LANCIA

LANCIA k

3rd Volume

Workshop
Manual

3U05DV

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

Fiat Auto S.p.A.
D.M.C. - M.P.S.
Servizi Post Vendita - Assistenza Tecnica
10040 Volvera - TO - (Italia) - Largo Senatore G.Agnelli, 5
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Update for "LANCIA K 1st - 2nd - 3rd volume" Manuals - sec. 00-10-44-55-70
(Print no. 506.475/19) (VIII-97) order n°. *604.45.103*

This booklet is composed, in order, of the following pages:

- Summary for the 1st volume replaces the one for the appropriate manual
- 13 sheets which replace those in section 00 of the manual
- 1 sheet which replaces the one in section 00 of the manual for the 1998 20v version with automatic transmission.
- 1 sheet which replaces the one in section 10 dealing with the removing-refitting of the 1998 20v - 2446 20v version
- 2 sheets which replace those in section 44 of the manual
- 1 sheet which replaces the one in section 44 dealing with the 96 range versions
- Summary for the 2nd volume which replaces the one for the appropriate manual
- 2 sheets which replace those in section 55 of the manual
- 1 sheet to be inserted in section 55 of the manual
- An index for section 55 for the LANCIA k 96 range wiring diagrams which replaces the one in the manual
- 4 sheets to be inserted in section 55 for the LANCIA k 96 range wiring diagrams
- An index for section 70 which replaces the one in the manual
- 1 sheet to be inserted in section 70 of the manual
- A Summary for the 3rd volume which replaces the one in the manual
- 7 sheets which replace those in section 00 of the LANCIA k SW
- 1 sheet which replaces the one in section 44 of the LANCIA k SW
- 5 sheets which replace those in section 00 of the LANCIA k Coupé
- An index and pages for section 55 of the LANCIA k Coupé dealing with the version with exhaust gas lights
- An index for section 70 for the LANCIA k Coupé which replaces the one in the manual
- 5 sheets which replace those in section 70 dealing with the LANCIA k Coupé

3U07SV

SERVICE MANUAL COMPOSITION

At present, June 1997, the **LANCIA k 3rd volume** manual is composed of the following booklets:

Print N°	Sections	Page Nos.	Versions	Comments
506.475/12 With binder (IV/96)	**00**	1÷36	LANCIA k SW	Introduction - Technical data
	44	1÷10		Nivomat self-levelling suspension
	55	1÷7		Electrical equip. wiring diagrams
	70	1÷23		Introduction - Safety - Bodyshell - Ecology and the environment - Bodyshell alignment - Replacing structural body panels - Adjustment of moveable parts
506.475/15 (VI/96)	**00**	3÷14 21÷26	LANCIA k SW	Technical Data Update
	44	11÷16		Removing-refitting rear suspension spring - shock absorber assembly
	55	1÷14		Electrical equipment
		1÷19		Completion of wiring diagrams
	70	1÷55		Removing-refitting Replacing body panels
506.475/13 (XII/96)	**00**	21÷24	LANCIA k SW	Technical Data Update
	55	Index 14/1÷14/4 17÷18		Wiring diagrams Update: Radiotelephone
	00	I÷III 1÷31	LANCIA k Coupé	Introduction - Technical data
	55	1÷14		Electrical equipment Lighting-Control units-Relays-Fuses
		1÷39		Electrical equip. wiring diagrams
	70	1÷27		Introduction-Safety-Bodyshell-Ecology and the environment-Bodyshell alignment- Replacing structural body panels- Adjustment of moveable parts
		1÷68		Removing-refitting Replacing body panels

Print N°	Sections	Page Nos.	Versions	Comments
506.475/19 (VI/97)	**00**	1÷2 3÷4 5÷6 7÷8 17÷18 23÷24 35÷36	LANCIA k SW	Update: Technical data
	44	15÷16		Update: Nivomat self-levelling suspension
	00	1÷2 3÷4 7÷8 21÷22 29÷30	LANCIA k Coupé	Update: Technical data
	55	1÷14		Exhaust gas headlamps Automatic headlamp alignment device
	70	19÷28		Update: front seats

3U06SV

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	55	1÷7		Electrical equip. wiring diagrams
	70	1÷23		Introduction - Safety - Bodyshell - Ecology and the environment - Bodyshell straightening - Replacing structural body panels - Adjusting moveable parts
506.475/15 (VI/96)	**00**	3÷14 21÷26	LANCIA k SW	Update - Technical data
	44	11÷16		Removing-refitting rear suspension shock absorber-spring assembly
	55	1÷14		Electrical equipment
		1÷19		Wiring diagrams completion
	70	1÷55		Removing-refitting Replacing body panels

3U06SV

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506.475/15 (VI/96)	**00**	3÷14 21÷26	LANCIA k SW	Update - Technical data
	44	11÷16		Removing-refitting rear suspension shock absorber-spring assembly
	55	1÷14		Electrical equipment
		1÷19		Wiring diagrams completion
	70	1÷55		Removing-refitting Replacing body panels

3U06SV

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506.475/12 With binder (IV/96)	**00**	1÷36	LANCIA k SW	Introduction - Technical data
	44	1÷10		Nivomat self-levelling suspension
	55	1÷6		Diagrams: electrical equipment
	70	1÷23		Introduction - Safety - Bodyshell - Ecology and environment - Bodyshell alignment - Replacing structural body panels - Adjustment of moveable parts

3U07SV

SERVICE MANUAL COMPOSITION

At present, November 1997, the **LANCIA k 3rd volume** manual is composed of the following booklets:

Print N°	Sections	Page Nos.	Versions	Comments
506.475/12 With binder (IV/96)	**00**	1÷36	LANCIA k SW	Introduction - Technical data
	44	1÷10		Nivomat self-levelling suspension
	55	1÷7		Electrical equip. wiring diagrams
	70	1÷23		Introduction - Safety - Bodyshell - Ecology and the environment - Bodyshell alignment - Replacing structural body panels - Adjusting moveable parts
506.475/15 (VI/96)	**00**	3÷14 21÷26	LANCIA k SW	Update: Technical data
	44	11÷16		Removing-refitting rear suspension spring - shock absorber assembly
	55	1÷14		Electrical equipment
		1÷19		Completion of wiring diagrams
	70	1÷55		Removing-refitting Replacing body panels
506.475/13 (XII/96)	**00**	21÷24	LANCIA k SW	Update: Technical data
	55	Index 14/1÷14/4 17÷18		Wiring diagrams update: Radiotelephone
	00	I÷III 1÷31	LANCIA k Coupé	Generalità - Dati tecnici
	55	1÷14		Impianto elettrico: Illuminazione-Centraline-Teleruttori-Fusibili
		1÷39		Schemi impianto elettrico
	70	1÷27		Generalità-Sicurezza-Scocca-Ecologia e ambiente-Riquadratura scocca- Sostituzione lamierati strutturali- Registrazione parti mobili
		1÷68		Stacchi riattacchi Sostituzione lamierati

3U07SV

SERVICE MANUAL COMPOSITION

At present, February 1998, the **LANCIA k 3rd volume** manual is composed of the following booklets:

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506.475/15 (VI/96)	**00**	3÷14 21÷26	LANCIA k SW	Update: Technical data
	44	11÷16		Removing-refitting rear suspension shock absorber - spring assembly
	55	1÷14		Electrical equipment
		1÷19		Completion of wiring diagrams
	70	1÷55		Removing-refitting Replacing body panels
506.475/13 (XII/96)	**00**	21÷24	LANCIA k SW	Update: Technical data
	55	Index 14/1÷14/4 17÷18		Wiring diagrams update: Radio phone
	00	I÷III 1÷31	LANCIA k Coupé	Introduction - Technical data
	55	1÷14		Electrical equipment: Lighting-Control units-Relays-Fuses
		1÷39		Electrical equip. wiring diagrams
	70	1÷27		Introduction-Safety-Bodyshell-Ecology and the environment-Bodyshell alignment- Replacing structural body panels- Adjusting moveable parts
		1÷68		Removing-refitting Replacing body panels

Cont' ☞

3U04PV

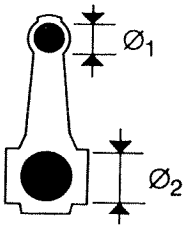
This manual contains the main instructions for repairing and maintaining the **LANCIA k SW**.

The section **INTRODUCTION AND TECHNICAL DATA (00.)** has a dual function of introducing the model and supporting the remaining part of the manual. This section includes the tables of technical data and specific information relating to the sections in the remaining part of the manual.

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

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

For example:



Small end diameter

Big end bearing housing

Tighten to torque

For anything not dealt with in this manual, refer to the LANCIA k 1st and 2nd volume manuals (print nos. 506.475 and 506.475/01) and the updates.

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

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

The LANCIA k SW is a two box 5 door vehicle with a load carrying structure, transversely mounted engine and front wheel drive.

The LANCIA k SW comes in 5 different versions.

The LANCIA k SW 2.0 is driven by a 1998 cc, 5 cylinder in line engine with 4 valves per cylinder, a BOSCH Motronic integrated electronic injection/ignition system and it develops a power output and 114 kW (155 CV).

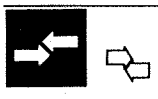
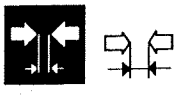
The LANCIA k SW 2.0 t is driven by a 1998 cc, 4 cylinder in line engine, with 4 valves per cylinder, a BOSCH Motronic integrated electronic injection/ignition system, is supercharged by a Garrett turbocharger and develops a power output of 151 kW (205 CV)

The LANCIA k SW 2.4 is driven by a 2446 cc 5 cylinder in line engine with 4 valves per cylinder, a BOSCH Motronic integrated electronic injection/ignition system and develops a power output of 129 kW (175 CV)

The LANCIA k SW 3.0 is driven by a 2959 cc 6 cylinder in a 60° V formation engine with 4 valves per cylinder, a BOSCH Motronic integrated electronic injection/ignition system and develops a power output of 150 kW (204 CV)

The LANCIA k SW 2.4 td is driven by a 2387 cc 5 cylinderin line Diesel engine with electronically controlled indirect injection, supercharged by an IHI turbocharger and develops a power output of 91 kW (124 CV)

Graphic representations and symbols

	Removing Disconnect
	Refitting Connect
	Dismantling Disassembly
	Refitting Composition
	Tighten to torque
	Tighten to torque plus angle
	Fully tighten
	Stake nut
	Adjustment Regulation
	Visual inspection Check
	Warning
	Lubricate Grease
	Replace Genuine spares
	Bleed braking system
	Work surface Machined surface
	Interference Force fit
	Distance to be measured Measurement – Check Thickness - Clearance
	Rolling torque

	Inlet
	Exhaust
	Operation
	Tolerance Difference in weight
	Pre-loading
	Rotation
	Compression ratio
	Selection Classes
	Oversize Greater than .... Maximum
	Undersize Smaller than .... Idling
	No. of revs
	Ratio
	Pressure
	Temperature
	Temperature <0°C Cold Winter
	Temperature >0°C Hot Summer
	Windscreen wiper with electric washer pump
	Rearscreen wiper with electric washer pump
	Engine

GENERALITES CARACTERISTIQUES TECHNIQUES	INTRODUCTION TECHNICAL DATA	ALLGEMEINES TECHNISCHE DATEN	GENERALITÀ DATI TECNICI
MOTEUR	ENGINE	MOTOR	MOTORE
EMBRAYAGE	CLUTCH	KUPPLUNG	FRIZIONE
BOITE DE VITESSES DIFFERENTIEL	GEARBOX DIFFERENTIAL	SCHALTGETRIEBE AUS-GLEICHGETRIEBE	CAMBIO DI VELOCITÀ DIFFERENZIALE
ARBRE DE TRANSMISSION	PROPELLER SHAFT	GELENKWELLE	ALBERO DI TRASMISSIONE
DIFFERENTIEL ARRIERE	REAR DIFFERENTIAL	HINTERES AUS-GLEICHGETRIEBE	DIFFERENZIALE POSTERIORE
FREINS	BRAKING SYSTEM	BREMSEN	FRENI
DIRECTION	STEERING	LENKUNG	STERZO
SUSPENSIONS ET ROUES	SUSPENSION AND WHEELS	AUFHÄNGUNGEN UND RÄDER	SOSPENSIONI E RUOTE
ORGANES SUBSIDIAIRES	AUXILIARY UNITS	ZUSATZ-EINRICHTUNGEN	ORGANI SUSSIDIARI
EQUIPEMENT ELECTRIQUE	ELECTRICAL EQUIPMENT	ELEKTRISCHE ANLAGE	IMPIANTO ELETTRICO
CARROSSERIE	BODYWORK	CAROSSERIE	CARROZZERIA

page

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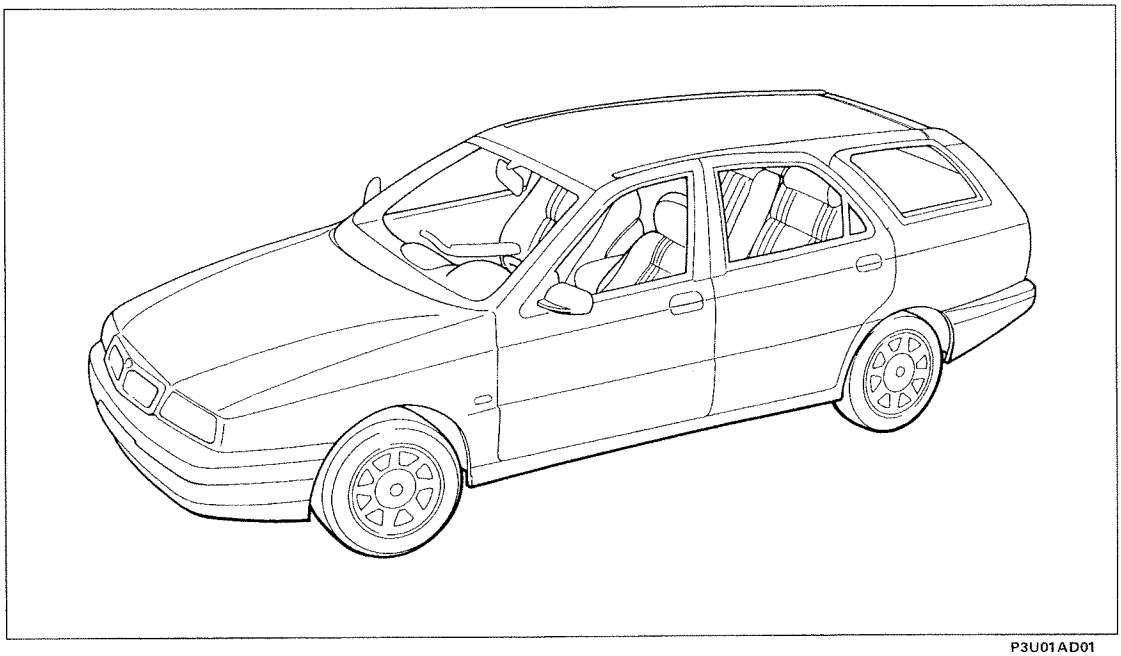
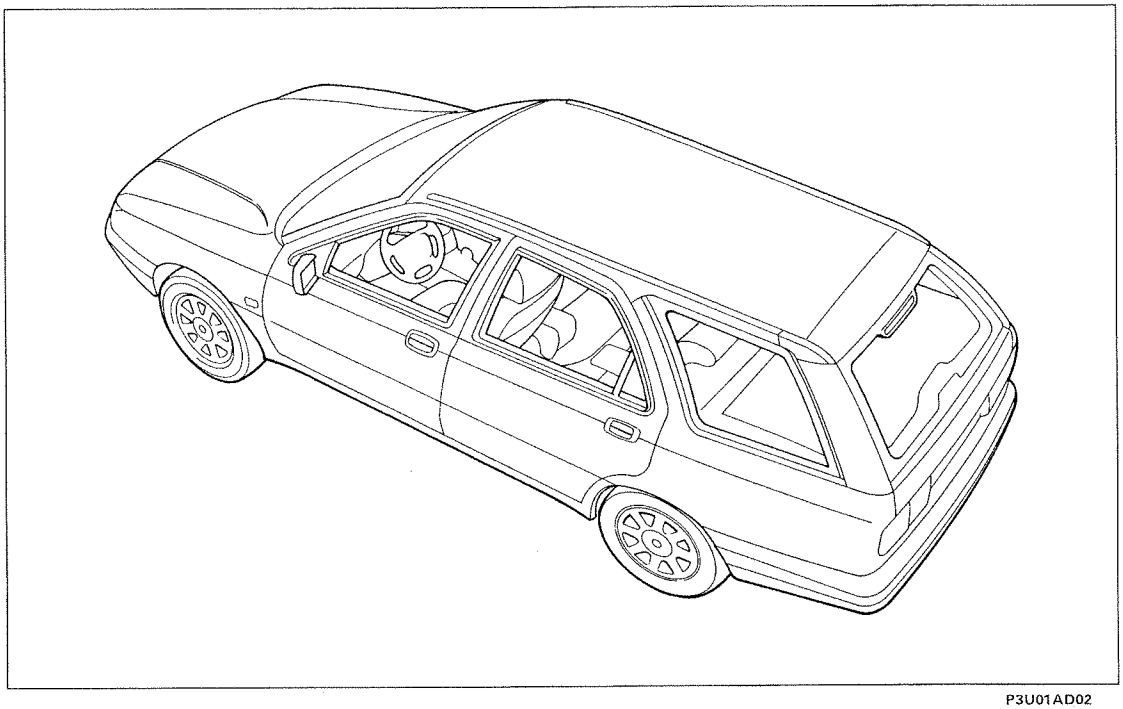


P3U01AD01

3/4 front view



P3U01AD02

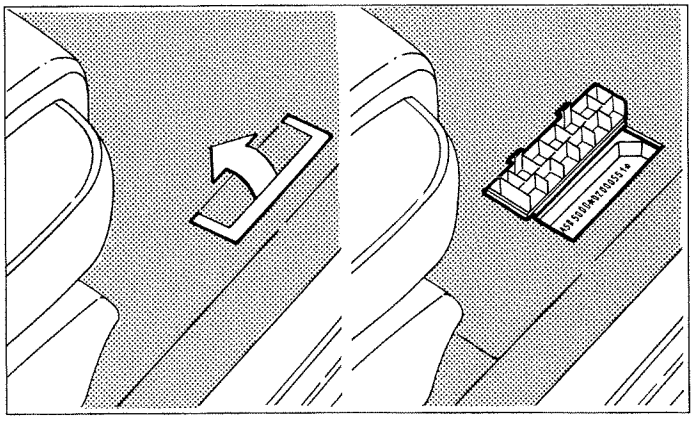
3/4 rear view

	CHASSIS	ENGINE	VERSION	GEARBOX	
				5 speed	automatic
1998 20v	ZLA 838.000	838 A6.000	838 BG 1AA 07B 838 BG 1AA 07C(▲)	●	
2446 20v		838 A2.000	838 BC 1AA 09 838 BC 1AA 09B(▲)	●	
1995 16v turbo		838 A4.000	838 BB 1AA 08	●	
2387 TD		838 A7.000	838 BH 1AA 11(■) 838 BH 1AA 11B	●	
2959 V6 24v		838 B.000	838 BD 11A 10		●

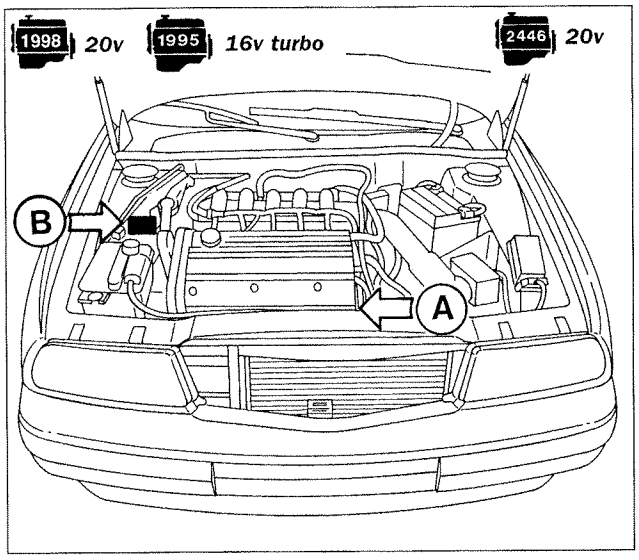
(▲) Voluntary for Germany
(■) Version for specific markets (France)

Vehicle type identification code and chassis manufacture number

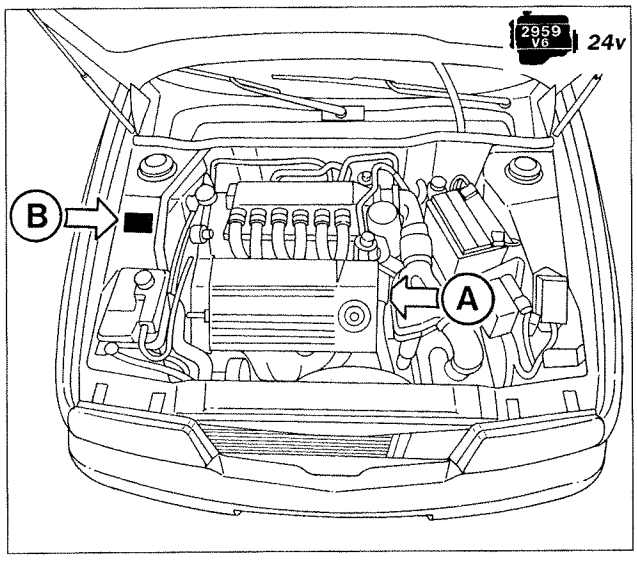
Stamped on the floor panel of the passenger compartment, near the right front seat.
Access is gained by lifting the appropriate flap.



P3U02AD01

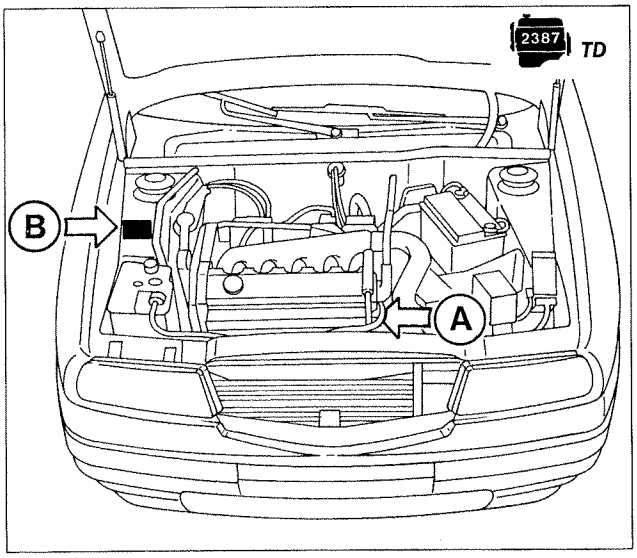


P3U03AD01



P3U03AD02

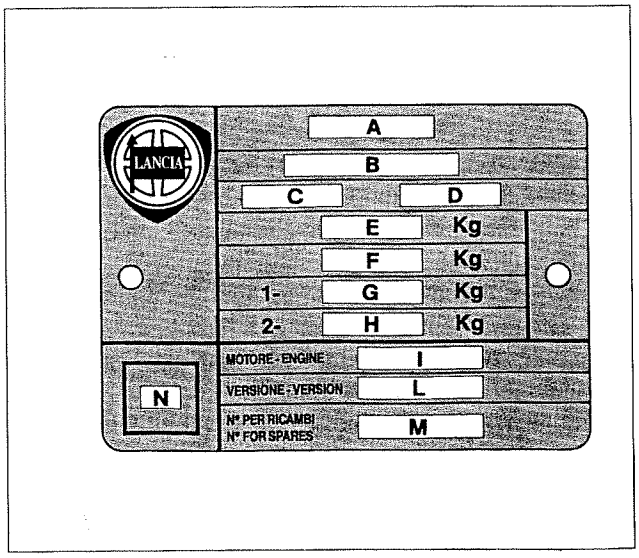
A Engine type and number



P3U03AD03

B V.I.N. Plate (EEC regulations)

A. Name of manufacturer
B. Homologation number
C. Vehicle type identification code
D. Chassis manufacture number
E. Maximum authorized weight of vehicle fully laden
F. Maximum authorized weight of vehicle fully laden plus tow
G. Maximum authorized weight on first axle (front)
H. Maximum authorized weight on second axle (rear)
I. Engine type
L. Bodywork version code
M. Spares number
N. Correct value of smoke absorption coefficient (Diesel engines only)



P3U03AD04

ENGINE TYPE	1998 20v	2446 20v	1995 16v turbo
GEARBOX	1 3 5 / 2 4 R	1 3 5 / 2 4 R	1 3 5 / 2 4 R
Speed kph (average load) — 1	54	56	52
2	92	94	87
3	136	139	143
4	178	183	201
5	205	212	230
R	58	60	55
Maximum climable gradient fully laden		36	
Fuel consumption directive 93/116/CE (litres/100 km) — Urban	15,0	15,3	14,6
Extra-urban	8,4	8,4	8,1
Combined	10,8	11,0	105
CO_2 exhaust emissions (g/km)	258	263	252

The 93/116/CE directive fuel consumption figures have been defined in the course of homologation tests involving:

- an urban cycle which includes a cold start followed by a varied urban cycle simulation.
- an extra urban cycle which includes frequent acceleration in all gears simulating normal out of town usage. The speed varies between 0 and 120 kph.
- The average combined consumption includes 37% of the urban cycle and 63% of the extra urban cycle.

The type of journey, traffic conditions, driving styles, atmospheric conditions, trim level/equipment/accessories, whether a roof rack is fitted, the presence of special equipment and the general state of the vehicle can lead to fuel consumption figures which differ from those obtained through the above mentioned procedures.
The CO_2 exhaust emissions (in g/km) are measured during the average combined cycle

ENGINE TYPE	2959 V6 24v	2387 TD
GEARBOX		
Speed kph (average load) 1	–	32 - 37 (■)
2	–	55 - 62 (■)
3	–	91 - 103 (■)
4	max 218	129 - 144 (■)
5	–	190 - 190 (■)
R	–	34 - 40 (■)
Maximum climable gradient fully laden	36	37
Fuel consumption directive 93/116/CE (litres/100 km) Urban	17,6	12,0 - 11,6 (■)
Extra-urban	9,8	6,7 - 6,6 (■)
Combined	12,7	8,6 - 8,4 (■)
CO_2 exhaust emissions (g/km)	304	230 - 224 (■)

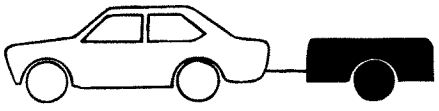
(■) Version for specific markets (France)

The 93/116/CE directive fuel consumption figures have been defined in the course of homologation tests involving:

- an urban cycle which includes a cold start followed by a varied urban cycle simulation.
- an extra-urban cycle which includes frequent acceleration in all gears simulating normal out of town usage. The speed varies between 0 and 120 kph.
- The average combined consumption includes 37% of the urban cycle and 63% of the extra-urban cycle.

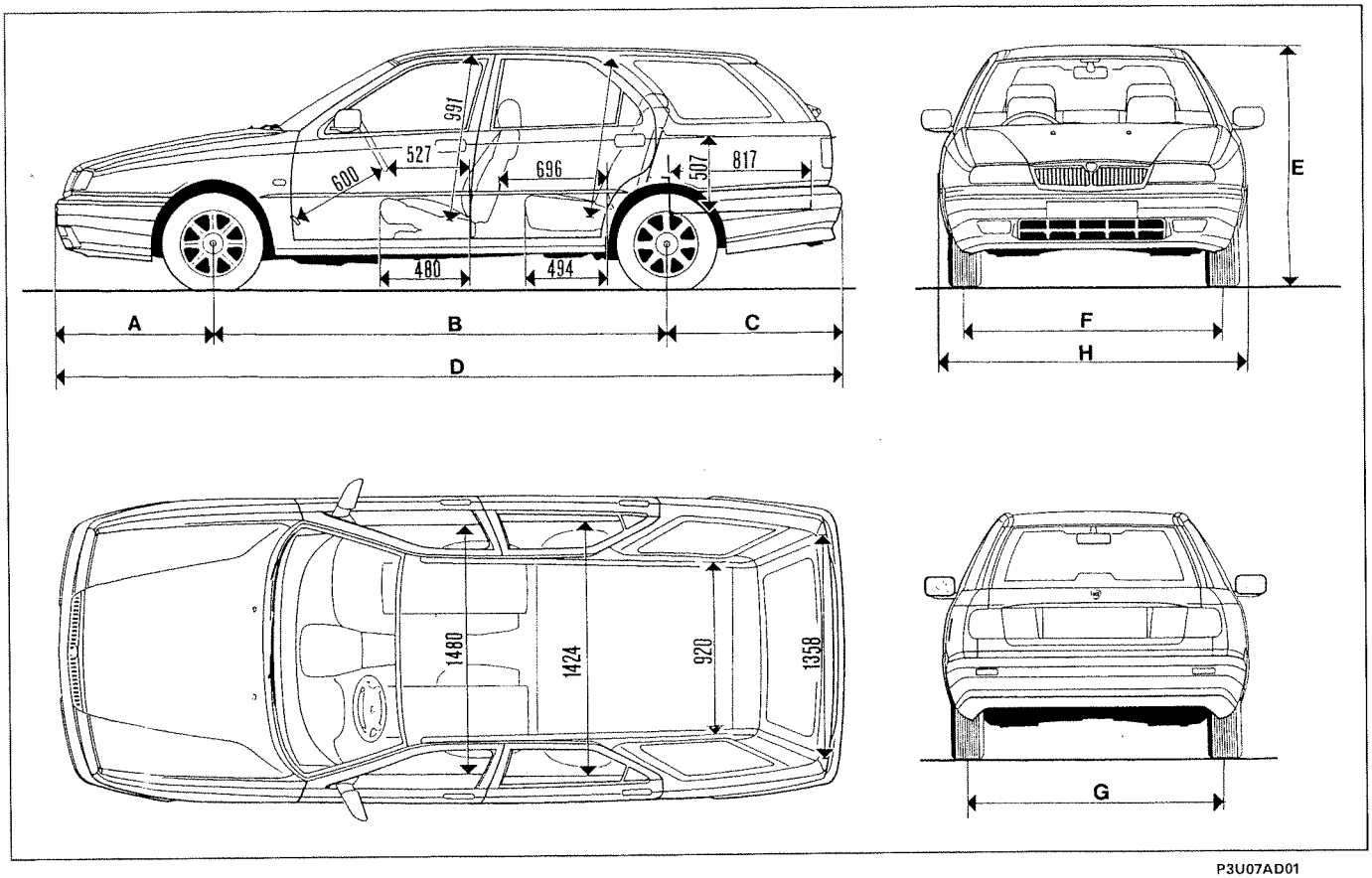
The type of journey, traffic conditions, driving styles, atmospheric conditions, trim level/equipment/accessories, whether a roof rack is fitted, the presence of special equipment and the general state of the vehicle can lead to fuel consumption figures which differ from those obtained through the above mentioned procedures.
The CO_2 exhaust emissions (in g/km) are measured during the average combined cycle

WEIGHTS (in kg)

ENGINE TYPE	1998 20v	2446 20v	1995 16v turbo	2959 V6 24v	2387 TD
GEARBOX	1 3 5 2 4 R	1 3 5 2 4 R	1 3 5 2 4 R		1 3 5 2 4 R
	1510	1520	1550	1610	1555
 +500 = 	2090	2085	2105	2175	2120
Maximum permissible loads on the axles ■ 	1180	1180	1180	1180	1180
	1180	1180	1180	1180	1180
Maximum permissible load on the roof	100	100	100	100	100
Load on the tow hook (trailer with braking system)	90	90	90	90	90
 Trailer without braking system	500	500	500	500	500
Trailer with braking system	1500	1500	1500	1500	1500

■ Loads which must never be exceeded

NOTE FOR VERSIONS WITH ACCESSORIES: in the presence of special equipment (non standard air conditioner, sun roof, trailer towing device), the empty weight increases and therefore the carrying capacity may decrease, in relation to the maximum permissible loads.

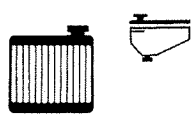
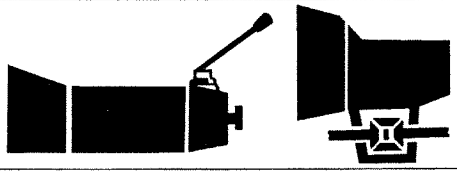
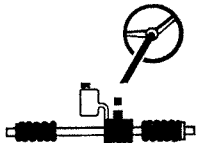
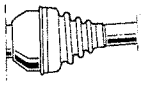
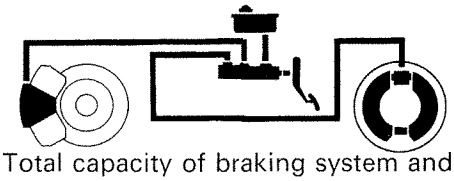
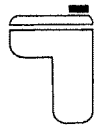


P3U07AD01

DIMENSIONS

A	Front projection	947
B	Wheelbase	2700
C	Rear projection	1040
D	Maximum length	4687
E	Maximum height	1464
F	Front track	1530
G	Rear track	1527
H	Maximum width	1826

The height E refers to an unladen car

Capacities	Unit		Quantity dm³(l)	Quantity (kg)
Petrol O.R. 95 (●)		1998 20v - 2446 20v 1995 16 v turbo - 2959 V6 24v	70	–
Diesel		2387 td	70	–
50% + (▲)	 Total capacity of cooling system	1998 20v 2446 20v 1995 16v turbo 2387 td	8,3	–
		2959 6V 24v	9	-
Petrol engines: SELENIA 20 K (SAE 10 W/40)	Total capacity	1998 20v - 2446 20v	6,5	5,8
		1995 16v turbo	7	6,25
		2959 V6 24v	7,5	6,7
		2387 td	7	6,25
Diesel engines: SELENIA Turbo Diesel (SAE 15 W/40)	 Partial capacity (periodic replacement)	1998 20v - 2446 20v	5,4 5*	4,85 4,45*
		1995 16v turbo	5,5 5*	4,9 4,45*
		2959 V6 24v	6,9 6,5*	6,2 5,85*
		2387 td	5,4 5*	4,85 4,45*
a = TUTELA ZC 75 SYNTH b = TUTELA GI/A		a	2	1,80
		2959 V6 24v — b	9,1 5**	8,2 4,5**
a = TUTELA GI/A	a 	1998 20v-2446 20v 1995 16v turbo-2387 TD — a	-	0,80
		2959 V6 24v		1,80
b = TUTELA MRM2	b 	b		0,080
TUTELA TOP 4 270 °C	 Total capacity of braking system and hydraulically op. clutch		-	0,5
AREXONS + DP1	3%		8	-
	– 20°C — 50%			
	< - 20°C — 100%		3	-

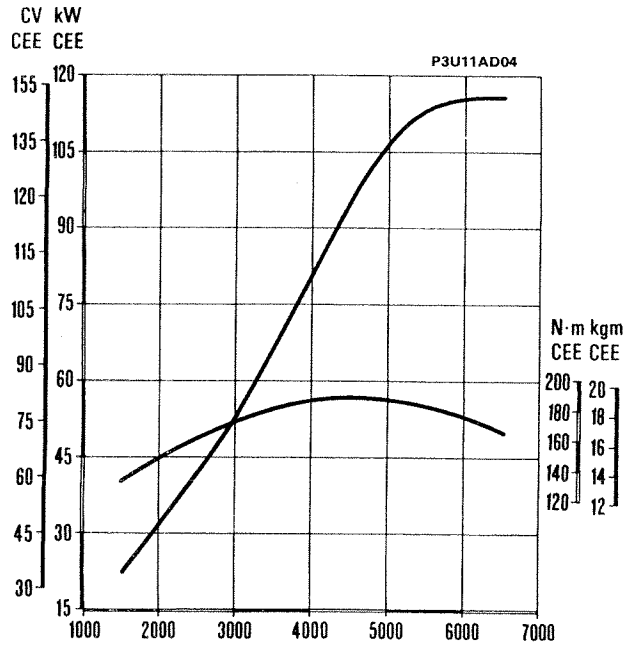
(▲) distilled water
(*) Engine sump only
(**) Periodic replacement
(●) Unleaded petrol only must be used

Name of product	Description International designation	Application
SELENIA 20 K SAE 10 W/40	Semi-synthetic multigrade engine oil. Exceeds specifications ACEA A3-96/CCMC G5 and API SH	Temperature - 25°C ÷ 40°C
VS MAX SAE 15 W/40	Mineral based multigrade engine oil. Exceeds specifications API SG, CCMC-G4 and UNI 20153	Temperature - 15°C ÷ 40°C
SELENIA Turbo Diesel SAE 15 W/40	Semisynthetic, multigrade engine oil. Exceeds specifications ACEA B3-96/CCMC PD2, API CD	Temperature - 15°C ÷ 40°C
VS MAX Diesel SAE 15 W/40	Multigrade, mineral based engine oil. Exceeds specifications API CD, CCMC and UNI 20153	Temperature - 15°C ÷ 40°C
TUTELA ZC 80S	SAE 80W EP oil. Satisfies standards MIL-L-2105 and API GL4	Manual gearboxes and differentials
TUTELA ZC 90	Non EP SAE 80 W/90 oil, for manual gearboxes, containing anti-wear additives.	Gearboxes and non hypoid differentials
TUTELA ZC 75 SYNTH	SAE 75 W EP synthetic oil. Satisfies standards API GL.4 and MIL-L-2105	Manual gearboxes and differentials
TUTELA W 90/M DA	Special SAE 80 W/90 EP oil for normal and self-locking differentials. Satisfies standards MIL-L-2105 D and API GL5	Hypoid differentials Self-locking differentials Steering boxes
TUTELA GI/A	"DEXRON II" type oil for automatic transmissions.	Automatic gearboxes Power assisted steering
TUTELA CVT Universal	Oil for continuous variation automatic transmissions.	Continuous variation automatic transmissions
TUTELA JOTA 1	Lithium soap based grease, consistency NLGI = 1	Greasing the vehicle except for components particularly exposed to water requiring special greases
TUTELA MRM2	Water-repellant, lithium soap based grease containing molybdenum disulphide, consistency NLGI = 2	Constant velocity joints
TUTELA MR3	Lithium soap based grease, consistency NLGI= 3	Wheel hub bearings, st. rod, various comps.
TUTELA PLUS 3 (240 °C)	Synthetic fluid, F.M.V.S.S. n° 116 DOT 3 ISO 4925, CUNA NC 956-01	Hydraulic brakes and hyd. op. clutches
TUTELA TOP 4 (270 °C)	Synthetic fluid, F.M.V.S.S. n° 116 DOT 4 ISO 4925, CUNA NC 956-01	Hydraulic brakes and hydraulically op. clutches
K 854	Lithium soap based grease, consistency NLGI = 000, containing molybdenum disulphide	Rack and pinion steering boxes
SP 349	Special grease compatible with brake fluid	Load proportioning valve Load proportioning valve rod bush
Arexons DP1	Mix. of alcohol, H20 & surf. act. agents CUNA NC 956-11	To be used neat or diluted in windscreen washer systems
Paraflu[11]	Mono-ethylene glycol based anti-freeze for cooling system, CUNA NC 596 - 16	Cooling circuits Percentage to be used 50% up to - 35°C
Diesel Mix Arexons	Additive for diesel fuel with protective action for diesel engines	To be mixed with diesel fuel (25 cc per 10 litres)

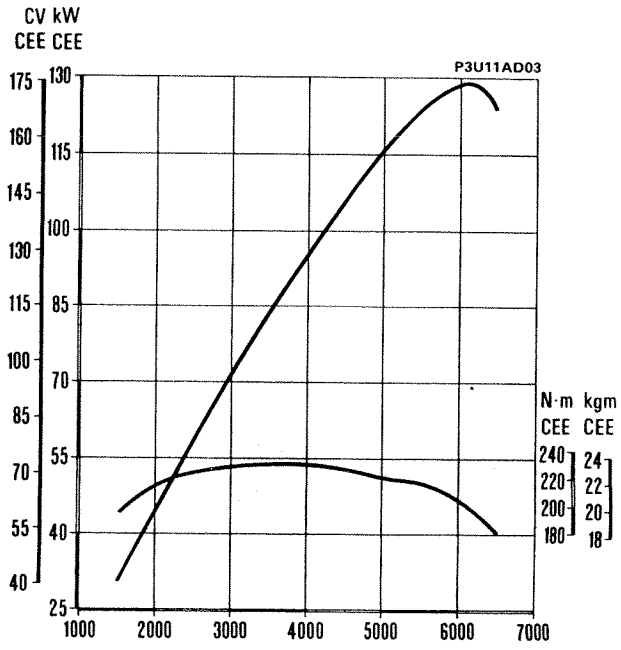
CHARACTERISTICS

		1998 20v	2446 20v	1995 16v turbo
	Cycle	OTTO 4 stroke		
	Timing	twin overhead camshaft		
	Engine balancing	through 1 counter-balance shaft		through 2 counter-balance shafts
	Type of fuel system	Bosch Motronic M2.10 integated electronic injection/ignition	Bosch Motronic M2.10 integrated electronic injection/ignition	Bosch Motronic M2.7 electronic integrated injection/ignition
	Number of cylinders	5 in line		4 in line
	Cylinder liner (bore) mm	82	83	84
	Stroke mm	75,65	90,4	90
	Capacity cc	1998	2446	1995
	Compression ratio	10,4±0,15	10±0,15	8±0,15
	Max power kW (CEE)	114	129	151
	Max power (CV) (CEE)	(155)	(175)	(205)
	Max power rpm	6500	6100	5600
	Max torque daNm (CEE)	18,6	23	29,8
	Max torque (kgm) (CEE)	(19)	(23,5)	(30,4)
	Max torque rpm	4000	3750	2750

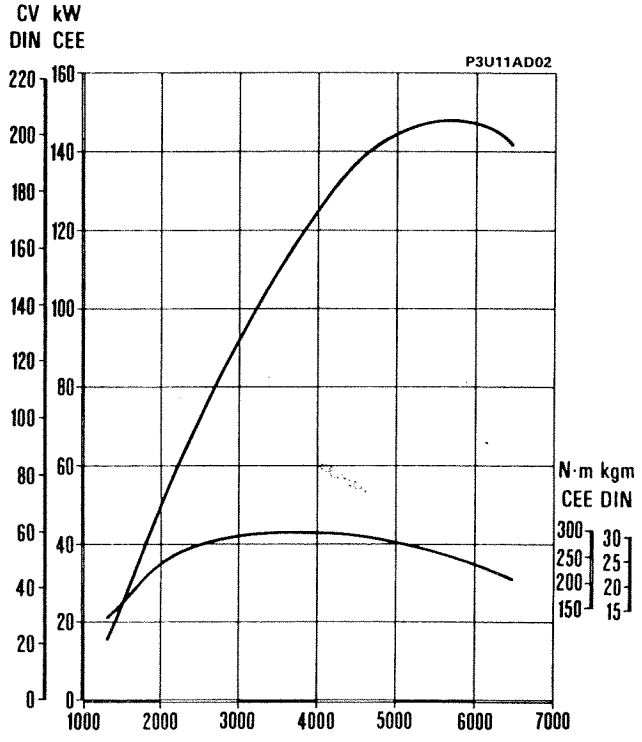
1998 20v



1995 16v turbo



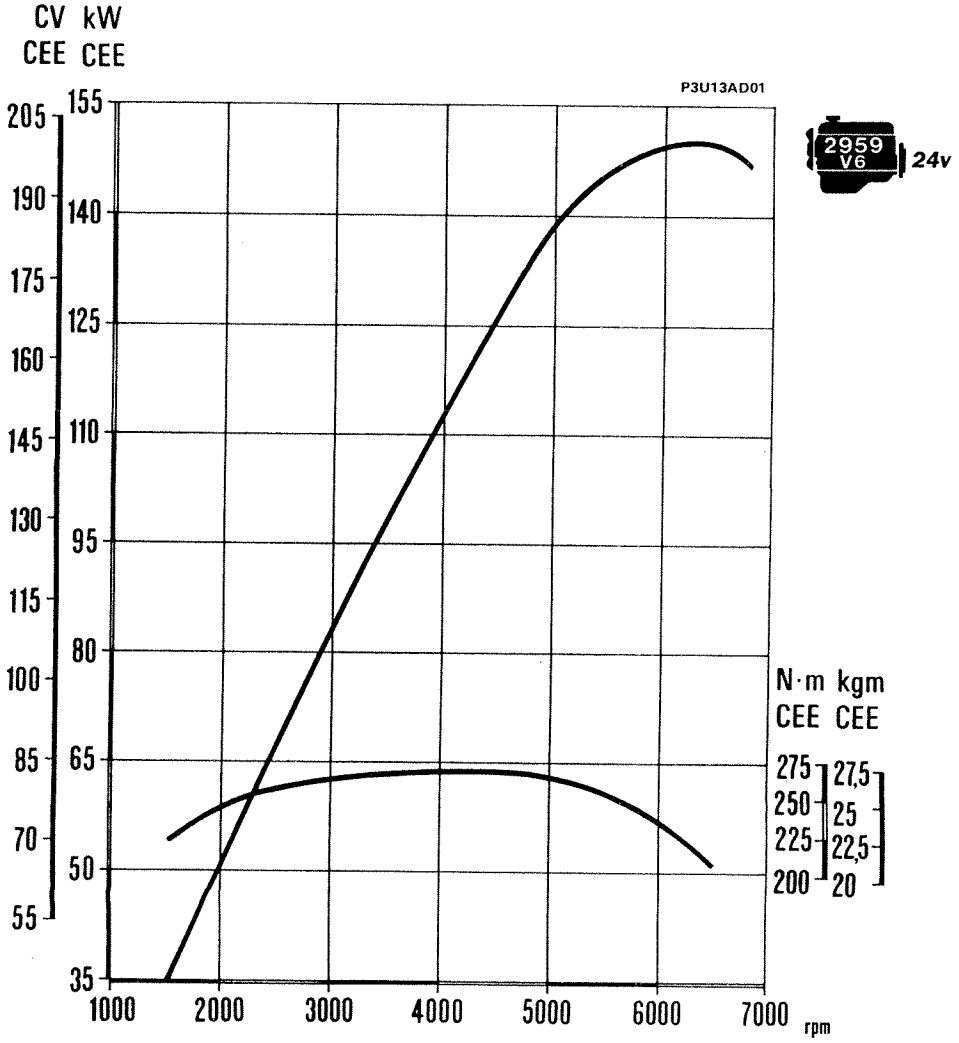
2446 20v



Typical engine curves

The power and torque curves illustrated can be obtained with the engine overhauled and run in (50 hours of operation) without a fan, with a silencer and air filter fitted at sea level.

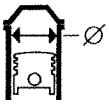
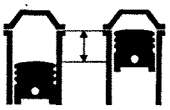
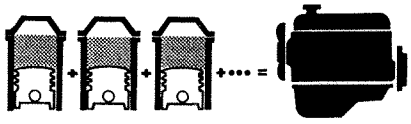
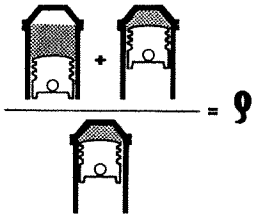
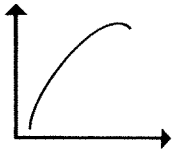
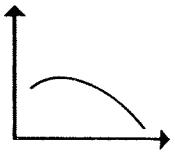
CHARACTERISTICS		2959 V6 24v
	Cycle	OTTO 4 stroke
	Timing	2 camshafts for each cylinder head
	Type of fuel system	Bosch Motronic M3.7 injection/ignition
	Number of cylinders	6 in a 60° V
	Cylinder liner (bore) mm	93
	Stroke mm	72,6
	Capacity cc	2959
	Compression ratio	10 ± 0,15
	Max power kW (CEE)	150
	Max power (CV) (CEE)	(204)
	Max power rpm	6300
	Max torque daNm (CEE)	27
	Max torque (kgm) (CEE)	(27,5)
	Max torque rpm	4500

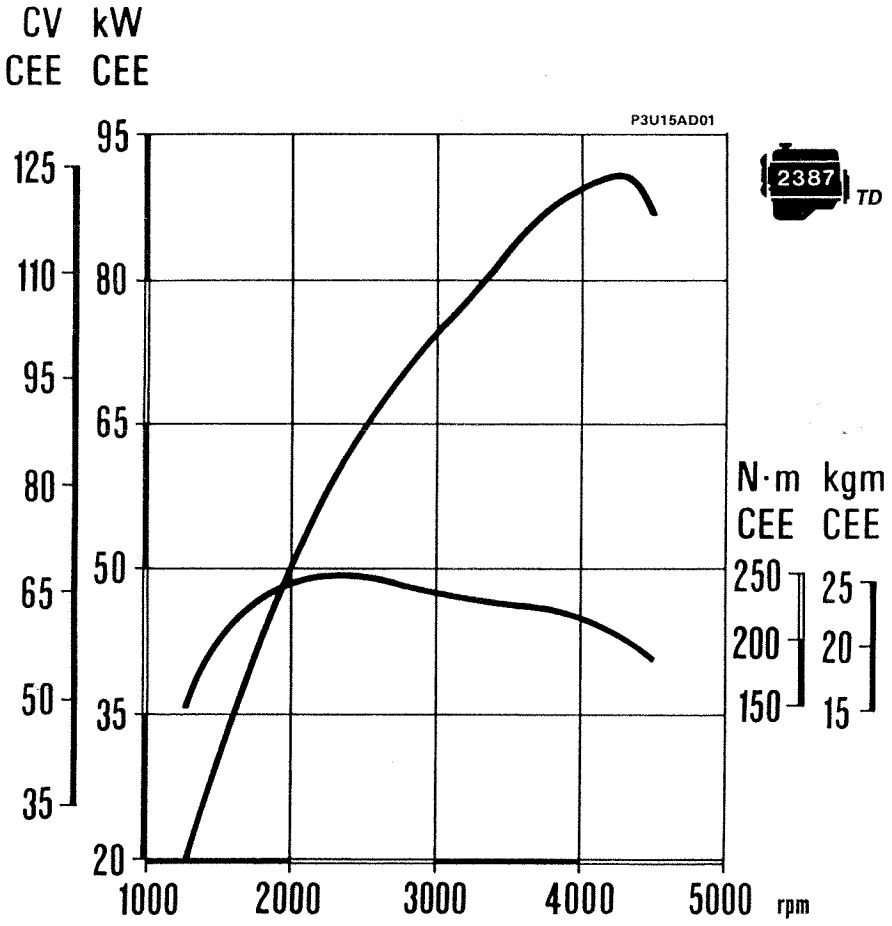


Typical power curves

The power curve illustrated can be obtained with the engine overhauled and run in (50 hours of operation), without a fan, with a silencer and air filter fitted, at sea level.

CHARACTERISTICS

			2387 TD
	Cycle		Diesel 4 stroke
	Timing		single overhead camshaft
	Engine balancing		through 1 counter-balance shaft
	Type of fuel system		Indirect mechanical injection
	Number of cylinders		5 in line
	Cylinder liner (bore)	mm	82
	Stroke	mm	90,4
	Capacity	cc	2387
	Compression ratio		20,7 ± 0,5
	Max power	kW (CEE) (CV) (CEE)	91 (124)
		rpm	4000
	Max torque	daNm (CEE) (kgm) (CEE)	26,5 (27)
		rpm	2000



Typical engine curves

The power curve illustrated can be obtained with the engine overhauled and run in (50 hours of operation), without a fan, with a silencer and air filter fitted, at sea level.

		2446 20v	1998 20v	1995 16v turbo / 2959 V6 24v	2387 TD
		Values in mm			
Type		dry, single plate			
Operating mechanism		diaphragm spring			
Spring loading	daN	525	485	650	620
Lining	Ø1	228,6		235	
	Ø2	155		155	
Distance between pedal in end of travel position and rest position		132,7 ÷ 138,7			
Clutch release		hydraulic			
Clutch pump operation	Ø	18,75 (3/4")			
Operating cylinder	Ø	25,4 (1")			

		1998 20v	2446 20v	1995 16v turbo	2387 TD
		1 3 5 / 2 4 R			
GEARBOX	Type	C.503.5.23	C.503.5.23	C.503.5.29	C.503.5.29
Synchronizers	spring ring (Porsche type)	–			
	baulk ring type	1 3 5 / 2 4 R			
Gears	helical toothed	1 3 5 / 2 4 R			
	straight toothed	1 3 5 / 2 4			
Gear ratio	1	3,800	3,800	3,800	3,800
	2	2,235	2,235	2,235	2,235
	3	1,360	1,520	1,360	1,360
	4	0,971	1,156	0,971	0,971
	5	0,811	0,917	0,811	0,707
	R	3,545	3,545	3,545	3,545

DIFFERENTIAL

Crown wheel & pinion reduction	16/57 (3,563)	16/57 (3,563)	16/57 (3,563)	16/63 (3,937)

GEARBOX DIFFERENTIAL		1998 20v	2446 20v	1995 16v turbo	2387 TD
Ratio at the wheels	1	13,539	13,539	11,910	14,961
	2	7,963	7,963	6,911	8,799
	3	4,860	5,430	4,840	5,354
	4	3,460	4,119	3,671	3,823
	5	2,889	3,267	2,912	2,783
	R	12,631	12,631	11,259	13,957
Differential internal casing bearing		conical roller bearings			
Adjustment of bearing pre-loading		by shims			
Thickness of shims	mm	1,25 ÷ 1,60			
Bearing rolling torque	daNm	0,10 ÷ 0,14			
Clearance between planet/sat. gears	mm	0,10 ÷ 0,20			
Adjustment of clrnce btwn plan./sat. gears		by shims			
Thickness of shims	mm	1,8 ÷ 2,2			

Z.F. AUTOMATIC GEARBOX

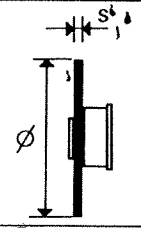
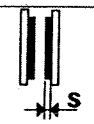
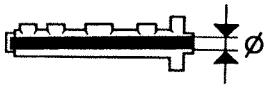
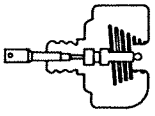
ENGINE	2959 V6 24v
Gears	❶ ❷ ❸ ❹ Ⓡ
Gear ratios ❶	2,579:1
Gear ratios ❷	1,407:1
Gear ratios ❸	1:1
Gear ratios ❹	0,742:1
Gear ratios Ⓡ	2,882:1
Idler ratio	55/56 (0,982)
Torque converter ⌀ mm	260
X Ratio (multiplication) of engine torque	2,296
Quantity of oil — total, with gearbox converter, radiator and pipes empty	8,2 kg
Quantity of oil — replacement only	4,5 Kg

GI/A

DIFFERENTIAL

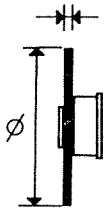
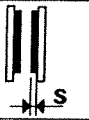
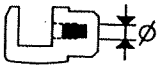
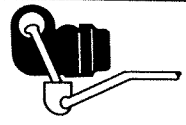
Crown wheel and pinion reduction	75/22 (3,409)
Final ratio	55/56 × 75/22 (3,348)
Ratio at the wheels ❶	8,634
Ratio at the wheels ❷	4,711
Ratio at the wheels ❸	3,348
Ratio at the wheels ❹	2,484
Ratio at the wheels Ⓡ	9,649

FRONT BRAKES

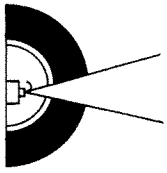
		1998 20v	1995 16v turbo / 2446 20v / 2959 V6 24v / 2387 TD
		Values in mm	
 Disc	Ø	280,800 ÷ 281,200	280,800 ÷ 281,200
	s	21,900 ÷ 22,100	25,900 ÷ 26,100
	s (worn)	20,55	24,55
	s allowed	20,2	24,2
 Brake pads	s allowed	1,5	
 Caliper	Ø	54	57
 Master cylinder (pump)	Ø	–	–
 Servo brake		LUCAS 10" hydro-pneumatic vacuum servo acting on all four wheels	LUCAS 9"+8" (10" ●) hydro-pneumatic vacuum servo acting on all four wheels

● For 2446 20v and 2387 TD versions

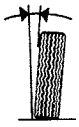
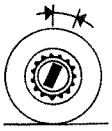
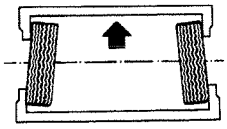
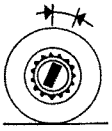
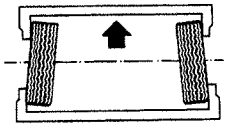
REAR BRAKES

 Disc	Ø	275,800 ÷ 276,200
	s	9,80 ÷ 10,10
	s (worn)	9,35
	s allowed	9
 Brake pads	s allowed	1,5
 Caliper	Ø	38
 Load proportioning valve		acting on the rear wheels
Ratio (reduction)		0,36

WHEEL GEOMETRY



unladen car (*)

Front suspension	camber (**) 	– 0° 40′ ± 1° 20′
	caster (**) 	3° ± 3° 40′
	toe in 	0 ÷ 2 mm
	front wheel offset ▲	0°
Rear suspension	camber (**) 	-
	caster (**) 	1° 45′ ± 2° 25′
	toe in 	1,5 ÷ 3,5 mm
	rear wheel thrust angle ▲	0°

(*) With tyres inflated to the correct pressure and vehicle in running order
(**) Angles cannot be adjusted
(▲) Angular values which cannot be adjusted, used for the correct alignment of the vehicle

LANCIA k Coupé

00.44

TYRES

ENGINE TYPE	Radial, tubeless type, tyre	Inflation pressure			
		Front		Rear	
	fitted as standard	average load	heavy load	average load	heavy load
1995 16v turbo 2446 20v 2959 V6 24v	205/55 R16 89W	2,2 bar	2,3 bar	2,2 bar	2,3 bar

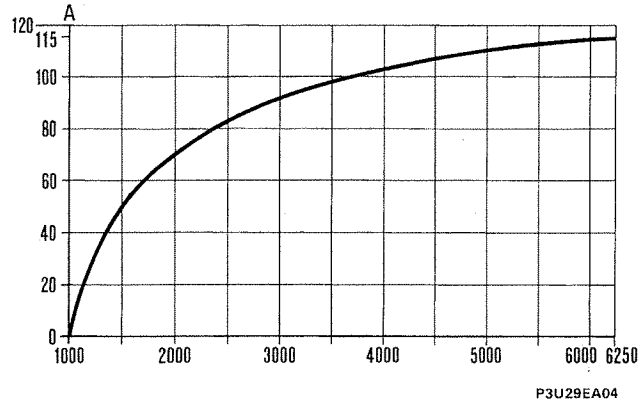
NOTE The homologated snow tyres bear the code 205/55 R16 89H

WHEEL RIMS

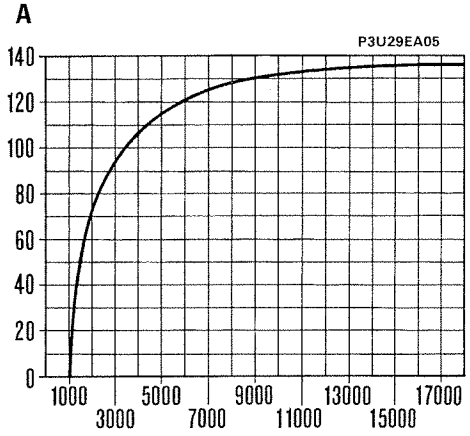
ENGINE TYPE	Wheel rim
	fitted as standard and snow
1995 16v turbo 2446 20v 2959 V6 24v	6½ J×16 H2-31

NOTE *All versions have a spare wheel with a 4.00×15 H rim and a T 125/90 R15 96M tyre. Speed limit: 80 Kph. Inflation pressure: 4.2 bar*

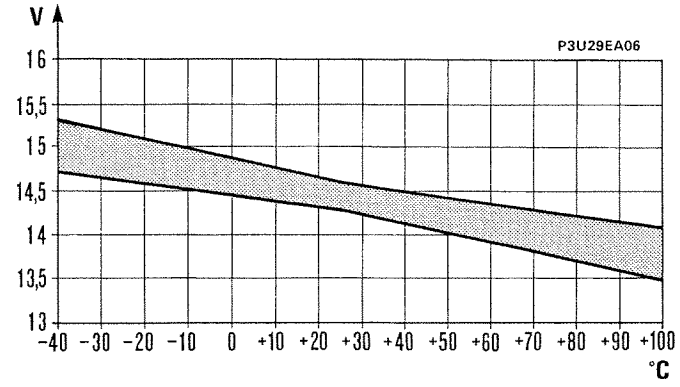
ALTERNATORS - WIRING DIAGRAMS AND TYPICAL OUTPUT CURVES
(at operating temperature at a constant voltage of 13.5 V with bedded in brushe)



Bosch NC - 14 V - 60/120 A



Bosch NC - 14 V - 60/120 A



Typical voltage regulator curve for Bosch NC - 14V - 60/120A alternator

INTEGRATED ELECTRONIC INJECTION/IGNITION CONTROL MODULE

	 16v turbo	 20v
Make and type	Bosch Motronic M2.7 0.261.203.792	Bosch Motronic M2.10 0.261.203.669
Firing order	1 – 3 – 4 – 2	1 – 2 – 4 – 5 - 3

IGNITION COIL (1 PER SPARK PLUG)

		Bosch (with 4 high tension sockets)	Bosch (1 per spark plug)
Make			
Type		0.221.503.407	0.221.504.006
Ohmic resistance of primary winding at 20 °C	Ω	0,45 ÷ 0,55	-
Ohmic resistance of secondary winding at 20 °C	Ω	12000 ÷ 14600	-

DETONATION SENSOR

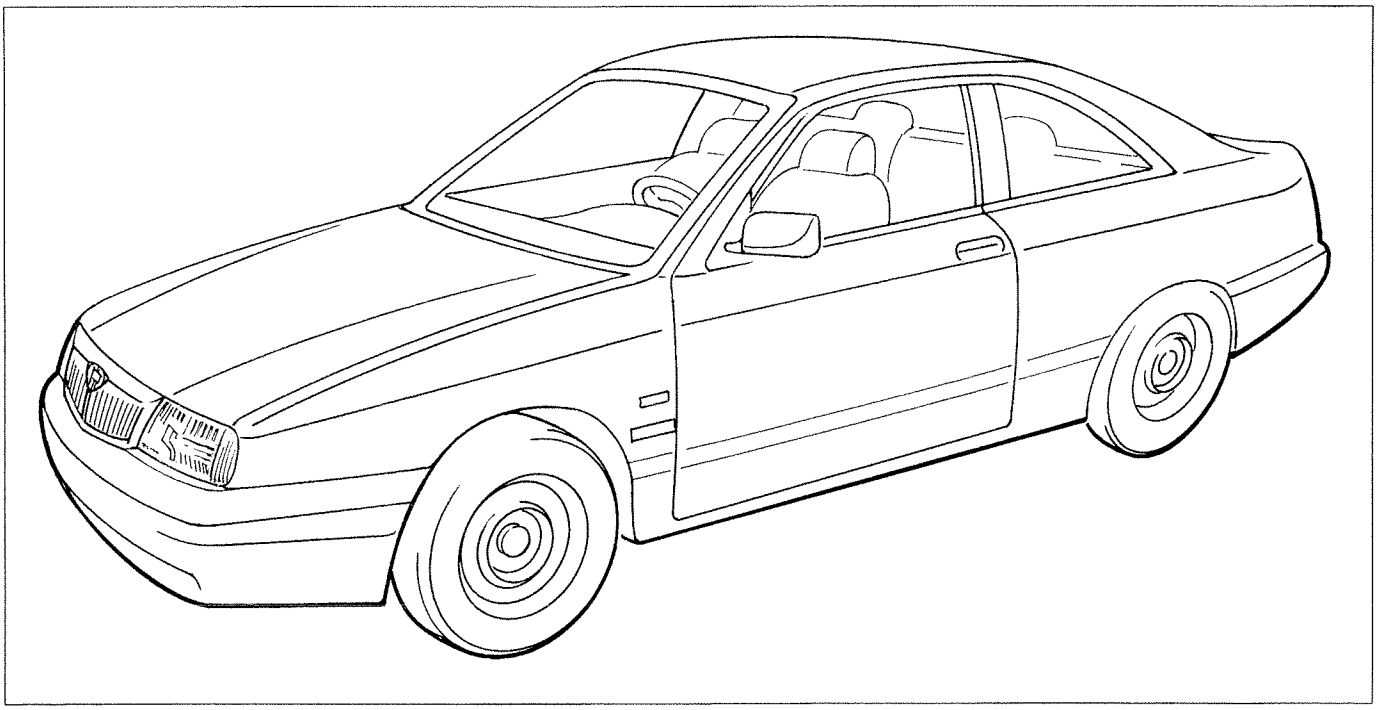
Make		Bosch	
Type		0.261.231.095	0.261.231.095
			0.261.231.007

TDC AND RPM SENSOR

Make and type		Bosch 0.261.210.093	Bosch 0.261.210.119
Sensor winding resistance at 20 °C	Ω	-	774 ÷ 946
Distance (gap) between sensor and crankshaft pulley tooth	mm	-	0,8 ÷ 1,5

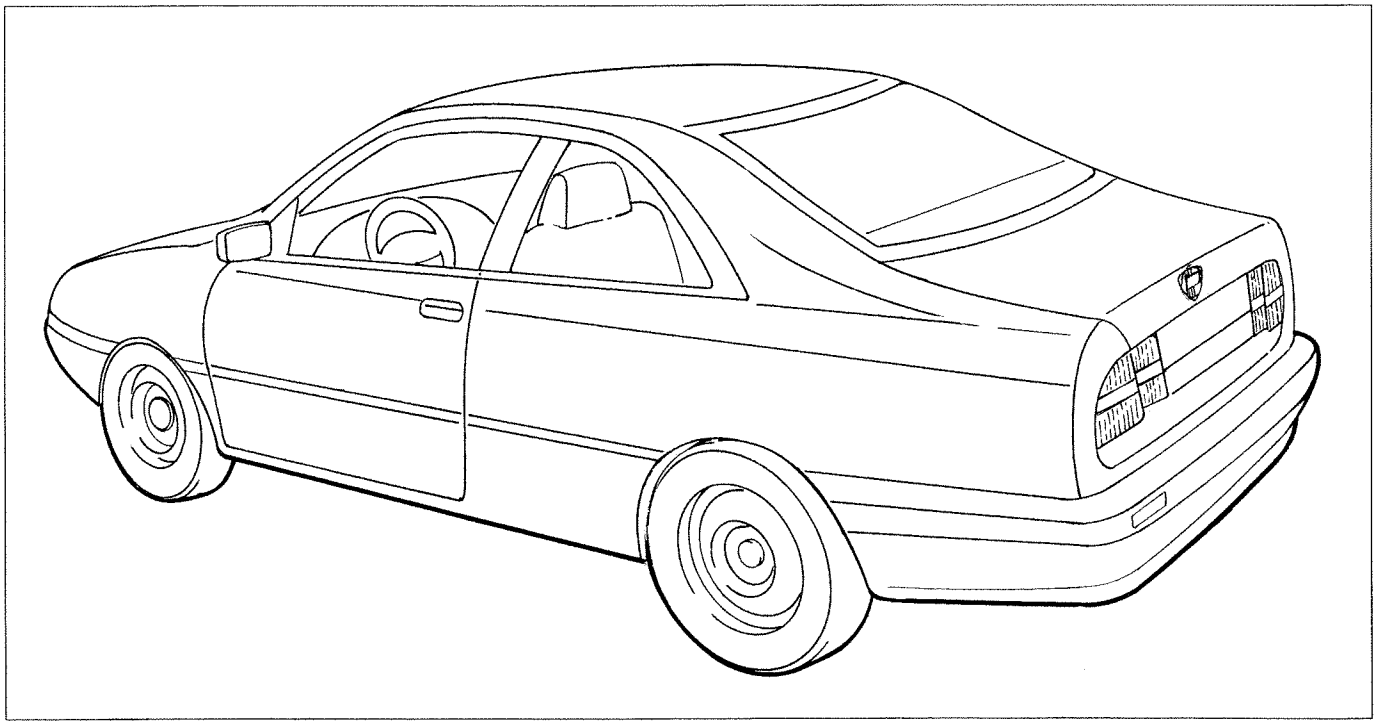
SPARK PLUGS

Make and type		Bosch WR6 DTC	Champion RC7BMC
Thread		M 14 x 1,25	
Electrode gap	mm	0,8 ÷ 1	0,4 ÷ 0,6



P3U01EA01

3/4 front view



P3U01EA02

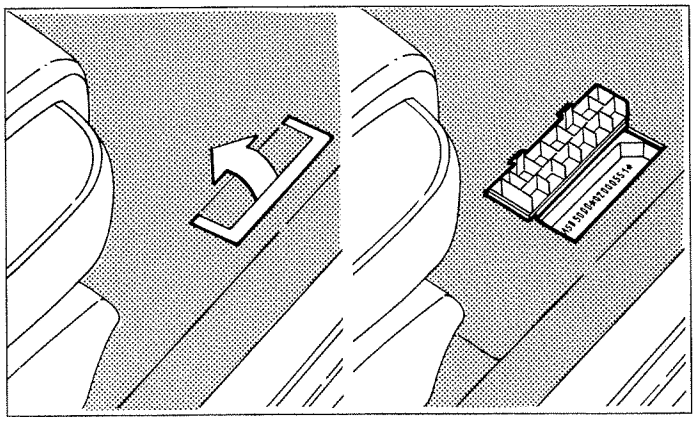
3/4 rear view

	CHASSIS	ENGINE	VERSION	GEARBOX	
				5 speed	automatic
1995 16v turbo	ZLA 838.000	838 A4.000	838 CB 1AA 12	●	
2446 20v		838 A2.000	838 CC 1AA 13 838 CC 1AA 13B (▲)	●	
2959 V6 24v		838 B.000	838 CD 11A 14		●

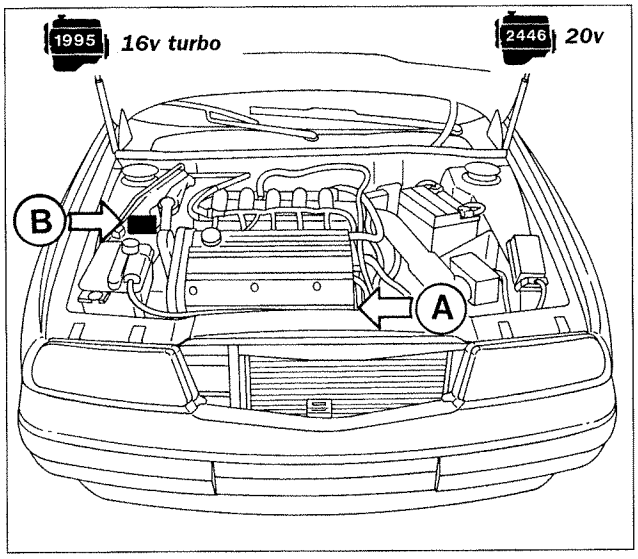
(▲) Voluntary for Germany

Vehicle type identification code and chassis manufacture number

Stamped on the floor panel of the passenger compartment, near the right front seat.
Access is gained by lifting the appropriate flap.



P3U02AD01



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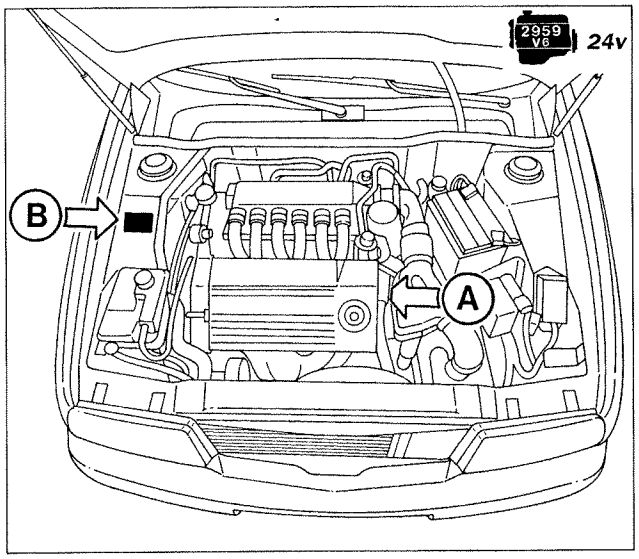
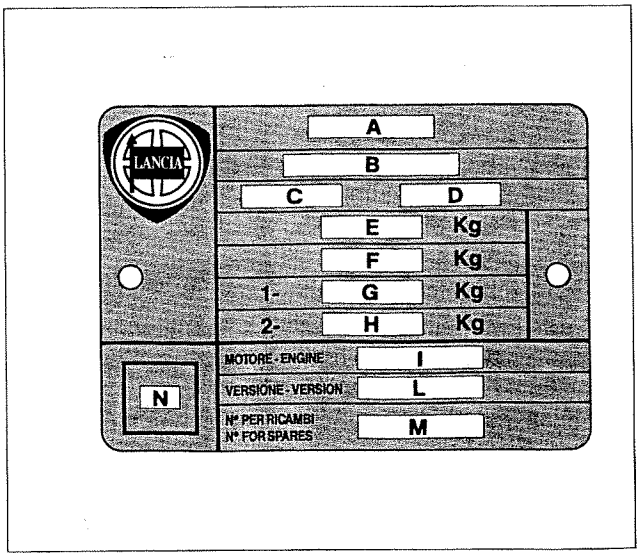


P3U03AD02

A Engine type and number

B V.I.N. Plate (EEC regulations)

A. Name of manufacturer
B. Homologation number
C. Vehicle type identification code
D. Chassis manufacture number
E. Maximum authorized weight of vehicle fully laden
F. Maximum authorized weight of vehicle fully laden plus tow
G. Maximum authorized weight on first axle (front)
H. Maximum authorized weight on second axle (rear)
I. Engine type
L. Bodywork version code
M. Spares number
N. Correct value of smoke absorption coefficient (Diesel engines only)



P3U03AD04

ENGINE TYPE	1995 16v turbo	2446 20v	2959 V6 24v
GEARBOX	1 3 5 / 2 4 R	1 3 5 / 2 4 R	
Speed kph (average load) — 1	52	56	-
2	87	94	-
3	143	139	-
4	201	183	max 225
5	235	218	-
R	57÷58	60	-
Maximum climable gradient fully laden (%)	37		
Fuel consumption directive 93/116/CE (litres/100 km) — Urban	14,1	15,0	17,4
Extra-urban	7,8	8,2	9,4
Combined	10,1	10,7	12,3
CO_2 exhaust emissions (g/km)	240	255	294

The 93/116/CE directive fuel consumption figures have been defined in the course of homologation tests involving:

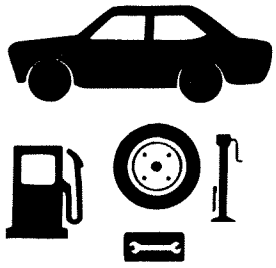
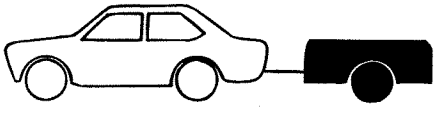
- an urban cycle which includes a cold start followed by a varied urban cycle simulation.
- an extra-urban cycle which includes frequent acceleration in all gears simulating normal out of town usage. The speed varies between 0 and 120 kph.
- The average combined consumption includes 37% of the urban cycle and 63% of the extra-urban cycle.

The type of journey, traffic conditions, driving styles, atmospheric conditions, trim level/equipment/accessories, whether a roof rack is fitted, the presence of special equipment and the general state of the vehicle can lead to fuel consumption figures which differ from those obtained through the above mentioned procedures.
The CO_2 exhaust emissions (in g/km) are measured during the average combined cycle

IDENTIFICATION DATA		ENGINE	VERSION		GEARBOX
			SALOON	SW	automatic
2446 20v	ZLA 838.000	838 A2.000	838 AC 11 A 15	838 BC 11 A 16	●

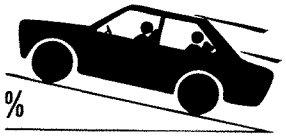
ENGINE TYPE	2446 20v	
GEARBOX		
	SALOON	SW

WEIGHTS (in kg)

		1480	1550
	+500 = 	2060	2130
Max. permissible loads on the axles ■		1180	
		1180	
Maximum permissible load on the roof		100	
Load on the tow hook (trailer with braking system)		90	
	Trailer without braking system	500	
	Trailer with braking system	1500	

■ Loads which must never be exceeded

NOTE FOR VERSIONS WITH ACCESSORIES: in the presence of special equipment (non standard air conditioner, sun roof, trailer towing device), the empty weight increases and therefore the carrying capacity may decrease, in relation to the maximum permissible loads.

ENGINE TYPE	2446 20v	
GEARBOX		
	SALOON	SW
Speed kph (average load)  1	-	-
2	-	-
3	-	-
4	215	210
5	-	-
R	-	-
 Maximum climable gradient fully laden	37	36
 Urban	15,4	15,6
Extra-urban	9,0	9,2
Fuel consumption directive 93/116/CE (litres/100 km) Combined	11,3	11,6
CO_2 exhaust emissions (g/km)	270	275

The fuel consumption figures in accordance with directive 93/116/CE have been defined in the course of homologation tests involving:
- an urban cycle which includes a cold start followed by a varied urban cycle simulation.
- an extra-urban cycle which includes frequent acceleration in all gears simulating normal out of town usage. The speed varies between 0 and 120 kph.
- The combined average consumption includes 37% of the urban cycle and 63% of the extra-urban cycle.

The type of journey, traffic conditions, driving styles, atmospheric conditions, trim level/equipment/accessories, whether a roof rack is fitted, the presence of special equipment and the general state of the vehicle can lead to fuel consumption figures which differ from those obtained through the above mentioned procedures.
The CO_2 exhaust emissions (in g/km) are measured during the average combined cycle

Capacities	Unit		Quantity dm³(l)	Quantity (kg)
Petrol O.R. 95 (●)		1995 16v turbo 2446 20v - 2959 V6 24v	70	–
		including a reserve of:	9	–
50% + (▲)	Total capacity of cooling system	1995 16v turbo 2446 20v	8,3	–
		2959 V6 24v	9	-
SELENIA 20 K (SAE 10 W/40)	Total capacity	1995 16v turbo	7	6,25
		2446 20v	6,5	5,8
		2959 V6 24v	7,5	6,7
	Partial capacity (periodic replacement)	1995 16v turbo	5,5 5*	4,9 4,45*
		2446 20v	5,4 5*	4,85 4,45*
		2959 V6 24v	6,9 6,5*	6,2 5,85*
a = TUTELA ZC 75 SYNTH b = TUTELA GI/A		1995 16v turbo 2446 20v	a	2	1,80
		2959 V6 24v	b	9,1 5**	8,2 4,5**
a = TUTELA GI/A	a	1995 16v turbo 2446 20v	a	-	0,80
		2959 V6 24v			1,80
b = TUTELA MRM 2	b		b	-	0,080
TUTELA TOP 4 270 °C	Total capacity of braking system and hydraulically op. clutch			-	0,5
AREXONS +		3%		8	-
	– 20°C	50%			
	< - 20°C	100%		-	-

(▲) Distilled water
(**) Periodic replacement
(●) Unleaded petrol only must be used
(*) Engine sump only

page

LANCIA k (all versions)

TECHNICAL DATA

LANCIA k - kSW 2446 20V

INTRODUCTION

TECHNICAL DATA

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

Fiat Auto S.p.A.
D.M.C. - M.P.S.
Servizi Post Vendita - Tecnologie Assistenziali
Largo Senatore G.Agnelli, 5 - 10040 Volvera - To (Italia)
Publication no. 506.475/20- Gennaio 1998 - 400
Printed in Italy - Tip. Giraudo - Torino
order no. 60445590

	1998 20V	2446 20V	1995 16V turbo	2959 V6 24V	2387 TD
	1 3 5 / 2 4 R				
Type	C.530.5.24	C.530.5.24	C.530.5.31	C.530.5.31	C.530.5.31

GEARBOX

Synchronizers	spring ring (Porsche type)	–				
	baulk ring type	1 3 5 / 2 4				
Gears	straight toothed	1 3 5 / 2 4 R				
	helical toothed	1 3 5 / 2 4				
Gear ratios	1st	3,800	3,800	3,800	3,500	3,800
	2nd	2,235	2,235	2,235	2,235	2,235
	3rd	1,360 (1,520) ●	1,520	1,360	1,520	1,360
	4th	0,971 (1,156) ●	1,156	0,971	1,156	0,971
	5th	0,811 (0,914) ●	0,914	0,811	0,914	0,707 (0,763) ■
	R	3,545	3,545	3,545	3,545	3,545

DIFFERENTIAL

Ratio	16/57 (3,562) (16/63) ● (3,937) ●	16/57 (3,562)	16/57 (3,562)	17/57 (3,353)	16/63 (3,937) (16/57) ■ (3,562) ■
crown wheel and pinion reduction					

● For Power Drive Version (Saloon)
■ Version for specific markets (France) Saloon and SW

NOTE *The LANCIA k saloon is available in all versions whilst the LANCIA k SW is only available in the 1998 20v - 2446 20v - 1995 16v turbo - 2387 TD versions and the LANCIA k Coupè is only available in the 1995 16v turbo and 2446 20v versions.*

GEARBOX
DIFFERENTIAL

		1998 20v	2446 20v	1995 16v turbo	2959 V6 24v	2387 TD
Ratio at the wheels	1	13,535 (14,960) ●	13,535	13,535	11,735	14,960 (13,535) ■
	2	7,961 (8,799) ●	7,961	7,961	7,494	8,799 (7,961) ■
	3	4,844 (5,984) ●	5,414	4,844	5,096	5,354 (4,844) ■
	4	3,458 (4,551) ●	4,117	3,458	3,876	3,823 (3,458) ■
	5	2,889 (3,598) ●	3,255	2,889	3,065	2,783 (2,718) ■
	R	12,627 (13,957) ●	12,627	12,627	11,886	13,957 (12,627) ■
Differential internal casing bearing		conical roller bearings				
Adjustment of bearing pre-loading		by shims				
Thickness of shims LANCIA (0,05) mm		1,25 ÷ 1,60				
Bearing rolling torque daNm		0,10 ÷ 0,14				
Clearance between planet & sat. gears mm		0,10 ÷ 0,20				
Adjust. of clrnce btwn planet & sat. gears		by shims				
Thickness of shims LANCIA (0,10) mm		1,8 ÷ 2,2				

(●) For Power Drive Version (Saloon) (■) Version for specific markets (France) Saloon and SW

TUTELA ZC 75 Semi Synth type oil should be used in the C530 gearbox; it has the following characteristics: SAE 75 W 90 oil, satisfies standards API GL5 and MIL-L-2105 D

1840005001	Universal extractor
1840005301	Tool for universal extractor 1840005001
1840005400	Clamp
1847017004	Flange for removing inner section of left drive shaft (to be used with 1840206001)
1840206001	Mass
1840207814	Tool for extracting bush pin (to be used with 1840206001)
1846001001	Pair of half rings for extracting main shaft front bearing
1846017001	Base for puller half rings
1860974000	Tool for adjusting gearbox flexible cables
1870007000	Tool for fitting bush pin
1870595000	Cross member for supporting power unit
1870647000	Plate for gauges 1870648000
1870648000	Gauges for determining size of shims
1870649000	Reference cross member (to be used with 1870648000)
1870651000	Set of bracket for supporting engine whilst removing/refitting gearbox-differential unit
1870652000	Bush for rotating main shaft
1870654000	Tool for extracting-introducing gear engagement rod housing bushes in bell housing
1870655000	Tool for extracting bearing outer races (to be used with 1840206001)
1870656000	Tool for introducing bearing outer races (to be used with 1874365000)
1870657000	Tool for fitting gear engagement rod housing bushes in gearbox casing
1870658000	Tool for removing-refitting shafts (in three pieces)
1870659000	Tool for fitting main shaft bearings and lay shaft rear bearing
1870660000	Reaction base for removing lay shaft front bearing
1870675000	Half rings for removing-refitting gearbox shafts
1870676000	Half rings for removing main shaft
1870681000	Tool for supporting gearbox whilst removing
1871000000	Rotating column for overhauling gearboxes and differentials
1871001014	Support for gearbox-differential unit whilst overhauling (to be fitted to 1871000000)
1874290000	Plate for removing-refitting gearbox shafts
1874365000	Grip for tool 1870656000
1895655000	Tool for determining differential bearing adjustment shim (to be used with 1895884000)
1895881000	Dial gauge to be used with specific tools (measuring capacity 25 mm, shank length 17 mm)
1895884000	Dial gauge to be used with specific tools (measuring capacity 5 mm, shank length 16,5 mm)

DESCRIPTION	Thread size	Tightening torques daNm
Clutch release sleeve mounting cover fixing, bolt	M6	0,75
Left side cover fixing, bolt	M8	2,5
Right side cover to casing fixing, bolt	M8	2,5
Gearbox casing to support fixing, bolt	M9×1,25	3,4
Gearbox casing to support fixing, bolt with double thread	M9×1,25	3,4
Gearbox oil threaded drain plug	M18×1,5 (tapered)	2,5
Differential cover to engine-gearbox mounting fixing, bolt	M8	2,5
Differential cover to engine-gearbox mounting fixing, bolt	M10×1,25	5,0
Magnetic plug	M22×1,5 (tapered)	4,6
5th speed and reverse selector fixing, self-locking bolt	M8	2,5
Reverse gear shaft fixing, bolt	M10×1,25	5,0
5th speed selector fork fixing, self-locking bolt	M8	2,5
Gearbox damper mass fixing, bolt	M8	2,0
Selector lever fixing, nut	M10×1,25	3,0
Gearbox cover fixing, bolt	M8	2,5
Speedometer mounting fixing, bolt	M6	1,0
Crown wheel fixing, bolt	M10×1,25	9,0
Reversing lights switch, bolt	M12×1	3,0
Drive shaft to support on engine fixing, bolt	M8	2,9

AISIN AUTOMATIC GEARBOX

ENGINE TYPE	2446 20v
Gears	❶❷❸❹Ⓡ
Gear ratios ❶	3,606:1
Gear ratios ❷	2,060:1
Gear ratios ❸	1,366:1
Gear ratios ❹	0,982:1
Gear ratios Ⓡ	3,949:1
Idler ratio	55/56 (0,982)
Torque converter Ø mm	241
Ratio (multiplication) engine torque	1,96
Quantity of oil — 1st filling	7,5 l (6,8 Kg)
Quantity of oil — periodic replacement	3,5 l (3,2 kg)

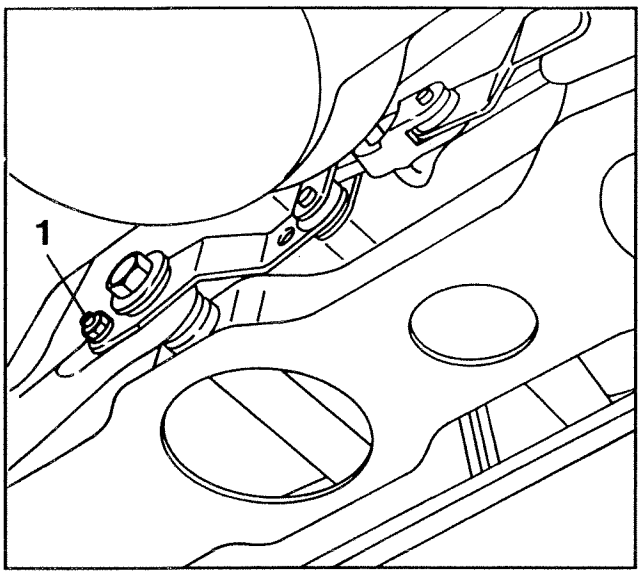
TUTELA GI/2●

(●) "DEXRON II" type oil for automatic transmissions

DIFFERENTIAL

Crown wheel and pinion reduction	2,654:1 (69/26)
Ratio at the wheels ❶	9,570:1
Ratio at the wheels ❷	5,467:1
Ratio at the wheels ❸	3,625:1
Ratio at the wheels ❹	2,606:1
Ratio at the wheels Ⓡ	10,481:1

As far as the composition, operation and overhauling and adjustment operations for the gearbox are concerned, refer to print no. 506.475/03 dealing with the LANCIA k 1998 20V version with automatic transmission.



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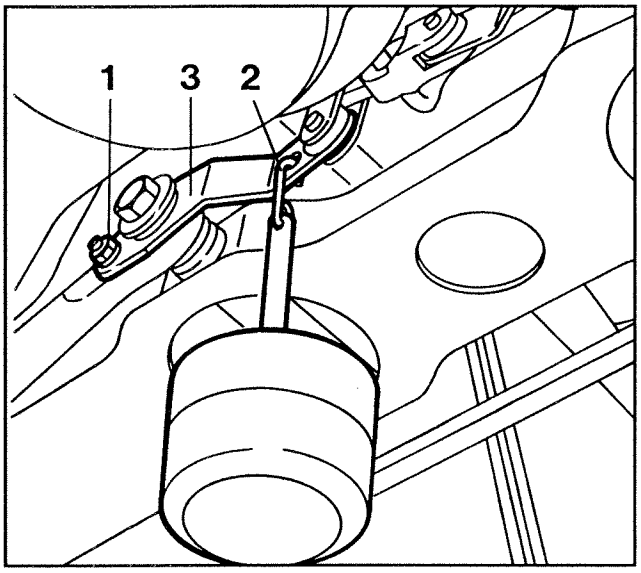

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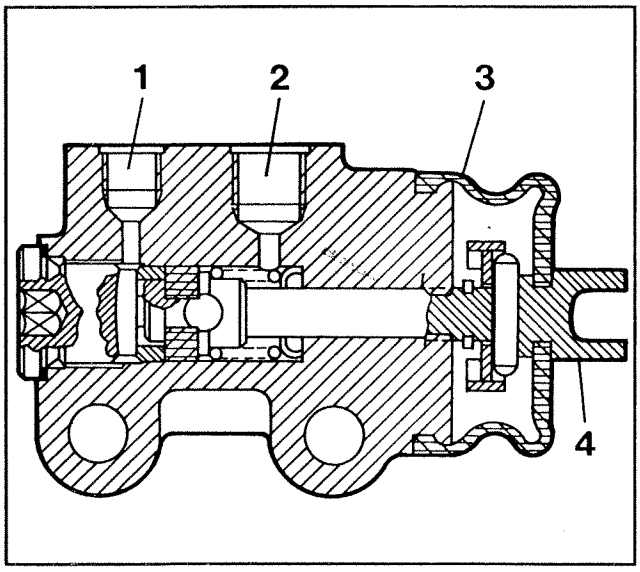


P3U21AD03

Adjustment

- Let the rear suspension bed in;
- position the vehicle on a horizontal plane with the wheels on the ground;
- load the luggage compartment, if possible against the rear seat backrest with a different weight depending on the amount of fuel in the tank as described in the table below:

Fuel tank full	35 Kg
Fuel tank 3/4	50 Kg
Fuel tank 1/2	65 Kg
Fuel tank 1/4	80 Kg
Fuel tank - reserve	95 Kg

- loosen the bracket fixing bolt (1);

- apply a load of 2 daN to the bracket eyelet (2);
- keeping the bracket (3) in this position, lock the bracket fixing bolt (1).

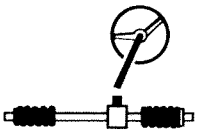
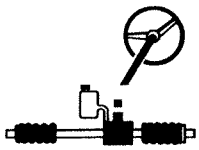
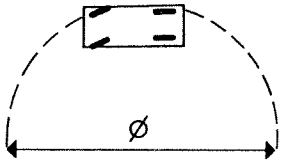
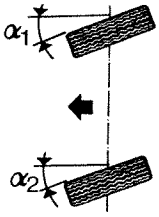
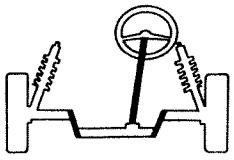
NOTE *In the case of irregular operation the complete load proportioning valve must be replaced.*

Operation

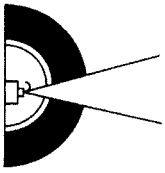
The load proportioning valve for the rear wheels, fixed to the rear cross member, alters the braking pressure in the rear braking circuit in relation to that for the front wheel circuit depending on the vehicle load and deceleration conditions.

The variation in pressure is determined by the position of the spring connected to the suspension transverse rods which, via the fork (4), act on the load proportioning valve piston.

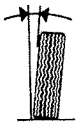
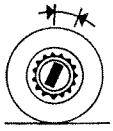
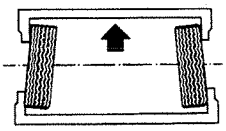
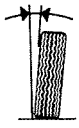
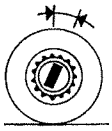
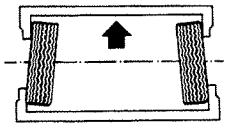
1. Housing for brake pipe connector
2. Housing for brake pipe connector
3. Dust cover
4. Piston fork

Type		 rack and pinion power assisted	 electronically controlled rack (servotronic)
 Ratio	 no. of turns lock to lock	2,83	3
	 rack travel	153 mm	
	Turning circle	10,9 m	
 Steering angle	outer wheel α_1	32° 40′	
	inner wheel α_2	37° 30′	
	Steering column	 with 2 universal joints	

WHEEL GEOMETRY



unladen car (*)

Front suspension	camber (**) 	– 0° 35′ ÷ – 1° 15′
	caster (**) 	2° 50′ ÷ 3° 30′
	toe in 	0 ÷ 2 mm
	front wheel offset ▲	0°
Rear suspension	camber (**) 	– 0° 25′ ÷ - 1° 5′
	caster (**) 	-
	toe in 	1,5 ÷ 3,5 mm
	rear wheel thrust angle ▲	0°

(*) With tyres inflated to the correct pressure and vehicle in running order
(**) Angles cannot be adjusted
(▲) Angular values which cannot be adjusted, used for the correct alignment of the vehicle

TYRES

ENGINE TYPE	 Radial, tubeless type tyre		  Inflation pressure			
			Front		Rear	
	fitted as standard	available on request	average load	heavy load	average load	heavy load
1998 20v	195/65 R15 91V	205/60 R15 91V	2,2 bar	2,3 bar	2,2 bar	2,3 bar
2446 20v	205/60 R15 91V		2,2 bar	2,3 bar	2,2 bar	2,3 bar
1995 16v turbo	205/55 R16 91W	215/55 R16 91W (*)	2,2 bar	2,3 bar	2,2 bar	2,3 bar
2959 V6 24v	205/60 R15 91W		2,2 bar	2,3 bar	2,2 bar	2,3 bar
2387 TD	195/65 R15 91V	205/60 R15 91V	2,2 bar	2,3 bar	2,2 bar	2,3 bar

(*) Snow chains cannot be fitted on this type of tyre

WHEEL RIMS

ENGINE TYPE	 Wheel rim	
	fitted as standard	available on request
1998 20v, 2446 20v, 2387 TD, 2959 V6 24v	steel 6½ J×15 H2	alloy 6½ J×15 H2
1995 16v turbo	alloy 7J × 16 H2	–

NOTE *All versions have a spare wheel with a 4B×15 H rim and T 125/90 R15 96M tyre. Speed limit: 80 Kph. Inflation pressure: 4.5 bar*

Front suspension independent. Lower track control arms; dampers incorporated with the double acting, hydraulic shock absorbers, coil springs and stabilizer bar.

Coil springs

ENGINE TYPE			1998 20v	1998 20v (●)	1995 16v turbo / 2387 TD / 2446 20v	2959 V6 24v
Diameter of wire		mm	14,25÷14,35			
Number of turns			3,6			
Direction of coil			clockwise			
Height of spring released		mm	374	385	395	406
Height of spring under a load of:	412 daN	mm	185	-	-	-
	436 daN	mm	-	185	-	-
	458 daN	mm	-	-	185	-
	483 daN	mm	-	-	-	185
The springs are subdivided into two categories, identifiable by a mark						
yellow (1) for those under a load of:	412 daN	height of mm	>185	-	-	-
	436 daN	height of mm	-	>185	-	-
	458 daN	height of mm	-	-	>185	-
	483 daN	height of mm	-	-	-	>185
green (1) for those under a load of:	412 daN	height of mm	⩽185	-	-	-
	436 daN	height of mm	-	⩽185	-	-
	458 daN	height of mm	-	-	⩽185	-
	483 daN	height of mm	-	-	-	⩽185

(1) Springs of the same category must be fitted.

Shock absorbers

Type:		hydraulic telescopic, double acting
Open (start of damping action)		505 ÷ 511
Closed (metal against metal)	mm	351 ÷ 357
Travel	mm	154

(●) Vehicles with air conditioning

Rear suspension independent. Longitudinal and transverse rods, telescopic dampers incorporated with the double acting, hydraulic shock absorbers (high pressure gas) with a self-levelling function, coil springs and stabilizer bar.

Coil springs

			1998 20v	2446 20v	1995 16v turbo	2959 V6 24v	2387 TD
Diameter of wire	mm		12,25÷12,35				
Number of turns			3,20				
Direction of coil			clockwise				
Height of spring released	mm		228				
Height of spring under a load of: 9,5 daN	mm		195				
The springs are subdivided into two categories, identifiable by a mark							
yellow (1) for those under a load of:	279,5 daN	height of mm	> 195				
green (1) for those under a load of:	279,5 daN	height of mm	⩽195				

(1) Springs of the same category must be fitted.

Shock absorbers

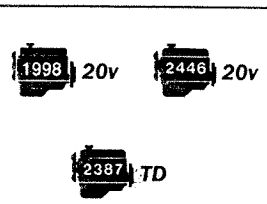
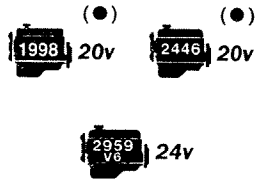
BOGE Nivomat self-levelling type		hydraulic telescopic, double acting (high pressure gas)
Open (start of damping action)	mm	724
Closed (metal against metal)	mm	529,3
Travel	mm	194,7

	 1998 20v	 2446 20v	 1995 16v turbo	 2959 V6 24v
STARTER MOTOR	M.Marelli E 70R-12V-1,4 kW (with reduc. gear)			Bosch ⌀74,5-12V-1,4kW (with reduc. gear)
ALTERNATOR	M.Marelli A 127IR-14V-55/100A Bosch NC-14V-60/120A (*)		Bosch N1-14V-40/115A	Bosch NC-14V-60/120A
VOLTAGE REGULATOR	BUILT IN ELECTRONIC			
BATTERY	12V - 60Ah - 320A			12V - 60Ah - 380A
IGNITION SYSTEM	Bosch Motronic M2.10 integrated electronic injection/ignition	Bosch Motronic M2.10 integrated electronic injection/ignition	Bosch Motronic M2.7 integrated electronic injection/ignition	Bosch Motronic M3.7 integrated electronic injection/ignition
IGNITION COIL	Bosh 0.221.504.006 (1 per spark plug)		Bosch 0.221.503.407	Bosch 0.221.504.456 (1 per spark plug)
POWER MODULE	–	–	Bosch 0.221.100.201	–
SPARK PLUGS	Champion RC7BMC	Champion RC7BMC	Bosch WR6 DTC	NGK PFR6B

(*) For vehicles equipped with air conditioning

	2387 TD
STARTER MOTOR	M.Marelli E 95RL - 12V - 2,2kW (with reduction gear)
ALTERNATOR	M.Marelli A 127IR - 14V - 55/100A
VOLTAGE REGULATOR	BUILT IN ELECTRONIC
BATTERY	12V - 70Ah - 450A
PRE-HEATING ELECTRONIC CONTROL UNIT	Bosch 0.281.003.010
HEATER PLUGS	BERU 0.100.226.249

ALTERNATOR

				
Type		M. Marelli A127I-14V-55/100A	Bosch N1 - 14V 40/115A	Bosch NC - 14V - 60/120A
Nominal voltage	V	14		
Nominal current at 1800 rpm	A	55	50	60
Cut in speed when warm	rpm	–	⩽1100	⩽1100
Current delivery on the battery at 7000 rpm at op. temp.	A	100	⩽115	> 120
Field winding resistance between the slip rings (*)	Ω	2,47 ÷ 2,73 (*)	2,6 ÷ 2,85 (**)	–
Direction of rotation (seen from control side)		clockwise		
Diode rectifiers		bridge		

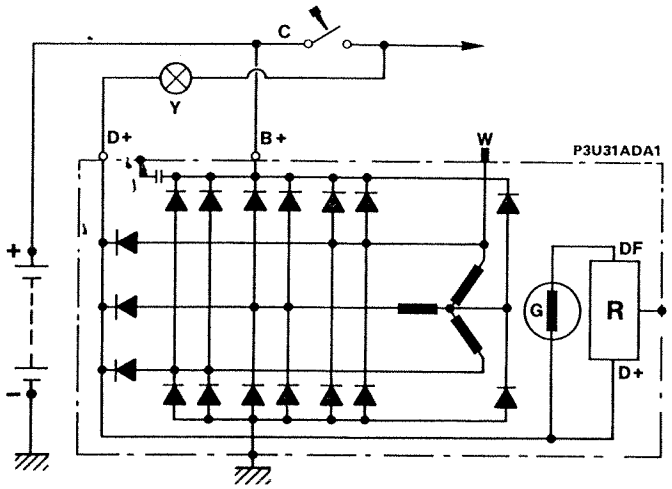
(*) Data obtained at an ambient temperature of 20°C. (**) Data obtained at an ambient temperature of 25°C
(●) For vehicles with air conditioning

VOLTAGE REGULATOR

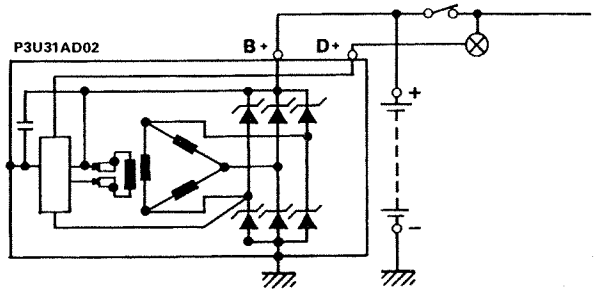
		Built in electronic		
Type		RTM 151 A	Bosch EL - 14V - 4C	Bosch
Alternator speed for test	rpm	7000	6000	6000
Thermal stabilization current	A	50 ÷ 55	40 ÷ 45	55 ÷ 60
Test current	A	50 ÷ 55	40 ÷ 45	55 ÷ 60
Regulation voltage (*)	V	14,35 ÷ 14,55 (*)	14 ÷ 14,3 (*)	14,35 ÷ 14,65 (**)

(*) Data obtained at an ambient temperature of 20°C. (**) Data obtained at an ambient temperature of 25°C.

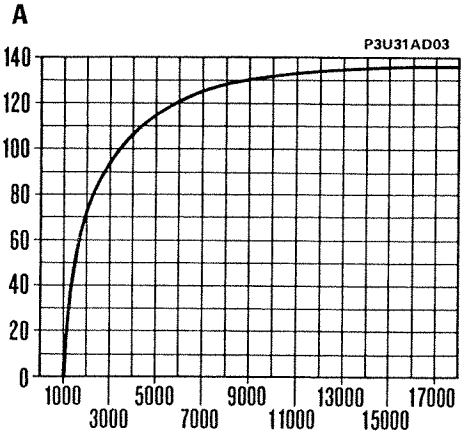
ALTERNATORS - WIRING DIAGRAMS AND TYPICAL OUTPUT CURVES
(at operating temperature, at a constant voltage of 13.5 V and with bedded in brushes)



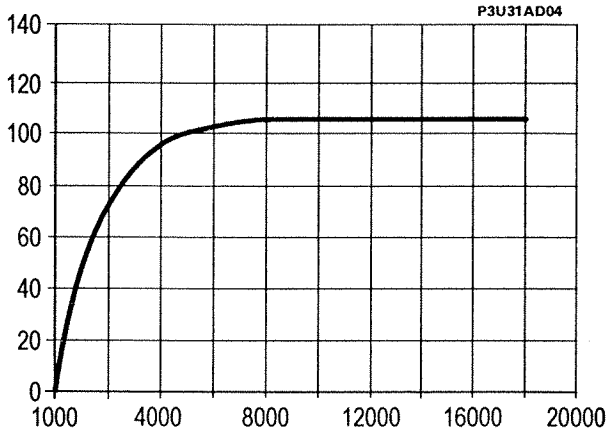
Bosch NC - 14 V - 60/120 A



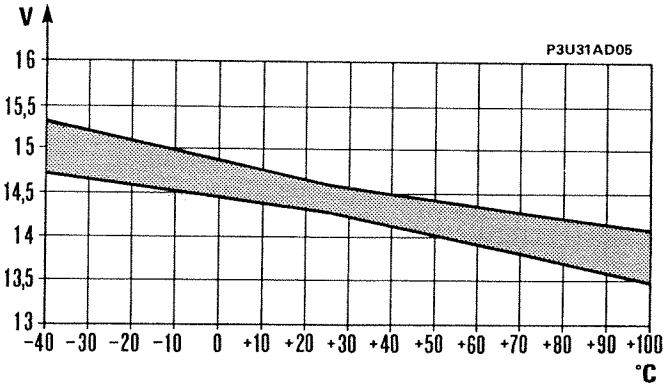
M. Marelli A 127IR - 14V - 55/100A



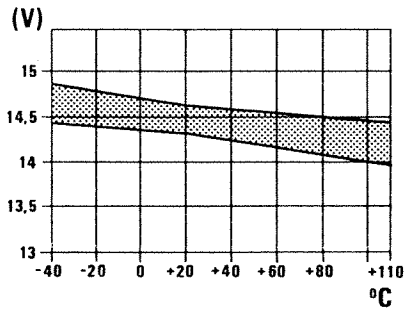
Bosch NC - 14 V - 60/120 A



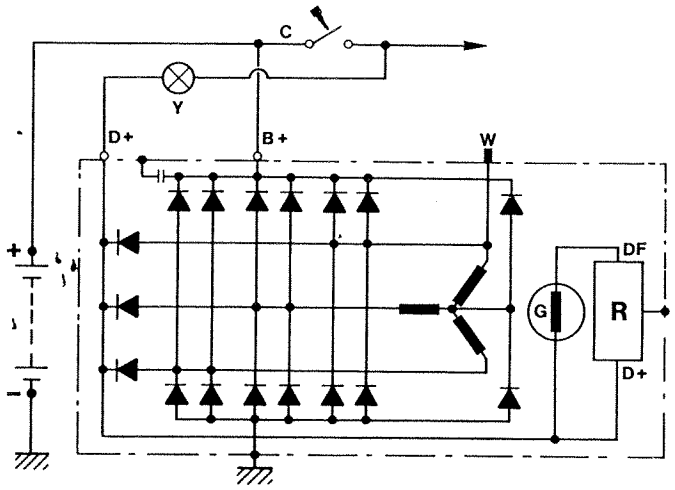
M. Marelli A 127IR - 14V - 55/100A



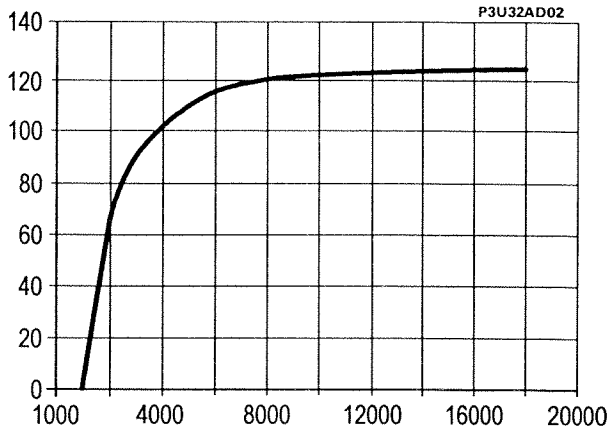
Typical regulation voltage output curve for Bosch NC - 14V - 60/120A alternator



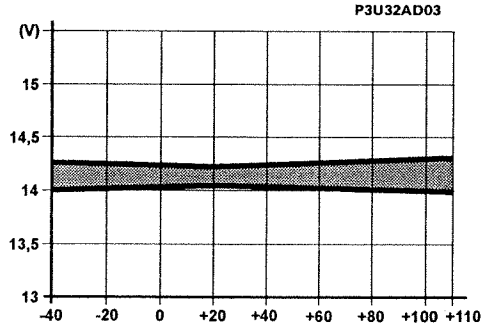
Typical regulation voltage output curve for M. Marelli A 127IR - 14V -55/100A alternator



Bosch N1 - 14V - 40/115 A



Bosch N1 - 14V - 40/115 A



Typical voltage regulator curve for Bosch N1 - 14V - 40/115 A alternator

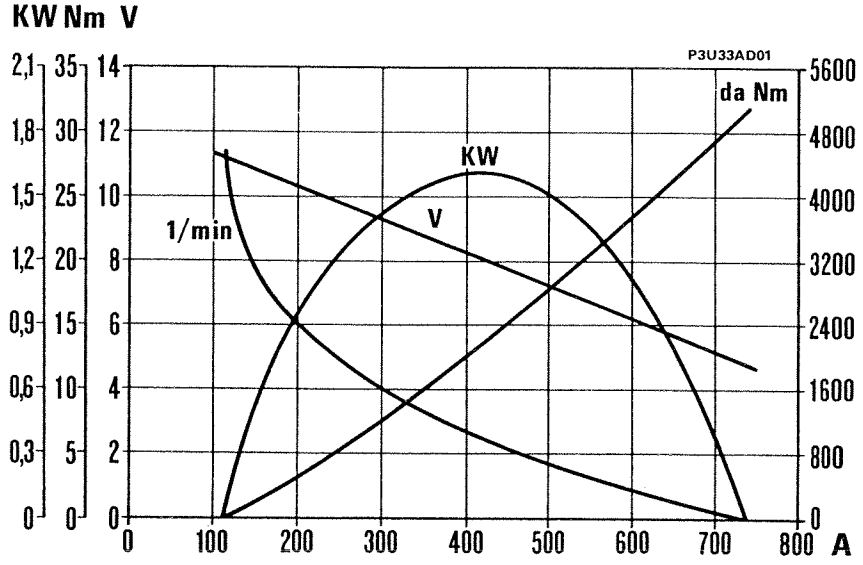
STARTER MOTOR		1998 20v	2446 20v	1995 16v turbo	2959 24v	2387 TD
Type		M.MARELLI E70R - 12V - 1,4kW (with reduction gear)			BOSCH Ø74,5 - 12 V - 1,4 kW (with reduction gear)	M. Marelli E 95RL - 12 V - 2,2 kW (with reduction gear)
Voltage	V	12				
Nominal power	kW	1,4				2,2
Rotation, pinion side		clockwise				
No. of poles		4			6	4
Winding		series			permanent magnets	series - parallel
Engagement		free wheel				
Operation		solenoid				
End float of armature shaft	mm	0,15 ÷ 0,45				
Data for bench test						
Operating test (*):						
current	A	360 ÷ 380			360	600
speed	rpm	1150			1800	1400
voltage	V	8,15			8,5	7,9
torque developed	daNm	1,30			0,98	1,6
Engagement test (*):						
current	A	680 ÷ 700			690 ÷ 730	1110 ÷ 1150
voltage	V	4,9			4,8 ÷ 5,2	4,4 ÷ 4,6
torque developed	daNm	3,11			2,15	⩾3,9
Free running test (*):						
current	A	60 ÷ 80			25 ÷ 40	120 ÷ 140
voltage	V	11,1			11,8 ÷ 12	11
speed	rpm	4040			3000 ÷ 4000	4500 ÷ 4750
Relay						
Winding resistance (*)	pull in Ω	0,33 ÷ 0,37			0,32 ÷ 0,36	0,23 ÷ 0,27
	hold in Ω	1,13 ÷ 1,27			1,65 ÷ 1,95	0,93 ÷ 1,07
Lubrication						
Internal splines and shaft bushes		VS⁺ SAE 10 W				
Engagement sleeve and intermediate disc		TUTELA MR3				

(*) Data obtained at an ambient temperature of 20°C.

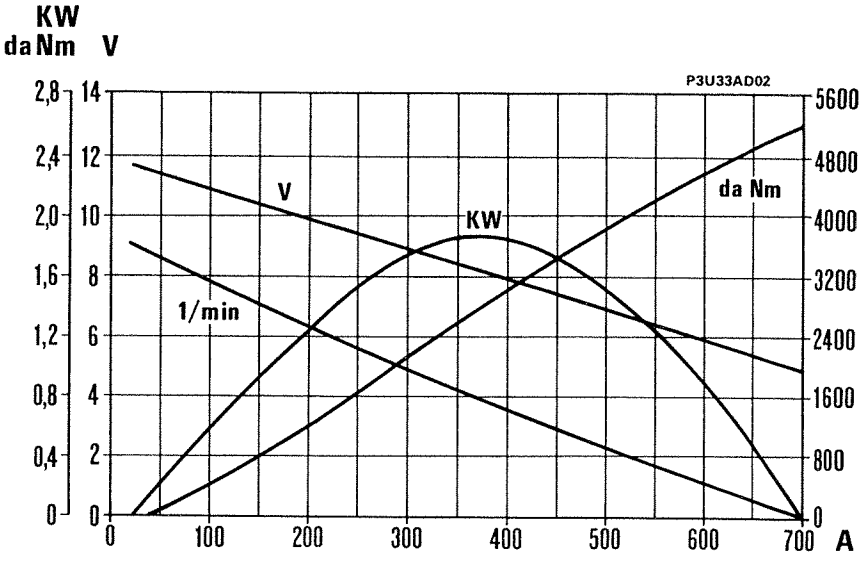
NOTE *When overhauling it is not necessary to under the insulator between the commutator bars*

STARTER MOTOR - TYPICAL CURVES

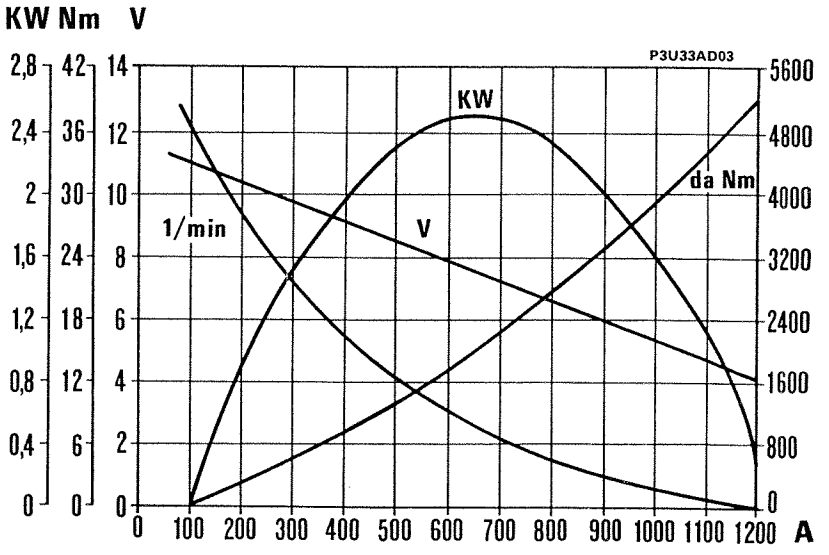
M. Marelli E 70R - 12 V - 1,4 kW



Bosch ⌀ 74,5 - 12 V - 1,4 kW



M. Marelli E 95R - 12 V - 2,2 kW



BOSCH MOTRONIC M2.10 INTEGRATED ELECTRONIC INJECTION/IGNITION

	1998 20v	2446 20v
Make - Bosch	0.261.623.053	0.261.203.669
Firing order	1 - 2 - 4 - 5 - 3	

IGNITION COIL (1 PER SPARK PLUG)

Make		Bosch
Type		0.221.504.006
Ohmic resistance of primary winding at 20 °C	Ω	0,4
Ohmic resistance of secondary winding at 20 °C	Ω	8500

TDC AND RPM SENSOR

Make and type		Bosch 0.261.210.119
Sensor winding resistance at 20 °C	Ω	774 ÷ 946
Distance (gap) between sensor and crankshaft pulley tooth	mm	0,8 ÷ 1,5

DETONATION SENSOR

Make	Bosch
Type	0.261.231.095
	0.261.231.007

SPARK PLUGS

Make and type		Champion RC7BNC
Thread		M 14 x 1,25
Electrode gap	mm	0,4 ÷ 0,6

Gearbox and differential

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page

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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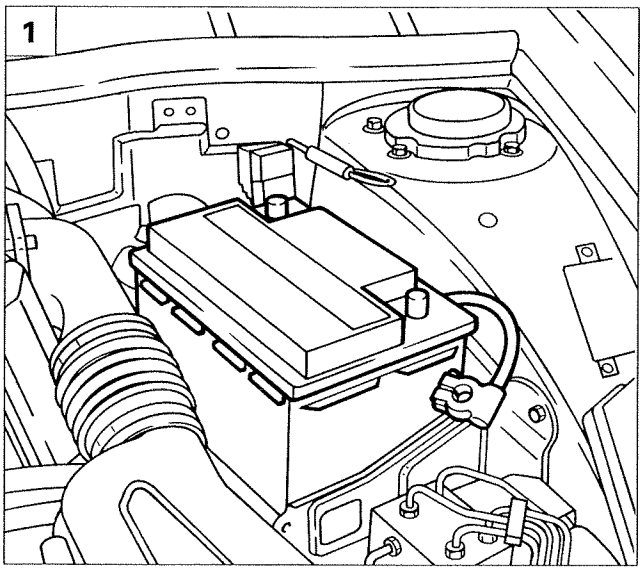
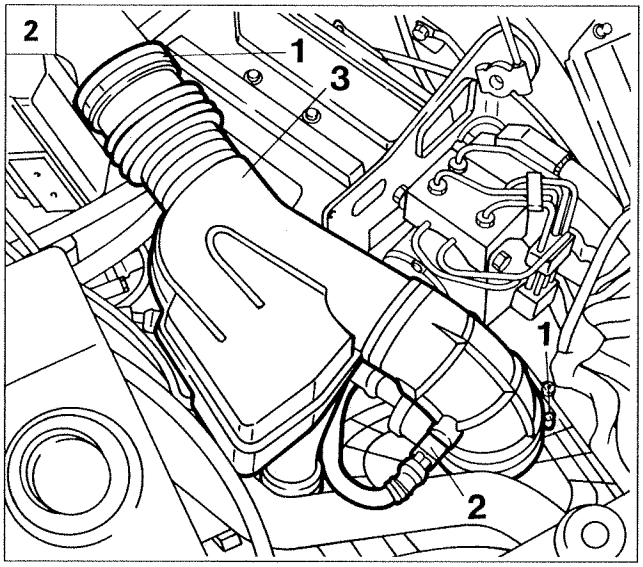


P3U01FB01

REMOVING

Place the vehicle on ramps, remove both front wheels and proceed as described below:

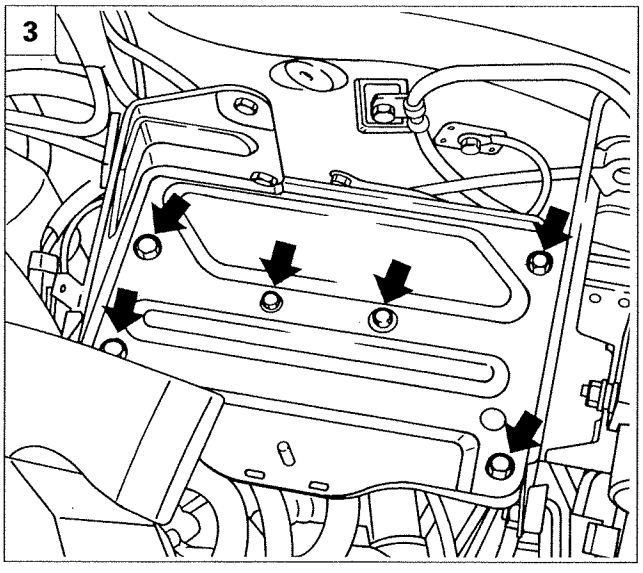
1. Working from the engine compartment, disconnect both battery connectors, then undo the nut securing the battery to the cage and remove the battery.



P3U01FB02

2. Undo the two clips (1), disconnect the air temperature sensor connector (2) and remove the resonator (3), releasing it from the bottom centring bracket.

3. Remove the rubber mat from the battery cage, then undo the bolts (arrowed) and remove the cage.
4. Undo the bolt (arrowed) and remove the EGR valve complete with bracket and pipes.



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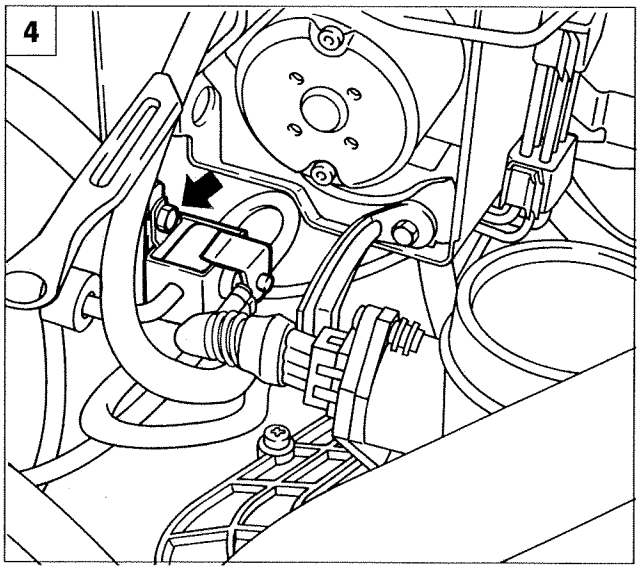

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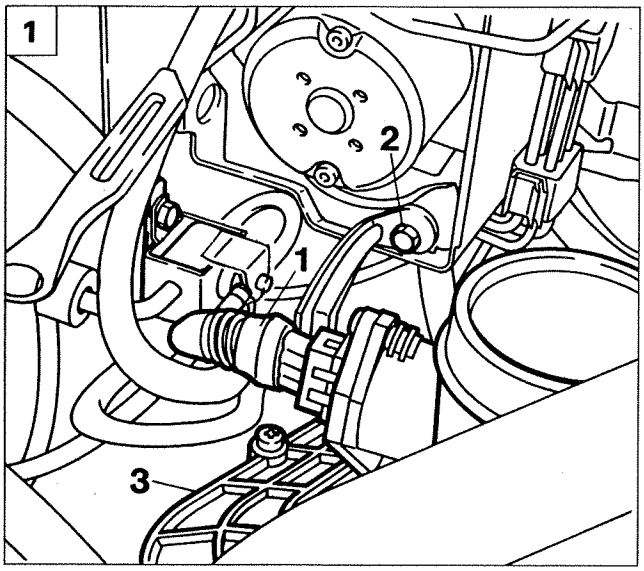

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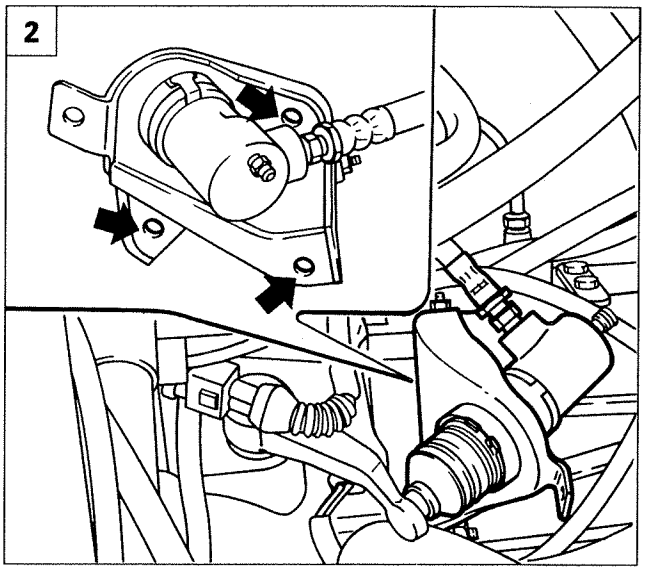

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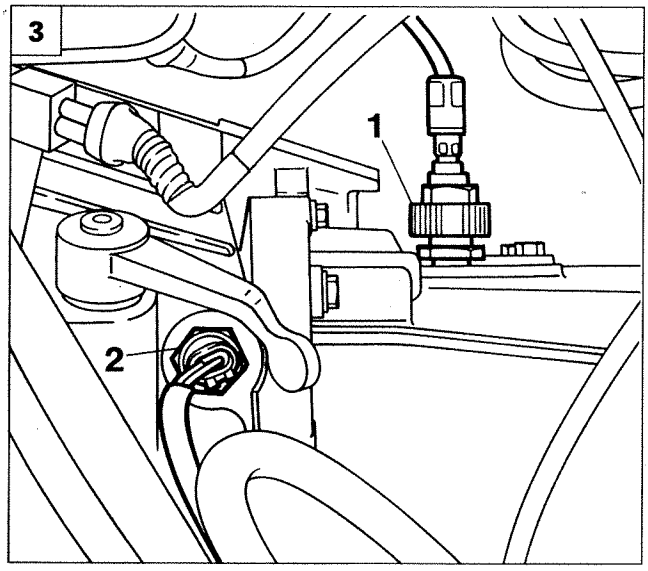

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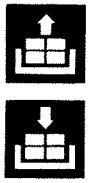
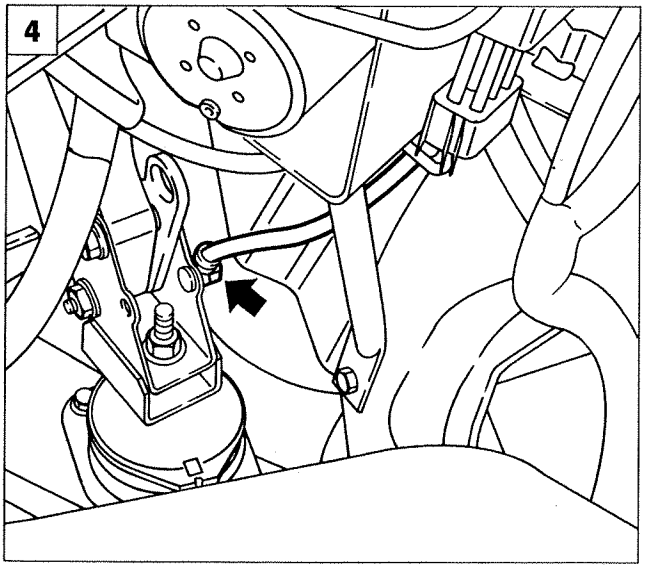


1. Disconnect the air flow meter connector (1), undo the bracket mounting bolt (2) and remove the air cleaner case (3), releasing it at the bottom from the intake duct and withdrawing it from the rubber supports.
2. Undo the bolts (arrowed) securing the clutch cylinder mounting.
3. Undo the reverse inhibiting cable ring nut (1) and disconnect the connector from the reversing light switch (2).
4. Disconnect the earth cable (arrowed) from the gearbox mounting.
5. Undo the three bolts (arrowed) on the engine electrical connector mounting bracket, and disconnect the connector.



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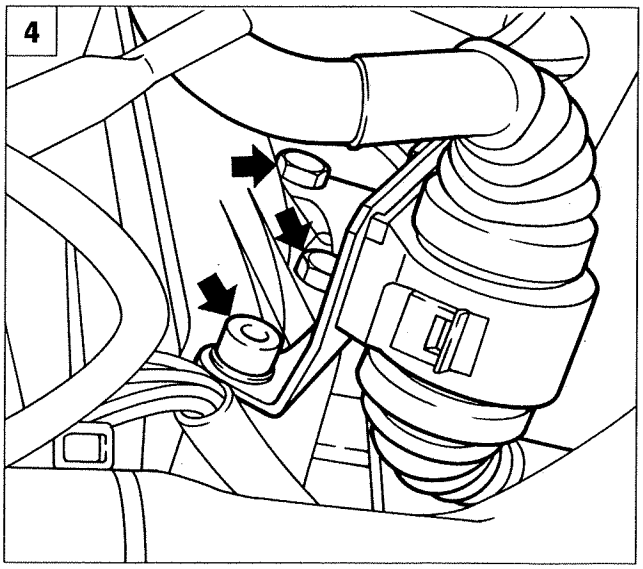

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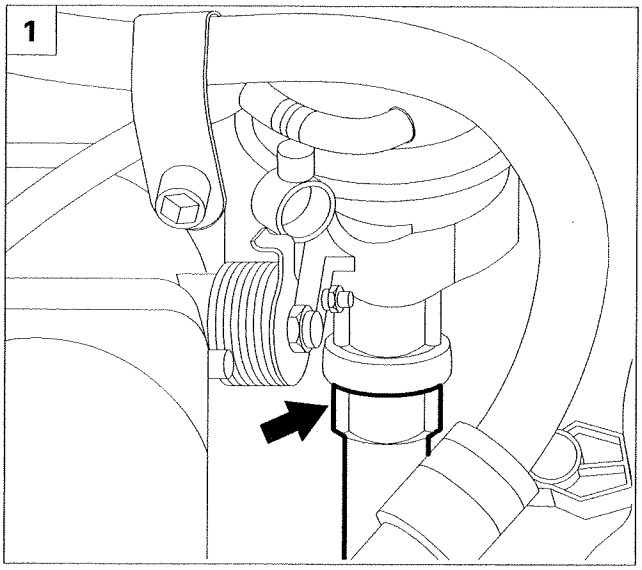

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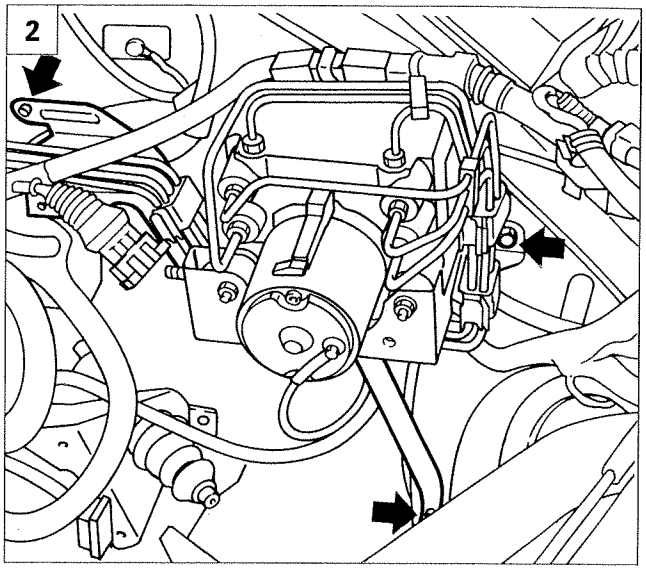

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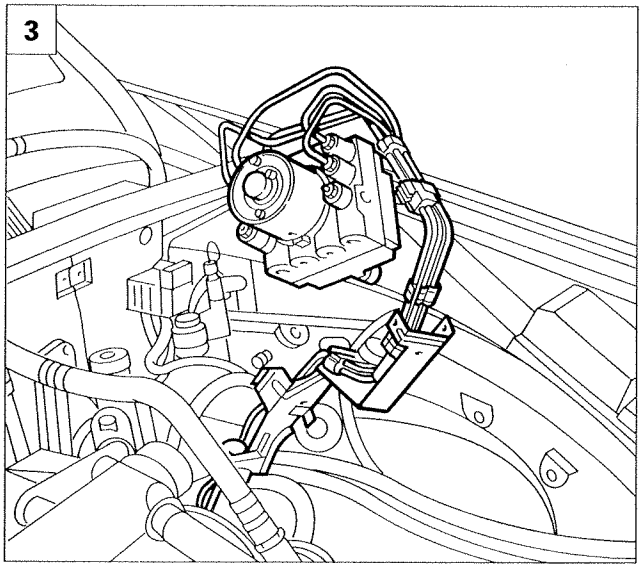

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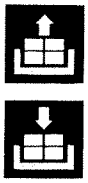
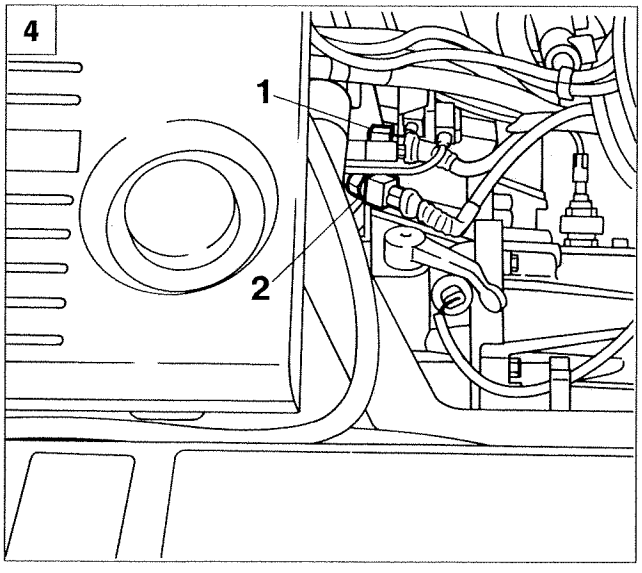


1. Undo the nut (arrowed) on the EGR valve pipe connection.
2. Undo the bolts (arrowed) securing the bracket which supports the brake pipes and ABS electrohydraulic unit.
3. Move aside the ABS electrohydraulic unit and secure it temporarily outside the working area, making sure not to damage or bend the pipes.
4. Disconnect the connectors from the coolant temperature sensors (1) and (2) and move aside the wiring and clutch cylinder.
5. Remove the spherical heads from the gear engagement lever (3) and gear selector lever (4).



