



## **8 Electrical equipment**

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**81 REAR AND INTERIOR LIGHTS**

**82 IMMOBILISER**

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**CB1A**

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**AUGUST 2001**

**EDITION ANGLAISE**

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

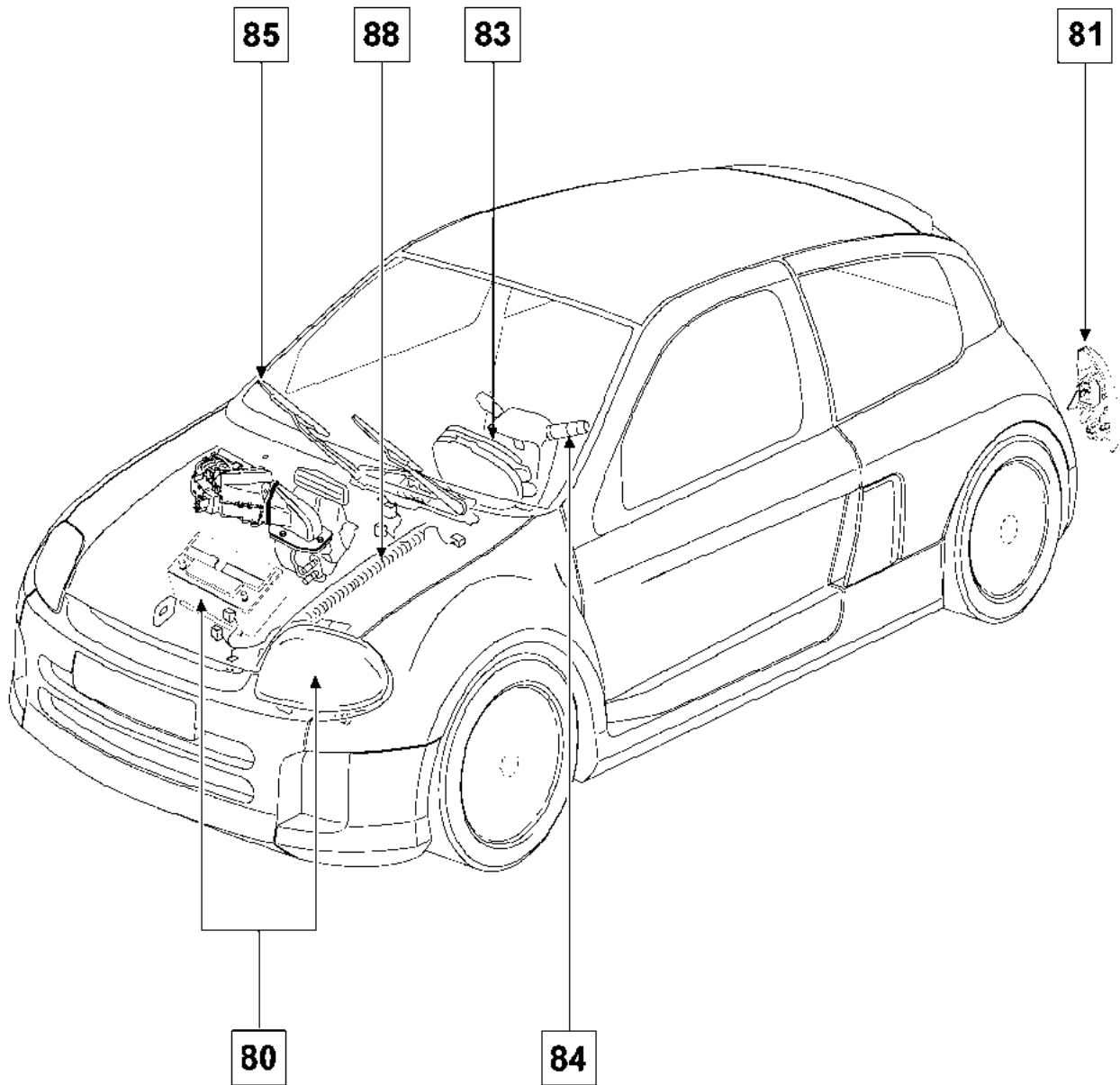
The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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# OVERVIEW

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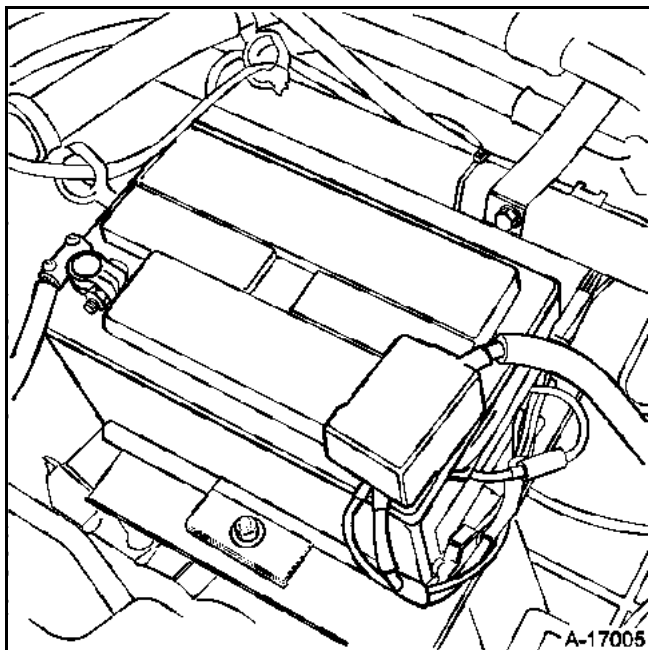
# Electrical equipment

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To remove the battery:

- remove the cover,
- disconnect the terminals,
- remove the bolt and the clamp bracket,
- remove the battery.



### A - CHECKING

Check that:

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

It is essential:

- to ensure that there is no sulphation on the terminals,
- to clean and grease the terminals if necessary,
- to check that the nuts on the terminals are correctly tightened. A poor contact may cause starting problems or charging problems and produce sparks, which could cause the battery to explode,
- to check the electrolyte level.

Batteries fitted with removable plugs:

- remove the cover by hand or using a tool (rigid lever),
- check that the level of the electrolyte in all the cells is well above the level of the separators,
- if necessary, top up the levels with distilled water.

**NOTE: some types of battery have a translucent body which allows the electrolyte level to be seen.**

**Never add electrolyte or any other product to the battery.**

### B - PRECAUTIONS

It should be remembered that a battery:

- contains sulphuric acid, which is a hazardous substance,
- produces oxygen and hydrogen during charging. The mixture of these two gases can detonate, hence there is risk of explosion.

#### 1) ACID = DANGER

Sulphuric acid solution is a highly aggressive, toxic and corrosive product. It attacks skin, clothing, concrete and corrodes most metals.

Therefore, when handling a battery, it is very important to take the following precautions:

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

**If acid splashes onto you, rinse all the areas affected thoroughly in water. If acid has entered the eyes, call a doctor.**

#### 2) RISK OF EXPLOSION = DANGER

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

The oxygen and the hydrogen mix in the open head space and on the surface of the plates and form an explosive mixture. This mixture is highly explosive.

The smallest of sparks, a cigarette or a recently extinguished match are sufficient to cause an explosion. The explosion is so strong that the battery can shatter and spray acid into the surrounding atmosphere. People nearby are at risk (shattered casing parts, acid splashes). Acid splashes are harmful to the eyes, face and hands. They also attack clothing.

**Safeguarding against the danger of explosion, which can be caused by handling a battery carelessly, must be taken very seriously. Avoid all risks of sparks.**

- Before disconnecting or reconnecting a battery, make sure that electrical consumers are switched off.
- When a battery is being charged in a room, switch off the charger before connecting or disconnecting the battery.
- Do not put any metal objects on top of the battery so as not to cause a short circuit across the terminals.
- Never bring a naked flame, welding torch, hot air gun, cigarette or a lighted match near a battery.

# FRONT HEADLIGHTS

## Headlight units and direction indicators

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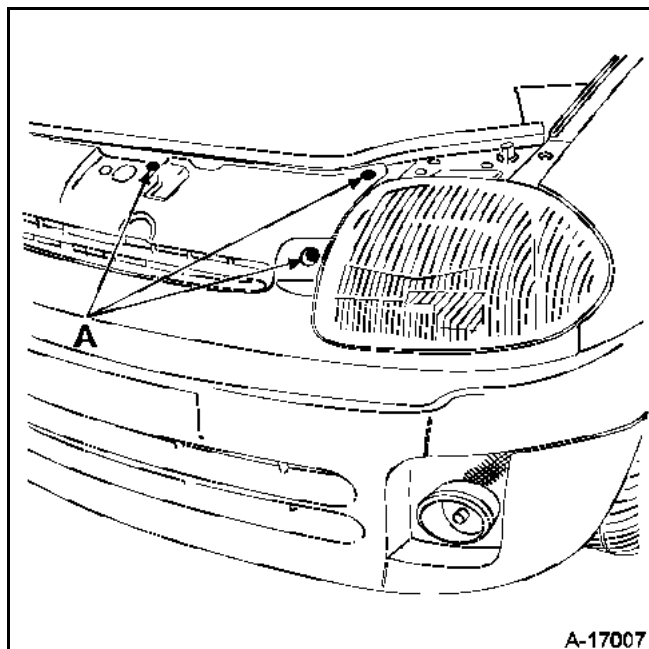
The headlight unit and the direction indicator are in one piece.

### REMOVAL - REFITTING

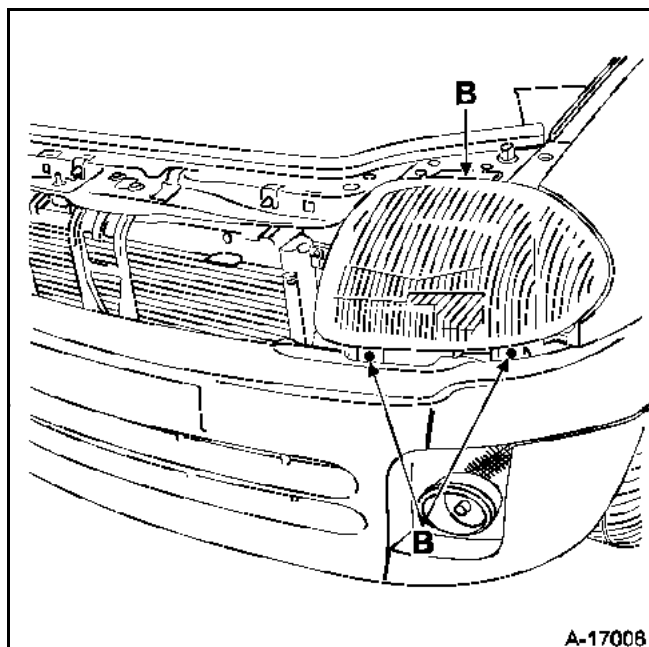
After disconnecting the battery.

Remove:

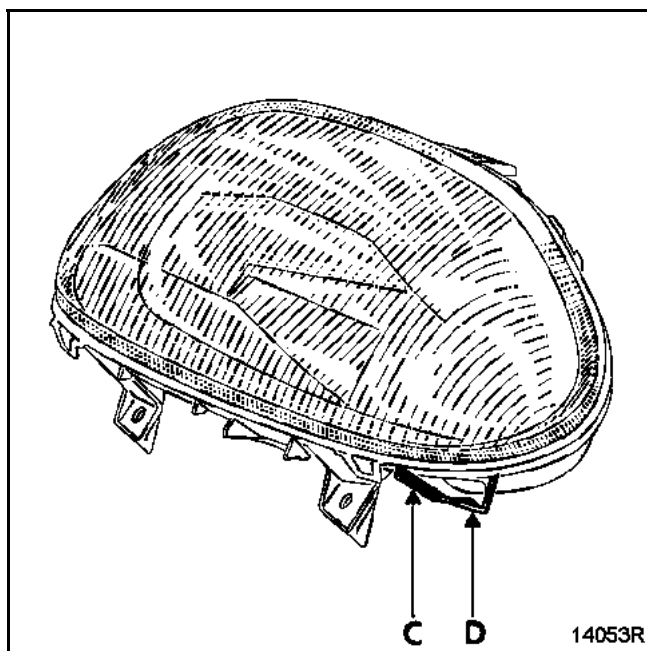
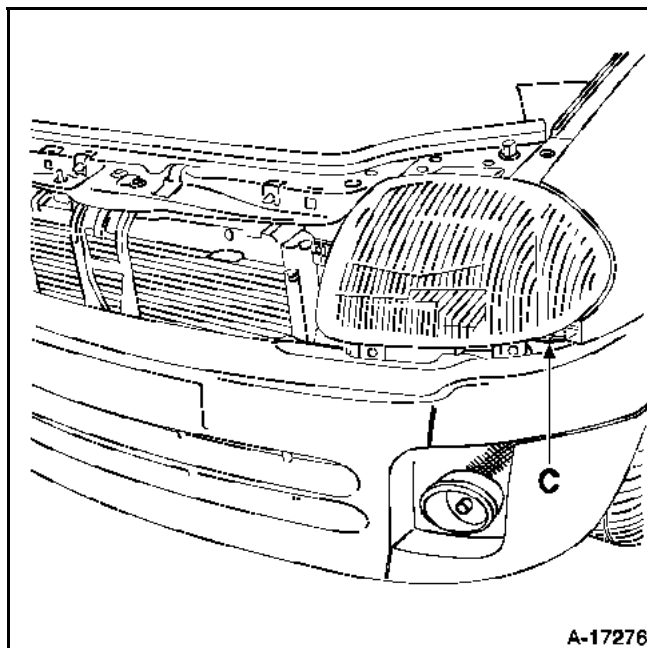
- the radiator grille by undoing its five screws (A),



- the three headlight mounting screws (B).



To facilitate removal and refitting of the headlight unit, cut off tab (C) using a pair of wire cutters and break off part (D).



Refitting the headlight unit is the reverse of removal.

# FRONT HEADLIGHTS

## Headlight units and direction indicators

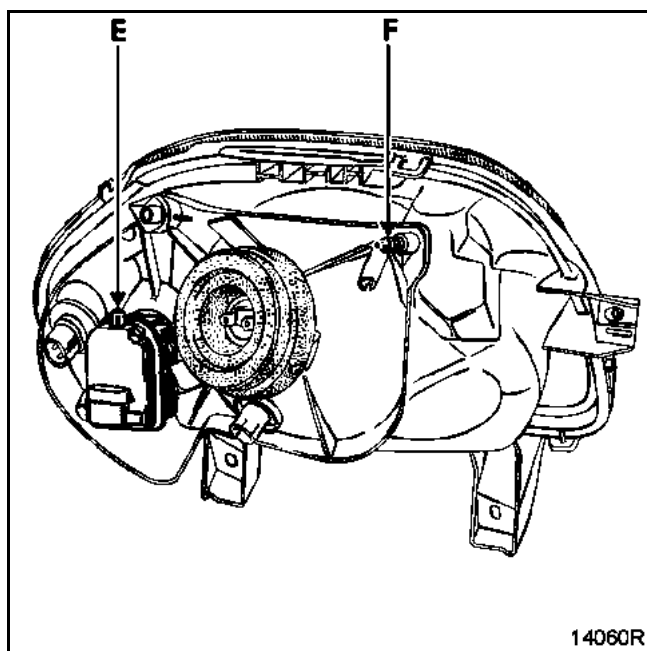
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**IMPORTANT:** these headlights are fitted with a plastic lens. When replacing a main beam/dipped beam headlight bulb, use only approved H4 bulbs (bulbs sold by SODICAM are approved types).

To clean the headlights, use a soft cloth lightly soaked in soapy water. The use of alcohol-based products is forbidden.

### ADJUSTMENT

Ensure that the vehicle is unladen, then adjust the height using bolt (E) and the direction using bolt (F).



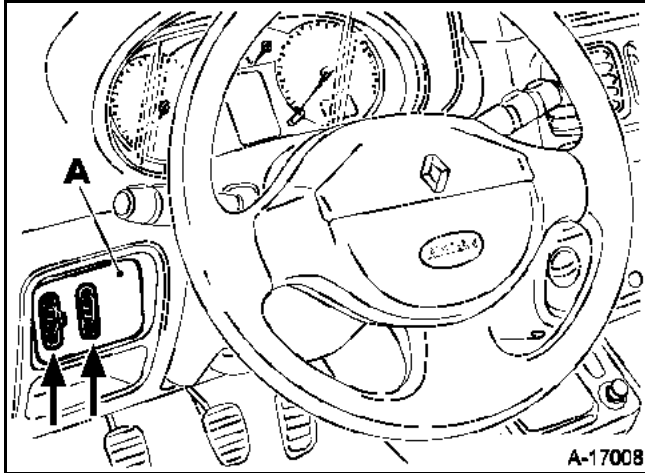
# FRONT HEADLIGHTS

## Beam adjustment

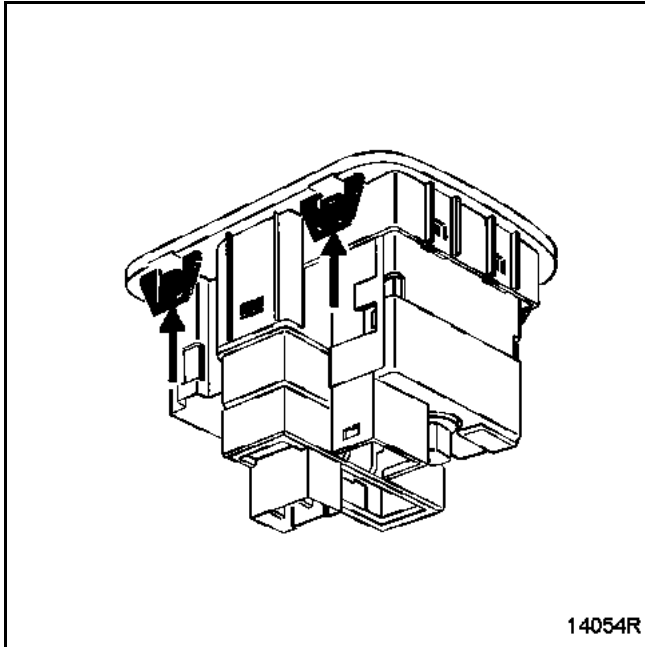
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### REMOVING - REFITTING THE CONTROL

Unclip the control mounting (A), using a small flat screwdriver as a lever at the points shown below, being careful not to mark the plastic.



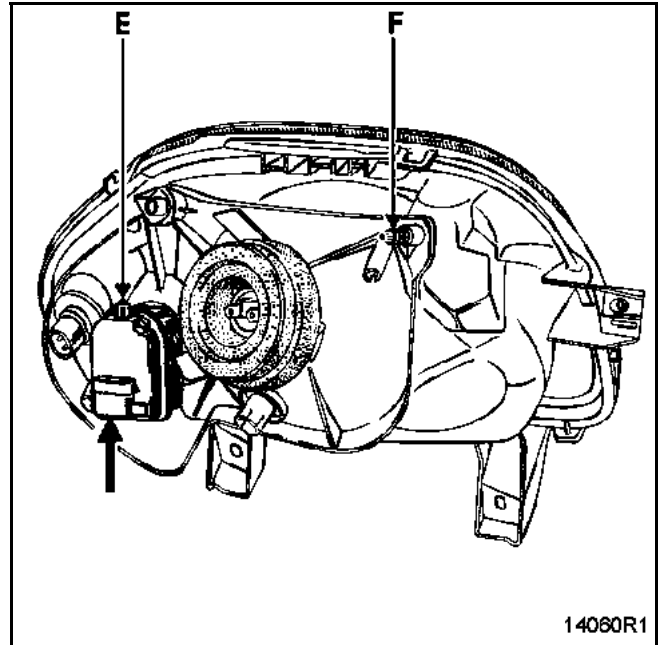
Unclip the headlight beam height adjustment control from its mounting.



**N.B.:** for connection, refer to the **Wiring Diagrams** Technical Note.

### REMOVING - REFITTING THE ACTUATOR

Disconnect the remote adjustment actuator connector.



Turn the actuator an eighth of a turn towards the outside of the vehicle and separate it from the light unit, then uncouple the ball joint from the reflector.

### SPECIAL NOTES FOR REFITTING

Hold the reflector towards the rear of the lens unit by pulling on the bulb cap and click the ball joint into position.

Now refit the actuator to the lens unit by turning it an eighth of a turn.

Reconnect the connector itself.

Set the beam height adjustment control to "0" and adjust the headlight:

- bolt (E) for height adjustment,
- bolt (F) for direction adjustment.



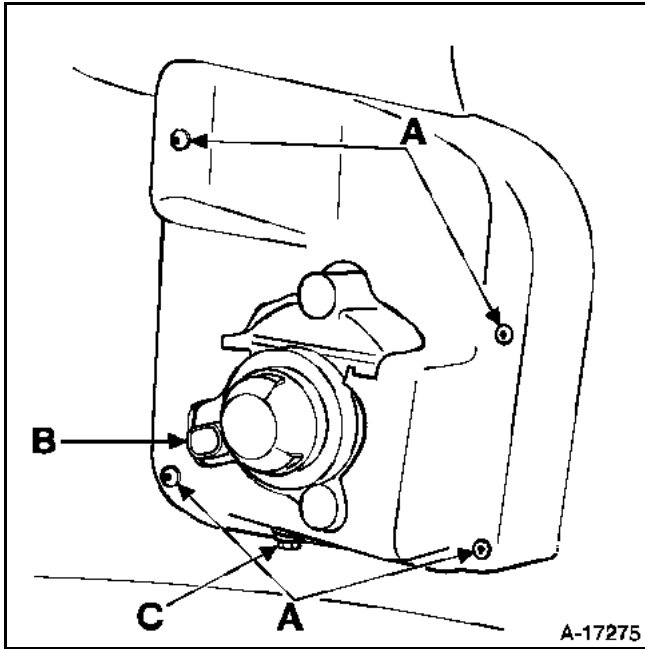
### REMOVAL

Remove the internal side sheath.

Remove the four screws (A) while holding the mounting on the side panel.

Disconnect the fog light wiring loom connector (B).

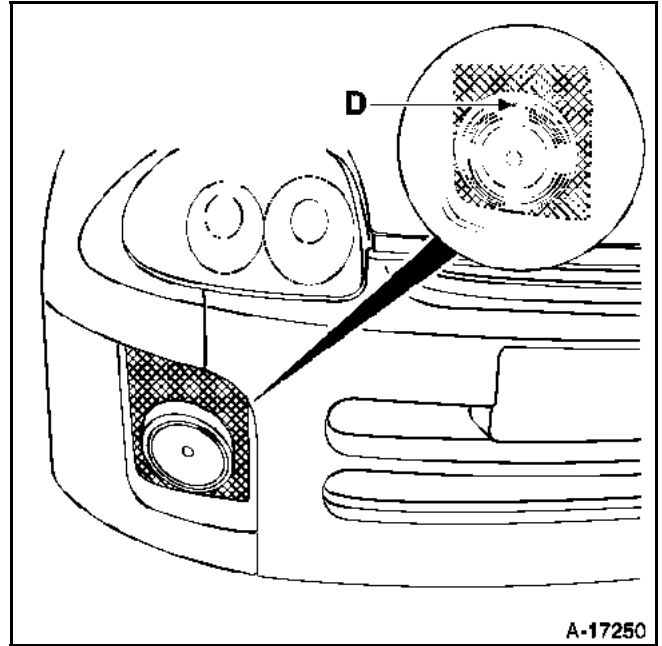
Withdraw the fog light by removing the light securing nut (C) and the washer.



### REFITTING

Refitting is the reverse of removal.

Adjust the fog light using the adjusting screws located in the opening (D).



## Rear lights

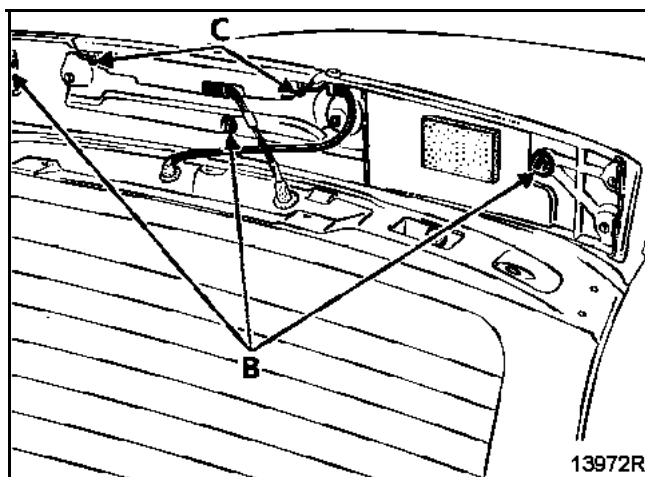
### HIGH-MOUNTED BRAKE LIGHT

#### REMOVAL - REFITTING

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



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



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

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

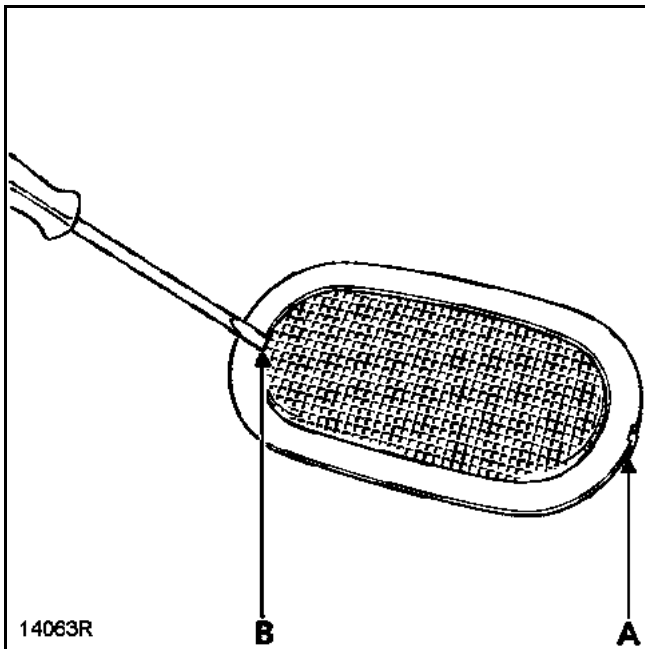
### COURTESY LIGHT WITHOUT MAP READING LIGHT

#### REMOVAL - REFITTING

Unclip the assembly from the head lining using a small flat screwdriver as a lever in the notch (A) and disconnect the connector.

#### Removal of the light diffuser

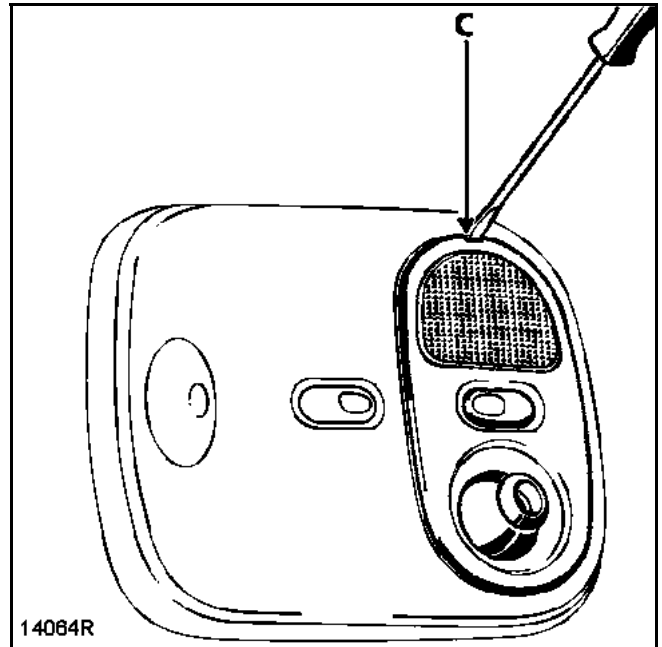
To replace the bulb, unclip the light diffuser using a small screwdriver as a lever (B).



### COURTESY LIGHT WITH MAP READING LIGHT

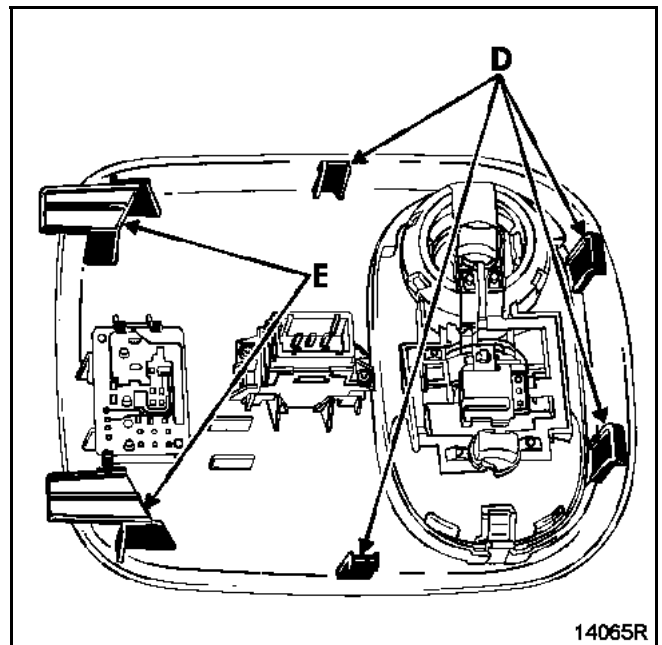
#### REMOVAL - REFITTING

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).

















