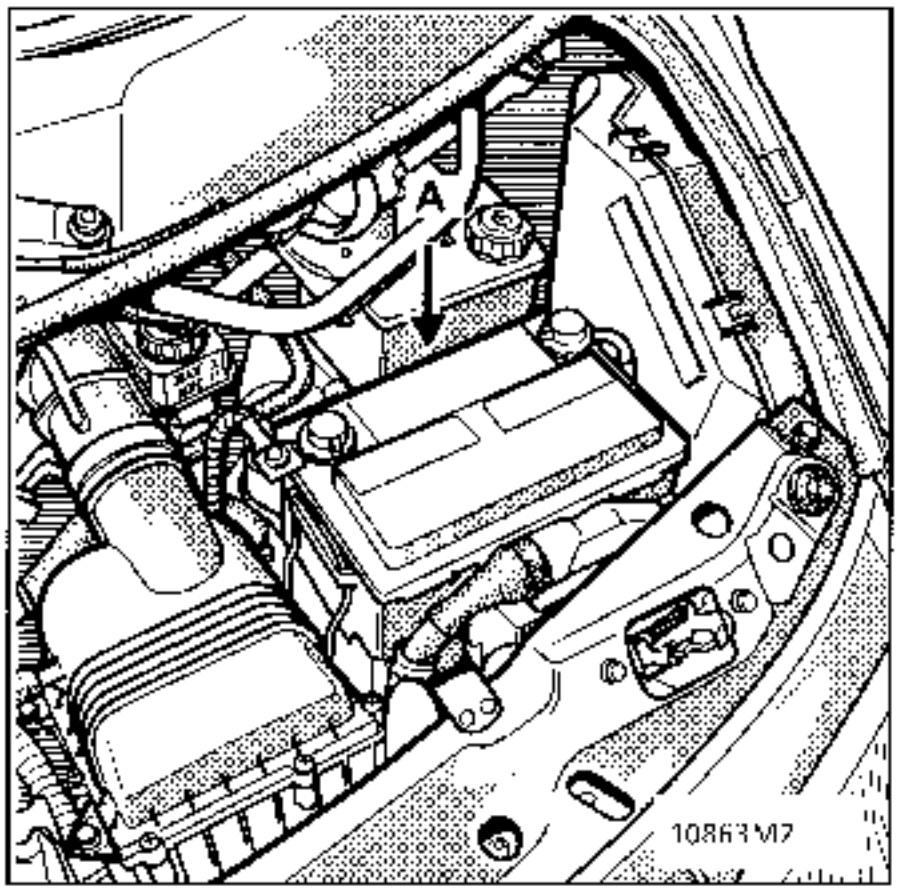
REMOVAL



Disconnect the battery
Remove the battery mounting (A)

A - CHECKING

Check and ensure that:

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

It is vital :

- to ensure that there is no sulphation on the terminals,
- to clean and grease the terminals if necessary,
- to check that the nuts are correctly tightened on the terminals. Incorrect contact could cause starting faults or charging faults which could cause sparks, making the battery liable to explode,
- to check the electrolyte level.

Batteries with removable plugs:

- remove the cover by hand or by using a tool (stiff spatula),
- check that the electrolyte level in all the cells is well above the level of the separators,
- if necessary, use demineralised water to top up the level.

Note: certain types of battery have translucent bodies which allow the level of the electrolyte to be seen.

Never add electrolyte or other products to the battery.

B- PRECAUTIONS

It should be remembered that a battery:

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

1) DANGER – ACID

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

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

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

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

SPECIAL NOTES ON REFITTING

Grease the terminals before fitting the clips.
Battery mounting (A): 1 daN.m

2) DANGER = RISK OF EXPLOSION

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

The oxygen and the hydrogen join together in the open air, on the surface of the plates and form a highly explosive mixture.

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 the acid is dispersed into the surrounding atmosphere. People nearby are at risk (shattered casing parts, acid splashes). The acid splashes are harmful to the eyes, face and hands. They also attack clothing.

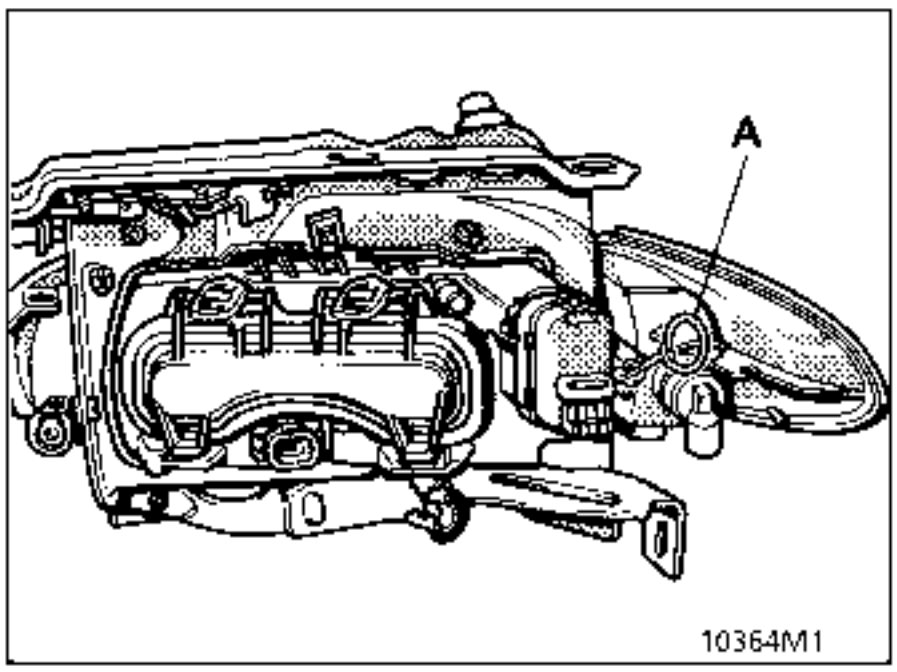
Safeguarding against the danger of explosion, which can be caused by a poorly handled battery, must be taken very seriously. Avoid all risks of sparks.

- Check that the "consumers" are switched off, before disconnecting or reconnecting a battery.
- When a battery is being charged in a room, switch off the charger before connecting or disconnecting the battery.
- Do not put any metallic items onto the battery so as not to cause a short circuit across the terminals.
- Never place a naked flame, a welding torch, hot air gun, a cigarette or a lighted match near to a battery.

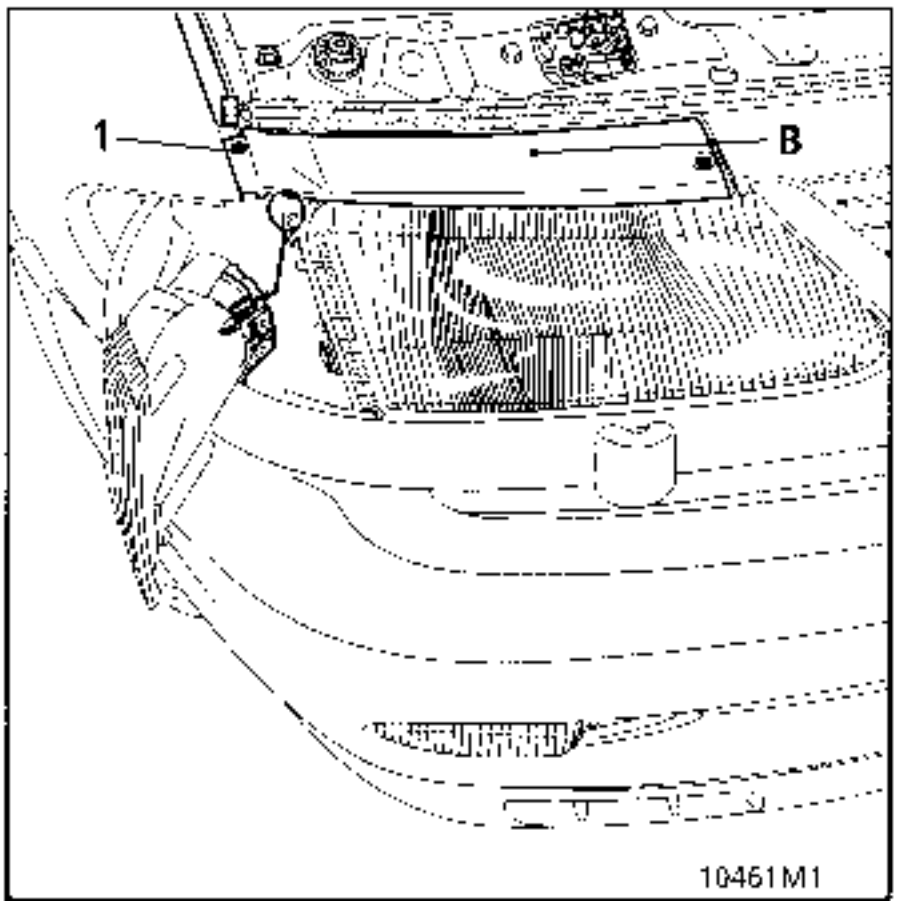
REMOVING - REFITTING

Disconnect:
- the battery,
- the connector or connectors on the lens unit.

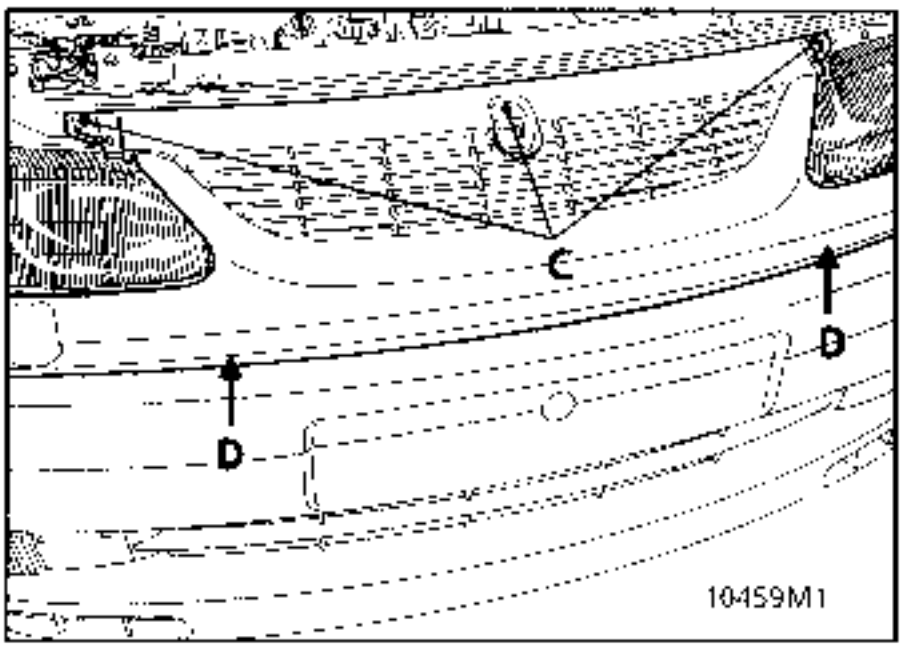
Remove the two direction indicators towards the outside of the vehicle.
To do this, release the retaining spring (A) from its mounting for each of the indicators.



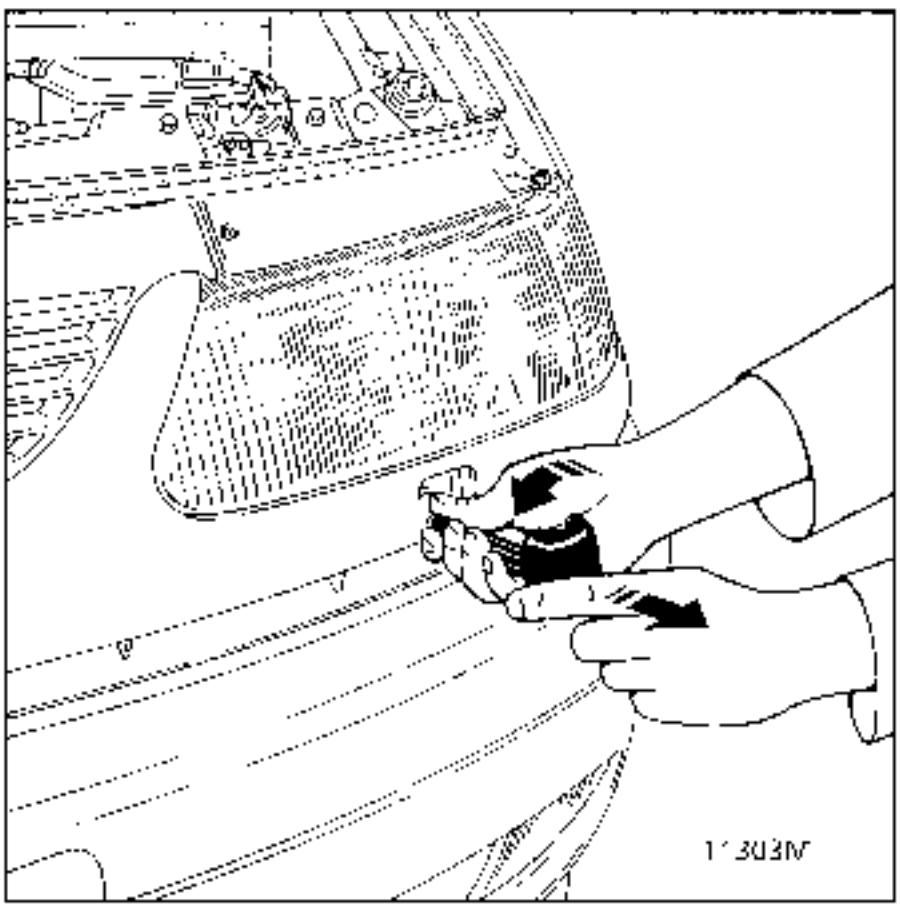
Remove the right and left extensions (B) from the radiator grill.
Release the adhesive tape 2 or 3 cm to gain access to bolt 1.



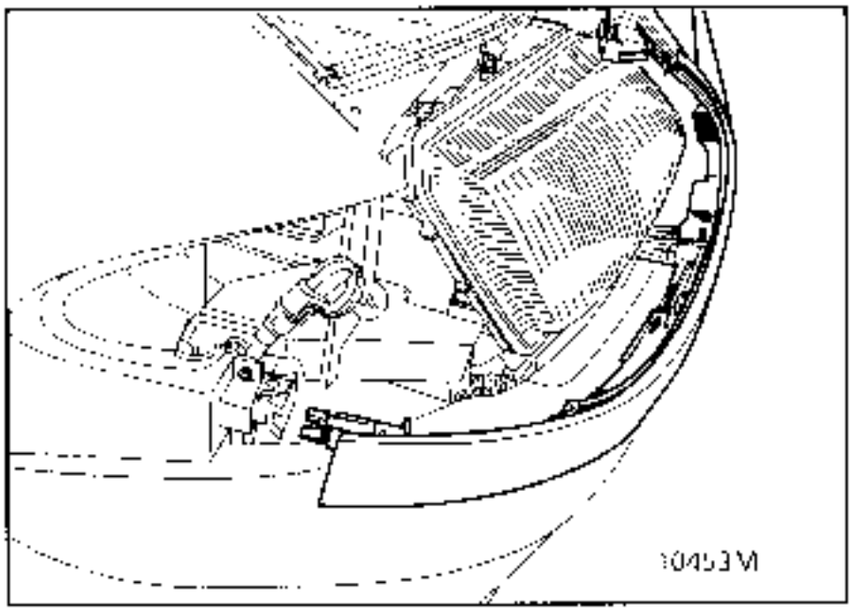
Remove the three upper bolts (C) and the two lower bolts accessible through openings (D) using a Torx screwdriver; these two bolts remain integral with the grille during removal.



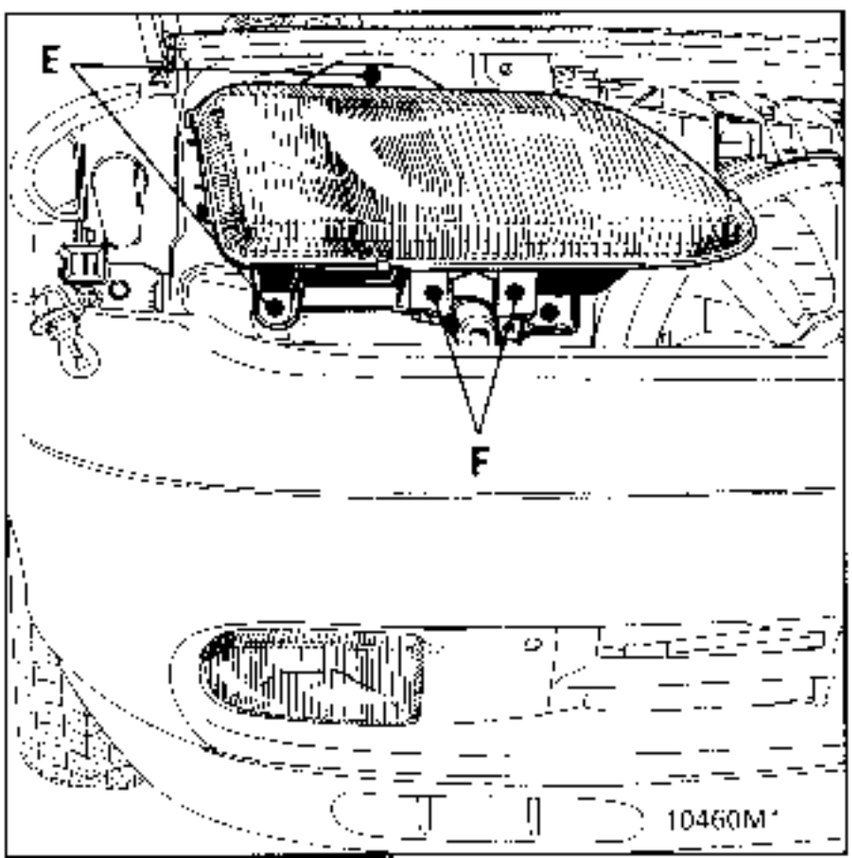
If the vehicle is fitted with a headlight washer, pull the jet and turn it a quarter of a turn to the left to release it from the cylinder.



Unclip the radiator grille at both ends and remove it.

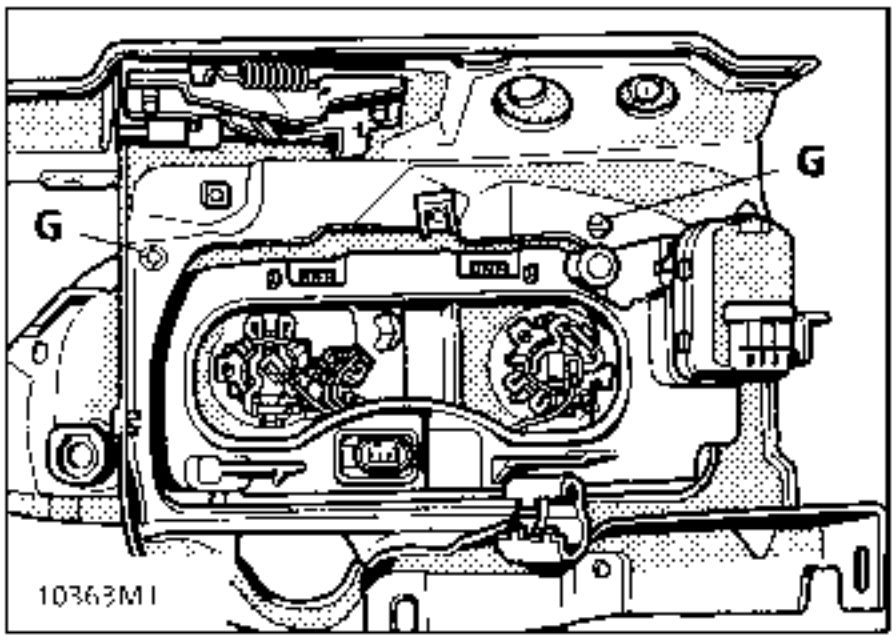


Remove the lens by its two remaining mountings (E), and if fitted with the headlight washer, remove the two mountings (F).



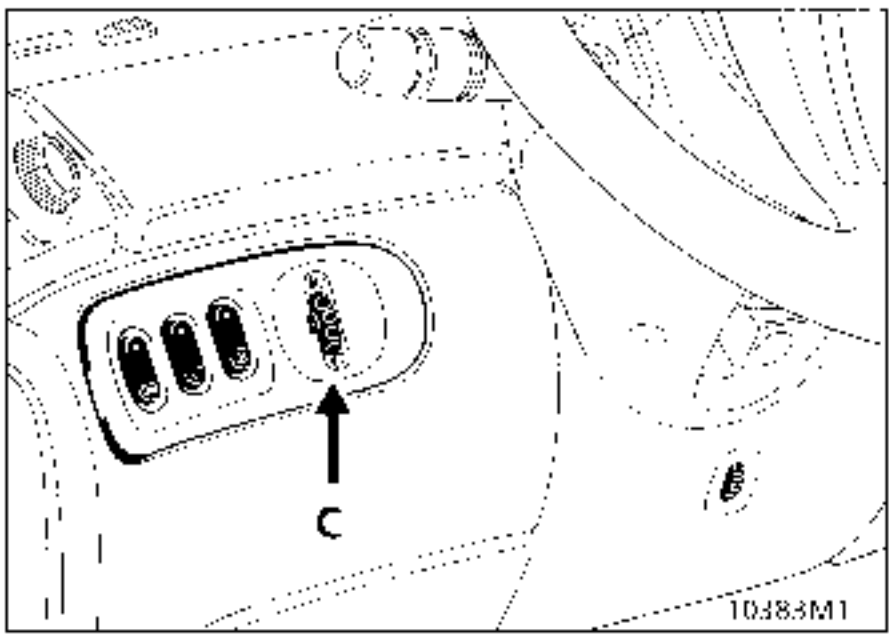
SPECIAL NOTES

Remove the lens unit with the two centring pins (G).

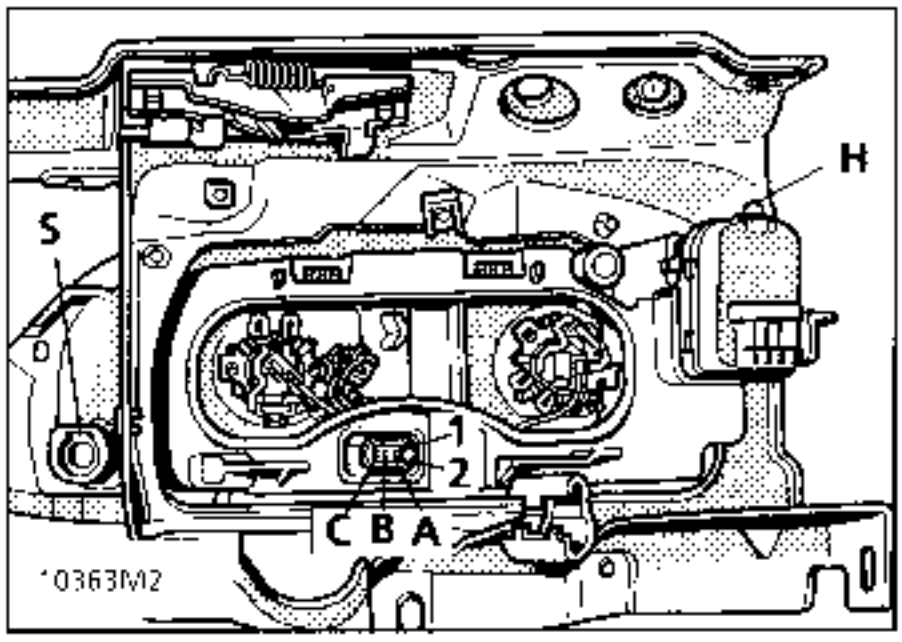


After refitting the lens unit (or units) they must be adjusted.

Adjustment :
Make sure that the vehicle is unladen, set the control (C) to '0'.



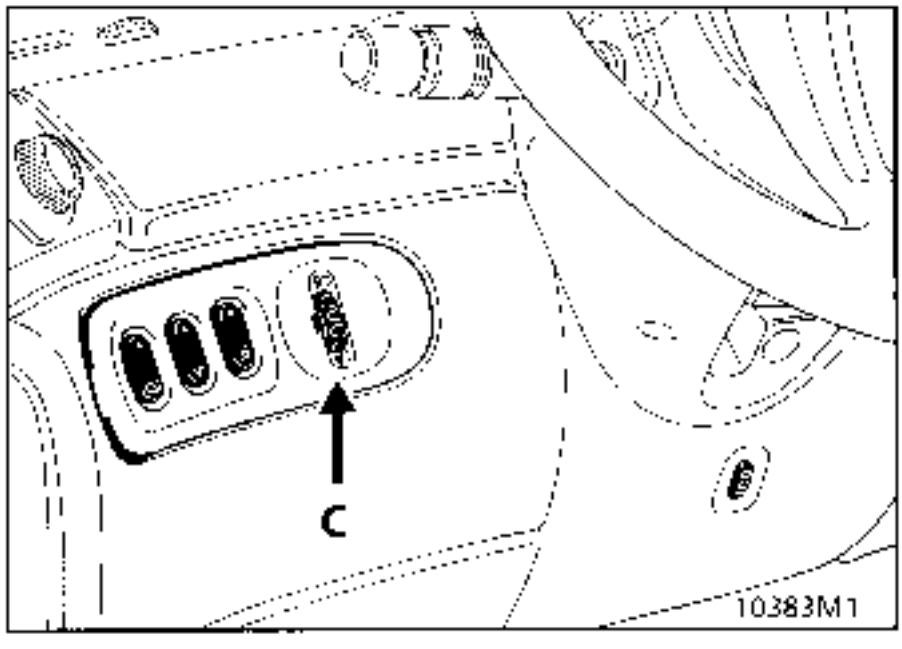
Then proceed to adjust vertically by means of bolt (H) and adjust the direction by means of bolt (S).



