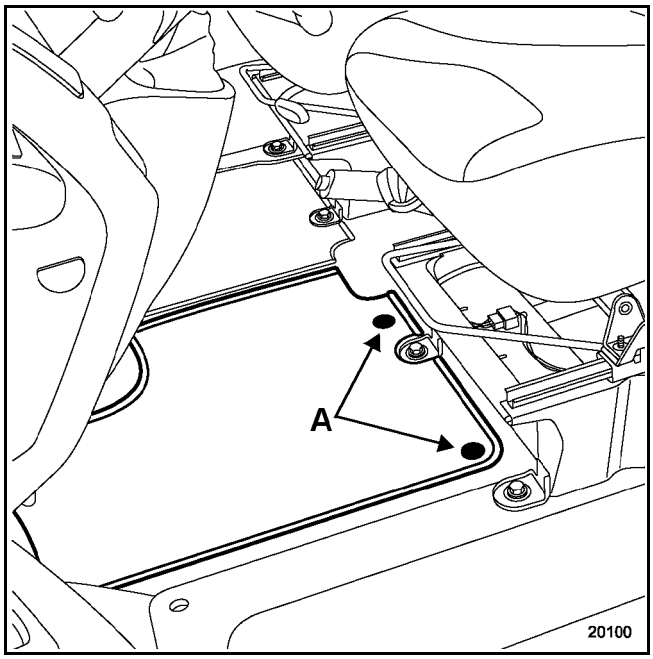
LOCATION

The battery is located under the front left-hand seat.

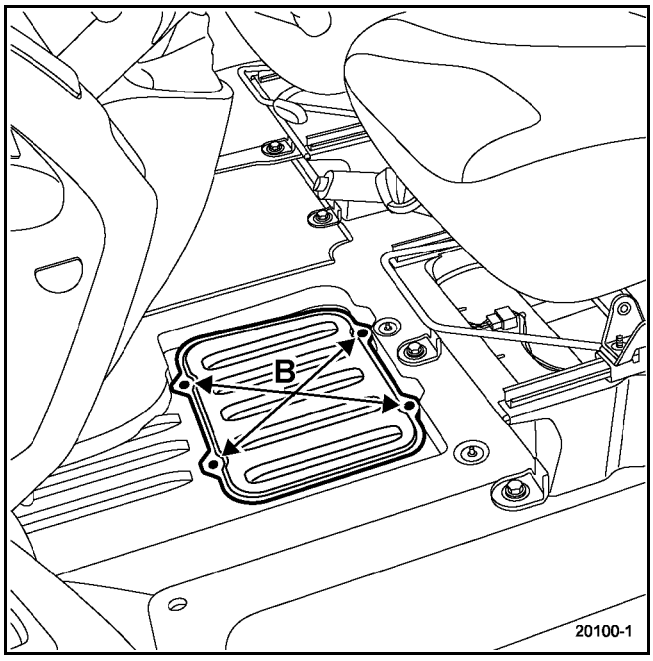
REMOVAL

Move the front left-hand seat back as far as possible.

Remove:
– the floor carpet (clips A),



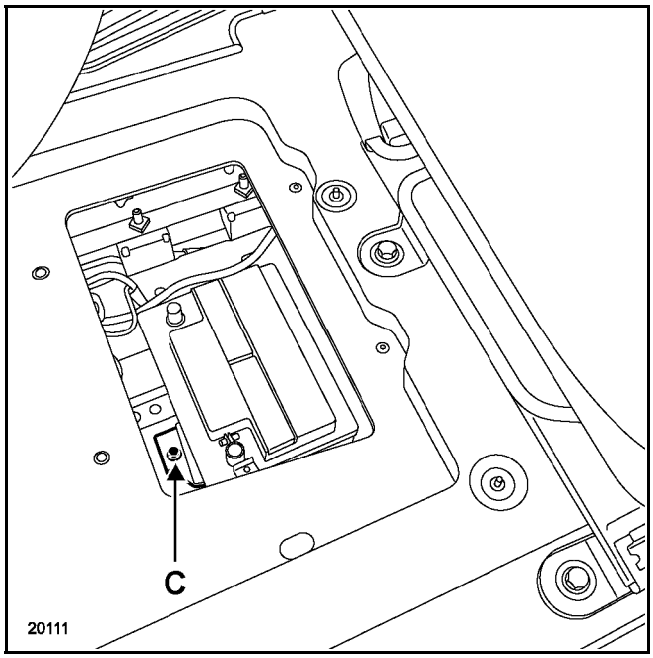
– the cover (bolt B),



NOTE:
It is not necessary to undo bolts (B) completely to remove the cover.

Disconnect the battery starting with the negative terminal.

Undo the mounting clamp (C) to remove the battery.



REFITTING

When the battery is refitted, or whenever it has been disconnected, it will be necessary to do some simple programming which does not require a diagnostic tool:
– setting the clock
– entering the four-digit radio code.

Special feature for vehicles fitted with a tachograph:

Refer to the user manual for instructions on how to reinitialise the system.

A - CHECKING

Check and ensure that:

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

It is vital:

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

Batteries with sets of removable plugs:

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

IMPORTANT:
If the electrolyte overflows, both the battery and its tray must be rinsed with clean water to prevent oxidisation.

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

Never add electrolyte, acid or other products.

B - PRECAUTIONS

It should be remembered that a battery:

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

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

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

2) DANGER = RISK OF EXPLOSION

When a battery is charging (either in a vehicle or elsewhere), oxygen and hydrogen are produced. Gas production is at a maximum when the battery is 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 air, on the surface of the plates and form a detonating 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 strong enough to shatter the battery and spray the 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 damage clothing.

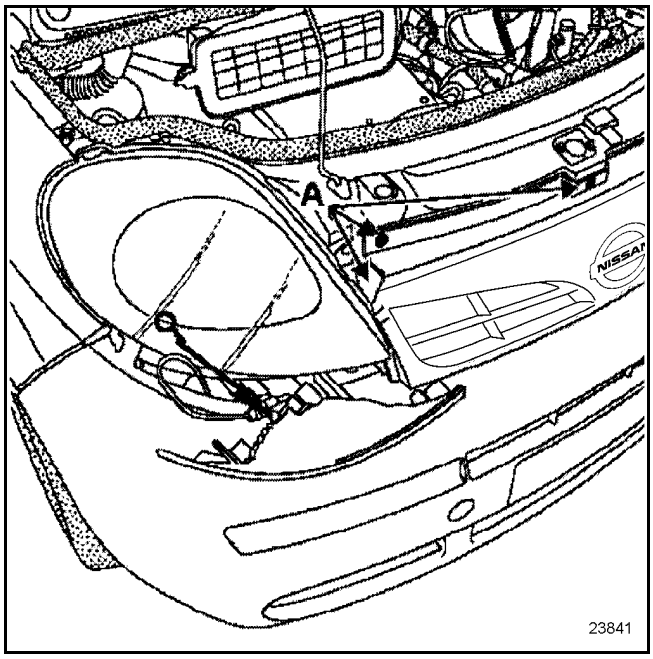
Protection against the danger of explosion, which can be caused by incorrect battery handling, must be taken very seriously. Avoid all risks of sparks.

- Check that the consumers are switched off, before disconnecting or reconnecting a battery.
- When a battery is being charged in a room, switch off the charger before connecting or disconnecting the battery.
- Do not put any metallic items onto the battery to avoid 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.

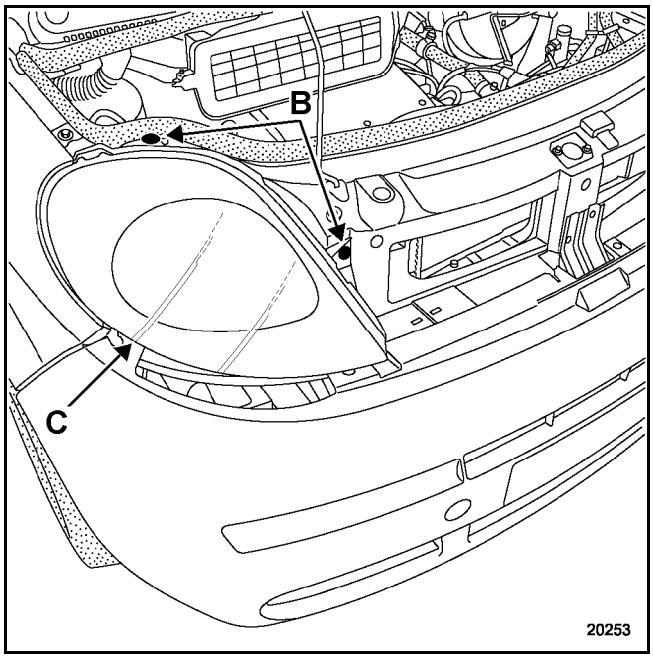
REMOVAL

Disconnect the connectors from the headlight unit.

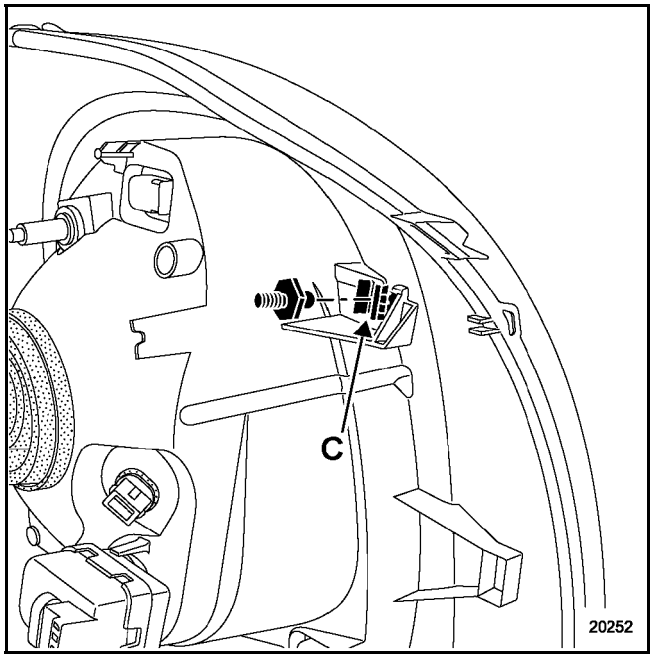
Remove:
– the indicator light,
– the radiator grille mounting bolts (A),



– the lens unit mounting bolts (B).



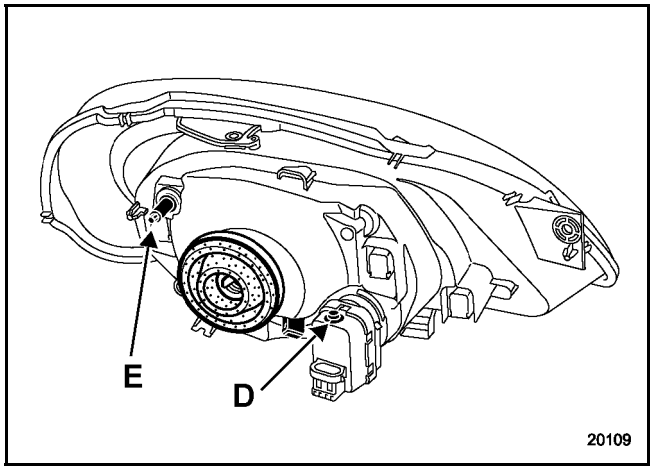
Take off the lens unit and release the lower mounting clip (C).



REFITTING

It is essential to adjust the lens units every time they are removed:

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

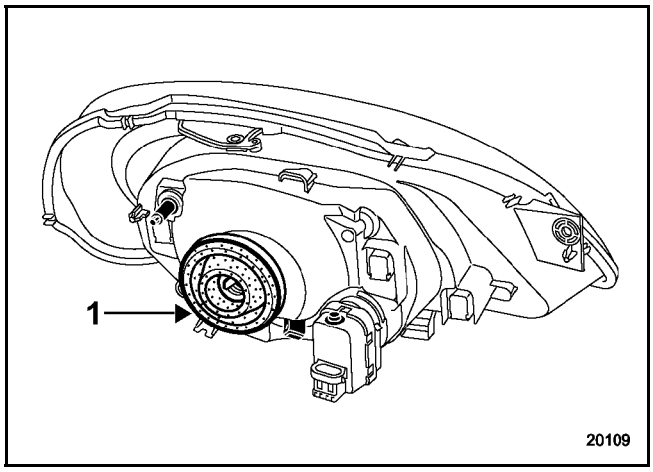


REPLACING BULBS

Main beam headlight, dipped beam headlight bulb

The bulb can be replaced once the plastic cover has been removed (1).

NOTE:
When replacing main beam headlight or dipped beam headlight bulbs, use only approved **H4** bulbs.

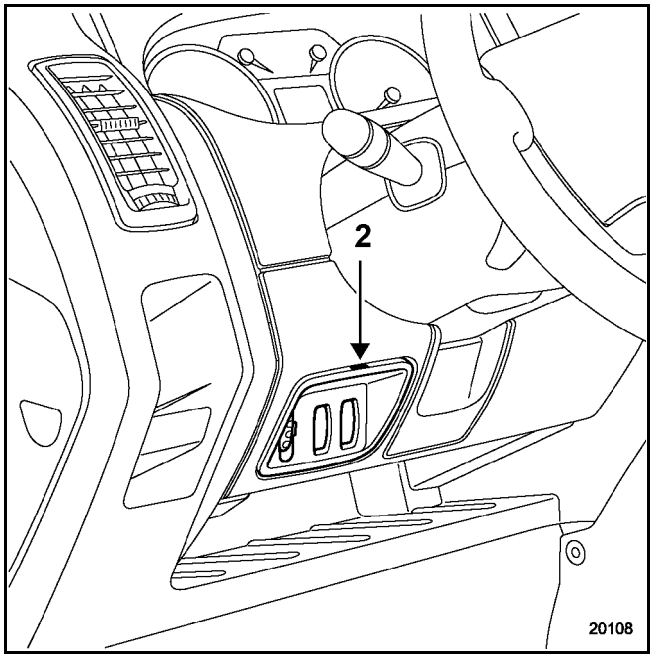


Indicator light bulb

Use approved **PY 21W** bulbs.

Side light bulbs

Use **W5W** type bulbs.

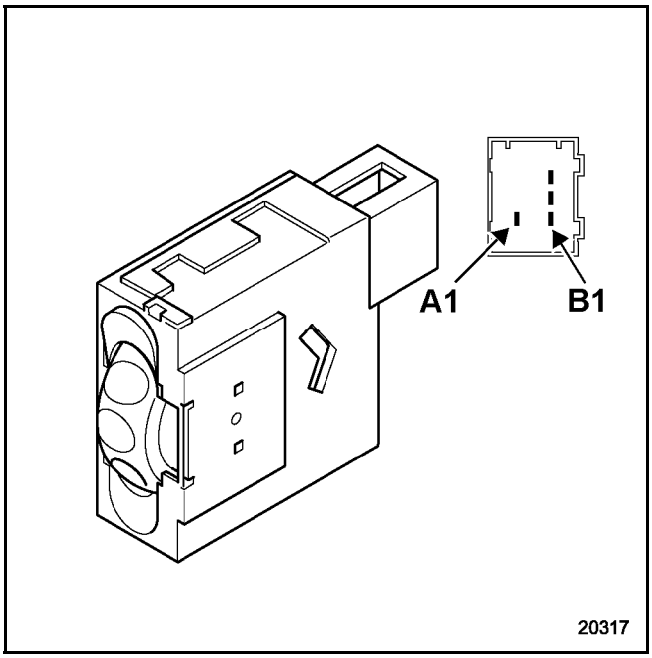


Unclip the control unit support using a small screwdriver at (2).

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

HEADLIGHT ADJUSTMENT CONTROL

Connection



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

Track	Description
A1	+ After ignition
B1	Earth
B2	Dipped headlights signal
B3	Control output

ACTUATORS

REMOVAL

Disconnect the connector from the remote adjustment actuator.

Turn the actuator an eighth of a turn towards the vehicle wing to release the lens unit.

Then disconnect the ball joint from the parabola, tilting the actuator slightly.

NOTE:
The headlight does not have to be removed to remove the actuator.

REFITTING

Keep the parabola towards the rear of the lens unit, pulling on the bulb base.

Click the ball joint into the headlight clip.

Position the actuator on the lens unit.

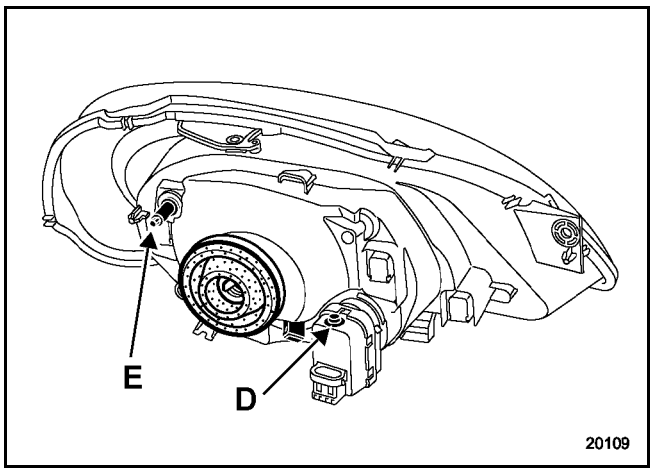
Turn the actuator through an eighth of a turn towards the inside then insert it into the lens unit.

Reconnect the connector and fit the sealed cover.

Adjust the headlights.

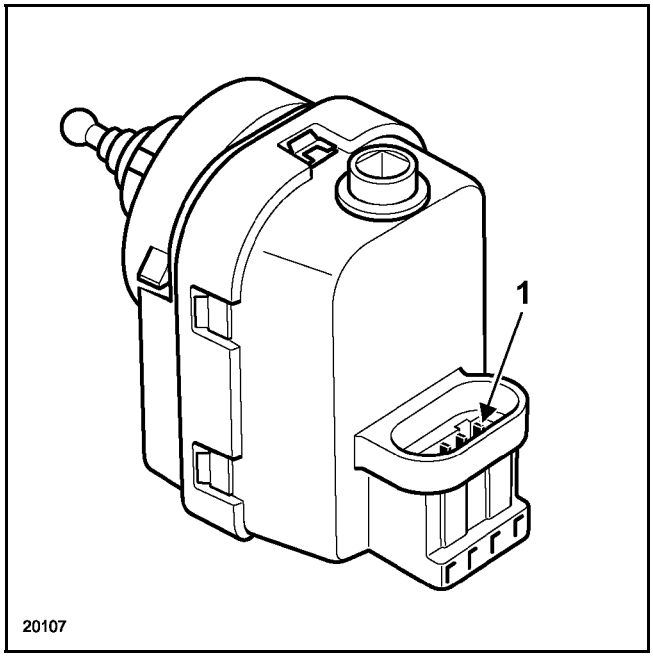
ADJUSTMENT PROCEDURE

- Position the vehicle on level ground, without applying the handbrake.
- Ensure that the vehicle is empty with a full tank if possible.
- Set the adjustment control to 0.
- Screw (D) to adjust the height.
- Screw (E) to adjust the direction.



ACTUATOR

CONNECTION



Track	Description
1	Earth
2	Control
3	Supply (dipped headlights)

REMOVAL

Undo the two mounting bolts.

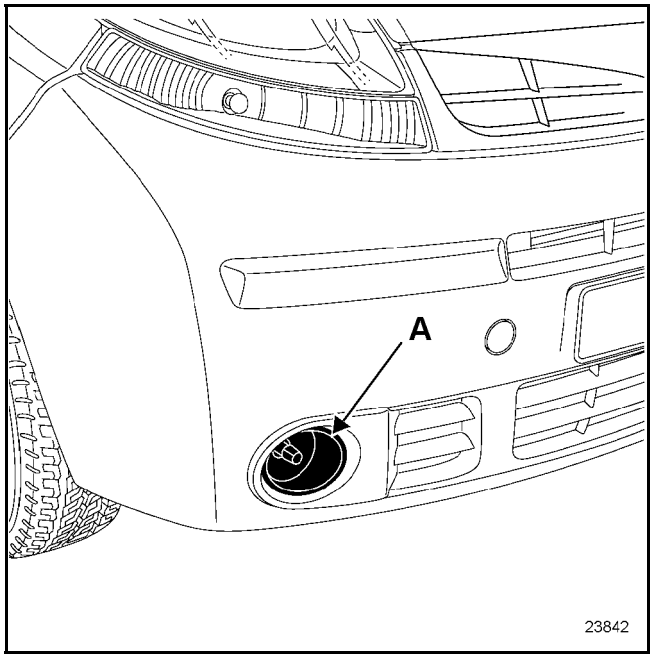
Disconnect the connector.

Take out the fog light and its support.

Release the fog light from its support (one bolt).

REFITTING

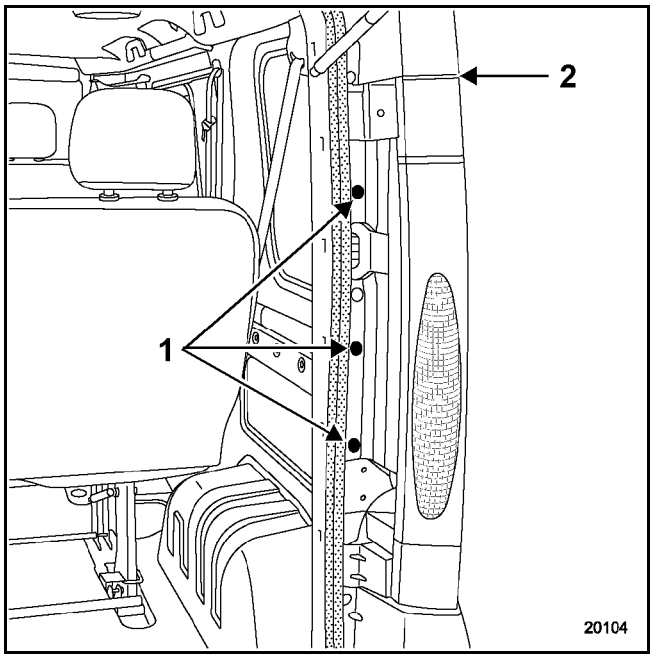
There are no specific points, however remember to adjust the fog light using screw (A).



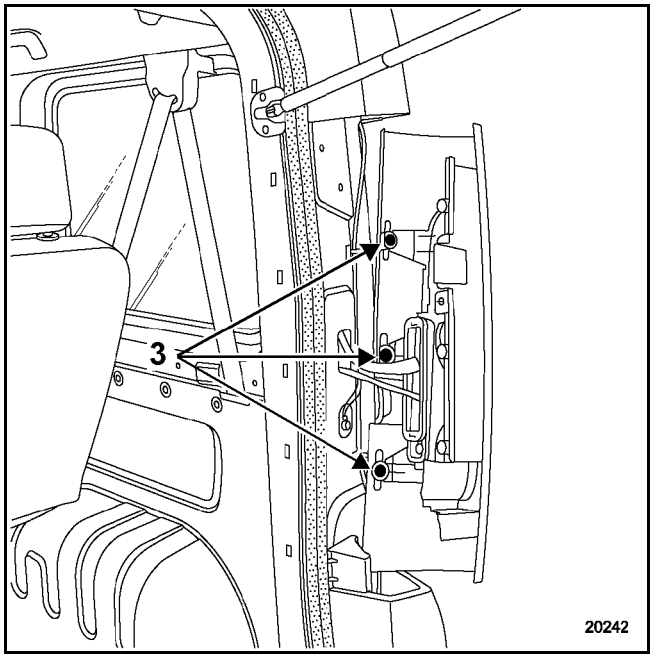
The rear lights are made up of two sections: an upper section (side light, stop light and indicator) and a lower section (reversing light and fog light).

REMOVAL OF LIGHTS (upper section)

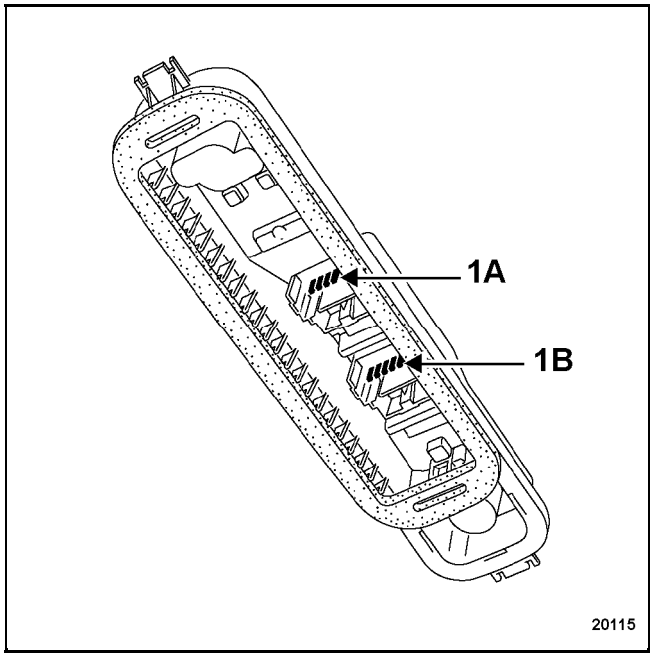
Remove the mounting bolts **(1)**.



Rotate the light to release it from its pins **(3)**.



Disconnect the connectors.



Connection

Track	Description
1A	Side light supply
2A	Reversing light supply (input)
3A	Earth
4A	Fog light supply (input)
5A	Indicator
6A	Brake lights
1B	Not in use
2B	Reversing light supply (output)
3B	Earth
4B	Fog light supply (output)
5B	Not in use
6B	Not in use

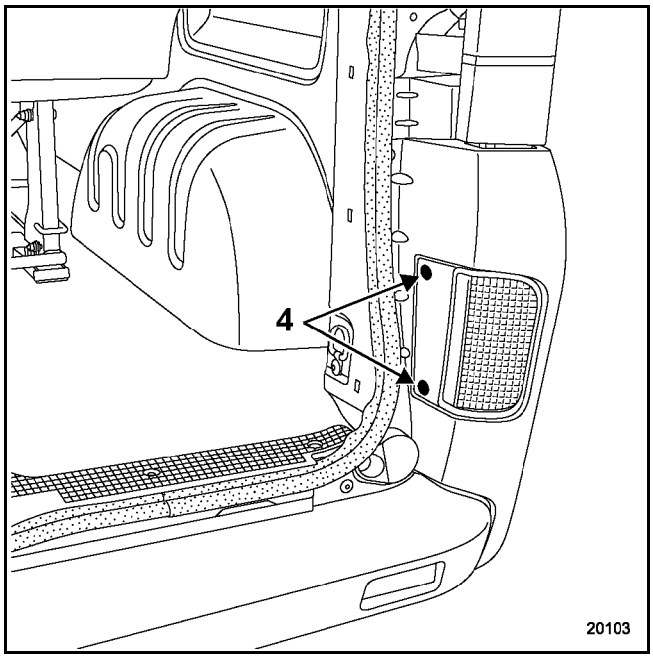
NOTE:
The fog light and reversing light supply passes through the upper light plate.

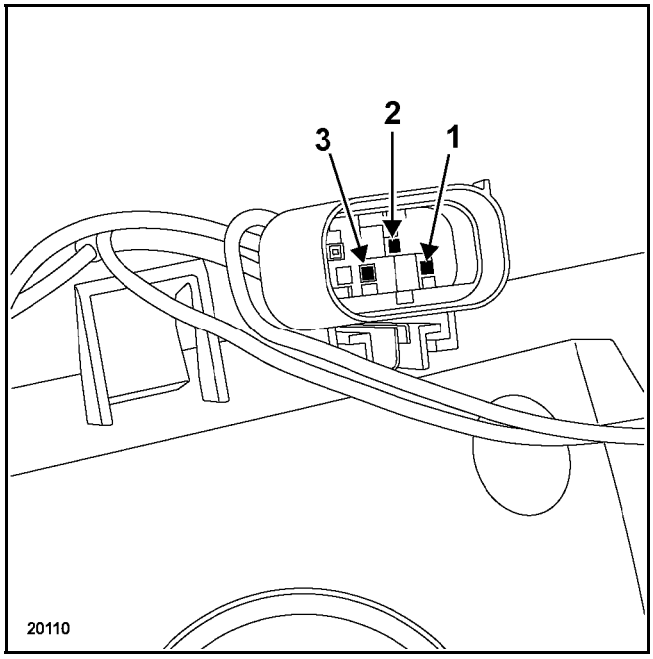
REMOVAL OF LIGHTS (lower section)

Remove the mounting bolts **(4)**.

Disconnect the connector.

Release the light unit.





Connection

Track	Description
1	Fog light supply
2	Reversing light supply
3	Earth

NOTE:
The fog light and reversing light supply passes through the upper light plate.

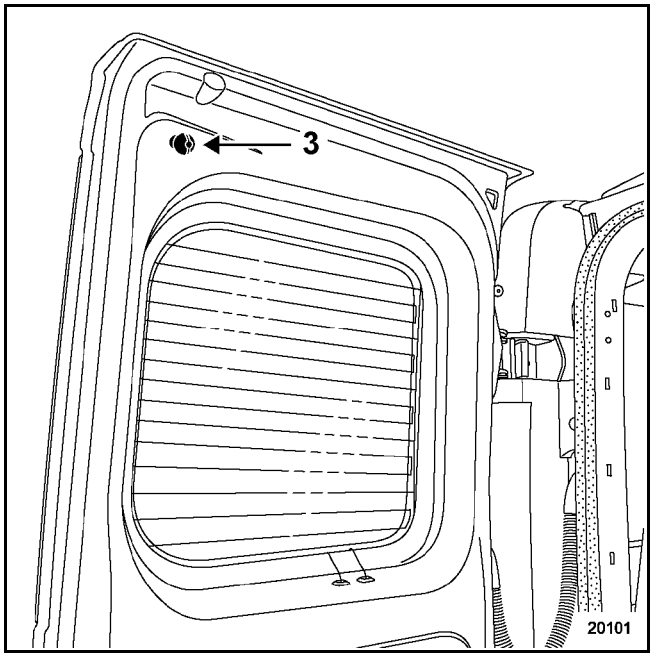
The high-mounted brake light position varies according to version (hinged rear doors or tailgate).

REMOVAL OF THE THIRD BRAKE LIGHT

*(**Version with hinged doors**)*

Remove the mounting bolt **(3)**.

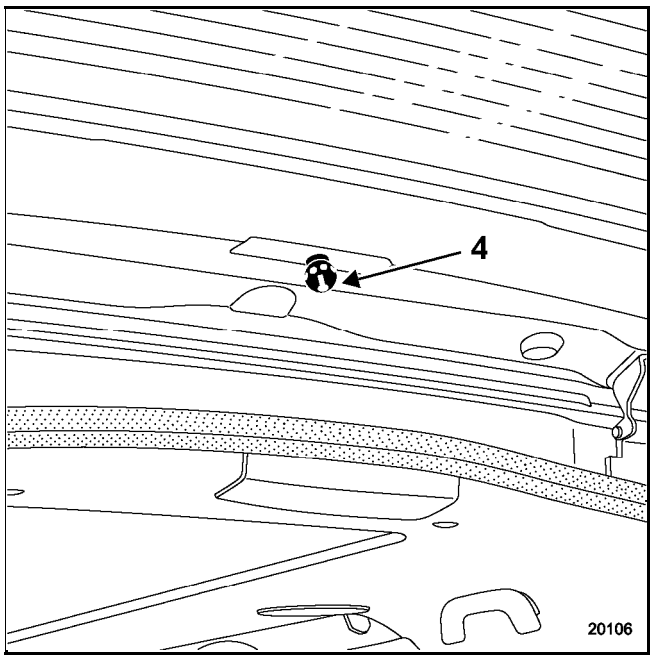
Disconnect the connector.

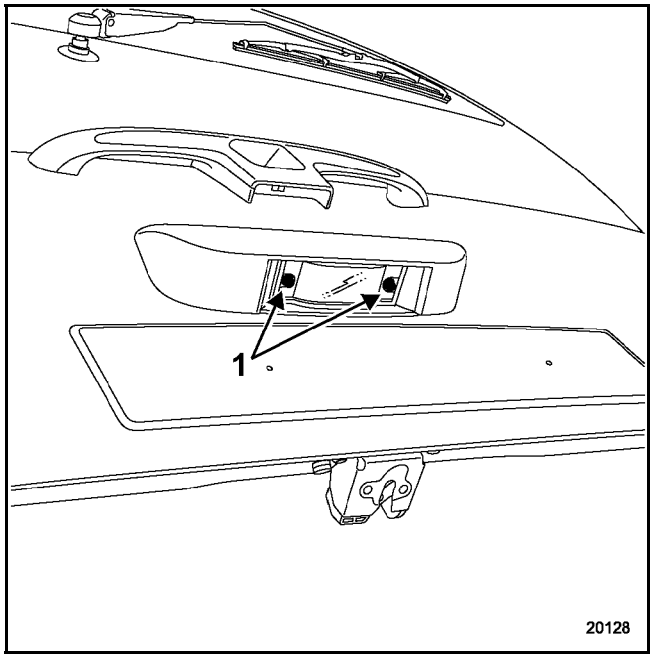


*(**tailgate version**)*

Remove the mounting bolt **(4)**.

Disconnect the connector.





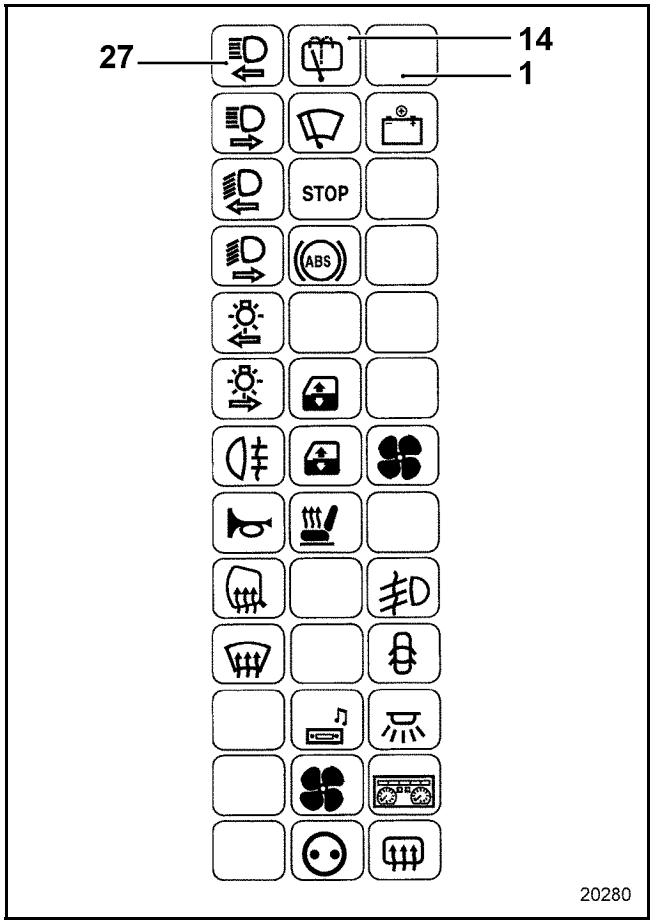
The bulb is accessed in the same way for both hinged door and tailgate versions of the vehicle.

REMOVAL

Undo the screws **(1)** on the lens to access the bulb.

Bulb type: **W 5W**

FUSE SYMBOLS



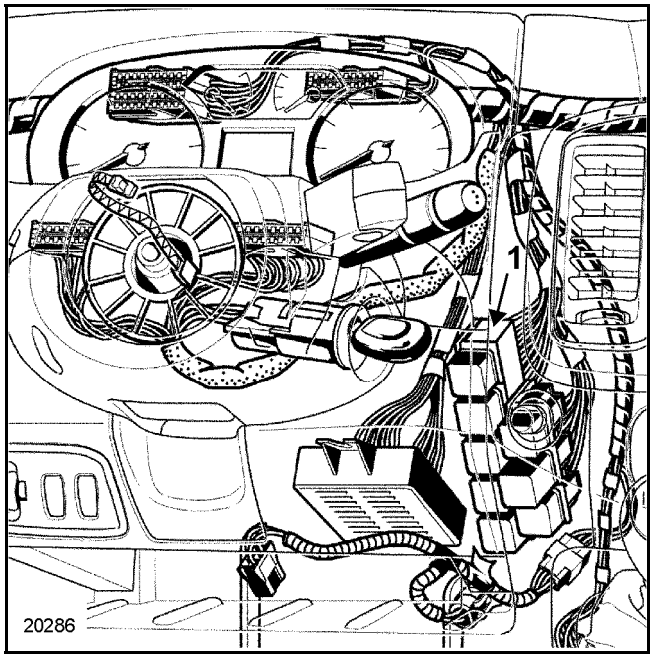
Allocation of fuses (depending on equipment level)

No.	Symbol	Rating	Description
F1		--	Spare
F2		15A	Consumer cut-out - Radio - Central door locking control - Convertible exterior temperature dial and radio display - Central Communication Unit - Navigation computer - Electric rear-view mirror control - Ultrasound alarm sensor - Alarm siren - Car phone communication interface
F3		--	Spare
F4		--	Spare
F5		--	Spare
F6		--	Spare
F7		25A	Air conditioning
F8		--	Spare
F9		15A	Front fog lights
F10		30A	Central door locking
F11		15A	Front and rear interior lights
F12		10A	Instrument panel - Diagnostic socket - Immobiliser
F13		30A	Heated rear screen
F14		25A	Rear screen wiper - Rear screen washer - Reversing light switch - Air conditioning clutch relay - Windscreen heating control - Air conditioning control panel - Windscreen heating timer
F15		25A	Windscreen wiper
F16	STOP	15A	Stop - Instrument panel - Diagnostic socket - Headlight beam adjustment control - Heated rear screen control - Glove compartment light - Door locking control - Cigarette lighter - Air conditioning - Air bag - Daytime running lights
F17		5A	Anti-lock Braking System and Electronic Stability Program
F18		--	Spare
F19		25A	Electric windows
F20		25A	Electric windows

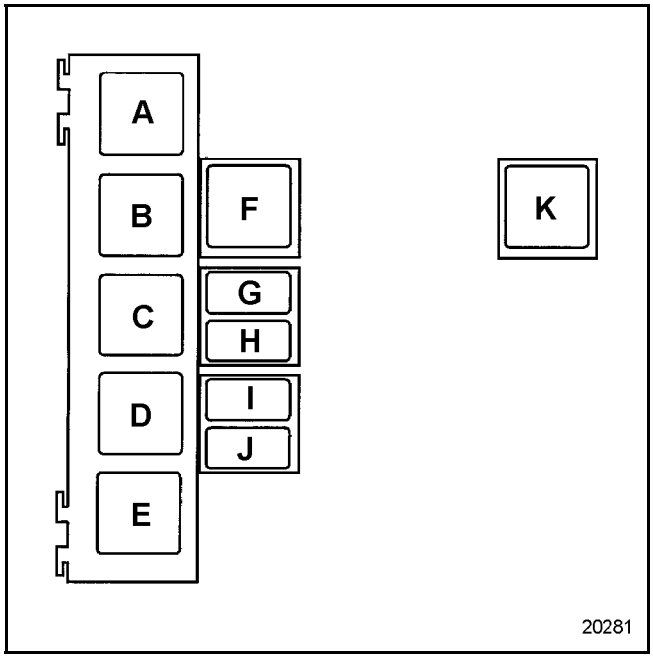
No.	Symbol	Rating	Description
F21		20A	Heated seats
F22		--	Spare
F23		--	Spare
F24		15A	Radio - Cigarette lighter - Rear screen relay - Windscreen heater relay - + after ignition feed relay - Central Communication Unit - Daytime running lights -Car phone communication interface
F25		25A	Heating
F26		15A	Accessories socket
F27		10A	Left-hand main beam headlight
F28		10A	Right-hand main beam headlight
F29		10A	Left-hand dipped headlight
F30		10A	Right-hand dipped headlight
F31		10A	Left-hand side light - Instrument lighting
F32		10A	Right-hand side light
F33		10A	Rear fog light
F34		15A	Audible alarm (beeper)
F35		10A	Heated door mirrors
F36		5A	Heated windscreen activation
F37		--	Spare
F38		--	Spare
F39		--	Spare

LOCATION

The relay plate **(1)** is located in the passenger compartment on the driver's side.



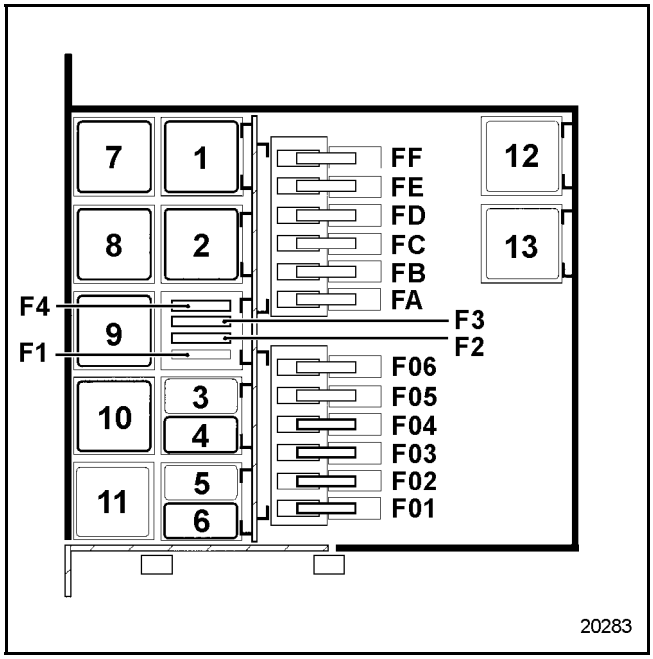
RELAY PLATE



Allocation (depending on equipment level)

Track	Description
REL A	**Relay:** heated rear window
REL B	**Timer** rear screen wiper
REL C	**Relay:** rear screen wiper
REL D	**Relay:** + after ignition feed
REL E	**Relay:** air conditioning cut-out
REL F	**Relay:** heated windscreen
REL G	**Relay:** rear fog light
REL H	**Relay:** dipped beam headlight for daytime running lights (depending on country)
REL I	**Relay:** side lights for daytime running lights (depending on country)
REL J	**Relay:** main relay for daytime running lights (depending on country)
REL K	**Relay:** electronic thermostat

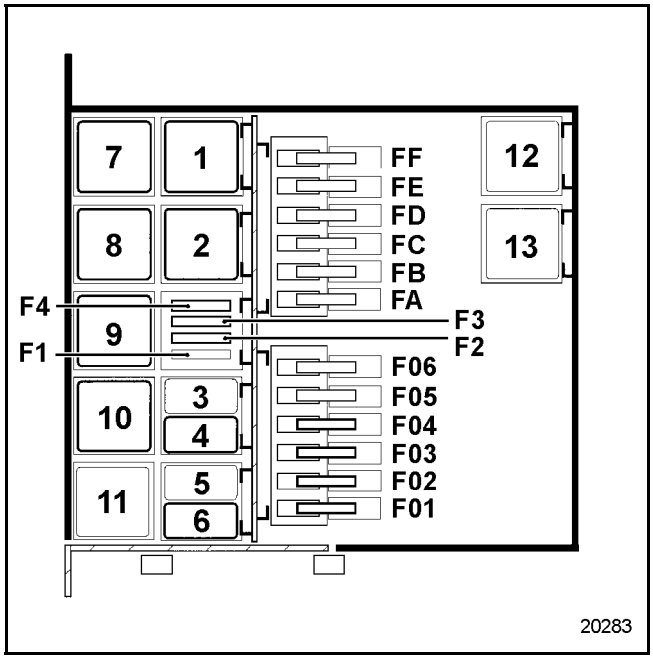
All types



Allocation of fuses (depending on equipment level)

No.	Rating	Description
F01	**70A**	**Fuse:** pre-heating and thermoplungers
F02		**Fuse:** supply (depending on the engine)
F03		**Fuse:** fan assembly (depending on the engine)
F04	**60A**	**Fuse:** instrument panel
F05	**60A**	**Fuse:** instrument panel
F06	**60A**	**Fuse:** Anti-lock Braking System
FA	**60A**	**Fuse:** instrument panel
FB	**50A**	**Fuse:** instrument panel
FC	**50A**	**Fuse:** instrument panel
FD	**40A**	**Fuse:** air conditioning
R12		**Relay:** heated windscreen
R13		**Relay:** heated windscreen relay

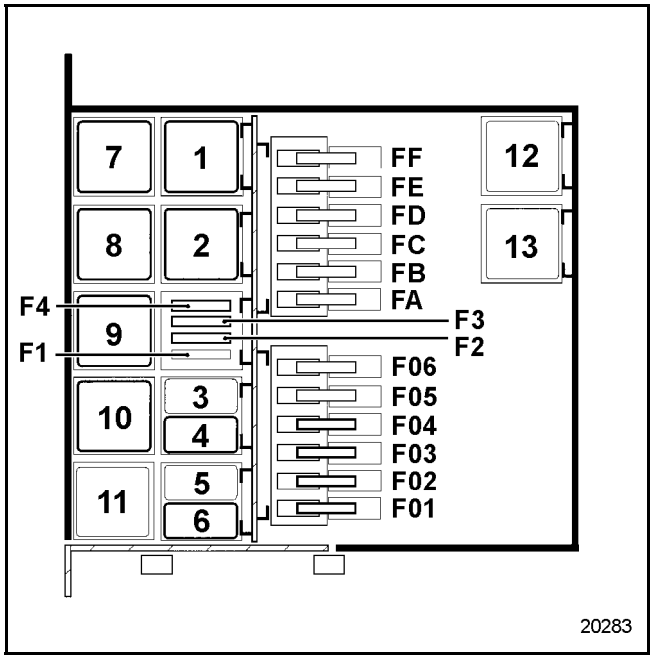
F4R engine



Allocation of fuses (depending on equipment level)

No.	Rating	Description
F02	**50A**	**Fuse:** supply
F03	**50A**	**Fuse:** fan assembly
F1	**30A**	**Fuse:** + before ignition
F2	**25A**	**Fuse:** heating device
F4	**15A**	**Fuse:** + after ignition injection
R2		**Relay:** injection locking
R4		**Relay:** fuel pump
R6		**Relay:** air conditioning compressor clutch
R8		**Relay:** independent heater
R9		**Relay:** fan assembly (with air conditioning)
R10		**Relay:** fan assembly relay (without air conditioning) or second speed fan (with air conditioning)

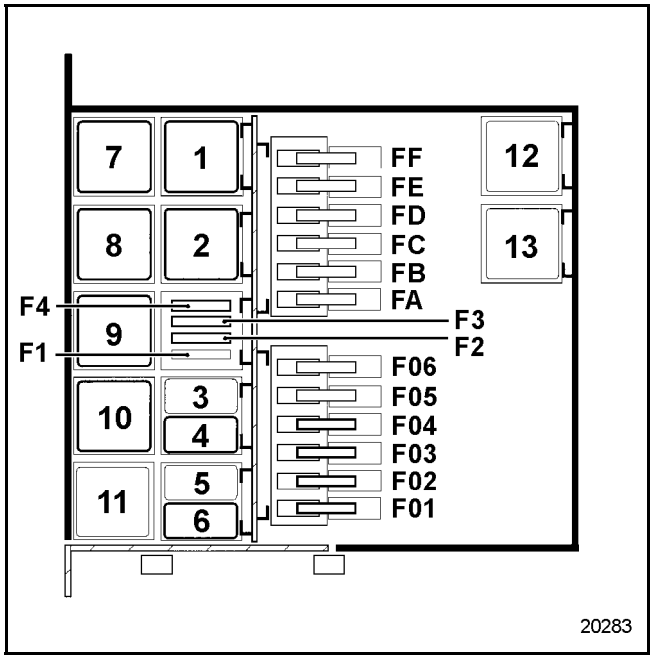
F9Q engine, with thermoplungers



Allocation of fuses (depending on equipment level)

No.	Rating	Description
F01	**70A**	**Fuse:** pre-heating fan and thermoplungers
F02	**60A**	**Fuse:** supply
F03	**60A**	**Fuse:** fan assembly
F2	**30A**	**Fuse:** pre-heating and diesel injection
F3	**15A**	**Fuse:** air conditioning compressor clutch
F4	**15A**	**Fuse:** + after ignition feed
R1		**Relay:** additional heating 2 or 3 (thermoplungers)
R2		**Relay:** diesel injection central electric unit supply
R4		**Relay:** diesel reheating
R6		**Relay:** air conditioning compressor clutch
R7		**Relay:** Additional heating 1 (thermoplungers)
R8		**Relay:** Additional heating 2 or 3 (thermoplungers)
R9		**Relay:** fan assembly relay (without air conditioning) or two speed fan assembly (with air conditioning)
R10		**Relay:** single speed fan assembly (with air conditioning)

F9Q engine, without thermoplungers



Allocation of fuses (depending on equipment level)

No.	Rating	Description
F01	**70A**	**Fuse:** pre-heating
F02	**60A**	**Fuse:** supply
F03	**60A**	**Fuse:** fan assembly
F1	**25A**	**Fuse:** independent heating
F2	**30A**	**Fuse:** pre-heating and diesel injection
F4	**15A**	**Fuse:** + after ignition feed
R1		**Relay:** independent heating
R2		**Relay:** diesel injection central electric unit supply
R3		**Relay:** fuel pump
R4		**Relay:** diesel reheating
R5		**Relay:** two speed fan assembly
R6		**Relay:** air conditioning compressor clutch
R9		**Relay:** fan assembly
R10		**Relay:** single speed fan assembly

SPECIAL NOTES

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

- Spare keys are supplied uncoded, without a number and without metal insert.

- This system can have up to four keys. The remote control function and the battery have no effect on the immobiliser.

- In the event of a key being stolen or lost or at the customer's request, one or more of the vehicle's keys can be deallocated. They can be reallocated to the same vehicle if necessary.

  IMPORTANT:
  With this system, it is not possible to replace several components (UCH and keys or UCH and injection computer) at the same time. These parts are sold uncoded.

  It is effectively 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).

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 12-character hexadecimal code is allocated to the vehicle to make the engine immobiliser operational.

This After-Sales code will be necessary to:

- add keys,

- replace one or more keys,

- deallocate one or more keys (e.g. if lost or stolen),

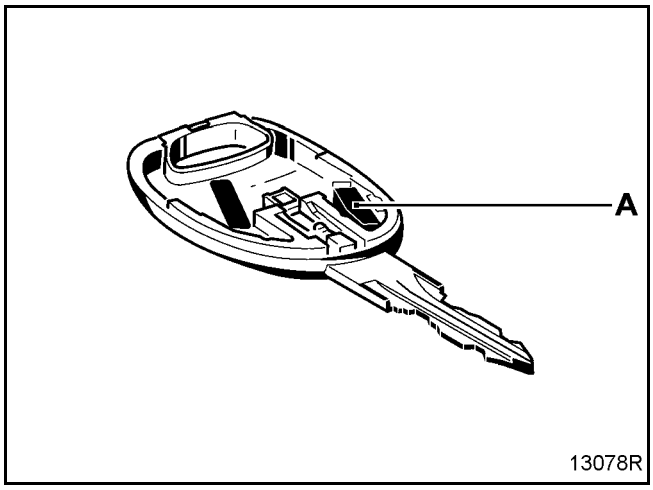
- replace a UCH.

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).

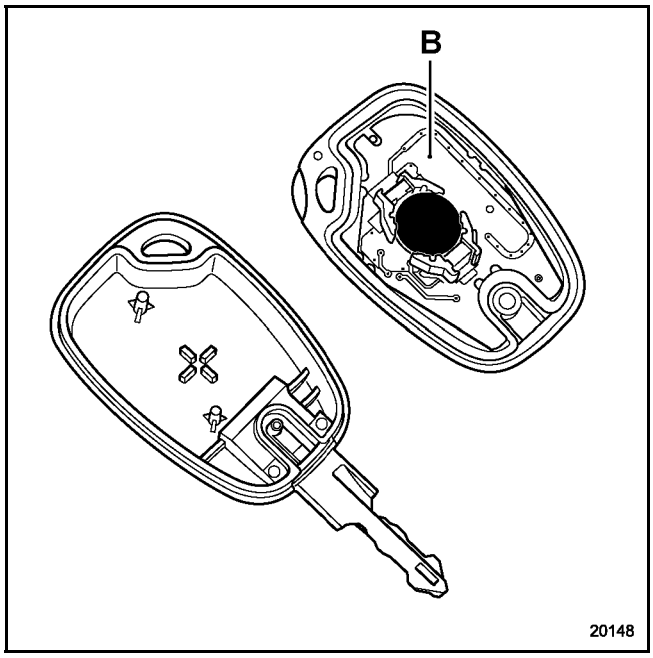
The system comprises:

- two key heads fitted with either:
  – a coded chip without remote control to control the engine immobliser (A),

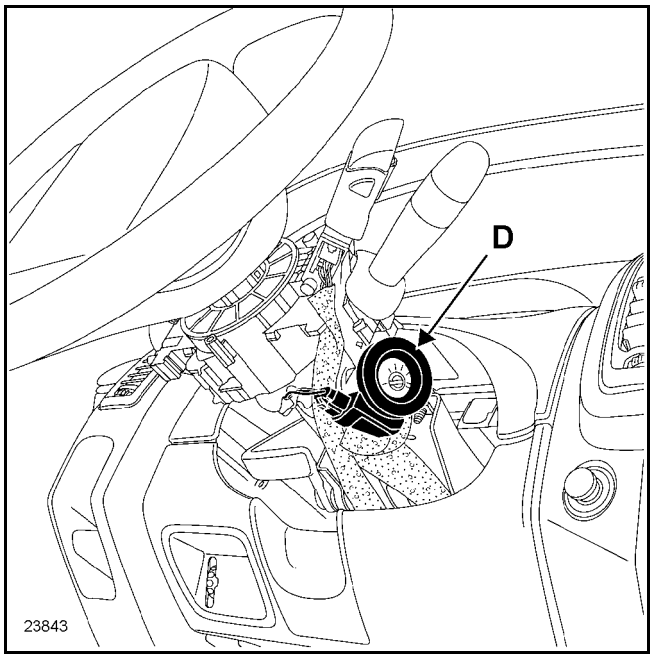


  – a coded chip (B) to control the engine immobiliser and the locking and unlocking of doors by radio frequency.

NOTE:
The immobiliser chip is now integrated in the remote control printed circuit.



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

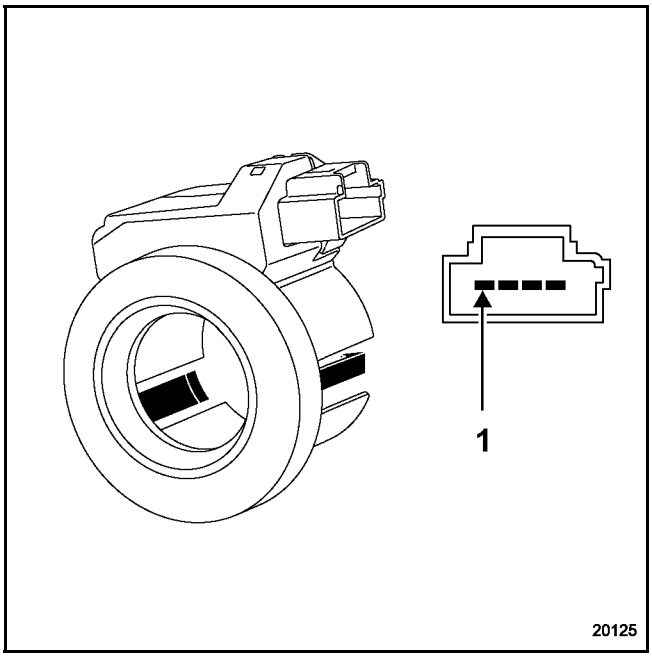


NOTE:
This aerial ring is not coded.

REMOVAL - REFITTING

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

CONNECTION



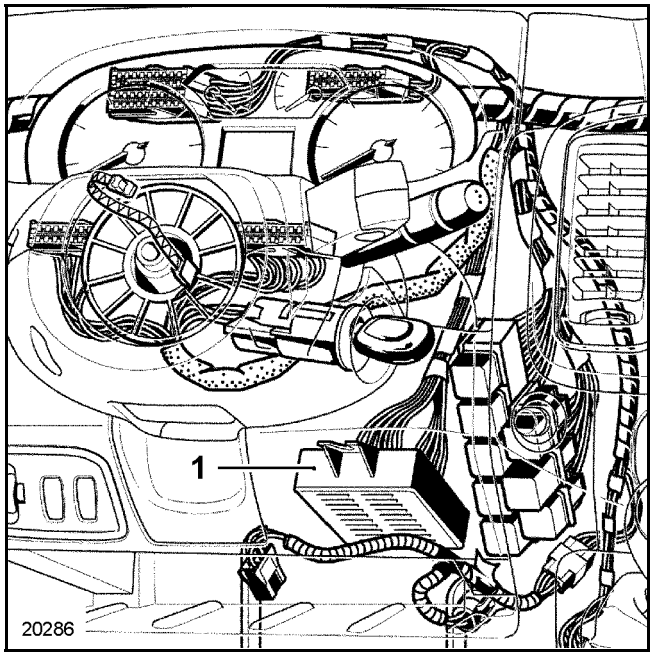
Track	Description
1	Not used
2	Earth
3	+ Before ignition
4	Output signal

- a UCH.

  For the engine immobiliser function, the UCH carries out the following functions:
  – decodes the key signal,
  – communicates with the injection computer,
  – controls the red warning light on the instrument panel,
  – communicates with the diagnostic tool.

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

  For notes on removal, refer to **Section 87**.

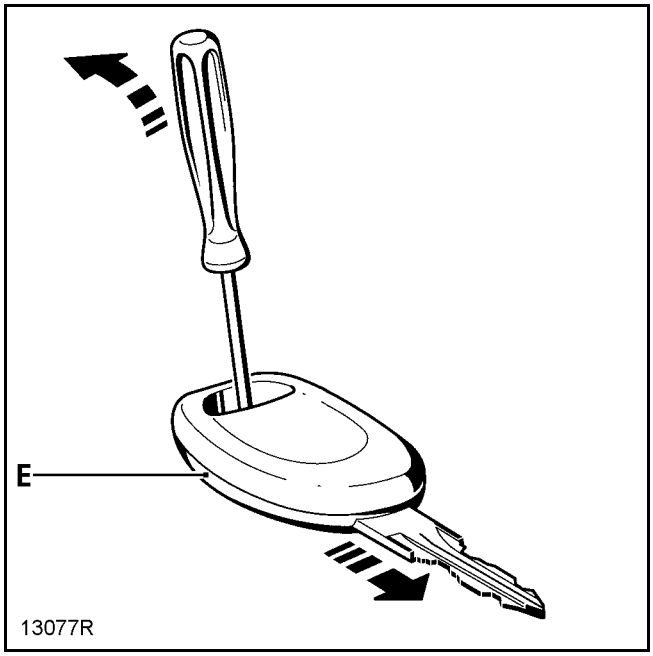


- a red engine immobiliser indicator light located on the instrument panel used to signal:
  – activation of the engine immobiliser,
  – non-recognition of the key,
  – a fault in the system,
  – programming of a key.