FUSE BOX (passenger compartment)

This unit is located in the passenger compartment on the driver's side (at the end of the dashboard).

Fuse allocation (depending on equipment level).

Symbol	Rating (Amps)	Description
	15	Air bag/Multi-timer unit (BMT)
	15	Brake lights/Instrument panel/Diagnostic socket
	15	Heated rear screen/AC computer/Rear screen wiper
	15	Front windscreen wiper
	10	Anti-lock braking system (ABS)
	10	Fan/Multi-timer unit/AC computer
	15	Radio/Cigarette lighter/Clock
	15	Horn
	10	Left-hand dipped headlight
	10	Right-hand dipped headlight
	10	Right-hand main beam headlight
	10	Left-hand main beam headlight
	20	Not used
	10	Heated rear-view mirrors
	20	Front fog lights
	20	Not used
	20	Not used

Fuse allocation (depending on equipment level) (continued)

Symbol	Rating (Amps)	Description
	5	Multi-timer unit
	15	Indicators
	15	Rear fog light
	10	Left-hand side light
	10	Right-hand side light
	2	Immobiliser ring aerial
	20	Interior lights/Electric rear-view mirrors/Radio/Diagnostic unit/Clock
	30	Heated rear screen
	20	Electric door locks
	30	Electric windows
	20	Headlight washers
	30	Heater fan
	20	Heated seats
	20	Sunroof

**N.B.:** To determine the exact position of the fuses, refer to the vehicle fuse box label or the Wiring Diagrams Technical Note.

### GENERAL INFORMATION

The immobiliser is controlled by a code recognition system (known as a coded key immobiliser system).

An independent code chip which operates without a battery is incorporated into the head of each vehicle key.

When the ignition is switched on, a ring aerial around the starter switch searches for and captures the code from the head of the key and transmits it to the immobiliser decoder control unit (UCH).

If the UCH (immobiliser) recognizes the code, the engine can be started.

The immobiliser is activated a few seconds after the key is withdrawn from the ignition switch. This is indicated by the flashing red immobiliser warning light on the instrument panel.

### NOTES

**Petrol vehicles:** the injection computer provides the immobiliser function.

A remote control for locking the doors fitted to the car has no effect on the immobiliser system (see section 88).

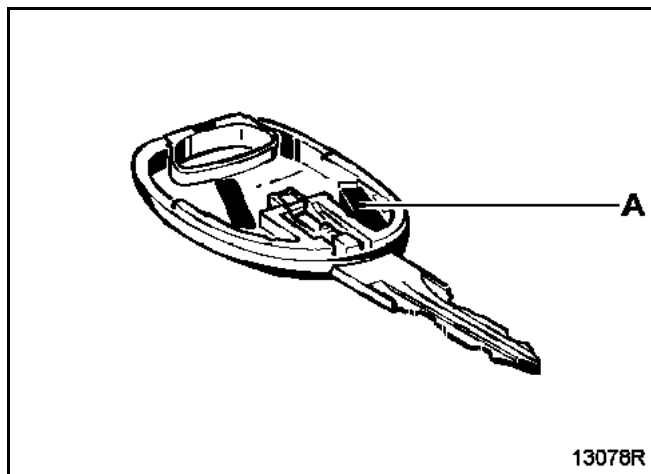
For these cars, the identification number on the key heads is composed of eight alphanumeric characters, beginning with the letter E or A.

### DESCRIPTION

With this system the engine immobiliser is activated 10 seconds after the ignition is switched off (shown by the red engine immobiliser warning light flashing).

The system consists of:

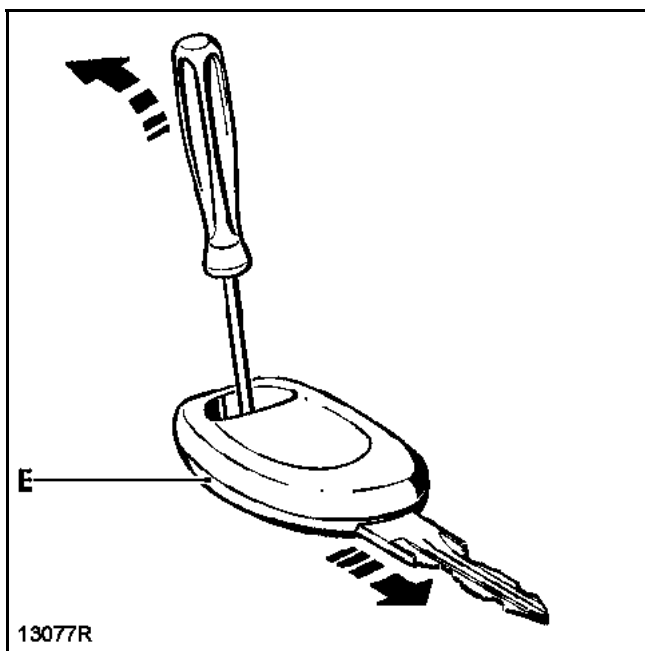
- two key heads fitted with:
  - a single coded chip to control the immobiliser (A).



### Opening a key head

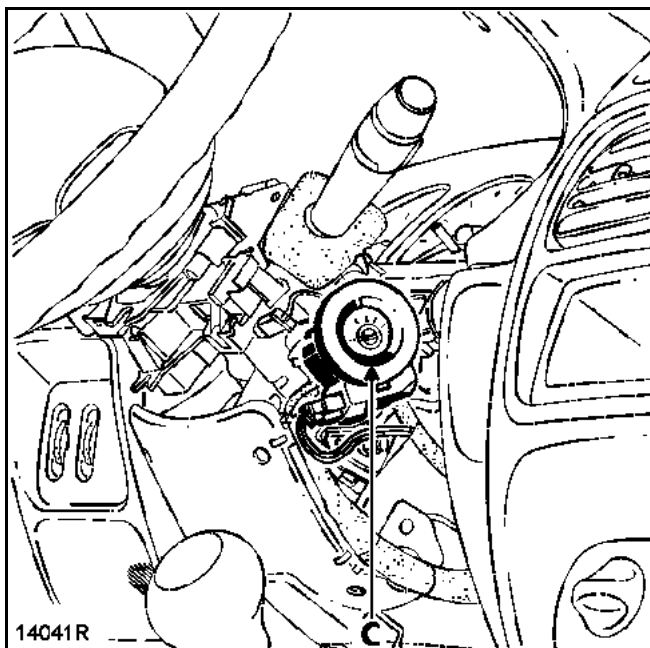
Place the head of the key on a table with the metal insert downwards.

Use a small screwdriver as a lever, as shown below, making sure that the point of the screwdriver is placed on the lower section (E) of the key head. The upper section then slides over the lower section.



## Coded key immobiliser system

- A ring aerial (C) round the starter switch, with an electronic unit which transmits the key code to the immobiliser decoder control unit (D).



**NOTE:** This ring aerial is not coded.

## REMOVAL - REFITTING

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

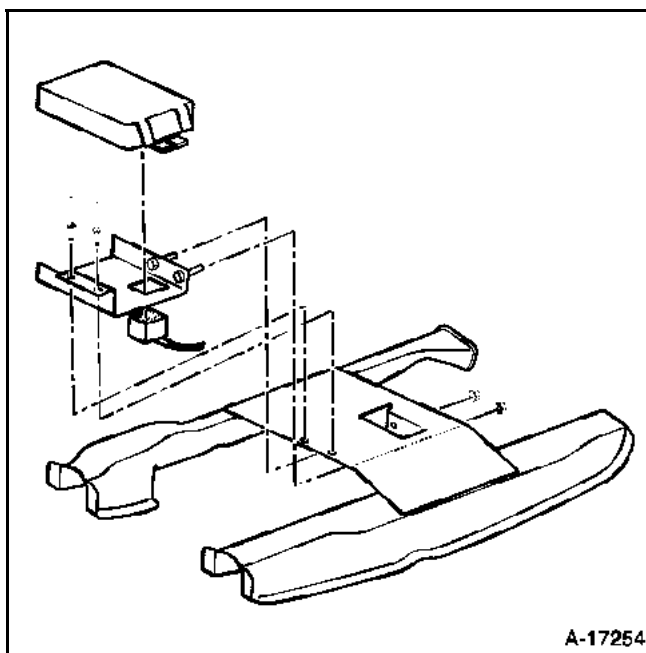
- The control unit (immobiliser) is mounted under the front side of the left-hand seat.

It carries out the following functions:

- decoding the signal from the key via the ring aerial,
- management of the immobiliser system by sending a code to the injection computer which authorizes starting of the vehicle,
- operation of the red immobiliser warning light.

## REMOVAL

- Withdraw the assembly from the left-hand front seat.
- Fit rivets to secure the mounting to the lower side of the immobiliser frame.
- Remove the nuts which hold the mounting on the immobiliser frame.
- Disconnect the connector from the control unit.
- Separate the control unit from the mounting release bolts.



## REFITTING

refitting is the reverse of removal.



### 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 (for the immobiliser).
  - at the time of delivery, the vehicle does not have a label showing the code.

For the purposes of working on this system, the repair code number can be requested from the local assistance network (refer to **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 and without metal insert.
- The system can include up to a maximum of keys. The remote control function and the battery have no effect on the immobiliser.

- In the event of a key being stolen or lost or at the customer's request, one or more of the vehicle's keys can be deallocated. They can be reassigned 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 of course not possible to code these components when replacing them if none of them has 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).

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

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 located 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 of obtaining this information, depending on the country (refer to **Technical Note 3315E**):

- Minitel,
- voice server,
- Techline.

### SYSTEM DESCRIPTION

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

The system consists of:

- Two special keys fitted with a coded electronic system for controlling the immobiliser,
- One immobiliser receiver located in the immobiliser ring aerial, fitted with an electronic system for transmitting the code from the keys to the UCH.

**N.B.:** The immobiliser ring aerial is not coded.

- One UCH located under the driver's seat,

For the engine immobiliser function, the UCH:

- decodes the key signal coming from the card reader,
- communicates with the injection computer,
- controls the engine immobiliser indicator light and the reader light,
- communicates with the diagnostic tool.

**N.B.:** the UCH only manages the vehicle's immobiliser.

- One red immobiliser warning light on the instrument panel used to:
  - indicate activation of the engine immobiliser system,
  - indicate non-recognition of the key,
  - indicate a fault in the system,
  - indicate a fault in the system,
  - indicate programming of a key.
- One coded injection computer.
- One diagnostic socket used for fault finding operations and system configuration.

### 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 recognized by the UCH, the UCH and the injection computer send coded signals to each other via the multiplex network and turn off the immobiliser warning light.
- If the signals issued by the UCH and the injection computer match, the UCH authorizes 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 cannot be started.

**IMPORTANT:** when the vehicle battery charge is low, the drop in voltage caused by operating the starter may arm the immobiliser. If the voltage is too low, the engine cannot be started, even by pushing the vehicle.

REPLACEMENT AND CONFIGURATION

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

To carry out 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 assigned 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 of the UCH	Blank	Coded	Coded	YES
Key assignment or cancellation	Coded	Blank*	-	YES
Programming of the injection computer	Coded			NO

\* A key assigned to a vehicle must be blank or already programmed on this vehicle.  
**NOTE:** a key may be programmed on a vehicle but not operational (unassigned).

**REMINDER:** only keys used in this procedure will be operational.

### REPLACEMENT AND CONFIGURATION

A new UCH is not programmed with a code. Therefore, when fitted to a vehicle, a new UCH must be programmed with a code to make it operational.

To carry out this procedure, it is imperative to have at least one of the vehicle's old keys. The repair code is 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 assigned to the vehicle and it is impossible to erase this code or program in another one.

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

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

### UCH PROGRAMMING PROCEDURE

Using the diagnostic tool

- Start communication with the **Immobiliser** system.
- From the **Command** menu, select **Specific command**, select the **SC027: program UCH** line and press Enter.
- The tool displays **remove the key from the ignition switch**,
- The tool displays **Please enter the After Sales code**. With the ignition off, enter the secret After-Sales code (12 hexadecimal characters) and press Enter.
- If the code format is correct, the tool displays **Insert a key which has already been programmed on 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 assign the other keys (maximum of four). Several seconds may elapse before this message appears.

#### WARNING:

The maximum time delay between operations is 5 minutes, otherwise the procedure is cancelled.

### SPECIAL CASES

If the screen displays:

- **The After-Sales code entered does not correspond with the key presented. Check that you have entered the correct code and that you have presented a key belonging to the vehicle:** the code has not been read correctly or the UCH has already been coded on another vehicle. Check the code then try entering the data again.
- **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 format of the code entered is incorrect. Check, then try entering the data again.
- **UCH programming failed. Key not usable with this vehicle:** the key code does not correspond with the actual vehicle.
- **The key inserted is blank. Please present another key which has already been programmed on this vehicle:** the key is blank. Present a key which has already been coded.
- **The injection code does not correspond with the key code. Make sure that the multiplex network is not faulty, that the injection is operational and that the injection computer is not blank,** the injection code is absent or does not correspond with the code entered. Check the link between the injection computer and the UCH. Check that the computer is the correct one for the vehicle.

## Coded key immobiliser system

## 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.

- Start communication with the **Immobiliser** system.
- From the **Command** menu, select **Specific Command**, select the **SC028: card/key programming** line and press Enter.
- The tool displays **remove the key from the ignition switch**,
- The tool displays **Please enter the After Sales code**. With the ignition off, enter the secret After-Sales code (12 hexadecimal characters) and press Enter.
- The tool displays **Warning, keys not presented will no longer be operational. Start the procedure again to reprogram them**.
- The tool displays **Insert the key in the ignition switch and turn on the ignition, then press Enter**. Switch on the ignition with an old key from the vehicle. The screen displays **1 key programmed**, then **remove the key from the ignition switch**.
- The tool asks: **Would you like to program another key?**
- To assign additional keys, switch on the ignition for a few with the other vehicle keys to be programmed (maximum 4), then press Enter. The screen displays **2, 3 or 4 keys programmed**, then **remove the key from the ignition switch**.

**WARNING:** these must be old keys belonging to the vehicle or new **uncoded** keys.

- The tool displays **Writing data to memory**. The UCH is coded and the keys are programmed. Several seconds will elapse before this message appears.

**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 assigned to the vehicle are the ones assigned before starting the procedure. The keys submitted before interruption of the procedure are no longer blank and can only be assigned to this vehicle**. This message also appears if communication with the UCH is lost, the battery power supply fails, etc.

**N.B.:** if only the UCH is replaced, there is no work to carry out on the injection computer and it keeps the same immobiliser code.

**Special note regarding remote control units:**

Remote control units need to be programmed (cf. **section 88**).

## SPECIAL CASES

If the screen displays:

- **The UCH is blank. Please start the UCH programming procedure:** The UCH is blank. It is impossible to assign 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 match the vehicle's UCH, the tool displays the **procedure interrupted: warning, the keys assigned to the vehicle are those which were assigned before the procedure was started. The keys submitted before interruption of the procedure are no longer blank and can only be assigned to this vehicle**.

### CODING THE INJECTION COMPUTER

The injection computer is supplied uncoded. It will therefore have 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 immobiliser system, 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 the stores which must be returned.**

**The programmed code cannot be erased.**






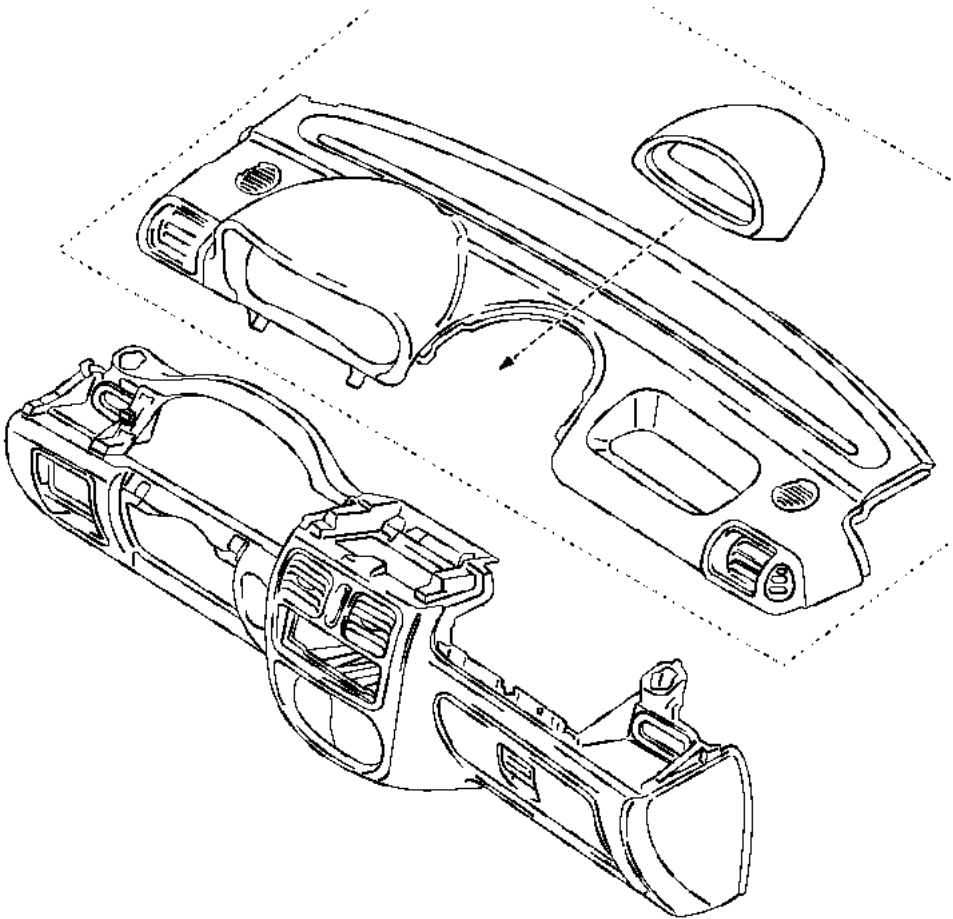
KEY		FAULT FINDING
104	Ignition switch	If the immobiliser system is faulty, the fault can be traced using the diagnostic tool.
118	ABS computer	
120	Injection computer	
225	Diagnostic socket	
247	Injection warning light and red immobiliser warning light on instrument panel	
260	Passenger compartment fuse box	
419	Air conditioning computer	
645	Passenger compartment computer	
756	Air bag/pretensioner computer	
1194	Transponder antenna	

# INSTRUMENT PANEL

## Dashboard

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TIGHTENING TORQUES (in daNm)		
Universal shaft eccentric bolt	2.5	
Steering wheel bolt	4.5	
Steering column mounting nuts	2	
Air bag cushion mounting bolts	0.5	



A-17010

To remove the dashboard, it is necessary to remove the steering column first.

Follow the method described below to remove the steering column.

### REMOVAL

**IMPORTANT:** all work on air bag and pretensioner systems must be carried out by qualified personnel who have received the proper training.

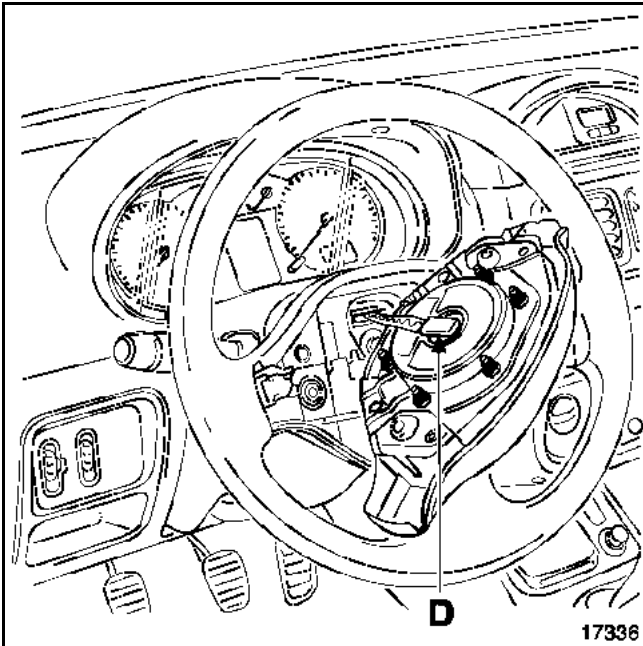
**WARNING:** It is forbidden to handle the pyrotechnic systems (air bags and pretensioners) near a source of heat or flame as there is a risk of triggering.

**IMPORTANT:** Whenever the steering wheel is removed, the air bag connector (D) **MUST** be disconnected. The air bag has a connector which short circuits when disconnected to prevent accidental triggering.

### Disconnect the battery.

**Vehicles fitted with an air bag:** remove the driver's air bag cushion by undoing the two Torx bolts (T30) (tightening torque = **0.5 daNm**) located behind the steering wheel and disconnect its connector (D).

**Vehicles without an air bag:** remove the cover from the centre of the steering wheel (clips).



### Remove:

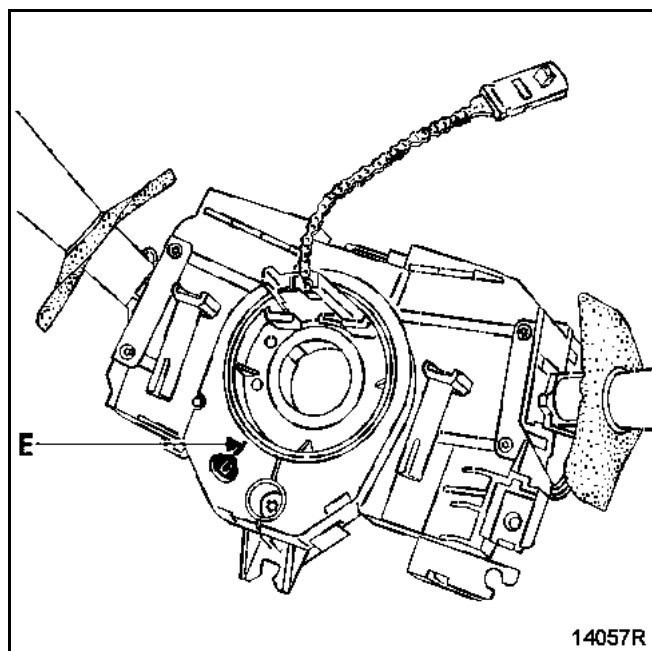
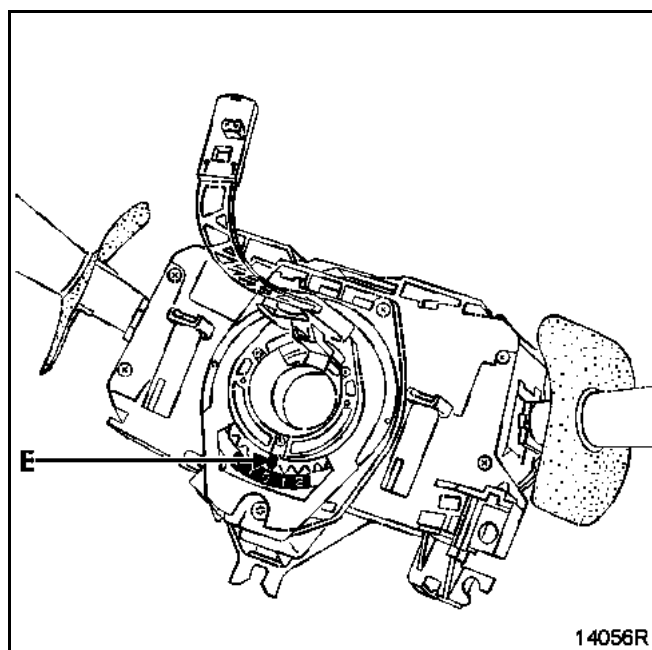
- the steering wheel bolt,
- the steering wheel after setting the wheels straight,
- the two halves of the cowling (three bolts).

Disconnect the stalk switches (wipers and lights) and the rotary switch connector (vehicles fitted with an air bag).

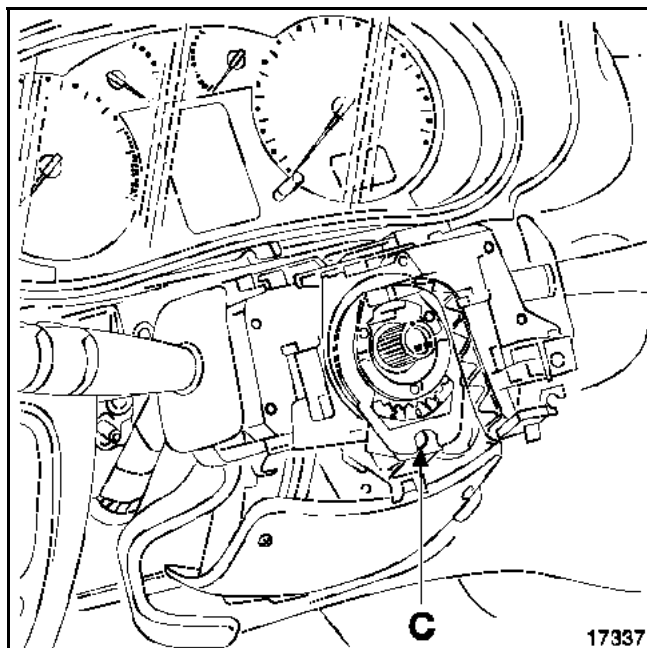
**Special notes for vehicles fitted with an air bag**

Before removing the assembly, it is imperative to mark the position of the rotary switch:

- by ensuring the wheels are straight when removing it so that the track is positioned centrally,
- by checking that the "0" mark of the rotary switch is correctly positioned opposite the fixed index mark (E).

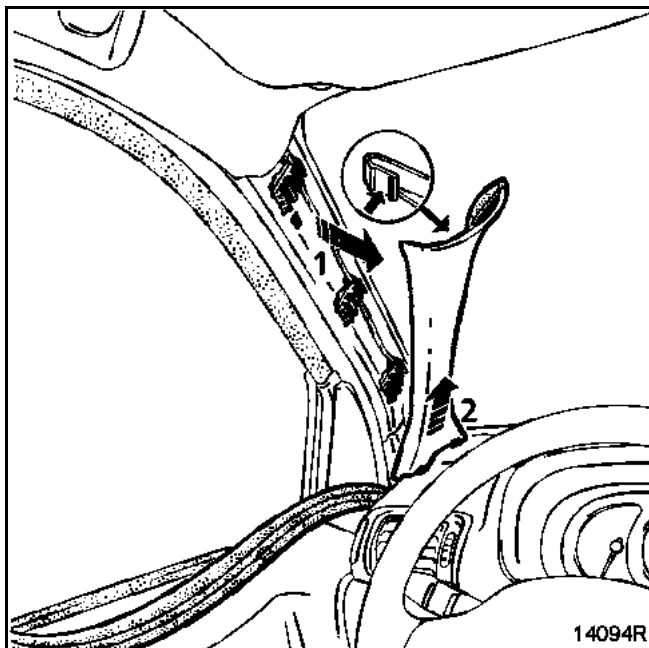
**VALEO ASSEMBLY****LUCAS ASSEMBLY**

Loosen the bolt (C), then tap sharply on the screwdriver to release the cone and disengage the assembly from the steering column.

