

AVANTIME

8 Electrical equipment

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This document refers specifically to the **AVANTIME**. For information about any parts which are common to the **ESPACE**, refer to Repair Manual 315 and the corresponding Technical Notes.

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EDITION ANGLAISE

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

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

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Electrical equipment

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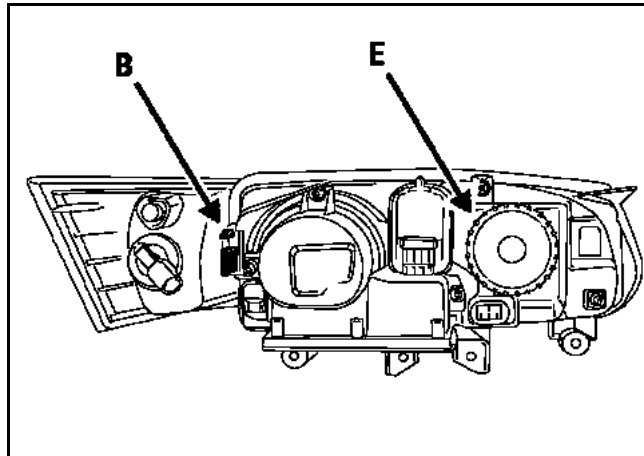
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REMOVAL

Disengage the light by pulling it towards the outside while pressing on the tab (**B**).

Withdraw the bulb holder by turning it a quarter of a turn.



N.B.: refitting is the reverse of removal. Make sure that the tab is locked in place (**B**).

N.B.: main beam headlights and side lights can be replaced after removing the plastic cover (**E**).

XENON BULBS

AVANTIME is fitted with xenon bulb dipped headlights.

According to European standards, these vehicles must be fitted with headlight washers and a system which automatically adjusts the height of the headlights according to vehicle height.

IMPORTANT: it is forbidden to mount a headlamp fitted with a xenon bulb on a version not designed to be equipped with such a device.

GENERAL INFORMATION

These bulbs do not contain a filament.

The light in these bulbs is generated from two electrodes in a quartz bulb containing a gas at high pressure (Xenon).

The electronics module or ballast integral with the headlamp is powered by the vehicle's battery and generates a controlled voltage of **20,000 volts** at ignition and then an alternating voltage of **85 volts** in stabilised state.

AUTOMATIC HEADLAMP SETTING CORRECTION

The automatic correction system should make it possible (in the event of a vehicle load variation) to maintain a constant beam height relative to the original value of the setting performed in factory or by the After Sales network.

The correction time is not always fixed:

- **2 minutes** for small variations;
- **30 seconds** for major load variations.

In the event of an anomaly, an indicator lamp lights on the instrument panel and the system goes into defect mode.

When the dipped headlights are illuminated, the correction system lowers the headlights when the + after ignition is switched off.

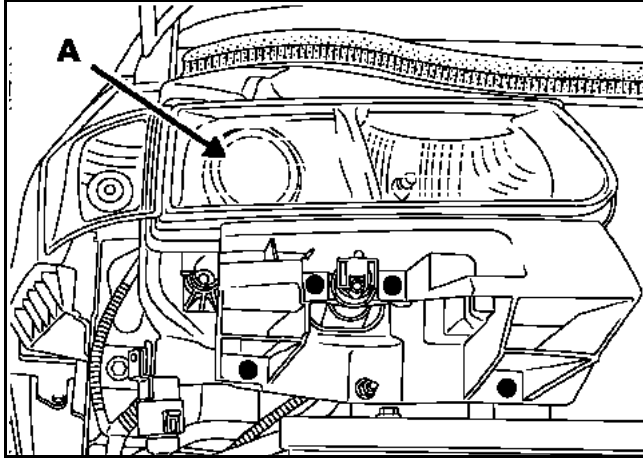
SAFE POSITION

In the event of faults in the system, the dipped headlights are folded down to position **18**.

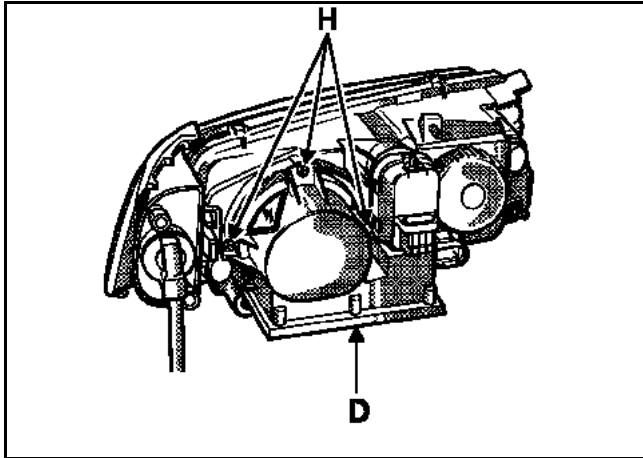
DESCRIPTION

The system consists of:

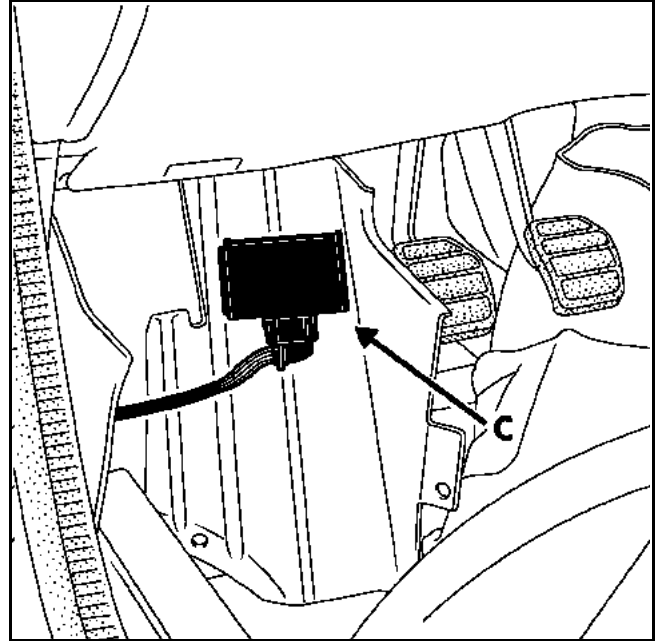
- two special headlight units equipped with a conventional side light bulb, an **H7** type main beam headlight bulb and a **D2S** discharge type dipped headlight bulb located behind lens (A);



- a computer (ballast) incorporated in the headlights (D),
- screws (H) hold the housing in place,

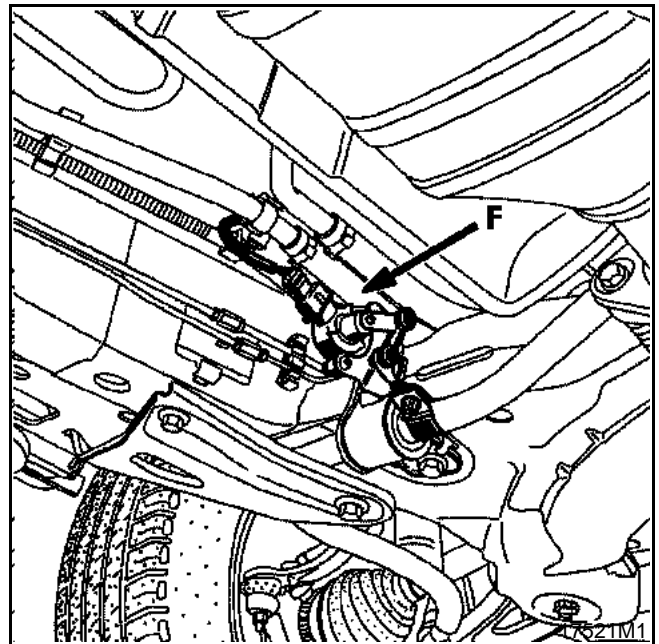


- a computer (C) which controls the automatic correction of the headlight adjustment,

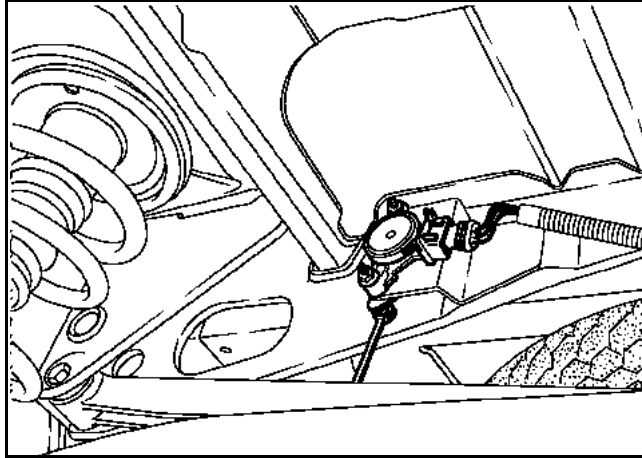


- two height sensors (F) located under the vehicle.

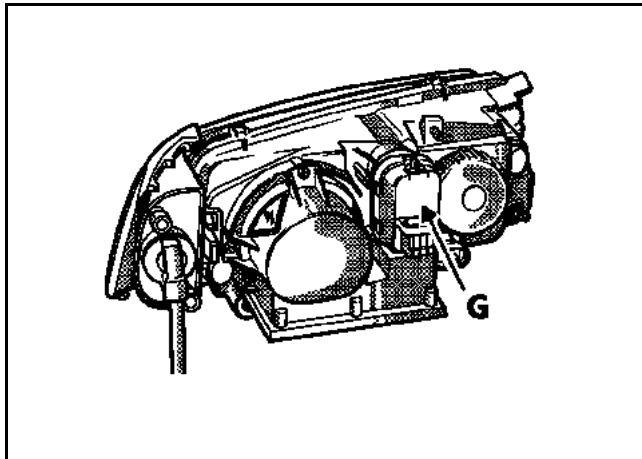
At the front left hand side



At the rear right hand side



- two special height adjustment actuators (G) with 21 positions,



- a fault warning light on the instrument panel for the automatic headlight height correction system (VMF).

NOTE

This warning light remains illuminated when there is a fault in the correction system.

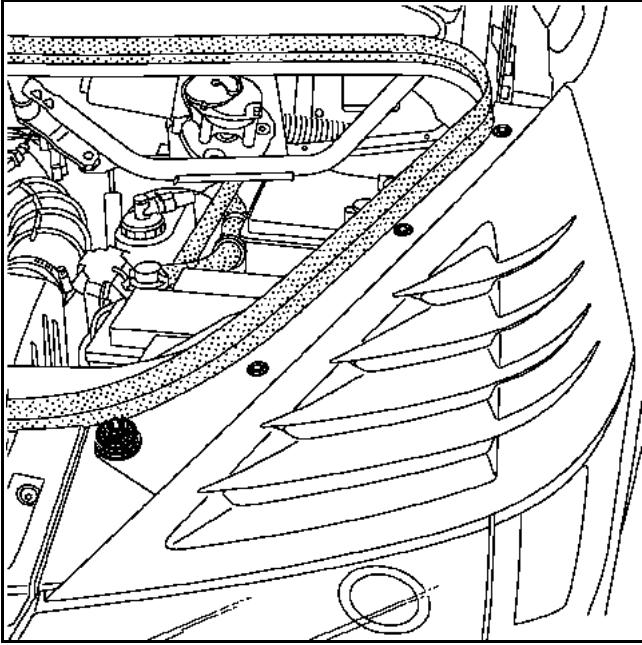
REMOVAL - REFITTING

Disconnect:

- the battery,
- the headlight unit connector(s).

Remove:

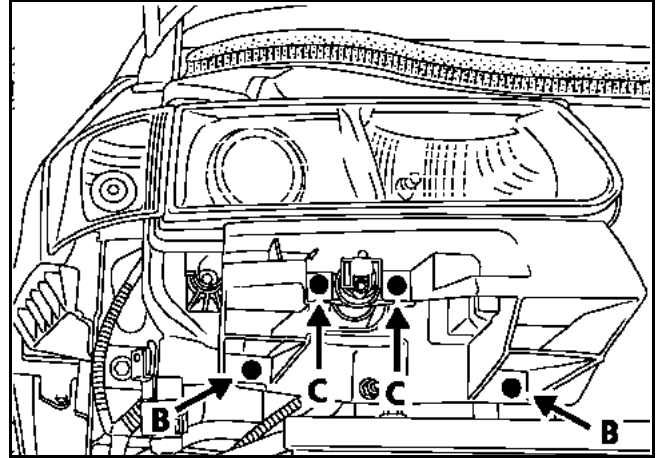
- the radiator grille extensions on the headlight unit to be removed,



- the bumpers in accordance with the procedure described in Section 55.

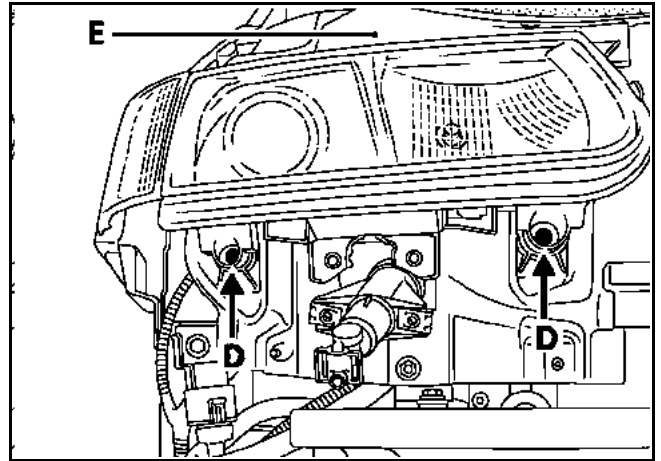
Remove:

- the two headlight washer mountings (B) and the two headlight washer support screws (C).



Remove:

- the headlight by withdrawing the screws (D) at the front of the headlight and the bolt (E) at the back of the headlight.



SPECIAL NOTES FOR REFITTING

After refitting the headlight unit(s), it is necessary to adjust them.

See "System Initialisation" procedure.

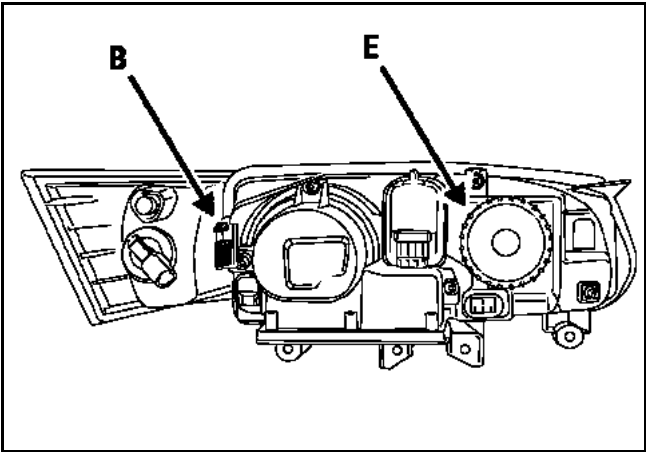
CONNECTION

Track	Description
1A	Not used
2A	Side lights
3A	Earth
1B	Discharge bulb
2B	Not used
3B	Main beam headlight

Main beam headlights and side lights

Headlight and side light bulbs can be replaced after removing the plastic cover (E).

Tab (B) allows the direction indicator light to be withdrawn.



XENON DIPPED HEADLIGHTS

WARNING: the xenon bulbs of the dipped headlights operate at a voltage of **20,000 volts** at ignition and then **85 volts** a.c. in stabilised condition.

It is therefore essential to disconnect the headlight unit and wait for the bottom of the ballast to cool down before removing it.

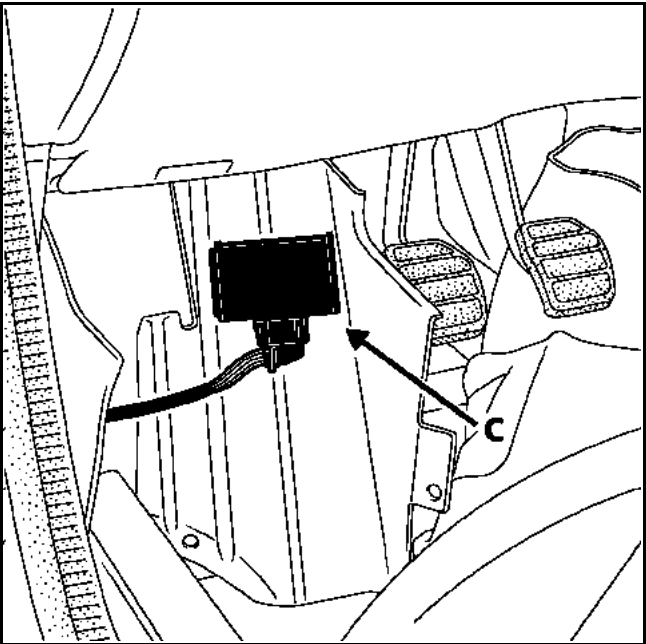
It is forbidden to switch on the xenon bulb if it is not in position in the unit (dangerous for the eyes).

NOTE: when replacing dipped headlight xenon bulbs, only use approved **Xenon D2S** bulbs.

N.B.: these bulbs have no filament and it is therefore impossible to check their resistance with an ohmmeter.

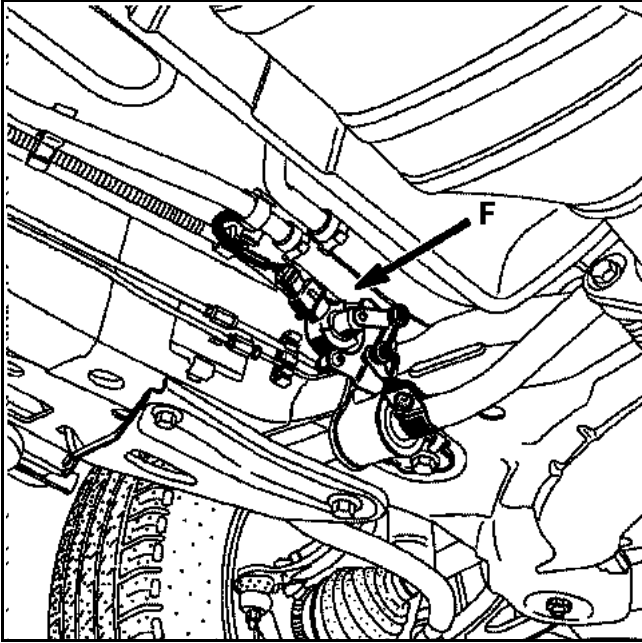
THE COMPUTER

This unit (C) is accessible by folding back the footrest panel under the floor mat on the driver's side.



IMPORTANT: after replacing the computer, system initialisation and headlight adjustment must be performed.

REMOVING THE FRONT LEFT HAND SENSOR



Remove:

- the electrical connector from the sensor;
- the nut at the end of the linkage;
- the two mounting nuts and bolts.

IMPORTANT: after replacing the front sensor (F) or the anti-roll bar, system initialisation and headlight adjustment must be carried out.

ATTENTION: any work on the front right hand sensor linkage must be carried out with the front wheels raised and at the same height.

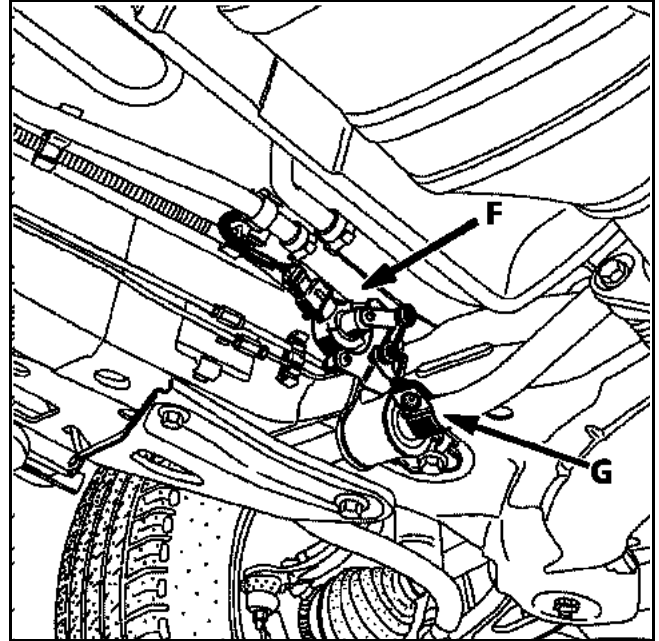
If replacing the anti-roll bar or removing the mounting clamp (G).

Reposition it **10 mm** from the left hand bearing and position the linkage with a space:

E = 45 mm ± 1 mm (measure with a calliper gauge).

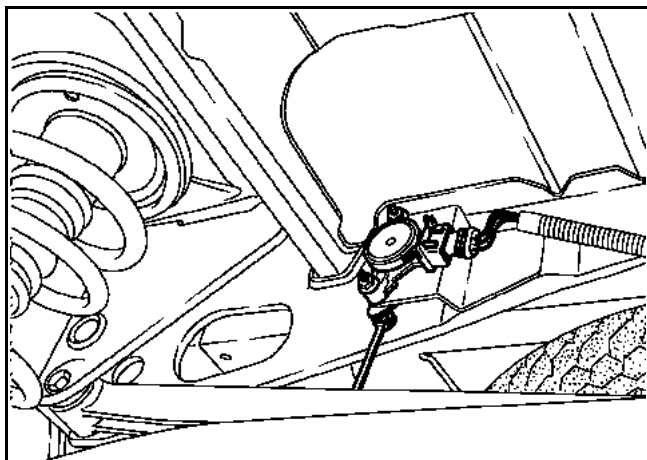
It is essential to disconnect the front sensor linkage when removing the front suspension strut.

When refitting, it is essential to comply with the sensor linkage tightening torque (**4.5 Nm**).



ATTENTION: WHENEVER WORK IS CARRIED OUT ON ROADHOLDING COMPONENTS, DISASSEMBLE THE ANTI-ROLL BAR LINKAGE AND/OR THE TRANSVERSE STEERING BAR LINKAGE.

REMOVING THE RIGHT HAND REAR SENSOR



Remove:

- the electrical connector from the sensor;
- the nut at the end of the linkage;
- the two mounting nuts and bolts.

IMPORTANT: after replacing the rear sensor or the transverse bar, system initialisation and headlight adjustment must be carried out.

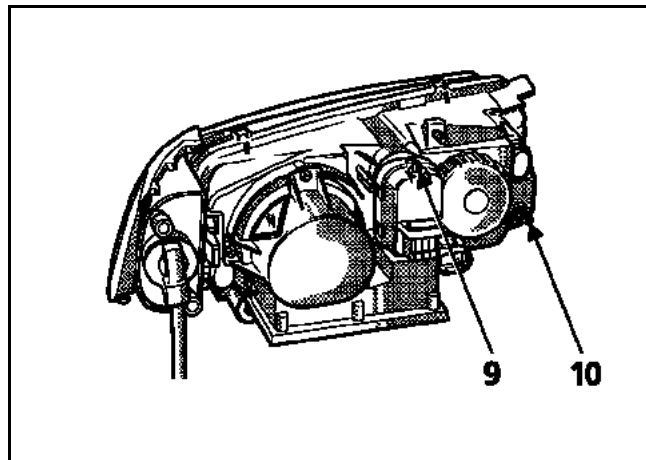
ATTENTION: WHENEVER WORK IS CARRIED OUT ON ROADHOLDING COMPONENTS, DISASSEMBLE THE ANTI-ROLL BAR LINKAGE AND/OR THE TRANSVERSE STEERING BAR LINKAGE.

ACTUATORS

Tighten headlight height adjustment screw (9) (10 turns at most).

Turn the actuator one eighth of a turn and remove it from the headlight unit.

Disconnect the headlight ball joint by turning the actuator slightly.



IMPORTANT: after replacing the actuators, system initialisation and headlight adjustment must be carried out (9 and 10).

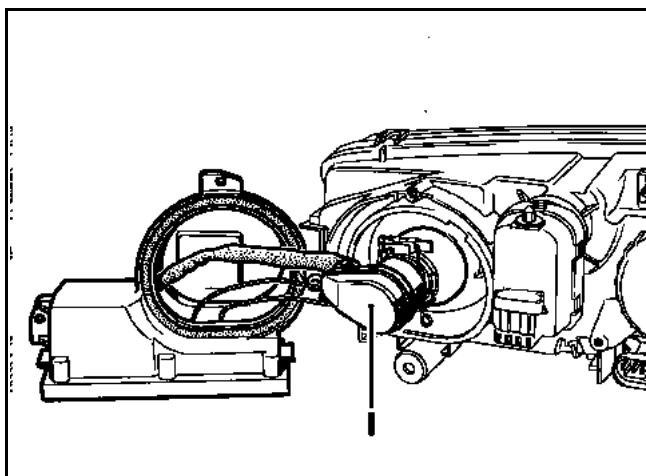
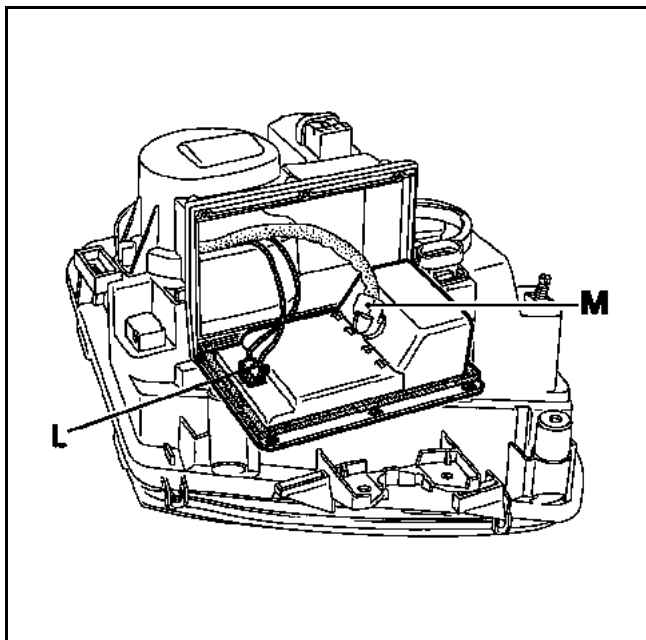
IMPORTANT: replacement of the computer (Ballast) required removal of the headlight and replacement of its support unit and seals (**Spare Parts Kit**).

Plastic headlight parts are available as spare parts. Before removing a headlight broken in an accident, check its operation and replace the plastic parts.

REMOVAL

Remove:

- the computer mounting screws and disconnect the connectors (**L** and **M**).

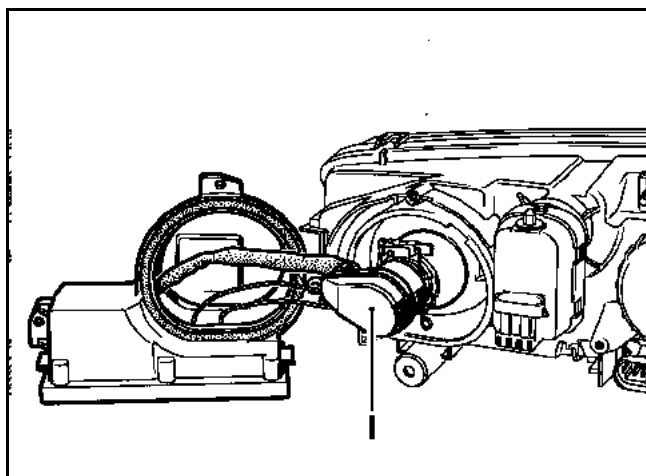


Turn the bulb connector (**I**) one eighth of a turn (anti-clockwise) and withdraw it from the unit.

REFITTING

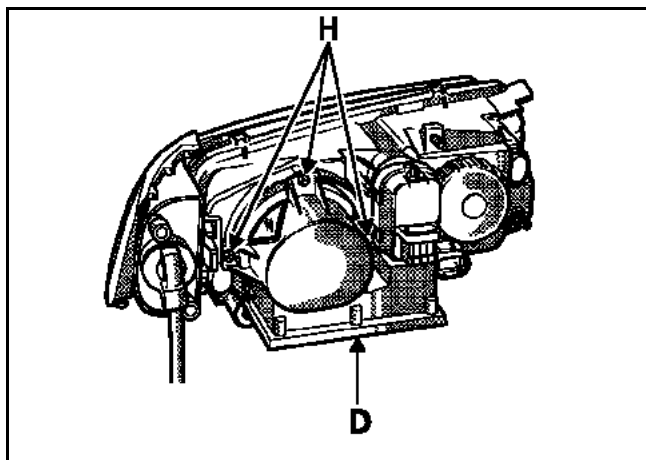
IMPORTANT: following any removal, it is essential to replace the support unit and the two seals, ensuring that they are positioned correctly.

You must reposition the bulb connector (**I**) as indicated on the drawing below.



Tighten:

- the screws (**H**) of the new support unit on the headlight unit to a torque of **0.8 Nm**,
- the computer screws (**D**) on its protective housing to a torque of **1.2 Nm**.



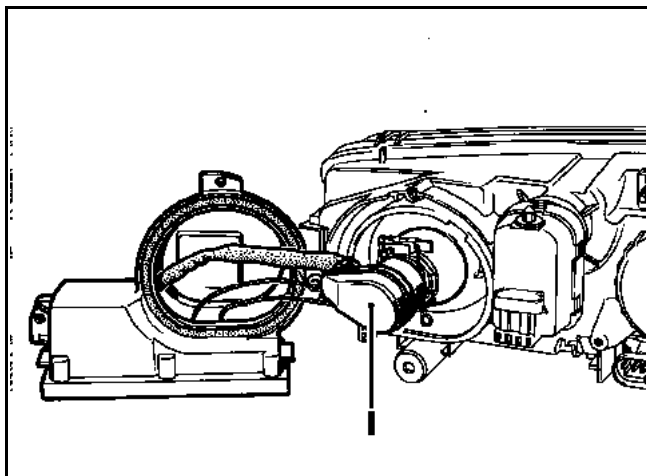
IMPORTANT: carry out system initialisation and headlight adjustment as described on page **80-12**.

IMPORTANT: replacement of the xenon bulb requires removal of the headlight and replacement of its support unit and seals.

REMOVAL

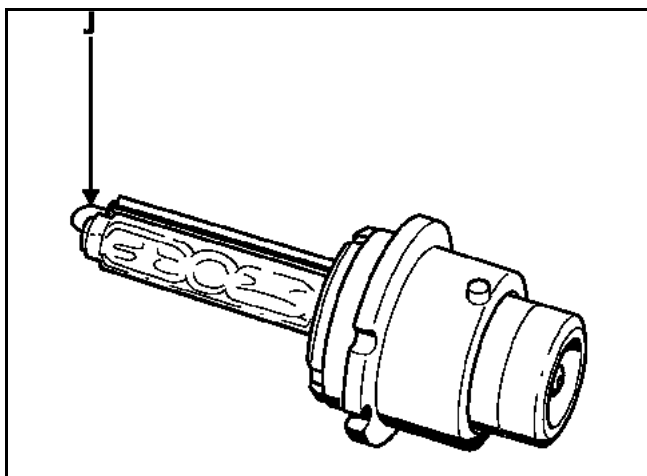
Remove the support unit according to the method given on the previous page.

Turn the bulb connector (I) one eighth of a turn (anti-clockwise) and withdraw it.



Remove bulb after unclipping the mounting clips.

WARNING: the bulb must not suffer any impact. The external conductor (J) is very fragile and must not be deformed.



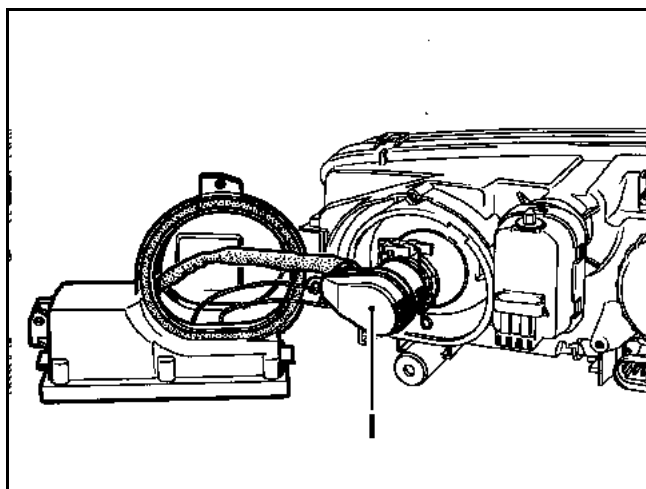
REFITTING

IMPORTANT: following any removal, it is essential to replace the support unit and the two seals, ensuring that they are positioned correctly.

Hold the bulb by the cap (if you touch the bulb, you must clean it with alcohol and a soft lint-free cloth).

Fit the bulb, positioning the neck of the bulb opposite the lug above the mounting.

You must reposition the bulb connector (I) as indicated on the drawing below.



Tighten:

- the screws (H) of the new computer support unit to the headlight unit to a torque of **0.8 Nm**,
- the computer screws on its protective housing to a torque of **1.2 Nm**.

IMPORTANT: carry out system initialisation and headlight adjustment as described on page **80-12**.

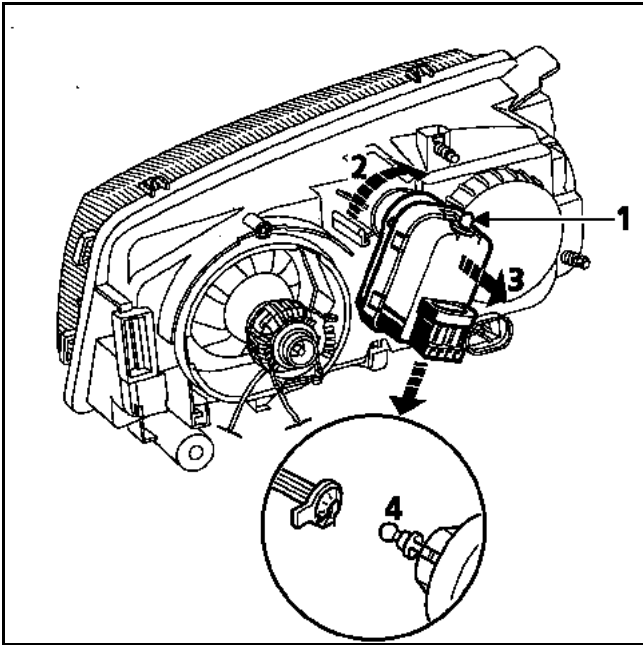
REMOVAL

Screw in the motor adjustment screw (1) as far as it will go.

Turn the adjustment motor one eighth of a turn to separate it (2).

Pull the adjustment motor to release it from the lugs (3).

Separate the adjustment motor ball joint by pivoting it gently (4).

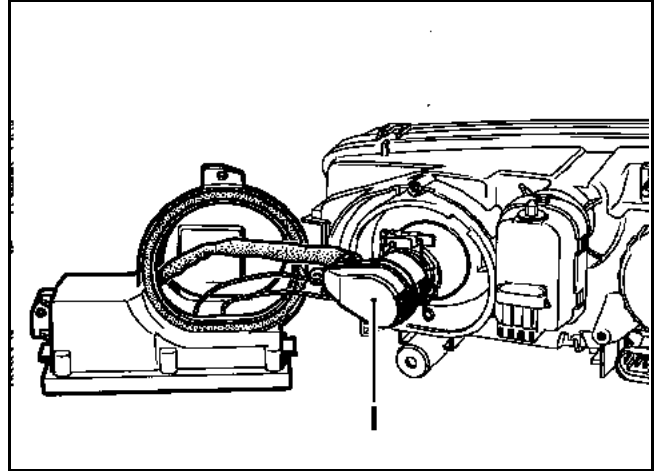


NOTE: it is not necessary to remove the computer.

REFITTING

Refit the motor in the reverse order to removal.

Check that the adjustment motor is correctly connected to the ball joint by moving the reflector shell and the adjustment bolt.



IMPORTANT: carry out system initialisation and headlight adjustment as described on page 80-12.

SYSTEM INITIALISATION AND HEADLIGHT ADJUSTMENT

Park the vehicle on level ground.

Ensure that the vehicle is unladen, with a full tank of fuel and do not get into the vehicle during the operation.

Check the tyre pressures and open the bonnet.

Connect the fault finding tools.

Switch on the ignition, switch on the dipped headlights and adjust.

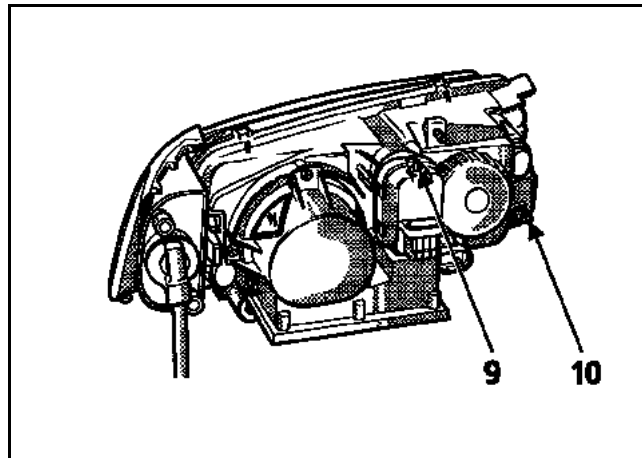
IMPORTANT: the level of the vehicle must not change between initialisation and headlight adjustment. The two procedures are inextricably linked.

Initialisation with the diagnostic tools

Select the vehicle type and set up dialogue with the xenon bulb computer.

Select the control menu, then the "system initialisation" function.

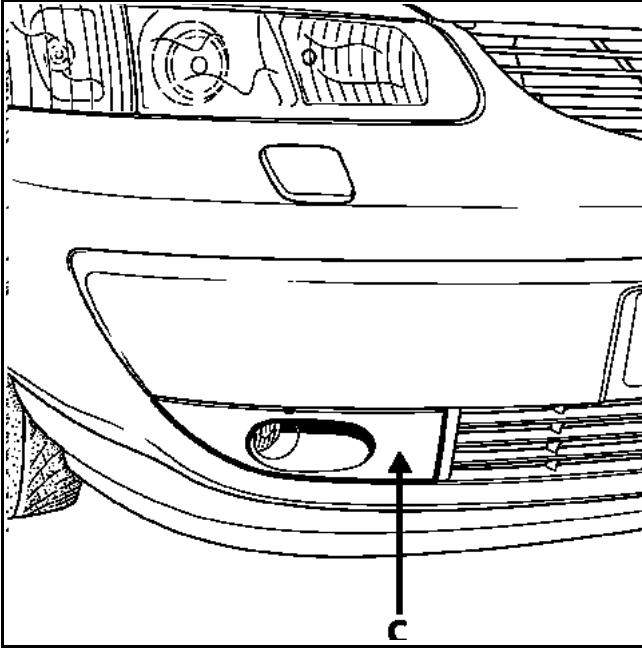
Without switching off the ignition, using a headlamp setter, adjust the height using screw (9) and the direction using bolt (10).



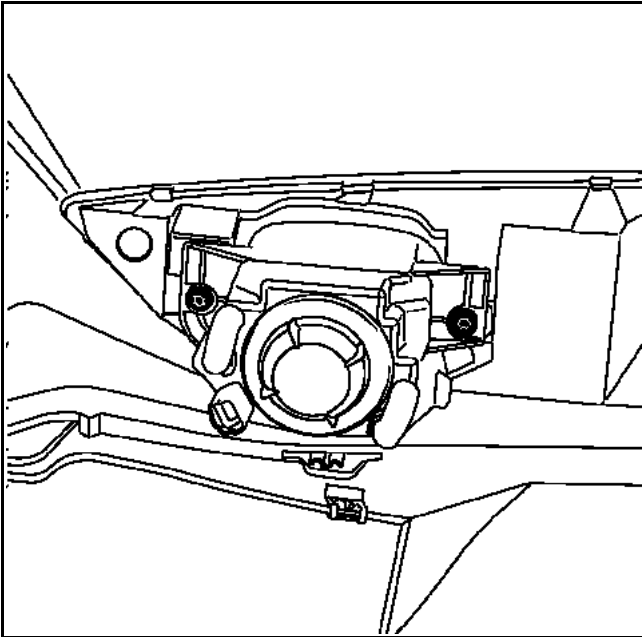
REMOVAL

Remove:

- the radiator grille,
- the protection under the engine,
- the bumpers in accordance with the procedure described in Section 55.
- the fog light cover (C).

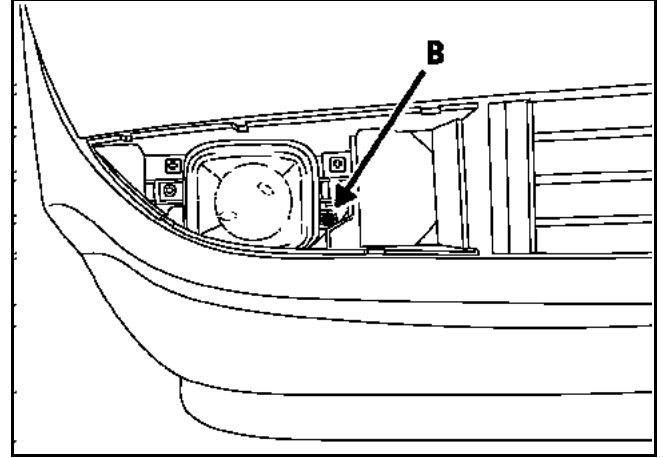


Undo the mounting screws.



REFITTING

There are no special points to note, however, remember to adjust both fog lights using screw (B).