CONNECTION

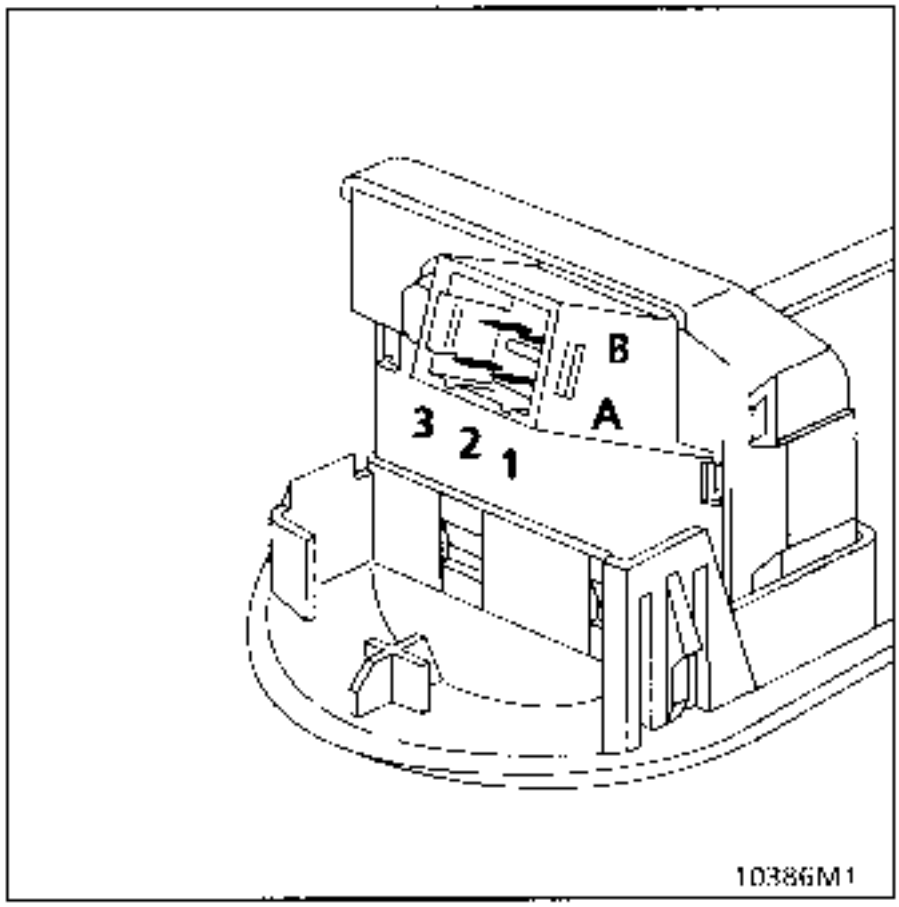
Track	Allocation
A1	Not used
A2	Side light
B1	Earth
B2	Dipped headlight
C1	Not used
C2	Main beam

REMOVAL - REFITTING OF CONTROL



Refit the control box.
Unclip the remote adjustment control (C)
Disconnect the connector

Connection



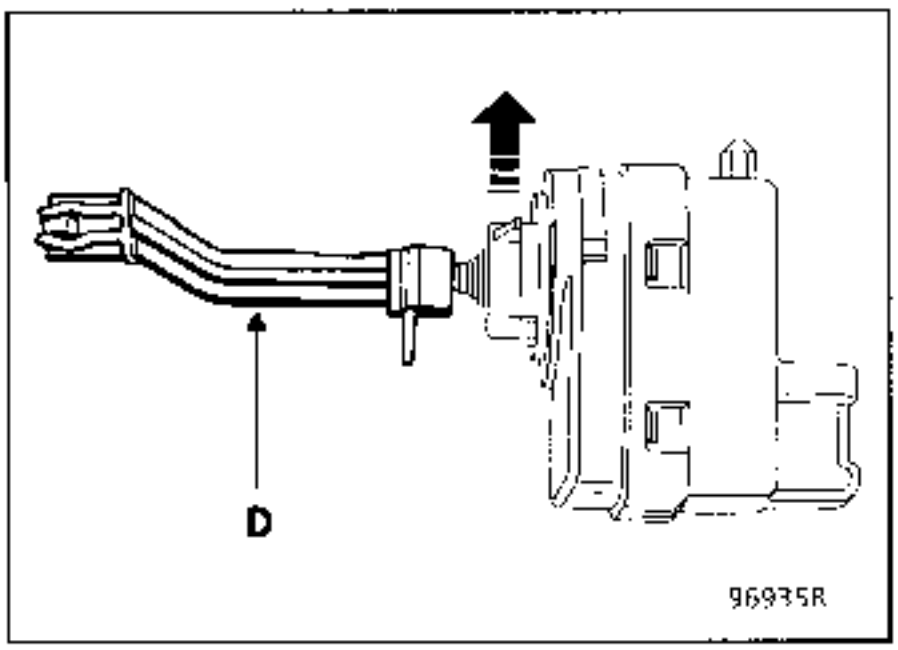
Track	Allocation
A1	Not used
A2	Earth
A3	Remote adjustment control
B1	Dipped headlight
B2	Lighting
B3	Not used

REMOVAL - REFITTING OF THE RECEIVER

On the left side the lens must be removed.

Removal:

Without removing the right lens,
Disconnect the connector.
Turn the remote adjustment receiver an eighth of a turn.
Disconnect the receiver ball joint and the lens by sliding the box upwards to release the ball joint from the connecting lug (D) between the receiver and the headlight parabola.

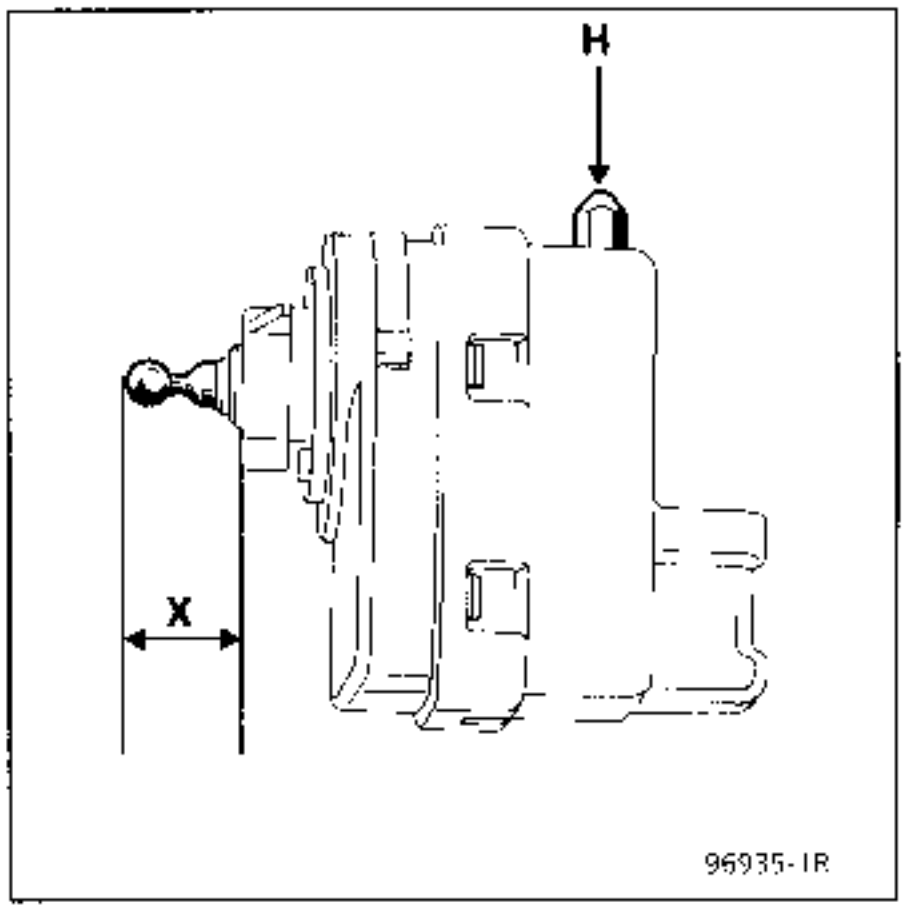


Special notes on refitting

All the remote adjustment receivers are supplied preset to dimension X = 17.5 mm.
For vehicles fitted with "VALEO" headlights the receiver may be mounted directly on the headlight.
For vehicles fitted with "HELLA" headlights dimension X must be increased to 23.5 mm to enable the receiver to be mounted on the headlight.

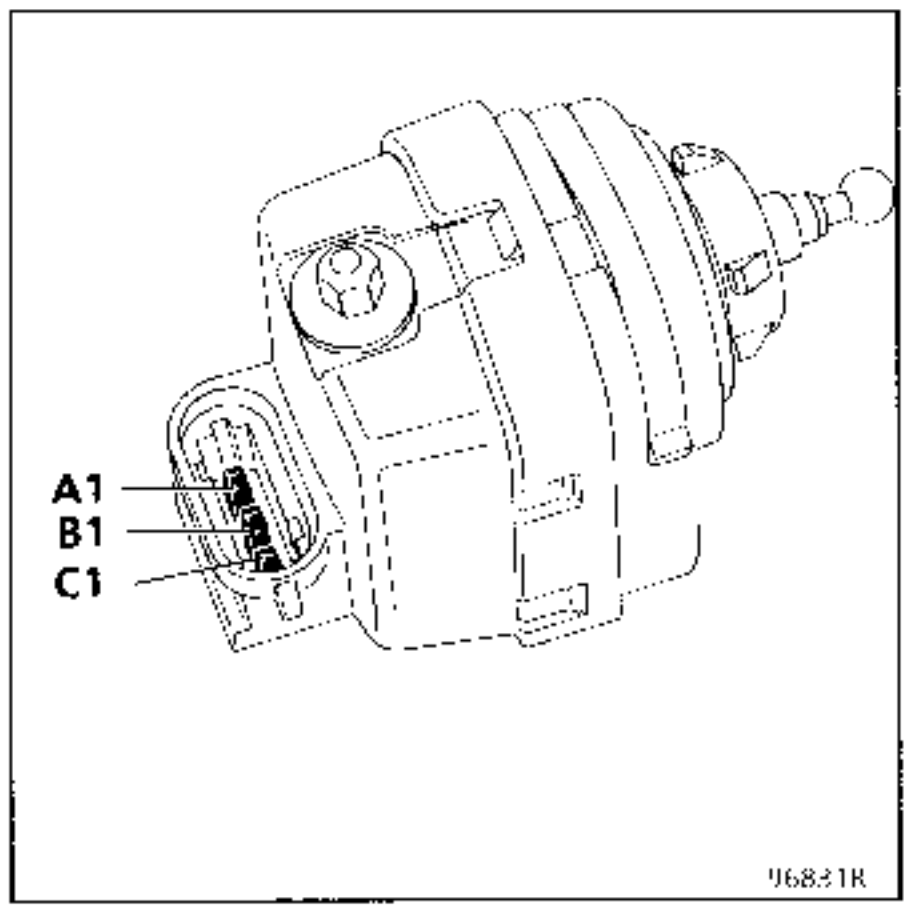
In this case the method used is as follows:
- Connect the receiver connector to the vehicle wiring without fitting it to the headlight.
- Set the control (on the dashboard) to mark 4 to withdraw the rod to its maximum extension.
- Manually adjust the setting with bolt (H) until dimension X = 23.5 mm is obtained.

Remove the protective cap on the bulb connectors behind the lens unit.
Keep the parabola towards the rear of the lens by pulling the base of the bulb and engaging the ball joint in the housing provided for this purpose.



Then replace the entire receiver assembly on the lens, turning it an eighth of a turn.
Adjustment: make sure that the vehicle is unladen , set the control to "0".
Set it as indicated above.

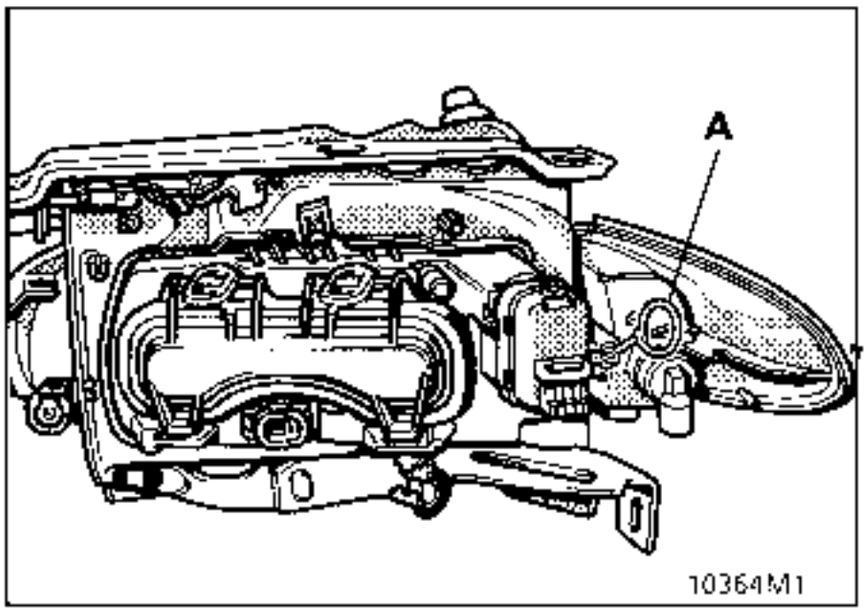
Connection

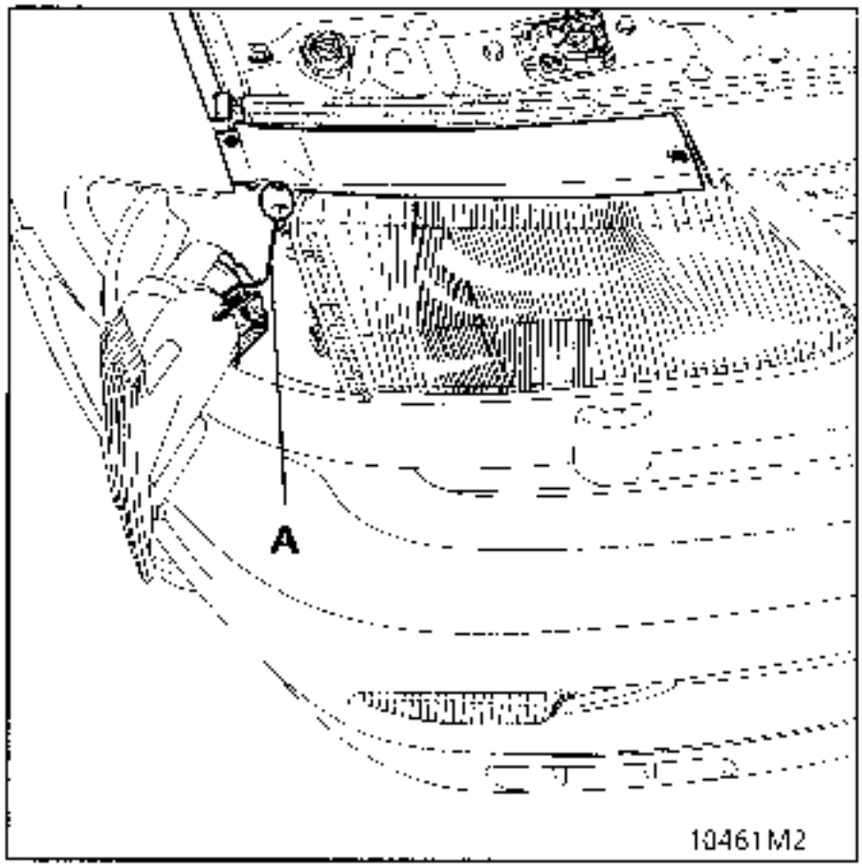


Track	Allocation
A1	Earth
B1	Adjustment control
C1	Dipped headlight information

REMOVAL

Release spring (A).
Remove the indicator by pulling it out.
Remove the bulb holder by turning it a quarter turn.

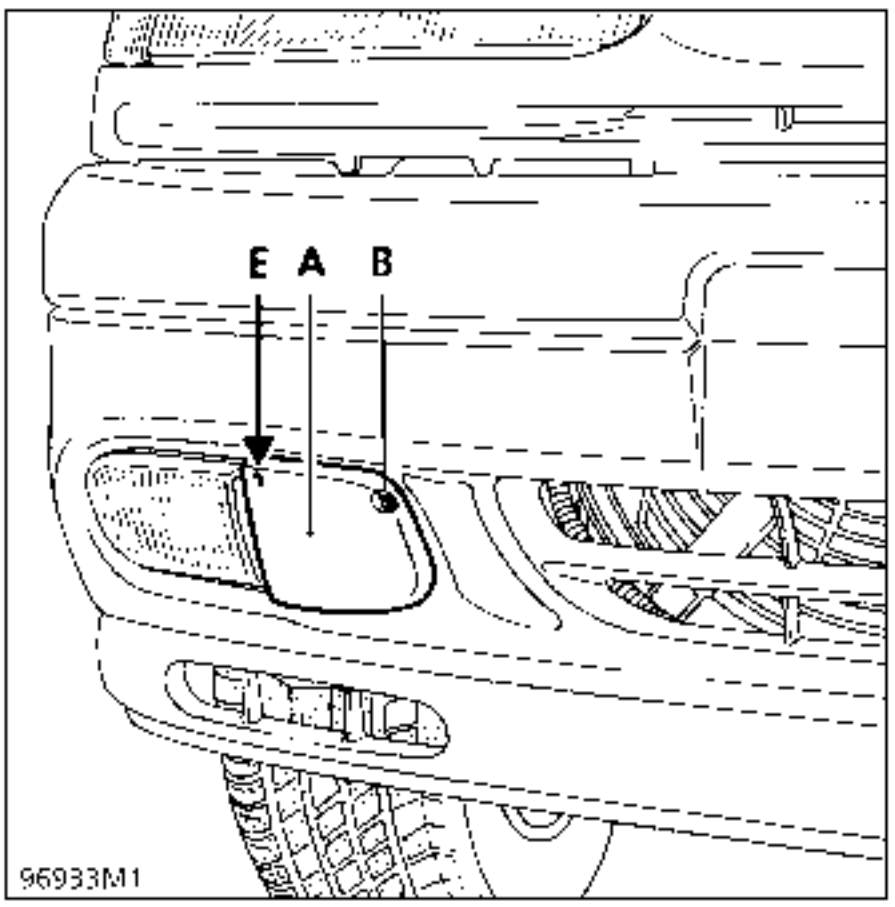




NOTE: To refit, proceed in the reverse order making use, if necessary, of a hook to return spring (A) to its initial position.

For vehicles fitted with front fog lights

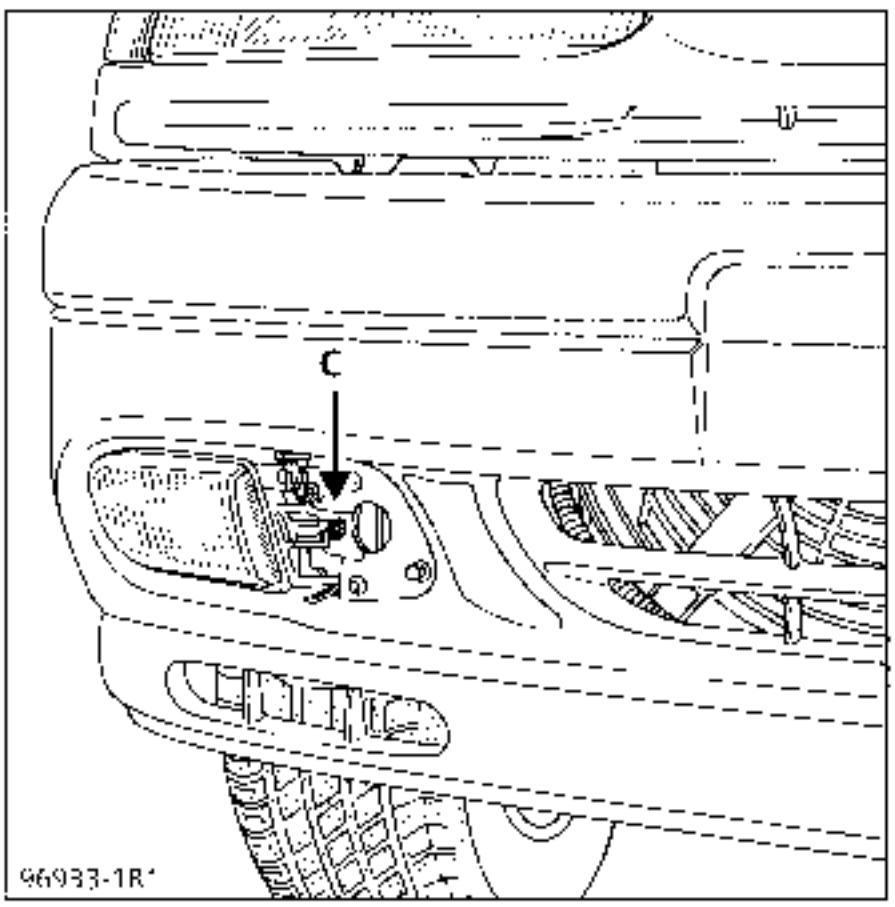
REMOVAL



Remove cover (A) by means of bolt (B).

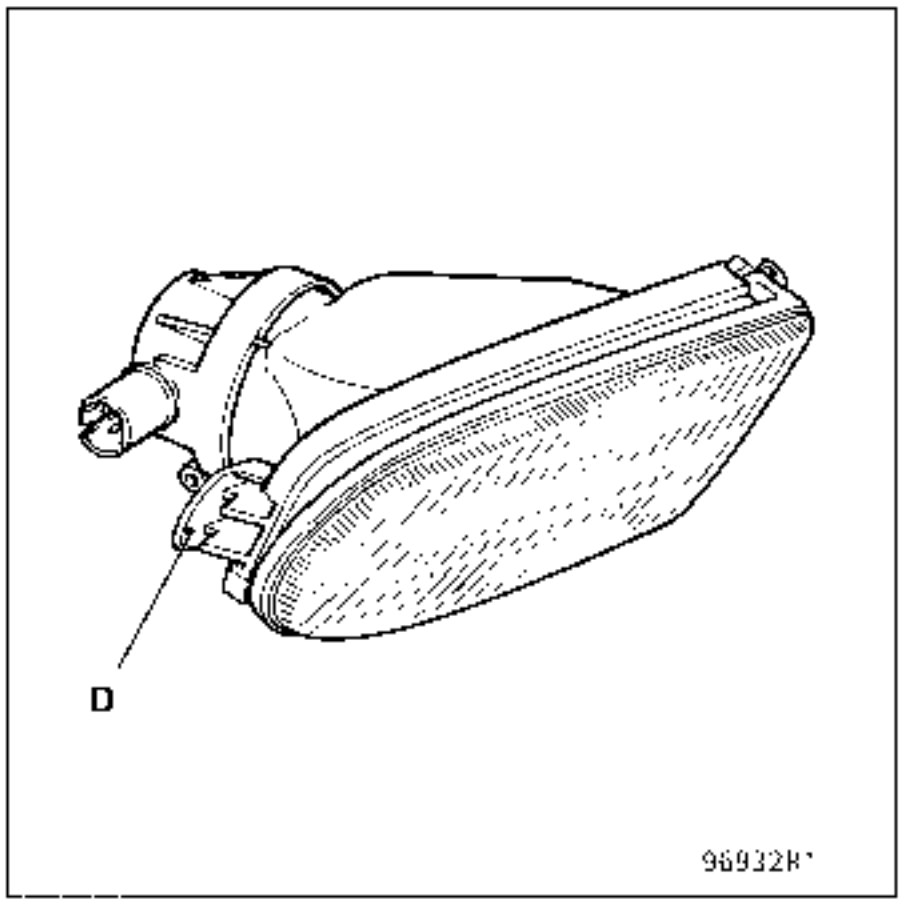
Slacken bolt (C).

Remove the lens unit towards the front by releasing lug (D).



Disconnect the connector.

REFITTING



Replace the fog light by means of lug (D).

Replace fixing bolt (C) and cover (A).

Then proceed to adjust the fog light by means of bolt (E).