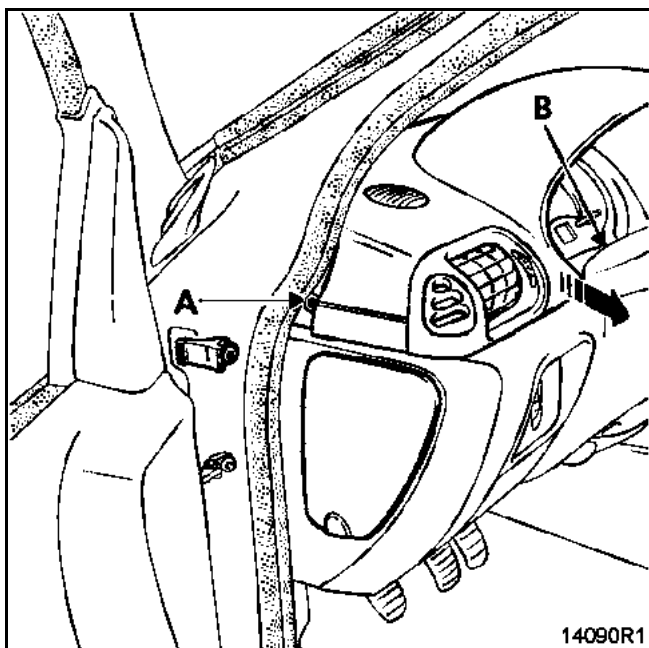


Remove the top of the dashboard. To do that:

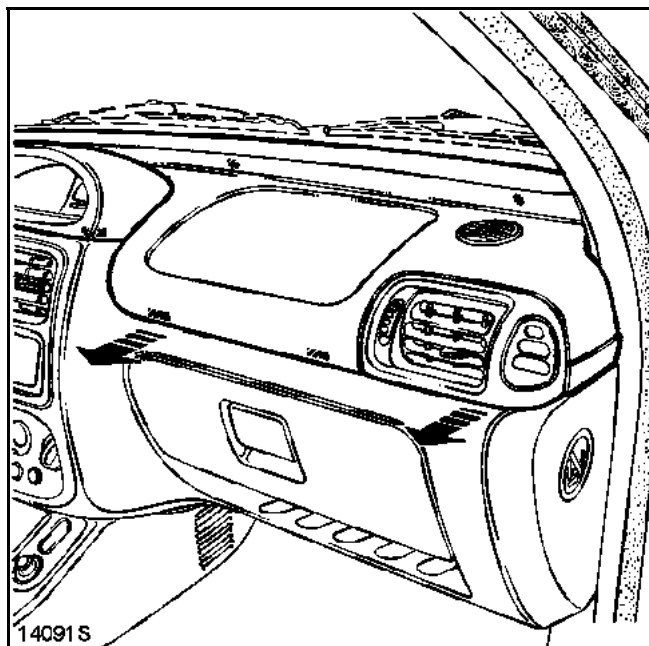
- first remove the windscreen pillar trim; to do that, disengage enough of the trim to be able to press on the upper clip, then move the pillar trim (1) aside and unclip it from the top part of the dashboard (2).



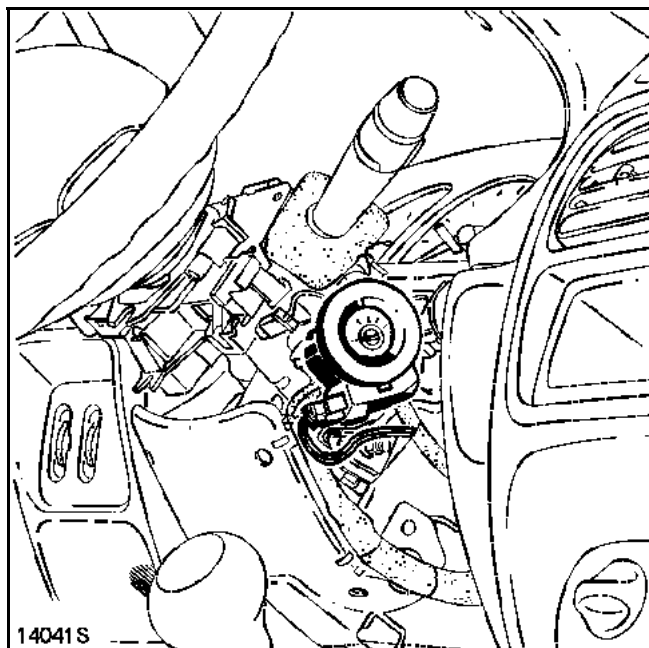
- remove the two side screws (A),
- remove the two screws under the instrument panel (B).



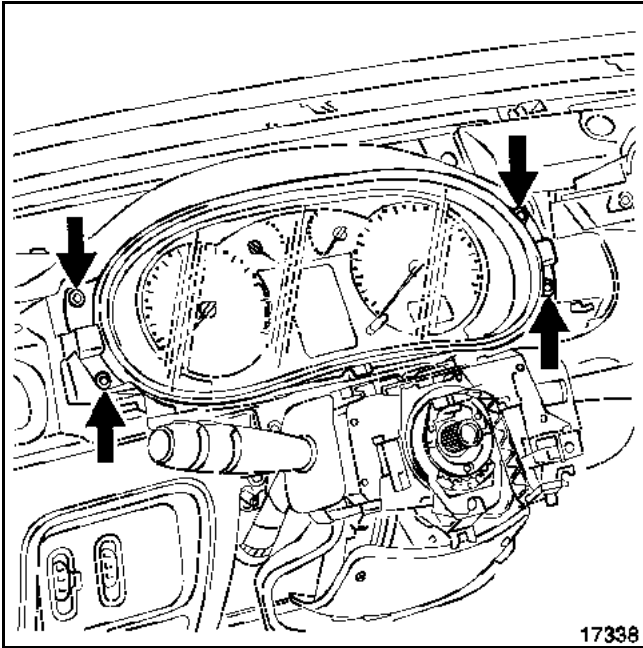
- remove the three screws from the top (near the windscreen) and remove the top part of the dashboard completely as shown in the diagrams.



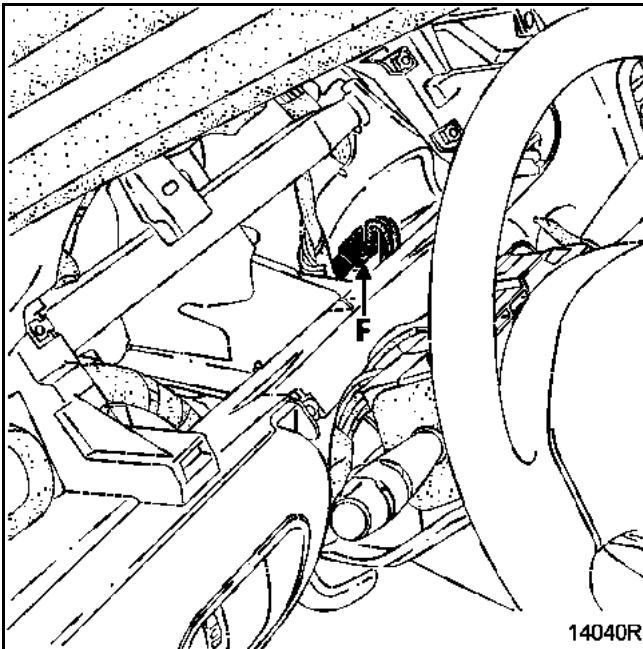
Remove the immobiliser ring aerial from the ignition/ starter switch.



Remove the instrument panel (four screws) and disconnect the connectors.



Disconnect the ignition switch connector (F).

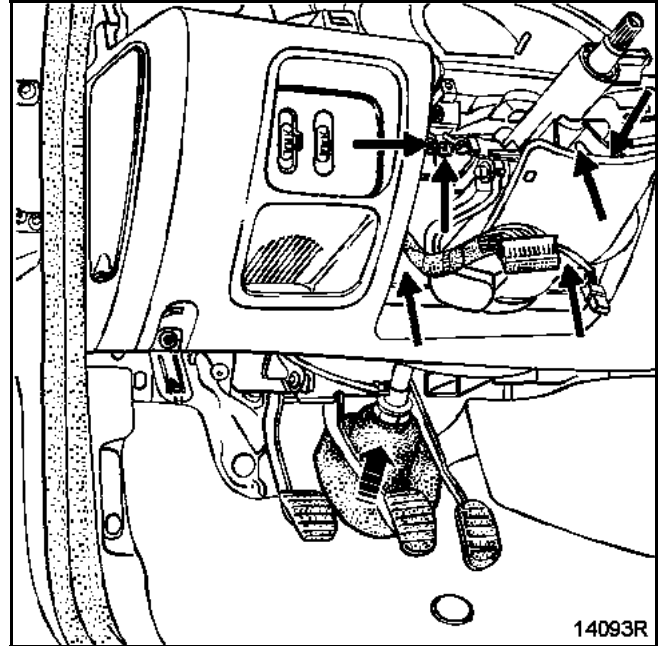


In the engine compartment:

– Remove:

- the air intake duct,
- the expansion bottle mounting screws and move it in order to gain access to the steering column universal joint.

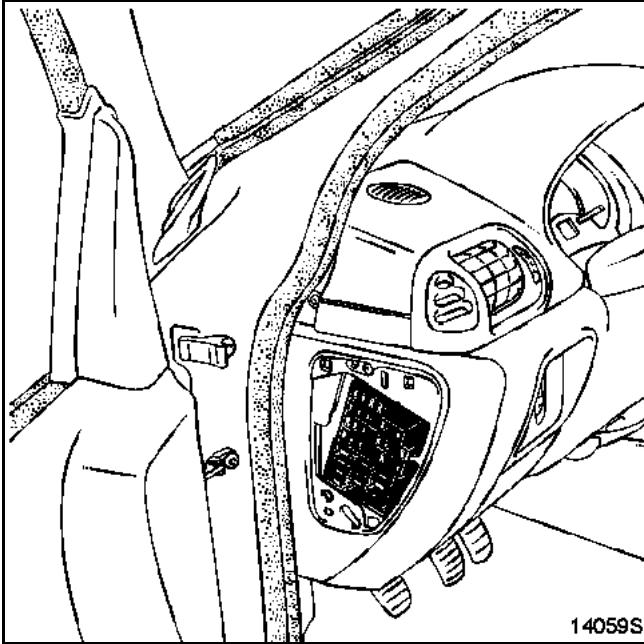
Remove the universal joint eccentric bolt.



Remove the six steering column mounting bolts and pull on the bulkhead gaiter.

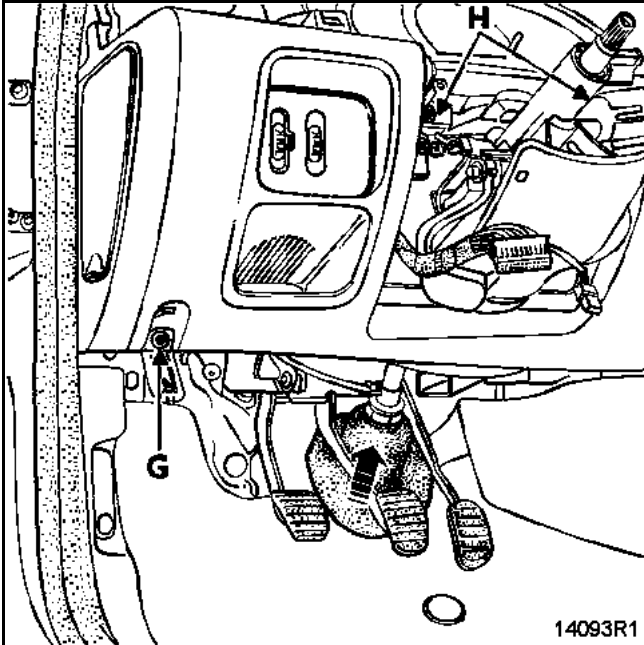
Remove the steering column.

Remove the fuse box cover flap.



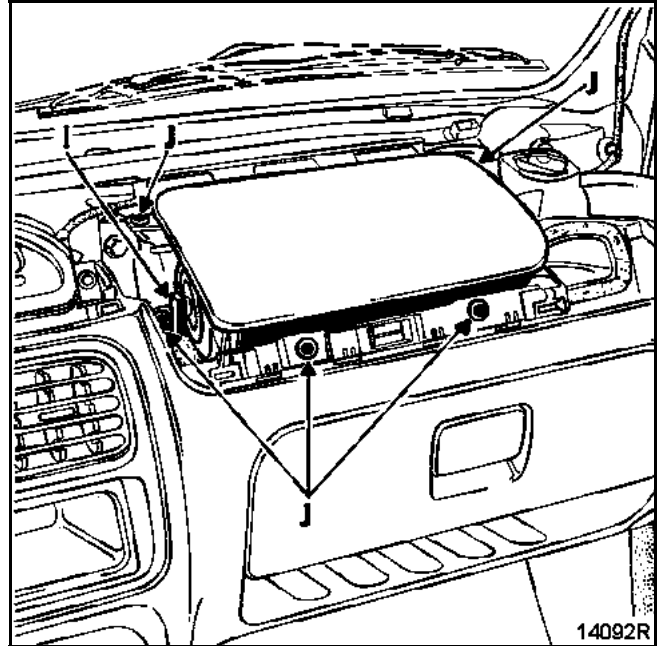
Remove:

- the lower mounting screws (G),
- the mounting screws (H).



### REMOVAL OF THE PASSENGER AIR BAG CUSHION (depending on equipment)

Disconnect the connector (I) and remove the screws (J) securing the cushion.





# INSTRUMENT PANEL

## Dashboard

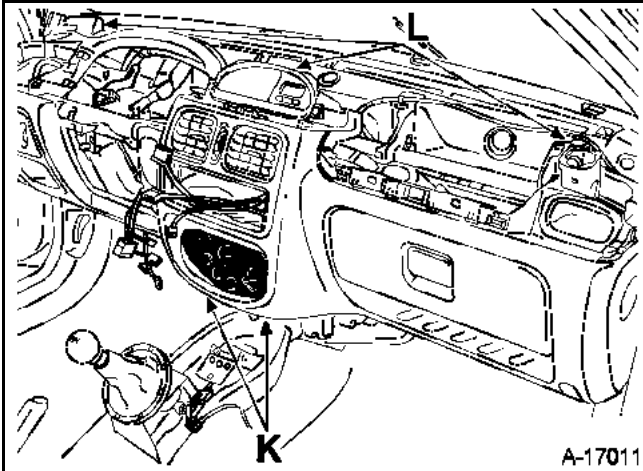
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Remove the two screws (K) securing the heater control unit and unclip it from its housing in the dashboard.

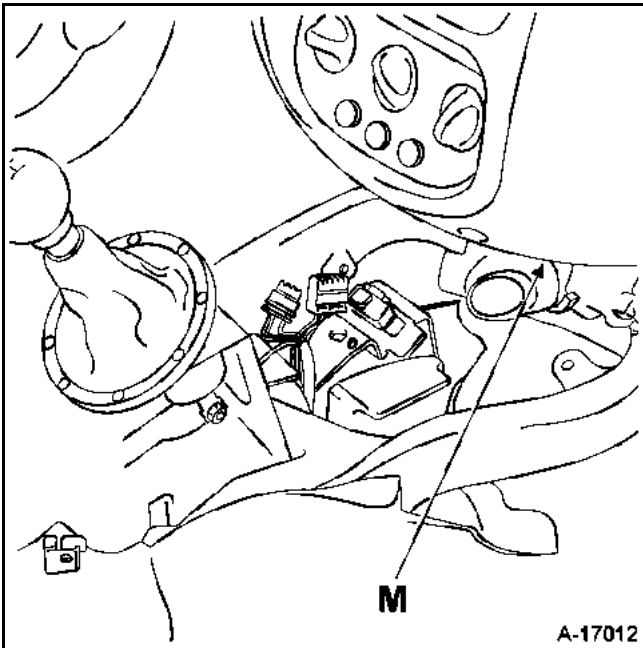
Remove:

- the three upper dashboard mounting bolts (L),
- the radio.

Disconnect the feed connector from the central display unit (if fitted).

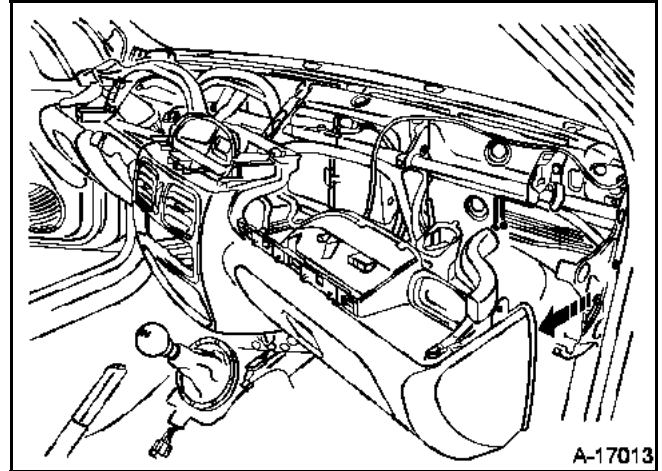


Remove the mounting bolt (M).



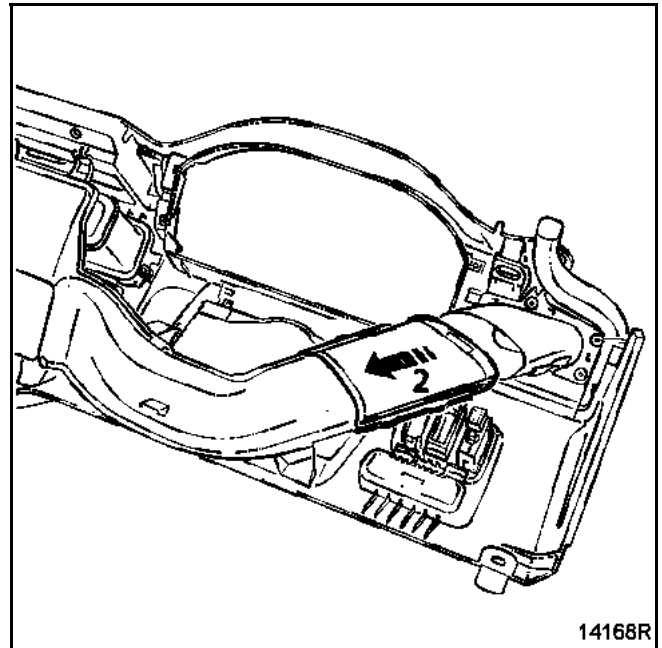
Lift the dashboard slightly to disengage the locating pins near the mounting bolts (L).

Pull out the right-hand side of the dashboard (1).



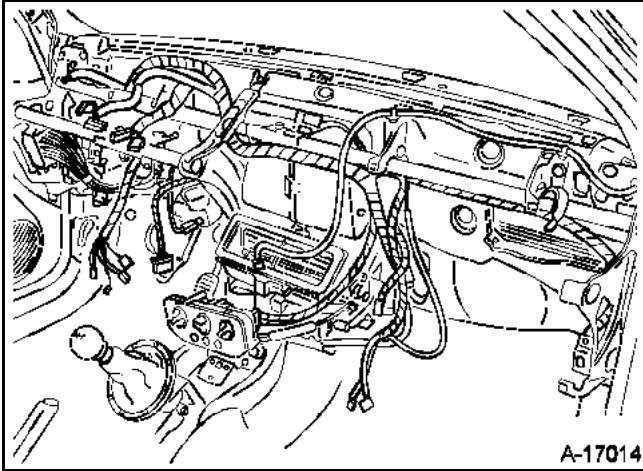
Slide tube (2) in order to be able to withdraw the left-hand side of the dashboard.

**N.B.:** the tube passes behind the metal beam. Sliding it off, as shown in the illustration below, makes it possible to disconnect the dashboard from the heater casing.



Remove the dashboard from the passenger compartment (two persons).

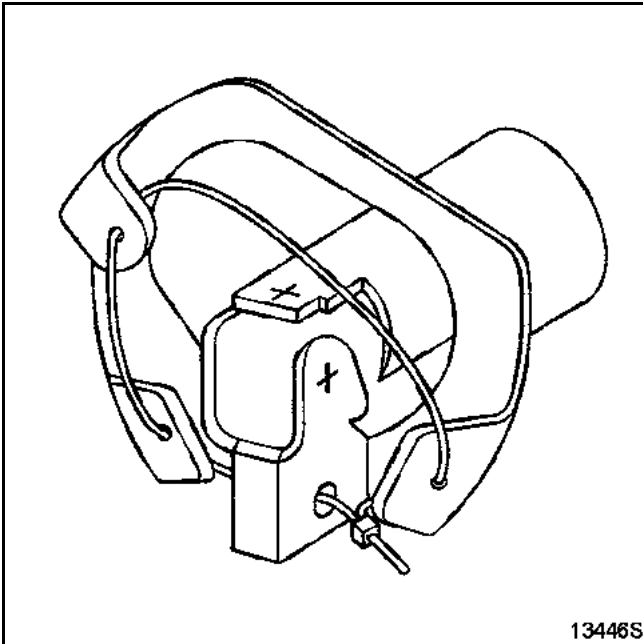
**N.B.:** when the dashboard structure or wiring loom is replaced, the loom must be refitted in such a way that it passes under the dashboard as shown below.



### REFITTING

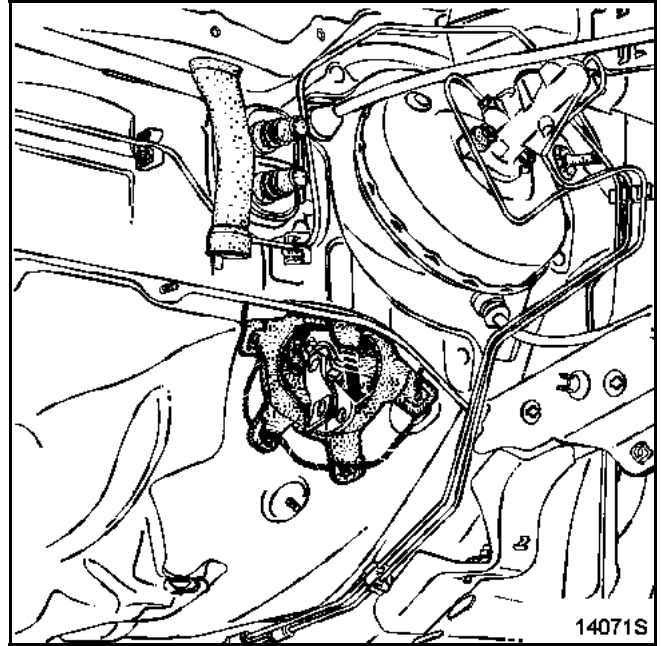
Put the dashboard and the heater control unit back in place.

Fit the steering column; when doing so, follow these instructions:



Fit the gaiter on the bulkhead, having first tied the flaps and the universal joint together with string.

Pull the tab and cut the string to fit the gaiter in place.



Refitting is then the reverse of removal.

Make sure that all the connectors are connected correctly.

### SPECIAL NOTES FOR REFITTING

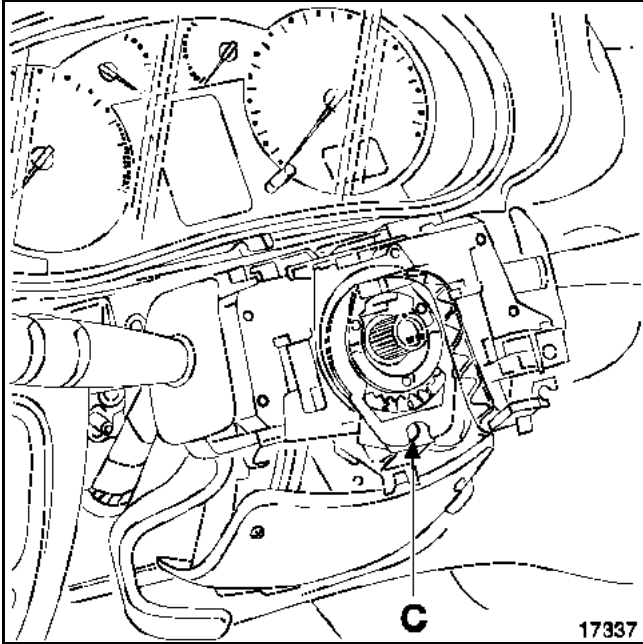
Ensure that the wheels are still straight.

Check that the rotary switch is correctly positioned by making sure that the rotary switch **0** mark is correctly located facing the fixed index mark (E) (vehicles with air bag).

Fit the whole assembly on the steering column and connect the various connectors.

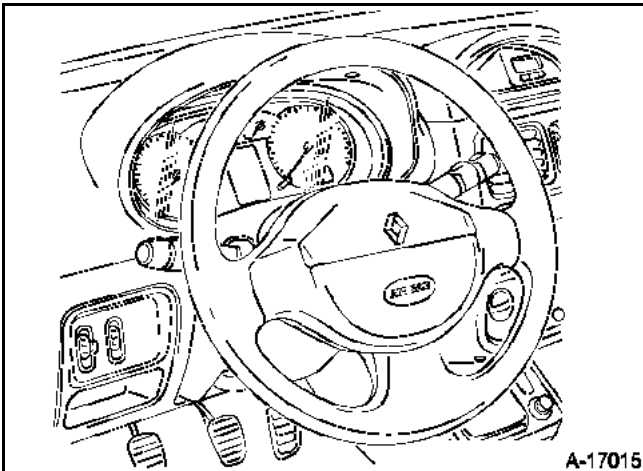
Continue refitting and do not tighten bolt (C) until the two half cowlings are refitted, so that the stalks may be aligned with the dashboard and the instrument panel.

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



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

Apply the correct tightening torque (**4.5 daNm**).



#### SPECIAL NOTES FOR VEHICLES FITTED WITH AN AIR BAG

**IMPORTANT:** the procedure for checking the correct operation of the system must be performed before the driver's air bag cushion is reconnected:

- check that the air bag warning light on the instrument panel lights up when the ignition is switched on,
- connect a dummy igniter to the driver's air bag cushion connector and check that the warning light goes out,
- switch off the ignition, connect the air bag cushion in place of the dummy igniter and fit the cushion to the steering wheel (tightening torque **0.5 daNm**),
- switch on the ignition and check that the warning light comes on
- **for 3 seconds** when the ignition is switched on, then goes out and remains out.

If the warning light does not operate as described above, refer to the **Fault finding** section and check the system using the **XR BAG** instrument (Élé. 1288).

**IMPORTANT:** if these instructions are not followed, the systems may not function correctly, which may cause incorrect triggering.

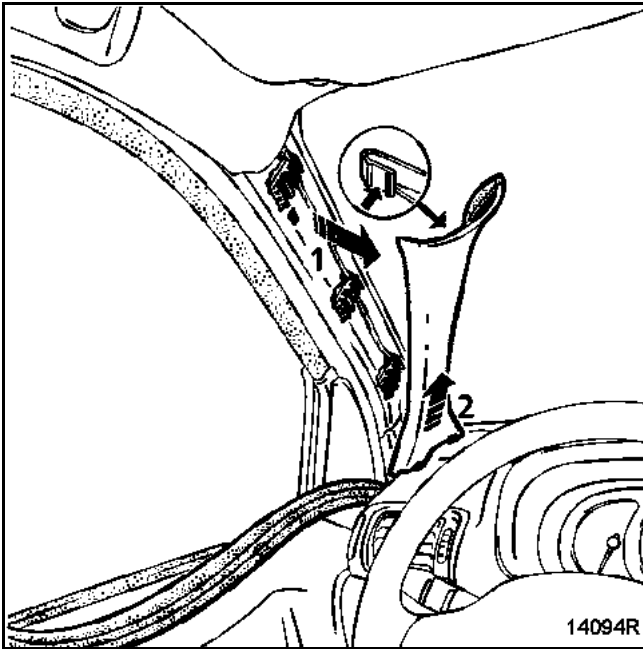
### REMOVAL - REFITTING

Disconnect the battery.

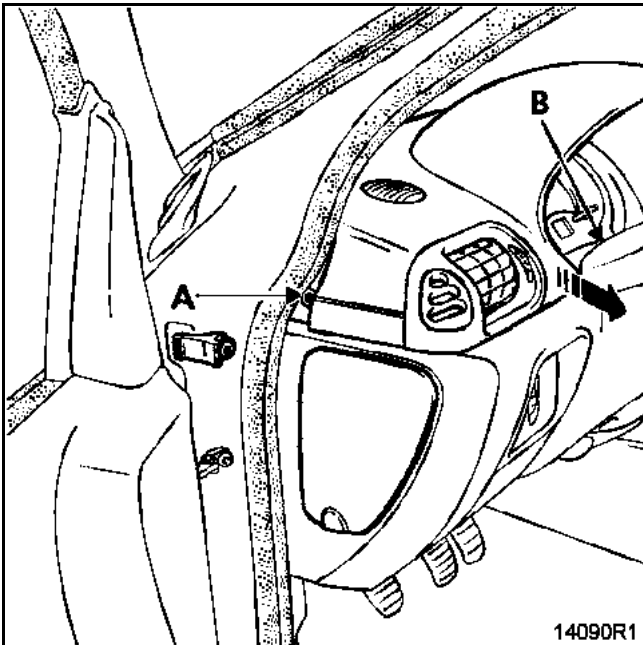
Remove the two halves of the cowling (three bolts).

Remove the top of the dashboard. To do that:

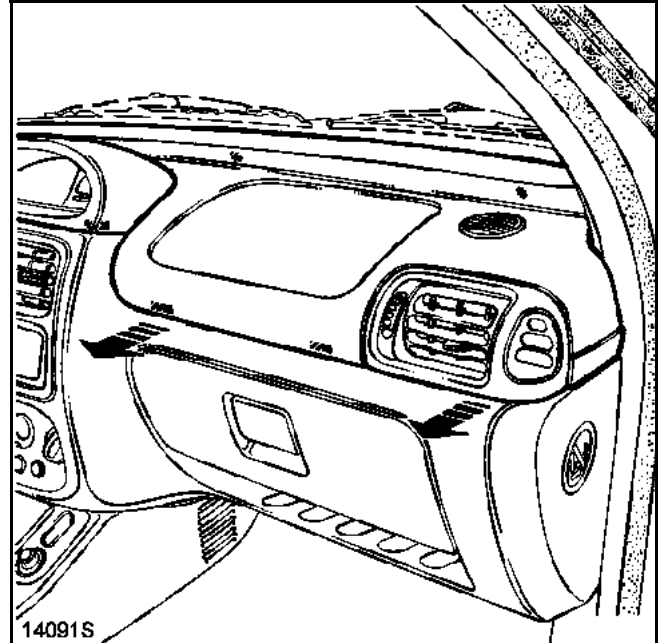
- first remove the windscreen pillar trim; to do that, disengage enough of the trim to be able to press on the upper clip, then move the pillar (1) aside and unclip it from the top part of the dashboard (2).