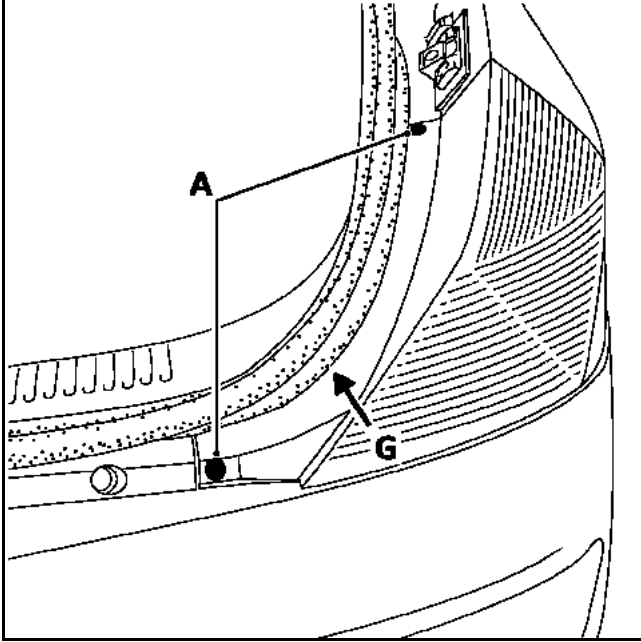


REMOVING/REFITTING WING LIGHTS

Remove the two mounting screws (A).

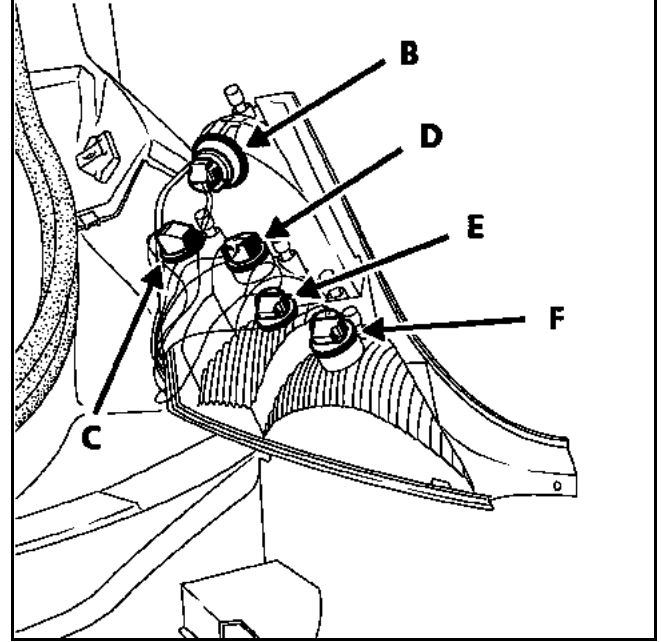
Remove the light towards the rear.

Remove the bulb holders.



BULB POSITIONS

- (B) Dark brown : Fog light
- (C) Orange : Direction indicator
- (D) Grey : Reversing light
- (E) Light brown : Side lights
- (F) Black : Stop and tail lights



N.B.: to replace the bulbs, remove the light unit.

REFITTING

After fitting the rear light, position the lip of the seal (G) over the light unit fairing.

REMOVING/REFITTING THE NUMBER PLATE LIGHT

Unclip it by sliding a small screwdriver into the notch and levering gently.

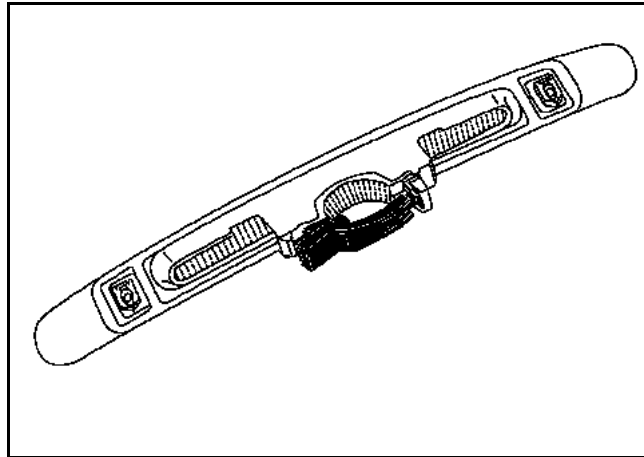
Remove the bulb holder by turning it a quarter of a turn.

REMOVING/REFITTING THE CENTRE STOP LIGHT

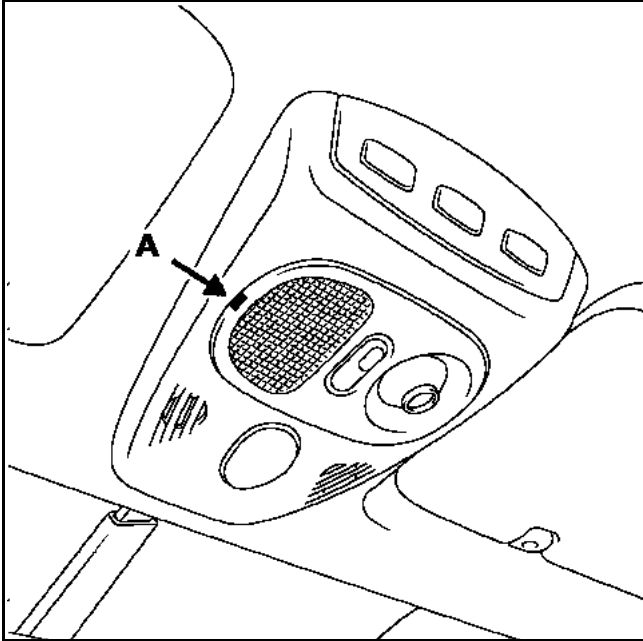
Remove the two screws inside the top part of the tailgate.

Remove the light.

Remove the bulb holder.



CENTRAL INTERIOR LIGHT AND MAP READING LIGHT



REMOVAL

Unclip the light diffuser mounting and map reading light holder by sliding a small screwdriver into the notch (A) so it presses the tab.

REAR INTERIOR LIGHT

Repeat the same procedure as for the central interior light.

ROOF CONSOLE

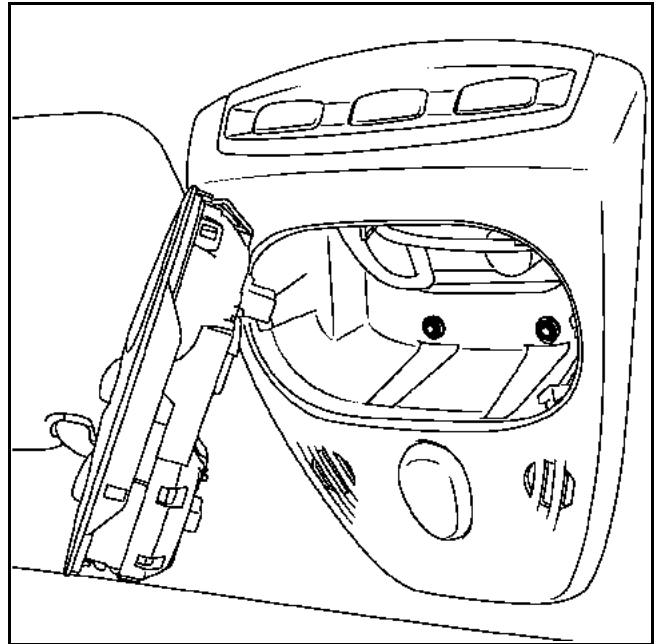
REMOVAL

Remove and disconnect the interior light mounting.

Remove the Torx screws.

Move the front part of the console slightly downwards, then backwards.

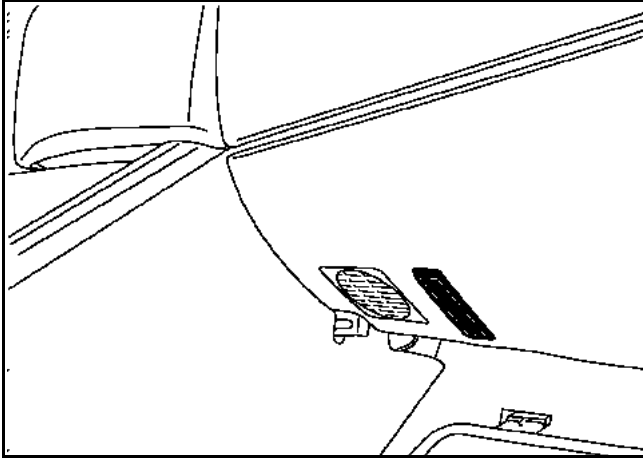
Disconnect the connectors.



LOWER CONSOLE LIGHT

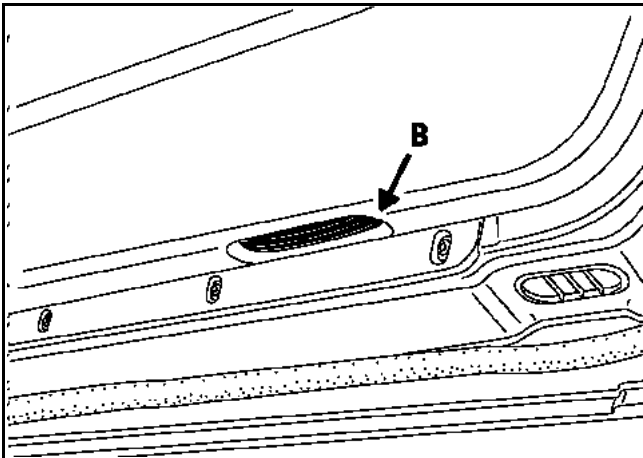
REMOVAL

To remove the light, it is necessary to remove the lower console.



DOOR SILL LIGHT

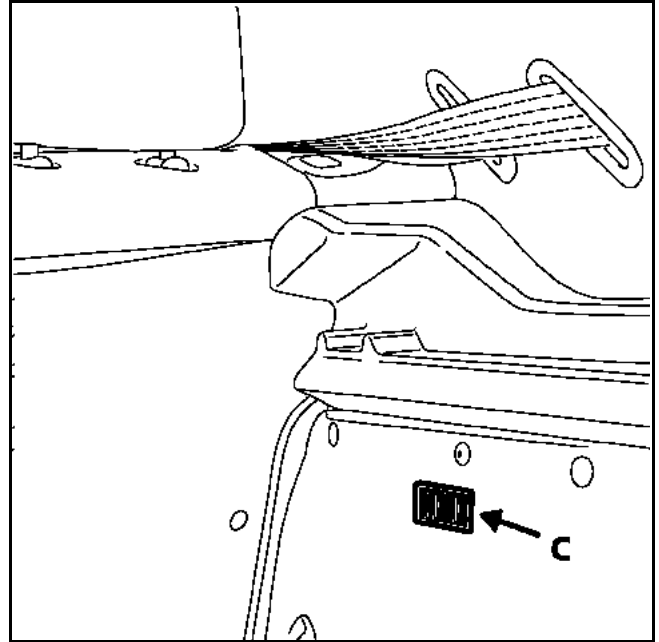
To remove the door light, use a small screwdriver as a lever at point (B).



LUGGAGE COMPARTMENT LIGHT

REMOVAL

To remove the luggage compartment light, use a small screwdriver as a lever at point (C).



N.B.: all the vehicle's interior lights are controlled by the passenger compartment connection unit and have a timer which extinguishes them if an opening element is left open for a long time.

NEW SYSTEM

There is no longer a security code but a repair code assigned to the vehicle for life when it is manufactured (there is no longer a number marked inside the head of the key).

When any work is carried out on this system, this repair code number can be requested from the local assistance network (e.g. in France, Delta Assistance).

For all code number requests, in future it will be essential to provide the vehicle identification number and the fabrication number. This enables the operator to identify the vehicle in order to provide the correct code.

- Spare keys are supplied without a code or a number.
- The system can include up to two keys with remote control at most.
- The system can be linked to a radio-frequency door locking/unlocking remote control.

This remote control has no effect on the immobiliser.

WARNING: with this new system, it is not possible to replace all the components (Passenger Compartment Central Unit (BCH) and key heads) at the same time. These parts are sold non-coded.

It is therefore not possible to code these components when replacing them, if none of them has the vehicle's original code in its memory.

GENERAL INFORMATION

AVANTIME is fitted with an engine immobiliser controlled by a random rolling code key recognition system.

A coded chip (operating without a battery) independent of the remote control function is incorporated into the head of each of the vehicle's keys.

When the ignition is switched on, an antenna ring round the ignition switch interrogates and captures the code emitted by the key and transmits it to the passenger compartment central unit.

If the decoder unit recognises the code, the vehicle will be permitted to be started.

The immobiliser is activated a few seconds after the key is withdrawn from the ignition and this is shown by the flashing of the red immobiliser warning light on the instrument panel.

During manufacture, an eight-character code is assigned to the vehicle to make the immobiliser system operational.

This number will be required in After-Sales to:

- de-register one or more keys,
- replace one or more keys,
- replace a passenger compartment central unit.

This eight-digit number is available from the local assistance network (e.g. in France, Delta Assistance) with the help of the vehicle identification number and fabrication number.

NOTE:

- this system can be fitted to petrol or diesel vehicles.
- the immobiliser function is performed by the injection computer.

SYSTEM DESCRIPTION

With this system, the immobiliser is activated about **ten seconds** after the ignition is switched off (shown by the flashing of the red immobiliser warning light).

The system consists of:

- two special key heads fitted with coded chips which control the immobiliser,
- an antenna ring located round the ignition switch, with an electronic system which transmits the code from the keys to the passenger compartment central unit.

NOTE: This antenna ring is not coded.

● Passenger Compartment Central Unit (BCH)

This has the following functions:

- decoding the key signal from the antenna ring,
- controlling the immobiliser system by sending a code to the injection computer (direct injection diesel or petrol),
- controlling the red immobiliser warning light,
- dialogue with the diagnostic tool.

N.B.: for the other functions controlled by the passenger compartment central unit, see the relevant sections.

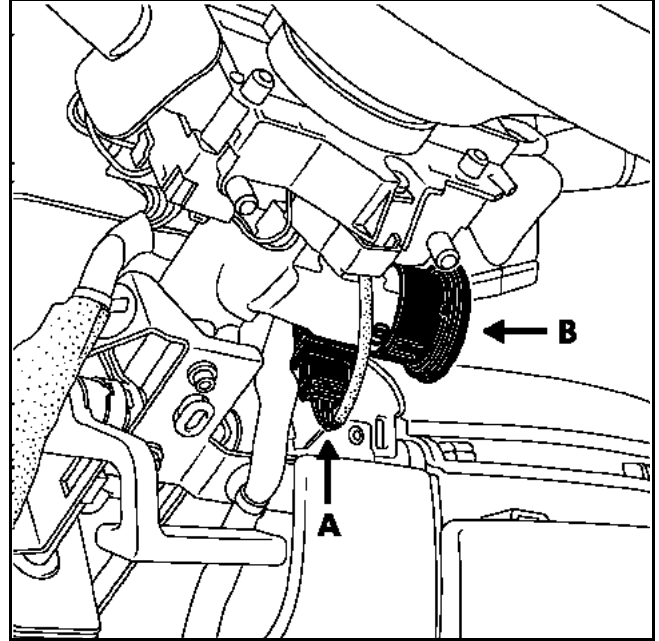
● Red immobiliser warning light located on the instrument panel used to signal:

- activation of the engine immobiliser,
- non-recognition of the key,
- a system fault,

● Injection computer (petrol or direct injection diesel)

REMOVING/REFITTING THE ANTENNA RING

Raise the steering column to its maximum height and remove the two half cowlings.



Disconnect the connector (A) from the antenna (B).

Turn the antenna (B) a quarter of a turn clockwise and withdraw it.

When refitting, ensure that the antenna and wiring are in the correct position and properly clipped in place.

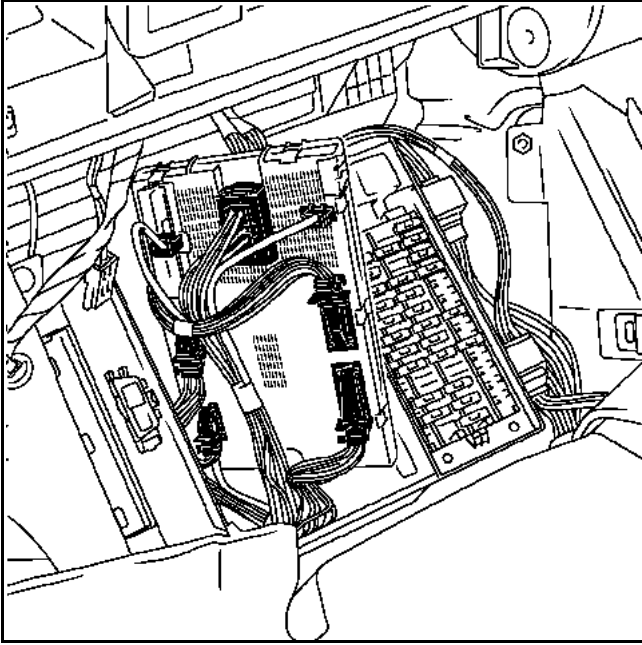
ATTENTION: do not put any strain on the antenna or its connector during removal or refitting of the two half cowlings so as to avoid damaging the wires of the coil.

If these wires are damaged, the key will not be recognised when the ignition is switched on.

REMOVING/REFITTING THE PASSENGER COMPARTMENT CENTRAL UNIT (BCH)

Remove:

- the fuse access cover,
- withdraw the passenger compartment central unit from its place,
- disconnect the passenger compartment central unit connectors.



Points to note about the Passenger Compartment Central Unit (BCH)

Configure it according to the equipment level when it is replaced.

WARNING:

When the passenger compartment central unit is replaced (BCH), the mileage is stored in the instrument panel memory.

When the new passenger compartment central unit is connected, the mileage in the memory will be displayed automatically on the instrument panel.

Do not carry out any diagnostic procedure by substituting one vehicle for another, because the higher mileage will be memorised and displayed on both vehicles.

OPERATION

When the immobiliser system is activated (approximately 10 seconds after switching off the + after ignition feed), the red immobiliser warning light flashes (slow flashing; 1 flash / second).

When the ignition is switched on, the antenna ring analyses the key code and transmits it to the Passenger Compartment Central Unit (BCH).

If the Passenger Compartment Central Unit (BCH) recognises the code, it sends a code to the injection computer (petrol or direct injection diesel) via the coded connection which extinguishes the red immobiliser warning light (**3 seconds** after the ignition is switched on).

At this precise moment, one of several situations may arise:

- the injection computer has no reference code in its memory:
 - the code sent to it is stored in its memory.
- the injection computer has a reference code in its memory:
 - the code sent to it is compared with the reference code.
- If the two codes are the same, the computer unlocks the injection and authorises starting of the engine. When the ignition is switched on, the immobiliser warning light remains illuminated for a few seconds and then extinguishes, showing that the system is operating correctly.
- If the two codes do not match, the system remains locked to prevent the engine from being started. The red immobiliser warning light flashes when the ignition is switched on (rapid flashing). The vehicle cannot be started.

N.B.: for the system to operate correctly, no object (e.g. key holder) must be inserted between the key and the antenna ring.

WARNING: when the battery is in a low state of charge, the voltage drop caused by operating the starter motor can reset the immobiliser. If the voltage is too low, the engine cannot be started, even by pushing the vehicle.

WARNING: when the battery is in a low state of charge, the voltage drop caused by operating the starting motor may set the injection computer to anti-scanning mode. The engine immobiliser warning light flashes (rapid flashing). To unlock the injection it is necessary to switch on the + after ignition for 30 seconds, then switch off the + after ignition for 10 seconds, then switch on the + after ignition again.

REPLACEMENT, RE-REGISTRATION OR ADDITION OF ONE OR MORE KEY HEADS (without replacing the Passenger Compartment Central Unit [BCH])

Only keys submitted during this procedure will work if:

- they have already been coded on this vehicle,
- or they are new (not coded).

Procedures using diagnostic tools:

1. Select and confirm the type of vehicle (**AVANTIME**).
2. Select and confirm the system to be checked:
 - **immobiliser**.
3. Select "**Key programming or re-registration**".
4. Enter the After-Sales code.
5. Select the number of keys to be programmed: "**Enter the number of keys to be programmed**". You have the choice of 1 or 2 keys.

6. You have thirty seconds to program each of the two keys.
7. Follow the instructions on the screen of the diagnostic tool.

The procedure may be interrupted for the following reasons:

- incorrect After-Sales code,
- the key(s) do(es) not correspond with the vehicle,
- no key was presented during the allotted time.

If the procedure is interrupted, the keys assigned to the vehicle are those which were registered before the start of the procedure.

8. The RF remote control(s) must be pressed when the "procedure ended" message is displayed. The procedure is complete. Attention: any key(s) not presented during re-registration is/are no longer active. If you wish to program or re-register another key, please start the programming or re-registration procedure again, selecting the two keys option.

IMPORTANT: in the event that not all the keys are available, it will be necessary to carry out a reprogramming procedure later with all the keys.

REPLACEMENT OF THE PASSENGER COMPARTMENT CENTRAL UNIT (BCH) ONLY

Keys must be registered with the BCH.

Procedure using diagnostic tools:

1. Select and confirm the type of vehicle (**AVANTIME**).
2. Select and confirm the system to be checked:
– **immobiliser**.
3. Select "**Key programming or re-registration**".
4. Enter the After-Sales code.
5. Select the number of keys to be programmed:
"**Enter the number of keys to be programmed**". You have the choice of **1** or **2** keys.

6. You have thirty seconds to program each of the two keys.

7. Follow the instructions on the screen of the diagnostic tool.

The procedure may be interrupted for the following reasons:

- incorrect After-Sales code,
 - the key(s) do(es) not correspond with the vehicle,
 - no key was presented during the allotted time.
- If the procedure is interrupted, the keys assigned to the vehicle are those which were registered before the start of the procedure.

8. The RF remote control(s) must be pressed when the "procedure ended" message is displayed. The procedure is complete. Attention: any key(s) not presented during re-registration is/are no longer active.
If you wish to program or re-register another key, please start the programming or re-registration procedure again, selecting the two keys option.

IMPORTANT: in the event that not all the keys are available, it will be necessary to carry out a reprogramming procedure later with all the keys.

REPLACING THE INJECTION COMPUTER

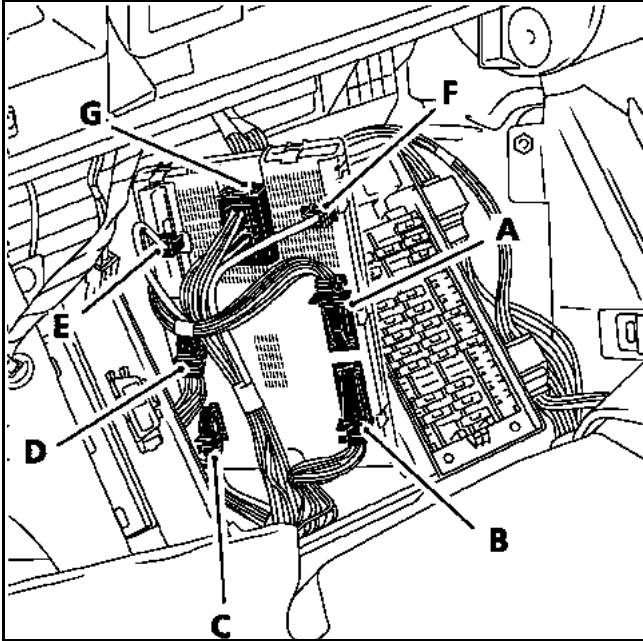
The injection computer is delivered non-coded. All that is required is to connect it and switch on the + after ignition. The immobiliser warning light illuminates for 3 seconds and then extinguishes to show that exchange of signals between the passenger compartment central unit and the injection is taking place correctly.

If the immobiliser warning light flashes when the + after ignition is switched on:

- the injection computer present is already coded,
- the injection computer is in anti-scanning mode,
- the injection computer is faulty,
- there is a connection problem between the passenger compartment central unit and the injection,
- the injection computer is absent.

In any case, the procedure is simply postponed; there is no irreversible effect on keys and/or Passenger Compartment Central Unit.

PASSENGER COMPARTMENT CENTRAL UNIT CONNECTIONS



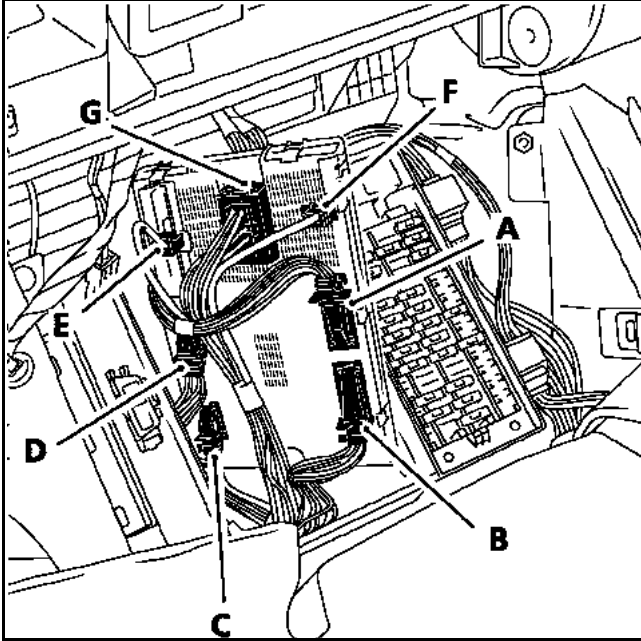
Blue 26-track Connector (A) (ECH)

- 1 Rheostat-controlled lights switch
- 2 Hazard warning lights signal
- 3 Left hand direction indicator signal
- 4 Computer information sequence
- 5 Dipped headlights switch signal
- 6 Windscreen wiper low speed signal
- 7 Hazard warning lights output
- 8 Windscreen washer switch signal
- 9 Transponder signal
- 10 Transponder aerial feed
- 11 Multiplex link (CAN H)
- 12 Not connected
- 13 Windscreen wiper intermittent wiping signal
- 14 Interior lights timed earth 2
- 15 Rear screen wiper signal
- 16 Right hand direction indicator (earth)
- 17 Front fog lights signal
- 18 Main beam headlights switch signal
- 19 Windscreen wiper high speed signal

- 20 Air conditioning compressor switch signal
- 21 Rear screen washer switch signal
- 22 Transponder aerial earth
- 23 Transponder clock (125 kHz)
- 24 Multiplex link (CAN L)
- 25 Not connected
- 26 + 12 Volts for the instrument panel

Blue 26-track Connector (B) (SS1)

- 1 Tailgate luggage compartment light
- 2 Rear fog light signal
- 3 Air conditioning computer connection
- 4 Rheostat signal earth
- 5 On/Off signal
- 6 Rear screen wiper motor (park position signal)
- 7 + accessories
- 8 Right hand front door switch
- 9 Handbrake warning light
- 10 Side light warning light
- 11 Not connected
- 12 Progressive timer earth
- 13 + 12 volts after ignition
- 14 Front electric windows switch feed
- 15 Locked vehicle output
- 16 Air conditioning computer connection
- 17 Rheostat signal
- 18 Air conditioning recirculating signal
- 19 + 12 volts after ignition
- 20 Left hand front door switch
- 21 Tailgate door switch
- 22 Passenger lock switch signal
- 23 Door locking signal
- 24 Door unlocking signal
- 25 Seat belts fastened signal
- 26 Air conditioning inhibition

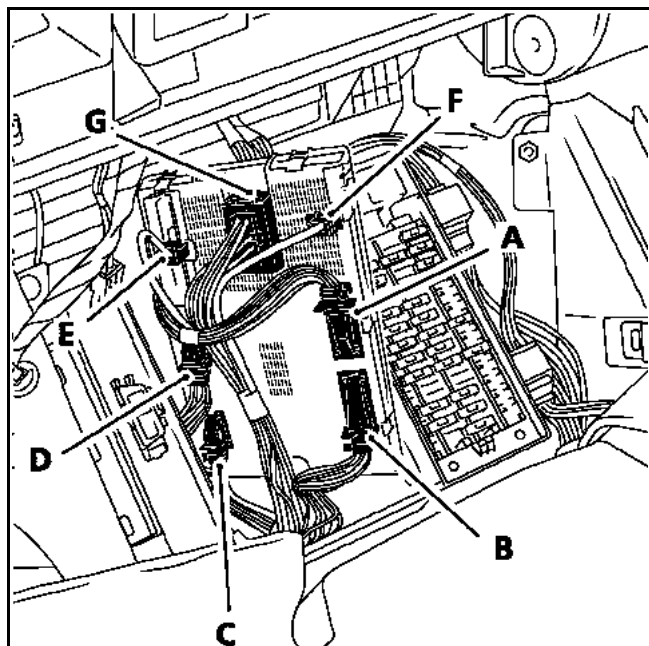


Blue 12-track Connector (C) (SS2)

- 1 Sliding sunroof control unit output
- 2 Rain sensor signal
- 3 + rain sensor feed
- 4 Not connected
- 5 Not connected
- 6 Heated seats warning light
- 7 Engine coolant temperature signal output
- 8 Not connected
- 9 Rain sensor earth
- 10 Not connected
- 11 Electric heated windscreen signal
- 12 Not connected

Yellow 26-track Connector (D) (MOT)

- 1 Oil level sensor signal
- 2 Fuel tank sender signal
- 3 Vehicle speed signal (with ABS wiring)
- 4 Not connected
- 5 Not connected
- 6 Multiplex link (CAN H)
- 7 Not connected
- 8 ABS fault signal (with ABS wiring)
- 9 Pressostat signal
- 10 Stop light switch signal
- 11 Fan 1 fuse test signal (with L7X engine)
- 12 Brake fluid level sensor signal
- 13 Driver's door open signal via lock
- 14 Oil level/temperature sensor
- 15 Fuel tank sender unit earth
- 16 Headlight washer pump switch
- 17 Not connected
- 18 Coded alarm output
- 19 Multiplex link (CAN L)
- 20 Windscreen wiper off
- 21 Discharge bulb failure signal
- 22 Battery charging fault signal
- 23 Diagnostic socket line K
- 24 Fan 2 fuse test signal
- 25 Engine oil pressure fault signal
- 26 Brake pad wear warning light signal



Grey 1-track Connector (E) (SPT1)

- 1 + Battery

Brown 1-track Connector (F) (SPT2)

- 1 Earth

Black 16-track Connector (G) (SP)

- 1 Rear screen wiper before ignition feed
- 2 Right hand direction indicator output
- 3 Left hand direction indicator output
- 4 Rear screen wiper control
- 5 Rear electric lock switch
- 6 Central door locking switch
- 7 Central door unlocking switch
- 8 Windscreen wipers high speed switch
- 9 + windscreen wiper feed
- 10 Front fog lights switch
- 11 + front fog light feed
- 12 Interior lights timed earth 1
- 13 Air conditioning compressor control
- 14 Not connected
- 15 Not connected
- 16 Windscreen wipers low speed switch

	1	2	3	4	Display	VMF*	10	11	12	13	14
5	6	7	8	9			15	16		17	18

Symbol	Description	Colour
1	Doors open warning light	Red
2	Dipped headlights	Green
3	Main beam headlights	Blue
4	Left direction indicator	Green
5	Seat belt warning light	Red
6	Side lights	Green
7	Rear fog lights	Amber
8	Front fog lights	Green
9	Immobiliser warning light	Red
10	Right direction indicator	Green
11	Brake fluid level	Red
12	ABS	Red
13	FDR	Amber
14	Automatic Door Locking while Travelling (CAR)	Red
15	Heated seats	Amber
16	Air bag	Amber
17	Injection	Amber
18	Limiter	Green

DISPLAY:

- digital display of the speed in kph or MPH,
- display of the fuel level in the form of a bargraph,
- display of the oil level with engine stopped or coolant temperature (**20 seconds** after switching on the + after ignition and with engine running), in bargraph form;
- on-board computer area display:
 - trip distance recorder;
 - average speed
 - average consumption
 - current consumption
 - estimated range before refuelling,
 - set speed with cruise control or speed limiter,
 - mileage to next oil change
- radio display,
- permanent total mileage display.

*VMF = Multifunction Warning Light

INSTRUMENT PANEL
Instrument panel

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Symbol	Description	Colour	VMF*	
			VMF Stop	VMF Service
11	Brake fluid level	Red	X	
12	ABS	Red	X	
13	FDR	Amber		X
16	Air bag	Amber		X

Symbol	Description	Colour	VMF*	
			VMF Stop	VMF Service
MFI	Maximum coolant temperature	Red	X	
MFI	Battery charge	Red	X	
MFI	Oil low pressure	Red	X	
MFI	Brake pad wear	Amber		X
MFI	Electronic fault (automatic transmission, injection)	Amber		X
MFI	Fuel low level	Amber		X
MFI	Diesel preheating	Amber		
MFI	Oil low level	Amber		X
MFI	External temperature and clock	Amber		
MFI	Radio information	Amber		
MFI	Engine stalling	Red		
MFI	ABS fault	Red	X	
MFI	FDR fault	Amber		X
MFI	Oil pressure sensor fault	Amber		X
MFI	Battery charge fault	Amber		X
MFI	Brake fluid level sensor fault	Red	X	

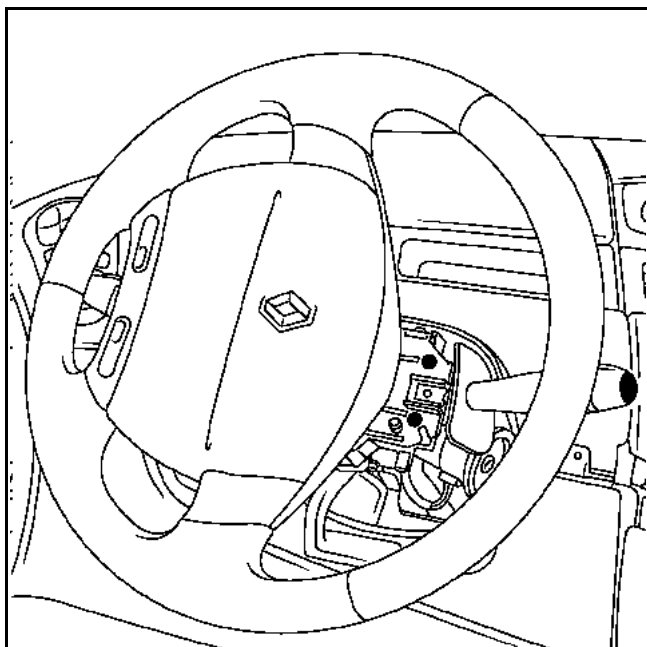
***VMF:** = Multifunction Warning Light

OPERATION

On-board computer button

On the end of the wiper stalk:

- a long press, (about **2 seconds**) on the Reset button with the + after ignition on resets the memories to zero,
- press briefly on the Reset button with the + after ignition switched to scroll through the sequence of information on the screen.



On-board computer button

A long press, (about **2 seconds**) on the Reset button, with the + before ignition on:

- flashing of the speed units and the coolant temperature bargraph.

Pressing the clock button (**M**) while the display is flashing changes the speedometer units (kph or MPH). Pressing the button (**H**) cancels the coolant temperature function.

Pressing the on-board computer switch and the (**H**) switch for **10 seconds** resets the mileage remaining to the next service.

The on-board computer provides the following specific functions:

- management of journey parameters,
- management of remaining mileage and the low fuel warning light,
- fault finding procedure.

See the driver's handbook for the functions performed by the on-board computer.

Description of instrument panel standby and reactivation functions

When the doors are unlocked with the radio-frequency remote control, when a door is opened or the + after ignition is switched on, the passenger compartment central unit is activated. It then measures the oil level and retransmits it to the instrument panel, which starts a timed period of one minute.

The instrument panel checks the radio-frequency remote control code and sends the order to the passenger compartment central unit to lock or unlock the doors.

REMOVAL

It is strictly forbidden to dismantle this instrument panel.

If it is faulty, it must be replaced.

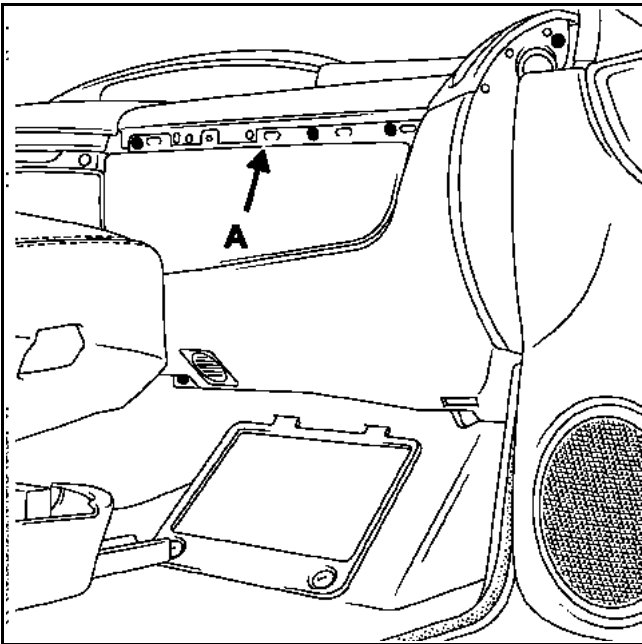
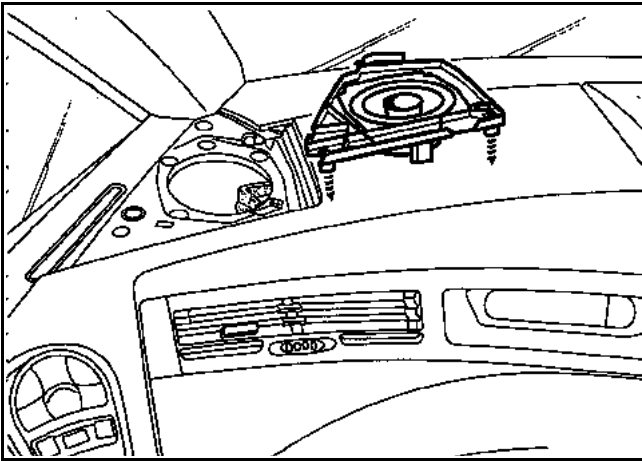
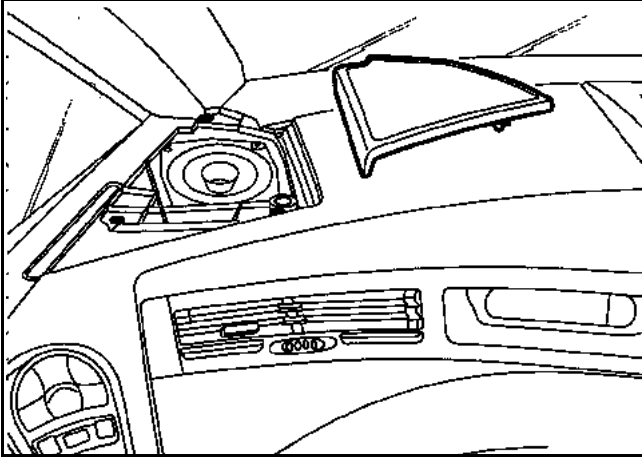
N.B.: if the instrument panel is replaced, it must be configured. Otherwise, until it is configured, the speed information will flash.

Carry out synchronisation of remote controls.

Configuration of the instrument panel is controlled by the passenger compartment central unit

Ignition switched on but engine not running:

- connect the diagnostic tool,
- enter diagnostic mode with the **Instrument panel menu**,
- consult the "**Configuration**" menu.



Point to note: Instrument panel

The Avantime's instrument panel is of the multiplex type and is connected to the vehicle's **CAN** bus, from which it receives all the signals it needs to display fault and speed conditions on its **LCD** panel.

N.B.: the signal from the radio-frequency remote controls is captured by a receiver unit located between the instrument panel and the left hand loudspeaker. Information required for door locking and recognition of the rolling codes is provided by the passenger compartment central unit via the **CAN** bus.

REMOVE: Top part of dashboard

OPERATION

Unclip the loudspeaker grilles by hand, without using tools, starting from the ridge on the deflector side.

Unscrew the three mountings of each loudspeaker holder.

Disconnect the loudspeakers and remove them.

Remove the "Air bag" monogram (see Section 57).

Unclip all the aluminium trim using a wide spatula at (A).

Unclip the sunshine sensor and disconnect it.

Remove the trim round the lock on the central glovebox.

Remove the lower right hand part of the dashboard (**six Torx 20 screws**) and disconnect the CD player from the **CARMINAT** system (be careful of the **GPS** aerial wire).

Disconnect the **CARMINAT** loudspeaker connectors and the console light (**violet connector**).

Remove the left hand lower part of the dashboard (**six Torx 20 screws**) and disconnect the lights rheostat.

Remove the air conditioning controls on the left and on the right.

Lift the dashboard cover, starting in the corner, using the loudspeaker mounting holes to pull vertically to unclip the nine clips (**A**).

Remove the upper part of the dashboard by pulling it towards the rear while disengaging the sunshine sensor connector.

