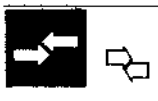
Graphic representations and symbols

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

	Inlet
	Exhaust
	Operation
	Tolerance Difference in weight
	Pre-loading
	Rotation
	Compression ratio
	Selection Classes
	Oversize Greater than .... Maximum
	Undersize Smaller than .... Idling
	Number of revs
	Ratio
	Pressure
	Temperature
	Temperature <0°C Cold Winter
	Temperature >0°C Hot Summer
	Windscreen wiper with electric washer pump
	Rearscreen wiper with electric washer pump
	Engine

SERVICE MANUAL COMPOSITION

At present, November 1997, the **LANCIA k 1st volume** manual is composed of the following booklets:

Print N°	Sections	Page Nos.	Versions	Comments
506.475 With binder (IX/94)	**00**	1÷107	All versions	Introduction - Technical data
	10	1÷16	1998 20 v 2446 20 v	Removing-refitting power unit Replacing auxiliary shaft belt - Replacing timing belt
		1÷43	1998 20 v	Fuel system: Bosch Motronic M 2.10 MPI injection/ignition system
		1÷11	2446 20 v	Fuel system: Bosch Motronic M 2.10 MPI injection/ignition system
		1÷25	2959 24v	Removing-refitting power unit Replacing auxiliary shaft belt - Replacing timing belt
		1÷25	2959 24v	Fuel system: Bosch Motronic M 3.7 MPI injection/ignition system
		1÷17	2387 TD	Removing-refitting power unit Replacing auxiliary shaft belt - Replacing timing belt
		1÷24	2387 TD	Fuel system
		1÷15	All versions	Diagrams: Fuel system - Lubrication - Cooling system
	18	1÷9	All versions	Hydraulic operation Removing-refitting Clutch operation
	21-27	1÷22	1998 20 v 2446 20 v	Removing-refitting - Drive shafts - Intermediate shaft - Reverse with synchromesh - External controls
		1÷17	2959 24v	Removing-refitting Viscodrive viscous coupling
		1÷14	2387 TD	Removing-refitting
	33	1÷41	All versions	Anti-lock brakes - Front brakes - Rear brakes - Handbrake - Hydraulic operation

Cont'

REMOVING-REFITTING POWER UNIT WITHOUT THE AID OF TROLLEY 1860823000

Arrange vehicle on lift, then disconnect battery negative lead and proceed as follows:

- Use tool 1878077000 to undo studs securing bonnet lid lining.

- Disconnect screen washer fluid lines from sprays, then remove bonnet lid from hinges and top gas damper heads.
- Disconnect positive terminal, remove battery, holder and rear mount bracket.
- Disconnect intake duct with debimeter and resonator.
- Disconnect solenoid retaining bolts.
- Disconnect battery mount front bracket and ABS control unit bracket.
- Unscrew top screw retaining engine oil dipstick sleeve to intake manifold.
- Remove front wheels.
- Drain coolant by opening cock at bottom of right hand side of radiator.

- Disconnect front wheel arch linings (2 parts each).
- Remove lower engine bay protection.
- Disconnect earth lead from gearbox mount.
- Remove clutch slave cylinder with mount bracket and reverse inhibition bowden cable.

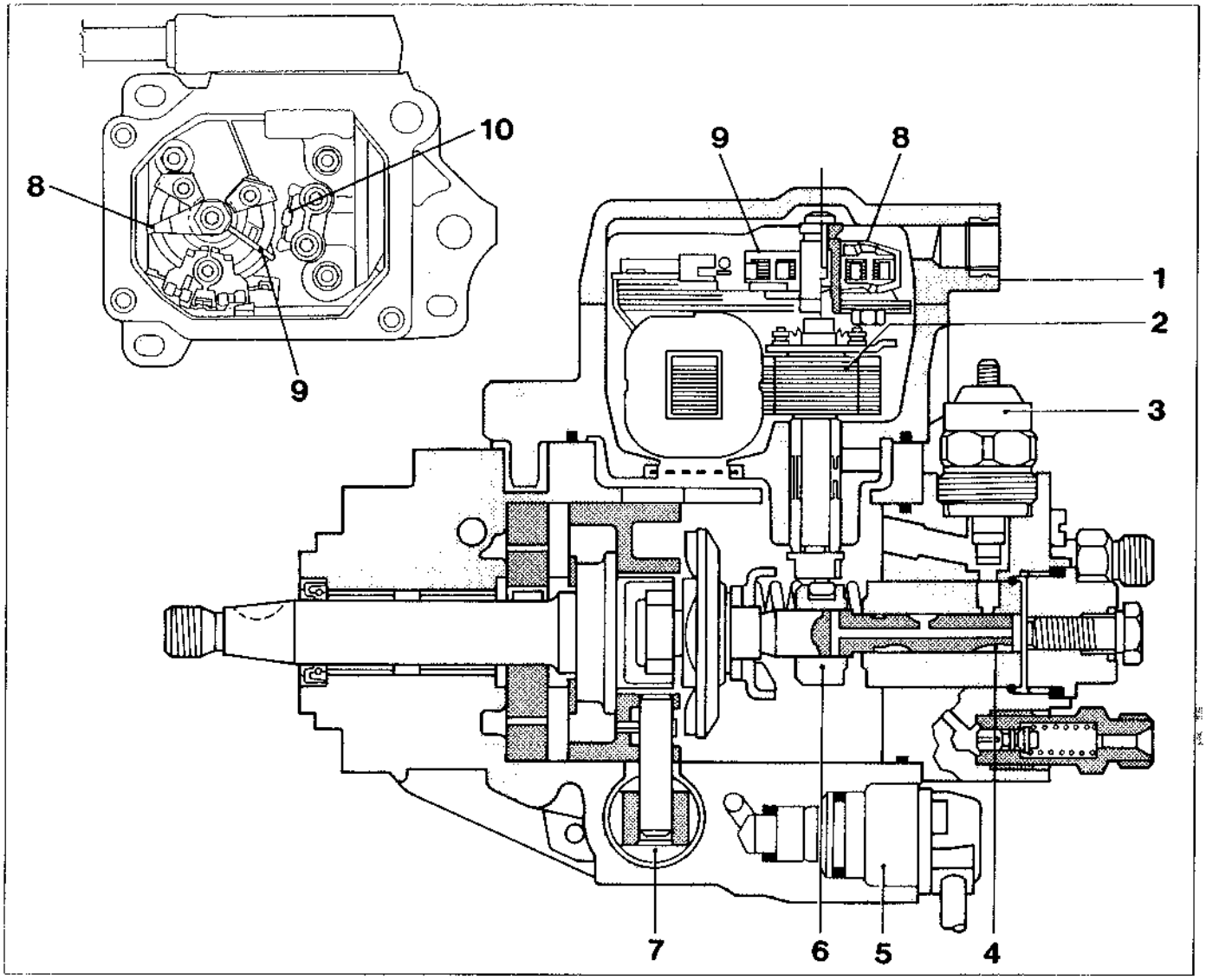
- Disconnect left hand half-axle, then position to rear of engine bay.
- Disconnect first exhaust pipe section.
- Unscrew bolt retaining oil dipstick sleeve to crankcase and remove sleeve.
- Undo screws retaining power steering pump pulley, loosen auxiliary belt tensioner, remove belt and remove power steering pump pulley.
- Remove power steering pump without disconnecting lines and place to rear of engine bay.

