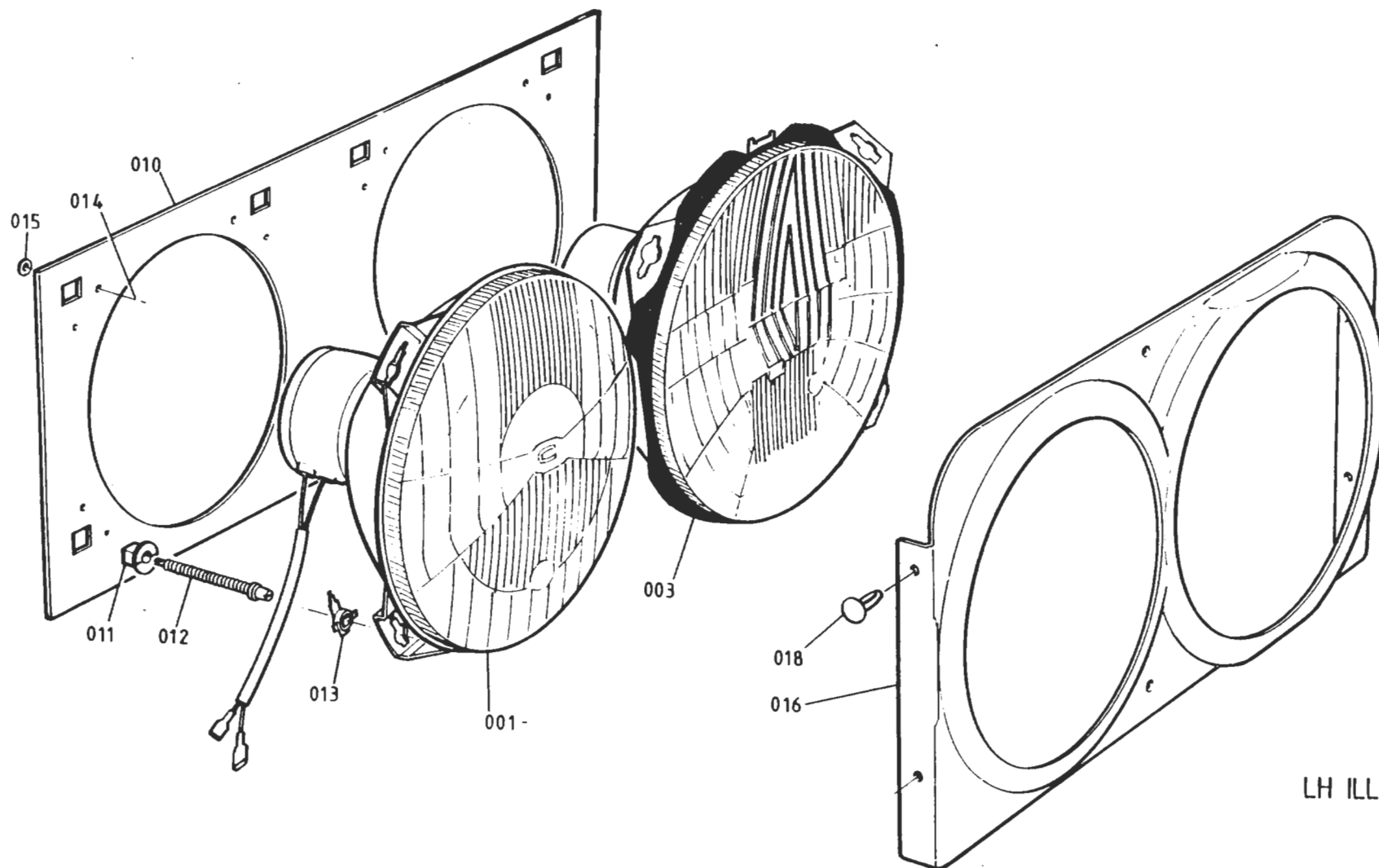
QUANTITY

ALL

REMARKS

	Turn Repeater Lamp	A075M6140W	2		R/B Lamp A082M6180F and Extension Harness A082M4188F
001	Turn Repeater Lamp	A082M6180F	2		
003	Screw, Lamp Fixing	A075W5028Z	4		
	Side/Turn Lamp, LH	A075M6029W	1]]
	Side/Turn Lamp, RH	A075M6028W	1		]Linear Diffusion Pattern, 'Lucas'
	Lens, Side/Turn Lamp	A075M6119Z	2]]
	Screw, Lamp Fixing	A075W5034Z	8]]
	Spire Nut, Lamp Fixing	A075W6171F	8]]
004	Side/Turn Lamp, LH	A089M6022F	1]]
005	Side/Turn Lamp, RH	A089M6021F	1		]Circular Diffusion Pattern, 'Lucas'
	Lens, Side/Turn Lamp	A089M6061F	2]]
006	Washer, Flat, Lamp Fixing	A075W4013Z	4]]
007	Nut, Nyloc, M6, Lamp Fixing	A075W3009Z	4]]
	Side/Turn Lamp, LH	A089M6073F	1]]
	Side/Turn Lamp, RH	A089M6074F	1		]Circular Diffusion Pattern, 'Cobo'
	Lens, Side/Turn Lamp	A089M6083F	2]]
	Setscrew, M6 x 25, Lamp Fix	A075W1031F	4]]
	Washer, M6, Lamp Fix	A075W4013Z	8]]
	Washer, Lamp Fix	A075W4017Z	2]]
	Nut, Nyloc, M6, Lamp Fix	A075W3009Z	4]]
009	Rear Lamp Assy. LH	A079M6093F	1]]
	Rear Lamp Assy. RH	A079M6094F	1]]
012	Nut, Lamp Fix	A075W3008Z	12]]
013	Washer, Lamp Fix	A075W4000Z	12]]
014	Licence Plate Lamp	A082M6144F	2]]
015	Screw, Lamp Fix	A075W5015Z	4]]
016	'Door Open' Warning Lamp (inc. Gasket)	A082M6155F	2]]
017	Shield, Door Lamp, LH	A082U4743K	1]]
018	Shield, Door Lamp, RH	A082U4742K	1]]
019	Screw, Lamp Fix	A075W5027Z	4]]
020	Spire Nut, Lamp Fix	A079W6024F	4]]

Turbo 17.11A



LH ILLUSTRATED

TURBO
17.13A

ILLUS
NO.

QUANTITY

MAY 1991

17.13A

DESCRIPTION

PART NUMBER

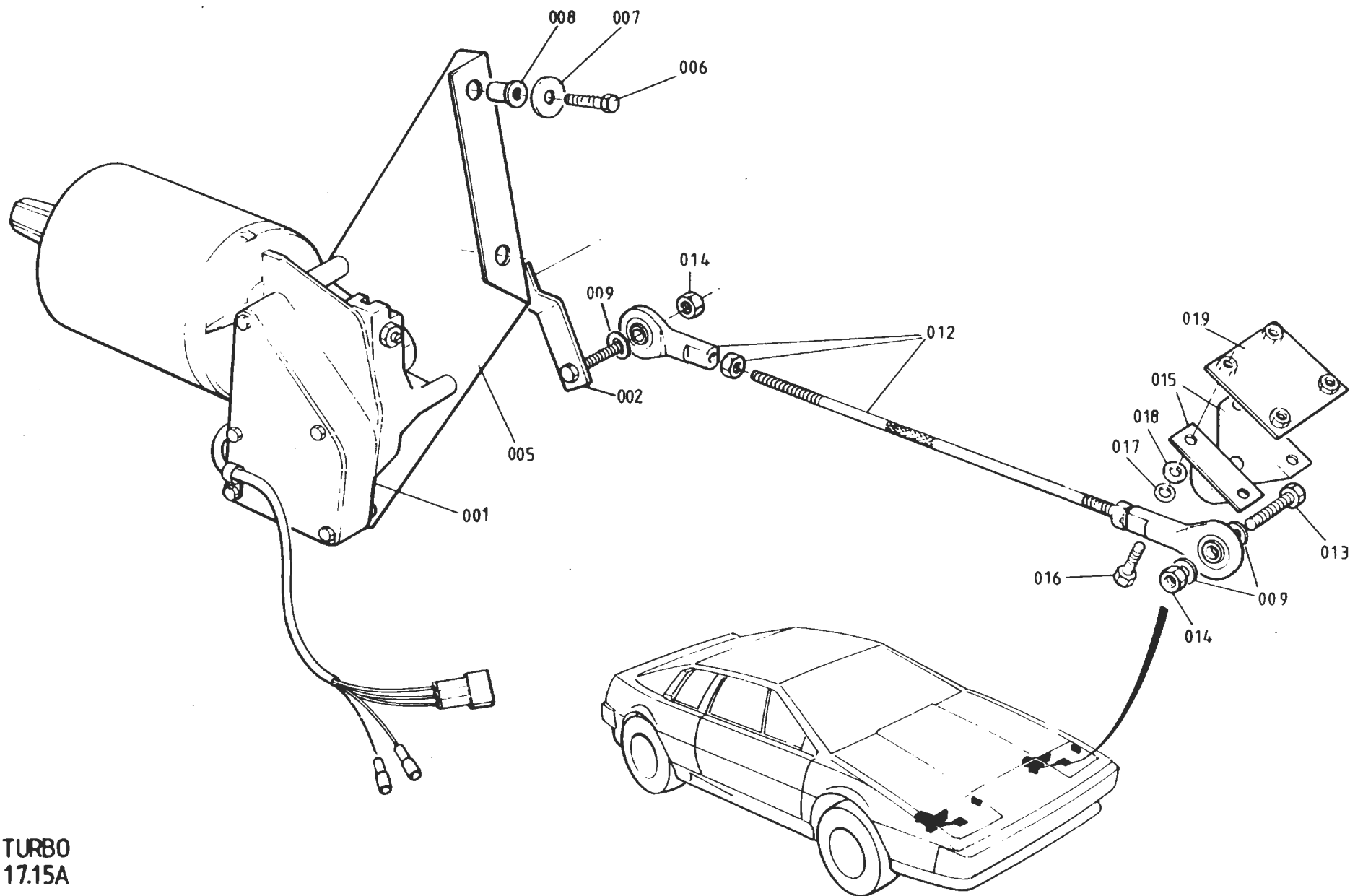
RHD

LHD

REMARKS

	Headlamp Assembly, Lucas/Hella	A079M6106K	4		Frame/Unit/Bulb
	Headlamp Unit, Lucas/Hella	A079M6104F	4		Includes H4 Bulb
	Headlamp Assembly, Lucas/Hella	A079M6105K		4	Frame/Unit/Bulb
	Headlamp Unit, Lucas/Hella	A079M6103F		4	Includes H4 Bulb
001	Headlamp Assembly, Inboard, Cibie	A082M6174F	2	2	Main Beam Only, HI Bulb
003	Headlamp Assembly, Outboard, Cibie	A085M4223J	2		Unit/Carriage Plate/Bezel/H4 Bulb
	Headlamp Assembly, Outboard, Cibie	A085M4224J		2	Unit/Carriage Plate/Bezel/H4 Bulb
	Bulb, Halogen H4, Beam/Dip	A075M6126F	4/2	4/2	
	Bulb, Halogen HI, Beam Only	A082M6288F	2	2	Cibie Inboard
	Bulb, Halogen, H4, Yellow	A079M6113F		4	France Only. Lucas/Hella Lamps
	Screw, Headlamp to Pod	A075W5043Z	16	16	Lucas/Hella
	Spire Nut, Headlamp to Pod	A075W6016Z	16	16	Lucas/Hella
010	Plate, Headlamp Mounting to Pod	A085M4217F	2	2	>
011	Insert Bush, Adjuster Screw to Plate	A082M6207F	12	12	>
012	Adjuster Screw, Headlamp Aim	A082M6206F	12	12	> Cibie Headlamps
013	Capsule, 1/4 Turn, Headlamp Mounting	A085M6217F	12	12	>
014	Pop Rivet, Mtg. Plate to Pod	A075W6069F	32	32	>
015	Washer, Pop Rivet	A075W4062F	32	32	>
	Surround, Headlamps, LH	A079U4449K	1	1)
	Surround, Headlamps, RH	A079U4450K	1	1	) Lucas/Hella Headlamps
	Screw, Surround to Pod	A075W5030F	8	8)
016	Surround, Headlamps, LH	A085M4222K	1	1	> Prior to VIN 82 D 2265 >
	Surround, Headlamps, RH	A085M4221K	1	1	> 82 - 0625 > Cibie
	Surround, Headlamps, LH	B085M4222K	1	1	) From VIN 82 D 2265 > Headlamps
	Surround, Headlamps, RH	B085M4221K	1	1	) 82 - 0625 >
018	Button Clip, Surround to Pod	A075W6192F	12	12	

Turbo 17.13A



TURBO
17.15A

ILLUS
NO.

MAY 1991

17.15A

DESCRIPTION

PART NUMBER

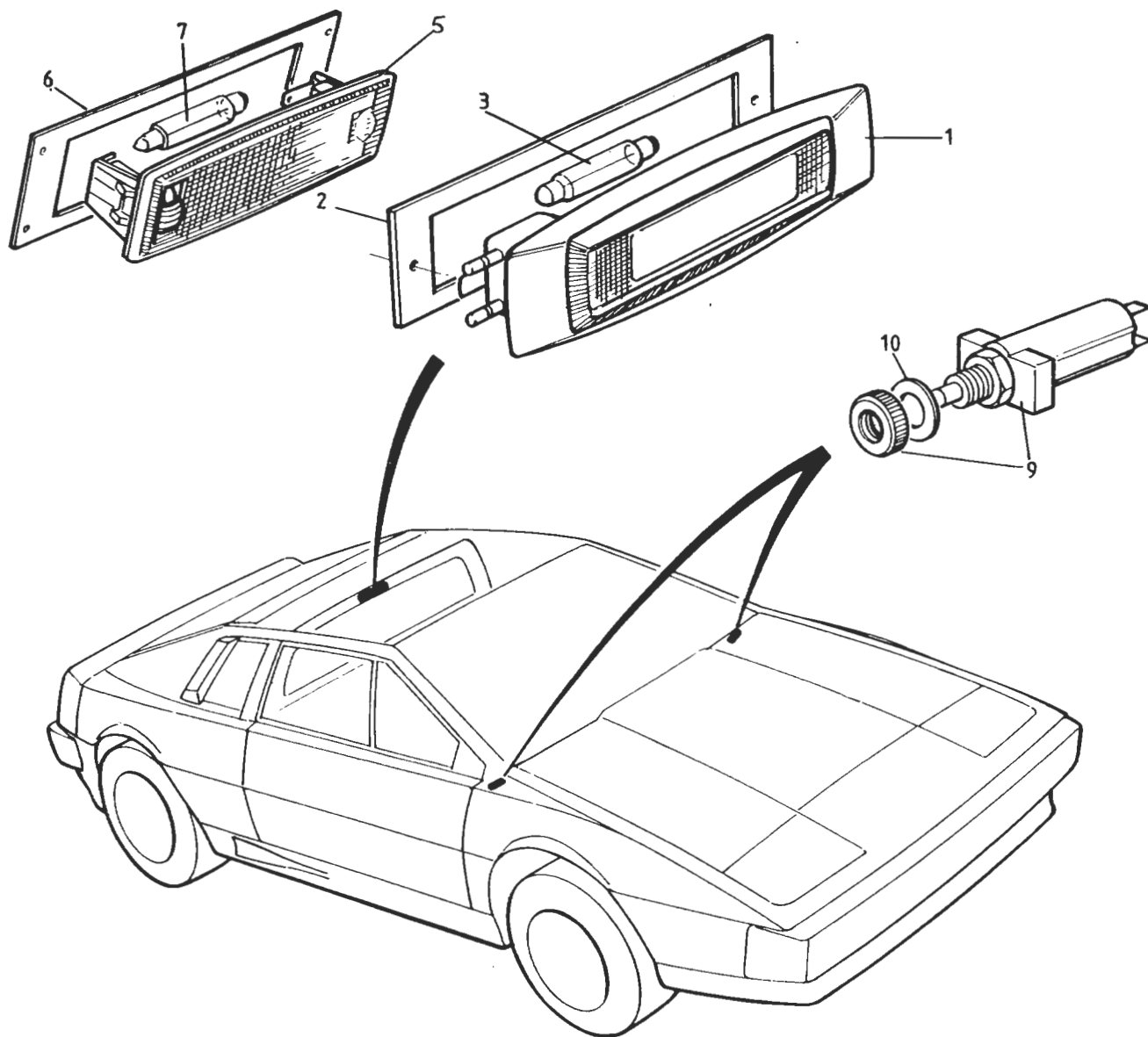
QUANTITY

ALL

REMARKS

001	Motor Assembly, Headlamp Pod	B079M6047F	2		R/B A082M4584F
002	Motor Assembly, Headlamp Pod	A082M4584F	2		Inc. Rotary Link
005	Rotary Link	D079M4055K	2		
006	Bracket, Headlamp Motor Mounting	A079U4453K	2		
007	Setscrew, 1/4" UNF x 3/4" Brkt/Body	A075W1005Z	8		
008	Washer, Bracket/Body	A075W4015Z	8		
009	Rawlnut, 1/4" UNF, Bracket/Body	A075W6036Z	8		
	Washer, Flat, Rod End	A075W4013Z	8		
	Connecting Link, Pod Actuation	A079U4455F	2)
	Rod End, 1/4" UNF, Connecting Link	A079U6031F	4		)R/B Assembly A082U5006F
	Locknut, 1/4" UNF, Rod End	A075W3038Z	4)
012	Linkage Assembly, Pod Actuation	A082U5006F	2		M6 RH/LH Threads
013	Setscrew, M6 x 30, Link to Pod	A075W1032Z	2		
014	Nut, Nyloc, M6, Link Fixing	A907E6285F	4		
015	Bracket, Link to Pod	A079U4454K	4		
016	Setscrew, M6 x 18, Bracket to Pod	A075W1029F	8		
017	Washer, Shakeproof, Bracket to Pod	A075W4046Z	8		
018	Washer, Flat, Bracket to Pod	A075W4015Z	8		
019	Tapping Plate, Bracket to Pod	A079U4517F	2		

Turbo 17.15A



TURBO
17.17A

**QUANTITY**

DESCRIPTION

PART NUMBER

ALL

REMARKS

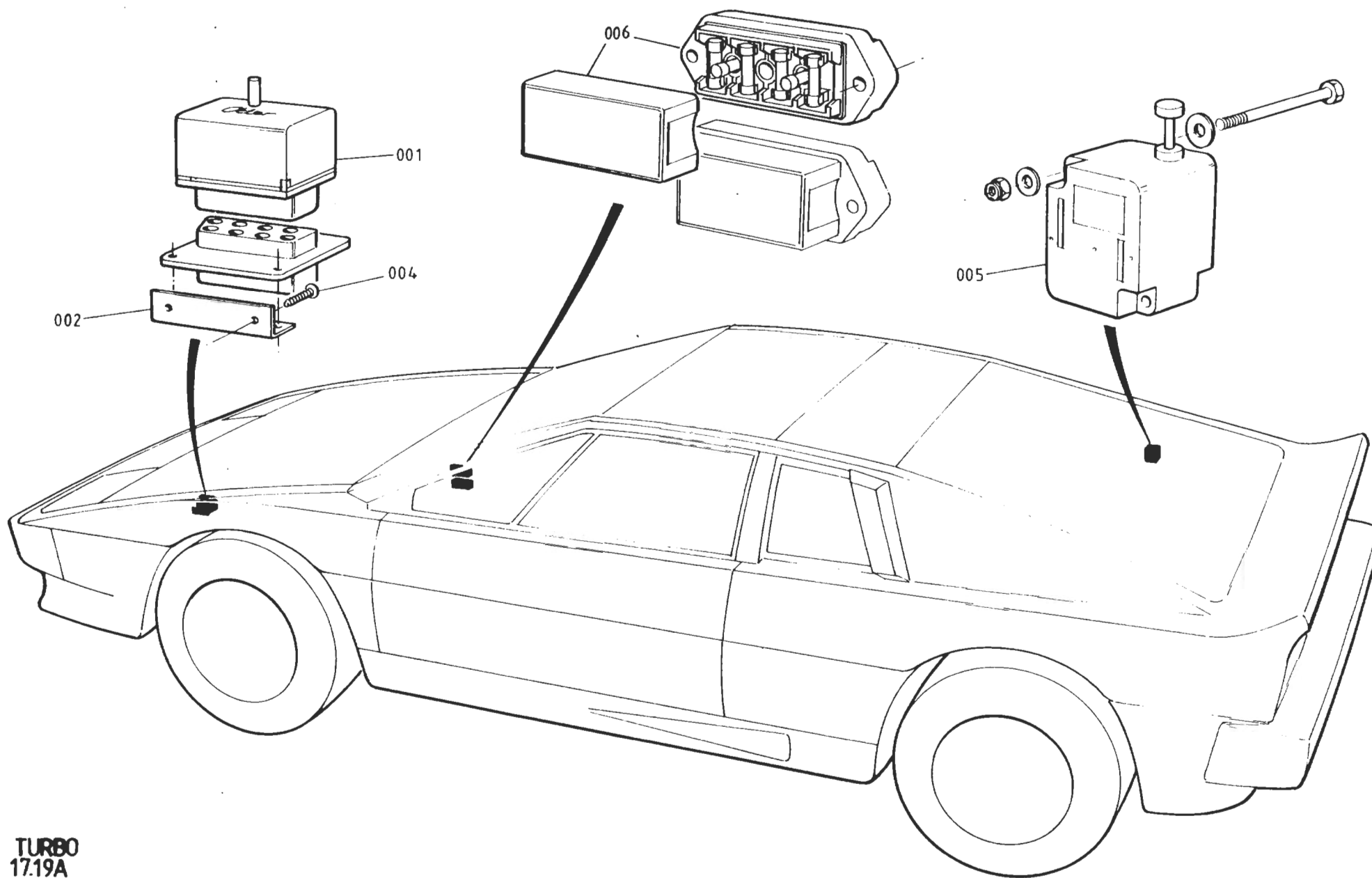
1	Interior Lamp (with rocking lens switch)
2	Bracket, Interior Lamp Mounting
3	Bulb, Festoon, Interior Lamp, 6W
5	Interior Lamp (with button switch)
6	Bracket, Interior Lamp Mounting
7	Bulb, Festoon, Interior Lamp, 10W
9	Door Switch, Courtesy Lamp
10	Spacer Washer, Fibre, Switch Adjust

A082M6156F
A082U4726K
A083M6292F
A083M6291F
B079V4454K
A082M6310F
A075M6044Z
A075W4057Z

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From 1986

Turbo 17.17A



TURBO
17.19A

ILLUS
NO.



QUANTITY

1661
AVW

17.19A

DESCRIPTION

PART NUMBER

ALL

REMARKS

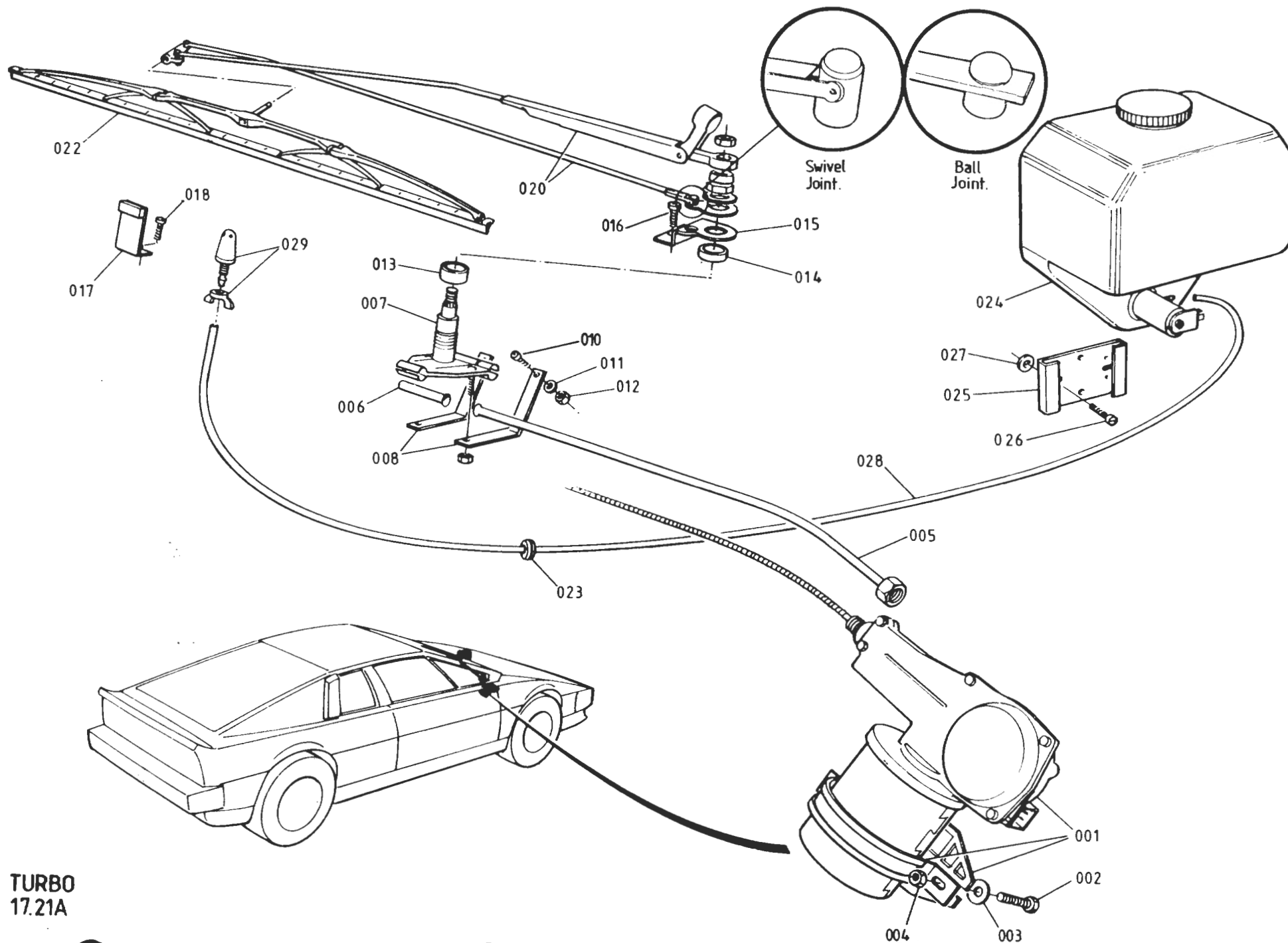
001 Thermal Trip, 3-Way, Rad. Fans
Thermal Trip, 3-Way, Rad. Fans
002 Mounting Bracket, Thermal Trip
Pop Rivet, Trip Connector Mldg/Brkt.
004 Screw, Mounting Bracket to Body
005 Inertia Switch, Fuel Pump Cut Out
Bolt, M5 x 50, Switch Fix
Nut, Full, M5, Switch Fix
Washer, Shakeproof, Switch Fix
006 Fusebox
Screw, 2BA x 1", Fusebox Fixing
Nut, Nyloc, 2BA, Fusebox Fixing

A082M6196F
B082M6196F
A082M4196F
A075W6096F
A075W5012F
B079M6133F
A079W2026F
A082W3084F
A075W4045Z
A079M6037F
A075W5054Z
A075W3001Z

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Red Spot. R/B B082M6196F
Green Spot

Turbo 17.19A



TURBO
17.21A

ILLUS
NO.

QUANTITY

MAY 1951

17.21A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

001	Wiper Motor, 16W	B075M6021F	1	1	R/B A085M6163F
	Wiper Motor, 29W, Inc. Clamp & Pad	A085M6163F	1	1	Bronze Coloured Motor Casing
	Clamp & Pad, Motor Mounting	A079M4022F	1	1	
002	Setscrew, M6 x 30, Clamp to Body	A075W2028Z	2	2	
003	Washer, 25mm O/D, Motor Mtg.	A075W4017Z	2	2	
004	Nut, Nyloc, M6, Motor Mtg.	A075W3009Z	2	2	
005	Bundy Tube, Motor to Wheelbox	A079M4140F	1	1	
006	Bundy Tube, Wheelbox Run-out	X026M0012J	1	1	
	Wheelbox Assembly, Inc. Nuts	A076M0309F	1	1	For 'Push-On' Type Wiper Arm
					R/B B083M6227F With Associated
					Parts
	Bracket, Wheelbox Stabilising	A079M4021K	2	2)
	Setscrew, Bracket to Body	A075W1003F	2	2)
	Washer, Bracket to Body	A075W4000Z	2	2)
	Nut, Torqloc, Bracket to Body	A075W3000Z	2	2)
	Spacer, Wheelbox to Body	A079M4077F	1	1	) 'Push-on' Wiper Arm
	Spacer, Locking Plate to Body	A079M4077F	1	1)
	Locking Plate, Pantograph Arm	A079M4015K	1	1)
	Locking Plate, Pantograph Arm	A079M4016K	1	1)
	Screw, Locking Plate to Body	A075W5040Z	1	1)
007	Wheelbox Assembly Inc. Nuts	B083M6227F	1	1	>
008	Bracket, Wheelbox Stabilising	A085U4788K	2	2	>
010	Setscrew, Bracket to Body	A075W1003F	2	2	>
011	Washer, Bracket to Body	A075W4000Z	2	2	> 'Bolt-on'
012	Nut, Torqloc, Bracket to Body	A075W3000Z	2	2	> Wiper Arm
013	Spacer, Wheelbox to Body, 13mm	B085U4789F	1	1	) Selected by >
	Spacer, Wheelbox to Body, 9mm	A079M4077F	1	1	) Body Thickness >
014	Spacer, Locking Plate to Body, 9mm	A079M4077F	1	1	With p/g swivel joint >
	Spacer, Locking Plate to Body, 6.5mm	A082M4256K	1	1	with p/g ball joint >

17.27A

**QUANTITY**

MAY 1991

REMARKS

1
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d4p68

PART NUMBER

ALL

National Panasonic 973
National Panasonic 583
Motorola 'Lotus'
Sparkomatic SR309F
Blaupunkt Cambridge
Blaupunkt Boston
Blaupunkt Toronto
Clarion '950'
Clarion '920'
R/B A082M6309F

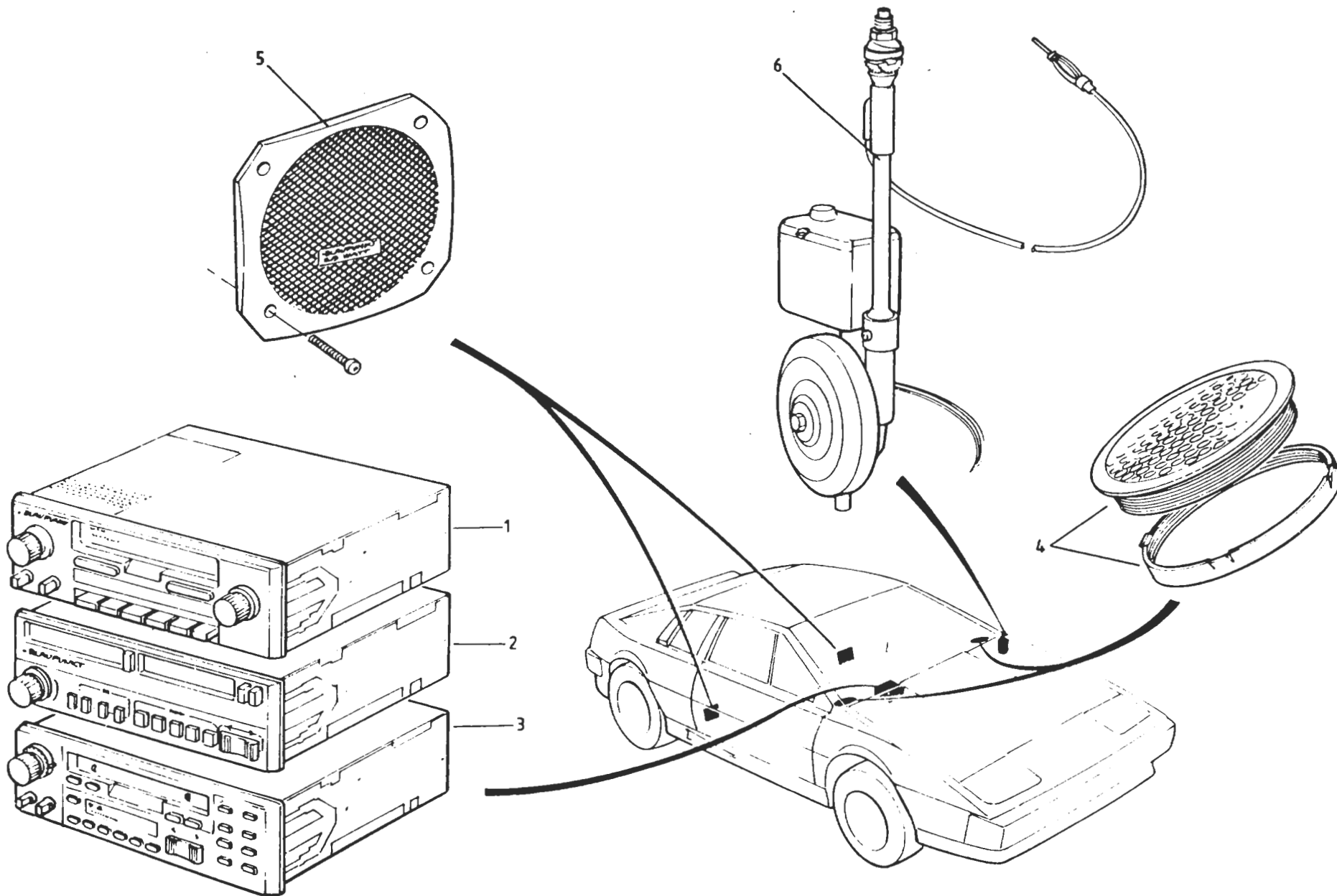
)National Panasonic Unit
)
Audax. No Grilles on Fascia
With Audax Speakers

"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"

Inc. Fascia Grille

)Blaupunkt
)
Clarion

Turbo 17.27A
Page 1



TURBO
17.27A

LHD SHOWN

ILLUS
NO.

QUANTITY

MAY 1991

17.21A

DESCRIPTION

PART NUMBER

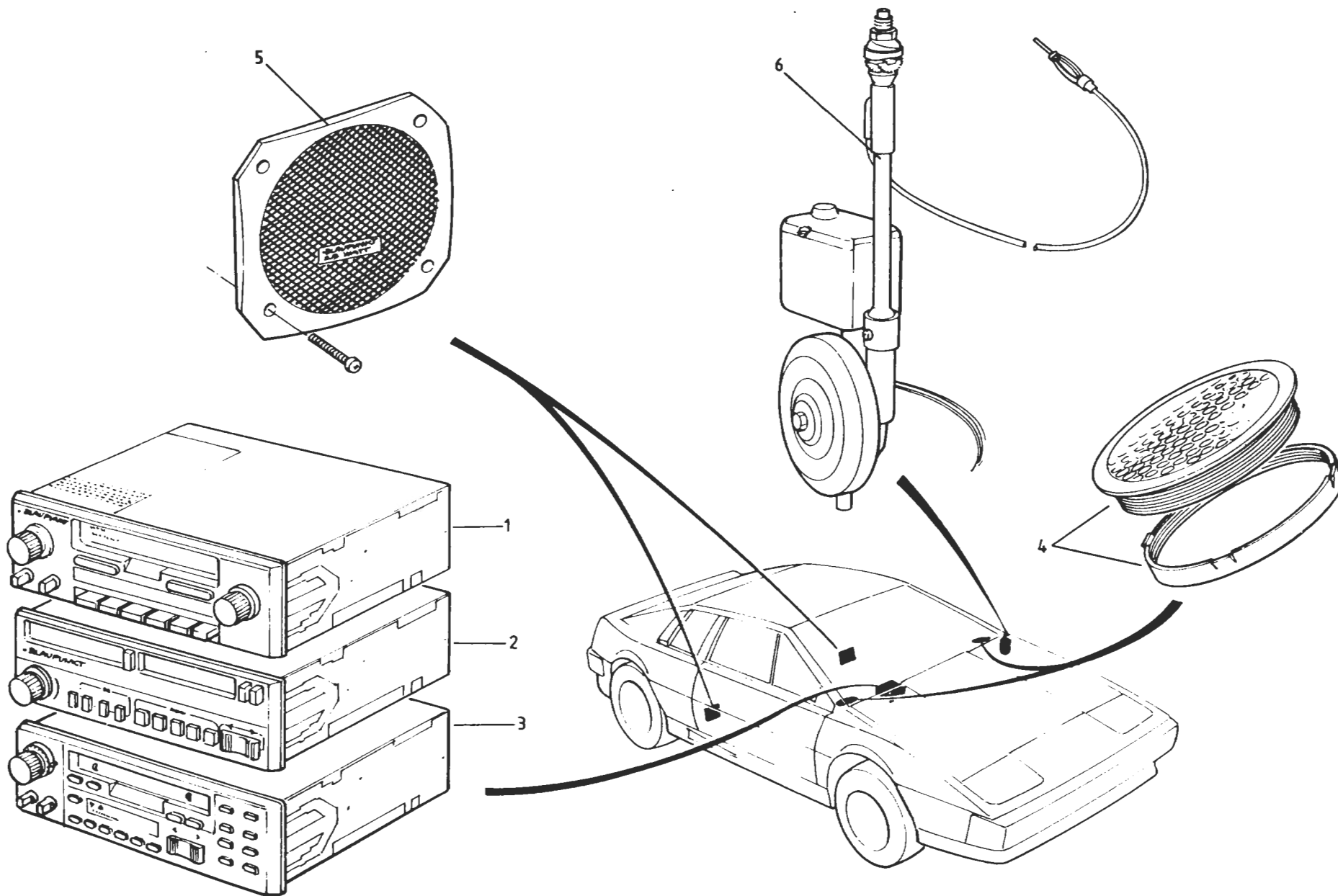
RHD

LHD

REMARKS

015	Locking Plate, Pantograph Arm	A085U4790K	1		with p/g swivel joint >
	" " " "	B082M4258F	1		with p/g ball joint >
	" " " "	A085U4791K		1	with p/g swivel joint >'Bolt-on'
	" " " "	B082M4257F		1	with p/g ball joint > Wiper Arm
016	Screw, Locking Plate to Body	A075W5040Z	1	1	with p/g swivel joint >
	Screw, Locking Plate to Body	A075W5040Z	2	2	with p/g ball joint >
017	Bracket, Downstop	A079M4034K	1	1	
018	Screw, Downstop Fixing	A075W5040Z	2	2	
	Wiper Arm Assembly	A079M4000F	1)
	Wiper Arm Assembly	A079M4033F		1	) 'Push-on' Wiper Arm
	Bezel	A079M6085F	1	1)
020	Wiper Arm Assembly	A085M4154F	1		>
	Wiper Arm Assembly	A085M4155F		1	>'Bolt-On' Wiper Arm with Pantograph
	Washer, Wiper Arm Nut	A089M6038F	1	1	> Arm Swivel Joint
	Adaptor Plate, Wiper Arm	A082U6207F	1	1	Converts Swivel Joint to Ball Joint
	Wiper Arm Assembly	B082M4242J	1)
	Wiper Arm Assembly	B082M4243F		1	) 'Bolt-On' Wiper Arm with Pantograph
	Washer, Wiper Arm Nut	A089M6038F	1	1	) Arm Ball Joint
022	Wiper Blade	A079M6015F	1	1	
023	Grommet, Washer Tubing	X036B6150Z	1	1	
024	Washer Pump & Reservoir Assembly	A079M6010F	1	1	
025	Mounting Bracket, Washer Reservoir	A075M6069Z	1	1	
026	Screw, Washer Brkt. to Body	A075W5014F	3	3	
027	Washer, Washer Brkt. to Body	A075W4014Z	3	3	
028	Washer Tubing, 4mm	A050M6164V	A/R	A/R	
029	Twin Jet, Windscreen Washer	A082M6176F	1	1	

Turbo 17.21A
Page 2



TURBO
17.27A

LHD SHOWN

ILLUS
NO.



QUANTITY

17.27A

DESCRIPTION

PART NUMBER

ALL

REMARKS

5

Speaker, Rear, 25W
Cable, Short, Rear Speaker
Cable, Long, Rear Speaker
Loom, Rear Speakers
Speaker, Rear, Eurotech
Grille, Rear Speaker, with Badge
Badge, 'Lotus', Speaker Grille
Cable Assembly, Rear Speakers
Aerial, Electric, External Fit
Relay, Electric Aerial

A082M6231F
C082M4118F
C082M4119F
A082M4589K
A089M6079F
A089M6080F
A089U1725H
A082M4640K
A082M6149F
A083M6321F

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Blaupunkt
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)Routed Along Sill
Routed Along Tunnel
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)Clarion Radio
)
)
Nat. Panasonic, Motorola, Sparkomatic
For A082M6149F

6

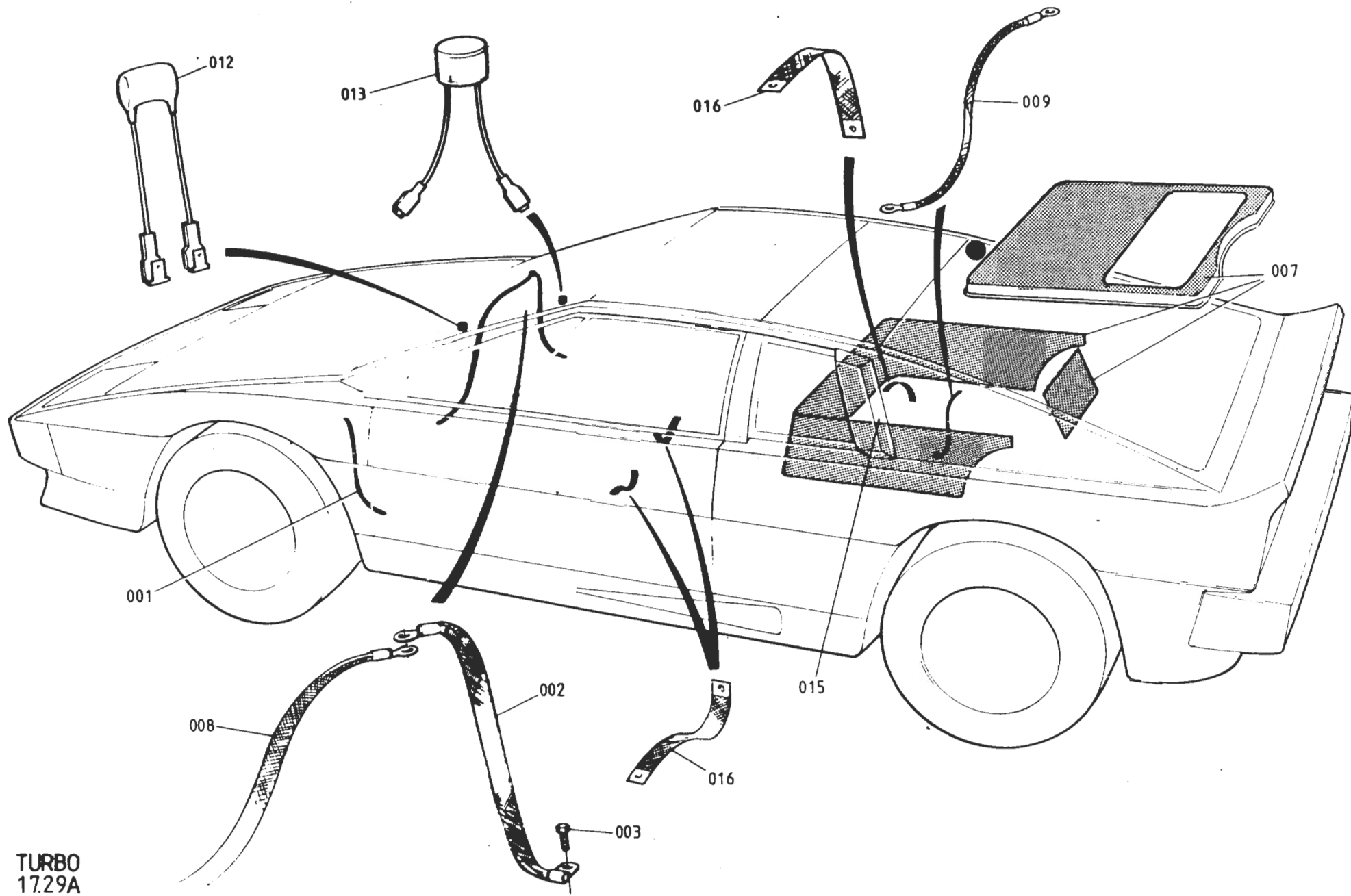
Aerial, Electric, Internal Fit
Jump Harness, Aerial
Jump Harness, Ignition Feed
Jump Harness, Aerial/Radio
Harness, Radio Feed

A082M6271F
A082M4145C
A082M4141C
B082M4142C
A082M4577F

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(See S/B 1984/10)
)With Nat. Panasonic Radio
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)
Motorola, Sparkomatic, Blaupunkt

Turbo 17.27A
Page 2



TURBO
17.29A

ILLUS
NO.



QUANTITY

MAY 1991

17.29A

DESCRIPTION

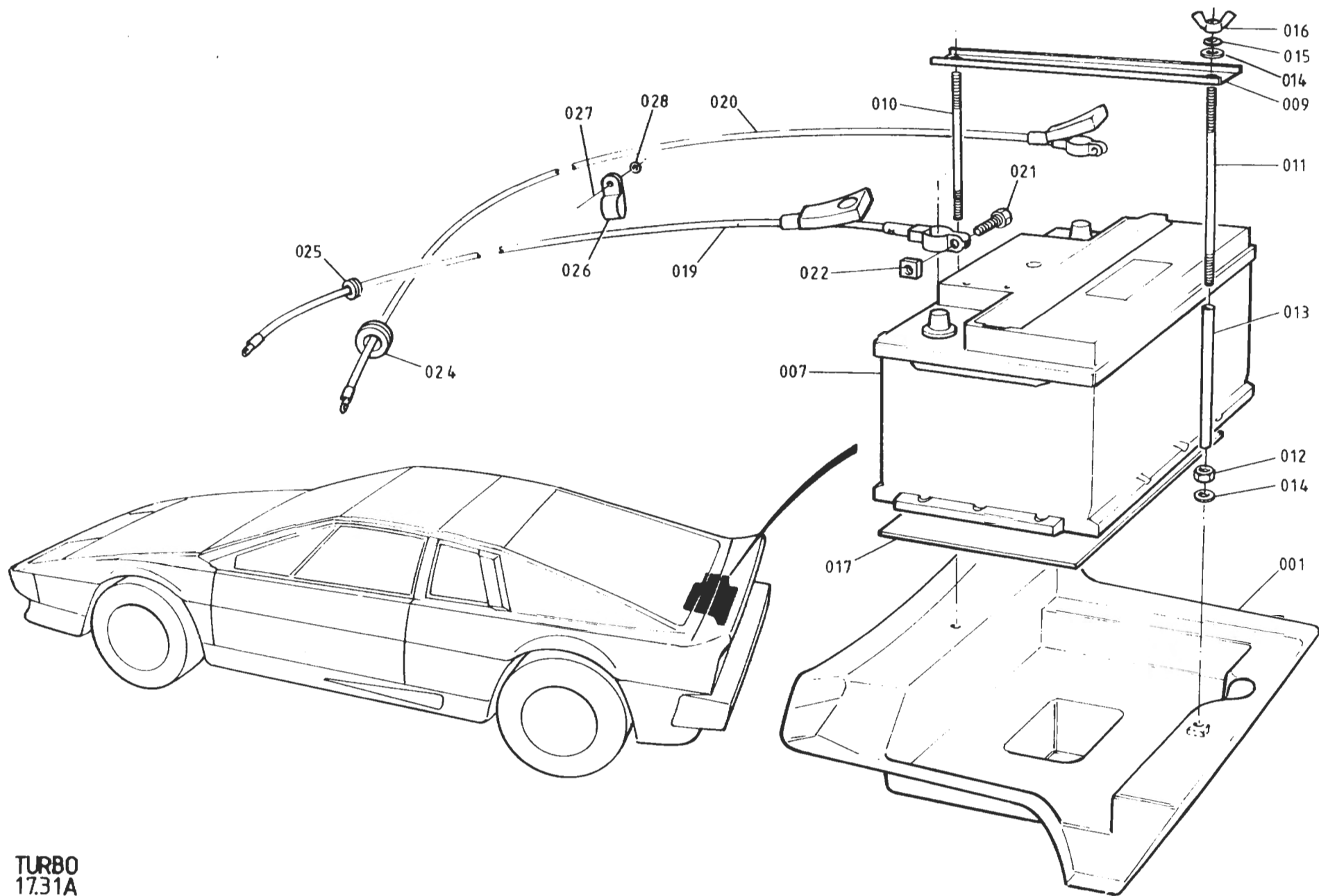
PART NUMBER

ALL

REMARKS

001	Earth Bond, LH Door to Scuttle Beam	B082M4171F	1
002	Earth Bond, RH Door to Scuttle Beam	B082M4172F	1
003	Setscrew, M6 x 20, Bond to Door Beam	A075W1030Z	2
007	Foil, Screening	A065M6008V	5m
008	Earth Bond, Chassis to Bulkhead	A082M4175F	1
009	Earth Braid, Engine to Chassis	A082M4210F	1
	Capacitor, 2 mf, Ignition Coil	A075M6096Z	1
	Capacitor, 1 mf, Fuel Pump	A075M6097Z	1
012	Capacitor, 1 mf, Stop Switch	A074M6008Z	1
013	Capacitor, 1 mf, Voltage Stabiliser	A075M6100Z	1
	Choke, Voltage Stabiliser	X050M6107Z	1
015	Earth Lead, Timing Belt Tensioner	A082M4209F	1
016	Earth Bond, Seat & Tanks to Chassis	A079M4094F	4
	Earth Bond, Electric Aerial	A079M4091F	1

Turbo 17.29A



TURBO
17.31A

ILLUS
NO.

MAY 1991

QUANTITY

17.31A

DESCRIPTION

PART NUMBER

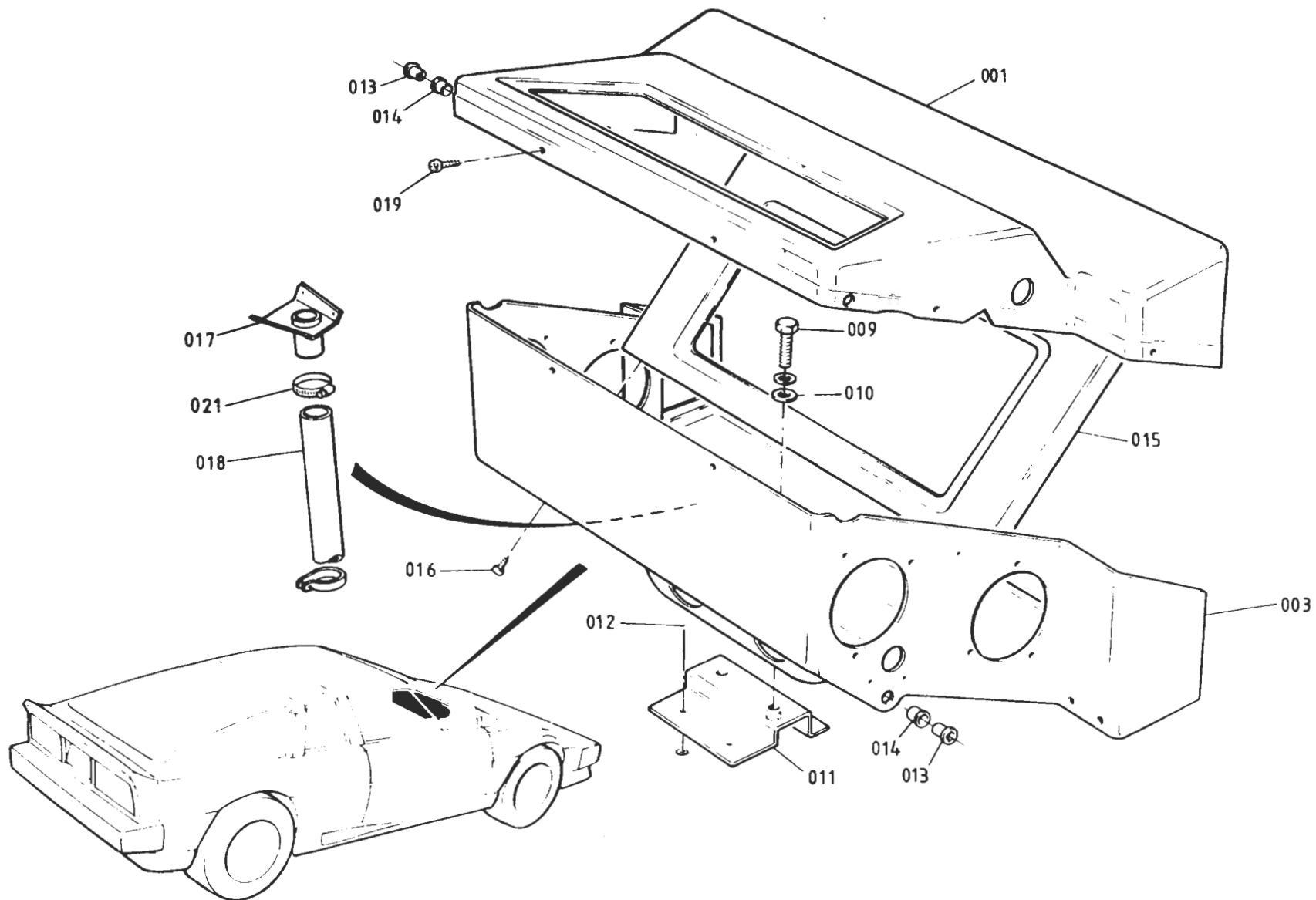
ALL

REMARKS

001	Tray, Battery Carrier	A085B4359K	1		
	Battery, Chloride, Type 362	A076M6004F	1		R/B A082M6214F
	Battery, Chloride, Type 385	A082M6214F	1		
007	Battery, Tungstone, Type 065 Maintenance Free	A082M6169F	1		
	Battery, Tungstone, Type 088 Low Maintenance	A082M6284F	1		'87 M.Y. on
	Clamp Plate, Battery Retention	A082U4697K	1)
	Bolt, M8 x 35, Battery Retention	A075W2038Z	1		)For Bolt Fixing
	Bolt, M8 x 100, Battery Retention	A075W2049Z	1)
	Washer, Flat, Battery Retention	A075W4020Z	2)
009	Clamp Plate, Battery Retention	A079U4471K	1		>Prior '87 M.Y.
	Clamp Plate, Battery Retention	A085U5115F	1		>'87 M.Y. on
010	Stud, Short, Battery Retention	A085M4166F	1		>
011	Stud, Long, Battery Retention	A085M4167F	1		>
012	Nut, M6, Stud Retention	A075W3020Z	2		> For Stud Fixing
013	Sleeving, Battery Stud	A085M6172V	270mm		>
014	Washer, Flat, Battery Stud	A075W4013Z	4		>
015	Washer, Spring, Battery Stud	A075W4035Z	4		>
016	Wing Nut, M6, Battery Retention	A075W3033Z	2		>
017	Pad, Battery	A085M4168F	1		
019	Battery Cable, Positive	A082M4107F	1		With Exide/Chloride Battery
	Battery Cable, Positive	A082M4157F	1		With Tungstone Battery
020	Battery Cable, Negative	A082M4108F	1		With Exide/Chloride Battery
	Battery Cable, Negative	A082M4158F	1		With Tungstone Battery
021	Bolt, 5/16" BSW, Battery Terminal	A082M6201F	2		
022	Nut, 5/16" BSW, Battery Terminal	A082M6202F	2		
024	Grommet, Battery Cable/Harness	A075P6021F	3		
025	Grommet, Pos. Cable	A079U6033F	1		With Exide/Chloride Battery
	Grommet, Pos. Cable	X036J6026F	1		With Tungstone Battery
026	'P' Clip, Battery Lead Securing	A075W6200Z	1		
027	Pop Rivet 'P' Clip	A075W6092Z	1		
028	Washer, Pop Rivet	A075W4001Z	1		

Turbo 17.31A

d4p67



TURBO
1801A

ILLUS
NO.

QUANTITY

MAY 1991

18.01A

DESCRIPTION

PART NUMBER

RHD

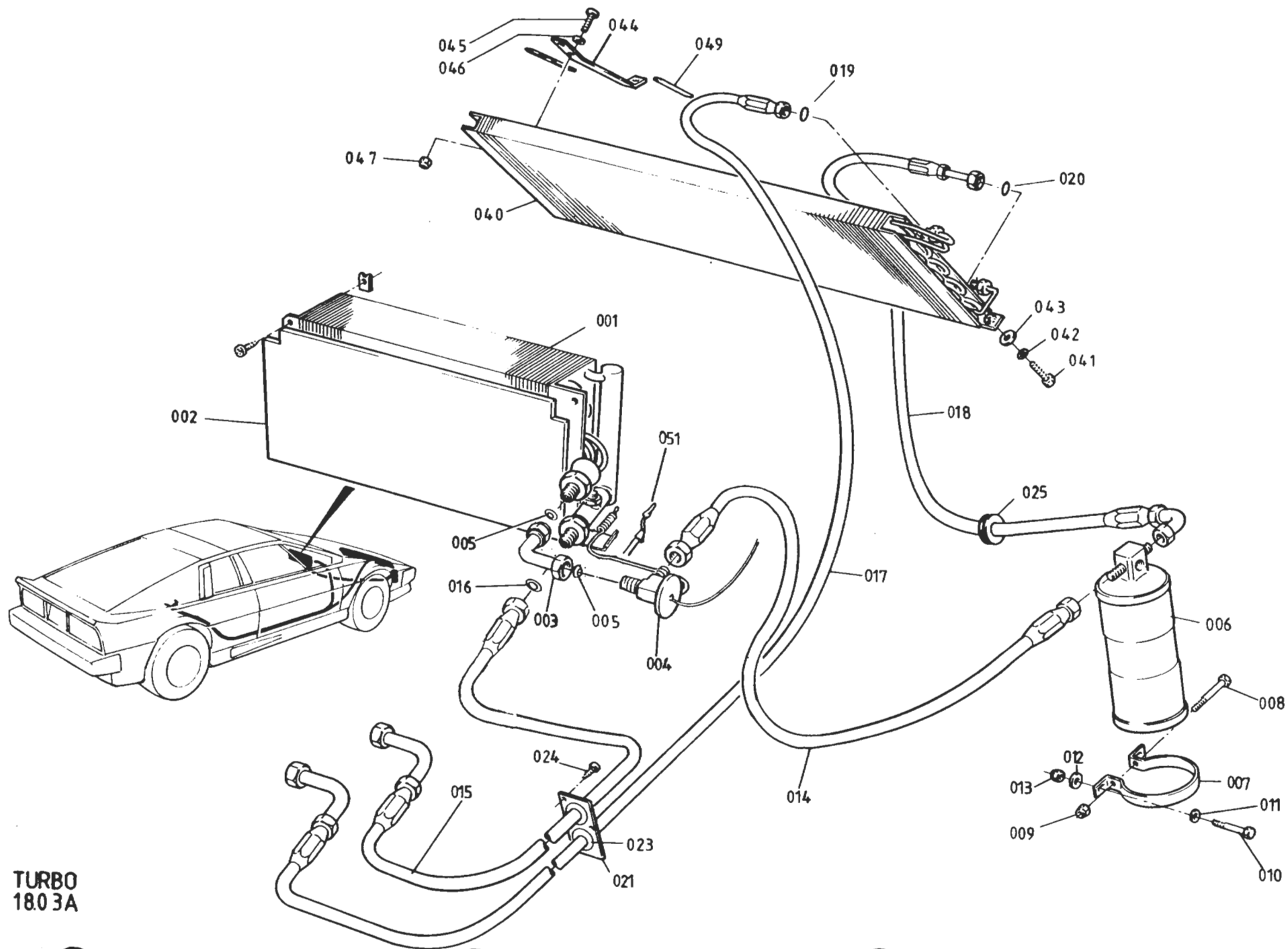
LHD

REMARKS

001	Heater Assembly	A082P4168K	1)Inc. Heater Matrix, Evaporator) (A/C Only), Vac. Valves,) Control Cables, Rotary) Controls Heater Only Air Conditioning Heater Only Air Conditioning Heater Only Air Conditioning Heater Only Air Conditioning Heater Only Air Conditioning
	Heater Assembly	A082P4167K		1	
	Heater/Air Conditioning Assembly	A082P4206K	1		
	Heater/Air Conditioning Assembly	A082P4205K		1	
003	Case, Upper	A079P4154K	1		
	Case, Upper	A079P4136K	1		
	Case, Upper	A079P4155K		1	
	Case, Upper	B079P4108K		1	
009	Case, Lower	A079P4156K	1		
	Case, Lower	A079P4137J	1		
	Case, Lower	A079P4157K		1	
	Case, Lower	A079P4109K		1	
009	Setscrew, M6 x 12, Case to Mtg. Brkt.	A075W1027Z	2	2	
010	Washer, Flat, Case to Mtg. Brkt.	A075W4013Z	2	2	
011	Mounting Bracket, Case to Tunnel	A079P4096K	1	1	
012	Pop Rivet, Mtg. Brkt. to Tunnel	A075W6091Z	2	2	
013	Bush, Flap Pivot, Inner	A089P0268F	4	4	
014	Bush, Flap Pivot, Outer	A075P6064F	4	4	
015	Closing Panel	A079P4112K	1	1	
016	Screw, Closing Panel to Case	A075W5032Z	2	2	
017	Drain Adaptor, Main Case	A079P4106K	1	1	
018	Drain Tube, 5/8" PVC	A075U6083V	0.4m	0.4m	
019	Screw, Upper/Lower Case Fix	A075W5032Z	9	9	
021	Hose Clip, 16-25mm, Drain Tube	A079K6018F	1		

Turbo 18.01A

TURBO
1803A



ILLUS
NO.

QUANTITY

MAY 1991

18.03A

DESCRIPTION

PART NUMBER

RHD

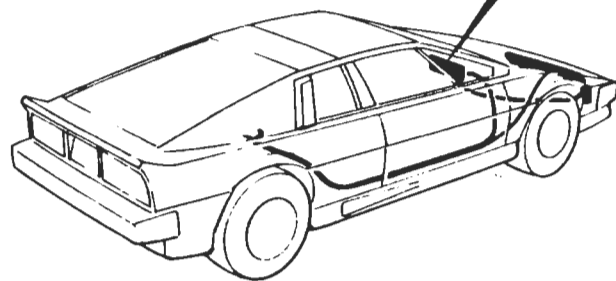
LHD

REMARKS

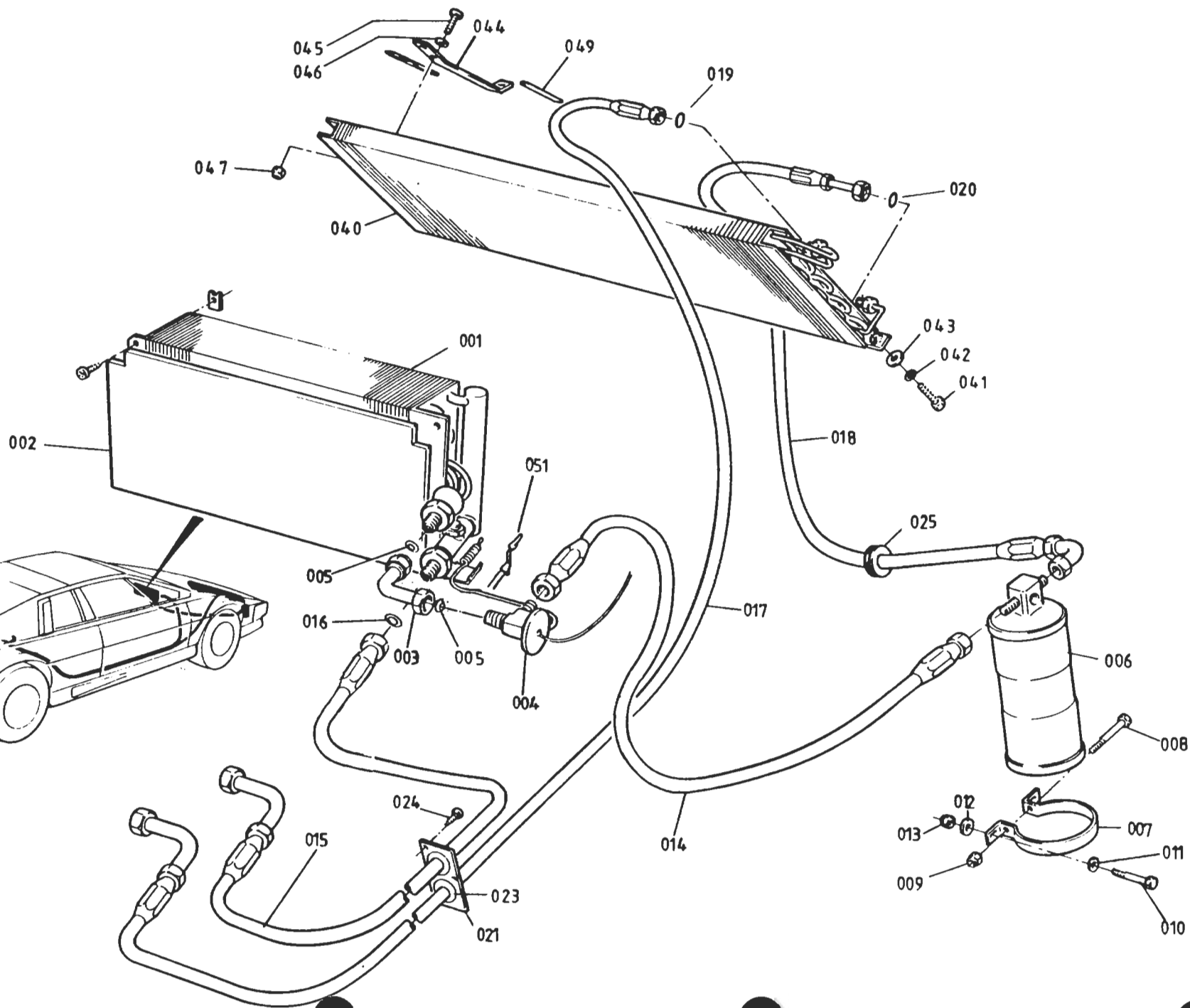
001	Evaporator	A079P4139F	1		
002	Evaporator	A079P4080F		1	
003	Foam, Open Mesh	A075P0206F	1	1	
004	Elbow Adaptor	A079P6017F		1	
005	Expansion Valve	A079P6012F	1	1	
006	Flare Gasket, 10.4mm	A082P4241F	1	2	Exp. Valve/Elbow/Evaporator
007	Receiver Drier	A079P6011F	1	1	
	Bracket, Receiver Drier	A075P0089F	1	1	R/B A089P0278F
	Bracket, Receiver Drier	A089P0278F	1	1	
008	Bolt, M6 x 50, Bracket Clamping	A075W2032Z	1	1	Use with Bracket A075P0089F
	Bolt, M6 x 30, Bracket Clamping	A075W2028Z	1	1	Use with Bracket A089P0278F
009	Nut, Nyloc, M6, Brkt. Clamping	A075W3009Z	1	1	
010	Setscrew, M6 x 20, Brkt. to Body	A075W1030Z	2	2	
011	Washer, Flat, Brkt. to Body	A075W4015Z	2	2	
012	Washer, 25mm O/D, Brkt to Body	A075W4017Z	2	2	
013	Nut, Nyloc, M6, Brkt. to Body	A075W3009Z	2	2	
	Hose, Receiver/Drier to Exp. Valve	A079P4135F	1		
014	Hose, Receiver/Drier to Exp. Valve	A079P4077F		1	
	Hose, Evaporator to Compressor	A082P4204F	1		Dry Sump Engine
	Hose, Evaporator to Compressor	A079P4134F	1		Wet Sump Engine
	Hose, Evaporator to Compressor	A082P4203F		1	Dry Sump Engine
015	Hose, Evaporator to Compressor	A079P4078F		1	Wet Sump Engine
016	Flare Gasket, Hose to Evaporator	A082P4242F	1	1	15.7mm
	Hose, Compressor to Condenser	A082P4202F	1		Dry Sump Engine
	Hose, Compressor to Condenser	A082P4232F	1		Wet Sump Engine
	Hose, Compressor to Condenser	A082P4201F		1	Dry Sump Engine
017	Hose, Compressor to Condenser	A082P4234F		1	Wet Sump Engine
	Heatshield Wrap, Discharge Hose	A082P4235F		1	Dry Sump Engine
	Grommet, Fridge Hose/Engine Bay (Black)	A075P6021Z	2	2	)As Fitted
	Grommet, Fridge Hose/Engine Bay (Grey)	A082P6045F	2	2)
018	Hose, Condenser to Receiver/Drier	A082P4170F	1	1	
019	'O' Ring, 1/2", Condenser Inlet	A075P6084F	1	1	
020	'O' Ring, 3/8", Condenser Outlet	A075P6083F	1	1	
021	Plate, Grommet	B079P4084K	1	1	
023	Grommet, Fridge Hoses/Bulkhead	A046K6001Z	2	2	

Turbo 18.03A

Page 1



TURBO
180 3A



ILLUS
NO.



QUANTITY

18.03A

18.03A

DESCRIPTION

PART NUMBER

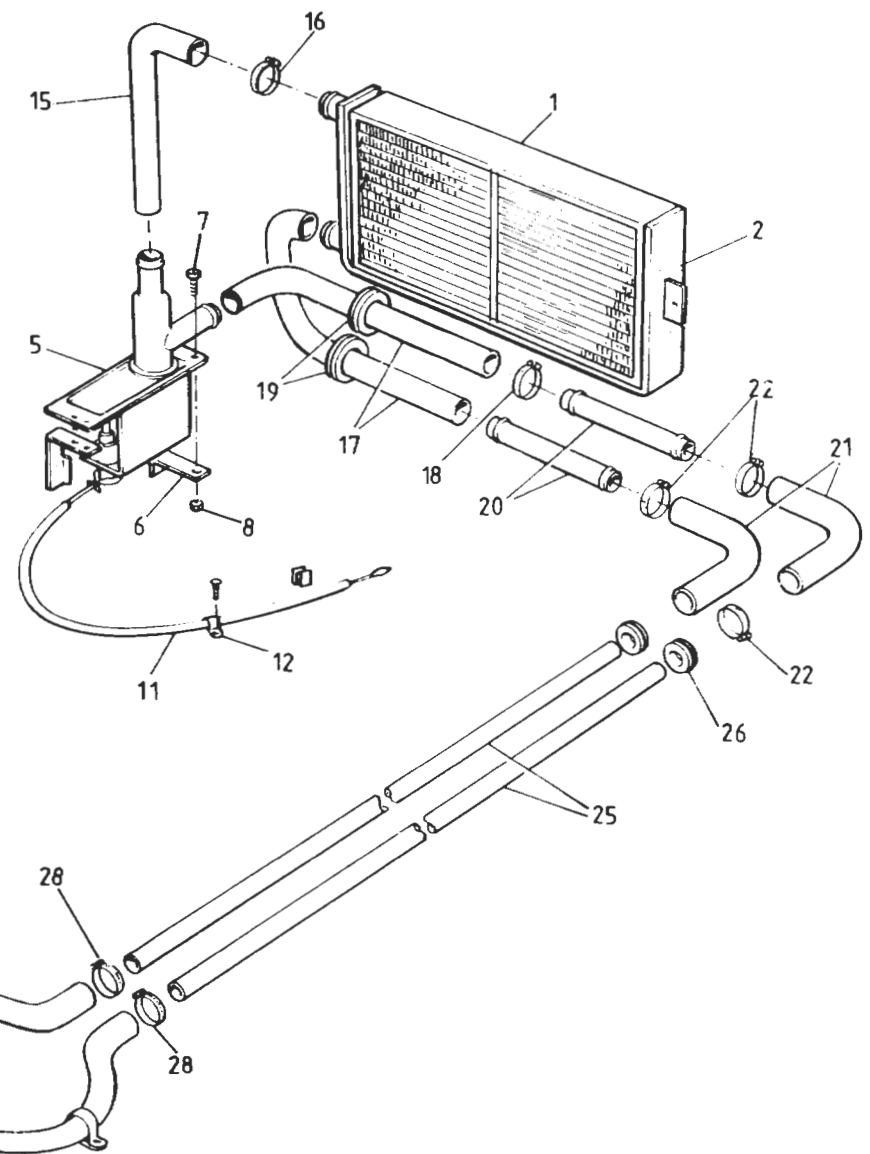
RHD

LHD

REMARKS

024	Screw, Grammet Plate Fixing	A075W5015F	4	4	
025	Grammet, Fridge Hoses	A075P6021K	4	5	
040	Condenser	C082P4160F	1	1	
	Foam Strip, Condenser to Radiator	A075B6015V	0.5m	0.5m	
041	Setscrew, M8 x 20, Condenser to Duct	A075W1038Z	2	2	
042	Washer, Shakeproof, Condenser to Duct	A075W4048Z	2	2	
043	Washer, 25mm O/D, Condenser to Duct	A075W4021Z	2	2	
044	Bracket, Condenser Support	A082P4163K	2	2	)Prior to '87 M.Y.
	Bracket, Condenser Support	A082P4251F	2	2	)'87 M.Y. On
045	Setscrew, M6 x 16, Brkt. to Condenser	A075W1028Z	4	4	
046	Washer, Flat, Brkt. to Condenser	A075W4013Z	4	4	
047	Nut, Nyloc, M6, Brkt. to Condenser	A075W3009Z	4	4	
049	Neoprene Strip, Anti-Chafe	B075U6054V	640	320	mm
	Tape, Non-Drip, Evaporator Connections	A075P6086V	A/R	A/R	
051	Thermistor	A085P6038F	1	1	Strapped to Evaporator

Turbo 18.03A
Page 2



TURBO
1805A

ILLUS
NO.

QUANTITY

MAY 1991

18.05A

DESCRIPTION

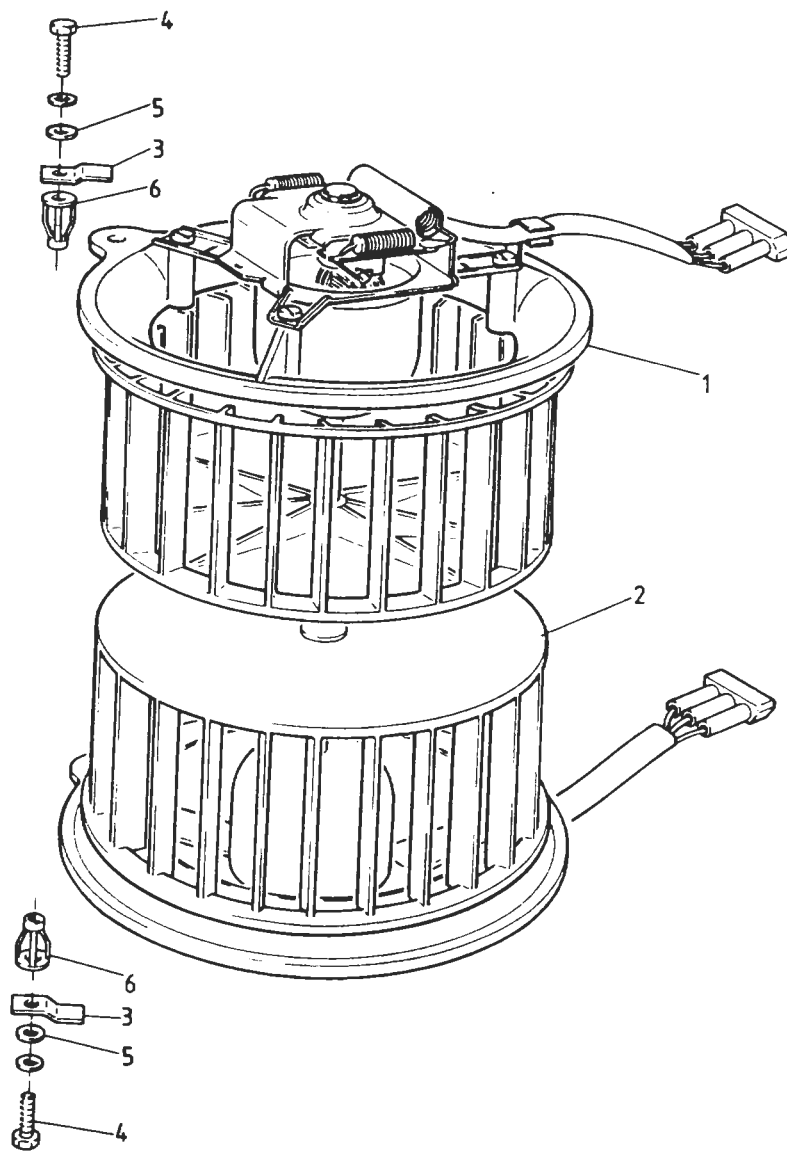
PART NUMBER

ALL

REMARKS

1	Heater Matrix	A075P6055Z	1		
2	Foam, Heater Matrix to Case	A075P0194K	2		
5	Water Valve	A075P6060F	1		
6	Bracket, Water Valve Mounting, RHD	A079P4144K	1		
	Bracket, Water Valve Mounting, LHD	A079P4104K	1		
7	Setscrew, Bracket to Water Valve	A075W1000Z	1		
8	Nut, Bracket to Water Valve	A075W3000Z	1		
	Bracket, Cable Abutment	A079P4105K	1)
	Clip, Cable Abutment	A075W6117F	1		) Prior to Spot Welded Abutment Bracket
	Setscrew, Abutment Bracket to Valve	A075W1000Z	2)
	Nut, Abutment Bracket to Valve	A075W3000Z	2)
	Clamp, Cable to Water Valve	A082P4244F	1		Used with Spot Welded Abutment Bracket
11	Hose, Capillary Line Protection	A050M6165Z	250mm		
12	Clip, Capillary Line	A075W6223F	2		
15	Hose, Water Valve to Matrix	A079P4142F	1		
16	Hose Clip	A079K6018K	2		
17	Hose, Valve Inlet/Matrix Outlet	A079P4056F	2		
18	Hose Clip	A079K6018K	4		
19	Grommet, Hoses Through Body	A075P6021Z	2		
20	Connector Pipe, Heater Hose	B075K0111F	2		
21	Elbow Hose, Heater Pipe, Front	A075P0189F	2		
22	Hose Clip, Elbow Hose	A079K6018K	4		
25	Pipe, Heater Water, Through Chassis	A082P4200F	2		
26	Grommet, Pipes/Chassis	A079K6004F	4		
27	Hose, Heater Feed & Return	A079P4056F	2		
28	Hose Clip, Feed & Return Hose	A079K6018K	4		
30	Transfer Pipe, Heater Pipe to Plenum	B910E1546K	1		
31	'P' Clip, Transfer Pipe to Plenum	A910E6490F	2		
32	Elbow Hose, Water Rail to Transfer Pipe	A075P0189F	1		
33	Hose Clip, Elbow Hose	A079K6018F	2		

Turbo 18.05A



TURBO
18.07A

ILLUS
NO.



QUANTITY

MAY 1991

18.07A

DESCRIPTION

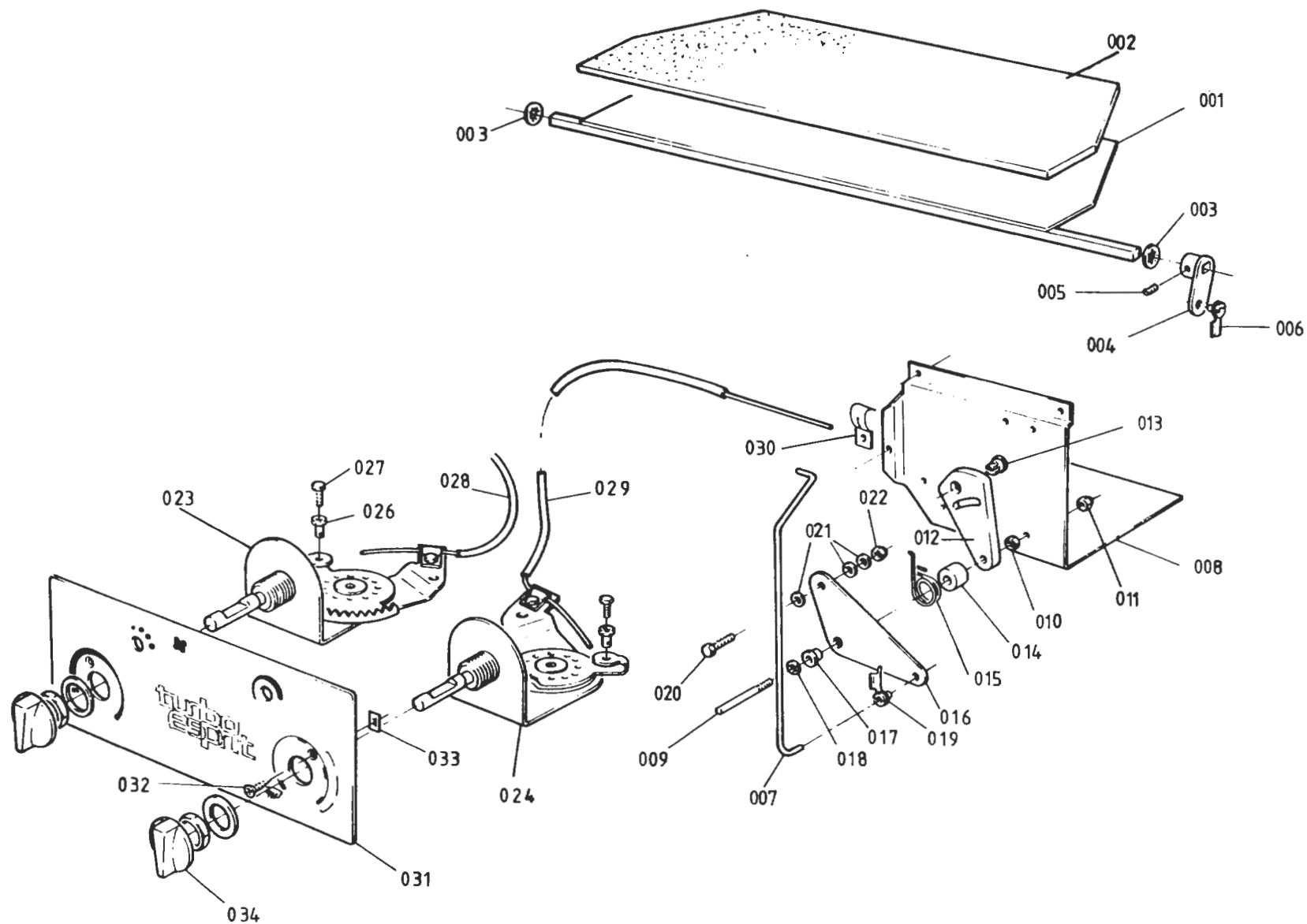
PART NUMBER

ALL

REMARKS

1	Blower Motor & Fan Assembly, Top	A075P6056F	1		CCW Rotation Viewed Motor End
2	Blower Motor & Fan Assembly, Bottom	A075P6058F	1		CW Rotation Viewed Motor End
3	Clamp, Motor to Housing	A079P4091K	6		
4	Setscrew, M5 x 20, Motor Clamp	A075W1025Z	6		
5	Washer, Motor Clamp Screw	A075W4011Z	6		
6	Jacknut, M5, Motor Clamp Screw	A076W3043F	6		

Turbo 18.07A



TURBO
18.0 9A

ILLUS
NO.

QUANTITY

MAY 1991

18.09A

DESCRIPTION

PART NUMBER

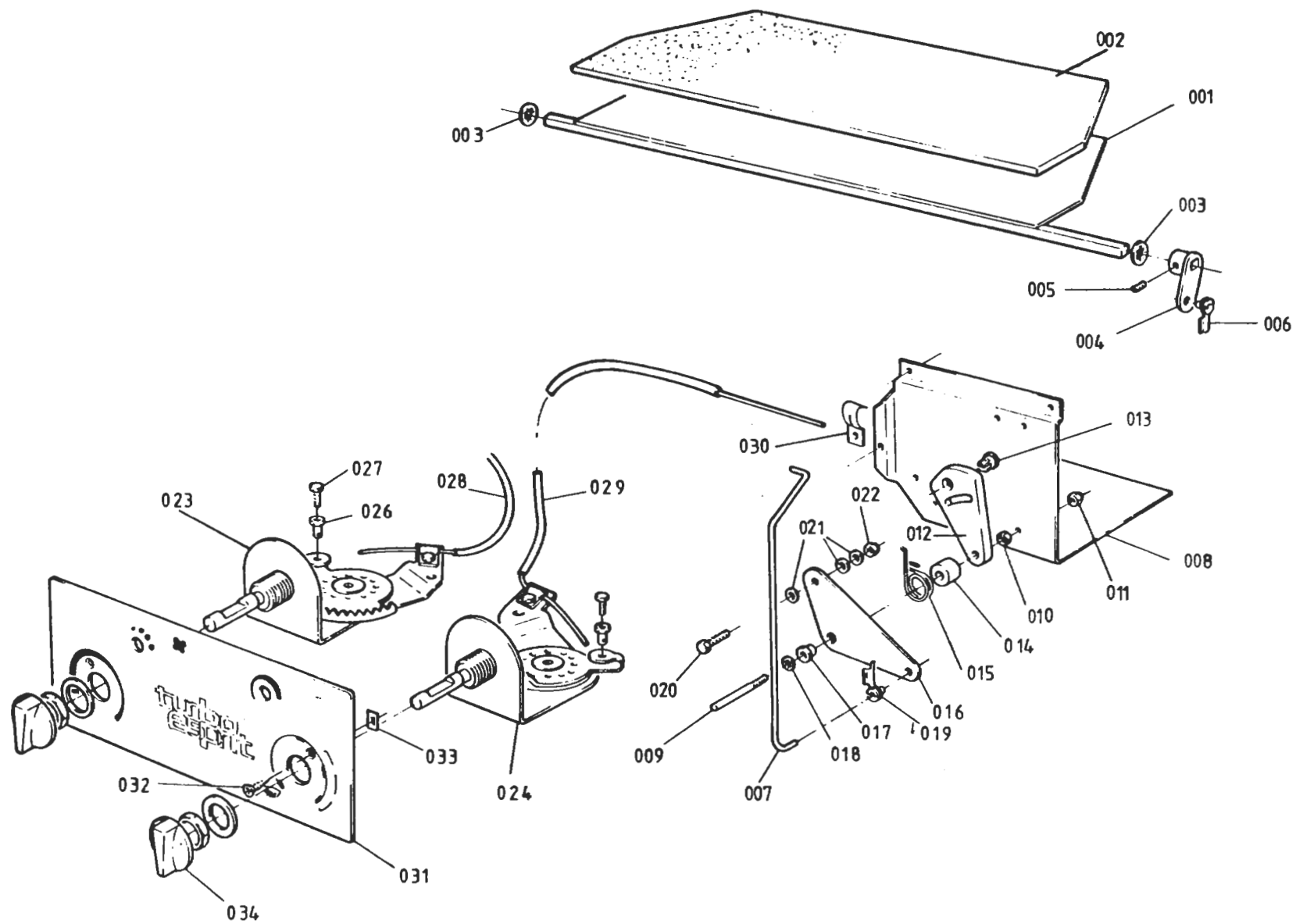
RHD

LHD

REMARKS

001	Flap, Defrost/Footwell	B079P4017F	1		300 x 100mm
	Flap, Defrost/Footwell	A079P4175F		1	
002	Foam, Defrost/Footwell Flap	B036B6197V	*	*	
003	Clip, Flap Shaft Ends	A075W6173F	2	2	
004	Lever, Defrost/Footwell Flap Shaft	A079P4101F	1	1	
005	Grubscrew, Lever to Shaft	A075W7023Z	1	1	
006	Clip, Rod to Lever	A075U6033F	1	1	
007	Rod, Defrost/Footwell Flap Operating	C079P4143F	1	1	
008	Control Plate	C082P4188K	1		
	Control Plate	C082P4185K		1	
009	Stud, 10 UNF, Cam/Lever Pivot	A075P0225F	1	1	
010	Nut, Plain, 10 UNF, Pivot Stud	A075W3013Z	1	1	
011	Nut, Nyloc, 10 UNF, Pivot Stud	A075W3000Z	1	1	
012	Cam, Vacuum Valve Operating	A075P0173F	1	1	
013	Trunnion, Cable to Cam	B075W6121F	1	1	
014	Spacer, Lever to Cam	A075P0229F	1	1	
015	Spring, Cam Return	B075P0176F	1		
	Spring, Cam Return	A079P4103F		1	
016	Lever, Bell Crank, Defrost Flap	A082P4184K	1	1	
017	Bush, Lever Pivot	A075P0162F	1	1	
018	Clip, Lever Pivot	A075W6173F	1	1	
019	Clip, Lever to Flap Rod	A075U6033F	1	1	
020	Setscrew, 10 UNF x 3/8", Cam Operating	A075W1000Z	1	1	
021	Washer, Cam Setscrew	A075W4011Z	3	3	
022	Nut, Nyloc, 10 UNF, Cam Setscrew	A075W3000Z	1	1	
023	Rotary Control, Temperature	B082P4195J	1	1	
024	Rotary Control, Air Distribution	B082P4196Z	1	1	
026	Nipple/Trunnion, Rotary Control	A074K6001Z	2	2	
027	Screw, Cable to Control	B074K6002F	2	2	
028	Control Cable, Water Valve	A082P4189F	1	1	
029	Control Cable, Air Distribution	A082P4190F	1	1	
030	Clamp, Cable to Control Plate	A082P4244F	1	1	

Turbo 18.09A
Page 1



TURBO
180 9A

ILLUS
NO.



QUANTITY

MAY 1991

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

18.09A

031

032

033

034

Graphic Control Panel, with A/C
Graphic Control Panel, with A/C, Long
Graphic Control Panel, with A/C, Long
Graphic Control Panel, with A/C, Short
Graphic Control Panel, with A/C, Short
Graphic Control Panel, Heater Only, Long
Screw, No.6 x 1/2" s/t, Panel Fix
Spire Nut, Panel Fix
Knob, Rotary Controls
Knob, Rotary Controls

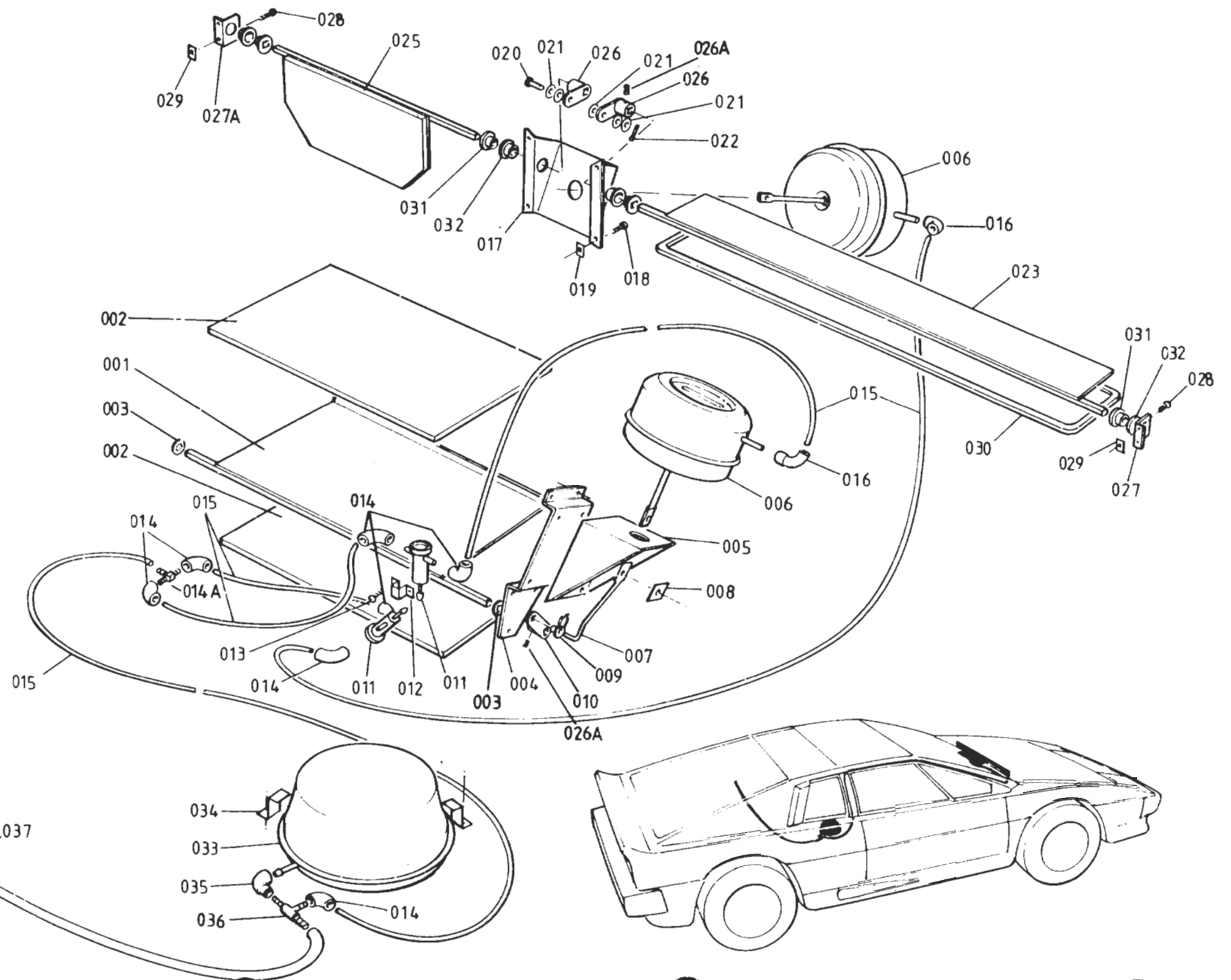
A082P4197F
A082P4164F
B082P4164F
A082P4210F
A082P4238F
A082P4193F
A075W5020Z
A075W6014Z
A082P6023F
A082P4253K

1
1
1
1
1
1
2/4
2/4
2
2

1
1
1
1
1
1
2/4
2/4
2
2

With Essex Turbo Cockpit Unit
With Hole for Compressor Indicator Light
For Face Mounted Radio, or No Radio
With No Hole for Compressor Indicator Light
For Face Mounted Radio, or No Radio
With Hole for Compressor Indicator Light
For Box Mounted Type Radio
With No Hole for Compressor Indicator Light
For Box Mounted Type Radio
For Face Mounted Radio or No Radio
Cut Short for Box Mounted Type Radio

R/B A082P4253K



TURBO
18.11 A

ILLUS
NO.