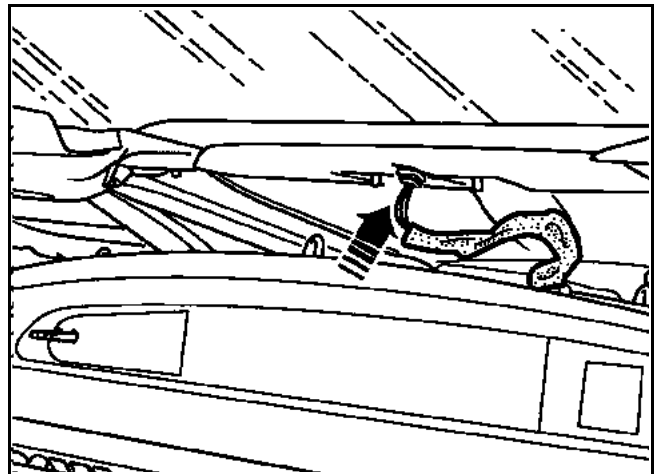
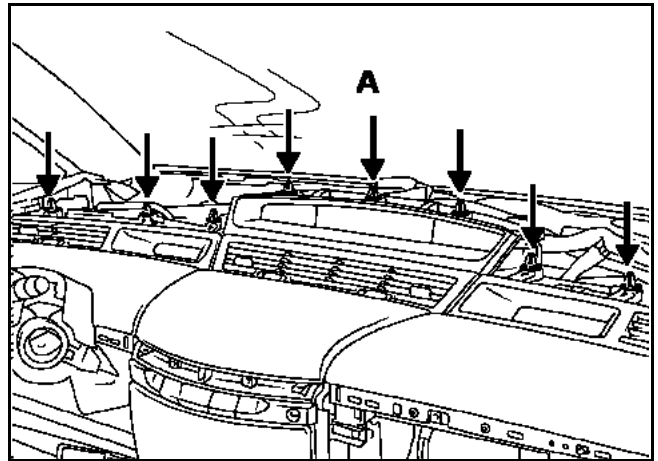
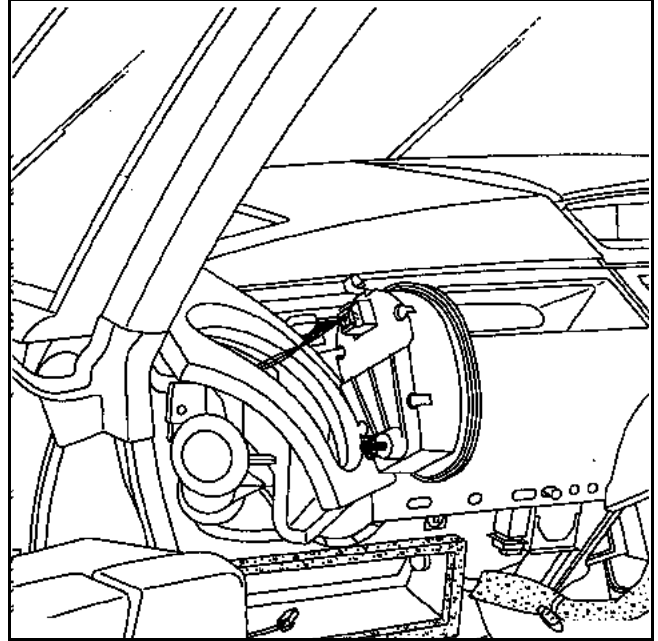
Unscrew the five mountings and disconnect the instrument panel.

REFITTING

Check that the nine clips (**A**) are present.

Refitting is the reverse of removal.

N.B.: do not forget the sunshine sensor connector when refitting the dashboard.



REV COUNTER

Special Note

The AVANTIME's rev counter is of the multiplex type. It is connected to the vehicle's **CAN** bus, from which it receives the following signals:

- engine speed signal, sent by the injection computer,
- gear selector signal, sent by the automatic transmission computer.

Repeat the "**Removing the instrument panel**" procedure to withdraw the top part of the dashboard.

Remove:

- the satellite control screw,
- the cowlings under the steering wheel (**Torx P20**).

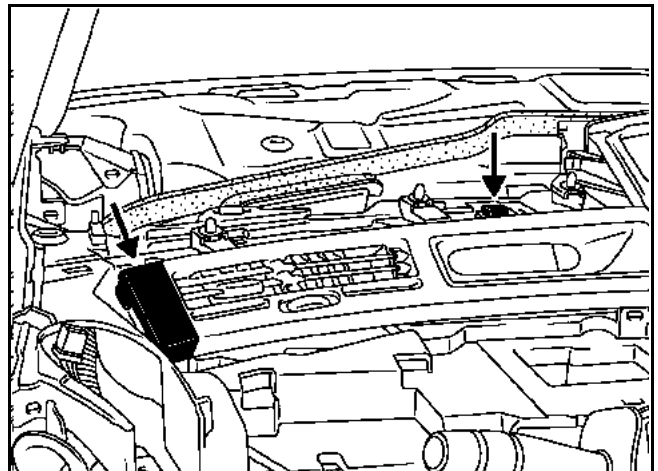
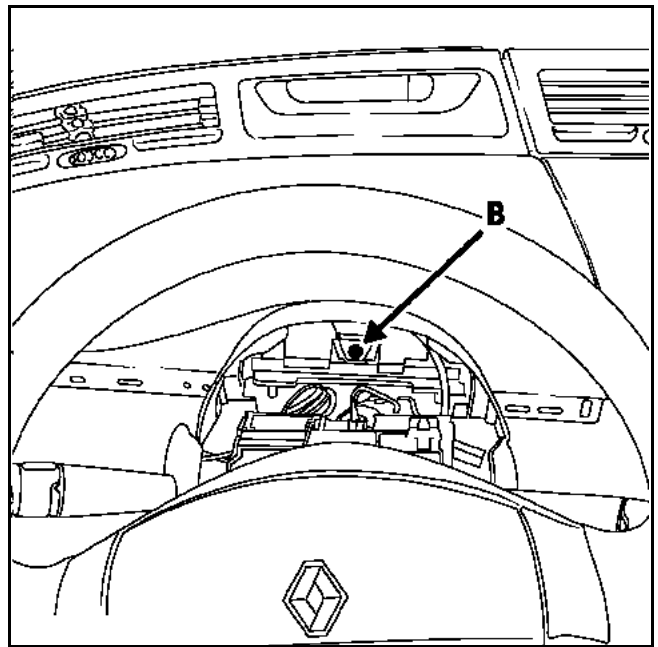
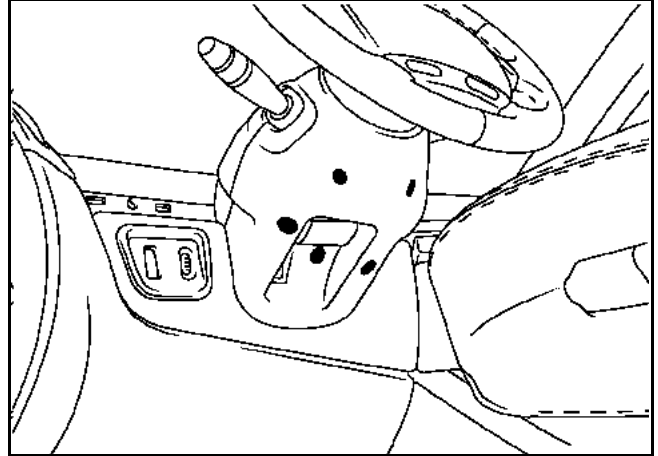
Remove the screw (**B**) under the bottom cowling and remove the leather trim.

Remove:

- the plastic cover to the left of the air vent,
- the screw underneath it,
- the clip above the rev counter,
- the air vent/rev counter unit.

REFITTING

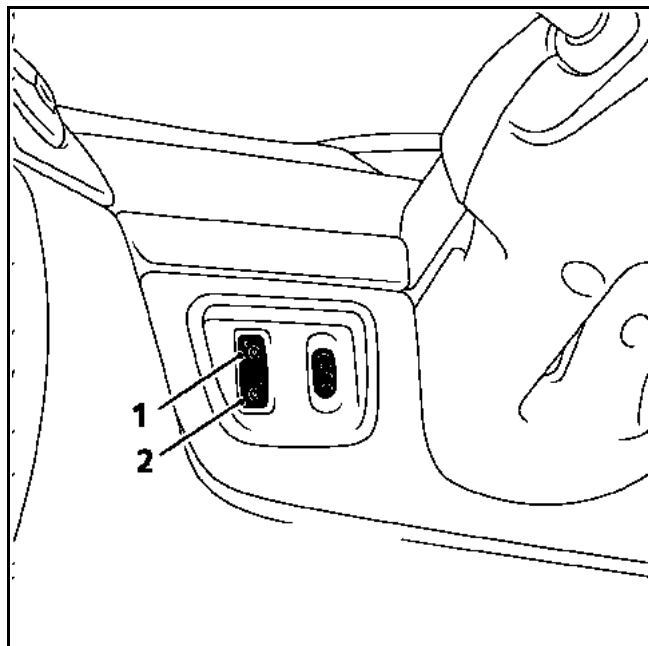
Refitting is the reverse of removal.



GENERAL INFORMATION

These vehicles are fitted with two types of equipment:

- Cruise Control allows the driver to maintain a speed he has selected. This function can be switched off at any moment by pressing the brake pedal or the clutch pedal, or by using one of the system buttons.
- the **Speed Limiter** allows the driver to set a speed limit. The accelerator pedal will not function above the set speed. The selected speed limit can be exceeded at any time by pressing the accelerator pedal past its point of resistance (**kick-down** effect).



- 1 Cruise Control
- 2 Speed Limiter

Both functions are controlled by the injection computer. It exchanges signals with the automatic transmission computer, the instrument panel and the ABS via the **CAN** bus. It uses the set values when activating the motorised throttle unit (see Section 17).

OBSERVATION: the set speed in the memory is displayed on the on-board computer screen. flashing of the ADAC screen display warns the driver that the desired cruise control speed cannot be maintained (e.g. if the vehicle is going downhill).

DESCRIPTION

The ABS computer:

- sends the "**vehicle speed**" signal,
- sends the "**brake pedal pressed**" signal.

The automatic transmission computer:

- sends the "**gear engaged**" signal,

The instrument panel:

- displays the set value (cruise control or speed limiter) (see the "**Instrument panel**" section)
- illuminates a two-colour warning light:
 - cruise control = green,
 - speed limiter = amber.

Every time these functions are switched on, the instrument panel display indicates the mode being used.

NOTE: the cruise control/speed limiter functions do not have a fault warning light.

Controls

Three-position switch (Off/Cruise control/Speed limiter)

Steering wheel switches that can be used to adjust the set speed, cancel the function or recall the memorised speed,

Accelerator and brake pedal switches that are used to control the injection and the brake lights,

The clutch switch (depending on the version) is used only for the cruise control function.

NOTE: the pedal must incorporate a point of resistance at the end of its travel.

The injection computer:

- receives signals from the accelerator pedal,
- receives a signal from the brake switch,
- receives a signal from the clutch engaged switch (according to model),
- receives signals from the three-position switch,
- receives signals from the switches on the steering wheel ,
- receives signals from the ABS computer,
- receives signals from the automatic transmission computer.
- sends signals to the instrument panel
- controls the motorised throttle or the fuel flow for diesel engines.

CRUISE CONTROL OPERATION

Input conditions:

- switch must be at "**Cruise control**",
- vehicle must be in 2nd gear, detected by the computers,
- speed must be between **18 mph (30 km/h)** minimum and **120 mph (200 km/h)** maximum (examples only)
- green cruise control light must be switched on,
- press the (+) or (-) or Recall key.

Output conditions:

- pressure on the accelerator (movement of the accelerator pedal temporarily overrides the system. Release the accelerator to switch it back on.
- pressure on the brake or clutch pedal,
- pressing the **(0)** key,
- switch to **(Off)**,
- intervention of the electronic stability program system (**ESP**),
- injection computer must be switched on,
- no gear should be engaged.

N.B.: a flashing speed setting warns the driver that the set speed cannot be maintained.

SPEED LIMITER OPERATION

Input conditions:

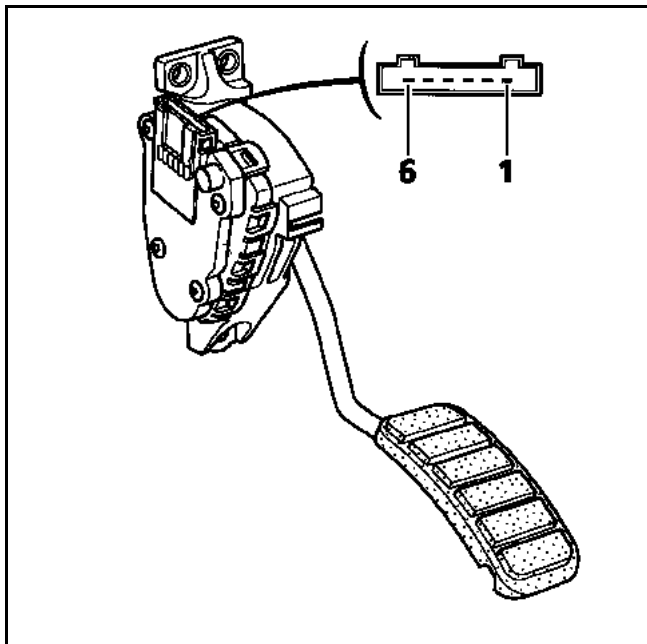
- switch set to "**speed limiter**",
- vehicle must be in 2nd gear, detected by the computers,
- speed must be between **18 mph (30 km/h)** minimum and **120 mph (200 km/h)** maximum (examples only)
- amber speed limiter light must be switched on,
- press the (+) or (-) or Recall key.

Output conditions:

- pressure on the accelerator (safety point),
- pressing the **(0)** key,
- switch to **(Off)**,
- electronic stability program system operation,
- injection computer operation.

Accelerator pedal

The accelerator has a point of resistance for safety reasons.



Track	Allocation
1	Potentiometer earth 2
2	Potentiometer earth 1
3	Potentiometer pedal signal 1
4	Potentiometer feed 1
5	Potentiometer feed 2
6	Potentiometer pedal signal 2

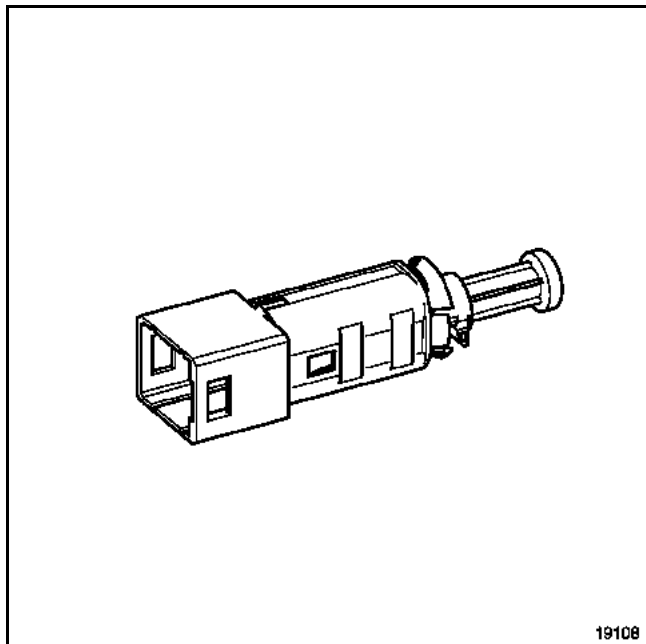
Track 1 resistance = $1200 \pm 480 \Omega$
 Track 2 resistance = $1700 \pm 680 \Omega$

IMPORTANT: in order to operate, the vehicle **MUST** be fitted with an accelerator pedal incorporating a point of resistance at the end of travel.

Brake switch (dual)

The "**cruise control**" function uses the normally closed contact (in common with illumination of the lights), while the ABS computer uses the normally open contact.

The two signals are compared by the injection computer.



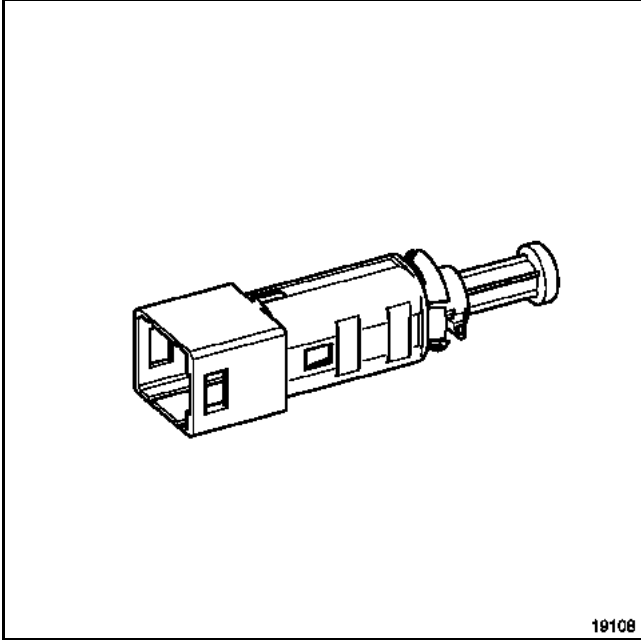
Track	Allocation
1 A	Closed contact
3 A	Open contact
1B	Open contact
3B	Closed contact

When the switch is fitted on the pedal, pull on the pushrod to take up the play.

CLUTCH SWITCH

The clutch pedal has two contacts:

- one start of travel contact used only for the "**cruise control**" function (grey connector),
- one end of travel contact not used at present.



When the switch is fitted on the pedal, pull on the pushrod to take up the play.

REPLACING THE INJECTION COMPUTER

When the injection computer has been replaced, it must be reprogrammed with the cruise control and speed limiter functions.

This is done by simply switching on the functions using the switch on the dashboard and confirming with the fault finding tools:

To configure using the fault finding tools:

- without proximity control.
- with proximity control (not available)

INSTRUMENT PANEL

Fuel level sensor

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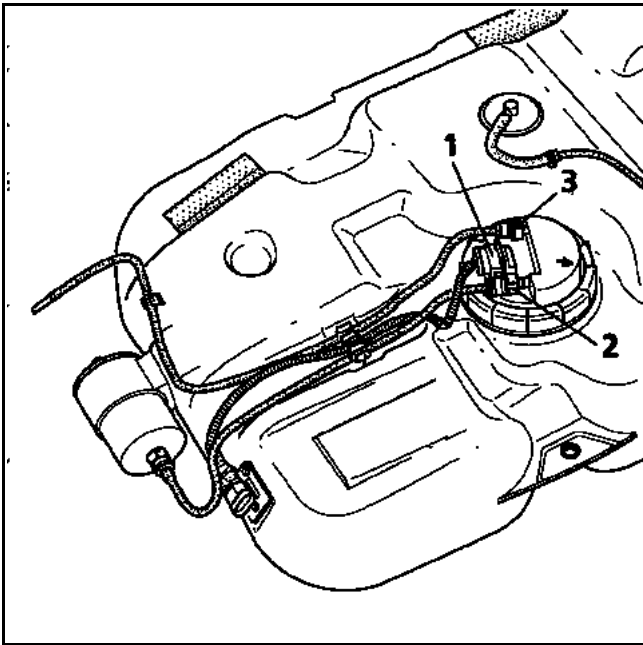
SPECIAL TOOLING REQUIRED

Mot. 1397	Fuel tank sender nut wrench
Mot. 1265	Pliers for quick-release unions
Mot. 1265-01	

IMPORTANT: During any operation on the fuel level sensor you must observe the following precautions:

- do not smoke,
- keep all flames and incandescent objects away from the working area.

REMOVAL OF THE PUMP / SENDER ASSEMBLY



Disconnect the battery.

Remove the fuel tank.

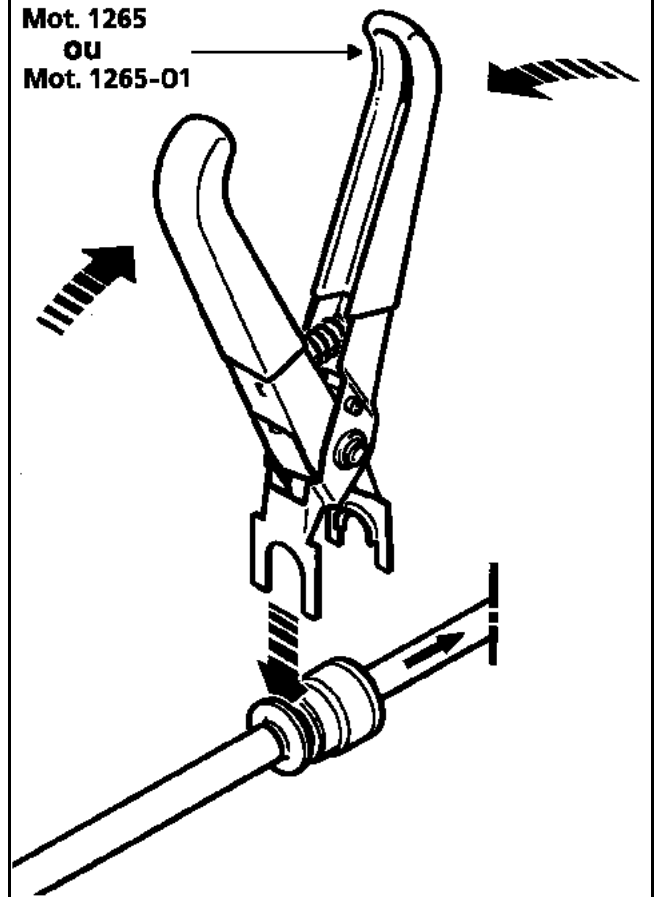
Disconnect the electrical connector (1).

Then disconnect the fuel supply pipe (2) (green mark on the quick-release union) and the fuel return pipe (3) (red mark on the quick-release union) using the special pliers: **Mot. 1265** or **Mot. 1265-01**.

N.B.: if you note the presence of a plastic ring, used for factory assembly, on the quick-release union, it must be removed before the pipes are disconnected.

ATTENTION: when the pipes are disconnected, fuel may splash out due to the residual pressure in the pipes. Take appropriate precautions.

Mot. 1265
ou
Mot. 1265-01



Disconnect the connector and the pipes on the sender unit side.

Remove the pump and sender unit mounting nut using tool **Mot. 1397**.

Remove the pump and sender unit assembly.

N.B.: if several hours will pass between the removal and refitting of the fuel pump/sender assembly, screw the nut back on the tank to avoid any distortion.

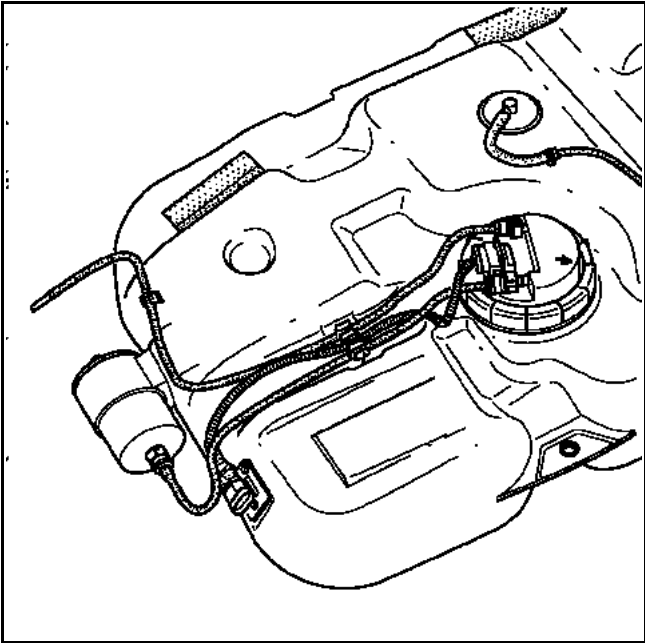
REFITTING OF THE PUMP AND SENDER ASSEMBLY

Special notes

Check that the seal is in good condition and replace it if necessary.

Fit the seal on the fuel tank first before fitting the assembly.

Refit the pump/sender assembly to the fuel tank, turning it to position the index arrow facing the notch on the sender well.

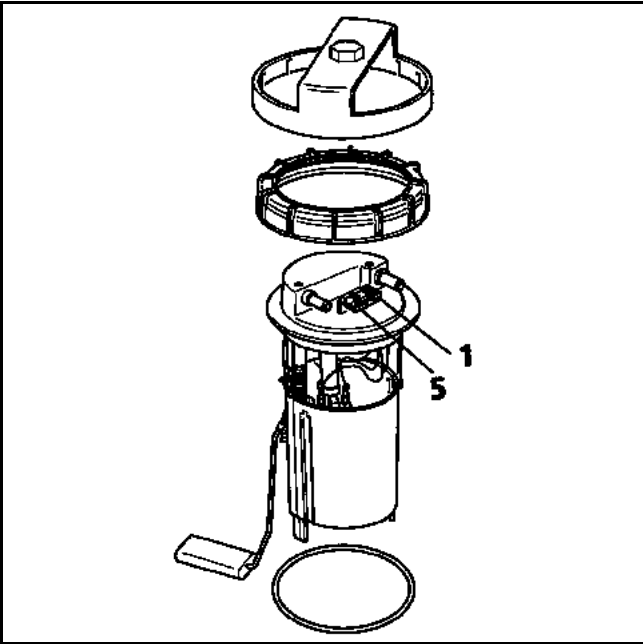


Tighten the mounting nut on the fuel and sender assembly to a torque of **3.5 daNm** using tool **Mot. 1397**, holding the sender unit to prevent it from rotating.

Make sure that the connector is firmly locked in place and that the quick-release unions are securely clipped together (with 2 O-ring seals).

Reconnect the battery.

PETROL CONNECTIONS



Track	Description
1	Sender signal to instrument panel
2	+ pump
3	Not used
4	- pump
5	Earth

DIESEL CONNECTIONS

Track	Description
1	Sender signal to instrument panel
2	Not used
3	Not used
4	Not used
5	Earth

CHECKING

Indication	Value between terminals 1 and 5 (Ω)
4/4	30 ± 3
3/4	100 ± 18
1/2	223 ± 10
1/4	331 ± 10
Low fuel	$385 \approx$

Indication	Height H (mm)
4/4	186
3/4	140
1/2	93.5
1/4	46.5
Low fuel	28

MEASURING HEIGHT H

Place the removed sender unit on a flat surface.

H is the height measured between the sender unit float pivot and the face.

N.B.: all the above values are given merely as a guide.

GENERAL INFORMATION

The "**CARMINAT**" navigation aid system uses a screen and a voice synthesiser to guide the user of the vehicle.

This system can:

- find a specific location, such as:
 - a road, street or avenue,
 - a hotel
 - public services,
 - a garage or petrol station.
 - etc.
- select guidance modes in order to:
 - optimise journey time
 - select the shortest distance
 - plan a route travelling on main roads
 - or take the scenic route.Each mode is symbolised by a different icon that appears on the status line on the lower part of the screen.
- store addresses in the address book.
- display a map:
 - of the place where the vehicle is located,
 - or the destination.
- display the journey time.

N.B.: for information on operating the system and descriptions of the various menus, refer to the driver's handbook.

MULTIPLEX CONNECTIONS

The vehicle is fitted with a multiplex network that is shared with the other main computer units for the exchange of information. The "Carminat" system uses the "vehicle speed" information provided by the ABS computer to calculate the distance travelled and the "reversing" information. See Section **88** "Multiplexing".

A multiplex network used exclusively by the **CARMINAT** system links the navigation computer to the Central Communication Unit and the display.

This system uses the following to function:

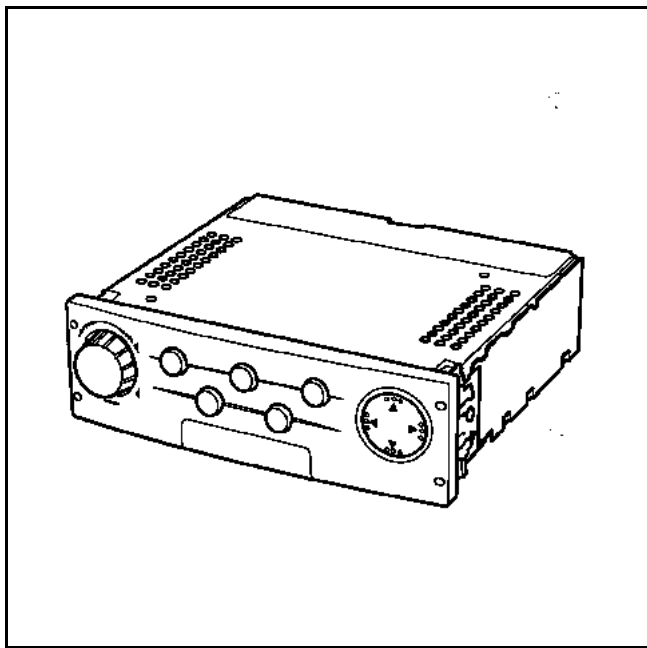
- a Central Communication Unit (CCU) fitted with a console,
- an electronic navigation computer incorporating acceleration sensors (gyroscope) and a **CD-ROM** reader,
- a satellite link (**GPS** aerial) that can locate the vehicle,
- a screen to display written data and maps,
- a speaker for giving voice instructions,
- a **CD-ROM** with the maps of the country the vehicle is delivered to.

NOTES:

- If the vehicle has been transported by train or ferry, the navigation system may need a few minutes to find its exact location (see "**Relocation**" section)
- If the vehicle battery has been disconnected, the system may need up to **15 minutes** to calculate its exact location. The vehicle must be outdoors, with the navigation system switched on, in order to pick up satellite signals with the **GPS** aerial.
- The system can also operate without valid **GPS** data. Under these circumstances, precision may be lost when it comes to pinpointing exact locations.
- Once the exact position has been located by the **GPS** system, the satellite symbol on the screen changes from red to green.
- On a motorway, the distances given by the system for the junctions are different from those shown on motorway signs. The signs show the distance to the start of the exit slip-road, while the **CARMINAT** system refers to the end of the exit slip-road.

CENTRAL COMMUNICATION UNIT (UCC)

To be able to operate, the **CARMINAT** navigation computer must be connected to a Central Communication Unit. This element is located above the radio and includes a console.



The Central Communication Unit can:

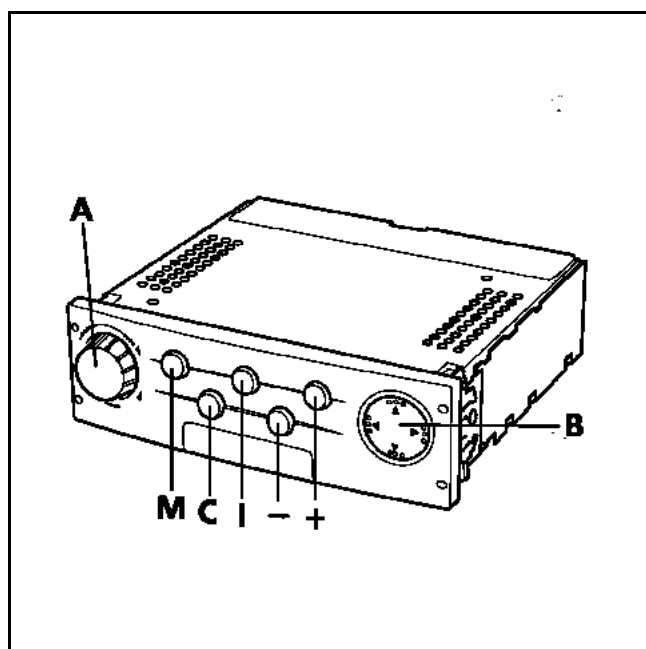
- automatically adjust the clock,
- link the vehicle's multiplex network to the special **CARMINAT** system multiplex network,
- use multiplex data (vehicle speed, reversing signal, external temperature),
- manage the radio and keypad controls on the steering wheel,
- control braking conditions and vehicle and system configurations,
- control the on-screen display,

CONSOLE

The console is an integral part of the Central Communication Unit.

It comprises:

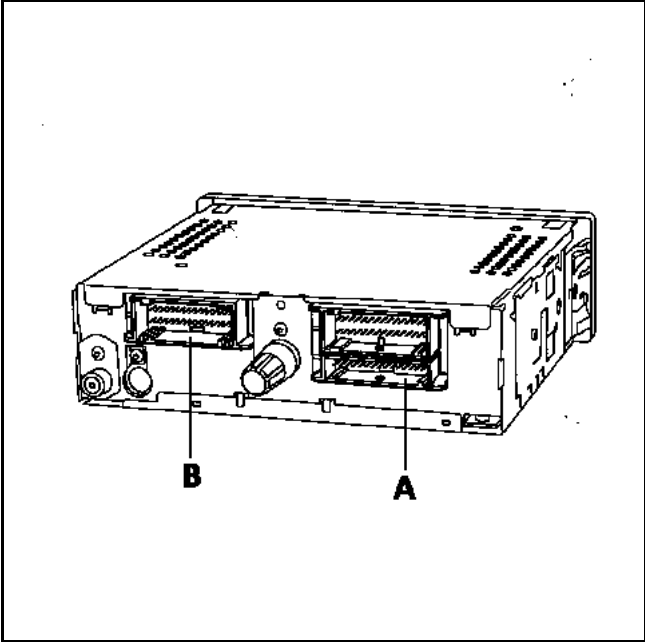
- Rotary knob (A), used for:
 - changing menus,
 - activating.
- Button (B), used for:
 - scrolling through the menu in manual mode,
 - selecting one of the various menus,
- Menu button (M), used for:
 - selecting the main menu.
- Menu button (I), used for:
 - repeating spoken messages.
- Menu button (C), used for:
 - muting messages.
- the (+) and (-) keys, used for increasing or decreasing the message volume.



REMOVAL/REFITTING

The communication unit can be removed using the tools for removing the radio.

Connector allocations

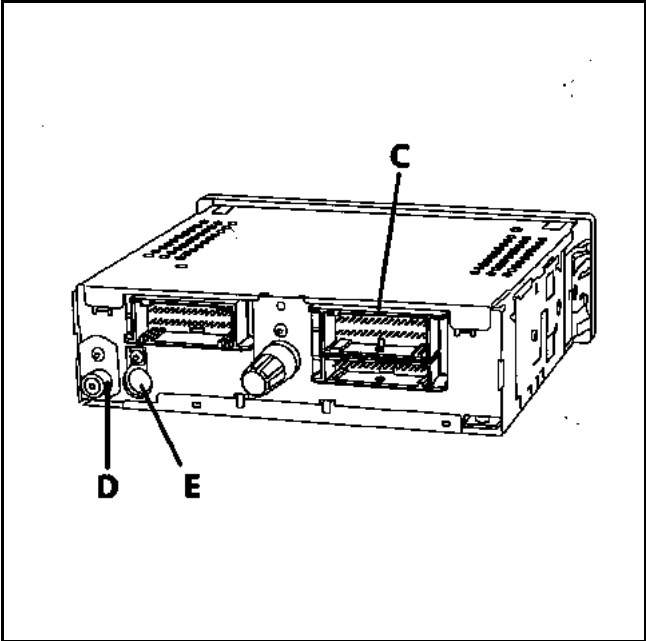


15 track connector A (red):

Not used

30 track connector B (grey):

Ter- minal	Allocation
1	Not used
2	Not used
3	Multiplex connection (multimedia)
4	Multiplex connection (multimedia)
5	Not used
6	Not used
7	On/Off signal output
8	Loudspeaker (Voice synthesiser)
9	Loudspeaker (Voice synthesiser)
10	Not used
11	Not used
12	Not used
13	Not used
14	Not used
15	Not used
16	Not used
17	Not used
18	Not used
19	Vehicle speed
20	Reversing signal
21	Not used
22	Not used
23	Not used
24	Not used
25	+ lights
26	Not used
27	Earth
28	Not used
29	Not used
30	Not used



(D) and (E): radio aerial input and output

30 track connector C (green):

Ter- minal	Allocation
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Multiplex link (CAN H)
7	Multiplex link (CAN L)
8	Radio muting control
9	+ accessories
10	+ before ignition
11	Not used
12	Earth
13	+ after ignition
14	Not used
15	Not used
16	Not used
17	Not used
18	Not used
19	Not used
20	Not used
21	Not used
22	+ loudspeaker
23	- loudspeaker
24	Not used
25	Not used
26	Not used
27	Not used
28	Not used
29	Not used
30	Not used

ELECTRONIC NAVIGATION COMPUTER (CD ROM reader)

This system operates by using sensors which detect the vehicle's movements. The vehicle's speed sensor calculates the distance travelled while the gyroscope (inertia compass) in the computer registers changes of direction on bends and corners.

By making comparisons with the digital map (on the CD-ROM), the system adjusts variables (tyre pressure and wear, temperature etc.) in order to pinpoint the vehicle's location.

IMPORTANT: if the battery has been disconnected or the navigation computer replaced, relocation of the vehicle must be carried out (refer to the "**Relocation**" section).

After the electronic navigation computer is replaced, the system will be programmed in French by default.

To change the language, refer to the method explained in the "**Change of language**" section.

WARNING: a new electronic navigation system will not be able to recall addresses stored in the old unit.

NOTE:

- with the ignition off, the CD-ROM player switches on automatically when the eject button is pressed and may remain on for about a minute if ignition is not switched on.
- When the ignition is switched on, the player is automatically switched on,
- when the ignition is switched on, the CD player remains on for about **40 seconds**.

REMOVAL/REFITTING

The communication unit can be removed using the tools for removing the radio.

18 track connector

Ter-minal	Allocation
1	+ before ignition
2	Not used
3	Loudspeaker
4	Not used
5	Not used
6	On/Off
7	Not used
8	Not used
9	Multiplex connection (multimedia)
10	Earth
11	Not used
12	Loudspeaker
13	Not used
14	Not used
15	Vehicle speed signal
16	Not used
17	Not used
18	Multiplex connection (multimedia)

16 track connector

Ter-minal	Allocation
1	Not used
2	Earth
3	- video signal
4	Red video signal
5	Green video signal
6	Blue video signal
7	Earth
8	Video synchronisation signal
9	Earth
10	Brightness adjustment
11	Not used
12	Display On/Off
13	Not used
14	Not used
15	+ before ignition
16	+ before ignition

SCREEN

- It is used to display:
- the various menus,
 - the destination direction
 - the distance from the destination
 - the journey maps
 - the distance remaining until the next change of direction
 - the road maps
 - etc.

It turns on a few seconds after the ignition is switched on:

- To activate the CARMINAT system, turn the console knob and a user command menu will appear. Push the knob to confirm "**OK**" and the "**Contents**" menu will appear.

It will switch off completely approximately **40 seconds after the ignition is switched off**.

NOTE:

- the brightness of the screen can be varied by using the + and - brightness buttons on the console.
Options:
 - daytime (side lights off)
 - night time (side lights on)
- The colour of the screen can be varied using the "Adjustment" key followed by the "Screen configuration" key. Options:
 - daytime colour blue or dark blue (side lights off).
 - night time colour blue or dark blue (side lights on).

IMPORTANT: to clean the screen do not use cleaning products (clean with a dry or slightly damp soft cloth).

CONNECTIONS

Termi- nal	Allocation
1	Not used
2	Earth
3	- video signal
4	Red video signal
5	Green video signal
6	Blue video signal
7	Earth
8	Video synchronisation signal
9	Earth
10	Brightness adjustment
11	Not used
12	Display On/Off
13	Display feed
14	Not used
15	+12 Volts
16	+ 12 Volts
Screeni ng	Earth screening

INSTRUMENT PANEL

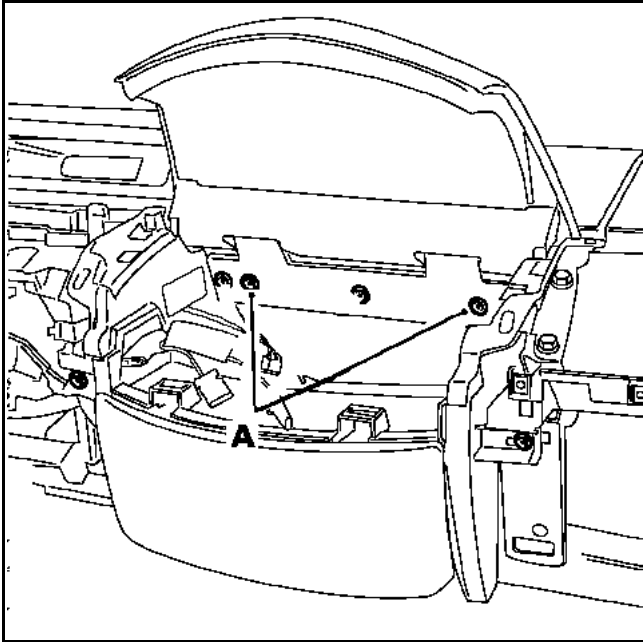
"CARMINAT" navigation aid (screen)

83

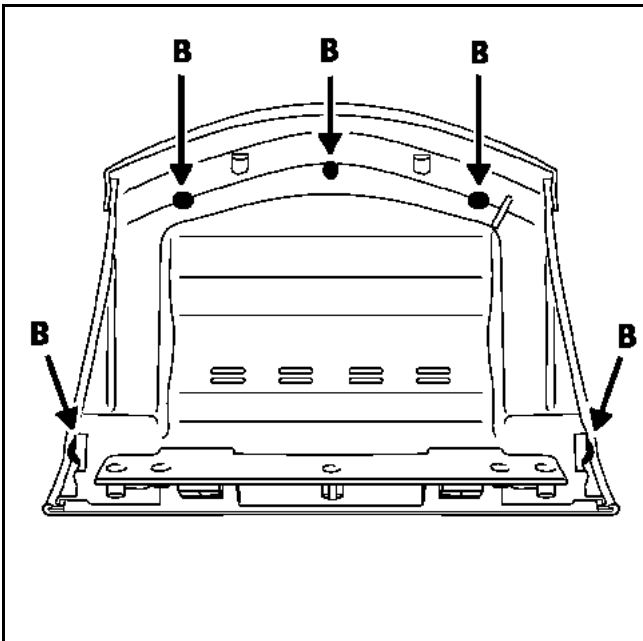
REMOVAL

Removing the LCD display:

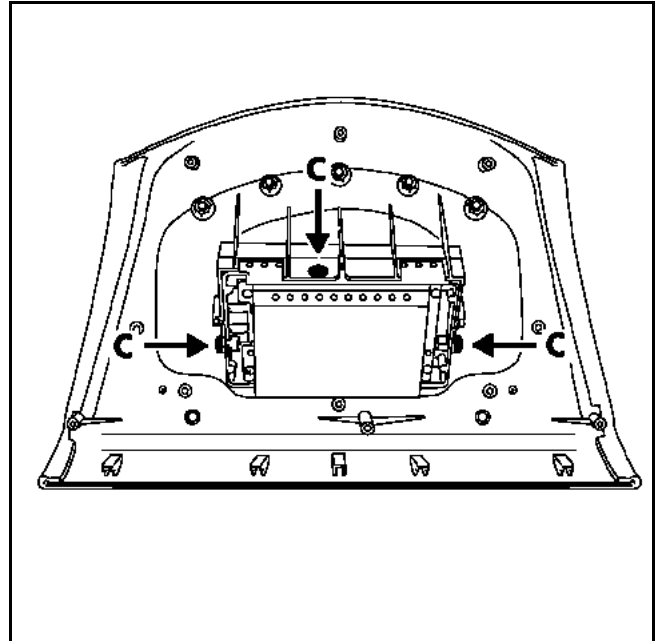
- open the central glovebox cover on which the LCD panel is mounted,
- remove the five screws (A),



- pull the LCD panel/cover assembly out with the electric wiring far enough to be able to turn it over,
- remove and mark the five screws (B),
- remove the cover of the LCD panel,



- disconnect the LCD panel wiring,
- remove the three screws (C),
- remove the LCD panel.