OPENING A KEY HEAD (WITHOUT REMOTE CONTROL)

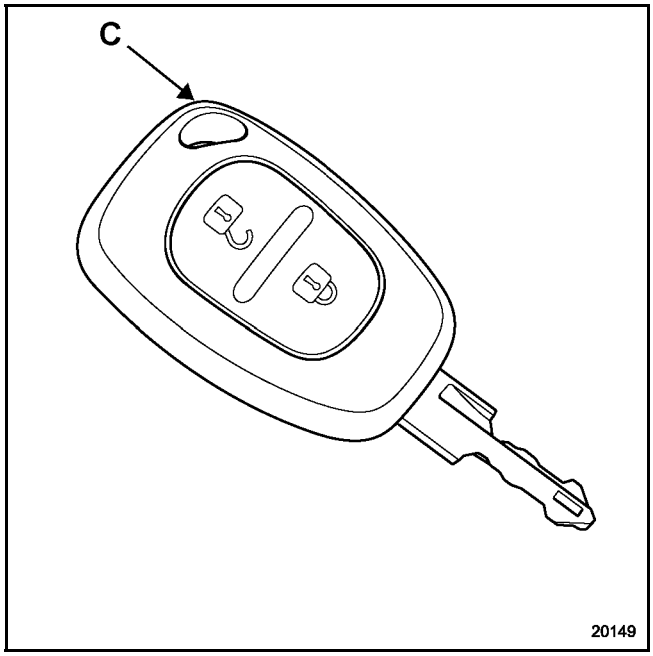
Place the key head on a table with the metal insert facing downwards.

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



OPENING A KEY HEAD (WITH REMOTE CONTROL)

Use a small screwdriver as a lever as shown below in (C).



OPERATION

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

- After the ignition is switched on, the key code is transmitted to the UCH.
- If the code is recognised by the UCH, the UCH and the injection computer send coded signals to each other via the multiplex network and turn off the immobiliser indicator light.
- If the signals transmitted by the UCH and the injection computer match, the UCH authorises the engine to start and the injection is unlocked.

SPECIAL CASES:

- The injection computer has no reference code in its memory: the code which is transmitted is stored.
- The system remains locked if the key code and the UCH code do not match. The engine immobiliser red indicator light flashes (quickly). The vehicle cannot be started.

IMPORTANT:
When the vehicle battery has a low charge, the drop in voltage caused by operating the starter could reactivate 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 be programmed with a code to become operational.

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

IMPORTANT:
If a part is programmed with a code, the part is then allocated to the vehicle and it is not possible for the code to be erased or for the part to be programmed with a second code. **The programmed code cannot be erased.**

ALLOCATION TABLE

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

* A key allocated to a vehicle must be blank or already programmed to this vehicle.
NOTE:
The key can be programmed to a vehicle but is not operational (unallocated).

REMINDER:
Only keys used in this procedure will work.

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

At least one of the vehicle's old keys and the After-Sales code are required to carry out this procedure, and the injection computer must be correctly coded (refer to the allocation table).

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

IMPORTANT:
The keys submitted during this procedure will only work if:

- they have already been coded on this vehicle, or
- they are new (uncoded).

UCH PROGRAMMING PROCEDURE

Using the diagnostic tool:

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

IMPORTANT:
The maximum delay time between each operation is **5 minutes**, otherwise the procedure is cancelled.

SPECIAL CASES

If the screen displays:

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

KEY PROGRAMMING PROCEDURE

IMPORTANT:
If none of the keys are available, it will be necessary to carry out a reallocation procedure for all keys.

- Establish dialogue with the **Engine immobiliser** system.
- In the **Command: Specific command** menu, select and confirm the **SC028: Program cards/keys** line.
- 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 digits) and press confirm.
- The tool displays **Warning, keys not inserted will no longer be operational. Restart the procedure to reallocate them**: programming is in progress.
- The tool displays **Insert the key in the ignition switch and turn on the ignition, then press Enter**: switch on the ignition with a key from the vehicle or a blank key. The screen displays **1 key programmed**, then press Enter, 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 seconds with the other vehicle keys to be programmed (four maximum), then press enter. The screen displays **2, 3 or 4 keys programmed** then **remove the key from the immobiliser switch.**

  IMPORTANT:
  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, in order to exit the reallocation mode.

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

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

SPECIAL CASES

If the screen displays:

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

CODING THE INJECTION COMPUTER

The injection computer is supplied uncoded. It therefore has to be programmed with the engine immobiliser code when it is installed to allow the vehicle to be started.

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 red indicator light flashes).

IMPORTANT:

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

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

Consequently, it is forbidden to carry out tests with injection computers borrowed from stores and subsequently returned.

The programmed code cannot be erased.

IMMOBILISER
Fault finding - Introduction

This document presents the general fault finding procedure applicable to all computers for the Immobiliser function on PRIMASTAR vehicles with all engine types.

The following are thus required for fault finding on this system:

- The Workshop Repair Manual for the vehicle concerned,
- The electrical circuit diagram of the function for the vehicle concerned,
- The tools listed under Special tooling required.

GENERAL APPROACH TO DIAGNOSTIC:

- Use one of the diagnostic tools for identifying the system fitted on the vehicle (reading the computer type, program number, Vdiag number, etc.).

- Locate the Fault finding documents corresponding to the system identified.

- Include information contained in the introductory sections.

- Read the faults stored in the computer memory and use the Fault interpretation section of the documents.

REMINDER: each fault is interpreted for a given type of storage (fault present, fault stored, fault present or stored). The specified checks for dealing with each fault are therefore only to be performed if the fault declared by the diagnostic tool can be identified in the document by its type of storage. The way in which the fault is stored should be considered when using the diagnostic tool after switching the ignition off and on again.
If a fault is interpreted when it is declared as stored, the conditions for applying fault finding appear in the Notes box. When these conditions are not satisfied, use the fault finding procedure to check the circuit of the faulty part, since the fault is no longer present on the vehicle. Perform the same operation when a fault is declared as stored by the diagnostic tool but is only interpreted in the documentation as a present fault.

- Carry out the conformity check (appearance of possible faults not yet identified by the system's self-diagnostic procedure) and apply the relevant fault finding procedures according to the results.

- Confirm the repair (customer complaint disappears).

- Use the fault finding procedure for each Customer complaint if the fault persists.

SPECIAL TOOLING REQUIRED:

- Consult II diagnostic tool,
- Electrical bornier **Elé. 1622**,
- Multimeter.

OPERATING CHARACTERISTIC

The immobliser system is based on the recognition of a key by the inductive connection between the transponder built into the key and the transponder loop aerial every time starting is requested.

The key is authenticated when the transponder aerial detects the correct code, when the vehicle is in the protected state (immobiliser active).
Every time the ignition is switched off, the immobiliser is automatically activated after a timed period of 10 seconds.

OPERATION

– In this mode, transponder authentication is initiated by the transponder aerial detecting the key (+ After ignition).

– When the user introduces their key into the ignition switch and switches on the ignition, the UCH (Passenger Compartment ECU) requests the number of the key via the transponder aerial.

– In response to this request, the key gives its unique n° to the UCH.

– If the UCH recognizes this response, (which means that the key is among those programmed into the UCH) the UCH then sends back a message (challenge).

– The key deciphers the message. If the message is recognized, the key sends back its response.
The UCH compares the response with the value stored in its memory.
If this response is recognized by the UCH, then the authentication is successful.
All data exchanged between the key and the UCH is coded.

– Once the authentication of the key is successful, the UCH then authorizes the operation of the engine management (immobiliser code exchanged with the injection computer).

Key recognition in normal operation

	IMMOBILISER WARNING LIGHT
vehicle protected (without After Ignition)	warning light flashes at 1 Hz
key recognized, injection unprotected	warning light comes on for 3 seconds, then goes out
key recognized, injection protected or blank	after 3 seconds, warning light remains lit
key not recognized	warning light flashes at 4 Hz

TRANSPONDER AND RADIO-FREQUENCY KEY PROGRAMMING

All programming procedures carried out in After-Sales must be followed after the vehicle's After-Sales code has been entered on the diagnostic tool.
– There is no number marked on the keys.
– At the time of delivery, the vehicle does not have a label showing the code.

– Spare keys are supplied **uncoded, without a number and without metal insert**.

– The system can have up to four keys.
The remote control and battery have no effect on the immobiliser, **only the transponder** enables the immobiliser function.

– **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 de-allocated. These can be reallocated to the same vehicle if necessary.**

WARNING

– **It is impossible to replace two components (UCH and keys) at the same time because it will not be possible to code these components if none of them has the vehicle's original code in its memory.**

– **There are three types of part on the vehicle**

● **parts without codes**

– **Transponder aerial**
This is the only component which can be transferred to another vehicle without any precautions.

● **parts with codes**

– **Injection computer:**
The injection receives codes from the UCH.
Programming takes place as soon as the key is introduced, without any action on the part of the operator or the NISSAN agent. Programming a code into this part means it cannot be used on any other vehicle.

● **parts which are coded using an After-Sales procedure**

– **UCH and keys**
Just fitting or introducing new or blank parts to a vehicle is not sufficient to program a code. As long as the After-Sales programming procedure has not been carried out, these parts remain blank.
On the other hand, once the programming procedure has been carried out, these parts are coded and therefore cannot be used on any other vehicle.

PROGRAMMING PROCEDURE

Programming of the UCH

The UCH programming procedure is carried out using the diagnostic tool.

– Establish dialogue with the **Engine immobiliser** system.

– In the **Command menu, select Specific command**,
start command **SC027: UCH programming**.

– The tool displays **Remove the key from the immobiliser 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 allocate 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.
Once the UCH is coded, it is impossible to clear or program it with a new code.

SPECIAL CASE

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 from the vehicle.**
The wrong code has been read or the UCH has previously been coded on another vehicle. See **ET110** UCH. 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 coded on 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 cannot be used with this vehicle.**
The code introduced by this key does not correspond with the vehicle present.

– **The key inserted is blank. Please present another key already programmed on the vehicle.**
The key is blank, introduce a key which has already been coded on this vehicle.

– **The injection code does not correspond with the key code. Make sure that the multiplex network is not faulty, that the injection is operating and that the injection is not blank.**
The injection code is absent or does not correspond with the code entered.
  – check the connection between the injection computer and the UCH.
  – check that the computer is the correct one for the vehicle.

KEY PROGRAMMING PROCEDURE

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

– Establish dialogue with the **Engine immobiliser** system.

– In the **Command menu, select Specific command**, start command **SC028: card/key programming**.

– 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 active, start the procedure again to reprogram them**: Programming starts.

– The tool displays **Insert the key in the ignition switch and switch on the ignition, then press enter.**
Switch on the ignition with a new key or an old key from the vehicle. The screen displays **1 key programmed** press enter, then **remove the key from the immobiliser switch**.

– The tool asks: **Would you like to program another key?**

– To allocate additional keys, switch on the ignition for a few seconds with the other vehicle keys to be programmed (four maximum), then press enter. The screen displays **2, 3 or 4 keys programmed** then **Remove the key from the ignition switch**.

WARNING

These must be the old keys belonging to the vehicle or new **non-coded** keys.

– The tool displays **Writing data to memory**, the UCH is coded and the keys are programmed. Several seconds will elapse 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 allocated to the vehicle are the ones allocated before starting the procedure. The keys presented before the procedure was interrupted are no longer blank and cannot be allocated to this vehicle**, this message also appears if communication with the UCH is lost or the battery is cut off.

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

SPECIAL CASE

If the screen displays:

– **The UCH is blank, please start the UCH programming procedure.** The UCH is blank. It is impossible to allocate keys to an uncoded UCH.

– **Check the After-Sales code:** the format of the code entered is incorrect, check, then try entering the data again.

– If the key does not correspond to the vehicle UCH, the tool will display **Procedure cancelled: warning, the keys allocated to the vehicle are the ones allocated before the procedure was started. The keys submitted before interruption of the procedure are no longer blank and can only be allocated to this vehicle.**

CODING THE INJECTION COMPUTER

The injection computer is delivered 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 engine immobiliser, the vehicle keeps its immobiliser code for life.

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

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

The programmed code cannot be cleared.

UCH track allocation: all options (N3)

P202 Connector (15-track)

BROWN	
Track	**Allocation**
1	Front courtesy light
2	Rear courtesy light
3	RH direction indicator
4	LH direction indicator
5	Door unlocking
6	Locking of the doors and luggage compartment
7	+ lighting
8	+ locking of opening elements
9	Opening elements unlocking

GREEN	
Track	**Allocation**
1	+ direction indicator
2	Windscreen wiper feed
3	+ windscreen wiper
4	Windscreen wiper park position
5	Timed feed
6	Earth

UCH track allocation: all options (N3)

P201 (40-track)

BROWN	
Track	**Allocation**
1	+ battery
2	Immobiliser warning light
3	Heated rear screen relay
4	Heated rear screen switch
5	Not used
6	RH direction indicator control
7	LH direction indicator control
8	Multiplex connection H
9	Not used
10	Multiplex connection L
11	Not used
12	Opening element locking warning light
13	Opening element unlocking switch
14	Opening element locking switch
15	Ultrasound alarm sensor
16	Alarm feed
17	Bonnet switch
18	Multiplex connection H
19	Not used
20	Multiplex connection L

GREEN	
Track	**Allocation**
21	Hazard warning lights indicator light
22	Transponder signal
23	Rear door rabbet switches
24	Windscreen wiper and washer switch
25	Timed windscreen wiper control
26	Side lights control
27	Front door rabbet switches
28	Not used
29	Not used
30	Not used
31	Not used
32	Not used
33	+ After ignition
34	Not used
35	Not used
36	Hazard warning lights switch
37	Airbag connection
38	Not used
39	Not used
40	Diagnostic line

DF039 PRESENT OR STORED	UCH INTERNAL ELECTRICAL FAULT

NOTES	The fault is declared present when the ignition is switched off.

Replace the UCH.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults.

DF067 PRESENT OR STORED	AERIAL → DECODER LINK 1.DEF : Invalid key code 2.DEF : No communication from the ring or the transponder key

NOTES	**Conditions for applying the fault finding to stored faults.:** The fault is declared present when the ignition is switched on (+ after ignition).

1.DEF	Check parameter **PR065** Number of transponder keys programmed.
	Check State **ET104**: Valid key code, if key code valid, status NO. Carry out reprogramming of the keys using the diagnostic tool.
	Replace the key if necessary.

2.DEF	Check the connection and the condition of the transponder aerial connector. Repair if necessary.
	Check the connection and condition of the 40-track UCH connector. Repair if necessary.
	Check the **insulation, continuity and absence of resistance** of the connection: UCH 40-track connector **track 22** ⟶ **Track 4** transponder ring Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

DF069 PRESENT OR STORED	DECODER → AERIAL LINK CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 V

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present when the ignition is switched on (+ after ignition).

CC.0	Check the connection and the condition of the transponder aerial connector. Repair if necessary.
	Check the connection and condition of the UCH 40-track connector. Repair if necessary.
	Disconnect the connector of the transponder aerial and ensure that the transponder aerial is correctly supplied with **+ 12 V** on **track 3**. Repair if necessary.
	Check the **continuity and insulation** of the connection between: fuse box **F12** ⟶ **Track 3:** transponder aerial Repair if necessary.

CC.1	Check the transponder aerial connectors. Repair if necessary.
	Check the UCH connectors. Repair if necessary.
	Check the **continuity** of the connection between: **earth** ⟶ **Track 2** transponder aerial UCH 40-track connector **track 22** ⟶ **Track 4** transponder ring Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

DF105 PRESENT OR STORED	IMMOBILISER WARNING LIGHT CIRCUIT CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present when the ignition is switched on (+ after ignition).

CC.0	Check the connection and the condition of the instrument panel connector. Repair if necessary.
	Check the connection and condition of the UCH 40-track connector. Repair if necessary.
	Check the **continuity and insulation against earth** of connection: UCH 40-track connector **track 2** ⟶ **Track 5** 30-track connector instrument panel Repair if necessary.

CC.1	Check the connection and the condition of the instrument panel connector. Repair if necessary.
	Check the connection and condition of the UCH 40-track connector. Repair if necessary.
	Check **the continuity and insulation** from **+ 12 V** of the connection: UCH 40-track connector **track 2** ⟶ **Track 5** 30-track connector instrument panel Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

NOTES	Only perform this conformity check after a complete check with the diagnostic tool. The values indicated in this conformity check are given as examples. Test conditions: **Engine stopped, ignition on**

Order	Function	Parameter or State Check or action	Display and notes	Fault finding
1	After ignition	**ET154: + 12 V** after ignition present	**YES**	**If there is a fault:** refer to fault finding State **ET154**
2	Immobiliser	**ET103:** Key code received	Status **YES** when ignition switched on	**If there is a fault:** refer to fault finding procedure State **ET103**
		ET104: Valid key code	Status **YES** when ignition switched on	**If there is a fault:** refer to fault finding procedure State **ET104**
		ET153: Immobiliser active	**NO**	**If there is a fault:** refer to fault finding procedure State **ET153**
		ET167: Immobiliser warning light	**OFF**	**If there is a fault:** apply **fault finding procedure** Immobiliser warning light fault **DF105**
3	Programming:	**ET178:** Blank UCH	**NO**	If UCH blank or injection blank, status **YES, see programming procedure**

STATUS TEST

By checking specific States, it is possible to determine the fault on a vehicle by means of the various pieces of information provided.

ET154: + 12 V after ignition present

ET103: Key code received

ET104: Key code valid

ET153: Immobiliser active

If ET154 State YES ET103 State YES ET104 State YES ET153 State YES	– Check the injection with the tool and see if the injection computer is not locked. – Check for problems on the multiplex network.
If ET154 State YES ET103 State YES ET104 State NO ET153 State YES	– The coded key does not belong to the vehicle. – If the key belongs to the vehicle, then carry out reallocation of the keys. – If the key still does not work, replace the key.
If ET154 State YES ET103 State NO ET104 State NO ET153 State NO	– The key is out of service or does not correspond with the type of vehicle.

ET103	KEY CODE RECEIVED

NOTES	Check that no fault is present or stored. The state will be displayed YES when the ignition is switched on (+ after ignition) with a valid key. If the State remains NO, try with another key belonging to the vehicle before carrying out any work.

ET103 NO: ignition on and key belonging to the vehicle.

Check that State **ET154 + 12 V after ignition present** is active with the ignition on. Deal with State **ET154** if it is INACTIVE with the ignition on.
Remove any metal objects from the key-ring and try again.
Switch on the ignition with the key from another vehicle, exchanging the key inserts. If the KEY CODE RECEIVED status changes to YES, replace the vehicle key. If the KEY CODE RECEIVED status remains NO, replace the transponder aerial.
If the fault persists, replace the UCH.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the fault memory.

ET104	VALID KEY CODE

NOTES	The state will be displayed YES when the ignition is switched on (+ after ignition) with a key from the vehicle. If the State remains NO, try with another key belonging to the vehicle before carrying out any work.

ET104: NO despite presence of ignition and a key belonging to the vehicle

Check that State **ET154** + 12 V after igntion present is active with the ignition on.
Carry out reallocation of the keys with the After-Sales code. If the fault persists, replace the whole set of vehicle keys.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the fault memory.

ET153	IMMOBILISER ACTIVE

NOTES	The immobiliser active State should change to **inactive** when the + after ignition is switched on. The immobiliser State should be **active** when the key is absent from the ignition switch.

ET153 ACTIVE despite the presence of a key in the ignition switch and + after ignition

Check there is no fault before dealing with this State.
Check that State **ET154 + 12 V after ignition present** is indeed **ACTIVE** with the ignition on. Deal with State **ET154** if it is **INACTIVE** with the ignition on.
Check State **ET103 Key code received** and State **ET104 Key code valid** with the ignition on. If State **ET103 and ET104** are **YES,** perform a fault finding check on the injection computer.
If State **ET103** is **NO**, deal with this State first. If State **ET103** is **YES** and State **ET104** is **NO**, deal with **ET104** first.
If the fault persists: – Check the injection with the diagnostic tool and check that the computer is not locked. – Check the multiplex network.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the fault memory.

ET154	+ 12 V AFTER IGNITION PRESENT

NOTES	None.

ET154 INACTIVE, ignition on

Check the passenger compartment fuse.
Use a multimeter to check the presence of **+ 12 V** at the fuse holder with the ignition on.
Repair if necessary.

Use a multimeter to check the presence of **+ 12 V** on **track 1** of the UCH 40-track connector with the ignition on.
If the voltage is present, replace the UCH.

If the voltage is absent, check the continuity and insulation against earth between **track 1 of the UCH 40-track connector and the 10A fuse in the passenger compartment fuse box**.
Repair if necessary.

ET154 ACTIVE, ignition off

Use a multimeter to check the absence of **+ 12 V** at the passenger compartment fuse holder with the ignition off.
Repair if necessary.

If the voltage is absent, replace the UCH.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the fault memory.

NOTES	**These customer complaints should only be investigated after a complete check has been run using the diagnostic tool.**

NO DIALOGUE WITH THE UCH	**CHART 1**
THE VEHICLE WILL NOT START	**CHART 2**

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the fault memory.

CHART 1	No dialogue with the UCH

NOTES	None.

Try the diagnostic tool on another vehicle.

Check:
– - the connection between the diagnostic tool and the diagnostic socket (wiring in good condition),
– the engine and passenger compartment fuses.

Check for the presence of **+ 12 volts before ignition** on **track 16**, for **+ 12 volts after ignition** on **track 1** and for an **earth** on **tracks 4 and 5** of the diagnostic socket.
Repair if necessary.

Connect the bornier and check the **insulation, continuity and absence of unwanted resistance on the following connections:**:

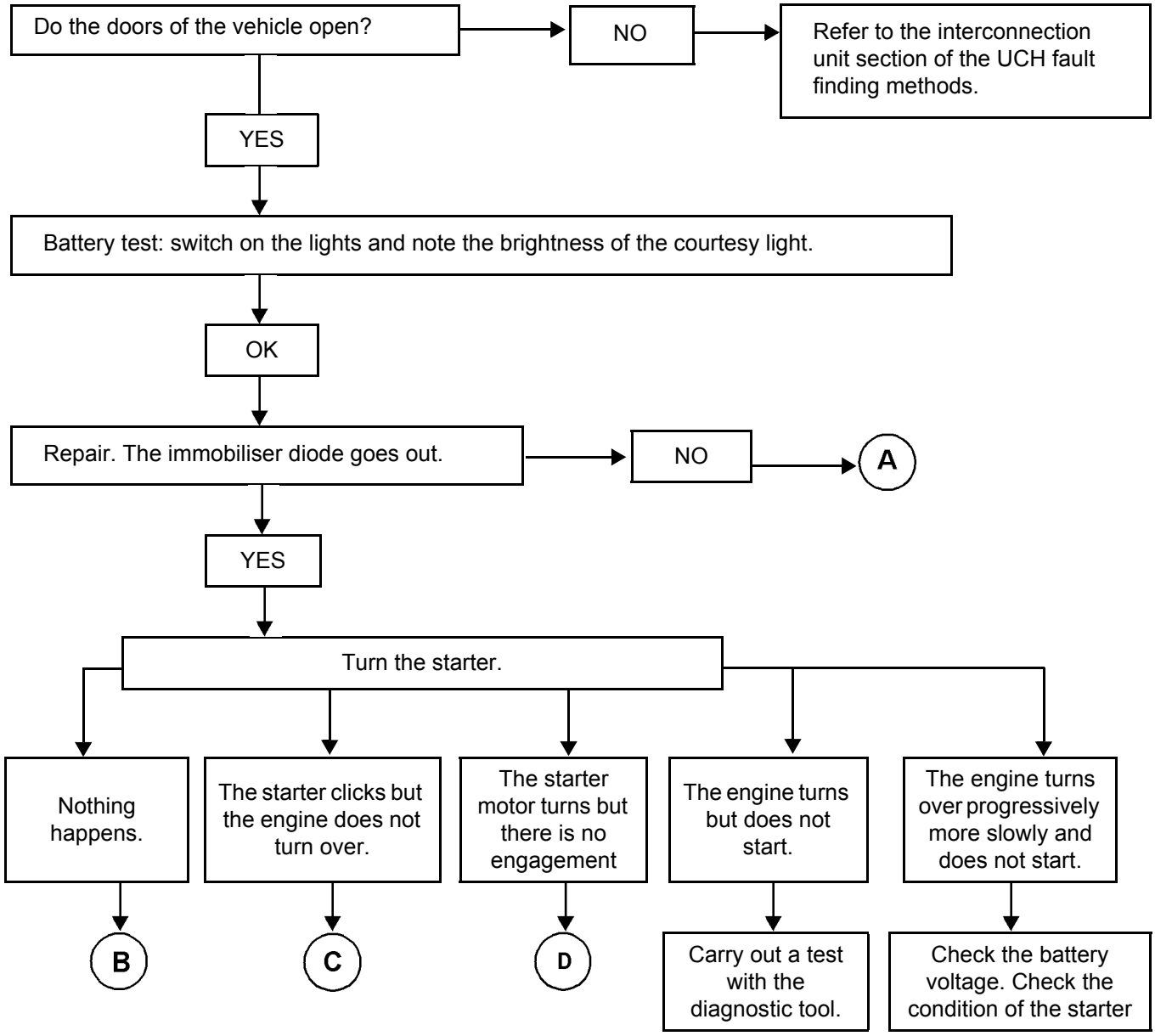
UCH 40-track connector **track 1** → Fuse box
UCH 40-track connector **track 33** → **+ After ignition supply**
UCH 15-track connector **track B6** → **Earth**
UCH 40-track connector **track 40** → **Track 7** of the diagnostic socket (line K)

Repair if necessary.

AFTER REPAIR	Check the operation of the system.

CHART 2	The vehicle will not start

NOTES	Consult the customer complaint before carrying out a complete check using the diagnostic tool.



AFTER REPAIR	Check the operation of the system.

CHART 2 **CONTINUED 1**	

NOTES	Consult the customer complaint before carrying out a complete check using the diagnostic tool.

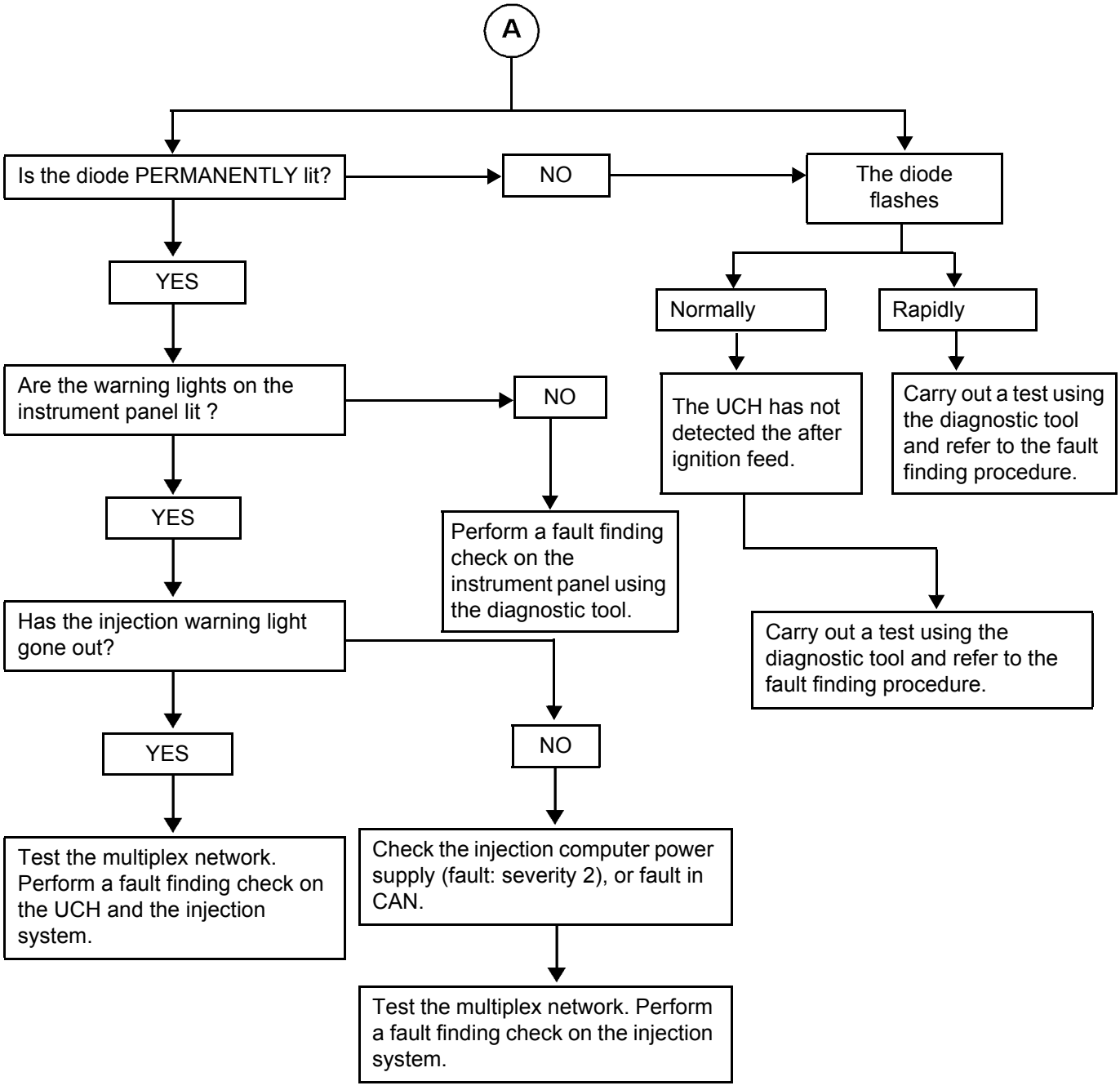


CHART 2 CONTINUED 2	

NOTES	Consult the customer complaint before carrying out a complete check using the diagnostic tool.

B

Check the battery voltage and the power supply to the + starter.

Check the fuse for the UCH power supply and replace if necessary.

Check the connection and condition of the connector of the starter relay located beneath the engine compartment.

Repair if necessary.

Check the insulation from **+ 12 V** of the connection between the UCH and the starter relay.

Repair if necessary.

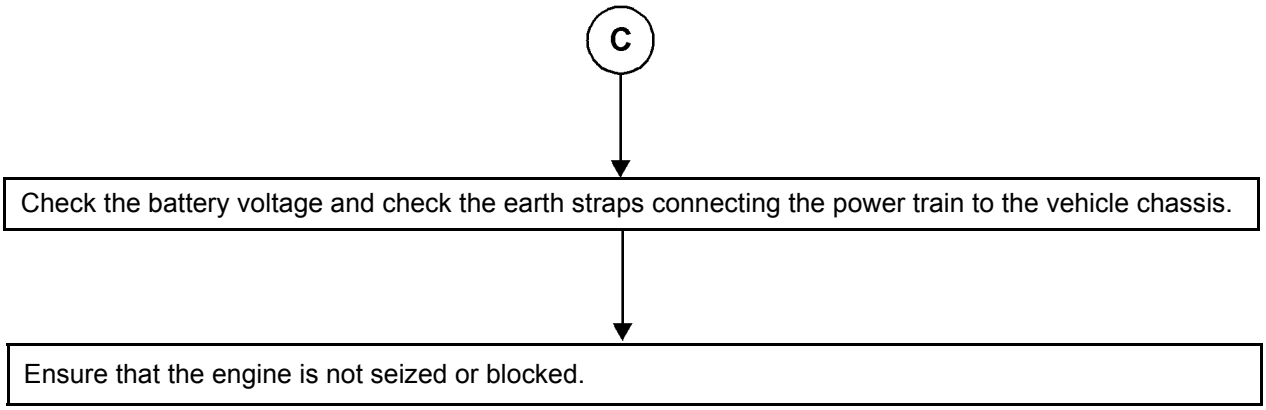
Ensure **the continuity and insulation** of the connections between:
– Ignition switch and starter relay.
– Starter relay and starter motor.

Repair if necessary.

If the problem has still not been solved, check that the starter operates correctly. Replace it if necessary.

CHART 2 **CONTINUED 3**	

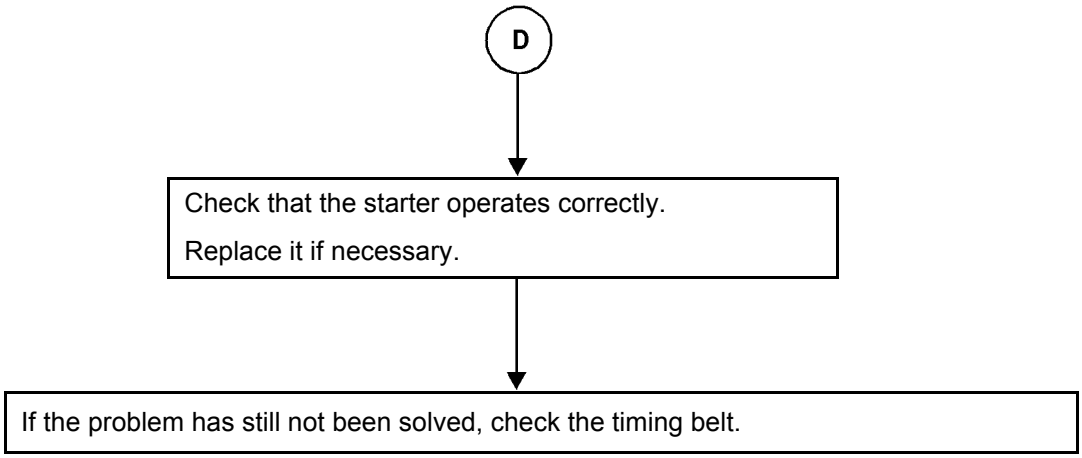
NOTES	Consult the customer complaint before carrying out a complete check using the diagnostic tool.



AFTER REPAIR	Check the operation of the system.

CHART 2 **CONTINUED 4**	

NOTES	Consult the customer complaint before carrying out a complete check using the diagnostic tool.



This document covers the generic fault finding procedures applicable to the alarm funciton on PRIMASTAR vehicles fitted with any engine.

The following are thus required for carrying out a diagnostic on this system:

- the Workshop Repair Manual for the vehicle concerned,
- the wiring diagram of the function for the vehicle concerned,
- the tools listed in Special tooling required.

GENERAL APPROACH TO FAULT FINDING

- Use one of the diagnostic tools for identifying the system fitted on the vehicle (reading the computer type, program number, Vdiag number, etc.).

- Locate the Fault finding documents corresponding to the system identified.

- Take account of information contained in the introductory sections.

- Read the faults stored in the computer memory and use the "Fault interpretation" section of the documents.

REMINDER:
Each fault is interpreted for a particular type of storage (fault present, fault stored, fault present or stored). The specified checks for dealing with each fault are therefore only to be performed if the fault declared by the diagnostic tool can be identified in the document by its type. The way in which the fault is stored should be considered when using the diagnostic tool after switching the ignition off and on again.
If a fault is interpreted when it is declared as stored, the conditions for applying fault finding appear in the notes box. When these conditions are not satisfied, use the fault finding procedure to check the circuit of the faulty part, since the fault is no longer present on the vehicle. Perform the same operation when a fault is declared as stored by the diagnostic tool but is only interpreted in the documentation as a present fault.

- Perform the conformity check (appearance of possible incorrect operations not yet declared by the system's self diagnosis procedure) and apply the associated fault finding strategy according to results.

- Confirm the repair (customer complaint disappears).

- Use the diagnostic strategy for each Customer complaint if the problem persists.

SPECIAL TOOLING REQUIRED:
- diagnostic tool (CONSULT II),
- bornier **Elé. 1622**,
- multimeter.

COMPOSITION OF THE SYSTEM

The alarm system on PRIMASTAR consists of:
- a perimeter monitoring system (3 zones)
  - Bonnet (1 contact)
  - Front doors (driver's and passenger's)
  - Rear doors and tailgate (or boot lid)

- an interior space monitoring system
  - Ultrasonic module - driver's position monitor

- an after ignition transponder key recognition system

ACTIVATING THE MONITORING SYSTEM

The entire system is active five seconds after the remote control unit button is pressed

Press the remote control		Effect on the locks	Operation of the direction indicators	Operation of horn
LOCKING	1 short press	Locking of opening elements + alarm	2 flashes	
	1 long press	Locking of opening elements + alarm + interior space protection inhibited	2 flashes	1 beep
	2nd short press	Central locking of opening elements	5 flashes	
	2nd long press	Central locking of opening elements + interior space protection inhibited	5 flashes	1 beep
UNLOCKING	1 short or long press	Door unlocking	1 flash	

If a door is not closed correctly: the direction indicators will not flash twice when the vehicle is locked.

DEACTIVATING THE MONITORING SYSTEM

Unlock the vehicle using the radio frequency remote control.

Switch on the ignition using the transponder key.

TRIGGERING AND STOPPING THE ALARM

- **The alarm and indicators are triggered if:**
  - the bonnet and/or boot is (are) opened,
  - intrusion (interior space detection),
  - + after ignition is switched on without the key having been recognised,
  - alarm wiring fault.

When the vehicle is locked with the interior space protection inhibited, manually opening one of the doors will cause the alarm and the hazard warning lights to operate for **25 seconds**.

When the vehicle is locked with the interior space protection activated, the ultrasonic sensors are active after **7 seconds**.

If a hand is passed in front of the sensors, this will cause the alarm and the hazard warning lights to operate for **25 seconds**.

- **The alarm and indicators stop if:**
  - the vehicle is unlocked using the radio frequency remote control,
  - the transponder key is recognised when the ignition is switched on.

- **Driver warning that the alarm has been triggered:**
  If the alarm has been triggered, this will be indicated by the direction indicators not flashing when the driver unlocks the vehicle.

DF139 PRESENT OR STORED	SUPPLY TO THE ALARM

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present with the alarm on stand by (alarm system triggered or armed).

Check the connection and condition of the alarm connector. Repair if necessary.
Check the **continuity and insulation** of the connection between: **+ Battery** ⟶ **Track 1** alarm siren Repair if necessary.
Replace the siren if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

DF140 PRESENT OR STORED	SIREN CIRCUIT CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** the fault is declared present with the alarm on stand by (alarm system triggered or armed).

CC.0	Check the connection and condition of the alarm connector. Repair if necessary.
	Check the connection and condition of the UCH **40-track** connector. Repair if necessary.
	Check **the continuity and insulation** against earth of connection: UCH 40-track connector **track 16** ⟶ **Track 2** alarm siren Repair if necessary.

CC.1	Check the connection and condition of the alarm connector. Repair if necessary.
	Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
	Check for **continuity and insulation** against **+ 12 V** on the following connection: UCH 40-track connector **track 16** ⟶ **Track 2** alarm siren Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

DF141 PRESENT OR STORED	ULTRASONIC SENSOR CIRCUIT CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Sensor signal absent

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present with the alarm on stand by (alarm system triggered or armed).

CC.0 **CC.1**	Check the connection and condition of the ultrasonic sensors' connector. Repair if necessary.
	Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
	Check for **continuity and insulation** against earth and **+ 12 V** on the following connection: UCH 40-track connector **track 15** ⟶ **Track 1** ultrasonic alarm module Repair if necessary.

1.DEF	Check the connection and condition of the ultrasonic sensors' connector. Repair if necessary.
	Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
	Ensure that **+ 12 V** is present on **track 15** of the ultrasonic module. Ensure that there is an earth on **track 1** of the ultrasonic module. Repair if necessary.
	Check the **continuity and insulation** of the connection between: UCH 40-track connector **track 15** ⟶ **Track 1** ultrasonic module Repair if necessary.
	Replace the ultrasonic module if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

DF144 PRESENT OR STORED	SIREN

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present with the alarm on stand by (alarm system triggered or armed).

Check the connection and condition of the alarm connector.
Repair if necessary.

Check the connection and condition of the UCH **40-track connector**.
Repair if necessary.

Check for **continuity and insulation** on the following connections:

UCH 40-track connector **track 16** ⟶ **Track 2** alarm siren
Earth ⟶ **Track 3** alarm siren

Repair if necessary.

Replace the siren if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

NOTES	Only check the conformity after having performed a complete check with the diagnostic tool. The values indicated in this conformity check are given merely as examples. **Test conditions: ignition off.**

Order	Function	Parameter or State Check or Action	Display and notes	Fault finding
1	After ignition	**ET154:** Presence of + 12 V after ignition	**YES**	**In the event of a fault:** refer to the fault finding procedure for state **ET154**.
2	Alarm	**ET236:** Ultrasonic sensor	**INACTIVE** **ACTIVE** when the alarm is operating except when interior space protection inhibited.	**In the event of a fault:** apply the fault finding procedure for fault **DF141** Ultrasonic sensor circuit.
		ET057: Bonnet open	**YES** if the bonnet is open. **NO** if the bonnet is closed.	**In the event of a fault:** refer to the fault finding procedure for state **ET057**.
		ET232: Siren	**INACTIVE** **STAND BY** **ACTIVE**	**In the event of a fault:** apply the fault finding procedure for fault **DF140** Siren circuit.

ET057	BONNET OPEN

NOTES	None.

Check that the corresponding state is open for the open bonnet, or closed for the closed bonnet.
Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
Check for **continuity and insulation** of the following connections: UCH 40-track connector **track 17** ⟶ **Bonnet catch** **Earth** ⟶ **Bonnet catch** Repair if necessary.
Open the bonnet, then disconnect and close the lock. Verify the continuity between the earth input track and the track on the UCH. Pull the handle to open the lock and check that there is no longer continuity between the earth input track and the UCH track. In the event of a fault, replace the lock.
Check that the lock is fitted into the striker properly.

AFTER REPAIR	Repeat the diagnostic procedure on the system. Deal with any other possible faults. Clear the stored faults.

ET122	REAR DOORS OPEN

NOTES	None.

Check that the corresponding state is open for open rear doors, or closed for closed rear doors.
Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
Check for **continuity and insulation** of the following connections: UCH 40-track connector **track 23** ⟶ **Rear door rabbet switches** **Earth** ⟶ **Rear door rabbet switches** Repair if necessary.
Open the rear doors, then disconnect and close the lock. Verify the continuity between the earth input track and the track on the UCH. Pull the handle to open the lock and check that there is no longer continuity between the earth input track and the UCH track. In the event of a fault, replace the lock.
Check that the lock is fitted into the striker properly.

AFTER REPAIR	Repeat the diagnostic procedure on the system. Deal with any other possible faults. Clear the stored faults.

ET192	FRONT DOORS

NOTES	None.

Check that the corresponding state is open for open front doors, or closed for closed front doors.
Check the connection and condition of the UCH **40-track connector**. Repair if necessary.
Check for **continuity and insulation** of the following connections: UCH 40-track connector **track 27** ⟶ **Front door rabbet switches** **Earth** ⟶ **Front door rabbet switches** Repair if necessary.
Open the front door, then disconnect and close the lock. Verify the continuity between the earth input track and the track on the UCH. Pull the handle to open the lock and check that there is no longer continuity between the earth input track and the UCH track. In the event of a fault, replace the lock.
Check that the lock is fitted into the striker properly.

AFTER REPAIR	Repeat the diagnostic procedure on the system. Deal with any other possible faults. Clear the stored faults.

ET301	SOURCE FOR ALARM TRIGGERING FOR THE FIRST TIME
ET302	SOURCE FOR ALARM TRIGGERING FOR THE SECOND TIME
ET303	SOURCE FOR ALARM TRIGGERING FOR THE THIRD TIME
ET304	SOURCE FOR ALARM TRIGGERING FOR THE FOURTH TIME

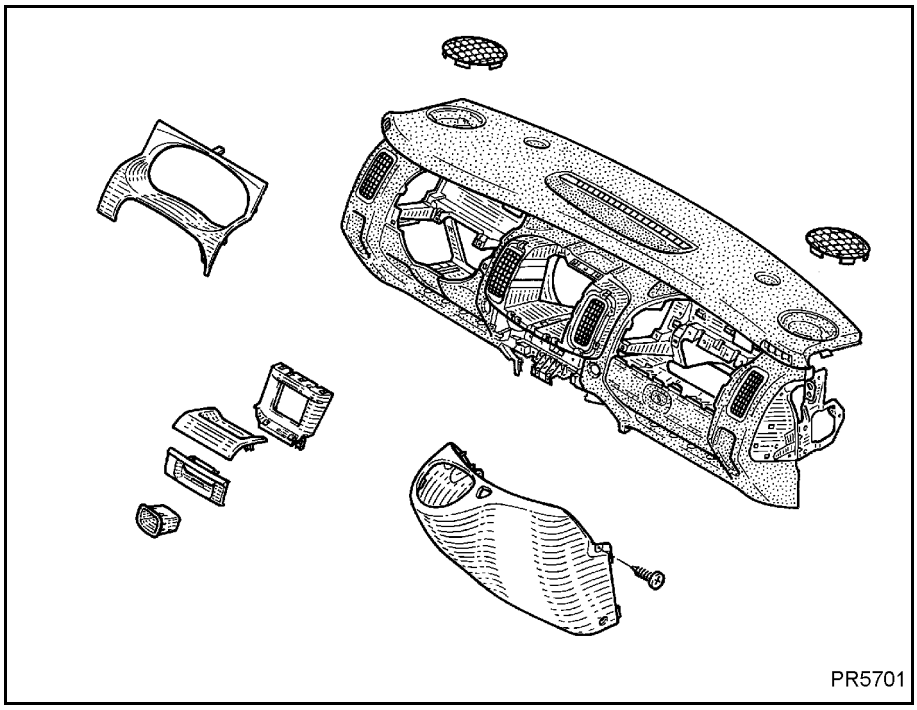
NOTES	None.

When the alarm is triggered a number of times, it is possible to check the triggering source for up to four consecutive instances of the alarm being triggered.

The triggering source is divided into three zones for perimeter monitoring.
Zone 1: bonnet
Zone 2: front doors (driver's and passenger's)
Zone 3: rear doors and tailgate (or boot-lid)

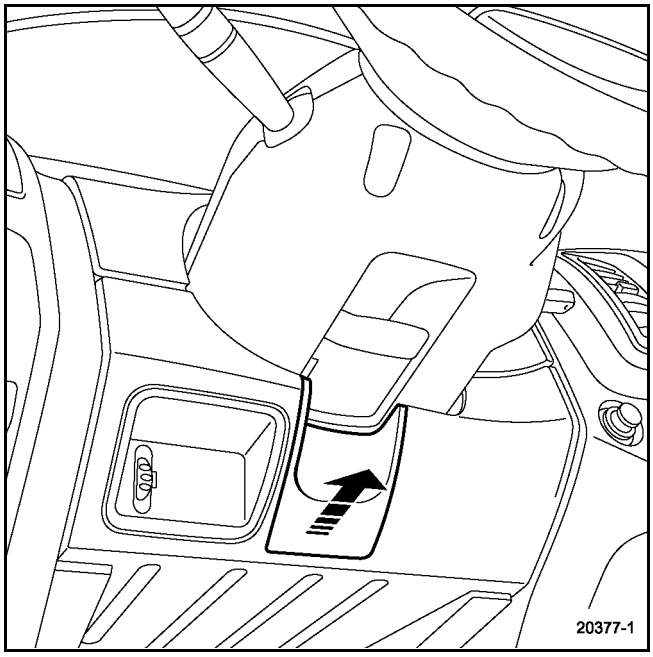
Interior space monitoring (ultrasonic module)
After ignition transponder key recognition.

AFTER REPAIR	Repeat the diagnostic procedure on the system. Deal with any other possible faults. Clear the stored faults.



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.

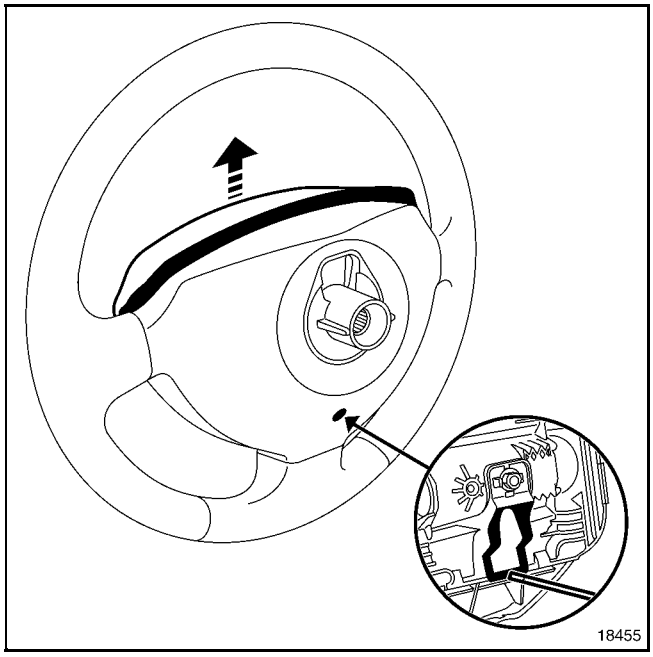
REMOVAL



Unclip the cover under the steering wheel to connect the diagnostic tool.

IMPORTANT: before removing the air bags, lock the computer using the diagnostic tool (for instructions, see Section 88).

Disconnect the battery.

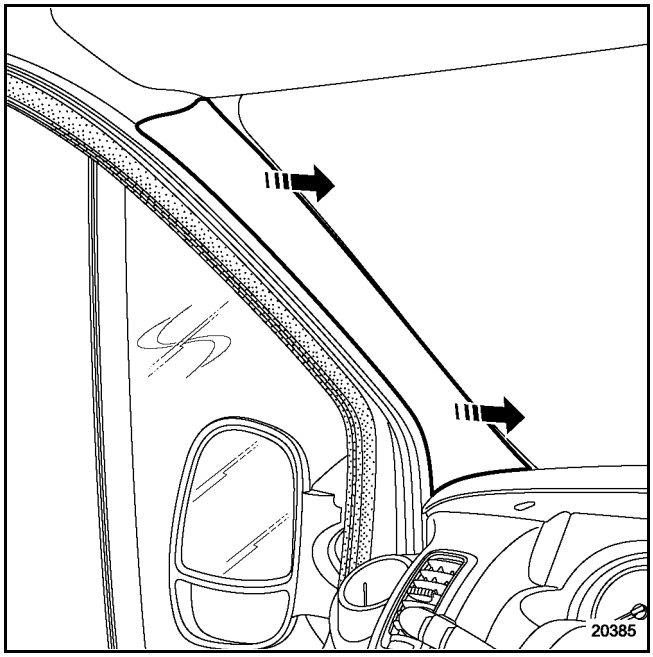


Unclip the steering wheel air bag cushion.

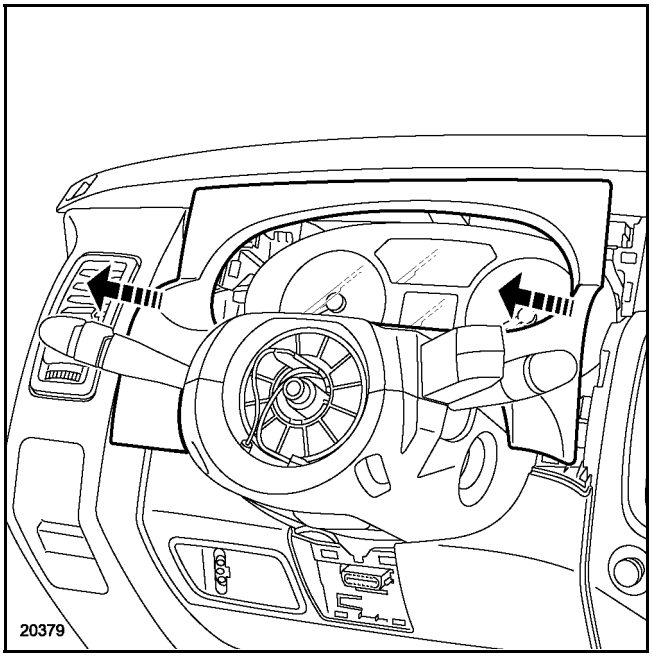
Disconnect the air bag connector.

WARNING: it is essential to mark the position of the rotary switch and ensure that the wheels are straight when removing it, so that the strip is centred.

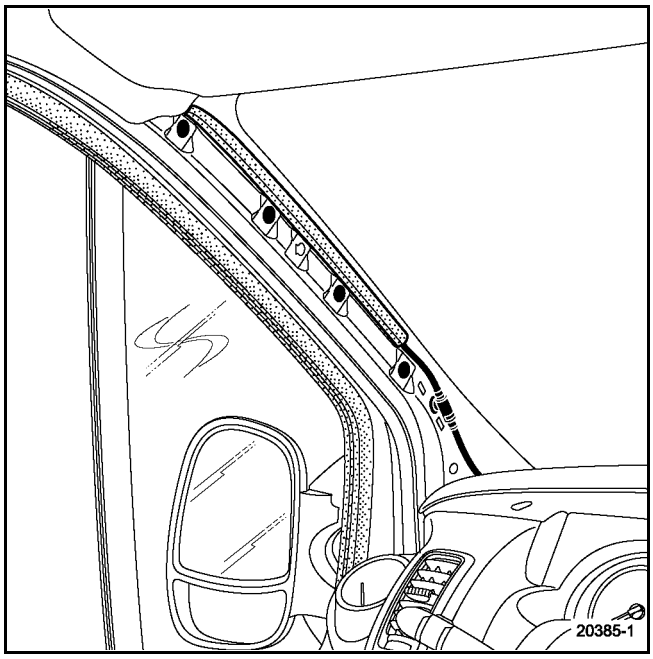
Remove:
– the steering wheel bolt,
– the steering wheel.



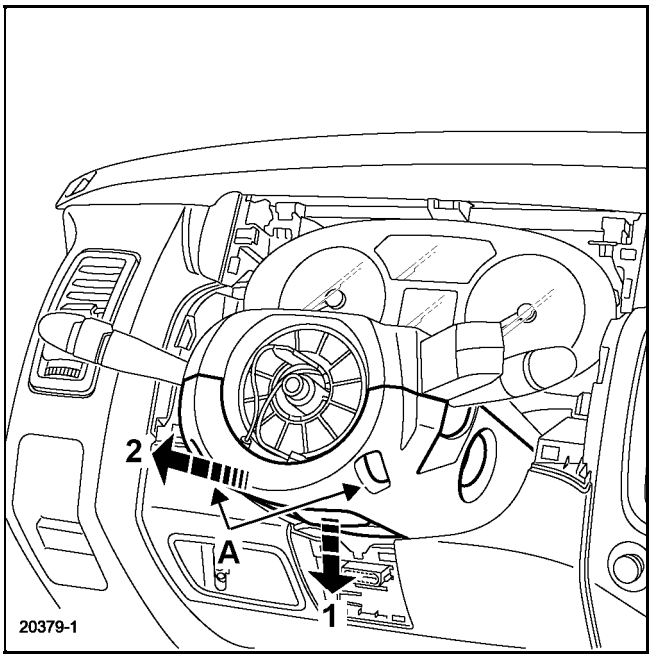
– the windscreen pillar trims.



Unclip the instrument panel glass.



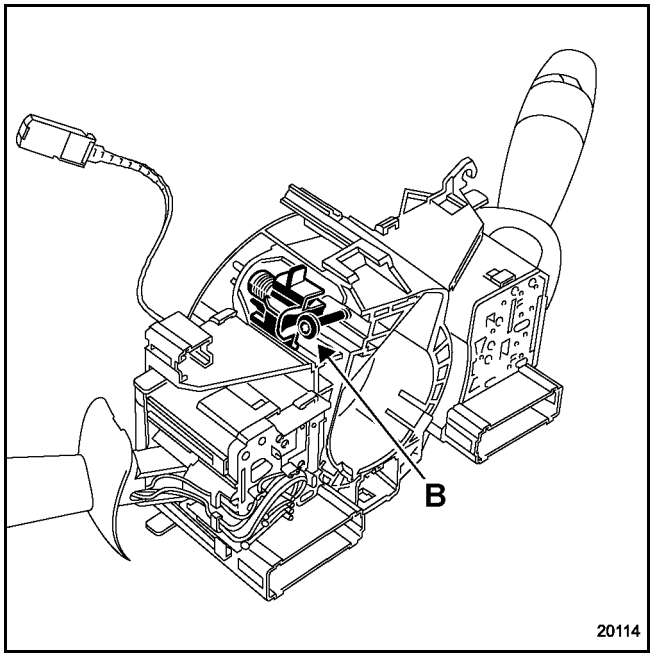
Disconnect the aerial connector.



Remove the two mounting bolts (A) from the casing.

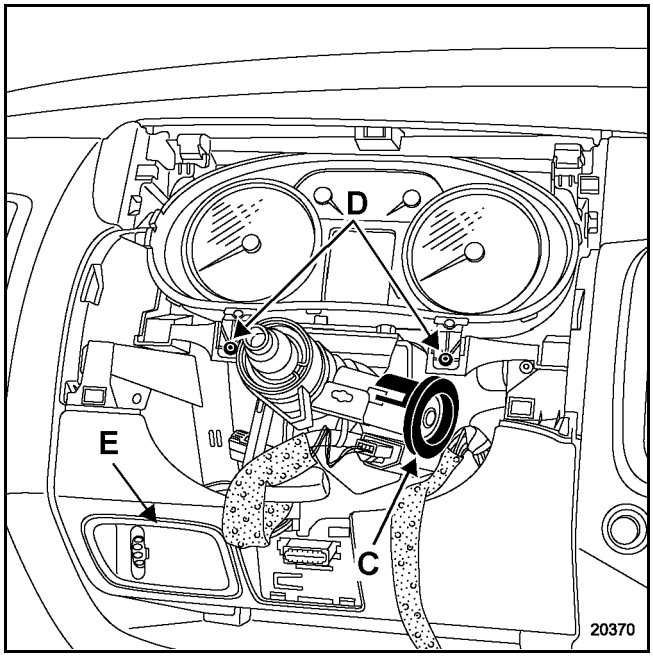
Unlock the steering wheel height adjustment control.