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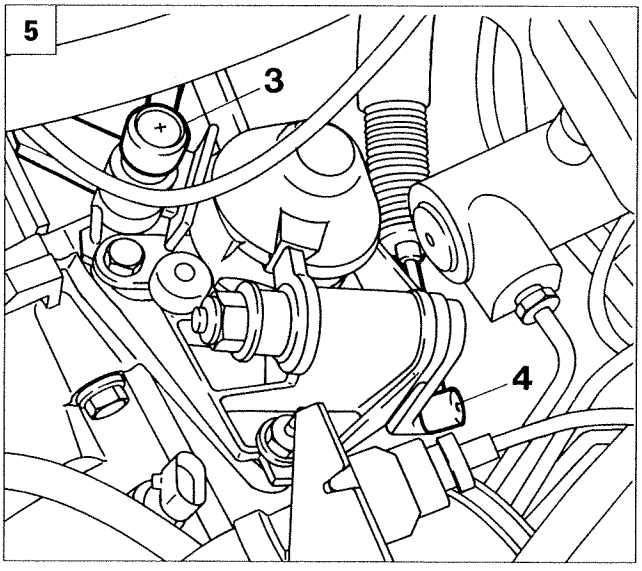

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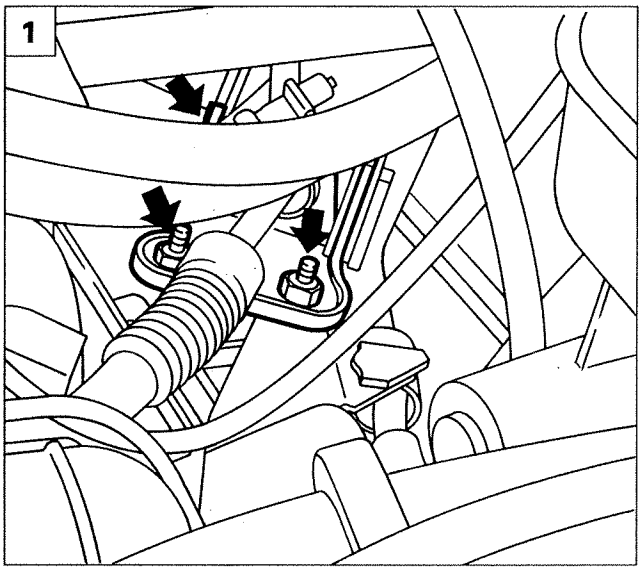

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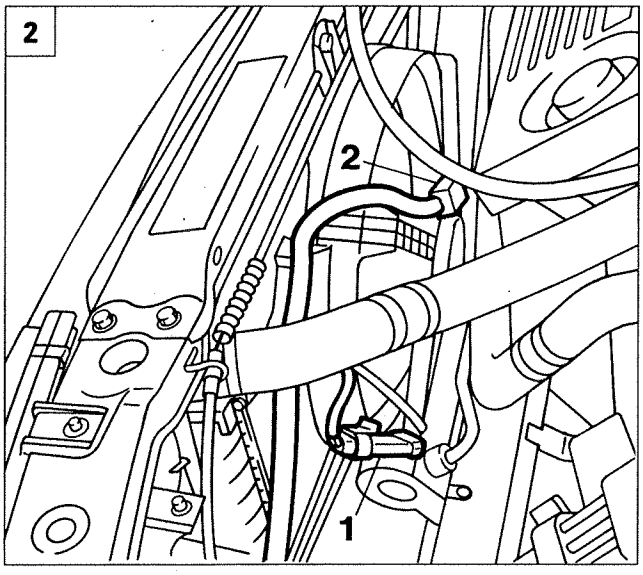

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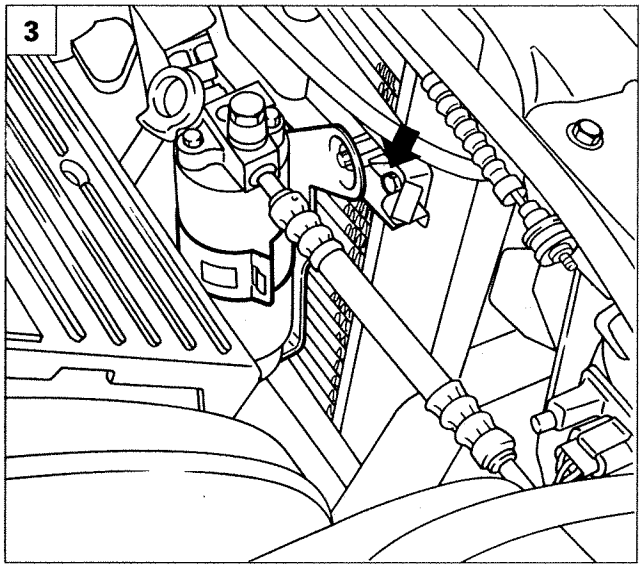

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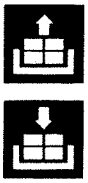
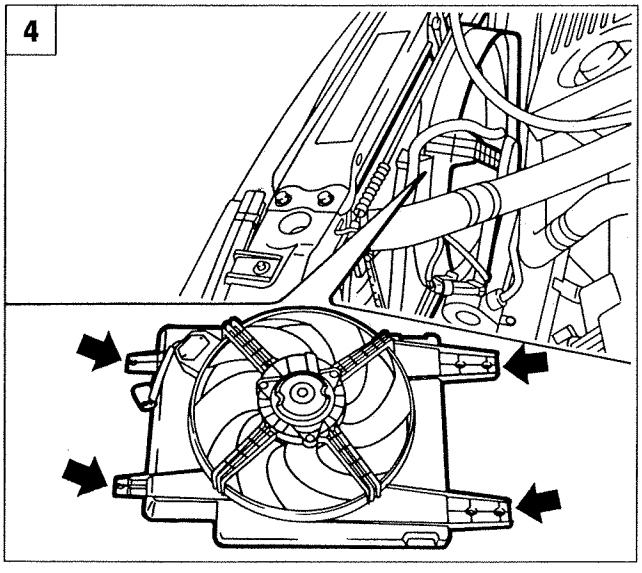


1. Undo the nuts (arrowed) securing the flexible cable mounting bracket.
2. Disconnect the steering wheel connector (1) and the connector (2) on the fan motor.
3. Undo the bolts (arrowed) securing the air conditioning dehydrating filter, and move it aside to allow the fan to be removed.
4. Undo the bolts (arrowed) and remove the fan from the engine compartment.
5. Undo the bolts (arrowed) and remove the reaction link.



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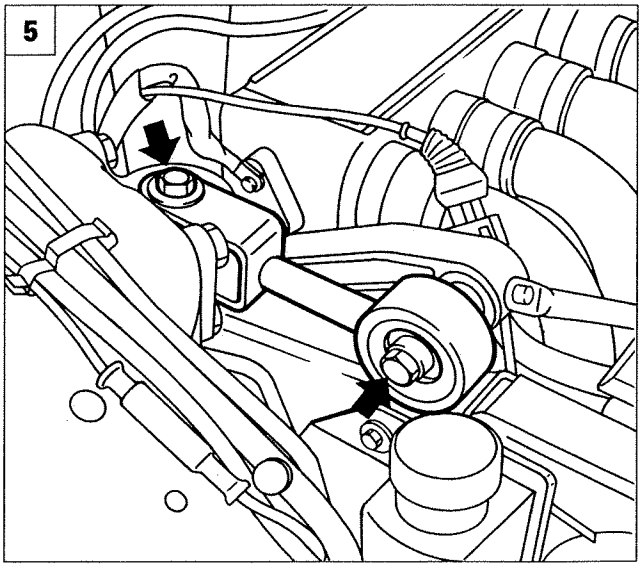

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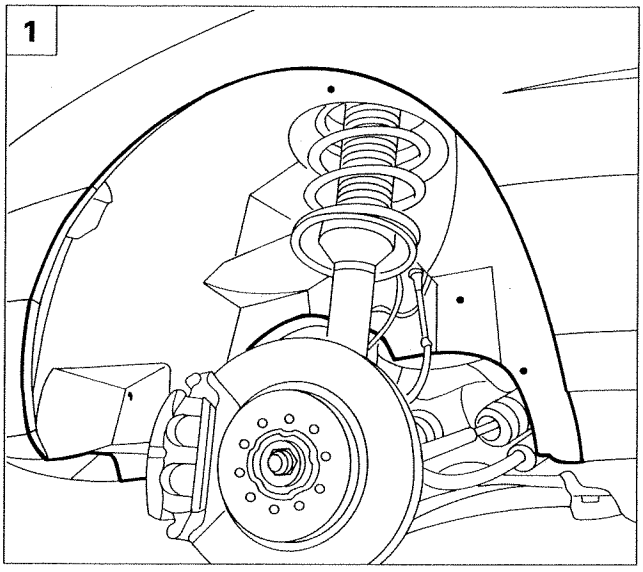
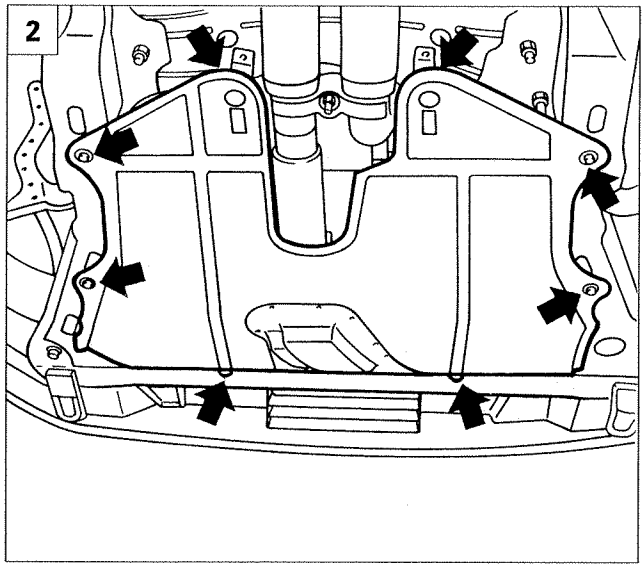


P3U05FB01

RAise the vehicle, then proceed as described below.

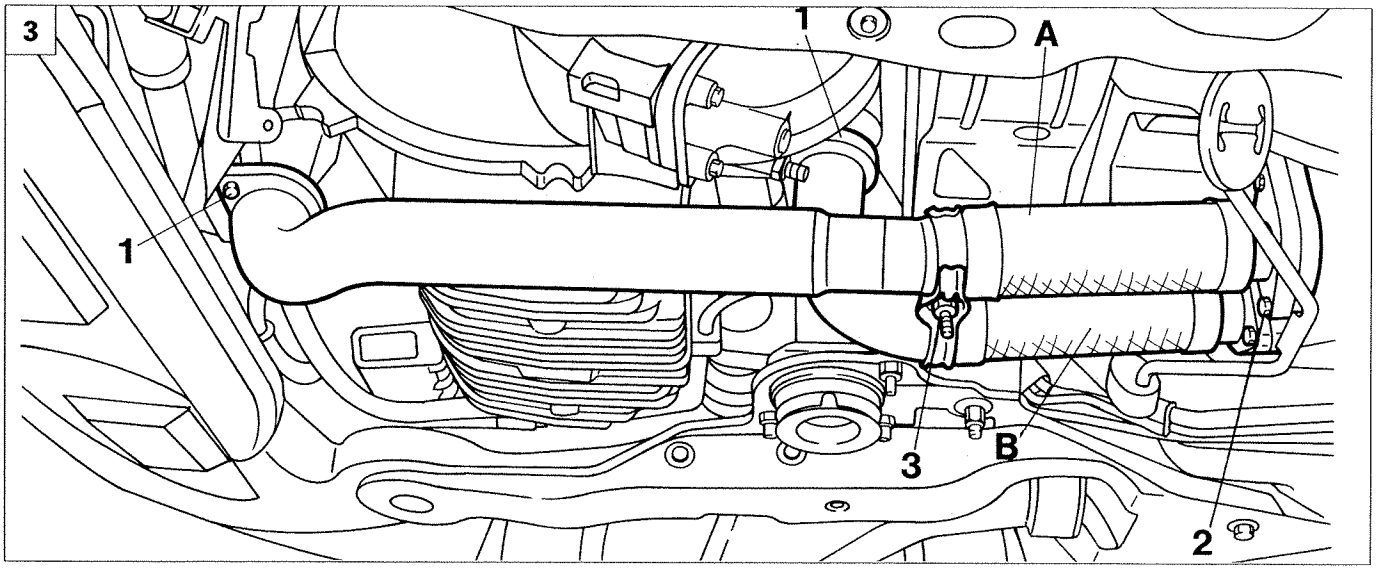
1. Remove the left wheelarch (two parts) by undoing the attachments.



P3U05FB02

2. Undo the bolts (arrowed) and remove the engine compartment bottom guard.

3. Undo the bolts on the manifolds (1) and catalytic converter (2) and the bracket bolt (3), and remove the sections (A) and (B) of the exhaust pipe.



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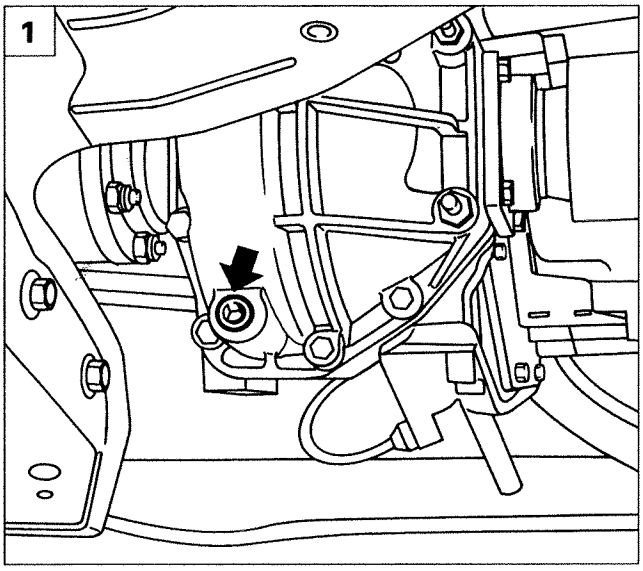

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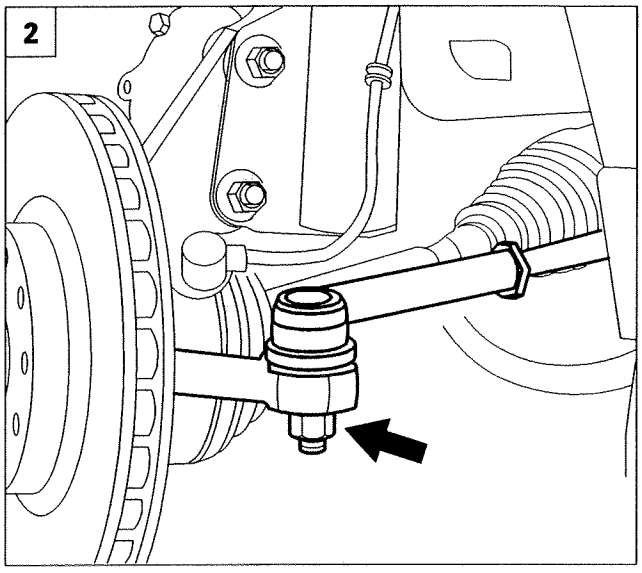

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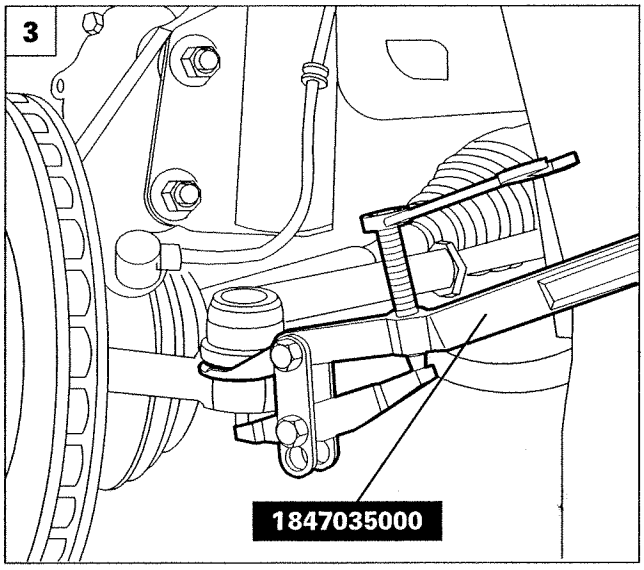

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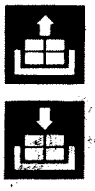
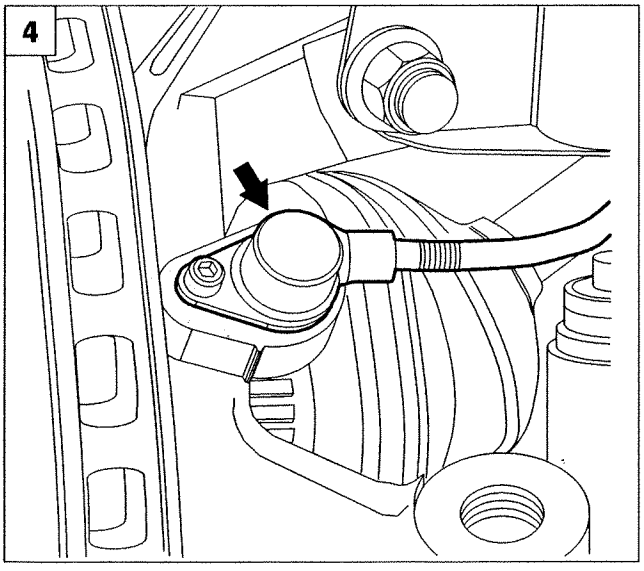


1. Prepare a suitable container and drain the oil from the gearbox-differential unit by undoing the plug (arrowed).

NOTE *The collection and disposal of used oils are governed by legal regulations.*

2. Undo the nut (arrowed) securing the tie rod end to the vertical link.
3. Using tool 1847035000, remove the tie rod end from the vertical link.
4. Remove the wheel speed sensor from the vertical link.
5. Undo the nut securing the anti-roll bar link to the wishbone.



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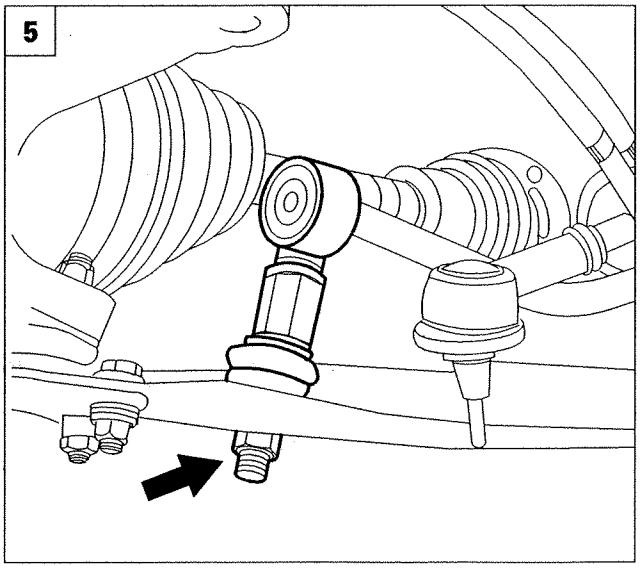

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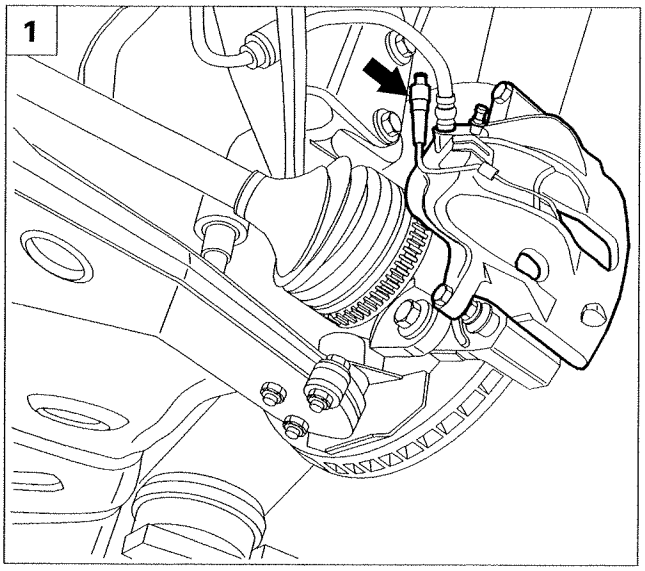

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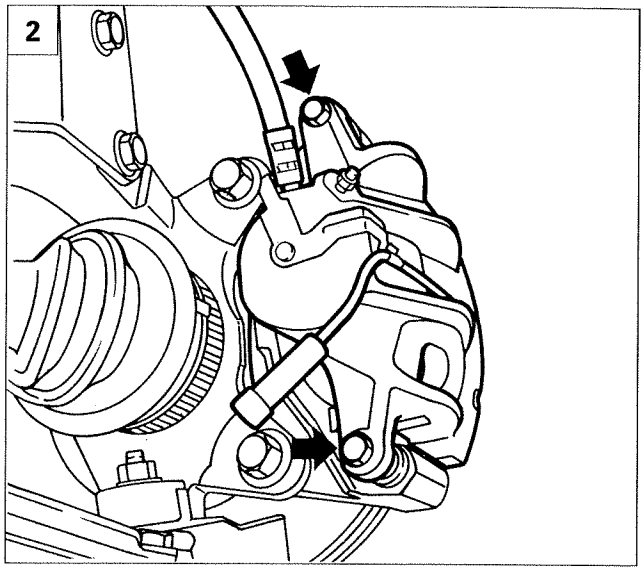

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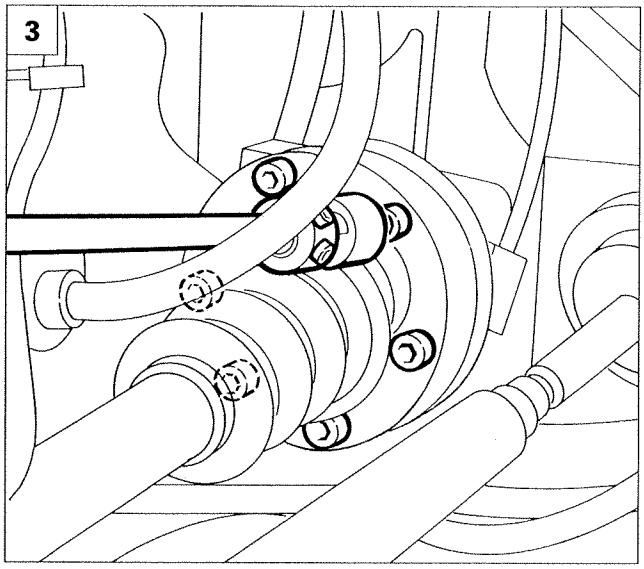

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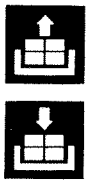
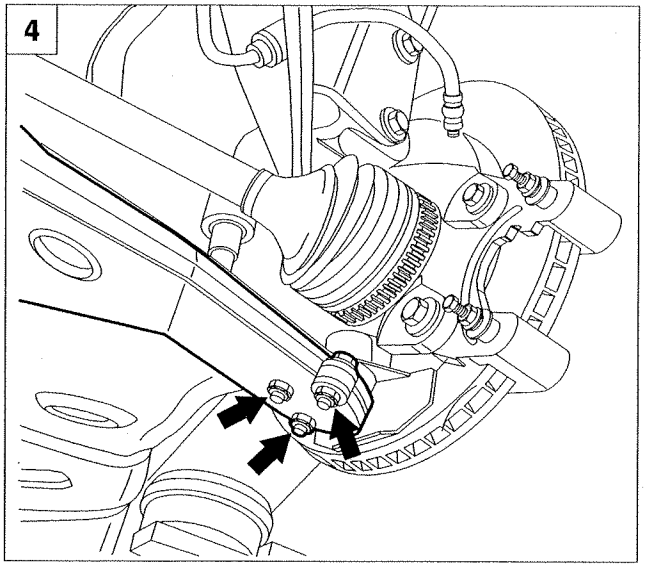


1. Disconnect the brake pad wear sensor connector (arrowed) and move aside the electrical wiring.
2. Undo the bolts (arrowed) and remove the brake caliper, securing it temporarily to the steering subframe, taking care not to place the pipe under tension.
3. Undo the bolts securing the left drive shaft coupling.
4. Undo the bolts (arrowed) securing the lower wishbone arm to the vertical link.
5. Undo the bolts (arrowed) securing the shock absorber to the vertical link, then withdraw the left drive shaft complete with vertical link and brake disc.



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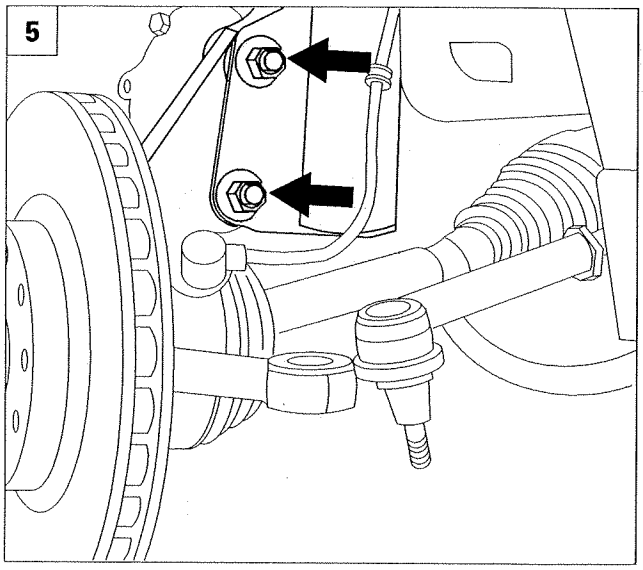
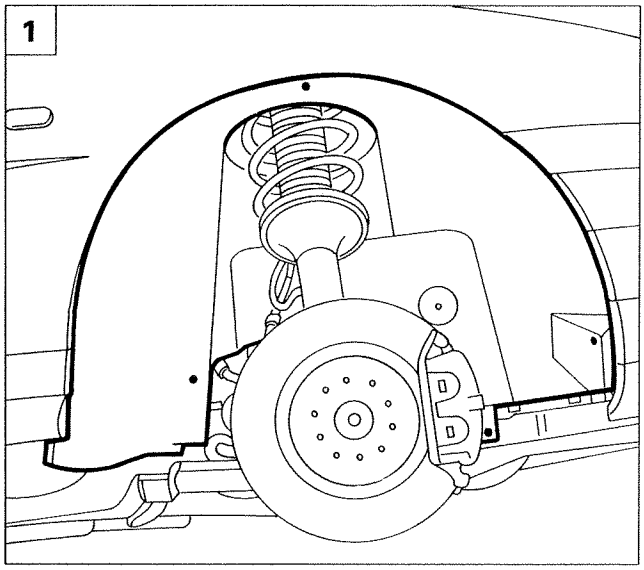


P3U07FB05

21-27.

1



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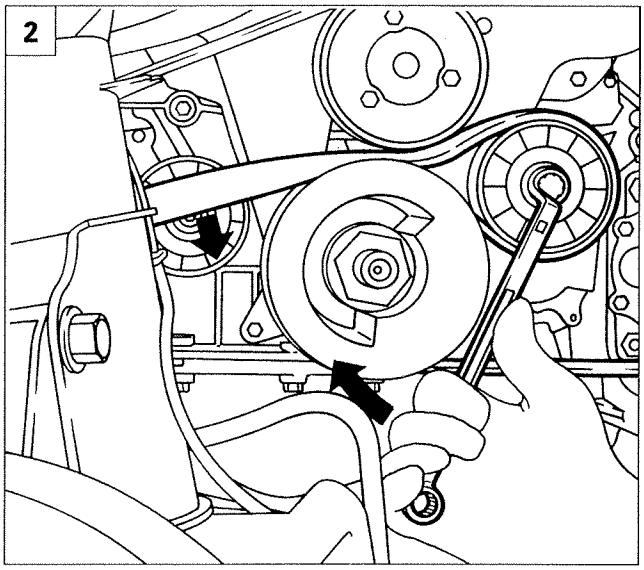

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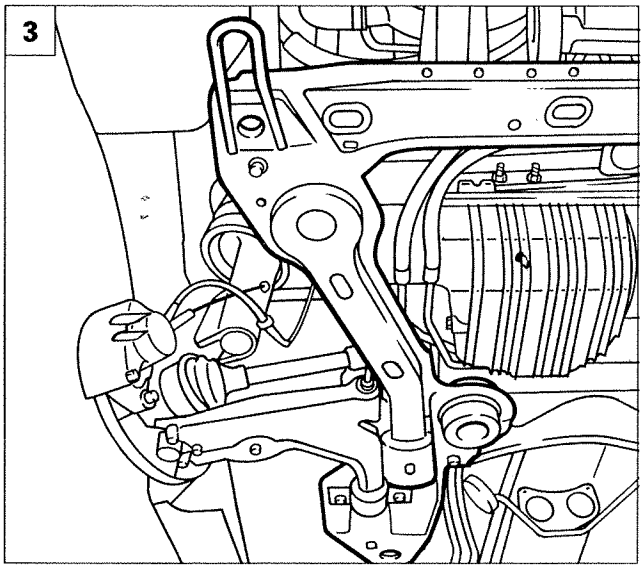
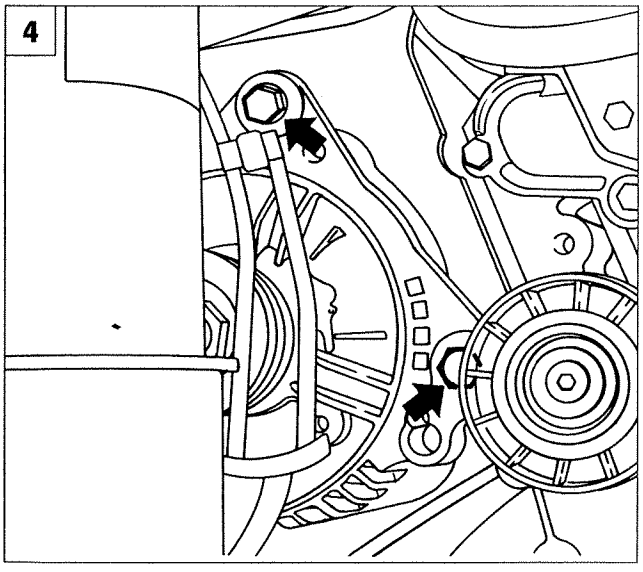


P3U08FB03

1. Remove the right wheelarch (two parts) by undoing the attachments.
2. Using a ring spanner, turn the tensioner anti-clockwise and remove the alternator drivebelt.
3. Place a jack under the front left auxiliary chassis, undo the bolts and lower the chassis by about 2 centimetres, supporting it with the jack.
4. Undo the alternator bolts (arrowed), then do up the bolts without tightening them to the correct torque.
5. Rotate the alternator to gain access to the electrical wiring, then disconnect the cables and remove the alternator.

4



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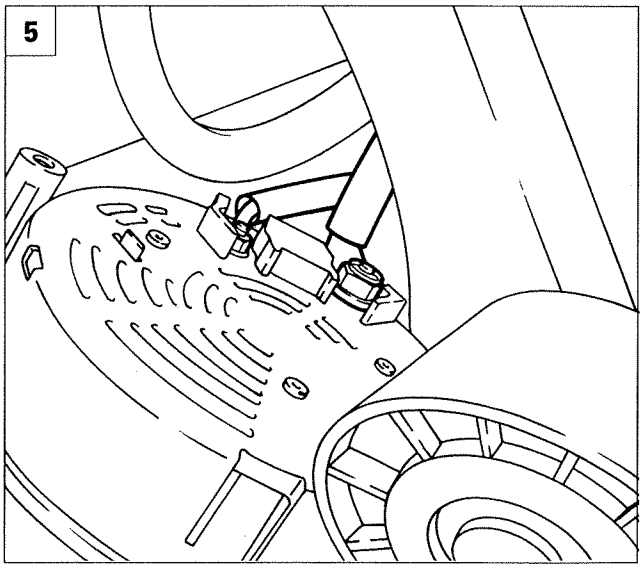

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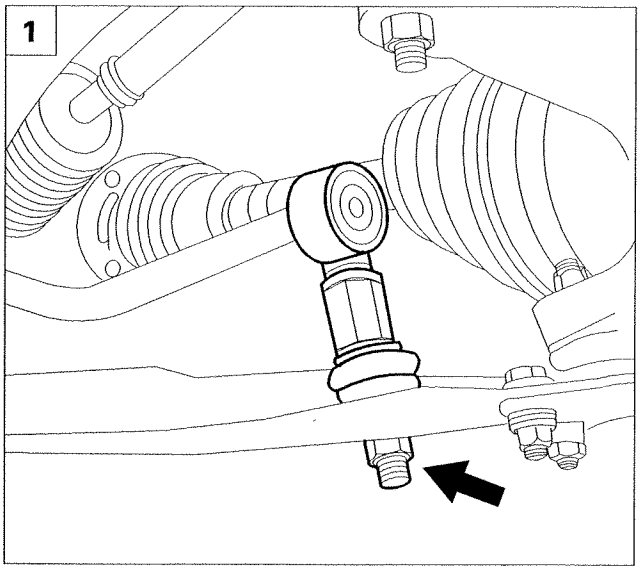

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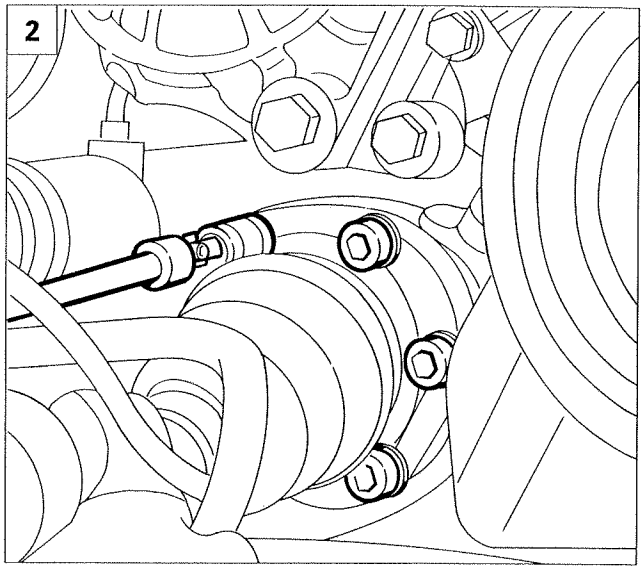

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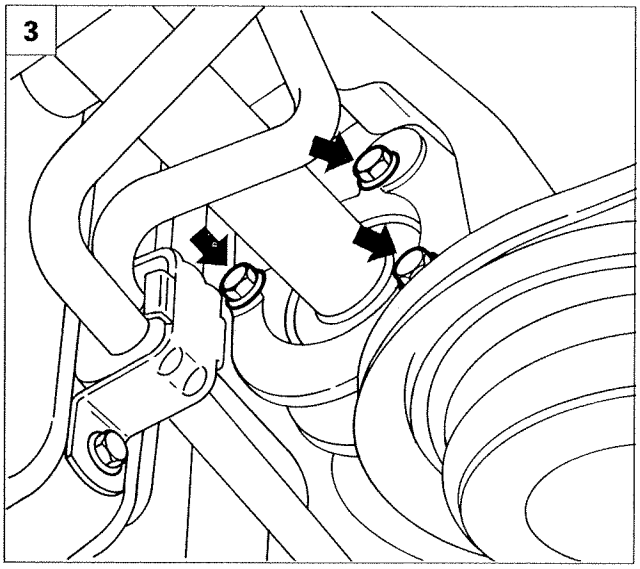

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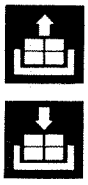
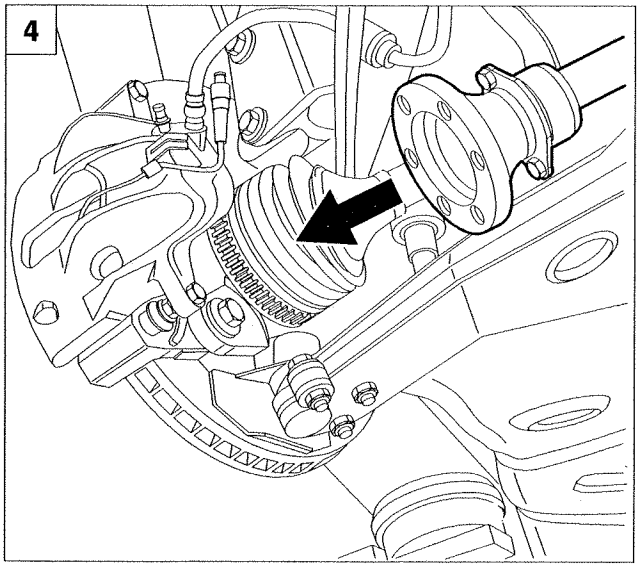


1. Undo the nut securing the anti-roll bar link to the wishbone.
2. Undo the bolts securing the right drive shaft coupling and move it to the rear of the compartment.
3. Undo the bolts (arrowed) on the intermediate shaft.
4. Withdraw the intermediate shaft from the differential.
5. Undo bolts (arrowed) and remove the heat shield.



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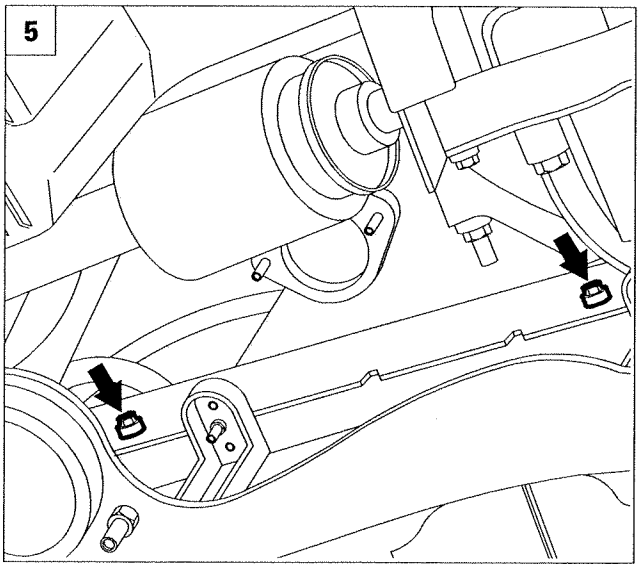

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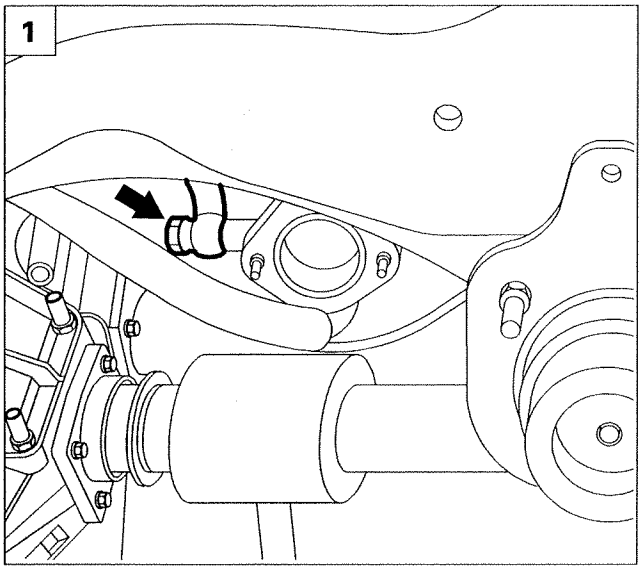
21-27.



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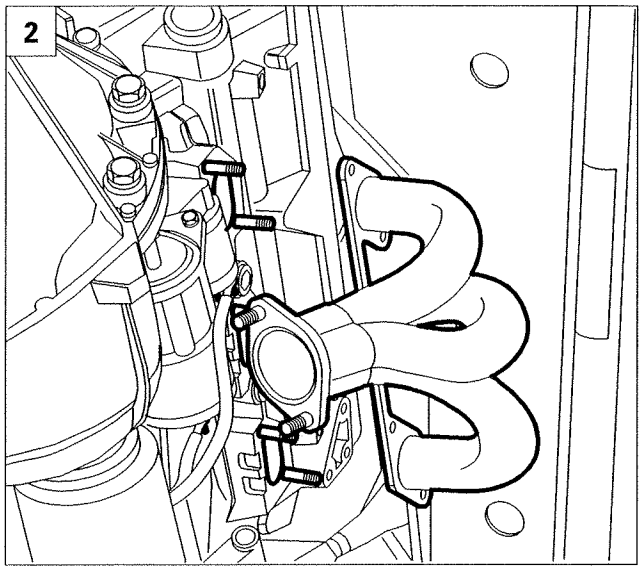

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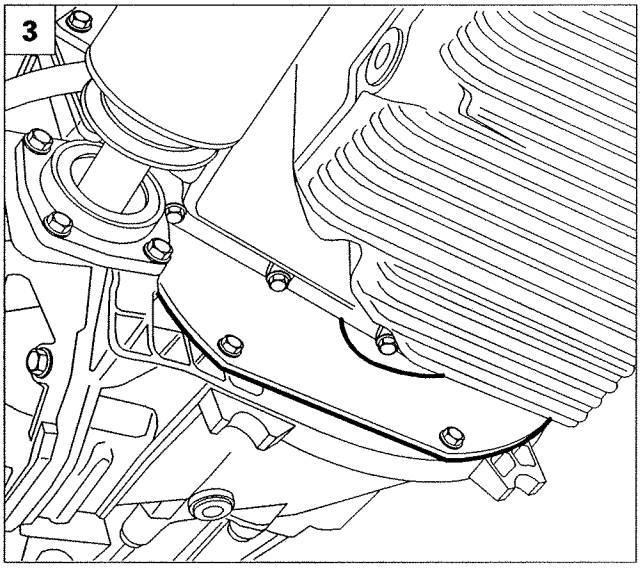
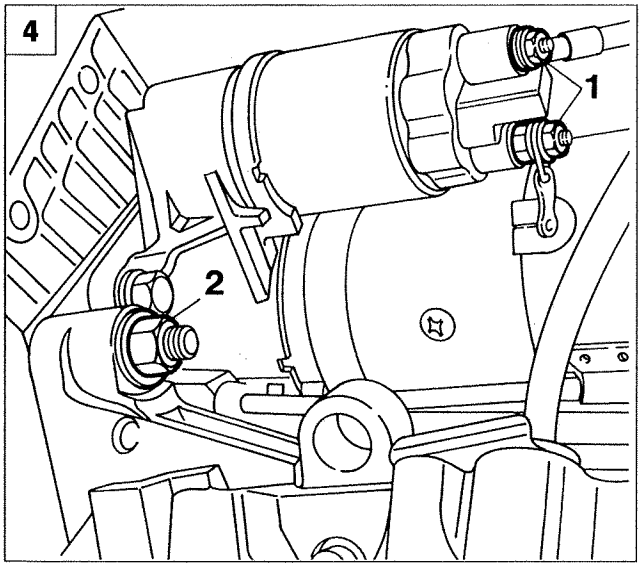


P3U10FB03

1. Undo the bolt (arrowed) and remove the EGR intake pipe.
2. Undo the bolts and remove the rear exhaust manifold by rotating it as appropriate and withdrawing it from the right wheelarch.
3. Undo the bolts and remove the flywheel shield.
4. Disconnect the supply cables (arrowed) on the starter motor (1); also undo the nut (2) securing the gearbox to the engine block.
5. Undo the three bolts (arrowed) and remove the starter motor.



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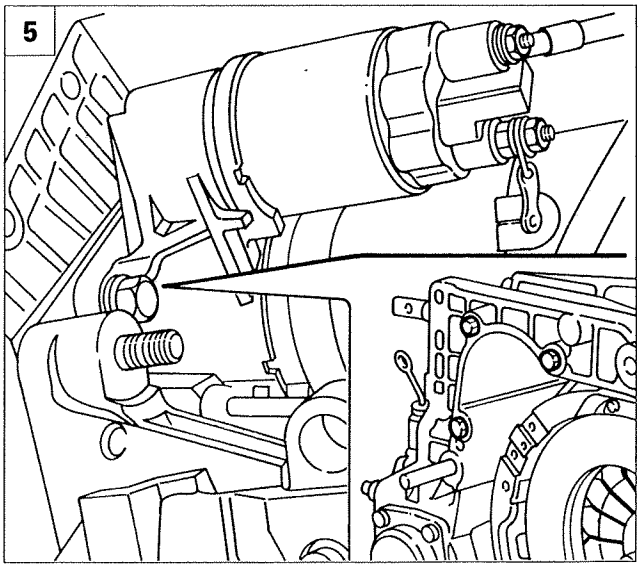

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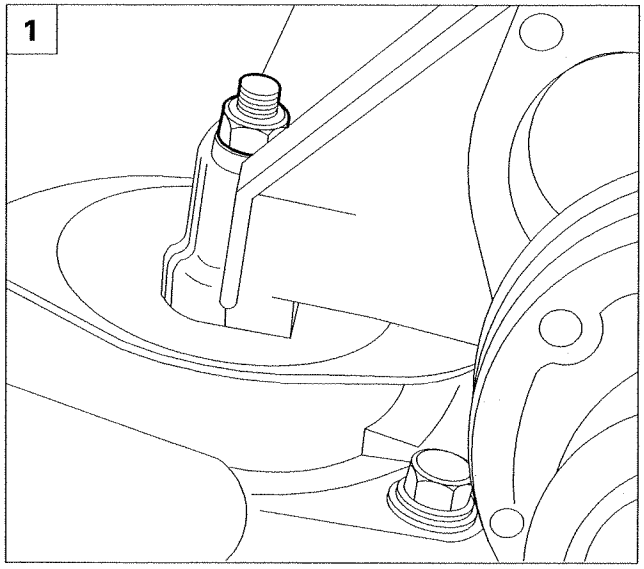

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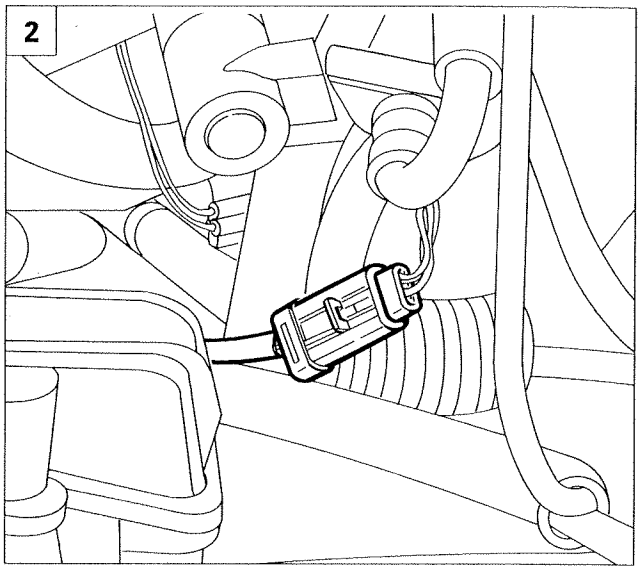

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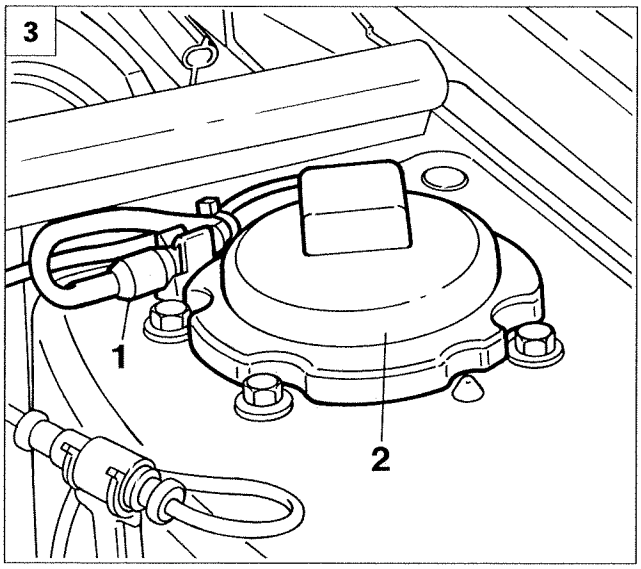

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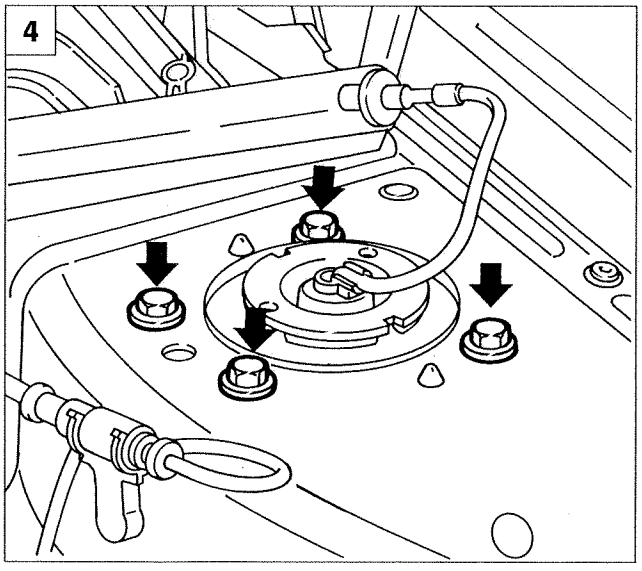


P3U11FB04

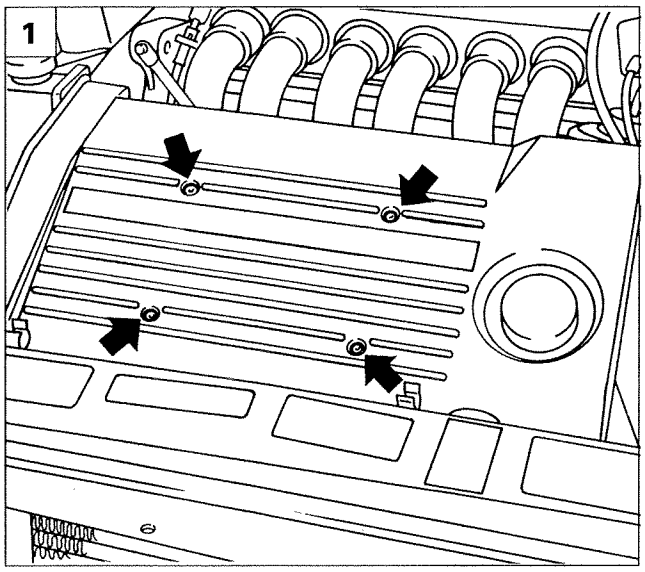
1. Undo the nut securing the rear right mounting to facilitate the movements of the power unit during withdrawal of the gearbox.
2. Disconnect the vehicle speed sensor connector.

Lower the vehicle, then proceed as follows.

3. Working on the left side, disconnect the connector (1) and remove the cover (2) which is a press fit, releasing the wiring.

4. Undo the bolts (arrowed) and remove the left spring-shock absorber assembly.

21-27.



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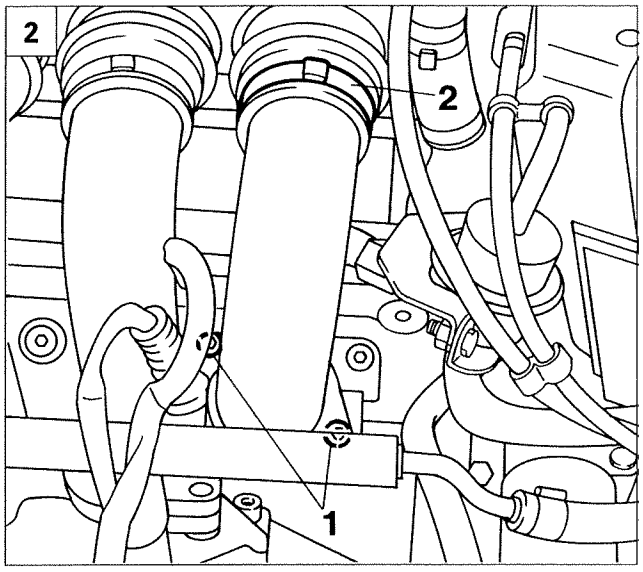

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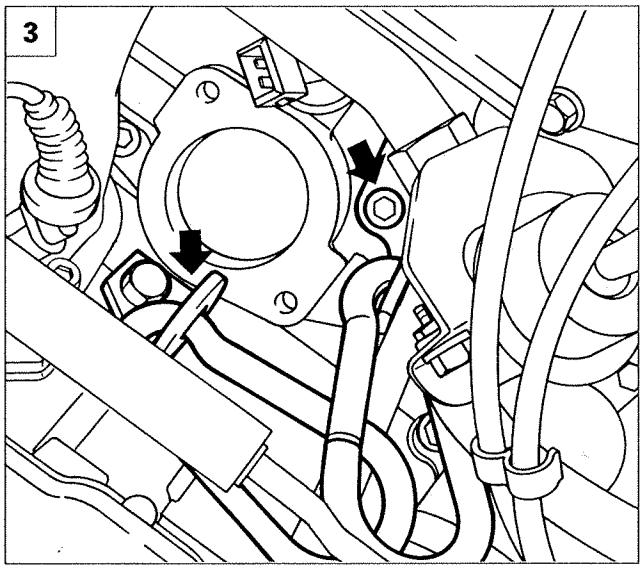

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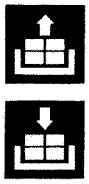
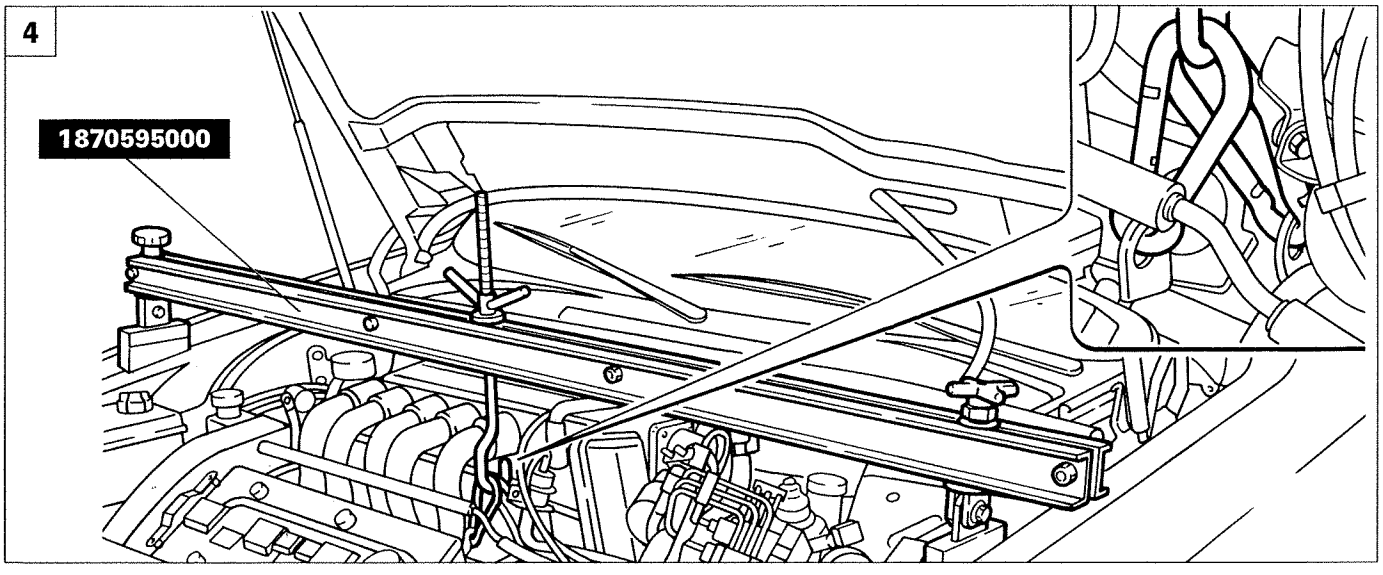


1. Undo the screws (arrowed) and remove the cylinder head top cover.
2. Undo the two bolts (1), undo the clip (2), remove the inlet stub pipe and block the inlet manifold.

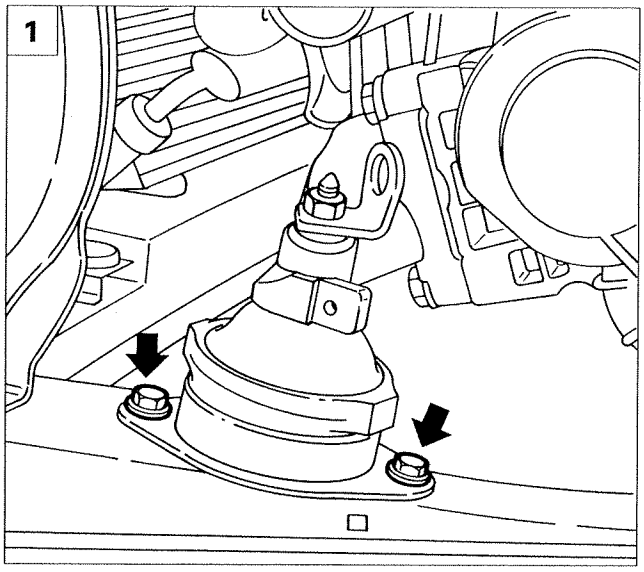
3. Using the bolts arrowed in the figure, fit two L-brackets suitably shimmed so that their eyelets are at the same height.

4. Fit tool 1870595000 and hook the previously mounted brackets by means of two eyebolts, so as to support the power unit.



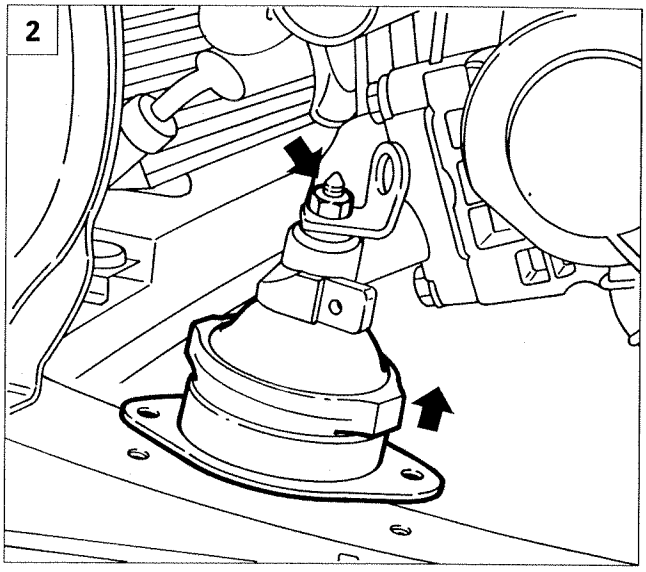
P3U12FB04

1



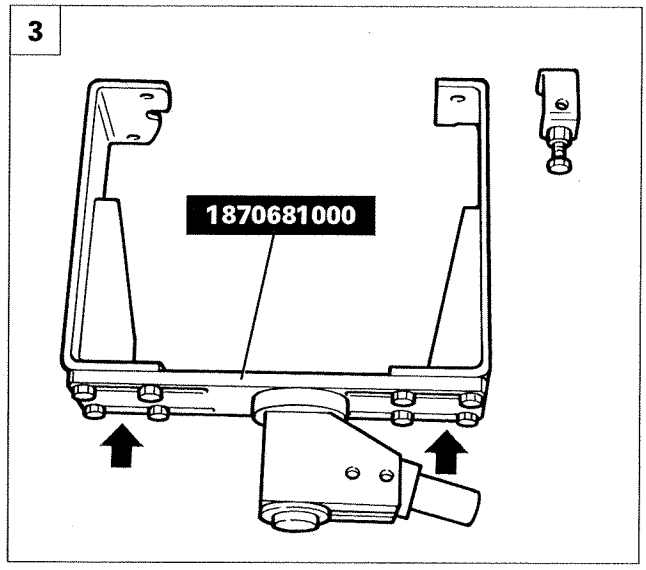
P3U13FB01

2

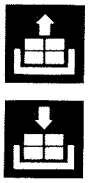


P3U13FB02

3



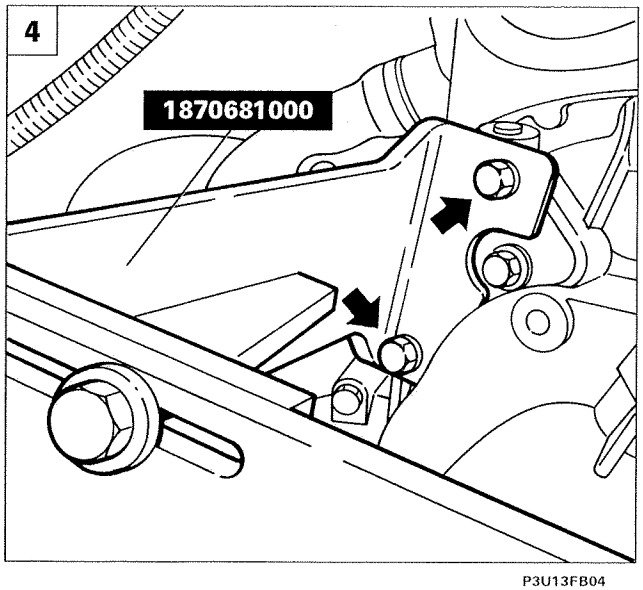
P3U13FB03



Raise the vehicle, then proceed as follows:

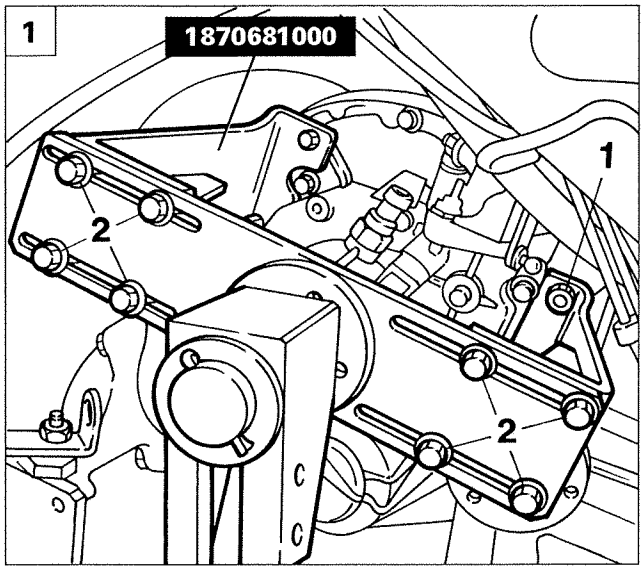
1. Undo the bolts which attach the bottom left mounting (gearbox side) to the auxiliary chassis.
2. Gently lift the power unit by operating the adjustable support of tool 1870595000, undo the nut (arrowed) and remove the mounting.
3. Fit the tool 1870681000, slackening the adjustment bolts (arrowed).

4



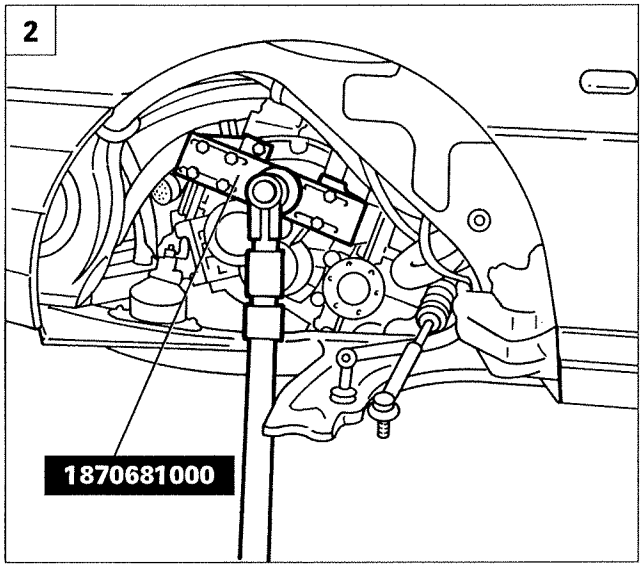
P3U13FB04

4. Fit the tool 1870681000 on the gearbox unit and tighten the two bolts on the left side (arrowed).



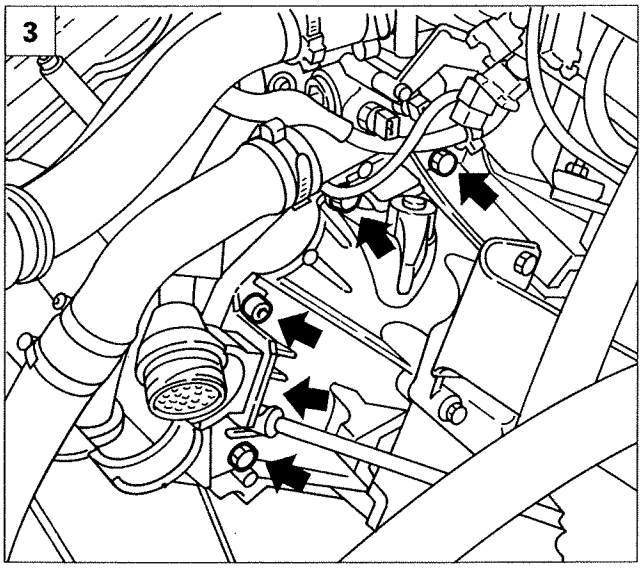
P3U14FB01

1. Fit the block, tightening the locking bolt (1), then tighten the tool's adjustment bolts (2).



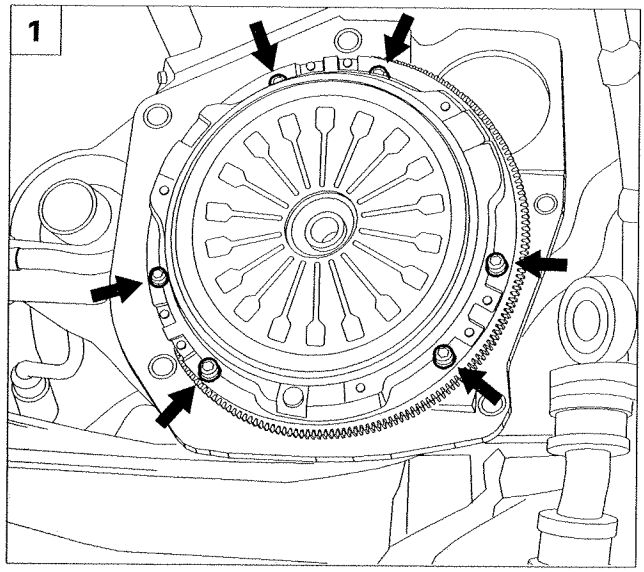
P3U14FB02

2. Place a jack under tool 1870681000.



P3U14FB03

3. Undo the bolts (arrowed) securing the gearbox to the engine block, then manoeuvre the gearbox-differential unit as appropriate to release it from the centring pins on the engine block, and so that the main shaft can be withdrawn from the clutch plate.

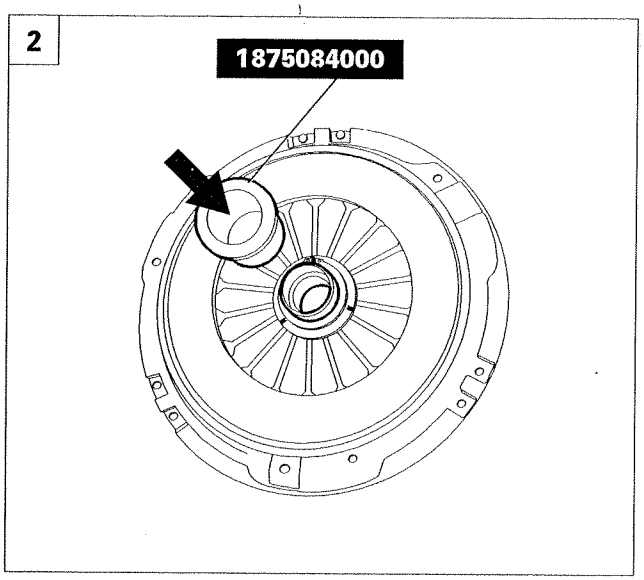


P3U15FB01

REFITTING

Before refitting the gearbox-differential unit, withdraw the clutch release bearing from the clutch diaphragm spring and refit it in the clutch release fork, as follows.

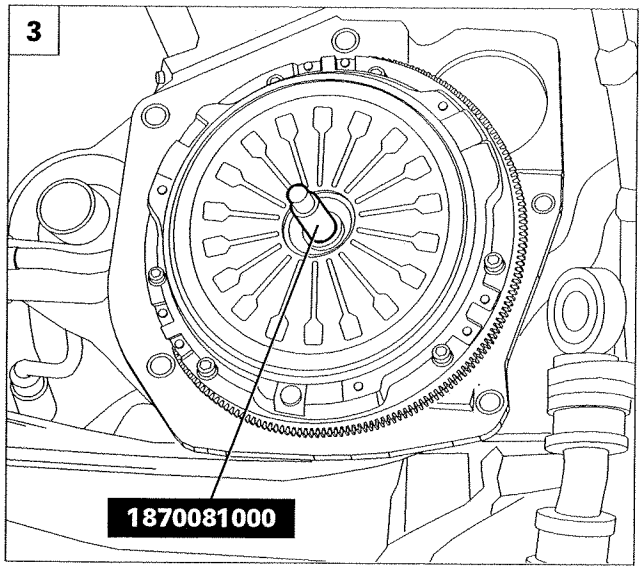
1. Remove the clutch assembly by undoing the bolts (arrowed).



P3U15FB02

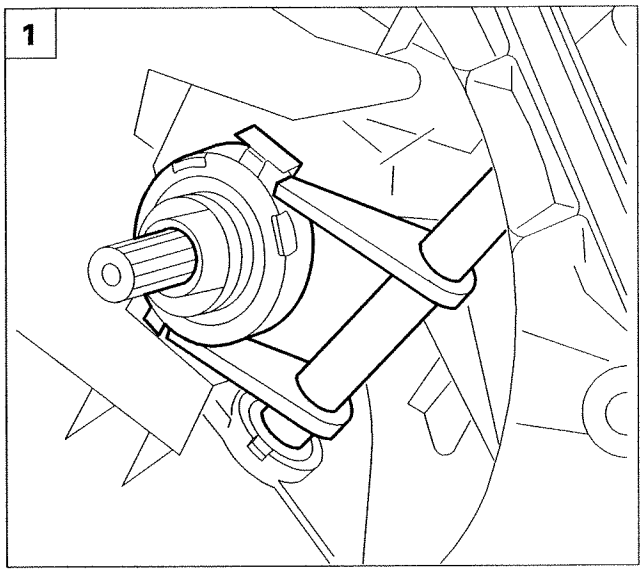
2. Remove the clutch release bearing from the clutch spring using tool 1875084000.

NOTE *The bearing must not stick or be noisy, otherwise it will have to be replaced.*



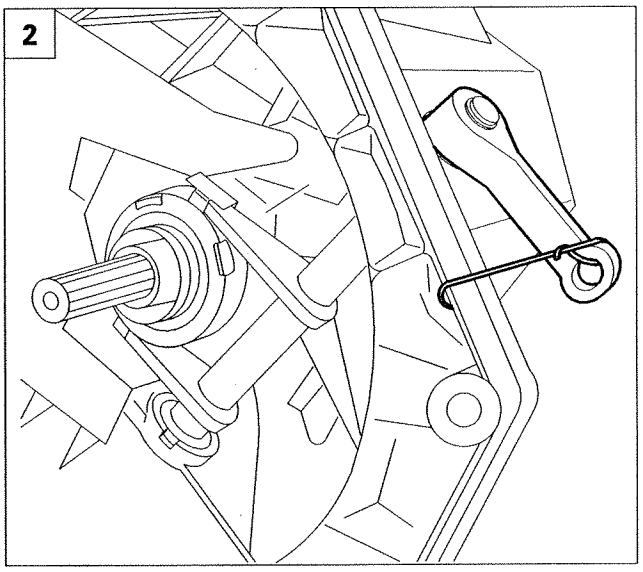
P3U15FB03

3. Line up the driven plate using the centring pin 1870081000 and fit the clutch assembly.



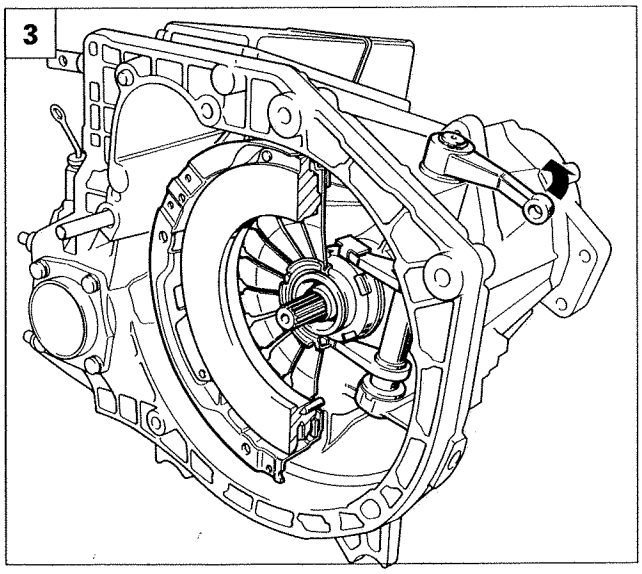
P3U16FB01

1. Place the clutch release bearing on the sleeve of the gearbox main shaft, as shown in the figure.



P3U16FB02

2. Fasten the clutch release lever as shown in the figure.

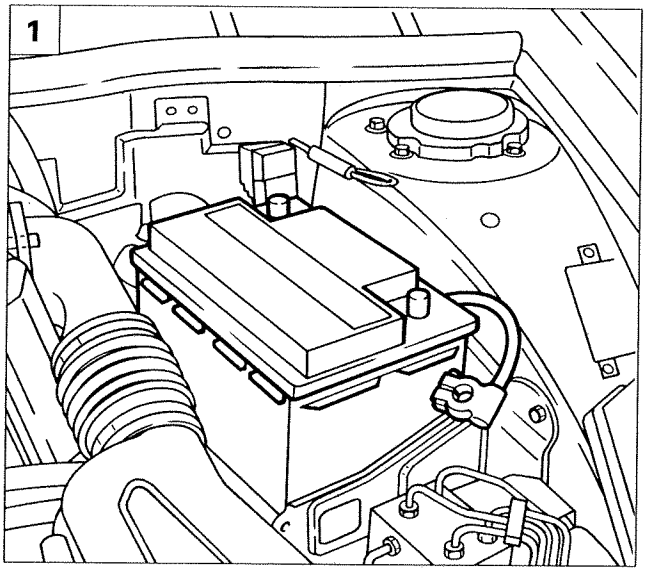


P3U16FB03

3. Refit the gearbox-differential unit, securing it to the engine block, then push the clutch release lever (arrowed) with force so as to hook the clutch release bearing onto the clutch diaphragm spring.

Refit the gearbox-differential unit in reverse order to removal.

NOTE *When refitting the gearbox cables, follow the procedure described in the "Gear selector linkage" sub-section.*

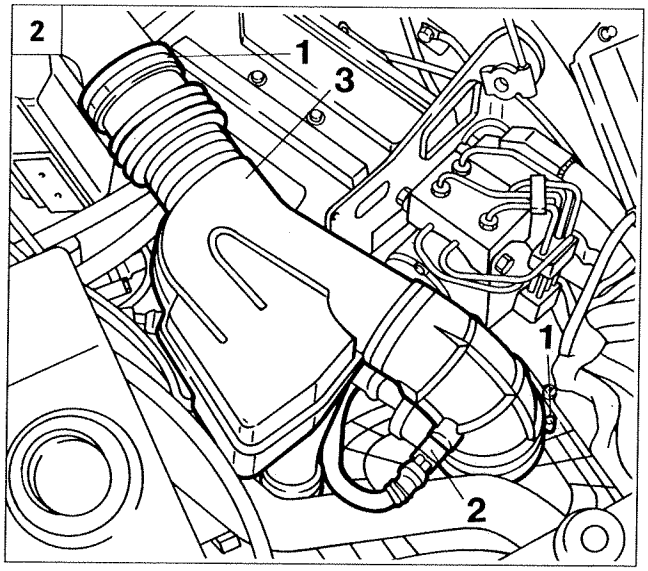


P3U01FB01

REMOVING GEAR SELECTOR LINKAGE ASSEMBLY

Place the vehicle on ramps and proceed as described below:

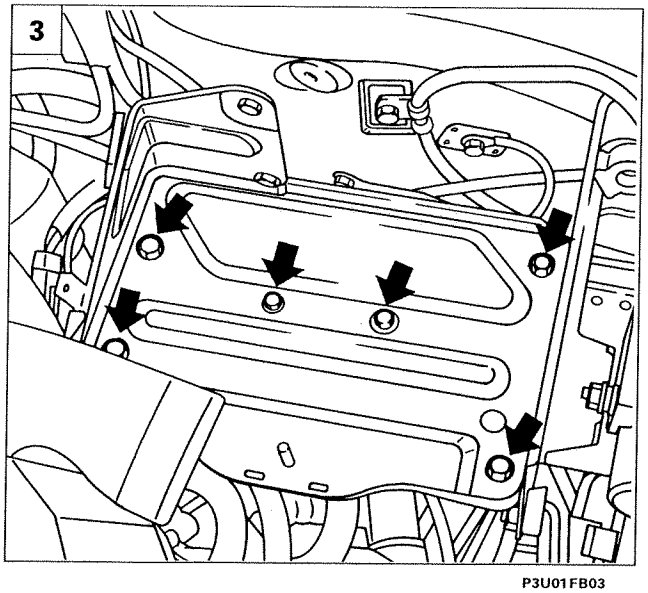
1. Working from the engine compartment, disconnect both connectors from the battery, then undo the nut securing the battery to the cage and remove the battery.



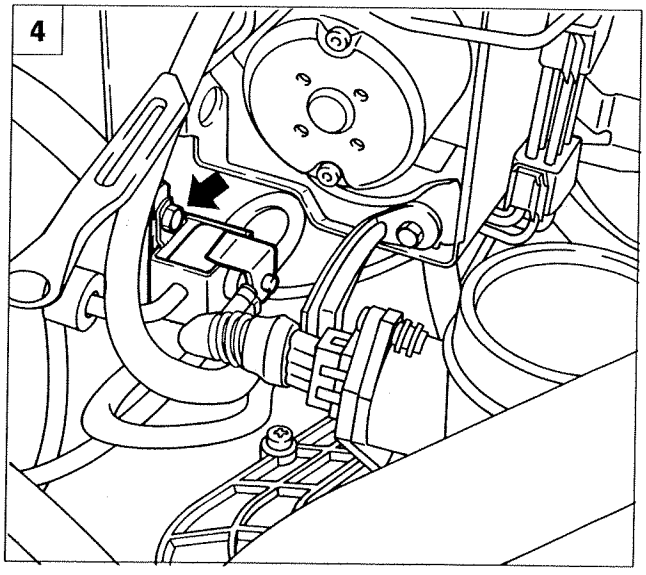
P3U01FB02

2. Undo the two clips (1), disconnect the air temperature sensor connector (2) and remove the resonator (3), releasing it from the bottom centring bracket.

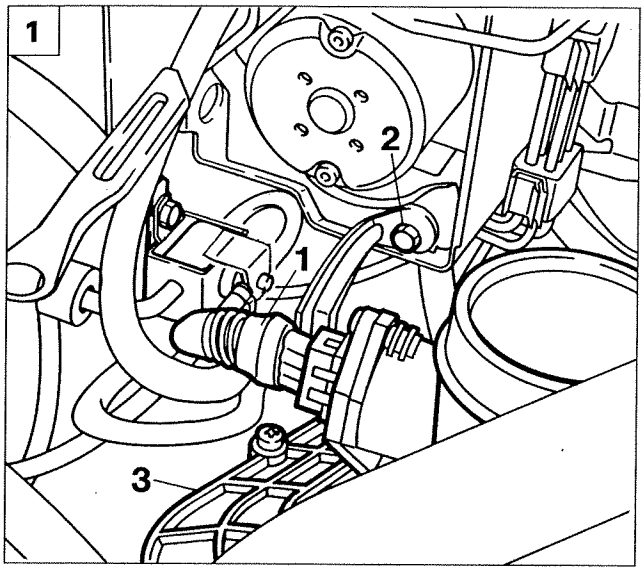
3. Remove the rubber mat from the battery cage, then undo the bolts (arrowed) and remove the battery.
4. Remove the bolt (arrowed) and move aside the EGR solenoid complete with bracket and pipes.



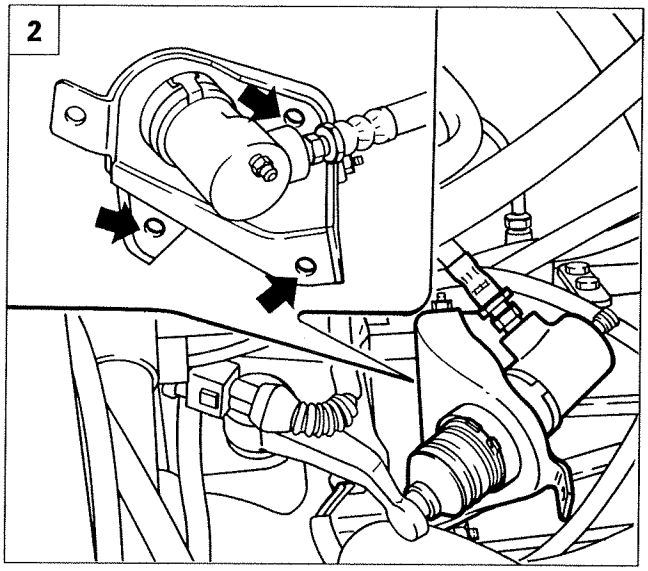
P3U01FB03



P3U01FB04



P3U02FB01



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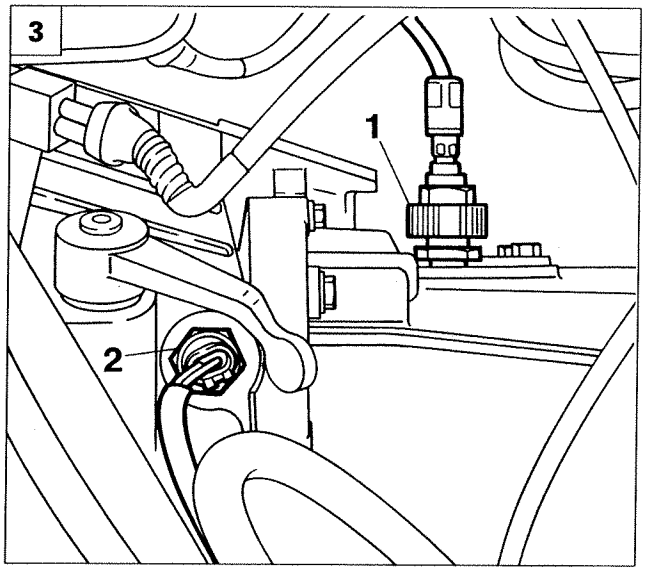
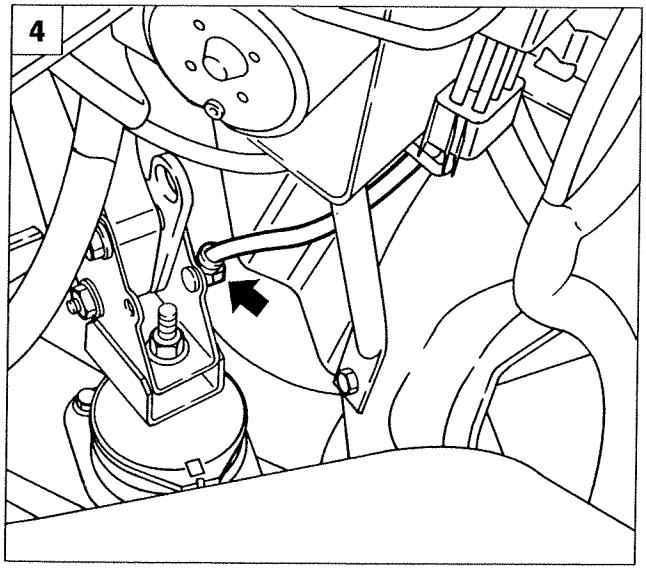


P3U02FB03

1. Disconnect the air flow meter connector (1), undo the bolt (2) securing the bracket and remove the air cleaner case (3), releasing it at the bottom from the intake hose, and withdrawing it from the rubber mountings.
2. Undo the bolts (arrowed) securing the clutch cylinder.
3. Undo the reverse inhibition cable ringnut (1) and disconnect the reversing light connector (2).
4. Disconnect the earth cable (arrowed) from the gearbox mounting.
5. Undo the three bolts (arrowed) securing the engine electrical system connector mounting bracket and disconnect the connector.



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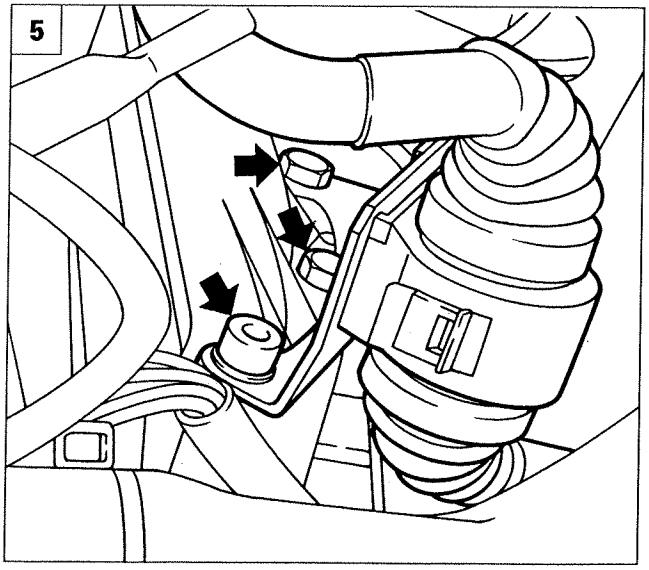
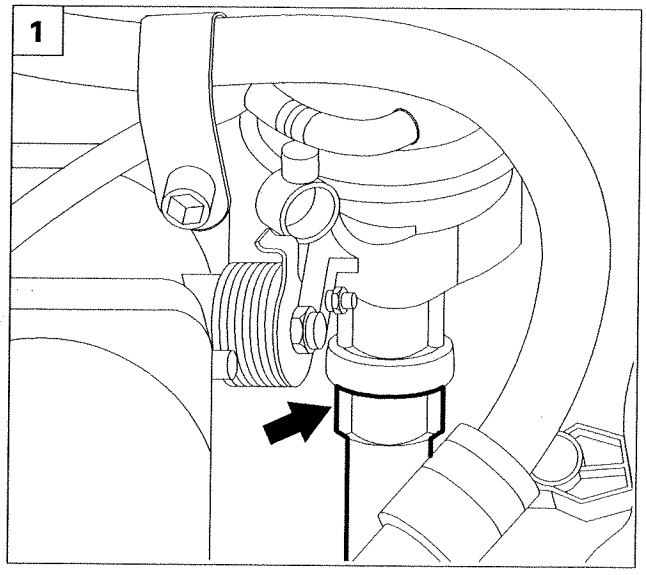
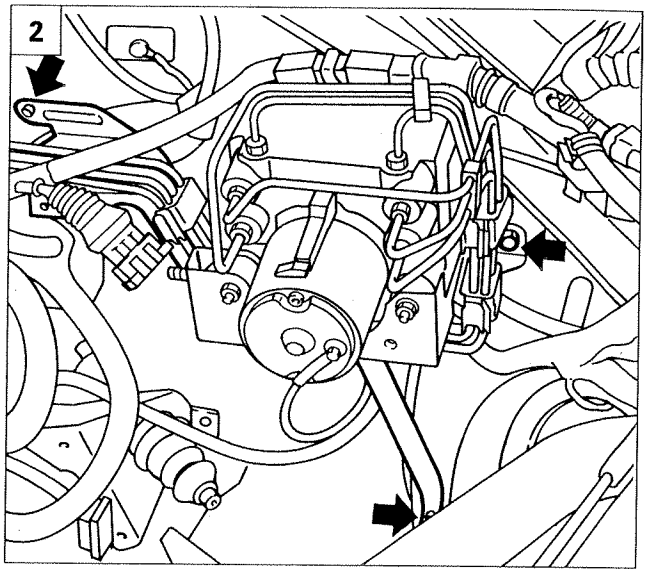


P3U02FB05



P3U03FB01



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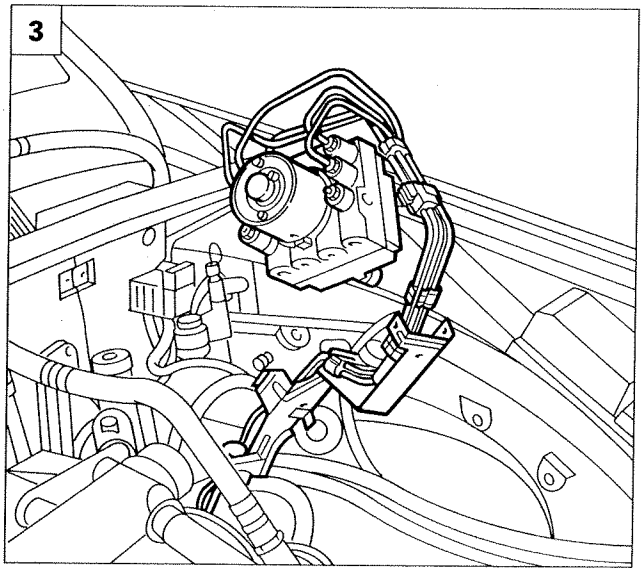
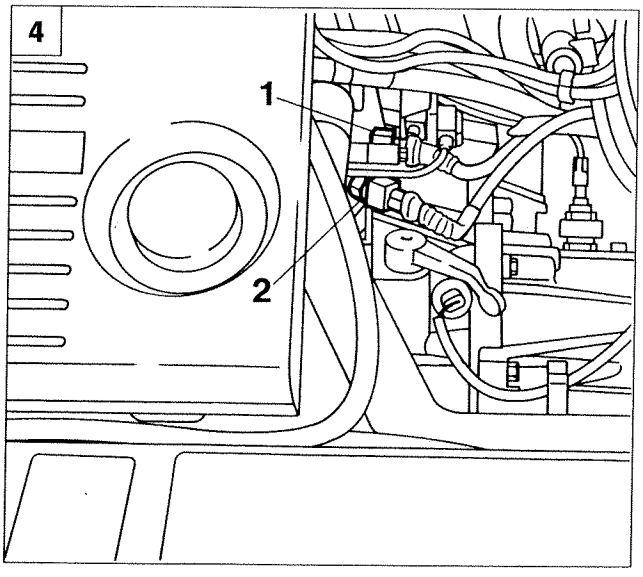


P3U03FB03

1. Undo the nut (arrowed) on the EGR valve pipe connection.
2. Undo the bolts (arrowed) securing the mounting bracket for the brake pipes and ABS electrohydraulic unit.
3. Move aside the ABS electrohydraulic unit and secure it temporarily outside the work area, taking care not to damage or bend the pipes.
4. Disconnect the coolant temperature sensor connectors (1) and (2) and move aside the wiring and clutch cylinder.
5. Remove the spherical heads from the gear engagement lever (3) and gear selector lever (4).



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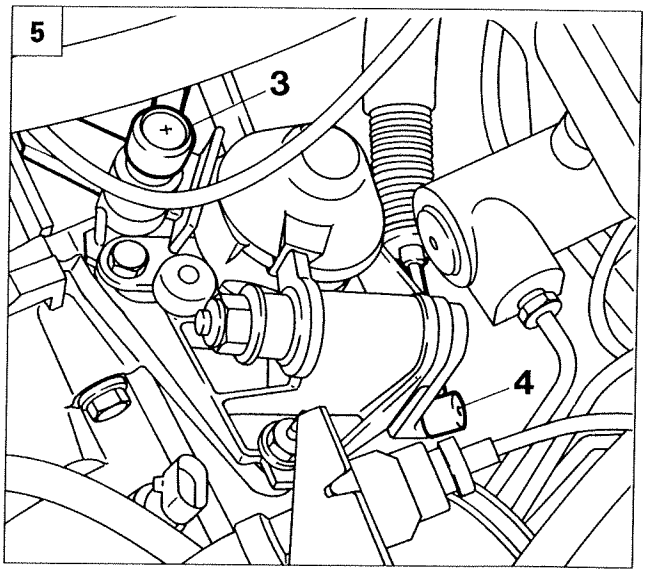

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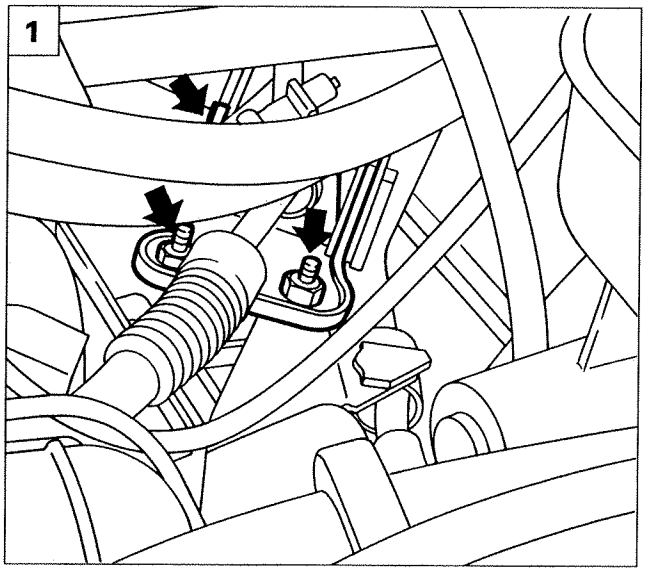
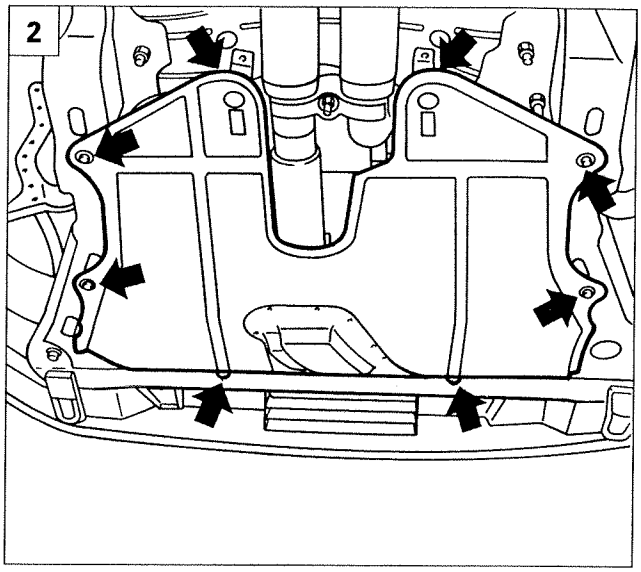
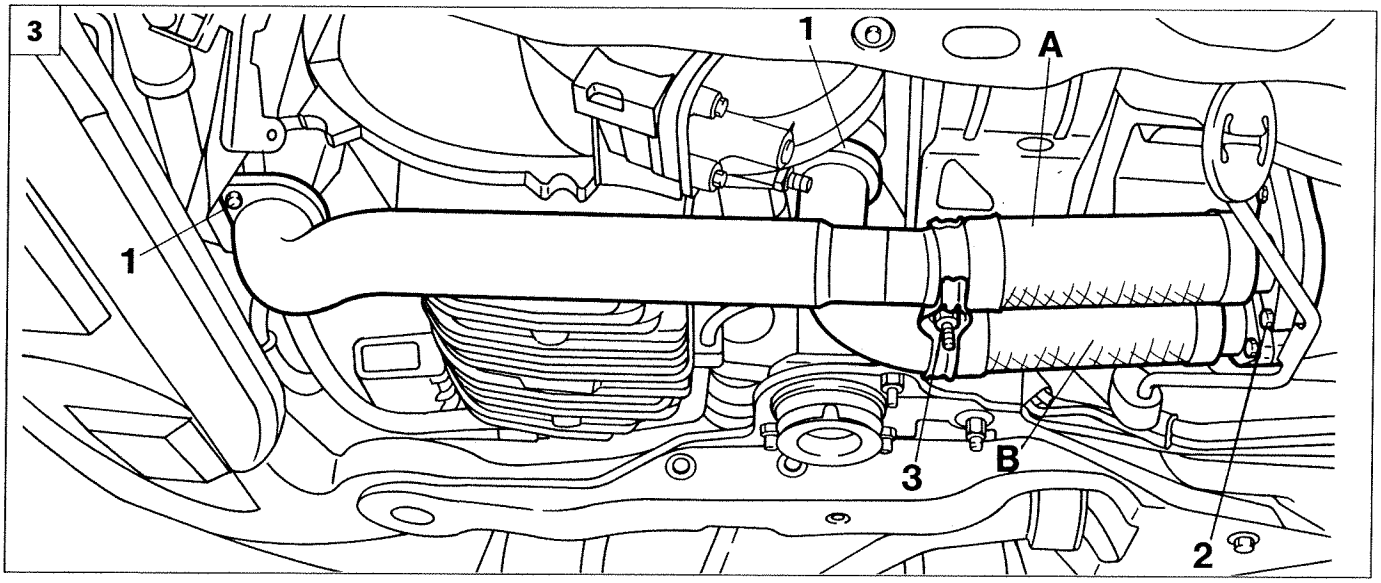


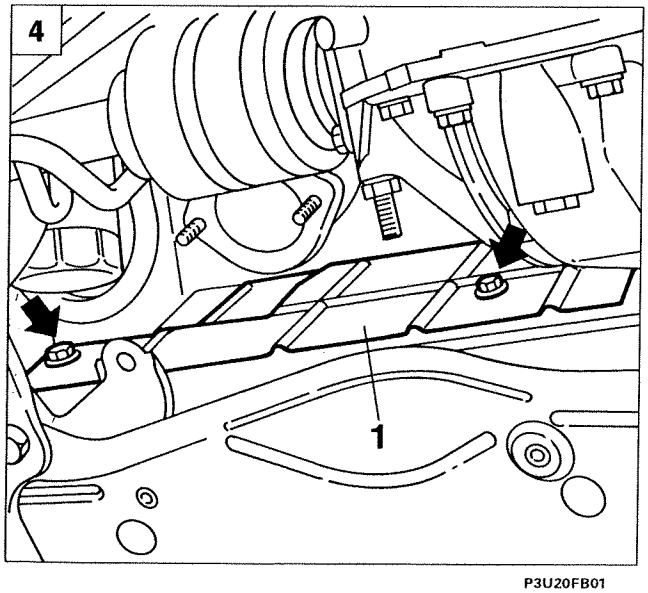
P3U04FB01



P3U05FB02

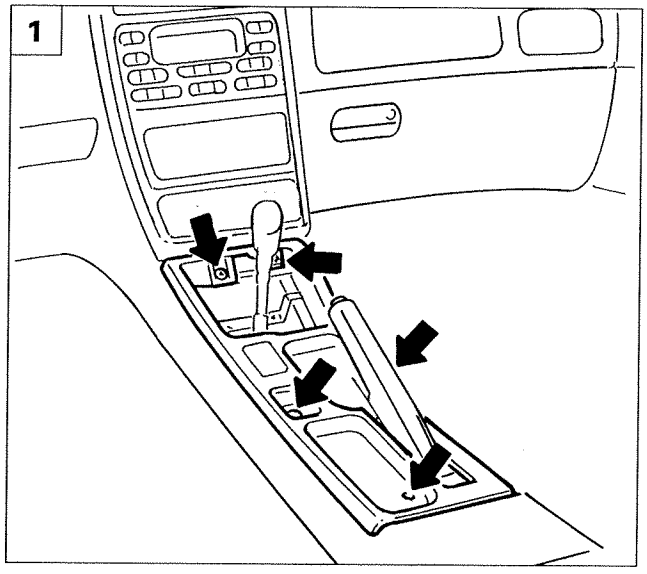


P3U05FB03



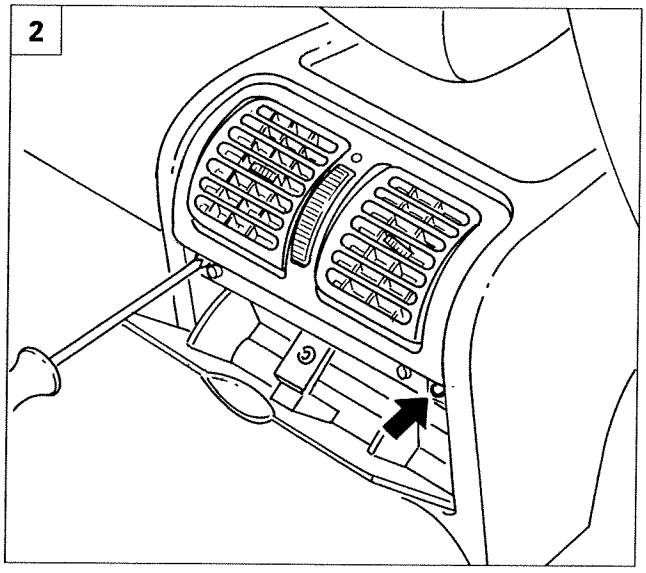
P3U20FB01

1. Undo the nuts (arrowed) securing the flexible cable mounting bracket and disconnect it from the gearbox casing.
2. Raise the car and, working under the vehicle, undo the bolts (arrowed) and remove the engine compartment bottom guard.
3. Undo the attachment bolts to the manifold (1) and catalytic converter (2), and the bracket bolt (3), and remove the first section of the front (A) and rear exhaust pipe (B).
4. Undo the bolts (arrowed) of the steering box heat shield (1) and remove the shield.



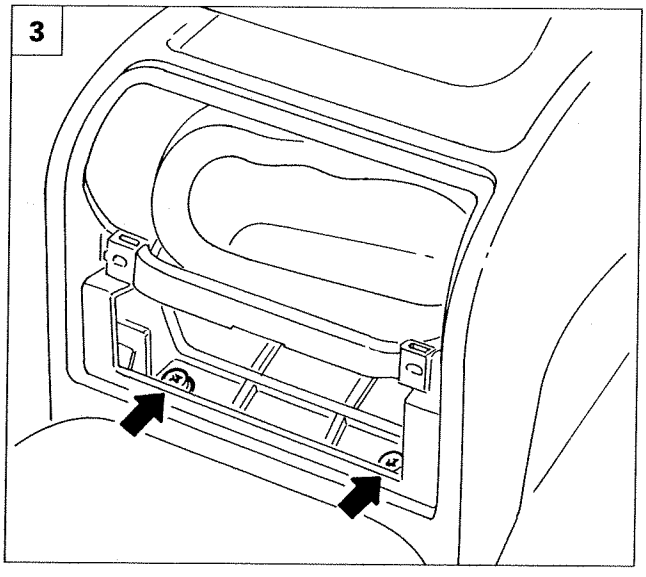
P3U21FB01

1. Undo the points arrowed and remove the front trim from the tunnel.

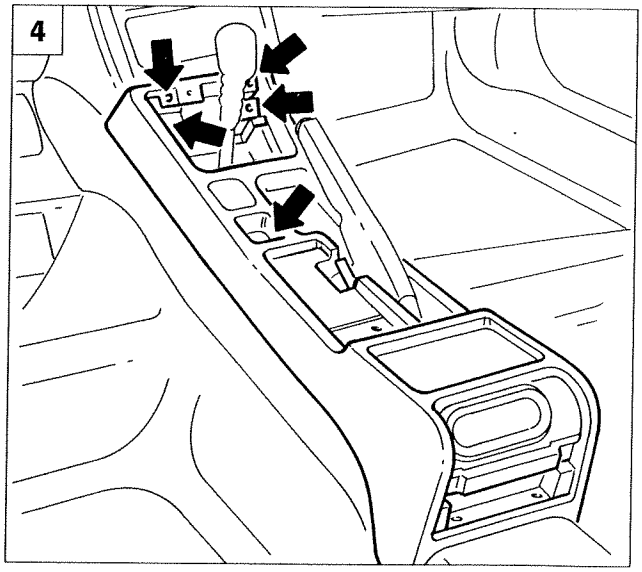


P3U21FB02

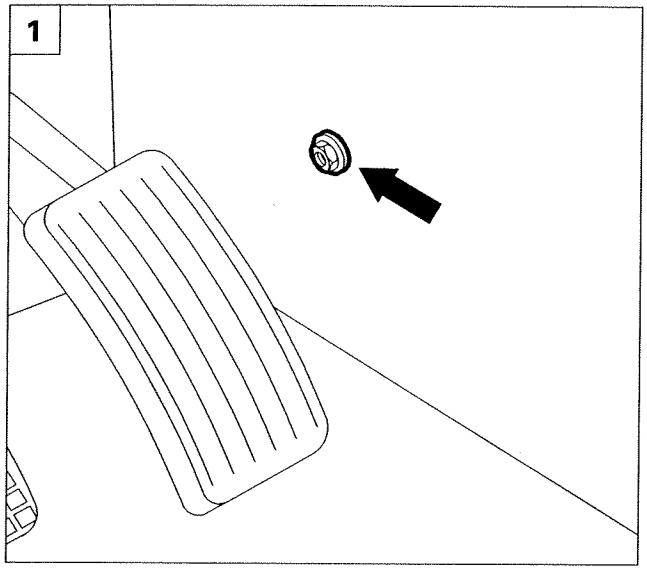
2. Remove the rear air vents.
3. Undo the rear bolts ssecuring the tunnel trim.
4. Fold down the seat, then remove the tunnel trim by undoing the screws shown.



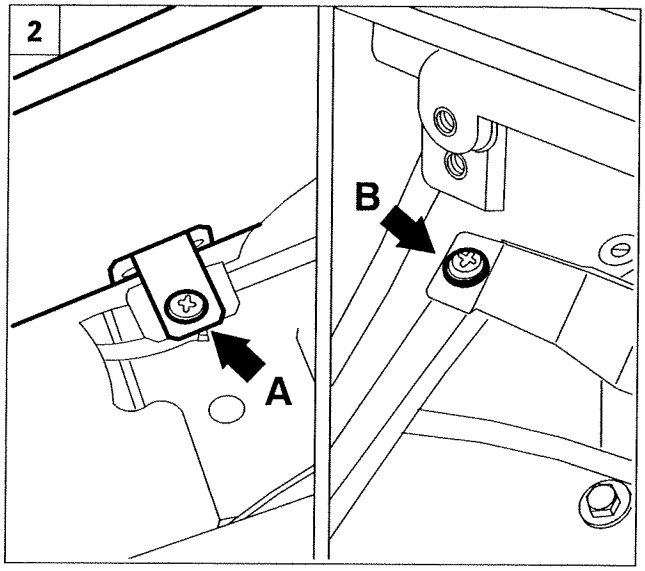
P3U21FB03



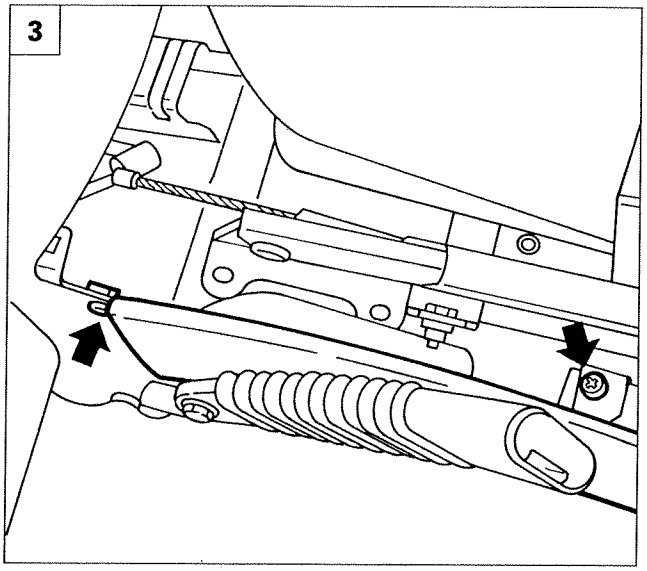
P3U21FB04



P3U22FB01



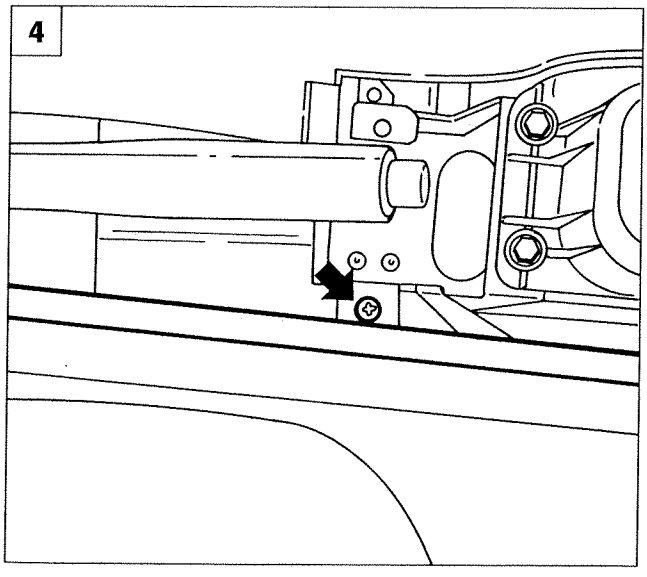
P3U22FB02



P3U22FB03

1. Undo the front bolt (arrowed) on the left bulkhead.
2. Undo the rear side screw (arrow A) and the front side screw (arrow B) on the left bulkhead and remove the latter.

3. Undo the rear screws (arrowed) on the right bulkhead.
4. Undo the front screw (arrowed) on the right bulkhead.
5. Remove the front cover of the right bulkhead (1), undo the screw (arrowed) and remove the bulkhead.



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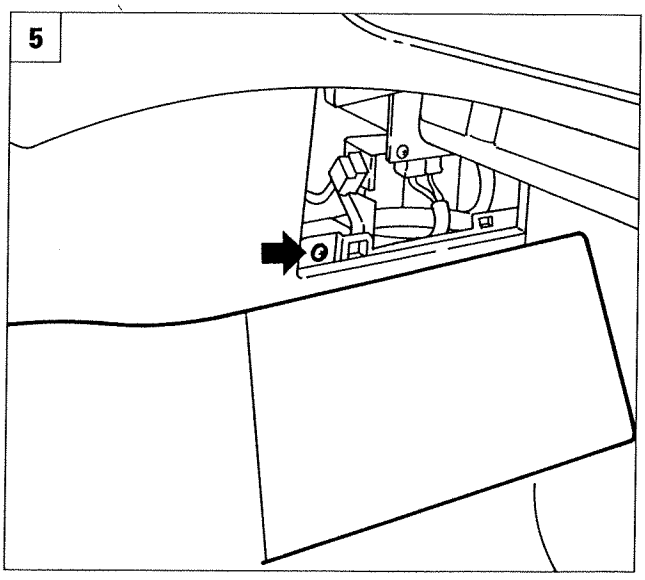
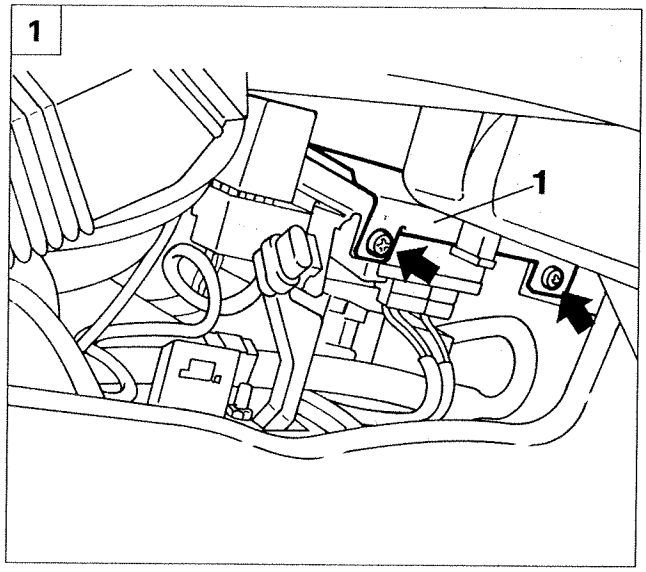


P3U22FB05



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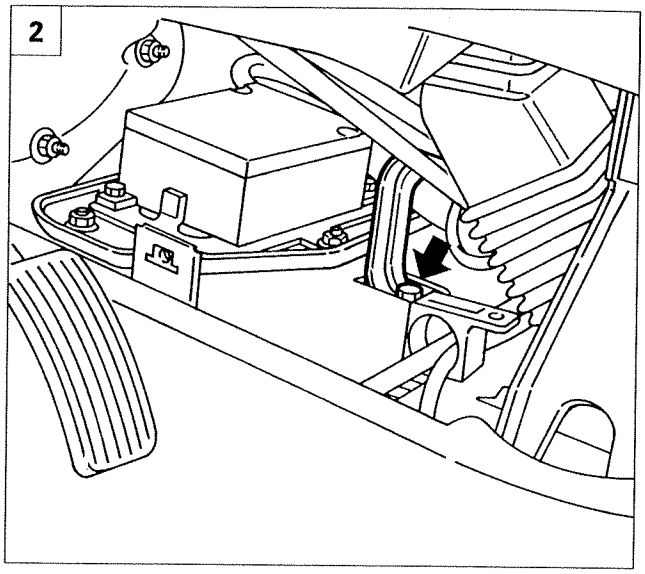

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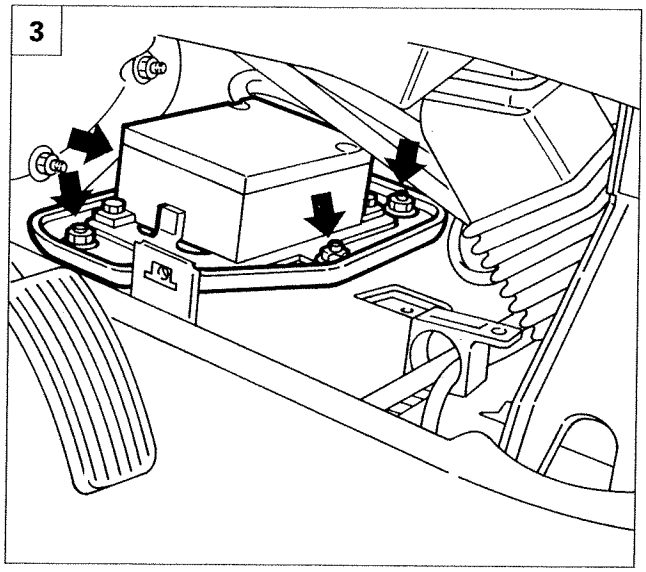
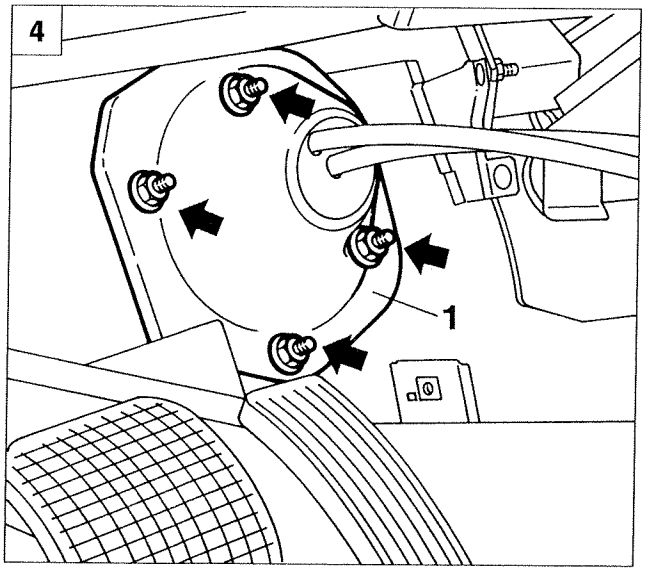


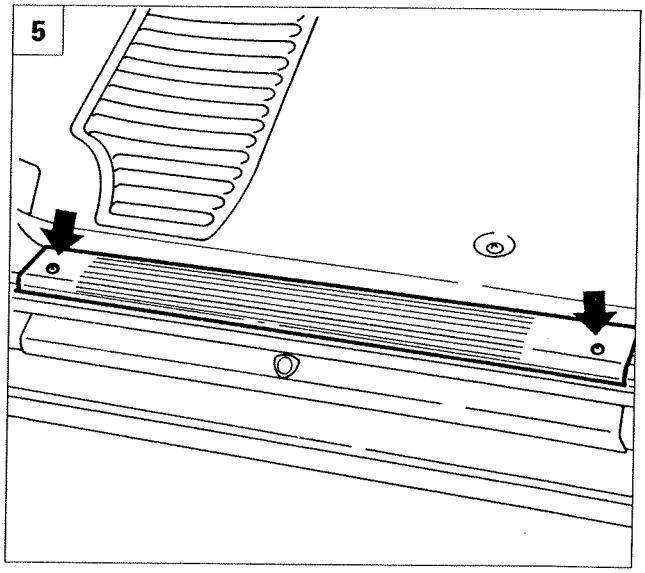
P3U23FB03

1. Undo the screws on the left of the relay mounting bracket (1).
2. Undo the nut (arrowed) on the right and remove the relay mounting bracket.

3. Undo the nuts (arrowed) securing the Air Bag control unit mounting to the body-work and remove the mounting. Remove the front left seat (driver's) as described in Section 70.
4. Undo the nuts (arrowed) of the front shield (1) and remove the latter with the seal.
5. Undo the screws (arrowed) on the left foot tread and remove the latter.



P3U23FB04



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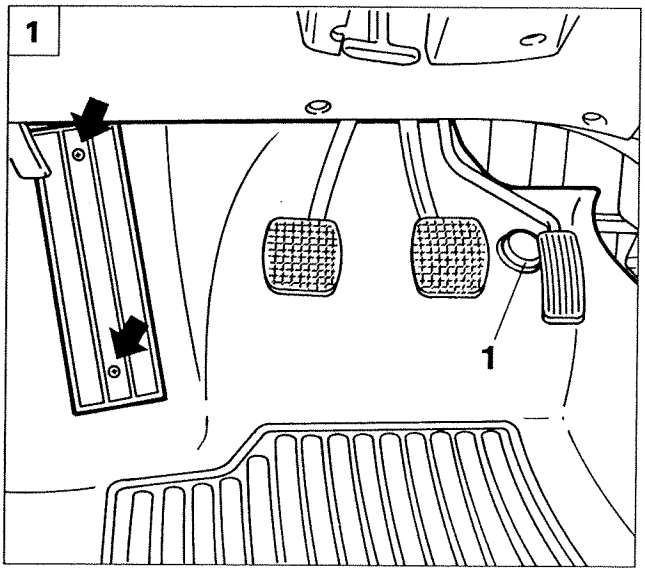
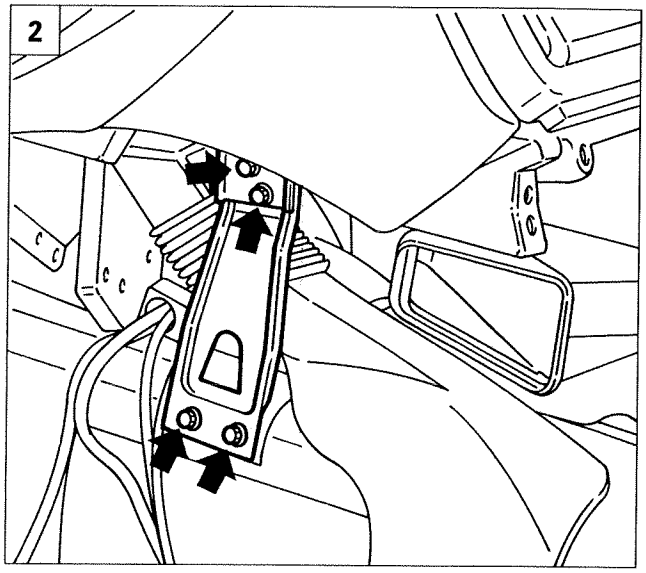


P3U24FB01



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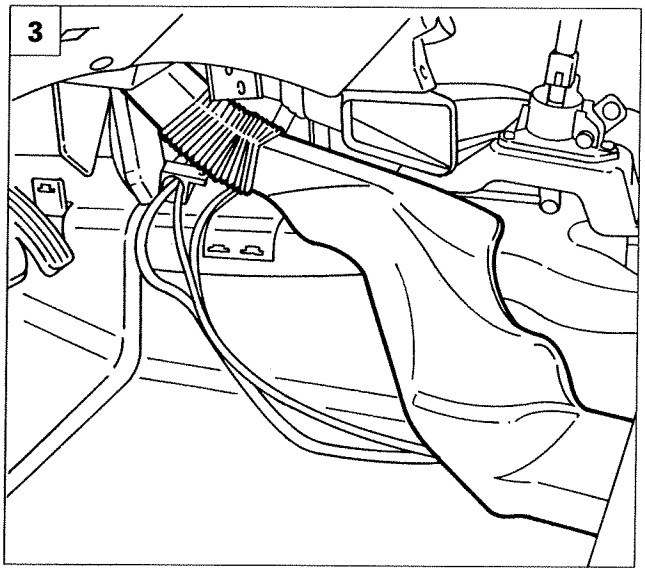
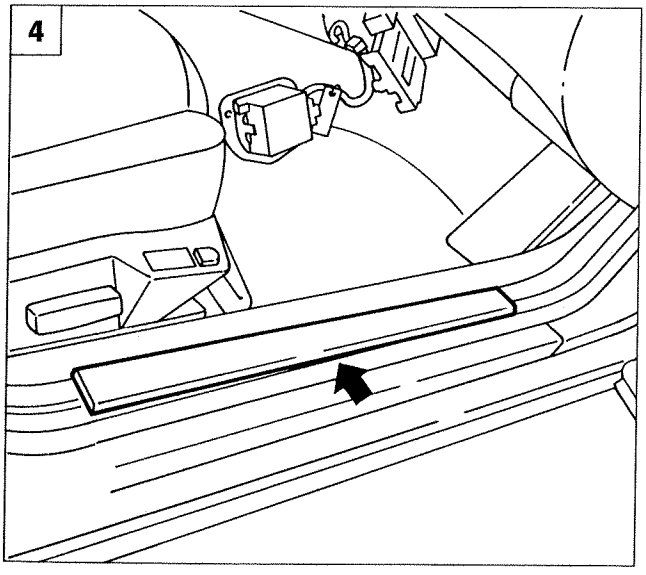


P3U24FB03

1. Undo the two bolts (arrowed) of the left floor trim, undo the limit switch (1) of the accelerator and fold the trim towards the rear of the car.
2. Undo the bolts (arrowed) securing the left dashboard bottom mounting bracket and remove the bracket.
3. Remove the rear left air diffuser.



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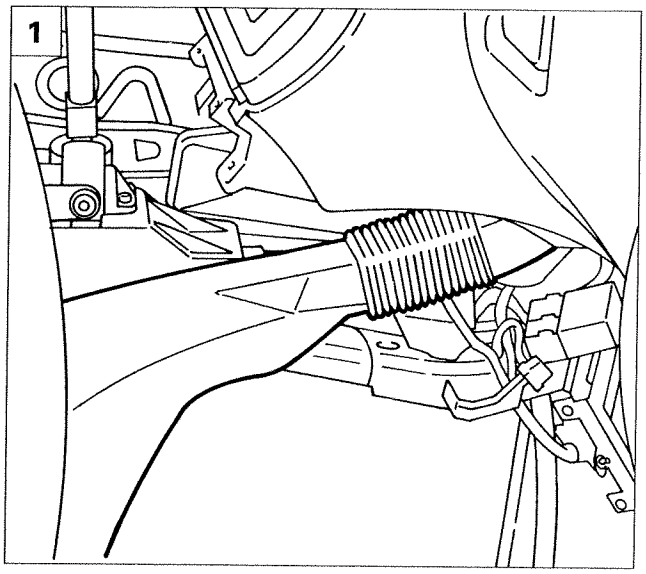
4. Remove the right foot tread (arrowed).



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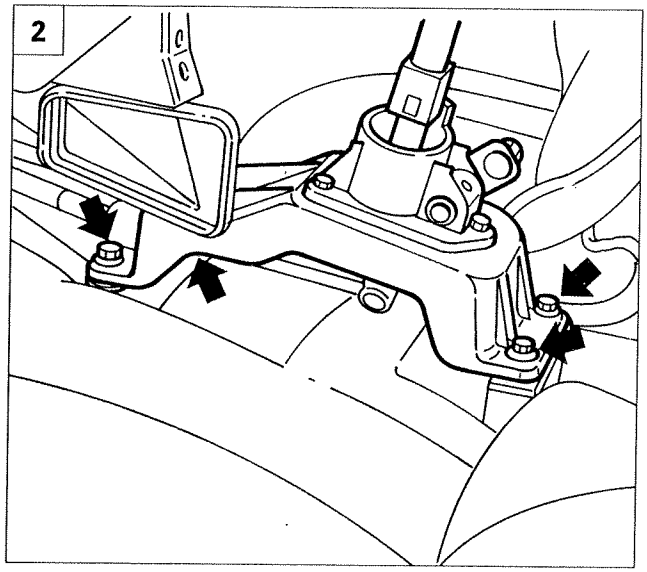
1. Remove the rear right air diffuser.



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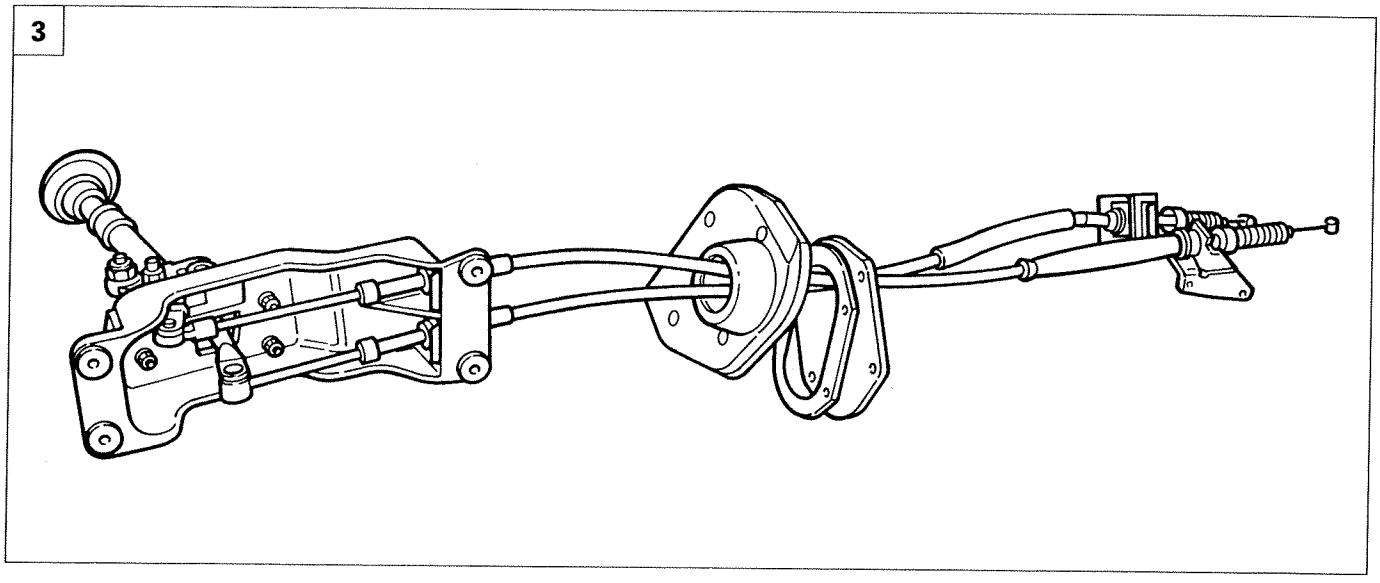
2. Undo the bolts (arrowed) securing the gear lever mounting.
3. Working from inside the car, remove the gear lever complete with mounting and control cables.



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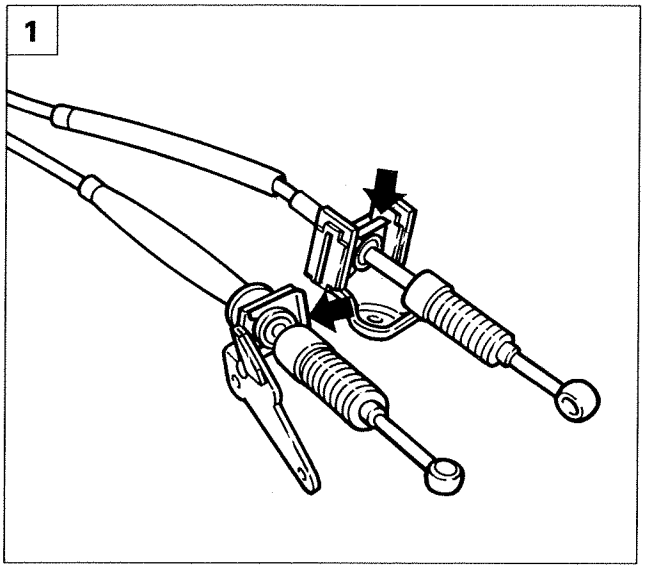


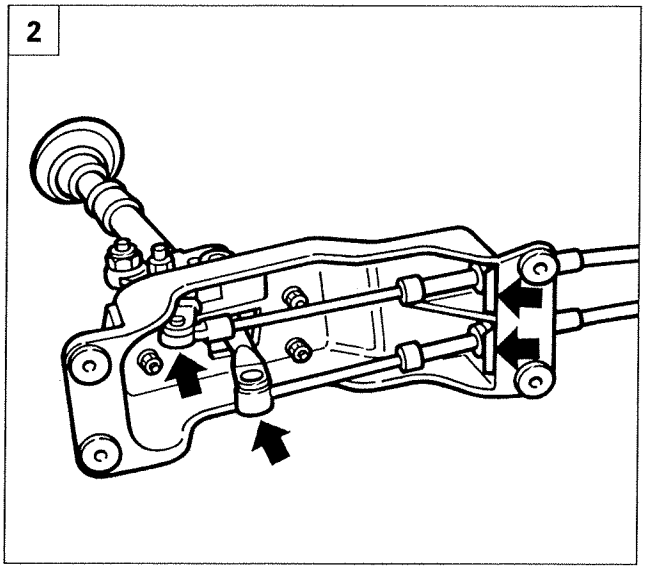
P3U26FB01

DISMANTLING-REASSEMBLY AT THE BENCH

Flexible cables

After separating the gear lever assembly complete with mounting and control cables, proceed as described below:

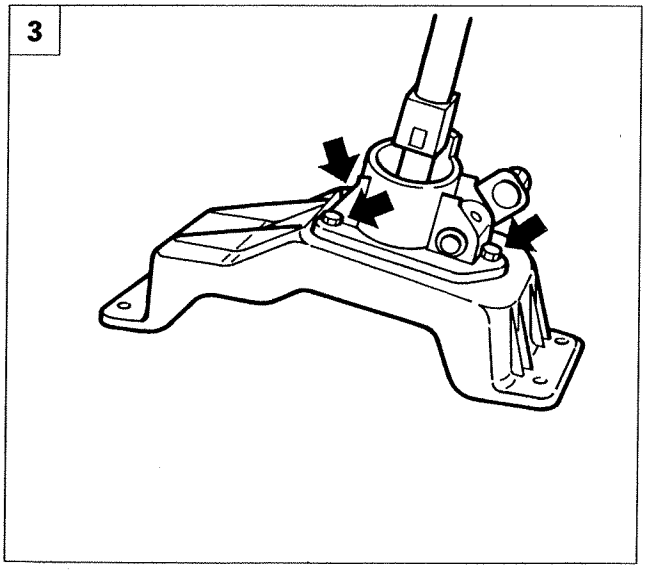
1. Remove the retaining clips (arrowed) from the flexible cable mounting brackets.