N.B.: when refitting, replace the screws in the correct positions.

GPS / GSM AERIAL

It picks up satellite signals to enable the electronic navigation computer (CD-ROM reader) to locate the position of the vehicle.

Good satellite reception by the GPS aerial is indicated on the display screen by three green bars on the earth symbol.

Poor satellite reception (caused by going through a tunnel or along a street hemmed in by tall buildings, etc.) is indicated by three red bars on the earth symbol on the display screen.

ATTENTION: the vehicle must be relocated after the electronic navigation computer has been replaced or the battery disconnected.

Drive the vehicle to a well-exposed area outdoors and wait for a few minutes with the ignition switched on. Good satellite reception by the GPS aerial is indicated on the display screen by three green bars on the earth symbol.

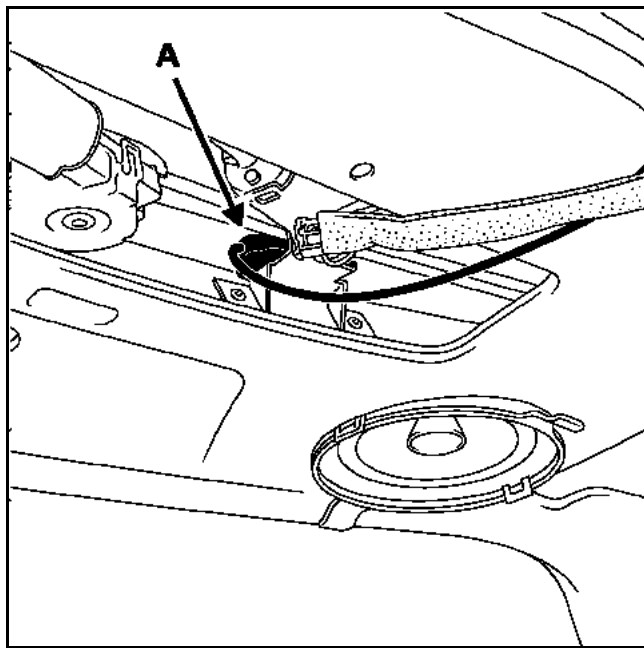
WARNING: the GPS aerial wire is very fragile. Do not bend or trap it.

REMOVAL

GPS aerial:

- lock the air bag computer using a fault finding tool.
- disconnect the battery,
- remove the head lining (see Section 57),
- remove the driver's seat,
- remove the central console.
- remove the soundproofing material on the central console tunnel,
- cut the carpet in the middle of the central console tunnel in front of the gear lever,
- withdraw the aerial wire and its threaded union under the carpet,

- disconnect the GPS aerial wire at the threaded union,
- detach the carpet and soundproofing on the driver's side,
- remove the GPS aerial sensor (A) from its housing by sliding it towards the centre of the roof,



- remove the GPS aerial from the vehicle by detaching the aerial wire all along its path.

REFITTING

Refit:

- the GPS aerial, starting by sliding the sensor into its housing,
- the GPS aerial wire, following the original route exactly,
- the soundproofing, the carpet, the door seal,
- the central console soundproofing material,
- the central console,
- the driver's seat, reconnecting the air bag / pretensioners wiring,
- connect the battery,
- unlock the air bag computer with the diagnostic tool and check there are no faults.

RELOCATING

The vehicle has to be relocated after the electronic navigation computer has been replaced or the battery disconnected.

Drive the vehicle to an open area outdoors and wait for a few minutes with the ignition switched on.

Good satellite reception by the GPS aerial is indicated on the display screen by three green bars on the earth symbol. The vehicle is now located.

If the vehicle is not shown in the correct location on the map, carry out relocation:

The relocation can be done:

- automatically by driving in different directions on mapped main roads for up to 2 miles (1-3 km).
- manually using the "**Vehicle Position**" menu after selecting "**Settings**".

Enter the appropriate town, road and junction.

Confirm "**Relocation at junction**".

CHANGE OF LANGUAGE

After the electronic navigation computer is replaced, the system will be programmed in French by default.

To change the language, use the language CD supplied to the customer with the "**CARMINAT**" handbook and follow the instructions described below:

1. With the ignition switched on, press the eject button to remove the electronic navigation computer map CD.
2. The screen will display the message "No CD in the reader".
3. Confirm "OK" by pressing the knob.
4. Select the "**Settings**" menu followed by "Language" and "other language".
5. The system will then tell you to insert the language CD.
6. Insert the CD, confirm and then press the knob. Confirm.
7. Select the language to be replaced (language 1 or 2) by turning the knob.
8. Use the round knob to select the correct language to load from the list of available languages stored on the CD, confirm and then confirm "load".
9. Wait a few seconds. The screen will turn black and then white and display a message in black and red with a horizontal bar to show the progress of loading.
10. When loading is complete, the language CD will be ejected from the reader and the screen will read "**OK**".
11. Switch off the ignition and wait for the screen to turn blank (this takes **just over a minute**). The new language is now loaded.
12. Reinsert the map CD into the reader.

COMPLETE FAULT FINDING

In the event of problems occurring in the system, a fault finding function allows potential faults stored in the computer to be displayed on the screen. It can also check some of the parameters.

The screen turns on a few seconds after the ignition is switched on. Confirm "**OK**" and the system will offer several options.

1. Navigation:

⇒ **Settings** can:

- select a language,
- select guidance criteria,
- alter screen configuration,
- receive system information,
- select the traffic information system,
- alter units,
- alter volume,
- configure the screen.

⇒ **On-board computer** displays:

- the current speed,
- the average speed,
- distance remaining,
- time remaining,
- and allows the driver to set a speed limit.

2. **Language:** enables the language of the screen and voice messages to be changed.

3. User settings:

⇒ **System:** the "After Sales (code)" menu is displayed.

Enter the code using the knob and then select and confirm the four access code digits. The code (reserved for the repair agent) is: **4112** ("**exit**" = return to the "**Contents**" menu).

- **EXIT** return to contents,
- **Fault finding** (refer to following pages)
- **Configuration** details. These can be requested in the event of any problem occurring:
- **Date of manufacture**
- **Configuration** : 0412,
- **UCC type** : UCC 3,
- **Software Vers** : 240,
- **Part no.**
- **Checksum**,
- **System Tests:** check various components such as the console, the radio control satellite and the multiplex connections (IIC = error),
- **Operating Tests:** give specific information about the system,

⇒ **RDS -TMC Test:**

- **frequency:** TUNER for traffic information,
- **reception level:** e.g. 90,
- **RDS quality:** e.g. 90,

⇒ **Vehicle test:**

- **vehicle:** D66,
- **speed,**
- **+APC,**
- **+ACC,**
- **SSPP,**
- **battery voltage,**
- **crash information,**
- **+ side lights:** lights feed,
- **reversing.**

ON-BOARD DIAGNOSTICS

⇒ Read GPS status

Example:

- **Sensor status:** 3D position,
- **Longitude:** 2° 14' 24" East,
- **Latitude:** 48° 46' 31" North,
- **Geographic height.:** 226 m.
- **Number of sat.:** > 3.

⇒ Read E/S status

- **Tachometric** pulse: the vehicle speed should be displayed when the vehicle is moving,
- **Temperature:** the temperature inside the computer should be displayed,
- **Battery:** the battery voltage should be displayed,
- **Eject button:**
0 = CD eject button not pressed,
1 = CD eject button not pressed, (press and hold for more than **5 seconds**).

⇒ Direction:

ARR = Gear lever in reverse gear position.
Reversing signal correct.

AVA = Gear lever not in reverse position or reversing signal faulty.

- **Lights** = on or off (not in use)
- External switch 1:
- External switch 12:

WARNING: response time during a change of status is approximately **15 seconds**.

⇒ Fault memory

- Fault code,
- Fault frequency,
- Fault type,

Ignore the parameters as they are not operational.

⇒ Simulation

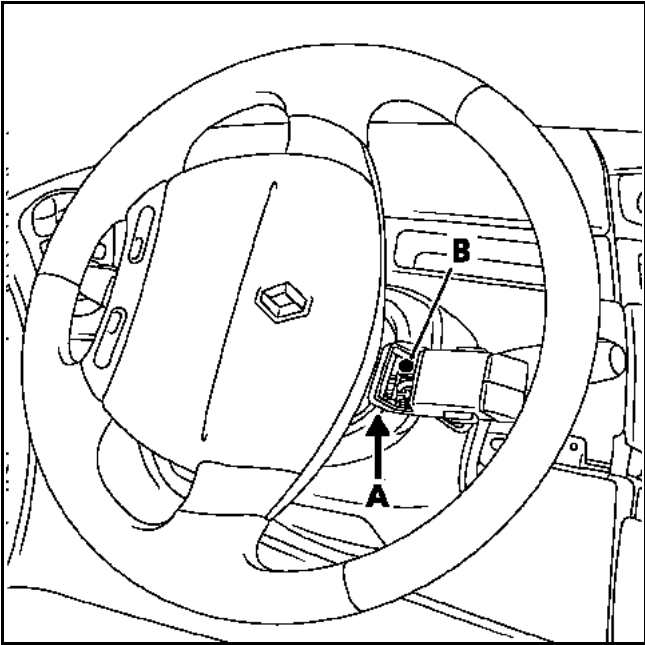
⇒ Vehicle position

REMOVAL

Disconnect the battery.

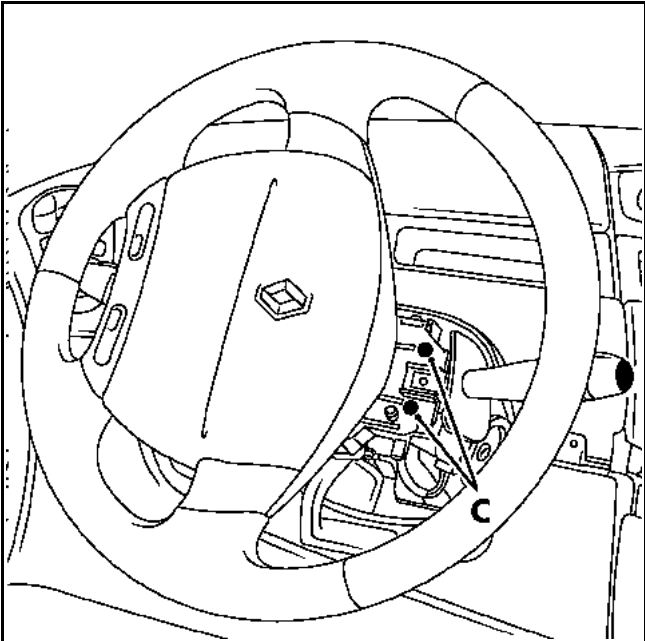
Remove:

- the radio satellite control by lifting the cover (A) to gain access to screw (B).
- the lower half cowling (Torx P),
- the upper half cowling.

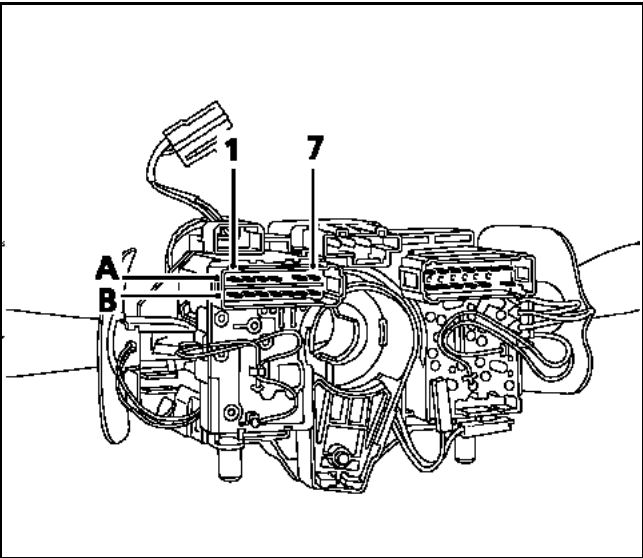


Disconnect the wiper switch connector.

Remove the two screws (C) and slide the switch to the right to disengage it.



CONNECTION



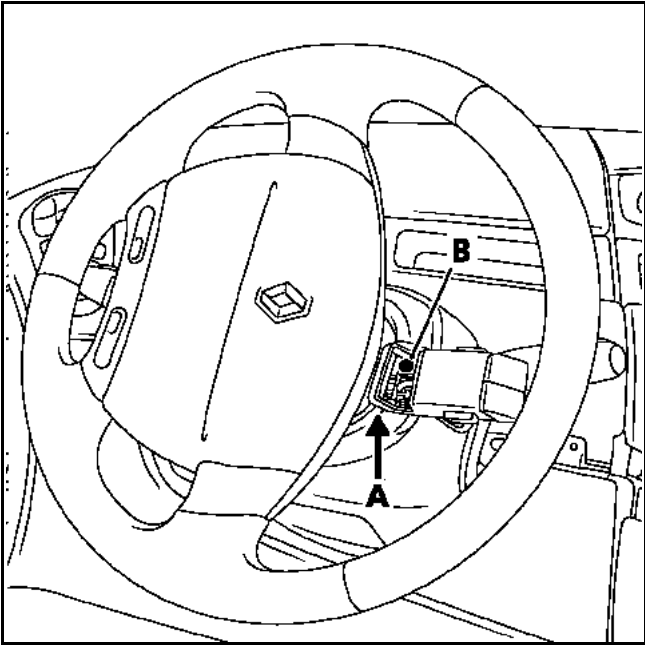
Track	Description
1 A	Timed windscreen wiper
2 A	Windscreen wiper high speed
3 A	Windscreen wiper low speed
4 A	+ windscreen washer pump feed
6 A	Not connected
7 A	Earth
1B	+ rear screen washer pump feed
2B	Rear screen wiper
4B	+ rear screen wiper feed
5B	Earth
7B	On-board computer sequence

REMOVAL

Disconnect the battery.

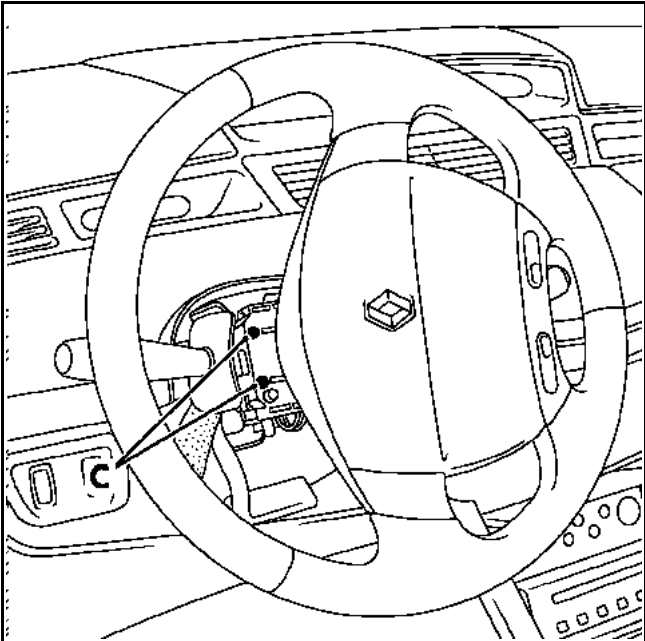
Remove:

- the radio satellite control by lifting the cover (A) to gain access to screw (B).
- the lower half cowling (four **Torx** screws),
- two upper half cowling screws.

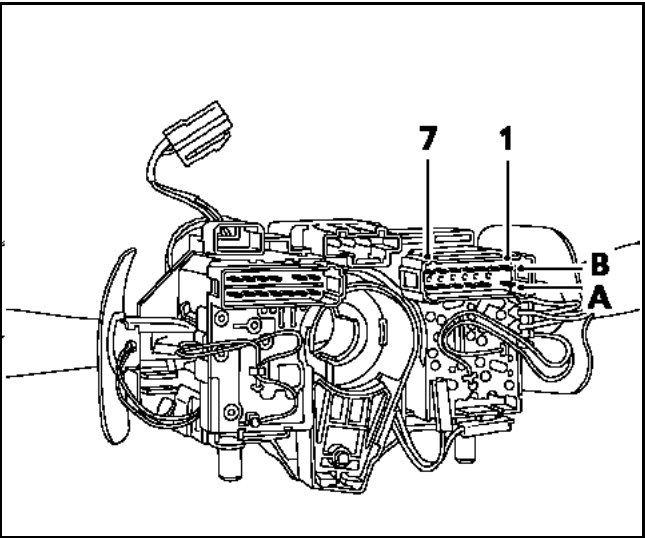


Disconnect the lights switch connector and the two horn terminals (under the switch).

Remove the two screws (C) and slide the switch to the left to disengage it.



CONNECTION



Track	Description
1 A	Front fog lights switch
2 A	Not connected
3 A	Rear fog light switch
4 A	Horn switch
5 A	Right hand direction indicators switch
6 A	Direction indicators earth
7 A	Left hand direction indicators switch
1B	Side lights switch
2B	+ front fog lights feed
B3	+ dipped headlights and rear fog light feed
4B	Dipped headlights switch
5B	Not connected
5B	+ main beam headlights and horn feed
7B	Main beam headlights switch

REMOVAL - REFITTING

ATTENTION: when removing the steering wheel, the air bag/pretensioners system must be deactivated (see Section **88**).

Disconnect the battery.

Point the the wheels straight ahead.

Remove:

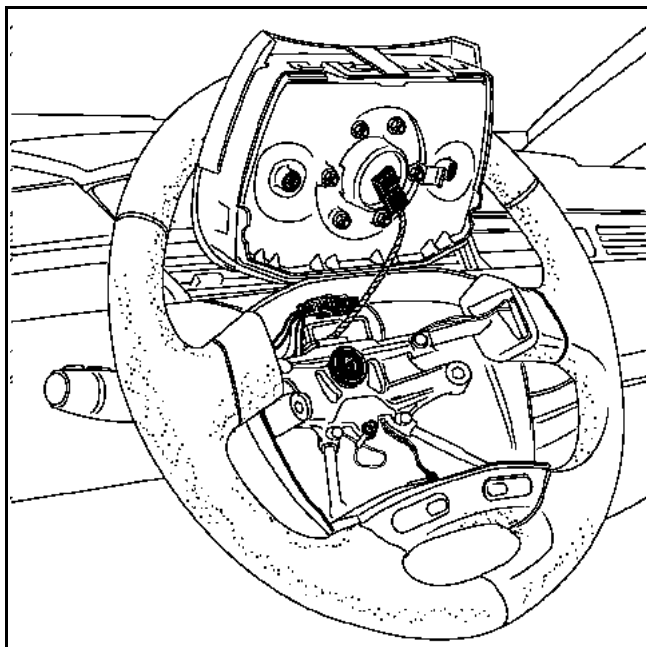
- the steering wheel,
- the two half cowlings;
- the radio satellite, following the method described in Section **84**).

Disconnect:

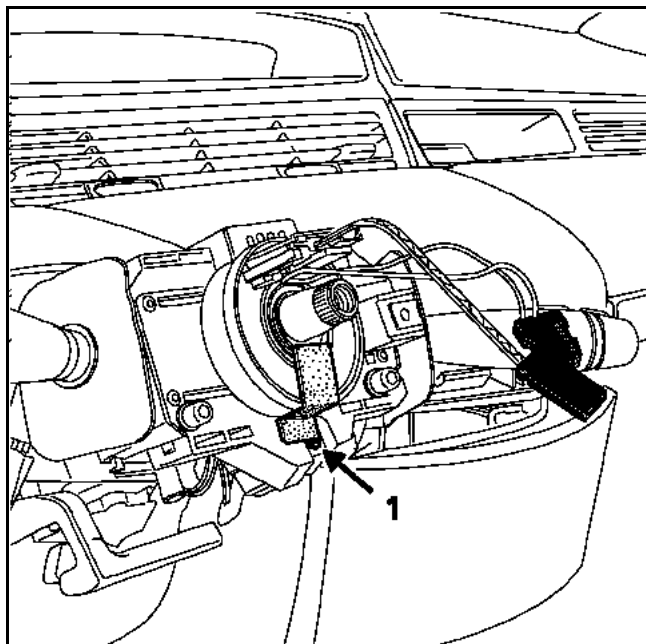
- the lights switch connector,
- the wipers switch connector,
- the rotary switch connector.

Before removing the assembly, the position of the rotary switch under the steering wheel **MUST** be marked.

- by ensuring that the wheels are straight during removal in order to position the track at the centre,
- by immobilising the rotary switch rotor with adhesive tape.



Slacken the bolt (1) then tap the screwdriver sharply to release the cone.



Remove the mounting with the stalks and separate the components (if replacing the mounting).

Special notes for refitting

Steering wheel tightening torque: **4.5 daNm**.

Air bag tightening torque: **0.6 daNm**.

If it is being replaced, the new part is supplied ready centred, held in place by an adhesive label which will tear as soon as the steering wheel is turned for the first time.

Fit the mounting with its components fully down on the steering column.

Continue refitting but do not lock bolt (1) until the two half cowlings are refitted, so that the stalks may be aligned with the dashboard and the instrument panel.

This operation is made easier by a cut-out section giving access to bolt (1) in the lower half shell.

N.B.: when refitting an air bag steering wheel, follow the instructions given in the "**Points to note when refitting the air bag steering wheel**" paragraph in Section **88**.

Among other things:

- ensure that the wheels are still straight,
- check that the rotary switch is still immobilised before refitting it.

If this is not the case, follow the centring method described in Section **88 "driver's air bag"**.

Once the rotary switch is in place, it is absolutely essential to remove the sticker from the rotating ring.

Replace the steering wheel bolt whenever it is removed (pre-bonded bolt).

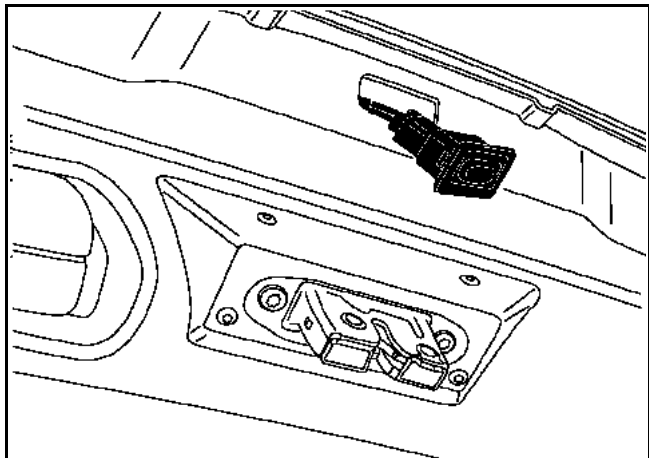
IMPORTANT:

When everything has been refitted:

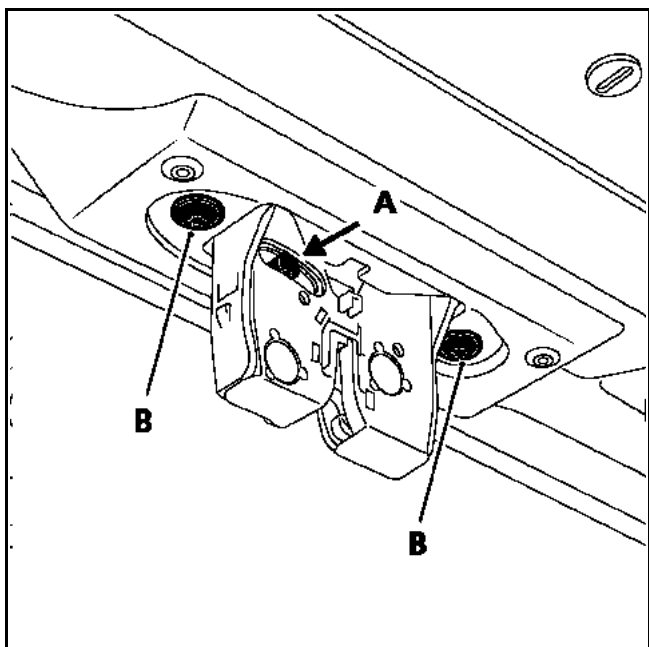
- check with the diagnostic tool that there is no fault in the system.
- If everything is correct, unlock the computer.

The tailgate switch (on or off) is the same on all vehicles.

The switch can be removed by using a screwdriver as a lever.



TAILGATE LOCK



Operation

Locking is carried out by an electromagnet inside the lock. The tailgate opening switch makes a connection to the electromagnet between the passenger compartment connection unit and the vehicle earth.

When the switch is pressed, the passenger compartment central unit detects a resistance circuit to earth via the electromagnet and supplies a **500 ms** timed feed to cause it to open (only if the vehicle is unlocked).

NOTE: if the electric lock fails, it is possible to unlock the tailgate by using a small screwdriver to move the mechanism (**A**) from inside the vehicle.

REMOVAL

Remove the tailgate trim (1/4-turn clips).

Unscrew the mountings (**B**).

Remove the electric lock from the inside and then disconnect it.

REFITTING

Proceed in the reverse order to removal.

Lock tightening torque: **0.8 daNm**.

Striker plate tightening torque: **2.1 daNm**.

REMOVAL - REFITTING

Disconnect the battery.

Remove:

- the lower LH console;
- the radio satellite ,
- the two half cowlings;
- the antenna ring,
- the central console aluminium trim,
- the front left hand side panel of the central console.

Disconnect:

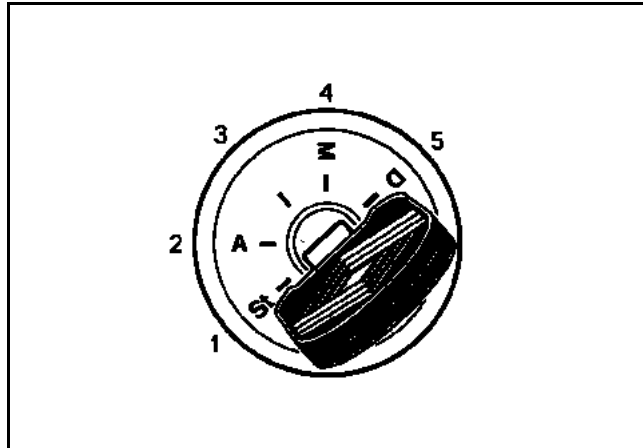
- the ignition switch connectors in the central console.

Remove:

- the ignition switch screw.

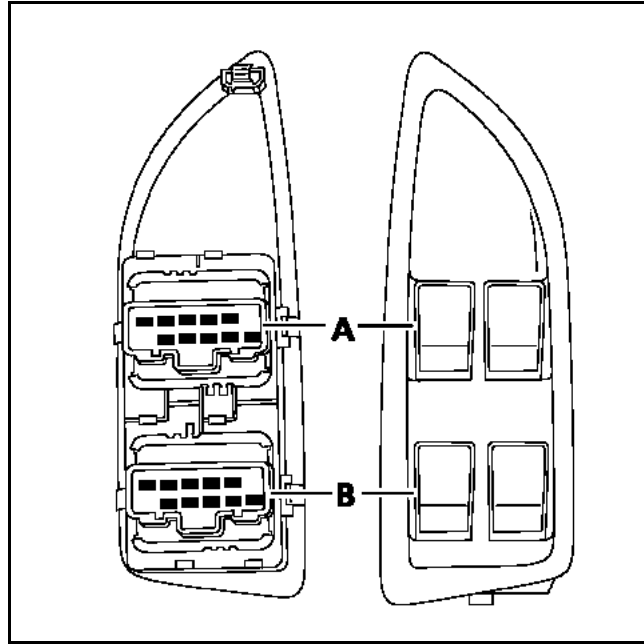
Put the key in position 3.

Press on the retaining lug and pull the ignition switch out of its housing.



When refitting, be careful to follow the harness routing.

Armrest plate



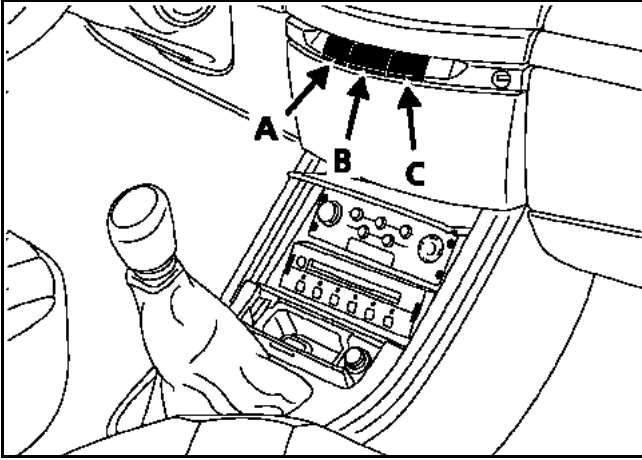
- A** Driver and passenger electric window switches (Black)
- B** LH and RH rear electric window switches (White)

Removing the switches:

- remove the armrest plate by pulling it out upwards (see method in Section 72),
- unclip the mountings of the switch in question.

NOTE: the child safety switch is located in the middle of the dashboard.

SWITCHES ON DASHBOARD



Rear screen de-icing switch (A).

Hazard warning lights switch (B).

Child safety switch (C).

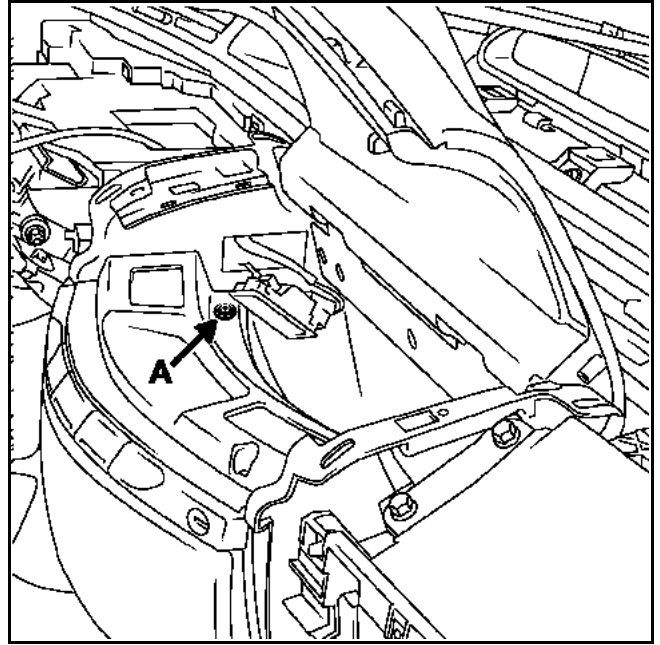
REMOVAL

Open the central glovebox.

Lift the upper glovebox cover and block it in that position.

Remove the three coin holder mounting screws (A) inside the upper glovebox.

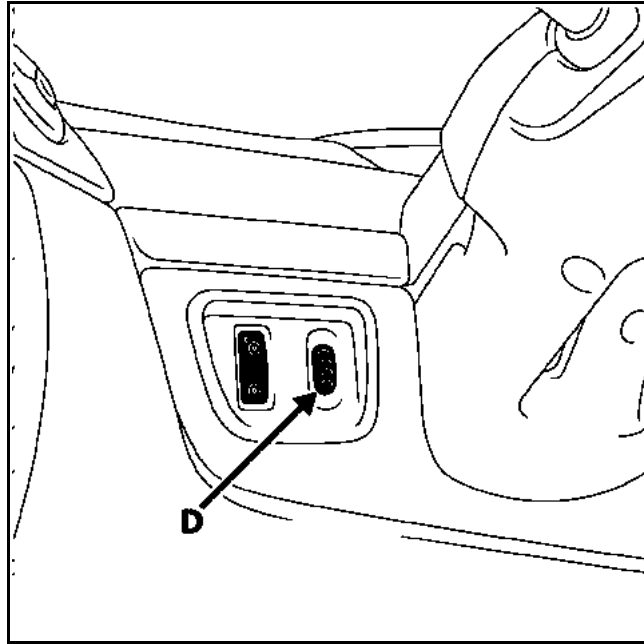
N.B.: the child safety switch is located in the middle of the dashboard.



Pull the switch holder plate backwards to disengage it.

Disconnect the connectors from the switches and remove the plate.

LIGHTING DIMMER



REMOVAL

Remove the plate holding the rheostat (D), using a screwdriver as a lever.

Disconnect the connectors.

Unclip the rheostat from the plate.

CRUISE CONTROL / SPEED LIMITER

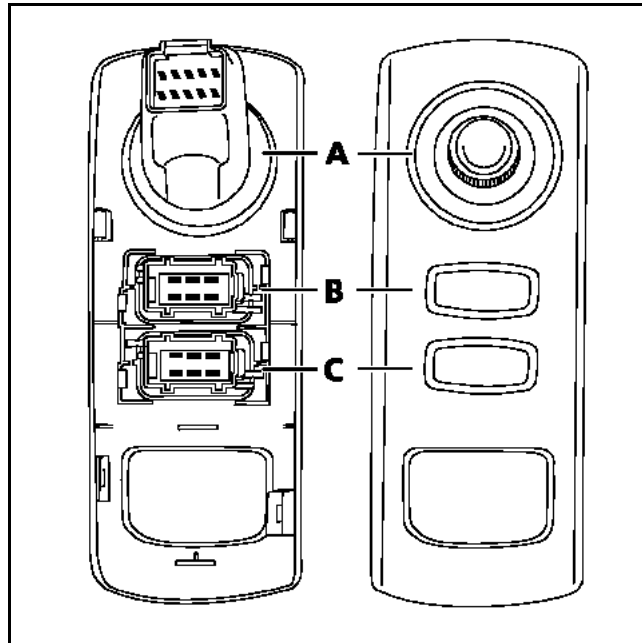
REMOVAL

Remove the plate holding the switch, using a screwdriver as a lever.

Disconnect the connectors.

Unclip the switch from the plate.

Central console plate



- A** Exterior rear view mirrors switch
- B** Central door locking switch
- C** Stability control

REMOVAL

Unclip the central switch plate, starting from the back.

Disconnect the connectors.

Remove the switches from the plate.

Door switch

The door switch is incorporated in the front lock mechanism (rear view mirror side).

The front lock informs the passenger compartment central unit if one of the opening elements is open.

Different time periods are assigned to the passenger compartment illumination, depending on:

- the position of the ignition switch,
- whether an opening element is open,
- whether the doors are locked.

All the time periods are controlled by the passenger compartment central unit.

It uses a timer to protect the battery charge if an interior light is left illuminated by mistake.

REMOVAL

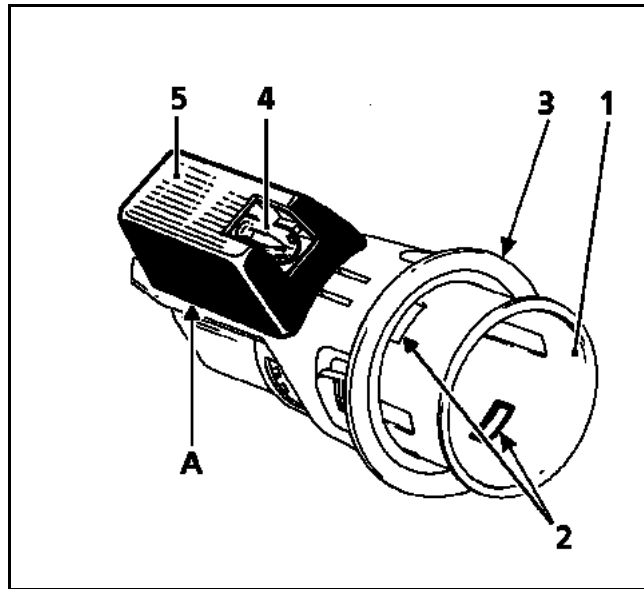
Ignition off.

Remove the central console (see Section 57).

Disconnect the connectors.

Remove the cigar lighter heating element.

To remove the cigar lighter body (1), pull on the body while unclipping the two lugs (2).



Take out the plastic illumination bezel (3).

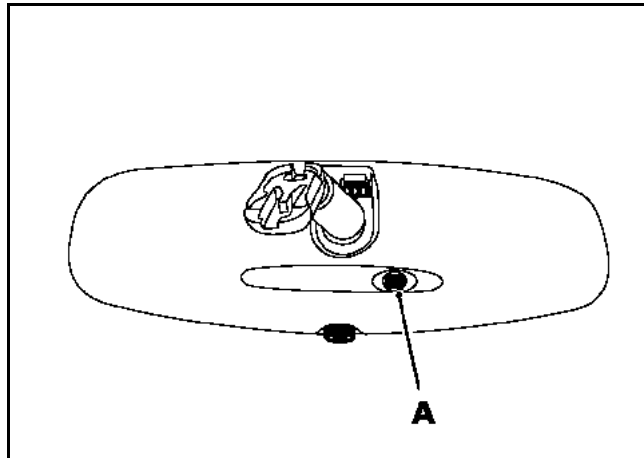
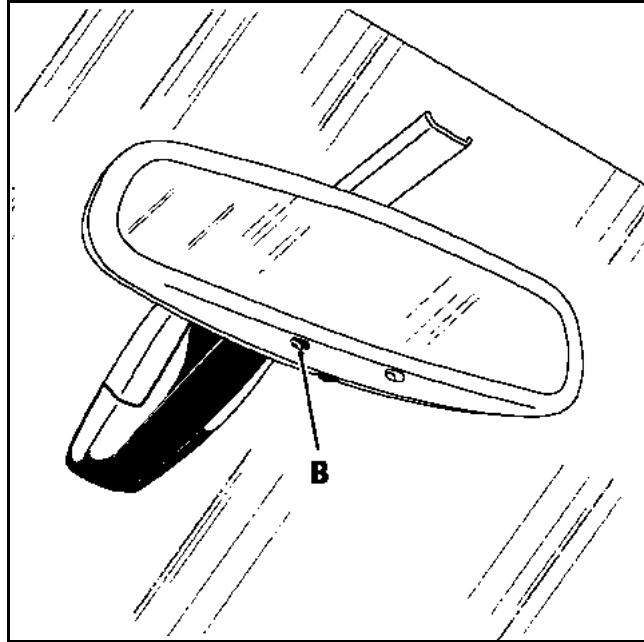
NOTE: to replace the light bulb (4), remove the complete cigar lighter and unclip the shield (5) at point (A), then remove the bulb.

INTERIOR REAR-VIEW MIRROR

The interior rear-view mirror can be fitted with the autodimming (electrochromic) system.

This system works by comparing levels of brightness gauged by two sensors:

- sensor (A) on the windscreen side,
- sensor (B) on the mirror side.



NOTE: the exterior rear-view mirrors can also be fitted with this system. In that case, the darkening is controlled by the interior mirror (the exterior mirrors do not have a light sensor).

SPECIAL TOOLING REQUIRED

Elé.	1294-01	Windscreen wiper arm removing tool
------	---------	------------------------------------

TIGHTENING TORQUES (in daNm)



Four bolts	1
Nuts	1.5
Wiper arms	3.2

REMOVAL OF THE WIPER MECHANISM WITH MOTOR

Make sure that the wiper motor is in the park position.
Open the bonnet.

Disconnect the battery.

Remove the mounting nuts from the two wiper arms.

Disengage the wiper arms from their spindles, using tool **Elé. 1294-01**.

Detach the scuttle grille at the motor end.

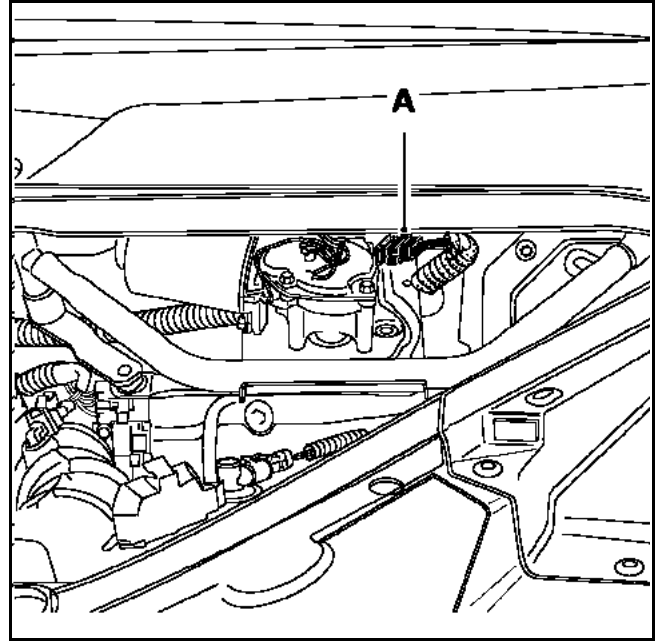
Disconnect the pipe from the screen washer jets.

Remove the scuttle grille.

Disconnect the windscreen wiper connector (A).

Remove the four motor and mechanism assembly mounting bolts.