- Disconnect gearbox linkage and remove reaction bracket from gearbox.
- Disconnect right hand half-axle coupling, then place to rear of engine bay.
- Unscrew both engine mounts (timing side).
- Unscrew brake pipe bracket, then place ABS ECU and bracket to one side.
- Disconnect coolant delivery and return lines to passenger compartment heater radiator from engine.

- Disconnect coolant pipe from butterfly valve case.
- Disconnect coolant sleeves between engine and radiator, then remove expansion tank.
- Disconnect throttle cable from butterfly valve case.
- Disconnect electrical leads from fuel injectors, timing sensor and timing variator sensor.

- Remove spark plug cover, disconnect electrical leads from ignition coils and earth point.

- Disconnect fuel delivery and return lines and lines fitted to intake manifold (without damaging plastic fuel manifold).
- Disconnect pipe connecting V.I.S. operating device from solenoid
- Disconnect battery positive lead (and starter motor) from connector block.
- Remove nut retaining power unit mount, gearbox end



P3U07AX01

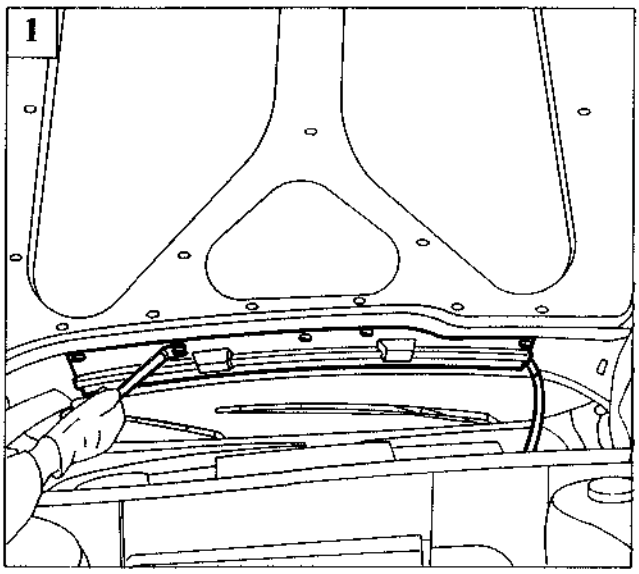
1. Pump cover
2. Electromagnetic actuator
3. STOP solenoid
4. Distributor pistonn
5. Injection advance actuator
6. Regulation cursor
7. Injection advance variation piston
8. Mobile ring
9. Reference ring
10. Diesel temperature sensor

After comparing the position of regulation cursor (6) transmitted by sensor (8) with the position saved in its memory, the ECU performs a correction, taking into account fuel temperature recorded by sensor (10) and thus fuel density, until actual position of regulation cursor (6) coincides with theoretical value.

The exact amount of fuel required for the specific driving conditions is thus obtained to achieve: peak performance with good fuel economy and minimum levels of smokiness.

Regulation of injection point (advance) depends on the quantity of fuel to be injected, engine rpm and engine coolant temperature.

The controlled injector informs the control unit on actual injection advance, i.e. point at which needle valve begins to move. On the basis of these signals, the ECU corrects the advance set by the injection advance actuator until the theoretical level is achieved.

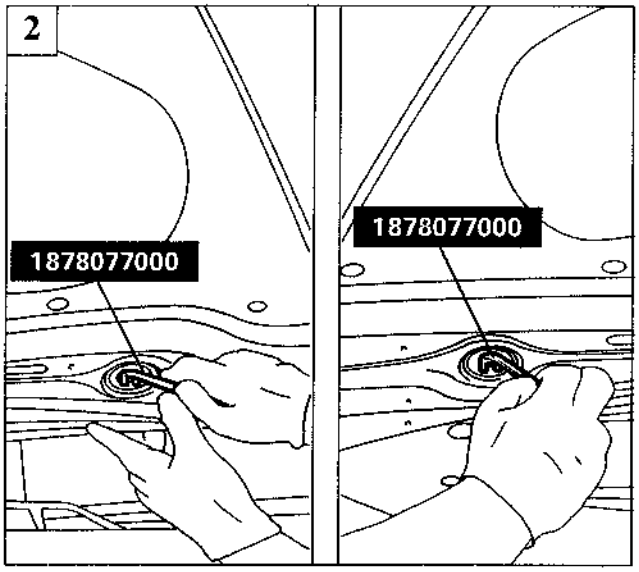


P3U01CB01

REMOVING

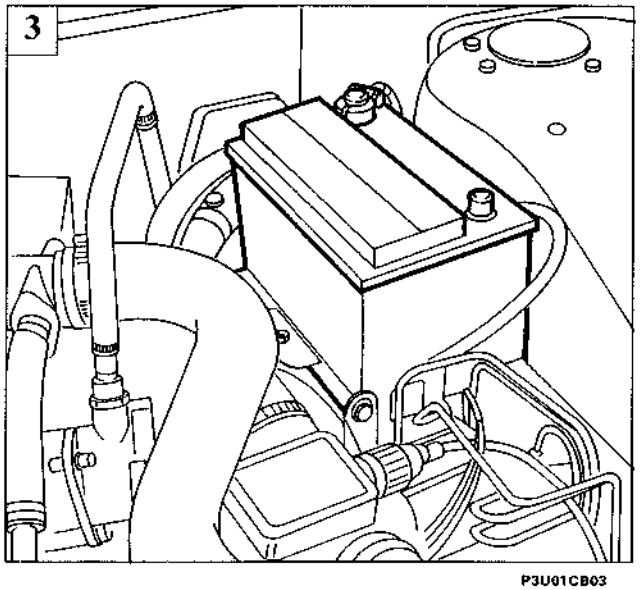
Place the car on ramps, disconnect the battery's negative cable and remove the front wheels.

NOTE *The procedures described in points 1 and 2 are not compulsory in order to remove and refit the gearbox and differential unit; however, they can facilitate some stages.*

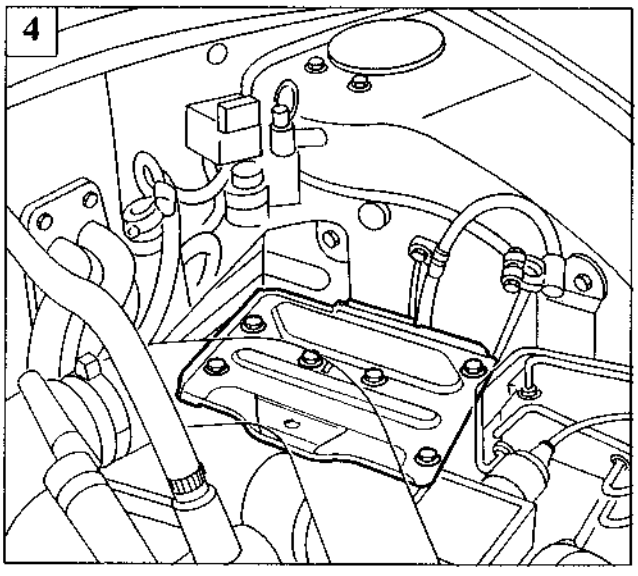


P3U01CB02

Proceed as described below:
1. remove the buttons shown in the figure using tool 1878077000;
2. remove the pipes from the windscreen washer jets and remove the bonnet;
3. disconnect the positive cable, undo the locking bolt and remove the battery;
4. undo the attachment bolts and remove the battery cage;