P3U26FB02

2. Remove the retaining clips (arrowed), disconnect the two flexible cables (arrowed) from the gear lever and remove the cables by withdrawing them from the rubber stops.

NOTE *To refit the flexible cables, reverse the procedure for removal.*



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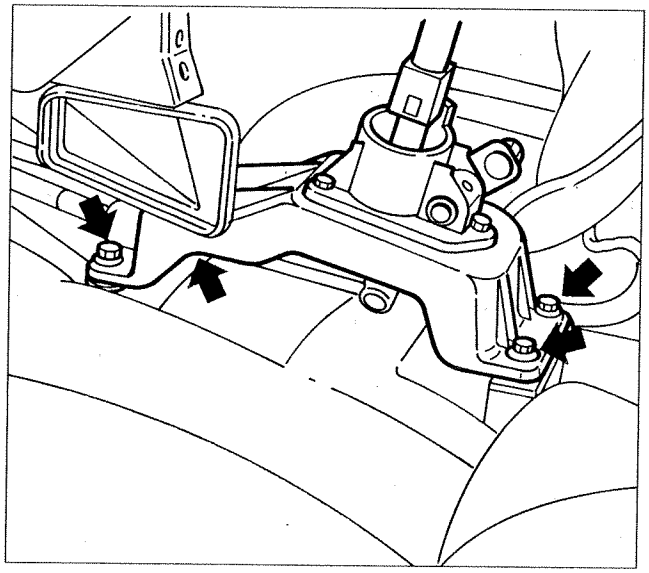
Gear lever

3. After disconnecting the flexible cables from the gear lever, undo the bolts (arrowed) and detach the gear lever from its mounting.

NOTE *To refit the gear lever, reverse the procedure for removal.*

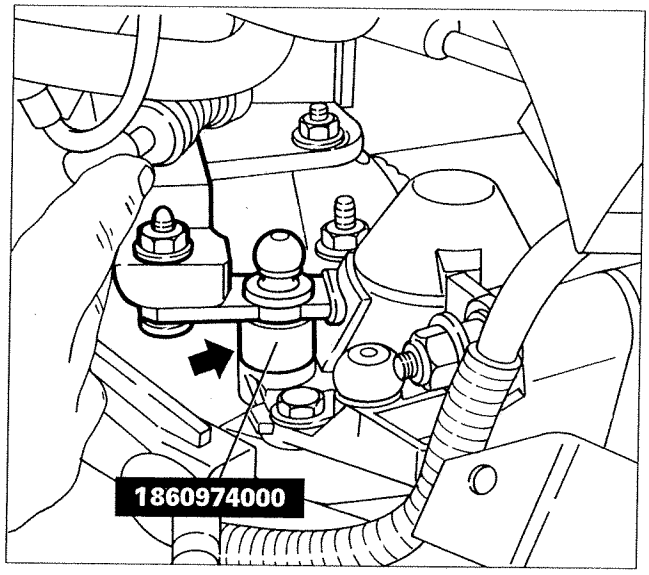


P3U25FB02

REFITTING AND ADJUSTING GEAR SELECTOR LINKAGE

After refitting the gear lever and flexible control cables, proceed as described below:

- Working from inside the car, insert the gear lever assembly complete with mounting and flexible cables into its seating, and tighten the bolts (arrowed) on the gear lever mounting.



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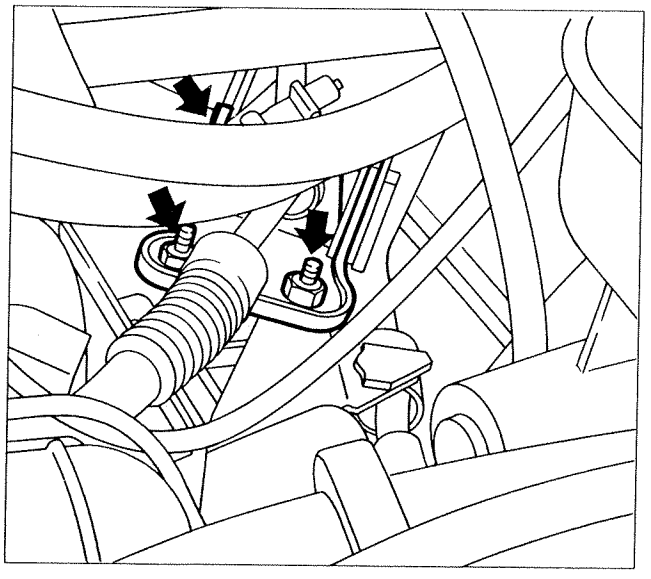
- Operate the gear selector levers to set the gearbox to the reverse position, then insert the fitting gauge (arrowed) 1860974000 as shown in the figure, and reposition the gearbox in NEUTRAL.



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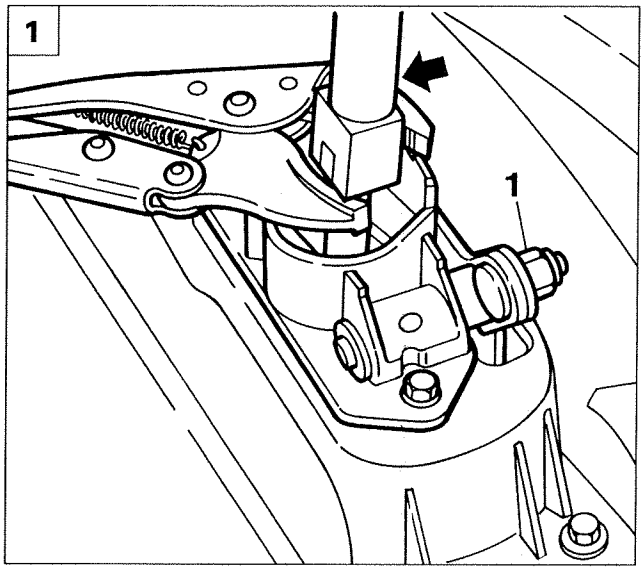
- Fit the flexible cable mounting bracket in its seating in the gearbox and tighten the nuts (arrowed).



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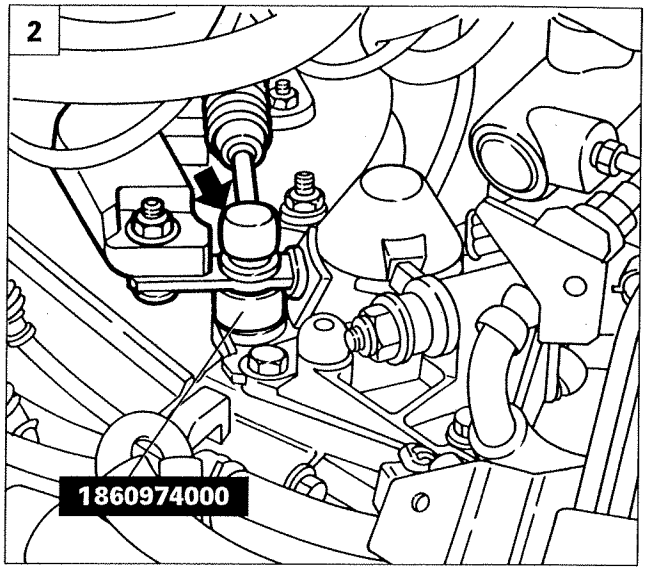

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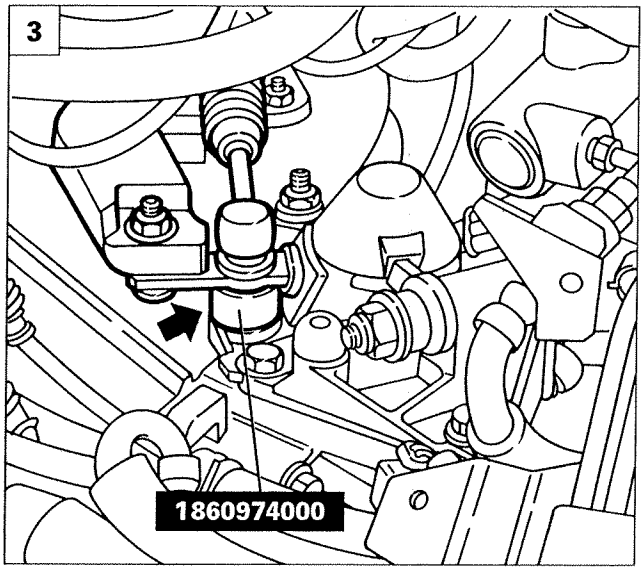
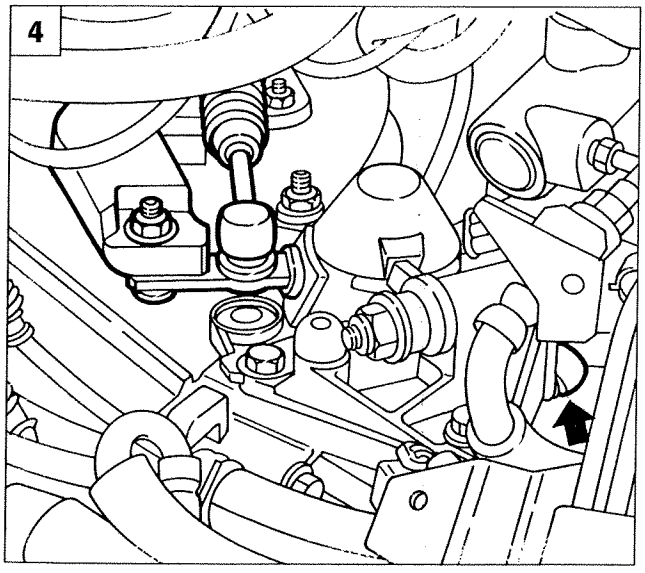


P3U28FB03

1. Set the gear lever (arrowed) to the NEUTRAL position, fully home at the limit of its travel, and hold it in this position with a locking wrench. Undo the selection cable adjustment nut (1) on the gear lever.

2. Connect the end of the flexible cable (arrowed) to the spherical head of the selector lever. Tighten the selection cable adjustment nut on the gear lever and remove the locking wrench illustrated in point 1.

3. Set the gear lever to the reverse position, in order to raise the inhibition tube, and remove the positioning gauge 1860974000 (arrowed).



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4. Set the gear lever to the NEUTRAL position and connect the end of the cable (arrowed) to the spherical head of the engagement flexible cable.

NOTE *Finish refitting the gear selector linkage by reversing the procedure for removal.*

page

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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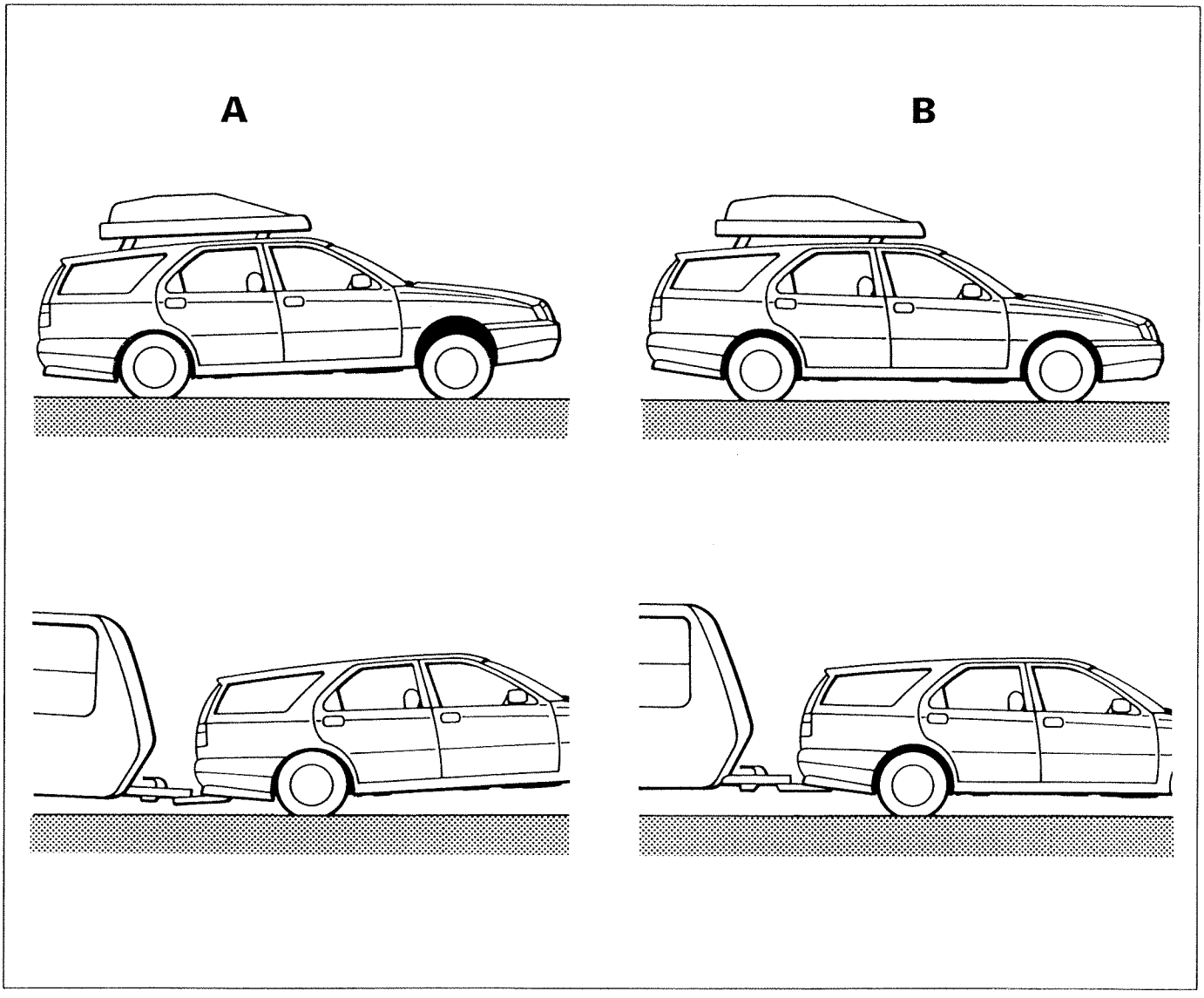
BOGE NIVOMAT SELF-LEVELLING SUSPENSION

INTRODUCTION

Springs and shock absorbers play an extremely important role in vehicle safety and comfort.
When transporting a heavy load or towing a trailer or caravan, both these important features can affect the load on the rear axle of the vehicle.
A vehicle with a great load on the rear axle has lesser contact of the front wheels with the road surface with the result that the road holding and stability are drastically reduced.

This problem is particularly acute on vehicles with a high carrying capacity in relation to their empty weight, on vehicles used for towing trailers and on multi-purpose, single volume vehicles, estate cars and minibuses.
One solution to this problem is the adoption of a self-levelling suspension system which keeps the distance between the rear axle and the bodywork constant, irrespective of the load applied to the rear part of the vehicle.



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A. Vehicles with conventional suspension

B. Vehicles with self-levelling suspension

44.

The BOGE Nivomat self-levelling suspension system is fitted on the LANCIA k Station Wagon: it is made up of two compact, independent units which are fitted in place of the conventional shock absorbers.
These units maintain the correct distance between the rear axle and the bodywork and their damping depends on the load.
Nivomat suspension systems thereby eliminate the well known problem of conventional suspension systems which tend to be too rigid when the vehicle is empty and too "spongy" when travelling with a heavy load.
The LANCIA k Station Wagon equipped with Nivomat units gives a comfortable ride even with a light load, but remains dynamically stable and safe when fully laden.

The BOGE Nivomat self-levelling suspension system works without any need for an external energy source.
The Nivomat suspension system is a unit which has its own internal pumping action. The energy required for this purpose comes entirely from the vertical movements of the vehicle bodywork.
As soon as the vehicle moves and causes the suspension to work, the pump inside the Nivomat units starts to work. It takes the hydraulic fluid from an internal tank and sends it to a hig pressure chamber where a gas compressor is working. In this way the Nivomat units ensure that the vehicle bodywork reaches the pre-set optimum height when the vehicle starts to move from stationary, compensating for the downwards movement of the bodywork due to a heavy load or trailer.

There is no separate device for controlling the height which needs adjustment: the height sensors are integrated in the shock absorber stems.
The initial adjustment procedure for the height of the bodywork is completed after the vehicle has covered a distance of around 2000 metres, depending on the road surface.
When the load is removed or the passengers leave the vehicle, the optimum height is restored whilst the vehicle is stationery.

Nivomat units simultaneously carry out the functions of a hydro-pneumatic spring depending on the load and a hydro-pneumatic shock absorber and replace conventional shock absorbers, offering the advantages of hydro-pneumatic self-levelling suspension for each type and class of vehicle, with damping depending on the load.
This system can be fitted on new vehicles or on vehicles already in circulation with relative ease, without too many adjustments or a great outlay.

COMPOSITION

The BOGE Nivomat self-levelling units used on the LANCIA k Station Wagon are made up of an outer casing which contains two chambers:
- the low pressure chamber (1), located at the bottom, works as an oil tank and is partly filled with pressurized gas;
- the high pressure chamber (2), located in the upper part of the unit, is divided in two by a diaphragm (3); there is pressurized gas in the outer part whilst the inner section is filled with oil.

When empty the pressure inside the two chambers is identical at around 25 bar; fully laden the low pressure chamber is at around 8 bar, whilst the high pressure chamber reaches about 80 bar.

Inside the outer casing is the actual shock absorber cylinder (4), with the piston (6) and damper valves connected to the stem (5).
A perforated pumping stem (7), connected to the base of the unit, slides inside the piston groove, forming the oil pump (8).
On the outer surface of the stem (7) there is a port (9) which acts as a height sensor.

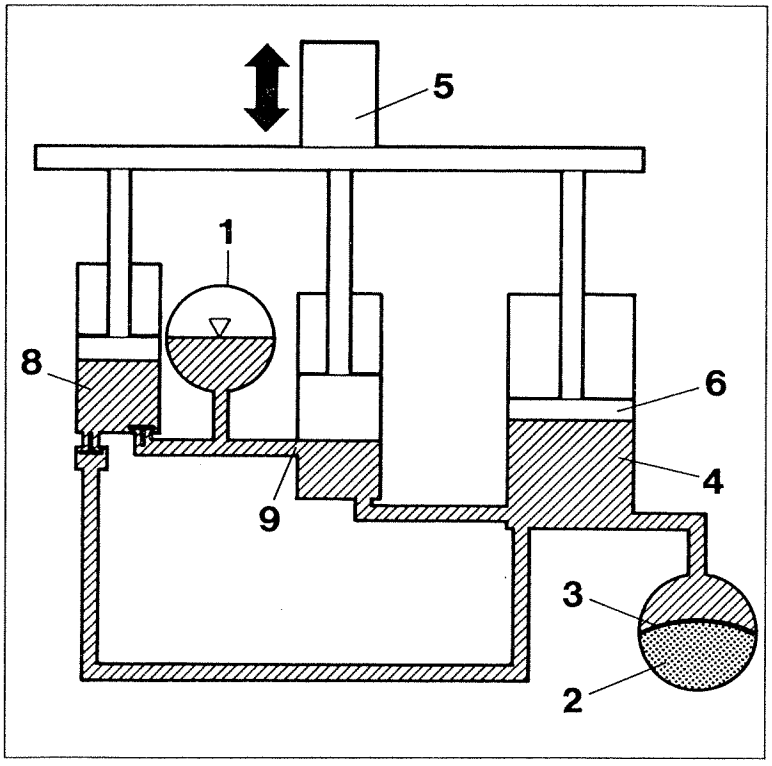

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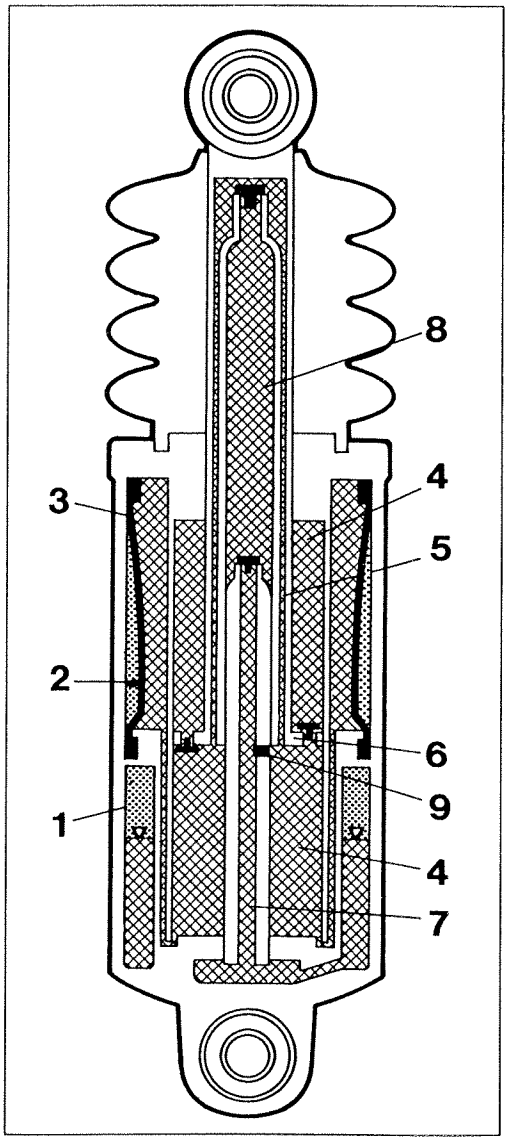
Diagram showing Nivomat unit



Diagrammatic section of a Nivomat unit

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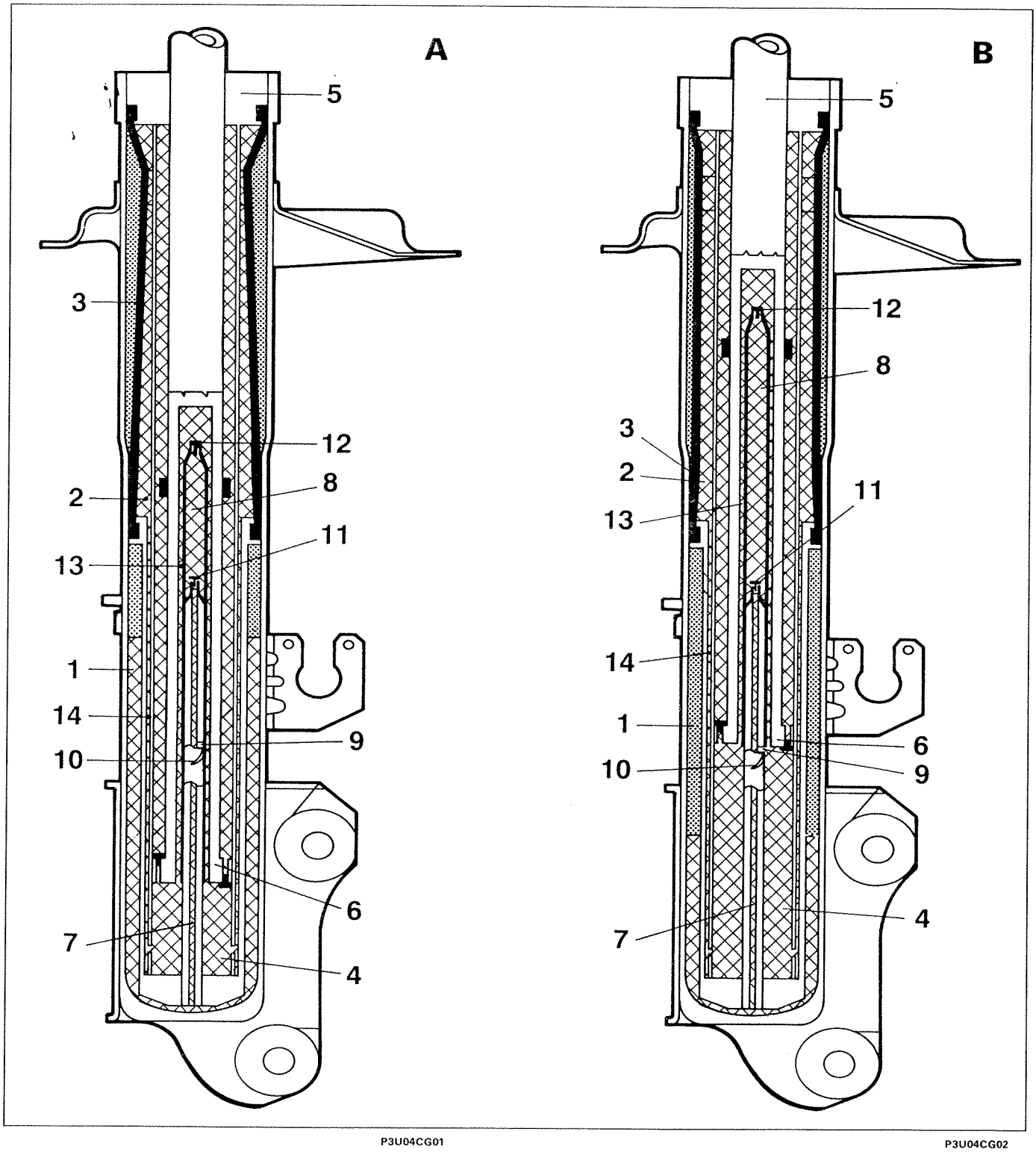
OPERATION

After having loaded the vehicle (passengers, baggage), the Nivomat units will yield a certain amount (condition A) in proportion to the rigidity of the spring.



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Section of BOGE Nivomat self-levelling units

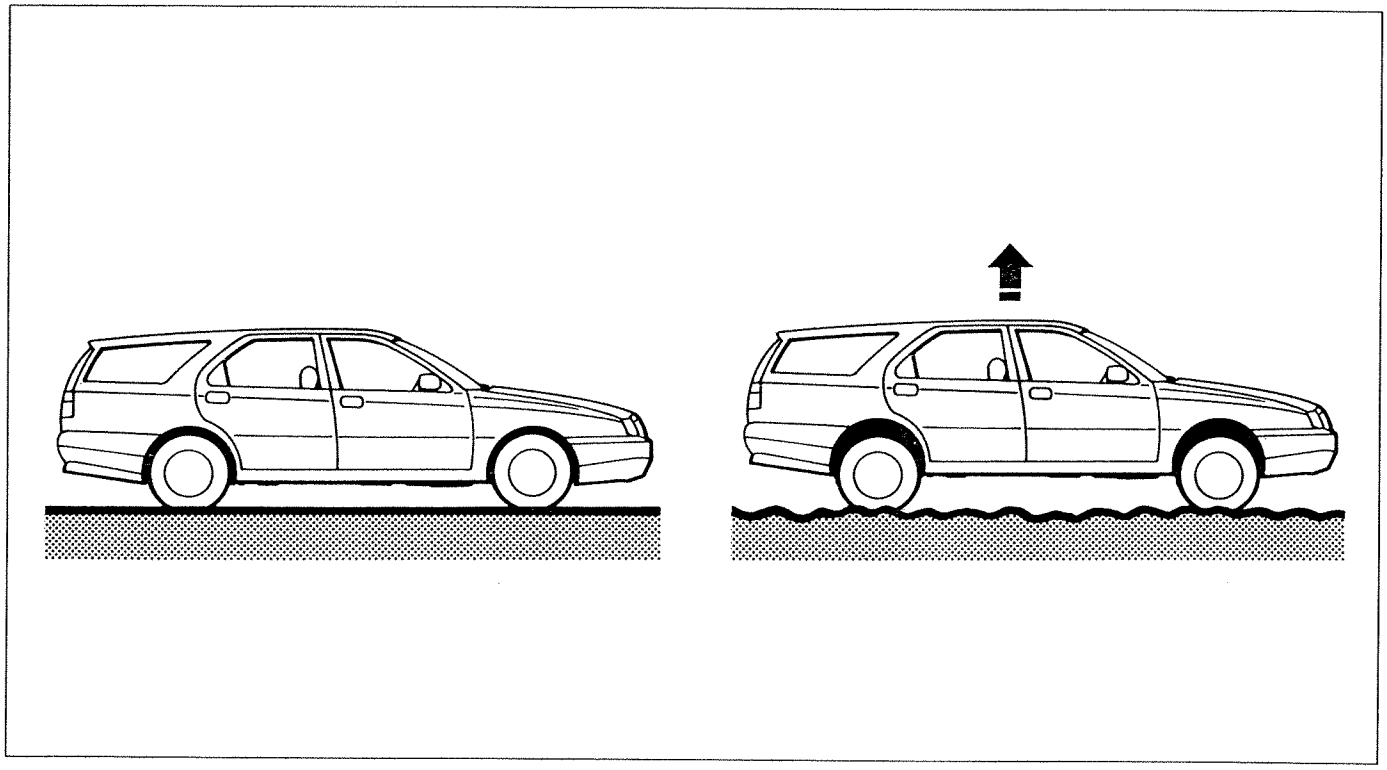
A. Not levelled condition

B. Levelled condition

Following vertical movements of the wheels, produced by irregularities of the road surface which are more or less accentuated, the oil in the low pressure chamber (2) is drawn in by the oil pump (8), through the perforated stem (7) and the inlet valve (11).
From the pump the oil is sent, via the outlet valve (12) and the duct (13), to the lower chamber of the shock absorber (4): from here, the oil reaches the high pressure chamber (2), via a duct (14) and compresses the gas enclosed by the diaphragm (3).

The greater pressure which is produced also acts in the lower chamger of the shock absorber (4), causing the extension of the stem (5) and the raising of the vehicle.
When the splining (10) starts to project from the piston (6) this means that the optimum driving height has been reached (condition B) and the oil under pressure can flow through the port (9) and the perforated stem (7) into the low pressure chamber (2).

The distance at which this levelling condition is reached is around 2000 m according to the road surface. A very irregular surface causes a very energetic pumping action which can lead to a levelling of 15-20 mm higher than the nominal value (greater distance from the surface of the uneven ground).



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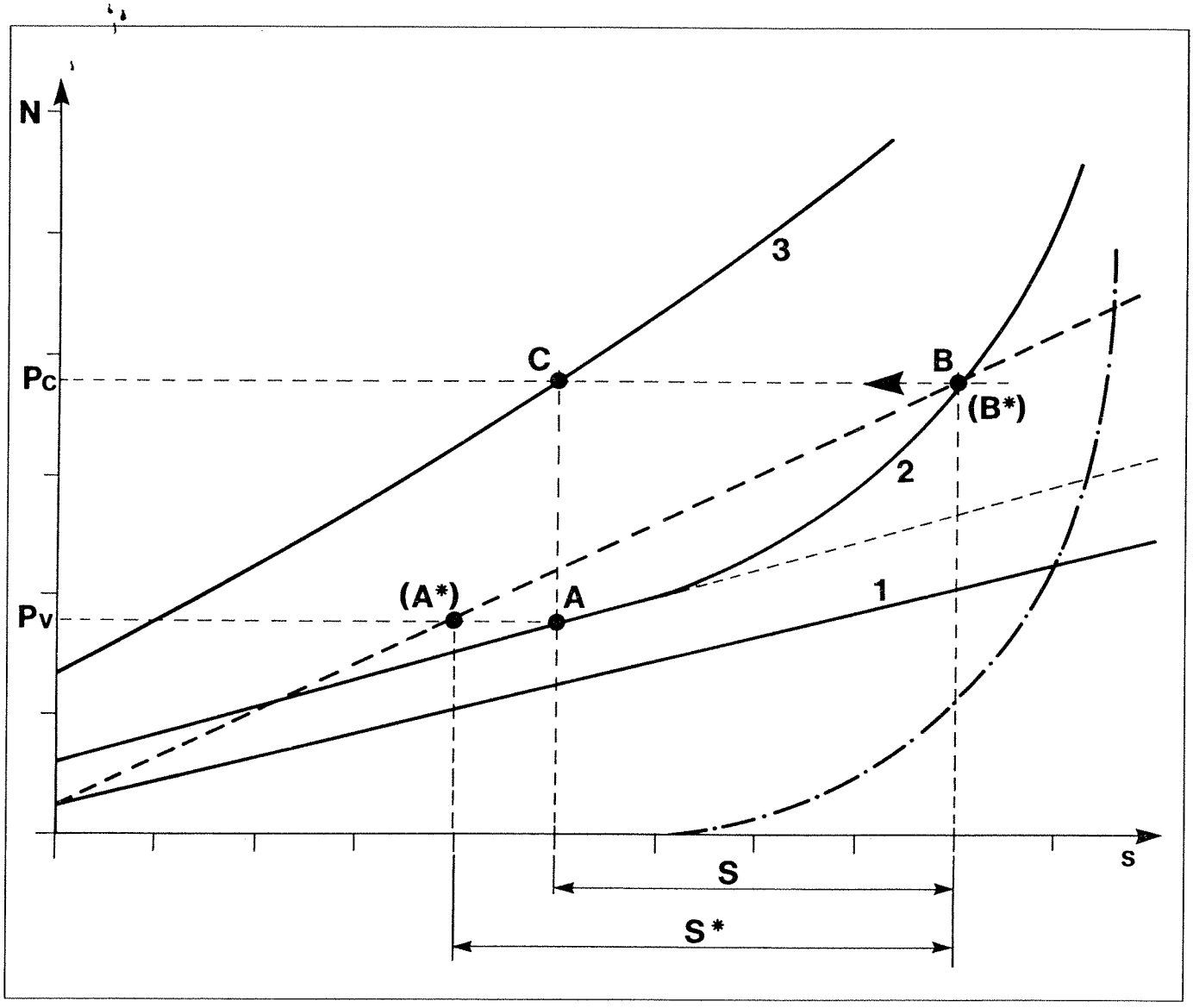
Raising of the vehicle on uneven surface

The height of a laden vehicle is usually kept levelled from one day to another, unlike the breaks which occur during a journey (stops for fuel, meals, overnight stays, etc.).
When the vehicle is unloaded, the bodywork rises as in a system with conventional springs and then lowers immediately because the oil is transferred from the high pressure chamber to the low pressure chamber until it reaches a nominal level at which it remains.

44.

Typical curve for Nivomat suspension

The graph below compares the typical curves for a conventional shock absorber with a BOGE Nivomat self-levelling unit.
The horizontal axis shows the downward movements (s) of the bodywork, whilst the vertical axis shows the loads (N) applied to the vehicle.



Typical curves for a conventional shock absorber and a Nivomat self-levelling unit

The conventional shock absorber is fitted with a spring whose rigidity is constant and for whom a downwards movement of the bodywork (s) is directly proportional to the load applied (N) with its characteristics being linear (dotted line).
With the empty weight defined as Pv and the weight fully laden Pc, it is possible to obtain the respective operating points A* and B* on the linear characterstic and the relative downwards movement S*.

Nivomat units are equipped with lesser rigidity springs which also have the flexible effect of the compressed gas which varies according to the load applied and the effect of the end of travel flexible buffer (dotted line). Three typical curves can be defined:

1. typical curve (linear) for the single mechanical spring, less steep than the curve for a conventional shock absorber as it is less rigid;
2. typical curve for the Nivomat unit, with no load, which is added to the flexible effects of the mechnical spring, the compressed gas (around 25 bar) and the end of travel damper;
3. typical curve for the Nivomat unit, fully laden, which differs from the previous one through a greater component due to the compressed gas (pressure increased to around 80 bar).

It should be noted that in Nivomat units the rigidity increases as the load applied increases.

The curve (2) shows the operating points A and B in the empty and full load conditions and the relative downwards movement S with the vehicle stationary.

When the vehicle starts driving, in Nivomat units the oil is transferredfrom the low pressure chamber to the high pressure chamber as a result of the uneveness of the road surface.
As the pressure of the gas increases, the operating point gradually moves towards the left on an increasing rigidity curve, causing the raising of the vehicle.

After having travelled a distance of around 2000 metres operating point C is reached, corresponding to the levelling condition: the height of the vehicle fully laden is equal to the nomial one (points A and C are on the same vertical).

Main advantages of BOGE Nivomat self-levelling suspension

The main advantages of this system are:

- quick and realistic check of the driving height (maintains the ideal distance betwen the axle and the bodywork);
- improved driving safety and comfort as a result of the more consistent manoeuvre conditions for all load conditions;
- optimum vehicle stability;
- damping dependent on the load corresponding to flexible rigidity variations eliminating the compromise between low load and heavy load conditions required in conventional systems;
- better vehicle geometry fully laden, maintaining an optimum aerodynamic profile, resulting in a fuel saving;
- decreased tendency for the tyres to rest on the shoulder in heavy load conditions, thereby reducing wear;
- the driving height on the right and the left is equal evenif the load is not positioned in the centre;
- precise headlamp alignment for all load conditions;
- damage due to collisions minimized because the bumpers always remain at the same height;
- the energy requirements are entirely satisfied by the movement of the suspension (without an increase in consumption, without electrical wiring or hydraulic pipes);
- no power units or electric motors are required;
- no height sensor needs setting
- compact, modular design (pump, regulator, tank and shock absorber in a single unit);
- location near the wheels which avoids height adjustment tolerances;
- lighter than other systems;
- limited costs if compared with other self-levelling systems;
- environmentally friendly;
- easy to fit or retrofit.

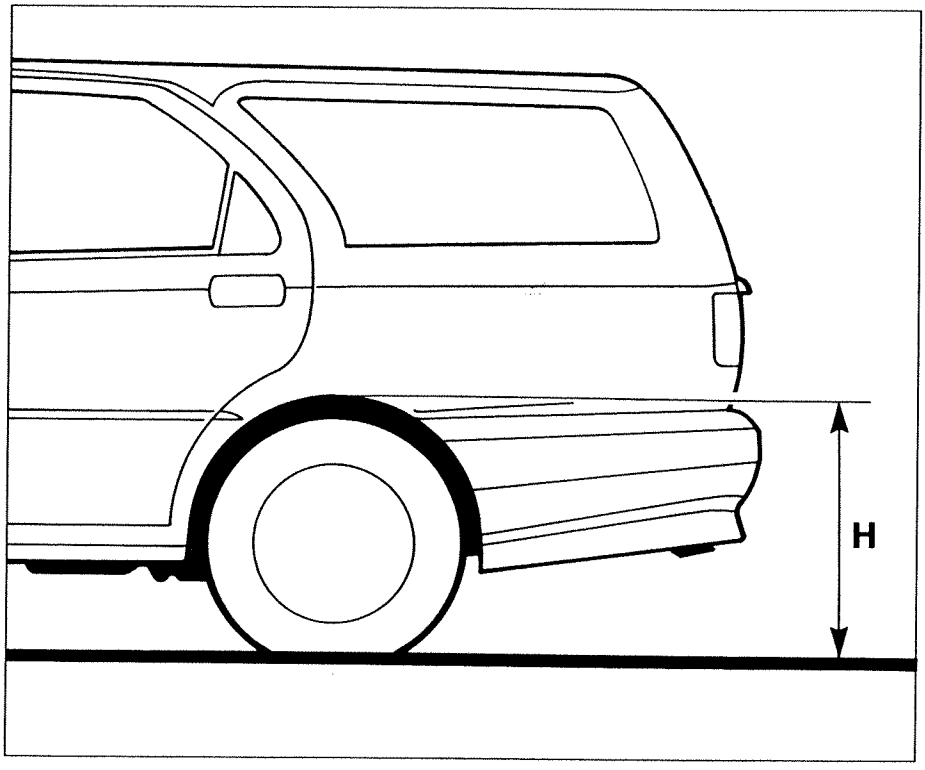
44.

PROCEDURE FOR CHECKING EFFICIENCY OF SELF-LEVELLING UNITS

The efficiency of BOGE Nivomat self-levelling units is checked by measuring the height of the vehicle empty-and fully laden in static conditions after a journey which allows bedding in.

NOTE *The measuring conditions must be as follows:*
- *fuel tank half full,*
- *vehicle on a horizontal plane,*
- *service and parking brakes released,*
- *gearbox in first gear or position P.*

Prepare the vehicle by carrying out the following checks:
- check the inflation pressure of the tyres and, if necessary, adjust it,
- inspect the underbody and remove any dirt, dust, mud or sand,
- remove anything from the luggage compartment which is not part of the original equipment of the vehicle.



Measuring height H of the vehicle between the lower edgeof the wheel arch and the ground

Proceed with measuring height H by carrying out the following operations:
1. place the vehicle on a horizontal plane; do not use the brakes to stop the vehicle, but let it run until it stops by itself; engage 1st gear or place the selector lever in position P (on vehicles with automatic transmission);
2. measure distance H levelled with the vehicle unladen without a driver and make a note of it in a table; the maximum permissible difference between the right side and the left side is 6 - 8 mm;
3. place a load of 160 kg in the luggage compartment, let two people sit in the rear seats or two people in the front seats (or place a weight of 70 kg for each person);
4. measure distance H not levelled and make a note of it in a table; the maximum permissible difference between the right side and the left side is 6 - 8 mm;

5. drive the vehicle, with this load condition, for 2000 m on a road which preferably has an uneven surface;
6. place the vehicle on a horizontal plane; do not use the brakes to stop the vehicle, but let it run until it stops by itself; engage 1st gear or place the selector lever in position P (on vehicles with automatic transmission);
7. measure distance H levelled and make a note of it in a table; the maximum permissible difference between the right side and the left side is 6- 8 mm;
8. after the last measurement fully laden, let the people get out (or remove the weights) and remove the load from the luggage compartment and drive the vehicle for 2000 m;
9. measure distance H levelled with the vehicle unladen without the driver and make a not of it in a table; the maximum permissible difference between the right side and the left side is 6 - 8 mm.

Compare the height values measured for the vehicle with the ones in the table below: if there are not within the recommended tolerances, replace the Nivomat self-levelling units.

Table of levelled and non levelled height values for the vehicle

LOAD CONDITIONS	HEIGHT H(*)	
	Not levelled	Levelled
Empty	-	640±5
Fully laden (**)	590±5	620±5

(*) Values in mm
(**) Four persons + 160 kg luggage
approximately equivalent to the maximum permissible load.

All the values for the measurements carried out on the vehicle are aceptable with a tolerance of ±5 mm.
With the vehicle levelled, the difference for distances H, between the vehicle empty and fully laden, should not exceed 20 mm.

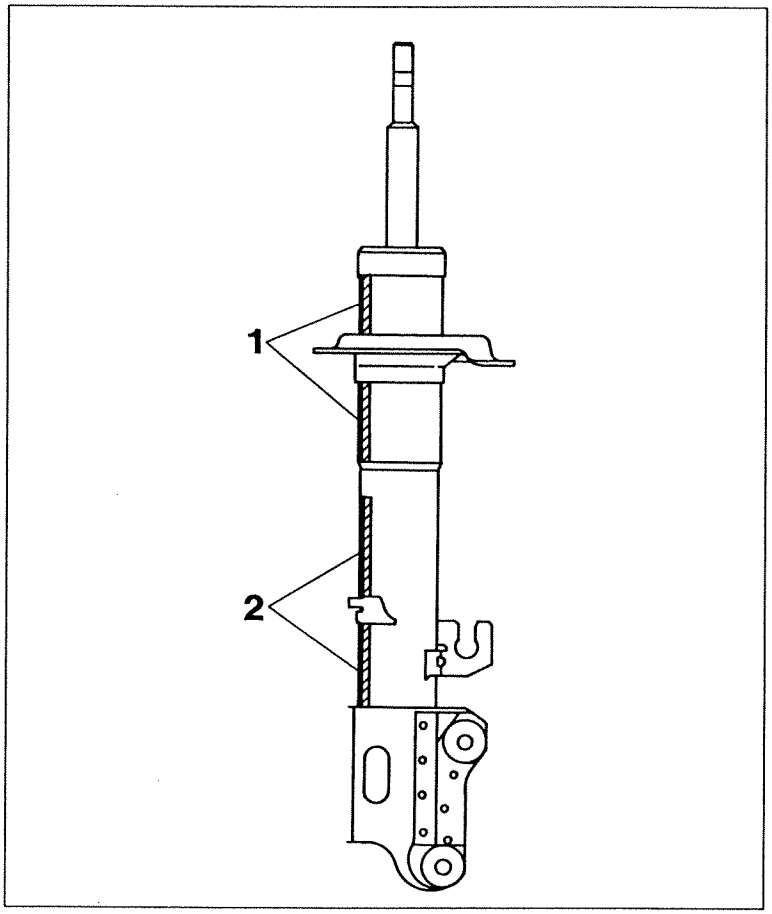
44.

INSTRUCTIONS FOR SCRAPPING SELF-LEVELLING UNITS

Before sending Nivomat self-levelling units to be scrapped they must be de-pressurized.

In normal conditions, the pressure inside Nivomat units is 25 bar.
If they are scrapped without being de-pressurized the units could explode and cause serious damage to surrounding people and objects.

In order to de-pressurize Nivomat self--levelling units two small openings must be made with a drill in the areas shown at the side, correspondingto the high pressure chamber (1) and the low pressure chamber (2). The openings should be 1 mm in diameter and at least 8 mm deep.



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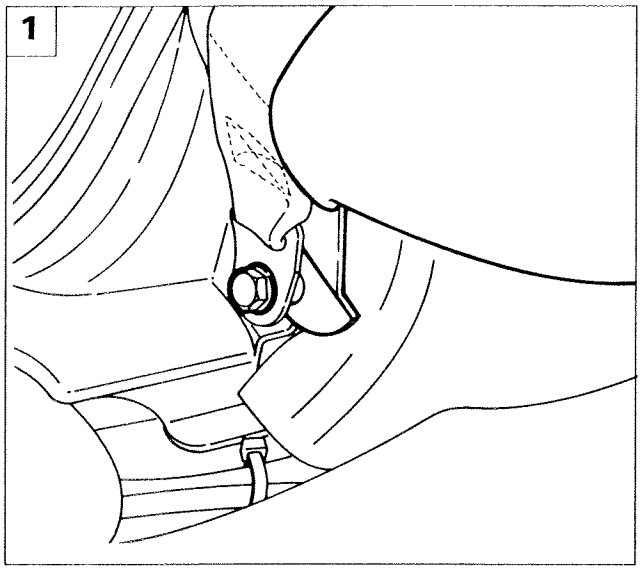
Position of openings for de-pressurizing Nivomat units

As a result of the high internal pressure, a mixture of oil and gas will be sprayed so it is advisable to carry out the drilling operation shielded behind a protective screen.

NOTE *The self-levelling unit is de-pressurized when the stem can be thrust manually.*



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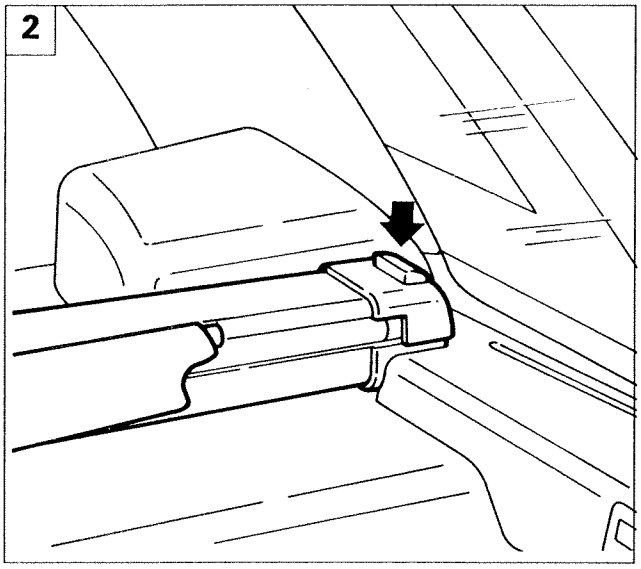
REMOVING-REFITTING

NOTE *This Section describes the procedure for removing-refitting the BOGE Nivomat self-levelling units used on the LANCIA k SW.*
With regard to the removal and refitting of the other components of the rear suspension, not covered in this publication, reference should be made to Section 44 of Volume 1, concerning the LANCIA k '96 range (Publication no. 506.475/14).



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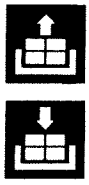
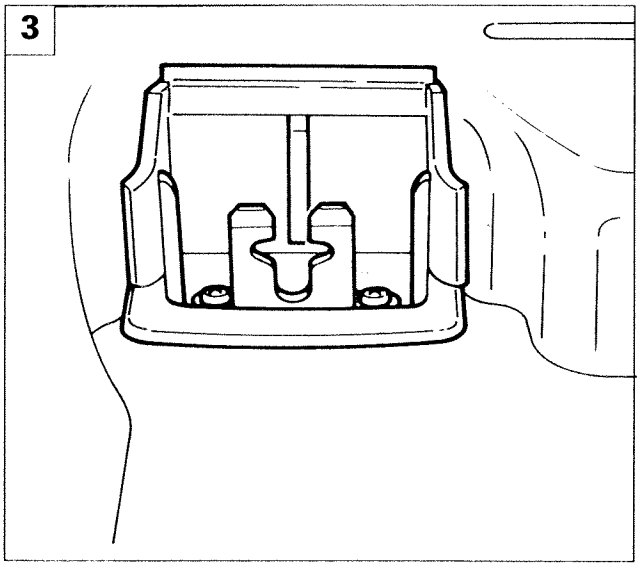


Place the car on ramps and remove the rear wheels.
Open the tailgate, then carry out the following operations:

1. remove the rear seat which is a press fit, undo the bottom bolt securing the seat belt and side squab to the body shell and withdraw the side squab upwards to release it from the catch;
2. fold down the rear squabs and remove the boot cover screen by pressing the release buttons;
3. remove the bolts securing the boot screen seating;
4. undo the internal nut securing the boot side moulding;



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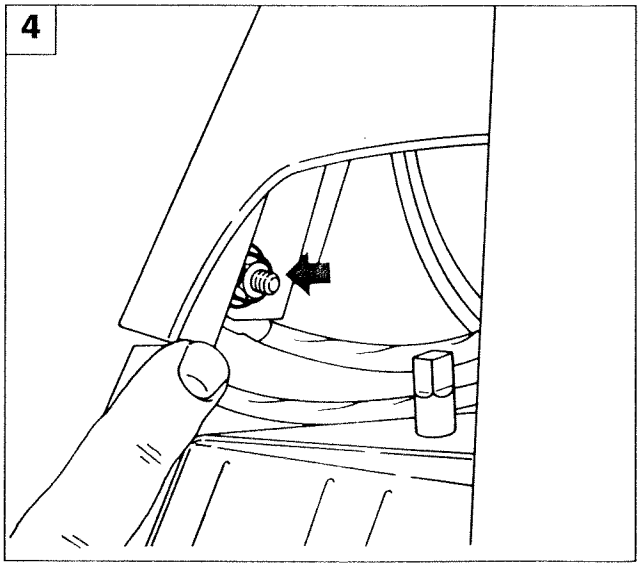
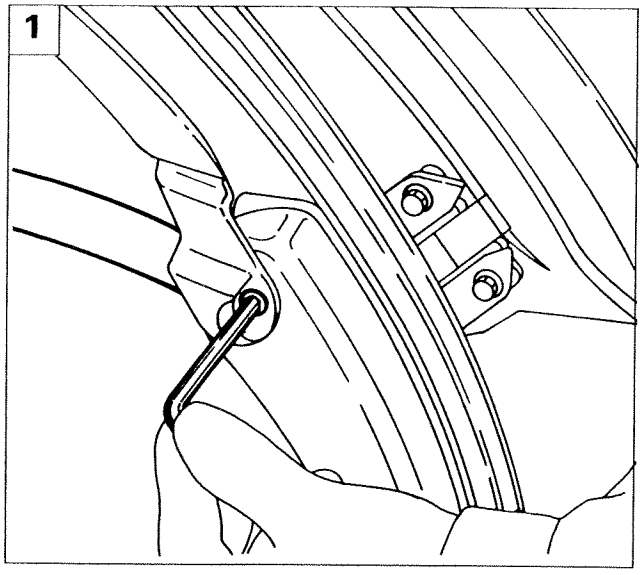


P3U11CG04

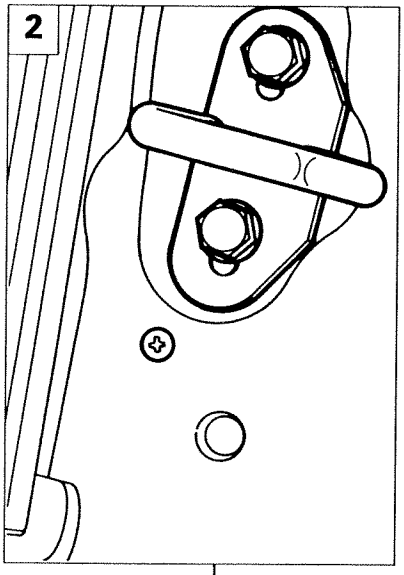
44.



P3U12CG01

1. undo the bolt and remove the boot side moulding;

NOTE *Disconnect the boot courtesy light connector.*



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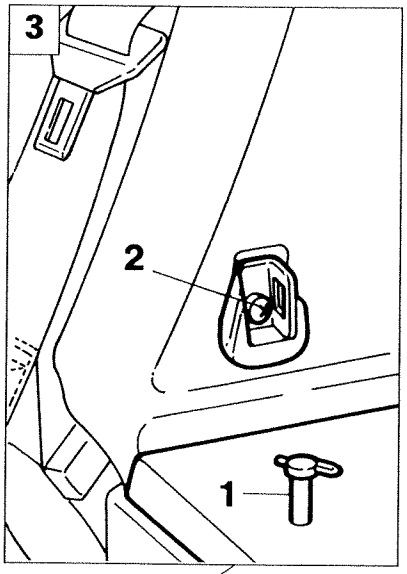
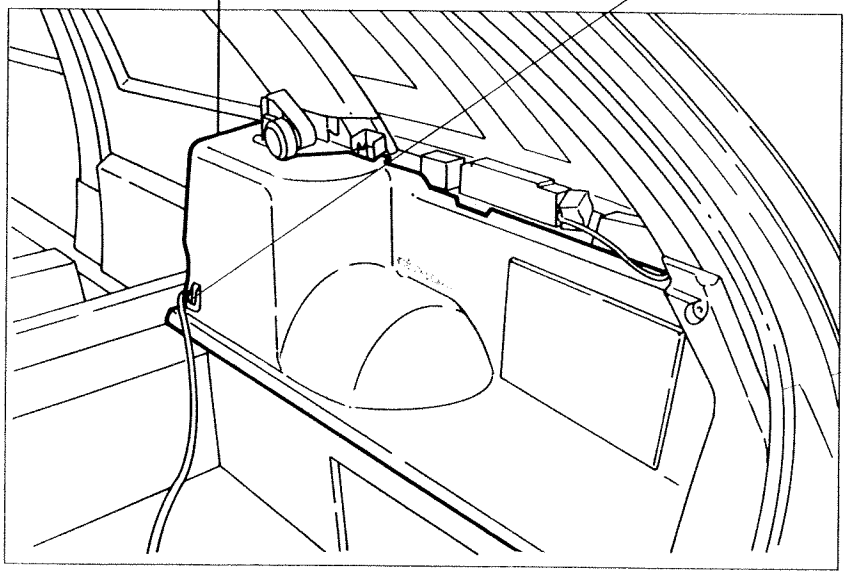


P3U12CG03

2. undo the front bolt on the boot side trim and the bolts securing the side squab catch;

3. remove the cam-locks (1) and remove the folding shelf, then undo the side bolt (2) of the boot side trim;

4. undo the rear bolt of the boot side trim and remove the trim;



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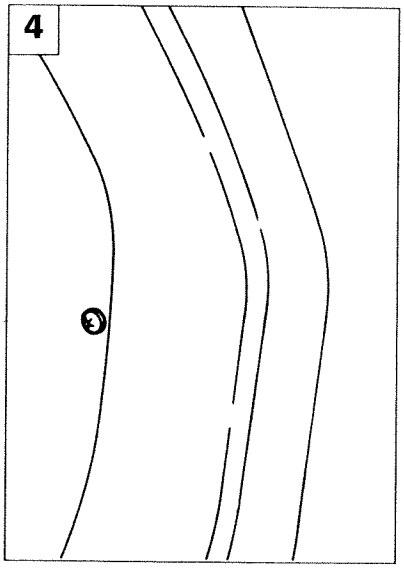

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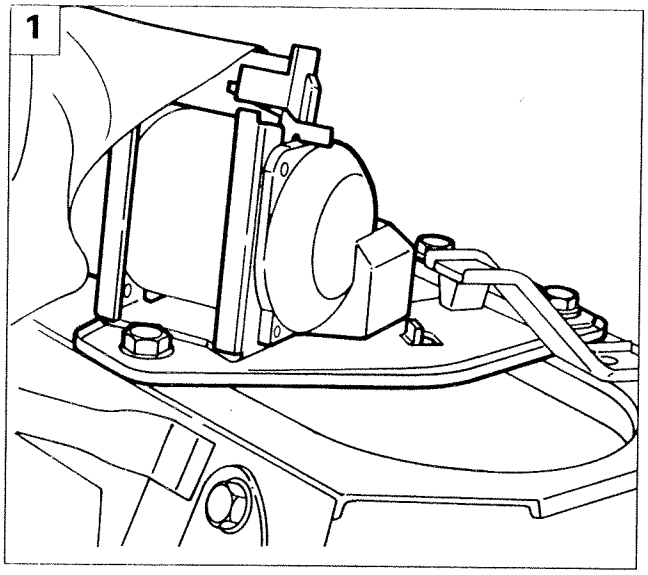
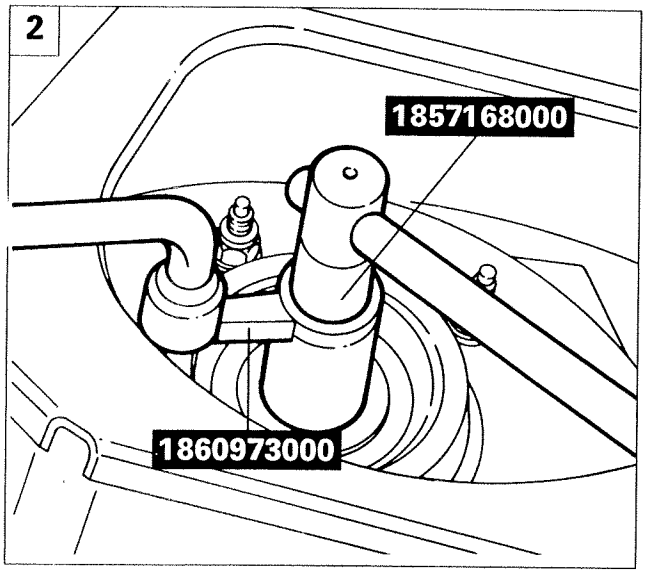


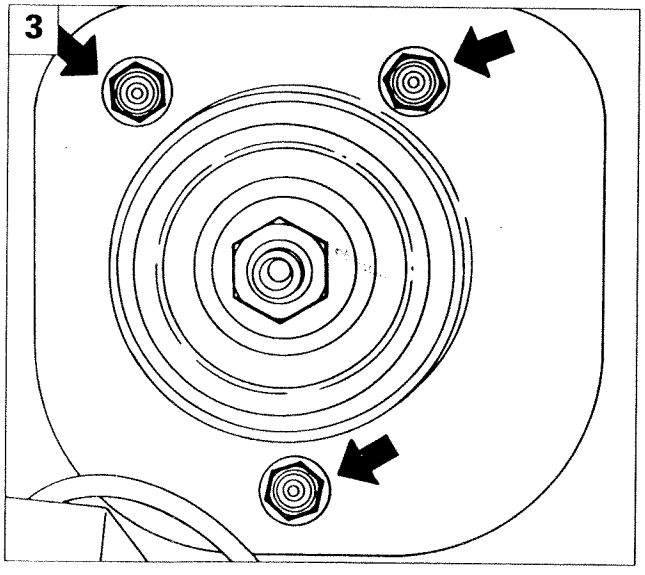
P3U13CG01

1. undo the three bolts and remove the seat belt winder;



P3U13CG02

2. using tools 1857168000 and 1860973000, undo the nut securing the flexible mounting to the strut of the self-levelling unit;
3. undo the three nuts securing the self-levelling unit to the body shell;
4. undo the two bolts securing the Nivomat self-levelling unit to the stub axle and remove the unit.



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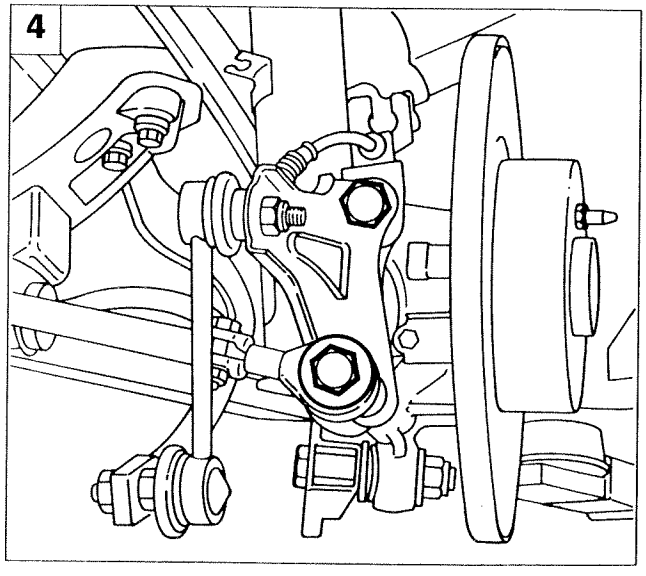

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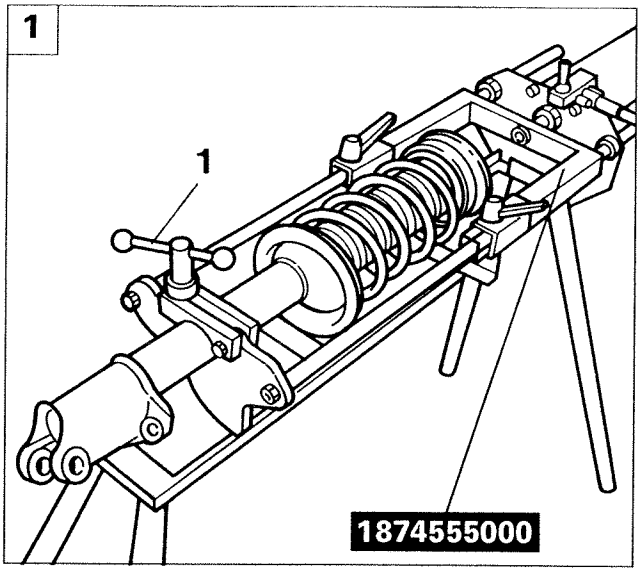
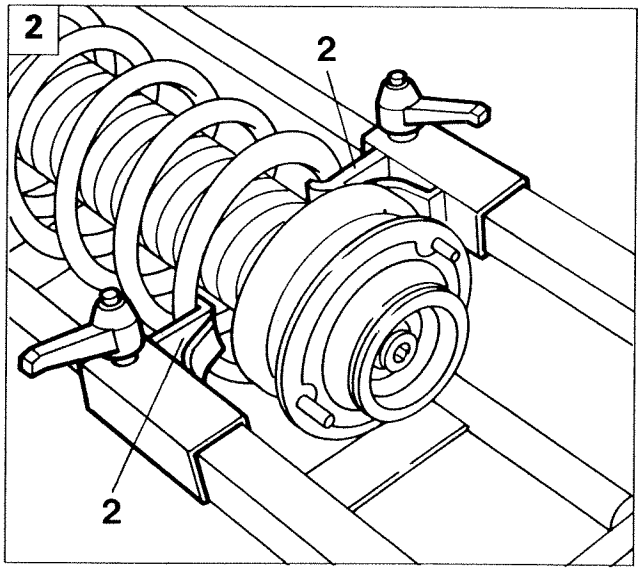


P3U14CG01

Dismantling

Carry out the following operations:

1. place the Nivomat self-levelling unit on the pneumatic tool 1874555000 and operate the lever (1) so as to lock the unit;



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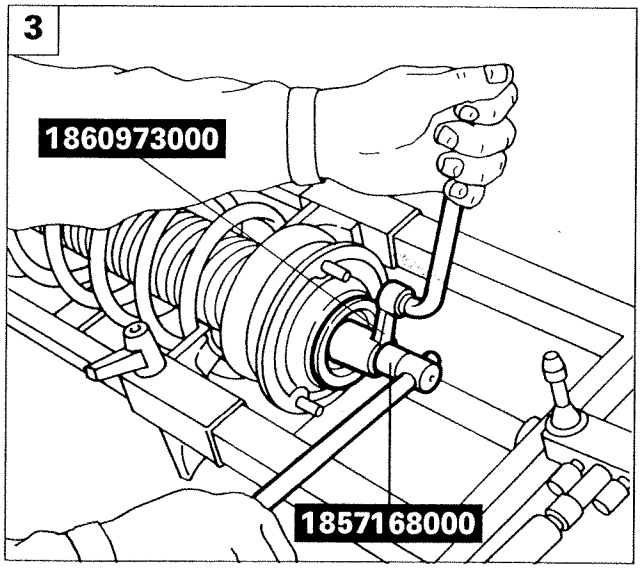
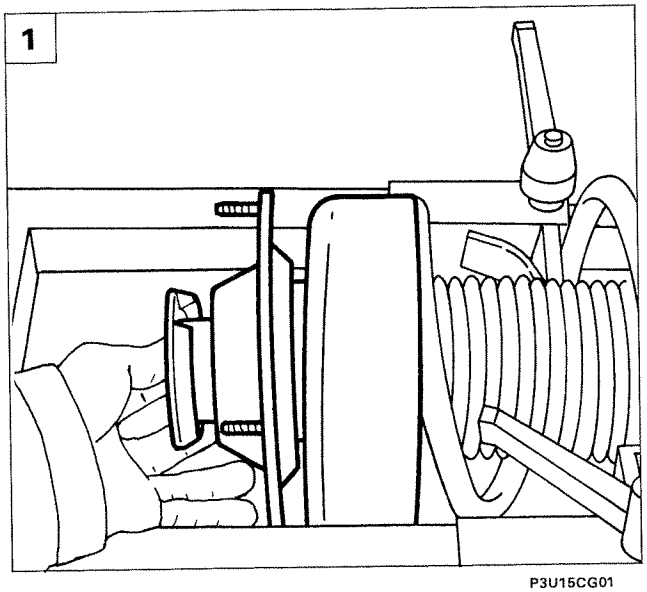
2. adjust the position of the hooks (2), bringing them up to the spring, then place the tool under pressure so that the spring begins to compress;



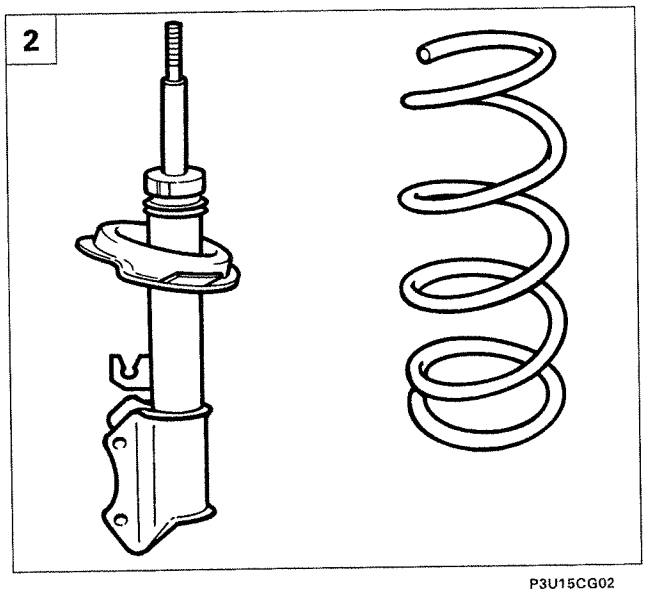
P3U14CG03

3. undo the nut securing the mounting to the strut;



P3U15CG01

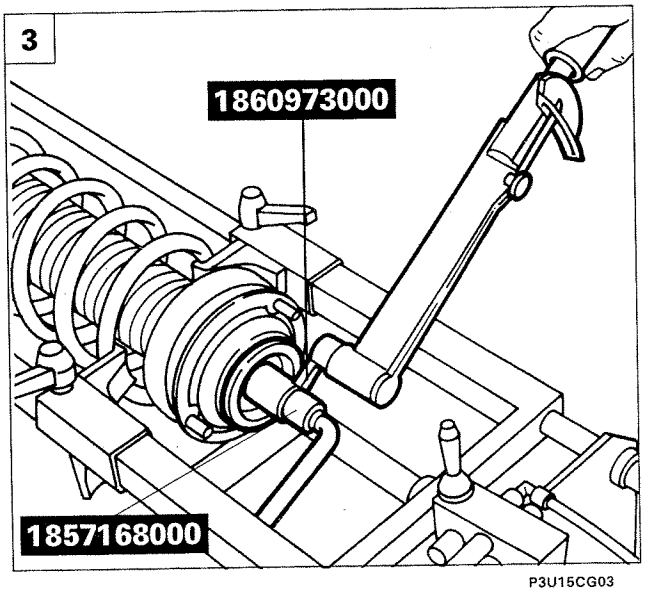
- remove the top mounting, then release the spring and remove it.



P3U15CG02

Self-levelling unit and coil spring

NOTE *If the self-levelling unit is found to be faulty, the entire unit should always be replaced.*
Also check that the spring is not cracked or deformed such that its efficiency is impaired.
The coil springs are divided into two categories, identified by a paint stripe on the central coil. Matching springs of the same category must be fitted.



P3U15CG03

Fitting

7 daNm (nominal torque)
6.3 daNm (wrench calibration value)

Refit the components of the self-levelling unit by following the reverse procedure, and tighten the nut securing the mounting to the strut to the specified torque.

Using tool 1860973000 causes a change in tightening torque from 7 daNm to 6.3 daNm.

NOTE *Refit the self-levelling unit by reversing the procedure for removal.*

44.

PART	Thread	Tightening torques daNm

REAR SUSPENSION

Nut securing rear wheel hubs to knuckle	M 24 × 1.5	32
King pins securing rear wheels to hub	M 12 × 1.25	9.8
Nut securing self-levelling unit to vertical link (knuckle)	M 12 × 1.25	9
Self-locking nut securing self-levelling unit to rubber mounting	M 14 × 1.5	7
Self-locking nut secruing self-levelling unit mounting to bodywork	M 8	2.5
Bolt securing longitudinal rod to vertical link (knuckle)	M 12 × 1.25	10
Bolt with tapered and plain shake-proof washer for securing longitudinal rod to bodywork	M 10 × 1.25	6
Nut securing longitudinal rod to mounting	M 10 × 1.25	6
Bolt securing stabilizer bar U-bolt to cross member	M 8	2.8
Bolt securing stabilizer bar to link rod	M 10 × 1.25	5
Bolt securing link rod to mounting bracket	M 10 × 1.25	5
Bolt with shake-proof tapered plain washer securing cross member to bodywork	M 10 × 1.25	6
Self-locking nut securing transversal rods to cross member and shock absorber	M 12 × 1.25	9
Bolt for locking sleeve for adjusting rear transversal rods	M 8	1.5

page

For anything not dealt with in this section, refer to section 55 of the LANCIA k Manual 2 volume, print n 506.475/01

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

Fiat Auto S.p.A.
D.M.C. - M.P.S.
Servizi Post Vendita - Assistenza Tecnica
10040 Volvera - TO - (Italia) - Largo Senatore G.Agnelli, 5
Publication no. 506.475/15 - Giugno 1996 - 400
Printed in Italy - Tip. Bogliani - TORINO
order no. 60444456

Consult section 55 Wiring diagrams of the LANCIA k manual volume 2, publication no. 506.475/01 for information not given in this section.

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Printed in Italy - Tip. Stampart - TORINO
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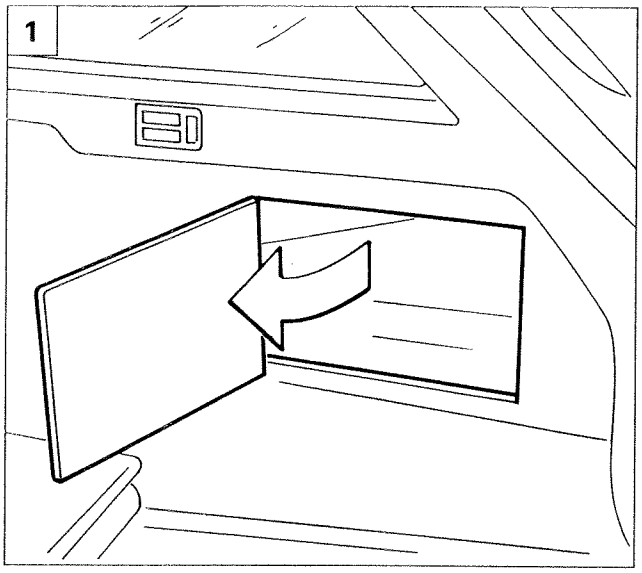
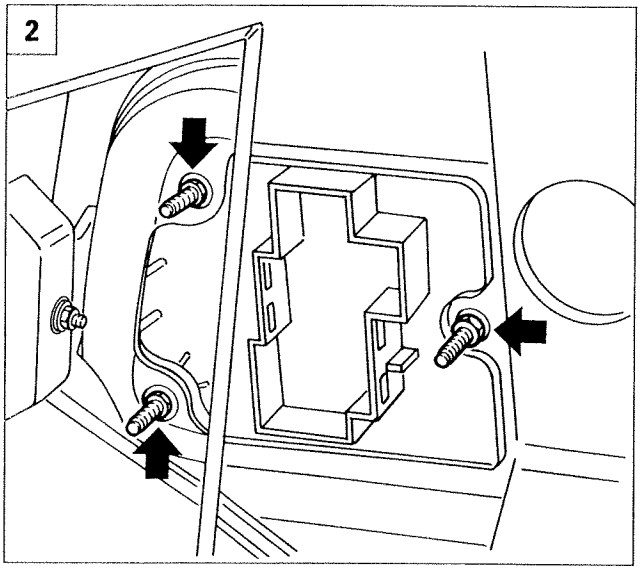


P3U01EL01

REAR LIGHT CLUSTERS

Removing-refitting light cluster located in the rear wing

1. Working from inside the vehicle, open the access flap for the electrical equipment devices.
2. Undo the bolts shown in the diagram and partly extract the light cluster from its housing, acting carefully.
3. Disconnect the electrical connector shown in the diagram and remove the light cluster from the vehicle.
4. Press gently on the retaining tabs shown in the diagram and extract the bulb support.



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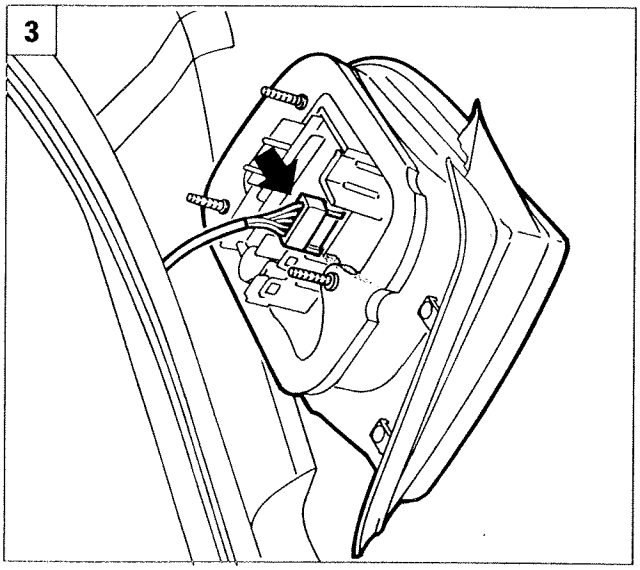

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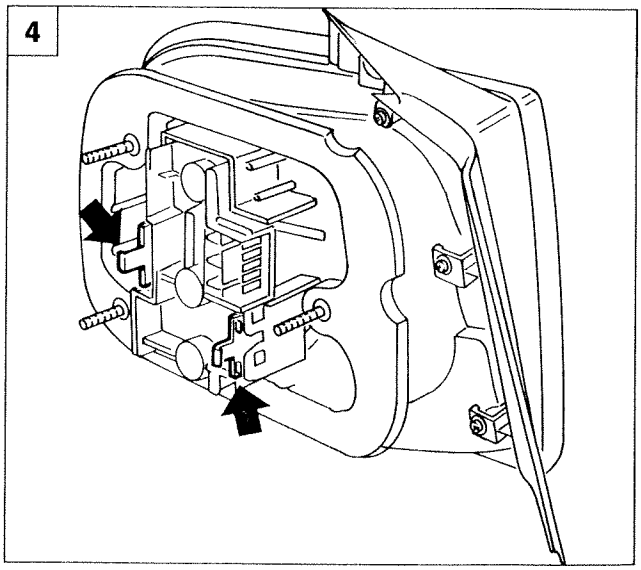

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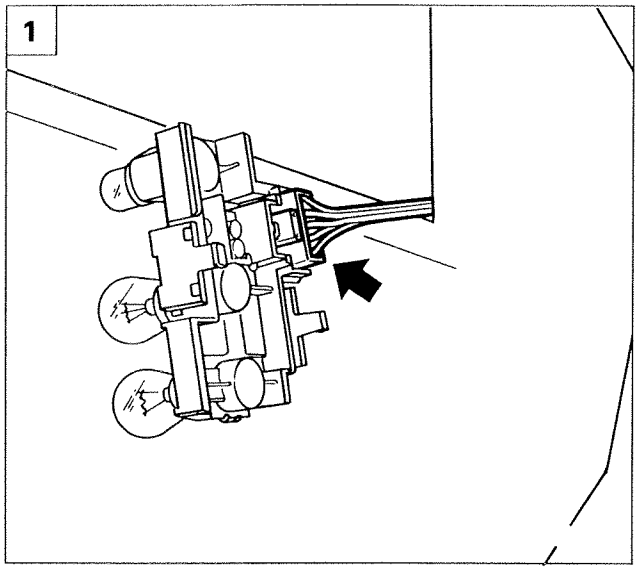

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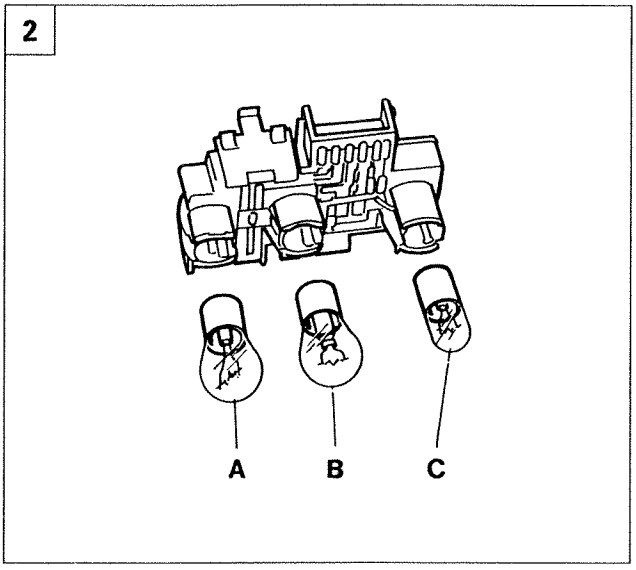


P3U02EL02

Replacing bulbs for light cluster located in rear wing

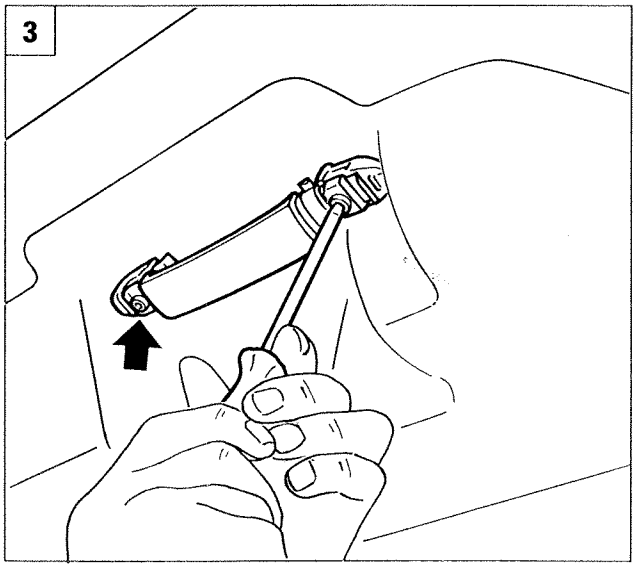
NOTE *When replacing the bulbs it is not necessary to remove the light cluster.*

1. After having opened the access flap, act on the tabs for the bulb support and remove it, disconnect the connector shown in the diagram, then replace the faulty bulbs.

2. The functions of the bulbs illustrated in the diagram are as follows:
   A. Brake light and side light
   B. Direction indicator
   C. Side light

Removing-refitting light cluster located in rear tailgate

3. Undo the fixing bolts and remove the tailgate handle.
4. Undo the bolts fixing the tailgate lining.



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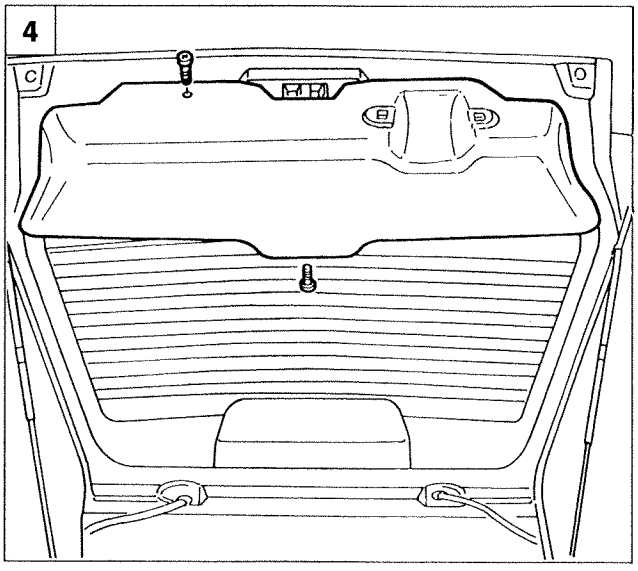
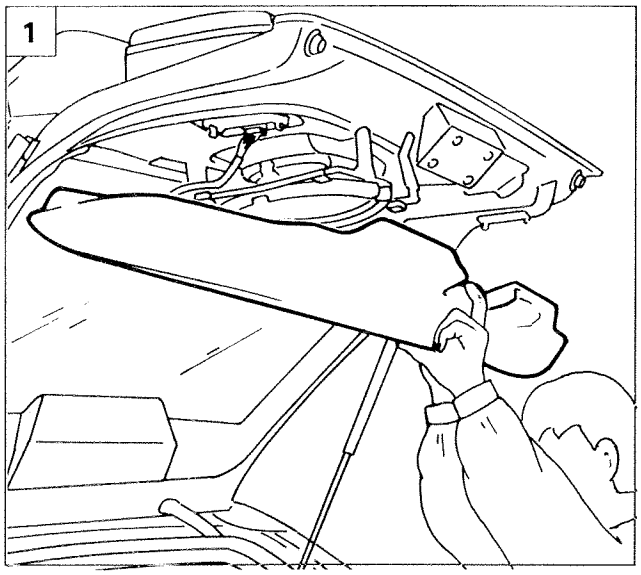


P3U02EL04

1



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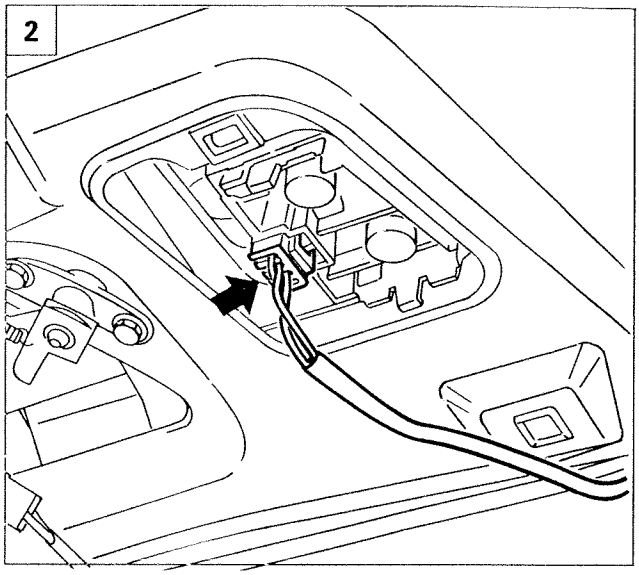
2



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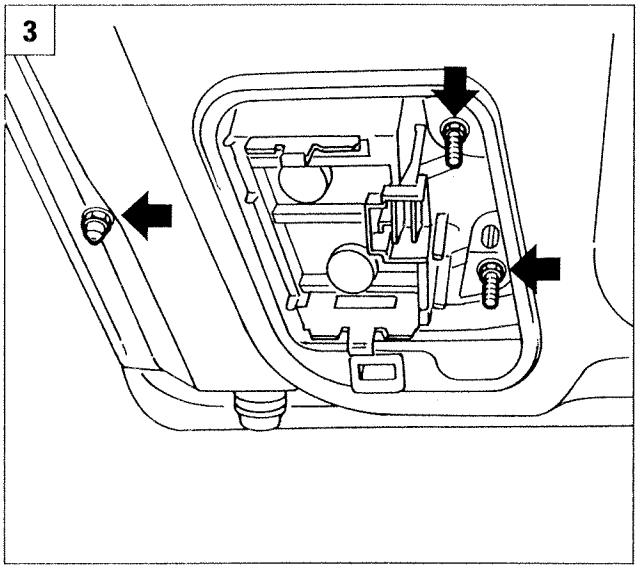
3



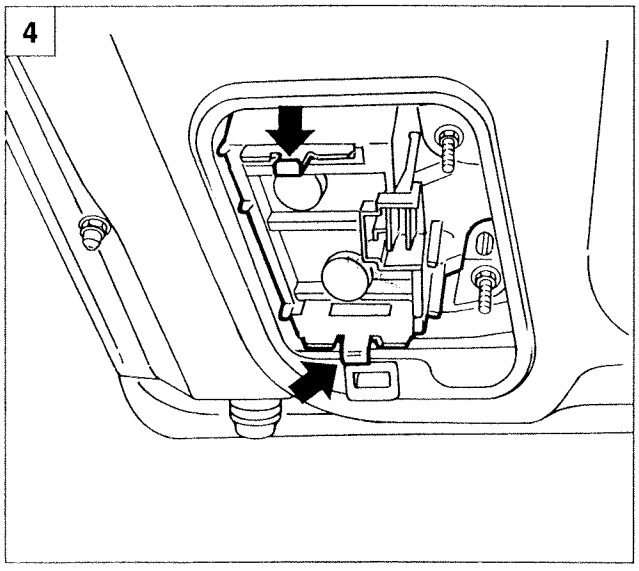
P3U03EL03

1. Remove the tailgate lining, taking care not to damage it.
2. Disconnect the electrical connector shown in the diagram.
3. Undo the bolts shown in the diagram and remove the complete light cluster.

Replacing bulbs (light cluster located in rear tailgate)

4. Proceed as described up until point 2, then act on the tabs shown in the diagram to extract the bulb support and replace the faulty bulbs.
5. The functions of the bulbs illustrated in the diagram are as follows:
   A. Rear fog lamp
   B. Reversing light

4



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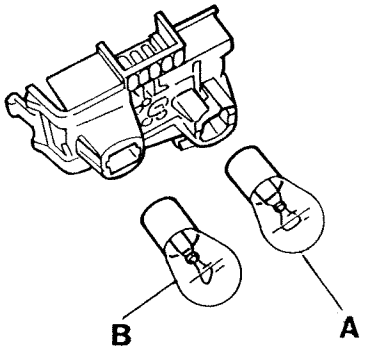

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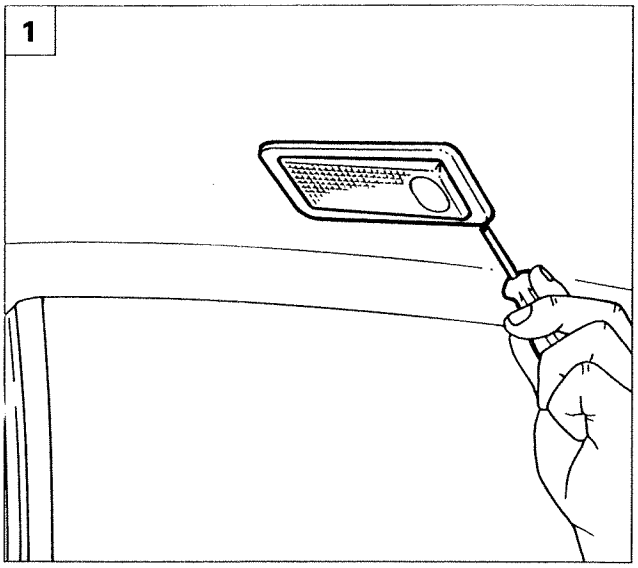
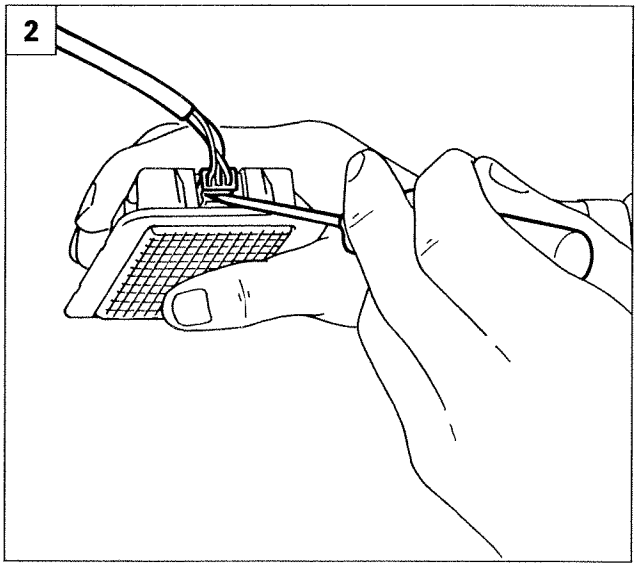


P3U06EL01

CENTRE REAR COURTESY LIGHT

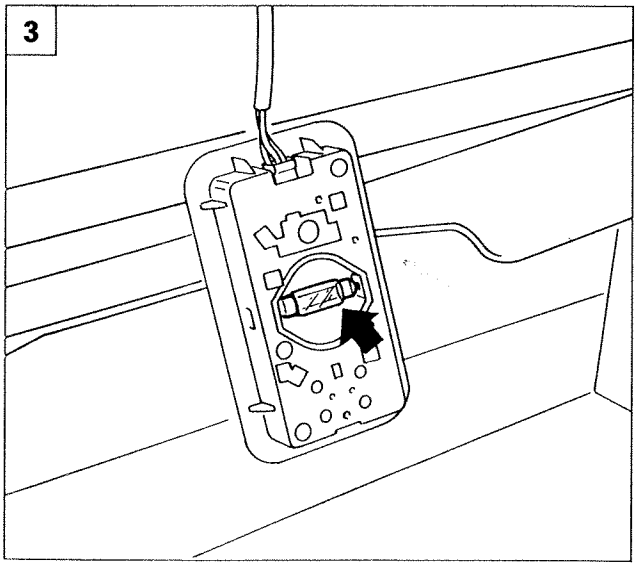
Removing-refitting

1. Working carefully, remove the rear courtesy light from its housing.



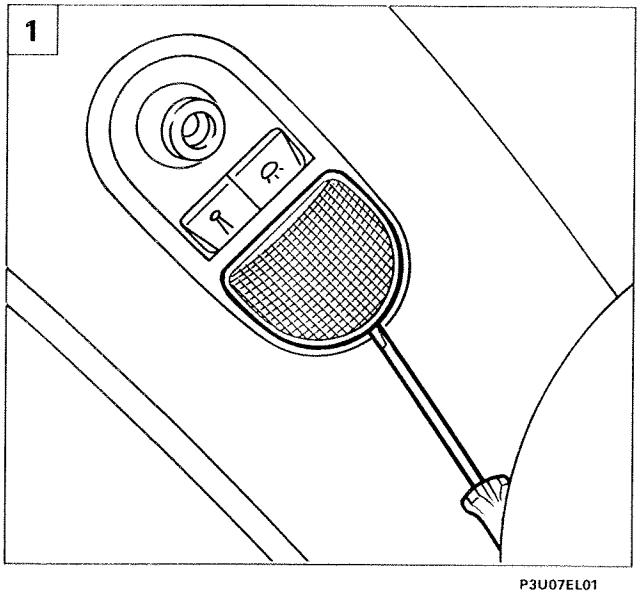
P3U06EL02

2. Use a screwdriver as illustrated in the diagram to separate the electrical connector from the courtesy light.



P3U06EL03

3. To replace the bulb, act at the point shown in the diagram.

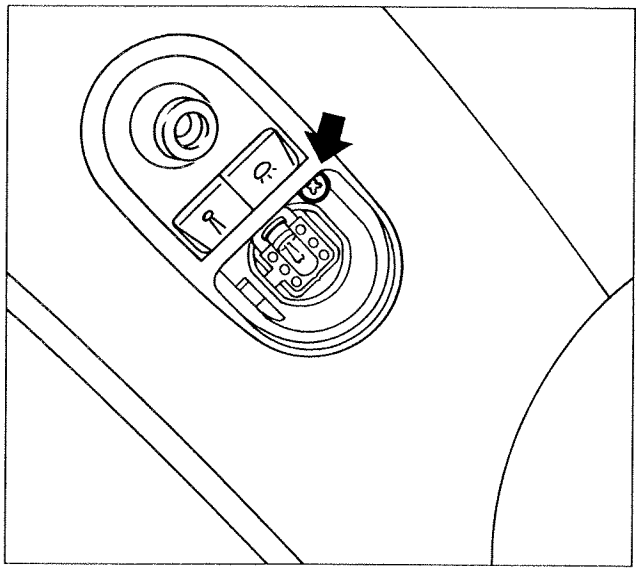


P3U07EL01

REAR PILLAR COURTESY LIGHT

Removing-refitting

1. Using a screwdriver, remove the lens cover for the courtesy light, taking care not to damage it.
2. Undo the bolt shown in the diagram and separate the courtesy light from the pillar.
3. Disconnect the electrical connector shown in the diagram and remove the courtesy light.
4. Raise the upper part of the map reading light and extract the bulb.



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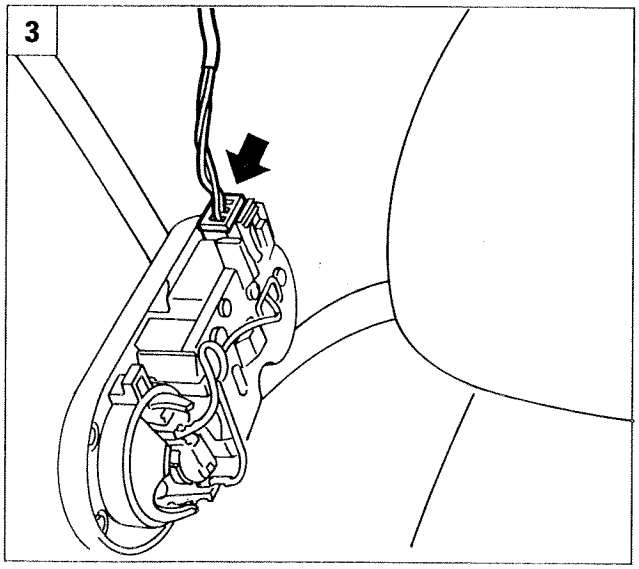

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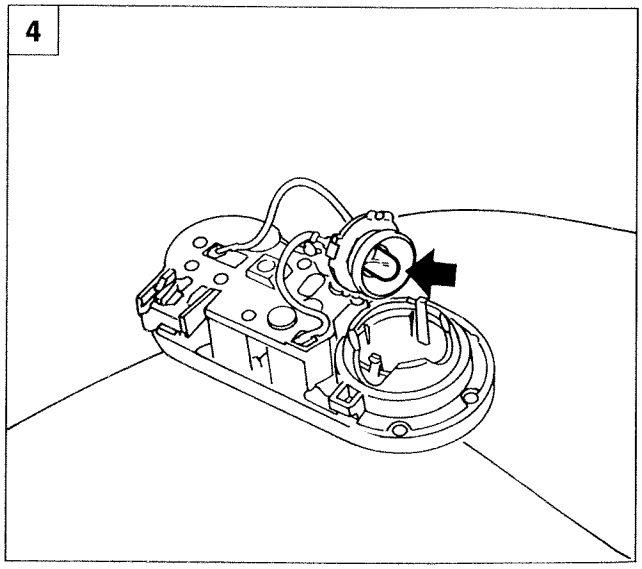
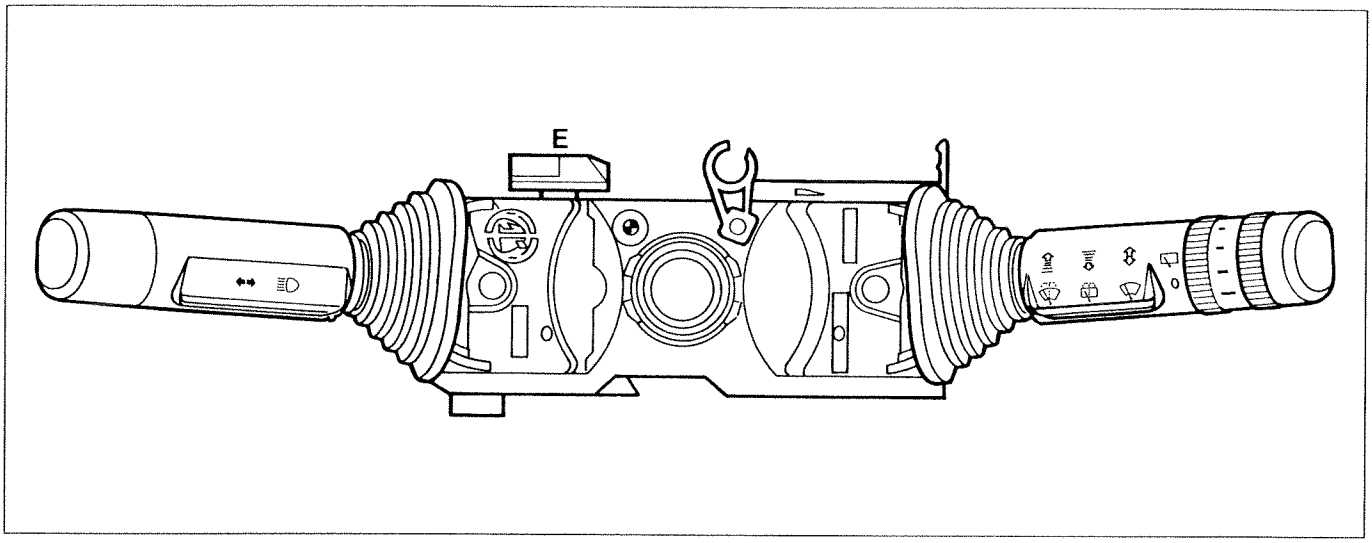


P3U07EL04

STEERING COLUMN SWITCH UNIT



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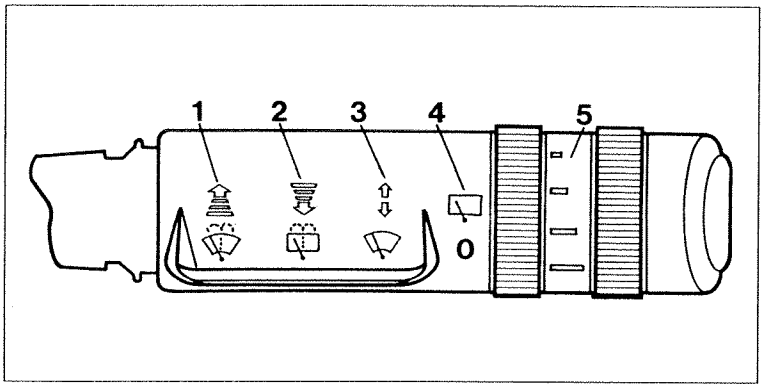
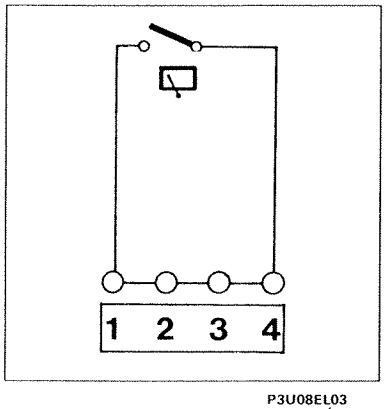


P3U08EL02

1	Windscreen washer pump
2	Rearscreen washer pump
3	Windscreen wiper
4	Rearscreen wash/wipe
5	Windscreen wiper intermittent device

Rearscreen wash/wipe switch wiring diagram



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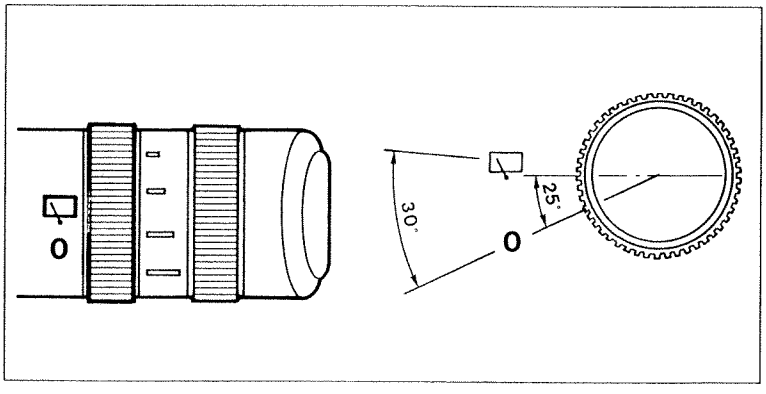
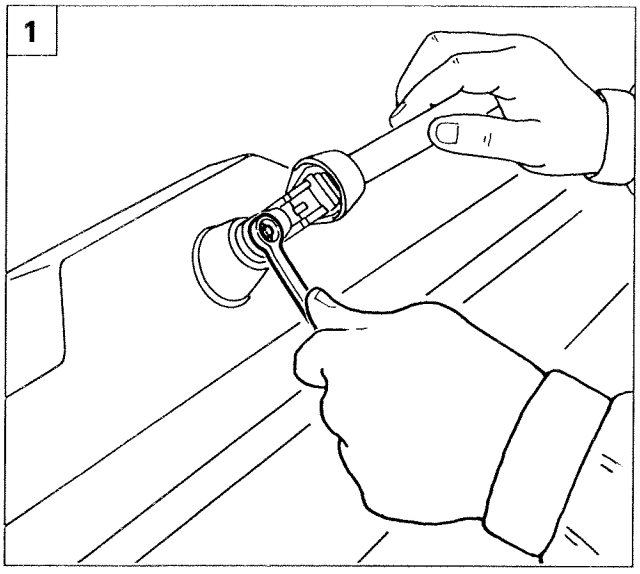


P3U08EL04

Connector E (4 way)	Cable colour
1 Rearscreen wash/wipe	CN
2 Free	
3 Free	
4 Rearscreen wash/wipe	N

For anything not dealt with, refer to Section 55 - Electrical Equipment of the "LANCIA k" Service Manual (print no. 506.475/14).



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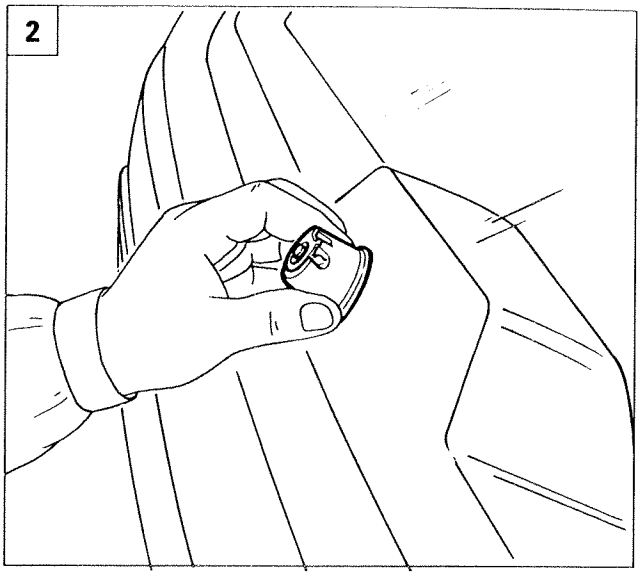
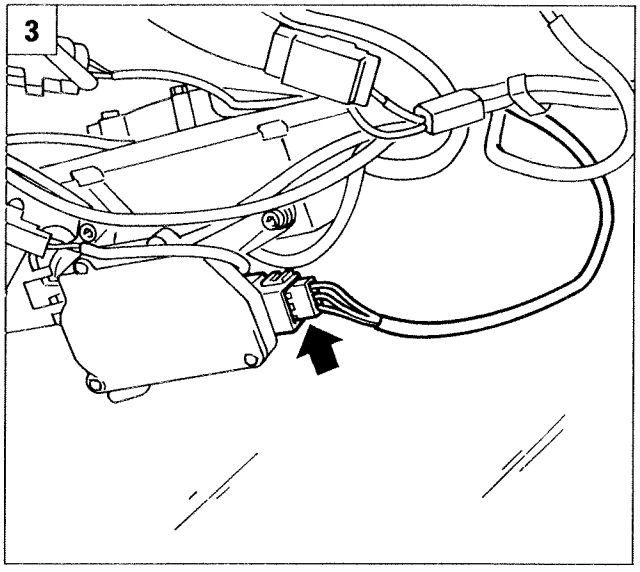


P3U09EL02

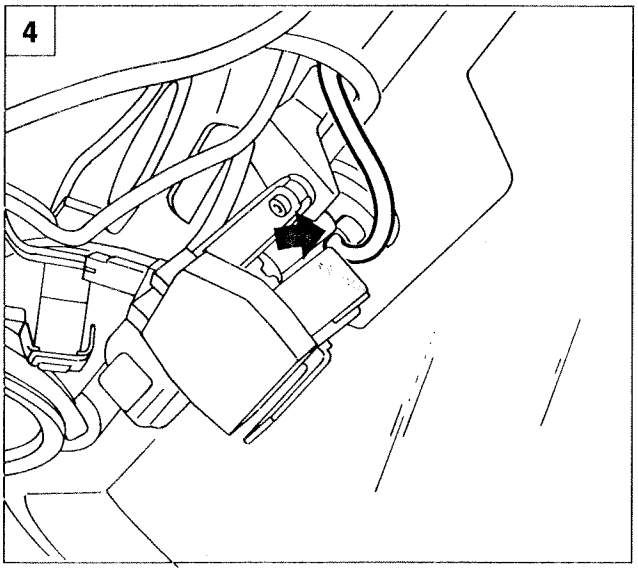


P3U09EL03

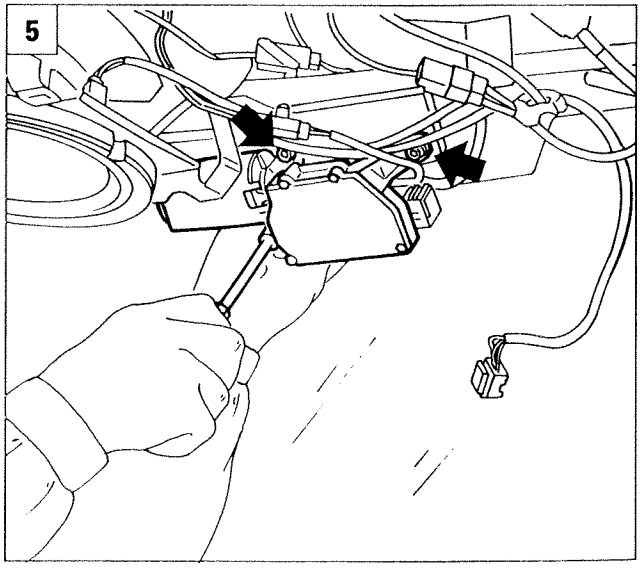
REARSCREEN WASH/WIPE

Removing-refitting rearscreen wiper motor

1. Lift up the protection for the nut fixing the rearscreen wiper arm, then remove it complete with seal.
2. Remove the shield for the jet from the rearscreen wiper motor threaded pin.
3. Remove the luggage compartment lining, working as described on pages 2 and 3, then disconnect the electrical connector shown in the diagram.
4. Separate the pipe from the jet.
5. Undo the bolts shown and remove the rearscreen wiper motor.



P3U09EL04



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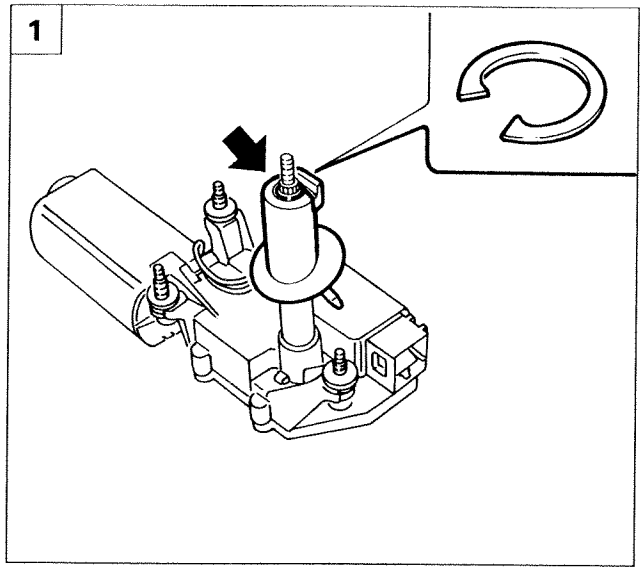
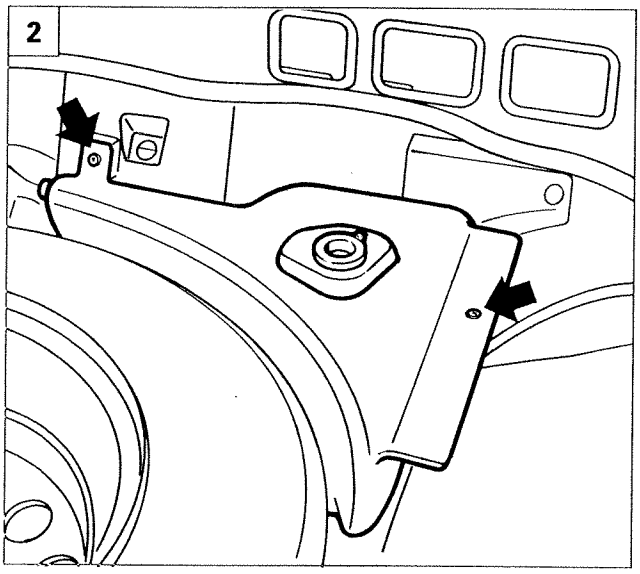


P3U10EL01

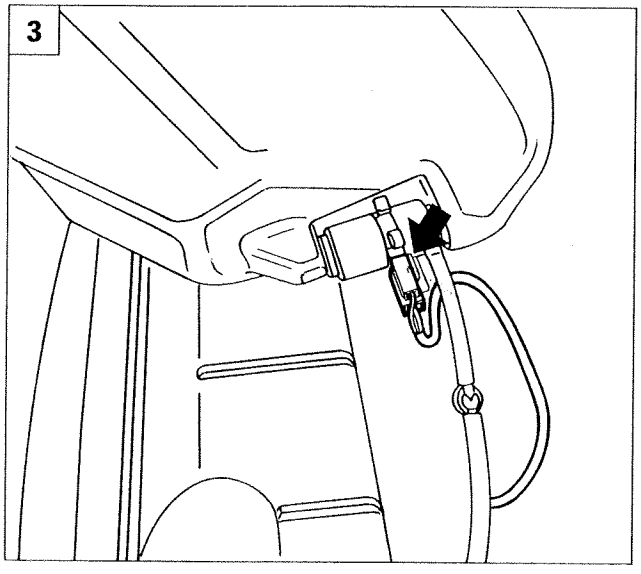
1. Acting on the retaining ring shown in the diagram, remove the jet fixed to the rearscreen wiper motor pin.



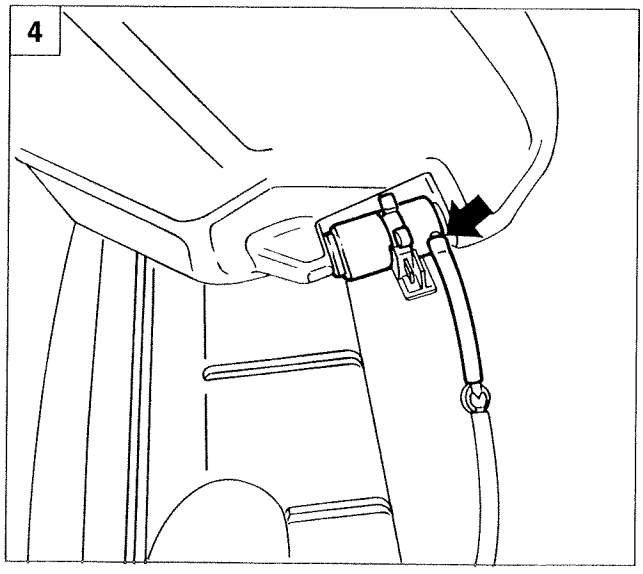
P3U10EL02

Removing-refitting rearscreen washer fluid pump and reservoir

2. Lift up the luggage compartment shelves and gain access to the rearscreen washer fluid reservoir, undo the bolts shown and remove the reservoir.
3. Drain the fluid from the reservoir and disconnect the electrical connector shown in the diagram.
4. Acting carefully, lift the rearscreen washer pump towards the outside of the reservoir, then extract it and disconnect the pipe from the pump.



P3U10EL03

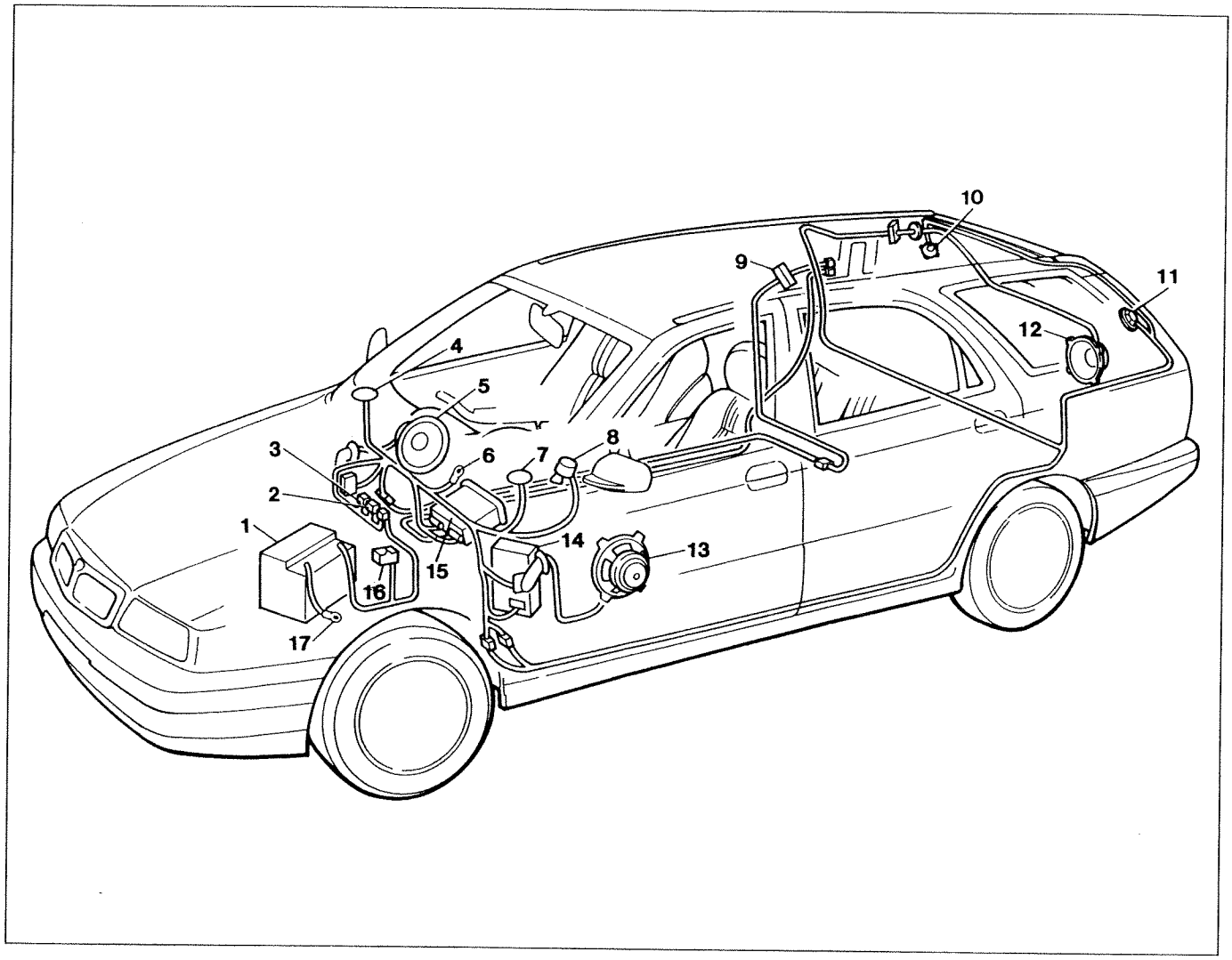


P3U10EL04

LIST OF FUSES AND MAIN CIRCUITS PROTECTED

Fuse No.	Amp.	Ideogram	Circuit protected
1	15	Services 1	Switch signalling I.G.E. control unit for checking fuse for braking lights; braking lights; signal for ABS-automatic transmission of brake lights pressed; i.e. system for diesel- turbo.
2	5	Services 2	Switch signal for I.G.E. control unit for dipped headlamps; main beam headlamps relay; instrument panel; fog lights/rear fog lamps warning light; Infocenter. Instrument panel light dimmer; exterior lights switch; heater pads switch light; electric mirrors switch light; front cigar lighter light; ashtray light; headlamp alignment light; Radio; Electric windows. Electro-chromic internal rear view mirror; signalling instrument for timer; electric windows inhibitor device; infra red receiver signal; passenger visor light.
3	15	Fuel Pump	Fuel pump; key + battery position.
4	10	Services 4	4 puddle lights; 2 floor lights; left and right rear courtesy lights; luggage compartent light; glove compartment light; front courtesy light; timer for front courtesy light.
5	10	Services 5	Electric, heated mirrors; electric, heated, folding mirrors control unit; electronic automatic transmission.
6	30		Climate control system.
7	15	Services 7	Radio; electric aeriel; front cigar lighter.
8	10		Direction indicators/-hazard warning lights system
9	5	Services 9	Relay for electric heated seats compressor-relay feed
10	5	Services 10	Electro-mechanical boot release relay
11	25	Services 11	Spare
12	20		Headlamp washer
13	25	Services 13	Sun roof-reversing lights-reversing lights signal for electro-mechanical mirror
14	25		Windscreen wash/wipe
15	25		Motors for left and right electric front windows
16	15	Services 16	Rearscreen wash-/wipe-Infocenter; Air-Bag system; I.G.E. control unit signal - signal to front electric windows control unit - signal to electric rear windows control unit - Servotronic control unit.
17	5	Services 17	Infocenter; instrument panel; radio (security code); signal for automatic transmission; audible signal for automatic transmission.
18	5	Services 18	Siren for alarm; receiver for alarm; LED for alarm.
19	25		Motors for locking doors; motor for unlocking fuel filler.
20	5	Services 20	Electronic key system, (Lancia CODE).

LOCATION OF RADIO SYSTEM COMPONENTS (NORMAL RANGE)

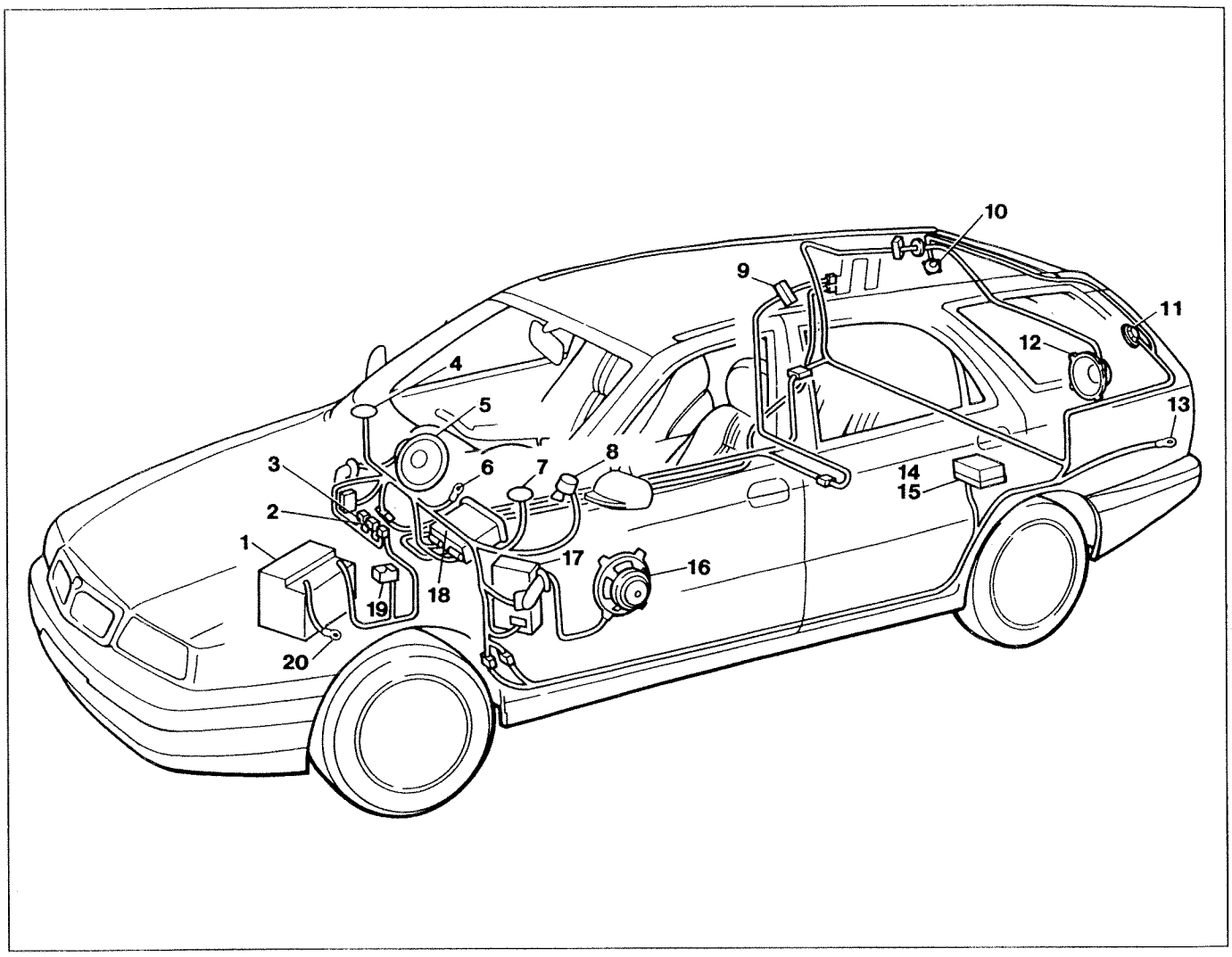


P3U12EL01

Components key

1. Battery
2. 60A protective fuse for IGE control unit/junction unit
3. 30A protective fuse for ignition switch/alarm system
4. Right front speaker
5. Speaker in right front door
6. Earth on carrier device
7. Left front speaker
8. Ignition switch
9. Amplifier for aerial in rearscreen
10. Right rear speaker
11. Left rear speaker
12. Speaker in tailgate (woofer)
13. Speaker in left front door
14. Junction unit
15. Radio
16. Main connector block
17. Earth on bodyshell

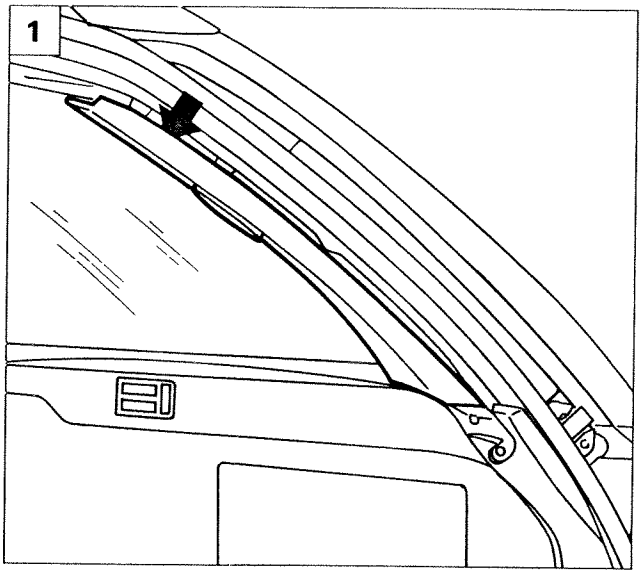
LOCATION OF RADIO SYSTEM COMPONENTS (TOP RANGE)



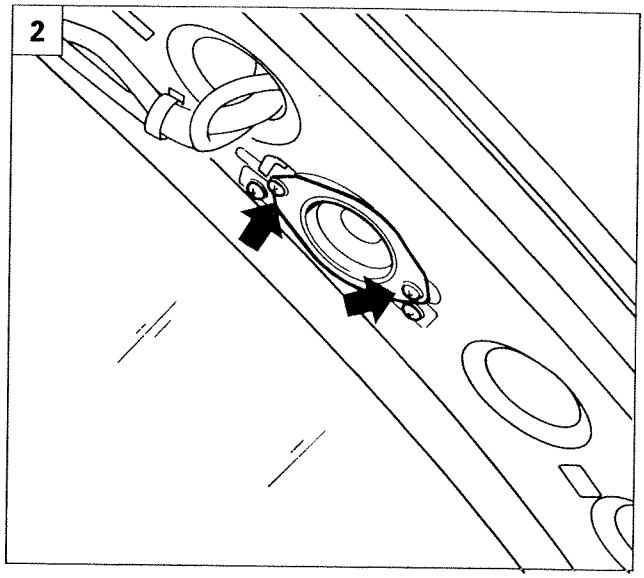
P3U13EL01

Components key

1. Battery
2. 60A protective fuse for IGE control unit/junction unit
3. 30A protective fuse for ignition switch/alarm system
4. Right front speaker
5. Speaker in right front door
6. Earth on carrier device
7. Left front speaker
8. Ignition switch
9. Amplifier for aerial in rearscreen
10. Right rear speaker
11. Left rear speaker
12. Speaker in tailgate (woofer)
13. Left rear earth
14. Compact Disc (CD) (optional)
15. Amplifier for radio
16. Speaker in left front door
17. Junction unit
18. Radio
19. Main connector block
20. Earth on bodyshell



P3U14EL01



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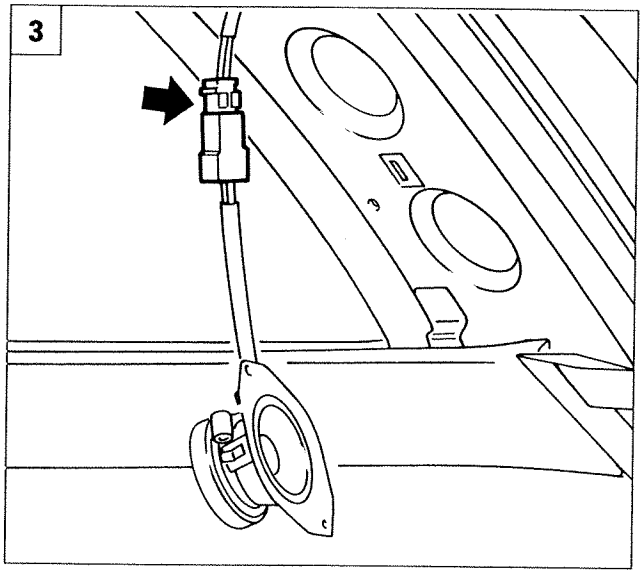


P3U14EL03

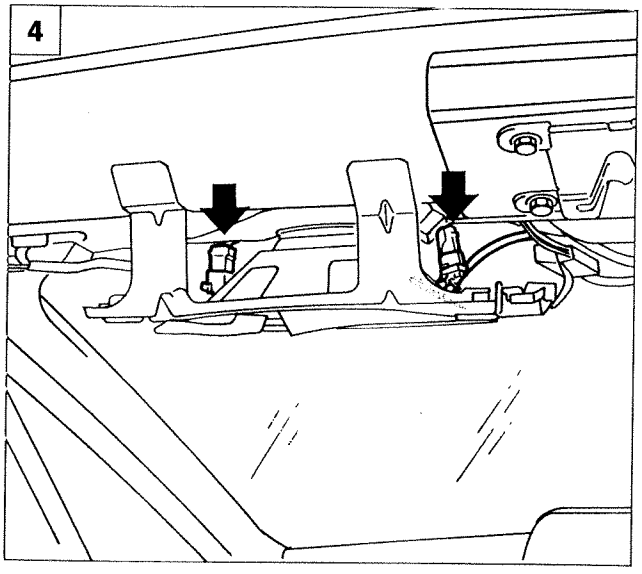
REMOVING-REFITTING TWEETER FROM REAR PILLAR

1. Using tool 1878077000, remove the rear pillar cover.
2. Undo the bolts shown and separate the tweeter from its housing.
3. Disconnect the electrical connector and remove the tweeter.

REMOVING-REFITTING SPEAKER FROM TAILGATE

4. Remove the tailgate lining (see pages 2 and 3), then disconnect the electrical connectors shown in the diagram;.
5. Undo the bolts shown and extract the speaker from its housing.

When refitting, make sure that the anti-vibration sponge behind the speaker is fitted correctly.



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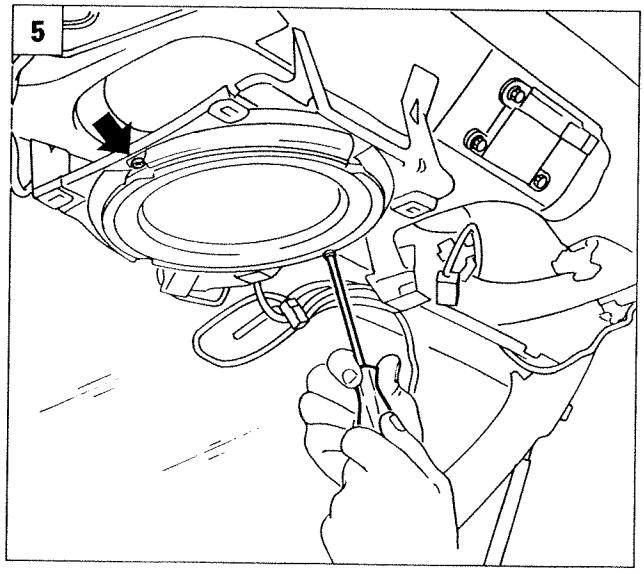


P3U14EL05

Electrical equipment

Contents

55.

page

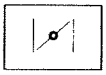
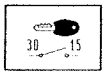
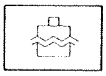
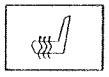
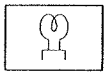
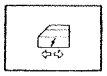
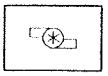
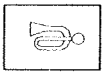
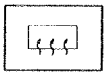
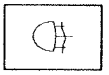
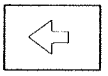
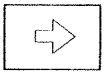
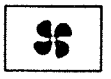
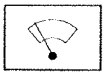
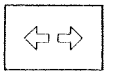
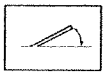
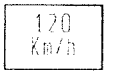
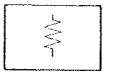
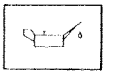
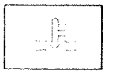
For information not given in this section, consult sect. 55 Wiring diagrams of the LANCIA k manual volume 2, publication no. 506.475/01.