Undo the lower half cowling (1) then (2).

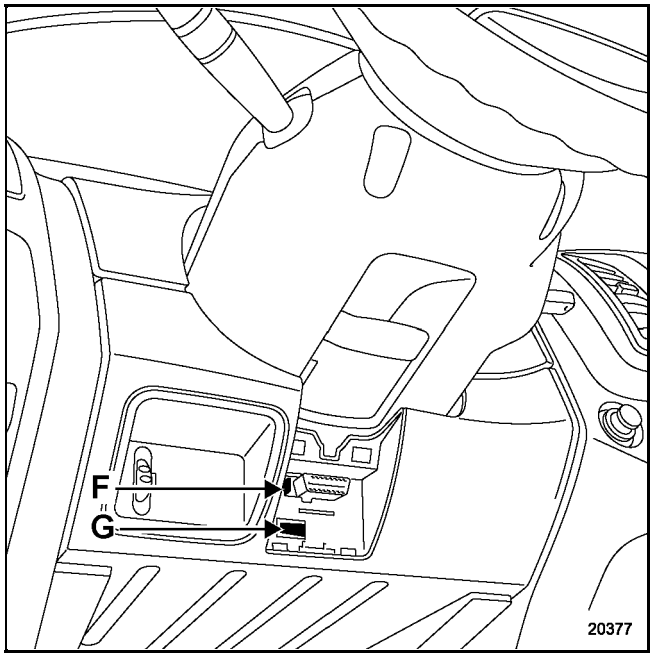


Disconnect the connectors.

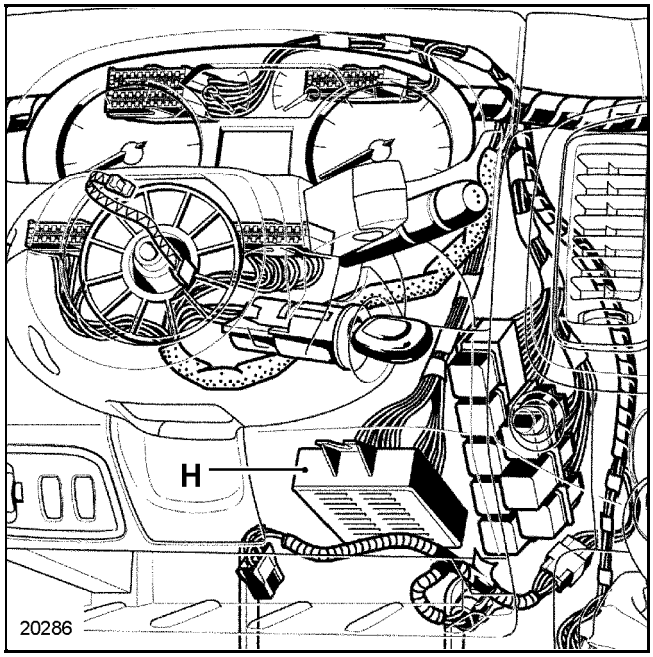
Undo the bolt (B) then release the rotary switch.



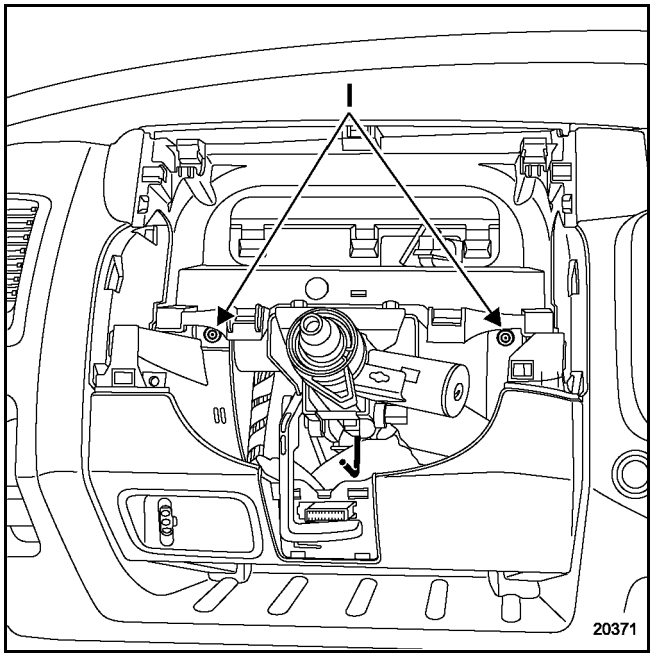
Remove:
– the transponder ring (C),
– the two dashboard mounting bolts (D),
– the instrument panel,
– the plate (E) and disconnect the connectors (according to the version).



Remove:
– the diagnostic socket (F),
– the ignition switch connector (G).

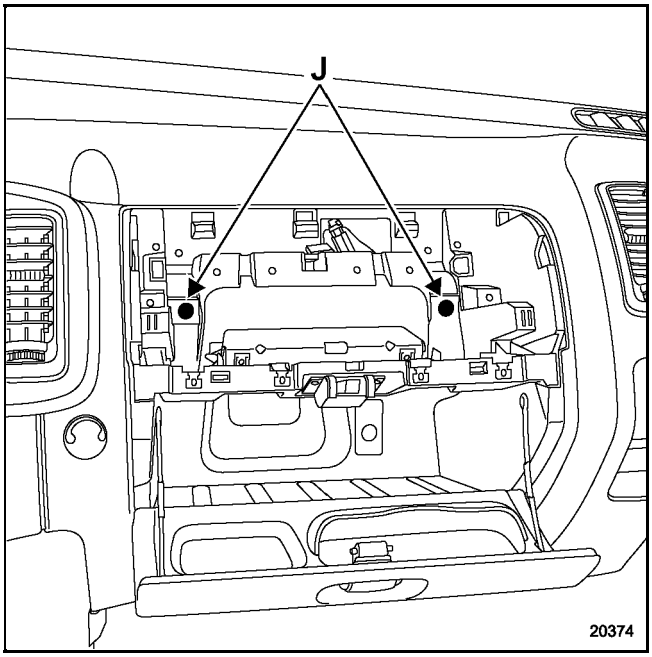


Disconnect the UCH (H) (it is located close to the steering column).



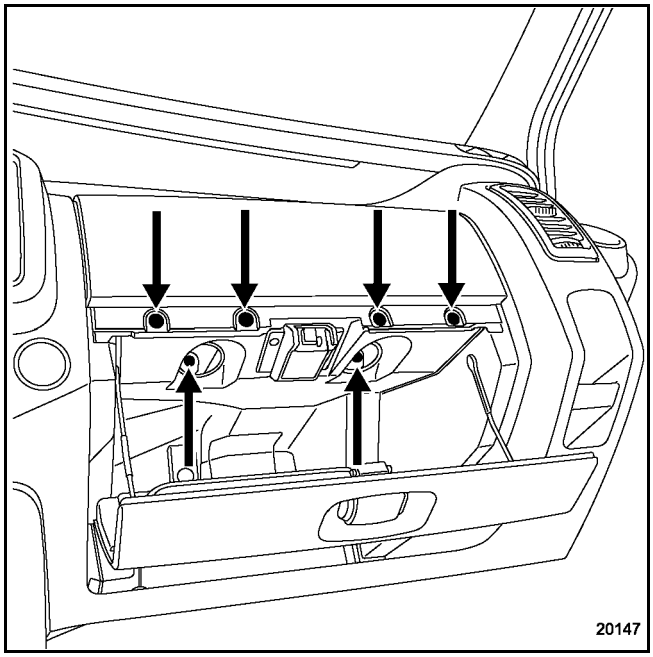
Remove the mounting bolts (I).

Lock the steering wheel height adjustment control.



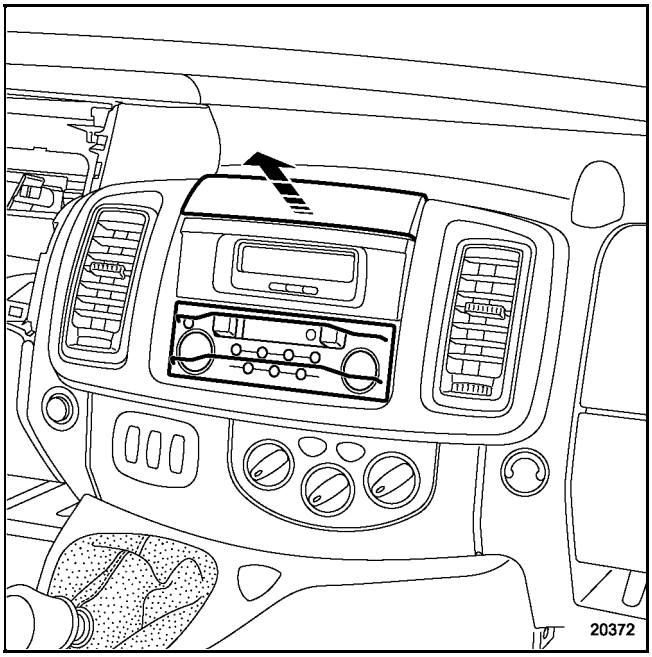
Remove the mounting bolts (J).

Disconnect the glove compartment light connector.



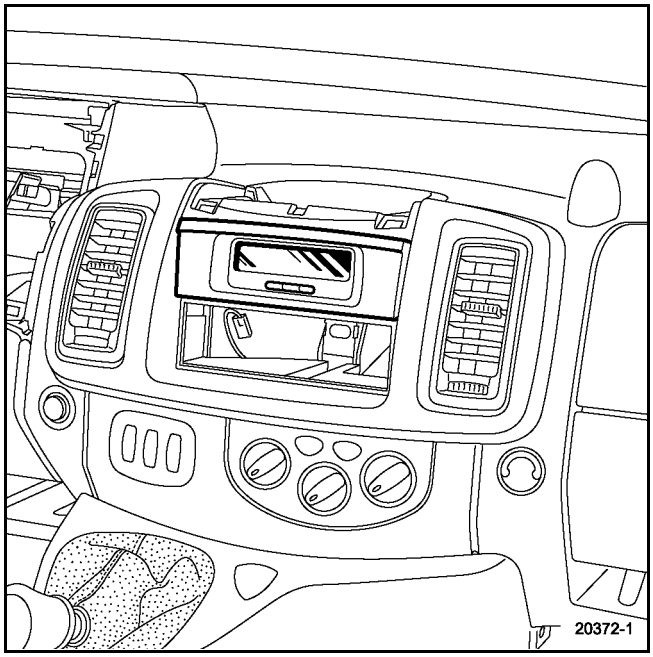
Remove the six mounting bolts from the passenger air bag.

Disconnect the connector, then release the air bag.

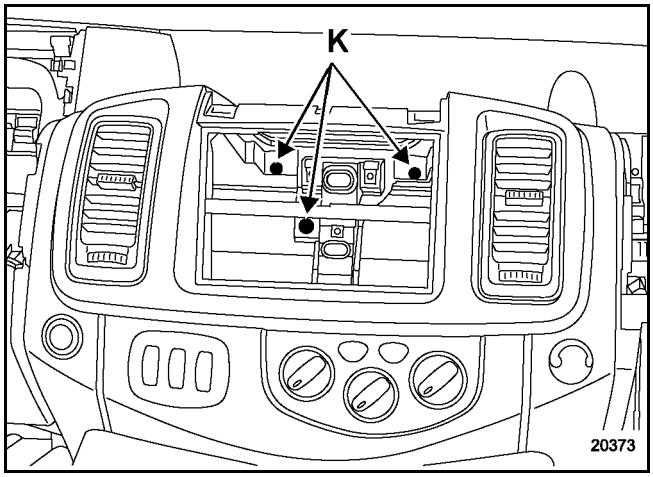


Unclip the central upper cover.

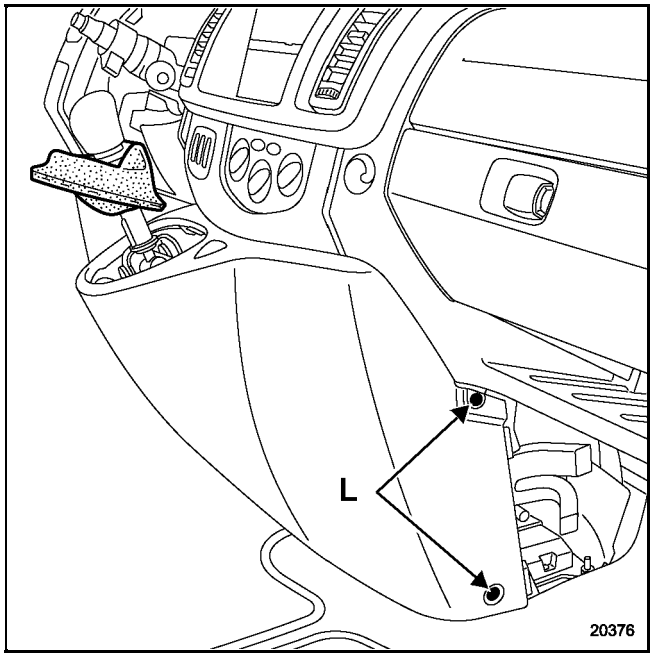
Remove the radio, using the tool (**MS. 1373**).



Remove:
– the central display,



– the mounting bolts (K).

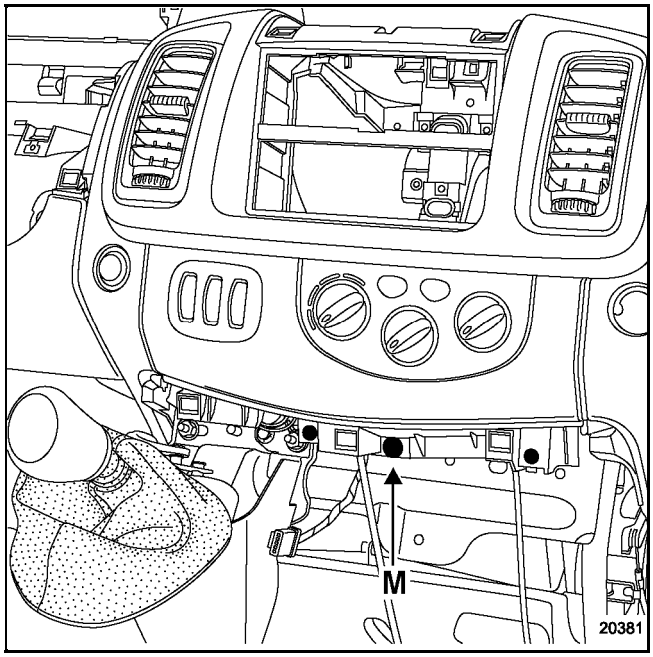


Unclip the gaiter from the gear control lever.

Remove the four mounting screws (L).

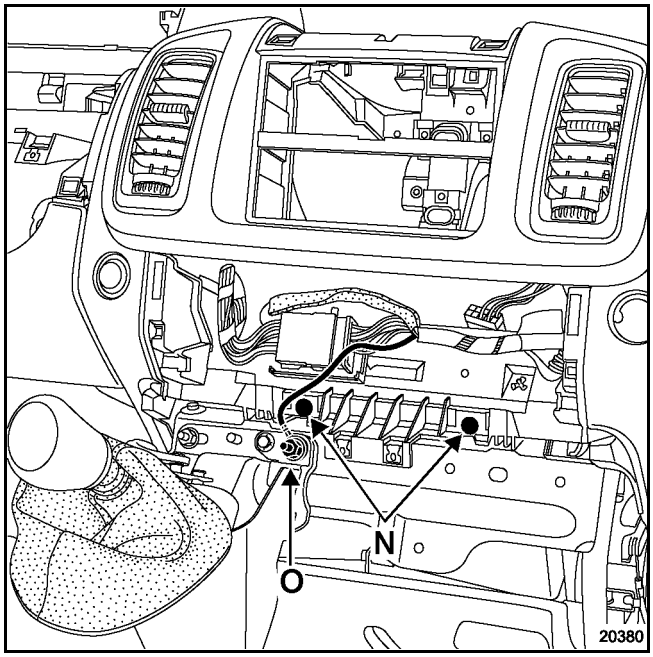
Disconnect the hazard warning lights connector.

Release the central console.

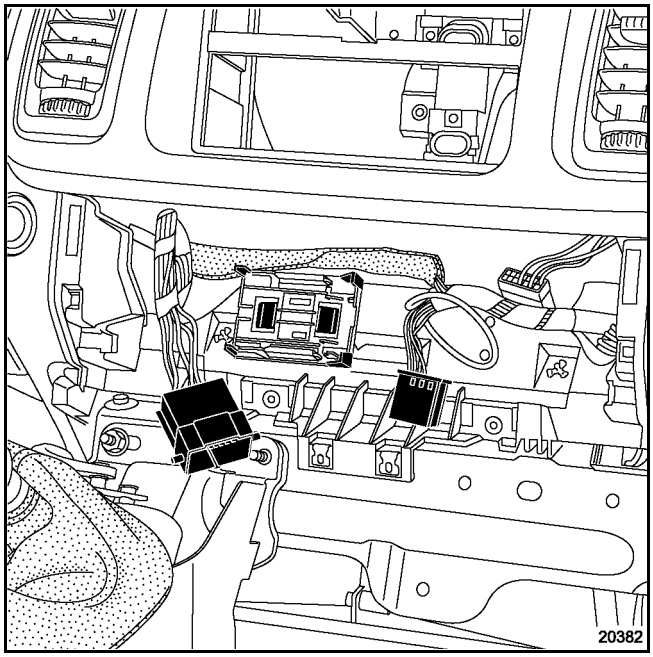


Remove the mounting bolt (M).

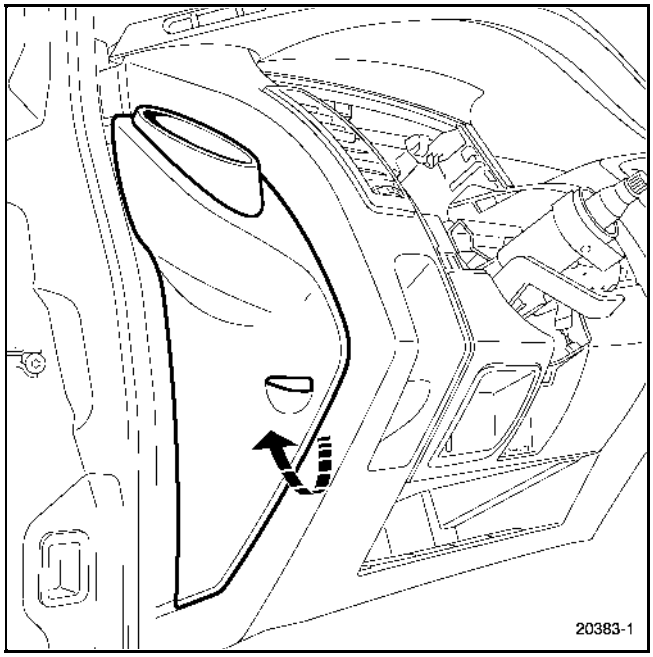
Disconnect the connectors, then release the heater control panel.



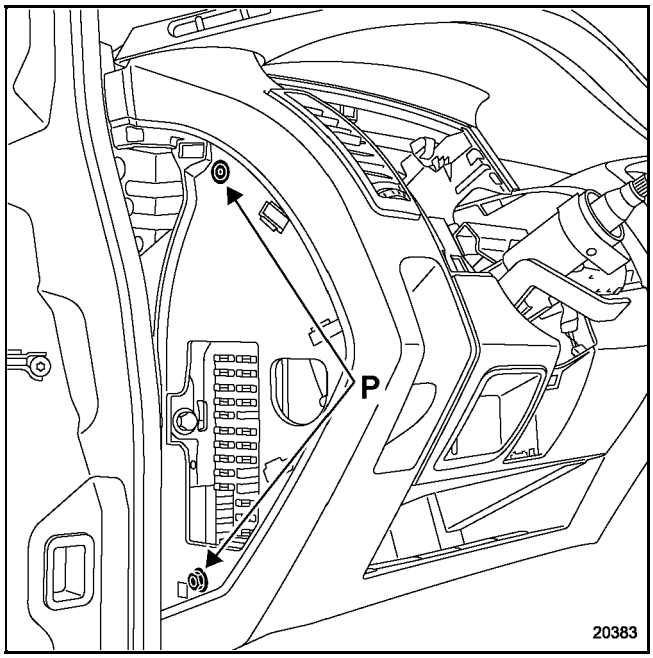
Remove:
– the mounting bolts (N),
– the earth wire (O),



– the connector.



Unclip the ashtray supports.



Remove the four side mounting bolts (P).

The remaining operations require two people.

Partially release the dashboard.

Disconnect the connectors from the speakers.

Remove the dashboard.

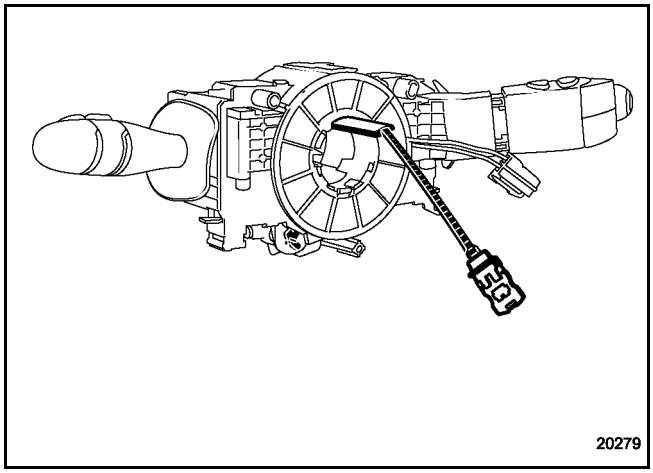
REFITTING

Special notes on the rotary switch

Ensure that the wheels are straight.

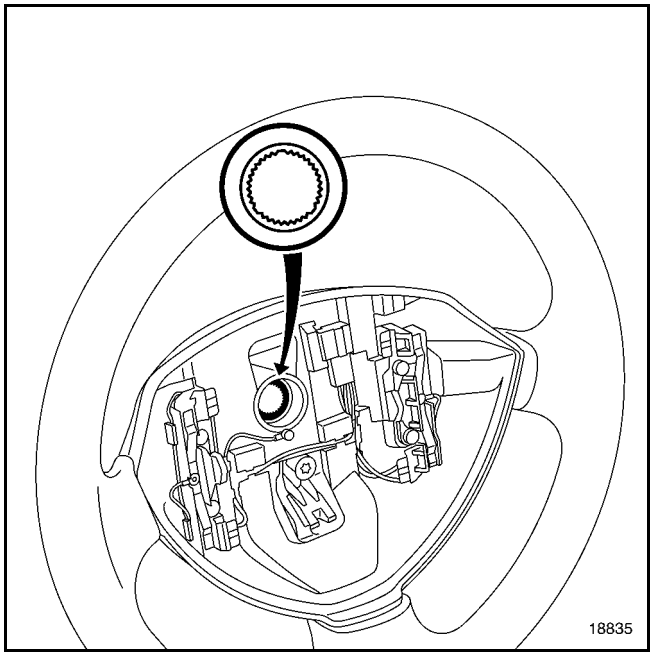
Tighten the rotary switch mounting bolt.

Connect the connectors.



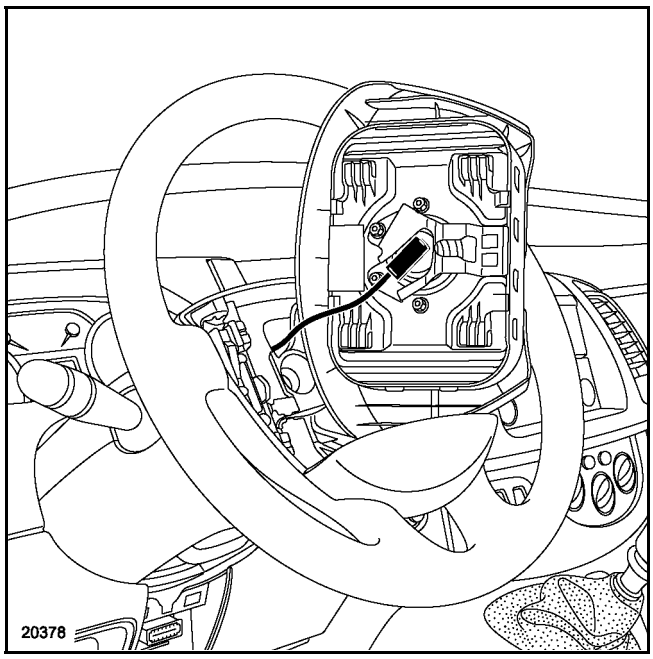
Special notes on the steering wheel

IMPORTANT: the splines on the steering wheel have foolproofing devices. **The steering wheel must fit back into the splines easily.** Be careful not to damage them.



It is essential to replace the steering wheel bolt each time it is removed and to tighten it to a torque of **4.4 daNm**.

Special notes on the driver's air bag

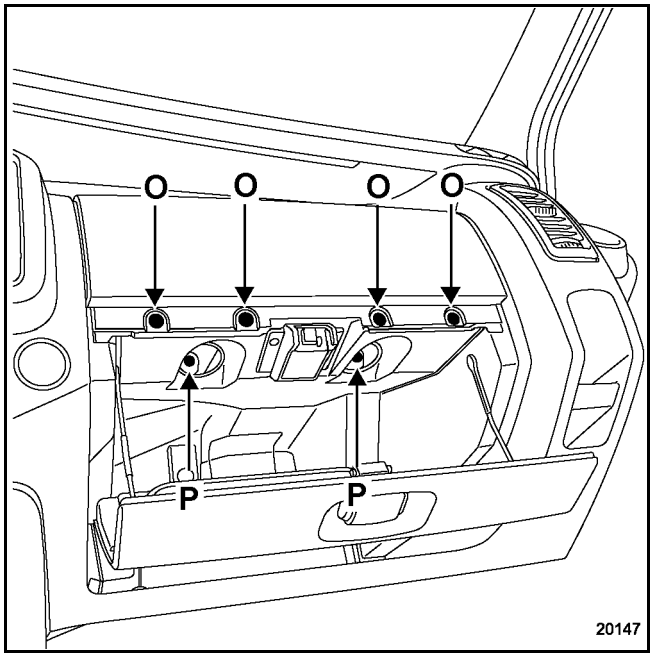


Connect the connector, then lock it.

Place the air bag on the steering wheel and slide it downwards until it clicks.

Special notes on the passenger air bag

IMPORTANT:
– Check for foreign bodies (bolts, clips, etc.) when fitting the air bag module.
– On the module side, make sure that the connector is properly clipped (powerful clip) and position the safety lock.



It is essential to check the tightening torque of the mounting bolts:
– four bolts (O) = **2 N.m**,
– two bolts (P) = **8 N.m**.

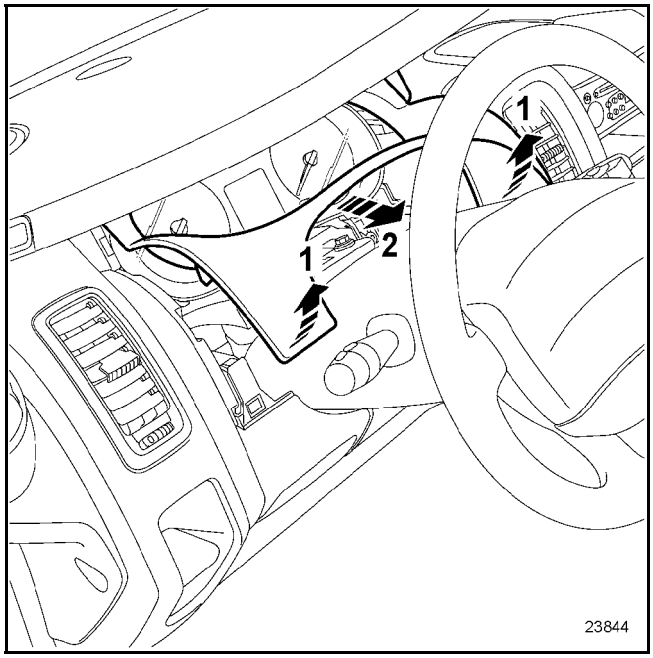
Check the module using the diagnostic tool. If everything is correct, unlock the computer or see the **Fault finding** section.

Special notes on vehicles fitted with a tachograph

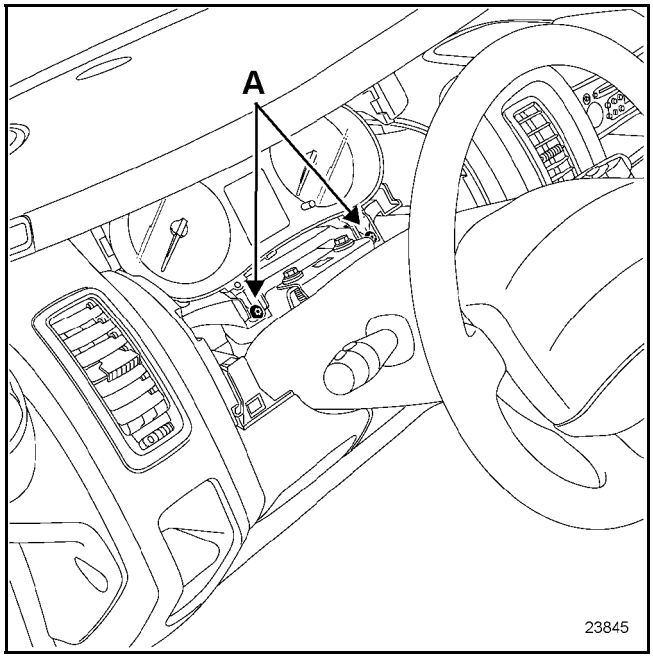
Refer to the user's manual for vehicles fitted with a tachograph for a description of how to reboot the system.

REMOVAL

Remove:
- the instrument panel glass clipped onto the dashboard,



- the mounting bolts (A).



Disconnect the connectors.

CONFIGURATION

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

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

apply the procedure using the diagnostic tool to change the instrument panel configurations:

– Test the multiplex network to check that it is in good condition, then exit the fault finding,
– Disconnect the battery (for at least 1 minute) then reconnect it,
– WITHOUT SWITCHING THE IGNITION BACK ON, test the multiplex network again (**ignore the segments that are faulty due to the ignition being switched off**),
– Establish a dialogue with the **UCH**,
– In the **Command**, **Specific command** menu, confirm **CF 719 instrument panel type**,
– The tool displays **Are you sure you want to configure?**

YES or **NO**,

- **NO** exit the procedure,
- **YES** the tool displays:

– Turn off the ignition, then press Enter,
– Clock **with or without**,
– Speed signal **ABS or gearbox sensor**,
– Engine type **petrol or diesel**,
– Speed sensor index
-215/65 R16
-205/65 R16
-215/65 R16,
– Chronotachograph **with or without**

When it is finished, the tool displays:

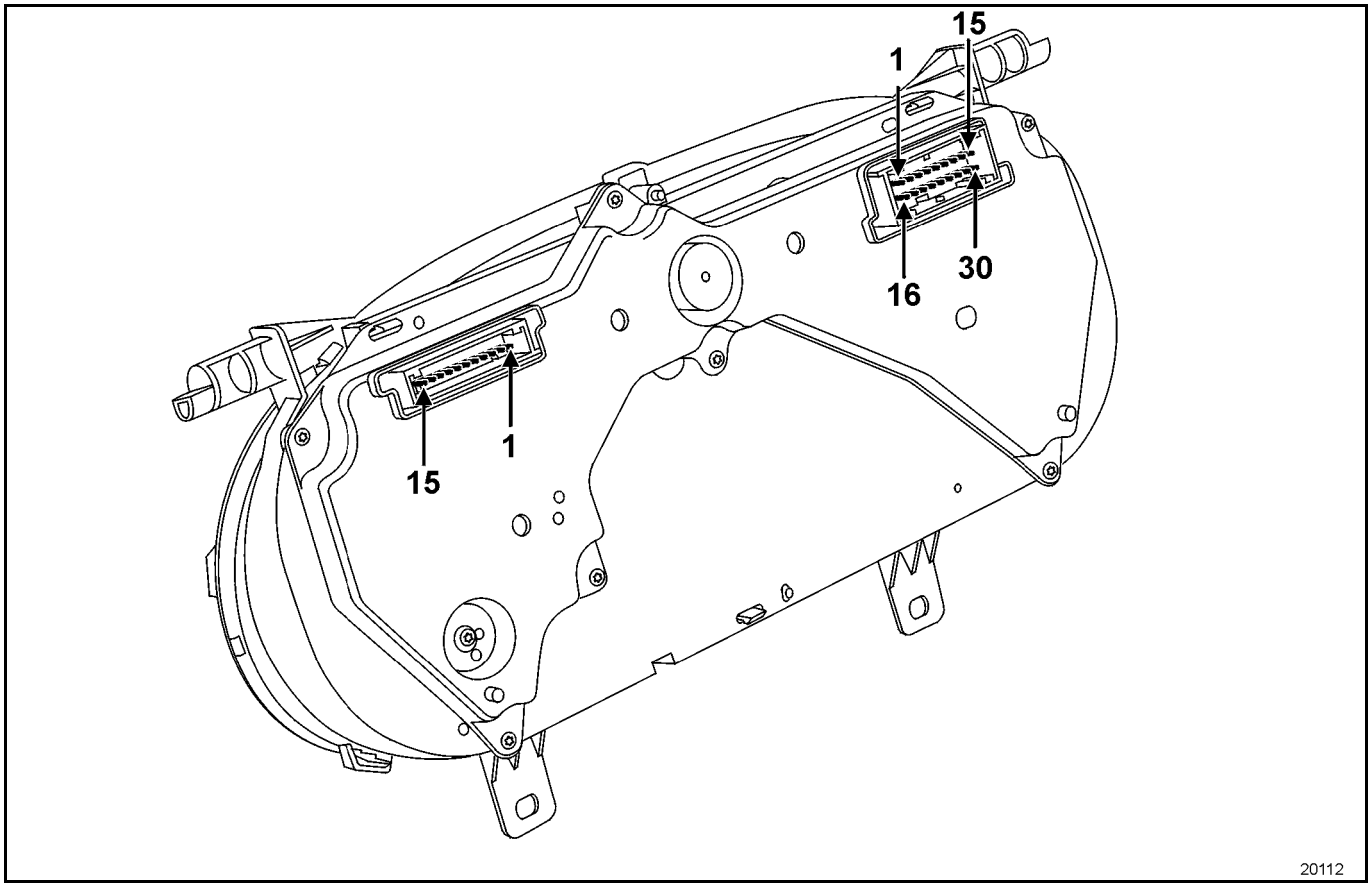
Are the configurations correct?

YES or **NO**

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

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

The tool displays: **configuration complete**.



RED CONNECTOR

Track	Description
1	not in use
2	not in use
3	not in use
4	not in use
5	Lighting dimmer
6	Assisted steering scroll button (according to the version)
7	not in use
8	not in use
9	**Service** warning light
10	Multiplexing
11	Multiplexing
12	not in use
13	not in use
14	**Anti-lock braking system** indicator light
15	**Electronic braking regulator** indicator light

GREY CONNECTOR

Track	Description
1	not in use
2	**Right direction signal** indicator light
3	**Left direction signal** indicator light
4	+ before ignition
5	**Engine immobiliser** indicator light
6	**Seat belt** indicator light
7	not in use
8	**Dipped beam headlights** indicator light
9	**Main beam headlights** indicator light
10	**Air bag** indicator light (depending on the
11	version)
12	**Rear fog light** indicator light
13	**Fog light** indicator light
14	not in use
15	**Battery charge** warning light
16	not in use
17	+ after ignition
18	not in use
19	**Oil pressure** warning light
20	not in use
21	not in use
22	Oil level sensor
23	Fuel sender signal
24	Vehicle speed signal
25	Earth
26	Fuel sender earth
27	Oil level sensor earth
28	**Side lights** indicator light
29	**Hand brake** indicator light
	not in use
30	**Brake fault** warning light

GENERAL INFORMATION

The instrument panel contains the following functions:

– needle gauge functions
  - vehicle speed
  - rev counter
  - coolant temperature,
  - fuel level

– audible function (ignition on)
  - indicators
  - headlights on reminder when a door is opened
  - automatic locking when driving confirmation
  - limit speed exceeded (Saudi Arabia) (depending on the version)

– warning and indicator light function

– display function
  - oil level reading
  - odometer
    – total mileage
    – trip mileage
  - driving assistance (according to the version)
    – fuel consumed
    – average consumption
    – current consumption
    – fuel range
    – distance travelled
    – average speed
    – clock (depending on the version).

OPERATION OF THE DISPLAY

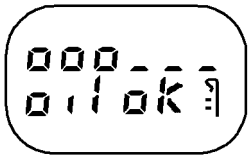
❶ Oil level reading

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**

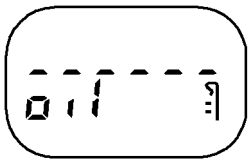
13141a

If the "**ADAC**" or "**reset**" button is pressed during this time, the display shows "**oil ok**" and the oil level as represented by squares. These disappear as the oil level drops and are replaced by dashes.



13141b

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



13141c

NOTE:

- Under normal operating conditions, the oil level is only measured if the ignition has been switched off for over one minute; otherwise the old oil level value is redisplayed.
- however, when a fault is detected on the dipstick, the display switches directly to the mileometer function when the ignition is switched on.
- It is normal to find that the oil level is not always the same: Various parameters are involved:
  – parking on a slope,
  – too short a wait after running the engine briefly (especially when the oil is cold),
  – different oil temperatures.

❷ Odometer

Total mileage

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

Trip mileage

The trip meter is displayed instead of the total mileage when the "**ADAC**" or "**reset**" button is pressed briefly.

It is reset by pressing the "**reset**" button. Resetting the trip mileometer is different to resetting the driving assistance function.

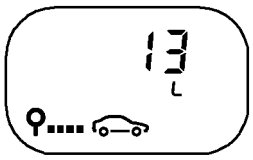
NOTE: different instrument panels are required for a display in kilometres or miles.

❸ On-board computer ("ADAC") (according to version)

The various sequences of the on-board computer may be displayed instead of the total mileages by successively pressing the button on the end of the wiper stalk (**ADAC** button).
It is reset by pressing the **reset** button.

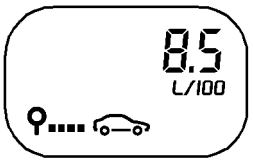
The information from the on-board computer is displayed after the trip meter as follows:

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



13141d

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



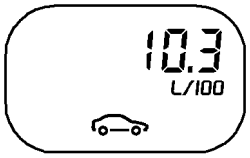
13141e

This is only displayed after the vehicle has travelled approximately **400 m**. Below this, fixed dashes appear on the display.

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

* UK version.

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



13141f

This is only displayed when the vehicle speed is above approximately **18 mph (30 km/h)**. Below this, fixed dashes appear on the display.

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

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

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

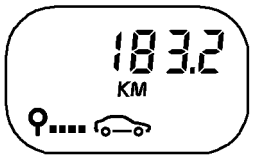
13141g

This is only displayed after the vehicle has travelled approximately **400 m**. Below this, fixed dashes appear on the display.

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

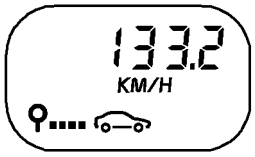
NOTE: the range remaining is not displayed when the low fuel warning light is lit.

– **Distance travelled** since the last reset (resetting the **ADAC**).



13141h

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



13141j

This is displayed after the vehicle has travelled approximately **400 m**. Below this, fixed dashes appear on the display.

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

The time base is inside the trip 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 the engine off.

– All the warning lights illuminate and the needles on the four gauges move in steps.

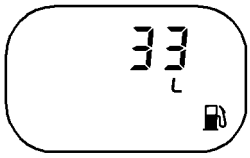
– The **liquid crystal display** test appears.

13141l

All the segments on the display should be lit up.

Press the "**ADAC**" button to proceed to the next test.

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



13141m

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

Press the "**ADAC**" button to proceed to the next test.

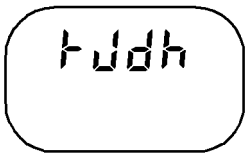
– The **fuel flow** in litres / hour test appears (engine running).

13141N

A value should be displayed when the engine is running.

Press the "**ADAC**" button to proceed to the next test.

– Viewing stored faults.



13141o

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

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

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

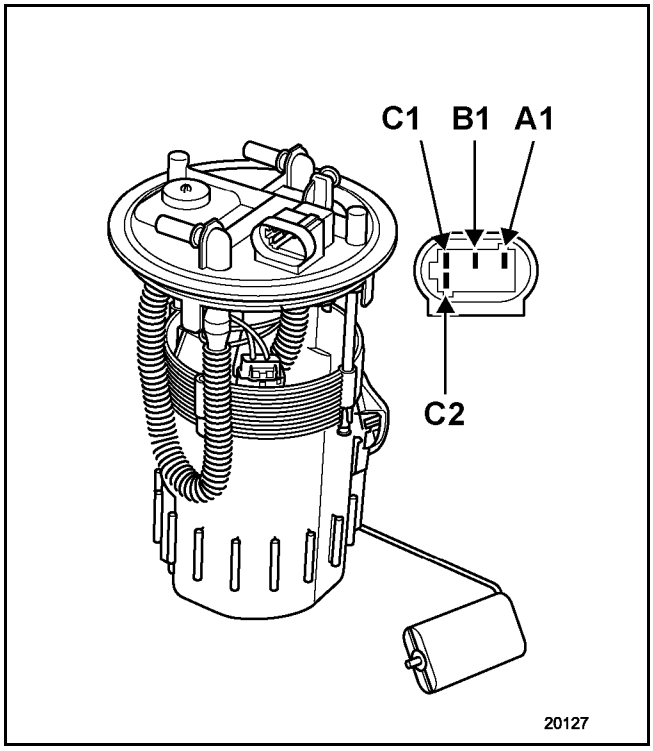
If the letter **h** is displayed, this means that an oil level sensor fault has been detected. The resistance should be between **6 and 20** Ω.

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

Pressing the "**reset**" button exits the fault finding procedure and clears the fault memory.

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

CONNECTION



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

NOTE: refer to **Section 13** for the removal/refitting method.

Checking

Check that the resistance varies when the float is moved.

Level	Resistance (± 10 Ω)	Effective volume (± 5 l)
Tank full	20	70
Tank 3/4 full	87.5	54
Tank half full	155	38
Tank 1/4 full	222.5	23
Tank empty	290	7

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

OPERATION

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

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

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

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

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

CHECKING

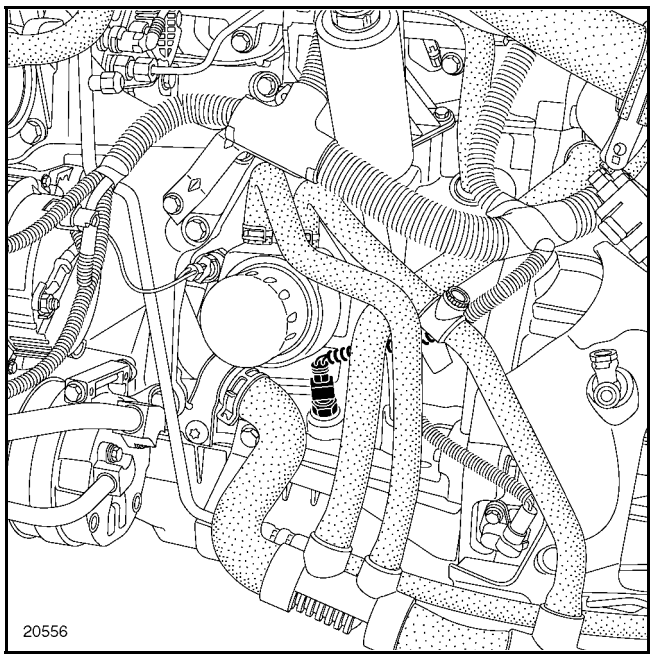
The sensor resistance must be between **6** and **20** Ω.

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

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

LOCATION

Example: **F** engine.



Integrated Self-test:

The PRIMASTAR instrument panel is equipped with an on-board self-test sequence. This makes it possible to visually test the various indicators and warning lights controlled by the system inside the instrument panel.

Activation of all segments of the mileometer and trip computer display.

Activation of all the needle indicators.

Activation of all the warning lights controlled by the microprocessor.

Activation of the audible warning incorporated in the instrument panel.

– For versions **without on-board computer**, fault finding mode is obtained by pressing the mileometer reset button for **5 seconds** when switching on the + after ignition.

– For versions **with trip computer**, fault finding mode is obtained by pressing the trip computer sequence button when switching on + after ignition.

IMPORTANT:
It is essential to carry out an instrument panel self-test to check that the indicators and warning lights are operating correctly.

The computer-controlled warning lights covered by the self-test are: opening elements status / injection coolant temperature criticality 2 / airbag / airbag off / de-icing / fuel level low / injection criticality 1 / preheating / pollution control / automatic transmission fault / STOP / SERVICE / cruise control / tyre pressure monitor / ABS system / ESP system / LPG.

The dual-coloured warning lights (amber and green) light up at the same time during the self-test; this creates an abnormal warning light colour (speed limiter control warning light, LPG warning light).

Failure of any of the warning lights requires replacement of the instrument panel.

IMPORTANT:
Warning lights which are controlled via a wire link (conventional control by means of a wire connecting the warning light to the computer) are not tested by the instrument panel.

To test these, use a diagnostic tool (CONSULT II) and use fault warning light test command mode for the computer controlling the warning light to be checked.

FAULT FINDING

Special notes:

The PRIMASTAR instrument panel manages part of its display by using information received from the multiplex network. This information is listed by transmitting computer in each column and by receiving warning light on each line in the **table in appendix No. 1**.

The indicators and warning lights which are not present on this instrument panel are to be dealt with using **FAULT FINDING CHARTS 5 to 26 (wiring fault finding information)**.

A multiplex network fault may be shown by several statuses:

1 The loss of a message from a computer, due to a break in the multiplex network between the node (junction of the network of all the computers) and the transmitting computer, or a fault inside the transmitter computer. This is indicated by the loss of several indicators and the lighting of several warning lights (**see table in appendix No. 2**).

2 The loss of a large amount of instrument panel information crossing the multiplex network due to a break in the network between the node and the instrument panel (receiver) or a fault inside the instrument panel (**FAULT FINDING CHART 4**).

3 The loss of all the data crossing the multiplex network due to a short circuit in the network, which manifests itself as a large number of defect modes in all the computers connected to the network.
For an electrical conformity check on the multiplex network, refer to the section concerned.

Instrument panel configuration

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

When the instrument panel is not configured, fault **DF130** Instrument panel not configured will appear on the UCH.

1) In the event of replacement of the instrument panel and the UCH at the same time, it will be necessary to perform fault finding with a diagnostic tool.

METHOD: Ignition off

- Connect the diagnostic tool and establish dialogue with the UCH **without switching on the ignition**.
- Configure the UCH (CF719).
- Switch the ignition on and off to enter the new parameters.

2) If the instrument panel configuration is changed, it will be necessary to use a diagnostic tool.

METHOD: Ignition off

- Disconnect the battery for at least **1 minute**, then reconnect it.
- Connect the diagnostic tool and establish dialogue with the UCH **without switching on the ignition**.
- Configure the UCH (CF719).
- Switch the ignition on and off to enter the new parameters.

Instrument panel parameters which can be configured are:

- Engine type: petrol or diesel
- LPG present or absent
- Traction control present or absent
- Tyre pressure monitoring system present or absent
- Clock present or absent
- Speed signal generator (Anti-lock Braking System or gearbox sensor)
- Type of airbag: wire or multiplex
- Type of tyre
- Export vehicle (Mercosur/S. America)
- Instrument panel with chronotachograph

Configuration is carried out by a CONSULT II diagnostic tool. The tool is connected to the UCH on line K and transmits the instrument panel configuration frame by means of the multiplex network.

To configure the instrument panel, access the configuration mode via the diagnostic tool.

IMPORTANT:
If the vehicle has ABS as well as a speed sensor on the gearbox connected to the engine wiring, configure the instrument panel with a "speed signal generator: sensor on gearbox".

For the speed calibration, the factor must be selected according to the type of tyre fitted to the vehicle.

Warning lights	
Doors open	warning light no. 1
Coolant temperature + injection level 2 fault	warning light no. 2
Airbag	warning light no. 3
Airbag deactivated	warning light no. 4
Heated rear screen	warning light no. 5
Level 1 injection fault	warning light no. 6
Emission control	warning light no. 8
Stop	warning light no. 9
Service	warning light no. 10
Cruise control	warning light no. 11
Traction control system	warning light no. 12

Indicators	
Vehicle speed	indicator no. 1
Rev counter	indicator no. 2
Coolant temperature	indicator no. 3
Trip computer test mode	indicator no. 4

Multiplex computer	
Airbag	Airbag
UCH	UCH
Carminat navigation aid system	Carminat
Instrument panel	Instrument panel

APPENDIX 1

Multiplex network fault finding

Signal generators/receivers used by the instrument panel:

Multiplex computers →	F4R engine	F9Q engine	Airbag	UCH	Carminat	Instrument panel
Warning lights:						
Warning light no. 1				1		2
Warning light no. 2	1	1				2
Warning light no. 3			1			2
Warning light no. 4			1			2
Warning light no. 5				1		2
Warning light no. 6	1	1				2
Warning light no. 8	1	1				2
Warning light no. 11	1	1				2
Indicators						
Indicator no. 1	2	2	2	2	2	1
Indicator no. 2	1	1				2
Indicator no. 3	1	1				2
Indicator no. 4	1	1				2

(1) Transmitting computer

(2) Receiving computer

IMPORTANT:
If there is a fault with an **indicator** on the instrument panel, the data should be considered as having been transmitted correctly over the multiplex network because it is transmitted with several pieces of data in the same message (signal).

Therefore, either the indicator on the instrument panel is faulty, or the message is wrong.

- The message may be wrong due to incorrect interpretation by the transmitting computer (e.g. faulty coolant temperature sensor) or a fault inside the transmitting computer.
- Using the table in appendix 1, isolate the computer issuing the data and carry out a **full diagnostic check** on it before carrying out any work on the instrument panel.

Warning lights:	
Status of opening elements	warning light no. 1
Coolant temperature + injection level 2 fault	warning light no. 2
Airbag	warning light no. 3
Airbag deactivated	warning light no. 4
Heated rear screen	warning light no. 5
Level 1 injection fault	warning light no. 6
Emission control	warning light no. 8
Stop	warning light no. 9
Service	warning light no. 10
Cruise control	warning light no. 11
Traction control system	warning light no. 12

Indicators	
Vehicle speed	indicator no. 1
Rev counter	indicator no. 2
Coolant temperature	indicator no. 3
Trip computer test mode	indicator no. 4

Multiplex computer	
Airbag	Airbag
UCH	UCH
Carminat navigation aid system	Carminat
Instrument panel	Instrument panel

APPENDIX 2

Defect mode and lighting of warning lights when there is loss of communication with the transmitting computer:

Transmitting computer →	F4R engine	F9Q engine	Airbag	UCH
Fault finding chart →	**1**	**1**	**2**	**3**
Warning lights:				
Warning light no. 1				2
Warning light no. 2	1	1		
Warning light no. 3			1	
Warning light no. 4			2	
Warning light no. 5				2
Warning light no. 6	3	3		
Warning light no. 8	3	3		
Warning light no. 9	1	1		
Warning light no. 10			1	
Warning light no. 11	2	2		
Warning light no. 12	1	1		
Indicators				
Indicator no. 2	0	0		
Indicator no. 3	0	0		
Indicator no. 4	t-d-	t-d-		

(0) indicator not used

(1) warning light on

(2) warning light off

(3) on for 3 seconds + after ignition

(4) on for 5 seconds + after ignition

IMPORTANT:
Loss of a message is often shown by the failure of **several indicators** and some computers, which require the missing data for their operation, go into defect mode.

Check the multiplex network using a diagnostic tool (CONSULT II) or or isolate the transmitting computer with the help of appendix no. 2.

To do that, make a list of the faulty indicators on the instrument panel and refer to the column of the corresponding fault finding chart.

Loss of the CAN link between the network node and the instrument panel is interpreted by all the indicators and warning lights as defect mode operation (all columns in the table in appendix no. 2) see **FAULT FINDING CHART 4**.