P3U01CB03



P3U01CB04

CLIMATE FUNCTION

Press the "CLIMA" key when screen is to be used exclusively for air conditioner functions.
Key wording and identification points are lit in green by measn of a warning light.
The automatic air conditioner control system automatically regulates the following parameteters/function:

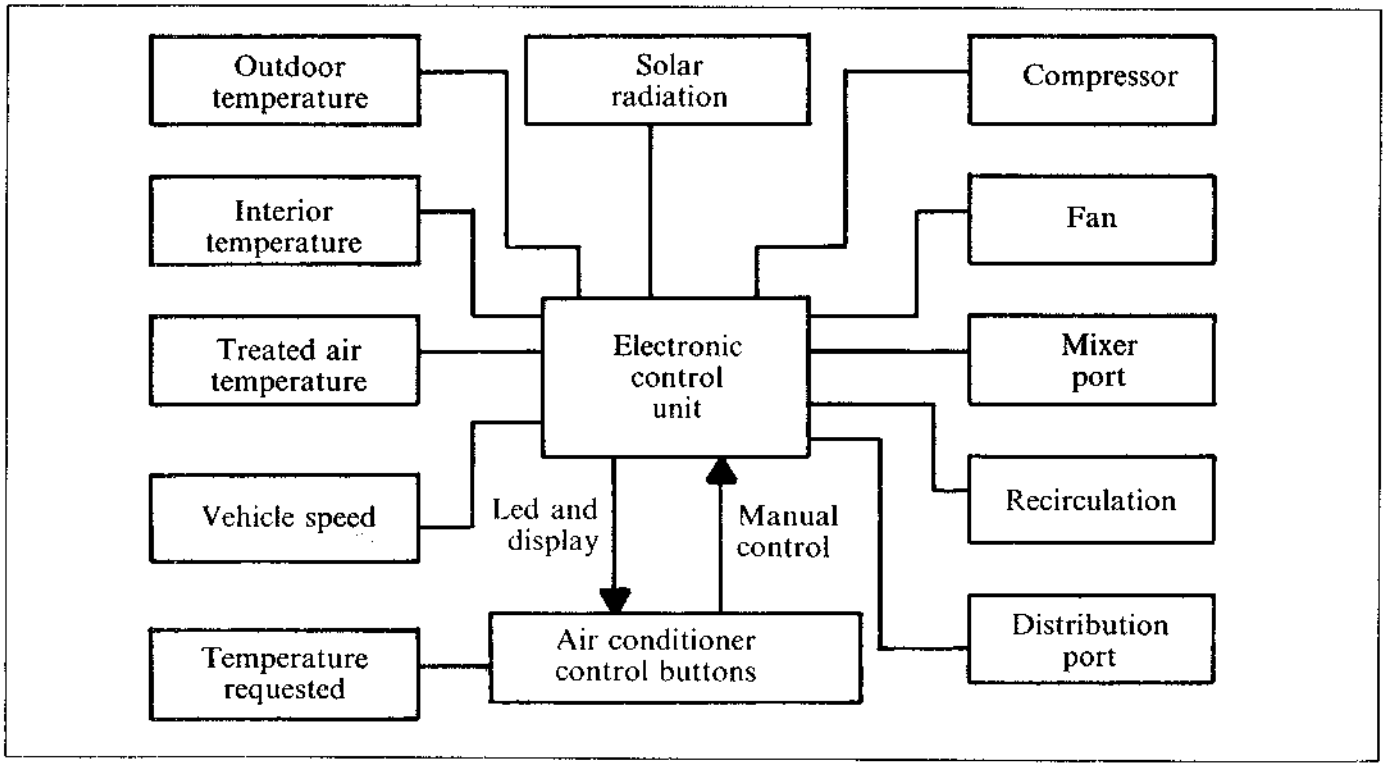
- air temperature to outlets;
- fan speed (continuous speed);
- air distribution;
- air recirculation;
- compressor activation.

It also governs the following parameters/functions manually:
- fan speed (continuous);
- air distribution in four positions;
- recirculation;
- compressor activation.

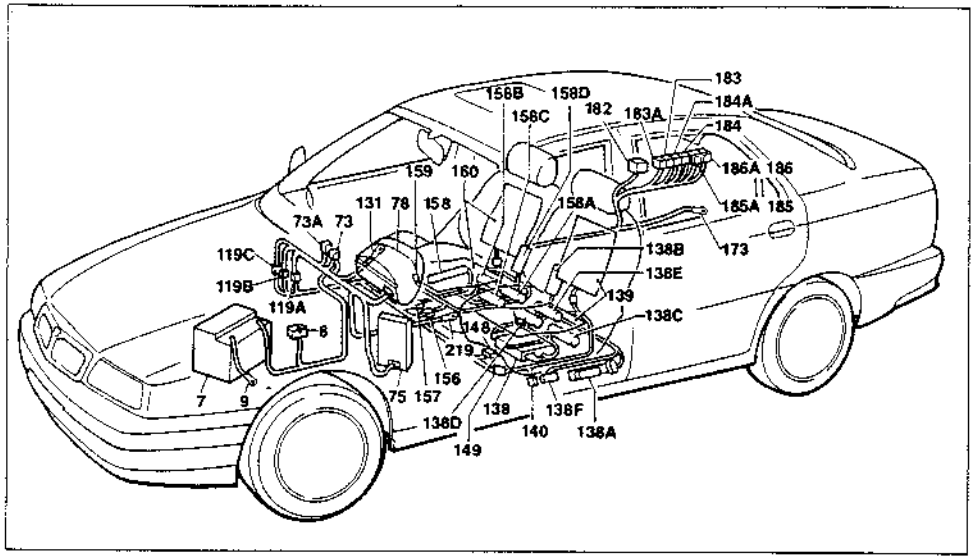
All manual operations carried out under the "CLIMA" function take priority over the automatic functions and are saved until the user wishes to alter the function by turning to automatic mode.

When one of the parameters is set manually, the others are controlled automatically. In particular, air temperature to outlets allows temperature requested on display to be maintained in the passenger compartment (except when off).
The system saves the functions even when the vehicle stalls and the engine is turned off.
The system is zeroed only when the battery is disconnected from the system. When the battery is refitted, the first time the engine is turned on, the Infocenter memory is set to "AUTO" and a temperature of 24 °C appears on the display. The remaining functions are set automatically.
Temperature is expressed in degrees centigrade for Italy and Central Europe and in Fahrenheit for the United Kingdom.

The figure below shows a flow diagram for the automatic air conditioner.