Remove the wiper spindle nuts (**36** diameter socket).



TIGHTENING TORQUES (in daNm)



Wiper arm nut	3.2
Bolt	1
36 diameter nuts	1.5

REFITTING

Refit the windscreen wiper mechanism.

Check that the motor is in the park position before refitting the wiper arms.

To do this:

- Reconnect the battery.
- Reconnect connector (A).
- Switch the wiper control to the low speed position, then to the park position.
- Disconnect connector (A).

Clean the splines on the wiper arm pins using a metal brush.

Refit the wiper arms, placing the blade on the marks printed on the windscreen.

Fit new nuts when mounting the wiper arms and tighten to a torque of **3.2 daNm**.

Connect:

- connector (A),
- the battery.

REMOVING THE MOTOR

Remove:

- the motor and mechanism assembly according to the method previously described,
- the motor shaft nut and release the linkage after marking its position,
- the three motor mounting bolts.

Remove the motor.

Remove the connector from the support.

REFITTING THE MOTOR

Mount the connector on its support.

Mount the motor on the plate.

ATTENTION: route the wiring carefully.

Check that the motor is actually in the park position before mounting the cranked arm.

To do this:


- Connect connector (A).
- Reconnect the battery.
- Switch the wiper control to the low speed position, then to the park position.
- Disconnect connector (A).

Position the cranked drive arm so that the cranked arm of the driver's wiper arm spindle is as far as possible from the motor spindle (cranked drive arm hidden by the linkage).

Fit the motor spindle nut and tighten it using an open spanner. Then turn the whole mechanism with this same nut until the motor spindle bolt appears.

Tighten the motor spindle nut to the correct torque.

Reposition the mechanism in the park position or proceed with the method of adjustment mentioned above.

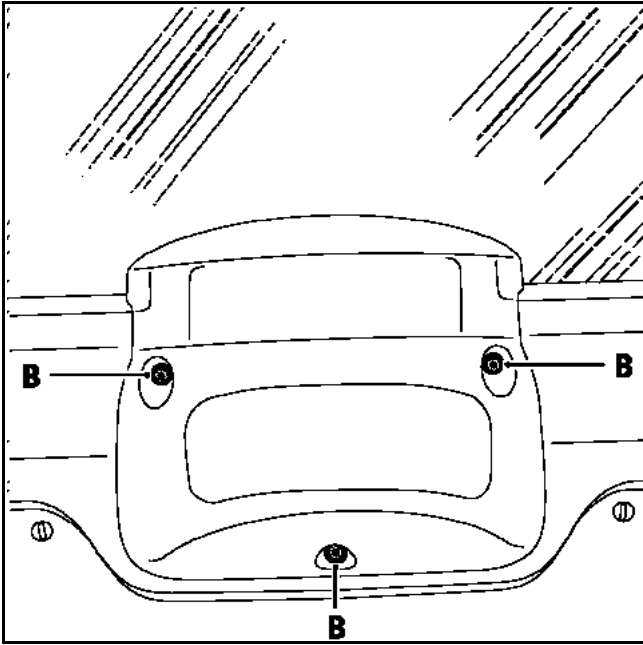
TIGHTENING TORQUES (in daNm) 	
Wiper arm nut	1.2
Bolt (A)	1

REMOVAL OF THE WIPER MECHANISM WITH MOTOR

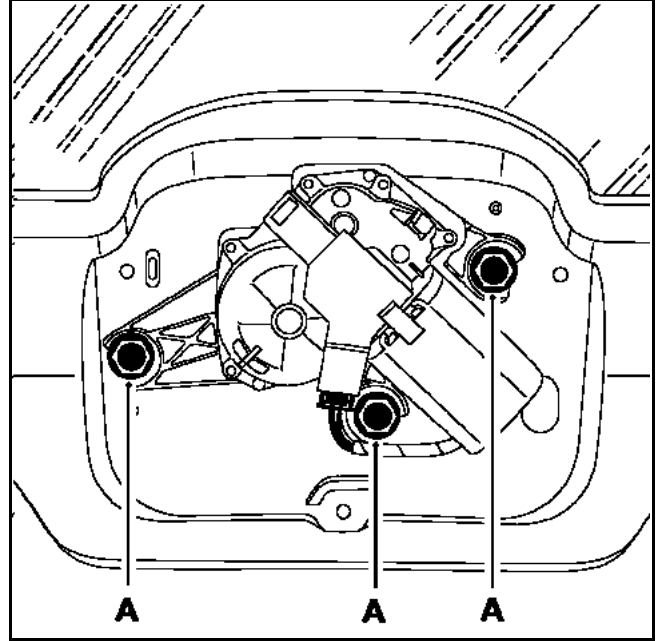
Disconnect the battery.

Remove:

- the wiper arm mounting nut,
- the wiper arm from its wiper spindle,
- the three wiper mechanism cover mounting screws (B).



- disconnect the rear screen wiper connector.
- remove the three motor and mechanism assembly mounting bolts (A).



REFITTING THE MOTOR AND MECHANISM ASSEMBLY

Check that the motor is in the park position before refitting the wiper arm.

To do this:

- reconnect the battery,
- switch the rear wiper control to the intermittent wiping position, then to the park position,
- disconnect the rear screen wiper motor connector.

Position the wiper arm horizontally to the right (**180° of movement**), then tighten the wiper arm to the correct torque.

Operating principle

This is a two-way electric pump which supplies liquid from the same reservoir to either the windscreen or rear screen washer according to the polarity of the feed to the pump motor.

The windscreen washer pipe is fed via the white nozzle.

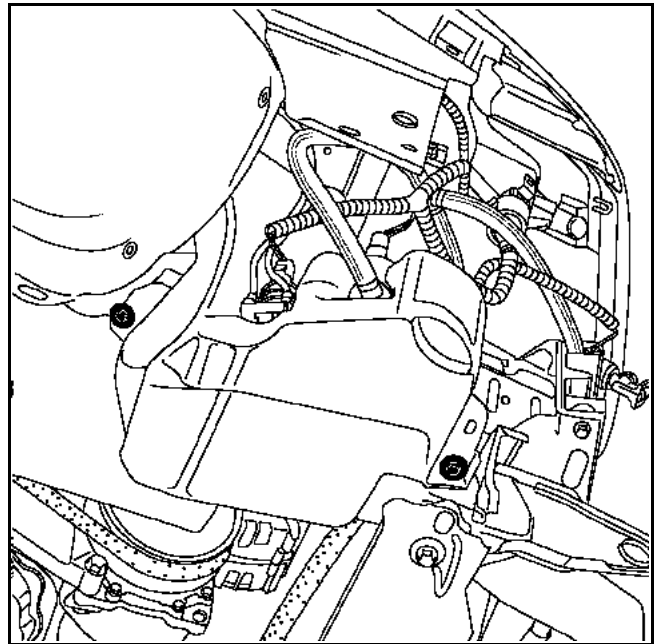
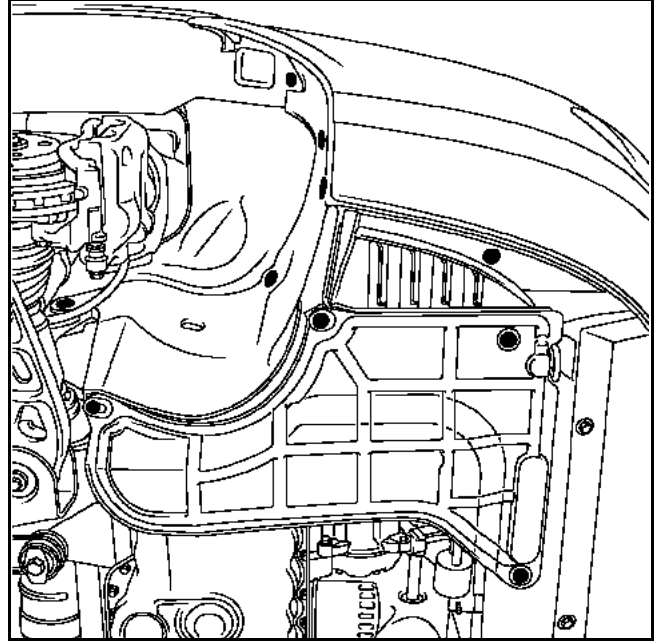
The rear screen washer pipe is fed via the black nozzle.

REMOVING THE ELECTRIC SCREEN WASHER PUMP

Remove: the engine undertray and the extension.

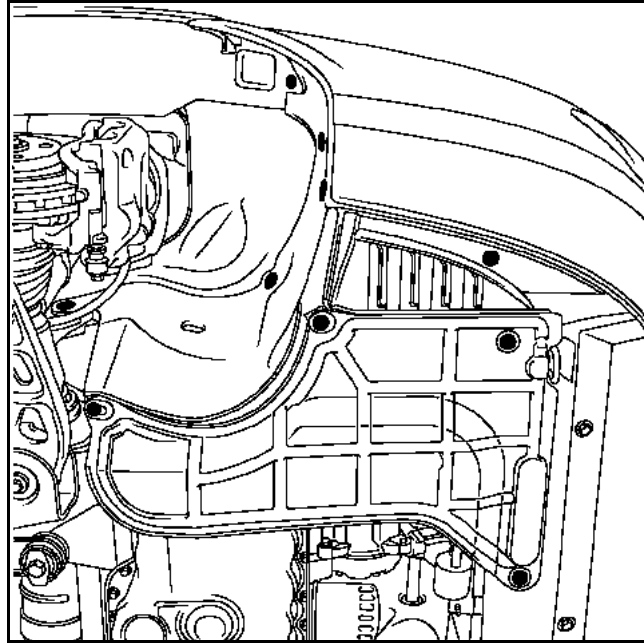
Disconnect the connector.

WARNING: when disconnecting the pump, be sure to mark the two pipes for the windscreen and rear screen washers carefully.



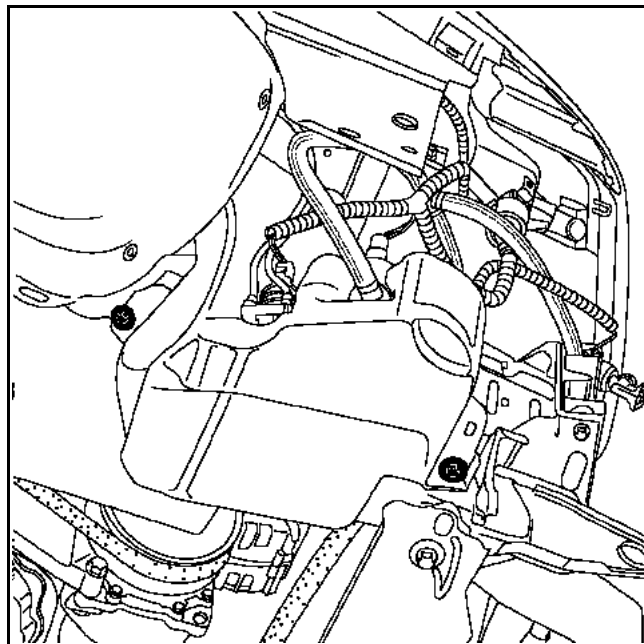
REMOVING THE ELECTRIC HEADLIGHT WASHER PUMP

Remove: the engine undertray and the extension.



Disconnect:

- the connector,
- the pipes,
- the pump.



REMOVING THE SCREEN WASHER RESERVOIR

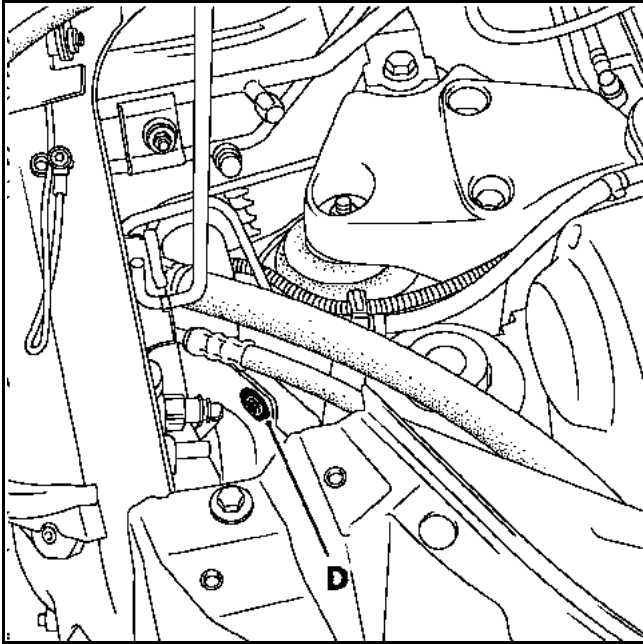
Remove the front bumper (see Section 55).

Disconnect:

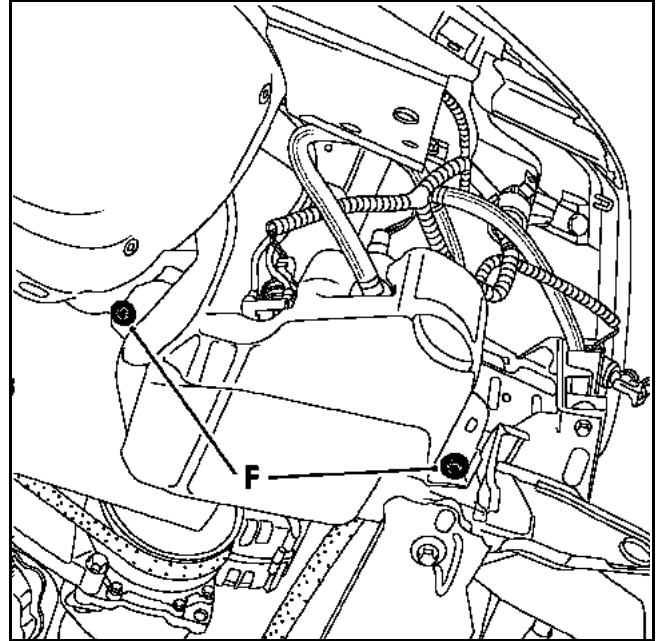
- the pump connectors,
- the pipes on both pumps.

Remove:

- the screen washer reservoir filler neck nut (**D**),



- the screen washer reservoir after removing the two mountings (**F**).



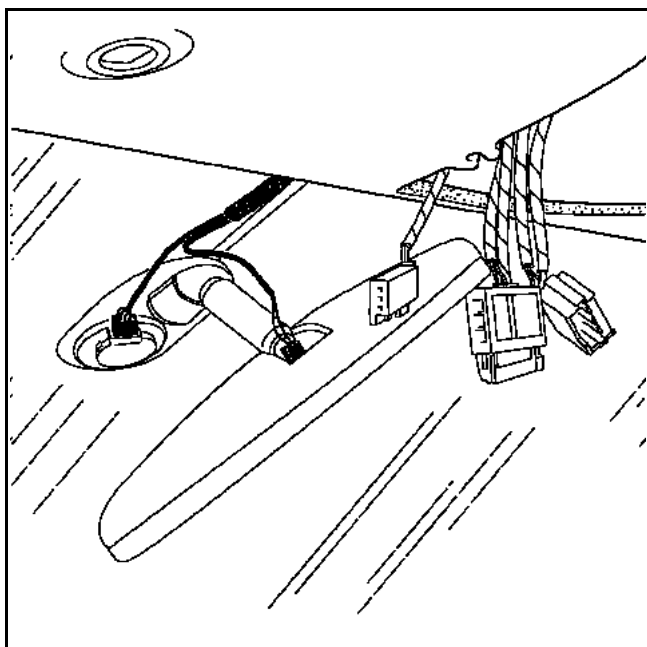
WARNING: when removing, disconnect the two pumps making sure to mark the two pipes for the windscreen and rear screen washers carefully.

OPERATION

Rain sensor function

The rain sensor is mounted on the windscreen behind the interior rear-view mirror.

Disconnect the connectors.



The sensor is clipped to the windscreen above the passage of the wiper blades. Its whole area is equipped with infrared transmitters and receivers.

When a drop of water falls on the windscreen, the refractive index of the windscreen changes and alters the reflection of the infrared beams emitted by the sensor.

An internal electronic system interprets these parameters and sends a signal which is proportional to the quantity of water deposited on the sensor's reflecting surface (pulse width signal).

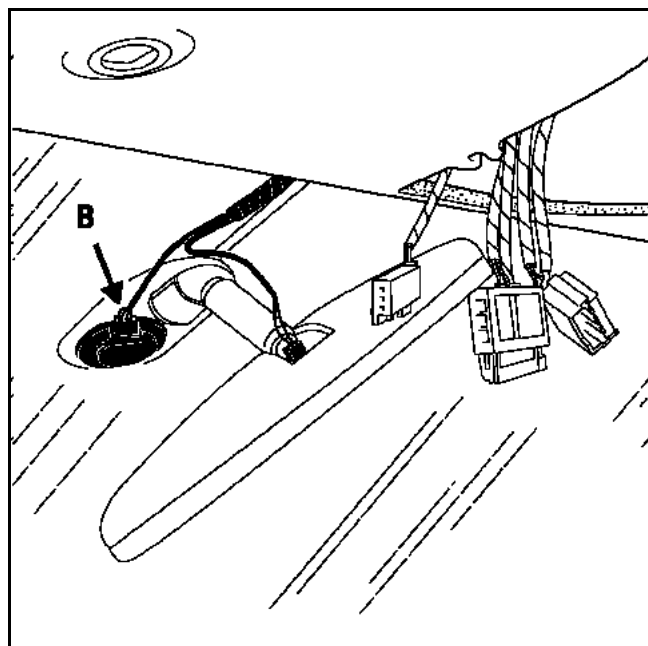
The rain sensor goes into operation when the windscreen wiper control stalk is in the **AUTO** position; vehicles not equipped with it are in intermittent mode.

The pulse width signal is received and interpreted by the passenger compartment central unit which activates the speed of intermittent wiping of the windscreen wiper according to the amount of rain.

REMOVAL

- unclip the plug behind the interior rear-view mirror and remove it,
- remove the rain sensor (**B**) and disconnect it.

N.B.: take care not to contaminate the gelatinous area of the rain sensor when removing/refitting it.



HIGH SPECIFICATION RADIO (Pioneer 4x40W + CD loader)

INSTALLATION AND REMOVAL OF VARIOUS COMPONENTS

Removing the amplifier-tuner.

It is located under the passenger seat.

IMPORTANT: before removing the seat and in order to prevent accidental triggering of the air bag or the pretensioners during handling, lock the computer with the diagnostic tools (see Section 88).

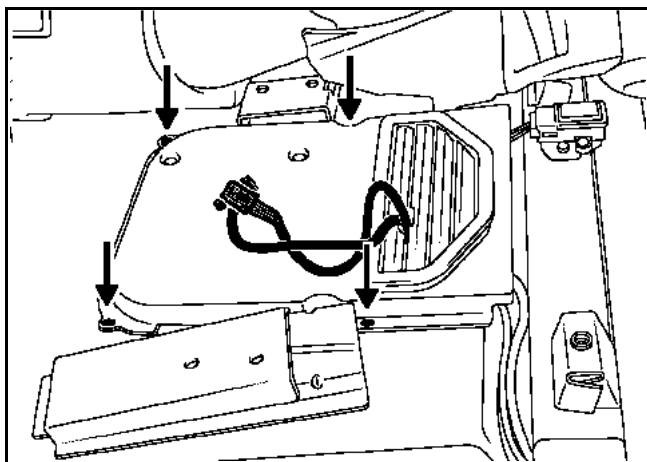
When this function is activated, all the ignition lines are disabled and the air bag warning light on the instrument panel comes on.

Remove:

- the passenger seat and disconnect the connections to the pretensioners and the side air bag,
- the rear seat cushions.

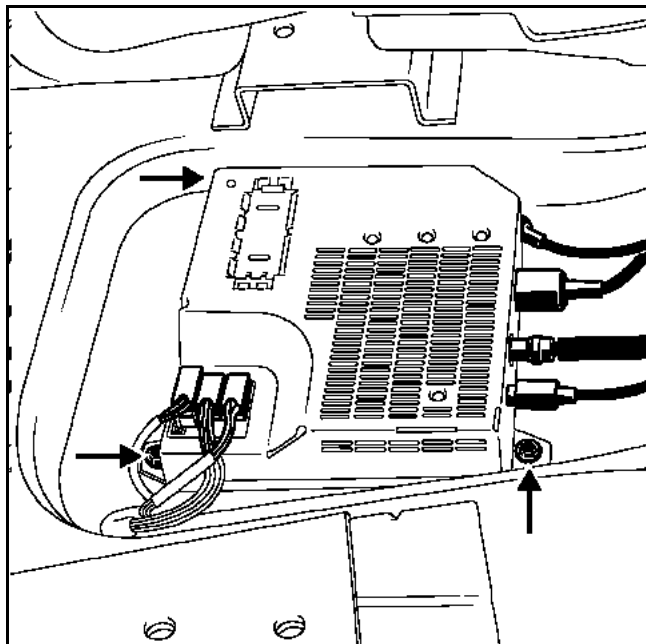
Remove the door seal.

Lift the carpet and the under-mat protection.



Remove the plastic protection (four screws).

Disconnect and remove the amplifier-tuner (three screws).



REFITTING

IMPORTANT:

- When refitting the seat:
- Reconnect the connectors.
- Fully engage the black and yellow connectors (strong clips).
- Check the air bag system triggering lines with the diagnostic tools. If everything is correct, unlock the computer with the command mode.
- Check that the "**Computer unlocked**" status is not illuminated.

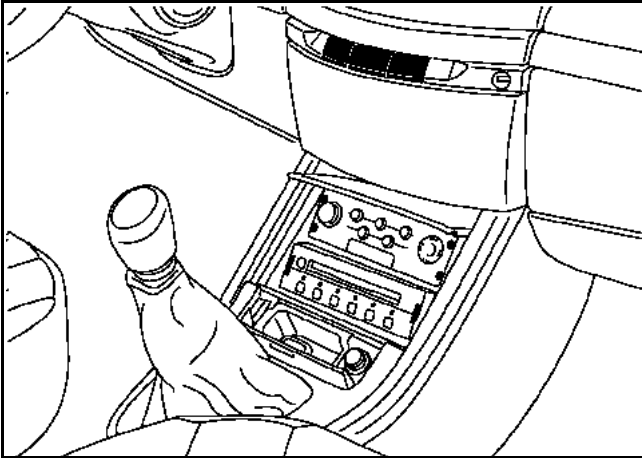
INSTRUMENT PANEL DISPLAY

The radio information display is built into the instrument panel. It communicates with the amplifier-tuner via a type **I2C** network bus.

For its removal, refer to Section 83 "**Removing the instrument panel**".

6-CD LOADER

The loader can be removed like an ordinary car radio using the special hooks. It is in front of the central console.



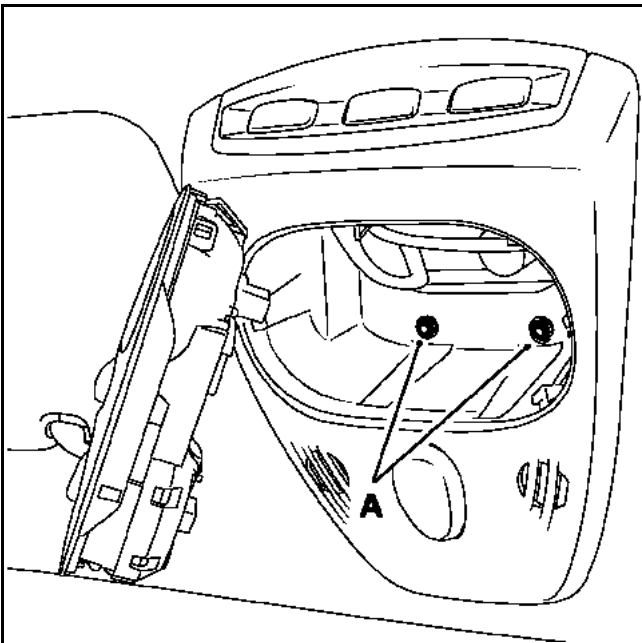
INFRARED SENSOR

REMOVAL

It is located in the roof console.

Remove and disconnect the interior light mounting.

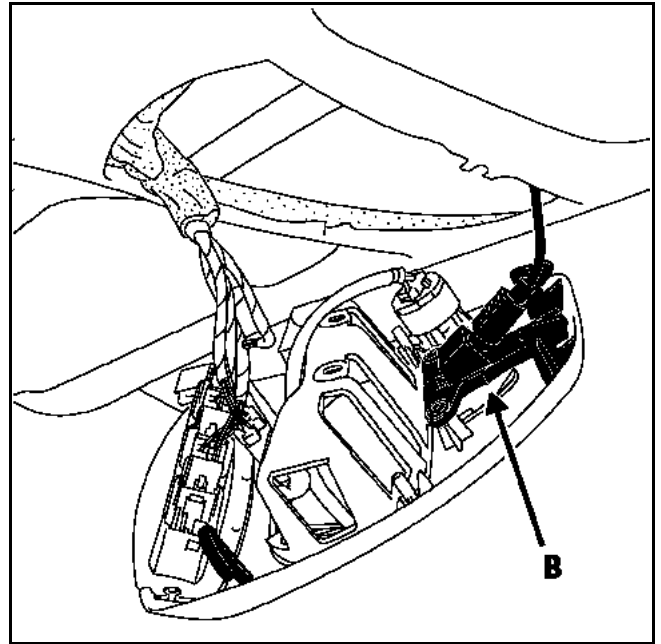
Remove the Torx screws (A).



Move the front part of the console downwards, then backwards.

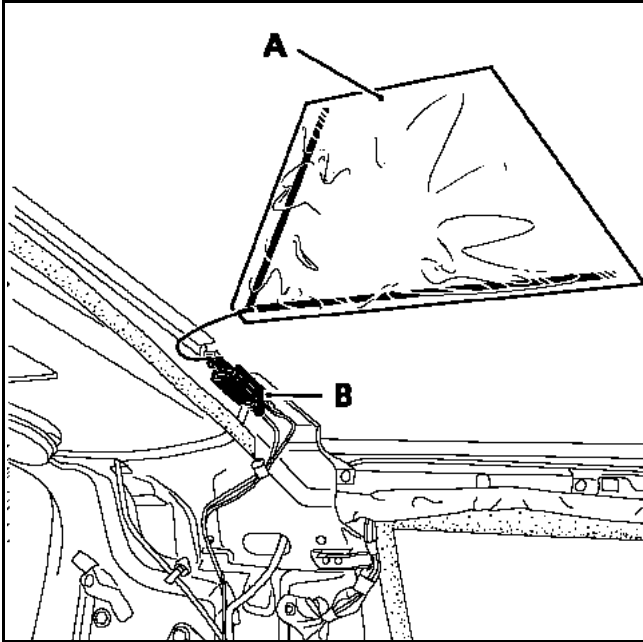
Disconnect the connectors.

Disconnect the infrared sensor (B).



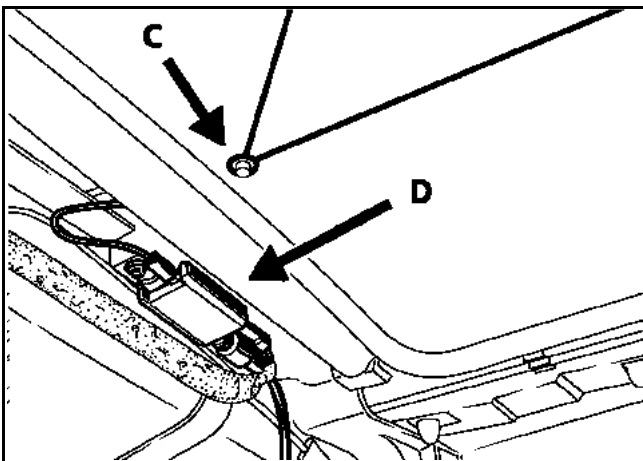
FM AERIAL (without sliding sunroof)

The FM aerial (**A**) is bonded to the roof above the passenger seats. It consists of a **printed circuit** wire sealed inside self-adhesive tape. It is connected to a FM amplifier (**B**) fed by the + after ignition.



FM AERIAL (with sliding sunroof)

The FM aerial (**C**) is **printed** on the rear roof screen. It cannot be removed and if it is faulty the glass screen must be replaced. It is connected to a FM amplifier (**D**) which is fed by the + after ignition.



REMOVAL

In both cases, removal of the aerial requires the head lining to be removed (see Section 5).

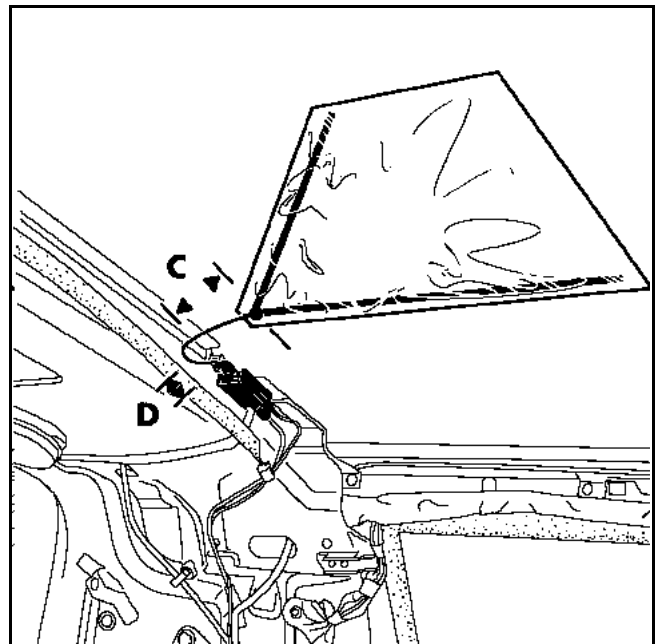
Model without sliding sunroof:

- remove the head lining,
- disconnect the aerial wire from the amplifier,
- mark the position of the aerial on the roof with a felt-tip marker,
- detach the aerial and remove it.

To refit, stick the aerial back in place following the marks made with the marker and working in the opposite direction from removal.

NOTE: as a guide, the aerial must be positioned so that distance (**C**) is **8 cm** and **1 cm** to the right (**D**) of the aerial amplifier mounting screw, towards the front of the vehicle.

Aerial position viewed from below:



Model without sliding sunroof:

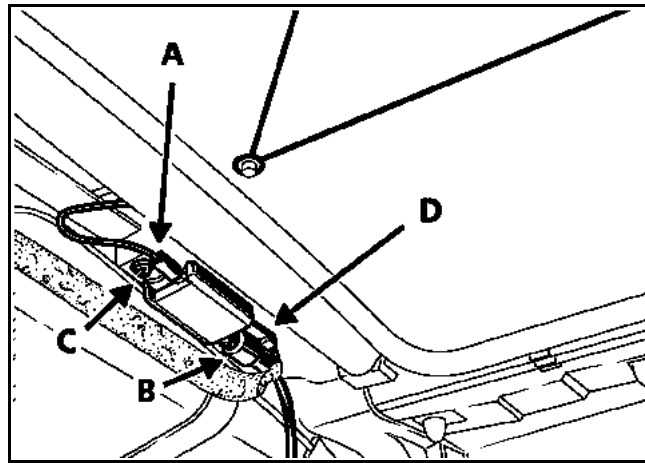
- remove the head lining,
- disconnect the aerial wire from the amplifier,
- remove the rear roof screen (see Section 4).

Refitting is the reverse of removal.

FM AERIAL AMPLIFIER

The aerial amplifier is mounted close to the aerial. It consists of:

- an input for the printed circuit aerial (A),
- an amplified output for the radio (B),
- a chassis earth (C),
- + after ignition feed input (D).



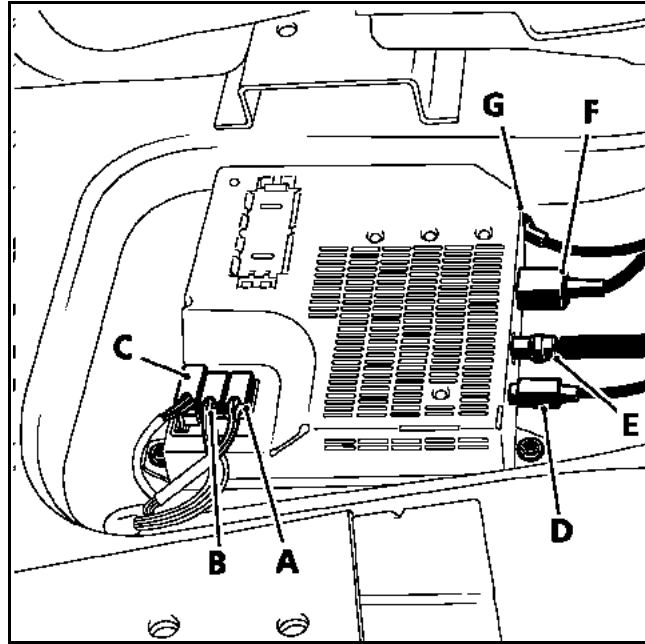
REMOVAL

- remove the head lining,
- disconnect the aerial wires,
- disconnect the feed wire,
- remove the amplifier mounting screw and remove the amplifier.

REFITTING

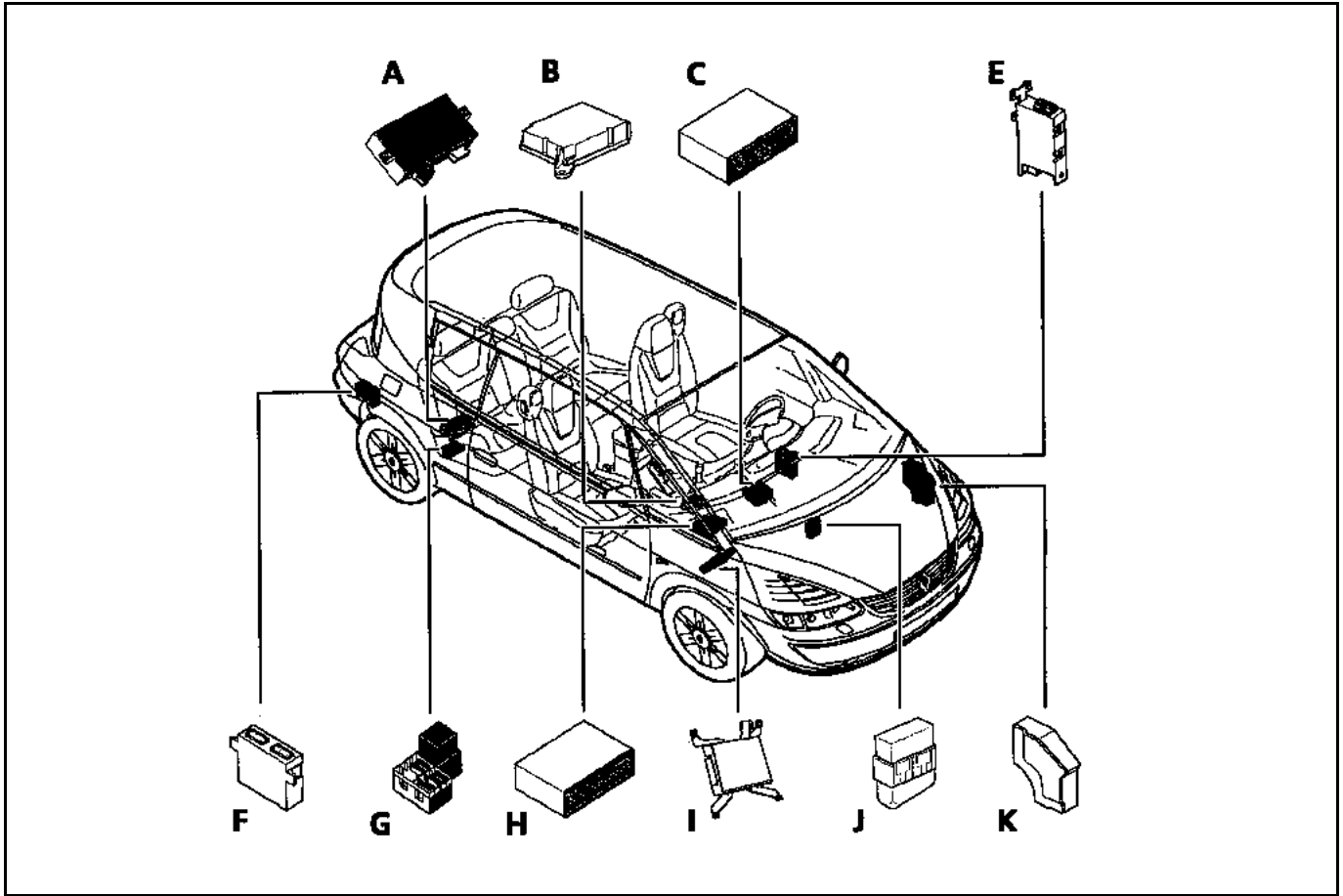
Carry out a test operation before refitting the head lining.

Amplifier-tuner connections



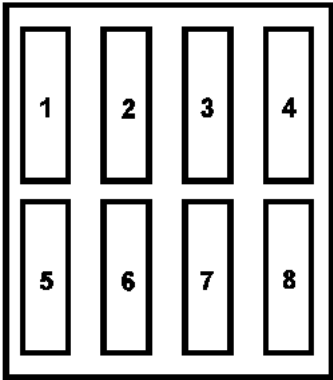
- A Amplifier-tuner feed
- B Loudspeakers
- C Steering wheel switch
- D Instrument panel connection
- E Cassette player connection
- F Compact disc player connection
- G Aerial

COMPUTER POSITIONS



- A Sliding sunroof control unit
- B Air bag computer (ACU3)
- C CARMINAT control unit
- E Air conditioning computer
- F Parking assistance computer
- G Rear Seat Connection Unit
- H CARMINAT computer
- I Modular connection unit
- J Electrically heated windscreen relay (with ABS 5.3)
- K Engine connection unit

This fuse box is located under the right hand rear passenger seat:



1	F14	+ after ignition heated seat	(20A yellow)
2	F4	+ before ignition sunroof control unit (if fitted)	(30A green)
3	F23	Electric passenger seat	(25A white)
4	F6	Electric driver's seat	(25A white)
5	F7	Park Assistance tow bar shunt	(3A violet)
6		Not used	
7	F19	+ after ignition LH rear electric window switch	(20A yellow)
8	F44	Heated rear screen	(40A orange)

FUSE BOX (BICMO)

This fuse box is located under the right hand rear passenger seat:

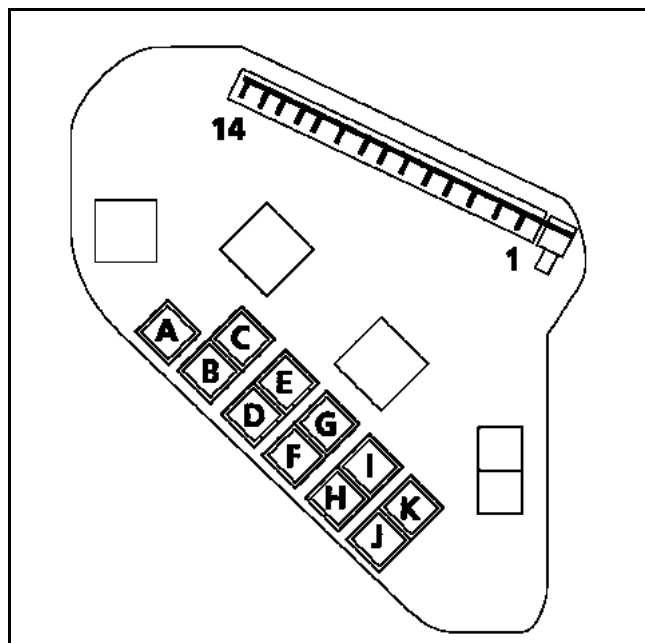
13	26	39
12	25	38
11	24	37
10	23	36
9	22	35
8	21	34
7	20	33
6	19	32
5	18	31
4	17	30
3	16	29
2	15	28
1	14	27

Fuse assignments (depending on equipment level):

1		Not used	
2	F27	+ before ignition exterior mirror control, navigation, automatic air conditioning	(20A yellow)
3		Not used	
4		Not used	
5	F28	+ before ignition interior & map reading lights	(10A red)
6	F26	+ before ignition radio, CD player, alarm	(20A yellow)
7		Not used	
8	F5	+ before ignition diagnostic socket, front electric windows, radio, telephone	(40A orange)
9	F12	+ before ignition windscreen wiper motor	(25A white)
10	F9	+ before ignition rear screen wiper motor	(25A white)
11	F29	+ before ignition passenger compartment connexion unit & instrument panel	(10A red)
12	F21	+ before ignition front fog lights	(15A blue)
13		Not used	
14	F2	Right hand side light	(10A red)
15	F1	Left hand side light	(10A red)
16	F25	Horn	(20A yellow)
17		Not used	

Fuse assignments (depending on equipment level). (cont.):

18	F3	Heated rear-view mirrors	(7.5A brown)
19	F34	+ before ignition accessories socket	(7.5A brown)
20	F33	Radio, air conditioning, navigation	(20A yellow)
21	F40	+ after ignition stop lights, alarm	(20A yellow)
22	F15	+ after ignition passenger compartment connexion unit, wiper switch	(25A white)
23	F39	+ after ignition air bag computer	(20A white)
24		Not used	
25	F37	ABS and stability control computer	(7.5A brown)
26		Not used	
27	FA	Spare fuse	(7.5A brown)
28	FB	Spare fuse	(10A brown)
29	FC	Spare fuse	(15A brown)
30		Not used	
31	F22	Rear fog lights	(10A red)
32		Not used	
33	F42	+ before ignition lights switch	(30A green)
34		Not used	
35		Not used	
36	F11	+ after ignition cigar lighter	(15A blue)
37	F43	+ after ignition rear electric windows switch	(40A orange)
38	F41	+ after ignition electric windows switch, rev counter, navigation, radio	(15A blue)
39	F35	+ after ignition xenon headlights computer	(7.5A brown)



FULL UNIT

This unit is located in the engine compartment on the left hand wheel arch.