QUANTITY

MAY 1991

18.11A

DESCRIPTION

PART NUMBER

RHD

LHD

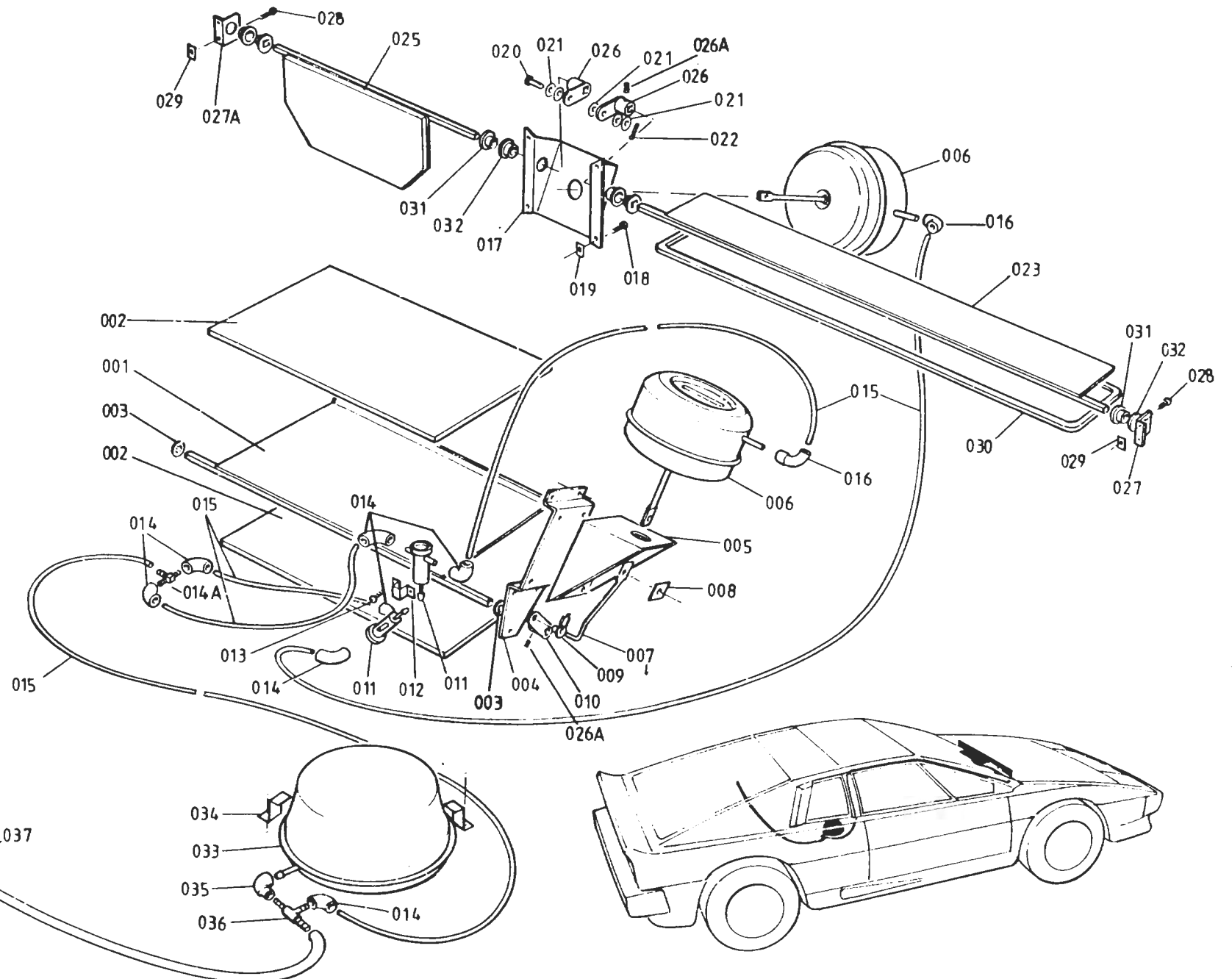
REMARKS

001	Flap, Mode	A079P4176F	1	
002	Flap, Mode	B079P4014F		1
002	Foam, Mode Flap	A079P4161K	2	2
003	Clip, Flap Shaft Ends	A075W6173F	2	2
004	Mounting Plate, Actuator Brkt.	B079P4093F	1	1
	Pop Rivet, Mtg. Plate to Case	A075W6071Z	5	5
005	Bracket, Vacuum Actuator Mtg.	A075P0170F	1	1
	Pop Rivet, Brkt to Plate	A075W6071Z	4	4
006	Vacuum Actuator, Mode/Fresh Air Flap	A075P6059F	2	2
007	Rod, Actuator to Mode Flap	A075P0234F	1	1
008	Locking Tab, Actuator to Rod	A079P4149K	1	1
009	Clip, Rod to Mode Flap Lever	A075U6033F	1	1
010	Lever, Flap Operating	A079P4102F	1	1
011	Vacuum Switch, Mode/Fresh Air Flaps	A075P6062F	2	2
012	Bracket, Vac. Switch Securing	A075P0172F	2	2
013	Screw, No. 6 x 1/4", Brkt. to Plate	A075W5010Z	4	4
014	Elbow Connector	A075P6079F	7	7
014A	'T' Piece, Vacuum Pipes	A075P6081F	1	1
015	Vacuum Pipe	A075P6068V	6m	6m
016	Elbow Connector, Unequal Bore	A075P6069F	2	2
017	Bracket, Vac. Actuator to Bulkhead	A079P4097K	1	1
018	Screw, No. 6 x 3/4", Brkt. to Bulkhead	A075W5028Z	4	4
019	Spire Nut, Brkt. to Bulkhead	A075W6013Z	4	4
020	Clevis Pin, Actuator to Flaps	A075W6027Z	1	1
021	Washer, Clevis	A075W4001Z	4	4
022	Split Pin, Clevis Retention	A075W6005Z	1	1
023	Flap, Fresh Air Intake	A079P4099F	1	1
	Flap, Air Re-Circulation	A079P4138F	1	
025	Flap, Air Re-Circulation	A079P4098F		1
026	Lever, Fresh Air/Re-Circ. Flap	A079P4102F	1/2	1/2
026A	Grub Screw, Lever to Flap Shaft	A075W7023Z	3	3
027	Bracket, Fresh Air/Re-Circ. Flap Support, RH	A079P4141K	1	1
027A	Bracket, " " " " " " " " , LH	A079P4087K	1	1

With Air Conditioning
With Air Conditioning
2 With A/C

Turbo 18.11A
Page 1

d5pl



TURBO
18.11 A

ILLUS
NO.

QUANTITY

REMARKS

18.11A

DESCRIPTION

PART NUMBER

RHD

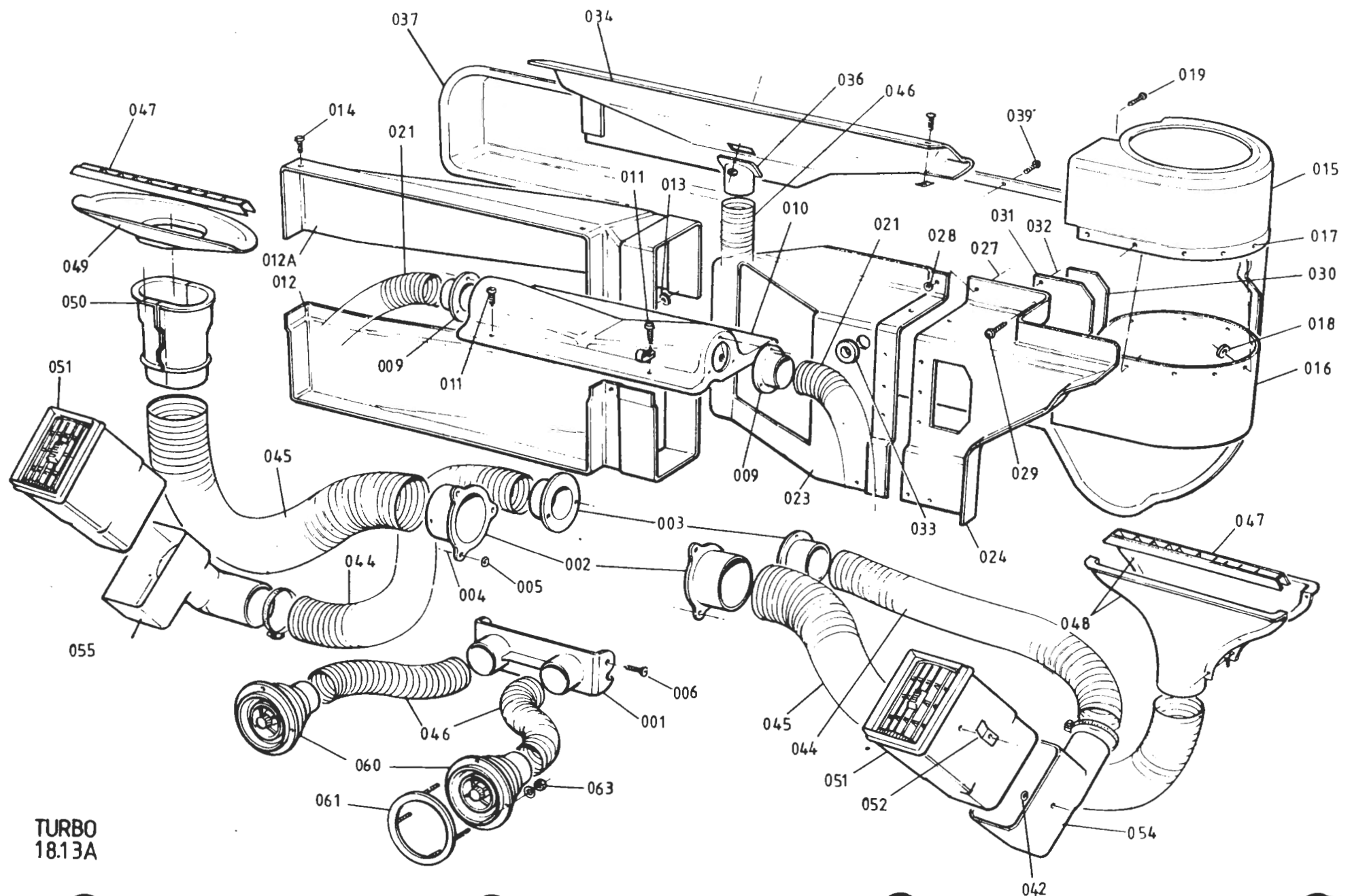
LHD

028	Screw, No. 6 x 3/4", Brkt to Bulkhead	A075W5028Z	4	4	
029	Spire Nut, Brkt. to Bulkhead	A075W6013Z	4	4	
030	Foam Seal, Fresh Air Flap	A036B6213V	1m	1m	
031	Pivot Bush, Inner	A089P0268F	2/4	2/4	4 With A/C)
032	Pivot Bush, Outer	A075P6064F	2/4	2/4	4 With A/C)
033	Vacuum Reservoir	A079P6014F	1	1)
	Pad, Anti-Vibration, Reservoir Mounting	A082P4256C	1	1)
034	Bracket, Reservoir Fixing	A079P4090K	3	3)
	Setscrew, M6 x 16, Brkt. Fixing	A075W1029Z	3	3	)R/B A075W5014F)
	Nut, Nyloc, M6, Brkt. Fixing	A075W3009Z	3	3)
	Screw, s/t, Bracket, Fixing	A075W5014Z	3	3)
035	Straight Connector, Reservoir/'T' Piece	A075P6080F	1	1)
036	'T' Piece	A079P6019F	1	1) *
037	Tubing, Vacuum, Nylon	A026B0130Z	A/R	A/R)
	Connector Hose, PVC	A075U6080F	A/R	A/R	R/B A075L6043V)
038	Vacuum Hose, Rubber	A075L6043V	A/R	A/R)
	Non-Return Valve, 'In Line'	A075U0561Z	1	1	R/B A089P0714J)
040	Non-Return Valve, 'In Line'	A089P0714J	1	1	On pre '85 Turbo, Replaces NRV In)
041	Hose Clip	A079M6132F	3	3	Manifold Balance Rail. See SB 1982/14)
049	Grommet, Engine Bay Wall	X036B6010Z	1	1)

* Prior to '87 M.Y.

Turbo 18.11A
Page 2

LHD ILLUSTRATED



TURBO
18.13A

ILLUS
NO.

QUANTITY

MAY 1991

18.13A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

001

Outlet Adaptor, Centre F.L.V.

A079P4118K

1

1

For Rectangular Centre Vents

002

Outlet Adaptor, Centre F.L.V.

A085P4213K

1

1

For Round Centre Vents

003

Outlet Adaptor, Demist

A079P4119K

2

2

004

Outlet Adaptor, Outer F.L.V.

A079P4120K

2

2

005

Pop Rivet, Demist & Outer F.L.V. Adaptors

A075W6071Z

12

12

006

Washer, Pop Rivet

A075W4001Z

6

6

007

Screw, Centre F.L.V. Adaptor

A075W5032Z

2

2

008

Outlet Adaptor, Footwell

A075P0105F

2

2

009

Cover, Footwell Duct Take Off

A079P4117K

1

1

010

Screw, No. 8 x 3/8", Cover to Case

A075W5032Z

4

4

011

Scroll Extension

A079P4114K

1

1

RHD Upper, LHD Lower

012A

Scroll Extension

A079P4113K

1

1

RHD Lower, LHD Upper

013

Washer, Scroll Extension

A075W4001Z

9

9

014

Screw, Scroll Extension

A075W5032Z

7

7

015

Scroll, Blower Fan

A079P4110K

1

1

RHD Lower, LHD Upper

016

Scroll, Blower Fan

A079P4111K

1

1

RHD Upper, LHD Lower

017

Pop Rivet, Fan Scroll

A075W6071Z

10

10

018

Washer, Pop Rivet

A075W4001Z

10

10

019

Screw, Scroll to Scroll Extension

A075W5034Z

2

2

020

Spire Nut

A075W6011Z

2

2

021

Ducting, 1½", Footwell

A075P6066V

1m

1m

022

Bulkhead Sealing Panel, Inboard

A082P4220K

1

023

Bulkhead Sealing Panel, Inboard

A082P4222K

1

1

024

Bulkhead Sealing Panel, Outboard

B082P4221K

1

025

Bulkhead Sealing Panel, Outboard

B082P4223K

1

1

026

Pop Rivet 1/8" Sealing Panel Joint

A075W6070F

3

3

027

Washer, Sealing Panel Joint

A075W4001Z

3

3

028

Screw, Sealing Panel Fixing

A075W5014Z

6

6

029

Flap, Cabin Pressure Relief

A079P4131K

1

1

030

Hinge, Pressure Relief Flap

A085P4231K

1

1

031

Pop Rivet, Flap Fixing

A075W6071Z

3

3

032

Grommet, Bulkhead Sealing Panel

X036B6150Z

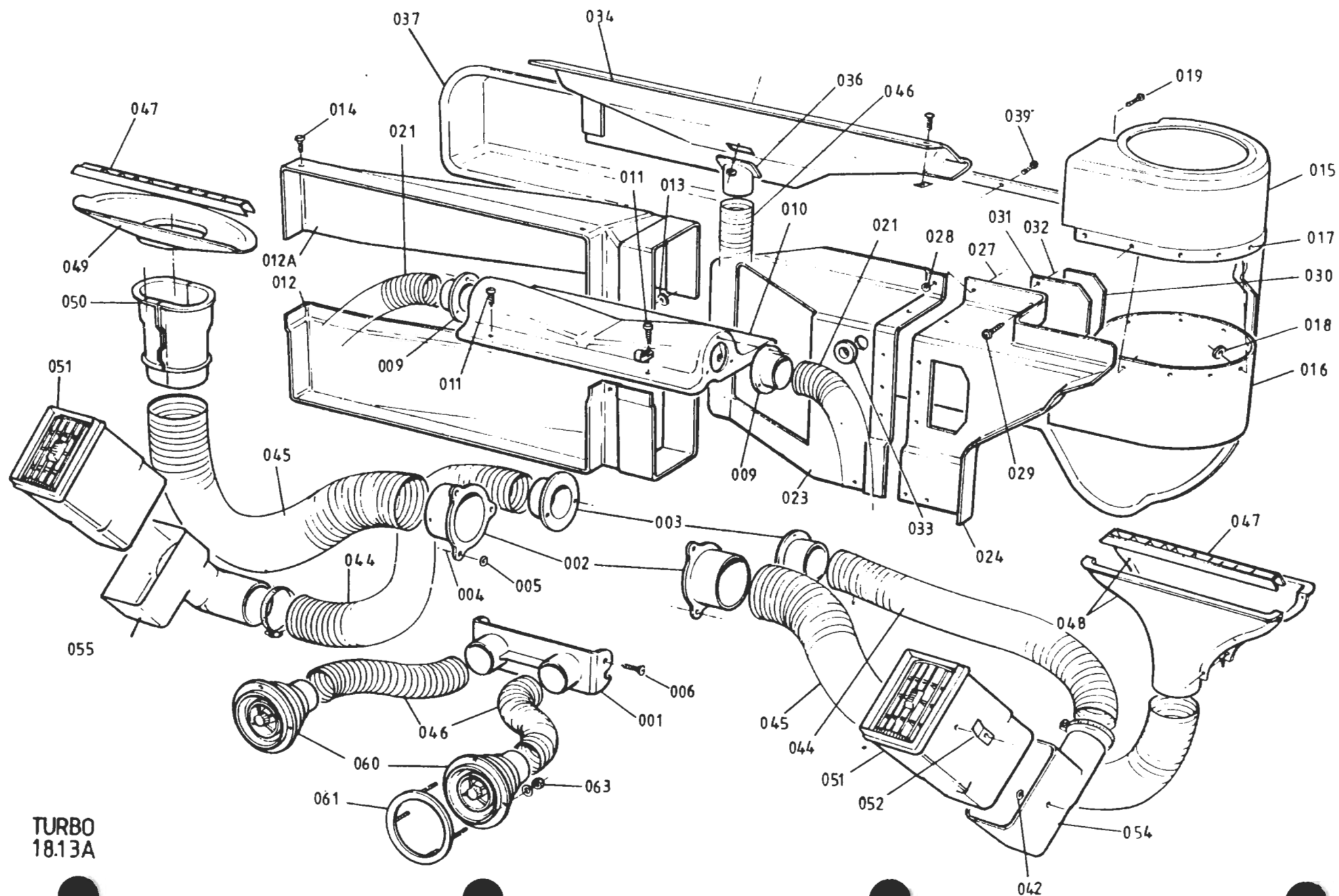
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Turbo 18.13A

Page 1

LHD ILLUSTRATED



TURBO
18.13A

ILLUS
NO.

QUANTITY

MAY 1991

18.13A

DESCRIPTION

PART NUMBER

RHD

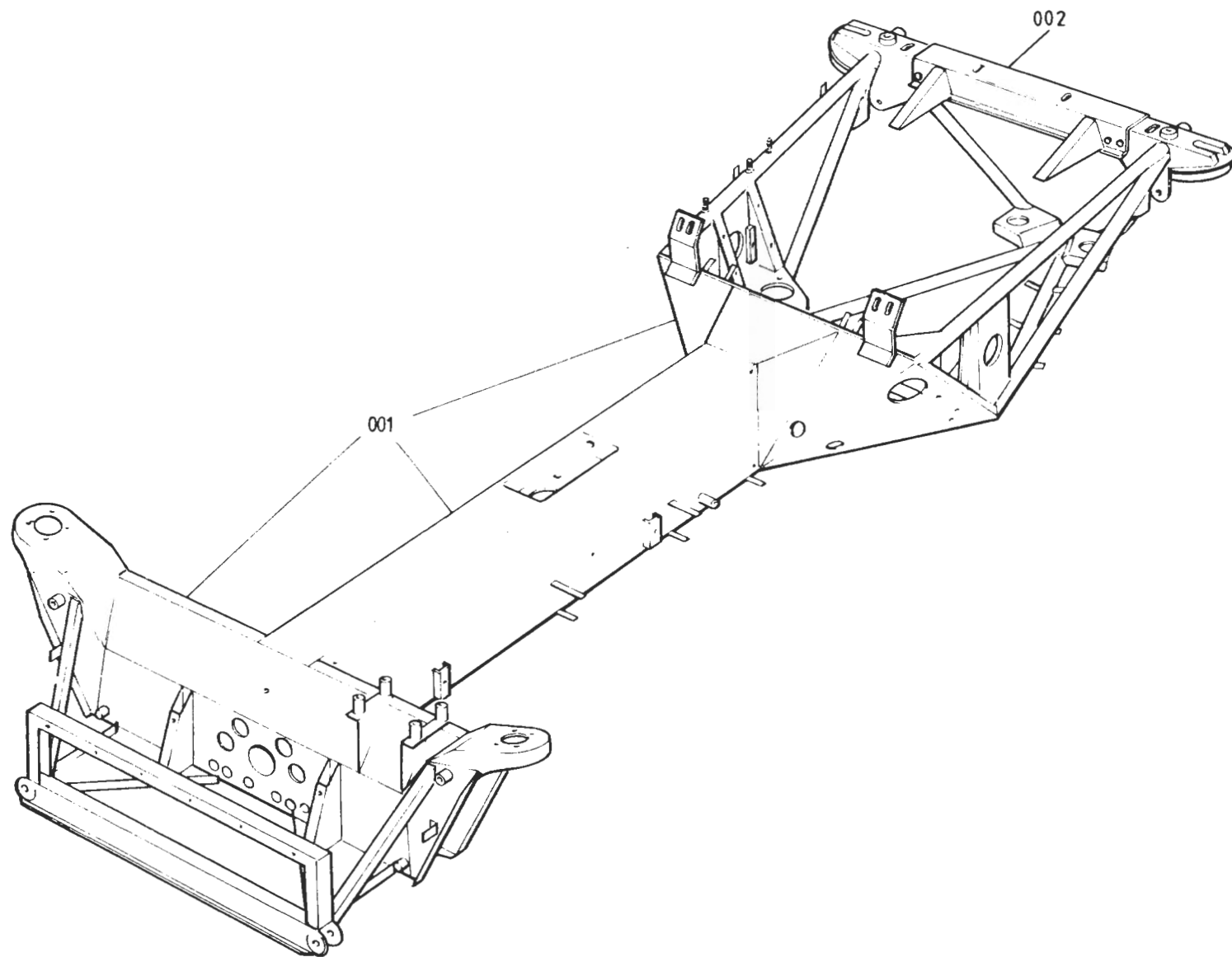
LHD

REMARKS

	Plenum Chamber	A079P4152K	1		
034	Plenum Chamber	A079P4116K		1	
036	Adaptor, Plenum to Drain Tube	A079P4173K	1	1	
	Cover, Bulkhead	B082P4171K	1		
037	Cover, Bulkhead	B082P4172K		1	
	Foam Strip, Cover to Body	A082U6067F	2m	2m	
039	Screw, No. 6 x 1/2", Bulkhead Cover	A075W5015Z	16	16	
044	Ducting, 1 7/8", Outer F.L.V.	A079P6007V	A/R	A/R	
045	Ducting, 2 1/4", Demist	A079P4027V	A/R	A/R	
	Ducting, 2", Centre F.L.V.	A079P4005V	A/R	A/R	With Rectangular Centre F.L.V.'s
046	Ducting, 1 1/2", Centre F.L.V.	A075P6066V	A/R	A/R	With Round Centre F.L.V.'s
047	Outlet Vanes, Demist Vent	B079P4039F	2	2	
048	Demist Vent, Passenger Side	A079P4026K	1	1	
049	Demist Vent, Binnacle	A079P4064K	1	1	
050	Adaptor, Demist Vent to Hose	A079P4065K	1	1	
051	Face Level Vent, Outer	A075P6018Z	2	2	
052	Clip, Outer F.L.V. Retaining	C075P0112Z	4	4	
	Pop Rivet, Clip to F.L.V.	A075W6086F	4	4	
	Washer, Pop Rivet	A075W4001F	4	4	
054	Adaptor, 90°, F.L.V. to Ducting	B076P0132F	1	1	Passenger Side Vent
	Adaptor, 90°, F.L.V. to Ducting	A075P0113Z	1		Driver's Side Vent
055	Adaptor, 90°, F.L.V. to Ducting	A075P0114Z		1	Driver's Side Vent
	Face Level Vent, Centre, Rectangular	A075P6018Z	2	2	
	Clip, Centre F.L.V. Retaining	A075P0115Z	4	4	
	Pop Rivet, Clip to F.L.V.	A075W6086F	4	4	
	Washer, Pop Rivet	A075W4001F	4	4	
	Adaptor, Straight, F.L.V. to Ducting	A079P4126K	2	2	Rectangular Centre F.L.V.'s
060	Face Level Vent, Centre, Round	A085P6037F	2	2	
061	Retaining Ring, Round Vent	A085P4212K	2	2	Inc. In Trimmed Fascia
063	Nut, Nyloc, M3, Vent Fixing	A079W3060F	8	8	

Turbo 18.13A

Page 2



TURBO
3001 A

ILLUS
NO.

QUANTITY

MAY 1991

30.01A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

001

Chassis

G082A4160J

1

Prior to '85 Model Year* †

Chassis

A082A4218F

1

1985/'86 Model Year †

Chassis

B082A4218J

1

'87 M.Y. on R/B B082A4234J +(B/Pipe

Chassis

B082A4234J #

1

Clamps)

Chassis

G082A4125J

1

Prior to '85 Model Year* †

Chassis

A082A4217F

1

1985/'86 Model Year †

Chassis

B082A4217J

1

'87 M.Y. on R/B B082A4234J + (B/Pipe

Chassis

B082A4234J #

1

Clamps)

002

Rear Crossmember

B082A4152J

1

1

Clamp, Hose #

B082A4236F

2

2

Clamp, Pipe LH #

A082A4237F

1

1

Clamp, Pipe RH #

A082A4238F

1

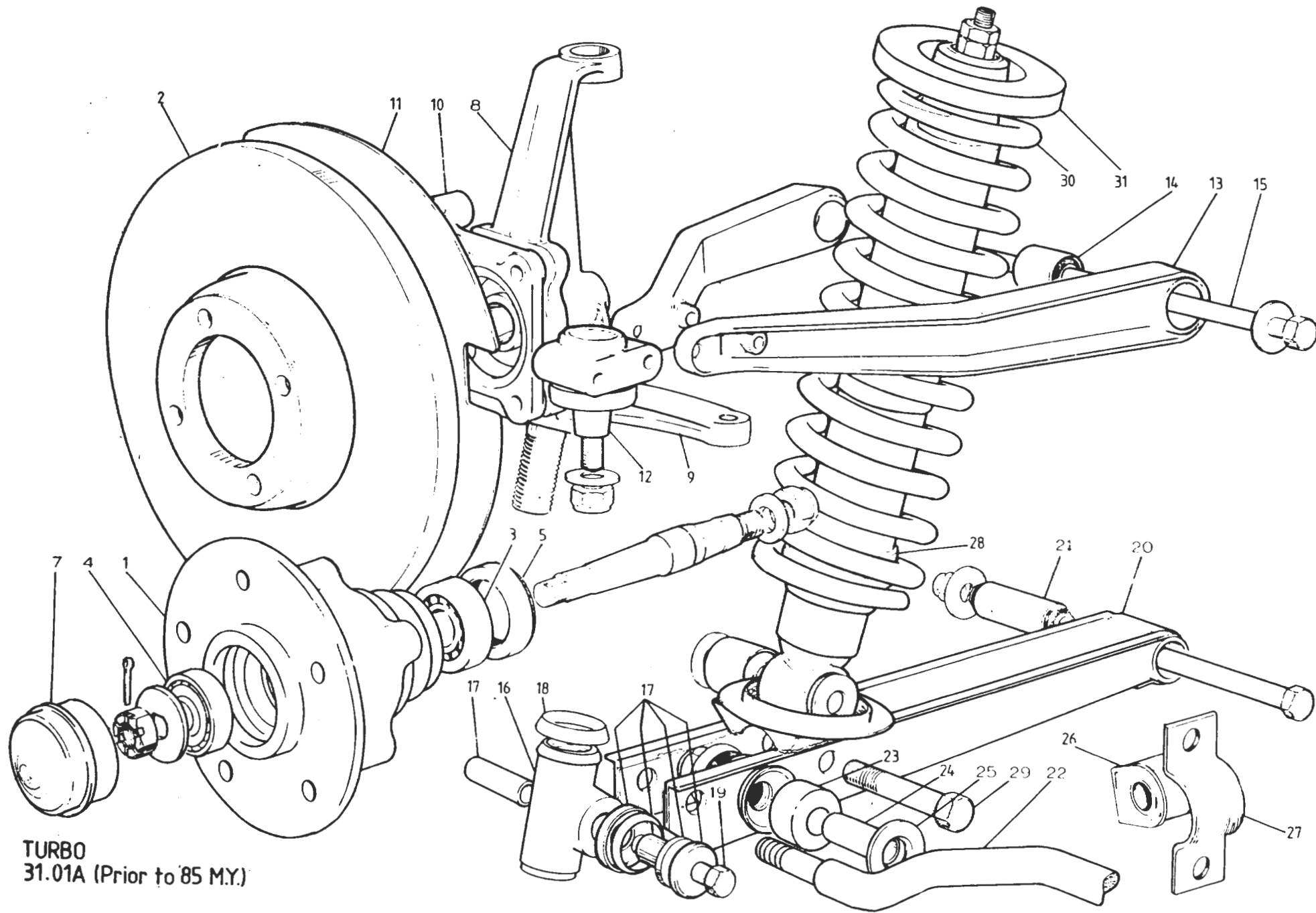
1

*When replacing a pre '85 chassis, the following parts may also be required to fit the latest pre '85 specification Chassis dependent on VIN:
Anti-Roll Bar & Fixings (see 31.01A)
Rear Top Link Fixings (see 31.03A)
Engine Mountings (see 40.01A)

†Note When replacing a Pre'87 M.Y. Chassis, the oil cooler hoses must be run through the Chassis backbone with 190mm of edge protector AX75L6020V in the Chassis rear diaphragm, and 85mm of foam tube A082E6022V in the front crossmember.

If a oil cooler thermostat is fitted, replace LH hose from thermostat to cooler with hose A082E4111F.

Turbo 30.01A



TURBO
31.01A (Prior to 85 M.Y.)

ILLUS
NO.

QUANTITY

MAY 1991

31.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

This Page Prior to '85 Model Year
For '85 M.Y. Cars see 31.01B

1 Front Hub Assembly (With Studs)
 Stud, Wheel
 2 Front Hub
 Brake Disc
 Brake Disc

A082C4018F
 A079D6002H
 A082C4043F
 A075J0297F
 C075J0297F

2
 8
 2
 2
 2

)
)Comomotive Wheels
 BBS Wheels
 Ground Finish. R/B C075J0297F in pairs
 Non Directional Machined

3 Bolt, 3/8" x 7/8" UNF
 Washer, Spring 3/8"
 4 Wheel Bearing, Inner
 Wheel Bearing, Outer
 5 Oil Seal, Front Hub
 6 Stub Axle
 Nut, Nyloc, 9/16"
 Washer, Plain

A075W1024F
 A075W4067F
 A036C6042F
 A036C6041F
 A050C6002F
 A036C6040F
 A075W3054F
 A036C6034F

8
 8
 2
 2
 2
 2
 2
 2

>
 >Brake Disc to Hub

)
)Stub Axle to Vertical Link

Nut, Castellated
 Washer, 'D'
 Split Pin
 7 Hub Cap
 8 Vertical Link LH
 Vertical Link RH
 Plug, Lubrication, Vertical Link
 9 Steering Arm, RH
 Steering Arm, LH
 10 Caliper Mounting Plate RH
 Caliper Mounting Plate LH
 Sealing Ring
 11 Dust Shield LH
 Dust Shield RH

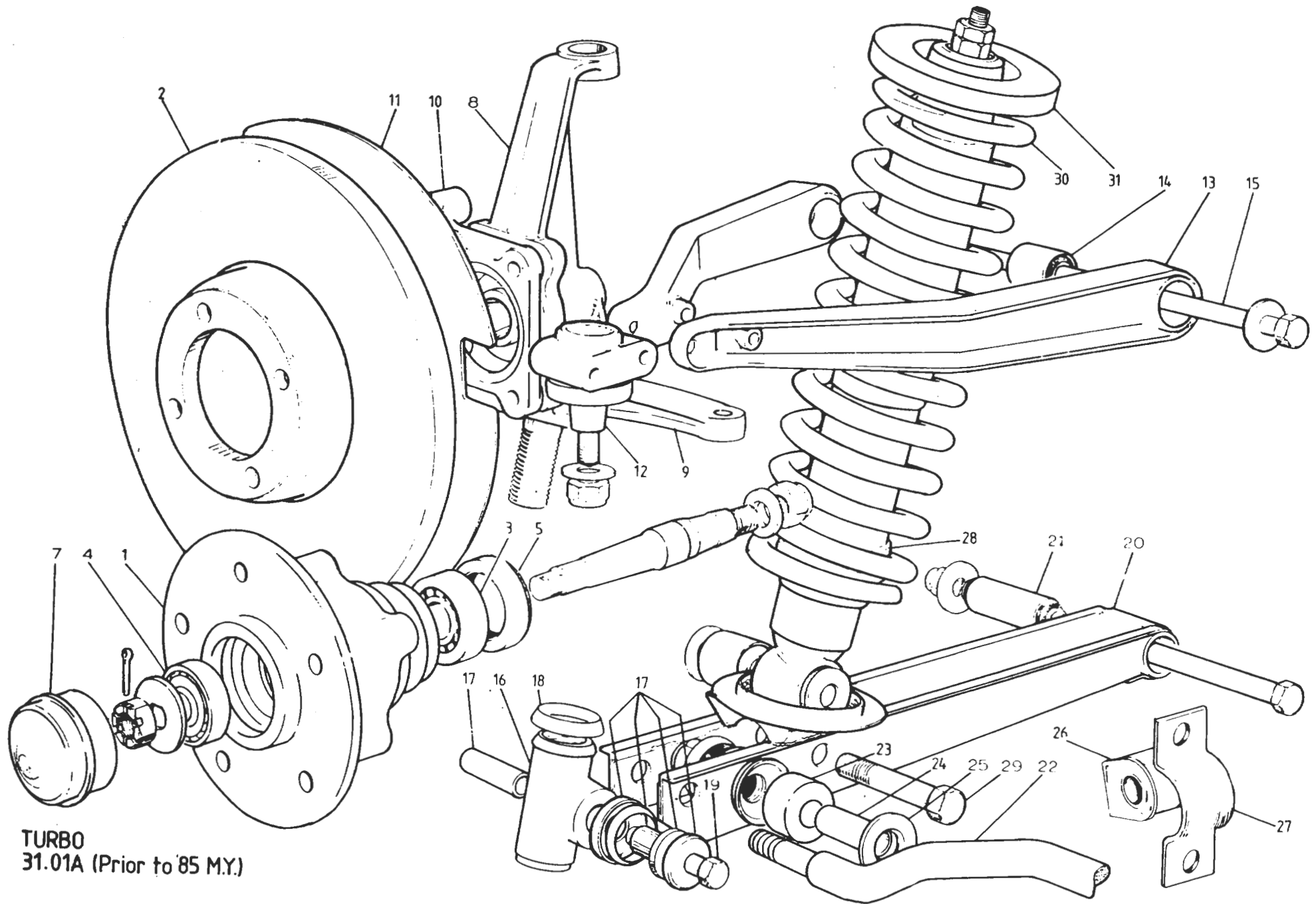
A036C6010F
 A050C6000F
 A075W6176F
 A075C6004F
 A036C6043F
 A036C6044F
 A036C6035F
 C075C0122F
 C075C0123F
 A082C4022F
 A082C4023F
 X050C6019F
 B075C0139F
 B075C0140F

2
 2
 2
 2
 1
 1
 2
 1
 1
 1
 1
 2
 1
 1

>
 >Hub to Stub Axle

 Caliper Mounting Plate to Vertical Link

Turbo (Prior '85 M.Y.) 31.01A
 Page 1



TURBO
31.01A (Prior to '85 M.Y.)

ILLUS
NO.

QUANTITY

1661 AYW

31.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

12

Bolt 5/16" x 3/4" UNF
Washer, Spring, 8 mm

A075W1022F
A075W4036F

4
4

This Page Prior to '85 Model Year
For '85 M.Y. Cars See 31.01B

)
)Caliper Plate to Vertical Link

Bolt 3/8" x 1.1/4" UNF
Washer, Spring, 10 mm
Bolt, 3/8" x 2.1/4" UNF
Nut, Torqloc, 3/8" UNF
Upper Ball Joint
Nut, Torqloc, 7/16" UNF
Washer, Plain

A075W1023F
A075W4037F
B075W2096F
A075W3003F
A036C6007F
A075W3004F
A075W4005F

2
2
2
2
2
2
2

>
>Caliper Plate/Vertical Link/Steering Arm
>
>
)Upper Ball Joint to Vertical Link
)

13

Bolt, 8 x 100 mm
Bolt, 8 x 60 mm
Nut, Nyloc, M8
Washer, Plain

A075W2049F
A075W2043F
A075W3010F
A075W4020F

2
2
4
4

>
>Upper Ball Joint to Wishbone
>
>

14

Wishbone Arm
Pivot Bush, Wishbone

E075C0130F
X036C6004F

4
4

15

Stud, Wishbone Pivot

A075C0145F

2

Nut, Nyloc 1/2" UNF

A075W3005F

4

Locknut, 1/2" UNF

A075W3017F

2

Washer, Wishbone Pivot

A075C0149F

8

Cover, Wishbone Stud Access

A082B6057F

2

Screw, Cover Fixing

A075W5011Z

4

16

Lower Trunnion, RH

A036C6025F

1

Lower Trunnion, LH

A036C6026F

1

17

Bush Kit, Lower Trunnion

A083C6012F

2

18

Seal, Trunnion Top

A036C6047F

2

19

Bolt 7/16" UNF

A075W2010F

2

Nut, 7/16" UNF

A075W3004F

2

Washer

A075W4005F

2

20

Lower Link, LH

B082C4019F

1

Lower Link, RH

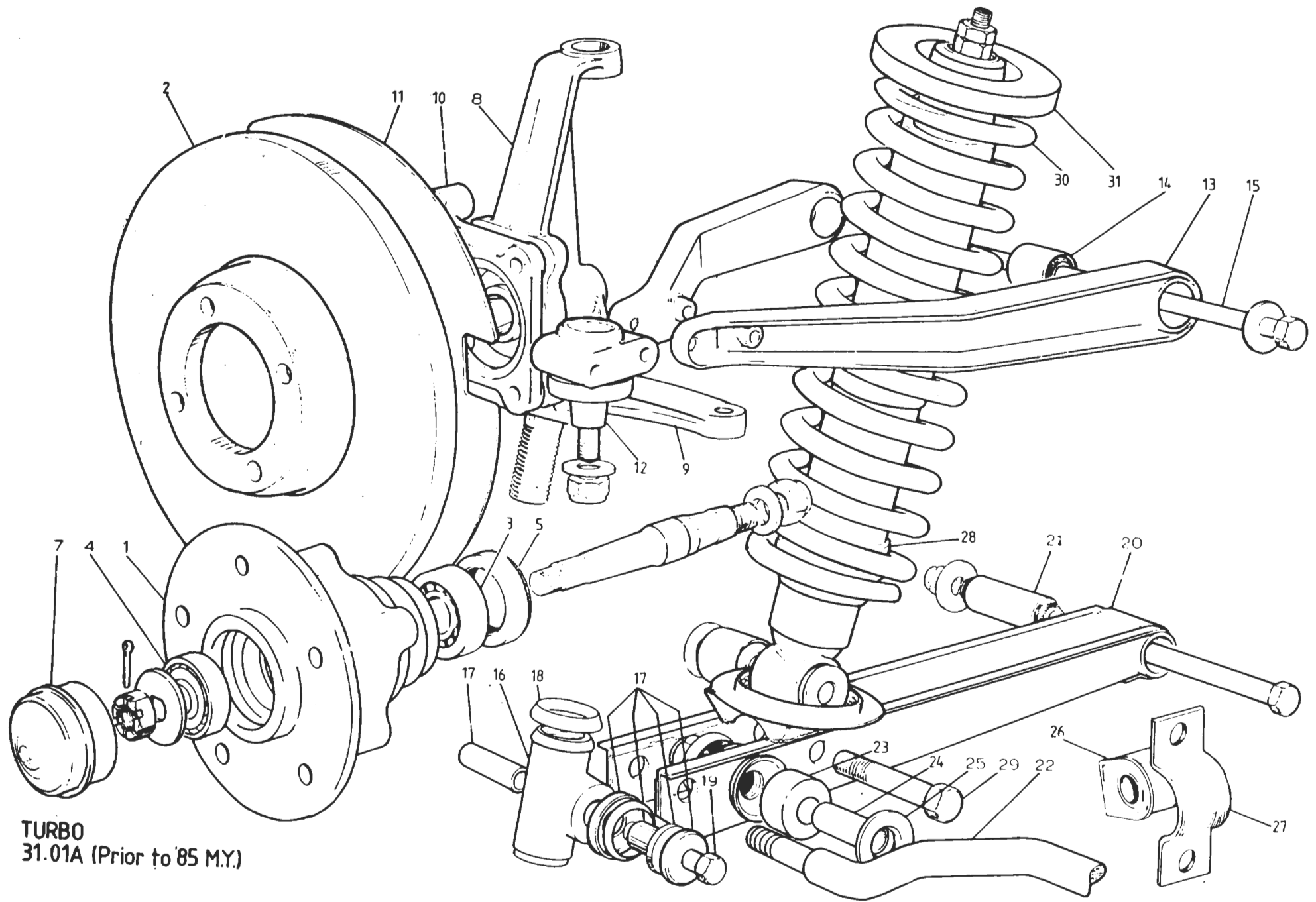
B082C4020F

1

One Kit per Trunnion

)
)Trunnion to Lower Link
)
)

Turbo (Prior '85 M.Y.) 31.01A
Page 2



TURBO
31.01A (Prior to '85 M.Y.)

ILLUS
NO.

QUANTITY

MAY 1991

31.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

21

Bush, Lower Link Pivot
Bolt ½" x 6" UNF
Nut, Nyloc ½" UNF
Washer

A075C6000F
A075W2015F
A075W3005F
A075W4007F
C082C4025F

2
2
2
2
1

22

Anti-Roll Bar

E082C4025F

1

Anti-Roll Bar

23

Bush, Anti-Roll Bar to Lower Link

A075C0144F

4

24

Distance Tube

A075C0126F

2

Washer, Special

A075C0132F

2

25

Washer, Chamfer Toward Front
Nut, Nyloc, M12

A075C0133F
A075W3012F

2
2

Mounting Rubber, A.R.B. to Chassis

A079C6030F

2

Clamp Plate

C079C4005F

2

Spacer Washer, Castor Adjust

A075W4028Z

A/R

Setscrew, M12 x 30, A.R.B. to Chassis

A079W1058F

4

Washer, Spring, A.R.B to Chassis

A075W4069F

4

26

Mounting Rubber, A.R.B. to Chassis

A075C6005F

2

27

Clamp Plate

A082C4047F

2

Shim Plate, Castor Adjust

A082C4052F

A/R

Setscrew, M12 x 35, A.R.B. to Chassis

A079W1059F

4

Washer, Spring, A.R.B. to Chassis

A075W4069F

4

This Page Prior to '85 Model Year
For '85 M.Y. Cars See 31.01B

)
)Lower Link to Chassis

)
Up to VIN 82 D 1262
82 - 0410 exc. 0399 & 0400

From VIN 82 D 1263
82 - 0411 plus 0399 & 0400

>

>

>Anti-Roll Bar to Lower Link

>

)

)Up to VIN 82 D 1262
) 82 - 0410 exc. 0399 & 0400

)

)

>

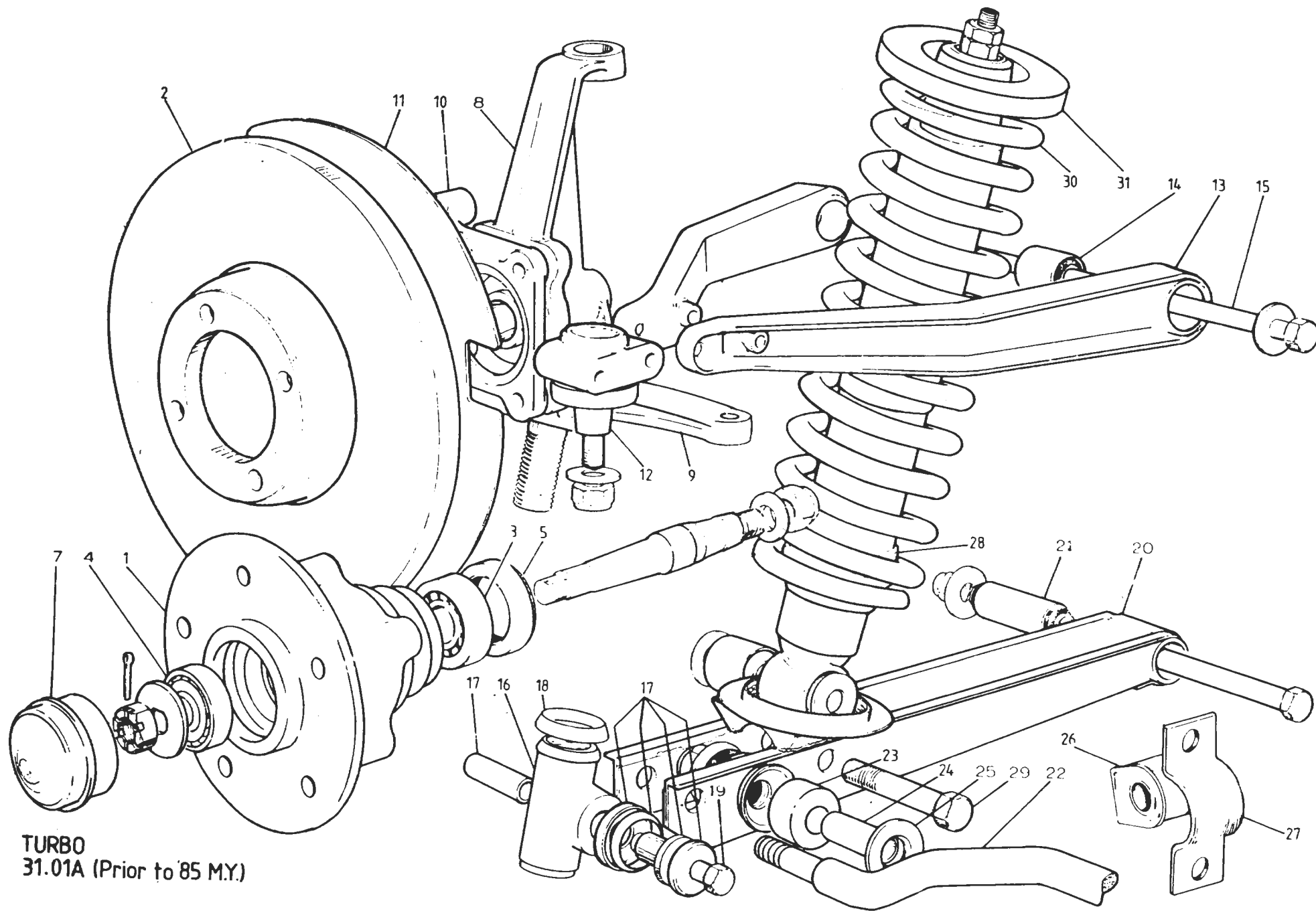
>From VIN 82 D 1263
> 82 - 0411 plus 0399 & 0400

>

>

>

Turbo (Prior '85 M.Y.) 31.01A
Page 3



TURBO
31.01A (Prior to '85 M.Y.)

ILLUS
NO.

QUANTITY

MAY 1991

31.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

28

Damper Assy. (includes A082C6033F)
 Damper Assy. (includes A082C6033F)

B082C4014F
 C082C4014F

2
 2

This Page Prior to '85 Model Year
For '85 M.Y. Cars See 31.01B

R/B C082C4014F In Pairs
 Green Spot on Lower Body
 If fitting to early car (up to
 approx. VIN 82D 1029, 82H 0334),
 with 16mm diameter damper stem
 hole in chassis: Fit only in pairs
 with 2 off Top Stem Bush Kit A082C6032F.
 Later cars have 19.5mm double thickness
 hole and use Bush Kit A082C6033F.

29

Bush Kit, Damper Top Stem
 Bush Kit, Damper Top Stem
 Bush, Damper Lower Eye
 Washer, Damper/Lower Link/Nut

A082C6032F
 A082C6033F
 A075C6011F
 A075W4008F

2
 2
 2
 6

With 16 mm Damper Stem Hole in Chassis
 With 19.5mm Damper Stem Hole in Chassis
 Included in Damper assembly

30

Bolt, ½" UNF x 2½"
 Nut, Nyloc, ½" UNF
 Road Spring, Red/Green

C075W2013F
 A075W3005F
 A082C4046F

2
 2
 2

)
)Damper to Lower Link
 Heater Cars Only
 Air Conditioned Cars Only

31

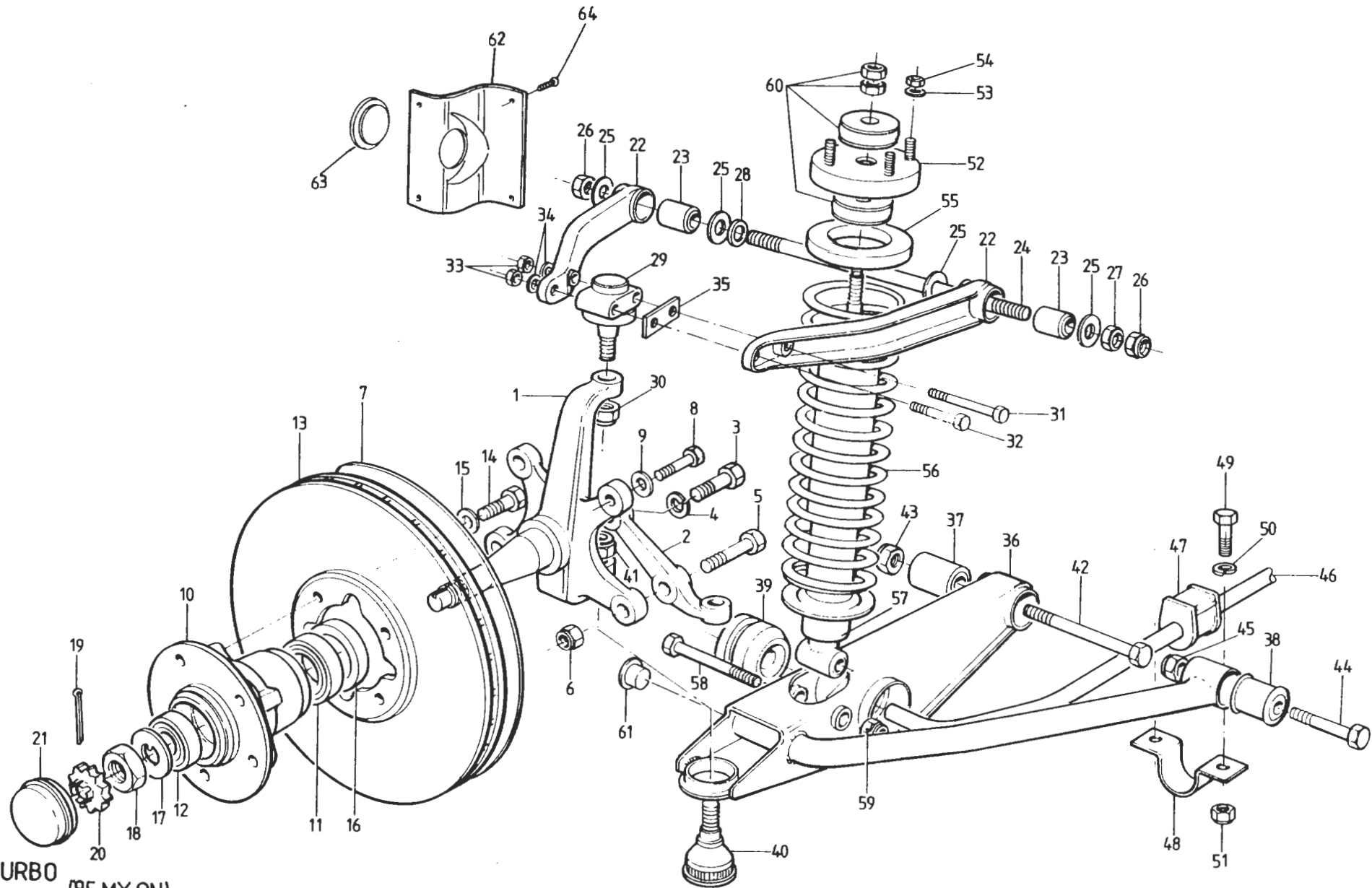
Road Spring, Red/Red
 Spring Seat, Rubber

A082C4028F
 B075C0129Z

2
 2

Spring to Chassis

Turbo (Prior '85 M.Y.) 31.01A
 Page 4



TURBO
31.01B (85 MY. ON)

ILLUS
NO.

QUANTITY

MAY 1985

31.01B

DESCRIPTION

PART NUMBER

ALL

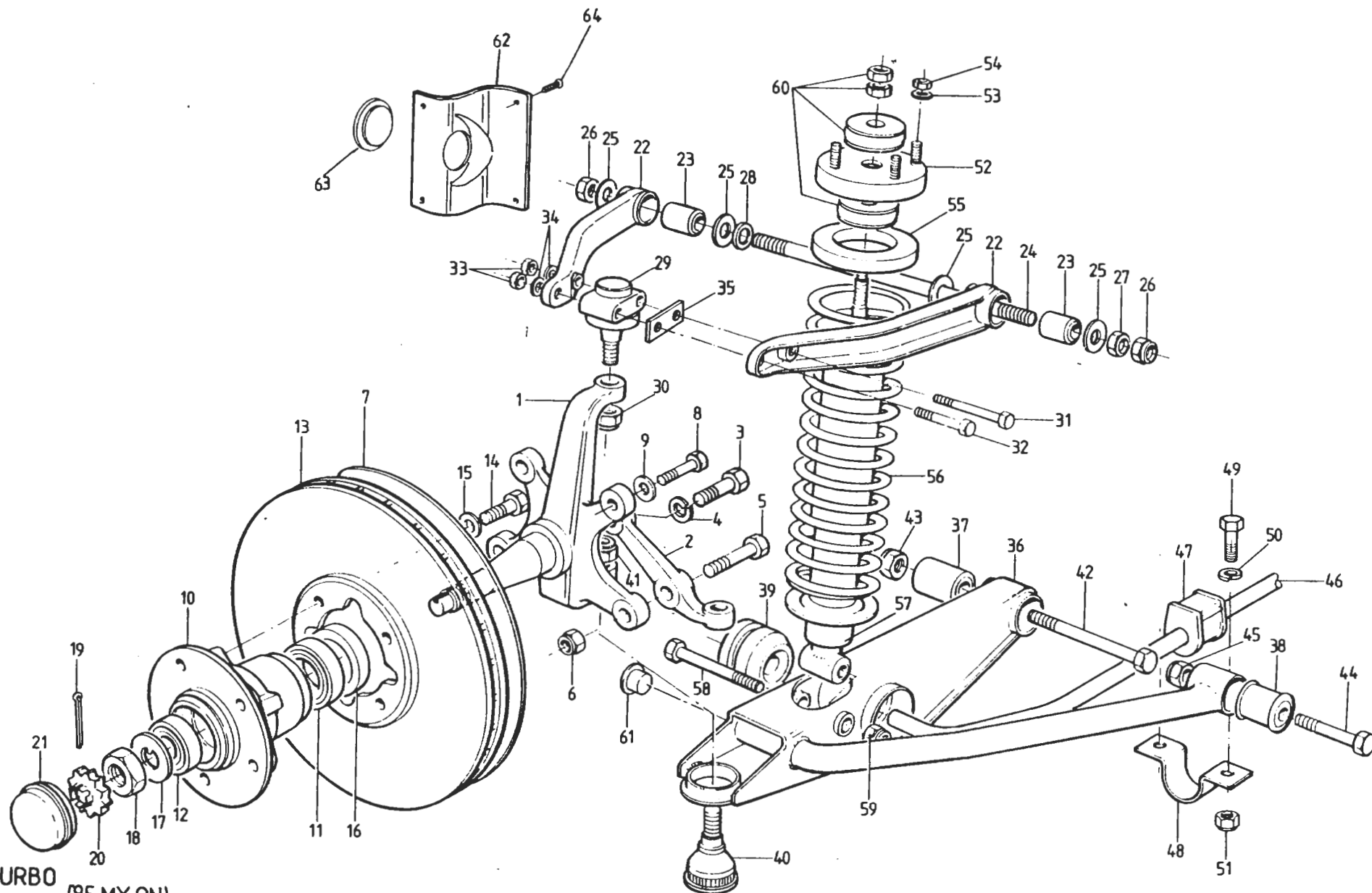
REMARKS

1	Vertical Link	C089C0163F	2
2	Steering Arm RH	B082C4074F	1
	Steering Arm LH	B082C4073F	1
3	Setscrew, M12 x 35, Arm/Link	A075W1059Z	2
4	Washer, Spring, Arm/Link	A075W4069F	2
5	Bolt, M12 x 45, Arm/Link	A075W1061Z	2
6	Nut, Nyloc, M12 Arm/Link	A075W3078F	2
7	Shield, Brake Disc, RH	C089C0750J	1
	Shield, Brake Disc, LH	C089C0751J	1
8	Setscrew, Disc Shield/Vert. Link	A075W1039F	2
9	Washer, Flat, Shield/Vert. Link	A075W4021F	2
10	Hub, Front	B082C4078F	2
11	Bearing, Inboard, Front Hub	A089C8004F	2
12	Bearing, Outboard, Front Hub	A089C8005F	2
13	Brake Disc, Front Ventilated	A089J8014F	2
14	Bolt, Brake Disc to Hub	A089C8013F	8
15	Washer, Brake Disc to Hub	A089C8014F	8
16	Grease Seal, Front Hub	A089C8003F	2
17	Washer, Claw, Bearing Retaining	A089C8006F	2
18	Nut, Bearing Retaining	A089C8007F	2
19	Split Pin, Locking Cap	A075W6222Z	2
20	Locking Cap, Bearing Nut	A089C8009F	2
21	Grease Cap, Hub Bearing	A089C8008F	2
22	Arm, Upper Wishbone	E075C0130F	4
23	Pivot Bush, Upper Wishbone	X036C6004F	4
24	Stud, Upper Wishbone Pivot	A075C0145F	2
25	Buffer Washer, Pivot Bush	A075C0149D	8
26	Nut, Nyloc, 1/2" UNF	A075W3005F	4
27	Locknut, 1/2" UNF	A075W3017F	2

This Page '85 Model Year On
For Cars Prior to '85 M.Y. See 31.01A

A089D8003F May be used as Alternative

May be used in place of front nyloc
 if castor shims are fitted



TURBO
31.01B (85 M.Y. ON)

ILLUS
NO.

QUANTITY

MAY 1991

31.01B

DESCRIPTION

PART NUMBER

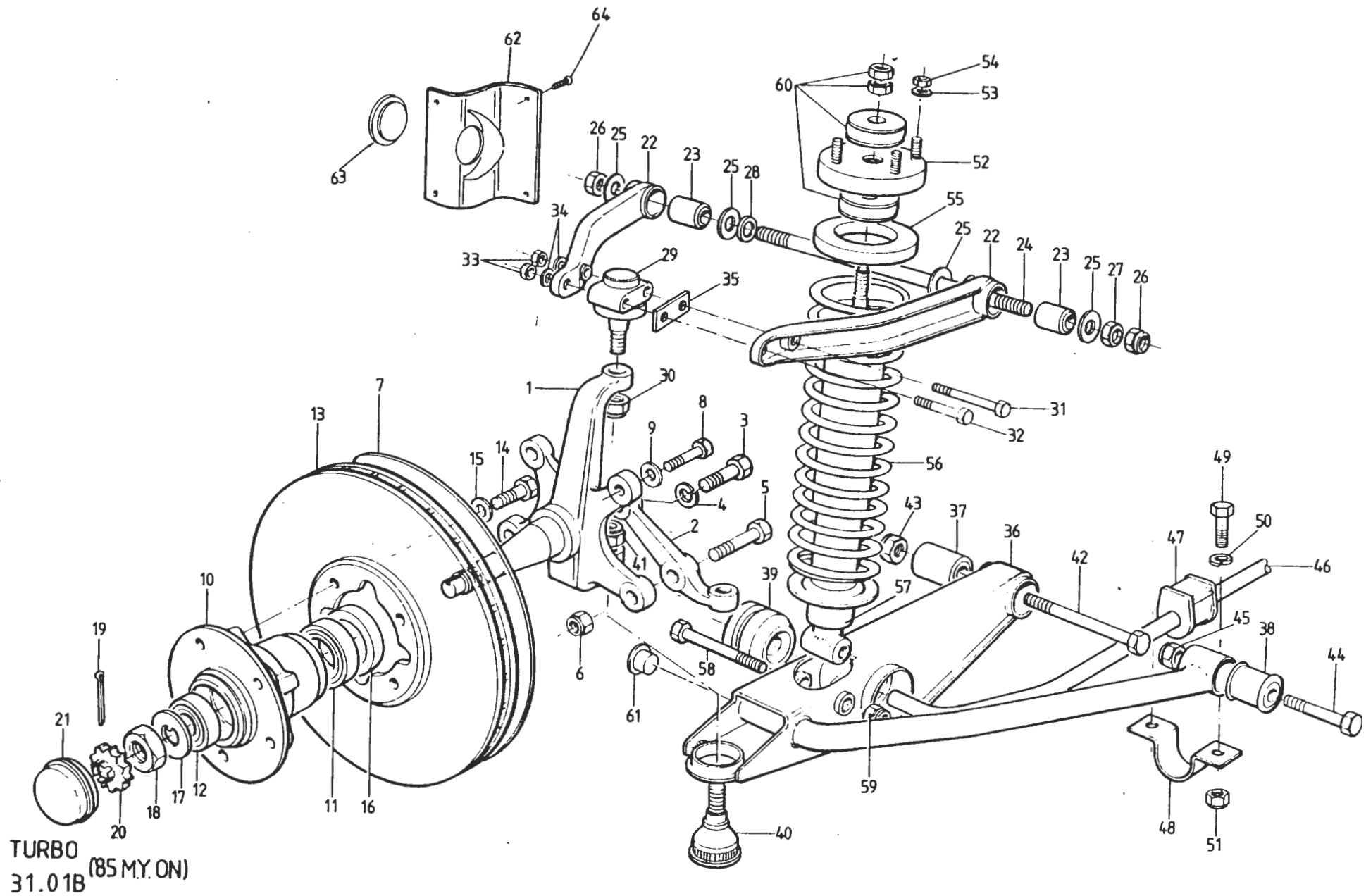
ALL

REMARKS

This Page '85 Model Year On
For Cars Prior to '85 M.Y. See 31.01A

28	Shim Washer, Castor Adjust, 1.5mm	A082C4091F	A/R)
	Shim Washer, Castor Adjust, 3.0mm	A082C4092F	A/R	) If Fitted
	Shim Washer, Castor Adjust, 6.0mm	A082C4093F	A/R)
29	Ball Joint, Upper	A036C6007F	2	
30	Nut, Torqloc, 7/16" UNF	A075W3004F	2	Upper Ball Joint to Vertical Link
	Washer, Flat, Ball Joint/Wishbone	A075W4005Z	2	
31	Bolt, M8 x 100, Ball Joint/Wishbone	A075W2049Z	2	
32	Bolt, M8 x 60, Ball Joint/Wishbone	A075W2043F	2	
	Bolt, M8 x 65, " " " "	A075W2044F	2	May be used if Castor Shims Fitted
33	Nut, Nyloc, M8, " " " "	A075W3010F	4	
34	Washer, Plain, " " " "	A075W4020F	4	
35	Shimplate, Castor Adjust, 1.5mm	B082C4090F	A/R	If Fitted
	Shimplate, Castor Adjust, 3.0mm	B082C4089F	A/R	If Fitted
36	Lower Wishbone, RH	B082C4076J	1	
	Lower Wishbone, LH	B082C4077J	1	
37	Pivot Bush, Lower Wishbone, Rear	A075C6000F	2	
38	Pivot Bush, Lower Wishbone, Front	A082D4084F	2	
39	Bush, Anti-Roll Bar/Lower Wishbone	A089C6088F	2	
40	Ball Joint, Lower	A089C6089F	1	
41	Nut, Nyloc, M14	A075W3069Z	2	Lower Ball Joint to Vertical Link
42	Pivot Bolt, 1/2" UNF x 6"	A075W2015F	2	Lower Link Rear to Chassis
43	Nut, Nyloc, 1/2" UNF	A075W3005F	2	
44	Pivot Bolt, 1/2" UNF x 2 3/4"	A075W2097F	2	>Lower Link Front to Chassis
45	Nut, Nyloc, 1/2" UNF	A075W3005F	2	>
46	Anti-Roll Bar	B082C4070F	1	
47	Bush, Anti-Roll Bar to Chassis	A082C4084F	2	
48	Clamp, Anti-Roll Bar to Chassis	A082C4047F	2	
49	Setscrew, M12 x 35, ARB to Chassis	A079W1059F	4	
50	Washer, Flat, " " " "	A075W4028Z	4	

Turbo ('85 M.Y. on) 31.01B
Page 2



TURBO
31.01B (85 M.Y. ON)

ILLUS
NO.

QUANTITY

MAY 1991

31.01B

DESCRIPTION

PART NUMBER

ALL

REMARKS

51
52
53
54
55Nut, Nyloc, M12, ARB to Chassis
Abutment Plate, Spring/Damper Top
Washer, Abutment Plate/Chassis
Nut, M8 " " " " "
Insulator, Front Spring TopA075W3012Z
A082C4075F
A075W4020F
A075W3010F
A082C4069F4
2
8
8
2

56

Spring/Damper Assy. (Parallel Spring)
Spring/Damper Assy. (Parallel Spring)
Road Spring, Parallel, (Purple/Red)
Road Spring, Parallel, (Yellow/Yellow)A082C4087J
A082C4094J
A082C4083F
A082C4088F2
2
2
2Spring/Damper Assy. (Conical Spring)
Spring/Damper Assy. (Conical Spring)
Road Spring, Conical, (Purple/Blue)
Road Spring, Conical, (Yellow/White)
Road Spring, Conical, (Yellow/Purple)A082C4098J
A082C4099J
A082C4096F
A082C4097F
B082C4097F2
2
2
2
2

57

Damper, Front, Black with White Spot

A082C4086F

2

58

Damper, Front, Black with Red Spot
Bolt, 1/2" UNF x 3 1/2"A082C4095F
A079W2088F2
2

59

Nut, Nyloc, 1/2" UNF

A075W3005F

2

60

Bush Kit, Damper Top Stem

A082C6036F

2

61

Blanking Plug, Plastic

A089U6089F

2

62

Cover, Wishbone Stud Access

A082B4337K

2

Cover, Wishbone Stud Access

A079U4352K

2

63

Grommet, Wishbone Stud Access

A082B6057F

2

64

Screw, Cover Fixing

A075W5022Z

8

This Page '85 Model Year On.
For Cars Prior to '85 M.Y. See 31.01A

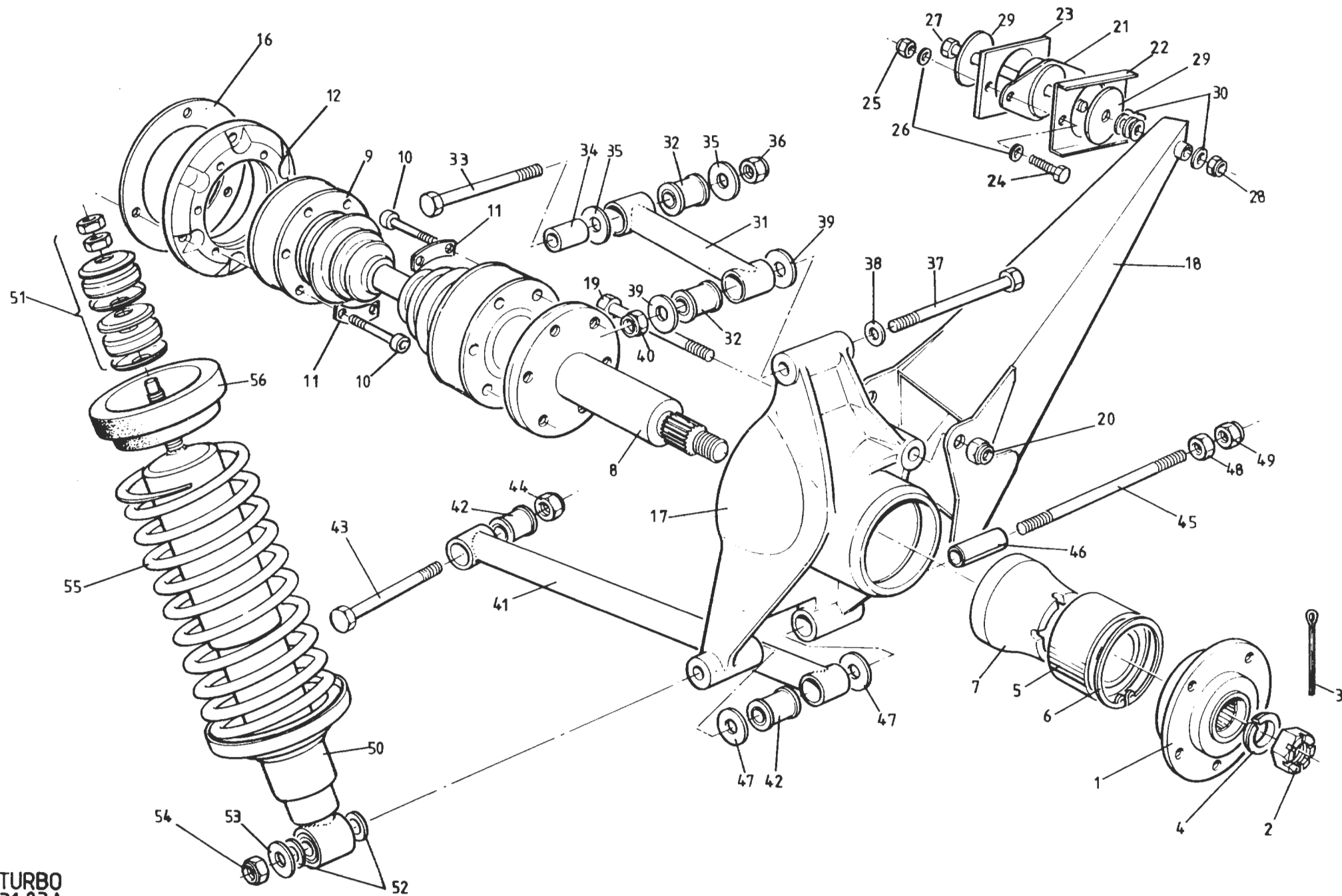
Heater Only)
With A/C) Replaced by
Heater Only) Conical Spring/Damper
With A/C) Assembly

Heater Only. Includes Top Abutment Plate
With A/C. Includes Top Abutment Plate
Heater Only
With A/C. R/B B082C4097F
With A/C (Longer than 'A')

For Parallel Spring (R/B) Inc. Top
A082C4095F + Conical Spring) } Stem Bush
For Conical Spring) Kit.
> Damper to Lower Wishbone
>

R/B A079U4352K

Turbo ('85 M.Y. on) 31.01B
Page 3



TURBO
31.03A

ILLUS
NO.

QUANTITY

MAY 1991

31.03A

DESCRIPTION

PART NUMBER

ALL

REMARKS

	Rear Hub Assembly (with studs)	B082D4071F	2	Compomotive Wheels
	Stud, Wheel	A079D6002H	8	Compomotive Wheels
1	Rear Hub	A082D4094F	2	BBS Wheels
2	Nut, Hub Retaining	A082D4062F	2	
3	Split Pin, Hub Nut	A075W6010Z	2	
4	Cone, Hub Retention	A075D0256F	2	
5	Bearing, Rear Wheel	A082D6012F	2	
6	Circlip, Bearing Retaining	A082D6013F	2	
7	Spacer, Drive Shaft/Bearing	A082D4064F	2	
8	Drive Shaft, Outboard	A082D4067F	2	
9	Drive Shaft Assembly, Intermediate	B082D4057F	2	
	Boot Kit, Drive Shaft C.V. Joint	A082D6018F	4	
10	Bolt, Allen, M10 x 65 x 1.5 mm	A079W7020F	24	D.Shaft to Adaptor and Outboard D.Shaft
11	Segment Washer	A082D6017F	12	
12	Adaptor, Driveshaft	A082D4053F	2	
	Nut Special	B079D6011F	6	
	Washer, Spring, 12 mm	A075W4069F	6	
	Stud, Output Shaft/Adaptor	A079D6003F	6	
16	Shim, Output Shaft to Disc	A079D4022K	4	
17	Hub Carrier, RH	A082D4072K	1	
	Hub Carrier, LH	A082D4073K	1	
18	Radius Arm, RH	B082D4056K	1	Compomotive Wheels
	Radius Arm, RH	B082D4078K	1	BBS Wheels.R/B C082D4078K With 130mm Bolts
	Radius Arm, RH	C082D4078K	1	BBS Wheels.R/B B082D4110J
	Radius Arm, RH	B082D4110J	1	
	Radius Arm, LH	B082D4055K	1	Compomotive Wheels
	Radius Arm, LH	B082D4077K	1	BBS Wheels.R/B C082D4077K With 130mm Bolts
	Radius Arm, LH	C082D4077K	1	BBS Wheels.R/B B082D4111J
	Radius Arm, LH	B082D4111J	1	
19	Bolt, M10 x 120, Rad. Arm/Hub Carrier	A075W2064Z	4	Except Rad. Arm C082D4077/8
	Bolt, M10 x 130, Rad. Arm/Hub Carrier	A075W2065F	4	For Rad. Arm C082D4077/8
20	Nut, Nyloc M10	A075W3011F	4)
	Washer, Plain	A075W4024Z	4	)Radius Arm to Hub Carrier

Turbo 31.03A

Page 1

ILLUS
NO.

QUANTITY

11/17/201

31.03A

DESCRIPTION

PART NUMBER

ALL

REMARKS

21	Mounting Rubber	A046D6000F	2		Radius Arm to Chassis
22	Plate, Reinforcing	C079D4013K	2		>
23	Spacer, 0.9mm, Toe-In Adjust	C079D4051F	A/R		>
	Spacer, 1.5mm, Toe-In Adjust	A079D4051F	A/R		>
	Spacer, 6.0mm, Toe-in Adjust	B079D4051F	A/R		>Radius Arm Mounting to Chassis
24	Setscrew, M8 x 35	A075W1041F	4		>
25	Nut, Nyloc M8		4		>
26	Washer, Plain	A075W4020Z	8		>
27	Bolt, 7/16" x 4.1/2", UNF	A075W2087F	2)
28	Nut, Torqloc, 7/16" UNF	A075W3004F	2)
29	Washer, Large, 7/16" x 1 1/2"	A075W4006F	4		)Radius Arm to Mounting
30	Washer, Toe-In Adjust	A075W4005F	10)
	Upper Link (Less Bushes)	A082D4086F	2		>
	Bush, Upper Link (Metalastick)	A082D6016F	4		>
	Bolt, 1/2" UNF x 5", Link/Chassis	A079W2025F	2		>Compomotive Wheels
	Spacer, Split	A079D4025F	2		>
	Washer, 1/2" x 1. 1/4"	A075W4008Z	2		>
	Nut, Nyloc, 1/2" UNF	A075W3005F	2		>
31	Upper Link (Less Bushes)	B082D4081F	2		)BBS Wheels
32	Bush, Upper Link (Silentbloc)	A082D4084F	4)
	Bolt, 1/2" UNF x 5", Link/Chassis	A079W2025F	2		>
	Spacer, Split	A079D4025F	2		>BBS Wheels up to VIN 82 D 1161
	Washer, 1/2" x 1 3/4"	A079W4083F	4		> 82 - 0346
	Nut, Nyloc, 1/2" UNF	A075W3005F	2		>
33	Bolt, 1/2" UNF x 4 1/2", Link/Chassis	A079W2023F	2)
34	Spacer	A082D4099K	2		)BBS Wheels From VIN 82 D 1162
35	Washer, 1/2" x 1 3/4"	A079W4083F	4		) 82 - 0347
36	Nut, Nyloc, 1/2" UNF	A075W3005F	2)

d5pl4

Turbo 31.03A
Page 2



ILLUS
NO.

QUANTITY

MAY 1991

31.03A

DESCRIPTION

PART NUMBER

ALL

REMARKS

	Bolt, 1/2" UNF x 5.1/2" Top Link/Carrier	A079W2091F	2)
	Washer, Bolt/Carrier, Nut/Link	A075W4008Z	4	) Compomotive Wheels
	Washer, 1/2" Hardened, Link/Carrier	A074D6003F	2)
	Nut, Nyloc, 1/2" UNF	A075W3005F	2)
37	Bolt, 1/2" UNF x 5.1/2" Top Link/Carrier	A079W2091F	2	>
38	Washer, Bolt Head	A074D6003Z	2	> BBS Wheels
39	Washer, 1/2" x 1.3/4"	A079W4083F	4	>
40	Nut, Nyloc 1/2" UNF	A075W3005F	2	>
	Lower Link, (Less Bushes)	A082D4060F	2)
	Bush, Lower Link, Outer, Metalastik	A082D6016F	2	) Compomotive Wheels
	Bush, Lower Link, Inner, Metalastik	A074D6002F	2)
41	Lower Link (Less Bushes)	B082D4083F	2	> BBS Wheels
42	Bush, Lower Link, Silentbloc	A082D4084F	4	>
43	Bolt, 1/2" UNF x 2.1/2", Link/Chassis	A075W2097F	2	
44	Nut, Nyloc, 1/2" UNF, Link/Chassis	A075W3005F	2	
45	Stud, Lower Link/Hub Carrier	B079D4024F	2	
46	Split Spacer	B082D4079F	2	
	Washer, 1/2" x 1.1/4", Link/Spacer	A075W4008Z	2)
	Washer, 1/2" Hardened, Link/Carrier	A074D6003F	2	) Compomotive Wheels
47	Washer, 1/2" x 1.3/4"	A079W4083F	4	BBS Wheels
48	Locknut, 1/2" UNF	A075W3017F	2	
49	Nut, Nyloc, 1/2" UNF	A075W3005F	2	
50	Damper Assy. (Includes A082C6033F)	B082D4058F	2	Prior to '85 M.Y. R/B C082D4058F
	Damper Assy. (Includes A082C6033F)	C082D4058F	2	Prior to '85 Model Year
				Blue With Green Spot on Lower Body
				If fitting to early car (up to approx.
				VIN 82D 1029, 82H 0334), with 16mm
				diameter damper stem hole in chassis:
				Fit only in pairs with 2 off top stem
				bush kit A082C6032F.
				Later cars have 19.5mm double thickness
				hole and use bush kit A082C6033F.

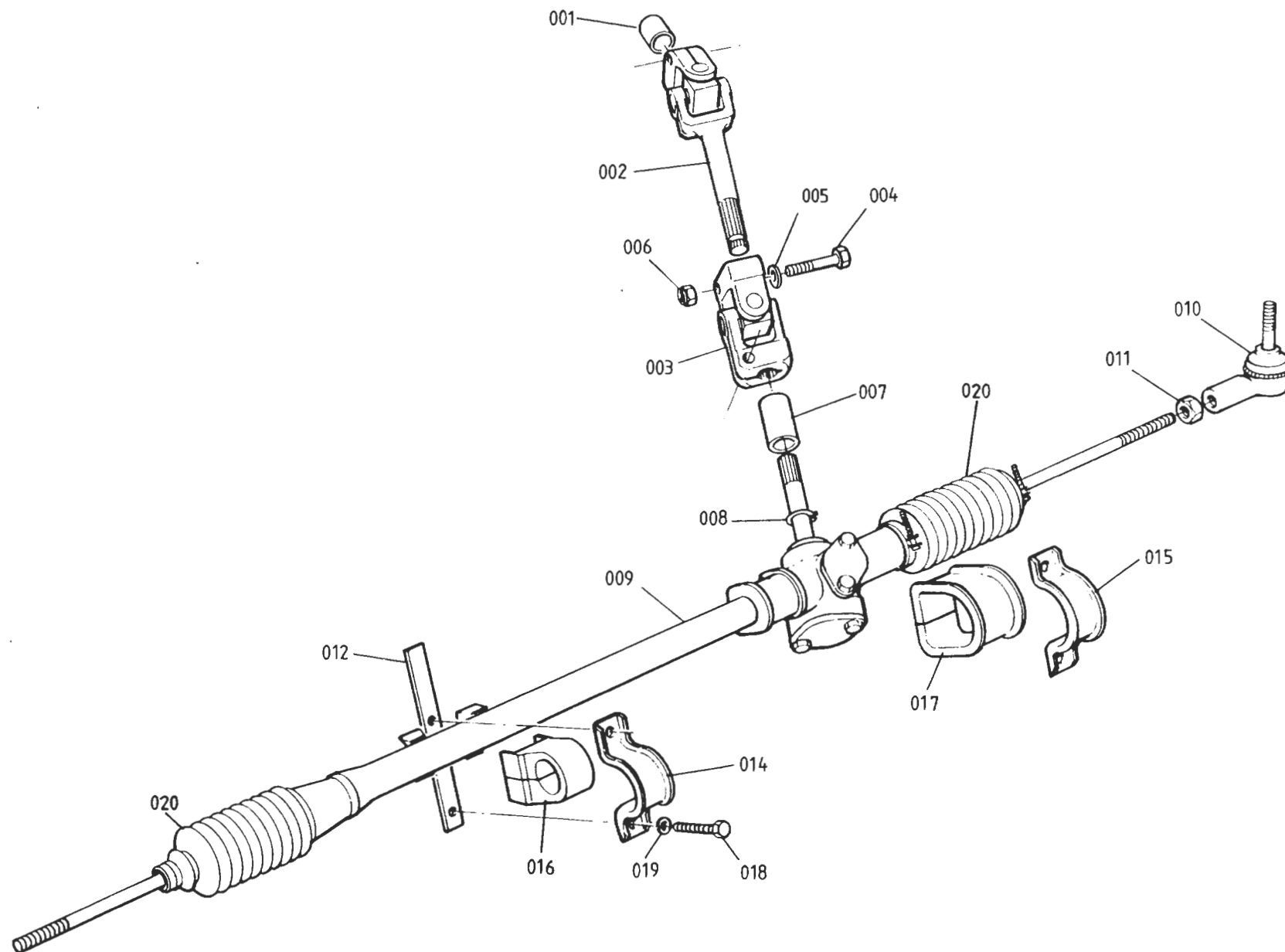
ILLUS
NO.



MAY 1991

ILLUS NO.	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			ALL		
31.03A					
	Damper Assy. (Includes A082C6036F)	A082D4102F	2		1985 Model Year Onward
	Bush Kit, Damper Top Stem (3/8" UNF)	A082C6032F	2		Black With White Spot on Lower Body
51	Bush Kit, Damper Top Stem (3/8" UNF)	A082C6033F	2		16mm Chassis Hole) Prior to
	Bush Kit, Damper Top Stem (M10)	A082C6036F	2		19.5mm Chassis Hole) '85 M.Y.
52	Spacer Washer, Damper Lower Fix	A075W4028F	4		1985 Model Year On.
53	Washer, Flat	A075W4008F	2		
54	Nut, Nyloc, 1/2" UNF, Damper/Carrier	A075W3005F	2		
55	Road Spring, Green/Green	E079D4003F	2		Heater only cars
	Road Spring, Green/Green	E079D4003F	2		A/C cars. R/B D079D4003F in pairs
	Road Spring, Green	D079D4003F	2		A/C cars. 1/2" longer than E079D4003F
56	Insulator, Rear Spring	A079D4028F	2		
	Grommet, RH Wheelarch	A082U6073F	1		

Turbo 31.03A
Page 4



TURBO
3201A

LHD ILLUSTRATED

ILLUS
NO.

QUANTITY

MAY 1991

32.01A

DESCRIPTION

PART NUMBER

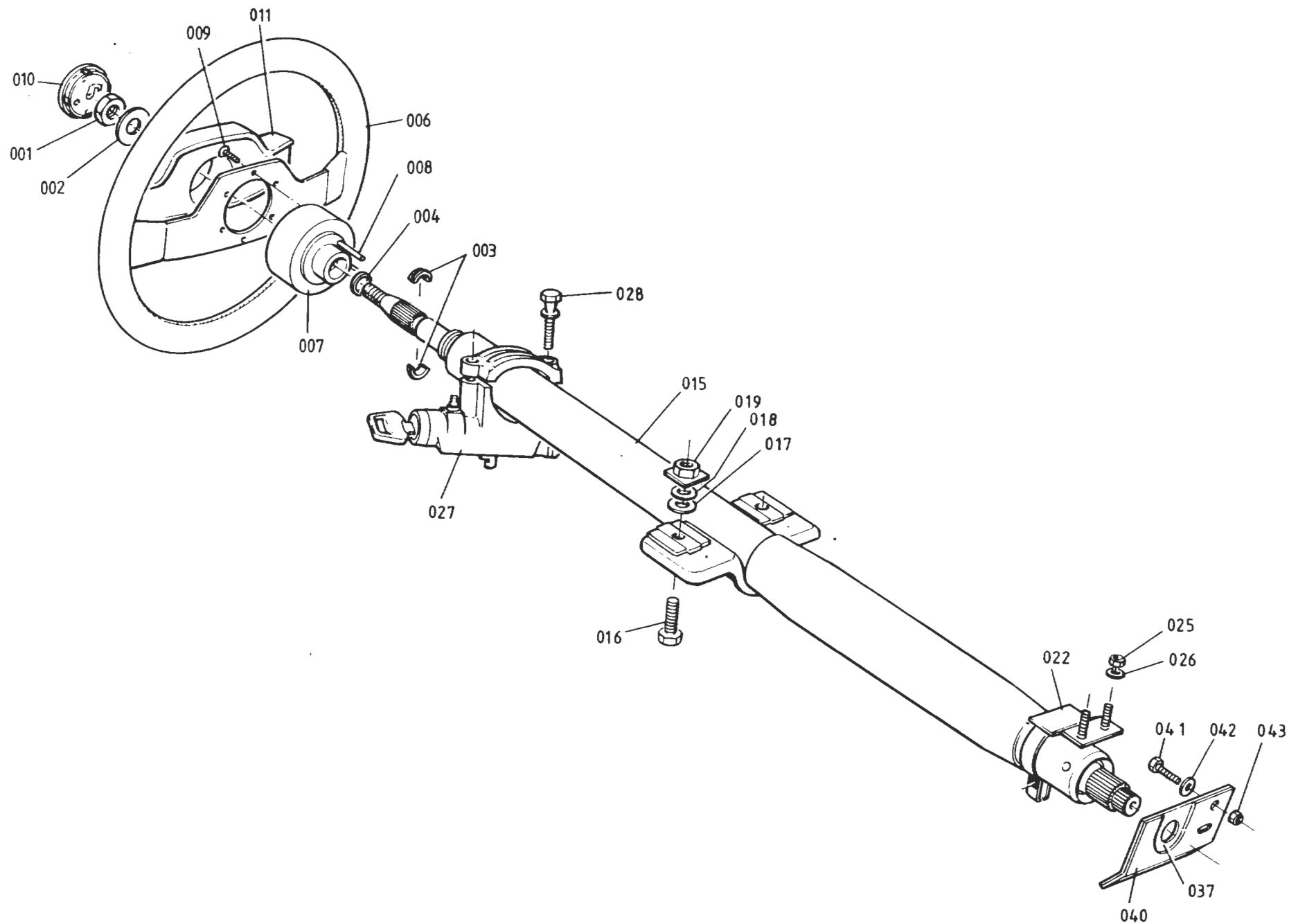
RHD

LHD

REMARKS

001	Protective Sleeve, Column Spline	A079H4010K	1	1	Inc. Upper U/J
002	Intermediate Steering Column Assy.	A079H4002F	1	1	
003	Universal Joint, Lower	C075H6009F	1	1	
004	Bolt, M8 x 35, Universal Joint Clamping	A079H4019F	3	3	R/B A082H4030H plus A082H6025F
005	Washer, Flat, U/J Clamp Bolt	A075W4020Z	3	3	
006	Nut, Nyloc, M8 U/J Clamp Bolt	A075W3010Z	3	3	
	Protective Sleeve, Pinion Shaft	A079H4011K	1	1	R/B D082H4021F With Reduced Travel
007	Spacer, Column Lower U/J	A082H4030H	1	1	
008	Circlip, Pinion Shaft/Spacer	A082H6025F	1	1	
009	Rack & Pinion Assembly	A082H4021F		1	R/B D082H4020F with Reduced Travel
	Rack & Pinion Assembly	D082H4021F		1	
	Rack & Pinion Assembly	A082H4020F	1		
	Rack & Pinion Assembly	D082H4020F	1		Non-Pinion End
010	Ball Joint Track Rod End	A075H6001Z	2	2	
011	Locknut, 1/2" UNF, Ball Joint	A075W3017Z	2	2	
012	Tapping Plate, Steering Rack Mounting	B079H4004F	2	2	Pinion End
	Shim, Rack Assy. to Chassis	A079H4006K	4	4	
014	Clamp Bracket, Rack Assy. to Chassis	B007H4104Z	1	1	
015	Clamp Bracket, Rack Assy. to Chassis	B007H4105Z	1	1	Non-Pinion End
016	Rubber Mounting, Rack Assembly	A007H4103Z	1	1	
017	Rubber Mounting, Rack Assembly	A007H4106Z	1	1	
018	Setscrew, M8 x 20, Clamp to Chassis	A075W1038Z	4	4	Pinion End
019	Washer, Spring, Clamp to Chassis	A075W4036Z	4	4	
020	Gaiter Set, Steering Rack (inc. clips)	A082H6023F	1	1	

Turbo 32.01A



TURBO
3205A

ILLUS
NO.

