

## **8** Electrical equipment

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# Electrical equipment

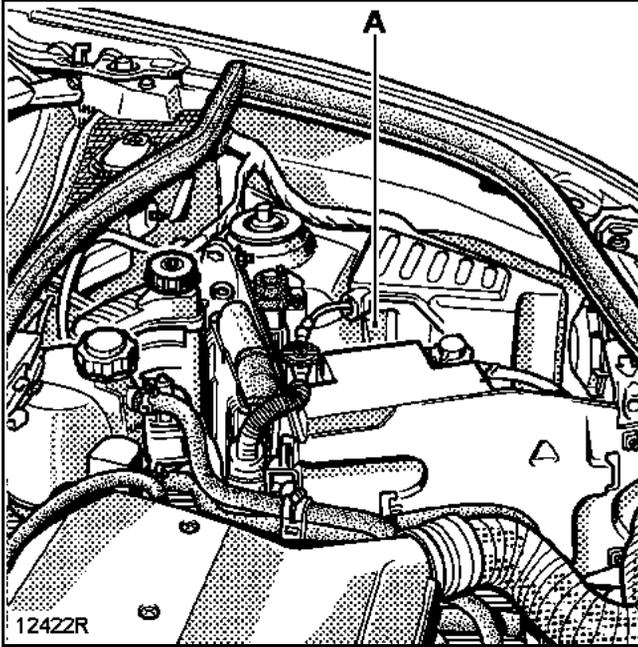
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### REMOVAL

Remove the battery starting with the negative terminal.



Remove the mounting bolt (A).

### REFITTING

When refitting or disconnecting the battery, some simple programming operations, which do not require the fault finding tool, will have to be carried out for the vehicle to work correctly:

- setting the time on the clock,
- entering the four figure radio code (using the controls on the steering wheel),

### A - CHECKING

Check and ensure that:

- the battery tray and cover are not cracked or split,
- the top of the battery is clean,
- the terminals are in good condition.

It is vital:

- to ensure that there are no sulphate deposits on the terminals,
- to clean and lubricate the terminals if necessary,
- to check that the nuts are correctly tightened on the terminals. Incorrect contacts could cause starting faults or charging faults which could cause sparks and a risk of explosion,
- to check the electrolyte level.

Batteries with sets of removable plugs:

- remove the cover by hand or with a tool (stiff spatula),
- check that the electrolyte level in all components is above the dividers (approximately **1.5 centimetres**),
- if necessary, top up the level with demineralised water.

**Note: certain types of battery have transparent trays which let you see the electrolyte level.**  
Never add electrolyte, acid or other products.

### B - PRECAUTIONS

It should be remembered that a battery:

- contains sulphuric acid, which is a dangerous product,
- produces oxygen and hydrogen during charging. Mixing these two gases forms a detonating gas, hence the risk of an explosion.

#### 1) DANGER = ACID

Sulphuric acid is a highly dangerous, toxic and corrosive product. It harms skin, clothing, concrete and corrodes most metals.

It is also very important, when handling a battery, to take the following precautions:

- protect your eyes with goggles,
- wear acid-proof gloves and clothing.

**If acid splashes on to you or your clothing, rinse all the contaminated areas thoroughly in water. If your eyes are affected, consult a doctor.**

#### 2) DANGER = RISK OF EXPLOSION

When a battery is charging (either in a vehicle or elsewhere), oxygen and hydrogen are produced. Gas production is at a maximum when the battery is fully charged and the quantity of gas produced is proportional to the intensity of the charging current.

The oxygen and the hydrogen mix in the open air, on the surface of the plates and form a detonating mixture. This mixture is highly explosive.

The smallest of sparks, cigarettes or a recently extinguished match, are sufficient to cause an explosion. Such an explosion may cause the battery to shatter and spray the acid into the surrounding atmosphere. People nearby are at risk from shattered casing parts and acid splashes, which are harmful to the eyes, face, hands and clothing.

Protection against the danger of explosion, which can be caused by careless battery handling, must be taken very seriously. Avoid all risks of sparks.

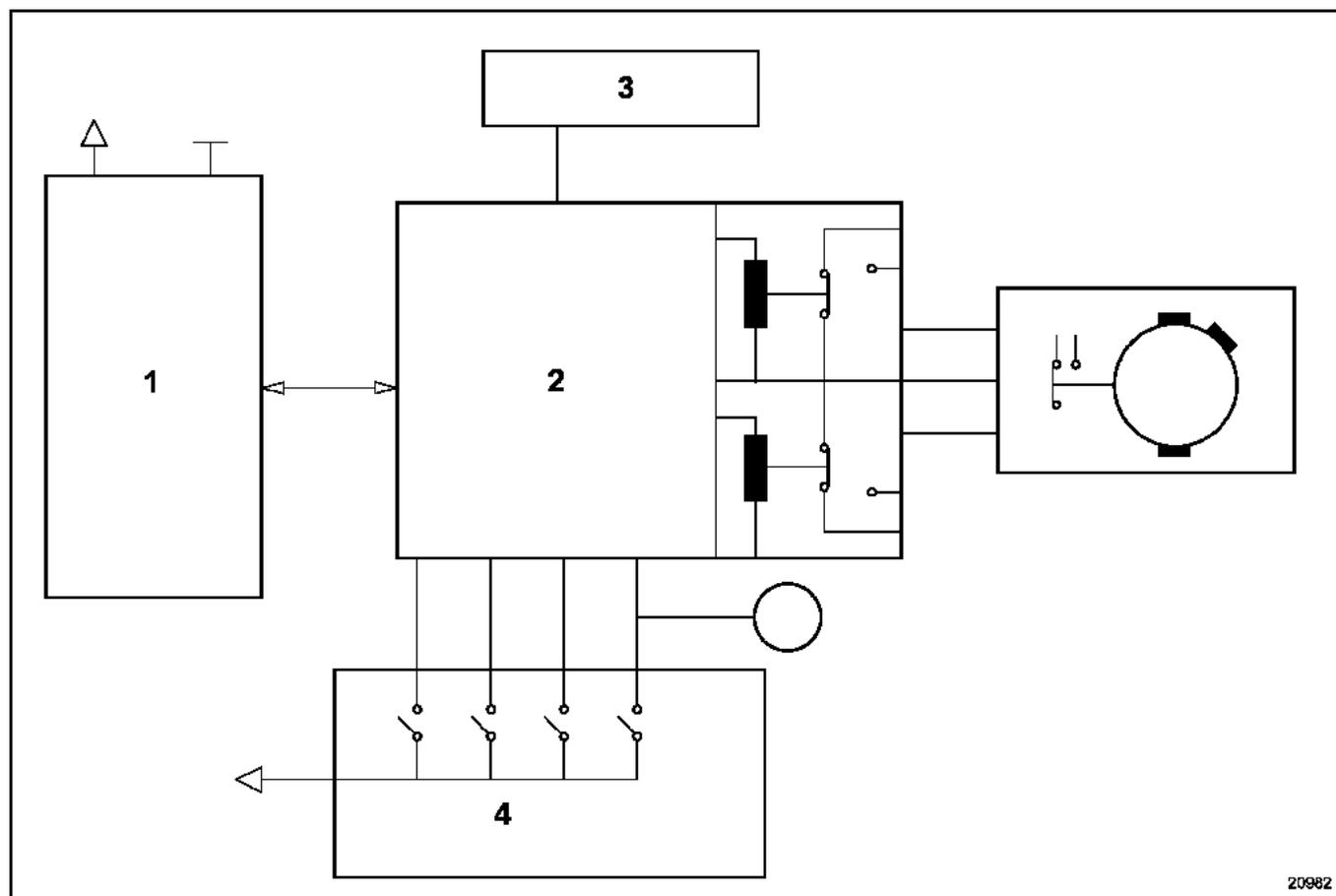
- Check that the "**consumers**" are switched off before disconnecting or reconnecting a battery.
- When a battery is being charged in a room, switch off the charger before connecting or disconnecting the battery.
- Do not put any metallic items onto the battery so as not to cause a short circuit across the terminals.
- Never hold naked flames, welding torches, hot air guns, cigarettes or lighted matches near to a battery.

### AUTOMATIC HEADLIGHTS WHEN DRIVING

Depending on the version, the vehicles may be fitted with dipped headlights and sidelights that turn on automatically when daylight fades, if the engine is running.

#### Activation

The function is operated via the light sensor (built in to the rain sensor) and the UCH.



- 1 Rain sensor
- 2 UCH
- 3 Headlights
- 4 Lighting stalk

The function can be switched on or off with the lighting stalk, if the UCH is correctly configured (see **section 87**):

- switch on the ignition,
- turn the ignition on and off twice in under **4 seconds** using the stalk,
- if the function has changed status, the instrument panel beeps.

For details on replacing the light sensor, refer to the rain sensor information in section **85**.

### AUTOMATIC HEADLIGHTS WHEN STATIONARY

Depending on the version, the vehicles may be fitted with dipped headlights that come on automatically with the engine switched off. This function operates for **30 second** periods when the ignition is switched off.

#### Activation

It is switched on with the lighting stalk:

- switch off the ignition,
- turn on the main beam headlights twice using the stalk,
- the instrument panel beeps,
- the lights are supplied for a **30 second** period,
- another **30 second** period is added each time the main beam headlights are turned on by the stalk.

The lens unit and the indicator are formed as a single component (all types).

### REMOVAL

For information on features of headlights with xenon bulbs, refer to the **xenon bulbs** section.

**WARNING: xenon bulbs have an initial charge of 20 000 volts when switched on, then 85 volts A.C. during operation.**

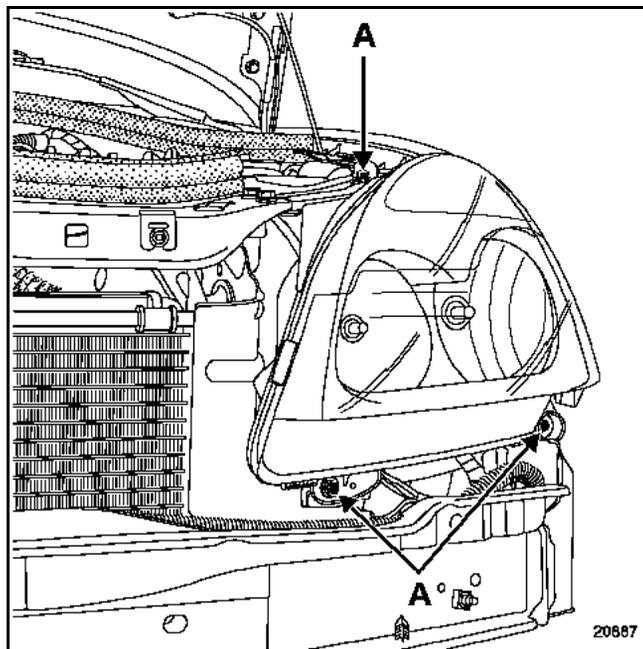
**It is therefore essential to disconnect the lens unit and wait until the computers (ballast and module) have cooled down before removal.**

**It is forbidden to light the bulb if it is not in the lens unit as this is harmful to the eyes.**

After disconnecting the battery and the lens unit connectors.

Remove:

- the bumper with the radiator grille (see the **Bodywork** section),
- the lens unit mounting bolts (A).



Disconnect the connector and take out the lens unit.

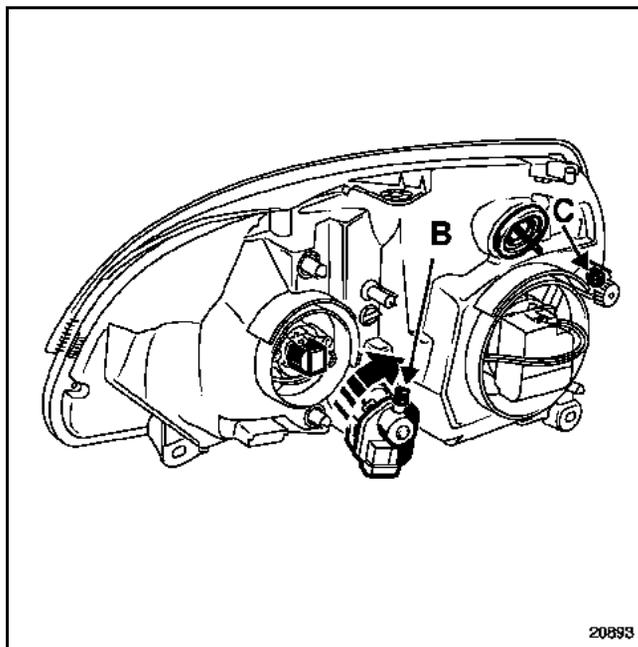
### REFITTING

Connect the connectors.

Fit the lens unit then tighten the bolts (tightening torque: **0.4 daNm**).

**IMPORTANT:** lens units must be adjusted after refitting:

- park the vehicle on level ground (without applying the handbrake),
- ensure that the vehicle is empty with a full tank if possible,
- set the adjustment control to 0,
- turn screw (B) to adjust the height,
- turn screw (C) to adjust the direction.



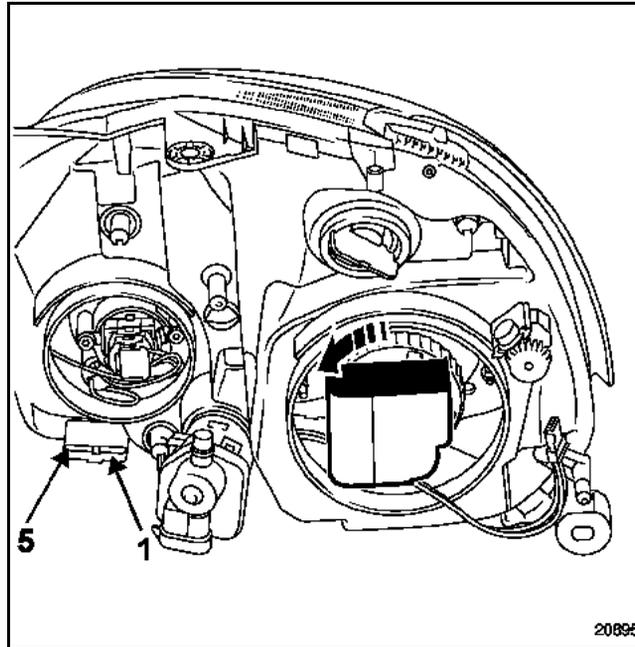
If the vehicle has xenon headlights, the system must be initialised and the headlights adjusted (refer to the information on **initialising the xenon bulbs system**).

# FRONT HEADLIGHTS

## Lens units and direction indicators

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### CONNECTION



Track	Description
1	Earth
2	Dipped headlights
3	Indicator
4	Main beam headlights
5	Side lights

**NOTE:** track numbers are read from right to left on all headlights.

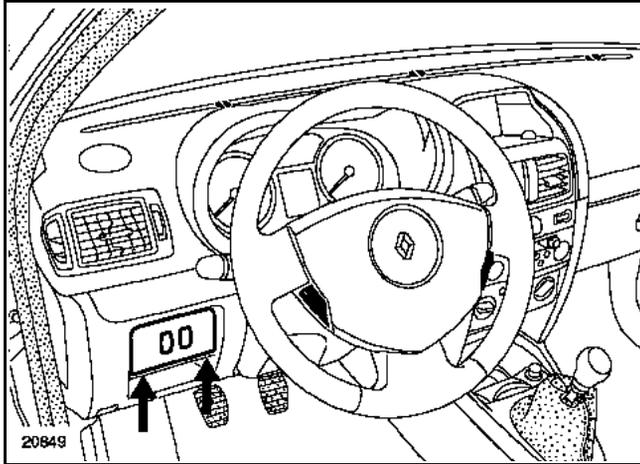
# FRONT HEADLIGHTS

## Beam adjustment

80

### CONTROL UNIT REMOVAL AND REFITTING (Beam adjustment)

Unclip the control unit support using a small flat screwdriver as a lever at the points shown below, being careful not to scratch the plastic.



Disconnect the connector, then release the control from the support plate.

### CONNECTION

Track	Description
A1	+ after ignition
B1	Earth
B2	Code signal
B3	Control output

### CHECKING

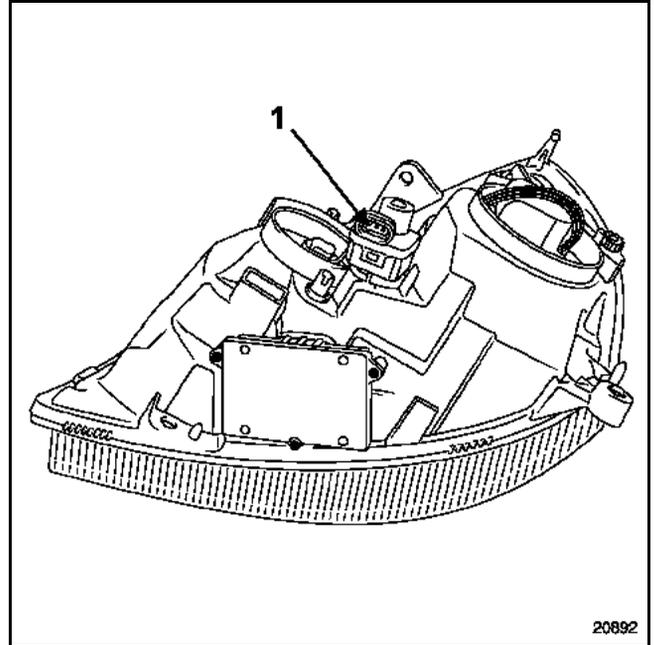
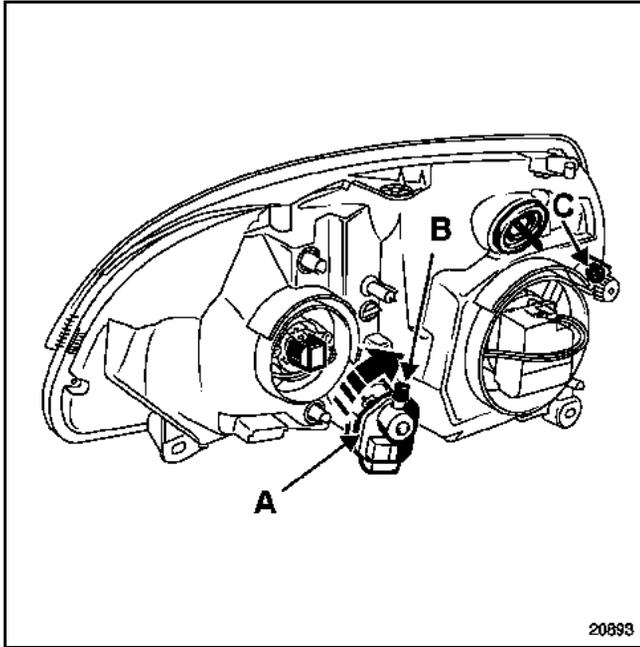
Tumblewheel position	Control voltage output (in volts)
0	11
1	8.5
2	6
3	3.5
4	1.1

### REMOVING THE ACTUATOR

The headlight must be removed to remove an actuator.

Turn the actuator one-eighth of a turn to remove it from the lens unit.

Then disconnect the ball joint from the reflector shell, tilting the actuator slightly.



### CONNECTION

Track	Description
1	Earth
2	Control
3	Supply

### REFITTING - Special points

To make it easier to remove the actuator, remove the sealed cover and hold the headlight reflector. Then click the ball joint into its housing.

Refit the actuator to the headlight, turning it one-eighth of a turn.

Replace the headlight and then adjust it.

### Adjustment procedure

**IMPORTANT:** lens units must be adjusted after refitting:

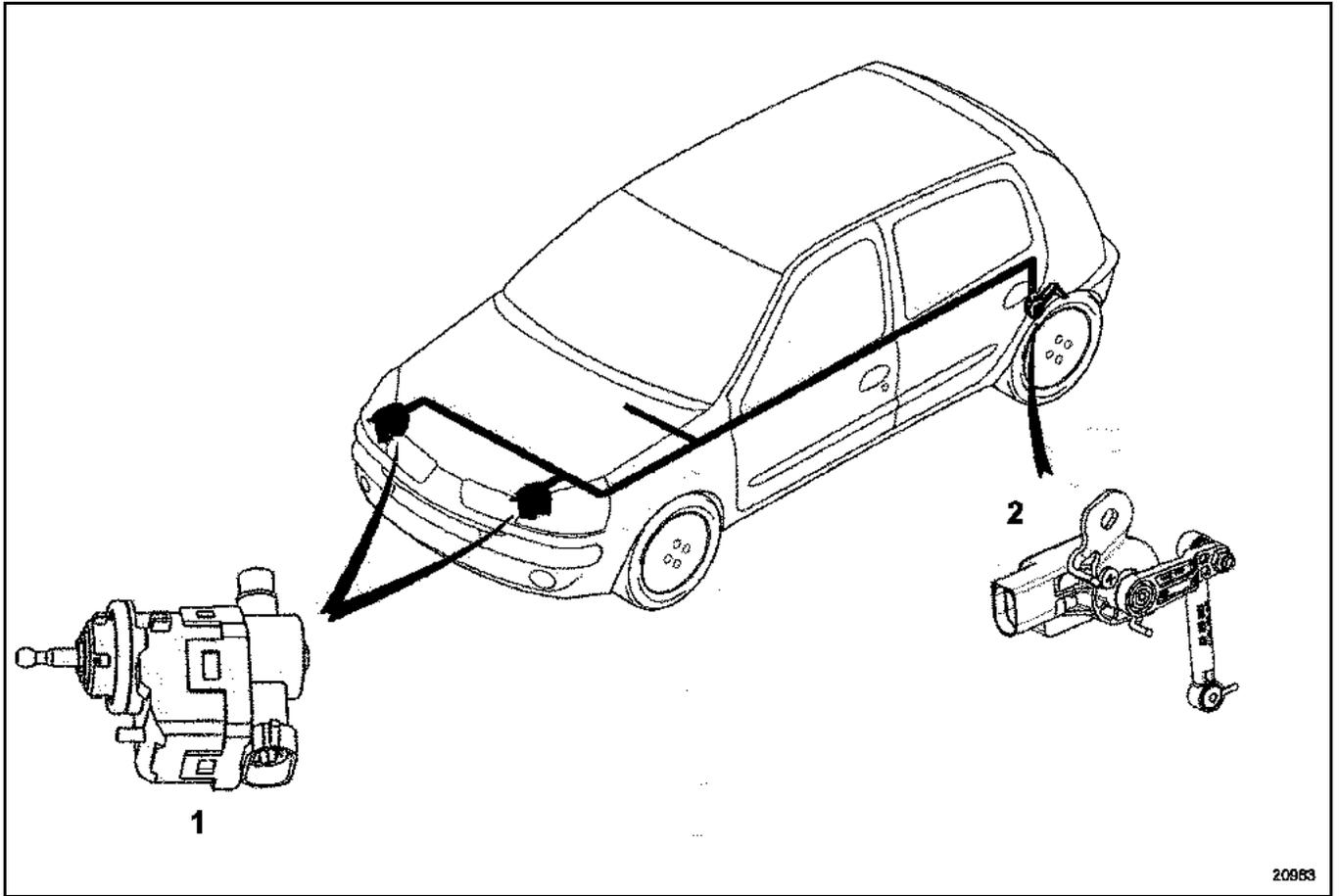
- park the vehicle on level ground (without applying the handbrake),
- ensure that the vehicle is empty with a full tank if possible,
- set the adjustment control to 0,
- turn screw (B) to adjust the height,
- turn screw (C) to adjust the direction.

# FRONT HEADLIGHTS

## Headlight with xenon bulbs

80

### DIAGRAM



- 1 Actuator
- 2 Sensor/Computer

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### GENERAL INFORMATION

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.

**WARNING:** it is forbidden to fit a headlight with a discharge bulb to a version not designed for this device.

#### Xenon bulbs:

These bulbs do not contain a filament. The light from the bulbs is generated by two electrodes in a quartz bulb which contains the high pressure gas xenon.

The electronic module, or ballast, incorporated into the headlight is supplied by the vehicle's battery (**12 volts**) and generates a controlled voltage of **20 000 volts** when the light is switched on and an alternating voltage of **85 volts** during operation.

#### Automatic headlight beam adjustment according to vehicle height.

The automatic adjustment system maintains a constant beam height in relation to the initial adjustment set in the factory or by the After-Sales network, irrespective of changes in vehicle load and height. Fault finding tools are compatible with this system.

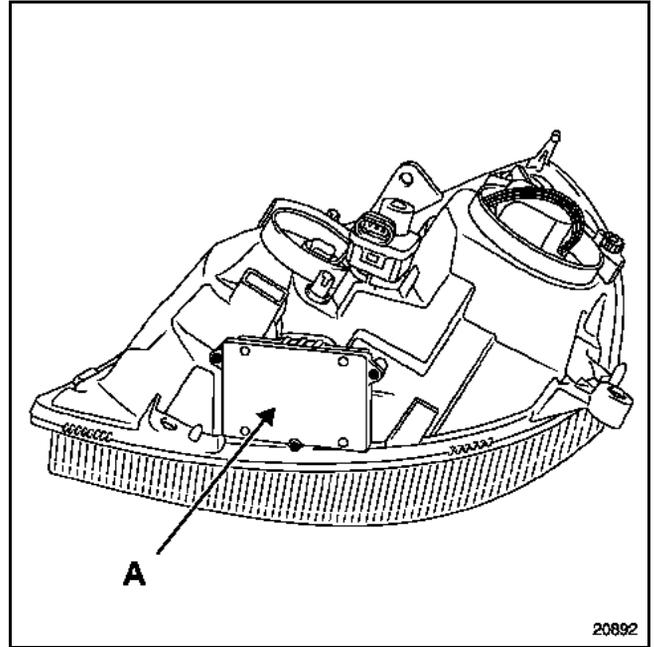
#### NOTE:

- If a fault occurs during operation, the position of the headlight beams remains fixed until it is rectified.
- If there is a charge fault, the headlight beams are angled below their original position.

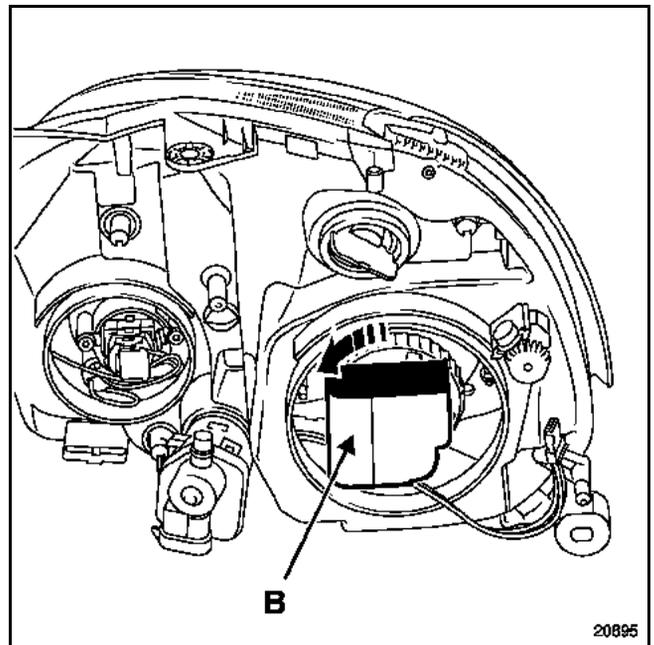
### DESCRIPTION

The system consists of:

- two lens units fitted with classic side light bulbs,
- a main beam headlight bulb, type **H7 55W**,
- a dipped beam headlight xenon bulb, type **D2S**,
- an indicator bulb, type **PY 21W**,
- two electronic units (ballast) incorporated into the headlights (A) (one per headlight),



- two high voltage units (B) to which the bulbs are attached,

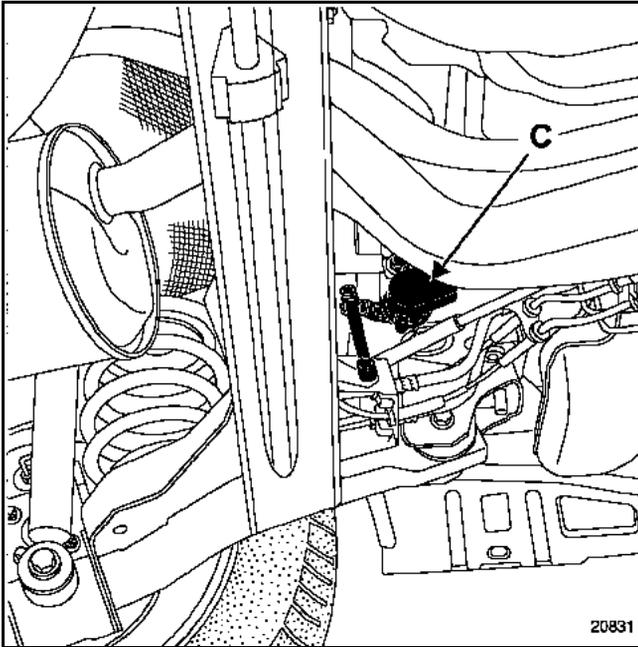


# FRONT HEADLIGHTS

## Headlight with xenon bulbs

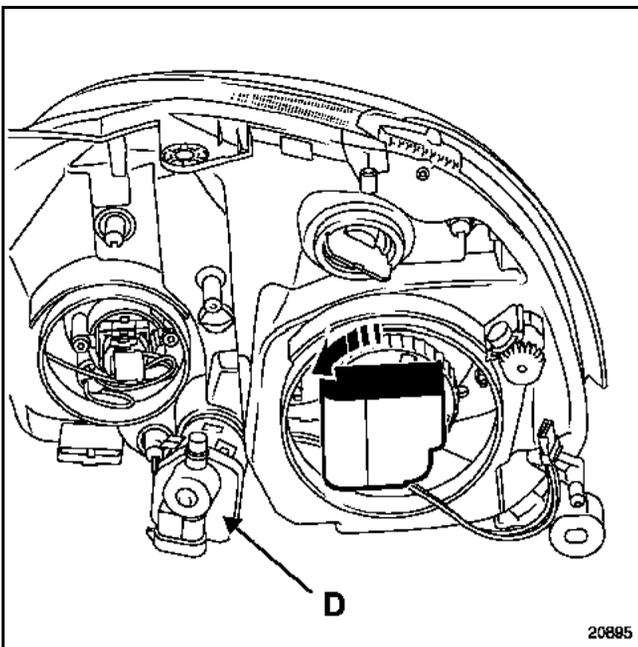
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- a rear sensor/computer (C) which records the height of the rear axle. The computer adjusts the headlight beams according to variations in vehicle load and height,



**NOTE:** the vehicle speed information is used to select a suitable headlight beam adjustment.

- two adjustment actuators (D) attached to the back of each light.



### HEADLIGHTS

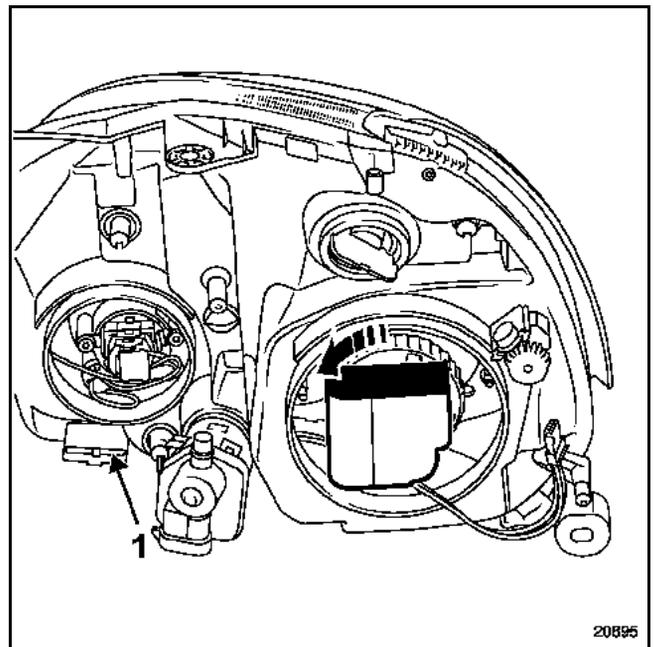
The method for removing/refitting headlights with xenon bulbs is the same as the method for all other headlight types.

**WARNING:** Xenon bulbs have an initial charge of 20 000 volts when switched on, then 85 volts A.C. during operation.

It is therefore essential to disconnect the lens unit and to wait until the computers (ballast and module) have cooled down before removal.

It is forbidden to light the bulb if it is not in the lens unit as this is harmful to the eyes.

### CONNECTION



Track	Description
1	Earth
2	Dipped beam headlight
3	Indicator
4	Main beam headlight
5	Side light

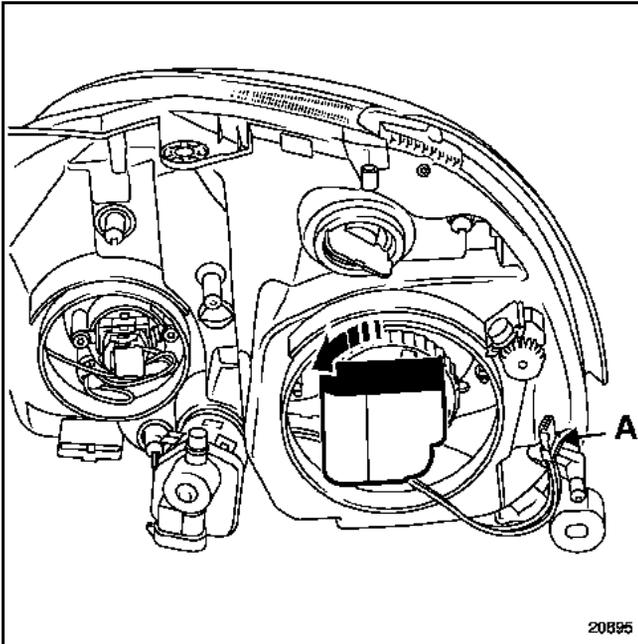
**NOTE:** track numbers are read from right to left on all headlights.

### XENON BULBS

### REMOVAL

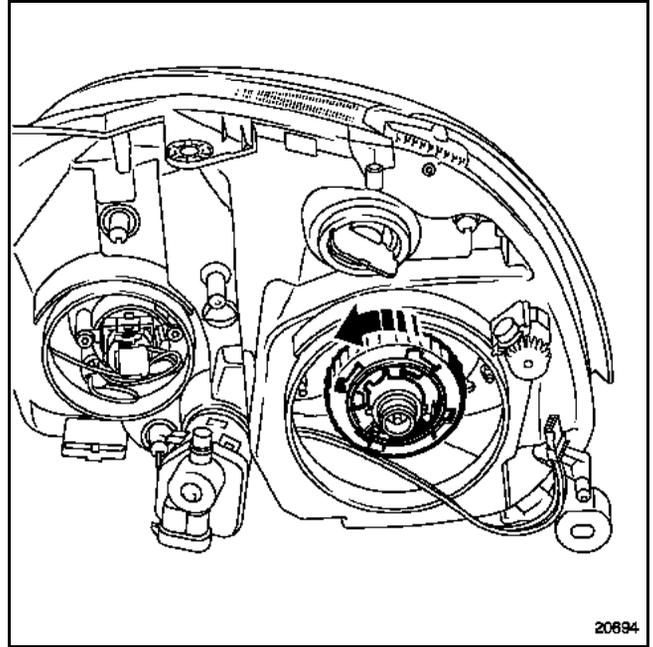
**WARNING:** Xenon bulbs have an initial charge of 20 000 volts when switched on, then 85 volts A.C. during operation.  
It is therefore essential to disconnect the lens unit and to wait until the computers (ballast and module) have cooled down before removal.  
It is forbidden to light the bulb if it is not in the lens unit as this is harmful to the eyes.

It is preferable to remove the headlight before replacing a xenon bulb.



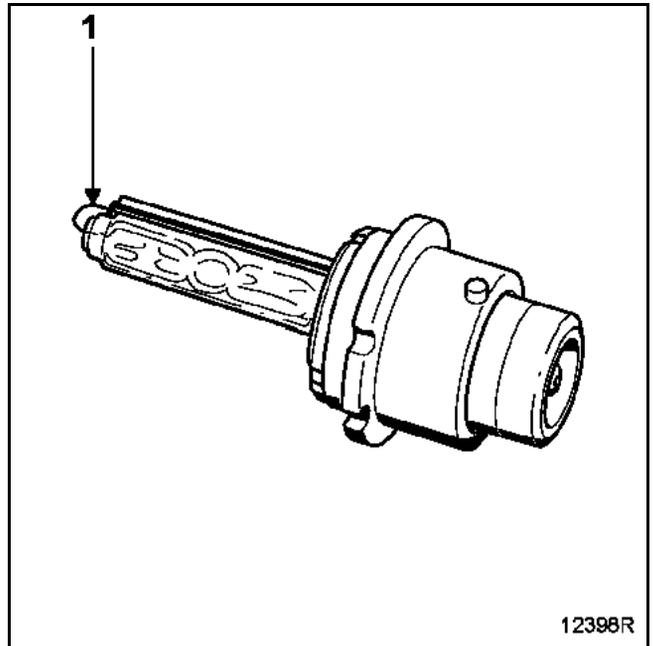
Remove the high voltage unit by turning it one-eighth of a turn direction shown above.

**NOTE:** the connector (A) that supplies the high voltage unit is automatically disconnected by a safety system. This prevents the high voltage unit from being connected if there is no bulb present.



Remove:

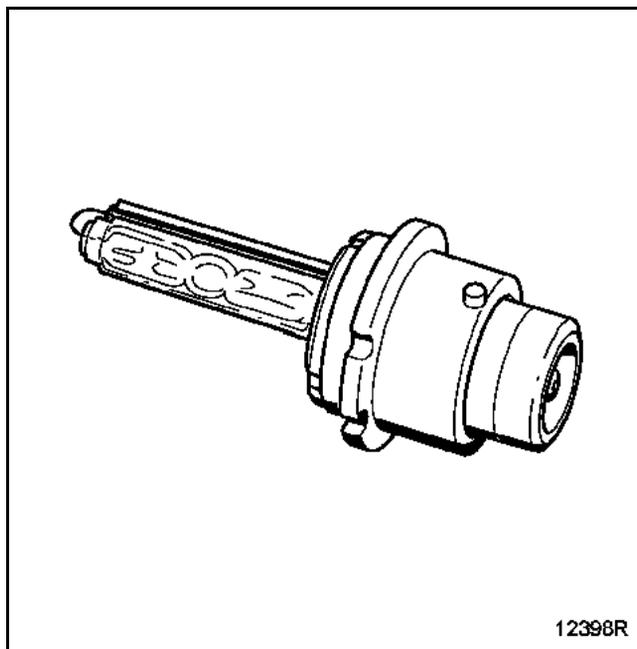
- the bulb locking bolt, by turning it one-eighth of a turn in the direction shown above,
- the bulb.



**WARNING:** do not jolt or knock the bulb as the external conductor (1) is very fragile and must not be damaged.

### REFITTING

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



Fit:

- the bulb. The lug must be opposite the groove in the headlight,
- the bulb locking bolt,
- the high voltage unit,
- the supply connector.