P3U73CL01



P3U110N01

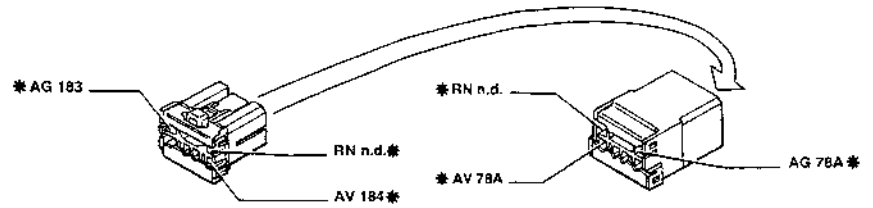
Electrically-adjustable and heated front seats - Driver's seat with memory

Key to components

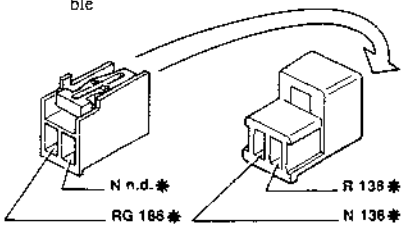
7 Battery
8 Main connector block
9 Earth on body shell
73 Secondary connector block
73A 80A fuse protecting rear services
75 Junction unit (dashboard)
E1 Ignition switch discharge relay
78 Instrument panel
B Driver's heated seat warning light
B1 Passenger's heated seat warning light
119A Connection between dashboard cable/right longitudinal cable
119B Connection between dashboard cable/right longitudinal cable
119C Connection between dashboard cable/right longitudinal cable
131 Earth on steering column mounting
138 Electronic control unit for driver's electrically-adjustable seat with memory
138A Pushbutton unit for driver's electrically-adjustable seat
138B Driver's squab adjustment motor
138C Driver's seat height adjustment motor
138D Driver's seat height adjustment motor
138E Driver's forward/backward adjustment motor
138F Pushbutton unit for driver's seat memory control
A Boot switch and anti-theft device on switch
B Boot lock/unlock motor
139 Driver's seat heating pad
140 Switch for driver's seat heating pad
148 Connection between left longitudinal cable/left seat cable
149 Connection between left longitudinal cable/left seat cable
156 Connection between right longitudinal cable/right seat cable
157 Connection between right longitudinal cable/right seat cable
158 Pushbutton unit for passenger seat electrical adjustment
158A Passenger seat forward/backward adjustment motor
158B Passenger seat height adjustment motor
158C Passenger seat height adjustment motor
158D Passenger squab adjustment motor
159 Passenger seat heating pad switch
160 Passenger seat heating pad
173 Rear right earth
182 Rear connector block
183 Relay for driver's heating pad
183A 7.5A fuse protecting driver's seat heating pad relay
184 Relay for passenger seat heating pad
184A 7.5A fuse protecting passenger seat heating pad relay
185 Relay for electrically-adjustable driver's seat
185A 30A fuse protecting electrically-adjustable passenger seat
186 Relay for electrically-adjustable passenger seat
186A 30A fuse protecting electrically-adjustable driver's seat
219 Earth on central console

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

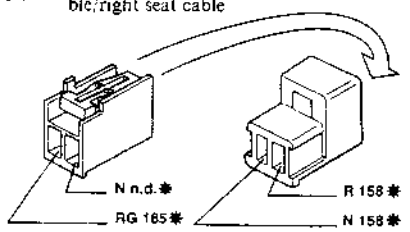
119C Dashboard cable/right longitudinal cable connection



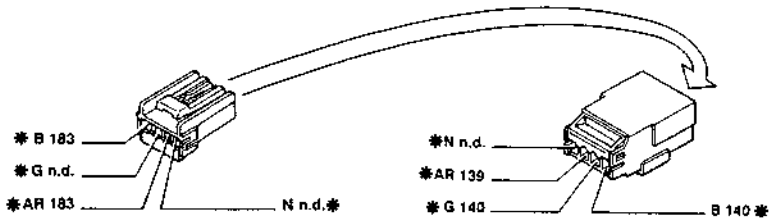
148 Connection between left cable/right seat cable



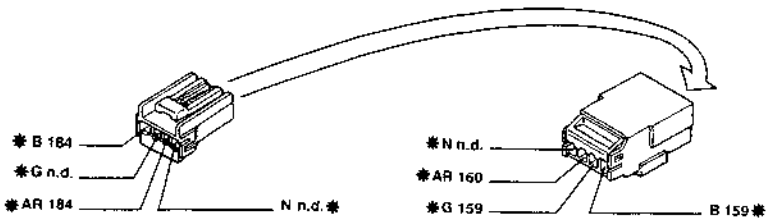
157 Connection between right longitudinal cable/right seat cable



149 Connection between left longitudinal cable/left seat cable

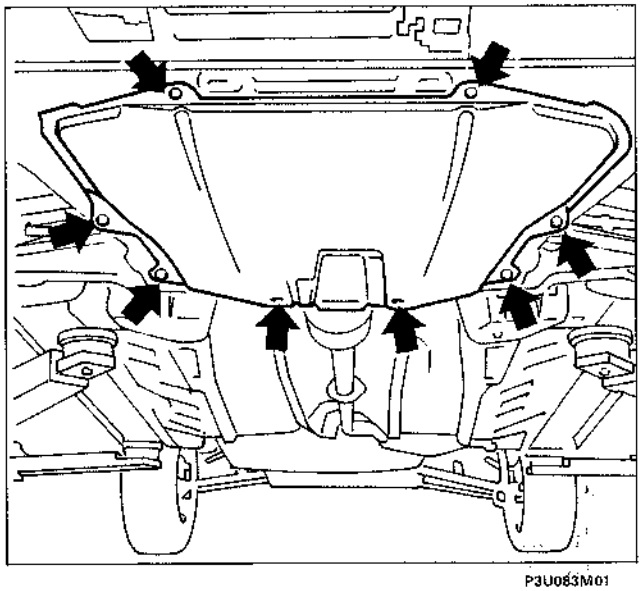


156 Connection between right longitudinal cable/right seat cable



✱ The relevant cables on the wiring diagram are marked with an asterisk

P3U111N01

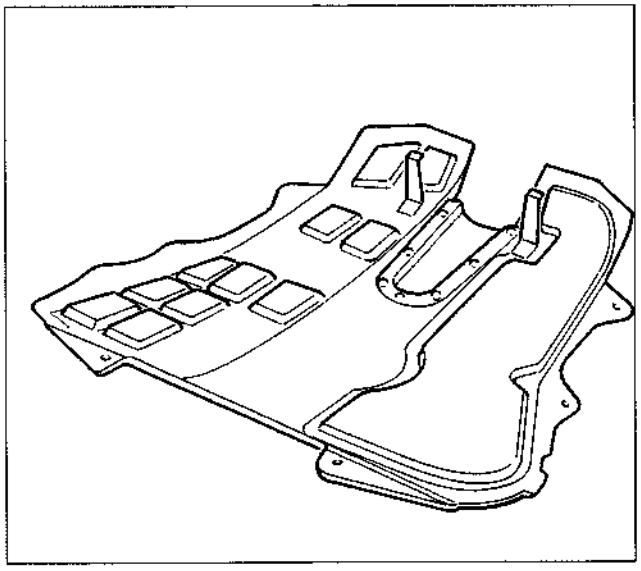

P3U083M01

REMOVING-REFITTING

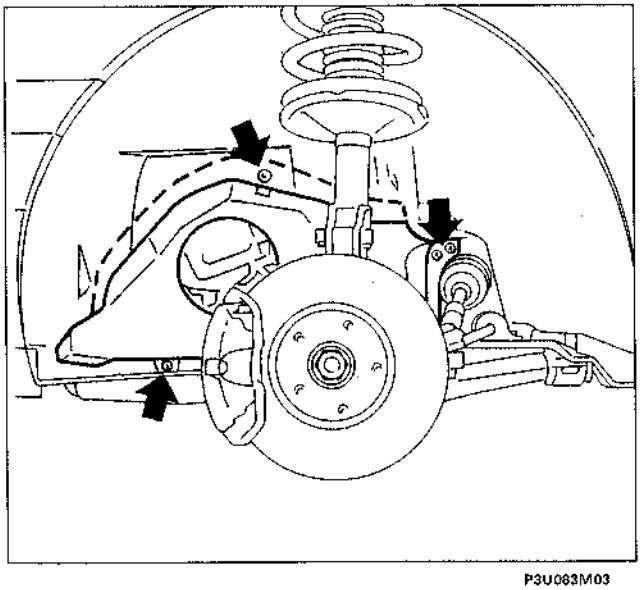
Position the vehicle on a lift and loosen the bolts fixing the front wheels. Raise the vehicle and remove the wheels.