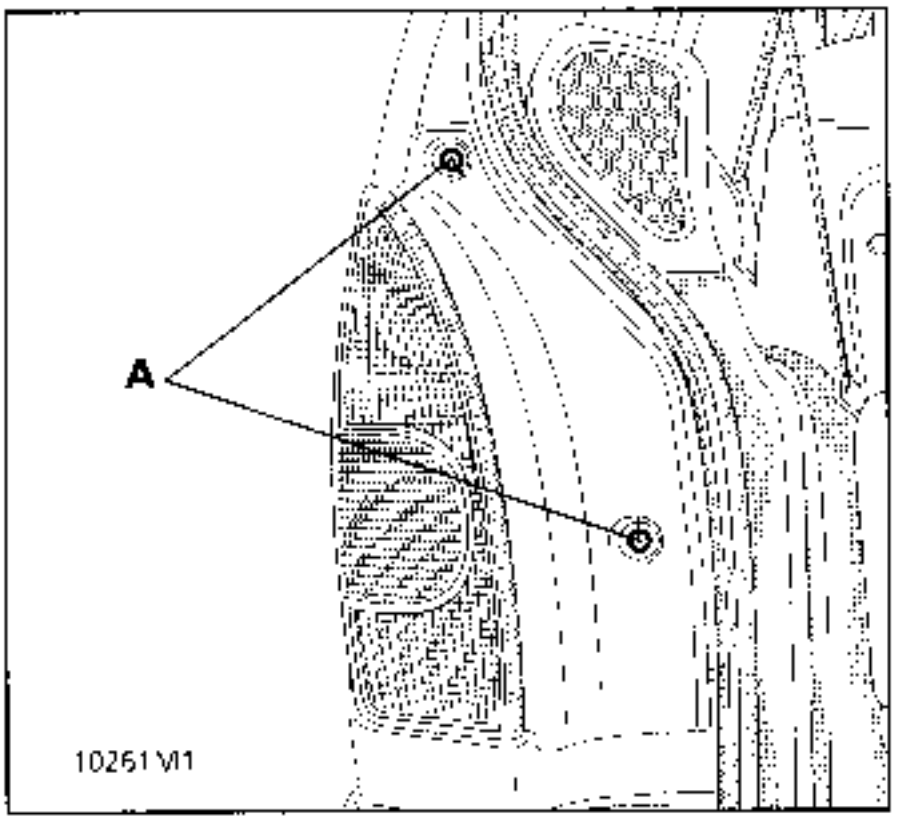
REMOVAL - REFITTING OF REAR LIGHTS

Remove the two mounting bolts (A).

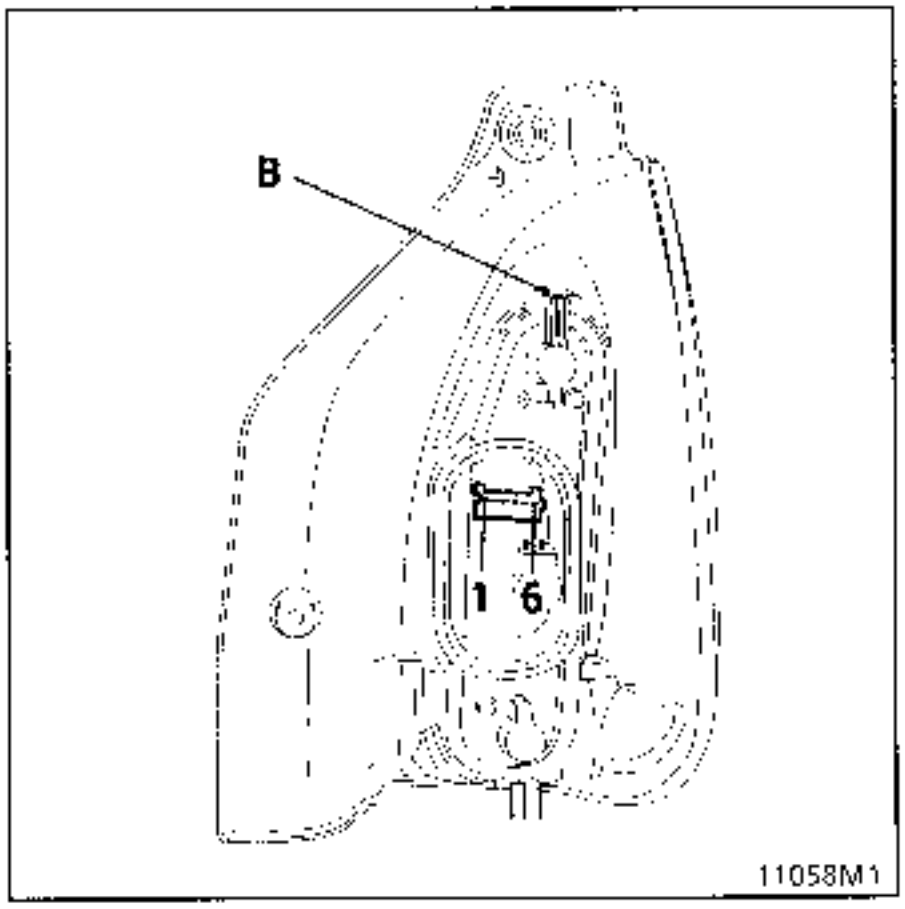
Remove the light towards the outside.

Disconnect the connector.

To gain access to the bulbs unclip the bulb holder by pressing tab (B).



CONNECTION



Rear left connection

Track	Allocation
1	Earth
2	Reversing light
3	Earth
4	Stop light
5	Side light
6	Indicator

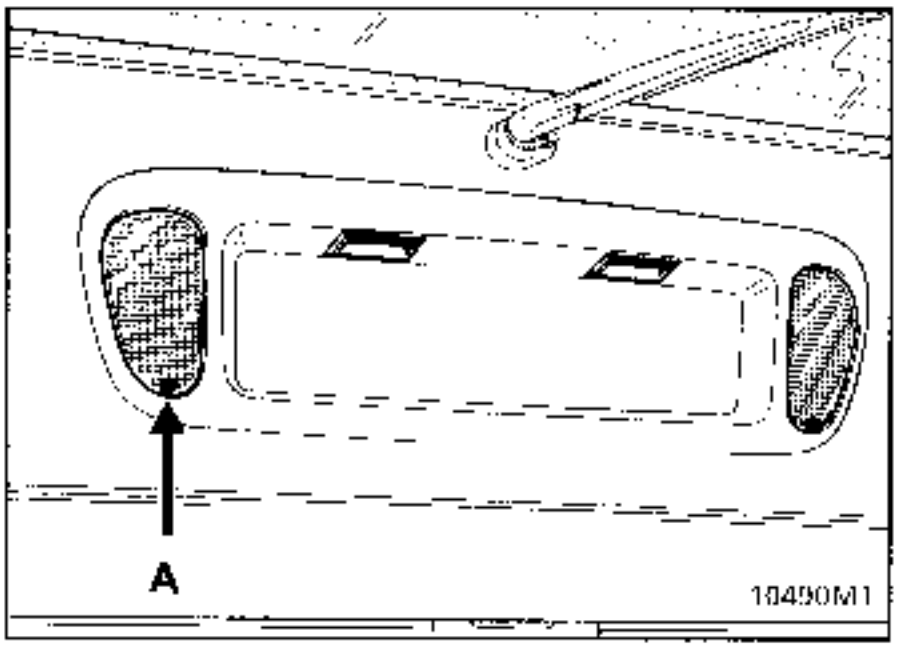
Rear right connection

Track	Allocation
1	Indicator
2	Stop light
3	Side light
4	Earth
5	Reversing light
6	Earth

N.B. To replace the bulbs remove the light.

REMOVAL - REFITTING OF TAILGATE FOG LIGHT

Remove the cap from the bolt
Remove: bolt (A)
Remove the light.
Disconnect the connector.
To gain access to the bulb turn the bulb holder.

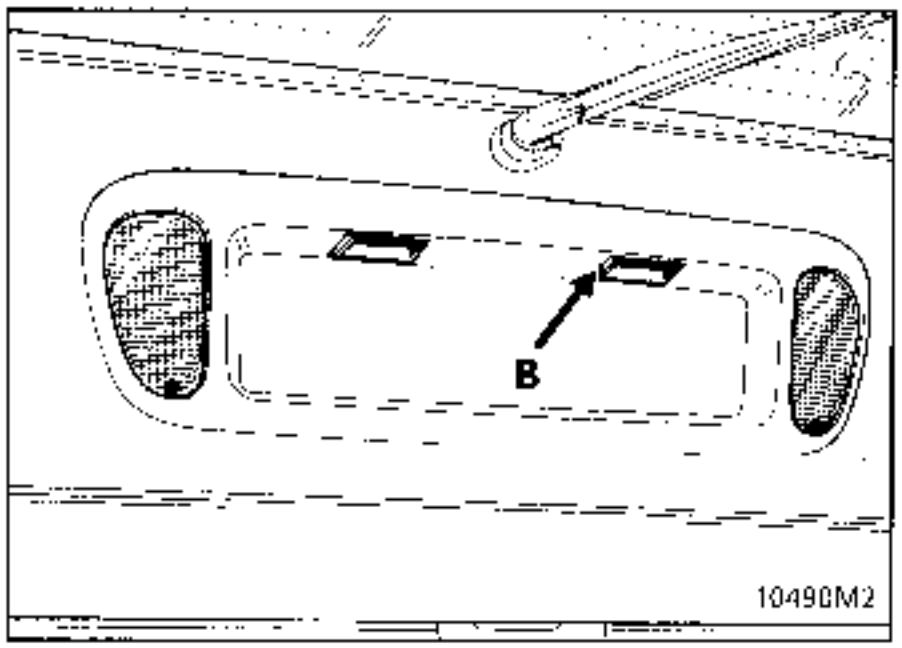


CONNECTION

Track	Allocation
1	Fog light earth
2	Fog light

REMOVAL - REFITTING OF NUMBER PLATE LIGHT

Unclip by sliding a small screwdriver into slot (B) to press the tab.
Disconnect the connector.
To gain access to the bulb, unclip the bulb holder.

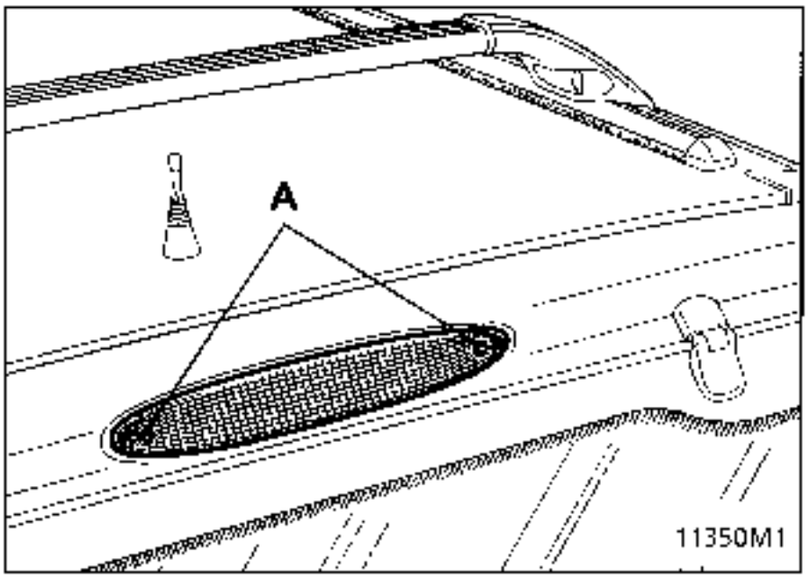


CONNECTION

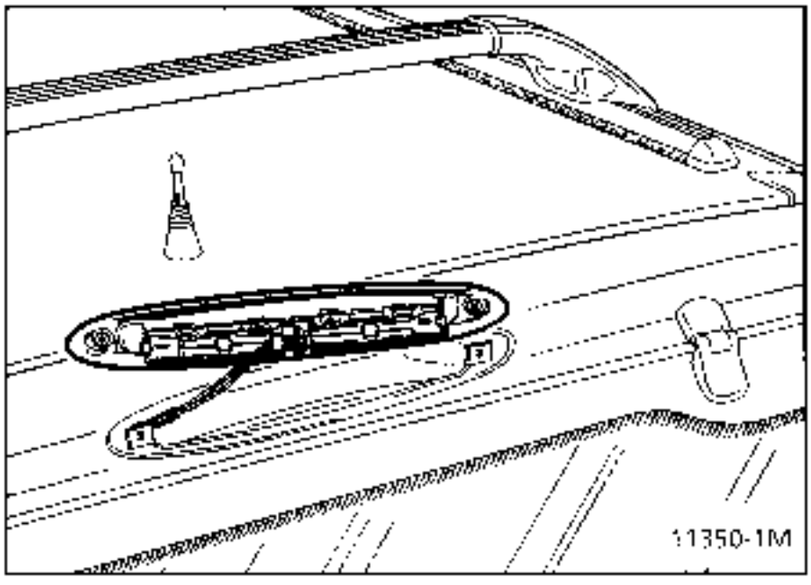
Track	Allocation
1	Number plate light
2	Earth

REMOVAL - REFITTING OF HIGH LEVEL STOP LIGHT

Remove bolts (A).

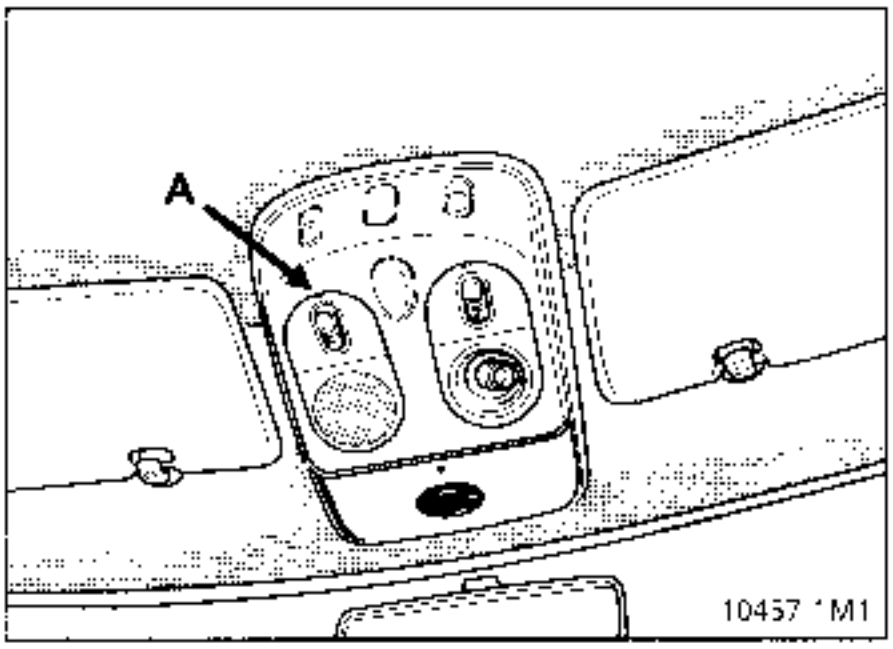


Remove the light.
Disconnect the light connector.
To gain access to the bulbs unclip the bulb holder by pressing both ends.



Track	Allocation
1	Earth
2	Stop light

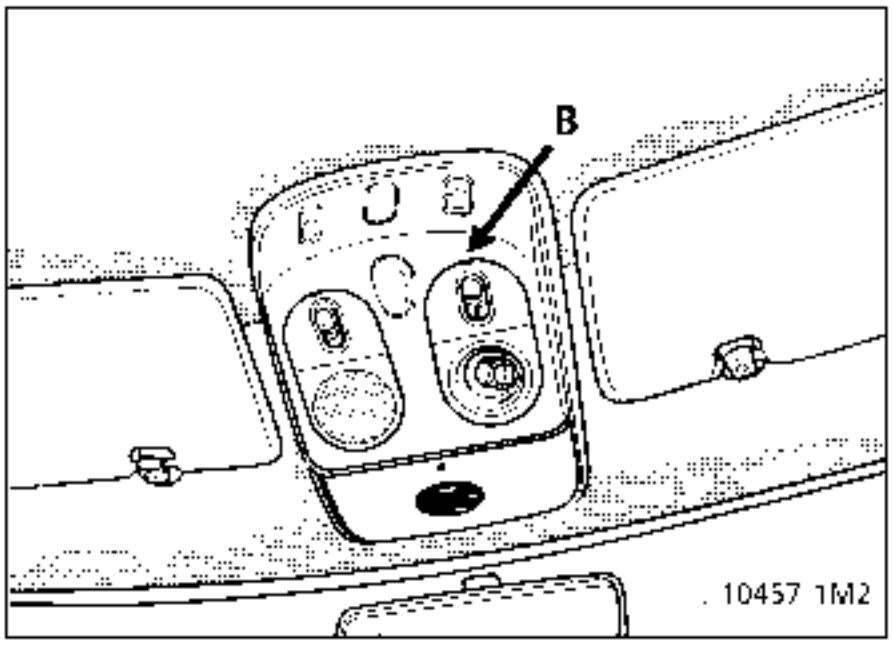
Central courtesy light



REMOVAL

Unclip the lens support and switch by sliding a small screwdriver into slot (A) to press the tab.

Map reading light



REMOVAL

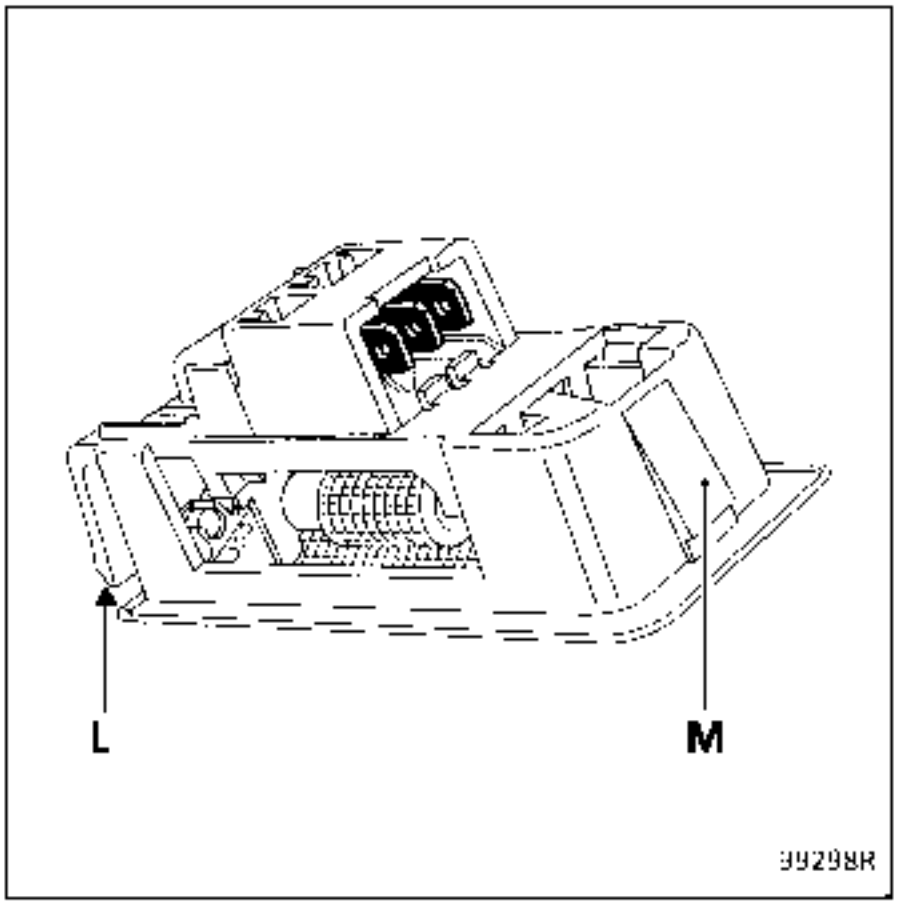
Unclip the map reading light support and switch by sliding a small screwdriver into slot (B) to press the tab.

REAR SEAT COURTESY LIGHT

REMOVAL

To remove the back of the courtesy light press tabs (L) by sliding a small flat screwdriver into the slots provided for this purpose.

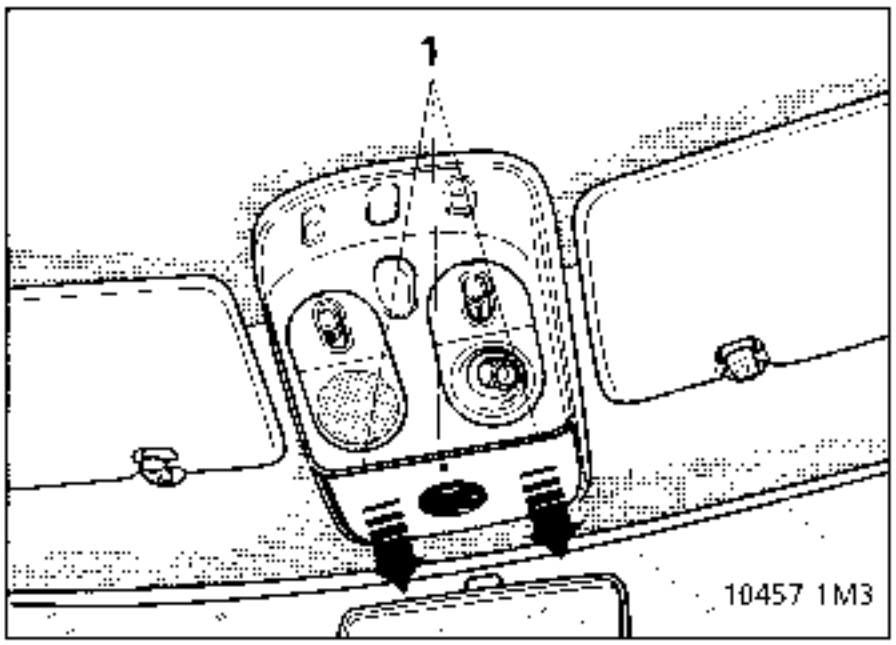
Then remove catch (M) at the front of the courtesy light and disconnect the connector.



Roof console

REMOVAL

Unclip towards the front the plastic cap on the roof console supporting the infrared receiver to release the three catches (1).

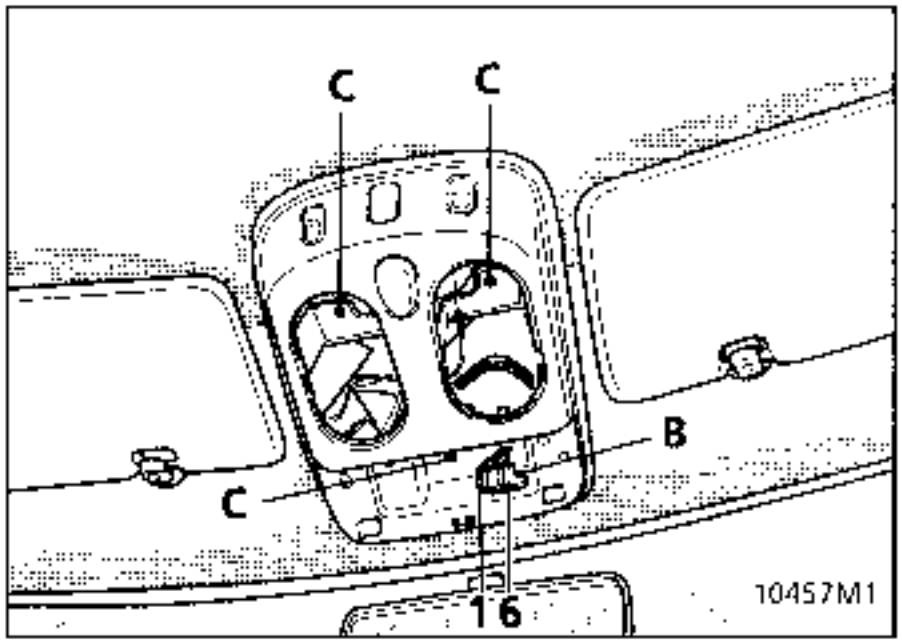


Disconnect connector (B) and remove the cap.

Remove:

- The courtesy light
- The map reading light
- The torx bolts (C)

Disconnect the various connectors.

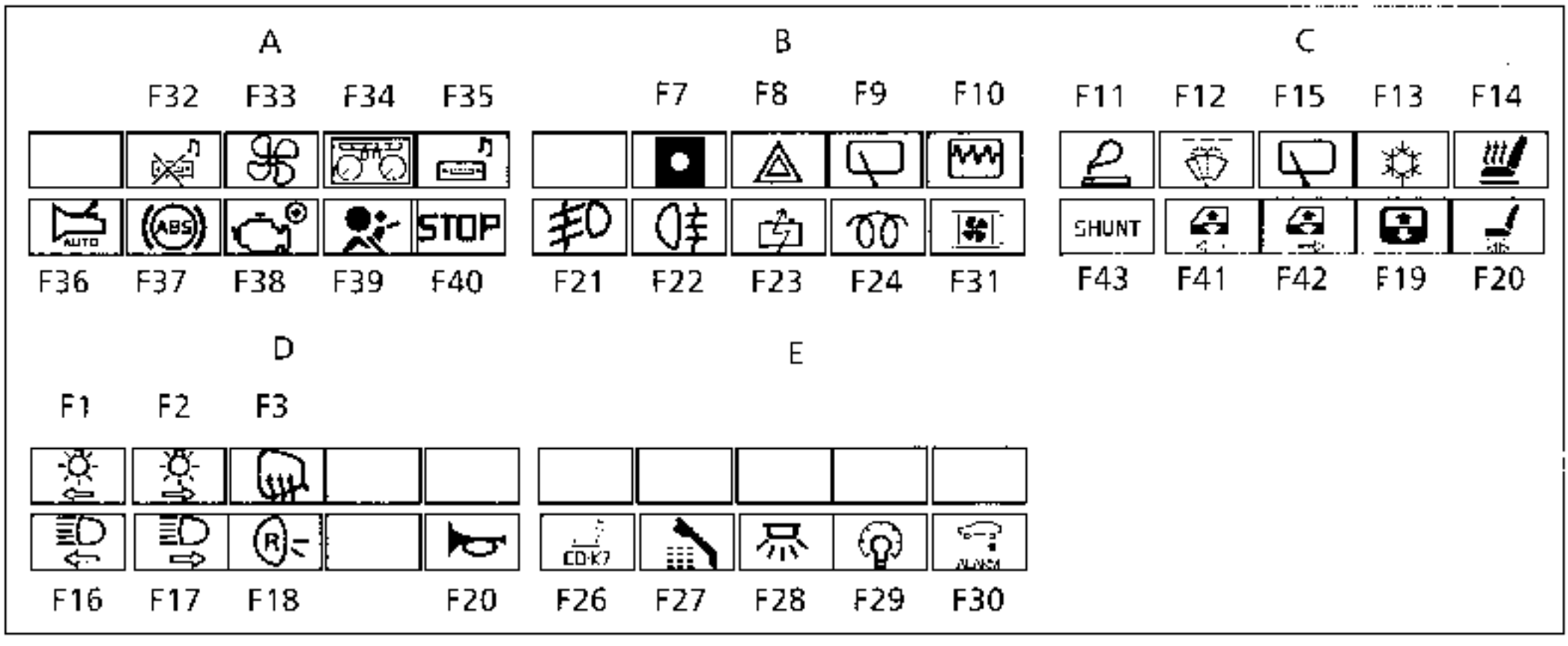


Connection of connector B
(full specification version)

Track	Allocation
1	Not used
2	+ Battery
3	Earth
4	Infrared receiver output
5	+ infrared receiver feed
6	Standby warning light

FUSE BOX (passenger compartment)

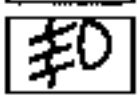
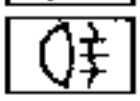
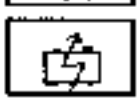
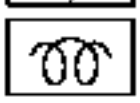
This unit is located on the passenger side.