QUANTITY

MAY 1991

32.05A

DESCRIPTION

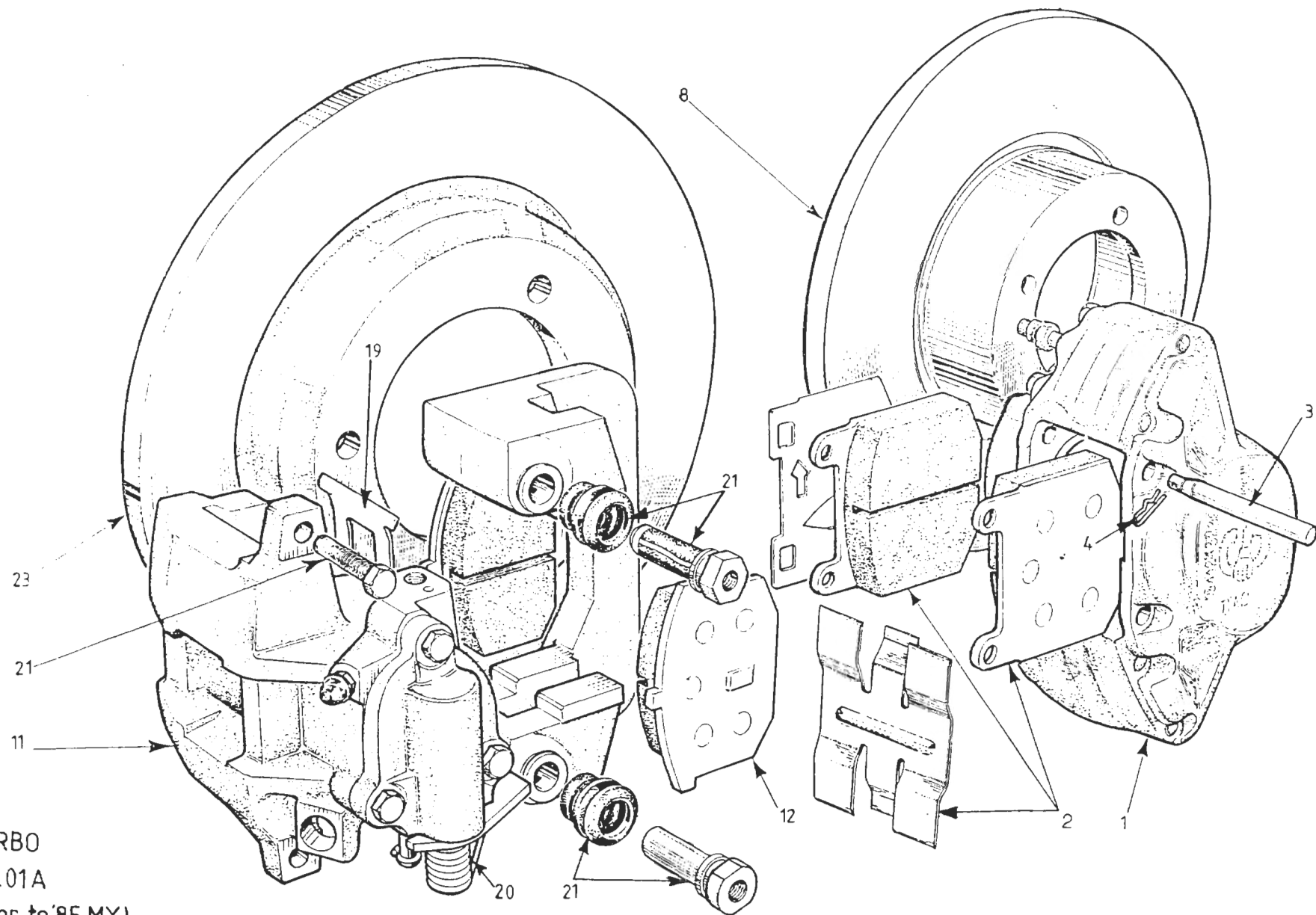
PART NUMBER

RHD

LHD

REMARKS

001	Nut, Steering Wheel to Column	A075W3005Z	1	1	With 'Old' Badge) With 'New' Badge)inc. * Items
002	Washer, Steering Wheel Nut	A075W4008Z	1	1	
003	Collet, Steering Wheel Thrust	A085H6018F	2	2	
004	Band, Collet Retaining	A085H6019F	1	1	
	Steering Wheel Assembly, Black	A085H4028F	1	1	
	Steering Wheel Assembly, Black	C085H4028F	1	1	
*006	Steering Wheel, Black Leather	A079H6009H	1	1	
	Steering Wheel, Coloured Leather	B079H6009H	1	1	
*007	Hub, Steering Wheel	A085H4026H	1	1	
*008	Roll Pin, Turn Indicator Cancelling	A079H6013H	2	2	
*009	Fixing, Wheel to Hub	A079H6012H	6	6	Special Order. State VIN or Colour
*010	Wheel Centre ('Old' Badge)	A082H6016H	1	1	
	Wheel Centre ('New' Badge)	B082H6024H	1	1	
011	Crash Pad, Black Leather	A082V4789K	1	1	
	Crash Pad, Coloured Leather	B082V4789K	1	1	
015	Steering Column Assembly	B079H6006F	1	1	
016	Setscrew, M10 x 25, Column/Scuttle	A075W1048Z	2	2	
017	Washer, Flat, Column/Scuttle	A075W4025Z	2	2	
018	Washer, Shakeproof, Column/Scuttle	A075W4044Z	2	2	
019	Nut, Special, Column/Scuttle	A079U4098F	2	2	
022	Clamp, Column to Pedal Box	A082H4022J	1		Special Order. State VIN or Colour
	Clamp, Column to Pedal Box	A082H4023J		1	
025	Nut, Nyloc M8, Clamp to Pedal Box	A075W3010Z	2	2	
026	Washer, Flat, Clamp to Pedal Box	A075W4020Z	2	2	
027	Lock, Steering Column c/w Ignition Switch	A079H6001F	1	1	
028	Shear Bolt, Lock to Column	A079H6008F	2	2	
037	Seal Plate, Column to Bulkhead	A079U4332F	1		
	Seal Plate, Column to Bulkhead	A079U4331F		1	
040	Gasket, Seal Plate to Bulkhead	B079U4325F	1	1	
041	Setscrew, M6 x 20, Plate to B/Head	A075W1030Z	1	1	
042	Washer, Sealplate Fix	A075W4015Z	1	1	Turbo 32.05A
043	Nut, Nyloc, M6	A075W3009F	1	1	



TURBO
33.01A
(Prior to '85 M.Y.)

ILLUS
NO.

QUANTITY

MAY 1991

33.01A

DESCRIPTION

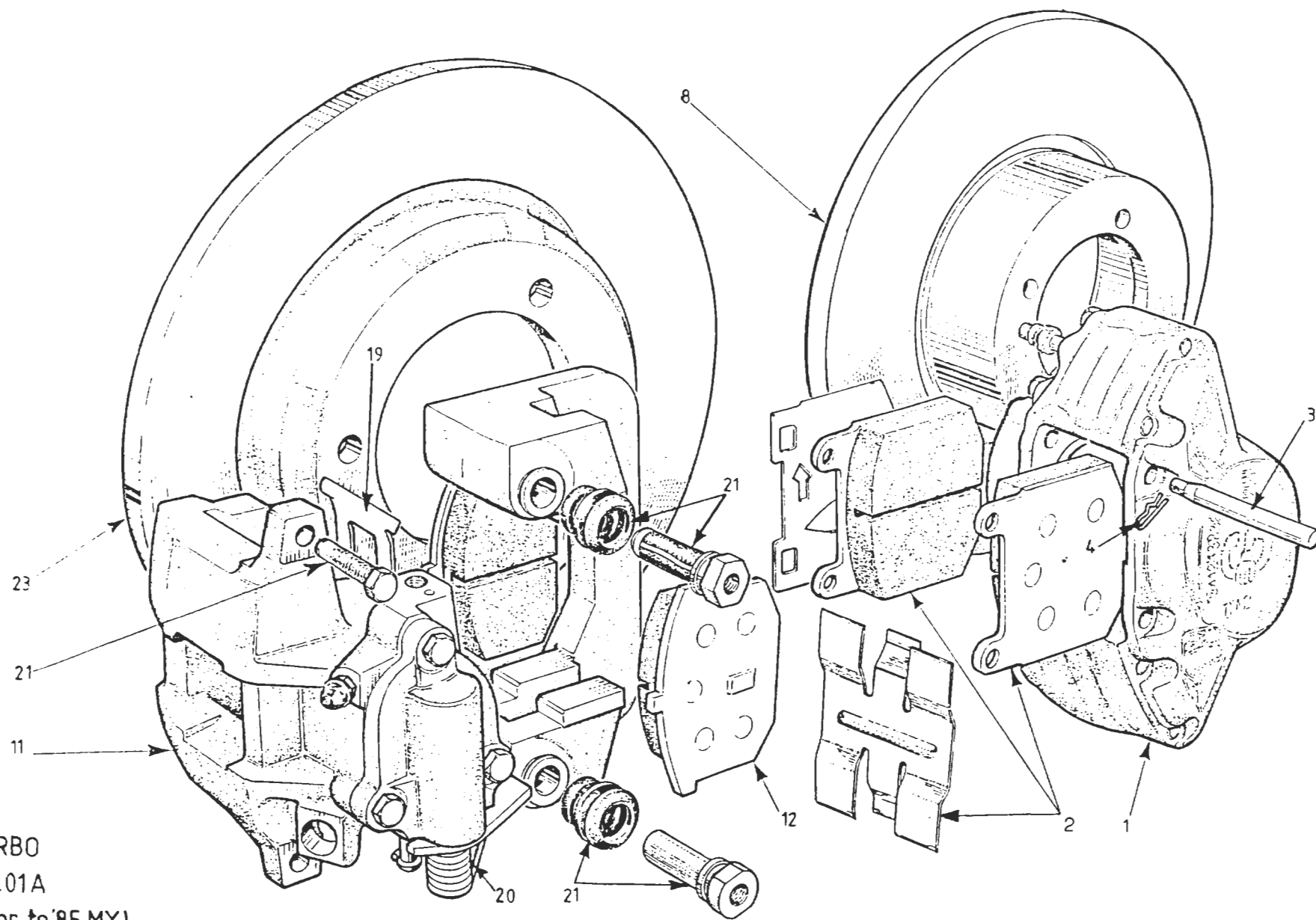
PART NUMBER

ALL

REMARKS

			This Page prior to '85 M.Y. For '85 M.Y. See 33.01B	
1	Caliper Assembly, Front, RH	B082J6052F	1	Includes Brake Pads
	Caliper Assembly, Front, LH	B082J6053F	1	Includes Brake Pads
2	Brake Pad Set, Front	A082J6058F	1	Includes Pins & Clips
3	Pin, Pad Retaining	A079J6026F	4	
4	Clip, Pin Retaining	A079J6027F	4	
	Bolt, Caliper to Mounting Bracket	A079J6007F	4	
	Washer, Spring, 12 mm	A075W4069F	4	
	Service Kit, Front Caliper	X036J6003ZJ	A/R	Includes 4 Piston Seals, 4 Dust Boots, 4 Dust Boot Clips
8	Disc, Front Brake	A075J0297Z	2	
	Bolt, Disc to Hub	A075W1024F	8	
	Washer, Spring, 3/8"	A075W4067F	8	
11	Caliper Assembly, Rear, RH	A079J6012F	1	
	Caliper Assembly, Rear, LH	A079J6004F	1	
12	Brake Pad Set, Rear	A079J6024F	1	Includes Locking Bolts
	Bolt, M10 x 100, Caliper Mounting	A079W2062F	2	
	Bolt, M10 x 60, Caliper Mounting	A079W2055Z	2	
	Washer, Spring, 10 mm	A079W4070Z	4	
	Washer, Plain, 10 mm	A075W4024Z	4	
	Ring Dowel, Caliper	A079J6018F	4	
	Adaptor, Caliper to Brake Hose	A079J6051F	2	
19	Pad Damping Spring	A079J6047F	4	
20	Return Spring, RH	A079J6049F	1	Handbrake Lever Arm
	Return Spring, LH	A079J6048F	1	Handbrake Lever Arm
	Seal Kit, Rear Caliper	A079J6042F	A/R	
21	Guide Pin Kit	A079J6045F	A/R	Includes 4 Guide Pins, 4 Locking Bolts, 4 Bolts and Grease)inc. H/Brake Mechanism)
	Piston Kit, Rear Caliper, LH	A079J6043F	A/R	
	Piston Kit, Rear Caliper, RH	A079J6044F	A/R	
	Bleed Screw, Rear Caliper	A079J6046F	2	Turbo (Prior to '85 M.Y.) 33.01A

Page 1



TURBO
33.01A
(Prior to '85 MY.)

ILLUS
NO.



QUANTITY

MAY 1991

33.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

23

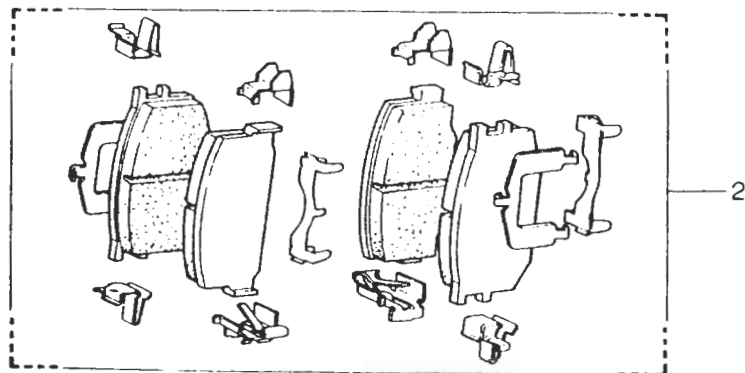
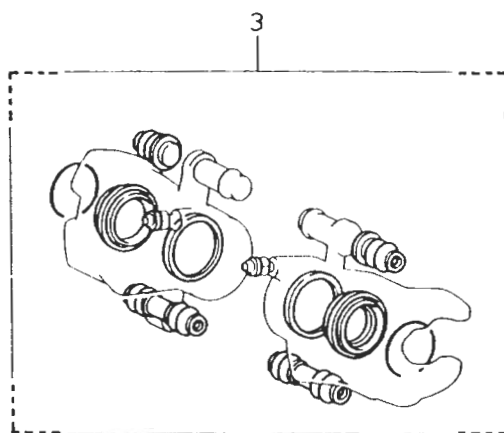
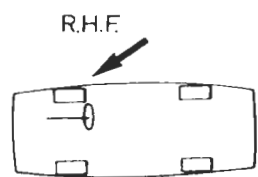
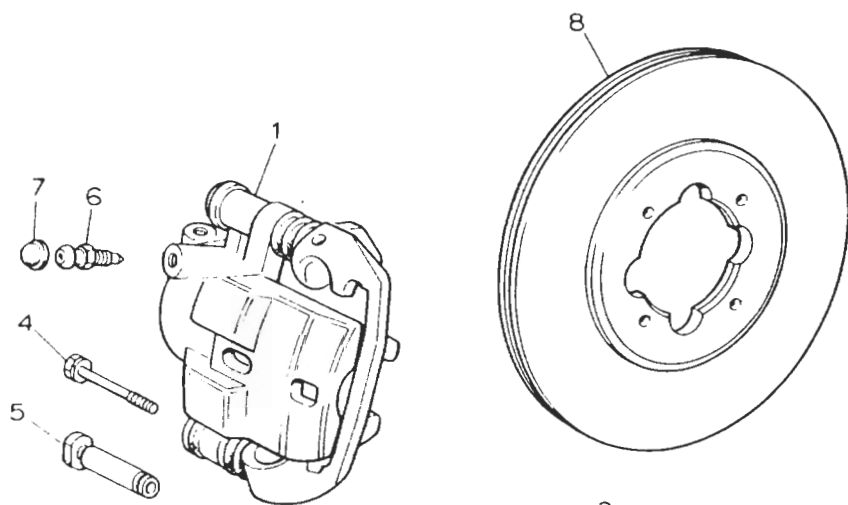
Disc, Rear Brake
Nut, M12, Disc Fixing
Washer, Spring, Disc Fixing

A079J4000F
A079D6011F
A075W4069F

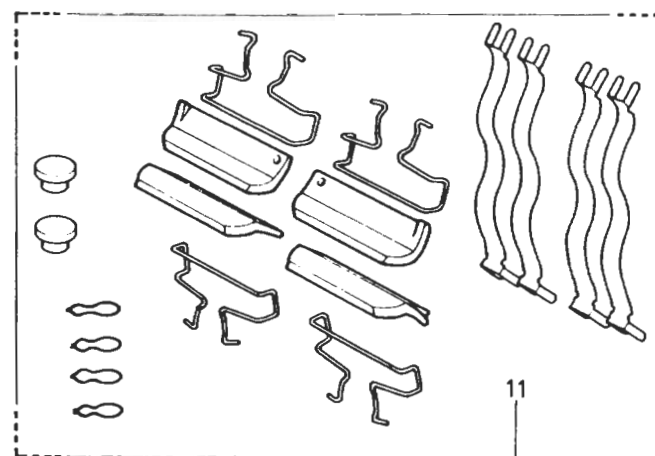
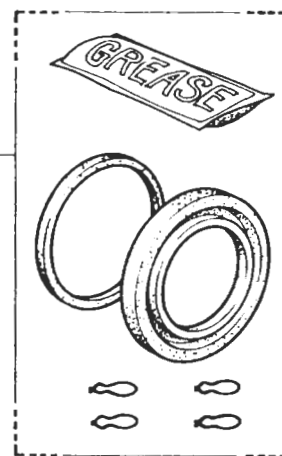
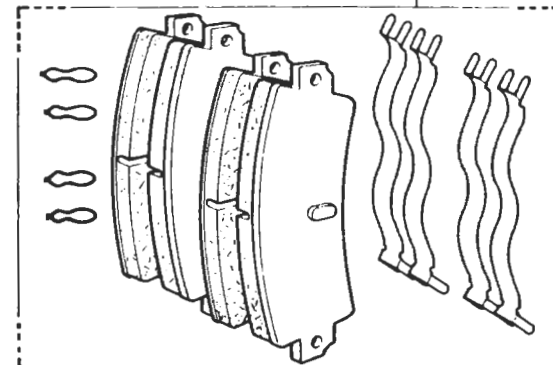
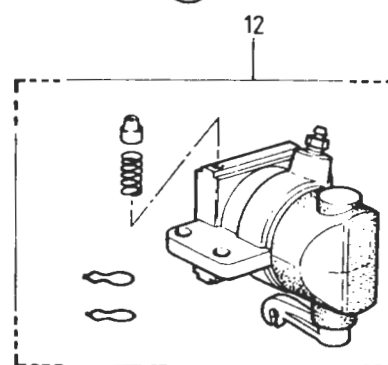
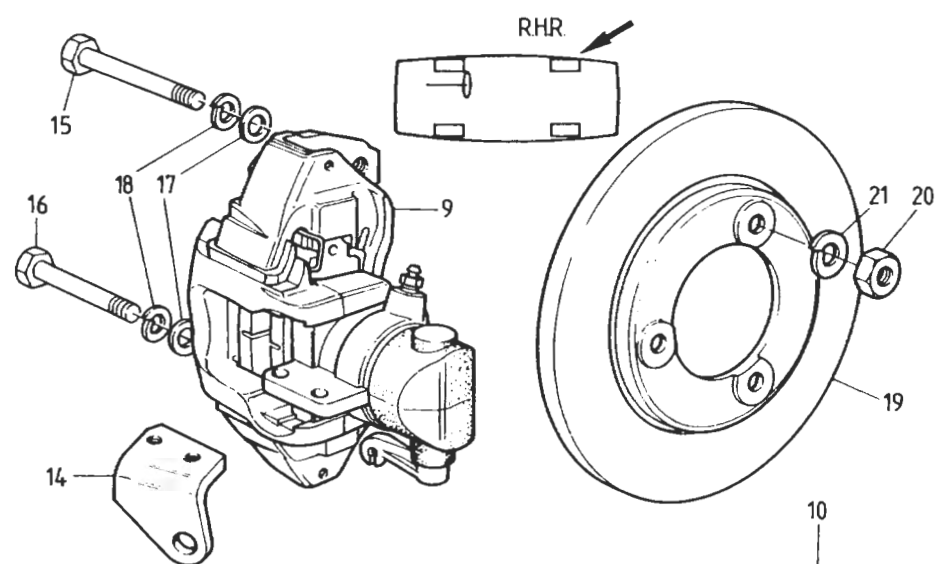
2
6
6

This Page Prior to '85 M.Y.
For '85 M.Y. See 33.01B

Turbo (Prior to '85 M.Y.) 33.01A
Page 2



33.01B TURBO (85 M.Y. ON)



ILLUS
NO.

QUANTITY

MAY 1991

33.01B

DESCRIPTION

PART NUMBER

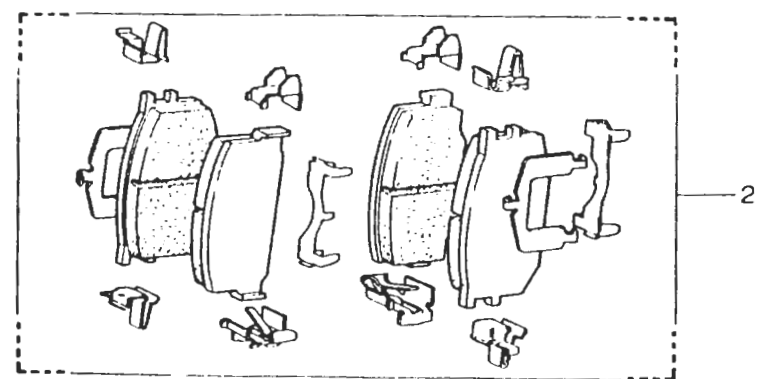
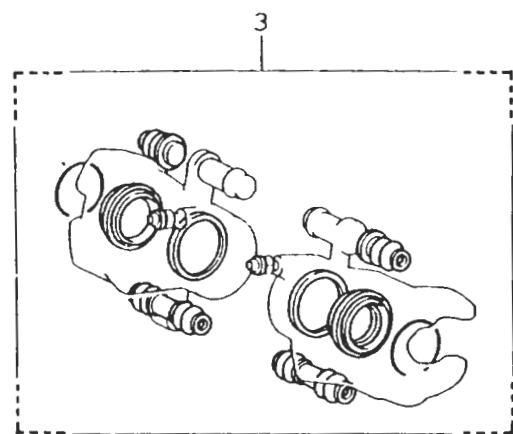
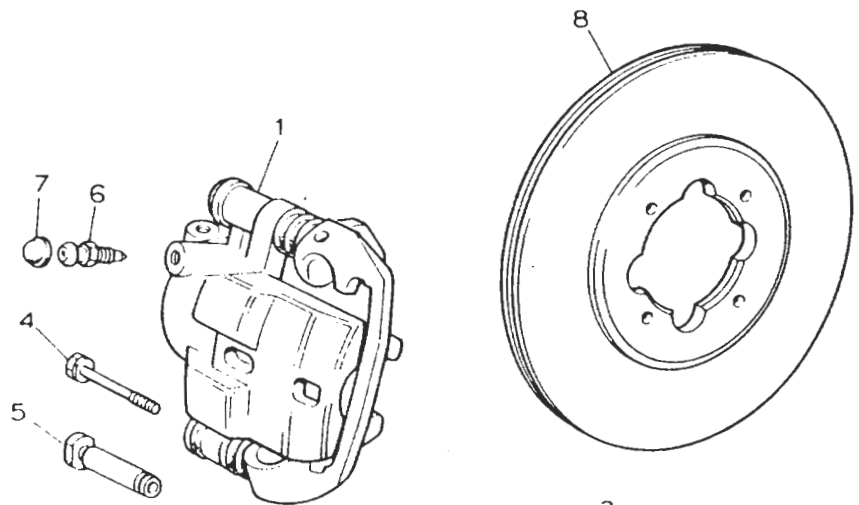
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REMARKS

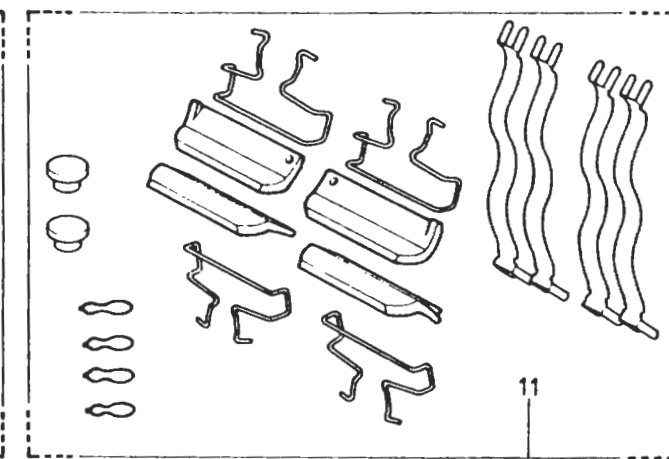
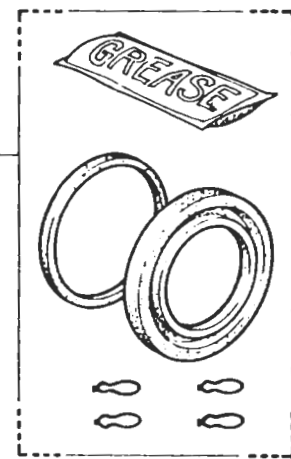
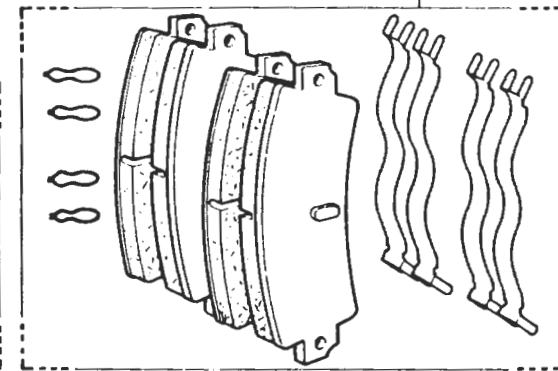
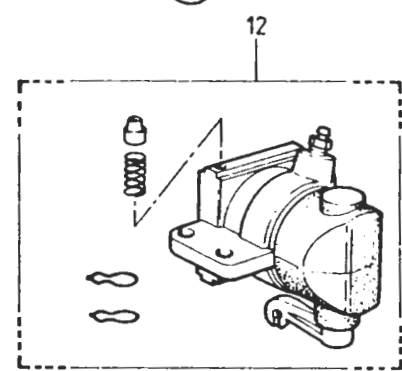
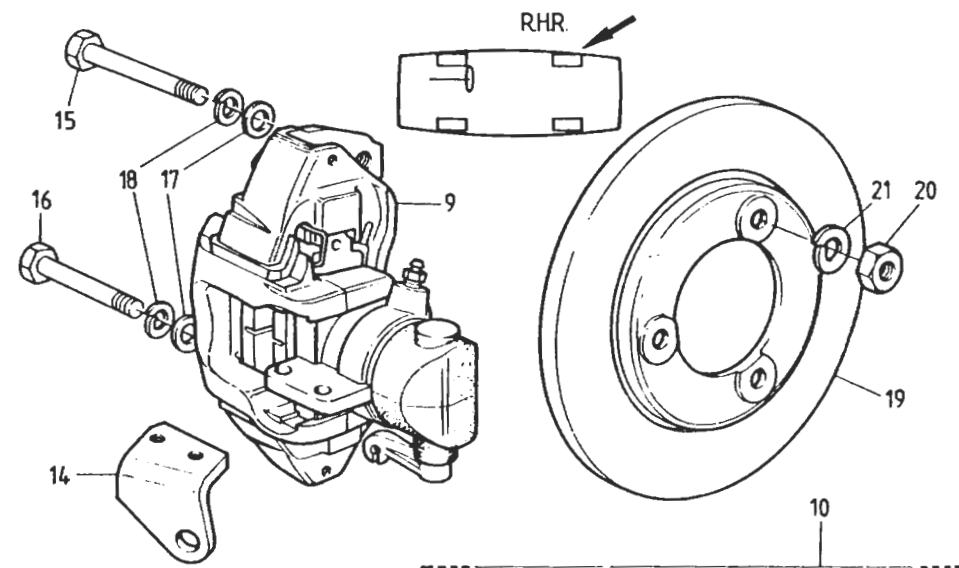
This Page '85 M.Y. Onward
For Cars Prior to '85 M.Y. See 33.01A

1	Brake Caliper Assembly, RH Front	A089J8056F	1	Less Brake Pads
	Brake Caliper Assembly, LH Front	A089J8057F	1	Less Brake Pads
2	Pad Set, Including Anti-Rattle Springs	A089J8055F	1	
3	Caliper Repair Kit, Front	A089J8025F	1	
4	Bolt, Caliper Swing Release	A089J8068F	2	
5	Bush, Lower, Caliper Sliding	A089J8069F	2	
6	Bleed Nipple, Front Caliper	A089J8026F	2	
7	Dust Cap, Bleed Nipple	A089J8013F	2	
	Bolt, Caliper Fixing	A089J0358F	4	
	Washer, Shakeproof, Caliper Fix	A075W4069F	4	
8	Brake Disc, Front, Ventilated	A089J8014F	2	
	Bolt, Brake Disc to Hub	A089C8013F	8	
	Washer, Brake Disc to Bolt	A089C8014F	8	
9	Brake Caliper Assembly, RH Rear	A082J4132F	1	Includes Brake Pads
	Brake Caliper Assembly, LH Rear	A082J4131F	1	Includes Brake Pads
10	Pad Set, Rear Calipers	A082J6076F	1	Inc. Anti-Rattle Springs & Locking Clips
11	Accessory Kit, Rear Calipers	A082J6078F	1	Inc. Anti-Rattle Springs, Locking Clips
				Retaining Plates, Springs, Bleed Caps
12	Cylinder Assembly, RH	A082J6080F	1	)Inc. Locking Pin & Spring
	Cylinder Assembly, LH	A082J6081F	1)
13	Seal Kit, Rear Caliper	A082J6079F	2	Inc. Piston Seal, Piston Boot, Locking
				Clips & Grease
14	Abutment, Park Braking Cable, RH	B082J4128F	1	
	Abutment, Parking Brake Cable, LH	B082J4127F	1	
	Setscrew, M8 x 20, Abutment/Caliper	A075W1038Z	4	
	Spring Washer, Abutment/Caliper	A075W4036Z	4	
15	Bolt, M12 x 85, Caliper Fix, Top	A082J4144F	2	
16	Bolt, M12 x 75, Caliper Fix, Bottom	A082J4145F	2	
17	Washer, Flat, Caliper Fix	A075W4028Z	4	

Turbo ('85 M.Y. On) 33.01B
Page 1



33.01B TURBO (85 M.Y. ON)



ILLUS
NO.



QUANTITY

MAY 1991

33.01B

DESCRIPTION

PART NUMBER

ALL

REMARKS

18 Washer, Spring, Caliper Fix
19 Brake Disc, Rear
20 Nut, M12, Disc Fixing
21 Washer, Spring, Disc Fixing

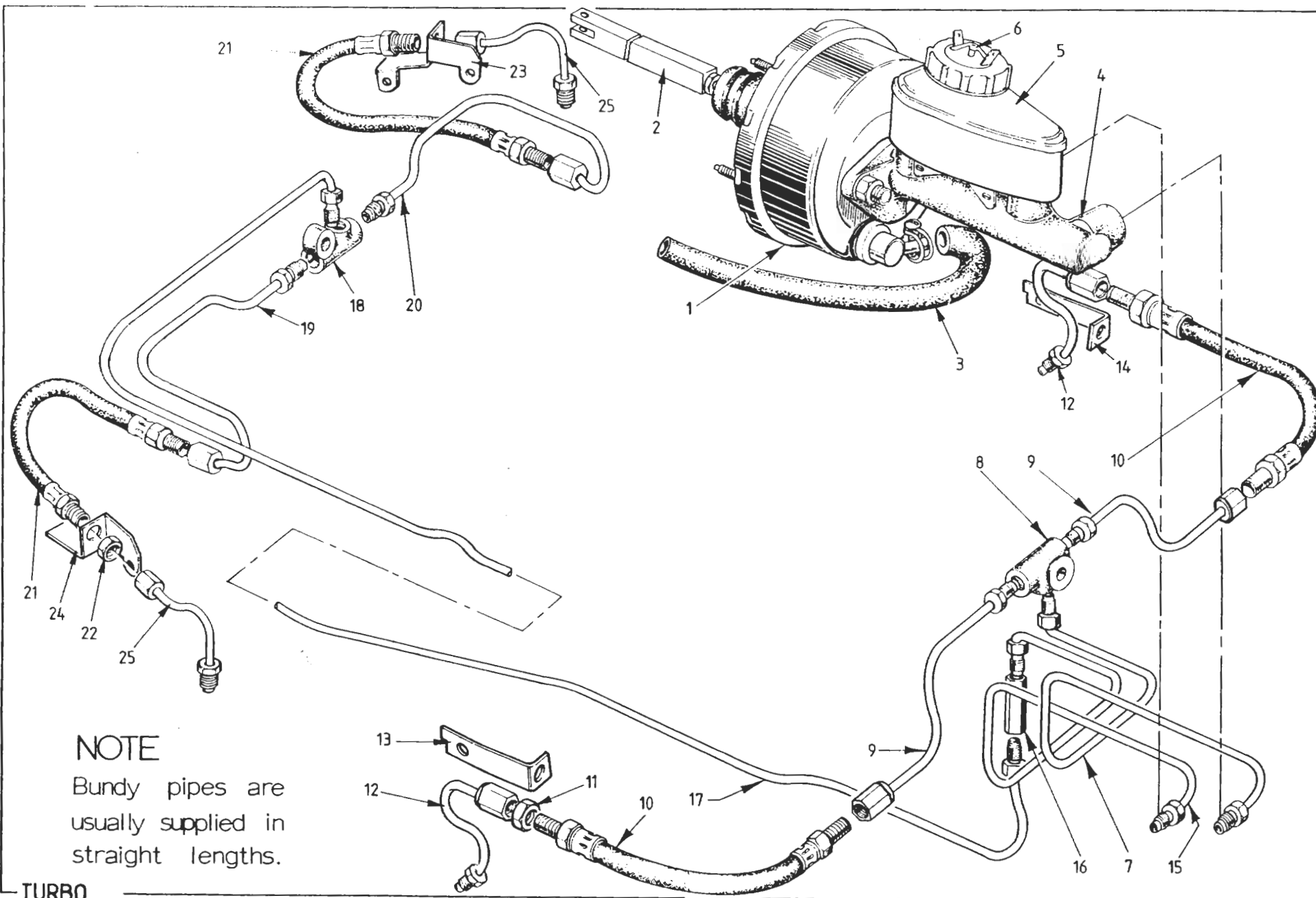
A075W4069F
A082J4124F
A079D6011F
A075W4069F

4
2
6
6

This Page '85 M.Y. Onward
For Cars Prior to '85 M.Y. See 33.01A

White Colour Code or Cast Part Number

Turbo ('85 M.Y. On) 33.01B
Page 2



TURBO
33.03A (PRIOR TO 85 MY)

ILLUS
NO.

33.03A

DESCRIPTION

PART NUMBER

QUANTITY

LHD

RHD

MAY 1991

REMARKS

1
2

Servo Assembly, Girling Type 50
 Push Rod, Brake Pedal to Servo
 Clevis Pin, Pushrod to Pedal
 Clevis Pin, Pushrod to Pedal
 Spring Clip, Clevis Retaining
 Service Kit, Brake Servo
 Non-Return Valve Kit

A075J6080F
 B079J4037F
 A079W6143F
 A082J4197F
 A075W6175F
 A075J6033F
 A075J6081F

1 1
 1 1
 1 1
 1 1
 1 1
 1 1
 1 1

This Page Prior to '85 M.Y.
 For Cars '85 M.Y. On See 33.03B

R/B A082J4197F

3

Bracket, Servo to Pedal Box
 Bracket, Servo to Pedal Box
 Spacer, Bracket to Pedal Box
 Nut, Bracket to Pedal Box
 Nut, Servo to Mounting Bracket
 Hose, Vacuum, Servo to Bundy
 Grommet, Servo Hose
 Bundy Pipe, Servo Vacuum
 Hose, Vacuum, Bundy to Manifold
 Clip, Vacuum Hose

A079J4036J
 B079J4036J
 A079J4004K
 A075W3010F
 A075W3010F
 BX75J0309K
 X036M6289Z
 A082J4091F
 A075J6078V

1 1
 1 1
 4 4
 2 2
 4 4
 1 1
 1 1
 1m 1m

R/B B079J4036J

4

Brake Master Cylinder Assy.
 Nut, M10, M/Cylinder to Servo
 Washer, M/Cylinder to Servo

A079M6132F
 A082J6064F
 A082J6068J
 A082J6069J

1 1
 2 2
 2 2

Type AS/AS

5
6

Reservoir Kit, Master Cylinder
 Fluid Level Warning Indicator
 Service Kit, Master Cylinder
 Banjo, Master Cylinder to Front Pipe
 Gasket, Banjo
 Gasket, Banjo
 Bolt, Banjo

A082J6066F
 A079J6035F
 A082J6065F
 A082J6061F
 A082J6063F
 A082J6067F
 A082J6062F

1 1
 1 1
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 1 1

Where Fitted

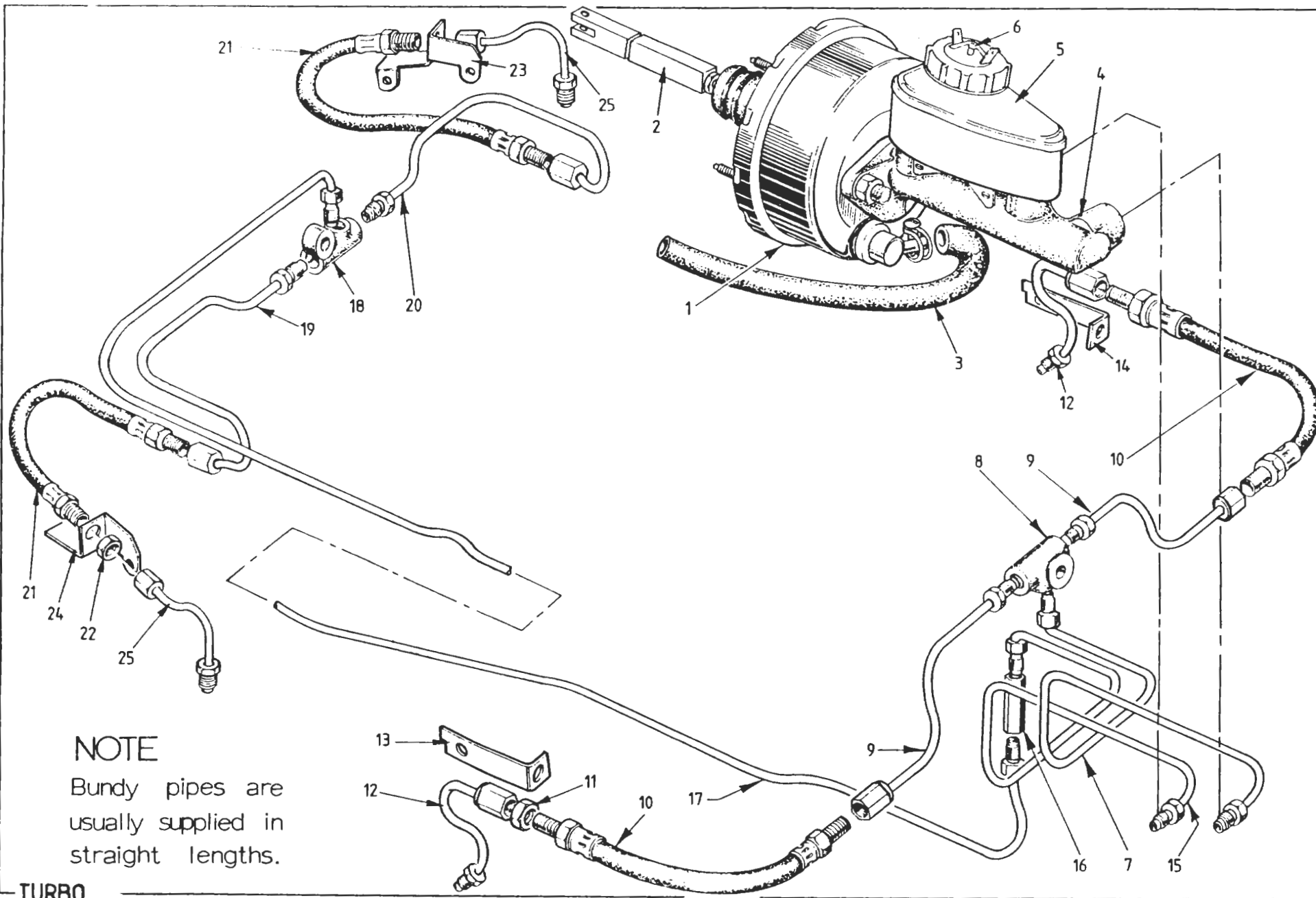
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Grommet, Pipes Thro' Bulkhead
 Pipe, Front Brake, M/C to 3-Way
 Pipe, Front Brake, M/C to 3-Way

A075L6025F
 A082J4082F
 A082J4083F

2 2
 1 1
 1

Turbo (Prior to '85 M.Y.) 33.03A
 Page 1



TURBO
33.03A

(PRIOR TO '85 MY)

ILLUS
NO.

QUANTITY

MAY 1991

33.03A

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

This Page Prior to '85 M.Y.
For Cars '85 M.Y. On See 33.03B

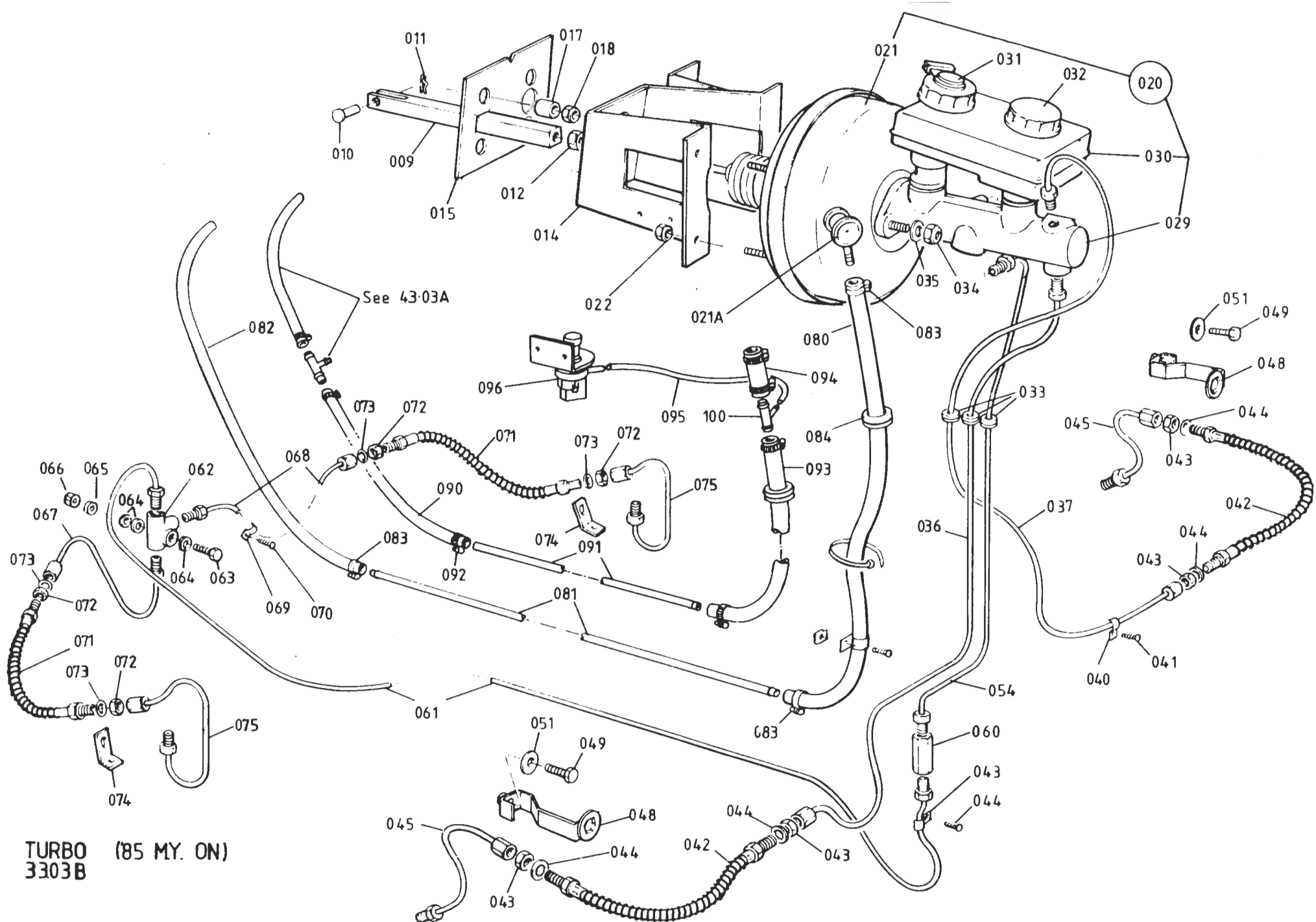
8	Union 3-Way, Front	B075J6019Z	1	1
9	Pipe, Brake, 3-Way to Hose	A079J4068F	2	2
	Clip, Brake Pipe	A075W6051Z	5	5
	Screw, Pipe Clip to Chassis	A075W5011Z	5	5
10	Hose, Front Brake	C075J6015F	2	2
11	Locknut, Front Brake Hose	A075J6017F	4	4
	Washer Shakeproof, Front Brake Hose	A075W4049Z	4	4
12	Pipe, Brake, Hose to Front Caliper	A079J4071F	2	2
13	Bracket, Caliper Pipe Support, RH	A082J4080K	1	1
14	Bracket, Pipe/Hose Support LH	A082J4081K	1	1
15	Pipe, Brake, Rear Feed	A079J4066F	1	
	Pipe, Brake, Rear Feed	A079J4072F		1
16	Union, Double Ended	A079J6020F	1	1
17	Pipe, Double Ended Union to Rear 3-Way	A082J4099F	1	1
18	Union, 3-Way, Rear	B075J6019Z	1	1
19	Pipe, Brake, 3-Way to RH Hose	A082J4100F	1	1
20	Pipe, Brake, 3-Way to LH Hose	C082J4101F	1	1
	Pipe, Brake, 3-Way to LH Hose	A082J4150F	1	1
	Clip, Brake Pipe	A075W6051Z	3	3
	Screw, Clip to Chassis	A075W5011Z	3	3
21	Hose, Rear Brake	B082J6060F	2	2
	Hose, Rear Brake Armoured	C082J6060F	2	2
22	Locknut, Rear Brake Hose	A075J6017F	4	4
	Washer, Shakeproof, 10 mm	A075W4049Z	2	2
23	Bracket, Hose/Pipe to Caliper LH	A082J4095K	1	1
24	Bracket, Hose/Pipe to Caliper RH	A082J4096K	1	1
25	Pipe, Brake, Hose to Rear Caliper	A079J4071F	2	2

Master Cylinder to Double Ended Union
Master Cylinder to Double Ended Union

850 mm
790 mm

Replaced by C082J6060F

Turbo (Prior '85 M.Y.) 33.03A
Page 2



TURBO (85 MY. ON)
3303B

ILLUS
NO.

QUANTITY

MAY 1991

33.03B

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

009 Pushrod, Brake Pedal to Servo
 010 Clevis Pin, Pedal to Pushrod
 011 Spring Clip, Clevis Retaining
 012 Locknut, Servo Pushrod
 014 Bracket, Servo & Clutch M/Cylinder Mtg.
 015 Gasket, Servo Bracket to Body
 017 Spacer, Bracket to Pedal Box
 018 Nut, Nyloc, M8, Brkt. to Pedal Box
 Washer, Spring, Brkt. to Pedal Box
 020 Servo/Brake Master Cylinder Assy.
 021 Servo Assembly, (Bendix DBA)
 021A Non Return Valve & Seal
 022 Nut, Nyloc, M7, Servo to Bracket
 Washer, Spring, Servo to Bracket
 029 Brake Master Cylinder Assy.
 030 Reservoir, Brake Master Cylinder
 031 Fluid Level Warning Switch (Nivocode)
 032 Cap, Filler, Fluid Reservoir
 Repair Kit, Master Cylinder
 033 Grommet Pipes Through Body
 034 Nut, Nyloc, M8, M/Cylinder to Servo
 035 Washer, Flat, M/Cylinder to Servo
 036 Pipe, Brake, M/Cylinder to RHF Hose
 Pipe, Brake, M/Cylinder to RHF Hose
 037 Pipe, Brake, M/Cylinder to LHF Hose
 Pipe, Brake, M/Cylinder to LHF Hose
 040 Clip, Brake Pipe to Chassis
 041 Screw, Pipe Clip to Chassis
 042 Hose, Front Brake
 043 Locknut, Front Brake Hose
 044 Washer, Shakeproof, Brake Hose
 045 Pipe, Brake Hose to Front Caliper
 048 Bracket, Pipe/Hose Support
 049 Setscrew, M6 x 20, Brkt. to Caliper
 Screw, Socket Head, M6 x 20

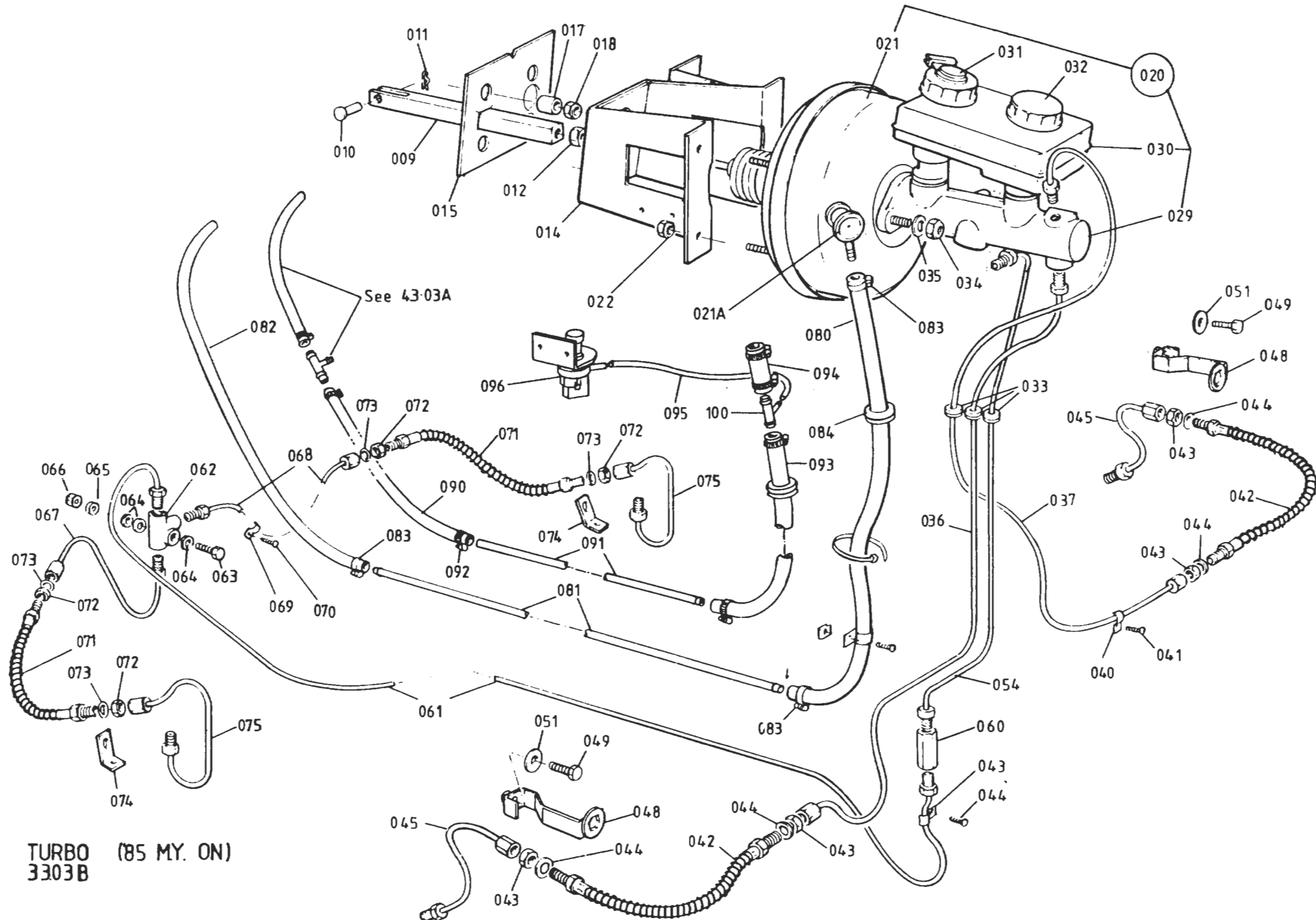
A082J4139F
 A082J4197F
 A075W6175F
 A075W3024Z
 A082J4143J
 A082J4156F
 A079J4004K
 A075W3010Z
 A075W4036Z
 A082J4147F
 A082J4134H
 A082J6084F
 A079F6023F
 A075W4036Z
 A082J4133H
 A082J4135H
 A082J4136H
 A082J4137H
 A082J6082F
 A075L6025F
 A075W3010Z
 A075W4020Z
 A082J4154F
 A082J4152F
 A082J4155F
 A082J4151F
 A075W6051Z
 A075W5011Z
 B089J6012F
 A075J6017Z
 A075W4049Z
 A089J0338F
 A089J0350F
 A075W1030Z
 A082W7041F

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This page for '85 M.Y. on
For cars prior 1985 see 33.03A

Inc. Reservoir Low Fluid Switch & Cap
 Inc. N.R.V.

R/B A082W7041F
 Turbo ('85 M.Y. on) 33.03B
 Page 1



ILLUS
NO.

33.03B

DESCRIPTION



QUANTITY

MAY 1991

PART NUMBER

RHD

LHD

REMARKS

051	Washer, Flat, Brkt. to Caliper	A075W4016Z	2	2	<u>This page '85 M.Y. on</u> <u>For cars prior 1985 see 33.03A</u>
	Washer, Shakeproof, Brkt. to Caliper	A075W4046F	2	2	
	Nut, M6, Brkt. to Caliper	A075W9017F	2	2	
054	Pipe, Rear Brake M/Cyl. to D/E Union	A079J4066F	1		
	Pipe, Rear Brake, M/Cyl. to D/E Union	A079J4072F		1	
060	Union, Double Ended	A079J6020F	1	1	
061	Pipe, Rear Brake, D/E Union to 3-Way	A082J4099F	1	1	
062	Union, 3-Way, Rear	B075J6019Z	1	1	
063	Bolt, M6 x 40, 3-Way Union to Chassis	A075W2030F	1	1	
064	Washer, Spacer, 3-Way Union	A075W4014F	3	3	
065	Washer, Flat, Union Fix	A075W4013F	1	1	
066	Nut, Nyloc, M6, Union Fix	A075W3009F	1	1	
067	Pipe, Brake, 3-Way to RHR Hose	A082J4100F	1	1	
068	Pipe, Brake, 3-Way to LHR Hose	C082J4101F	1	1	
069	Clip, Brake Pipe to Chassis	A075W6051Z	3	3	
070	Screw, Pipe Clip to Chassis	A075W5011Z	3	3	
071	Hose, Rear Brake	C082J6060F	2	2	
072	Locknut, Rear Brake Hose	A075J6017F	4	4	
073	Washer, Shakeproof, Brake Hose	A075W4049Z	4	4	
074	Bracket, Rear Hose to Caliper	A082J4149F	2	2	
075	Pipe, Brake, Rear hose to Caliper	A082J4148F	2	2	
080	Hose, Vacuum, Servo to Bundy	BX75J0309K	1	1	
081	Bundy Pipe, Servo Vacuum, Thro' Chassis	A082J4091F	1	1	> Prior
082	Hose, Vacuum Bundy to Manifold	A075J6078V	1054	1054	mm. See S/B 1984/17 > '87
083	Hose Clip, Vac. Hose	A075M6132F	4	4	> M.Y.
084	Grommet, Servo Vac. Hose	X036M6289Z	1	1	>
090	Hose, Vacuum, T-Piece to Bundy	A075J6078V	230mm	230mm)
091	Pipe, Bundy, Servo Vacuum	A082J4115F	1	1)
092	Clip, Hose	A082L6042F	8	8	) '87 M.Y. on
093	Hose, Vacuum, Bundy to T-Piece	A075J6078V	800mm	800mm)
094	Hose, Vacuum, T-Piece to Servo	A075J6078V	100mm	100mm)
095	Pipe, Vacuum, T-Piece to Low Vacuum Switch	A910E6640V	200mm	200mm)

Turbo ('85 M.Y. On) 33.03B
Page 2

ILLUS
NO.



QUANTITY

33.03B

DESCRIPTION

PART NUMBER

RHD

LHD

REMARKS

096

Switch, Low Vacuum
Screw, s/t, No.6 x $\frac{1}{2}$ ", Switch Fixing
Nut, Spire, No.6, Switch Fixing

A082M6234F

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A075W5015Z

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) '87 M.Y. on

A075W6013Z

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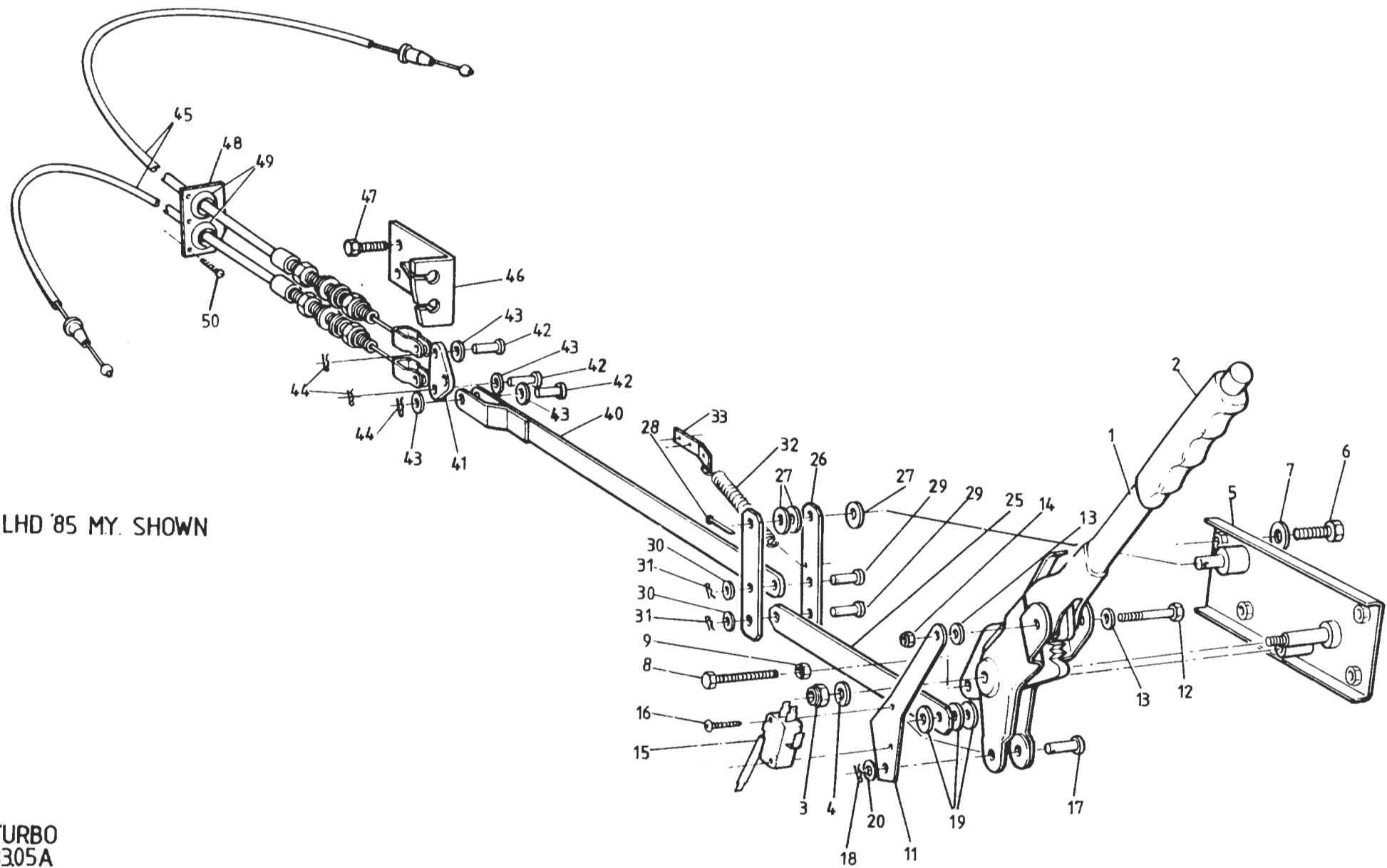
'T'-Piece, Low Vacuum Switch Take-Off

A910E6644F

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LHD '85 MY. SHOWN

TURBO
3305A

ILLUS
NO.

QUANTITY

MAY 1991

33.05A

DESCRIPTION

PART NUMBER

PRIOR
'85 MY1985
M.Y. ON

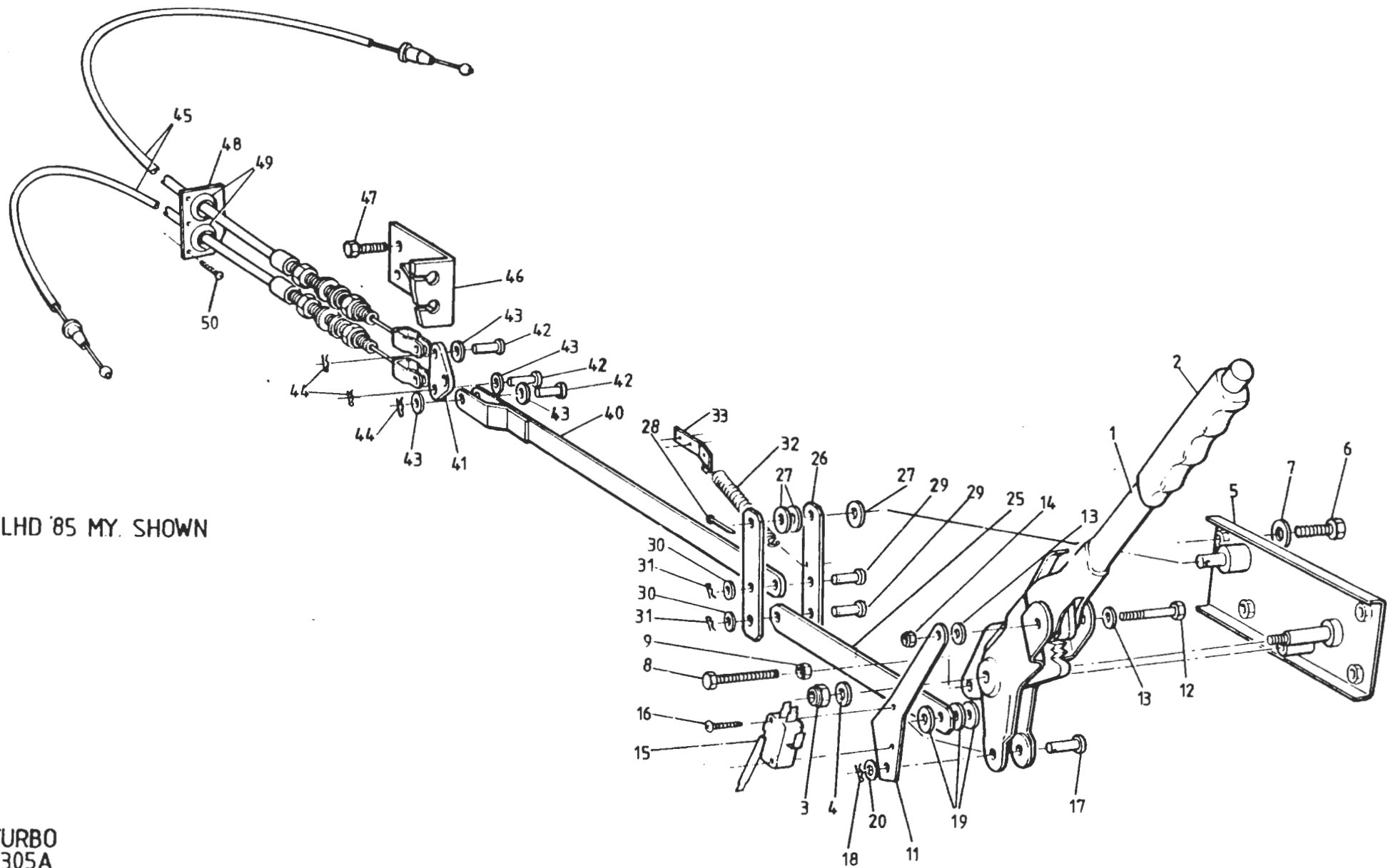
REMARKS

Multiplier Lever Introduced at VIN
82D 1695. 82 A/E/G/H/S 0531

1	Handbrake Lever Assembly	A079J6000F	1		Without Multiplier
2	Handbrake Lever Assembly	A082J6071F	1		With Multiplier
2	Handbrake Lever Assembly	A082J4157F		1	'Fold Down' Type
2	Grip, Handbrake Lever	A079J6050F	1	1	
3	Nut, Nyloc, M10, Lever Pivot	A075W3011F	1		) As Fitted
3	Nut, Nyloc, M8, Lever Pivot	A075W3010F	1	1)
4	Washer, Flat, 10mm, Lever Pivot	A075W4023F	1		>
4	Washer, Flat, 8mm, Lever Pivot	A075W4019F	1	1	> As Fitted
	Mounting Plate, Handbrake Lever	E079U4216K	1		RHD) Without Multiplier
	Mounting Plate, Handbrake Lever	B079U4319K	1		LHD)
5	Mounting Plate, Handbrake Lever	C082B4478J	1	1	RHD > With Multiplier
5	Mounting Plate, Handbrake Lever	C082B4479J	1	1	LHD >
6	Setscrew, Mounting Plate to Sill	A075W1038Z	3		Without Multiplier
6	Setscrew, Mounting Plate to Sill	A075W1039Z	4	4	With Multiplier
7	Washer, Mounting Plate to Sill	A075W4002Z	3		Without Multiplier
7	Washer, Large O/D, Mtg. Plate to Sill	A075W4022Z	4	4	With Multiplier
8	Setscrew, M6 x 30, Ratchet Fixing	A075W1032Z	1	1	Also Operates Handbrake Switch
9	Nut, M6, Ratchet Fixing	A075W3020Z	1	1	
	Washer, Spring, Ratchet Fixing	A075W4035Z	1	1	
11	Mounting Bracket, Handbrake Microswitch	A082U4909F	1	1	
12	Setscrew, M6 x 30, Switch Brkt. Fix	A075W1032Z	1	1	
13	Washer, Flat Switch Brkt. Fix	A075W4013Z	2	2	
14	Nut, Nyloc, M6, Switch Brkt. Fix	A075W3009Z	1	1	
15	Microswitch, Handbrake Tell-tale	B075M6084Z	1	1	
16	Screw, s/t, Switch to Brkt.	A075W5027Z	2	2)
	Screw, M3 x 16, Switch to Brkt.	A082W5110F	2	2	)As Required
	Nut, Nyloc, M3, Switch to Brkt.	A079W3060F	2	2)
17	Clevis Pin, Handbrake to Link/Act. Rod	A079W6026F	1	1	
18	Spring Clip, Clevis Retaining	A079W6175F	1	1	
19	Washer, Handbrake Clevis	A075W4016F	3	3	
20	Washer, Clevis Spring Clip	A075W4015F	1	1	

Turbo 33.05A

Page 1



LHD '85 MY. SHOWN

TURBO
3305A

ILLUS
NO.

QUANTITY

Part 1

33.05A

DESCRIPTION

PART NUMBER

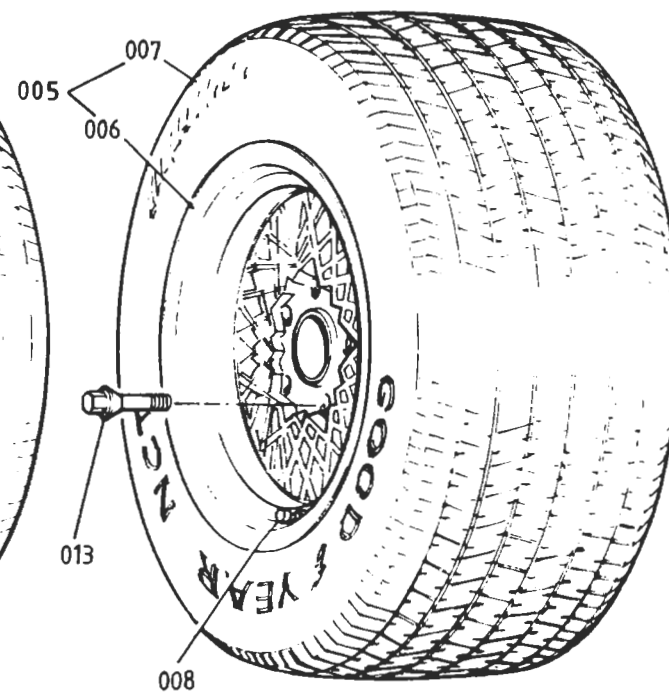
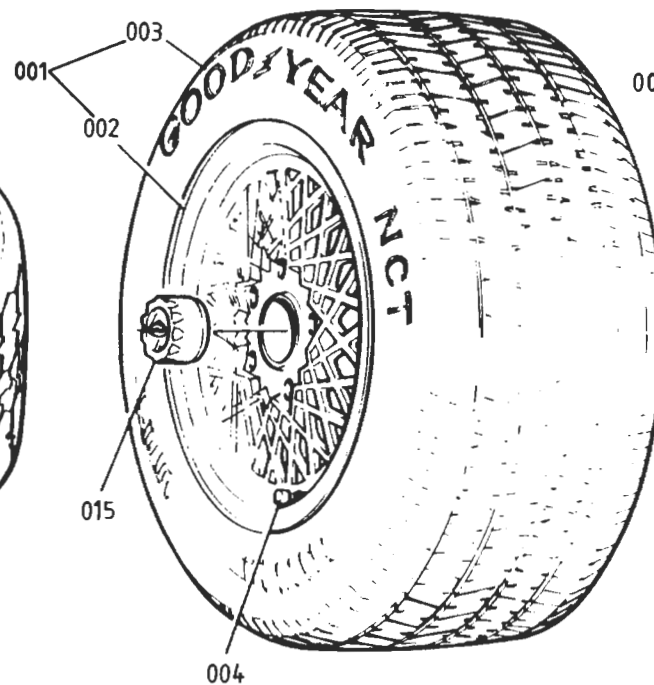
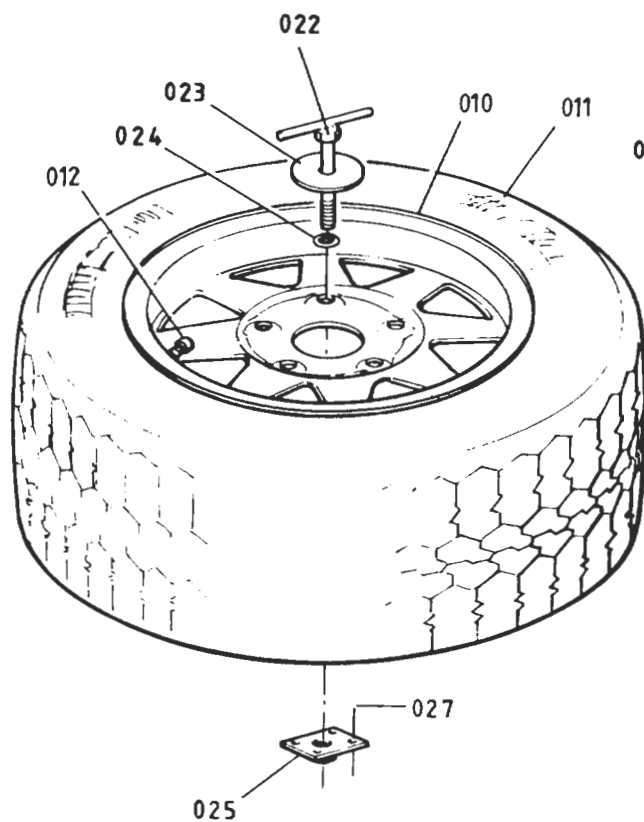
PRIOR
'85 MY1985
M.Y.ON

REMARKS

					<u>Multiplier Lever Introduced at VIN</u> <u>82D 1695, 82 A/E/G/H/S 0531</u>
25	Link, Handbrake to Multiplier	A082J4122K	1	1)
	Multiplier Lever	A082J4121K	2)
26	Multiplier Lever	B082J4121K		2)
27	Washer, Multiplier Lever Pivot	A075W4024Z	3	3)
28	Split Pin, Multiplier Lever Pivot	A075W6009Z	1	1	)With Multiplier
29	Clevis Pin, Multiplier Lever	A075W6031Z	2	2)
30	Washer, Multiplier Clevis	A075W4015Z	2	2)
31	'R' Pin, Clevis Retaining	A075W6175Z	2	2)
32	Spring, Lever Return	A082J6075F		1	
33	Anchor Bracket, Return Spring	A082J4159F		1	
	Pop Rivet, Anchor Bracket to Body	A075W6090Z		2	
	Actuating Rod, Handbrake Lever/Compensator	B079J4024F	1		Without Multiplier
40	Actuating Rod, Multiplier/Compensator	A082J4120F	1	1	With Multiplier
41	Compensator, H/Brake Cables	A079J4023F	1	1	
42	Clevis Pin, Compensator	A075W6033F	3	3	
43	Washer, Clevis Pin	A075W4020F	3	3	
44	Spring Clip, Clevis Retaining	A075W6175F	3	3	
	Cable, Handbrake	A082J6056F	2		
45	Cable, Handbrake	A082J4138F		2	
	Cable Tie, Handbrake Cable	A082W6286F		3	Used if no Chassis tags Fitted
	Abutment, Handbrake Cable, Forward	E079J4021F	1	1	RHD
46	Abutment, Handbrake Cable, Forward	E079J4022F	1	1	LHD
47	Setscrew, M8 x 25, Abutment to Body	A075W1039F	2	2	
	Washer, Spring, Abutment to Body	A075W4036F	2	2	
48	Grommet Plate, Handbrake Cables	A079U4483F	2	2	
49	Grommet, Handbrake Cable	A075U6043Z	4	4	
50	Screw, Grommet Plate Fix	A075W5015Z	8	8	

Turbo 33.05A

Page 2



TURBO
3401A

ILLUS
NO.

QUANTITY

MAY 1991

34.01A

DESCRIPTION

PART NUMBER

PRIOR
'85 MY1985
M.Y.ON

REMARKS

Road Wheel & Tyre Assembly, Front
Road Wheel, Front
Tyre, Front, 195/60 VR15 Goodyear
Valve, Tyre, Front Road Wheel
Road Wheel and Tyre Assembly, Rear
Road Wheel, Rear
Tyre, Rear, 235/60 VR15 Goodyear
Valve, Tyre, Rear Road Wheel
Badge, Wheel Centre
Wheel Nut
Wheel and Tyre Assembly, Spare
Wheel, Spare
Tyre, Spare, 175/70 SR14 Goodyear
Valve, Tyre, Spare Wheel

A082G4029F
A082G4024F
A082G4038H
A082G6017F
A082G4030F
A082G4025F
A082G4039H
A082G6018F
A074G6004Z
A079G6011F
A082G4044F
A082G4033H
A082G6019H
A085G6025H

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) Compomotive (Split Rim) Wheels
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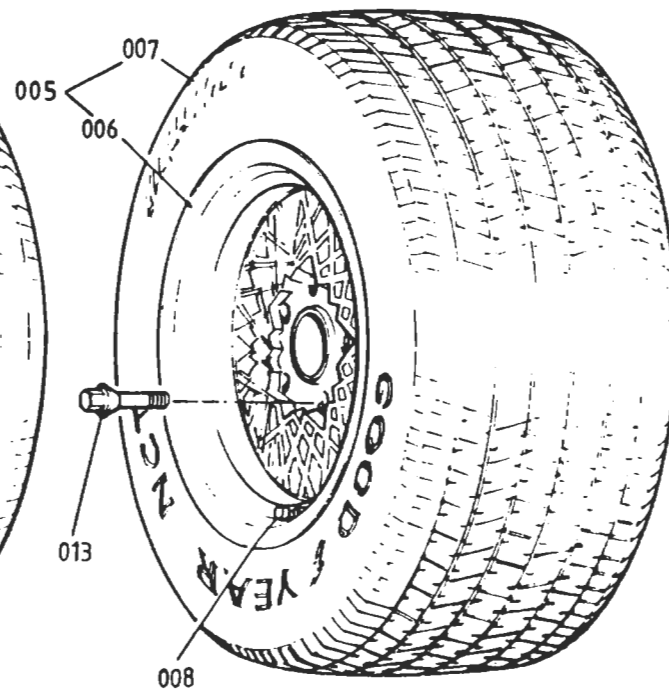
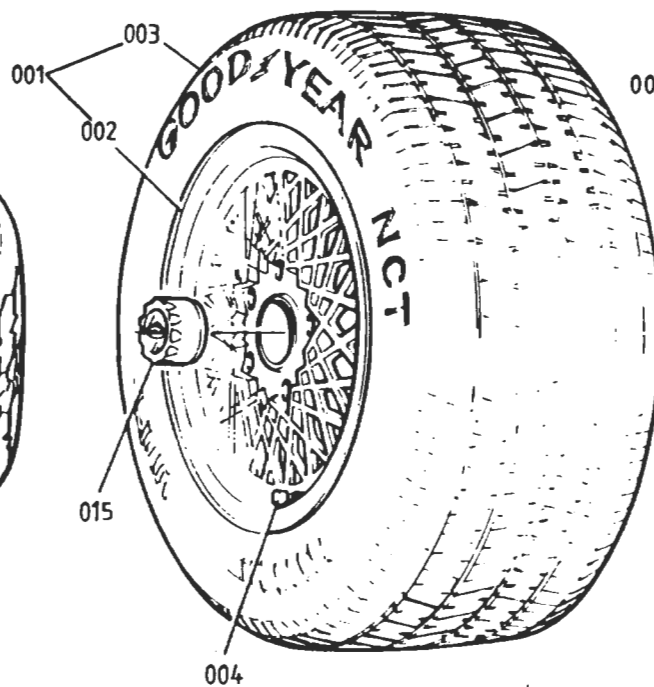
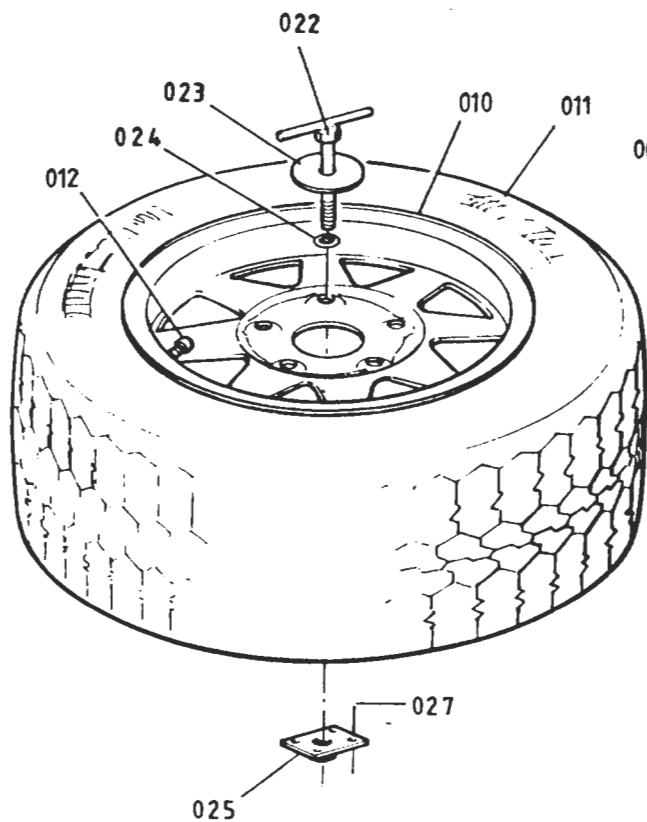
001 Road Wheel & Tyre Assembly, Front
Road Wheel & Tyre Assembly, Front
002 Road Wheel, Front
003 Tyre, Front, 195/60 VR15 Goodyear NCT
Tyre, Front, 195/60 VR15 Goodyear NCT
004 Valve, Front Tyre
005 Road Wheel & Tyre Assembly, Rear
Road Wheel & Tyre Assembly, Rear
006 Road Wheel
007 Tyre, Rear, 235/60 VR15 Goodyear NCT
Tyre, Rear, 235/60 VR15 Goodyear NCT
008 Valve, Rear Tyre
009 Wheel & Tyre Assembly, Spare
Wheel & Tyre Assembly, Spare
010 Wheel, Spare
Wheel, Spare

B082G4050F
A082G4059F
A082G6020H
A082G4038H
A082G4060H
A082G6027H
A082G4058F
A082G4061F
A082G6021H
A082G4057H
A082G4062H
A082G6027H
A082G4046F
A082G6029F
A082G4045H
A082G6028H

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R/B A082G6028H >
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Turbo 34.01A
Page 1



TURBO
3401A

ILLUS
NO.



QUANTITY

MAY 1991

34.01A

DESCRIPTION

PART NUMBER

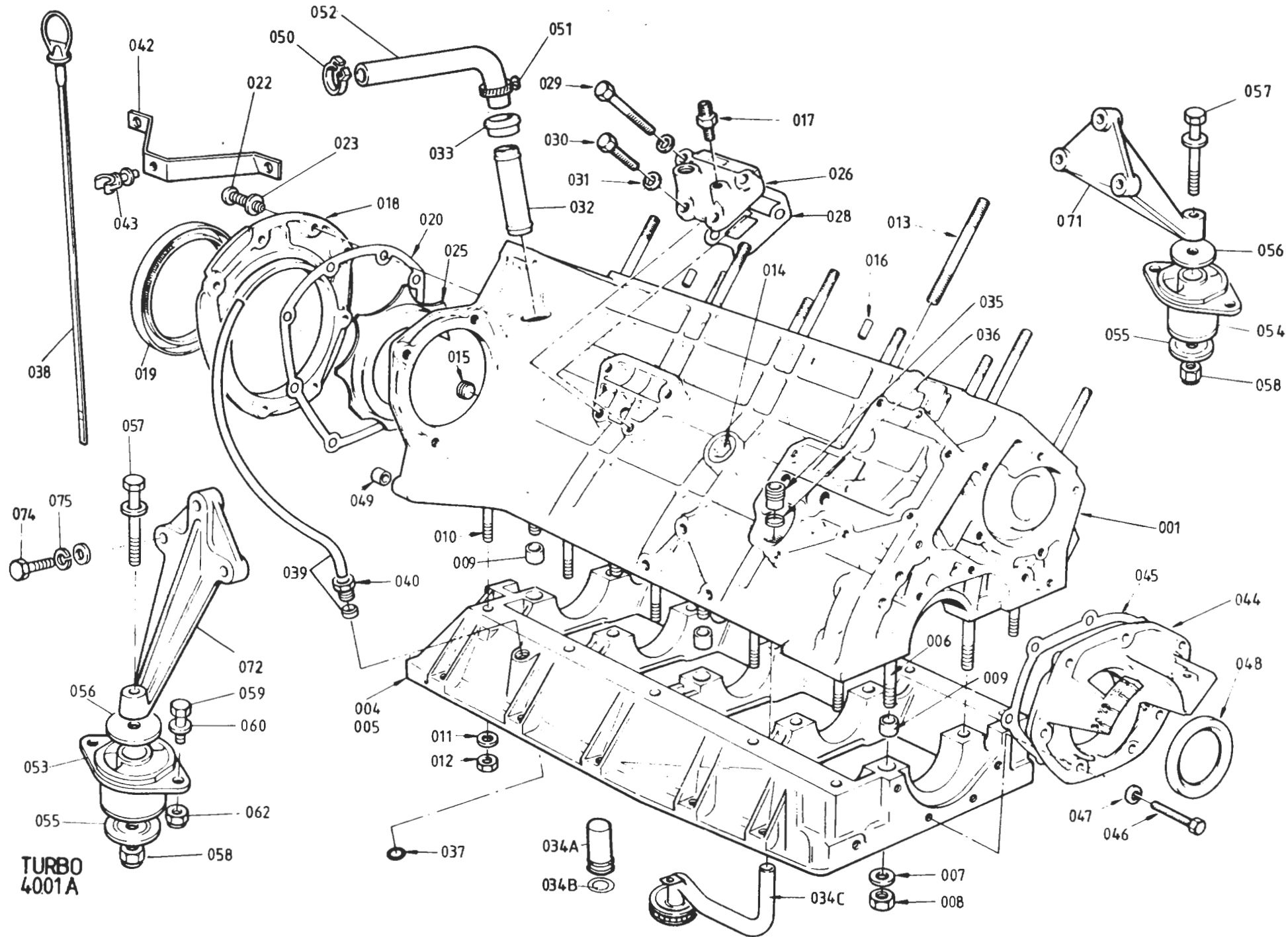
PRIOR
85 M.Y.

1985
M.Y. ON

REMARKS

011	Tyre, Spare, 175/70 SR14, Goodyear	A082G6019H	1	1)
012	Valve, Spare Tyre	A085G6025H	1	1	)BBS Wheels
013	Wheel Bolt	A082G6023F	20	20)
015	Finisher, Wheel Centre (With 'Old' Badge)	A082G4053J	4)
	Finisher, Wheel Centre (With 'New' Badge)	A085G4063J	4	4)
022	Clamp Bolt, Spare Wheel Securing	C082U4763K	1	1	
023	Clamp Plate	A075U0492Z	1	1	
024	'O' Ring, Clamp Bolt	A912E6398F	1	1	
025	Tapping Plate, Clamp Bolt	A079U4341K	1	1	
027	Pop Rivet, Tapping Plate to Body	A075W6068F	4	4	

Turbo 34.01A
Page 2



ILLUS
NO.

QUANTITY

MAY 1991

40.01A

DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

001

Cylinder Block & Main Bearing Housing

A910E0984J

1

>Inc. Items Up to 012

Cylinder Block & Main Bearing Housing

B912E0750J

1

>

Cylinder Block & Main Bearing Housing

A910E9195J

1

H.C.>

Stud, M12 x 183, Block to MBH

A908E0225Z

10

Heater Only

Stud, M12 x 183, Block to MBH

A908E0225Z

7

)With A/C

Stud, M12 x 192, Block to MBH

A907E0224Z

3

)

006

Stud, M12, Block to MBH

A907E0225Z

10

007

Washer, Flat, Block to MBH

A910E2383Z

10

10

008

Nut, M12, Block to MBH

A910E6903Z

10

10

009

Ring Dowel, Block to MBH

A911E0320F

10

10

Stud, M8 x 47 Block to MBH

A910E1396K

9

Stud, M8 x 41 Block to MBH

A907E0128Z

1

010

Stud, M8, Block to MBH

A907E0226Z

10

011

Washer, Flat, Block to MBH

A075W4020Z

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10

012

Nut, M8, Block to MBH

A075W3021Z

10

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013

Stud, M12, Cylinder Head to Block

A907E0224Z

10

10

014

Plug, 1" NPTF, Cylinder Block

A907E0528Z

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015

Plug, 1/4" BSP, Oil Gallery

A907E6063Z

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016

Spirol Pin, Cylinder Head to Block

A907E6007Z

2

2

017

Union, Oil Pressure Gauge Take-Off

A907E0625Z

1

1

018

Housing, Rear Crank Seal

A907E0599Y

1

1

R/B C907E0599Y

Housing, Rear Crank Seal

C907E0599Y

1

1

019

Seal, Crankshaft Rear, (Red)

A907E0631Z

1

1

R/B A912E2334F

Seal, Crankshaft Rear, (Black)

A912E2334F

1

020

Gasket, Rear Seal Housing

A907E0671Z

1

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022

Setscrew, M6 x 25, Rear Housing/Block

A075W1031F

4

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R/B A075W7016Z

023

Washer, Flat, Rear Housing/Block

A075W4013Z

4

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R/B A075W4065Z

Button Head Screw, Housing/Block & MBH

A075W7016Z

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8

Washer, Thin, Housing/Block & MBH

A075W4065Z

8

8

025

Sprayshield

B907E0662Z

1

1

026

Cover, Oil Gallery

B910E1400K

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1

Std.

Cover, Oil Gallery

A910E2328K

1

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Switch, Oil Pressure, 17.6 PSI

A910E6866F

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)H.C.

Sealing Washer, Switch

A910E6831F

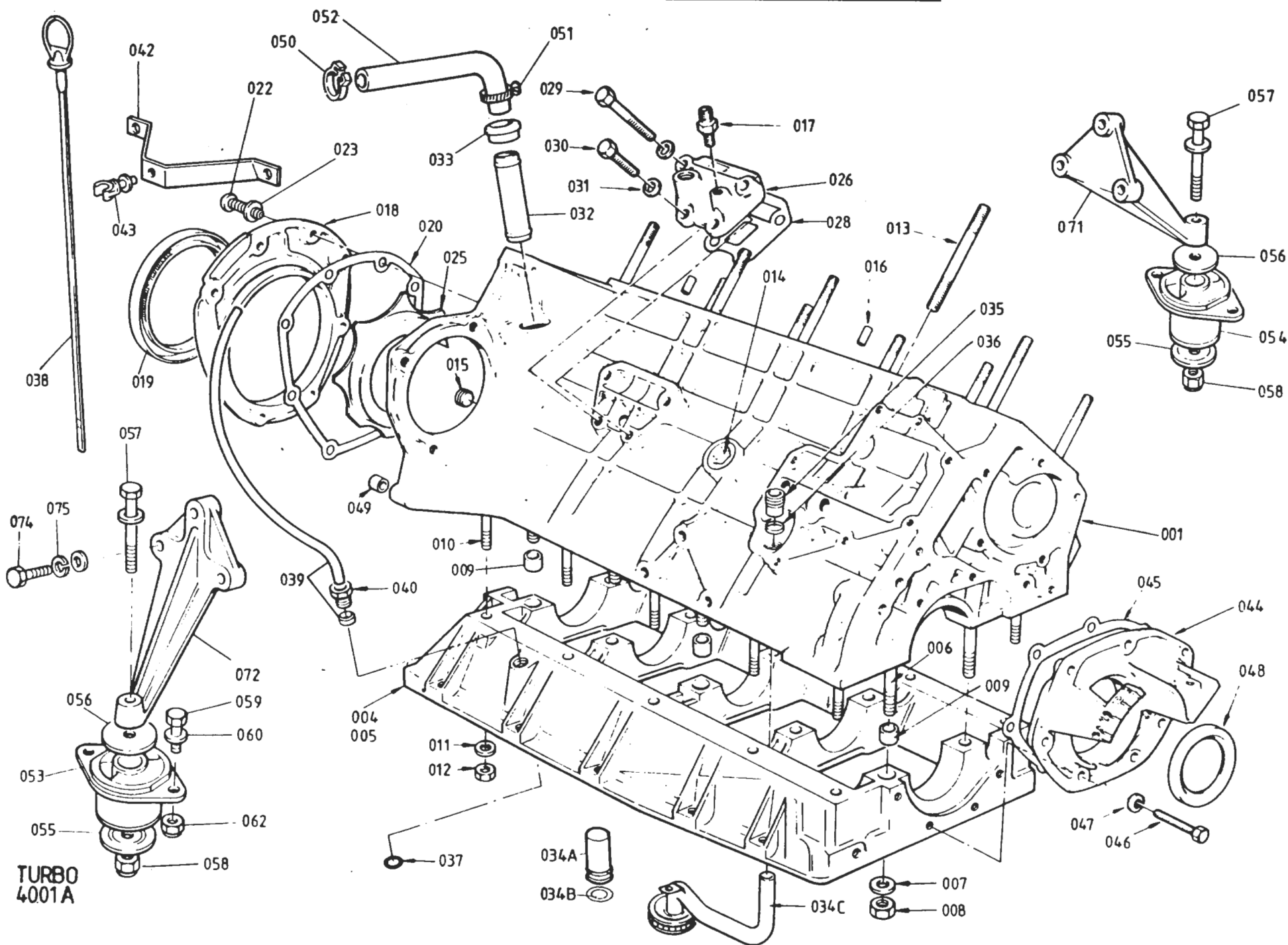
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Turbo 40.01A

Page 1

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TURBO
4001A

ILLUS
NO.

QUANTITY

MAY 1991

REMARKS

40.01A

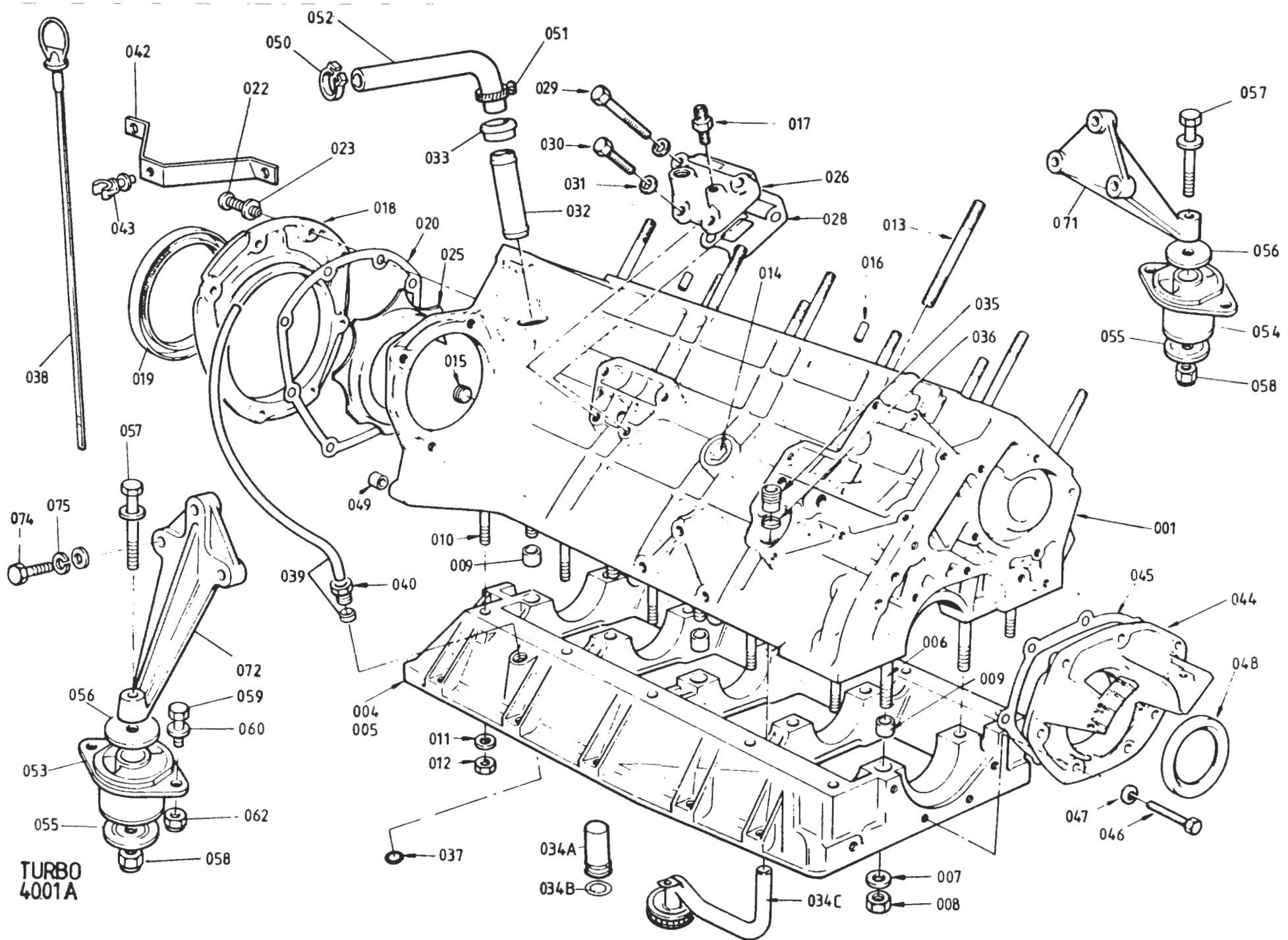
DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

028	Gasket, Oil Gallery	A907E0438Z	1	1
029	Bolt, M8 x 35, Oil Gallery Cover	A075W1041Z	2	2
030	Setscrew, M8 x 20, Oil Gallery Cover	A075W1038Z	2	2
031	Washer, Flat, Oil Gallery Cover	A075W4020Z	4	4
032	Spout, Crankcase Breather	B907E0626Z	1	1
033	Bush, Breather Spout	A907E0659Z	1	1
034A	Pipe, Oil Feed	B908E1282K	1	
034B	'O' Ring, Oil Feed Pipe/MBH	A908E6420F	1	
034C	Pipe, Oil Pick Up	A907E0624Z		1
035	Union, Oil Pick Up/Feed Pipe	A907E0605Z	1	1
036	Olive, Compression, Oil Pipe	A907E0606Z	1	1
037	'O' Ring, Dipstick Tube	A912E6398F		1
038	Dipstick	A910E1792F		1
039	Tube, Dipstick, (c/w Olive)	A910E9020K		1
	Tube, Dipstick, (c/w Olive)	A910E9038J		1
040	Tube Nut, Dipstick Tube	A911E6378F		1
042	Bracket, Dipstick Tube to Plenum	B910E1793F		1
	Bracket, Dipstick Tube to Plenum	A910E1902F		1
043	Clip, Plastic, Dipstick Tube Bracket	A910E6592F		1
044	Front Cover	A907E1230F	1	1
045	Gasket, Front Cover	A907E0245Z	1	1
046	Setscrew, M6 x 25, Front Cover	A075W1031Z	7	7
047	Washer, Flat, Front Cover	A075W4013Z	7	7
048	Seal, Crankshaft Front	B907E6010F	1	1
049	Dowel, Engine to Clutch Housing	A907E6181Z	2	2
050	Snapper Clip, Breather Hose	A075W6211Z	1	1
051	Hose Clip, Breather Hose	A907E6085Z	1	1
	Hose, Breather, Crankcase/Oil Tank	B907E0636Z	1	
	Hose, Breather, Crankcase/Turbo Intake	B907E1795Z		1
	Hose, Breather, Crankcase/Turbo Intake	A910E1842F		1
052	Hose, Breather, Crankcase/Air Filter	A911E0636F		1
	Mounting Rubber, Engine	X046D6000F	2	
	Mounting Rubber, Engine, Blue	A085E6012F	2	

Std.
H.C.Std.
H.C.R/B A910E1842F) Std. Engine Only.
) For 'H.C.' See 43.03A
)R/B A085E6012F sets of 4 (inc.Trans.Mtg.)
Fixing Hole Cntr. 91mm.Up to VIN 82D 1008Turbo 40.01A
Page 2



ILLUS
NO.