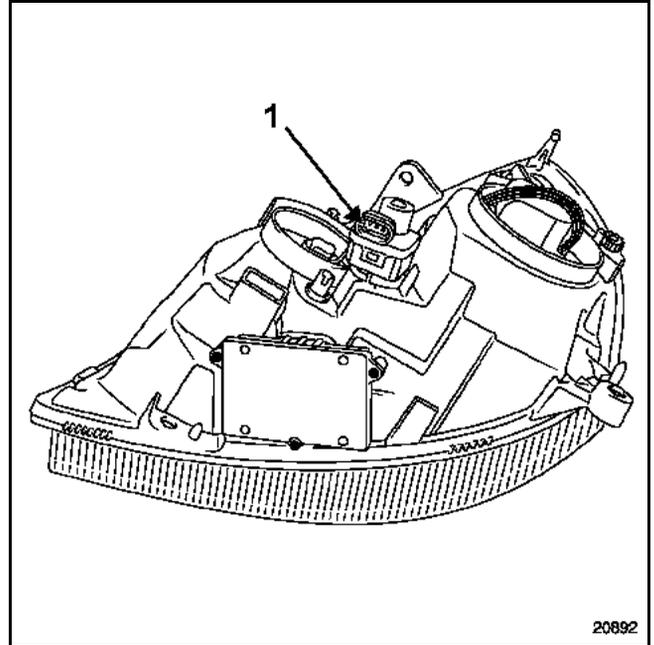
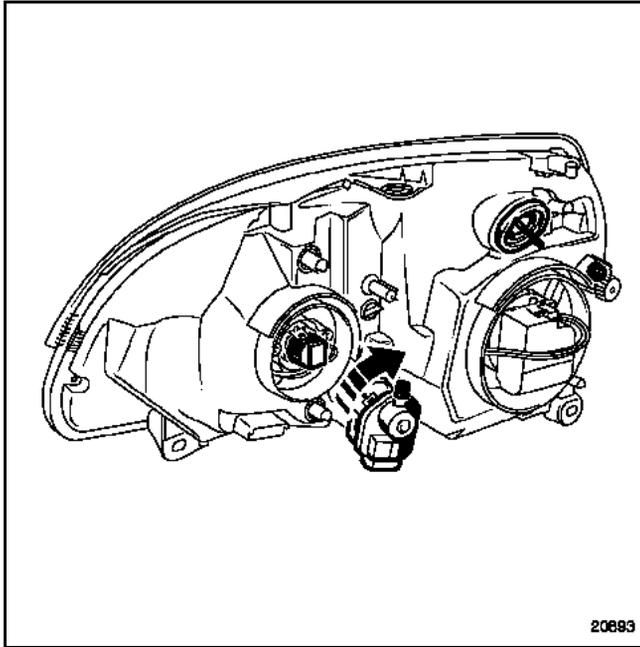
**IMPORTANT:** after a xenon bulb is replaced, the system must be initialised and the headlights adjusted (refer to the **Initialisation** section).

### REMOVING AN ACTUATOR

The headlight must be removed to remove an actuator.

Turn the actuator one-eighth of a turn to release the headlight.

Then disconnect the ball joint from the reflector shell, tilting the actuator slightly.



### CONNECTION

Track	Description
1	Earth
2	Control
3	Supply

### REFITTING - Special points

To make it easier to remove the actuator, remove the sealed cover and hold the headlight reflector. Then click the ball joint into its housing.

Refit the actuator to the headlight and turn it one-eighth of a turn.

**IMPORTANT:** after the actuators have been removed, the system must be initialised and the headlights adjusted (refer to the **Initialisation** section).

# FRONT HEADLIGHTS

## Headlight with xenon bulbs

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### ELECTRONIC UNIT (Ballast)

**WARNING:** Xenon bulbs have an initial charge of 20 000 volts when switched on, then 85 volts A.C. during operation.

It is therefore essential to disconnect the lens unit and to wait until the computers (ballast and module) have cooled down before removal.

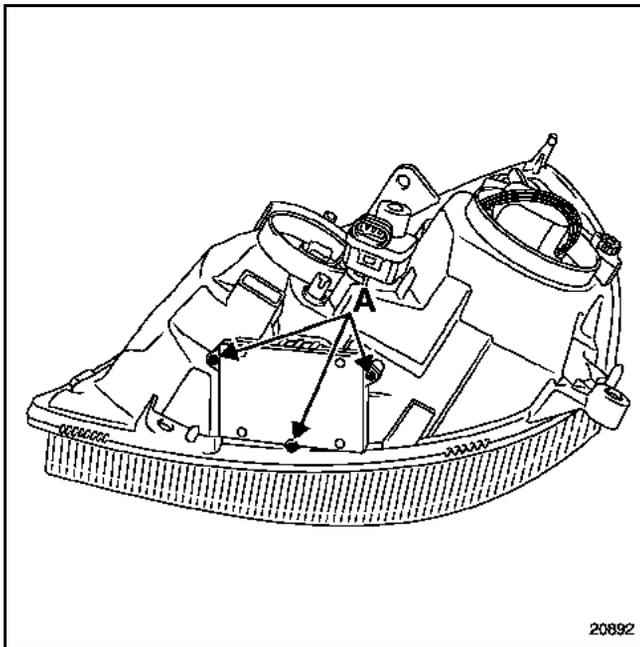
It is forbidden to light the bulb if it is not in the lens unit as this is harmful to the eyes.

### REMOVAL

Remove the relevant headlight.

Place the headlight on a clean cloth so as not to scratch it.

Remove the starred bolts (A).

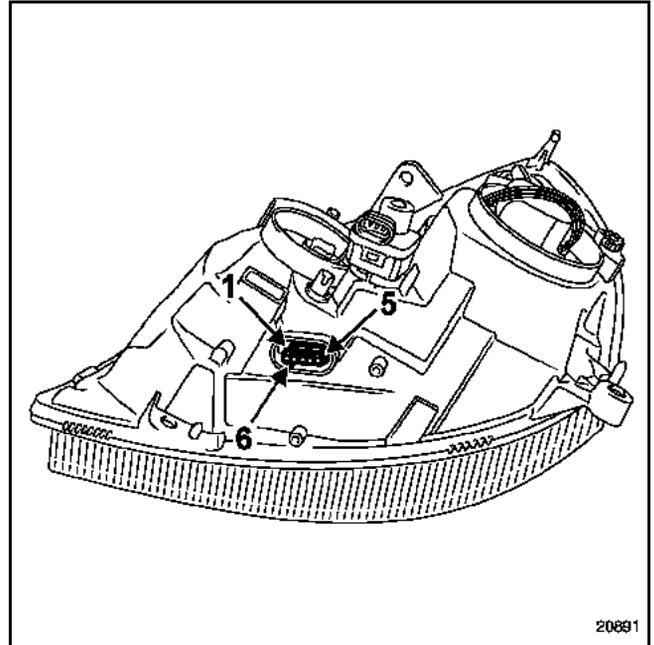


### REFITTING

Observe the tightening torque of the electronic unit (1 daNm).

**IMPORTANT:** after an electronic unit (ballast) has been removed, the system must be initialised and the headlights adjusted (refer to the **Initialisation** section).

### CONNECTION



Track	Description
1	Dipped headlights signal
2	Earth
3	Connection with high voltage module (track no. 4)
4	Connection with high voltage module (track no. 2)
5	Connection with high voltage module (track no. 1)
6	Bulb earth

# FRONT HEADLIGHTS

## Headlight with xenon bulbs

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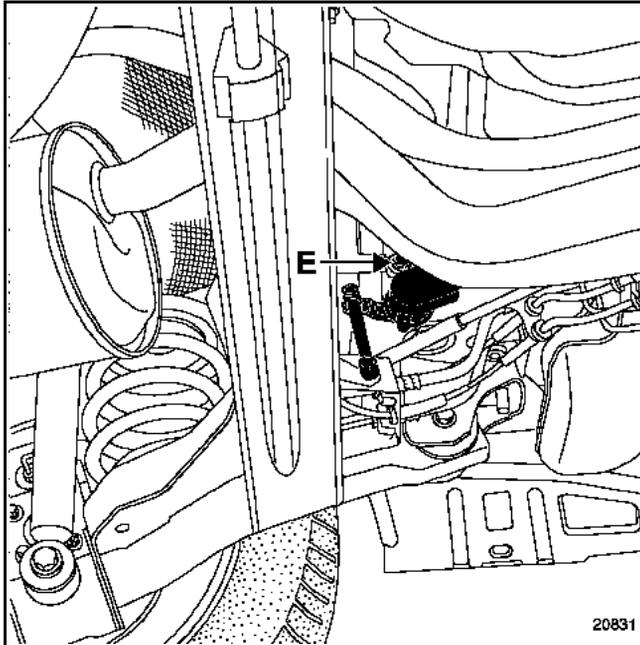
### REAR SENSOR/COMPUTER

#### REMOVAL

Disconnect the power supply connector.

Unclip the end of the linkage.

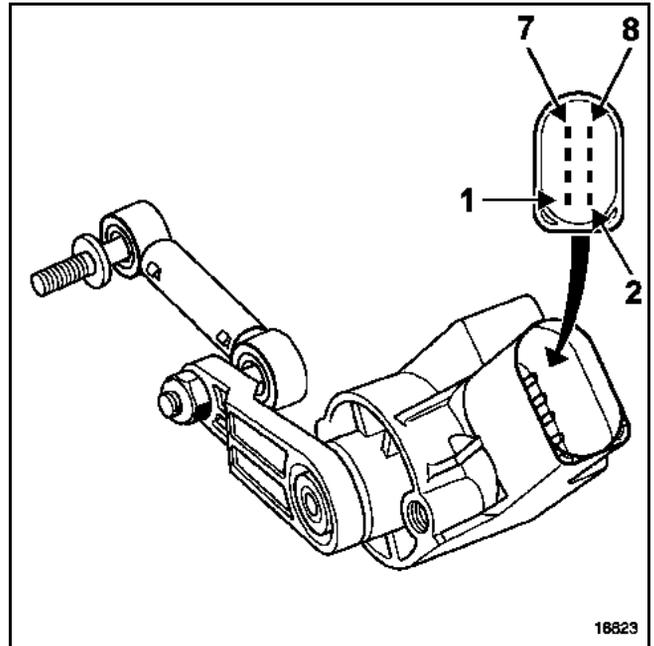
Unscrew the mounting bolt (E) that retains the sensor/computer.



### REFITTING

**IMPORTANT:** after you have refitted the sensor and tightened its mounting bolt to a torque of **1.2 daNm**, the system must be initialised and the headlights adjusted (refer to the **Initialisation** section).

### CONNECTION



Track	Description
1	Earth
2	+ after ignition
3	Not used
4	Vehicle speed signal
5	Diagnostic line
6	Lighting signal
7	Actuator control
8	Not used

### SYSTEM INITIALISING AND HEADLIGHT ADJUSTMENT

This procedure should be performed after working on the headlights, the sensor/computer or on any part of the suspension.

Park the vehicle on level ground.

**IMPORTANT:** don't apply the parking brake.

Check the tyre pressures and open the bonnet.

Connect the fault finding tool and check that there are no faults.

Switch on the ignition and the dipped beam headlights and select and confirm the computer.

Enter command **AC010 Computer Calibration**.

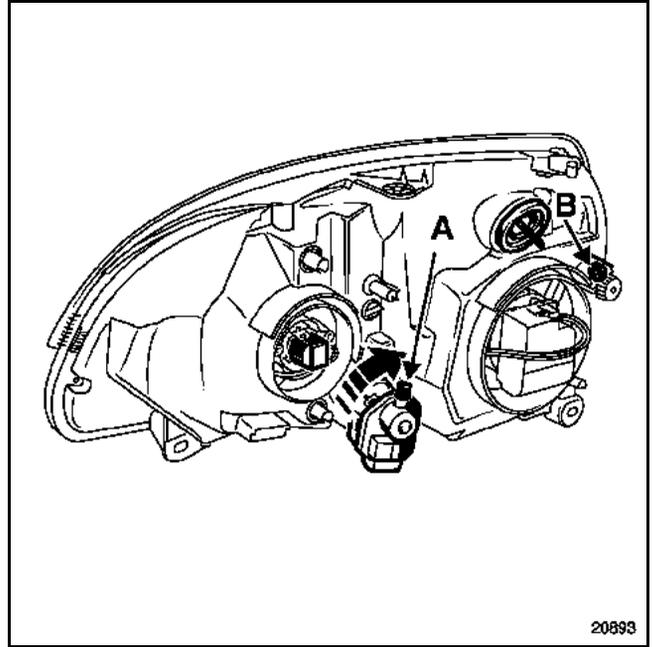
Adjust the headlight setting tool according to the values in the table below:

Petrol level		
Tank on reserves	Tank half full	Tank full
0.9%	1%	1.2%

**NOTE:** if the headlight setting tool is not adjustable, take 1% as the feeder value.

Without switching off the ignition, use the headlight setting tool to adjust the height, screw (A), and the direction, screw (B).

**IMPORTANT:** the level of the vehicle must not change between the initialising process and adjusting the headlights. The two procedures are inextricably linked.



**IMPORTANT:** the system cannot be initialised if:

- if the vehicle speed is not present or is not at zero,
- if the position of a sensor is not within tolerance,
- if the computer has not been correctly configured.

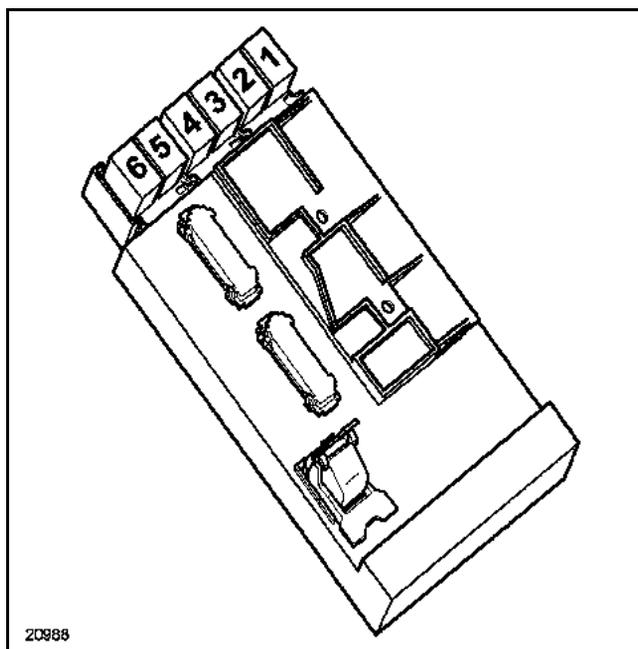
### FEATURES OF DAYTIME RUNNING LIGHTS

The daytime running lights function for some countries is operated by the UCH.

Only vehicles fitted with a top of the range UCH and a top of the range wiring harness, including a rain sensor and a light sensor, can be configured with daytime running lights.

**NOTE:** the daytime running lights are supplied via relays attached to the UCH.

The daytime running lights can be configured with the fault finding tool. Go to the **Command, System configuration** menu, then select **with** or **without daytime running lights** (refer to **section 87**).



Relay	Description
1	Main daytime running lights relay
2	Daytime running lights side lights relay
3	Front fog lights relay
4	Daytime running lights code relay
5	Headlight washer pump relay
6	Headlight washer pump relay

# FRONT HEADLIGHTS

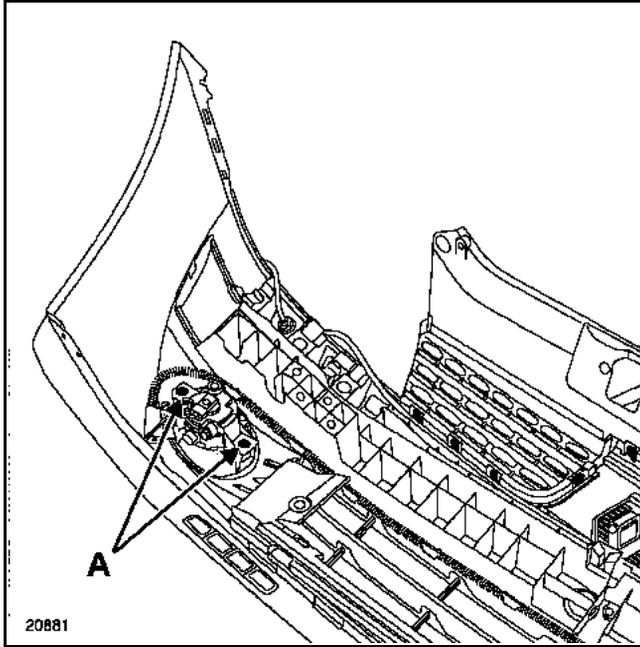
## Fog lights

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### REMOVAL

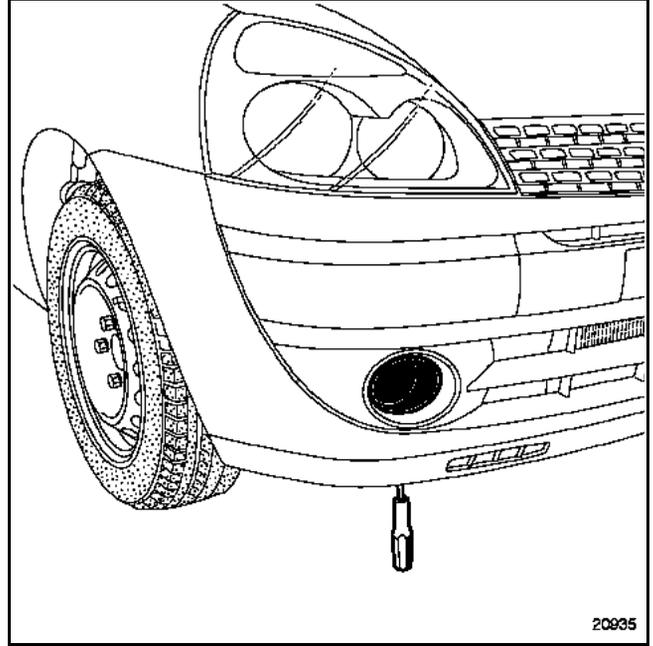
Disconnect the connector.

Remove the two mounting bolts (A).



### REFITTING

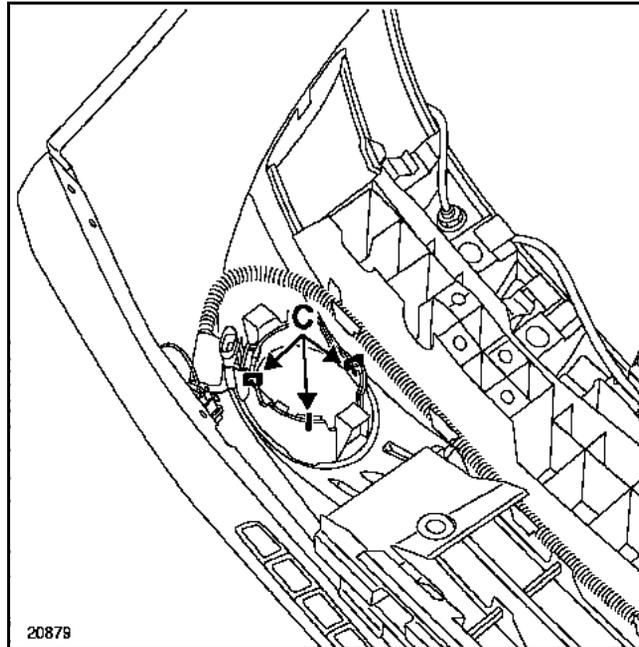
There are no specific points to mention here, but remember to adjust the fog lights.

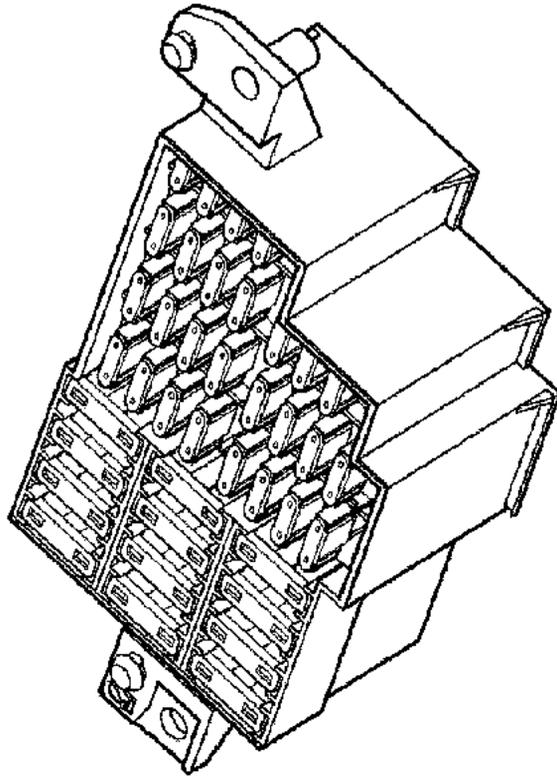


### SPECIAL NOTES

The fog lights support is held in place by three clips (C).

It can be fitted using pliers **Car. 1521** (for further details, refer to the **Bodywork** section).





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

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# REAR AND INTERIOR LIGHTS

## Fuses

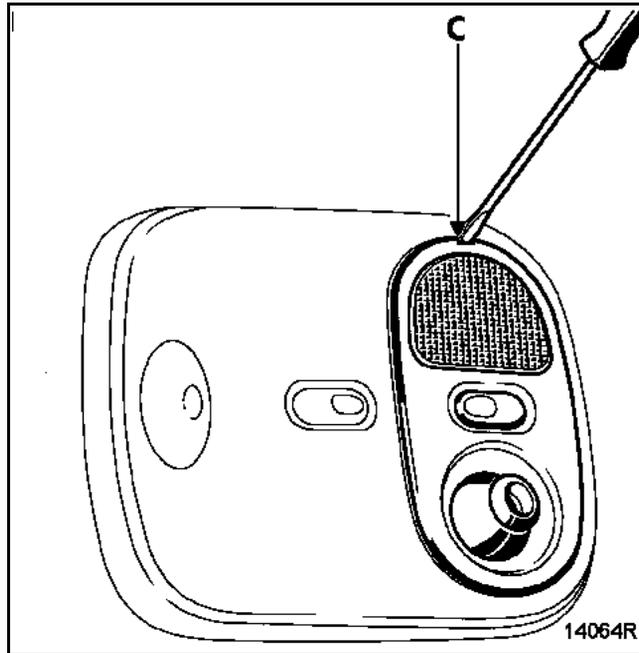
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No.	Rating (amps)	Description	No.	Rating (amps)	Description
F1	10A	Air bags and pretensioners	F21	5A	Instrument panel - Door locking - Diagnostic socket
F2	15A	Brake lights - Diagnostic socket - Instrument panel - Cruise control - Gear shifting control	F22	15A	Indicators
F3	15A	Air conditioning - Rear screen wiper - Reversing lights	F23	15A	Rear fog light
F4	20A	Windscreen wiper	F24	-	Not used
F5	10A	ABS - ESP	F25	-	Not used
F6	10A	Air conditioning	F26	10A	Left hand side lights
F7	15A	Radio - Navigation aid - Display - Clock - Cigarette lighter	F27	10A	Right-hand side lights
F8	15A	Horn	F28	2A	Immobiliser transponder ring
F9	10A	Left hand dipped headlights - Xenon bulb computer- Left hand beam adjustment	F29	20A	Radio - Central Communication Unit - Clock - Courtesy lights - Electric rear -view mirrors
F10	10A	Right hand dipped beam headlights - Right hand beam adjustment	F30	30A	Heated rear screen
F11	10A	Right-hand main beam headlight	F31	20A	Door locking
F12	10A	Left hand main beam headlight - Instrument panel warning light	F32	-	Not used
F13	20A	Rear screen wiper	F33	20A	Headlight washers
F14	-	Not used	F34	20A	Heating - Air conditioning
F15	-	Not used	F35	20A	Heated seats
F16	-	Not used	F36	30A	Electric windows
F17	10A	Heated rear-view mirrors	F37	10A	UCH
F18	20A	Front fog light	F38	-	Not used
F19	-	Not used	F39	15A	Electric power assisted steering
F20	20A	UCH			

### COURTESY LIGHT WITH MAP READING LIGHT

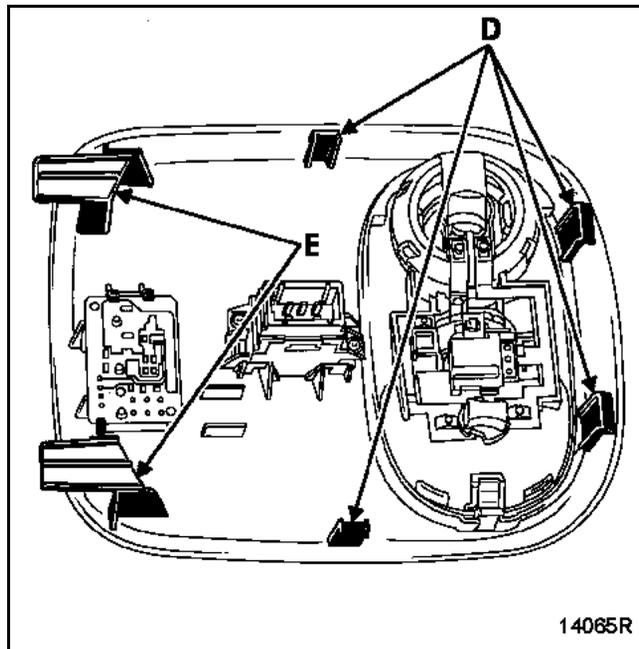
#### REMOVAL - REFITTING

Unclip the assembly from the courtesy light mounting using a small flat screwdriver as a lever in the notch (C) and disconnect the connector.



#### Removal of the courtesy light console

The courtesy light console is held in the head lining by four clips (D) and two lugs (E).



# REAR AND INTERIOR LIGHTS

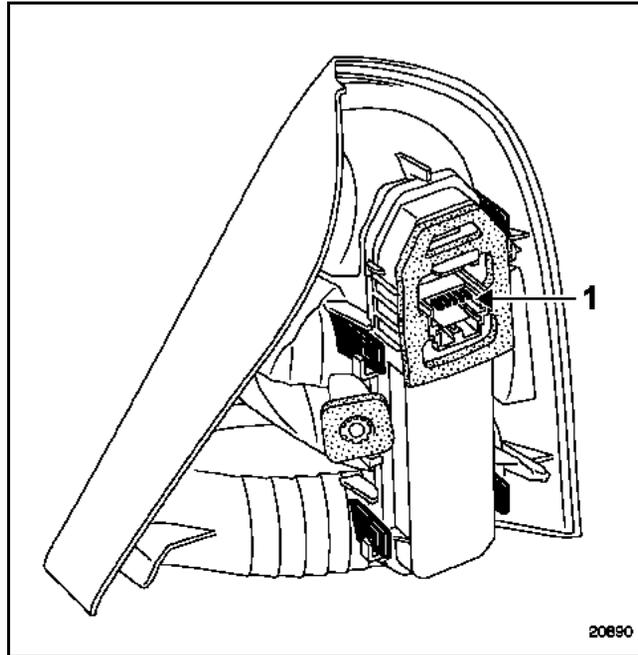
## Rear lights

81

### REMOVAL - REFITTING

Remove the mounting bolt located in the luggage compartment then disconnect the connector from the outside.

### CONNECTION

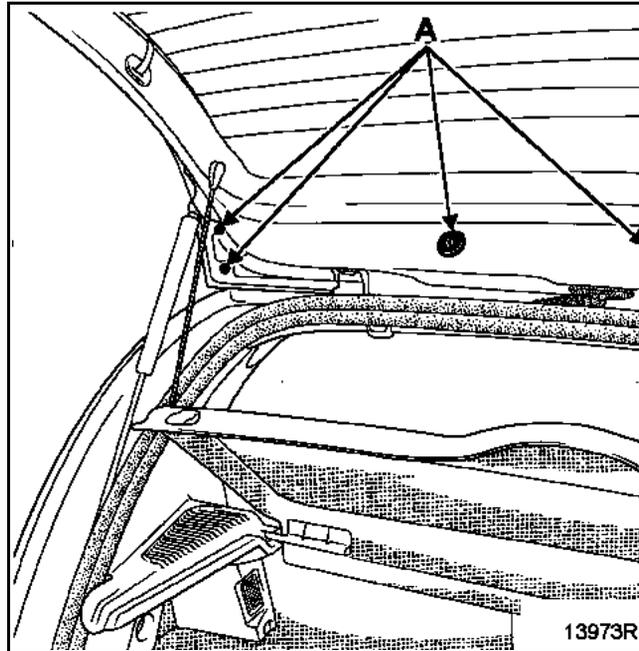


Track	Description
1	Earth
2	Reversing light
3	Indicator
4	Fog light
5	Brake light
6	Side light

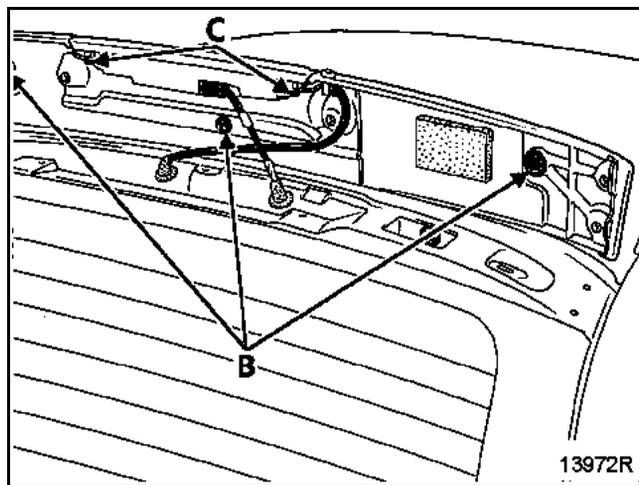
**NOTE:** track numbers are read from right to left.

### REMOVAL - REFITTING

With the tailgate raised, remove the six bolts (A) securing the upper trim.



Lower the tailgate and unclip the upper trim (three clips (B)).



Disconnect the connector and remove the two bolts (C) securing the light.

**NOTE:** the bulbs cannot be removed. If there is a fault, replace the whole light.

### SPECIAL NOTES

- The security code no longer exists but has been replaced by a repair code allocated to the vehicle for life during manufacture.
  - there is no number marked on the key,
  - at the time of delivery, the vehicle does not have a label showing the code.

When working on this system, this repair code number may be requested from the local assistance network (see **Technical Note 3315E**).

**When requesting the code number, it is now essential to provide the vehicle's VIN as well as its fabrication number. This allows the operator to identify the vehicle in order to provide the correct code.**

- Spare keys are supplied uncoded, without a number or a metal insert.
- This system can have up to four keys. The remote control function and the battery have no effect on the immobiliser.
- In the event of a key being stolen or lost, one or more of the vehicle's keys can be deallocated. The customer may also request deallocation. Keys can be reallocated to the same vehicle if necessary.

**WARNING: with this system, it is not possible to replace more than one component (UCH and keys or UCH and injection computer) at the same time.** These parts are sold non-coded.

It is not possible to code these components when replacing them if none of them have the vehicle's original code in its memory (see allocation table).

- There is no way of erasing the code programmed into the system components. **The programmed code cannot be erased.**

### GENERAL INFORMATION

The engine immobiliser is controlled by a random rolling code key recognition system (encrypted).

The immobiliser is activated a few seconds after the ignition is switched off. This may be indicated by the flashing of the red warning light on the instrument panel.

During manufacture, a twelve character hexadecimal code is allocated to the vehicle to make the engine immobiliser operational.

This repair code is required in After-Sales in order to:

- add keys,
- replace one or more keys,
- deallocate one or more keys (e.g. if lost or stolen),
- replace a UCH.

**NOTE:** it is essential to know the vehicle identification number to obtain the repair code. There are several ways to do this, depending on country (refer to **Technical Note 3315E**):

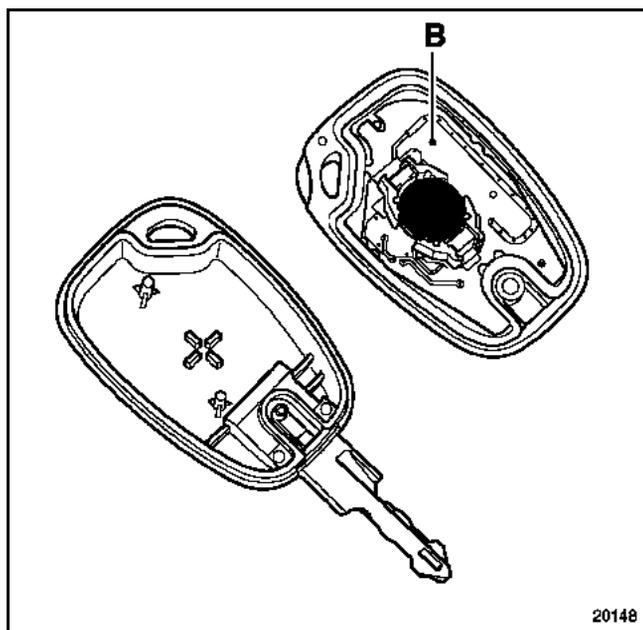
- by Minitel,
- by voice server,
- through the Techline.

### SYSTEM DESCRIPTION

With this system, the engine immobiliser is activated a few seconds after the ignition is switched off (shown when the red engine immobiliser warning light flashes).

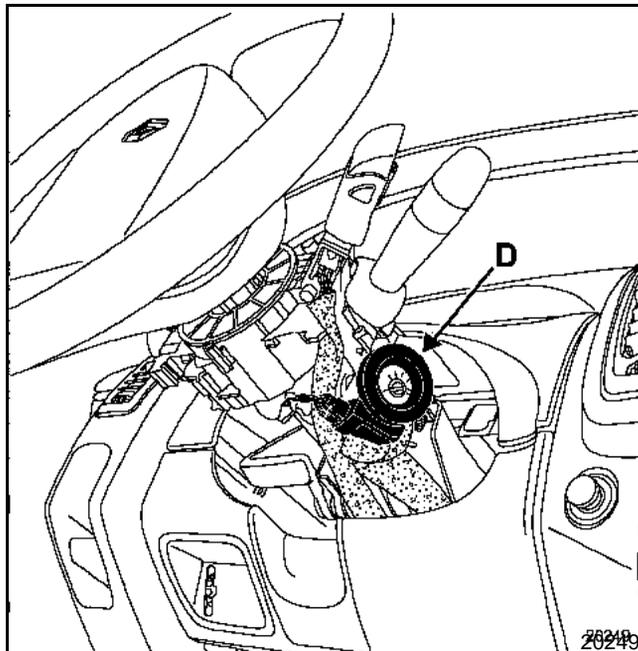
It comprises:

- an electronically coded key head (B), that controls the immobiliser and remote control door locking (according to the version),



**NOTE:** the immobiliser chip is now part of the remote control printed circuit.

- a transponder ring (D) placed around the ignition switch, fitted with a chip to transmit the key codes to the UCH.

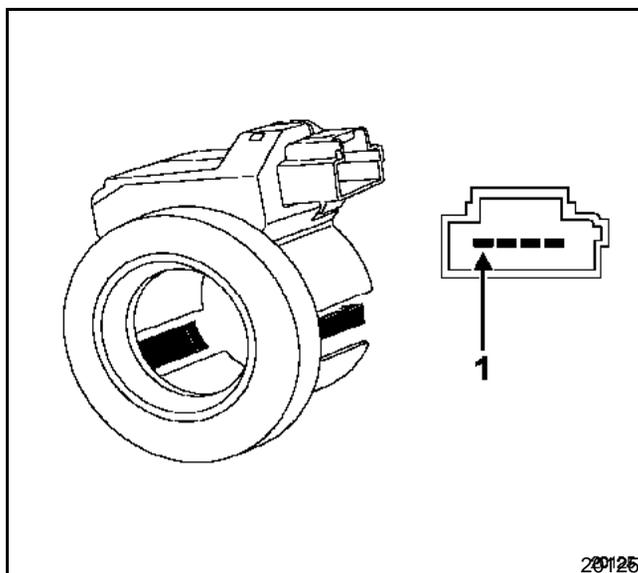


**NOTE:** this transponder ring is not coded.

### REMOVAL - REFITTING

Remove the half cowlings from under the steering wheel, release the ring from the ignition switch and disconnect its connector.

### CONNECTION



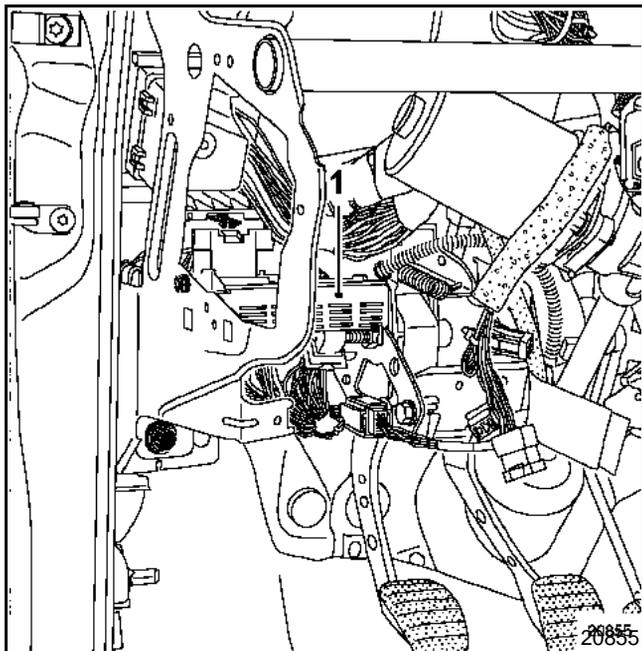
Track	Description
1	Not used
2	Earth
3	+ before ignition
4	Signal output

- a UCH.

To assist the engine immobiliser function, the UCH:

- decodes the key signal,
- communicates with the injection computer,
- controls the red warning light on the instrument panel,
- communicates with the fault finding tool.

The UCH (1) is located under the instrument panel.



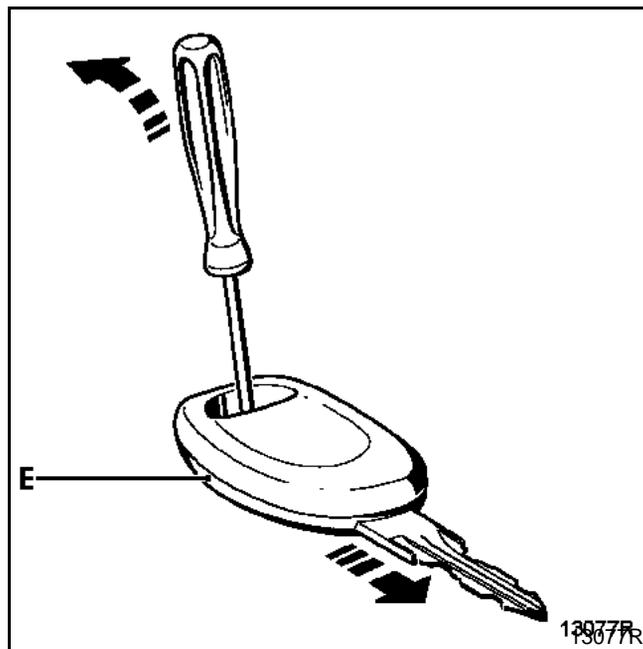
To remove it, see **section 87**.

- an engine immobiliser warning light located on the instrument panel used to signal:
  - activation of the engine immobiliser,
  - non-recognition of the key,
  - a system fault,
  - programming of a key.

### OPENING A KEY HEAD

Place the key head on a table with the metal insert facing downwards.

Use a small screwdriver as a lever as shown below, ensuring that the tip is placed on the lower section (E) of the key head. This allows you to slide the upper section away from the lower section.



### OPERATION

When the immobiliser system is operational, the engine immobiliser indicator light flashes slowly (once per second).

- After the ignition is switched on, the key code is transmitted to the UCH.
- If the code is recognised by the UCH, the UCH and the injection computer exchange coded signals via the multiplex network and switch off the immobiliser warning light.
- If the signals issued by the UCH and the injection computer match, the UCH authorises the engine to start and the injection is unlocked.

### SPECIAL CASES:

- The injection computer has no reference code in its memory: the code which is transmitted is memorised.
- If the key code and the UCH code do not match, the system remains locked. The engine immobiliser indicator light flashes rapidly. The vehicle will not start.

**IMPORTANT:** when the vehicle battery has a low charge, the drop in voltage caused by operating the starter may reactivate the immobiliser. If the voltage is too low, the engine cannot be started, even if you push the vehicle.