Lower engine compartment panel

1 Undo the bolts shown and remove the lower engine compartment panel.


P3U083M02

2. Check that the sound insulation lining is intact; if this is not the case, the panel must be replaced; to refit it, proceed reversing the order of the operations carried out for the removal.


P3U083M03

Left wheel arch lower sound insulation lining

3. Undo the bolts shown and remove the lining, detaching the left wheel arch linder without actually removing it.

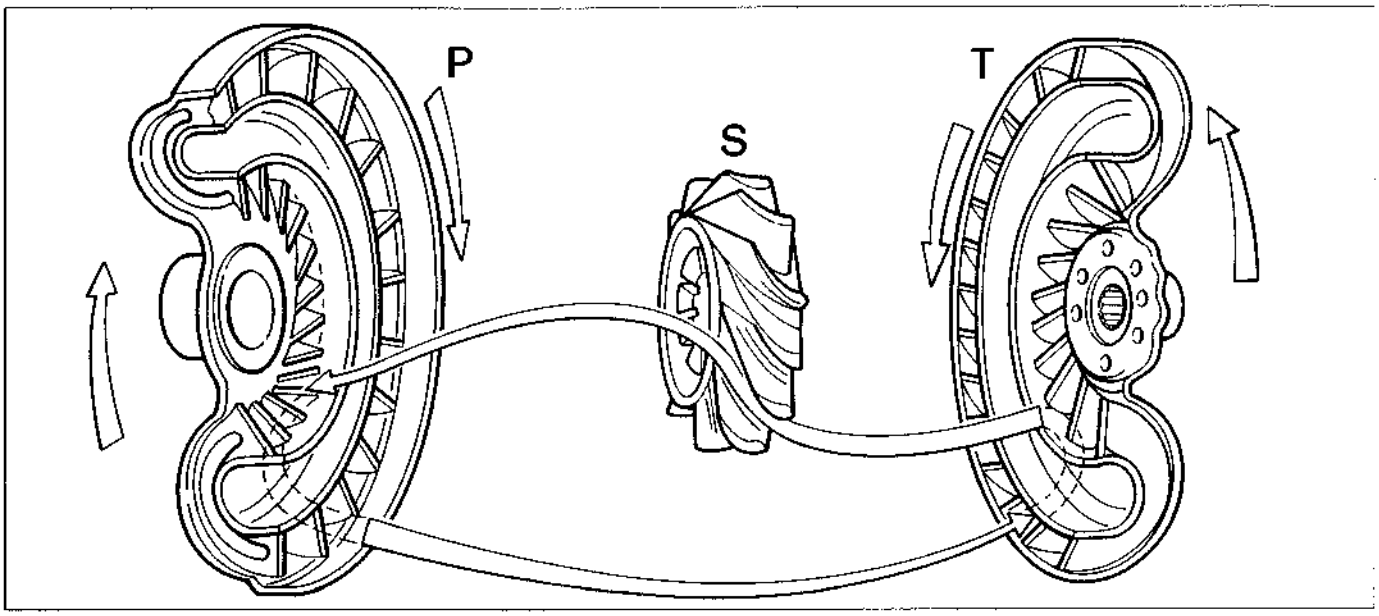
3U086M

DESCRIPTION	Thread	Tightening torques daNm	ENGINE TYPE 1998 20v	2446 20v	2387 JTD	1998 20v turbo
Coolant supply pipe to the crankcase fixing, bolt	M12x1.25	5	●	●		●
Coolant supply hose to the crankcase and exhaust manifold fixing, bolt	M8	2.5	●	●	●	●
Coolant inlet pipe to the cylinder head fixing, bolt	M8	0.9	●	●		●
	M10	5				
Thermostat to cylinder head fixing, bolt	M8	2.5	●	●		●
	M7	1.5		●		
Air conditioning compressor to engine mounting fixing, bolt	M10	5	●	●	●	●
Alternator fixing, nut	M10	5	●	●	●	●
	M12	7				
Driveshaft support fixing, bolt	M10x1.25	5	●	●	●	●
Alternator reaction brackets to driveshaft fixing, bolt	M10x1.,25	5	●	●	●	●
Nut for bolt between sump and driveshaft support	M8	2.5	●	●	●	●
Power assisted steering pump to connecting rod support fixing, bolt	M8	2.5	●	●	●	●
Pulley to power assisted steering pump fixing, bolt	M8	2.5	●	●	●	●
Coolant temperature sender unit fixed to the cylinder head	M16x1.25	3	●	●	●	●
Oil pressure switch fixed to the crankcase	M14x1.5	3	●	●	●	●
Injection oil level sender unit fixed to the oil sump	M12x1.5	3	●	●		●
Coolant temperature sender unit fixed to the thermostat	M12x1.5	3	●	●	●	●
Coolant temperature sender unit fixed to the thermostat (version with automatic transmission)	M12x1.5	3	●	●		
Detonation sensor to the cylinder block/crankcase fixing, bolt	M8	2.5	●	●		●
Ignition coil fixing, bolt	M6	0.9	●	●		●
Spark plug	M14x1.25	2.7	●	●		●

BASIC COMPONENTS

Torque converter

The purpose of the torque converter is to transmit the engine power hydraulically and to increase the torque when the vehicle is accelerating. The rotary motion is transmitted to the epicyclic gears via two transmission shafts:
- the crankshaft connected to the converter pump via the flywheel;
- the gearbox main shaft which engages in the hub of the converter turbine.



P3U04GB01

P. Pump S. Stator T. Turbine

The converter consists of a pump P joined to the crankshaft, a turbine T joined to the gearbox main shaft, and a stator S joined to the gearbox outer casing. The converter is totally filled with oil which, thanks to the kinetic energy delivered by the pump, transmits the driving torque.

NOTE *The torque converter is not subject to any wear as there is no mechanical connection between the driven part and the driving part.*

The impeller P is connected to the crankshaft and, rotating clockwise, acts as a pump, transmitting its energy to the oil.
Centrifugal force pushes the oil towards the outside of the impeller, where it flows at high speed towards the turbine T. Here the kinetic energy of the oil gives a clockwise rotary movement to the turbine. The oil then passes through the stator S where it is diverted in accordance with an angle which allows it to return to the pump with a high output. The stator is connected to the gearbox casing by means of a roller clutch which prevents anti-clockwise rotation and supplies a reaction torque, proportional to the diverted oil flow, which is added to that of the turbine.
The ratio between the torque acting on the turbine and the torque supplied by the pump is known as the torque multiplication ratio, and is proportional to the difference in speeds of rotation of pump and turbine. When the wheels are stopped, the torque is about double that delivered by the engine.
When the turbine speed is increased, the torque multiplication decreases constantly and tends to reach the ratio 1:1, corresponding to a turbine speed which is 85-90% of that of the pump. When the turbine and pump speeds are virtually the same, the stator is enveloped by a flow of oil inclined at an angle which makes it reverse its direction of rotation and, not being locked by the roller clutch, it rotates in a clockwise direction without impediment and the torque converter simply acts as a hydraulic coupling.