MAY 1991

40.01A

DESCRIPTION

PART NUMBER

QUANTITY

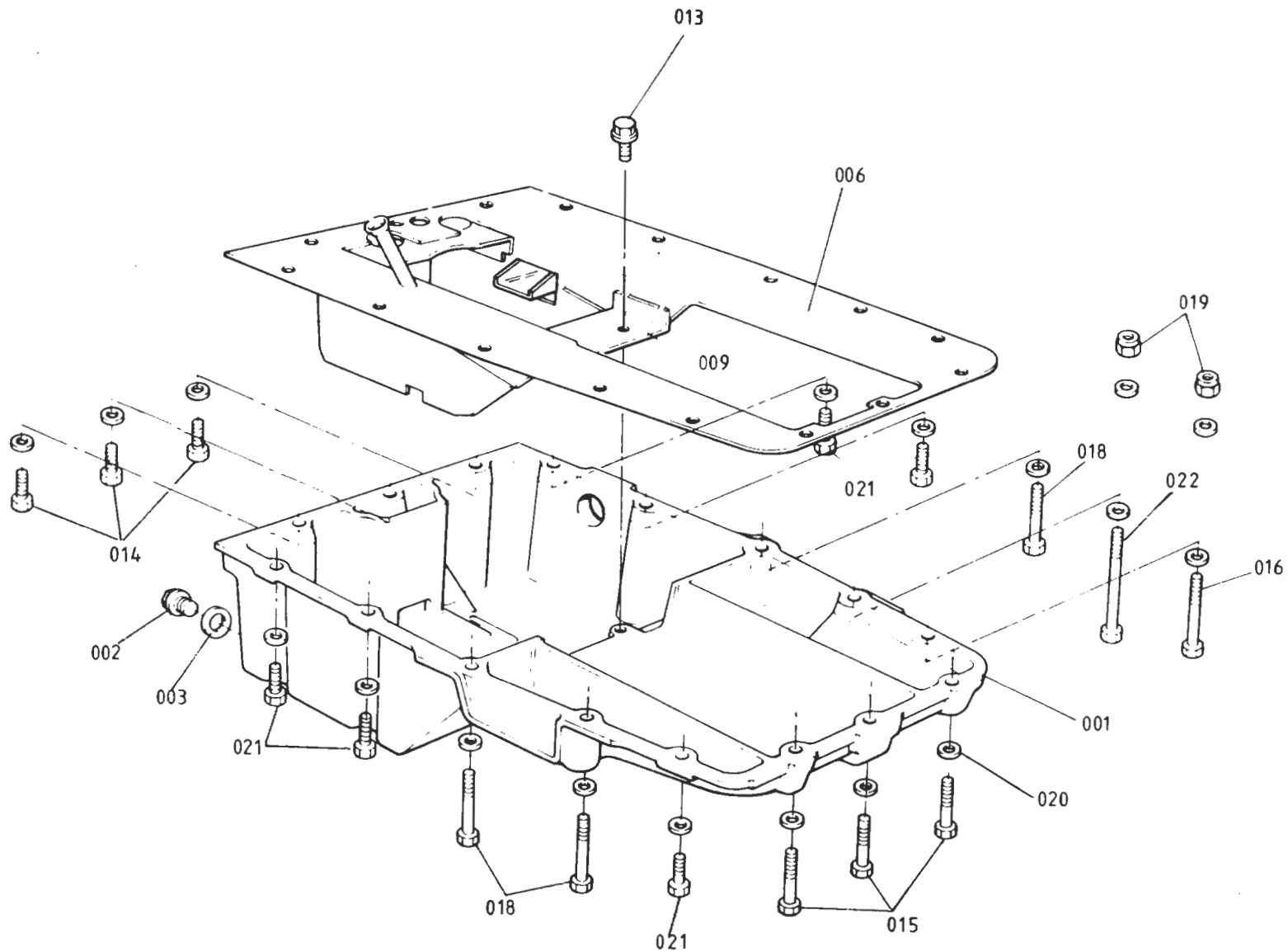
DRY
SUMPWET
SUMP

REMARKS

	Buffer Washer, Mtg. Brkt. to Rubber	A075W4006F	2)
	Bolt, 7/16" UNF x 3½", Mtg. Brkt./Rubber	A079W2084F	2)
	Washer, Flat, Mtg. Brkt./Rubber	A075W4005F	2)
	Nut, Nyloc, 7/16" UNF, Mtg. Brkt./Rubber	A075W3004F	2		)Use With Mtg. Rubber A085E6012F
	Setscrew, M8 x 20, Mtg. Rubber/Chassis	A079W2084F	2)
	Washer, Flat, Mtg. Rubber/Chassis	A075W4020F	8)
	Nut, Nyloc, M8	A075W3010F	4)
053	Mounting Rubber, Engine, RH, Blue	B085E6008F	1	1	>Fixing Hole Centres 82mm From
054	Mounting Rubber, Engine, LH, Pink	B085E6009F	1	1	>VIN 82D 1009
055	Buffer Washer, Lower	A085E6010F	2	2)
056	Buffer Washer, Upper	A085E6011F	2	2)
057	Bolt, M12 x 100, Rubber to Mtg. Brkt.	A079W2072F	2	2)
058	Nut, Nyloc, M12, Rubber to Mtg. Brkt.	A075W3012F	2	2	)Use With Mtg. Rubber A085E6008/9F
059	Setscrew, M8 x 20, Rubber/Chassis	A075W1038F	4	4)
060	Washer, Flat	A075W4020F	6	6)
	Washer, Spring	A075W4036F	2	2)
062	Nut, Nyloc, M8	A075W3010F	2	2)
071	Mounting Bracket, Engine, LH	A082E4079K	1	1	
	Mounting Bracket, Engine, RH, With Relay Lever Pivot	A082E4078K	1	1	For Use With 0.86:1 Ratio Gear Change Relay Lever. If Replacing Earlier Fabricated Mounting Bracket, Replace Also Relay Lever (see 47.05A)
	Mounting Bracket, Engine, RH, With Relay Lever Pivot (inc. Bush)	A912E9022J		1	For Use With 1:1 Ratio Gear Change Relay Lever
	Bush, Gear Change Relay Lever Pivot	A912E6593F		1	For Use With Mtg. Brkt. A912E9022J
072	Mounting Bracket, Engine, RH, Without Relay Lever Pivot	B082E4078K		1	
	Edge Finisher, Engine Mounting Brkt	C082U4775F		40mm	For Use With Mtg. Brkt. B082E4078K
074	Bolt, M8 x 40, Bracket to Engine	A075W2039D	6	6	R/B A082W7053F
	Setscrew, Cap Head, M8 x 35, Brkt. to Engine	A082W7053F		6	
075	Washer, Spring, Bracket to Engine	A075W4036Z	6	6	Turbo 40.01A

Page 3

d5p33



TURBO
4003A

ILLUS
NO.



QUANTITY

DATE: 1/1/11

40.03A

DESCRIPTION

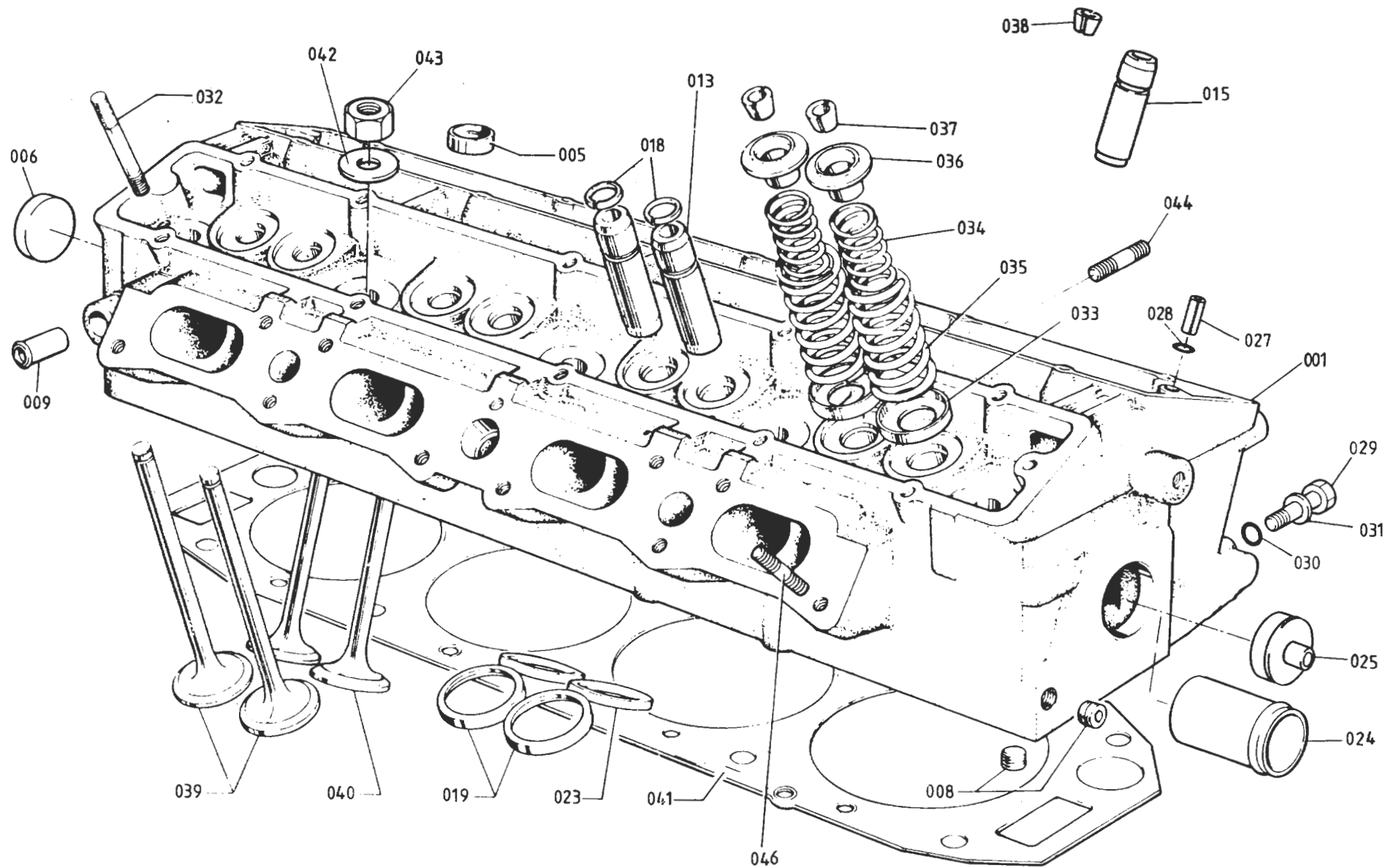
PART NUMBER

WET
SUMP

REMARKS

001	Oil Sump	A910E1701K	1
002	Plug, Sump Drain	A036R6014Z	1
003	Washer, Sump Plug	A075W4055Z	1
006	Baffle, Sump	A910E9216J	1
013	Screw, Baffle to Sump	A912E6399F	2
014	Setscrew, M8 x 25, Sump to MBH	A075W1039Z	3
015	Bolt, M8 x 45, Sump to MBH	A075W2040Z	3
016	Bolt, M8 x 65, Sump to MBH	A075W2044Z	1
018	Bolt, M8 x 50, Sump to MBH	A075W2041Z	3
019	Nut, Nyloc, M8, Sump to MBH	A075W3010Z	2
020	Washer, Flat, Sump to MBH	A075W4020Z	18
021	Bolt, M8 x 30, Sump to MBH	A075W1040Z	5
022	Bolt, M8 x 80, Sump to MBH	A075W2045Z	1

Turbo 40.03A



TURBO
40.05 A

ILLUS
NO.

QUANTITY

MAY 1991

40.05A

DESCRIPTION

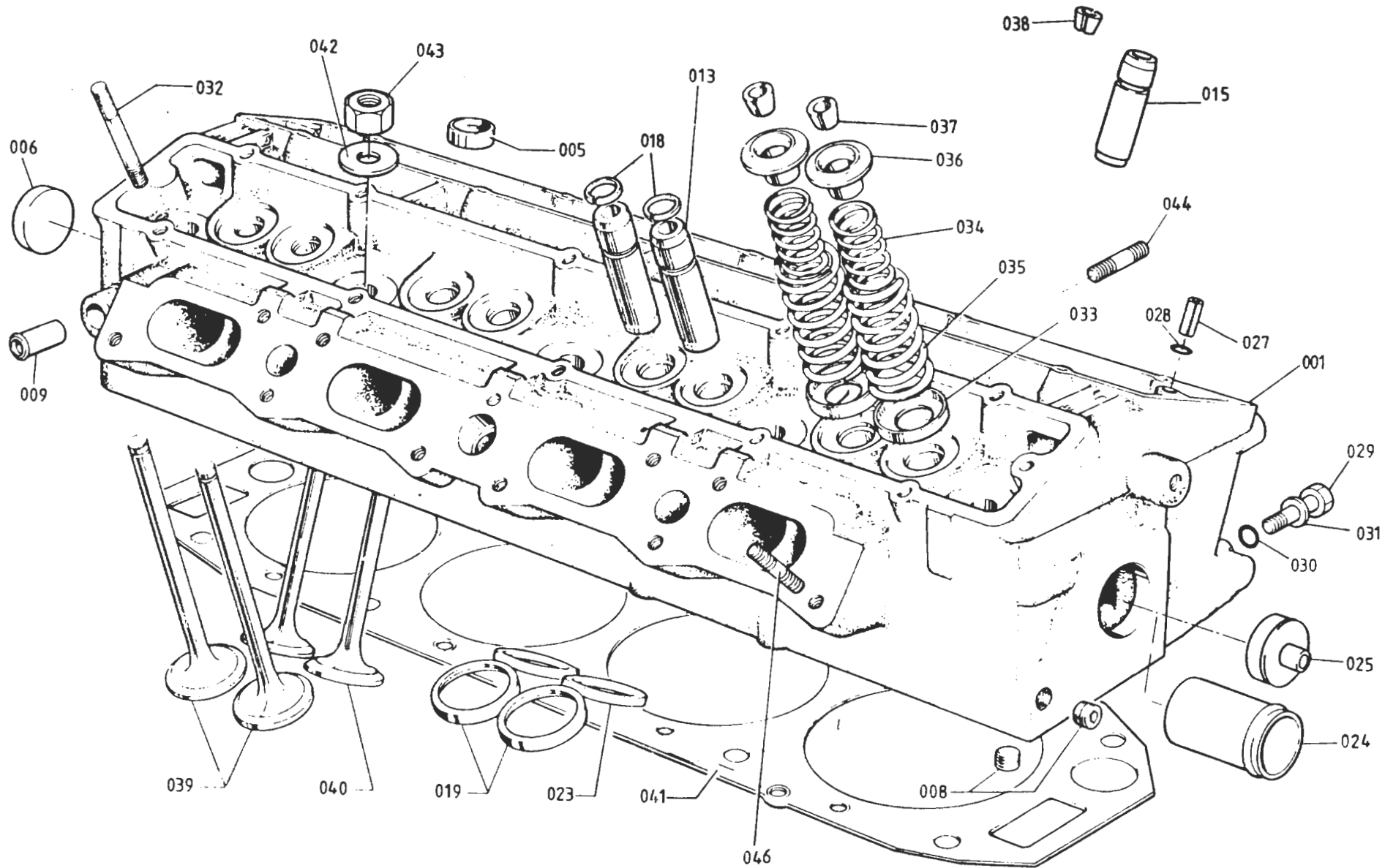
PART NUMBER

STD.
ENGINEH.C.
ENGINE

REMARKS

001	Cylinder Head Assembly	A910E0703J	1		>Inc. Items Up To & Inc. 024 >
	Cylinder Head Assembly	A910E9057J		1	
005	Core Plug, Small	A907E6038F	6	6	
006	Core Plug, Large, Rear	A907E6039Z	1	1	
008	Plug, 1/8" BSP, Socket	A907E6023Z	2	2	
009	Pipe, Heater Take-Off	A907E0486Z	1	1	
013	Guide, Inlet Valve, O/D Std.	F907E0315Y))	
	Guide, Inlet Valve, O/D + 0.001"	C907E0315Y	) 8	) 8
	Guide, Inlet Valve, O/D + 0.002"	D907E0315Y))	
	Guide, Inlet Valve, O/D + 0.005"	I907E0315Y))	
015	Guide, Exhaust Valve, O/D Std.	A910E0315F	>	>	
	Guide, Exhaust Valve, O/D + 0.001"	B910E0315F	> 8	> 8	
	Guide, Exhaust Valve, O/D + 0.002"	C910E0315F	>	>	
	Guide, Exhaust Valve, O/D + 0.005"	D910E0315F	>	>	
018	Circlip, Valve Guide	A907E6037Z	16	16	
019	Seat Insert, Inlet Valve, O/D Std.	B907E0312Y)		
	Seat Insert, Inlet Valve, O/D + 0.001"	C907E0312Y	) 8	
	Seat Insert, Inlet Valve, O/D + 0.002"	D907E0312Y)		
	Seat Insert, Inlet Valve, O/D + 0.005"	E907E0312Y)		
	Seat Insert, Inlet Valve, O/D Std.	C912E2010F		>	
	Seat Insert, Inlet Valve, O/D + 0.001"	C912E2011F		> 8	
	Seat Insert, Inlet Valve, O/D + 0.002"	C912E2012F		>	
	Seat Insert, Inlet Valve, O/D + 0.005"	C912E2013F		>	
023	Seat Insert, Exhaust Valve, O/D Std.	A910E1386F))	
	Seat Insert, Exhaust Valve, O/D + 0.001"	B910E1386F	) 8	) 8
	Seat Insert, Exhaust Valve, O/D + 0.002"	C910E1386F))	
	Seat Insert, Exhaust Valve, O/D + 0.005"	D910E1386F))	

Turbo 40.05A
Page 1



TURBO
4005A

ILLUS
NO.



QUANTITY

MAY 1991
REMARKS

40.05A

DESCRIPTION

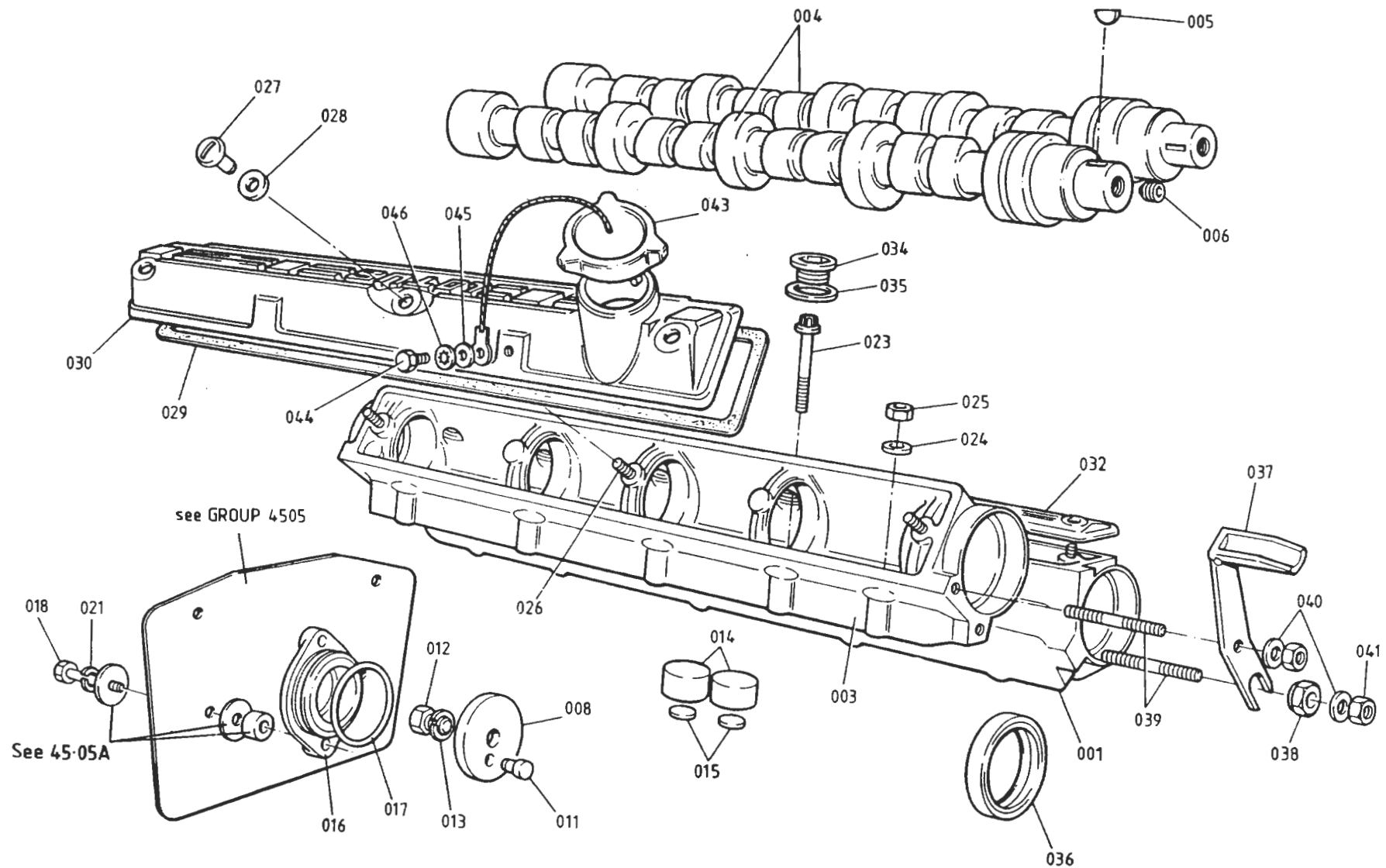
PART NUMBER

STD.
ENGINE

H.C.
ENGINE

024	Stub Pipe, Water Outlet	A908E1281F	1	
025	Adaptor, Water Outlet	A910E2403F		1
027	Roll Pin, Cyl. Head to Cam Hsg.	A075W6097Z	2	2
028	'O' Ring, Roll Pin	A907E6202Z	2	2
029	Setscrew, Oil Gallery Plug	A075W1036Z	1	1
030	'O' Ring, Oil Gallery Plug	A907E6202Z	1	1
031	Washer, Flat, Oil Gallery Plug	A075W4020Z	1	1
032	Stud, M8, Cam Hsg. to Head	A911E0227Z	4	4
033	Seat, Valve Spring	A907E0316Z	16	16
034	Spring, Valve, Inner	A912E0023F	16	16
035	Spring, Valve, Outer	A912E0022F	16	16
036	Retainer, Valve Spring	A912E0021F	16	16
037	Collet, Inlet Valve	A907E6040Z	16	16
038	Collet, Exhaust Valve	A910E6377F	16	16
039	Valve, Inlet	A912E0019F	8	8
040	Valve, Exhaust	B910E1383F	8	8
041	Gasket, Cylinder Head	B907E0026Z	1	1
042	Washer, Cylinder Head to Block	A910E2383Z	10	10
043	Nut, M12, Cylinder Head to Block	A910E6903Z	10	10
044	Stud, Exhaust Manifold to Head	C907E0635F	12	12
046	Stud, Inlet Manifold to Head	A907E1027K	9	9

Turbo 40.05A
Page 2



TURBO (Prior '87 M.Y. H.C.)
40.07A

ILLUS
NO.

QUANTITY

MAY 1991

40.07A

DESCRIPTION

PART NUMBER

PRIOR
22911FROM
22911

REMARKS

001	Camshaft Housing, Exhaust	B911E1328K	1	
	Camshaft Housing, Exhaust	A912E2033K		1
003	Camshaft Housing, Inlet	B911E1329K	1	
	Camshaft Housing, Inlet	A912E2034K		1
004	Camshaft '107'	A912E0107F	2	2
005	Woodruff Key, Pulley to Camshaft	A907E6025Z	2	2
006	Plug, Camshaft Front	A907E6069F	2	2
008	Thrust Washer, 0.173 - 0.175"	A907E0619Z))
	Thrust Washer, 0.175 - 0.177"	A907E0620Z	) 2	) 2
	Thrust Washer, 0.177 - 0.179"	A907E0621Z))
	Thrust Washer, 0.179 - 0.181"	A907E0622Z))
011	Dowel, Thrust Washer/Camshaft	A907E0476Z	2	2
012	Setscrew, M10, Thrust Washer to Cam	A075W1046Z	2	2
013	Washer, Spring	A075W4037Z	2	2
014	Tappet	A026E0024Z	16	16
015	Shim, Tappet (Selective)		16	16
016	Rear Cover, Camshaft Housing	A907E0090Y	2	2
017	'O' Ring, Rear cover	A907E6027Z	2	2
020	Washer, Large O/D	A075W4017Z	8	8
021	Washer, Spring	A075W4035Z	4	4
023	'Torx' Bolt, Housing to Head	B911E1311F	16	16
024	Washer, Flat, Housing to Head	A075W4020Z	4	4
025	Nut, M8, Housing to Head	A075W3021Z	4	4
026	Stud, Cam Cover to Housing	A912E1363F	6	6
027	Screw, Chromed, Cam Cover to Hsg.	A911E1333F	6	6
028	Rubber Washer, Cam Cover Screw	A912E6406F	6	6
	Spirol Pin, Gasket Location	A079W6245F		8
029	Gasket, Cam Cover to Hsg.	A911E0001F	2	
	Gasket, Cam Cover to Hsg.	A912E2040F	2	2

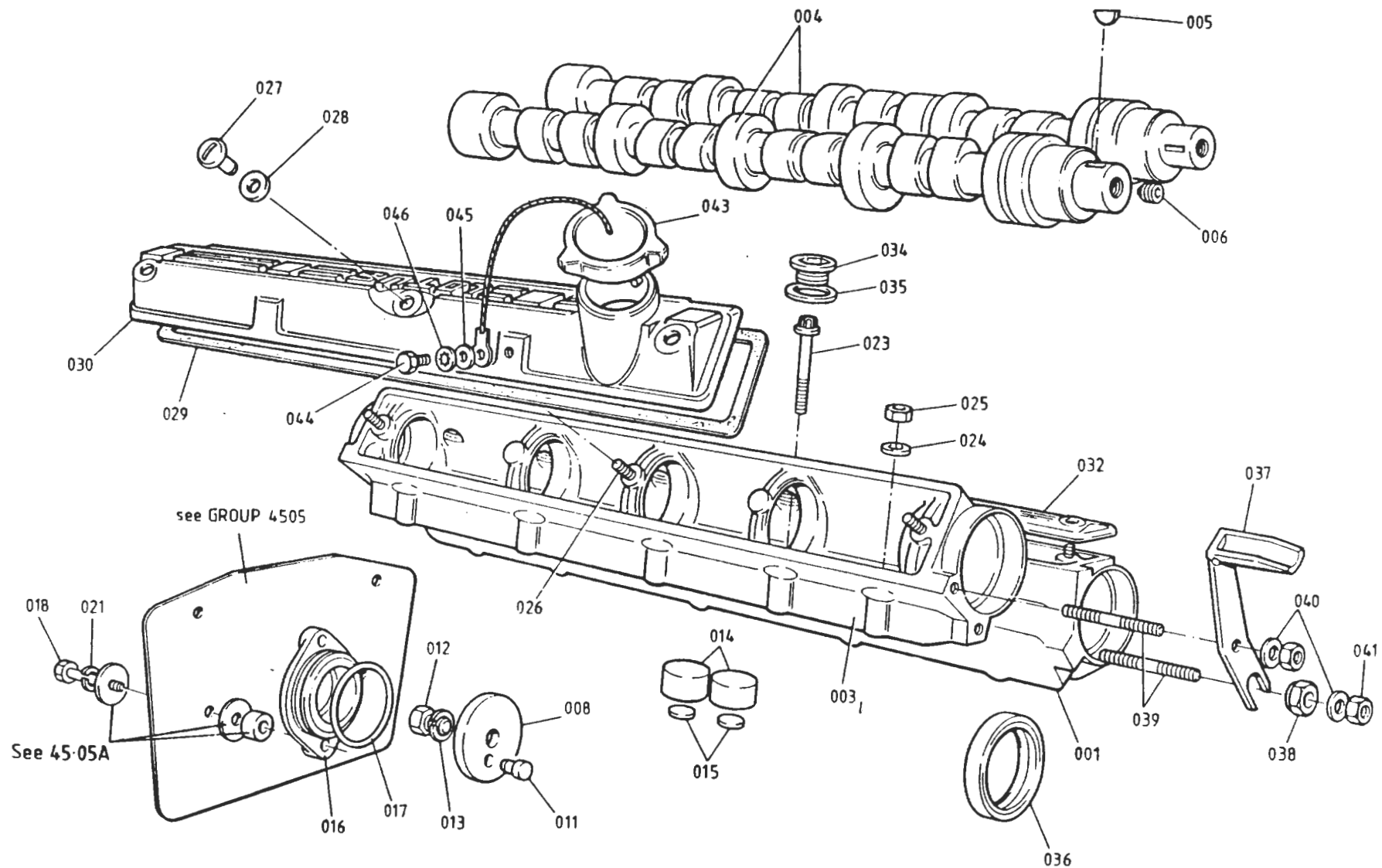
Eng. No. 22911 Built January 1986
This Page Prior to '87 M.Y. H.C.

Cam Endfloat Control

See 40.07A Page 3

R/B A912E2040F

Turbo (Prior to '87 M.Y. H.C.) 40.07A
Page 1



TURBO (Prior '87 M.Y. H.C.)
4007A

ILLUS
NO.

QUANTITY

MAY 1991

40.07A

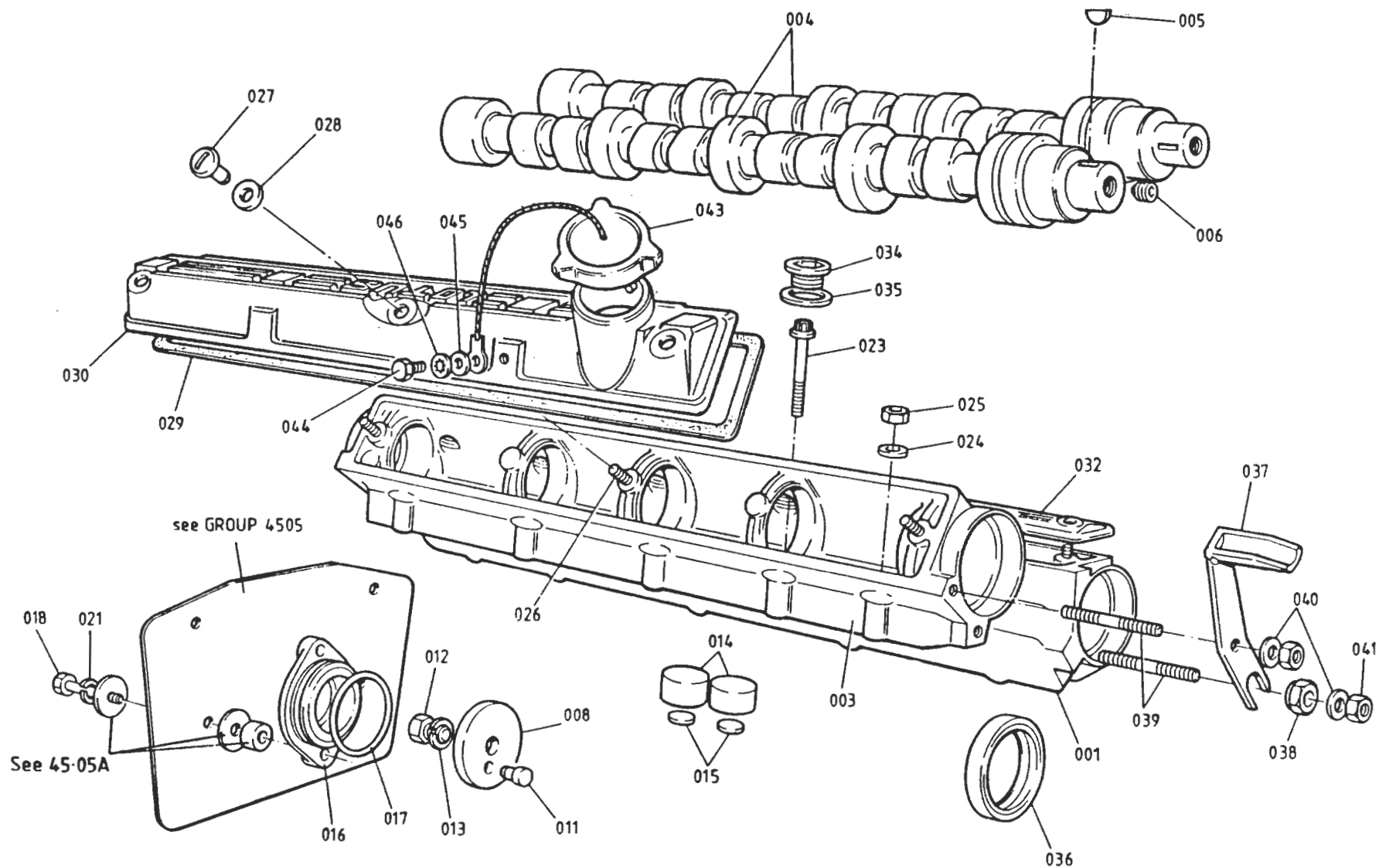
DESCRIPTION

PART NUMBER

PRIOR
22911FROM
22911

REMARKS

				<u>Eng. No. 22911 Built January 1986</u> <u>This Page Prior to '87 M.Y. H.C.</u>	
030	Cam Cover, Inlet, Without Filler	A911E0301K	1		Dry Sump Only R/B B910E0992K Wet Sump. With Provision for Throttle Return Spring Bracket R/B C910E0992K
	Cam Cover, Inlet, With Filler	A910E0992K	1		
	Cam Cover, Inlet, With Filler	B910E0992K	1		
032	Cam Cover, Inlet, With Filler	C910E0992K	1	1	R/B B911E0301K With Under Cut Thread. R/B A9116343F with Dowty Washer A910E6553F R/B A910E6553F
	Cam Cover, Exhaust	A911E0301K	1		
	Cam Cover, Exhaust	B911E0301K	1	1	
	Plug, M20, Torx Bolt Access	A910E1690F	10		
034	Washer, Fibre, Used With A910E1690F	A911E6344F	10		Wet Sump Only
	Plug, M20, Torx Bolt Access	A911E6343F	10	10	
035	Washer, 'Dowty', Plug Sealing	A910E6553F	10		
	'O' Ring, Plug Sealing	A912E6694F		1	
036	Oil Seal, Camshaft Front	B907E6042F	2	2	
037	Snubber, Inlet Cam Pulley	A907E1107F	1	1	
038	Eccentric Adjuster, Snubber	A907E1108F	1	1	
039	Stud, Snubber Fixing	A907E1027K	2	2	
040	Washer, Flat, Snubber Fixing	A075W4020Z	2	2	
041	Nut, M8, Snubber Fixing	A075W3021Z	2	2	
043	Cap, Oil Filler	A026E0415Z	1	1	
044	Setscrew, M5 x 12, Cap Retention	A075W1021Z	1	1	
045	Washer, Flat, Cap Retention	A075W4013Z	1	1	
046	Washer, Shakeproof, Cap Retention	A075W4046Z	1	1	
	Gasket, Filler Cap	A026E0325Z	1	1	



TURBO (Prior '87 M.Y. H.C.)
4007A

40.07A
Item 015

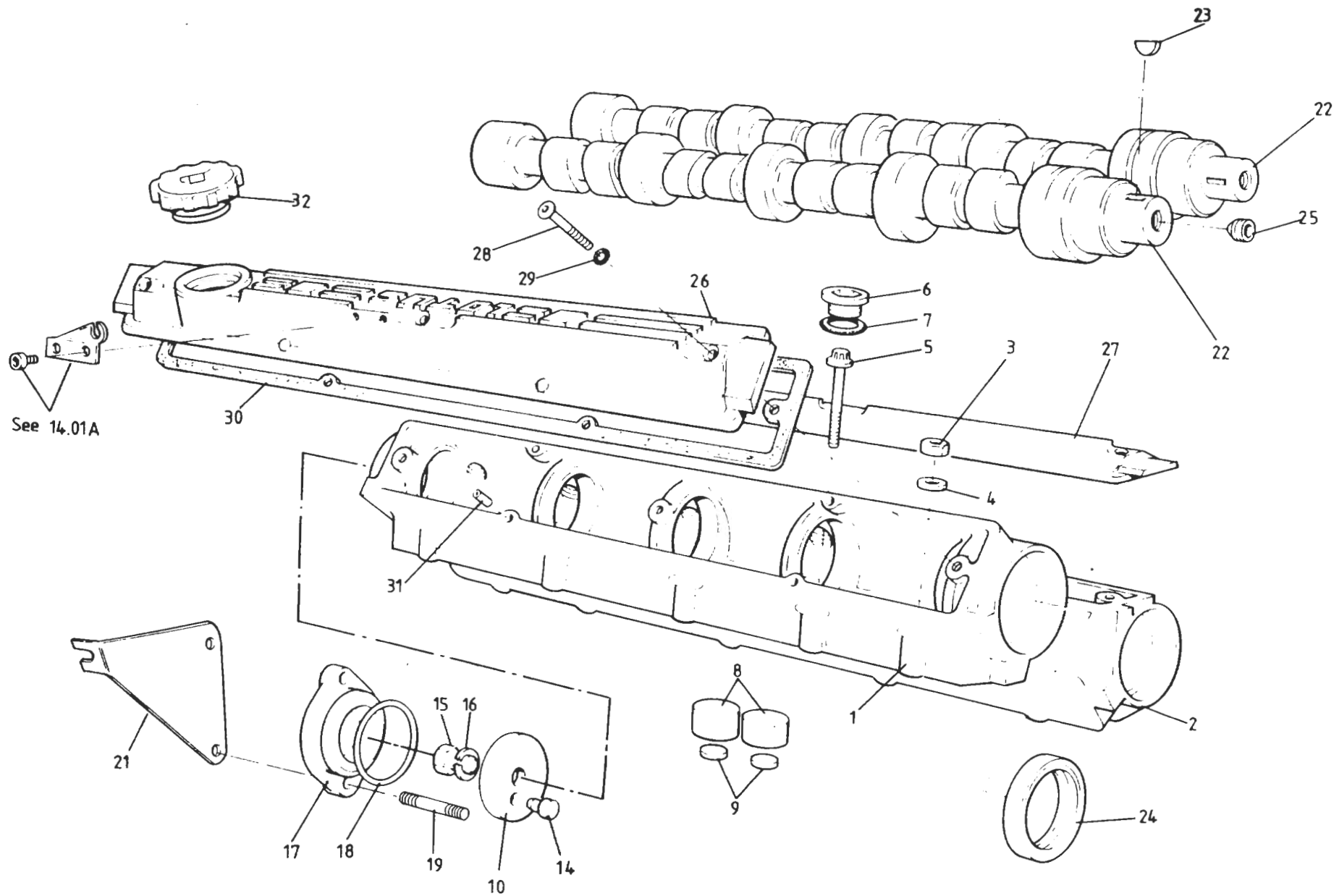
TAPPET SHIMS

Shim	Part No.	Shim	Part No.	Shim	Part No.	Shim	Part No.
0.060in	A026E6160Z	0.083in	A026E6183Z	0.106in	A026E6206Z	0.129in	A026E6229Z
0.061in	A026E6161Z	0.084in	A026E6184Z	0.107in	A026E6207Z	0.130in	A026E6230Z
0.062in	A026E6162Z	0.085in	A026E6185Z	0.108in	A026E6208Z	0.131in	A026E6231Z
0.063in	A026E6163Z	0.086in	A026E6186Z	0.109in	A026E6209Z	0.132in	A026E6232Z
0.064in	A026E6164Z	0.087in	A026E6187Z	0.110in	A026E6210Z	0.133in	A026E6233Z
0.065in	A026E6165Z	0.088in	A026E6188Z	0.111in	A026E6211Z	0.134in	A026E6234Z
0.066in	A026E6166Z	0.089in	A026E6189Z	0.112in	A026E6212Z	0.135in	A026E6235Z
0.067in	A026E6167Z	0.090in	A026E6190Z	0.113in	A026E6213Z	0.136in	A026E6236Z
0.068in	A026E6168Z	0.091in	A026E6191Z	0.114in	A026E6214Z	0.137in	A026E6237Z
0.069in	A026E6169Z	0.092in	A026E6192Z	0.115in	A026E6215Z	0.138in	A026E6238Z
0.070in	A026E6170Z	0.093in	A026E6193Z	0.116in	A026E6216Z	0.139in	A026E6239Z
0.071in	A026E6171Z	0.094in	A026E6194Z	0.117in	A026E6217Z	0.140in	A026E6240Z
0.072in	A026E6172Z	0.095in	A026E6195Z	0.118in	A026E6218Z	0.141in	A026E6241Z
0.073in	A026E6173Z	0.096in	A026E6196Z	0.119in	A026E6219Z	0.142in	A026E6242Z
0.074in	A026E6174Z	0.097in	A026E6197Z	0.120in	A026E6220Z	0.143in	A026E6243Z
0.075in	A026E6175Z	0.098in	A026E6198Z	0.121in	A026E6221Z	0.144in	A026E6244Z
0.076in	A026E6176Z	0.099in	A026E6199Z	0.122in	A026E6222Z	0.145in	A026E6245Z
0.077in	A026E6177Z	0.100in	A026E6200Z	0.123in	A026E6223Z	0.146in	A026E6246Z
0.078in	A026E6178Z	0.101in	A026E6201Z	0.124in	A026E6224Z	0.147in	A026E6247Z
0.079in	A026E6179Z	0.102in	A026E6202Z	0.125in	A026E6225Z	0.148in	A026E6248Z
0.080in	A026E6180Z	0.103in	A026E6203Z	0.126in	A026E6226Z	0.149in	A026E6249Z
0.081in	A026E6181Z	0.104in	A026E6204Z	0.127in	A026E6227Z	0.150in	A026E6250Z
0.082in	A026E6182Z	0.105in	A026E6205Z	0.128in	A026E6228Z		

TU6AAB

Turbo 40.07A
Page 3

FEB 1987



TURBO ('87 M.Y. H.C.)
40.07B

ILLUS
NO.

QUANTITY

MAY 1991

40.07B

DESCRIPTION

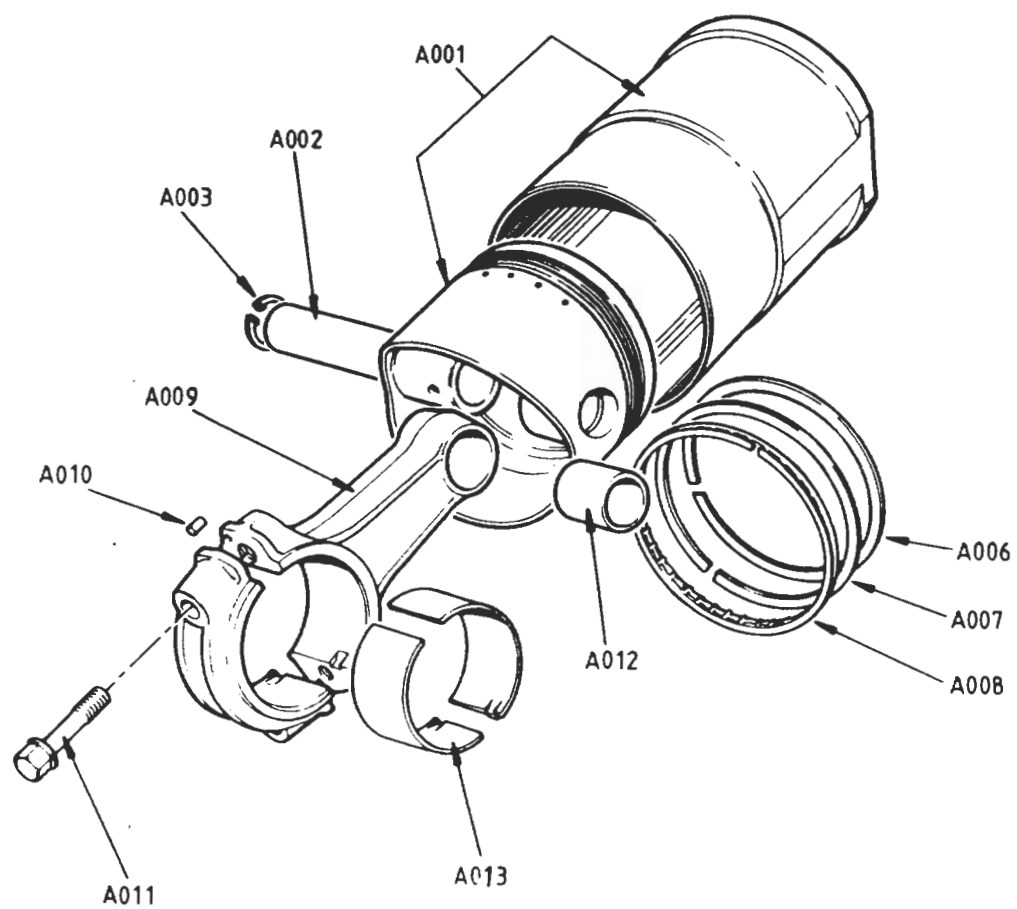
PART NUMBER

'87 M.Y
H.C.

REMARKS

1	Camshaft Housing, Inlet	A912E2034K	1		
2	Camshaft Housing, Exhaust	A912E2033K	1		
3	Nut, M8, Cam Housing to Head	A075W3021Z	4		
4	Washer, 8mm, Cam Housing to Head	A075W4020Z	4		
5	Torx Bolt, Cam Housing to Head	B911E1311F	16		
6	Plug, M20, Torx Bolt Access	A911E6343F	10		
7	'O' Ring, Access Plug	A912E6694F	10		
8	Tappet	A026E0024Z	16		
9	Shim, Tappet		16		
10	Thrust Washer, 0.173 - 0.175"	A907E0619Z	)		see 40.07A Page 3
	Thrust Washer, 0.175 - 0.177"	A907E0620Z	) 2		Camshaft Endfloat Control
	Thrust Washer, 0.177 - 0.179"	A907E0621Z)		
	Thrust Washer, 0.179 - 0.181"	A907E0622Z)		
14	Dowel, Thrust Washer/Camshaft	A907E0476Z	2		
15	Setscrew, M10, Thrust Washer to Camshaft	A075W1046Z	2		
16	Spring Washer, Thrust Washer to Camshaft	A075W4037Z	2		
17	Rear Cover, Camshaft Housing	A907E0090Z	2		
18	'O' Ring, Rear Cover	A907E6027Z	2		
19	Stud, Cam Housing Rear	A912E2043F	4		
21	Bracket, Diffuser Support	A910E2233K	1		
	Washer, Plain, Bracket to Diffuser	A075W4013Z	1		
	Nut, Nyloc, M6, Bracket to Diffuser	A075W3020Z	1		
22	Camshaft, (Type '107')	A912E0107Z	2		
23	Woodruff Key, Camshaft Pulley	A907E6025Z	2		
24	Oil Seal, Camshaft Front	B907E6042F	2		
25	Blanking Plug, Camshaft Front	A907E6069F	2		
26	Cam Cover, Inlet, Red	A912E2277K	1		
27	Cam Cover, Exhaust, Red	A912E2278K	1		
28	Screw, Cam Cover Fix	B912E2037F	6		
29	'O' Ring, Cam Cover Fixing Screws	A912E6695F	6		
30	Gasket, Cam Cover to Housing	A912E2040F	2		
31	Spirol Pin, Gasket Location	A079W6245F	8		
32	Oil Filler Cap Inc. Seal	A910E6779F	1		

Turbo ('87 M.Y. H.C.)
40.07B



TURBO
4009A

ILLUS
NO.

QUANTITY

1961 AWW

40.09A

DESCRIPTION

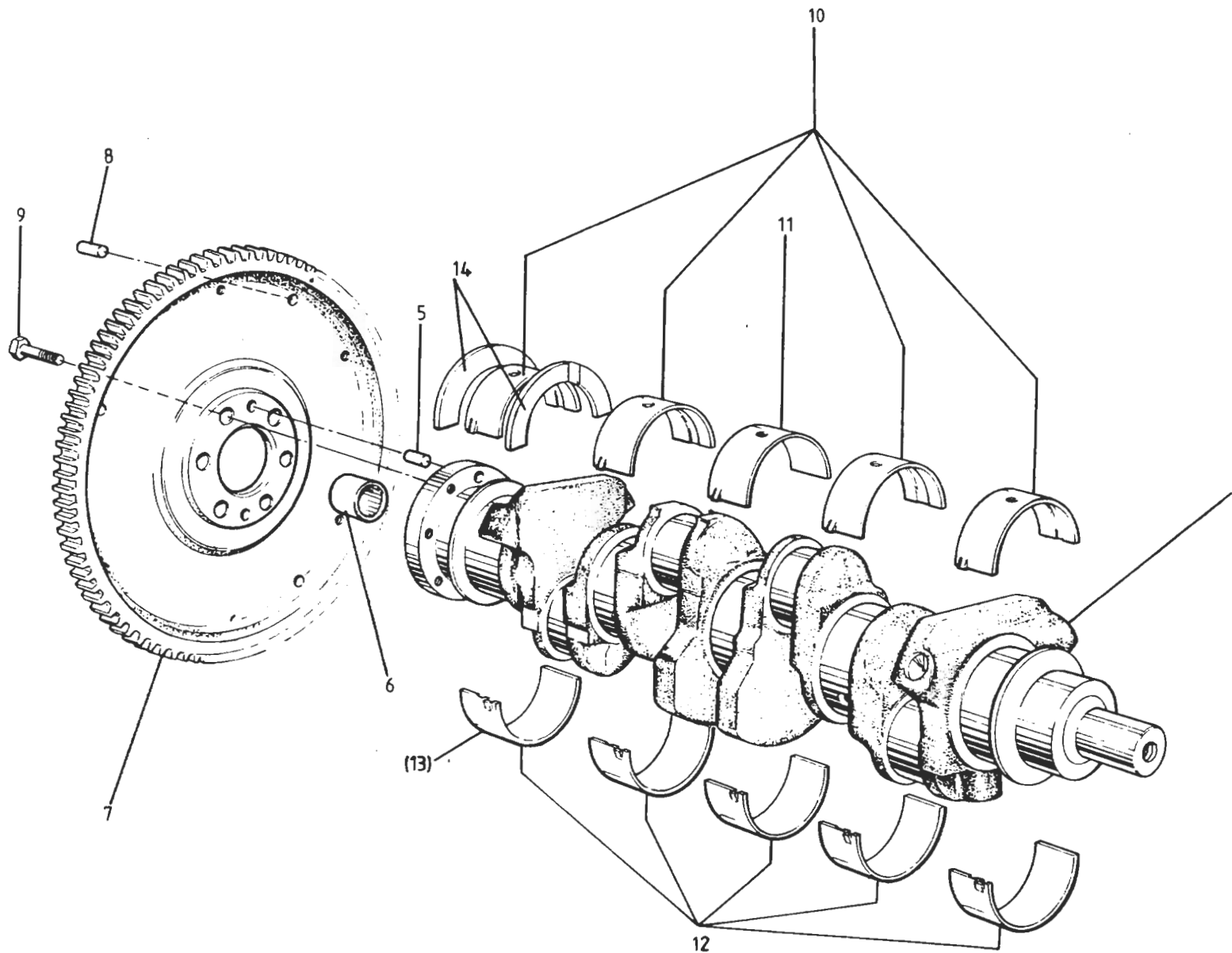
PART NUMBER

STD.
ENGINE'87 M.Y
H.C.

REMARKS

A001	Piston & Liner Assembly, (5mm Oil Control Ring)	B910E0778F	4		R/B B910E6919F
	Piston & Liner Assembly, (4mm Oil Control Ring)	B910E6919F	4		Includes Items up to A008 inc.
	Piston & Liner Assembly	A910E9192F		4	" " " " " "
A002	Gudgeon Pin	B907E0405H	4		
	Gudgeon Pin	A910E2170H		4	
A003	Circlip, Gudgeon Pin	A907E6022H	8		
	Circlip, Gudgeon Pin	A910E6781F		8	
A006	Compression Ring, Top	A911E0401H	4		Internal Top Bevel
	Compression Ring, Top	A910E2193F		4	Internal Top & Bottom Bevel
A007	Compression Ring, Second	A911E0402H	4		Internal Top Step
	Compression Ring, Second	A910E2194F		4	Plain
A008	Oil Control Ring (5mm Width)	B907E0404H	4		R/B A912E6985F
	Oil Control Ring (5mm Width)	A912E6985F	4		
	Oil Control Ring (4mm Width)	A910E6923F	4		Use With Piston B910E6919F
	Oil Control Ring	A910E2195F		4	
A009	Connecting Rod	A910E0714F	4		R/B B910E0714F
	Connecting Rod	B910E0714F	4	4	Includes Items up to A012 inc.
A010	Dowel, Cap to Rod	A907E0339H	8	8	
A011	Bolt, Cap to Rod	A907E0344H	8	8	
A012	Bush, Small End	A907E0357H	4	4	
A013	Bearing Shell, 'Big End' STD.	A907E0342S)		
	Bearing Shell, 'Big End' - 0.010"	A907E0540Z	) 8	8	
	Bearing Shell, 'Big End' - 0.020"	A907E0541Z)		

Turbo 40.09A



TURBO
40.11A

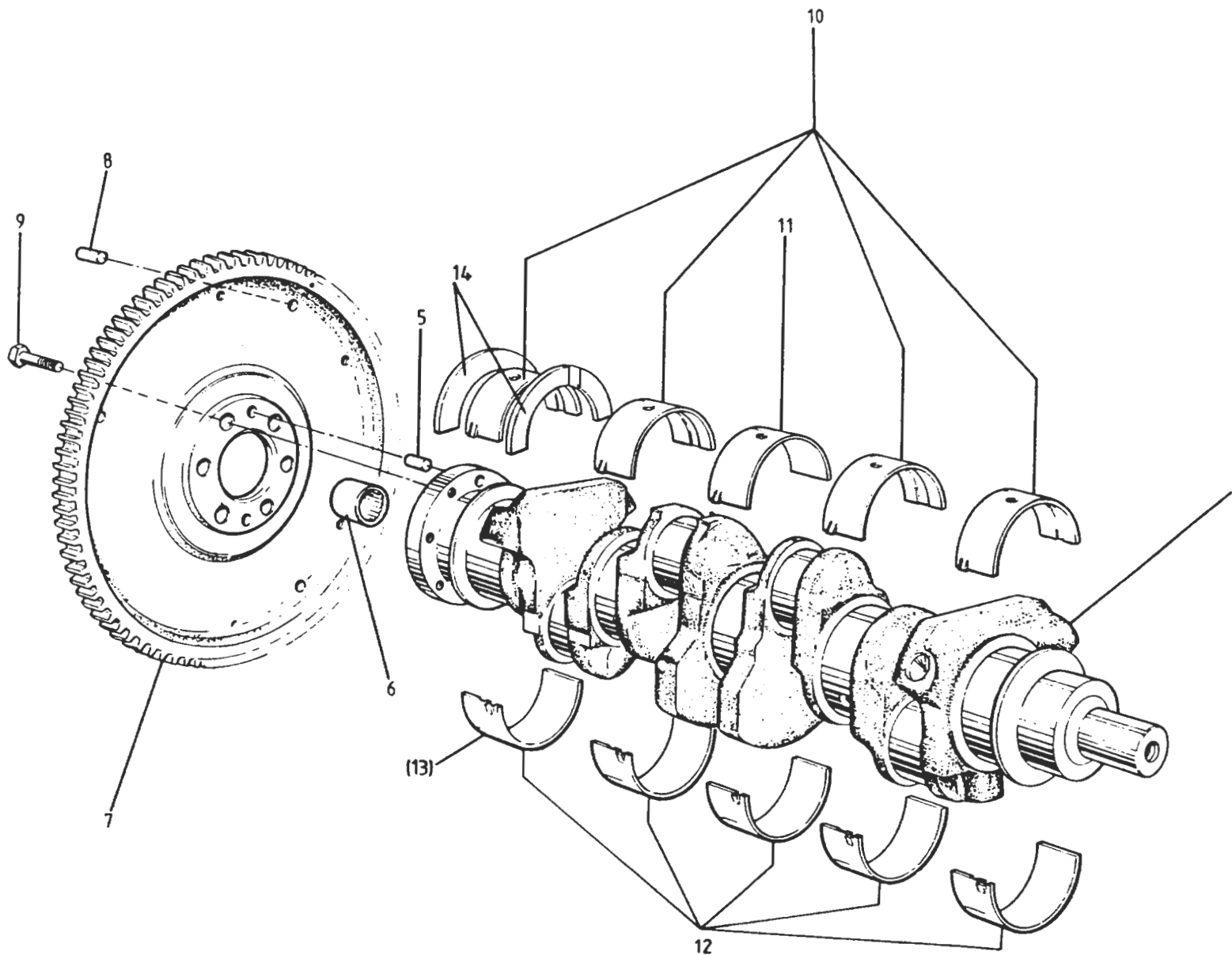
ILLUS
NO.

QUANTITY

MAY 1991

40.11A	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			ALL		
1	Crankshaft (Including Dowels & Spigot Brg.)	A910E0897J	1		R/B A912E9234J
5	Crankshaft (Including Dowels)	A912E9234J	1		Inc.Adaptor A910E6902F
6	Dowel, Crank to Flywheel	A907E6015F	2		
6	Spigot Bearing	A907E6319F	1		
7	Flywheel (Integral ring gear)	B910E1432F	1		
8	Dowel, Flywheel to Clutch	A907E6084Z	3		
9	Bolt, Flywheel to Crank	A907E6020Z	6		
10	Shell, Main Bearing, Std. I/D, Std. O/D	A907E0336Z	4		(Groove/Hole) Upper, except Centre
11	" " " " " " "	A911E1315F	1		(Plain/Hole) Upper, Centre
12	" " " " " " "	A907E1170F	4/5		(Plain) Lower. Qty. 5 from Engine No. 20875
13	" " " " " " "	A912E1993S	1		(Plain/Notch) Rear Lower* up to Engine No. 20874
	Shell, Main Bearing - 0.010" I/D, Std. O/D	A907E0538Z	4		(Groove/Hole) Upper, except Centre
	" " " " " " "	A911E1317F	1		(Plain/Hole) Upper, Centre
	" " " " " " "	A907E1172F	4/5		(Plain) Lower. Qty. 5 from Engine No. 20875
	" " " " " " "	A912E1994S	1		(Plain/Notch) Rear Lower* up to Engine No. 20874
	Shell, Main Bearing - 0.020" I/D, Std. O/D	A907E0539Z	4		(Groove/Hole) Upper, except Centre
	" " " " " " "	A911E1318F	1		(Plain/Hole) Upper, Centre
	" " " " " " "	A907E1173F	4/5		(Plain) Lower. Qty. 5 from Engine No. 20875
	" " " " " " "	A912E1995S	1		(Plain/Notch) Rear Lower* up to Engine No. 20874

*See Service Notes Section EA. 28



TURBO
4011A

ILLUS
NO.



QUANTITY

7791

40.11A

DESCRIPTION

PART NUMBER

ALL

REMARKS

Shell, Main Bearing, Std. I/D, + 0.015" O/D

A907E0675Z

4

" " " " " " " "

A911E1316F

1

" " " " " " " "

A907E1171F

4/5

" " " " " " " "

A912E1996S

1

(Groove/Hole) Upper, except Centre
(Plain/Hole) Upper, Centre
(Plain) Lower. Qty. 5 from Engine
No. 20875
(Plain/Notch) Rear Lower* up to Engine
No. 20874

Shell, Main Bearing, - 0.010" I/D + 0.015" O/D

B907E0675Z

4

" " " " " " " "

B911E1316F

1

" " " " " " " "

B907E1171F

4/5

" " " " " " " "

A912E1997S

1

(Groove/Hole) Upper, except Centre
(Plain/Hole) Upper, Centre
(Plain) Lower. Qty. 5 from Engine
No. 20875
(Plain/Notch) Rear Lower* up to Engine
No. 20874

Shell, Main Bearing, - 0.020" I/D + 0.015" O/D

C907E0675Z

4

" " " " " " " "

C911E1316F

1

" " " " " " " "

C907E1171F

4/5

" " " " " " " "

A912E1998S

1

(Groove/Hole) Upper, except Centre
(Plain/Hole) Upper, Centre
(Plain) Lower. Qty. 5 from Engine
No. 20875
(Plain/Notch) Rear Lower* up to Engine
No. 20874

14

Thrust Washer, Crank, Std.

A907E1000Z

)

Thrust Washer, Crank, + 0.0025"

A907E1001Z

)

Thrust Washer, Crank, + 0.0050"

A907E1002Z

) 2

Thrust Washer, Crank, + 0.0075"

A907E1003Z

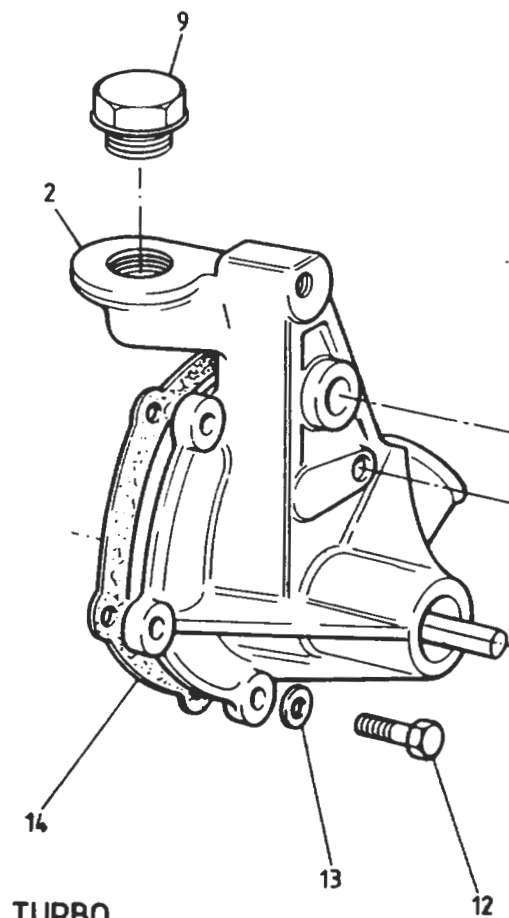
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Thrust Washer, Crank, + 0.0100"

A907E1004Z

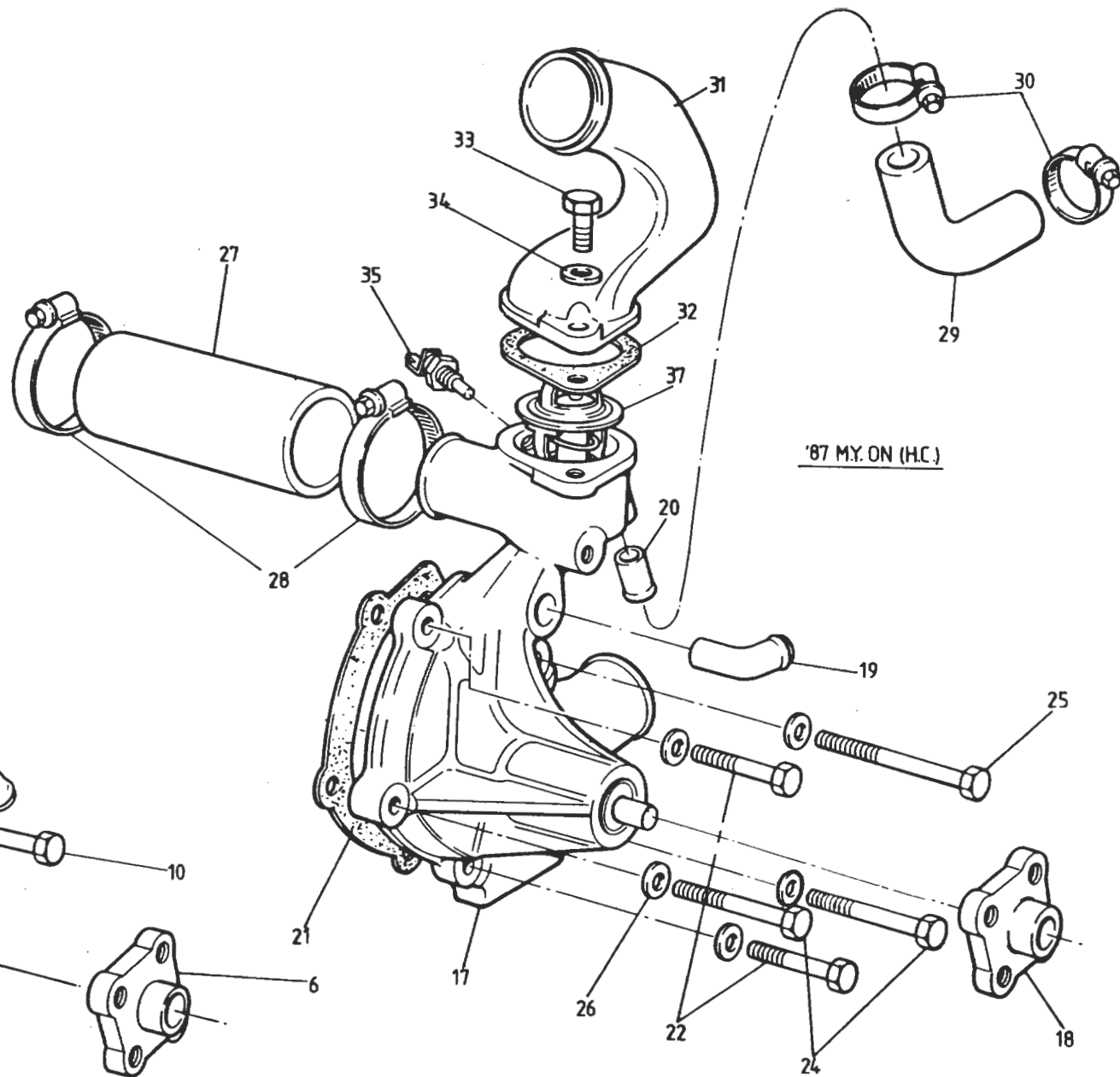
)

*See Service Notes Section EA. 28



TURBO
40.13A

PRIOR '87 M.Y.



'87 M.Y. ON (H.C.)

ILLUS
NO.

QUANTITY

MAY 1991

40.13A

DESCRIPTION

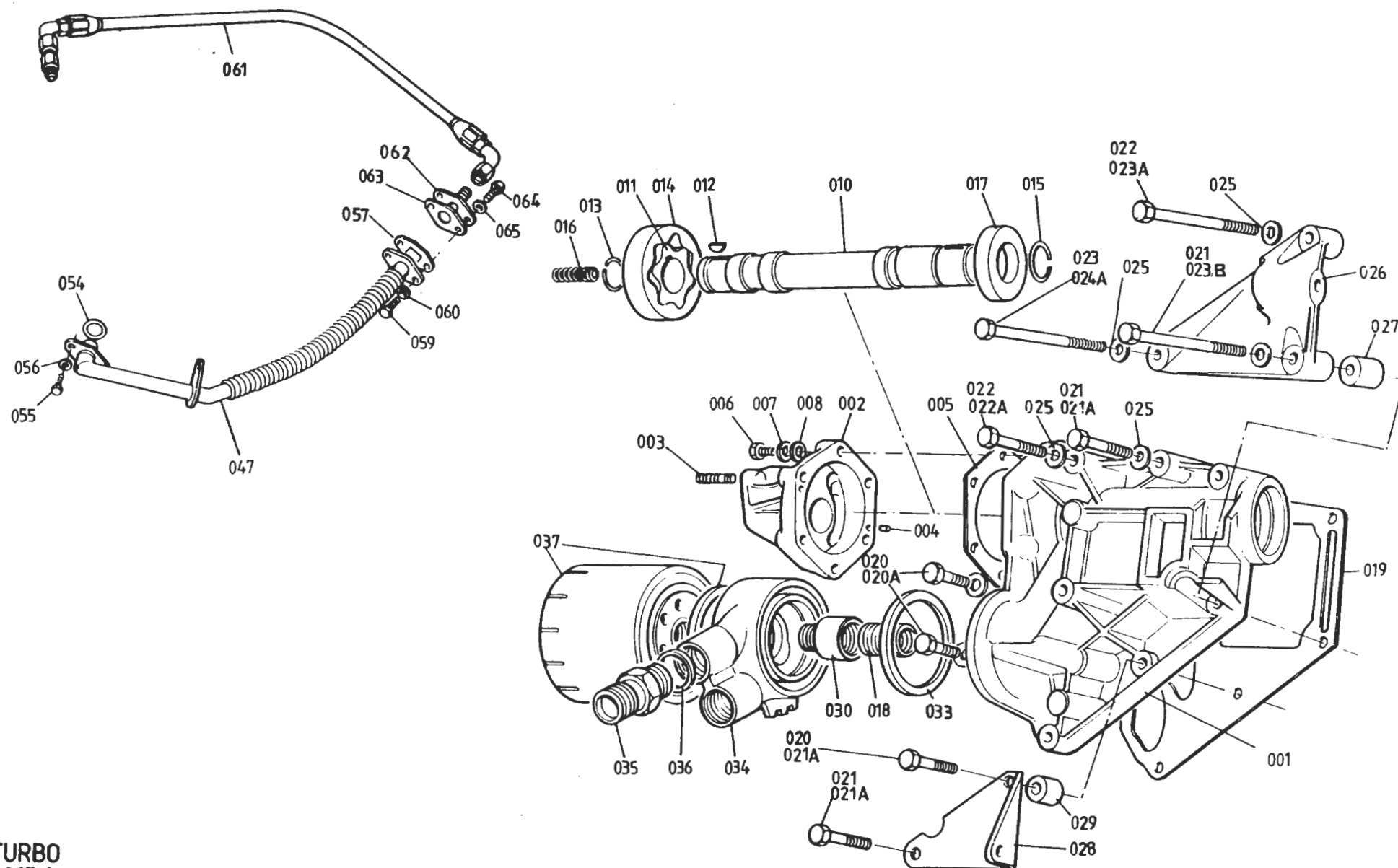
PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

2	Water Pump Assembly, inc. Pulley	B910E0946J	1		Dry Sump(Pulley Pressed Direct onto Shaft
6	Water Pump Assembly, (less pulley)	B910E9001J	1		Inc. Hub, Elbow & Plug)Wet
7	Hub, Pump Pulley	A907E6295Z	1		)Sump
9	Elbow, Heater Return	A911E1431F	1		
10	Plug, Blanking	A910E1644K	1		If Fitted
12	Bolt, M6 x 75, Pump to Block	A075W2036F	1		
13	Setscrew, M6 x 25, Pump to Block	A075W2027Z	4		
14	Washer, Flat, Pump Fixing	A075W4013Z	5		
17	Gasket, Pump to Block	A907E0246Z	1		
18	Water Pump Assy.	B912E9021J		1	inc. pulley hub & adaptor pipes
19	Hub, Water Pump Pulley	A907E6295Z		1	
20	Elbow Pipe, Heater Return	A911E1431F		1	
21	Adaptor Pipe, Thermostat Housing	A910E1909F		1	
22	Gasket, Water Pump to Block	A907E0246Z		1	
24	Bolt, M6 x 30, Pump to Block	A075W2028Z		2	
25	Bolt, M6 x 35, Pump to Block	A075W2029Z		2	
26	Bolt, M6 x 55, Pump to Block	A075W2034Z		1	
27	Washer, Flat, Water Pump Fixings	A075W4013Z		5	
28	Hose, Inlet Manifold to Pump	A912E1896F		1	
29	Hose Clip, 32/50	A079K6019F		2	
30	Elbow Hose, Cylinder Head to Pump	A912E1837F		1	
31	Hose Clip	A079K6018F		2	
32	Thermostat Cover Outlet Elbow	B912E1829P		1	
33	Gasket, Thermostat Cover	A026E6102Z		1	
34	Setscrew, M8 x 25, Thermostat Cover	A075W1039Z		2	
35	Washer, Flat, Thermostat Cover	A075W4020Z		2	
36	Thermal Transmitter, Temp Gauge	A050M6136W		1	
37	Thermostat, 74°C	A075K0121F		1	Hot Climates
	Thermostat, 82°C	A907E6046Z		1	Temperate Climates

Turbo 40.13A



TURBO
4015 A

ILLUS
NO.

QUANTITY

MAY 1991

40.15A

DESCRIPTION

PART NUMBER

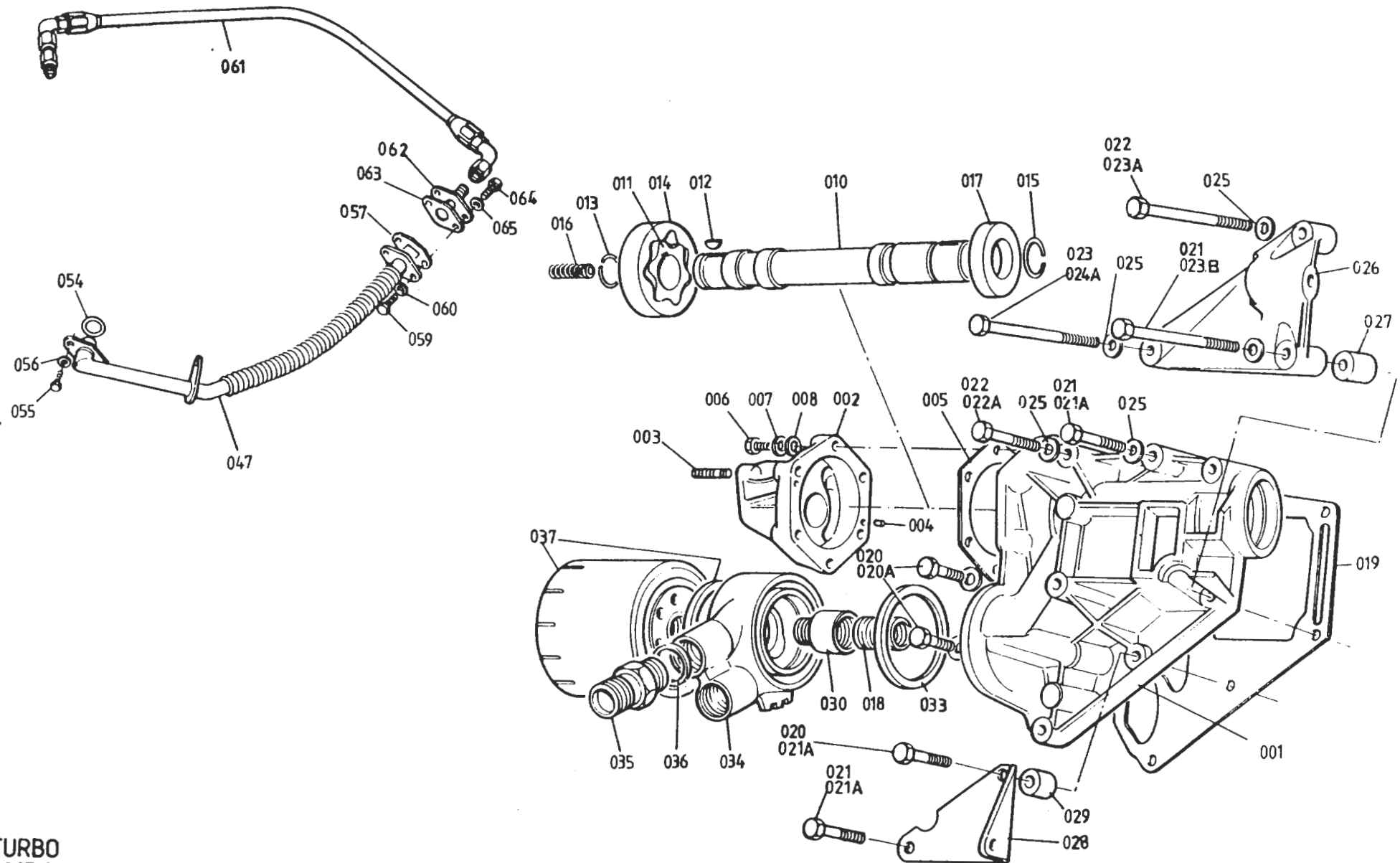
DRY
SUMPWET
SUMP

REMARKS

001	Auxiliary Housing and "Oil Pump" Assembly	A910E0983J	1)Includes Items Without A/C)up to & inc. 018 With A/C)
	Auxiliary Housing and Oil Pump Assembly	G907E0747F		1	
	Auxiliary Housing and Oil Pump Assembly	B907E0859F	2	1	
	Auxiliary Housing	B910E1584K	1		
	Auxiliary Housing	F907E0437H	1	1	
002	Auxiliary Housing	A907E1092H	3	1	Without A/C With A/C
	Plug, 3/8" BSP, Aux. Hsg. Oilway Blanking	A910E1598F	6		
	Plug, 1/2" BSP, Aux. Hsg. Oilway Blanking	A910E1643F	4		
003	"Oil Pump", Housing,	C907E0443F	1		R/B E907E0803H inc. relief valve and dist. stud
	Oil Pump Housing Assembly	E907E0803H		1	
004	Stud, Distributor Clamp	A907E0503H	1	1))Replaces oil pressure relief valve)
	Spacer Tube	A910E1675K	1		
	Blanking Plug	A907E1324F	1		
	'O' Ring, Blanking Plug	A907E6099F	1		
	Dowel, Pump Body to Aux. Hsg.	A907E0530F	2	2	
005	Gasket, Pump Body to Aux. Hsg.	A907E0474H	1	1	Inc. key & circlip
006	Bolt, M6 x 30, Pump to Aux. Hsg.	A075W2028F	6	6	
007	Washer, Spring, Pump to Aux. Hsg.	A075W4035H		6	
008	Washer, Flat, Pump to Aux. Hsg.	A075W4013F	6	6	
	Shaft & Rotor Assembly	B907E0785F		1	
010	Auxiliary Shaft	A910E1585K	1		
	Auxiliary Shaft	E907E0291H		1	
011	Rotor, Oil Pump	A907E0472F	1	1	
012	Woodruff Key, Oil Pump Rotor	A907E6001F	1	1	
013	Circlip, Rotor to Shaft	A907E6101F	1	1	
014	Annulus, Oil Pump	A907E0473H		1	
015	Circlip, Pulley Abutment	A907E6067H	1	1	
016	Spring, Dist. Drive/Aux. Shaft	B907E0135F	1		
	Spring, Dist. Drive/Aux. Shaft	A907E0192H		1	
017	Oil Seal, Aux. Shaft Front	A907E6064H	1	1	
	Oil Seal, Aux. Shaft Rear	A910E6383F	1		
018	Adaptor Union, Oil Filter	A907E0249H	1	1	
019	Gasket, Aux. Hsg. to Cylinder Block	D907E0442F	1	1	

Turbo 40.15A

Page 1



TURBO
4015 A

ILLUS
NO.

QUANTITY

MAY 1991

40.15A

DESCRIPTION

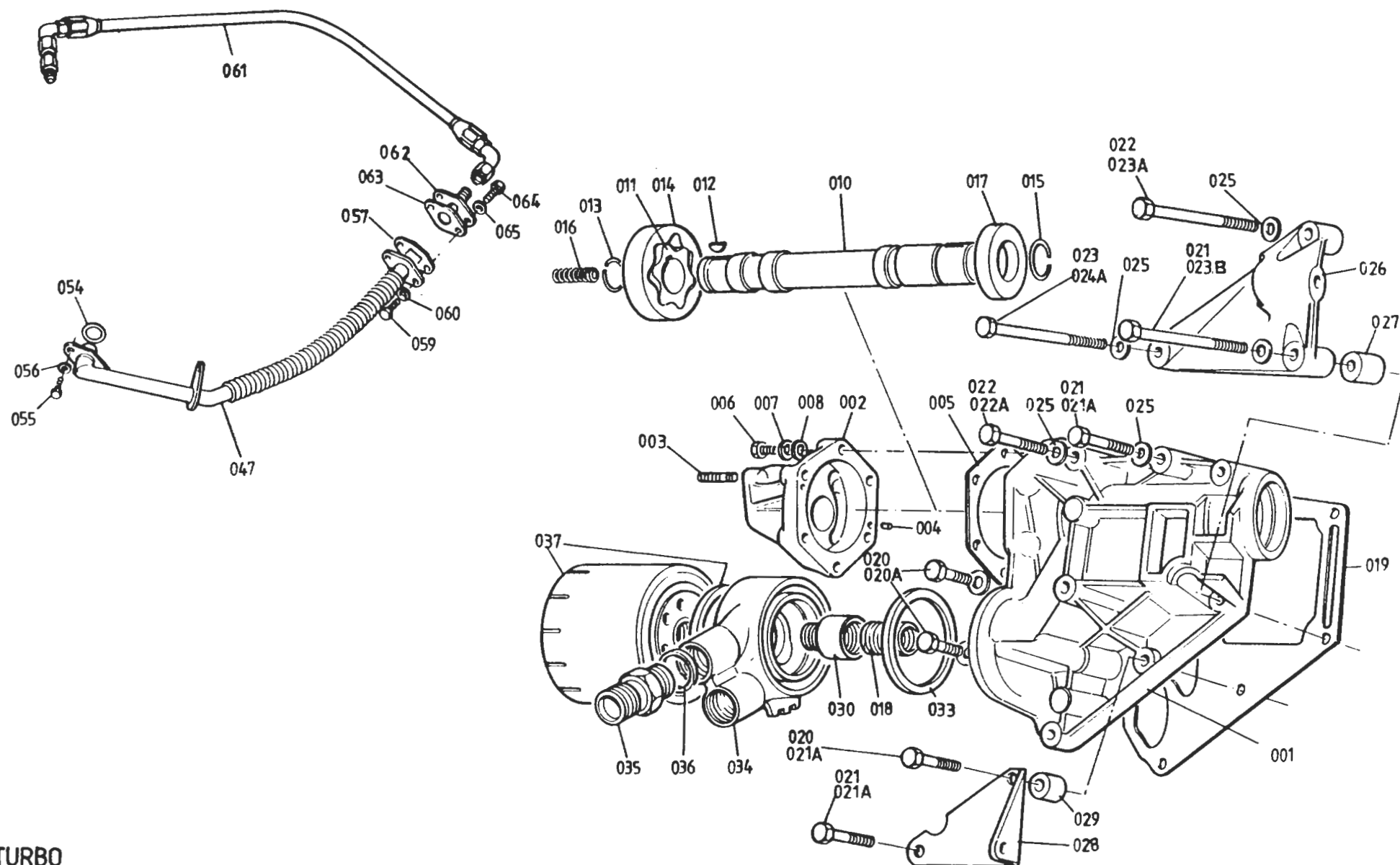
PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

020	Setscrew, M8 x 25, Housing to Block	A075W1039Z	3	3	)Wet
021	Bolt, M8 x 40, Housing to Block	A075W2039Z	3	3	Use Torx Bolt A912E1692K)Sump at front lower location if)Without insufficient hex. head)A/C clearance)
022	Bolt, M8 x 60, Housing to Block	A075W2043Z	2	2)
023	Bolt, M8 x 90, Housing to Block	A075W2048Z	1	1)
025	Washer, Flat, Aux. Hsg. Fixings	A075W4020Z	9	9)
020A	Setscrew, M8 x 25, Housing to Block	A075W1039Z		2	>
021A	Bolt, M8 x 40, Housing to Block	A075W2039Z		3	>
022A	Bolt, M8 x 60, Housing to Block	A075W2043Z		1	>
023A	Bolt, M8 x 90, Alt. Brkt/Housing/Block	A075W2048Z		1	Used with Alt/Brkt A910E1760K > With
	Bolt, M8 x 100, Alt. Brkt/Housing/Block	A075W2049Z		1	Used with Alt/Brkt B910E1760K > A/C
	Bolt, M8 x 115, Alt. Brkt/Housing/Block	A075W2047Z		1	Used with Alt/Brkt C910E1760K >
023B	Bolt, M8 x 90, Alt. Brkt/Housing/Block	A075W2048Z		1	Used with Alt/Brkt A910E1760K >
	Bolt, M8 x 100, Alt. Brkt/Housing/Block	A075W2049Z		1	Used with Alt/Brkt B910E1760K >
	Bolt, S/H, M8 x 100, Alt. Brkt/Housing/Block	A082W7043F		1	Used with Alt/Brkt C910E1760K >
024A	Bolt, M8 x 100, Alt. Brkt/Housing/Block	A075W2049Z		1	Use with Alt/Brkt A/B910E1760K>
	Bolt, M8 x 105, Alt. Brkt/Housing/Block	A075W2077Z		1	Used with Alt/Brkt C910E1760K >
025	Washer, Flat, Aux. Hsg. Fixings	A075W4020Z		7/9	7 with A/C >
026	Mounting Bracket, Alternator	A910E1760K		1	R/B C910E1760K)
	Mounting Bracket, Alternator	B910E1760K		1	R/B C910E1760K)
	Mounting Bracket, Alternator	C910E1760K		1	With Plinth) With
027	Spacer, Alt. Brkt. to Hsg.	A907E1094F		1	) A/C
028	Bracket, A/C Compressor Rear	B912E1379K		1)
029	Spacer, Comp. Brkt. to Hsg.	B912E1378K		1)

Turbo 40.15A
Page 2



TURBO
4015 A

ILLUS
NO.

QUANTITY

40.15A

40.15A

DESCRIPTION

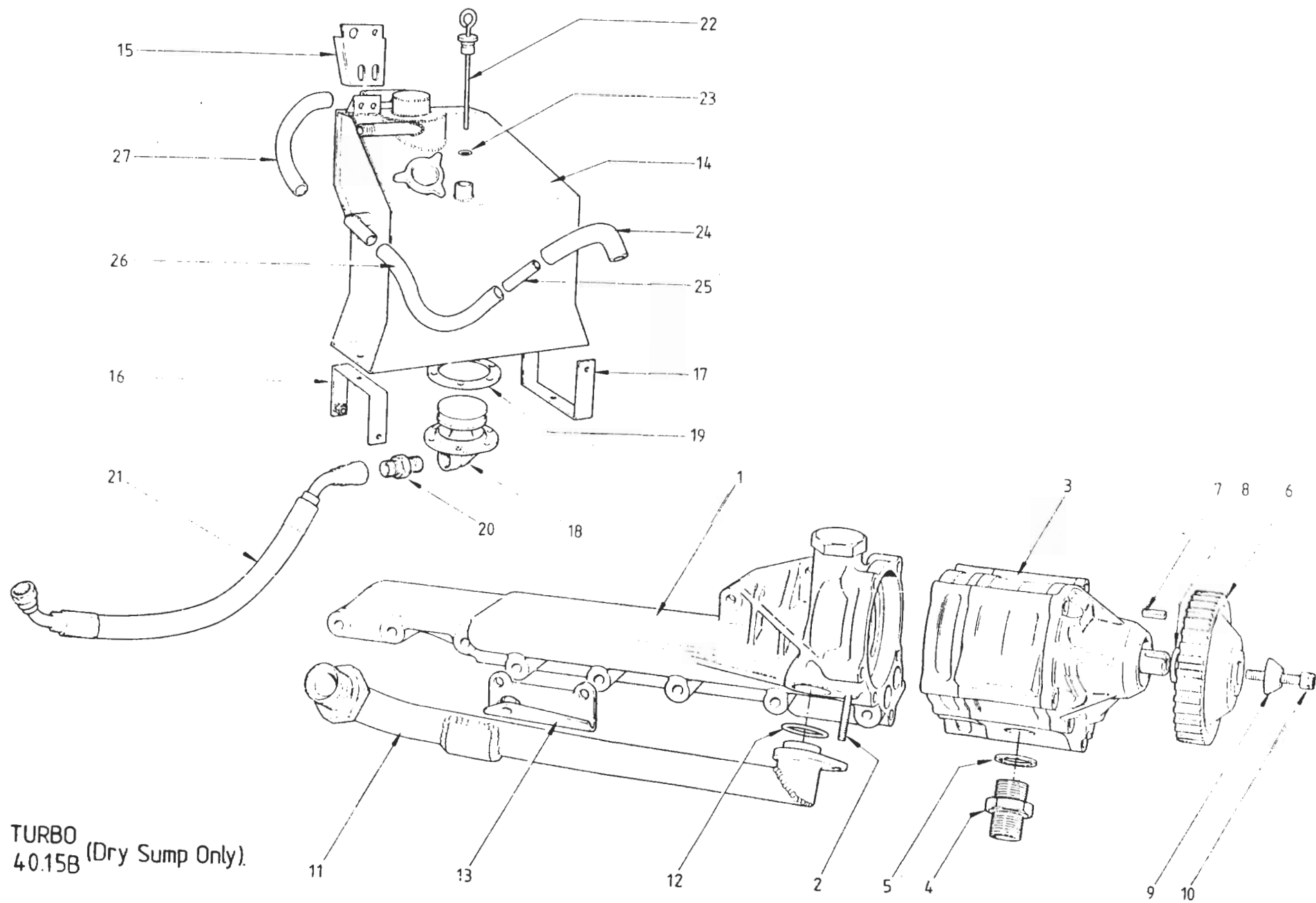
PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

030	Extension Union, Oil Filter	B907E0571F		1	
033	Sealing Ring, Adaptor/Housing	A907E6167F		1	
034	Adaptor, Oil Cooler	A907E1248K		1	
035	Union, Oil Cooler Pipes	A907E6300F		2	
036	Washer, Union to Adaptor	B907E6301F		2	
037	Oil Filter (inc. Sealing Ring)	A907E6000W	1	1	Prior to '86 M.Y.
	Oil Filter (inc. Sealing Ring)	B907E6000W		1	'86 M.Y. On. Use A907E6000W in Service
047	Pipe, Oil Drain, Turbo to Sump	C910E0979J	1		
	Pipe, Oil Drain, Turbo to Sump	B910E0990J		1	R/B C910E0990F
	Pipe, Oil Drain, Turbo to Sump	C910E0990F		1	
054	'O' Ring, Drain Pipe to Sump	A910E6491F	1	1	
055	Setscrew, M6 x 16, Pipe to Sump	A075W1028Z	2	2	
056	Washer, Spring, Pipe to Sump	A075W4035Z	2	2	
057	Gasket, Drain Pipe to Turbo	A910E6375H	1	1	
059	Setscrew, M8 x 20, Pipe to Turbo	A075W1038Z	2	2	
060	Washer, Spring, Pipe to Turbo	A075W4036Z	2	2	
061	Hose Assembly, Turbo Oil Feed	A910E1403F	1	1	R/B A910E2216F
	Hose Assembly, Turbo Oil Feed	A910E2216F	1	1	
062	Flange Adaptor, Turbo to Oil Feed Hose	A910E1545F	1	1	
063	Gasket, Flange Adaptor to Turbo	A910E6374H	1	1	
064	Setscrew, M8 x 20, Flange to Turbo	A075W1038Z	2	2	
065	Washer, Spring, Flange to Turbo	A075W4036Z	2	2	

Turbo 40.15A
Page 3



TURBO
40.15B (Dry Sump Only).