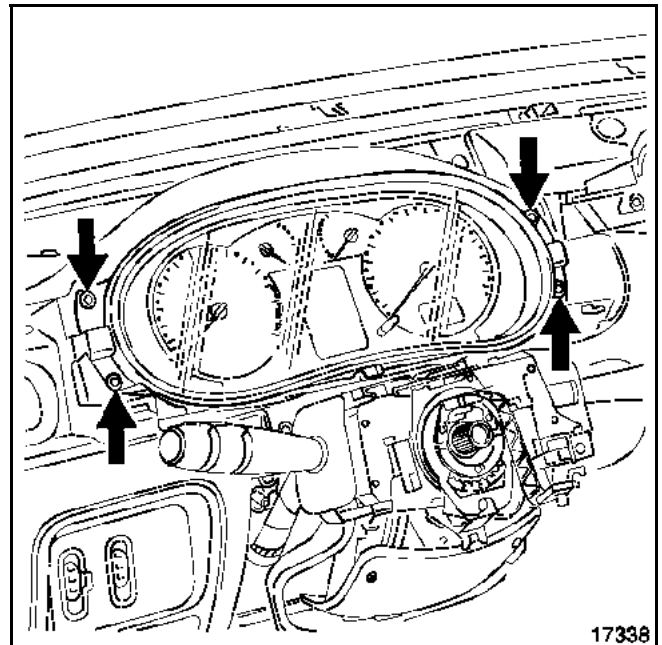
- remove the two side screws (A),
- remove the two screws under the instrument panel (B).



- remove the three screws from the top (near the windscreen) and remove the top part of the dashboard completely as shown in the diagrams.



Remove the instrument panel (four screws), disconnecting the connectors.



**N.B.:** it is not necessary to remove the steering wheel.

# INSTRUMENT PANEL

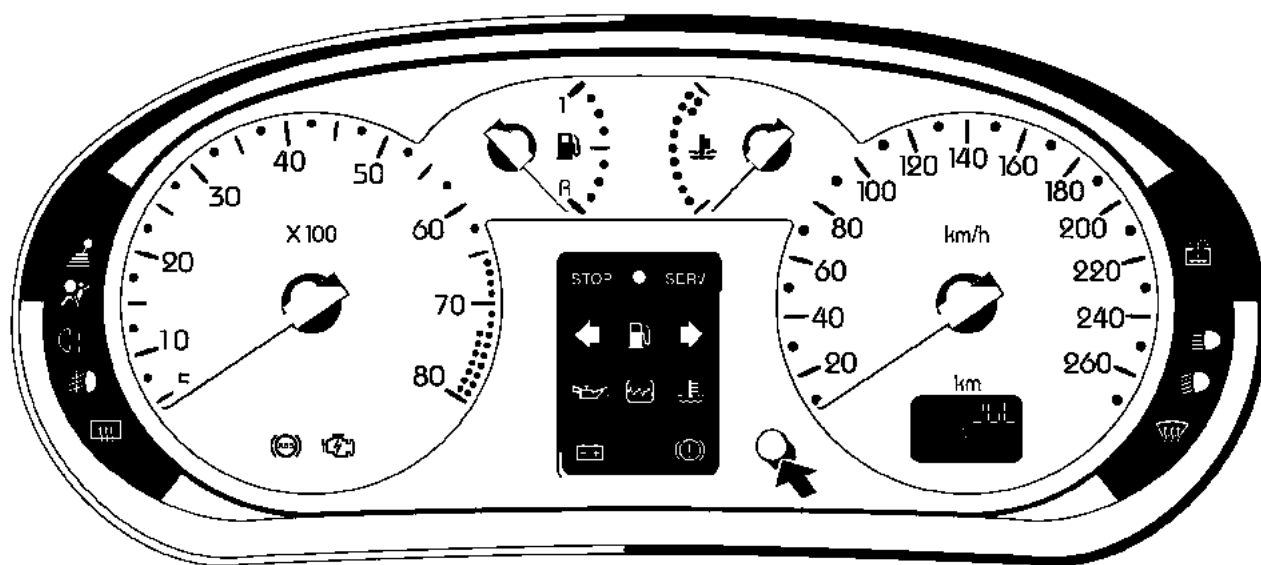
## Instrument panel without ADAC

83

### DESCRIPTION

- Electronic speedometer,
- total and trip mileage display, clock and oil level (depending on version),
- engine coolant temperature gauge,
- fuel gauge,
- warning lights,
- rev counter (depending on version).

**N.B.:** on this instrument panel, only the glass can be replaced. If other components fail, the whole panel must be replaced.



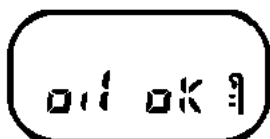
A-17174

### OPERATION OF THE DISPLAY

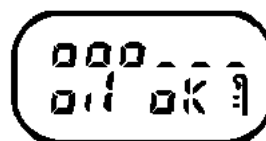
#### ● Oil level reading

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

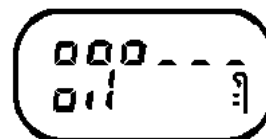
If the level is between the permitted maximum and minimum, the display shows "oil OK"



If the "ADAC" or "reset" buttons are pressed during this time, the display shows "oil OK" and then the oil level represented by squares. These disappear as the oil level drops and are replaced by dashes.



If the oil level is at minimum when the ignition is switched on, the dashes and the word "oil" flash for 30 seconds. The "service" warning light illuminates and remains illuminated after the engine starts.



### 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 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 factors may be involved:
  - parking on a slope,
  - not waiting long enough after running the engine for a short time (especially when the oil is cold).

- Odometer

### Total mileage

The total mileage will be displayed approximately **30 seconds** after the oil level information. Pressing the "ADAC" or "reset" button reduces this display time.

### Trip mileage

The trip mileage is displayed in place of the total mileage if the "ADAC" button is pressed briefly.

It is reset by longer pressure on the "RESET" button.

**N.B.:** it is not possible to select display in kilometres or miles. The instrument panel must be replaced.

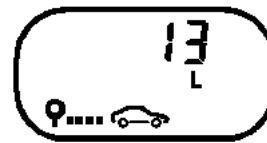
### ● On-board computer (ADAC)

The various on-board computer information is displayed in sequence in place of the mileage totals when the end of the wiper stalk is pressed (**ADAC** button).

It is reset by pressing the "RESET" button.

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

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



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



This is only displayed after the car has travelled approximately **400 metres**.

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

\* UK version.

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



This is only displayed once the vehicle speed exceeds approximately **20 mph**.

In the accelerator pedal no load position, if the speed is greater than **20 mph**, the current consumption equals 0.

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

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



This is only displayed after the car has travelled approximately **400 metres**.

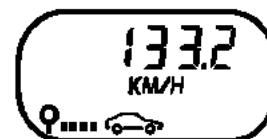
This is the potential range remaining calculated by taking into account the distance travelled, the amount of fuel remaining in the tank and the fuel consumed.

**N.B.:** the range remaining is not displayed when the low fuel warning light is illuminated.

- **Distance travelled** since the last reset.



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



This is displayed after the car has travelled **400 metres**.

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 inside the on-board computer.

### 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 without starting the engine.

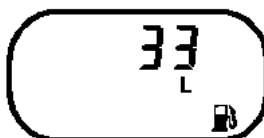
- All the warning lights illuminate and the needles on the four gauges move in steps.
- The **liquid crystal display** test is shown.



All the segments on the display should be illuminated.

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

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

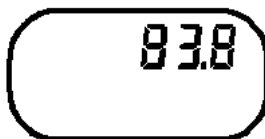


The value displayed should correspond with the amount of fuel remaining in the tank in litres (even for the UK version).

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



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



A value should be displayed when the engine is running.

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

- Viewing stored faults.



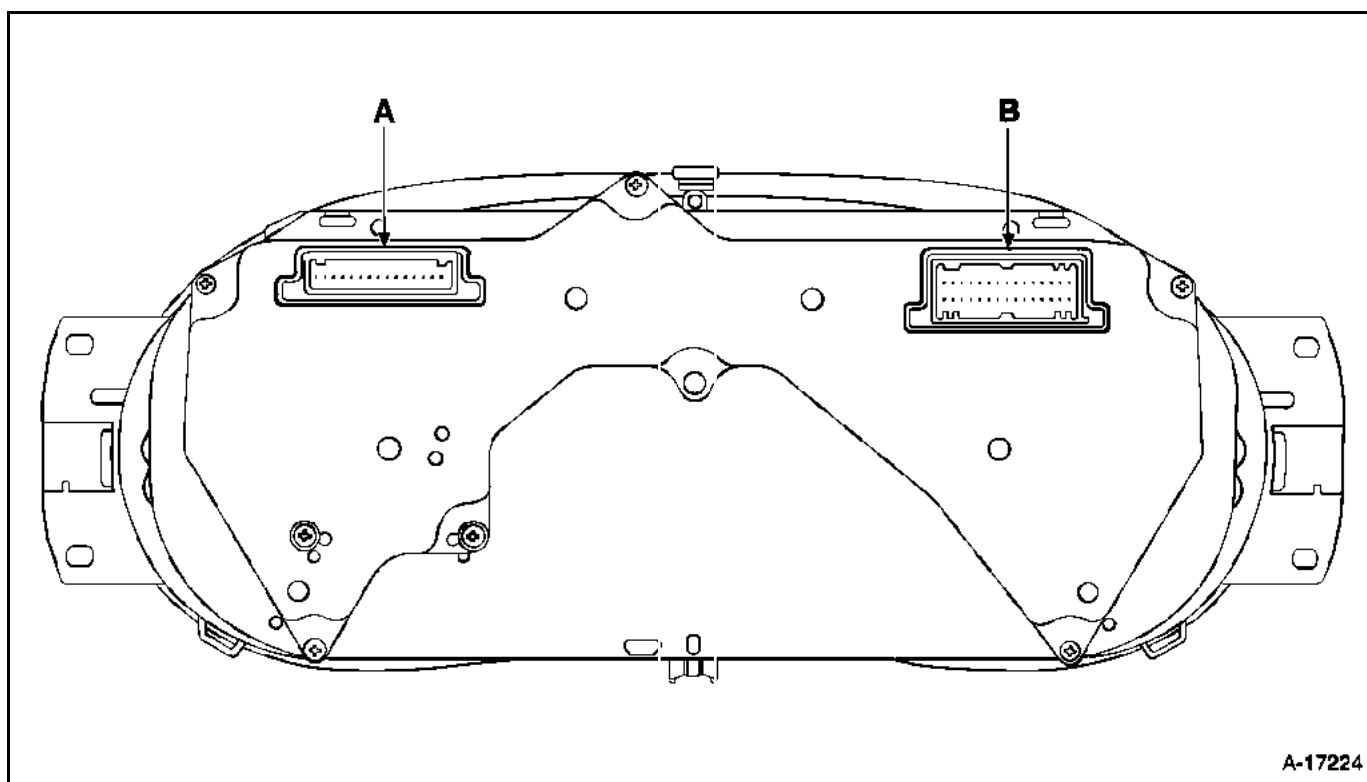
If the letter **J** is displayed, this means that a fault in the fuel gauge has been detected (disconnected for more than **100 seconds**).

If the letter **d** is displayed, this means that a fault in the flow sensor has been detected for more than **16 kilometres**.

If the letter **h** is displayed, this means that an oil level sensor fault has been detected.

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

Press the reset button to exit the fault finding procedure and erase any faults stored in the memory.



A-17224

### Red 15 track connector

- 1 LPG (Reactivate the LED warning light)
- 2 Not used
- 3 Heated windscreen (not used)
- 4 Engine speed signal
- 5 Panel lights dimmer unit earth
- 6 Fuel consumption signal
- 7 Fuel consumption signal
- 8 Not used
- 9 Not used
- 10 Not used
- 11 Not used
- 12 Not used
- 13 Passenger air bag (warning light)
- 14 ABS warning light
- 15 Not used

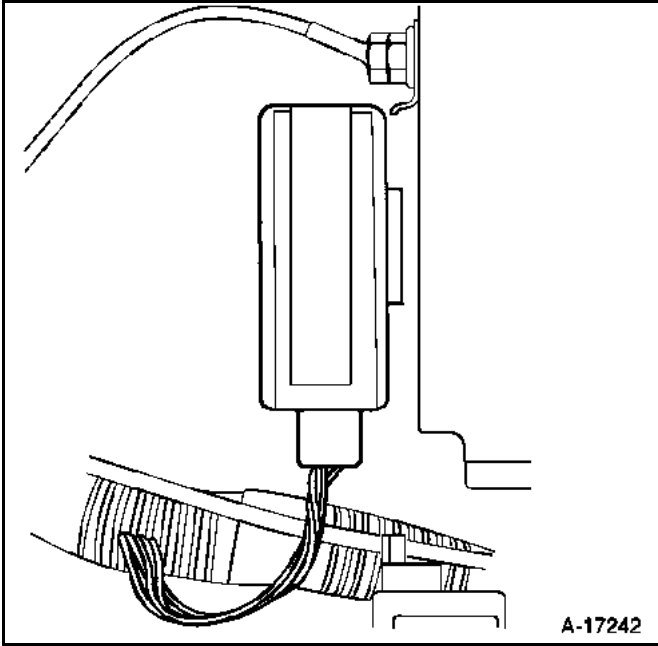
### Grey 30 track connector B

- 1 Not used
- 2 Right-hand indicator input
- 3 Left-hand indicator input
- 4 + battery
- 5 Engine immobiliser LED warning light
- 6 Not used
- 7 Engine component failure warning light
- 8 Dipped headlights
- 9 Main beam headlights
- 10 Air bag (warning light)
- 11 Rear fog lights
- 12 Front fog lights
- 13 Screen wash liquid level
- 14 Alternator charge
- 15 Not used
- 16 Ignition input
- 17 Coolant temperature (warning light)
- 18 Oil pressure (warning light)
- 19 MIL light/emission fault warning light LED
- 20 Coolant temperature signal
- 21 + oil level signal
- 22 + fuel level signal
- 23 Vehicle speed signal
- 24 Earth
- 25 - fuel level signal
- 26 - oil level signal
- 27 Instrument panel lights
- 28 Not used
- 29 Not used
- 30 Handbrake/low brake fluid level warning light

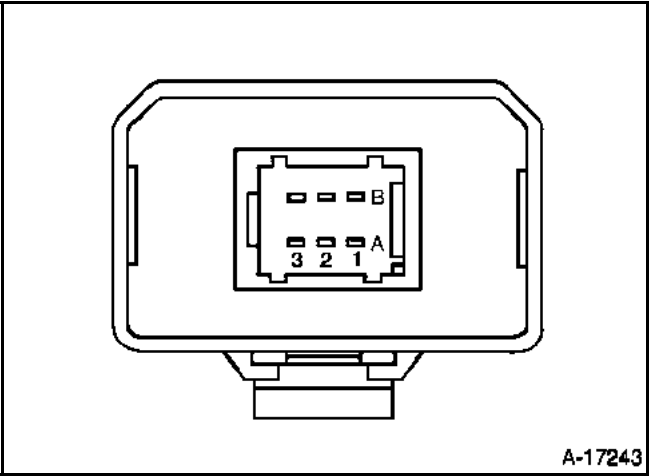
SPEED DATA

The instrument panel (speedometer, mileometers and ADAC) receives information about the vehicle's speed via an electronic speedometer interface unit located to the rear of the compartment, behind the engine, near the injection computer.

This information is also used by the injection computer.



CONNECTION



Pin	Function
A1	Output
A2	Not connected
A3	Input 1
B1	Earth
B2	+12V (Ignition)
B3	Input 2

# INSTRUMENT PANEL

## Fuel level sensor

83

### SPECIAL TOOLING REQUIRED

**Mot. 1397** Universal petrol tank gauge nut wrench

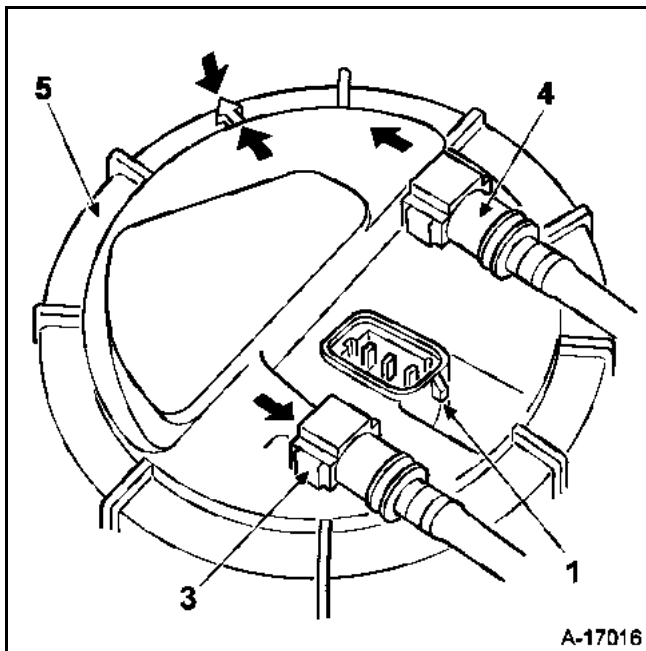
#### IMPORTANT:

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

- Do not smoke.
- Keep all flames and incandescent objects away from the working area.

#### REMOVAL OF THE PUMP - SENDER UNIT

The pump-sender unit can be removed via the flap located in the rear partition behind the front seats and does not require removal of the fuel tank.



Disconnect the battery.

Remove the flap.

Remove the plastic cover from the pump-sender unit.

Disconnect the connector (1).

Then disconnect the fuel supply pipe (3) (identified by a green quick-release union) and the fuel return pipe (4) (identified by a red quick-release union).

**WARNING:** When the pipes are disconnected, fuel may splash out due to the residual pressure in the pipes. Take appropriate precautions.

Move the connector and the pipes out of the way to the side of the pump-sender unit.

Remove the pump and sender unit mounting nut (5) using tool **Mot. 1397**.

Remove the mounting nut (5) of the pump and sender unit using tool **Mot. 1397**.

Slacken the nut, remove the tool, unscrew the nut by hand and remove it.

Remove the pump and sender unit.

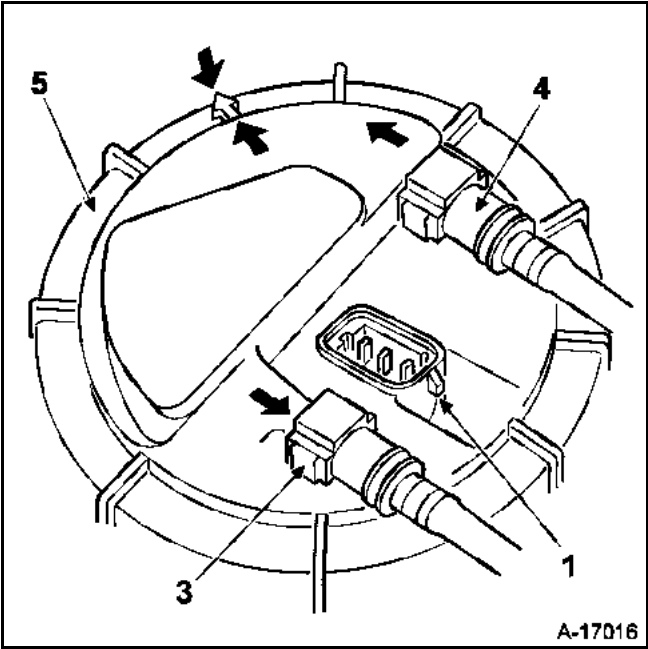
**N.B.:** if several hours are to pass between the removal and refitting of the fuel pump-sender unit, screw the nut back on the tank to prevent any distortion.

REFITTING THE PUMP AND SENDER UNIT

Special notes

Replace the seal.

Place the pump-sender unit in position (the arrow (F) must be aligned with the mark on the tank).



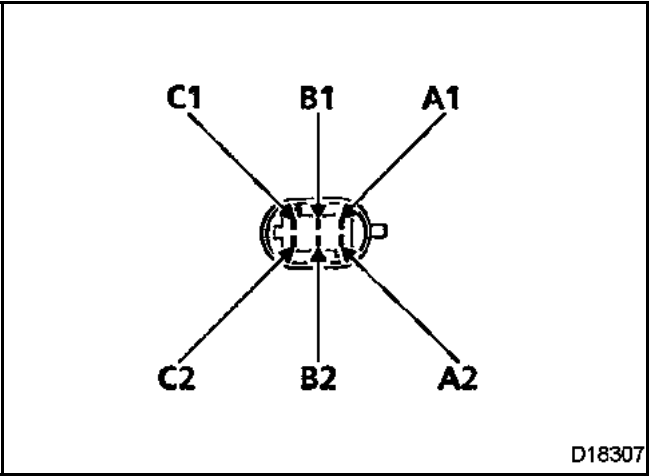
Place the nut in position and tighten it (the nut is correctly tightened when the moulded mark on it comes in line with the mark on the fuel tank) using tool **Mot. 1397**.

Connect the fuel pipes.

Reconnect the electrical connector.

Refit the protective plastic cover.

CONNECTION



Track	Function
A1	- Fuel sender
A2	Not used
B1	Fuel level signal
B2	Not used
C1	+ Fuel pump (petrol)
C2	- Fuel pump (petrol)

# INSTRUMENT PANEL

## Fuel level sensor

83

### Check

Check that the resistance varies when the float is moved.

Level reading	Height (in mm)	Value between tracks A1 and B1 (in $\Omega$ )
4/4	246.0	7.0 + 0 - 7
7/8	211.5	33.0 -
3/4	184.0	54.5 $\pm$ 10
5/8	157.0	75.5 -
1/2	132.0	98 $\pm$ 10
3/8	105.0	123.5 -
1/4	83.0	155.0 $\pm$ 10
1/8	61.0	201.0 -
R	35.0	280.0 $\pm$ 10
Lower stop	27.0	300.0

### Height measurement (in mm)

Remove the sender unit and place it on a flat surface.  
The height must be measured between the float pin and the work surface.

**N.B.:** these values are given for information only.

**OPERATION**

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

After a fixed period of time, the voltage difference at the sensor's terminals depends on the depth to which the wire is immersed. The voltage difference is registered by the instrument panel electronic unit which controls the level display function and also controls the "low oil level" warning light on the central display.

When the ignition is switched on, the central display shows "Oil OK" for about 30 seconds before returning to the trip mileage and total mileage display functions.

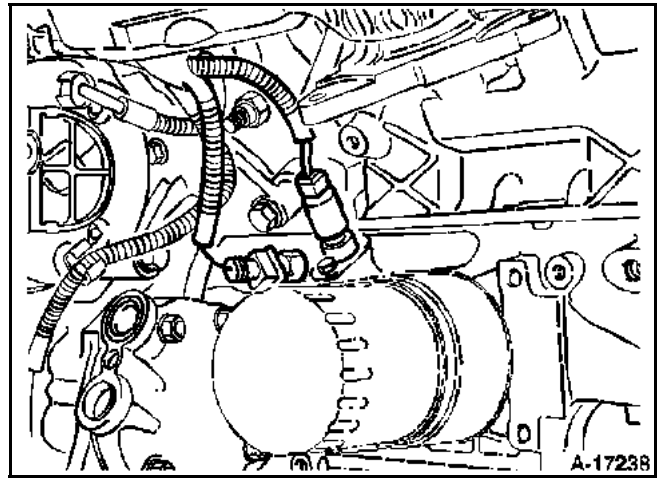
**N.B.:** if a short circuit or an open circuit is detected when the oil level is measured, the display changes immediately to the mileometer function.

**CHECK**

The sensor resistance must be between 6 and 20 ohms.

If the value is less than 4 ohms, the sensor is considered to be short-circuited.

If the value is higher than 22 ohms, the sensor is considered to be in open circuit.

**LOCATION**

# INSTRUMENT PANEL

## Coolant temperature sensor

83

### OPERATION

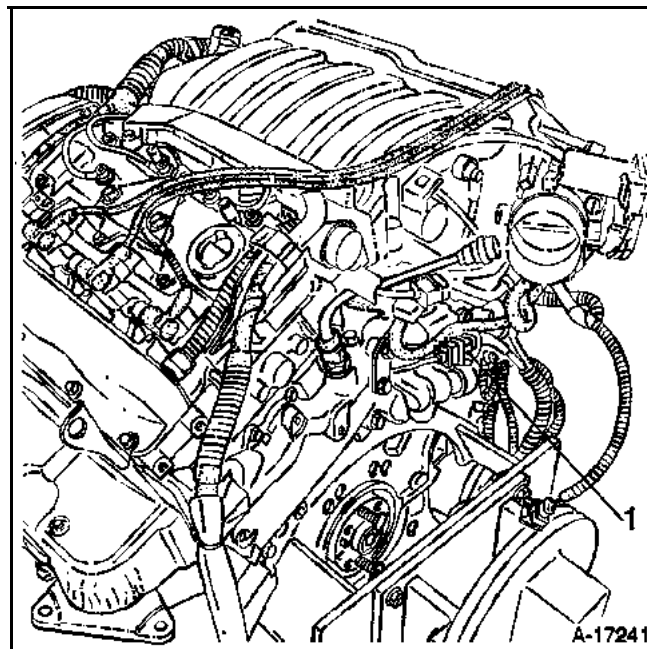
A thermistor transmits a variation in resistance to a receiver, depending on the coolant temperature, and a temperature switch lights the warning light on the instrument panel when the temperature reaches 118 °C.

### CHECK

Connect an ohmmeter between track 1 or track 2 on the sensor and the vehicle's earth.

Correct value: **160 to 1250  $\Omega$** .

### LOCATION



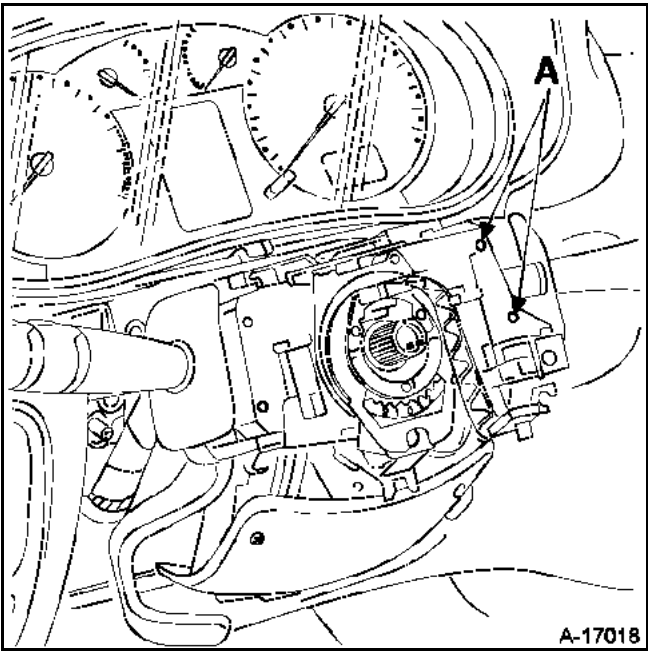
1 Warning light switch.

2 Level indicator sensor.



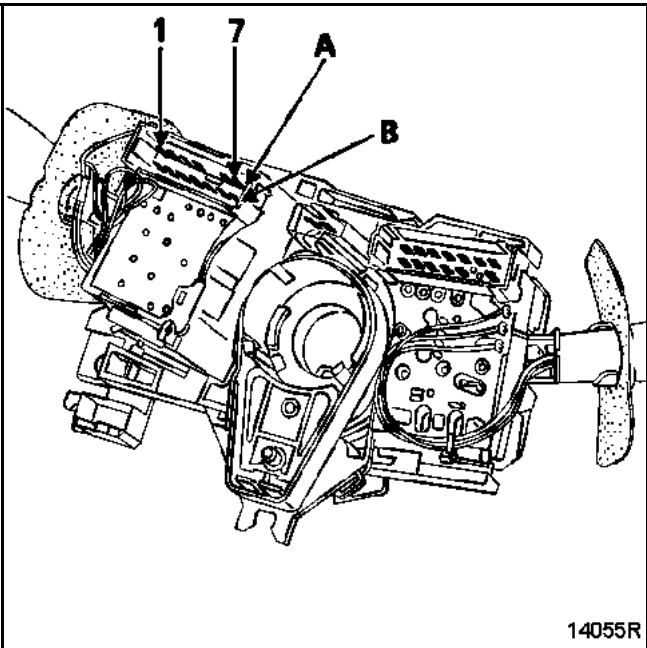
REMOVAL - REFITTING

- Disconnect the battery.
- Remove the two halves of the cowling under the steering wheel.
- Separate the immobiliser ring aerial from the ignition switch.
- Remove the two wiper switch mounting screws (A).
- Separate the stalk from its mounting and disconnect the connector.