FAULT FINDING - CUSTOMER COMPLAINTS

Finding faults on warning lights and indicators controlled by the multiplex network:

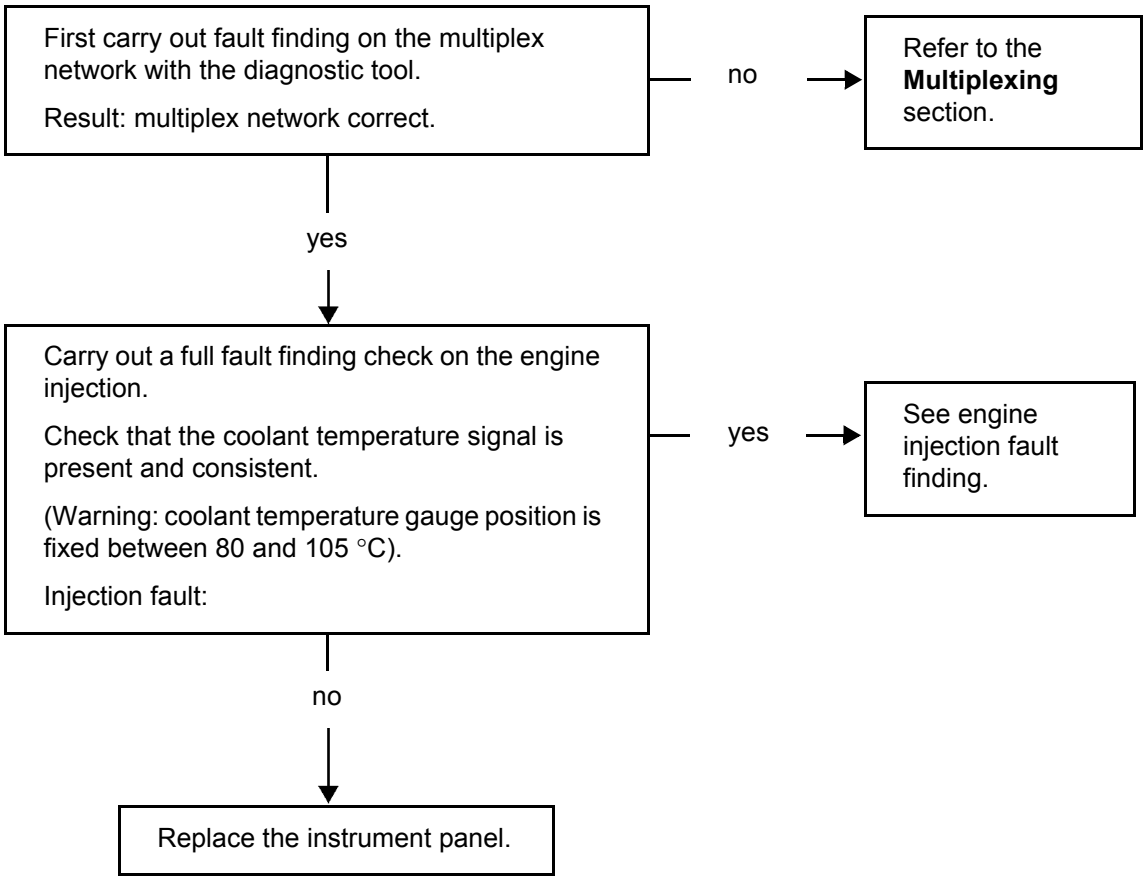
FAULT FINDING - CUSTOMER COMPLAINTS

Fault finding on warning lights and indicators controlled by wire link:

FAULT FINDING - CUSTOMER COMPLAINTS

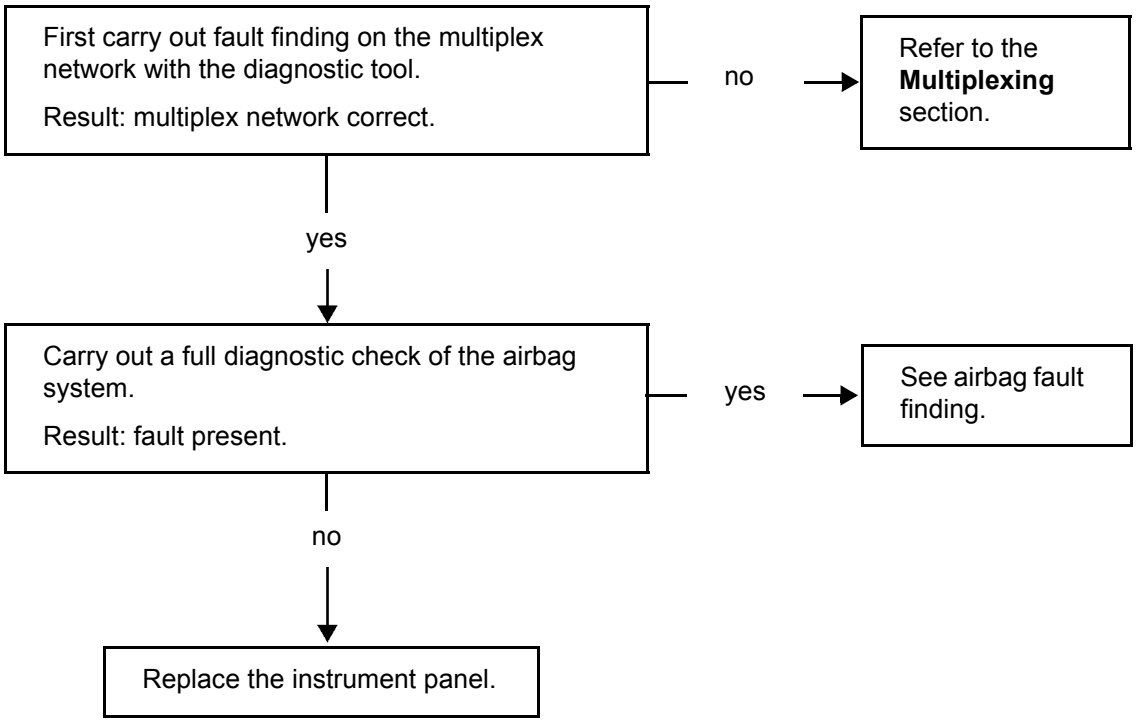
FAULT FINDING - FAULT FINDING CHARTS

CHART 1	**Coolant temperature gauge and/or rev counter at zero** **Message from: injection computer**



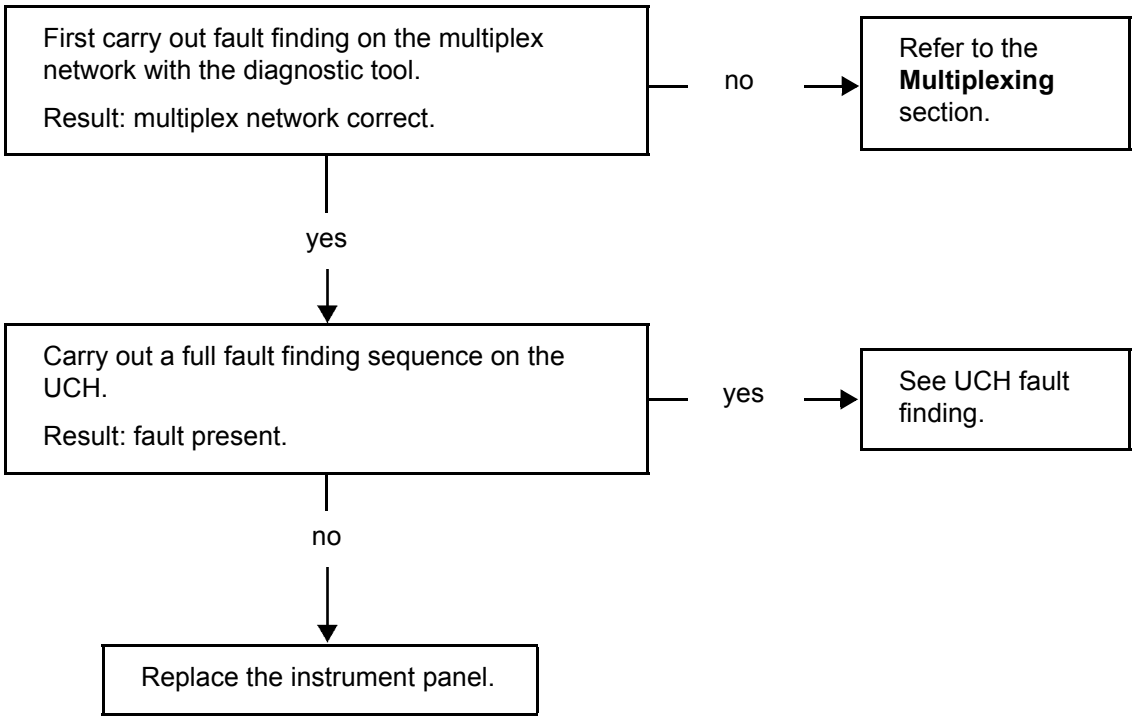
FAULT FINDING - FAULT FINDING CHARTS

CHART 2	**Airbag fault and service warning light on Message from: airbag computer**



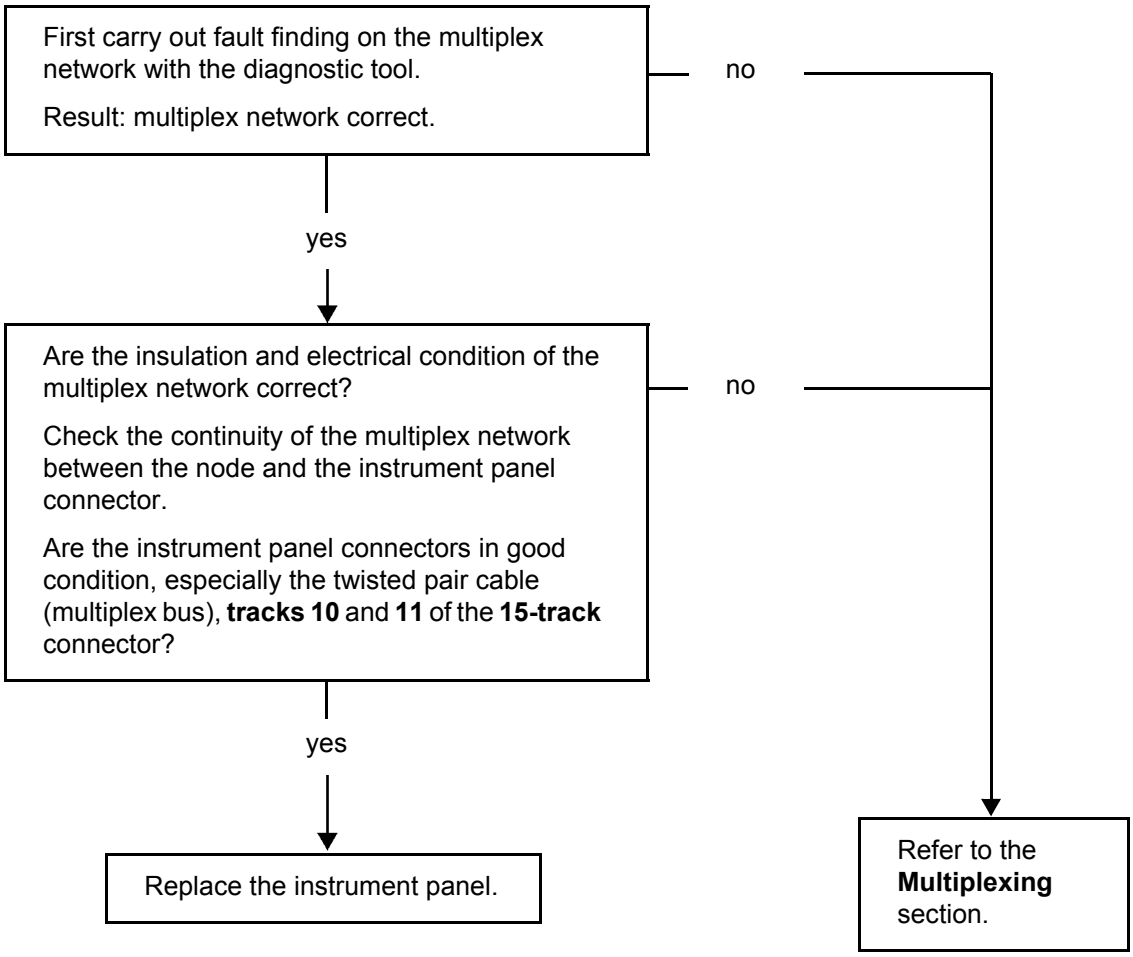
FAULT FINDING - FAULT FINDING CHARTS

CHART 3	**Door status and/or de-icing indicator does not light up** **Message transmitted by: UCH**



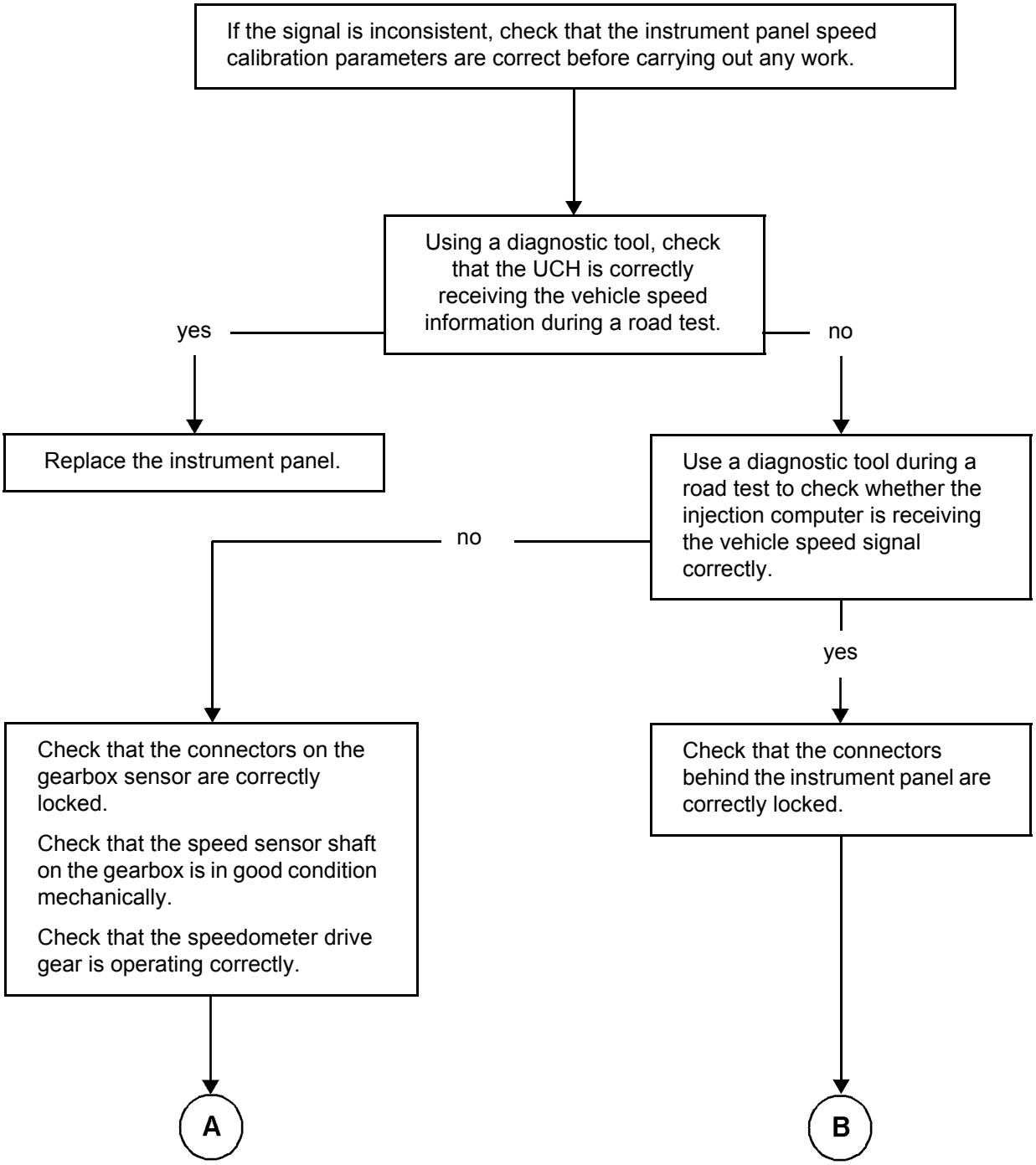
FAULT FINDING - FAULT FINDING CHARTS

CHART 4	**The warning lights: ESP, SERVICE, airbag, automatic transmission (if fitted), LPG (if fitted) do not light up when the ignition is switched on and the coolant temperature gauge and rev counter remain at zero**



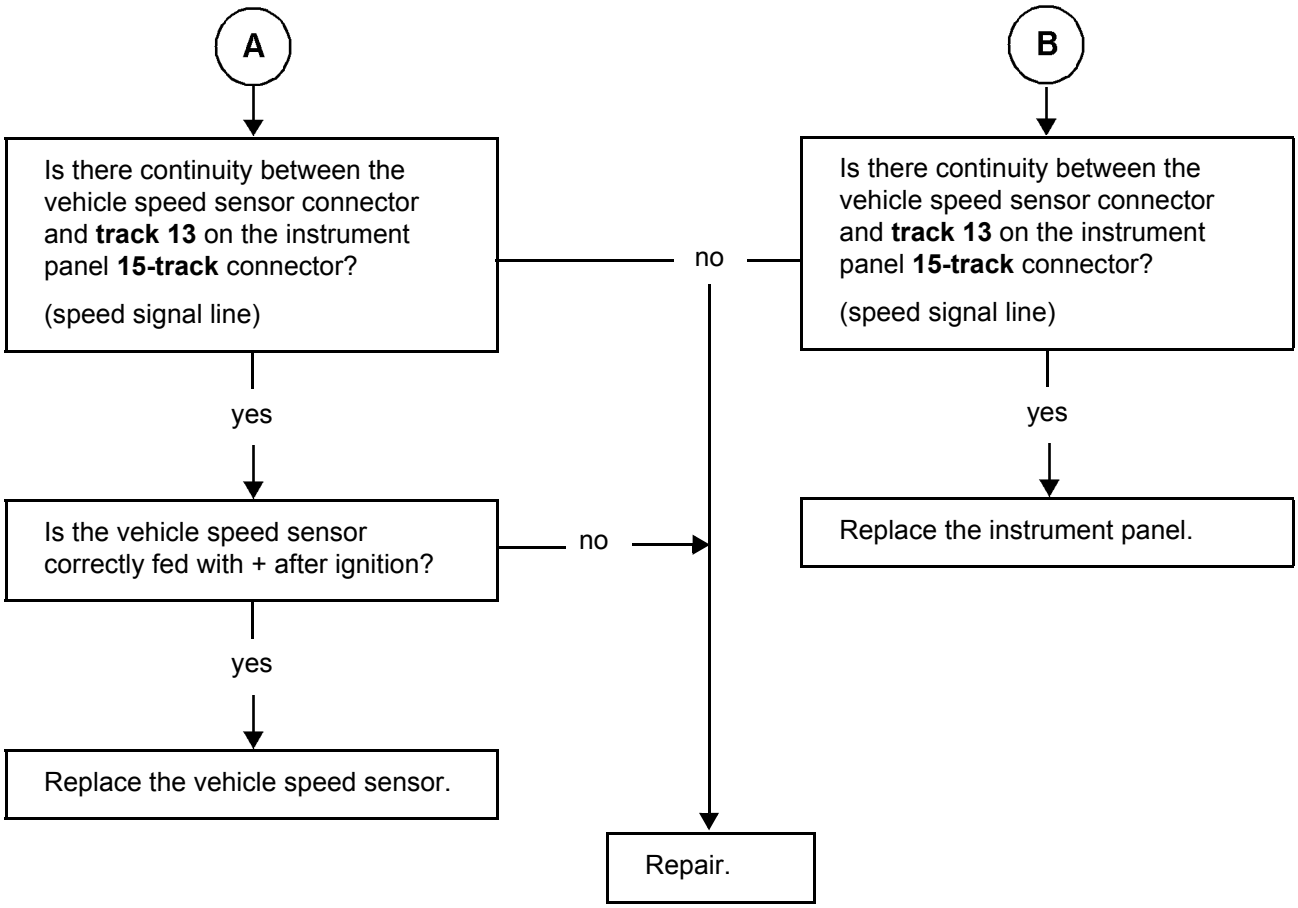
FAULT FINDING - FAULT FINDING CHARTS

CHART 5	**Speedometer faulty or inconsistent; signal supplied by the sensor on the gearbox**



FAULT FINDING - FAULT FINDING CHARTS

CHART 5 **CONTINUED**	



FAULT FINDING - FAULT FINDING CHARTS

CHART 6	**Speedometer faulty or inconsistent (signal supplied by the Anti-lock Braking System)**

Using a diagnostic tool, check that the UCH is correctly receiving the vehicle speed signal during a road test.

yes → Replace the instrument panel.

no →

– Check the functioning of the Anti-lock Braking System and the absence of faults using a diagnostic tool (CONSULT II).
– Check that the connectors on the ABS unit and behind the instrument panel are correctly locked.

Is there continuity between **track 22** on the ABS computer connector and **track 13** on the **15-track** instrument panel connector?

(speed signal line)

no → Repair.

yes →

Use a diagnostic tool during a road test to check whether the electric power steering computer is receiving the vehicle speed signal correctly.

no → The speed signal is not supplied by the Anti-lock Braking System.

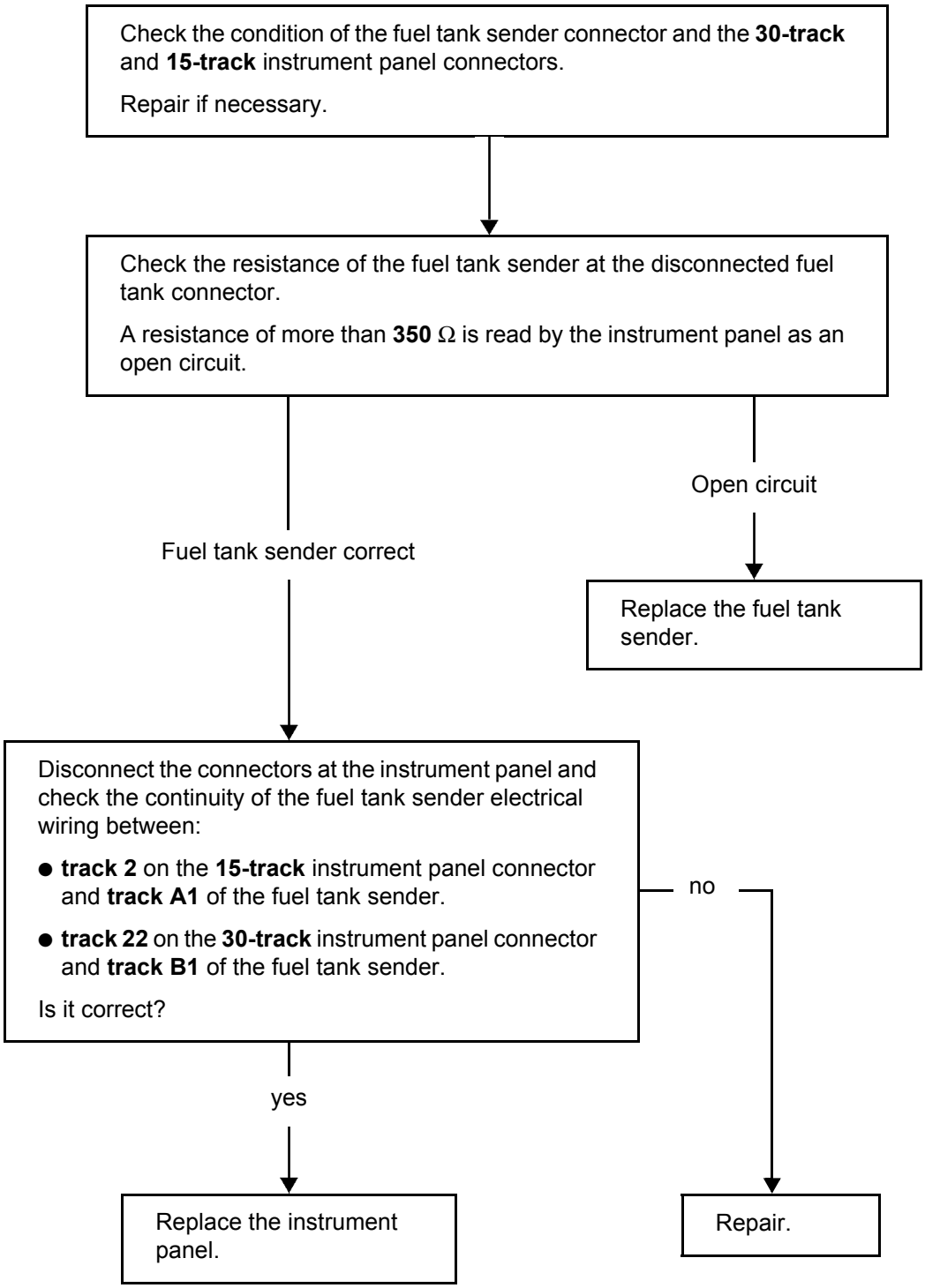
See the Anti-lock Braking System fault finding.

yes →

Replace the instrument panel.

FAULT FINDING - FAULT FINDING CHARTS

CHART 7	**No fuel level information on needle gauge (tank not empty) with reserve light on**



FAULT FINDING - FAULT FINDING CHARTS

CHART 8	**Fuel gauge needle remains at maximum (ignition on), tank not full**

CONDITION	If the instrument panel detects a fault, it causes the oil warning light (h) to come on in trip computer test mode **100 seconds** after the ignition is switched on.

Check the condition of the fuel tank sender connector and the **30-track** and **15-track** instrument panel connectors.

Repair if necessary.

Check the resistance of the fuel tank sender at the disconnected fuel tank connector.

A resistance of less than **5** Ω is read by the instrument panel as a short circuit.

Short circuit

Replace the fuel tank sender.

Fuel tank sender correct

Disconnect the connectors from the instrument panel and check the insulation of the fuel tank sender unit electric wiring harness between the earth and the **+ 12 V** supply:

- **track 2** on the **15-track** instrument panel connector (which is connected to **track A1** of the fuel tank sender).
- **track 22** on the **30-track** instrument panel connector (which is connected to **track B1** of the fuel tank sender).

Is it correct?

no

Repair.

yes

Replace the instrument panel.

FAULT FINDING - FAULT FINDING CHARTS

CHART 9	**Fuel gauge stuck irrespective of the level of fuel without lighting of reserve warning light**

CONDITION	When testing the indicator with the fuel tank sender removed, it is necessary to switch the ignition off and on again between each variation so that the instrument panel can take a new measurement.

Check the resistance of the fuel tank sender at the disconnected fuel tank connector.

Compare the true level in the tank with the fuel tank sender resistance value table.

Is there a lack of correlation?

yes → Check that the sender unit slides correctly inside the tank.

If the problem persists, replace the fuel tank sender.

no → Disconnect the connectors at the instrument panel and check the continuity of the fuel tank sender electrical wiring between:

- **track 2** on the **15-track** instrument panel connector and **track A1** of the fuel tank sender.
- **track 22** on the **30-track** instrument panel connector and **track B1** of the fuel tank sender.

Check their insulation to earth and **+ 12 V**.

Is it correct?

yes → Replace the instrument panel.

no → Repair.

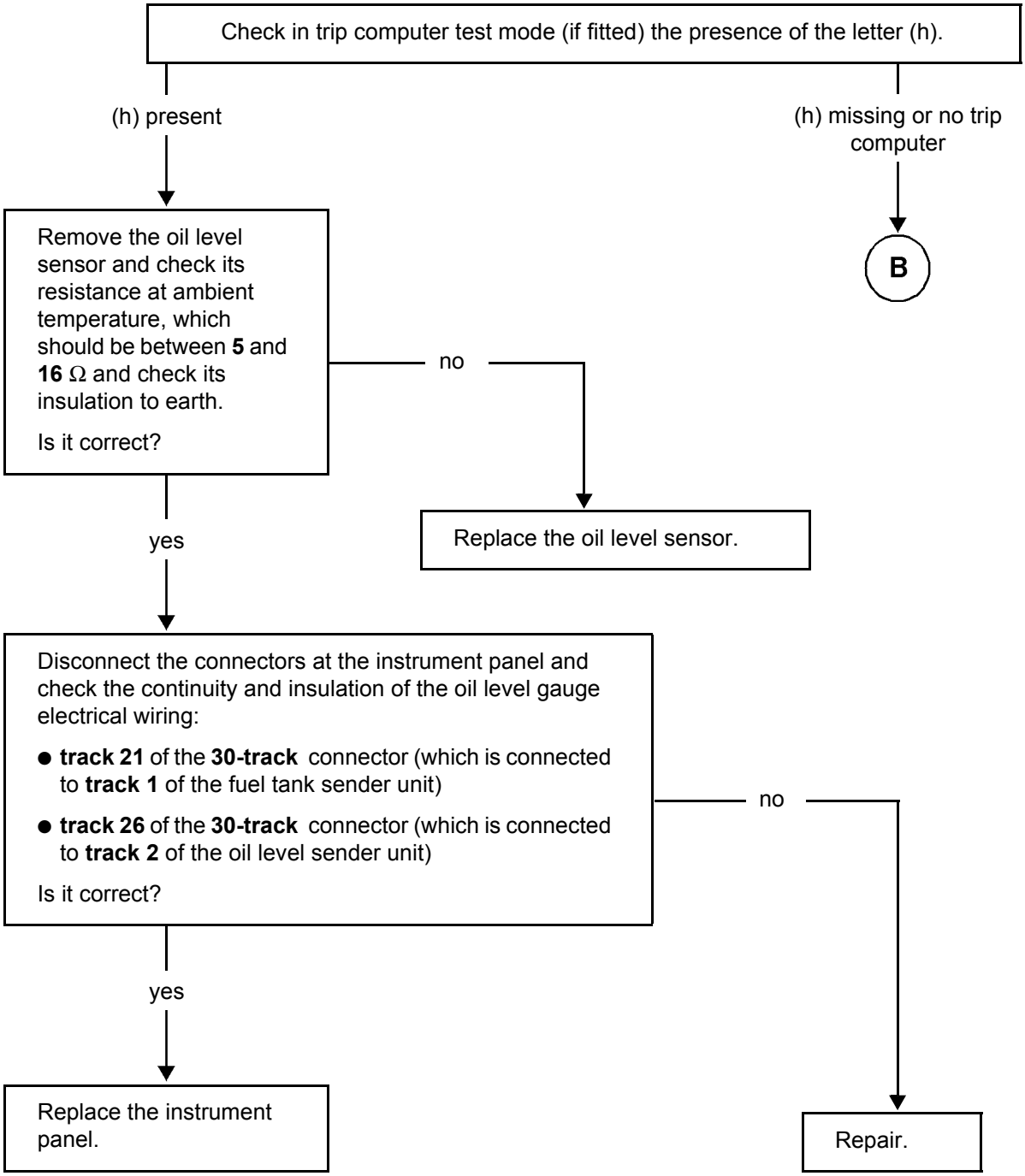
Fuel tank sender resistance value:

proportion:	reserve	full
resistance:	**290**	**20**

FAULT FINDING - FAULT FINDING CHARTS

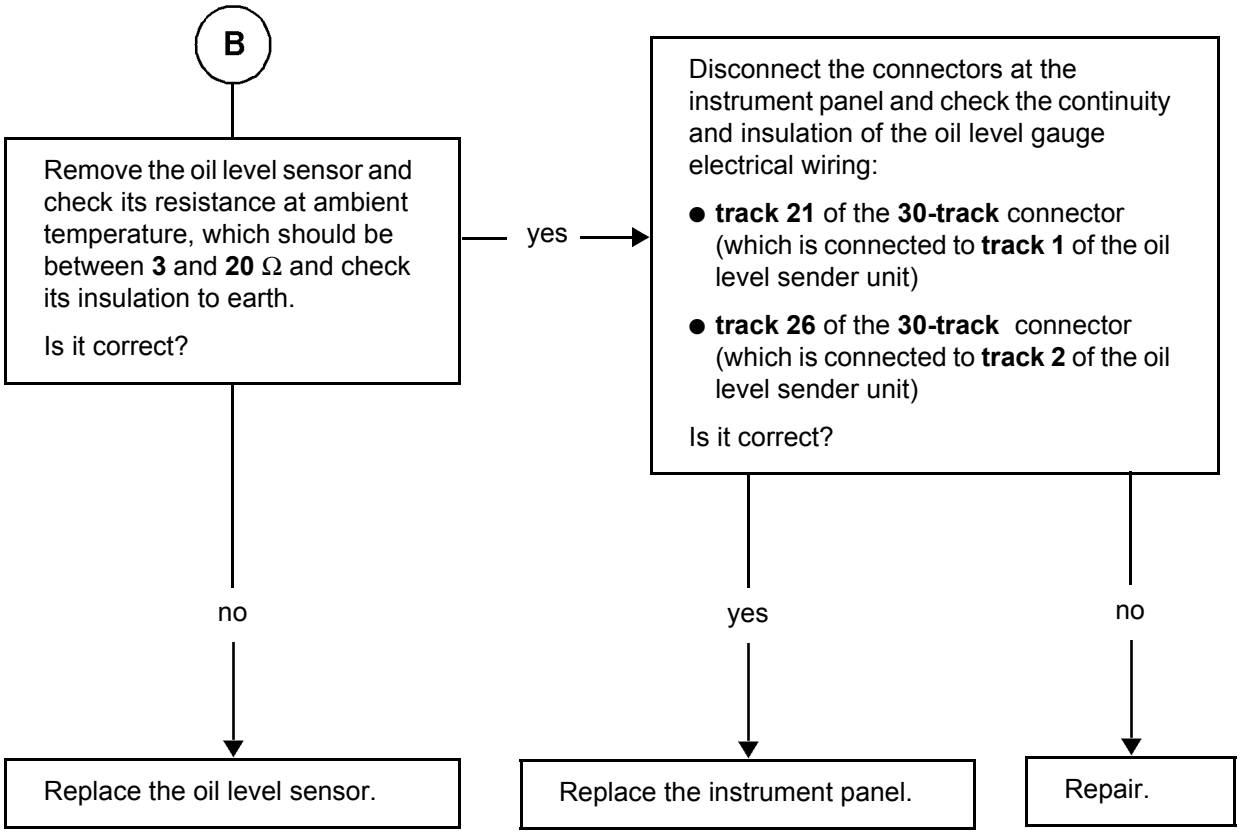
CHART 10	**Oil level indication absent or incorrect and SERVICE warning light on**

CONDITION	The oil level indication will only be correct if the vehicle is on a flat surface; a measurement should be retaken after switching the ignition off for at least one minute.



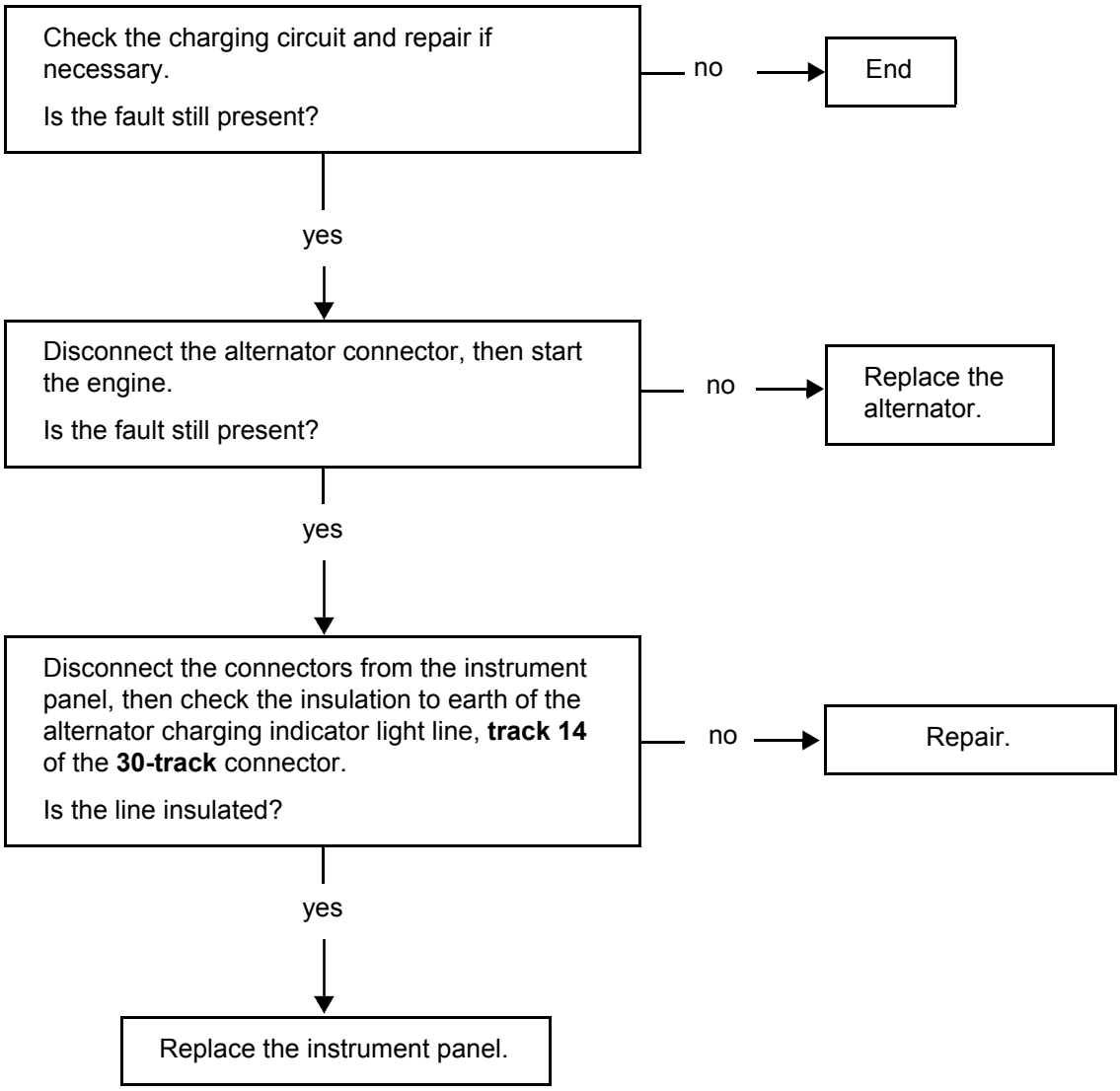
FAULT FINDING - FAULT FINDING CHARTS

CHART 10 CONTINUED	



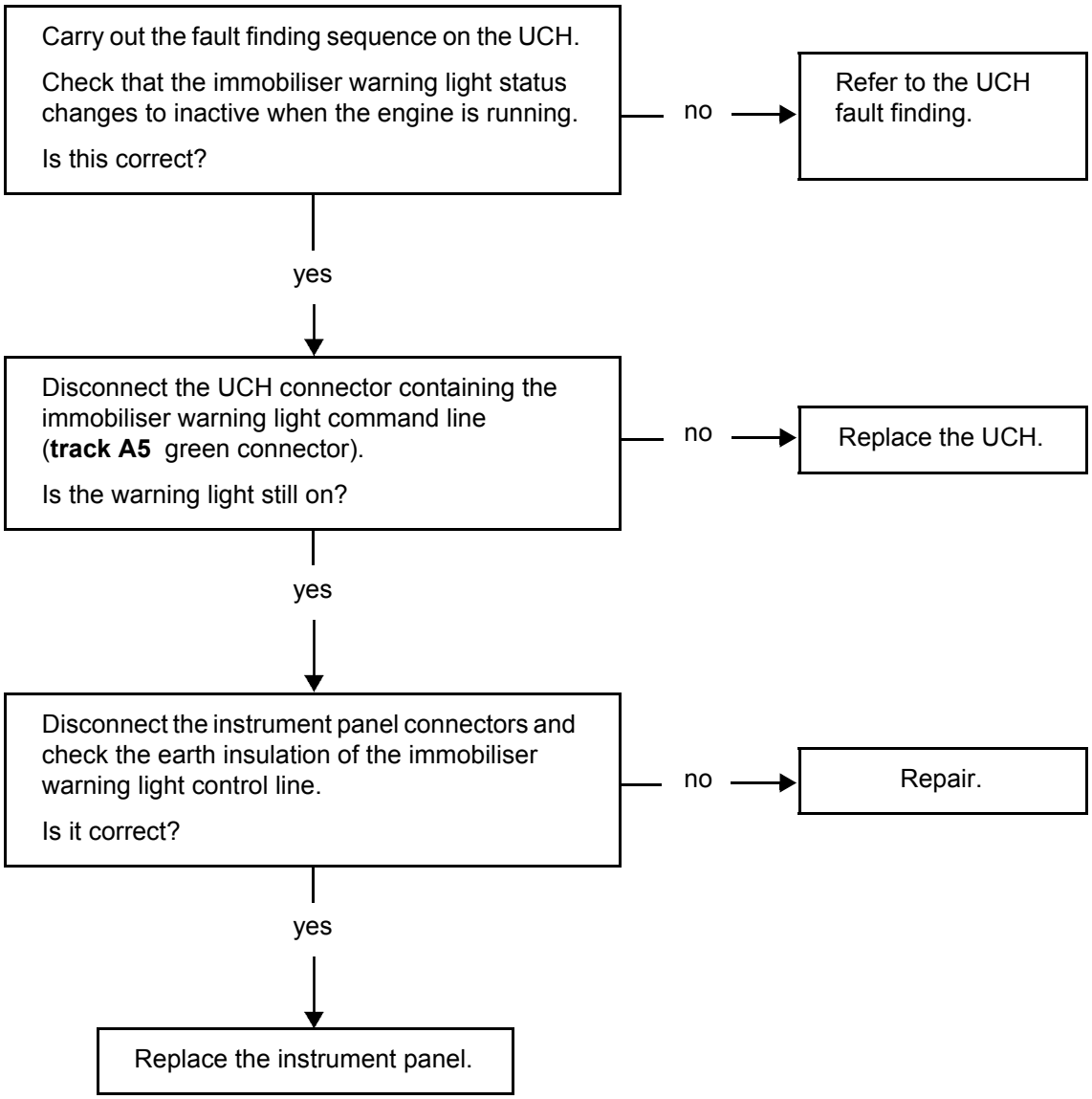
FAULT FINDING - FAULT FINDING CHARTS

CHART 11	The battery charge and brake warning lights remain lit



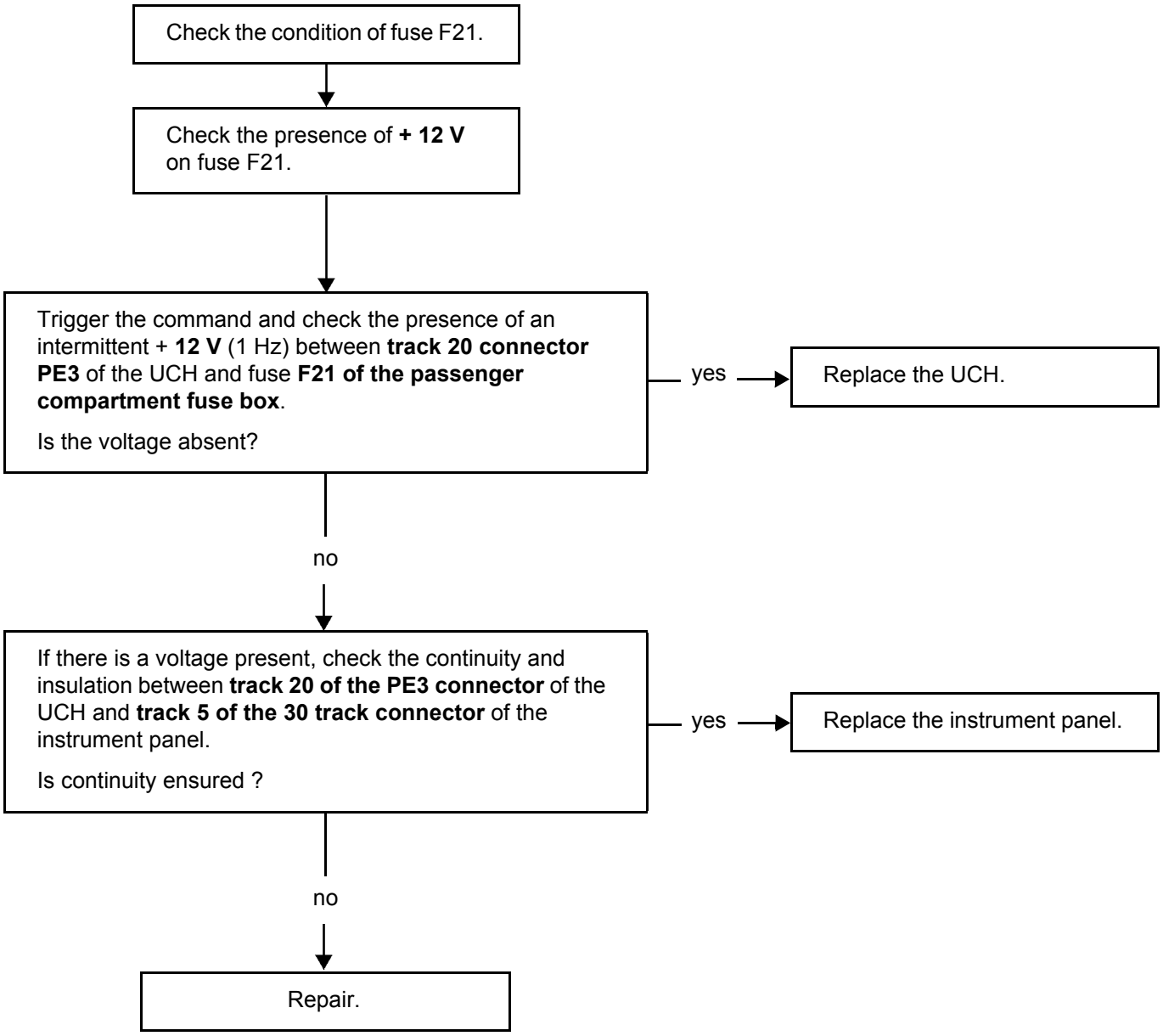
FAULT FINDING - FAULT FINDING CHARTS

CHART 12	The immobiliser warning light remains lit



FAULT FINDING - FAULT FINDING CHARTS

CHART 13	The immobiliser warning light remains off



FAULT FINDING - FAULT FINDING CHARTS

CHART 14	**The oil pressure and brake warning lights come on**

WARNING	The instrument panel only registers the oil pressure switch signal when the engine speed is higher than **1600 rpm**.

Check the engine oil pressure with a pressure gauge and repair if necessary.

Is the fault still present?

no → End

yes ↓

Disconnect the pressure switch connector, then start the engine.

Increase the engine speed to more than **1600 rpm**.

Is the fault still present?

no → Replace the oil pressure switch.

yes ↓

Disconnect the instrument panel connectors, then check the earth insulation of the oil pressure switch warning light line, **track 18** on the **30-track** connector.

Is the line insulated?

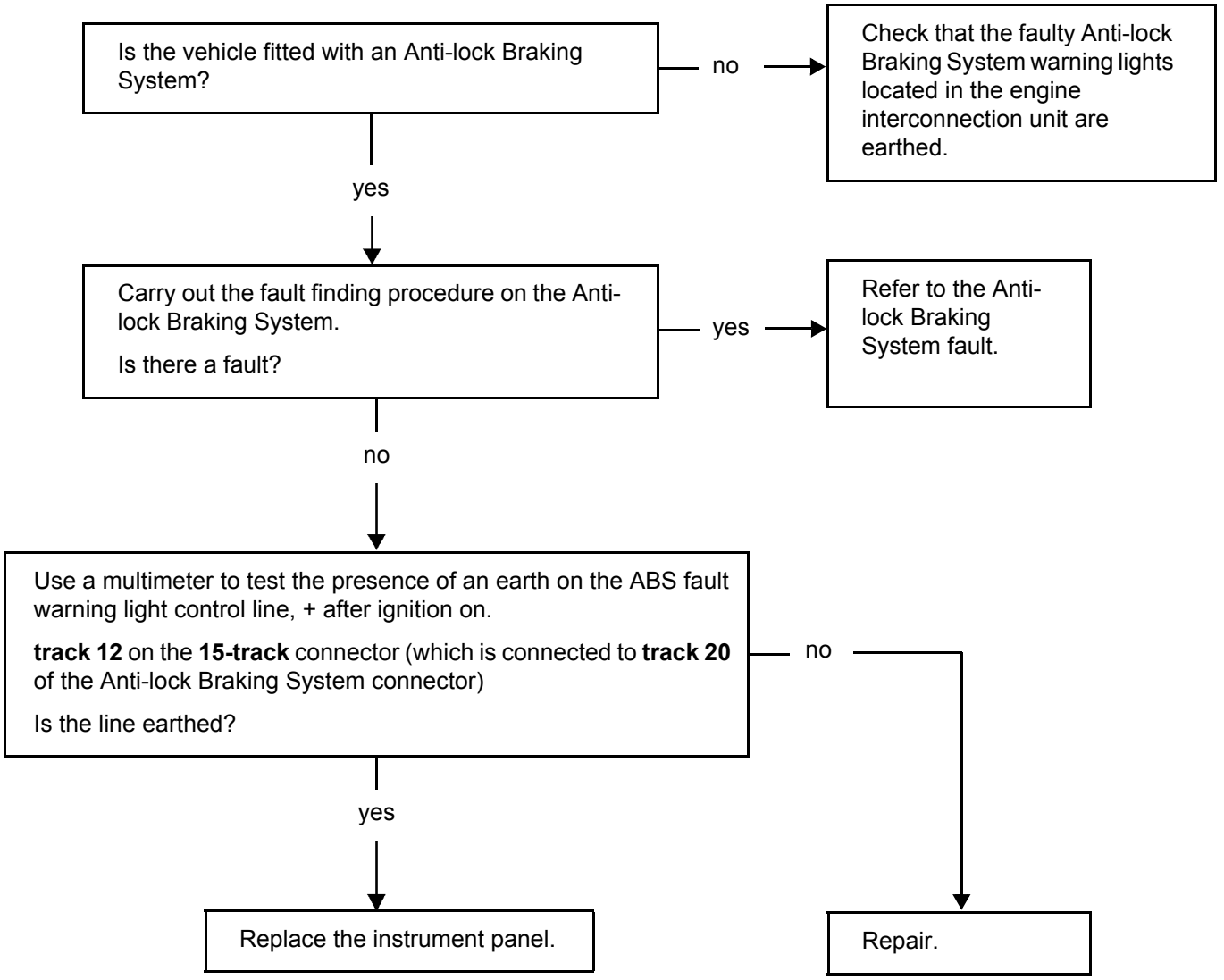
no → Repair.

yes ↓

Replace the instrument panel.

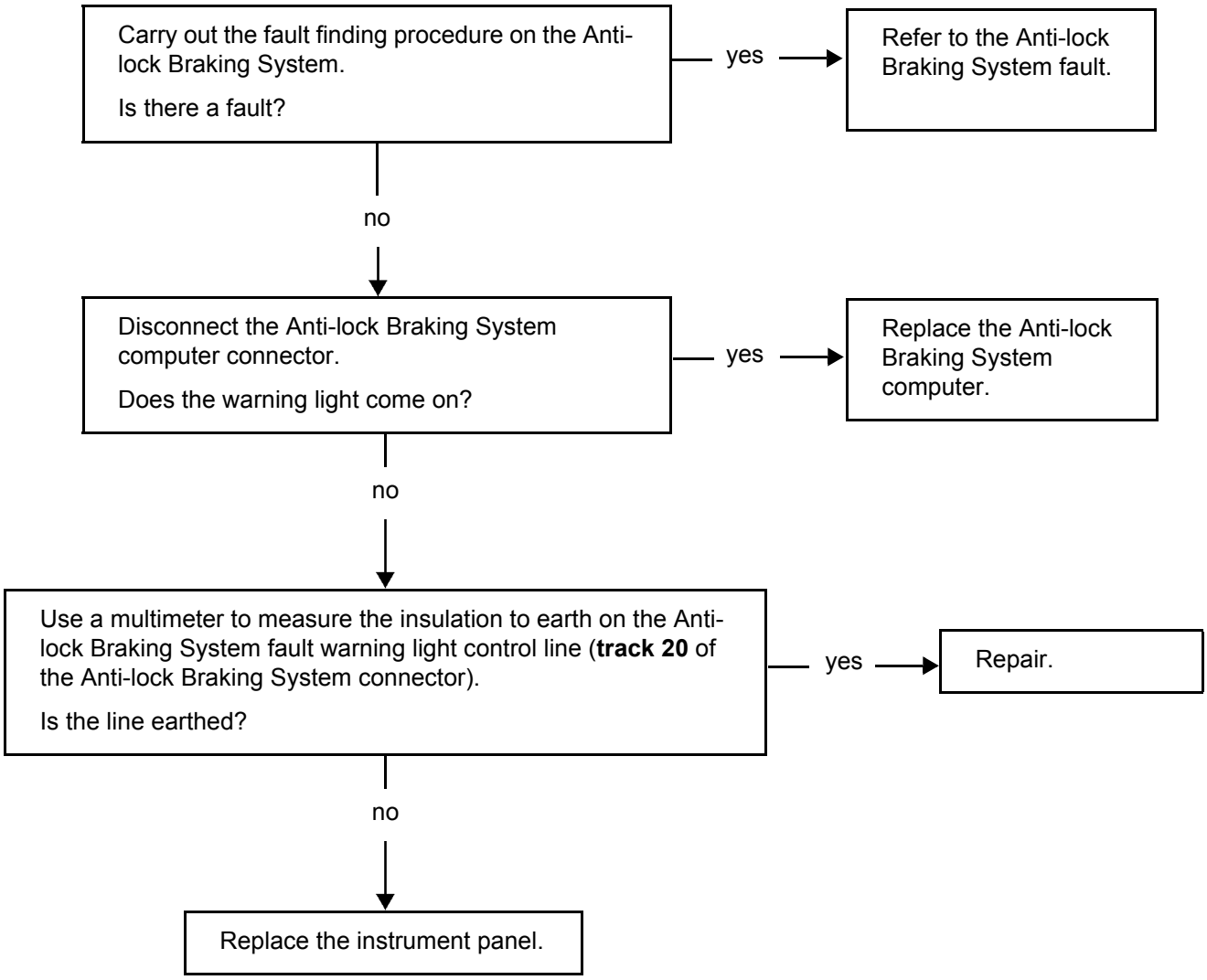
FAULT FINDING - FAULT FINDING CHARTS

CHART 15	The Anti-lock Braking System warning light remains lit



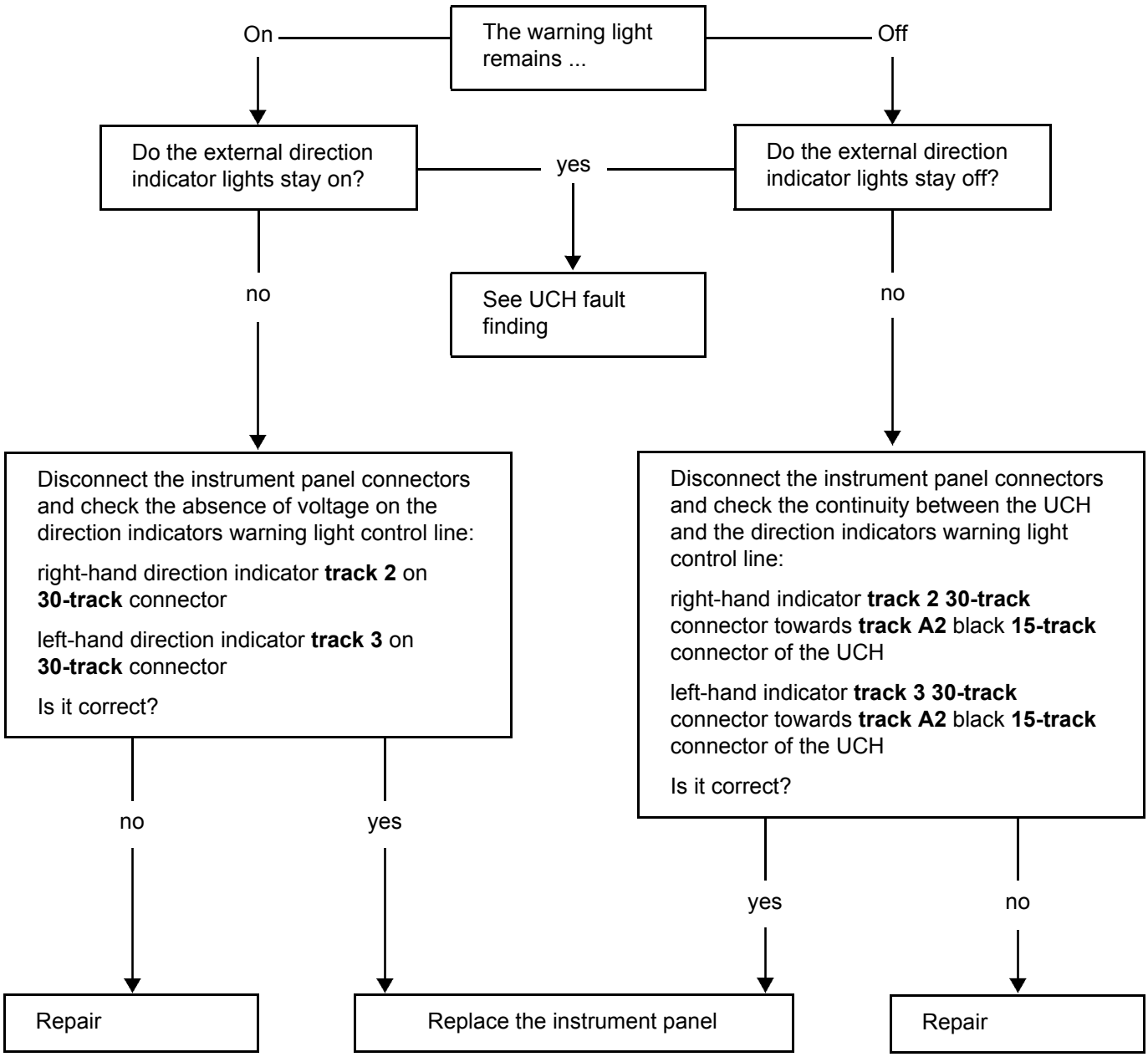
FAULT FINDING - FAULT FINDING CHARTS

CHART 16	The Anti-lock Braking System warning light remains off



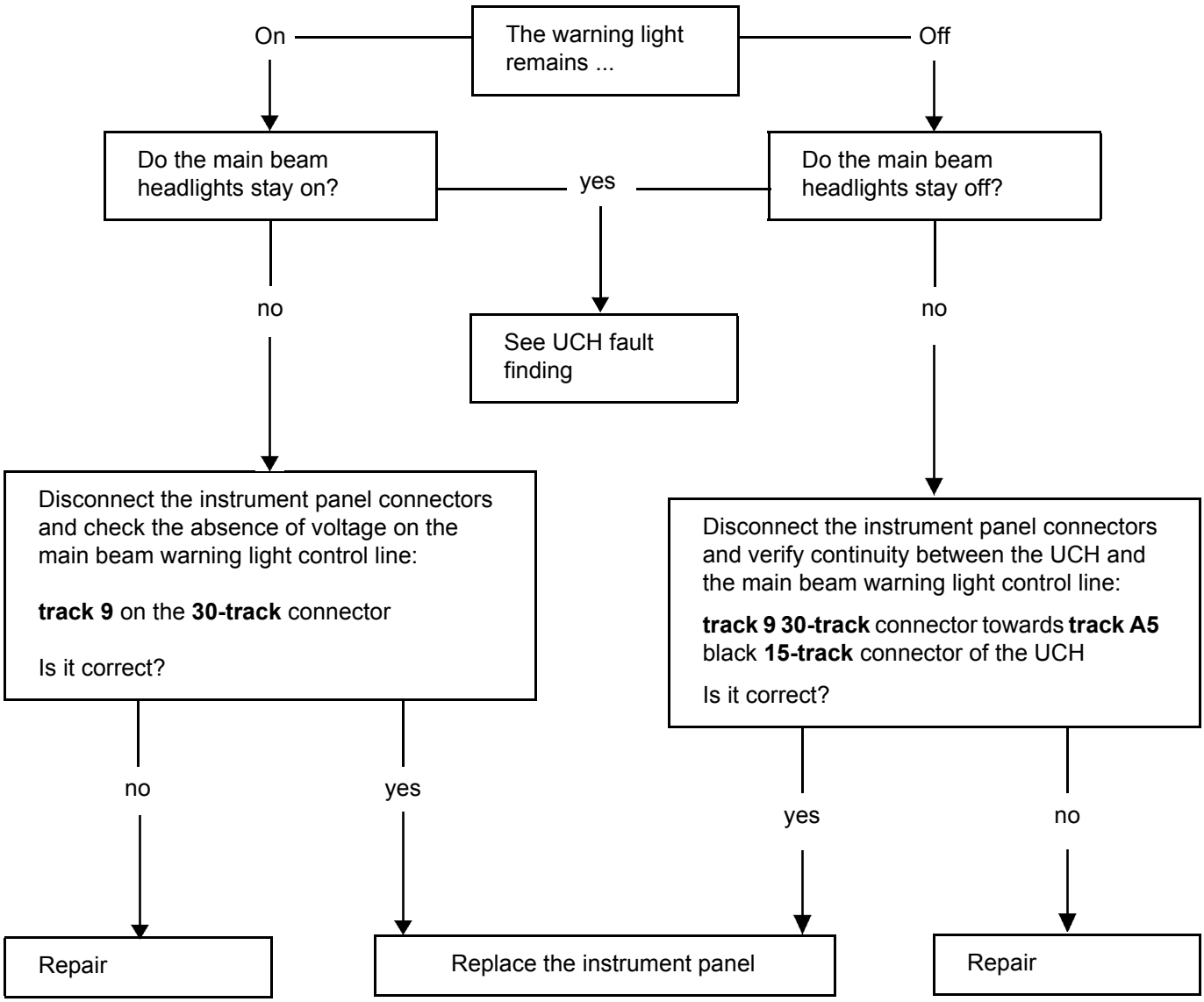
FAULT FINDING - FAULT FINDING CHARTS

CHART 17	**The direction indicators and direction indicator warning lights remain on or off**