ILLUS
NO.

QUANTITY

MAY 1991

40.15B

DESCRIPTION

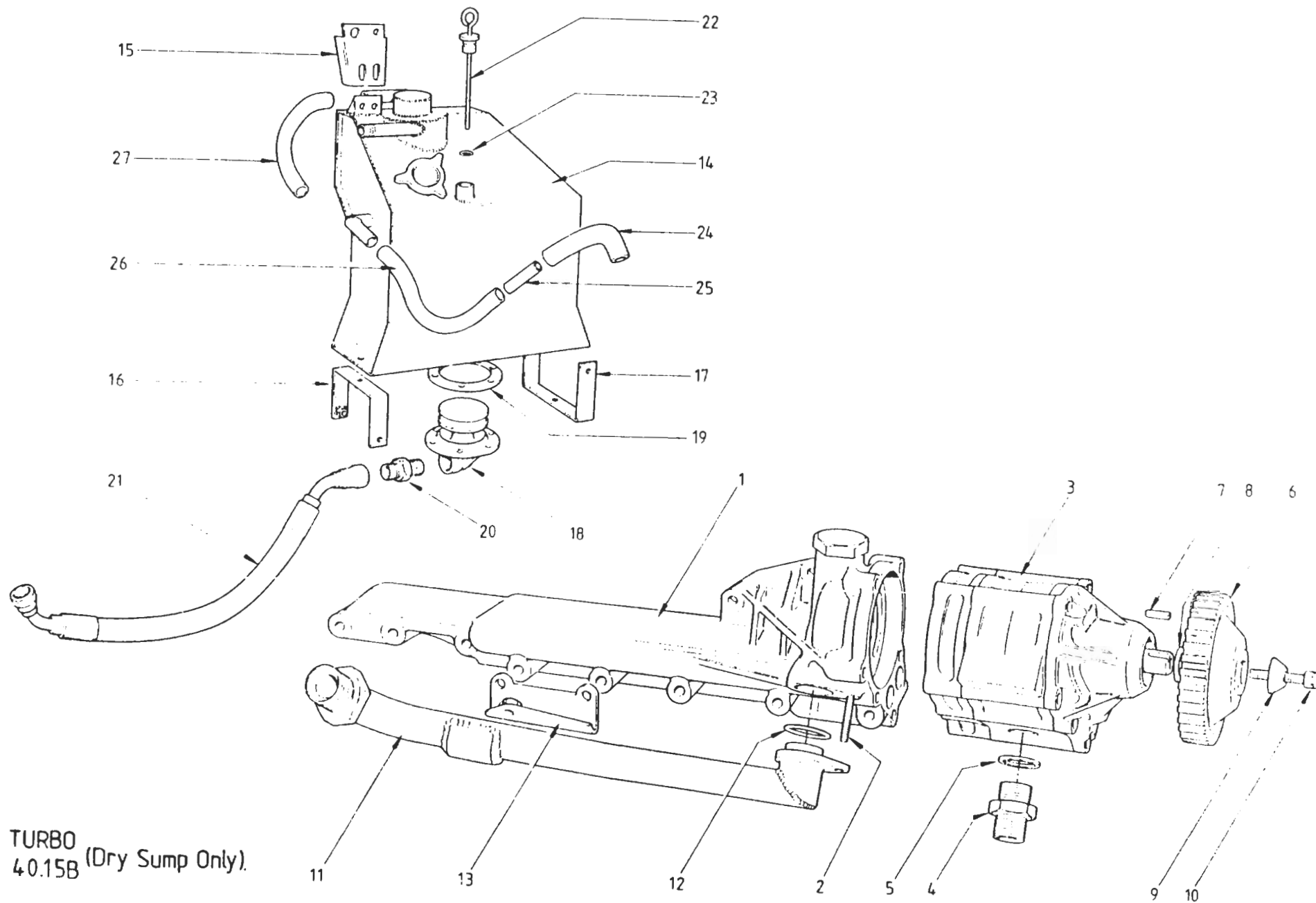
PART NUMBER

DRY
SUMP

REMARKS

1	Scavenge Manifold	A910E1452F	1		
	Gasket, Scavenge Manifold to Sump	A910E1468F	1		
	Stud, M6 x 87, Scavenge Manifold to Sump	A910E1671F	5		
	Stud, M6 x 67, Scavenge Manifold to Sump	A910E1595K	3		
	Nut, M6, Manifold to Sump	A075W3020Z	8		
	Bolt, M6, Manifold to Sump	A075W1031F	2		
	Washer, 6mm, Manifold to Sump	A075W4013Z	10		
	Stud, M6 x 116, Manifold to Pump	A910E1500K	4		
	Stud, M6 x 123, Manifold to Pump	A910E1501K	2		
	Loctite 501, Studs to Manifold		A/R		
2	Stud, M6, Oil Inlet Pipe to Manifold	A912E0063F	1		
3	Oil Pump Assembly	A910E0998J	1		Complete Pump Assembly but less Scavenge Manifold, Pulley and Fixings
	Nut, M6, Pump to Manifold	A075W3020Z	6		
	Washer, 6mm, Pump to Manifold	A075W4013Z	6		
4	Union, Scavenge Pump Outlet	A910E1621K	1		
5	"Dowty" Washer, Outlet Union	B907E6301F	1		
6	Pulley, Oil Pump, - 0.010" Diameter	A910E1705F	)		No Dots
	Pulley, Oil Pump, Standard	A910E1706F	) 1		One Dot on Pulley Rim
	Pulley, Oil Pump, + 0.010" Diameter	A910E1707F	)		Two Dots on Pulley Rim
7	Key, Pulley to Shaft	B910E6386F	1		
8	Washer, Pulley Rear/Shaft	A910E1711F	1		
9	Washer, Conical, Pulley Ret.	A910E1708F	1		
	Oil Seal, Pump Shaft Front	A910E6383F	1		
10	Bolt, Socket Head, Pulley Ret.	A075W7026F	1		
	Belt, Oil Pump Drive -9/-8	A910E6659F)		
	Belt, Oil Pump Drive -7/-6/-5	A910E6660F)		
	Belt, Oil Pump Drive -4/-3/-2	A910E6661F)		
	Belt, Oil Pump Drive -1/std/+1	A910E6384F	) 1		
	Belt, Oil Pump Drive +2/+3	A910E6662F)		
	Belt, Oil Pump Drive +4/+5/+6	A910E6663F)		
	Belt, Oil Pump Drive +7/+8/+9	A910E6664F)		
	Belt, Oil Pump Drive +10/+11/+12	A910E6665F)		
11	Pipe, Oil Tank Hose to Pump	A910E0982J	1		

Turbo (Dry Sump) 40.15B
Page 1



TURBO
 40.15B (Dry Sump Only).

ILLUS
NO.

QUANTITY

MAY 1991

40.15B

DESCRIPTION

PART NUMBER

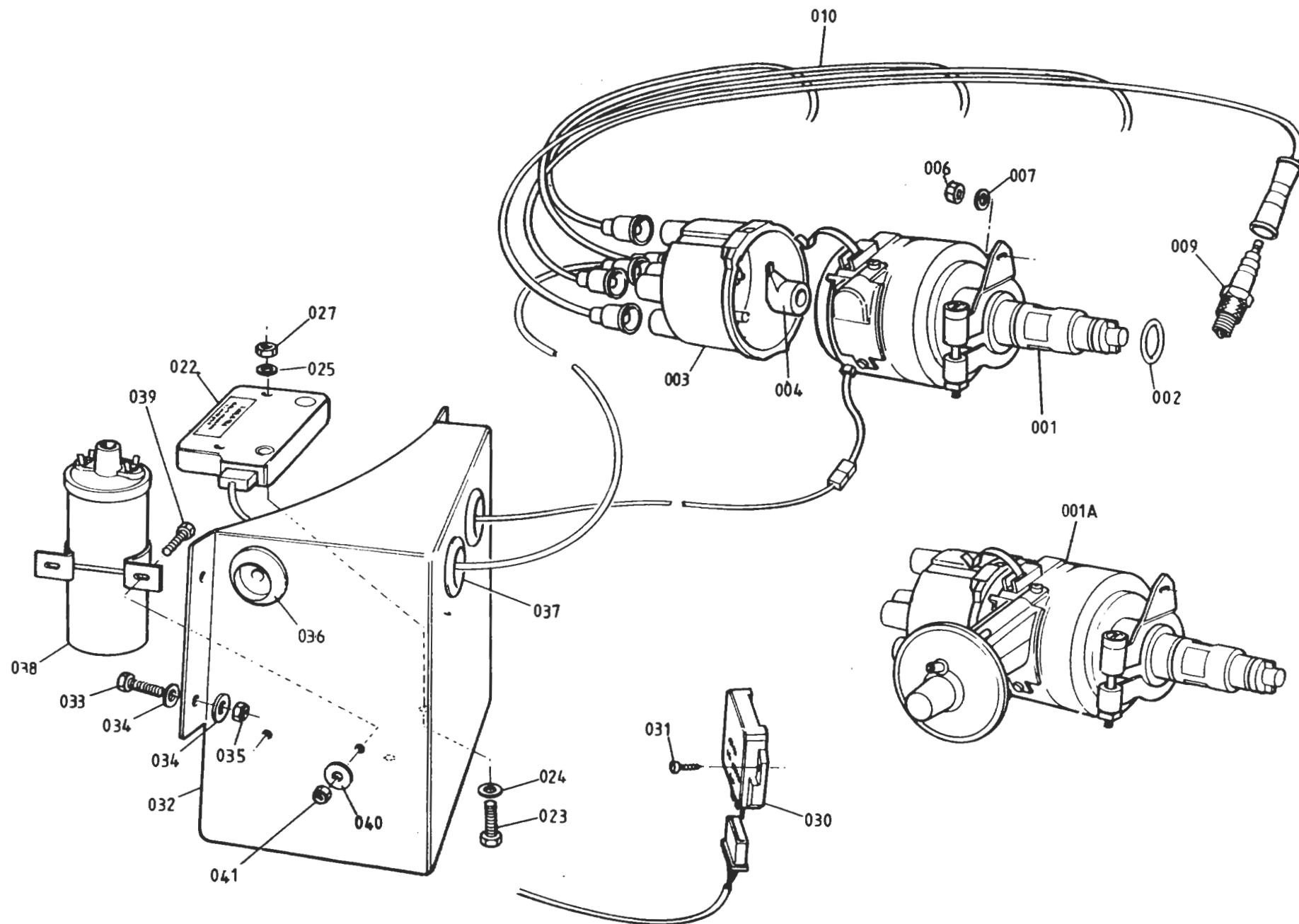
DRY
SUMP

REMARKS

12	'O' Ring, Pipe to Pump	A910E6526F	1		
	Nut, M6, Nyloc, Pipe to Pump	A075W3009Z	1		
	Washer, 6mm	A075W4013Z	1		
13	Support Bracket, Oil Pipe	A910E0981J	1		
	Setscrew, M6 x 18, Oil Pipe to Bracket	A075W1029Z	1		
	Washer, Shakeproof	A075W4046Z	1		
14	Oil Tank	A910E0942J	1		
15	Bracket, Oil Tank Upper	B082U4739K	1		
	Setscrew, M8 x 25, Tank to Bracket	A075W1039Z	2		
	Washer, Flat, Tank to Bracket	A075W4020Z	4		
	Nut, Nyloc, M8 Tank to Bracket	A075W3010Z	2		
16	Bracket, Oil Tank Lower Front	B082U4730K	1		
17	Bracket, Oil Tank Lower Rear	A082U4731K	1		
	Setscrew, M8 x 25	A075W1039Z	6)
	Washer, 8mm, Large O/D	A075W4021Z	6		) Oil Tank to Brkts. and Brkts. to Body
	Washer, Spring, 8mm	A075W4036Z	6)
18	Oil Pick Up/Strainer Assembly	A910E0931J	1		
19	Gasket, Pick Up to Tank	A910E1627F	1		
	Screw, Pick Up to Tank	A075W5089F	6		
20	Adaptor, Pick Up Assembly to Hose	A082E6003F	1		
21	Oil Hose Assembly, Tank to Pump	A082E4088F	1		
	Drain Plug	A910E6467F	1		
22	Dipstick (including 'O' Ring)	A910E0959J	1		
23	'O' Ring, Dipstick	A910E6469F	1		
	Filler Cap, Oil Tank	A026E0415F	1		
	Gasket, Filler Cap	A026E0325F	1		
24	Hose, Breather, Crankcase to Sleeve	B907E0636ZL	1		
25	Sleeve, Junction	B075K0111Z	1		
26	Hose, Breather, Sleeve/Oil Tank	A082E4090F	1		
	Clip, Breather Hose	B079K6018F	4		
	Grommet, Breather Hose/Body	A075P6018F	1		
27	Hose, Breather, Airbox/Oil Tank	A082E4089F	1		
	Clip, Breather Hose	B079K6018F	2		
	Grommet, Breather Hose/Body	A075P6018F	1		

Turbo (Dry Sump) 40.15B

Page 2



TURBO
4017 A

ILLUS
NO.

QUANTITY

40.17A

DESCRIPTION

PART NUMBER

ALL

REMARKS

001

001A

002

003

004

006

007

009

010

Distributor Assembly, Lumenition
(With MK 16 Switch)Distributor Assembly, Lumenition
(With Mk 17 Switch)

Distributor Assembly, Lucas 'Constant Energy'

Distributor Assembly, Lucas 'Constant Energy'

'O' Ring, Distributor Spigot

Distributor Cap

Rotor Arm/Rev. Limiter

Rotor Arm

Nut, Nyloc, Dist. Clamp to Engine

Washer, Flat, Dist. Clamp to Engine

Spark Plug, NGK BPR6ES

Ignition Harness, H.T.

Ignition Harness, H.T.

Ignition Harness, H.T.

Lumenition Optical Switch/Interrupter
Kit (MK 16)Lumenition Optical Switch/Interrupter
Kit (MK 17)

Lumenition Power Module (MK16)

Lumenition Power Module (MK17)*

Lumenition Power Module (MK17)*

Setscrew, M5 x 20, Module Fixing

Washer, 5mm, Module Fixing

B907E0901J

C907E0901J

A912E9002F

A910E6857F

A907E6251F

B907E6329H

A907E6330F

A912E6598F

A075W3009Z

A075W4013Z

B907E6317F

A910E1645F

C907E0740F

A910E9197F

A907E6331F

B907E6331F

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A083M0384F

B083M0384F

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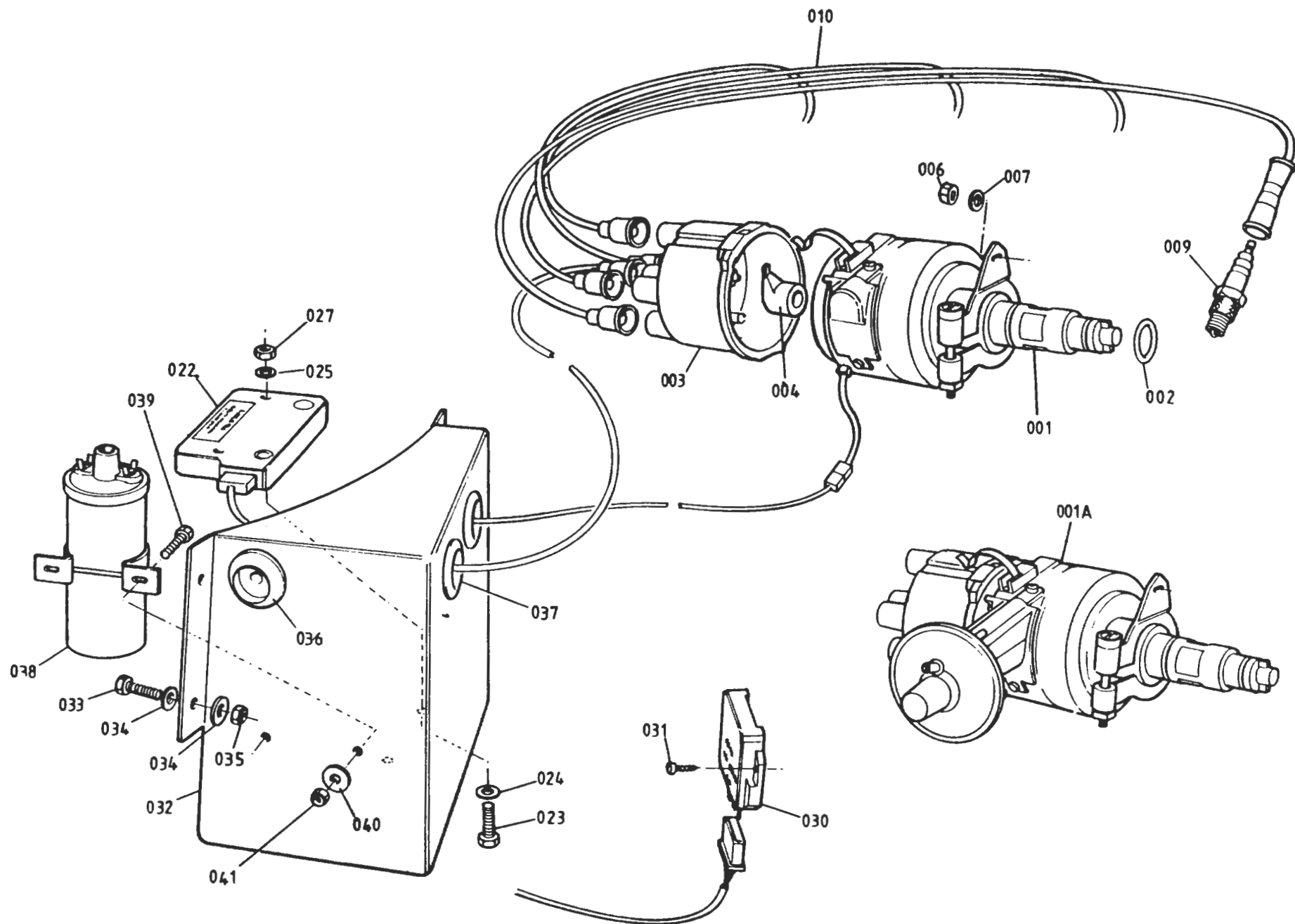
2

2

R/B C907E0901J. See Optical
Switch RemarksPrior '87 MY.
'87 M.Y. on ('HC')Used With 'Lumenition'
Used With 'Constant Energy'Early Cars With H.T. Coil Near Battery
R/B A910E9197F

R/B B907E6331F

When Replacing Mk16 Switch With MK17
Switch, Use With Adaptor A083M6305F
if Retaining Mk16 Power Module.
See S/B 1981/20 & 1982/13
R/B A/B083M0384F
Early Cars With Module by R.H. Fuel Tank
With Module in Ignition Box*When Replacing MK16 Power Module (Red
or Black Resin Sealing Wires Into Unit)
With MK17 Unit (White Plastic Sealing
Clamp), Use Only in Conjunction With
MK17 Optical SwitchTurbo 40.17A
Page 1



TURBO
4017 A

ILLUS
NO.

MAY 1991

40.17A

DESCRIPTION

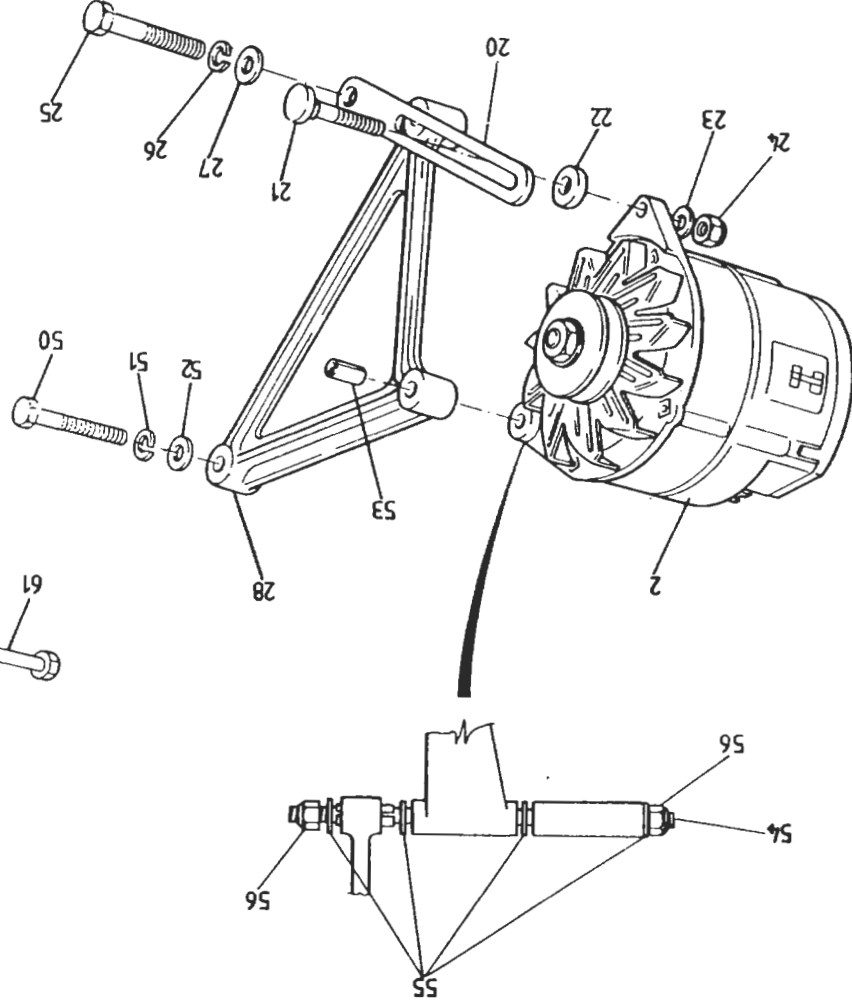
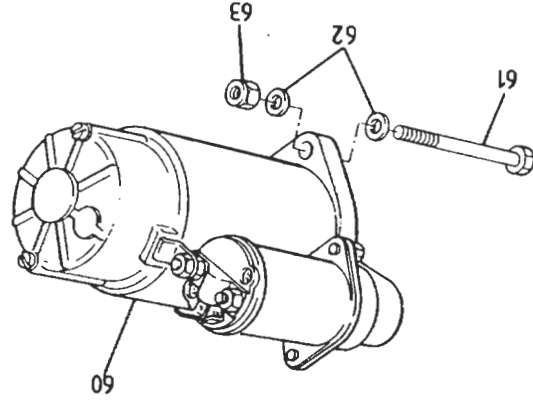
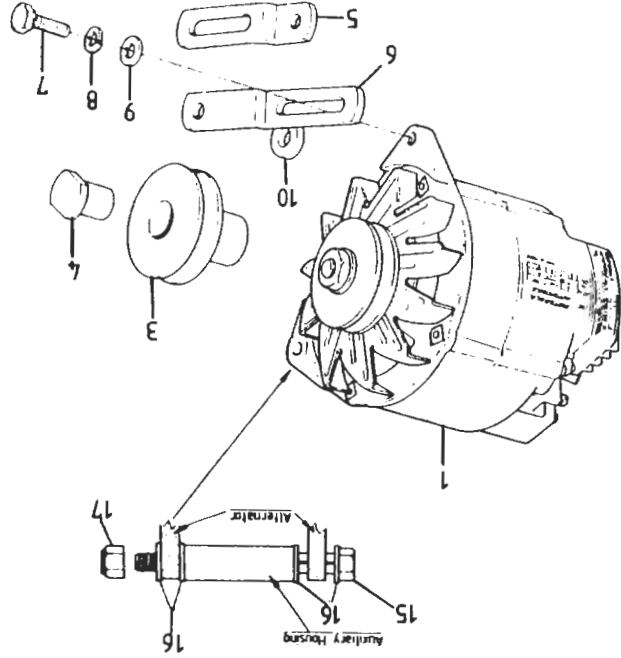
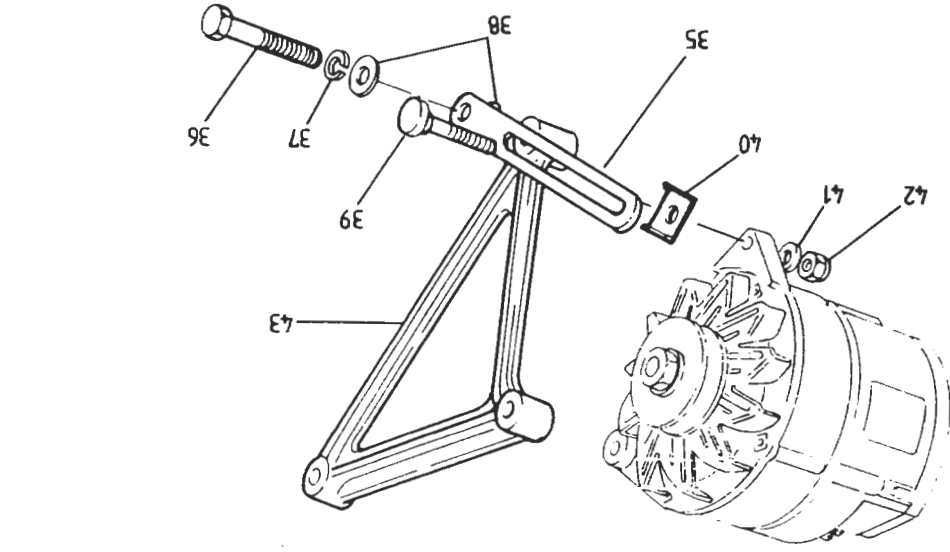
PART NUMBER

QUANTITY

ALL

REMARKS

022	Nut, Nyloc, M5, Module Fixing	A075W3008Z	2		
	Lumenition Adaptor, Mk17 Switch/MK16 Module	A083M6305F	1		When Required
	Fibre Washer, Chopper Blade Height Adjust	A075W4057F	1		When Required
	Lucas 'Constant Energy' Ignition Amplifier (AB 14)	A089M6036F	1		
023	Setscrew, M8 x 50, AB14 Fixing	A075W1044F	2		
024	Washer, Flat, AB14 Fixing	A075W4020F	2		
025	Washer, Shakeproof, AB14 Fixing	A075W4048Z	2		
027	Nut, M8, AB14 Fixing	A075W3021F	2		
030	Engine Speed Limiter 'Constant Energy'	B082M6183F	1		
	Setscrew, M5 x 20, Limiter Fixing	A075W1025F	2		)With Speed Limiter Fitted To
	Nut, Nyloc, M5, Limiter Fixing	A075W3008Z	2		)Rear of Wheelarch
	Washer, Flat, Limiter Fixing	A075W4009Z	2)
031	Screw, No. 6 x 3/4", Limiter Fixing	A075W5028Z	2		With Limiter Fitted to Wheelarch
	Setscrew, M5 x 30, Limiter Fixing	A079W1084F	2		Reinforcing Timber Web. Prior to '87 M.Y.
	Washer, M5, Limiter Fixing	A075W4011Z	2		>
	Nut, Nyloc, M5, Limiter Fixing	A075W3008Z	2		>'87 M.Y. on
032	Ignition Box	A082B4382J	1		>
033	Setscrew, M6 x 20, Ign. Box Fixing	A075W1030Z	4		
034	Washer, 24mm O/D, Ign. Box Fixing	A075W4017Z	8		
035	Nut, Nyloc, M6, Ign. Box Fixing	A075W3009Z	4		
036	Grommet, Harness Thro' Box	A075U6043Z	2		
037	Grommet, H.T. Harness/Ign. Box	A075U6043Z	1		
038	Ignition Coil, H.T.	A082M6150F	1		With Pink/White Ballast)
	Ignition Coil H.T.	A085M6198F	1		Resistor Wire In Main)With
	Ballast Resistor	A085M6209F	1		Harness)'Lumenition'
					With Separate Ballast) Ignition
					Resistor)
					Used With Coil A085M6198F)
039	Ignition Coil	A085M6198F	1		With Lucas 'Constant Energy'
040	Setscrew, M6 x 16, Coil Fixing	A075W1028Z	2		
041	Washer, Coil Fixing	A075W4017Z	2		
d5p46	Nut, Nyloc, M6, Coil Fixing	A075W3009Z	2		



ILLUS
NO.

QUANTITY

MAY 1991

REMARKS

40.19A

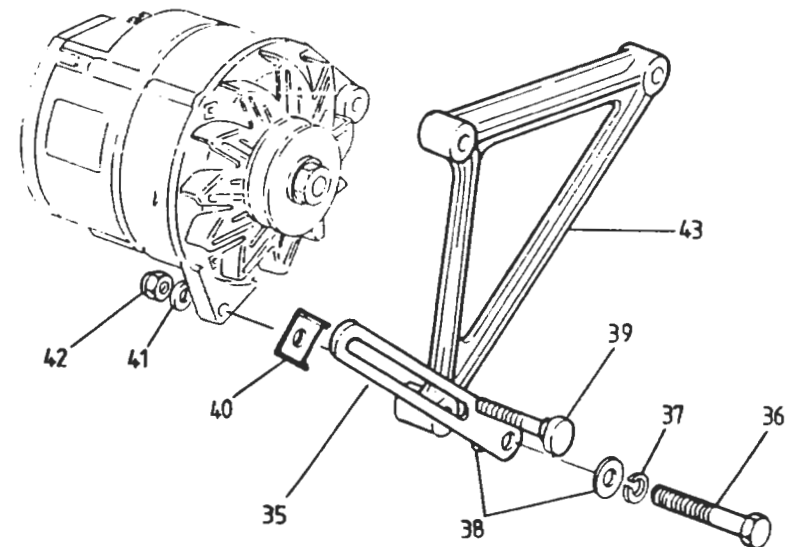
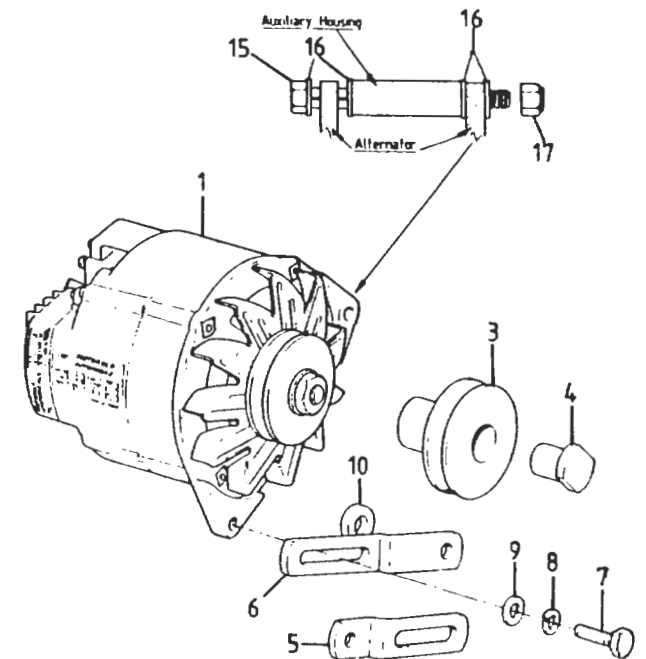
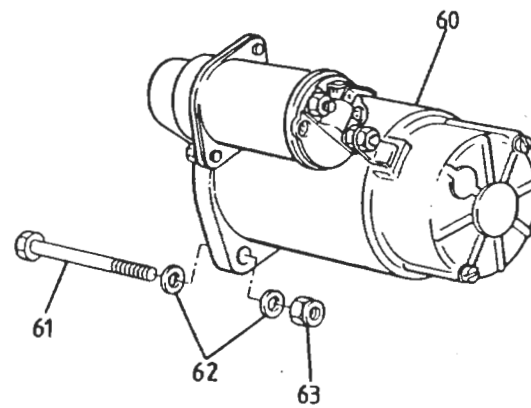
DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

	Alternator, 70A	A907E6320F	1		Discard Pulley Supplied
1	Alternator and Pulley Assy. 70A	A907E6320F		1	Without Air Conditioning, Prior '87 M.Y.
2	Alternator and Pulley Assy. 70A	B910E6566F		1	With Air Conditioning, All '87 M.Y. On
	Fan Kit, Alternator	A910E6818S		1	
3	Pulley, Alternator	B910E1592F	1		
4	Nut, Special, Pulley to Alternator	A910E1593F	1		
5	Strap, Alternator Adjusting	A910E1647K	1		
	Setscrew, M8 x 20, Strap to Alternator	A075W1038Z	1		
	Washer, Spring, Strap to Alternator	A075W4036Z	1		
	Spacer, Adjusting Strap to Belt Tensioner	A907E1137F	1		
6	Strap, Alternator Adjusting	A907E1189F		1)
7	Setscrew, M8 x 20, Strap to Alternator	A075W1038Z		1)
8	Washer, Spring, Strap to Alternator	A075W4036Z		1)
9	Washer, Flat, Strap to Alternator	A075W4020Z		1	)Wet Sump Prior to '87 M.Y.
10	Spacer, Adjusting Strap to Belt to Tensioner	A907E1137F		1	) Without A/C
15	Bolt, M8 x 127, Alternator to Aux. Hsg.	A075W2050Z	1	1)
16	Washer, Flat, Alternator to Aux. Hsg.	A075W4020Z	4	4)
17	Nut, Nyloc, M8, Alt. to Aux. Hsg.	A075W3010Z	1	1)
20	Strap, Alternator Adjusting	A910E1764F		1	>
	Bolt, Strap to Alternator	A910E1819F		1	R/B A910E2226F >
21	Bolt, Strap to Alternator	A910E2226F		1	>
22	Spacer, Strap to Alternator	A907E1139F		1	>
23	Washer, Plain, Strap to Alternator	A075W4020Z		1	>Prior to '87 M.Y.
24	Nut, Nyloc, M8, Strap to Alternator	A075W3010Z		1	> With A/C
25	Bolt, M10 x 45, Strap to Engine	A075W2053Z		1	>
26	Washer, Spring, Strap to Engine	A075W4037Z		1	>
27	Washer, Plain, Strap to Engine	A075W4024Z		1	>
28	Steady Bracket, Alternator	C910E1761K		1	>
35	Strap, Alternator Adjusting (Nylon)	A912E2220F		1)
36	Bolt, M10 x 45, Strap/Brkt./Engine	A075W2053Z		1)
37	Washer, Spring, Strap Fixing	A075W4037Z		1	) '87 M.Y. on
38	Bush, Alternator Strap	A912E2222F		2)
39	Clamp Bolt, Alternator to Strap	A910E2226F		1)

Turbo 40.19A
Page 1



TURBO
40.19A

ILLUS
NO.

QUANTITY

MAY 1991

40.19A

DESCRIPTION

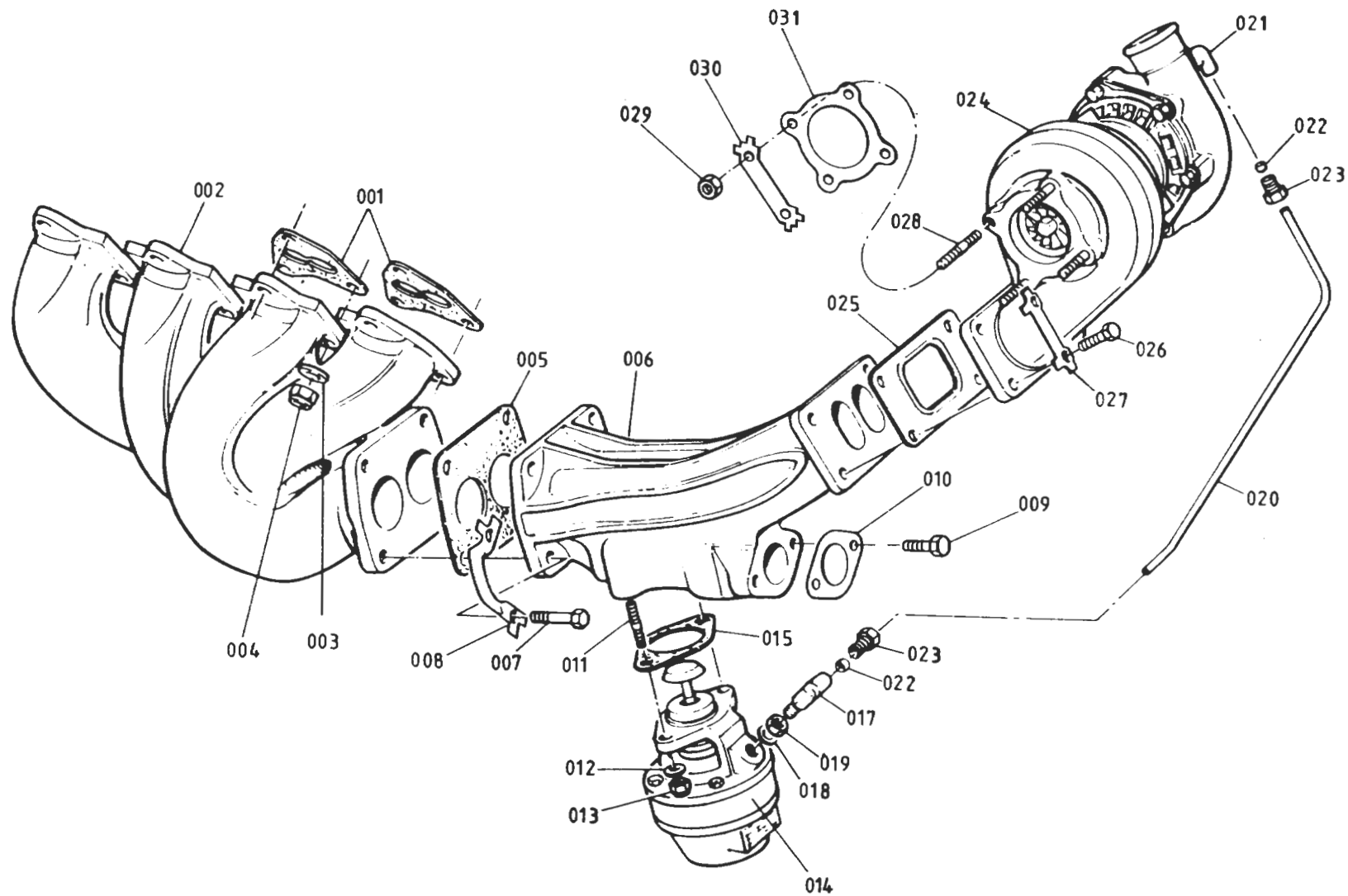
PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

40	Clamp Plate, Alternator to Strap	A912E2221F		1)
41	Washer, Flat, Alternator Fixing	A075W4020Z		1	) '87 M.Y. on
42	Nut, Nyloc, M8, Alternator Fixing	A075W3010Z		1)
43	Steady Bracket, Alternator	D910E1847K		1)
50	Bolt, Steady Brkt. to Water Pump	A075W2039D		1	>
51	Washer, Spring, Brkt. to Water Pump	A075W4019Z		1	>Prior to '87 M.Y. with A/C
52	Washer, Flat, Brkt. to Water Pump	A075W4036Z		1	>'87 M.Y. on, with & without A/C
53	Bush, Split, Steady Bracket	B910E1796F		1	>
54	Stud, Alternator to Aux. Hsg.	B910E1797Z		1	>
55	Washer, Flat, Alt. to Aux. Hsg.	A075W4020Z		4	>
56	Nut, Nyloc, M8, Alt. to Aux. Hsg.	A075W3010Z		2	>
60	Starter Motor, Lucas 3M100	B907E6179W	1	1	R/B A912E6884F
	Starter Motor, Lucas M80R	A912E6884F	1	1	
	Insulation Sleeve, Unused Terminal	A910E2385F	1	1	
61	Bolt, M10 x 75, Starter to Engine	A075W2059Z	2	2	Use with Lucas 3M100 S/Motor
	Bolt, M10 x 80, Starter to Engine	A075W2061Z	2	2	Use with Lucas M80R S/Motor
62	Washer, Starter to Engine	A075W4024Z	4	4	
63	Nut, Nyloc, M10, Starter to Engine	A075W3011Z	2	2	

Turbo 40.19A
Page 2



TURBO
4021A

ILLUS
NO.

QUANTITY

MAY 1991

40.21A

DESCRIPTION

PART NUMBER

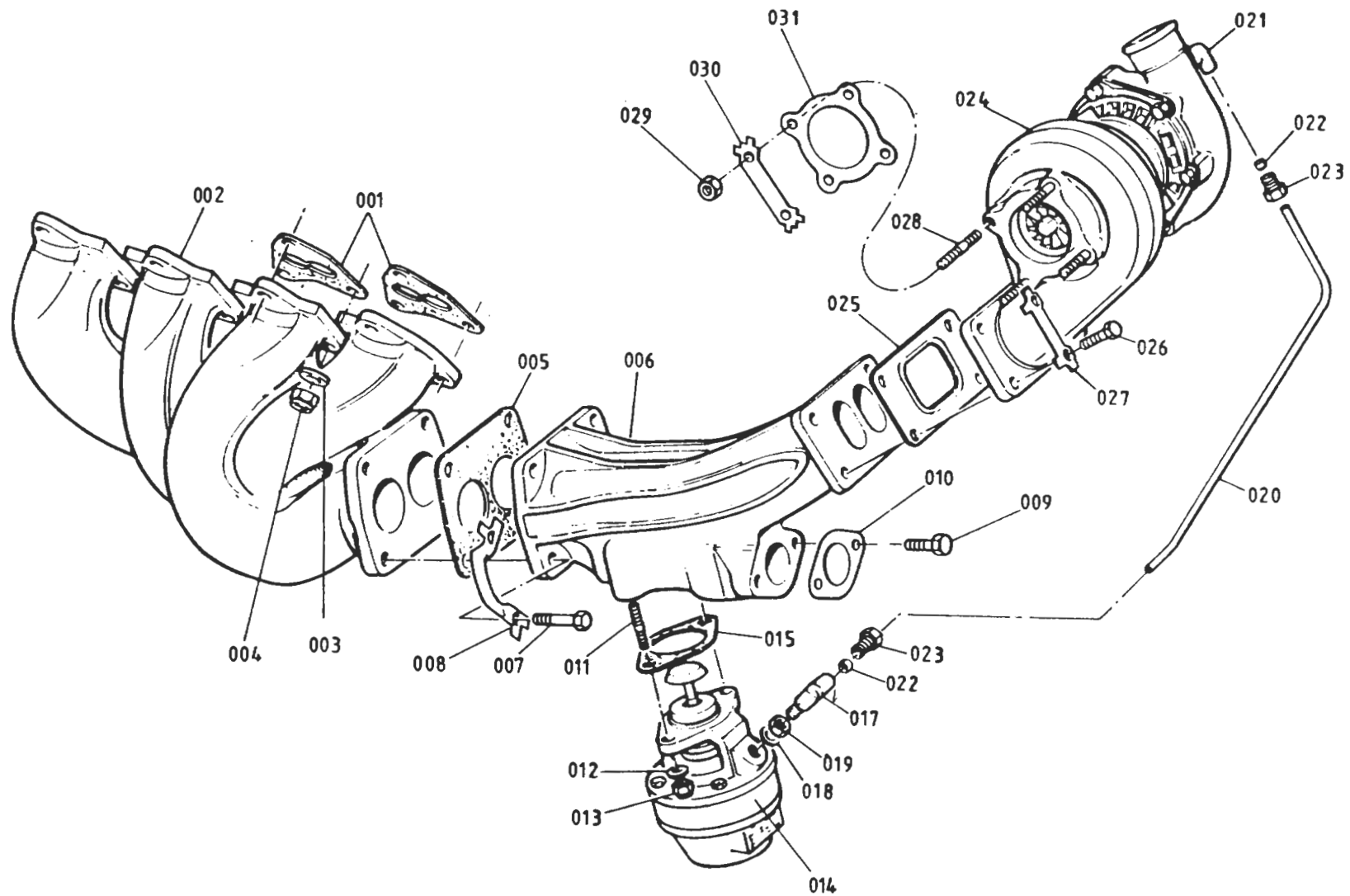
STD.
ENGINEH.C.
ENGINE

REMARKS

001	Gasket, Exhaust Manifold to Head	A910E0004K	4		
002	Gasket, Exhaust Manifold to Head	A910E2235F		4	
	Manifold, Exhaust	C910E1380K	1		R/B A910E2155K
	Manifold, Exhaust	A910E2155K	1	1	
003	Washer, Flat, Manifold to Head	A075W4020Z	12		
	Locking Plate, Manifold to Head, Upper	A910E2419F		2	
	Locking Plate, Manifold to Head, Lower	A910E2420F		4	
004	Nut, M8, 'Aerotight' Manifold to Head	A075W3022Z	12	12	
	Nut, M8, Special	A082S6013F	4	4	Alternative Top Fixings if Insufficient Clearance for A075W3035Z
005	Gasket, Manifold to Adaptor	B910E1390F	1	1	
006	Adaptor, Wastegate	C910E1389F	1		4 x M6/2 x M8 Wastegate Fixing R/B E910E1389F
	Adaptor, Wastegate	D910E1389F	1		4 x M6/2 x M10 Wastegate Fix R/B E910E1389F
	Adaptor, Wastegate	E910E1389F	1	1	2 x M10 Wastegate Fixing
007	Bolt, Adaptor to Manifold	A910E6412F	4	4	
008	Lockplate, Adaptor/Manifold Bolts	A910E1562F	2	2	
009	Bolt, Wastegate Pipe to Adaptor	A910E6414F	2	2	
010	Gasket, Wastegate Pipe to Adaptor	A910E1391F	1	1	
	Setscrew, Wastegate to Adaptor	A910E1765F	4		For 4-Stud Fixing Wastegate. Replaces Studs and Nuts
	Locktab, Wastegate to Adaptor	A910E1672K	2		For 4-Stud Fixing Wastegate
011	Stud, M8, Wastegate to Adaptor	C910E6413K	2		
	Stud, M10, Wastegate to Adaptor	B910E1826F	2	2	
	Reducing Sleeve, 10/8mm, Wastegate to Adaptor	A910E1976F	2		Use to Fit M10 Wastegate with M8 Studs
012	Washer, 8mm, Wastegate to Adaptor	A075W4020Z	2		
	Locking Plate, Wastegate Adaptor	A910E2422F	2	2	
013	Nut, M8, Wastegate to Adaptor	A075W3022Z	2		
	Nut, M10, 'Aerotight', Wastegate to Adaptor	A079W3071F	2	2	
	Wastegate Assembly, 4 x M6 Stud Fixing	A910E6430F	1		R/B E910E6373F with M8 studs and reducing sleeves

Turbo 40.21A

Page 1



TURBO
4021A

ILLUS
NO.

QUANTITY

MAY 1991

40.21A

DESCRIPTION

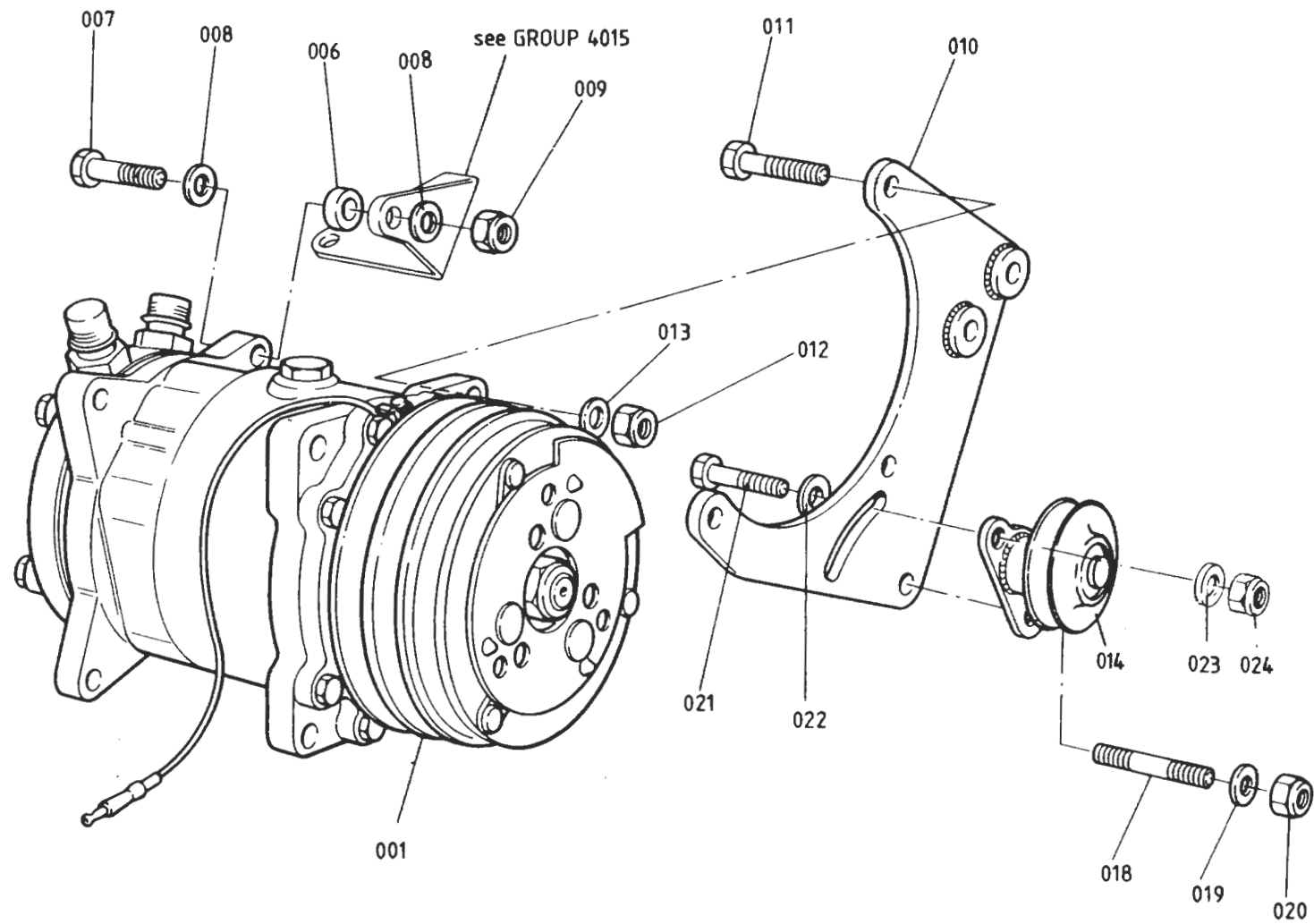
PART NUMBER

STD.
ENGINEH.C.
ENGINE

REMARKS

014	Wastegate Assembly, 2 x M8 Stud fixing	D910E6373F	1		R/B E910E6373F with reducing sleeves
	Wastegate Assembly, 2 x M10 Stud fixing	E910E6373F	1		
	Wastegate Assembly, 2 x M10 Stud fixing	A910E9206F		1	
	Diaphragm, Wastegate	A910E6571F	1)
	Gasket, Diaphragm	A910E6575F	2		)For wastegate D/E 910E6373F
	Nut, Locking, Valve Stem	A910E6746F	2)
	Sealing Washer, Diaphragm Clamping	A910E6747F	2)
015	Gasket, Wastegate to Adaptor	A910E6431F	1		4 x M6 stud fixing
	Gasket, Wastegate to Adaptor	B910E6391F	1		2 x M8 stud fixing
	Gasket, Wastegate to Adaptor	C910E6391F	1	1	2 x M10 stud fixing
017	Elbow, Wastegate to Boost Control Pipe	A910E6461F	1	1	
018	Copper Washer, Elbow to Wastegate	A910E6392F	1	1	
019	Locknut, Elbow to Wastegate	A910E6462F	1	1	
020	Pipe, Boost Control	A910E1674K	1		
	Pipe, Boost Control	A910E2160F		1	
021	Elbow, Turbo to Boost Control Pipe	A910E6460F	1	1	
022	Olive, Boost Control Pipe	A910E6463F	2	2	
023	Sleeve Nut, Boost Control Pipe	A910E6464F	2	2	
024	Turbocharger Assembly	C910E6372F	1	1	
025	Gasket, Turbo to Wastegate Adaptor	A910E6376H	1	1	
026	Bolt, Turbo to Wastegate Adaptor	A910E6415F	4	4	
027	Lockplate, Turbo to Wastegate Adaptor	A910E1563F	2	2	
028	Stud, Turbo to Exhaust Pipe	B910E1650K	4	4	
029	Nut, Exhaust Pipe to Turbo	A075W3072F	4	4	
030	Lockplate, Exhaust Pipe to Turbo	A910E1564F	2	2	
031	Gasket, Exhaust Pipe to Turbo	A910E1300F	1	1	

Turbo 40.21A
Page 2



TURBO
4023A

ILLUS
NO.

QUANTITY

MAY 1991

DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

40.23A

Compressor, Air Conditioning
Bracket, Compressor to Engine
Screw, Socket Head, Compressor to Bracket
Nut, M10, Compressor to Bracket
Washer, 10mm, Compressor to Bracket
Bush, Compressor Rear Fix
Bolt, M6, Compressor Mounting Rear
Washer, Compressor Mounting Rear
Nut, M6, Compressor Mounting Rear
Idle Pulley/Adjuster Bracket
Setscrew, M8, Belt Adjuster
Washer, 8mm, Plain
Washer, 8mm, Conical
Washer, 8mm, Spring

A079P6010F
B910E1581K
A079W7025F
A075W3023Z
A075W4024Z
A910E1646K
A075W2030Z
A075W4016Z
A075W3009Z
B910E0947J
A075W1040Z
A075W4020Z
A907E0688Z
A075W4036Z

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2

001 Compressor, Air Conditioning
006 Spacer, Compressor to Rear Bracket
007 Bolt, M10 x 40, Compressor Rear Fixing
008 Washer, Compressor Rear Fixing
009 Nut, M10, Compressor Rear Fixing
010 Bracket, Compressor Front to Block
011 Bracket, Compressor Front to Block
012 Bolt, Compressor to Front Bracket
013 Nut, M10, Compressor to Front Bracket
014 Washer, Compressor to Front Bracket
014 Idler Pulley/Adjuster Bracket 27mm offset*
014 Idler Pulley/Adjuster Bracket 10mm offset*

A079P6010F
A907E1136F
A075W2052Z
A075W4024Z
A075W3011Z
A907E1233K
A912E2276F
A075W2051Z
A075W3011Z
A075W4024Z
B907E0898J
A910E9049J

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2
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3
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1

Prior '87 M.Y.
'87 M.Y. On

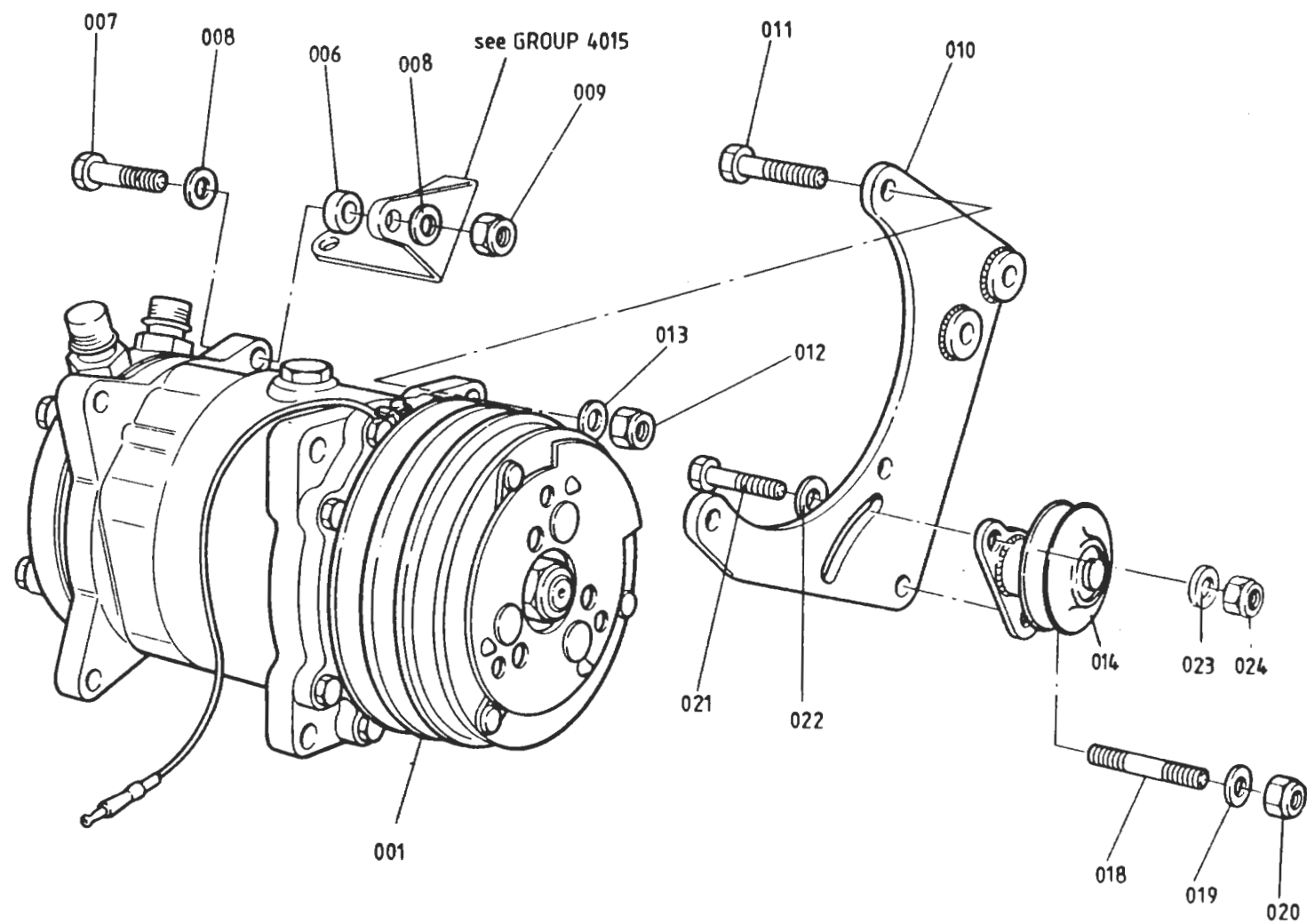
Up to engine No 20825
Engine No 20826 onwards
*Dimension is pulley axis offset from line
joining adjuster bracket fixing hole
centres

018 Stud, Pulley Bracket/Comp Bracket/MBH
019 Washer, Flat, Pulley Bracket Fixing
020 Nut, Nyloc, M8, Pulley Bracket Fixing
021 Bolt, M8, Idler Pulley Adjust
022 Washer, Conical, Adjusting Slot
d5p51 Washer, Thick, Adjusting Slot

A907E1197F
A075W4020Z
A075W3010Z
A075W2037Z
A907E0688Z
A079W4019F

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Turbo 40.23A
R/B A079W4019F Page 1



TURBO
4023A

ILLUS
NO.



QUANTITY

MAY 1991

40.23A

DESCRIPTION

PART NUMBER

DRY
SUMP

WET
SUMP

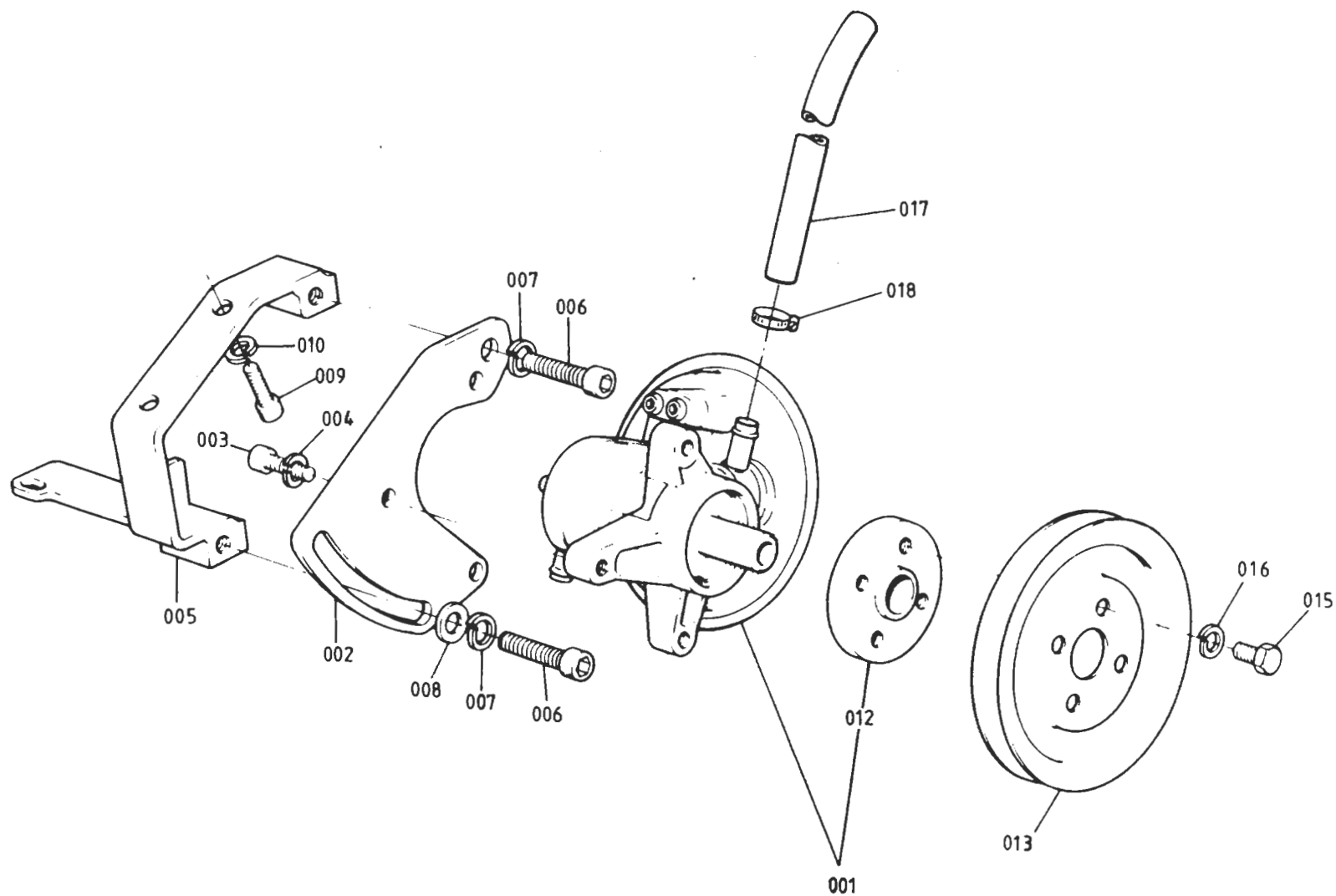
REMARKS

023
024

Washer, Flat, Idler Pulley Adjust
Nut, Nyloc, M8, Idler Pulley Adjust

A075W4020Z
A075W3010Z

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1



TURBO ('87M.Y.H.C.)
4Q27A

ILLUS
NO.

QUANTITY

MAY 1991

40.27A

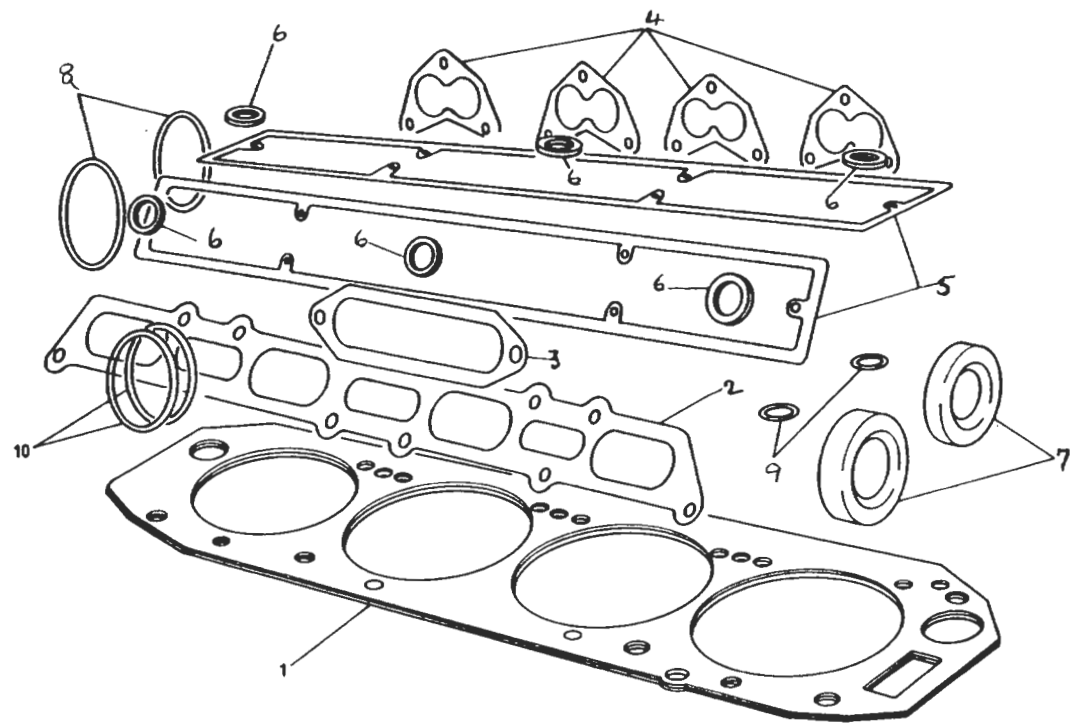
DESCRIPTION

PART NUMBER

1987
M.Y.ON

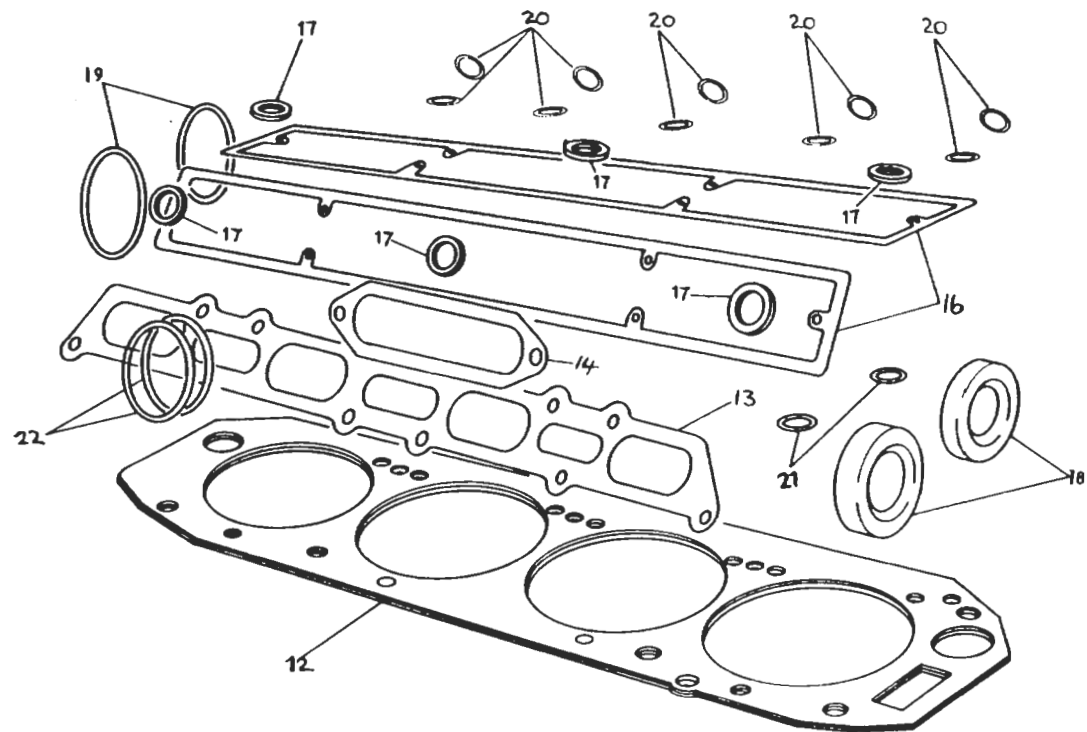
REMARKS

001	Vacuum Pump / Hub Assembly	A910E9027J	1		
002	Carrier Plate, Vacuum Pump	A910E1870K	1		
003	Setscrew, M8 x 25, Pump to Carrier	A075W7024F	3		
004	Washer, Spring, Pump to Carrier	A075W4036Z	3		
005	Bracket, Pump to Block	A910E1869F	1		
006	Setscrew, M10 x 30, Carrier to Brkt.	A075W7031F	2		
007	Washer, Spring, Carrier to Brkt.	A075W4037Z	2		
008	Washer, Flat, Adjusting Slot	A912E2007Z	1		
009	Setscrew, M8 x 25, Brkt. to Water Pump	A075W7024Z	2		
010	Washer, Spring, Brkt. to Water Pump	A075W4036Z	2		
012	Hub, 'V' Pulley	A910E1873F	1		
013	'V' Pulley, Vacuum Pump	A910E2249F	1		
015	Setscrew, M8 x 16, Pulley to Hub	A075W1036Z	4		
016	Washer, Spring, Pulley to Hub	A075W4036Z	4		
017	Hose, Air Exhaust	A075J6078V	*		* 1090mm
018	Clip, Hose to Pump Outlet	A079M6132F	1		
	Clip, Hose to Chassis	A075W6228F	1		
	Screw, Clip to Chassis	A075W5016Z	1		
	Washer, Clip to Chassis	A075W4000Z	1		

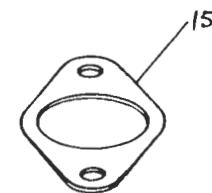


STD

TURBO
40-28A



HC



ILLUS
NO.

QUANTITY

MAY 1991

40.28A

DESCRIPTION

PART NUMBER

STD.

H.C.

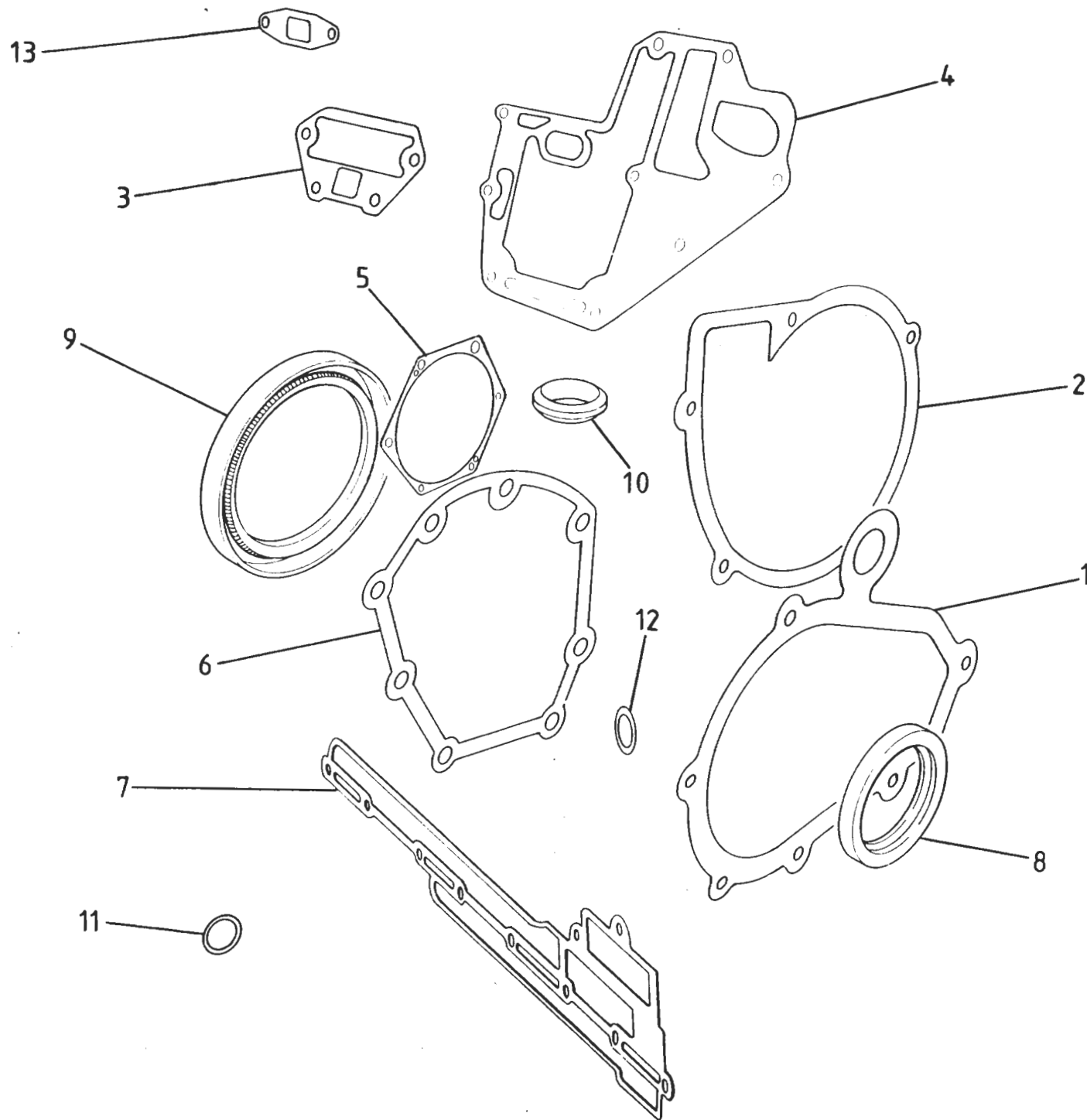
REMARKS

	Engine Upper Gasket Set Comprising	B910E0807W	1		
1	Cylinder Head Gasket	B907E0026Z	1		
2	Inlet Manifold Gasket	A907E0204Z	1		
3	Diffuser/Plenum Gasket	A910E1474F	1		
4	Exhaust Manifold Gasket	A910E0004Z	4		
5	Camshaft Cover Gasket	A912E2040F	2		Replaces Earlier Cork Type
6	Camshaft Cover Screw Washer	A912E6406F	6		
7	Camshaft Front Oil Seal	B907E6042Z	2		
8	Camshaft Rear Cover 'O' Ring	A907E6027Z	2		
9	Camshaft Housing Oil Feed 'O' Ring	A907E6202Z	2		
10	Carburettor Mounting 'O' Ring	A910E6387F	8		
	Engine Upper Gasket Set Comprising	A910E9246W		1	
12	Cylinder Head Gasket	B907E0026Z		1	
13	Inlet Manifold Gasket	A912E2009F		1	
14	Diffuser/Plenum Gasket	A910E1474F		1	
15	Thermostat Housing Gasket	A026E6102Z		1	
16	Camshaft Cover Gasket	A912E2040F		2	
17	Camshaft Cover Screw 'O' Ring	A912E6695F		6	
18	Camshaft Front Oil Seal	B907E6042Z		2	
19	Camshaft Rear Cover 'O' Ring	A907E6027Z		2	
20	Camshaft Housing Access Plug 'O' Ring	A912E6694F		10	
21	Camshaft Housing Oil Feed 'O' Ring	A907E6202Z		2	
22	Carburettor Mounting 'O' Ring	A907E6027Z		8	

For Exhaust Manifold Gaskets, Order
4-Off A910E2235F Separately if Required

d6p28

Turbo 40.28A



TURBO
40-28B

ILLUS
NO.

MAY 1991

40.28B

DESCRIPTION

PART NUMBER

QUANTITY

ALL

REMARKS

Engine Lower Gasket Set

Comprising:-

A910E0808W

1

1 Front Cover Gasket

A907E0245Z

1

2 Water Pump Gasket

A907E0246Z

1

3 Oil Gallery Cover Gasket

A907E0438Z

1

4 Auxiliary Housing Gasket

C907E0442Z

1

5 Oil Pump Gasket

A907E0474Z

1

6 Rear Seal Housing Gasket

A907E0671Z

1

7 Scavenge Manifold Gasket

A910E1468F

1

8 Crankshaft Front Oil Seal

B907E6010Z

1

9 Crankshaft Rear Oil Seal

A907E0631Z

1

10 Oil Pick Up Pipe Olive

A907E0606Z

1

11 'O' Ring, Oil Tank Hose to Pump

A910E6526F

1

12 'O' Ring, Turbo Drain to Sump

A910E6491F

1

13 Gasket, Turbo Drain to Turbo

A910E6375F

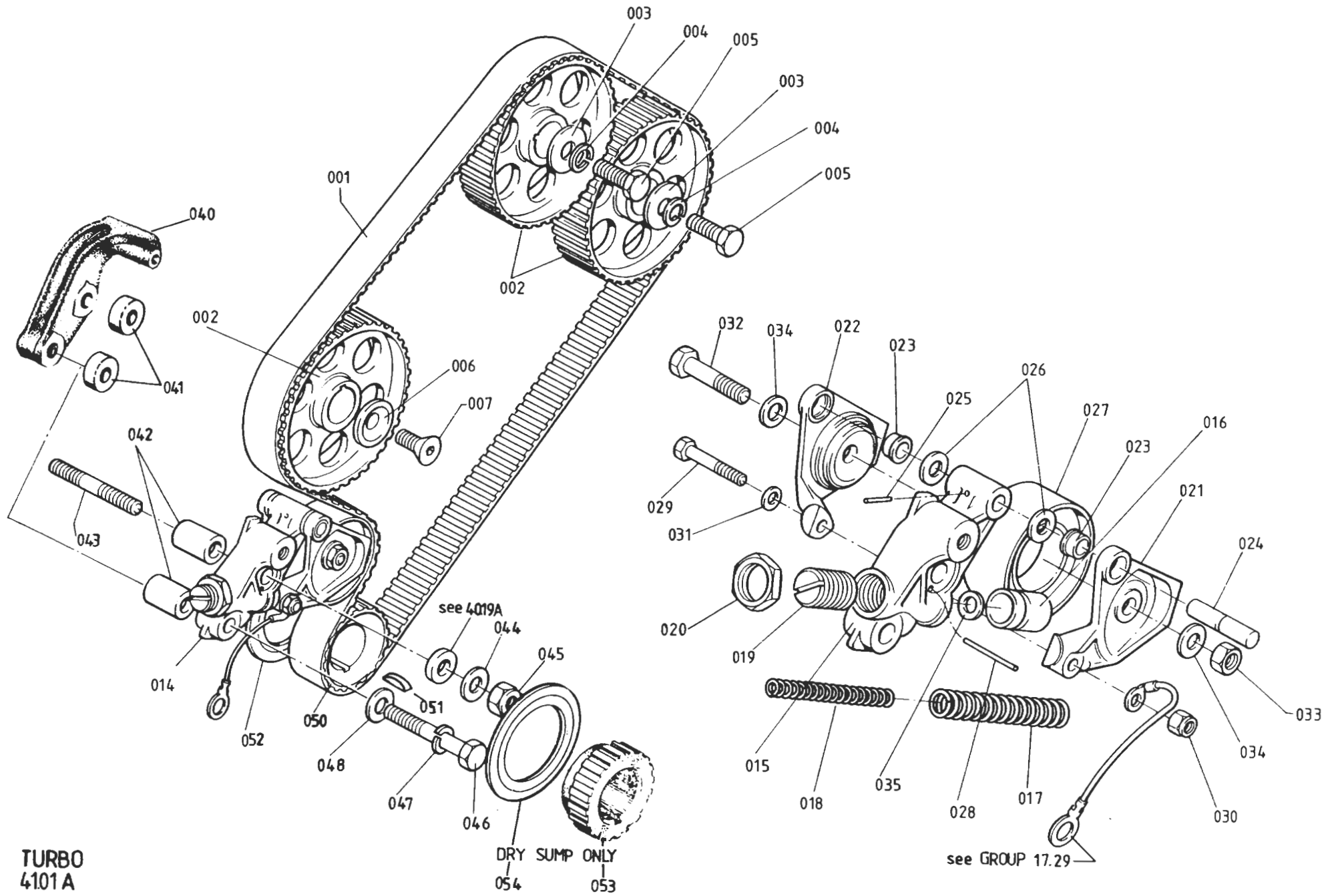
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Not used on '87 M.Y.

Dry Sump Engines Only

Dry Sump Engines Only

Turbo 40.28B



ILLUS
NO.

QUANTITY

600 000

41.01A

DESCRIPTION

PART NUMBER

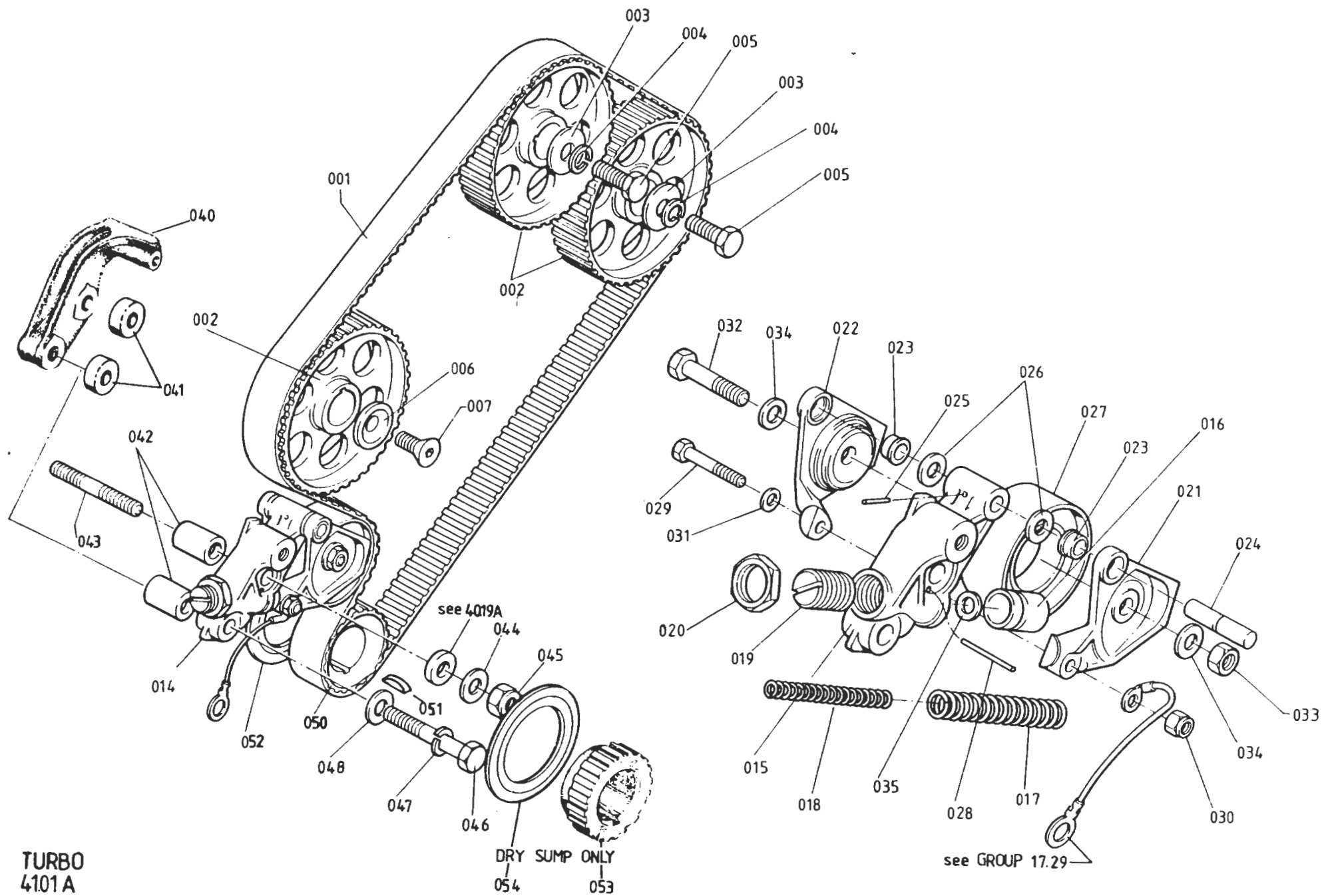
HEATER
ONLYWITH
ACU

REMARKS

001	Belt, Camshaft Timing	A907E0191Z	1	1	Trapezoidal Tooth Profile 104° M.O.P. Green dots
002	Toothed Pulley, Camshaft/Auxiliary Shaft	A910E0309F	3	3	
003	Washer, Pulley to Camshaft	A907E6026Z	2	2	
004	Washer, Spring, Pulley to Camshaft	A075W4037Z	2	2	
005	Bolt, M10 x 35, Pulley to Camshaft	A075W2051Z	2	2	
006	Washer, Pulley to Auxiliary Shaft	A907E0576Z	1	1	
007	Screw, M10 x 30 C/S, Pulley to Auxiliary Shaft	A075W7018Z	1	1	
014	Tensioner Assembly, Timing Belt	A907E0893K	1		
	Tensioner Assembly, Timing Belt	A907E0913K		1	
015	Housing, Belt Tensioner	B907E1143F	1	1	Slotted adjuster Hex. Head adjuster
016	Piston, 'Nylatron' Belt Tensioner	A907E1245F	1	1	
017	Spring, Outer, Belt Tensioner	A907E1164F	1	1	
018	Spring, Inner, Belt Tensioner	A907E1165F	1	1	
019	Seat, Tensioner Spring, Slotted	B907E1146F	1		
	Seat, Tensioner Spring, Hex. Head	A907E1269F		1	
020	Locknut, Spring Seat	A907E1149F	1	1	
021	Yoke, Front, Belt Tensioner	B907E1141F	1	1	
022	Yoke, Rear, Belt Tensioner	B907E1142F	1	1	
023	Bush, Pivot, Belt Tensioner	B907E1163F	2	2	
024	Pin, Pivot, Belt Tensioner	A907E1144F	1	1	
025	Spirol Pin, Pivot Pin Retention	A907E6283F	1	1	
026	Rubber Washer, Yoke Pivot	A907E1148F	1	1	
027	Pulley/Bearing, Belt Tensioner	A907E6249F	1	1	
028	Locking Pin, 4 mm, Tensioner Piston	A907E1195F	1	1	
029	Belt, M6 x 30, Yoke Clamping	A075W2028Z	1	1	
030	Nut, Nyloc, M6, Yoke Clamping	A907E6285Z	1	1	
031	Washer, flat, Yoke Clamping	A075W4013Z	1	1	
032	Bolt, M8 x 35, Yoke Centre Clamping	A075W2038W	1	1) If snubber fitted)
033	Nut, M8, Yoke Centre Clamping	A075W3021Z	1	1	
034	Washer, Flat, Yoke Centre Clamping	A075W4020Z	1	1	
035	Washer, Spring to Piston	A075W4065Z	1	1	
040	Snubber, Auxiliary Shaft Pulley	B907E1140F	1	1	
041	Spacer, Snubber to Tensioner	A907E1139F	2	2	

Turbo (Prior to '87 M.Y.) 41.01A

Page 1



TURBO
 4101A

ILLUS
NO.



QUANTITY

MAY 1991

41.01A

DESCRIPTION

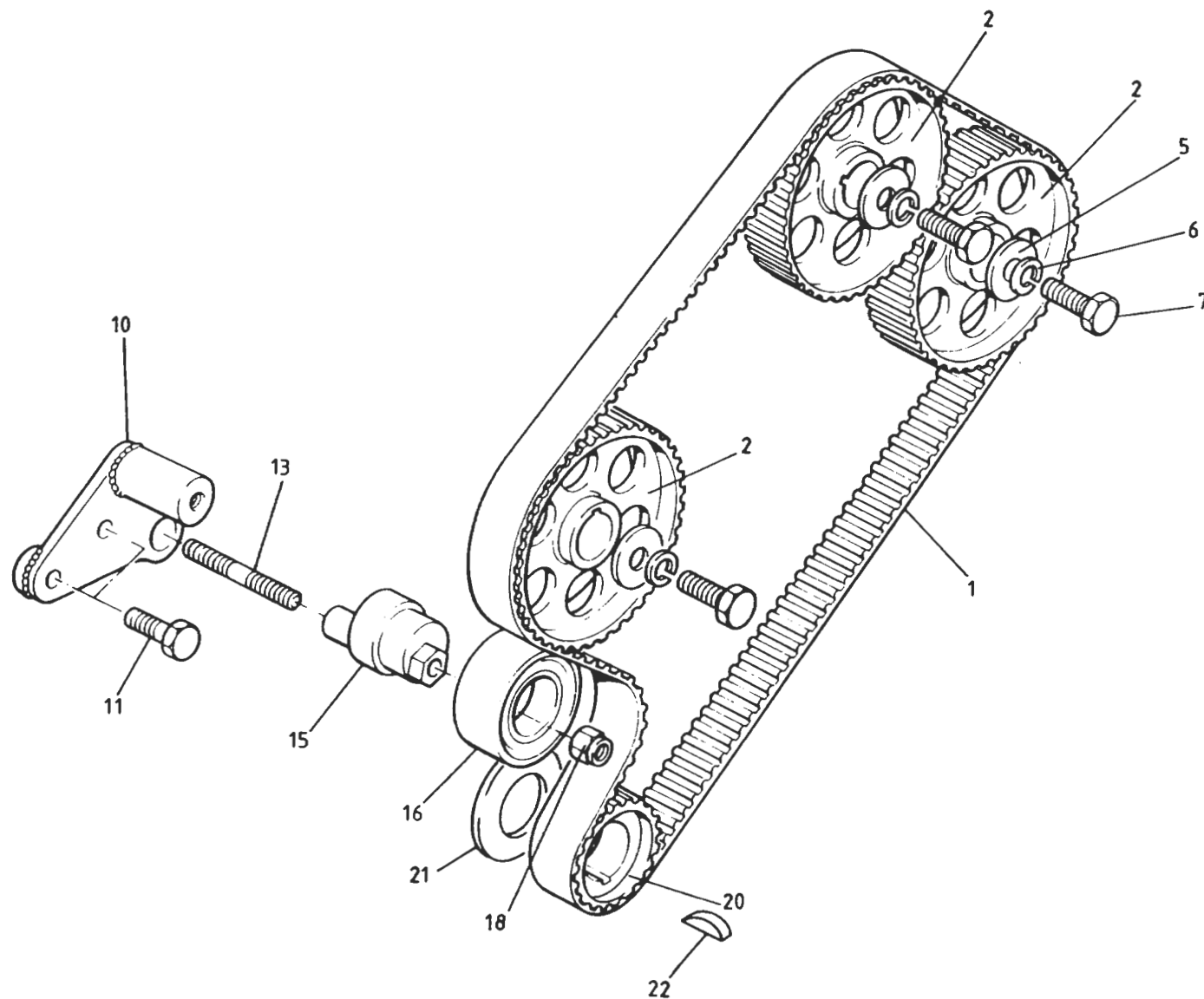
PART NUMBER

HEATER
ONLY

WITH
ACU

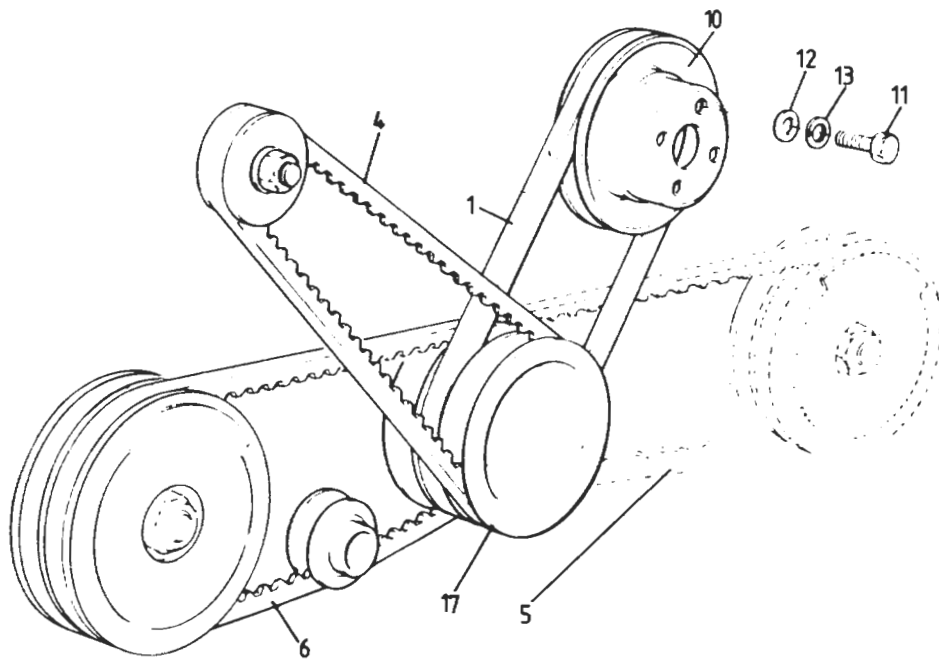
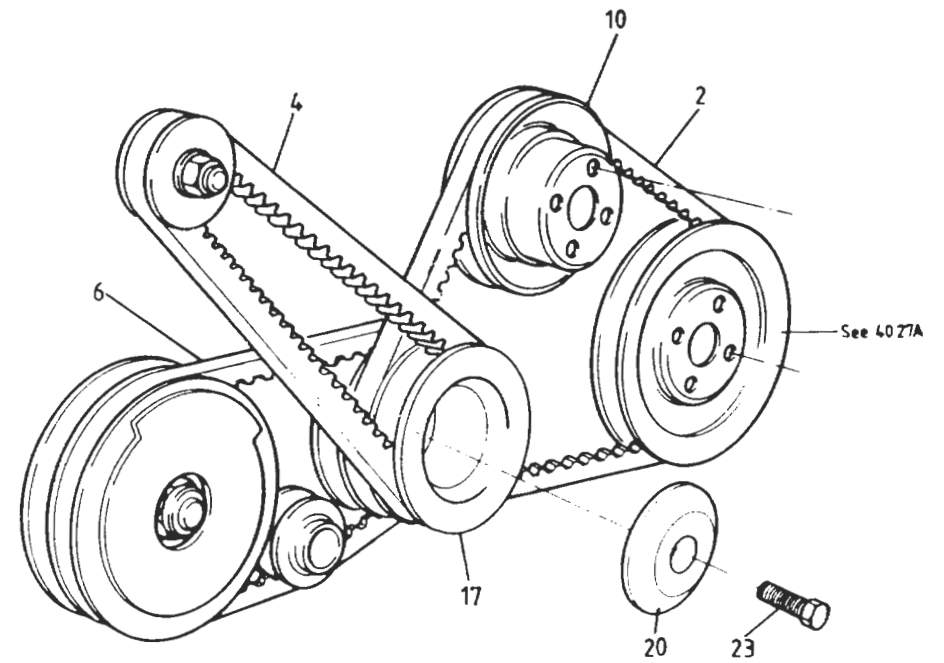
REMARKS

042	Spacer, Tensioner to Block	A907E1138F	2	2	Heater cars with no snubber
043	Stud, Belt Tensioner to Block	B907E0504K	1		
044	Washer, Flat, Tensioner Fixing	A075W4024Z	1		
045	Nut, Nyloc, M10, Tensioner Fixing	A075W3011Z	1		
046	Bolt, M10 x 70, Tensioner to Block	A075W2058Z	1	2	
047	Washer, Spring, Tensioner Fixing	A075W4037Z	1	2	
048	Washer, Flat, Tensioner Fixing	A075W4024Z	1	2	
050	Toothed Pulley, Crankshaft, Cam Belt Drive	D907E0095Z	1	1	
051	Woodruff Key, Crankshaft to Pulley	A907E6016Z	1	1	
052	Flange, Crank Pulley Rear	A907E0096Z	1	1	
053	Oil Pump, Drive Pulley	A910E1464F	1	1) Dry Sump Only
054	Flange, Tooth Belt Separation	A910E1466F	1	1	

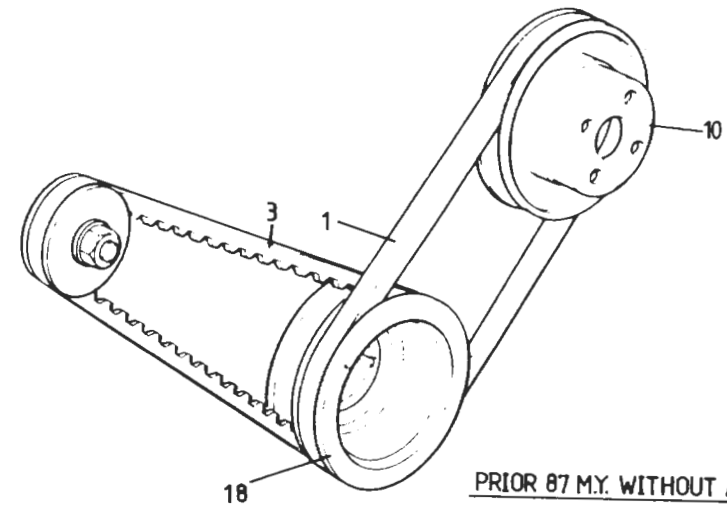


TURBO ('87 M.Y. ON)
4101B

'87 M.Y. ON (H.C.)