# ENGINE IMMOBILISER

## Coded key immobiliser system

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### REPLACEMENT AND CONFIGURATION

New parts are not coded. Once fitted on the vehicle, they must be programmed with a code to become operational.

To perform this procedure, it is essential that some parts on the vehicle are already correctly coded (with the vehicle code). Refer to the allocation table.

**WARNING:** If a part is programmed with a code, the part is then allocated to the vehicle and the code cannot be erased nor can the part be programmed with a second code. **The programmed code cannot be erased.**

### ALLOCATION TABLE

AFTER-SALES OPERATION	COMPONENT STATUS			REPAIR CODE NEEDED
	UCH	Key	Injection computer	
Programming the UCH	Blank	Coded	Coded	YES
Key allocation or cancellation	Coded	Blank*	-	YES
Programming the injection computer	Coded	Coded	-	NO

\* A key allocated to a vehicle must be blank or already programmed to this vehicle.

**NOTE:** a key may be programmed to a vehicle but not operational (not allocated).

**IMPORTANT:** only keys used in this procedure will work.

A new UCH is not programmed with a code. You must therefore program a code into a newly fitted UCH to make it operational.

To perform this procedure, at least one of the vehicle's old keys and the repair code are required and the injection computer must be correctly coded (refer to the allocation table).

**WARNING:** if a code is programmed into the UCH, the UCH is allocated to the vehicle. It is impossible to erase the code or program in another one.

**IMPORTANT:** only keys used for this procedure will work, provided that:

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

**NOTE:** there is no operation to perform on the injection computer when only the UCH is replaced, as it retains the same immobiliser code.

### UCH PROGRAMMING PROCEDURE

Using the fault finding tool:

- Enter dialogue with the **Engine immobiliser** system.
- In the **Command, Specific command** menu, select and confirm the **SC027: UCH programming** line.
- The tool displays **Remove the key from the immobiliser**,
- The tool displays **Please enter the After-Sales code**. With the ignition off, enter the secret After-Sales code (12 hexadecimal digits) and confirm.
- If the code format is correct, the tool displays **Insert a key which has already been programmed to the vehicle** and the programming procedure starts.
- The tool displays **UCH programming completed, please start key programming procedure**. The UCH is coded. You must now enter key programming mode to allocate the other keys (maximum of four). Several seconds may elapse before this message appears.

**WARNING:** the maximum time lapse between each operation is **5 minutes**, otherwise the procedure is cancelled.

### SPECIAL CASES

If the screen displays:

- **The After-Sales code entered does not correspond to the key presented. Check that you have entered the correct code and that you have presented a key:** the code does not correspond to the key or the key does not belong to the vehicle.
- **The UCH is not blank. Please start the key programming procedure:** The UCH has already been programmed for this vehicle.
- **Check the After-Sales code:** the code entered is incorrect. Check, then try entering the data again.
- **UCH programming failure, key cannot be used on this vehicle:** the key code does not correspond to the code entered (the key belongs to a vehicle from a different range).
- **The key inserted is blank. Please present another key which has already been programmed to this vehicle:** the key is blank. Present a key which has already been coded on this vehicle.

### KEY PROGRAMMING PROCEDURE

**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.

- Enter dialogue with the **Engine immobiliser** system.
- In the **Command, Special command** menu, confirm the **SC028: card/key programming** line.
- The tool displays **Remove the key from the immobiliser**,
- The tool displays **Please enter the After-Sales code**. With the ignition off, enter the secret After-Sales code (12 hexadecimal digits) and confirm.
- The tool displays **Warning, keys not presented will no longer be operational. Restart the procedure to reallocate them:** programming is in progress.
- The tool displays **Insert the key in the immobiliser, turn on the ignition and confirm:** switch on the ignition with a key from the vehicle or a blank key. The screen displays **1 key programmed**, confirm, then **remove the key from the immobiliser**.
- The tool asks: **Would you like to program another key?**
- To allocate additional keys, switch on the ignition for a few seconds with the other vehicle keys to be programmed (four maximum), then confirm. The screen displays **2, 3 or 4 keys programmed** then **remove the key from the immobiliser**.

**WARNING:** these must be old keys from the vehicle or new non-coded keys.

- The tool displays **Writing data to memory**, the UCH is coded and the keys are programmed. Several seconds will elapse when this message appears, in order to exit the reallocation.

**WARNING:** the maximum time delay between each operation is 5 minutes, otherwise the procedure will be cancelled and the tool will display the message **procedure interrupted: warning, the keys allocated to the vehicle are the ones allocated before starting the procedure. The keys submitted before interruption of the procedure are no longer blank and can only be allocated to this vehicle.** This message also appears when dialogue with the UCH is lost or the battery power supply fails.

### SPECIAL CASES

If the screen displays:

- **The UCH is blank. Begin the UCH programming procedure:** the UCH is blank. It is impossible to allocate keys to an uncoded UCH.
- **Check the After-Sales code:** the code entered is incorrect. Check, then try entering the data again.
- If the key does not correspond to the vehicle UCH, the tool will display **procedure cancelled: warning, the keys allocated to the vehicle are the ones allocated before the procedure was started. The keys submitted before interruption of the procedure are no longer blank and can only be allocated to this vehicle.**

### **CODING THE INJECTION COMPUTER**

The injection computer is delivered non-coded. It has to be programmed with the code of the engine immobiliser system when fitted, to enable the vehicle to start.

Simply switch on the ignition for a few seconds without starting the engine. Switch the ignition off; the immobiliser will be activated after a few seconds (engine immobiliser indicator light flashes).

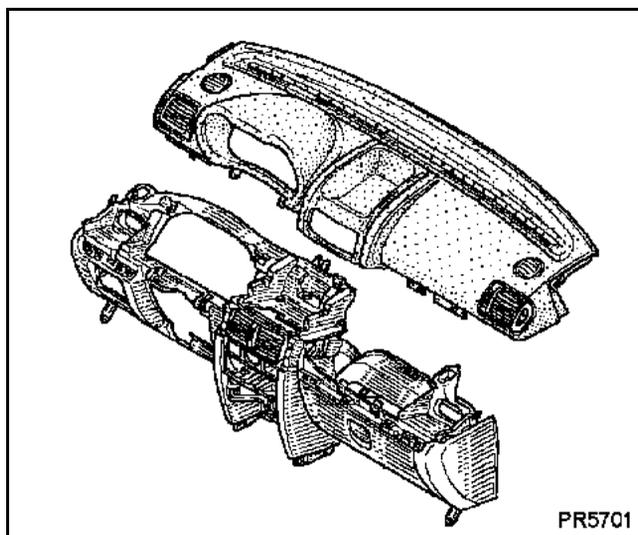
**WARNING:**

**With this engine immobiliser, the vehicle keeps its immobiliser code for life.**

**In addition, this system does not have a security code.**

**Consequently, it is forbidden to carry out tests with injection computers borrowed from stores which must be returned.**

**The programmed code cannot be erased.**

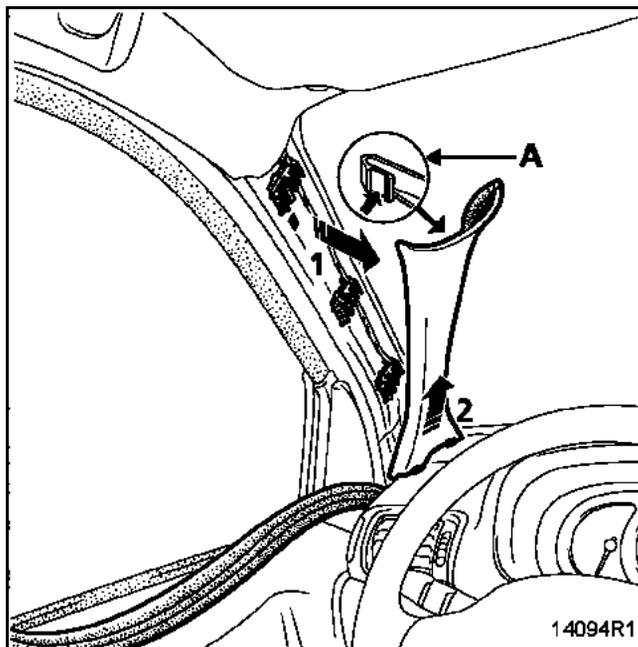


### REMOVAL

**IMPORTANT:** It is not permitted to handle the pyrotechnic systems (air bags and pretensioners) near a source of heat or flame as there is a risk of triggering.

**IMPORTANT:** before the dashboard can be removed, it is essential to lock the air bag computer using the fault finding tool (for instructions, refer to **section 88**)

Disconnect the battery.

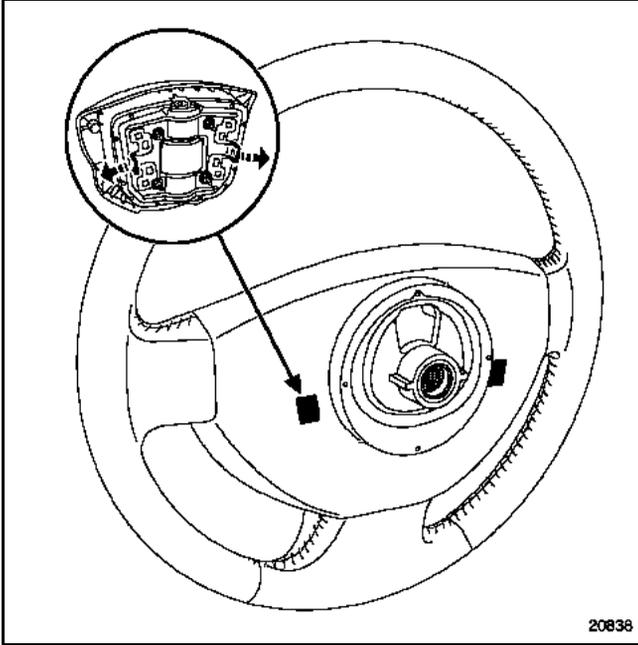


Partially remove the door seal.

Gently move the upper part of the trim to one side and press the retaining clips (A).

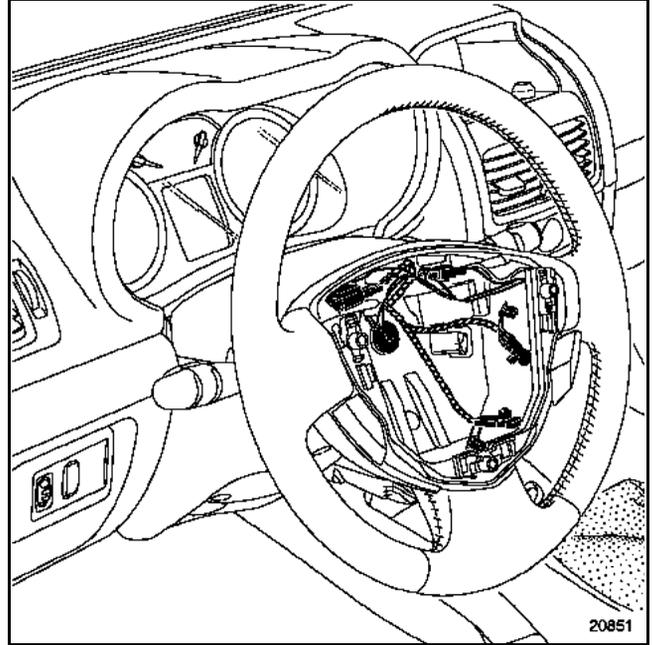
Unclip the trim (1).

Release the trim from its housing on the dashboard (2).



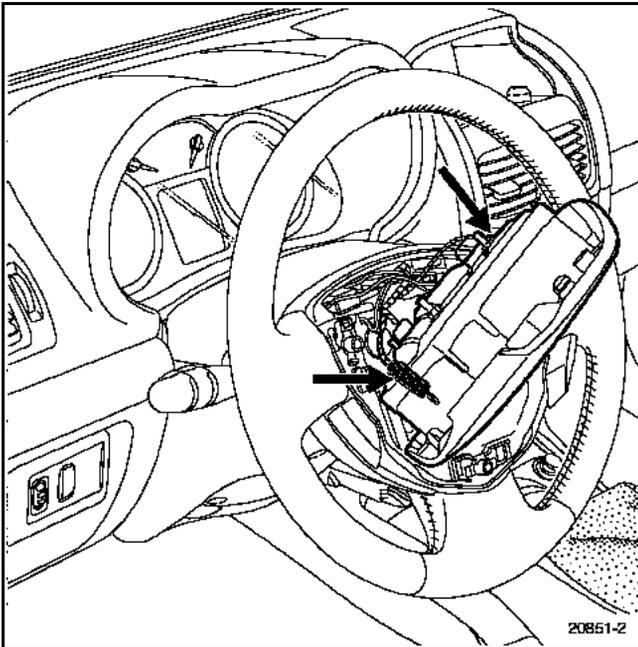
20836

Unclip the air bag from the steering wheel using a flat screwdriver.



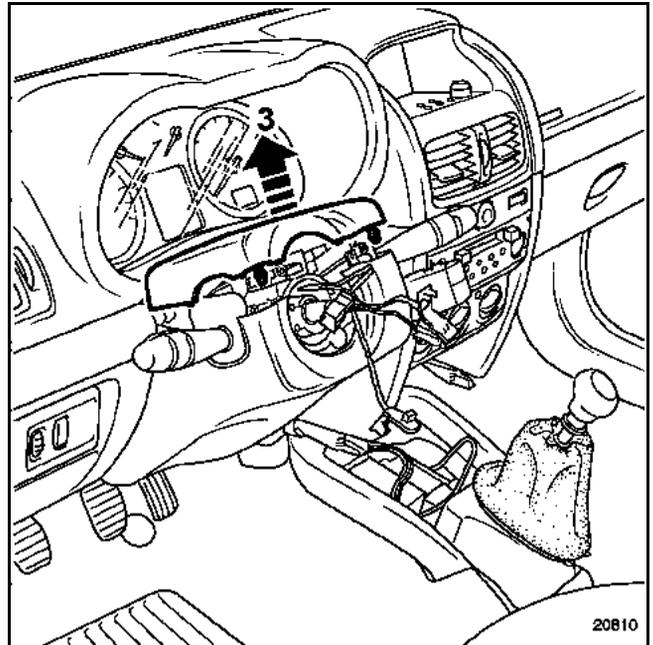
20851

Remove:  
– the steering wheel bolt,  
– the steering wheel after setting the wheels straight,



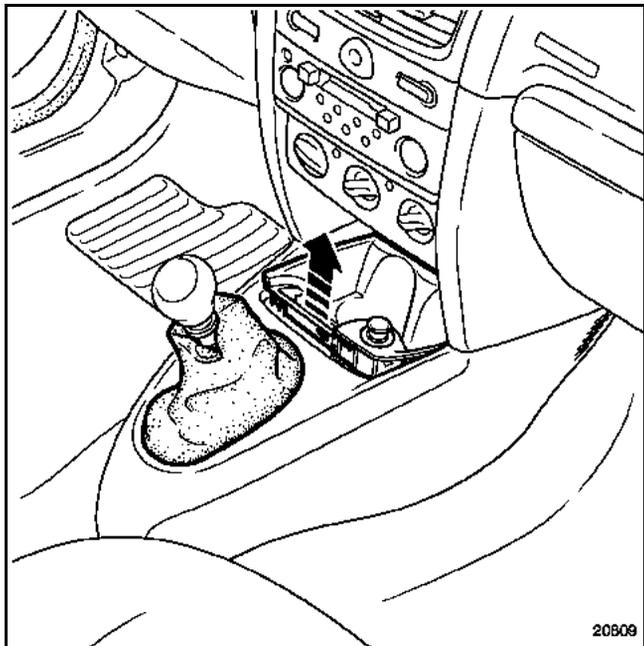
20851-2

Disconnect the two generator power supply connectors.



20810

– the steering wheel upper half cowl, as shown above (3).

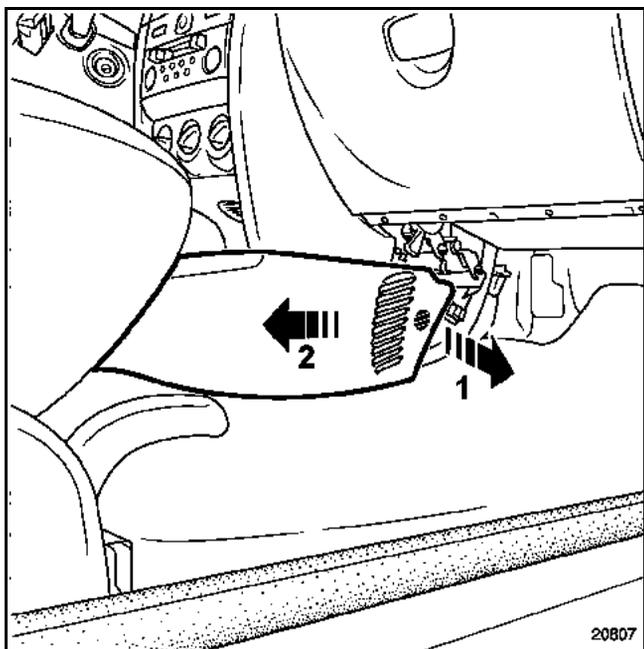
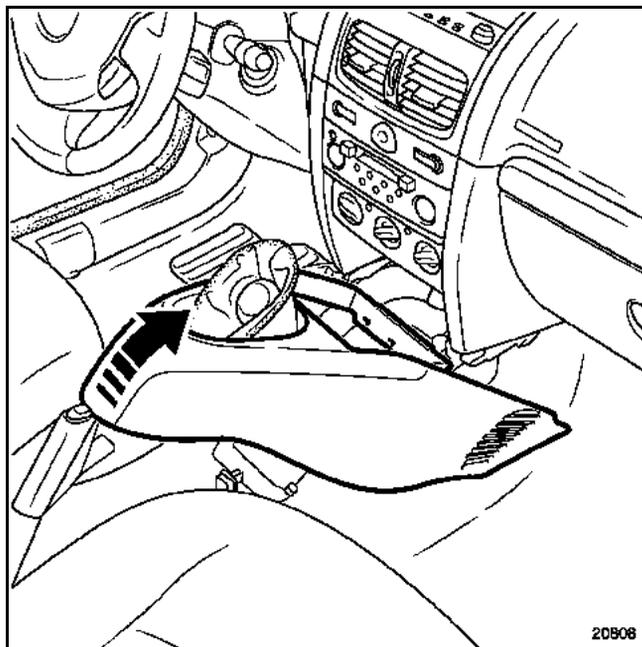


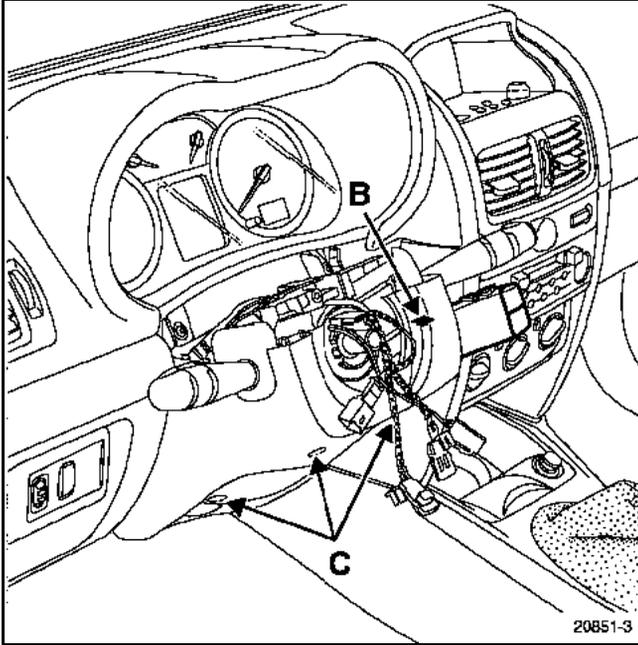
Remove the ashtray.

Release:

- the cigarette lighter support from its housing, then disconnect the connector,
- the gear lever gaiter,

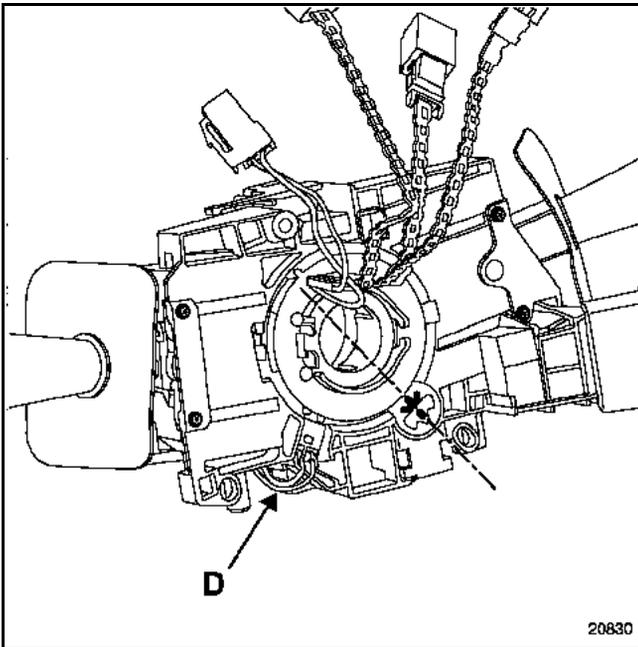
- the front of the console (1) and (2), and release it as shown below.





Press on the clip (B) with a flat screwdriver, to release the radio satellite control.

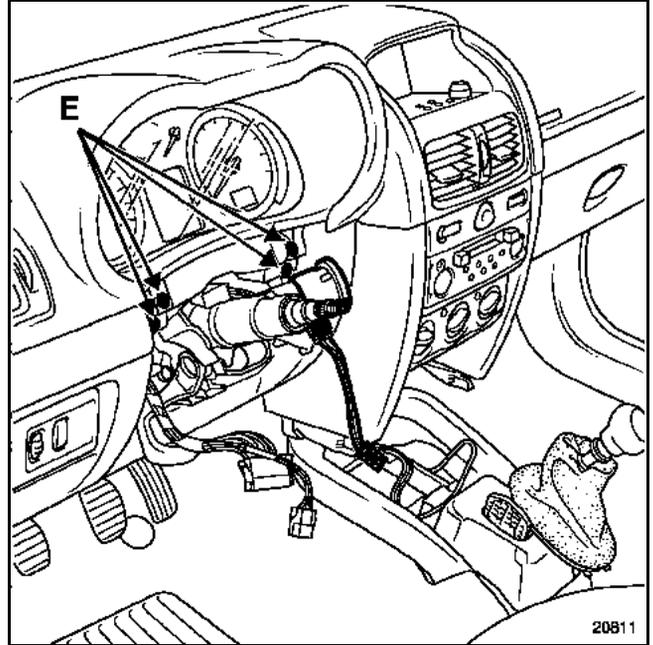
Remove the three mounting bolts from the steering wheel lower half cowling (C).



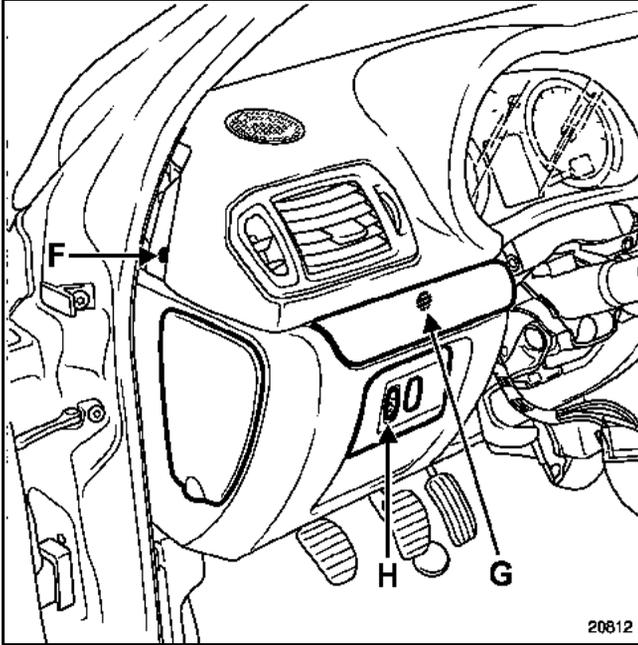
Remove the mounting bolt (D) from the rotary switch assembly.

Disconnect the connectors (windscreen wiper, lighting controls) and the rotary switch connectors (air bag and cruise control).

Remove:  
– the rotary switch,



– the four bolts (E),  
– the transponder ring.



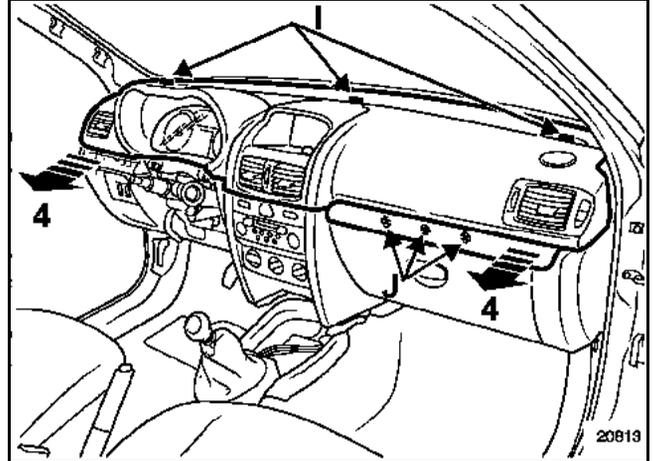
Remove the two clips (F).

Remove the cover with tool **Car. 1597** and remove the bolt (G).

Release the headlight adjuster support (H) using tool **Car. 1597** and disconnect the connectors.

Remove:

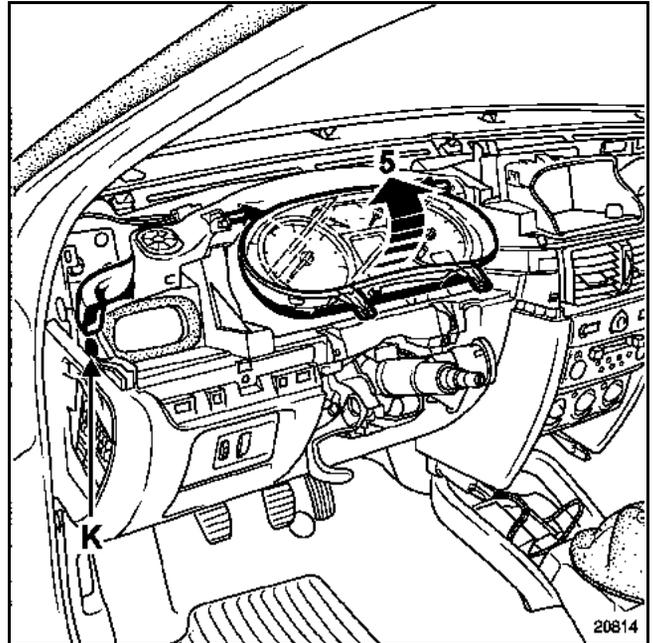
- the fuse box access flap,



- the three upper bolts (I).

Remove the cover with tool **Car. 1597** and remove the three bolts (J).

Release the cap as shown above (4).

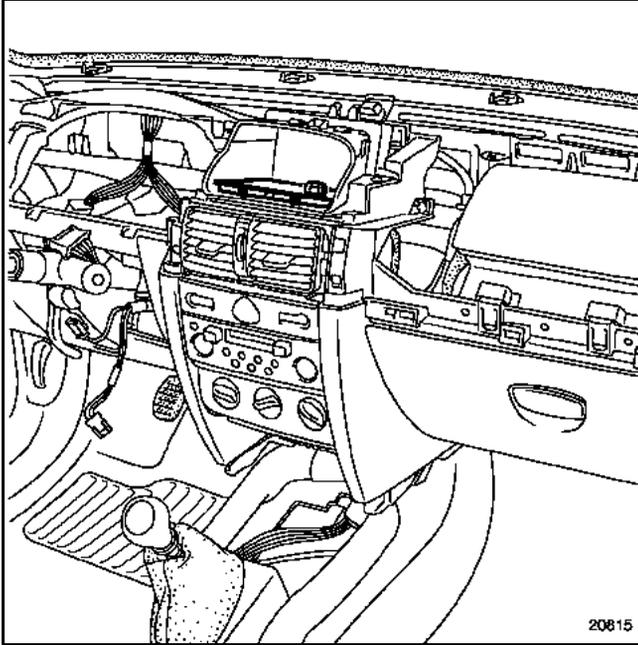


Remove:

- the two clips (K), then release the air pipes,
- the instrument panel (5).

Disconnect:

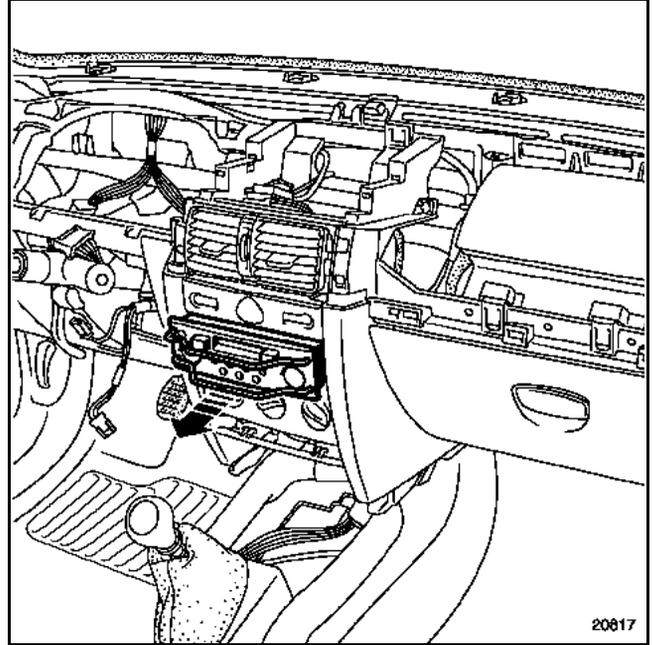
- the connectors from the two speakers,
- the glove compartment light.



20815

Unclip the Carminat keypad or the change tray (according to the vehicle's equipment) using tool **Car. 1597**.

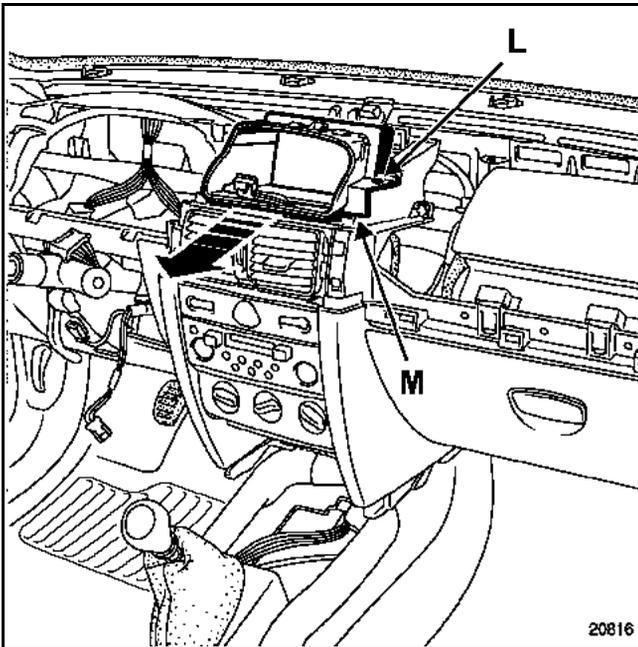
Disconnect the connectors.



20817

Remove the radio with tool **MS 1373**.

Disconnect the connectors.

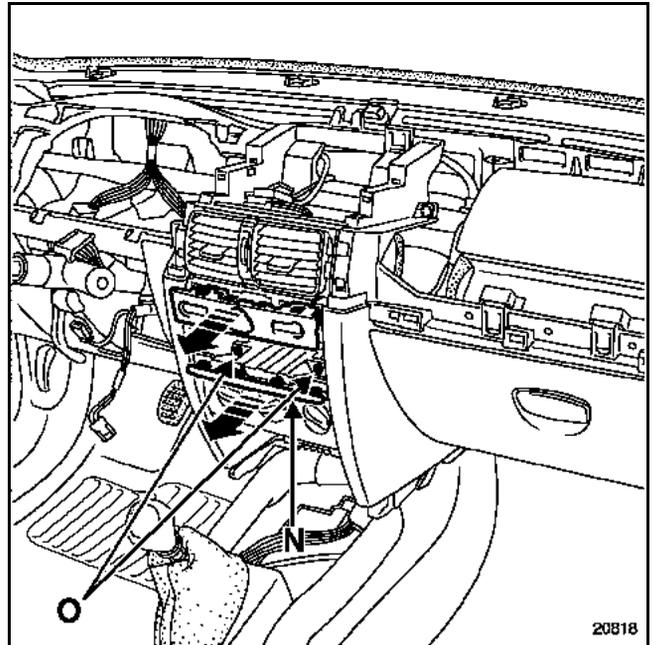


20816

Remove the two bolts (L).

Press the two clips (M) and take out the display or the Carminat screen.

Disconnect the connector.

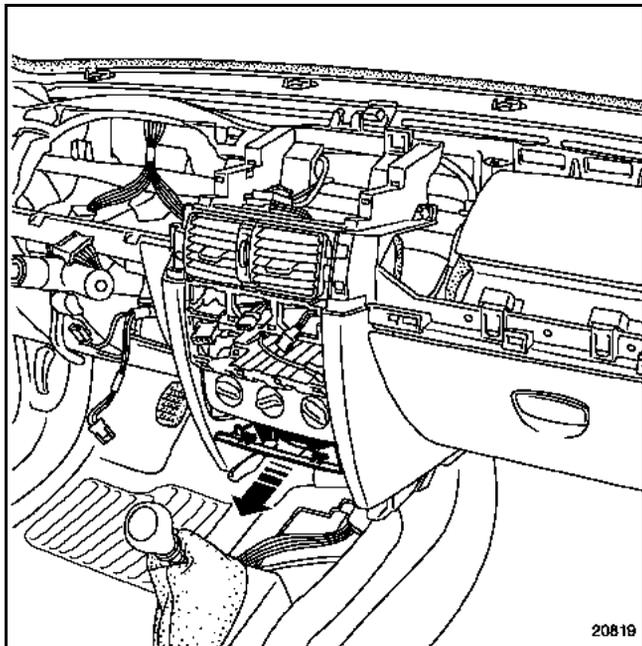


20818

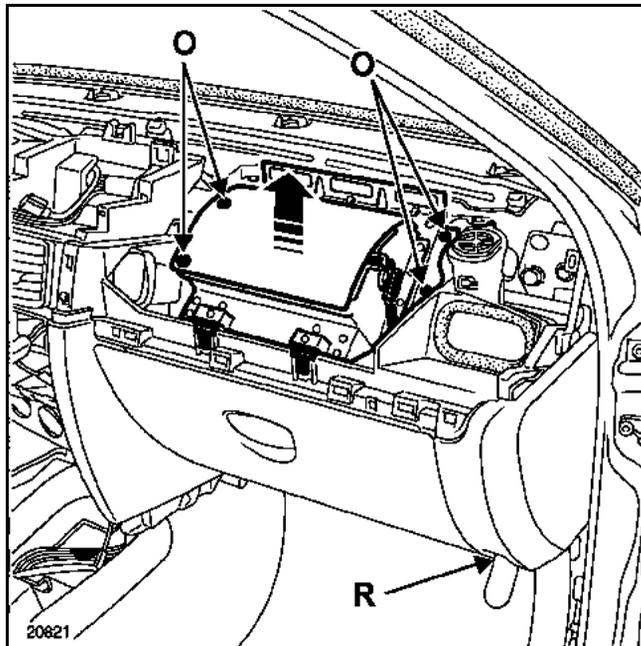
Unclip:

- the switch support and disconnect the connectors,
- the cover (N).

Remove the two mounting bolts from the heater control (O).



Release the Carminat speaker support and disconnect the connector.

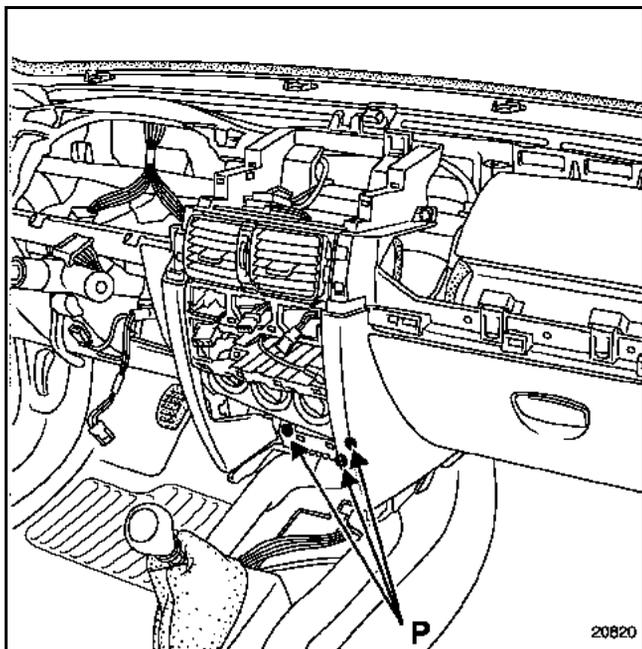


## REMOVAL OF THE PASSENGER AIR BAG

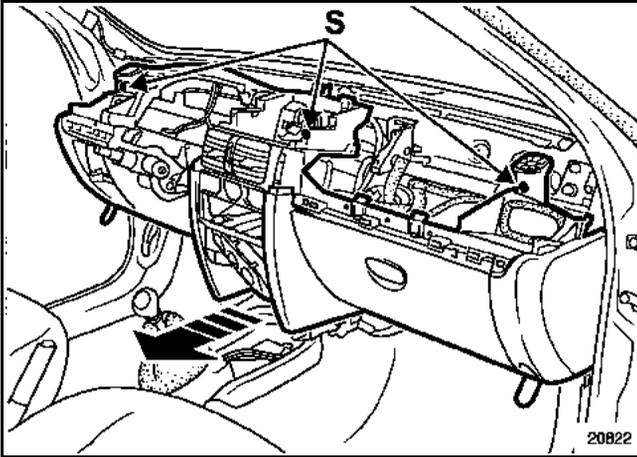
Disconnect the two air bag connectors.

Remove:

- the four mounting bolts, then release the air bag as shown above,
- the two lower bolts (R).



Remove the three bolts (P).



Remove the three upper dashboard mounting bolts (S).

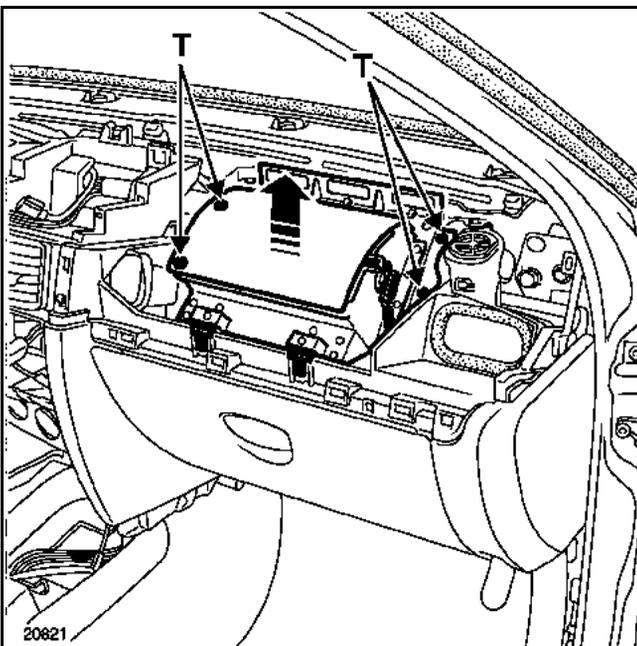
Lift the dashboard slightly to disengage the retaining pins near the mounting bolts (S).