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

Fiat Auto S.p.A.
D.M.C. - M.P.S.
Servizi Post Vendita - Assistenza Tecnica
10040 Volvera - TO - (Italia) - Largo Senatore G.Agnelli, 5
Publication no. 506.475/15 - Giugno 1996 - 400
Printed in Italy - Tip. Bogliani - TORINO
order no. 60444456

NAME	ENGINE				
	1998	1998 T	2446	2959	2387 Td
Provision for car radio, mid range	5	5	5	5	5
Provision for car radio, high range	7	7	7	7	7
Turn signals and warning light - Hazard warning lights and warning lamp - Braking lights - Reversing lights	9	9	9	9	9
Windscreen wash/wipe - Rear wash/wipe - Headlamp washer - Electric horns	11	11	11	11	11
Courtesy light	13	13	13	13	13

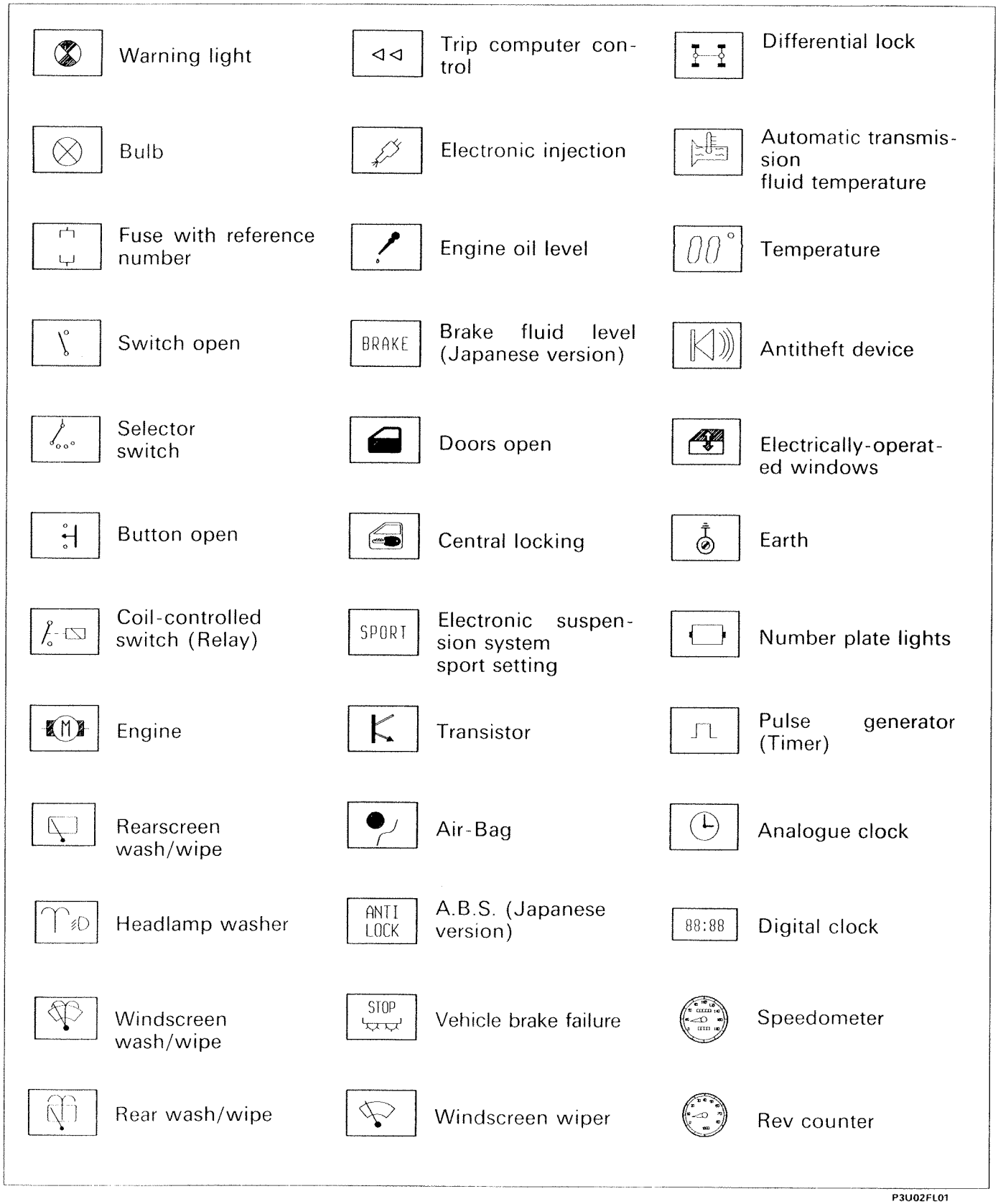
Electrical symbols

 Positions	 Cold starting (starter)	 Ignition discharge
 Main beam headlamps	 Water in fuel filter	 Dipped headlamps
 Heated seat	 Glow plug preheating	 Turn signal with central locking warning light
 Seat belt	 Turbo charger pressure	 Electric horns
 Heated rear windscreen	 Rear fog lamp	 Left turn signal
 Handbrake on and low brake fluid level	 Fog lamps	 Right turn signal
 A.B.S.	 Brake lining wear	 Engine cooling system
 Hazard warning lights	 Turbocharger pressure	 Windscreen wiper
 Turn signals	 Automatic transmission fluid temperature	 Electrically operated sun roof
 Handbrake and low brake fluid level	 Speed limit	 Catalytic converter temperature
 Recharging	 Fuel level	 Resistance
 Engine oil pressure	 Coolant temperature	 Diode

P3U01FL01

55.

Electrical symbols



P3U02FL01

3U02FL

Digital speedometer

Digital rev counter

Digital fuel gauge

Analogue fuel gauge

Analogue coolant temperature gauge

Econometer

Digital coolant temperature gauge

Engine oil temperature

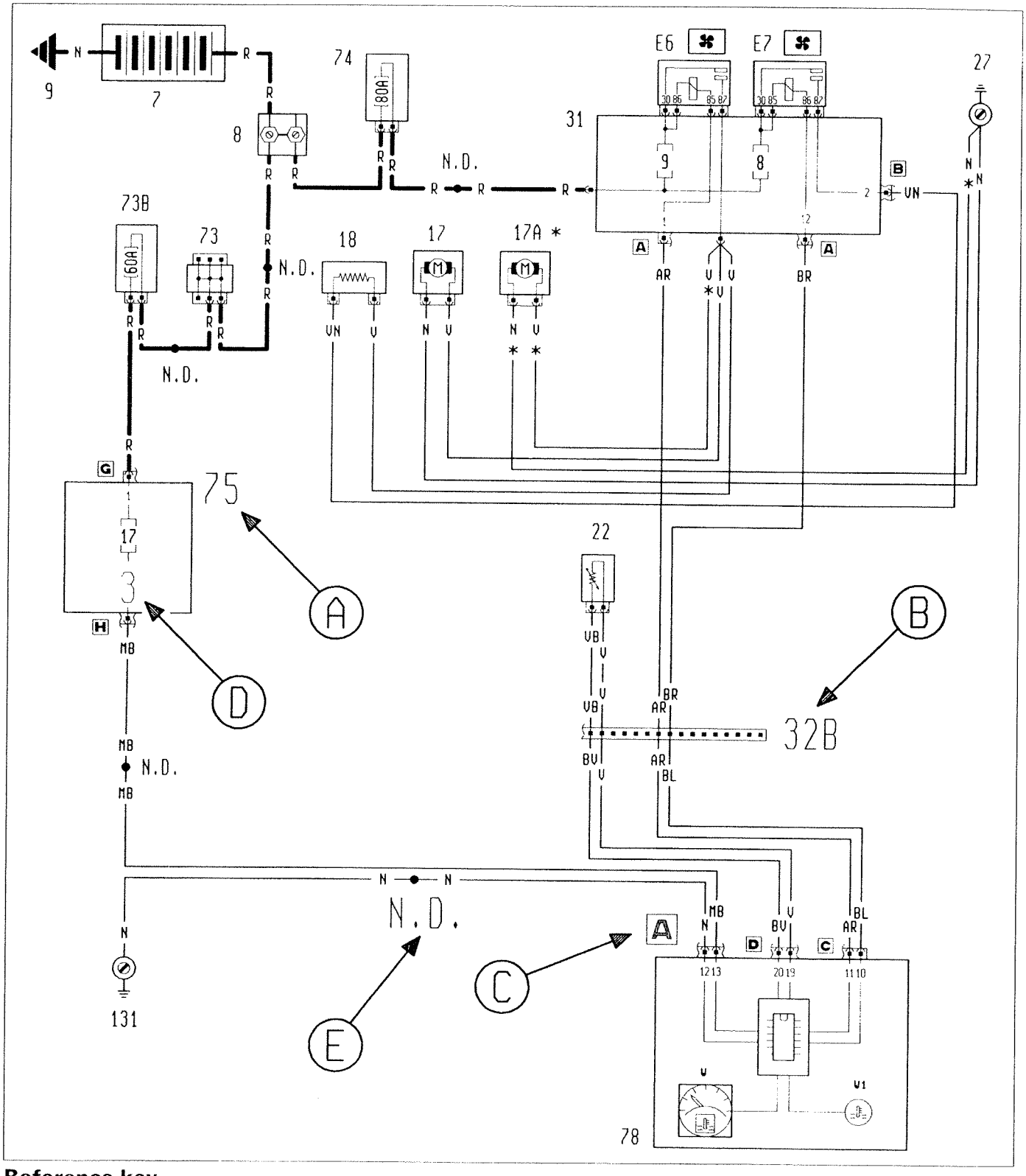
Engine oil pressure gauge

Voltmeter

P3U03FL01

55.

How to read the wiring diagram



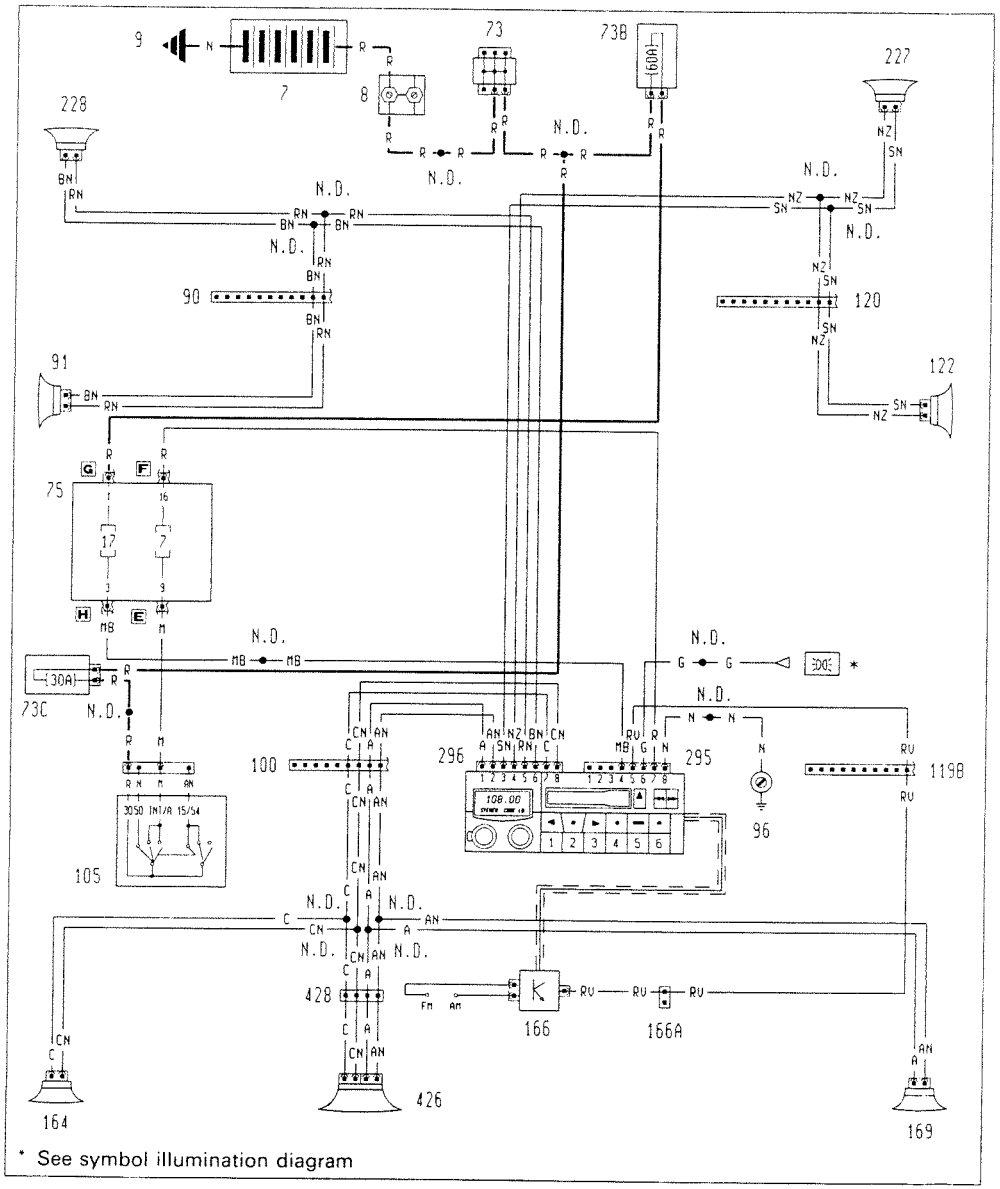
P3U04FL01

Reference key

A Component number
B Connection number
C Identification of connector on component
D Connection pin number
E Taped ultrasound welding in wiring bundle

3704FL

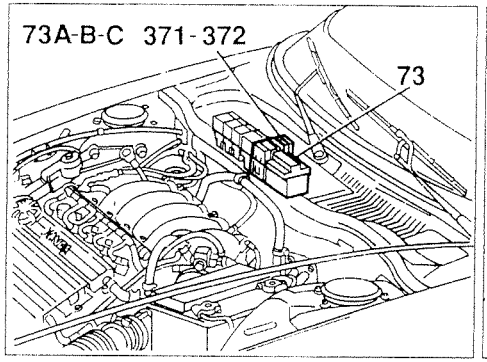
Provision for car radio, mid range -

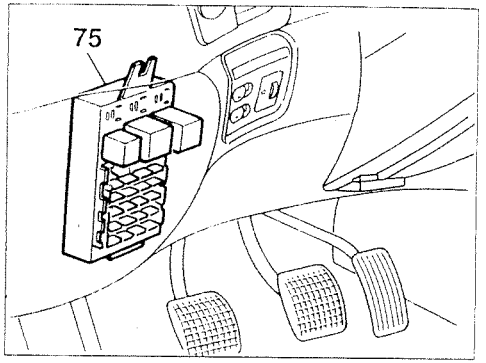


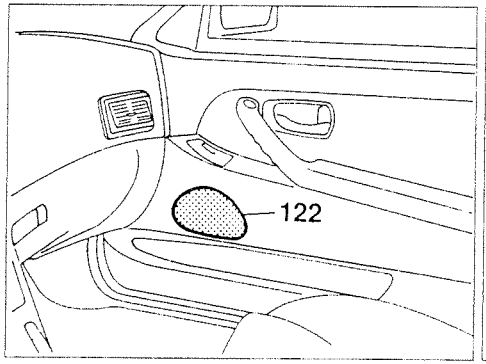
3U05FL

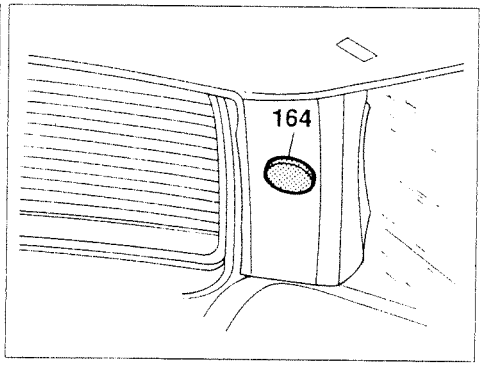
P3U05FL01

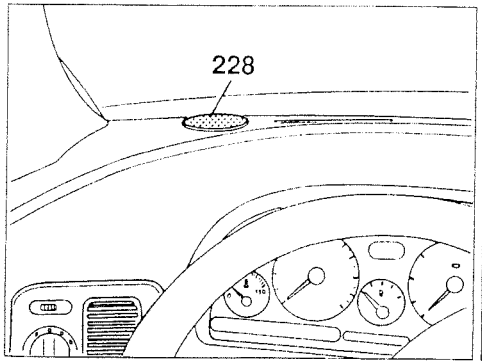
Provision for car radio, mid range -

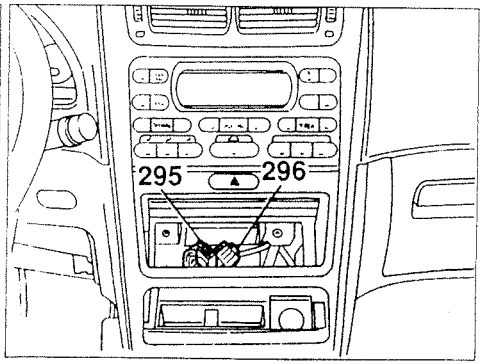




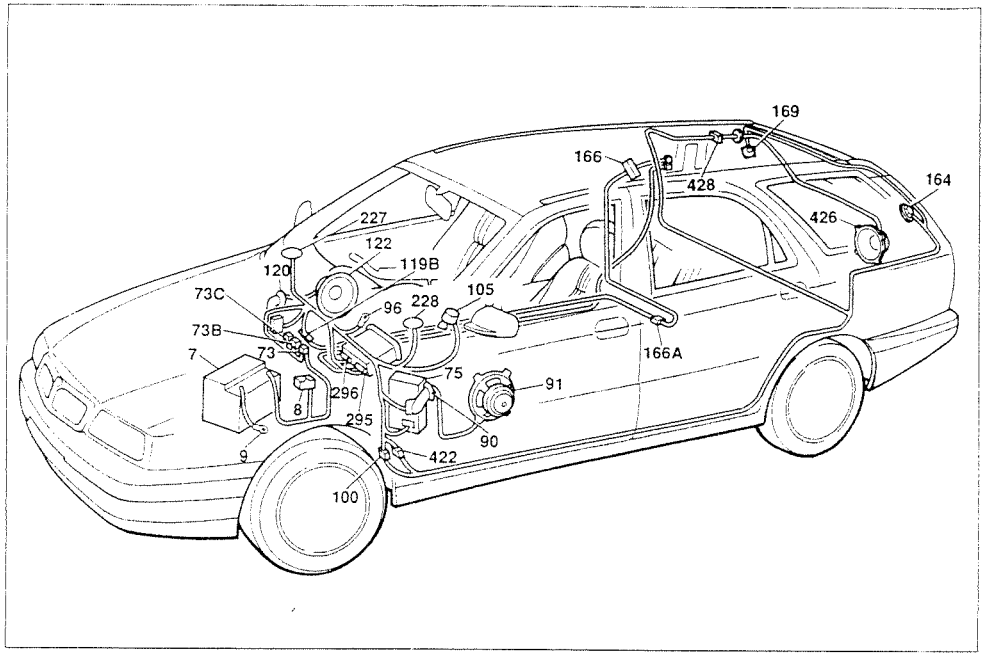








3U06FL



P3U07FL01

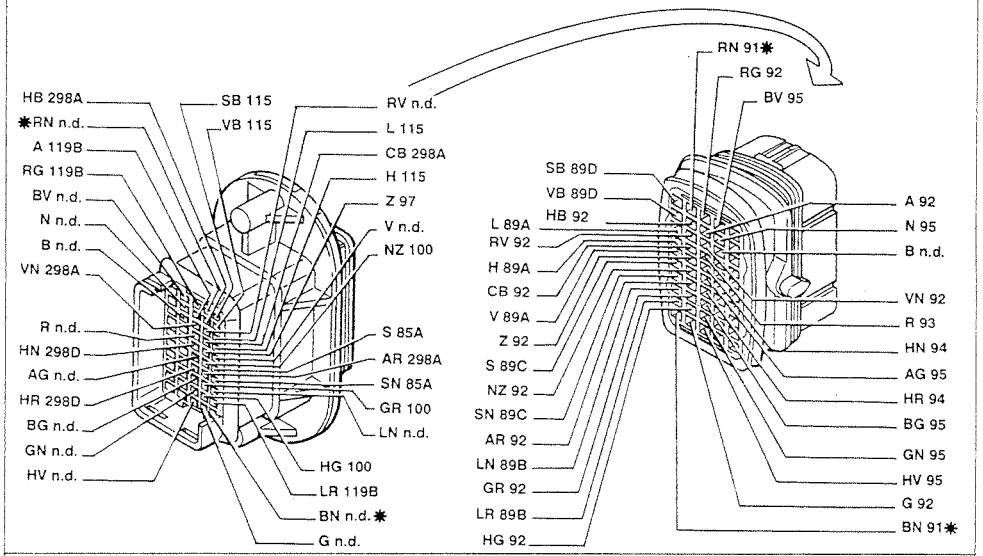
Provision for car radio, mid range

Key to components

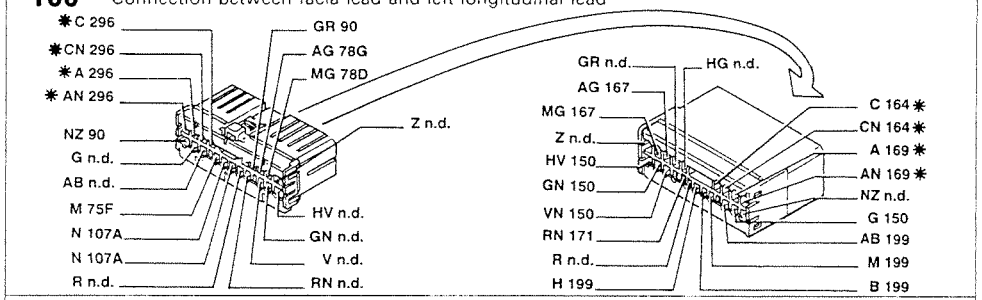
7 Battery
8 Main junction unit
9 Earth on body
73 Secondary juntion unit
73B 60A fuse protecting I.G.E. control unit/junction unit
73C 30A fuse protecting ignition switch/antitheft device
75 Junction unit (facia)
90 Connection between facia cable and left front door cable
91 Speaker on left hand front door
96 Earth on carrier
100 Connection between facia lead and left longitudinal lead
105 Ignition switch
119B Connection between facia cable and right longitudinal cable
120 Connection between facia cable and right front door cable
122 Speaker on right hand front door
164 Left hand rear speaker
166 Amplifier for aerial on back window
166A Rear cable connection on rear window
169 Right hand rear speaker
227 Right front speaker
228 Left front loudspeaker
295 Radio cable connection
296 Radio cable connection
426 Speaker on tail-gate (woofer)
428 Connection between left longitudinal cables/left tail-gate for speaker
N.D. Taped ultrasound welding in wiring bundle

3U07FL

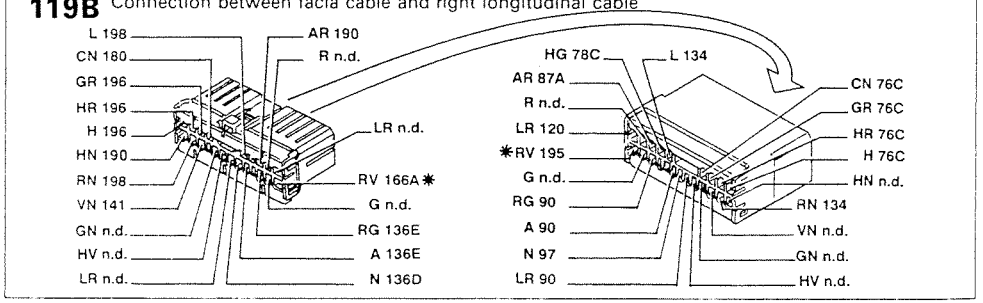
90 Connection between facia cable and left front door cable



100 Connection between facia lead and left longitudinal lead



119B Connection between facia cable and right longitudinal cable

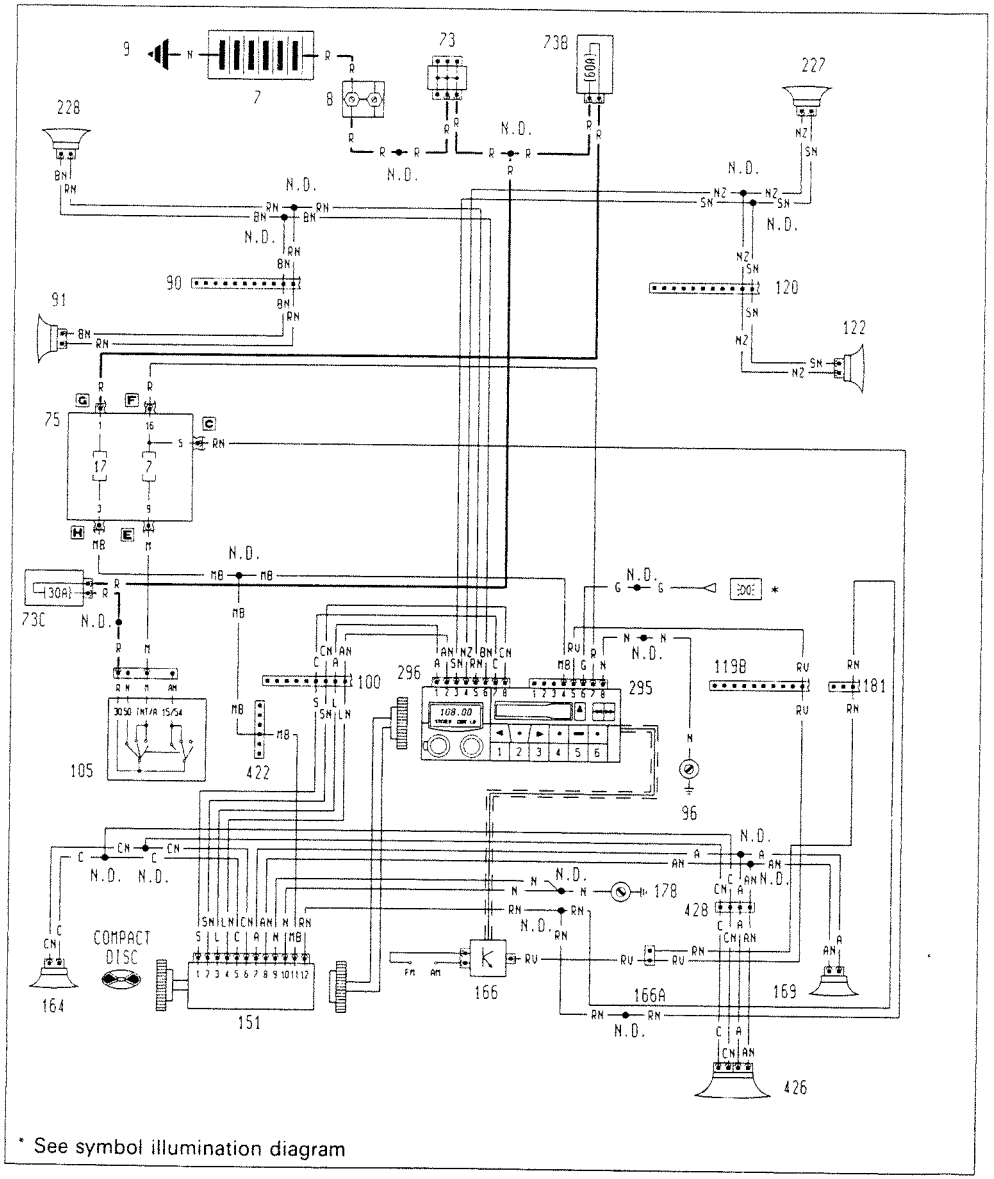


P3U08FL01

* Wires involved in the wiring diagram are marked with an asterisk

3U08FL

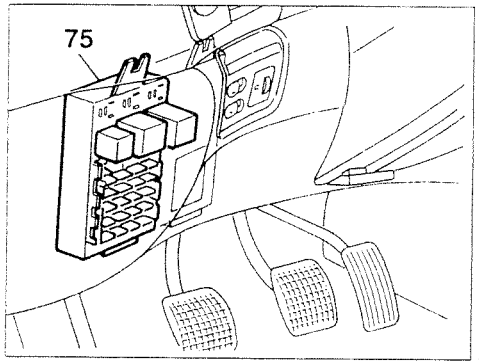
Provision for car radio, high range -

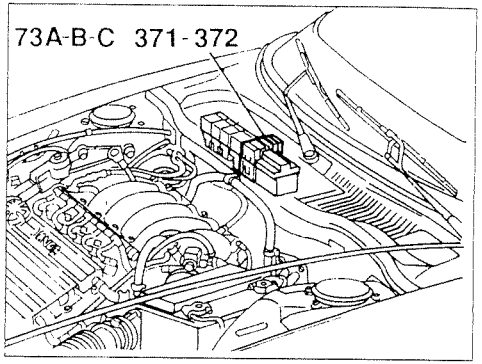


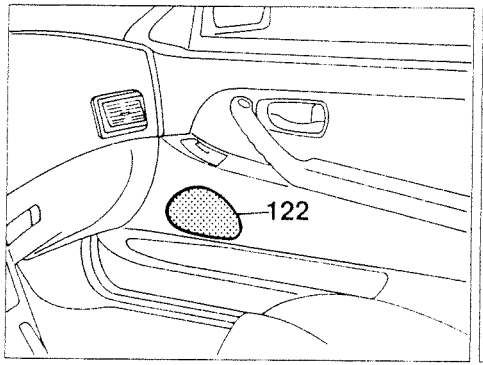
3U09FL

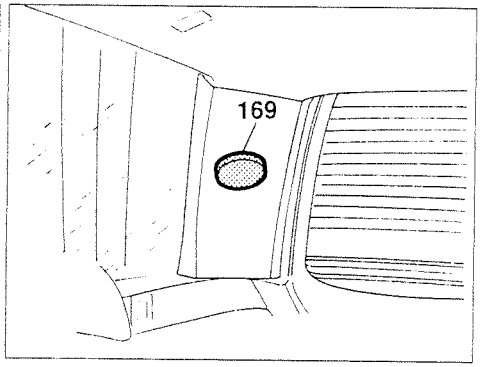
P3U09FL01

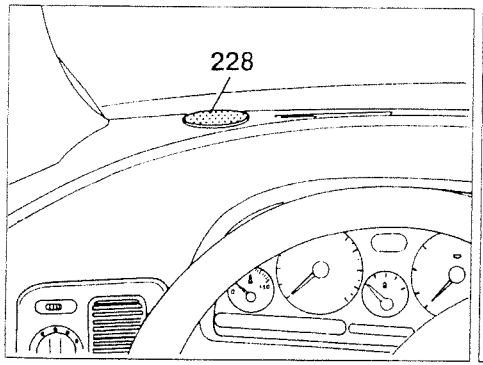
Provision for car radio, high range -

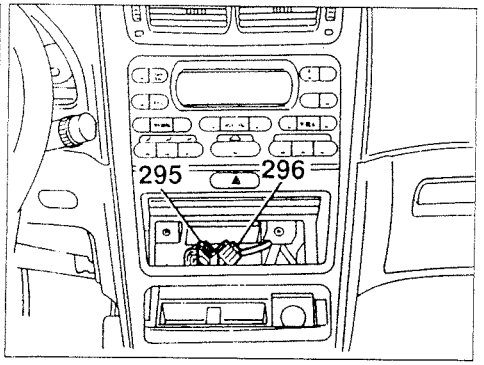




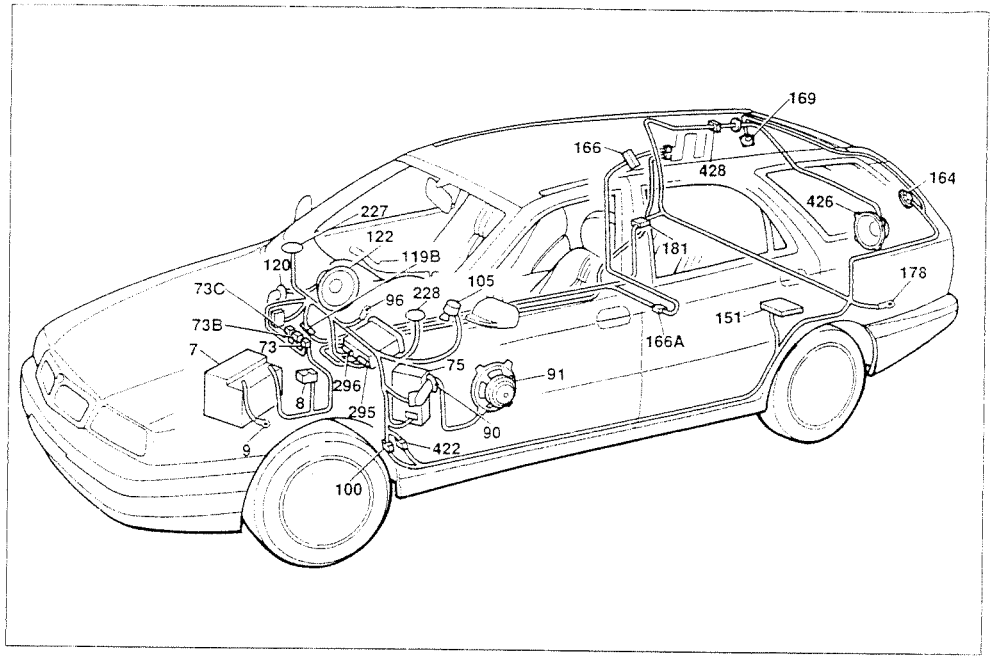








3U10FL



P3U11FL01

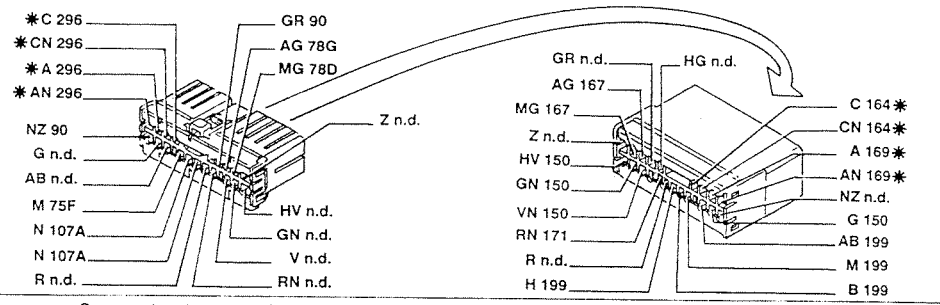
Provision for car radio, high range

Key to components

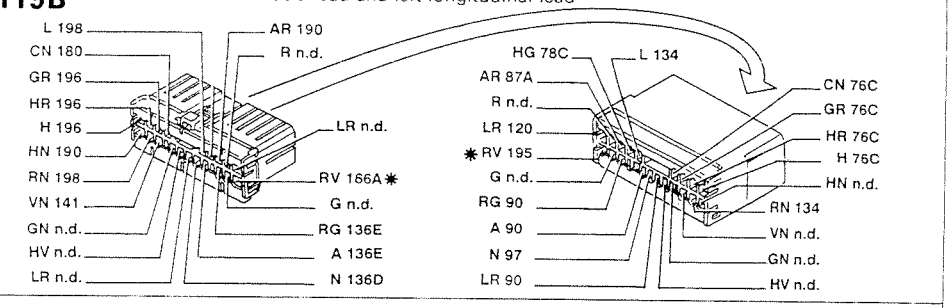
7 Battery
8 Main junction unit
9 Earth on body
73 Secondary juntion unit
73B 60A fuse protecting I.G.E. control unit/junction unit
73C 30A fuse protecting ignition switch/antitheft device
75 Junction unit (facia)
90 Connection between facia cable and left front door cable
91 Speaker on left hand front door
96 Earth on carrier
100 Connection between facia lead and left longitudinal lead
105 Ignition switch
119B Connection between facia cable and right longitudinal cable
120 Connection between facia cable and right front door cable
122 Speaker on right hand front door
151 Amplifier for car radio
164 Left hand rear speaker
166 Amplifier for aerial on back window
166A Rear cable connection on rear window
169 Right hand rear speaker
178 Left rear earth
181 Connection between left longitudinal cable and right longitudinal cable
227 Right front speaker
228 Left front loudspeaker
295 Radio cable connection
296 Radio cable connection
422 Connection between facia/left longitudinal cables
426 Speaker on tail-gate (woofer)
428 Connection between left longitudinal cables/left tail-gate for speaker
N.D. Taped ultrasound welding in wiring bundle

3U11FL

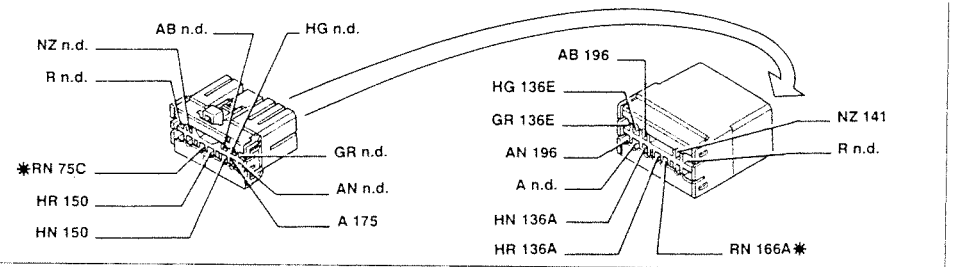
100 Connection between facia lead and left longitudinal lead



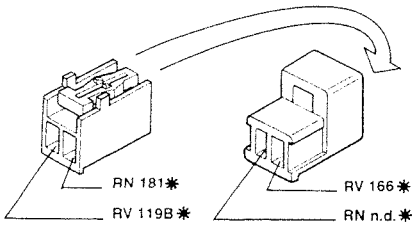
119B Connection between facia lead and left longitudinal lead



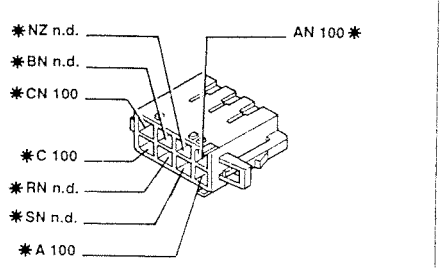
181 Connection between left longitudinal cable and right longitudinal cable



166A Rear cable connection on rear window



296 Radio cable connection

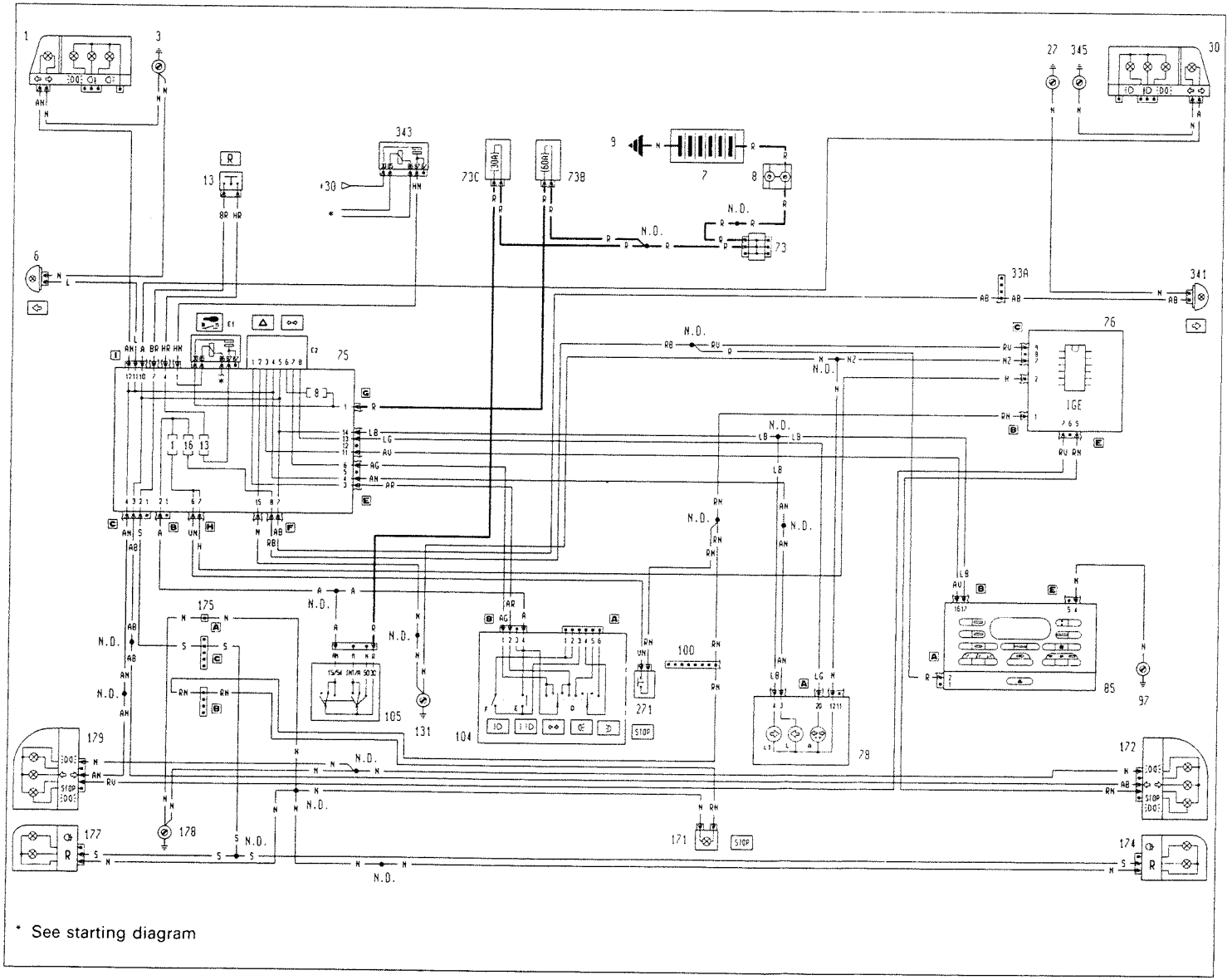


* Wires involved in the wiring diagram are marked with an asterisk

P3U12FL01

3U12FL

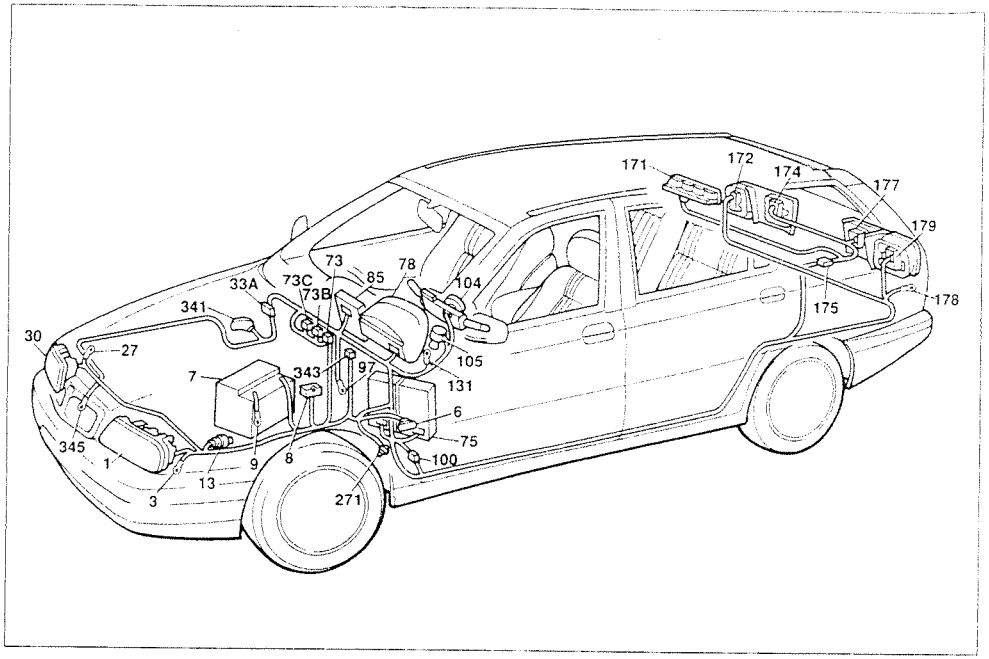
Turn signals and warning light - Hazard warning lights and warning lamp - Braking lights - Reversing lights -



* See starting diagram

3U13FL

P3U13FL01



P3U14FL01

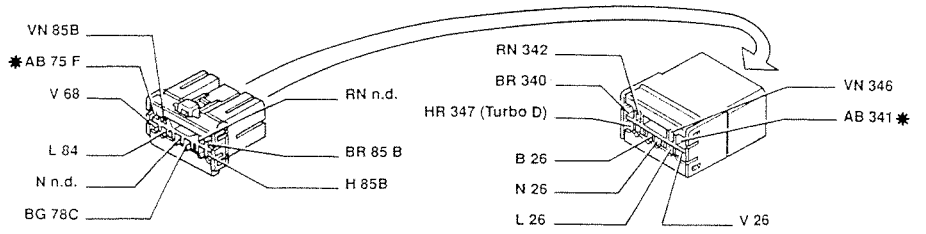
Turn signals and warning light - Hazard warning lights and warning lamp - Brake lights - Reversing lights

Key to components

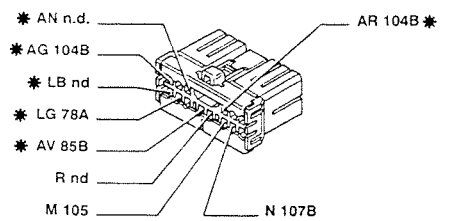
1 Left front light cluster
3 Left front earth
6 Left side turn signal
7 Battery
8 Main junction unit
9 Earth on body
13 Reversing lights switch
27 Right front earth
30 Right front light cluster
33A Connection between facia cable and right engine bay cable
73 Secondary juntion unit
73B 30A fuse protecting I.C.E. control unit/junction unit
73C 30A fuse protecting ignition switch/anti-theft device
75 Junction unit (facia)
E2 Turn signal/hazard warning light flasher
76 IGE control unit.
78 Instrument panel
A Trailer turn signal warning light
L Left turn signal warning light
L Right turn signal warning light
N Handbrake warning light
85 Infocenter ECU
97 Earth on floor pan
100 Connection between facia lead and left longitudinal lead
104 Stalk unit
D Turn signal/parking light stalk
E Main beam flasher button
F Main beam control switch
105 Ignition switch
131 Earth on steering column mount
171 Supplementary stop light indicator
172 Right tail-light cluster on fixed part
174 Right tail-light cluster on mobile part
175 Connection between left longitudinal cable and tail-gate cable
177 Left tail-light cluster on mobile part
178 Left rear earth
179 Left tail-light cluster on fixed part
271 Braking light switch
341 Right side turn signal
343 40A starter relay
345 Right front earth
N.D. Taped ultrasound welding in wiring bundle

3U14FL

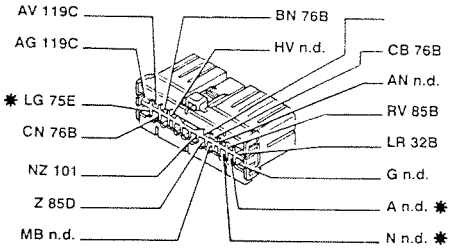
33A Connection between facia cable and right engine bay cable



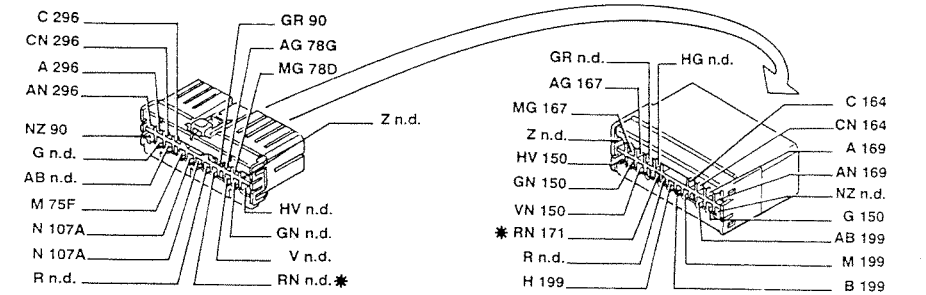
75E Junction unit (facia)



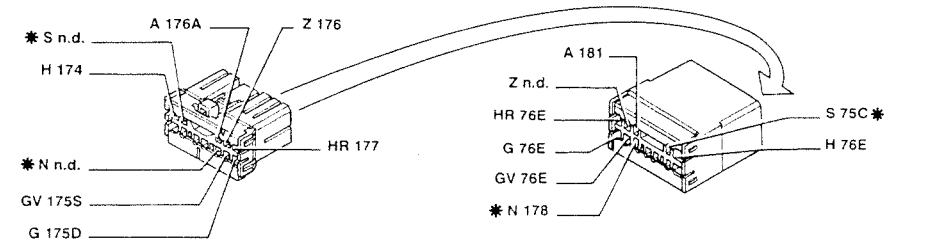
78A Instrument panel



100 Connection between facia lead and left longitudinal lead



175 Connection between left longitudinal cable and tail-gate cable

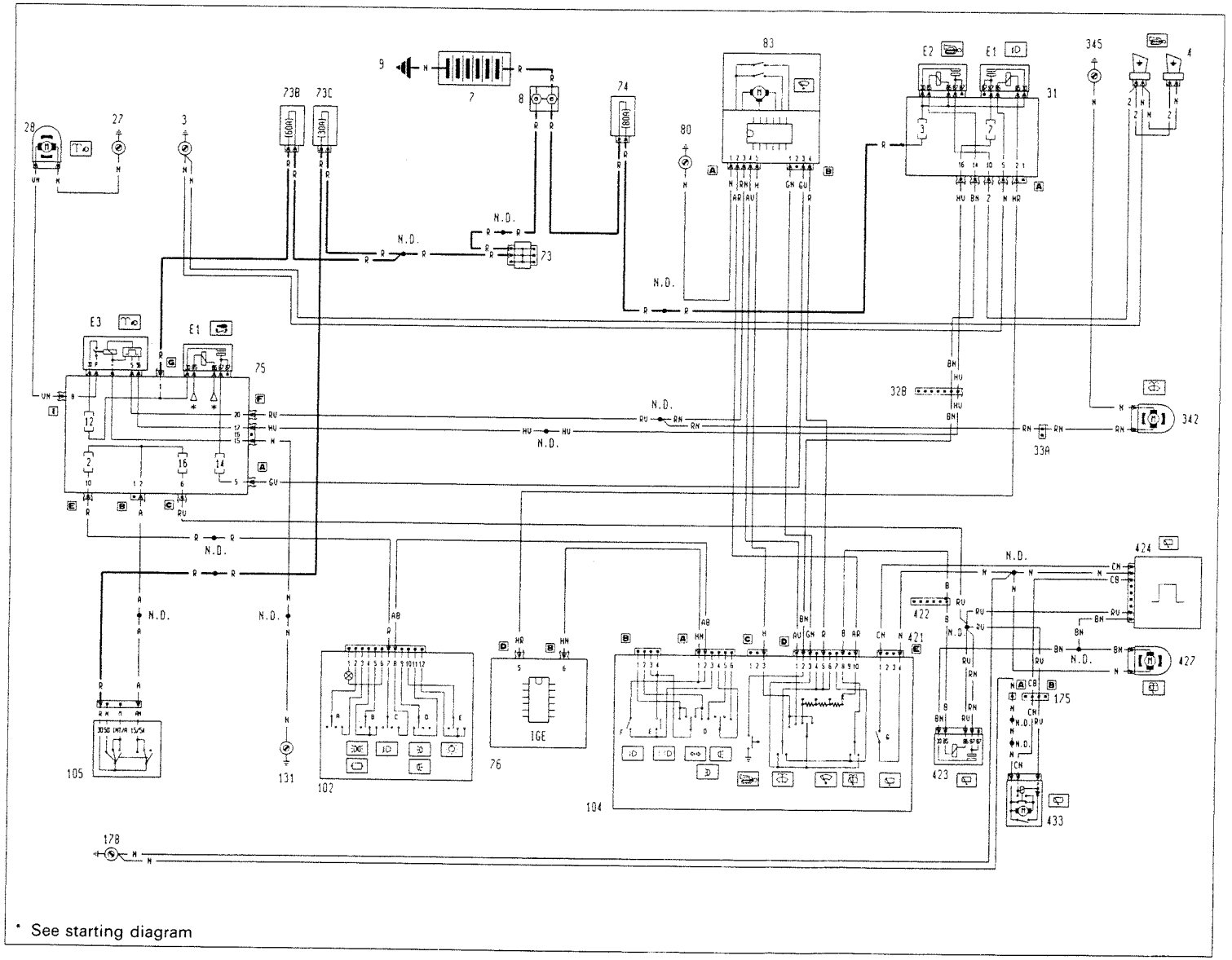


* Wires involved in the wiring diagram are marked with an asterisk

P3U15FL01

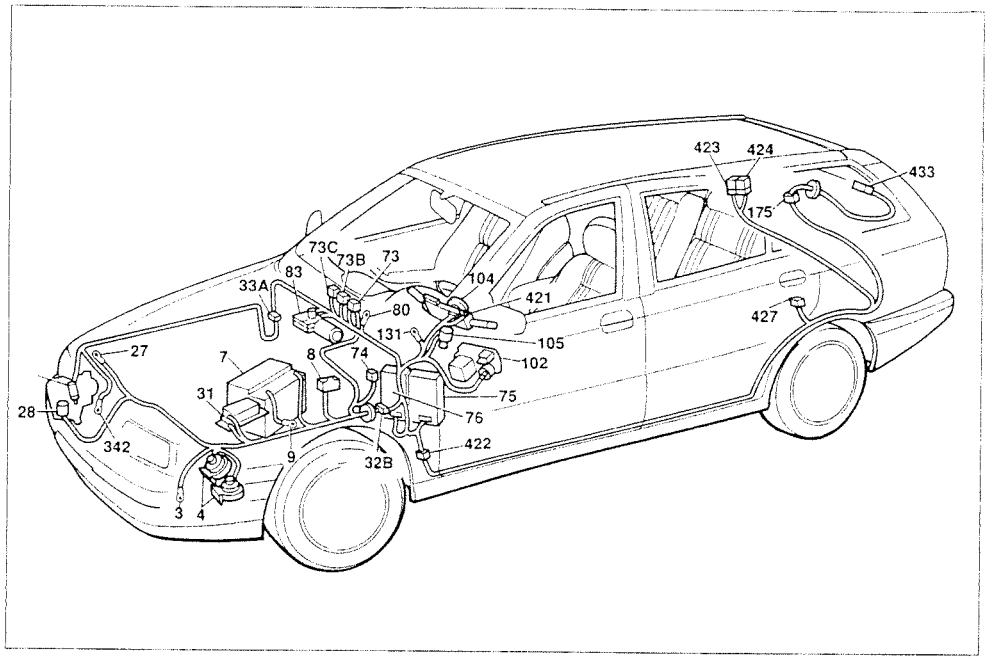
3U15FL

Windscreen wash/wipe - Rear wash/wipe - Headlamp washer - Electric horns -



3U16FL

P3U17FL01



P3U16FL01

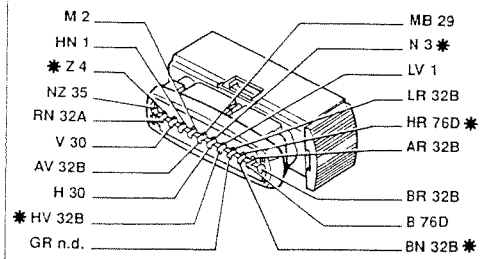
Windscreen wash/wipe - Headlamp washer - Electric horns

Key to components

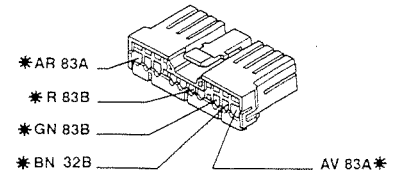
3 Left front earth
4 Electric horns
7 Battery
8 Main junction unit
9 Earth on body
27 Right front earth
28 Headlamp washer pump
31 Peripheral ECU (engine bay)
E1 Dipped beam relay
E2 Horn relay
32B Connection between facia cable and left engine bay cable
33A Connection between facia cable and right engine bay cable
73 Secondary juntion unit
73B 60A fuse protecting I.G.E. control unit/junction unit
73C 30A fuse protecting ignition switch/anti-theft device
74 60A fuse protecting peripheral control unit (engine bay))
75 Junction unit (facia)
E1 Switch discharge connector
E3 Turn signal/hazard warning light flasher
76 IGE control unit
80 Power earth on facia
83 Windscreen wiper control unit
102 Exterior lighting unit
B Side light/number plate light switch
C Dipped beam/main beam switch
D Parking light switch
E Symbol light control switch
104 Stalk unit
A Windscreen washer / headlamp washer control stalk
B Windscreen wiper control stalk
C Horn button
D Turn signal/parking light stalk
E Main beam flasher button
F Main beam control switch
G Rear window wiper switch
105 Ignition switch
131 Earth on steering column mount
175 Connection between left longitudinal cable and tail-gate cable
178 Left rear earth
342 Electric windscreen washer pump
345 Right front earth
421 Connection between facia/left longitudinal cables
422 Connection between facia/left longitudinal cables
423 Rear screen control relay
424 Rear wiper control intermittence
427 Electric pump for rearscreen washer
433 Rear window wiper motor
N.D. Taped ultrasound welding in wiring bundle

3U17FL

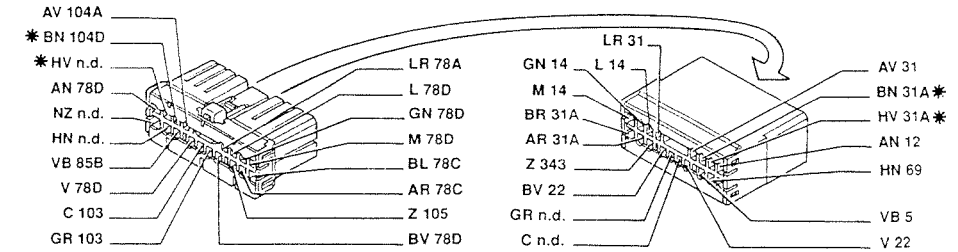
31A Peripheral ECU (engine bay)



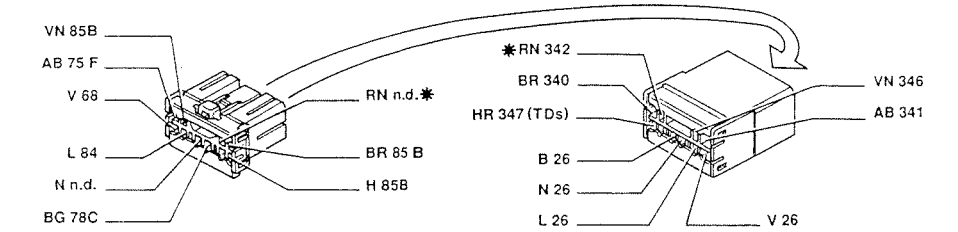
104D Stalk unit



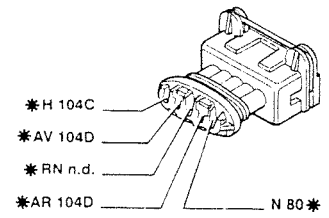
32B Connection between facia cable and left engine bay cable



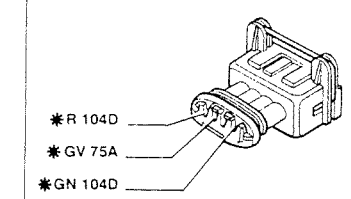
33A Connection between facia cable and right engine bay cable



83A Windscreen wiper control unit



83B Windscreen wiper control unit

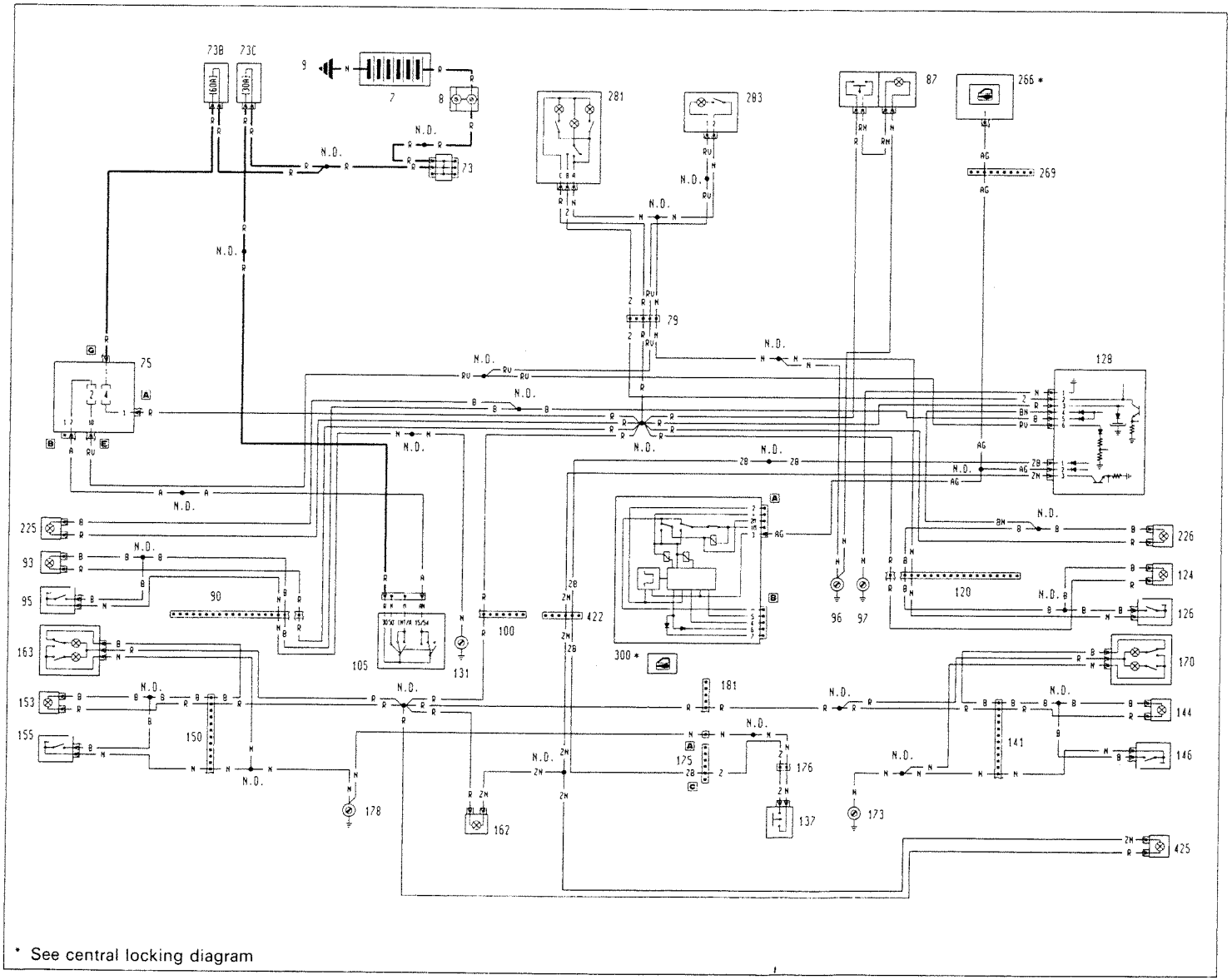


* Wires involved in the wiring diagram are marked with an asterisk

P3U18FL01

3U18FL

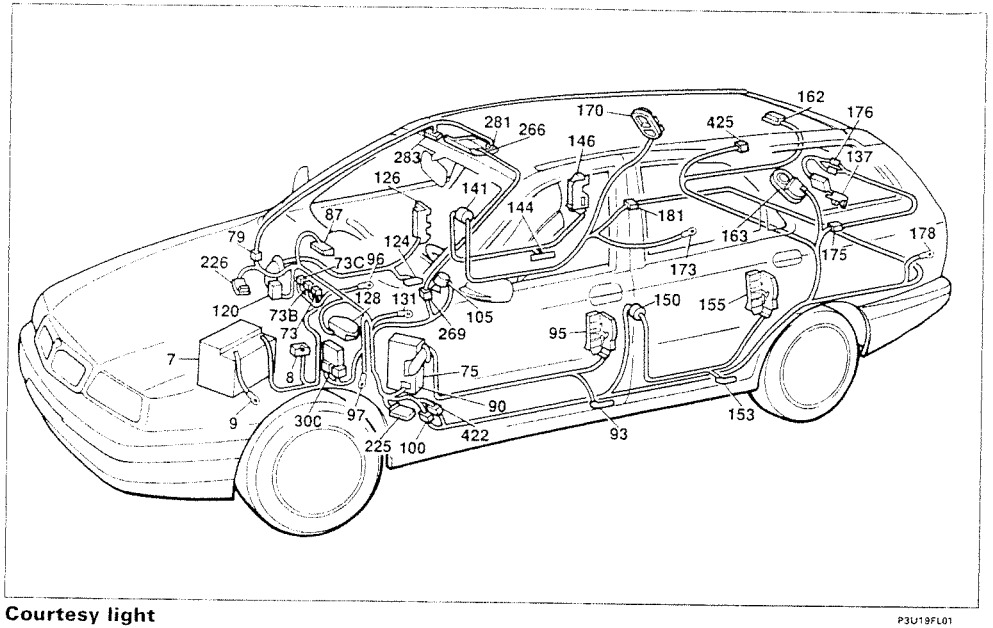
Courtesy light -



* See central locking diagram

3U19FL

P3U21FL01



P3U19FL01

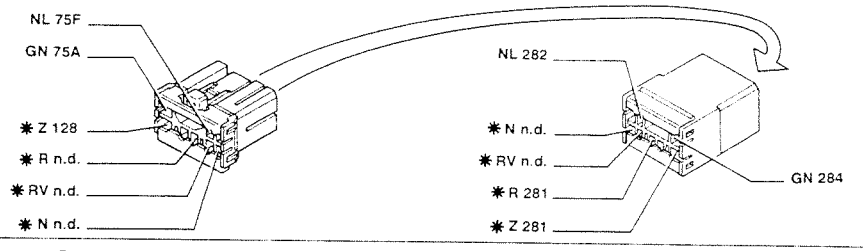
Courtesy light

Key to components

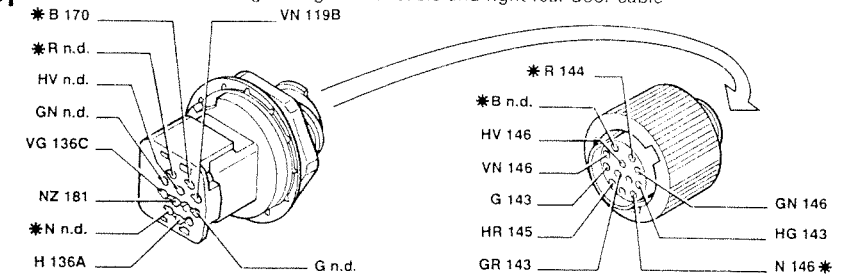
7 Battery
8 Main junction unit
9 Earth on body
73 Secondary juntion unit
73B 60A fuse protecting I.G.E. control unit/junction unit
73C 30A fuse protecting ignition switch/anti-theft device
75 Junction unit (facia)
79 Connection between facia cable and courtesy light cable
87 Glove compartment / boot release control lighting
90 Connection between facia cable and left front door cable
93 Puddle light on left front door
95 Left front door lock motor and left front door open warning light
96 Earth on carrier
97 Earth on floor pan
100 Connection between facia lead and left longitudinal lead
105 Ignition switch
120 Connection between facia cable and right front door cable
124 Puddle light on right front door
126 Right front door lock motor and right front door open warning light
128 Timer controlling front/boot courtesy light
131 Earth on steering column mount
137 Luggage compartment tail-gate lock assembly
141 Connection between right longitudinal cable and right rear door cable
144 Puddle light on right rear door
146 Right rear door lock motor and right door open/car alarm activated w/light
150 Connection between left longitudinal cable and left rear door cable
153 Puddle light on left rear door
155 Left rear door lock motor and left rear door open/car alarm activated w/light
162 Luggage compartment lighting
163 Left rear courtesy light for car interior
170 Right rear courtesy light for vehicle interior
173 Right rear earth
175 Connection between left longitudinal cable and tail-gate cable
176 Luggage compartment tail-gate cable connection
178 Left rear earth
181 Connection between left longitudinal cable and right longitudinal cable
225 Left floor light
226 Right floor light
266 Infra-red ray receiver for anti-theft device
269 Connection between facia cable and receiver cable
281 Front courtesy light for car interior
283 Lighted panel on passenger side
425 Right hand luggage compartment courtesy light
N.D. Taped ultrasound welding in wiring bundle

3U20FL

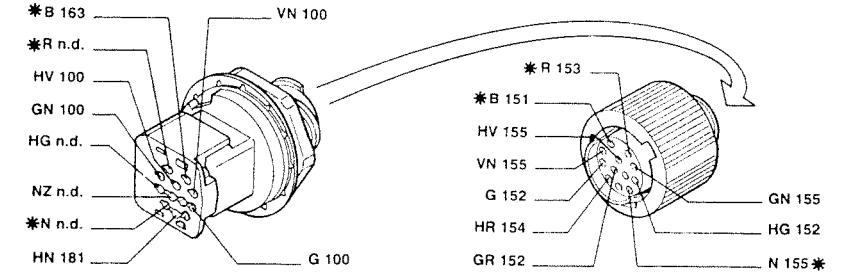
79 Connection between facia cable and courtesy light cable



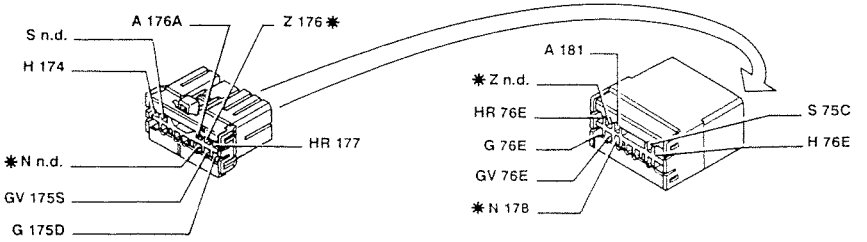
141 Connection between right longitudinal cable and right rear door cable



150 Connection between left longitudinal cable and left rear door cable



175 Connection between left longitudinal cable and tail-gate cable



* Wires involved in the wiring diagram are marked with an asterisk

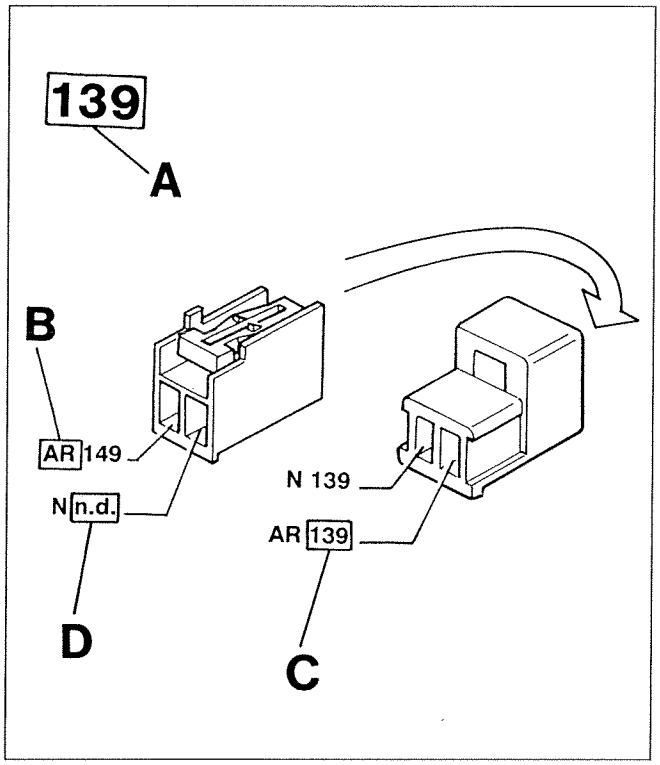
P3U20FL01

3U21FL

CONNECTOR BLOCK CONTENTS

INTRODUCTION

Explanation of codes on connector blocks



P3U22FL01

A Connection block identification number shown in wiring diagram

B Wire colour identification code (see table at the foot of the page)

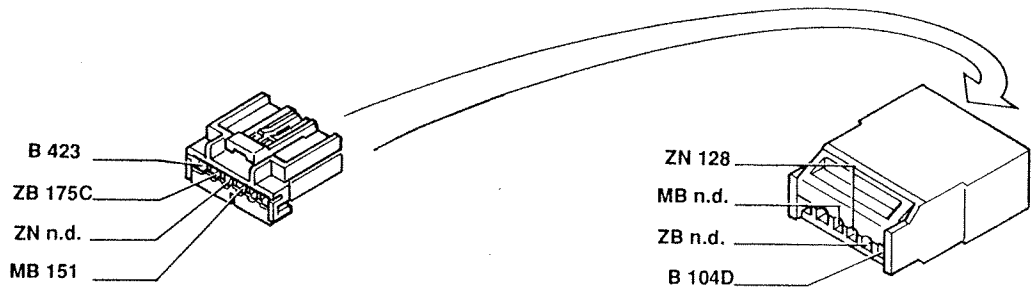
C Identification number of wire target block with code

D The code n.d. (connector block) identifies a taped ultrasound welding in wiring bundle

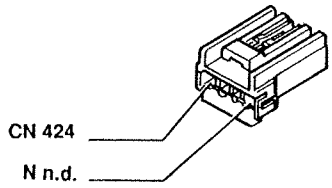
Cable colour codes

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

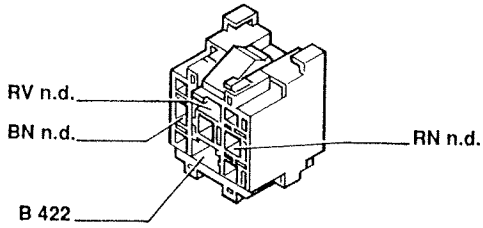
422 Connection between facia/left longitudinal cables



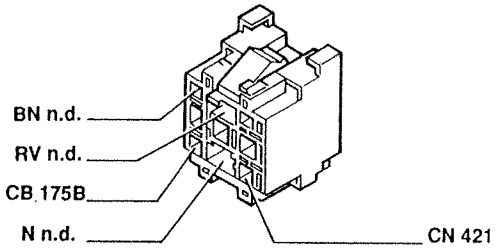
421 Connection between facia/left longitudinal cables



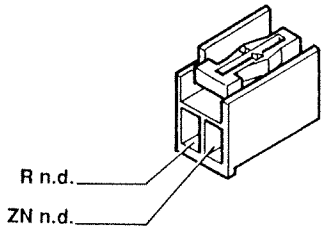
423 Rear screen control relay



424 Rear wash/wipe control switch



425 Right hand luggage compartment courtesy light



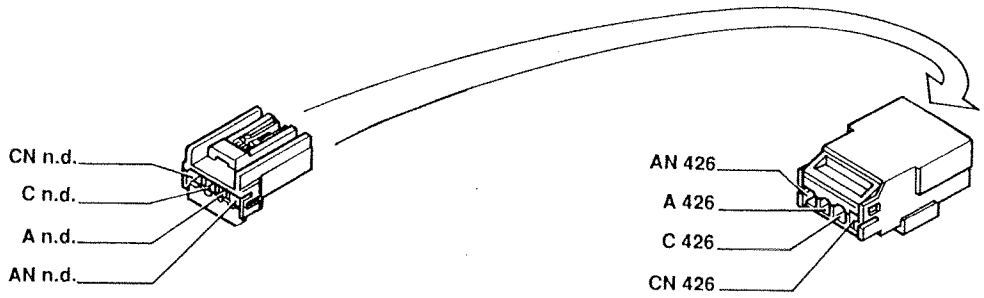
426 Speaker on tail-gate (woofer)

P3U23FL01

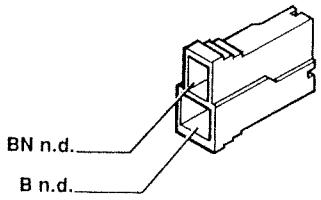
3U24FL

55.

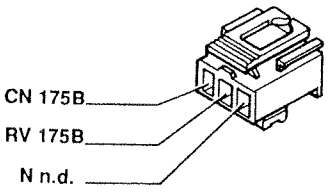
428 Connection between left longitudinal/tail-gate leads



427 Electric pump for rearscreen washer



433 Rear window wiper motor



P3U24FL01

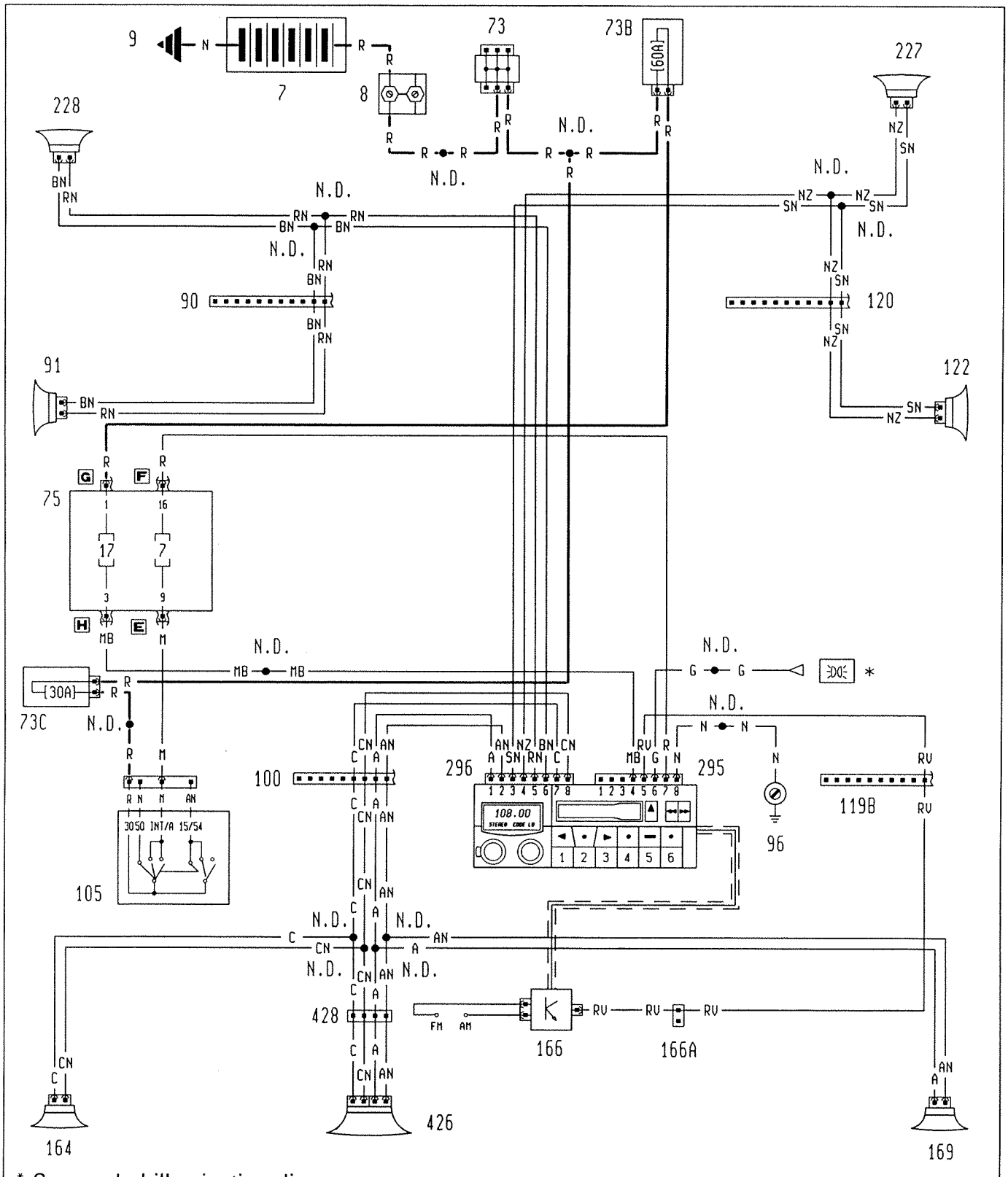
KEY TO COMPONENTS

1 Left front light cluster
3 Left front earth
4 Electric horns
6 Left side turn signal
7 Battery
8 Main junction unit
9 Earth on body
13 Reversing lights switch
27 Right front earth
28 Headlamp washer pump
30 Right front light cluster
31 Peripheral ECU (engine bay)
E1 Dipped beam relay
E2 Horn relay
33A Connection between facia cable and right engine bay cable
32B Connection between facia cable and left engine bay cable
73 Secondary juntion unit
73B 60A fuse protecting IGE control unit/junction unit
73C 30A fuse protecting ignition switch/car alarm
74 60A fuse protecting peripheral control unit (engine bay))
75 Junction unit (facia)
E1 Switch discharge connector
E2 Turn signal/hazard warning light flasher
E3 Headlamp washer timer
76 IGE control unit.
78 Instrument panel
A Trailer turn signal warning light
L Left turn signal warning light
L1 Right turn signal warning light
N Handbrake warning light
O Insufficient brake fluid level warning light
79 Connection between facia cable and courtesy light cable
80 Power earth on facia
83 Windscreen wiper control unit
85 Infocenter ECU
87 Glove compartment / boot release control lighting
90 Connection between facia cable and left front door cable
91 Speaker on left hand front door
93 Puddle light on left front door
96 Earth on carrier
97 Earth on floor pan
104 Stalk unit
A Windscreen washer / headlamp washer control stalk
B Windscreen wiper control stalk
C Horn button
D Turn signal/parking light stalk
E Main beam flasher button
F Main beam control switch
G Rear window wiper switch
105 Ignition switch
117 Hand brake warning light switch
119B Connection between facia cable and right longitudinal cable
120 Connection between facia cable and right front door cable
122 Speaker on right hand front door
124 Puddle light on right front door
126 Right front door lock motor and right front door open and alarm on warning light
128 Front courtesy light control timer
131 Earth on steering column mount
137 Luggage compartment tail-gate lock assembly
A Luggage compartment courtesy light and alarm switch
B Tail-gate lock/release motor
138 Electronic control unit for driver's side electric seat with memory
141 Connection between right longitudinal cable and right rear door cable
144 Puddle light on right rear door
146 Right rear door lock motor and right door open/car alarm activated w/light
150 Connection between left longitudinal cable and left rear door cable
151 Amplifier for car radio
153 Puddle light on left rear door
155 Left rear door lock motor and left rear door open/car alarm activated w/light
162 Luggage compartment lighting
163 Left rear courtesy light for car interior
164 Left hand rear speaker
166 Amplifier for aerial on back window
166A Rear cable connection on rear window
169 Right hand rear speaker
170 Right rear courtesy light for vehicle interior
171 Supplementary stop light indicator
172 Right tail-light cluster on fixed part
173 Right rear earth
174 Right tail-light cluster on mobile part
175 Connection between left longitudinal cable and tail-gate cable
176 Luggage compartment tail-gate cable connection
177 Left tail-light cluster on mobile part
178 Left rear earth
179 Left tail-light cluster on fixed part
181 Connection between left longitudinal cable and right longitudinal cable
225 Left floor light
226 Right floor light
227 Right front speaker
228 Left front loudspeaker
266 Infra-red ray receiver for alarm device
269 Connection between facia cable and receiver cable
271 Braking light switch
295 Radio cable connection
296 Radio cable connection
341 Right side turn signal
342 Electric windscreen washer pump
343 40A starter relay
344 Facia cable connection with anti-lock brake cable (A.B.S.)
345 Right front earth
421 Connection between facia/left longitudinal cables
422 Connection between facia/left longitudinal cables
423 Rear screen control relay
424 Rear wiper control intermittence
425 Right hand luggage compartment courtesy light
426 Speaker on tail-gate (woofer)
427 Electric pump for rearscreen washer
433 Rear window wiper motor

Cable colour codes

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

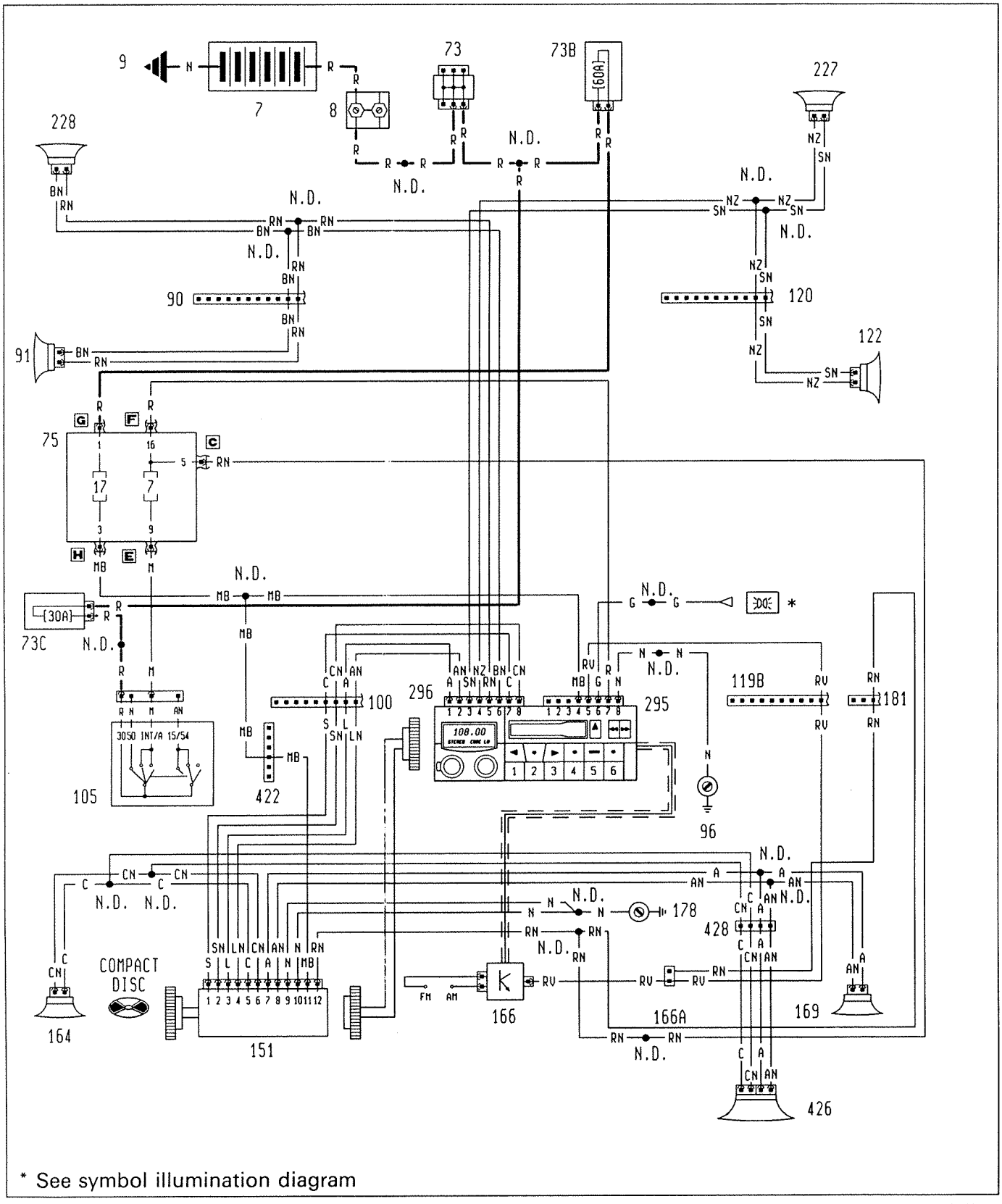
Provision for car radio, mid range - (See key following diagrams)



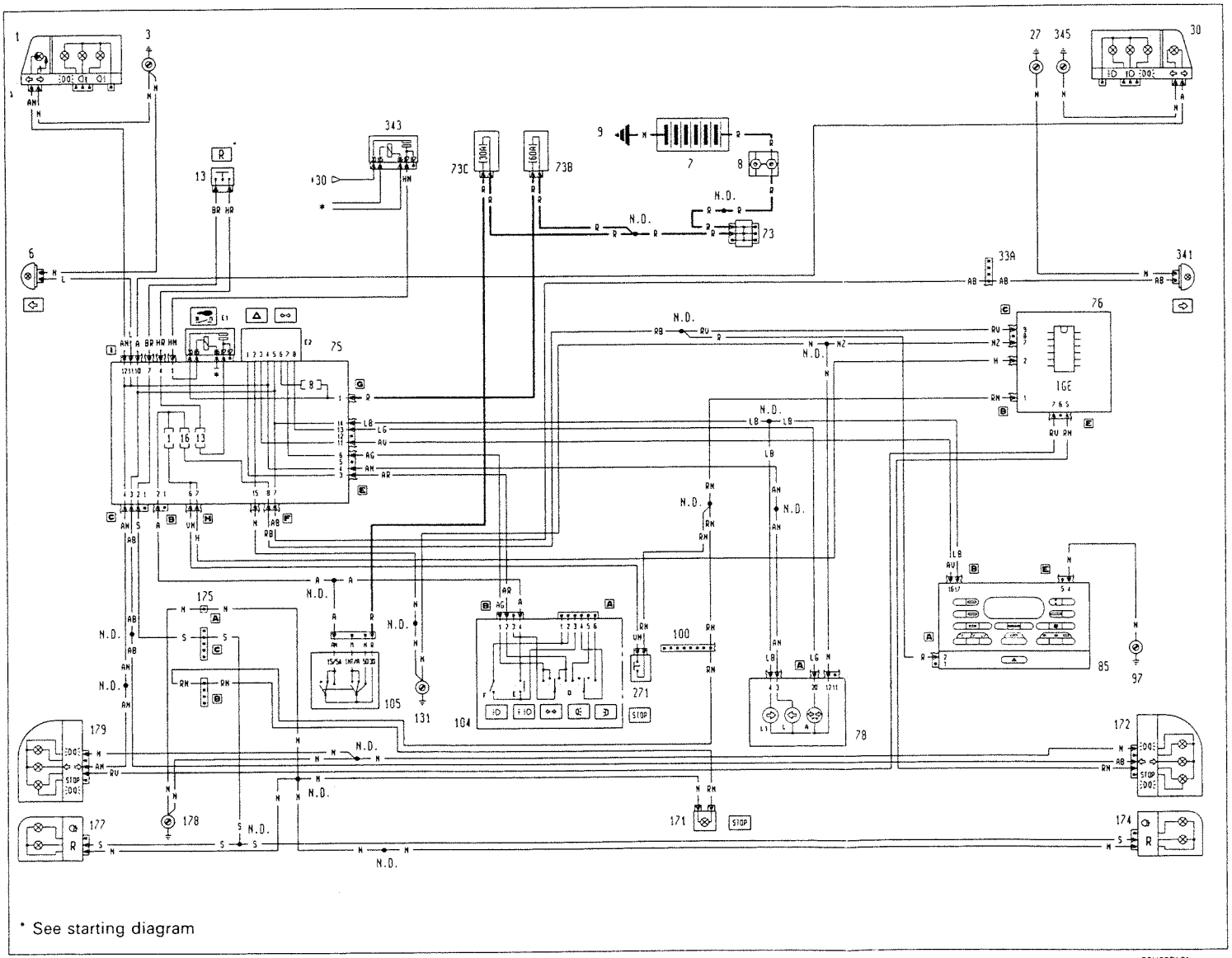
P3U01BL01

55.

Provision for car radio, top range - (See key following diagrams)



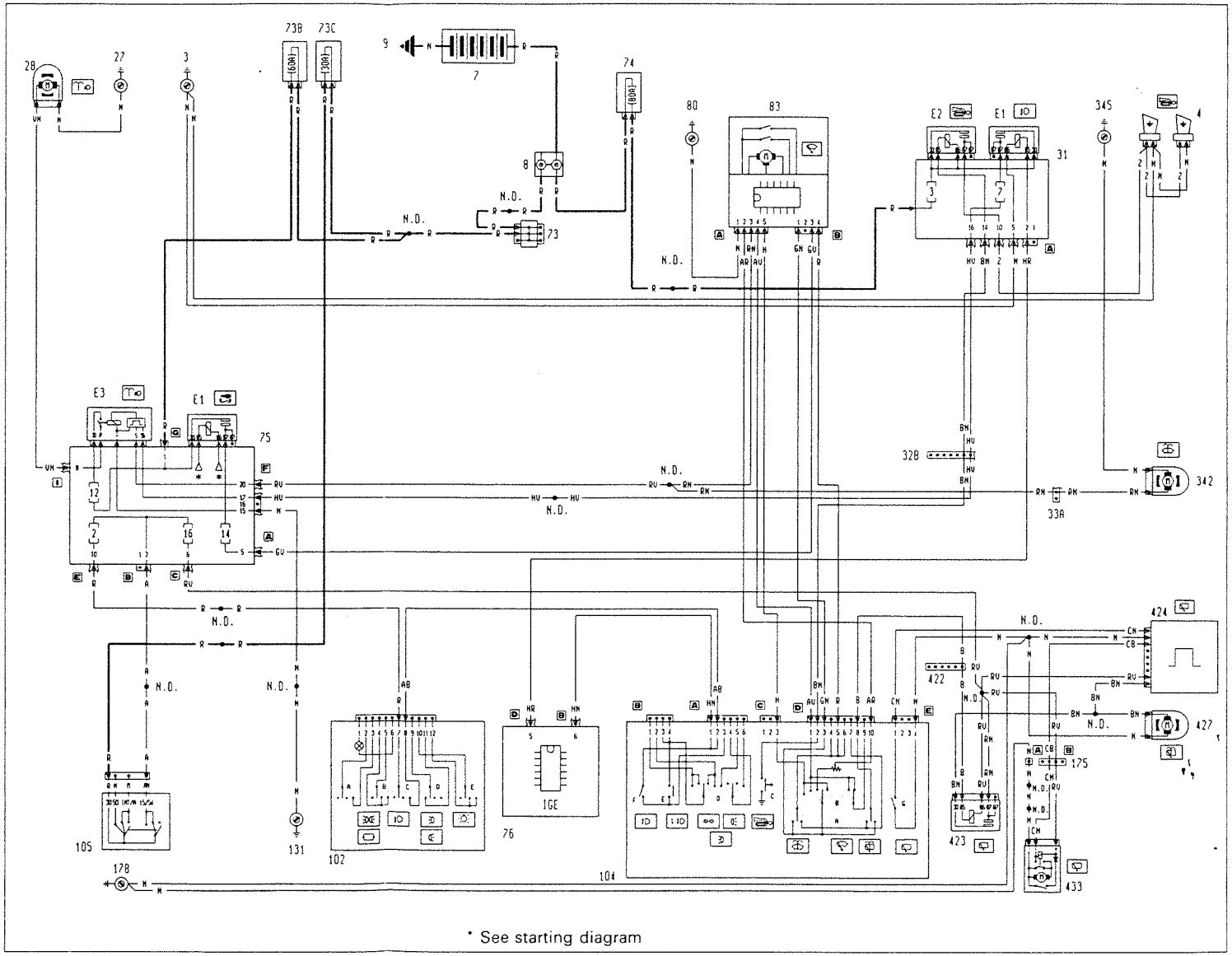
Turn signals and warning light - Hazard warning lights and warning lamp - Braking lights - Reversing lights - (See key following diagrams)



* See starting diagram

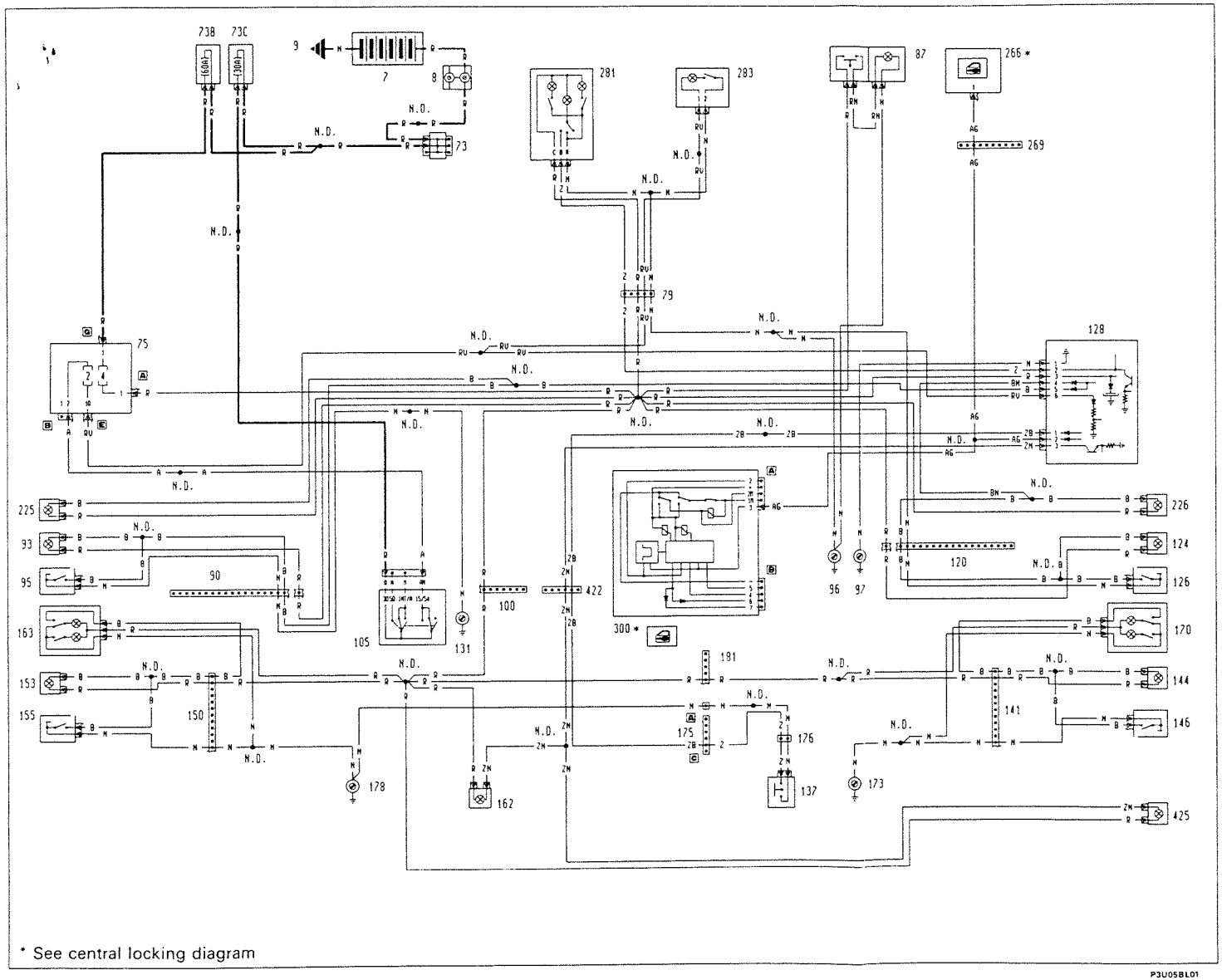
55.

Windscreen wash/wipe - Rear wash/wipe - Headlamp washer - Electric horns - (See key following diagrams)



* See starting diagram

Courtesy light - (See key following diagrams)



* See central locking diagram

P3U05BL01

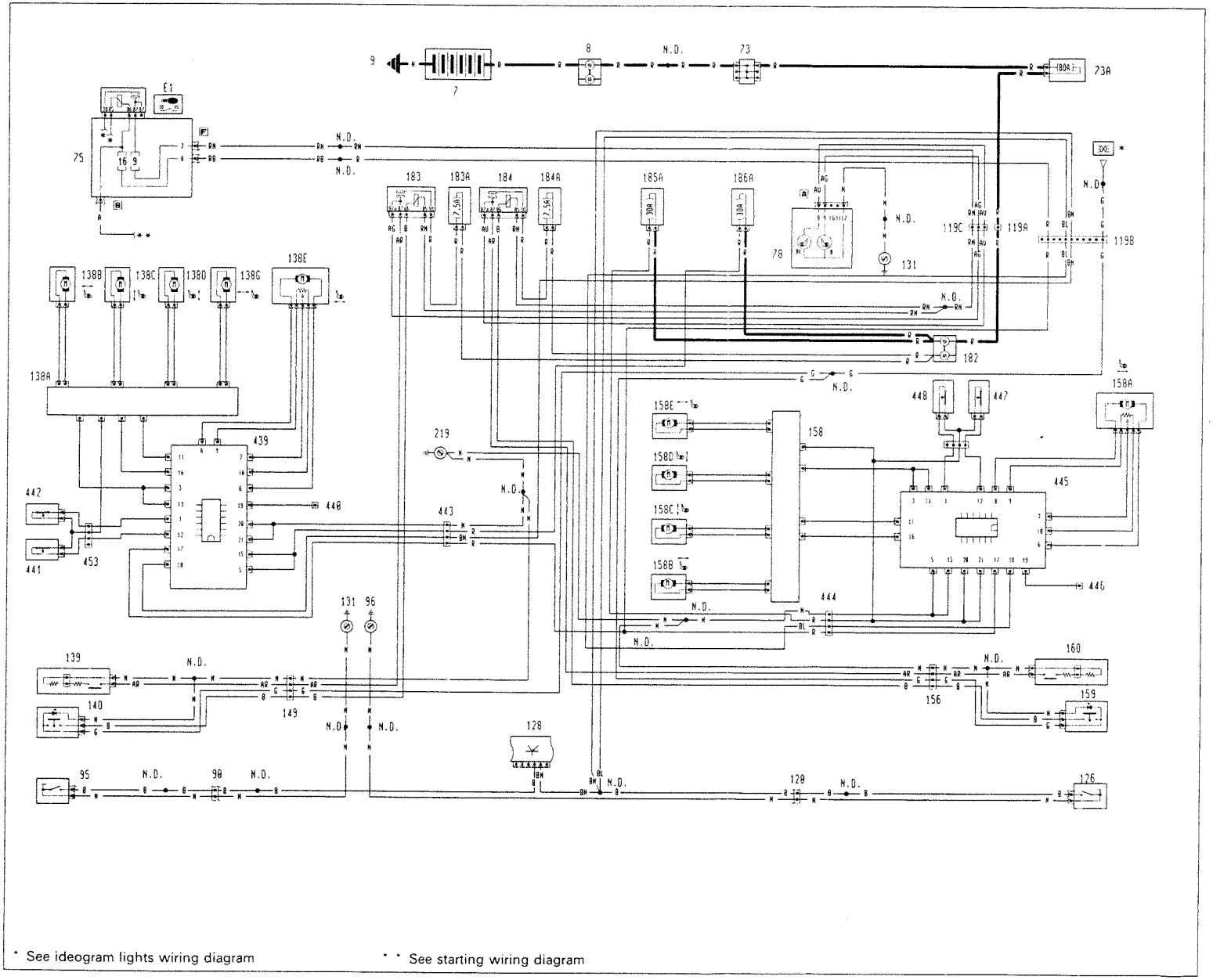
KEY TO COMPONENTS:

1 Left front light cluster
3 Left front earth
4 Electric horns
6 Left side turn signal
7 Battery
8 Main junction unit
9 Earth on body
13 Reversing light switch
27 Right front earth
28 Headlamp washer pump
30 Right front light cluster
31 Peripheral ECU (engine bay)
E1 Dipped beam relay
E2 Horn relay
33A Connection between facia cable and right engine bay cable
32B Connection between facia cable and left engine bay cable
73 Secondary juntion unit
73B 60A fuse protecting IGE control unit/junction unit
73C 30A fuse protecting ignition/alarm
74 60A fuse protecting peripheral control unit (engine bay))
75 Junction unit (facia)
E1 Switch discharge connector
E2 Turn signal/hazard warning light flasher
E3 Headlamp washer timer
76 IGE control unit.
78 Instrument panel
A Trailer turn signal warning light
L Left turn signal warning light
L1 Right turn signal warning light
N Handbrake warning light
O Insufficient brake fluid level warning light
79 Connection between facia cable and courtesy light cable
80 Power earth on facia
83 Windscreen wiper control unit
85 Infocenter ECU
87 Glove compartment / boot release control lighting
90 Connection between facia cable and left front door cable
91 Speaker on left hand front door
93 Puddle light on left front door
96 Earth on carrier
97 Earth on floor pan
104 Stalk unit
A Windscreen washer / headlamp washer control stalk
B Windscreen wiper control stalk
C Horn button
D Turn signal control / parking light control stalk
E Main beam flasher button
F Main beam control switch
G Rear window wiper switch
105 Ignition switch
117 Hand brake warning light switch
119B Connection between facia cable and right longitudinal cable
120 Connection between facia cable and right front door cable
122 Speaker on right hand front door
124 Puddle light on right front door
126 Right front door lock motor and right front door open indicator and alarm activation
128 Front courtesy light control timer
131 Earth on steering column mount
137 Luggage compartment tail-gate lock assembly
A Luggage compartment light switch and alarm activation
B Tail-gate lock/release motor
138 Electronic control unit for driver's side electric seat with memory
141 Connection between right longitudinal cable and right rear door cable
144 Puddle light on right rear door
146 Right rear door lock motor and right rear door open indicator and alarm activation
150 Connection between left longitudinal cable and left rear door cable
151 Amplifier for car radio
153 Puddle light on left rear door
155 Left rear door lock motor and left rear door open indicator and alarm activation
162 Luggage compartment lighting
163 Left rear courtesy light for vehicle interior
164 Left hand rear speaker
166 Amplifier for aerial on rear window
166A Rear cable connection on rear window
169 Right hand rear speaker
170 Right rear courtesy light for vehicle interior
171 Supplementary stop light indicator
172 Right tail-light cluster on fixed part
173 Right rear earth
174 Right tail-light cluster on mobile part
175 Connection between left longitudinal cable and tail-gate cable
176 Luggage compartment tail-gate cable connection
177 Left tail-light cluster on mobile part
178 Left rear earth
179 Left tail-light cluster on fixed part
181 Connection between left longitudinal cable and right longitudinal cable
225 Left floor light
226 Right floor light
227 Right front speaker
228 Left front loudspeaker
266 Receiver for alarm and door lock remote control unit
269 Connection between facia cable and receiver cable
271 Braking light switch
295 Radio cable connection
296 Radio cable connection
341 Right side turn signal
342 Electric windscreen washer pump
343 40A starter relay
344 Facia cable connection with anti-lock brake cable (A.B.S.)
345 Right front earth
422 Connection between facia/left longitudinal cables
423 Rear wiper control relay
424 Rear wiper control intermittence
425 Right hand luggage compartment courtesy light
426 Speaker on tail-gate (woofer)
427 Electric pump for rearscreen washer
433 Rear window wiper motor

Cable colour codes

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

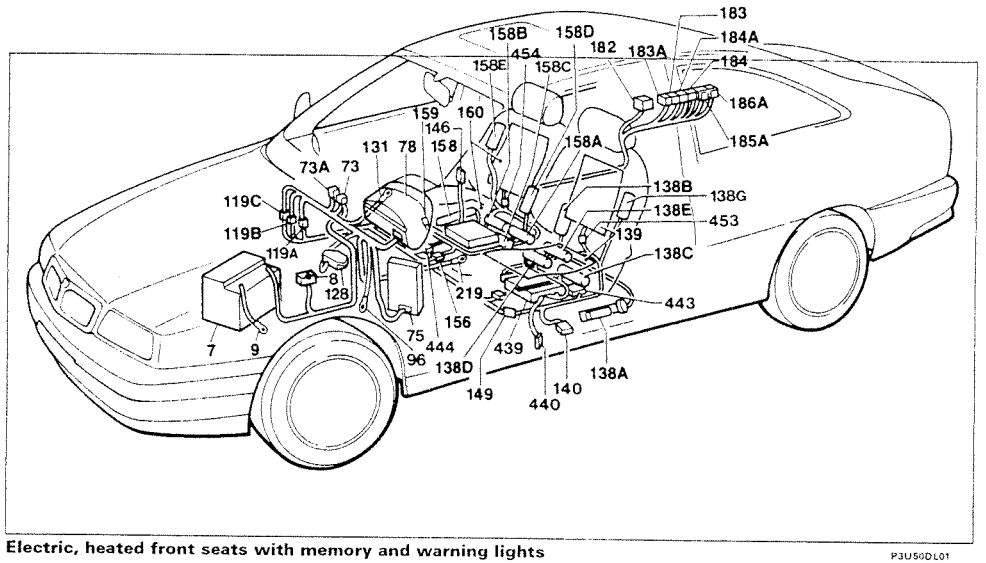
Electric, heated front seats with memory and warning lights - (See key at end of wiring diagrams)



* See ideogram lights wiring diagram

* * See starting wiring diagram

55.



Electric, heated front seats with memory and warning lights

P3U50DL01

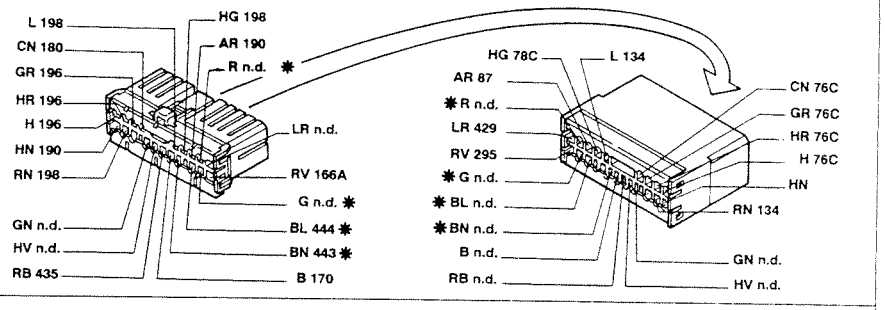
Components key

7 Battery
8 Main connector block
9 Earth on bodyshell
73 Secondary connector block
73A 80A fuse protecting rear services
75 Junction unit (dashboard)
E1 Ignition discharge relay
78 Instrument panel
B Driver's side heated seat warning light
B1 Passenger's side heated seat warning light
90 Connection between dashboard and left front door cables
95 Left front central locking geared motor and signalling of left front door open and anti-theft device on
96 Earth on carrier
119A Connection between dashboard and right longitudinal cables
119B Connection between dashboard and right longitudinal cables
119C Connection between dashboard and right longitudinal cables
120 Connection between dashboard and right front door cables
128 Timer for front courtesy light
131 Earth on steering column support
138A Control panel for electrically adjustable driver's seat
138B Driver's seat backrest adjustment motor
138C Driver's seat height adjustment motor
138D Driver's seat height adjustment motor
138E Driver's seat sliding adjustment motor
138G Driver's seat lumbar adjustment motor
139 Driver's side seat heated pad
140 Switch for driver's side seat heated pad
149 Connection between left longitudinal and left seat cables
156 Connection between right longitudinal and right seat cables
158 Control panel for electrically adjustable passenger seat
158A Passenger seat sliding adjustment motor
158B Passenger seat height adjustment motor
158C Passenger seat height adjustment motor
158D Passenger seat backrest adjustment motor
158E Passenger seat lumbar adjustment motor
159 Switch for passenger saet heater pad
160 Passenger seat heater pad
182 Rear connector block
183 Relay for driver's heater pad
183A 7.5A fuse protecting driver's heated pad relay
184 Relay for passenger heater pad
184A 7.5A fuse protecting passenger heated pad relay
185A 30A fuse protecting passenger electric seat
186A 30A fuse protecting driver's electric seat
219 Earth on centre tunnel
439 Driver's electric seat control unit
440 Line for initializing driver's seat control unit
441 Sensor detecting driver's seat in retracted position
442 Sensor detecting driver's seat in forwards position
443 Connection between right longitudinal and driver's easy-enter electric seat cables
444 Connection between right longitudinal and passenger easy-enter electric seat cables
445 Passenger electric seat control unit
446 Line for initializing passenger seat control unit
447 Sensor detecting passenger seat in retracted position
448 Sensor detecting passenger seat in forwards position
453 Connection for sensors detecting driver's seat position
454 Connection for sensors detecting passenger seat position

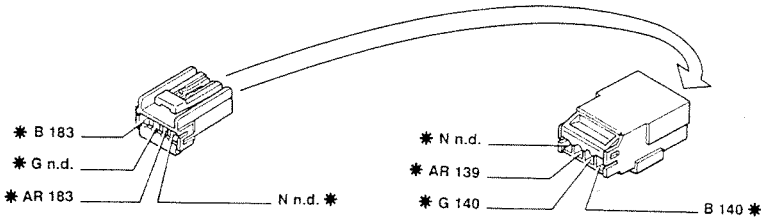
N.D. Ultrasound welding taped in cable loom

3U41DL

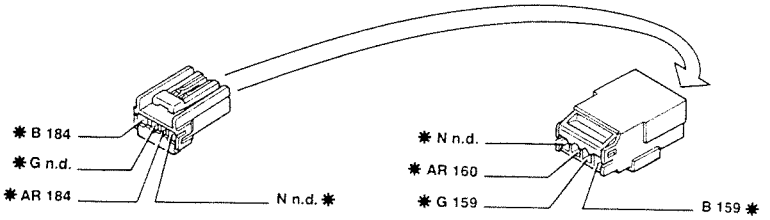
119B Connection between right longitudinal and driver's easy-enter seat cables



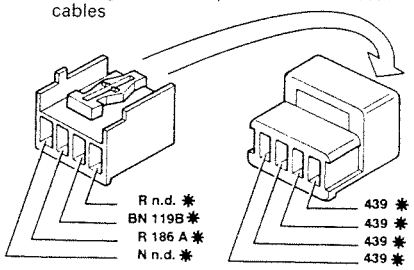
156 Connection between right longitudinal and right seat cables



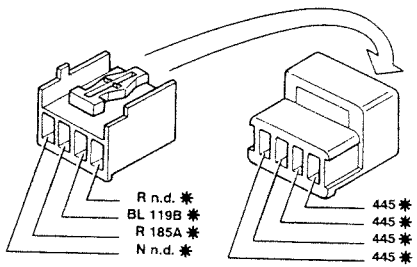
149 Connection between left longitudinal and left seat cables



443 Connection between right longitudinal and right side easy-enter electric seat cables



444 Connection between right longitudinal and right seat cables



* The cables in the wiring diagram, are marked with an asterisk

P3U51DL01

3U42DL

Key

55.

1 Left front light cluster
3 Left front earth
5 Left front brake pad wear sensor
6 Left side direction indicator
7 Battery
8 Main connector block
9 Earth on bodyshell
10 Button on bonnet lid for engaging anti-theft device
12 Insufficient brake fluid level sensor
13 Reversing lights switch
14 Impulse generator for speedometer signal
21 Minimum engine oil level sensor
27 Right front earth
30 Right front light cluster
31 Peripheral control unit (engine compartment)
E1 Dipped headlamps relay feed
E4 Main beam headlamps relay feed
32A Connection between dashboard and left engine compartment cables
32B Connection between dashboard and left engine compartment cables
33A Connection between dashboard and right engine compartment cables
44 Power earth
68 Connection between dashboard and electronic injection cables
72 Fuel injection control unit
73 Secondary connector block
73A 80A fuse protecting rear services
73B 60A protective fuse for I.E. control unit / junction unit
73C 30A fuse protecting ignition switch / anti-theft device
74 60A protective fuse for peripheral control unit (engine compartment)
75 Junction unit (dashboard)
E1 Ignition discharge relay
E2 Intermittent device for direction indicators / hazard warning lights
76 I.G.E. control unit
78 Instrument panel
B Driver's side heated seat warning light
B1 Passenger's side heated seat warning light
C Heated rear windscreen warning light
D Fog lights warning light
E Rear fog lamps warning light
F Side lights warning light
G Dipped headlamps warning light
H Main beam headlamps warning light
I Check summary warning light
L Left direction indicator warning light
L1 Right direction indicator warning light
J Seat belts not fastened warning light
K Battery recharging warning light
M Insufficient engine oil pressure warning light
N Handbrake warning light / I.G.E. control unit
O Insufficient brake fluid level warning light
T Voltmeter
U Electronic rev counter
V Fuel level gauge
V1 Fuel reserve warning light
X Trip meter display
Y Electronic tachometer
Z Electronic automatic transmission gear selector display
Z1 Trip computer zeroing button
79 Connection between dashboard and courtesy light cables
85 Infocenter control unit
87 Light for glove compartment / boot release controls
88 Diagnostic socket for Fiat / Lancia tester
89 Left rear view mirror
A Motor for folding left rear view mirror
B Motor for vertical positioning of left rear view mirror
C Motor for horizontal positioning of left rear view mirror
D Left rear view mirror heating resistor
E Outside temperature sensor
90 Connection between dashboard and left front door cables
91 Speaker in left front door
95 Left front central locking geared motor and signalling of left front door open and alarm on
96 Earth on carrier
97 Earth on floor
99 Cigar lighter
100 Connection between dashboard and left longitudinal cables
101 Light dimmer
102 Exterior lights control unit
B Switch for side lights / number plate lights
C Switch for dipped beam headlamps / brake lights
D Switch for parking lights
E Switch for ideogram lights
103 Switch control unit
A Fog lights switch
B Rear fog lamps control switch
C Headlamp alignment control unit
104 Steering column switch unit
A Switch for windscreen/headlamp washer
D Switch for direction indicators / parking lights
E Button for flashing main beam headlamps
F Switch for main beam headlamps
105 Ignition switch
107 Control unit for anti-theft device
108 Immobilizer control unit
115 Controls for electrically adjustable rear view mirrors
117 Switch signalling handbrake applied
119A Connection between dashboard and right longitudinal cables
119B Connection between dashboard and right longitudinal cables
119C Connection between dashboard and right longitudinal cables
119D Connection between dashboard and right front door cables
120 Connection between dashboard and right front door cables
121 Right rear view mirror
A Motor for folding right rear view mirror
B Motor for vertical positioning of right rear view mirror
C Motor for horizontal positioning of right rear view mirror
D Right rear view mirror heating resistor
122 Speaker in right front door
123 Control panel for right electric window on right door
125 Right front electric window motor
126 Right front central locking geared motor and signalling of right front door open and anti-theft device on
127 Switch signalling seat belts not fastened
128 Timer for operation of front courtesy light
131 Earth on steering column support
137 Tailgate lock assembly
A Luggage compartment switch and anti-theft de
B Tailgate locking/unlocki
168A Control panel for driver's e justable seat
138B Driver's seat backrest adjus
138C Driver's seat height adjustr
138D Driver's seat height adjustr
138E Driver's seat sliding adjusti
138G Driver's seat lumbar adjust
139 Driver's side seat heated p
140 Switch for driver's side sea
141 Connection between righ and right rear door cables
148 Connection between left and left seat cables
149 Connection between left and left seat cables
151 Amplifier for radio
156 Connection between righ and right seat cables
157 Connection between righ and right seat cables
158 Control panel for electrica passenger seat
158A Passenger seat sliding adju
158B Passenger seat height adju
158C Passenger seat height adju
158D Passenger seat backrest ad tor
158E Passenger seat lumbar adju
159 Switch for passenger seat
160 Passenger seat heater pad
164 Left rear speaker
165 Heated rear windscreen
165A Earth for heated rear winds
166 Amplifier for aerial in rears
166A Rear cables connection in
167 Fuel level gauge
169 Right rear speaker
171 Additional brake lights wa
172 Right rear light cluster on
173 Right rear earth
174 Right rear light cluster on tion

dipped beam headlamps /
s
parking lights
ideogram lights
ol unit
switch
imps control switch
alignment control unit
mn switch unit
or windscreen/headlamp

direction indicators / park-

flashing main beam head-

main beam headlamps
:h
'o nti-theft device
o. ol unit
electrically adjustable rear

ling handbrake applied
between dashboard and
inal cables
between dashboard and
inal cables
between dashboard and
inal cables
between dashboard and
or cables
between dashboard and
or cables
w mirror
olding right rear view mirror
/ertical positioning of right
irror
horizontal positioning of
ie mirror
/iew mirror heating resistor
ht front door
for right electric window

ectric window motor
ntral locking geared motor
g of right front door open
device on
ling seat belts not fastened
ation of front courtesy light
ing column support
assembly

A Luggage compartment courtesy light switch and anti-theft device on
B Tailgate locking/unlocking motor
168A Control panel for driver's electrically adjustable seat
138B Driver's seat backrest adjustment motor
138C Driver's seat height adjustment motor
138D Driver's seat height adjustment motor
138E Driver's seat sliding adjustment motor
138G Driver's seat lumbar adjustment motor
139 Driver's side seat heated pad
140 Switch for driver's side seat heated pad
141 Connection between right longitudinal and right rear door cables
148 Connection between left longitudinal and left seat cables
149 Connection between left longitudinal and left seat cables
151 Amplifier for radio
156 Connection between right longitudinal and right seat cables
157 Connection between right longitudinal and right seat cables
158 Control panel for electrically adjustable passenger seat
158A Passenger seat sliding adjustment motor
158B Passenger seat height adjustment motor
158C Passenger seat height adjustment motor
158D Passenger seat backrest adjustment motor
158E Passenger seat lumbar adjustment motor
159 Switch for passenger seat heater pad
160 Passenger seat heater pad
164 Left rear speaker
165 Heated rear windscreen
165A Earth for heated rear windscreen
166 Amplifier for aerial in rearscreen
166A Rear cables connection in rearscreen
167 Fuel level gauge
169 Right rear speaker
171 Additional brake lights warning light
172 Right rear light cluster on fixed section
173 Right rear earth
174 Right rear light cluster on movable section
175 Connection between left longitudinal and tailgate cables
175D Left no. plate light
175S Right no. plate light
176 Geared motor for locking/ unlocking tailgate
177 Left rear light cluster on movable section
178 Left rear earth
179 Left rear light cluster on fixed section
180 Heated rear windscreen relay feed
181 Connection between left longitudinal and right longitudinal cables
182 Rear connector block
183 Relay for driver's heated pad
183A 7.5A fuse protecting driver's heated pad relay
184 Relay for passenger heated pad
184A 7.5A fuse protecting passenger heated pad relay
185A 30A fuse protecting passenger electric seat
186 Relay for passenger electric seat
188 25A fuse protecting boot release electro-magnet
189 30A fuse protecting heated rear windscreen
190 Tailgate locking/unlocking relay feed
195 Fuel filler flap release motor
199 Alarm siren
200 Controlled damping suspension electronic control unit (S.C.S.)
219 Earth on centre tunnel
227 Right front speaker
228 Left front speaker
266 Infra red receiver for alarm
267 Volumetric sensors for alarm
269 Connection between dashboard and receiver cables
271 Brake lights switch
282 Electro-chromic internal rear view mirror
290 Left front air vent controls light
291 Light for left centre air vent controls
292 Right centre air vent controls light
293 Right centre air vent controls light
295 Radio cables connection
296 Radio cables connection
297 Warning light for alarm / immobilizer
298 Electric front windows control unit
298A Connector for electric windows control unit (1)
298B Connector for electric windows control unit (2)
300 Central locking electronic control unit
340 Right front brake pad wear sensor
341 Right side direction indicator
343 Starter relay 40A
345 Right front earth
422 Connection between dashboard and left longitudinal cables
429 7.5A fuse protecting heated rear view mirrors
430 Connector diode for hanbrake applied / insufficient brake fluid level system
431 Device for operating direction indicators with doors closed
432 20A protective fuse for ignition relay feed
434 15A fuse protecting current socket
435 Current socket relay feed
436 Current socket
437 Preparation for radio phone
438 Dual function speaker for radio and radiophone in right front door
439 Driver's electric seat control unit
440 Initialization line for driver's seat control unit
441 Sensor detecting driver's seat in retracted position
442 Sensor detecting driver's seat in forwards position
443 Connection between right longitudinal and driver's easy enter electric seat cables
444 Connection between right longitudinal and passenger easy enter electric seat cable
445 Passenger electric seat control unit
446 Initialization line for passenger seat control unit
447 Sensor detecting passenger seat in retracted position
448 Sensor detecting passenger seat in forwards position
449 Control panel for left electric window on left door
450 Micro-switch for electric widnows in left glass
451 Control panel for right electric window on left door
452 Micro-switch for electric windows in right glass
453 Connector for sensors detecting position of driver's seat
454 Connector for sensors detecting position of passenger seat
455 Radiophone aerial
456 Connector for radiophone aerial

Cable colour code

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

page

LIGHTING

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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GAS DISCHARGE HEADLAMPS

Introduction

Lighting devices are one of the most important active safety systems on a vehicle.
A need to improve the performance of current iodine bulb-based systems, in terms of emitted light energy, spectral range and bulb duration led to the development of gas discharge headlamp technology, and associated devices to allow operation on the vehicle.
Since July 1996, Italy has been subject to EC regulations governing homologation of these headlamps on vehicles. It has therefore been possible to adopt such devices on newly-homologated vehicles since that date.

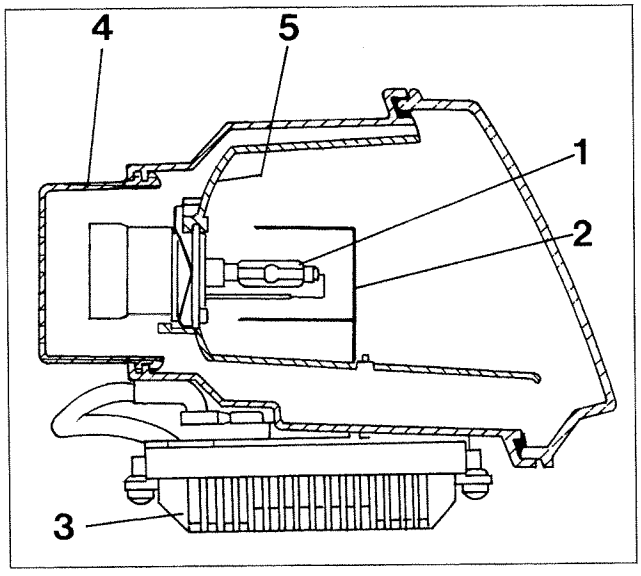
This technology essentially offers three advantages:
- more efficient lighting allows lower electrical energy uptake under steady-state conditions;
- because the light emits more light, its size may be reduced (particularly the height) to allow the car's front end to be designed with greater freedom;
- the bulb lasts roughly twice as long as an iodine bulb.

Gas discharge headlamp technology has involved the development of a set of devices, which briefly include:
- a xenon bulb;
- optics (reflective surfaces of the headlamp);
- electronic control system, consisting of a reactor (ignitor) and control unit (ballast).

Due to its high light intensity, this type of bulb requires the adoption of an automatic alignment corrector (sensor and actutors).

COMPLETE LIGHT CLUSTER

Each light cluster contains all the components required to operate the discharge lamp (bulb, reactor, control unit and alignment control actuator). Conventional components are also present (side lights, turn signals, dipped beams).



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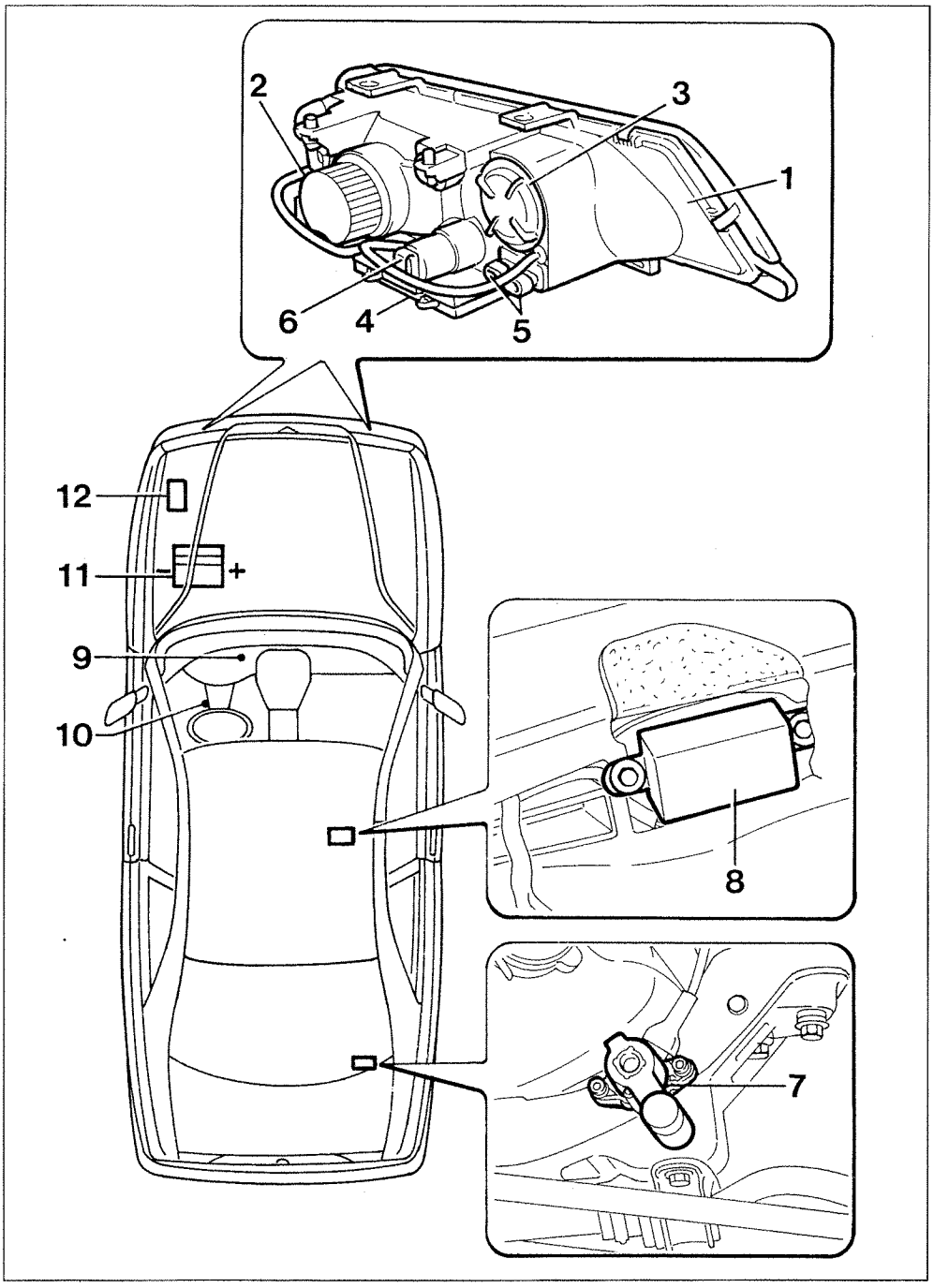
Cross-section through the gas discharge bulb in a headlamp

1. Gas discharge bulb
2. Shade
3. Control unit (ballast)
4. Boot
5. Reflective surface

55.