Fuse allocation (according to equipment level) module A

Symbols	Amps	Description
		Not used
	15	Radio pre-equipment
	7.5	Heater fan
	5	Instrument panel/transponder unit
	5	Standard radio
AUTO	5	Automatic transmission
ABS	7.5	A.B.S.
	30	Petrol injection/diesel after-ignition
	15	Airbag/transponder unit/instrument panel
STOP	20	Stop lights/hazard warning lights/cruise control switch/pneumatic suspension

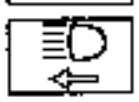
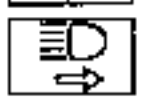
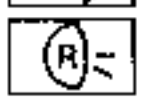
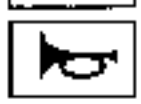
Allocation of fuses (according to equipment level) module A

Symbols	Amps	Allocation
		Not used
	15	Immobiliser/air conditioning compressor/central locking
	15	Hazard warning lights
	25	Park position/rear screen wiper
	3	· before ignition injection
	15	Front fog lights
	10	Rear fog lights
		Consumer cutout shunt
	15	+ diesel unit before-ignition
	15	Pressostat control

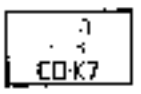
Allocation of fuses (according to equipment level) module C

Symbols	Amps	Allocation
	15	Cigar lighter
	25	Front and rear wiper/front wiper park position
	25	Front and rear wiper: front timer
	7.5	Air conditioning relay control/reversing lights/low adherence switch
		/telephone
	20	Heated seats
SHUNT		After-ignition shunt
	30	Front and rear left electric window/one-touch unit, front driver's electric window
	30	Front and rear right electric windows
	10	Sunroof
	25	Electric front seat

Allocation of fuses (according to equipment level) module D

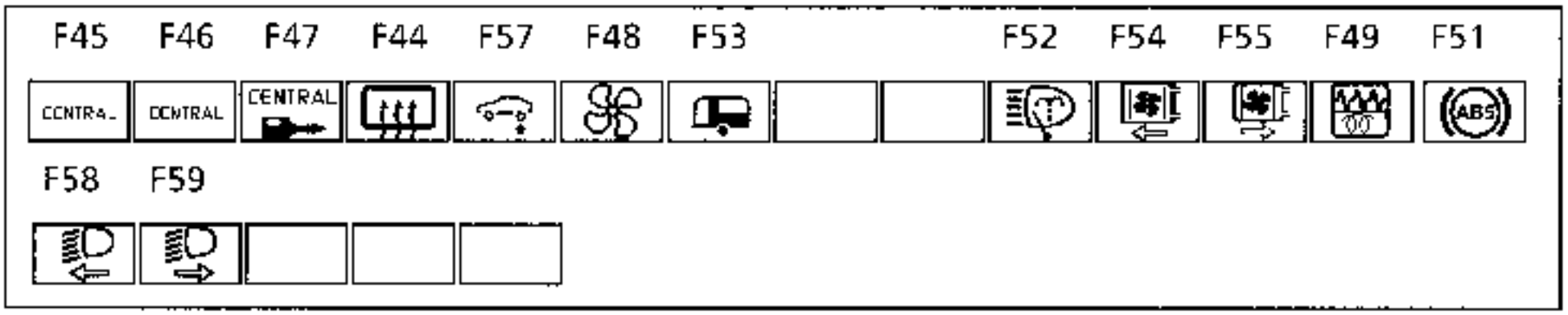
Symbols	Amps	Allocation
	10	Left side light
	10	Right side light
	7.5	Right and left heated rear view mirror
		Not used
		Not used
	15	Left main beam headlights
	15	Right main beam headlights
	7.5	Reversing light
		Not used
	20	Horn

Allocation of fuses (according to equipment level) module E

Symbols	Amps	Allocation
		Not used
		Not used
		Not used
		Not used
		Not used
	3	Compact disk reader and cassette reader
	10	Radio phone
	10	Interior lighting
	20	Lighting rheostat/radio pre-equipment/rear view mirror control
	5/15	Pneumatic suspension/(Alarm unit, right-hand drive)

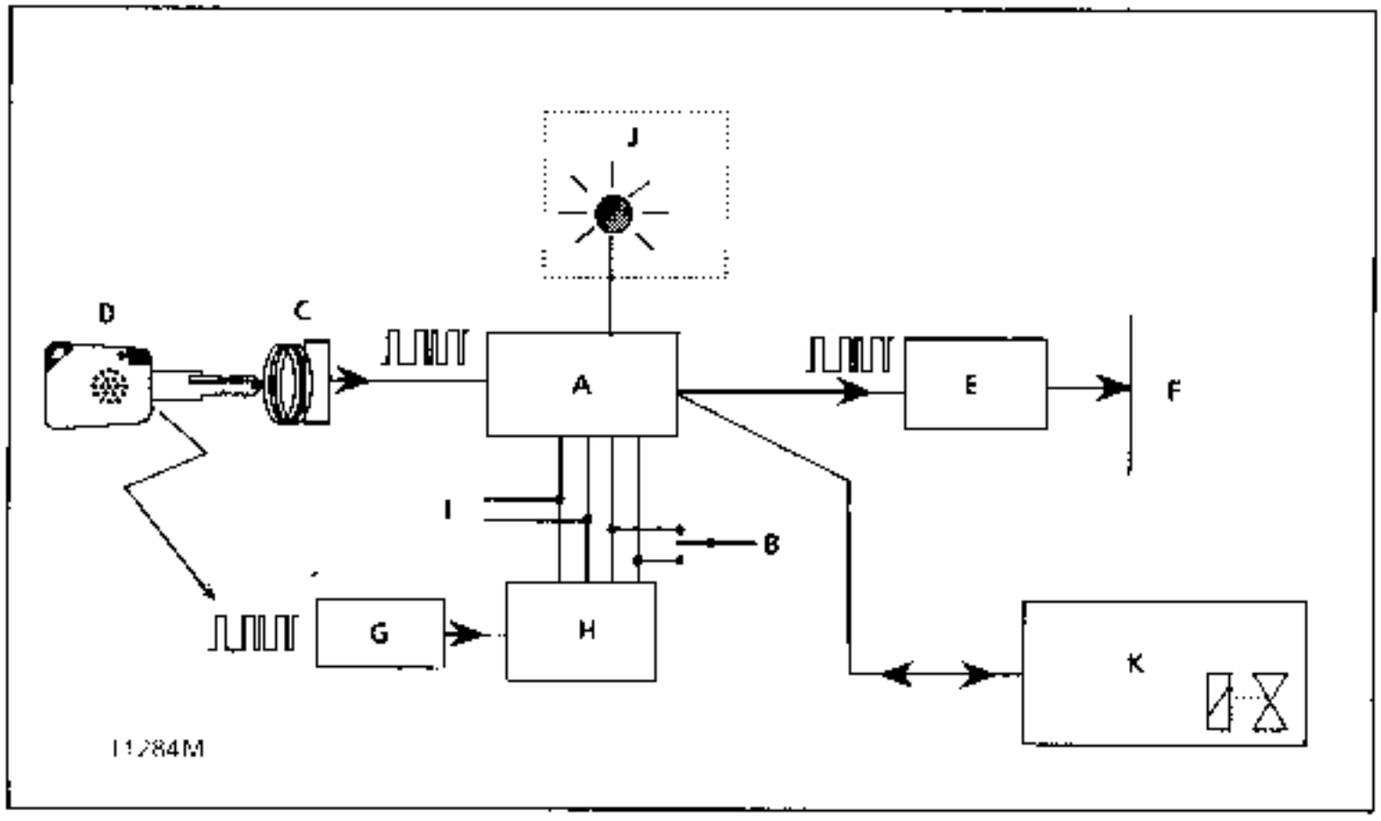
FUSE BOX (engine side)

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



Allocation of the fuses (according to equipment level)

Symbols	Amps	Allocation
CENTRAL	60	+ Passenger compartment
CENTRAL	60	+ Passenger compartment
CENTRAL	60	+ Passenger compartment
	40	Heated rear screen
	40	Self levelling suspension
	50	Heater fan
	60	+ Trailer
		Not used
		Not used
	40	Headlight washers
	40	Left cooling fan
	40	Right cooling fan
	30/70	Petrol injection (30A). Diesel preheating (70A)
ABS	60	A.B.S
	15	Left dipped headlight
	15	Right dipped headlight



Operation of the coded KEY and PLIP systems.

• PLIP docoder unit:
- It manages theunlocking and locking of the doors and lighting of the passenger compartment.

• Coded KEY decoder unit:
- It manages the engine immobiliser system.

IMPORTANT :

For the PLIP resynchronisation procedure see Chapter 88 (infrared remote control).

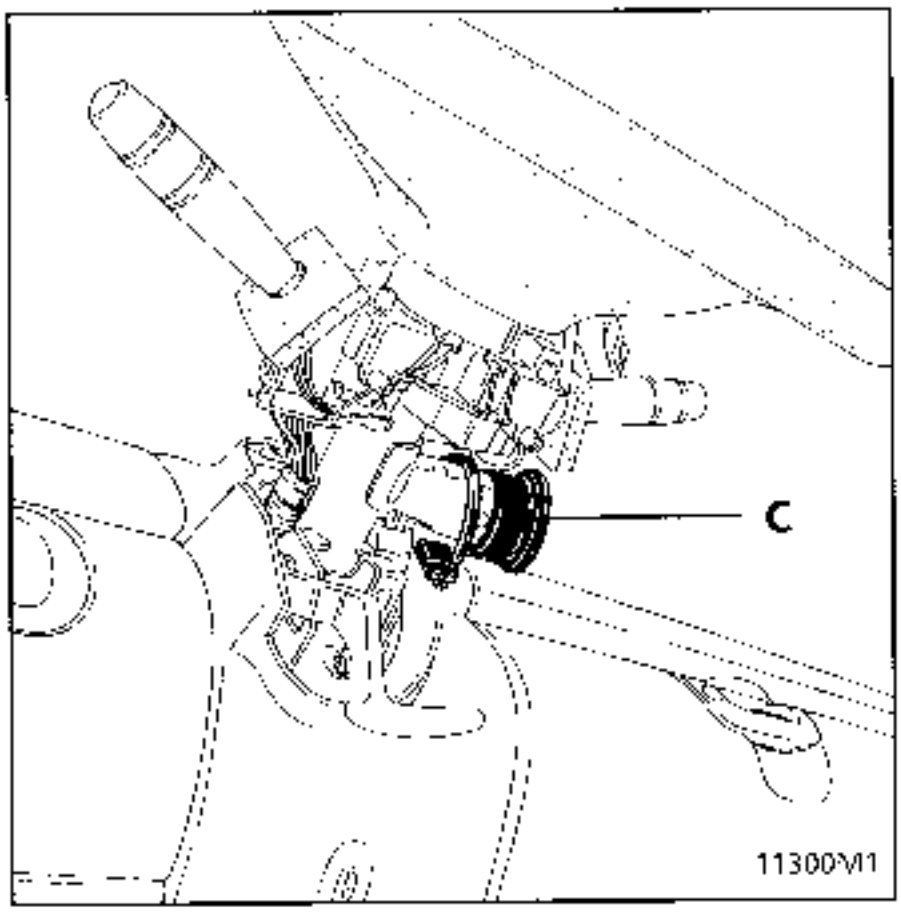
A → Coded KEY decoder unit
B → Central door locking button (C.P.E.)
C → Ring
D → Dual function key
E → Injection computer (petrol)
F → Fuel pump, injectors, ignition
G → PLIP receiver
H → PLIP decoder unit
I → Diagnostic socket
J → Immobiliser warning light on roof console
K → Coded solenoid valve (diesel)

DESCRIPTION OF THE CODED KEY ENGINE IMMOBILISER SYSTEM

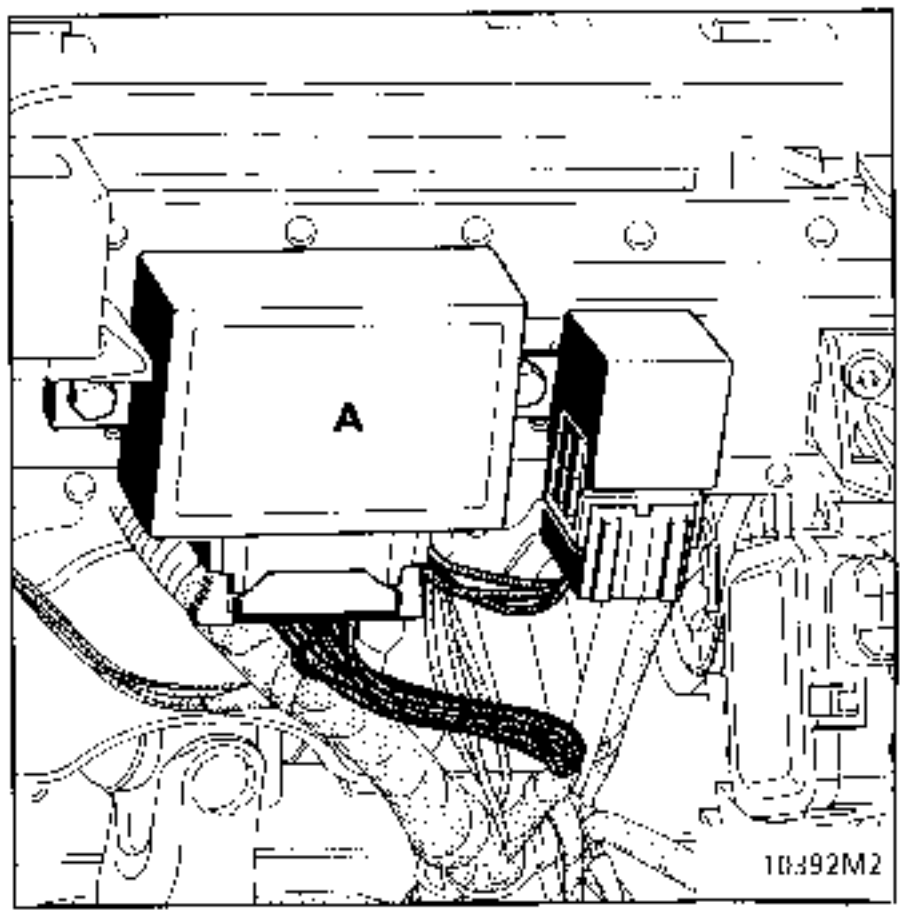
With this system the engine immobiliser is activated 10 seconds after turning the + after ignition feed off (shown by the flashing of the red engine immobiliser warning light).

The system comprises:

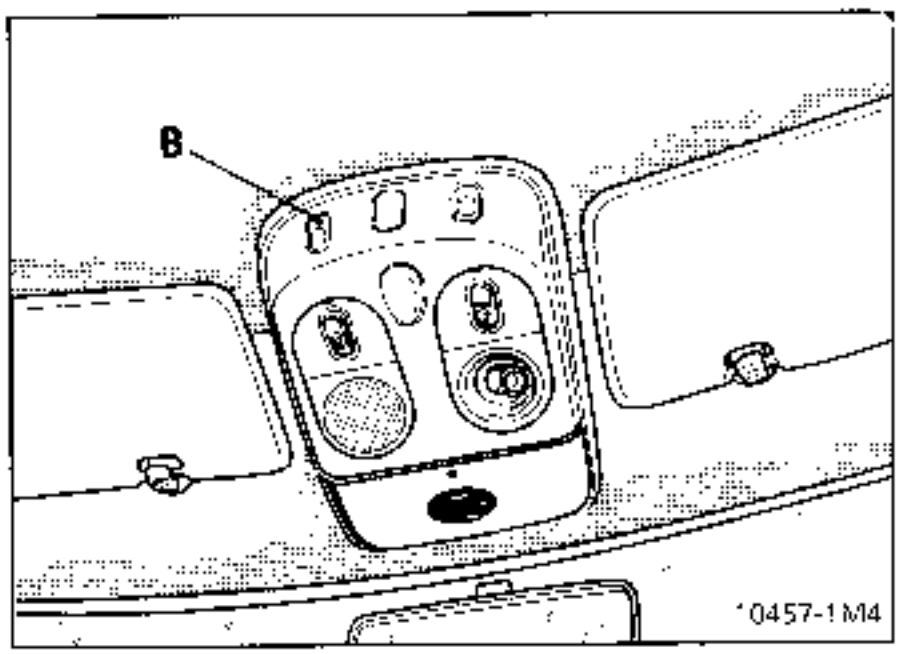
- 2 special matched key heads with a coded chip,
- a ring (C) located around the ignition switch, with an electronic unit which transmits the key code to the KEY decoder unit (A).



- a KEY decoder unit (A) located under the upper half of the dashboard, which has the following functions:
  - decoding of the key signal from the ring,
  - management of the engine immobiliser system by the sending of a code to the injection computer (petrol) or coded solenoid valve (diesel) to authorise the vehicle to be started.



- a red immobiliser warning light on the roof console, used to:
  - indicate activation of the engine immobiliser system,
  - enter the emergency code,
  - indicate a fault in the system.
- the central door locking button (B) enabling the emergency code to be re-entered (C.P.E.).

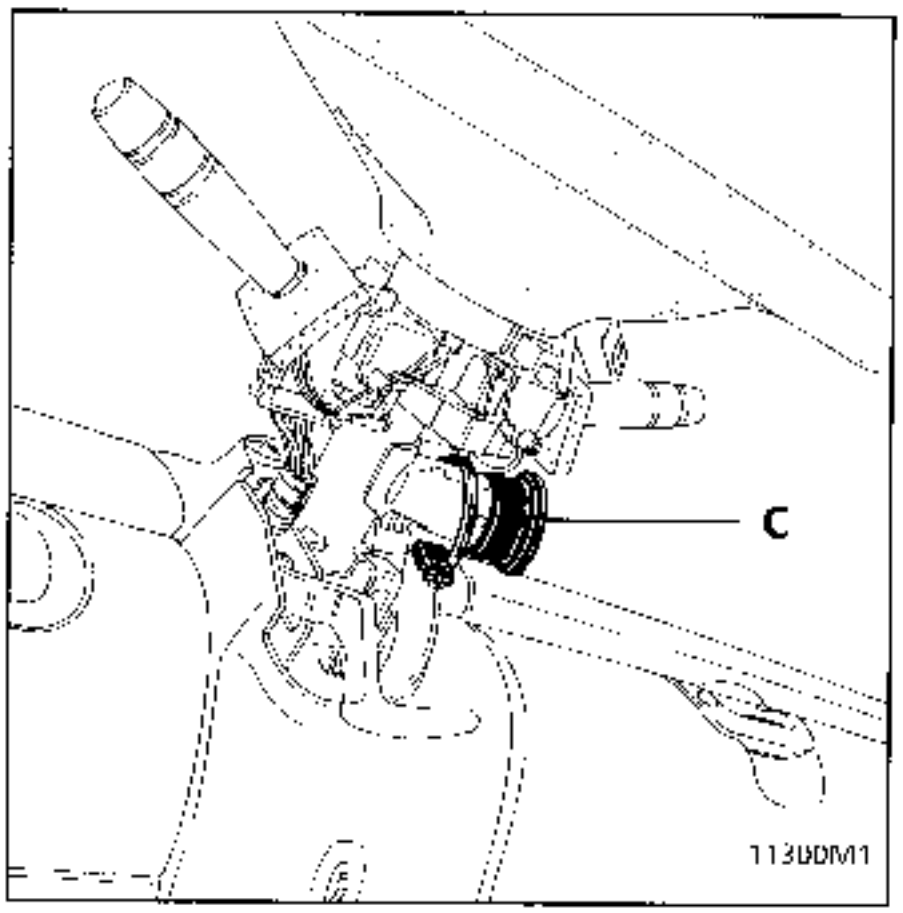


REMOVAL - REFITTING THE RING (C)
Disconnect the battery
Without removing the steering wheel
Remove:
- The radio satellite (if fitted).
- The lower 5 screw half-cowling.
  The upper 2-screw half-cowling
  (to gain access to the 2 screws turn the steering wheel a quarter turn to the right and left).

Disconnect the connector for the ring.

After moving the mounting tab to one side, turn the ring clockwise (= 8th of a turn) and release it.

When refitting, ensure the ring (C) is correctly clipped back into position and is correctly located, and that the wiring is correctly connected.

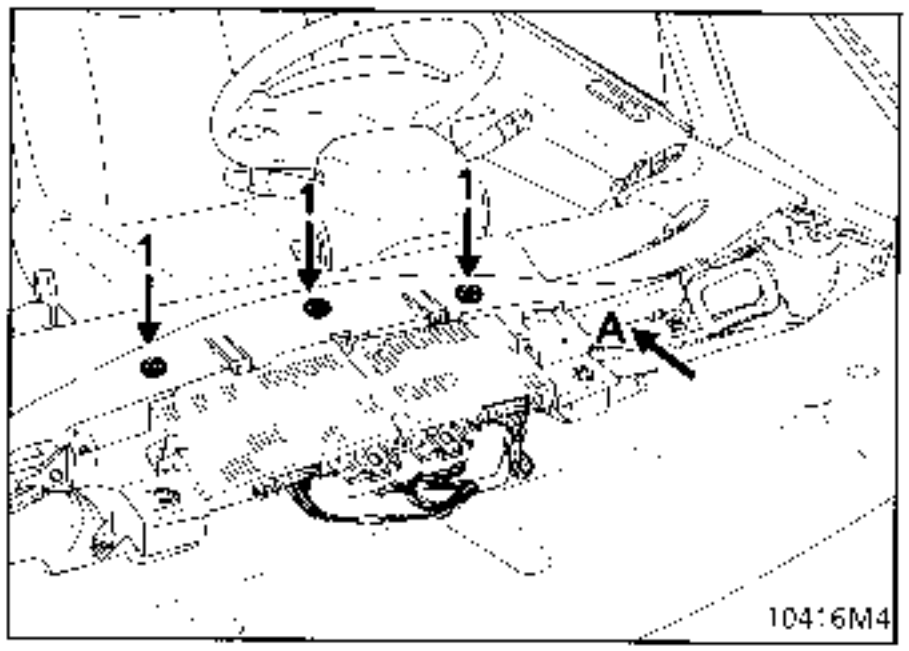


NOTE: this ring is not coded

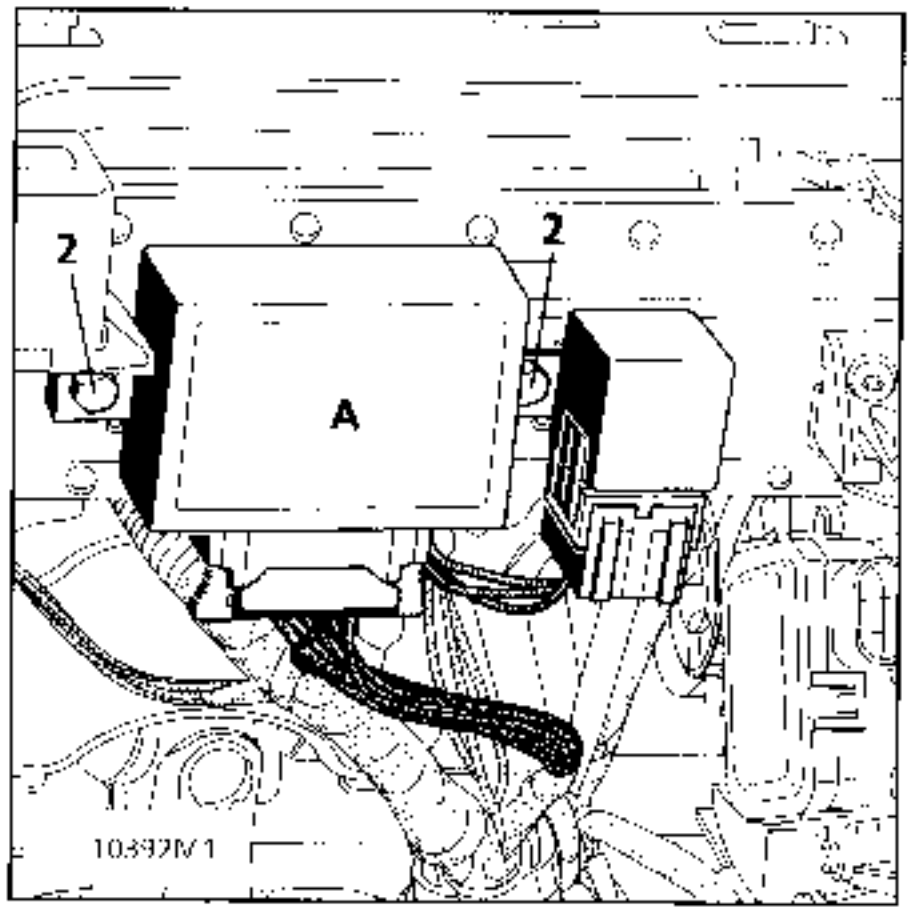
REMOVAL - REFITTING OF DECODER UNIT

Remove: The speaker grilles by hand. Start with the stop on the air vent side.
Slacken the three mountings of each speaker support.
Disconnect the speakers and remove them.
Lift off the dashboard panel, starting in the corner, and pull vertically to unclip the three mountings (1).