ATTENTION: after work has been carried out on the connection unit, check that the plastic cover is correctly locked.

Relays: L7X engine version

- A :** Main beam headlight relay
Dipped beam headlight relay
- B :** 15A left hand dipped headlight fuse
15A right hand dipped headlight fuse
20A LH and RH main beam headlights fuse
- C :** 25A ABS computer fuse
25A ABS solenoid valves fuse
- D :** 7.5A reversing lights fuse
15A + after ignition engine fuse
- E :** Right hand heated windscreen relay
- F :** Injection relay
Injection locking relay
- G :** Left hand heated windscreen relay

SPECIAL FEATURE:

The front window motor mechanisms have integrated electronics which thus enable them to control certain automatic systems:

- anti-trapping,
- thermal protection of the motor,
- one-touch mode,
- ajar mode.

Half-open mode is required to ensure proper sealing when the door does not have a window frame.

A switch located on the door lock is activated by movement of the door handle and informs the electric window motor that the door is about to be opened. The window descends a few centimetres to separate it from the roof seal.

The window will remain in this position as long as the door is open or when the handle is released (door closed).

A second switch located on the lock is activated if the lock is picked. It is wired in parallel with the first switch.

The purpose of this second switch is:

- maintain the open signal to the electric window motor when the door is open and the door handle is released,
- close the window again automatically when the door is closed.

INITIALISATION OF THE FRONT ELECTRIC WINDOWS

This procedure is required to program the top and bottom ends of travel of the window in the electronic system of the window motor. If initialisation is not carried out, when work is done on the mechanism or battery feed is lost, the motor goes into defect mode.

- 1) Anti-trapping deactivated
- 2) Loss of the one-touch function
- 3) Partial loss of the ajar function

N.B.: if initialisation has not been carried out, the window descends a few centimetres when the door is first opened. When closed and opened after that, the window will remain in the same position.

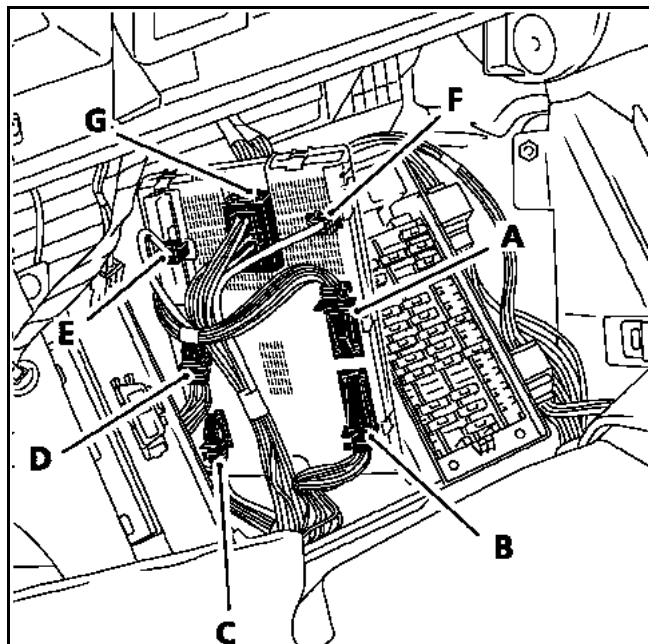
Initial condition:

- front doors closed,
- + after ignition switched on.

- 1) Activate the front electric windows close switch until the window is completely closed, then release the switch.
- 2) Activate the front electric windows close switch a second time for at least **0.5 seconds** to memorise the position.

Initialisation complete.

PASSENGER COMPARTMENT CENTRAL UNIT CONNECTIONS



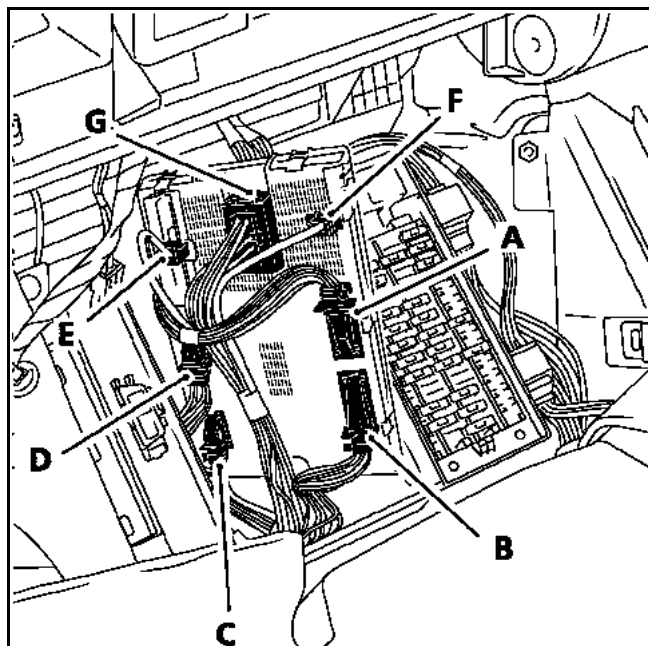
Blue 26-track Connector (A) (ECH)

- 1 Rheostat-controlled lights switch
- 2 Hazard warning lights signal
- 3 Left hand direction indicator signal
- 4 Computer information sequence
- 5 Dipped headlights switch signal
- 6 Windscreen wiper low speed signal
- 7 Hazard warning lights output
- 8 Windscreen washer switch signal
- 9 Transponder signal
- 10 Transponder aerial feed
- 11 Multiplex link (CAN H)
- 12 Not connected
- 13 Windscreen wiper intermittent wiping signal
- 14 Interior lights timed earth 2
- 15 Rear screen wiper signal
- 16 Right hand direction indicator (earth)
- 17 Front fog lights signal
- 18 Main beam headlights switch signal
- 19 Windscreen wiper high speed signal

- 20 Air conditioning compressor switch signal
- 21 Rear screen washer switch signal
- 22 Transponder aerial earth
- 23 Transponder clock (125 kHz)
- 24 Multiplex link (CAN L)
- 25 Not connected
- 26 + 12 Volts for the instrument panel

Blue 26-track Connector (B) (SS1)

- 1 Tailgate luggage compartment light
- 2 Rear fog light signal
- 3 Air conditioning computer connection
- 4 Rheostat signal earth
- 5 On/Off signal
- 6 Rear screen wiper motor (park position signal)
- 7 + accessories
- 8 Right hand front door switch
- 9 Handbrake warning light
- 10 Side light warning light
- 11 Not connected
- 12 Progressive timer earth
- 13 + 12 volts after ignition
- 14 Front electric windows switch feed
- 15 Locked vehicle output
- 16 Air conditioning computer connection
- 17 Rheostat signal
- 18 Air conditioning recirculating signal
- 19 + 12 volts after ignition
- 20 Left hand front door switch
- 21 Tailgate door switch
- 22 Passenger lock switch signal
- 23 Door locking signal
- 24 Door unlocking signal
- 25 Seat belts fastened signal
- 26 Air conditioning inhibition

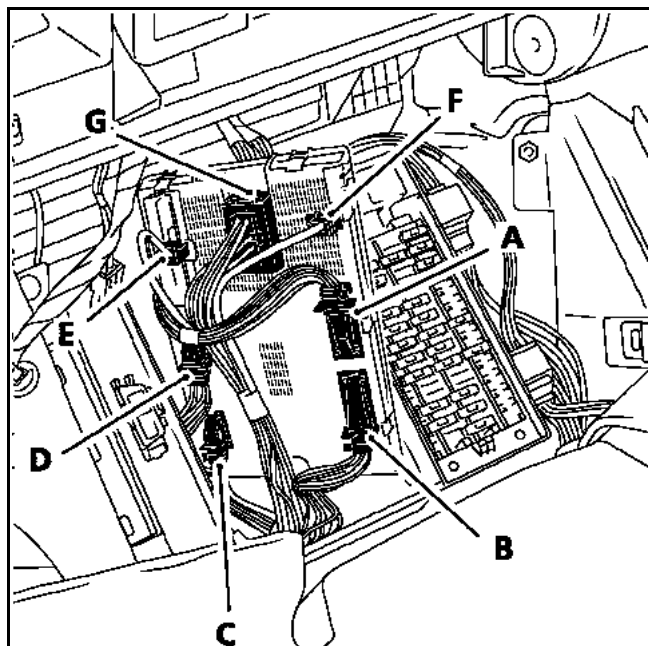


Blue 12-track Connector (C) (SS2)

- 1 Sliding sunroof control unit output
- 2 Rain sensor signal
- 3 + rain sensor feed
- 4 Not connected
- 5 Not connected
- 6 Heated seats warning light
- 7 Engine coolant temperature signal output
- 8 Not connected
- 9 Rain sensor earth
- 10 Not connected
- 11 Electric heated windscreen signal
- 12 Not connected

Yellow 26-track Connector (D) (MOT)

- 1 Oil level sensor signal
- 2 Fuel tank sender signal
- 3 Vehicle speed signal (with ABS wiring)
- 4 Not connected
- 5 Not connected
- 6 Multiplex link (CAN H)
- 7 Not connected
- 8 ABS fault signal (with ABS wiring)
- 9 Pressostat signal
- 10 Stop light switch signal
- 11 Fan 1 fuse test signal (with L7X engine)
- 12 Brake fluid level sensor signal
- 13 Driver's door open signal via lock
- 14 Oil level/temperature sensor
- 15 Fuel tank sender unit earth
- 16 Headlight washer pump switch
- 17 Not connected
- 18 Coded alarm output
- 19 Multiplex link (CAN L)
- 20 Windscreen wiper park position
- 21 Discharge bulb failure signal
- 22 Battery charging fault signal
- 23 Diagnostic socket line K
- 24 Fan 2 fuse test signal
- 25 Engine oil pressure fault signal
- 26 Brake pad wear warning light signal



Grey 1-track Connector (E) (SPT1)

- 1 + Battery

Brown 1-track Connector (F) (SPT2)

- 1 Earth

Black 16-track Connector (G) (SP)

- 1 Rear screen wiper before ignition feed
- 2 Right hand direction indicator output
- 3 Left hand direction indicator output
- 4 Rear screen wiper control
- 5 Rear electric lock switch
- 6 Central door locking switch
- 7 Central door unlocking switch
- 8 Windscreen wipers high speed switch
- 9 + windscreen wiper feed
- 10 Front fog lights switch
- 11 + front fog light feed
- 12 Interior lights timed earth 1
- 13 Air conditioning compressor control
- 14 Not connected
- 15 Not connected
- 16 Windscreen wipers low speed switch

Automatic Door Locking when driving (CAR)

CAR SYSTEM

The **CAR** system causes the doors to lock automatically when the vehicle is travelling. The passenger compartment central unit has full control of this function by interpreting such signals as:

- vehicle speed,
- door switches,
- electric door locks switch.

The passenger compartment central unit controls the electromagnetic locks and illuminates a warning light to indicate to the passenger that the vehicle is locked.

The customer can activate the CAR system manually by pressing the electric door locks switch with the ignition switched on.

CAR Activation: press the electric door locks button for **4 seconds**.

CAR Deactivation: press the unlocking end of the electric door locks button for **4 seconds**.

An audible beep after **4 seconds** indicates that the activation or deactivation of the **CAR** system has been registered.

Locking takes place when the vehicle speed exceeds **8 kph**.

If the vehicle is unlocked with the electric door locks switch, it will automatically be locked again the next time the speed exceeds **8 kph**.

If the vehicle is locked, opening a door will cause central unlocking of the vehicle.

If the air bag system fails or if an impact is detected, the **CAR** system unlocks the vehicle automatically.

SLIDING SUNROOF CONTROL UNIT

Introduction

The sliding sunroof control unit module is a computer which is designed to manage the opening of the sunroof, electric curtain (blind), two rear electric windows and to some extent the two "Intelligent" front electric window motors, from an external control.

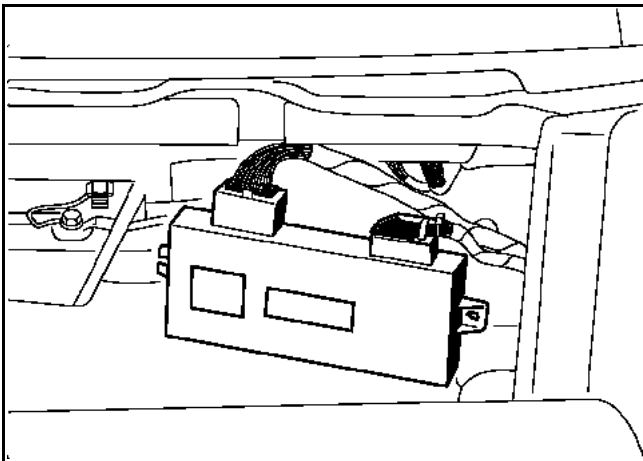
Description of the system

Its main function is to manage the power side of the sliding sunroof and the rear electric windows.

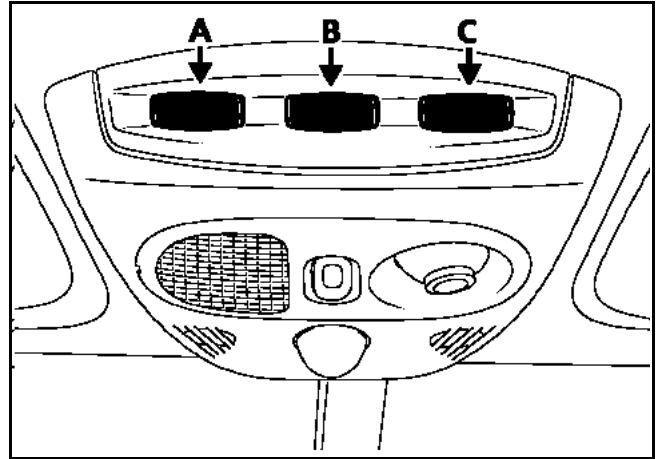
The front electric windows themselves interpret the control signals generated by the sliding sunroof control unit by means of the electronic system in the motor (anti-trapping / one-touch / ajar).

The system consists of:

- a computer located underneath the right hand rear passenger seat,



- three switches on the roof console:
 - 1 Sliding sunroof Open / Close (**A**)
 - 2 Open air (**B**)
 - 3 Blind Open / Close (**C**)



This unit provides the following options:

- simultaneous opening or closing of all electric windows and the sunroof by means of switch (**A**) located on the roof console (**OPEN AIR** function),
- inhibition of the rear electric windows by means of the override switch located on the central dashboard plate,
- one-touch mode for lowering the rear windows,
- one-touch opening of the sunroof blind.

One-touch opening of the windows is only complete when they are being lowered.

Closing

Only a long press will close the front and rear windows and the sunroof (not one-touch, with the **OPEN AIR** switch).

Closing of the blind is not controlled by the **OPEN AIR** switch.

SPECIAL FEATURE:

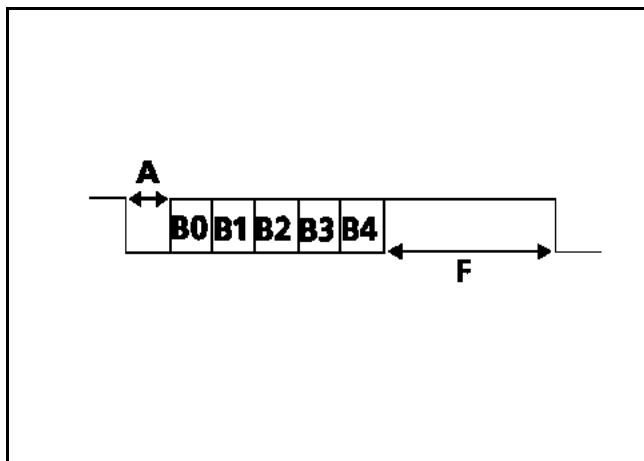
The passenger compartment central unit communicates with the sliding sunroof control unit via a series connection to authorise it to operate and to give it instructions.

Examples:

- The sliding sunroof control unit cannot operate if the battery voltage is too low (threshold set by the passenger compartment central unit).
- The electric windows continue to be fed for **30 seconds** after the ignition is switched off (passenger compartment central unit power feed maintained on **track A11** of the sliding sunroof control unit).
- Closing of all the windows by a long press on the plip (not currently available).

Communication protocol:

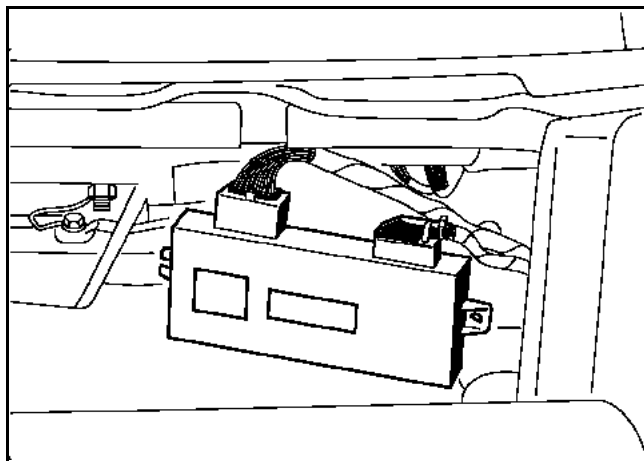
- one start bit (**A**) at **0**,
- four data bits (**B0** to **B3**),
- one even parity bit (**B4**),
- a minimum signal interval of five bits to one,
- bit time (**A**) is set at **4.1 ms** which gives a signal slot of **2.6 ms** and a signal interval (**F**) of **20.5 ms**.
- B0: Adjustment mode (if B0 = 0),
- B1: Reserved,
- B3-B2 = 00: open sliding sunroof and blind (if B0 = 0),
- B3-B2 = 01: open RH and LH front electric windows (if B0 = 0),
- B3-B2 = 10: open RH and LH rear electric windows (if B0 = 0),
- B3-B2 = 11: close everything (if B0 = 0).

**REMOVING/REFITTING THE SLIDING SUNROOF CONTROL UNIT**

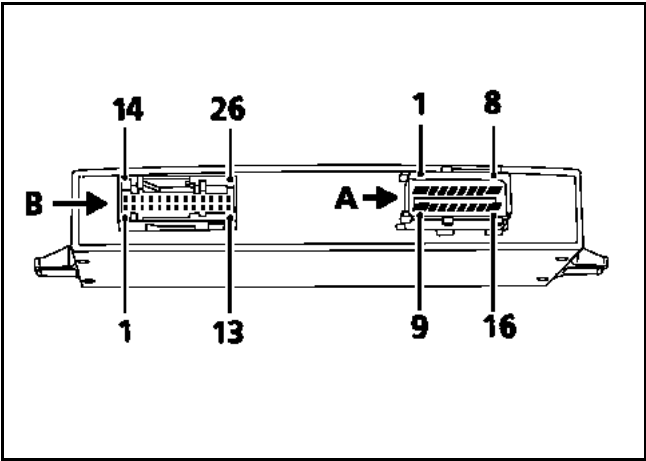
Fold the rear seats flat.

Unclip the floor covering in the rear luggage compartment at the rear seat back hinges.

Remove and disconnect the sliding sunroof control unit.



ELECTRIC SUNROOF CONTROL UNIT CONNECTIONS



Track	Description
A1	12 Volts before ignition 30A
A2	Sliding sunroof open switch
A3	Sliding sunroof close switch
4A	Blind closing feed
5A	Blind opening feed
6A	RH rear electric window up feed
7A	RH rear electric window down feed
8A	Power earth
9A	12 Volts before ignition 30A
A10	Electrical earth
A11	Electric windows authorisation (BCH)
A12	Not connected
A13	Not connected
A14	LH rear electric window down feed
A15	LH rear electric window up feed
A16	Power earth

Track	Description
B1	Front passenger electric window down switch
B2	Driver's electric window down switch
B3	RH rear electric window down signal
B4	Sliding sunroof position signal
5B	Not connected
6B	Not connected
7B	Not connected
8B	Not connected
9B	Not connected
B10	Passenger compartment central unit electricity balance signal
B11	LH rear electric window up signal
B12	LH rear electric window down signal
B13	RH rear electric window up signal (repeat)
B14	Front passenger electric window up switch
B15	Driver's electric window up switch
16B	RH rear electric window up signal
B17	Sliding sunroof open signal
B18	Sliding sunroof close signal
19B	Open air open signal
20B	Open air close signal
21B	Blind open signal
22B	Blind close signal
B23	Rear electric windows activation/deactivation signal
B24	LH rear electric window down signal (repeat)
B25	LH rear electric window up signal (repeat)
26B	RH rear electric window down signal (repeat)

INITIALISATION PROCEDURE

Front electric windows

This procedure is required to program the top and bottom ends of travel of the window in the electronic system of the window motor. If initialisation is not carried out, when work is done on the mechanism or battery feed is lost, the motor goes into defect mode.

- 1) Anti-trapping deactivated
- 2) Loss of the one-touch function
- 3) Partial loss of the ajar function

N.B.: if initialisation has not been carried out, the window descends a few centimetres when the door is first opened. When closed and opened after that, the window will remain in the same position.

Initial conditions:

- front doors closed,
- + after ignition switched on.

- 1) Activate the front electric windows close switch until the window is completely closed, then release the switch.
- 2) Activate the front electric windows close switch a second time for at least **0.5 seconds** to memorise the position.

Initialisation complete.

Sliding sunroof

This procedure is required to program the sliding sunroof closure end of travel in the electronic system of the motor.

- If work has to be carried out on the mechanism or
- If feed to the sliding sunroof motor is lost while it is in motion.

If initialisation has not been carried out, the sliding sunroof goes into defect mode (if the sliding sunroof switch is held in the opening or closing position, the sliding sunroof moves **100 mm** then stops, **100 mm** then stops, etc.).

N.B.: if the feed is cut off, the memory is protected.

Initial condition:

- + after ignition switched on.

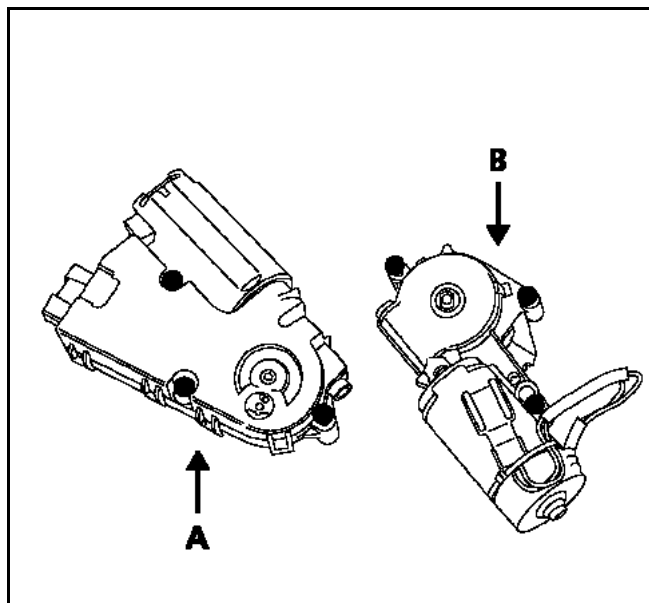
- 1) Activate the sliding sunroof close switch until the sliding sunroof is completely closed.
- 2) Hold the closed end of travel position for at least **1 ms** to memorise the position.

Initialisation complete.

The sliding sunroof motors are located in the roof at the rear of the vehicle, ahead of the rear loudspeakers.

SPECIAL NOTES

The sliding sunroof motor is equipped with an electronic system for programming the ends of travel (white unit attached to the electric motor).



- (A) Sliding sunroof motor
(B) Sliding blind motor

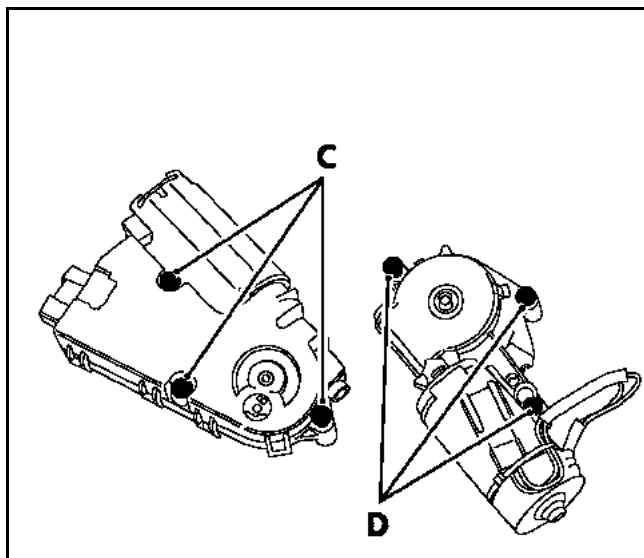
REMOVAL

To remove a sliding sunroof motor or sliding blind motor, the head lining must be removed according to the procedure described in Section 5.

Disconnect the connector from the motor to be removed.

Remove the screws (C) to remove the sliding sunroof motor.

Remove the screws (D) to remove the sliding blind motor.



REFITTING

When refitting, the motor(s) can be connected to their mechanisms without prior marking, but initialisation is required for the sunroof motor.

INITIALISATION

This procedure is required to program the sliding sunroof closure end of travel in the electronic system of the motor.

- If work has to be carried out on the mechanism or
- If feed to the sunroof motor is lost while it is in motion.

If initialisation has not been carried out, the sliding sunroof goes into defect mode (if the sliding sunroof switch is held in the opening or closing position, the sliding sunroof moves **100 mm** then stops, **100 mm** then stops, etc.).

N.B.: if the feed is cut off, the memory is protected.

Initial condition:

– + after ignition switched on.

- 1) Activate the sliding sunroof close switch until the sunroof is completely closed.
- 2) Hold the closed end of travel position for at least **500 ms** to memorise the position.

Initialisation complete.

Parking assistance

Introduction

As its name suggests, the parking assistance system helps with parking. It consists of:

- four ultrasonic transmitter/receivers mounted at the rear of the vehicle on the bottom of the bumper,
- BOSCH computer, located in the right hand trim of the rear luggage compartment,
- a loudspeaker mounted in the central console.

Operating principle

Each sensor has a range of **0.25 m to 1.5 m** and a **60°** field of detection horizontally and vertically. The combination of several sensors enables the computer to calculate the angle and distance of an obstacle by triangulation.

This distance is indicated to the driver in the form of a repeated audible signal with longer or shorter intervals between each tone. The system begins to emit the sound when it detects something less than **1 m** from the vehicle and becomes a continuous signal when the distance is less than **30 cm**.

N.B.: when manoeuvring in reverse, a soft sound signal may be heard even if no obstacle is visible (bad road surface, children's toys, animals, etc.).

Special Note

The parking assistance system is activated by the engagement of reverse gear. The same line feeds the computer.

A fuse holder (**A**) near the computer, fitted with a resistance of **2400 Ω**, calibrates the Parking Assistance according to the size of the vehicle.

A shunt (**B**) is connected between tracks **9** and **14** of the computer on vehicles without a tow bar.

When a tow bar is fitted, these two tracks must be connected to the switch inside the trailer socket (vehicle fog lights deactivation) to inform the Parking Assistance of the presence of a trailer and so deactivate it.

If the owner of the vehicle wants to leave his towing ball in place, a shunt must be connected between tracks **12** and **26** of the Parking Assistance module to reduce the minimum detection distance from **30 cm** to **50 cm**.

Sensors

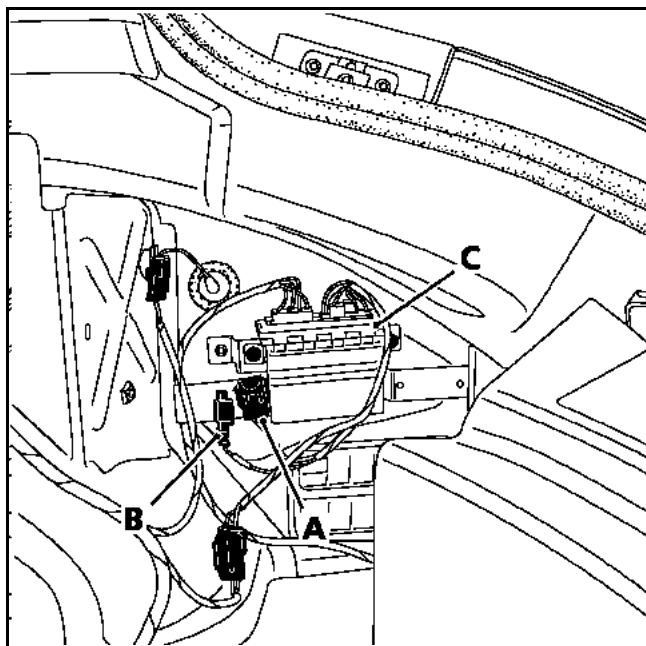
These are fed with a voltage of **8 Volts** generated by the Parking Assistance module and their transmission/reception lines are bidirectional.

REMOVING/REFITTING THE PARKING ASSISTANCE

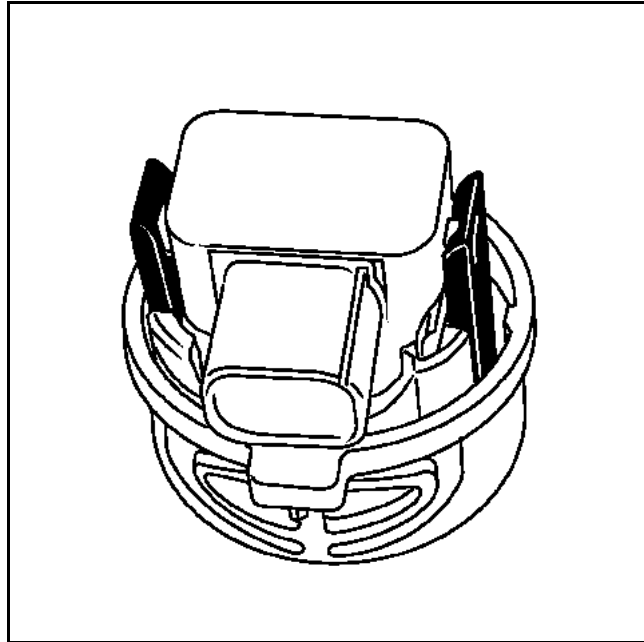
Fold the right hand rear seat.

Remove the right hand trim in the rear luggage compartment.

Disconnect and remove the Parking Assistance computer (**C**).



REMOVING/REFITTING THE ULTRASONIC SENSORS

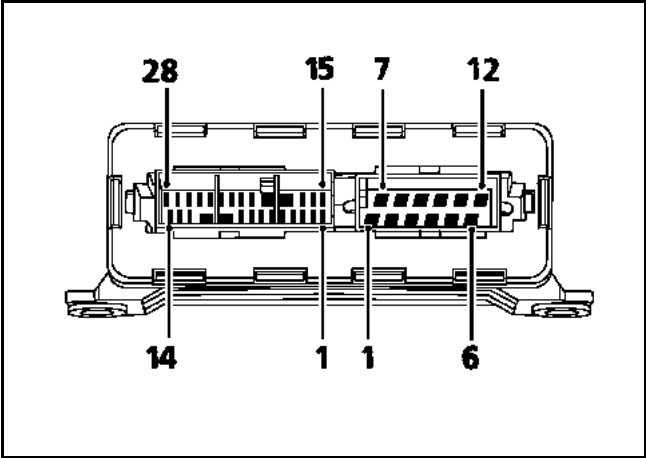


- remove the rear bumper,
- disconnect the four sensors,
- remove the sensors by pushing back the tabs to unlock them from their bases.

N.B.: the sensors' transmission area can be painted the same colour as the vehicle.

REMOVING/REFITTING THE LOUDSPEAKER

- remove the rear central console,
- disconnect the connector,
- remove the loudspeaker.



28-pin Connector (1)

1	Loudspeaker signal
2	+ 10 Volts
3	Not connected
4	Not connected
5	Not connected
6	Not connected
7	Not connected
8	Not connected
9	Electrical trailer
10	Earth
11	Not connected
12	Mechanical trailer
13	Not connected
14	Electrical trailer
15	Not connected
16	Not connected
17	Not connected
18	Reversing lights (12 Volts)
19	Not connected
20	Not connected
21	Not connected
22	Not connected
23	Not connected
24	Variant Coding
25	Coding earth
26	Mechanical trailer earth
27	Not connected
28	Not connected

12-pin Connector (2)

Track	Description
1	Sensor 1 input/output
2	Sensor 2 input/output
3	Sensor 3 input/output
4	Sensor 4 input/output
5	Sensor 1 + 8 Volts
6	Sensor 2 + 8 Volts
7	Sensor 1 earth
8	Sensor 2 earth
9	Sensor 4 earth
10	Sensor 3 earth
11	Sensor 3 + 8 Volts
12	Sensor 4 + 8 Volts

DESCRIPTION

System for de-icing the rear screen electrically by means of a heating circuit applied to the inside surface of the window by screen printing.

The system is brought into operation by pressing the de-icing button or the "**clear view**" key on the heater control.

The rear screen heating operation has a time period of **12 minutes** with the + after ignition switched on. It is, however, possible to stop the de-icing of the rear screen before the end of the timed period by pressing the switch.

The heating circuit applied to the inner face of the window may be accidentally cut, making the damaged part of the circuit useless.

The exact point of the disconnection may be determined by means of a voltmeter.

It is possible to repair such faults using the heated rear screen repair lacquer sold as Parts Store **Part Number 77 01 421 135 (2 g pack)**.

DETERMINING THE EXACT POINT OF THE BREAK WITH A VOLTMETER.

Switch on the ignition.

Switch on the heated rear screen feed.

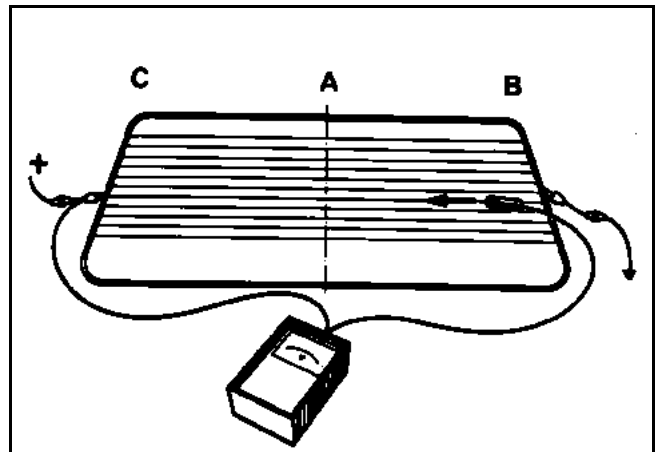
DETECTION BETWEEN LINES B AND A

Connect the + wire of the voltmeter to the + feed terminal of the rear screen.

Place the - lead of the voltmeter on a filament on the + side of the rear screen (line B); a voltage roughly equal to the battery voltage should be found.

Move the - wire towards line **A** (arrow); the voltage gradually drops.

A sudden voltage drop indicates that the filament is cut at that point (carry out this operation for each filament).



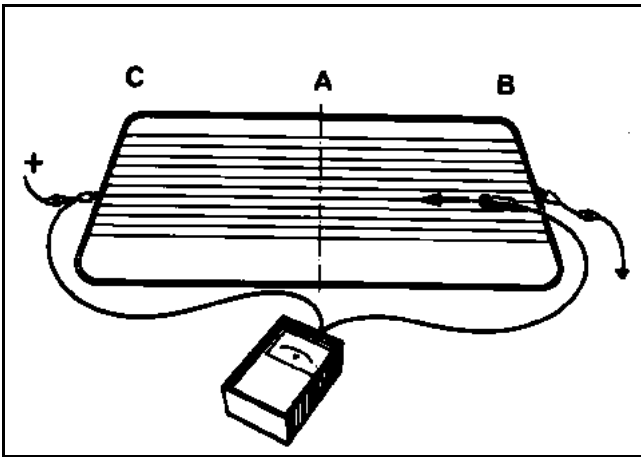
DETECTION BETWEEN LINES C AND A

Connect the - wire of the voltmeter to the - terminal of the rear screen.

Place the + wire of the voltmeter on a filament on the + terminal side of the rear screen (line C); a voltage roughly equal to the battery voltage should be found.

Move the + wire towards line A (arrow); the voltage drops progressively.

A sudden voltage drop indicates that the filament is cut at that point (carry out this operation for each filament).



REPAIR OF THE FILAMENT

Clean the section to be treated locally to remove all dust or grease, preferably using alcohol or a glass cleaner, and wipe with a clean, dry cloth.

To obtain a straight line during the repair, apply adhesive tape on either side of the section to be repaired, leaving the conducting line free.

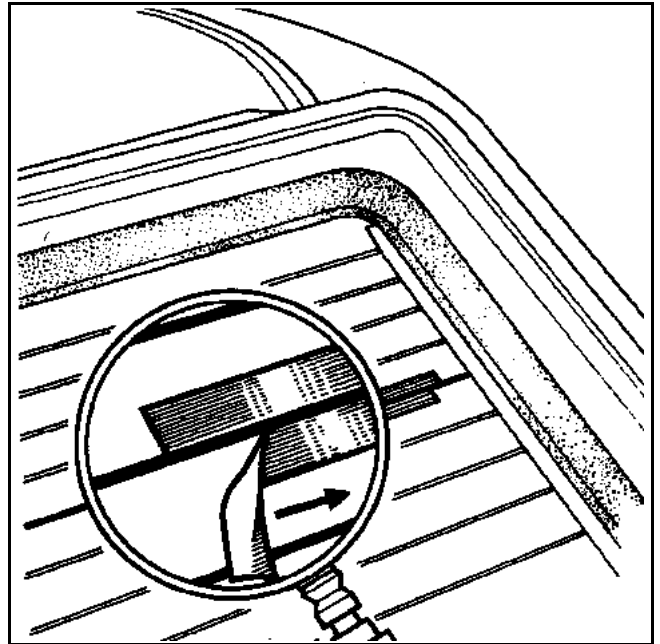
Before applying the varnish, shake the bottle to prevent the deposit of silver particles on the bottom of the bottle.

REPAIR

Using a small brush proceed to carry out the repair, applying a sufficiently thick coat. If applying successive layers, allow sufficient drying time between each layer and do not repeat the operation more than three times.

However, if there is a run it will be possible to eliminate it using the point of a knife or razor blade once the product has hardened sufficiently (after several hours).

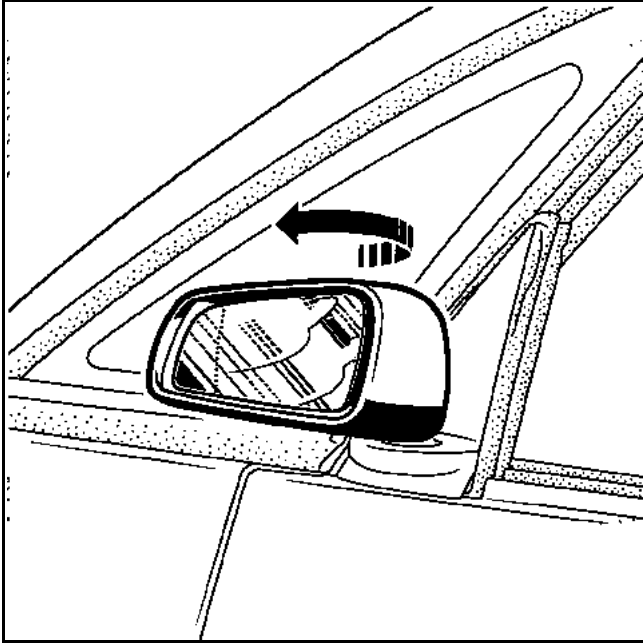
The adhesive tape acting as a guide must not be removed for one hour after application. The tape must be pulled off perpendicularly to the resistance in the direction of the arrow. When used at an ambient temperature of **20 C** the varnish is fully dry in three hours. At lower temperatures the drying time is slightly longer.



HEATED REAR-VIEW MIRRORS

DESCRIPTION

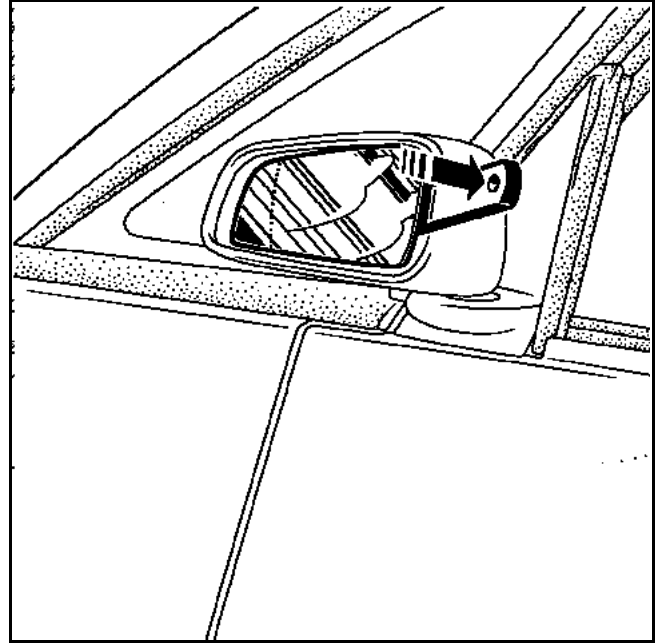
System for rapid demisting of the rear-view mirrors by means of a heating circuit sandwiched between the mirror glass and its plastic holder.



Removing the glass

Tilt the rear view mirror towards the exterior.

Press on the glass as shown above (outside edge) so as to be able to insert the **Car. 1363** tool.



Lever the glass carefully as shown above so as to unclip it without breaking it.