LOCATION OF GAS DISCHARGE HEADLAMP AND AUTOMATIC HEADLAMP ALIGNMENT CORRECTOR COMPONENTS



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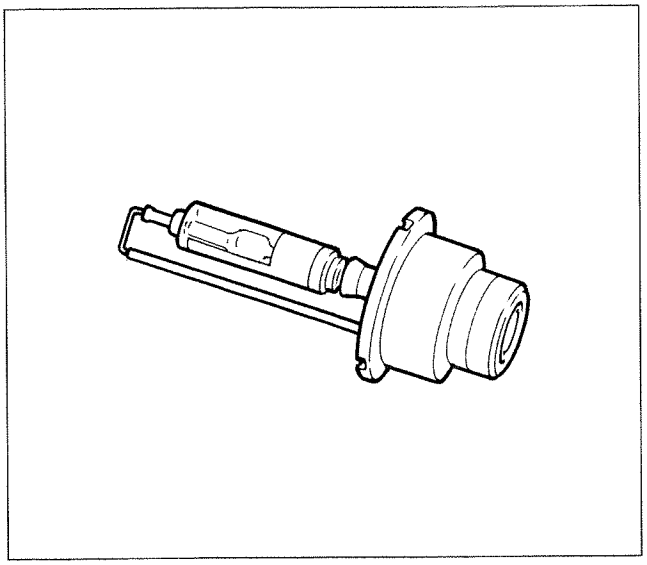
1. headlamp assembly
2. housing for xenon dipped beam
3. housing for iodine main beam
4. bulb control unit (ballast)
5. bulb electrical connectors
6. alignment correction actuator (step motor)
7. static charge sensor
8. alignment correction control unit
9. ignition switch
10. stalk unit
11. battery
12. relay and fuse

NOTE: *Parts 2 to 6 are built into headlamp 1.*



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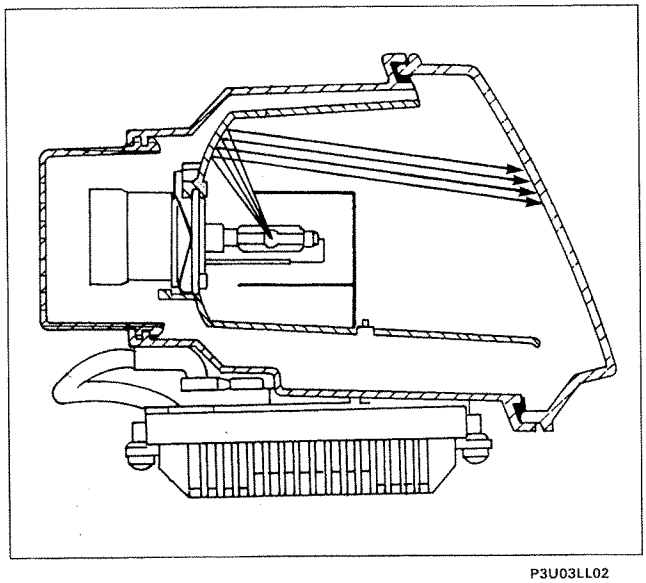
XENON BULB

The xenon bulb consists of two electrodes spaced a few millimetres apart. The ampoule is filled with low-pressure xenon gas.
The ignition process is similar to that occurring in neon tubes for civil applications.
For light emission to take place, an electric arc must be triggered between the electrodes and then maintained.
The following table summarises the main features of a xenon bulb compared to those of the iodine bulb in current use (approximate values).

	xenon bulb	iodine bulb
flow emitted [Lm]	3000	1500
efficiency [Lm/W]	85	25
average luminescence [cd/cm2]	6000	2000
average life [h]	3000	1500
ignition voltage [V]	18.000 AC	12 DC
steady state voltage [V]	100 AC	12 DC

Very high voltage is required to ignite the bulb and keep in running. Its luminescent power is about twice that of an iodine bulb and its efficiency is higher.
A xenon bulb involves certain critical points during the ignition stage which may cause the following to occur during the first moments of operation:
-colour tone slightly different to that when the lamp is under steady state conditions;
-non-instantaneous light flow;
-reignition when the lamp is warm, which affects bulb duration.
For these reasons, the bulb is not currently used for main beams with a flasher function (even with lights off).



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REFLECTIVE SURFACES

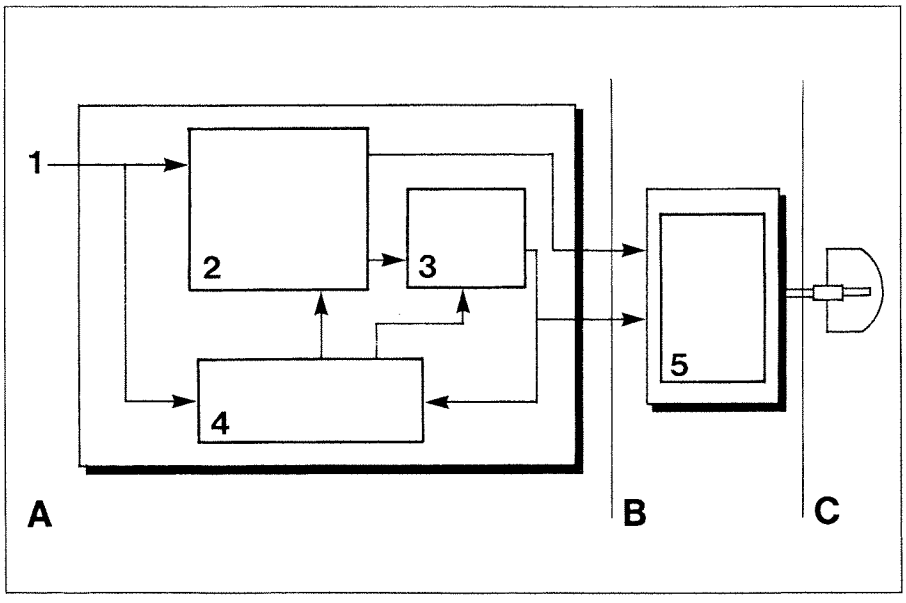
The xenon bulb requires the adoption of a new reflective surface, because the shape and position of the light emission point is different to that for an iodine bulb.
The reflector used is complex surface type, i.e. it lacks a spherical lens.
This surface receives light rays from the bulb and orients them in order to distribute the light beam correctly.

ELECTRONIC CONTROL SYSTEM

Each bulb is controlled by an electronic control system consisting of two devices: a control unit (ballast) and a reactor (ignitor).
The ballast converts low voltage direct current from the vehicle battery into medium-voltage alternating current and controls subsystem function in a closed loop.
The ballast is able to control voltage-current specifications in optimal manner during ignition and also able to deliver the power required for bulb operation under steady state conditions.
The ignitor is controlled by the ballast and is able to generate the high voltage (max 25 volts) required to trigger an arc between the electrodes.

Operation

Xenon bulb operation is divided into four stages.
Ignition
During this stage, the ballast generates voltage able to bring about ignition of a special device located in the ignitor. A voltage elevator circuit transfers appropriately amplified overvoltage to the the bulb to bring about discharge between the electrodes.
Arc maintenance (take-over)
During this stage (a few seconds) the bulb is supplied with the additional power required to bring about rapid evaporation of metallic halogens contained in the bulb in order to ensure peak brightness is quickly achieved. Under these conditions, the bulb emits a light flash of double the normal intensity for a period of about 100 microseconds.
Warm up
For a period of about two minutes, the ballast regulates light intensity by measuring physical bulb conditions from its impedence (closed loop control).
Steady state
Continual closed loop control of the light beam even under steady state conditions.



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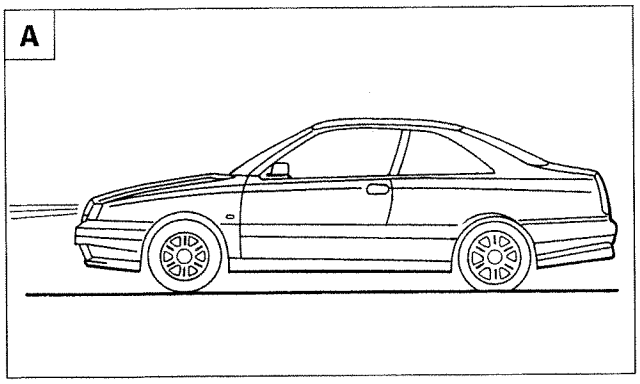
1. Power source (12 V)
2. Negative high tension generator
3. Square wave generator (500 Hz)
4. CPU
5. Voltage elevator circuit

A. Ballast
B. Ignitor
C. Bulb



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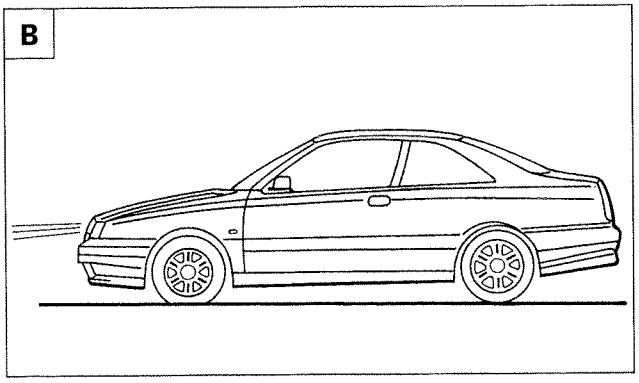

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AUTOMATIC HEADLAMP ALIGNMENT CORRECTOR

Because the bulb is so bright, the vehicle must be fitted with an automatic headlamp alignment corrector to avoid dazzling oncoming vehicles due to the following types of aignment change:
- static, due to load distribution (A);
- dynamic, due to acceleration (A) and deceleration (B).

The automatic corrector also ensures better driving comfort because the lit area stays stable and the eyes do not need to adapt continually to lighting changes.
The device consists of:
- a step actuator for each headlamp;
- a control unit, located in the cabin beneath the passenger seat;
- an accelerometer sensor, built into the control unit;
- a load sensor, connected to the right hand arm of the rear suspension.

Static correction

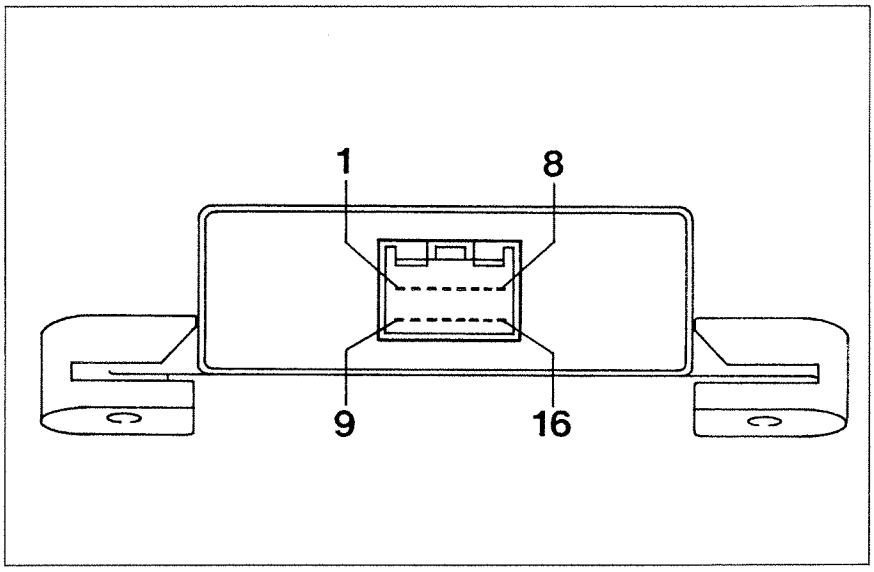
This is carried out via a signal from the load sensor, which is connected to the rear suspension arm and provides an indication of vehicle load status.
The control unit activates whenever the ignition switch is turned to "MAR." and resets the headlamps to the correct height (saved as a function of vehicle load). This involves fully lowering the headlamps and then repositioning.
The load sensor signal is also periodically downloaded and mediated so that headlamp position may be readjusted if necessary. This adjustment is not immediate, but carried out gradually in order to avoid unwanted corrections (holes, unsurfaced roads etc.).
This correction is carried out regardless of whether the lights are lit or not. Daytime flashing is thus carried out with the headlamps properly positioned.

Dynamic correction

This is carried out via an accelerometer signal built into the control unit.
Correction is carried out on the basis of the ratio between longitudinal acceleration and the vehicle's dynamic pitch angle. The values are mediated and the headlamps are repositioned only once a given memorised threshold has been exceeded.
This correction is active only when the dipped beams are on. The system is reset to zero when they are turned off.

Headlamp alignement control unit

The control unit is located on the floor beneath the passenger seat in upright position.
A microprocessor controls system operation on the basis of a load sensor signal (static correction) and a signal from the accelerometer sensor (dynamic correction).
Static correction is a function of the weight acting on the rear axle and the suspension type. Dynamic correction takes into account overall mass, dampers and acceleration/deceleration values.



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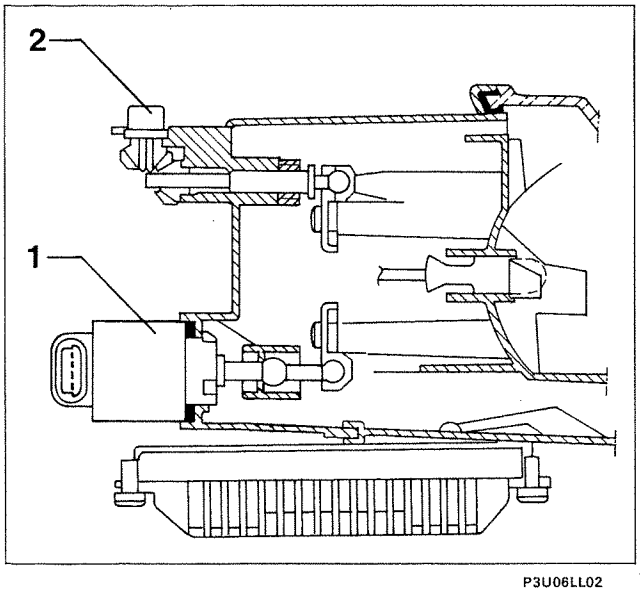
Alignment control unit pin-out

1. load sensor earth
2. load sensor signal
3. dipped beam positive
4. key positive (+15)
5. step actuator (pin 1)
6. step actuator (pin 2)
7. step actuator (pin 3)
8. step actuator (pin 4)
9. earth
10. load sensor power source
11. unused
12. unused
13. unused
14. unused
15. unused
16. unused

Static load sensor

The sensor is fastened to the vehicle body, while a specially profiled spring-loaded lever integral with the potentiometer cursor follows rear suspension movements.
The sensor is supplied by control unit (5V) and supplies a linear output signal proportional to suspension position.



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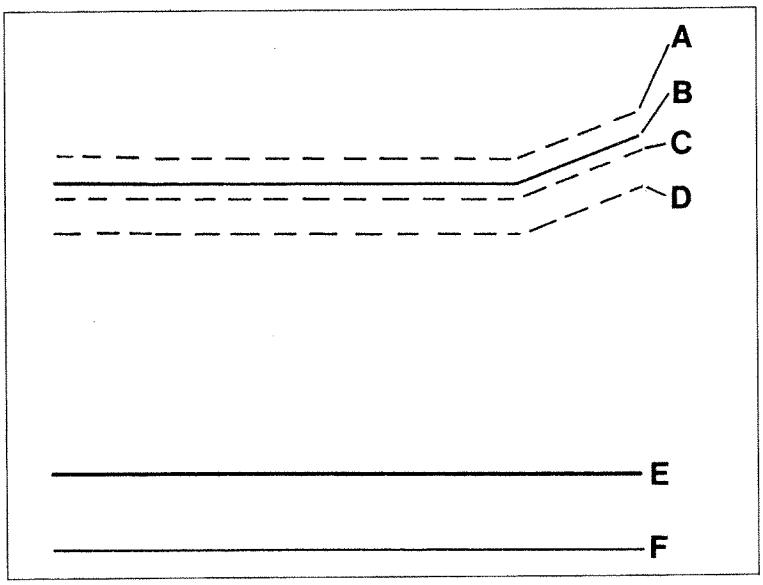
Step actuator

The step actuator is fitted to the light cluster. It consists of an electric step motor and a worm screw reduction unit, which converts rotary motion into linear motion of a hinged rod via a parabolic ball joint.

1. step actuator
2. headlamp position adjustment



P3U07LL01

A: zero line (headlamp centre)
B: normal beam (-1%)
C: beam during recovery (-2,3%)
D: low beam (-3,6%)
E: floor level
F: beam fully lowered (on floor)

FAULT DIAGNOSIS

Headlamp alignment corrector fault diagnosis

The system is equipped with a self-diagnostic strategy to check function.
Proceed as follows to activate self-diagnosis:

- position the unladen vehicle on a flat surface 10 m from a vertical wall, which should be light and reflective if possible;
- adjust beam to –1% in normal manner;
- turn the light switch to "position"
- turn the ignition switch to "MAR";
- within 3 seconds of the last operation, turn the light switch from "position" to "off" and viceversa for at least three times, then leave the switch on "dipped beam". The headlamps now come on and the cycle begins.

Cycle stages are as follows:
1. Beam fully lowered (check maximum mechanical lowering on floor);
2. normal beam (-1%)
3. pause of 1.3 seconds;
4. low beam (check reduction, -3.6%)
5. pause of 1.3 seconds;
6. beam half way through travel (recovery position: -2.3%)
7. pause of 10 seconds: during this pause, the control unit tests the load sensor (circuit open, short-circuit). If an anomaly is found, the beam oscillates rapidly 5 times about the recovery position.

This cycle repeats itself continually: simply move the ignition switch to "off" to break the cycle

Headlamp alignment corrector operating strategy (reflector movement)

	on	off
ignition switch	zero (*)	stopped
side lights	stopped	zero
dipped beam	stopped	stopped

(*) 1 second after activation

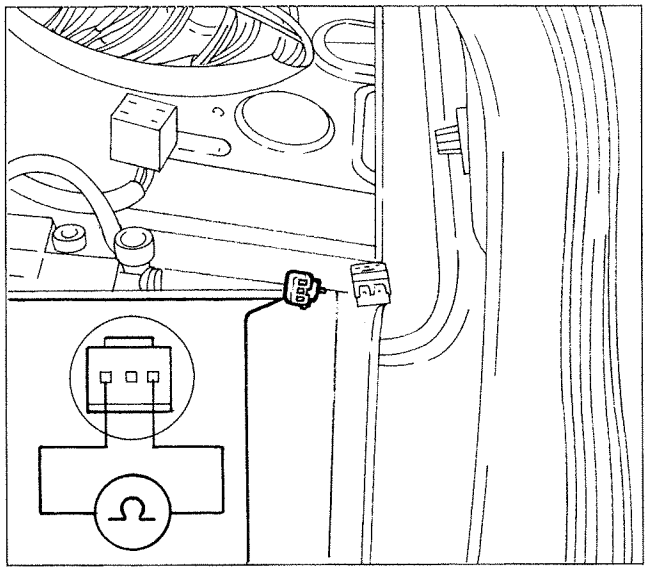
NOTE *Due to the static correction strategy adopted, it is not possible to move the headlamp immediately be simply operating the load senosr manually.*

Load sensor recovery

If the load sensor is found to be anomalous, the control unit positions the headlamps midway through their travel (corresponding to point 6 of the self-diagnostic cycle).
This position is slightly lower than the position during normal motion in order to prevent oncoming vehicles from being dazzled if the vehicle is loaded and not to impair night vision excessively if the vehicle is unladen.
This situation persists until the igntion switch is turned off.
When correct operating conditions are restored, the alignmnet corrector returns to normal operation only once the ignition switch has been turned off and back on.

Finding faults in a gas discharge bulb

If one or both headlamps fail to come on, proceed as follows:
- check whether the headlamp is properly aligned. If not, check fuse and/or relay conditions;
- check for obvious signs of damage to the headlamp, i.e the lens (outer glass) and the case (plastic part). If signs are found, replace the entire assembly (after recovering the control unit);
- check the bulb is properly positioned by opening the rear cover. Reposition the bulb if necessary;
- check the bulb for signs of deformations or cracks. Replace the bulb if found;
- replace the headlamp but reuse the same control unit (ballast);
- replace the control unit.



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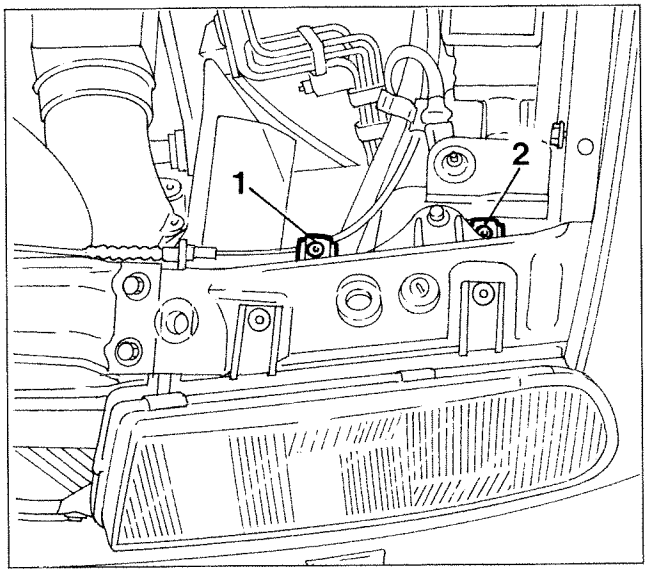
CHECKS AND ADJUSTMENTS

Measuring internal load sensor resistance

The connector is in the right load compartment well.
Check that the resistance is within the specified range as shown in the figure.
Specified value: 1.2 kohm ± 20%



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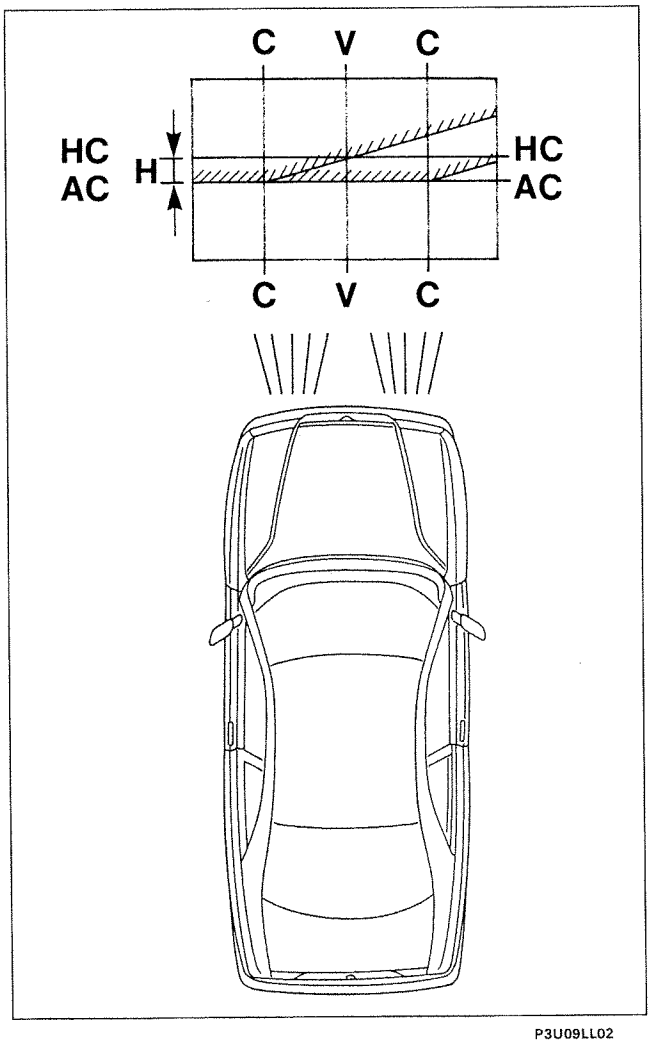


P3U09LL02

HEADLAMP ALIGNMENT

1. Horizontal light beam adjustment screw
2. Vertical light beam adjustment screw

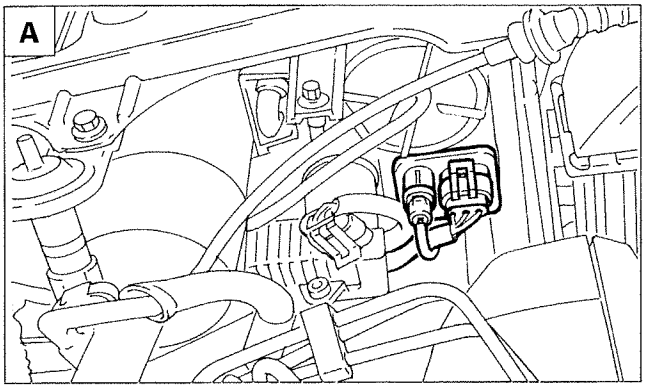
The car must be complete with spare wheel, tools, fluids and fuel reserve. Tyre pressure must be as for normal driving conditions, with the driver on board.
Place the vehicle on a flat surface with the headlamp unit lens 10 m from a screen or opaque surface on which the following lines have been drawn:
V-V: vertical corresponding to vehicle plane of symmetry.
C-C: corresponding to vertical planes passing through the headlamp unit reference centres.
HC-HC: horizontal corresponding to height of headlamp unit reference centres from the ground.
AC-AC: horizontal 10 cm above the HC-HC line (value for new vehicles and allocated corresponding to a reduction of 1%).
Set the headlamps to dipped beam. Adjust the headlamp positioning device as follows.

Vertical positioning

Align the horizontal section of the demarcation line between the shaded area and the area lit by the light beam with the AC-AC line drawn on the screen.

Horizontal positioning

Align the crossover point of the two horizontal and inclined demarcation lines with the point at which the C-C and AC-AC lines cross on the screen. This value must be reduced proportionally if the screen is set at a shorter distance.



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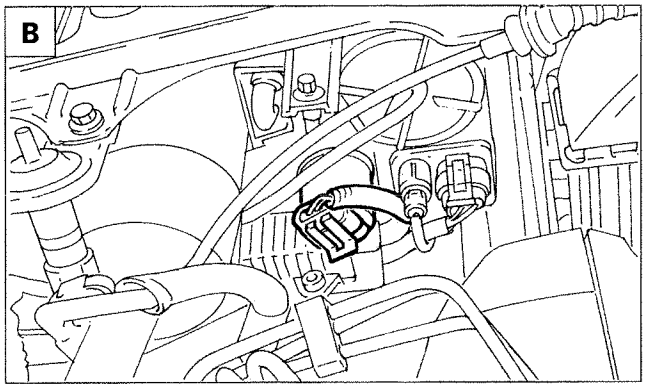

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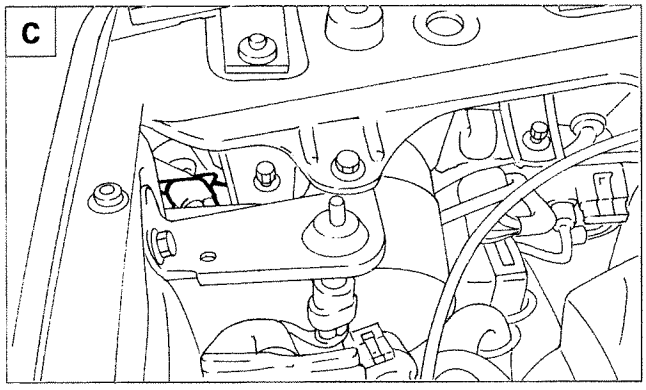


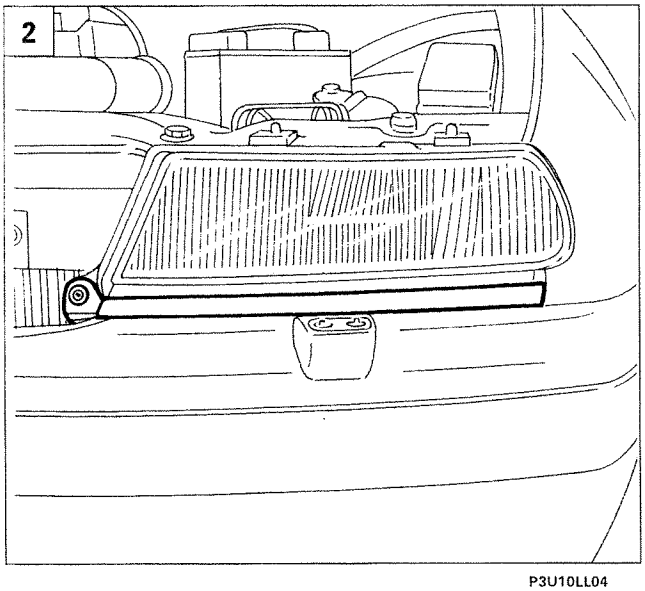
P3U10LL03

REMOVING-REFITTING HEADLAMP

The headlamp must not be removed unless the battery positive terminal is disconnected, or the ignition key removed

Proceed as follows:

1. open the bonnet and disconnect the battery positive terminal, then disconnect:
   A. both bulb connectors;
   B. connector of headlamp alignment step motor;
   C. turn signal connector;
2. remove the lower section;
3. unscrew lower and upper screws retaining the light unit and remove from its housing.



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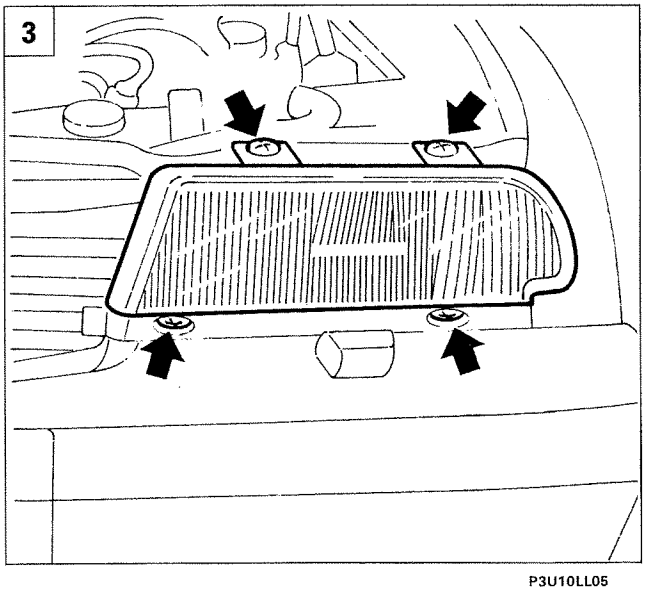

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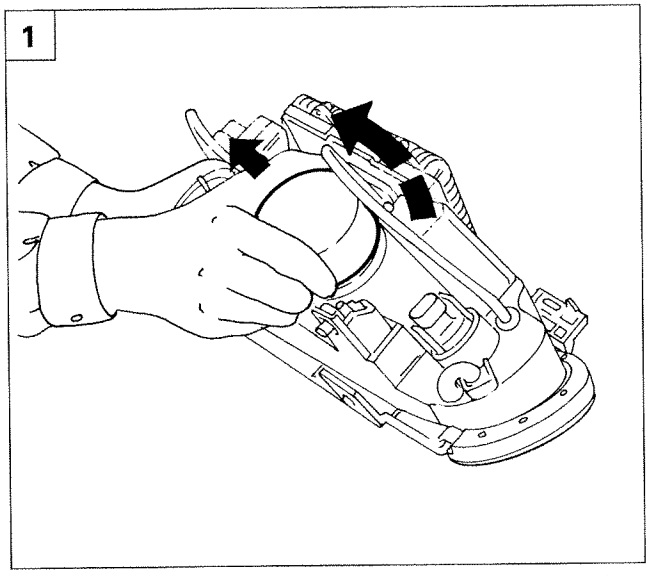

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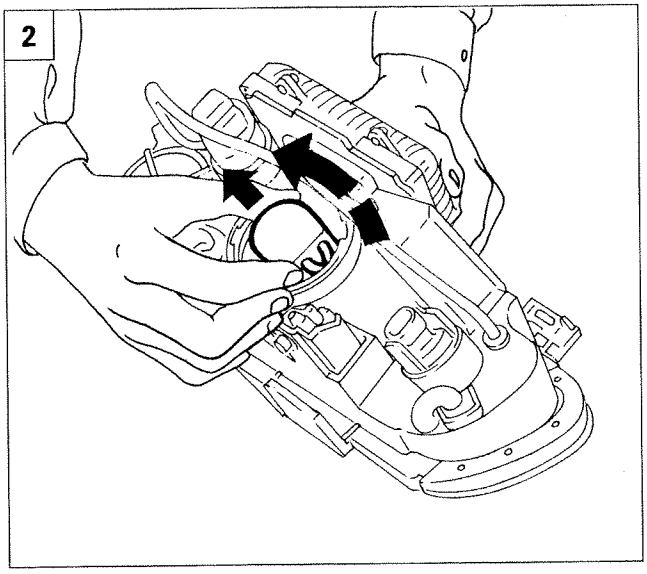

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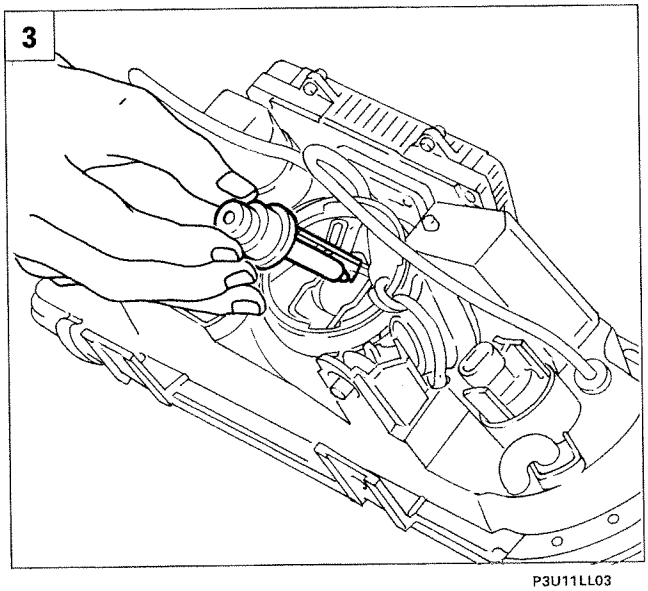


P3U11LL03

REMOVING-REFITTING SYSTEM COMPONENTS

Dipped headlamp bulb (xenon)

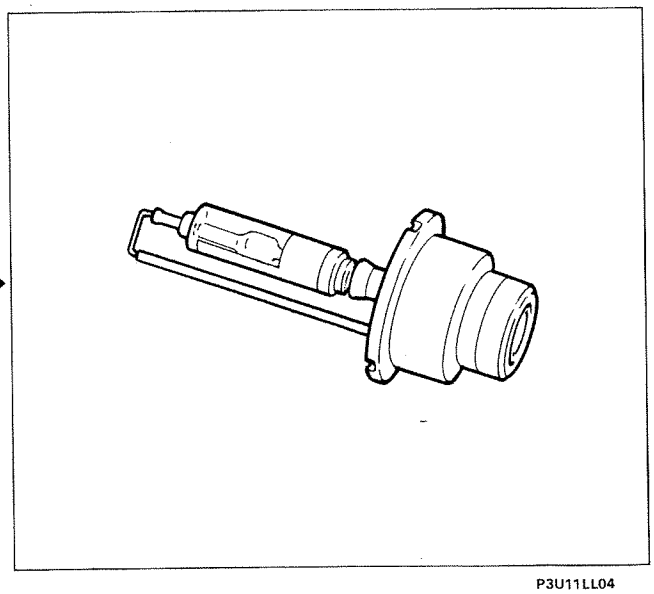
The bulb may not be removed unless the battery positive terminal has been disconnected or the ignition key removed, because the voltage rises to about 20,000 V when the bulb is turned on and several hundred volts is present at the bulb terminals during normal operation

NOTE *For reasons of clarity, the headlamp is shown removed from its housing. The bulb may nevertheless be replaced without removing the headlamp.*

Proceed as follows:

1. turn the protective cover and remove;
2. turn the bayonet connector and remove;
3. open the retaining clips and remove the bulb.

Do not touch the glass part of the bulb with the fingers when removing.



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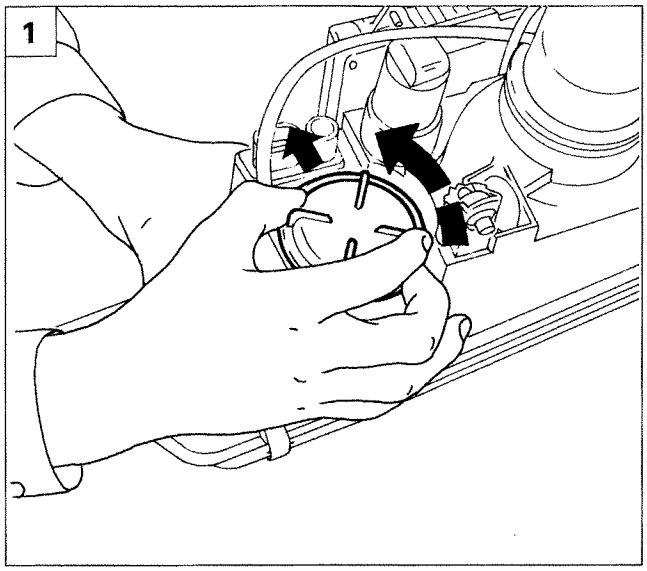


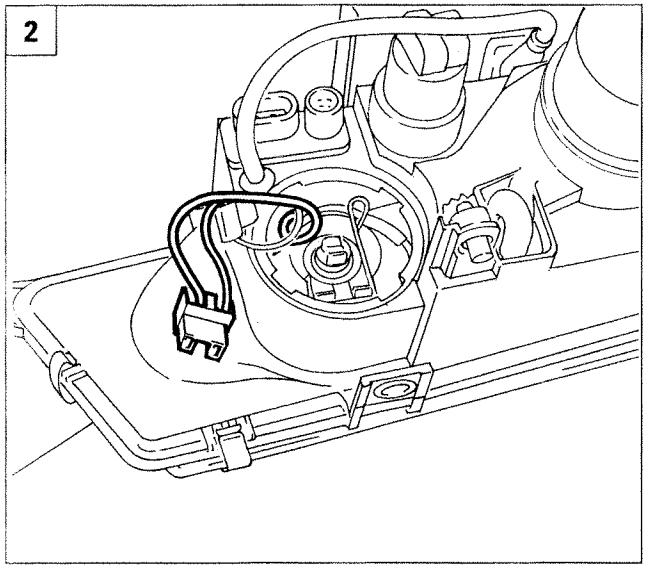
P3U12LL01

Main beam headlamp bulb (iodine)

NOTE *For greater clarity, the headlamp unit is shown removed from its housing. The bulb may nevertheless be replaced even without removing the headlamp.*

Proceed as follows:

1. turn the protective cover and remove;



P3U12LL02

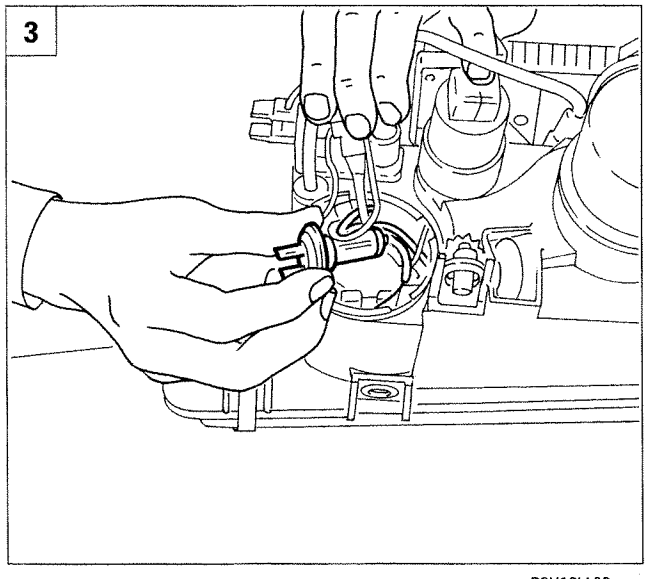
2. remove the bayonet connector;
3. open the retaining clips and remove the bulb.

Do not touch the glass part of the new bulb with the fingers when fitting.

Step actuator

Proceed as follows:

4. remove the headlamp unit, then turn the actuator and remove from its seat.



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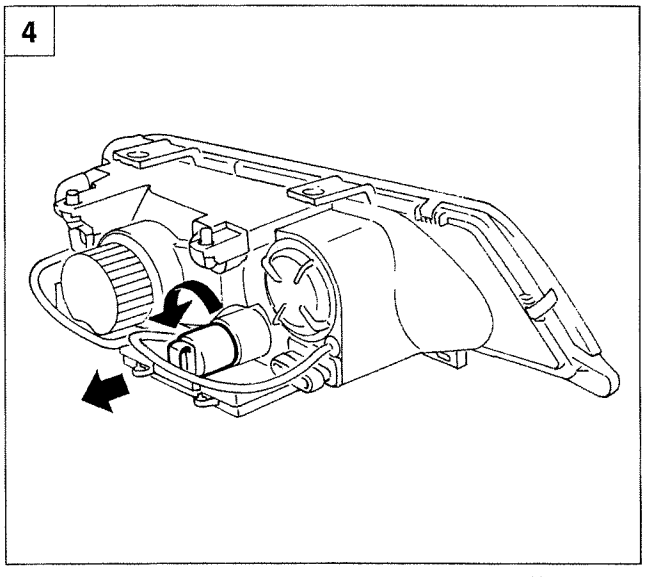

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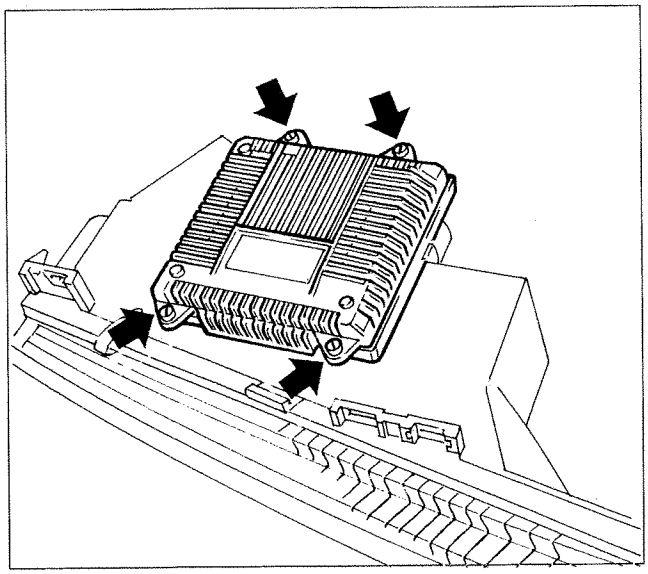

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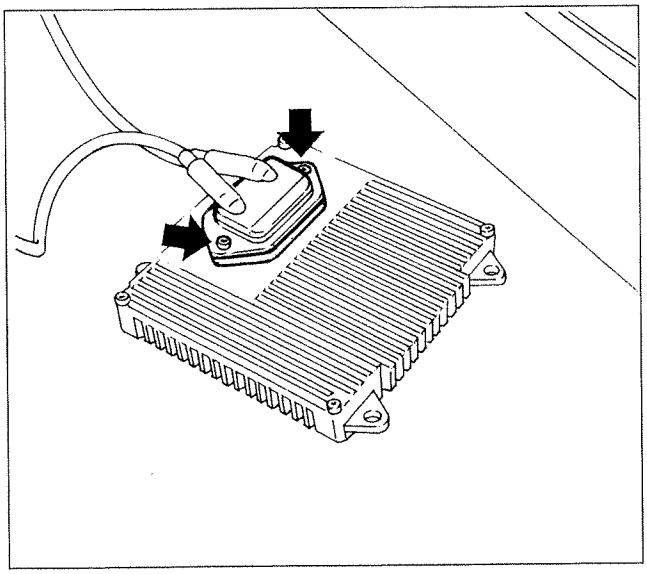
Xenon bulb control unit (ballast)

Proceed as follows:

1. remove the headlamp unit, then unscrew the four screws retaining the control unit;



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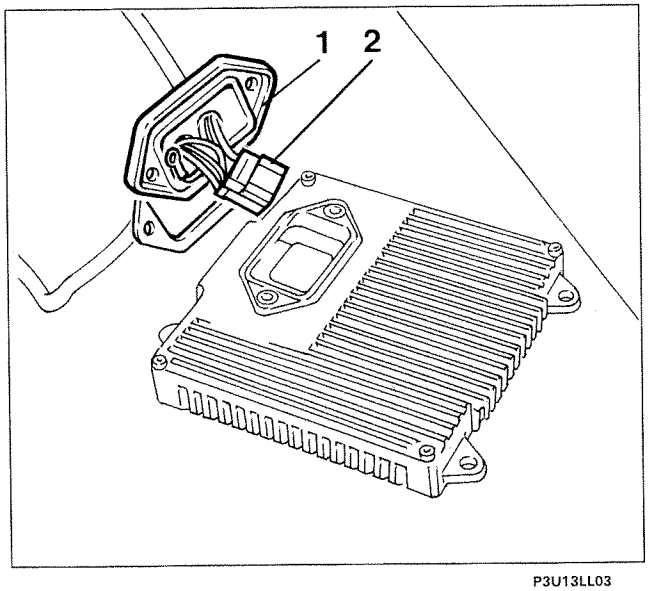
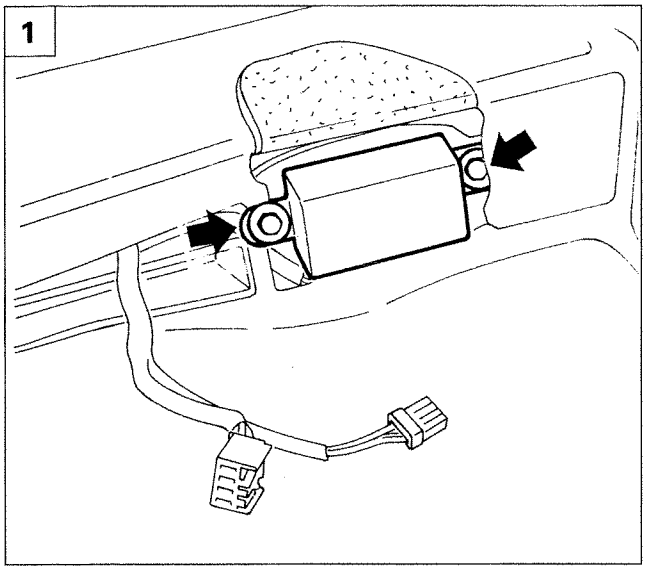
2. turn the control unit over carefully, being careful not to pull the wiring, and remove the gasket retaining plate;



P3U13LL03

3. remove protective gasket (1) and disconnect connector (2).



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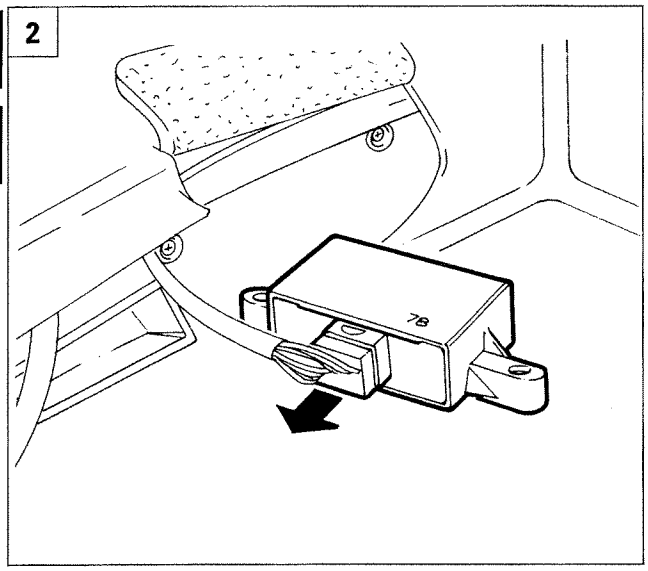

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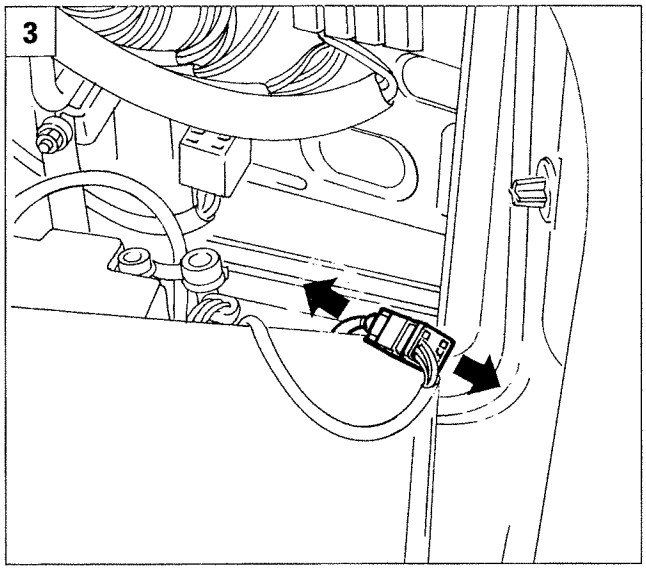


P3U14LL03

Headlamp alignment control unit

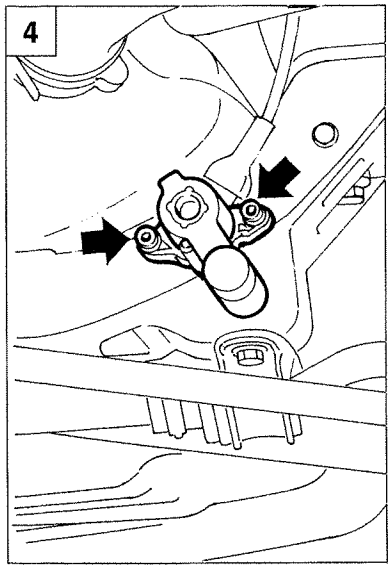
Proceed as follows:

1. remove the passenger seat, then remove the cover in the floor trim and unscrew the control unit retaining bolts;
2. disconnect the control unit connector.

Vehicle alignment sensor

Proceed as follows:

3. working in the well on the right hand side of the luggge compartment, disconnect the connector;



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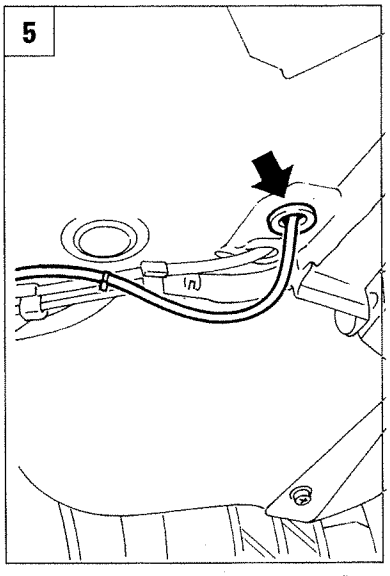

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4. lift the vehicle and unscrew both screws retaining the sensor;
5. open the clips and prise up the cable duct sheath from the floor, then remove the connector by withdrawing from the luggage compartment together with the cable duct sheath.

NOTE *Replace the cable duct sheath to ensure perfect water-tightness.*

page

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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INTRODUCTION

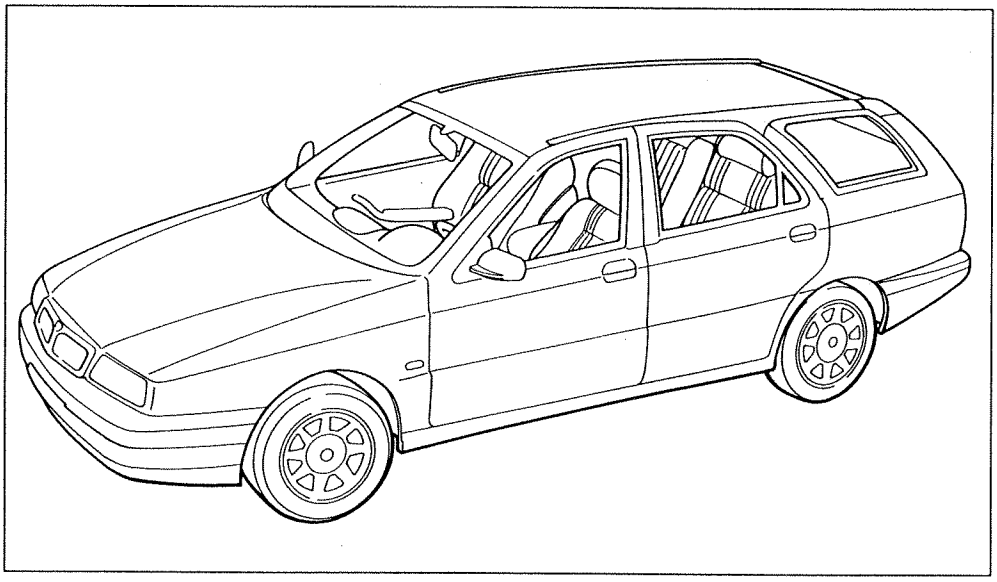
This set of technical information supports the training plan LANCIA has arranged for the new Station Wagon models of the LANCIA k. In accordance with the Company's expectations, the new car consolidates the aims of habitability, comfort, functionality and strength already achieved by the saloon version.
The subjects discussed mainly cover the technical innovations, with emphasis on the descriptive and teaching aspects.

AERODYNAMICS

The styling of the new Station Wagon in the Lancia family has the rounded shapes of the new generation of cars. In addition the truncated tail end, typical of Station Wagons, permits an excellent CX factor which, multiplied by the area (A) gives the value indicated in the table.

AERODYNAMIC COEFFICIENT (CX)	0.32
AERODYNAMIC COEFFICIENT FOR AREA (CX × A)	0.71

NOTE *The value indicated in the table is the result of measurements made in the Fiat "wind tunnel".*



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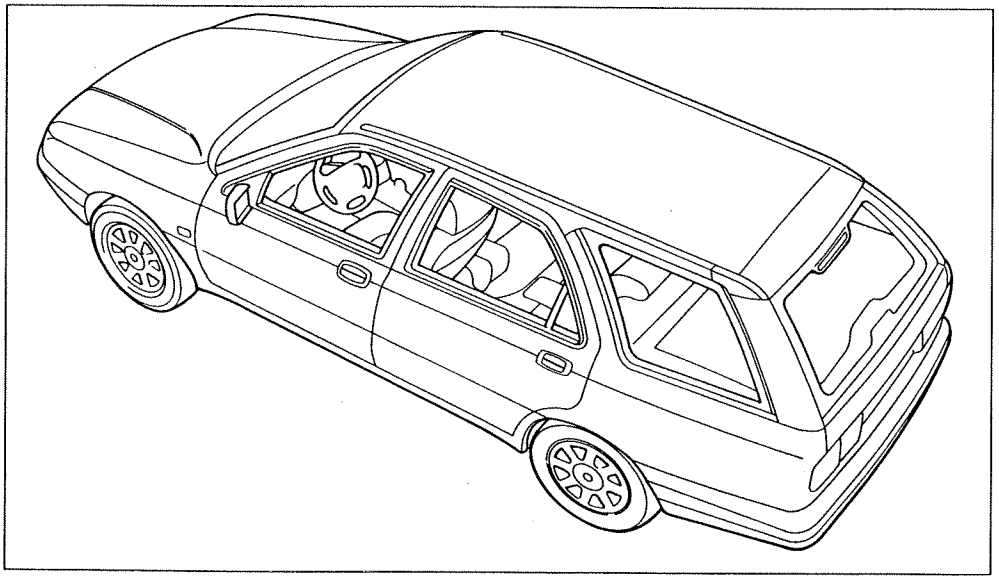
Front view



P3U01DM02

Rear view

SAFETY SYSTEM

The main aim of car manufacturers is without doubt the total safety of passengers and driver. Market regulations in both Europe and the rest of the world have become very strict in this respect. To meet this requirement, the new car from the LANCIA house has been designed in order to ensure an optimum response in every situation.

Preventive safety

This concerns all factors which ensure comfort:
- high body strength
- optimized engine mountings
- balanced climate control throughout the interior compartment, with highly adjustable, large diffuser vents with anti-pollen filter
- all controls and warning lights illuminated, so easier to read
- addition of third stop light in anticipation of regulation (1st September '98).

Active safety

- ABS braking system with independent cross circuits
- McPherson front suspension with wishbones angled in the direction of travel, so as to generate an anti-skid effect (the car remains parallel to the road during braking)
- rear suspension with new geometry which allows the vehicle to be stabilized under the effect of steering of the rear wheels on bends. In addition the adoption of a new device permits a virtually constant attitude as the load varies
- variable-ratio and power-assisted steering designed to permit precise and immediate response in all situations.

Passive safety

The style of the S.W. is characterized by rounded shapes and continuous curves which, in addition to giving the car a new line, give strength and compactness to the structure. The structure has been designed to deform in a controlled manner in the event of front-end, side and rear-end crashes, and to absorb the energy created by the crash, without impairing the vital spaces in the interior compartment.

Main performance of the passive safety system

To pass the variouis tests imposed by legislation (EEVC '96), the model presents specific passive safety performance which limits the spread of damage and so reduces repair times.

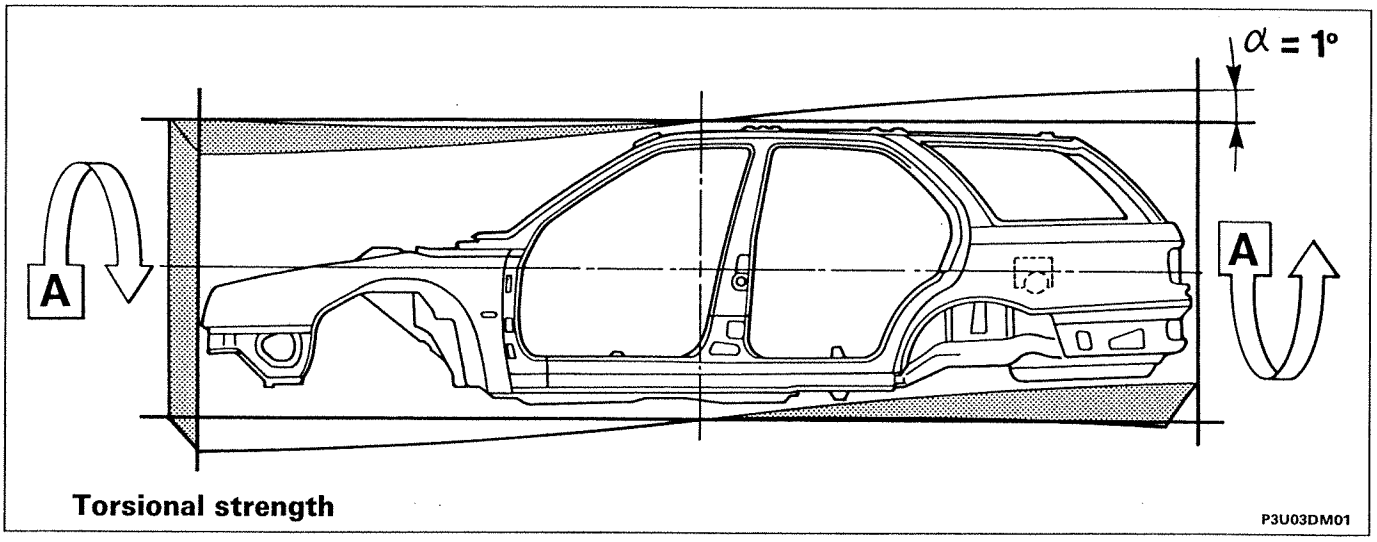
The regulations concern crash resistance which is provided in various ways:
- Resistance to offset front-end crashes, at high speed, with the basic model and with Air Bag (AMUS/ADAC test and to USA 208 standard), due to the controlled-deformation front structure and the rigid interior compartment cell reinforced at key points.
- Resistance to dynamic side crashes (ECE/EEVC '96), due to the structure of the reinforced side and door panels.
- Resistance to Roll-Over (USA 216), due to the high-strength roof structure.
- Anti-intrusion resistance of rear load (ECE 34) due to the reinforced rear seat squab and its body shell attachments.
- Resistance to rear-end crashes, due to the reinforced structure and bumper which exceed the ECE 42 test.
- Safety against fire achieved with the FIAT FPS (FIRE PROTECTION SYSTEM) comprising:
- internal fireproofing which limits the rate of flame propagation (USA 302 standard);
- inertial switch for cutting off the petrol pump;
- anti-backflow valve and anti-misfiring guards (excessive heating of the catalyser under fault conditions);
- system for protecting cables which carry high currents.

FLECTIONAL AND TORSIONAL STRENGTH

In addition to giving the vehicle considerable passive strength, the flectional and torsional strength of the body shell of the LANCIA k SW generates a sensation of solidity and comfort in general, maintaining correct suspension angles and offering absolute precision of driving. If the body shell is subjected to a torsional force (A) of 1464 kgm, the body inclines by only one degree. Similarly, it flexes 1 mm if a flectional force (B) of 870 kg is applied.

These high strength values give the following advantages:
- less vibration
- less noise
- better driveability
- higher resistance to damage resulting from driving on particularly rough road surfaces
- feeling of compactness of the vehicle
- longer lasting overall qualities of the vehicle.

TORSIONAL STRENGTH (kgm/degree)	Body shell with windows, no moving parts	1464
	Complete motorized vehicles	1842
FLECTIONAL STRENGTH (kg/mm)	Body shell with windows, no moving parts	870
	Complete motorized vehicle	1094



Torsional strength

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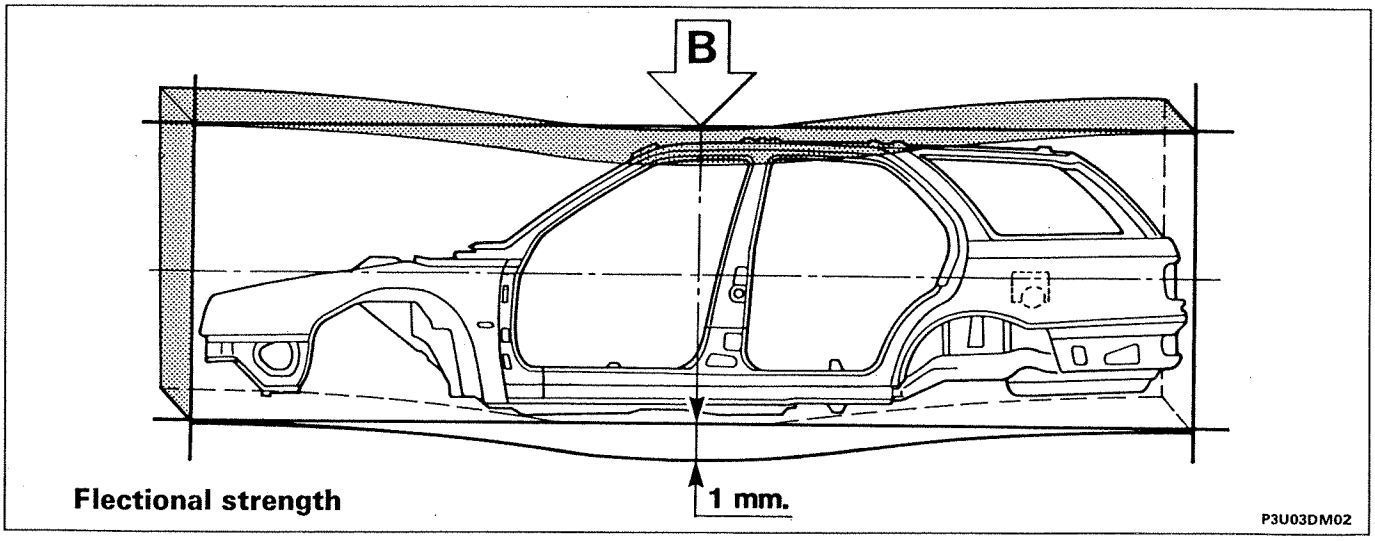

Flectional strength

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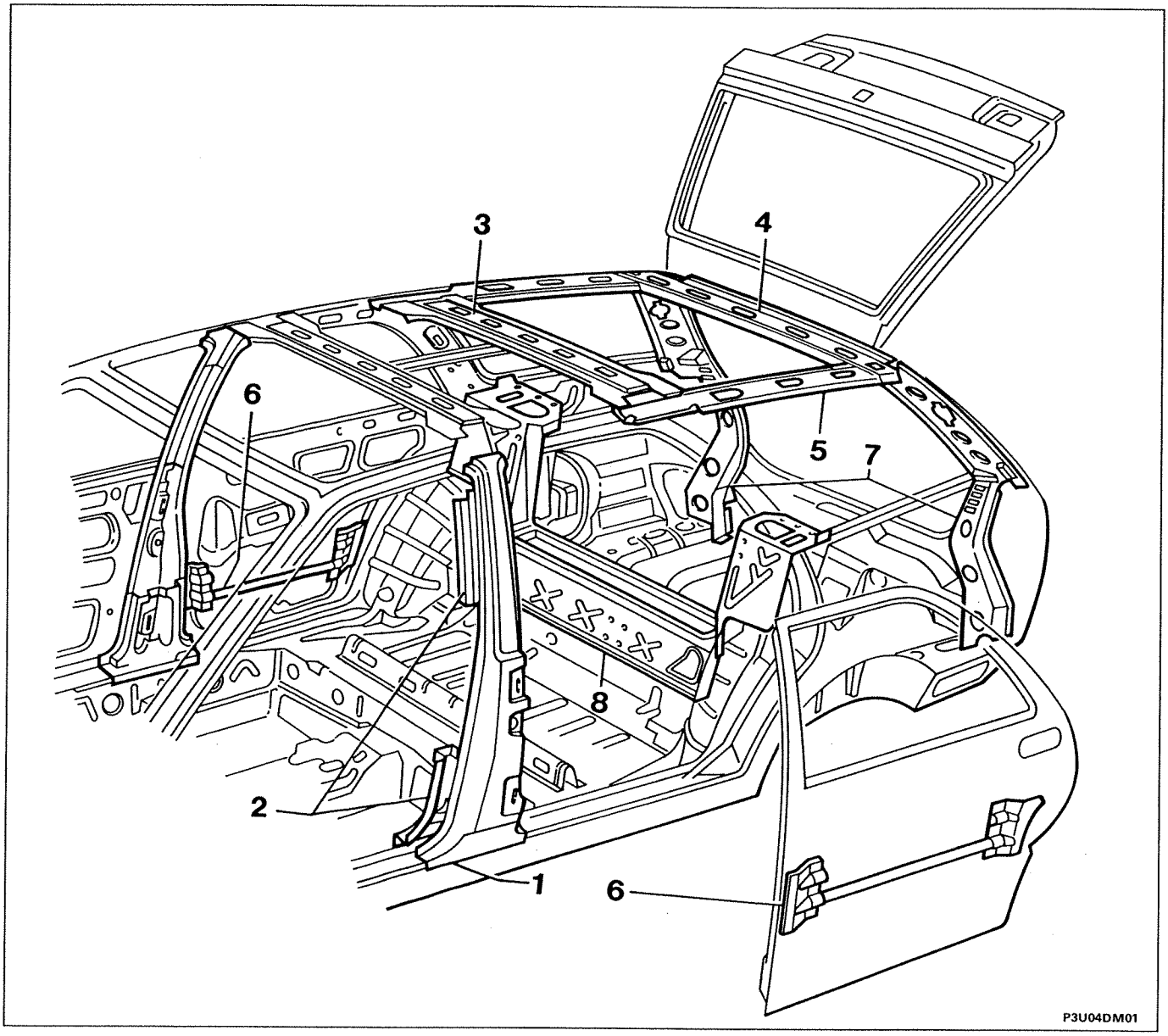
70.

Resistance to side and rear-end crashes

On the side, the central pillar (1) is reinforced on its entire length and at the seat belt anchor points (2). In addition, if the car overturns, safety is ensured by the very strong roof, reinforced by the presence of a fin (3) which joins the rear door pillars, the box-section cross member (4) on the tailgate frame and finally the side members (5).

The rear pillars (7) on the tailgate frame are welded at the bottom to the floor members and, together with the cross member (8) of the rear shock absorber top mountings, contribute to the protection of the interior compartment and safety of the rear passengers in the event of a side or rear-end crash, as stated in the ECE 32 regulation in force since 1/10/1995.



1. Central pillar reinforcement
2. Seat belt anchorage reinforcements
3. Rear fin
4. Rear cross member
5. Top side members
6. Rear door tubular reinforcements
7. Rear pillar box section reinforcement
8. Separating wall cross member

NOTE *In the case of bodywork repairs, the structural reinforcements indicated in the drawing, if deformed, should always be replaced.*

SEATS

To protect the interior compartment and the passengers, safety devices have also been adopted in the front and rear seats.

The structure of the front and rear seats of the LANCIA k SW adds to the protection offered by the safety belts, especially due to the "antisubmarining" element.

Under strong deceleration, passengers risk sinking into their seats and sliding under the waist section of the seat belt.

This cannot happen on the LANCIA k SW as the front seats include specific rigid cross members under the cushion, which ensure that the occupants are held perfectly in the event of a crash.

The rear seat consists of a fixed cushion and a 40/60 folding squab. The squab is designed to withstand intrusion from the rear load as required by the strict regulations planned in the near future in Germany: ADAC dynamic test which requires a structural strength with deformation not exceeding 30 cm in a crash at 50 km/hour, with a load of two suitcases weighing 18 kg.

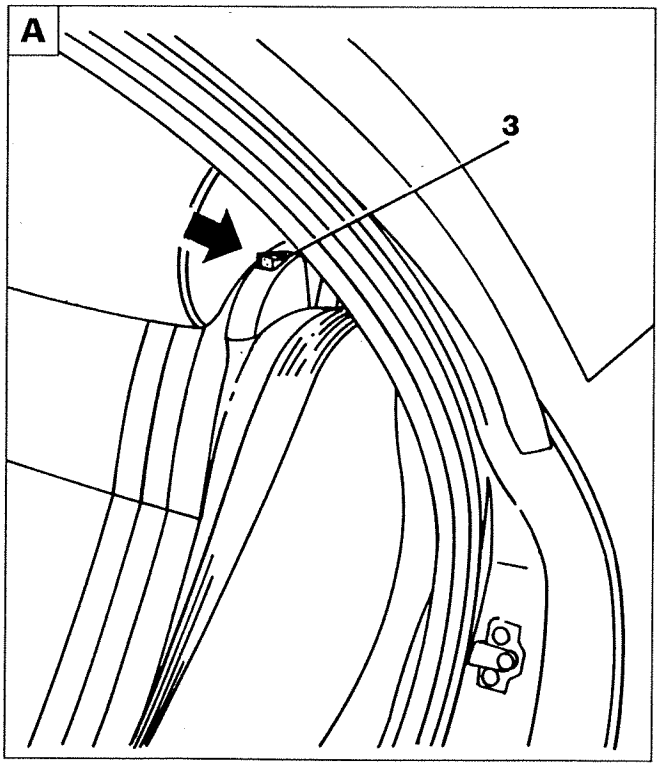
The requirement is obtained separately for each part of the squab by the adoption of a tubular structure (2), strengthened by box-section diagonal cross members (1) (see figure on next page).

The squabs have lock/release devices (3, Figure A) with red indicator to show that they are locked onto the body shell.

The back of the rear seat squab is covered with carpet, so that when the seat is folded, a continuous platform with the top load platform is formed. The top of the rear seat squabs is shaped so as to form a stop preventing movement of the luggage towards the front seats. There are two plastic suitcase stops (4) on the top edge.

The rear seat is ergonomically optimzed to provide excellent lateral containment and a firm seating position ("antisubmarining" effect).

The squab anchorages (5, figura B) are locked onto the body shell in such a position as to present any possible accidental interference with the seat belts.



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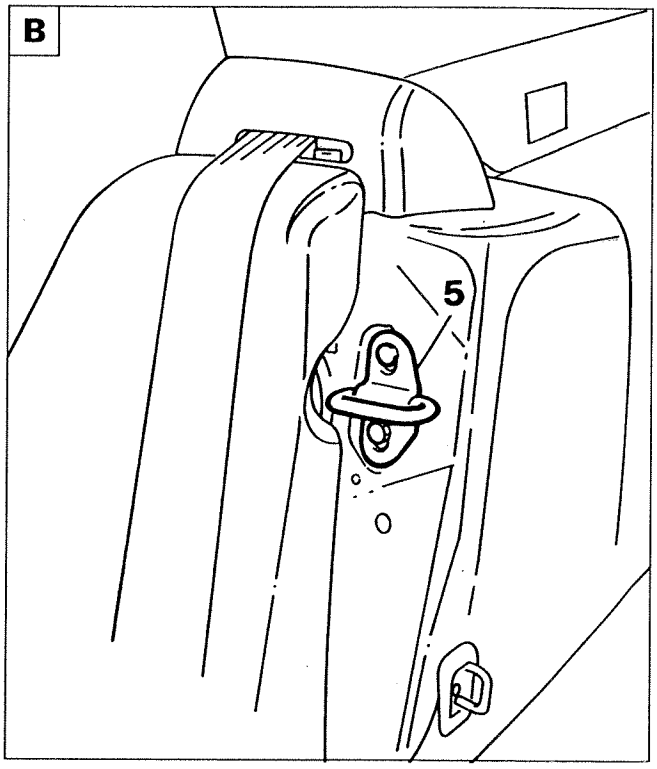

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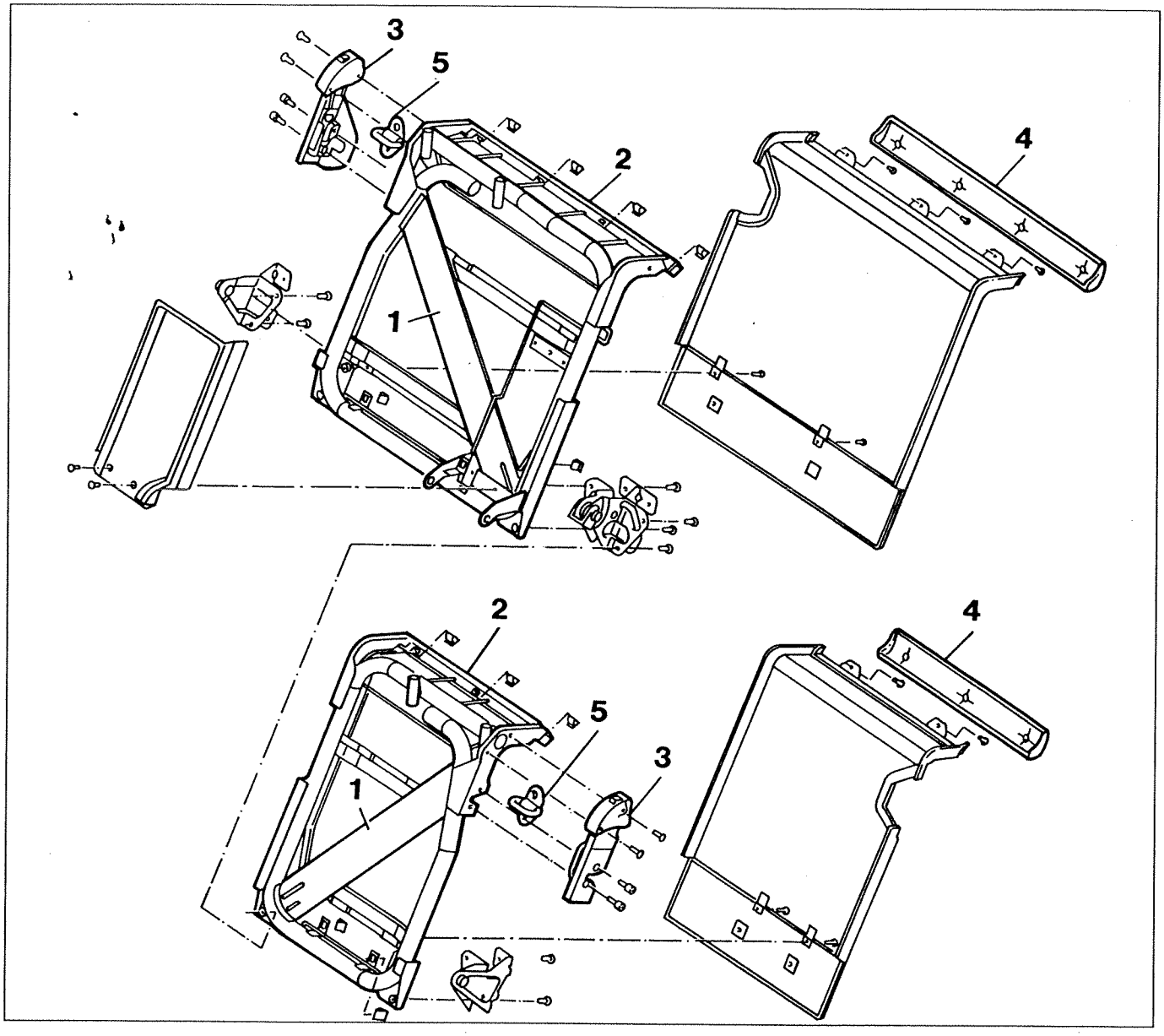

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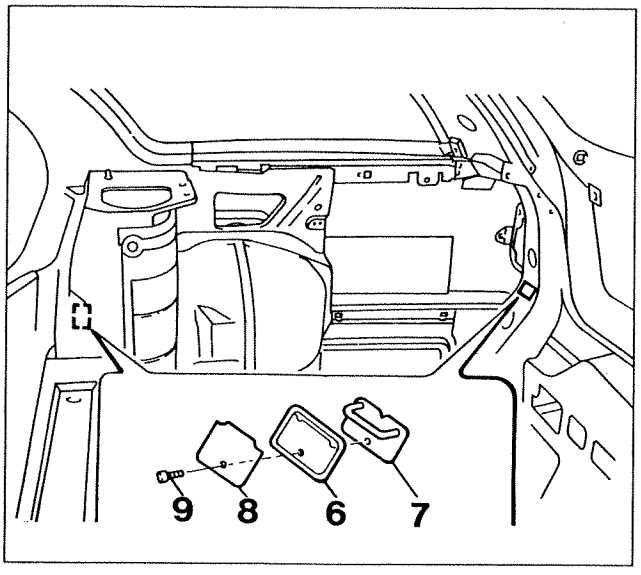

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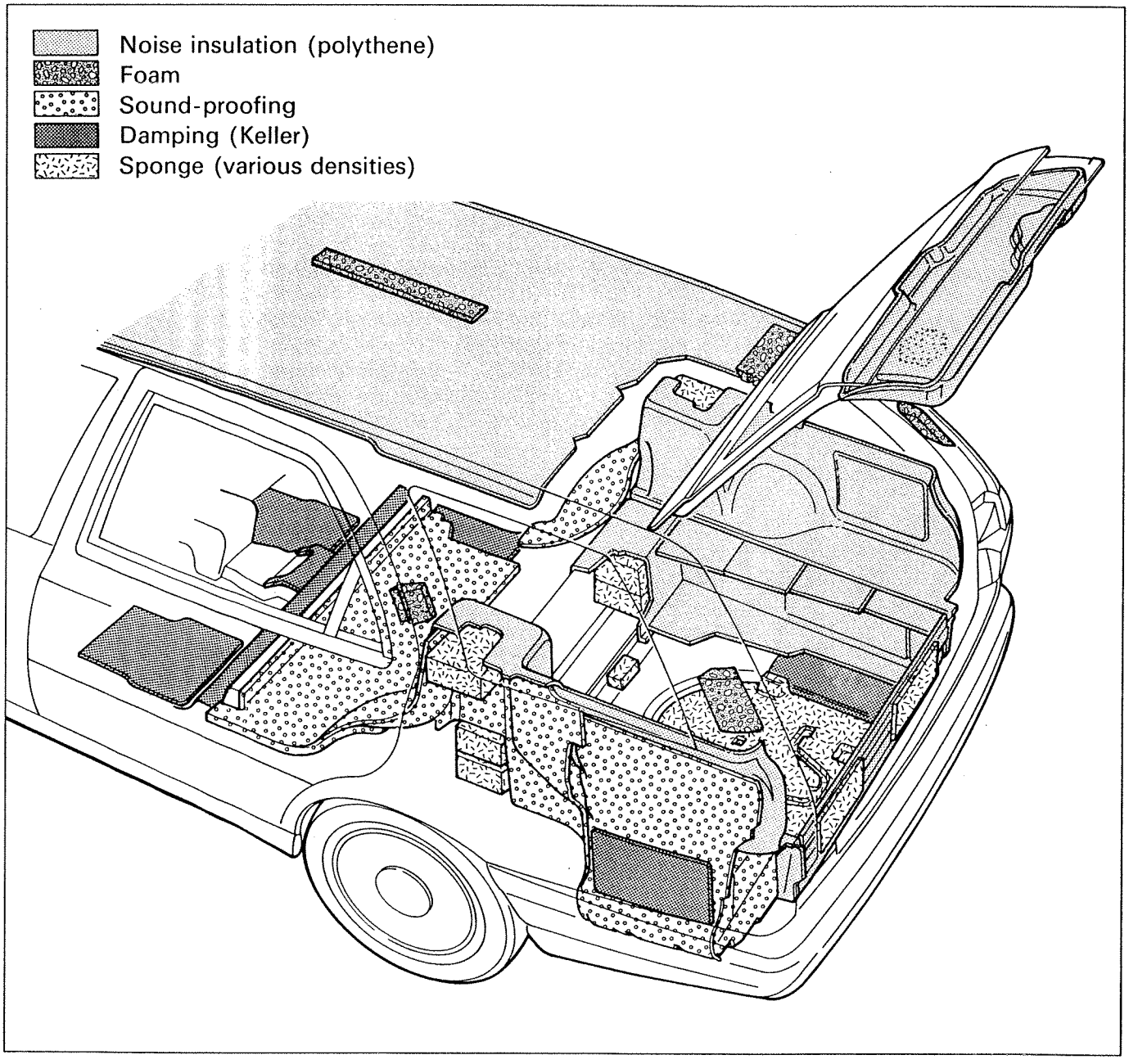
An important safety feature is the load anchorage systems; the load can be secured by appropriate braces or netting to the attachments (6) located in the 4 corners of the load compartment.

6. Trim cover
7. Luggage retaining net attachment
8. Trim cover reinforcing plate
9. Bolt

VEHICLE SOUND-PROOFING

The sound-proofing on the LANCIA k SW has been developed from the experience acquired on the saloon version. Noise measurements inside the interior compartment have given excellent results conforming to Italian laws (corresponding Fiat table: LE 115/25 e 116/25).
The vehicle's comfort is all the more noticeable when it is easy to hear a conversation at normal voice level under average driving conditions.
Particular care has been given to the effects of noiselessness at the rear part of the vehicle. In the absence of the dividing wall to the load compartment, present on the saloon, the LANCIA k SW comprises a sound-proofing kit and total covering of the wheelarches and floor platform with sound-proofing materials.
Acoustic cavities (pillar box sections) have been neutralized by filling them with foam. To avoid direct contact between trim and sheet metal, widespread foam has been inserted (soft URL).
The load compartment is lined at the sides with a polythene covering 4 - 5 mm thick with carpet on the outside. While the bottom load platform is covered with plastic offering high abrasion resistance, the top load platform has been strengthened to ensure a capacity of 200 kg.



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PROTECTIVE TREATMENTS

Introduction

In accordance with the Italian law corresponding to the Fiat LE 107/94 table, the bodywork of the LANCIA k SW withstands, both internally and externally, all corrosion processes thanks to several protective treatments to which the body panels are subjected.
The treatments may involve not only the surfaces of panels exposed to the environment, but also internal surfaces which, although physically isolated, can nevertheless be attacked by rust because of leaks or the formation of condensation.

Internal agents

- Formation of condensation
- Water leaks
- Action of parasitic currents
- Electro-erosion

External agents

- Salty sea air and the salt used to de-ice the roads
- Rain (especially if acidic)
- Frost and temperature fluctuations
- Smog and pollutants in the air
- Hydrocarbons in general (solvents, tar and petrols)
- Some components in sunlight (ultraviolet rays)
- Projection of stones and gravel
- Bird excrement.

The vehicle's panels are also protected by the application of paint products which, in addition to aesthetic purposes, also act as a barrier between the sheet metal and the external environment.

Preventing the corrosion of the bodywork starts with the vehicle's design, by selecting the most suitable materials, with the various components designed so that the structures can be accessed by the protective processes, avoiding weak points which are particularly susceptible to corrosive agents, and continues throughout the production process with the various anti-corrosion treatments applied at the different stages of assembly.

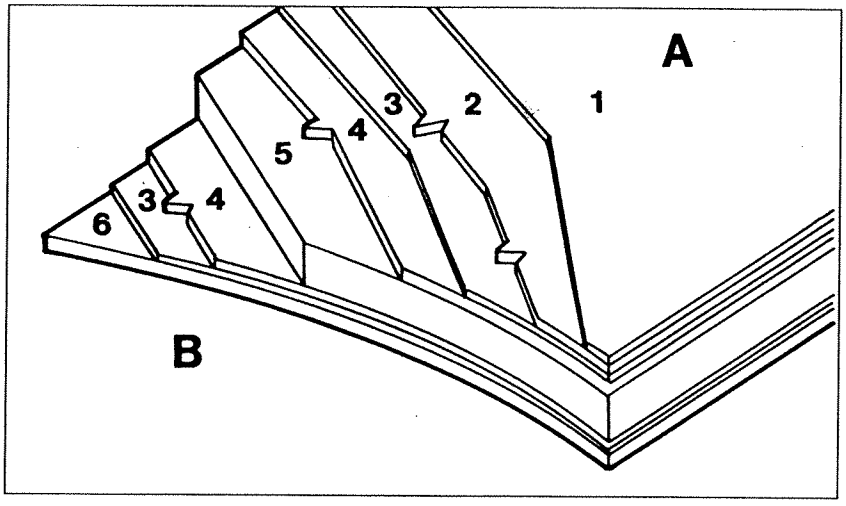

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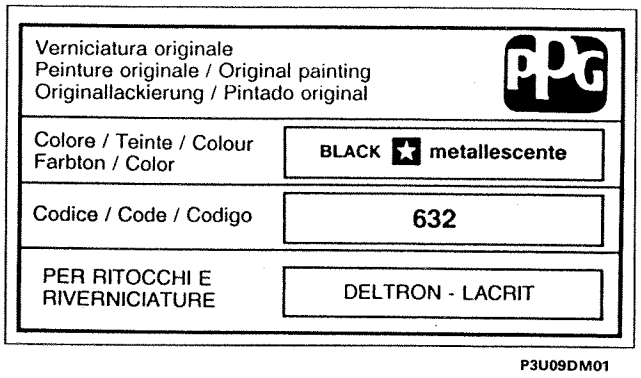
Diagram showing overlapping of the various protective layers of a panel

The side closest to the letter A is the outside, and the side closest to the letter B is the inside.

1. Finishing paint
2. Primer
3. Cataphoresis
4. Galvanization (on both sides of the sheet metal)
5. Sheet metal
6. Wax-based oil or anti-roar paint (depending on the location of the panel)

PAINTWORK

As already mentioned, the paintwork on the body shell has two main aims: to protect the sheet metal from environmental attack, and to achieve, from an aesthetic point of view, high levels of lustre and colour intensity.



The type of colour and its characteristics are indicated on the identification plate which also gives the following details:
- Paint supplier
- Colour and type of finishing paint
- Code
- Type of product to be used for touching up or painting over repairs.

The colour range for the LANCIA k SW comprises 1 pastel colour and 4 metallic colours.
The development of paint products has led to the use of two-component acrylic finishing paints and primers with medium and high solid content (i.e. high percentage of dry residue). A distinction is therefore made between:
- "Medium solid" paint products;
- "High Solid" paint products.

The final appearance of these products is characterized by very high shine, spread and intensity.
These products save time both during application as they require fewer coats, and during subsequent drying as they require a low baking temperature.

So in addition to saving solvent, a significant benefit is gained for the operator's health and for the protection of the environment.
The table below gives the combinations of external colours and internal colours and trim available for the new LANCIA k SW.

EXTERNAL COLOURS	CODES	LE velvet		LS velvet		LX alcantara			LEATHER (opt) leather			
		Blue	Grey	Blue	Dove	Blue	Light grey	Anthracite grey	Blue	Dove	Anthracite grey	Bordeaux
LANCIA BLUE	435/A	●			●	●	●			●	●	●
BLACK	632		●		●		●			●	●	●
MERCURY GREY	609/A		●	●		●		●	●		●	
WILD VIOLET	142/A	●			●		●			●	●	
GOLDEN WHITE	506	●		●		●		●	●		●	
URANIUM GREY	616/A	●		●		●			●		●	
APOLLO BLUE	425/B	●		●		●	●			●	●	
PLUTO GREEN	384		●		●		●	●		●	●	
YORK GREEN (*)	345		●		●		●	●		●	●	
MARS RED (**)	120/A							●		●	●	

(*) pastel
(**) specific for performance version of S.W.

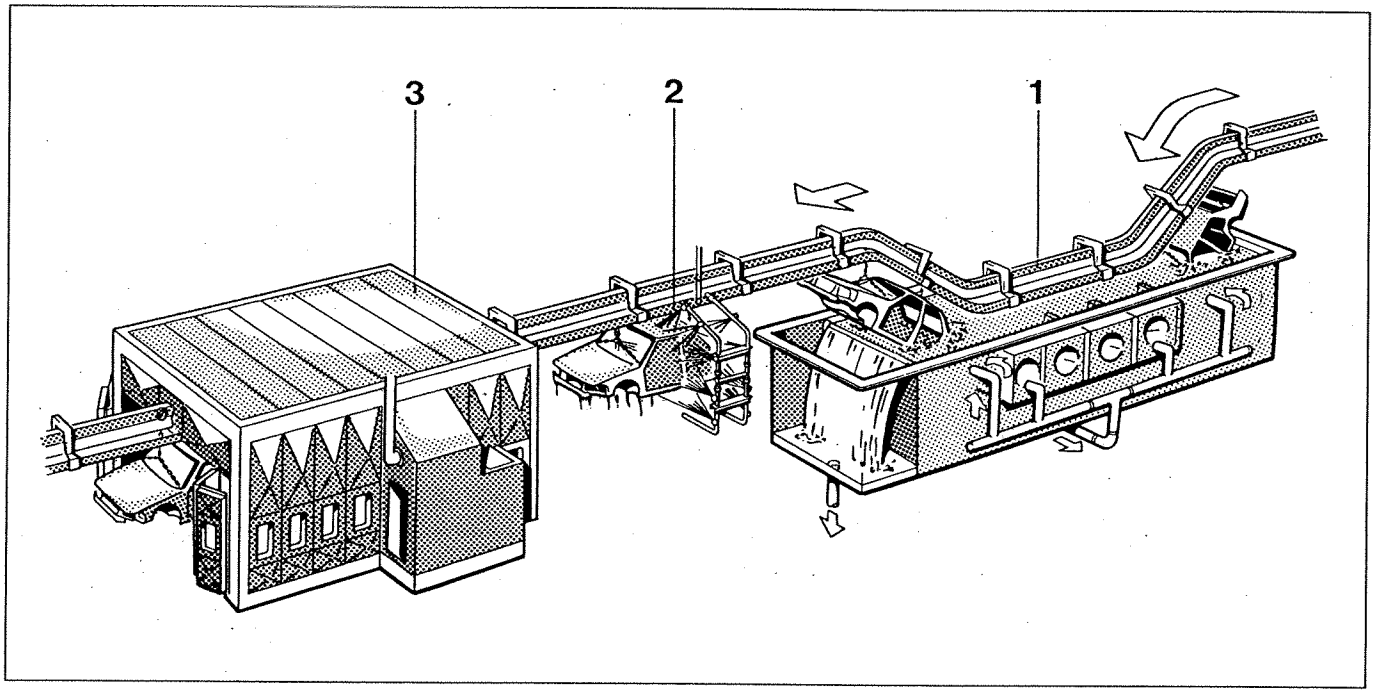
Panel preparation treatment (bonderization)

After assembly, the body shell undergoes a series of treatments to clean off grease and oxidation and to preserve it from corrosion.
The cycle comprises the following stages:

- Pre-degreasing: washing with an acid solution (deoxidant) to remove the oily substances present on the metal.
- Degreasing: washing with a solution of water-surfactants; this solution is sprayed at a temperature of about 60°C.
- Rinsing: this is done using industrial water to remove alkaline residues.
- Activation: washing at ambient temperature with a solution of titanium salts (for brightening the windows, "pickling").
- Phosphating: washing with zinc phosphates at a temperature of about 55°C; the electrolytic deposition of these metals constitutes and multiplies the crystalline centres creating an even and protective microcrystalline layer on the body shell (tempering).
- Passivation: washing with a chromium-based solution which provides a further layer of protection and smoothing of the windows.
- Rinsing: the residues of the previous solutions are removed using deionized water.
- Drying: in an oven at a temperature of about 110°C.

Application of protective paint (cataphoresis)

The cataphoresis treatment is carried out by immersing the body shell in a bath of electroconductive solution, in which particles of paint have been introduced in suspension to an average thickness of 30 micron.



P3U10DM01

Line of application of the cataphoresis treatment in production

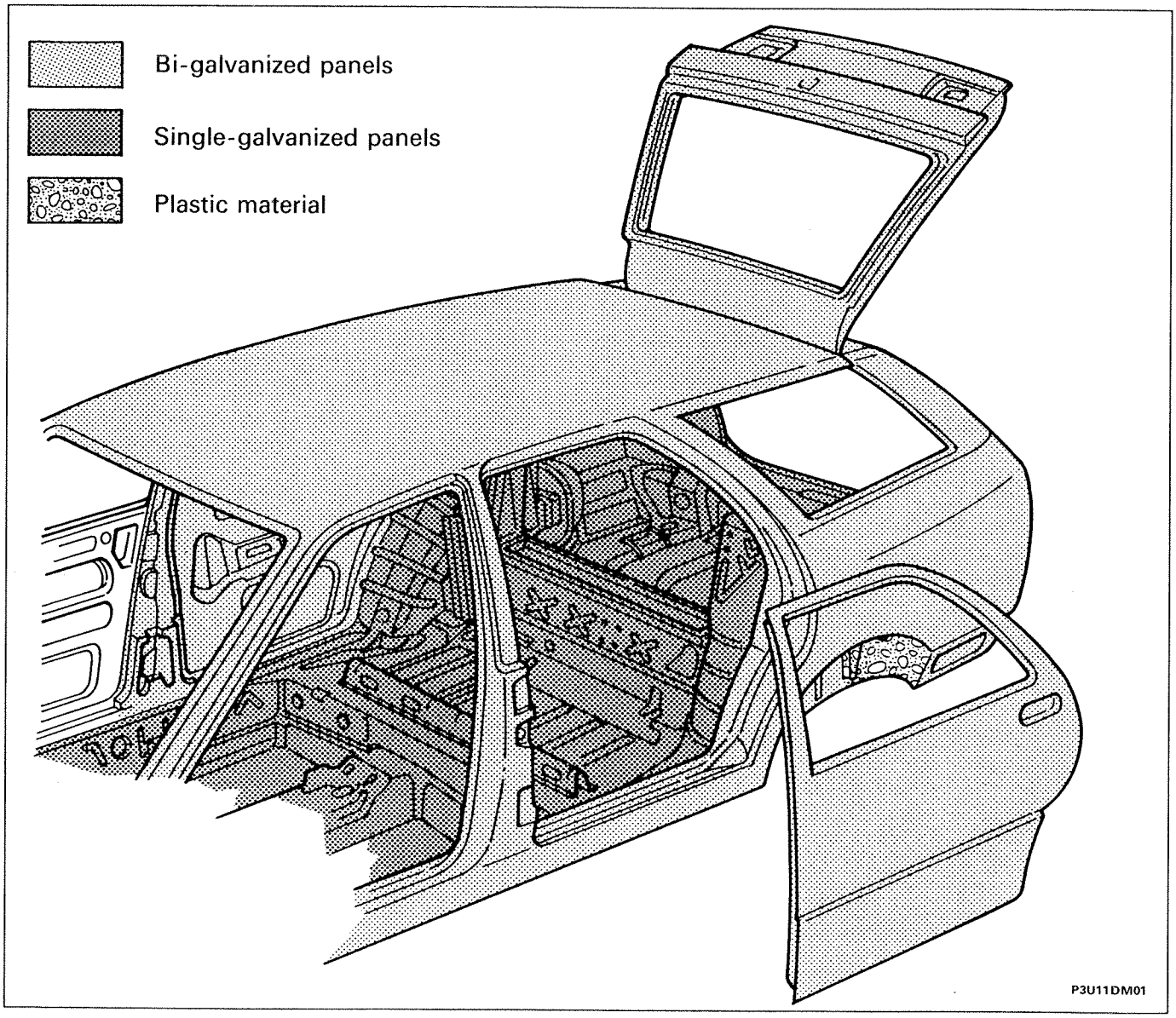
1. Application of cataphoresis by immersion
2. Washing body shell
3. Baking paintwork

All the join lines are sealed to prevent the entry of corrosive agents.
During after-sales servicing, it is advisable to use polyurethane sealants to restore the seal lines.
These products dry right through even if applied thickly, and paint can be applied on top of them after a short time (about 20 minutes).

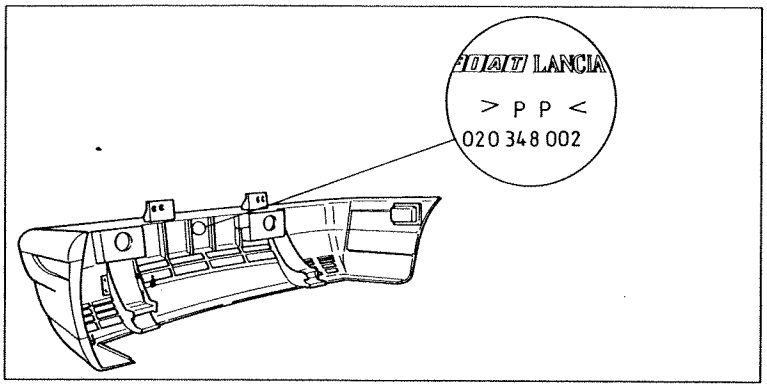
Galvanization

Galvanization consists of applying a thin layer of zinc on one or both sides of the sheet metal.

In the presence of water, the layer of zinc, together with the iron which constitutes the sheet metal, generates an electrocouple with an electric potential which prevents the oxidation of the iron until the layer of zinc is fully eroded.
The galvanization of one or both sides of the sheet metal leads to the distinction between galvanized or bi-galvanized sheets.
As the galvanization forms an integral part of the structure of the panel, is not damaged by crashes and subsequent repairs, so there are no problems regarding the restoration of treatment during after-sales work.
As in the saloon version, on the Station Wagon the anti-corrosion protection has been extended to most of the panels on both sides, with a treatment thickness of 7.5 micron.
Greater care has been given to some areas with an application of 20 micron; the chosen areas are generally critical points in terms of safety, such as seat belt attachments, attachments of mechanical components, etc.



NOTE *The parts shown in the figure are subjected to protective treatment by electrogalvanization.*



P3U12EM01

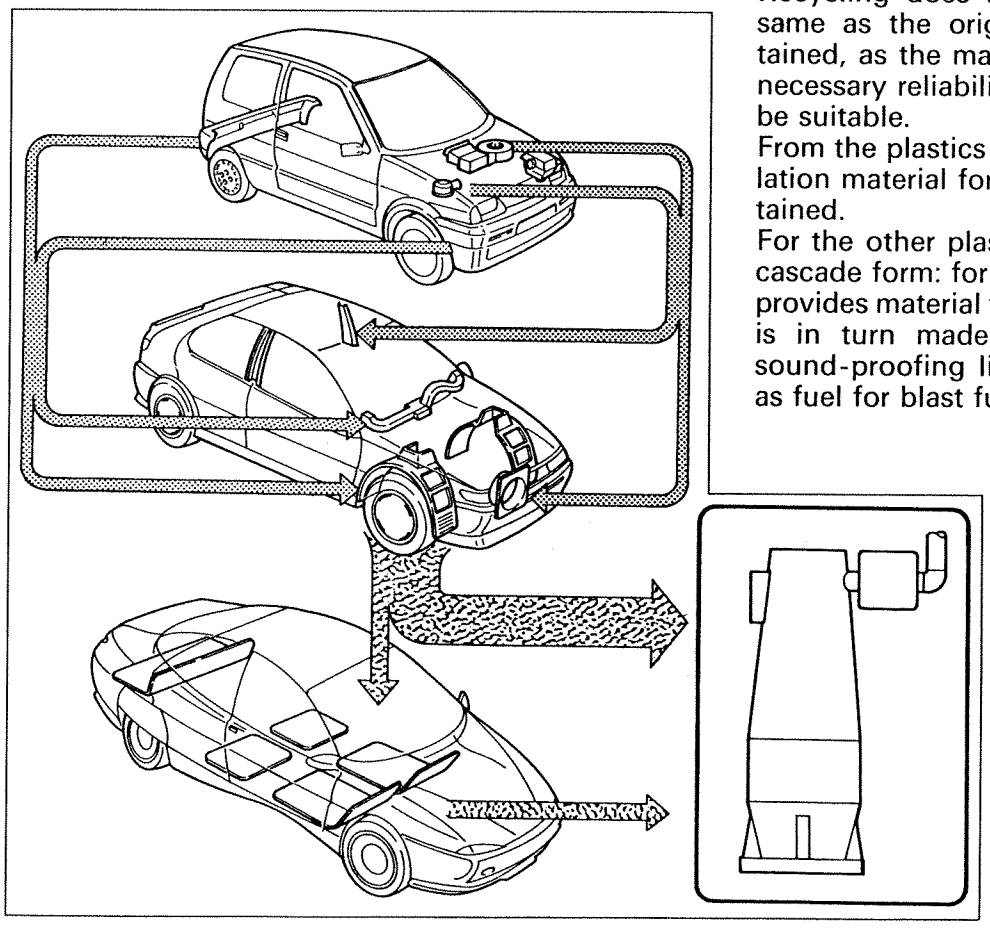
RECYCLABILITY OF MATERIALS

The problem of recycling plastic materials is solved at the design stage, when it is necessary to assess whether the material can be reused on future components.

At present, when a vehicle reaches the end of its life, only the metal part is recovered and reused, to produce new steel and new aluminium alloys.
All the rest of the vehicle, which corresponds to about 25% in weight, is instead abandoned or dumped.

Thus a vast amount of materials and energy is wasted, and also contributes to increasing the extent of the problem of disposing of solid waste.

This model has been designed so that all the plastic and elastomer components (rubbers) weighing over 50 grammes are marked with coded symbols so that the material can be recognized at the recycling stage, and all the components can be recycled.

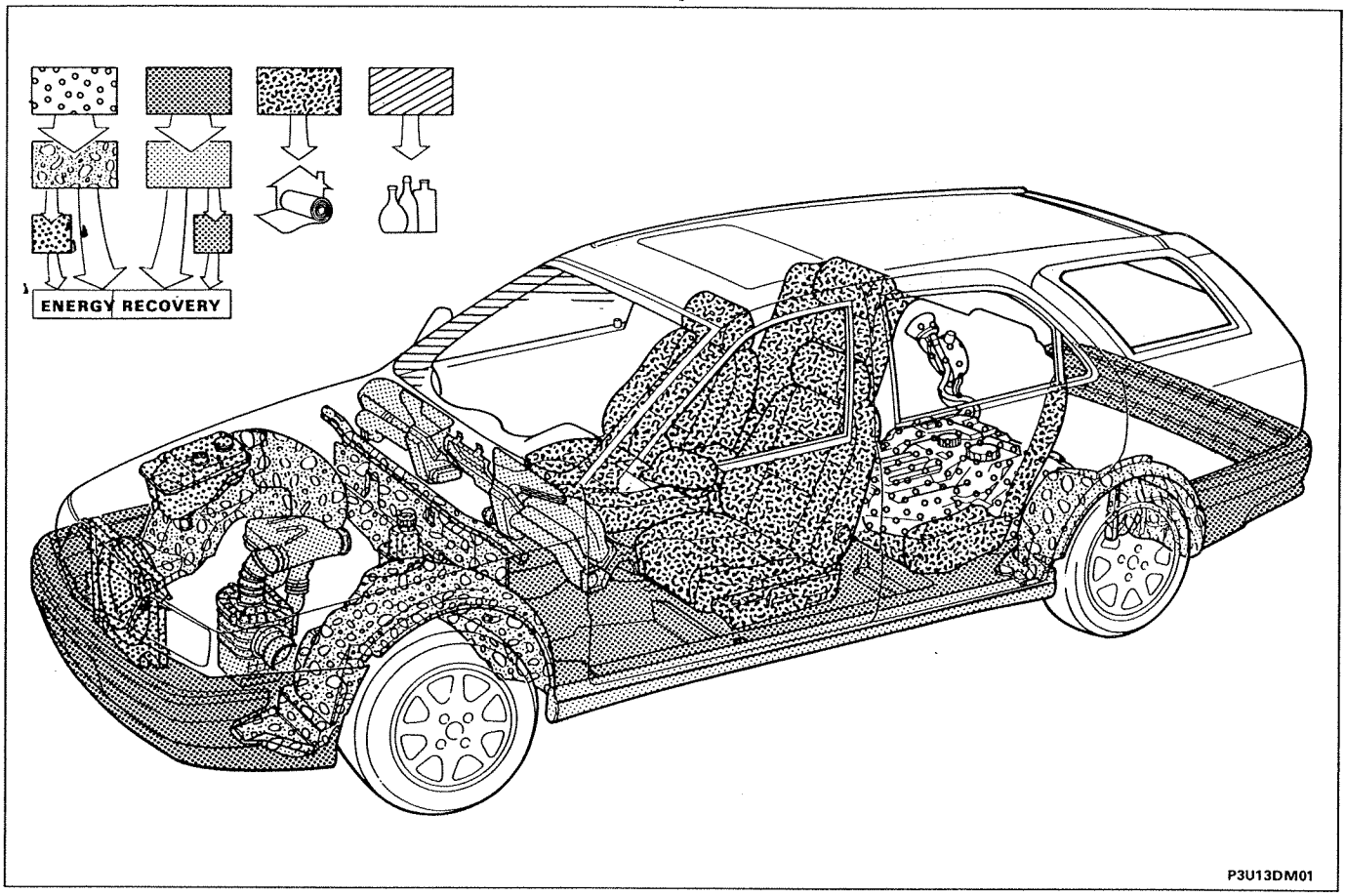


Recycling does not allow a component the same as the original component to be obtained, as the material may not guarantee the necessary reliability characteristics or may not be suitable.
From the plastics used to stuff the seats, insulation material for the building industry is obtained.
For the other plastics, recycling is effected in cascade form: for example, the bumper plastic provides material for the wheelarch trim, which is in turn made into elements for making sound-proofing linings, which finally end up as fuel for blast furnaces.

P3U12EM02

The recycling thus involves three subsequent generations of cars, contributing to the saving of raw materials.

Body shell with recyclable materials



The figure shows the flows of main components of the LANCIA k SW which are recycled with the F.A.R.E. system, now well established throughout Italy, with the participation of A.D.A. (Italian Car Breakers' Association) which works in the sector of scrap recycling.

MATERIAL	APPICATIONS	LANCIA k SW OBJECTIVE
Cadmium	- Coatings for nuts and bolts - Plastics and paints	Absent
CFC (chlorofluorocarbons)	- Seat stuffings - Plastic components - Air conditioners	Absent
Asbestos	- Brake and clutch linings - Engine flat gaskets	Absent
Formaldehyde	- Porous sound-proofing, carpets, ceiling trim	70 ppm
Beryllium oxide	- Electronic control units	Absent
Brominated fireproofing	- Additives for plastics/fabrics	Absent

70.

The table below gives symbols and the corresponding name for identifying the materials.
This is because during after-sales work, suitable products from among the many available on the market are used for washing the interior, painting plastics, repairs, glueing, etc.
The aim is to avoid damage by using incompatible products.

THERMOPLASTIC AND THERMOHARDENING MATERIALS

	ISO SYMBOL	FAMILY NAME	
TERMOPLASTIC	AOS	ACRYLONITRILE - BUTADENE - STYRENE	
	CA	CELLULOSES	
	PA 6	POLYAMIDES WITH:	6 C atoms in monomeric structure
	PA 66		two monomeric structures each with 6 C atoms
	PA 11		11 C atoms in monomeric structure
	PA 12		12 C atoms in monomeric structure
	POTP	POLYESTERS	poly(butylene terephthalate)
	PETP		poly(butylene terephthalate)
	PC	POLYCARBONATES	
	PC+ABS	POLYCARBONATE/ABS ALLOYS	
	PE	POLYETHYLENES	
	PMMA	METHACRYLICS	
	POM	ACETALS	
	PP	POLYPROPYLENES	
	PPOX	POLY(PHENYLENES) - MODIFIED	
	PPOX+PA	THERMOPLASTIC ALLOYS (POLY(PHENYLENE OXIDES)/POLYAMIDES)	
	PSE	POLYSTYRENES (FOAMS)	
	PVC-P	FLEXIBLE VINYLS	
	PVC	RIGID VINYLS	
	SAN	STYRENES	copolymer styrene - acrylanitrile
	SMA		copolymer styrene - maleic anhydride
TERMOHARDENING	MF	MELAMINES	
	PF	PHENOLS	
	PUR	POLYURETHANES	
	UF	UREAS	
	UP	UNSATURATED POLYESTERS	for moulding and compression (SMC)
		THERMOHARDENING SUBSTANCES	for injection moulding (BMC)

CHARGES AND REINFORCEMENTS

ISO SYMBOL	NAME
GB	Glass balls
GF	Glass fibre
GH	Glass mattress
M	Mineral charges
T	Talc
WD	Ground wood
SF	Textile fibres

CHARGES AND REINFORCEMENTS

ISO SYMBOL	NAME
ACM	CHLOROETHYL-VINYL-ETHER-ACRYLATE
AU	POLYURETHANE
CSH	CHLOROSULPHONATE POLYETHYLENE
CR	CHLOROPRENE
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
ECO	EPYCHLORHYDRIN
FPM	FLUOROCARBON
MVQ	SILICONE
NBR	ACRYLONITRILE-BUTADIENE
NR	NATURAL ISOPRENE
IR	SYNTHETIC ISOPRENE
SBR	STYRENE-BUTADIENE
IIR	ISOBUTYLENE/ISOPRENE

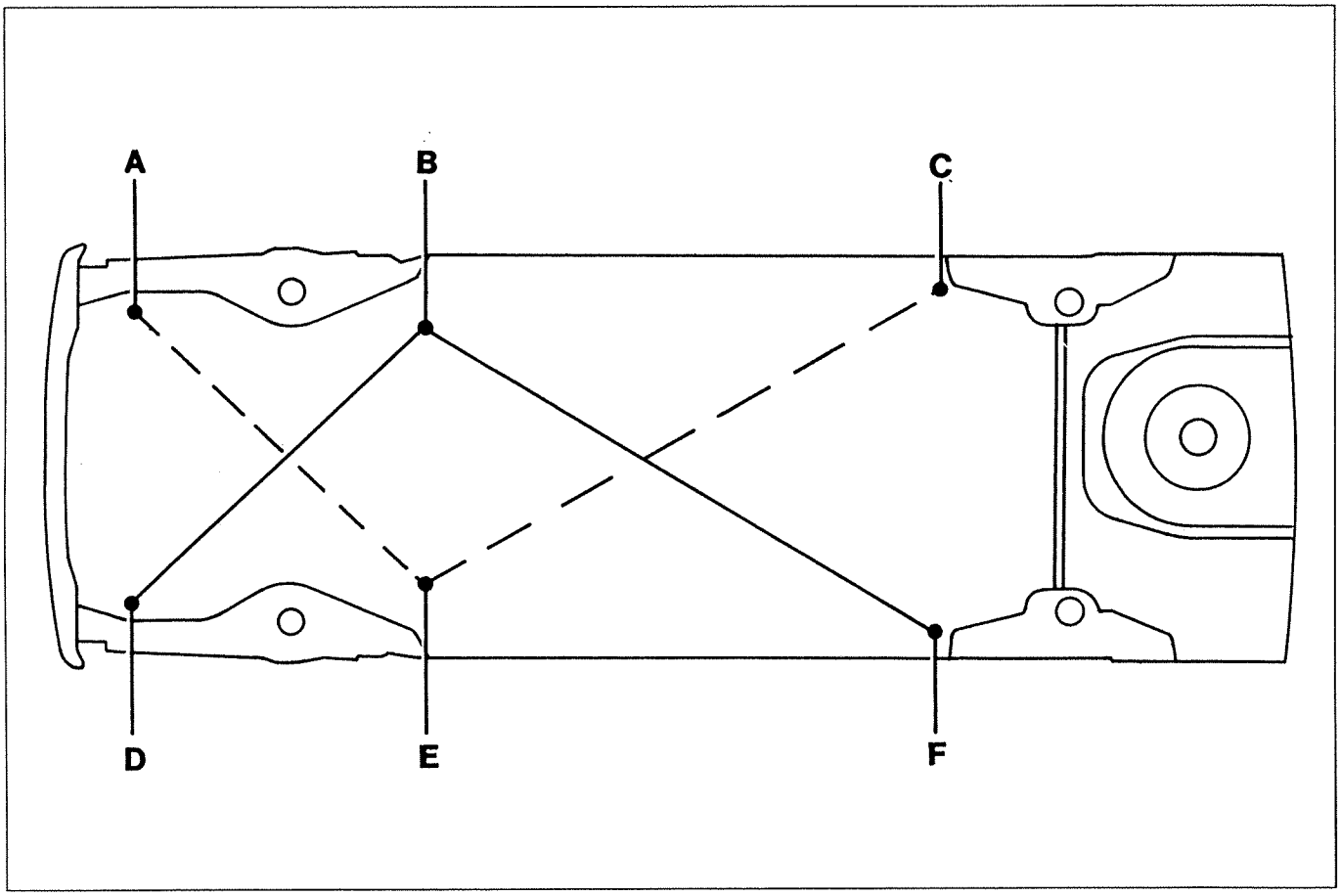
INTRODUCTION

Crash diagnosis

This sub-section describes the most rational and correct method of proceeding, so that the coach builder may obtain the best results.
A series of checks must be carried out before starting to repair a vehicle, even if only slightly damaged.

Checking with template (check rod)

These checks are also for checking that the infrastructural components are not significantly deformed in relation to the original geometry; if they are, the mechanical parts will have to be removed and the vehicle will have to be repaired on a repair bench.
The comparative dimensions may be subject to slight differences (approx. ± 3 mm), which the repairer will be able to establish by experience whether they are due to possible crashes or to constructional tolerances.
Start the check on a part of the vehicle not affected by the crash. For example, for a car which has suffered a front-end collision, to check whether the structure is deformed, check points C-E = B-F; if no differences in length are observed at these points, proceed with checking points B-D = A-E. In this way you can establish in advance a more precise diagnosis for the repair.



P3U15DM01

Check points

In extreme cases, do not forget to check the mechanical components that may have been deformed.

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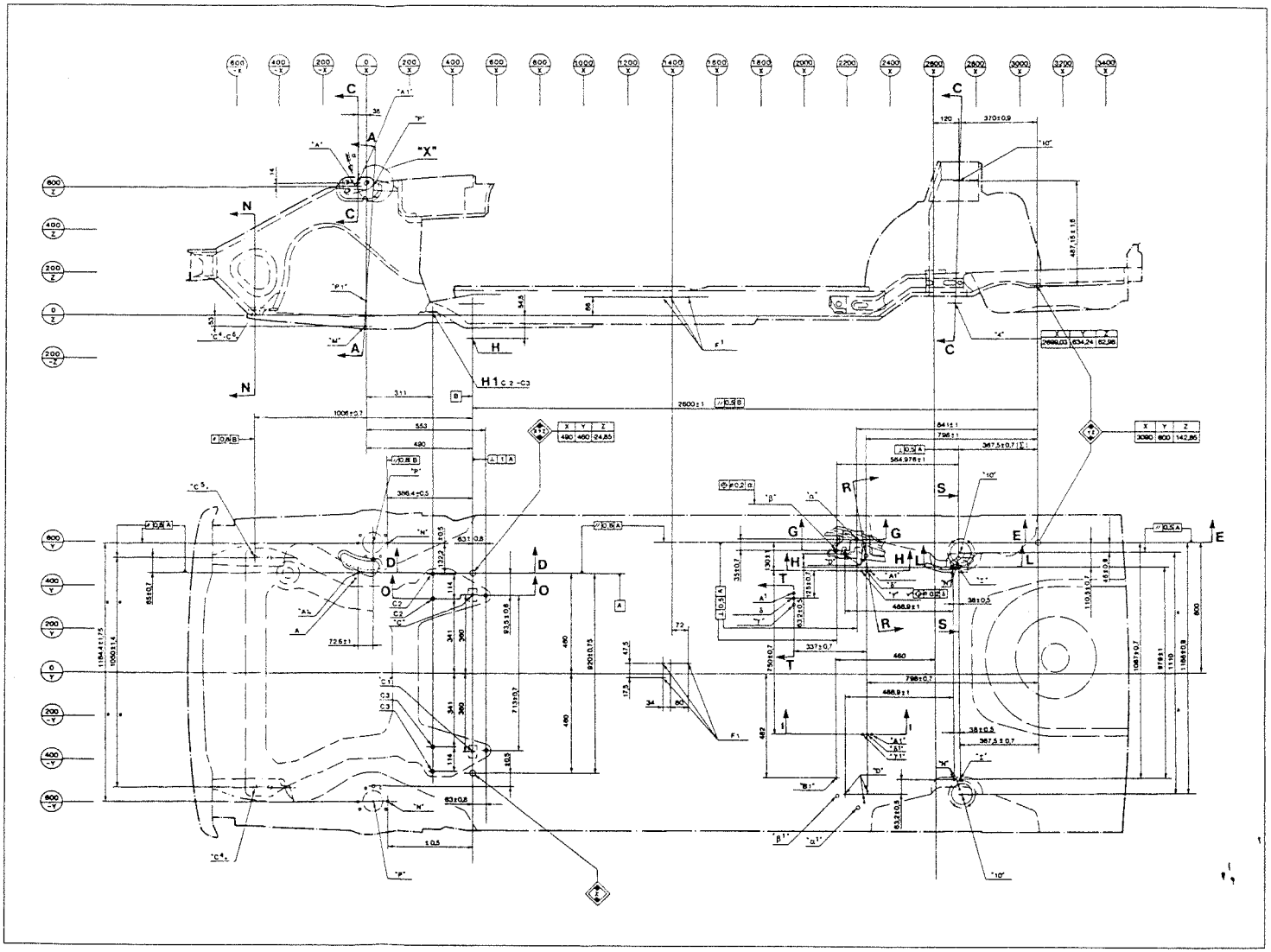
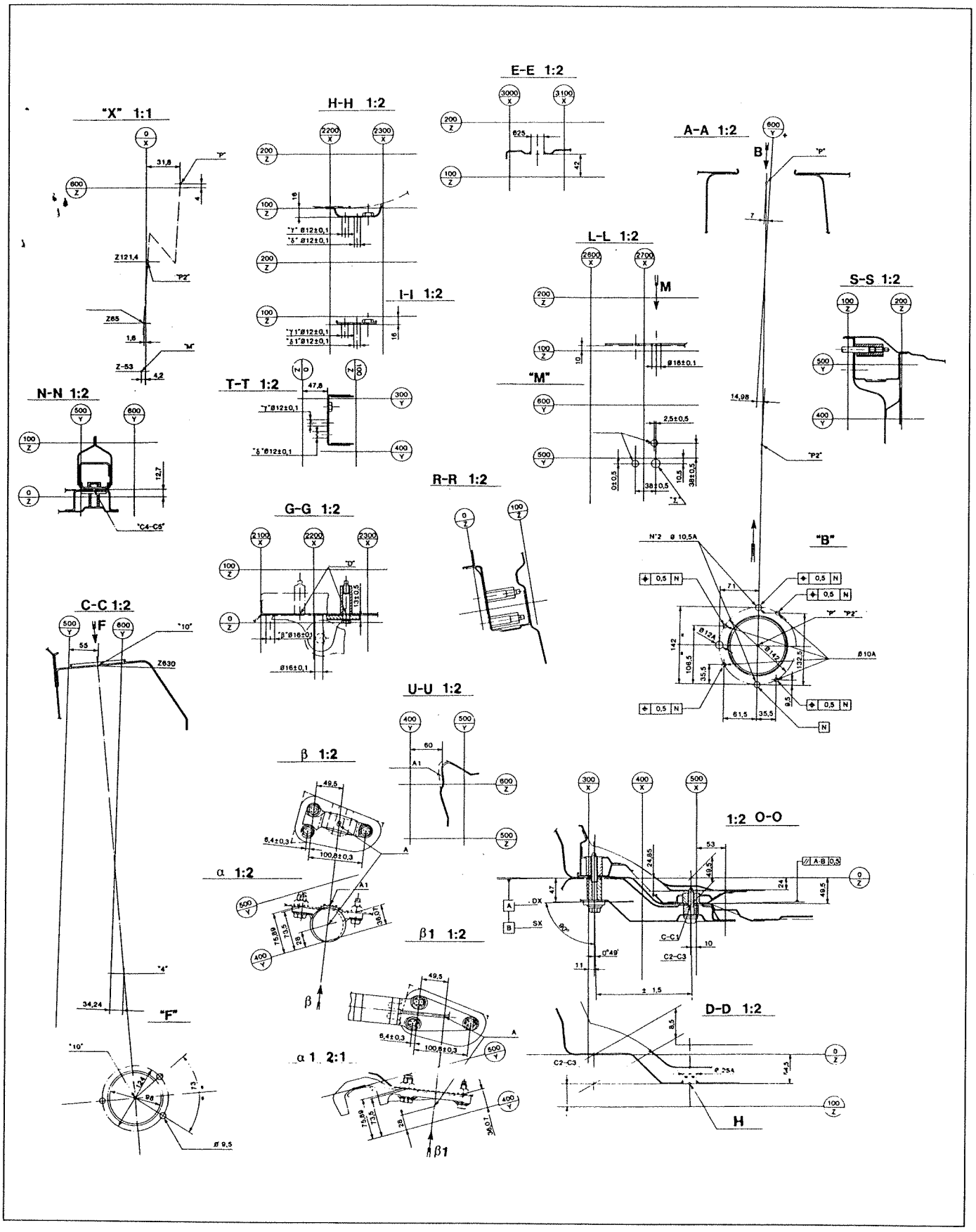
DIAGRAM FOR CHECKING UNDERBODY



P3U16DM01

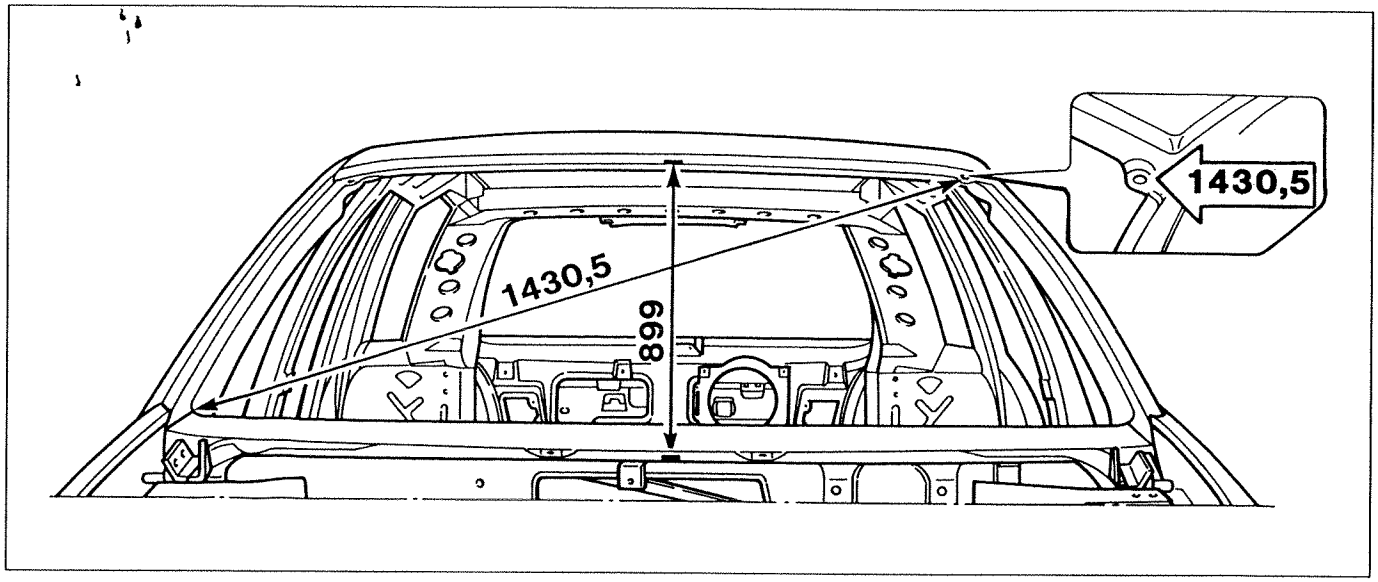

"X" 1:1
H-H 1:2
E-E 1:2
A-A 1:2
L-L 1:2
S-S 1:2
I-I 1:2
T-T 1:2
N-N 1:2
R-R 1:2
G-G 1:2
"B"
C-C 1:2
U-U 1:2
β 1:2
α 1:2
β1 1:2
α 1 2:1
1:2 O-O
D-D 1:2
"F"
H

P3U17DM01

TYPICAL DIMENSIONS

Measuring dimensions of windscreen and bonnet frames

The dimensions of the frames given below are taken from technical design drawings and may be subject to tolerances of about ± 2 mm



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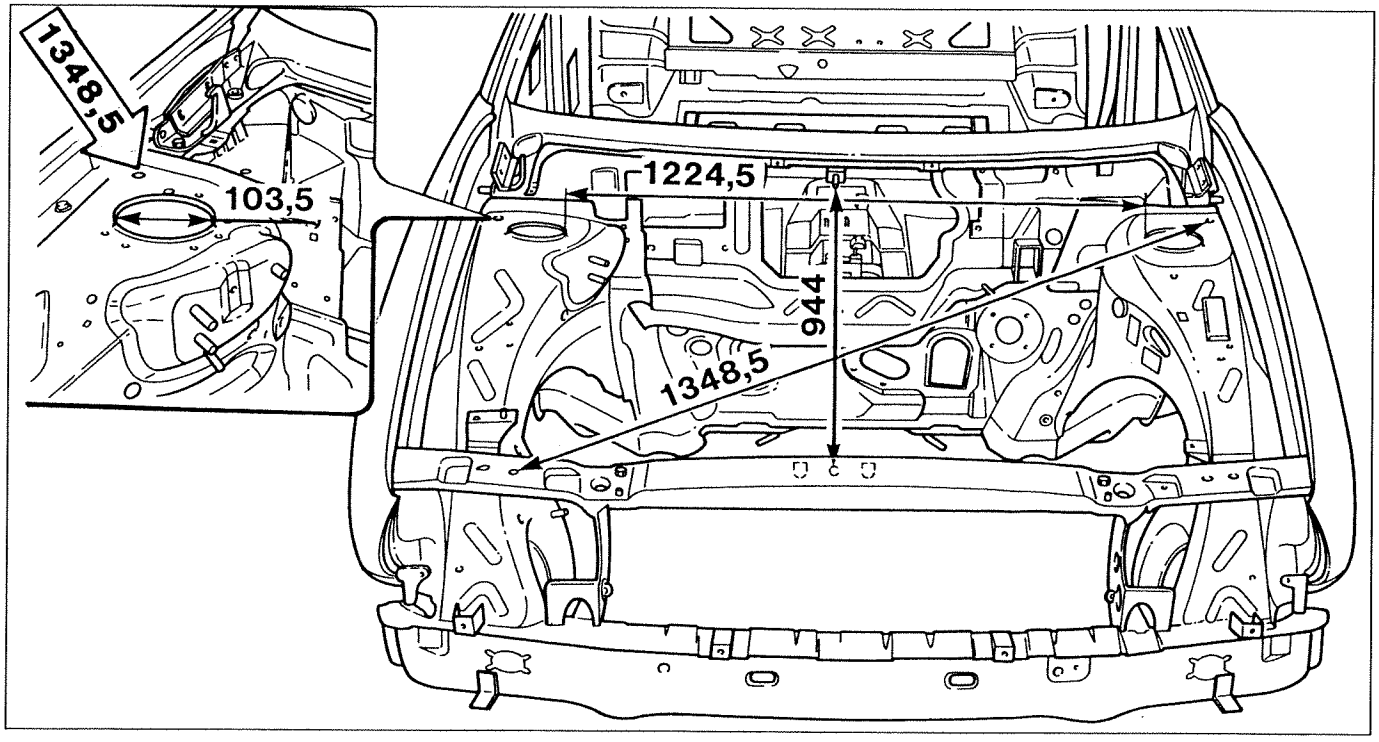

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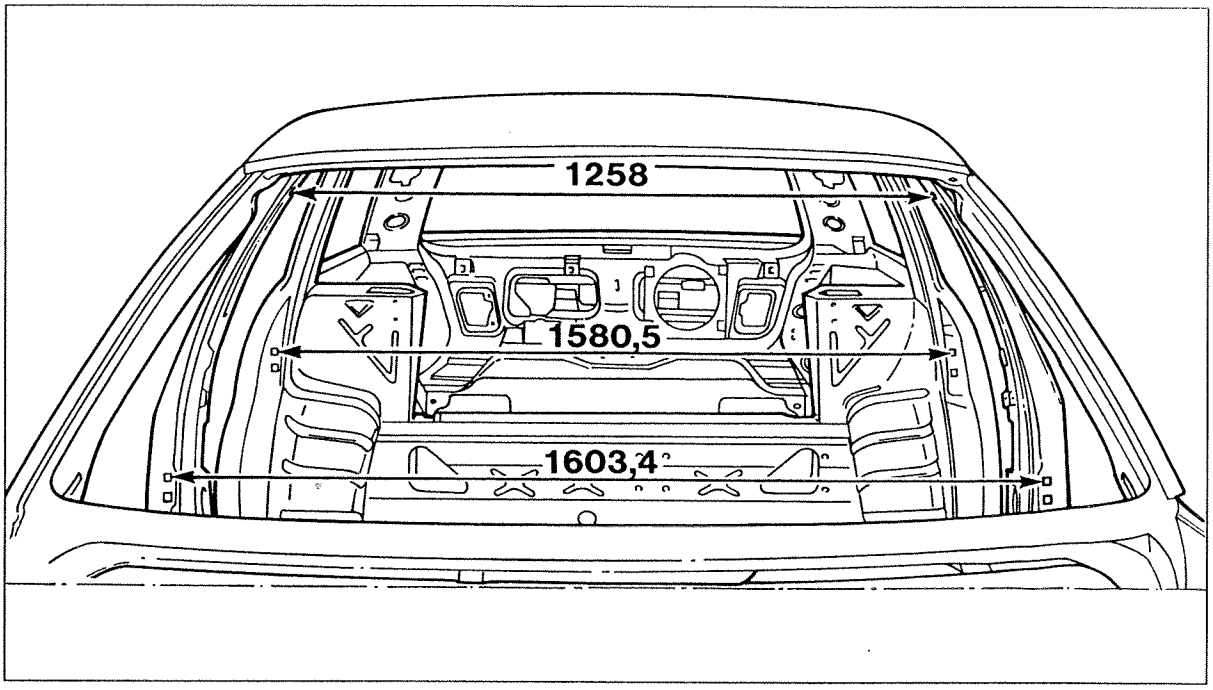
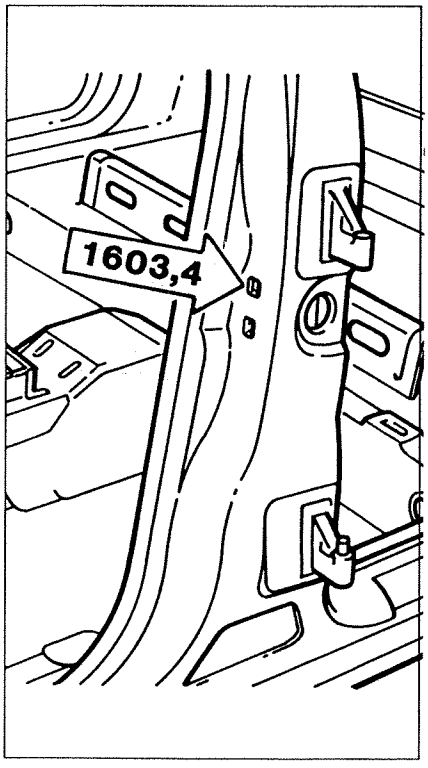
Dimensions for checking windscreen frame, bonnet frame and distance of front shock absorber top mountings

Measuring dimensions of space between central pillare and rear pillars



P3U19DM01



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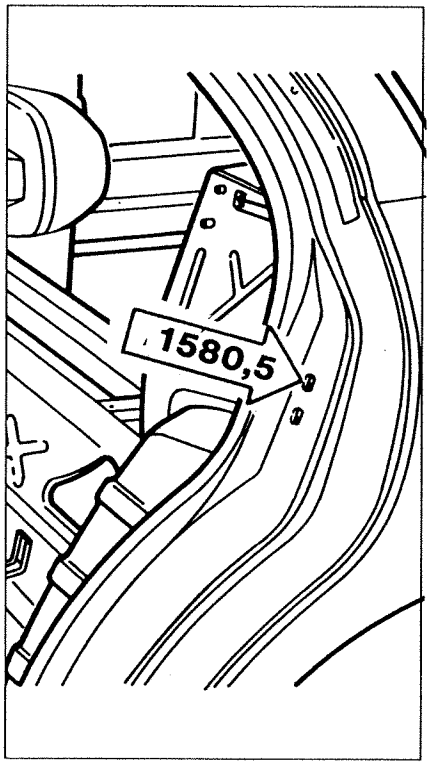
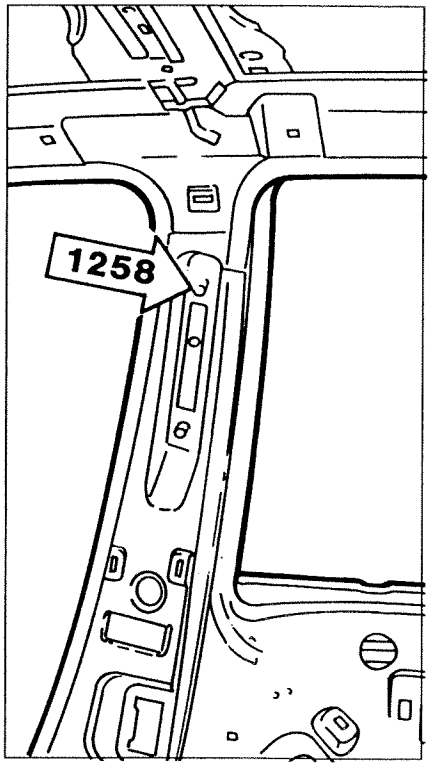


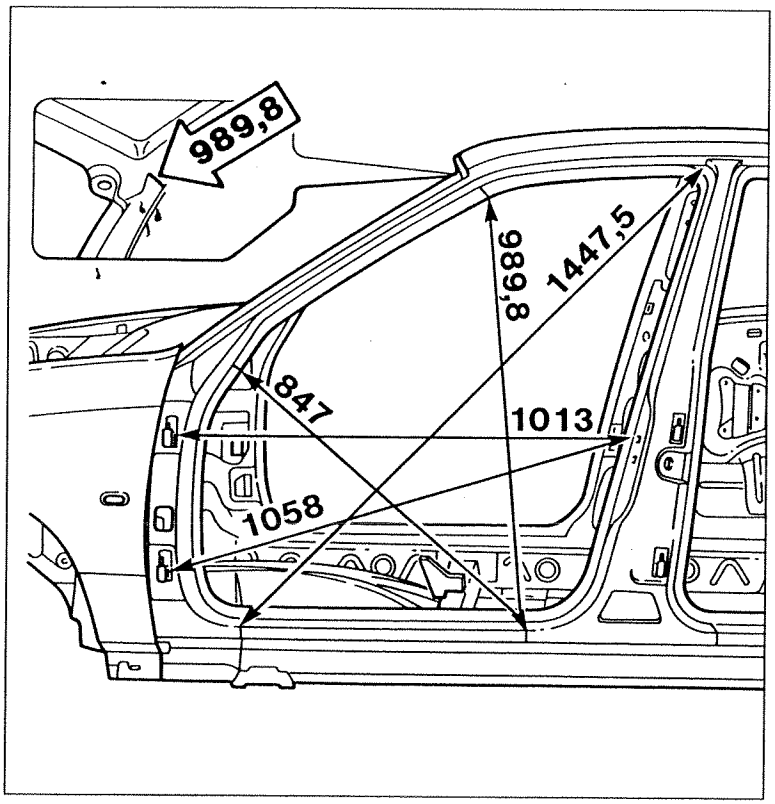
P3U19DM03



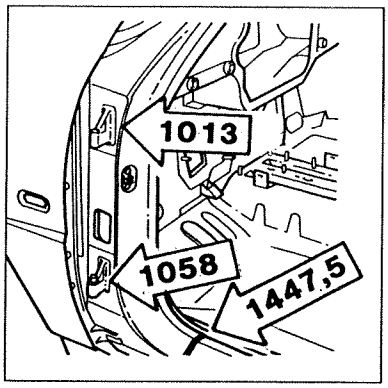
P3U19DM04

Dimensions for checking distance between central door pillars measured on the seat belt attachment nuts and between the door lock strikers

Measuring door frame dimensions



P3U20DM01



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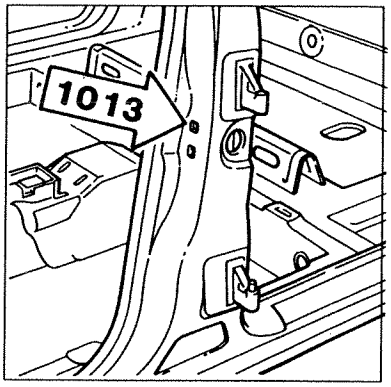

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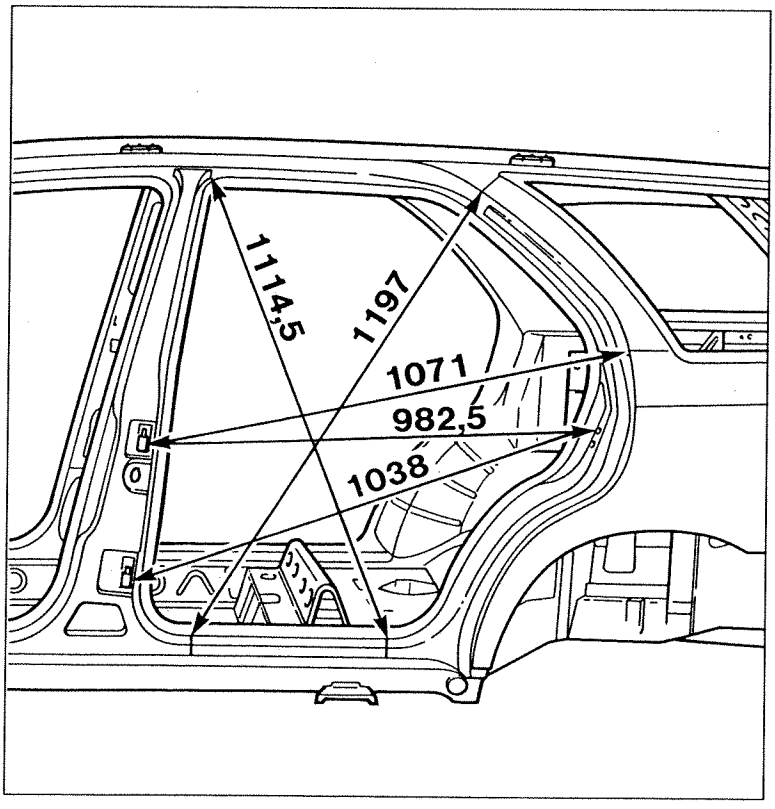

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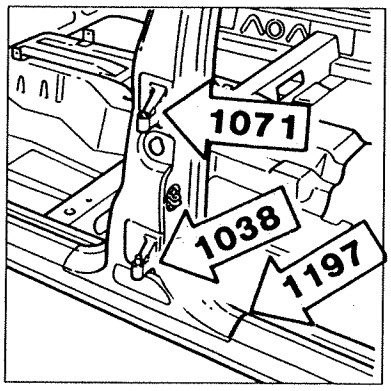
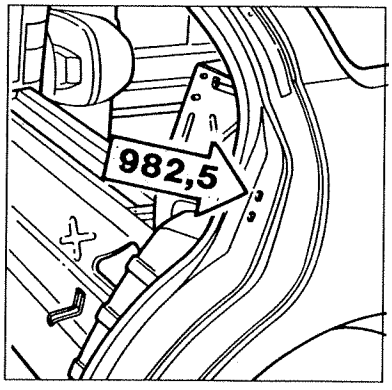


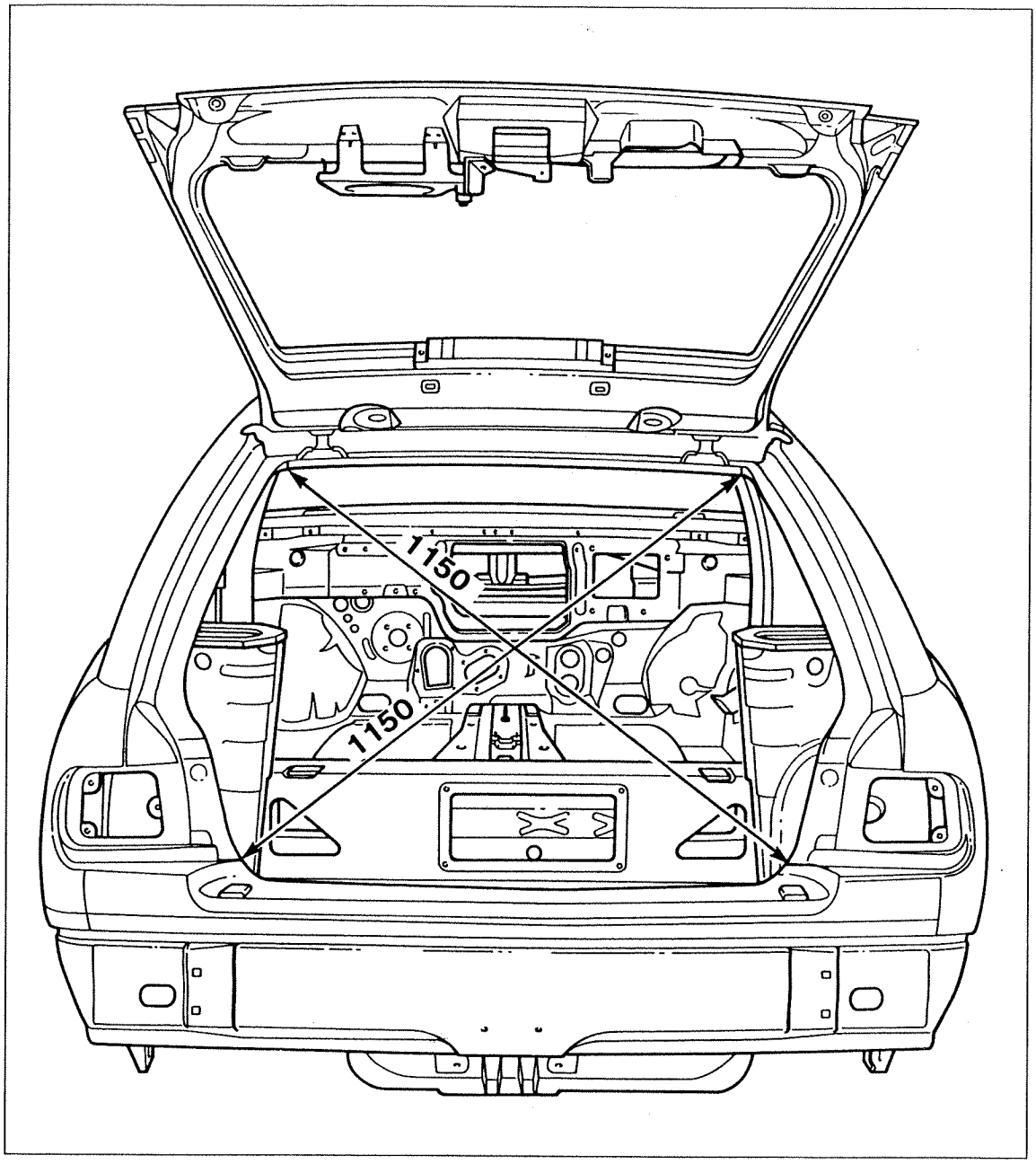
P3U20DM04



P3U20DM05

Dimensions for checking door frames

Measuring dimensions of tailgate frame



P3U21DM01

N.B.: The points where the measurements should be taken are the panel joins.