### REFITTING

#### Features of the passenger air bag

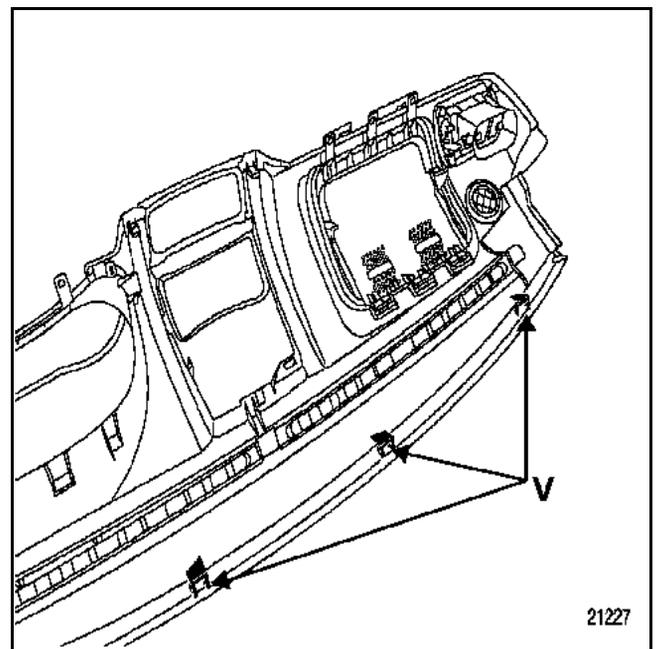
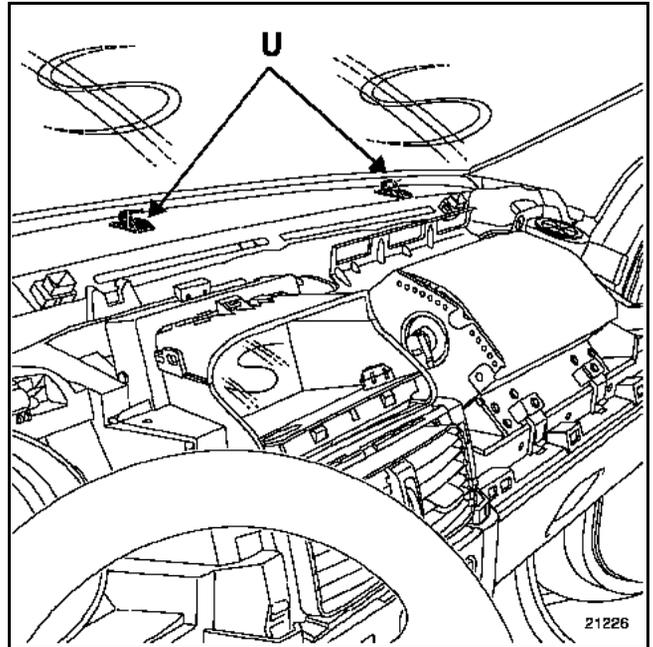
##### IMPORTANT:

- 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.



Position the bolts (T) and tighten them to a torque of **0.6 daNm**.

#### Features of the cap



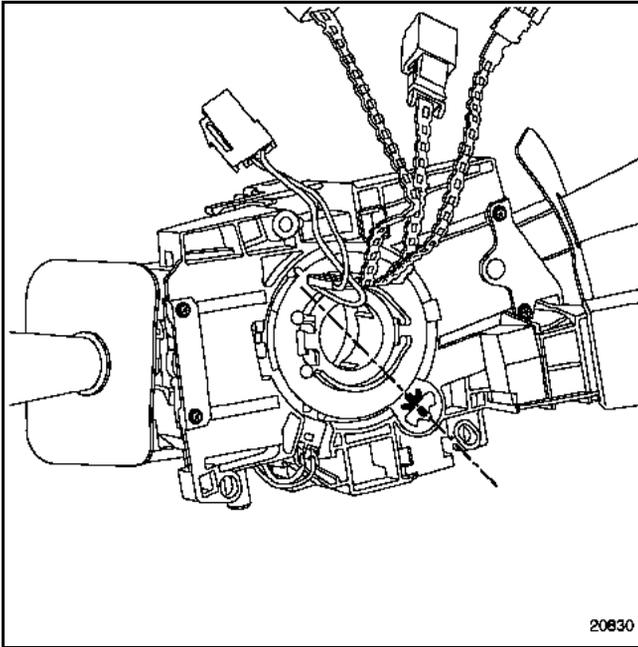
**IMPORTANT:** it is important to check that the retaining clips (U) and (V) are in good condition before replacing the cap.

**If the clips show any signs of deterioration, the cap must be replaced.**

**NOTE:** the clips (U) are available from the Replacement Parts Store.

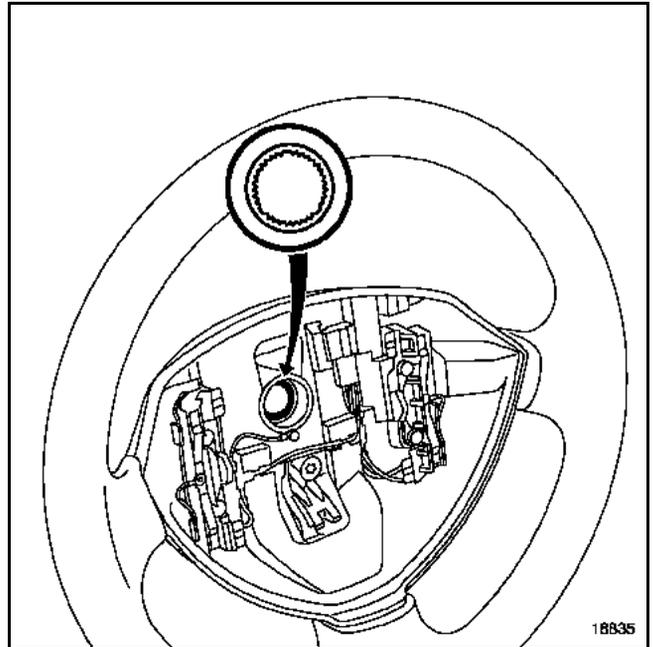
### Notes on the rotary switch

Ensure that the wheels are still straight.



Check that the rotary switch is correctly positioned by making sure that the mark 0 is located right on the steering column shaft.

### Notes on the steering wheel



**IMPORTANT:** the splines of the steering wheel are designed so that it can only be fitted in one way. The steering wheel should fit easily into the splines.

**NOTE:** the bolt must be replaced and tightened to **44 Nm** after each steering wheel removal operation.

### Notes on the driver's air bag

Connect the two air bag connectors and lock the safety clips.

Position the air bag on the steering wheel and press down on both sides to clip it in.

**IMPORTANT:** before unlocking the air bag computer, test it with the fault finding tool. If everything is correct, unlock the computer. If not, refer to the fault finding section.

**WARNING:** If these instructions are not followed the system may not operate normally and could even cause accidental triggering.

If you need to remove a dashboard fitted with a passenger air bag, you must replace the sticker after refitting (on the side of the dashboard). This sticker is available from the Replacement Parts Store (part number 77 01 207 257).

### GENERAL INFORMATION

The instrument panel contains the following functions:

- needle gauge functions
  - vehicle speed
  - rev counter
  - coolant temperature
  - fuel level
- beeper (ignition on)
  - indicators
  - "headlights on" reminder when a door is opened
  - automatic locking when driving confirmation
  - overspeed function (Arabia) (depending on version)
  - automatic headlighting indicator (depending on version)
  - cruise control/speed limiter indicator (depending on version)
- warning and indicator light function
- display function
  - oil level reading
  - odometer
    - total mileage
    - trip mileage
  - driving assistance (depending on the version)
    - fuel consumed
    - average consumption
    - current consumption
    - fuel range
    - distance covered
    - average speed
    - mileage before oil change
    - cruise control or speed limiter cruising speed (depending on version)
- display of the gear engaged on the automatic gearbox (depending on version)

**NOTE:** operations cannot be performed on the instrument panel with the fault finding tools. It does however have a self-diagnostic mode.

**NOTE:** the instrument panel is fitted with a mileometer and specific configurations sent by the UCH. It is therefore not possible to replace the instrument panel and the UCH in a single operation.

### REMOVAL

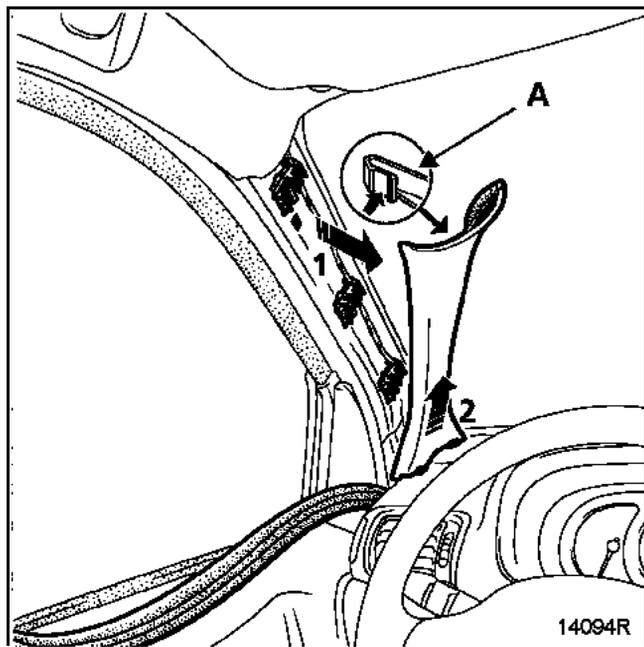
Disconnect the battery.

Partially remove the door seal.

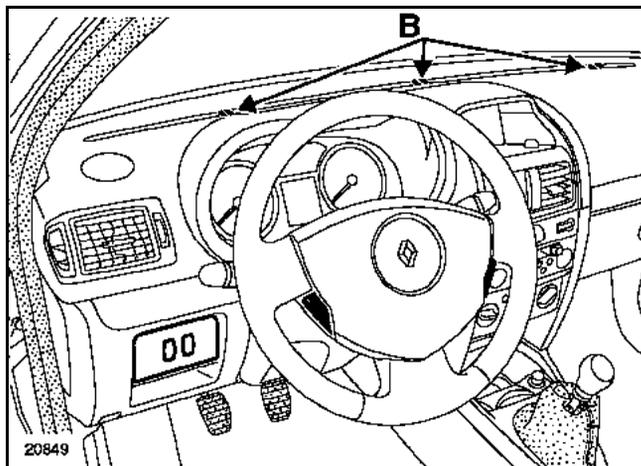
Remove:

– the windscreen pillar trims, as follows:

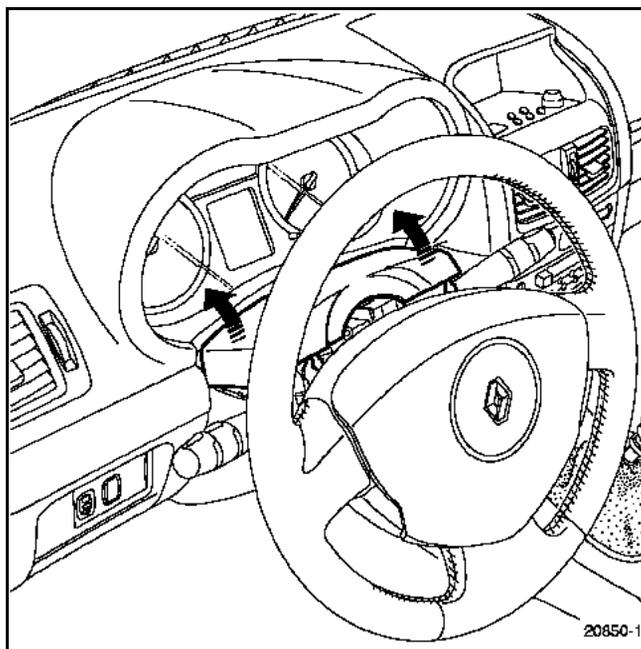
- 1) gently move the upper part of the trim to one side and press the retaining clip (A),
- 2) unclip the trim from its housing following movements (1) and (2),



– the three bolts (B) that attach the upper section of the cap,



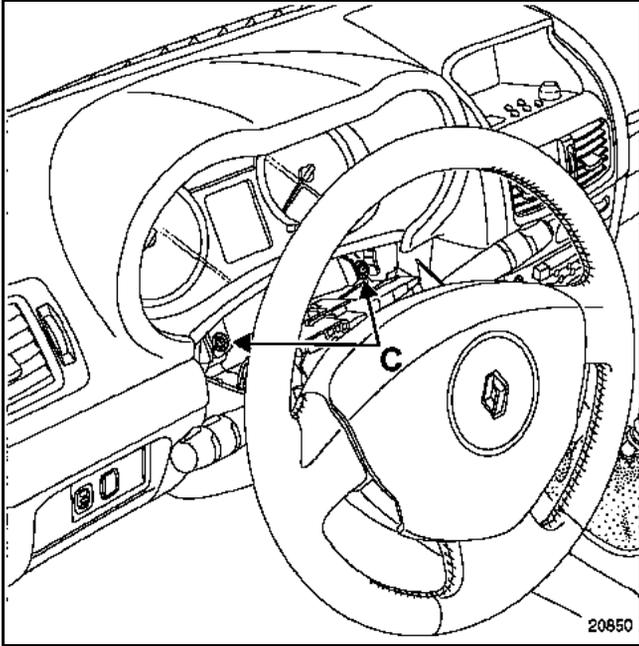
– the steering wheel upper half cowling, as shown below.



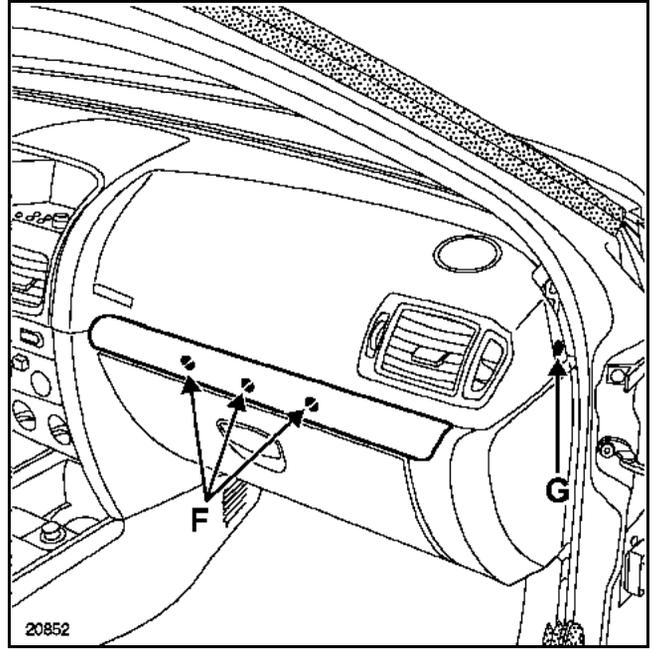
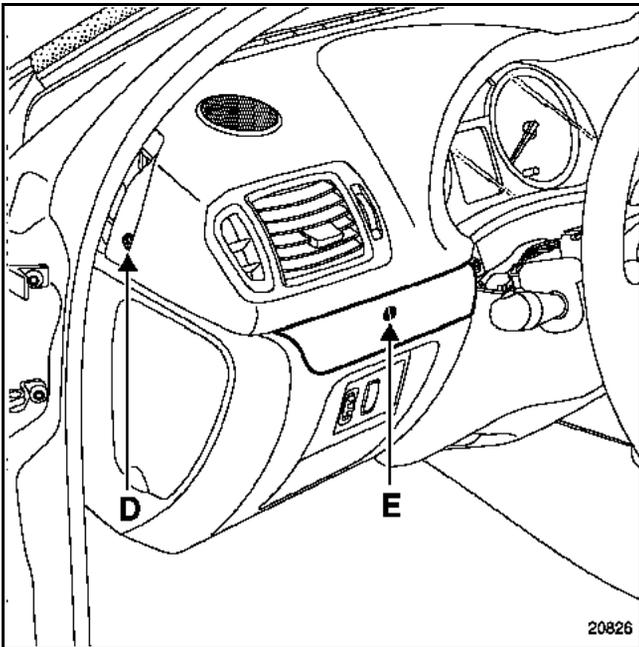
# INSTRUMENT PANEL

## Instrument panel

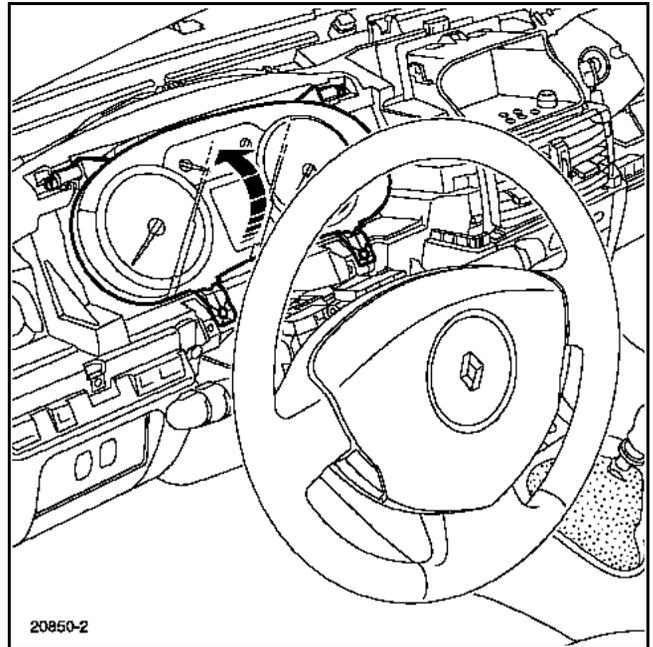
– the two dashboard mounting bolts (C).



After removing the covers with tool **Car. 1597**, unscrew the bolts (D), (E), (F) and (G), then release the cap on the passenger side.



Turn the instrument panel around as shown below, then disconnect the connectors.



### Configuring the instrument panel

When the instrument panel is replaced it is configured automatically once the ignition is switched on. The **UCH** sends the configuration stored in the memory of the former instrument panel to the new instrument panel.

When the instrument panel is not configured, an **instrument panel not configured** fault will appear on the UCH.

Apply this procedure using the fault finding tool to change the instrument panel configurations:

- Test the multiplex network to ensure that it is in good condition, then exit fault finding,
- Disconnect the battery (for at least 1 minute) then reconnect it,
- **WITHOUT SWITCHING THE IGNITION BACK ON**, test the multiplex network again (**don't take into account the segments that are faulty due to the ignition being switched off**),
- Establish a dialogue with the **UCH**,
- In the **Command, Specific command** menu, confirm **CF 719 instrument panel type**,
- The tool displays **are you sure you want to perform configuration?**,

**YES** or **NO**,

- **NO** exit procedure,
- **YES** the tool displays:
- Turn off the ignition, then confirm,
- Clock **with or without**,
- Speed signal **ABS or gearbox sensor**,
- Engine type **petrol or diesel**,
- LPG injection **with or without**
- ESP system **with or without**

When it is finished, the tool displays:

- **Are the configurations correct?**

**YES** or **NO**

If there is an error in operations, confirm **NO** to restart the procedure.

If the answer is **YES**, switch the ignition off and on twice to confirm the instrument panel configuration.

The tool displays: **configuration complete**.

### DISPLAY OPERATION

#### 1 Oil level reading

This function is displayed for approximately **30 seconds** when the ignition is switched on or after the engine is started.

If the level is between the permitted maximum and minimum marks, the display shows **oil OK**.



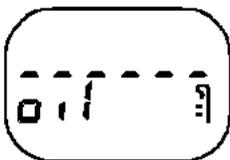
13141a

If during this time, the **ADAC** or **RAZ** buttons are pressed, the display shows **oil ok** then the oil level is indicated by squares. These disappear as the oil level drops and are replaced by dashes.



13141b

If the oil level is at a minimum when the ignition is switched on, the dashes and the word **oil** flash for **30 seconds**. The **service** warning light comes on and remains lit after the engine is started.



13141c

#### NOTE:

- under normal operating conditions, the oil level is only measured if the ignition has been switched off for over one minute; otherwise the old oil level value is redisplayed,
- however, when a gauge fault is detected, the display switches directly to the mileometer function when the ignition is switched on.

- it is normal to find that the oil level is not always the same. Various parameters are involved:
  - parking on a slope,
  - too short a wait after running the engine for a short moment (especially when the oil is cold).

#### 2 odometer

##### Total mileage

The mileometer will be displayed approximately **30 seconds** after the ignition is switched on (after the oil level information). Pressing the **ADAC** or **RAZ** button reduces this time.

##### Trip mileage

The trip mileage is displayed instead of the total mileage if the **ADAC** button is pressed briefly.

It is reset by pressing the **RAZ** button. Resetting the trip mileage is not the same as resetting the ADAC.

**NOTE:** different instrument panels are required to display in kilometres or miles.

### ③ the on-board computer (ADAC)

The various sequences of the on-board computer can be displayed instead of the mileage recorders by pressing the button on the end of the wiper stalk (**ADAC** button). It is reset by pressing the **RAZ** button.

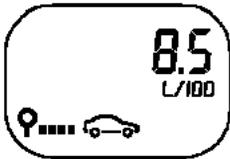
The information from the on-board computer is displayed after the trip mileage as follows:

- **Fuel consumed** (in **l/100 km** or **mpg \***) since the last reset.



13141d

- **Average consumption** (in **l/100 km** or **mpg \***) since the last reset.



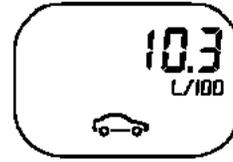
13141e

This is only displayed after the car has travelled approximately **400 metres**. Until this point, fixed dashes appear on the display.

This takes into consideration the distance covered and the fuel consumption since the last time the reset button was pressed.

\* UK version.

- **Current consumption** (in **l/100 km**)



13141f

This is only displayed when the vehicle speed is above approximately **20 mph** or **30 km/h**. Until this point, fixed dashes appear on the display.

In the accelerator pedal no load position, if the speed is greater than **20 mph (30 km/h)** the current consumption equals **0**.

**NOTE:** this function is not available on the UK version.

- **Estimated range with remaining fuel** (in **km** or **miles\***)



13141g

This is only displayed after the car has travelled approximately **400 metres**. Until this point, fixed dashes appear on the display.

This is the partial distance remaining calculated by taking into account the distance travelled, the amount of fuel remaining in the tank and the fuel consumed.

**NOTE:** the range remaining is not displayed when the low fuel warning light is lit.

- **Distance travelled** since the last reset (reset of the ADAC).



13141h

- **Average speed** since the last reset.



13141j

This is displayed after the car has travelled approximately **400 metres**. Until this point, fixed dashes appear on the display.

This is obtained by dividing the distance travelled by the time elapsed since the last time the reset button was pressed.

The time base is generated in the on-board computer.

- **Cruising speed**

If the vehicle has the cruise control or speed limiter function, the display shows the cruising speed in **km/h** or **mph\***. The screen returns to an **ADAC** page after a delay of approximately **15 seconds**.



13141k

If the function is not fitted, the **ADAC** page is inaccessible.

Every time the cruising speed is changed, this page replaces the **ADAC** page selected (refer to the **Cruise control/speed limiter** section).

**IMPORTANT:** if flashing dashes appear on the on-board computer display, a fault has been detected. Refer to the **Fault finding procedure**.

\* UK version.

### FAULT FINDING PROCEDURE

To access the fault finding procedure, press and hold the **ADAC** button on the end of the wiper stalk, with the ignition on but the engine off.

- All the warning lights light up and the needles on the four gauges move in steps.
- The **liquid crystal display** test appears.



13141l

All the segments on the display should be lit.

To go to the next test, press the **ADAC** button.

- The **amount of fuel** remaining in the tank test appears.



13141m

The value displayed should correspond with the amount of fuel remaining in the tank in litres (even for the UK version).

To go to the next test, press the **ADAC** button.

- The **fuel flow** in litres/hour test appears (engine running).



13141n

A value should be displayed when the engine is running.

To go to the next test, press the **ADAC** button.

- Displaying stored faults.



13141o

If the letter **t** is displayed, this means that an **injection** signal fault has been stored for at least **4 seconds**.

If the letter **J** is displayed, this means that a fault has been detected on the fuel gauge (disconnected for more than **100 seconds**). The resistance should be between **5 and 350 ohms**.

If the letter **d** is displayed, this means that an **injection** signal fault has been detected

If the letter **h** is displayed, this means that an oil level sensor fault has been detected. The resistance should be between **6 and 20 ohms**.

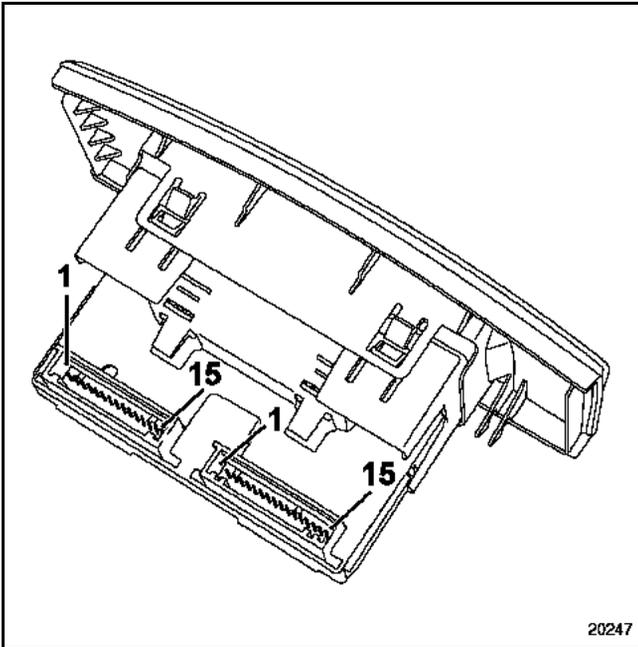
If only fixed dashes are displayed, this means that no faults have been detected.

Press the **RAZ** button to exit the fault finding procedure and erase any stored faults.

### IMPORTANT:

- The on-board computer shows a fault by displaying flashing dashes.
- If no information is received from the injection computer via the multiplex network, the rev counter, current consumption and fuel range functions will not work.
- If no information is received from the ABS computer via the multiplex network, the mileometer and mileage to next oil change functions will not work.

### ALLOCATION OF TRACKS



### Red 15-track connector

Track	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Not used
9	Radio control connection ( <b>track B1</b> )
10	Radio control connection ( <b>track A3</b> )
11	Radio control connection ( <b>track B2</b> )
12	Radio control connection ( <b>track B3</b> )
13	Radio control connection ( <b>track A2</b> )
14	Radio control connection ( <b>track A1</b> )
15	Not used

### Grey 15-track switch

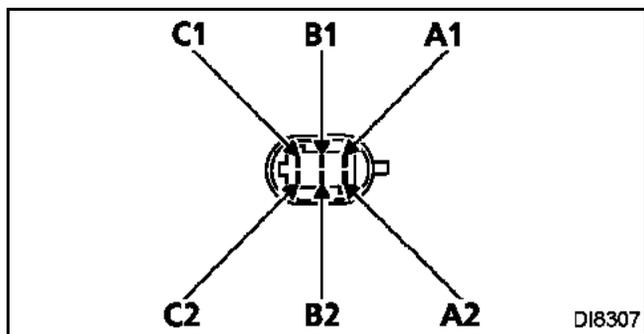
Track	Description
1	External temperature
2	External temperature
3	Not used
4	Not used
5	Earth
6	Lighting
7	Lighting supply
8	+ accessories feed
9	+ battery feed
10	External temperature gauge
11	Earth (radio track 6)
12	Radio on signal (radio <b>track 5</b> )
13	Radio connection ( <b>Track 1</b> )
14	Radio connection ( <b>Track 5</b> )
15	Radio connection ( <b>Track 3</b> )

# INSTRUMENT PANEL

## Fuel level sensor

83

### CONNECTION



Track	Description
A1	Fuel level signal
A2	Not used
B1	- Fuel sender
B2	Not used
C1	Fuel pump +
C2	- Fuel pump

**NOTE:** refer to **section 19** for the removal/refitting method.

### Check

Ensure that the resistance varies when the float is moved.

Level	Resistance (Ω)	Effective volume (+/- 5 litres)
Tank full	<b>15 ± 5</b>	<b>51</b>
Tank 3/4 full	<b>87.5 ± 10</b>	<b>39.75</b>
Tank half full	<b>155 ± 10</b>	<b>28.5</b>
Tank 1/4 full	<b>222.5 ± 10</b>	<b>17.25</b>
Tank empty (reserves)	<b>290 ± 10</b>	<b>6</b>

**NOTE:** all the above values are given merely as an indication.

### OPERATION

The sensor consists of a wire with a high coefficient of resistance. When a current passes through the wire it does not have the same thermal conductivity immersed in a liquid as it does in the open air.

After a fixed time, a voltage difference is obtained at the sensor terminals depending on the depth of immersion of the wire. This voltage difference is processed by the instrument panel computer which then displays the level and also controls the **low oil level** warning light on the central display.

When the ignition is switched on, the central display shows the message **oil ok** for approximately **30 seconds** before switching to the mileometer function.

**NOTE:** if a short circuit or an open circuit is detected when the oil level is measured, the display will immediately show the mileometer function.

If the battery voltage is less than **8 volts**, the level will not be displayed.

### CHECKING

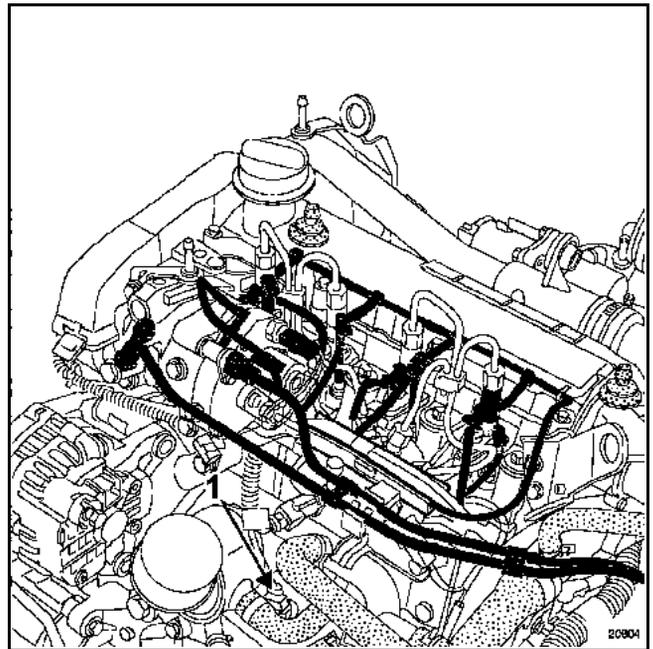
The sensor resistance (1) must be between **6** and **20 ohms**.

The sensor is deemed to be in short circuit for a value lower than **3 ohms**.

The sensor is deemed to be in open circuit for a value higher than **20 ohms**.

### LOCATION

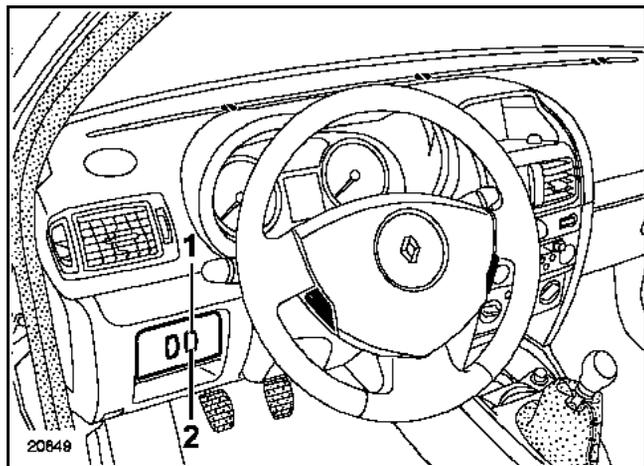
Example: **K** engine



### GENERAL INFORMATION

The cars are fitted with two functions:

- The **Cruise control** option 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 speed limit selected can be exceeded at any time by pressing the accelerator pedal beyond its point of resistance.



- 1 cruise control
- 2 speed limiter

Both functions are controlled by the injection computer. This computer exchanges signals with the automatic gearbox computer and the instrument panel. It applies the reference values by acting on the motorised throttle body (see section 17).

**NOTE:** flashing on the **ADAC** page warns the driver that the desired cruise control speed cannot be maintained (e.g. if the car is driving downhill).

### DESCRIPTION

#### the ABS computer:

- sends the **car speed** signal,
- sends the **depressed brake pedal** signal,

#### the automatic gearbox computer:

- sends the **gear engaged** signal,

#### the instrument panel:

- displays the reference value (cruise control or speed limiter) (see the **instrument panel** section)
- switches on a two-colour indicator light (green for cruise control, amber for speed limiter)

Each time these functions are switched on, the on-board computer display switches to the relevant page.

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

#### the following controls are fitted:

- a three-position switch (off/cruise control/speed limiter),
- steering wheel switches that can be used to adjust the desired speed, cancel the function or recall the stored speed,
- accelerator pedal switches that are used to control the injection and the brake lights,
- a clutch switch (according to model) that is used only for the cruise control function.

**NOTE:** the accelerator 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 engager switch (according to model),
- receives signals from the three-position switch,
- receives signals from the steering wheel switches,
- receives signals from the ABS computer (vehicle speed)
- receives signals from the automatic gearbox computer (gear engaged),
- sends signals to the instrument panel (recommended speed),
- controls the motorised throttle body or the diesel injection output.



### CRUISE CONTROL OPERATION

#### Input conditions:

- switch must be at **Cruise control**,
- car must be in 2<sup>nd</sup> 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 + key, - or **summary**.

#### Output conditions:

- accelerator pedal must be depressed
- brake or clutch pedal must be depressed
- the **0** key must be depressed
- switch must be at **off**
- electronic stability program system must be switched on
- injection computer must be switched on
- no gear should be engaged.

Depressing the accelerator pedal switches the system off temporarily. Release the accelerator to switch back on.

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

### SPEED LIMITER OPERATION

#### Input conditions:

- switch must be at **Speed limiter**,
- car must be in 2<sup>nd</sup> 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 cruise control light must be switched on,
- press the + key, - or **summary**.

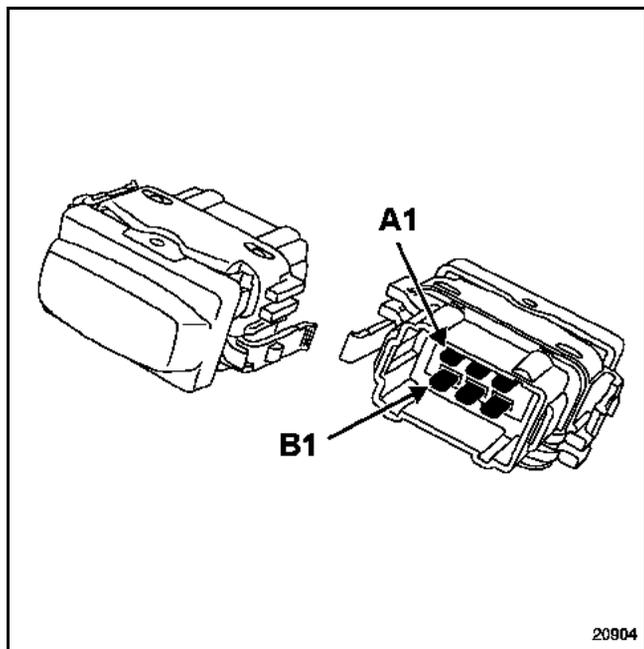
#### Output conditions:

- accelerator must be pressed quickly (beyond point of resistance)
- switch must be at **off**
- electronic stability program system must be switched on
- injection computer must be switched on
- the **0** key must be depressed

Depressing the accelerator pedal switches the system off temporarily. Release the accelerator to switch back on.

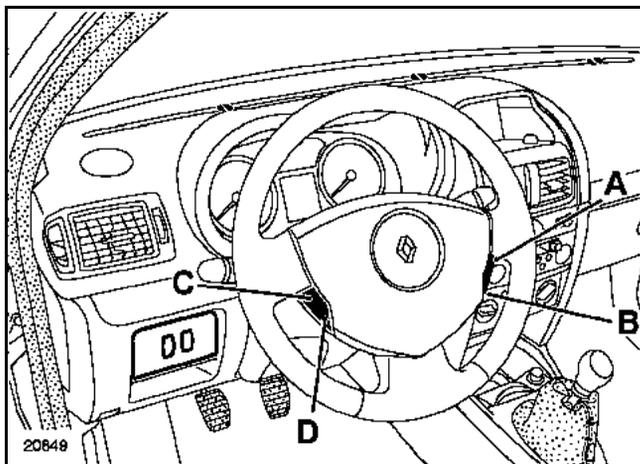
### Connector allocation

#### Three-position switch



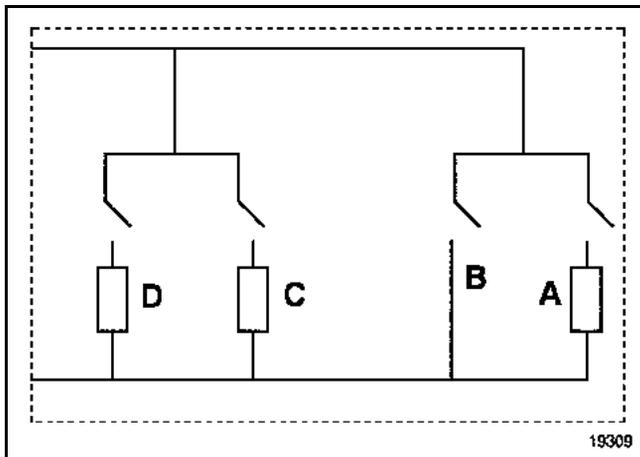
Track	Description
A1	+ side lights
A2	+ after ignition feed (brake circuit)
A3	Cruise control on/off switch
B1	Speed limiter on/off control
B2	Earth
B3	Not used

### Steering wheel switches



- A Resume key = approximately 900 ohms
- B Cancel key = 0 ohms
- C + key = approximately 300 ohms
- D - key = approximately 100 ohms

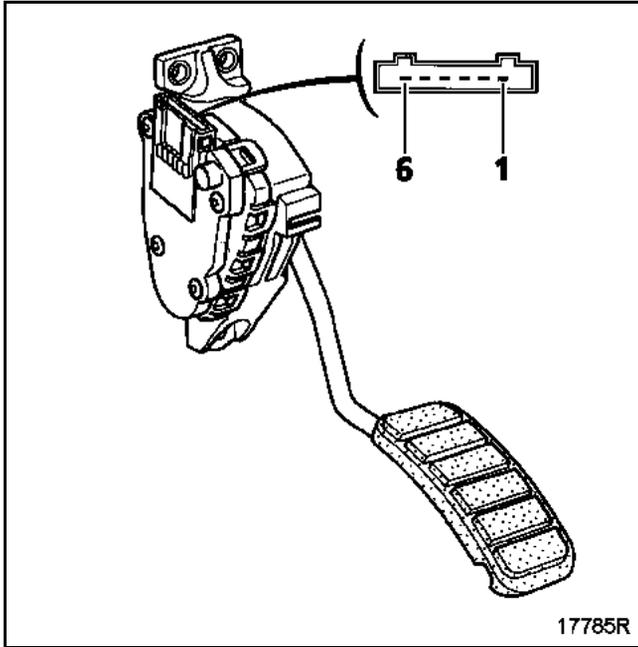
**NOTE:** for information on removing the rotary switch, see the **instrument panel** section.