Features of navigation CD Rom player section.

- 8-channel receiver with automatic correction for channel reflection.
- Internal piezoelectric gyroscope.

ADDITIONAL INFORMATION SHOWN ON THE DISPLAY DURING NAVIGATION

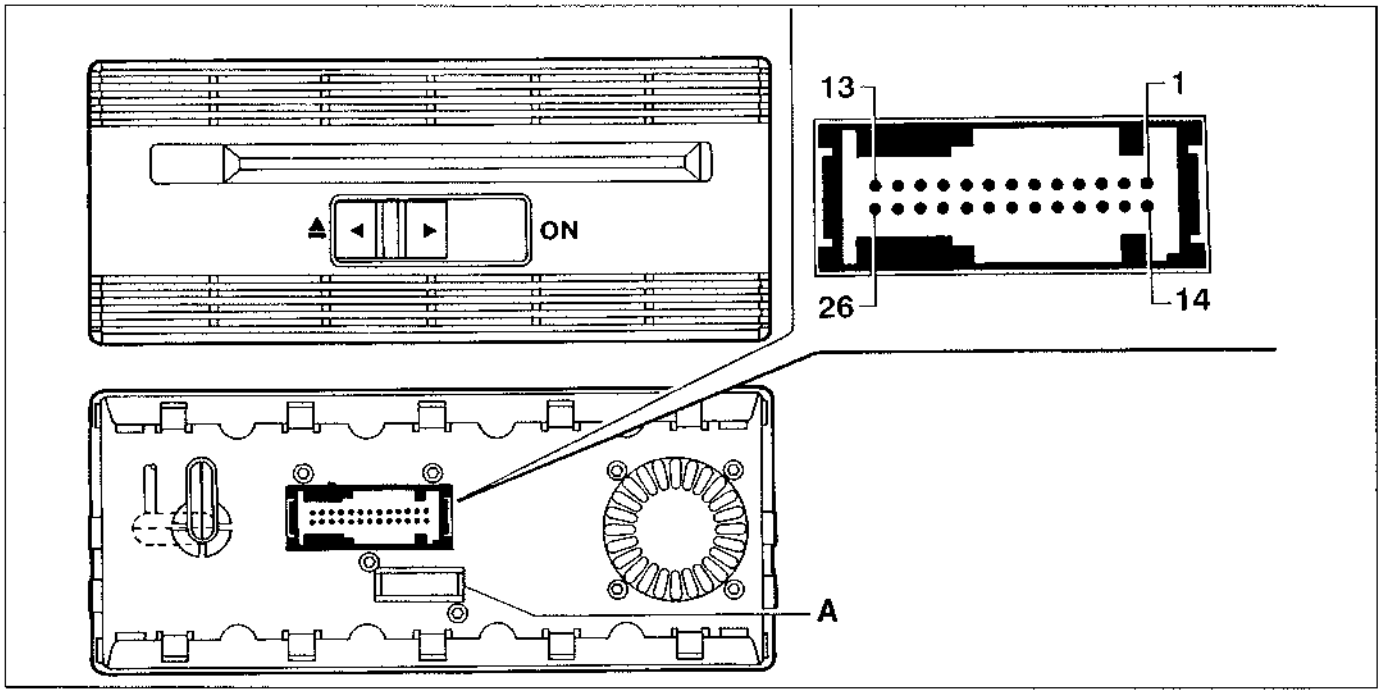
- Distance to the next turn-off and total distance to destination.
- Estimated driving time to reach the next turn-off and estimated time to reach destination.
- Name of road car is currently travelling along.
- Name of next road to be taken
- If the car is driven off the computerised map: distance and direction to be taken to reach the destination.

The navigation unit is a car radio navigation system with gyroscopic sensor and G.P.S. Driving instructions are supplied in acoustic and graphic form. Detailed vocal advice with information on distance to the next turn-off is given on the radio by a pleasant, clear voice. More than six different languages may by loaded from a CD. Transfer from one language to another takes 30 seconds.

The system is equipped with a convenient Man Machine Interface (MMI), specially designed to be used by inexpert users. The destination is entered by hand by simply selecting from a personal list or selecting one of the points of interest in a town or city (airport, railway station, restaurants, hotels, etc.).

The system includes:

- a clock/calendar connected on line and synchronised via G.P.S.;
- smart power supply management;
- protection by means of a code (5-figure number) and anti-theft device.

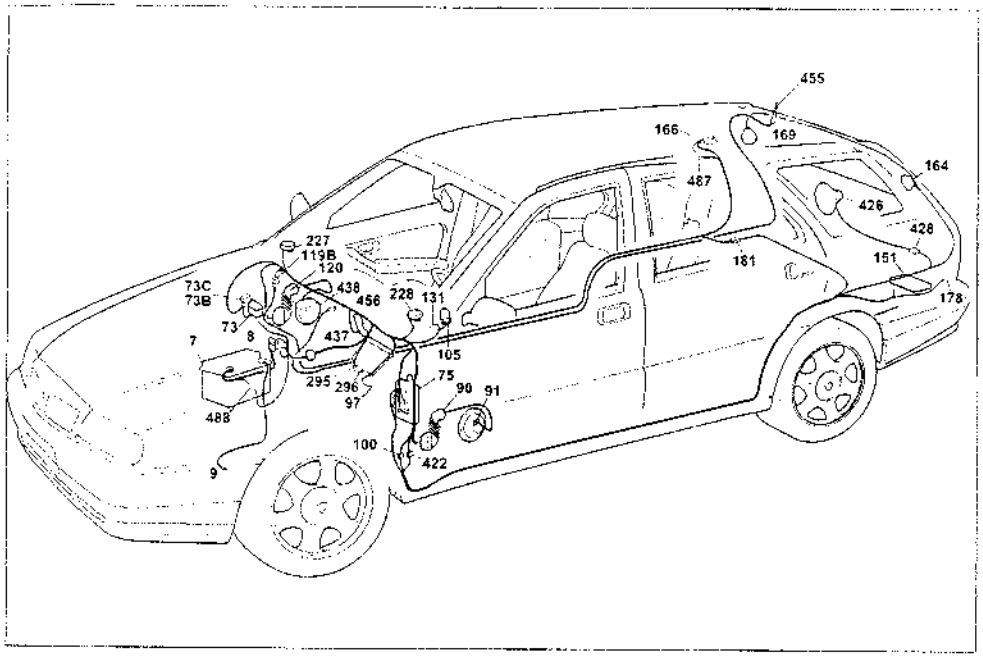


P3U05NL01

Key

1. Earth (GND)
2. CAN-1 H
3. CAN-1 L
4. Not connected
5. Not connected
6. Not connected
7. DFA-L
8. RFLS
9. Not connected
10. Not connected
11. CAN-2 H
12. Not connected
13. AF +
14. Battery voltage
15. IGN/ACC
16. Not connected
17. Not connected
18. Not connected
19. Not connected
20. DFA-R
21. Not connected
22. Not connected
23. Not connected
24. CAN-2 L
25. AF-Shield
26. AF