Move the air duct to one side to to reach the KEY decoder unit (A).
Disconnect the 15-track connector from the KEY decoder unit.



Remove the two bolts (2) from the KEY decoder unit (A).



When retting, ensure that the 15-track connector is correctly clipped.
Check that the three clips (1) are present.

OPERATION

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

After turning the ignition on, the ring analyses the code from the key and transmits it to the KEY decoder unit.

If the code is recognised by the KEY decoder unit, it sends a code to the injection computer (petrol) or coded solenoid valve (diesel) via the coded line and extinguishes the red immobiliser warning light (after approximately 3 seconds).

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

- The injection computer (petrol) or coded solenoid valve (diesel) has no reference code in its memory :

  • the code sent to it is stored in its memory.

- The injection computer (petrol) or the coded solenoid valve (diesel) has a reference code in its memory.

  • the code sent to it is compared with the code in its memory,

  • if the two codes match, the computer unlocks the injection system (petrol) or coded solenoid valve (diesel) and the engine may be started.
    When the ignition is turned on, the immobiliser warning light illuminates for a few seconds then extinguishes, showing that the system is operating correctly.

  • if the two codes do not match, the system remains locked to prevent the engine from being started.
    When the ignition is turned on, the red engine immobiliser warning light flashes (rapid flashing).
    The vehicle may not be started.

NOTE : to ensure the system operates correctly, no objects (eg. : keyrings) should be allowed to come between the key and the ring.

IMPORTANT: when the vehicle battery has a low charge, the drop in voltage caused by operating the starter may set the immobiliser. If the voltage is less than 6 volts, the engine cannot be started, even by pushing the vehicle.

REPLACING A KEY HEAD

The coded chip in the key head is faulty:

- order a replacement key head using the number in the faulty key head (alphanumeric characters),

- if the customer requires the fault to be repaired immediately (2nd key unavailable) a complete kit may be fitted to the vehicle (key decoder unit plus two key heads plus PLIP decoder unit) (see replacing a complete kit).

The key has been lost:
- order a replacement key head using the number in the key head of the 2nd key or on the bar code label (normally attached to the keys when the vehicle is delivered).
  In this case, remember to order the metal number insert for the new key head.

IMPORTANT: Do not touch the key head chip when taking note of the number in the key head. Any key which has been touched must be replaced.

NOTE: if the key head number cannot be located (both keys lost together with the bar code label), the complete kit must be replaced (PLIP decoder unit, plus 2 keys, plus KEY decoder unit, injection computer or coded solenoid valve).

REPLACING THE KEY DECODER UNIT ALONE

A new KEY decoder unit is not coded. Once fitted to the vehicle, the codes of both keys must be programmed so that it is operational (see programming procedure).

IMPORTANT :if the customer has not left the second key, the decoder unit may be programmed using just one key and the XR25.

Before carrying out the programming procedure:
- connect the XR25 to the vehicle,
- set the ISO selector switch to S8 and enter code D38 (coded key engine immobiliser system),
- enter G05* and proceed with programming using one key.

NOTE : if the decoder unit alone is replaced, no operation is carried out on the injection computer or coded solenoid valve. It retains the same engine immobiliser code.

IMPORTANT: when a decoder unit has been programmed with the key code, the code cannot be erased and no other code may be memorised in its place.

SPECIAL NOTES

On diesel vehicles the KEY decoder unit is identical to the decoder unit of a petrol immobiliser system.

When replacing it the new "diesel" part must be configured by means of the XR25 test kit.

This configuration will enable the decoder unit to check that the coded solenoid valve is operating correctly (indicated by the immobiliser warning light) (see diesel configuration).

PROGRAMMING PROCEDURE

This procedure may only be carried out once by the KEY decoder unit. As long as this procedure has not been carried out, the vehicle cannot be started.

The procedure may be carried out:
- with both keys if a kit is being fitted (which permits verification that the keys are matched).

NOTE : the procedure will not work if the same key is used twice or if the keys are not matched.

– with **a single key** if the KEY decoder unit alone is being replaced, using the XR25 (where the customer has not left both keys with the workshop).

The XR25 may be used for this procedure but is not vital (except for programming using a single key, see replacement of the KEY decoder unit alone).

1. Connect the XR25 to the vehicle, set the ISO selector switch to S8 and enter code D38 (fault finding fiche 38); bargraph 19 right hand side should be illuminated (KEY decoder unit uncoded).

2. Using the first key, switch the ignition on for approximately 2 seconds (but do not start the engine). Bargraphs 18 and 19 LH side illuminate. From this moment you have 30 seconds to carry out the following operation.

3. Switch the ignition on (but do not start the engine) for approximately 2 seconds with the 2nd key. Bargraphs 19 LH and RH sides extinguish.

4. Switch the ignition on for a few seconds without starting the engine. This will send the code to the injection computer or coded solenoid valve.

5. Check the engine immobiliser system is operating correctly:
   - ignition off, the red immobiliser warning light should flash (slow flashing). Bargraph 10 left hand side should be illuminated. The vehicle should not be able to be started using other keys.

   NOTE : to simulate prevention from starting, before turning the ignition on, enter **G04*** (forced protection mode) on the XR25 (bargraph **8 right hand side** illuminates) and wait for approximately 10 seconds. When the ignition is turned on the red immobiliser warning light should flash (rapid flashing) and the vehicle should be prevented from starting.

6. The procedure is complete. After turning the ignition off and on again (for more than 2 seconds), check that the vehicle can be started.

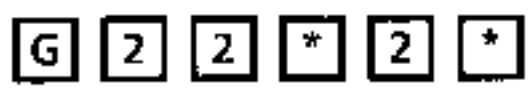
   NOTE : if the programming procedure fails, wait for bargraph 19 left hand side to extinguish before starting again to programme with both keys.

Diesel configuration

On diesel vehicles the decoder unit must be configured in "diesel" using the XR25.

1. With the XR25 connected (ISO selector on **S8**) enter the code **D38** (fiche no. **38**), right hand bargraphs 1 and 2 must be illuminated.

2. Enter the code

   bargraphs 3 right and 9 left hand side must illuminate. The configuration is complete.

REPLACING A KIT (key decoder unit plus 2 key heads, and PLIP decoder unit)

If a kit is replaced it will be necessary to:

- programme the codes of the 2 new keys in the new decoder unit (supplied uncoded).
- erase the old code in the injection computer or solenoid valve using the emergency procedure (the code number for the old kit should be requested from the local assistance network.

IMPORTANT: to erase the old code (memorised in the injection computer or coded solenoid valve), the procedure described below **must** be followed in the correct order.

The code in the injection computer or coded solenoid valve cannot be erased with the emergency code (using the number for the old kit) unless the KEY decoder unit fitted to the vehicle has been programmed with a different code (which is the case in the following procedure).

NOTE : if the emergency code is entered when the decoder unit has the same code as the injection computer, or coded solenoid valve, it will not be decoded.

1. Fit the metal inserts from the old keys into the new key heads.
2. Note the number of one of the old keys to obtain the emergency code number.
3. Remove the KEY decoder unit (see page 82-3), ignition off.
4. Fit the new KEY decoder unit, ignition off.
5. Programme the codes of the 2 new keys in the KEY decoder unit (supplied uncoded) (see programming procedure and configuration procedure for diesel engines.).
6. Erase the old code memorised in the injection computer or coded solenoid valve by using the emergency procedure and the code number for the old kit (see procedure for entering the emergency code).

NOTE : the emergency code may only be entered when the immobiliser is active. The red immobiliser warning light should flash when the ignition is turned on (rapid flashing). To activate the immobiliser in this case the XR25 must be used (fault finding fiche n° 38).

Before turning the ignition on enter G04* (forced protection mode) on the XR25 (bargraph 8 right hand side illuminates) and wait for approximately 10 seconds.

When the ignition is turned on the red immobiliser warning light should flash (rapid flashing).

The emergency code may now be entered.

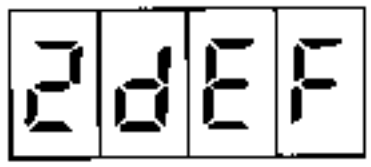
NOTE: On petrol vehicles use the XR25 to check that the injection computer has been correctly decoded (in injection fault finding).

Use fiche n° 27 or 28 (depending on engine) and enter the injection code on the XR25:

– bargraph 2 right hand side (immobiliser) should be illuminated and after entering

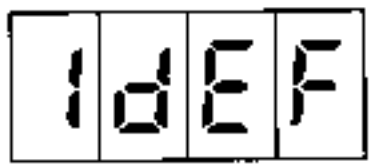
[*] [2] [2]

the message



should be displayed on the XR25.The code has been erased.

– if the display shows



there is a fault on the coded line. In this case, repair and repeat the procedure.

– if bargraph 2 right hand side (immobiliser) is extinguished and the display shows

(*22), this shows that the injection computer code has not been erased. In this case check the conformity of the emergency code and repeat the procedure.

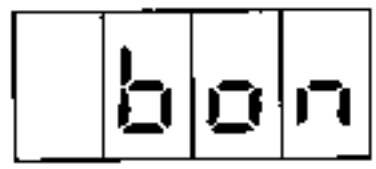
7. Programme the immobiliser code for the new kit into the injection computer or coded solenoid valve.
Turn the ignition off and on again for a few seconds without starting the engine.

NOTE : using the XR25 , it is possible to check that the injection computer has been programmed with the new code (in injection fault finding) :

- bargraph 2 right hand side (immobiliser) should be extinguished (fault finding fiche n° 27 or 28 depending on engine),
- after entering

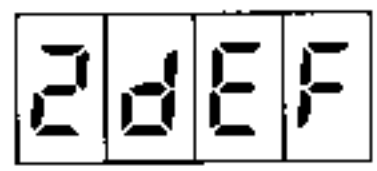
[*] [2] [2]

the display should show



In this case the injection computer has been correctly coded.

If the display shows



the injection computer is still not coded.

NOTE: for diesel vehicles, check that the immobiliser warning light extinguishes after 2 seconds.

8. Check the operation of the immobiliser system:

   - ignition off, the red immobiliser warning light should flash (slow flashing). The vehicle should not be able to be started using other keys.

NOTE : starting prevention should be able to be checked using the XR25:

- use diagnostic fiche n° 38 and enter code **D** **3** **8** using the XR25,

- ignition off, enter **G** **0** **4** *****

  (forced protection mode) on the XR25 (bar-graph 8 right hand side illuminates) and wait for approximately 10 seconds.

- when the ignition is turned on the red immobiliser warning light should flash (rapid flashing) and the vehicle should not be able to be started.

9. The procedure is complete. After turning the ignition off and on again, check the vehicle can be started.

NOTE: To replace and programme the PLIP decoder unit see section 88.

REPLACING THE INJECTION COMPUTER (petrol vehicle)

The injection computer is supplied uncoded. The engine immobiliser code must be programmed in when the computer is fitted.

It is sufficient to carry out the followoing operations:

- turn the ignition on using the vehicle's coded key for a few seconds,

- turn the ignition off, the immobiliser will be activated approximately 10 seconds afterwards (immobiliser warning light flashes).

NOTE : starting prevention should be able to be checked using the XR25:

- use diagnostic fiche n° 38 and code **D** **3** **8** on XR25,

- ignition off, enter **G** **0** **4** *****

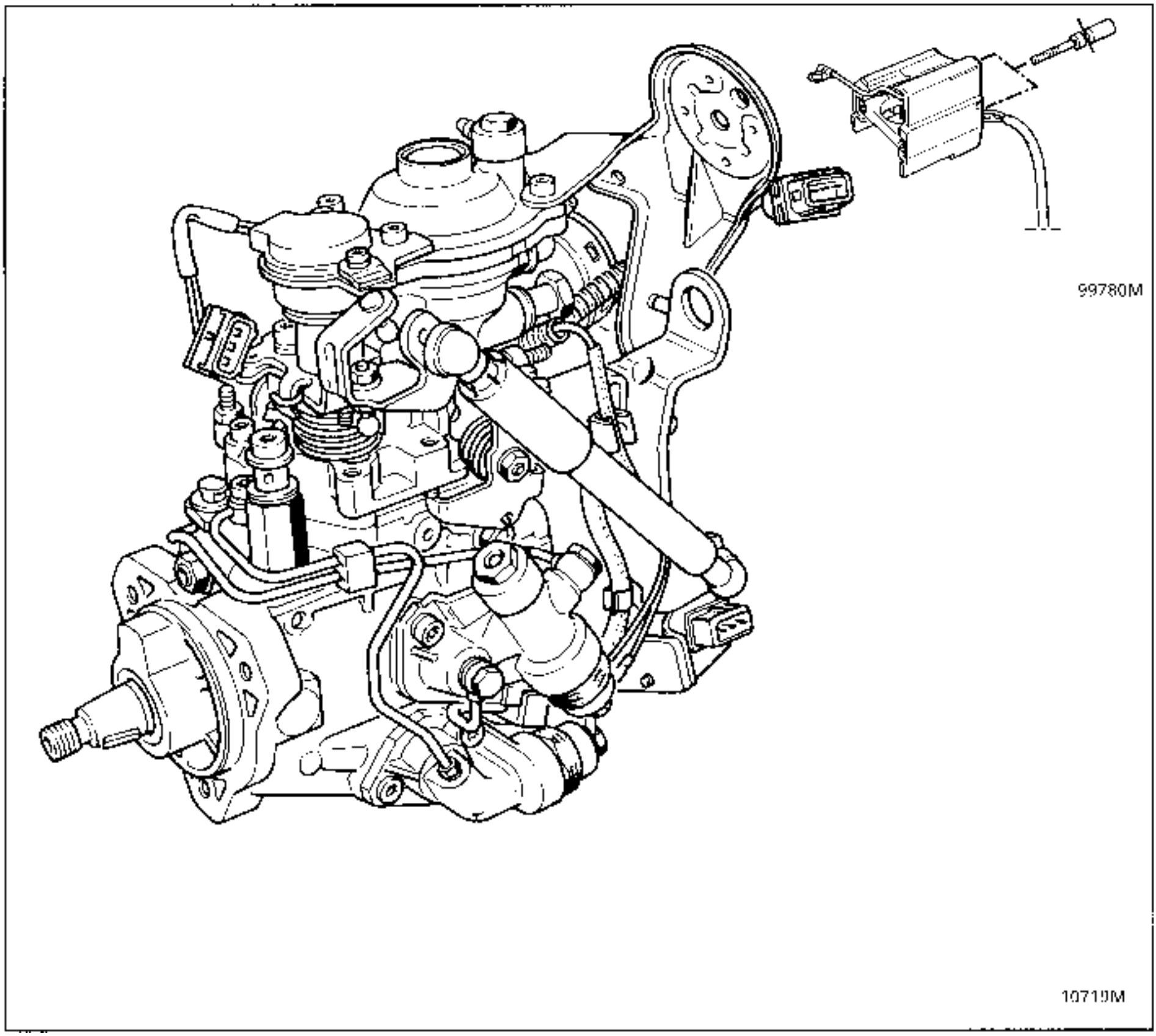
  (forced protection mode) on the XR25 (bar-graph 8 right hand side illuminates)s.

- when the ignition is turned on the red immobiliser warning light should flash (rapid flashing) and the vehicle should not be able to be started.

REPLACING THE ELECTRONICS OF THE CODED SOLENOID VALVE (Diesel vehicle)

REMOVAL

Refer to sub section 13.



REFITTING

Make sure that the retaining flange behind the solenoid valve is present.

Connect the electronics / solenoid valve connection wire by means of its nut.

Clip the plastic cap to the solenoid valve.

Position the electronics section on the solenoid valve.

Using new shear bolts, secure the electronics section by tightening the bolts in the flange until they break.

IMPORTANT: the electronics of the solenoid valve are supplied uncoded. It will therefore be necessary to programme into them the immobiliser system code when it is fitted.

It is sufficient to carry out the following operations:

- turn the ignition on using the vehicle's coded key for a few seconds,
- turn the ignition off, the immobiliser will be activated approximately 10 seconds afterwards (immobiliser warning light flashes).

NOTE : starting prevention should be able to be checked using the XR25:

- use diagnostic fiche n° 38 and code

  D 3 8

- ignition off, enter G 0 4 *

  (forced protection mode) on the XR25 (bar graph 8 right hand side illuminates)

- when the ignition is turned on the red immobiliser warning light should flash (rapid flashing) and the vehicle should not be able to be started.

SPECIAL NOTES FOR TESTING AN INJECTION COMPUTER OR A CODED SOLENOID VALVE (test part)

IMPORTANT: if an uncoded injection computer or solenoid valve is being tested from stock (test part), the feed fuse 

for the passenger compartment connection unit **MUST** be removed before the test part is fitted (do not refit the fuse while the test part is still fitted to the vehicle).

Removing the fuse allows the vehicle to be started without running the risk of coding the injection computer or coded solenoid valve.

The test may then be carried out.

After the test, if the part is to be returned to stock, the part must be removed before refitting the passenger compartment connection unit feed fuse.

If the part is to remain on the vehicle, refit the fuse and programme the immobiliser code in the injection computer or coded solenoid valve (see replacing an injection computer or coded solenoid valve).

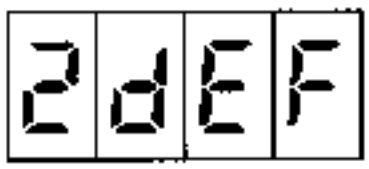
Checking (on petrol vehicle only)

If the test computer is to be returned to stock, it is possible (before it is removed) to check using the XR25 and fiche no° 27 or 28 (depending on engine) that the computer has not been coded during the test (example : incorrect operation).

Connect the XR25, position the ISO selector and enter the injection code.

Bargraph 2 RH side (immobiliser) should be illuminated and after entering

[*] [2] [2]

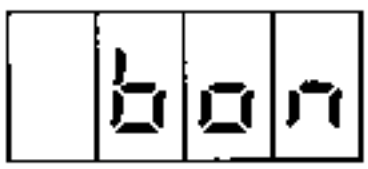
the message 

should be displayed on the XR25.

This shows that the injection computer is not coded and may be returned to stock.

If bargraph 2 RH side (immobiliser) is extinguished and after entering

[*] [2] [2]

the message 

is displayed on the XR25, this shows that the computer has been programmed with the immobiliser code.

In this case the computer must be decoded before being returned to stock.

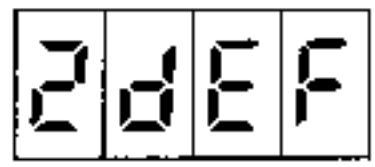
The procedure for decoding the injection computer consists of replacing the KEY decoder unit on the vehicle with another KEY decoder unit with a different code (with its keys) and entering the emergency code for the vehicle (emergency code number should be requested from the local assistance network, example **DELTA Assistance** for France) using the number in the head of the key for the vehicle.

Ignition off, fit in place of the original KEY decoder unit on the vehicle a KEY decoder unit coded with a different number (the procedure will not work with an uncoded decoder unit or one which has the same code as the injection computer).

Turn the ignition on, the red engine immobiliser warning light will flash (rapid flashing).

Enter the vehicle emergency code (number corresponding to the original key number).

After entering the emergency code, the red engine immobiliser warning light will flash again. The XR25 display should read

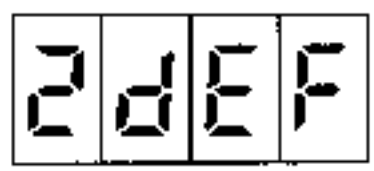


This indicates that the injection computer has been decoded.

Turn the ignition off, remove the decoded computer and return it to stock.

Refit the computer and decoder unit to the vehicle.

NOTE: when checking the injection using the XR25 (fiche no° 27 or 28, depending on engine) during a test with an uncoded computer, bargraph 2 RH side will illuminate

[*] [2] [2] →  =

uncoded computer.

SYSTEM FAULT, ENGINE RUNNING
Petrol vehicle

If a fault in the system is noted by the injection computer when the engine is running, the injection warning light on the instrument panel will flash during deceleration and at idle speed (engine speed less than 1500 rpm).

IMPORTANT: In this case, after repair, the fault memorised in the injection computer must be erased by disconnecting the battery (approximately 30 seconds) to allow the engine immobiliser system to operate again.

NOTE : this fault may be shown by the XR25 (fiche no° 27 or 28, depending on engine).

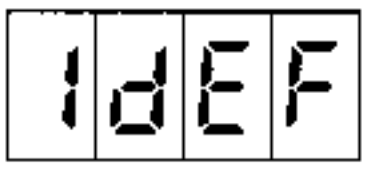
Connect the XR 25.

Position the ISO selector and enter the injection code.

The fault is shown by bargraph **2 RH side**.

After entering

the message



on the XR25 display indicates a fault on the coded line.

Diesel vehicle

If a system fault is detected by the decoder unit when the engine is running, the red immobiliser warning light (on the roof console) will illuminate permanently until the ignition is switched off.

IMPORTANT: in this case, after repair, the fault memorised in the decoder unit must be erased by disconnecting the battery (approximately 30 seconds) to allow the engine immobiliser system to operate again.

NOTE: this fault may be shown by the XR25 and by the diagnostic of the decoder unit (fiche no. 38).

Connect the XR25.

Set the ISO selector to 58 and enter the code

The fault may be shown by bargraph **6 RH side.**

PROCEDURE FOR ENTERING THE EMERGENCY CODE

With this immobiliser system, the procedure for entering the emergency code is managed by the decoder unit.

The code is entered using the XR25 or the central door locking button (CPE) and the red engine immobiliser warning light.

The emergency code can only be entered if the engine immobiliser system is active. The red immobiliser warning light must flash when the ignition is turned on (rapid flashing).

After determining the emergency code number (request from the local assistance network), carry out the following operations:

- Using the XR25

- use fiche **no. 38** and enter the code

[D] [3] [8] on the XR25,

– ignition off, enter [G] [0] [4] [*]

(forced protection mode) on the XR25 (bargraph **8 RH side** is illuminated),

- when the ignition is switched on the red immobiliser warning light must flash (rapid flas hing) and it must be impossible to start the vehicle.

– Enter [G] [4] [0] [*]

– Enter the emergency code, followed by [*]

The code [B] [O] [N] must be read

The red immobiliser warning light must illuminate permanently for approximately 3 seconds, extinguish for approximatley 3 seconds and must illuminate permanently again for approximately 30 seconds.

Using the CPE (central door locking button)

1. Ignition off, the red immobiliser warning light should flash (slow flashing),

2. Turn the ignition on, the red immobiliser warning light flashes more quickly,

3. Press and hold the CPE key (it does not matter which side), the red warning light extinguishes,

4. Without releasing the key, the warning light will flash very slowly (every 1.5 seconds) to generate a counting sequence.
   Count the number of times the red warning light illuminates and release the key when the value of the 1st figure of the emergency code is reached.

5. Press the key again.
   Count the number of times the red warning light illuminates and release the key when the value of the 2nd figure of the emergency code is reached.

6. Repeat operation 5 to enter the two remaining emergency code figures.

After entering the 4th figure of the fault code:

- if the code is correct it is possible to start the engine.

  The red immobiliser warning light should illuminate for approximately 3 seconds, extinguish for approximately 3 seconds, then illuminate for approximately 30 seconds.

  This warning light illumination cycle will repeat whenever the ignition is switched on and as long as the vehicle is unprotected (up to approximately 10 minutes after the ignition is switched off). This serves to remind the customer that his vehicle is no longer protected.

  The vehicle will again be protected either:
  - approximately 10 minutes after the ignition is switched off (automatic starting), or
  - after the battery is disconnected.

- if the code is incorrect, the engine cannot be started.