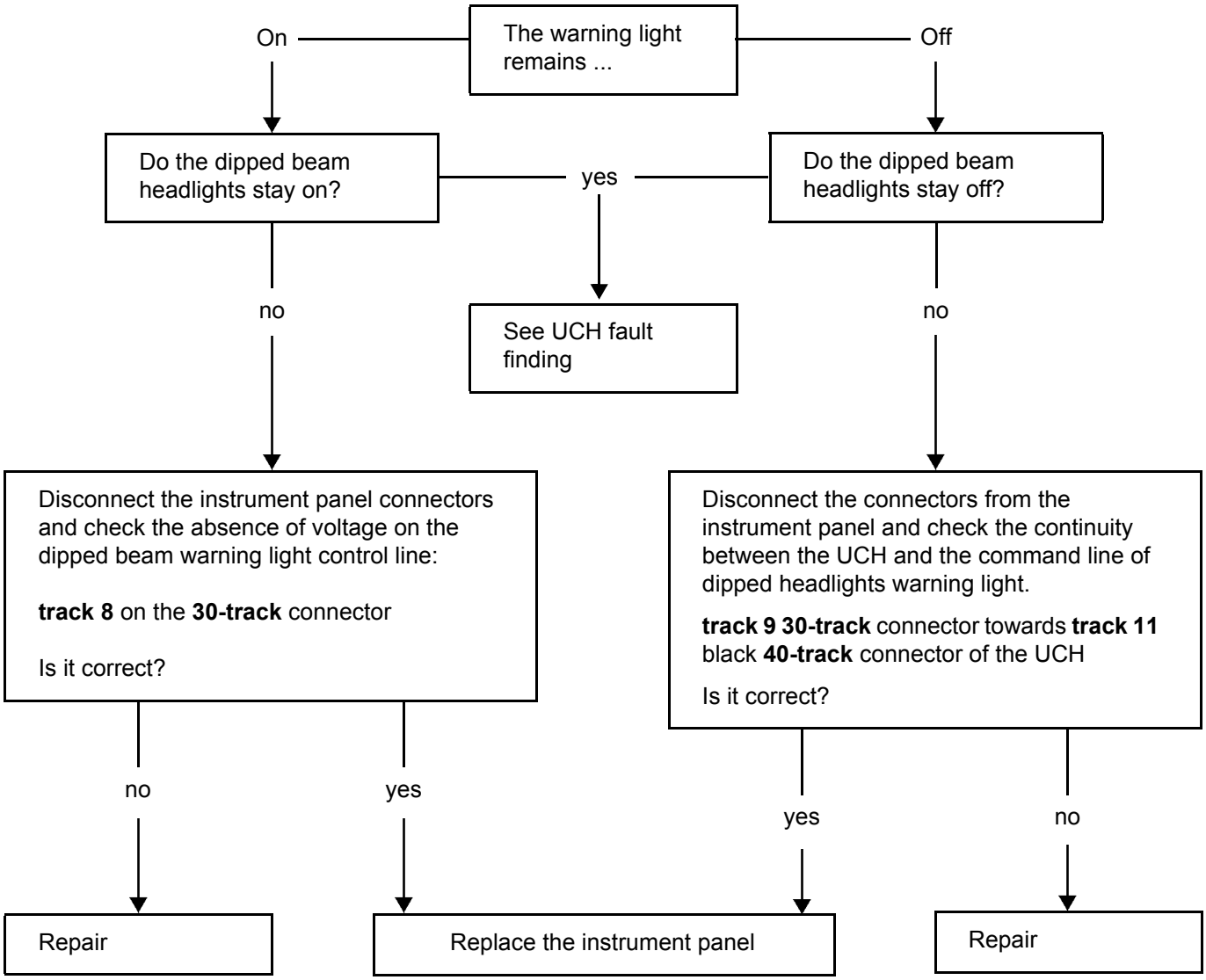
FAULT FINDING - FAULT FINDING CHARTS

CHART 18	The main beam warning light remains on or off



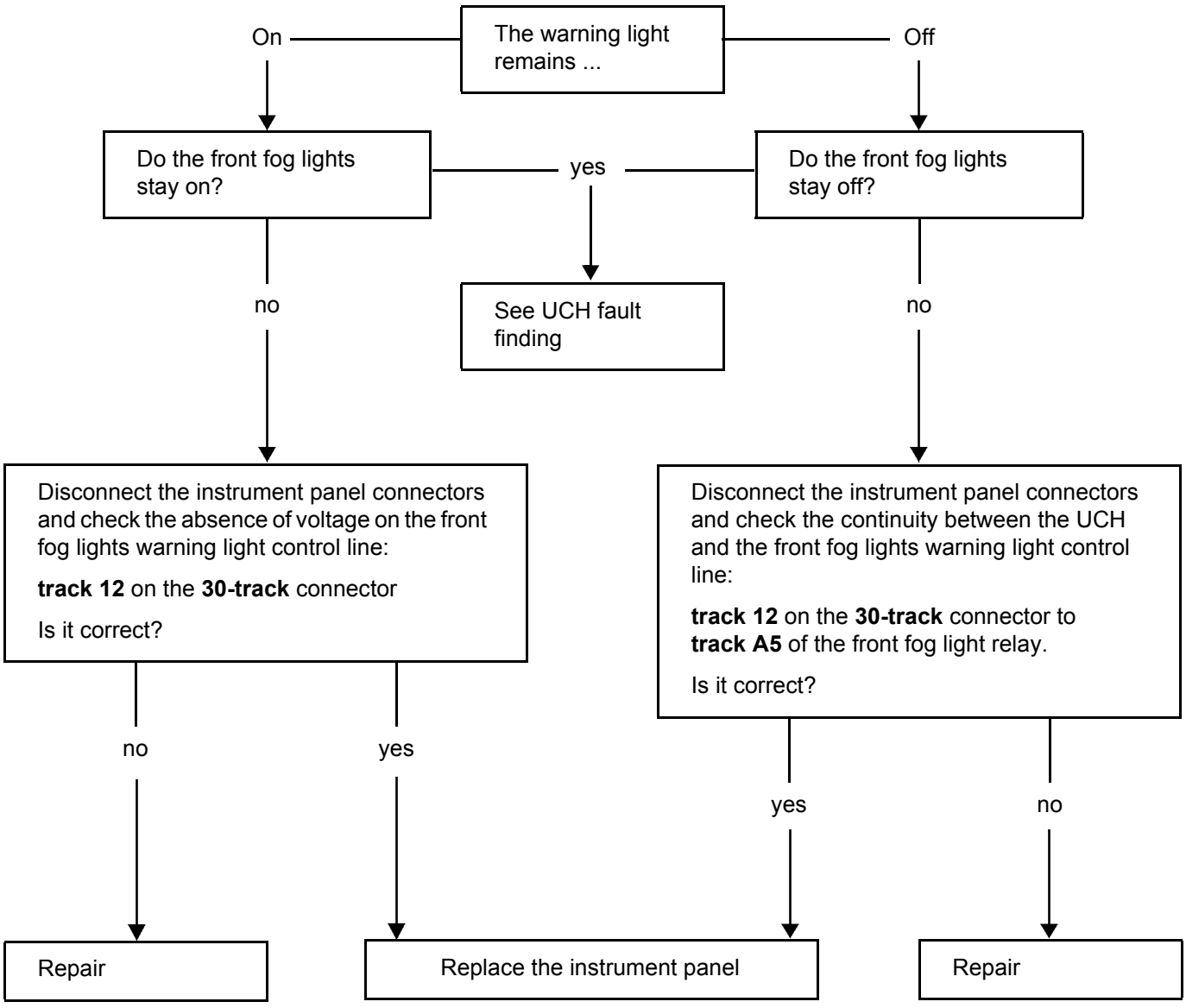
FAULT FINDING - FAULT FINDING CHARTS

CHART 19	The dipped beam warning light remains on or off



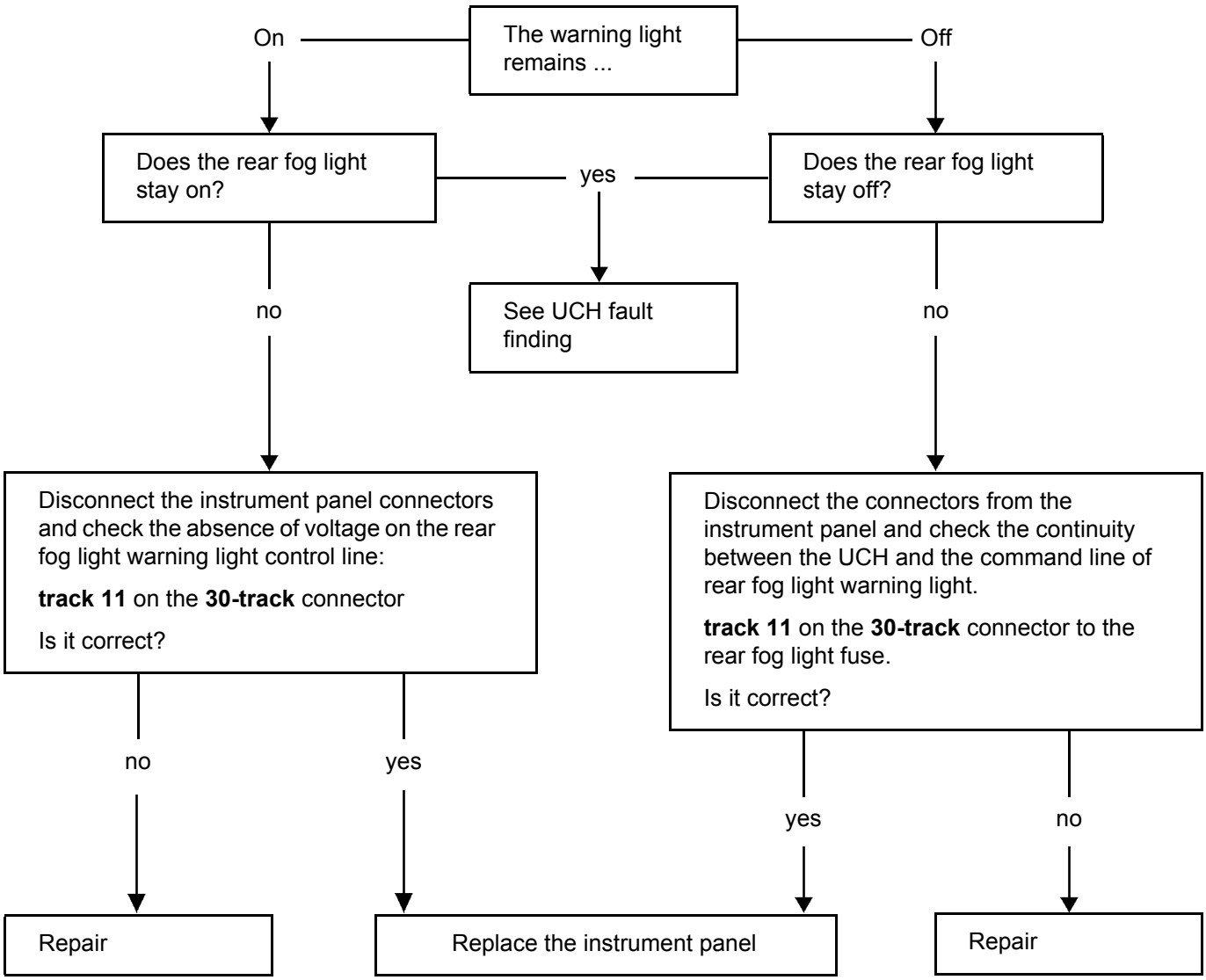
FAULT FINDING - FAULT FINDING CHARTS

CHART 20	The front fog light warning light remains on or off



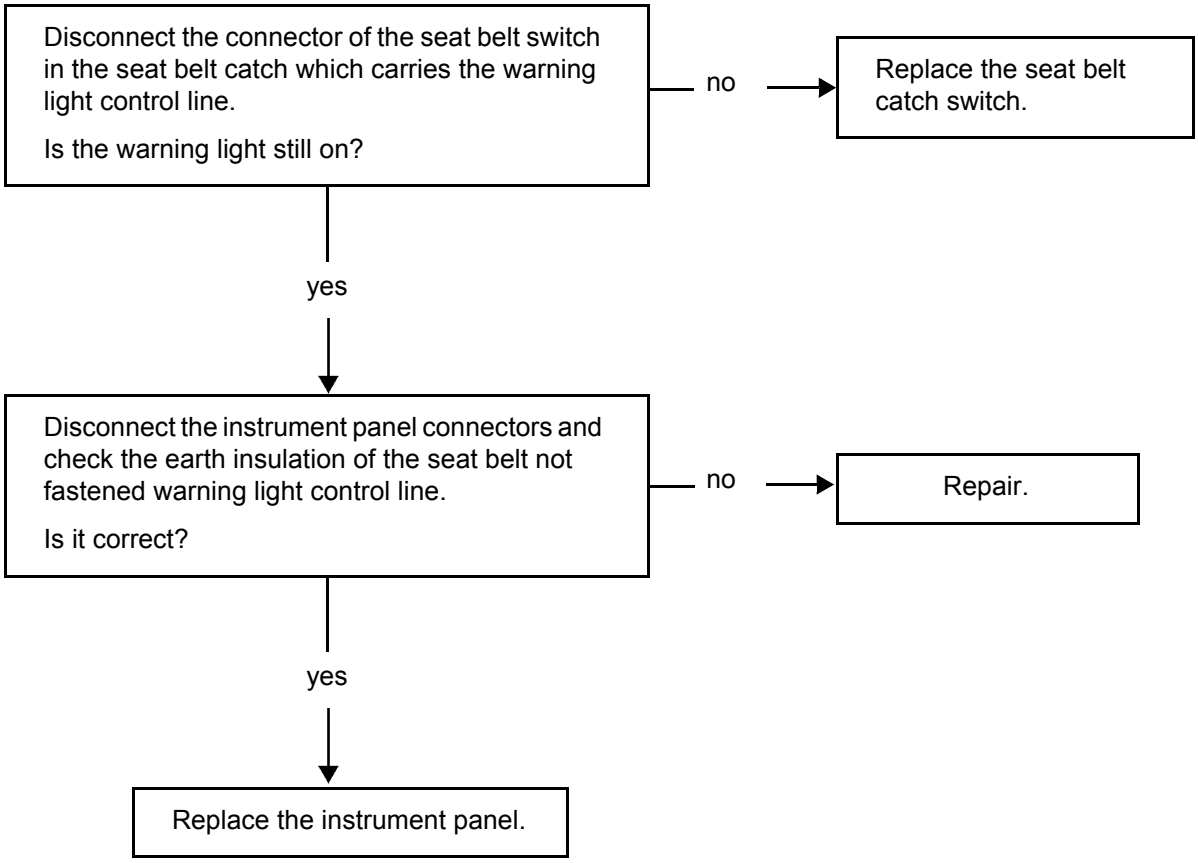
FAULT FINDING - FAULT FINDING CHARTS

CHART 21	The rear fog light warning light remains on or off



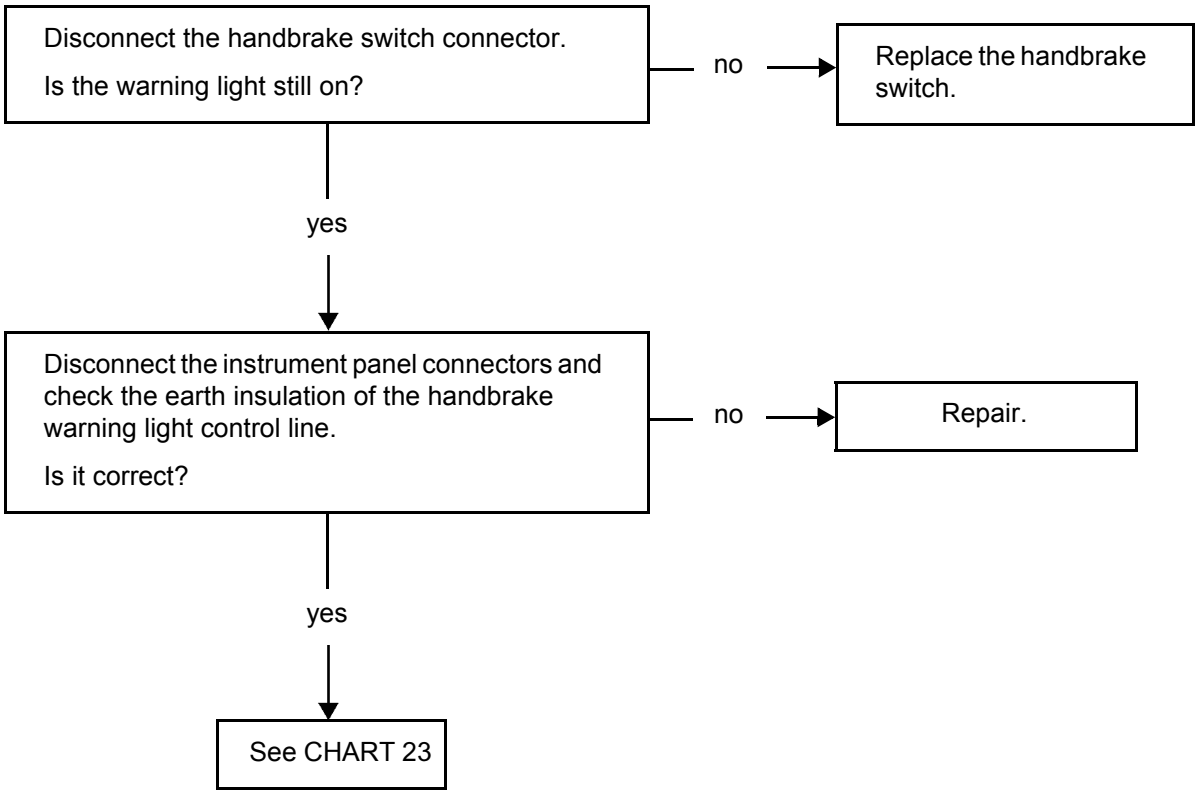
FAULT FINDING - FAULT FINDING CHARTS

CHART 22	The seat belt not fastened warning light remains lit



FAULT FINDING - FAULT FINDING CHARTS

CHART 23	**The brake fault warning light remains on without lighting of the STOP warning light**



FAULT FINDING - FAULT FINDING CHARTS

CHART 24	Brake fault and STOP warning lights come on

Check the brake fluid level and top up if necessary.

Is the fault still present?

no → Check the hydraulic braking system for any leaks.

yes ↓

Disconnect the brake fluid level sensor connector, then start the engine.

Is the fault still present?

no → Replace the brake fluid level sensor.

yes ↓

Carry out the fault finding procedure on the Anti-lock Braking System.

Is there a fault?

yes → See the Anti-lock Braking System fault finding.

no ↓

Disconnect the instrument panel connectors, then check the earth insulation of the brake fault warning light line **track 30** of the **30-track** connector and Anti-lock Braking System **track 15 15-track** connector.

Is the line insulated?

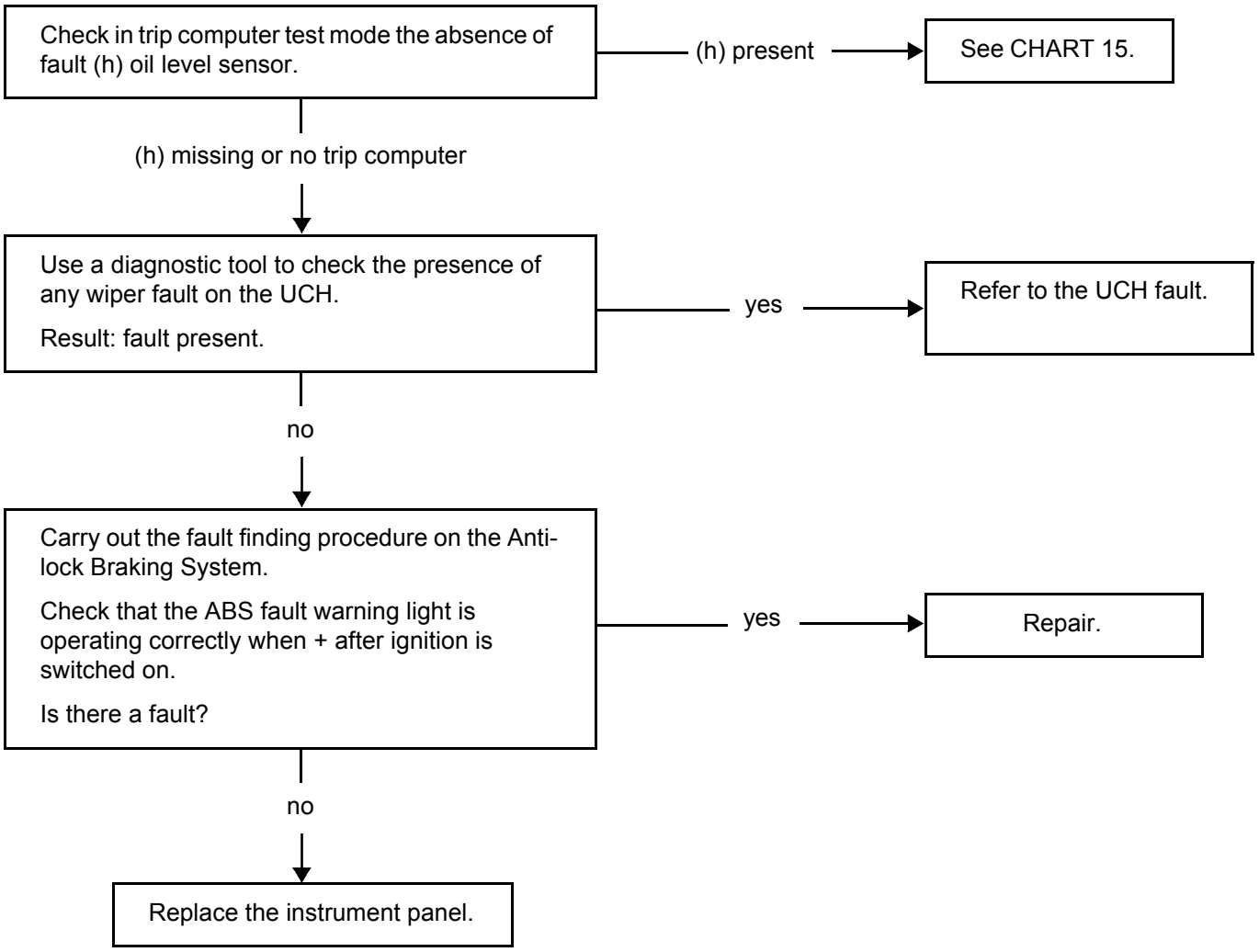
no → Repair.

yes ↓

Replace the instrument panel.

FAULT FINDING - FAULT FINDING CHARTS

CHART 25	The SERVICE warning light remains lit



FAULT FINDING - FAULT FINDING CHARTS

CHART 26	Instrument panel inoperative

Check the condition of the passenger compartment fuses.

Check all feeds to the instrument panel:

+ after ignition on **track 16** of the **30-track** connector

earth on **track 24** of the **30-track** connector

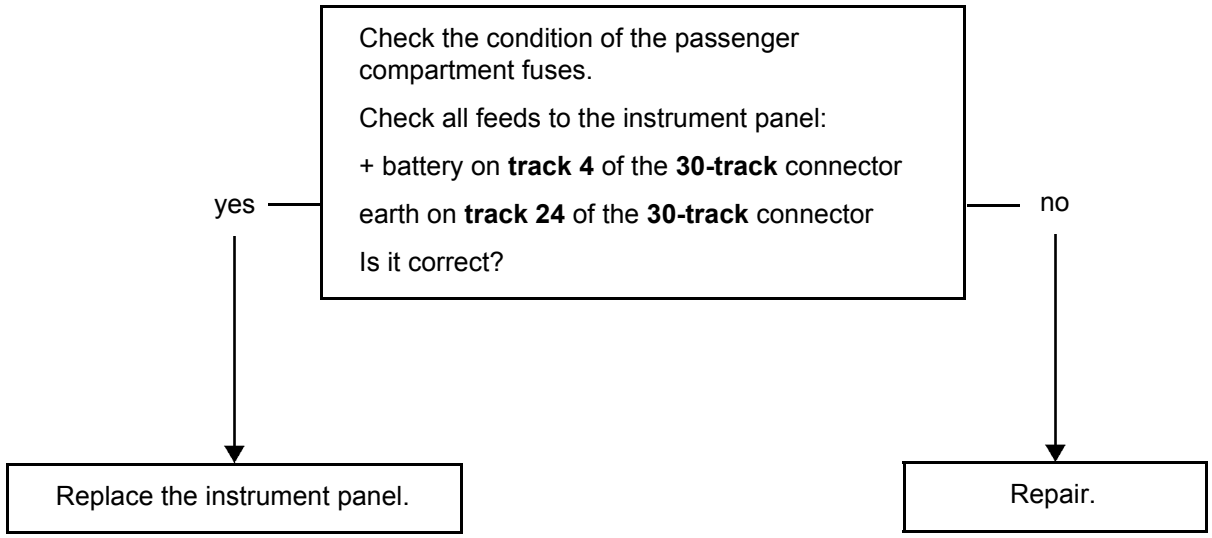
Is it correct?

yes → Replace the instrument panel.

no → Repair.

FAULT FINDING - FAULT FINDING CHARTS

CHART 27	**The trip computer and the trip meter reset to zero each time the ignition is switched off**



FAULT FINDING - INTRODUCTION

This document presents the general fault finding procedure which applies to all vehicles fitted with a tachograph.
The following are required for carrying out fault finding on this system:

- This section of the Workshop Repair Manual,
- The wiring diagram for the function on the vehicle concerned.
- the tools listed under Special tooling required.

GENERAL APPROACH TO FAULT FINDING:

– Locate the Fault finding documents corresponding to the system identified.

– Include information contained in the **Introduction** sections.

– Interpretation of customer complaints.

– Confirm the repair (customer complaint disappears).

FAULT FINDING - INTRODUCTION

The tachograph system is used by the police to check vehicle speeds. The system is equipped with a fault memory which memorizes any work done on the system with the exact date and time.

Only approved tachograph centres are authorized to repair, remove components or work on the fault memory in the computer of the tachograph system.

Faults are displayed on the screen in the form of an alphanumeric code.

Disconnecting the battery will enter a fault in the memory, as will disconnecting the speed sensor.

If it is essential to work on the system, the vehicle must be taken to an **approved** centre soon afterwards to check the conformity of the repair and to have the fault memory cleared.

The chronotachograph generates a speed signal on the 47F speed signal line in the same form as a speed sensor on the gearbox.

The instrument panel still has to be configured for the type of tyre and this must be updated on the tachograph by an approved garage.

The tachograph receives its speed signal from a special speed sensor on the gearbox.

This sensor is sealed on the gearbox and is fitted with an electronic system which links it to the tachograph.

When the ignition is switched on, a coded message is exchanged continuously between the sensor and the tachograph module.

Also randomly from time to time when the ignition is off or the battery disconnected, due to the presence of a battery inside the tachograph module.

It is strictly forbidden to disconnect the sensor or the sensor link from the tachograph module. Doing so will cause a fault to be stored in the computer memory, which will cause the customer problems during an inspection.

For any work or check on the electrical circuit of the tachograph, it is imperative to use a probe, taking care not to damage the insulation of the wires when checking them.

FAULT FINDING - CUSTOMER COMPLAINTS

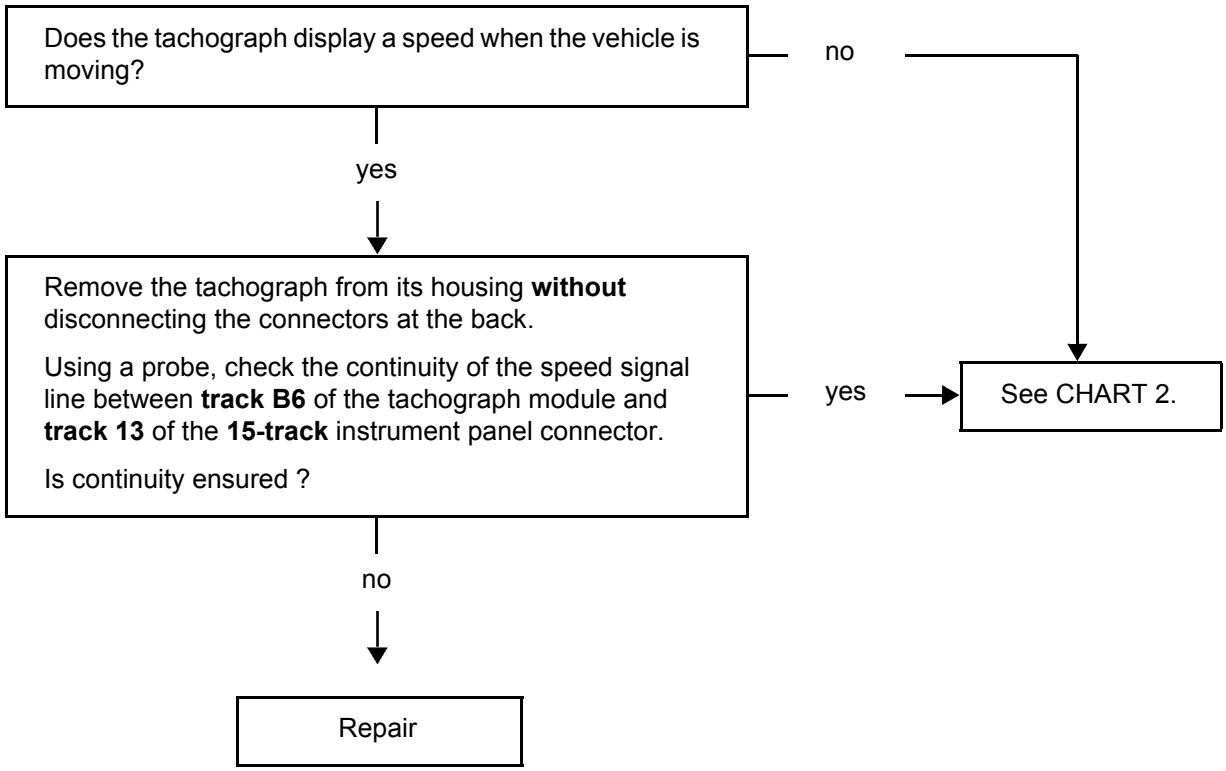
NOTES	Before carrying out any work on the tachograph, please read the **introduction** at the start of the section. Any disconnection behind the tachograph will register a fault in the memory.

NO SPEED INFORMATION ON THE INSTRUMENT PANEL OR FOR THE OTHER COMPONENTS WHICH USE THE VEHICLE SPEED SIGNAL	**CHART 1**
NO TACHOGRAPH DISPLAY AND ALL OTHER FAULTS	**CHART 2**

FAULT FINDING - FAULT FINDING CHARTS

CHART 1	**No speed information on the instrument panel or for the other components which use the vehicle speed signal**

NOTES	Before carrying out any work on the tachograph, please read the **introduction** at the start of the section. Any disconnection behind the tachograph will register a fault in the memory.



AFTER REPAIR	Carry out a road test to check the repair. Have any fault cleared by an approved garage.

FAULT FINDING - FAULT FINDING CHARTS

CHART 2	**No tachograph display and all other faults**

NOTES	Before carrying out any work on the tachograph, please read the **introduction** at the start of the section. Any disconnection behind the tachograph will register a fault in the memory. Measurement to be taken with ignition and side lights on.

Remove the tachograph from its housing **without** disconnecting the connectors at the back.

Using a probe, check the presence of **+ 12 V** on the following lines:

+ Battery line - **track A1**

+ After ignition line - **track A3**

+ Side lights line - **track A2**

Is continuity ensured?

no → Repair.

yes ↓

Using a probe, check the continuity of the following earths:

Earth 1 - **track A5**

Earth 2 - **track A6**

Is continuity ensured?

no → Repair.

yes ↓

The tachograph module is faulty. The system must be examined by an approved centre.

AFTER REPAIR	Carry out a road test to check the repair. Have any fault cleared by an approved garage.

IMPORTANT:
With this type of navigation system, it is essential to wait until the system has shut down completely (approximately 45 seconds) before disconnecting the battery.

The **CARMINAT** system comprises a screen and a voice synthesiser to provide guidance for the driver.

This system can:

- find a specific location, such as:
  - a road, street or avenue,
  - a hotel,
  - public services,
  - a garage or petrol station.
  - etc.

- select guidance modes in order to:
  - optimize journey time,
  - select the shortest distance
  - plan a route travelling on main roads
  - or take the scenic route,
  - avoid tolls.

  Each mode is symbolized by a different icon that appears on the state line on the lower part of the screen.

- store addresses in the address book.

- display road maps of:
  - the present location,
  - or the destination,

- display journey time or time of arrival.

- receive written or spoken messages from the **traffic information** system.

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

The **Carminat** system uses the **vehicle speed** signal sent by the ABS computer to calculate the distance travelled along with the **reversing** signal.

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

This system uses the following to operate:
– a Central Communication Unit
– a console (an integral part of the Central Communication Unit),
– an electronic navigation computer comprising acceleration sensors (gyroscope) and a CD-ROM reader,
– a satellite link (satellite aerial) allowing the vehicle to be located,
– a screen to display written data and maps,
– a speaker for giving voice instructions,
– a CD-ROM with the maps of the country the vehicle is delivered to,
– an FM aerial for traffic information messages.

NOTE:

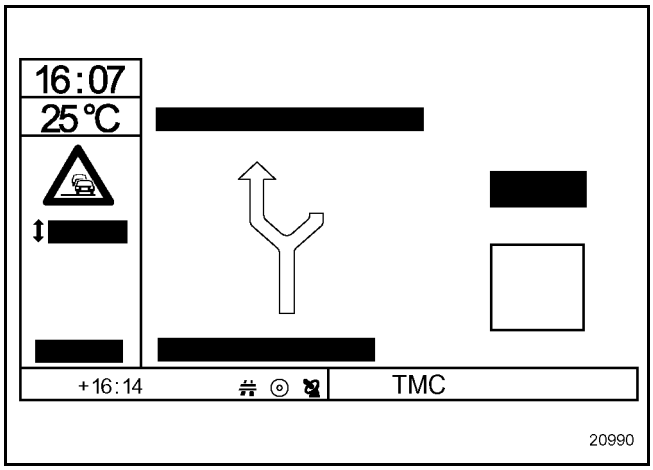
- If the vehicle ignition has been switched off, the navigation system may need a few minutes to find its exact location (see section on Relocation)
- If the vehicle battery has been disconnected, the system may need up to **20 minutes** to calculate its exact location. The vehicle must be outdoors, with the navigation system switched on, in order to pick up satellite signals via the satellite aerial.
- The system can also operate without valid satellite data. Under these circumstances, there may be a loss of precision in pinpointing exact locations.
- Once the exact position has been located by the satellite system, the on-screen satellite symbol turns from red to green.
- When travelling on the motorway, the distance data provided by the system to indicate exits will differ from the information on the signs. This is because motorway signs calculate distance from the start of the motorway exit, while the CARMINAT system calculates from the end of the exit.

BASIC PRINCIPLES OF THE TRAFFIC INFORMATION SERVICE

In conjunction with navigation, the system uses information on traffic conditions: **TMC: Trafic Message Channel**.

The system uses:
– the navigation computer which receives, locates and recognizes the information received,
– the TMC locators on the cartographic CD-ROM,
– the information collected and disseminated (by public authorities) in RDS - TMC format (communication protocol).

IMPORTANT: The information collection and dissemination services in Europe, for which NISSAN is not responsible, are still being developed.

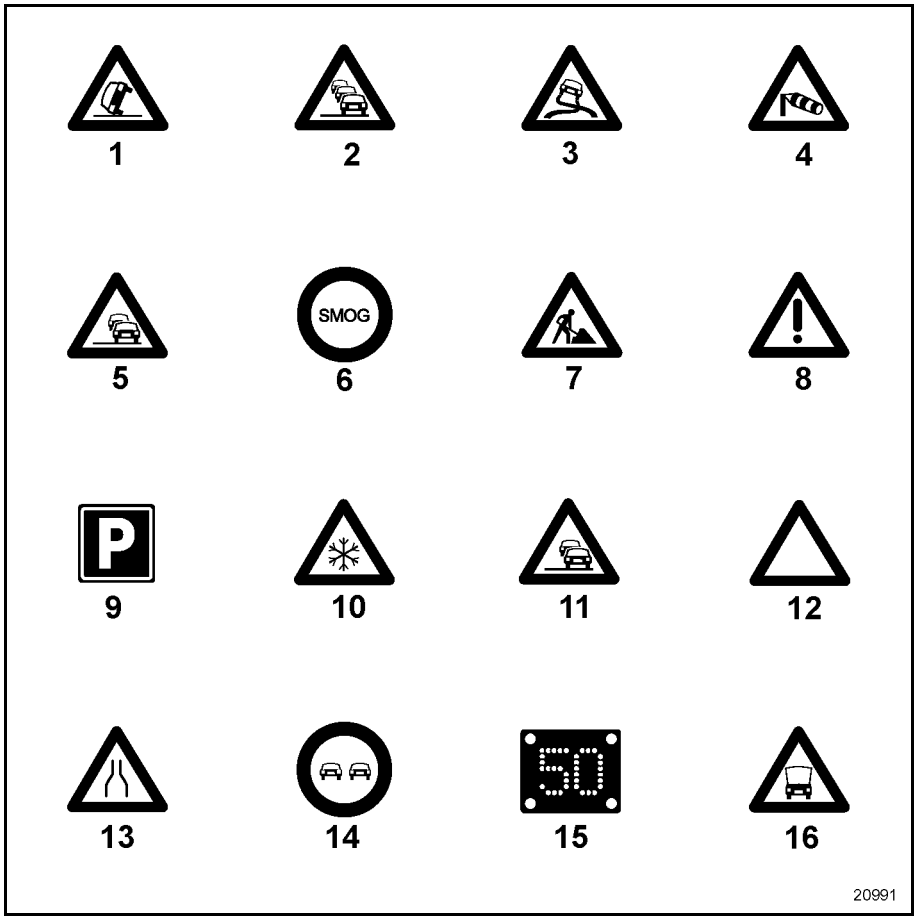


Traffic information terminal processing reminder:

- the system should be fitted with the 2001-A or more recent cartographic CD-ROM,
- TMC pictogram display logic:
  ⇒**red** = no traffic information available in this geographical location or poor reception,
  ⇒**black** = no traffic information locators on the CD-ROM
  ⇒**green** = the system is locked onto a frequency that can supply traffic information.

The term **TMC** is replaced by the name of the service operator that the system has locked onto (if the operator uses a name).
- The system can display in either text or pictogram form. It suggests a detour if a problem is located on the proposed itinerary.

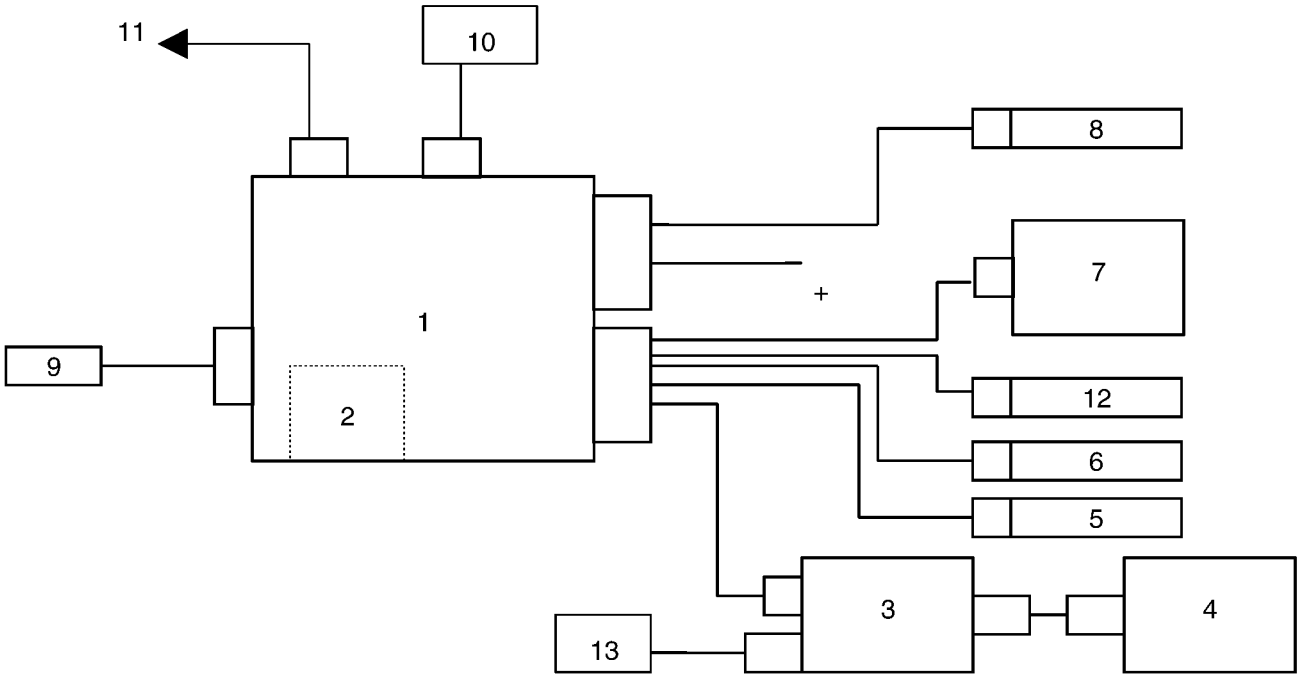
EXAMPLES OF TRAFFIC INFORMATION PICTOGRAMS



1 Accident
2 Traffic jam
3 Slippery conditions
4 Strong winds
5 Slow traffic
6 Fog
7 Road works
8 Danger
9 Parking possible
10 Bad weather
11 Slow traffic
12 Traffic problems in both directions
13 Road partially closed or narrowed
14 Vehicle travelling in the opposite direction
15 Restricted speed
16 Vehicle breakdown

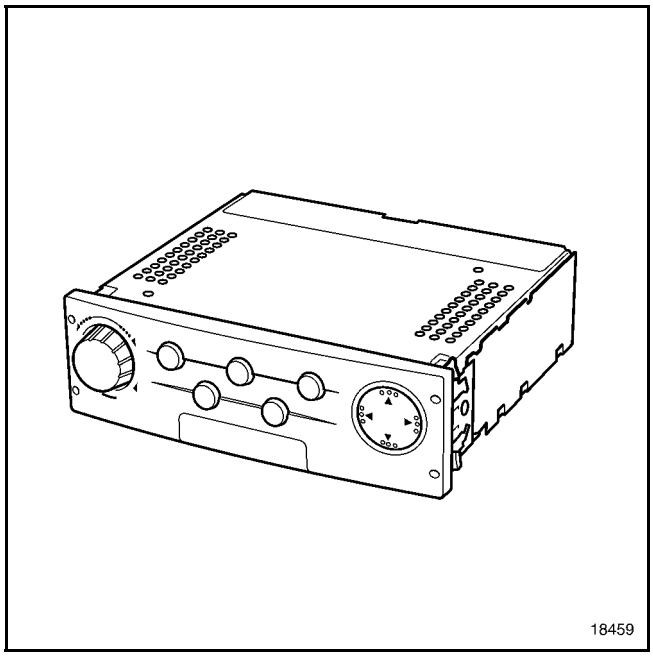
DIAGRAM

1 Central Communication Unit
2 Console
3 Carminat computer (CD-ROM reader)
4 Screen
5 Seat belt information (for display)
6 External temperature information (for display)
7 Radio
8 Voice synthesiser speaker
9 Steering wheel radio control
10 Radio aerial
11 Radio connection (mute)
12 Vehicle's multiplex connection
13 Satellite aerial



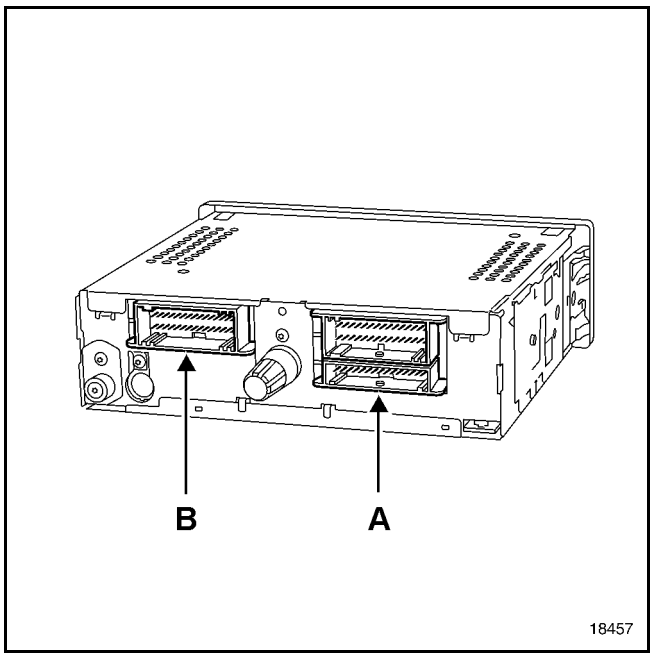
19241

To be able to operate, the **Carminat** navigation computer must be connected to a Central Communication Unit. Depending on the vehicle, this may include the console.



The Central Communication Unit can:
- adjust the clock,
- act as a go-between for the vehicle's multiplex network and the Carminat system network,
- use multiplex data (depending on the vehicle),
- control the radio from the steering wheel,
- control braking conditions, and the vehicle and system configurations,
- control the display on the screen (via the CD-ROM reader),
- receive written or spoken messages from the **traffic information** system (via the aerial)
- control navigation messages,
- transfer data from the radio for display.

CONNECTOR ALLOCATIONS

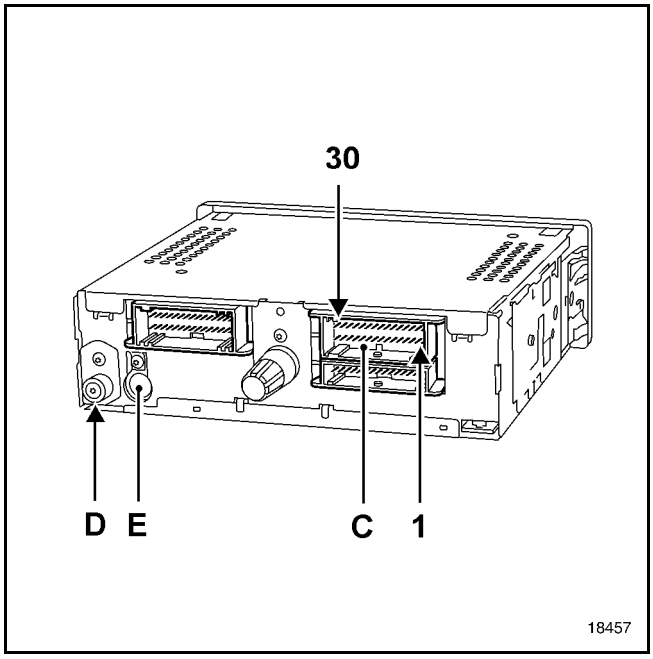


15-track connector A (red):

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

30 track connector B (grey):

Track	Description
1	Not used
2	Aerial amplifier output
3	Multiplex connection (multimedia)
4	Multiplex connection (multimedia)
5	Not used
6	Not used
7	Computer on-off output
8	Computer audio link
9	Computer audio link
10	Not used
11	Not used
12	Not used
13	Not used
14	Not used
15	Not used
16	Exterior temperature signal (input)
17	Exterior temperature signal (input)
18	Not used
19	Not used
20	Not used
21	External temperature output
22	Not used
23	Not used
24	Seat belt warning light
25	+ lighting
26	Radio connection (track 6)
27	Radio On/Off (track 5)
28	Radio connection (track 3)
29	Radio connection (track 1)
30	Radio connection (track 2)



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

30-track connector C (green):

Track	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Multiplex connection (vehicle)
7	Multiplex connection (vehicle)
8	Not used
9	+ accessories
10	+ Before ignition
11	Radio mute control
12	Earth
13	Not used
14	Voice synthesiser computer
15	Voice synthesiser computer
16	Not used
17	Not used
18	Not used
19	Not used
20	Not used
21	Not used
22	Speaker output
23	Speaker output
24	Not used
25	Not used
26	Not used
27	Not used
28	Not used
29	Not used
30	Not used

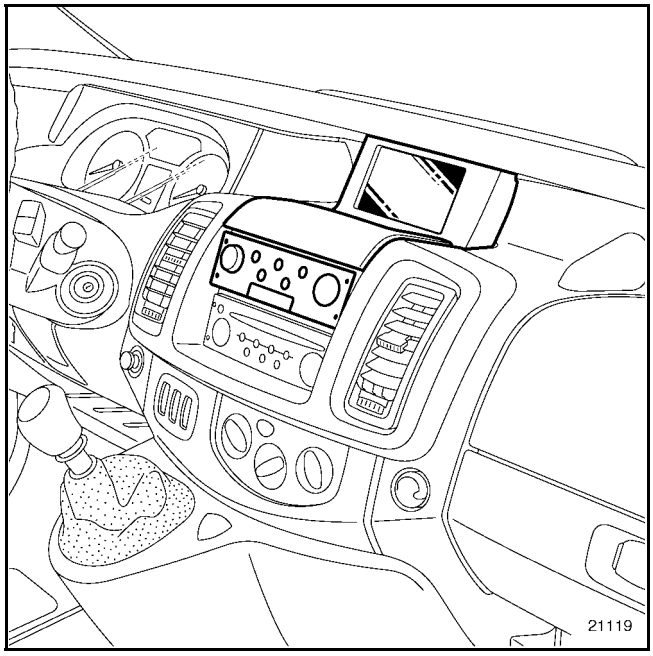
REMOVAL - REFITTING

IMPORTANT:
Wait until the system has shut down completely (**45 seconds**) before disconnecting the battery.

The Central Communication Unit is removed using the **Ms. 1373** radio removal tools.

After refitting, initialize the system (refer to the **Initialization** section).

The Central Communication Unit is located above the radio.

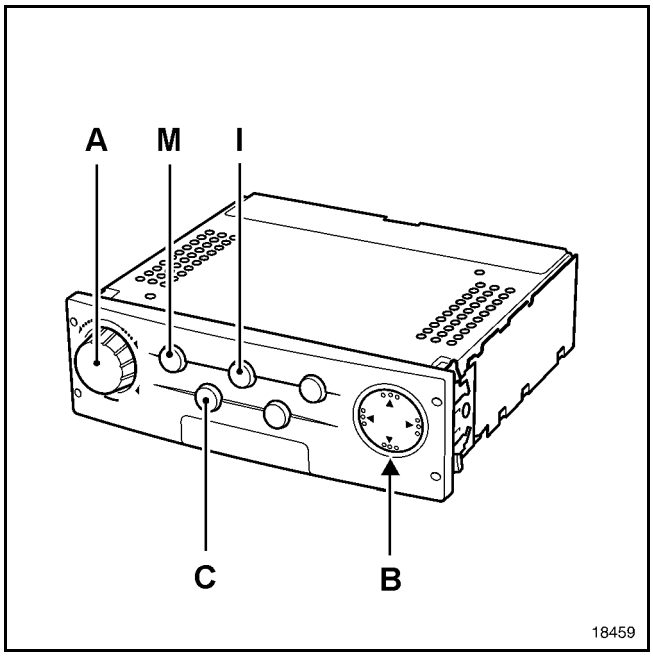


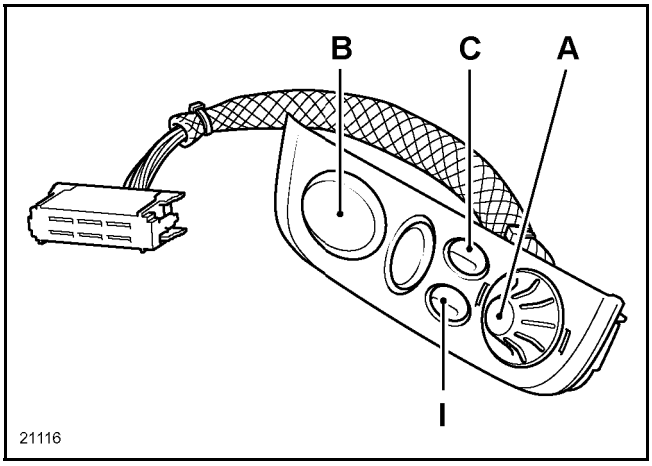
CONSOLE

The console may be integrated into the Central Communication Unit or independent, depending on the vehicle.

It comprises:

- Rotary knob A, used for:
  - selecting different menus,
  - validating,
- Button B, used for:
  - scrolling through the menu in manual mode,
  - select options in the different menus,
- a menu button (M) (depending on the vehicle) which allows you to return to the main menu,
- a button (I) which repeats audio messages,
- a button (C) which switches off audio messages,
- buttons (+) and (-) which increase and reduce the volume of audio messages.





REMOVAL - REFITTING

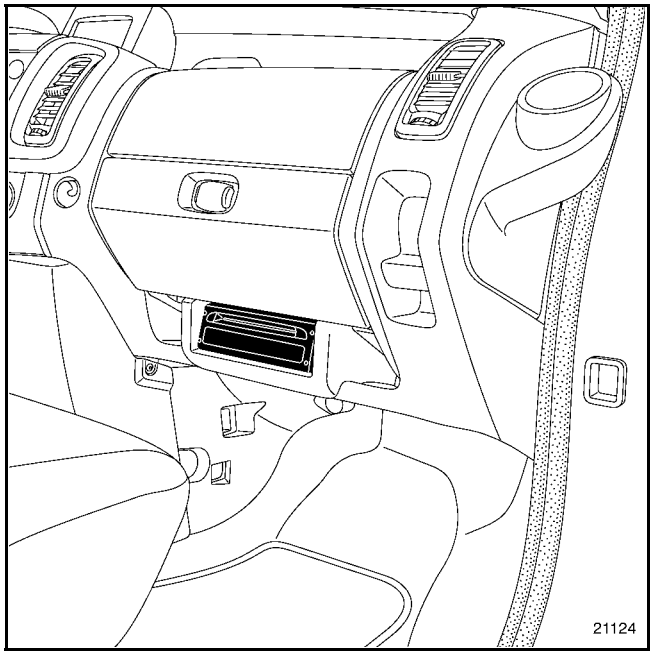
IMPORTANT:
Wait until the system has shut down completely (**45 seconds**) before disconnecting the battery.

IMPORTANT:
The **satellite** aerial wire is very fragile. Do not bend or trap it.

After refitting, initialize the system (refer to the **Initialization** section).

The computer is located in the lower section of the dashboard.

It is removed with the radio removal tool **Ms. 1373**.



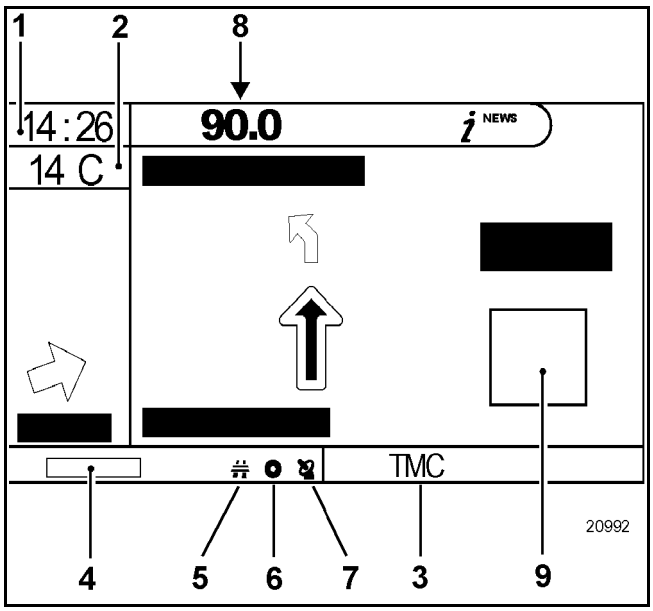
SCREEN

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

It lights up a few seconds after the + accessories is switched on or the radio is switched on and displays the security message.

It will switch off approximately **45 seconds** after the ignition is switched off.

NOTE:
The screen colour and brightness can be altered using the **Screen configuration** menu:
– daytime blue or dark blue (side lights).
– night time blue or dark blue (side lights on).



1 Time
2 External temperature
3 **Traffic Information** message pictogram
4 Time of arrival or journey remaining (can be configured)
5 **Guidance mode** pictogram
6 **Disc present** pictogram
7 **Satellite reception quality** pictogram
8 **Radio** display (depending on the vehicle)
9 Opening element indicator lights

Special notes on the radio (depending on the vehicle)

If the vehicle is fitted with an original radio, the display will appear on the screen bar (radio on only).

When it is being adjusted, the radio display fills the screen (for greater visibility) in **list** or **preset** mode.

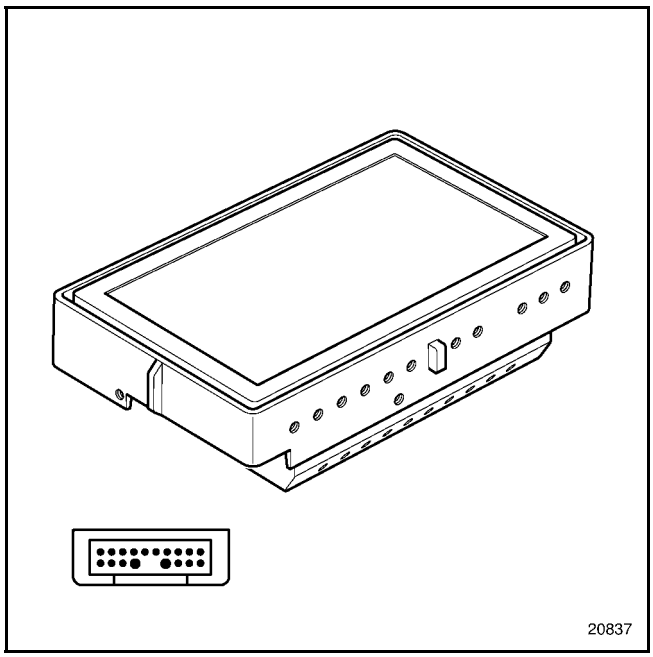
NOTE:
If the information linked to the radio does not appear on screen, refer to the **Initialization** section.

Special notes on the clock

The clock is connected to the satellite connection. The reference time is adjusted manually via the **Clock** menu, but the satellite connection allows precise adjustment.

IMPORTANT:
Do not use cleaning products to clean the screen. It should be wiped with a soft, dry cloth or a damp cloth.