**NOTE:** you cannot replace the steering wheel switches. The whole steering wheel must be replaced.

### Accelerator pedal

The accelerator has a point of resistance for safety reasons.



### Allocation of tracks:

Track	Description
1	Potentiometer earth 2
2	Potentiometer earth 1
3	Potentiometer pedal signal 1
4	Potentiometer supply 1
5	Potentiometer supply 2
6	Potentiometer pedal signal 2

Track 1 resistance = **1200 + 480 ohms** (for information)

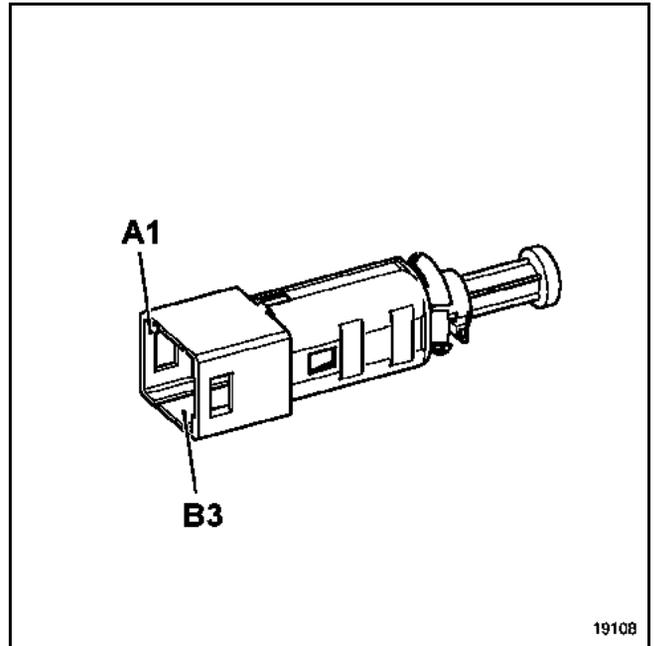
Track 2 resistance = **1700 + 680 ohms**

**IMPORTANT:** the car must be fitted with an accelerator pedal incorporating a point of resistance at the travel mid-point.

### Brake switch (dual)

The **cruise control** function uses the open contact (together with the lights), while the ABS computer uses the closure sensor.

The two signals are compared by the injection computer.



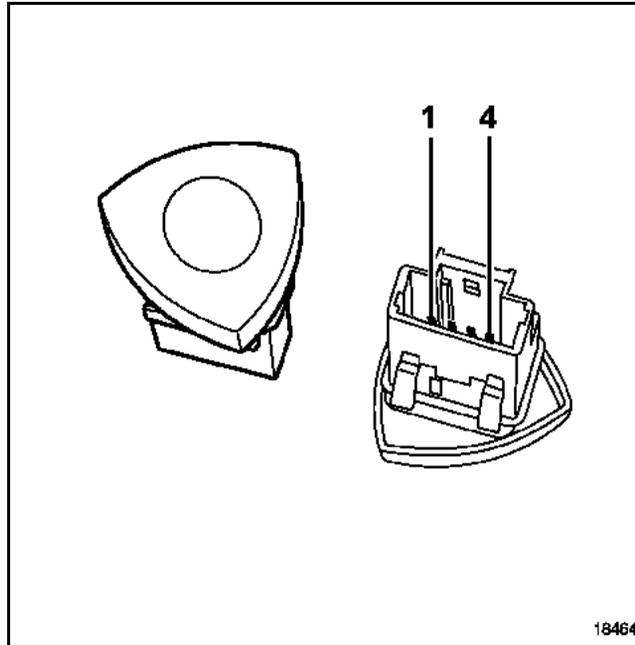
Track	Description
A1	Close contact
A3	Open contact
B1	Open contact
B1	Close contact

When fitting the switch on the pedals, pull the rod to adjust the clearance.

### Clutch switch

This is a switch at the start of travel.

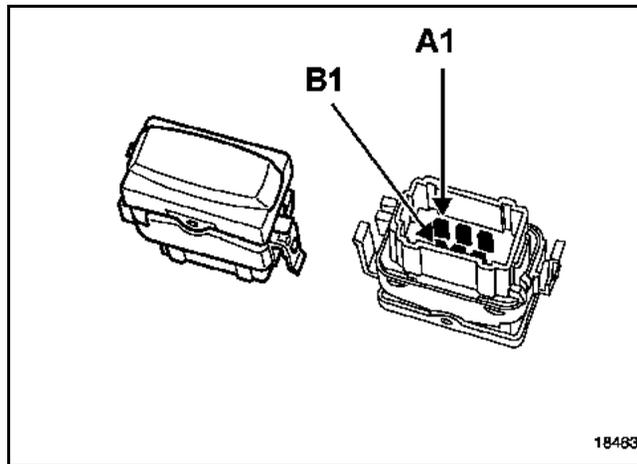
When fitting it, pull the rod to adjust the clearance.



Track	Description
1	Not used
2	Earth
3	Control
4	+ warning light

Track	Description	Value
2 and 3	On	$0\Omega$
2 and 3	Off	$\infty$

### HEATED REAR SCREEN SWITCH

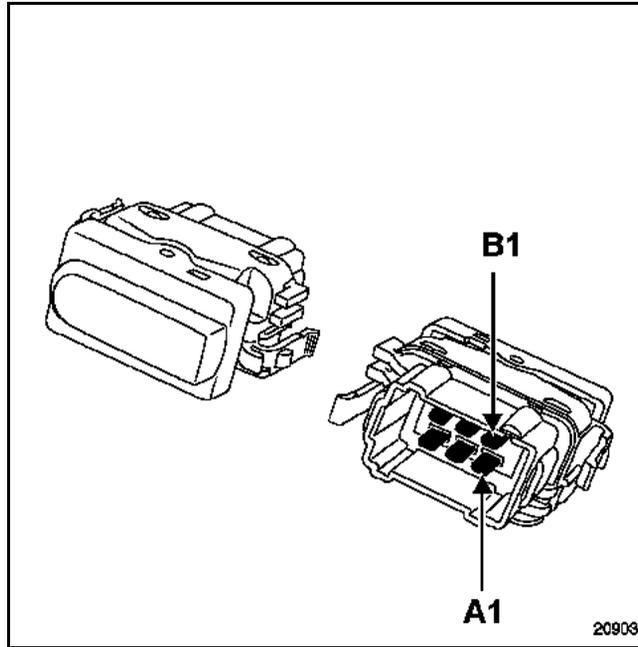


### CONNECTION

Track	Description
A1	+ lighting
A2	Earth
B1	Control

### OPERATION

Track	Description	Value
A2 and B1	On	0Ω
A2 and B1	Off	∞

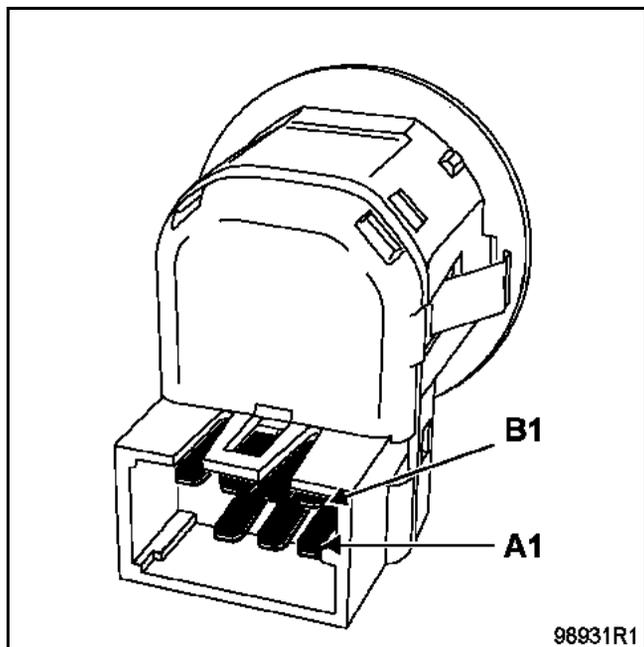


### CONNECTION

Track	Description
A1	Not used
A2	Earth
A3	+ before ignition
B1	Control
B2	+ lighting
B3	- warning light

### OPERATION

Track	Description	Value in ohms
A2 and B1	On	$0\Omega$
A2 and B1	Off	$\infty$



98931R1

### CONNECTION

Track	Description
A1	Left/right control for the left hand rear-view mirror
A2	Earth
A3	Up/down control for the left hand rear-view mirror
B1	Left/right control for the right hand rear-view mirror
B2	Up/down control for the right hand rear-view mirror
B3	+ before ignition
B4	Common to left and right rear-view mirror

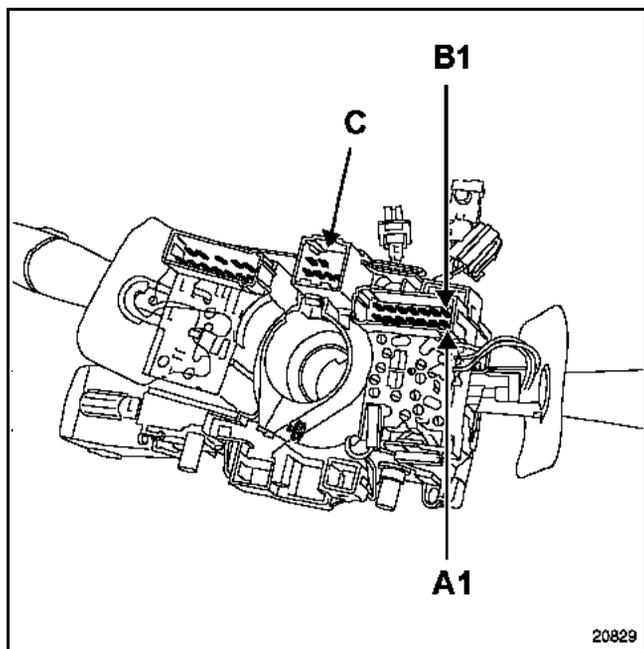
### Left-hand rear-view mirror

Operation		Tracks
Raise	▲	A3/B3
		B4/A2
Lower	▼	A3/A2
		B4/B3
Left	◀	B4/A2
		A1/B3
Right	▶	B4/B3
		A1/A2

### Right-hand rear-view mirror

Operation		Tracks
Raise	▲	B2/B3
		B4/A2
Lower	▼	B2/A2
		B4/B3
Left	◀	B1/B3
		B4/A2
Right	▶	B4/B3
		B1/A2

### CONNECTION (fullest version)



Track (closed circuit)	Description
A6/A7	Left direction indicator
A6/A5	Right direction indicator
B1/B2	Side lights
B3/B4	Dipped headlights (dual lens)
B3/B5	Dipped headlights (single lens)
B6/B7	Main beam headlights (on or flash)
A3/B1	Fog lights (rear)
A1/B1	Front fog lights

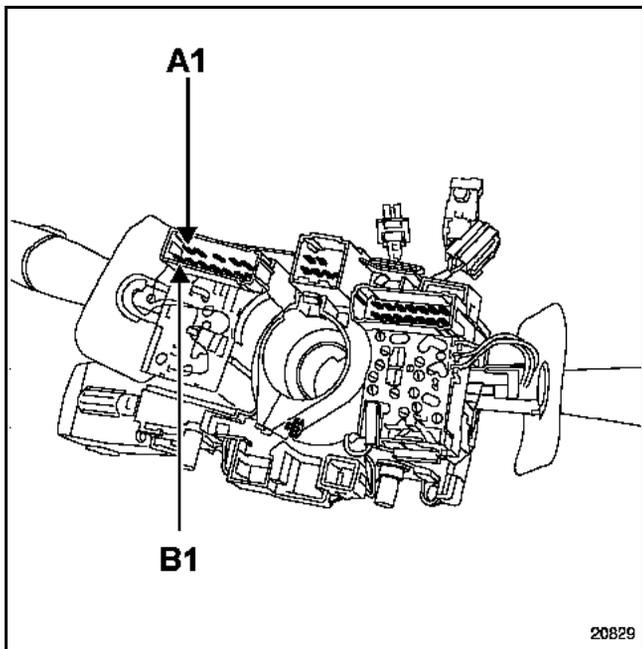
Track	Description
A1	Fog lights control (front)
A2	Not used
A3	Fog light control (rear)
A4	Horn control
A5	Right indicator control
A6	Indicator supply
A7	Left direction indicator control
B1	Side lights
B2	Side lights supply (fuse)
B3	Dipped beam headlights supply (fuse)
B4	Dipped headlights (dual lens)
B5	Dipped headlights (single lens)
B6	Main beam headlights supply (fuse)
B7	Main beam headlights

**NOTE:** the lighting controls can be checked using an ohmmeter.  
The horn control passes through connector C via the rotating connection.

# CONTROLS - SIGNALS

## Wiper control stalk

**CONNECTION (fullest version)**

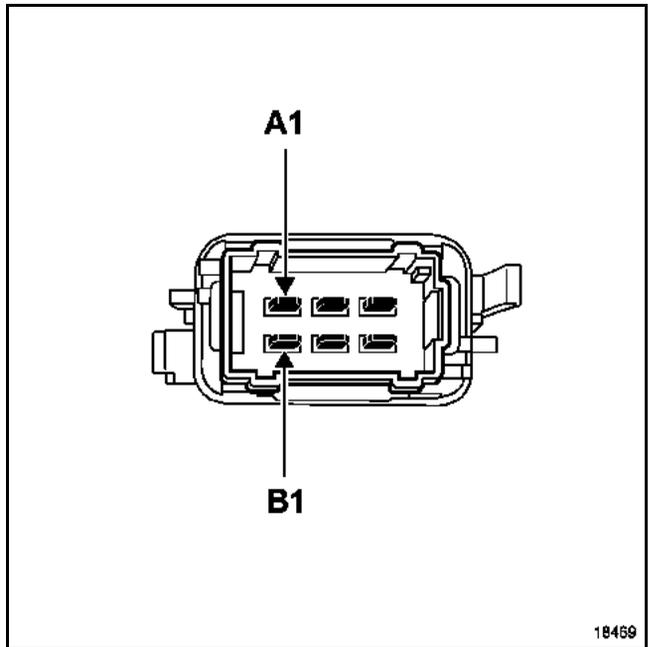


20829

Tracks	Description	Values (Ohms)
<b>A4/B4</b>	Windscreen washer pump	<b>0</b>
<b>A2/A7</b>	Windscreen wiper low speed control	<b>0</b>
<b>A1/A7</b>	Windscreen wiper high speed control	<b>0</b>
<b>A6/A7</b>	Rear screen wiper intermittent control:	
	Position 1	<b>8500</b>
	Position 2	<b>6500</b>
	Position 3	<b>4500</b>
	Position 4	<b>2000</b>
	Position 5	<b>0</b>
<b>B1/B4</b>	Rear screen washer pump	<b>0</b>
<b>B2/B4</b>	Rear screen wiper intermittent facility	<b>0</b>
<b>B5/ (B7 B6)</b>	ADAC scroll button	<b>0</b>

Track	Description
<b>A1</b>	Windscreen wiper high speed control
<b>A2</b>	Windscreen wiper low speed control
<b>A3</b>	Not used
<b>A4</b>	Windscreen washer pump control
<b>A5</b>	Not used
<b>A6</b>	Windscreen wiper timer control
<b>A7</b>	+ after ignition
<b>B1</b>	Rear screen washer pump control
<b>B2</b>	Rear screen wiper control
<b>B3</b>	Park position
<b>B4</b>	+ after ignition
<b>B5</b>	Earth
<b>B6</b>	ADAC
<b>B7</b>	ADAC

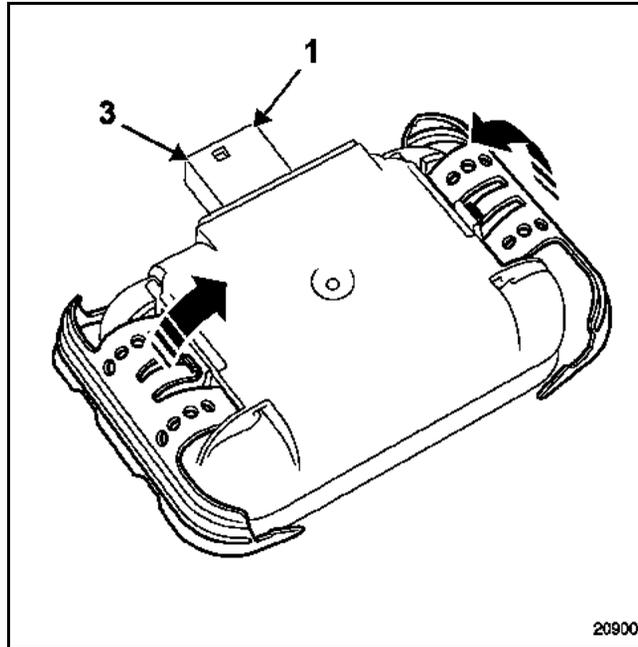
**N.B.:** The windscreen and rear screen wiper and washer controls can be checked using an ohmmeter.



Track	Description
A1	+ after ignition
B1	Earth
A2	Output

**OPERATION**

Track	Description	Value in ohms
B1 and A2	On	$0\Omega$
B1 and A2	Off	$\infty$

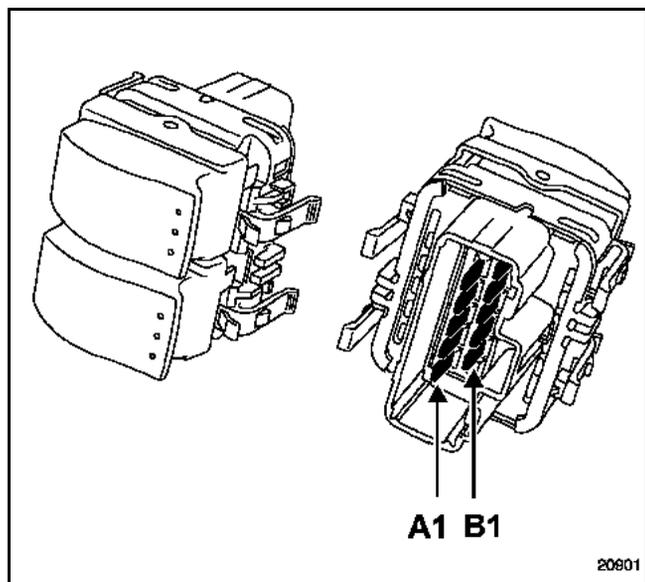


### CONNECTION

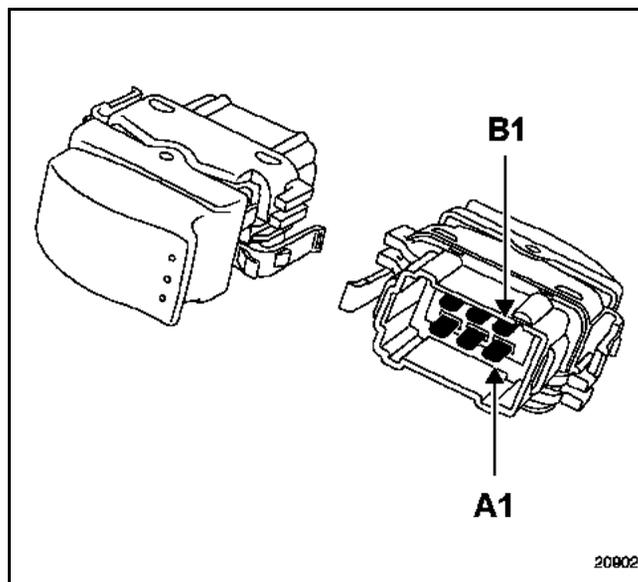
Track	Description
1	+ after ignition
2	Earth
3	Connection (UCH)

### DRIVER'S ONE-TOUCH WINDOW/PASSENGER'S ELECTRIC WINDOW

#### Driver's side switch connection



#### Passenger's side switch connection



Track	Description
A1	Connection with passenger's switch (A1)
A2	+ after ignition
A3	+ lighting
A4	Not used
A5	Lower window control
A6	Not used
B1	Not used
B2	Connection with passenger's switch (B2)
B3	+ after ignition
B4	Earth
B5	Not used
B6	Raise window control

Track	Description
A1	+ after ignition
A2	Earth
A3	Motor control
B1	Motor control
B2	+ after ignition
B3	+ lighting

#### Driver's side switch operation

##### Driver's side electric window control

	A5/B5	B6/A4	B6/B4	A5/B4
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	∞	0Ω
Closed	0Ω	∞	0Ω	∞

##### Passenger's side switch operation

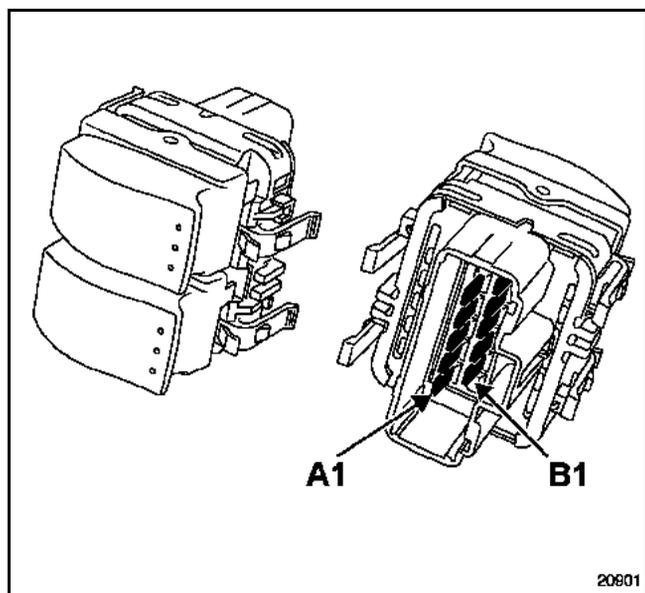
	A1/A3	B2/B1	A2/A3	A2/B1
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	0Ω	∞
Closed	0Ω	∞	∞	0Ω

#### Passenger window control

	A1/B3	B2/A2	B2/B4	A1/B4
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	∞	0Ω
Closed	0Ω	∞	0Ω	∞

### DRIVER AND PASSENGER'S ONE-TOUCH WINDOWS

#### Driver's side switch connection



Track	Description
A1	Connection with passenger's switch (A1)
A2	Not used
A3	+ lighting
A4	Not used
A5	Driver's side electric window control (lower)
A6	Not used
B1	Not used
B2	Connection with passenger's switch (B2)
B3	Not used
B4	Earth
B5	Not used
B6	Driver's side electric window control (raise)

#### Driver's side switch operation

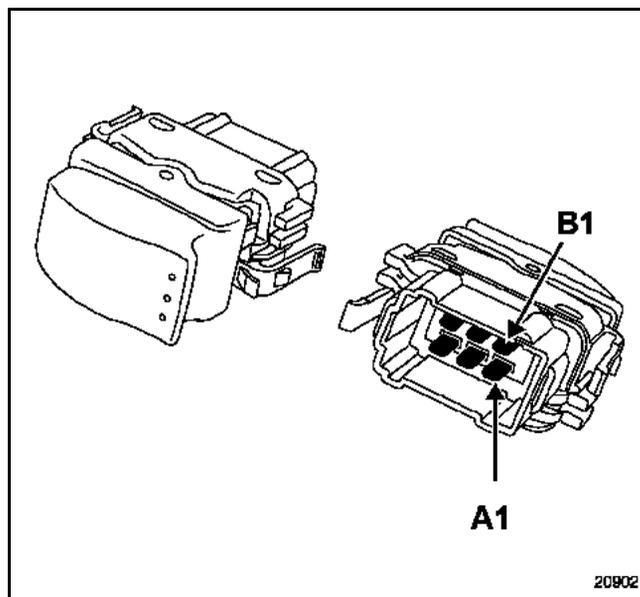
##### Driver's side electric window control

	A5/B5	B6/A4	B6/B4	A5/B4
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	∞	0Ω
Closed	0Ω	0Ω	∞	∞

##### Passenger window control

	A1/B3	B2/A2	B2/B4	A1/B4
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	∞	0Ω
Closed	0Ω	∞	0Ω	∞

#### Passenger's side switch connection



Track	Description
A1	Connection with driver's switch (track A1) Earth
A2	Passenger side electric window control (lower)
A3	Passenger side electric window control (raise)
B1	Connection with driver's switch (track B3) + lighting

#### Passenger's side switch operation

	A1/A3	B2/B1	A2/A3	A2/B1
Rest position	0Ω	0Ω	∞	∞
Open	∞	0Ω	0Ω	∞
Closed	0Ω	∞	∞	0Ω

### GENERAL INFORMATION

#### Operating notes

In normal operation, the windscreen wiper works intermittently, at either high or low speed. This can be modified according to the vehicle speed (for vehicles not fitted with rain sensors) and by the ring on the windscreen wiper control stalk.

A wiper blade speed selected when the vehicle is moving will automatically be reduced when the vehicle stops, as follows:

- continuous fast wiping speed is switched to continuous slow wiping speed,
- continuous slow wiping speed is switched to intermittent wiping.

When the vehicle starts moving again, the speed reverts to the one originally selected.

**NOTE:** if the vehicle is fitted with a rain sensor, the wiper blade speed does not change according to the vehicle speed.

#### **NOTE:**

- any operation of the windscreen wiper control stalk takes priority and cancels out the UCH order,
- the automatic control will not function if the high or low speeds were selected when the vehicle was stationary.

#### **SPECIAL NOTES:**

- If the wiper blades are subject to too great a force, the UCH automatically switches to a lower speed.
- In the event of the wiper blades becoming blocked (e.g. if the windscreen freezes over), the UCH automatically cuts off the motor supply.

**N.B.:** for special notes on the windscreen wiper control stalk, see **section 84**.

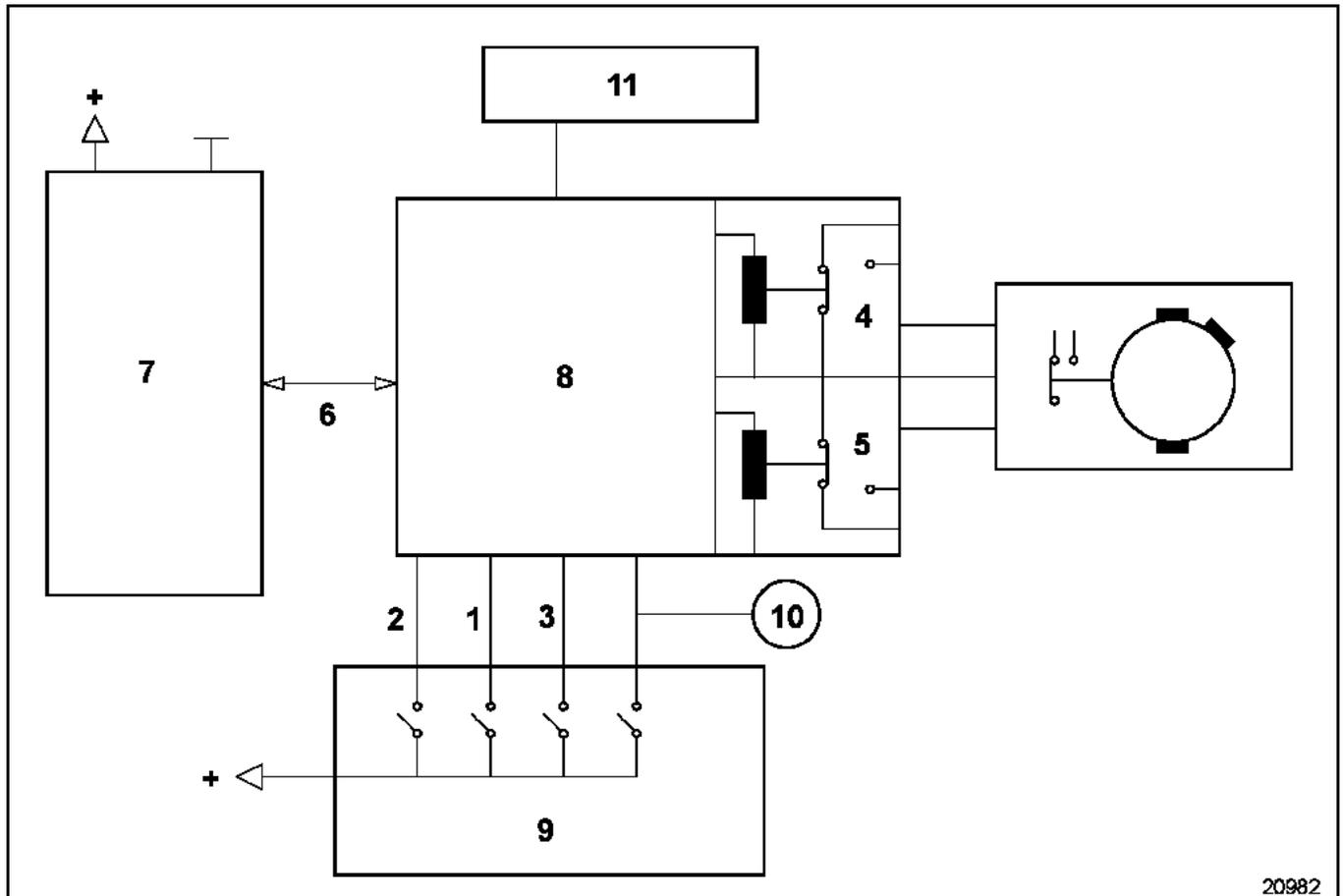
### RAIN SENSOR

This sends a signal to the UCH in vehicles fitted with a rain sensor.

The timed signal from the wiper stalk is not used to adjust the interval but to adjust sensor sensitivity. In this case, the interval and the wiper blade speed are not varied according to the vehicle's speed. The ring on the wiper blade can vary the sensitivity of the rain sensor.

**IMPORTANT:** the passenger side wiper must be regularly replaced for the rain sensor to work properly.

### Operating diagram



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### Components

- 1 High speed supply
- 2 Low speed supply
- 3 Automatic wipers supply
- 4 Wipers on/off relay
- 5 High speed/low speed relay
- 6 Rain sensor signal
- 7 Rain sensor
- 8 UCH
- 9 Wiper control stalk
- 10 Windscreen washer pump
- 11 Headlights

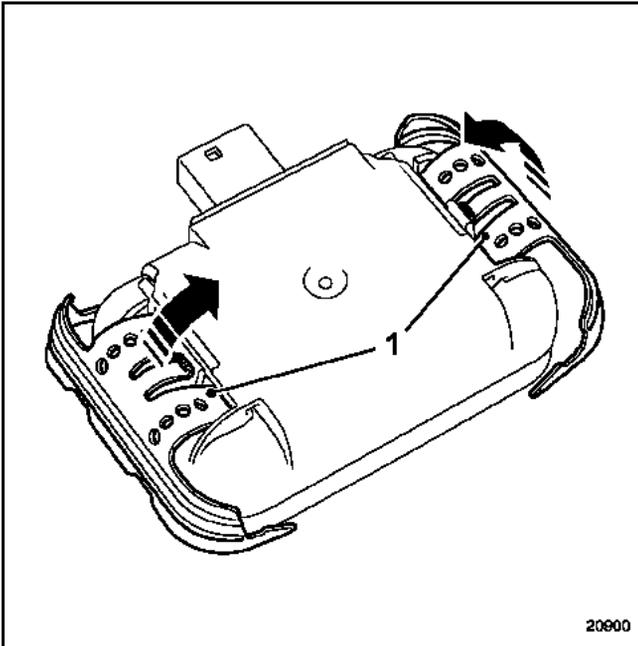
There are two types of sensors but they should be removed in the same way:

- rain sensor,
- light and rain sensor.

### REMOVAL

Remove the rear-view mirror interior cover.

Unclip the two side clips (1) from the sensor using a small screwdriver.



Disconnect the connector.

**WARNING: do not touch the light sensor. Fit it on the vehicle as soon as it is removed from its packaging.**

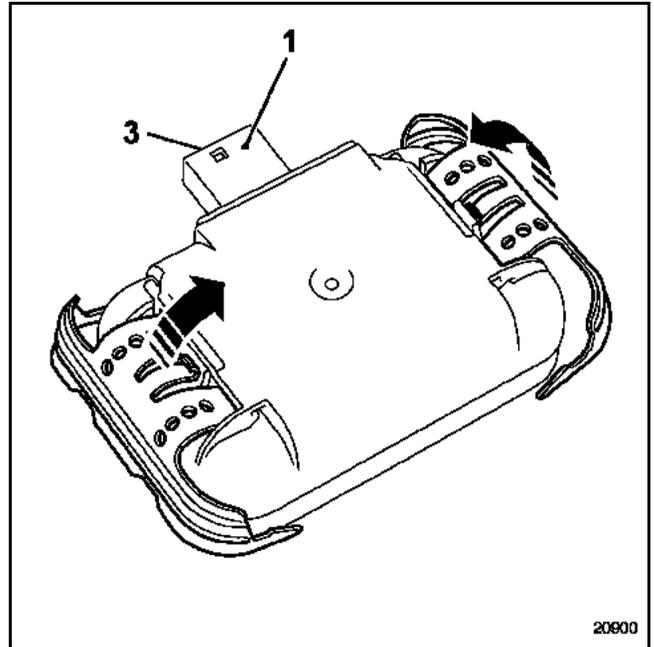
### REFITTING

Clean the contact surface between the windscreen and the sensor.

Place the sensor on the mounting and pull back the clips.

Reconnect the connector and put back the rear-view mirror cover.

### CONNECTION



Track	Description
1	+ battery supply
2	Earth
3	UCH connection

### SPECIAL TOOLING REQUIRED

Elé. 1294 -01	Windscreen wiper arm removing tool
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### REMOVAL OF THE WIPER MECHANISM WITH MOTOR

Check that the wiper motor is in the park position.

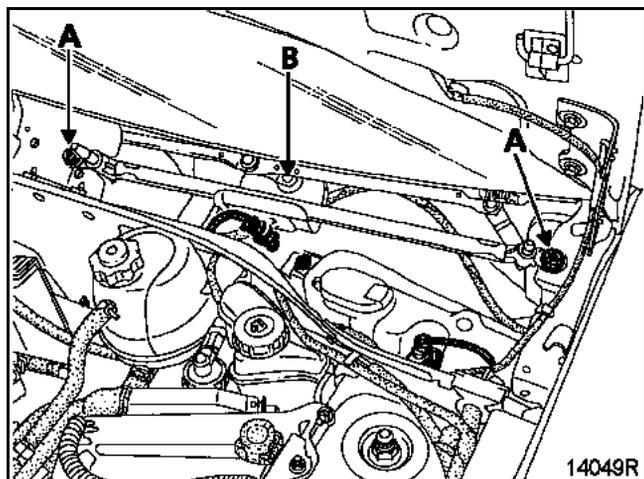
Disconnect the battery.

Note the position of the wiper arms.

Open the bonnet.

Remove:

- the wiper arms using the special tool **Elé. 1294-01**,
- the scuttle panel grille seal,
- the scuttle panel grille after removing the two mounting clips (by pressing in the centre).



Disconnect the motor.

Remove the two mechanism mounting bolts (A) and disengage it from its rear retaining point.

### REMOVING THE MOTOR

Having removed the mechanism/motor assembly, remove:

- the motor shaft nut (B) and release the linkage after noting its position,
- the three motor mountings.

### REFITTING - Special points

Refit the linkage to the motor on the mark made during removal.

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

Clean the wiper arm shaft splines with a wire brush.

Refit the wiper arms, locating the blade on the marks made on removal.

Fit new nuts and tighten them to a torque of **1.8 daNm** ( $\pm 15\%$ ) using a torque wrench.

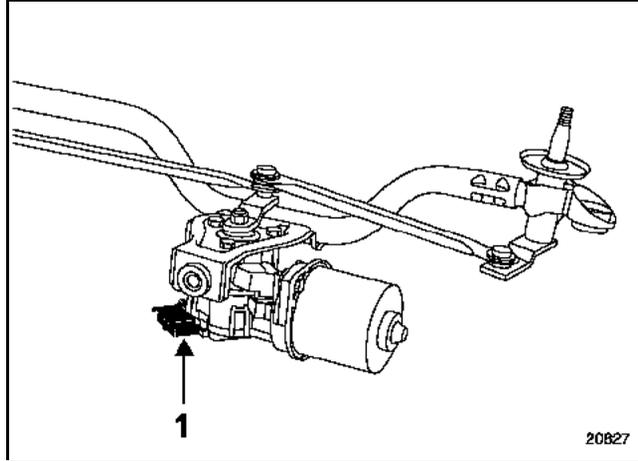
# WIPERS

## Windscreen wiper

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### CONNECTION

The motor connection is the same on left-hand and right-hand drive cars.



Track	Description
1	Park position
2	Not used
3	Low speed
4	High speed
5	Earth

### REMOVING THE MOTOR

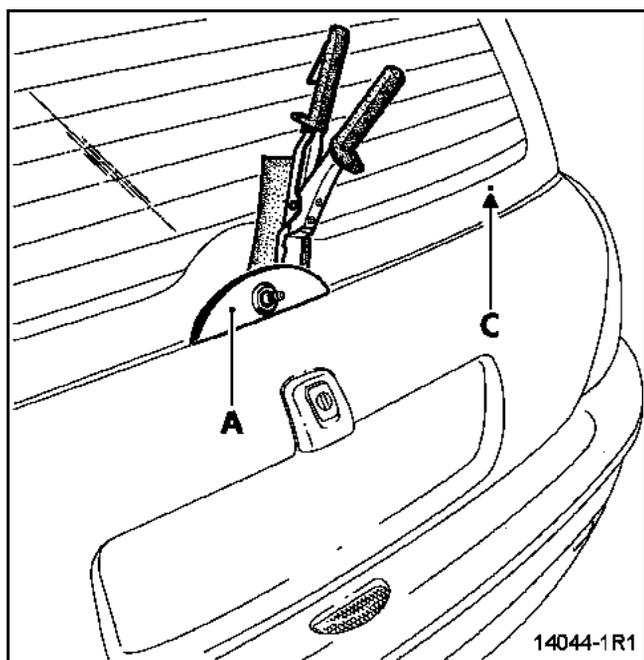
Check that the wiper motor is in the park position.

Disconnect the battery.

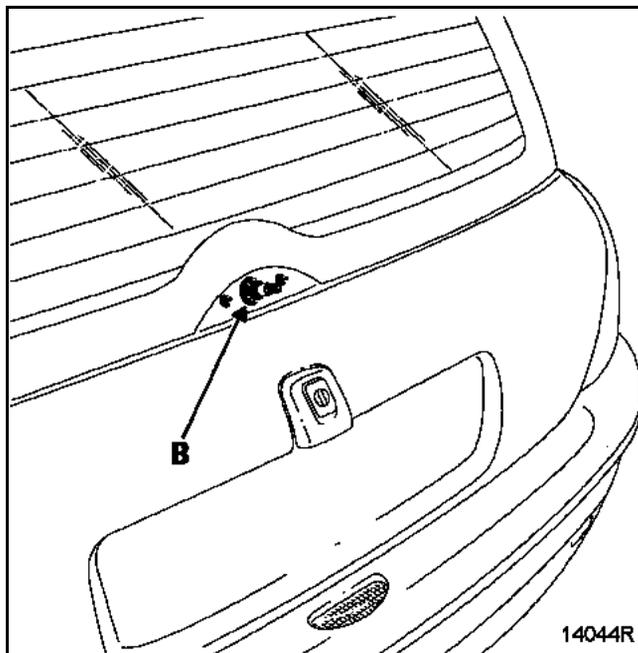
The wiper arm rest position is marked by the point (C) on the rear screen.