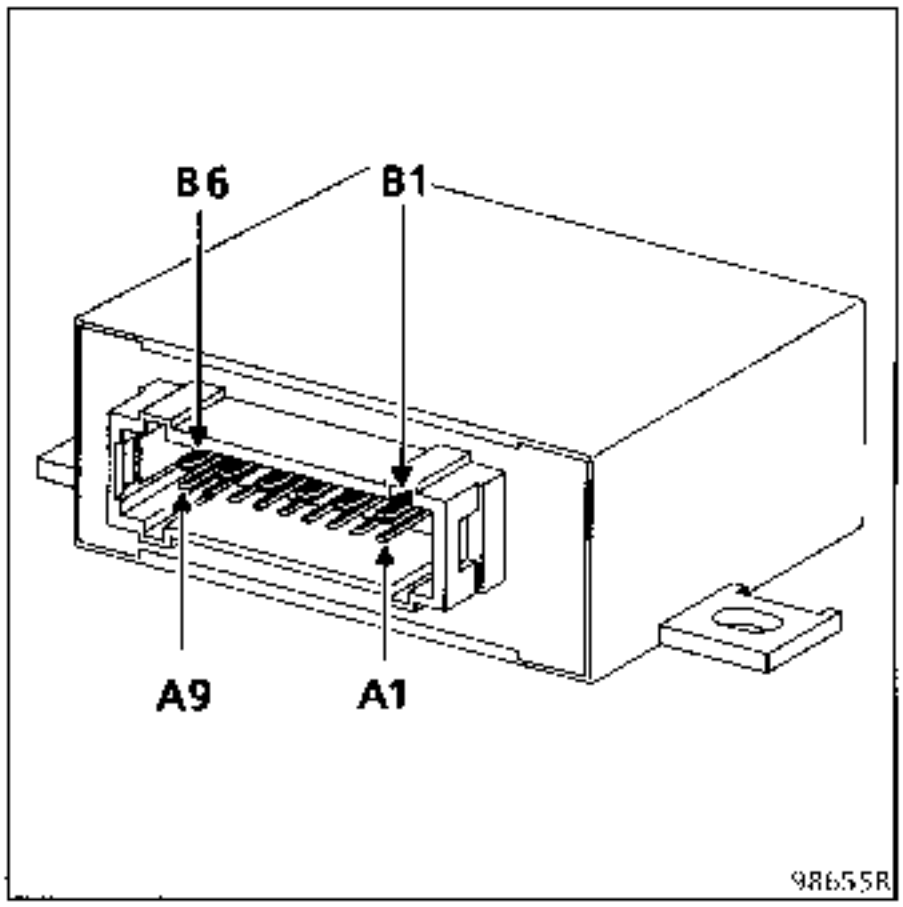
The red immobiliser warning light flashes.

Turn the ignition off then repeat the procedure for entering the emergency code.

IMPORTANT: you may make 3 attempts to enter the code. If, after the third attempt, the code is invalid, you must wait for approximately 15 minutes before making another attempt.
When this period has expired, turn the ignition off and on again and 3 more attempts may be made.

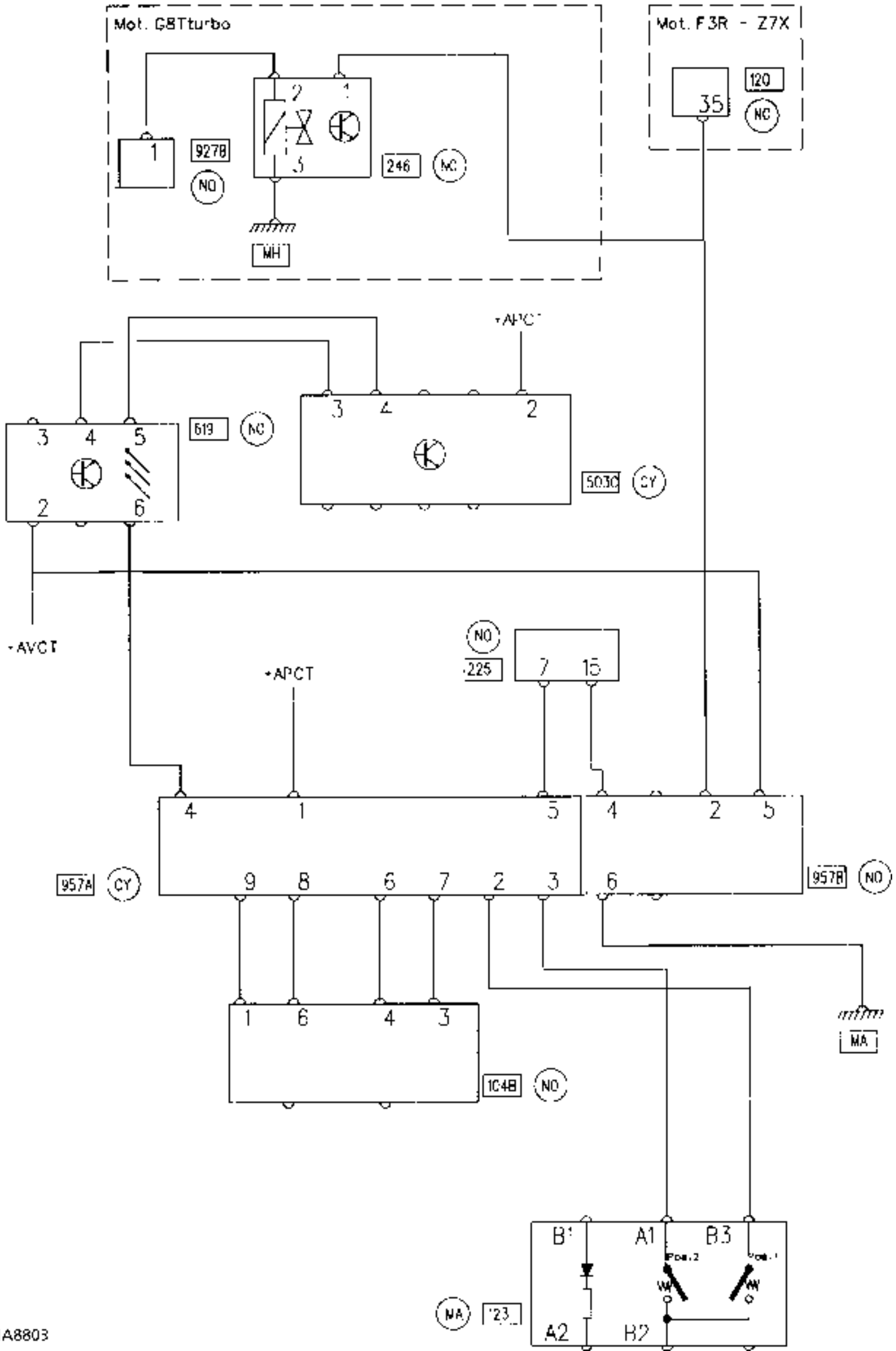
REMINDER: This procedure does not decode the injection computer or coded solenoid valve (depending on the type of engine)- it only authorises the starting of the vehicle.

DECODER UNIT CONNECTIONS



Track	Allocation
A1	+ after ignition
A2	Emergency code entry key
A3	Emergency code entry key
A4	Red immobiliser warning light
A5	Diagnostic socket information (line L)
A6	Ring/ decoder unit coded line
A7	Ring interrogation
A8	Ring earth
A9	Ring feed
B1	Not used
B2	Coded information to injection computer or coded solenoid valve
B3	Not used
B4	Diagnostic socket information (line K)
B5	- before ignition
B6	Earth

DIAGRAM



PRMMA8803

KEY

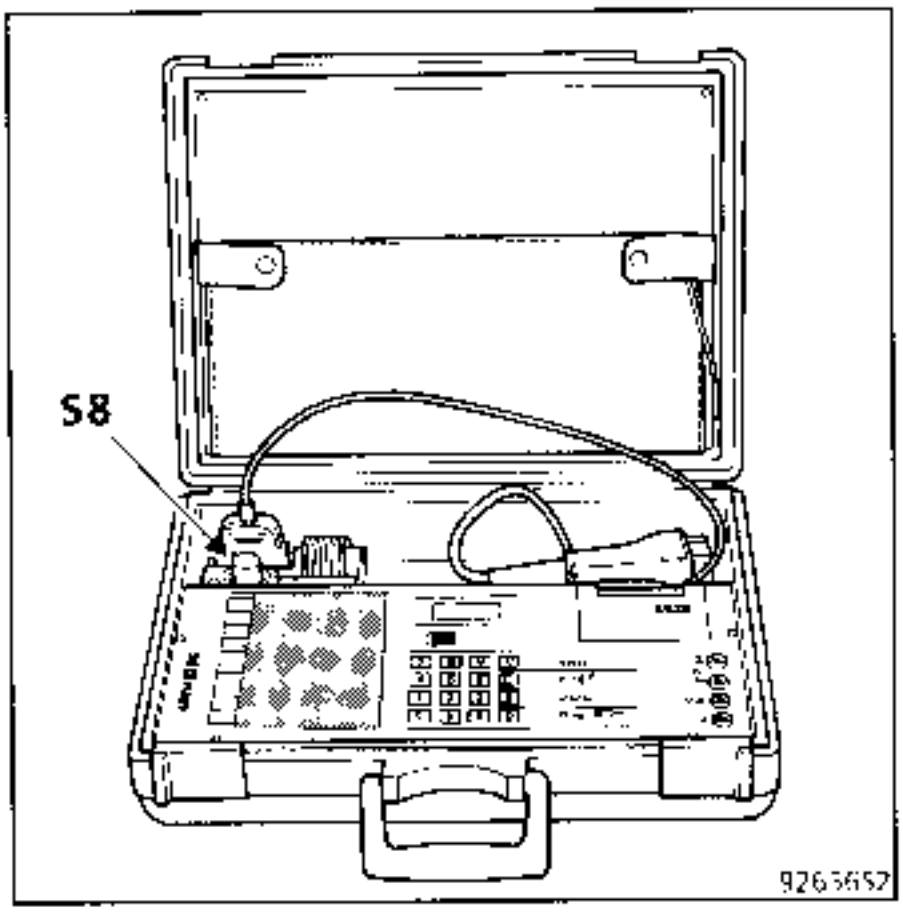
104 Ignition switch (ring)
120 Injection computer
123 Emergency code entry key
225 Diagnostic socket
246 Coded solenoid valve
619 Infrared remote control board
957 Coded key immobiliser unit

FAULT FINDING

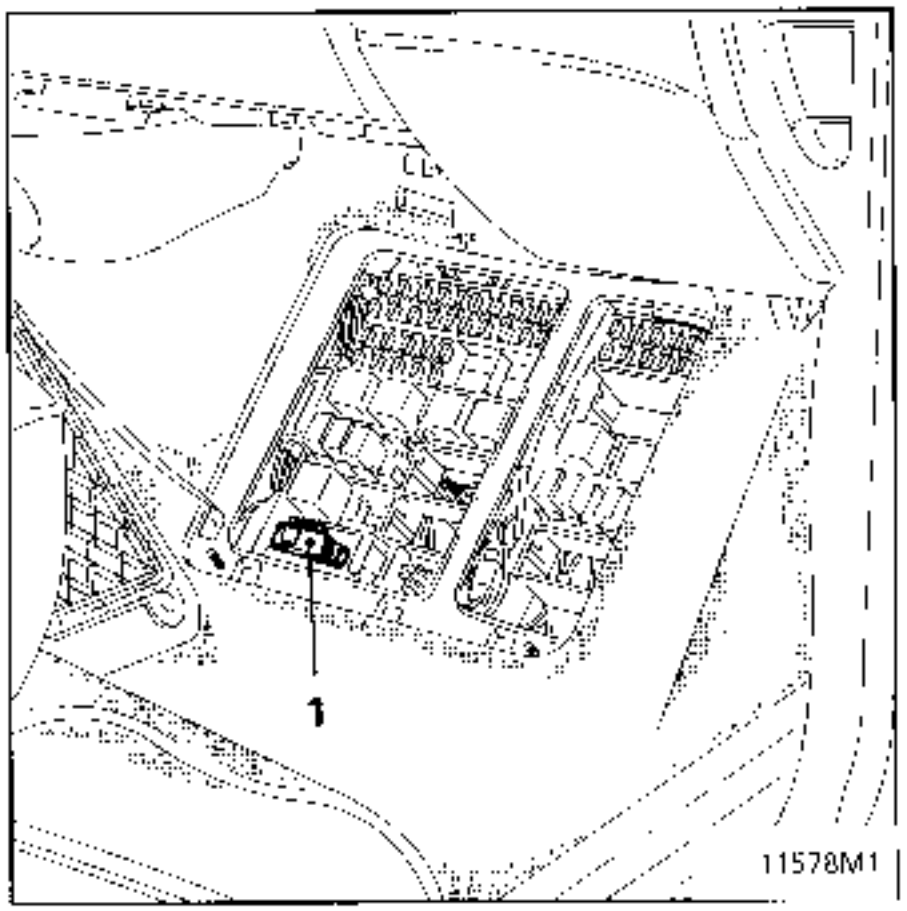
If this system is faulty, fault finding may be carried out using the XR25.

CONNECTION

Use the latest cassette and the corresponding fiche no° 38.



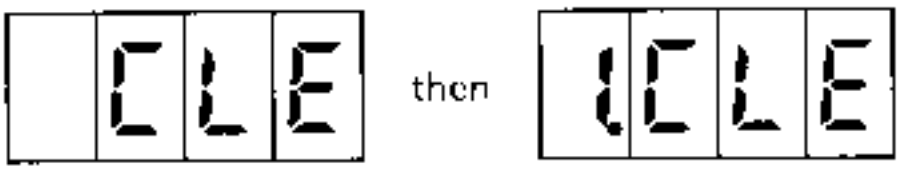
Connect the XR25 to the diagnostic socket (1) located behind the passenger compartment fuse cover under the passenger foot rest.

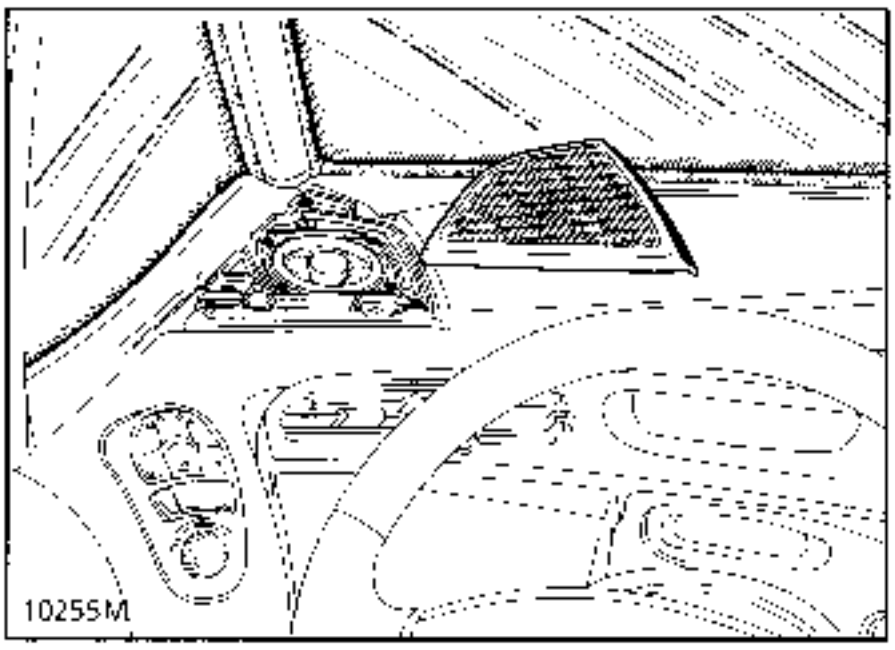


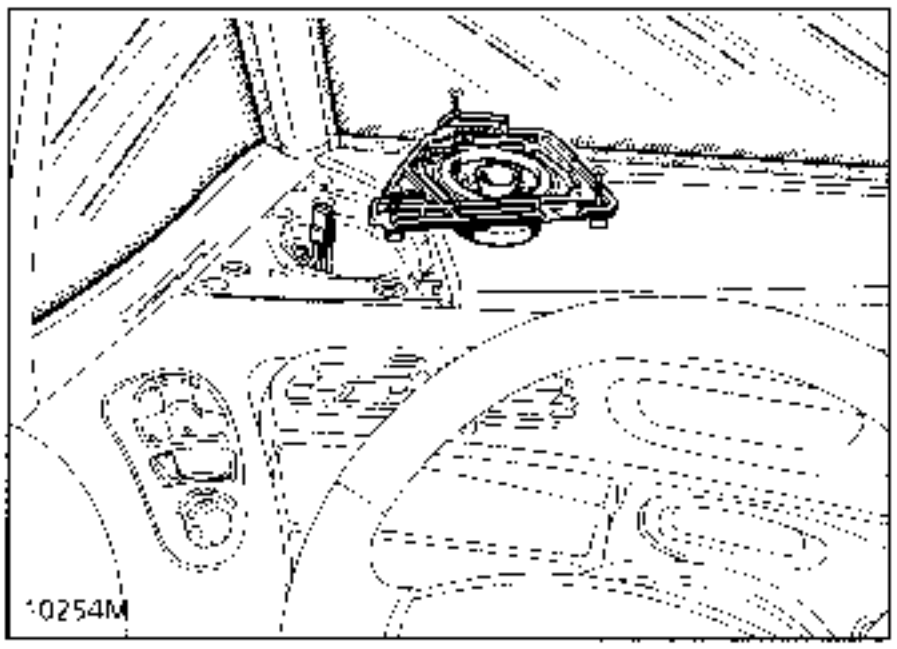
Position the ISO selector on S8 and enter

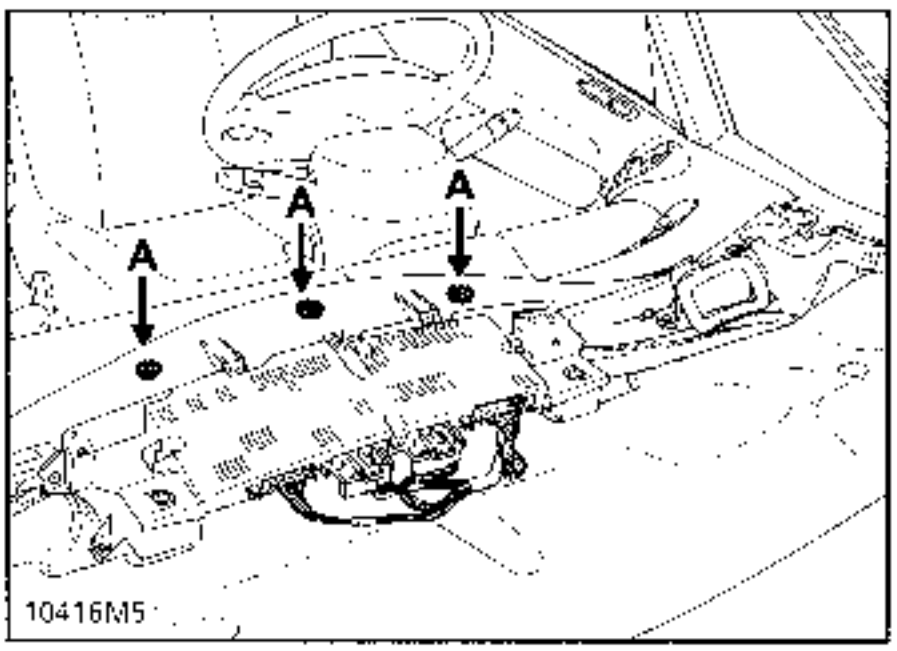
D 3 8

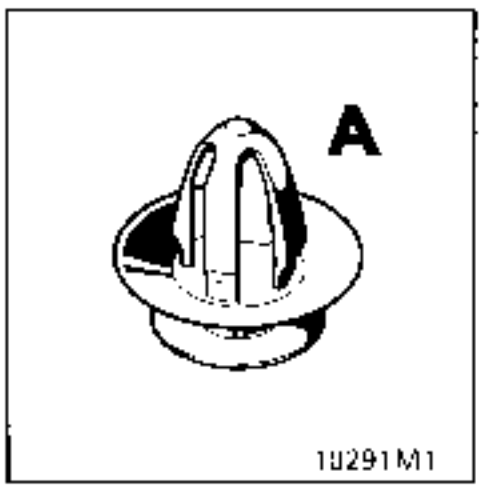
On the central display read:











REMOVAL: Instrument panel

OPERATION

Unclip the speaker grilles by hand, starting with the edge on the air vent side.

Slacken the three mountings on each speaker support.

Disconnect the speakers and remove them.

On V6 automatic transmission move the A.T. lever to position "2".

Lift the dashboard cover, starting in the corner, and pull vertically to unclip the three mountings (A).

Remove the top section of the dashboard, pulling it to the rear.

Slacken the five mountings and disconnect the instrument panel.

REFITTING

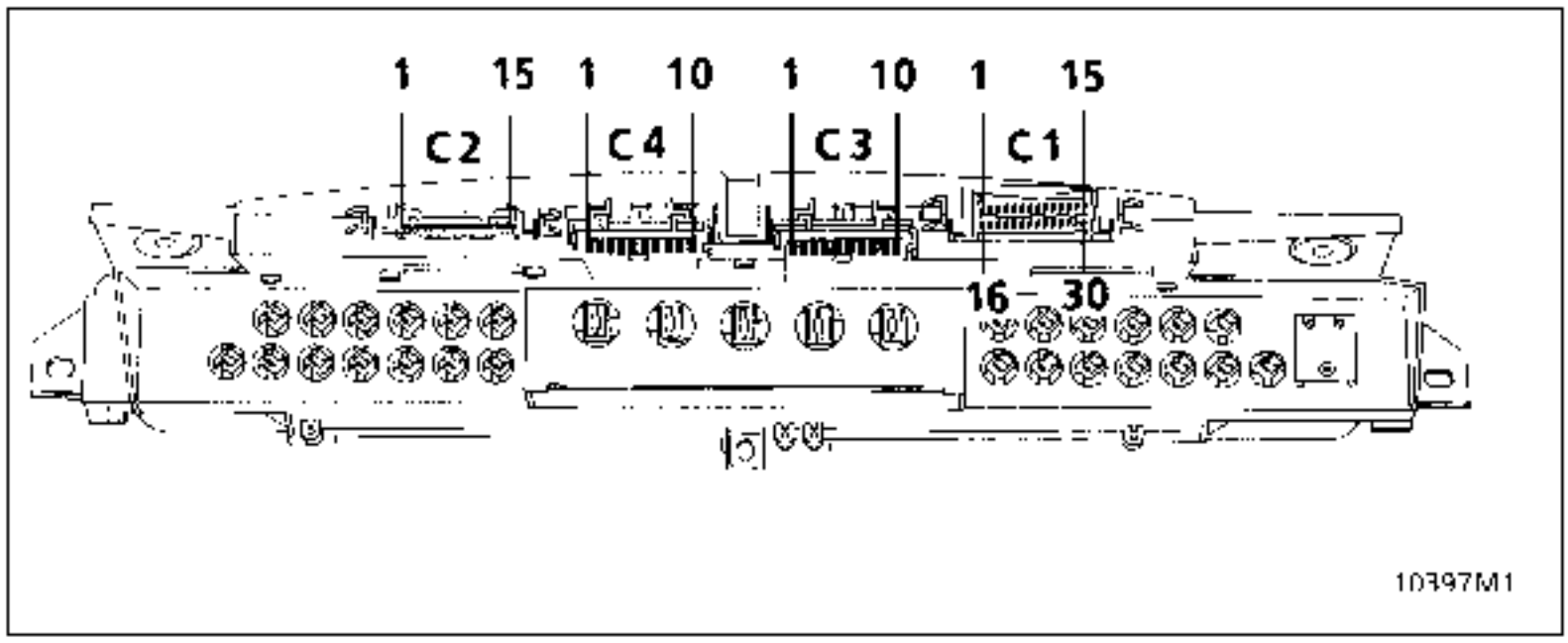
Check that the three clips (A) are present.

Refitting is the reverse of removal.

Check radio operation.

EQUIPMENT LEVEL E1, E2 and E3

CONNECTION



Connector C1 from 1 to 15 (brown/white)

1 – Battery.

2 + After ignition airbag

3 – Accessories .

4 Oil level sensor information.

5 Timing (or oil level) earth.

6 Line H diagnostic information.

7 Not used.

8 Line K diagnostic information.

9 Outside temperature connection*.

10 Outside temperature sensor information*.

11 Fuel level information.

12 Gauge information connection.

13 ADAC sequence.

14 Not used.

15 + Instrument panel lighting by rheostat.

***Except E1.**

Connector C1 from 16 to 30 (brown/black)

16 Electronic earth.

17 LH door switch passenger compartment lighting.

18 · RH side light.

19 Coolant temperature warning light.

20 Radio/satellite control link*.

21 Radio/satellite control link*.

22 Radio/satellite control link*.

23 Radio/satellite control link*.

24 Radio/satellite control link*.

25 Radio/satellite control link*.

26 Speed information.

27 Fuel flow information*.

28 T.D.C. information.

29 Coolant temperature information.

30 + Instrument panel lighting.

CONNECTION (contd.)

Connector C2 (Green/white)

1 Not used.

2 Battery charge warning light.

3 A.B.S. warning light.*.

4 Self-levelling suspension fault warning light*.

5 Nivocode brake information warning light.

6 Oil pressure warning light.

7 Brake pad wear warning light.

8 AT fault warning light*.

9 Injection fault warning light.

10 Coolant temperature warning light.

11 Fan assembly fuse test information warning light.

12 Preheating warning light.

13 Airbag fault warning light.

14 Not used.

15 Not used.

***Except E1.**

Connector C3 (Black)

1 + LH dipped headlight.