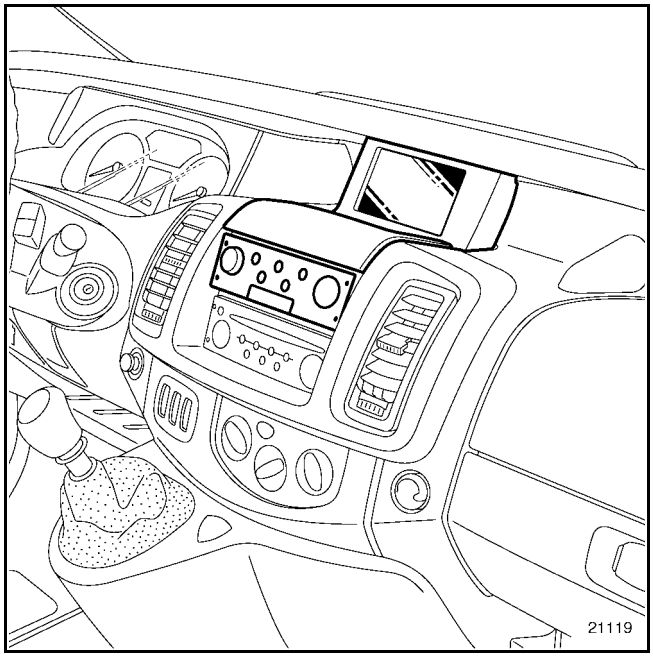
CONNECTIONS



Track	Description
1	Not used
2	Earth
3	- Video signal
4	Red video signal
5	Green video signal
6	Blue video signal
7	Earth
8	Video synchronization signal
9	Earth
10	Brightness adjustment
11	Not used
12	Display On/Off
13	Not used
14	Not used
15	+ Before ignition
16	+ Before ignition
Shielding	Earth shielding

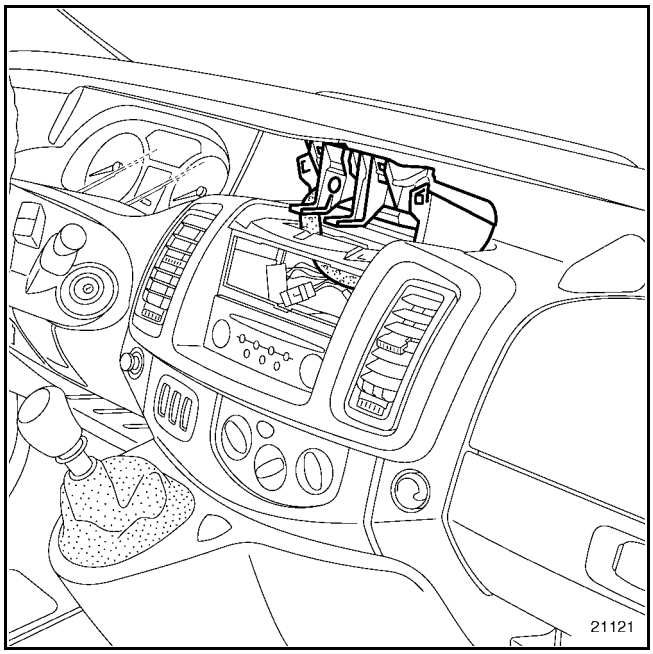
REMOVAL - REFITTING

With the ignition off, remove:
– the Central Communication Unit using the **Ms. 1373** tools,

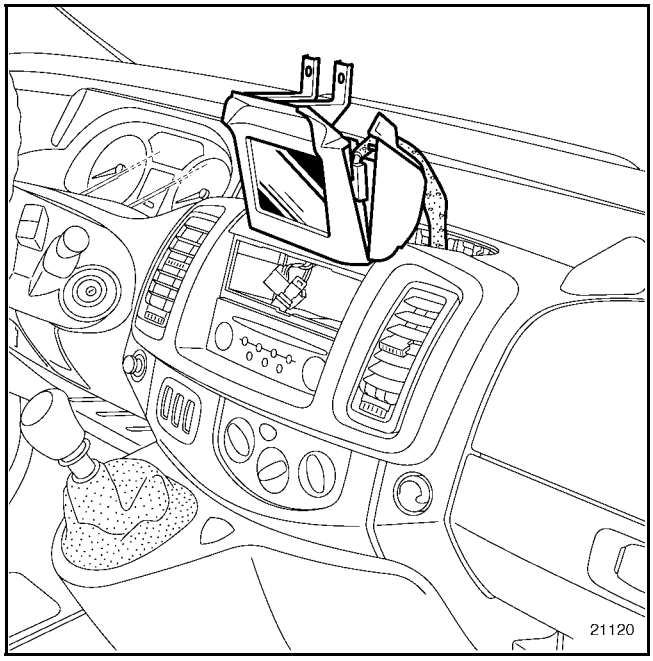


– the screen mounting bolts.

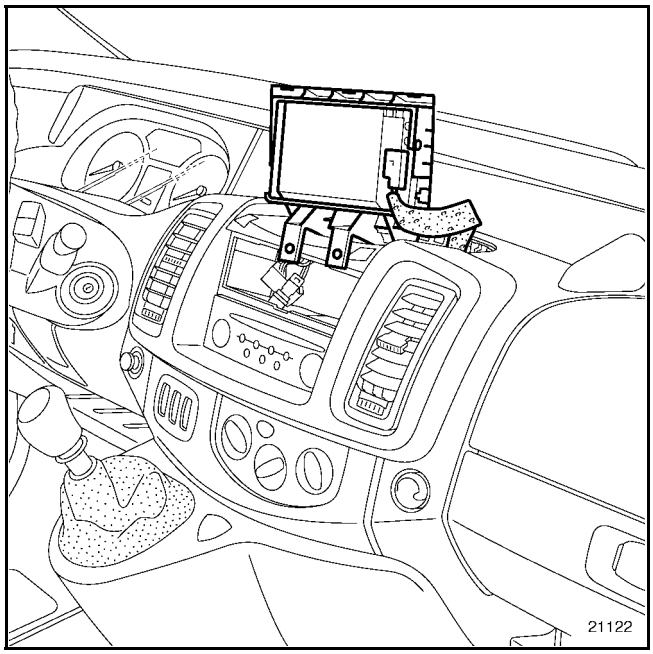
Pull the screen to unclip it from the dashboard.



Swivel the screen, taking care not to scratch the dashboard.



Open the protective housing.



Disconnect the connector by pressing on the bolt.

Separate the screen from its mounting by removing the screws.

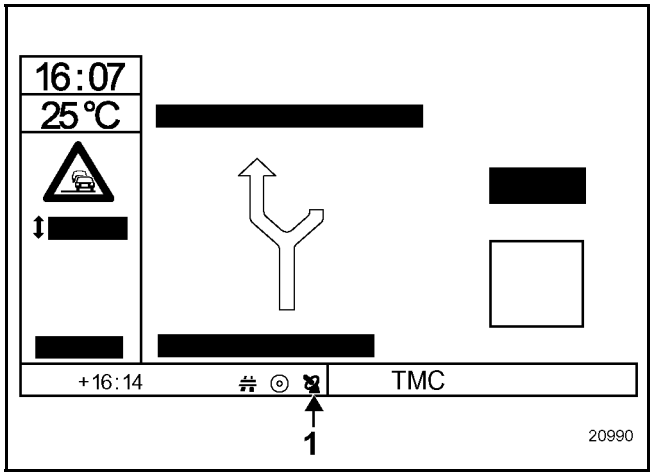
SATELLITE AERIAL

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

When the satellite reception is good, a **green** pictogram (1) is displayed on screen.

When the satellite reception is poor (caused by going through a tunnel or along a street surrounded by tall buildings, etc.), a **red** pictogram is displayed on screen.

NOTE:
Relocation is automatic once the battery has been reconnected or the navigation computer has been replaced: drive the vehicle to an outdoor open area with the ignition off and wait a few minutes. When the satellite reception is good, a **green** pictogram is displayed on screen.



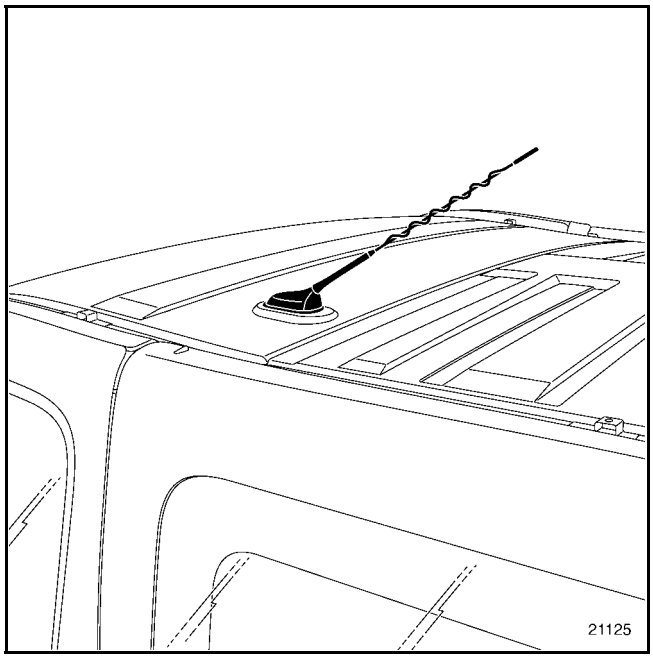
IMPORTANT:
The satellite aerial wire is very fragile. Do not bend or clamp it.

NOTE:
The satellite aerial is also used for the hands-free phone. Some vehicles are fitted with a dual band aerial.

REMOVAL - REFITTING

The aerial is fitted on the roof. The headlining must be partially removed to remove the aerial.

IMPORTANT: the **satellite** aerial wire is very fragile; do not bend or trap it.



Special notes:

The speaker used for the navigation system is the front right-hand radio speaker.

This procedure must be carried out each time any operation is performed on the system.

IMPORTANT:
If the vehicle is equipped with a radio, it must be switched on during setting. If it is not, the steering wheel radio control will not function and the screen will not display radio data.

1 Switch off the ignition.
2 Wait for the **system to shut down completely (about 45 seconds)**,
3 Switch the radio on.
4 Switch on the ignition (wait about **20 seconds**).
5 Press the buttons simultaneously (see table).
6 Read the vehicle part number (refer to the table).
7 Carry out the steering wheel control test,
8 The satellite aerial connection displays (Ok/Nok) on the screen.
9 Exit setting using the rotary switch,
10 Switch off the ignition (**1 minute**).

INITIALIZATION	
Vehicle	**Keys**
PRIMASTAR	**M and C**

System configurations			
Vehicle	**with out radio**	**Entry level radio**	**Top of the range radio**
PRIMASTAR	**0612**	**0602**	**-**

NOTE:
If the configuration does not correspond to the vehicle, check the vehicle wiring (multiplex lines) and the part numbers of the components.

The system will be programmed in French by default after the navigation computer has been replaced.

You must carry out two operations to change the language:

● **Change menus language**

1 With the ignition switched on, press the eject button to remove the electronic navigation computer cartographic CD-ROM

2 The screen will display the message **No CD in reader**.

3 Confirm **OK** by pressing the rotary knob.

4 Select the **Language** menu.

● **Change voice messages**

1 With the ignition switched on, press the eject button to remove the electronic navigation computer map CD-ROM

2 The screen will display the message **No CD in reader**.

3 Confirm **OK** by pressing the rotary knob.

4 Select the *** Configurations** menu then **Language**.

NOTE:
if the desired language does not appear in the menu, proceed as follows:

1 Select **other language**.

2 The system prompts you to insert the language CD-ROM.

3 Insert the CD-ROM, and then press the rotary knob to confirm.

4 Select the language to be replaced (language 1 or 2) by turning the knob.

5 Use the rotary knob to select the language to load from the list of available languages stored on the CD-ROM and then confirm **load**.

6 Wait a few seconds, the screen will turn black and then white and display a message in black and red with a horizontal bar to show the loading time remaining.

7 When loading is complete, the language CD-ROM is ejected from the reader and **OK** is displayed on screen.

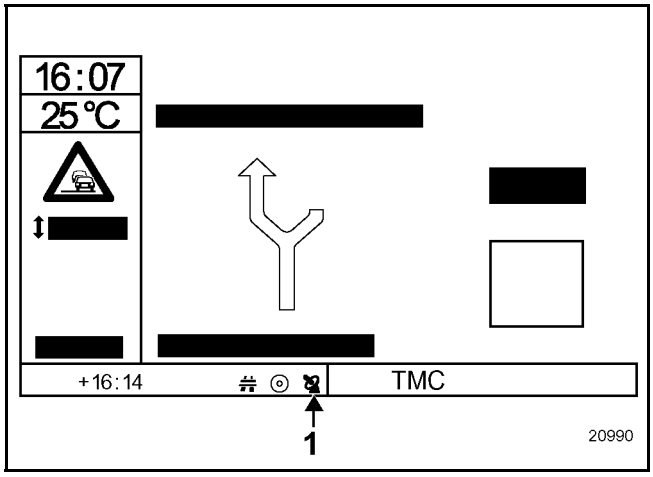
8 Continue with voice message changing procedure.

9 Re-insert the cartographic CD-ROM into the reader.

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

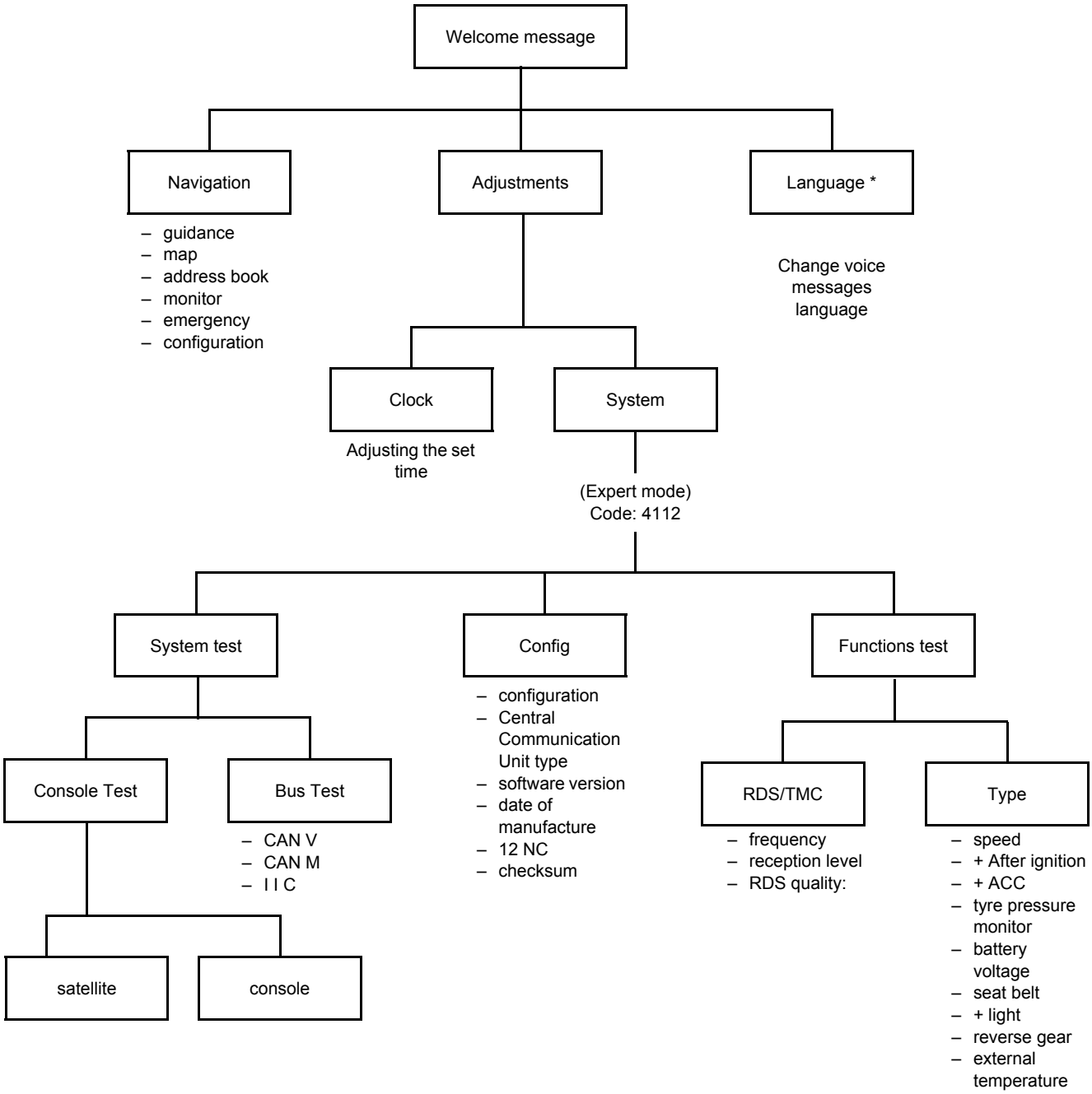
Drive the vehicle to an open area outdoors and wait for a few minutes with the ignition switched on.

When the satellite reception is good, a **green** pictogram (1) is displayed on screen.

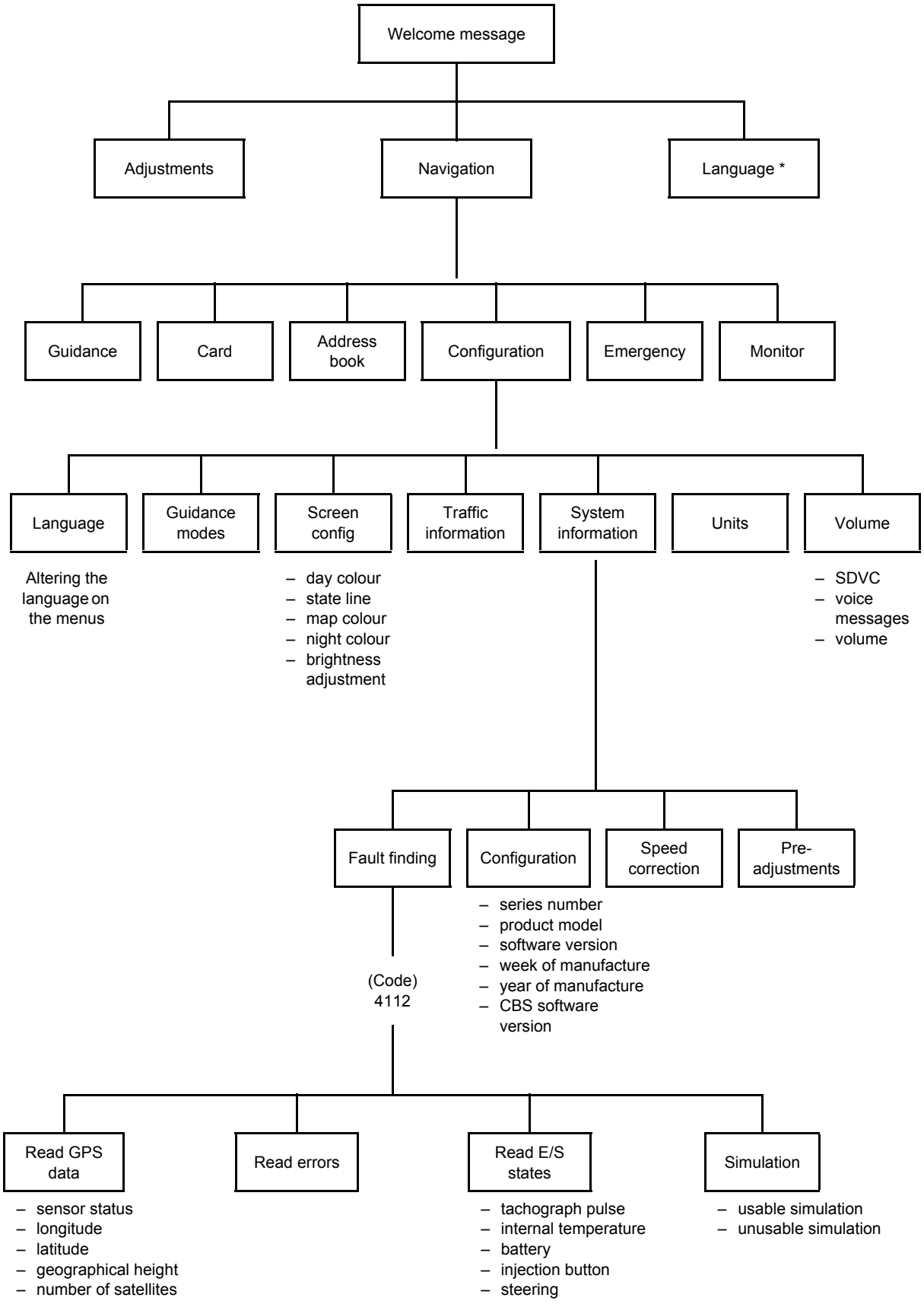


If the vehicle is not correctly located on the map, drive the vehicle to along various main roads on the mapped routes
(**0.6 to 1.8 miles (1 to 3 km)** necessary).

NOTE:
The locating operation may take up to **20 minutes** maximum.



* depending on the version



* depending on the version

THE SCREEN REMAINS BLACK

THE SCREEN IS BACKLIT OR FROZEN ON THE LOGO

THE DISPLAY ON THE SCREEN REMAINS FROZEN

THE SCREEN DISPLAYS: CONFIGURATION ERROR

NO SEAT BELT WARNING LIGHT DISPLAY

NO RADIO DISPLAY ON THE CARMINAT SCREEN (OR THE RADIO DISPLAY REMAINS FROZEN)

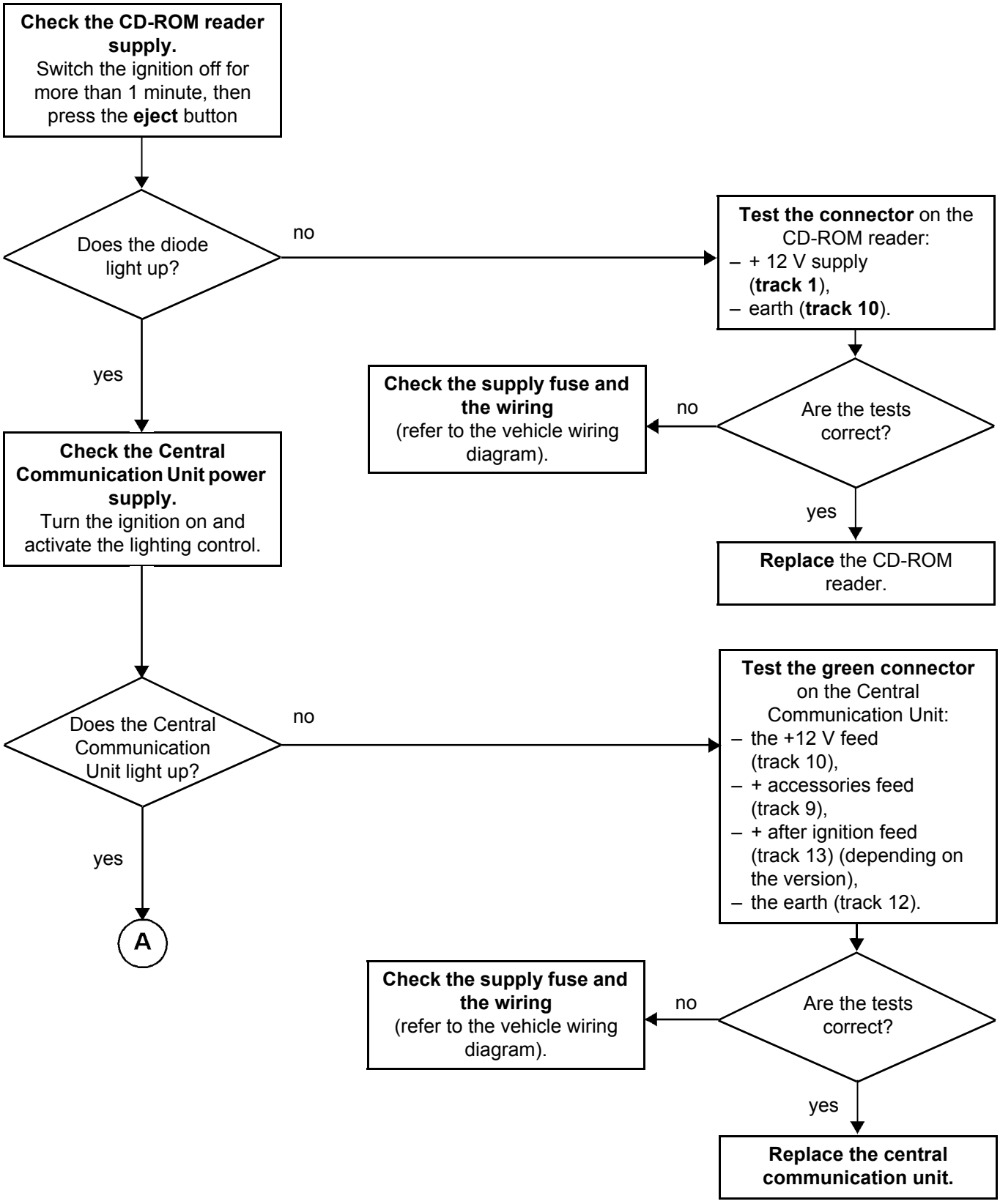
CLOCK NOT DISPLAYED OR INCORRECT

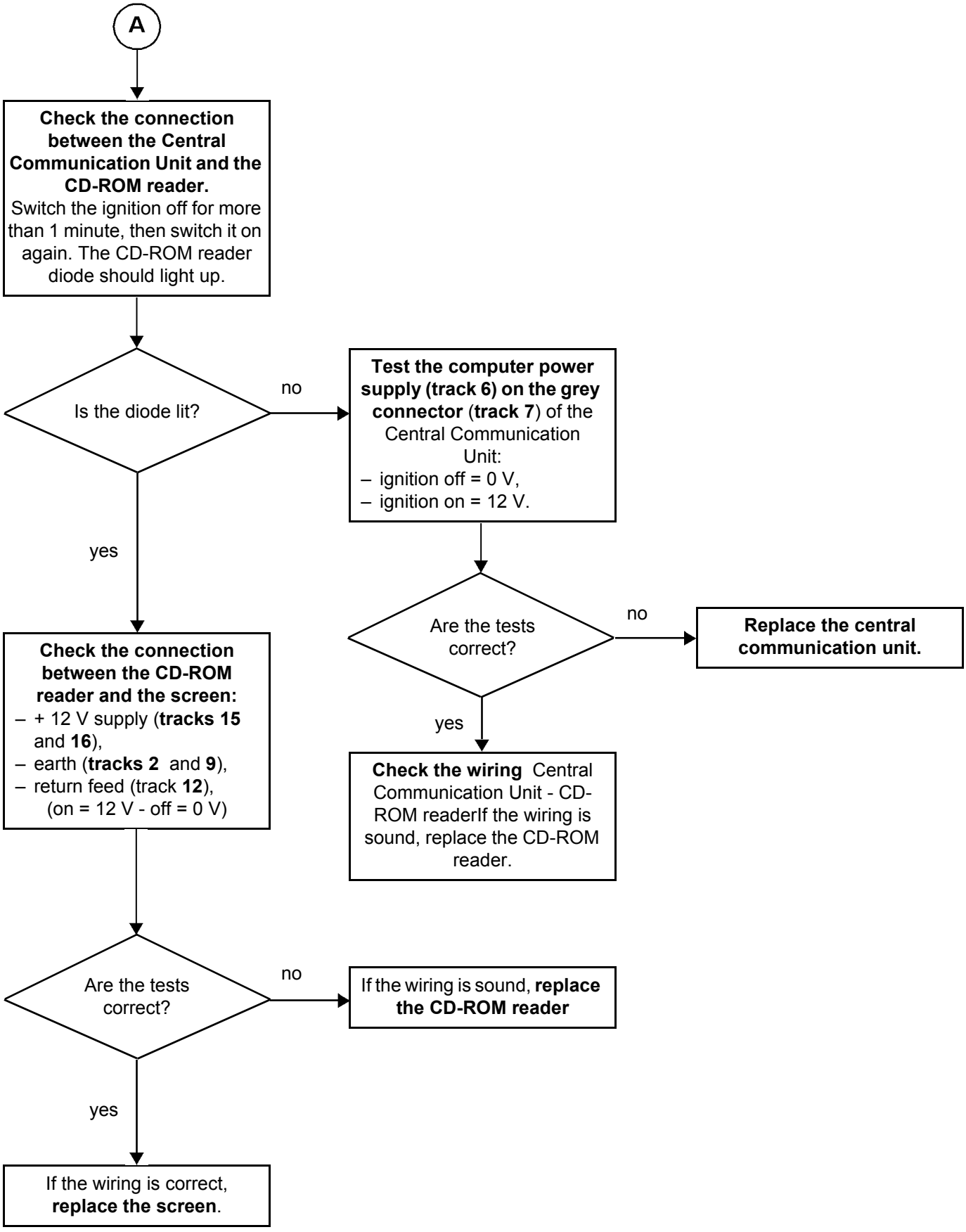
NO VOICE MESSAGES

NO TRAFFIC INFO MESSAGE ON THE SCREEN

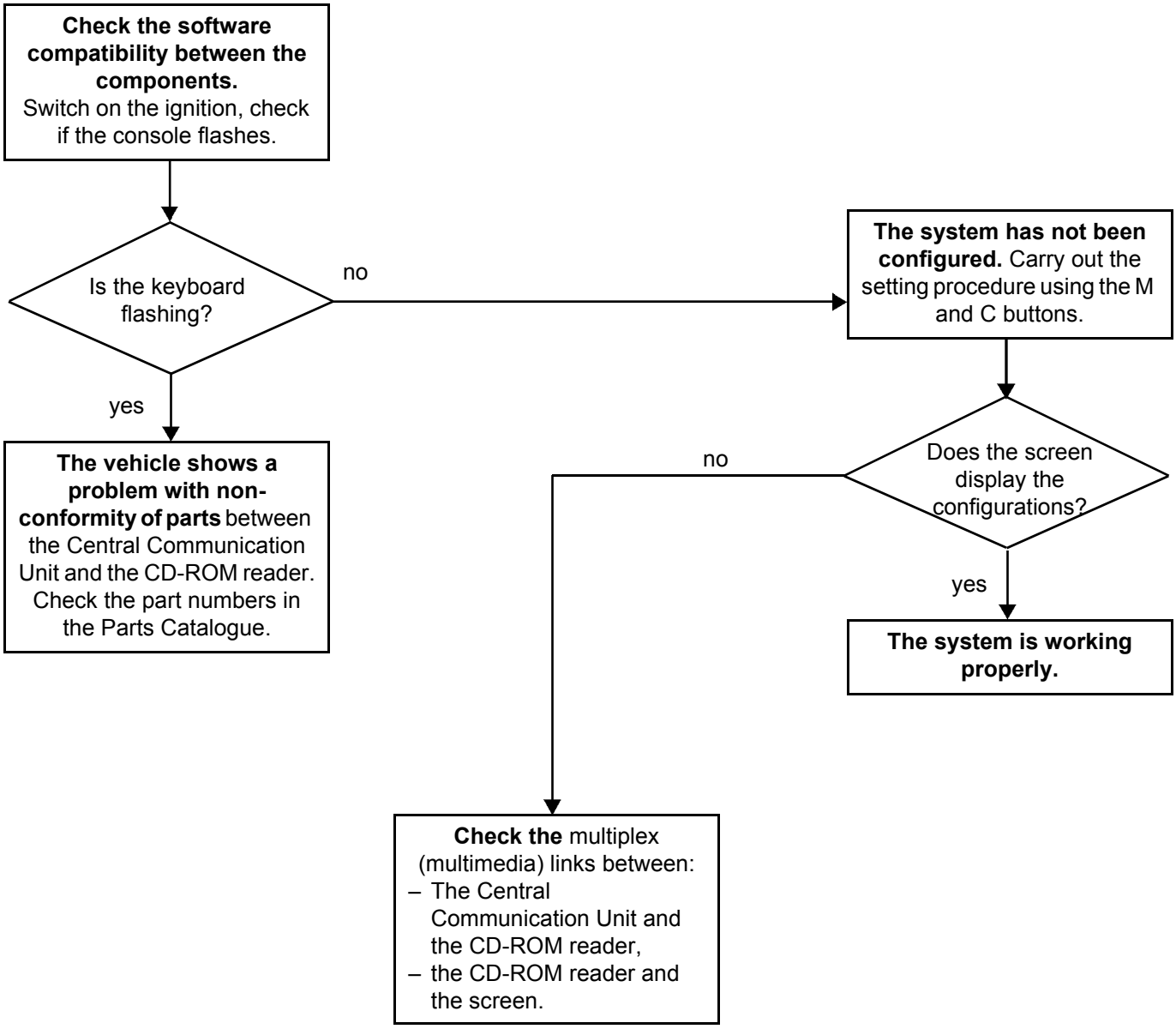
POOR SATELLITE RECEPTION

The screen stays black (no backlight)

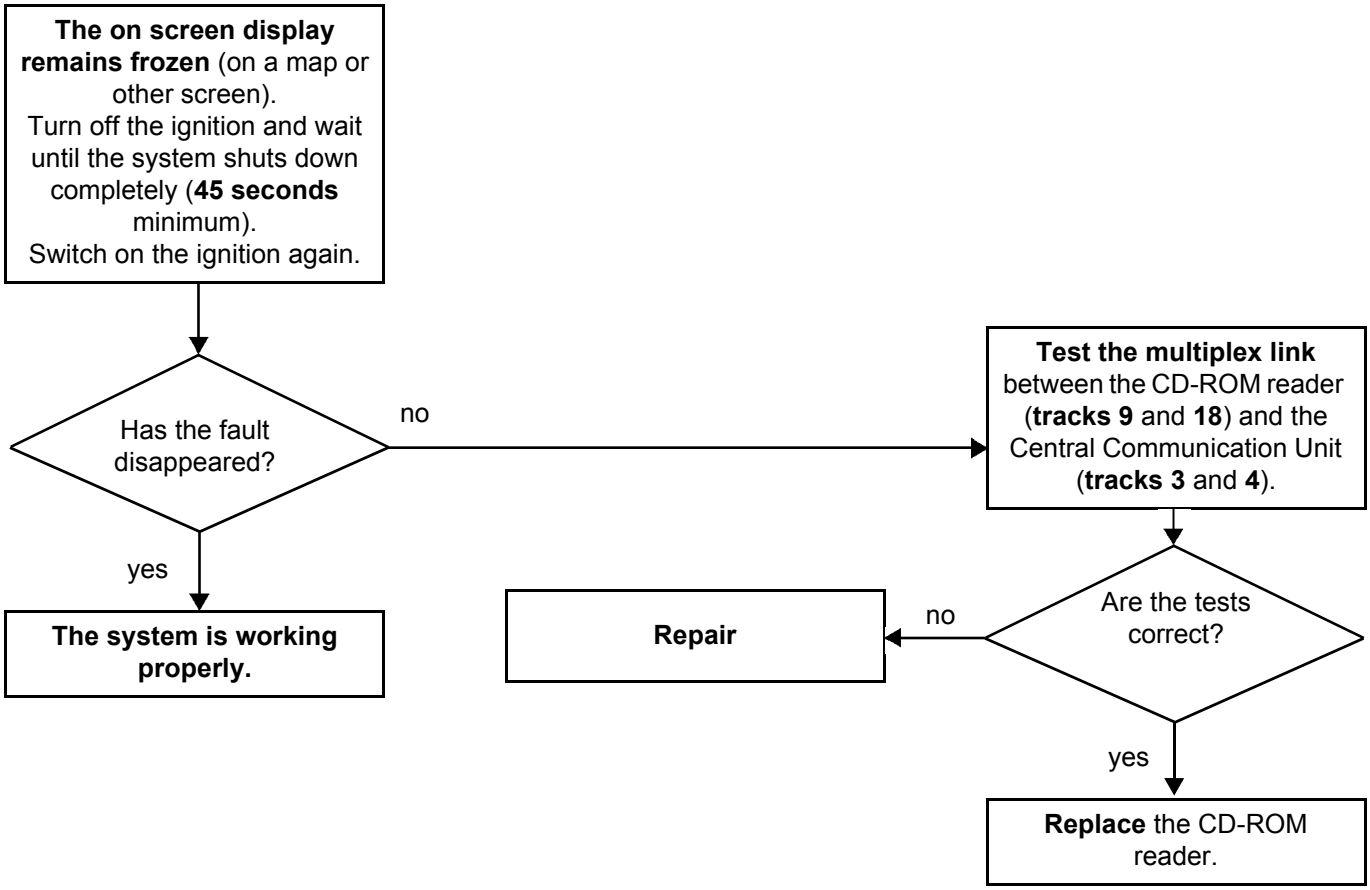



A
Check the connection between the Central Communication Unit and the CD-ROM reader.
Switch the ignition off for more than 1 minute, then switch it on again. The CD-ROM reader diode should light up.
Is the diode lit?
no
Test the computer power supply (track 6) on the grey connector (track 7) of the Central Communication Unit:
– ignition off = 0 V,
– ignition on = 12 V.
Are the tests correct?
no
Replace the central communication unit.
yes
Check the wiring Central Communication Unit - CD-ROM readerIf the wiring is sound, replace the CD-ROM reader.
yes
Check the connection between the CD-ROM reader and the screen:
– + 12 V supply (tracks 15 and 16),
– earth (tracks 2 and 9),
– return feed (track 12),
(on = 12 V - off = 0 V)
Are the tests correct?
no
If the wiring is sound, replace the CD-ROM reader
yes
If the wiring is correct, replace the screen.

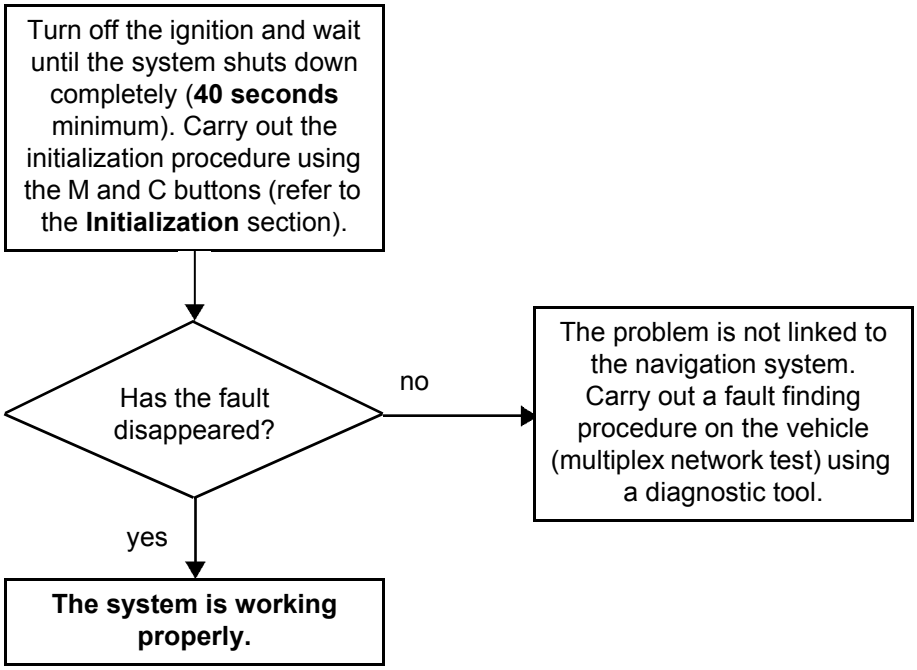
The screen is backlit or frozen on the Logo



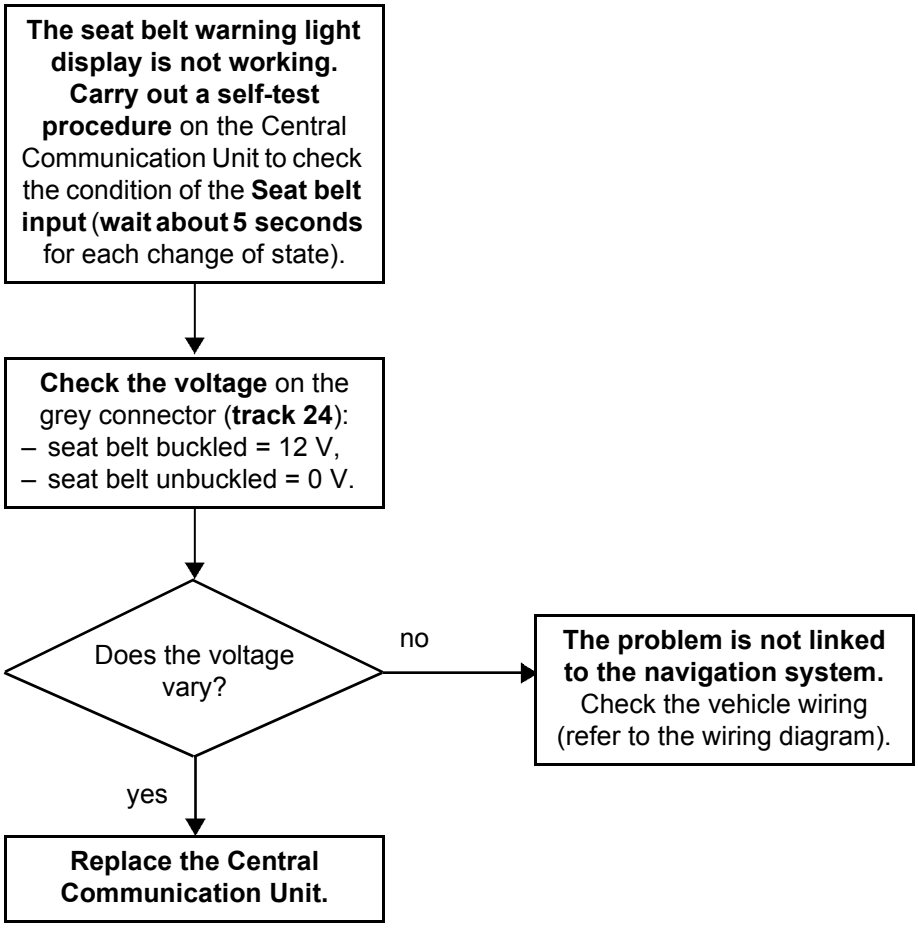
The display on the screen remains frozen (on any page)



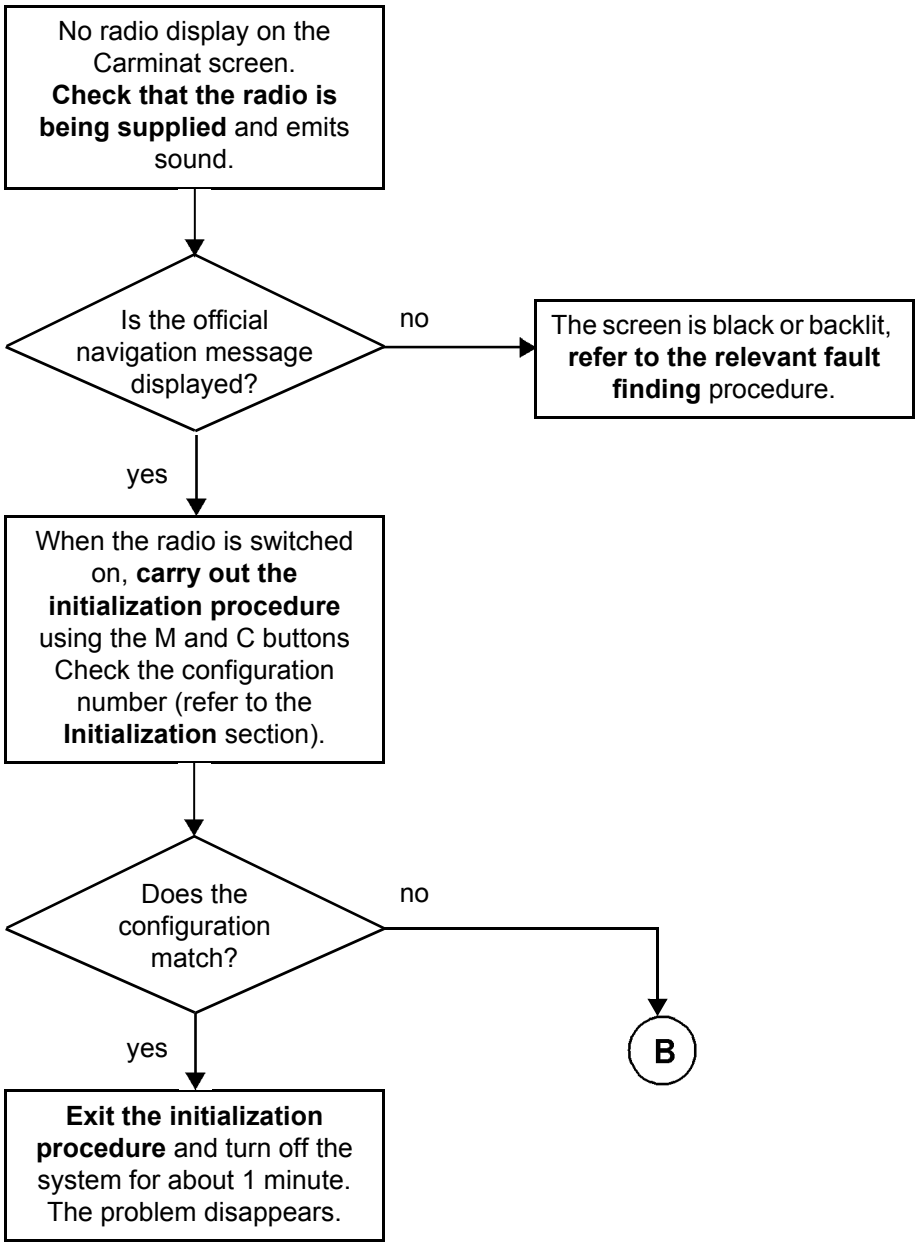
The screen displays "configuration error"

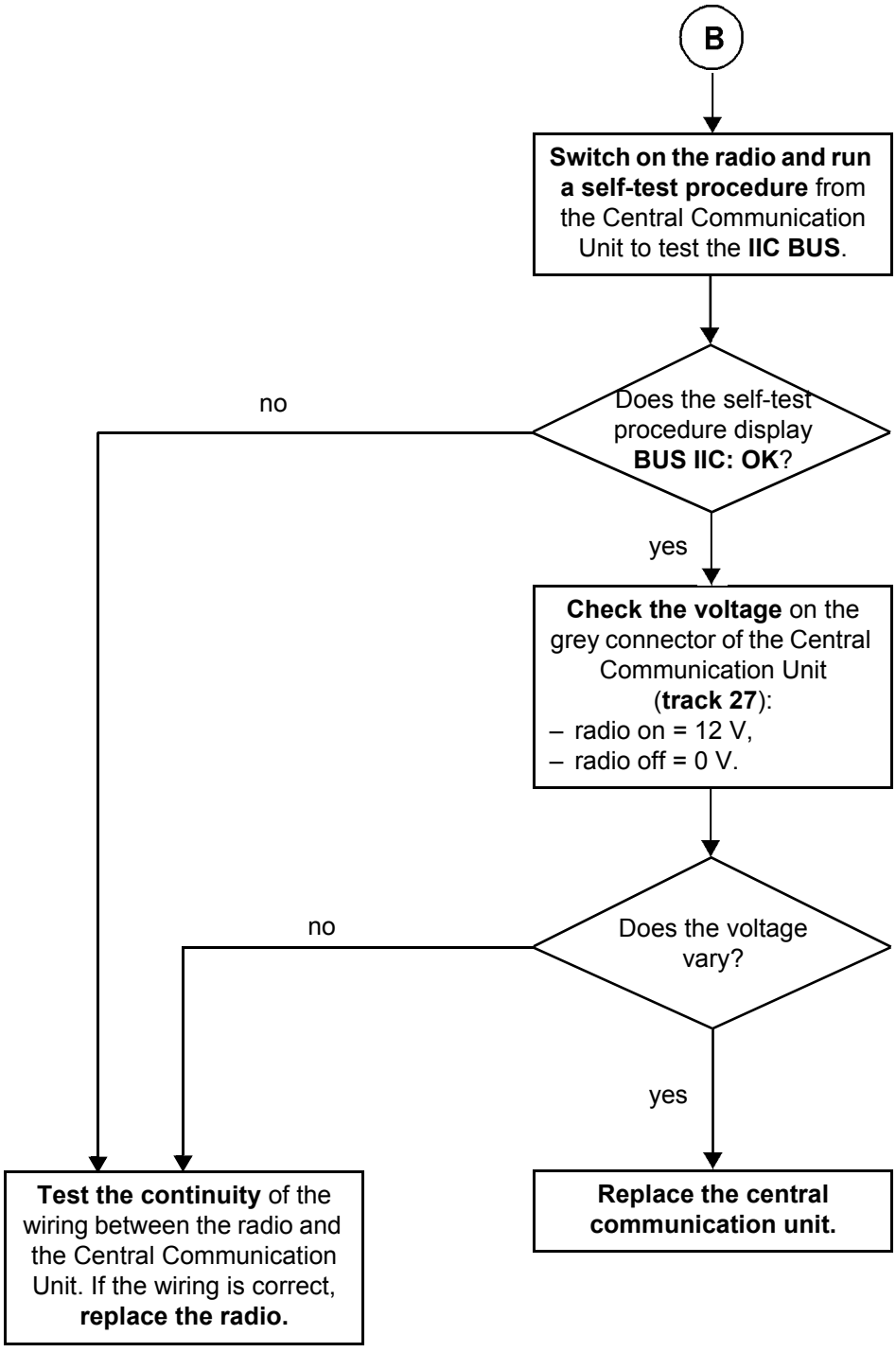


No seat belt warning light display

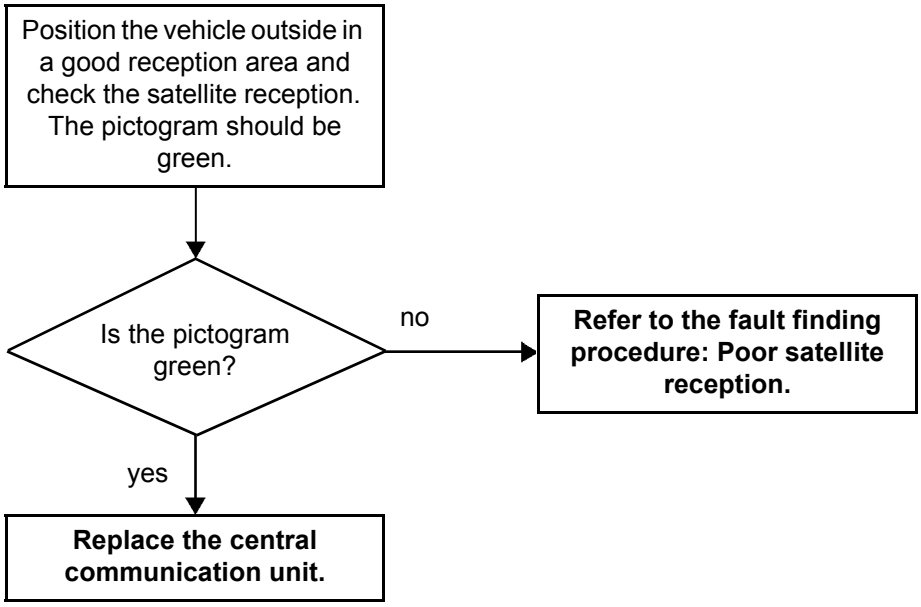


No radio display on the carminat screen (or the radio display remains frozen)

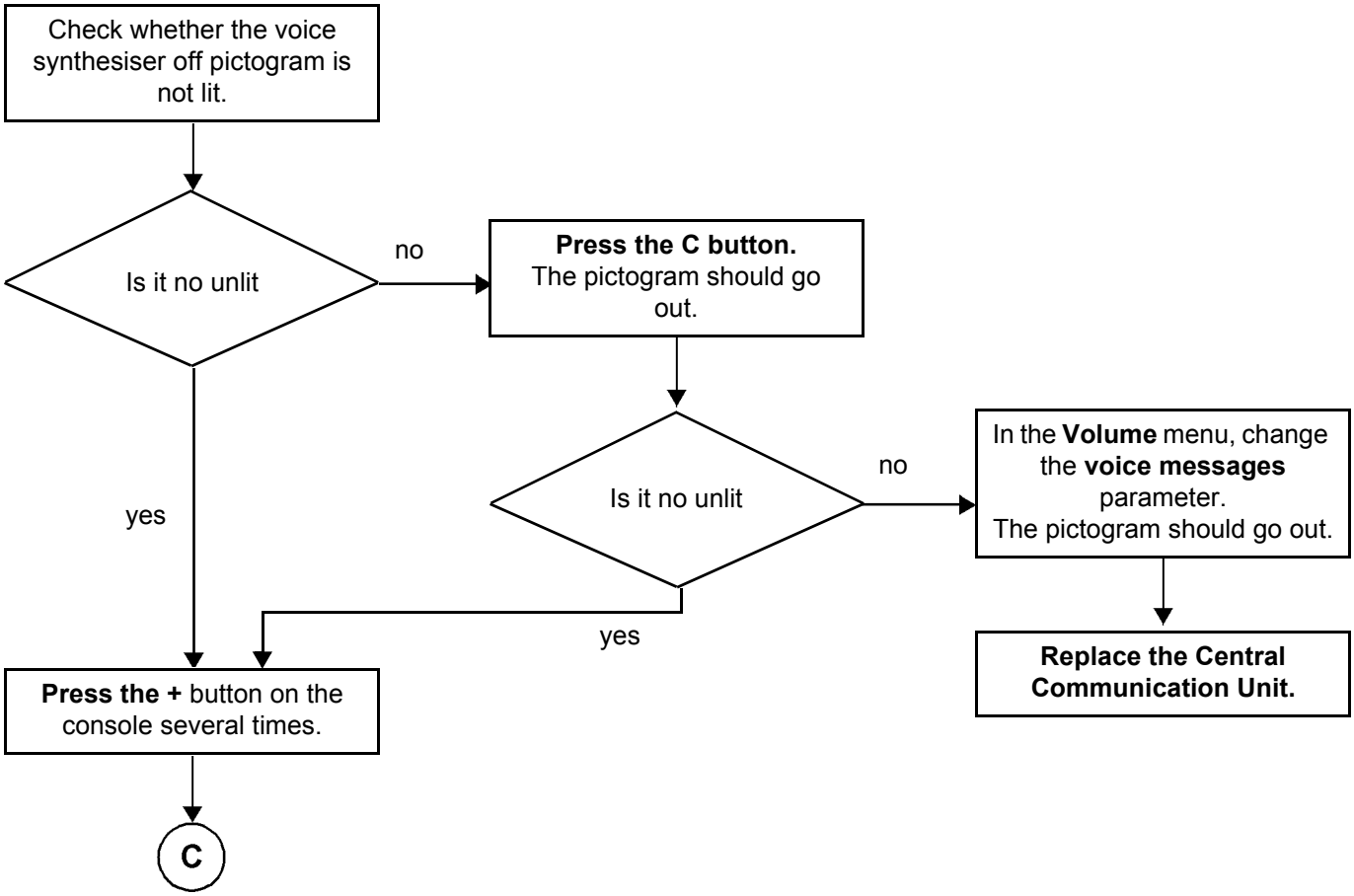


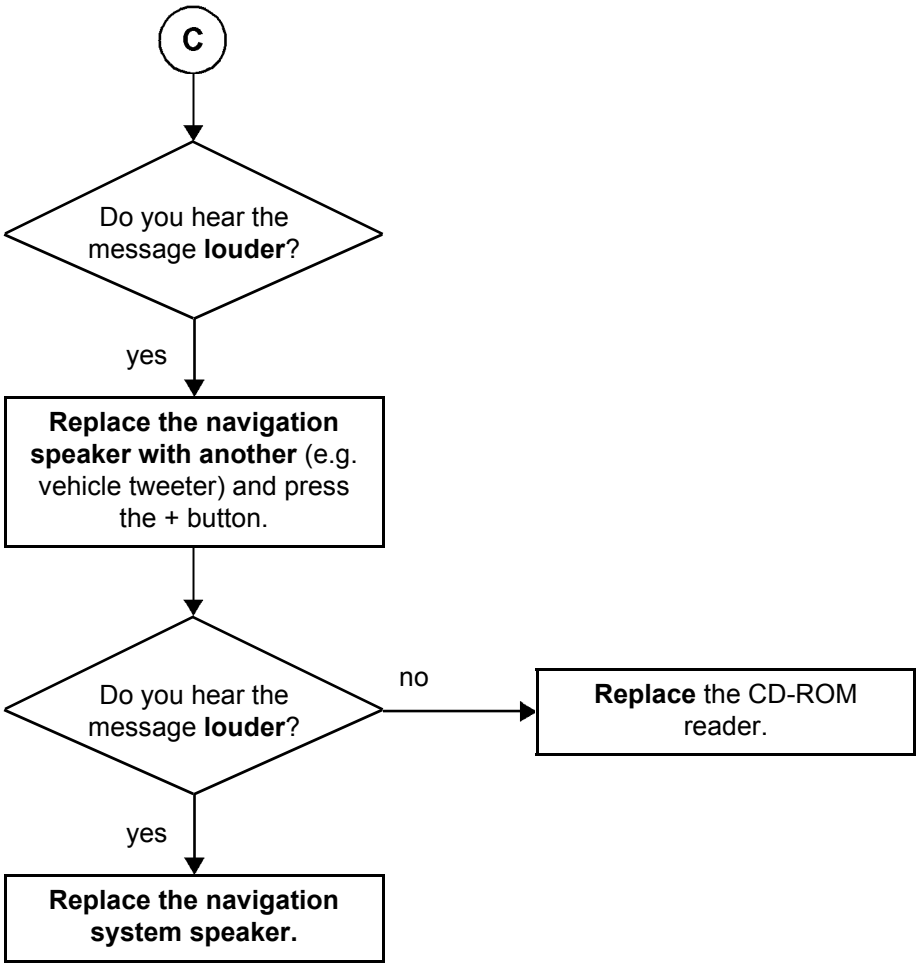

B
Switch on the radio and run a self-test procedure from the Central Communication Unit to test the IIC BUS.
Does the self-test procedure display BUS IIC: OK?
no
yes
Check the voltage on the grey connector of the Central Communication Unit (track 27):
– radio on = 12 V,
– radio off = 0 V.
Does the voltage vary?
no
yes
Test the continuity of the wiring between the radio and the Central Communication Unit. If the wiring is correct, replace the radio.
Replace the central communication unit.