Remove:

- the wiper arm mounting nut,
- the wiper arm from its shaft using special tool **Elé. 1294-01**,
- the cover (A), using the unclipping tool,



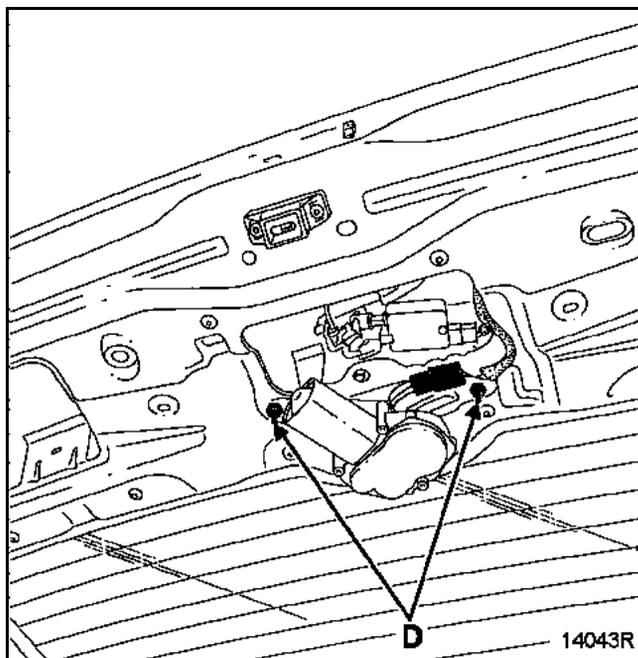
- the motor shaft nut (B),



- the tailgate trim (clips and bolts).

Disconnect the wiper motor connector.

Undo the two bolts (D) that secure the motor and remove the motor.



# WIPERS

## Rear screen wiper

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### REFITTING - Special points

Tighten the motor bolts to a torque of **0.4 daNm** ( $\pm 20\%$ ).

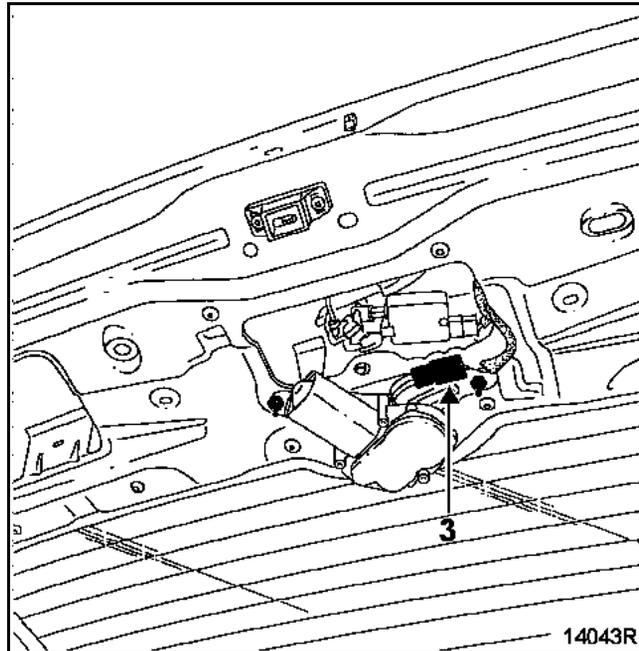
Check that the motor is in the park position before refitting the wiper arm.

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

Refit the wiper arm, positioning the blade on the mark (C) located on the rear screen.

Fit a new nut and tighten it to a torque of **1 daNm** ( $\pm 20\%$ ) using a torque wrench.

### CONNECTION



Track	Description
1	Power supply
2	UCH connection
3	Earth

This vehicle is fitted with a two-way electric pump which feeds liquid from the same reservoir to either the windscreen or rear screen washer according to the electrical feed to the two tracks on connector (D).

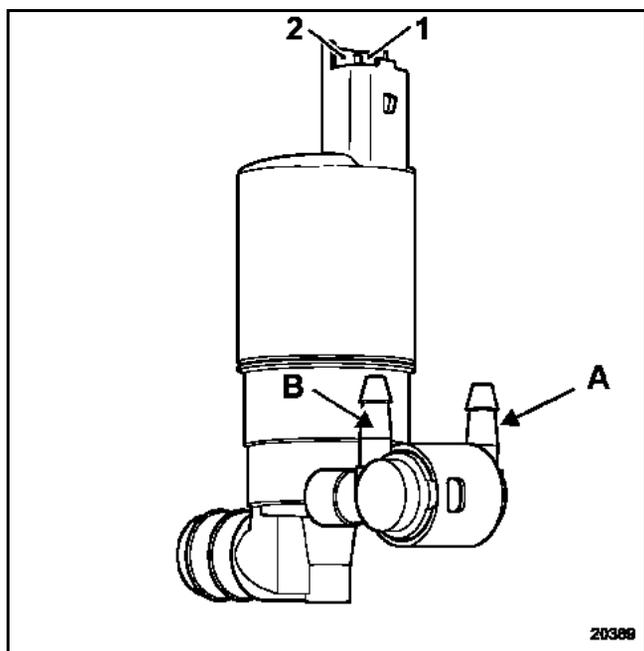
There are two scenarios:

Track	Description
1	Earth
2	+ 12 volts

When the pipes are fed via the black outlet (A), the windscreen washer operates.

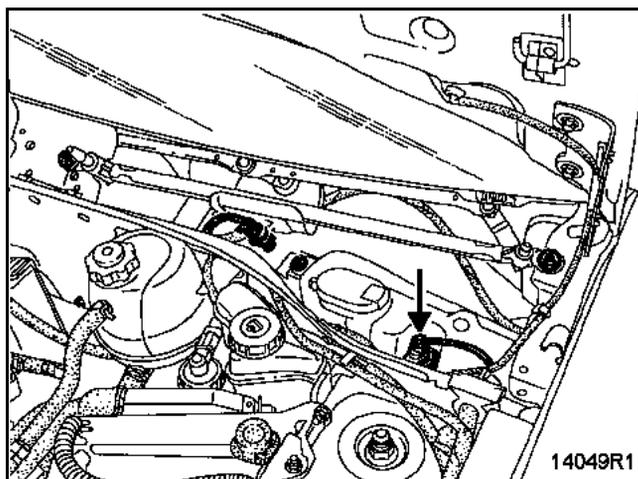
Track	Description
1	+ 12 volts
2	Earth

When the pipes are fed via the white outlet (B), the rear screen washer operates.



### REMOVAL

- To reach the washer pump it is necessary to remove:
- the wiper arms using special tool **EIé. 1294-01** after noting their positions,
  - the scuttle panel grille seal,
  - the scuttle panel grille after removing the two mounting clips (by pressing in the centre).



When removing the washer pump, mark the two pipes before disconnecting them.

### REFITTING - Special points

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

Clean the wiper arm shaft splines with a wire brush.

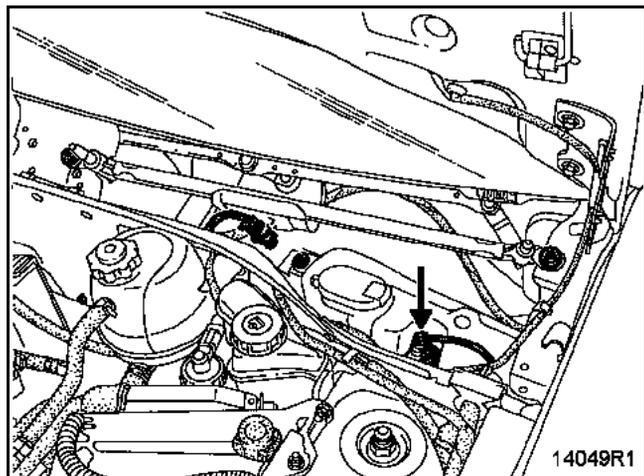
Refit the wiper arms, placing the blade on the marks made on removal.

Fit new nuts and tighten them to a torque of **1.8 daNm** ( $\pm 15\%$ ) using a torque wrench.

When the vehicle is fitted with headlight washers, the windscreen washer pump is diverted to the screen wash tank and replaced by the headlight washer pump.

The headlight washer pump is fed via the UCH when the screen washer and the daytime running lights or dipped beam headlights are switched on.

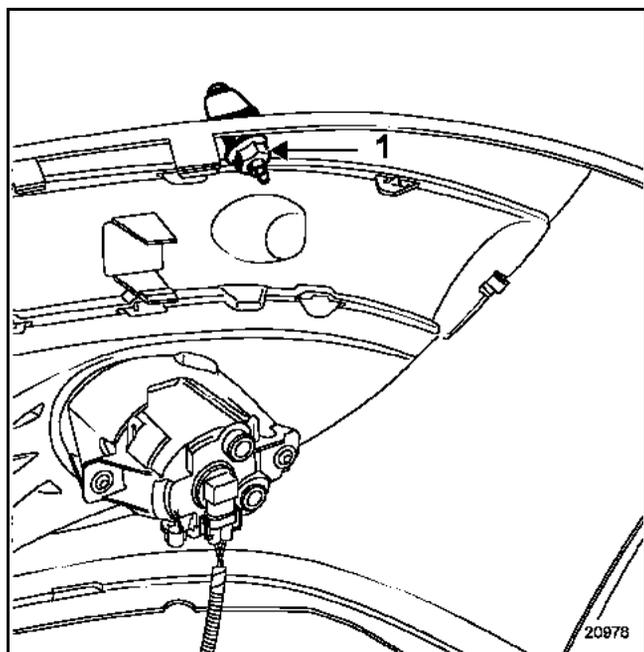
Removing the pump does not pose any special problems.



### REMOVING THE JETS

The front bumper must be removed to remove the headlight washer jets (refer to the **Bodywork** section).

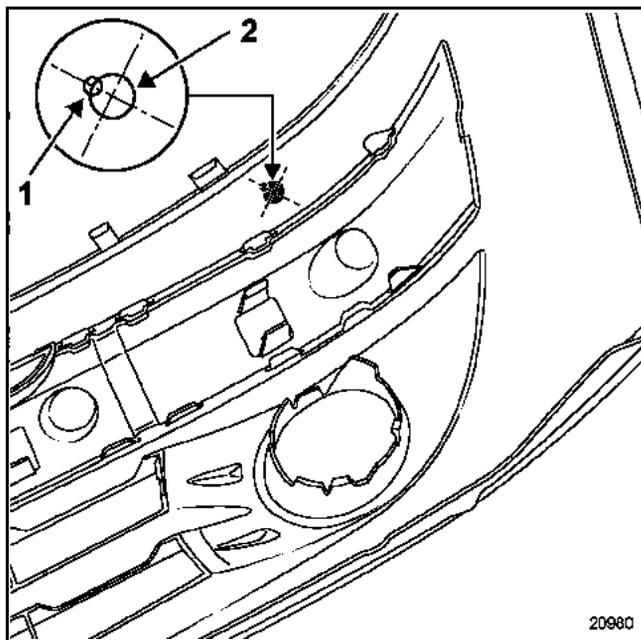
Remove the nut (1) to take out the jet.



### REFITTING

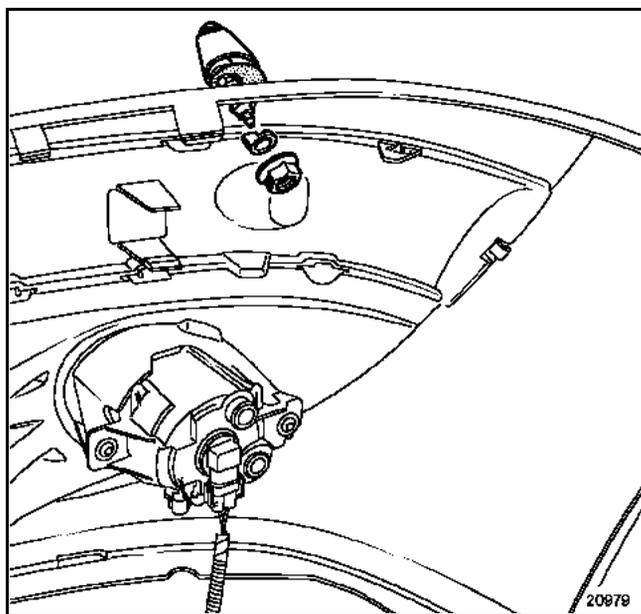
#### Special features of a new bumper

New bumpers are delivered unpierced. They need to be pierced as premarked to accommodate the headlight washer jets, preferably before they are painted.



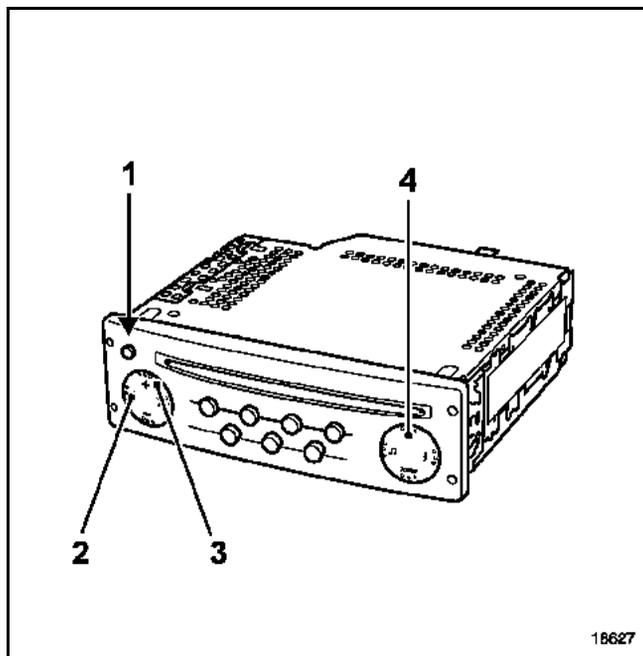
Use a  $\varnothing 3$  mm drill bit for indexing (1).

First make a hole then use a conical drill for the jet hole (2).



Fit the jet with its shim and seal.

Moderately tighten the jet nut.



- 1 On-Off
- 2 <and> buttons change the configuration mode
- 3 + and - buttons make adjustments
- 4 **Source** button

Four radio versions may be fitted:

- radio + cassette with or without display,
- integrated radio + mono or multi **CD** player with or without integrated display.

The radio features allow you to:

- listen to the radio (four geographical zones can be programmed for **FM** radio),
- display the name of the station using **RDS**,
- switch automatically to the best transmitter (**AF**),
- receive road traffic and travel information (**AT**),
- receive news flashes and emergency bulletins (**PTY NEWS**).

### Radio operation

**REMINDER:** four geographical zones can be programmed for **FM** radio.

The radio has three selection modes visible on the screen and accessible from the panel:

- manual mode (**MANU**),
- preselected mode (**PRESET**),
- alphabetical order mode (**LIST**).

### Tape operation

The tape plays automatically once the tape source has been selected on the satellite or on the panel.

**NOTE:** only the Dolby fast forward and rewind with search controls can be accessed by specific buttons.

**NOTE:** the voice synthesiser or the car phone Mute function will stop the tape playing.

### CD operation (mono CD)

The **CD** player can play conventional **CDs** and any **CD-ROM** audio tracks.

**CDs** can be played in order or tracks can be chosen at random.

**NOTE:** the random function only operates on the current **CD** in the case of **CD** changers.

### Heat protection

If the radio temperature is too high to function properly, the volume is automatically lowered (without changing the display volume).

### Code protection

The radio is protected by a four digit code. This code can be entered via the control satellite or the vehicle radio keypad each time the battery is disconnected.

#### Entering the code with the control on the steering wheel:

to confirm a figure that has been entered, press the bottom key on the control.

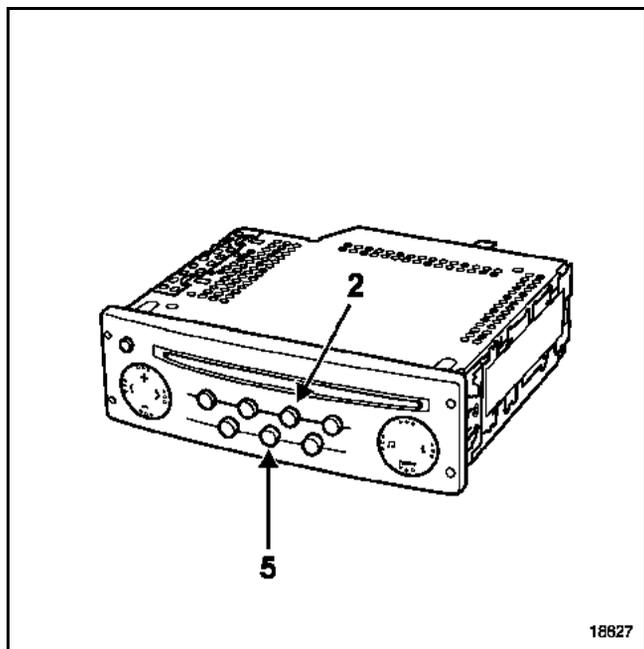
#### Entering the code with the radio keypad:

to confirm a figure that has been entered, press the next key on the keypad (see driver's handbook).

If the code is entered incorrectly, the radio will cease to function for: one minute for the first mistake, two minutes for the second mistake, four minutes for the third mistake etc.

Some settings must be made after the code has been entered for the first time (see the **Configuration** section). These settings are preserved when the battery is disconnected.

**N.B.:** the code can be scrambled by pressing keys **2** and **5** at the same time with the voltage power on. Wait two minutes.



### Configuration

**NOTE:** to select the zone in which the radio is to be used, press buttons **2** and **5** with the power on. Wait approximately two minutes. Enter the four digit code and then:

- Select the relevant zone:
  - America
  - Japan
  - Asia
  - Arabia
  - Others
- select the volume control for the appropriate car model:
  - 0: control inactive
  - 1: Twingo
  - 2: Clio
  - 3: Megane
  - 4: Laguna
  - 5: Top of the range
- configuration of number of speakers: **REAR ON/OFF.**

**NOTE:** these configurations are not required when the secret code has been entered after the supply has been cut off.

### Expert mode

To move to configuration mode (**Expert** mode), press and hold the **source** button for about four seconds until you hear a beep. This controls the following functions:

- **AF** mode activation (automatic retuning),
- volume control in relation to vehicle speed (**5** for maximum change, **0** for no change),
- activation of **Loudness** mode,
- activation of **Assisted radio** mode
- configuration of number of **speakers** (**2** or **4**),
- selection of manual or dynamic list.

**NOTE:** pressing the **source** button while entering the settings cancels the changes.

### Volume control

The volume can be configured in relation to the vehicle speed. To commence this operation:

select the desired volume control by using the **expert** mode (press and hold the **source** button until you hear a beep): **5** for maximum change, **0** for no change.

**NOTE:** check that the radio is correctly wired to ensure that this function is operational.

**NOTE:** the radio is fitted with tone modification according to the vehicle. To change vehicle type, refer to the **Configuration** section.

### Self-test mode

The self-test mode checks some of the main functions.

#### ● testing the speakers

The speakers are fed one at a time if you press buttons **2** and **4** simultaneously. This is confirmed by the display.

#### ● testing the reception level (after display of the frequency)

The display shows the radio reception information if you press buttons **1** and **6** simultaneously:

- **9** or letter: good reception
- if **3**: poor signal
- if **2**: no stereo

#### ● testing the buttons

To enter this mode, press button **3** and the **on/off** button at the same time. Every time a button is pressed, it will appear on the display. The mode exits automatically once all the buttons have been pressed.

### Connector allocations

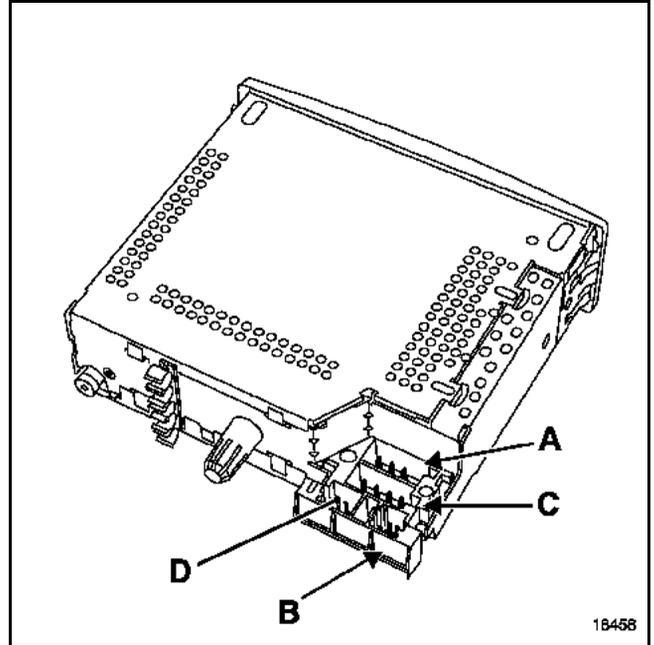
Black connector (A)

Track	Description
1	Vehicle speed signal
2	Not used
3	Voice synthesiser signal (mute)
4	Battery supply
5	Aerial amplifier supply
6	Light supply
7	Accessories supply
8	Earth

Yellow connector (B)

Track	Description
1	Display connection ( <b>track 13</b> ) or satellite*
2	Display connection ( <b>track 14</b> ) or satellite*
3	Display connection ( <b>track 15</b> ) or satellite*
4	Not used or satellite*
5	Earth shielding ( <b>track 12</b> ) or satellite*
6	Display connection ( <b>track 11</b> ) or satellite*

\* If the vehicle does not have an instrument panel display, the control satellite on the steering wheel is connected to the radio.



Brown connector (C)

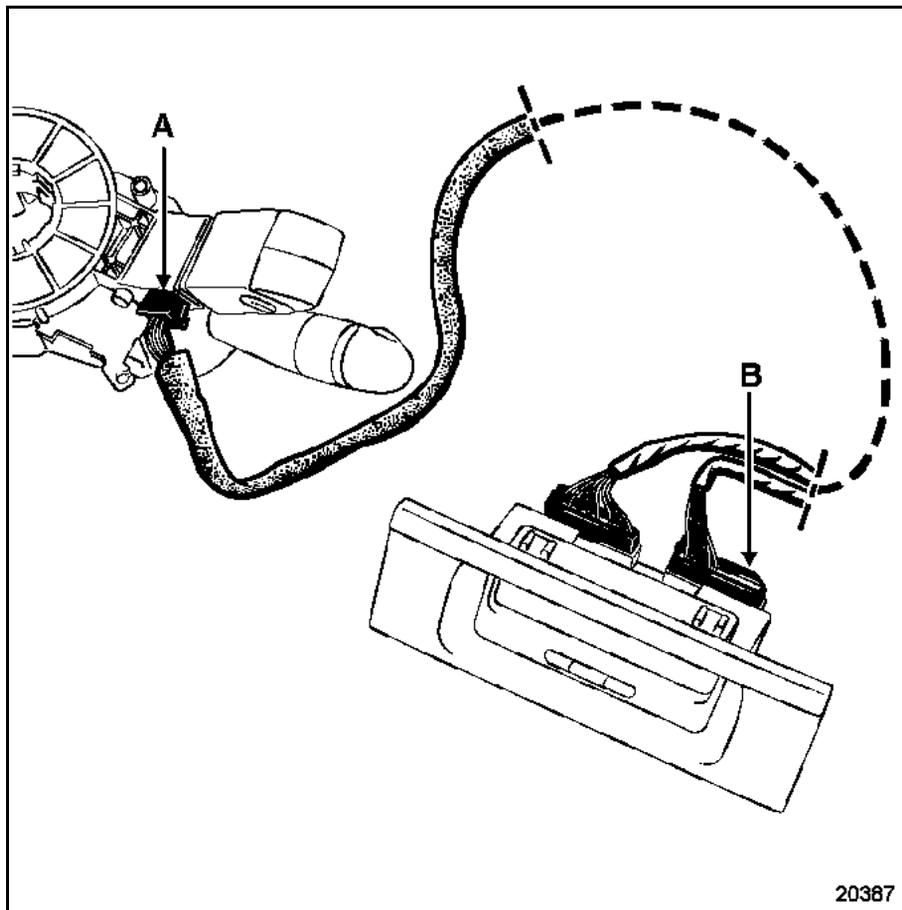
Track	Description
1	+ rear right speaker
2	- rear right speaker
3	+ rear left speaker
4	- rear left speaker
5	+ front left speaker
6	- front left speaker
7	+ front right speaker
8	- front right speaker

**NOTE:** the speakers are connected in parallel on each outlet.

The connector (D) is used to connect to a CD changer (depending on the version).

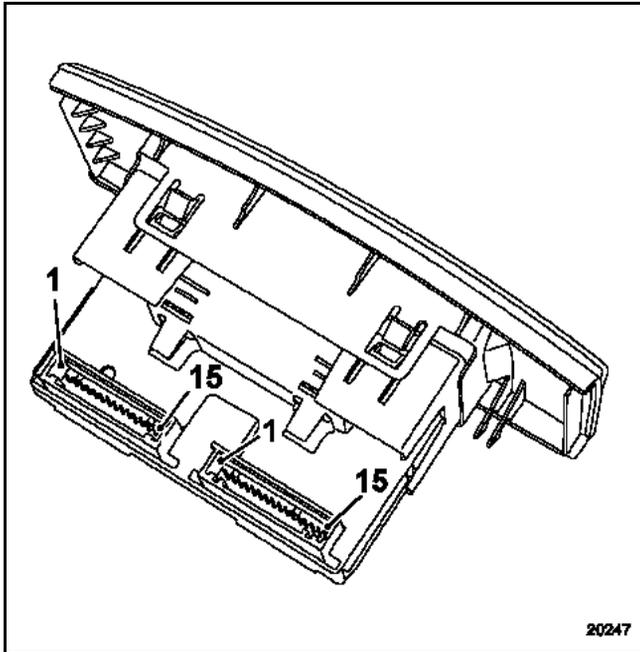
## CONNECTION

The radio control on the steering wheel is linked to the display set into the dashboard.



CONTROL CONNECTION WITH DISPLAY	
Control (connector A)	Display (connector B)
Track (A1)	Track (14)
Track (A2)	Track (13)
Track (A3)	Track (10)
Track (B1)	Track (9)
Track (B2)	Track (11)
Track (B3)	Track (12)

## ALLOCATION OF TRACKS



## 15-track grey connector

Track	Description
1	External temperature
2	External temperature
3	Not used
4	Not used
5	Earth
6	Lighting
7	Light supply
8	+ accessories
9	+battery
10	External temperature output
11	Earth (radio <b>track 6</b> )
12	Radio on signal (radio <b>track 5</b> )
13	Radio connection ( <b>Track 1</b> )
14	Radio connection ( <b>Track 5</b> )
15	Radio connection ( <b>Track 3</b> )

## 15-track red connector

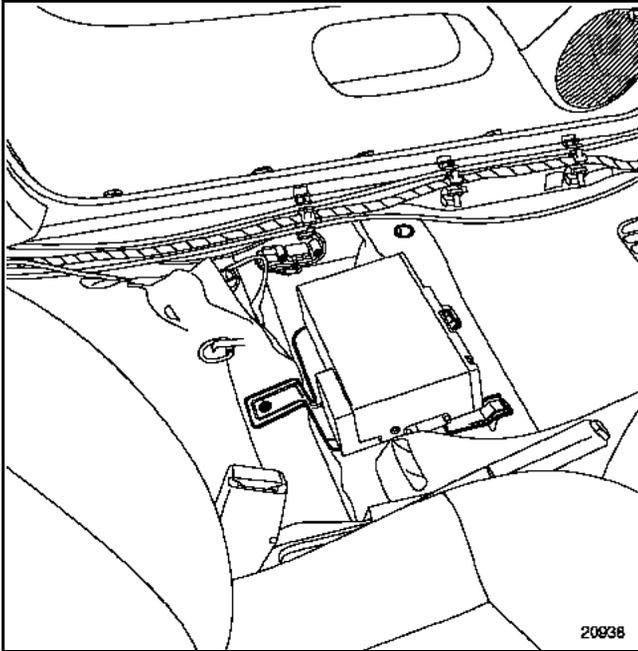
Track	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Not used
9	Radio control connection ( <b>track B1</b> )
10	Radio control connection ( <b>track A3</b> )
11	Radio control connection ( <b>track B2</b> )
12	Radio control connection ( <b>track B3</b> )
13	Radio control connection ( <b>track A2</b> )
14	Radio control connection ( <b>track A1</b> )
15	Not used

# RADIO CD changer

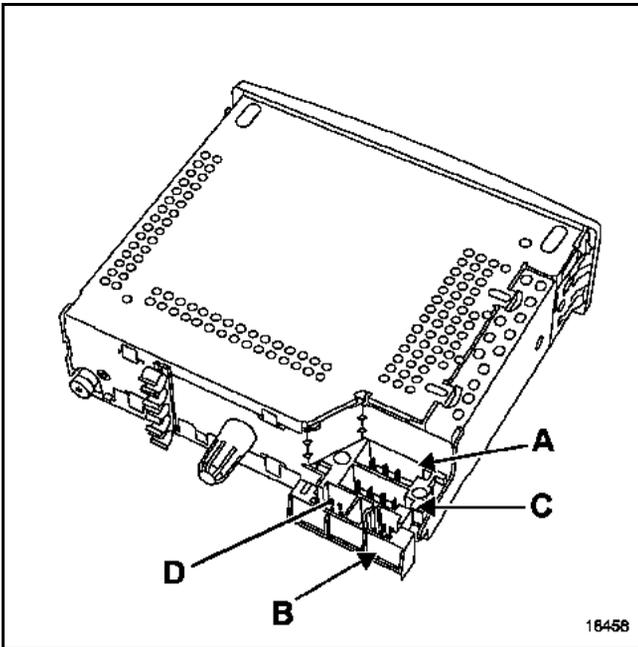
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The CD changer is located under the seat on the left hand side (depending on the version).

**NOTE:** removing the changer does not entail removal of the seat.



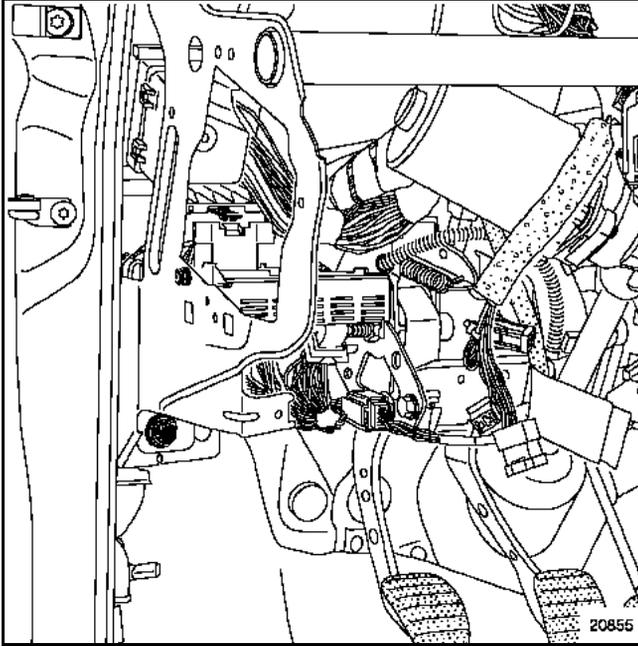
The CD changer is linked to the radio connector (D).



Radio	CD changer
Track 13	Track 2
Track 14	Track 3
Track 15	Tracks 1 and 10
Track 16	Track 5
Track 17	Track 7
Track 18	Track 6
Tracks 19 and 20	Tracks 4 and 8

### DESCRIPTION

The UCH is located behind the dashboard on the left hand side.



This computer contains most of the electronic units, including the engine immobiliser decoder.

There are four UCH models, depending on the level of equipment installed in the vehicle:

- a **bottom of the range (N2)** version,
- a **top of the range (N3)** version,
- a specific version for the **F9Q bottom of the range (N2)** engine.
- a specific version for the **F9Q top of the range (N3)** engine.

**NOTE:** the top of the range UCH may be fitted in place of the bottom of the range UCH.

# ELECTRICAL ASSISTANCE EQUIPMENT

## UCH

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UCH features	Bottom of the range (N2)	Top of the range (N3)	See section
Operation of indicators and hazard warning lights	X	X	-
Daytime running lights control	-	X	80
Lights control		X	-
Light sensor	-	X	80
Windscreen and rear screen wipers control	X	X	85
Headlight washers control	-	X	85
Rain sensor	-	X	85
Doors and windows control	X	X	87
Door locking when driving/unlocking on impact	X	X	87
Door opening indicator light/Electric central door locking indicator light	X	X	-
Timed interior lighting control	X	X	81
Radio frequency remote control	X	X	87
Driver and passenger one-touch windows control	X/-	X/X	87
Engine immobiliser control (V3 coded)	X	X	82
+ after ignition supply/starter control	X	X	-
Passenger compartment horn (built into the instrument panel)	X	X	83
Overspeed feature (Arabia)	X	X	83
Alarm connection (second fitting)	X	X	82
Multiplex network interface	X	X	88
Interface with fault finding tool	X	X	88
Heated rear screen timing	X	X	-

### REMOVAL

#### NOTE:

- Modification of or operations on the casing itself are not permitted; the UCH must be replaced instead.
- It is advisable to note down the configuration sequence before the UCH is removed. The different configurations can be implemented using the fault finding tool.

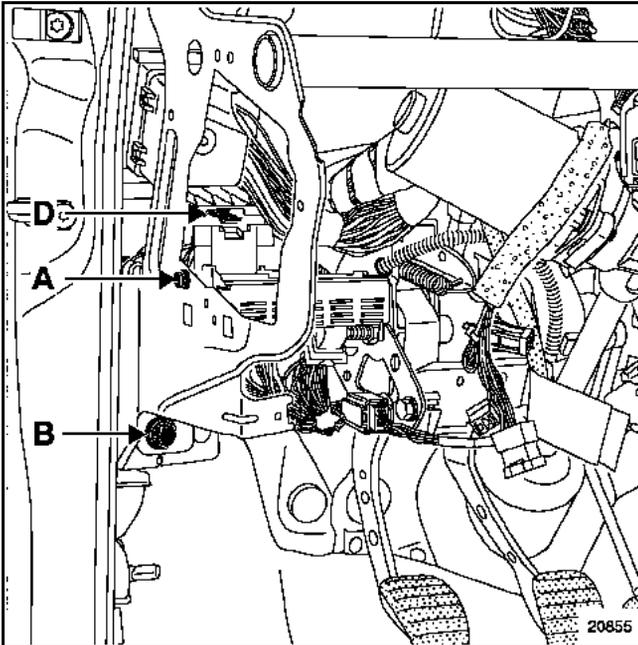
Disconnect the battery.

Partially remove:

- the door seal,
- the lining from the front door pillar.

Remove:

- the fuse cover,
- the two bolts (A) and (B) that attach the UCH.

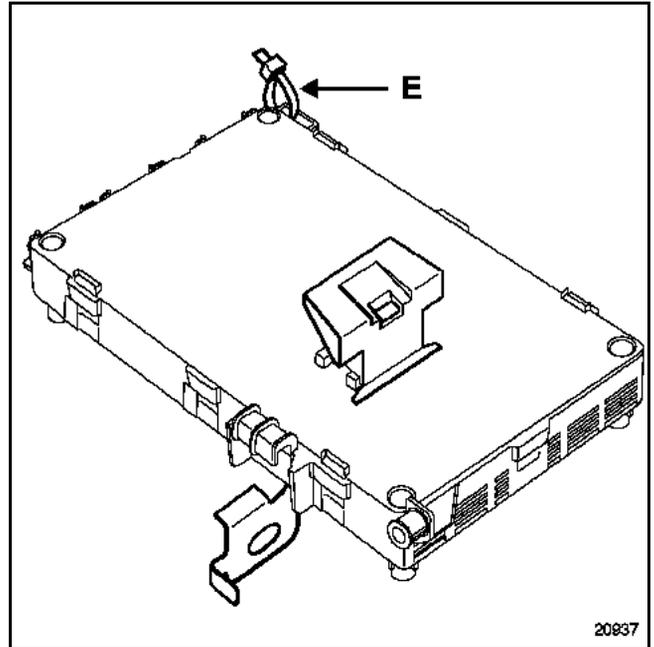


Unclip the UCH by pressing down on the lug (D).

Disconnect the connectors.

Separate the relay supports from the UCH.

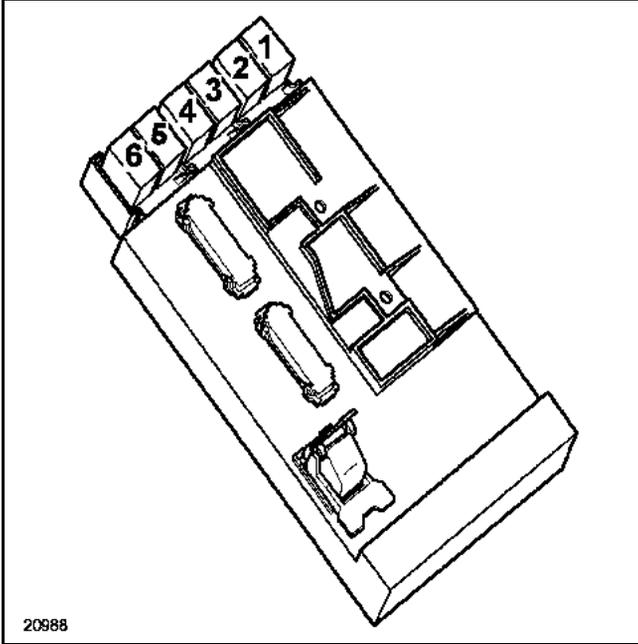
Cut the plastic clip (E).



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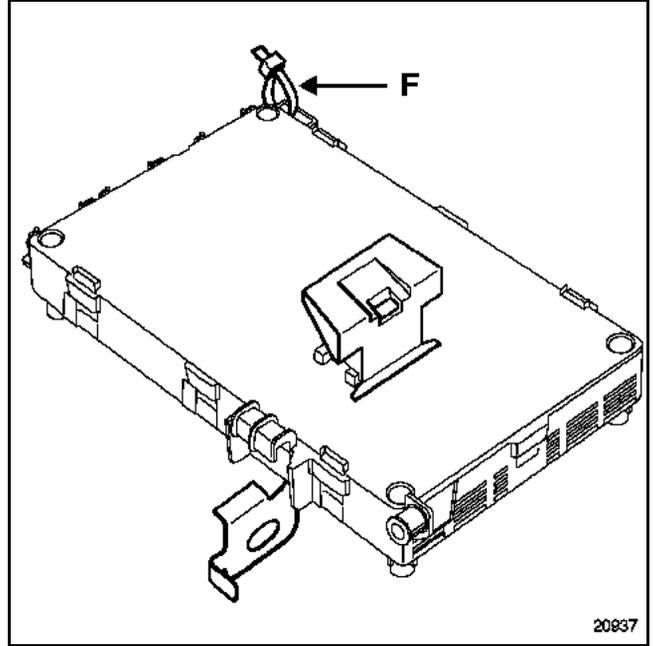
## REFITTING

Keep to the position of the relay supports on the top of the range UCH.

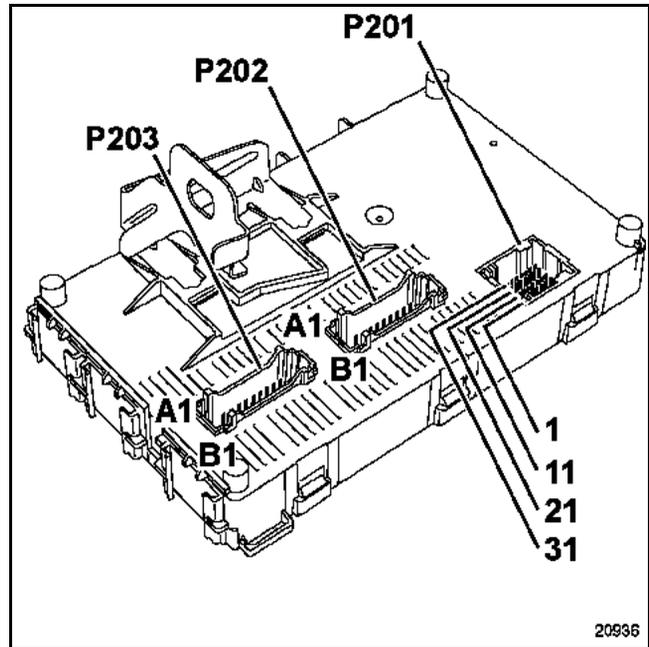


Relay	Description
1	Main daytime running lights relay
2	Daytime running side lights relay
3	Front fog lights relay
4	Daytime running lights code relay
5	Headlight washer pump relay
6	Headlight washer pump relay

Refit a clip (F) to keep the wiring harness in place.