**NOTE:** it is not necessary to remove the steering wheel.

CONNECTION



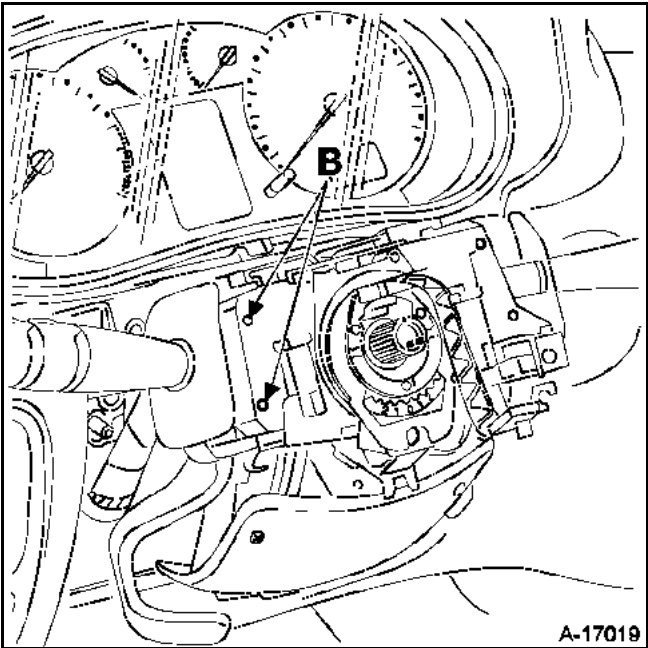
Track	Function
A1	Intermittent
A2	Windscreen wiper high speed
A3	Windscreen wiper low speed
A4	Windscreen washer pump
A5	Not used
A6	Windscreen wiper timer
A7	+ after ignition, windscreen wipers
B1	Rear screen washer pump
B2	Rear screen wiper timer
B3	Not used
B4	+ after ignition, rear screen wiper
B5	Earth
B6	Not used
B7	ADAC button

REMOVAL - REFITTING

Disconnect the battery.

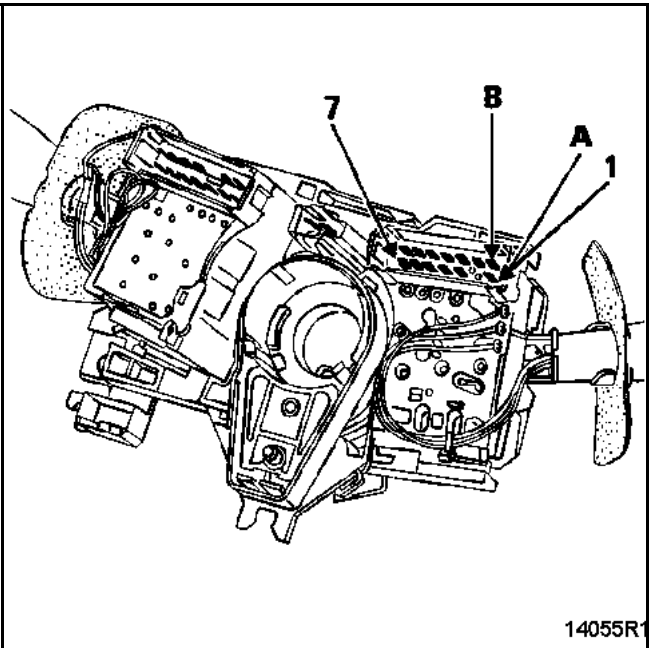
Remove the two halves of the cowling under the steering wheel.

Remove the two lights switch mounting screws (B).  
Separate the stalk from its mounting system and disconnect the connector.



**NOTE:** it is not necessary to remove the steering wheel.

CONNECTION



Track	Function
A1	Front fog lights
A2	Not used
A3	Rear fog light
A4	Horn
A5	Right-hand indicators
A6	Flasher unit
A7	Left-hand indicators
B1	Side lights
B2	+ before ignition
B3	+ before ignition
B4	Not used
B5	Dipped headlights
B6	+ before ignition
B7	Main beam headlights

## Stalk mounting/Rotary switch under steering wheel

### ● Special Note

The stalk mounting and the rotary switch are in one piece (they cannot be separated).

The rotary switch part provides the electrical connection between the steering column and the steering wheel.

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

### REMOVAL - REFITTING

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

**IMPORTANT:** Whenever the steering wheel is removed, the air bag connector (D) **MUST** be disconnected. The air bag has a connector which short circuits when disconnected in order to prevent accidental triggering.

Disconnect the battery.

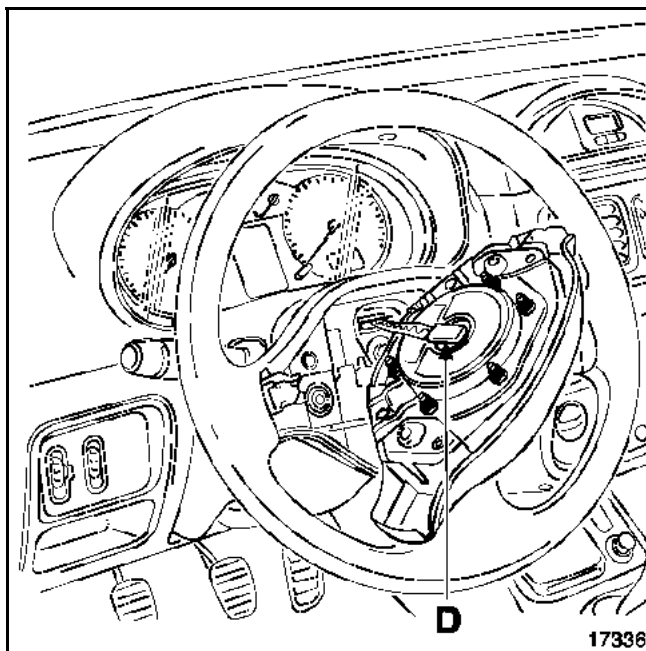
### ● Vehicle without air bag

Remove the cover from the centre of the steering wheel.

### ● Vehicle with air bag

Before carrying out any work on an air bag system, lock the electronic unit using the fault finding tool. The warning light on the instrument panel lights up.

Remove the driver's air bag cushion by undoing the two Torx bolts (**T30**) located behind the steering wheel and disconnect its connector (D).



### Remove:

- the steering wheel bolt,
- the steering wheel after setting the wheels straight,
- the two halves of the cowling (three bolts).

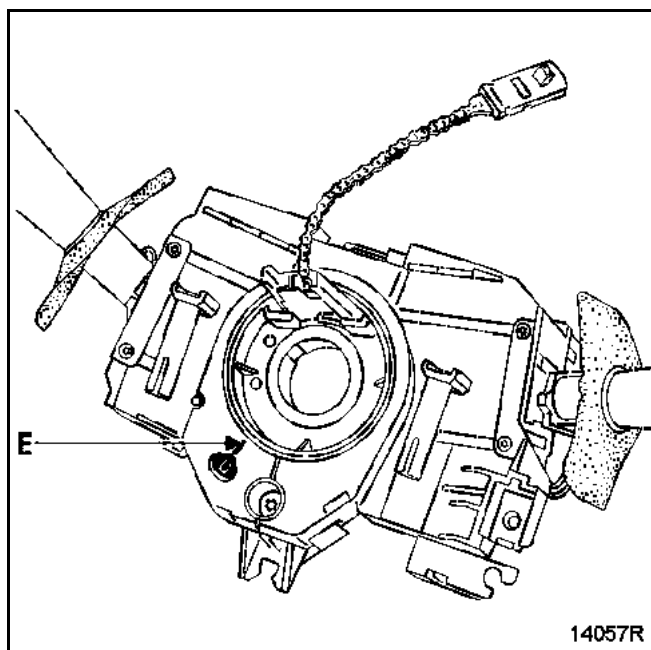
Disconnect the stalk switches (wipers and lights) and the rotary switch connector (vehicles fitted with an air bag).

## Stalk mounting/Rotary switch under steering wheel

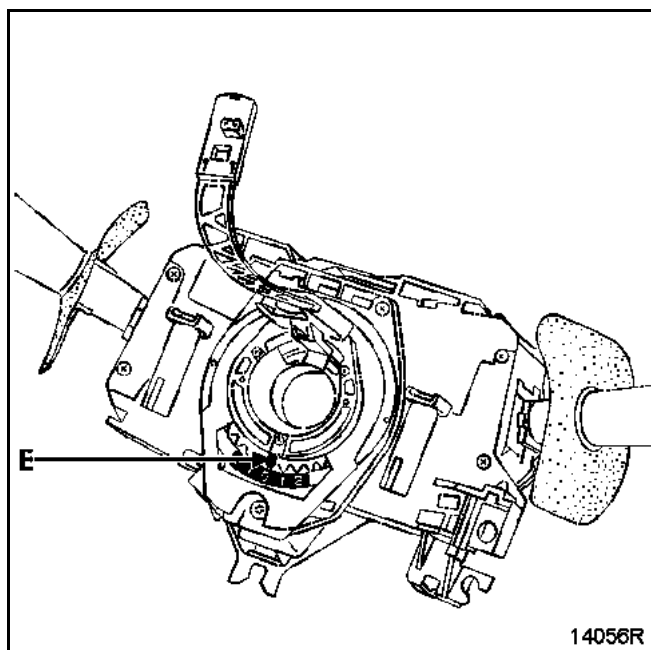
Before removing the assembly, it is imperative to mark the position of the rotary switch:

- by ensuring the wheels are straight when removing it so that the track may be positioned centrally,
- by checking that the **0** mark of the rotary switch is correctly positioned facing the fixed index mark (E).

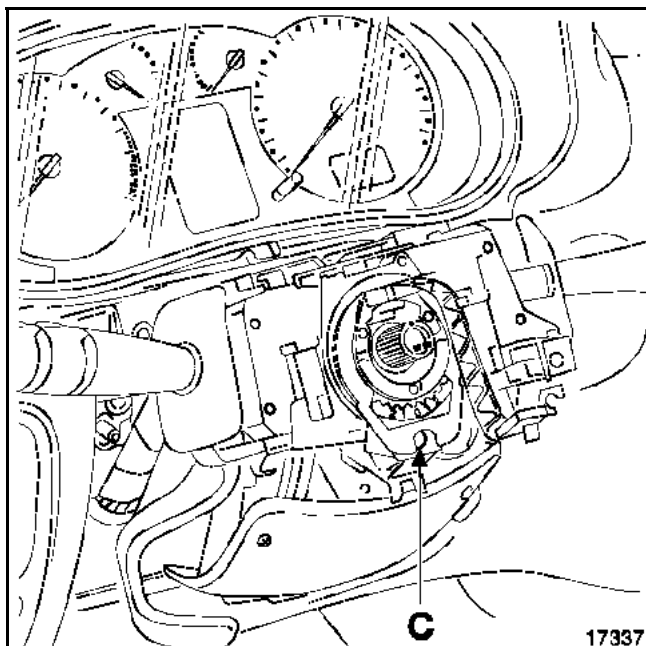
### VALEO ASSEMBLY



### LUCAS ASSEMBLY



Unscrew screw (C), then tap sharply on the screwdriver to release the cone and disengage the assembly from the steering column.



### SPECIAL INSTRUCTIONS ON REFITTING

Ensure that the wheels are still straight.

Check that the rotary switch is correctly positioned by making sure that the rotary switch **0** mark is correctly located facing the fixed index mark (E).

Fit the whole assembly on the steering column and connect the various connectors.

Continue refitting and do not tighten bolt (C) until the two half cowlings are refitted, so that the stalks can be aligned with the dashboard and the instrument panel.

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

## Stalk mounting/Rotary switch under steering wheel

---

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

Use the correct tightening torque (**4.5 daNm**).

**IMPORTANT:** the procedure for checking the correct operation of the system must be performed before the driver's air bag cushion is reconnected:

- check that the air bag warning light on the instrument panel lights up when the ignition is switched on,
- connect a dummy igniter to the driver's air bag connector and check that the warning light goes out,
- switch off the ignition, connect the air bag cushion in place of the dummy igniter and fit the cushion to the steering wheel (tightening torque **0.5 daNm**),
- switch on the ignition, check that the air bag warning light lights up for three seconds when the ignition is switched on and then goes out and remains out.

If the warning light does not operate as described above, refer to the Fault finding section and check the system using the **XR BAG** tool (**Elé. 1288**).

**WARNING:** If these instructions are not followed the system may not operate normally and could even trigger accidentally.

### REMOVAL - REFITTING

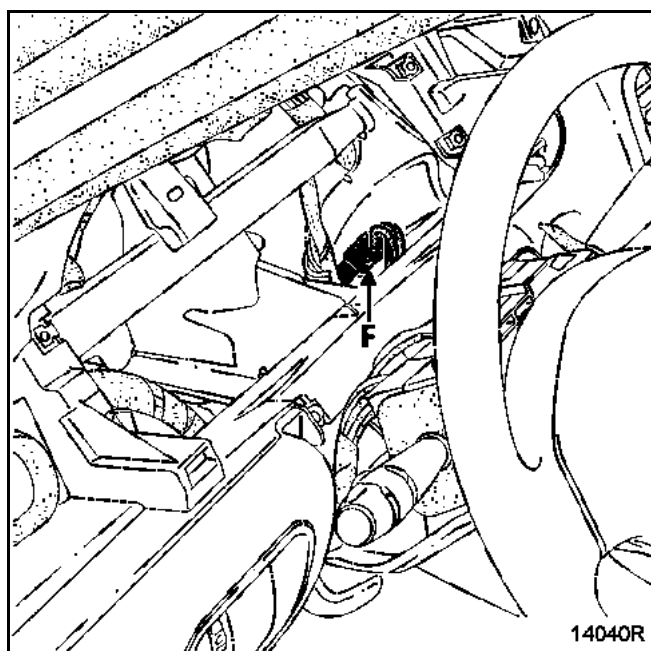
Disconnect the battery.

Straighten the wheels.

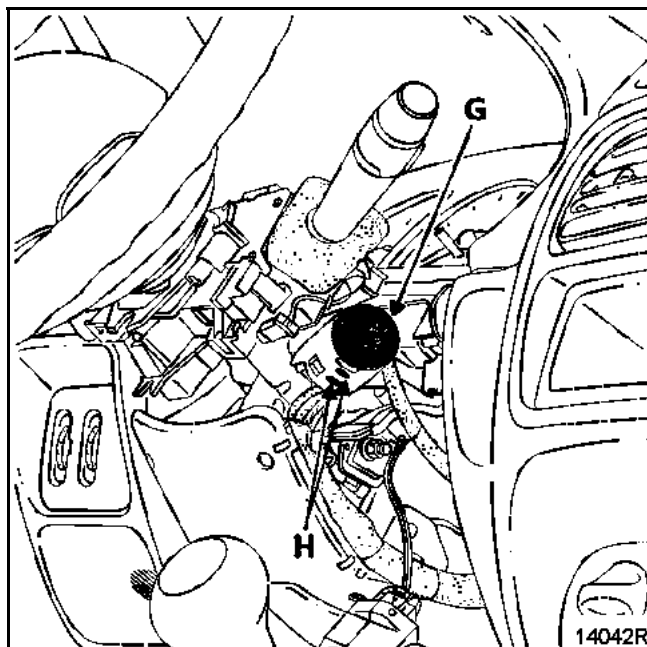
Remove:

- the half cowlings,
- the instrument panel visor,
- the instrument panel,
- the ring aerial (immobiliser) from the ignition/starter switch.

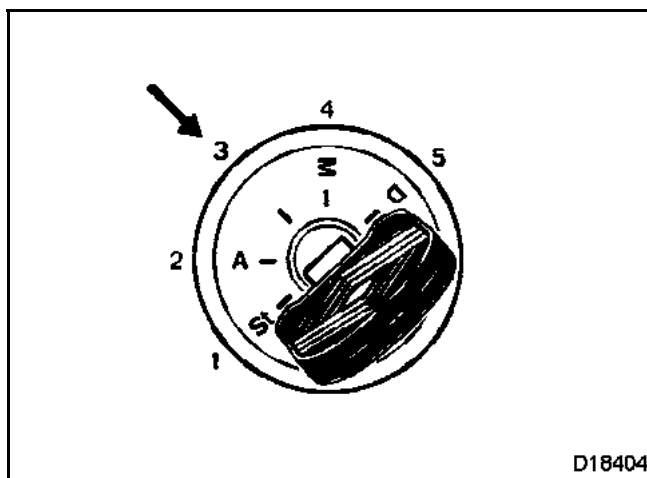
Disconnect the ignition switch connector (F).



Remove bolt (G) from the ignition switch.



Set the ignition key to position 3 and press the retaining lugs (H) while withdrawing the switch.



**SPECIAL TOOLING REQUIRED**

<b>Elé 1294-01</b>	<b>Windscreen wiper arm removing tool</b>
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**REMOVAL OF THE WIPER MECHANISM WITH MOTOR**

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

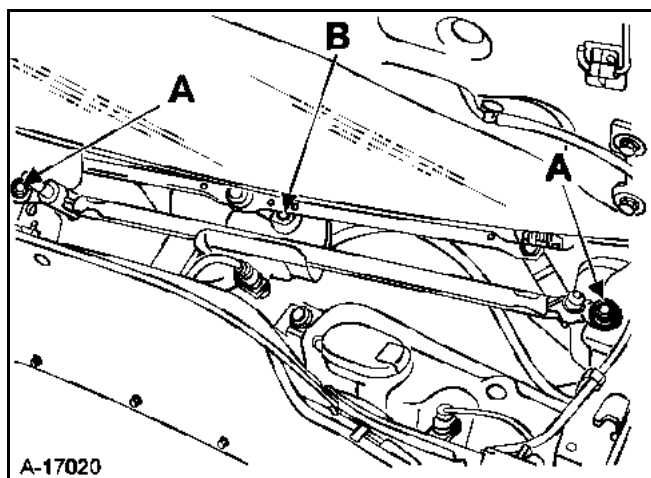
Disconnect the battery.

Mark the park position of the wiper arms.

Open the bonnet.

Remove:

- the wiper arms using 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 screws (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.

**SPECIAL NOTES FOR REFITTING**

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 splines on the wiper arm spindles using a wire brush.

Refit the wiper arms, locating the blades on the marks made at the time of removal.

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

### REMOVING THE MOTOR

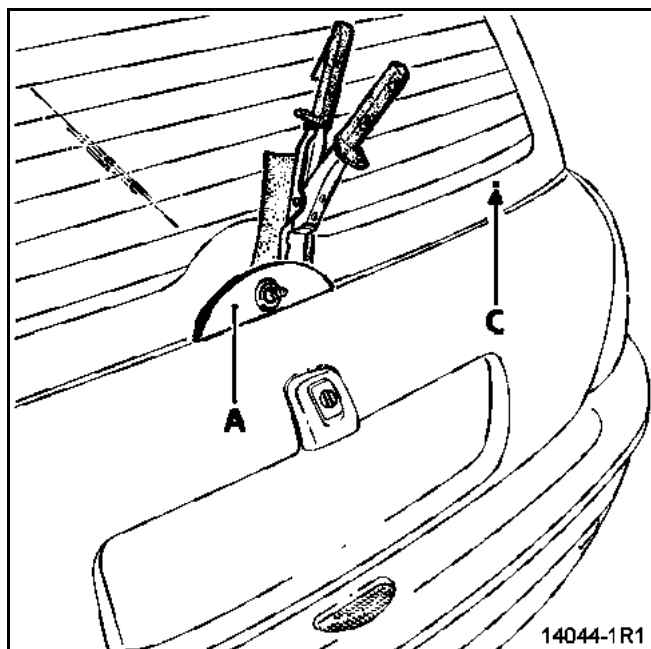
Make sure that the wiper motor is in the park position.

Disconnect the battery.

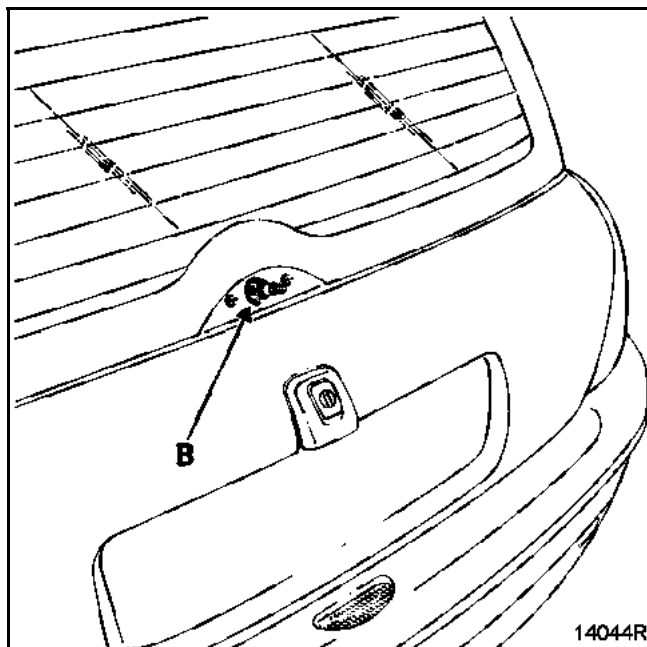
The wiper arm park position is marked by point (C) on the rear screen.

Remove:

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



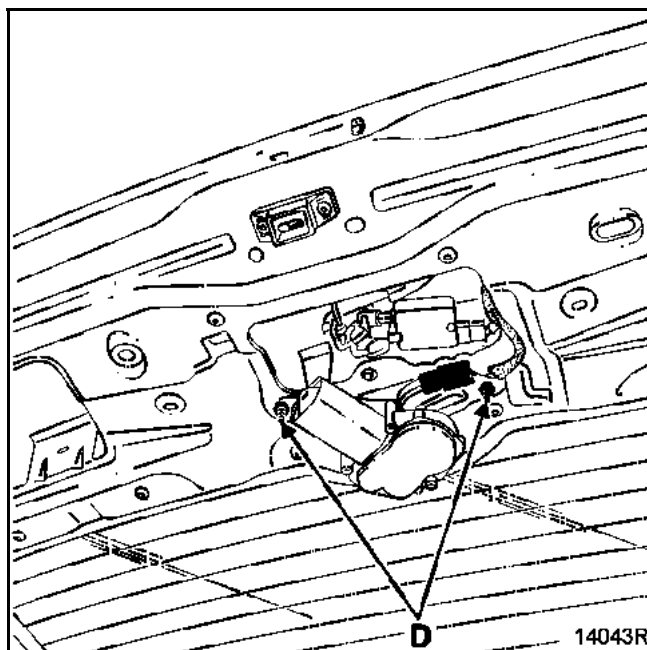
- the motor shaft nut (B),



- the tailgate trim (clips and screws).

Disconnect the wiper motor connector.

Undo the two bolts (D) securing the motor and remove it.





### SPECIAL NOTES FOR REFITTING

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

Clean the splines on the wiper arm spindle using a wire 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.

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).

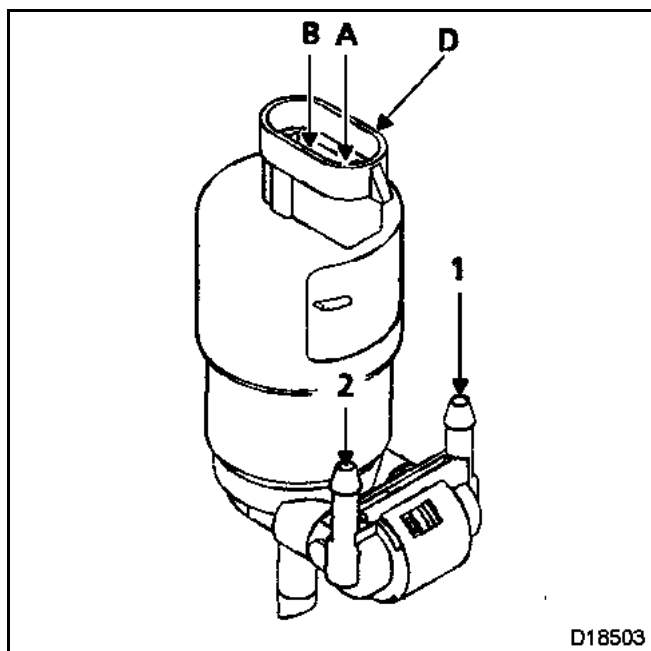
There are two scenarios:

TRACK	Feed
A	+ 12 volts
B	Earth

When the pipes are fed via the black outlet (1), the windscreen washer operates.

TRACK	Feed
A	Earth
B	+ 12 volts

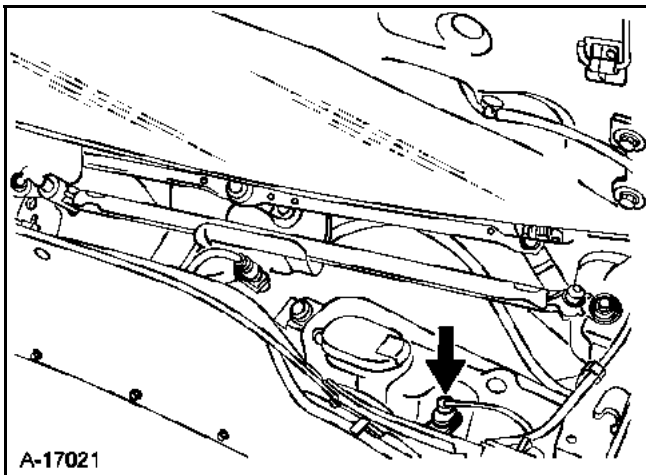
When the pipes are fed via the white outlet (2), the rear screen washer operates.



## REMOVAL - REFITTING

To reach the washer pump it is necessary to remove:

- the wiper arms using special tool **Elé. 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, it is necessary to mark the two pipes before disconnecting them.

## SPECIAL NOTES FOR REFITTING

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

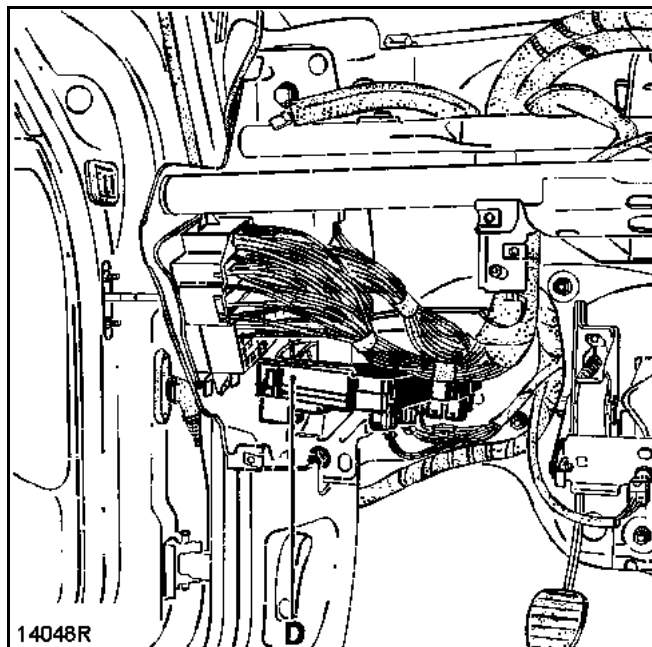
Clean the splines on the wiper arm spindles using a wire brush.

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 (± 15 %)** using a torque wrench.

### GENERAL INFORMATION

This unit is located in the left-hand side of the dashboard (D).



The multi-timer unit contains the electronic system which controls a certain number of items of electrical equipment on the vehicle.

Fault finding may be carried out on this unit with diagnostic tools.

These can be identified either by their part numbers or by their equipment levels read by the diagnostic tool kit.

### Top of the range model with options (level 4)

- direction indicators and hazard warning lights,
- windscreen and rear screen wipers,
- courtesy light (without timer),
- lights on reminder buzzer,
- electric door locking with remote control,
- electric front windows,
- courtesy light timer (one bulb),
- variable windscreen wiper timer,
- one-touch electric front windows,
- door closure warning light
- rear screen wiper in reverse gear,
- running lights (cold climate),
- headlight washers (cold climate),
- overspeed warning (Arabia),
- courtesy light timer (three bulbs),
- door sill light timer (two bulbs).

**Multi-timer unit (BMT)**

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**MULTI-TIMER UNIT REPLACEMENT**

When a multi-timer unit is replaced, it will have to be programmed and configured in accordance with the vehicle's equipment level.

Programming:

- of the remote control.

Configuration:

- of the variable windscreen wiper timer,
- of the overspeed warning (Arabia),
- of the running lights\*,
- of the engine type (petrol or diesel),
- of the infrared or radio-frequency remote control (depending on equipment).