A. 5A fuse



P3U0091H1

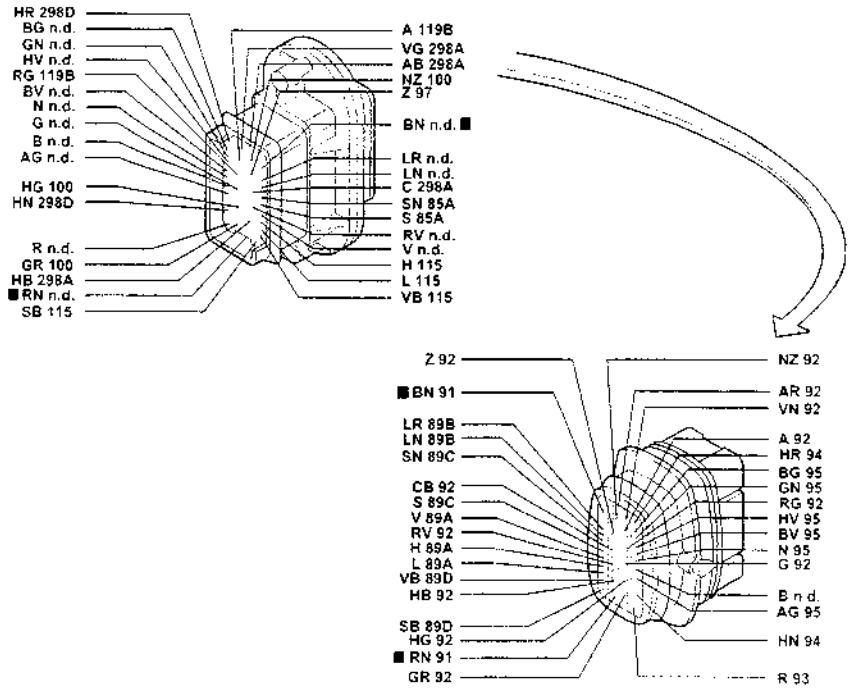
Preparation for top of the range radio

Components key

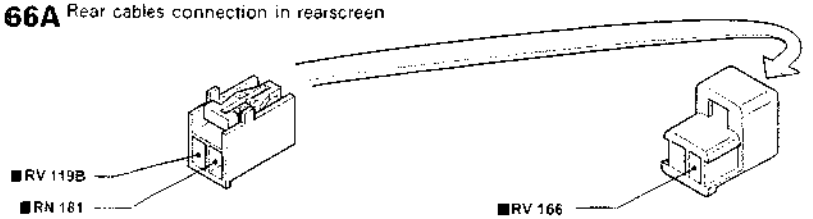
7 Battery
8 Main connector block
9 Earth on bodyshell
73 Secondary connector block
73B 60A protective fuse for J G E control unit / junction unit
73C 30A fuse protecting ignition switch / alarm device
75 Junction unit (dashboard)
90 Connection between dashboard and left front door cables
91 Speaker in left front door
97 Earth on floor
100 Connection between dashboard and left longitudinal cables
105 Ignition switch
119B Connection between dashboard and right longitudinal cables
120 Connection between dashboard and right front door cables
131 Earth on steering column support
151 Amplifier for radio
164 Left rear speaker
166 Amplifier for aerial in rearscreen
169 Right rear speaker
178 Left rear earth
181 Connection between left longitudinal and right longitudinal cables
227 Right front speaker
228 Left front speaker
295 Radio cables connection
296 Radio cables connection
422 Connection between dashboard / left longitudinal cables
426 Speaker in tailgate (woofer)
428 Connection between left longitudinal / left tailgate cables for speaker
437 Preparation for radio phone
438 Dual function speaker for radio and hands free radio phone in right front door
455 Dual function aerial for radio and radio phone
456 Connector for radio phone aerial
487 Connector for electrically operated aerial supply
488 150A maxi fuse

N.D. Ultrasound welding taped in cable loom

90 Connection between dashboard and left front door cables



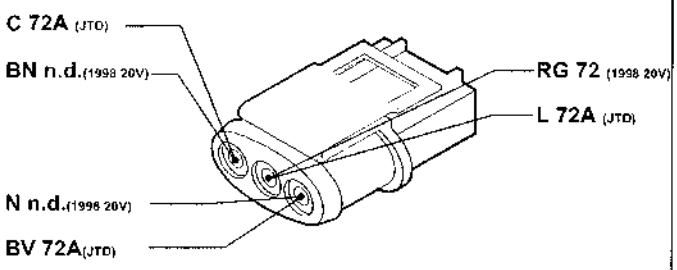
166A Rear cables connection in rearscreen



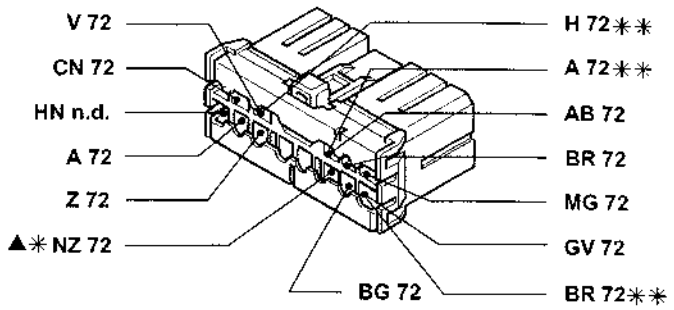
P3U0060H1

■ The cables in the wiring diagram are marked

66 Timing sensor

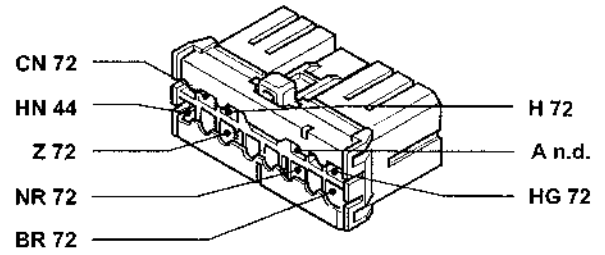


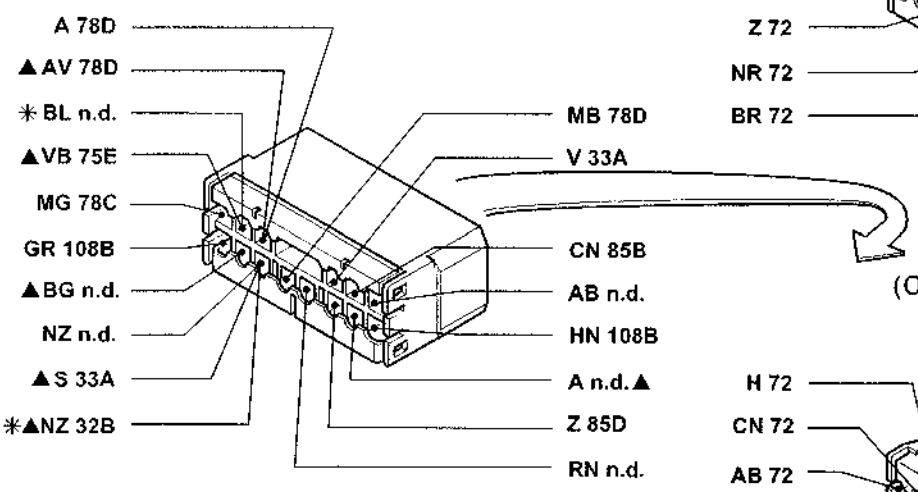
(Only for 1998 - 1998 20v T - 2446)