Then program the keys and configure the UCH.



### BLACK 40-TRACK CONNECTOR (P201)

Track	Description
1	Side lights relay output
2	Dipped beam headlights input
3	One-touch window lowering control input
4	One-touch window raising control input
5	Immobiliser warning light output
6	Front timer control input
7	+ battery supply
8	Transponder connection
9	CAN L passenger compartment multiplexed connection
10	CAN H passenger compartment multiplexed connection
11	Dipped beam headlights relay control output
12	Main beam headlights input
13	Rain/light sensor connection
14	Starter relay control output
15	Door locking warning light output
16	Rear park position signal input
17	Front park position signal input
18	Diagnostic line K
19	CAN L multiplex connection
20	CAN H multiplex connection

Track	Description
21	Front high speed wiper input
22	Front low speed wiper input
23	+ accessories supply input
24	Rear screen washer control input
25	Front windscreen washer control input
26	Side lights input
27	Left side indicators input
28	Right side indicators input
29	Hazard warning lights input
30	Rear door open signal input
31	Hazard warning lights warning light output
32	Reversing signal input
33	+after ignition supply
34	Rear timer input
35	Heated rear screen input
36	Central door locking switch input
37	Driver's electric window lowering input
38	Driver's electric window raising input
39	Luggage compartment door switch input
40	Front door open signal input

### WHITE 15-TRACK CONNECTOR (P202)

Track	Description
<b>B1</b>	Passenger's one-touch window raising output
<b>B2</b>	Driver's one-touch window lowering output
<b>B3</b>	Driver's one-touch window supply
<b>B4</b>	Electric window earth
<b>B5</b>	Driver's one-touch window raising output
<b>B6</b>	Earth
<b>A1</b>	Front windscreen wiper high speed output
<b>A2</b>	+ after ignition feed supply (rear screen wiper)
<b>A3</b>	+battery supply (lighting)
<b>A4</b>	+ after ignition feed supply (windscreen wiper)
<b>A5</b>	Headlight washer output
<b>A6</b>	Timed supply output
<b>A7</b>	Headlight washer output
<b>A8</b>	Courtesy lights output
<b>A9</b>	Under seat lighting output

### BLACK 15-TRACK CONNECTOR (P203)

Track	Description
<b>A1</b>	Indicator + battery supply
<b>A2</b>	Left hand direction indicator output
<b>A3</b>	Right hand direction indicator output
<b>A4</b>	Electric locking closing output
<b>A5</b>	Main beam headlights relay output
<b>A6</b>	Electric locking opening output
<b>A7</b>	Electric locking + battery feed
<b>A8</b>	Rear screen wiper output
<b>A9</b>	Front wiper low speed output
<b>B1</b>	+ after ignition supply for the heated rear screen
<b>B2</b>	Heated rear screen output
<b>B3</b>	Driver's electric window supply
<b>B4</b>	+ after ignition supply
<b>B5</b>	Passenger's electric one-touch window lowering control output
<b>B6</b>	+ supply for passenger's electric one-touch window

### CONFIGURATION OF THE UCH

The configuration options for the UCH are:

<b>Title and position on the diagnostic tool</b>	<b>Configuration</b>	<b>Type of UCH</b>
Timed courtesy light ( <b>LC 021</b> )	automatic	all types
Arabia overspeed ( <b>LC 068</b> )	manual	all types
Daytime running lights ( <b>LC 049</b> )	manual	N3 only
Rain sensor ( <b>LC 051</b> )	manual	N3 only
Light sensor ( <b>LC 055</b> )	manual	N3 only
Second fitting alarm ( <b>LC 066</b> )	automatic	N3 only
Automatic relocking ( <b>LC 069</b> )	automatic	all types
Windscreen wiper timing ( <b>LC 070</b> )	manual (incompatible with the rain sensor)	all types
Headlight washers ( <b>LC 073</b> )	manual	N3 only
Passenger's one-touch window ( <b>LC 074</b> )	manual	N3 only
Additional wiping after windscreen washer ( <b>LC 071</b> )	automatic	all types

### CONFIGURATION OF THE PASSENGER COMPARTMENT CONNECTION UNIT

Using a diagnostic tool:

- With the ignition on, enter dialogue with the vehicle and perform the **multiplexed network** test,
- Select and confirm the **Passenger compartment connection unit** menu,
- In the **Command mode** menu, select and confirm the **Configuration** line,
- Select the command **CF 718: UCH type**,
- Message: **Warning! the first stage of the procedure involves erasing the UCH configurations. If the procedure is interrupted after this stage, the computer will be completely deconfigured. Do you wish to proceed?** appears,
- Select **yes**,
- Message: **Erasing the computer memory** appears,
- Select the type of UCH that corresponds to the vehicle **N2** or **N3**. Refer to the operations table,
- Message: **Do you wish to proceed?** appears.
  
- Select **yes** then perform the manual configurations,
  - For the **bottom of the range** UCH or **N2**
    - 1 Configuring the **Arabia overspeed**,
    - 2 Configuring the **variable timing** of the windscreen wiper (only if the vehicle is not fitted with a rain sensor),
  
  - For the **top of the range** UCH or **N3**
    - 1 Configuring the **Arabia overspeed**,
    - 2 Configuring the windscreen wiper **variable timing** (only if the vehicle is not fitted with a rain sensor),
    - 3 Configuring the **light sensor** (incorporated into the rain sensor depending on the version),
    - 4 **Configuring the rain sensor**
    - 5 Configuring the headlight washers (specific to headlights with xenon bulbs),
    - 6 Configuring the **daytime running lights** for vehicles fitted with top of the range wiring (discharge bulb),
    - 7 Configuring the **passenger's one-touch window**.
  
- When changing option, select the line to be changed then confirm **reverse**,
- The desired configuration changes,
- Select **Configuration** then confirm,
- The message: **Are the configurations correct?** appears,
- Select **yes**,
- Check that the configurations have been carried out correctly using the configuration reader screens.

### SPECIAL NOTES

– Courtesy light:

- the courtesy light comes on when a door is opened and lasts for **15 seconds** after it is closed,
- the courtesy light comes on for **15 seconds** after the doors are unlocked by remote control except when they are locked again (the light goes out) or there is + after ignition feed (the light dims gradually),
- if a door is left open, the courtesy light stays on for **15 minutes**.

– Wipers/washers:

- wipers can be timed by the stalk or the rain sensor,
- when the front wipers are operating, or in automatic mode (rain sensor) reversing activates the rear screen wiper,
- when the vehicle speed decreases, the wiper control speed decreases. It returns to its initial position on moving off,
- the headlight washer is controlled by the stalk when the main beam or dipped beam headlights are switched on.

– Electric window:

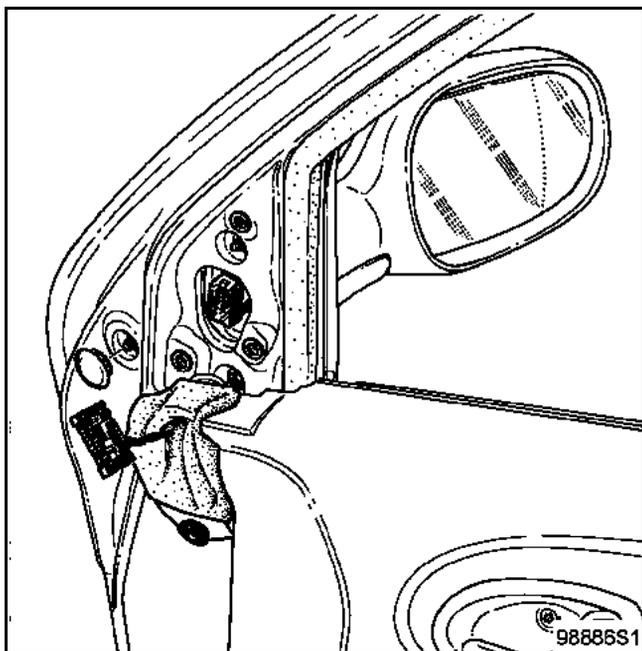
- the driver's window control is in not in one-touch mode between switching off the ignition and opening the driver's door,
- the electric windows only operate in one-touch mode when the engine is running.

– There is a buzzer on the instrument panel for the following functions:

- indicator sound,
- lights on reminder,
- confirmation that automatic lights are activated,
- confirmation that automatic locking is activated when driving.
- "Arabia" overspeed function

### REMOVAL

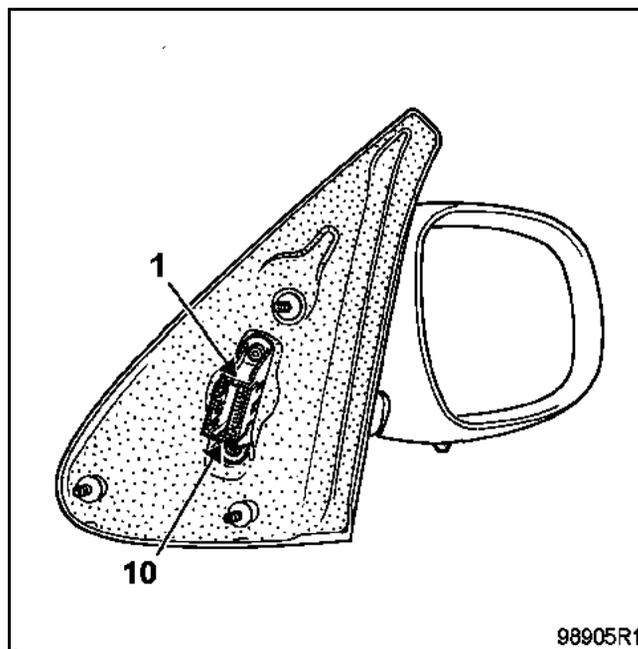
Removing the exterior rear-view mirrors does not require removal of the door trim.



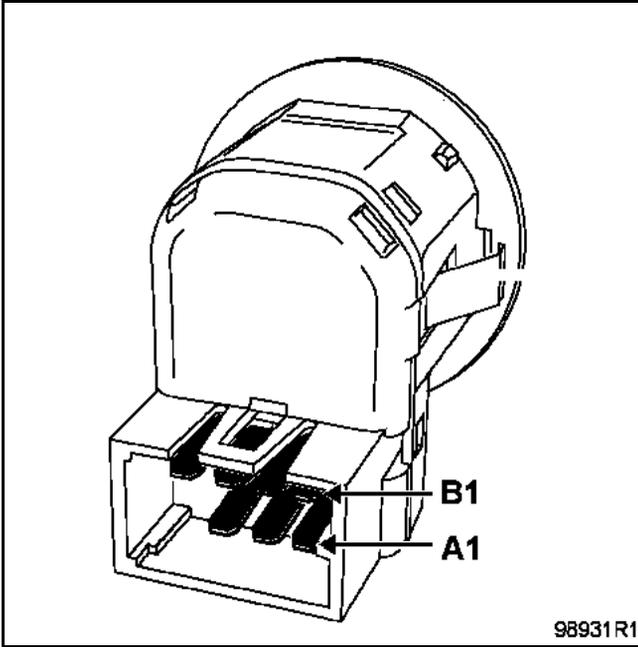
### REFITTING

Maintain the tightening torque of the mountings (tightening torque: **0.2 daNm ± 20%**).

### CONNECTIONS



Tracks	Description
1	Heated rear-view mirror earth
2	Not used
3	External temperature sensor earth (on the passenger side)
4	External temperature sensor signal (on the passenger side)
5	Not used
6	Up/down
7	Left/right
8	Rear-view mirror motor common
9	Not used
10	Heated rear-view mirror control



### CONNECTION

Track	Description
A1	Left/right control for the left hand rear-view mirror
A2	Earth
A3	Up/down control for the left hand rear-view mirror
B1	Left/right control for the right hand rear-view mirror
B2	Up/down control for the right hand rear-view mirror
B3	+ before ignition
B4	Left and right rear view mirror common

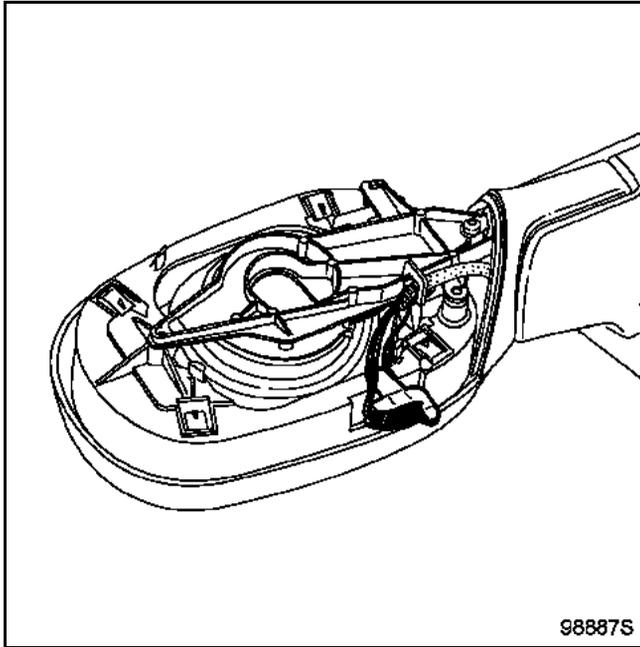
### Left hand rear-view mirror

Operation		Tracks
Raise	▲	A3/B3 B4/A2
Lower	▼	A3/A2 B4/B3
Left	◀	B4/A2 A1/B3
Right	▶	B4/B3 A1/A2

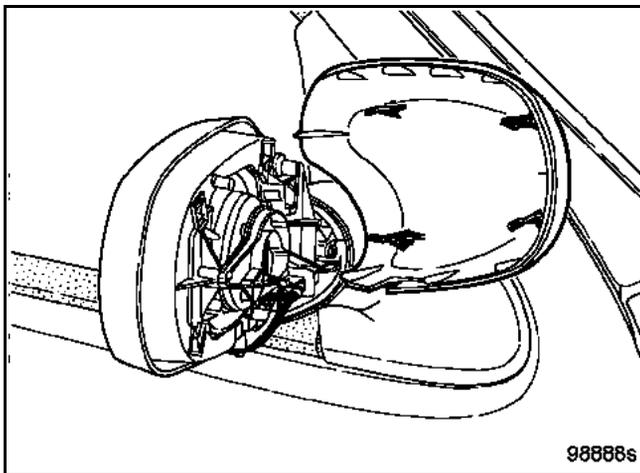
### Right hand rear-view mirror

Operation		Tracks
Raise	▲	B2/B3 B4/A2
Lower	▼	B2/A2 B4/B3
Left	◀	B1/B3 B4/A2
Right	▶	B4/B3 B1/A2

The temperature sensor is located in the passenger side rear-view mirror.



It is not necessary to take off the rear-view mirror to remove the temperature sensor. This can be done by removing the cowling.



Temperature sensor resistance values:

Approximate temperature in °C	Sensor resistance in ohms
between 0 and 5	between 5400 and 6200
between 6 and 10	between 4400 and 5400
between 11 and 15	between 3700 and 4400
between 16 and 20	between 3000 and 3700
between 21 and 25	between 2500 and 3000
between 26 and 30	between 2100 and 2500
between 31 and 35	between 1700 and 2100
between 36 and 40	between 1450 and 1700

### DESCRIPTION

The computers on modern vehicles are becoming increasingly powerful, and can perform increasingly complex calculations. To perform these calculations, they need to acquire information from sensors or from other computers.

The multiplex network allows the computers to:

- exchange signals via the bias of a two-wire connection common to all the computers known as the: **BUS**,
- reduce the number of cables and connectors.

In order to communicate with each other across the multiplex network, the computers need to speak the same language (protocol), RENAULT has chosen the **CAN** protocol.

#### ● The CAN protocol

The bus consists of a twisted pair of non-interchangeable wires called CAN H and CAN L. The information is transmitted in the form of long-tail pair square wave signals, which gives greater protection against electromagnetic interference and limits radiation. The voltages of the signals transmitted on the bus are strictly differentiated: between **2.5** and **3.5 volts** for the CAN H line and between **2.5** and **1.5 volts** for the CAN L line.

At each end of the multiplex connections are impedances of **120 ohms**:

- UCH side **120 ohms** on the CAN UCH line, (disconnected from the network).
- injection computer side **120 ohms** on the CAN line of the computer (disconnected from the network).

See the **Repairing the multiplex network** section for measuring the line impedance and performing a multiplex network test.

#### ● The CAN frame:

The message sent on the multiplex network is called a **frame**. It consists of a series of logical levels organised into **5 fields**:

- an arbitration field indicating the destination(s) and the frame's priority of access to the network,
- a control field,
- a field containing the message data,
- a control field contributing to the security of the transmission,
- an acknowledgement field indicating that the frame has been correctly sent over the network.

#### SPECIAL CASES

- If several computers attempt to send a frame at the same time, the frame with the highest arbitration field value will have priority. The other transmissions (with lower priority) will be sent as soon as the most important frame has been sent. Each computer is able to send and receive.
- If a message is incorrect or incorrectly received by a computer, the acknowledgement field will not be validated and the whole message will be rejected.

### ● Repair of the multiplex network

The multiplex network is connected to each of the computers by means of cable joints in the harness.

The fault finding strategy for these lines consists of checking:

- continuity line by line,
- insulation from earth and voltage,
- line impedance:
  - ≈ **60 Ohms** between CAN H and CAN L (battery disconnected between terminals **6** and **14** of the diagnostic socket),
  - ≈ **120 Ohms** on the CAN UCH line (disconnected from the network),
  - ≈ **120 Ohms** on the CAN engine Electronic Central Unit, on the computer side (disconnected from the network),
- the frames can be displayed using an oscilloscope,
- the remaining fault finding operations can only be performed with the fault finding tools (actuator test, measurement of parameters, etc.).

### ● Fault finding

Multiplex computers fitted with a diagnostic connection incorporate a multiplex network fault finding strategy.

Each computer permanently monitors its capacity to transmit and receive regular messages from other computers. Any fault detected results in one or more present or stored faults on the multiplex network. These faults are grouped in a frame dedicated to the multiplex network fault finding, using a format common to all the computers.

During servicing, these faults can be displayed on fault finding tools in order to identify the faulty inter-computer connection(s) and to locate and ascertain the nature of the fault.

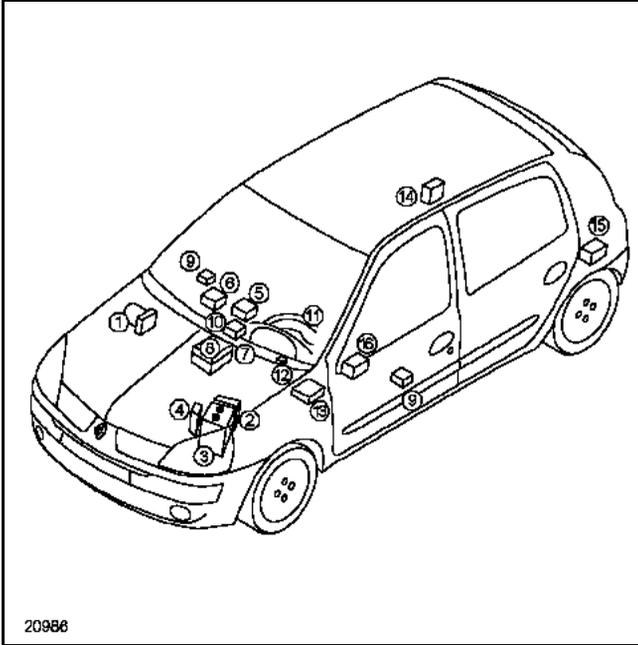
Each time a fault finding tool is connected to a vehicle, it performs a multiplex network test.

### ● The different multiplex connections on the vehicles

Depending on the equipment level, several multiplex networks may be present on the vehicles:

- ⇒ The vehicle or inter-system multiplex network (comprising ten computers):
  - Injection
  - Automatic gearbox (depending on version)
  - Anti-lock braking system
  - UCH
  - Electric steering column lock
  - Air bag
  - Air conditioning
  - Instrument panel
  - Central Communication Unit
  - Voice synthesiser
- ⇒ The private multiplex network (connecting the anti-lock braking system computer and the steering wheel angle sensor).
- ⇒ The multiplex network for the navigation system.
- ⇒ The multiplex network associated with the driver's seat position memory option.

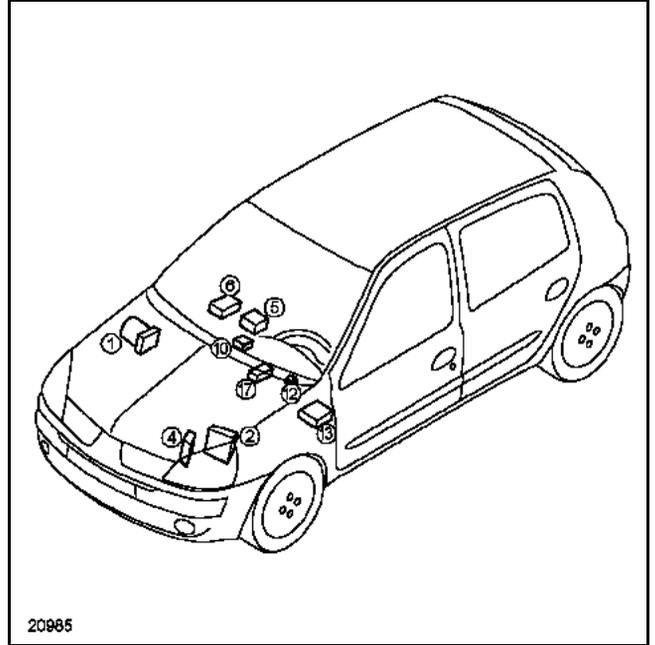
### LOCATION OF THE COMPUTERS IN THE VEHICLE



#### Components

- 1 Anti-lock braking system computer
- 2 Injection computer
- 3 Battery
- 4 Automatic gearbox computer (depending on version)
- 5 Diagnostic socket
- 6 Central Communication Unit
- 7 Air conditioning control panel
- 8 Radio
- 9 Side impact sensors
- 10 Air bag computer
- 11 Instrument panel
- 12 Electric power assisted steering
- 13 UCH
- 14 Xenon bulb computer
- 15 Navigation computer
- 16 CD player
- 17 Steering wheel angle sensor

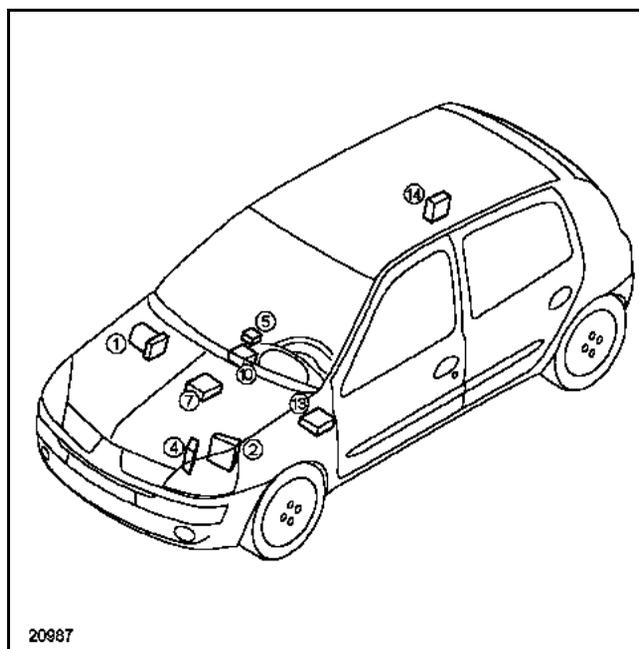
### LOCATION OF THE COMPUTERS CONNECTED TO THE MULTIPLEX NETWORK



#### Components

- 1 Anti-lock braking system computer
- 2 Injection computer
- 4 Automatic gearbox computer (depending on version)
- 5 Diagnostic socket
- 6 Central Communication Unit
- 10 Air bag computer
- 11 Instrument panel
- 13 UCH
- 14 Xenon bulb computer
- 17 Steering wheel angle sensor

### LOCATION OF THE FAULT FINDING COMPUTERS IN THE VEHICLE



#### Components

- 1 Anti-lock braking system computer
- 2 Injection computer
- 4 Automatic gearbox computer (depending on version)
- 5 Diagnostic socket
- 7 Regulated air conditioning
- 10 Air bag computer
- 12 Electric power assisted steering
- 13 UCH
- 14 Xenon bulb computer

## Air bags and seat belt pretensioners

### GENERAL INFORMATION

These vehicles are fitted with a passive safety system of the SRP (Renault Protection System) type, comprising:

- a driver's side front air bag system fitted with a SRP 2-generator air bag,
- a passenger's side front air bag system fitted with a SRP 2-generator air bag,
- front buckle pretensioners,
- rear pretensioners (pyrotechnic seat belt retractors),
- specially designed front seat belts with SRP, (**400 daN**)
- a computer (**50 tracks**),
- a passenger air bag inhibitor system using a key,
- two side impact sensors,
- curtain air bags in the front seats,
- a driver's seat position sensor,
- a system fault warning light,
- an air bag inhibitor warning light **air bag OFF**.

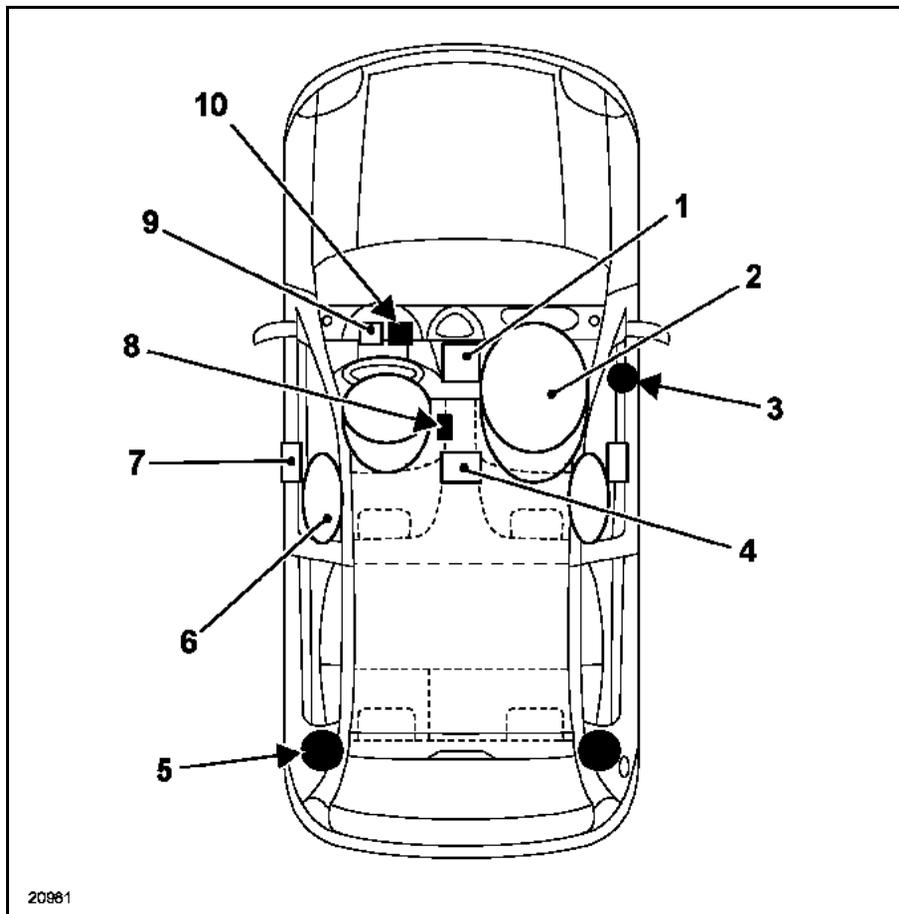
**WARNING:**

**With this system (front SRP 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 in front of 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:** Certain connectors are fitted with a new-generation locking system. It is essential to unclip the lock before removing the connector and ensure it is correctly positioned after fitting. An unlocked connector will not enable the triggering line to be supplied.



- 1 Air bag computer
- 2 Adaptive front air bag
- 3 Inhibitor key
- 4 Seat belt catch pretensioner
- 5 Seat belt retractor
- 6 Side air bag
- 7 Side sensor
- 8 Seat position sensor
- 9 Air bag warning light
- 10 Air bag OFF warning light

## Air bags and seat belt pretensioners

### OPERATION OF AIR BAGS AND PRETENSIONERS

When the ignition is switched on, the air bag and pretensioner warning light comes on for a few seconds and then goes out.

**NOTE:** the air bag warning light may come on because of low battery voltage.

The computer and the side impact sensors will register the vehicle's deceleration by means of signals measured by the electronic decelerometers.

#### Frontal impact

1. If there is a frontal impact of a sufficient severity, the pyrotechnic generators for the **front seat belt pretensioners and the pyrotechnic seat belt retractors** are triggered, following confirmation of impact detection by the electronic safety sensor.
2. If the frontal impact is more severe, in addition to the **pretensioners and seat belt retractors**, the electronic safety unit triggers the pyrotechnic generators of the **low volume frontal air bags**.
3. If the impact is extremely severe, the safety computer triggers the **pretensioner, seat belt retractor and large volume frontal air bag** pyrotechnic gas generators.

**NOTE:** the frontal air bag inflation volume is controlled by the computer according to the severity of the impact and the adjustment position of the driver's seat (refer to the **under-seat switch** section).

#### Frontal side impact

If there is a side impact of a sufficient severity, the impact sensors send a signal to the computer. After receiving confirmation of impact detection from the electronic safety sensor (incorporated in the computer), the computer then triggers the pyrotechnic gas generators:

- of the **front pretensioner and rear pyrotechnic seat belt retractor** (on the side of the impact),
- of the seat which inflates the front **curtain air bag** (on the side of the impact).

#### NOTE:

- the front pretensioners and the rear pyrotechnic seat belt retractors can be triggered in the case of a rear impact (depending on its severity),
- When triggered, the pyrotechnic gas generator produces an explosion combined with a little smoke.

**NOTE:** Power supply to the computer and ignition modules is usually from 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

## PRECAUTIONS DURING REPAIR

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

**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.

The air bags have a pyrotechnic gas generator with an igniter and air bag which must not be separated.

**IMPORTANT:** lock the computer using a fault finding tool before removing a pretensioner, air bag module, computer or side impact sensor. When this function is activated, all the ignition lines are disabled and the air bag warning light on the instrument panel comes on.

When an air bag or seat belt pretensioner is triggered, the computer locks permanently and switches on the air bag warning light on the instrument panel. The side impact sensor and the computer must then be replaced (certain components lose their nominal settings after transmission of ignition power).

After refitting everything, carry out a check using the fault finding tool.

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

**IMPORTANT:** refer to the section describing the destruction procedure when scrapping a pyrotechnic system that has not been triggered.

## WARNING

- The computer and impact sensors contain sensitive components, **do not drop them**.
- Do not put covers on the front seats (except for Renault products).
- Do not place objects in the air bag deployment area.
- When working under the vehicle (on the bodywork, sill panel etc.), it is vital that you lock the air bag computer using a fault finding tool and switch off the ignition.
- For special points regarding removal and replacement of seat trims, it is essential to read the **bodywork** section.

**IMPORTANT:** It is vital that pyrotechnic systems (pretensioners, front and side 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.

After an impact:

- if the pretensioners were triggered, the seat belts must be replaced if they were fastened,
- if the driver's front air bag was triggered, the steering wheel must be replaced,
- if the passenger front air bag was triggered, the dashboard and cross member lining must be replaced,
- if a seat side air bag was triggered, the frame must be replaced,
- it is essential to check that the inhibitor key and seat position sensor are working properly.

## Air bags and seat belt pretensioners

## WARNING LIGHTS ON THE INSTRUMENT PANEL

The vehicles have two warning lights on the instrument panel:

- the **air bag fault** warning light
- **passenger air bags locked (air bag OFF)** warning light

**NOTE:** the two warning lights cannot be lit at the same time.

The **air bag fault** warning light warns of a fault in the safety system for the:

- computer,
- front pretensioners,
- rear pyrotechnic seat belt retractors,
- front air bags,
- side air bags,
- inhibitor system using a key,
- battery (checking the supply voltage).

It should light up for a few seconds when the ignition is switched on, then go out (and remain out).

If it does not light up when the ignition is switched on or lights up when the vehicle is moving, this signals a fault in the system (see the **fault finding** section).

**NOTE:**

- Under certain starting conditions, the warning light may come on briefly and then go out.
- The air bag warning light is controlled by the multiplex network.

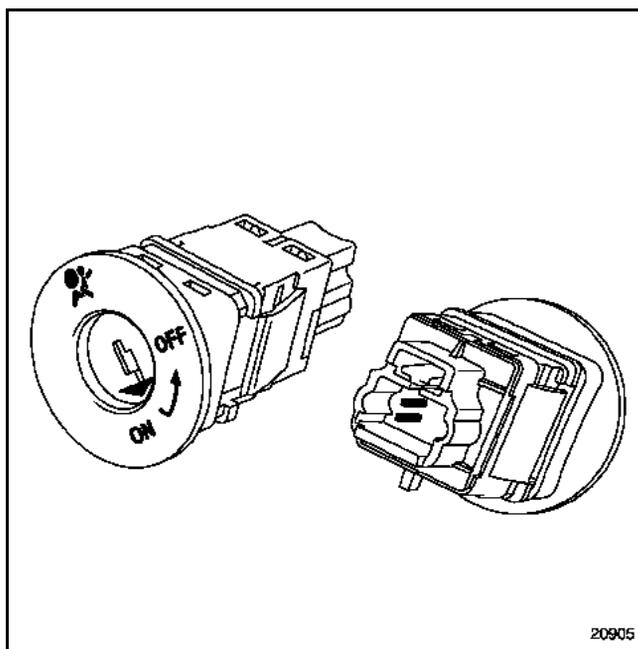
- The **air bag OFF** warning light shows whether the passenger air bag inhibitor system is activated or deactivated.

**REMINDER:** any change in the position of the inhibitor key is only taken into account when the ignition is off.

## PASSENGER AIR BAG INHIBITOR KEY

The inhibitor key is located on the switch plate of the passenger door and has two positions:

- ON = passenger air bags operational (resistance = **400 Ohms**)
- OFF = passenger air bags (front and side) are deactivated to accommodate a child seat. When the inhibitor key is in this position the **air bag OFF** warning light on the instrument panel comes on (resistance = **100 Ohms**)

**NOTE:**

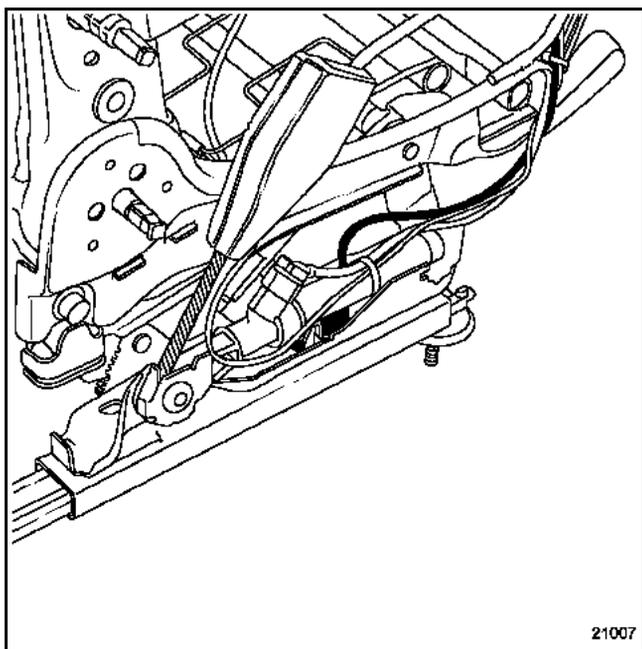
- The passenger seat belt is designed to work with the passenger air bag. Keep the same part number when it is being replaced.
- The position of the inhibitor switch is only taken into account if the ignition is switched off and the computer is configured correctly.

## Air bags and seat belt pretensioners

## SEAT POSITION SWITCH

The driver's seat is fitted with a runner position sensor.

This affects the inflation of the driver's front air bag (high or low volume) according to the position of the driver's seat.



The seat position switch is linked to the seat wiring. If it is replaced, all the wiring must be replaced.

- upright seat: sensor resistance = **400 Ohms**
- reclined seat: sensor resistance = **100 Ohms**

## SRP SEAT BELTS

The front seat belts are fitted with a specific Renault Protection System (SRP).

In this equipment, the seat belts are linked to the air bag function. (The programmed restraint system is calibrated differently depending on whether or not the seat belts are fitted opposite an SRP air bag).

When the pretensioners have been triggered the front seat belt or belts must always be replaced if they were being worn when pretensioning took place (if there is any doubt as to whether the belt was being worn it must be replaced). The physical stresses exerted on the buckle are transmitted to the inertia reel and may damage its mechanism.

## Air bags and seat belt pretensioners

### THE COMPUTER

These units consist 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,
- a connection with the side impact sensors,
- 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 multiplex communication interface,
- an impact detection link (impact information).

### IMPORTANT:

A computer must be locked using one of the fault finding tools before it can be removed.

When this function is activated, all the ignition lines are disabled and the air bag warning light on the instrument panel comes on (new computers are delivered in this state).

### NOTE:

- In the event of incorrect operation of these systems during an impact, it is possible to verify that no fault was present before the impact using the fault finding tools.
- After locking following an impact, it is possible to check the trigger lines supplied by the control **SC004 Reading breakdown contexts** with the fault finding tool.

### PROCEDURE FOR LOCKING THE COMPUTER

Before removing the computer or before any operation on the air bag and pretensioner systems, it is vital that you lock the computer either:

#### Using the NXR, OPTIMA 5800 or CLIP tools only

1. Select the **Fault finding on a Renault vehicle** menu.
2. Select and confirm the vehicle type.
3. Select and validate the system to be diagnosed: **Air bag**.
4. Select the **Command** menu.
5. Select and confirm the **Set up (NXR) or Actuators (Clip)** function.
6. Confirm the **VP006 Computer locking** line.
7. In the **Status** menu, check that the unit is locked.

The **ET073 Computer locked with tool** status must be active and the air bag warning light on the instrument panel must be on (new computers are delivered in this state).

**NOTE:** to unlock the computer, use the same method, but select the **VP007 Computer unlocking** line.

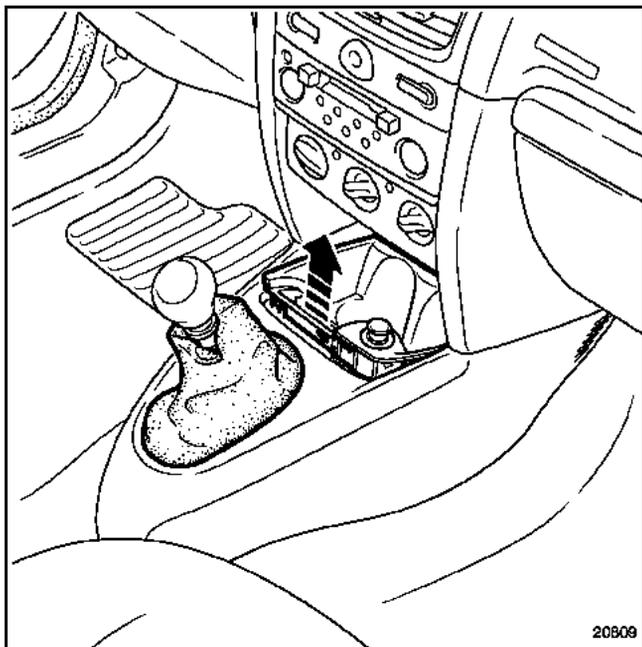
The **ET073 Computer locked with tool** status must not be active and the air bag warning light on the instrument panel must be off.