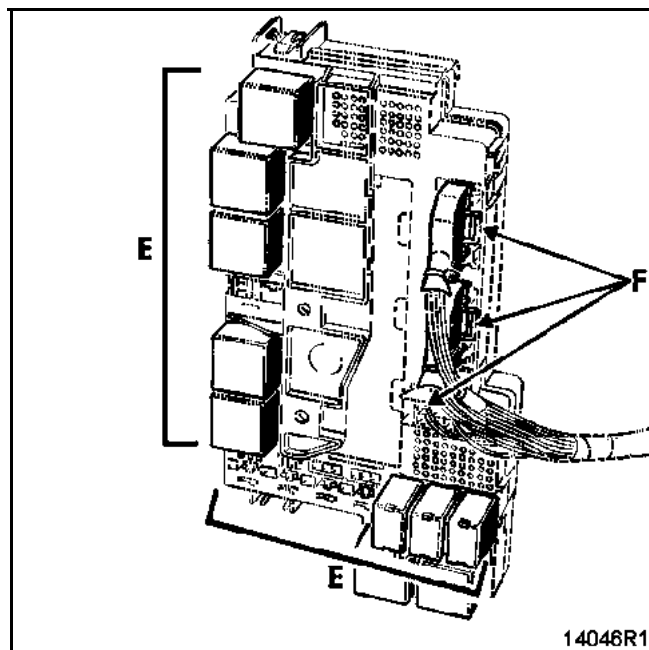
**N.B.:** for remote control programming, see section 88.

It is important to note that failure to program the multi-timer unit in accordance with current legislation in the vehicle's country of origin may lead the owner of the vehicle to take legal action. It is therefore imperative to program the multi-timer unit correctly.

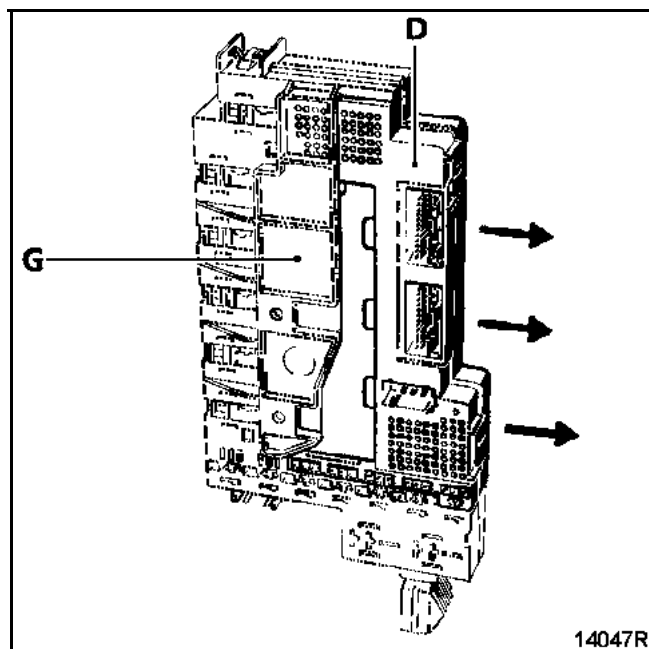
### REMOVAL - REFITTING

From underneath the dashboard on the driver's side:

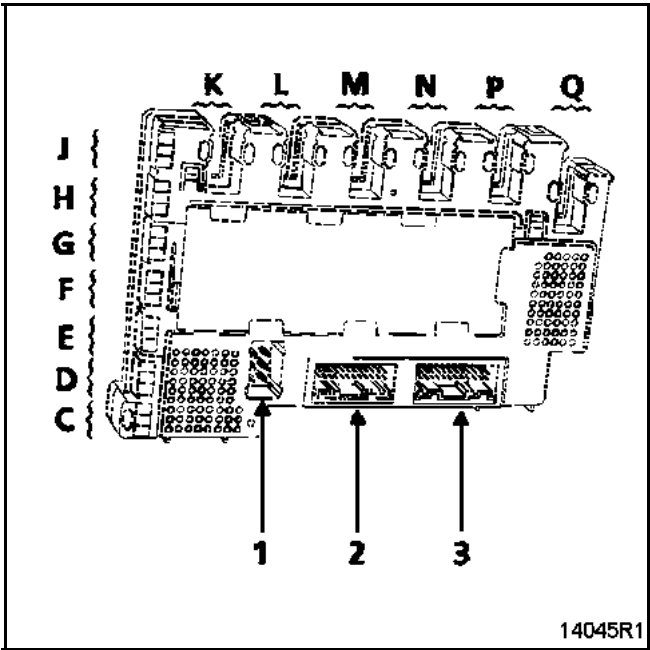
- remove the relays (E), marking their positions,
- disconnect the connectors (F).



- remove the multi-timer unit (D) from its mounting (G) as shown below:



MULTI-TIMER UNIT CONNECTIONS



1 – Black 6 track connector

TRACK	Description
A1	Electronic earth
A2	Not used
A3	Flasher unit feed
B1	+
B2	Not used
B3	One-touch electric windows earth (depending on equipment)

# ELECTRICAL ASSISTANCE EQUIPMENT

## Multi-timer unit (BMT)

**87**

### 2 – Yellow 26 track connector

TRACK	Description
1	Fault finding line L
2	Immobiliser ring aerial code link
3	Windscreen washer switch
4	Rear screen wiper timer control
5	+ accessories
6	+ after ignition feed
7	+ electric door locking switch
8	Not used
9	Not used
10	+ windscreen wipers park position
11	Infrared signal return
12	Not used
13	Front door
14	K diagnostic line
15	Code signal to injection computer
16	Rear screen washer switch
17	Side lights signal
18	Windscreen wiper low speed
19	+ rear screen wiper park position
20	Oil pressure signal
21	Not used
22	+ electric door unlocking switch
23	Hazard warning lights switch
24	Engine immobiliser warning light
25	Not used
26	Front courtesy light switch

### 3 – Blue 26 track connector (depending on equipment)

TRACK	Description
1	One-touch driver's window up switch
2	One-touch driver's window down switch
3	Reversing lights signal
4	Not used
5	Main beam headlights signal (cold climate)
6	Dipped beam headlights signal (cold climate)
7	Headlight washer switch
8	Not used
9	Speed signal
10	Overspeed control signal (Arabia)
11	Not used
12	Not used
13	Not used
14	Door open signal
15	Not used
16	Not used
17	Door sill light switch
18	Not used
19	Not used
20	Not used
21	Not used
22	Not used
23	Not used
24	Not used
25	Not used
26	Not used



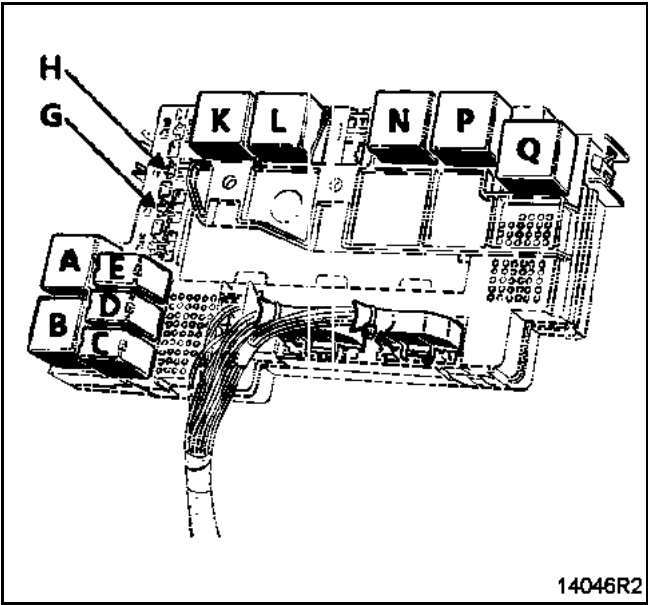
- C - Direction indicators control relay**
- D - One-touch driver's electric window up control relay**
- E - One-touch driver's electric window down control relay**
- F - Not used**
- G - Running lights side lights control relay\***
- H - Running lights dipped headlights control relay\***
- J - Not used**
- K - Windscreen wipers control relay**
- L - Rear screen wiper control relay**
- M - Not used**
- N - Electric door locking control relay**
- P - Electric door unlocking control relay**
- Q - + After ignition electric windows control relay**

\* Side lights and dipped headlights operate when the engine is running (cold climate).

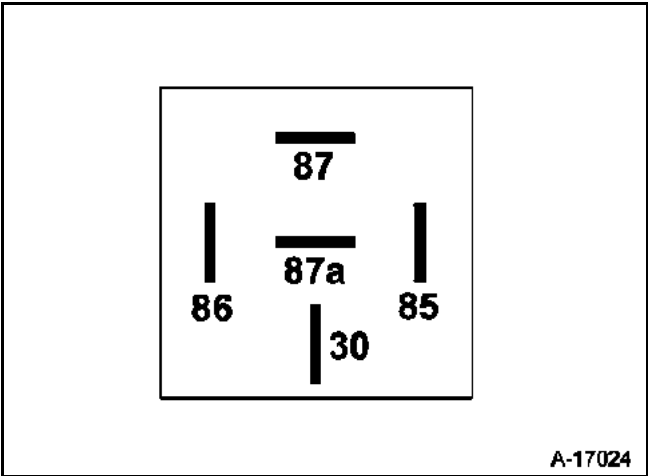
**FAULT FINDING**

If one of the functions controlled by the multi-timer unit breaks down, fault finding can be carried out with the diagnostic tool.

RELAY CONNECTIONS



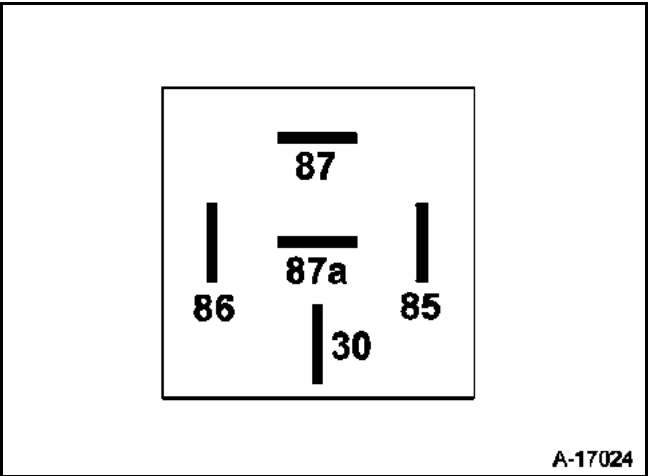
A - Front fog lights relay



TRACK	Description
1 or 86	+ control relay
2 or 85	Earth
3 or 30	+ before ignition
4 or 87a	Not used
5 or 87	Front fog lights

N.B.: the track numbers are as on the relay.

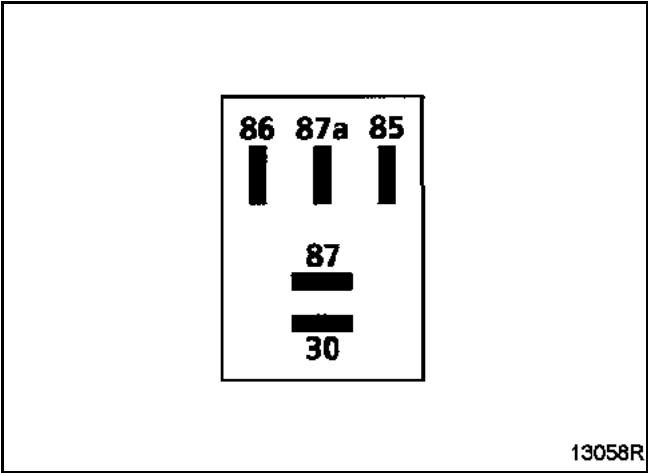
B - Heated rear screen relay



TRACK	Description
1 or 86	+ after ignition feed
2 or 85	- defrosting switch
3 or 30	+ before ignition
4 or 87a	Not used
5 or 87	Rear screen

N.B.: the track numbers are as on the relay.

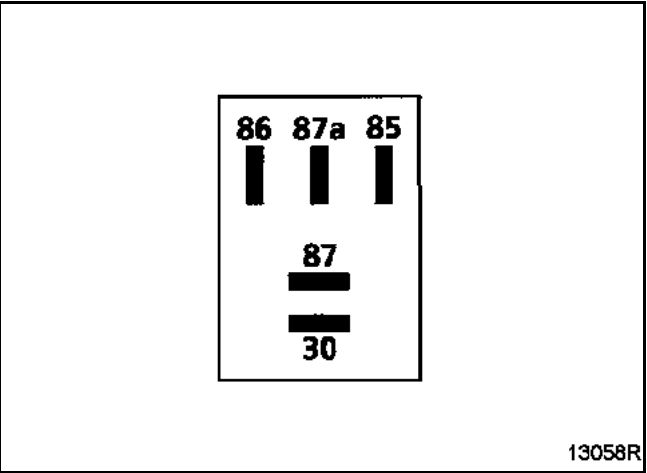
C - Direction indicators relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- control relay
3 or 30	Indicators
4 or 87a	Not used
5 or 87	+ before ignition

N.B.: the track numbers are as on the relay.

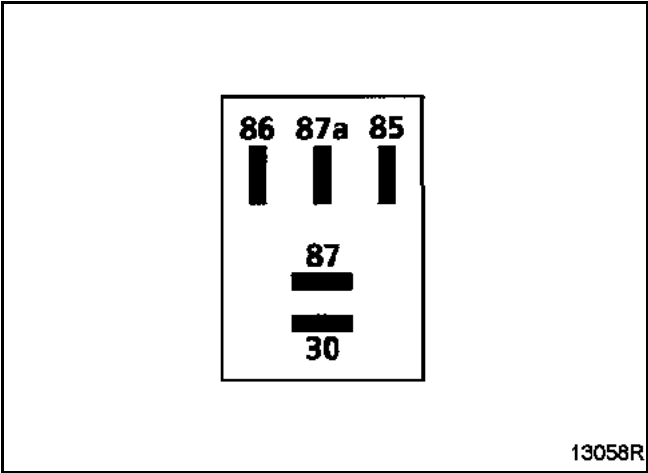
D - One-touch driver's electric window up relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- electric window switch
3 or 30	Driver's electric window motor
4 or 87a	Not used
5 or 87	+ before ignition

N.B.: the track numbers are as on the relay.

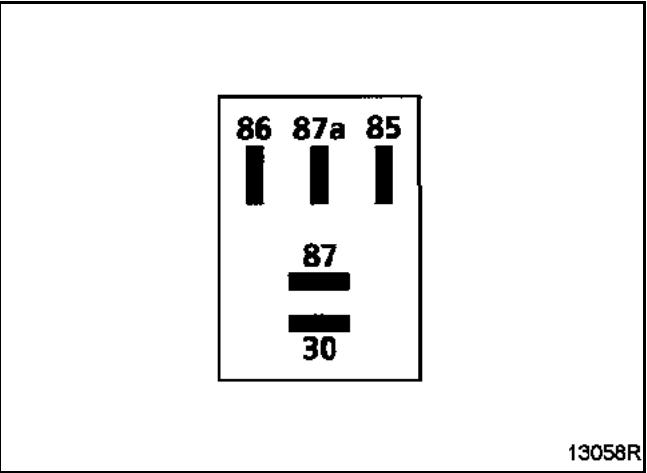
E - One-touch driver's electric window down relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- electric windows switch
3 or 30	Driver's electric window motor
4 or 87a	Not used
5 or 87	+ before ignition

**N.B.:** the track numbers are as on the relay.

G - Running lights side lights relay\*

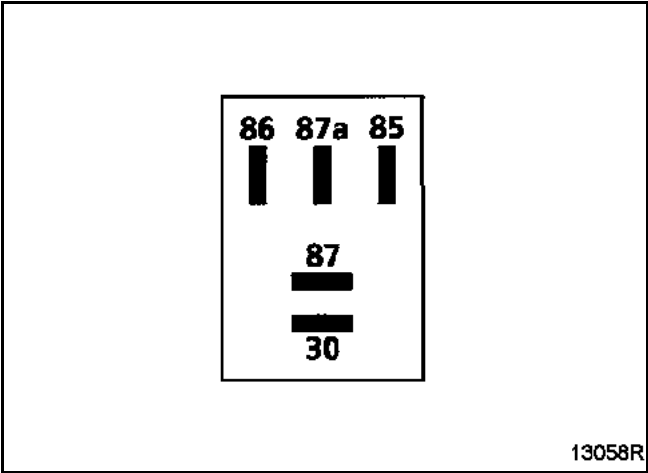


TRACK	Description
1 or 86	+ before ignition
2 or 85	- side lights switch
3 or 30	+ before ignition
4 or 87a	Not used
5 or 87	Side lights

**N.B.:** the track numbers are as on the relay.

\* Side lights and dipped headlights operate when the engine is running (cold climate).

H - Running lights dipped headlights relay\*

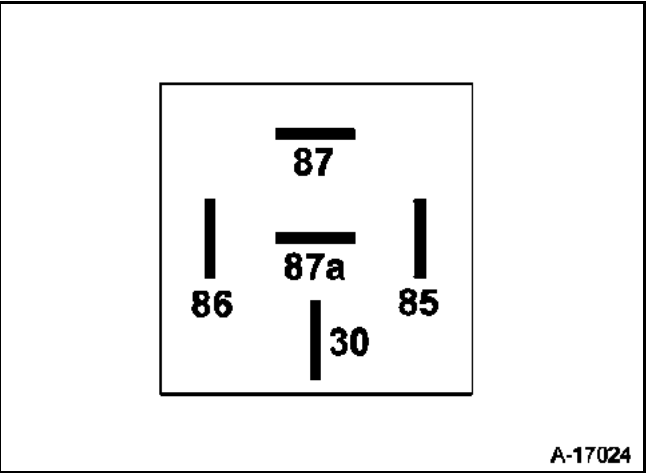


TRACK	Description
1 or 86	+ before ignition
2 or 85	- dipped headlights switch
3 or 30	+ before ignition
4 or 87a	Not used
5 or 87	Dipped headlights

N.B.: the track numbers are as on the relay.

\* Side lights and dipped headlights operate when the engine is running (cold climate).

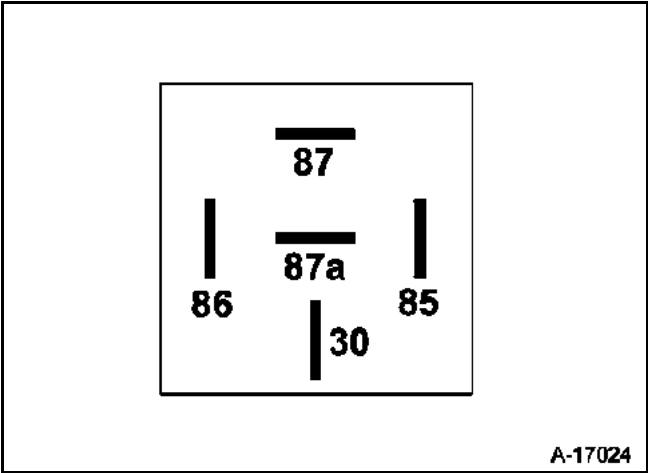
K - Windscreen wipers relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- windscreen wiper switch
3 or 30	+ timer
4 or 87a	Windscreen wipers
5 or 87	+ after ignition feed

N.B.: the track numbers are as on the relay.

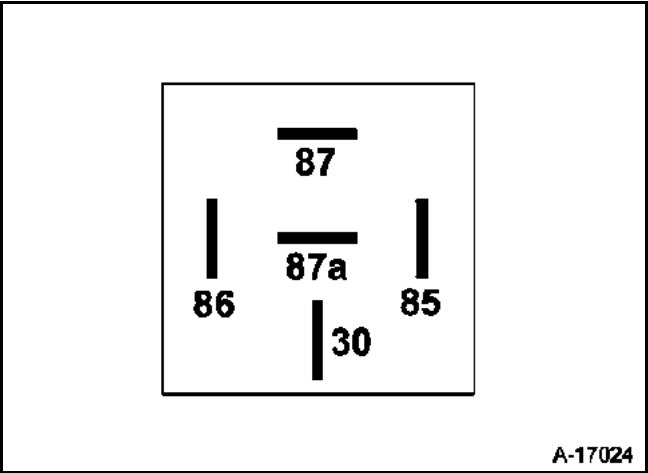
L - Rear screen wiper relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- rear screen wiper switch
3 or 30	Rear screen wiper
4 or 87a	Earth
5 or 87	+ after ignition feed

N.B.: the track numbers are as on the relay.

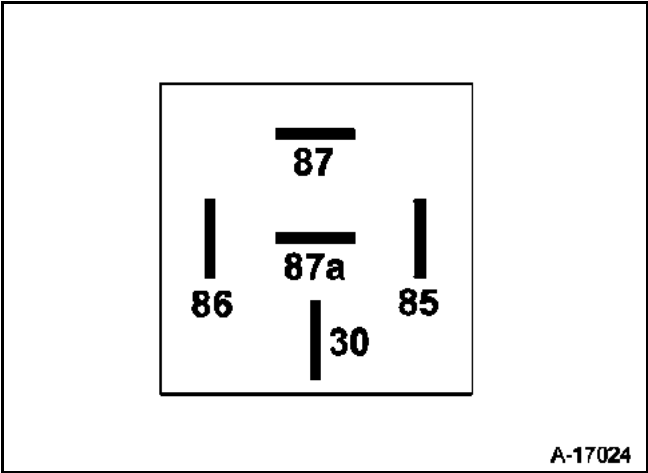
N - Electric door locking relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- door locking switch
3 or 30	Electric door lock motors
4 or 87a	Earth
5 or 87	+ before ignition

N.B.: the track numbers are as on the relay.

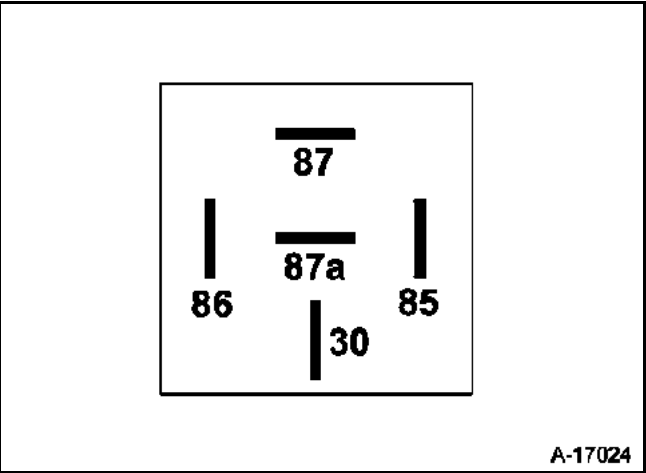
P - Electric door unlocking relay



TRACK	Description
1 or 86	+ before ignition
2 or 85	- door unlocking switch
3 or 30	Electric door lock motors
4 or 87a	Earth
5 or 87	+ before ignition

N.B.: the track numbers are as on the relay.

Q - After ignition relay (electric windows)



TRACK	Description
1 or 86	+ before ignition
2 or 85	- control relay (ignition on)
3 or 30	+ before ignition
4 or 87a	Not used
5 or 87	+ after ignition feed via relay (electric windows feed)

N.B.: the track numbers are as on the relay.

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

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

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

### DETERMINING THE EXACT LOCATION OF THE BREAK USING A VOLTMETER.

Switch on the ignition.

Switch on the heated rear screen feed.

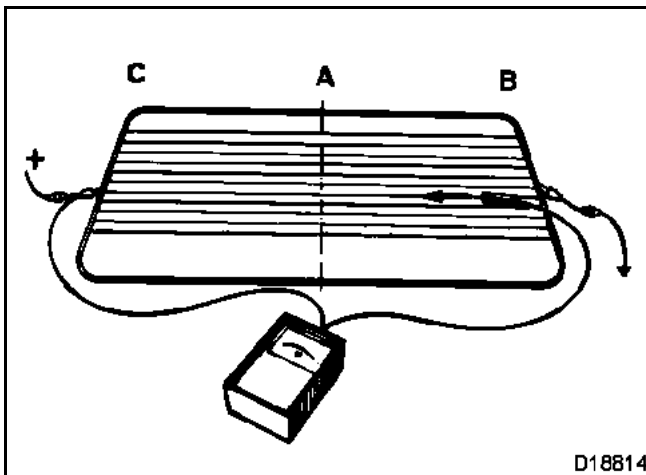
### DETECTION BETWEEN LINES B AND A

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

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

Move the - lead towards line A (arrow); the voltage drops progressively.

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



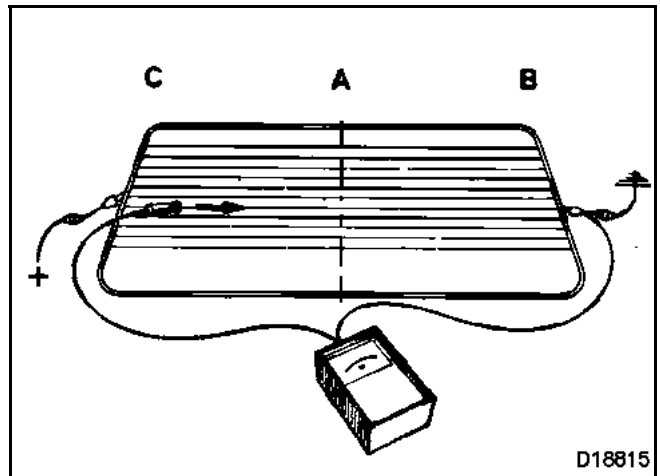
### DETECTION BETWEEN LINES C AND A

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

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

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

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



### REPAIRING THE FILAMENT

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

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

Before using the varnish, shake the bottle to prevent the silver particles settling on the bottom.

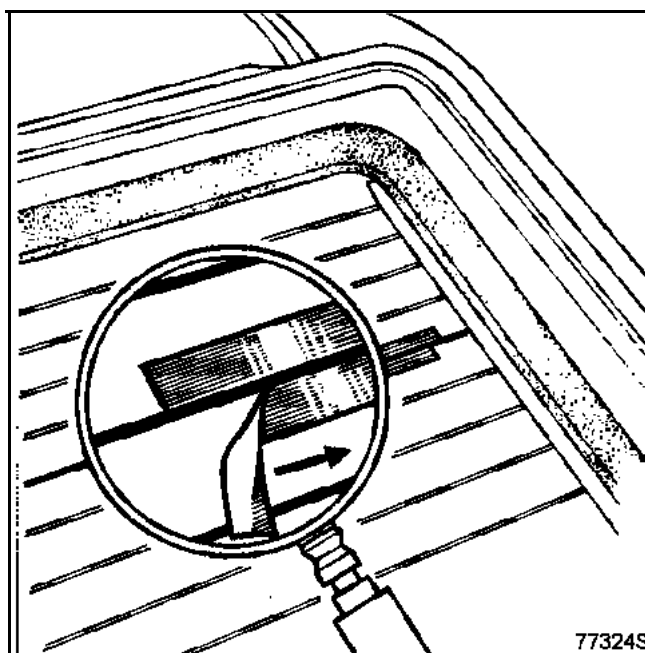


### REPAIR

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

However, if there is a run it will be possible to remove it using the point of a knife or razor blade, but only after several hours when the product has hardened sufficiently.

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



### GENERAL INFORMATION

These vehicles are equipped with a radio-frequency remote control with a random code, making the code impossible to copy.

Therefore, when a transmitter is replaced it will be necessary to resynchronise it so that the transmitters are in phase with the multi-timer unit again.

This remote control is only used for locking and unlocking the opening elements (it has no effect on the immobiliser).

**IMPORTANT:** the system cannot operate with three remote controls (the multi-timer can only manage two random codes).

### TRANSMITTER

#### Replacing or adding a remote control without replacing the multi-timer unit.

Carry out the special resynchronisation procedure using the diagnostic tool.

This procedure readjusts the remote control to the multi-timer (random code) and must only be used if the multi-timer is not replaced.

- 1 **Switch off the ignition and go into "2nd TIR/ TRF key programming" command mode.**

From this moment, the operator has **10 seconds** to carry out the next operation.

**NOTE:** the **10 seconds** are indicated by illumination of the red immobiliser warning light.

- 2 Press the remote control twice (the doors lock and unlock and the red warning light extinguishes):
  - If both remote controls (if fitted) are desynchronised, two resynchronisation procedures will have to be carried out (one for each remote control).
- 3 The procedure is complete – check that the doors lock correctly.

## Remote control for door locking

### Simple resynchronisation procedure

This procedure enables the remote controls to be resynchronised with the multi-timer unit (rolling code).

This procedure is used:

- when the remote control code no longer lies within the reception range of the multi-timer unit (over **1,000** consecutive presses on the remote control, away from the vehicle)
- when replacing only the multi-timer unit (new multi-timer unit),
- when replacing a remote control if the multi-timer unit is new (replacing a set).

**REMINDER:** when replacing or adding a remote control without replacing the multi-timer unit, see **replacing or adding a remote control without replacing the multi-timer unit** (special resynchronisation procedure).

Ignition off:

- 1 Press and hold the central door locking button for a few seconds until the doors lock and unlock. From this moment, the operator has **10 seconds** to carry out the next operation.