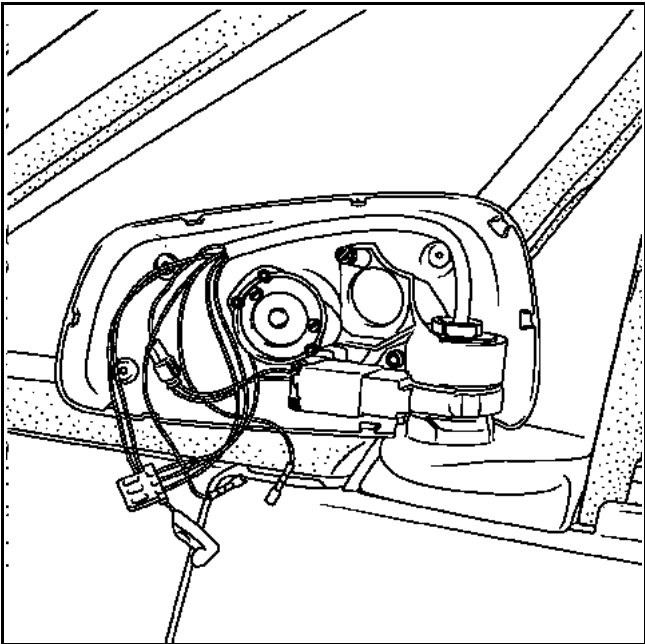
NOTE: both on the left and the right, always unclip the mirror glass from the door side.

OPERATION

The system is brought into operation by pressing the heated rear screen function button located on the central switch plate on the dashboard.

This is because the mirror heaters and the rear screen heater are linked.

The left hand and right hand rear-view mirrors are fed in parallel with the rear screen.



POINT TO NOTE
Electrochromic exterior rear-view mirrors

Electrochromic operation is carried out and controlled by the interior rear-view mirror, which governs the tint of the exterior mirrors.

They are fitted with an additional electric motor to enable them to be folded back against the vehicle. These are controlled by the mirror switches.

EXTERNAL TEMPERATURE SENSOR

The sensor is located in the rear-view mirror on the driver's side.

The sensor is checked with an ohmmeter across tracks **4** and **5** of the connector at the mirror end.

To gain access to the connector:

- remove the rear-view mirror interior cover,
- remove the rear-view mirror.

The correct values are:

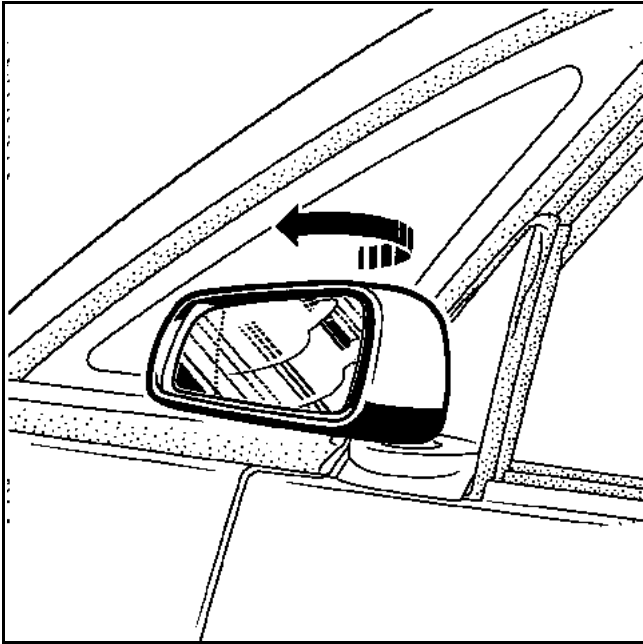
Approximate ambient temperature (°C)	Electrical resistance of the sensor (ohms)	
	Minimum	Maximum
between 0 and 5	5400	6200
between 6 and 10	4400	5400
between 11 and 15	3700	4400
between 16 and 20	3000	3700
between 21 and 25	2500	3000
between 26 and 30	2100	2500
between 31 and 35	1700	2100
between 36 and 40	1450	1700

OPERATING PROBLEMS

- The external temperature display indicates **- 40 °C**: the sensor is disconnected or the wiring broken.
- The external temperature display indicates **+ 80 °C**: the sensor or its wiring are short-circuited.
- The external temperature display shows the wrong value: change the sensor.

REPLACING THE SENSOR

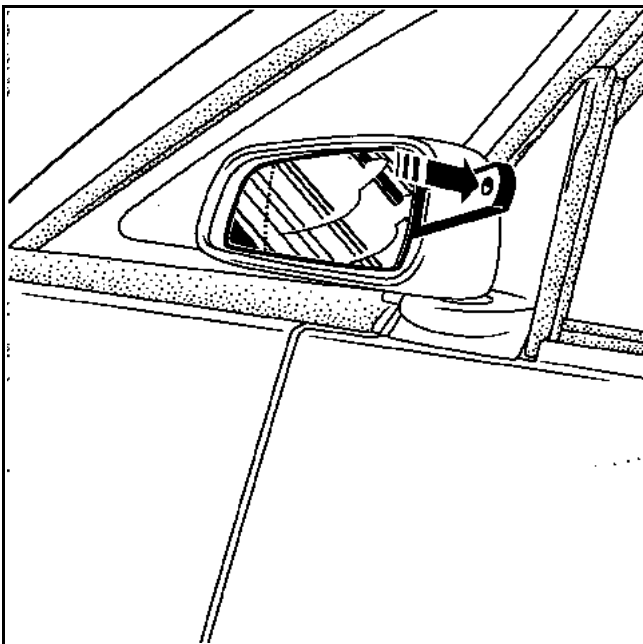
Unclip the pane from the door mirror.



Removing the glass

Tilt the rear view mirror towards the exterior.

Press on the glass as shown above (outside edge) so as to be able to insert the **Car. 1363** tool.



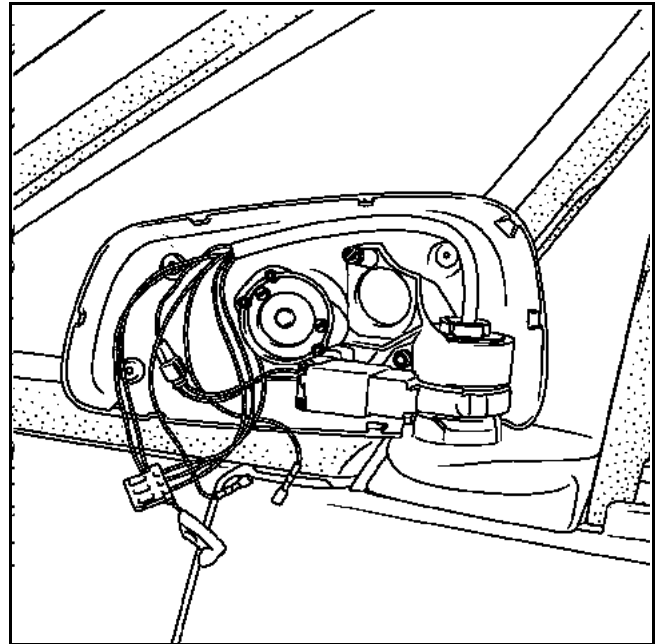
Lever the glass carefully as shown above so as to unclip it without breaking it.

NOTE: both on the left and the right, always unclip the mirror glass from the door side.

Remove the sensor from its housing by pressing on the retaining clips simultaneously.

Cut the sensor feed wires, having first marked them.

Replace the sensor and connect the wires using heat-shrink sleeves (refer to Technical Note **8039** for the use of these sleeves).



DESCRIPTION

System for heating the trim of the vehicle's front seats by means of a heating blanket fitted between the foam and the trim of the seat.

Depending on the option, each front seat is fitted with an independent system. Only the warning light on the instrument panel is common to both seats.

The heating blanket is made up of two resistances:

- one resistance of **1.4 Ω** in the cushion,
- one resistance of **0.9 Ω** in the seatback,

and a thermostat located in the cushion, in series with the resistance circuit, which authorises or inhibits the feed to the heating circuit.

OPERATION

The system is brought into operation by activating the switch located on the end of the seat cushion.

The warning light on the instrument panel illuminates whether one or two of the seats are switched on.

WARNING

Illumination of the warning light does not mean that the heating resistances are fed.

This because the system is authorised to operate when the temperature at the temperature switch in the passenger compartment falls below **12 °C \pm 5 °C**.

The temperature switch cuts off the feed to the system when the temperature reaches **27.3 °C**.

Because the system remains active (warning light illuminated), the temperature switch authorises feed to the resistances when the temperature drops back below **12 °C \pm 5 °C**.

The warning light will only extinguish if the system is deactivated by pressing the switch again.

Air bags and seat belt pretensioners

These vehicles are fitted with a passive safety system of the SRP type, comprising:

- a driver's front air bag with an SRP inflatable bag,
- a passenger's front air bag with an SRP inflatable bag,
- four front pretensioners (two per seat),
- dedicated front seat belts with Renault Protection System
- a computer (**75 tracks**),
- two side impact sensors located on the dummy centre pillars,
- side air bags protecting the thorax of the front seat occupants,
- curtain air bags protecting the heads of the front and rear occupants.

WARNING

With this system (SRP front air bags), the seat belts are linked to the air bag function.

The Renault Protection System is calibrated differently depending on whether the seat belts are to be fitted opposite an SRP air bag or not (always check the part number for each component before replacement).

On these vehicles, it is strictly forbidden to fit SRP seat belts to a seat not fitted with an air bag, or to disconnect the air bag.

NOTE: some connectors are fitted with a sliding locking system. It is essential to unclip the lock before removing the connector and ensure it is correctly positioned after fitting.

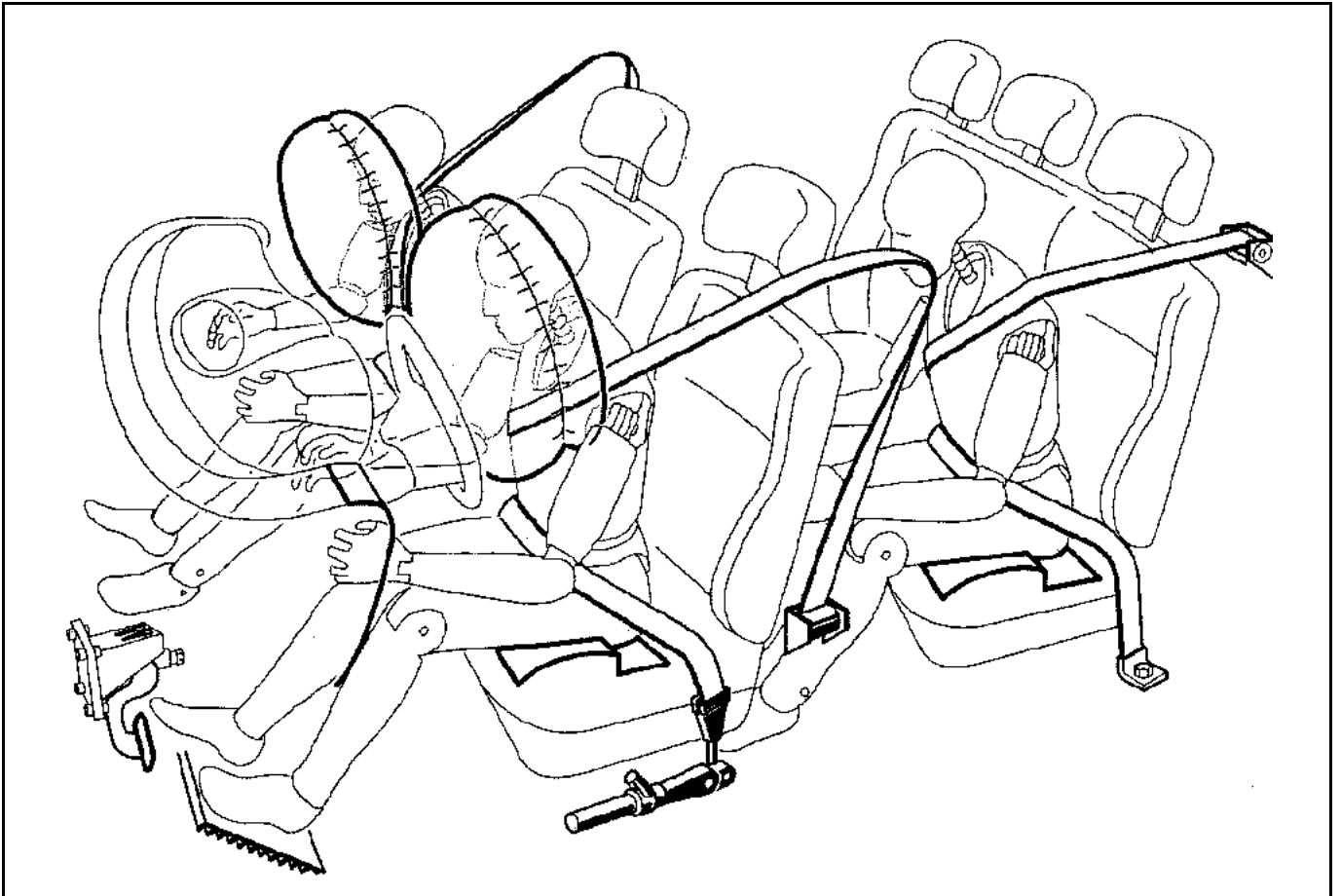
GENERAL INFORMATION

All operations on air bag and pretensioner systems must be carried out by qualified trained personnel.

These safety elements are complementary.

During a front impact of sufficient severity:

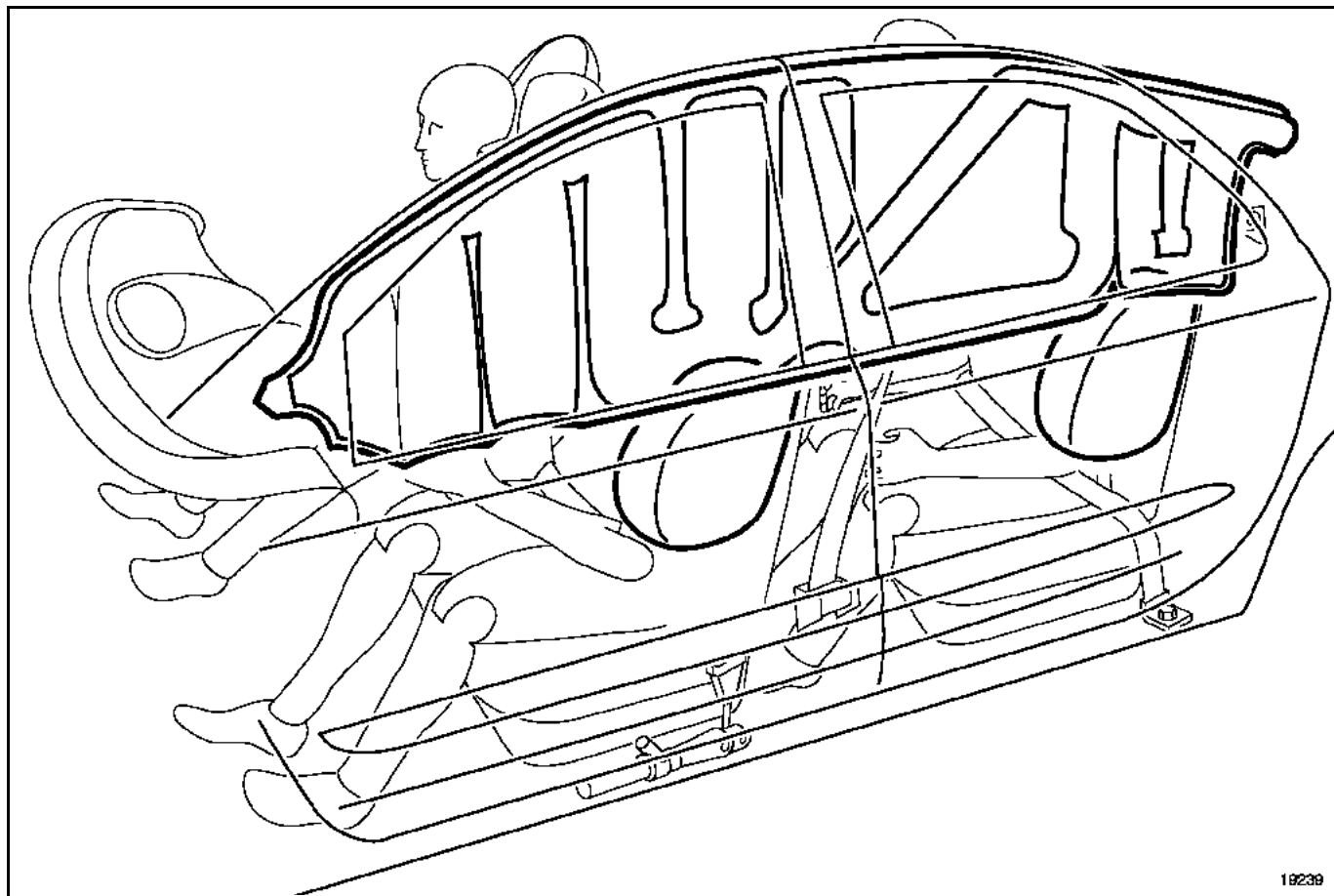
- the seat belts restrain the driver and passenger.
- the front pretensioners tighten the seat belts against the body.
- the Renault Protection System (SRP) limits the force of the seat belt against the body.
- the air bags inflate:
 - from the centre of the steering wheel to protect the driver's head,
 - from the dashboard to protect the front passenger's head.



Air bags and seat belt pretensioners

During a side impact of sufficient severity:

- the front side air bag, located in the corresponding front seat (impact side) deploys on the door side in order to protect the thorax of the front seat occupant.
- the corresponding curtain air bag for the seat on the impact side inflates to protect the heads of the front- and rear-seat occupants.



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WARNING:

- do not put a cover over the front seats,
- do not place objects in the air bag deployment area,
- when working on the door of the vehicle (on the side impact sensor, bodywork, seat belt retractor, etc.), always lock the air bag unit using the diagnostic tool and switch off the ignition,
- for special points regarding removal and replacement of seat trims, it is essential to refer to Section 7.

Air bags and seat belt pretensioners

IDENTIFICATION

Vehicles fitted with front air bags are identified by:

- labels located in the lower corners of the windscreen, on both sides,
- by the wording "**SRP air bag**" in the centre of the steering wheel and on the dashboard.

Vehicles fitted with side and curtain air bags are identified by:

- labels located in the lower corners of the windscreen, on both sides,
- the wording "**SRP Air bag**" on the side of the front seatbacks,
- the wording "**Air bag**" on the interior trim of the rear roof pillars.

PRECAUTIONS:

IMPORTANT: It is essential that pyrotechnic systems (pretensioners, front, side and curtain air bags) are checked using the fault finding tools:

- - after an accident which has not caused activation,
- after theft or attempted theft of the vehicle,
- - before selling a used vehicle.

SPECIAL TOOLING

Faults may be traced in these systems using the following diagnostic tools:

- **NXR**
- **OPTIMA 5800**
- **CLIP**

These tools detect faults in the computer or faulty lines in the system (see "**Fault finding**" section).

NOTE: these tools have an auxiliary function which allows the triggering lines to be disabled before work is carried out, thus avoiding any risk of triggering the pyrotechnic gas generators.

The **NXR** and **CLIP** tools also have a "step-by-step air bag and pretensioner harness check" function similar to that of the **XR BAG** tool.

- **XR BAG (P/N 1288)**

This instrument is a tool specifically designed for testing and diagnosing air bag and seat belt pretensioner systems.

It enables electrical measurements to be made on the various lines of these systems (see **fault finding** section).

IMPORTANT: it is forbidden to make measurements on these systems with an ohmmeter or other electrical measuring device: there is a risk of triggering due to the instrument's operating current.

Air bags and seat belt pretensioners

75-WAY ADAPTER

This unit is connected in place of the computer.

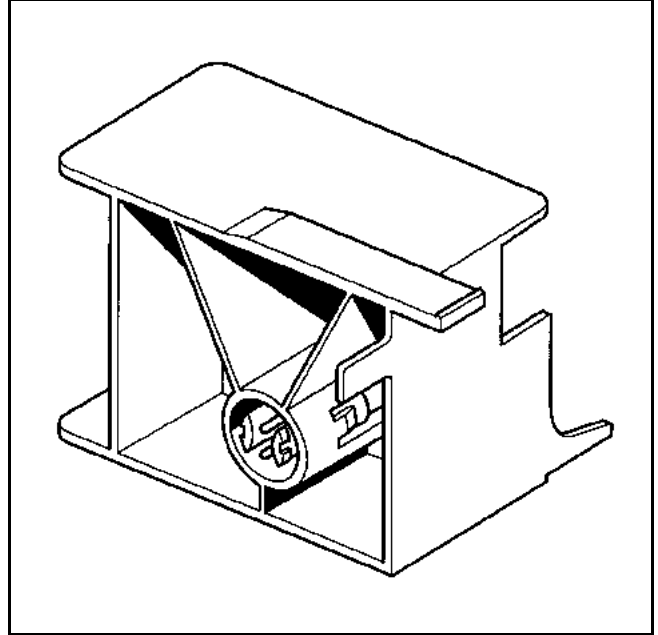
In conjunction with the **XR BAG**, **NXR** and **CLIP** tools, it allows all the ignition lines to be checked and the computer supply voltage to be measured.

Terminals also allow the continuity of the diagnostic lines to be checked (see fault finding document).

NOTE: the air bag warning light cannot be controlled by the tool as the illumination request to the instrument panel is made by the multiplex network.

DUMMY IGNITION MODULE

A dummy ignition module in a small red box is delivered with the **XR BAG** test kit.



It has the same electrical characteristics as a real ignition module and replaces the air bag cushion or the pretensioner during diagnostic routines.

These dummy modules are available from:

MEIGA

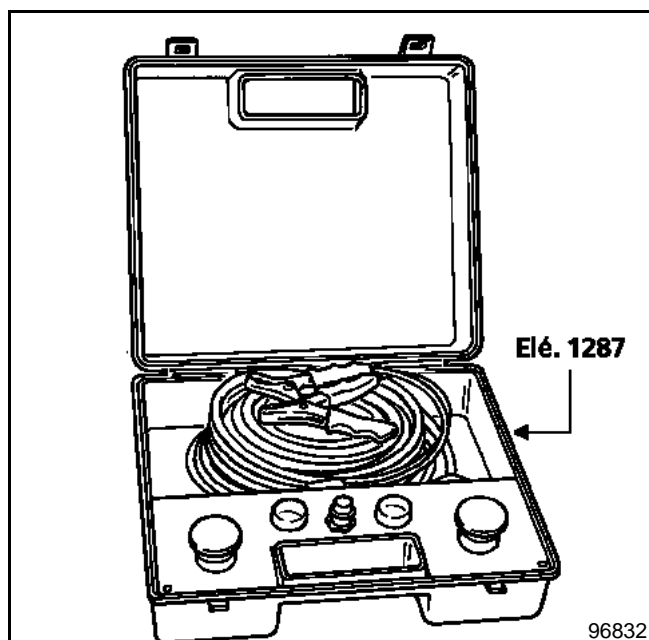
99-101, route de Versailles
CHAMPLAN
911165 LONGJUMEAU CEDEX
Tel.: 01 69 10 21 70

Air bags and seat belt pretensioners

DESTRUCTION UNIT

To avoid all possible risk of an accident the pyrotechnic gas generators in the air bags and seat belt pretensioners must be triggered before the vehicle or the individual part is scrapped.

Tool **1287** must be used for this operation.



Refer to the "**Destruction procedure**" section .

IMPORTANT: Do not reuse the pyrotechnic components as replacement parts. The pretensioners or air bags on a vehicle which is to be scrapped must be destroyed.

WARNING: Do not trigger pretensioners which are to be returned under warranty because of a problem with the seat belt catch. This makes analysis of the part by the supplier impossible. Return the part in its original packaging.

REMINDER: each part is specific to a vehicle type and must never be fitted to another vehicle type. **The parts are not interchangeable.**

OPERATION OF FRONT PRETENSIONERS AND AIR BAGS

When the ignition is switched on, the air bag and pretensioner warning light illuminates for a few seconds and then extinguishes.

NOTE: the air bag warning light may illuminate because of low battery voltage.

The computer is then in standby mode and will respond to vehicle deceleration using the signal measured by the integrated electronic decelerometer.

- 1) During a frontal impact of sufficient severity, the decelerometer triggers simultaneous ignition of the pyrotechnic pretensioner gas generators after receiving confirmation of impact detection from the electronic safety sensor:
 - buckle pretensioner on the driver's seat and passenger seat,
- 2) If the frontal impact is more severe, the decelerometer, following validation of the impact by the electronic safety sensor, triggers ignition of the pyrotechnic gas generators:
 - buckle pretensioner on the driver's seat and passenger seat,
 - lap strap pretensioner on the driver's seat and passenger seat,
 - driver and passenger front air bags.

The pyrotechnical buckle pretensioners on the front and rear seats may be triggered during a side or rear impact or overturning of the vehicle (depending on severity).

WARNING: when triggered, a pyrotechnic gas generator produces a detonation and a small amount of smoke.

NOTE: Power supply to the computer and ignition modules is usually provided by the vehicle battery.

Nevertheless, a power reserve capacity is incorporated into the computer in case of battery failure on impact.

Air bags and seat belt pretensioners

OPERATION OF THE SIDE AIR BAGS

When the ignition is switched on, the air bag and pretensioner systems computer is in standby mode, as are also the side air bag impact sensors mounted in the two dummy centre pillars of the vehicle.

On receipt of a side impact of sufficient severity, the impact sensor on the impact side sends a signal to the computer. After receiving confirmation of impact detection from the electronic safety sensor (incorporated in the computer), the computer then triggers ignition of:

- the seat's pyrotechnic gas generator, which inflates the side air bag of the front seat (impact side), then the front pretensioners,
- the pyrotechnic gas generator of the curtain air bag protecting the heads of the front and rear occupants (impact side),

The side air bags may be triggered by a violent impact from the front or from the opposite side.

WARNING: when triggered, a pyrotechnic gas generator produces a detonation and a small amount of smoke.

THE COMPUTER

the computer consists of:

- an electronic safety sensor for the front air bags and the pretensioners,
- an electronic safety sensor for the side air bags,
- an electronic decelerometer for the front air bags and pretensioners,
- connections to the side electronic sensors located in the doors,
- an ignition circuit for the various pyrotechnic systems,
- a power reserve for the various lines,
- a fault finding and detected fault memory circuit,
- a control circuit for the warning light on the instrument panel,
- a **K** communication interface via the diagnostic socket,
- a CAN network communication interface,
- an impact sensor connection.

IMPORTANT: before removing the computer it is essential to lock it using one of the fault finding tools.

When this function is activated, all the triggering lines are disabled and the air bag warning light on the instrument panel illuminates (new computers are supplied in this state). See the following procedure.

NOTE: In the event of incorrect operation of these systems in an impact, it is possible to check with the diagnostic tools that no fault was present before the impact.

Air bags and seat belt pretensioners

COMPUTER

PROCEDURE FOR LOCKING THE COMPUTER

Before removing a computer or before any operation on the air bag and pretensioner systems, it is imperative to lock the computer:

with the **NXR, OPTIMA 5800 or CLIP tool**

- 1) Select the **Fault finding** menu.
- 2) Select and confirm the type of vehicle.
- 3) Select and confirm the system to be checked **Air bags**.
- 4) Select the **Command** menu.
- 5) Select and confirm the **Computer configuration** or **Settings** function (depending on tool type) and confirm the **Lock computer** line.
- 6) Choose the "**Status**" menu and check that the computer is correctly locked. The "**Computer locked**" status must be confirmed and the air bag warning light on the instrument panel must be on (new computers are delivered in this state). Fault finding is still possible when this mode is activated.

NOTE: To unlock the computer, use the same method and confirm the "**Computer unlocking**" line.

The "**Computer locked**" status no longer needs to be confirmed and the air bag warning light on the instrument panel must extinguish.

REMOVAL

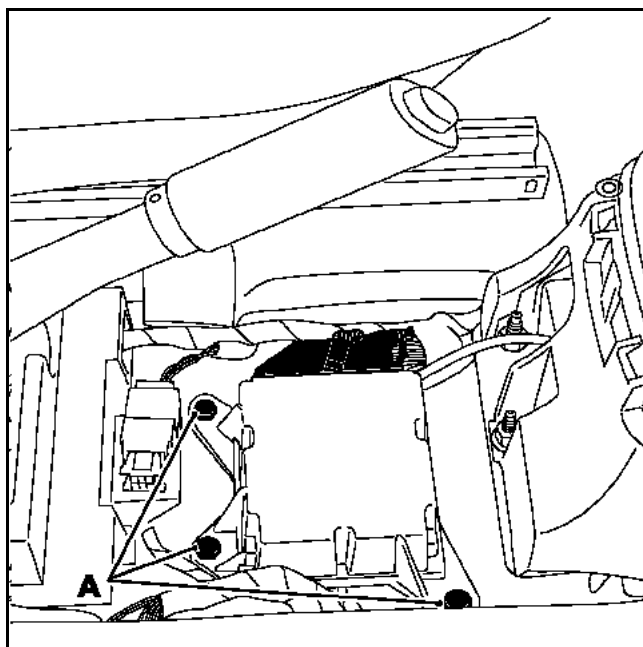
The computer is located on the tunnel in the centre console behind the gear lever.

Reminder: before removing a computer it **MUST** be locked using one of the diagnostic tools.

Remove:

- the rear central console,
- the protective plate over the computer.

Disconnect the computer and remove the mounting bolts (A).



WARNING

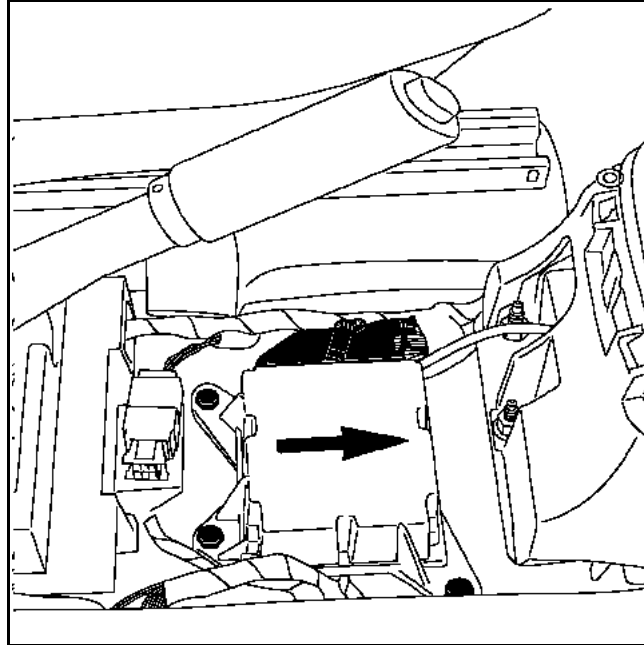
The computer contains sensitive components, so it must not be dropped.

When working under the vehicle (exhaust system, bodywork, etc.), do not use a hammer or transmit impacts to the floor without having locked the computer using the diagnostic tool.

An electrical accessory retrofitted to the vehicle (loudspeakers, alarm unit or any device which may generate a magnetic field) must not be placed near the air bag/pretensioner computer.

REFITTING

When refitting the computer, ensure that it is fitted the right way up and the right way round. The arrow must point towards the front of the vehicle.



Tighten the bolts correctly to a torque setting of 0.8 daNm.

Configuring the computers

New computers marked "**ACU3**" are supplied "not configured". Diagnostic tools can configure pyrotechnic systems connected to "**Front side air bag, curtain air bag and pretensioner**" triggering lines.

If this configuration is not carried out, the air bag warning light remains illuminated.

Using the NXR, OPTIMA 5800 and CLIP tools only:

- 1) Select the **Fault finding** menu.
- 2) Select and confirm the type of vehicle.
- 3) Select and confirm the system to be checked "**Air bags**".
- 4) Select the **Command** menu.
- 5) Select and confirm the **Configuration** function.

Air bags and seat belt pretensioners

CONNECTION: yellow 75-track connector

Track	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6 to 25	Not used
26	- Driver's pretensioner
27	+ Passenger's pretensioner
28	- Driver's seat belt reel
29	+ Passenger's seat belt retractor
30	+ after ignition
31	Earth
32	Not used
33	Not used
34	Diagnostic line K
35	- Driver's air bag
36	Not used
37	- Air bag: passenger, small volume
38	+ Air bag: passenger, large volume
39	Not used
40	Not used
41	- Air bag: side, driver
42	+ Air bag: side, passenger
43	- Air bag: curtain, driver
44	+ Passenger's curtain air bag
45	+ Sensor: side, driver
46	+ Sensor: side, passenger
47	Not used
48	Not used
49	Not used
50	Not used
51	+ Driver's pretensioner
52	- Passenger's pretensioner
53	+ Driver's seat belt retractor
54	- Passenger's seat belt retractor
55	Not used
56	Not used

57	Not used
58	Multiplex connection
59	Multiplex connection
60	+ Driver's air bag
61	Not used
62	+ Air bag: passenger, small volume
63	- Air bag: passenger, large volume
64	Not used
65	Not used
66	+ Air bag: side, driver
67	- Air bag: side, passenger
68	+ Air bag: curtain, driver
69	- Passenger's curtain air bag
70	- Sensor: side, driver
71	- Sensor: side, passenger
72	Not used
73	Not used
74	Not used
75	Not used

WARNING LIGHT ON THE INSTRUMENT PANEL

This warning light verifies correct operation of:

- front pretensioners,
- front air bags,
- curtain air bags,
- side air bags,
- front seat belt retractors,
- the battery (voltage check).

If it illuminates while the vehicle is travelling it indicates a fault in the system (see "**Fault finding**" Section).

Air bags and seat belt pretensioners

SIDE IMPACT SENSORS

IMPORTANT: Before removing a side impact sensor, lock the computer using a fault finding tool.

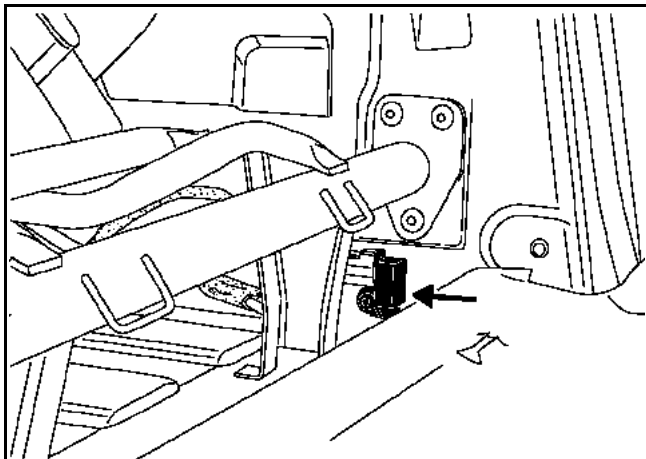
When this function is activated, all the triggering lines are disabled and the air bag warning light on the instrument panel illuminates.

REMOVAL

They are located on each side on the dummy centre pillars under the rear seats.

Tilt the rear seat cushions and then remove them.

Disconnect the connector from the side sensor and then remove it.



WARNING: When the side air bag is triggered, the computer locks permanently and illuminates the air bag warning light on the instrument panel. The side impact sensor and the computer **MUST** then be replaced (some components lose their normal properties after transmission of ignition power).

REFITTING

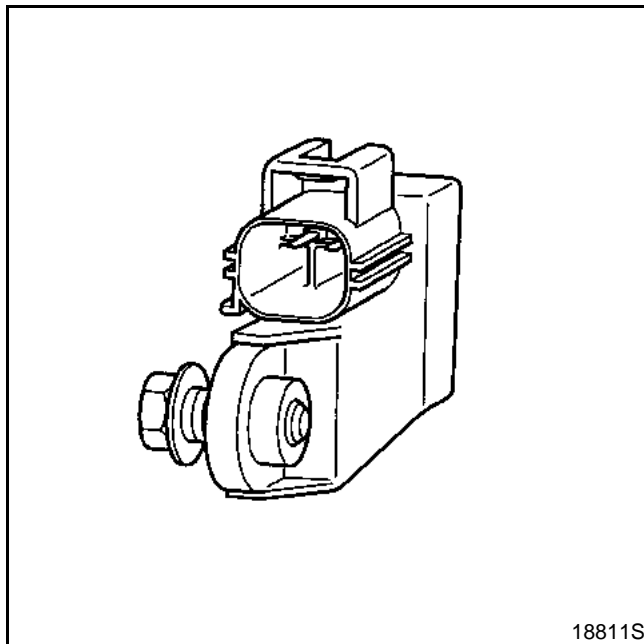
To refit it, position the sensor by means of its lug and attach it to the vehicle before reconnecting its connector (tightening torque: **0.8 daNm**).

After connecting the connector, check the sensor using the diagnostic tool.

If everything is in order, unlock the computer. If not, refer to the "**Fault finding**" section.

N.B.: this type of side impact sensor does not need to be programmed with the diagnostic tool.

Sensor removed.



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Air bags and seat belt pretensioners

OPERATIONS ON THE IGNITION LINES

If a fault is detected on one of these lines, the component must be replaced and not repaired.

This safety equipment cannot be subjected to any conventional wiring or connector repair operations.

The air bag and pretensioner triggering line harnesses are incorporated in the passenger compartment loom.

To facilitate repair, the method of replacing these harnesses consists of cutting off both end of the faulty harness and making the new harness follow the same route along the passenger compartment loom.

ATTENTION: when fitting the new harness, make sure that it is not chafing and that its original clean condition is maintained.

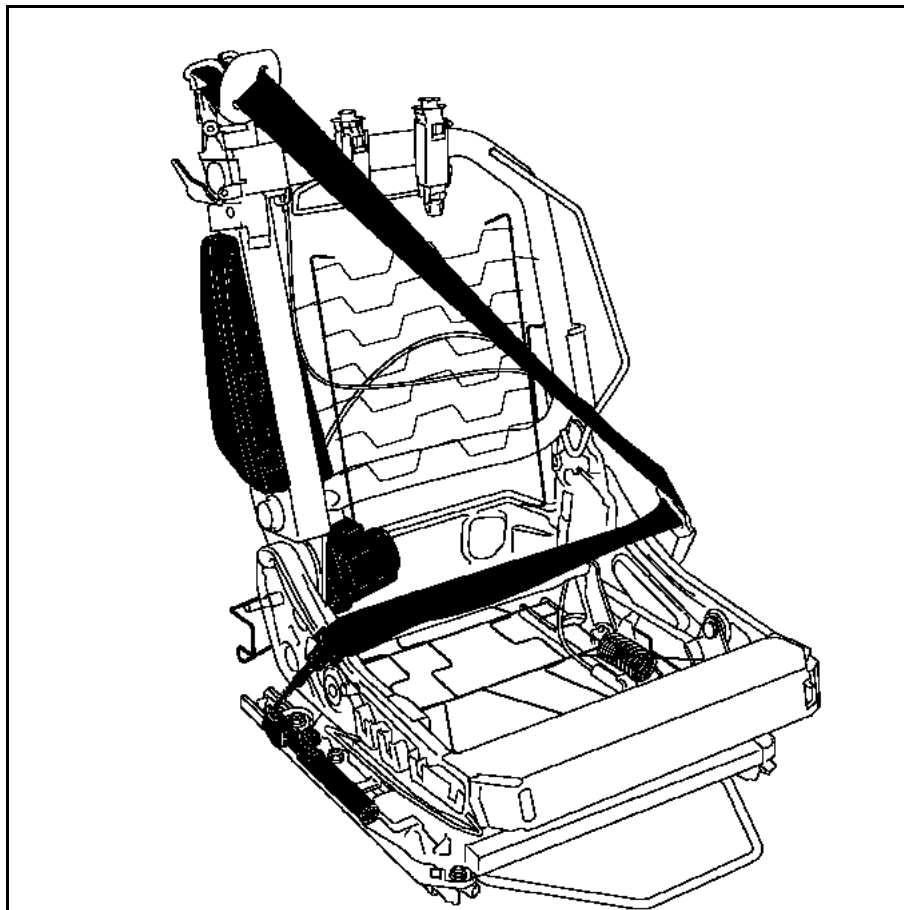
SEAT BELT PRETENSIONERS

Description

Vehicles are fitted with several models of seat belt pretensioner:

- lap strap buckle pretensioners for each front seat belt. These are mounted on the outside of the front seats.
- seat belt retractor thorax strap pretensioners for the front seat belts.

Front pretensioners (buckle or lap-belt)

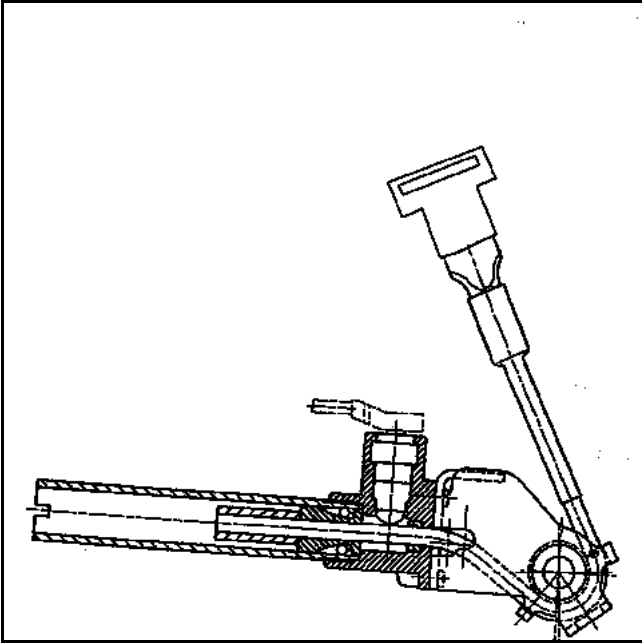


A pretensioner incorporates:

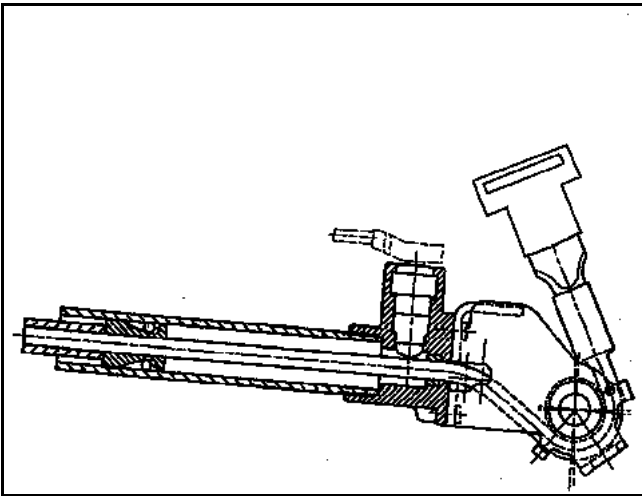
- a special seat belt buckle,
- a pyrotechnic gas generator with its igniter.