70.

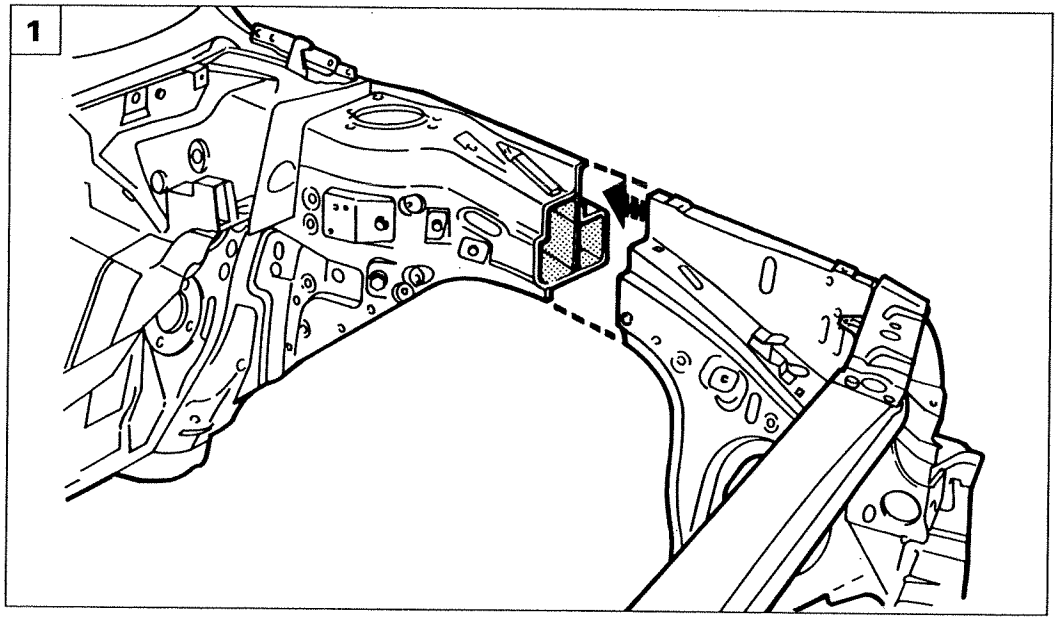
INTRODUCTION

General instructions for repair

For safety reasons and for a better quality of repair, the following is not permitted:

- To replace a longitudinal member, semi-block or block, without using a repair bench. By using a bench, you can guarantee restructuring the vehicle with the original factory dimensions, ensuring the correct positioning of the front and rear axle components.
- To cut and butt weld, on the same line, any component of the body shell and its reinforcement (see Figure 1).
- To use heat to straighten the longitudinal members.

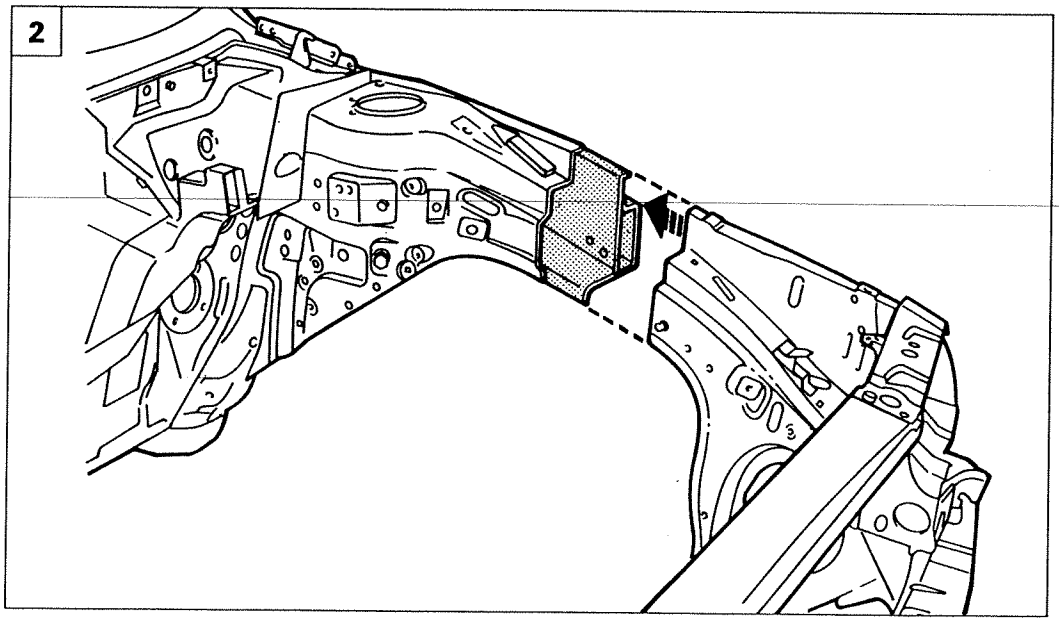
1



P3U22DM01

INCORRECT SOLUTION

2



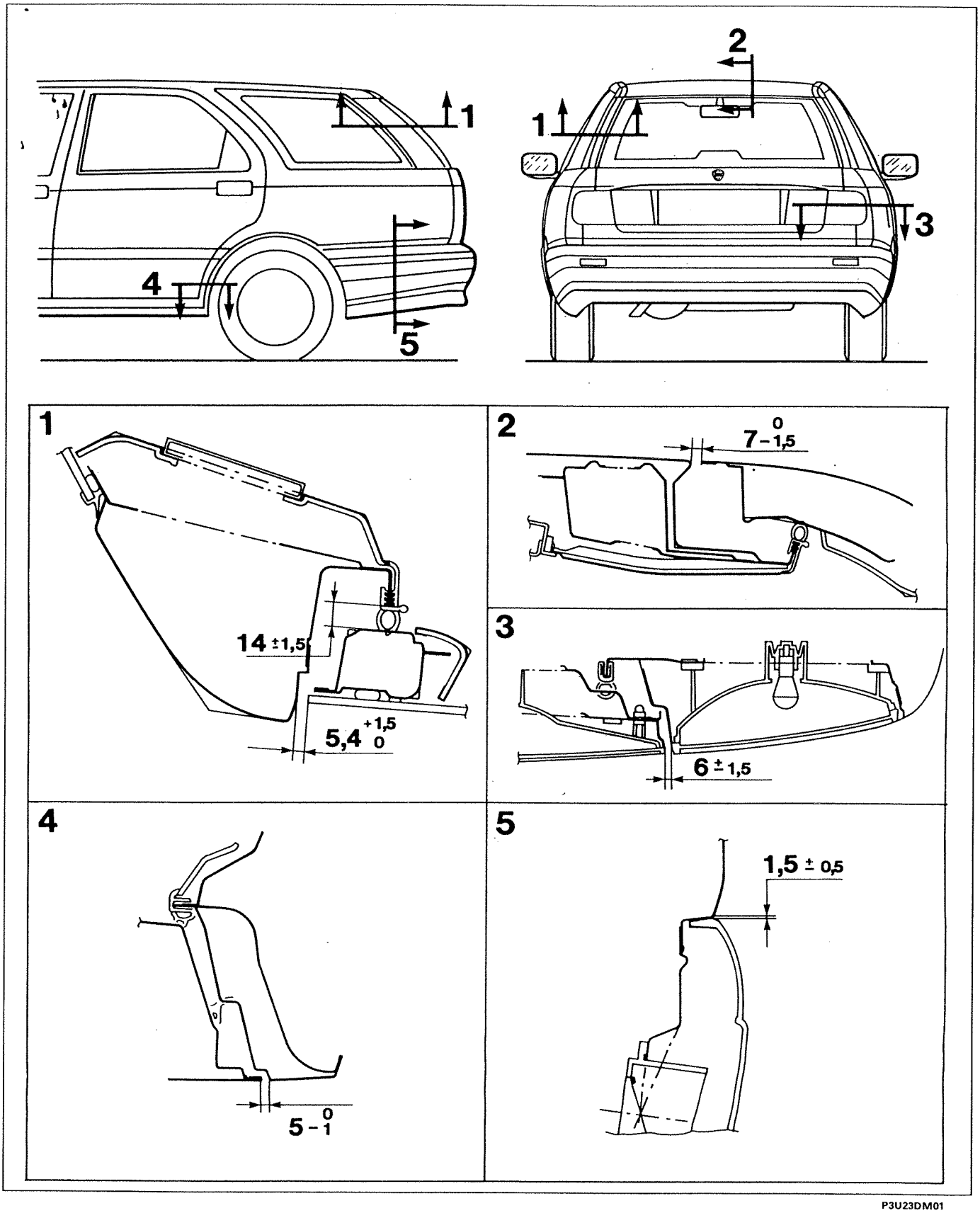
P3U22DM02

CORRECT SOLUTION

When carried out correctly, the operation includes a difference of a few centimetres between the two cutting lines in order to distribute the melted points created by the welds (see Figure 2).

Dimensions for adjusting moveable parts

To facilitate the checks and operations for dismantling the moveable parts, the values of the existing gaps are given for appropriate adjustment (measurements are in millimetres).



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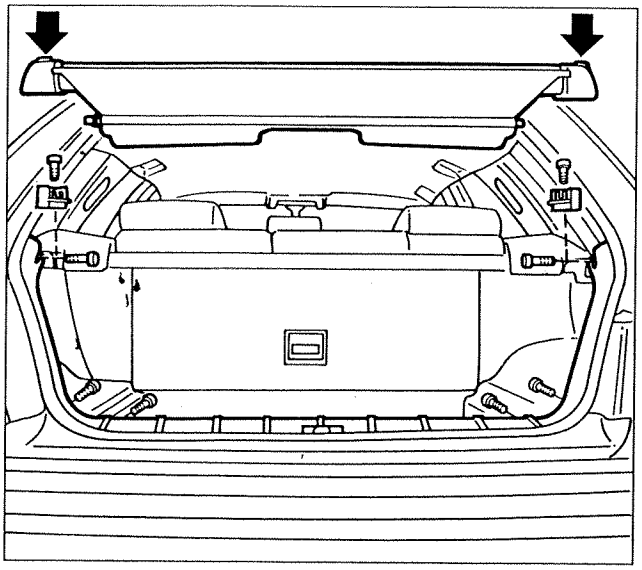


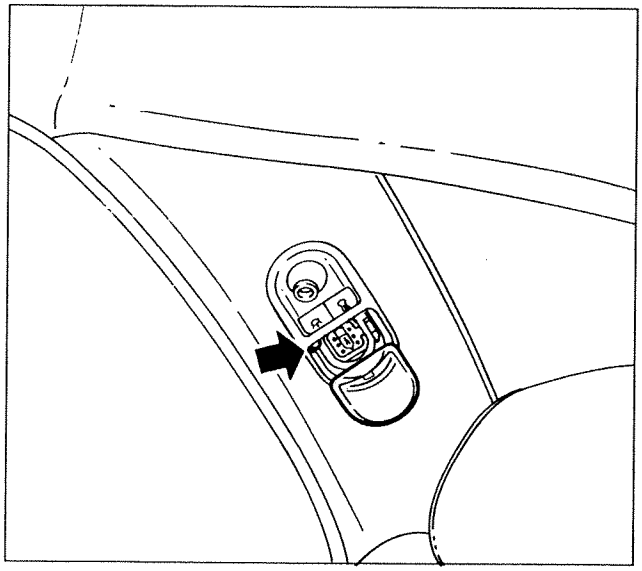
P3U24DM01

FIXED SIDE WINDOW

Preliminary operations

Before removing the fixed side window, disconnect the battery's negative pole, and remove the components that could obstruct the removal operations, in particular the side ceiling moulding.

1. Remove the sliding curtain covering the luggage compartment by operating the side buttons, then remove the side support blocks underneath by undoing the screws; remove the tailgage frame central and side mouldings by undoing the screws.
2. Remove the courtesy light on the rear pillar trim by dismantling the lens, screw and connector.
3. Remove the side courtesy light in the luggage compartment by releasing the lugs and disconnecting the connector; then open the access flap to the electrical devices and undo the screw securing the moulding to the bodywork.
4. Remove the rear seat cushion and undo the bottom seat belt bolt.



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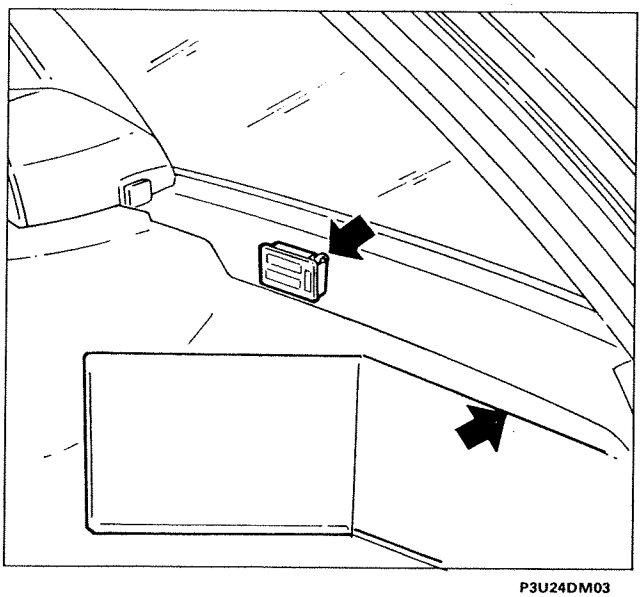

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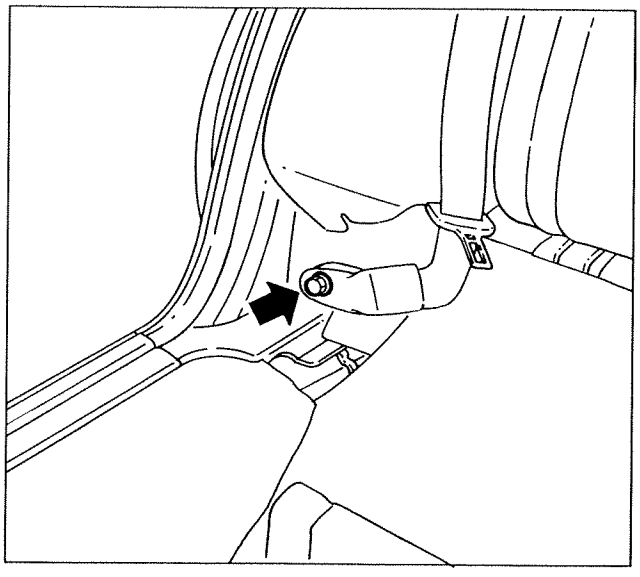

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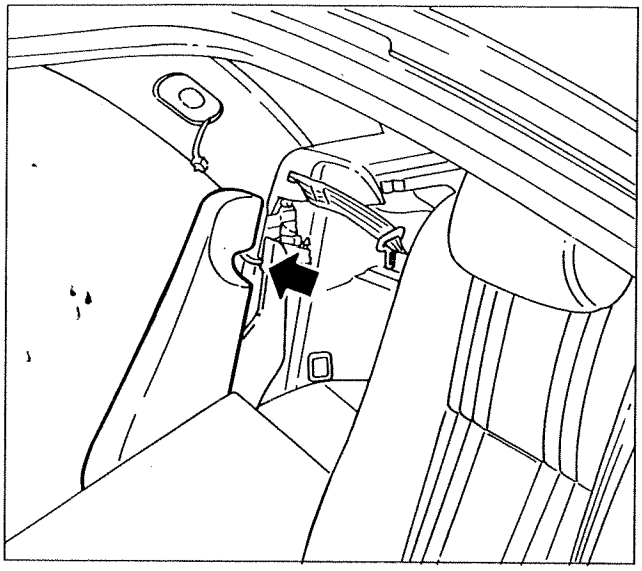

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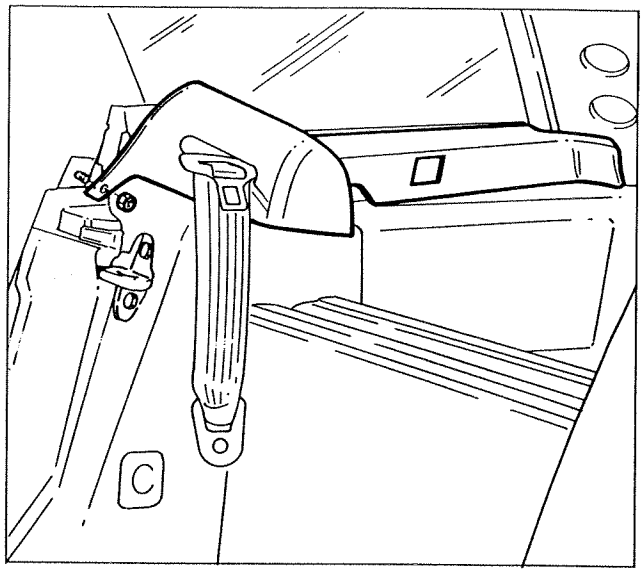

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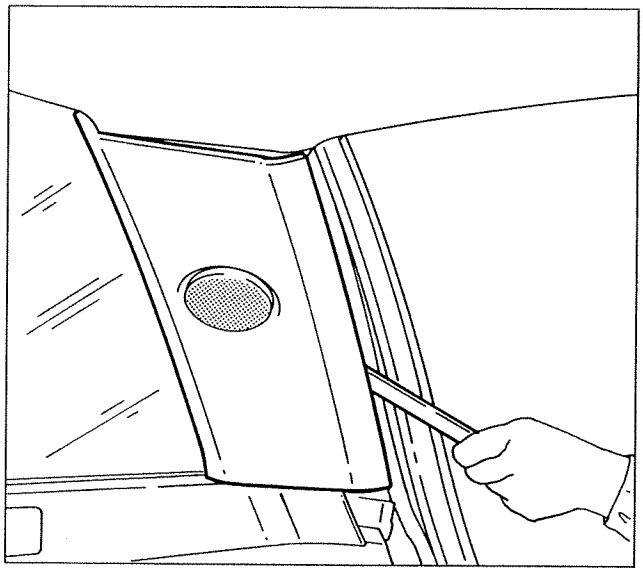
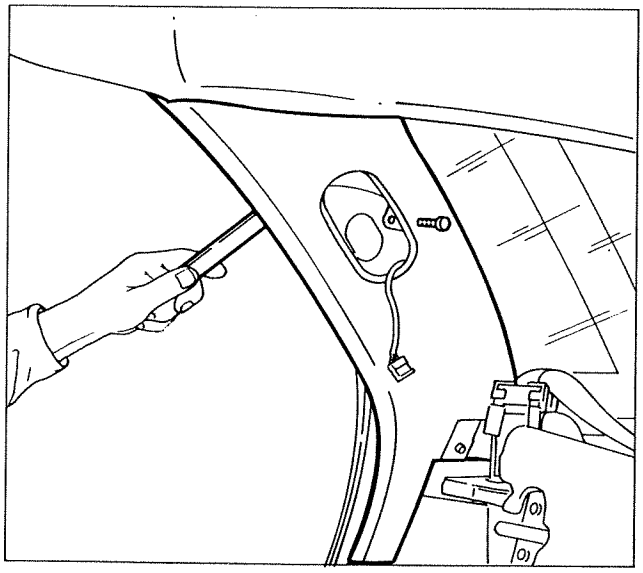


P3U25DM03

1. Fold down the rear seat squab and remove the side arm rest by lifting it from its seating.
2. Undo the nut indicated and remove the luggage compartment side moulding.
3. Using tool 1878077000, remove the side window's rear pillar trim.
4. Using tool 1878077000, remove the side window's front pillar trim.
5. Remove the rear courtesy light lens, disconnect the connector and remove the courtesy light from the car, then remove the rear sunshade hooks.



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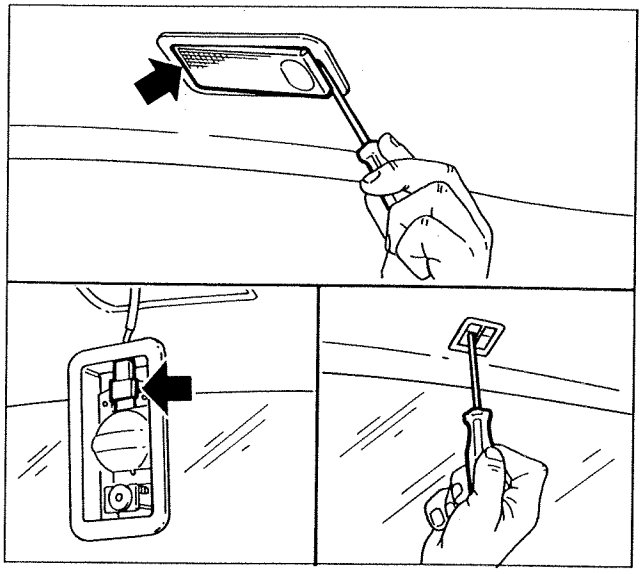

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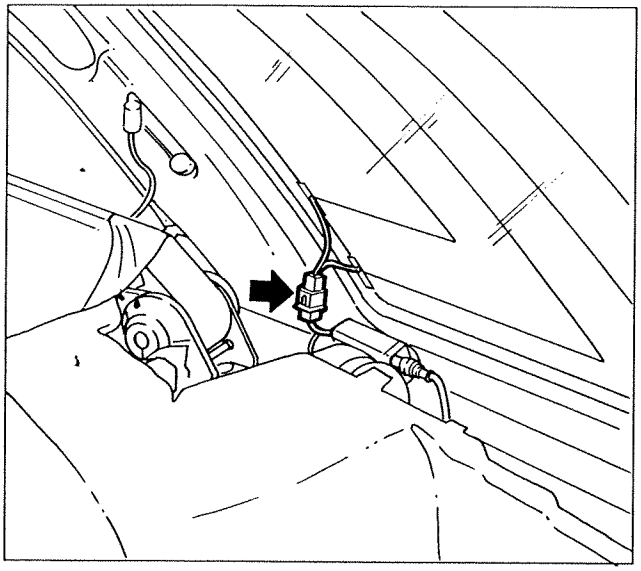
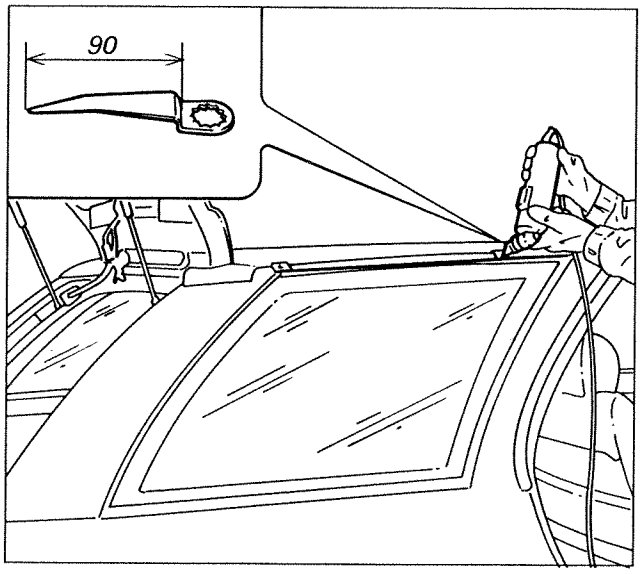


P3U26DM01

1. Disconnect the aerial and separate the ceiling trim from the roof, inserting spacers.

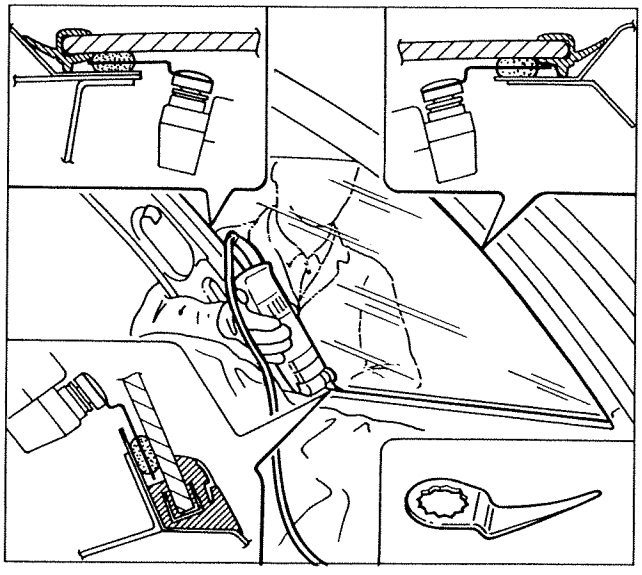
Use a cloth to protect the luggage compartment and the parts that could be damaged during the curreing and installation of the window glass, and use adhesive tape to protect the edge of the window seating to prevent damage to the paintwork.



P3U26DM02

Removing

2. Working from outside the car, cut the sealant on the top edge of the window, using a vibrating knife with the blade shown in the insert.
3. Fit the blade on the vibrating knife shown in the insert, then cut the window sealant from inside the car.
4. Mark the reciprocal positions of the window and its seating with strips of adhesive tape, then using appropriate suction handles remove the window glass, after cutting the strips of adhesive tape applied previously.



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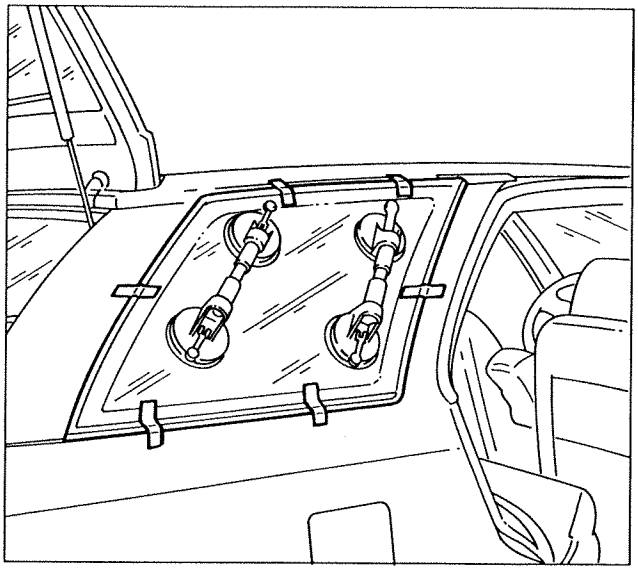

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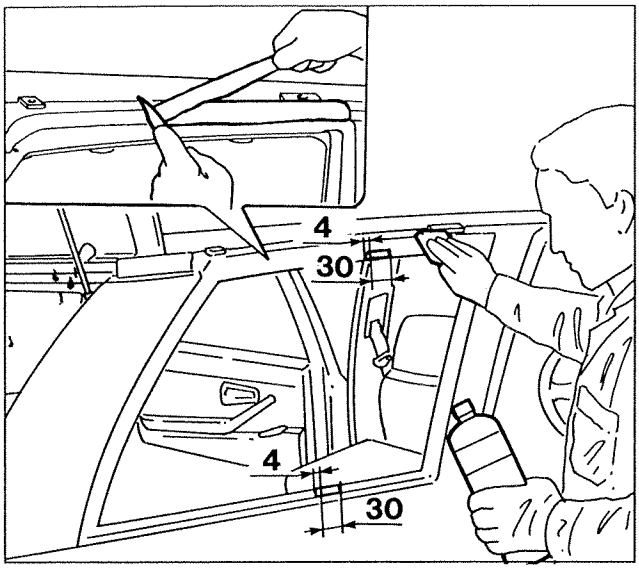

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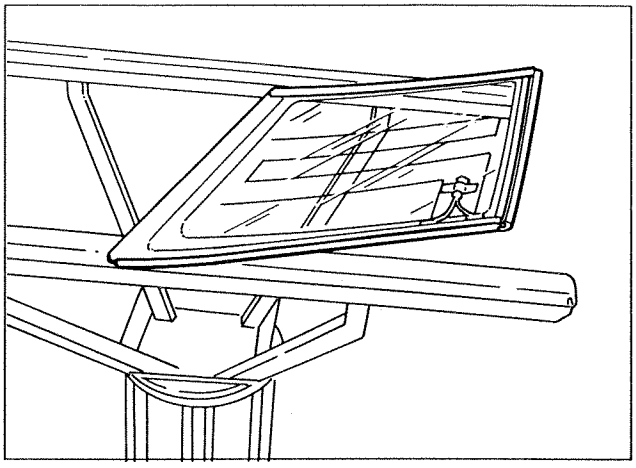

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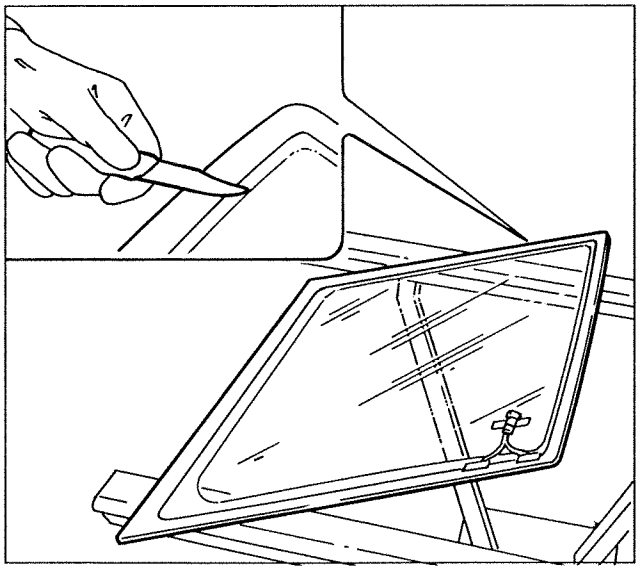


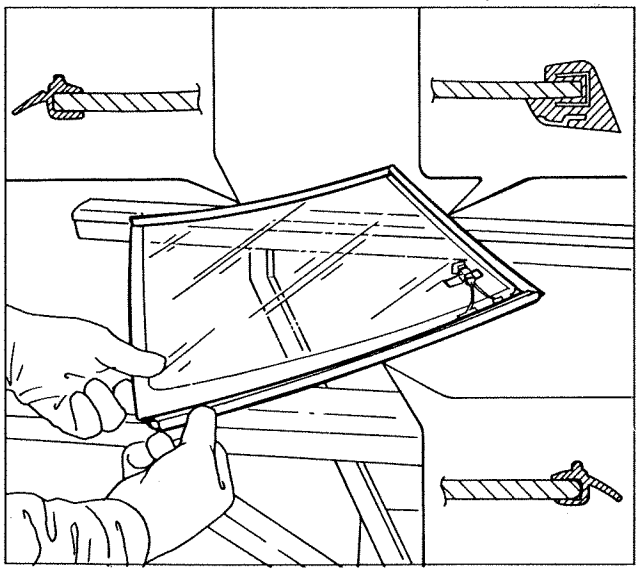
P3U27DM03

Refitting

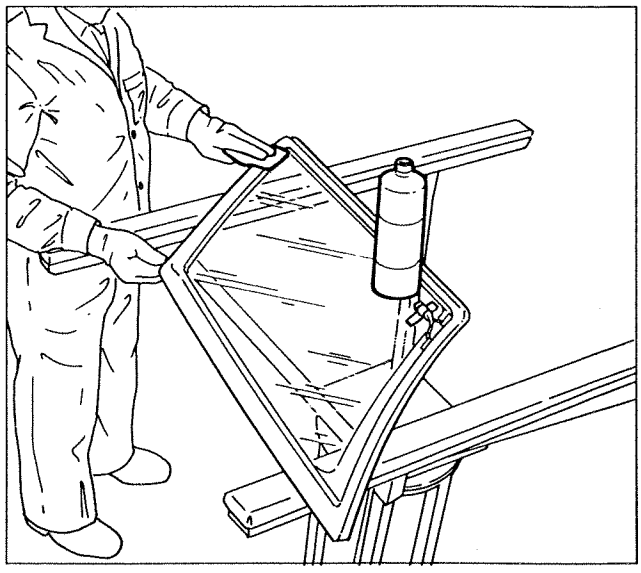
1. Smooth down the window glass sealant with a scraper, respecting the dimensions of the window end stops at the top and bottom of the window frame, as shown in the figure.
2. Remove the bottom and side seals of the window.
3. Remove the bead of old sealant from the window, using an appropriate scraper.
4. Fit the window side and bottom seals.

NOTE *If the window is being replaced, position it in its seating and mark the position with adhesive tape, as described on the preceding page.*

5. Thoroughly degrease the window using heptane and paper towel.



P3U27DM04



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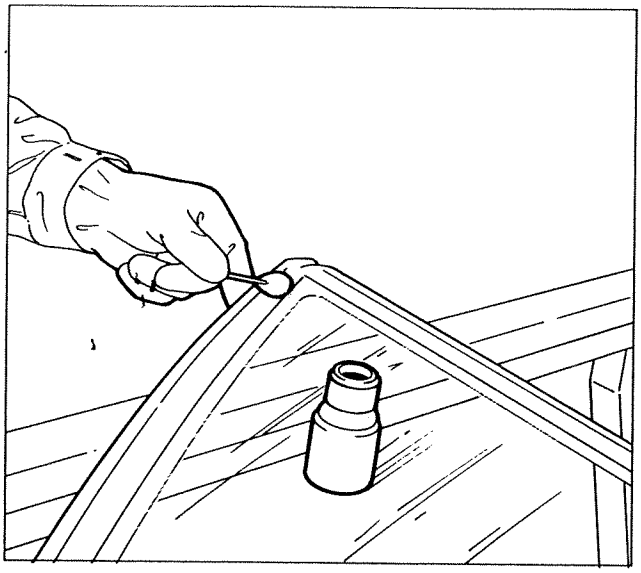
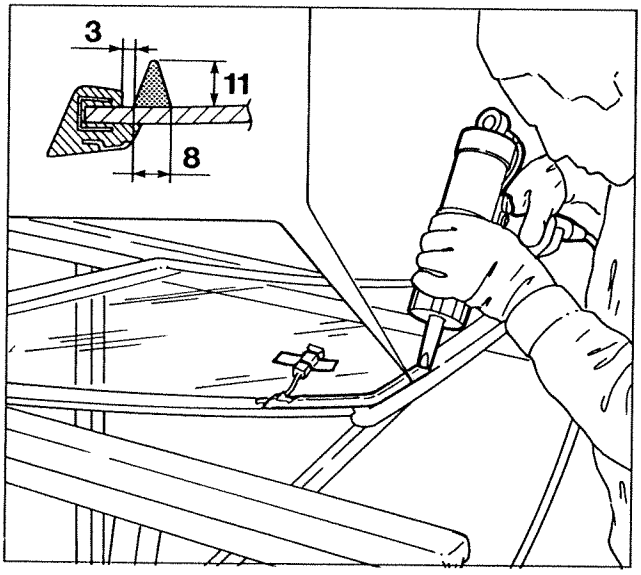


P3U28DM01

1. Apply the adhesion promotor using an appropriate swab, making sure not to go beyond the printed area.

NOTE *Allow the adhesion promotor to dry at ambient temperature for at least 15 minutes, but not longer than 24 hours.*

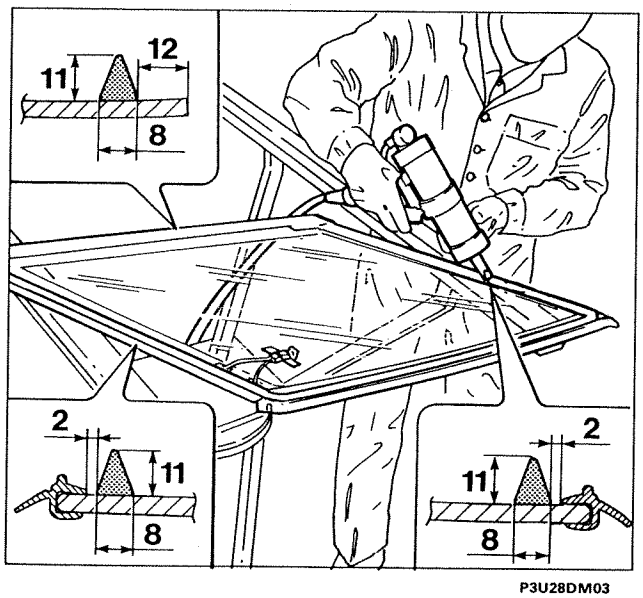


P3U28DM02

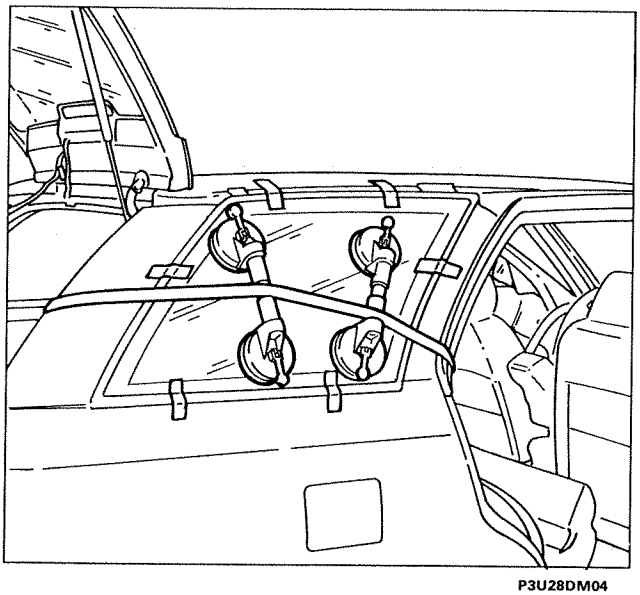
2. Apply sealant on the bottom of the window using a gun, observing the dimensions given in the figure.
3. Apply sealant to the top and side of the window using a gun, observing the dimensions indicated.
4. Fit the window into its seating using the appropriate suction pads, then exert appropriate pressure with a belt in order to obtain correct alignment; leave the window glass under pressure for at least 6 hours.

The car must not be delivered until at least 20 hours have elapsed since the time of glueing the window glass.

NOTE *Complete the assembly of the removed parts by reversing the procedure for removal.*



P3U28DM03



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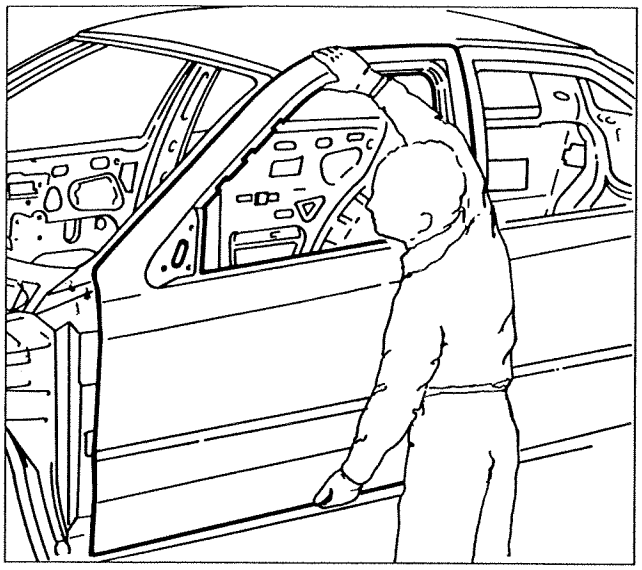
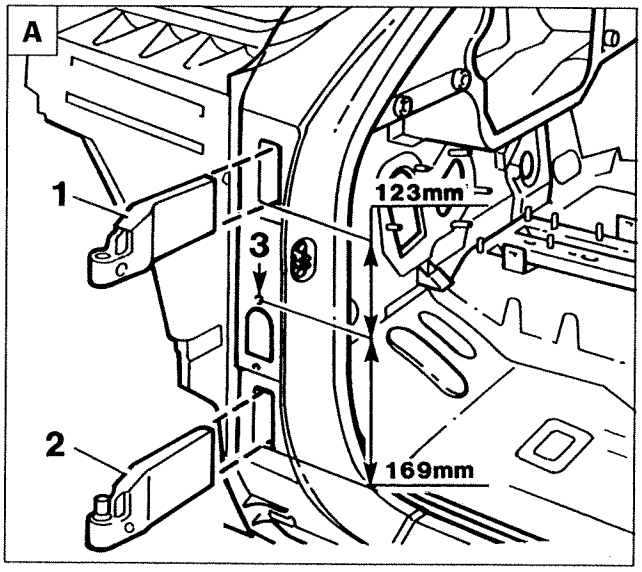


P3U29DM01

REPLACING FIXED HINGES

To replace the fixed hinges, proceed as follows:

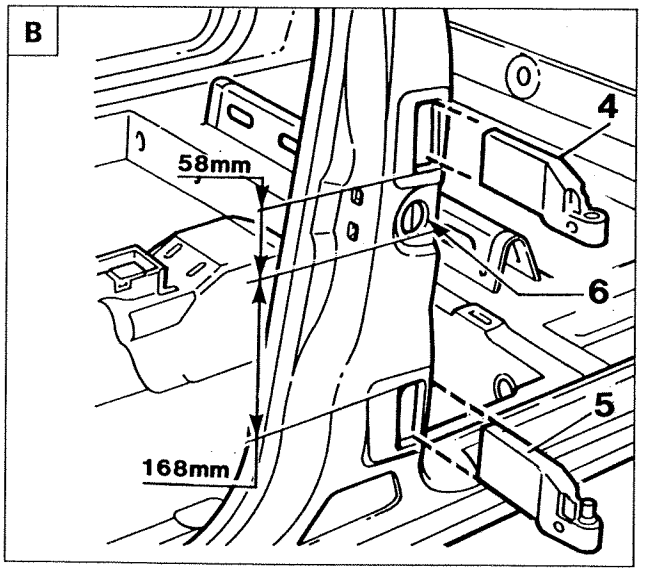
- remove the front wheelarch protective trim and the wing as described in the relevant pages of the "LANCIA k" Workshop Manual (specific operation for the front doors);
- offer up to the body shell the door fitted with the hinges (1) and (2) to be welded to the pillar;
- temporarily tack the hinges (1) and (2) to the pillar, respecting the dimensions given in Figures A and B; check that they are lined up correctly with the body shell;
- remove the door and finish welding the hinges (1) and (2);
- refit the door.



P3U29DM02

Reference dimensions for positioning half-hinges on body shell front pillar

1. Top hinge
2. Bottom hinge
3. Top hole for cable pass



P3U29DM03

Reference dimensions for positioning half-hinges on body shell central pillar

4. Top hinge
5. Bottom hinge
6. Cable pass hole

page

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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D.M.C. - M.P.S.
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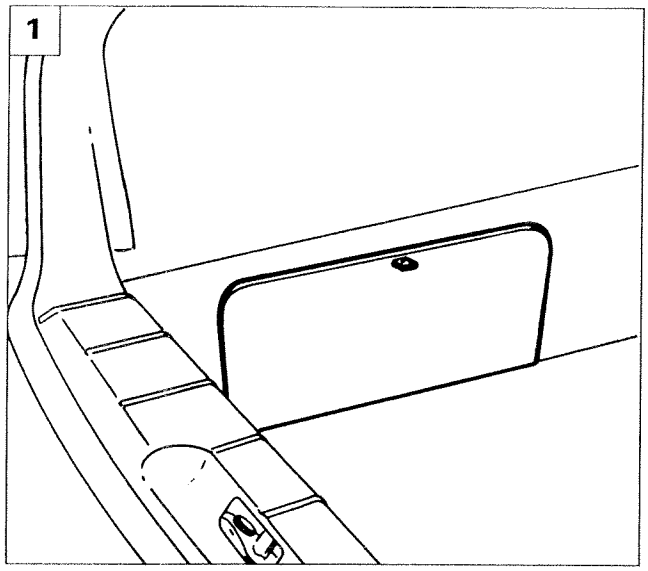

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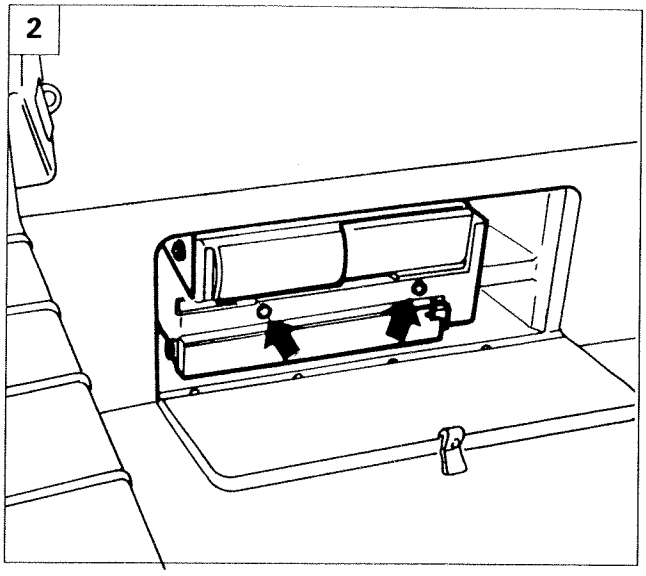

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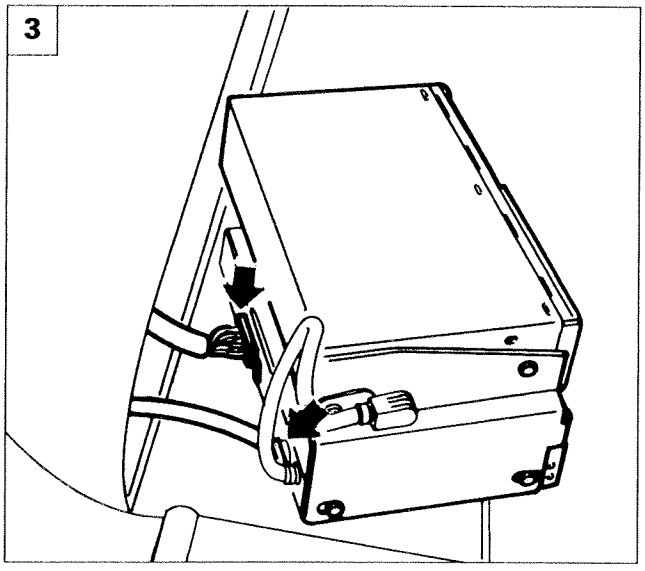


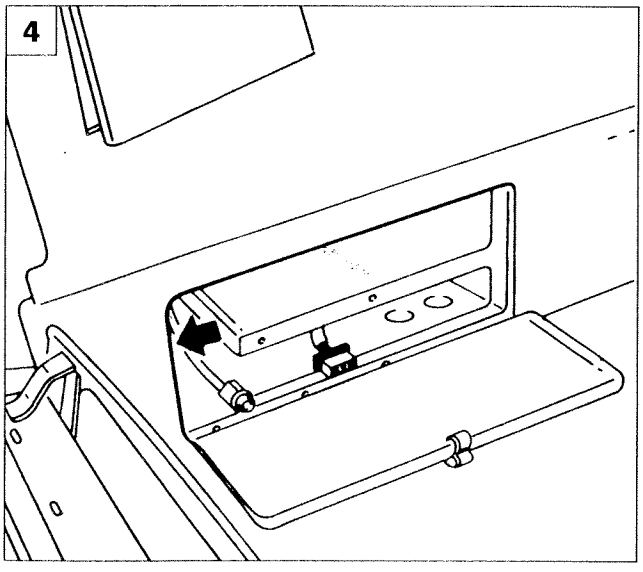
P3U01EM03

REAR BUMPER AND SUPPORTING BRACKET

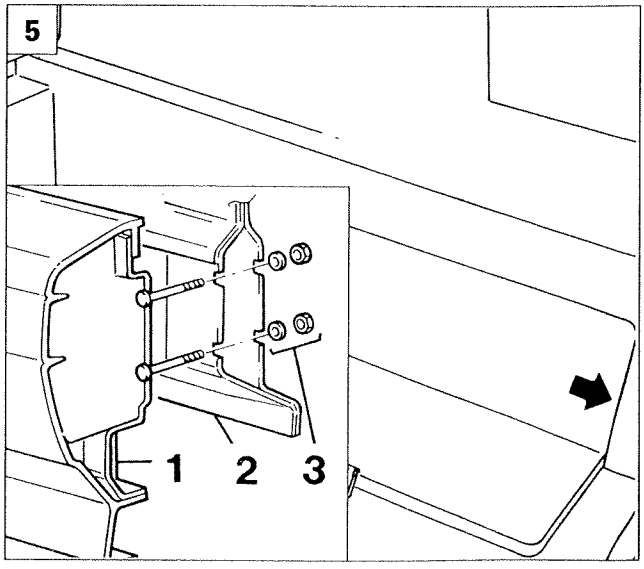
Removing-refitting

1. Open the door to the compact disk (CD) compartment in the boot.
2. Undo the screws shown in the figure.
3. Disconnect the supply connections and remove the CD from the car.
4. Working from the CD compartment, remove the nuts securing the bumper to the rear cross member trim.
5. Working from the compartment opposite the CD, remove the nuts securing the bumper to the rear cross member trim.

NOTE *The insert shows a cross-section of the rear bumper (1) near the rear cross member (2), with the relevant attachments (3).*



P3U01EM04



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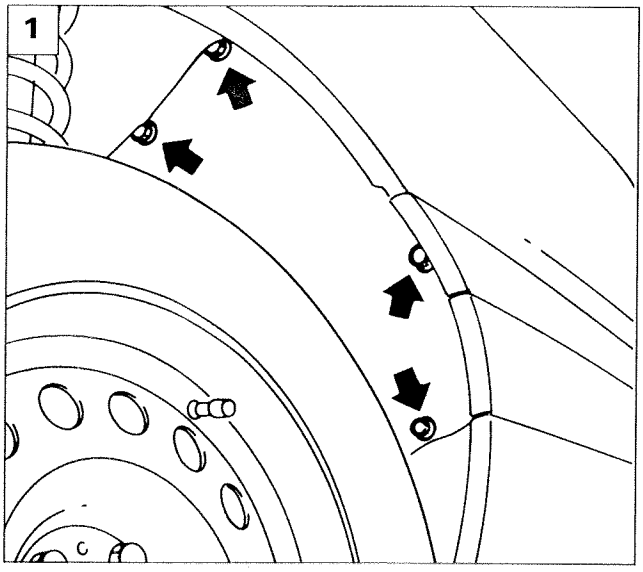
P3U01EM05



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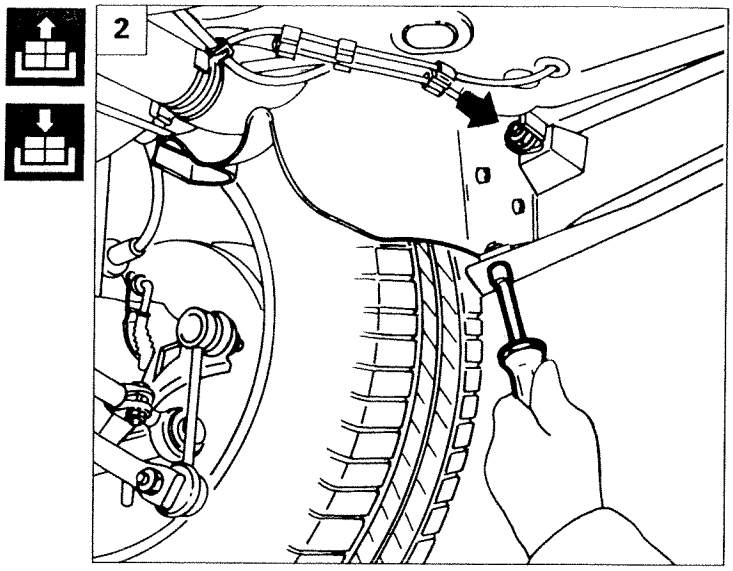

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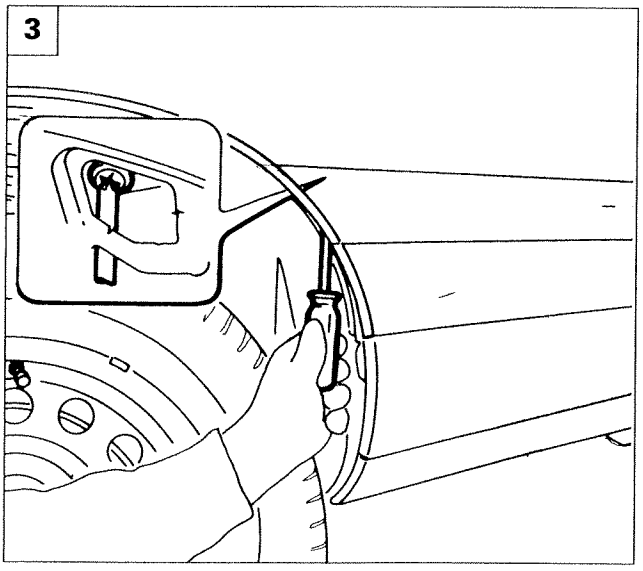
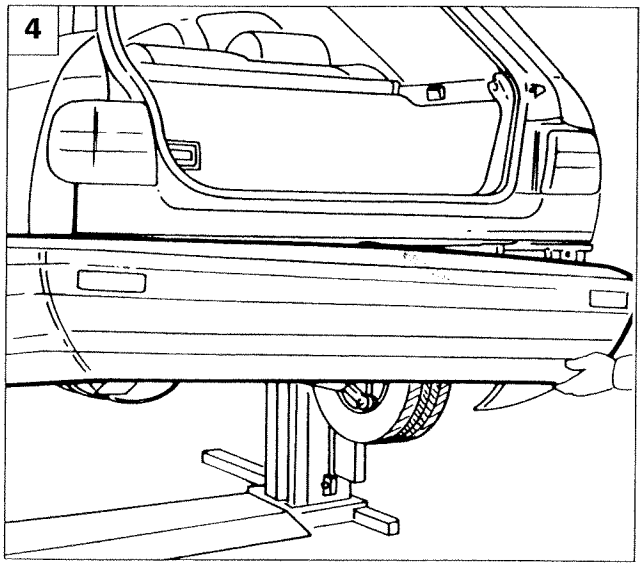


P3U02EM03

1. Undo the bolts securing the wheelarch guard to the bumper and body shell, indicated in the figure.
2. Undo the bottom bolt securing the wheelarch guard to the bumper and the nut securing the bumper to the body shell.
3. Move aside the wheelarch trim to gain access to the bolt securing the bumper to the wing panel.
4. Remove the rear bumper from the body shell.
5. Undo the bolts shown in the figure and remove the bumper supporting bracket from the rear cross member trim.

NOTE *To refit, reverse the procedure for removal.*



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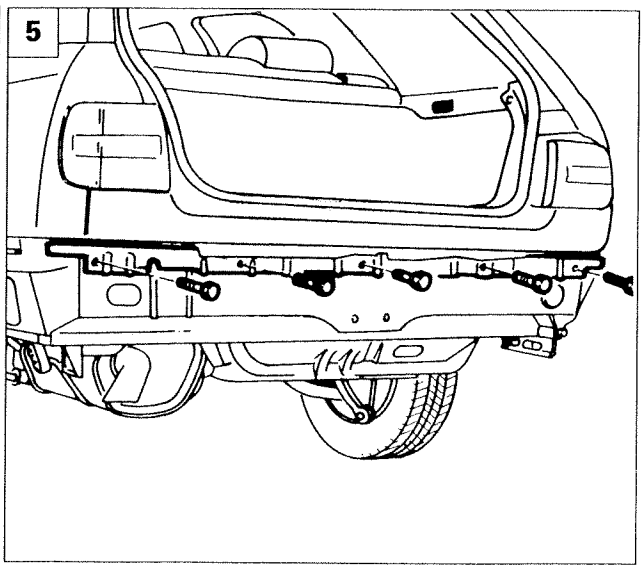

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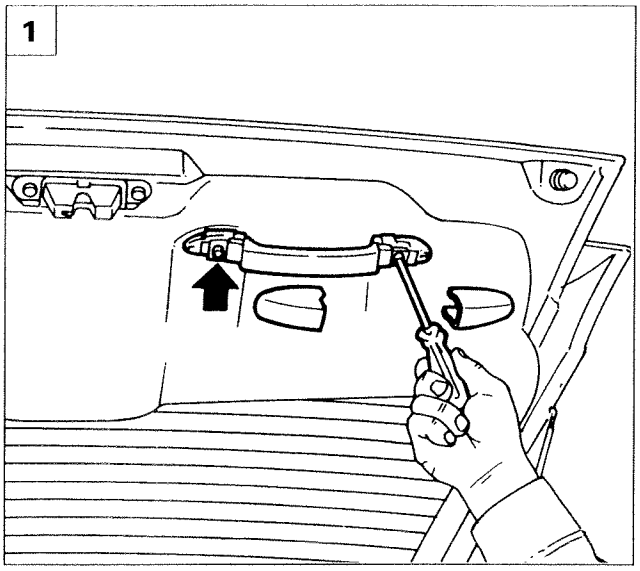

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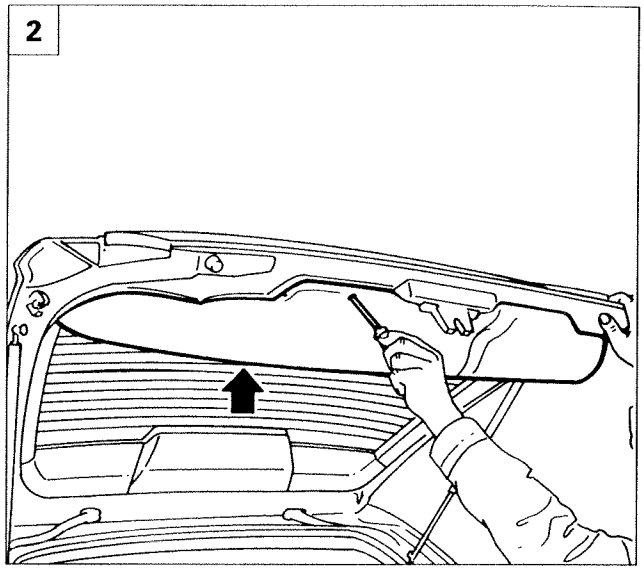

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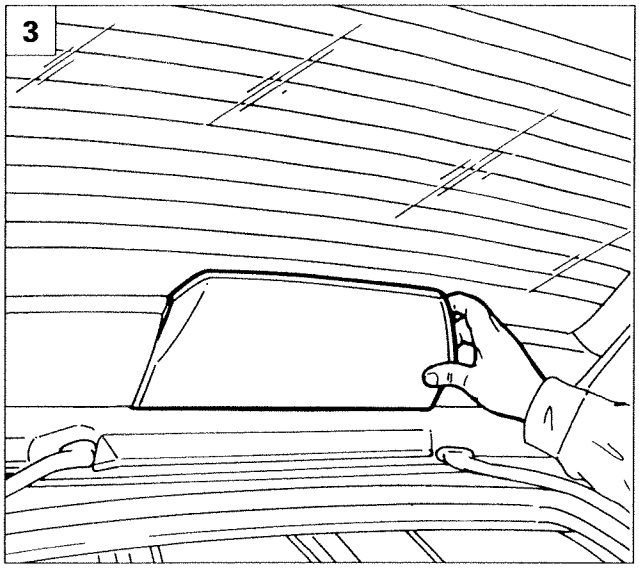
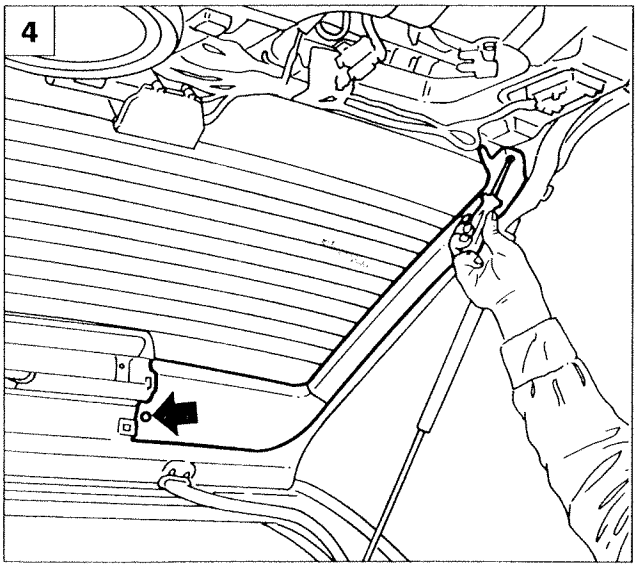


P3U03EM03

REMOVING-REFITTING TAILGATE

Before starting this procedure, disconnect the battery's negative pole.

1. Remove the attachment covers, undo the bolts indicated and remove the tailgate handle.
2. Undo the bolts and remove the tailgate interior trim.
3. Remove the additional stop light trim.
4. Undo the bolts shown in the figure and remove the rear window frame right pillar trim.
5. Undo the bolts indicated and remove the rear window frame left pillar trim.



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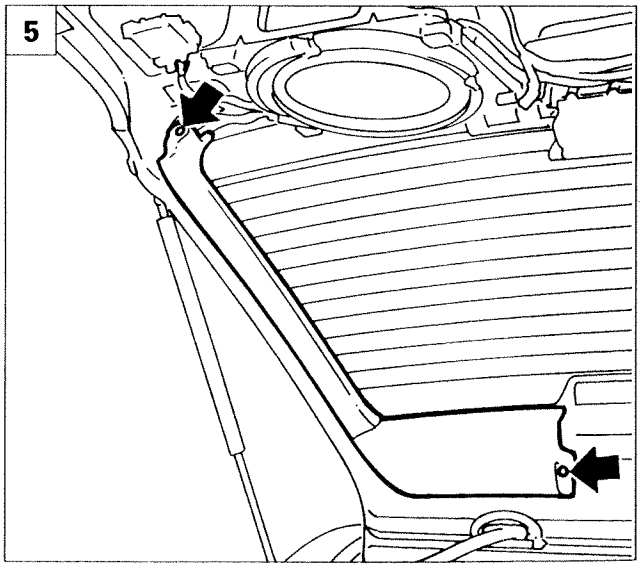

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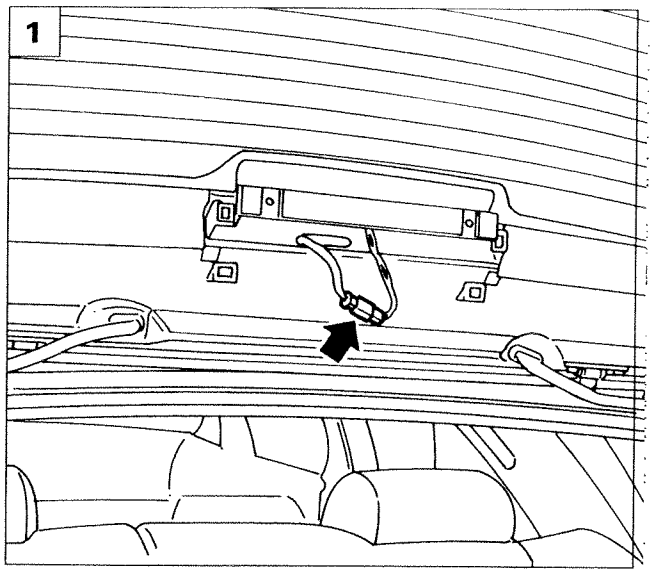
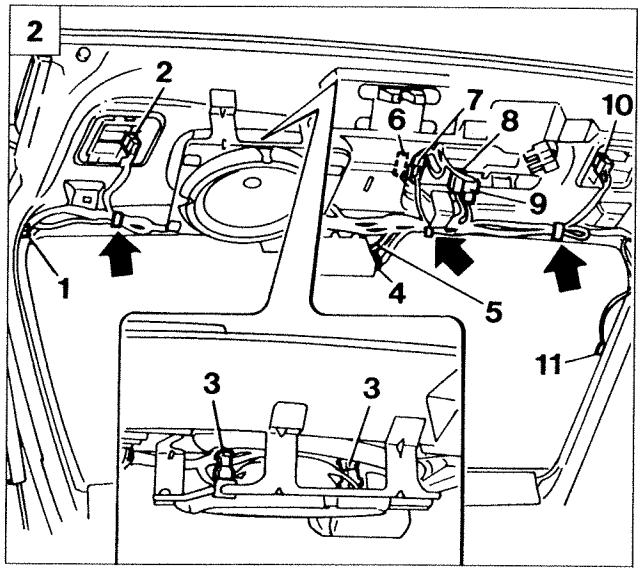


P3U04EM01

1. Disconnect the additional stop light connector, shown in the figure.
2. Release the cable bundles from the clips indicated by the arrows, then disconnect the following connectors:
   1. Heated rear window earth
   2. Left tail light
   3. Loudspeaker
   4. Rear window wiper
   5. Rear window wash pipe
   6. Left number plate light
   7. Right number plate light
   8. Lock switch
   9. Lock solenoid
   10. Right tail light
   11. Heated rear window
3. Disconnect the connector blocks from the following cables:
   2. Left tail light.
   4. Rear window wiper
   8. Lock switch
   10. Right tail light

Mark the electric cables as appropriate with the positions of the connector blocks as shown in the insert.

4. Wrap the cable bundle with adhesive tape to facilitate its withdrawal through the slots in the tailgate.



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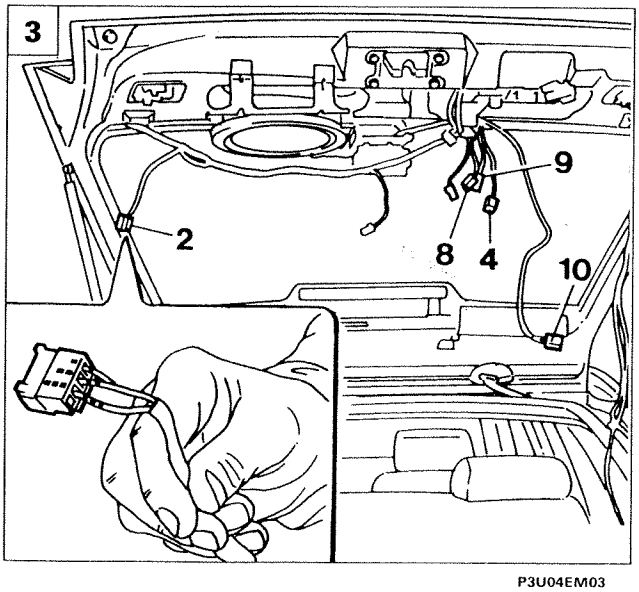

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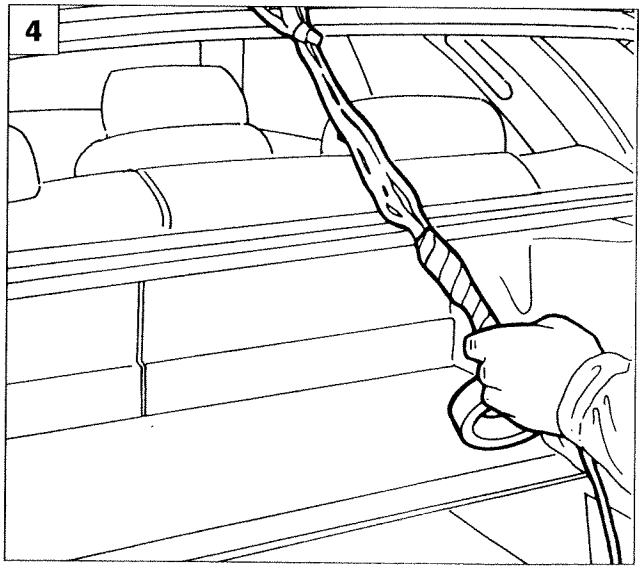

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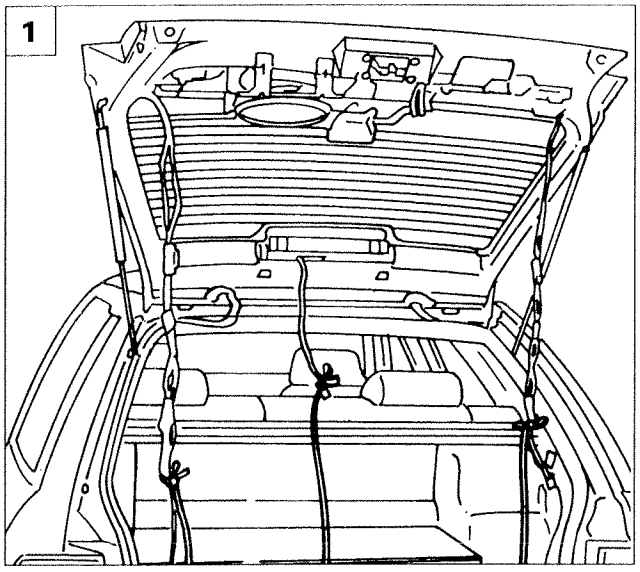

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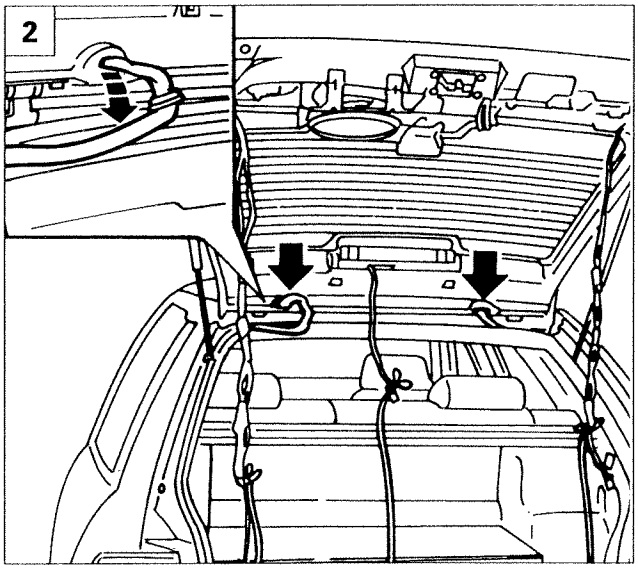
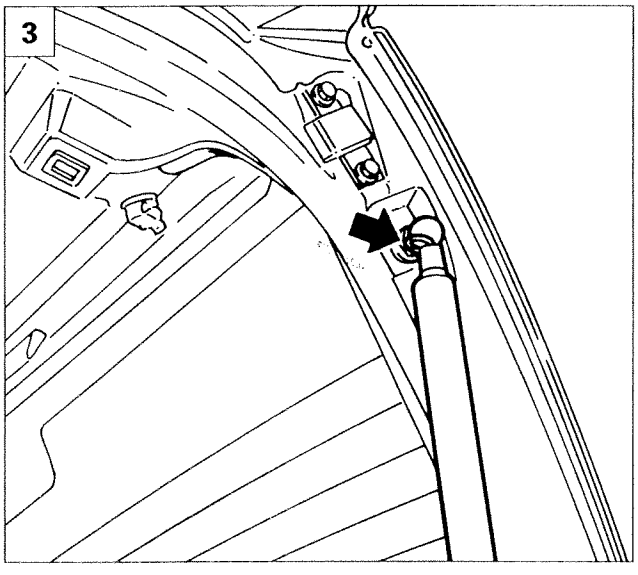


P3U05EM02

1. Tie the cable bundle in an appropriate manner to facilitate subsequent reassembly.
2. Withdraw the cable bundles through the slots in the tailgate.
3. Disconnect the tailgate hydraulic rams from the top mounting by releasing the attachment clips, one of which is shown in the figure.
4. Undo the bolts securing the tailgate to the hinge, then remove the tailgate from the car, with the help of a second operator.

NOTE *To refit, reverse the procedure for removal.*



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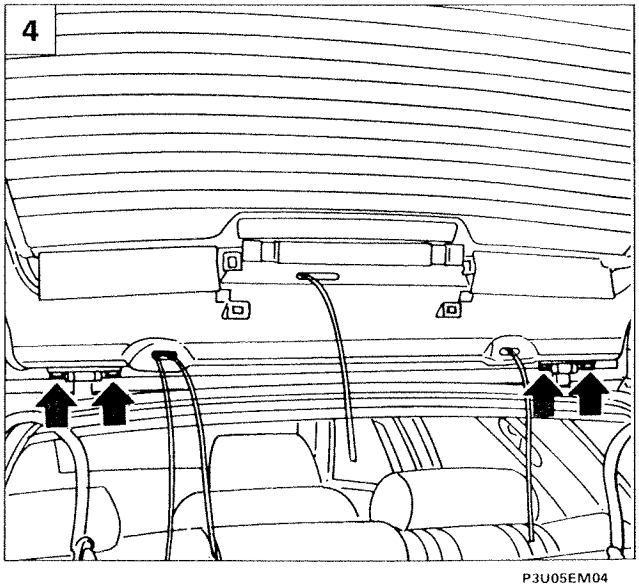

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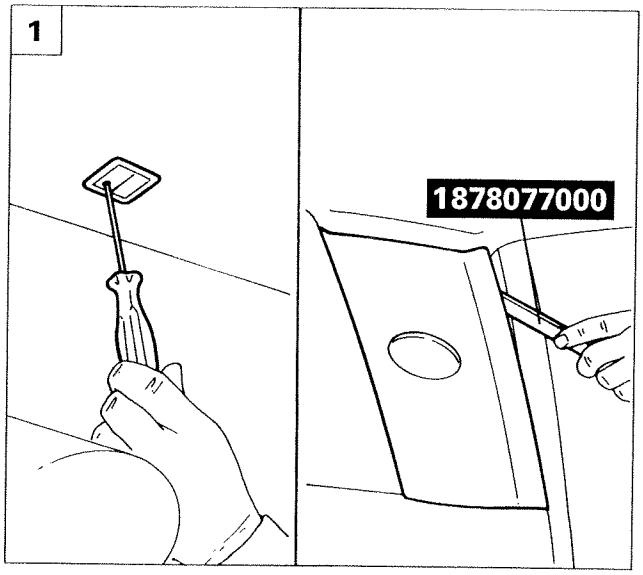


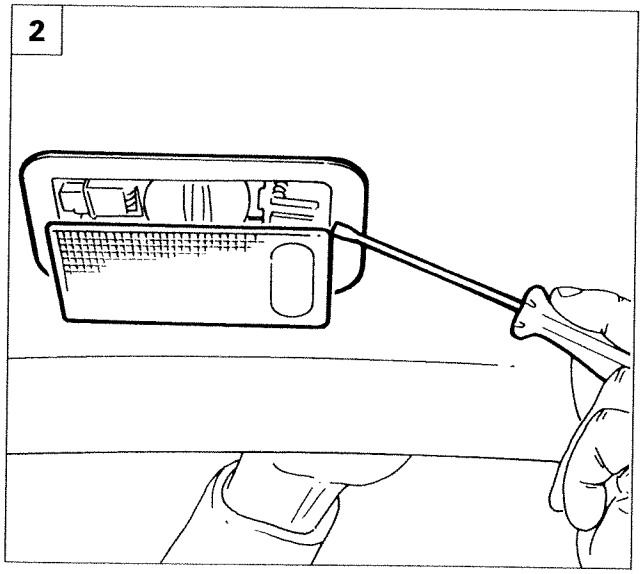
P3U06EM01

TAILGATE HINGE

Removing

Remove the tailgate as described on page 3 and following.

1. Using tool 1878077000, remove the boot rear pillar trim and remove the rear sun-shade catch by undoing the screw.
2. Remove the lens, disconnect the electrical connector and remove the courtesy light from the ceiling trim.
3. Carefully lower the ceiling trim, then undo the nut and separate the hinge from the roof.



P3U06EM02

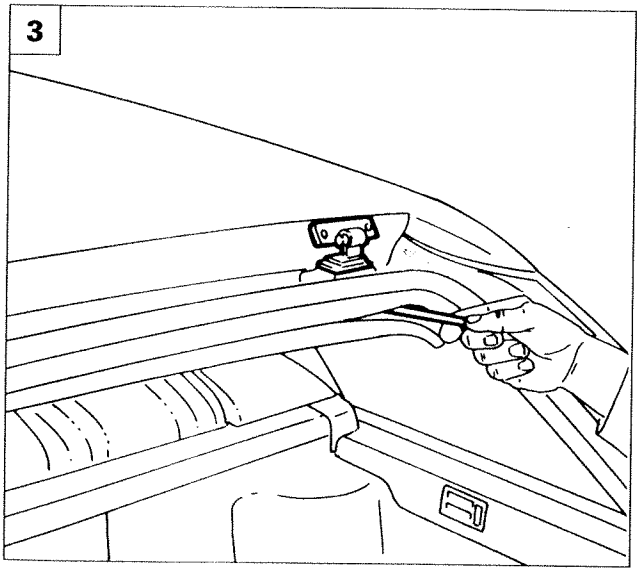
Refitting

To refit, proceed as follows:

4. In the area surrounding the hinge seat, remove the traces of heat-expanding sealant, then insert between the hinge and body shell a suitable air-drying acrylic sealant such as IVI 854.210 or equivalent product, then fit the hinge and tighten the nut.

Water leaks may arise if the heat-expanding sealant is not applied.

NOTE *Complete the assembly of the removed parts by reversing the procedure for removal.*



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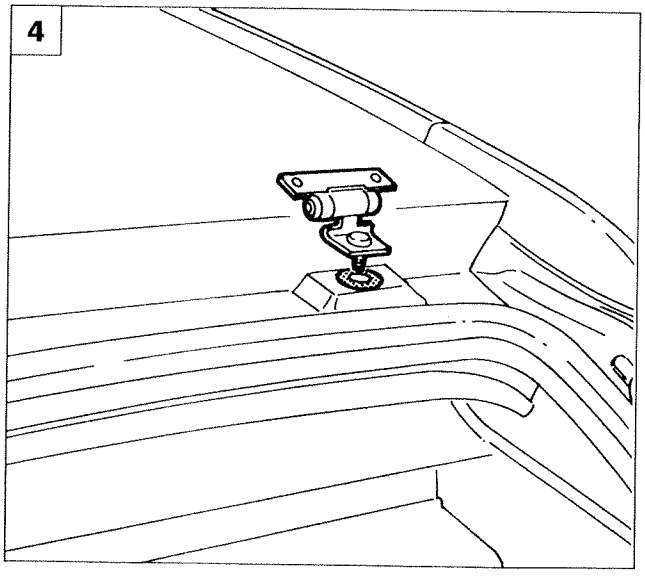
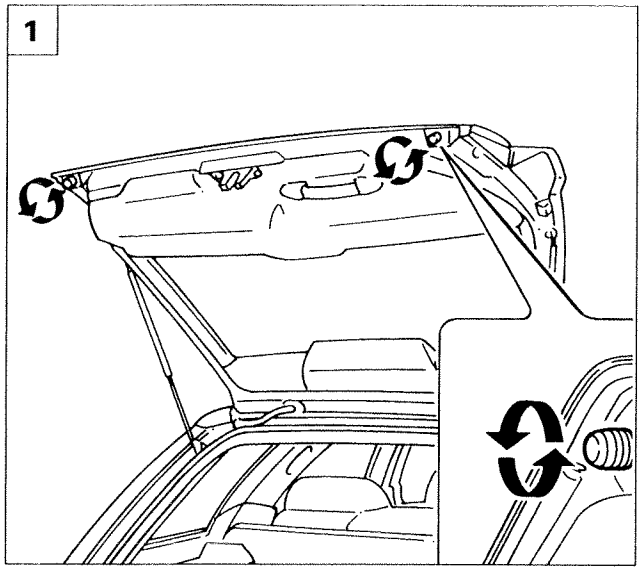


P3U06EM04

1



P3U07EM01

ADJUSTMENTS

Adjusting position of tailgate stops

1. Rotate the rubber stops on the ends of the tailgate as appropriate.

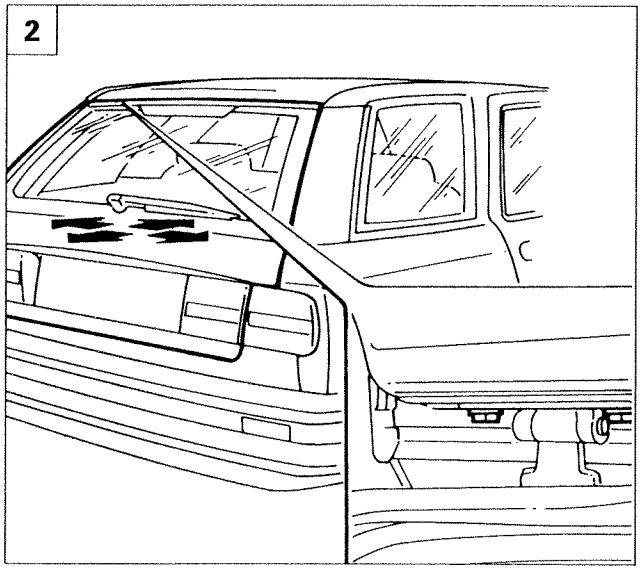
If the stops are not adjusted correctly, the tailgate will be forced or there will be excessive play on the closing mechanism, thus causing damage to the tailgate.

Adjusting horizontal position of tailgate

2. Slacken the bolts securing the hinges to the tailgate and adjust the position of the tailgate.

NOTE *The arrows show the permitted movements for adjustment.*

2



P3U07EM02

Adjusting tailgate side position

3. Slacken the bolts and adjust the position of the anti-vibration device.

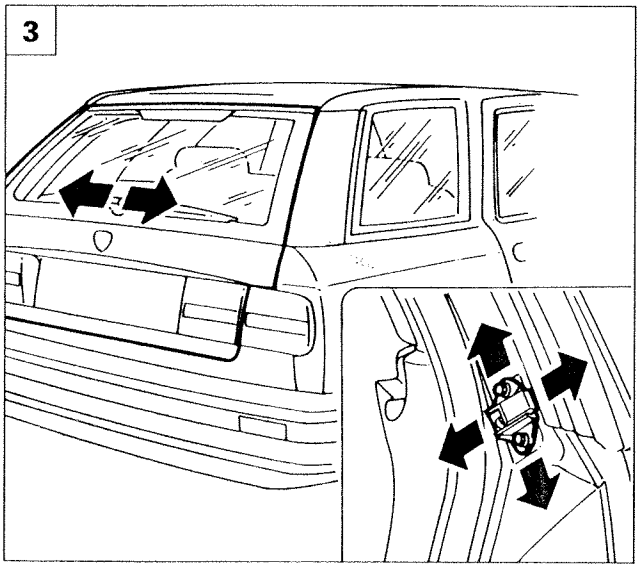
NOTE *The arrows show the permitted movements for adjustment; it is also possible to insert shims between the anti-vibration device and the bodywork to ensure correct adjustment.*

Adjusting and removing-refitting tailgate lock striker

4. Remove the central moulding on the tailgate by undoing the bolts; slacken the striker bolts and adjust its position; to remove the striker, undo the bolts indicated by the arrows.

NOTE *The arrows show the permitted movements for adjustment.*

3



P3U07EM03

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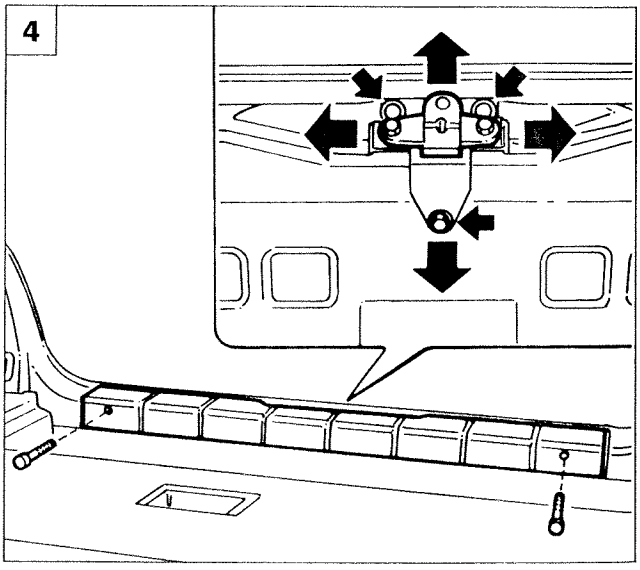

P3U07EM04

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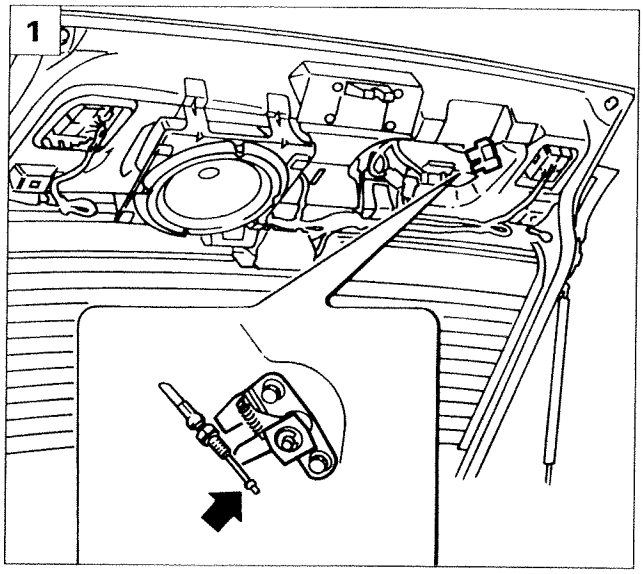


P3U08EM01

TAILGATE LOCK

Removing-refitting

Remove the tailgate interior trim as described on page 3.

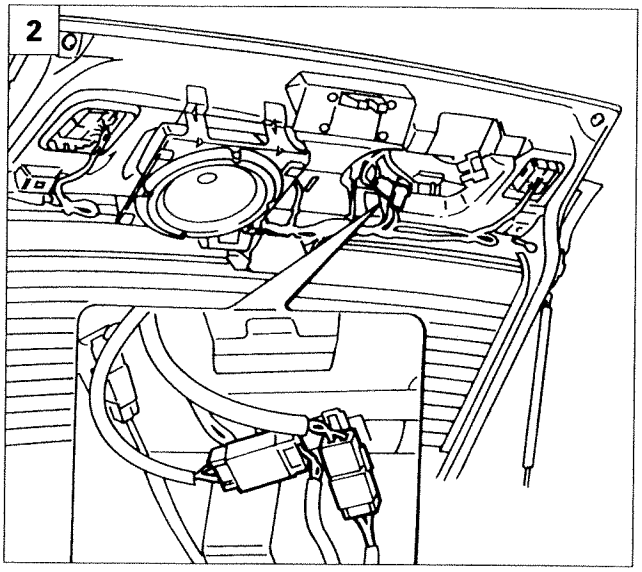
1. Disengage the tailgate open/close tie rod from its seating.

2. Disconnect the supply wiring connectors from the central door locking motor.

3. Undo the bolts indicated and remove the tailgate lock.

NOTE *To refit, reverse the procedure for removal.*

2



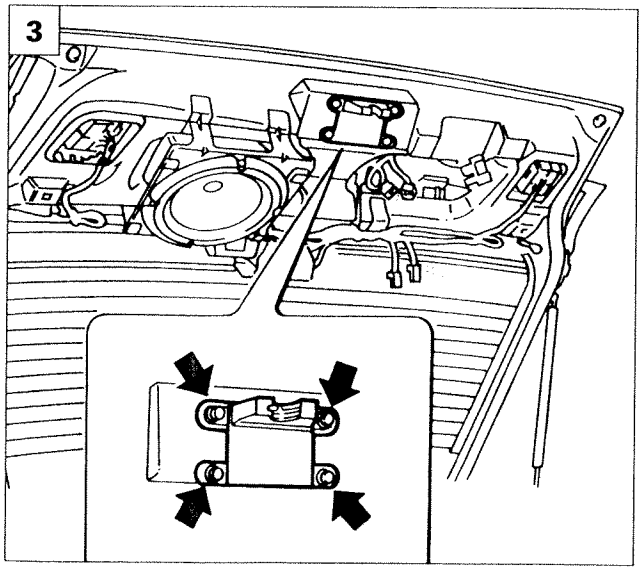
P3U08EM02

Removing-refitting tailgate lock tie rod and central locking motor

Before removing the tailgate lock tie rod, remove the lock as described above.

4. Remove the tie rod from the lock catch system, then undo the bolts securing the central door locking motor, disconnect the wiring clip and remove the central door locking motor.

3



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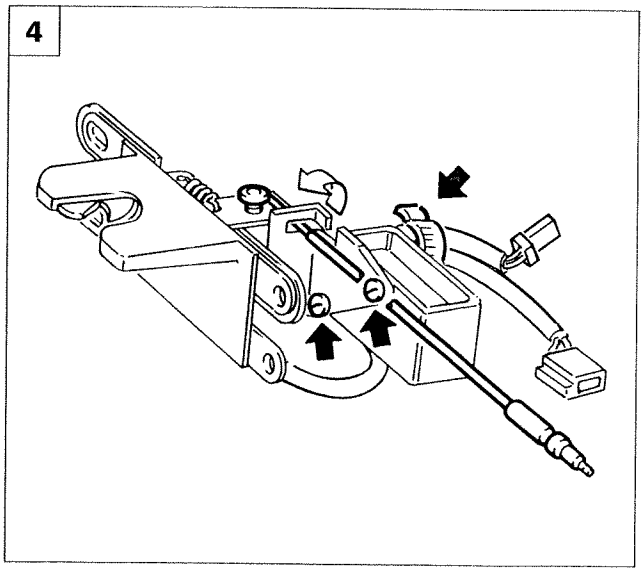
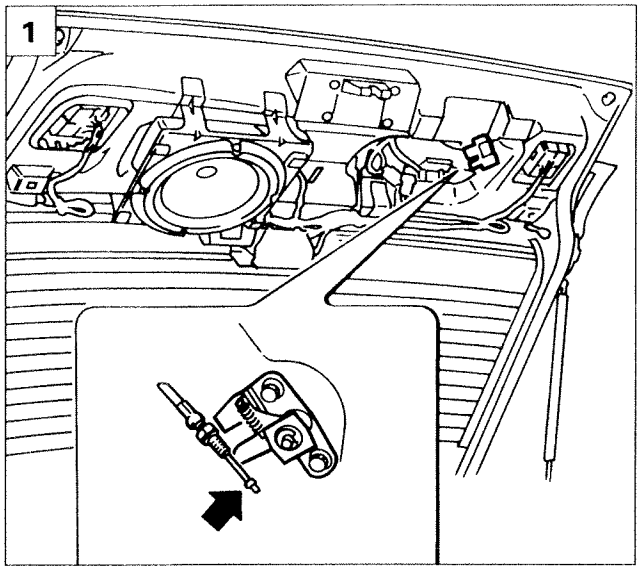


P3U08EM04

REPLACING LOCK BARREL



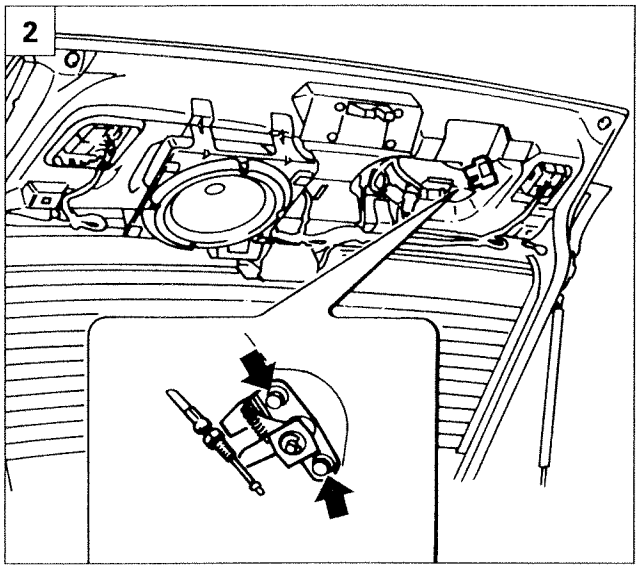
P3U08EM01

Sequence of operations

Remove the tailgate interior trim as described on page 3.

1. Release the tie rod from the lock barrel catch device.
2. Undo the bolts securing the lock barrel to the tailgate.
3. Insert the key in the barrel, then withdraw the retaining clip indicated.
4. Withdraw the barrel and replace it.

NOTE *To refit, reverse the procedure for removal.*



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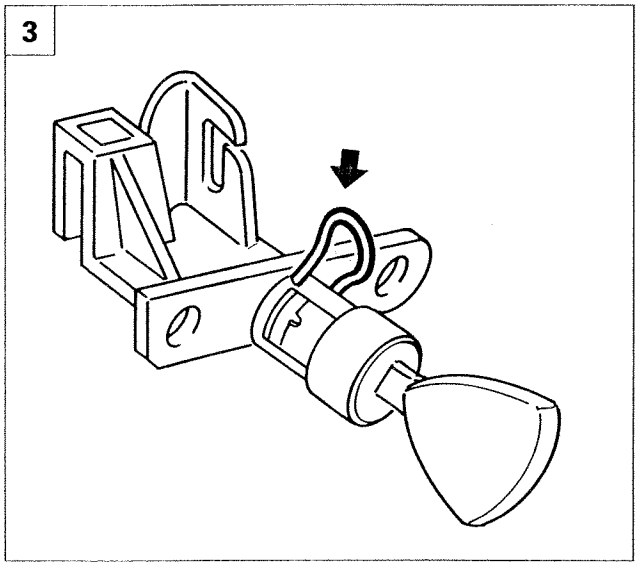

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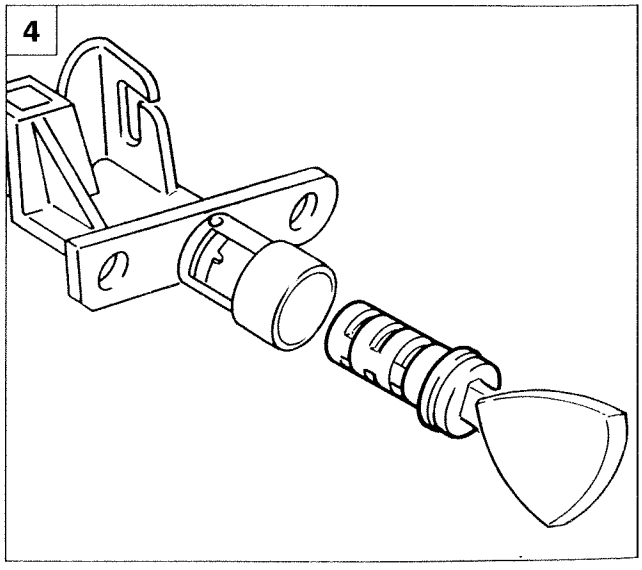

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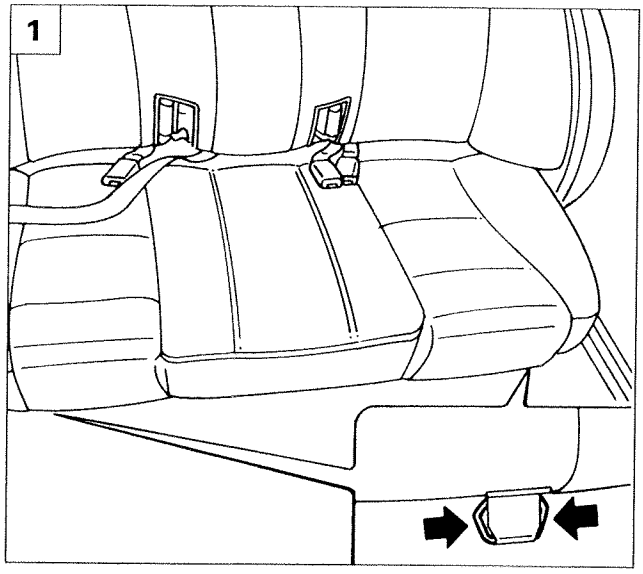

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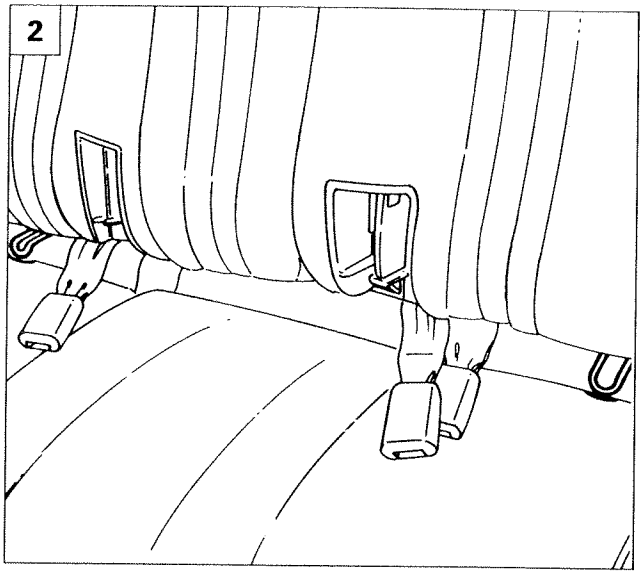


P3U10EM02

REAR SEAT

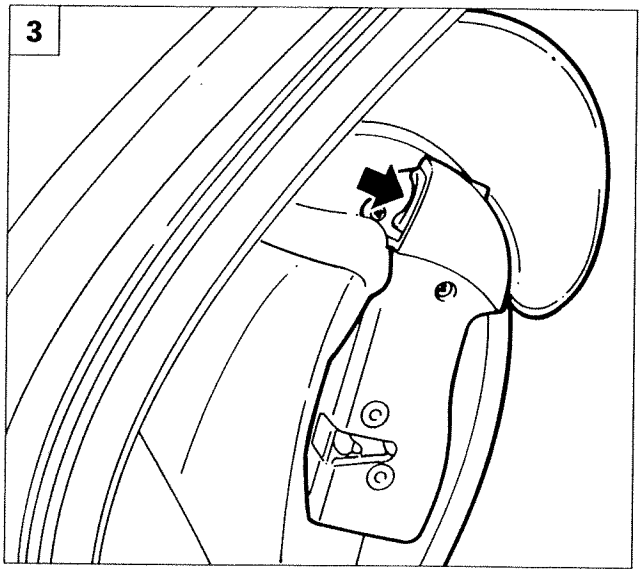
Removing-refitting cushion

1. Remove the rear cushion by releasing the locking system as shown in the figure.
2. Place the cushion in its seating, fitting the slots on the cushion on the retaining brackets on the body shell.

Removing-refitting folding squab

3. Fold the squab by operating the lock/release device.
4. Lift the cover pieces covering the squab anchorage systems.
5. Undo the squab bolts from the anchor brackets, then remove the squab from the car.

NOTE *To refit, reverse the procedure for removal.*



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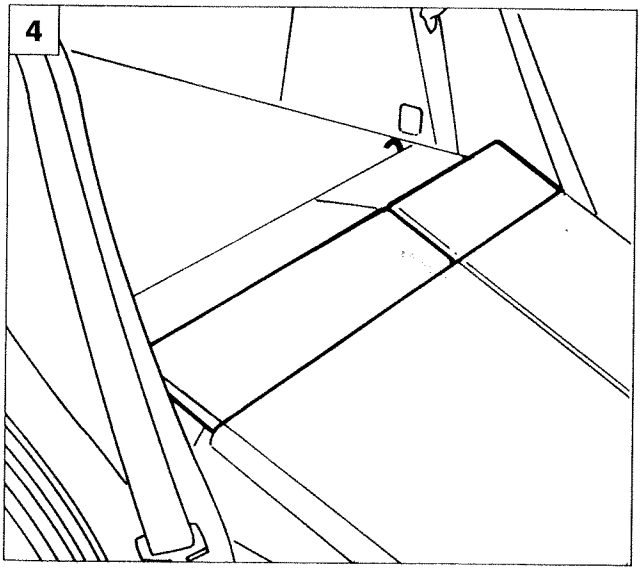

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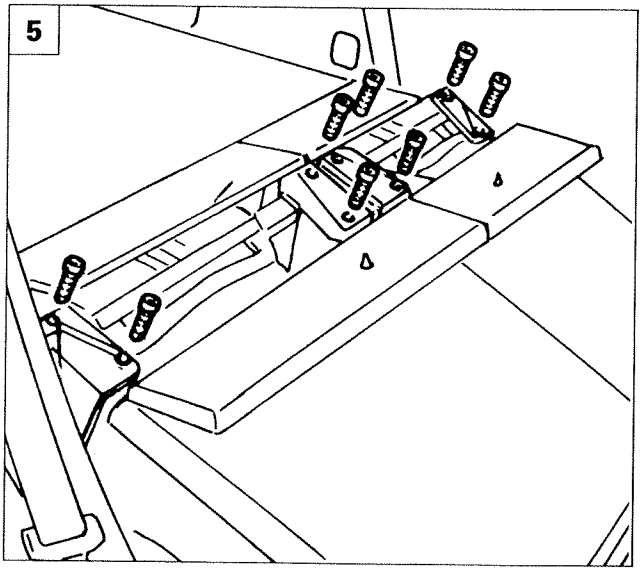

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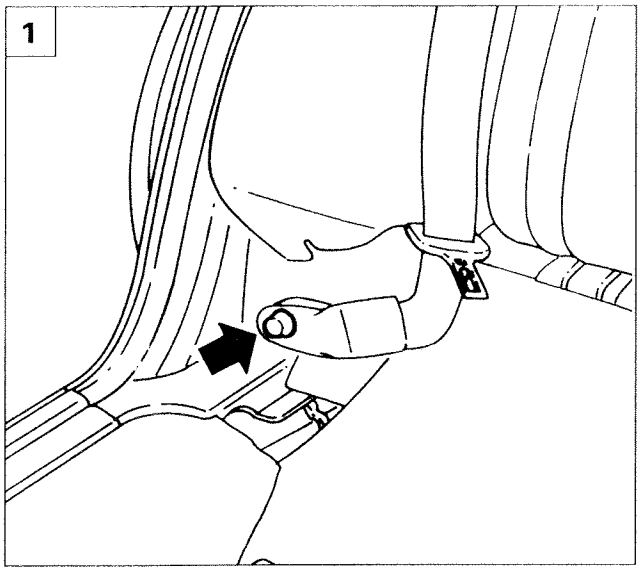


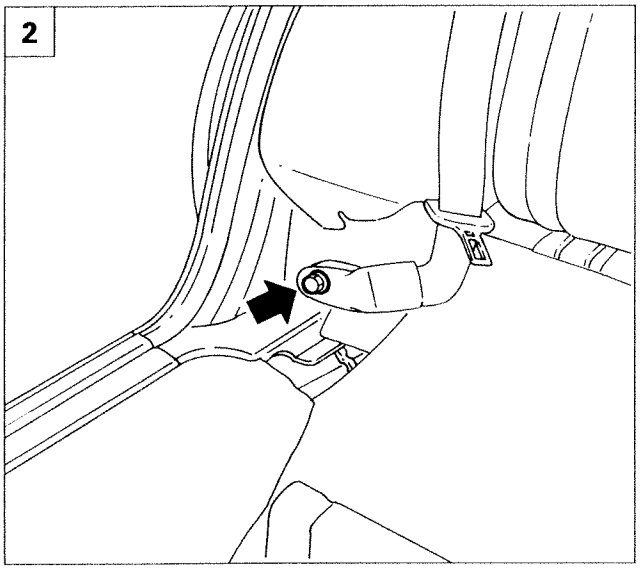
P3U11EM01

Removing-refitting fixed squab

Remove the cushion as shown on page 10, then fold down the squab.

1. Lift the cover covering the seat belt bottom attachment.
2. Undo the bolt securing the seat belt bottom attachment.
3. Lift the fixed squab, releasing it from its locking system.

NOTE *To refit, reverse the procedure for removal.*



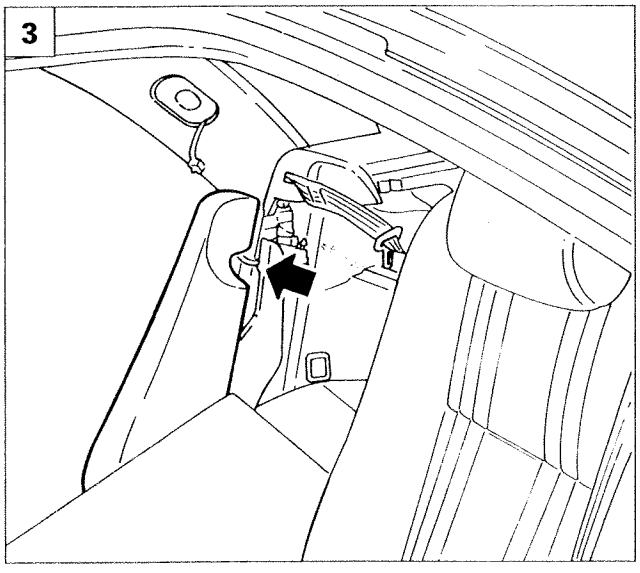
P3U24DM04

Removing-refitting squab anchor brackets

Remove the squab and cushion as described on page 10.

4. Undo the bolts securing the anchor brackets to the body shell, arrowed, then remove the seat anchor brackets.

NOTE *To refit, reverse the procedure for removal.*



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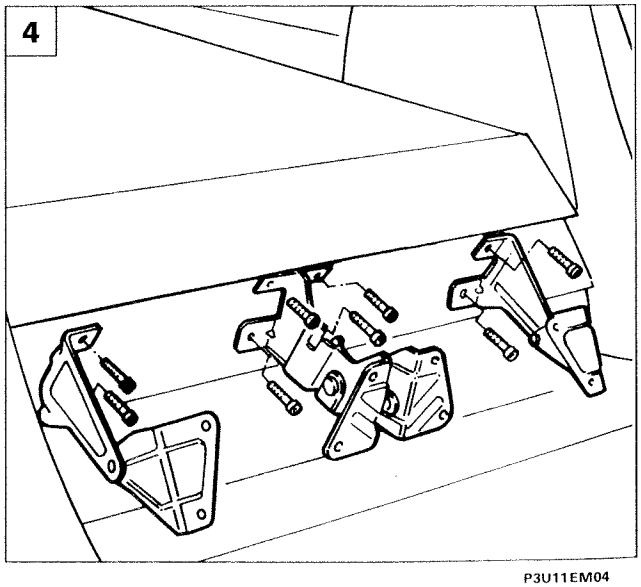

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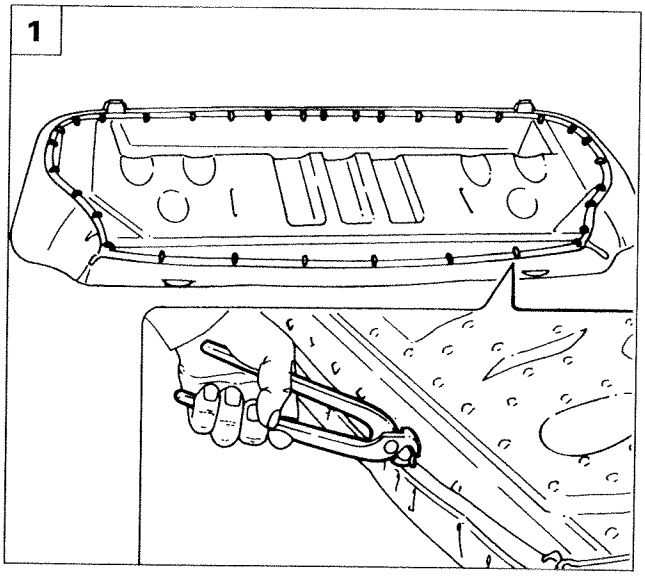
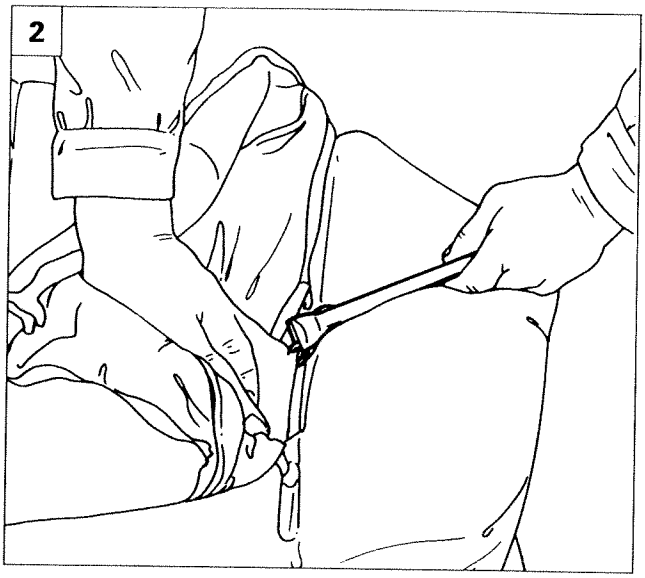


P3U12EM01



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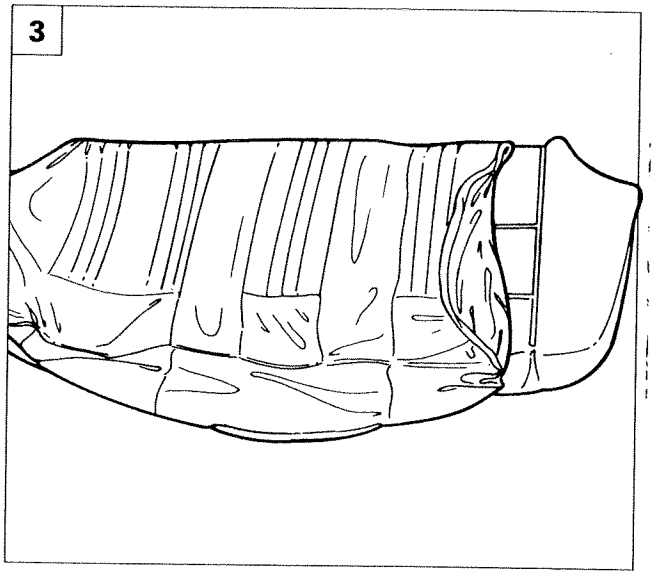


P3U12EM03

REAR SEAT CUSHION

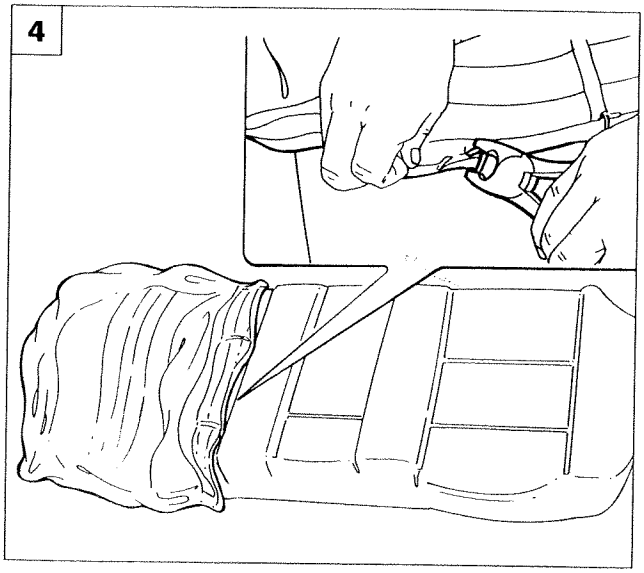
Dismantling

Remove the cushion from the car as described on page 10.

1. Cut the clips on the perimeter of the trim, securing the trim to the vulcanized tie rods in the stuffing.
2. Continue cutting the clips in the central area of the trim with the stuffing.
3. Detach the trim from the cushion stuffing.

Refitting

4. Starting from the centre of the cushion, secure the trip using the appropriate clips to the vulcanized tie rods in the stuffing using pliers (USAG 156/215).
5. Continue fitting the trim around the edge of the stuffing.



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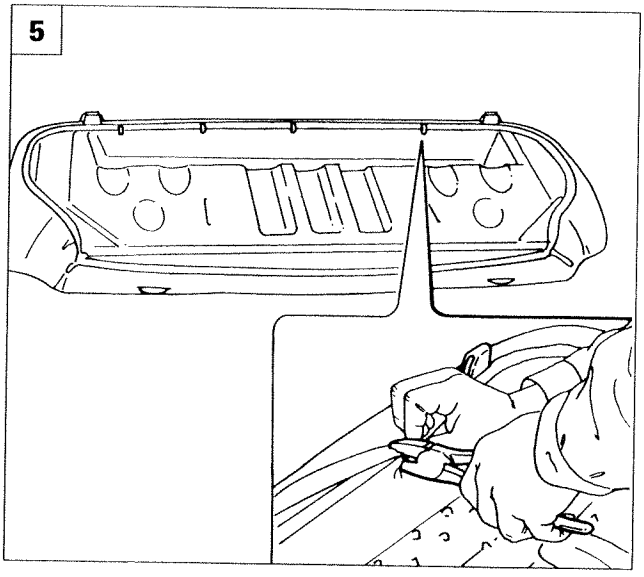

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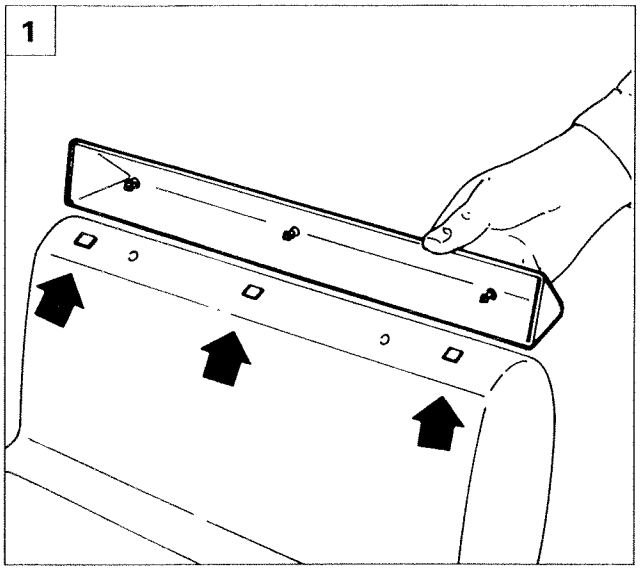

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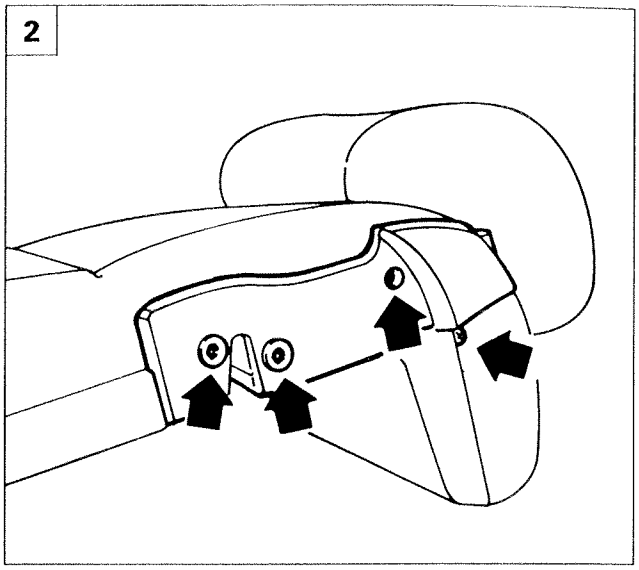

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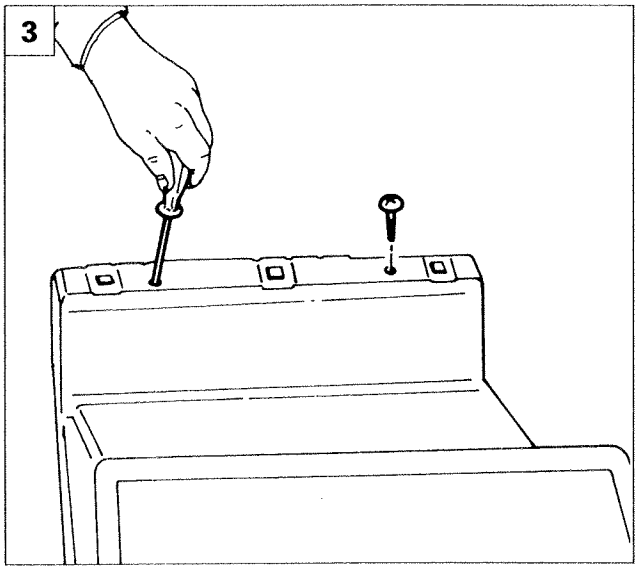


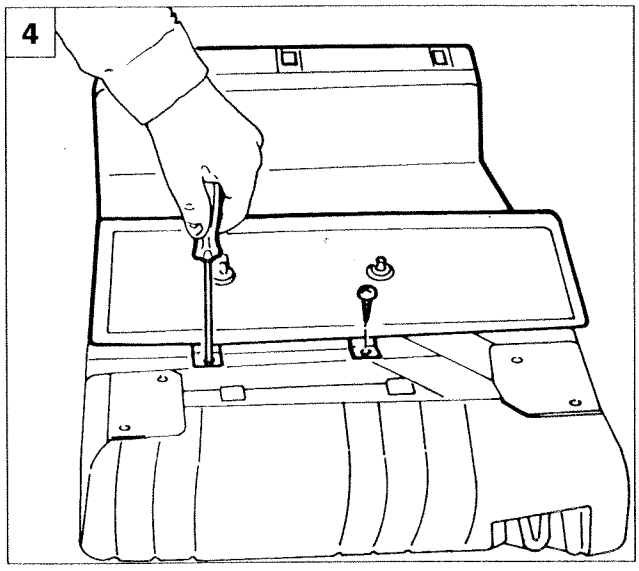
P3U13EM03

FOLDING REAR SEAT SQUAB

Dismantling-reassembly

Remove the squab from the car as described on page 10.

1. Remove the suitcase stop from its seating, releasing the pins from their clips.
2. Undo the screws indicated and remove the squab lock/release device.
3. Undo the top screws securing the squab trim.
4. Undo the bottom screws and remove the squab trim from its seating.
5. Undo the screws indicated and remove the seat belt attachment embellishment.