**NOTE:** the **10 seconds** are shown by the illumination of the red immobiliser warning light.

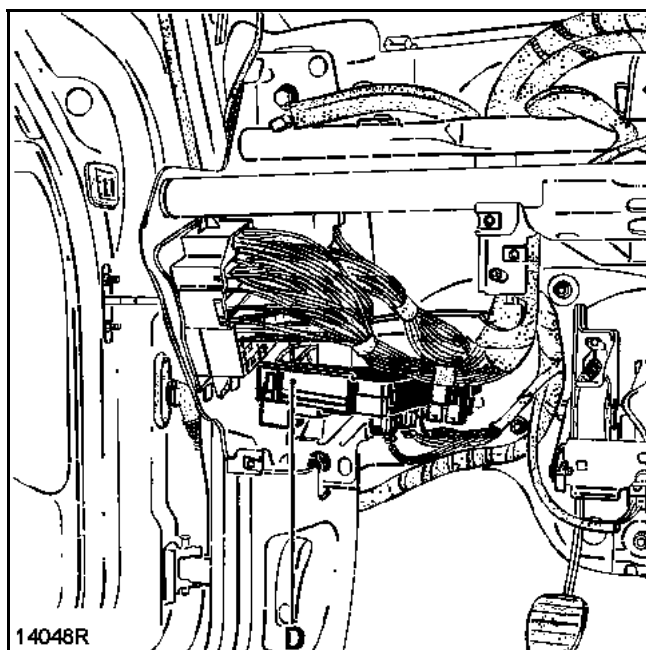
- 2 Press the remote control twice (the doors lock and unlock and the red warning light extinguishes).

**N.B.:** if both remote controls (if fitted) are desynchronised, two resynchronisation procedures will have to be carried out (one for each remote control).

- 3 The procedure is complete - check that the doors lock correctly.

### MULTI-TIMER UNIT

The multi-timer unit (**BMT**) (D) is located in the dashboard on the left side.



This multi-timer unit (**BMT**) incorporates most of the small electronic units including the electric door locks control.

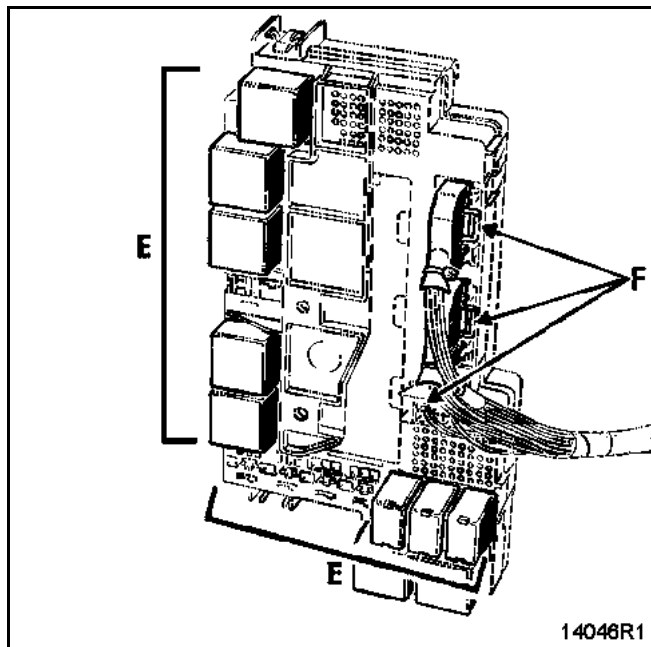
**NOTE:** to find out which other functions are managed by the multi-timer unit (**BMT**), refer to section **87**.

## Remote control for door locking

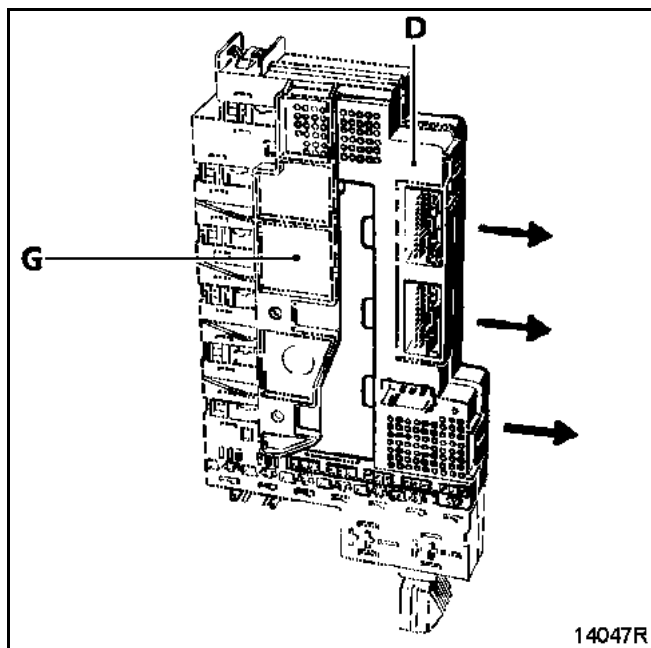
### REMOVAL - REFITTING

From underneath the dashboard on the driver's side:

- remove the relays (E) (depending on equipment), marking their positions,
- disconnect the connectors (F).



- disengage the multi-timer unit (BMT) (D) and its holder (G) as shown below.



### REPLACEMENT

When replacing a multi-timer unit, it is necessary to configure:

- the radio-frequency remote control, using the diagnostic tool,
- the functions which correspond with the vehicle's equipment level or the legislation of the country, using the diagnostic tool. Refer to the required configurations and programming in section 87.

**NOTE:** multi-timer unit fault finding can be carried out with the diagnostic tool.

## Remote control for door locking

### REMOTE CONTROL RECEIVER

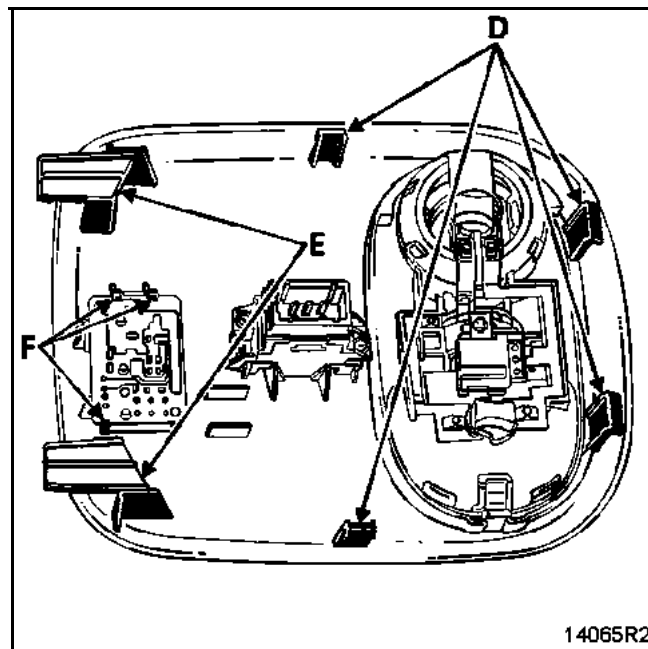
It is located in the courtesy light console.

It receives the code from the remote control and transmits it to the multi-timer unit. Its function is to amplify the signal.

The receiver is replaced independently of the remote control and the multi-timer unit (it is not coded).

### REMOVAL - REFITTING

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



To remove the receiver and its printed circuit, slightly bend the tabs (F).

## Air bags and seat belt pretensioners

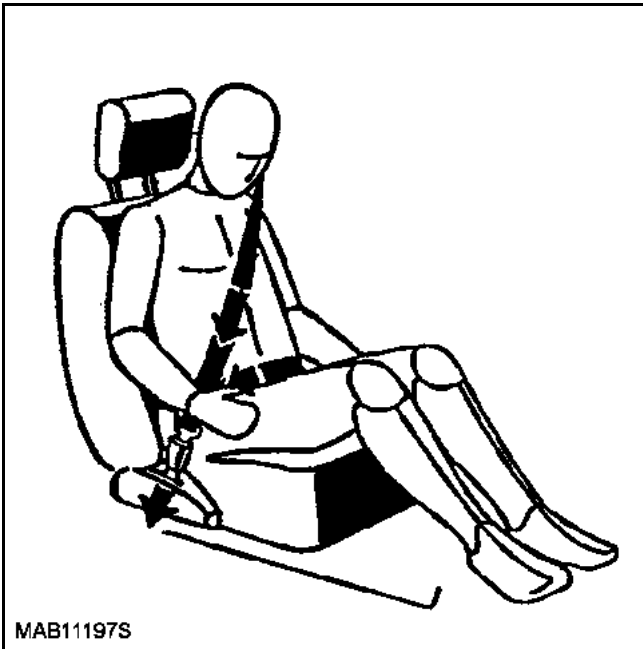
### GENERAL INFORMATION

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

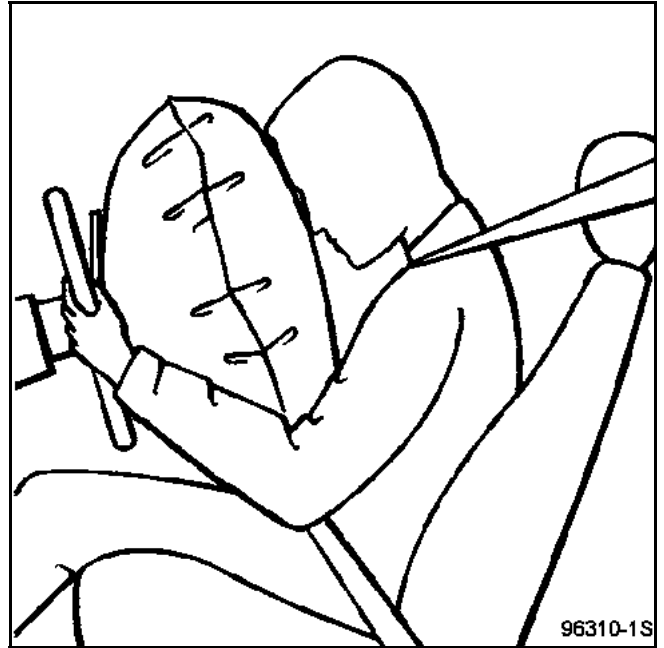
There are three safety systems which supplement the seat belt.

If a frontal impact is sufficiently strong, the electronic unit controlling these systems triggers:

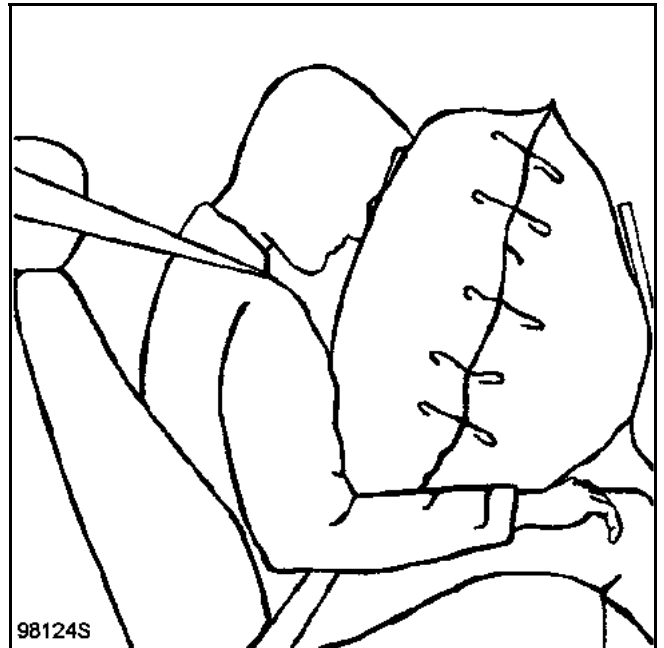
- **the pretensioners** which tighten the front seat belts so that they are pressed firmly against the body.



- **the air bag cushion** which inflates from the centre of the steering wheel to protect the driver's head.



- **the air bag module** which inflates from the dashboard to protect the front passenger's head.



## Air bags and seat belt pretensioners

### FUNCTION AND OPERATION OF AIR BAGS AND PRETENSIONERS

#### 1) Function

In the event of an accident, the air bag prevents the head striking the steering wheel or the dashboard.

It also absorbs the impact of the head and reduces its maximum acceleration.

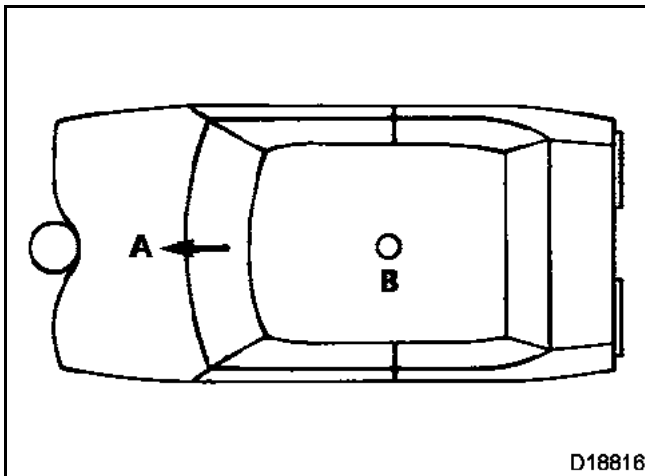
#### 2) Trigger threshold

Generally speaking, there are four different basic situations:

##### 1) FRONTAL IMPACT AGAINST A RIGID OBSTACLE

The trigger speed depends on the area of the obstacle. The smaller the area, the higher the speed.

Pretensioners generally trigger at lower speeds than air bags.

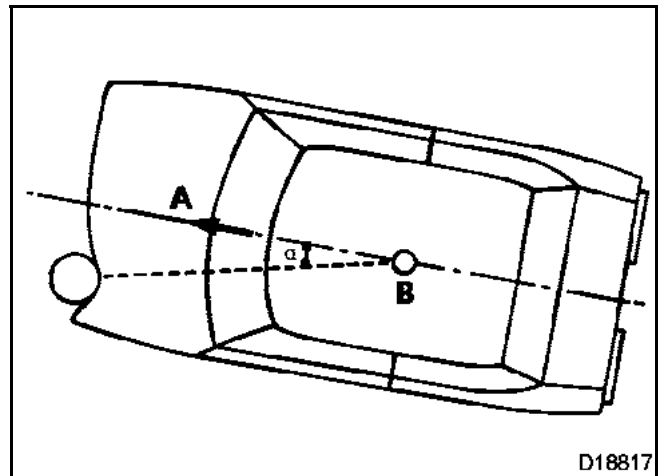


**A** Direction of travel  
**B** Centre of gravity

##### 2) OFFSET IMPACT AGAINST A RIGID OBSTACLE

In this case, the air bag trigger speed depends on the angle of impact  $\alpha$ .

The greater the angle, the higher the vehicle speed for triggering.

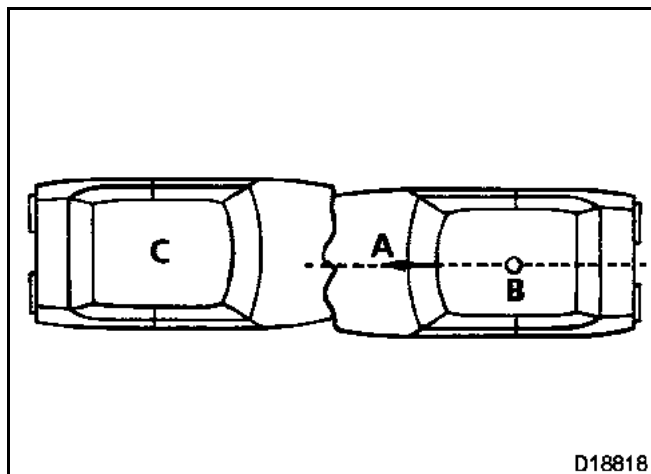


## Air bags and seat belt pretensioners

### 3) FRONTAL IMPACT AGAINST A FLEXIBLE OBSTACLE

The air bag trigger speed depends in this case on the degree of flexibility of the bodywork of the vehicle hit.

The **softer**, the other vehicle, the higher the trigger speed (for vehicles of equal crushability and **100%** contact, the speed is higher than **40 kph**) (closing speed).

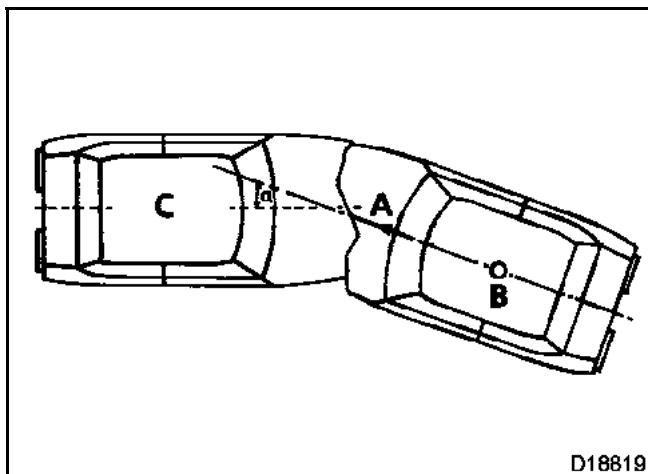


- A** Direction of travel
- B** Centre of gravity
- C** Stationary vehicle

### 4) OFFSET IMPACT AGAINST A FLEXIBLE OBSTACLE

Here the air bag trigger speed depends on the angle of impact ( $\alpha$ ) and the crushability of the vehicle hit, in the direction of travel.

The greater the angle of impact ( $\alpha$ ) and the crushability of the vehicle struck, the greater the vehicle speed required to trigger the air bag.



### 5) SUMMARY AND CONCLUSION

- The air bag only reacts to deceleration in a forward direction. A side impact or the vehicle rolling over cannot trigger the air bag.
- The vehicle's projectile energy is converted to energy of deformation of the front part of the vehicle. The smaller the deformation of the vehicle hit, the greater the deceleration, which means that the air bag will trigger that much earlier.
- The minimum speed at which the air bag is triggered increases with the angle of impact  $\alpha$  (see above).
- If, in a frontal impact, there is no deformation at the front pillars, or engine - gearbox - sub-frame impact, the fact that the air bag was not triggered cannot be considered as a fault since the trigger speed may not have been reached.
- Pretensioners always trigger at a lower speed than air bags.
- Experience shows that impact speeds given by customers are often incorrect, because their reactions are usually affected by the shock they have suffered: there is nearly always confusion between the cruising speed before the impact and the true impact speed, which is, happily, much less in most cases.



## Air bags and seat belt pretensioners

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### Various vehicle configurations are possible:

The vehicles may be equipped with:

- pretensioners and driver's air bag,
- pretensioners and driver and passenger air bags.

### NOTE:

- a vehicle fitted with a driver's air bag will be identified by a label in the bottom corner of the windscreen, on the driver's side, and by the word **Air bag** in the centre of the steering wheel.
- if a passenger air bag is fitted, a second label is placed in the lower corner of the windscreen on the passenger side and the word **Air bag** is marked on the dashboard on the same side.

Remember to fit the labels showing that the vehicle is fitted with air bags every time the windscreen is replaced.

All these labels are available in a kit. Part Number:  
**77 01 205 442.**

## Air bags and seat belt pretensioners

### OPERATION OF PRETENSIONERS AND AIR BAG(S)

When the ignition is switched on, the warning light for these systems illuminates for a few seconds and then extinguishes.

The computer is then on standby and will register the vehicle's deceleration by means of a signal measured by two built-in electronic decelerometers.

When there is a sufficiently severe frontal impact, one of them fires the pyrotechnic generators of both seat belt pretensioners simultaneously.

The gas generated by the system moves a piston in a cylinder which pulls a wire connected to the appropriate seat belt catch and retracts the seat belt (see **Pretensioners** section).

If the frontal impact is greater than this, the second electronic decelerometer triggers the firing of the pyrotechnic gas generators which inflate the driver and passenger air bags (depending on equipment).

These systems are not triggered in the case of:

- side impact,
- rear impact.

When triggered, the pyrotechnic gas generator produces an explosion and light smoke.

**IMPORTANT:** these systems **MUST** be checked with the **XR BAG** tool:

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

### WARNING LIGHT ON THE INSTRUMENT PANEL

This warning light controls the pretensioners and the driver and passenger air bags.

It should illuminate for a few seconds when the ignition is switched on, then extinguish (and remain extinguished).

If it does not illuminate when the ignition is switched on or if it illuminates when the vehicle is in motion, this indicates there is a fault in the system (see **Fault finding** section).

## Air bags and seat belt pretensioners

### COMPUTER

Only one type of computer is fitted to these vehicles.

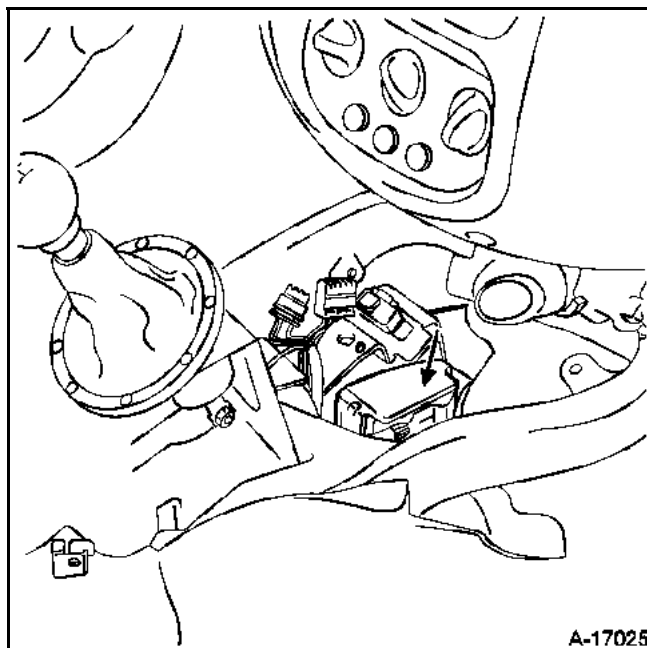
This must be configured in accordance with the equipment in the vehicle (see configuration).

These units consist of:

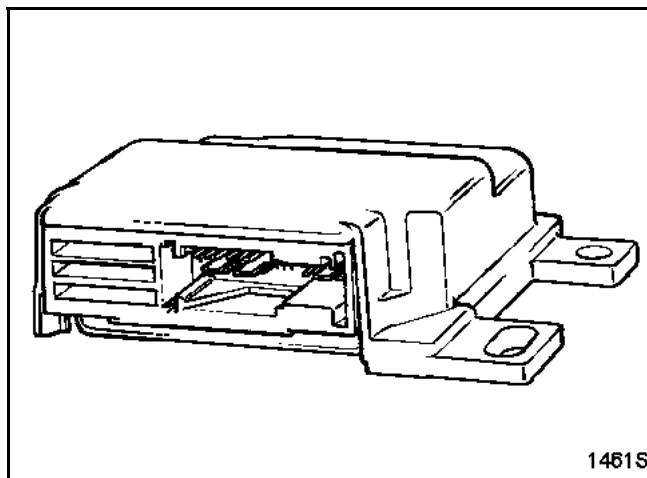
- two electronic decelerometers,
- an ignition circuit for the various pyrotechnic systems,
- a power supply,
- a fault finding and detected fault memory circuit,
- a control circuit for the warning light on the instrument panel,
- a K-L communication interface via the diagnostic socket.

### COMPUTER LOCATION

It is located on the tunnel in the central console.



Computer after removal



## Air bags and seat belt pretensioners

### Special notes about replacement

This type of computer can withstand up to a maximum of three triggerings. Therefore it is not necessary to replace it automatically after every time the air bag(s) or pretensioners have been triggered.

When triggered, the air bag warning light on the instrument panel illuminates and the computer locks automatically.

It is possible to show the triggering with the diagnostic tool.

In that case replace the computer.

When fitting a new computer, it is imperative to carry out the mounting on the vehicle before reconnecting the connector (tightening torque: **0.8 daNm**).

The arrow on the computer must point towards the front of the vehicle.

After connecting the connector, carry out a check with the diagnostic tool and proceed with configuration if there is no passenger air bag.

If everything is correct, unlock the computer using the "Unlock computer" command.

### Configuration

New units are delivered with **passenger air bag** configuration.

If the vehicle has no passenger air bag, it will be necessary to configure the computer accordingly.

If the computer's configuration does not correspond with the vehicle's equipment, the air bag warning light remains illuminated.

**N.B.:** Power supply to the computer and igniters is usually provided by the vehicle battery.

However, a power backup capacitor is included in the computer in case the battery is disconnected at the start of an impact.

#### WARNING

- When working underneath the vehicle (exhaust system, bodywork, etc.), do not use a hammer or transmit impacts to the floor without first having removed the air bag fuse and waited 2 seconds for the computer's backup capacitor to discharge (see fuse allocation).
- An electrical aftermarket accessory (speaker, alarm unit or any device which could generate a magnetic field) must not be installed in the immediate vicinity of the air bag/pretensioner computer.

## Air bags and seat belt pretensioners

## Connection

**NOTE:** a special feature of the **30 track** computer connector is that it short-circuits the various triggering lines with shunts located facing each pretensioner or air bag line, thus preventing the accidental triggering of these systems (e.g. by induction).

**Yellow 30 track connector**

Connection (fullest version)

TRACK	Description
1	+ driver's pretensioner
2	- driver's pretensioner
3	+ passenger's pretensioner
4	- passenger's pretensioner
5	+ after ignition
6	Earth
7	Air bag warning light on instrument panel
8	Not used
9	K diagnostic line
10	+ driver's air bag
11	- driver's air bag
12	Not used
13	+ passenger's air bag
14	- passenger's air bag
15	Not used
16	Shunt
17	Shunt
18	Shunt
19	Shunt
20	Earth
21	Shunt
22	Shunt
23	Diagnostic line L
24	Not used
25	Shunt
26	Shunt
27	Not used
28	Shunt
29	Shunt
30	Not used

## WORKING ON TRIGGERING LINES

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

No conventional repair work on the wiring or connectors of this safety equipment is permitted.

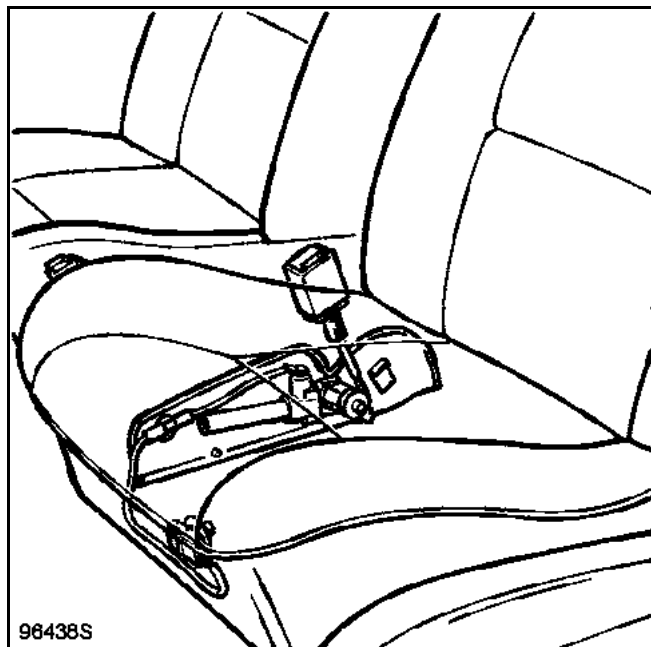
**WARNING:** when fitting new wiring, make sure that it is not chafing and that its original cleanliness is maintained.

## Air bags and seat belt pretensioners

## SEAT BELT PRETENSIONERS

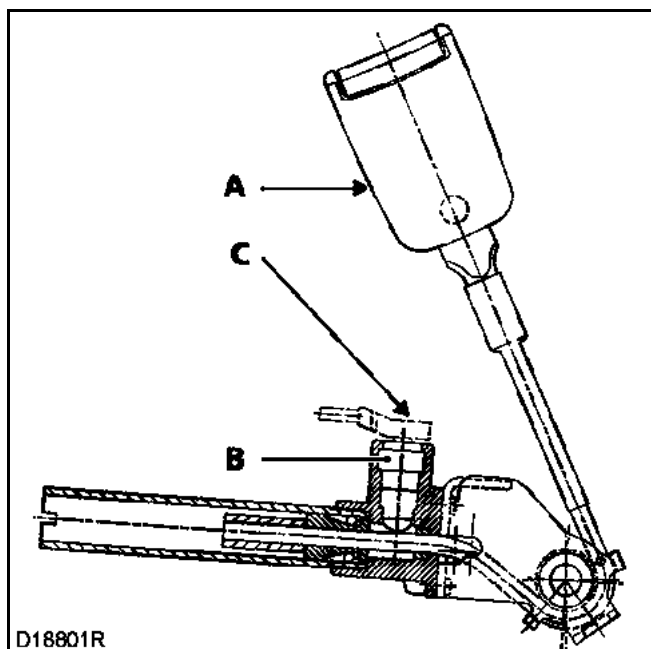
## DESCRIPTION

These are mounted on the side of the front seats.