2 + RH dipped headlight.

3 - rear fog light.

4 + front fog light.

5 Electronic earth.

6 + After ignition airbag fuse.

7 Not used.

8 Not used.

9 Not used.

10 Charge warning light connection.

Connector C4 (Brown)

1 + After ignition airbag fuse.

2 Self-levelling suspension fault warning light*.

3 Handbrake information warning light.

4 Heated seat warning light*.

5 A.B.S. warning light.

6 Nivocode information warning light.

7 RH indicator feed warning light.

8 Not used.

9 LH indicator feed warning light.

10 + LH main beam headlight.

***Except E1.**

EQUIPMENT LEVEL E1.

Reference		colour
1	Front fog lights	green
2	Rear fog light	amber
3	Side lights	green
4	Dipped headlights	green
5	Main beam headlights	blue
6	LH indicator	green
7	Not used	
8	Reserved	red
9	Catalytic converter overheating	red
10	Battery charge	red
11	Minimum fuel level	amber
12	Minimum oil level	amber
13	Minimum oil pressure	red
14	RH indicator	green
15	Nivocode	red
16	A.B.S.	red
17	Heated seats	amber
18	Handbrake	red
19	Self-levelling suspension (C.O.A.)	amber
20	Brake pad wear	amber
21	Electrical fault (injection or A.T.)	amber
22	Maximum coolant temperature	red
23	Diesel preheating	amber
24	Airbag	amber

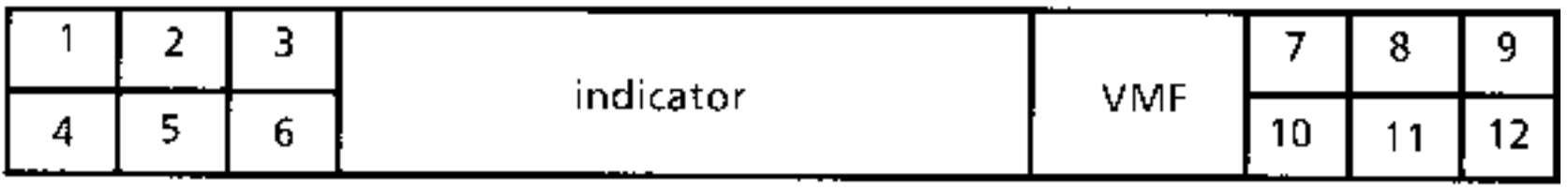
EQUIPMENT LEVEL E1.

reference		colour
25	Reserved	
26	Reserved	

DISPLAY:

Digital display of speed in km/h or MPH
- Digital display of total distance on provision of + after ignition feed
- Display of fuel level in the form of a bargraph
  Display of the stopped engine oil level or coolant temperature.
  (20 seconds after switching on the + after ignition with the
  engine running) in the form of a bargraph.
- Permanent clock display.

EQUIPMENT LEVELS E2 and E3



reference		colour	V.M.F	
			STOP	SERVICE
1	Dipped headlights (codes)	green		
2	Main beam headlights (headlights)	blue		
3	LH indicator	green		
4	Side lights	green		
5	Rear fog light	amber		
6	Front fog lights	green		
7	RH indicator	green		
8	Nivocode (brake fault)	red	X	
9	A.B.S.	red	X	
10	Self-levelling suspension (COA)	amber		X
11	Handbrake	red		
12	Heated seats	amber		

V.M.F.: Multi-function warning light

EQUIPMENT LEVELS E2 and E3

refer-ence		colour	V.M.F	
			STOP	SERVICE
V.M.F.	Maximum coolant temperature	red	X	
V.M.F.	Catalytic converter overheating (petrol)	red	X	
V.M.F.	Battery charge	red	X	
V.M.F.	Low oil pressure	red	X	
V.M.F.	Brake pad wear	amber		X
V.M.F.	Electronic fault (A.T. + injection)	amber		X
V.M.F.	Fuel low	amber		
V.M.F.	Diesel preheating	amber		
V.M.F.	Low oil level	amber		
V.M.F.	Air bag/pretensioner	amber		X
V.M.F.	Outside temperature and clock (permanent display except message in V.M.F.)	amber		
V.M.F.	Radio information	amber		
V.M.F.	Only when engine stalled	red		

DISPLAY:

- Digital display of speed in Km/h or MPH
- Display of fuel level in the form of a bargraph
- Display of the stopped engine oil level or coolant temperature. (20 seconds after providing the + after ignition feed and with engine running) in the form of a bargraph.
- ADAC zone display:
  - Trip total in miles/kilometres
  - Average speed
  - Average consumption
  - Instantaneous consumption (not UK)
  - Estimated fuel range
- Radio display
- General constant total display in miles/kilometres.

V.M.F. = Multi-function warning light.

OPERATION

An on-board computer is integrated in the instrument panel and all the electronic functions are performed in it by a microprocessor.

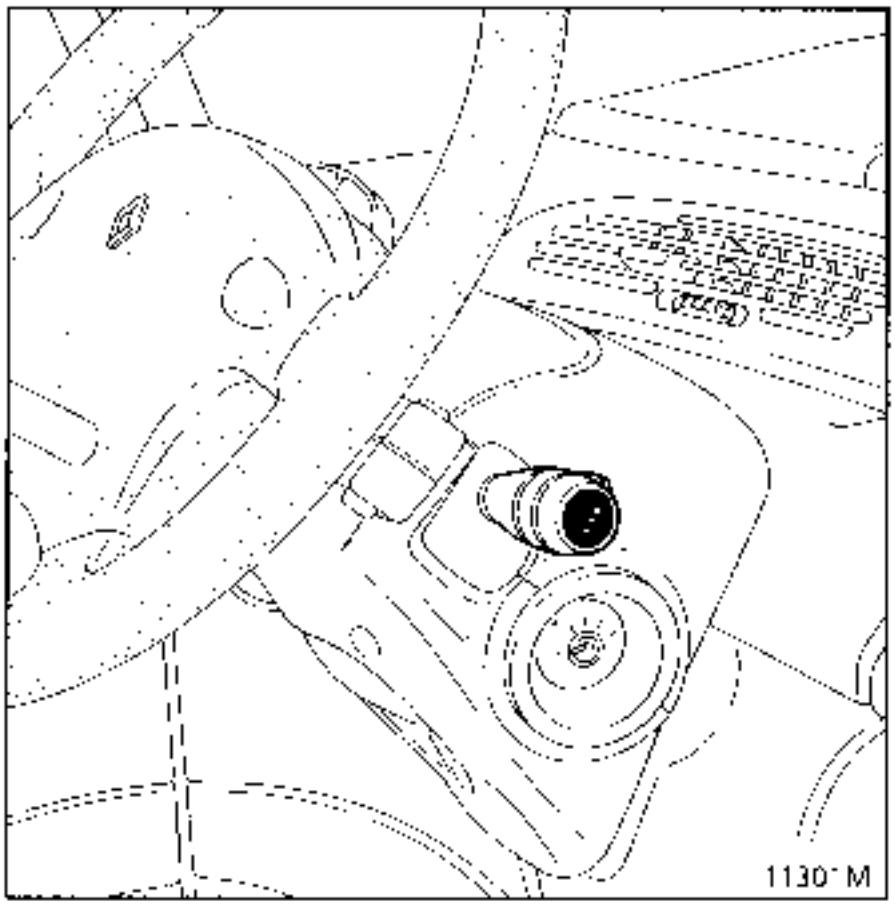
The latter receives the signals via a protective and shaping circuit, then transmits the information to the display on the instrument panel.

The microprocessor also performs the diagnostic function.

ADAC button: At the end of the windscreen wiper stalk.

- With the + after ignition press the Reset key for about 2 seconds:
  Reset memories.

- With the + after ignition press the Reset key briefly:
  Information displayed on the display in sequence.



ADAC button:

- With + accessory feed, press the Reset key for approximately 2 seconds:
  Flashing of the speed units and coolant temperature bargraph.
  If the M key on the clock is pressed whilst these are flashing, the units on the speedo are changed (Km/h or MPH), and if key H is pressed the coolant temperature function is cancelled.

The on-board computer performs the following specific functions:

- travel parameter management,
- management of remaining miles/kilometres and low fuel warning light,
  diagnostic sequence.

Management of travel parameters

The loop of the on-board computer consists of 5 types of display.

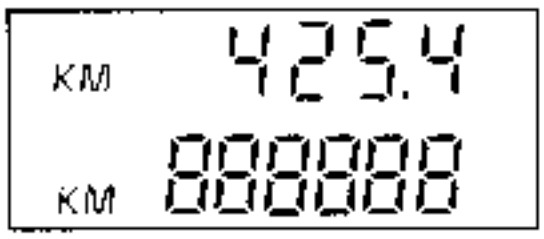
When the ignition is switched on the display called is that which appeared when the ignition was last switched off.

These display changes are made by briefly pressing the button at the end of the windscreen wiper stalk.

NOTE: pressing the key for a long time (more than 2 seconds) resets the on-board computer.

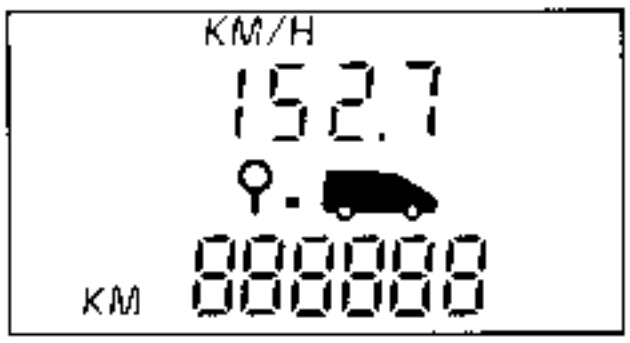
The information arrives consecutively on the liquid crystal display as follows:

- **distance driven (in km or in M*)** since the last reset



maximum distance: 9999 km or M*

- **average speed ** (in km/h or in MPH*)** since last reset

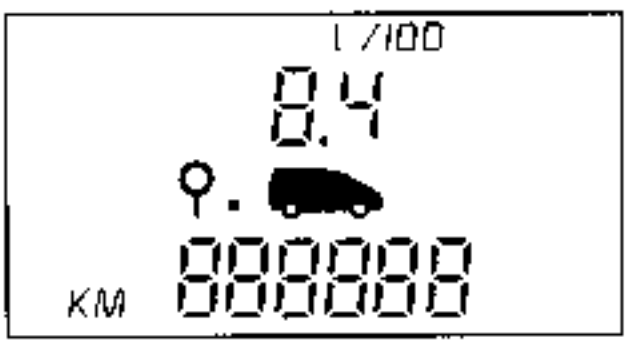


It is displayed after 400 metres or 0.2 mile* have been driven.

It is obtained by dividing the distance driven by the time which has elapsed since the last reset.

The time base is inside the on-board computer.

- **average consumption ** (in litres/100 km or MPG*)** since the last reset

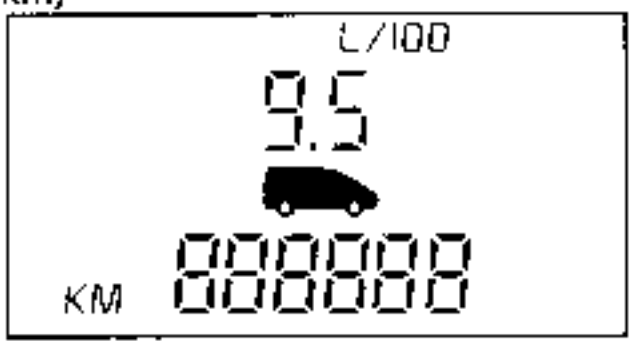


It is not displayed until 400 metres or 0.2 mile* have been covered.

It allows for the distance driven and the fuel consumed since the last reset.

* English version
** Except diesel version

- **instantaneous consumption ** (in litres/100 km)**



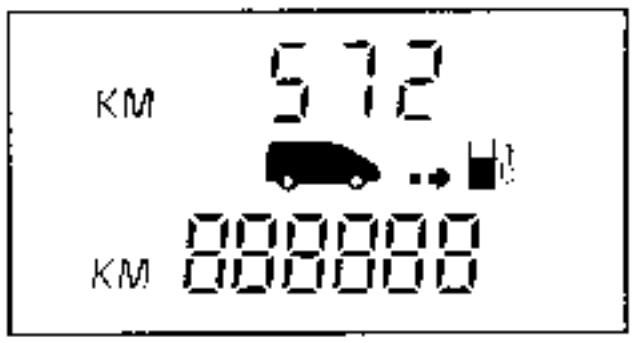
It is not displayed until the vehicle speed exceeds 25 km/h.

However, this value cannot exceed 29.9 litres/100 km.

If there is no flow pulse for at least 1 second, and if the speed exceeds 25 km/h, 0 litres/100 will be displayed.

NOTE: this function does not exist in the English version.

- **estimated range with the remaining fuel ** (in km or M*)**



It is not displayed until 400 metres or 0.2 mile have been driven*.

This is the potential range obtained allowing for the distance driven, the quantity of fuel remaining in the tank and the fuel consumed.

Maximum capacity: 9999 km or M*

Description of the combined warning and alarm functions.

When the + accessory feed is switched on the unit turns on and then measures the oil level, at which point a timing period of one minute is initiated. The clock and outside temperature are displayed on the V.M.F. (multi function warning light) and the radio, depending on option. If the radio is off the "Off" state of the radio is displayed.

When the + after ignition feed is turned on, the functions of the combined unit are then validated and the information which must appear on the indicator is displayed.

Management of fuel and the associated alarm warning light

The fuel volume function performs the following operations:

- acquisition of the sender information,
- calculation of the fuel volume to be displayed
- conversion of the fuel volume to a 9-level bar graph

Fuel low

The fuel low procedure is initiated as soon as the quantity of fuel remaining in the tank is approximately 8.5 litres.

When the fuel volume becomes insufficient, the "fuel level" warning symbol is displayed and alternates with the "service" symbol.

Resetting of the on-board computer

The computer is reset by pressing the button at the end of the windscreen wiper stalk for a long time, whatever the current display.

Any exceeding of the maximum capacity of a displayed value is equivalent to a function reset.

The travel parameters are stored in a memory.

Consequently battery disconnection in no way alters these parameters.

DIAGNOSTICS

Faultfinding

The on board computer has been designed to detect faults which may affect the indications given by the display or the indicators.

If the indications

estimated fuel range
average consumption
instantaneous consumption (not UK)

are replaced by the display of flashing dashes, this indicates a fault in the flow information for more than **10 miles (16 km)**.

If the first segment and the pictogram of the pump flash, this indicates an error in the sender information for **over 100 consecutive seconds**.
If this fault occurs do not reset until the + after ignition has been switched on.

In addition to signalling a fault by flashing of the display, **the on-board computer stores the fault in a memory.**

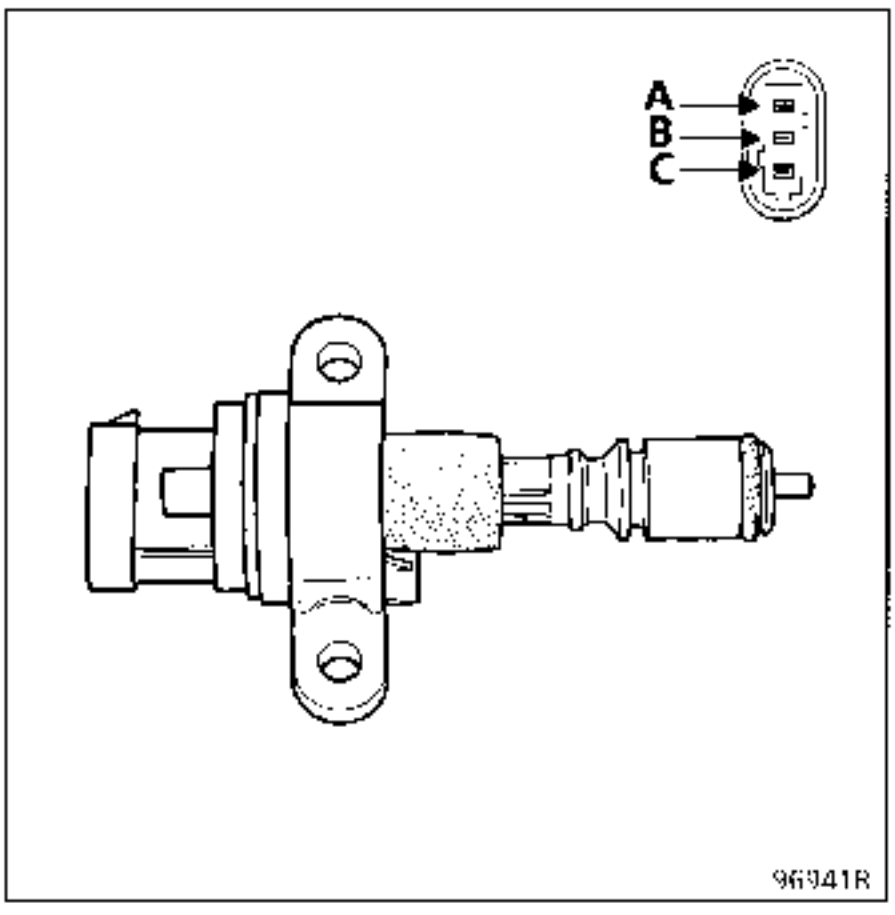
SPEED INFORMATION

GBT Turbo and Z7X engines

The instrument panel receives the vehicle speed information from an electronic Hall effect sensor.

This information is also intended for certain electronic units (injection computer, etc.).

CONNECTION

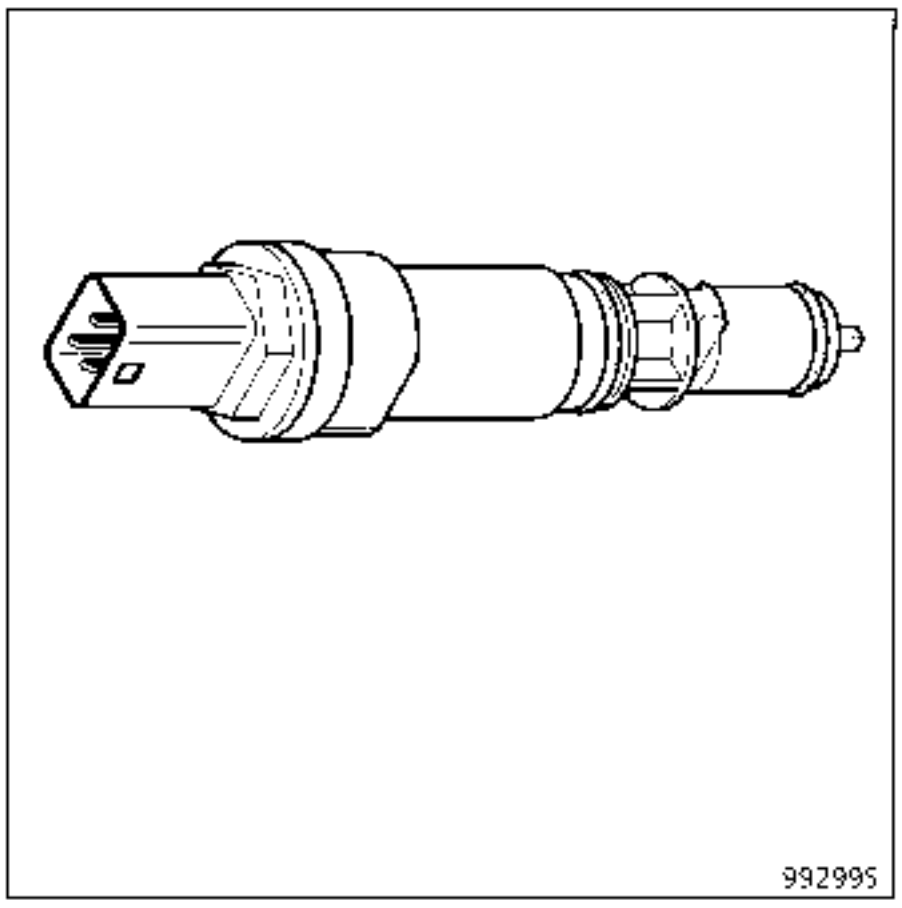


Track	Allocation
A	+ 12 V after ignition
B	Vehicle speed information
C	Earth

SPEED INFORMATION

F3R engine

CONNECTION



Track	Allocation
A	+ 12 V after ignition
B1	Vehicle speed information
B2	Earth

REMOVAL

It is strictly forbidden to repair this instrument panel.

If a fault occurs it must be replaced.

NOTE: If the instrument panel is replaced the parameters must be set. If not, the speed information will flash until it is set.

Method of setting parameters

Ignition switched on and the engine not running:

- Connect the XR 25 to the diagnostic socket equipped with the latest cassette and set the selector to S8.
- Enter the code

- The following appears on the central display :

- **Set according to whether LH or RH drive and engine type**

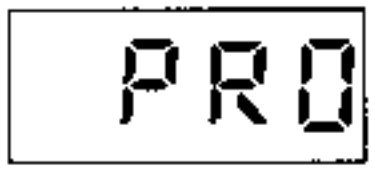
LH drive:

4 cylinders (F3R) enter G10*1*
6 cylinders (27X) enter G109*2*
Diesel (G8Tturbo) enter G10*3*

RH drive:

4 cylinders (F3R) enter G10*4*
6 cylinders (27X) enter G10*5*
Diesel (G8Tturbo) enter G10*6*

The following appears on the central display:



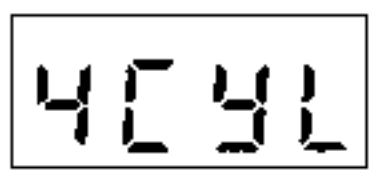
Checking the setting:

Type of engine E = petrol
D — diesel

Number of cylinders 4 or 6

The following appears on the central display:

Example :



Equipment level E1, E2 and E3

SPECIAL TOOLING REQUIRED	
Mot. 1397	Wrench for removing sender unit nut
Mot. 1265	Pliers for removing quick-release unions

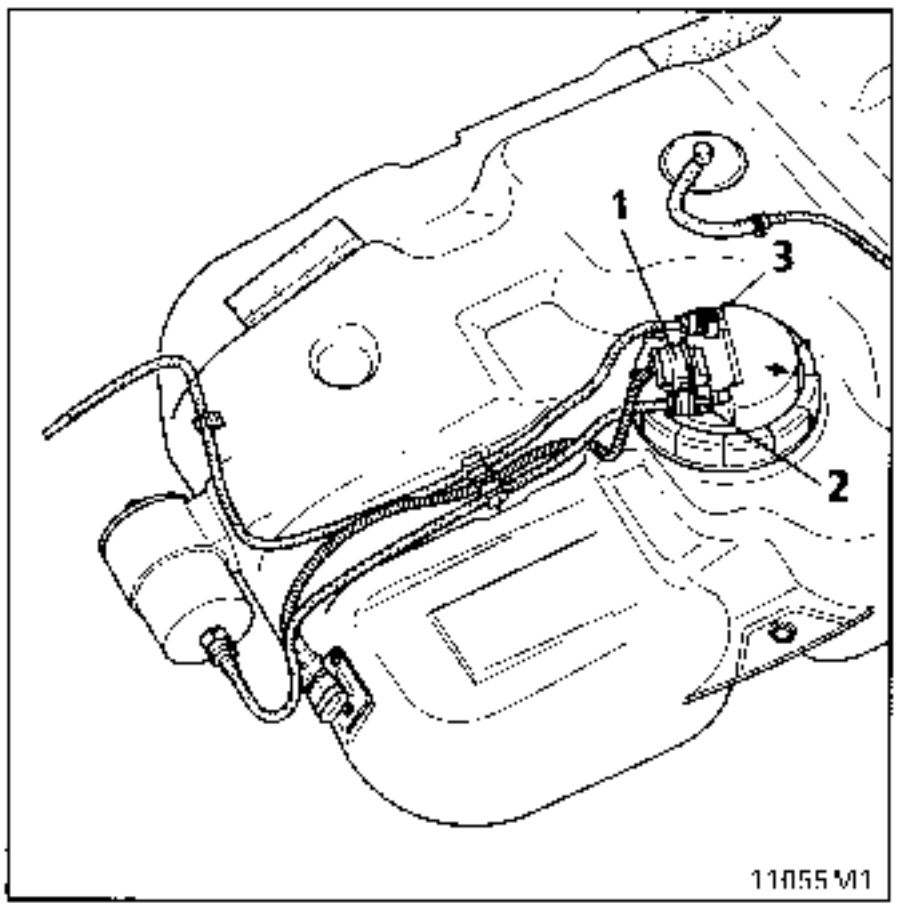
IMPORTANT

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

- Do not smoke.

- Keep all flames or incandescent objects away from the working area.

REMOVAL OF THE PUMP - SENDER ASSEMBLY



Disconnect the battery.