PRIOR '87 M.Y. WITH A/C



PRIOR '87 M.Y. WITHOUT A/C

**TURBO
41.03A**

ILLUS
NO.

QUANTITY

MAY 1991

41.03A

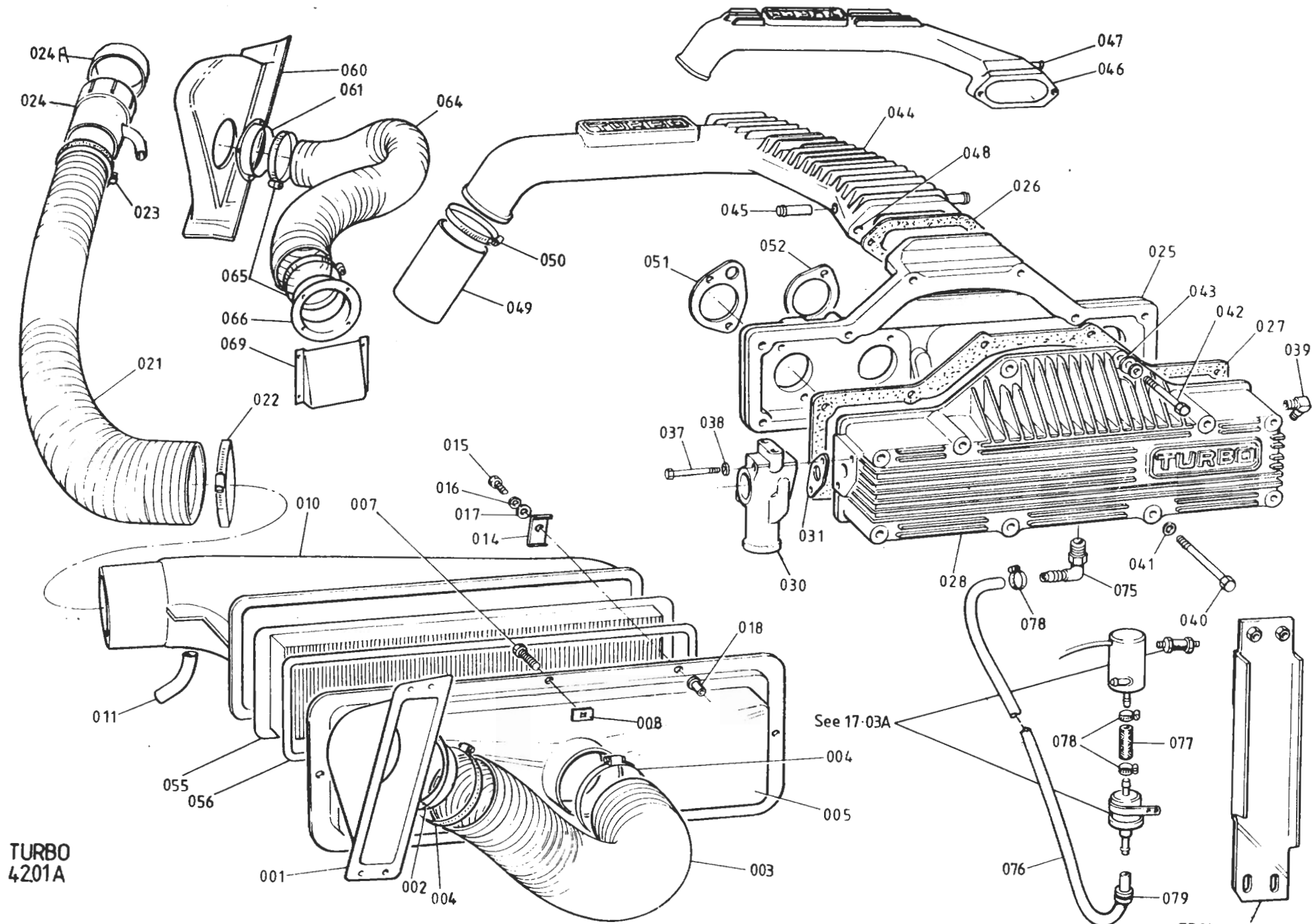
DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

1	'V' Belt, Water Pump	A907E6296F	1	1	Prior to '87 M.Y.
2	'V' Belt, Water Pump/Vacuum Pump	A907E6332F		1	'87 M.Y. on
	'V' Belt, Alternator	A907E6315F	1		
3	'V' Belt, Alternator	A907E6315F		1	Prior to '87 M.Y. with Heater Only
4	'V' Belt, Alternator	A907E6332F		1	Prior to '87 M.Y. with A/C & '87 M.Y. on
5	'V' Belt, a/c Compressor	A907E6333F	1		
	'V' Belt, (Standard Type), a/c Comp.	A907E6333F		1	Use With Adj. Brkt. B907E0898) See
6	'V' Belt, (Moulded Cog), a/c Comp	A910E6656F		1	Use With Adj. Brkt. A910E9049) 40.23A
	'V' Pulley, Water Pump	B910E1594K	1		
10	'V' Pulley, Water Pump	A907E6294F		1	
11	Setscrew, M8 x 16, Pulley	A075W1036Z		4	
12	Washer, Flat, Pulley Fixing	A075W4020Z		4	
13	Washer, Spring, Pulley Fixing	A075W4036Z		4	
	'V' Pulley, Alternator	B910E1592F	1		
	Nut, Pulley to Alternator	A910E1593F	1		
	'V' Pulley, Crankshaft, Triple Groove	A910E1465F	1		
17	'V' Pulley, Crankshaft, Triple Groove	A907E1193F		1	Except Heater Cars Prior to '87 M.Y.
18	'V' Pulley, Crankshaft, Double Groove	A907E1192F		1	Heater Only Prior to '87 M.Y.
	Spirol Pin, 'V' Pulley Locating	A907E6007Z	1		
20	Washer, Conical, Pulley Retention	B907E1106F	1	1	
	Washer, Plain, Pulley Retention	A079W4066F	1		
	Washer, Spring, Pulley Retention	A075W4038Z		1	
	Bolt 'V' Pulley to Crank	A079W2090F	1		
23	Setscrew, ½" UNF x 1½" Pulley/Crank	A075W1020Z		1	



TURBO
4201A

see GROUP 1005

ILLUS
NO.

QUANTITY

MAY 1991

42.01A

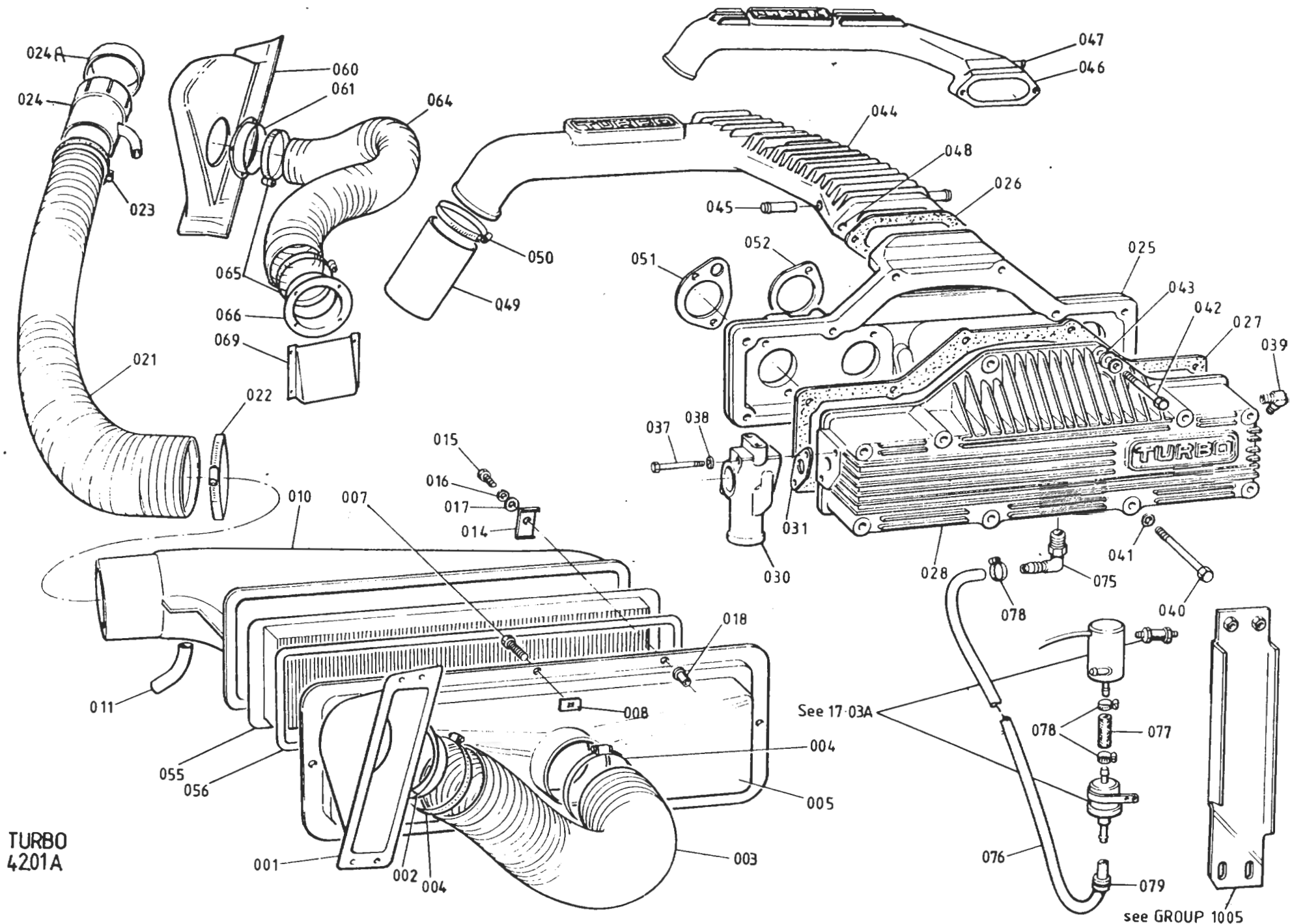
DESCRIPTION

PART NUMBER

PRIOR '87 M.Y	'87 M.Y ON
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REMARKS

001	Plenum, RH Air Scoop	A082B4291K	1	1	
	Screw, Plenum to Body	A075W5015Z	4	4	
	Spire Nut, Plenum	A075W6013Z	4	4	
002	Adaptor, Plenum to Hose	A079B4131K	1	1	
	Pop Rivet, Adaptor to Plenum	A075W6094Z	4	4	
003	Trunking, Plenum to Airbox	A082E4081F	1	1	
004	Hose Clip, Trunking	A907E6347F	2	2	
005	Airbox	A082E4084K	1	1	
	Insulation, Airbox	A907E1424K	1		
	Foam Strip, Airbox to Body	A036B6221V	1m	1m	
007	Spire Bolt, Airbox to Body	A079W6166F	4	4	
008	Spire Nut, Airbox to Body	A079W6164F	4	4	
010	Cover, Airbox	A082E4085K	1	1	
011	Adaptor Pipe, Breather to Airbox	B082E4086F	1	1	Not Used on Earlier Cars
014	Clamp, Airbox Cover to Body, Upper	C082E4080K	2	2	
	Clamp, Airbox Cover to Body, Lower	A082U4939F	2	2	
015	Setscrew, M6 x 30, Cover to Body	A075W1032Z	4	4	
016	Washer, Spring, Cover to Body	A075W4035Z	4	4	
017	Washer, Flat, Cover to Body	A075W4013Z	4	4	
018	Nut, 'Pulsert' M6, Cover to Body	A079W6156F	4	4	
021	Trunking, Airbox to Turbo	A910E1089F	1		Used With Turbo Inlet Adaptor Sleeve
	Trunking, Airbox to Turbo	E907E1089F	1	1	Cars Without Turbo Inlet Adaptor Sleeve
022	Hose Clip, Trunking to Airbox	A036S6006Z	1	1	
023	Hose Clip, Trunking to Turbo/Sleeve	A075L6044F	1	1	
024	Adaptor Sleeve, Turbo Inlet	C910E1710F	1		)Where Fitted
024A	Seal, Adaptor Sleeve to Turbo	C910E1712F	1)
025	Plenum Backplate, Carburettor	B910E1472K	1		
	Plenum Backplate, Carburettor	A910E1880K		1	
026	Gasket, Diffuser to Backplate	A910E1474F	1	1	
027	Gasket, Plenum Cover to Backplate	A910E1475F	1	1	
028	Plenum Chamber Cover, Carburettor	C910E1471K	1		
	Plenum Chamber Cover, Carburettor	D910E1471K		1	
030	Dump Valve Assembly	C910E0928J	1		
031	Gasket, Dump Valve Plenum	A910E1499F	1		
037	Bolt, M6 x 55, Dump Valve to Plenum	A075W2034Z	2		



TURBO
4201A

See 17-03A

see GROUP 1005

ILLUS
NO.

QUANTITY

A-101 1-1-1

42.01A

DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y.'87 M.Y.
ON

REMARKS

038

Washer, Flat, Dump Valve to Plenum

A075W4013Z

2

039

Elbow Union, Boost Gauge, Screw-on Pipe Fit.

A910E6481F*

1

Elbow Union, Boost Gauge, Screw-on Pipe Fit.

A910E2274K*

1

Grub Screw, Elbow Union, Damping

A082W7034F

1

Prior to A910E2274

Fits A910E2274

* R/B Elbow Union A910E6772. Cut off end fitting from boost pipe & fit connecting hose A082N4020 with restrictor A912E6452

Elbow Union, Boost Gauge, Push-on Pipe Fit.

A910E6772F

1

Elbow Union, Engine Management Take-Off

A910E6772F

1

040

Bolt, Plenum Cover to Backplate

A075W2045F

8

8

041

Washer, Flat, Cover to Backplate

A075W4020Z

8

8

042

Bolt, Plenum Cover/Backplate/Diffuser

A075W2042Z

2

2

043

Washer, Flat, Cover/Backplate/Diffuser

A075W4020Z

2

2

044

Diffuser, Turbo to Plenum

A910E0949J

1

045

Stub Pipe, Cold Start Take Off

A910E1600F

2

046

Diffuser, Turbo to Plenum (inc. Stub Pipe)

A910E9230F

1

047

Stub Pipe, Cold Start Take-Off

A910E2125F

1

048

Helicoil Insert

A910E6510F

2

2

049

Hose, Turbo to Diffuser

D910E6394F

1

Hose, Turbo to Diffuser

A910E1912F

1

050

Clip, Turbo/diffuser Hose

A910E6389F

2

2

051

Gasket, Plenum Backplate to Carb.

A910E1536F

2

Gasket, Plenum Backplate to Carb.

A910E1886F

2

052

Gasket, Plenum Backplate to Carb.

A910E1537F

2

Gasket, Plenum Backplate to Carb.

A910E1887F

2

055

Air Filter Element

A907E6182F

1

1

056

Seal, Filter Element

C907E0588F

1

1

060

Plenum, LH Air Scoop

B082B4599K

1

061

Adaptor, Plenum to Hose

A079B4130K

1

Pop Rivet, Adaptor to Plenum

A075W6095Z

3

Washer, Adaptor to Plenum

A075W4013Z

6

064

Trunking, Adaptor to Sidewall

A082E4140F

1

065

Hose Clip, Trunking

A036S6006Z

2

066

Adaptor, Angled

A082B4568K

1

Pop Rivet, Adaptor to Sidewall

A075W6095F

4

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Turbo 42.01A

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ILLUS
NO.



QUANTITY

42.01A

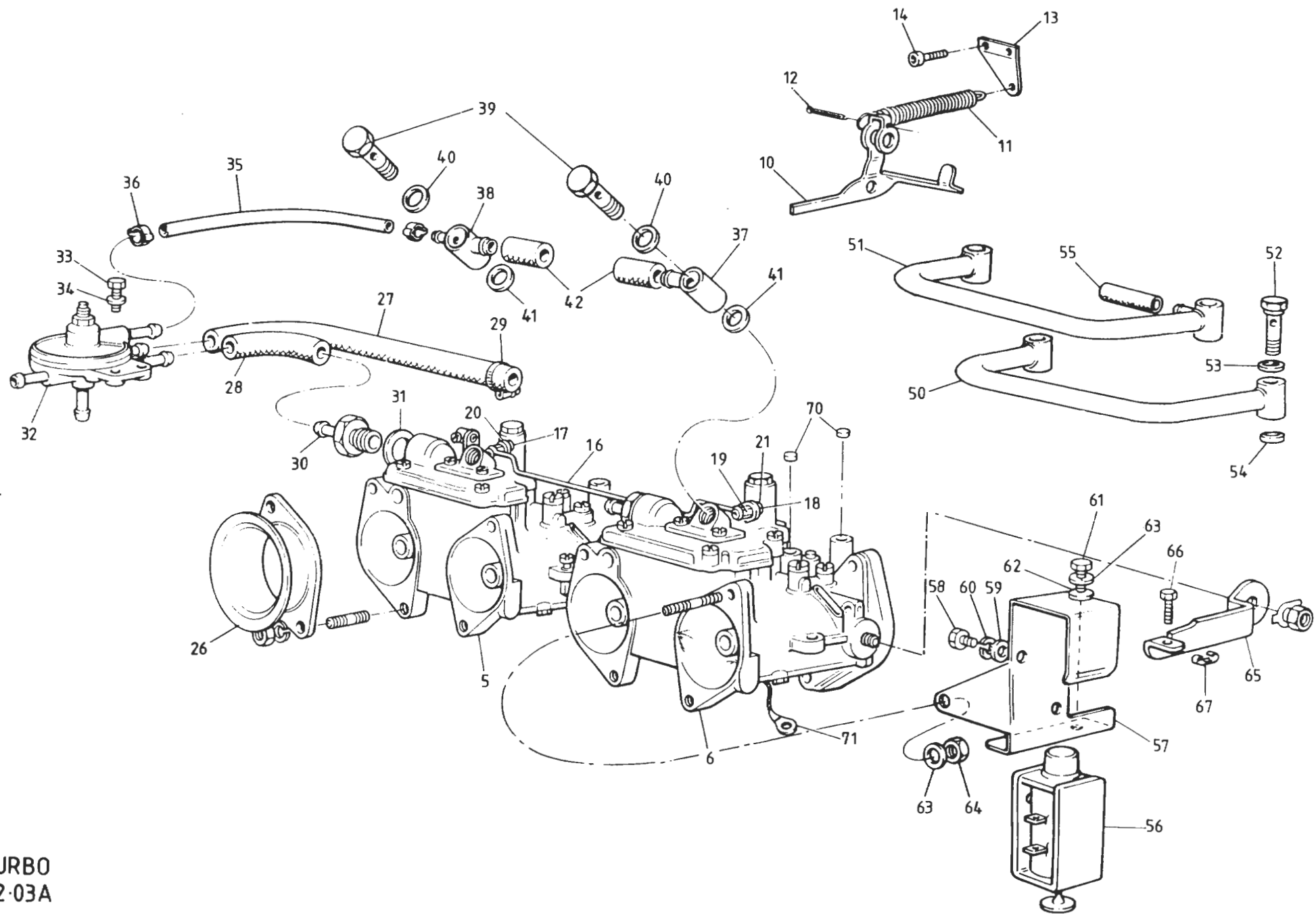
DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y
'87 M.Y
ON

REMARKS

069	Washer, M6 x 12, Adaptor to Sidewall	A075W4013Z	8
	Air Deflector, Engine Sidewall	B082U5074K	1
	Pop Rivet, Deflector Fix	A075W6095F	4
	Washer, Deflector Fix	A075W4013Z	8
075	Elbow Adaptor, Plenum Purge	A910E6765F	1
076	Pipe, Purge, Elbow/Solenoid Valve	A910E2325K	1
077	Pipe, Purge, Solenoid Valve/Purge Pump	A910E2326K	1
	Pipe, Purge, Purge Pump Exhaust	A910E2327K	1
078	Clip, 'Norma', 12-20mm, Pipe Fix	A079M6132F	5
079	Grommet, Purge Pump/Sidewall	X036J6026Z	1



TURBO
42-03A

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MAY 1991

42.03A

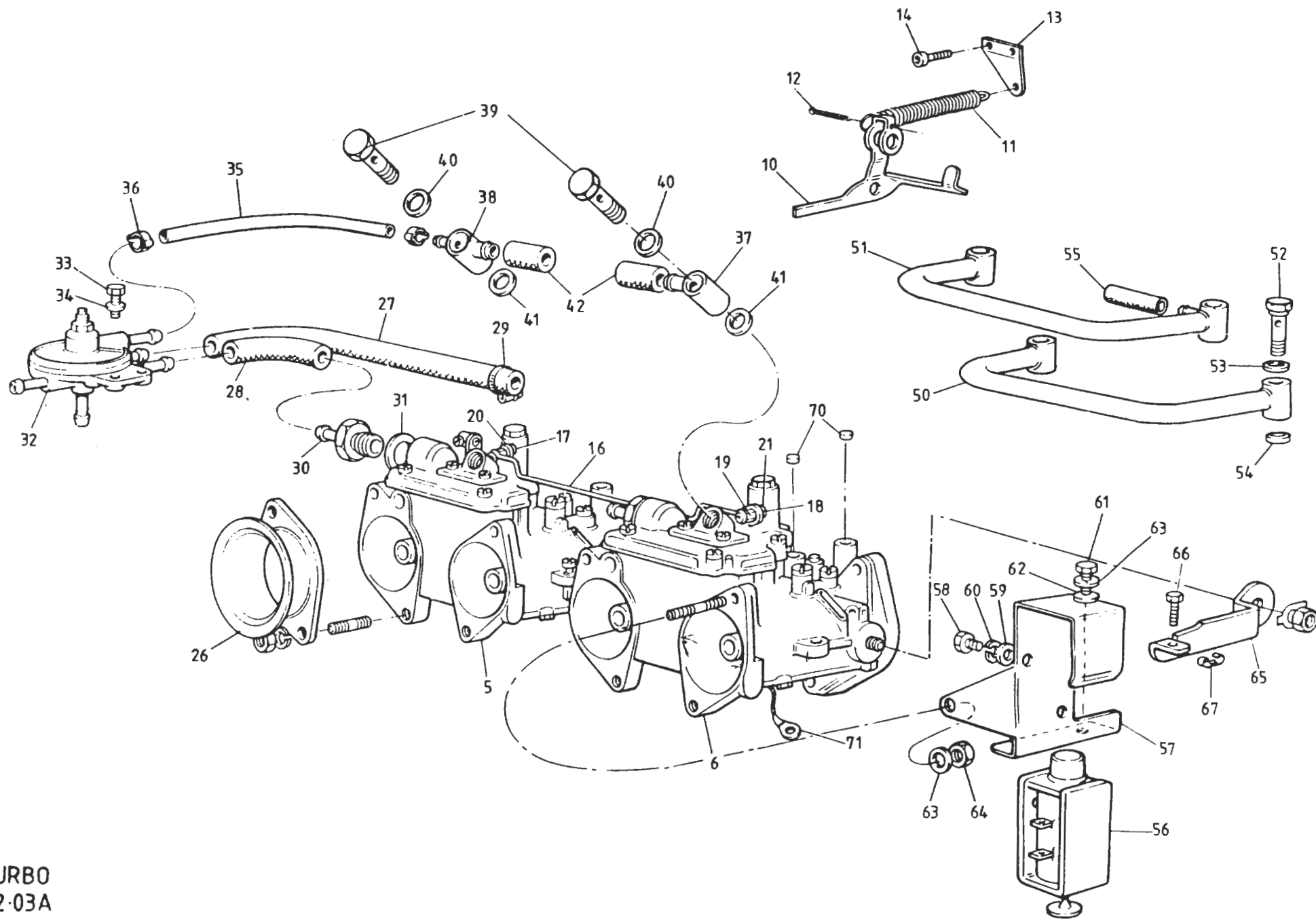
DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

005	Carburettor, Rear, DHLA 40H	B910E0925F	1		
006	Carburettor, Front, DHLA 40H	B910E0926F	1		
	Carburettor, Rear, DHLA 45M	A910E6856F		1	
	Carburettor, Front, DHLA 45M	A910E6855F		1	
	Throttle Lever	A910E1394F	1		For Hairpin Type Return Spring
010	Throttle Lever	B910E1394F	1		For Coil Type Return Spring
	Throttle Lever	A907E6086Z		1	
	Spring, Throttle Return	A074E0464F	1		Hairpin Type
011	Spring, Throttle Return	A082J6072F	1		Coil Type
012	Split Pin, Coil Spring to Lever	A082W6262F	1		
013	Anchor Bracket, Coil Spring to Cam Cover	A082J4123F	1		
014	Screw, Anchor Brkt. to Cam Cover	A079W7011F	2	2	
	Spring, Throttle Return	A910E6865F		1	
	Bracket, Spring to Plenum	A910E2308F		1	
	Setscrew, Spring Brkt. to Plenum	A075W1027Z		2	
	Spring Washer, Brkt. to Plenum	A075W4035Z		2	
016	Linkage Assembly, Cold Start Interconnect	A910E0986J	1		
	Linkage Assembly, Cold Start Interconnect	A910E9231K		1	
017	Screw, Drilled, Cable to Lever	A036E6146Z	1		>
018	Screw, Link to Lever	A036E6143Z	1		>
019	Pivot Bush, Choke Linkage	A910E6532F	2		>inc. in Linkage Assy.
	Pivot Bush, Choke Linkage	A910E2302F		2	>
020	Washer, Flat	A036E6145Z	1		>
021	Washer, Spring	A036E6045Z	1		>
026	Bell Mouth, Carb. Intake	A910E6539H	4		
	Bell Mouth, Carb. Intake	A907E6090H		4	
	Pipe, Steel Braided, PRV to Front Carb.	A910E0962F	1)
	Pipe, Steel Braided, PRV to Rear Carb.	A910E0963F	1)
	Adaptor, Fuel Pipe to Carb.	A910E1657F	2		) With Steel Braided Fuel Pipes
	Filter, Carb. Fuel Inlet	A910E6528F	2)
	Washer, Sealing, Adaptor to Carb.	A910E6527F	2)



TURBO
42-03A

ILLUS
NO.



QUANTITY

MAY 1991

42.03A

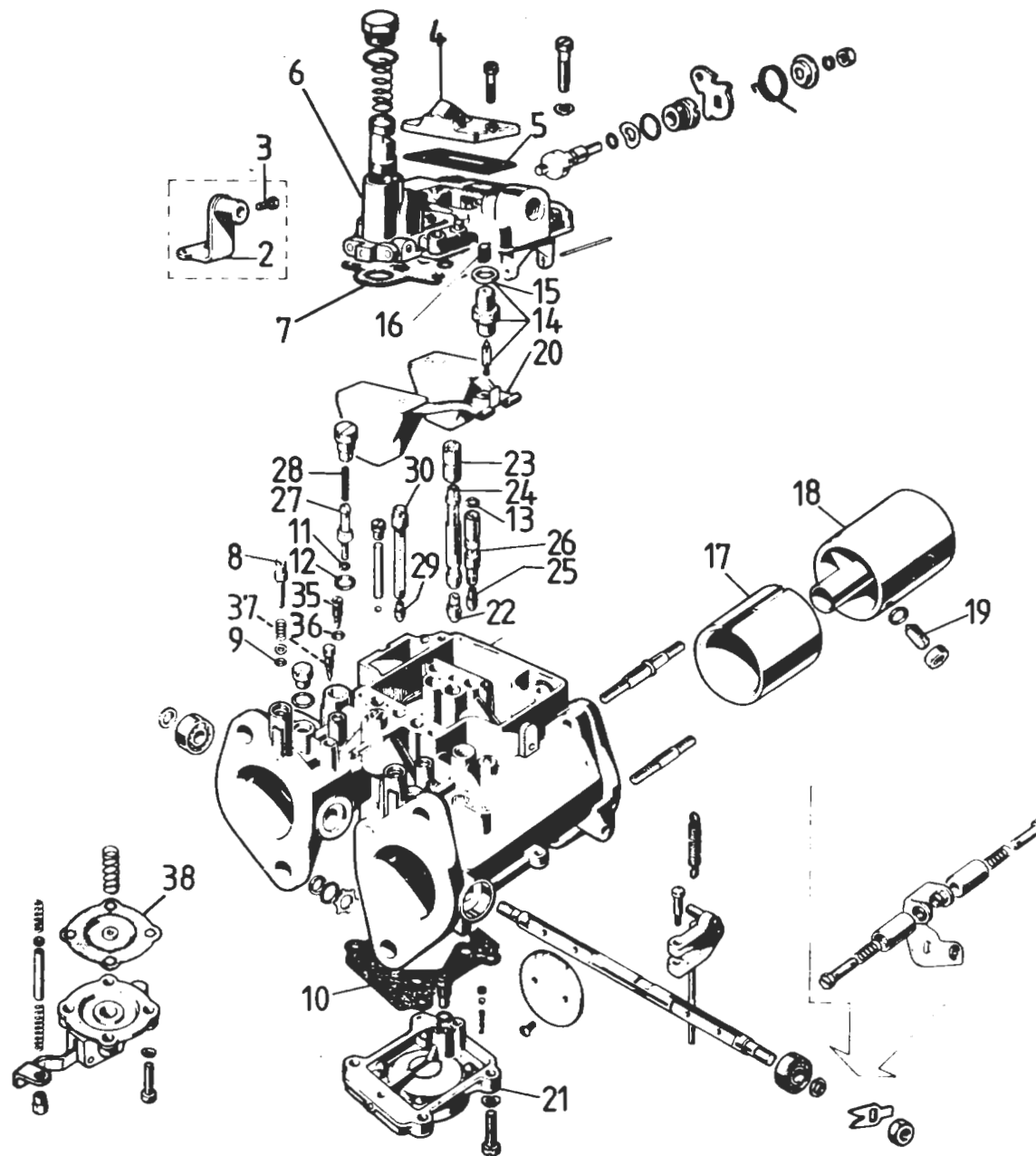
DESCRIPTION

PART NUMBER

PRIOR '87 M.Y	1987 M.Y.ON
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REMARKS

062	Washer, M6, Brkt. Fix	A075W4013Z		1	
063	Washer, M6, Internal Spring, Brkt. Fix	A075W4046Z		2	
064	Nut, M6, Brkt. Fix	A075W3020Z		1	
065	Lever, Throttle Spindle	A910E1872F		1	
066	Adjusting Screw, Lever to Solenoid	A910E6617F		1	
	Clip, Adjuster Screw Locking	A910E6618F		1	
070	Plug, Anti-Tamper, CO & Air Bleed	A907E1227F	8		
	Plug, Anti-Tamper, CO & Throttle Coupling	A907E1227F		4	Nylon
	Plug, Anti-Tamper, Air Bleed	A910E6654F		4	Metal
071	Earth Lead, Carburettor/Engine	A082M4208F	2	2	



TURBO
4 2.04 A

ILLUS
NO.

QUANTITY

MAY 1991

42.03A

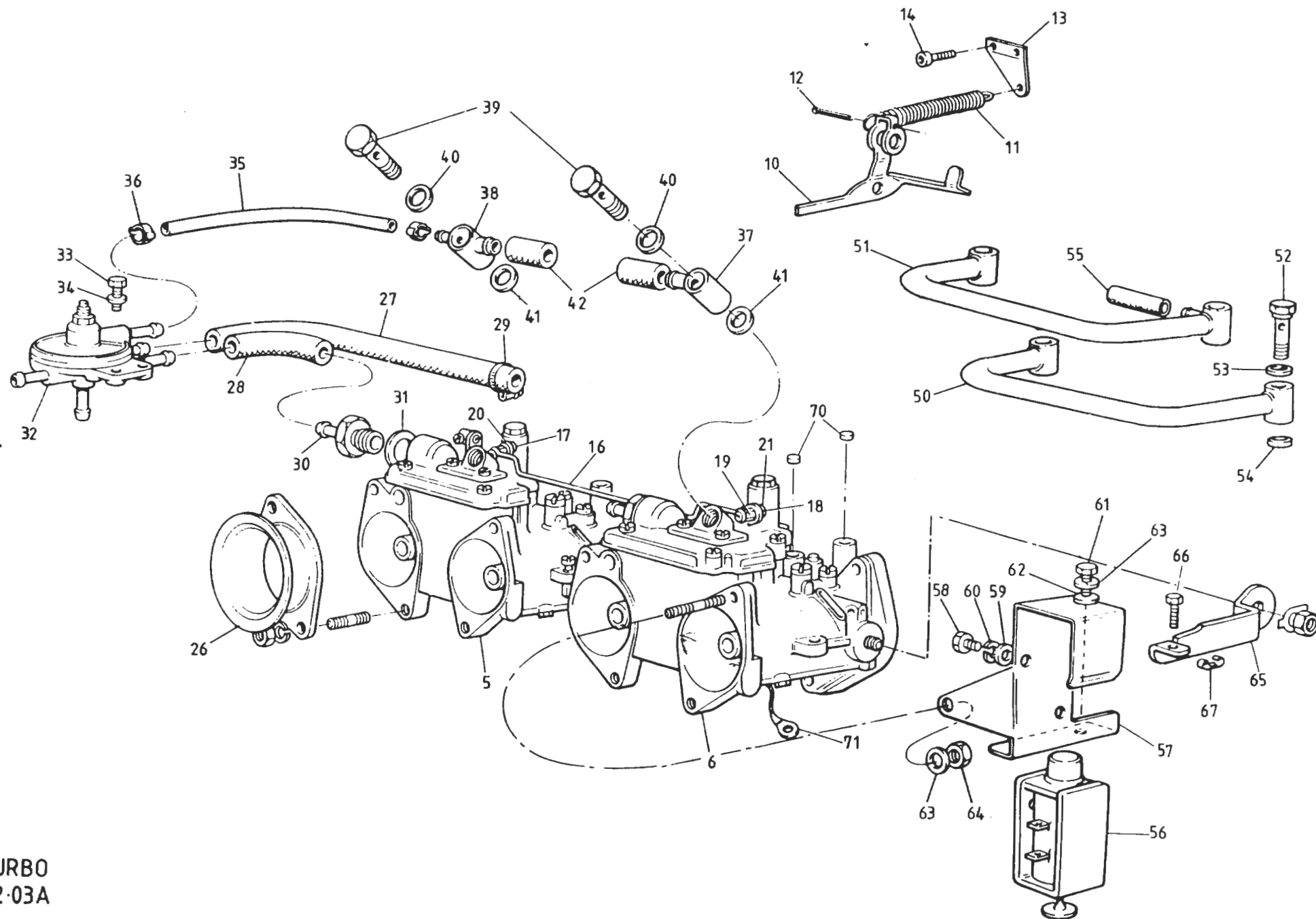
DESCRIPTION

PART NUMBER

PRIOR '87 M.Y	'87 M.Y ON
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REMARKS

027	Pipe, Dunlop, PRV to Front Carb.	A910E1957K		1	Cut From A910E6650V > With Dunlop
028	Pipe, Dunlop, PRV to Rear Carb.	A910E1958K		1	Cut From A910E6650V > Fuel Pipes
029	Hose Clip, Dunlop Fuel Pipes	A079M6132F		4	>
030	Adaptor, Fuel Pipe to Carb.	A910E1959F		2	>
031	Washer, Sealing, Adaptor to Carb.	A910E6651F		2	>
032	Fuel Pressure Regulating Valve(8.5mm S/Spigot)	A910E1607F		1	R/B A910E6615F + 180mm of A910E6785V
	Fuel Pressure Regulating Valve(5.0mm S/Spigot)	A910E6615F		1	
	Cap, Anti-Tamper, PRV	A910E1956F		1	
033	Setscrew, PRV Fixing	A075W1028Z	2	2	
034	Washer, Spring, PRV Fixing	A075W4035Z	2	2	
035	Hose, Pressure Sensing	A910E1606F	1		Use with PRV A910E1607F>PRV to Rear Carb.
	Hose, Pressure Sensing	A910E6785V		180mm	Use with PRV A910E6615F>
036	Clip, Oetiker, Pressure Sensing Hose	A910E6479F	2		
037	Banjo, Front Carb.	A910E1602K	1		)Cold Start Air Supply
038	Banjo, Rear Carb.	A910E1603K	1)
039	Bolt, Banjo	A910E1601K	2		
040	Washer, Banjo, Large	A079W4081F	2		
041	Washer, Banjo, Small	A079W4082F	2		
042	Hose, Cold Start, Banjo to Diffuser	A910E1605F	2		
050	Pipe, Carburettor Balance	A910E9039F		1	
051	Pipe, Cold Start Air Supply, Diffuser/Carbs.	A910E9229F		1	
052	Bolt, Banjo, Balance/Pipe Cold Start Air Pipes	A910E1601K		4	
053	Washer, Banjo, Large	A079W4081F		4	
054	Washer, Banjo, Small	A079W4082F		4	
055	Hose, Cold Start, Banjo to Diffuser	A910E1605F		1	
056	Solenoid, Throttle Jacking	B910E9030J		1	
057	Bracket, Solenoid to Carb.	A912E2231F		1	
058	Setscrew, M4 x 6, Solenoid Fix	A075W1087F		2	
059	Washer, Solenoid Fix	A079W4073F		2	
060	Washer, Spring, Solenoid Fix	A075W4088F		2	
061	Setscrew, M6 x 30, Brkt. to Carb.	A075W1032Z		1	



TURBO
42-03A

ILLUS
NO.

QUANTITY

MAY 1991

42.04A

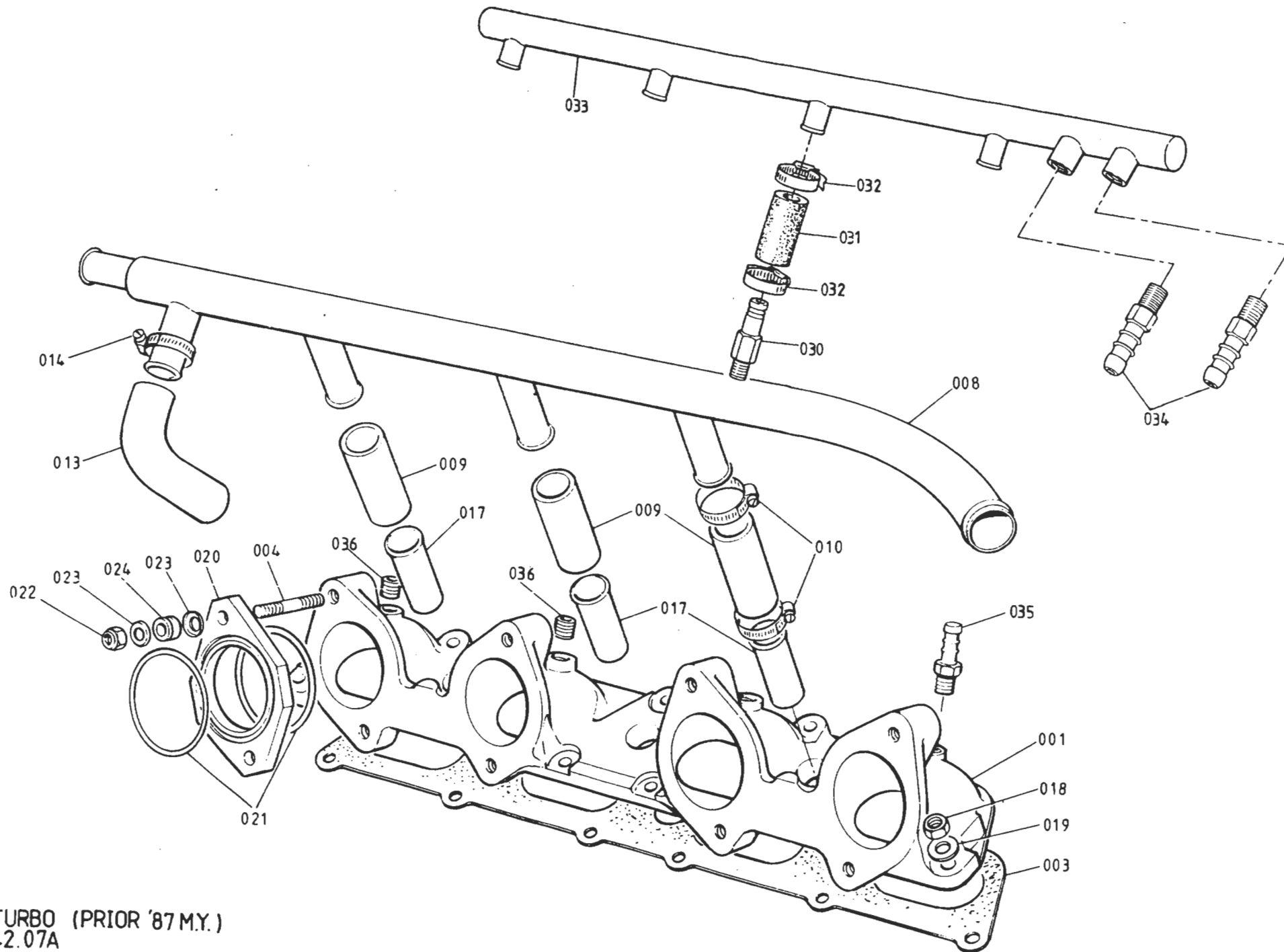
DESCRIPTION

PART NUMBER

PRIOR '87 M.Y	'87 M.Y ON
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REMARKS

23	Air Corrector Jet, Main, 200	A910E6485H	4	4	Quantities are per car
24	Air Corrector Jet, Main, 180	A910E6873F			
24	Emulsion Tube, Main, 12	A910E6486H	4	4	If Fitted
25	Emulsion Tube, Main, 14	A910E6875F			
25	Idle Jet, 40	A910E6603F	4	4	
	Idle Jet, 58	A912E6452H			
	Idle Air Tube	A907E6268F	4	4	
	Idle Air Tube	A912E6647H			
27	Pump Jet, 48H Special	A910E6488H	4	4	
	Pump Jet, 35	A910E6877F			
28	Filter, Pump Jet	A910E6686F	4	4	
29	Starter Jet, 80	A912E6449H	2	2	
30	Emulsion Tube, Starter	A907E6188H	2	2	
35	Air Bleed Screw	A910E6775F	4	4	
36	'O' Ring, Air Bleed Screw	A910E6776F	4	4	
37	Plug, Vacuum Tapping Orifice	A910E6777F	4	4	
38	Accelerator Pump Diaphragm	A907E6309F	2		
	Accelerator Pump Diaphragm	A910E6852F		2	
	Adaptor, eng. man. & Spring Anchor	A910E6881F		2	



TURBO (PRIOR '87 M.Y.)
42.07A

ILLUS
NO.

QUANTITY

MAY 1964

42.04A

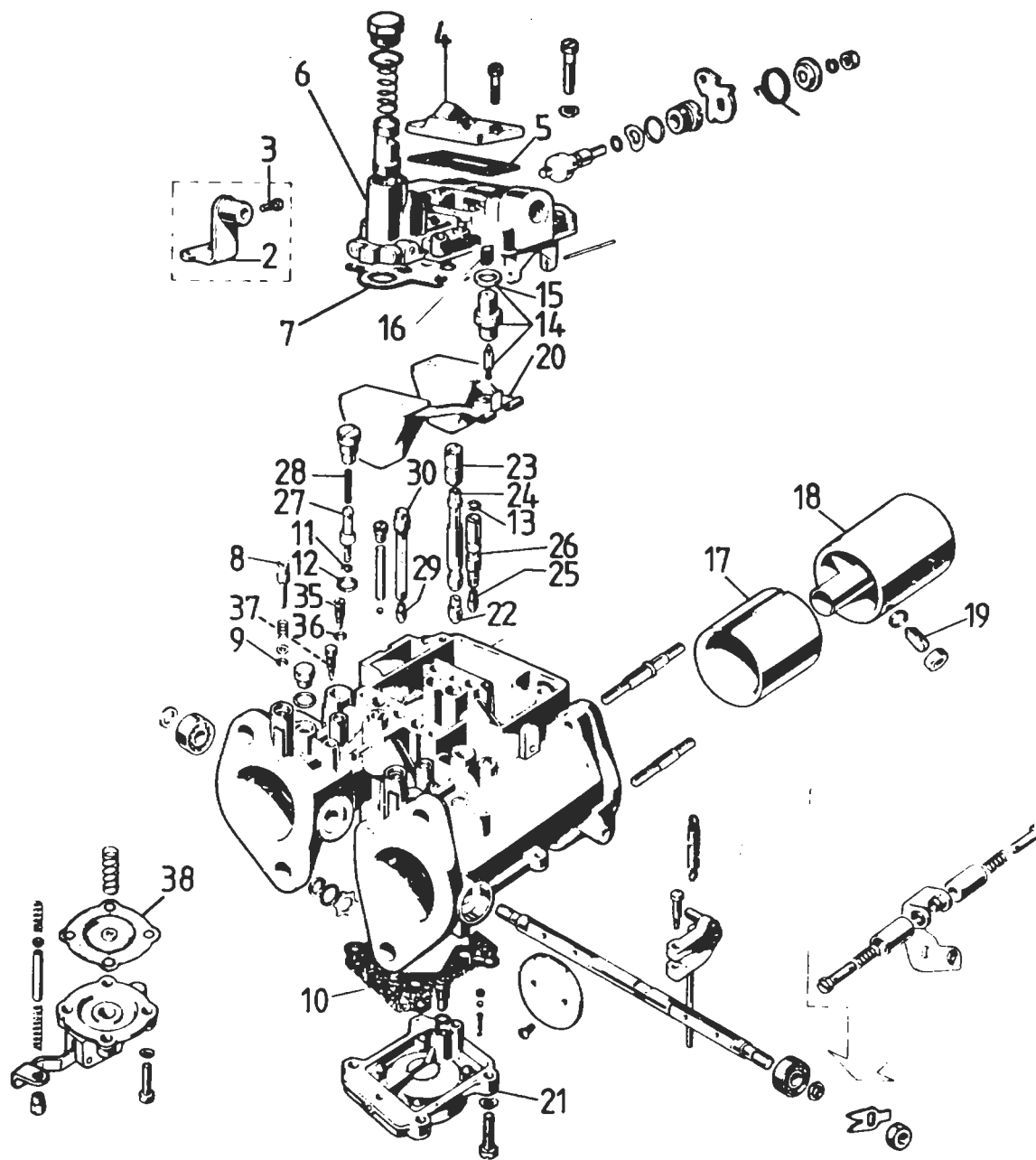
DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

2	Abutment, Choke Cable	A036E6064Z	1	1	<u>Quantities are per car</u>
3	Screw, Cable to Abutment	A074K6002Z	1	1	
4	Jet Cover, Cold Start Air Intake	A910E6672F	2		
4	Jet Cover, Cold Start Air Intake	A910E6880F		2	
5	Gasket, Jet Cover	A910E6834F	2		Red 0.7mm)
	Gasket, Jet Cover	A910E6673F	2		Black 0.4mm)
	Gasket, Jet Cover	B910E6834Z	2	2	Red 0.6mm
6	Top Cover	A910E6671F		2	
7	Gasket, Top Cover, (Float Chamber)	A910E6835F	2		Red 0.7mm >R/B B910E6835Z
	Gasket, Top Cover, (Float Chamber)	A910E6689F	2		Black 0.4mm >R/B B910E6835Z
	Gasket, Top Cover, (Float Chamber)	B910E6835Z	2	2	Red 0.6mm
8	Screw, Idle CO Adjust	A910E6600F	4	4	
9	'O' Ring, Idle CO Screw	A036E6096Z	4	4	
10	Gasket, Pump Body	A910E6676F	2	2	
11	'O' Ring, Small, Pump Jet	A036E6100Z	4	4	
12	'O' Ring, Large, Pump Jet	A036E6101Z	4	4	
13	'O' Ring, Idle Emulsion Tube	A036E6107Z	4	4	
14	Needle Valve, Float, 200	A910E6677F	2	2	
15	Gasket, Needle Valve	A036E6070Z	2	2	
16	Filter, Needle Valve	A910E6678F	2	2	If Fitted
	Gasket Kit (All Gaskets & Seals for 2 Carbs.)	A910E6599F	1		R/B B910E6599F
	Gasket Kit (All Gaskets & Seals for 2 Carbs.)	B910E6599F	1	1	Inc. in addition Naturally Aspirated Type Jet Cover Gaskets (Brown)
17	Choke, 36mm	A910E6487H	4		
	Choke, 35mm	A907E6273F		4	
18	Auxiliary Venturi	A910E1637H	4		
	Auxiliary Venturi	A910E6882F		4	
19	Screw, Auxiliary Venturi Retaining	A910E6601F	4	4	
20	Float Assembly, 8.5g	A911E6444H	2	2	
21	Accelerator Pump Body, 27	A910E6602F	2	2	
22	Main Jet, 185	A910E6484F	4		
	Main Jet, 160	A907E6277H		4	



TURBO
4 2.04 A

ILLUS
NO.

QUANTITY

MAY 1991

42.07A

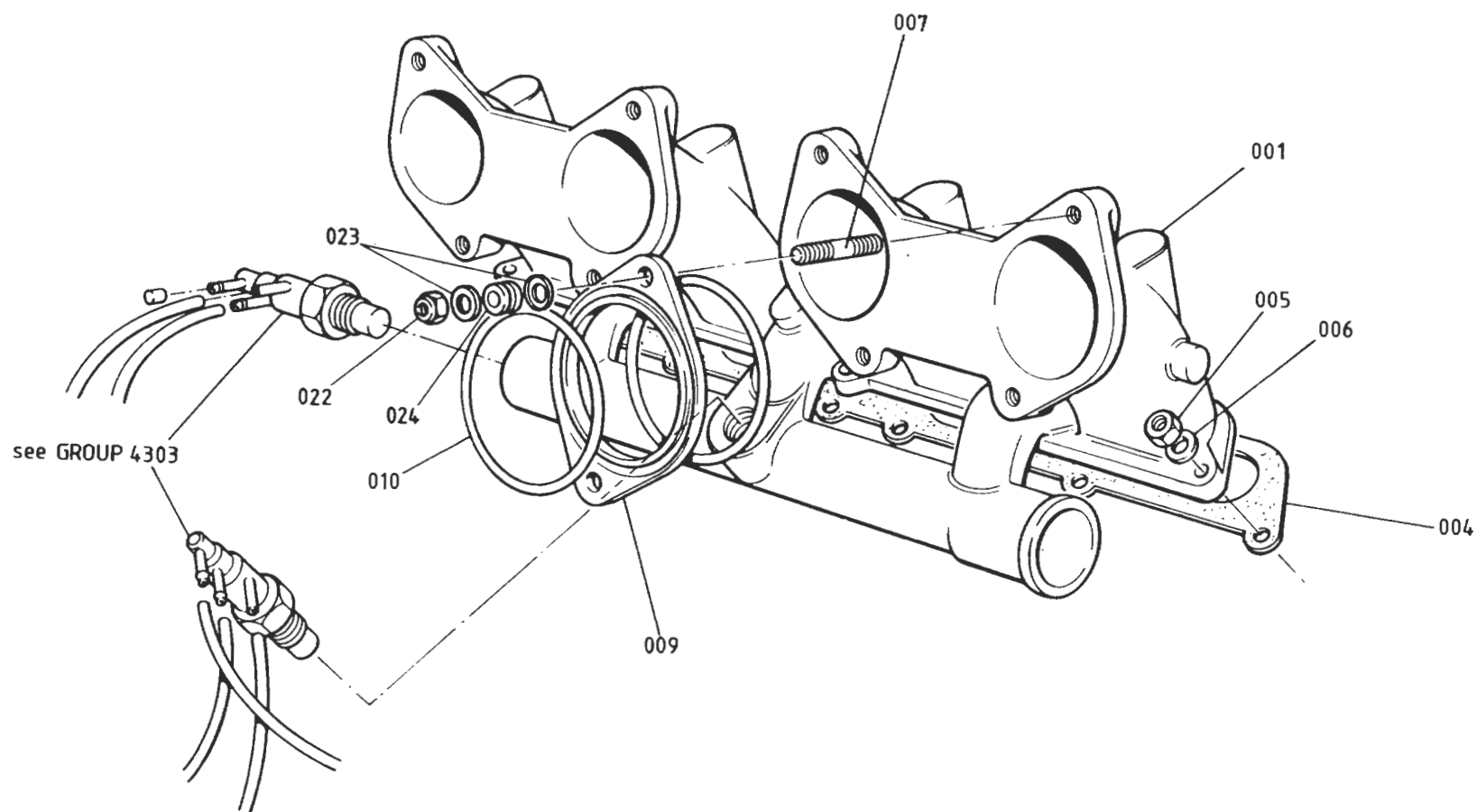
DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

001	Inlet Manifold	C910E1523K	1		
003	Gasket, Inlet Manifold to Head	A907E0204Z	1		
004	Stud, Manifold to Carburettors	D910E1478K	8		
008	Water Rail	E910E1397K	1		R/B B910E1818K
	Water Rail	B910E1818K	1		
009	Hose, Manifold to Water Rail	A910E1635F	3		
010	Hose Clip, Manifold/Water Rail Hose	A079K6018F	6		
013	Elbow Hose, Cylinder Head to Water Rail	B910E1399F	1		
014	Hose Clip, Elbow Hose	A079K6018F	2		
017	Stub Pipe, Manifold Water Outlet	A907E0486Z	3		
018	Nut, Manifold to Head	A075W3021Z	9		
019	Washer, Manifold to Head	A075W4020Z	9		
020	Spacer, Manifold to Carburettors	A910E1636K	4		
021	'O' Ring, Manifold/Spacer/Carb.	A910E6387F	8		
022	Nut, Carb. to Manifold	A075W3010Z	8		
023	Cup Washer, Carb. to Manifold	C036E0471Z	16		
024	Rubber Washer, Carb. to Manifold	B036E0470Z	8		
030	Connector Union, Manifold Vacuum	B910E1398F	4)
031	Hose, Manifold to Vacuum Rail	B910E1504F	4		)Up to VIN 82 D 1954
032	Hose, Clip, Connector Hose	A082L6042F	8		) 82 - 0576
033	Vacuum Rail, Balance Pipe	A910E1664K	1)
034	Connector Union, Vac. Rail	A026E0367Z	2)
035	Connector Union, Manifold Vacuum	A089P6000F	2		>From VIN 82 D 1955
036	Blanking Plug, Manifold Tract 3 & 4	A907E6023F	2		> 82 - 0577



TURBO ('87 M.Y. ON)
4207B

ILLUS
NO.



QUANTITY

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42.07B

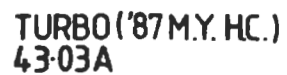
DESCRIPTION

PART NUMBER

1987
M.Y.ON

REMARKS

001	Inlet Manifold	A912E2184K	1
004	Gasket, Inlet Manifold to Head	A912E2009F	1
005	Nut, Manifold to Head	A075W3021Z	9
006	Washer, Manifold to Head	A075W4020Z	9
007	Stud, Manifold to Carburettors	D910E1478K	8
009	Spacer, Manifold to Carburettors	B907E0129Z	4
010	'O' Ring, Manifold/Spacer/Carb.	A907E6027Z	8
022	Nut, Carb. to Manifold	A075W3010Z	8
023	Cup Washer, Carb. to Manifold	C036E0471Z	16
024	Rubber Washer, Carb. to Manifold	B036E0470Z	8



ILLUS
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DESCRIPTION

PART NUMBER

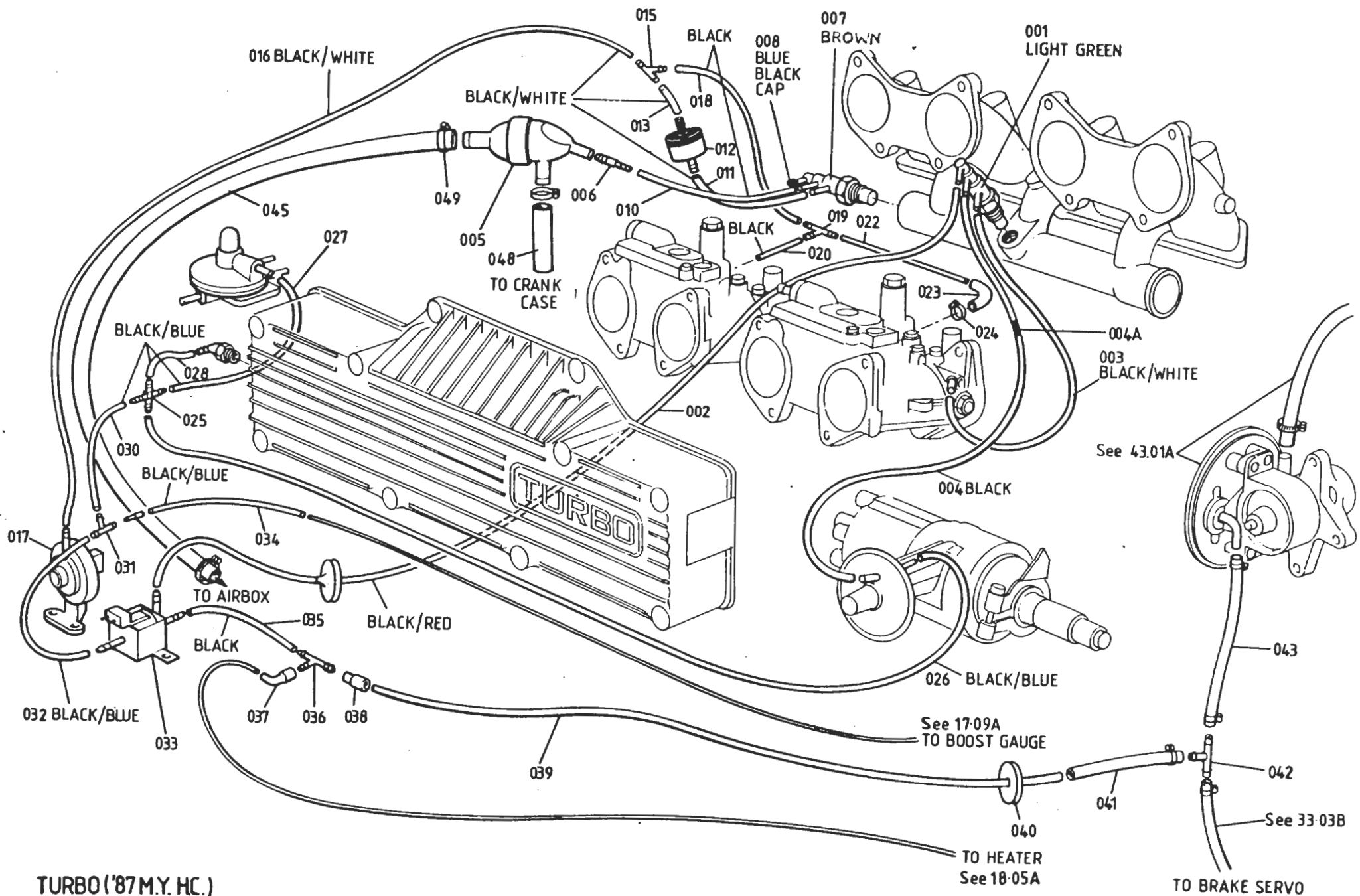
'87 M.Y
ON

REMARKS

001	Thermal Ignition Valve (T.I.V.)	A912E6796F	1	Light Green, R/B A910E6893F
	Thermal Ignition Valve (T.I.V.)	A910E6893F	1	Green
002	Hose, Vacuum, (T.I.V.) to Ign.Solenoid Valve	A910E2313K	1	Black/Red. (900mm of A910E6783F)
	Grommet, Engine Bay Sidewall	X036J0026Z	1	
003	Hose, Vacuum, (T.I.V.) to Throttle Edge Port	B912E2224K	1	Black/White. (350mm of A910E6784F)
004	Hose, Vacuum, (T.I.V.) to Distributor	A912E2223K	1	Black. (260mm of A910E6786F)
004A	Restrictor, Pulsation Damping	A912E6452H	1	
005	Crankcase Breather Valve (C.B.V.)	A912E6802F	1	
006	Adaptor, Crankcase Breather Valve	A912E6806F	1	
007	Cold Enrichment Thermal Valve (C.E.T.V.)	A910E6792F	1	R/B B910E6792F
	Cold Enrichment Thermal Valve (C.E.T.V.)	B910E6792F	1	Brown
008	Cap, Rubber, Blanking (C.E.T.V.)	A912E6804F	1	
010	Hose, Vacuum, (C.B.V.) to (C.E.T.V.)	A910E2322K	1	Black. (200mm of A910E6786F)
011	Hose, Vacuum, (C.E.T.V.) to Non Return Valve	A910E2316K	1	Black/White. (45mm of A910E6784F)
012	Non Return Valve	A910E6863F	1	
013	Hose, Vacuum, Non Return Valve to T-Piece	A910E2315K	1	Black/White. (85mm of A910E6784F)
015	T-Piece	A082J6089F	1	
016	Hose, Vacuum, T-Piece to Overboost Switch	A910E2314K	1	Black/White. (700mm of A910E6784F)
017	Overboost Switch	A082M4610Z	1	
018	Hose, Vacuum, Junction Connecting	A910E2323K	1	Black. (90mm of A910E6786F)
019	T-Piece, Rear Carburettor Connection	A082J6089F	1	
020	Hose, Vacuum, Rear Carb. to T-Piece	A912E2240K	1	
022	Pipe, Connecting, 1/4" OD, Carburettor	A912E2238K	1	
023	Elbow, Connecting Pipe to Carburettor	A912E6805F	1	
024	Clip, Elbow Pipe	A079M6132F	1	
025	Connector, 4-Way	A910E6645F	1	
026	Hose, Vacuum, 4-Way to Distributor	A910E2318K	1	Black/Blue. (350mm of A910E6785F)
027	Hose, Vacuum, 4-Way to Pressure Reg. Valve	A910E2319K	1	Black/Blue. (180mm of A910E6785F)
028	Hose, Vacuum, 4-Way to Plenum Adaptor	A910E2317K	1	Black/Blue. (40mm of A910E6785F)
030	Hose, Vacuum, 4-Way to T-Piece	A910E2320K	1	Black/Blue. (400mm of A910E6785F)
031	T-Piece	A082J6089F	1	
032	Hose, Vacuum, T-Piece to Ign. Solenoid Valve	A910E2321K	1	Black/Blue. (200mm of A910E6785F)
033	Ignition Solenoid Valve (I.S.V.)	A910E6764F	1	

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REMARKS

034	Hose, Vacuum, (I.S.V.) to Boost Gauge Pipe	A910E2320K	1		Black/Blue. (400mm of A910E6785F)
035	Hose, Vacuum, (I.S.V.) to T-Piece	A910E2324K	1		Black. (100mm of A910E6786F)
036	T-Piece	A082J6089F	1		
037	Elbow, Heater/A/C Take-Off	A075P6069F	1		
038	Connector Sleeve, T-Piece/Vacuum Supply Pipes	A075P6080F	1		
039	Pipe, Vacuum Supply	B082J4162K	1		
040	Grommet, Engine Bay Sidewall, Boost/Vac.Pipes	X036J6026Z	1		
041	Connector, Hose	A082J4164K	1		
042	T-Piece, Hose Connector	A082L6048F	1		
043	Hose Vacuum, T-Piece to Vacuum Pump	A075J6078V	1		340mm length
045	Pipe, (C.B.V.) to Airbox	A910E2309F	1		
048	Hose, (C.B.V.) to Crankcase	B912E2236F	1		
049	Clip, Hose, (C.B.V.) Hoses	A907E6805F	4		

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44.01A

DESCRIPTION

PART NUMBER

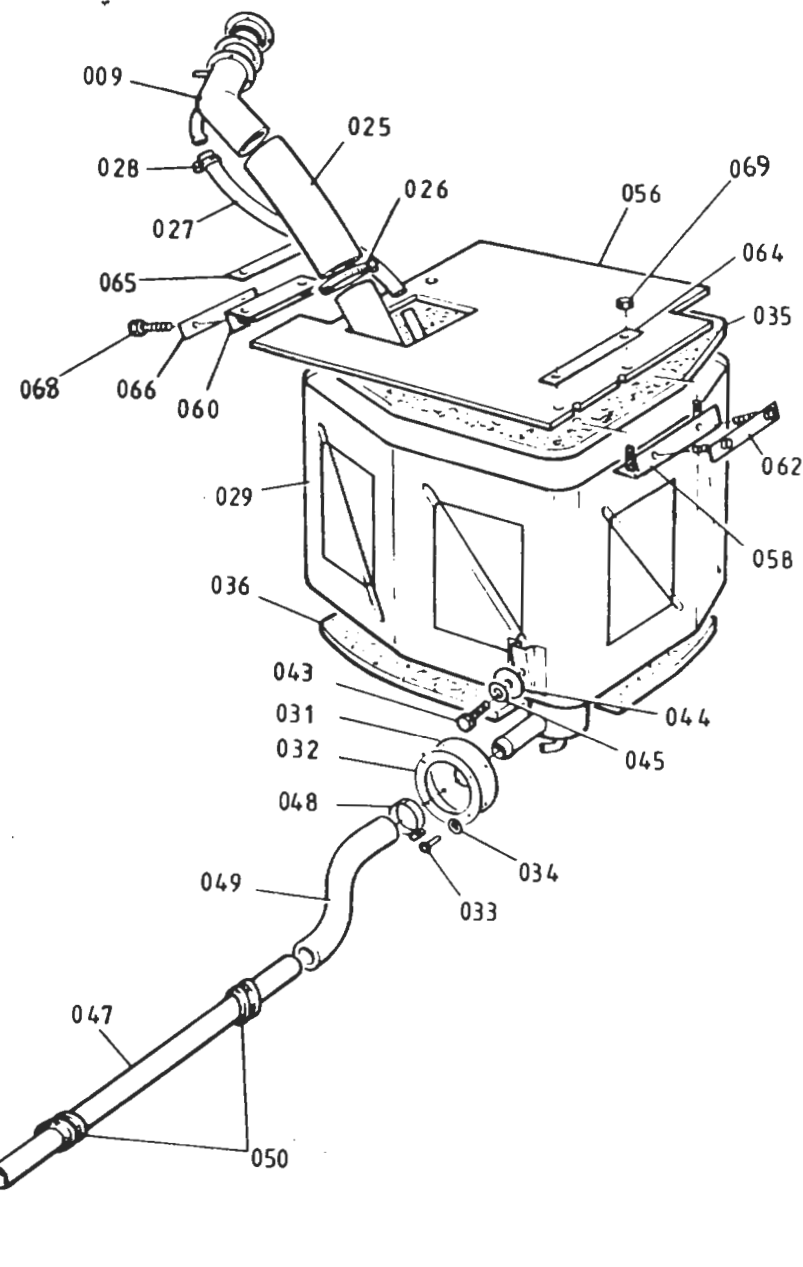
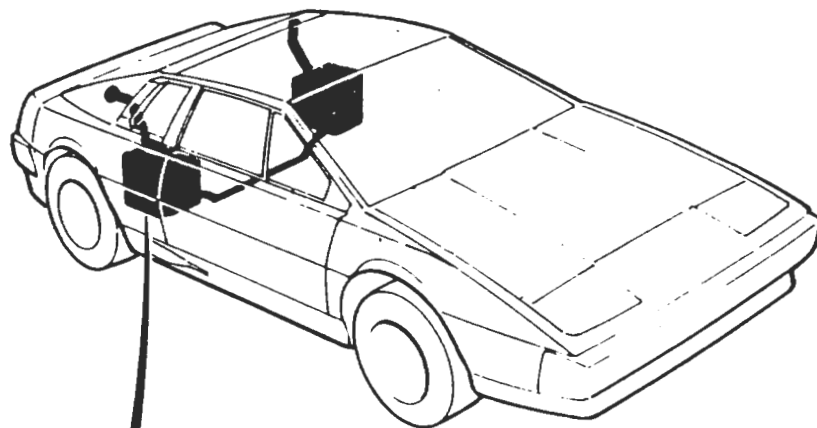
ALL

REMARKS

002	Filler Cap Assembly, Lockable	B076L0167F	2		
	Filler Cap Cover	A076L0168K	2		
	Filler Cap Shutter	A076L6003F	2		
	Filler Cap Base, (Inc. Lock & Keys)	A082L4137F	2		
006	Clamp Ring, Filler Neck	A079L4034F	2		
007	Gasket, Clamp Ring to Body	A079L4035F	2		
008	Screw, No. 6 x 1/2" Clamp Ring	A075W5014F	8		
009	Fuel Filler Neck, LH	C082L4049F	1		)6.5mm Breather Hose Spigot
010	Fuel Filler Neck, RH	C082L4050F	1)
	Fuel Filler Neck, LH	D082L4049F	1		>8.0mm Breather Hose Spigot
	Fuel Filler Neck, RH	D082L4050F	1		>
025	Hose, Filler Neck to Tank	A082L4112F	2		
026	Hose Clip, Filler Hose	A075L6044F	4		
027	Pipe, Filler Vent	A082L4071F	2		
028	Hose Clip, Filler Vent Hose	A079K6018F	4		
029	Fuel Tank, LH (Requires Banjo Offtake)	C082L4045F	1		R/B E082L4045F
	Fuel Tank, LH (Integral Fuel Pipe Spigot)	E082L4045F	1		
030	Fuel Tank, RH (Requires Banjo Offtake)	C082L4046F	1		R/B E082L4046F
	Fuel Tank, RH (Integral Fuel Pipe Spigot)	E082L4046F	1		
031	Grommet, Crossover Hose/Body	A082L4064F	2		
032	Ring, Grommet Fixing	A082L4065K	2		
	Screw, Ring Fixing	A075W5034Z	8		)R/B 033 & 034
	Spire Nut, Ring Fixing	A075W6016Z	8)
033	Screw, Ring Fixing	A075W5016Z	8		
034	Washer, Ring Fixing	A075W4000Z	8		
035	Foam, Tank Clamping	A082L4063F	2		
036	Foam, Tank Seating	A079L4032K	2		
	Pad, Self Adhesive, Noise Damping	A082V7167K	17		Tank Side & LH Top)
	Pad, Self Adhesive, Noise Damping	A082V7168K	2		Tank Top)If
	Pad, Self Adhesive, Noise Damping	A082V7169K	1		RH Tank Top)Fitted
	Pad, Self Adhesive, Noise Damping	A082V7170K	2		Tank Bottom)
043	Setscrew, M8 x 20, Tank to Body	A075W1038Z	2		
044	Washer, Flat, M8 x 25, Tank to Body	A075W4021Z	4		
045	Washer, Spring, Tank to Body	A075W4036Z	2		

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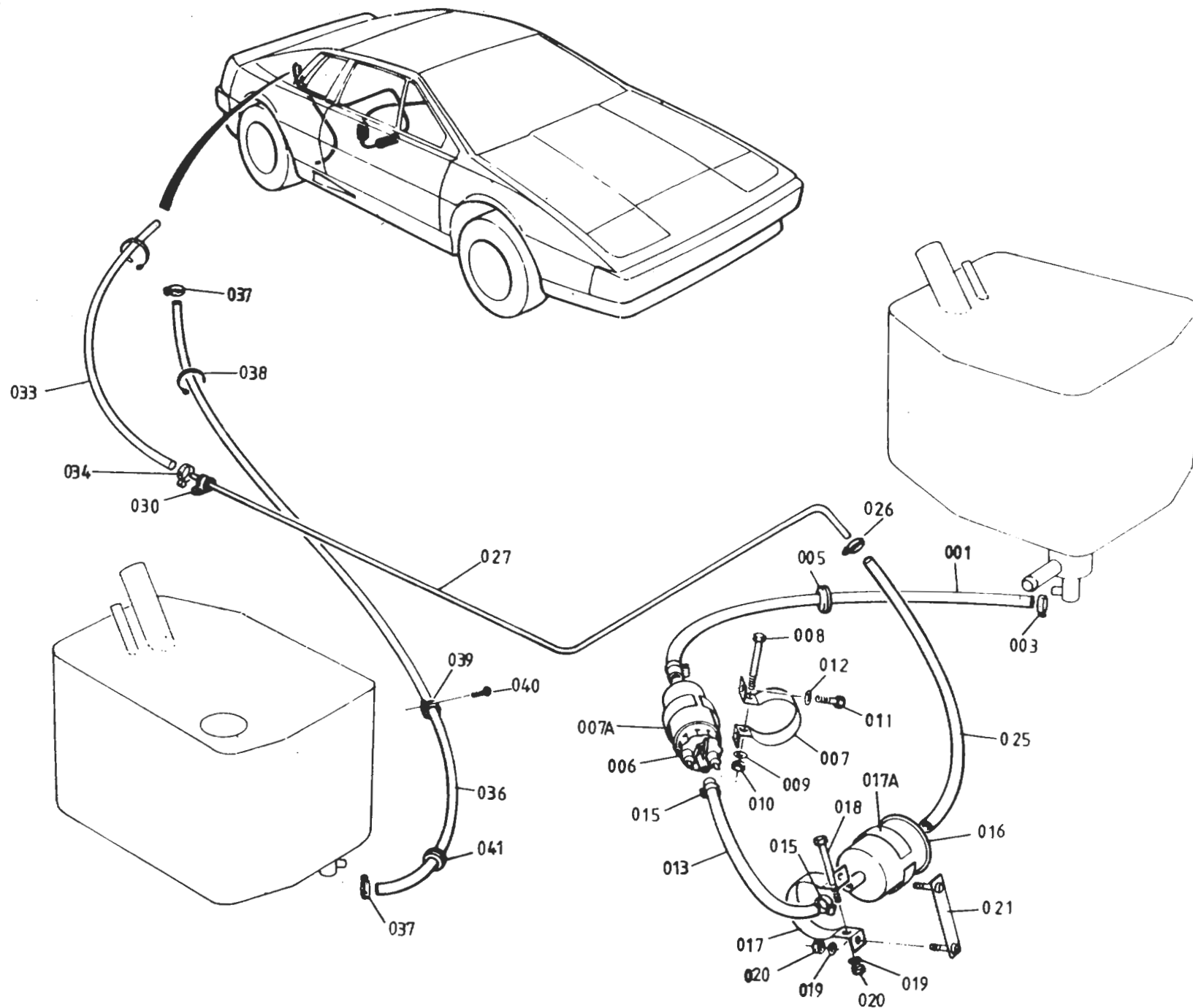
TURBO
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ILLUS NO.	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			ALL		
44.01A					
047	Pipe, Crossover	B082L4061F	1		
048	Hose, Clip, Crossover Pipe Hoses	A075M6145F	4		
049	Hose, Moulded, Tank to Crossover Pipe	B082L4062F	2		
050	Grommet, Crossover Pipe/Chassis	A046K6001F	2		
	Sender Unit, Fuel Gauge	A082L4051F	1		R/B A082L6032F
051	Sender Unit, Fuel Gauge	A082L6032F	1		Inc. Gasket
	Gasket, Sender Unit	A026L6000F	1		
052	Screw, 10 UNF x 1/2", Sender Fixing	A075W1002F	6)
	Washer, Spring, Sender Fixing	A075W4030F	6		)R/B A082W7044F
	Washer, Flat, Sender Fixing	A075W4011F	6)
	Capscrew, 10 UNF x 1/2", Sender Fix	A082W7044F	6		
055	Washer, Fibre, Sender Fixing	A075W4058F	6		
056	Board, Fuel Tank Top, LH	A082U4673F	1		
057	Board, Fuel Tank Top, RH	A082U4674F	1		
058	Bracket, Tank Board to Bulkhead	A082U4675K	2		
060	Bracket, Tank Board to Wheelarch	A082U4676K	2		
062	Studplate, Bracket to Bulkhead	A082U4677K	2		
064	Washer Plate, Bulkhead Brkt./Board	A082U4678K	2		
065	Washer Plate, Wheelarch Brkt./Board	A082U4679K	2		
066	Washer Plate, Wheelarch Brkt./Body	A082U4680K	2		
068	Setscrew, M8 x 20, Wheelarch Brkt.	A075W1038Z	8		
069	Nut, Nyloc, M8, Bulkhead Brkt.	A075W3010Z	8		

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TURBO
4403A

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QUANTITY

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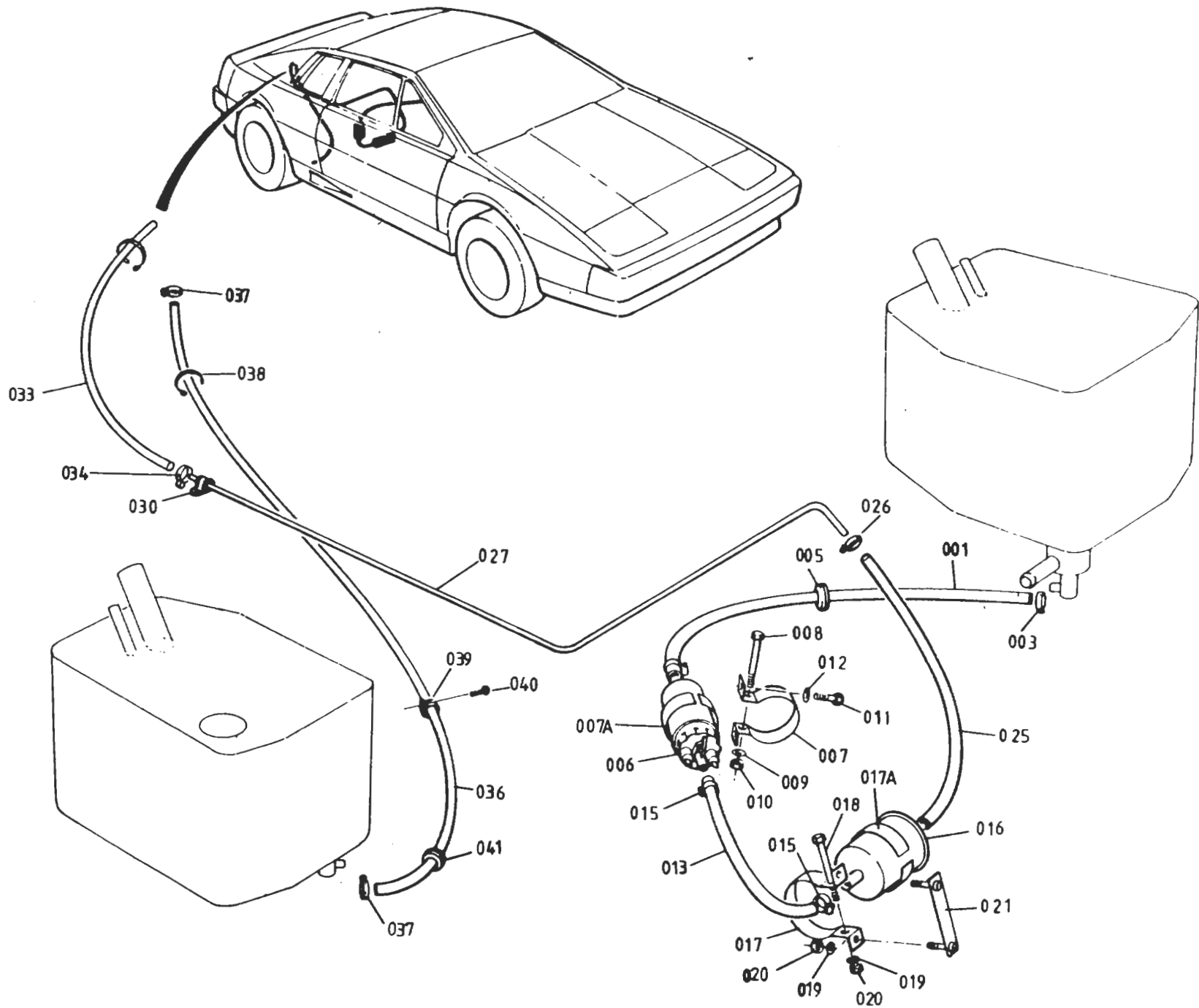
REMARKS

001	Banjo, 10mm, LH Tank Fuel Feed	A082L6027F	1)	
	Banjo, 12mm, LH Tank Fuel Feed	A082L4103F	1)	
	Copper Washer, Banjo	A079L6006F	1	)If Fitted	
	Crush Washer, 1/2", Banjo	A075L6022F	1)	
	Bolt, Banjo	A079L6005F	1)	
	Pipe, Steel Braided, LH Tank to Pump	A082L4065K	1	Cut From A082L6017V (400mm)	
	Pipe, Dunlop, LH Tank to Pump	A082L4098K	1	Cut From A082L6038V (400mm)*	
	Pipe, Dunlop, LH Tank to Pump	B082L4098K	1	Cut From A082L6038V (520mm)†	
	Clip, Fuel Pipe to Tank and Pump	A079M6132F	2	For Steel Braided Pipe	
003	Clip, Fuel Pipe to Tank and Pump	A082L6042F	2	For Dunlop Pipe	
005	Grommet, Pipe Thro' Body	A075L6025F	1		
006	Fuel Pump	A082L6014F	1		
007	Clamp, Fuel Pump Mtg.	B082L4067F	1		
007A	Insulator Strip, Clamp to Pump	A075L0112Z	1		
008	Bolt, M5 x 40, Pump Clamping	A079W2033F	1		
009	Washer, Plain, Pump Clamping	A075W4011F	2		
010	Nut, Nyloc, M5, Pump Clamping	A075W3008Z	1		
011	Setscrew, M6 x 20, Clamp to Chassis	A075W1030Z	2)*	
012	Washer, Flat, Clamp to Chassis	A075W4013Z	2)	
	Rubber Bobbin, Pump Brkt. to Body	X050S0156Z	2		>
	Nut, 5/16" UNF, Bobbin to Pump Brkt.	A075W3040Z	2		>
	Nut, Nyloc, 5/16" UNF, Bobbin to Body	A075W3002Z	2	R/B A082L4121F	>
	Tapping Plate, Pump Bracket to Body	A082L4121F	1		>†
	Pop Rivet, Tapping Plate to Body	A075W6094F	1		>
	Washer, Flat, Bobbin Fix	A075W4020Z	2/4		>
	Washer, Spring, Bobbin to Pump Brkt.	A075W4036Z	2		>
013	Pipe, Pump to Filter	A082L4057K	1	Cut From A075L6043V (300mm)*	
	Pipe, Pump to Filter	A082L4123H	1	Cut From A075L6043V (410mm)†	
015	Clip, Oetiker, 9/16"	A910E6479F	2		
	'P' Clip, Open, Pump to Filter Hose	A075W6228F	2	>†	
	Screw, 'P' Clip Fixing	A075W5020F	2	>	* with pump mounted on chassis
016	Filter, Fuel	A082L6016F	1		† with pump mounted on body
017	Clamp, Fuel Filter	A082L4066F	1		
017A	Insulator Strip, Clamp to Filter	A082L4092F	1		

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TURBO
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ALL

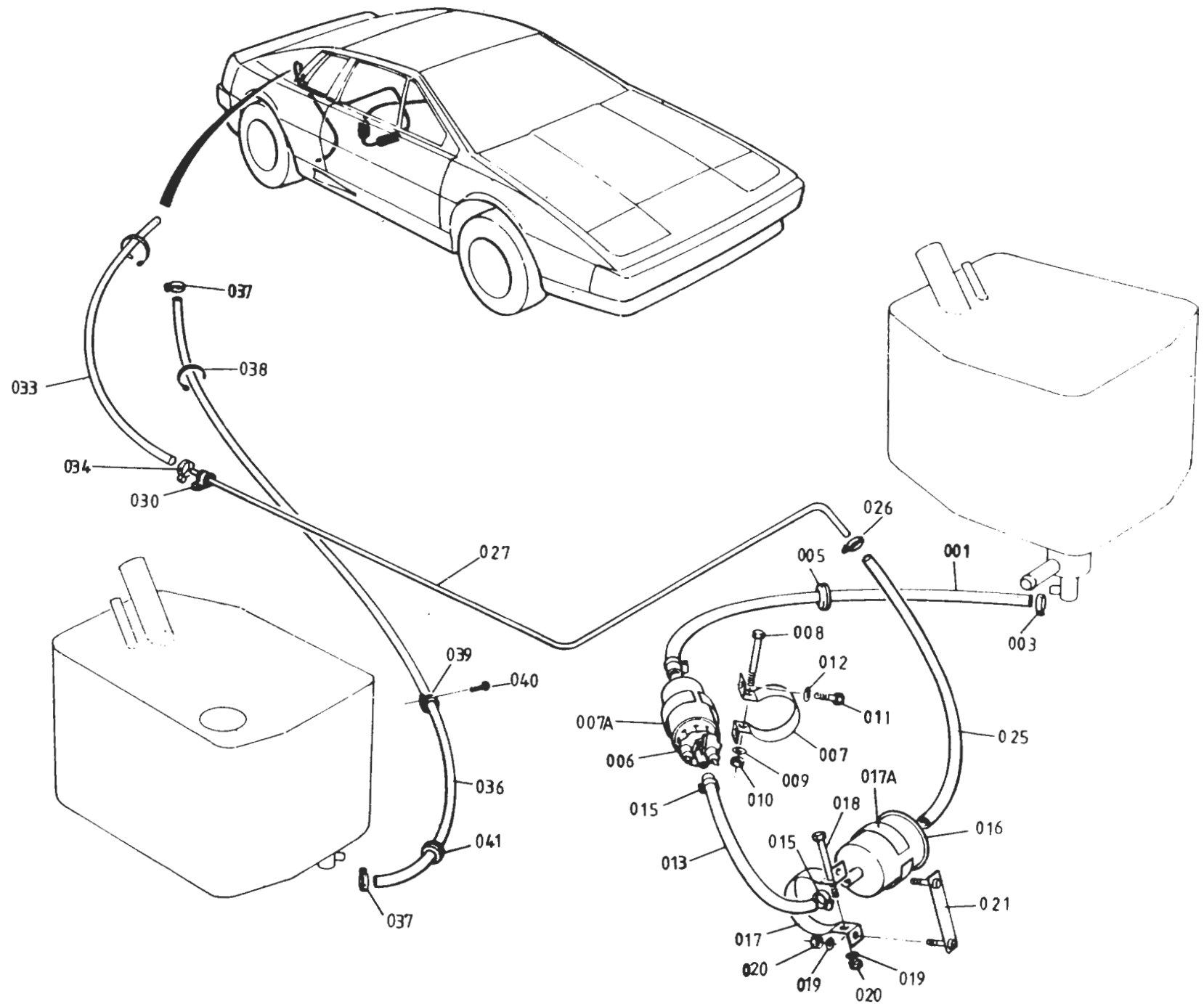
REMARKS

001	Banjo, 10mm, LH Tank Fuel Feed	A082L6027F	1)
	Banjo, 12mm, LH Tank Fuel Feed	A082L4103F	1)
	Copper Washer, Banjo	A079L6006F	1	)If Fitted
	Crush Washer, 1/2", Banjo	A075L6022F	1)
	Bolt, Banjo	A079L6005F	1)
	Pipe, Steel Braided, LH Tank to Pump	A082L4065K	1	Cut From A082L6017V (400mm)
	Pipe, Dunlop, LH Tank to Pump	A082L4098K	1	Cut From A082L6038V (400mm)*
	Pipe, Dunlop, LH Tank to Pump	B082L4098K	1	Cut From A082L6038V (520mm)†
	Clip, Fuel Pipe to Tank and Pump	A079M6132F	2	For Steel Braided Pipe
003	Clip, Fuel Pipe to Tank and Pump	A082L6042F	2	For Dunlop Pipe
005	Grommet, Pipe Thro' Body	A075L6025F	1	
006	Fuel Pump	A082L6014F	1	
007	Clamp, Fuel Pump Mtg.	B082L4067F	1	
007A	Insulator Strip, Clamp to Pump	A075L0112Z	1	
008	Bolt, M5 x 40, Pump Clamping	A079W2033F	1	
009	Washer, Plain, Pump Clamping	A075W4011F	2	
010	Nut, Nyloc, M5, Pump Clamping	A075W3008Z	1	
011	Setscrew, M6 x 20, Clamp to Chassis	A075W1030Z	2)*
012	Washer, Flat, Clamp to Chassis	A075W4013Z	2)
	Rubber Bobbin, Pump Brkt. to Body	X050S0156Z	2	>
	Nut, 5/16" UNF, Bobbin to Pump Brkt.	A075W3040Z	2	>
	Nut, Nyloc, 5/16" UNF, Bobbin to Body	A075W3002Z	2	R/B A082L4121F >
	Tapping Plate, Pump Bracket to Body	A082L4121F	1	>†
	Pop Rivet, Tapping Plate to Body	A075W6094F	1	>
	Washer, Flat, Bobbin Fix	A075W4020Z	2/4	>
	Washer, Spring, Bobbin to Pump Brkt.	A075W4036Z	2	>
013	Pipe, Pump to Filter	A082L4057K	1	Cut From A075L6043V (300mm)*
	Pipe, Pump to Filter	A082L4123H	1	Cut From A075L6043V (410mm)†
015	Clip, Oetiker, 9/16"	A910E6479F	2	
	'P' Clip, Open, Pump to Filter Hose	A075W6228F	2	>†
	Screw, 'P' Clip Fixing	A075W5020F	2	>
016	Filter, Fuel	A082L6016F	1	* with pump mounted on chassis
017	Clamp, Fuel Filter	A082L4066F	1	† with pump mounted on body
017A	Insulator Strip, Clamp to Filter	A082L4092F	1	