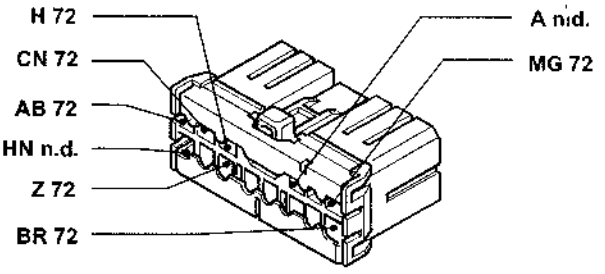
68 Connection between dashboard and electronic injection cables

(Only for 2959)



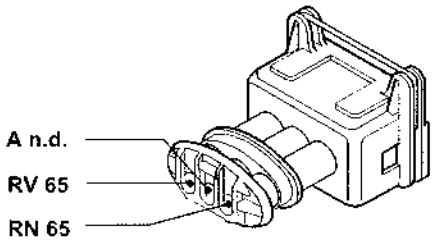


(Only for 1995 16v T)

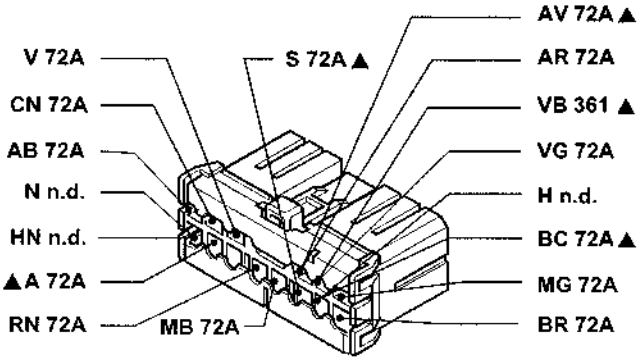


* Variant connection for 1998 20v T
** Variant connection for 1998 - 2446
* Variant connection for 1998 - 2446 with automatic transmission

70 H.T. distributor (Only for 1995 16v T)



(Only for 2387 TD and 2387 JTD)



▲ Variant connection for 2387 JTD

3U2811

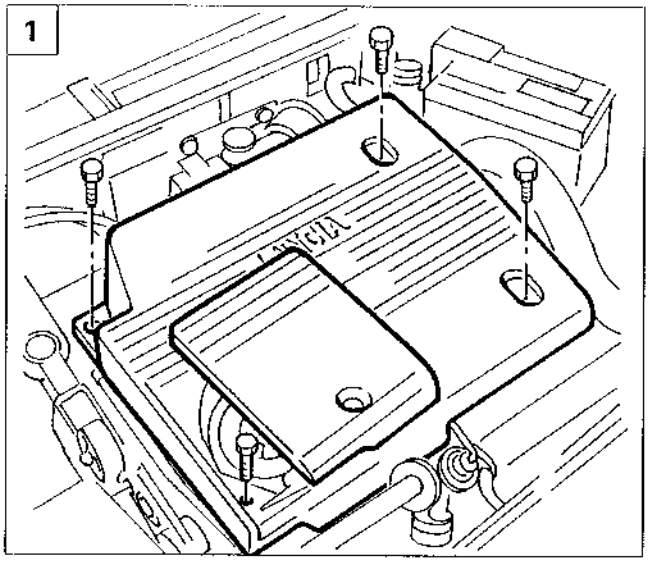
P3U281101

SERVICE MANUAL COMPOSITION

At present, April 1999, the **Lancia k 5th volume** manual is composed as follows:

Print N°	Sections	Page Nos.	Versions	Comments
506.475/26 (I/99)	10	1-46	1998 20V 2446 20V 1998 update	Engine: Fuel system
		1-52	2959 V6 24V 1998 update	Engine: Fuel system
		1-24	2387 JTD 1998 range	Engine:Operations on vehicle
506.475/25 (III/99)	55	1-45	1998 20V 2446 20V 2959 V6 24V 1998 update	Electric equipment: Wiring diagrams
506.475/27 (IV/99)	10	17-18	1998 20V 2446 20V 99 Update	Fuel system update
	00	1-7	2446 20V 99 Update	Technical data

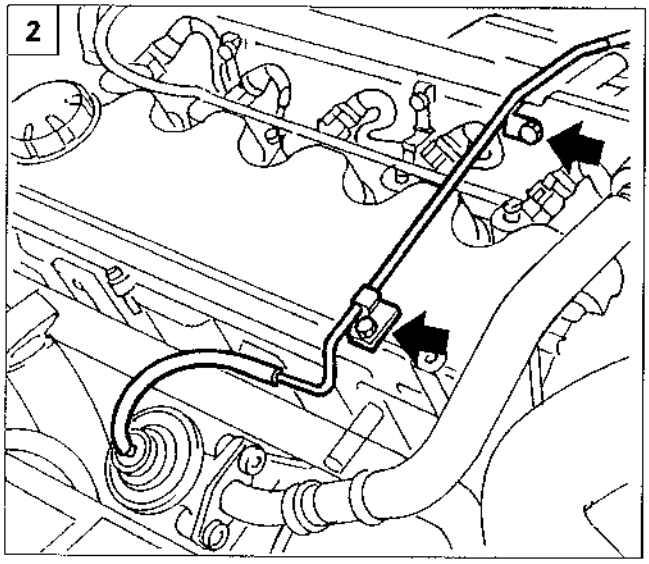
REMOVING-REFITTING INJECTORS



P3U01GJ02

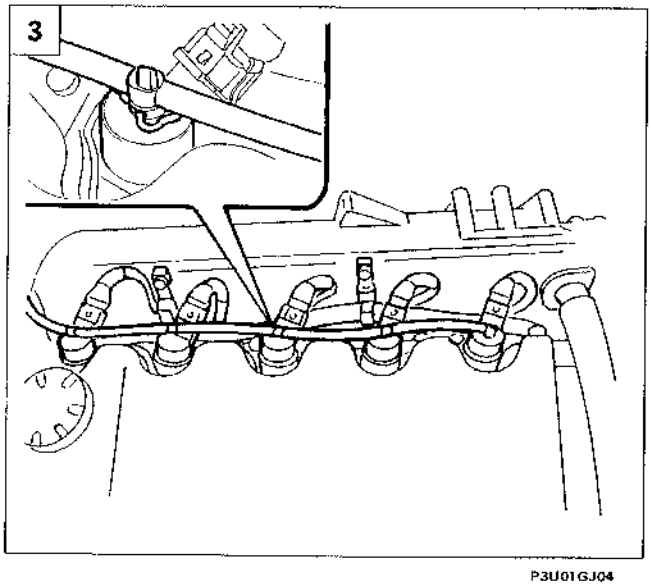
- Disable the alarm (if fitted), in the luggage compartment on the right side, and disconnect the negative battery lead.

1. Remove the upper engine protective cover.



P3U01GJ03

2. Undo the two bolts shown in the diagram and move the rigid pipe between the E.G.R. valve and the solenoid valve aside.



P3U01GJ04

3. Disconnect the fuel return pipe from the injectors working on the spring.