Unsatisfactory or no time display

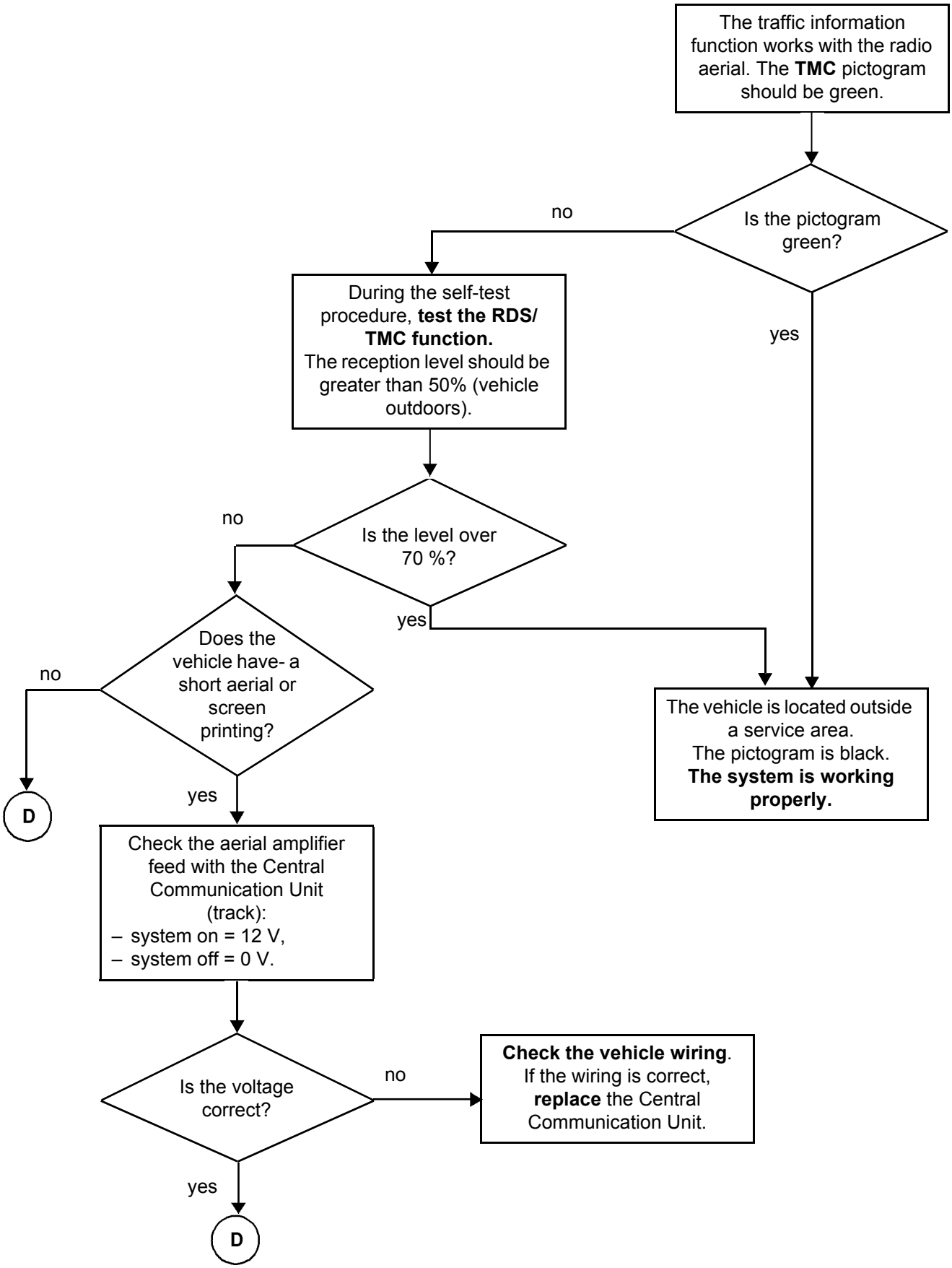


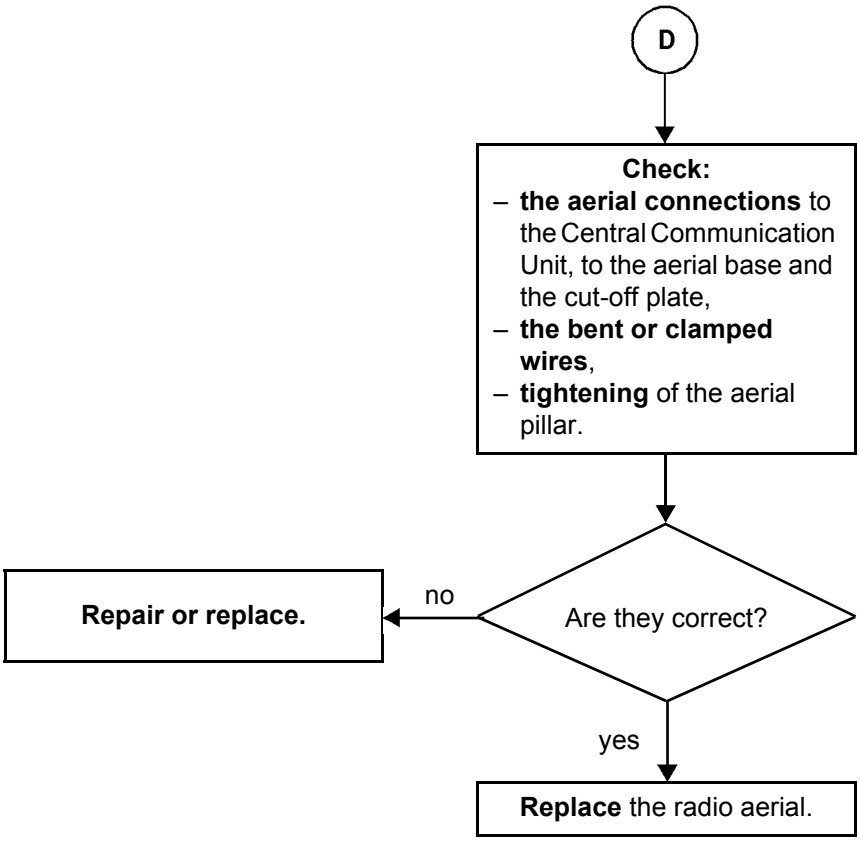
No voice messages



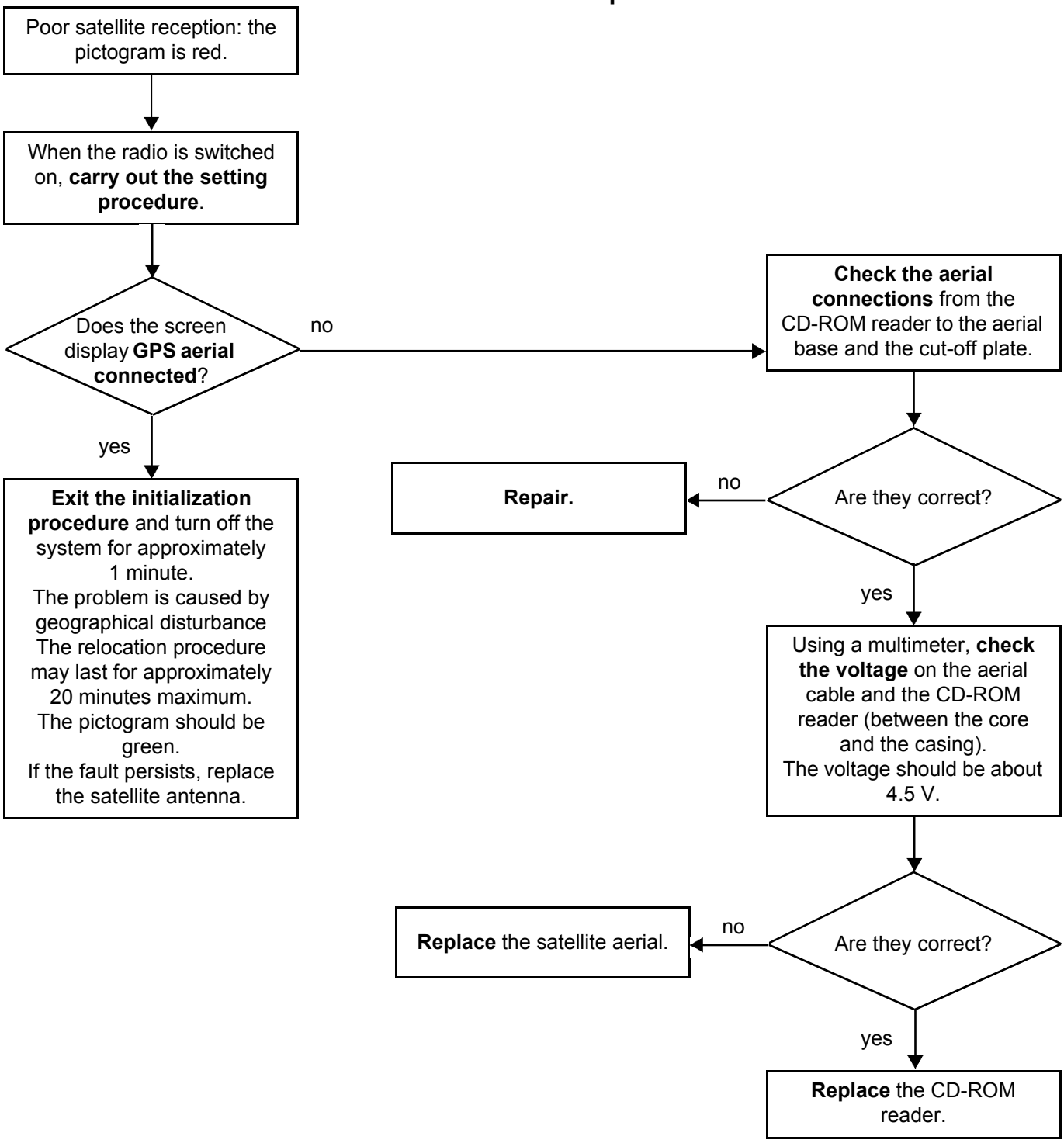

C
Do you hear the message **louder**?
yes
Replace the navigation speaker with another (e.g. vehicle tweeter) and press the + button.
Do you hear the message **louder**?
no
Replace the CD-ROM reader.
yes
Replace the navigation system speaker.

No traffic information message on the screen




D
Check:
– the aerial connections to the Central Communication Unit, to the aerial base and the cut-off plate,
– the bent or clamped wires,
– tightening of the aerial pillar.
Are they correct?
no
Repair or replace.
yes
Replace the radio aerial.

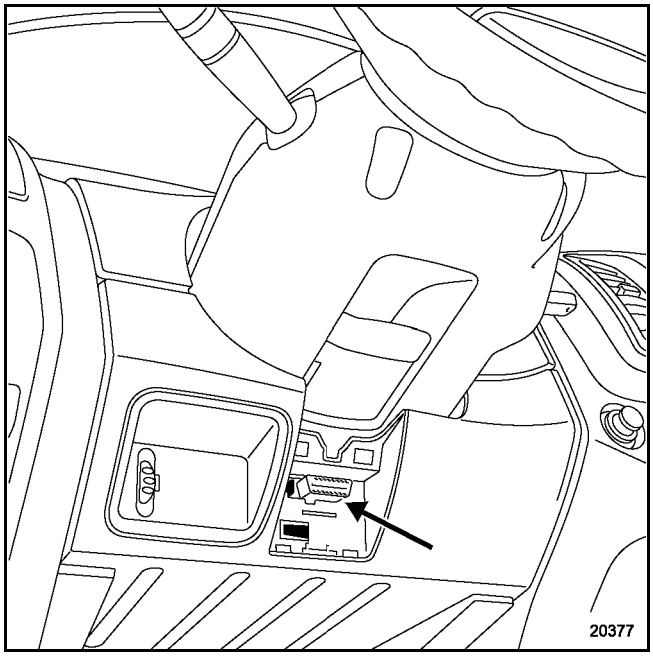
Poor satellite reception



WARNING: handling pyrotechnic systems (air bags and pretensioners) close to a source of heat or a flame is prohibited: there is a risk of triggering.

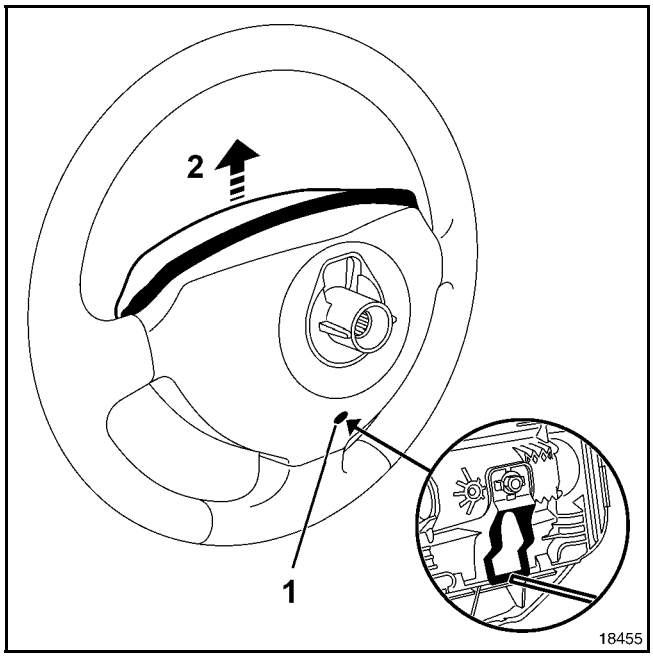
IMPORTANT: before removing an air bag cushion, lock the computer using the diagnostic tool.

NOTE: The diagnostic socket is located under the steering wheel.



REMOVAL

Remove the steering wheel air bag. To do this, insert a screwdriver into hole (1) then move it upwards (2).

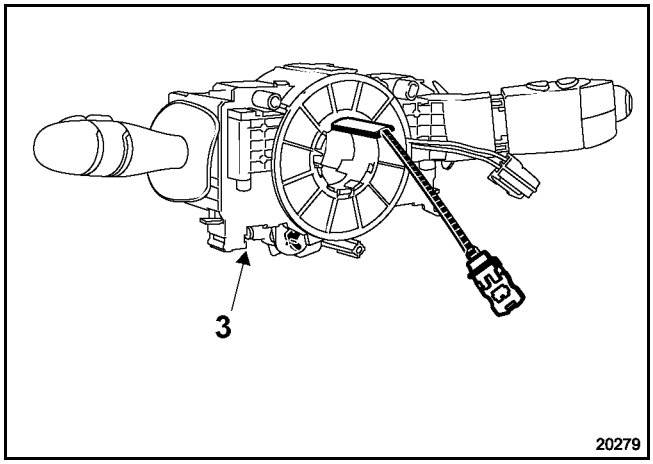


Disconnect the air bag connector.

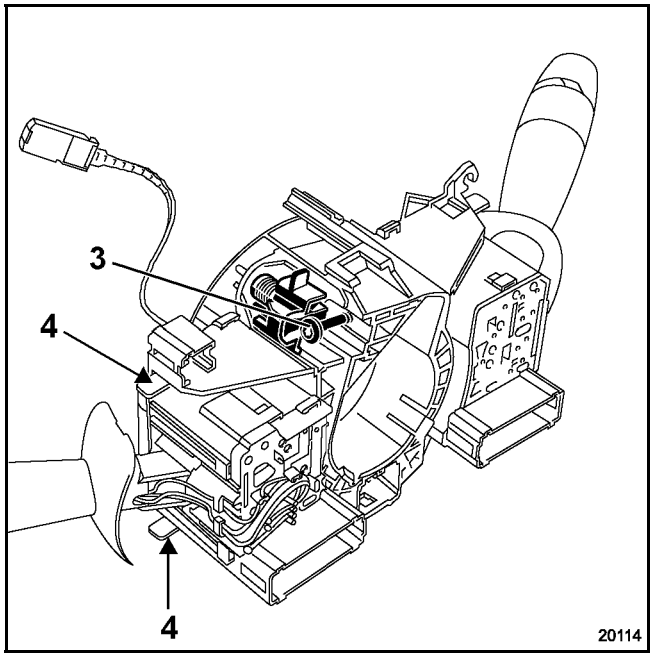
WARNING: it is essential to mark the position of the rotary switch and ensure that the wheels are straight when removing it, so that the strip is centred.

Remove:
– the steering wheel bolt,
– the steering wheel,
– the half cowlings.

Disconnect the stalks (wiper, radio and lighting control) and the rotary switch connector (air bag).



Undo bolt (3) then release the steering column assembly.

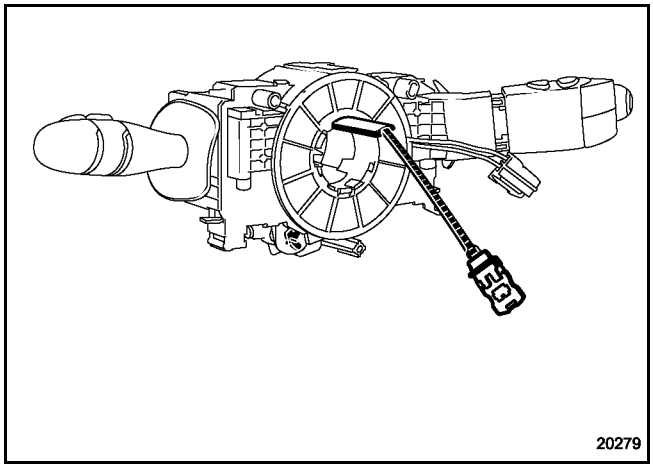


Remove the stalks by pressing on the tabs (4).

REFITTING

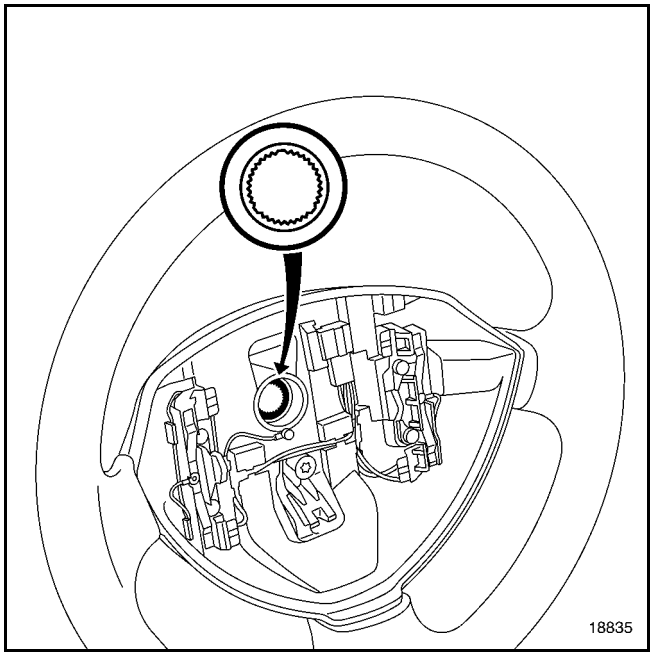
Check that the wheels are straight, tighten the rotary switch mounting bolt.

Reconnect the connectors.



Special notes on the steering wheel

IMPORTANT: the splines on the steering wheel have foolproofing devices. The steering wheel should be inserted freely into the splines. Be careful not to damage them.



It is essential to replace the steering wheel bolt each time it is removed and to tighten it to a torque of **4.4 daNm**.

Special notes on the air bag

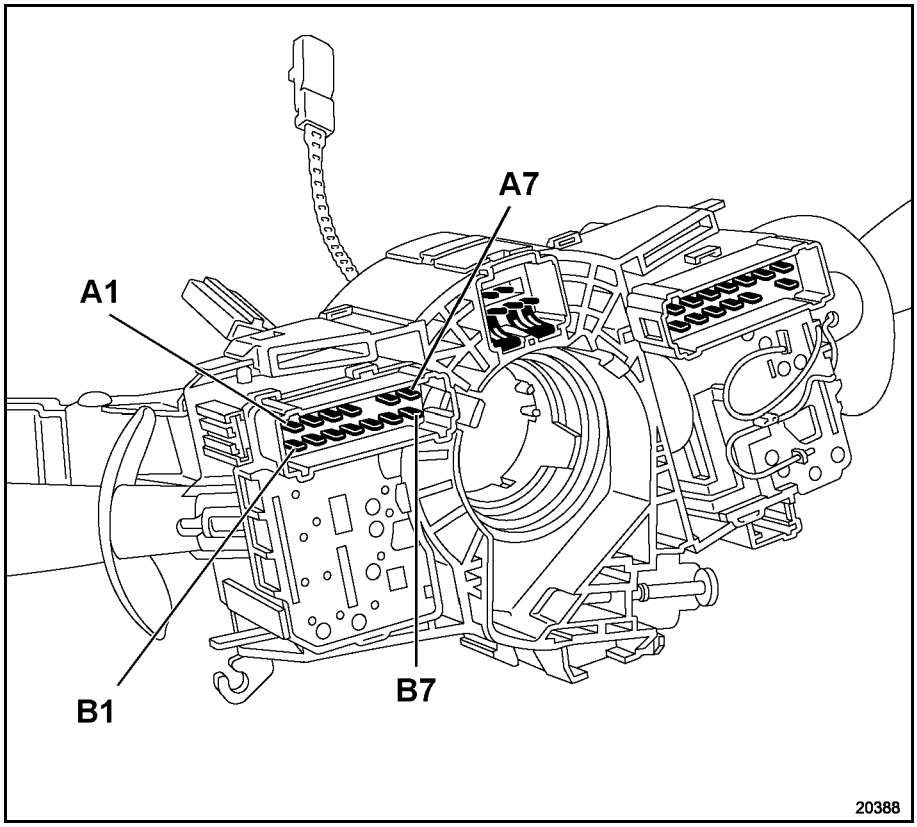
Put the switch in place and lock it.

Position the cushion on the steering wheel.

Slide it backwards in order to clip it in place.

IMPORTANT: After refitting everything, carry out a check using the diagnostic tool. If everything is correct, unlock the computer or see the Fault finding section.

CONNECTION (fullest version)

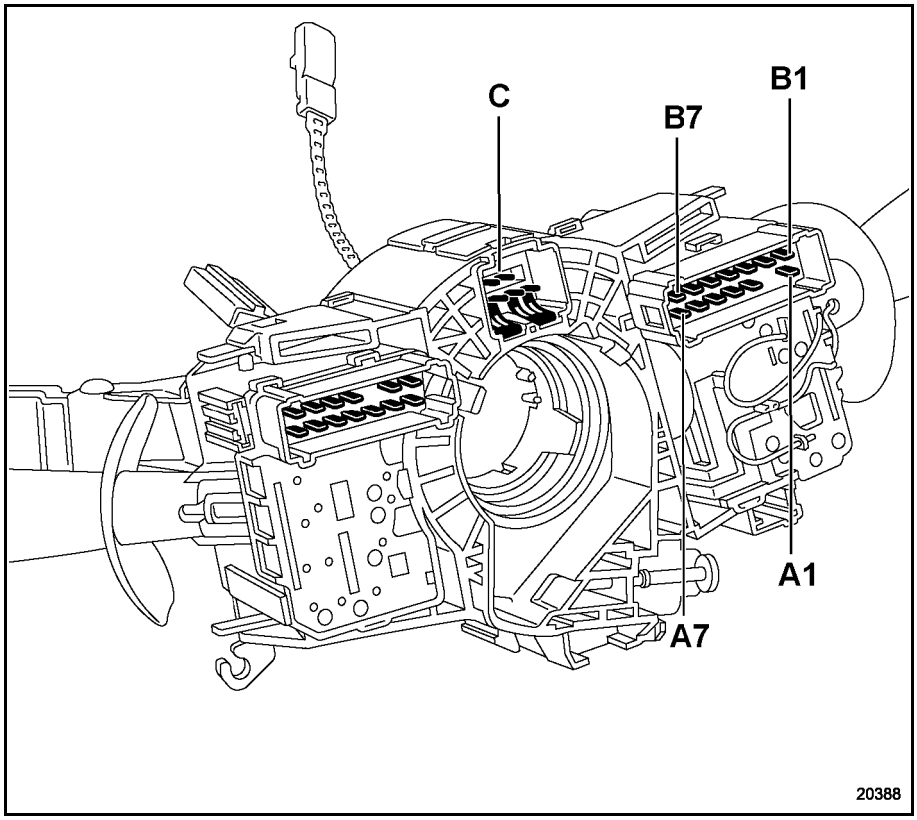


Track	Description
A1	Windscreen wiper timer control
A2	Windscreen wiper high-speed control
A3	Windscreen wiper low-speed control
A4	Windscreen washer pump control
A5	Not used
A6	Windscreen wiper park position
A7	+ After ignition
B1	Rear screen washer pump control
B2	Rear screen wiper control
B3	Rear windscreen wiper park position
B4	+ After ignition
B5	Earth
B6	Not used
B7	Driving assistance scroll button

NOTE: The front and rear screen wiper and washer controls can be checked using an ohmmeter.

Track	Description
A4 / B4	Windscreen washer pump control
A3 / A7	Windscreen wiper low-speed control
A2 / A7	Windscreen wiper high-speed control
A1 / A7	Rear screen wiper intermittent control:
B1 / B4	Rear screen washer pump control
B2 / B4	Rear screen wiper intermittent facility
B5 / B7	Défilement Aide à la conduite

CONNECTION (fullest version)

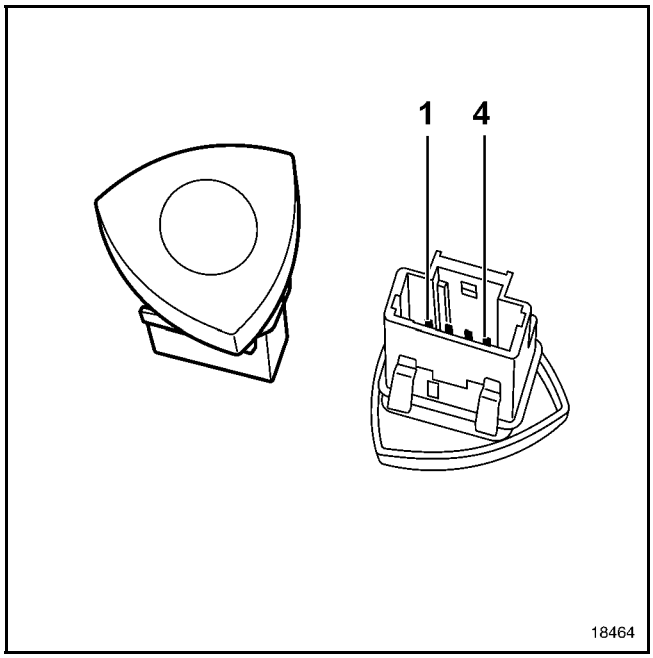


Track	Description
A1	Front fog lights relay supply
A2	Not used
A3	Rear fog light control
A4	Horn control
A5	RH direction indicator control
A6	Earth
A7	LH direction indicator control
B1	Side lights
B2	+ Battery (protected: side lights)
B3	+ Battery (protected: dipped headlights)
B4	Not used
B5	Dipped headlights
B6	+ Battery (protected: main beam headlights)
B7	Headlight main beam

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

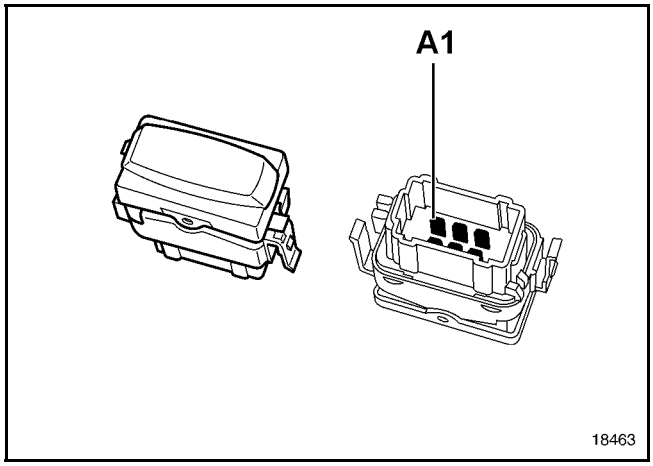
Tracks (closed circuit)	Description
A6 / A7	LH direction indicator control
A5 / A6	RH direction indicator control
B1 / B2	Side lights control
B3 / B5	Dipped headlights control
B6 / B7	Main beam headlights control (permanent or flash)
A1 / B3	Fog light control (front)
A3 / B3	Rear fog light control

Track	Description
1	Not used
2	Earth
3	Flasher timer (+ before ignition feed)
4	Timed flasher



Checks with multimeter

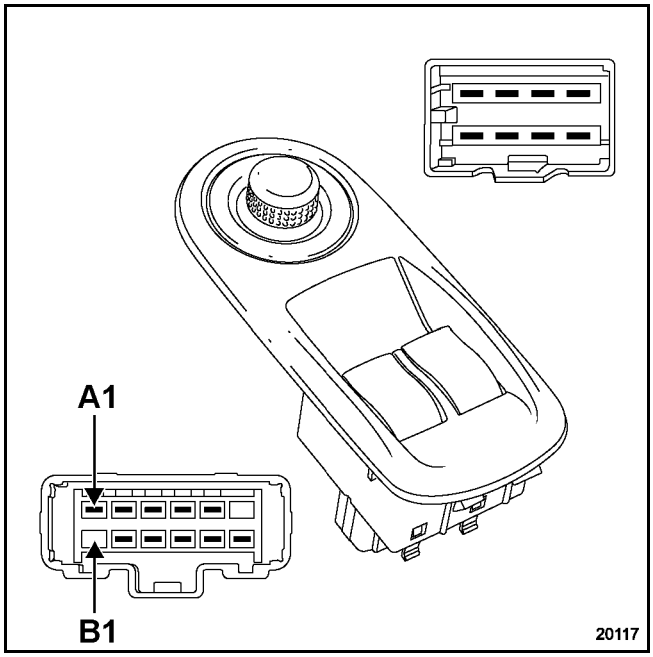
Track	Description	Value
2 and 3	Hazard warning lights off	Infinite resistance
2 and 3	Hazard warning lights on	**0 ohms**



Track	Description
A1	+ After ignition
A2	Earth
A3	Locking
B1	Unlocking
B2	+ Before ignition
B3	Warning light supply

Checks with multimeter

Track	Description	Value
A1 / A2	Lighting switch	**30 ohms**
A2 / A3	Locking	**0 ohms**
A2 / B1	Unlocking	**0 ohms**



NOTE: The tests and connections for the electric windows are the same for left-hand drive and right-hand drive.

Driver's one-touch window

- **Driver's window control**
  (check the resistance using an ohmmeter).

ACTIONS	Track	
	A4 / B4	B5 / B4
None	α	α
Basic opening	0	α
One-touch opening	0*	0**
Basic closing	α	0
One-touch closing	0**	0*

NOTE: * = 1st position
** = 2nd position

- **Passenger window control**

ACTIONS	Track			
	A1/A2	B3/A2	A1/B4	B3/B4
None	0	0	α	α
Passenger opening	α	0	0	α
Passenger closing	0	α	α	0

CONNECTION

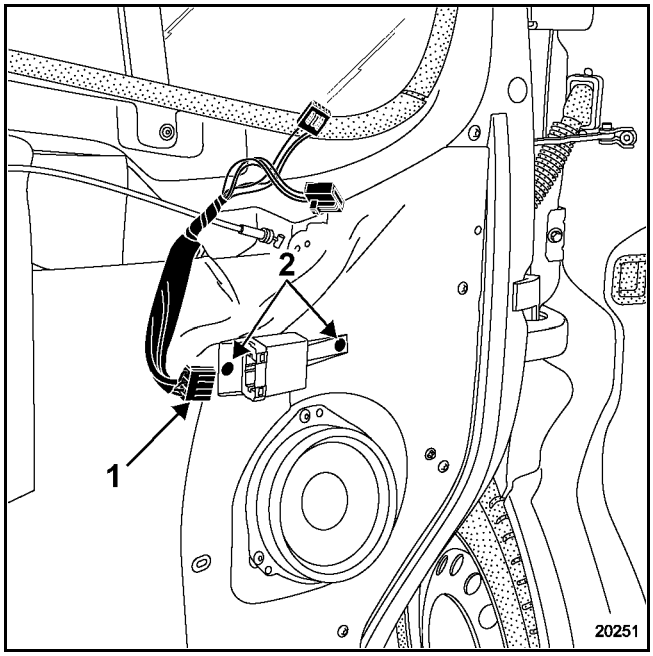
Track	Description
A1	Passenger side electric window control
A2	+ Before ignition
A3	+ After ignition
A4	Driver's side electric window control
A5	Not used
A6	Not used
B1	Not used
B2	Not used
B3	Passenger side electric window control
B4	Earth
B5	Driver's side electric window control
B6	Not used

REMOVAL

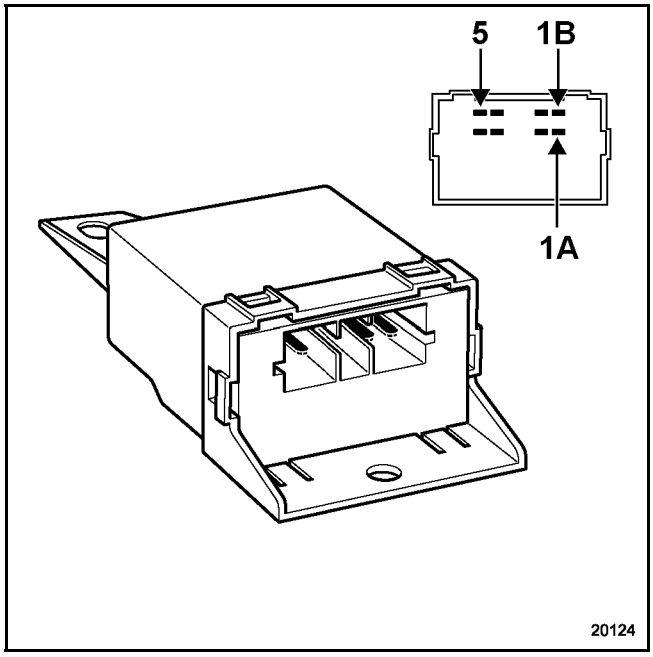
Remove the lining from the driver's door.
(See **Bodywork** section).

Disconnect connector (1) on the one-touch window unit.

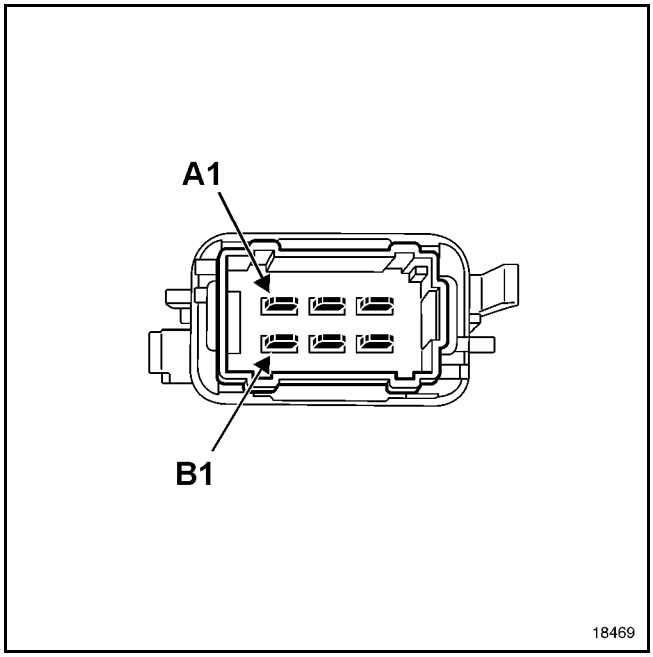
Remove the two mounting bolts (2).



CONNECTION



Track	Description
A1	Driver's side electric window control (raise)
A2	+ After ignition
A3	Not used
A4	Not used
A5	Driver's side electric window control (lower)
B1	Earth
B2	Driver's window riser motor
B3	Not used
B4	Not used
B5	Driver's window riser motor



NOTE: The tests and connections for the electric windows are the same for left-hand drive and right-hand drive.

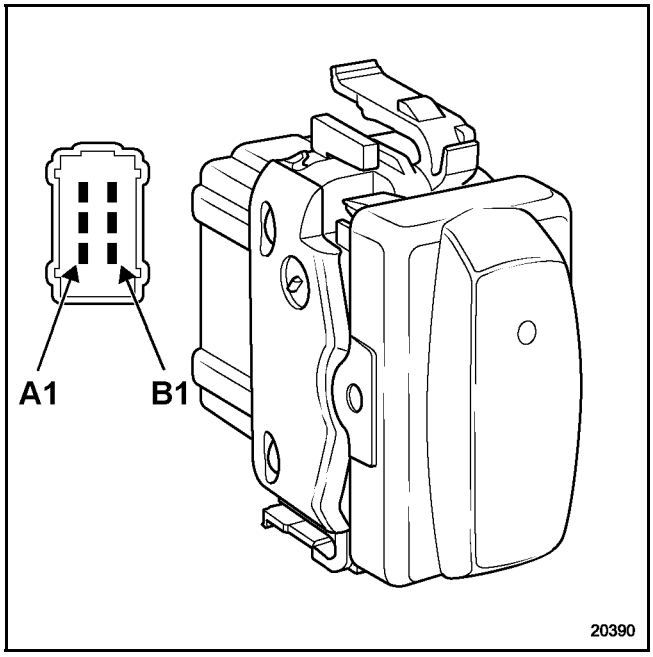
Passenger electric window switch
(check the resistance using an ohmmeter).

ACTIONS	Track			
	A1/A3	B2/B1	B1/A2	A2/A3
None	0	0	α	α
Closing	0	α	0	α
Opening	α	0	α	0

CONNECTION

Track	Description
A1	Connection with driver's switch (**A1**)
A2	Earth
A3	Passenger side electric window control
B1	Passenger side electric window control
B2	Connection with driver's switch (**B3**)
B3	+ After ignition

HEATED REAR SCREEN SWITCH

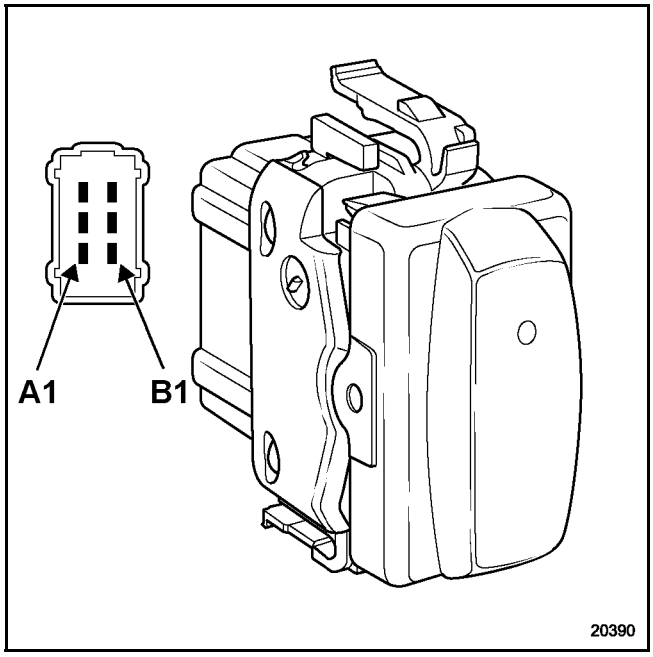


Track	Description
A1	+ After ignition
A2	Not used
A3	Ignition warning light
B1	Heated rear screen switch
B2	Earth
B3	Not used

OPERATION (check the resistance using a multimeter)

Action	Track B1/B2
Pause	α
Pressed	0

ELECTRICALLY HEATED WINDSCREEN SWITCH



Track	Description
A1	+ After ignition
A2	Not used
A3	Ignition warning light
B1	Heated windscreen control
B2	Earth
B3	Not used

OPERATION (check the resistance using an ohmmeter)

Action	Track A1/B1
Pause	α
Pressed	0

OPERATION

Each vehicle has a different door locking system appropriate to the equipment level fitted.
- **basic locking version**
- **deadlocking version**

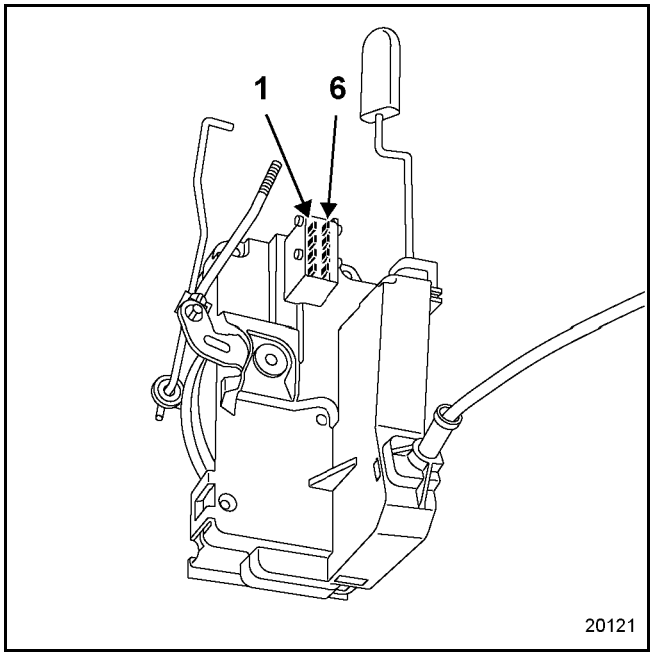
Deadlocking (in some countries) enables the door handles on the inside to be deactivated. This function can be used to prevent the door being opened from the inside if the window is smashed.

NOTE: vehicles fitted with UCH model (**N3**) include an alarm fitted as standard.

OPERATION (most comprehensive version)

Press the remote control		Result on locks	Operation of direction indicators	Operation of horn
Locking	1 short press	locking of opening elements + alarm	2 flashes	-
	1 long press	Opening elements locking + alarm + spatial protection	2 flashes	1 signal
	2nd short press	deadlocking of the opening elements	5 flashes	
	2nd long press	opening element deadlocking + alarm + spatial protection	5 flashes	1 signal
Unlocking	1 short or long press	unlocking of the opening elements	1 flash	

CONNECTION (passenger door)



Track	Unlocking	Locking	Deadlocking*
8	+	-	-
3	+	-	-
9	-	-	+
4	-	-	+
10	-	+	+
5	-	+	+

* Deadlock version only.

CONNECTION (side doors)

Track	Unlocking	Locking	Deadlocking*
1	-	+	+
2	+	-	-
3	-	-	+

* Deadlock version only.

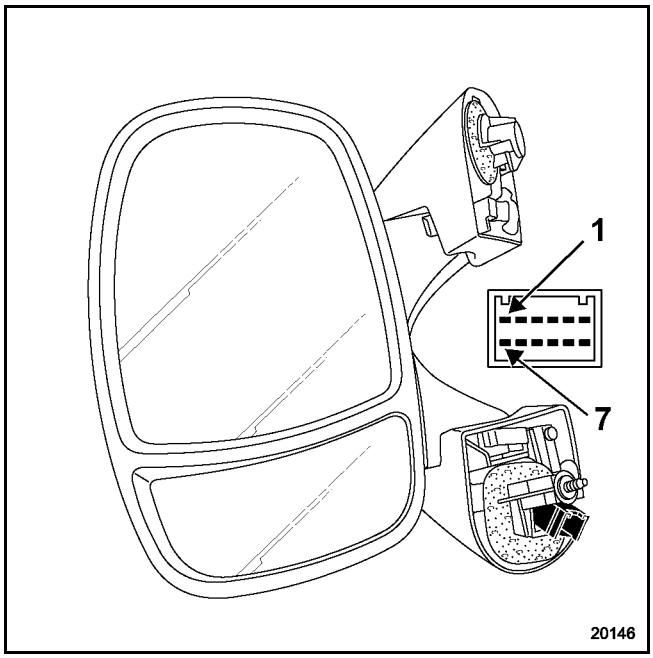
NOTE: the fuel filler flap and tailgate motors have two wires. The UCH controls their locking and unlocking.

TIGHTENING TORQUES (in daNm)	
Door mirror mounting bolts	0.8

EXTERIOR REAR-VIEW MIRRORS

The components of the electric door mirrors are:
- two motors for adjustment (vertical and horizontal),
- an external temperature gauge on the passenger side,
- a heating system (according to model).

NOTE: The door trim does not need to be removed to remove the door mirrors.



CONNECTION (most comprehensive version)

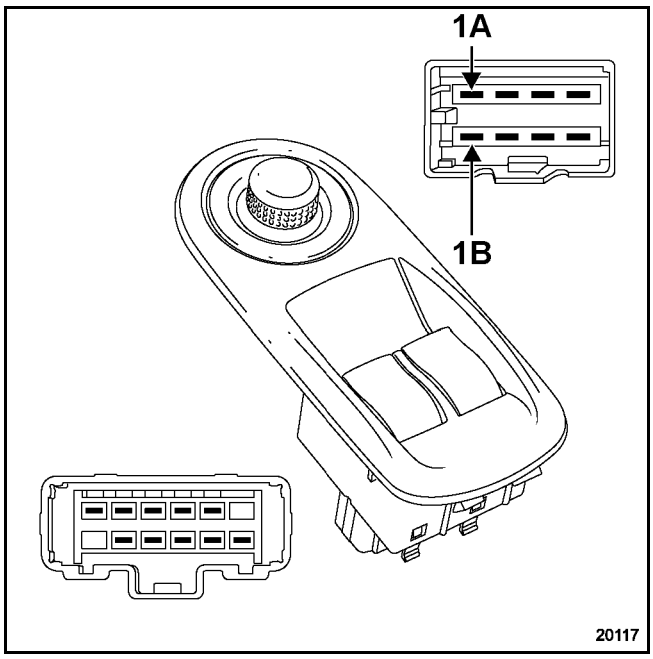
Track	Description
1	Door mirror demisting
2	Door mirror demisting
3	Not used
4	Temperature sensor
5	Temperature sensor
6	Horizontal adjustment motor
7	Motor common line
8	Vertical adjustment motor

The resistance of the demisting system is approximately **13** Ω.

The exterior temperature sensor resistance should be **2,500** Ω at approximately **20** °**C**.

NOTE: the door mirror and the rear screen heating is switched on by the same switch.

DOOR MIRROR CONTROLS



CONNECTION

Track	Description
A1	Left/right control for the driver's door mirror
A2	+ Before ignition
A3	Up/down control for the driver's door mirror
A4	Not used
B1	Left/right control for the passenger door mirror
B2	Up/down control for the passenger door mirror
B3	Earth
B4	Shared motor

Left-hand door mirror

Functions		Track
Step-up	▲	**A3/B3 B4/A2**
Step-down	▼	**A3/A2 B4/B3**
Left	◀	**B4/B3 A1/A2**
Right	▶	**B4/A2 A1/B3**

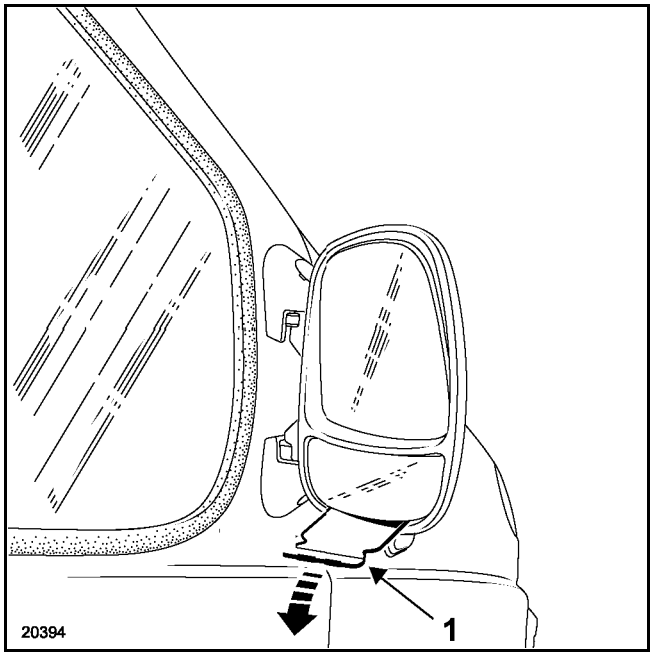
Right-hand door mirror

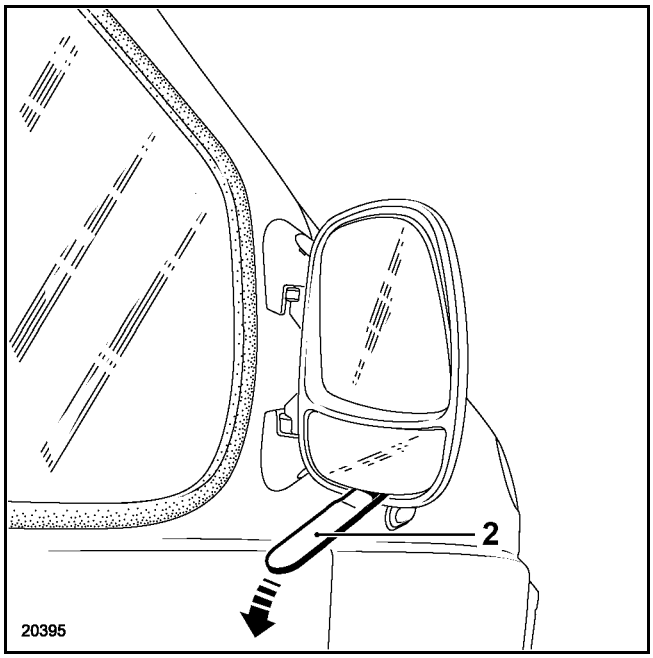
Functions		Track
Step-up	▲	**B2/B3 B4/A2**
Step-down	▼	**B2/A2 B4/B3**
Left	◀	**B4/B3 B1/A2**
Right	▶	**B1/B3 B4/A2**

The temperature gauge is located in the passenger side door mirror (depending on the version).

REMOVAL

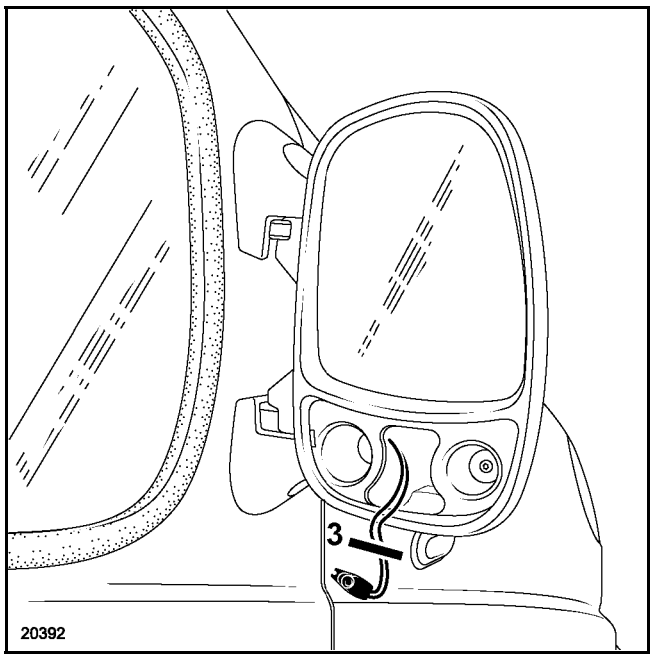
Take off the lower reflective glass from the door mirror using a mastic knife (1) then finish removing it with tool (2) **Car. 1363**.





NOTE: the lower reflective glass is made of tough plastic.

Unclip the temperature gauge and cut wires (3) to about four centimetres.



REFITTING

Rejoin the two temperature sensor wires using heat-shrink sleeves.

Fix the glass in place again with double sided tape.

NOTE: The external temperature sensor resistance should be approximately **2500** Ω at **20** °**C**.

SPECIAL TOOLING REQUIRED	
Ele. 1294-01	Windscreen wiper arm removing tool

Operating notes

The wiper control settings controlled by the UCH relate only to the timed and intermittent modes (washer pump activation).

The continuous low speed and continuous high speed settings are not handled by the UCH, but rather directly by the wiper stalk.

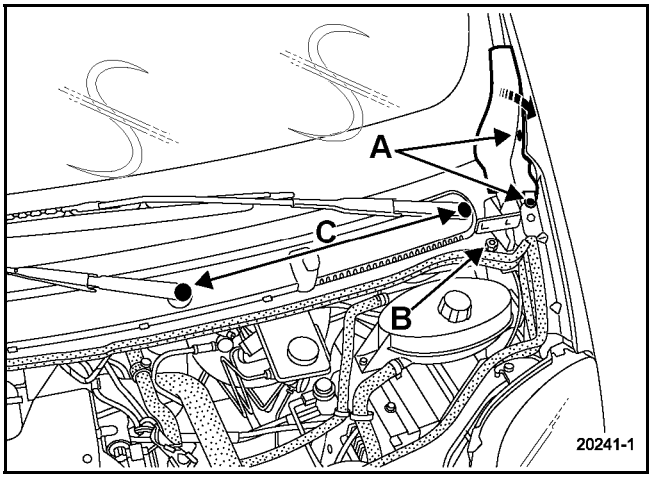
REMOVAL

Check that the wiper motor is in the park position.

NOTE: it is not necessary to remove the bonnet.

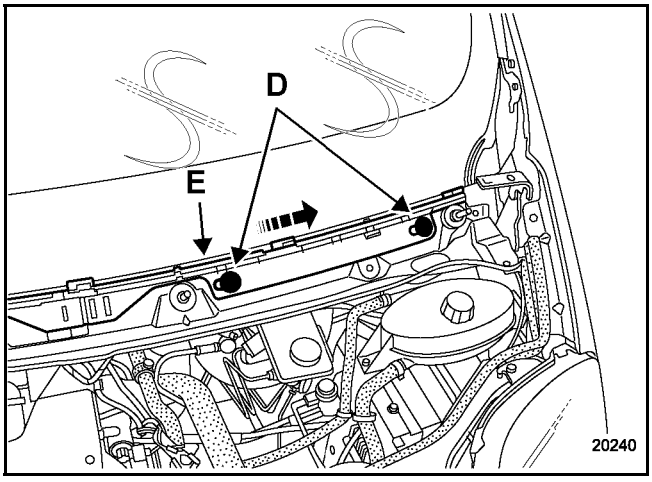
Disconnect:
- the battery,
- the motor connector.

Remove:
- the right and left wiper arms, using the special tool **Elé. 1294-01**,
- the plenum chamber seal,
- the scuttle panel grille side trims attached with clips (A),
- the scuttle panel grille attached with clips (B),
- the sealing rings (C),
- the water drainage pipes, from each end of the plenum chamber,
- the screen washer pipe.

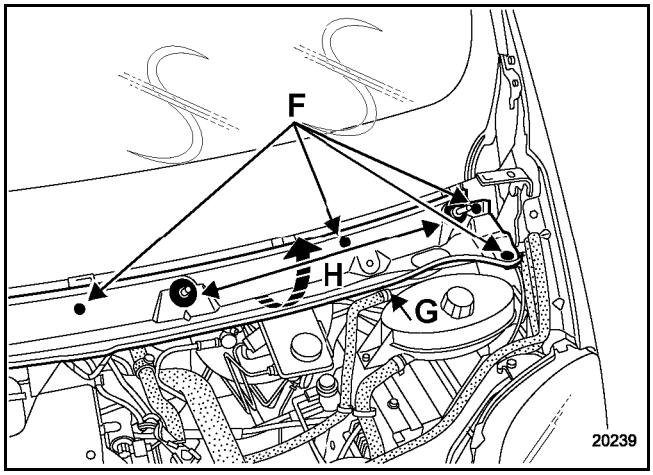


Take off the scuttle panel grille.

Remove:
- the clips (D),
- the mounting rail (E) from the scuttle panel grille (by sliding it out),



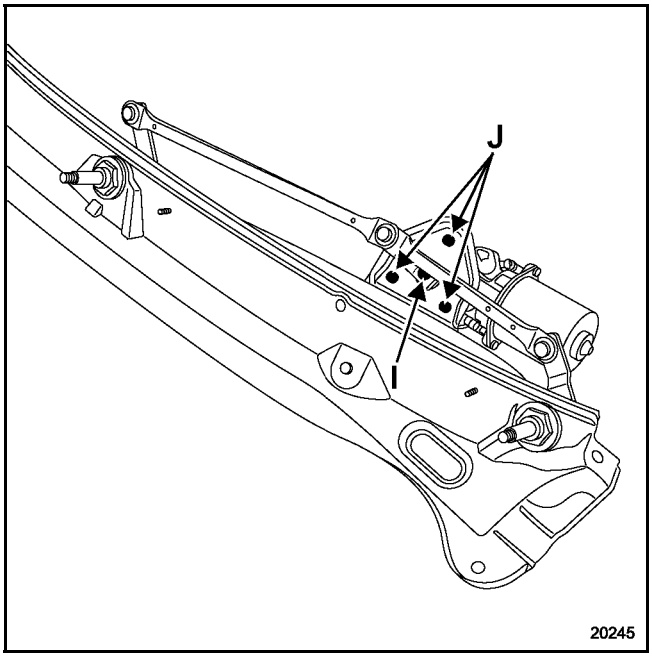
- the plenum chamber mounting bolts (F),
- the wiper mechanism mounting bolt (G),
- the bolt connecting the plenum chamber to the air inlet unit,
- the sealing rings (H).



Release the plenum chamber/wiper motor mechanism assembly.

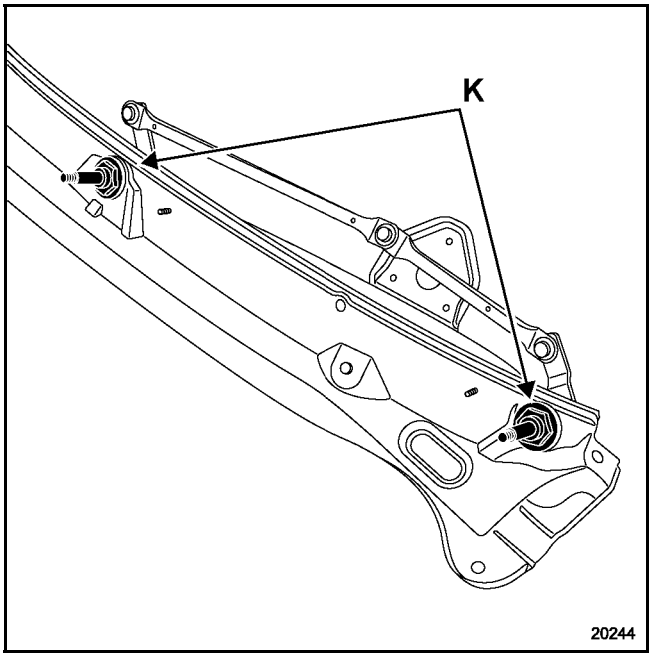
REMOVING THE MOTOR

Remove:
- the motor/mechanism connection tie-rods,
- the motor shaft nut (I) and release the tie-rod,
- the motor mounting bolts (J).



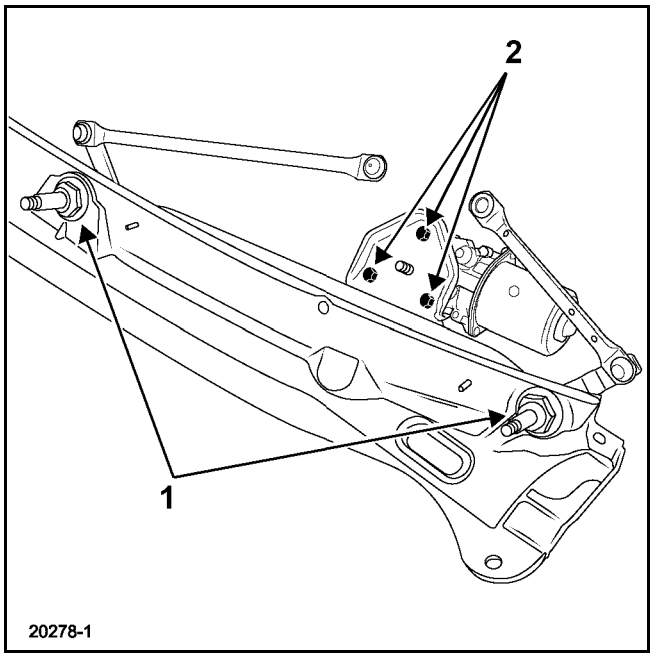
REMOVAL OF THE WIPER MECHANISM

Remove the two nuts (K) that secure the mechanism.