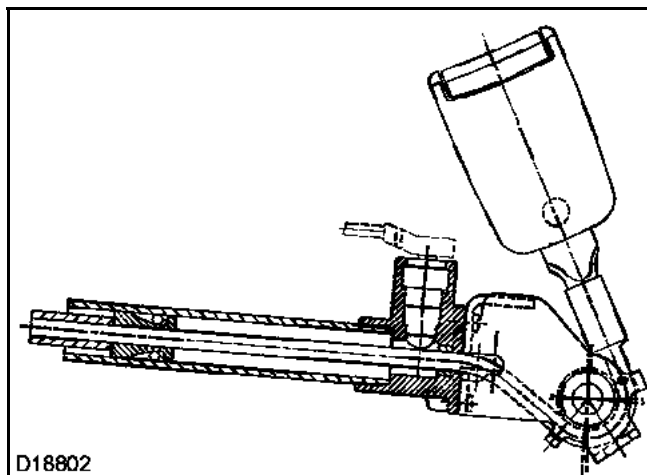


A pretensioner consists of:

- a special seat belt catch (A),
- a pyrotechnic gas generator with its igniter (B).



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



The pretensioner components cannot be separated.

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

## Air bags and seat belt pretensioners

### REMOVAL

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

#### IMPORTANT

Before removing a pretensioner, lock the computer using one of the diagnostic tools.

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

**NOTE:** after a firing, the computer locks itself automatically.

Remove:

- the pretensioner connector located under the front seat,
- the pretensioner assembly, after removing the protective trim.

**IMPORTANT:** refer to the **Destruction procedure** section when scrapping a pretensioner which has not fired.

### REFITTING

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

**N.B.:** on the pretensioner side, push the connector (C) fully into the clips (strong clips).

#### IMPORTANT

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

If everything is correct, unlock the computer.

If not, refer to **Fault finding** section.

**REMINDER:** the computer on this vehicle can withstand up to a maximum of three triggerings. Therefore it is not necessary to replace it automatically every time the air bag(s) or pretensioners have been triggered (see **Computer** section).

### SEAT BELTS

The front seat belt or belts must always be replaced if they were fastened when the pretensioners were triggered (if there is any doubt about whether a belt was being worn it must be replaced).

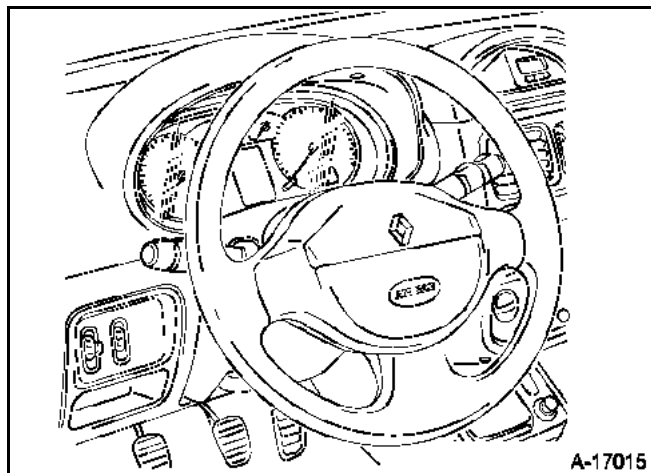
The physical stresses exerted on the catch are transmitted to the inertia reel and may damage its mechanism.

## Air bags and seat belt pretensioners

### DRIVER'S AIR BAG

#### DESCRIPTION

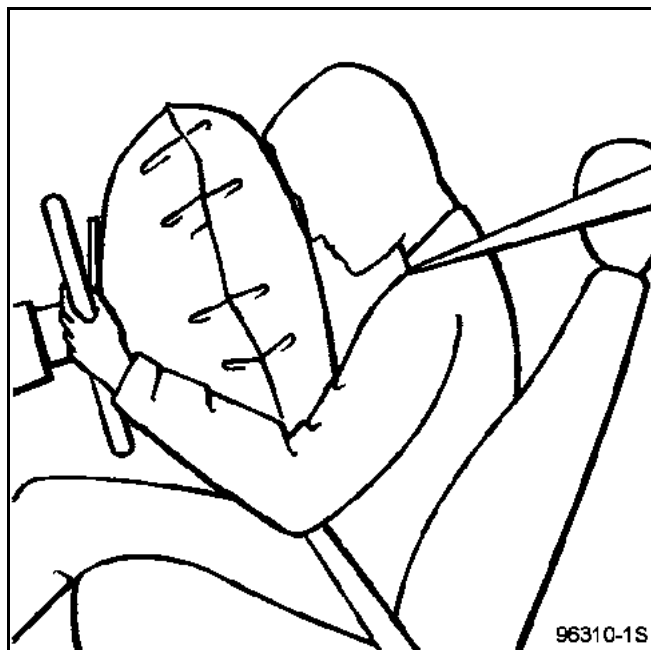
It is located in the steering wheel cushion.



It comprises:

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

These components cannot be separated.



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

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

#### REMINDER:

- A vehicle fitted with a driver's air bag will be identified by a label in the bottom corner of the windscreen, on the driver's side, and by the word **Air bag** in the centre of the steering wheel.
- if a passenger air bag is fitted, a second label is placed in the lower corner of the windscreen on the passenger side and the word **Air bag** is marked on the dashboard on the same side.

Remember to fit the labels showing that the vehicle is fitted with air bag(s) every time the windscreen is replaced.

All these labels are available in a kit. Part Number: **77 01 205 442**.

#### REMOVAL

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

**IMPORTANT:** whenever the steering wheel is removed, the air bag connector (D) **MUST** be disconnected.

The air bag has a connector which short circuits when it is disconnected to prevent accidental triggering.



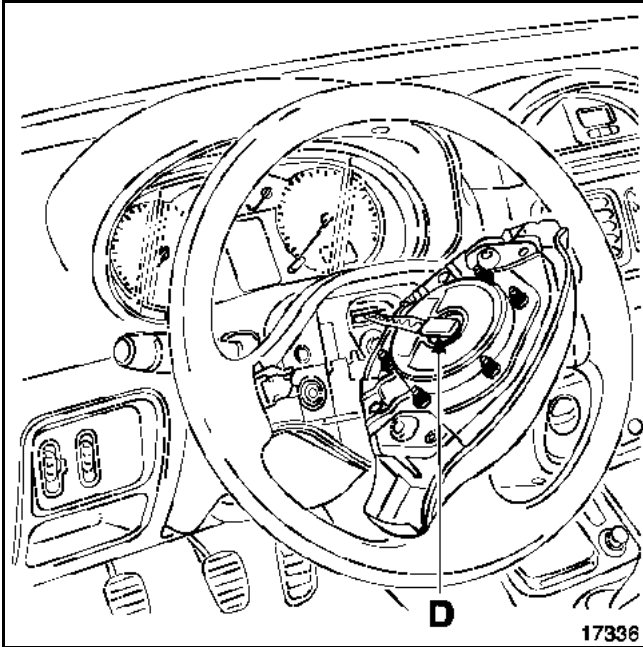
## Air bags and seat belt pretensioners

**IMPORTANT:** before removing an air bag cushion, lock the computer using the diagnostic tool.

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

**NOTE:** after a firing, the computer locks itself automatically.

Remove the air bag cushion by undoing the two Torx bolts located behind the steering wheel and disconnect its connector (D).



**IMPORTANT:** refer to the **Destruction procedure** section when scrapping an air bag cushion which has not been deployed.

### REFITTING

Reconnect the air bag cushion and attach it to the steering wheel (tightening torque: **0.5 daNm**).

**NOTE:** On the cushion side, push the connector (D) fully into the clips (strong clips).

### IMPORTANT

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

If everything is correct, unlock the computer.

If not, refer to **Fault finding** section.

**REMINDER:** the computer on this vehicle can withstand up to a maximum of three triggerings. Therefore it is not necessary to replace it automatically every time the air bag(s) or pretensioners have been triggered (see **Computer** section).

## Air bags and seat belt pretensioners

### ROTARY SWITCH

The rotary switch ensures electrical connection between the steering column and the steering wheel.

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

### REMOVAL

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

**IMPORTANT:** whenever the steering wheel is removed, the air bag connector (D) **MUST** be disconnected.

The air bag has a connector which short circuits when it is disconnected to prevent accidental triggering.

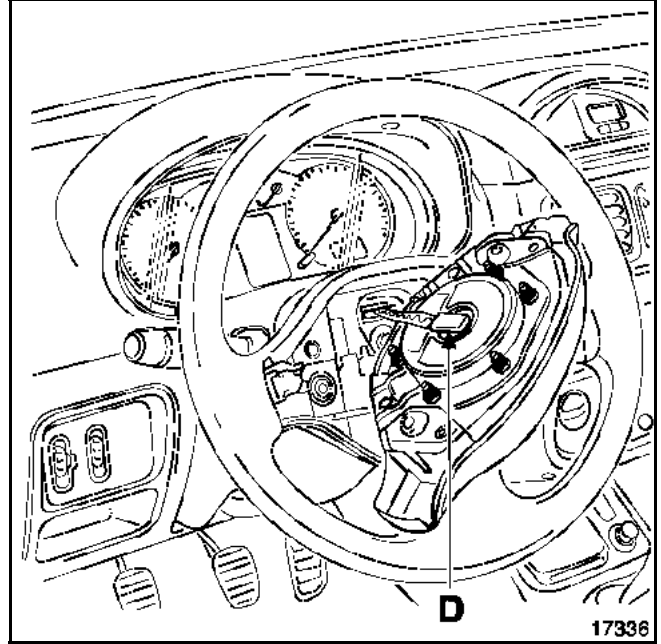
**IMPORTANT:** before removing an air bag cushion, lock the computer using the diagnostic tool command.

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

**NOTE:** after a firing, the computer locks itself automatically.

Remove:

- the air bag cushion by undoing the two Torx bolts located behind the steering wheel and disconnect its connector (D).



- the steering wheel bolt,
- the steering wheel after setting the wheels straight,
- the two halves of the cowling (three bolts).

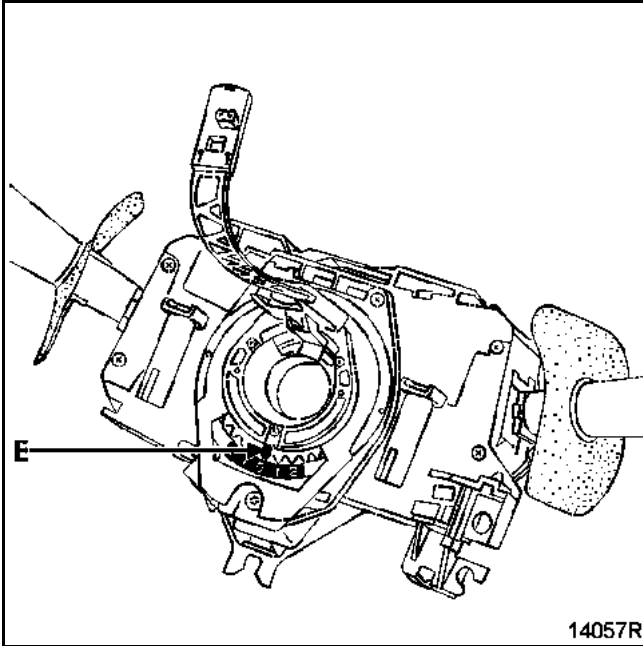
Disconnect the stalk switches (wipers and lights) and the rotary switch connector.

## Air bags and seat belt pretensioners

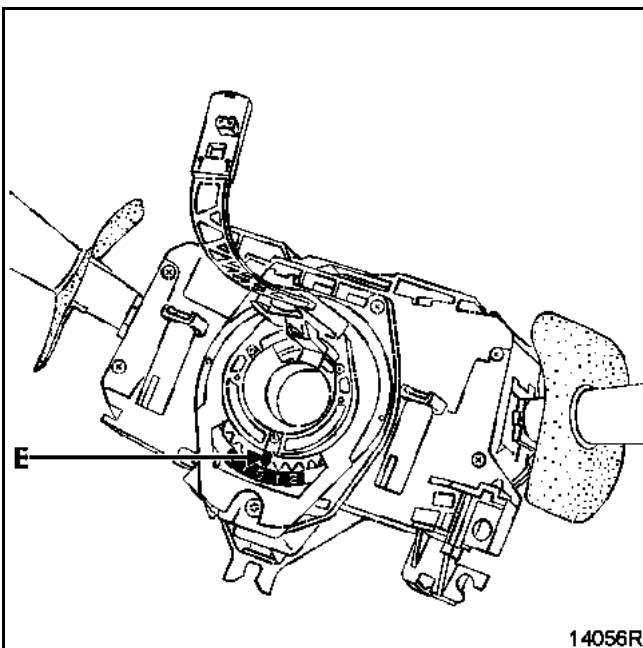
Before removing the assembly, it is imperative to mark the position of the rotary switch:

- by ensuring that the wheels are straight during removal in order to position the track at the centre,
- by checking that the "0" mark of the rotary switch is correctly positioned opposite the fixed index mark (E).

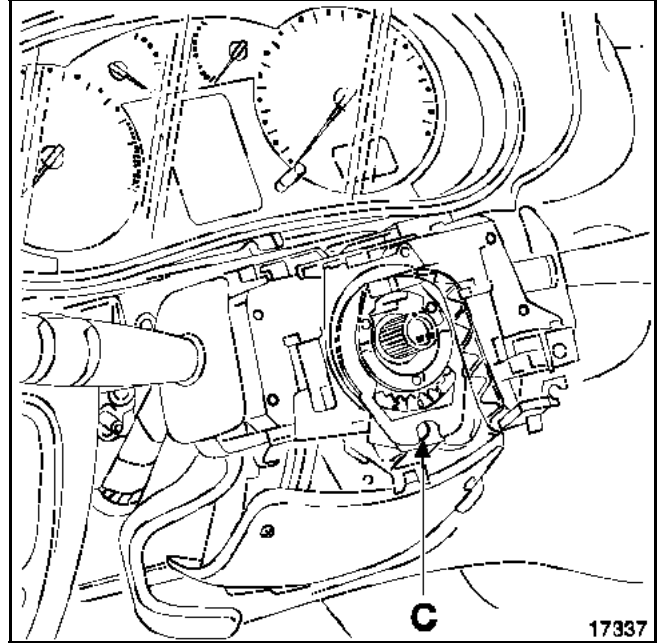
### VALEO ASSEMBLY



### LUCAS ASSEMBLY



Loosen screw (F), then tap sharply on the screwdriver to release the cone and disengage the assembly from the steering column.



### REFITTING

Ensure that the wheels are still straight.

Check that the rotary switch is correctly positioned by making sure that the rotary switch "0" mark is correctly located facing the fixed index mark (E).

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

Fit the whole assembly on the steering column and connect the various connectors.

Continue refitting and do not tighten bolt (F) until the two half cowlings are refitted, so that the stalks can be aligned with the dashboard and the instrument panel.

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

## Air bags and seat belt pretensioners

Change the steering wheel bolt after each removal (pre-bonded bolt) and use the correct tightening torque (**4.5 daNm**).

Reconnect the air bag cushion and attach it to the steering wheel (tightening torque: **0.5 daNm**).

**NOTE:** On the cushion side, push the connector (D) fully into the clips (strong clip).

### WARNING

- In order to avoid destroying the rotary switch it is important to keep the steering wheel in its set position for the duration of the operation.
- If there is any doubt about whether it is correctly centred, the steering wheel must be removed to check.
- In the case of an operation to remove the steering, the engine or transmission components which requires the steering rack and the steering column to be disconnected, the steering wheel **MUST** be immobilised using a **steering wheel locking tool**.

### IMPORTANT

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

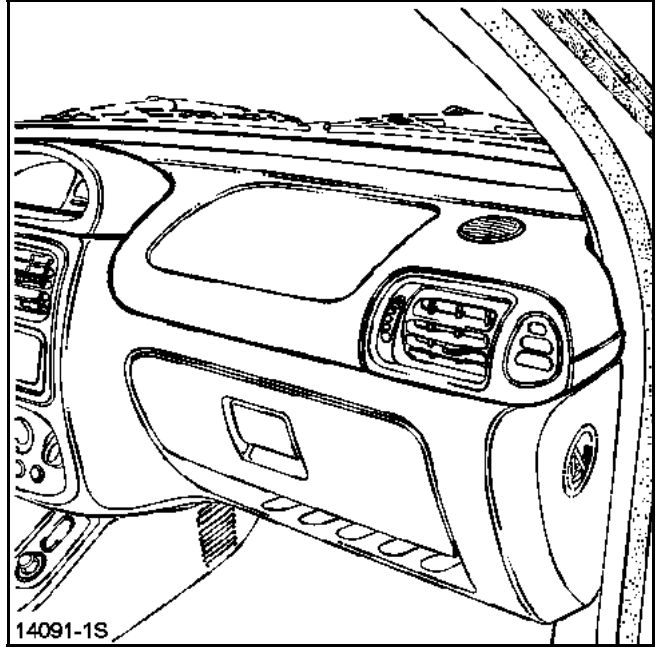
If everything is correct, unlock the computer.

If not, refer to the **Fault finding** document.

### PASSENGER AIR BAG MODULE

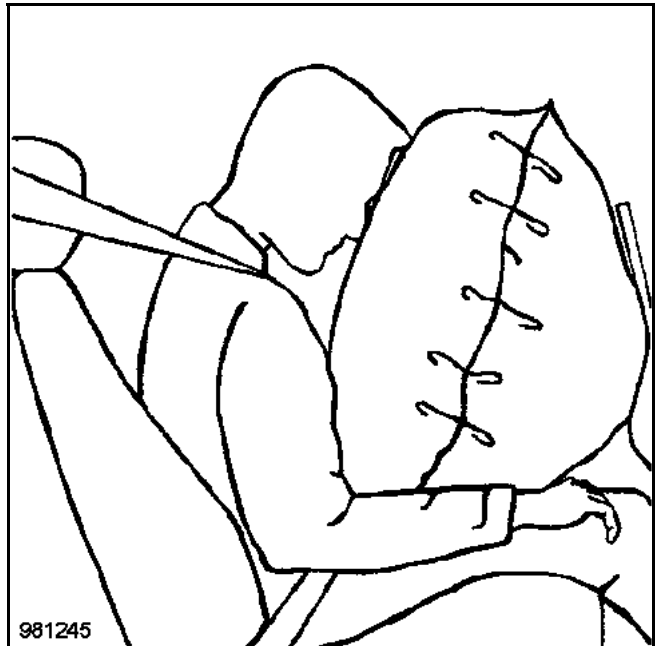
#### DESCRIPTION

It is mounted in the dashboard opposite the front passenger.



It consists of:

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



The components of the air bag module cannot be separated.

## Air bags and seat belt pretensioners

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

### REMINDER:

- A vehicle fitted with a driver's air bag will be identified by a label in the bottom corner of the windscreen on the driver's side, and by the word "Air bag" in the centre of the steering wheel.
- If a passenger air bag is fitted, a second label is located in the lower corner of the windscreen on the passenger side and the word "Air bag" is located on the dashboard on the same side.

Remember to fit the labels showing that the vehicle is fitted with air bags every time the windscreen is replaced.

All these labels are available in a kit. Part Number: **77 01 205 442**.

### Igniter accessibility

To gain access to the passenger air bag module igniter, it is necessary

**REMINDER:** the igniter in the module **MUST** be checked using the **XR BAG** tool as shown in the **Fault finding** document.

### REMOVAL

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

#### IMPORTANT:

Before removing the passenger air bag module, lock the computer using the diagnostic tool.

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

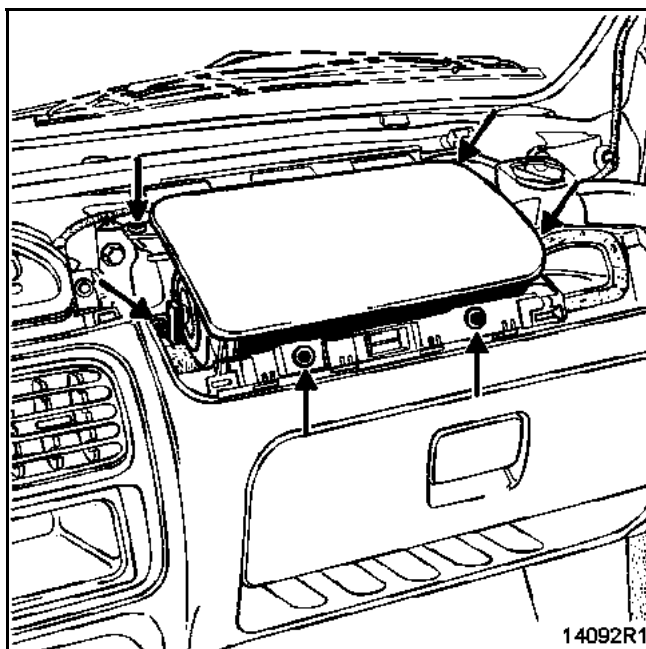
**NOTE:** after a firing, the computer locks itself automatically.

To remove the passenger air bag module, it is necessary to remove the top part of the dashboard.

Remove:

- the windscreen pillar trims,
- the half cowlings under the steering wheel,
- the screws securing the top part of the dashboard and move it out of the way (for more details, refer to section **83**),
- disconnect the igniter.

The passenger air bag module is held in place by six bolts.



**IMPORTANT:** when the passenger air bag is deployed, the resulting deformation of the mountings (hairline cracks) always requires the replacement of the metal dashboard beam.

**IMPORTANT:** refer to the **Destruction procedure** section when scrapping an air bag cushion which has not been deployed.

## Air bags and seat belt pretensioners

### REFITTING

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

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

To refit, proceed in the reverse order of removal.

#### IMPORTANT

- Check for foreign bodies (bolts, clips, etc.) when fitting the air bag module.
  - Reconnect the passenger air bag module and fix (tightening torque: **0.6 daNm**).
  - On the module side, push the connector fully into the clips (strong clips).
  - Stick a blue "After-Sales system tamper evident" adhesive label, sold as Part Number: **77 01 205 356**, across the air bag module connector.
  - After refitting everything, carry out a check using the diagnostic tool.
  - If everything is correct, unlock the computer.
- If not, refer to the **Fault finding** document.

**REMINDER:** the computer on this vehicle can withstand up to a maximum of three triggerings. Therefore it is not necessary to replace it automatically every time the air bag(s) or pretensioners have been triggered (see **Computer** section).

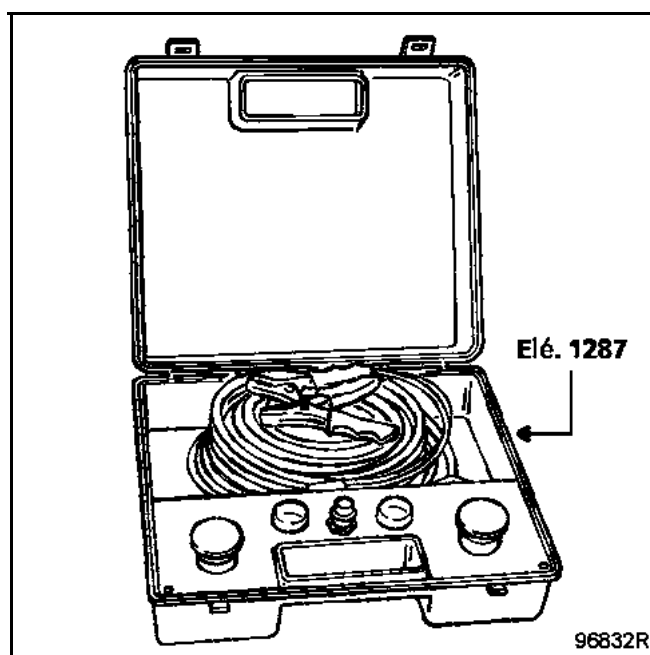
## Air bags and seat belt pretensioners

### DESTRUCTION PROCEDURE

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

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

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



**IMPORTANT:** Do not reuse pyrotechnic components as replacement parts. Pretensioners and air bags from a vehicle which are to be scrapped must always be completely destroyed.

## Air bags and seat belt pretensioners

### 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

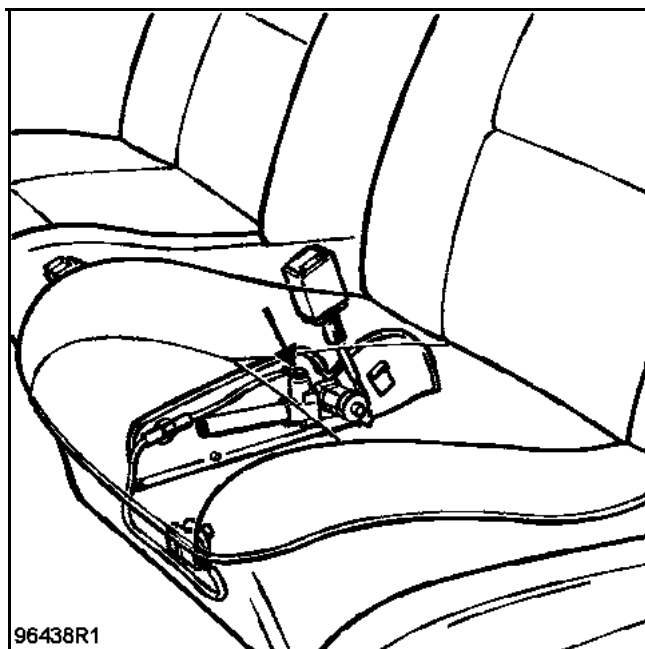
Move the vehicle out of the workshop.

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

Unwind the tool leads to their full length so as to be far enough away from the vehicle when detonating (approx. **10 metres**).

Connect the two feed 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 simultaneously.



**N.B.:** If detonation is impossible (faulty igniter), return the part in the packaging of the new part to ITG (Service 0429).



## **Air bags and seat belt pretensioners**

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### **Destruction of the part removed from the vehicle**

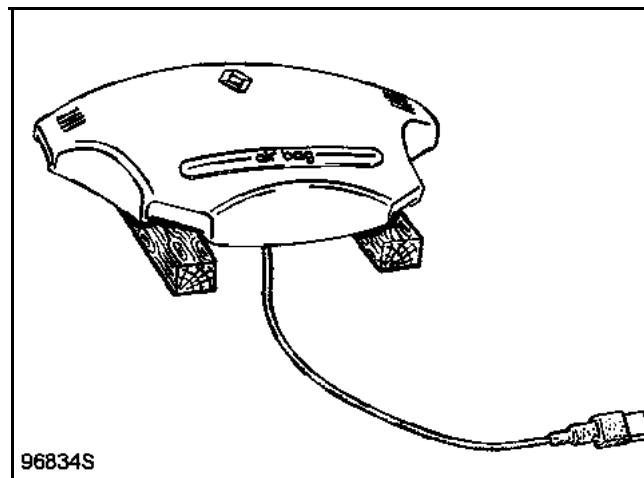
Proceed in the same way as for the driver's air bag in a stack of old tyres (see below).

### **DRIVER'S AIR BAG**

#### **Destruction of the part removed from the vehicle**

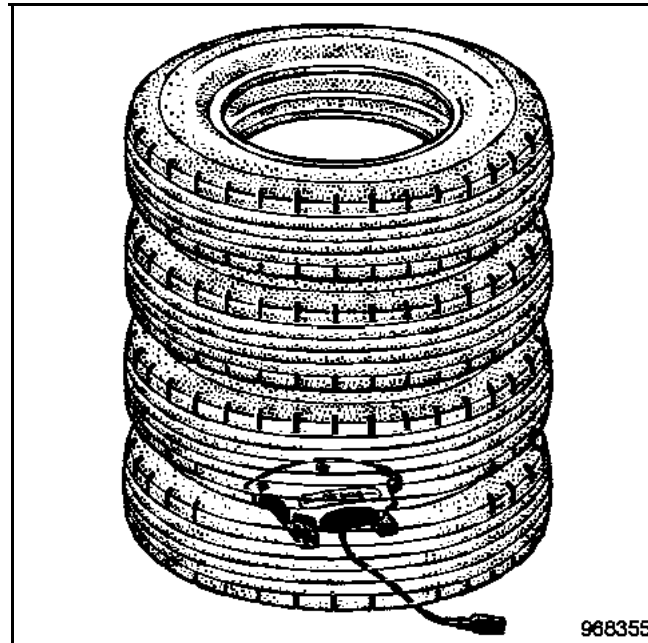
Carry out the operation outside the workshop.

After connecting the appropriate wiring, set the air bag cushion on two blocks of wood to avoid damaging the connector against the ground.



## Air bags and seat belt pretensioners

Cover the assembly with a stack of four old tyres.



Unwind the tool wiring to its full length so as to be far enough away from the unit when detonating (approx. **10 metres**) and connect it to the air bag cushion.

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

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

**N.B.:** If detonation is impossible (faulty igniter), return the part in the packaging of the new part to ITG (Service 0429). In the UK, return it to COMEX, Swindon.

### PASSENGER AIR BAG MODULE

#### Destruction of the part removed from the vehicle

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