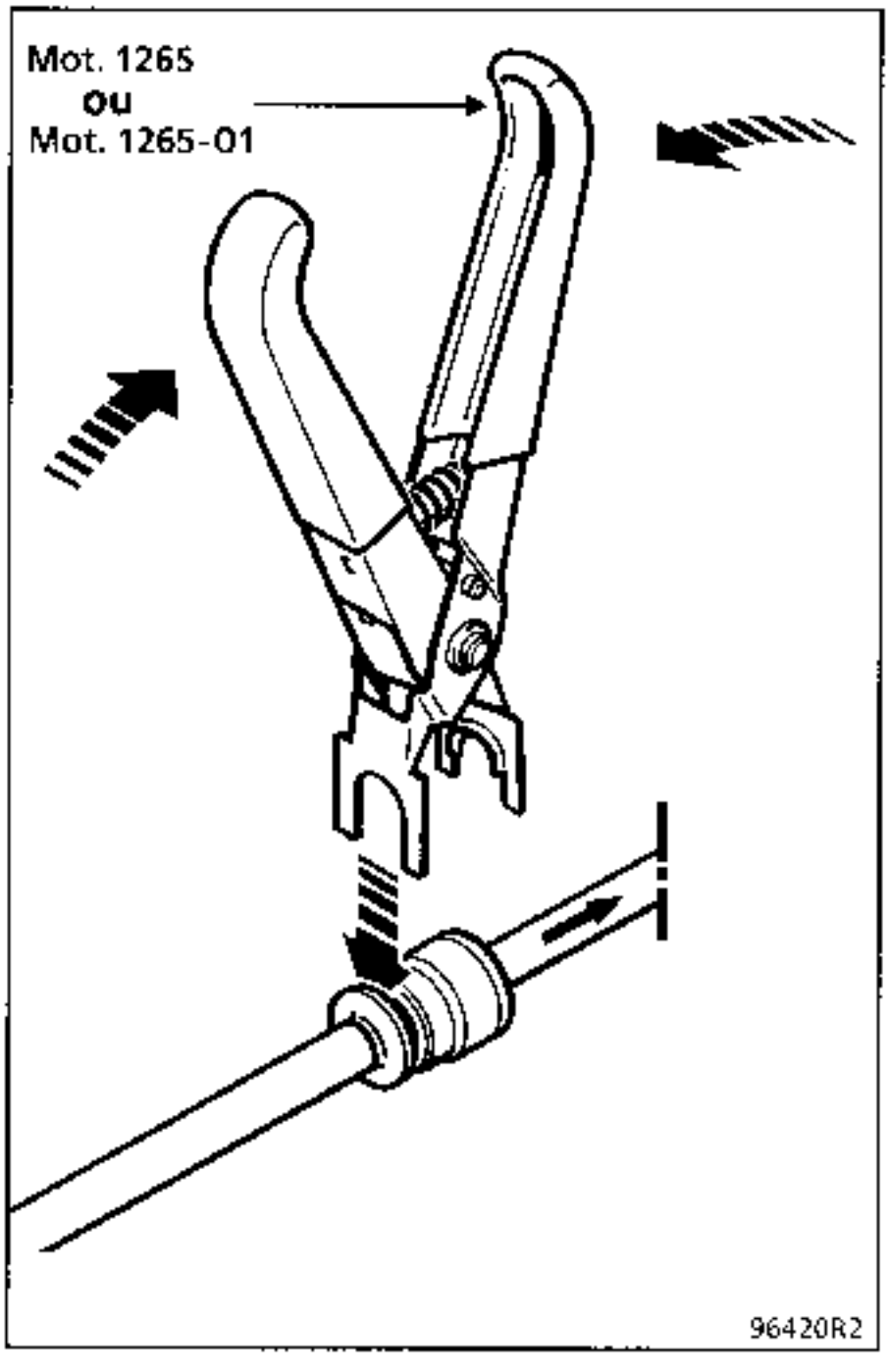
Remove the fuel tank.

Disconnect the electrical connector (1).

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

NOTE: if you observe the presence of a plastic ring, used for factory assembly, level with the quick-release union, it must be removed before disconnecting the pipe.

IMPORTANT: When the pipes are removed, fuel may be splashed out due to the residual pressure in the pipes. Take appropriate action.



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

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

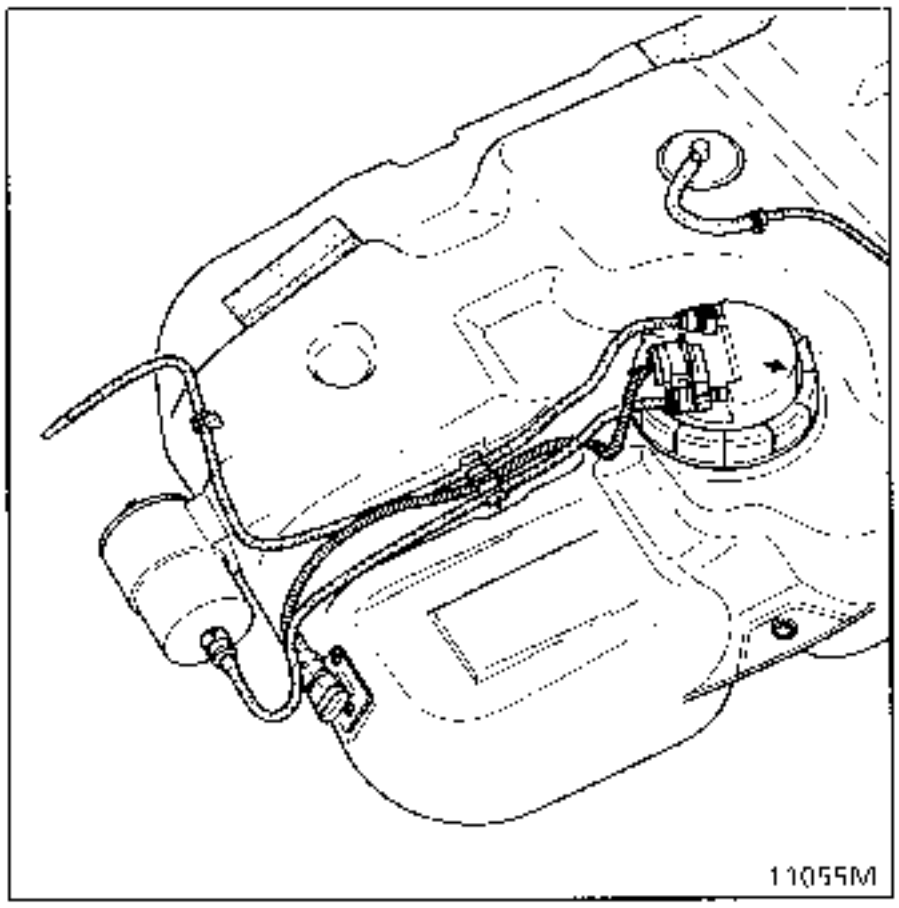
Remove the pump and sender unit assembly.

NOTE : If several hours may pass between removing and refitting the pump and sender unit assembly, refit the nut to the fuel tank to prevent it from distorting.

REFITTING OF THE PUMP AND SENDER UNIT ASSEMBLY

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

Fit the seal on the fuel tank first before fitting the assembly.
Refit the pump and sender unit assembly in the fuel tank by aligning it so that the indexing arrow is positioned opposite the lug on the sender unit opening.

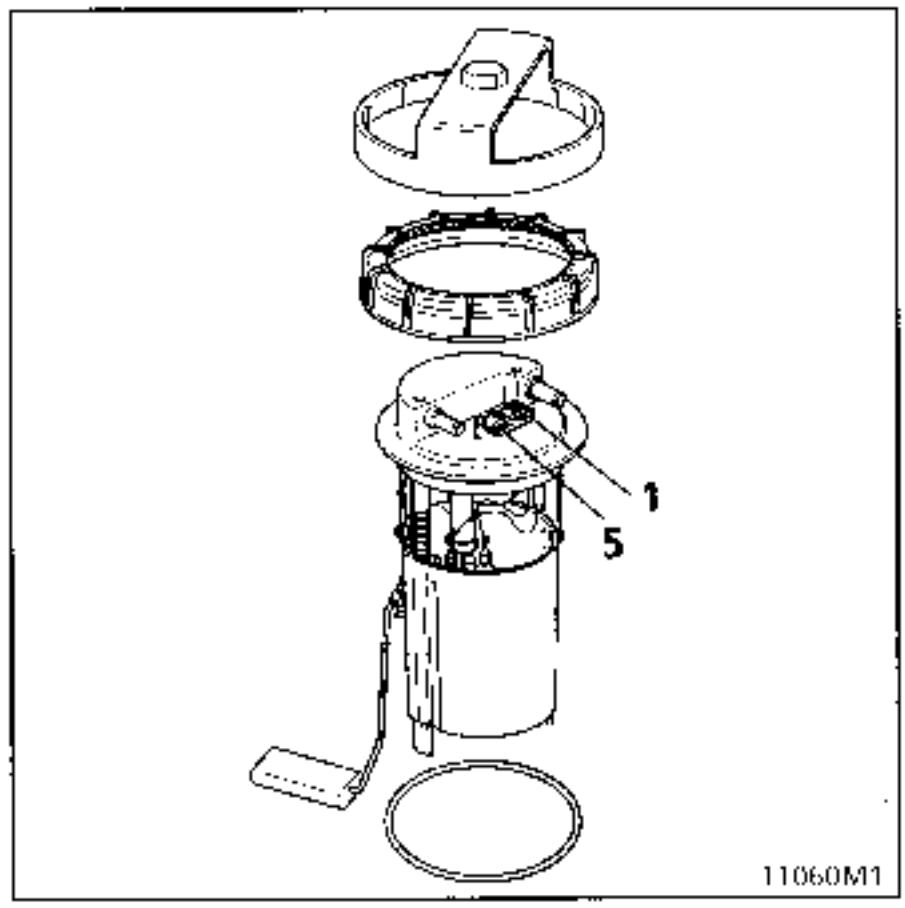


Tighten the mounting nut on the pump and sender unit assembly to a torque of **3.5 daN.m** using the tool **Mot. 1397**, holding the sender unit to prevent it from rotating.

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

Reconnect the battery

PETROL CONNECTION



Track	Allocation
1	Sender unit information to instrument panel
2	– Pump
3	Not used
4	– pump
5	Earth

DIESEL CONNECTION

Track	Allocation
1	Sender unit information to instrument panel
2	Not used
3	Not used
4	Not used
5	Earth

Checking

Indication	Value between terminals 1 and 5 (in Ω)
4/4	30 ±3
3/4	100 ± 8
1/2	223.5 ± 10
1/4	331 ± 10
Low fuel	385 ±

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

Measurement of height H

With the sender unit removed, place it on a flat surface. H is the height measured between the axis of the float and the working surface.

NOTE : all these values are given for information only.

OPERATION

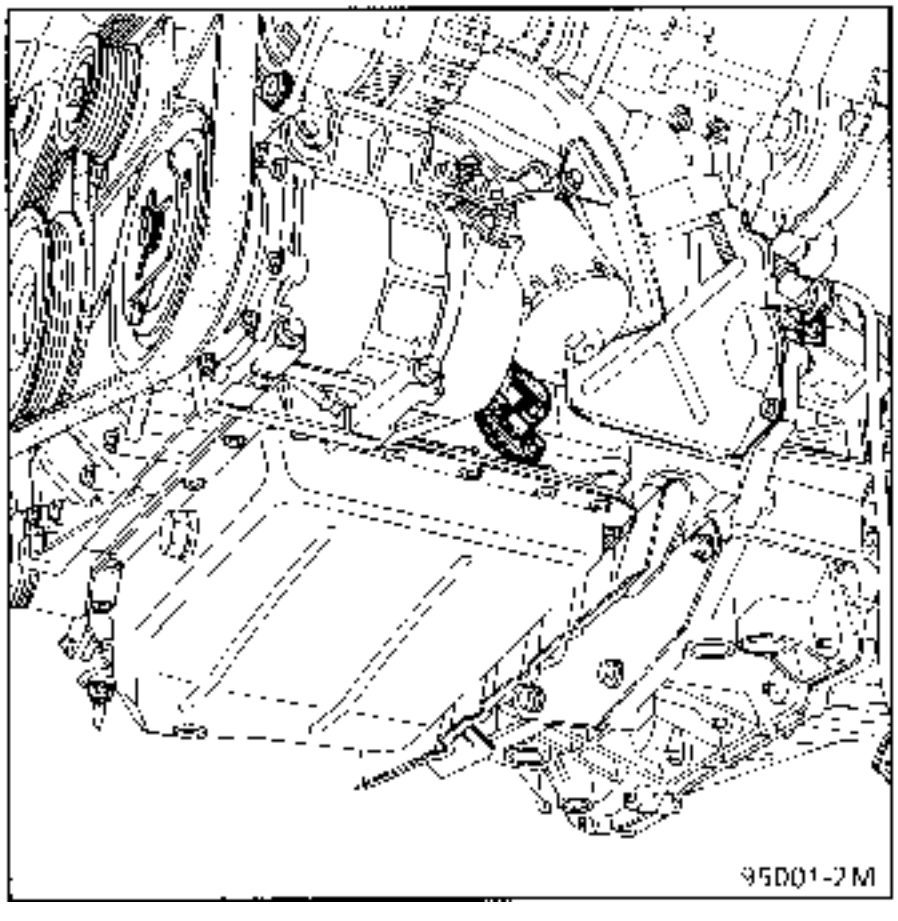
Oil level function:

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

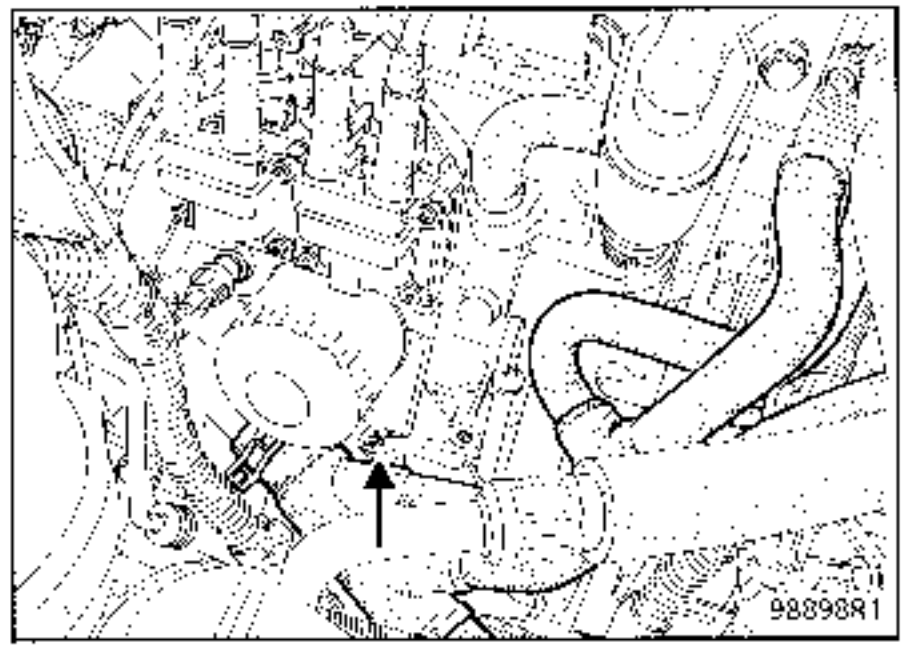
After a fixed time a voltage difference is obtained at the sensor terminals depending on the depth of immersion of the wire. This voltage difference is recorded by the electronic unit which transmits this information to the level gauge.

When the engine is running and if the oil pressure is sufficient, the pressure switch cuts off the warning light circuit. This also has the effect of blocking the electronic unit and therefore deletes the oil level indication.

Z engine



F engine



CHECKING

- Oil level sensor

  Connect an ohmmeter to the sensor terminals (channels **A** and **B1** on the F engine sensor).

  Correct value: 7 to 15 Ω

- Oil temperature sensor

  Connect an ohmmeter to the sensor terminals (tracks **A** and **B1** on the F engine sensor).

  Correct value: 40 to 2000 Ω

OPERATION

A thermistor transmits a variation in resistance to a receiver, depending on the coolant temperature, and a threshold overshoot switch illuminates the warning light on the instrument panel when the temperature reaches **115°C**

CHECKING

Connect an ohmmeter between track 1 on the sensor and vehicle earth.

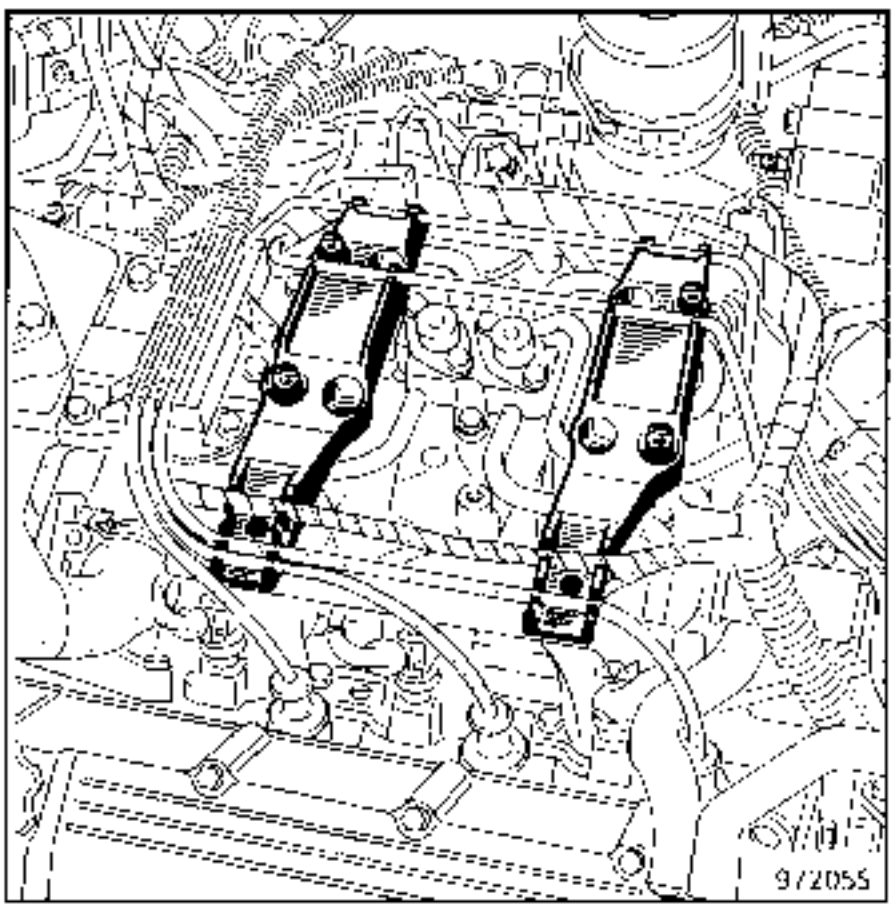
Correct value: 60 to 1,250 Ω

To carry out the check:

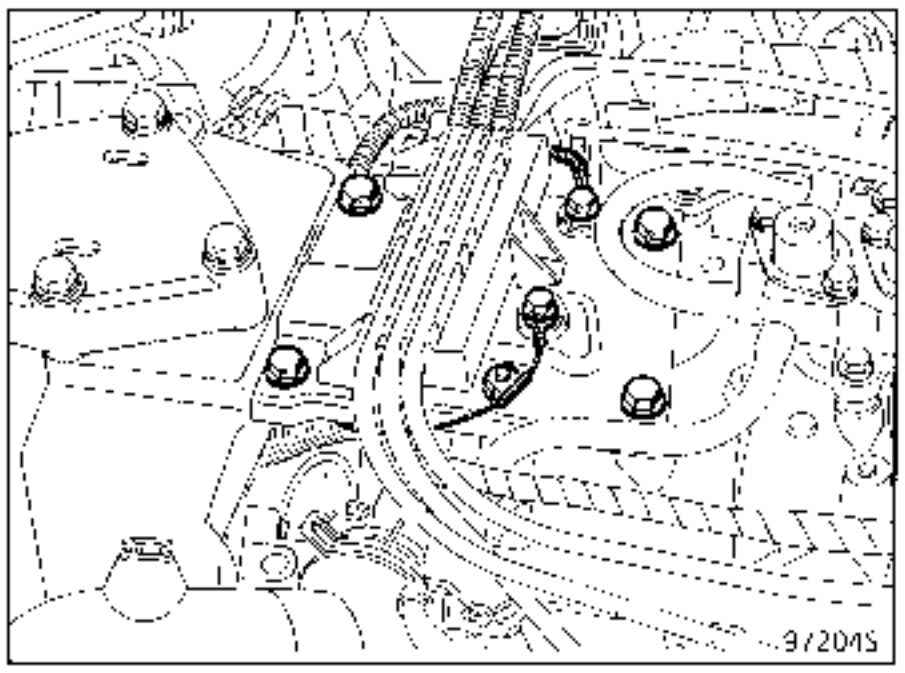
• Z engine

Remove:

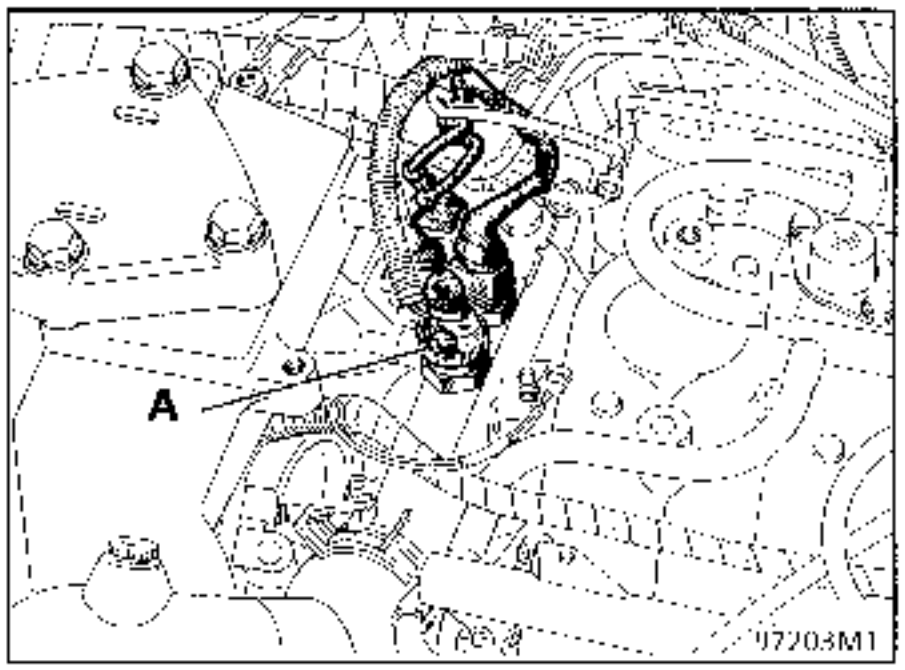
- The engine cap (plastic)
- The two mountings.



- The high voltage wire mounting.

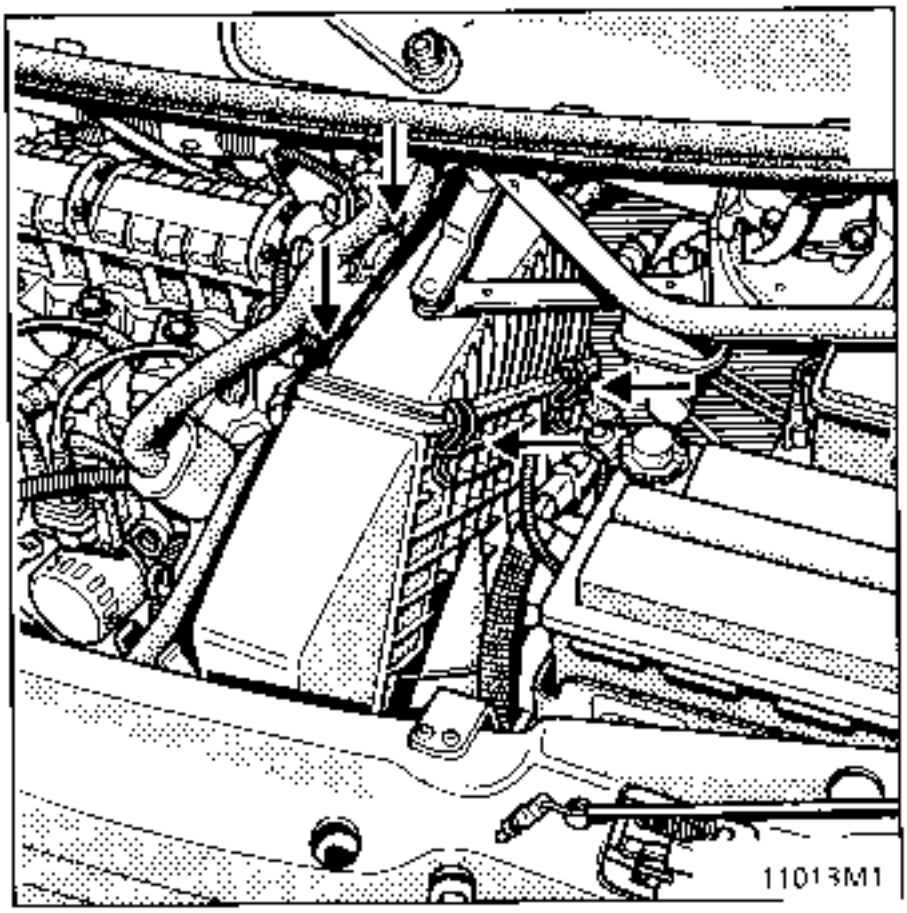


Disconnect the sensor connector (A).



- **F engine**

Remove the top of the air filter after having opened the 4 retaining hooks, slackened the retaining clip and removed the 2 pipes.



Disconnect the sensor connector (A).