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DESCRIPTION

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REMARKS

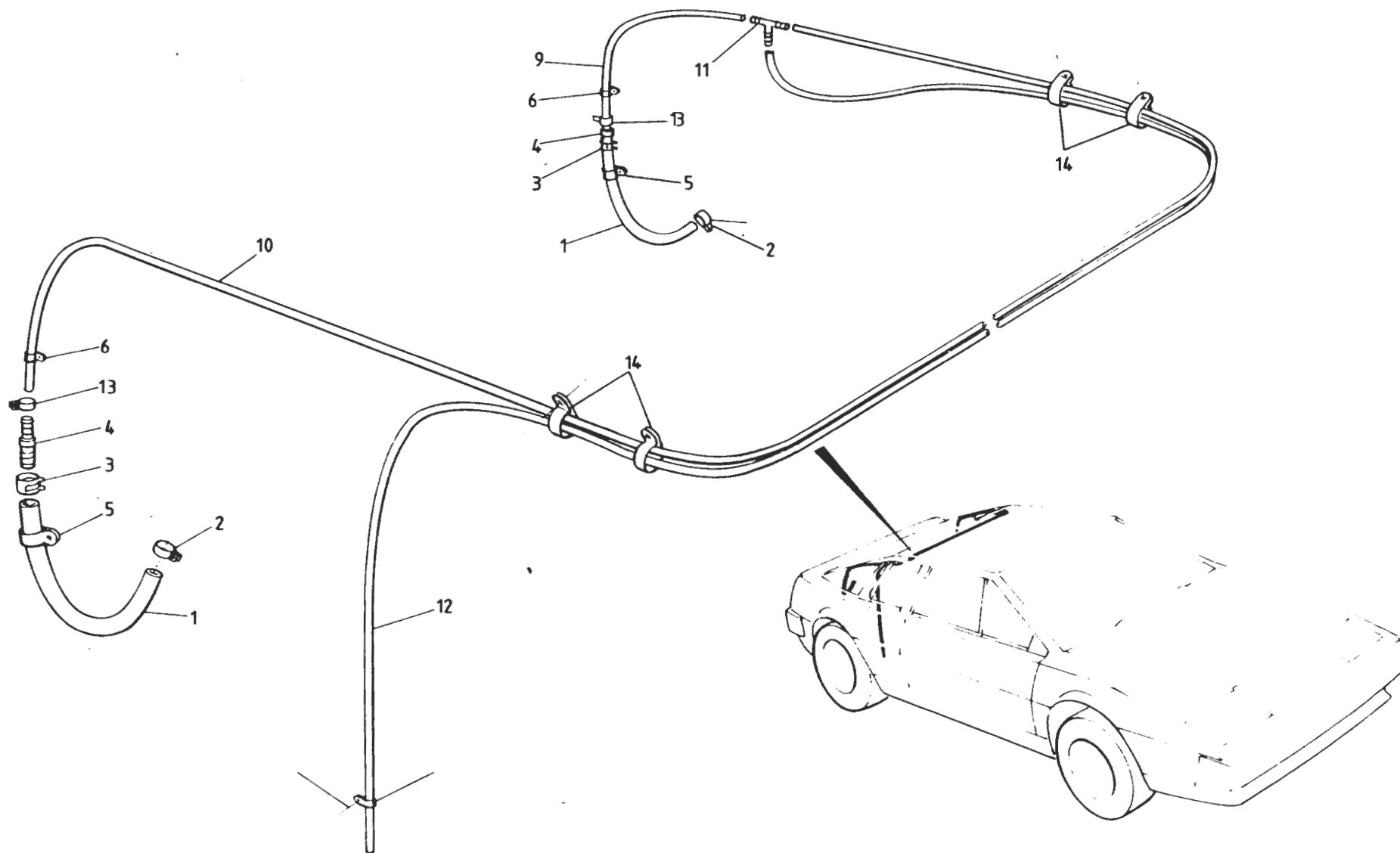
018	Bolt, M6 x 60, Filter Clamping	A082W2078F	1		
019	Washer, Flat, Filter Clamp	A075W4013Z	4		
020	Nut, Nyloc, M6, Filter Clamp	A075W3009Z	3		
021	Studplate, Filter Clamp to Body	A082L4068K	1		
025	Pipe, Filter to Bundy	A082L4097K	1		Cut From A075L6043V (350mm)*
	Pipe, Filter to Bundy	A082L4124H	1		Cut From A075L6043V (200mm)†
026	Clip, Oetiker, 9/16"	A910E6479F	2		
027	Bundy Pipe, Fuel Feed	A082L4054F	1		
030	'P' Clip, Bundy Fixing	A075Q6013F	4		
	Screw, s/t, P Clip Fix	A075W5033Z	3		
	Spire Nut, P Clip Fix	A075W6011Z	3		
	Pipe, Steel Braided, Bundy to P.R.V.	B082L4069J	1		
033	Pipe, Dunlop, Bundy to P.R.V.	A082L4101K	1		Cut From A082L6036V (500mm)
034	Clip, Pipe to Bundy & P.R.V.	A082L6042F	2		For Dunlop Pipe
	Pipe, Steel Braided, P.R.V. to RH Tank	B082L4070J	1		
036	Pipe, Dunlop P.R.V. to RH Tank	A082L4102K	1		Cut From A910E6650V (1450mm)
037	Clip, Pipe to P.R.V. and Tank	A082L6042F	2		For Dunlop Pipe
038	Tie Wrap, Return Hose to Chassis	A075W6038Z	1		
039	'P' Clip, Return Hose to Body	A075W6002Z	2		
040	Screw, s/t, 'P' Clip Fixing	A075W5016Z	2		
041	Grommet, Return Hose/Body	A075L6025F	1		
	Banjo, RH Tank	A082L4072F	1)
	Copper Washer, Banjo	A079L6006F	1		) If Fitted
	Crush Washer, ½", Banjo	A075L6022F	1)
	Bolt, Banjo	A079L6005F	1)

* With pump mounted on chassis

† With pump mounted on body

Turbo 44.03A

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TURBO
44.05A



MAY 1991

ILLUS
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QUANTITY

44.05A

DESCRIPTION

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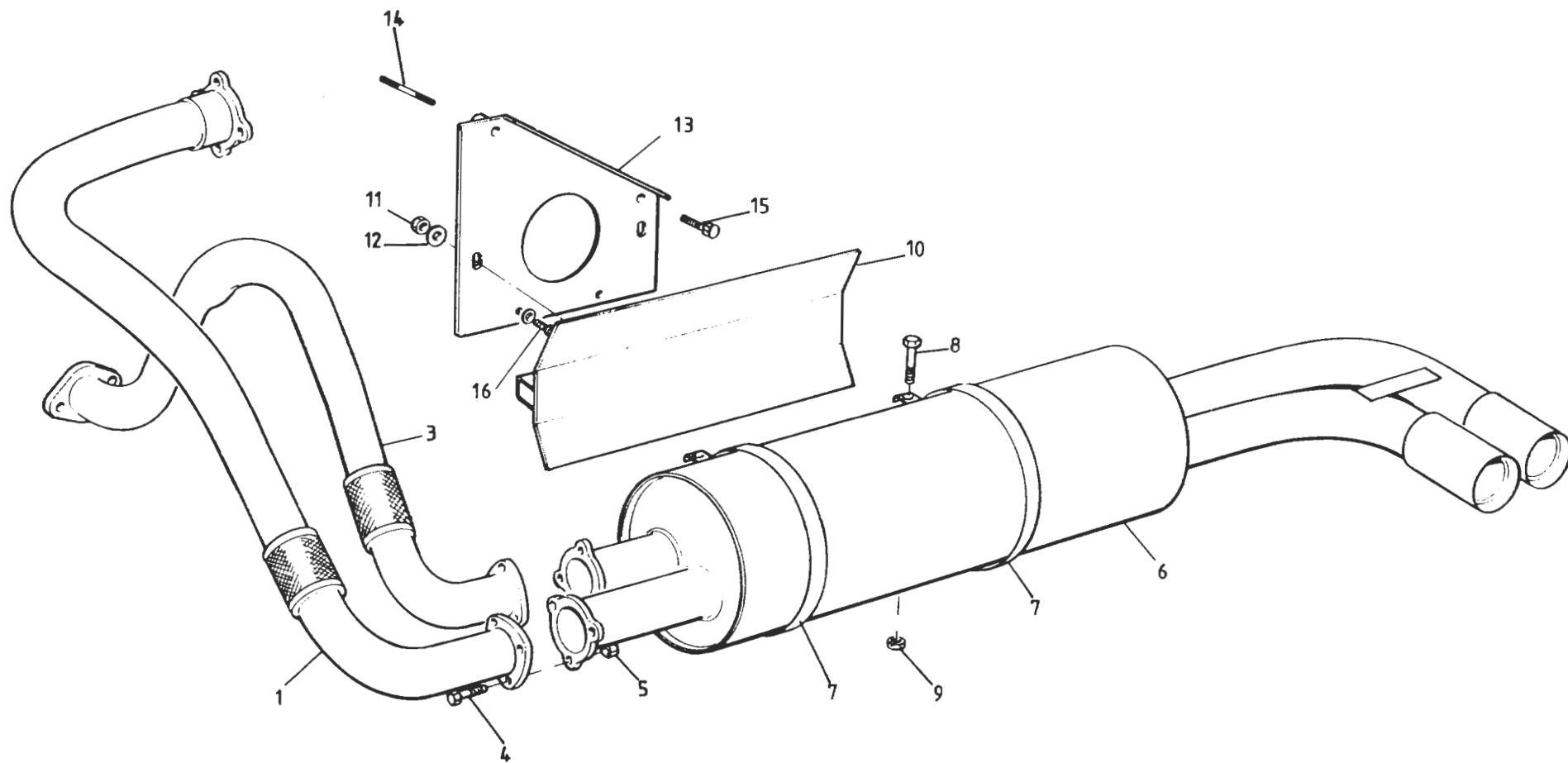
ALL

REMARKS

1	Breather Hose, Filler Neck to Anti Surge Valve	A085L4078K	2		5.7mm I/D. Use with 6.5mm Filler Neck Spigot 7.1mm I/D. Use with 8mm Filler Neck Spigot
2	Breather Hose, Filler Neck to Anti Surge Valve	A082L4125F	2		
3	Clip, Breather Hose to Filler Neck	A075U6082F	2		
3	Clip, Breather Hose to Valve	A079W6189F	2		
4	Valve, Anti Surge	B076L6001F	2		
5	'P' Clip, Valve Fixing	A075W6000Z	2		
6	'P' Clip, Valve Fixing	A075W6002Z	2		
	Pop Rivet	A075W6092Z	2		
	Washer	A075W4001Z	2		
9	Breather Hose, 200 mm, Anti Surge to 'T' Piece	A085L4079K	1		
10	Breather Hose, 2 m, Anti Surge to 'T' Piece	A085L4080K	1		
11	'T' Piece, Breather Hose	A075L6042F	1		
12	Breather Hose, 3.2 m	A085L4081K	1		
13	Clip, Hose to 'T' & Valves	A075L6018F	5		
14	'P' Clip, Breather Hose Fixing	A075W6021Z	4		
	Pop Rivet Breather Hose Fixing	A075W6090Z	4		
	Washer, Breather Hose Fixing	A075W4062Z	4		

Turbo 44.05A

TURBO
4503A



ILLUS
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QUANTITY

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DESCRIPTION

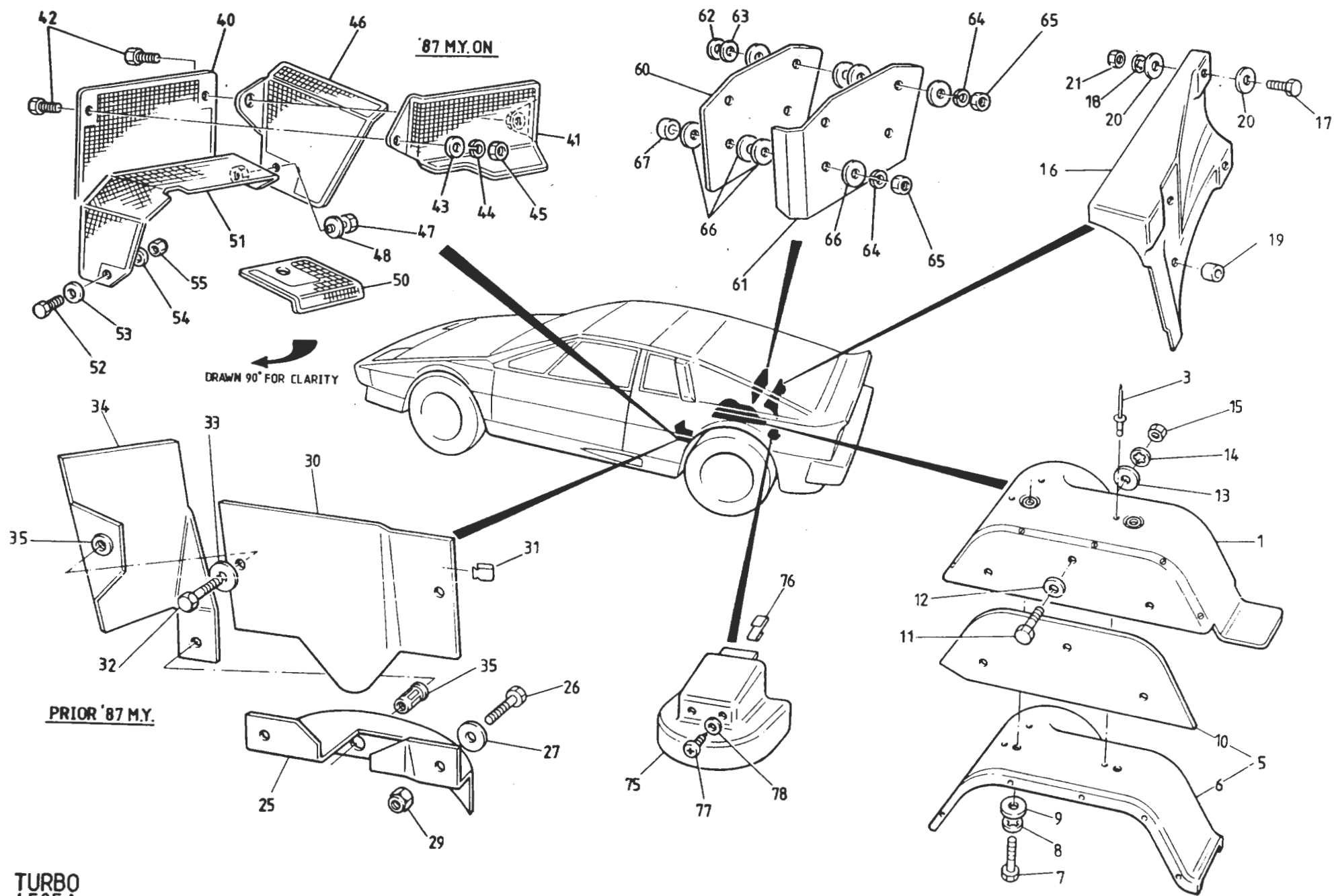
PART NUMBER

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REMARKS

1	Exhaust Pipe, Main	A082S4082F	1		
3	Exhaust Pipe, Wastegate	A082S4081F	1		
4	Bolt, Pipes to Silencer	A075W2038D	6		
5	Nut, Pipes to Silencer	A075W3035Z	6		
6	Silencer & Tail Pipes	A082S4083F	1		R/B B082S4105F
	Silencer & Tail Pipes	B082S4105F	1		'84 M.Y. On
7	Clamp, Silencer to Channel	A079S4066F	2		
8	Setscrew, M8, Silencer Clamp	A075W1043Z	2		
9	Nut, M8, Silencer Clamp	A075W3035Z	2		
10	Channel, Silencer Mounting	A079S4065S	1		
11	Nut, M10, Channel to Bracket	A075W3011Z	2		
12	Washer, Channel to Bracket	A075W4027Z	2		
	Bracket, Silencer Mounting	A079S4061F	1		Prior to C35 G/Box
13	Bracket, Silencer Mounting	C082S4096F	1		With C35 G/Box R/B D082S4126F & Fixings
	Bracket, Silencer Mounting	D082S4126F	1		
14	Stud, Bracket to Gearbox	A079F4030F	1		R/B B079F4030F
	Stud, M7 x 128, Bracket to Gearbox	B079F4030F	1		Used with bracket D082S4126F
	Nut, Nyloc, M7, Bracket to Gearbox	A079F6023F	1		
	Washer, Flat, Bracket to Gearbox	A075W4002Z	1		
15	Bolt, Bracket to Gearbox	A079F4031F	1		>R/B B079F4031F
16	Bolt, Bracket to Gearbox	A079F4031F	2		With C35 G/Box >
	Bolt, M7 x 50, Bracket to Gearbox	B079F4031F	3		Used with Bracket D082S4126F

Turbo 45.03A



TURBO
4505A

ILLUS
NO.

QUANTITY

Pica 20/11

45.05A

DESCRIPTION

PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

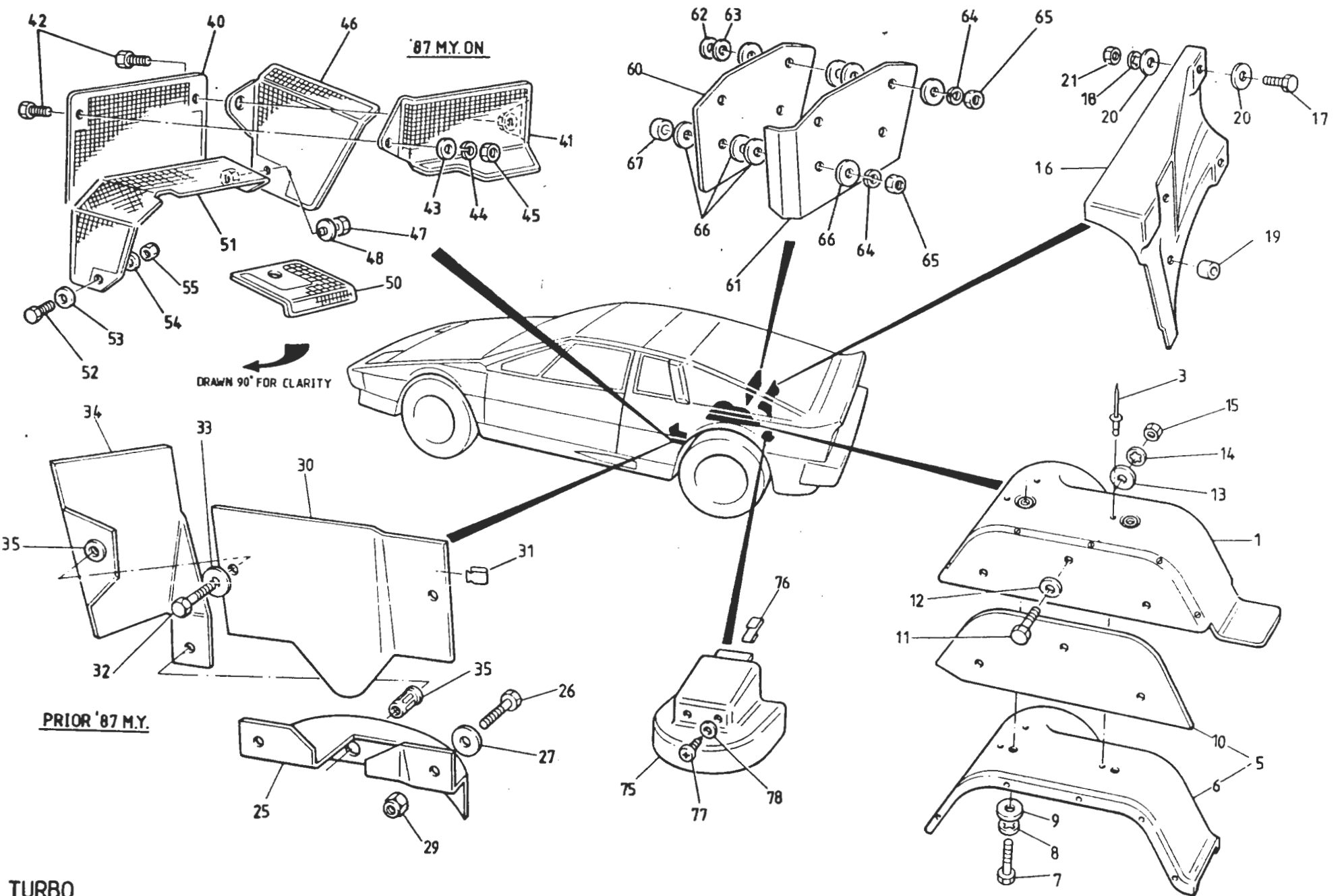
REMARKS

1	Heatshield, Body & Tyre, (Aluminium)	B082B4283K	1	1	2 Pieces, Inc. Jacknuts
	Jacknut, M6, Heatshield	A075W3031Z	4	4	
	Screw, S/T, Alum. Shield Joining	A075W5012Z	6	6	
3	Pop Rivet, 3/16", Shield to Body	B075W6089Z	7	7	Comprises Items 6 and 10
	Washer, Pop Rivet	A075W4002Z	7	7	
5	Heatshield Assy. Body & Tyre (Ferrobestos)	D082B4284F	1	1	
6	Heatshield, Body, (Ferrobestos)	A082D4343H	1	1	
7	Setscrew, M6 x 12, (Ferro.) Shield Fix	A075W1027Z	4	4	
8	Washer, Shakeproof, (Ferro.) Shield Fix	A075W4046Z	4	4	
9	Washer, Large O/D, (Ferro.) Shield Fix	A075W4017Z	4	4	
10	Heatshield, Tyre, (Ferrobestos)	A082B4344H	1	1	
11	Setscrew, M6 x 16, (Ferro.) Shield Fix	A075W1028Z	3	3	
12	Washer, Flat, (Ferro.) Shield Fix	A075W4013Z	3	3	
13	Washer, Large O/D, (Ferro.) Shield Fix	A075W4017Z	6	6	
14	Washer, S/Proof, (Ferro.) Shield Fix	A075W4046Z	3	3	
15	Nut, Nyloc, M6, (Ferro.) Shield Fix	A075W3009Z	3	3	
16	Heatshield, Engine Bay Rear	A082B4303F	1	1	
17	Screw, M4 x 10, Heatshield Fix	A075W5079F	3	3	
18	Washer, Shakeproof " "	A075W4043Z	3	3	
19	Spacer, Insulating " "	A082B6058F	3	3	
20	Washer, Flat " "	A075W4000F	3	3	
21	Nut, Nyloc " "	A075W3049F	3	3	
25	Heatshield, LH Engine Mounting	C082E4092F	1		
26	Setscrew, M6 x 20, Shield to Chassis	A075W1030F	2		
27	Washer, Large O/D, " " "	A075W4017F	2		
	Washer, Flat, " " "	A075W4013F	2		
29	Nut, Nyloc, M6 " " "	A075W3009F	2		
30	Heatshield, LH Radius Arm Mtg.	C082E4091F	1		
31	Clip, Shield to Chassis	A079W6188F	3		
32	Setscrew, M6 x 20, Shield to Chassis	A075W1030F	1		
33	Washer, Flat, Shield to Chassis	A075W4013F	1		
34	Heatshield, Compressor/A/C Pipes	C082P4207F	1		
35	Jacknut, Heatshield Fix	A075W3031F	2		Turbo 45.05A
	Setscrew, M6 x 20, Heatshield Fix	A075W1030F	1		
	Washer, Large O/D, Heatshield Fix	A075W4017F	1		

'87 M.Y. ON

DRAWN 90° FOR CLARITY

PRIOR '87 M.Y.



TURBO
4505A

ILLUS
NO.

QUANTITY

MAY 1991

45.05A

DESCRIPTION

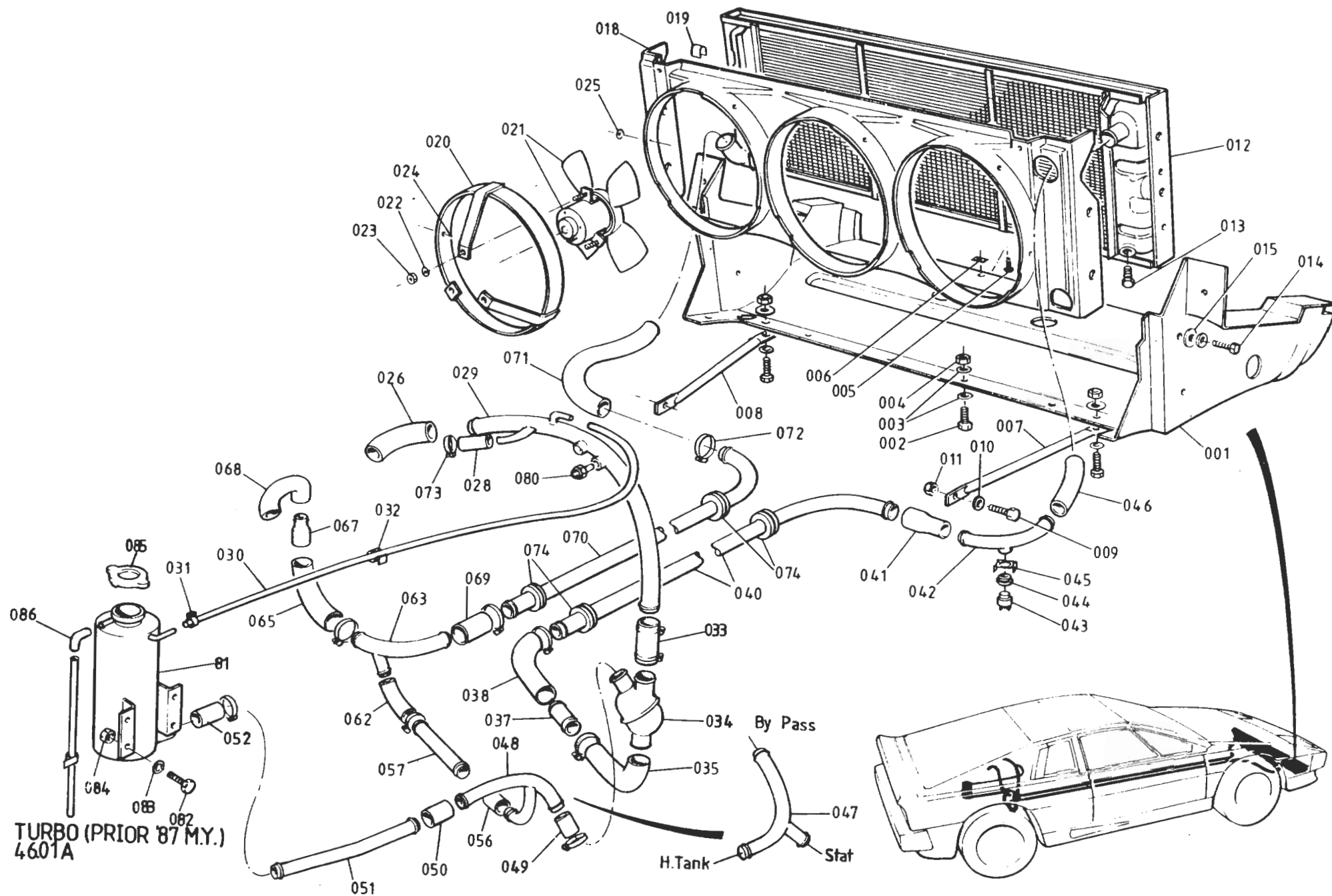
PART NUMBER

PRIOR
'87 M.Y'87 M.Y
ON

REMARKS

40	Heatshield, Radius Arm Mounting	A082E4150F		1
	Setscrew, M6 x 20, Heatshield Fix	A075W1031F		1
41	Heatshield	A082E4146F		1
42	Setscrew, M6 x 20, Heatshield Fix	A075W1030F		3
43	Washer, Flat, M6 x 15, Heatshield Fix	A075W4015Z		3
44	Washer, Spring, M6, Heatshield Fix	A075W4035Z		3
45	Nut, M6, Heatshield Fix	A075W3020Z		3
46	Heatshield, Vacuum Pump	A082E4149F		1
47	Setscrew, M6 x 20, Heatshield Fix	A075W1030F		1
48	Washer, Flat, M6 x 15, Heatshield Fix	A075W4015Z		1
50	Heatshield, Engine Mounting Cover	A082E4147F		1
51	Heatshield, Engine Mounting	A082E4148F		1
52	Setscrew, M6 x 16, Heatshield Fix	A075W1028F		1
53	Washer, Flat, Heatshield Fix	A075W4015Z		1
54	Washer, M6 x 12, Heatshield Fix	A075W4013Z		1
55	Nut, Nyloc, M6, Heatshield Fix	A075W3009Z		1
	Heatshield, Turbo	A910E1402F	1	
60	Heatshield, Turbo	A910E2172F		1
61	Reflector, Turbo Heatshield	A910E2173F		1
62	Washer, Flat, M6 x 15, 'Shield/Diffuser Brkt.	A075W4015Z		2
63	Washer, Flat, M6 x 15, " " "	A075W4014Z		2
64	Washer, Spring	A075W4035Z		4
65	Nut, M6	A075W3020Z		4
66	Washer, Load Spreader	A075W4017Z	8	16
67	Spacer, Heatshield	A907E0696Z	4	2
68	Bolt, M6 x 30, Heatshield/Cover/Housing	A075W2028Z	4	
69	Washer, Spring	A075W4035Z	4	
75	Heatshield, LH Damper Top	A082U4764F	1	1
76	Clip, Heatshield to Chassis	A075W6050Z	1	1
77	Screw, Shield Fixing	A075W5038F	2	2
78	Washer, Flat, Shield Fixing	A075W4011F	2	2

Turbo 45.05A
Page 2



ILLUS
NO.

QUANTITY

MAY 1991

46.01A

DESCRIPTION

PART NUMBER

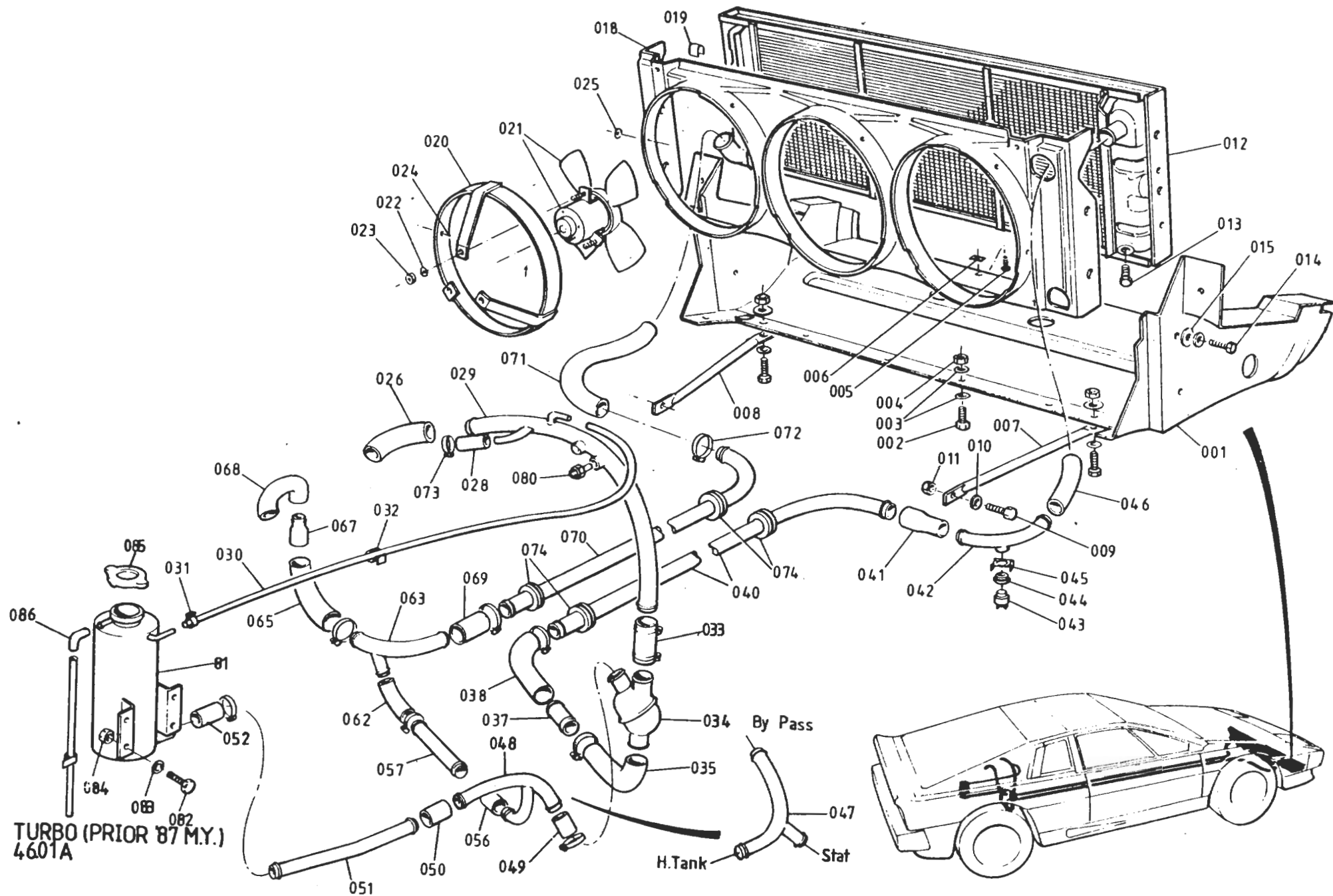
ALL

REMARKS

001	Radiator Duct	A082B4237K	1		Used With 306mm Support Stays With 266 / 286mm Stays.252mm Oil Cooler 325mm Oil Cooler Union Centres Fettle to Fit Rad: A082K4237F
	Radiator Duct	A082B4491K	1		
	Radiator Duct	B082B4491K	1		
	Radiator Duct	C082B4491K	1		
002	Setscrew, M6 x 25, Duct to Body	A075W1031Z	6		
003	Washer, Large O/D, Duct to Body	A075W4017Z	12		
004	Nut, Nyloc, M6, Duct to Body	A075W3009Z	6		
005	Screw, s/t, Duct to Body	A075W5028Z	3		
006	Spire Nut, Duct to Body	A075W6013Z	3		
	Support Stay, Radiator Duct	B082K4105K	2		)R/B A082K4188/9)Ref. S. Bulletin 1983/11 >306mm Between Hole Centres >
	'L' Bracket, Stay to Chassis	B082A4166F	2		
	Support Stay, Rad. Duct, RH	A082K4188K	1		
	Support Stay, Rad. Duct, LH	A082K4189K	1		
	Support Stay, Rad. Duct, RH	A082K4186K	1		)266mm Between Hole Centres) >286mm Between Hole Centres >1985 Model Year On.
	Support Stay, Rad. Duct, LH	A082K4185K	1		
007	Support Stay, Rad. Duct. RH	A082K4198K	1		
008	Support Stay, Rad. Duct. LH	A082K4199K	1		
009	Setscrew, M6 x 20, Stay to Chassis	A075W1030Z	2		
010	Washer, Flat, Stay to Chassis	A075W4013Z	2		
011	Nut, Nyloc, M6, Stay to Chassis	A075W3009Z	2		
	Spacer Washer, Stay to Chassis	A075W4016Z	4)
	Setscrew, M6 x 20, Stay to Duct	A075W1030Z	2)
	Washer, Large O/D, Stay to Duct	A075W4017Z	2		)Use With 266 & 286mm Stays
	Washer, Flat, Stay to Duct	A075W4013Z	2)
	Nut, Nyloc, M6, Stay to Duct	A075W3009Z	2)
012	Radiator	E082K4101K	1		R/B A082K4237F
	Radiator	A082K4237F	1		
	Foam, Radiator top to Body	A079K4001F	1		Thick Thin
	Foam, Radiator bottom to Duct	A089K0131F	1		
013	Drain Plug, Radiator	B075K6011F	1		
014	Setscrew, M6 x 25, Radiator to Duct	A075W1031Z	4		
	Washer, S/Proof, Rad. to Duct	A075W4046Z	4		
015	Washer, Large O/D, Rad. to Duct	A075W4017Z	4		

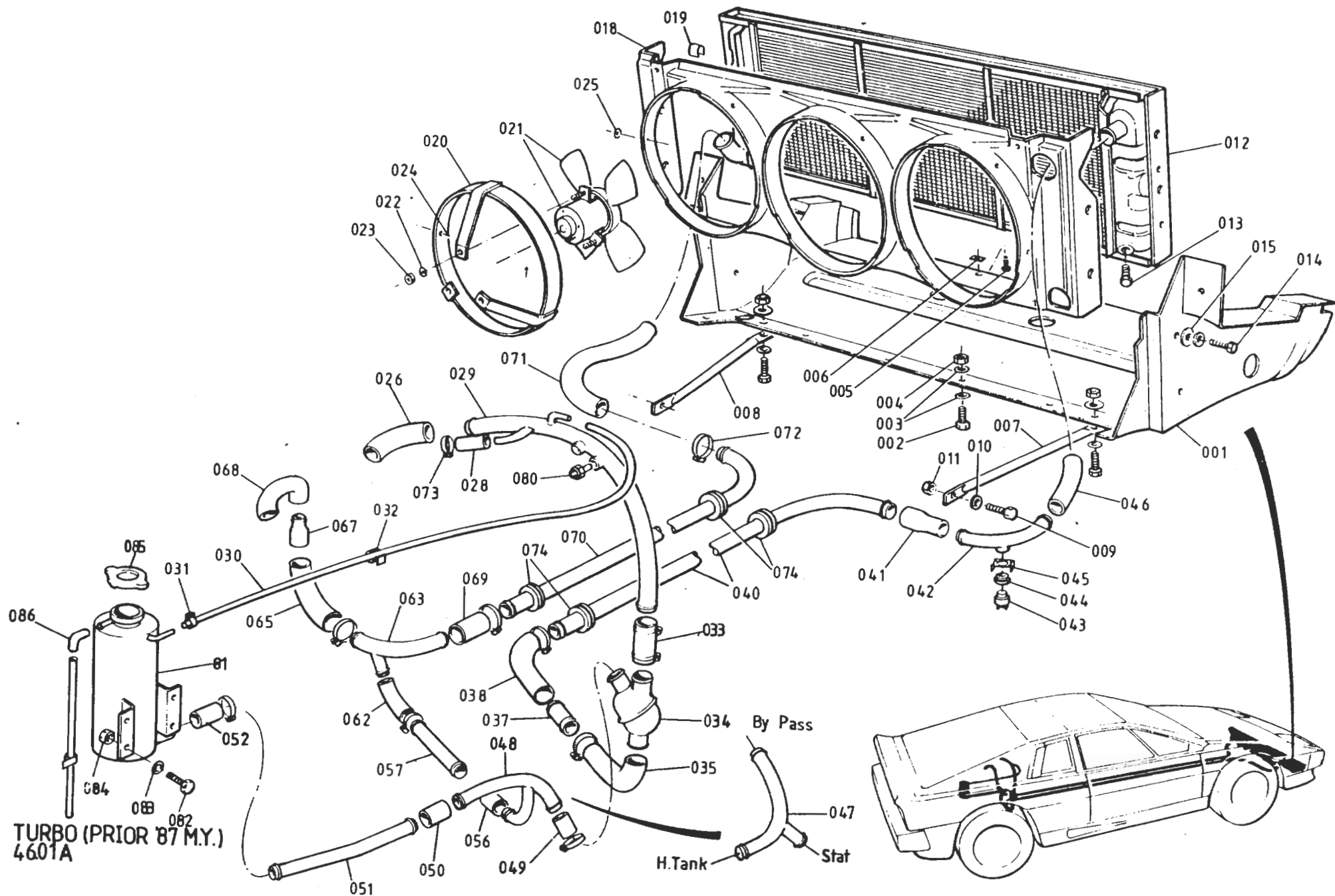
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Turbo (Prior '87 M.Y.) 46.01A
Page 1





ILLUS NO.	DESCRIPTION	PART NUMBER	QUANTITY		REMARKS
			ALL		
46.01A					
018	Washer Bush, Rad. to Duct Jacknut, M6, Rad. to Duct Cowl, Radiator Fans, ABS Cowl, Radiator Fans	AX75B2259F A075W3034Z D082K4102K E082K4102K	8 2 1 1		)If Fitted) > >Fettle to fit A082K4237F
019	Edge Clip, Cowl to Radiator	A079W6187F	18		
020	Fan Shroud & Motor Mounting Fan Shroud & Motor Mounting Fan Motor, Rad. Cooling (for metal fan) Fan, Radiator Cooling, Metal	C079K4085F A079K4174F A074M6027Z A074K6000Z	3 3 3 3		Use With Metal Fans Use With Plastic Fans)R/B A082K6025F)See S. Bulletin 1983/21 R/B next four items
021	Fan Motor and Blade Assy. (plastic fan) Fan Motor, Rad. Cooling (for plastic fan) Fan, Radiator, Cooling, Plastic Circlip, Plastic Fan to Motor Washer, Plastic Fan to Motor Setscrew, M5 x 12. Motor Mtg. Nut, Nyloc, M5, Motor Mtg. Washer, 5mm, Motor Mtg.	A082K6025F A082K6026H A082K6027H A082K6029F A082K6028F A075W1021Z A075W3008Z A075W4000Z	3 3 3 3 3 9 9 9		) )For Fan Motor A074M6027Z) >For Fan Motor A082K6026H >
022	Washer, Flat, Motor Mtg.	A075W4013Z	9		
023	Nut, Nyloc, M6, Motor Mtg.	A075W3009Z	9		
024	Pop Rivet, Fan Shroud to Cowl	A075W6092Z	30		
025	Washer, Pop Rivet	A075W4001Z	30		
026	Hose, Cylinder Head to Water Pipe Hose Clip, 32-50	A082K4116K A079K6019F	1 2		
028	Hose, Water Rail to Water Pipe	A910E1567F	1		
029	Pipe, Cylinder Head to Thermostat	A082K4111F	1		
030	Hose, Air Bleed	D075K0113Z	1		Water Pipe to Header Tank
031	Hose Clip, Air Bleed Hose	A079M6132F	2		
032	Clip, Bleed Hose to Engine Bay	A082W6257F	3		
033	Hose, Thermostat Inlet Hose, Thermostat Inlet Hose Clip, 32-50mm	A082K4123F A082K4180F A079K6019F	1 1 2		Except Wet Sump A/C Wet Sump A/C
034	Thermostat	C910E6433F	1		
035	Hose, Thermostat Outlet Hose Clip, 32-50mm	A082K4126K A079K6019F	1 2		
037	Connector Pipe	A082K4112F	1		



ILLUS
NO.

QUANTITY

FEB 1987

46.01A

DESCRIPTION

PART NUMBER

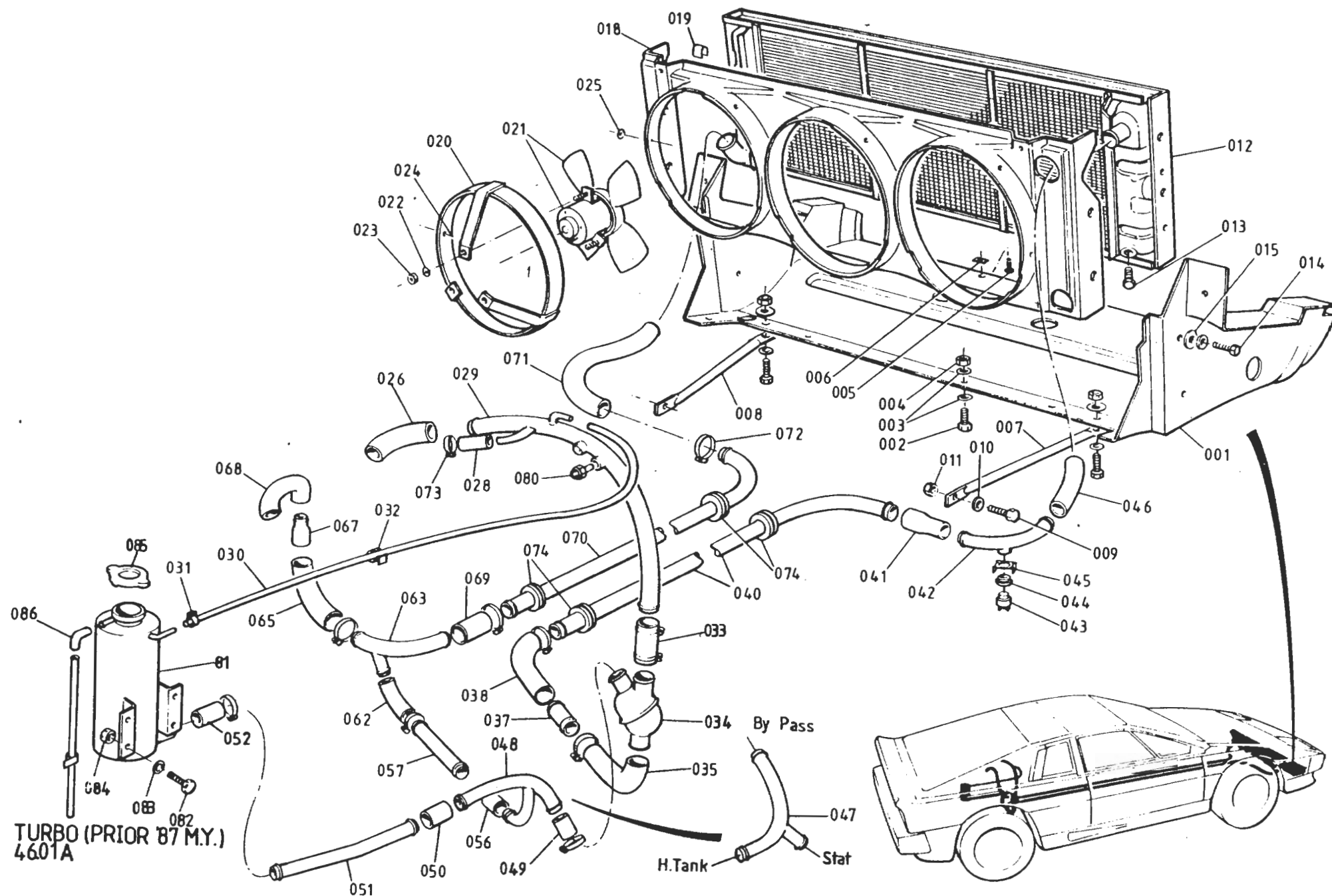
ALL

REMARKS

038	Hose, Rad. Main Feed Pipe, Rear	A082K4127K	1		
	Hose Clip, 32-50mm	A079K6019F	2		
040	Pipe, Rad. Main Feed, Thro' Chassis	A082K4106F	1		
041	Hose, Reducer, Feed Pipe Front	A082K4115K	1		
	Hose Clip, 32-50	A079K6019F	2		
042	Elbow Pipe, Radiator Inlet	A082K4119F	1		
043	Rad. Fan Thermo-Switch ('Otter') (82/72) Blue Coded	A079M6136F	1		Hot Climates. Includes Grommet
	Rad. Fan Thermo. Switch ('Otter') (86/76)	A079M6137F	1		R/B A079M6200F
	Rad. Fan Thermo. Switch ('Otter') (92/82) Green Coded	A079M6200F	1		Temperate Climates. Includes Grommet
044	Grommet, Fan Switch	A079M6181F	1		
045	Clip, Fan Switch Retaining	A079M6138F	1		
046	Hose, Radiator Inlet	A082K4128K	1		R/B A082K4200
	Hose, Radiator Inlet	A082K4200K	1		
	Hose Clip, 32-50	A079K6019F	2		
047	Junction Pipe, 'Stat/H. Tank/By-Pass	A082K4125F	1		Except Wet Sump A/C
048	Junction Pipe, 'Stat/H. Tank/By-Pass	A082K4179F	1		Wet Sump A/C
049	Hose, Thermostat By-Pass	A079K4034F	1		
	Hose Clip, 32-50	A079K6019F	2		
050	Hose, Junction Pipe to H. Tank Pipe	A079K4034F	1		
	Hose Clip, 32-50	A079K6019F	2		
051	Pipe, Header Tank	A082K4122F	1		Except Wet Sump A/C
	Pipe, Header Tank	A082K4177F	1		Wet Sump A/C
052	Hose, Header Tank to Water Pipe	A082K4128K	1		R/B A079K4034F
	Hose, Header Tank to Water Pipe	A079K4034F	1		
	Hose Clip, 32-50	A079K6019F	2		
056	Hose, Junction Pipe to By-Pass Pipe	A079K4034F	1)
	Hose Clip, 32-50	A079K6019F	2		)Wet Sump A/C
057	Pipe, Radiator By-Pass	A082K4178F	1)
062	Hose, Radiator By-Pass	A075K0103F	1		
	Hose Clip, 32-50	A079K6019F	1		

Turbo (Prior '87 M.Y.) 46.01A

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ILLUS
NO.

QUANTITY

MAY 1991

46.01A

DESCRIPTION

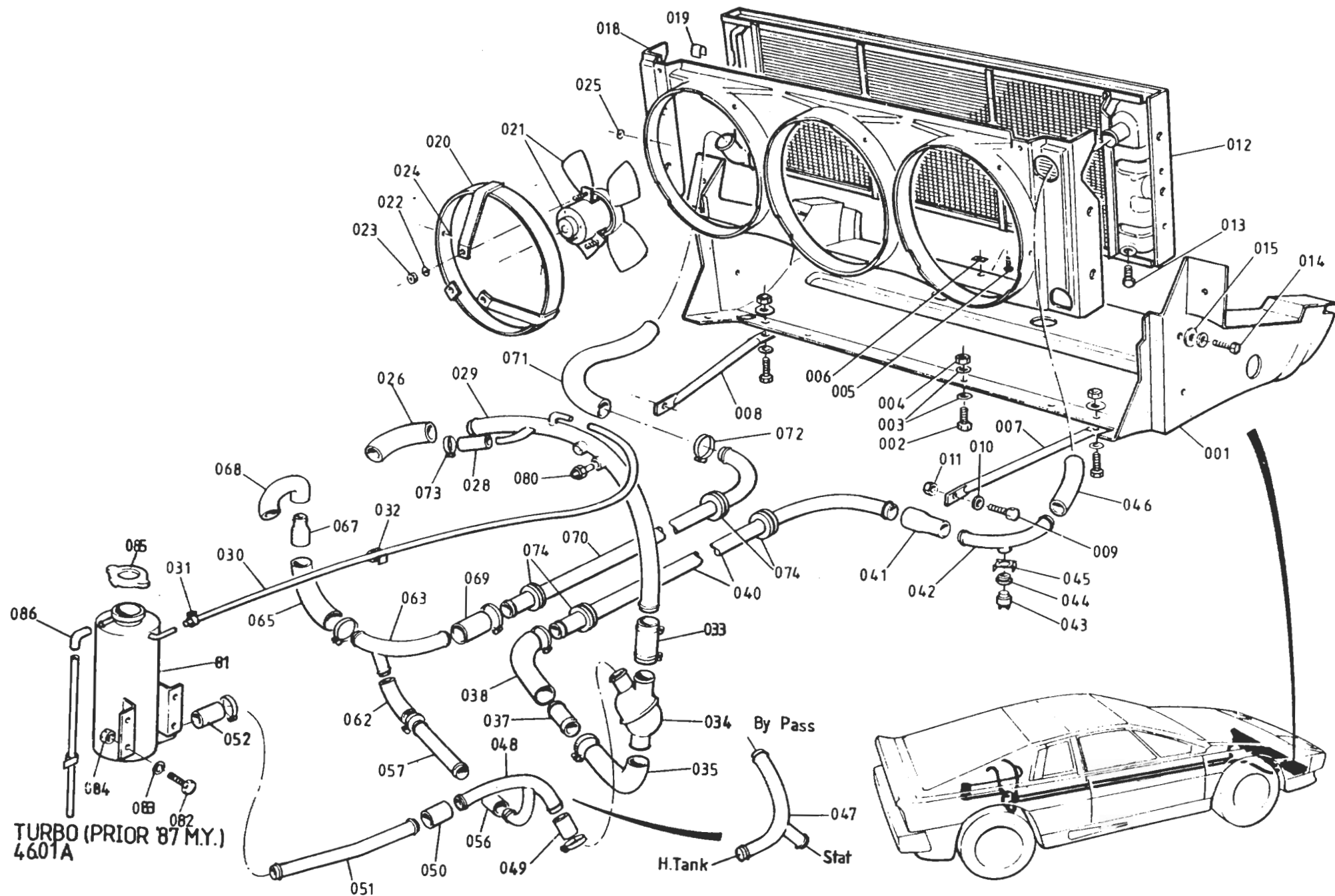
PART NUMBER

ALL

REMARKS

063	Junction Pipe, Return	A082K4114F	1		Rad. Return/By-Pass/Pump
065	Hose, Junction Pipe to Reducer	A082K4127K	1		
	Hose Clip, 32-50	A079K6019F	2		
067	Pipe, Reducing, Pump Inlet	A082K4129F	1		
068	Hose, Water Pump Inlet	B079K4043F	1		
	Hose Clip, 32-50	A079K6019F	2		
069	Hose, Rad. Main Return Pipe Rear	A082K4123F	1		
	Hose Clip, 32-50	A079K6019F	2		
070	Pipe, Rad. Main Return, Thro' Chassis	A082K4106F	1		
	Sheathing, Chassis Strut Pipe Protection	C082U4775V	100mm		
	Snapper Clip, Sheathing to Chassis	A082W6275F	2		
	Hose, stepped, Return Pipe Front	A082K4115K	1)
	Pipe, Elbow, Radiator Outlet	A079K4033F	1		)R/B A082K4108F
	Hose, Rad. Outlet to Elbow	B075K0118P	1)
071	Hose, Rad. Outlet to Return Pipe	A082K4108F	1		
072	Hose Clip, 32-50	A079K6019F	2		
074	Grommet, Water Pipes/Chassis	A082K6022F	4		
080	Temp. Transmitter, Water Gauge	A050M6136F	1		
081	Header Tank	A082K4121F	1		
082	Setscrew, M8 x 20, Header Tank Fix	A075W1038Z	4		
083	Washer, Flat, Header Tank Fix	A075W4020Z	4		
084	Nut, Nyloc, M8, Header Tank Fix	A075W3010Z	4		
085	Pressure Cap, Header Tank, 10 psi	A075K6004Z	1		R/B A082K6031
	Pressure Cap, Header Tank, 15 psi	A082K6031F	1		
086	Elbow, Header Tank Overflow	A036J0135Z	1		

Turbo (Prior '87 M.Y.) 46.01A
Page 4



ILLUS
NO.

QUANTITY

MAY 1991

46.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

Cooling System Modification Kit

Comprising :-

A082K6049J

1

See S/Bulletin 1987/26

Header Tank

B082K6048D

1

Blanking Cap, Header Tank

A082K6041F

1

Sensor

A082M6282F

1

Sensor used only as a blank

Grommet, Sensor Mounting

A082M6283F

1

Hose, Header Tank to Expansion Tank

A075L6043V

A/R

Clip, Hose

A075U6082F

2

Expansion Tank

A082K6040F

1

Pressure Cap, Expansion Tank

A082K6042F

1

Setscrew, M6 x 25, Expansion Tank Fix

A075W1031F

1

Setscrew, M6 x 18, " " "

A075W1029Z

1

Washer, Flat, M6 x 16, " " "

A075W4017Z

1

Washer, Flat, M6 x 12, " " "

A075W4013Z

3

Nut, Nyloc, M6 " " "

A075W3009Z

2

'Y' Piece, Heater Return Hose to Header Tank

A082K6038D

1

Hose, Header Tank to 'Y' Piece

A082K6045D

1

Junction Pipe, Return

A082K6039D

1

Pipe, Bypass

A082K6044D

1

Hose, Thermostat to Bypass Pipe

A082K6046D

1

Hose, Bypass Pipe to Junction Pipe

A082K6047D

1

Thermostat

B082K6043F

1

Clip, Hose, 8-16mm

A082L6042F

2

Clip, Hose, 25-40mm

A075M6145F

4

Clip, Hose, 20-32mm

B907E6085Z

4

Tie Wrap, Hose Securing

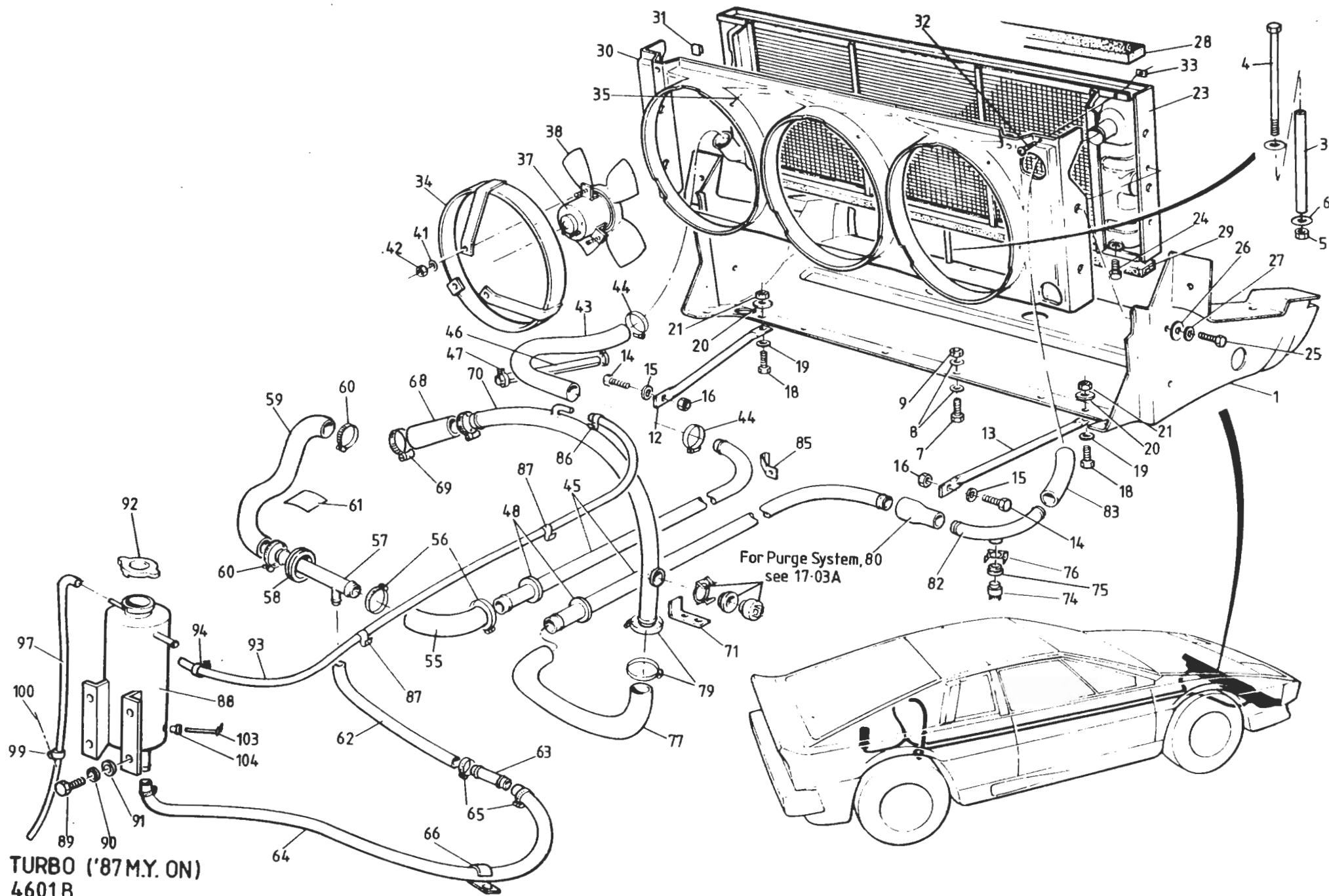
A075W6038Z

5

Grommet, Rear Quarter Trim Panel

X026B0371Z

1



TURBO ('87 M.Y. ON)
4601B

ILLUS
NO.

QUANTITY

MAY 1991

46.01B

DESCRIPTION

PART NUMBER

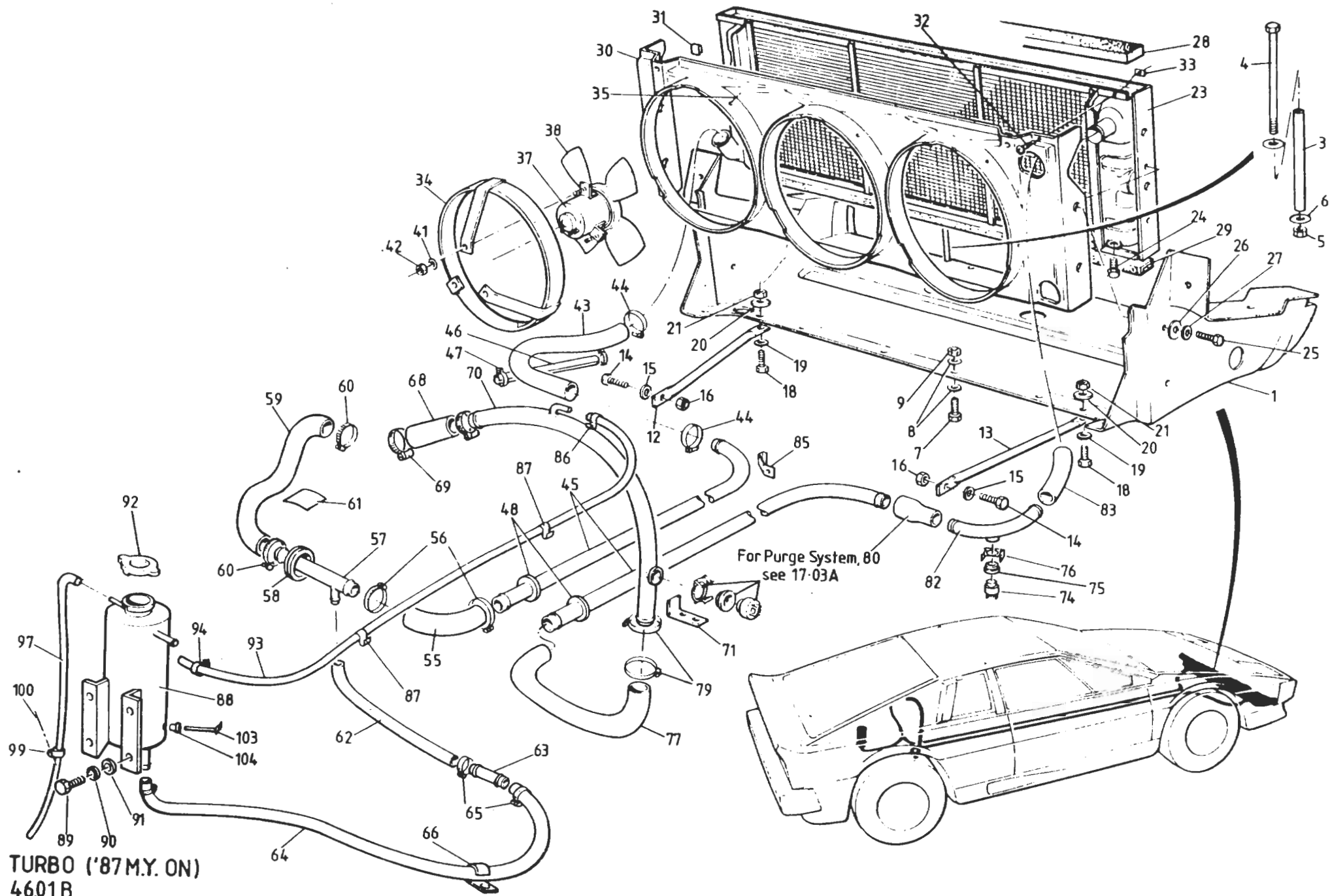
1987
M.Y.ON

REMARKS

1	Radiator Duct	C082B4491K	1		This page for '87 M.Y. 'H.C.' Turbo Cars. For cars prior '87 M.Y. see 46.01A
3	Spacer, Radiator Duct Front to Body	A082U5076F	2		
4	Bolt, M8 x 127, Radiator Duct Front Mounting	A075W2050Z	2		
5	Nut, Nyloc, M8, Radiator Duct Front Mounting	A075W3010Z	2		
6	Washer, Flat, Radiator Duct Front Mounting	A075W4021Z	4		
7	Setscrew, M6 x 25, Duct to Body	A075W1031Z	6		
8	Washer, 25 O/D, Duct to Body	A075W4017Z	12		
9	Nut, Nyloc, M6, Duct to Body	A075W3009Z	6		
	Screw, s/t, Duct to Body	A075W5028Z	3		
	Spire Nut, Duct to Body	A075W6013Z	3		286mm. 286mm.
12	Support Stay, Rad. Duct LH	A082K4199K	1		
13	Support Stay, Rad. Duct RH	A082K4198K	1		
14	Setscrew, M6 x 20, Stay to Chassis	A075W1030Z	2		
15	Washer, Stay to Chassis	A075W4013Z	2		
16	Nut, Nyloc, M6, Stay to Chassis	A075W3009Z	2		
	Spacer Washer, Stay to Chassis	A075W4016Z	4		
18	Setscrew, M6 x 20, Stay to Duct	A075W1030Z	2		
19	Washer, 25 O/D, Stay to Duct	A075W4017Z	2		
20	Washer, Flat, Stay to Duct	A075W4013Z	2		
21	Nut, Nyloc, M6, Stay to Duct	A075W3009Z	2		R/B A082K4237F
23	Radiator	E082K4101F	1		
	Radiator	A082K4237F	1		
24	Drain Plug, Radiator	B075K6011F	1		
25	Setscrew, M6 x 18, Rad. to Duct	A075W1029Z	4		
26	Washer, 25 O/D, Rad. to Duct	A075W4017Z	4		
27	Washer, Spring, Rad. to Duct	A075W4035Z	4		
28	Foam, Rad. top to Body	A079K4001F	1		Thick Thin
29	Foam, Rad. Bottom to Duct	A089K0131F	1		
30	Cowl, Rad. Fans	D082K4102K	1		Fettle to fit Rad: A082K4237F
	Cowl, Rad. Fans	E082K4102K	1		
31	Edge Clip, Cowl to Radiator	A079W6187F	12		
32	Screw, s/t, Cowl to Radiator	A075W5014F	3		
33	Spire Nut, Cowl to Radiator	A075W6013Z	3		
34	Fan Shroud & Motor Mounting	A079K4174F	3		

Turbo H.C. ('87 M.Y. On)
46.01B
Page 1

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ILLUS
NO.

QUANTITY

MAY 1991

46.01B

DESCRIPTION

PART NUMBER

1987
M.Y.ON

REMARKS

35	Pop Rivet, Shroud to Cowl	A075W6090Z	18
	Washer, Pop Rivet	A075W4001Z	18
37	Fan Motor, Radiator Cooling	A082K6026H	3
38	Fan, Radiator Cooling	A082K6027H	3
	Washer, Fan to Motor Shaft	A082K6028F	3
	Spring Clip, Fan to Motor Shaft	A082K6029F	3
41	Washer, Flat, Motor Mounting	A075W4013Z	9
42	Nut, Nyloc, M6, Motor Mounting	A075W3009Z	9
43	Hose, Radiator Outlet	A082K4108F	1
44	Hose Clip, Outlet Hose	A079K6019F	2
45	Pipe, Water Feed/Return, through Chassis	A082K4106F	2
46	Sheathing, Chassis Strut, Pipe Protection	C082U4775V	100mm
47	Snapper Clip, Sheathing to Chassis	A082W6275F	2
48	Grommet, Water Pipe/Chassis	A082K6022F	4
55	Elbow Hose, Return Pipe to Junction Pipe	A082K4196K	1
56	Hose Clip	A079K6019F	2
57	Junction Pipe, Header Take-Off	A082K4191F	1
58	Grommet, Junction Pipe/Chassis	A082U6109F	1
59	Hose, Pump Inlet	A082K4190F	1
60	Hose Clip	A079K6019F	2
61	Rubber Pad, Hose/Chassis	A082U5008F	1
62	Hose, Header Tank Feed	A075K0119F	1
63	Connector Pipe, Header Hose	B075K0111Z	1
64	Hose, Connector to Header Tank	A079P4056F	1
65	Hose Clip, Header Hose	A079K6018F	4
66	'P' Clip, Header Hose to Chassis	B907E6229F	2
	Tie Wrap, 290mm, Hose Securing	A075W6045Z	1
67	Hose Clip	A910E6389F	1
68	Hose, Thermostat Housing to Pipe	B912E1839F	1
70	Pipe, Engine Outlet	C082K4182F	1
71	Bracket, Water Pipe Fixing	A082K4187F	1
74	Thermal Switch, Radiator Fans	A079M6200F	1
75	Grommet, Radiator Fans Thermal Switch	A079M6181F	1

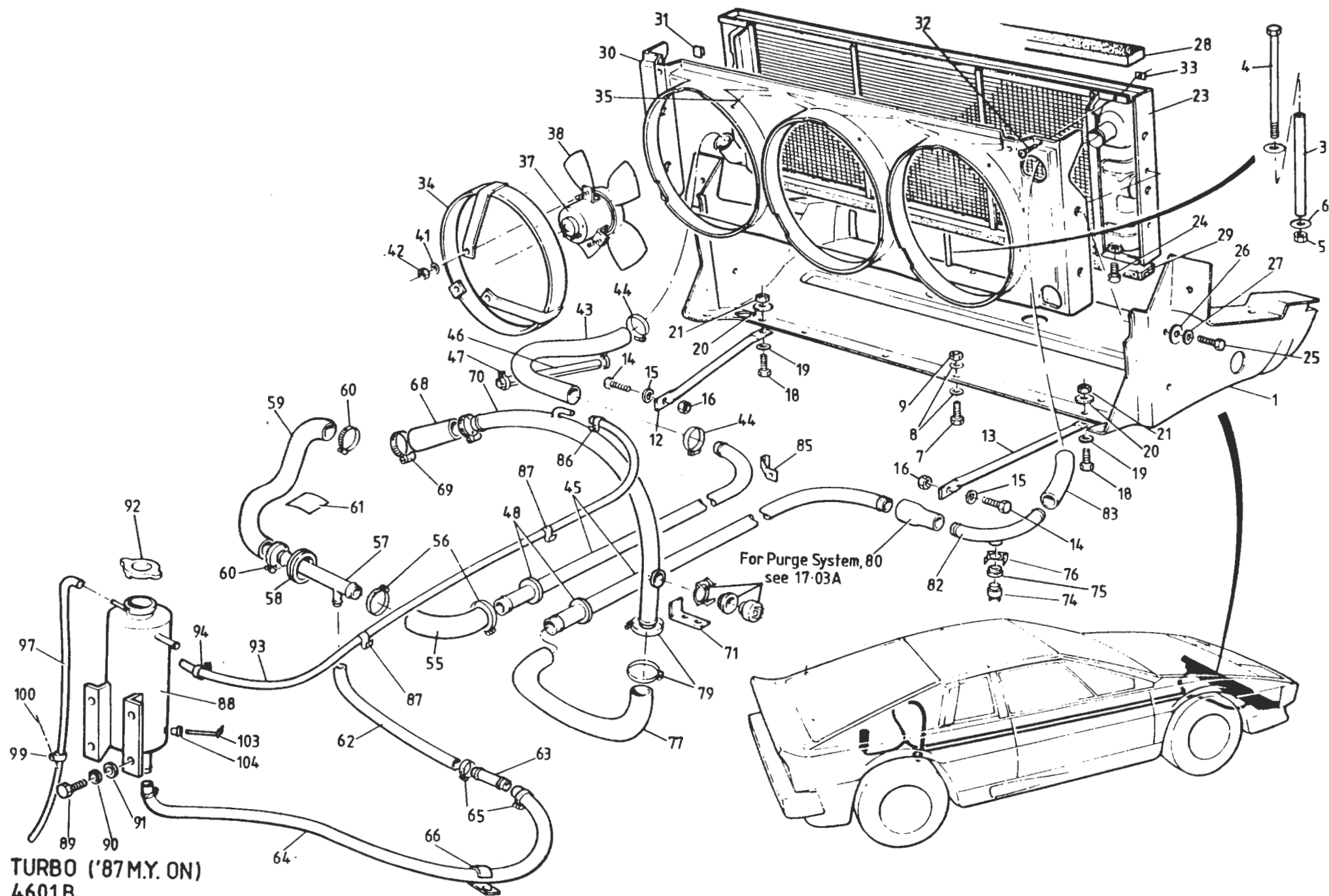
This page for '87 M.Y. 'H.C.' Turbo Cars.
For cars prior '87 M.Y. see 46.01A

92/82 Green Coded Includes Grommet

Turbo H.C. ('87 M.Y. On)

46.01B

Page 2



ILLUS
NO.

QUANTITY

1987

46.01B

DESCRIPTION

PART NUMBER

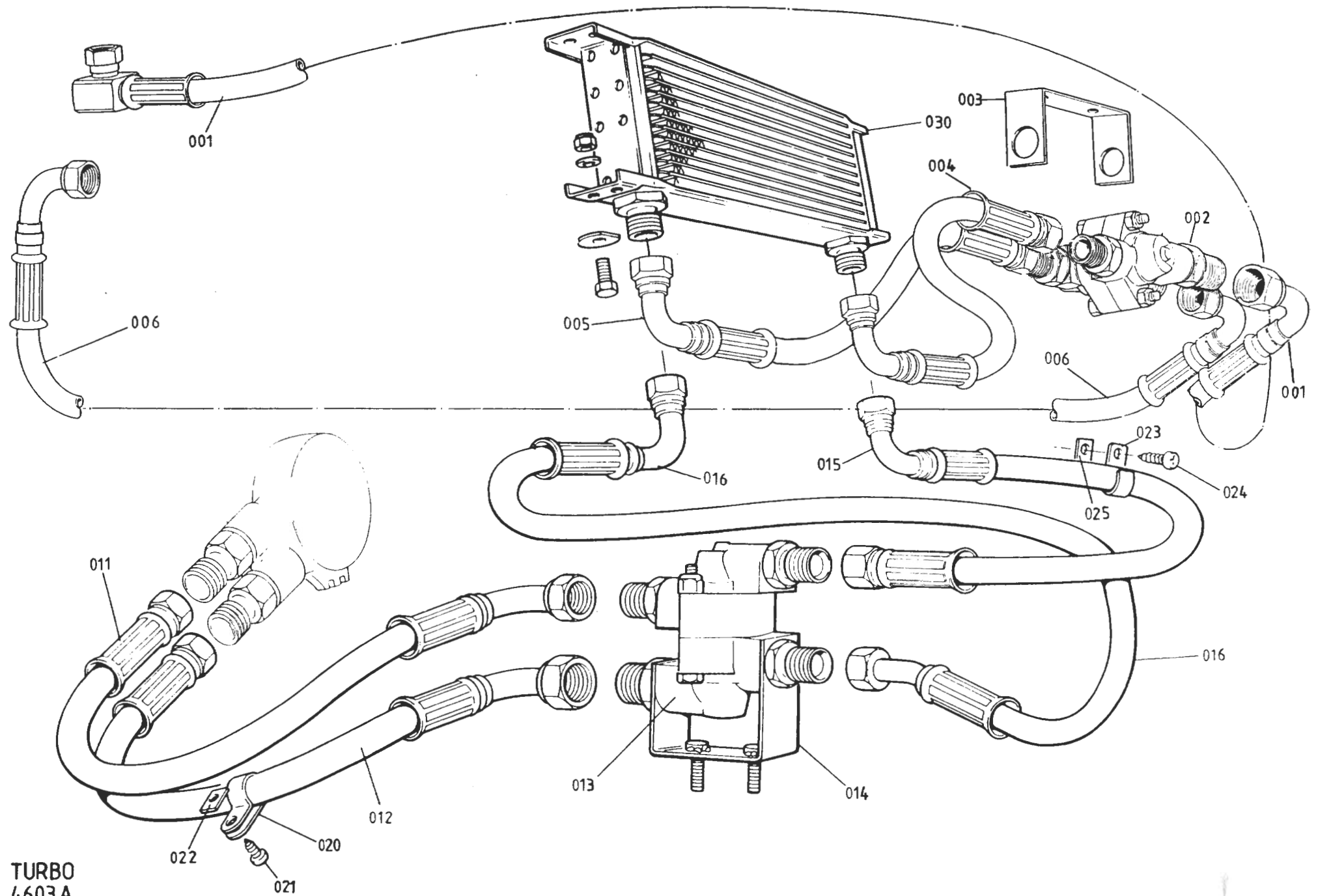
1987
M.Y.ON

REMARKS

76	Clip, Thermal Switch Retention	A079M6138F	1
77	Hose, Outlet Pipe to Chassis Pipe	A082K4207F	1
79	Hose Clip, Elbow Hose & Water Pipe to Brkt.	A079K6019F	5
80	Hose, Reducing	A082K4115F	1
	Hose Clip	A079K6019F	2
82	Elbow Pipe, Radiator Inlet & Thermal Switch	A082K4119F	1
83	Hose, Radiator Inlet	A082K4200K	1
	Hose Clip, Radiator Inlet Hose	A079K6019F	2
85	Bracket, Water Pipe to Chassis	A082K4192K	1
	Screw, Bracket, to Chassis	A075W5016Z	1
	Hose Clip, Pipe to Bracket	A075M6145F	1
86	Edge Clip, Header Tank Hose	A082W6185Z	1
87	Edge Clip, Header Tank Hose	A082W6257F	2
88	Header Tank	A082K4206F	1
89	Setscrew, M6 x 20, Header Tank Fix	A075W1030Z	4
90	Washer, Internal Spring, Header Tank Fix	A075W4046Z	4
91	Washer, M6 x 12, Header Tank Fix	A075W4013Z	4
92	Pressure Cap, Header Tank, 15 psi	A082K6031F	1
93	Hose, Air Bleed	D075K0113Z	1
94	Hose Clip, Air Bleed Hose	A036S6160Z	2
	Clip, Air Bleed Hose to Airbox	A075W6228F	2
	Pop Rivet, Sealed, Clip to Airbox	A085W6259F	2
97	Hose, Header Tank Overflow	A075L6043V	300mm
98	Elbow, Header Tank Overflow Hose	X036J0135Z	1
	Clip, Hose to Header Tank	A079W6185Z	1
99	Clip, Overflow Hose to Body	A075W6228F	1
100	Pop Rivet, Clip Fix	A075W6090Z	1
	Washer, Clip Fix	A075W4001Z	1
	Clip, Overflow Hose to Chassis	A075W6185Z	1
103	Probe, Coolant Level Tell-Tale	A082M6282F	1
104	Grommet, Coolant Level Probe	A082M6283F	1

This page for '87 M.Y. 'H.C.' Turbo Cars.
For cars prior '87 M.Y. see 46.01A

Turbo H.C. ('87 M.Y. On)
46.01B
Page 3



ILLUS
NO.

QUANTITY

MAY 1991

46.03A

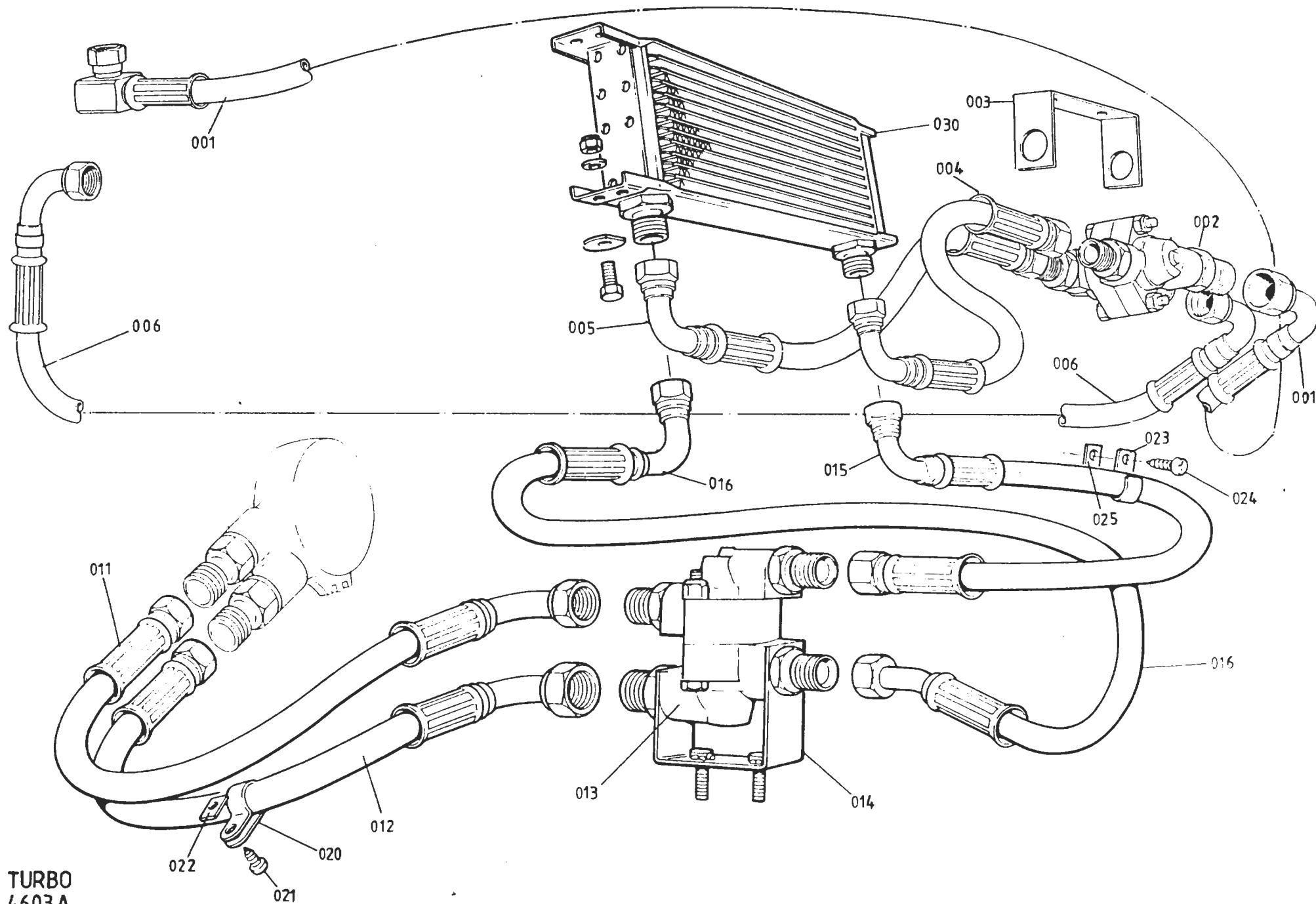
DESCRIPTION

PART NUMBER

DRY
SUMPWET
SUMP

REMARKS

001	Oil Hose Assembly, Scavenge Pump to Cooler	B082E4082F	1		When No Oil Cooler Thermostat Fitted
002	Oil Hose Assembly, Scavenge Pump to Thermostat	B082E4109F	1)
003	Thermostat, Oil Cooler	A082E6016F	1)
	Bracket, Thermostat Mounting	A082U4848K	1)
	Setscrew, M6 x 16, Bracket to Body	A075W1028F	2)
	Washer, 6 mm, Bracket to Body	A075W4017F	2		)With Oil Cooler Thermostat
	Nut, Nyloc, M6, Bracket to Body	A075W3009F	2)
004	Oil Hose Assembly, Thermostat to Cooler	A082E4107F	1)
005	Oil Hose Assembly, Cooler to Thermostat	A082E4108F	1)
006	Oil Hose Assembly, Thermostat to Tank	A082E4093F	1)
	Oil Hose Assembly, Cooler to Tank	A082E4093F	1		When No Oil Cooler Thermostat Fitted
	Grommet, Tank Return Pipe/Body	A082U4779F	1		
	Ring, Grommet Retaining	A079L4034F	1		
	Screw, Grommet Ring	A075W5014Z	4		
	Oil Hose Assembly, Stat to Engine	A082E4105F		1	
012	Oil Hose Assembly, Engine to Stat (5/8"@ Stat)	A082E4105F		1	With Oil Cooler Thermostat A910E6550F
013	Oil Hose Assembly, Engine to Stat (3/4"@ Stat)	A082E4112F		1	With Oil Cooler Thermostat A082E6016F
	Thermostat, Oil Cooler	A910E6550F		1	4 x 5/8" BSP > If Thermostat
	Thermostat, Oil Cooler	A082E6016F		1	3 x 5/8" 1 x 3/4" BSP > Fitted
014	Bracket, Thermostat Mounting	A082U4842F		1	For A910E6550F > (Prior to
	Bracket, Thermostat Mounting	B082U4842F		1	For A082E6016F > November '85)
	Nut, Nyloc, M6	A075W3009F		2	>
	Washer, Flat	A075W4015F		2	>



TURBO
4603A

ILLUS
NO.

46.03A

DESCRIPTION



PART NUMBER

QUANTITY

DRY
SUMPWET
SUMP

FEB 1987

REMARKS

015
016020
021
022
023
024
025

030

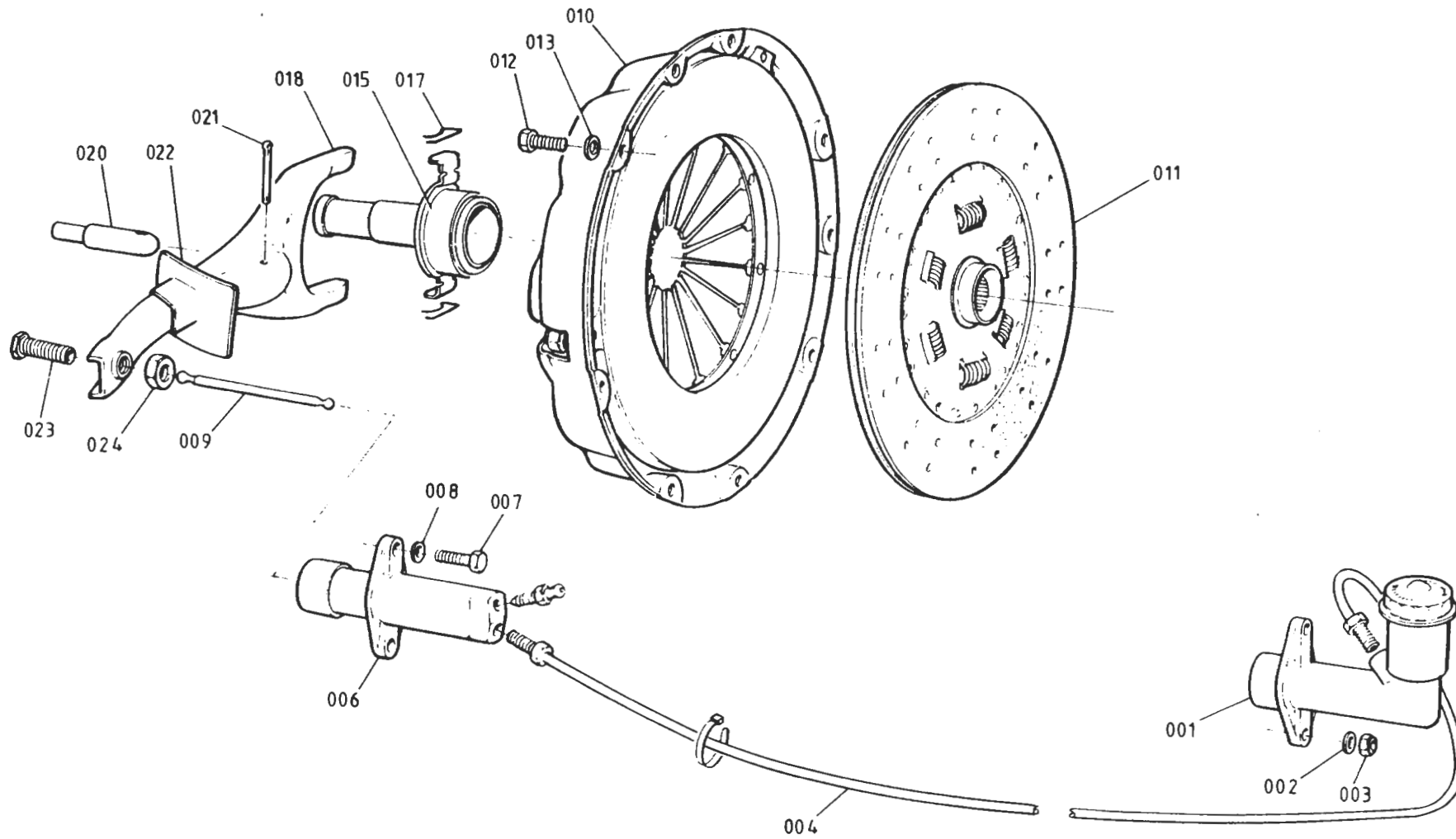
Connector Union, Oil Hose, Eng. to Cooler
 Connector Union, Oil Hose, Cooler to Eng.
 Mounting Brkt. Connector Unions
 Clamp Plate, Unions to Brkt.
 Spacer, Union Locking
 Nut, Nyloc, M8, Clamping & Fixing
 Washer, 25 O/D, Brkt. to Chassis
 Oil Hose Assembly, Cooler/Stat LH
 Oil Hose Assembly, Cooler/Stat RH
 Oil Hose Assembly, Cooler/Stat RH
 Oil Hose Assembly, Eng/Cooler, Cooler/Eng.
 'P' Clip, Hose to Chassis
 Screw 'P' Clips
 Nut, Spire
 Clip, Oil Hose to Front Frame
 Screw, Clip Fixing
 Spire Nut, Clip Fixing
 Grommet, Oil Hose/Chassis
 Edge Protector, Oil Hose/Chassis Rr.Diaphragm
 Foam Tube, Oil Hose/Chassis Front X-member
 Tie Wrap, Oil Hose
 Cooler, Oil (Silver)
 Cooler, Oil (Black)
 Plate, Spreader
 Setscrew, M6 x 20
 Washer, 6mm, Flat
 Nut, Nyloc, M6

A082E6026F
 A082E6025F
 A082E4135F
 A082E4136F
 A082E4141F
 A075W3010F
 A075W4021Z
 A082E4103F
 A082E4101F
 A082E4111F
 A082E4134F
 A075H6018F
 A075W5036F
 A075W6011F
 A075W6230F
 A075W5034Z
 A075W6011Z
 A082K6022F
 AX75L6020V
 A082E6022V
 A075W6038F
 A907E1219F
 A082W6024F
 A082K4103F
 A075W1030Z
 A075W4013Z
 A075W3009Z

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3/4" - 5/8" BSP)
 5/8" BSP x 2)Interim Spec.
)Without Thermostat
)(Nov.'85 to VIN 82 D 2321
) 82 - 0672
)
 R/B A082E4111F >With Thermostat
 Inc. 45° Thermostat Union>
 Without Thermostat
 With Hoses on outside of Chassis Backbone
 With Hoses run through Chassis Backbone
 252mm Pipe Centres. Prior Nov. '85
 325mm Pipe Centres. Nov. '85 on

Turbo 46.03A
 Page 2



TURBO
47.01A

ILLUS
NO.

QUANTITY

47.01A

DESCRIPTION

PART NUMBER

ALL

REMARKS

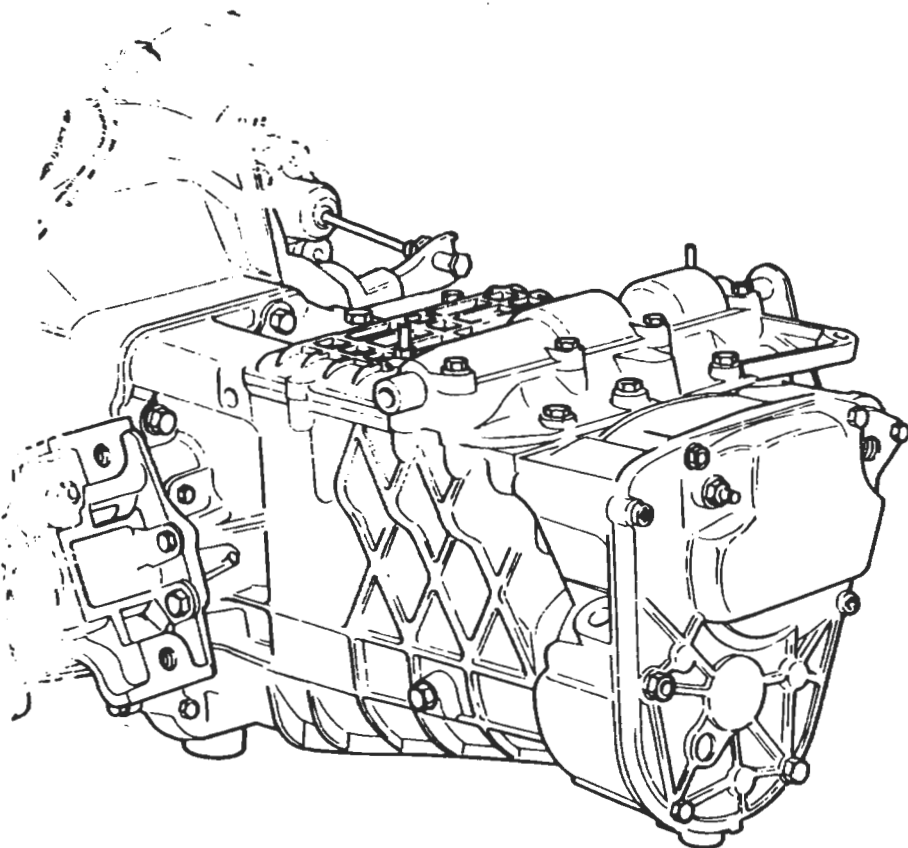
001	Master Cylinder, Clutch	C079J6013F	1		
	Clevis Pin, Clutch Pedal to Clevis	A082J4197F	1		
	'R' Pin, Clutch Pedal to Clevis	A075W6175F	1		
	Pressure Washer, Clutch Pedal to Clevis	A082W4103F	1		
002	Washer, Master Cylinder Fix	A075W4020Z	2		
003	Nut, Nyloc, M8, Master Cyl. Fix	A075W3010Z	2		
	Service Kit, Master Cylinder	A036J6091Z	1		
	Filler Cap	A079J6038F	1		
004	Pipe, Flexible, Master to Slave Cylinder	A082J4088F	1		RHD
	Pipe, Flexible, Master to Slave Cylinder	A082J4089F	1		LHD
006	Slave Cylinder	A082Q6020F	1		
007	Setscrew, M8 x 25, Slave Cylinder Fix	A075W1039Z	2		
008	Washer, Spring, Slave Cylinder Fix	A075W4036Z	2		
	Service Kit, Slave Cylinder	A082Q6024F	1		
	Bleed Screw, Slave Cylinder	A082Q6025F	1		
009	Pushrod, Clutch Operating	A082Q0058F	1		
010	Pressure Plate Assy. (Straight Fingers)	A082Q4006F	1		R/B A082Q4018F With Rel/Brg. A085Q4016J
	Pressure Plate Assy. (Curved Fingers)*	A082Q4018F	1		Use With Rel/ Brg. A085Q4016J
011	Friction Plate	A082Q4007F	1		R/B A082Q4019F
	Friction Plate	A082Q4019F	1		
012	Setscrew, Cover to Flywheel	A075W1012Z	6		
013	Washer, Spring, Cover to Flywheel	A075W4032Z	6		
015	Release Bearing Assembly (Curved Face)	A082Q4013J	1		Use With P.P. Assy. A082Q4006F
	Release Bearing Assembly (Flat Face)	A085Q4016J	1		Use With P.P. Assy. A082Q4018F
017	Spring Clip, Release Brg. to Fork	A082Q6021F	2		
018	Fork, Clutch Release	B079Q6009F	1		
020	Ball Pin, Fork Pivot	A082F0752F	1		
021	Split Pin, Fork to Pivot	A079Q6016F	1		
022	Grommet, Fork to Housing	A079Q6017F	1		
023	Adjuster Screw, Release Fork	A079Q6010F	1		
024	Locknut, Adjuster Screw	A079W3048F	1		

* From Eng. No. 22728

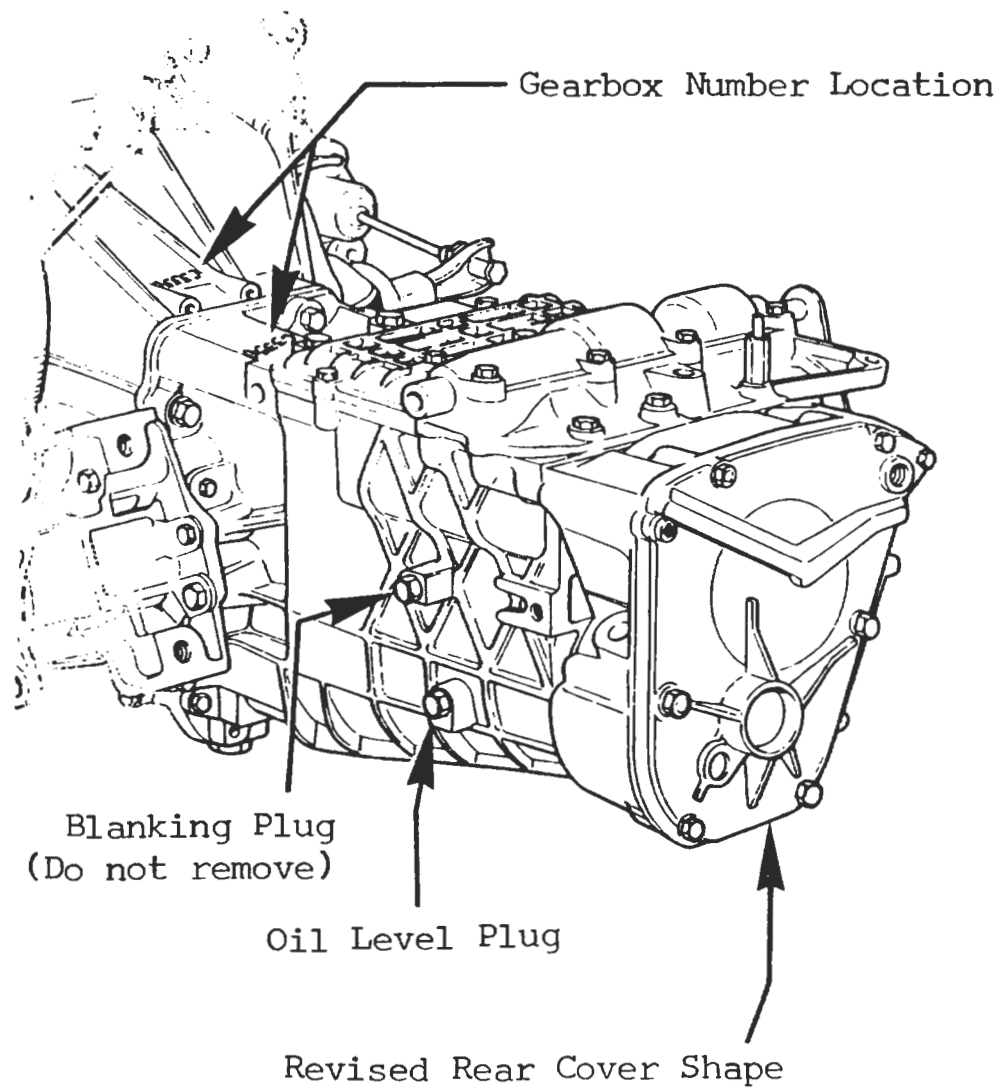
d6p3

Turbo 47.01A

PREVIOUS TYPE



'C35' TYPE



TURBO
47.02A

INTRODUCTION OF TYPE C35 GEARBOX ASSEMBLY

From early 1984, all Esprit models were fitted with the type 'C35' gearbox. All Esprit gearboxes are stamped with a Lotus serial number, repeated on its matched clutch housing. All gearboxes stamped with a 'C' prefix to the serial number are type C35.