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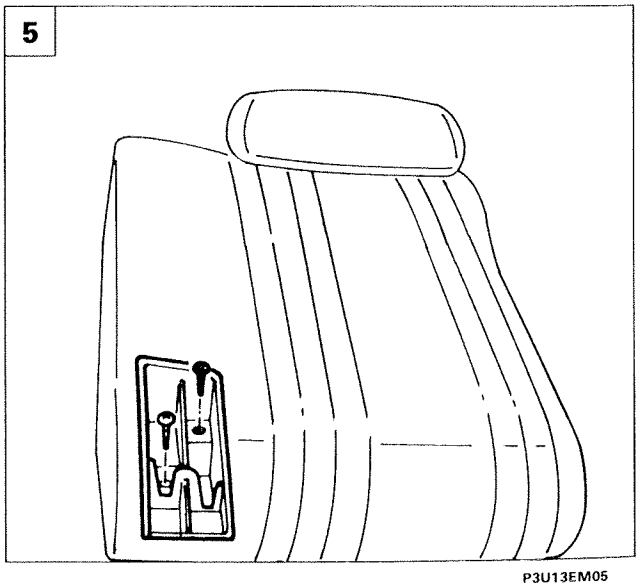

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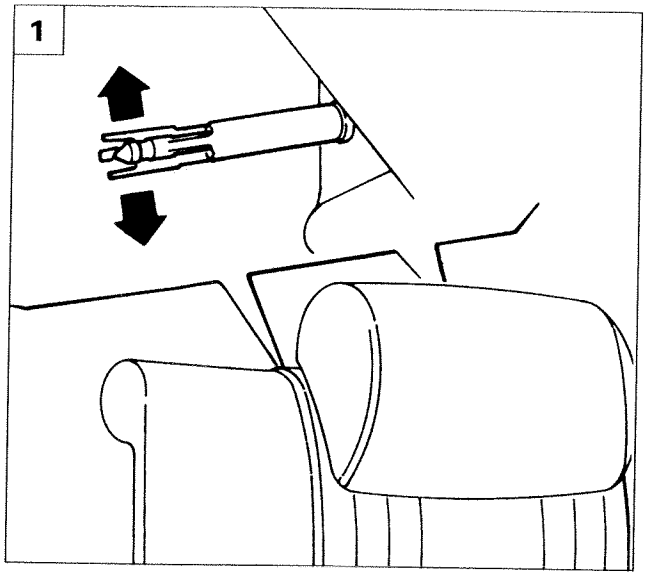

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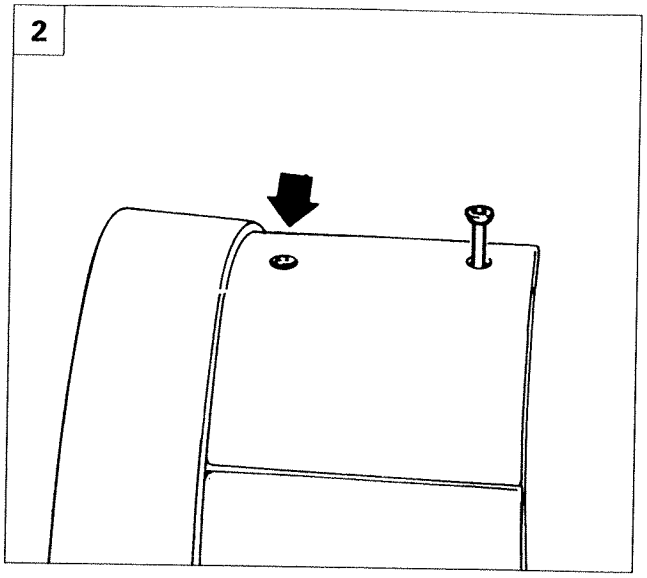

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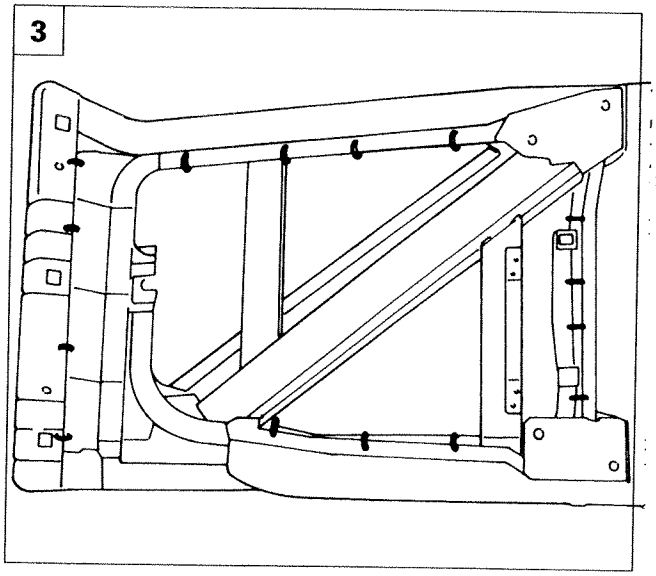
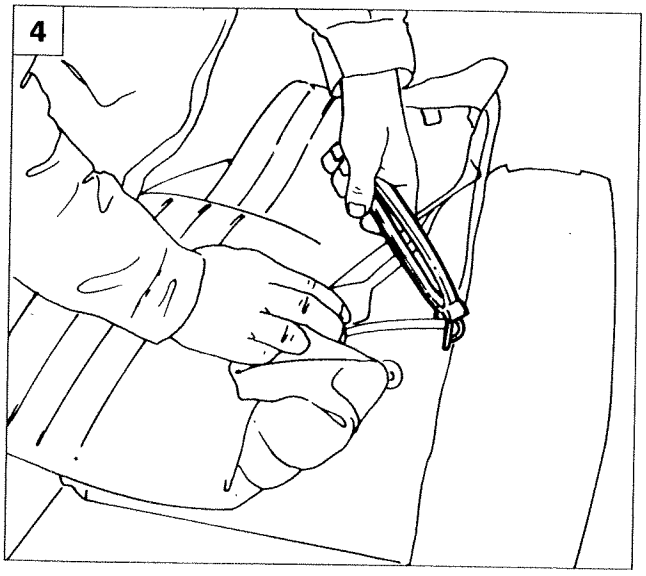


P3U14EM03

1. Remove the heat rest by releasing the pins from the squab as shown in the insert.
2. Withdraw the seating of the head rest pins from the squab frame.
3. Cut the clips securing the perimeter of the squab trim to the frame.
4. Cut the clips securing the squab trim to the vulcanized tie rods in the stuffing.
5. Dismantling:
   1. Squab trim
   2. Stuffing
   3. Squab frame

NOTE *To refit, reverse the procedure for removal.*



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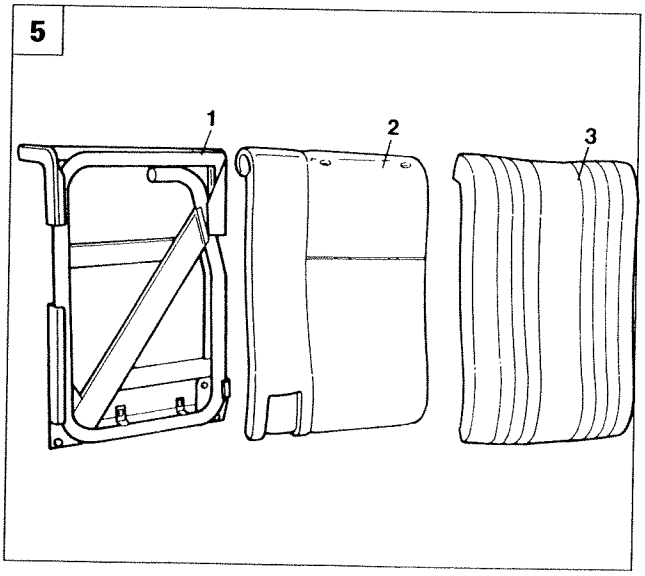

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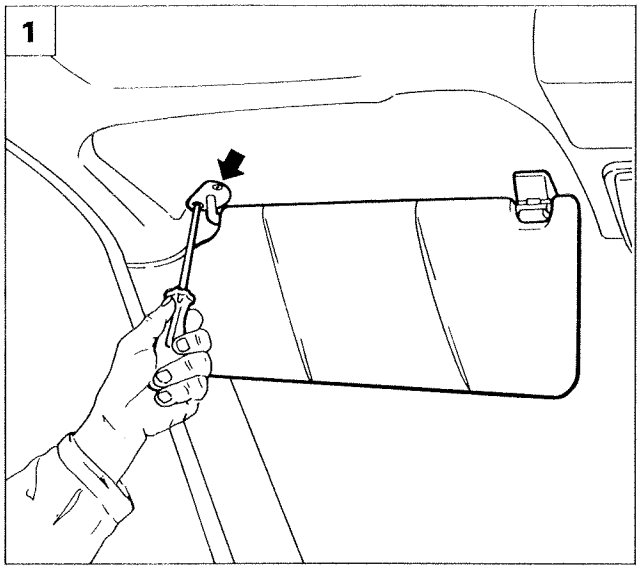
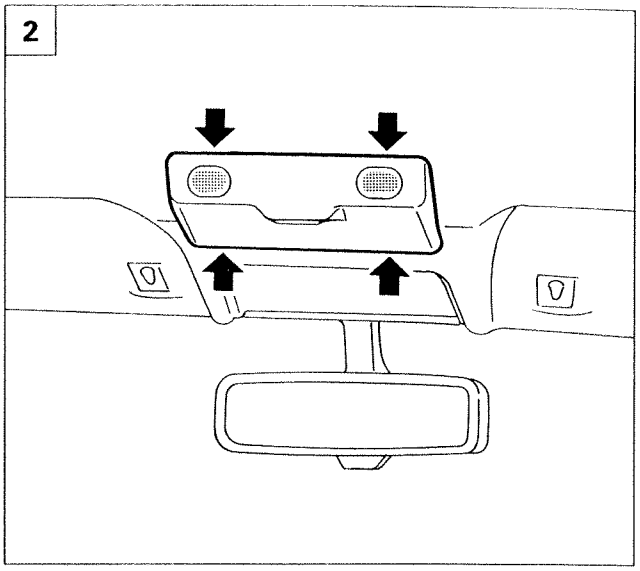


P3U15EM01

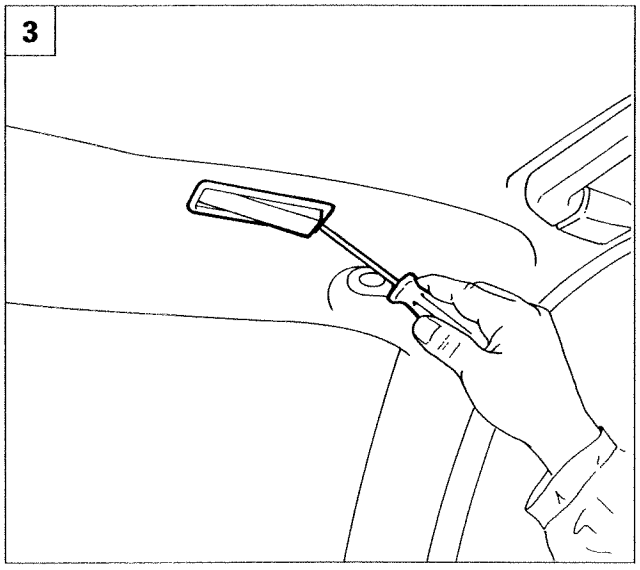


P3U15EM02

CEILING TRIM

Removing-refitting

1. Remove the sunshades after undoing the screws.
2. Remove the courtesy light after removing the lens, undoing the screws securing the courtesy light to the trim and disconnecting the relevant connectors.
3. Remove the courtesy light for lighting the right sunshade mirror by releasing the tabs and disconnecting the wiring connector.
4. Using tool 1878077000 remove the front pillar trim pieces, after partially removing the door frame seals.
5. Partially remove the central pillar trim pieces using tool 1878077000.



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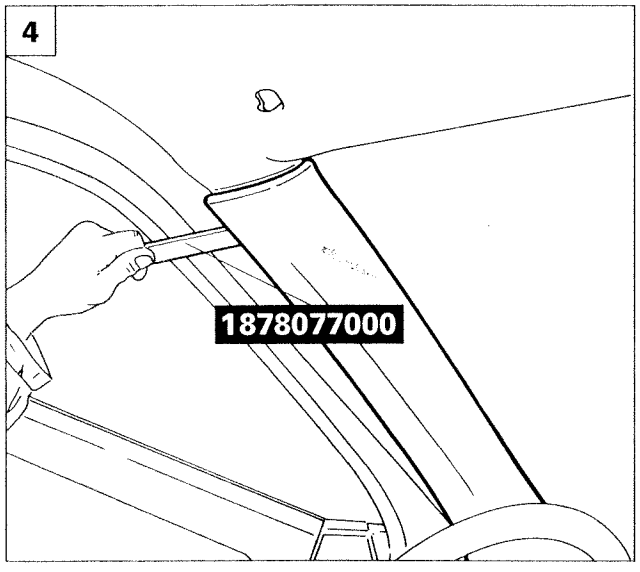

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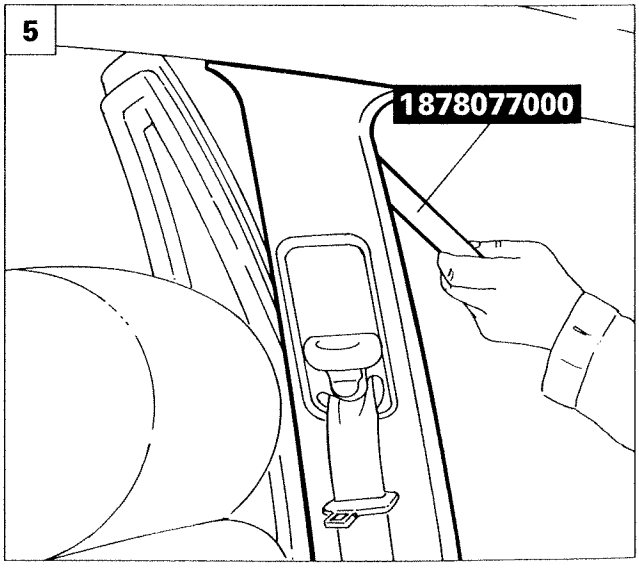

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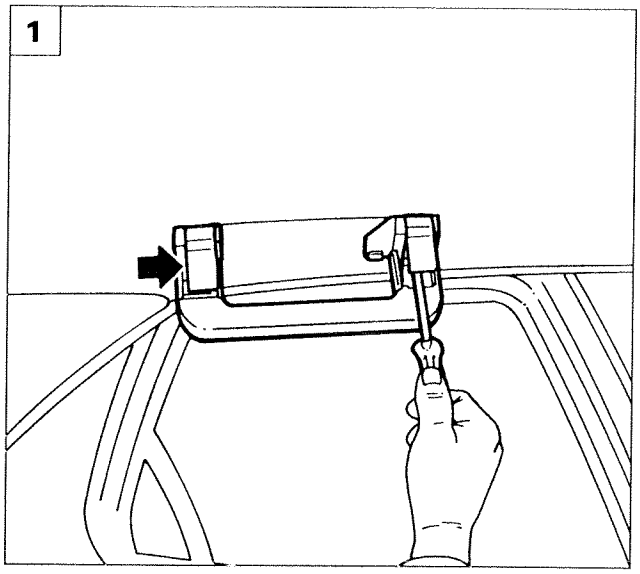
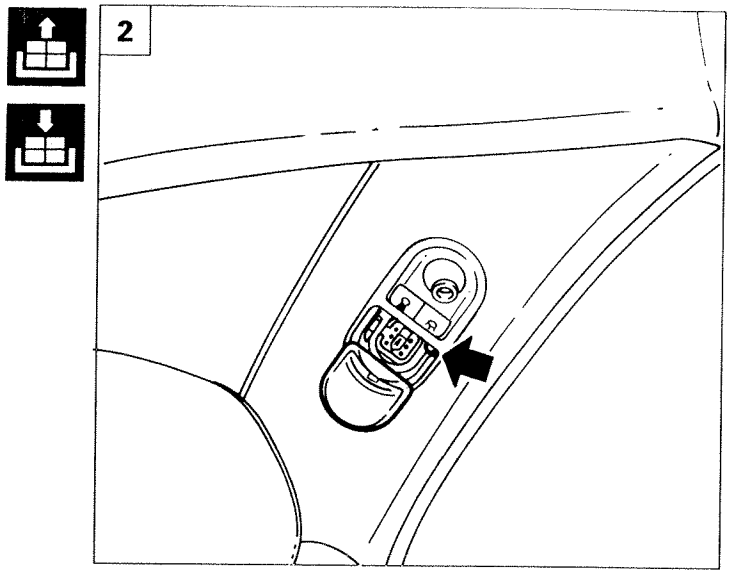


P3U16EM01



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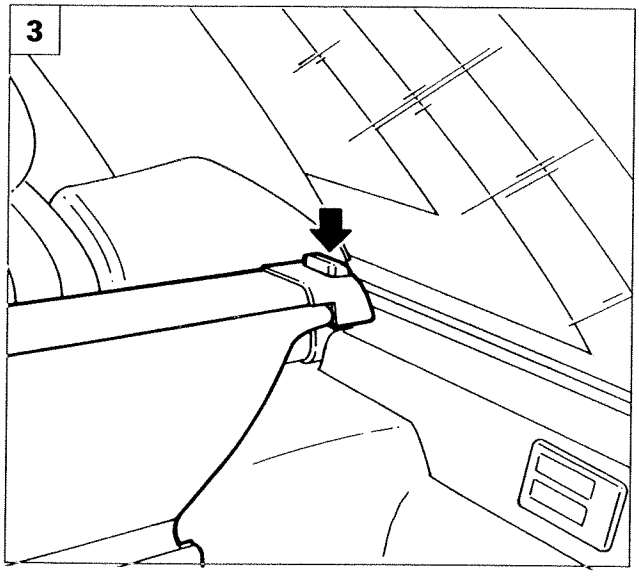
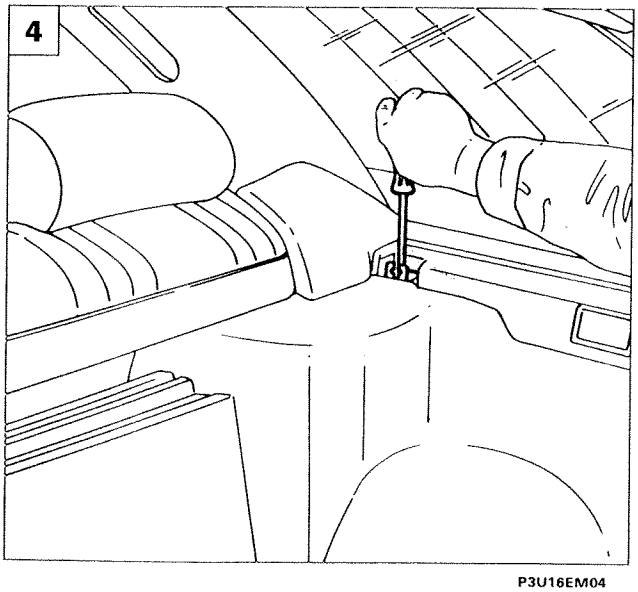


P3U16EM03

1. Undo the screws indicated and remove the passenger grab handles.
2. Remove the courtesy lights on the rear pillar trim by removing the lenses, screws and connectors.
3. Remove the boot screen by operating the side buttons.
4. Remove the boot screen side blocks by undoing the attachment screws.
5. Remove the tailgate frame central moulding by undoing the screws indicated.



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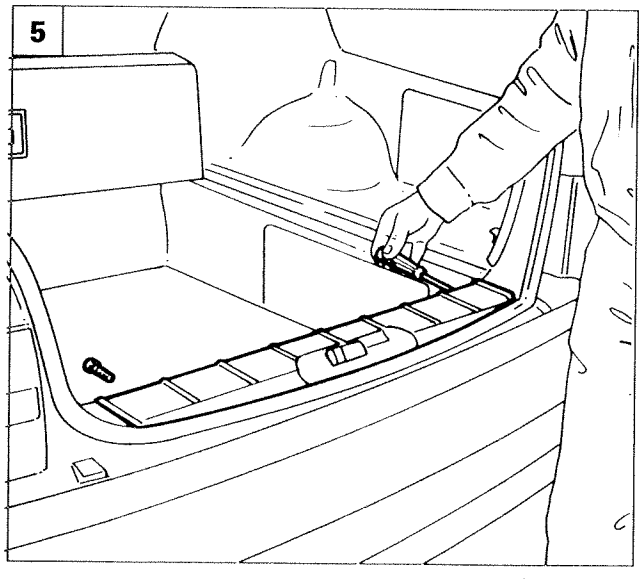

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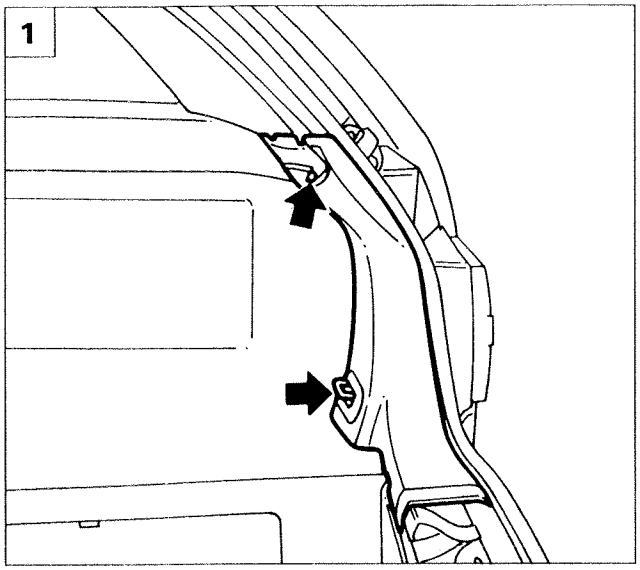

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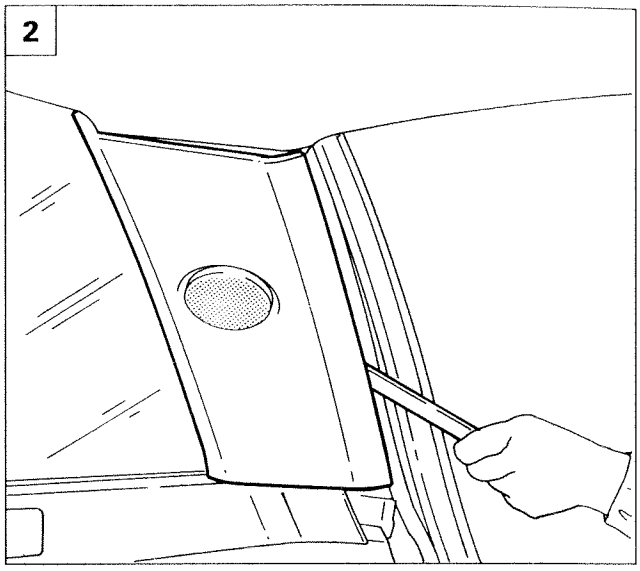

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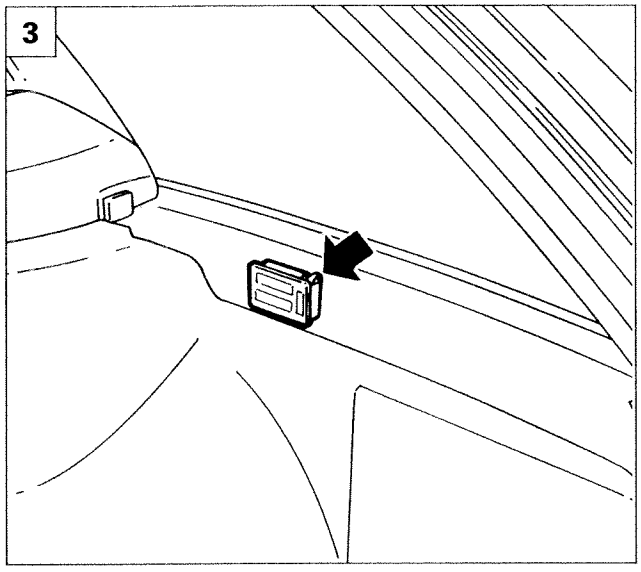
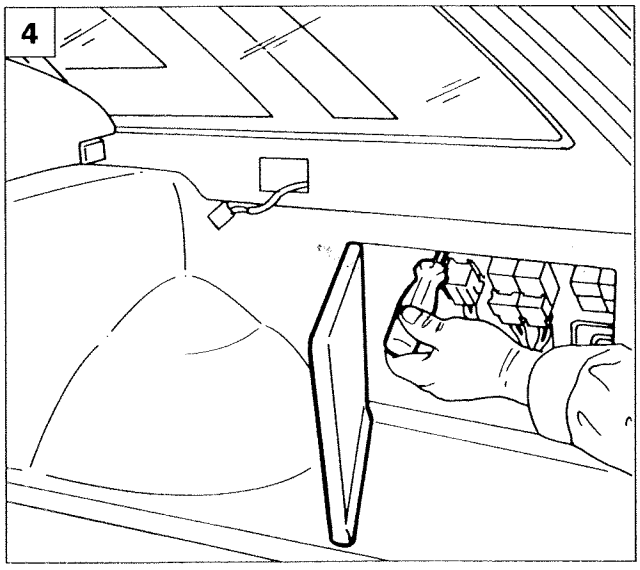


P3U17EM03

1. Undo the screws indicated and remove the tailgate frame side mouldings.
2. Using tool 1878077000, remove the luggage compartment rear pillar trim.
3. Remove the luggage compartment side courtesy light by releasing the lugs and disconnecting the wiring connector indicated.
4. Open access door to the connectors and undo the screw securing the moulding to the body shell.
5. Remove the rear seat cushion and undo the seat belt bottom bolt.



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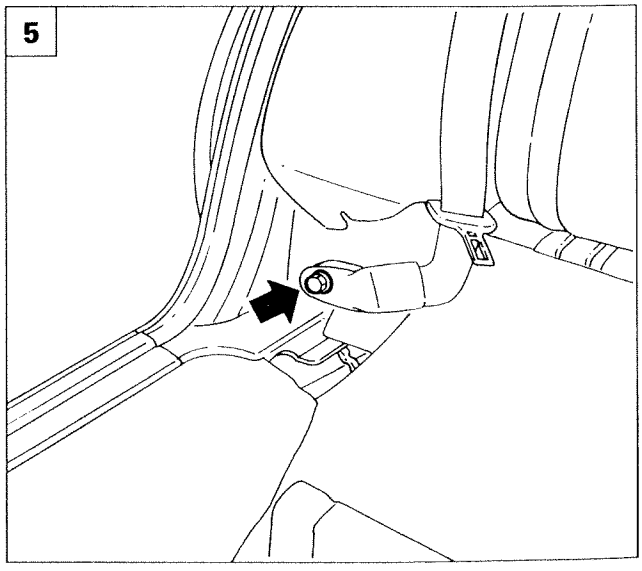

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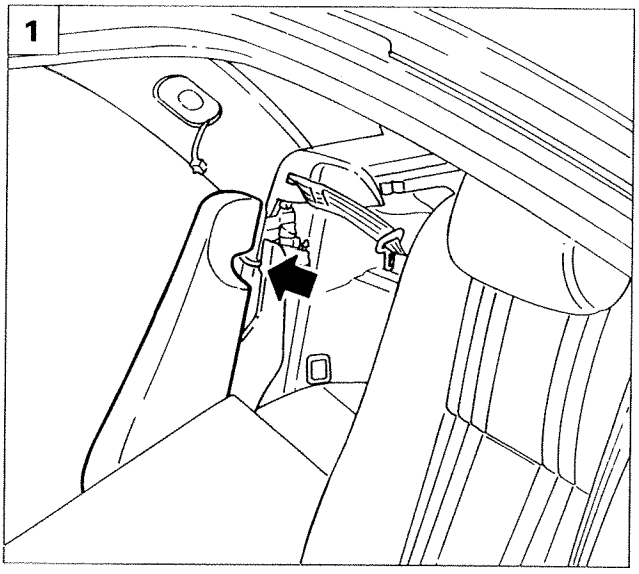

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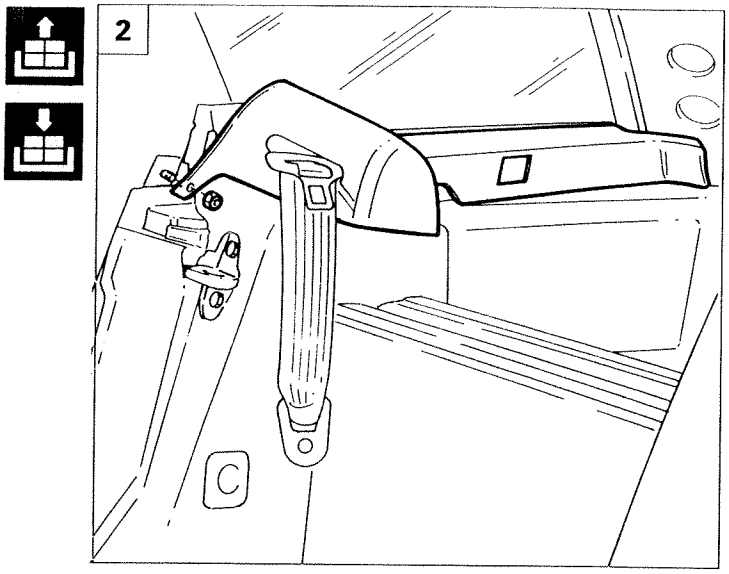

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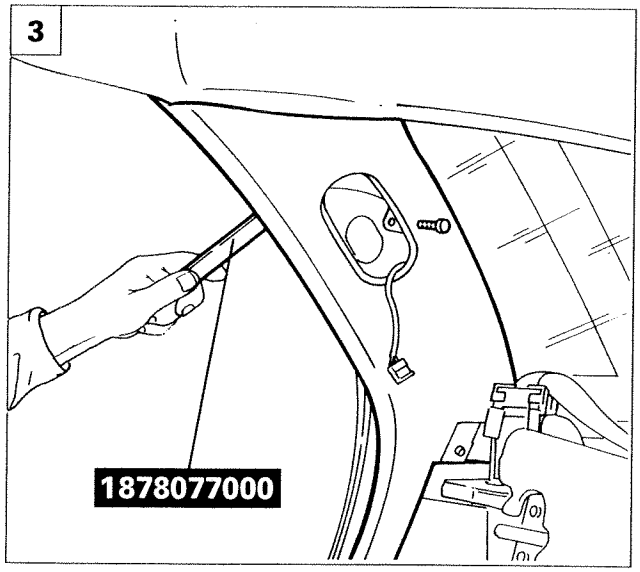
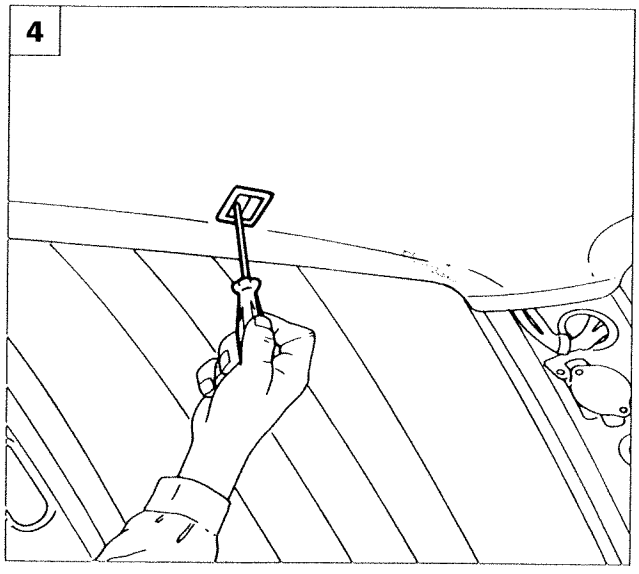


P3U25DM04

1. Lower the rear seat squab and remove the fixed squab by releasing it from its catches.
2. Undo the nut indicated and remove the luggage compartment side moulding.
3. Undo the screw indicated, and using tool 1878077000 remove the rear pillar trim pieces.
4. Undo the screws and remove the rear sunshade catches.
5. Remove the rear courtesy light lens by releasing the retaining lugs.



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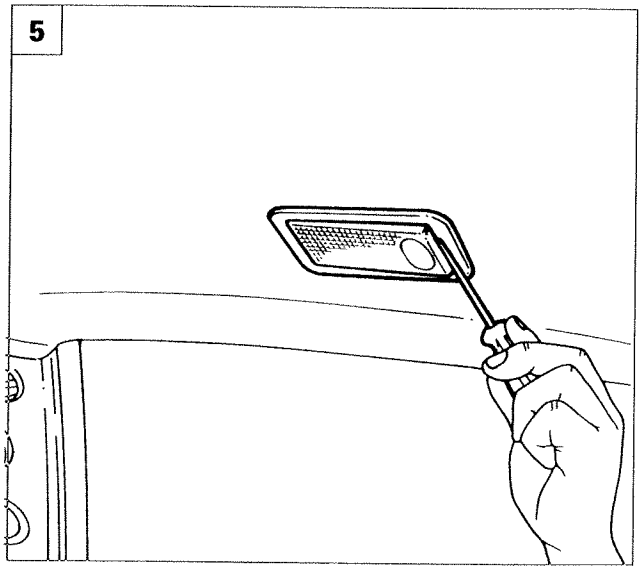
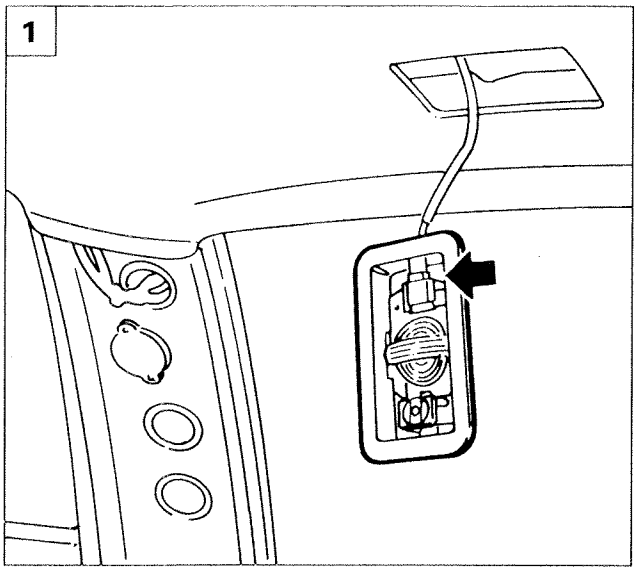
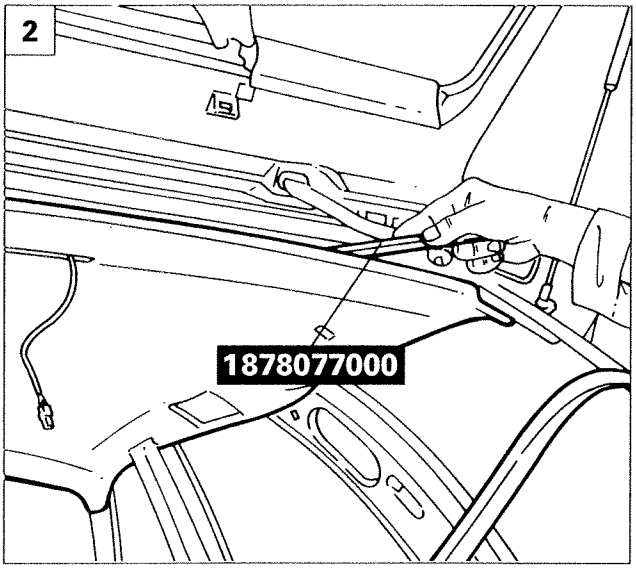


P3U18EM05



P3U19EM01

1. Disconnect the wiring connector indicated and remove the courtesy light from the ceiling trim.
2. Partially remove the tailgate seal, and using tool 1878077000 release the ceiling trim from the press clips located at the rear of the ceiling trim and from the Velcro on the edges and near the ceiling fins.
3. Remove the ceiling trim, withdrawing it from the luggage compartment.

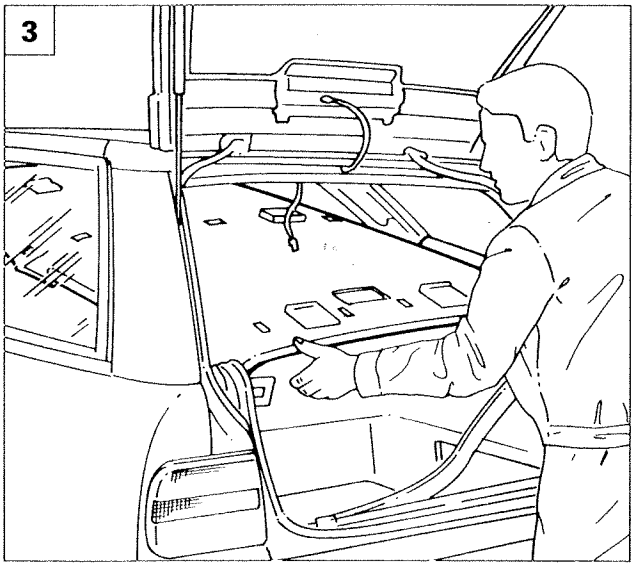


P3U19EM02

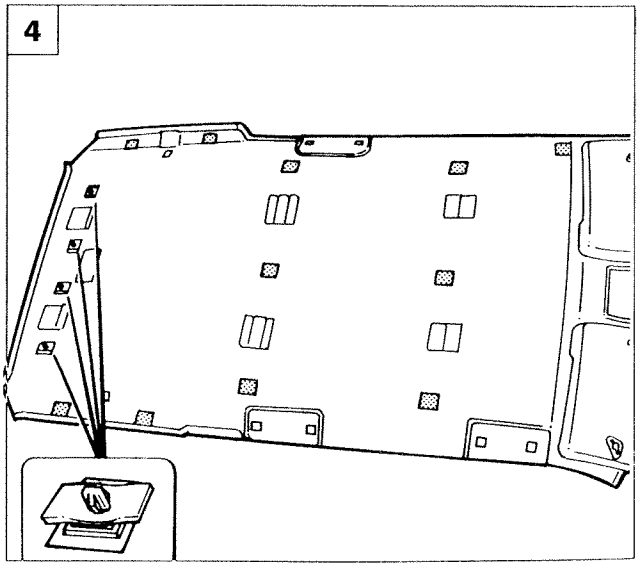
NOTE *To refit, reverse the procedure for removal.*

4. The figure shows the location of the press clips.

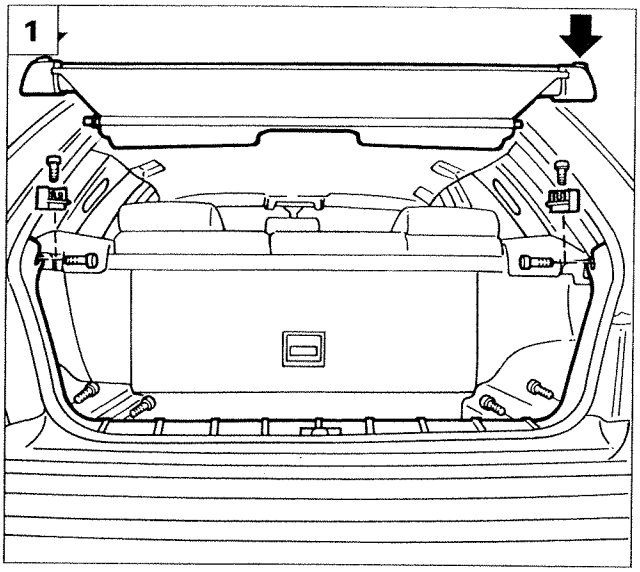
NOTE *The shaded areas represent the positions of the Velcro on the ceiling trim.*



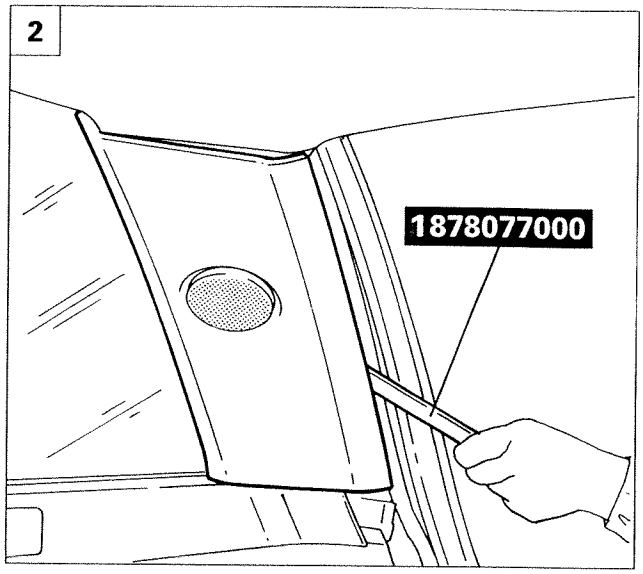
P3U19EM03



P3U19EM04



P3U24DM01

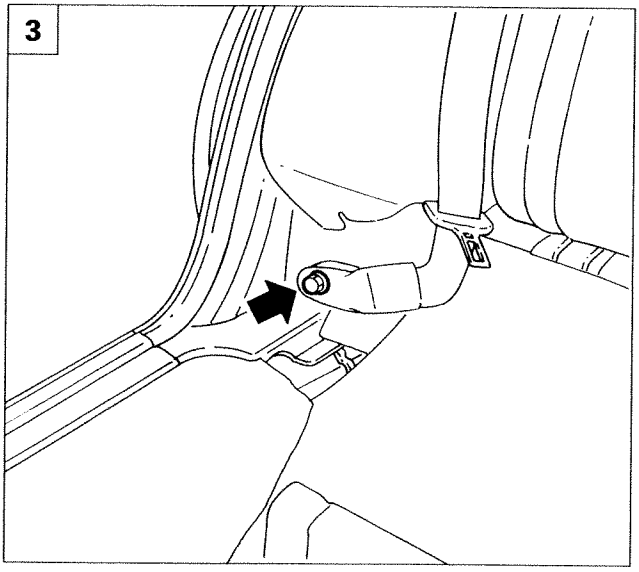


P3U25DM03

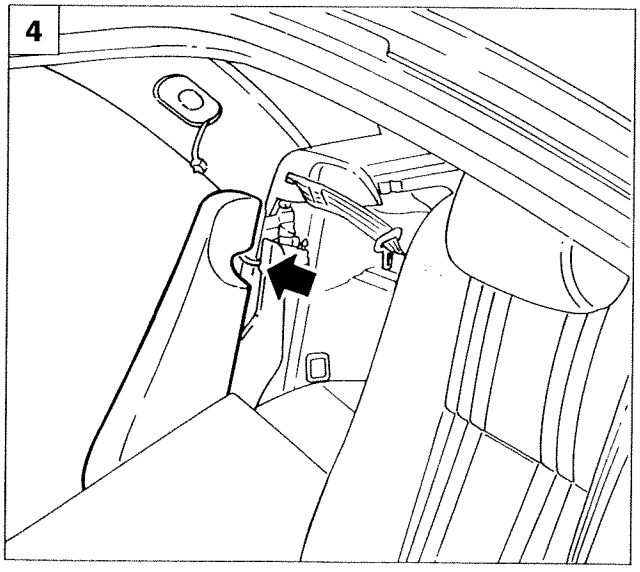
WING PANEL INTERIOR TRIM

Removing-refitting

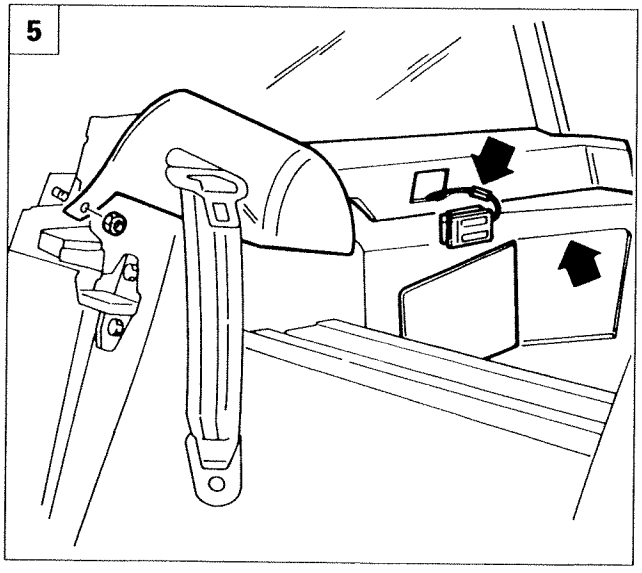
1. Remove the luggage compartment screen and remove the side blocks underneath by unscrewing the bolts, then remove the luggage compartment frame central and side mouldings by undoing the bolts.
2. Remove the luggage compartment rear pillar trim using tool 1878077000.
3. Remove the rear seat cushion and undo the seat belt bottom mounting bolt.
4. Lower the rear seat squab and remove the fixed squab, releasing it from the stop catch.
5. Disconnect the wiring connector and remove the courtesy light, undo the nut and bolt and then remove the side moulding.



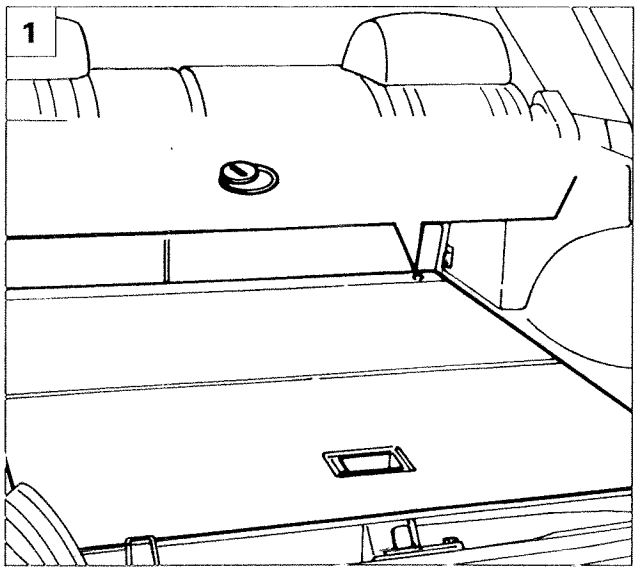
P3U24DM04



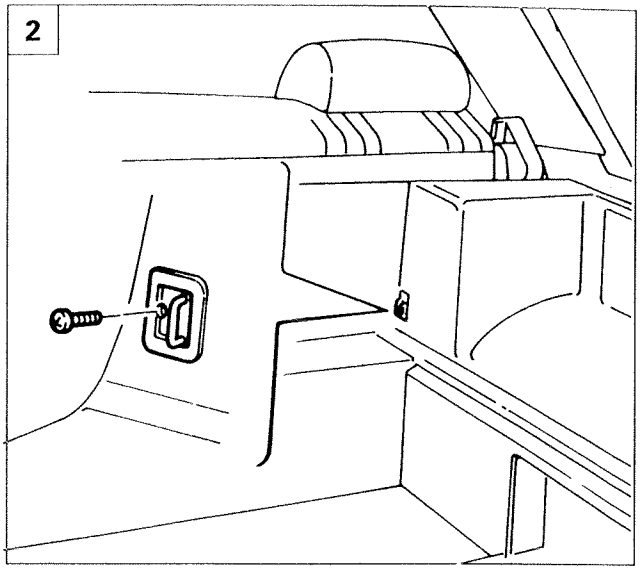
P3U25DM01



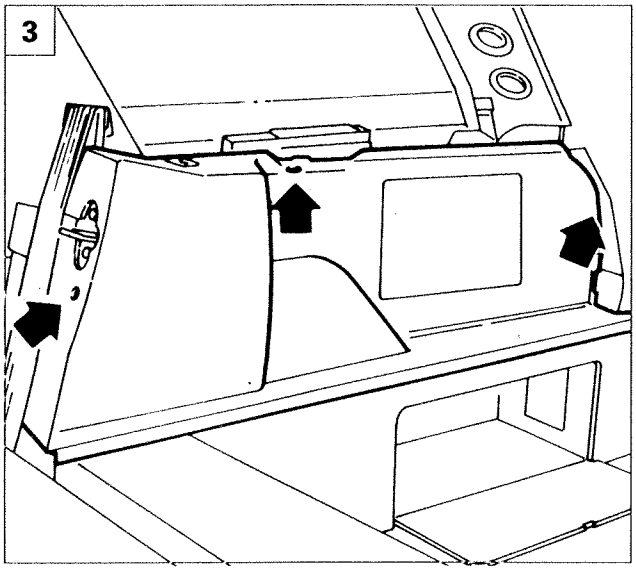
P3U20EM01



P3U21EM01

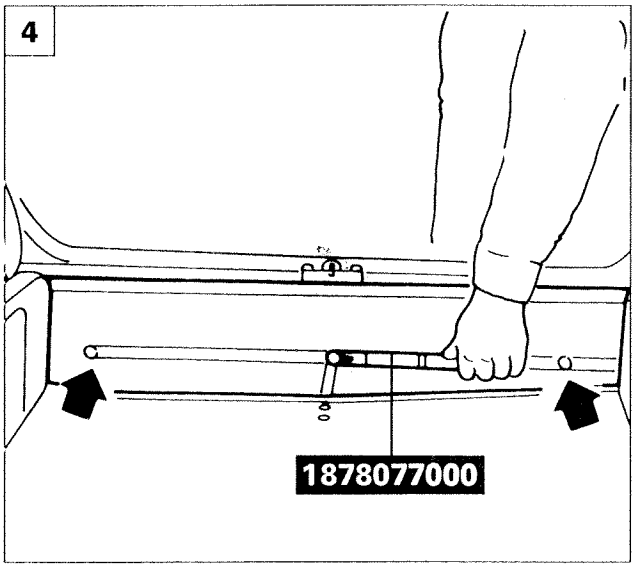


P3U21EM02



P3U21EM03

1. Undo the screws indicated in the figure and remove the luggage compartment folding trim.
2. Undo the screw indicated and remove the catch on the side trim.
3. Lower the rear seat squab, undo the screws shown in the figure and remove the top side trim from the body shell.
4. Using the tool 1878077000, remove the buttons securing the rear cross panel interior trim and remove the trim from the car.
5. Remove the bottom trim from the rear seat base.



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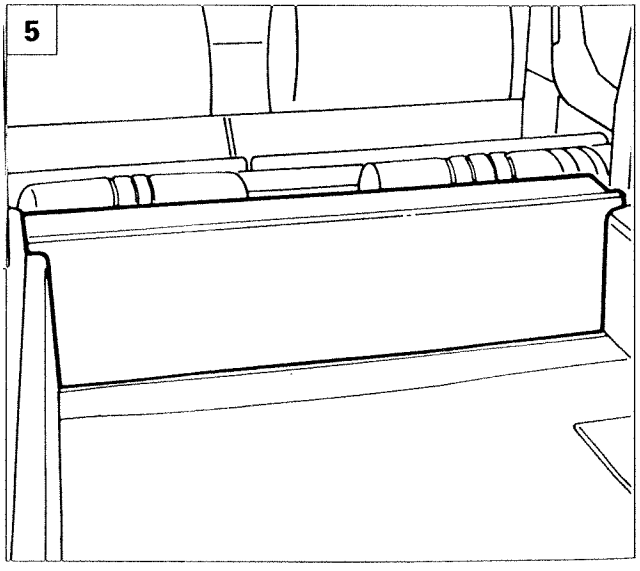
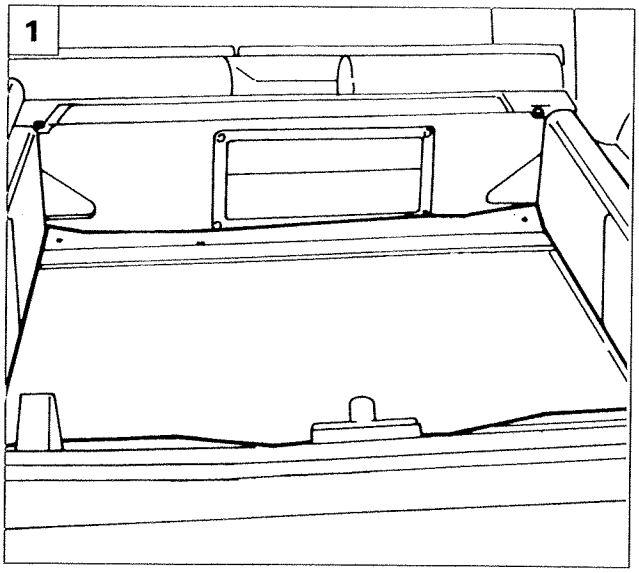
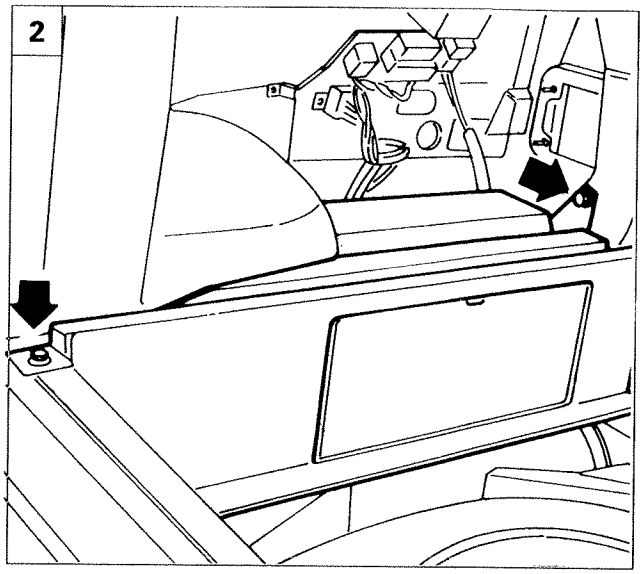


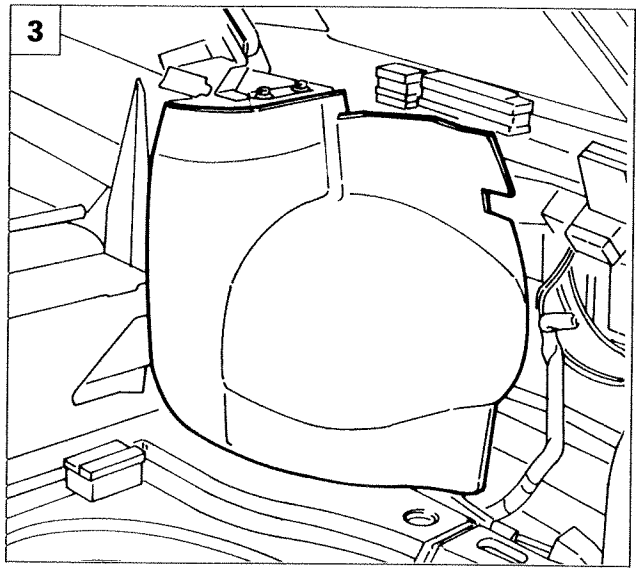
P3U21EM05



P3U22EM01



P3U22EM02

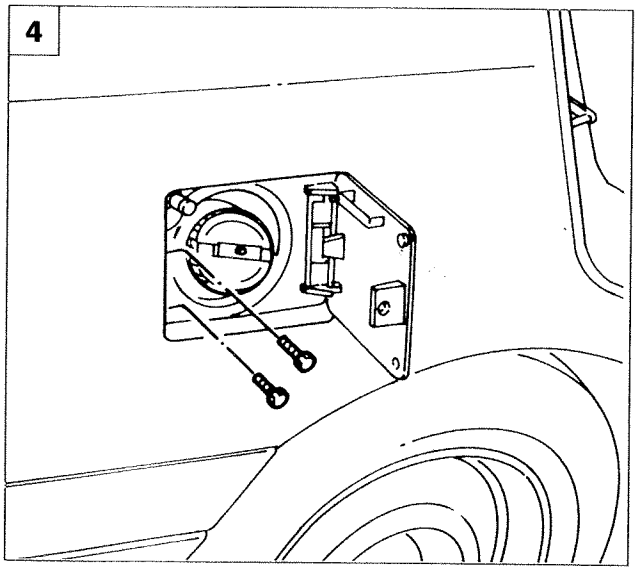


P3U22EM03

1. Remove the load compartment floor trim.
2. Undo the bolts shown in the figure and remove the wing interior bottom trim.
3. Remove the preformed sound-proofing panel from the body shell.
4. Open the fuel filler flap and undo the bolts shown in the figure.
5. Undo the bolts shown in the figure and detach the electrical devices mounting from its seating.

When removing this mounting, be careful that the fuel filler flap pushrod does not fall out.

NOTE *To refit, reverse the procedure for removal.*



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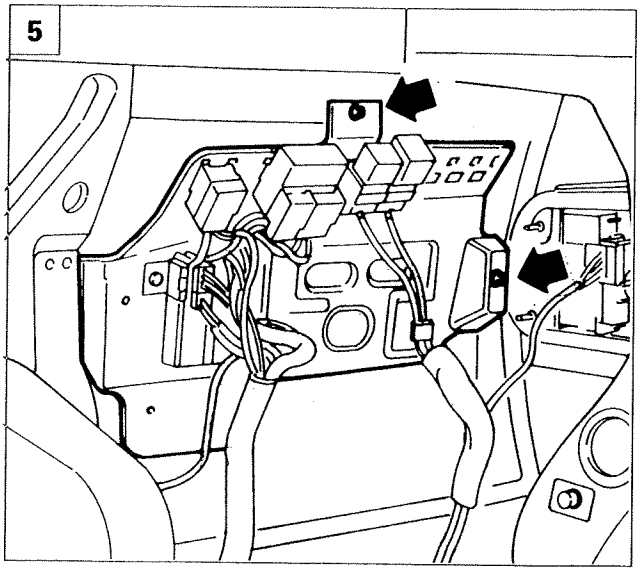

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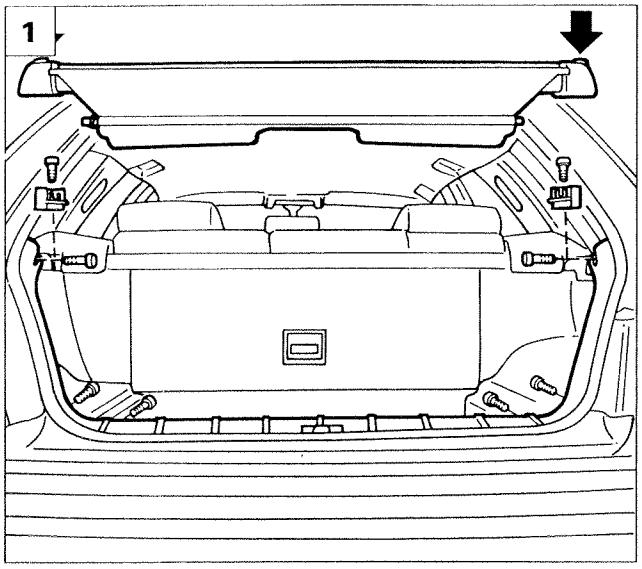
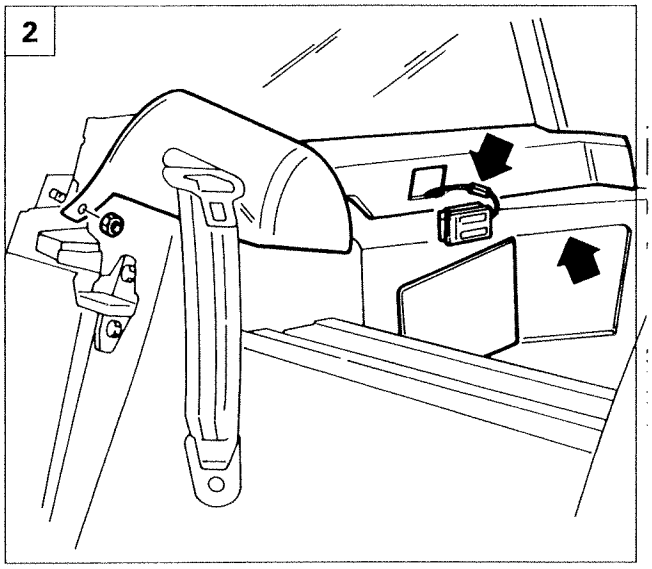


P3U24DM01

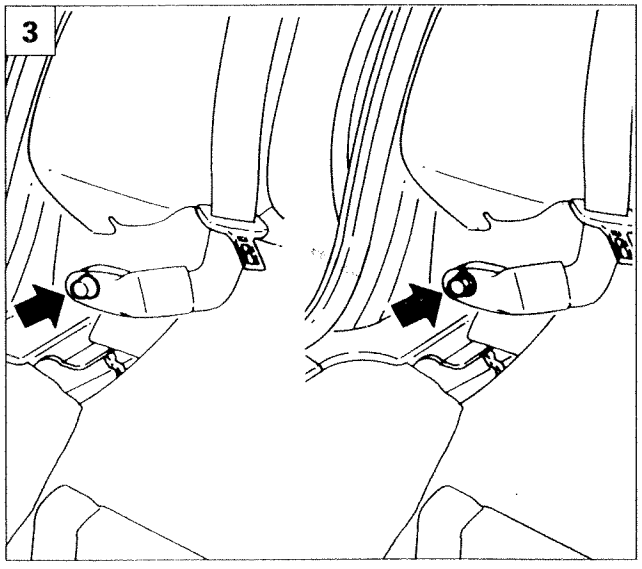
REAR SEAT BELTS

Removing-refitting

1. Remove the luggage compartment screen by operating the side buttons, then remove the side blocks underneath by undoing the bolts; remove the tailgate frame central and side mouldings by undoing the bolts.
2. Remove the luggage compartment side courtesy light by releasing the retaining lugs and disconnecting the electrical connector; then open the access flap to the electrical devices and undo the screw securing the moulding to the body shell.
3. Remove the rear seat cushion, remove the attachment cover and undo the seat belt bottom bolt.
4. Lower the rear seat squab and remove the fixed side squab, lifting it from its seating.



P3U20EM01



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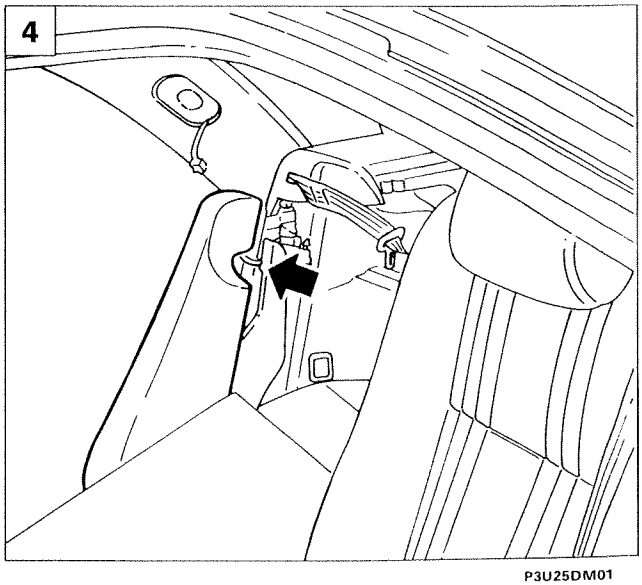
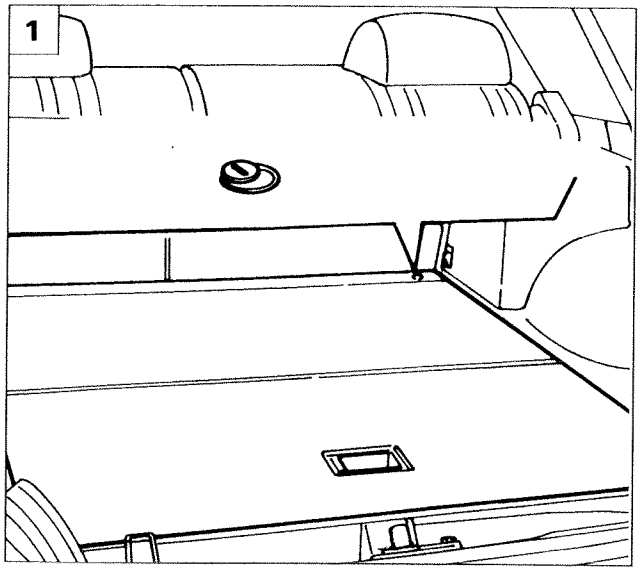


P3U25DM01

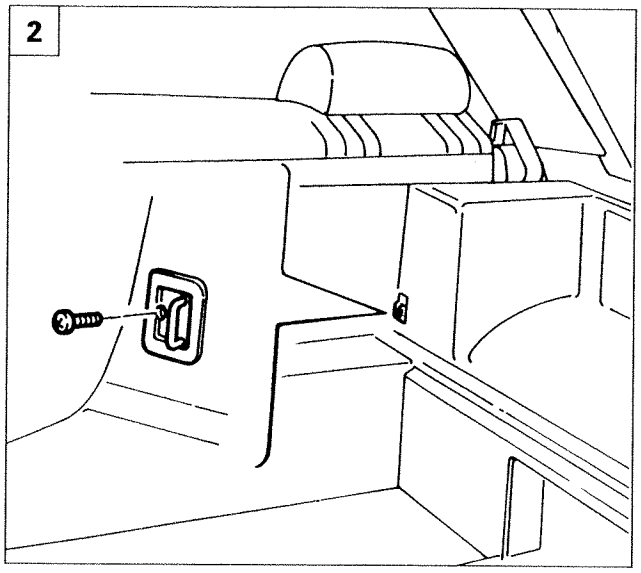


P3U21EM01

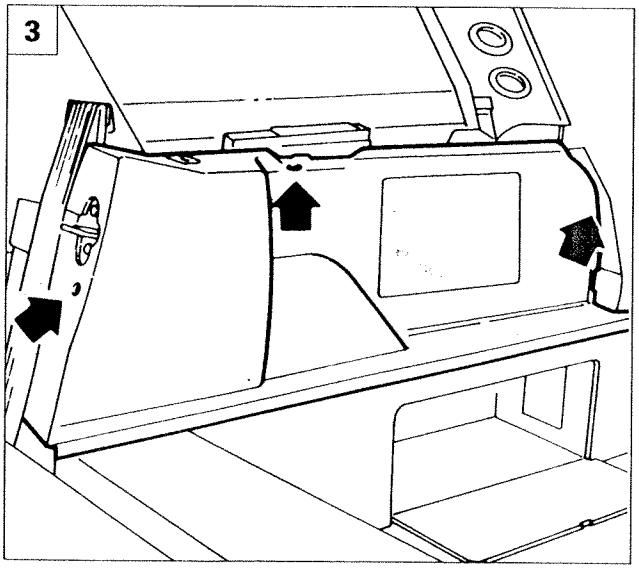
1. Remove the luggage compartment folding trim by undoing the screws indicated.
2. Undo the screw indicated and remove the luggage retaining hook on the side trim.
3. Undo the bolts shown in the figure and remove the top side trim from the body shell.

4. Undo the bolts shown in the figure and remove the seat belt complete with bracket from the car.

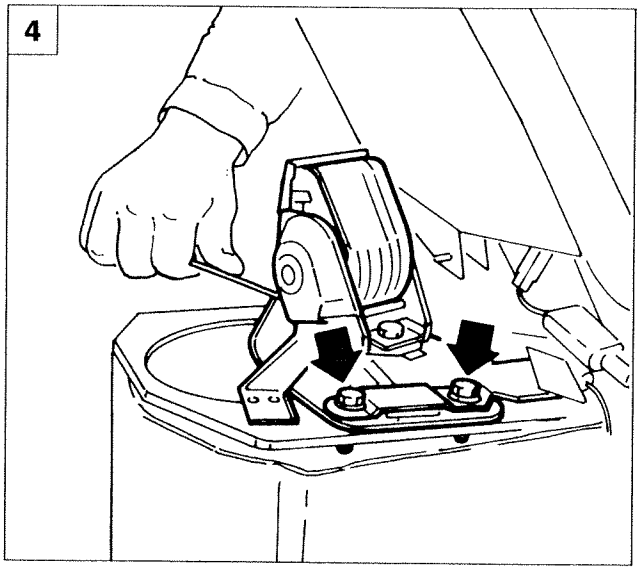
NOTE *To refit, reverse the procedure for removal, fully tightening (indicative torque: 5 daNm) the bolts securing the seat belt winder to the body shell.*



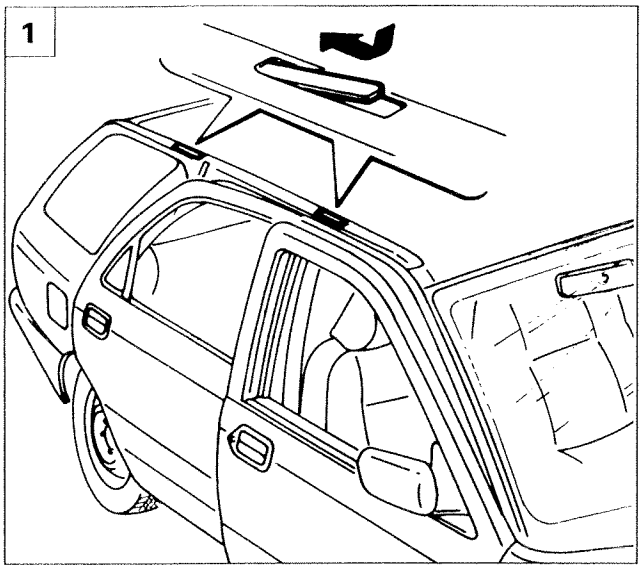
P3U21EM02



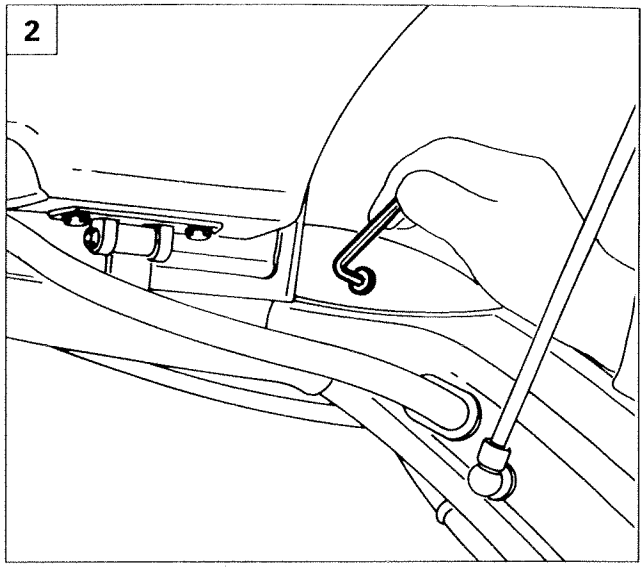
P3U21EM03



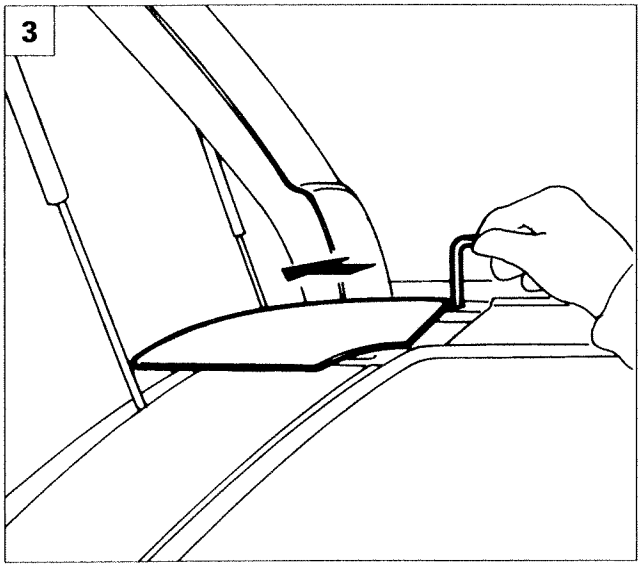
P3U24EM04



P3U25EM01



P3U25EM02

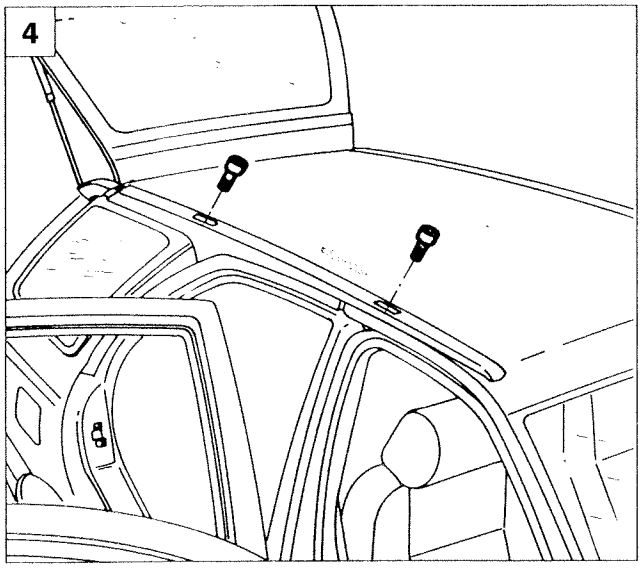


P3U25EM03

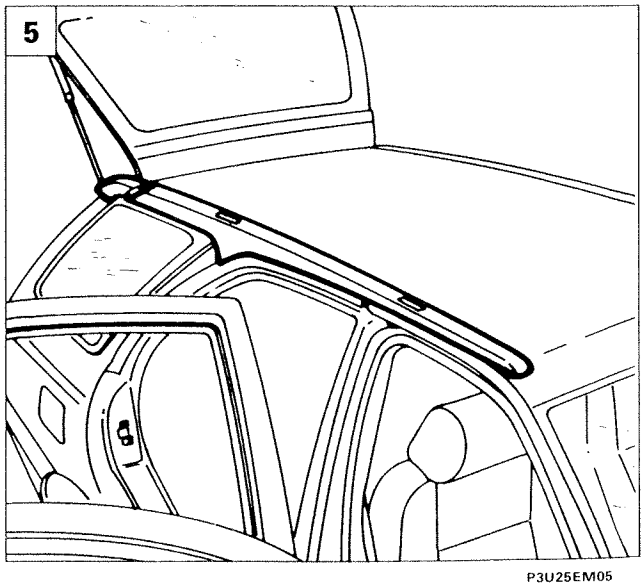
ROOF TRIM SIDE MOULDING

Removing-refitting

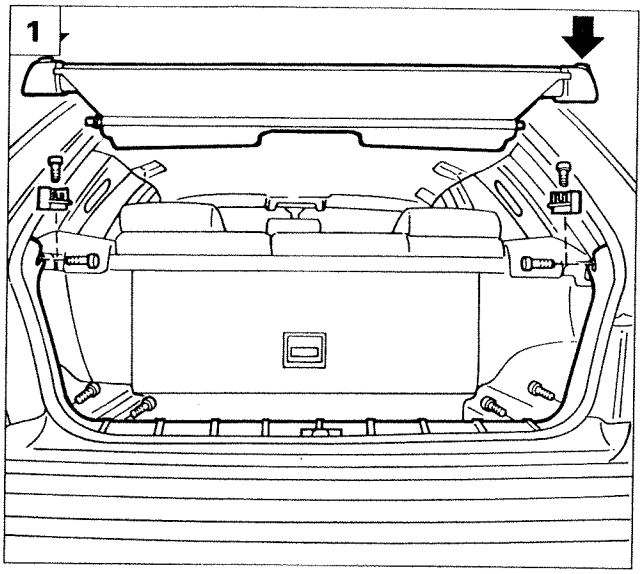
1. Remove the embellishments shown by pressing them and moving them inwards as shown in the figure.
2. Open the rear tailgate and undo the screw shown in the figure.
3. Move the end of the side moulding in the direction of the arrow and undo the screw underneath.
4. Undo the screws located under the embellishments removed previously.
5. Remove the side moulding of the roof trim.



P3U25EM04



P3U25EM05



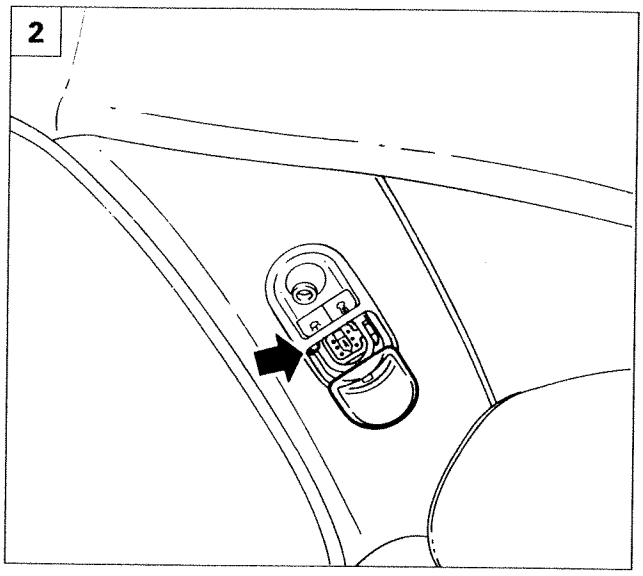
P3U24DM01

FIXED SIDE WINDOW

Preliminary operations

Before commencing the removal of the fixed side window, disconnect the battery's negative pole and remove the components that could hinder the removal operations, in particular the roof trim side moulding as described on page 25.

1. Remove the luggage compartment screen by operating the side buttons, then remove the side blocks underneath by undoing the bolts; remove the tailgate frame central and side mouldings by undoing the bolts.

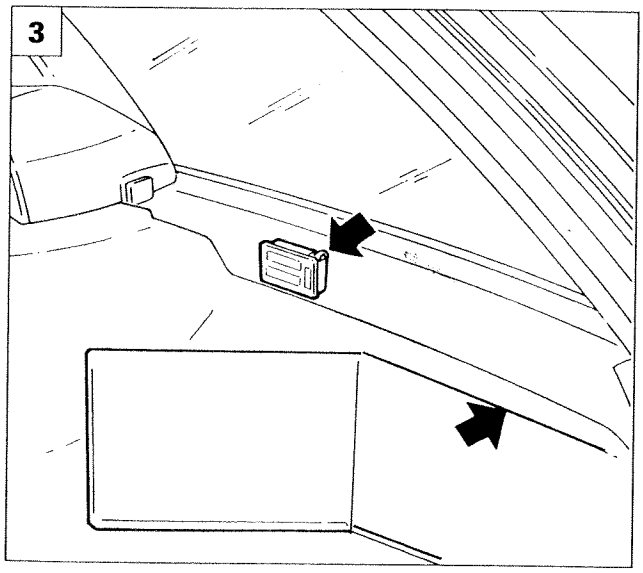


P3U24DM02

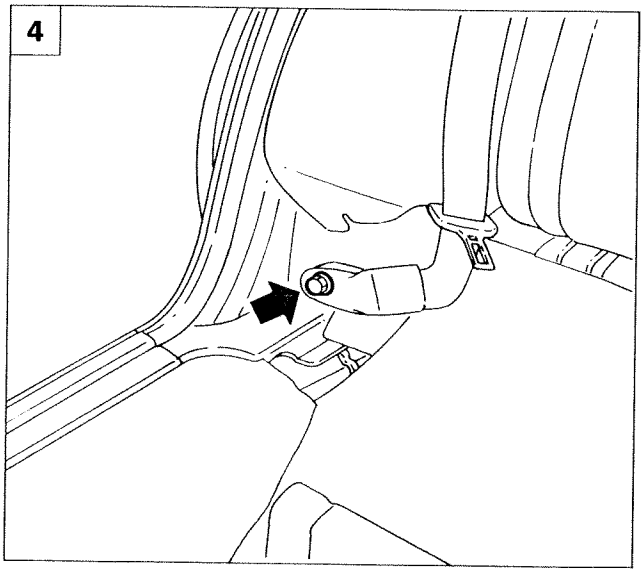
2. Remove the courtesy light on the rear pillar trim by removing the lens, screw and connector.

3. Remove the luggage compartment side courtesy light by releasing the side lugs and disconnecting the connector; then open the access flap to the electrical devices and undo the screw securing the moulding to the body shell.

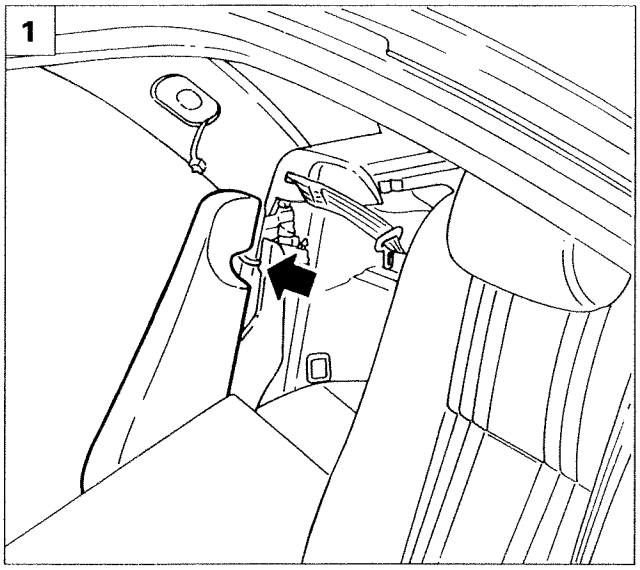
4. Remove the rear seat cushion and undo the seat belt bottom bolt.



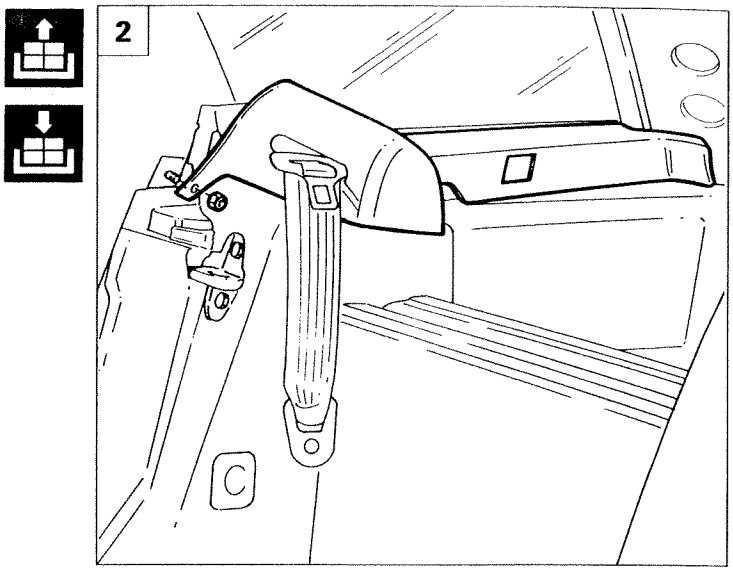
P3U24DM03



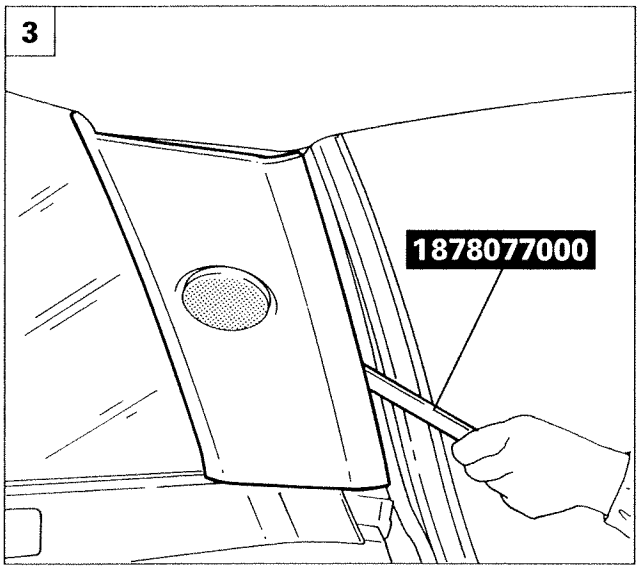
P3U24DM04



P3U25DM01

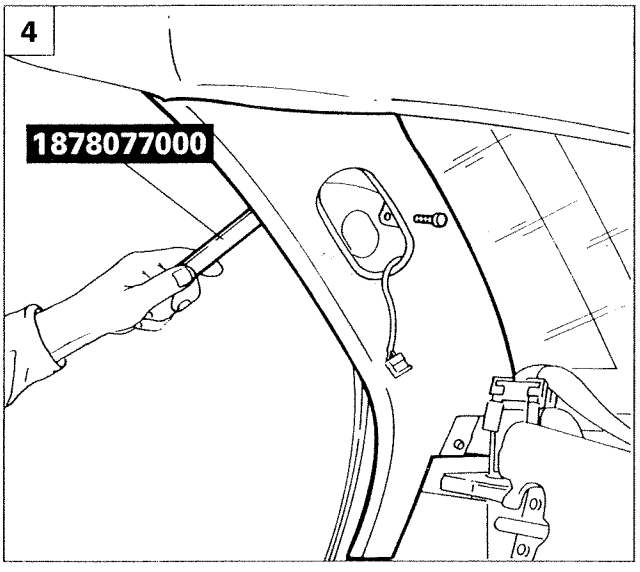


P3U25DM02

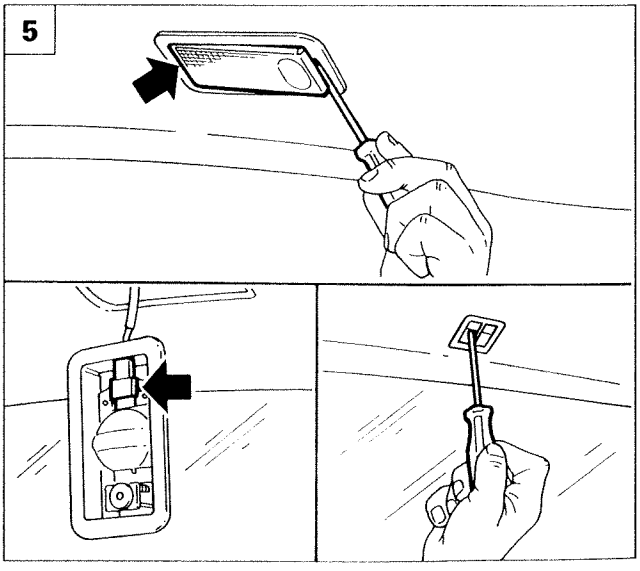


P3U25DM03

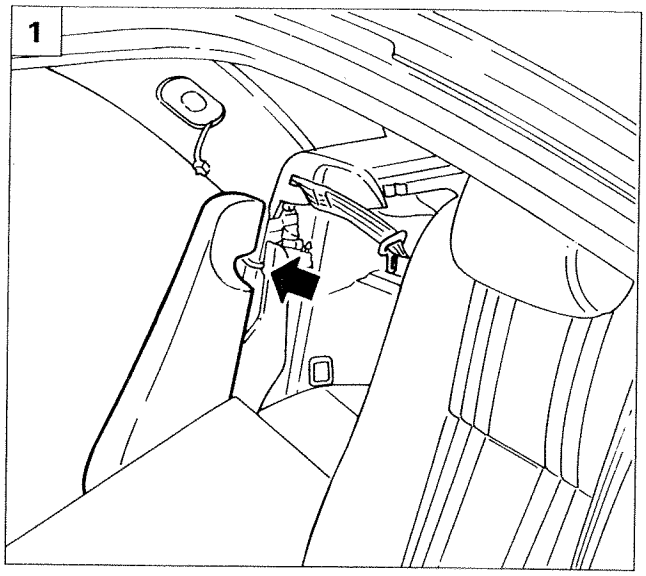
1. Lower the rear seat squab and remove the fixed side squab by lifting it from its seating.
2. Undo the nut indicated and remove the luggage compartment side moulding.
3. Using tool 1878077000, remove the side window rear pillar trim.
4. Using tool 1878077000, remove the side window front trim.
5. Remove the rear courtesy light lens, disconnect the electrical connector and remove the courtesy light from the car, then remove the rear sunshade catches.



P3U25DM04



P3U25DM05

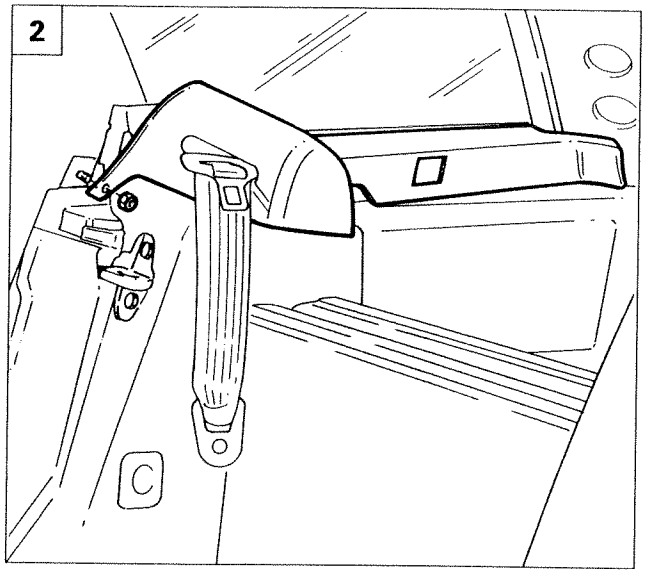


P3U26DM01

1. Remove the aerial electrical connector and attach it to the window by means of adhesive tape, then separate the trim from the ceiling by interposing appropriate spacers.

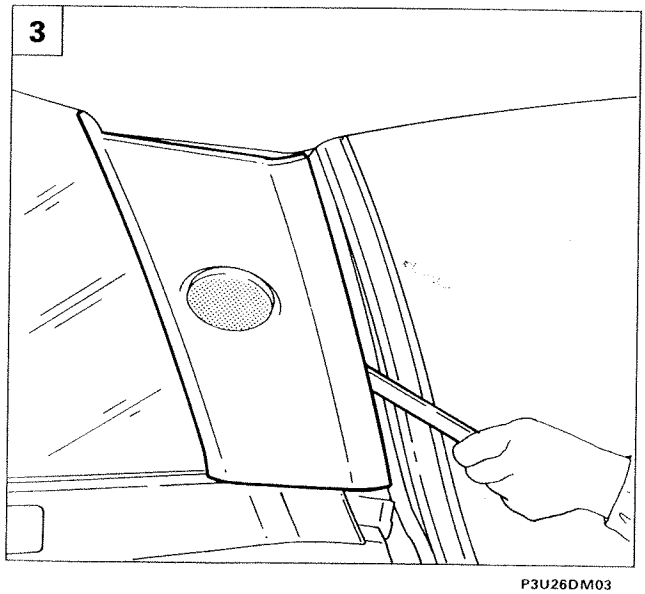
Protect with a cloth the luggage compartment and parts that could be damaged during the cutting and window installation operations. Use adhesive tape to protect the edge of the window seating to prevent damage to the paintwork.

Removing

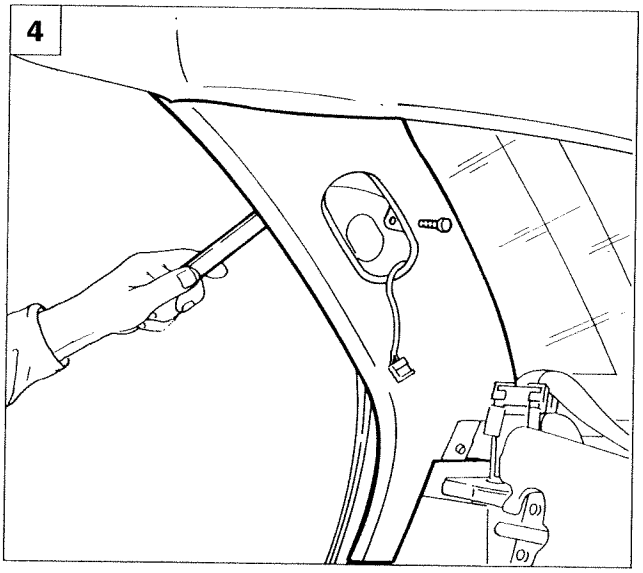


P3U26DM02

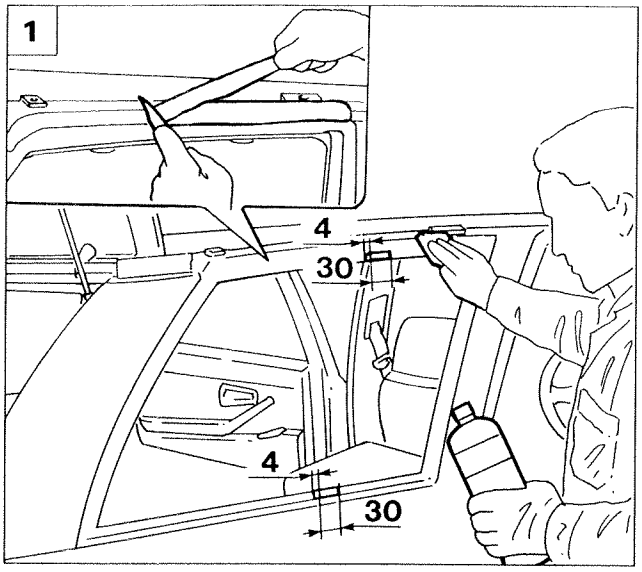
2. Working from outside the car on the top edge of the window, use a vibrating knife to cut the sealant, using the blade shown in the insert.
3. Continue cutting the sealant at the bottom and side, using the blade shown in the insert, working from inside the car.
4. Mark the reciprocal positions of the window and seating with strips of adhesive tape, then using appropriate handles with suction pads remove the window from its seating, after cutting the strips of adhesive tape applied previously.



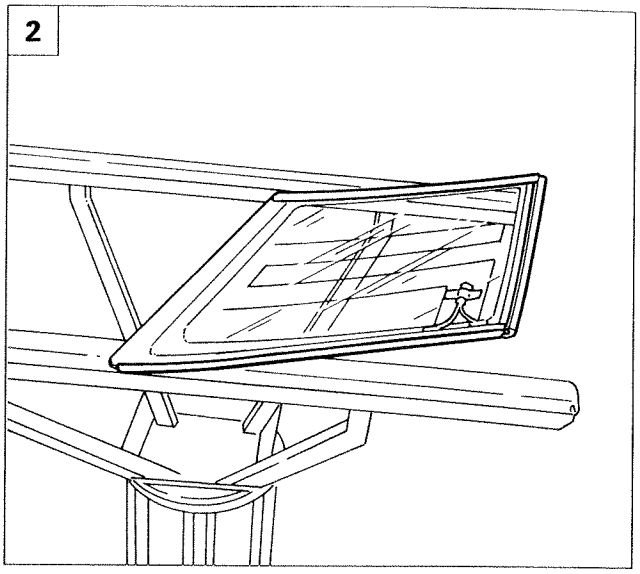
P3U26DM03



P3U26DM04



P3U27DM01



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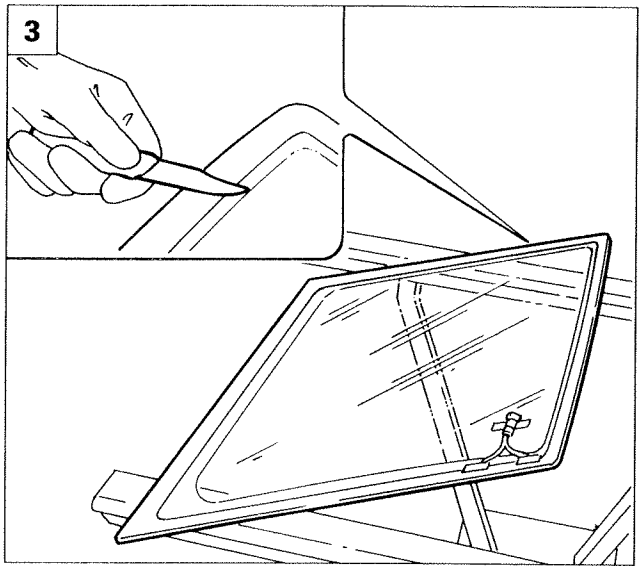


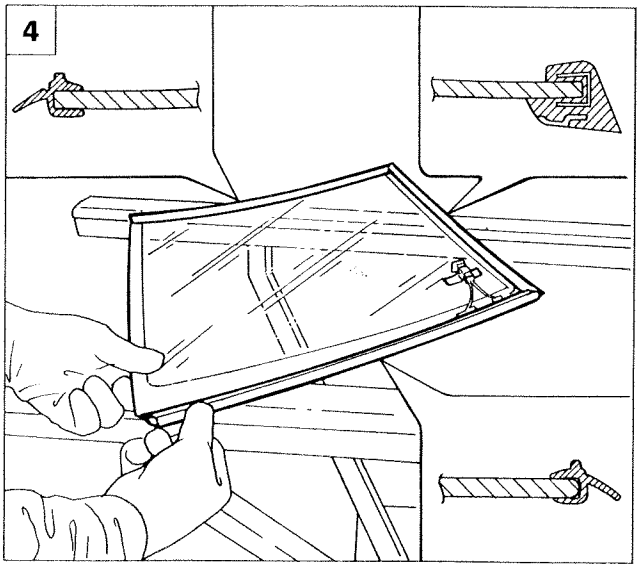
P3U27DM03

Refitting

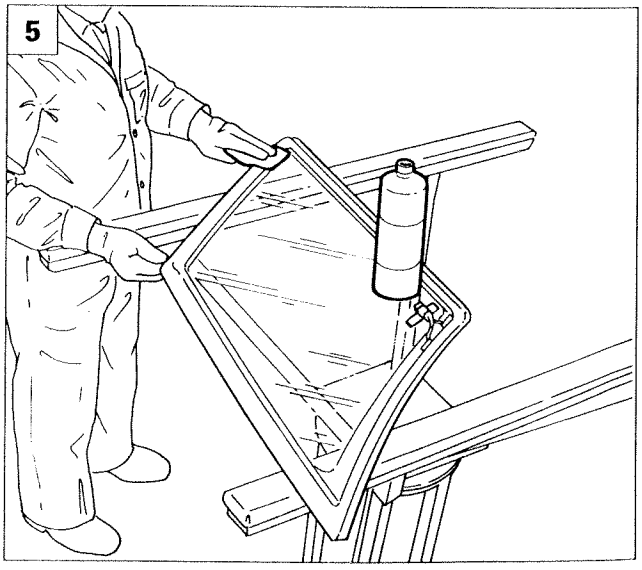
1. Smooth the sealant on the window frame using a suitable scraper, making sure that the window stops at the top and bottom are of the dimensions shown in the figure; thoroughly degrease the entire window frame using heptane and paper towel.
2. Remove the side and bottom window seals.
3. Remove the bead of old sealant from the window using a scraper.
4. Fit the window side and bottom seals.

NOTE *If the window is replaced, position the window in its seating and mark the position with adhesive tape, working as stated on the preceding page.*

5. Degrease the window thoroughly using heptane and paper towel.



P3U27DM04



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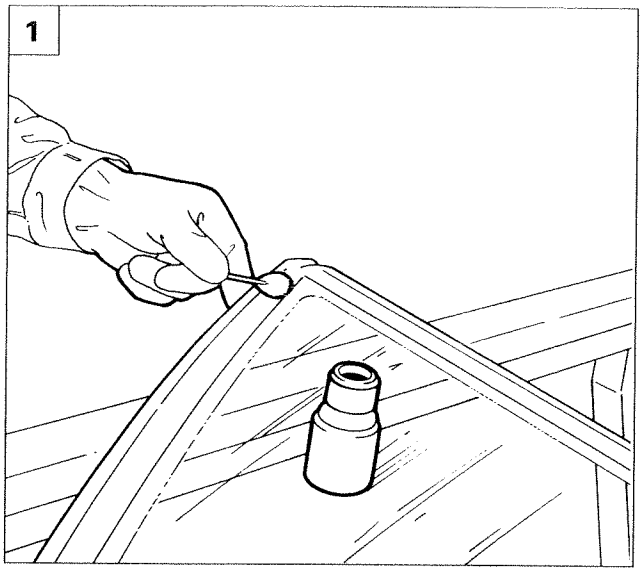


P3U28DM01

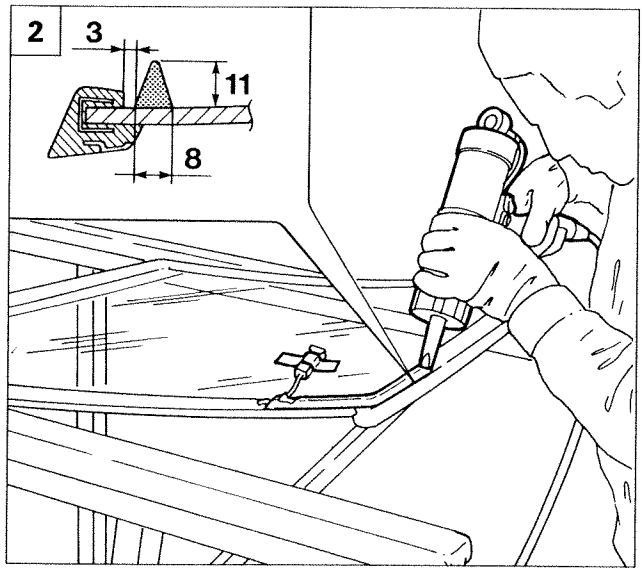
1. Using a swab, apply the adhesion promoter, taking care not to go beyond the printed area.

NOTE *Leave the adhesion promoter to dry at ambient temperature for at least 15 minutes, and not longer than 24 hours.*

2. Using a gun, apply the sealant on the bottom of the window, observing the dimensions shown in the figure.
3. Apply the sealant with a gun on the window at the top and side, observing the dimensions indicated.
4. Fit the window in its seating using the special handles with suction pads, observing the adjustment references, then using a belt exert appropriate pressure in order to obtain correct alignment; leave the window under pressure for at least 6 hours.

The car must not be delivered until at least 15 hours have elapsed since glueing the window.

NOTE *Complete the assembly of the removed parts by reversing the procedure for removal.*



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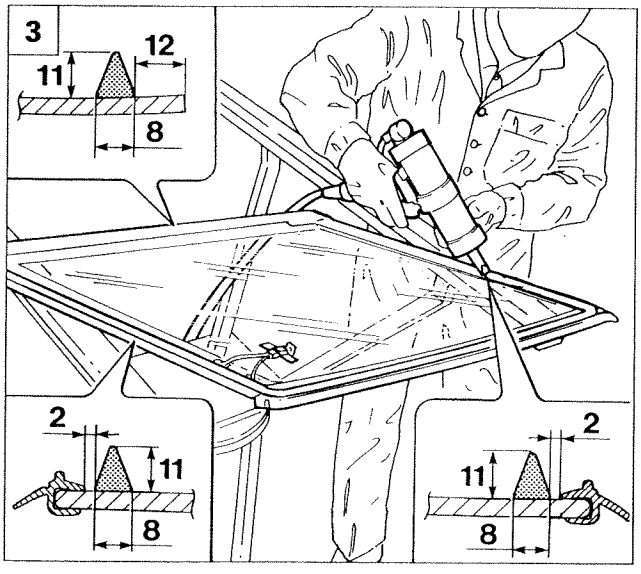

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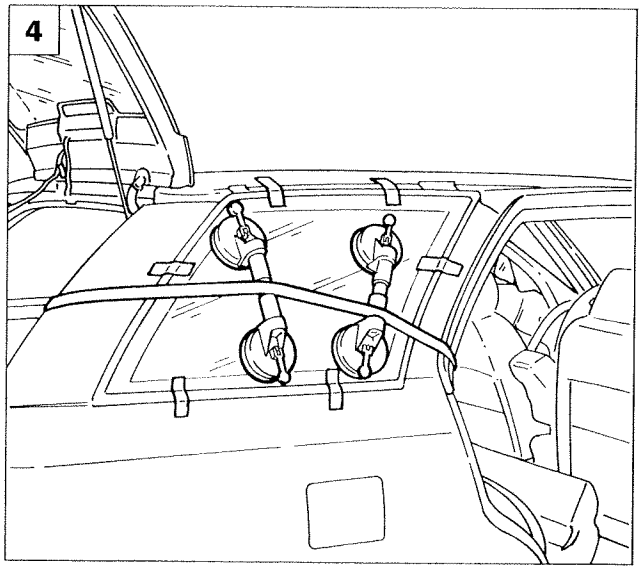

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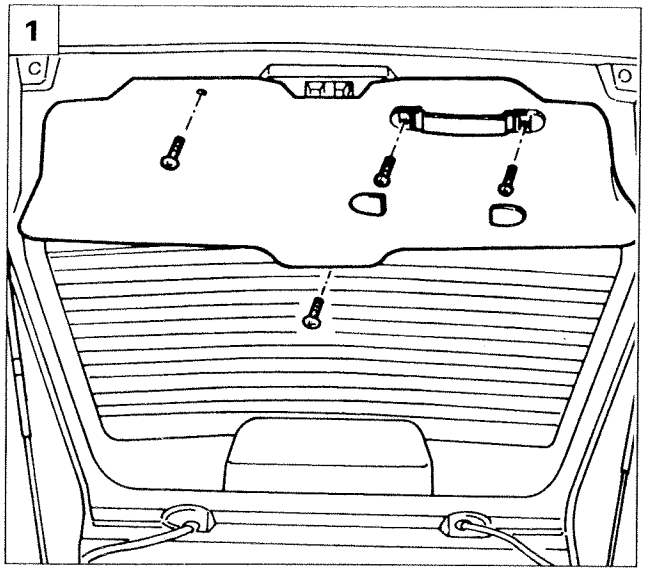


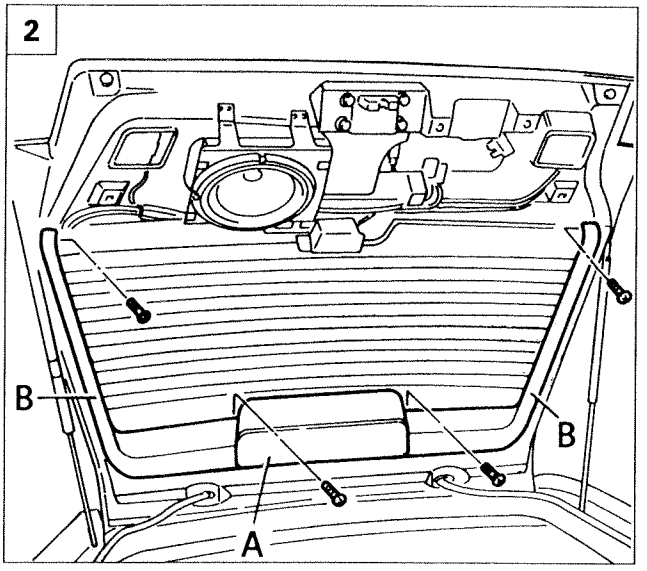
P3U31EM01

REAR WINDOW

Preliminary operations

Before starting the removal of the rear window, disconnect the battery's negative pole and remove the parts that could hinder the operation, as described below.

1. Remove the attachment covers, undo the screws indicated, remove the tailgate handle, then undo the screws and remove the tailgate trim.

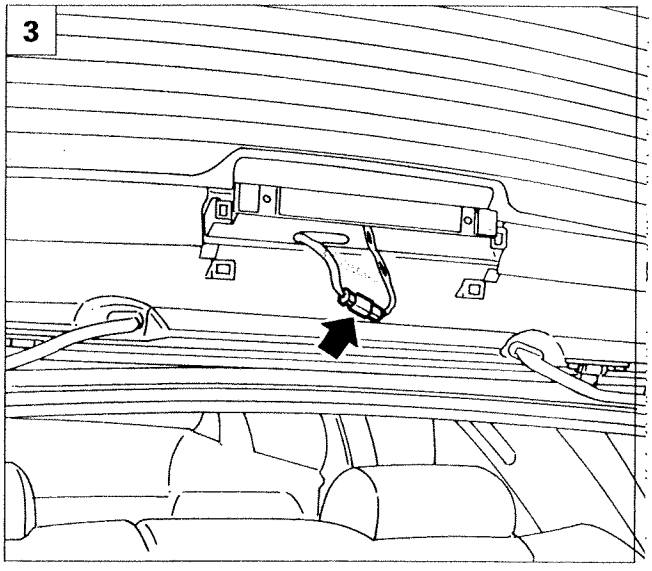


P3U31EM02

2. Remove the perimetral trim on the rear window frame, in the following sequence:
   A. Central trim
   B. Side trim

3. Disconnect the additional stop lights wiring connection.

4. Undo the screws indicated and remove the additional stop lights cluster.



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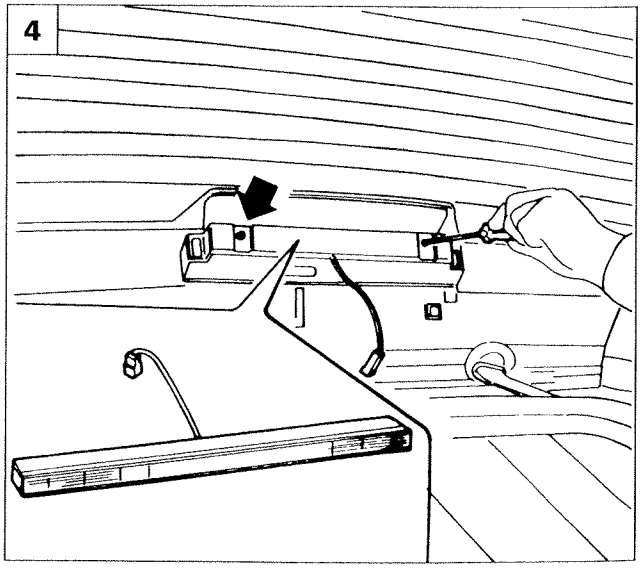

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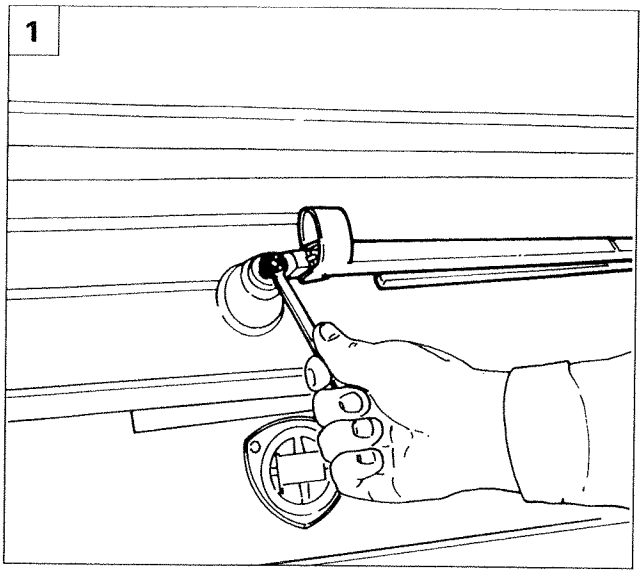
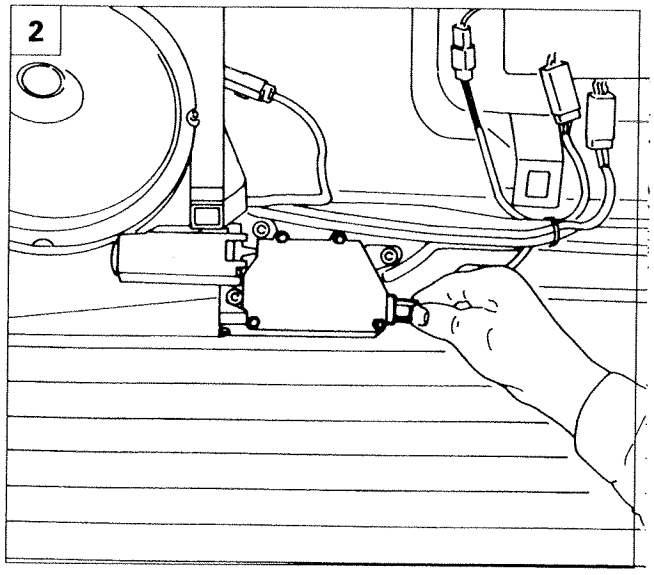


P3U32EM01

1. Undo the nut and remove the rear window wiper arm.
2. Disconnect the rear window wiper motor wiring connector.
3. Undo the screws (arrowed) and detach the wiper motor from its seating.
4. Disconnect the rear window washer fluid pipe and remove the rear window motor from the car, then disconnect the heated rear window connections.

Protect with a cloth the luggage compartment and parts that could be damaged during the cutting and window installation operations; protect the edge of the window seating with adhesive tape to prevent damage to the paintwork.



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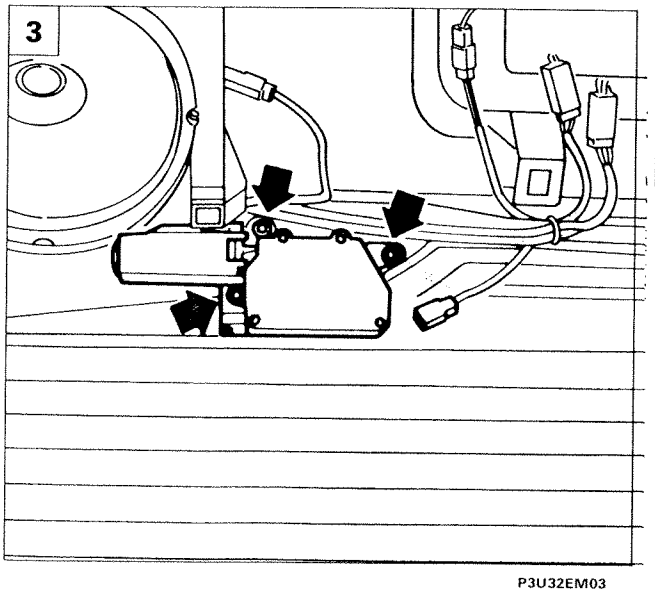

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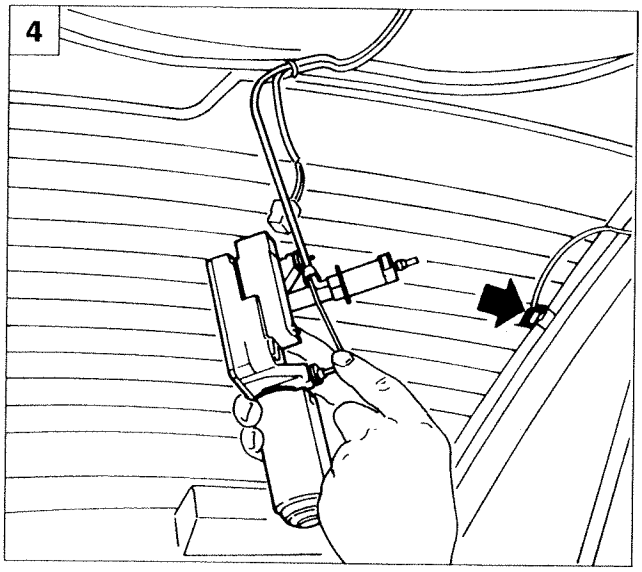

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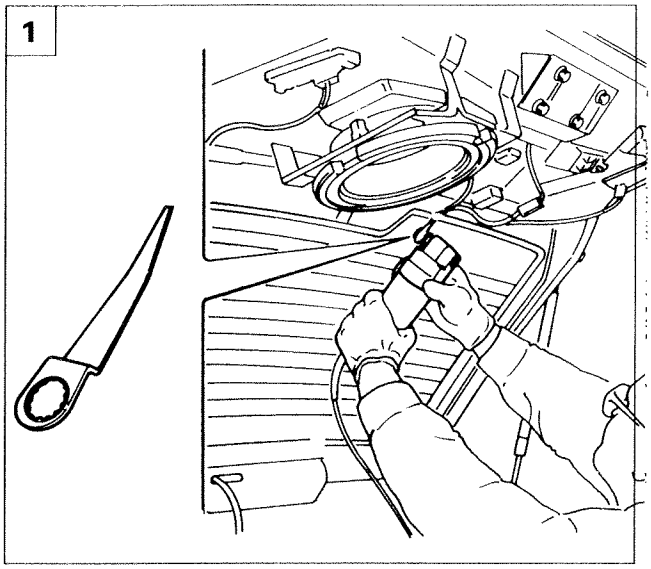

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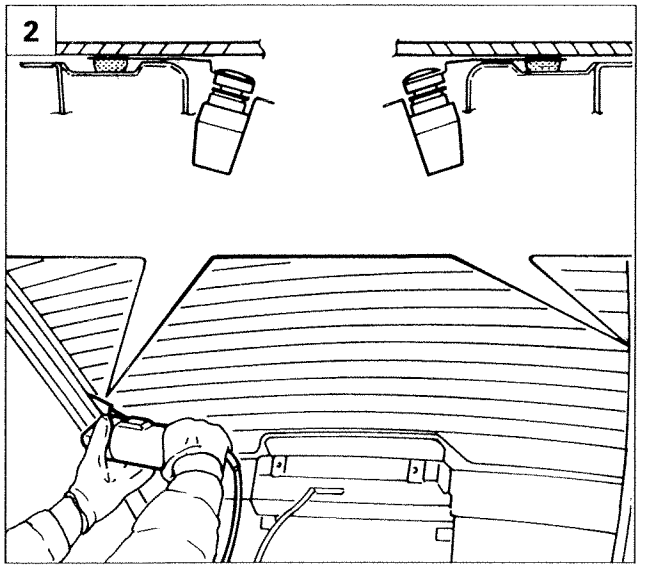

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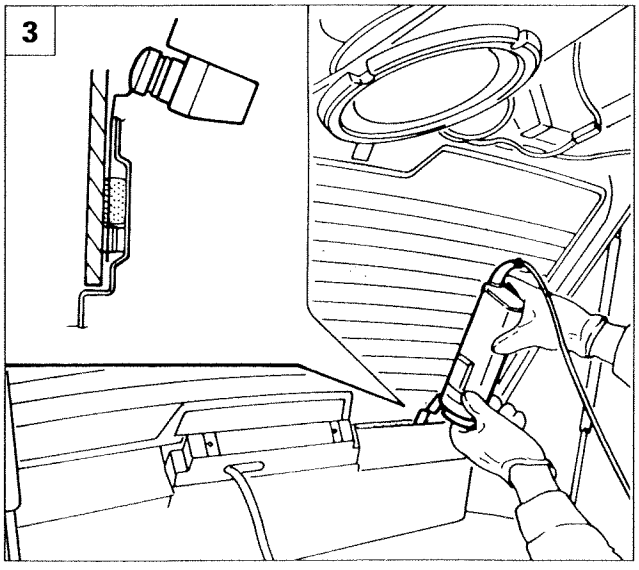

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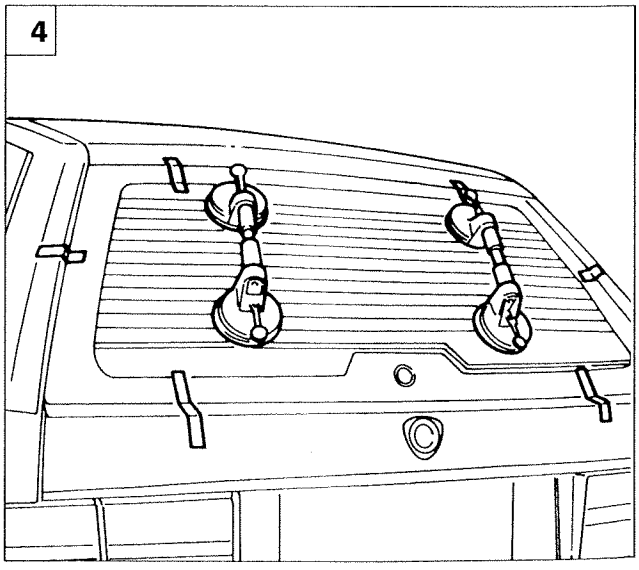


P3U33EM04

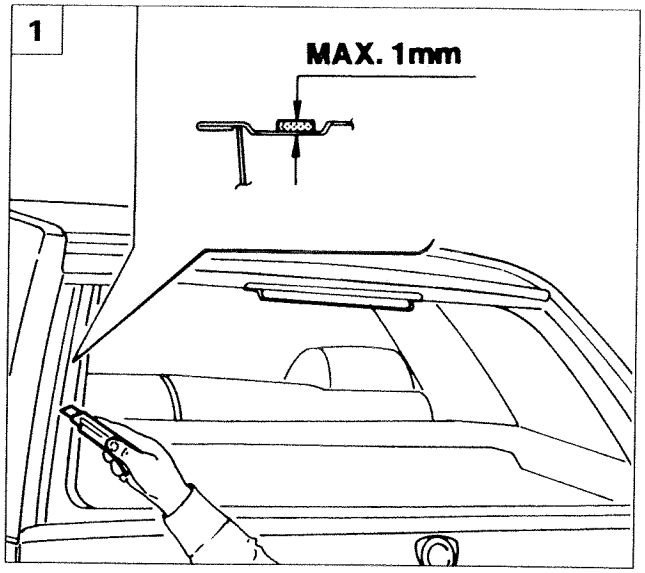
Removing

1. Lift the tailgate, and working from inside the car, cut the sealant at the bottom of the window using the vibrating knife blade shown in the insert.

NOTE *This blade can be used for all sides of the window.*

2. Continue cutting the window sealant on the side edges.
3. Cut the window sealant at the top.
4. Mark the reciprocal positions of the window and seating with strips of adhesive tape, then using the appropriate handles with suction pads, remove the window from its seating, after cutting the strips of adhesive tape applied previously.

If the paint is scratched during removal of the window, apply anti-corrosion products.



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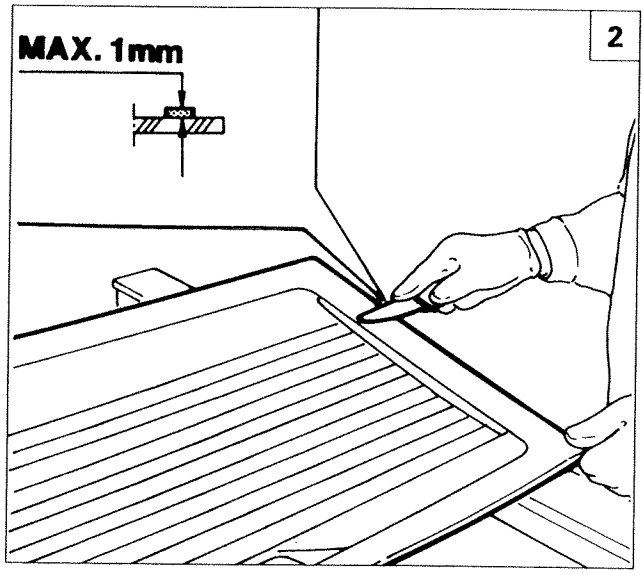


P3U34EM02

Refitting

1. Using an appropriate blade, cut and smooth the sealant in the window frame, so as to leave a thickness between 0.25 and 1 mm without reaching the paintwork, thus avoiding scratching it.

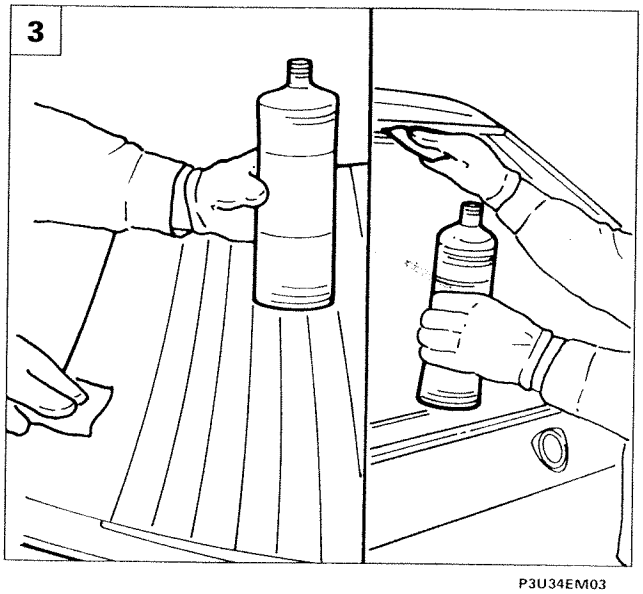
NOTE *The film of sealant remaining on the window frame acts as a base for the subsequent glueing.*

2. Using an appropriate blade, cut and smooth the bead of sealant, trying to reduce the thickness to a minimum. It is not necessary to remove the sealant completely.

NOTE *If the window is replaced, position the window in the seating and mark the position using adhesive tape, as described on the preceding page.*

3. Thoroughly degrease the window and its seating using heptane and paper towel.
4. Using an appropriate swab, apply the adhesion promoter, taking care not to go beyond the printed area.

NOTE *Allow the adhesion promoter to dry at ambient temperature for at least 15 minutes, and not over 24 hours.*



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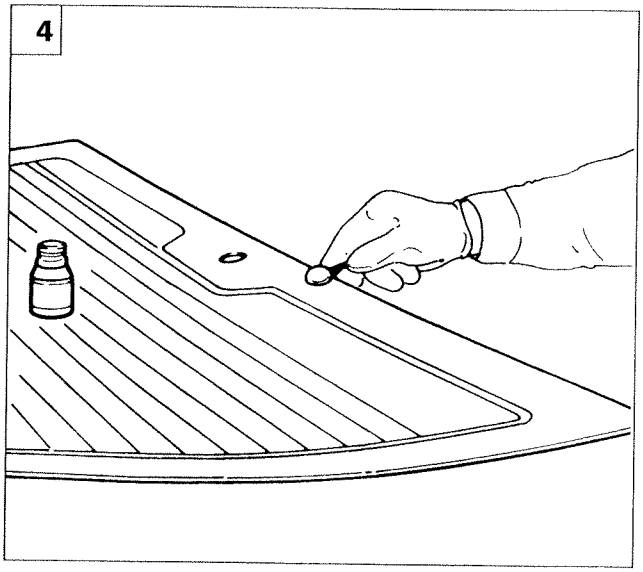

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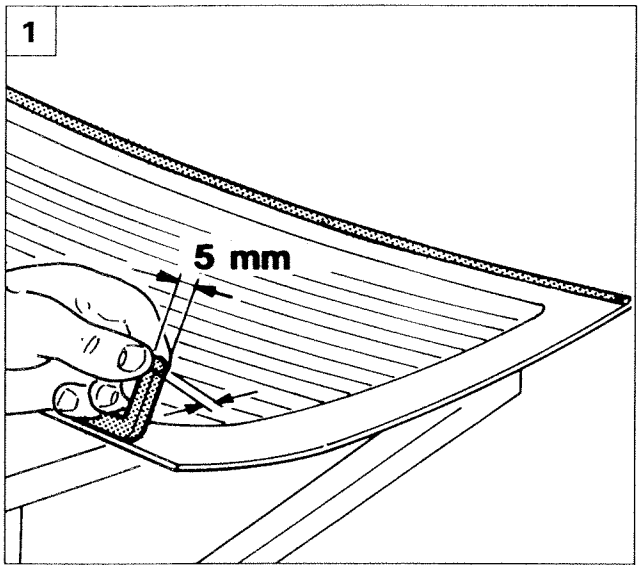

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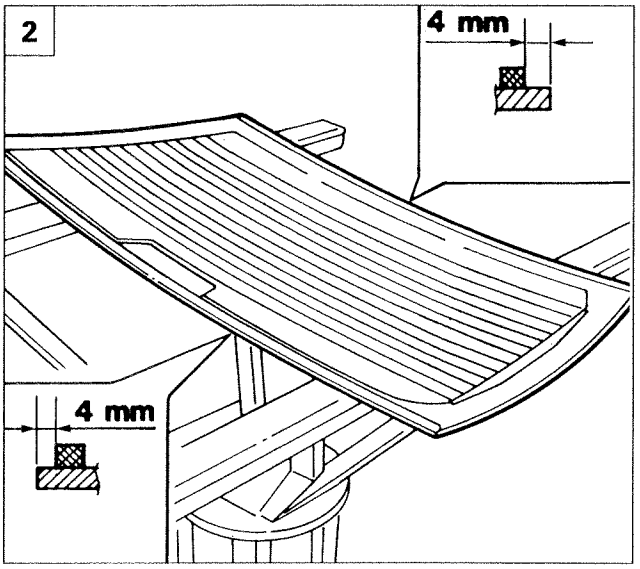
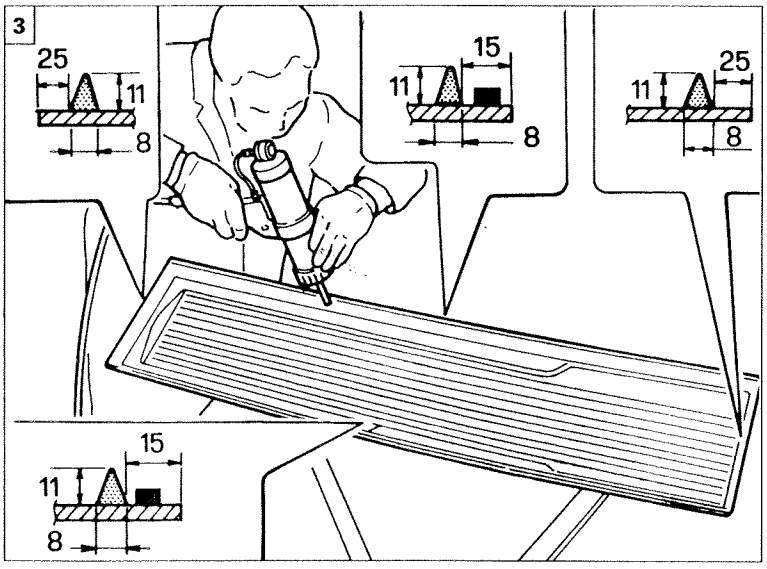


P3U35EM02

1. Apply a two-sided adhesive seal for containing sealant, of the dimensions given in the figure, on the top and bottom edges.
2. Dimensions for applying two-sided adhesive seal on the window.
3. Apply the sealant on the window using a gun, in accordance with the dimensions given in the figure.
4. Fit the window in its seating using the special handles with suction pads, bearing in mind the adjustment references, then using a belt exert appropriate pressure in order to obtain correct alignment; leave the window under pressure for at least 6 hours.

The car must not be delivered until at least 15 hours have elapsed after glueing the window.

NOTE *Complete the assembly of the removed parts by reversing the procedure for removal.*



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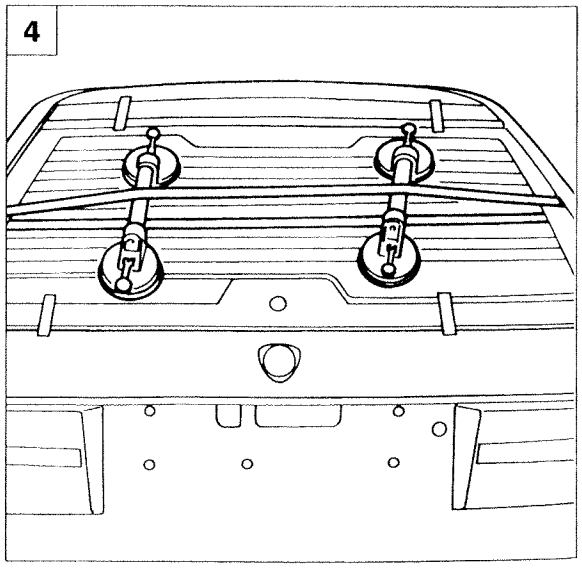

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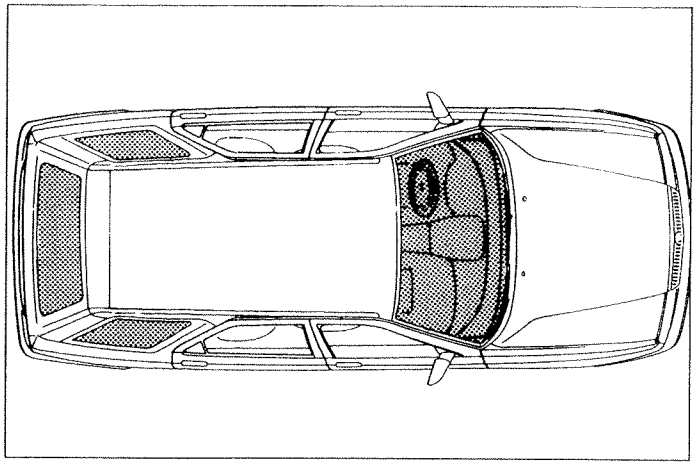


P3U36EM01

Introduction'

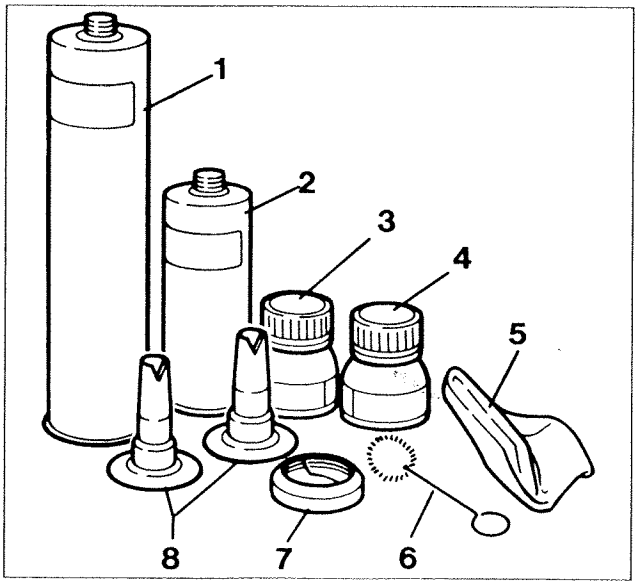
The windows fitted to this model conform to the industrial standard concerning the removal/refitting of fixed windows.
This system has many advantages, both in terms of quality as it ensures perfect permeability and resistance to air, and in terms of safety as it renders the structure more solid and less noisy.

TOOLS

To remove and refit glued windows, use the products and tools described below.

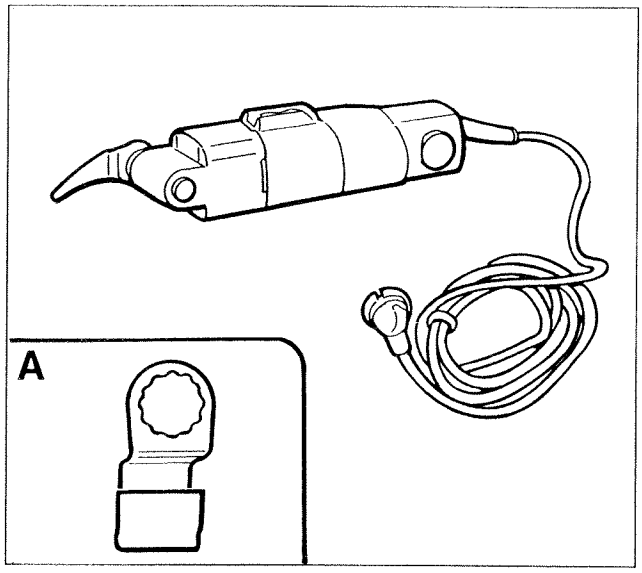
Composition of the glueing kit

1. Cartridge of GURIT BETASEAL sealant
2. 1/2 Cartridge of GURIT BETASEAL sealant
3. Adhesion promoter (primer) for glass
4. Bottle of degreasing product
5. Degreasing cloth
6. Swab for applying adhesion promoter (primer)
7. Harmonic wire
8. 2 diffusers



P3U36EM02

The previous adhesive marketed by the Volvera Marketing and Commercial Directorate has been replaced by an improved product, which is BETASEAL 1703 Sprint, a single-component polyurethane product which polymerizes rapidly.
This is certainly an advantage, as the adhesive hardens more quickly and the length of time the window has to be held by the appropriate tools is shorter. In addition, the delivery time (to the customer) of the repaired vehicle is reduced.
Its mechanical characteristics conform to the Fiat Auto S.P.A. specification.