The components of the pretensioner cannot be separated.

N.B.: the system is operational when the ignition is switched on.



When it is triggered, the system is able to retract the seat belt catch by up to **70 mm** (maximum)



NOTE:

On vehicles fitted with side air bags, it is not possible to display the resistance of the seat belt pretensioners on the diagnostic tool. To perform this measurement, use the **XR BAG**, **NXR** or **CLIP** tools (wiring check).

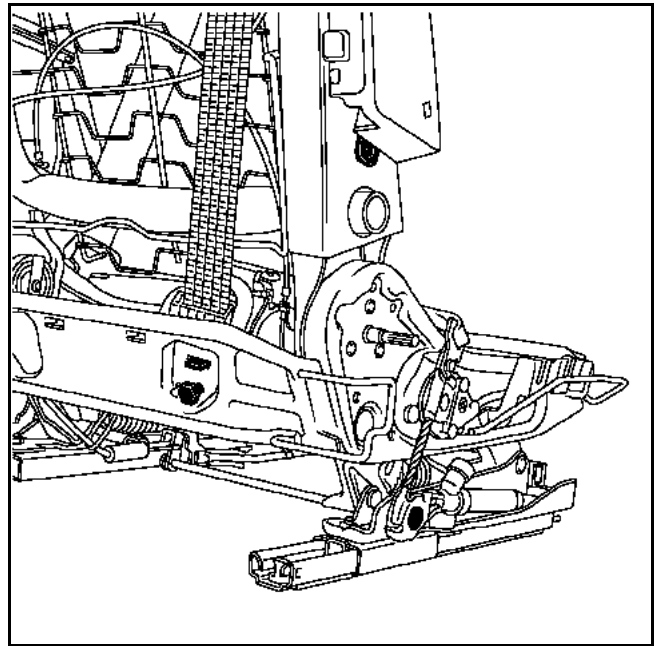
PRETENSIONERS FOR THORAX STRAP BELT RETRACTORS

Description

AVANTIME is equipped with two types of seat belt pretensioners:

- buckle pretensioners for the lap strap of each front seat belt. These are mounted on the outside of the front seats.
- seat belt retractor pretensioners for the thorax straps of the front seat belts.

PYROTECHNIC SEAT BELT RETRACTOR



This seat belt retractor incorporates a pyrotechnic gas generator with an igniter.

It is not possible to dismantle the components of a pyrotechnic seat belt retractor.

N.B.: the system is operational when the ignition is switched on.

NOTE:

On vehicles fitted with side air bags, it is not possible to display the resistance of the pyrotechnic seat belt retractors on the diagnostic tool. To perform this measurement, use the **XR BAG**, **NXR** or **CLIP** tools (wiring check).

REMOVAL

WARNING: Handling the pyrotechnic systems (pretensioners or air bags) near a source of heat or a flame is forbidden; there is a risk of triggering.

IMPORTANT: before removing a pyrotechnic seat belt pretensioner/retractor assembly, lock the computer with diagnostic tool.
When this function is activated, all the ignition lines are disabled and the air bag warning light on the instrument panel comes on.

The seat belt pretensioners and pyrotechnic seat belt retractors are of the programmed restraint system type and cannot be separated from the seat belt. They must be replaced together if any of the components is faulty.

Lock the air bag computer using a fault finding tool.

Remove the plastic runner covers on the bottom of the seat.

Remove the plastic covers on the top of the seat.

Unclip the seatback trim from the thorax air bag.

Unclip the trim from the rear of the seatback at the bottom and slide it upwards.

Withdraw the foam from the seatback to liberate the thorax air bag.

Unclip the seat belt return (**A**) from its pivot.

Disconnect the triggering lines from the pyrotechnic igniters of the seat belt retractor and the pretensioner.

Disconnect the earth connections on the pretensioner and the pyrotechnic seat belt retractor.

Remove the pretensioner bolt (**B**).

Remove bolt (**D**) from the pyrotechnic seat belt retractor (**C**).

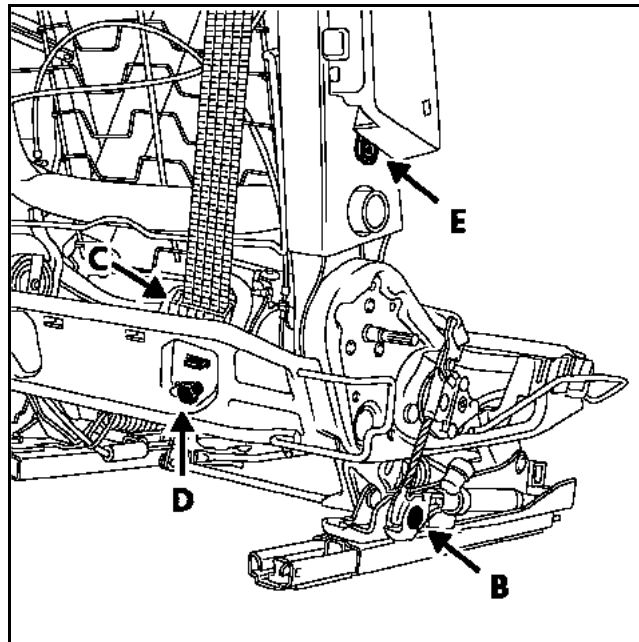
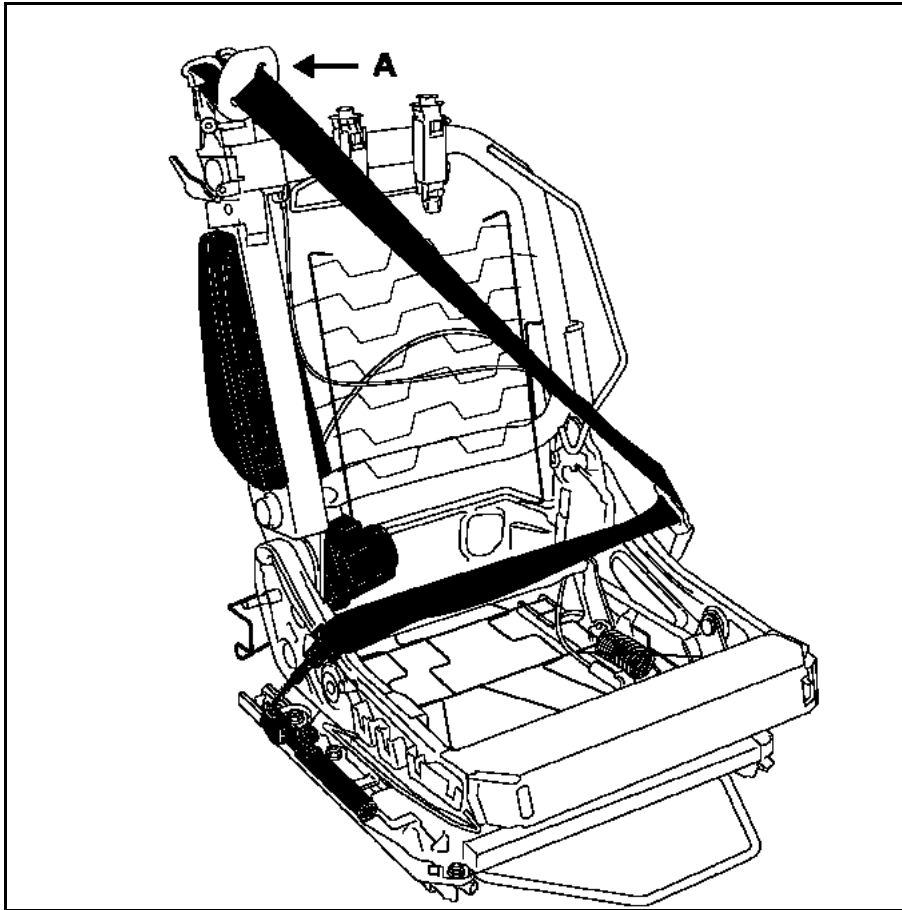
Tilt the seatback forwards.

WIRING

Seat belt pretensioners

88

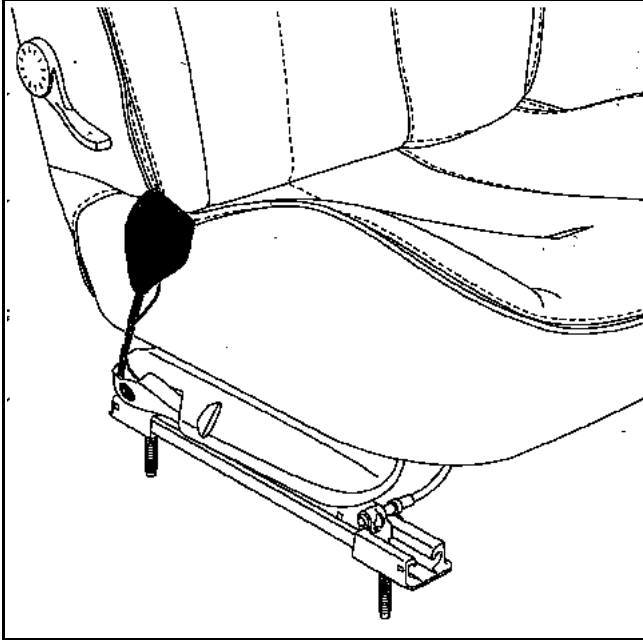
Disengage the seat belt / pretensioner / pyrotechnic retractor from the seat.



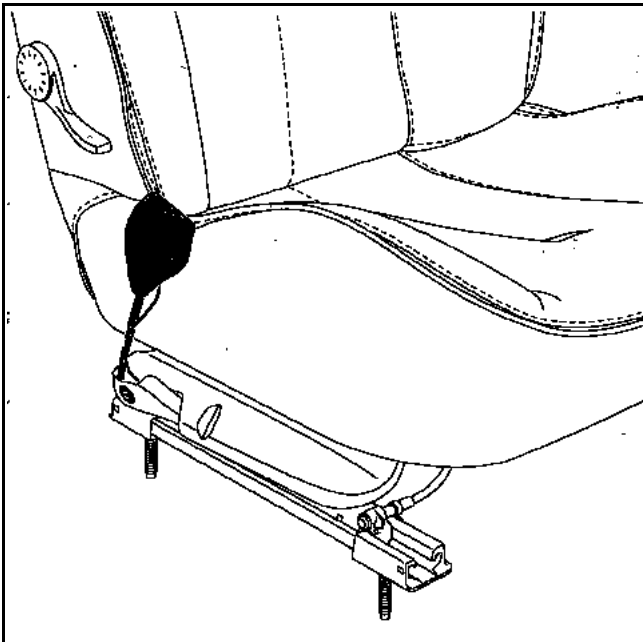
IMPORTANT: before a non-triggered pretensioner / pyrotechnic seat belt retractor is scrapped, it is **ESSENTIAL** that it be destroyed (excluding parts to be returned under warranty) using the method described in the "**Destruction procedure**" section.

Special notes

The seat belt catch on the driver's side has an electrical contact which operates a warning light on the instrument panel to indicate that the belt is not fastened.



To unclip the connector, remove the mounting bolts from the two buckle half-shells.



REFITTING

Connect the earth connectors first and then the triggering lines connectors.

Follow the correct routing of the wiring and the wiring mounting points under the seat.

Before removing the seat, visually check the condition of the connectors on the seat base and the vehicle body.

After replacing faulty parts and reconnecting the connectors, carry out a check using the diagnostic tool.

If everything is correct, unlock the computer or see the **Fault finding** section.

REMINDER: when an air bag or seat belt pretensioner is triggered, the computer locks permanently and illuminates the air bag warning light on the instrument panel. The computer **MUST** then be replaced (some components lose their normal characteristics after transmission of ignition power).

DRIVER'S AIR BAG

The air bag cushion is linked to the seat belt located opposite it.

The Renault Protection System for the seat belt is calibrated specifically and is complementary to this type of air bag cushion.

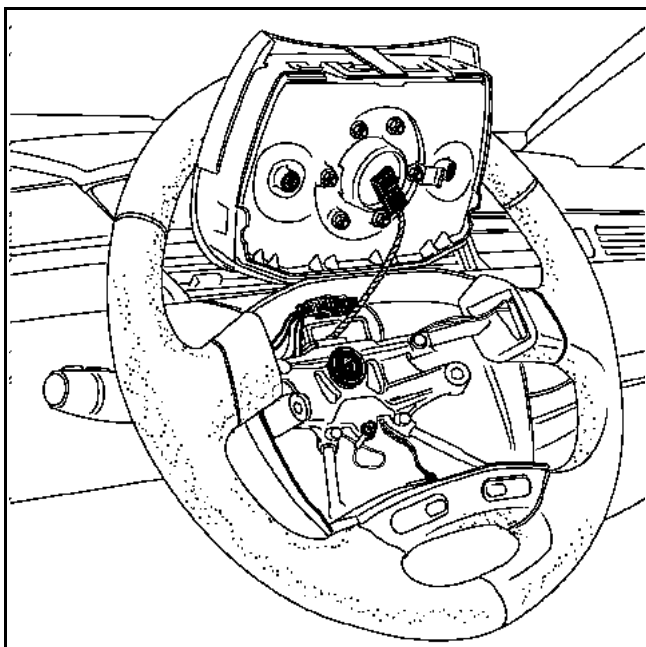
Description

It is located in the steering wheel cushion.

It comprises:

- an inflatable bag,
- a pyrotechnic gas generator with its igniter.

These components cannot be separated.



When triggered, the inflatable bag deploys by bursting through the steering wheel cover.

N.B.: the system is operational when the ignition is switched on.

REMOVAL

WARNING: Handling the pyrotechnic systems (pretensioners or air bags) near a source of heat or a flame is forbidden; there is a risk of triggering.

IMPORTANT: before removing an air bag, lock the computer using a fault finding tool. When this function is activated all the triggering lines are inhibited and the air bag warning light on the instrument panel illuminates when the ignition is switched on.


IMPORTANT: whenever the steering wheel is removed it is imperative to disconnect the air bag connector (A). The air bag has a connector which short circuits if it is disconnected to prevent accidental triggering.

- unscrew the two air bag cushion mounting screws behind the steering wheel,
- tilt the air bag to disengage it,
- unclip the connector.

IMPORTANT: before an air bag which has not been deployed is scrapped, it is **IMPERATIVE** to destroy it in accordance with the prescribed method. See the "**Destruction procedure**" section.

REMINDER: when a seat belt pretensioner or an air bag is triggered, the computer locks permanently and illuminates the air bag warning light on the instrument panel. The computer **MUST** then be replaced (some components lose their normal properties after transmission of ignition power).

REFITTING

TIGHTENING TORQUES (in daNm)	
Steering wheel mounting torque	4.5
Air bag mounting torque	6

Fit the connector.

Position the cushion on the steering wheel.

Screw up the air bag cushion mounting screws behind the steering wheel.

IMPORTANT: After refitting everything, carry out a check using the diagnostic tool. If everything is correct, unlock the computer. If not, see the "**Fault finding**" section.

ROTARY SWITCH UNDER STEERING WHEEL

This makes the electrical connection between the steering column and the steering wheel.

This switch consists of a ribbon with conducting tracks (cruise control and air bag) long enough to allow **2.5 turns** of the steering wheel (full lock plus a safety margin) in either direction.

It cannot be separated from the switch mounting.

REMOVAL - REFITTING

WARNING: Handling the pyrotechnic systems (pretensioners or air bags) near a source of heat or a flame is forbidden; there is a risk of triggering.

ATTENTION: when removing the steering wheel, the air bag/pretensioners system must be deactivated (see Section **88**).

Disconnect the battery.

Remove:

- the driver's air bag by undoing the two screws (e.g. Torx **30**) (tightening torque **0.6 daNm**) located behind the steering wheel and disconnect the connector,
- disconnect the horn connector,
- disconnect the cruise control connector,
- the steering wheel bolt,
- the steering wheel after setting the wheels straight,
- the radio satellite (if fitted),
- the lower half cowling by unscrewing its four mountings,
- the lower half cowling by unscrewing its two mountings,


Before removing the rotary switch its position must be marked:

- by ensuring that the wheels are straight during removal in order to position the ribbon connector at the centre,
- by immobilising the rotary switch rotor with adhesive tape.

Undo the screw and then give the screwdriver a sharp tap to release the cone.

Remove the mounting with the stalks and separate the components (if replacing the mounting/rotating ring).

Special notes for refitting

TIGHTENING TORQUES (in daNm) 	
Steering wheel tightening torque	4.5
Air bag tightening torque	0.6

If it is being replaced, the new part is supplied ready centred, held in place by an adhesive label which will tear as soon as the steering wheel is turned for the first time.

Fit the mounting with its components fully down on the steering column.

Continue refitting but do not lock the bolt until the two half cowlings are refitted, so that the stalks may be aligned with the dashboard and the instrument panel.

This operation is made easier by a cut-out section giving access to the bolt in the lower half cowling.

N.B.: when refitting an air bag steering wheel, carefully follow the instructions in the "**Points to note when refitting the air bag steering wheel**" paragraph in Section 88:

- ensure that the wheels are still straight.
- check that the rotary switch is still immobilised before refitting.

Once the rotary switch is in place, it is absolutely essential to remove the sticker from the rotating ring.

Replace the steering wheel bolt whenever it is removed (pre-bonded bolt).

IMPORTANT:

When everything has been refitted:

- check with the diagnostic tool that there is no fault in the system.
- If everything is correct, unlock the computer.

WARNING: Any failure to follow these instructions correctly may prevent the systems from operating normally or even cause accidental triggering.

PASSENGER AIR BAG MODULE

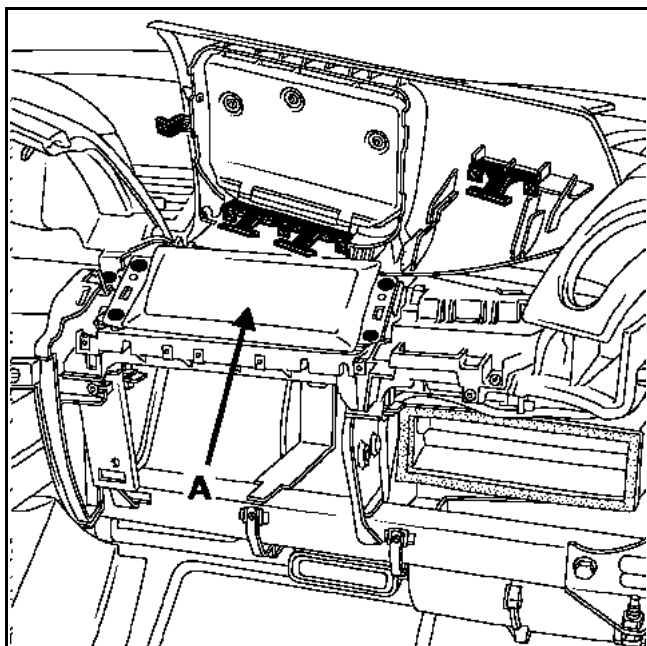
The air bag cushion is linked to the seat belt located opposite it.

The Renault Protection System for the seat belt is calibrated specifically and is complementary to this type of air bag cushion.

Description

It is mounted in the dashboard facing the front passenger (A). It comprises:

- an inflatable bag,
- two pyrotechnic gas generators with two inseparable igniters.



NOTE: the system is operational when the ignition is switched on.

REMOVAL

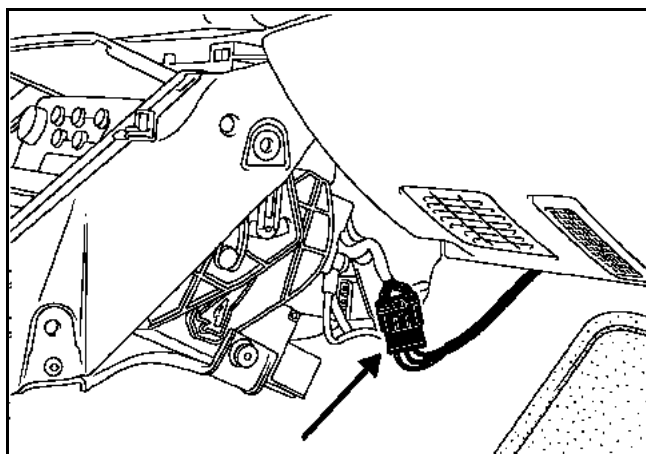
WARNING: Handling the pyrotechnic systems (pretensioners or air bags) near a source of heat or a flame is forbidden; there is a risk of triggering.

IMPORTANT: before removing a passenger air bag module, lock the computer using a fault finding tool. When this function is activated, all the triggering lines are disabled and the air bag warning light on the instrument panel illuminates.

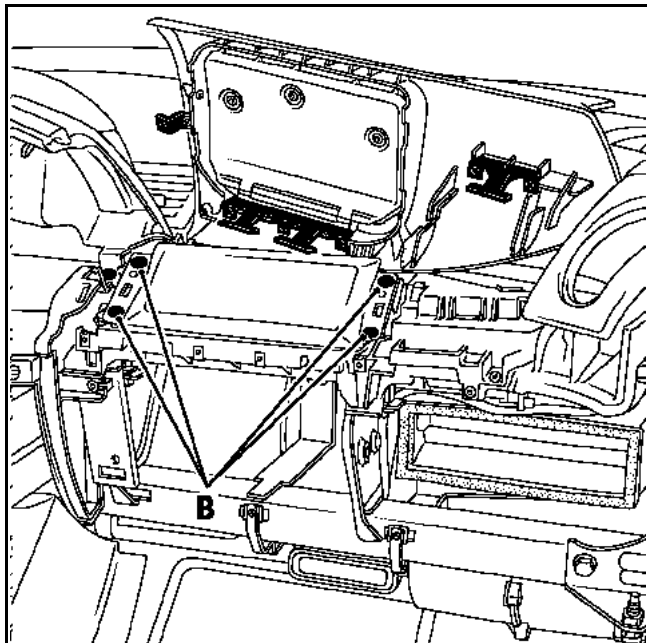
To remove the passenger air bag module

On the right hand side, remove:

- the bottom of the dashboard
- the lower air vent duct,
- the front right hand side panel of the central console.
- disconnect the passenger air bag connector (yellow) and unclip its wire all the way along its route,



- the loudspeaker grille,
- the loudspeaker plate
- the right hand air conditioning control,
- use the hole left by removing the loudspeaker to lift the right hand end of the top of the dashboard to unclip the first three clips,
- use a wedge to hold up the top part of the dashboard,
- lift up the central glovebox panel and wedge it open,
- unclip the plastic cover on the right in the central glovebox housing and remove the screw,
- disengage the passenger air bag cover flap by pulling it back **1 cm** while pressing downwards on the back of the flap, then lift to remove it from its housing,
- remove the four mounting bolts (**B**) and lift the air bag to remove.



IMPORTANT: when the passenger air bag is triggered, the consequent deformation and damage caused to the mountings always requires replacement of the dashboard.

Do not forget to affix the label on the side of the new dashboard which forbids the fitting of a rear-facing baby seat on the passenger seat (label available in the kit, Part No. **77 01 205 442**).

IMPORTANT: before an air bag which has not been deployed is scrapped, it is **IMPERATIVE** to destroy it in accordance with the prescribed method. See the "**Destruction procedure**" section.

REMINDER: when a seat belt pretensioner or an air bag is triggered, the computer locks permanently and illuminates the air bag warning light on the instrument panel. The computer **MUST** then be replaced (some components lose their normal properties after transmission of ignition power).

REFITTING

WARNING: You **MUST** follow the safety instructions when removing or replacing the passenger air bag module.

If these instructions are not followed, the system may fail to operate normally and could even be dangerous to the occupants of the vehicle.

Proceed in the reverse order of removal, being very careful to observe the correct tightening torque for the module mountings (passenger side tightening torque **2.4 daNm**).

Make sure that the **CARMINAT ECU** retaining bar is fitted when the bottom of the dashboard is refitted.

IMPORTANT:

- Check for foreign bodies (bolts, clips, etc.) when fitting the air bag module.
- On the module side, make sure the connector is properly clipped (powerful clip) and locate the safety lock.
- Affix a blue "tamperproof system" adhesive label, sold as part no. **77 01 040 153** (other vehicles).

Check the module using the diagnostic tool.

If everything is correct, unlock the computer. If not, see the "**Fault finding**" section.

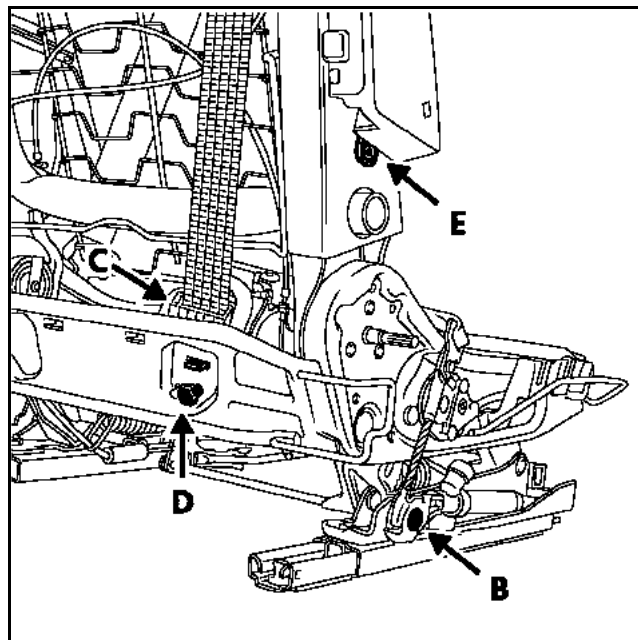
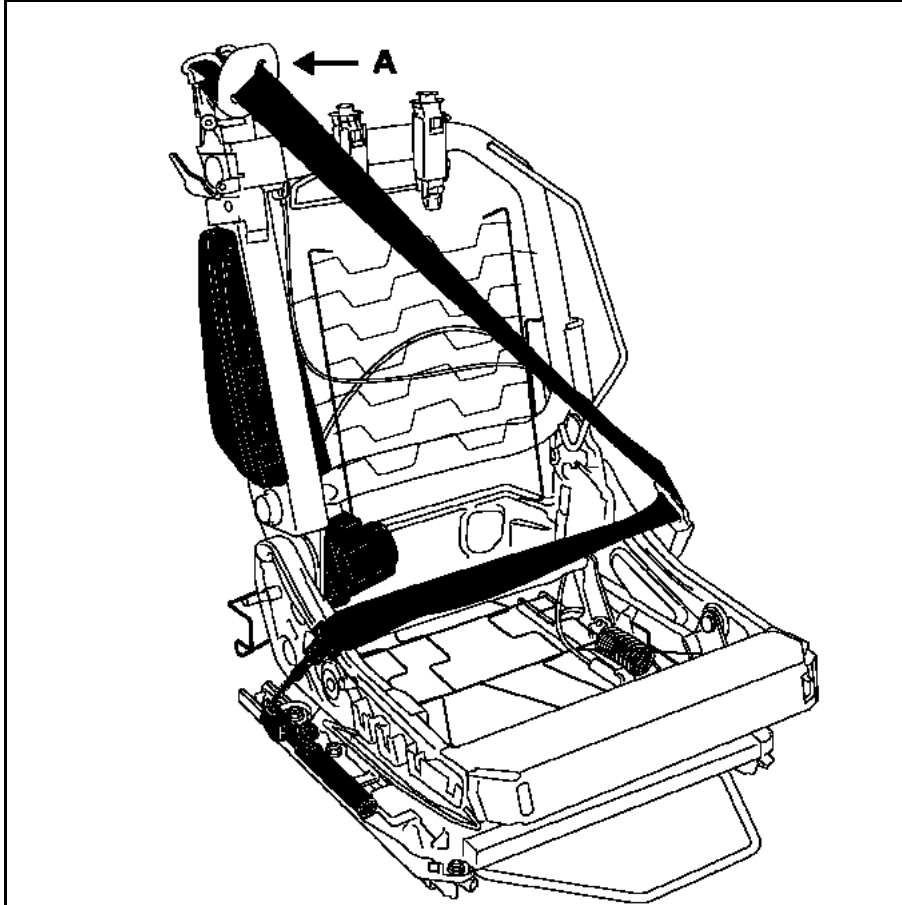
THE SIDE AIR BAG MODULE (FRONT)

Description

The "**side air bag**" module is mounted on the back of the front seat on the door side.

It comprises:

- an inflatable bag,
- a pyrotechnic gas generator with its non-separable ignition module.



The inflatable bag tears the module cover and the foam and unclips the seat trim when it deploys.

N.B.: the system is operational when the ignition is switched on.

REMOVAL

WARNING: Handling the pyrotechnic systems (pretensioners or air bags) near a source of heat or a flame is forbidden; there is a risk of triggering.

IMPORTANT: Before working on a seatback or removing a seat fitted with a side air bag, lock the computer using the diagnostic tool. When this function is activated all the triggering lines are inhibited and the air bag warning light on the instrument panel illuminates when the ignition is switched on.

ATTENTION: when working on a seat fitted with an air bag, to guarantee the latter's correct deployment, **it is imperative to follow the instructions** given in Section 7 (position, number, type of clips to use, etc.).

- unclip the seat cover of the seat attached in front of the side air bag,
- withdraw the foam from the seatback around the side air bag,
- disconnect the pyrotechnic igniter connector (locked connector),
- drill out rivet (E),
- disconnect the earth wire,
- remove the side air bag by raising it slightly, then withdraw it from its enclosed cavity.

IMPORTANT: if the system has not been triggered and is to be refitted, do not open the air bag module. The air bag cushion must be folded in a special way.

IMPORTANT: before an air bag which has not been deployed is scrapped, it is **IMPERATIVE** to destroy it in accordance with the prescribed method. See the "**Destruction procedure**" section.

REMINDER: when a seat belt pretensioner or an air bag is triggered, the computer locks permanently and illuminates the air bag warning light on the instrument panel. The computer **MUST** then be replaced (some components lose their normal properties after transmission of ignition power).

REFITTING

WARNING: when a side air bag is triggered, the consequent deformation and damage caused to the mountings always requires replacement of the seat frame.

Position the air bag module on the frame,

Attach the side air bag with the mounting rivet supplied with the module.

Ensure that the earth wire is correctly connected to the air bag module.

Reconnect and check that the connector is correctly locked.

Refit the seat trim.

Check the module using the diagnostic tool.

If everything is correct, unlock the computer. Otherwise see the "**Fault finding**" section.

WARNING: Any failure to follow these instructions may prevent the system from operating correctly and may even result in accidental triggering.

SIDE CURTAIN AIR BAG MODULE

Description

the "**side curtain air bag**" or "**head air bag**" module is attached behind the headlining.

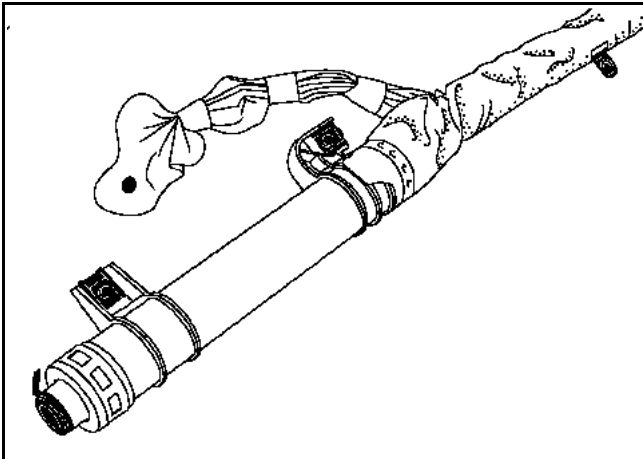
It comprises:

- an inflatable cushion in the form of a curtain,
- a pyrotechnic gas generator with its ignition module (located at the back).

These components cannot be separated.

When it deploys, the air bag unclips the headlining (precut).

N.B.: the system is operational when the ignition is switched on.



WARNING: it is forbidden to handle the pyrotechnic systems (pretensioner or air bag) near a flame or heat source (risk of ignition).

IMPORTANT: before removing or working on a curtain air bag, lock the computer using the diagnostic tool.

When this function is activated all the triggering lines are inhibited and the air bag warning light on the instrument panel illuminates when the ignition is switched on.

REMOVAL

It is recommended that two people remove the curtain air bag, since the inflatable cushion must not be folded at the curtain / cartridge junction.

Lock the air bag computer by means of the diagnostic tools.

Remove the head lining (see Section 5),

Remove the curtain anchorage point bolts, starting from the front.

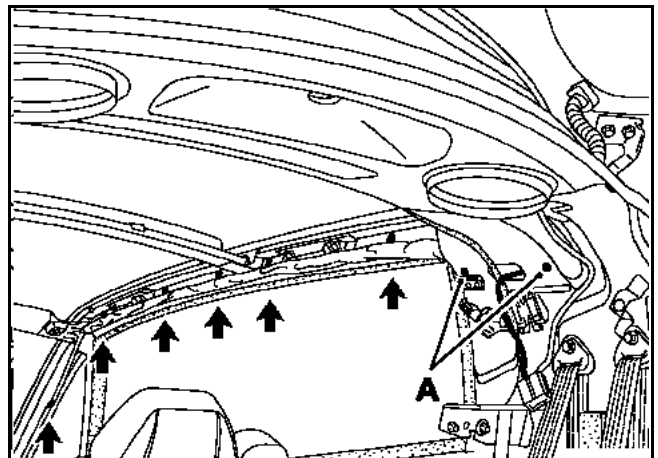
Remove the pyrotechnic gas generator bolts (**A**) while supporting it carefully.

Withdraw the curtain air bag assembly towards the front, with its triggering line.

Disconnect the triggering line from the igniter (locking connector) when the gas generator has been withdrawn from the roof structure.

REFITTING

IMPORTANT: when refitting the roof pillar trims, make sure that the curtain air bag strap passes correctly under the roof pillar trim strap.

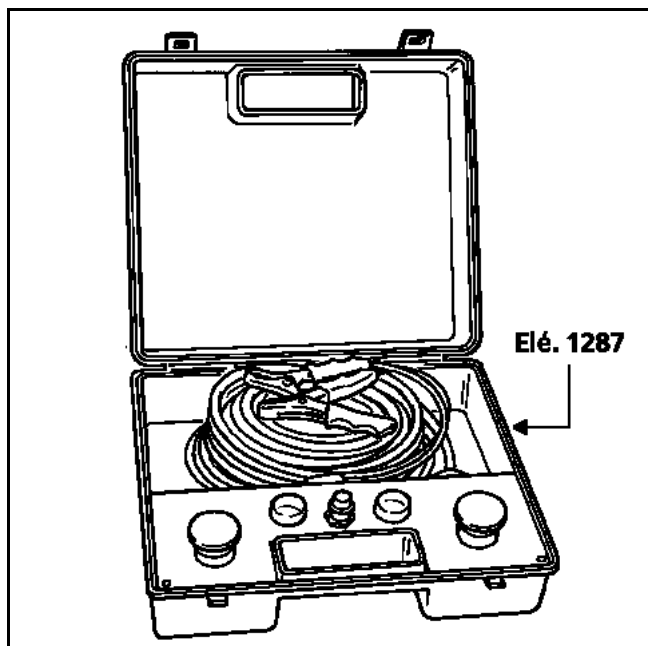


DESTRUCTION PROCEDURE

In order to avoid any risk of an accident, the pyrotechnic gas generators must be triggered before the vehicle is scrapped or the part is scrapped.

The **Elé. 1287** tool specially designed for connection to side and curtain air bags **MUST** be used.

N.B.: do not use the front air bag adapter because the igniter's antistatic safety systems (short circuit) will not be unlocked and that will destroy the adapter when destruction is attempted.



IMPORTANT: do not reuse pyrotechnic components as replacement parts. The pretensioners or air bags on a vehicle which are to be scrapped must always be completely destroyed.

PRETENSIONERS

ATTENTION: do not trigger pretensioners which are to be returned under warranty. This makes analysis of the part by the supplier impossible.
Return the part in the packaging of the new part.

Destruction of the part fitted to the vehicle

Move the vehicle outside the workshop.

Connect the destruction tool to the pretensioner after removing the seat runner cover.

Unwind all the tool wiring so that it is far enough away from the vehicle (approx. **10 metres**) during triggering.

Connect the two supply wires on the tool to a battery.

After checking that there is no-one nearby, destroy the pretensioner by pressing the two buttons on the tool at the same time.

N.B.: if triggering is impossible (faulty igniter), return the part to ITG in the packaging of the new part (Department **0429**).

Destruction of the part removed from the vehicle

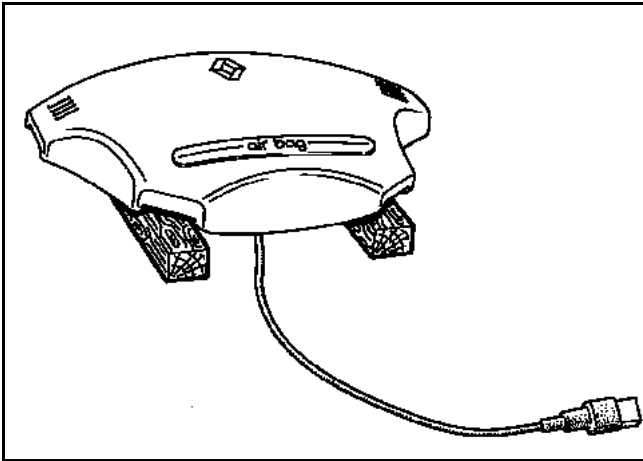
Proceed in the same way as for the driver's air bag, inside a pile of old tyres (see below).

FRONT AIR BAG OR SIDE AIR BAG (front or rear)

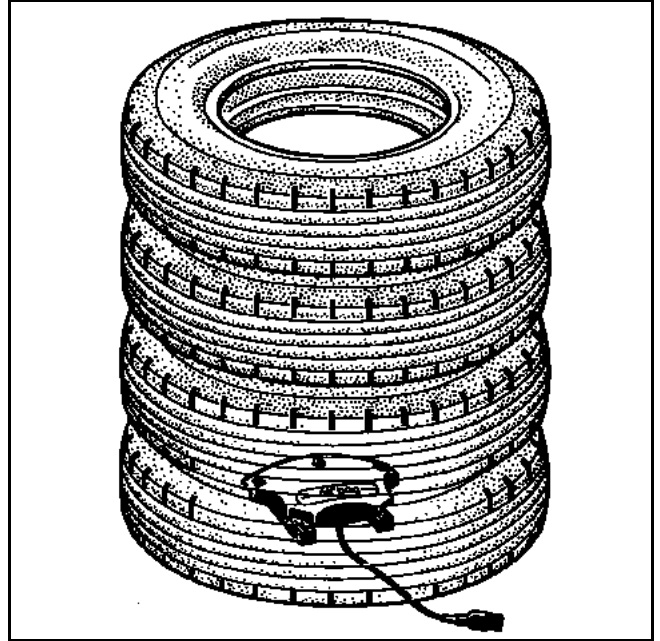
The part must be removed from the vehicle for destruction.

Carry out the operation outside the workshop.

After connecting the correct wires (**Special loom**, see "**Destruction**" section), place the air bag cushion on two pieces of wood to prevent the connector being damaged against the ground.



Cover the whole with a stack of four old tyres.



Unwind all the tool wiring so that it is far enough away from the unit (approx. **10 metres**) during triggering and connect it to the air bag cushion.

Connect the two supply wires on the tool to a battery.

After checking that there is no-one nearby, destroy the air bag by pressing the two buttons on the tool simultaneously.

N.B.: if triggering is impossible (faulty igniter), return the part to the warranty department in the packaging of the new part .

CURTAIN AIR BAG

Destruction of the curtain air bag is carried out removed from the vehicle in order not to damage the attachments.

Place the curtain air bag on the ground and spread it out very straight where there is plenty of space.

Place a heavy object (e.g. a trolley jack) on the strap at the end of the curtain air bag.

Connect the wiring of the destruction tool to the igniter (**Special loom**, see "**Destruction**" section) and uncoil the whole length of the harness from the tool so as to be far enough away when detonating.

Stack three used tyres on the middle of the cartridge, taking care not to pinch the curtain at the cartridge output.

Connect the power supply to the destruction tool.

Connect the two supply wires on the tool to a battery.

After checking that there is no-one nearby, destroy the air bag by pressing the two buttons on the tool at the same time.

The connectors used on the **AVANTIME** are designed so they cannot be connected accidentally, to limit micro-break phenomena.

They are equipped with a sliding connector which locks them into the igniter and deactivates the short circuit generated by the socket when there are no connectors present (antistatic device).

The slider MUST be unlocked before connecting the connector or the connector will be damaged and this will require the replacement of the triggering line loom.