### REMOVAL

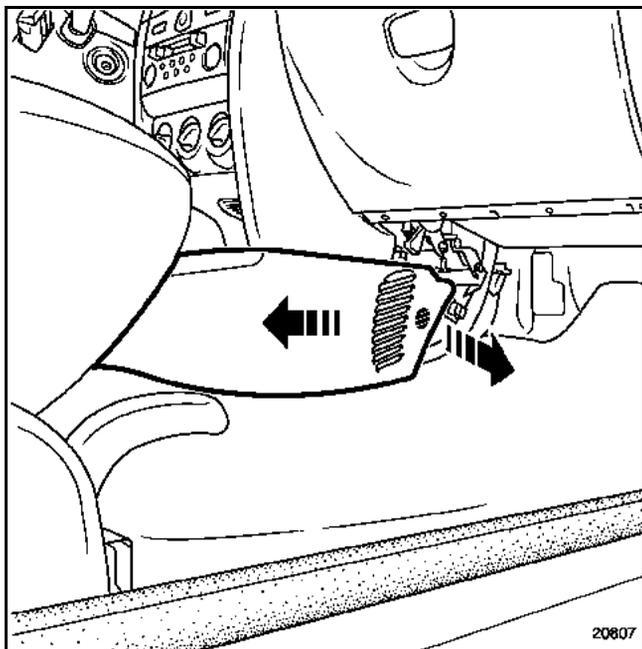
The computer is located on the central console.

**REMINDER:** a computer must be unlocked using one of the fault finding tools before it can be removed.

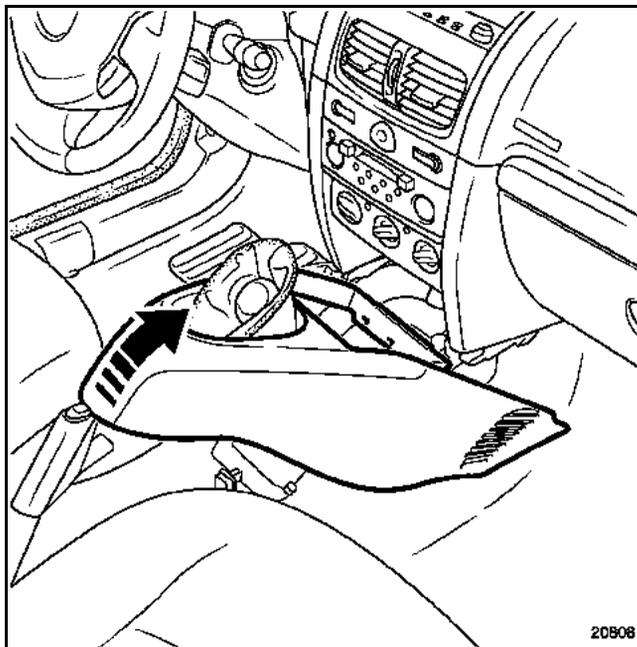
Remove the central console.



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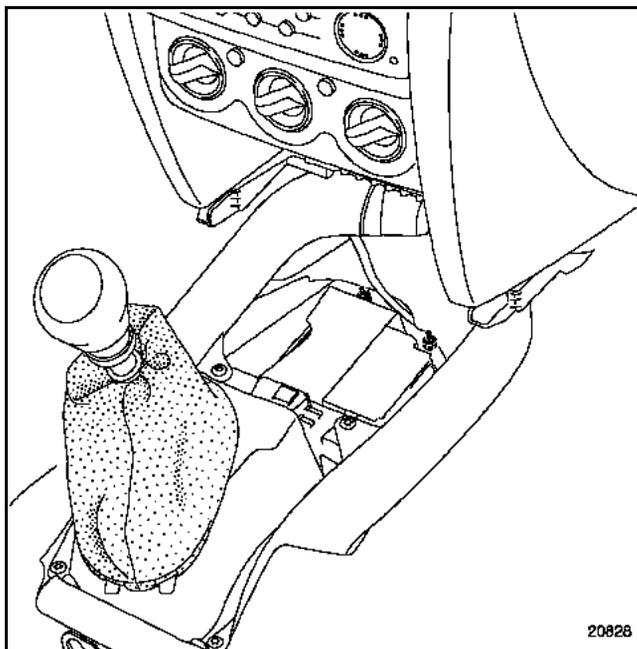


20807



20808

Disconnect the computer then remove the mounting nuts.



20826

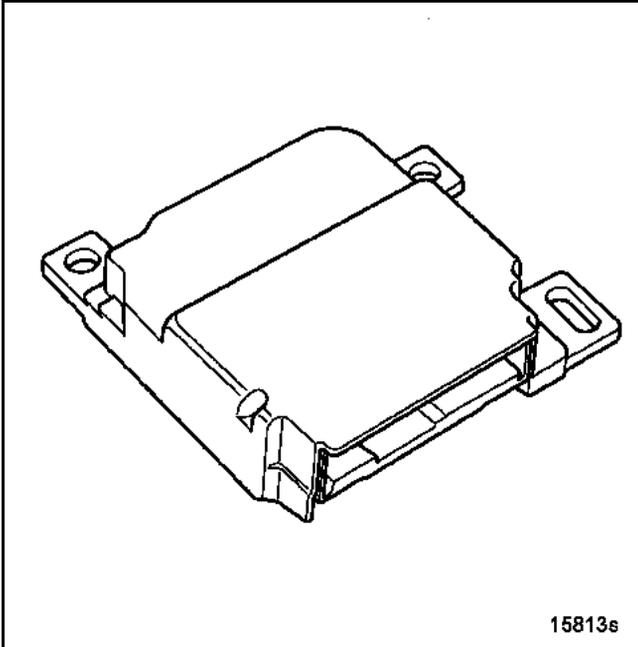
### WARNING:

- The computer contains sensitive components, **do not drop it** even if it needs to be assessed or returned under warranty.
- 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 fault finding tool.
- An electrical accessory retrofitted to the vehicle (speaker, alarm unit and any device which may generate a magnetic field), must not be placed in close proximity to the air bag/pretensioner computer.

## Air bags and seat belt pretensioners

### 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 mountings to a torque of **0.8 daNm** before reconnecting the computer.

### CONFIGURING THE COMPUTERS

The new units which can be recognised by the title **AB8.2** on the fault finding tools (except **XR25**) are delivered as configured pyrotechnic seatbelt retractors and without a bypass system.

If this configuration is not carried out, the air bag warning light remains lit:

● **Using the NXR, OPTIMA 5800 or CLIP tools only**

1. Select the **Fault finding** menu.
2. Select and confirm the vehicle type.
3. Select and validate the system to be diagnosed **Air bag**.
4. Select the **Command** menu.
5. Select and confirm the **Configuration** function.
6. Check the settings in the **Reading settings** menu.

**NOTE:** the vehicles should be configured **with key inhibition** and **without side air bags**.

**Air bags and seat belt pretensioners**

**CONNECTION**

**Orange 50-track connector**

Track	Description
1	Multiplex connection
2	Low volume passenger front air bag
3	High volume passenger front air bag
4	Low volume driver's front air bag
5	High volume driver's front air bag
6	Earth
7	Diagnostic line
8	Driver's curtain air bag
9	Passenger's curtain air bag
10	Driver's pretensioner
11	Passenger's pretensioner
12	Driver's side impact sensor
13	Driver's side impact sensor
14	Not used
15	Not used
16	Rear left hand side pyrotechnic seat belt retractor
17	Rear right hand side pyrotechnic seat belt retractor
18	Not used
19	Seat position sensor
20	Seat position sensor
21	Inhibitor key
22	Inhibitor key
23	Power supply
24	Not used
25	Not used
26	Multiplex connection
27	Low volume passenger front air bag
28	High volume passenger front air bag
29	Low volume driver's front air bag

Track	Description
30	High volume driver's front air bag
31	Not used
32	Not used
33	Driver's curtain air bag
34	Passenger curtain air bag
35	Driver's pretensioner
36	Passenger's pretensioner
37	Passenger side impact sensor
38	Passenger side impact sensor
39	Not used
40	Not used
41	Rear left hand side pyrotechnic seat belt retractor
42	Rear right hand side pyrotechnic seat belt retractor
43	Not used
44	Not used
45	Not used
46	Not used
47	Not used
48	Earth
49	Not used
50	Not used

## Air bags and seat belt pretensioners

## SIDE IMPACT SENSORS

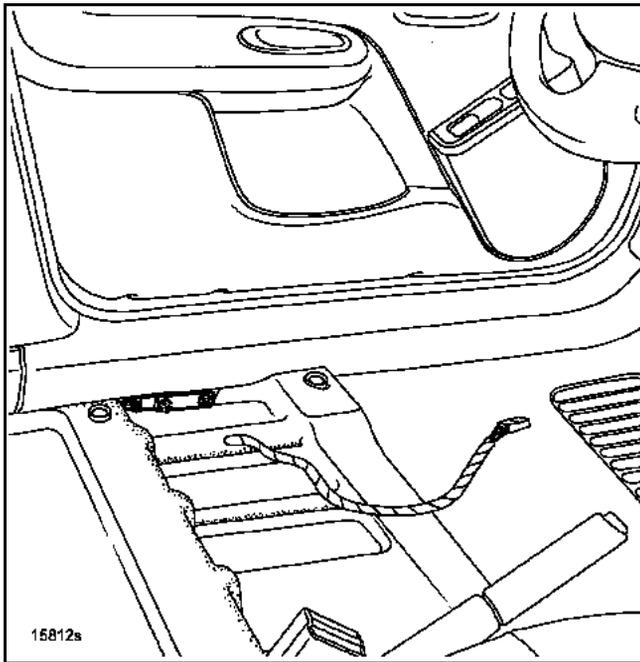
**IMPORTANT:** before removing a side impact sensor, lock the computer using a fault finding tool. When this function is activated, all the ignition lines are disabled and the air bag warning light on the instrument panel comes on.

## REMOVAL

They are located on either side under the door sill lining.

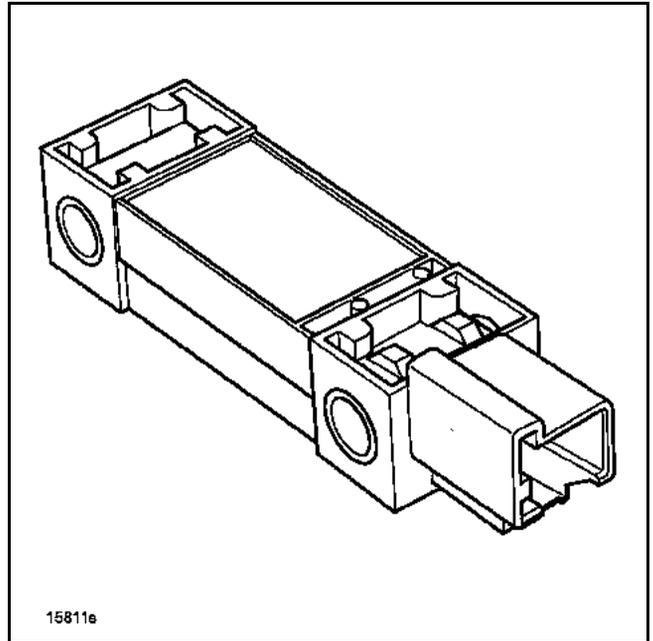
Remove the two mounting bolts from the sensor by passing the key under the seat runner.

Disconnect the sensor.



**NOTE:** it is not necessary to remove the seat.

Sensor removed.



When an air bag or seat belt pretensioner is triggered, the computer locks permanently and switches on the air bag warning light on the instrument panel.

The side impact sensor and computer must then be replaced. (Some components lose their nominal specifications after experiencing trigger energy).

## REFITTING

Position the sensor by means of its lug and attach it to the vehicle before reconnecting its connector (tightening torque: **0.7 daNm**).

After replacing faulty parts and reconnecting the connectors, carry out a check using the fault finding tool. If everything is correct, unlock the computer or see the fault finding section.

**NOTE:** the side impact sensors do not require programming.

## Air bags and seat belt pretensioners

## SEAT BELT PRETENSIONERS

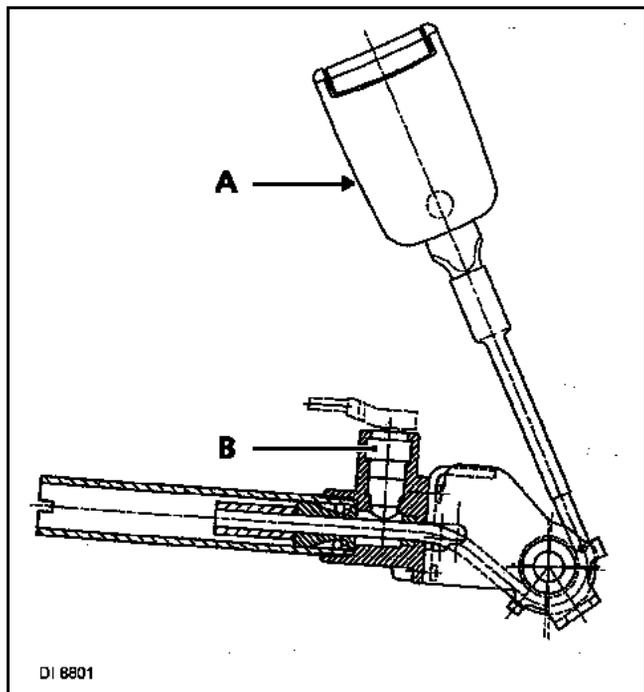
## DESCRIPTION

The vehicles are fitted:

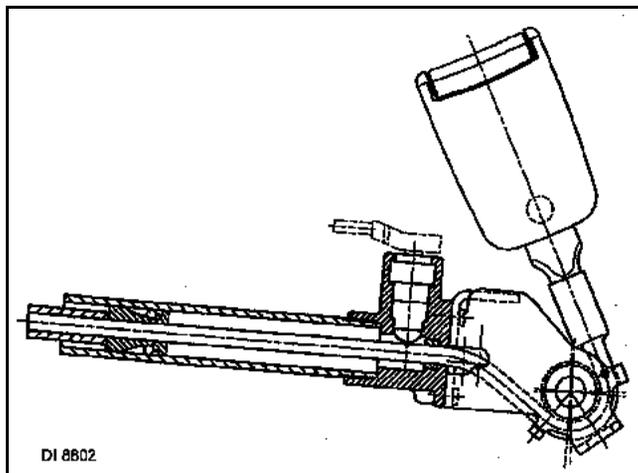
- with pretensioners under the driver and passenger seats,
- pyrotechnic seat belt retractors in the rear seats (depending on the version).

## FRONT PRETENSIONERS

**NOTE:** this system becomes operational when the ignition is switched on.



When it is triggered, the system is able to retract the seat belt catch by up to **100 mm** (maximum).



## Air bags and seat belt pretensioners

### REMOVAL

**IMPORTANT:**

Before removing a pretensioner, lock the computer using a fault finding tool.

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

**NOTE:** removing pretensioners does not entail removal of the seats.

**IMPORTANT:** refer to the destruction procedure section when scrapping a pyrotechnic seat belt retractor that has not been triggered (except for parts to be returned under warranty).

### REFITTING

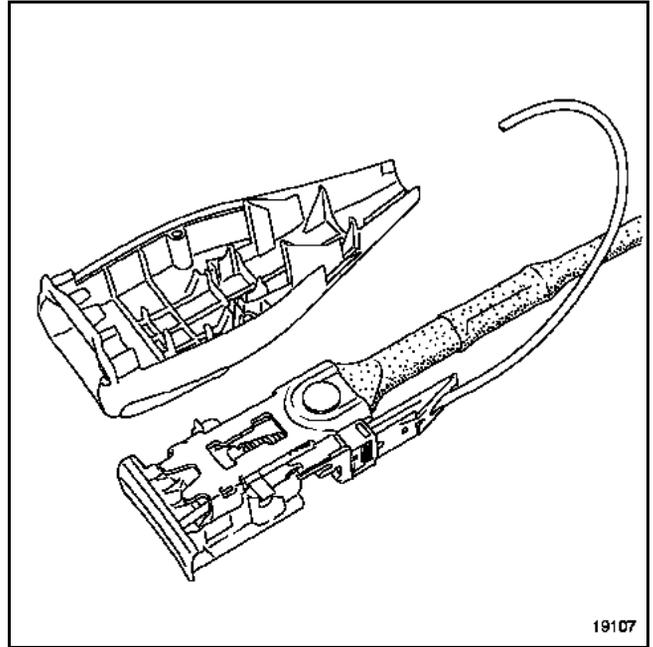
Ensure that the wiring is correctly routed using the wiring attachment points.

Tighten the mounting bolt to a torque setting of **2.1 daNm**.

### FEATURES OF THE DRIVER'S SIDE

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.



### REAR PRETENSIONERS (PYROTECHNIC SEAT BELT RETRACTORS)

#### REMOVAL

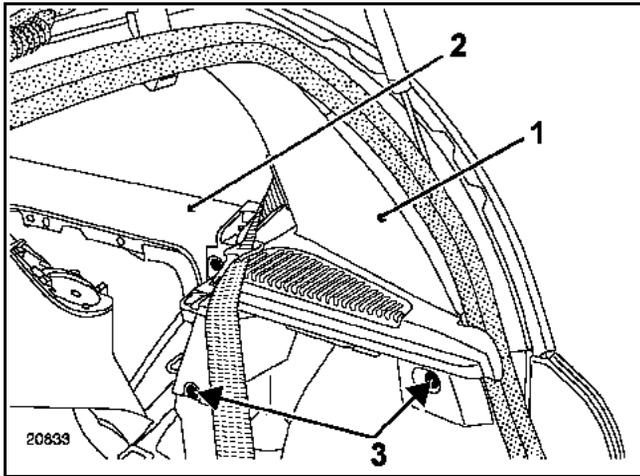
The pretensioners are fitted in the seat belt retractors. They are located behind the rear lining.

Pull down the back of the rear bench seat.

Remove the top lining of the quarter panel (1).

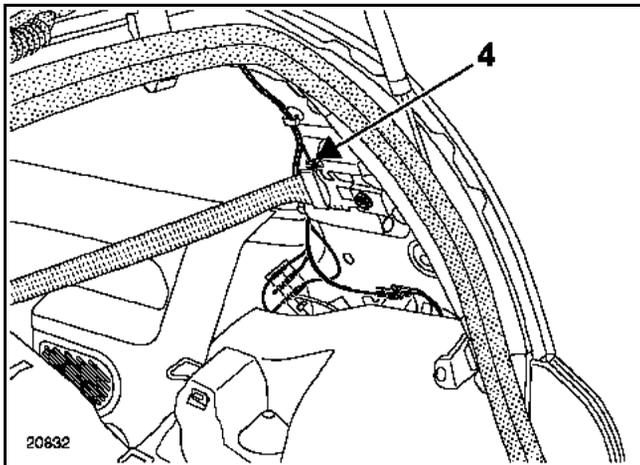
Remove the side lining (2).

Remove the lining by the mounting bolts (3).



Disconnect the connector (4).

Remove the mounting bolts.



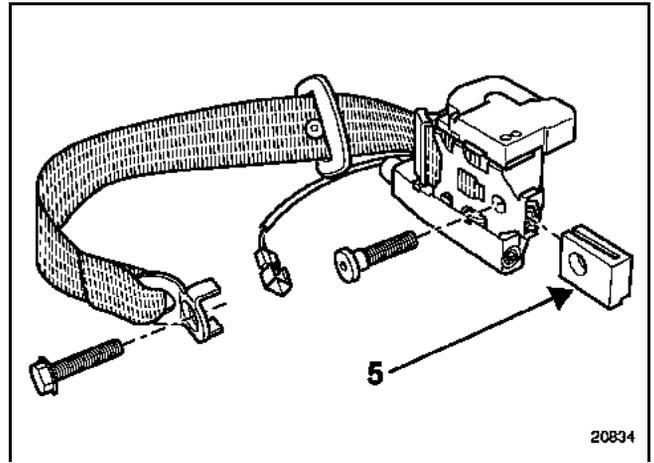
#### REFITTING

##### Features of the seat belt retractor support shim:

According to the vehicle's date of manufacture, it may or may not be fitted with seat belt retractor support shims (5).

The rear wing spare part is not equipped to accommodate this shim. The seat belt retractor is positioned straight onto the sheet (refer to the **bodywork section**).

**NOTE:** There is a different bolt for mounting the pyrotechnic seat belt retractor with shim than without.



Tighten the mounting bolts to a torque of **2.1 daNm**.

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

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

## Air bags and seat belt pretensioners

## DRIVER'S AIR BAG

The driver's air bag is fitted with a dual volume air bag (cushion with SRP marking) linked to the seat belt opposite it.

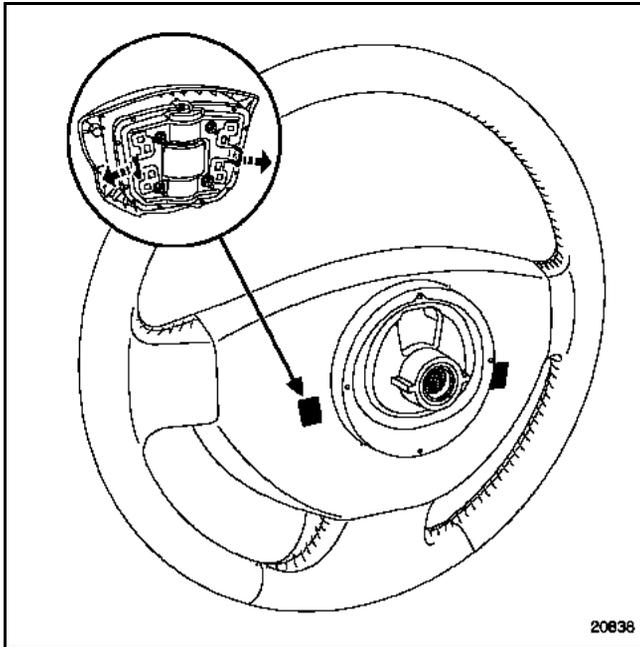
## DESCRIPTION

It is located in the steering wheel boss. When triggered, the inflatable bag deploys by bursting through the steering wheel cover.

## REMOVAL

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

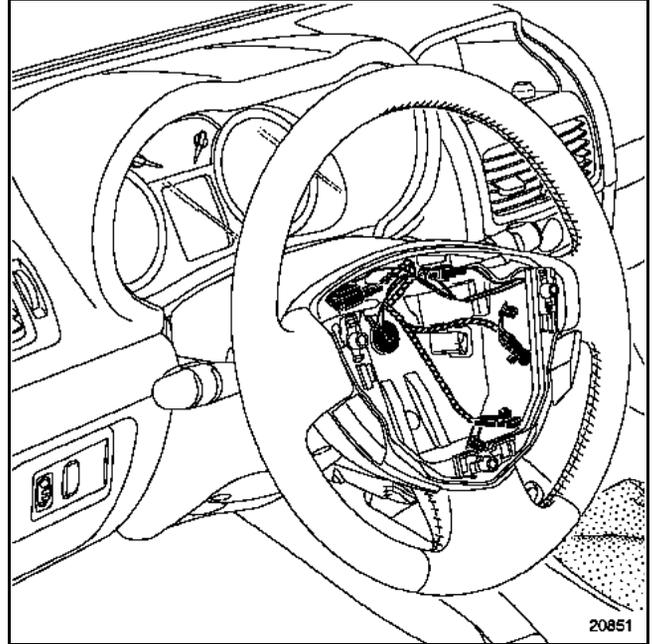
Release the clips behind the steering wheel using a screwdriver.



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Unclip the connector safety clips.

Disconnect the two generator power supply connectors.



**IMPORTANT:** refer to section describing the destruction procedure when scrapping an air bag that has not been triggered.

## REFITTING

Position the connectors and lock the safety clips.

Position the air bag on the steering wheel.

**REMINDER:** when an air bag has been deployed, the steering wheel and its mounting bolts must be replaced (**tightening torque: 4.4 daNm**).

**IMPORTANT:**

After refitting everything, carry out a check using the fault finding tool.

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

## Air bags and seat belt pretensioners

## PASSENGER AIR BAG MODULE

The passenger air bag (SRP) is fitted with a two-stage air bag linked to the seat belt opposite it.

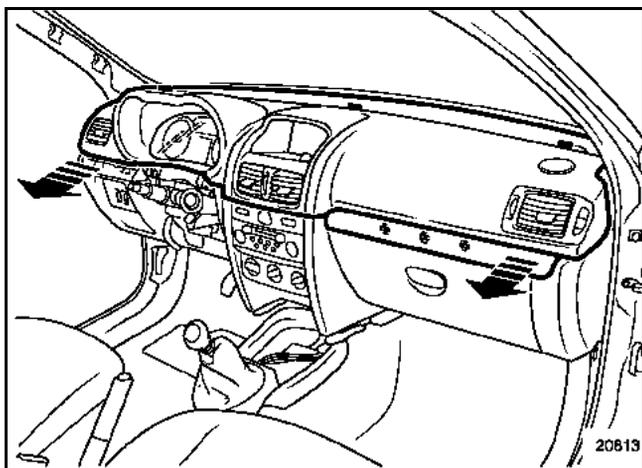
The Renault Protection System for the seat belt is calibrated specifically and is complementary to this type of air bag.

## REMOVAL

The module is attached to the instrument panel opposite the front passenger but does not need to be removed.

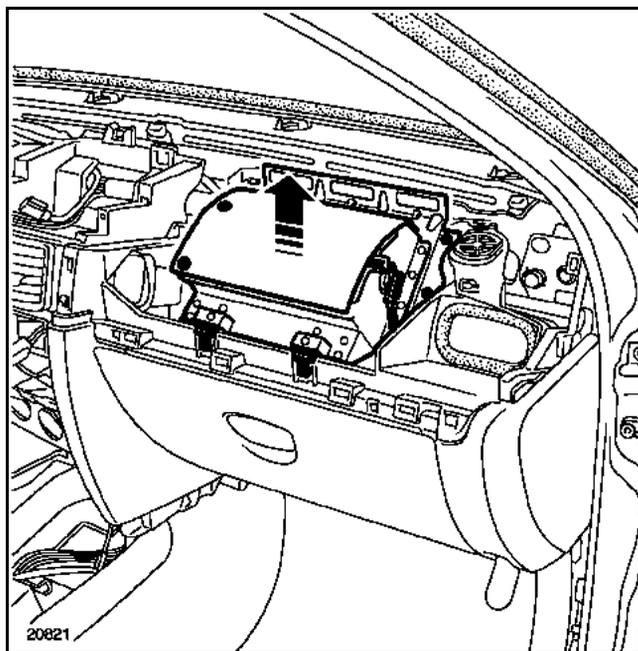
**IMPORTANT:** before removing a passenger air bag module, lock the computer using a fault finding. When this function is activated all the ignition lines are inhibited and the air bag warning light on the instrument panel lights up

Remove the top of the dashboard (refer to the method in **section 83**).



Disconnect the connectors.

Remove the module mounting bolts.



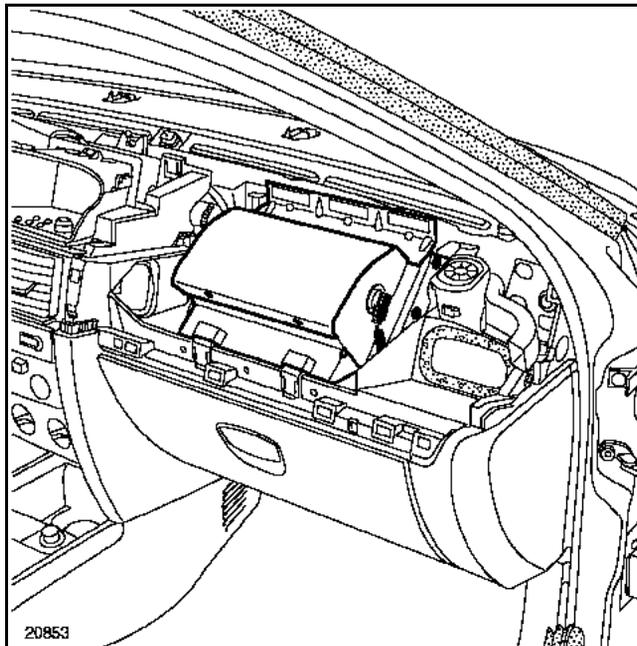
**IMPORTANT:** when the passenger air bag module is deployed, the resulting deformation and deterioration of the mountings always requires the replacement of the dashboard and cross member. Do not forget to affix the label on the side of the new dashboard forbidding a rear facing child/baby seat to be fitted on the passenger seat with the back in the direction of travel (label available in the collection, part no.: **77 01 206 809**).

**IMPORTANT:** refer to the section describing the destruction procedure when scrapping an air bag that has not been triggered.

## Air bags and seat belt pretensioners

### REFITTING

Position the module and tighten the **mountings to a torque of 0.6 daNm** before reconnecting the connectors.



#### IMPORTANT:

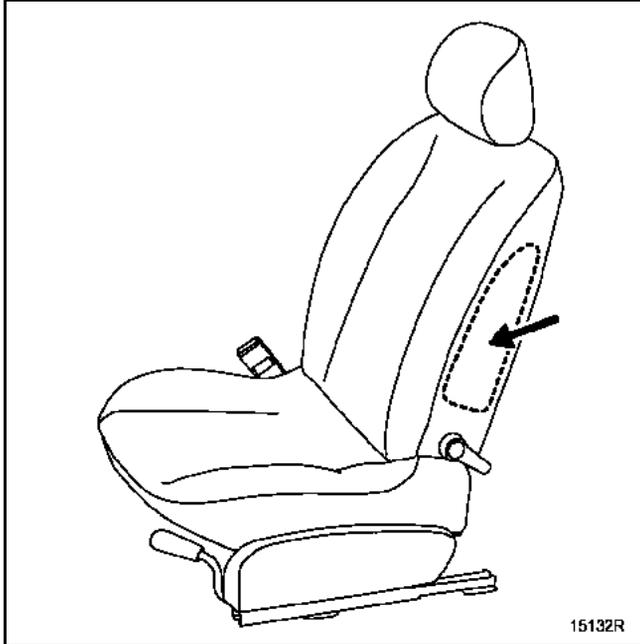
- Check for foreign bodies (bolts, clips, etc.) when fitting the air bag module.
- Affix a blue "tamperproof system" adhesive label, part no. **77 01 040 153** (other vehicles).

Check the module using the fault finding tool.  
If everything is correct, unlock the computer or see the fault finding section.

## Air bags and seat belt pretensioners

### SIDE AIR BAG MODULE

The **side air bag** module is attached to the back of the front seats on the door side. The inflatable bag tears the module cover, the foam and the lining of the seat when it deploys.



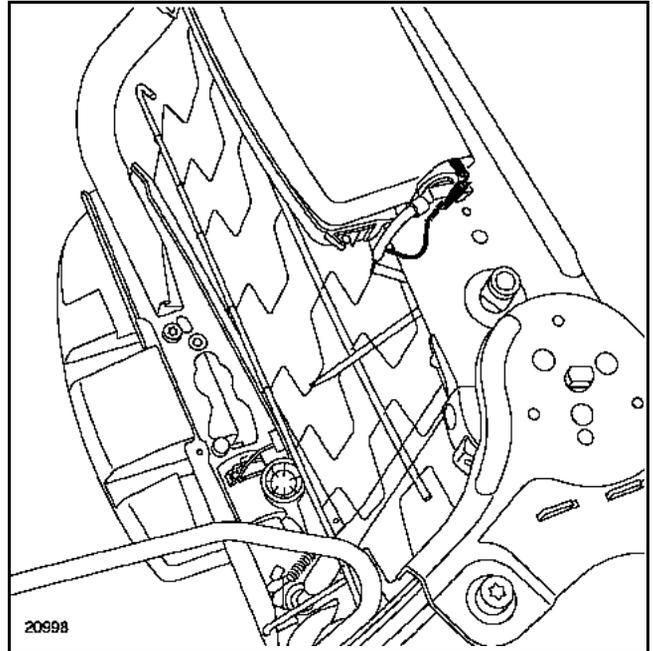
### REMOVAL

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

Remove the seat from the vehicle.

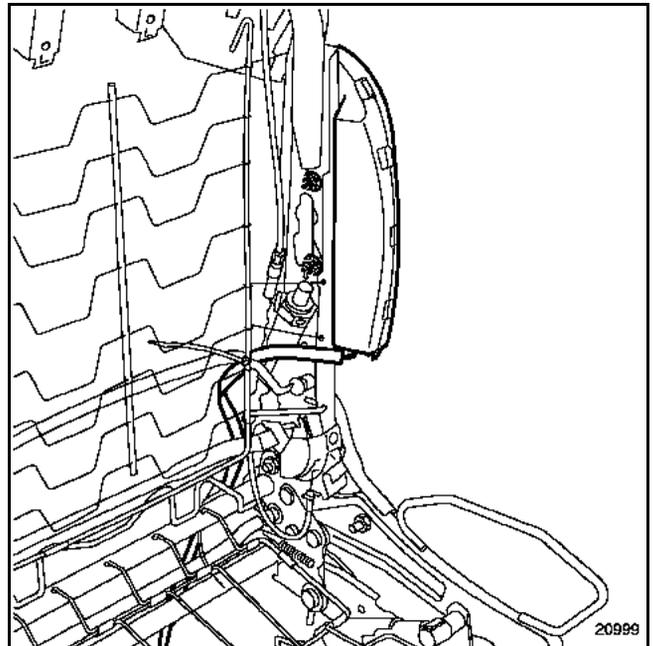
Take the lining off the back (see the **bodywork** section).

Undo the wiring from the air bag module and its earth wire. Mark the route of the wiring and its attachment points.



**IMPORTANT:** If the system has not triggered and is to be refitted, do not open the air bag module as the inflatable bag is specially folded.

Remove the air bag cushion by the two nuts.



**IMPORTANT:** refer to section describing the destruction procedure when scrapping an air bag that has not been triggered.

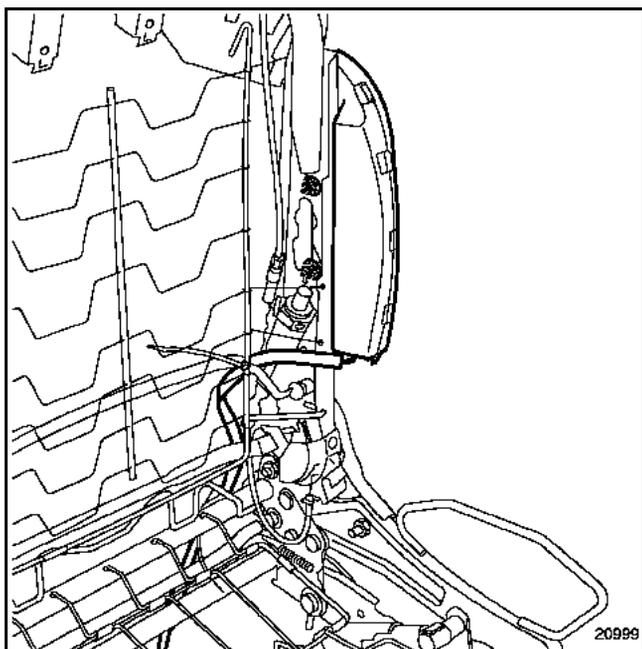
## Air bags and seat belt pretensioners

## REFITTING

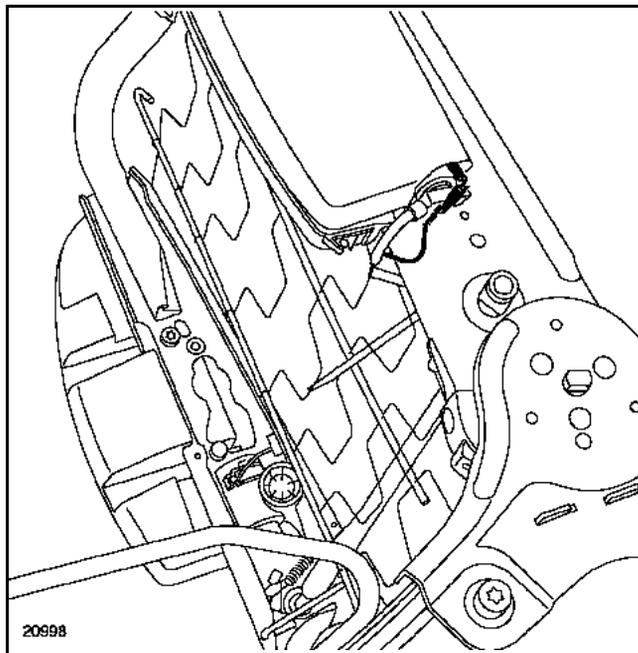
**IMPORTANT:** when a side air bag is triggered, the consequent deformation and damage caused to the attachments always requires replacement of the seat frame.

Attach the air bag module to the seat backrest frame (tightening torque: **0.8 daNm**).

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



Refit the wiring under the seat as before and respect the routing and the mounting points.



Replace the seat trim, observing strictly the recommendations given in the **bodywork** section (types of clip, their location, etc.),

Refit the seat in the vehicle and reconnect the connectors.

Check the module using the fault finding tool. If everything is correct, unlock the computer or see the fault finding section.

## Air bags and seat belt pretensioners

### DESTRUCTION PROCEDURE

**WARNING:** do not carry this out if local regulations require a special procedure which is **confirmed and circulated** by the Diagnostic and Repair Methods Department.

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.

Tool **Elé. 1287** and cables **Elé. 1287-01** and **Elé. 1287-02** must be used.



**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.

### Pretensioners

**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 the packaging of the new part.

### Destruction of the part fitted to the vehicle

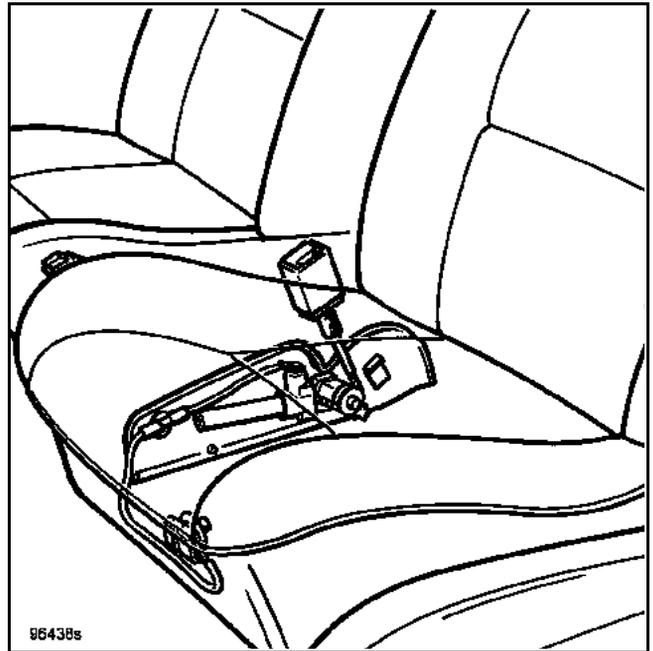
Park the vehicle outside the workshop.

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.



**NOTE:** If triggering is impossible (faulty ignition module), return the part in the packaging of the new part to ITG (Service 0429).

### Destruction of the part removed from the vehicle

Proceed in the same way as for the driver's air bag, placing the air bag in a stack of old tyres.