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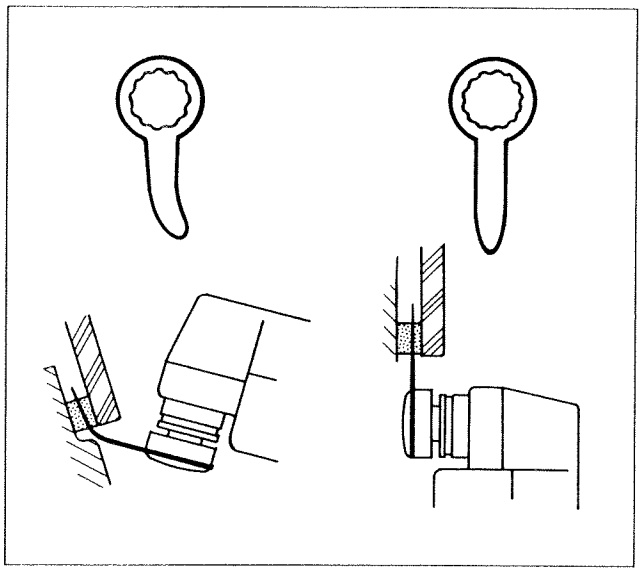


P3U37EM02

Vibrating knife

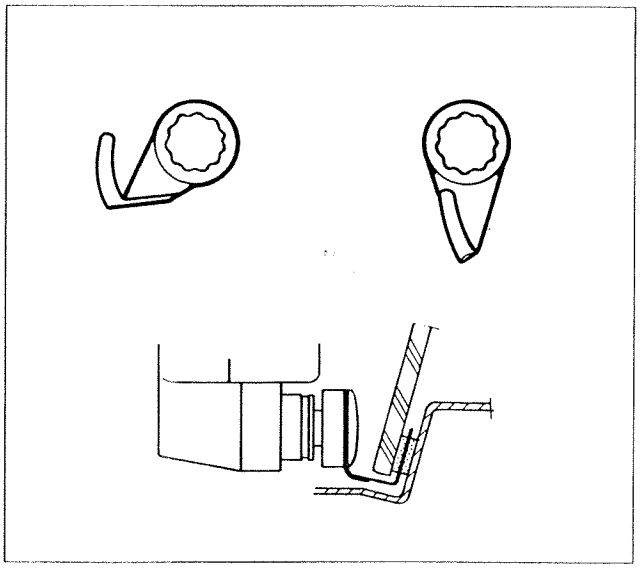
The vibrating knife consists of special shears and a suitable set of vibrating blades with electrically-adjustable number of oscillations.
It can be used to cut polyurethane sealants.

It is important that during cutting, the blade always proceeds parallel to the window and the bodywork, to avoid breaking the blade.

To avoid overheating of the shears, it is advisable to adjust the advance and number of oscillations in accordance with the conditions of use.
Detail A shows the scraper to be fitted to the vibrating shears to level the sealant residues.

Do not use lubricants during cutting.
The blades must always be sharp.

The figures opposite and below illustrate some common window cutting situations, showing the necessary type of blade.



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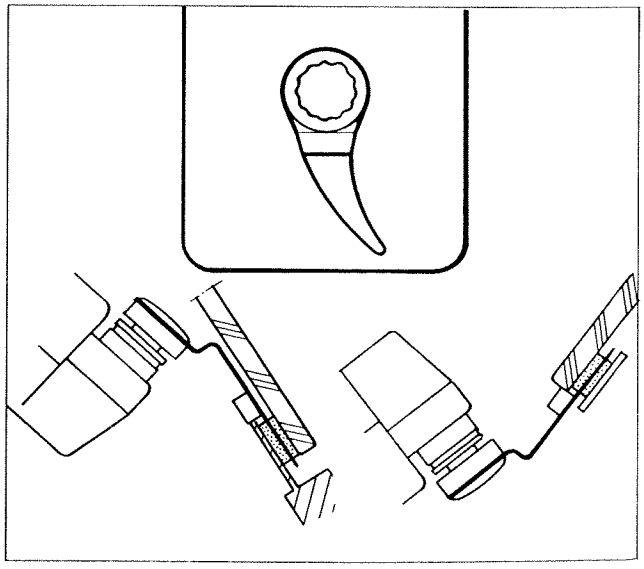
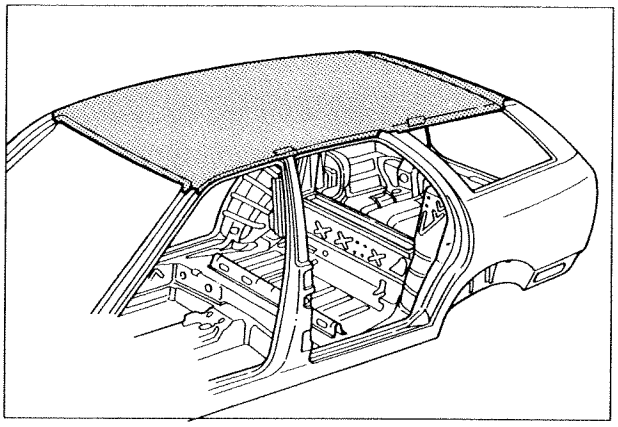
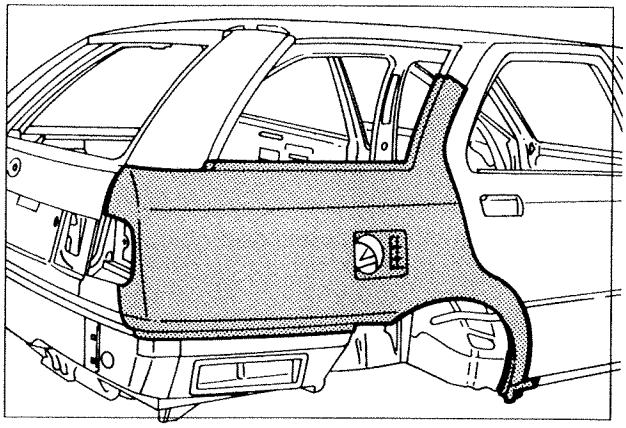
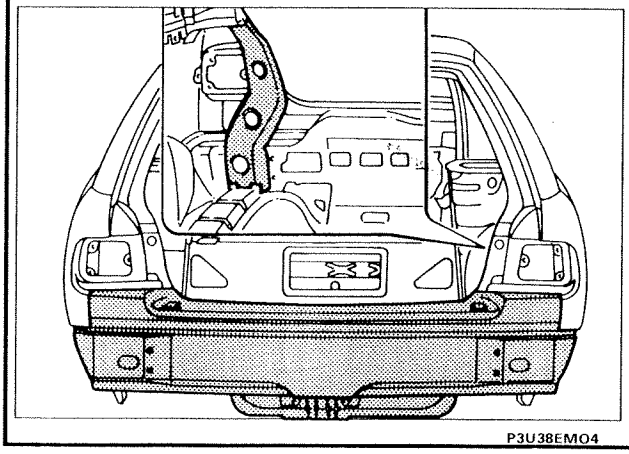
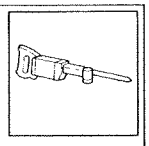
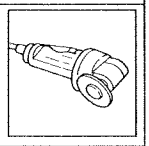
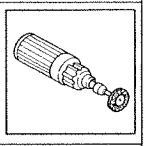
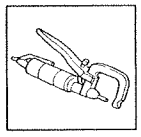
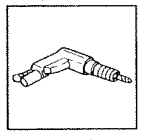
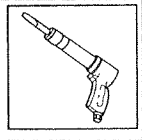
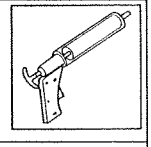
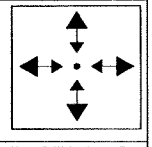
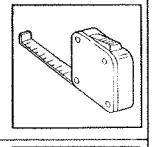
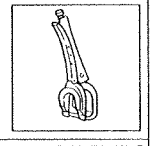
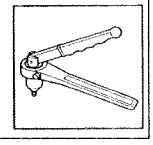
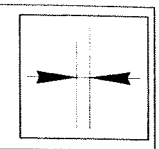
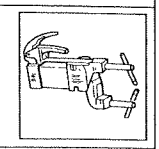
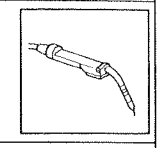
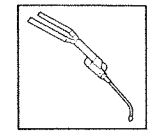
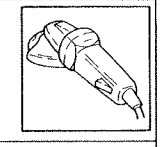
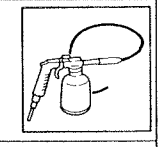
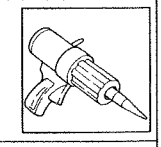
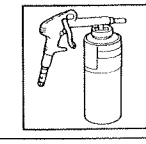
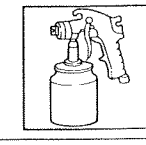
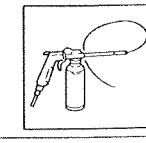
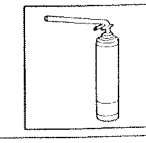


P3U37EM04

GRAPHIC INDEX	
Replacement intervention	**Manual reference**
Replacing Roof panel  P3U38EM01	page 40
Replacing Rear Wing  P3U38EM02	page 44
Replacing Rear Cross Panel Trim and Pillar Reinforcement  P3U38EM04	page 49

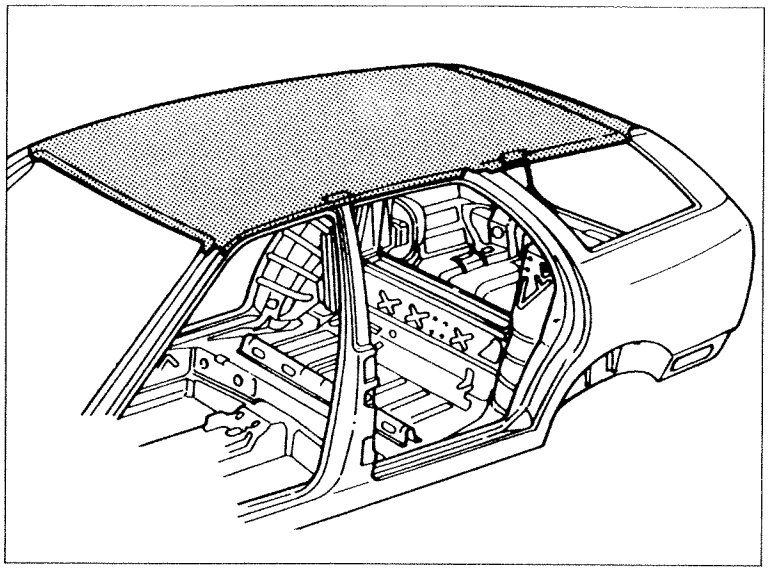
SYMBOLS

CUTTING WITH RECIPROCATING SAW	
CUTTING WITH CIRCULAR SAW	
CLEANING WITH ROTARY BRUSH	
REMOVAL OF SPOT WELDS WITH CHAMFERING MACHINE	
REMOVAL OF SPOT WELDS WITH DRILL DRILLING FOR MIG WELDING	
DISCHARGE OF PANEL WITH CHISEL DRILLING FOR MIG WELDING	
APPLICATION OF ELECTRO-WELDABLE PROTECTION	
APPLICATION OF THICK ELECTROWELDABLE PROTECTION	
CENTRING OF COMPONENTS	
MEASUREMENT	
ATTACHMENT OF COMPONENTS	
ATTACHMENT OF THREADED RIVETS	

CHECKING GAPS AND ALIGNMENTS	
SPOT WELDING	
MIG WELDING	
WELDING WITH OXYACETYLENE TORCH	
GRINDING	
APPLICATION OF ANTI-CORROSION PROTECTION	
APPLICATION OF SEALANTS	
APPLICATION OF UNDERBODY PROTECTION	
APPLICATION OF PAINT	
APPLICATION OF WAX-BASED PROTECTION	
APPLICATION OF FOAMING PRODUCTS	

SYMBOLS ON ILLUSTRATIONS

- - - - CUTTING LINE
● ● ● ● SPOT WELD
▪ ▪ ▪ ▪ FILL MIG WELD
UUUUUU CONTINUOUS MIG WELD
XXXXXXXX BRAZING



P3U40EM01

REPLACING ROOF PANEL (7090A 58)*

(*) This number indicates the operation code stated on the Service Time Schedule.

The part for which the replacement procedure is described is shown in the figure opposite.

PRELIMINARY PROCEDURES

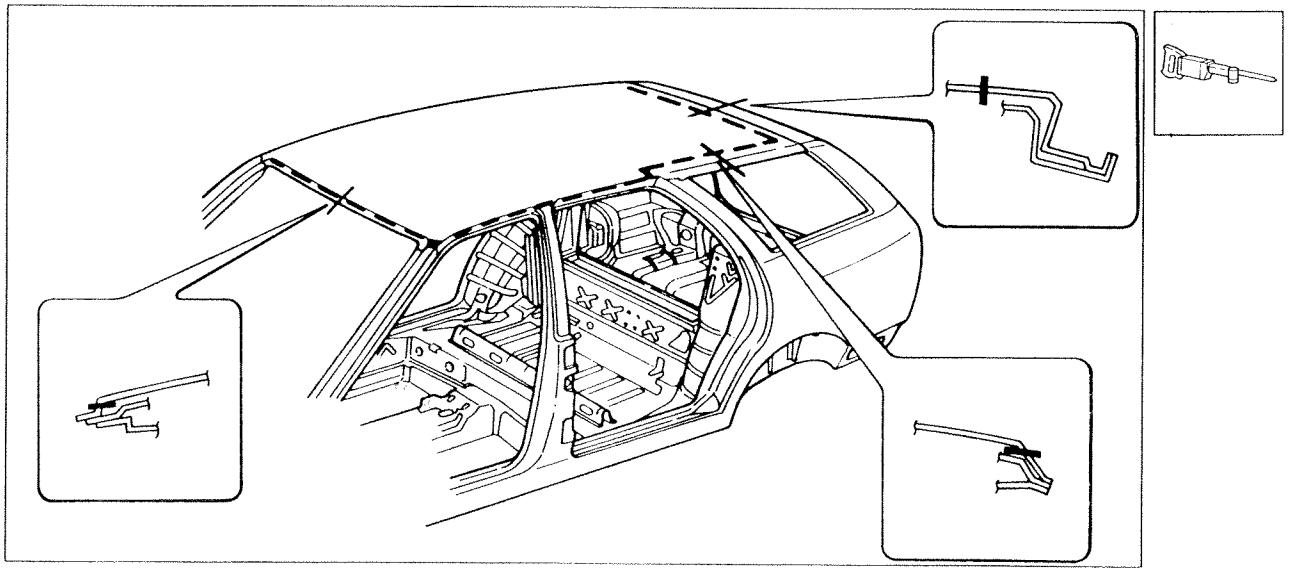
Ascertain the extent of the damage and check whether connected components are deformed by checking the bodywork alignment dimensions, using appropriate measuring equipment (measuring benches, jigs or gauges).
Carry out any operations to straighten the body shell before cutting the part.
Check after this operation that components not to be replaced are not damaged.

PRELIMINARY DISMANTLING

Dismantle moveable parts of the bodywork and interior trim which could hinder the repair operations or sustain damage during these operations.

REMOVAL

Cut the roof panel using a pneumatic saw, following the dotted lines shown in the figure below; use a hammer and chisel in the areas of the fins.
The sections of the panel are shown in the most significant points, in order to allow the operator to adjust the position and depth of cutting in order not to damage the panels underneath.

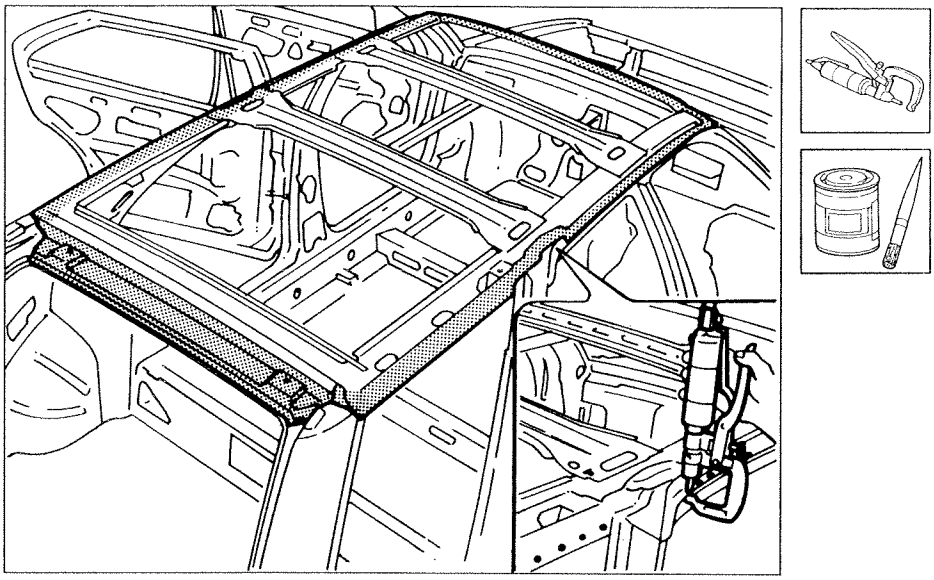


P3U40EM02

When carrying out the operations described, follow accident-prevention regulations closely. Wear protective shoes, ear defenders and gloves during cutting operations, welding mask and gloves during welding, and protective mask and gloves during painting.

Removing burrs and preparing the edges of the bodywork

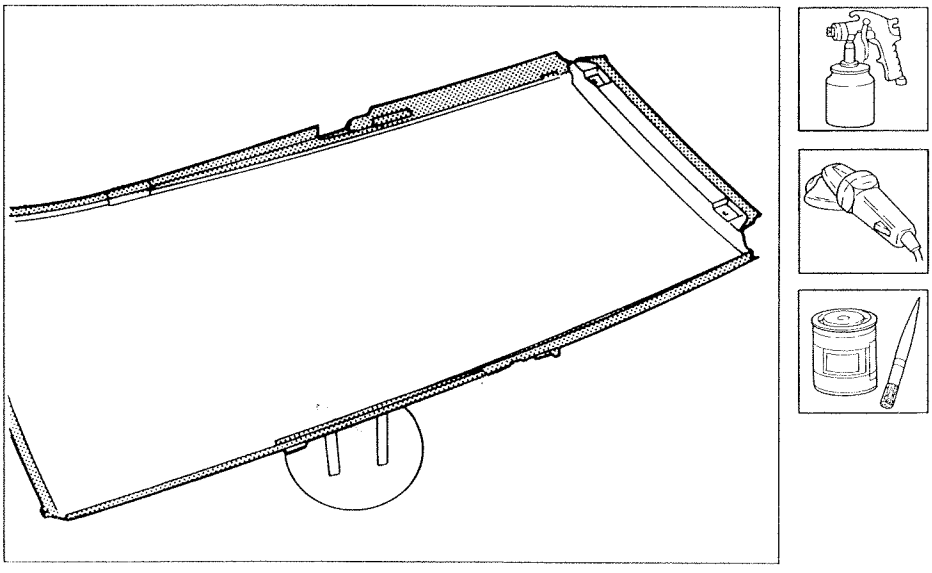
1. Grind down the weld spots along the entire perimeter of the edge of the bodywork, using a suitable grinder.
2. Remove the panel burrs using clippers.
3. Straighten the edges with a shaped stake and hammer.
4. Apply IVI Epox epoxy primer or an electro-weldable galvanizing paint or equivalent product, on the areas previously affected by the grinding.



P3U41EM01

Preparing the new part

1. Apply a coat of primer by spray gun.
2. Along the entire perimeter of the inside and outside of the new part, remove the anti-corrosion treatment using a grinding disc.
3. Use the electro-weldable paint on the edges in contact with the body shell.

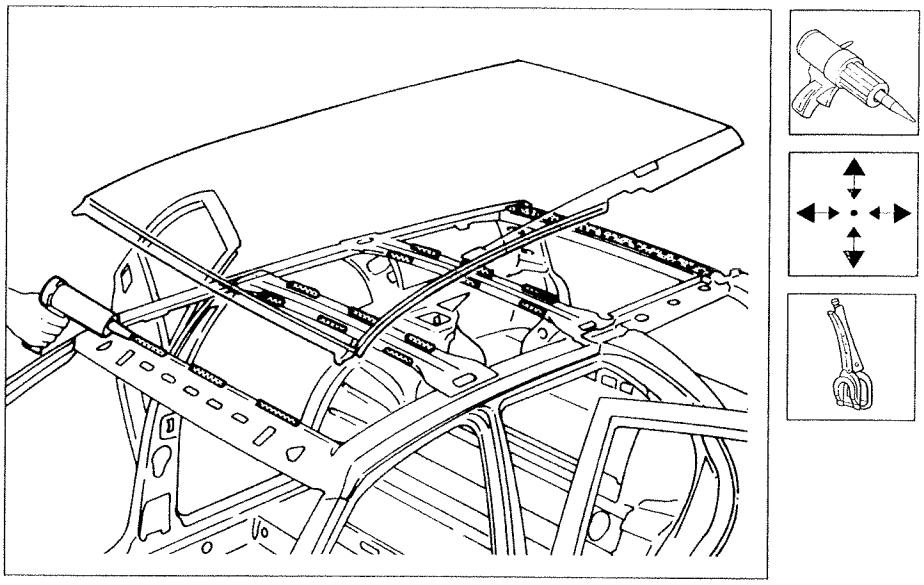


P3U41EM02

70.

Fitting the new part

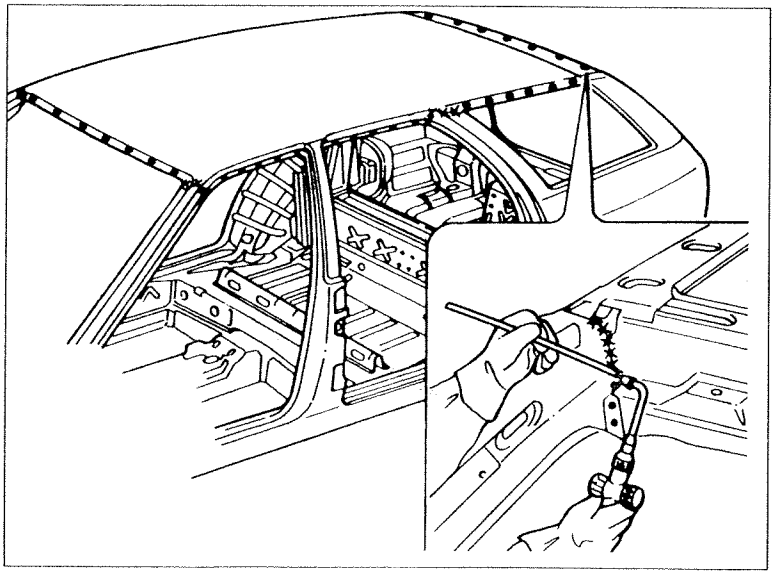
1. Restore the sealant on the body shell fins, using IVI 854210 transparent acrylic sealant or an equivalent product, then apply the heat-expanding product on the rear fin.
2. Carefully fit the new part in its seating.
3. Check that the roof panel is positioned perfectly on the body shell.
4. Secure the spare part to the body shell using the appropriate self-locking grippers.

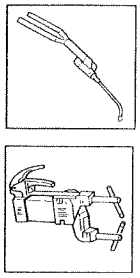


P3U42EM01

Welding the new part

1. Carry out the brass welding using an oxyacetylene torch on the corners of the front, side and rear roof pillars.
2. Using a spot welder, continue the operation along the whole contact edge between roof panel and body shell.

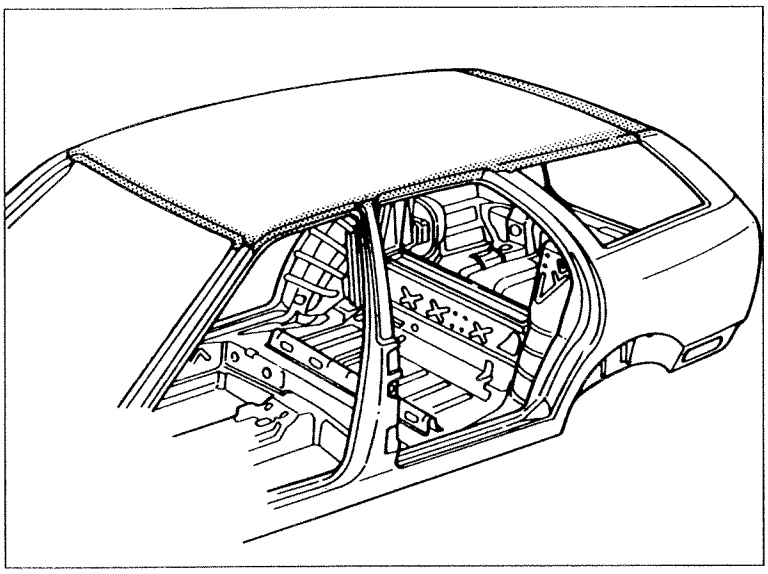


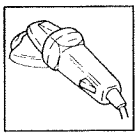


P3U42EM02

Finishing operations

1. Correct any deformations in the panel using a shaped stake and hammer.
2. Remove any welding slag using a grinding disc.

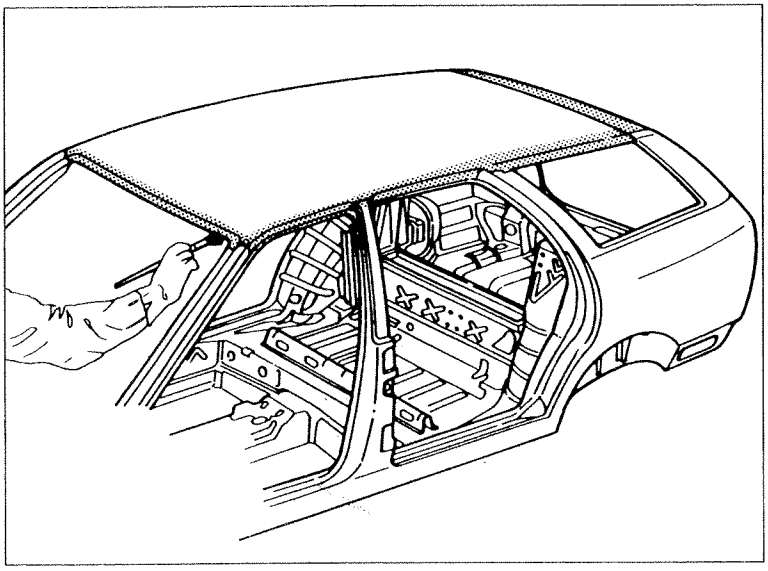


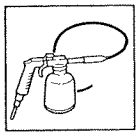


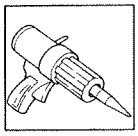
P3U43EM01

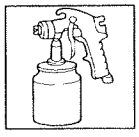
Protection

1. Apply the anti-corrosion protection on the areas affected by the welding.
2. Seal the joins between roof panel and body shell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Proceed with painting and waxing.

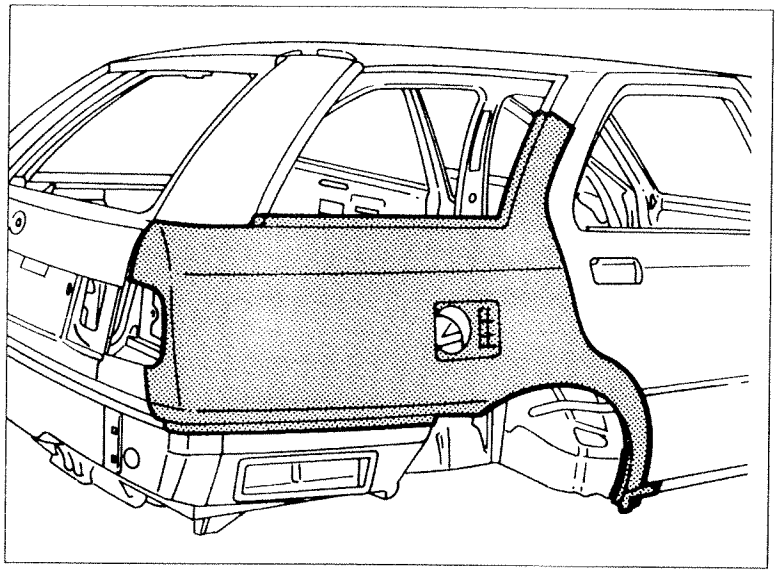








P3U43EM02



P3U44EM01

REPLACING REAR WING (7090A 54)*

(*) This number indicates the operation code stated in the Service Time Schedule.

The part for which the replacement procedure is described is shown in the figure opposite.

PRELIMINARY PROCEDURES

Ascertain the extent of the damage and check whether connected components are deformed by checking the bodywork alignment dimensions, using appropriate measuring equipment (measuring benches, jigs or gauges).
Carry out any operations to straighten the body shell before cutting the part.
Check after this operation that components not to be replaced are not damaged.

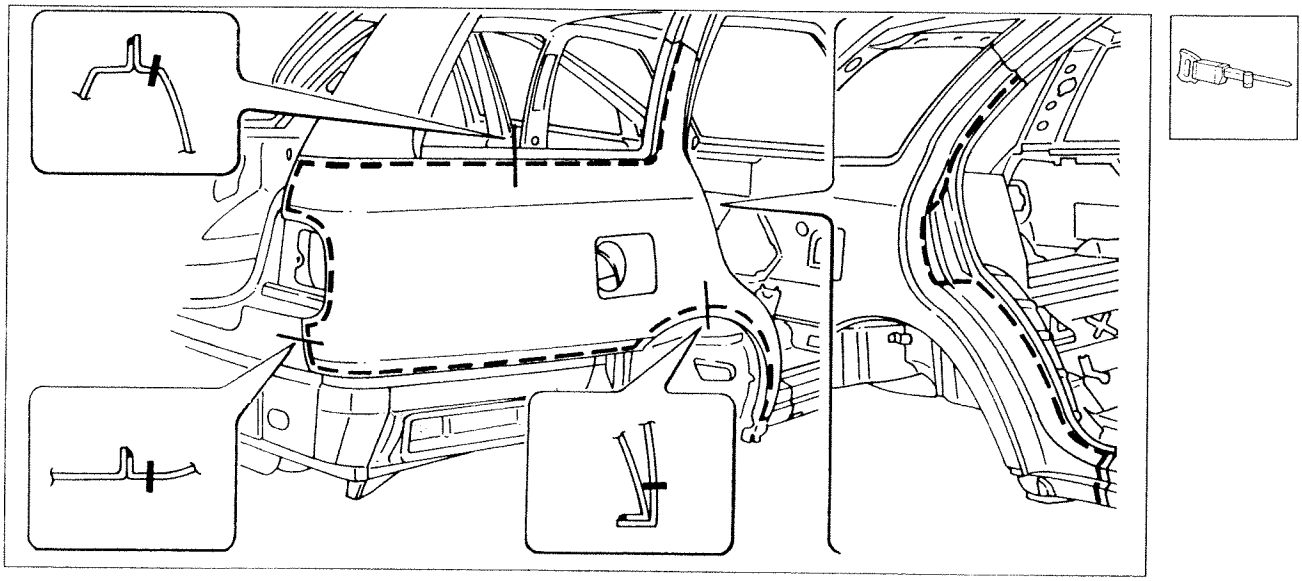
PRELIMINARY DISMANTLING

Dismantle moveable parts of the bodywork and interior trim which could hinder the repair operations or sustain damage during these operations.

REMOVAL

Cut the vehicle's rear wing using a pneumatic saw, following the dotted lines shown in the figure below.

The sections of the panel are shown in the most significant points, in order to allow the operator to adjust the position and depth of cutting in order not to damage the panels underneath.

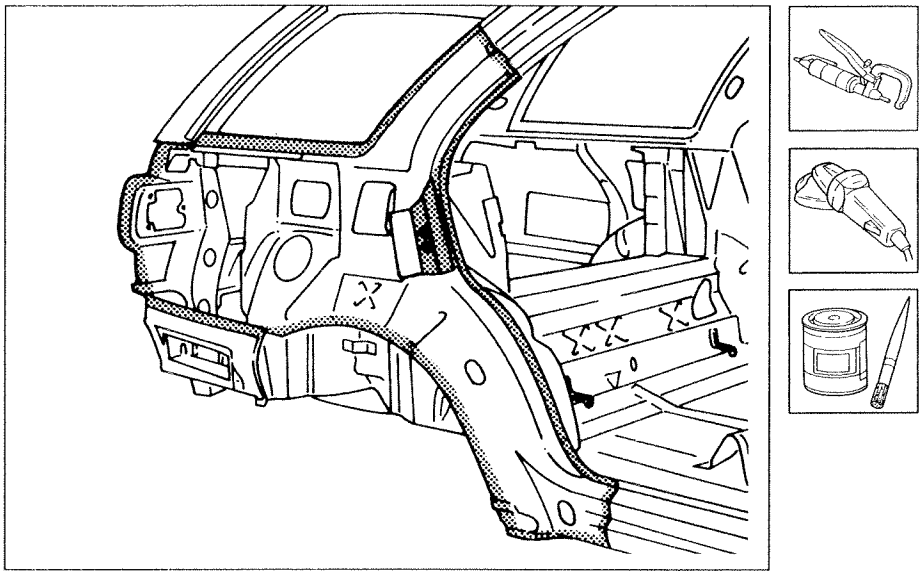


P3U44EM02

When carrying out the operations described, follow accicent-prevention regulations closely. Wear protective shoes, ear defenders and gloves during cutting operations, welding mask and gloves during welding, and protective mask and gloves during painting.

Removing burrs and preparing the edges of the bodywork

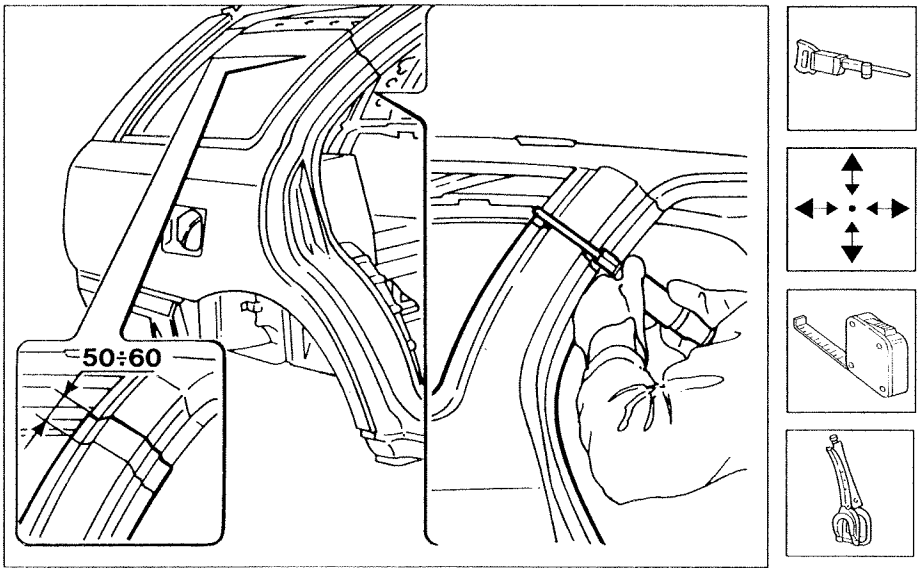
1. Grind down the weld spots along the entire perimeter of the bodywork edge, using a suitable grinder.
2. Remove the panel burrs using clippers.
3. Straighten the edges with a shaped stake and hammer.
4. Remove the weld spots using a disc grinder.
5. Apply IVI Epox primer or an electro-weldable galvanizing paint or equivalent product, on the areas previously affected by the grinding.



P3U45EM01

Preparing the new part

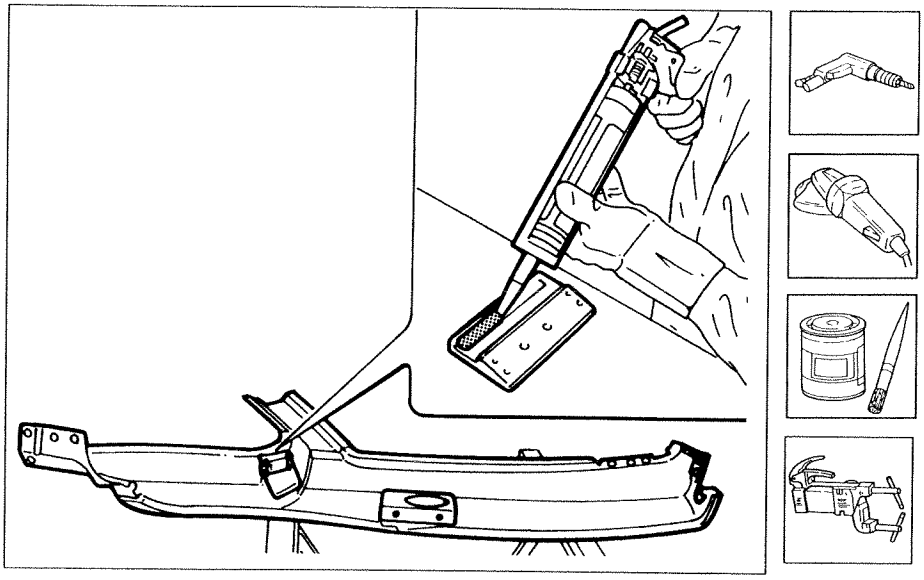
1. Cut the top of the new part, then place it in its seating so that it adheres perfectly with the body shell.
2. Check that the wing panel overlaps the body shell by about 50-60 mm.
3. Secure the part using self-locking grippers.
4. Cut the two panel edges so as to obtain a perfect join line.



P3U45EM02

Preparing the new part

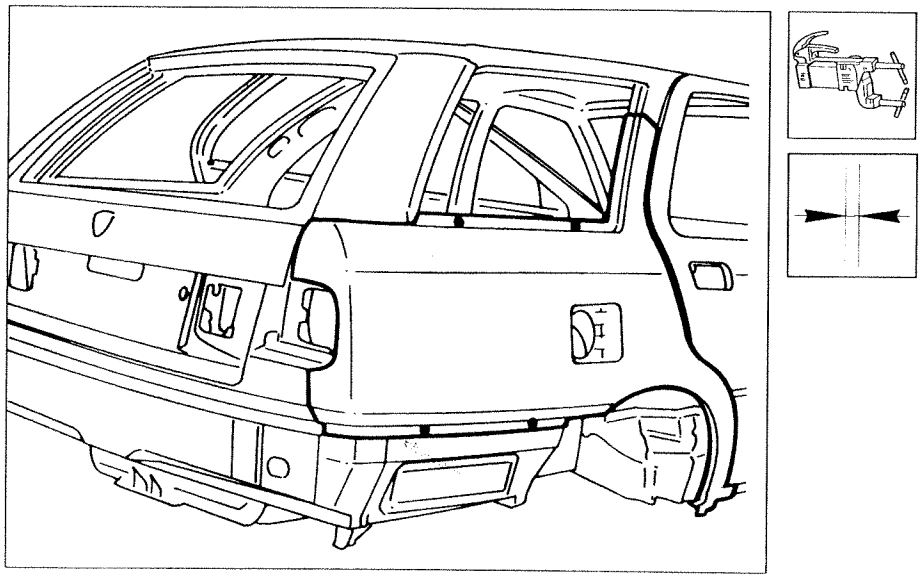
1. Make equidistant holes on the edges of the new part as shown in the figure.
2. Remove the anti-corrosion treatment along the entire perimeter of the inside and outside of the new part, using an appropriate grinder.
3. Use electro-galvanizing paint on the contact edges with the body shell.
4. Carry out spot welding on the contact edges between wing panel, fuel filler compartment and lock striker mounting bracket, after interposing sealant.



P3U46EM01

Checking that the new part is positioned correctly on the body shell

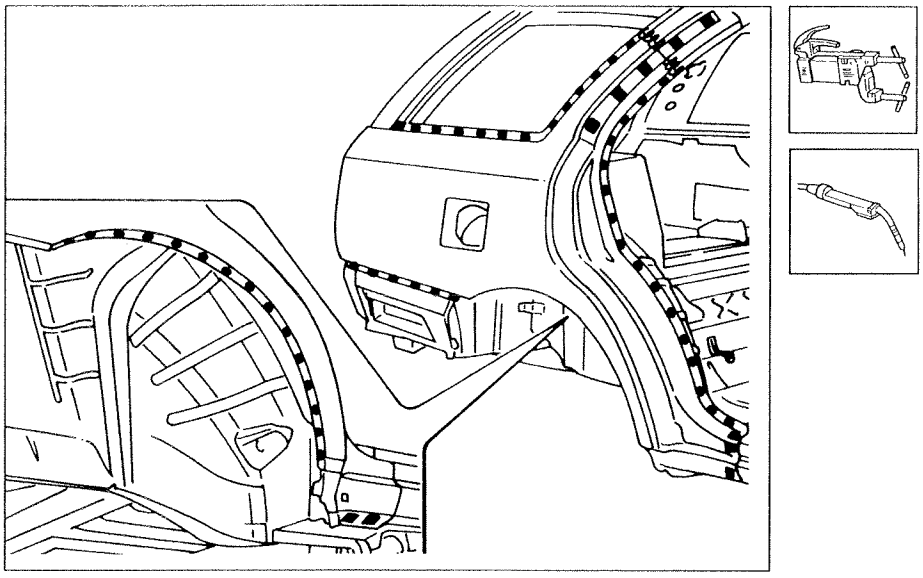
1. Tack the new part on the body shell by making a few spot welds.
2. Close the tailgate and rear door.
3. Check that the surrounding gap is aligned and even.



P3U46EM02

Welding the new part

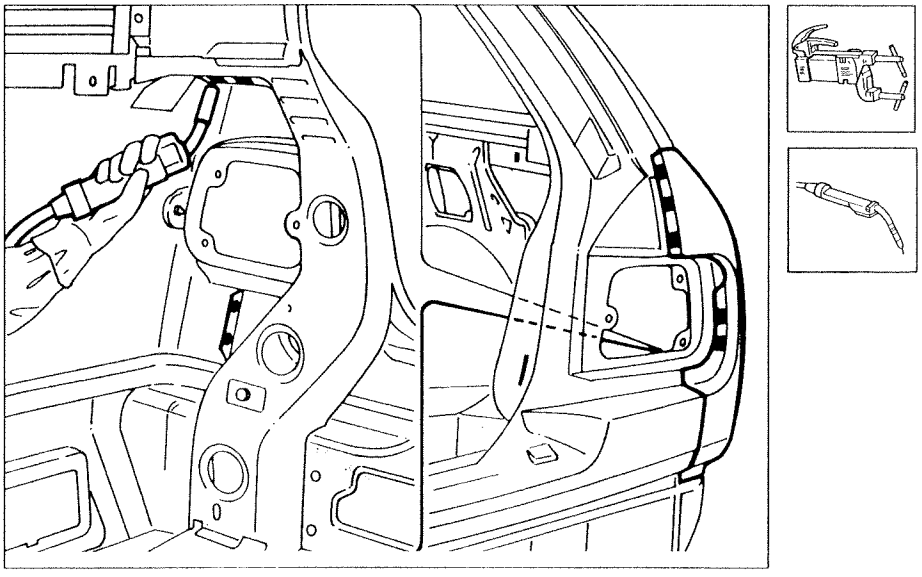
1. Carry out spot welding on the door frame and wheelarch.
2. Use the MIG welder between wing panel and body shell.
3. Carry out fill welding in the holes made previously on the new part, namely between wing panel, door sill and body shell.
4. Restore the guide for securing the door seal.



P3U47EM01

Continuation of welding the new part

1. Carry out fill welding in the holes made previously on the new part, and namely in the rear lights cluster frame and rear pillar.
2. Carry out spot welding on the contact edges between wing panel and rear cross panel.

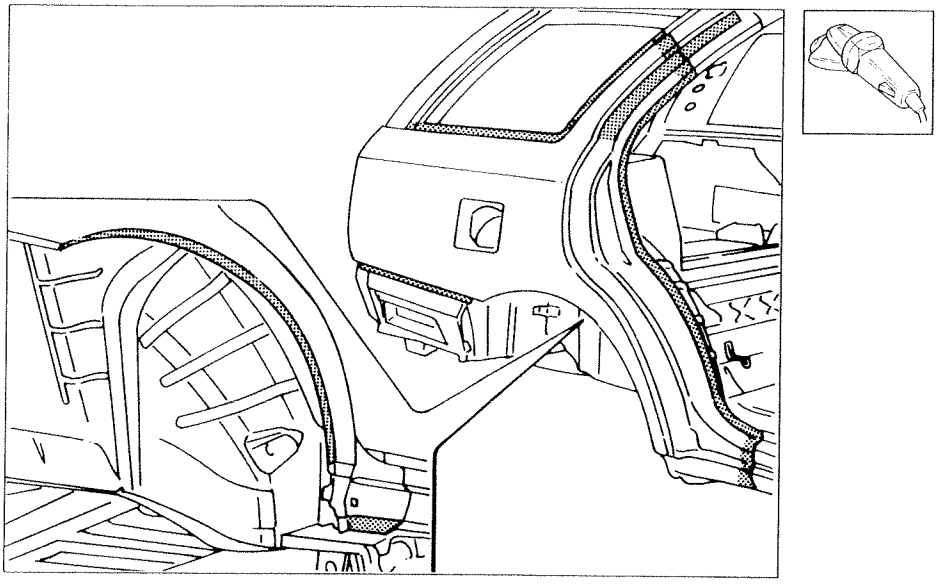


P3U47EM02

70.

Finishing operations

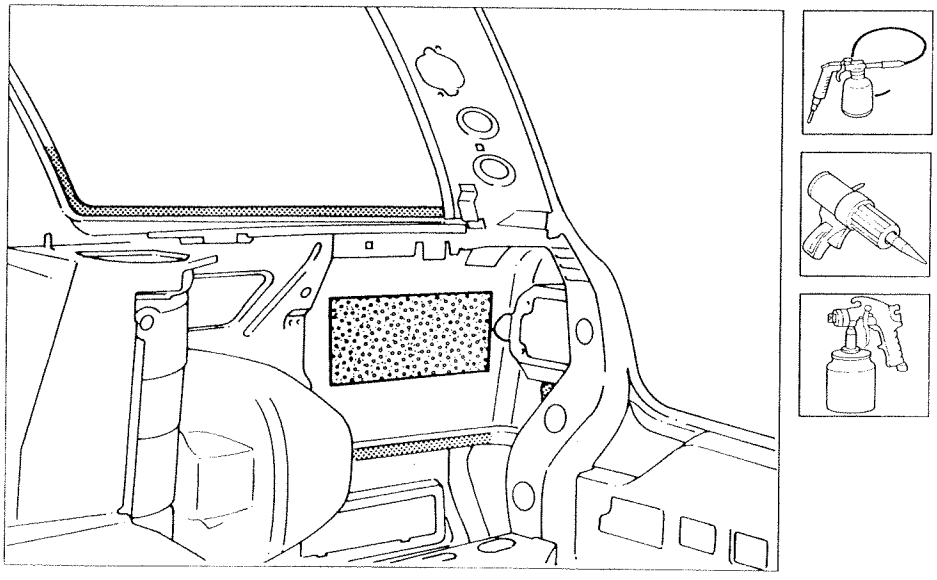
1. Correct any deformation in the panel using a shaped stake and hammer.
2. Remove any welding slag using a grinding disc.



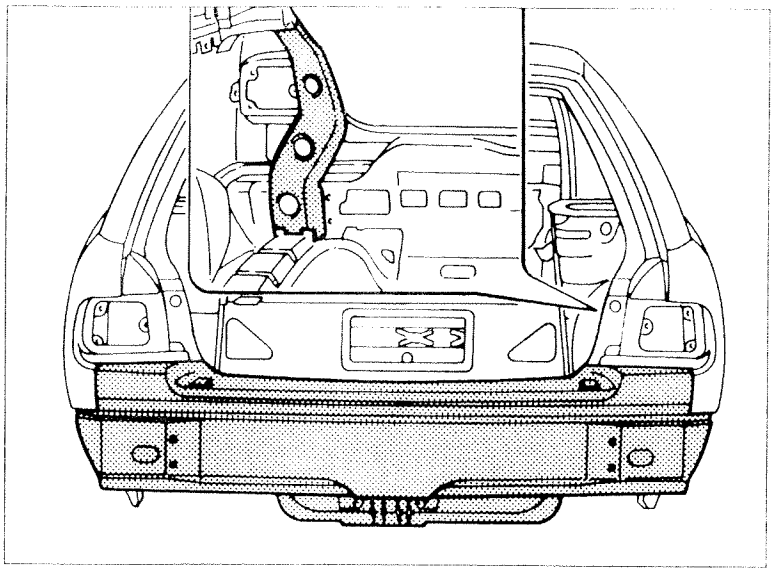
P3U48EM01

Protections

1. Apply the anti-corrosion protecton on the areas previously affected by the welding.
2. Seal the join lines between wing panel and body shell using IVI 854210 transparent acrylic sealant or an equivalent product.
3. Fit damping panels inside the wing panel.
4. Proceed with painting and waxing.



P3U48EM02



P3U49EM01

REPLACING REAR CROSS PANEL TRIM AND RIGHT PILLAR REINFORCEMENT (7090G 76)*

(*) *This number indictes the operation code stated in the Service Time Schedule.*

The part for whic the replacement procedure is described is shown in the figure opposite.

PRELIMINARY OPERATIONS

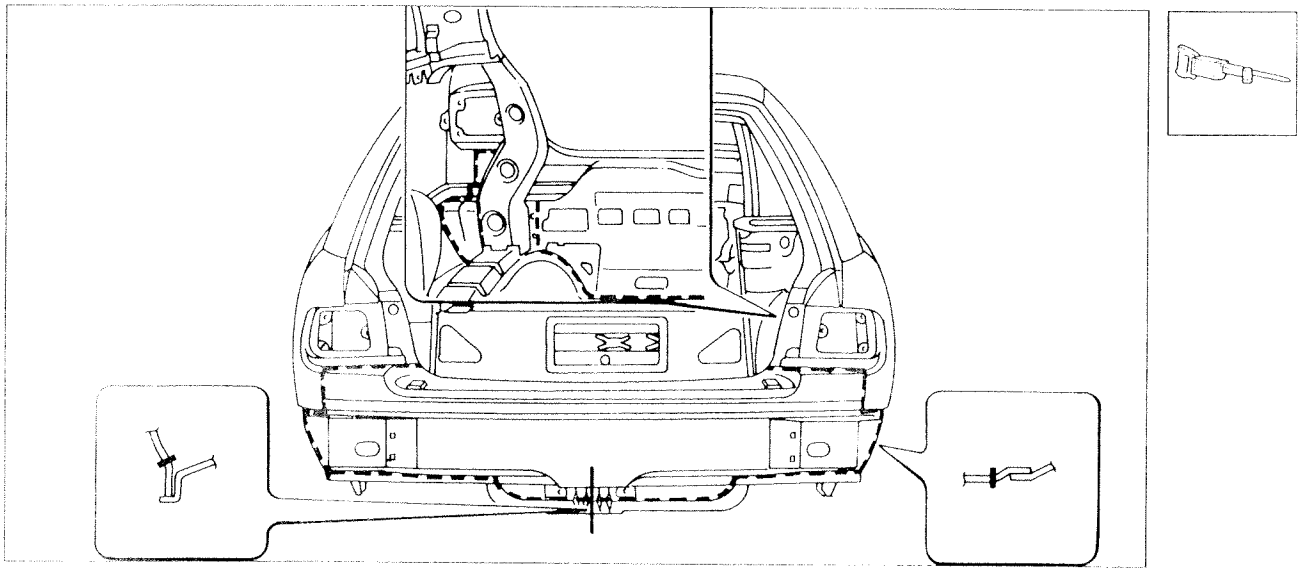
Ascertain the extent of the damage and check whether connected components are deformed by checking the bodywork alignment, using appropriate measuring equipment (measuring benches, jigs or gauges).
Carry out any operations to straighten the body shell before cutting the part.
Check after this operation that components not to be replaced are not damaged.

PRELIMINARY DISMANTLING

Dismantle moveable parts of the bodywork and interior trim which could hinder the repair operations or sustain damage during these operations.

REMOVING REAR CROSS PANEL TRIM

Cut the rear cross panel trim of the car using a pneumatic saw, following the dotted lines shown in the figure below.
The sections of the panel are shown in the most significant points, in order to allow the operator to adjust the position and depth of cutting in order not to damage the panels underneath.

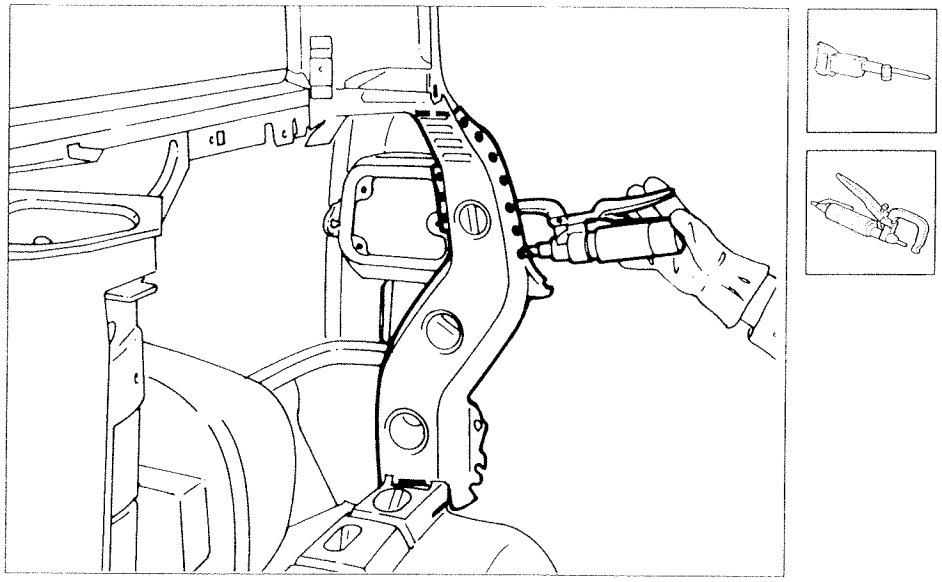


P3U49EM02

When carrying out the operations described, follow accident-prevention regulations closely. Wear protective shoes, ear defenders and gloves during cutting operations, welding mask and gloves during welding, and protective mask and gloves during painting.

Removing right pillar reinforcement

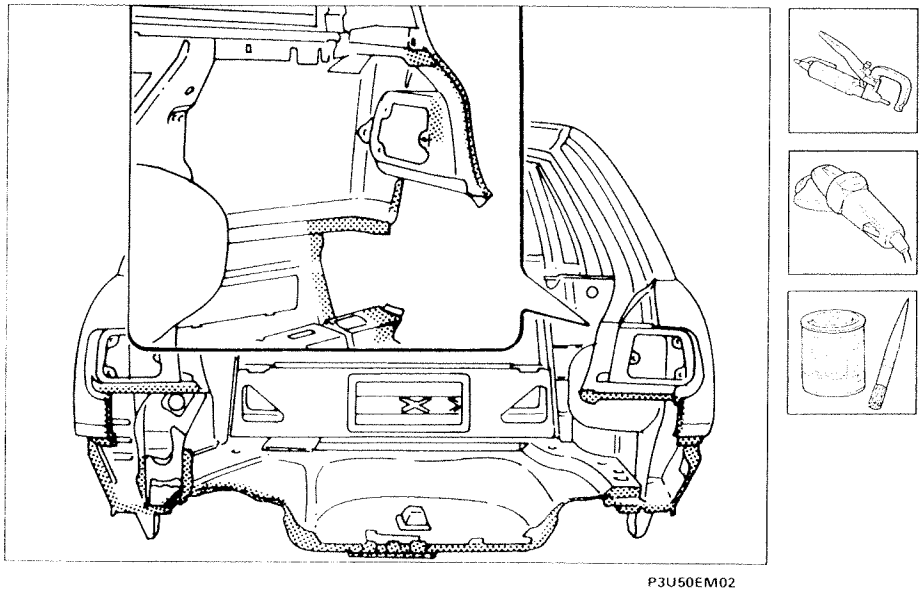
1. Cut the contact edges between the pillar reinforcement and floor longitudinal member, using a chisel and hammer.
2. Cut the pillar reinforcement using a pneumatic saw, following the dotted lines shown in the figure.
3. Reduce the weld spots along the entire perimeter of the body shell as shown in the figure.



P3U50EM01

Removing burrs and preparing the edges of the bodywork

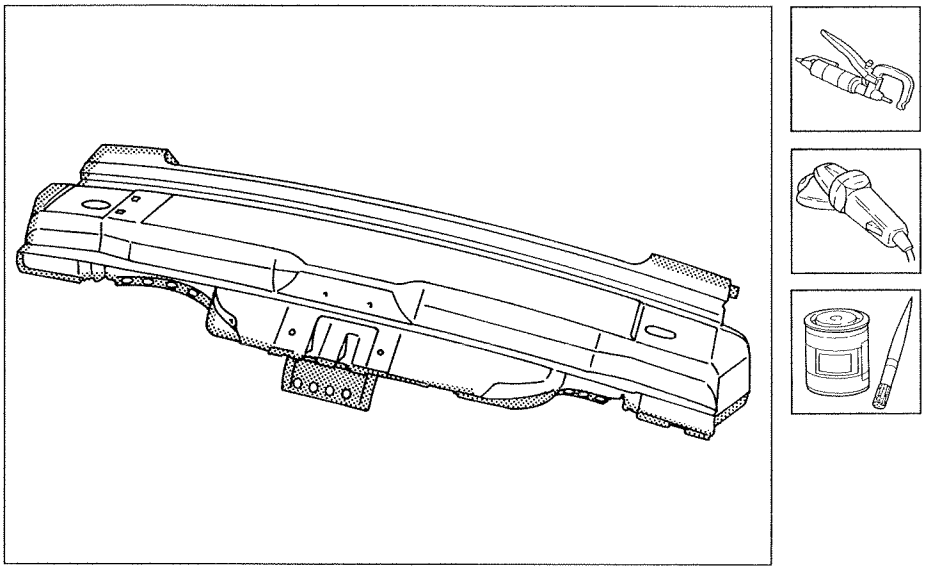
1. Reduce the weld spots along the entire perimeter of the bodywork edge as shown in the picture, using an appropriate grinder.
2. Remove the panel burrs using clippers.
3. Straighten the edges with shaped chisel and hammer.
4. Remove the welding spot residues using a grinding disc.
5. Apply IVI Epox epoxy primer or an electro-weldable galvanizing paint or equivalent product on the areas previously affected by the grinding.



P3U50EM02

Preparing the rear cross panel trim

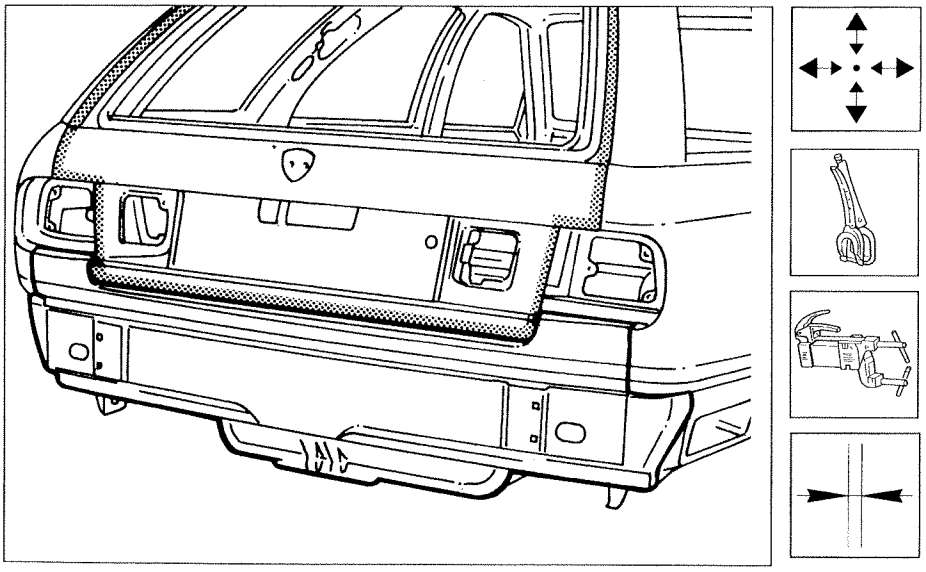
1. Make equidistant holes along the edges of the new part as shown in the figure.
2. Remove the anti-corrosion treatment along the entire perimeter of the inside and outside of the part, using a grinding disc.
3. Use electro-galvanizing paint on the previously treated edges.



P3U51EM01

Fitting the rear cross panel trim

1. Fit the new part carefully in its seating.
2. Check that the cross panel trim is perfectly in position.
3. Secure the new part to the body shell using appropriate self-locking grippers.
4. Tack the new part by making a few spot welds.
5. Close the tailgate and check that the surrounding gap is aligned and even.

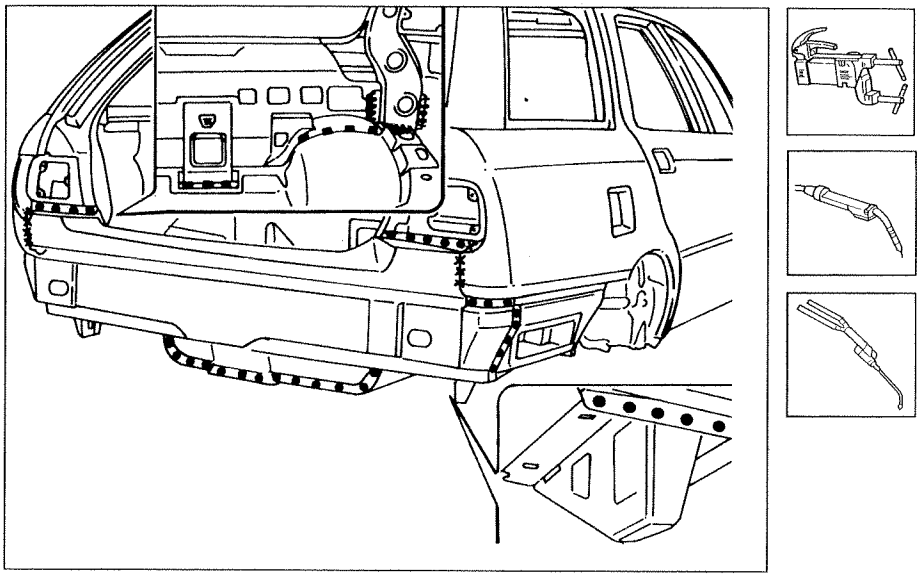


P3U51EM02

70.

Welding the rear cross panel trim

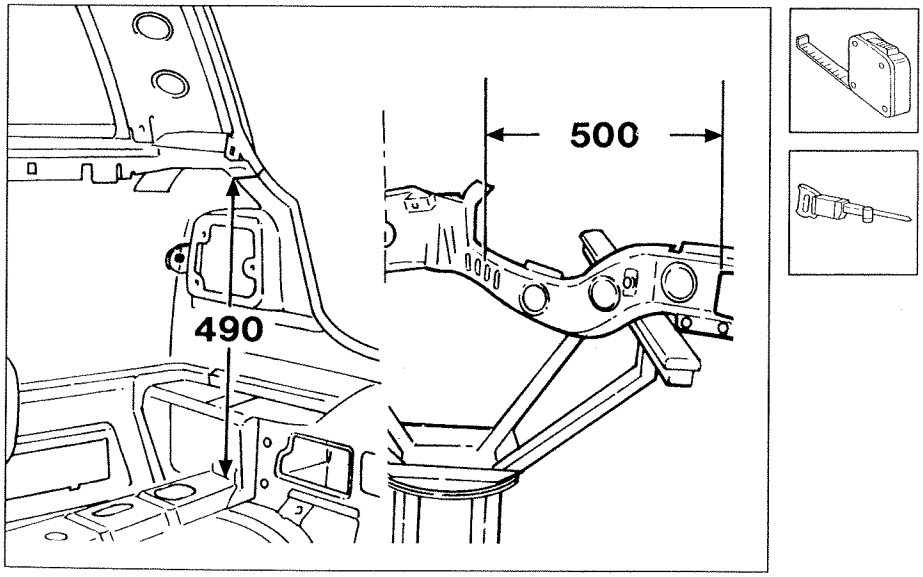
1. Carry out spot welding on the contact edges between the rear cross panel trim and wing panel.
2. Continue spot welding on the contact edges near the spare wheel compartment and side edges.
3. Use a MIG welder to fill the holes made previously on the spare part.
4. Make a continuous bead weld on the edges of the rear pillar reinforcement.
5. Carry out brass fill welding using an oxyacetylene torch on the contact edges between cross panel trim, light housing and wing panel.



P3U52EM01

Preparing the rear pillar reinforcement

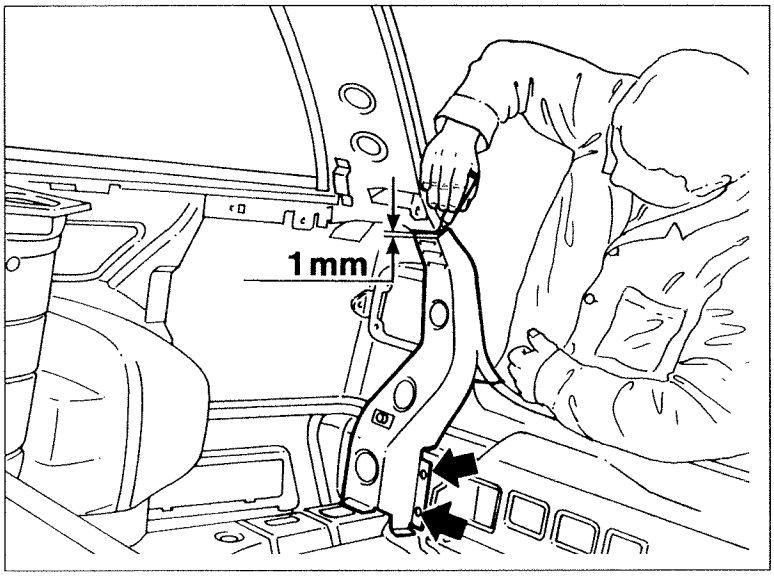
1. Measure the distance between the longitudinal member and pillar reinforcement 490 mm.
2. Make up the dimension measured previously, increased by about 10 mm on the spare part.
3. Remove the surplus on the new part using a pneumatic saw.

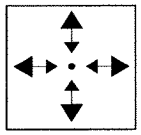


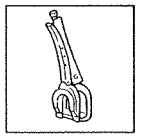
P3U52EM02

Fitting the new part on the body shell

1. Position the new part on the body shell using self-locking grippers.
2. Check that the new part is positioned perfectly by checking the position of the centring holes for the rear bumper bolts.
3. Draw the profile of the new part on the body shell using a marker pen or scribe, leaving a gap of 1 mm between the profile of the new part and the body shell.



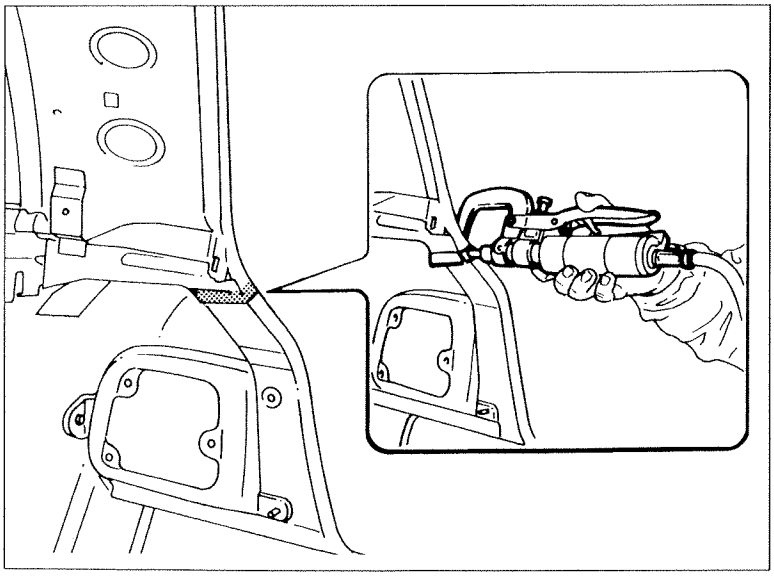


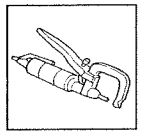


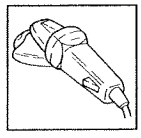
P3U53EM01

Removing burrs and preparing the edge of the body shell

1. Reduce the weld spots along the entire perimeter of the bodywork edge as shown in the insert, using a appropriate grinding tool.
2. Remove the panel burrs using clippers.
3. Straighten the edges with a shaped stake and hammer.
4. Remove the welding spot residues using a grinding disc.
5. Apply IVI Epox epoxy primer or electro-weldable galvanizing paint or equivalent product on the areas previously affected by the grinding.



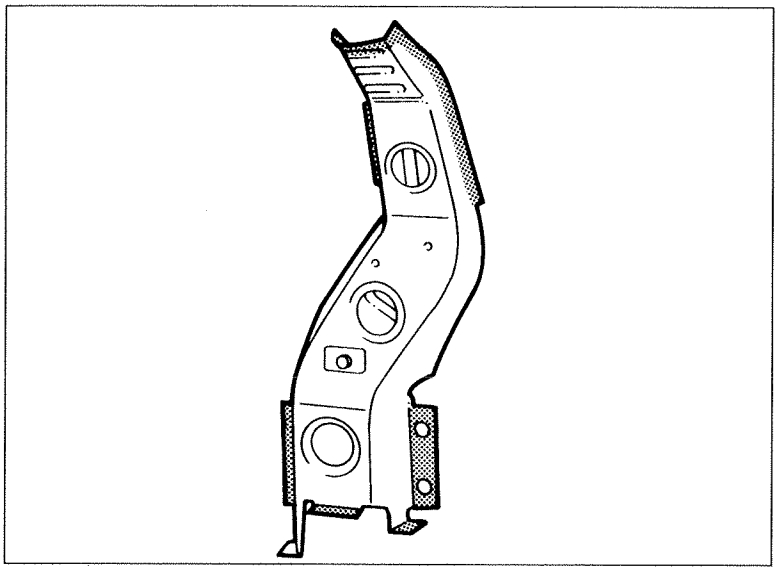


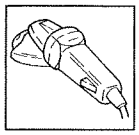


P3U53EM02

Preparing the pillar reinforcement

1. Remove the anti-corrosion treatment along the entire perimeter of the inside and outside of the new part using a grinding disc.
2. Use electro-galvanizing paint along the previously treated edges.

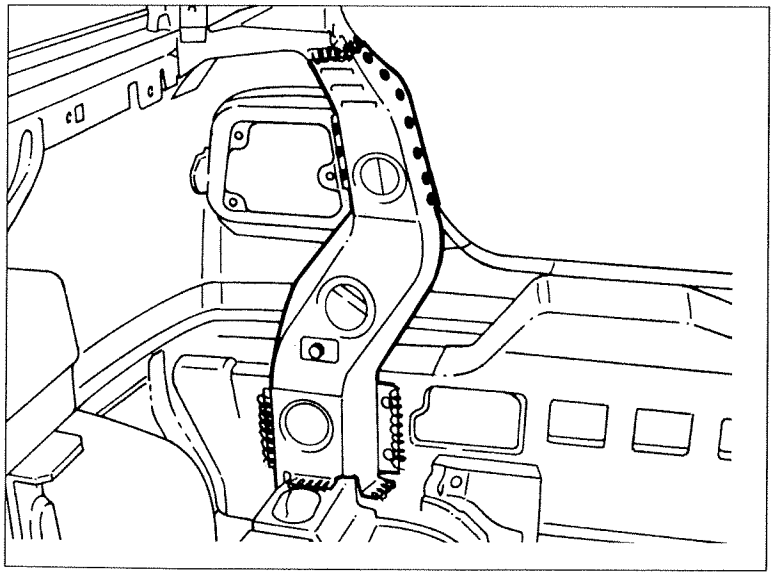


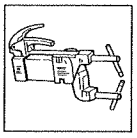


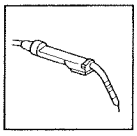
P3U54EM01

Welding the pillar reinforcement

1. Carry out spot welding on the contact edges between pillar reinforcement and body shell.
2. Using a MIG welder, make a continuous bead weld along the edges of the new part and floor longitudinal member and on the top edge between the new part and body shell.



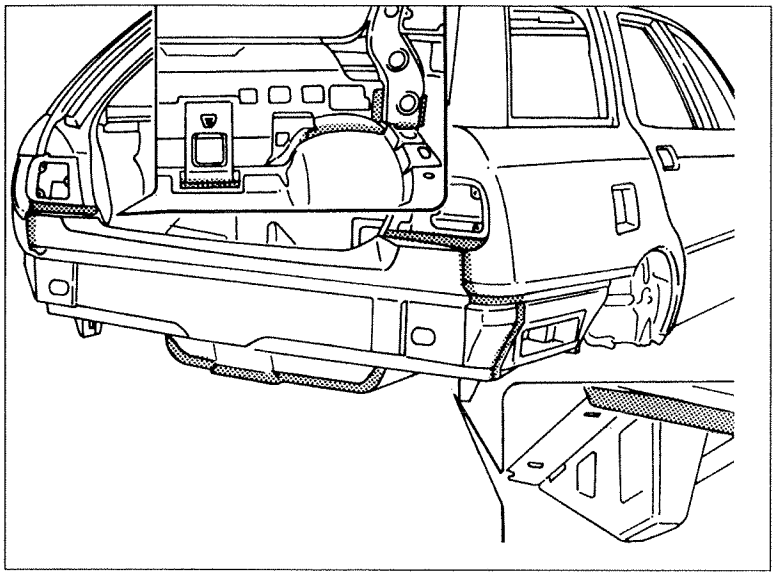


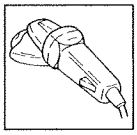


P3U54EM02

Finishing operations

1. Correct any deformations in the panel using a shaped stake and hammer.
2. Remove any welding slag using a grinding disc.

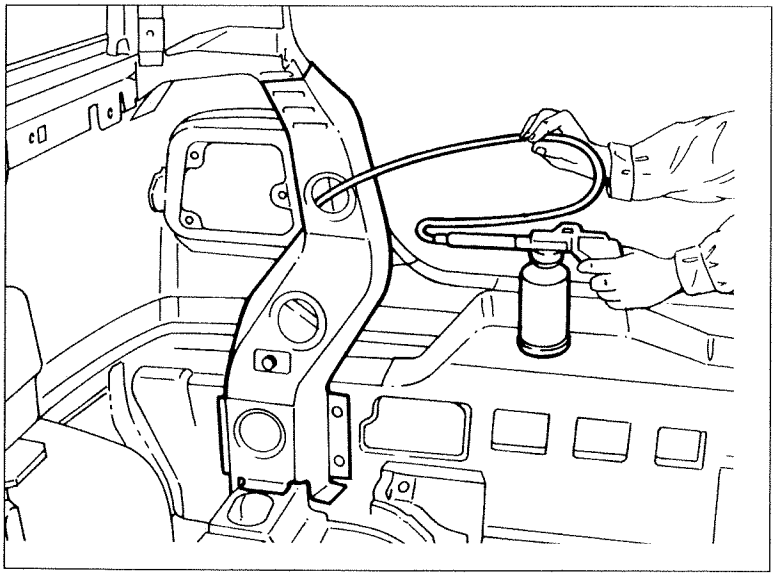


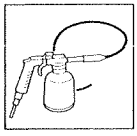


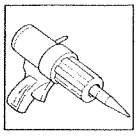
P3U55EM01

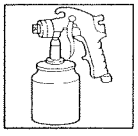
Protection

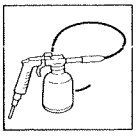
1. Apply anti-corrosion protection on the areas previously affected by the welding.
2. Seal the join lines between cross panel trim and rear pillar reinforcement and the body shell.
3. Proceed with painting and waxing.
4. Apply wax-based oil protection inside the rear pillar reinforcement.











P3U55EM02

page

page

For further information, consult section 70 Bodywork of the Lancia k manual (publication no. 506.475/01)

The information contained in this publication is purely indicative and could be out of date following modifications made by the Manufacturer, at any time, for technical or commercial reasons or in order to conform to legal requirements in the various countries.

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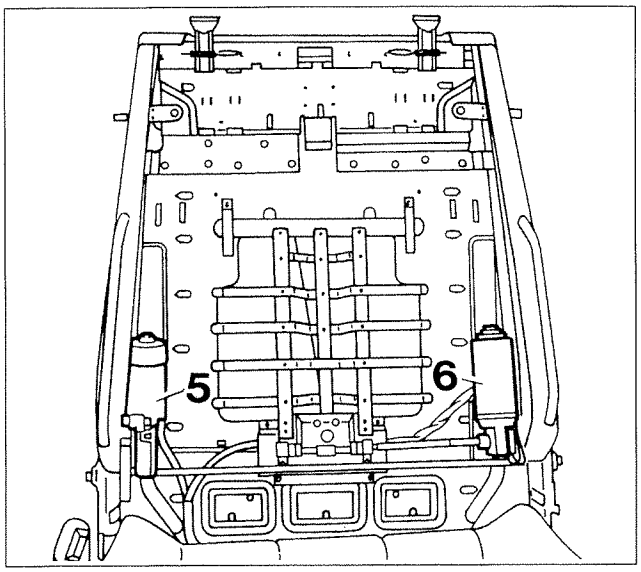
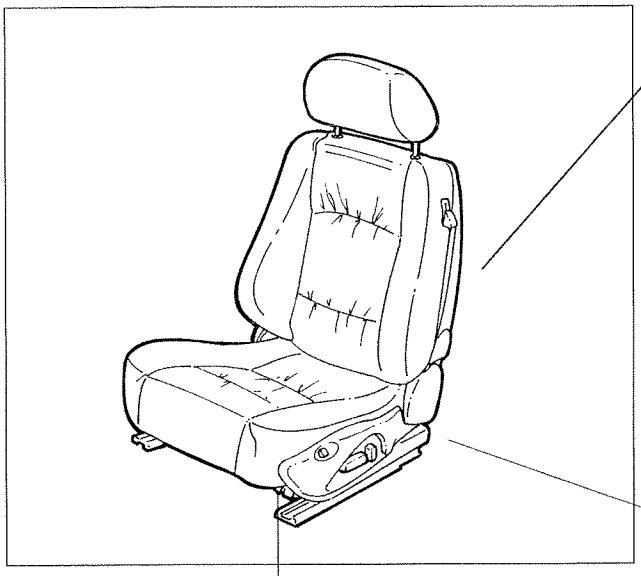
FRONT SEAT

Components

The front seat is fitted with a control unit which governs the various adjustment motors (squab rake, lumbar adjustment, front/rear cushion height, seat reach).
A button on the left side of the seat controls seat heating. Two knobs control the seat position adjustment motors.



P3U18CM05



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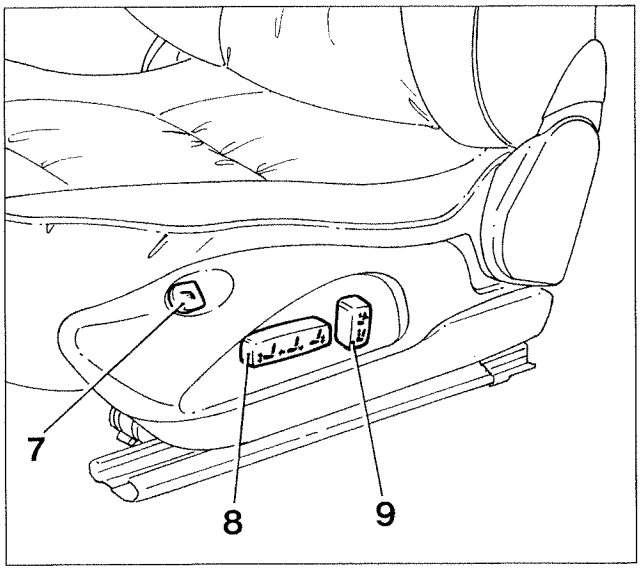
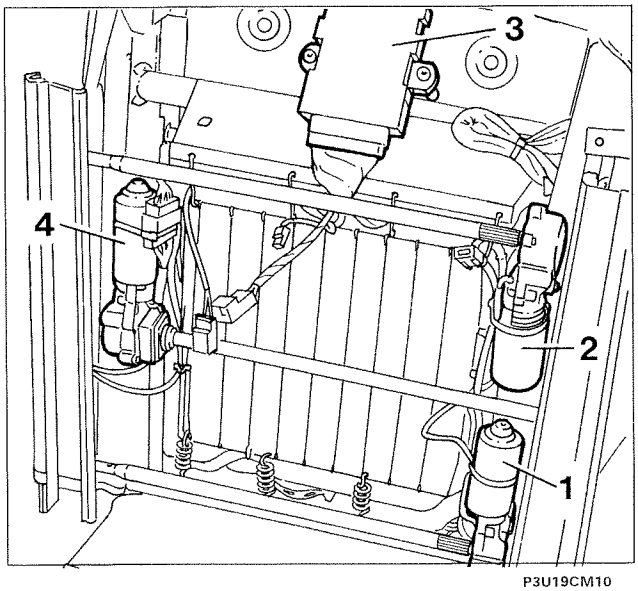


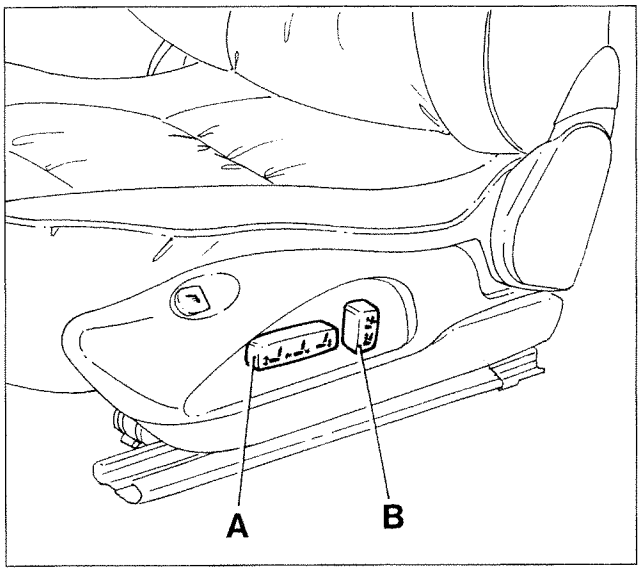
P3U19CM09



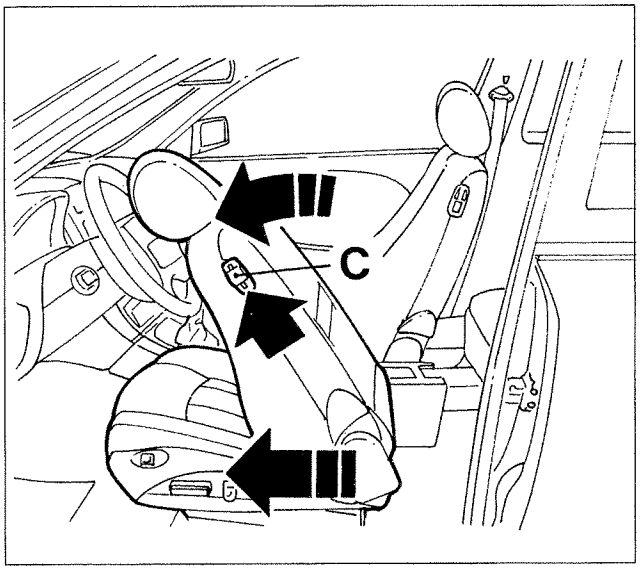
P3U19CM10

1. Cushion rear height adjustment motor
2. Cushion front height adjustment control motor
3. Control unit
4. Seat reach control motor
5. Squab rake adjustment control motor
6. Squab lumbar adjustment control motor
7. Seat heater operation button
8. Button operating cushion height adjustment control motors and seat slide
9. Button operating lumbar adjustment and squab rake control motors

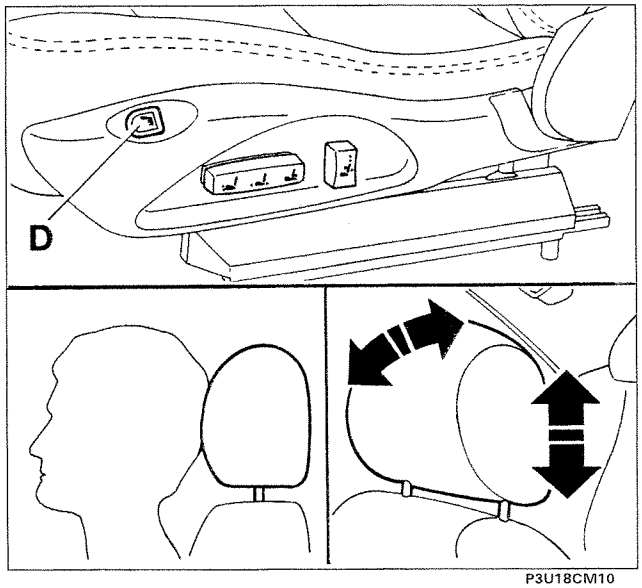
3U69CM



P3U20CM06



3U18CM09



P3U18CM10

3U70CM

Operation

Seat position may be adjusted only with the ignition key turned to MAR.

Two control knobs A and B are located on the side of the seat.

Knob A can be used to carry out the following adjustments:

1. Seat reach adjustment
2. Seat tilt adjustment (cushion front height)
3. Seat tilt adjustment (cushion rear height)

Knob B can be used to carry out the following adjustments:

4. Squab rake adjustment
5. Lumbar support adjustment

Access to rear seats

To gain access to rear seats, lift lever C and move the squab forward.
When the squab is moved, the seat slides forward automatically to improve access to the rear seats.
When the squab is restored to its normal position, the seat automatically resumes its original memorised position.
If it should encounter an obstacle while moving backward (e.g. the legs of a passenger), it will stop and then move forward a few centimetres before locking.

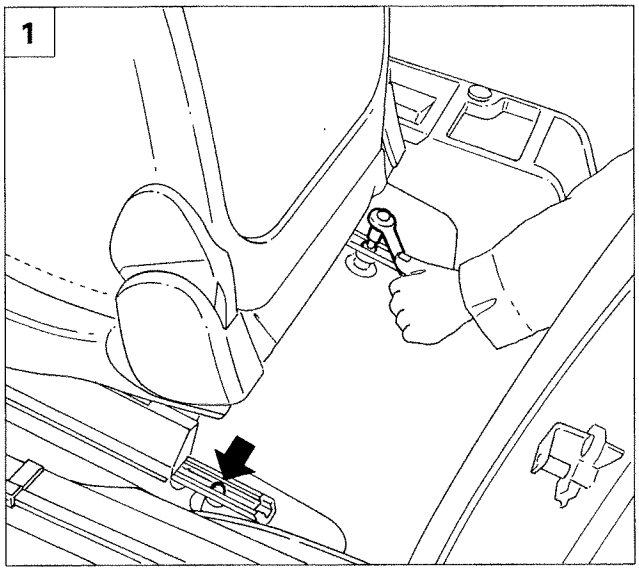
Electrical seat heating

Turn on switch D on the seats to activate/deactivate. Warning lights light up on the control panel when activated.

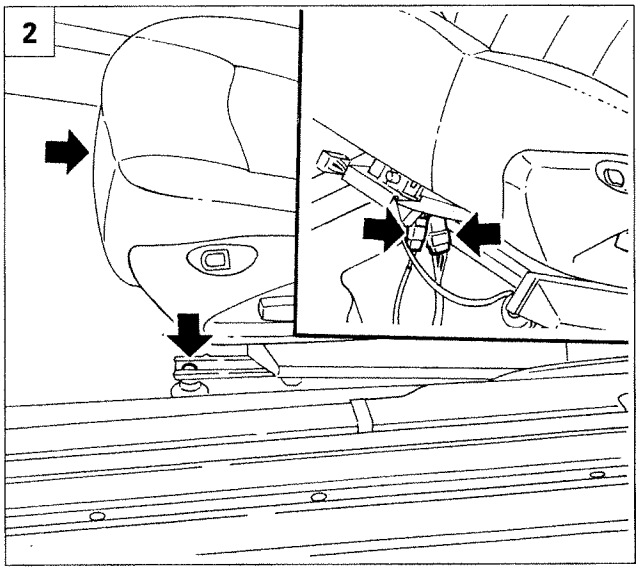
Adjusting front seat head restraints

Front seat head restraints may be adjusted in two ways:

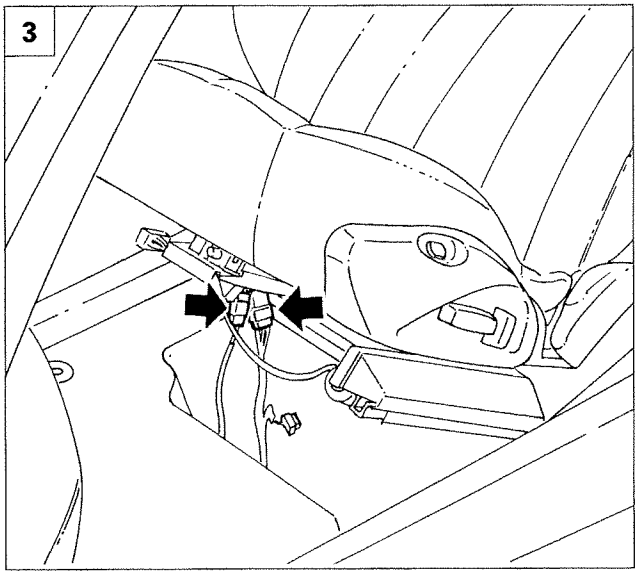
1. vertically, by clicking the restraints upward or downward.
2. angular adjustment.



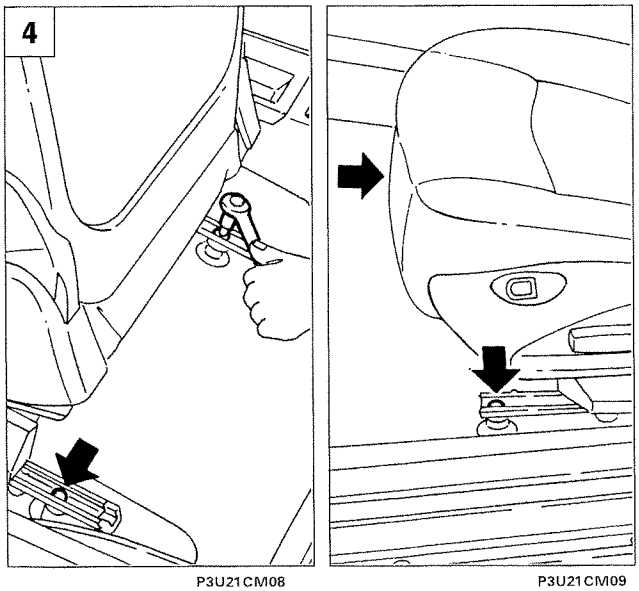
P3U19CM01



P3U21CM06



P3U21CM07



P3U21CM08

P3U21CM09

(3U81CM)

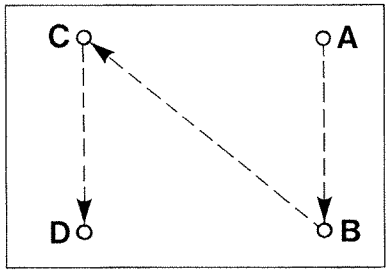
REMOVING - REFITTING SEAT FRONT

Removing

1. Move the front seat fully forward to the end of its travel, then unscrew the bolts securing the guide rails to the floor.
2. Move the seat fully back by undoing the bolts shown in the figure, disconnect the connections shown in the box and then remove the front seat from the vehicle.

Refitting

3. Position the seat in the vehicle, then connect the connections arrowed in the figure.

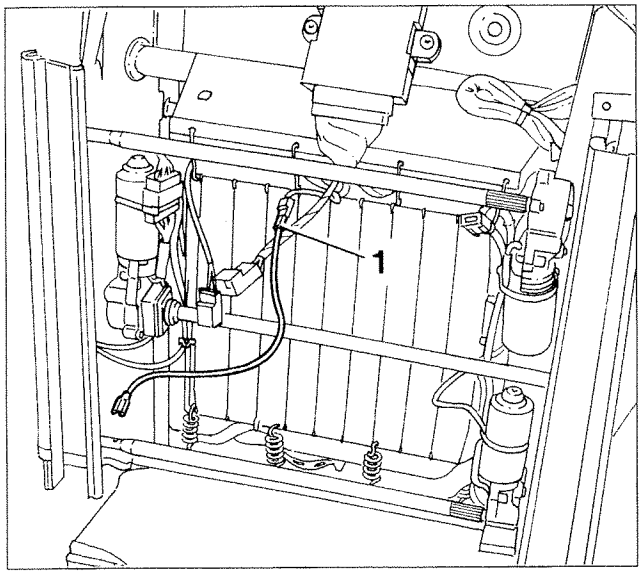


P3U19CM05

4. Position the seat retaining bolts as shown in the diagram above, in the following order:

A. Right rear retaining bolt.
B. Left rear retaining bolt.
C. Right front retaining bolt.
D. Left front retaining bolt.

- Move the seat fully foward and fully back.
- Tighten the seat retaining bolts to a torque of 2.4 daNm.

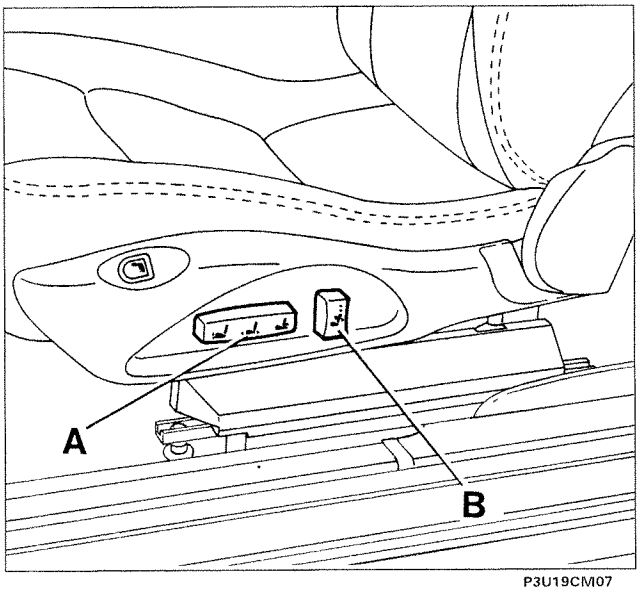


P3U22CM06

Initialising the seat control unit

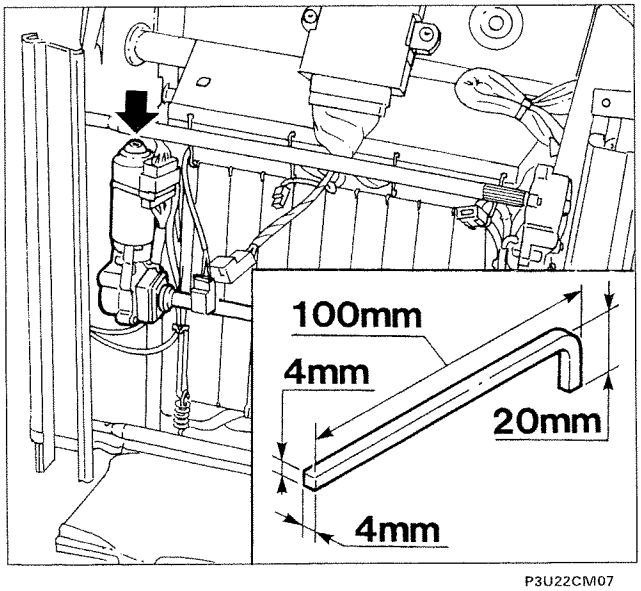
Whenever the front seats are removed, the control unit must be initialised as described below:

- Connect an electrical lead (1) to the tester lead located beneath the seat.
- Move the seat squab upright by adjusting control (B).
- Position the seat fully back and lower fully by means of control (A).
- Connect electrical lead (1) fitted previously to earth.
- Wait 5 to 20 seconds.
- Disconnect electrical lead (1).
- Tilt the squab within 30 seconds: the seat will activate and move fully forward, fully back and then fully forward again in sequence.
- Once the cycle has finished, move the squab upright and the seat will return to its starting position, i.e fully back.



P3U19CM07

If the procedure has never been carried out or is interrupted, the control unit will move the seat foward and the procedure must be repeated.



P3U22CM07

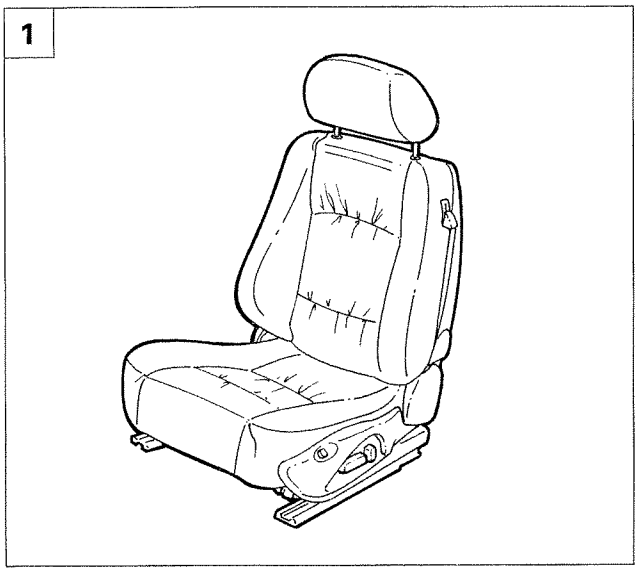
Emergency manual operation of front seat

If the horizontal seat movement motor fails, the seat may be moved manually.

- Insert a tool with the dimensions shown in the box into the seat on the seat operating pin (arrowed). Then turn the tool to move the seat to the required position.

(3U82CM)

1



P3U19CM08

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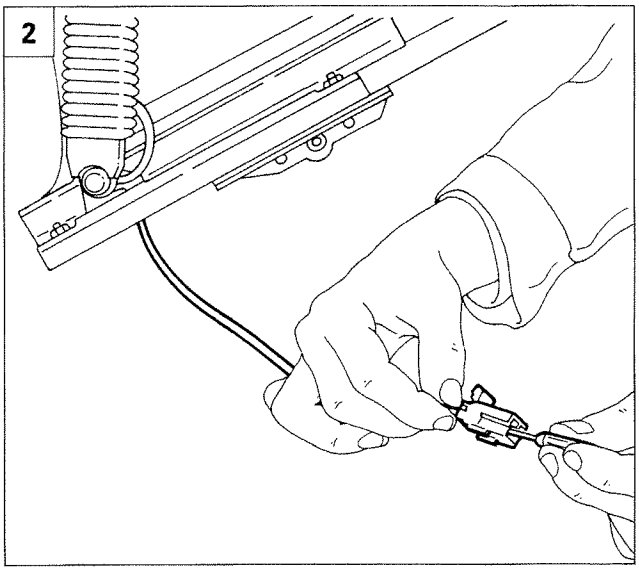

P3U23CM06

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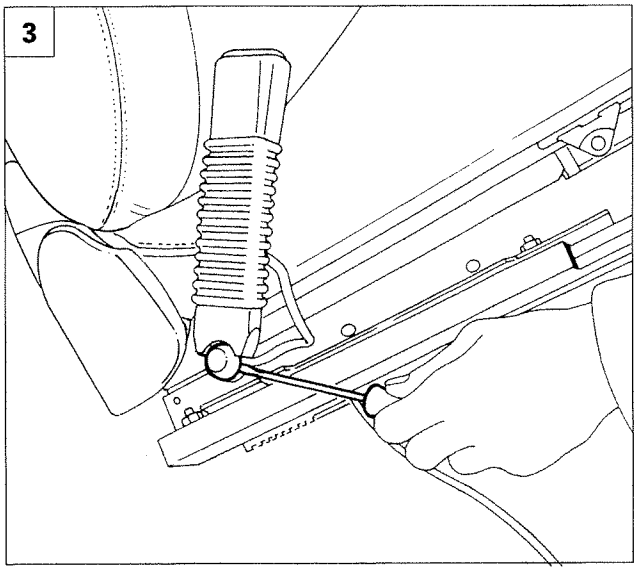


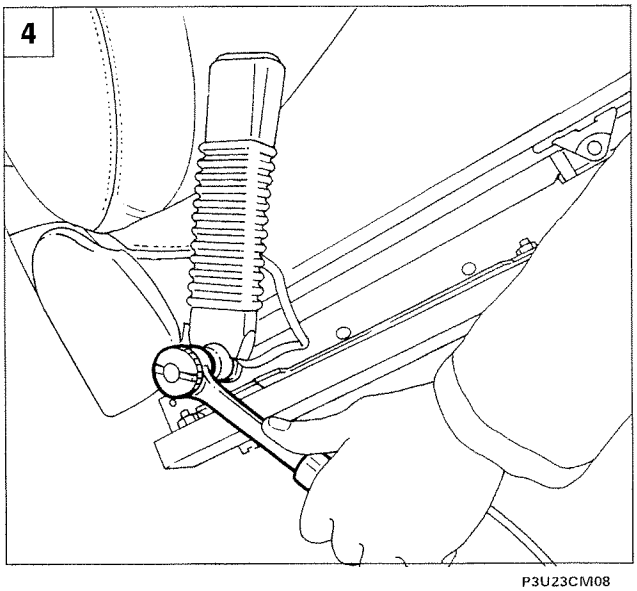
P3U23CM07

REMOVING-REFITTING SEAT BELT CATCH DEVICE

1. Remove the front seat as described on page 21.
2. Disconnect the seat belt attachment connector block.
3. Prise off the seat belt attachment retaining bolt protection.
4. Unscrew retaining screw indicated.
5. Disconnect the seat belt attachment from its seat.

NOTE *Reverse removal instructions to refit.*

4



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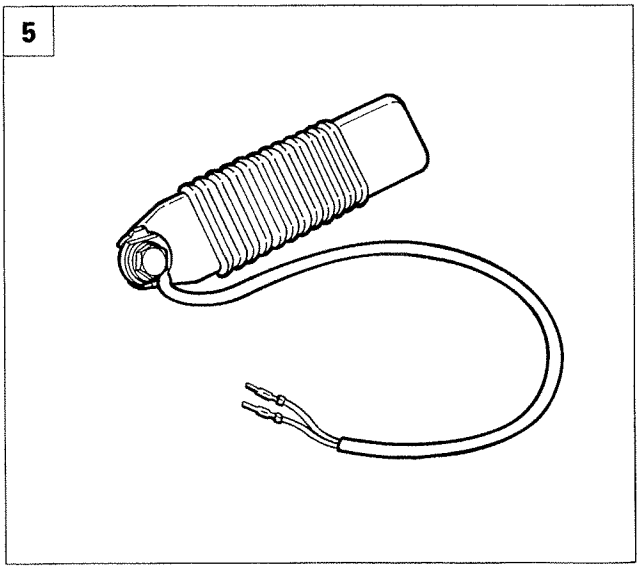
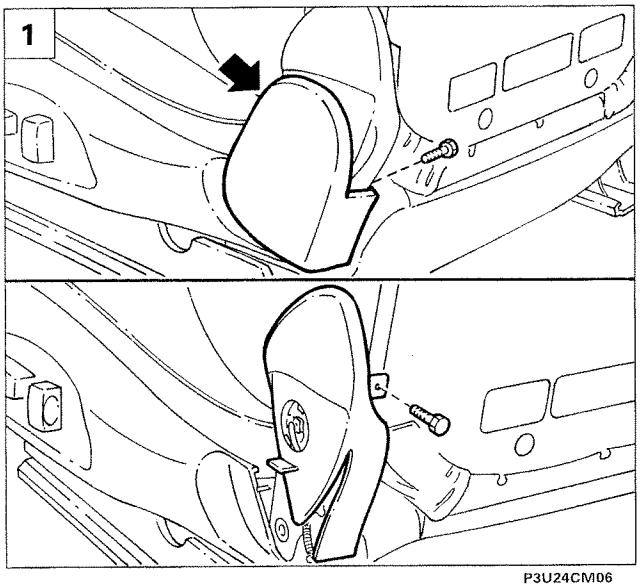
5



P3U20CM05

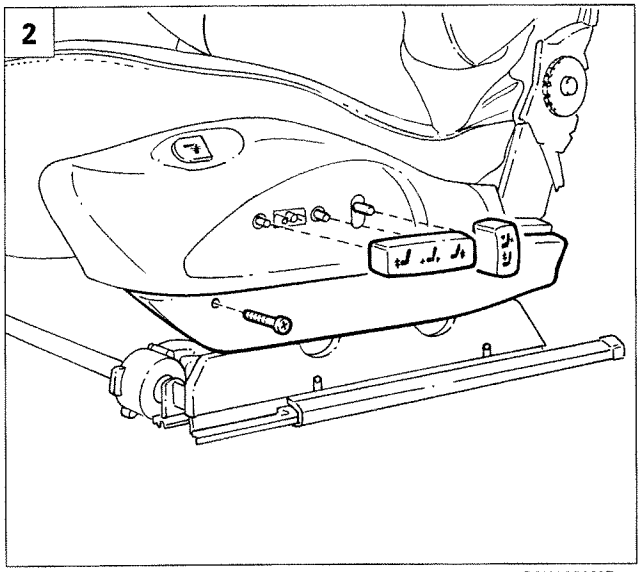
(3U83CM)

1



P3U24CM06

2



P3U24CM07

DISMANTLING-FITTING FRONT SEAT

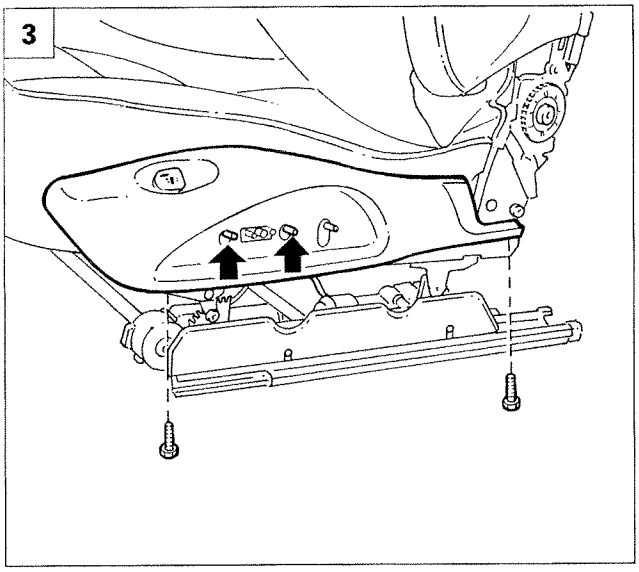
Removing cushion moulding

1. Remove the front seat as described on page 21, until it is fully raised. Then unscrew the retaining bolts and remove the side moulding.
2. Unscrew the retaining bolt indicated in the figure, remove the moulding and remove the seat operation controls from the seat.
3. Unscrew the underlying bolts, disconnect the heated seat button connector and remove the cushion moulding.
4. Undo the retaining tabs to remove the heated seat control button.

Removing squab adjustment motors

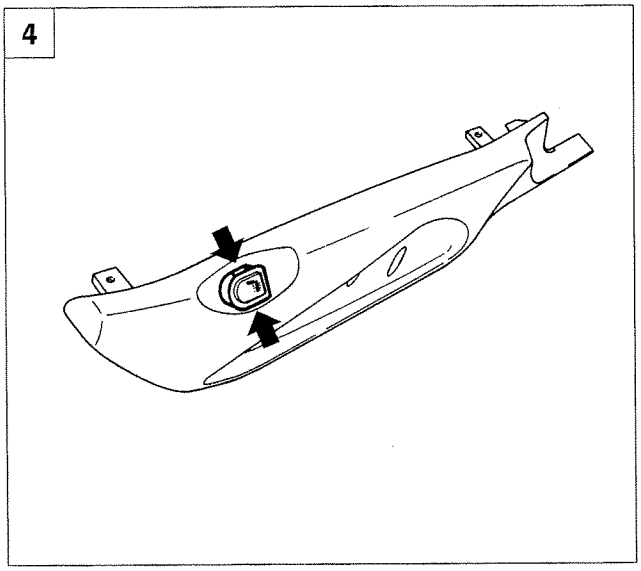
5. Unscrew the retaining bolts indicated and lift the squab trim in the arrowed direction to release the tabs.

3



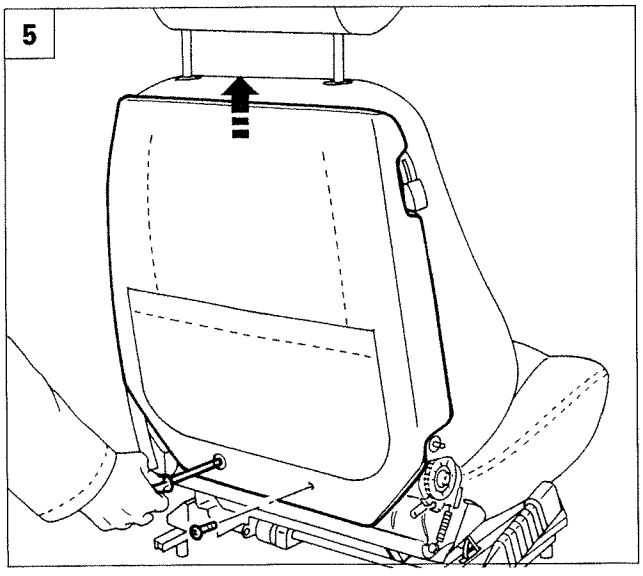
P3U24CM08

4



P3U21CM03

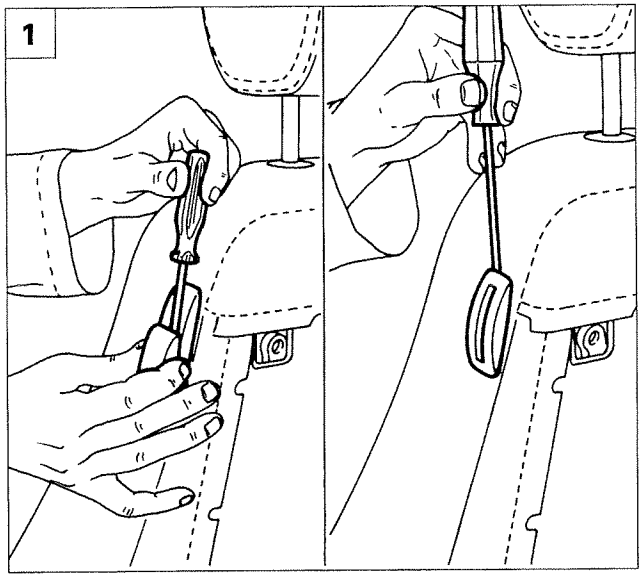
5



P3U24CM09

(3U84CM)

1



P3U22CM02

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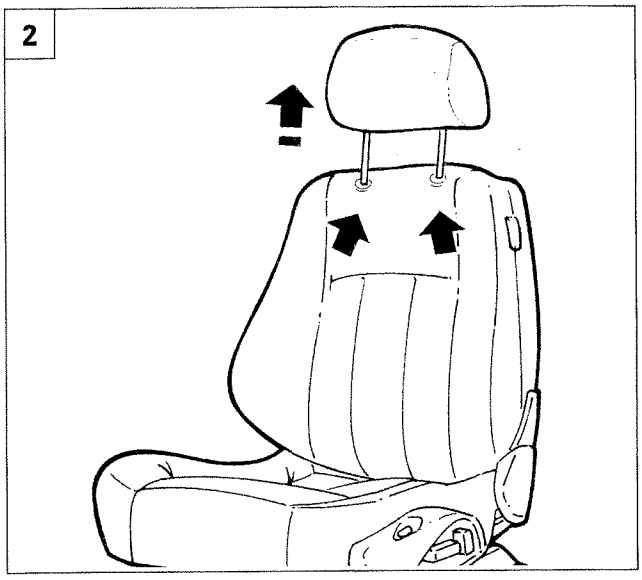

P3U22CM03

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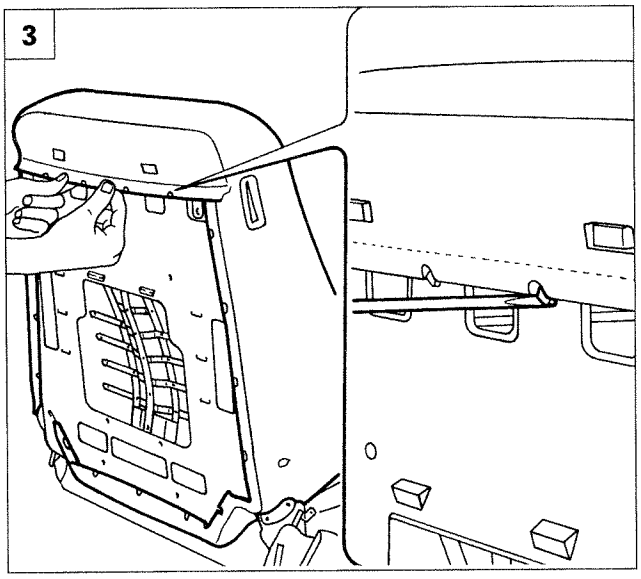
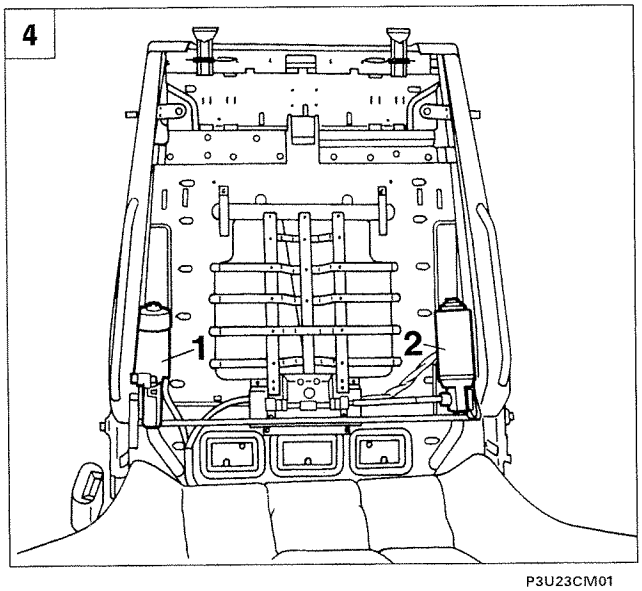


P3U22CM05

1. Remove the squab control lever and its seat.
2. Lift the head restraint from the seat, press on the points indicated to release the pin from the retaining clip.
3. Remove the squab trim with padding by raising the tabs shown in the figure and releasing the link.
4. Squab adjustment motor (1), lumbar adjustment motor (2).
5. Unscrew the connector and the retaining bolts shown in the figure and remove the lumbar adjustment motor from the seat squab.

4



P3U23CM01

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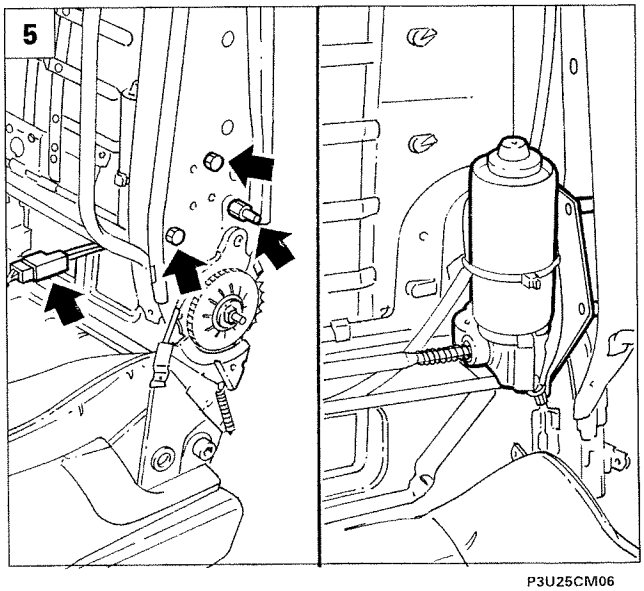
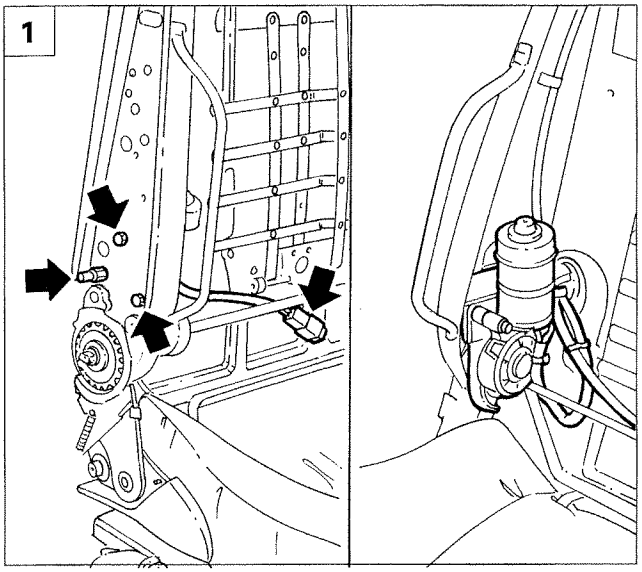


P3U25CM06

(3U85CM)

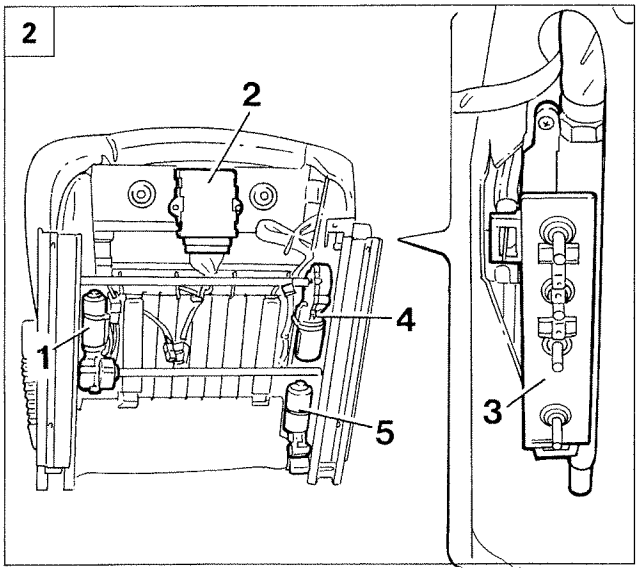
70.

1



P3U26CM06

2



P3U26CM07

1. Disconnect connector and the retaining bolts shown in the figure and remove the squab adjustment motor.

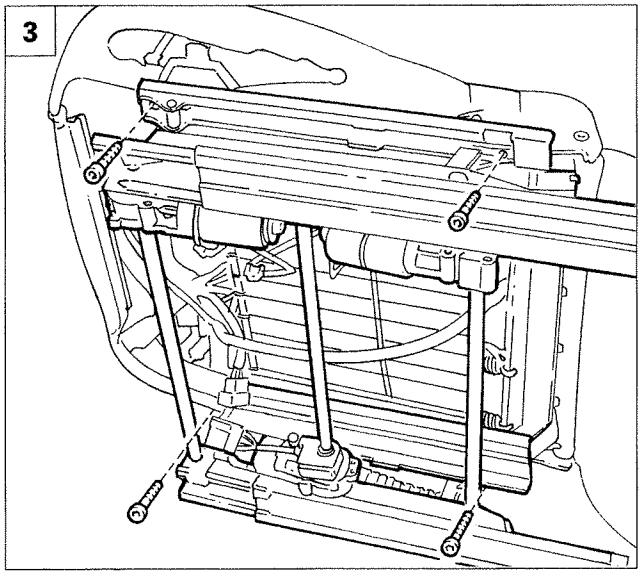
Removing seat adjustment motors

2. Component lcoation:
   1. Seat reach motor; 2. Control unit; 3. Seat operation control; 4. Front ride adjustment motor; 5. Rear ride adjustment motor.
3. Unscrew the retaining bolts and the electrical connections, then disconnect the guide together with seat activation motors.
4. Seat adjustment motors.

Removing seat operating control

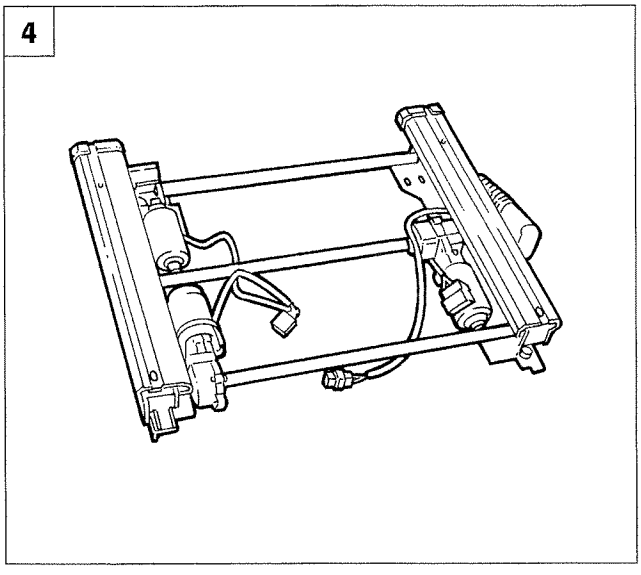
5. Unscrew the bolts retaining the seat operation device and remove together with electrical wiring.

3



P3U26CM08

4



P3U26CM09

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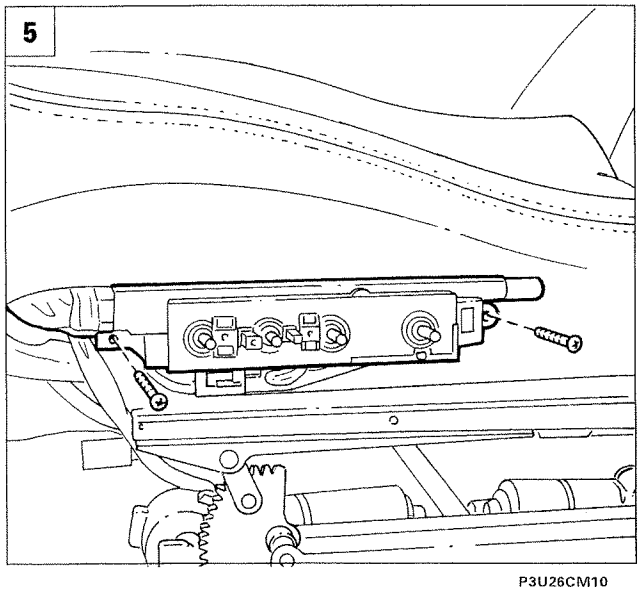
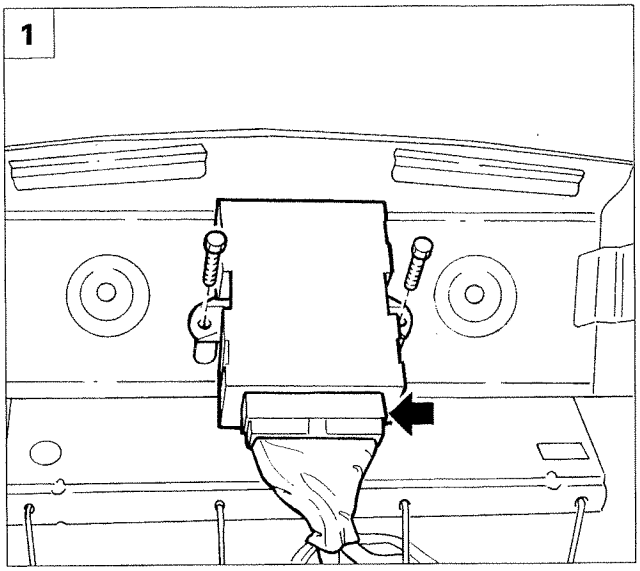
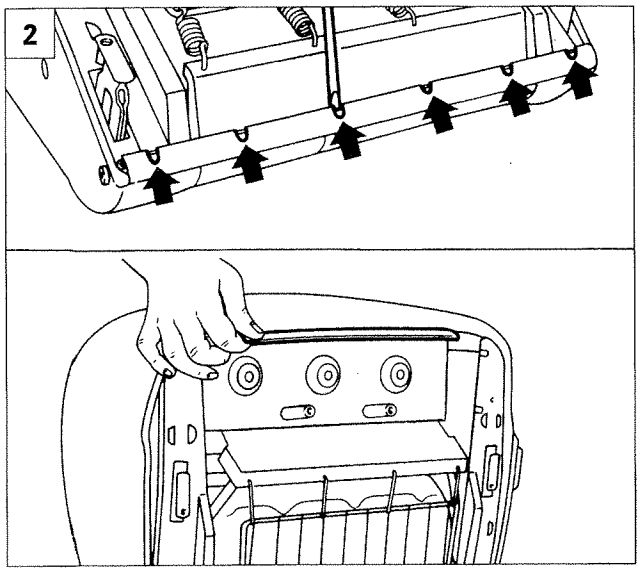


P3U26CM10

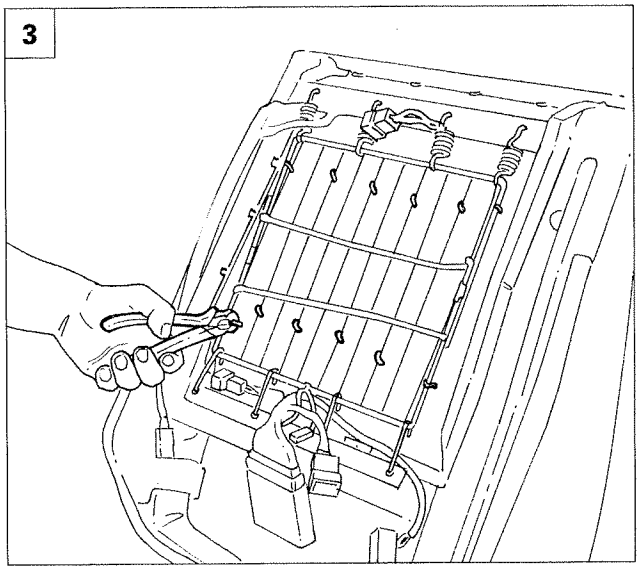
(3U86CM)



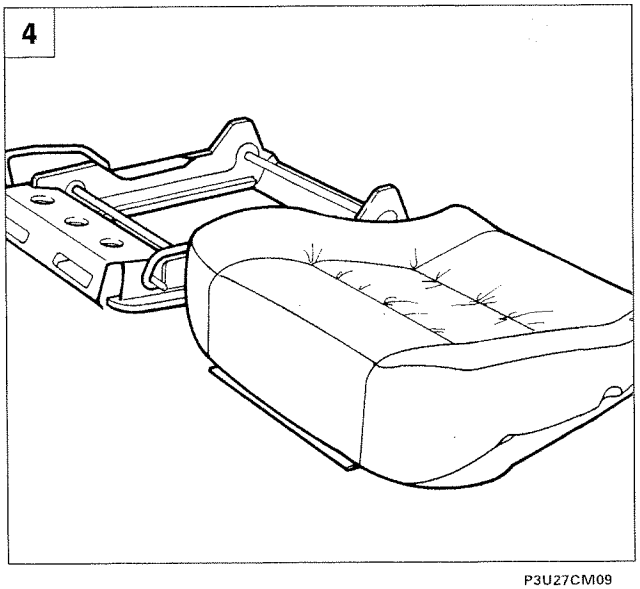
P3U27CM06



P3U27CM07



P3U27CM08



P3U27CM09

Removing seat control unit

1. Disconnect the connector indicated and the retaining bolts, then remove the control unit from the seat.

Removing cushion trim

2. Lift the cushion trim link retaining tabs and prise up the cushion trim from the top.

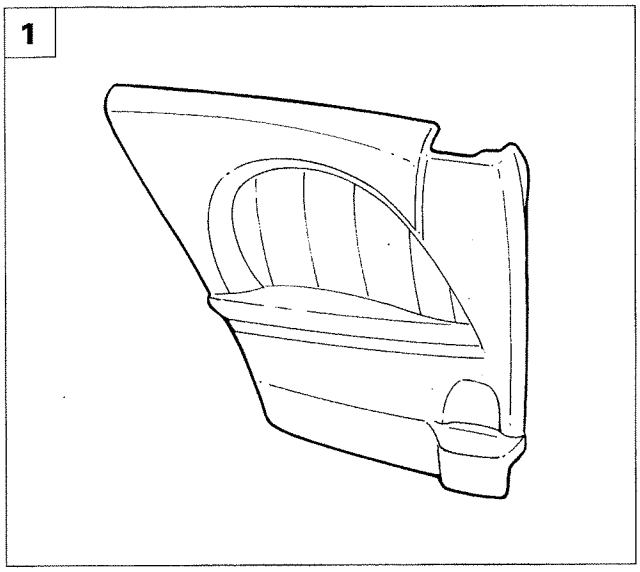
3. Cut the padding fasteners indicated in the figure.

4. Detach the cushion trim complete with padding from the frame.

NOTE *Reverse removal instructions to refit.*

(3U87CM)

1



P3U18CM04

REPLACING REAR SIDE WINDOW GLASS

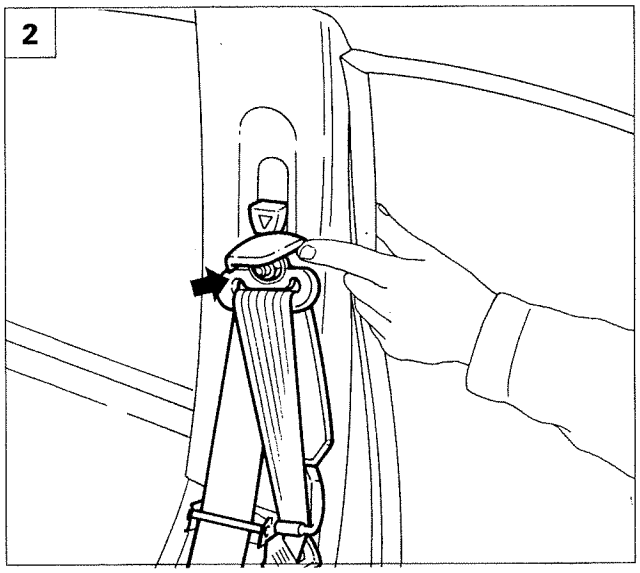
Protect any parts which could become damaged during glass cutting and installation using a cloth. Then protect the edge of the glass housing with adhesive tape to prevent damage to the paintwork.

Before beginning the glass replacement procedure, disconnect the battery negative terminal.

Operation sequence

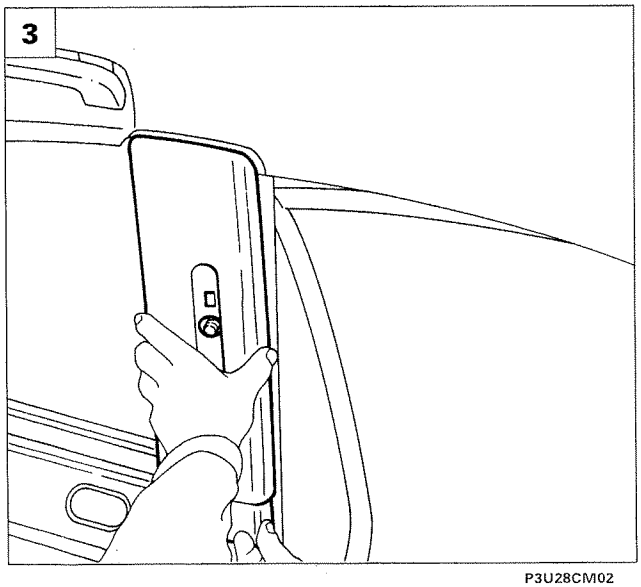
1. Remove the rear wing inner lining as described on page 18.
2. Lift the protection and unscrew the nut shown in the figure. Then remove the front seat belt (only the upper part) by undoing the retaining tab. Remove the height adjustment knob of the seat belt.
3. Remove the rear pillar trim from its seat by undoing the retaining clips using tool 1878077000.
4. Remove the rear pillar trim by releasing from its retaining clips using tool 1878077000.

2



P3U28CM01

3



P3U28CM02

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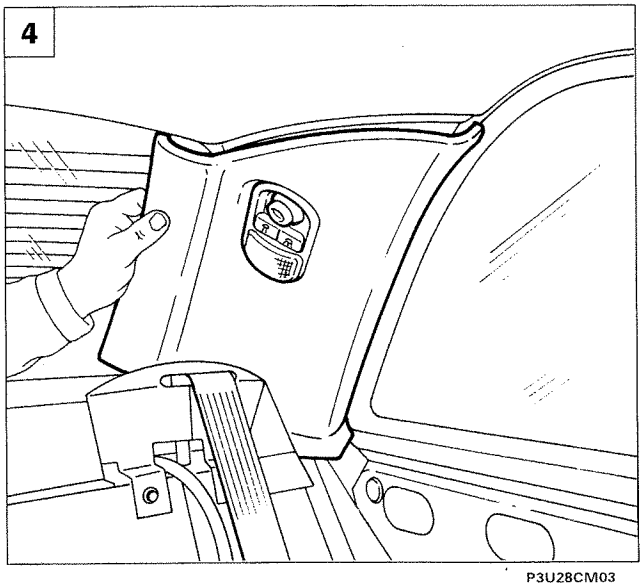

P3U28CM03