Gearboxes with the following serial numbers (without 'C' prefix) are also type C35

2914 to 2920

2954 to 2974

3023 to 3024

3028 to 3039

3044 to 3152

All numbers are inclusive, and are to be found on the top front of the gearbox and adjacent surface of the clutch housing

Drain Plug

C35 type gearboxes have only one oil drain plug which is situated beneath the main case. They are not fitted with the additional rear case drain plug as used on previous type gearboxes.

Level Plug

The oil level plug (painted yellow) is fitted in the left hand side of the case, as before, and should not be confused with a similar plug (blanking) positioned higher up on the the same side of the gearbox.

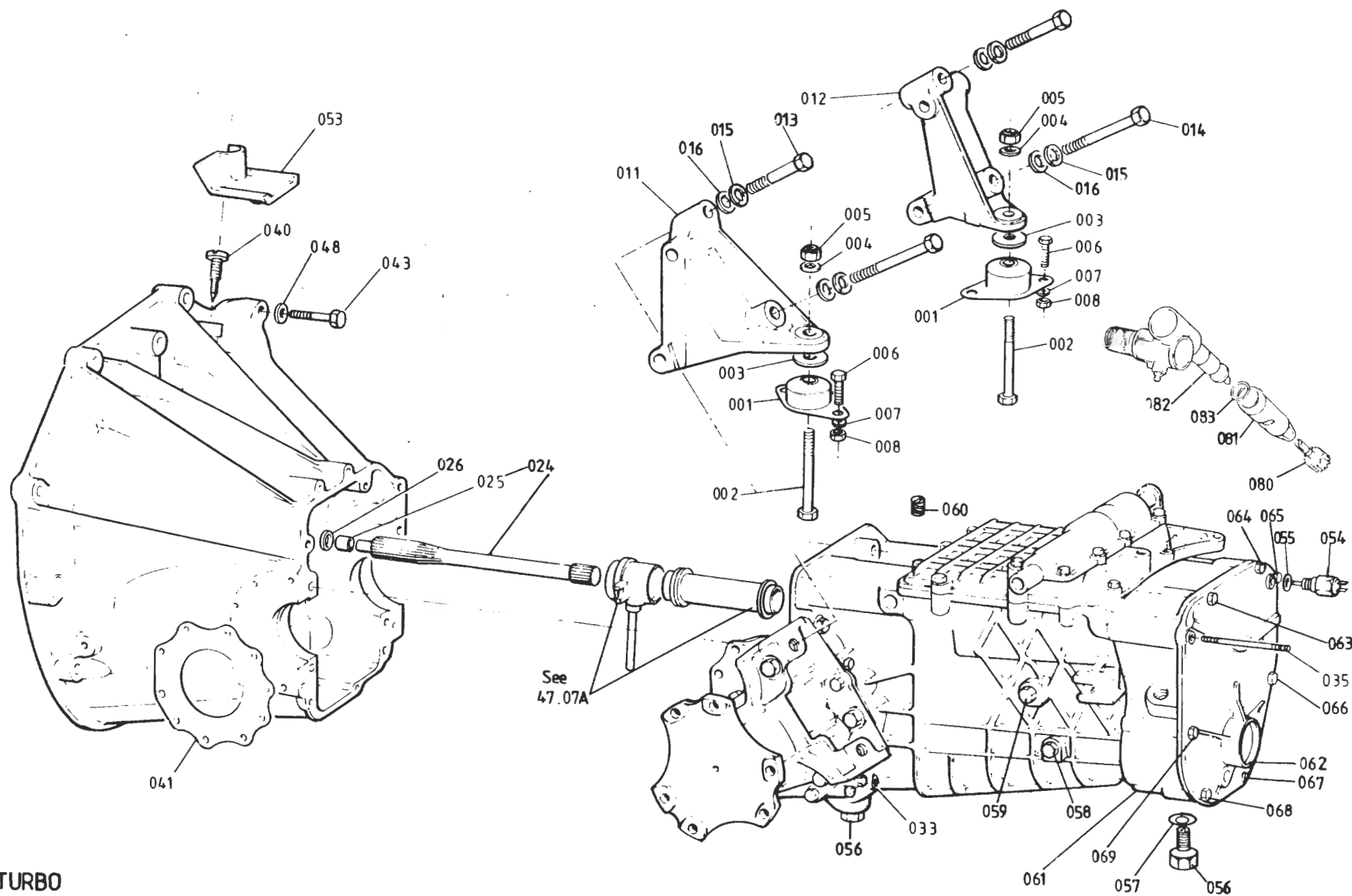
Exhaust Silencer Mounting Bracket

The C35 type gearbox rear cover incorporates a large cast boss, necessitating a revised silencer mounting bracket and fixings.

TU3AAK/2

Turbo 47.02A

FEB 1987



TURBO
47.03 A

ILLUS
NO.

QUANTITY

FEB 1987

47.03A

DESCRIPTION

PART NUMBER

PRIOR
C35

C35

REMARKS

001 Gearbox & Clutch Housing Assy.
 002 Gearbox & Clutch Housing Assy.
 003 Gearbox & Clutch Housing Assy.
 004 Clutch Housing
 005 Clutch Housing
 006 Rubber Mounting, Engine/G.Box Rear
 007 Bolt 7/16", Mtg. to G./Box Brkt.
 008 Washer, Snubber, Mtg. to G./Box Brkt.
 009 Washer, Flat, Mtg. Bolt
 010 Nut, Nyloc, 7/16" Mtg. Bolt
 011 Setscrew, M8 x 20, Mtg. to Chassis
 012 Washer, Flat, Mtg. to Chassis
 013 Nut, Nyloc, M8, Mtg. to Chassis
 014 Bracket, Gearbox/Caliper Mtg. LH
 015 Bracket, Gearbox/Caliper Mtg. LH
 016 Bracket, Gearbox/Caliper Mtg. RH
 017 Bracket, Gearbox/Caliper Mtg. RH
 018 Bolt, M14 x 75, Bracket/Gearbox
 019 Bolt, M14 x 90, Bracket/Gearbox
 020 Washer, Spring, Bracket to Gearbox
 021 Washer, Flat, Bracket to Gearbox
 022 Clutch Shaft
 023 Sleeve, Clutch Shaft Spigot (18.5mm Long)
 024 Thrust Washer, Nylon, Shaft/Spigot Brg.
 025 Plug, Gearbox Joint Face
 026 Stud, Silencer Mounting Bracket
 027 Nut, M7, Nyloc
 028 Pointer, Engine Timing
 029 Gasket, Output Shaft Housing
 030 Bolt, M10 x 35, Clutch Housing/Engine
 031 Bolt, M10 x 50, Clutch Housing/Engine
 032 Bolt, M10 x 60, Clutch Housing/Engine

B082F4000J
 A082F4072F
 B082F4072F
 C082F4001F
 E082F4001F
 B085E6012F
 B085E4095F
 A075W4006F
 A075W4005F
 A075W3004F
 A075W1038F
 A075W4020F
 A075W3010F
 A082F4039K
 A082F4073K
 A082F4038K
 A082F4074K
 A082F6293F
 A079F6013F
 A079W4068F
 A079W4054F
 B085F4068J
 A089F0404F
 A079F4029F
 A085F4069K
 A079F4030F
 A079F6023F
 A082F0753F
 B079F6028F
 A075W2051Z
 A075W2054Z
 A075W2055Z

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For Identification of C35, See 47.02A
 R/B A/B 082F4072J
 Prior to '85 M.Y.
 '85 M.Y. on
) Must be machined to
) Match Gearbox Casing

Includes Spigot Sleeve A089F0404F
 Replaces Earlier 15mm Sleeve

Not Dry Sump

Turbo 47.03A
 Page 1

ILLUS
NO.

QUANTITY

47.03A

DESCRIPTION

PART NUMBER

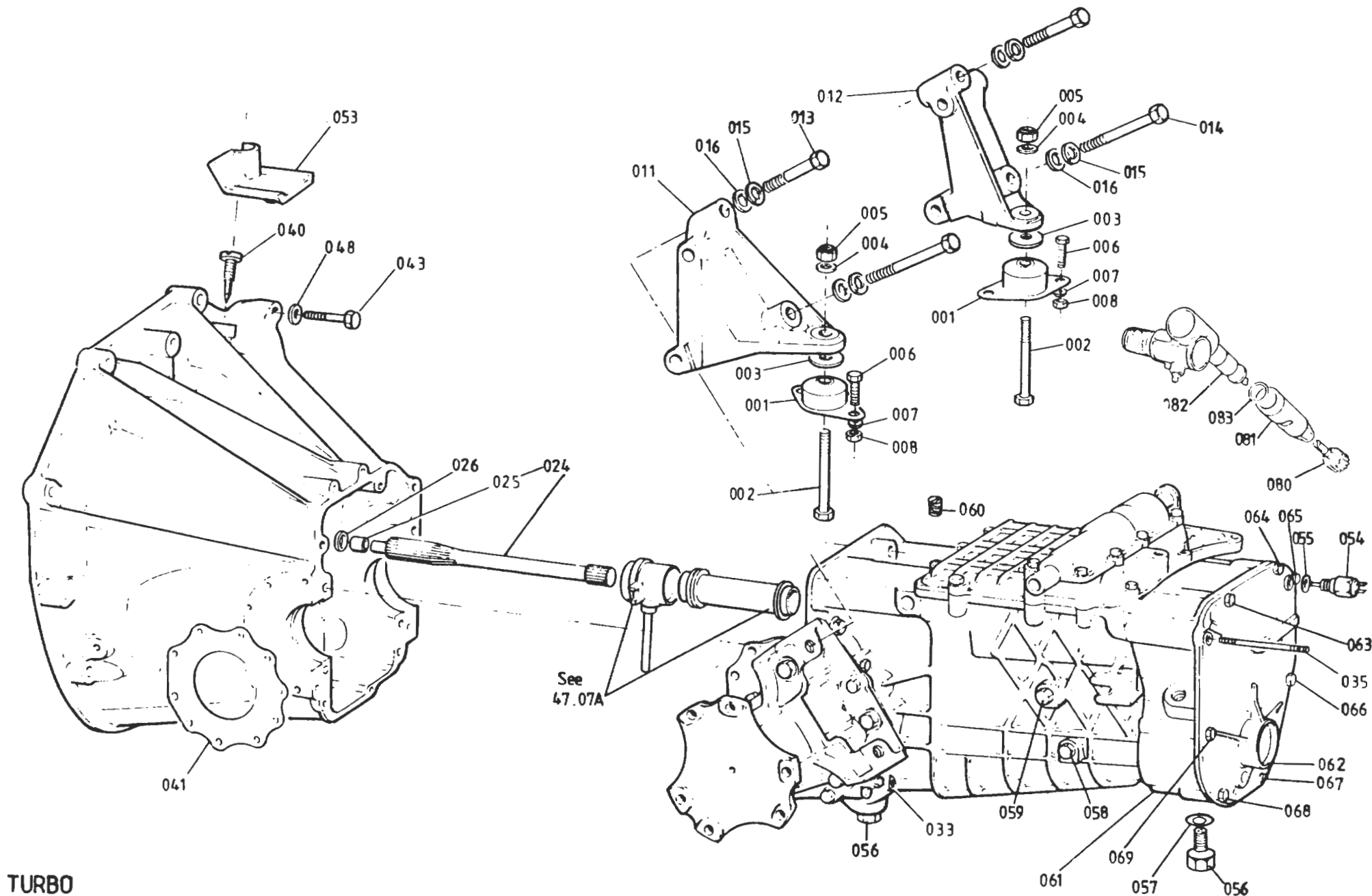
PRIOR
C35

C35

REMARKS

048	Bolt, M10 x 75, Clutch Housing/Engine	A075W2059Z	2	2	Dry Sump Only 8 Used on Dry Sump 12 Used on Dry Sump
	Nut, Nyloc, M10, Clutch Housing/Engine	A075W3011Z	2	2	
	Washer, Flat, Clutch Housing/Engine	A075W4024Z	11	11	
	Shim, Clutch Housing to Sump	A911E1430F	A/R	A/R	
053	Cover, Timing Aperture	A082F0762K	1	1	
054	Switch, Reverse Light	A079M6014F	1	1	
055	Washer, Reverse Light Switch	A079M6052F	1	1	
056	Drain Plug	A079F6227F	2		
	Drain Plug	A082F6331F		1	
057	Washer, Drain Plug	A079F6205F	2	1	
058	Level Plug	A079F6222F	1	1	If Fitted
059	Blanking Plug	A079F6222F		1	
	Washer, Level/Blanking Plug	A079F6223F	1	2	
060	Air Vent, Breather	A079F6211F	1	1	
061	End Housing	A079F6201F	1		
	End Housing	A082F6320F		1	
062	End Cover	A079F6226F	1		
	End Cover	A082F6324F		1	
	Core Plug, End Cover Blanking	A082F6346F		1	
063	Screw, M7 x 100, Rear Cover Fix	A079F6202F	1		Turbo 47.03A Page 2
	Screw, M7 x 28, Rear Cover Fix	A079F6190F		1	
064	Screw, M7 x 40, Rear Cover Fix	A079F6219F	1		
	Screw, M7 x 28, Rear Cover Fix	A079F6190F		1	
065	Screw, M7 x 95, Rear Cover Fix	A079F6203F	1	1	
066	Bolt, M7 x 45, Silencer Brkt/Rear Cover	A079F4031F	1	1	
067	Screw, M7 x 100, Silencer Brkt/Rear Cover	A079F6202F	1		
	Screw, M7 x 45, Silencer Brkt/Rear Cover	A079F4031F		1	
068	Screw, M7 x 25, Silencer Brkt/Rear Cover	A079F6191F	1		
	Screw, M7 x 45, Silencer Brkt/Rear Cover	A079F4031F		1	
069	Screw, M9 x 65, Rear Cover Fix	A079F6217F	1	1	

FEB 1987



TURBO
4703 A

ILLUS
NO.



QUANTITY

DESCRIPTION

PART NUMBER

PRIOR
C35

C35

REMARKS

47.03A

Stop, Speedo Pinion
Nut, Speedo Pinion Stop
Nut, Speedo Pinion Stop
Screw, M9 x 30, Rear Cover/Main Case
Screw, M9 x 25, Rear Cover/Main Case
Outflow Plate
Outflow Tube
Oil Deflector
Oil Deflector
Stud, M12 x 73, G/Box to Clutch Hsg.
Stud, M12 x 58, G/Box to Clutch Hsg.
Washer, 12mm, G/Box to Clutch Hsg.
Nut, M12, G/Box to Clutch Hsg.
Speedo Driven Gear, (17 Teeth)
Nylon Bush, Speedo Driven Gear
Nylon Bush, Speedo Driven Gear
Right Angle Drive, Speedo
Right Angle Drive, Speedo
'O' Ring, Speedo Angle Drive

A079F6206F
A079F6216F
A082F6345F
A079F6204F
A079F6221F
A079F6269F
A079F6268F
A079F6270F
A082F6350F
A079F6215F
A079F6214F
A079F6213F
A079F6212F
A079F6054F
B079F6228F
A082F6330F
A079F6292F
B079F6292F
A082F6315F

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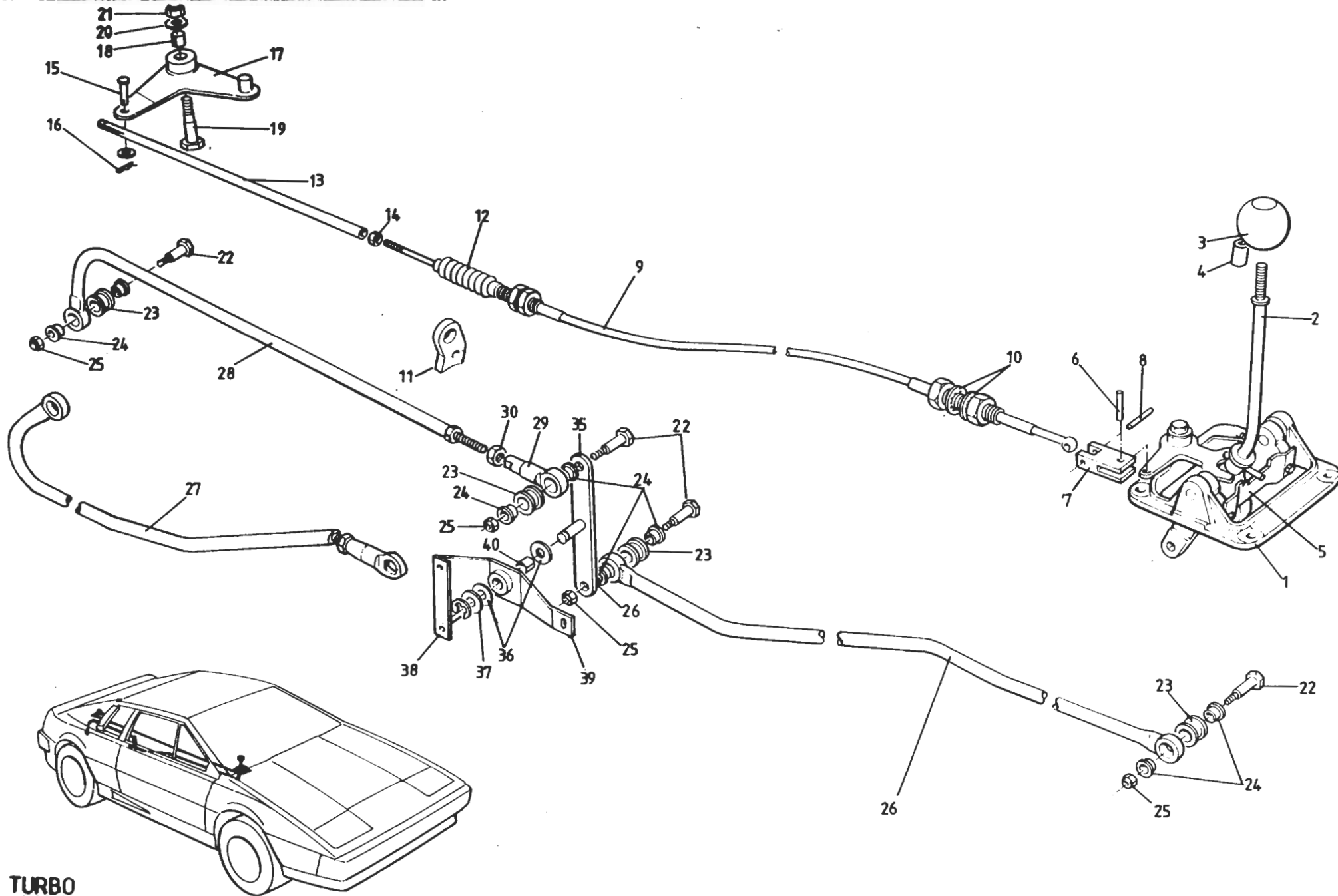
)
) Inside End Cover
)
)

Replaces Earlier Bush With Steel Cap

R/B B079F6292F With 'O' Ring
Use With 'O' Ring A082F6315F

FEB 1987

Turbo 47.03A
Page 3



TURBO
4705A

ILLUS
NO.

QUANTITY

MAY 1991

47.05A

DESCRIPTION

PART NUMBER

ALL

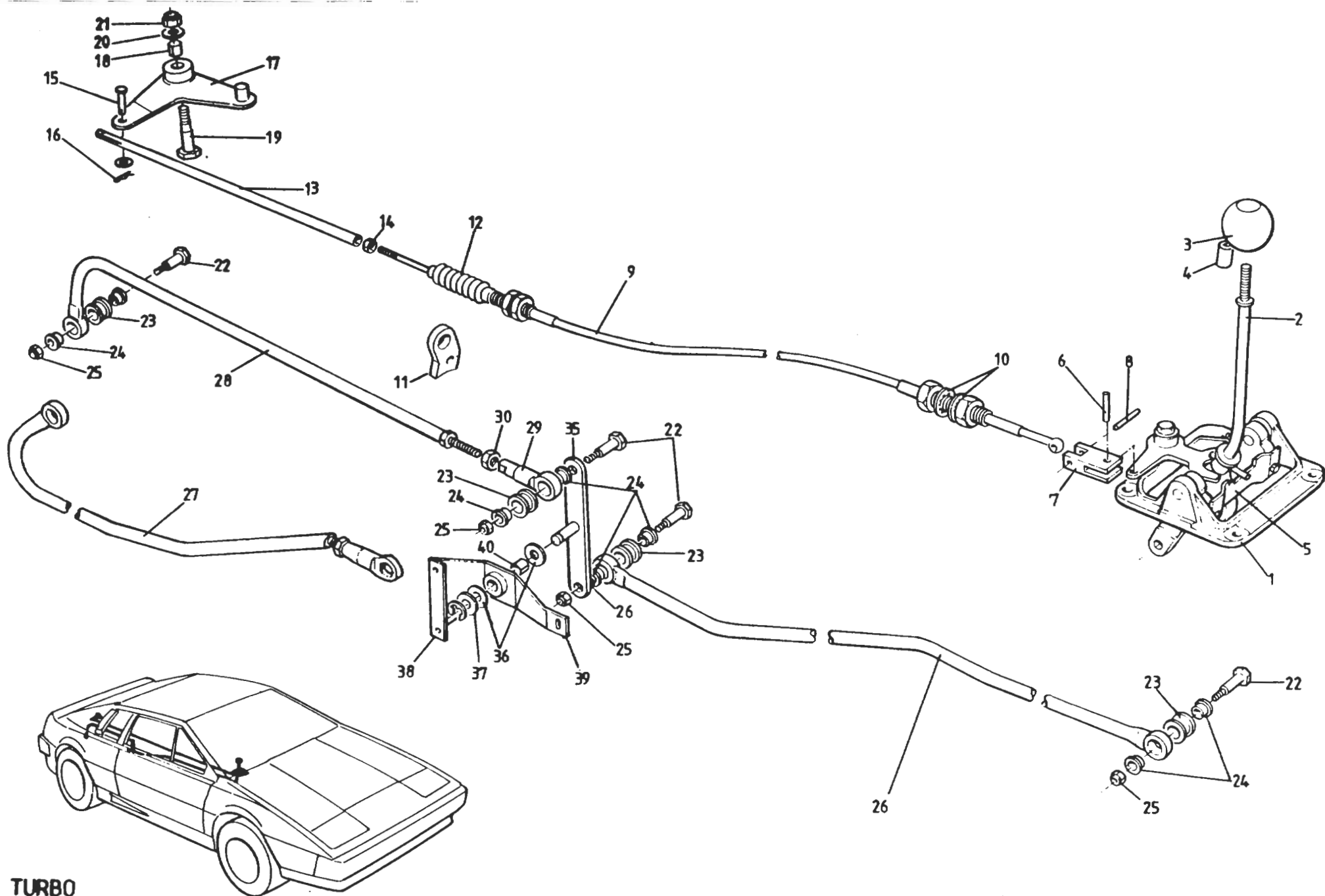
REMARKS

1	Gear Lever Assembly	A079F6002F	1	M7 Knob Thread R/B A082F6313F
	Roll Pin, Gear Lever, M5 x 40	A074F6013F	1	For Gear Lever Ass. A079F6002F
	Gear Lever Assembly	A082F6313F	1	M8 Knob Thread R/B A082F4075F
	Gear Lever Assembly	A082F4075F	1	M8 Knob Thread
2	Gear Lever	A082F4088H	1	M8 Knob Thread
3	Knob, Gear Lever, M7	B079F4016F	1	
	Knob, Gear Lever, M8	A082F4063F	1	
4	Spacer, M7 Gear Knob	A079F4017F	1	
	Lock Ring, M8 Gear Knob	A082F4064F	1	
5	Reverse Gate	B079F4012F	1	For Gear Lever Assy. A079F6002F
	Reverse Gate	A082F4062F	1	For Gear Lever Assy. A082F6313F/A082F4075F
6	Spirol Pin, 5 x 14, Bellcrank to Cable Yoke	A079W6198F	1	R/B A079W6245
	Spirol Pin, 3/16" x 14	A079W6245F	1	
7	Yoke, Lever Assy. to Crossgate Cable	A079F4022F	1	
8	Spirol Pin, 5 x 18, Cable to Yoke	A079W6199F	1	
	Lockwire, S/Steel Pin Retention	A082K6032V	0.2m	
9	Crossgate Cable	C079F4015F	1	Use With 240mm Extension Rod
	Crossgate Cable	D079F4015F	1	Use With 442/422 Extension Rod
10	Washer, Shakeproof, 14mm, Cable/Chassis	A079W4051F	2	
11	Bracket, Cable Abutment Rear	A082F4042C	1	If Fitted
12	Dust Cover, Cable Rear	B075Q6001Z	1	
13	Rod, Crossgate Cable Extension, 240mm	B082F4044K	1	
	Rod, Crossgate Cable Extension, 442mm	A082F4065K	1	R/B B082F4065K
	Rod, Crossgate Cable Extension, 422mm	B082F4065K	1	
	Locknut/Cable Stiffener	A082F4066F	1	Use With 240mm Extension Rod
14	Locknut, Crossgate Cable to Ext. Rod	A075W3020Z	1	Use With 442/422 Extension Rod
15	Clevis Pin, Rod to Bellcrank	A075W6034F	1	
16	Spring Clip, Clevis Pin	A075W6175F	1	
	Washer, Clevis Pin	A075W4000Z	1	
17	Bellcrank Lever, Crossgate	C082F4043F	1	R/B F082F4043F
	Bellcrank Lever, Crossgate	F082F4043F	1	
18	Bush, Bellcrank Lever	A075J6003F	1	
19	Pivot Pin, Bellcrank Lever	C079F4014F	1	

Turbo 47.05A

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TURBO
4705A

ILLUS
NO.

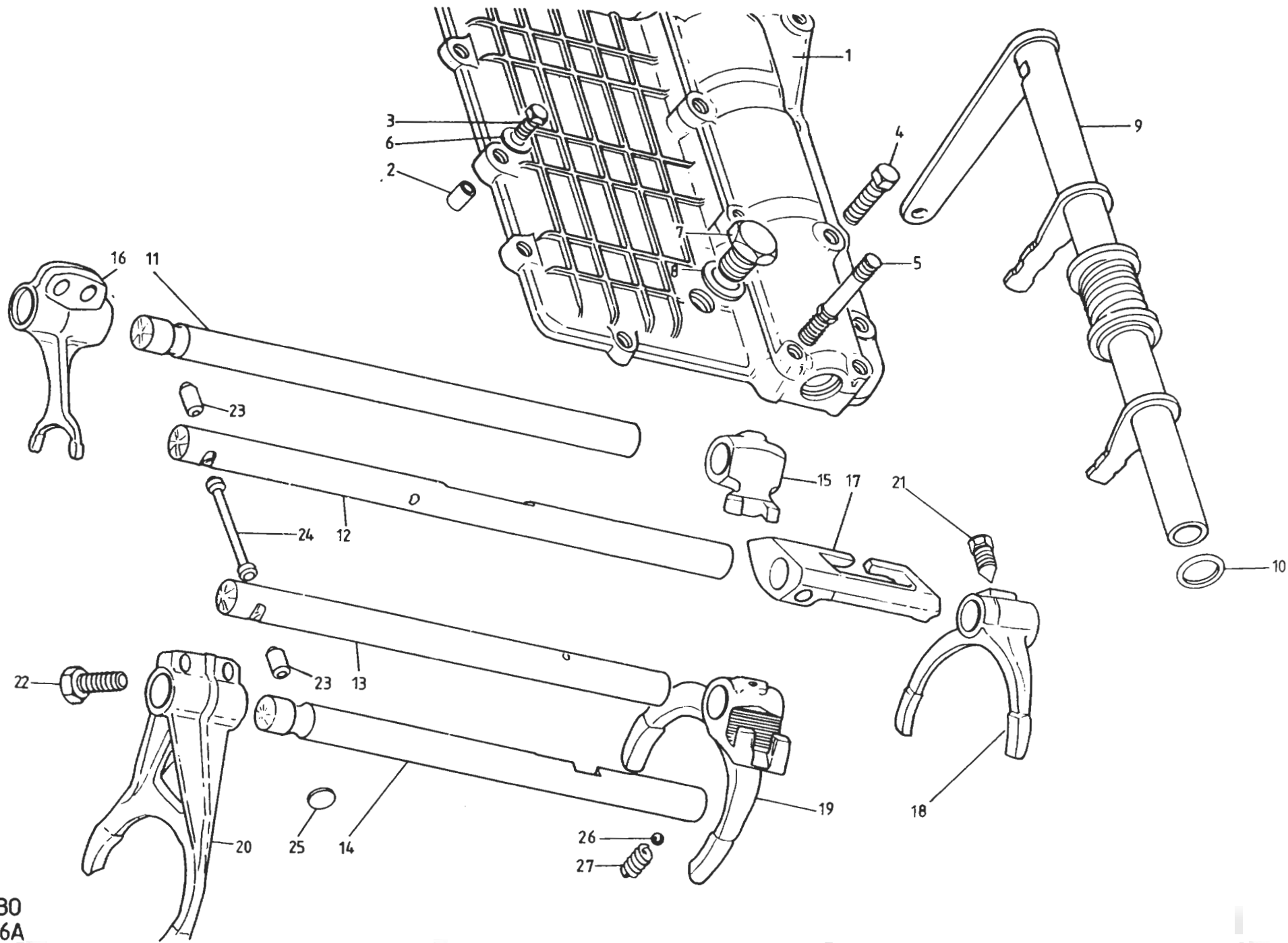
QUANTITY

47.05A	DESCRIPTION	PART NUMBER	ALL	REMARKS
20	Washer, Bellcrank Pivot	A075W4024Z	2	
21	Nut, Nyloc, M10, Bellcrank Pivot Bolt	A075W3011Z	1	
22	Pivot Pin, Gearchange Tubes	A079F6004F	4	M7 Thread
	Pivot Pin, Gearchange Tubes	A082F4070F	4	M8 Thread
23	Rubber Bush, Tube End	A079F6007F	4	
24	Bearing, Nylon, Tube End	A079F6008F	8	
25	Nut, Pivot Pin	A079F6023F	4	M7 Thread
	Nut, Pivot Pin	A907E6284F	4	M8 Thread
	Washer, 8mm, Gear Lever to Front Tube	A075W4020Z	1	If Fitted
26	Tube, Gearchange, Front	A082F4053J	1	
27	Tube, Gearchange, Rear	A082F4052J	1	
28	Tube, Gearchange, Rear	A082F4108J	1	Prior to '85 M.Y.
29	Adjustable End, Rear G/Change Tube	A085F4058F	1	'85 Model Year
30	Locknut, Adjustable End	A075W3024F	1	
	Relay Lever, Gearchange, 0.86:1 Ratio	A082F4050K	1	
35	Relay Lever, Gearchange, 1:1 Ratio	A082F4059F	1	R/B B082F4059F With M8 Pivot Pins
	Relay Lever, Gearchange, 1:1 Ratio	B082F4059F	1	Uses M8 Pivot Pins
	Washer, 10mm, Relay Lever Pivot	A075W4024F	1	)Use With Relay Lever A082F4050K
	Split Pin, Relay Lever Pivot	A075W6176F	1)
36	Thrust Washer, Relay Lever Pivot	A082F6301F	2	>
37	Washer, Flat, Relay Lever Pivot	A075W4028Z	1	>Use With Relay Lever A/B082F4059F
38	'E' Clip, Relay Lever Pivot	A082F6302F	1	>
39	Pivot Bracket, Relay Lever (Inc. Bush)	A082F4102J	1	Chassis Mounted. Earlier Cars
40	Bush, Relay Lever Pivot	A912E6593F	1	Used Pivot on Engine Mounting Leg
	Setscrew, M6 x 18, Pivot Brkt./Chassis	A075W1029Z	3	For Bracket A082F4102J
	Nut, Nyloc, M6, Pivot Brkt./Chassis	A075W3009Z	3	
	Washer, Flat, Pivot Brkt./Chassis	A075W4015Z	3	
	Edge Protector, Pivot Brkt./A/C Pipes	AX75L6020V	*	205mm A/C Cars Only

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Turbo 47.05A
Page 2



TURBO
47-06A

ILLUS
NO.

QUANTITY

47.06A

DESCRIPTION

PART NUMBER

PRIOR
C35

C35

REMARKS

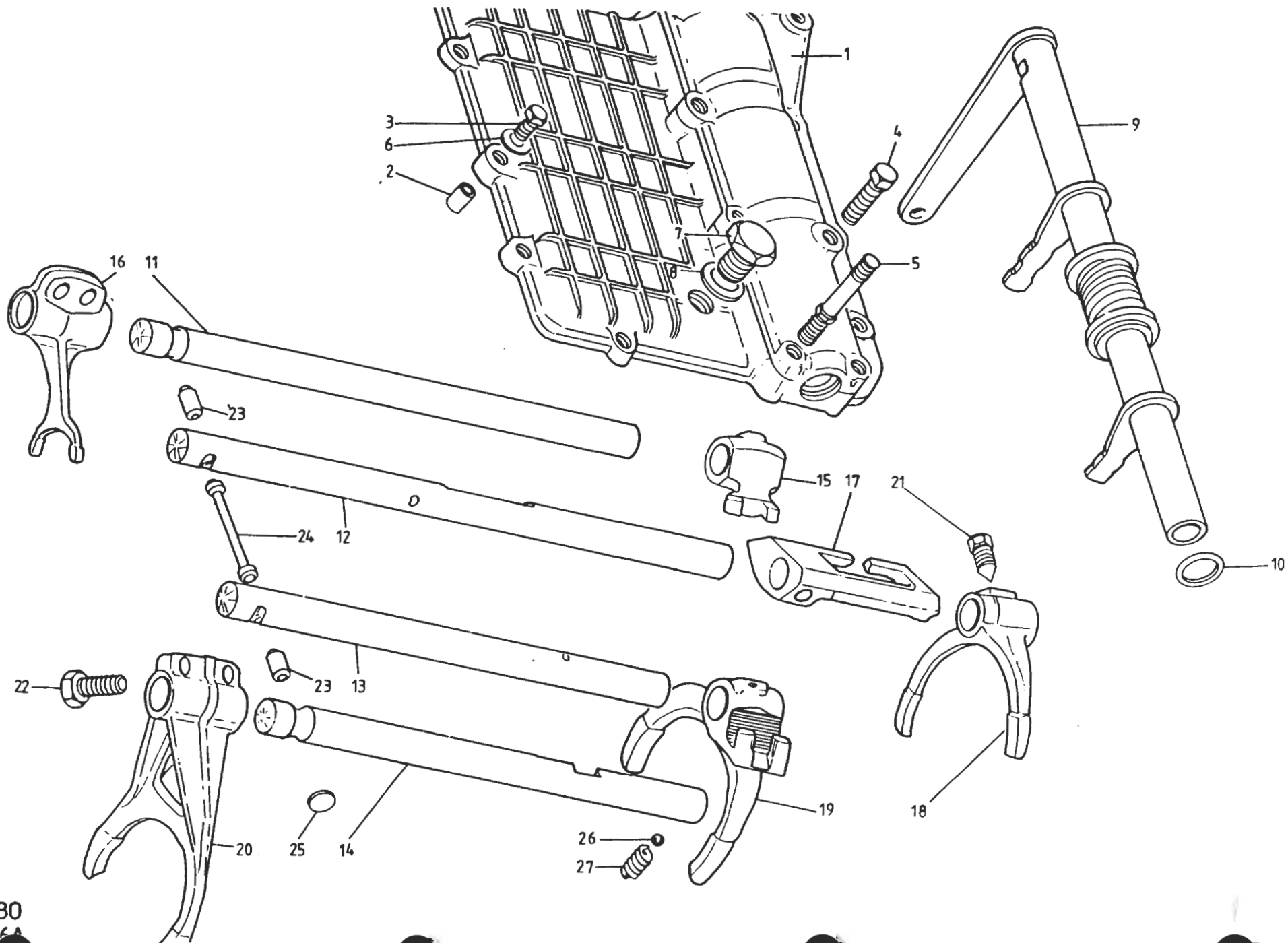
For Identification of C35 See 47.02A

1	Top Cover & Cross Shaft Bearing Cap	A079F6177F	1		
	Top Cover & Cross Shaft Bearing Cap	A082F6327F		1	
2	Dowel, Top Cover Locating	A079F6189F	4	4	
3	Setscrew, M7 x 35, Top Cover	A079F6192F	3	2	
	Setscrew, M7 x 25, Top Cover	A079F6191F	5	4	
4	Setscrew, M7 x 28, Top Cover	A079F6190F	4		
	Setscrew, M7 x 50, Top Cover	A079F6198F	2	4	
5	Shouldered Screw	A079F6197F	2		
	Shouldered Screw			1	
6	Washer, Top Cover Screw	A079F6200F	4	4	
7	Filler Plug	A079F6178F	1	1	
8	Gasket, Filler Plug	A079F6179F	1	1	
9	Cross Shaft Assembly	A082F0755K	1		
	Cross Shaft Assembly	A082F4060F		1	
	Cross Shaft Assembly	B082F4060F		1	R/B B082F4060F Use With M8 Linkinge Pivot Bolt Prior to '85 M.Y. 1985 Model Year on
	Cross Shaft Assembly	C082F4107F		1	
10	'O' Ring, Cross Shaft	A079F6055F	2		
	'O' Ring, Cross Shaft	A082F6312F		2	
11	Selector Shaft, Reverse	A079F6172F	1	1	
12	Selector Shaft, 5th	A079F6171F	1		
	Selector Shaft, 5th	A082F6340F		1	
	Plunger, Interlock Relay (Thro' Rod)	A082F6339F		1	
13	Selector Shaft, 3rd & 4th	A079F6170F	1		
	Selector Shaft, 3rd & 4th	A082F6338F		1	
	Plunger, Interlock Relay (Thro' Rod)	A082F6339F		1	
14	Selector Shaft, 1st & 2nd	A079F6169F	1	1	
15	Relay Dog, Reverse Selector Shaft	A079F6165F	1	1	
16	Selector Fork, Reverse	A079F6164F	1	1	
17	Relay Dog, 5th Selector Shaft	A079F6160F	1		

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7/7 1991

47.11A

DESCRIPTION

PART NUMBER

ALL

REMARKS

13

Adjusting Washer, 3.00

A079F6259F

>

Adjusting Washer, 3.05

A079F6260F

>

Adjusting Washer, 3.10

A079F6261F

>

Adjusting Washer, 3.15

A079F6262F

>

Adjusting Washer, 3.20

A079F6263F

>

Adjusting Washer, 3.25

A079F6264F

>

Adjusting Washer, 3.30

A079F6265F

>

Adjusting Washer, 3.35

A079F6266F

>

14

Crown Wheel and Pinion

A079F6267F

1

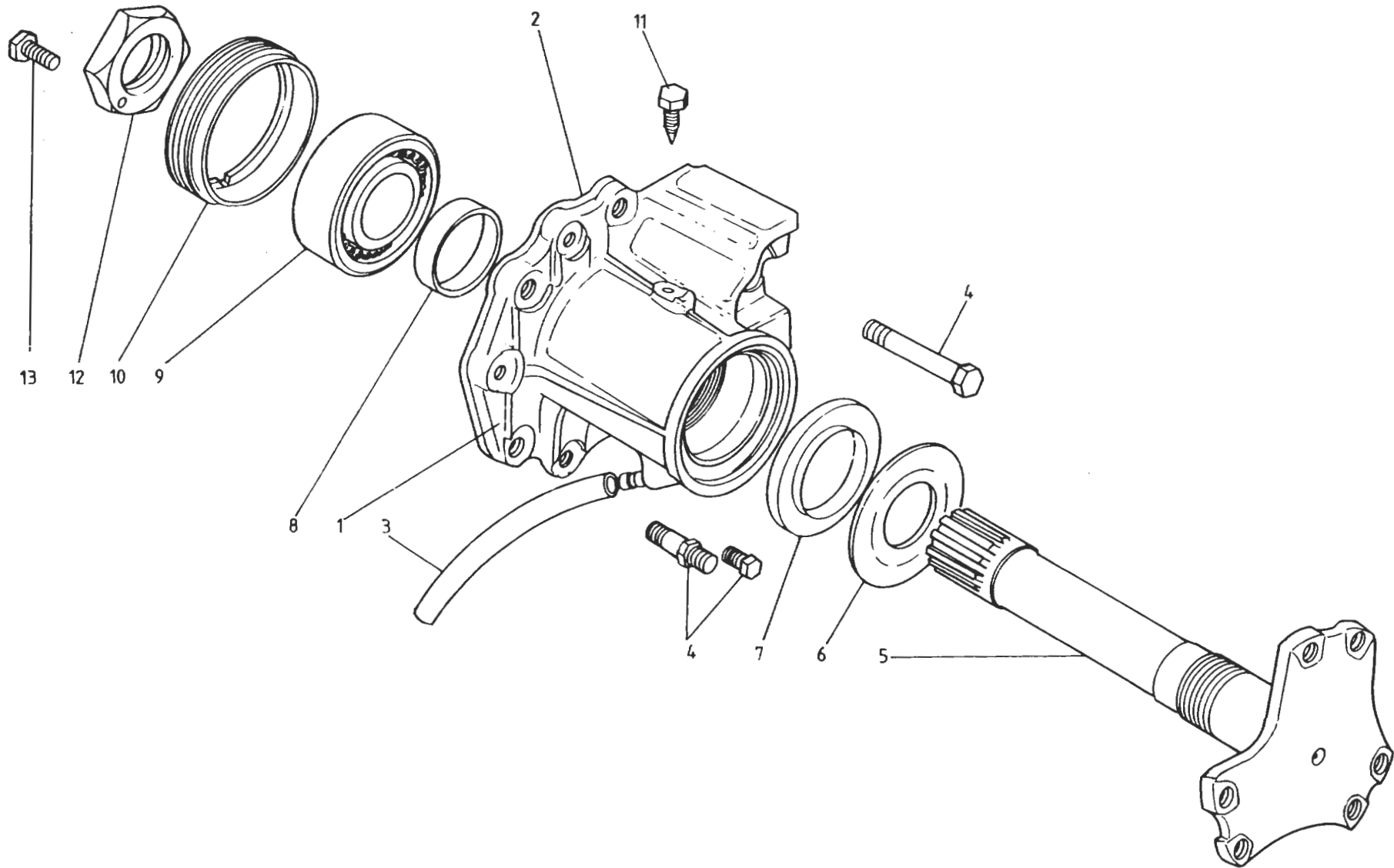
15

Roller Bearing

A079F6258F

2

Selective



TURBO
47.15A

ILLUS
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QUANTITY

47.11A

DESCRIPTION

PART NUMBER

ALL

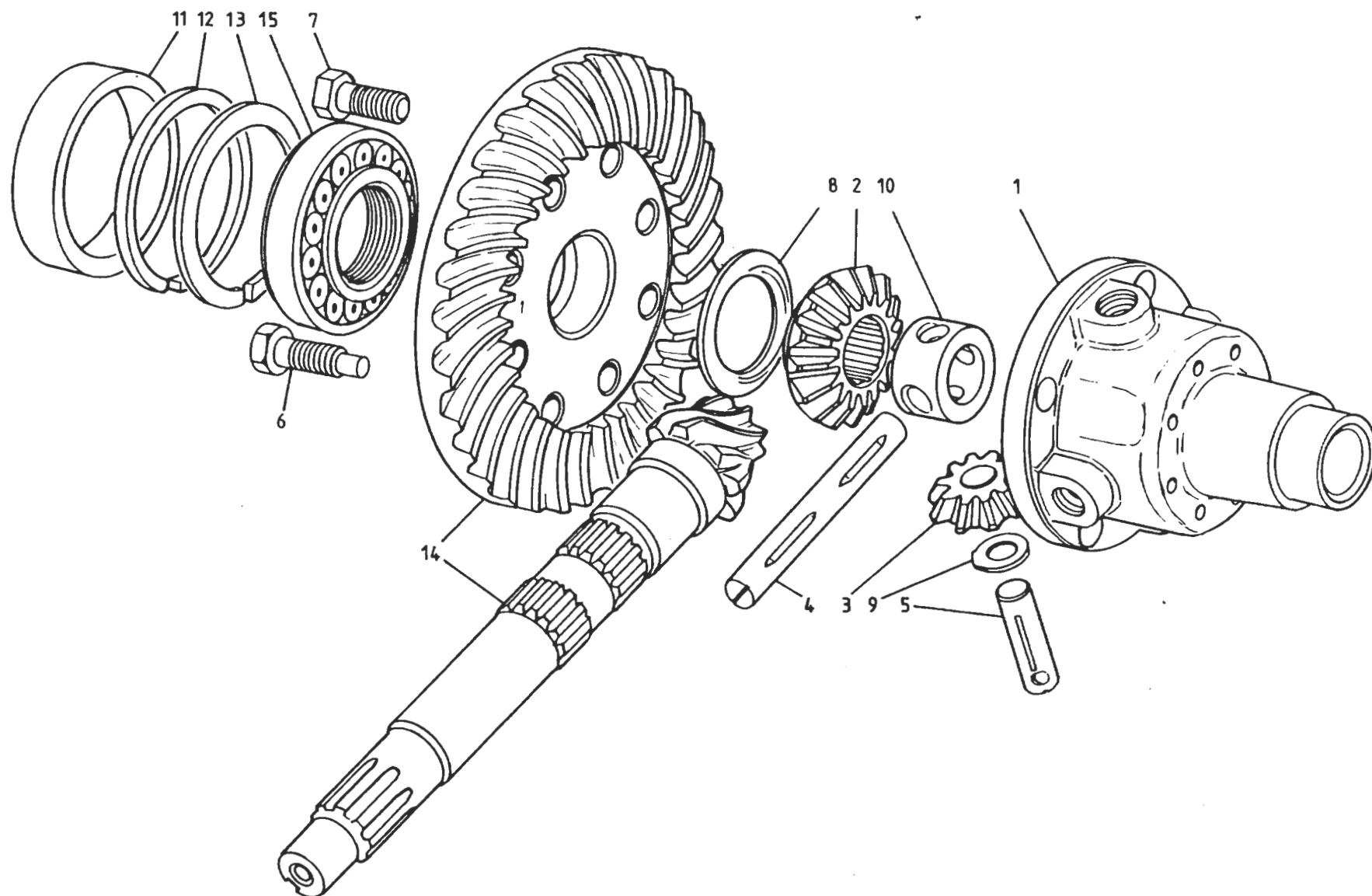
REMARKS

1	Housing	A079F6231F	1		
2	Planet Wheel	A079F6232F	2		
3	Satellite Wheel	A079F6233F	4		
4	Satellite Spindle, Long	A079F6234F	1		
5	Satellite Spindle, Short	A079F6235F	2		
6	Locking Screw, Satellite Wheel	A079F6237F	3		R/B A082F6318F
	Locking Screw, Satellite Wheel	A082F6318F	3		
7	Locking Screw, Crown Wheel	A079F6238F	5		
8	Planet Wheel Washer 1.52	A079F6239F)		
	Planet Wheel Washer 1.58	A079F6240F)		
	Planet Wheel Washer 1.64	A079F6241F	) 1		Selective
	Planet Wheel Washer 1.70	A079F6242F)		
	Planet Wheel Washer 1.76	A079F6243F)		
	Planet Wheel Washer 1.82	A079F6244F)		
9	Satellite Gear Washer 1.54	A079F6245F	>		
	Satellite Gear Washer 1.62	A079F6246F	>		
	Satellite Gear Washer 1.70	A079F6247F	> 1		Selective
	Satellite Gear Washer 1.78	A079F6248F	>		
10	Crosshead Bush	A079F6236F	1		
11	Spacer	A079F6249F	1		
12	Spacer, 2.9	A079F6250F)		
	Spacer, 3.3	A079F6251F)		
	Spacer, 3.7	A079F6252F)		
	Spacer, 4.1	A079F6253F	) 1		Selective
	Spacer, 4.5	A079F6254F)		
	Spacer, 4.9	A079F6255F)		
	Spacer, 5.3	A079F6256F)		
	Spacer, 5.7	A079F6257F)		

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TURBO
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ILLUS
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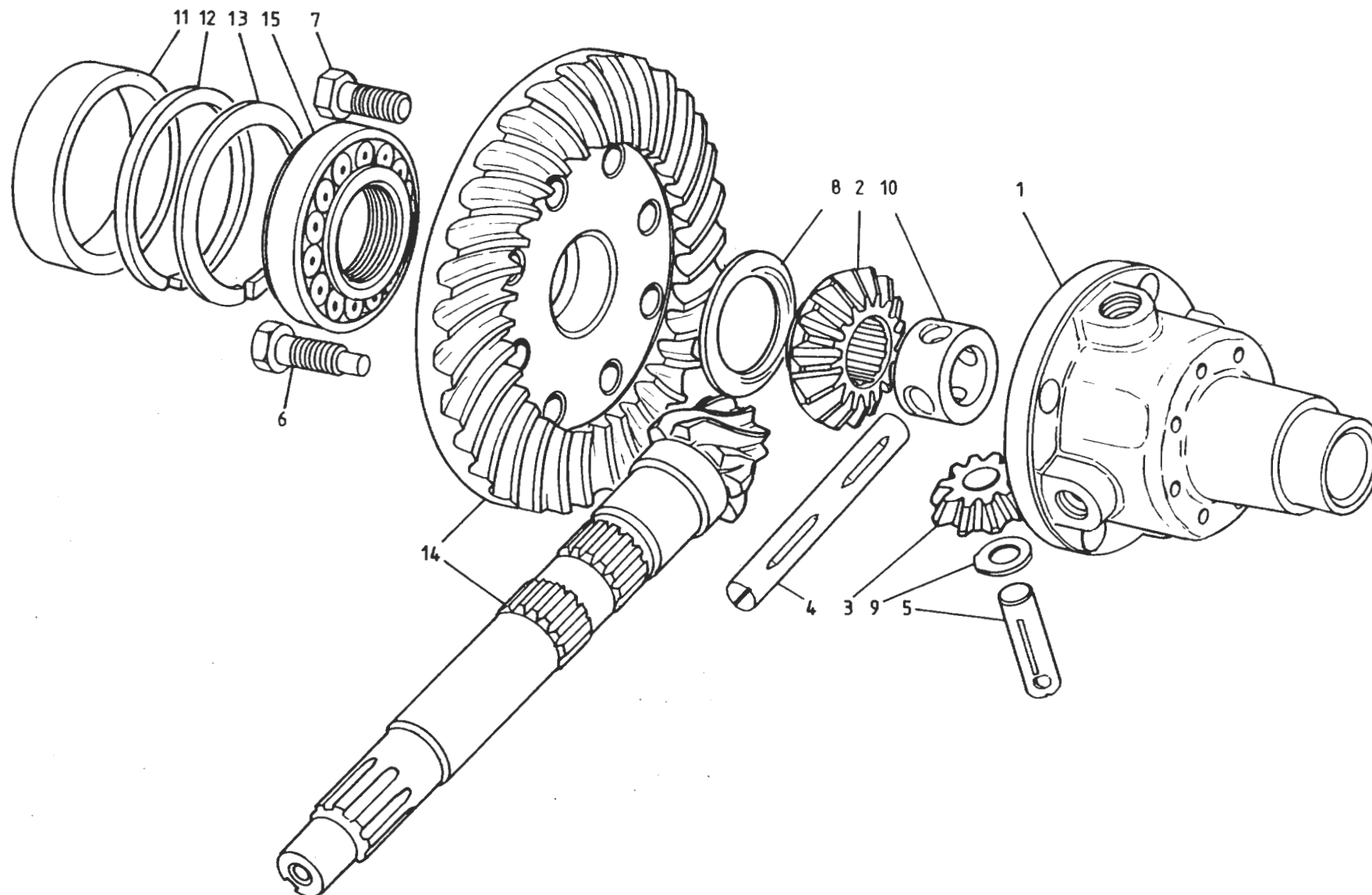


QUANTITY

MAY 1991

47.07A	DESCRIPTION	PART NUMBER	PRIOR C35	C35	REMARKS
	Spacer Washer, 2.61	A079F6143F)		
	Spacer Washer, 2.65	A079F6144F)		
	Spacer Washer, 2.69	A079F6145F)		
	Spacer Washer, 2.73	A079F6146F	) 1	1	Selective
	Spacer Washer, 2.77	A079F6147F)		
	Spacer Washer, 2.81	A079F6148F)		
	Spacer Washer, 2.85	A079F6149F)		
	Spacer Washer, 2.89	A079F6150F)		
	Spacer Washer, 2.93	A079F6151F)		
	Spacer Washer, 2.97	A079F6152F)		
	Spacer Washer, 3.01	A079F6153F)		
	Spacer Washer, 3.05	A079F6154F)		
	Spacer Washer, 3.09	A079F6155F)		
	Spacer Washer, 3.13	A079F6156F)		
29	Driven Pinion, 3rd/4th Secondary Shaft	A079F6157F	1	1	
30	Double Ball Bearing, Secondary Shaft Rear	A079F6115F	1		R/B A082F6326F
	Double Ball Bearing, Secondary Shaft Rear	A082F6326F		1	
31	Driven Pinion, 5th, Secondary Shaft	A079F6158F	1	1	
32	Nut/Speedo Drive Gear	A079F6114F	1	1	
33	Idler Gear, Reverse, Inc. Bush	A079F6112F	1	1	
34	Spindle, Reverse Idler Gear	A079F6099F	1	1	
35	Screw, Reverse Gear Spindle	A079F6100F	1	1	
36	Nut, Reverse Spindle Screw	A079F6101F	1	1	

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TURBO
47.11A

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QUANTITY

MAY 1991

47.07A

DESCRIPTION

PART NUMBER

PRIOR
C35

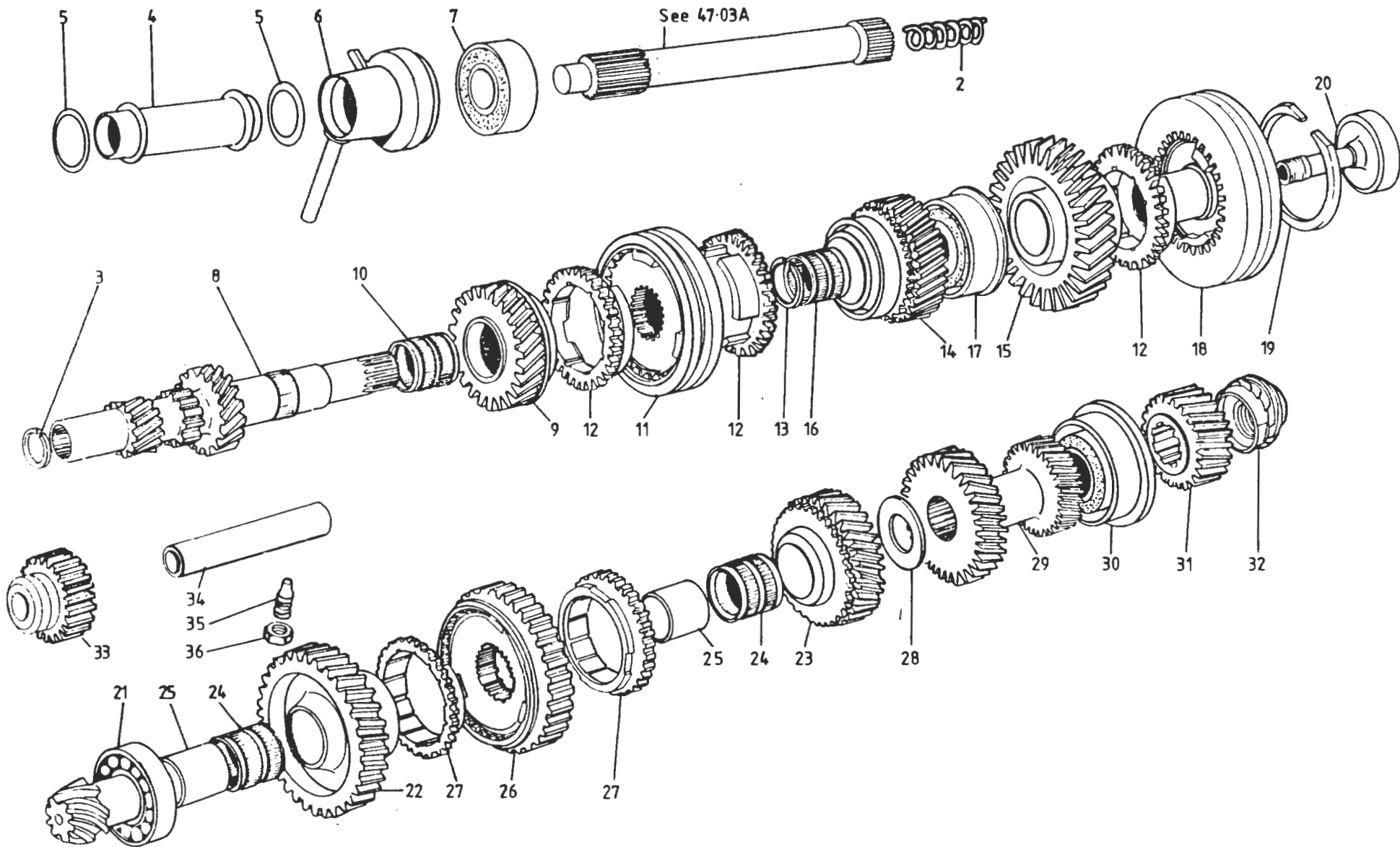
C35

REMARKS

22	Driven Pinion, 1st, Secondary Shaft	A079F6102F	1	1	R/B A082F6316F Supplied With Matched Synchro. Ring
23	Driven Pinion, 2nd, Secondary Shaft	A079F6103F	1	1	
	Driven Pinion, 2nd, Secondary Shaft	A082F6316F	1	1	
24	Needle Roller Bearing, 1st/2nd Pinion	A079F6104F	2	2	
25	Sleeve, 1st/2nd Pinion Bearing	A079F6118F	2	2	
26	Synchroniser Assembly, 1st & 2nd	A079F6089F	1		Selective
	Synchroniser Assembly, 1st & 2nd	A082F6333F		1	
27	Synchro Ring, 1st & 2nd	A079F6090F	2	2	
28	Spacer Washer, 1.65	A079F6119F)		
	Spacer Washer, 1.69	A079F6120F)		
	Spacer Washer, 1.73	A079F6121F)		
	Spacer Washer, 1.77	A079F6122F)		
	Spacer Washer, 1.81	A079F6123F)		
	Spacer Washer, 1.85	A079F6124F)		
	Spacer Washer, 1.89	A079F6125F)		
	Spacer Washer, 1.93	A079F6126F	) 1	1
	Spacer Washer, 1.97	A079F6127F)		
	Spacer Washer, 2.01	A079F6128F)		
	Spacer Washer, 2.05	A079F6129F)		
	Spacer Washer, 2.09	A079F6130F)		
	Spacer Washer, 2.13	A079F6131F)		
	Spacer Washer, 2.17	A079F6132F)		
	Spacer Washer, 2.21	A079F6133F)		
	Spacer Washer, 2.25	A079F6134F)		
	Spacer Washer, 2.29	A079F6135F)		
28	Spacer Washer, 2.33	A079F6136F)		
	Spacer Washer, 2.37	A079F6137F)		
	Spacer Washer, 2.41	A079F6138F)		
	Spacer Washer, 2.45	A079F6139F)		
	Spacer Washer, 2.49	A079F6140F)		
	Spacer Washer, 2.53	A079F6141F)		
	Spacer Washer, 2.57	A079F6142F)		

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TURBO
47-07A

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DESCRIPTION

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C35

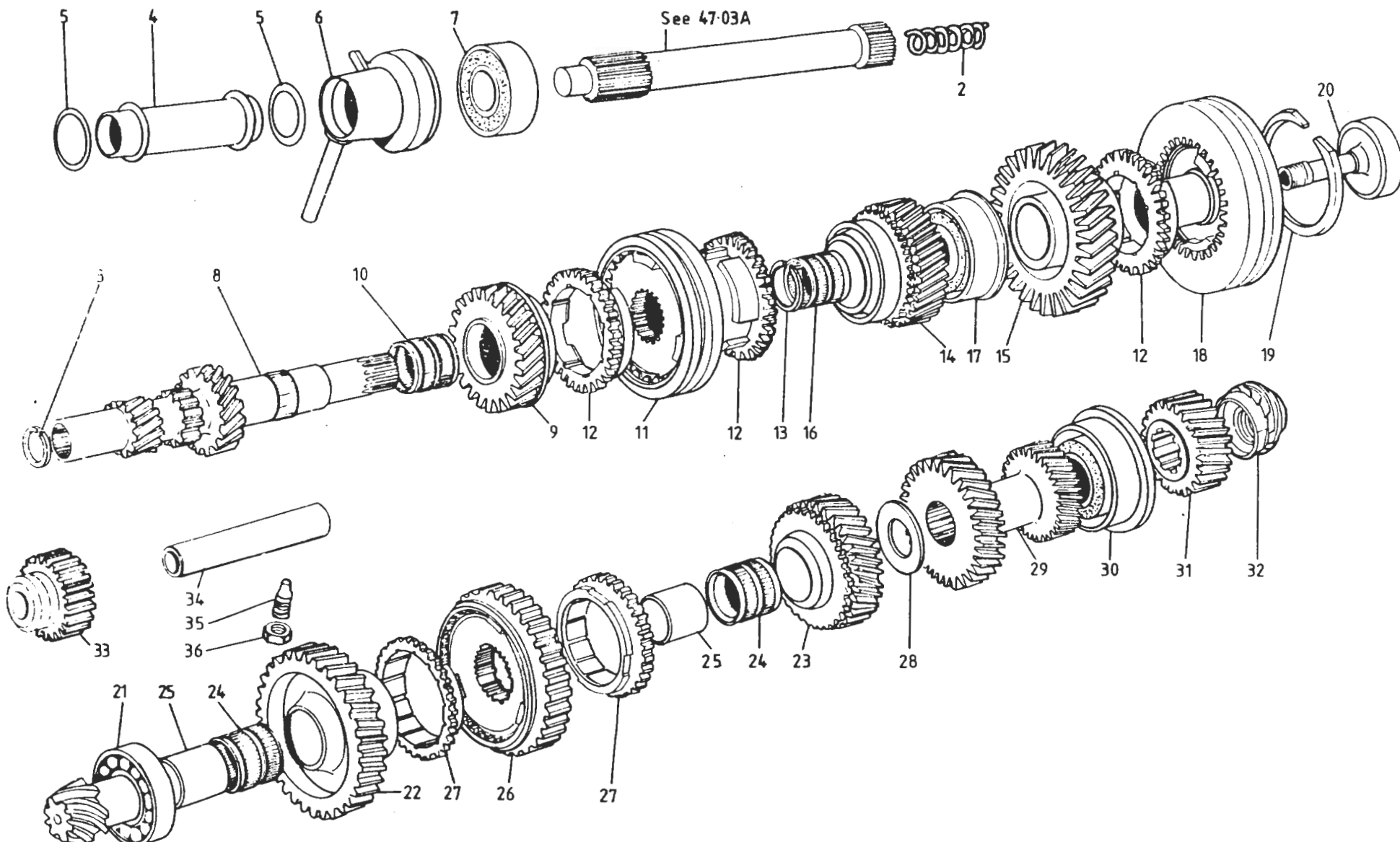
C35

REMARKS

2	Spring, Clutch Shaft Endthrust	A079F6067F	1	1	
3	Circlip, Clutch Shaft Retention	A079F6068F	1	1	
4	Support Tube, Clutch Release Bearing	A082F0754E	1	1	
5	'O' Ring, Support Tube Sealing	A079F6096F	2	2	
6	Scroll and Housing	A079F4032K	1	1	
7	Ball Bearing, Primary Shaft Front	A079F6069F	1	1	
8	Primary Shaft	A079F6060F	1	1	
9	Drive Pinion, 3rd, Primary Shaft	A079F6064F	1	1	R/B A082F6317F
	Drive Pinion, 3rd, Primary Shaft	A082F6317F	1	1	Supplied With Matched Synchro. Ring
10	Needle Roller Bearing, 3rd Pinion	A079F6061F	1		R/B A082F6348F
	Needle Roller Bearing, 3rd Pinion	A082F6348F		1	
11	Synchroniser Assembly, 3rd & 4th	A079F6072F	1		
	Synchroniser Assembly, 3rd & 4th	A082F6332F		1	
12	Synchro Ring, 3rd, 4th & 5th	A079F6073F	3	3	
13	Stop Ring, 3rd & 4th Synchro 2.20	A079F6074F)		
	Stop Ring, 3rd & 4th Synchro 2.25	A079F6075F)		
	Stop Ring, 3rd & 4th Synchro 2.30	A079F6076F	) 1	1	Selective
	Stop Ring, 3rd & 4th Synchro 2.35	A079F6077F)		
14	Drive Pinion, 4th, Primary Shaft	A079F6107F	1	1	
15	Drive Pinion, 5th, Primary Shaft	A079F6108F	1	1	
16	Needle Roller Bearing, 4th & 5th Pinion	A079F6109F	2		R/B A082F6349F
	Needle Roller Bearing, 4th & 5th Pinion	A082F6349F		2	
17	Double Ball Bearing, Primary Shaft Rear	A079F6098F	1		R/B A082F6321F
	Double Ball Bearing, Primary Shaft Rear	A082F6321F		1	
18	Synchroniser Assembly 5th	A079F6094F	1		
	Synchroniser Assembly, 5th	A082F6325F		1	
19	Circlip, 5th Synchroniser	A079F6092F	1	1	
20	Screw, 5th Hub to Primary Shaft	A079F6097F	1		
	Screw, 5th Hub to Primary Shaft	A082F6322F		1	
	Oil Tube, 5th Hub Screw	A082F6323F		1	
21	Roller Bearing, Secondary Shaft Front	A079F6116F	1		R/B A082F6334F
	Roller Bearing, Secondary Shaft Front	A082F6334F		1	

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TURBO
47-07A

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NO.



QUANTITY

MAY 1991

47.06A

DESCRIPTION

PART NUMBER

PRIOR
C35

C35

REMARKS

18	Relay Dog, 5th Selector Shaft	A082F6341F		1
	Selector Fork, 5th	A079F6163F	1	
	Selector Fork, 5th	A082F6335F		1
19	Selector Fork, 3rd & 4th	A079F6162F	1	1
20	Selector Fork, 1st & 2nd	A079F6161F	1	1
21	Locking Screw, Fork/Relay to Shaft	A079F6166F	4	3
	Locking Wire, Fork/Relay Screw	A079F6168F	4	3
	Screw, 5th Fork to Shaft	A082F6337F		1
	Spring Washer, 5th Fork Screw	A082F6336F		1
22	Setscrew, M9 x 25, Fork Clamping	A079F6221F	4	4
23	Interlock Plunger, Short	A079F6174F	2	2
24	Interlock Plunger, Long	A079F6173F	1	1
25	Blanking Plug, 12mm Diameter	A079F6184F	2	2
	Blanking Plug, 17mm Diameter	A079F6183F	1	1
26	Detent Ball, Selector Shaft	A079F6176F	4	4
27	Spring, Detent Ball	A079F6175F	4	
	Spring, Detent Ball	A082F6347F		4

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ILLUS
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QUANTITY

47.15A

DESCRIPTION

PART NUMBER

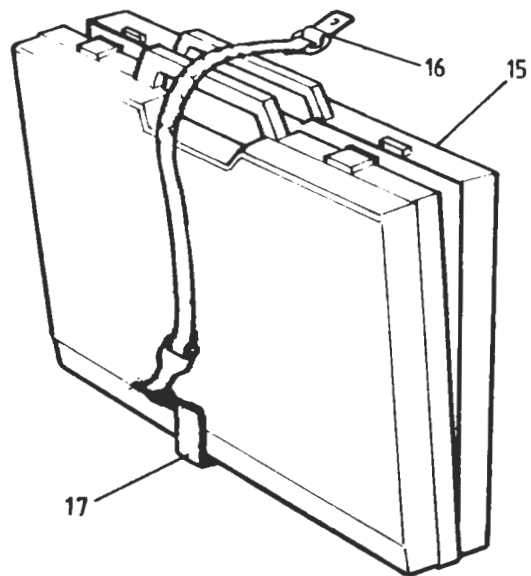
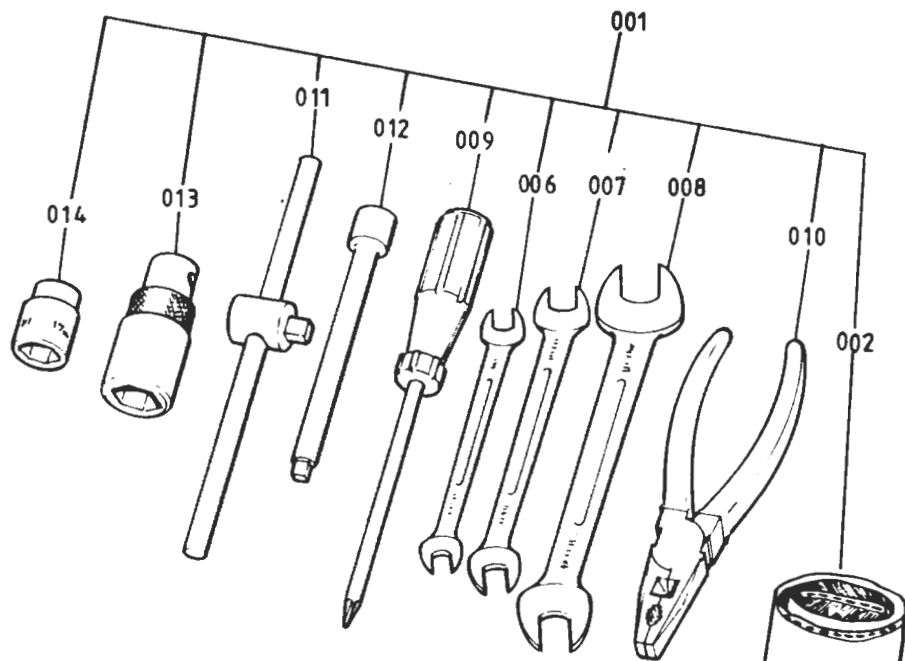
PRIOR
C35

C35

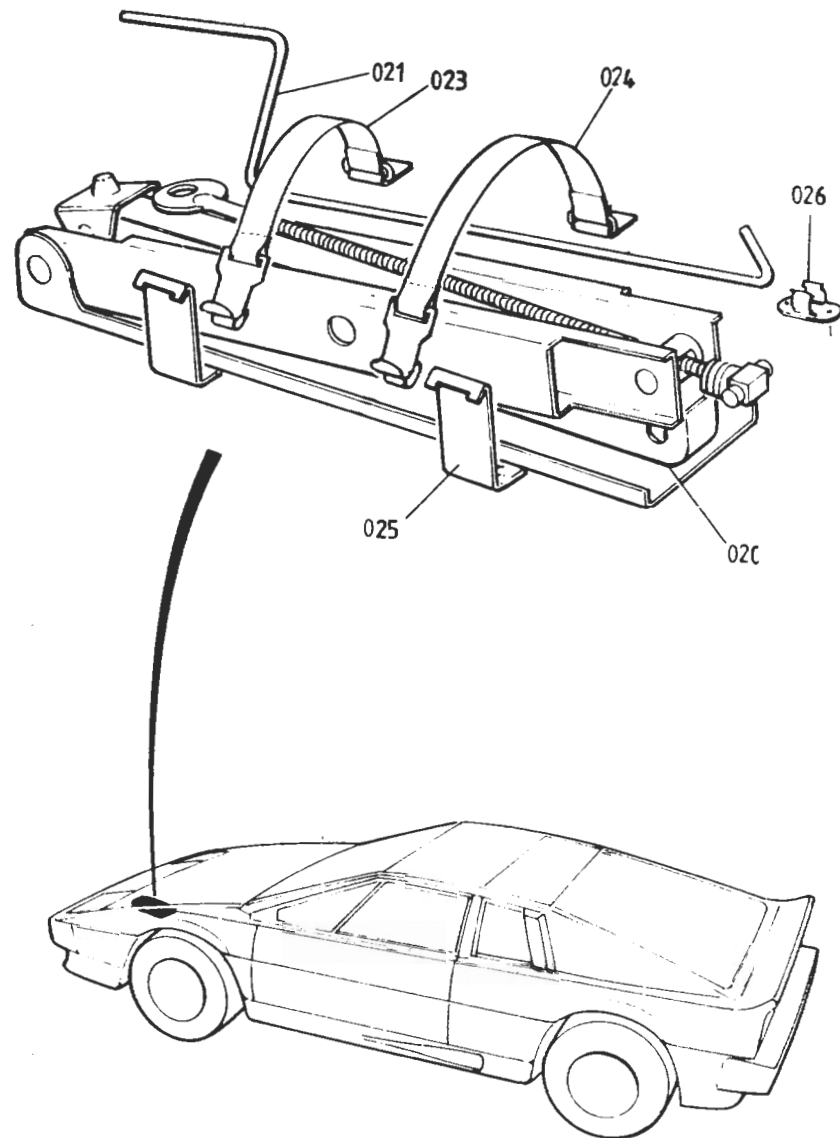
REMARKS

1	Housing, Diff. Output Shaft, RH	A079F6275F	1	
	Housing, Diff. Output Shaft, RH	A082F6342F		1
	Housing, Diff. Output Shaft, LH	A079F6276F	1	
	Housing, Diff. Output Shaft, LH	A082F6343F		1
2	Gasket, Output Shaft Housing	B079F6028F	2	2
3	Drain Hose, Output Shaft Housing	A079F4019F	2	2
4	Bolt, M7 x 20, Output Hsg./Trans.	A079F6218F	1	
	Bolt, M7 x 25, Output Hsg./Trans.	A079F6191F	5	1
	Bolt, M7 x 70, Output Hsg./Trans.	A079F6287F	2	
	Bolt, M9 x 30, Output Hsg./Trans.	A079F6204F	10	10
	Bolt, M9 x 75, Output Hsg./Trans.	A079F6286F	2	4
5	Shaft, Diff. Output, RH	A079F6281F	1	1
	Shaft, Diff. Output, LH	A079F6280F	1	1
6	Washer, Oil Retaining	A079F6282F	2	2
7	Oil Seal, Output Shaft	A079F6288F	2	2
8	Thrust Ring	A079F6283F	2	2
9	Double Ball Bearing	A079F6277F	2	2
10	Ring Nut, Bearing to Housing	A079F6278F	2	
	Ring Nut, Bearing to Housing	A082F6344F		2
11	Locking Screw, Ring Nut to Housing	A079F6279F	2	2
12	Nut, Bearing to Output Shaft	A079F6284F	2	2
13	Locking Screw, Output Shaft Nut	A079F6285F	2	2

Turbo 47.15A



TURBO
6001A



ILLUS
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QUANTITY

MAY 1991

60.01A

DESCRIPTION

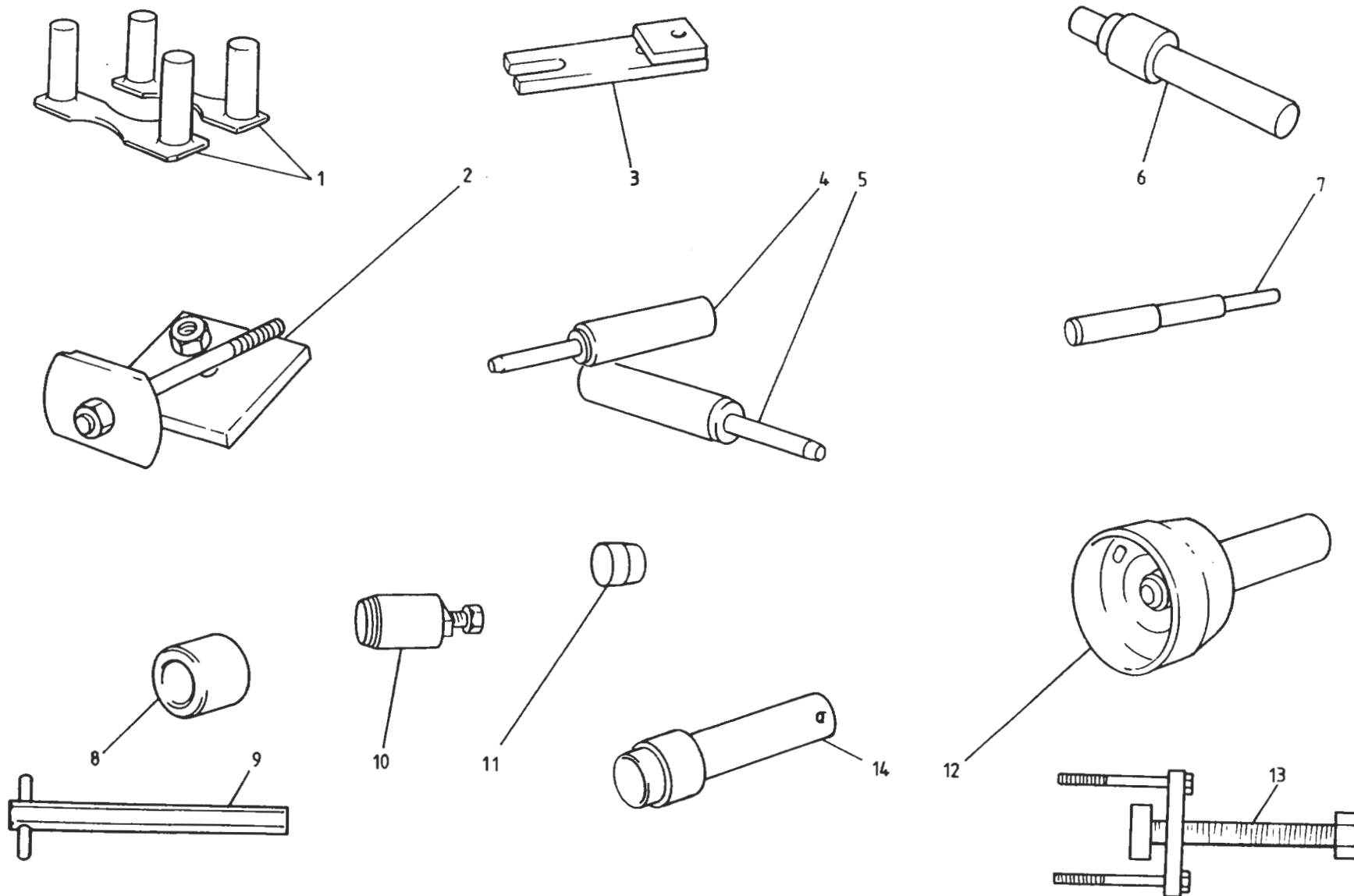
PART NUMBER

ALL

REMARKS

001	Toolkit & Roll	B075T0728J	1	With Compomotive Wheels)
	Toolkit & Roll	A082T4003J	1	With BBS Wheels)
002	Roll, Toolkit	A075T0369K	1)
006	Spanner, O/E, 8 x 10	B075T6003F	1)
007	Spanner, O/E, 10 x 13	B075T6004F	1)
008	Spanner, O/E, 13 x 17	B075T6005F	1	) 'Roll' type
009	Screwdriver, Posidrive no. 2	B075T6006F	1	) Toolkit
010	Pliers	B075T6007F	1)
011	'T' Bar, Sliding	B075T6008F	1)
012	Extension, 5 in., 3/8 in. Drive	B075T6009F	1)
013	Spark Plug Socket, 13/16 in.	B075T6011F	1)
014	Socket 19mm	B075T6010F	1	In Toolkit B075T0728J)
	Socket, 17mm	B082T6001F	1	In Toolkit A082T4003J)
015	Toolkit & Plastic Case	A082T4005F	1	>
016	Strap, Tool Case Retention	A089U1412F	1	>Plastic Case type Toolkit
017	Hook, Tool Case Strap	B082U4715K	1	>
	Rivet, Strap & Hook Fix	A075W6065Z	3	>
	Washer, Rivet	A075W4013F	3	>
	Jack, (Scissor Type)	B065T0347ZB	1	
020	Jack, (With Integral Baseplate)	A085T4004K	1	
021	Handle, 145mm Crank	B085T6002F	1	
	Handle, 265mm Crank	A075T0350F	1	
023	Strap, Jack Retention, (Front)	A079U4033F	1	
024	Strap, Jack Retention, (Rear)	A082U5024F	1	
025	Anchor Hook, Jack Strap	B082U4715K	2	
	Pop Rivet, Strap and Anchor Fixing	A075W6099F	6	
026	Clip, Jack Handle Stowage (2 Hole Fix)	A079W6146F	2/3)
	Clip, Jack Handle Stowage (1 Hole Fix)	A079W6145F	1) As Fitted

Turbo 60.01A



TURBO
60-02A

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QUANTITY

60.02A

DESCRIPTION

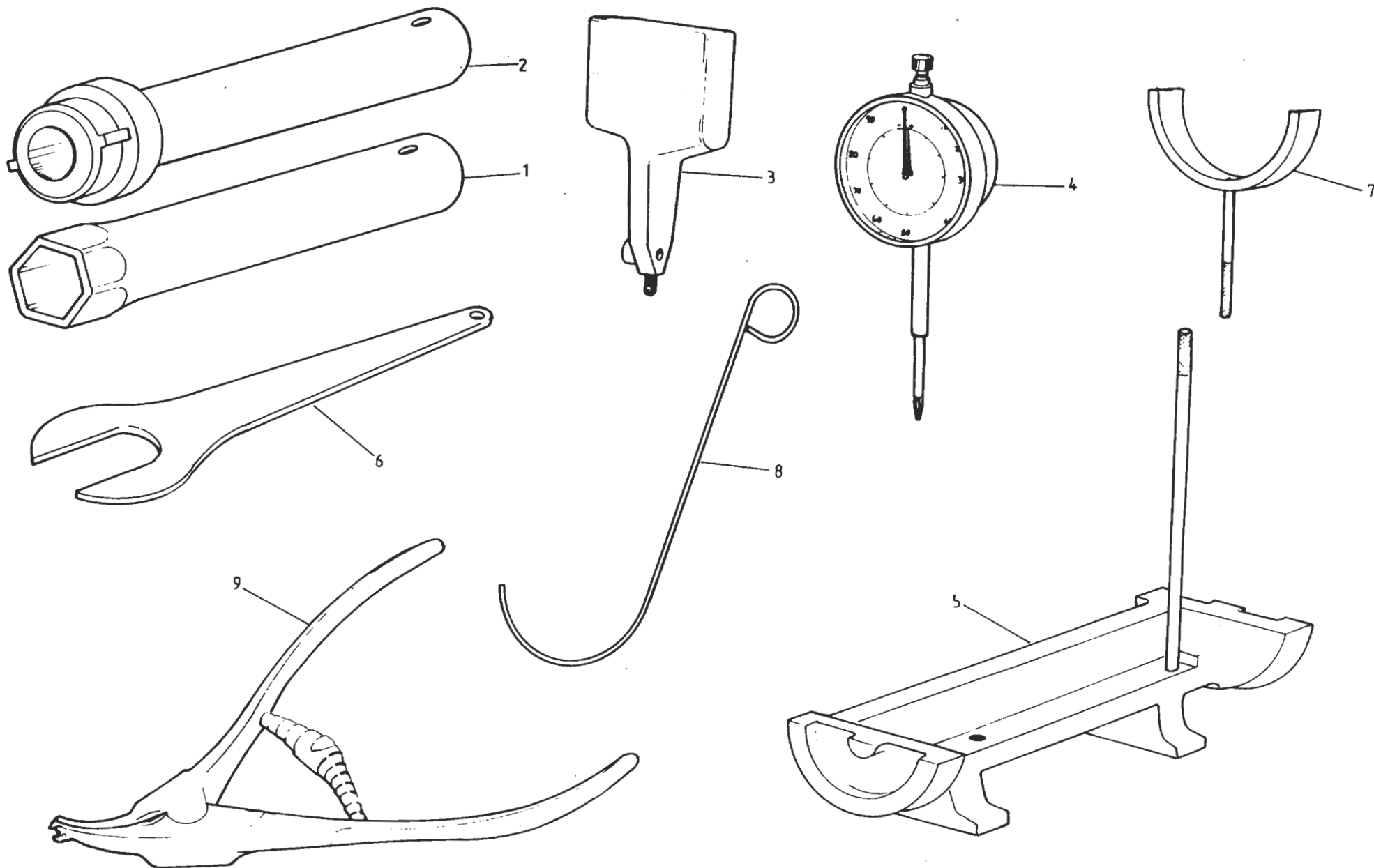
PART NUMBER

ALL

REMARKS

1	Engine Special Tool Kit Assembly	T000L0002A	1	Comprises * Items
2	Cylinder Liner Clamps*	T000T0002A	2	
3	Cylinder Liner Extractor*	T000T0012A	1	
4	Cylinder Liner Nip Gauge*	T000G0003A	1	
5	Drift, Inlet Valve Seat*	T000T0093A	1	
6	Drift, Exhaust Valve Seat*	T000T0094A	1	
7	Insertor, Spigot Bearing*	T000T0242A	1	
8	Drift, Valve Guide*	T000T0004A	1	
9	Insertor, Camshaft Oil Seal*	T000T0010A	1	
10	Spanner, Oil Pick-Up Pipe Union*	T000T0083A	1	
11	Extractor, Camshaft Oil Seal*	T000T0011A	1	
12	Sleeve, Camshaft Oil Seal*	T000T0072A	1	
13	Pilot, Rear Oil Seal, Crankshaft*	T000T0084A	1	
14	Puller, Crankshaft Pulley*	T000T0170A	1	
	Pilot, Front Cover*	T000T0009B	1	R/B T000G0025J Cantilevered Type
	Clips, Tool Retention, set c/w Fixings	T000L0005A	1	
	Shadow Sheet, Self Adhesive	T000T0271A	1	
	Tool Board	T000T0270A	1	
	Burroughs Gauge, Toothed Belt	T000T0290A	1	
	Burroughs Gauge, Toothed Belt	T000G0025J	1	
	Torx Socket, Cam Housing Bolt	T000T0443A	1	
	Carburettor Balance Adaptors	T000T0496F	4	
	Carburettor Float Setting Bar	T000T0498F	1	
	Carburettor Manometer	T000T0499M/F	1	
	Rear Brake Caliper Spreader	T000T0556F	1	M-With Mercury, F-Without Mercury 1985 Model Year
	Screen Removal Tool	A075B6169F	1	

Turbo 60.02A



TURBO
60-04A

LOTUS PAINT CODES & TOUCH-IN PAINT/STICK NUMBERS

LOTUS PAINT CODE	COLOUR	LOTUS TOUCH-IN PAINT NO.	LOTUS PAINT CODE		LOTUS TOUCH-IN PAINT NO.
A02	Black	B036B6424S	A53	Cirrus Grey	A082B6127F
A03	Silver Diamond	A075B6249F	A54	New Jupiter Red	A082B6128F
A04	Gold	A075B6250F	A55	Cherry Red	A082B6129F
A05	Viper Green	A075B6271F	A56	Nimbus Grey	A082B6130F
A06	Bermuda Blue	A075B6251F	A57	Shadow Grey	A082B6131F
A07	Roman Bronze	A075B6255F	A58	Champagne Gold	A082B6132F
A08	Lotus Bronze	A075B6256F	A59	Steel Blue *	C082B6133J
A13	Tabac	A083B6252F	A60	Seal Grey	A082B6144F
A14	Altair Green	A083B6253F	A61	Atlantic Green	A082B6134F
A15	Helleblau	A083B6254F	A62	Claret *	C082B6145J
A16	Essex Blue	A082B6060F	A63	British Racing Green '88 MY	B082B6146S
A17	Essex Blue	A082B6062F	A64	Camel Yellow	A082B6192F
A19	Copper Fire Metallic	A082B6063F	A65	British Racing Green '89 MY	B082B6171S
A21	Monaco White	B050B6237S	A67	Vulcan Grey *	C082B6172J
A22	Lotus Yellow II	A075B6267F	A68	Pacific Blue *	C082B6173J
A23	Calypso Red	B075B6264S			
A25	New Gold	A076B6157F			
A26	Copper	A082B6063F			
A30	Jupiter Red	A076B6158F			
A31	Copper	A076B6159F			
A32	Mediterranean Blue *	C082B6126J			
A33	Ice Blue	A082B6143F			
A34	Essex Blue	A076B6161F			
A35	Silver	A076B6162F			
A36	New Gold	A076B6163F			
A38	Chrysler Steel Grey	A089B6164F			
A42	British Racing Green *	C082B6089J			
A44	Glacier Blue *	C082B6090J			
A45	Silver Frost *	C082B6091J			
A51	Midnight Blue	A082B6125F			
A52	Mediterranean Blue	A082B6126F		Touch-In Stick Display Unit	A082B6191S

* TOUCH-IN KIT, CONTAINING (PAINT/LACQUER STICKS)

ILLUS
NO.



QUANTITY

60.04A

DESCRIPTION

PART NUMBER

ALL

REMARKS

Transmission Tool Kit,
Comprises

T000L0621A

1

- 1 Spanner, Bearing to Shaft Nut
- 2 Spanner, Bearing to Housing Lock Ring
- 3 Dial Gauge Support
- 4 Dial Gauge
- 5 Pinion Setting Fixture
- 6 Spanner, Speedo Drive Nut
- 7 Syncro Gauges (set of 6)
- 8 Reverse Selector Gauge
- 9 Circlip Pliers, 3rd/4th Syncro Hub

T000T0612F
T000T0613F
T000T0614F
T000T0615F
T000T0616F
T000T0617F
T000T0618F
T000T0619F
T000T0620F

1
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1
1
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1
1

1st/2nd gear

FEB 1987

d6p19

Turbo
60.04A