REFITTING

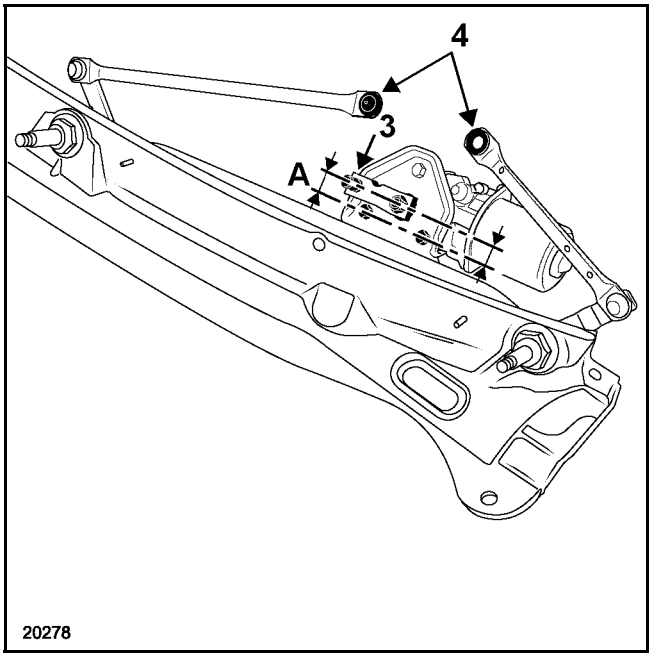
Refit:
- the nuts (1) that attach the mechanism to the plenum chamber (tightening torque: **0.8 daNm**),
- the wiper motor, tightening the mounting bolts (2) to the torque (**0.8 daNm**),



WARNING: before refitting the tie-rod (3), it is essential to ensure that the wiper motor is in the park position.

- the connection tie-rods (4).
- the tie-rod (3) on the wiper motor by placing it parallel to the axis (A), facing the passenger side (tightening torque **2.1 daNm**),

NOTE: for right-hand drive vehicles, the tie-rod (3) must face the opposite direction to the illustration.



Fit the assembly (plenum chamber, mechanism, wiper motor) on the vehicle.

Attach:
- the plenum chamber,
- the bolt connecting the air inlet unit to the plenum chamber,
- the scuttle panel grille mounting rail,
- the sealing rings (H),
- the water drainage pipes,
- the screen washer pipe,
- the scuttle panel grille,
- the sealing rings (C),
- the scuttle panel grille side trims,
- the plenum chamber seal.

Reconnect:
- the wiper motor connector,
- the battery.

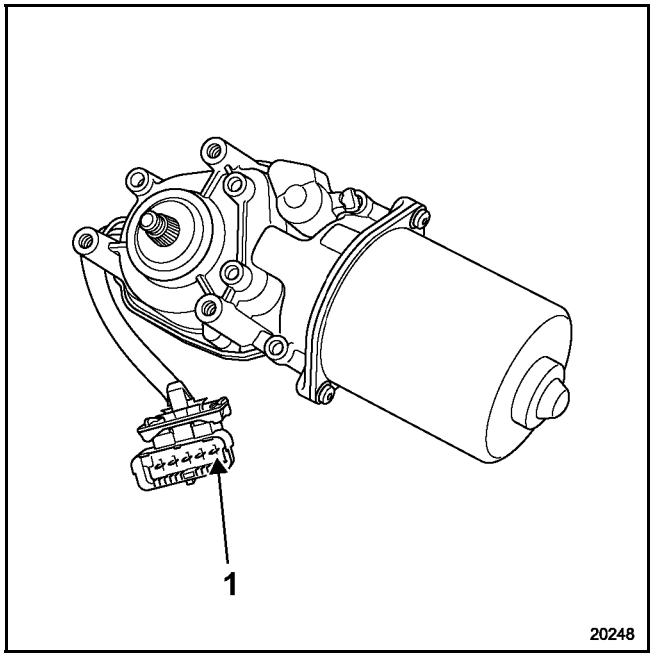
Switch on the ignition to set the motor in park position.

Clean the wiper arm shaft splines.

Fit the wiper arms with new nuts and tighten them to a torque of **2.1 daNm**.

CONNECTOR ALLOCATIONS

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

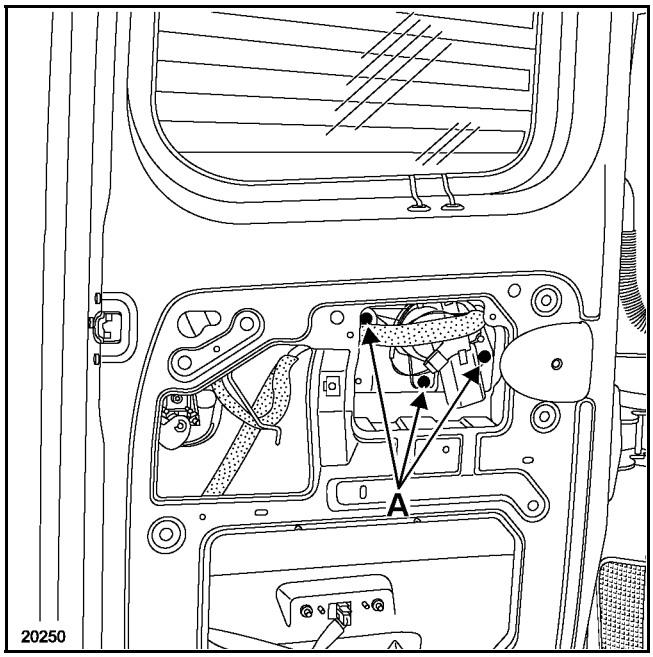


Track	Description
1	Park position
2	+ After ignition
3	Intermittent or low speed supply
4	High speed
5	Earth

The procedure and connection of the motors is the same for both hinged door and tailgate versions.

SPECIAL TOOLING REQUIRED	
Ele. 1294-01	Windscreen wiper arm removing tool

TIGHTENING TORQUES (in daNm)	▽
Wiper mechanism bolt	**0.8**
Wiper arm	**1.2**



REMOVAL

Check that the wiper motor is in the park position.

Disconnect the battery.

Remove:
– the wiper arms,
– the trim panel.

Disconnect the supply connector from the wiper motor.

Remove the three motor mounting bolts (A).

REFITTING

Adhere to the wiper motor tightening torques (**0.8 daNm**).

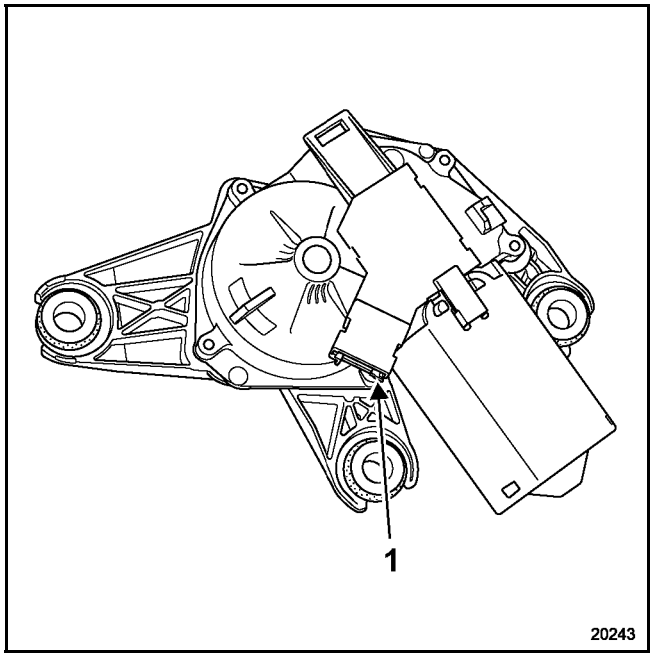
Reconnect:
- the supply connector,
- the battery, after having refitted the motor to set it in park position.

Clean the wiper arm shaft splines.

Fit a new bolt and tighten it to a torque of **1.2 daNm**.

MOTOR CONNECTION

The connection of the motors is the same for both hinged door and tailgate versions.



Track	Description
1	Wiper control
2	Park position
3	Earth

Depending on the vehicle's equipment, a basic electric pump may be fitted for the windscreen washer alone, or a bi-directional pump to supply liquid from the same tank to both front and rear windscreen washers with an electrical supply from two connector tracks.

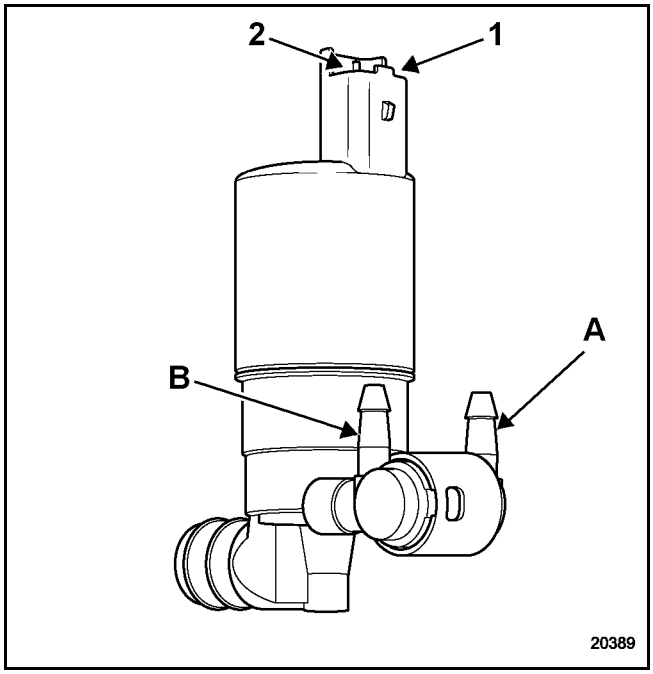
There are two scenarios:

Track	Description
1	Earth
2	**+ 12 volts**

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

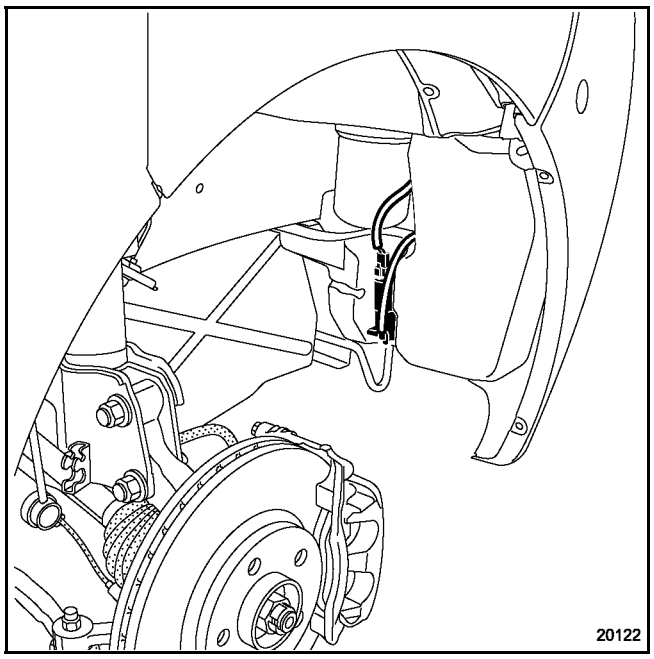
Track	Description
1	**+ 12 volts**
2	Earth

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

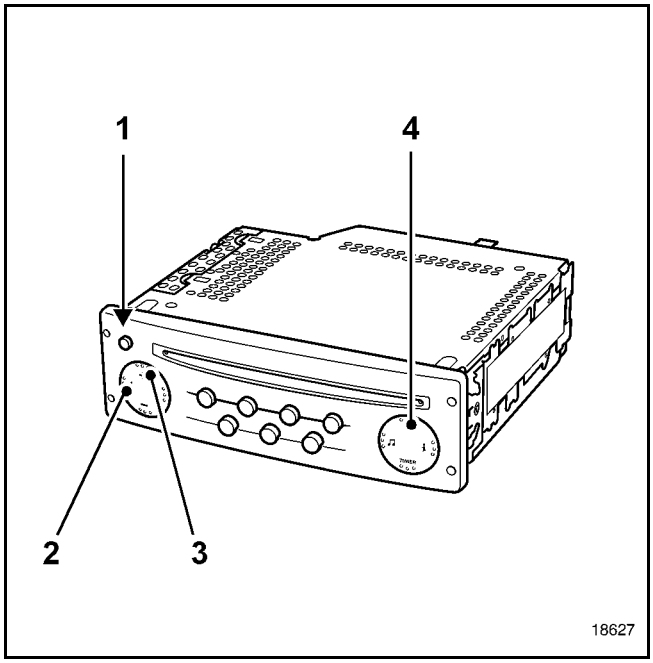


REMOVAL - REFITTING

To reach the washer pump it is necessary to remove:
- the front right wheel,
- the wheel arch liner.



When removing the washer pump (bi-directional), mark the two pipes before disconnecting them.



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

Four versions of radio may be fitted:
- radio + cassette with or without display,
- integrated radio + single or multi CD player with or without integrated display.

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

Radio operation

REMINDER:
Four geographical zones can be programmed in **FM**.

The Tuner has three selection modes visible on the screen and accessible from the panel:
– manual mode (**MANU**),
– preselected mode (**PRESET**),
– alphabetical order mode (**LIST**).

Cassette player operation

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

NOTE:
Only the Dolby fast forward and rewind with search controls can be selected by specific buttons.

NOTE:
The voice synthesiser or the car phone Mute function will stop the cassette playing.

CD function (SINGLE CD)

The **CD** player can play conventional **discs** and any audio tracks on a **CD-ROM**.

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

NOTE:
Random play from a single disc only is possible when a **CD** changer is being used.

Heat protection

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

Code protection

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

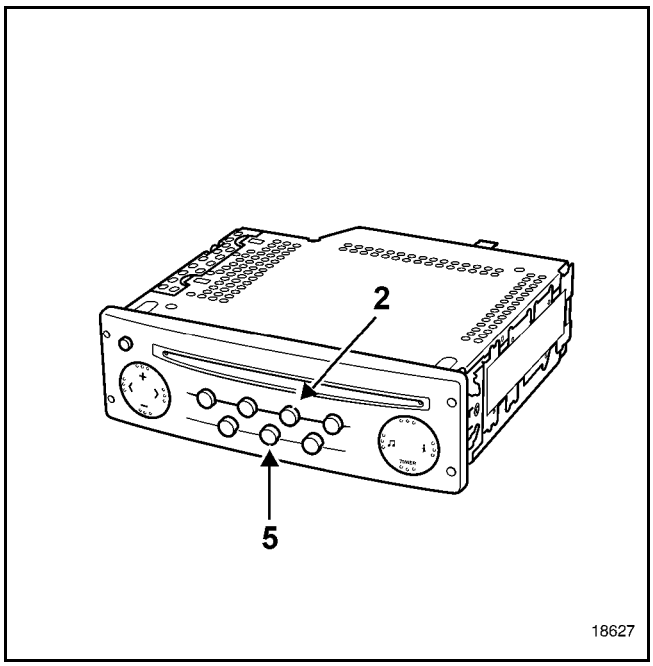
Entering the code with the control on the steering wheel:
press the bottom button on the control to confirm an entry.

Input using the car radio keypad:
to confirm a number, press the next button on the keypad (see the driver's handbook).

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

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

NOTE:
The code can be scrambled by pressing buttons **2** and **5**, at the same time as the equipment is switched on. Wait two minutes.



Configuration

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

- Select the relevant zone:
  - America
  - Japan
  - Asia
  - Arabia
  - Others (Europe, Africa, etc.)
- select the tone curve appropriate for the vehicle
  - 0: no regulation
- configuration of number of speakers **REAR ON/OFF**

NOTE:
These configurations are not required when the secret code is entered after the power supply has been cut.

Expert mode

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

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

NOTE:
Pressing the source button once when entering the configurations cancels the changes.

Volume control

The volume can be configured in relation to the car speed. To operate this function:
select the desired volume control by using the **expert** mode, (press and hold the **source** button until you hear a beep): **5** for maximum change, **0** for no change.

NOTE:
Ensure this function is fully operational by checking that the radio is correctly wired.

NOTE:
The radio is equipped with tone modification according to the vehicle. Refer to the **Configuration** section to change vehicle type.

Self-test mode

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

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

- **testing the reception level (after display of the frequency)**
The display shows the radio reception information if you press buttons **1** and **6** simultaneously:
  - 9 or letter: good reception
  - if 3: poor signal
  - If 2: no stereo

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

Connector allocations

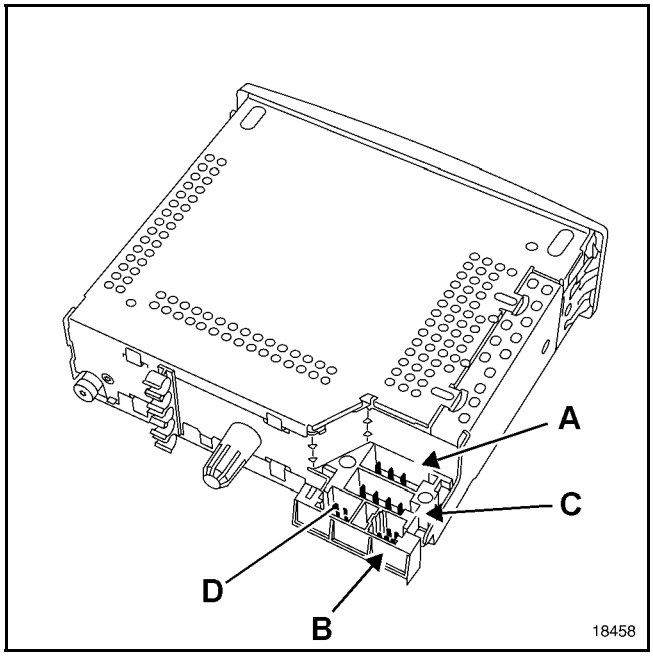
Black connector (A)

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

Yellow connector (B)

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

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



Brown connector (C)

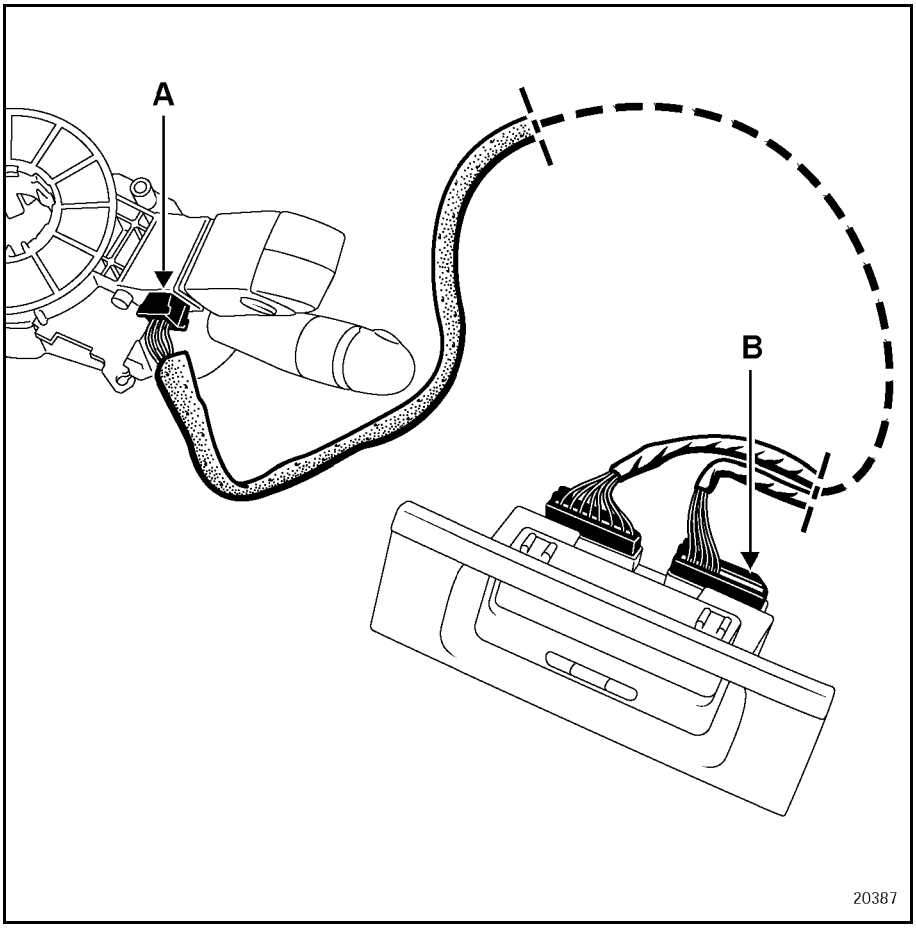
Track	Description
1	+ Rear right speaker
2	- Rear right speaker
3	+ Rear right speaker
4	- Rear right speaker
5	+ Front left speaker
6	- Front left speaker
7	+ Front left speaker
8	- Front left speaker

NOTE:
The speakers are connected in parallel on each output.

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

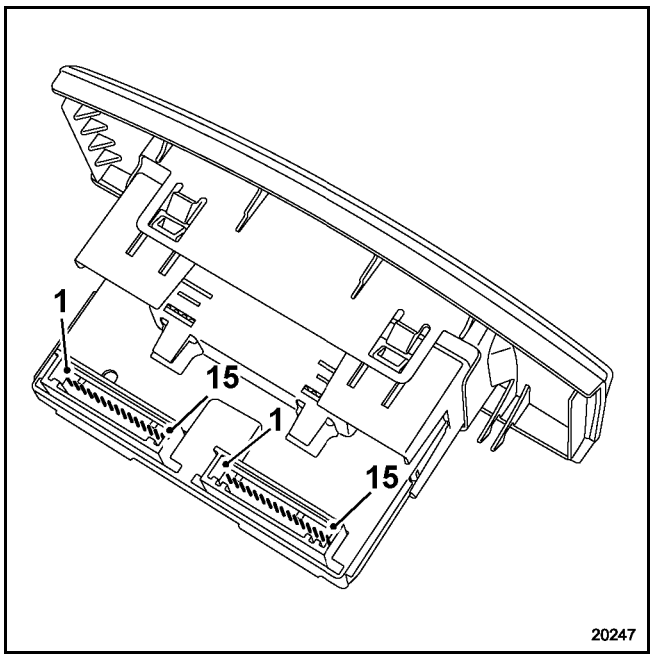
CONNECTION

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



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

TRACK ALLOCATION



Red 15-track connector

Track	Description
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Not used
9	Radio control connection (track B**1**)
10	Radio control connection (track A**3**)
11	Radio control connection (track B**2**)
12	Radio control connection (track B**3**)
13	Radio control connection (track A**2**)
14	Radio control connection (track A**1**)
15	Not used

15-track grey connector

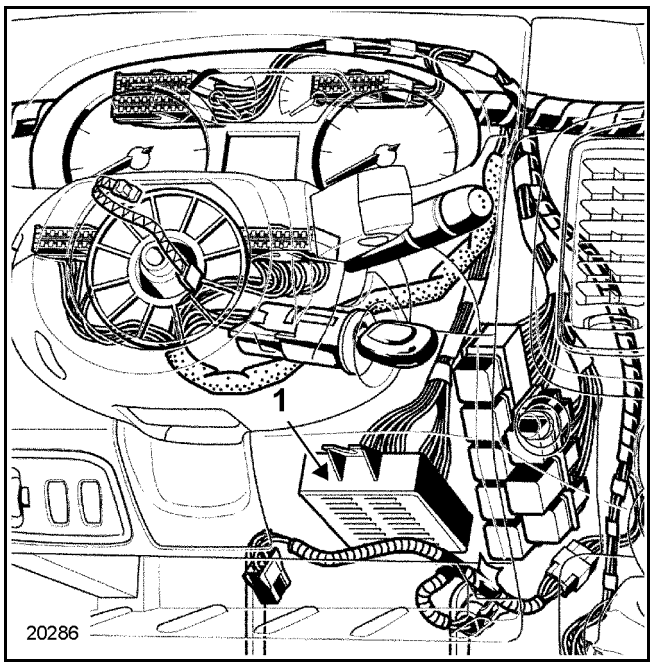
Track	Description
1	External temperature
2	External temperature
3	Not used
4	Not used
5	Earth
6	Lighting
7	Light supply
8	+ accessories
9	+ battery
10	External temperature output
11	Earth (radio **track 6**)
12	Radio on signal (radio **track 5**)
13	Radio connection (**Track 1**)
14	Radio connection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

LOCATION

The UCH (1) is located close to the steering column under the instrument panel.

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

There are three UCH models, depending on the level of equipment installed in the car:
- Version N1 **standard**
- Version N2 **top of the range**
- Version N3 **with alarm function**



REMOVAL

IMPORTANT:
The pyrotechnic systems (pretensioners or airbags) must not be handled near to a heat source or flame - they may be triggered.

IMPORTANT:
Before removing a driver's front airbag module, lock the computer. When this function is activated all the ignition lines are inhibited and the airbag warning light on the instrument panel illuminated when the ignition is switched on.

Disconnect the battery.

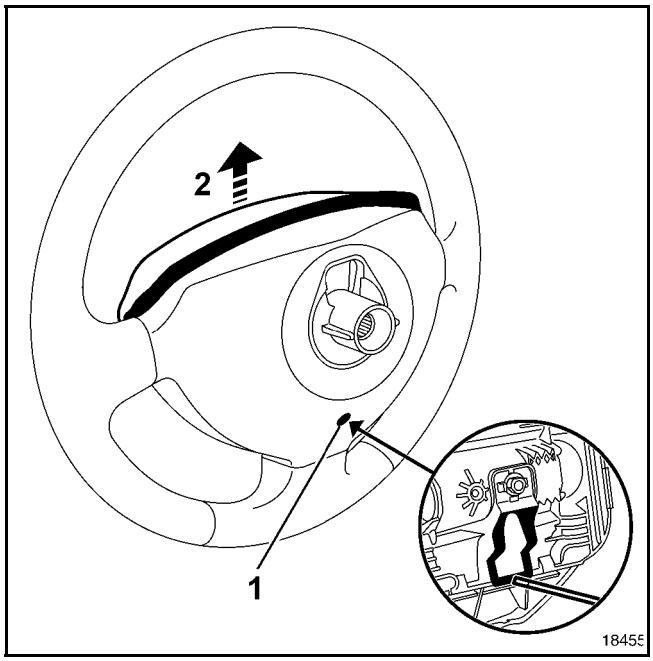
Insert a **6 mm diameter** rod into the opening (1) behind the steering wheel.

Lift (2) the driver's airbag in order to slide it.

Unclip the connector safety clip.

Disconnect the generator supply connector.

Remove the driver's airbag.



Disconnect the supply connector from the horn.

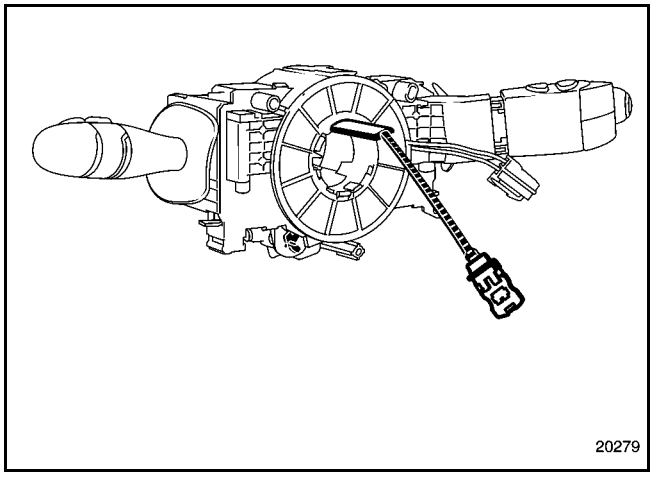
IMPORTANT:
It is essential to mark the position of the rotary switch and ensure that the wheels are straight when removing it, so that the strip is centred.

Remove:
- the steering wheel,
- the steering column casing,
- the instrument panel visor,

Disconnect the connectors from the UCH, then unclip it to remove it from its housing.

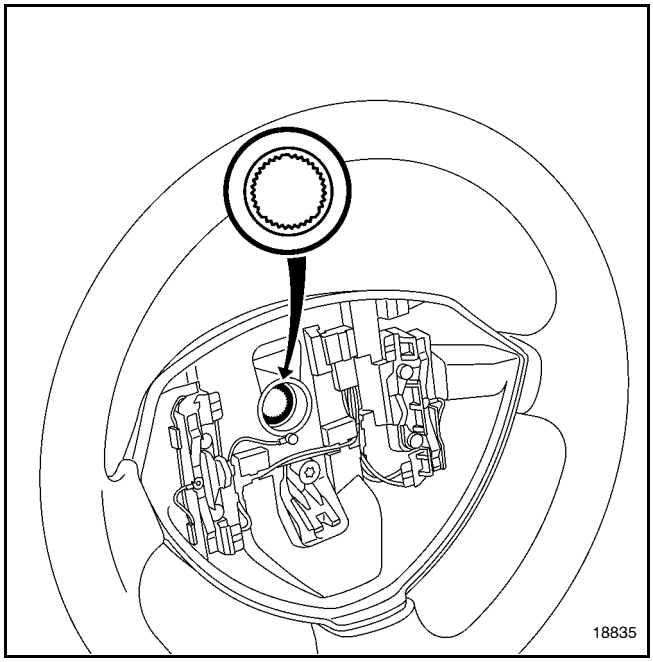
REFITTING

IMPORTANT:
When refitting the steering wheel, it is essential to check that the wheels are straight.



Special notes on the steering wheel

IMPORTANT:
The steering wheel splines are made so that the wheel can be fitted in one position only. **The steering wheel should fit back into the splines easily**. Be careful not to damage them.



It is essential to replace the steering wheel bolt each time it is removed and to tighten it to a torque of **4.4 daNm**.

Special notes on the airbag

Put the connector in place and lock it.

Position the driver's front airbag module on the steering wheel.

Slide it backwards in order to clip it in place.

IMPORTANT:
After refitting everything, carry out a check using the diagnostic tool.
If everything is correct, unlock the computer or see the **"Fault finding"** section.

KEY PROGRAMMING PROCEDURE

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

To perform this procedure, at least one of the vehicle's old keys and the repair code are required and the injection computer must be correctly coded (for more information, see **Section 82**).

IMPORTANT:
If a code is programmed into the UCH, the UCH is assigned to the vehicle and it is impossible to erase the code or program in another one.

IMPORTANT:
The keys submitted during this procedure will only work if:
- they have already been coded on the vehicle,
- or they are new (not coded).

UCH CONFIGURATION PROCEDURE

Using a diagnostic tool:

- Set up a dialogue with the **Connection unit** system,
- In the **Command** menu, **Specific command**, confirm **CF 718 UCH type**,
- The tool displays the message **Warning!,** the first stage of the procedure involves erasing the **UCH** configurations. If the procedure is interrupted after this stage, the computer will be completely deconfigured.

YES or **NO**,

NO exit the programming procedure,

YES the tool displays: **Select configuration type** (type **N1**, **N2** or **N3**).

NOTE:
For the **N2** and **N3** UCH, inverted wiper blades and automatic door locking are configured by default.

Then the tool displays **CONFIGURATION OPTIONS FOR VEHICLE TYPE**

TYPE N2

DEADLOCKING **WITH** or **WITHOUT**,

REPLACEMENT ALARM **WITH** or **WITHOUT**

TYPE N3

DEADLOCKING **WITH** or **WITHOUT**

Then the tool asks you:

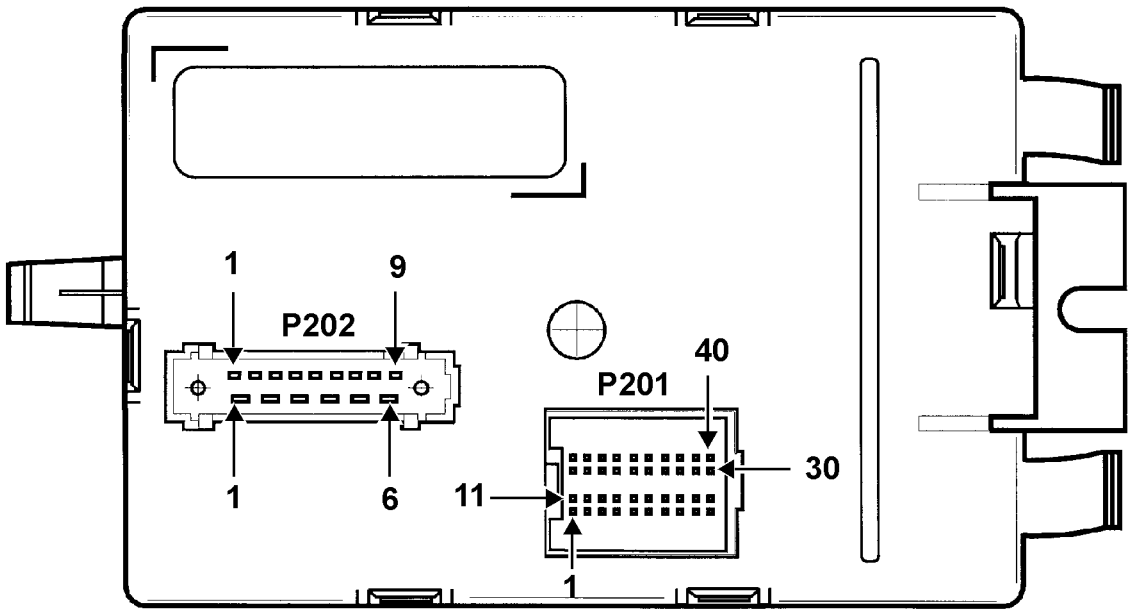
ARE THE CONFIGURATIONS CORRECT?

YES or **NO**

If the answer is **YES**, the following message appears: **The UCH has been configured, check that there is no fault. If there is a fault on a configured option, check that the component in question is present. If the component is present, deal with the fault according to the fault-finding procedures, if it is absent, deconfigure the option in question by restarting configuration of the UCH.**

If the answer is **NO**, restart the procedure.

Allocation of the UCH (most comprehensive).



20282

P201 CONNECTOR (40-TRACK) BROWN

Track	Description
1	+ battery
2	Immobiliser warning light
3	Heated rear screen relay
4	Heated rear screen switch
5	Not in use
6	Right-hand indicator control
7	Left-hand indicator control
8	Multiplex connection H
9	Not in use
10	Multiplex connection L
11	Not in use
12	Door locking warning light
13	Door unlocking control
14	Door locking control
15	Ultrasound alarm sensor
16	Alarm supply
17	Bonnet switch
18	Multiplex connection H
19	Not in use
20	Multiplex connection L

UCH features	Level 1	Level 2	Level 3	See section
Control of indicators and hazard warning lights	X	X	X	-
Timed interior lighting control	X	X	X	-
Dialogue with instrument panel	X	X	X	83
Heated rear screen supply interval	X	X	X	-
Windscreen and rear screen wipers control	X	X	X	85
Multiplex connection interface	X	X	X	88
Opening elements management	-	X	X	-
Door locking warning light	-	X	X	-
Opening elements control (central locking)	-	X	X	84
Radio frequency remote control	-	X	X	82
Interface with fault finding tool	X	X	X	-
Transponder control (engine immobiliser)	X	X	X	82
Accessories relay control/+ after ignition	X	X	X	-
Alarm connection (first fitting)			X	-

P201 CONNECTOR (40-TRACK) GREEN

Track	Description
21	Hazard lights warning light
22	Ignition switch
23	Rear door body flange switches
24	Wiper and windscreeen washer control
25	Timed windscreen wiper control
26	Side lights control
27	Front door body flange switches
28	Not in use
29	Not in use
30	Not in use
31	Not in use
32	Not used
33	+ after ignition feed
34	Not in use
35	Not in use
36	Hazard warning lights switch
37	Airbag connection
38	Not in use
39	Not in use
40	Fault finding line

P202 CONNECTOR (15-TRACK) BROWN

Track	Description
1	Front courtesy light
2	Rear courtesy light
3	Right-hand direction indicator
4	Left-hand direction indicator
5	Door unlocking
6	Door locking
7	+ lighting
8	+ door locking
9	Door unlocking

P202 CONNECTOR (15-TRACK) BROWN

Track	Description
1	+ indicator
2	Windscreen wiper supply
3	+ windscreen wiper
4	Windscreen wiper park position
5	Interval supply
6	Earth

DIAGNOSTICS - INTRODUCTION

This document presents the general fault finding procedure applicable to all UCH computers on PRIMASTAR vehicles with all engine types.

To perform fault finding on this system, it is essential to have the following items available:

- The Workshop Repair Manual for the vehicle concerned,
- the wiring diagram of the function for the vehicle concerned,
- the tools listed under Special tooling required.

GENERAL APPROACH TO FAULT FINDING:

- Use one of the diagnostic tools for identifying the system fitted on the vehicle (reading the computer type, program number, Vdiag number, etc.).

- Locate the Fault finding documents corresponding to the system identified.

- Refer to the information in the Introduction.

- Read the faults stored in the computer memory and use the Interpretation of faults section of the documents.

  REMINDER: each fault is interpreted for a given type of storage (fault present, fault stored, fault present or stored). The specified checks for dealing with each fault are therefore only to be performed if the fault declared by the diagnostic tool can be identified in the document by its type. The storage type should be considered when using the fault finding tool after the ignition has been switched off and switched back on.
  If a fault is interpreted when it is declared as stored, the conditions for applying fault finding appear in the notes box. When these conditions are not satisfied, use the fault finding procedure to check the circuit of the faulty part, since the fault is no longer present on the vehicle. Perform the same operation when a fault is declared as stored by the diagnostic tool but is only interpreted in the documentation as a present fault.

- Perform the conformity check (appearance of possible incorrect operations not yet declared by the system's self-test procedure) and apply the associated fault finding strategy according to results.

- Confirm the repair (customer complaint disappears).

- Use the fault finding strategy for each Customer complaint if the fault persists.

SPECIAL TOOLING REQUIRED:

- Diagnostic tool (Consult II)
- Electrical bornier **Elé. 1622,**
- Multimeter.

FAULT FINDING - INTRODUCTION

.**GENERAL INFORMATION**

The UCH is available in **three versions for production vehicles** and **two versions for UCHs sold in After-Sales.**

FUNCTIONS PROVIDED BY THE UCH	**UCH N1**	**UCH N2**	**UCH N3**
direction indicators and hazard warning lights	*	*	*
interior lights (timed and separate front/rear with N2 / N3)	*	*	*
timed feed	*	*	*
windscreen wiper with integrated functions (timer and intermittence)	*	*	*
blade inversion		*	*
rear screen de-icing timer (switch)	*	*	*
communication with the instrument panel via the multiplex network	*	*	*
encoded transponder / engine immobiliser	*	*	*
fault finding	*	*	*
automatic relocking		*	*
locking / unlocking opening elements management		*	*
central locking / opening elements management		*	*
unlocking on impact		*	*
door locking indicator lights (electric door Locking indicator light)		*	*
radio-frequency system (remote control)		*	*
alarm function management			*

FAULT FINDING - INTRODUCTION

CENTRAL LOCKING OPERATION

Central locking disengages all exterior and interior means of opening the doors.
This covers all five doors: driver's, passenger, right hand and left hand sliding side doors and boot.

Door locking and unlocking with **UCH N3 (alarm and deadlocking of doors).**

Press the remote control		**Result on locks**	**operation of direction indicators**	**operation of horn**
LOCKING	1 short press	locking of opening elements + alarm	2 flashes	
	1 long press	opening element locking + alarm + volumetric protection inhibited	2 flashes	1 beep
	2nd short press	central locking of the opening elements	5 flashes	
	2nd long press	central locking of opening elements + volumetric protection inhibited	5 flashes	1 beep
UNLOCKING	1 short or long press	unlocking of the opening elements	1 flash	

FAULT FINDING - INTRODUCTION

UCH track assignments: all options (N3)

P202 Connector (15-track)

BROWN	
Track	**Description**
1	Front courtesy light
2	Rear courtesy light
3	RH direction indicator
4	LH direction indicator
5	Door unlocking
6	Locking of the opening elements
7	+ lighting
8	+ locking of doors
9	Door unlocking

GREEN	
Track	**Description**
1	+ direction indicator
2	Windscreen wiper feed
3	+ windscreen wiper
4	Windscreen wiper park position
5	Timed feed
6	Earth

FAULT FINDING - INTRODUCTION

UCH track assignments: all options (N3)

P201 (40 tracks)

BROWN	
Track	**Description**
1	+ battery
2	Immobiliser warning light
3	Heated rear screen relay
4	Heated rear screen switch
5	Not used
6	RH direction indicator control
7	LH direction indicator control
8	Multiplex connection H
9	Not used
10	Multiplex connection L
11	Not used
12	Door locking warning light
13	Door unlocking switch
14	Door locking switch
15	Alarm ultrasonic sensor
16	Alarm feed
17	Bonnet switch
18	Multiplex connection H
19	Not used
20	Multiplex connection L

GREEN	
Track	**Description**
21	Hazard lights warning light
22	Transponder signal
23	Rear door body flange switches
24	Windscreen wiper and washer switch
25	Timed windscreen wiper control
26	Side lights control
27	Front door switches
28	Not used
29	Not used
30	Not used
31	Not used
32	Not used
33	+ after ignition
34	Not used
35	Not used
36	Hazard warning lights switch
37	Airbag connection
38	Not used
39	Not used
40	Diagnostic line

FAULT FINDING - FAULT INTERPRETATION

DF039 PRESENT OR STORED	UCH INTERNAL ELECTRICAL FAULT

NOTES	The fault is declared present when the ignition is switched off. **Special point:** if there is a fault stored in the memory, check that there are no other faults present and clear the fault.

Replace the UCH.

AFTER REPAIR	Follow the instructions. Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF119 PRESENT **OR STORED**	WINDSCREEN WIPER PARK POSITION

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present during: – activation of the windscreen wiper timing.

Check that the windscreen wiper park position state **ET005 is active** every time the wiper blade arrives at the rest position, then becomes inactive again.
Check the connection and condition of the UCH **15-track connector** and repair it if necessary.
Check the **insulation, continuity and absence of interference resistance on the following connections:** UCH 15-track connector **track B4** ⟶ **Track 1** windscreen wiper motor Earth ⟶ **Track 5** windscreen wiper motor Repair if necessary.
Check the motor. Check the assembly of the wiper. Replace the windscreen wiper motor if necessary.

AFTER REPAIR	Apply the procedures to confirm that the repair is successful. Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF128 PRESENT **OR STORED**	VEHICLE SPEED NOT AVAILABLE

NOTES	None. **Special notes:** if there is a fault stored in the memory, check that there are no other faults present and clear the faults.

Is the vehicle speed signal present on the instrument panel?

YES	Carry out a fault finding check on the multiplex network: see Section **88 Multiplex network wiring**.
NO	Perform the fault finding procedure for the ABS and instrument panel. Repair if necessary.

AFTER REPAIR	Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF130 PRESENT **OR STORED**	INCORRECT CONFIGURATION OF THE INSTRUMENT PANEL

NOTES	The fault is declared present when the ignition is switched off. **Special point:** if there is a fault stored in the memory, check that there are no other faults present and clear the fault.

Carry out instrument panel configuration (see instrument panel, Section **83**).

AFTER REPAIR	Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF131 PRESENT **OR STORED**	CENTRAL DOOR LOCKING BUTTON CIRCUIT CC.0 : Short circuit to earth

NOTES	Application of the fault finding procedure to the stored fault. Fault appears when door locking button is activated.

Check that locking button state **ET038 is active** when door locking is activated. Check that unlocking button state **ET039 is active** when door unlocking is activated.
Check the connection and condition of the central door locking button connector. Repair if necessary.
Check the connection and condition of the UCH 40-track connector if necessary. Repair if necessary.
Check the **insulation and continuity** of the connections: 40-track connector: **UCH track 13** → **Track B1** door locking button 40-track connector: **UCH track 14** → **Track A3** door locking button **Earth** → **Track A2** door locking button Repair if necessary.

AFTER REPAIR	Follow the instructions. Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF145 PRESENT OR STORED	OPENING ELEMENT WARNING LIGHT CIRCUIT CC.1 : Short circuit to + 12 V CC.0 : Short circuit to earth

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after: – the indicator light command.

Check the connection and condition of the central door locking button connector and repair it if necessary.
Check the connection and condition of the UCH 40-track connector. Repair if necessary.
Check the **insulation, continuity and absence of interference resistance on the following connections:** 40-track UCH connector **track 12** ⟶ **Track B3** door locking button Passenger compartment fuse box ⟶ **Track B2** door locking button Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF175 **STORED**	IMPACT DETECTION INFORMATION

NOTES	No fault present. Application of the fault finding procedure to the stored fault.

Carry out the fault finding procedure on the airbag computer. Repair if necessary.
Carry out a fault finding test on the multiplex network: see **Section 88 Multiplex network wiring**.

AFTER REPAIR	Deal with any other possible faults. Clear the fault memory.

FAULT FINDING - FAULT INTERPRETATION

DF176 PRESENT OU MEMORISE	AIRBAG MULTIPLEX SIGNAL ABSENT

NOTES	**Conditions for applying the fault finding diagnostic procedure to a fault stored:** The fault is declared present when the ignition is switched on.

Is the airbag warning light on?

YES	Carry out a fault finding check on the multiplex network: see Section **88 Multiplex network wiring**.
NO	Carry out the fault finding procedure on the airbag circuit. Repair if necessary.
	Carry out a fault finding check on the multiplex network: see Section **88 Multiplex network wiring**.

AFTER REPAIR	Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - CONFORMITY CHECK

NOTES	Only perform this conformity check after a complete check with the diagnostic tool. The values indicated in this conformity check are given as examples. Test conditions: **engine stopped, ignition on** .

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
1	Power supply	**PR002:** Battery voltage	**12 < X < 12.5 V**	**If there is a problem:** carry out a diagnostic check on the charging circuit
		ET002: + 12 V after ignition	**ACTIVE**	**If there is a problem:** refer to state **ET002** fault finding
		ET242: Engine running	**NO**	None
2	Lighting	**ET020:** Side lights control	**ACTIVE** when side lights are switched on	**if INACTIVE** refer to state **ET020** fault finding
		ET029: Right-hand indicator control	**ACTIVE** when right-hand direction indicator is switched on	**if INACTIVE** refer to state **ET029** fault finding
		ET028: Left-hand indicator control	**ACTIVE** when left-hand direction indicator is switched on	**if INACTIVE** refer to state **ET028** fault finding
		ET022: Hazard warning lights control	**ACTIVE** when hazard lights are switched on	**if INACTIVE** refer to state **ET022** fault finding
3	Windscreen wiper	**ET032:** Windscreen washer control	**ACTIVE** when windscreen washer is switched on	**if INACTIVE** refer to state **ET032** fault finding
		ET035: Windscreen wiper timing	**ACTIVE** when windscreen wiper switch is in intermittent position	**if INACTIVE** refer to state **ET035** fault finding
		ET005: Windscreen wiper park position	**ACTIVE** when intermittent windscreen wiper is stopped	**if there is a problem:** perform the **fault finding procedure** on fault **DF119:** Windscreen wiper park position
4	Opening elements	**ET192:** Front doors	**OPEN** when front doors open	**If there is a problem:** refer to state **ET192** fault finding
		ET111: Rear doors	**OPEN** when rear doors open	**If there is a problem:** refer to state **ET192** fault finding

FAULT FINDING - CONFORMITY CHECK

NOTES	Only perform this conformity check after a complete check with the diagnostic tool. The values indicated in this conformity check are given as examples. Test conditions: **engine stopped, ignition on**.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
4	Opening elements (continued)	**ET038:** Locking button	**PRESSED** when the electric door locking button is pressed to lock doors, then released	**If there is a problem:** refer to the fault finding procedure for states **ET038 and ET039**
		ET039: Unlocking button	**PRESSED** when the electric door locking button is pressed to unlock doors, then released	
		ET220: Locking with radio-frequency key	**SHORT PRESS** lock opening elements **LONG PRESS** unlock opening elements and volumetry inhibition (on UCH N3)	**If there is a problem:** refer to the fault finding procedure for states **ET220 and ET221**
		ET221: Unlocking with radio-frequency key	**SHORT PRESS** unlock opening elements **LONG PRESS** unlock opening elements (on UCH N3)	
		ET217: Opening element locking indicator light	**ON** when opening elements closed **OFF** when opening elements open	**If there is a problem:** refer to state **ET217** fault finding
		ET012: Source last opening elements activation	**TRF** when locking with the remote control **central door locking** when locking with the central button	None
		ET105: Last opening elements activation	**UNLOCKING** **LOCKING**	None
		ET010: Valid radio-frequency key	State **YES** when locking or unlocking the vehicle with the remote control	**If there is a problem:** refer to state **ET010** fault finding
		ET193: Radio-frequency signal received	State **YES** when locking or unlocking the vehicle with the remote control	**If there is a problem:** refer to state **ET193** fault finding
5	Speed	**PR001 Vehicle speed**	**0 mph (0 km/h)**	None
6	Switch	**ET008:** Rear de-icing switch	**PRESSED** **RELEASED**	**If there is a problem:** refer to state **ET008** fault finding

FAULT FINDING - STATUS INTERPRETATION

ET002	+ 12 V AFTER IGNITION

ET002 INACTIVE, ignition on

Check the passenger compartment fuse. Use a multimeter to check the presence of **+ 12 V** at the fuse holder with the ignition on. Repair if necessary.
Use a multimeter to check the presence of **+ 12 V** on **track 33** of the UCH 40-track connector with the ignition on. If the voltage is present, replace the UCH.
If the voltage is absent, check the continuity and insulation from earth between **track 33 of the UCH 40-track connector and the 10A fuse in the passenger compartment fuse box.** Repair if necessary.

ET002 ACTIVE, ignition off

Use a multimeter to check the absence of + 12 V at the passenger compartment fuse holder with the ignition off. Repair if necessary.
If the voltage is absent, replace the UCH.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET008	REAR DE-ICING SWITCH

NOTES	Check that no fault is present. Switch on the ignition.

ET008 RELEASED: button pressed

Check the heated rear screen fuse. Change it if necessary.
Check the condition and connection of the de-icing button connector and replace it if necessary.
With the button pressed, use a multimeter to check the presence of an earth on **track 4** of the 40-track UCH connector. Repair if necessary.
If there is no earth, check the continuity and insulation between **track 4** of the 40-track UCH connector and the de-icing switch. Repair if necessary.
Replace the de-icing switch.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET010	VALID RF (radio-frequency) KEY

NOTES	Check that no fault is present. The state shows **YES** when the vehicle's remote control is pressed. If the state shows **NO,** try again with a different key from the vehicle.

ET010 remains NO: when the remote control is pressed

Resynchronize the keys switching the ignition on (+ after ignition feed).

If the fault persists, refer to state **ET193: RF signal received**.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET020	SIDE LIGHTS SWITCH

NOTES	Check that no fault is present or stored. Activate the side lights switch. The state should be **ACTIVE**.

ET020 INACTIVE: side lights on

Check the condition and connection of the lights switch connector and replace it if necessary.
Check the connection and condition of the UCH 40-track connector and replace it if necessary.
Ensure the **continuity and insulation** of the connection between: 40-track UCH connector **track 26** ⟶ **Track B1** lights stalk Repair if necessary.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET022	HAZARD WARNING LIGHTS SWITCH

NOTES	Check that no fault is present or stored. Activate the side lights switch. The state should be **ACTIVE**.

ET022 INACTIVE

Check the direction indicators feed fuse **(10 A)**.
Change it if necessary.

Check the condition and connection of the hazard warning lights switch connector and repair it if necessary.

Check the **continuity** of the connection between
Hazard warning lights switch **track 2** ⟶ **Earth**
Repair if necessary.

Check the **insulation, continuity and the absence of interference resistance** on the connection:
Hazard warning lights switch **track 3** ⟶ **Track 36** UCh 40-track connector
Repair if necessary.

Check the operation of the hazard warning lights control.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET028 **ET029**	LH DIRECTION INDICATOR SWITCH RH DIRECTION INDICATOR SWITCH

NOTES	There must be no faults present or stored. Switch on the ignition. Activate the right-hand or left-hand direction indicator switch. The state should be **ACTIVE**.

ET028 or ET029 INACTIVE

Check the **10 Amp** direction indicators feed fuse .
Repair if necessary.

Check the connection and condition of the direction indicators stalk connector.
Repair it if necessary.

Check the **continuity** of the connection between
direction indicator light switch **track A6** ⟶ **earth**
Repair if necessary.

Disconnect the 40-track UCH connector and activate the right or left direction indicator.
Check the **continuity and insulation**:
Right-hand direction indicator switch **track A5** ⟶ **Track 6 40-track connector UCH**
Left-hand direction indicator switch **track A7** ⟶ **Track 7 UCH 40-track connector**
Repair if necessary.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET032	WINDSCREEN WASHER SWITCH

NOTES	There must be no faults present or stored. Switch on the ignition. Move the windscreen wiper switch to the rear screen washer position. The state should be **ACTIVE**.

ET032 INACTIVE

Check the windscreen washer relay feed fuse.
Replace it if necessary.

Check the connection and condition of the direction indicators stalk connector.
Replace it if necessary.

Check the **continuity and insulation** of the following connections:

UCH P201 40-track connector **track 24** → Windscreen wiper switch **track A4**
Earth → Wiper stalk **track B5**
+ After ignition → Windscreen wiper stalk **tracks B4 and A7**

Repair if necessary.

Check the correct operation of the washer pump, in particular the **continuity and insulation** of the connections:

Pump **track 2** → **Track A4** wiper stalk
Pump **track 1** → **Track B1** wiper stalk

Repair if necessary.

AFTER REPAIR	Repeat the fault finding procedure on the system.

FAULT FINDING - INTERPRETATION OF STATES

ET035	WINDSCREEN WIPER TIMER

NOTES	There must be no faults present or stored. Switch on the ignition. Move the windscreen wiper switch to the intermittent wiping position. The state should be **ACTIVE**.

ET035 INACTIVE

Check the fuse.
Change it if necessary.

Check the connection and condition of the windscreen wiper switch connector.
Repair it if necessary.

Check the **continuity and insulation** of the following connections:

40-track UCH connector **track 25** → Wiper stalk **track A6**
Earth → Wiper stalk **track B5**
+ After ignition → Wiper stalk **tracks B4 and A7**

Repair if necessary.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - INTERPRETATION OF STATES

ET192 **ET111**	FRONT DOORS REAR DOORS

NOTES	Check that no fault is present. Open the front and rear doors.

Check that for each open door the corresponding state is active and for each closed door the corresponding state is inactive.
Check the connections between the door wiring and the passenger compartment wiring and the continuity and insulation between: the lock concerned and the UCH, the lock concerned and earth. **Repair if necessary** (see the wiring diagrams for the vehicle concerned).
Open the door, disconnect the lock and close the lock. Verify the continuity between the earth input track and the track on the UCH. Pull the door handle to open the lock and check that there is no longer any continuity between the earth input track and the track on the UCH. In the event of a fault, replace the lock.
Check that the lock is fitted into the striker properly.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - INTERPRETATION OF STATES

ET193	RF (radio-frequency) SIGNAL RECEIVED

NOTES	Check that no fault is present. The state shows **YES** when the remote control is pressed. If the state shows **NO,** try again with a different key from the vehicle.

ET193 NO: when the remote control is pressed.
Press the remote control button of another PRIMASTAR vehicle or blank key: Check that the state changes to **YES** when it is pressed. If state is **YES**, replace the remote control of the vehicle with a fault. If state is **NO**, replace the UCH.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - INTERPRETATION OF STATES

ET217	OPENING ELEMENT LOCKING WARNING LIGHT

NOTES	Check that no fault is present. Get inside the vehicle and lock the doors with the electric door locks button.

Check that when pressing the central door locking button, the corresponding state is active.
If the state remains inactive:
Check the **insulation, continuity and absence of interference resistance on the following connections:**

40-track UCH connector **track 12** ⟶ **Track B3** door locking button
Fuse box ⟶ **Track B2** door locking button

Repair if necessary.

If necessary, replace the UCH.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - INTERPRETATION OF STATES

ET220 **ET221**	LOCKING WITH RF KEY (radio-frequency) UNLOCKING WITH RF KEY (radio-frequency)

NOTES	None.

Door locking and unlocking with **UCH N3 (alarm and central locking of doors).**

Press the remote control		**Result on locks**	**operation of direction indicators**	**operation of horn**
LOCKING	1 short press	locking of opening elements + alarm	2 flashes	
	1 long press	opening elements locking + alarm + volumetric protection inhibited	2 flashes	1 beep
	2nd short press	central locking of the opening elements	5 flashes	
	2nd long press	central locking of opening elements + volumetric protection inhibited	5 flashes	1 beep
UNLOCKING	1 short or long press	unlocking of the opening elements	1 flash	

When the vehicle is locked with the volumetric protection inhibited, manually opening one of the doors will cause the alarm and the hazard warning lights to operate for 25 seconds.

When the vehicle is locked with the volumetric protection activated, the ultrasonic sensors are active after 7 seconds.
If a hand is passed in front of the sensors, this will cause the alarm and the hazard warning lights to operate for 25 seconds.

AFTER REPAIR	Repeat the fault finding procedure on the system. Deal with any other possible faults. Clear the stored faults.

FAULT FINDING - CUSTOMER COMPLAINTS

NOTES	**These customer complaints should only be investigated after a complete check has been run using the diagnostic tool.**

- **No communication with the UCH** — **CHART 1**
- **Lights**
  - **None of the direction indicator lights operate** — **CHART 2**
  - **side lights do not operate** — **CHART 3**
  - **dipped beam headlights do not operate** — **CHART 4**
  - **main beam headlights do not operate** — **CHART 5**
  - **reversing lights do not operate** — **CHART 6**
  - **front fog lights do not operate** — **CHART 7**
  - **rear fog lights do not operate** — **CHART 8**
- **Wipers, washers, de-icing**
  - **rear screen washer does not operate.** — **CHART 9**
  - **windscreen wiper low speed does not operate** — **CHART 10**
  - **windscreen wiper high speed does not operate** — **CHART 11**
  - **rear screen wiper does not operate.** — **CHART 12**
  - **windscreen washer does not operate.** — **CHART 13**
  - **rear screen de-icing does not operate** — **CHART 14**

FAULT FINDING - FAULT FINDING CHARTS

CHART 1	**No communication with the UCH**

NOTES	None.

Try the diagnostic tool on another vehicle.
Check: – the connection between the diagnostic tool and the diagnostic socket (wiring in good condition), – the engine and passenger compartment fuses.
Check for the presence of **+ 12 V before ignition** on **track 16**, for **+ 12 V after ignition** on **track 1** and for an **earth** on **tracks 4 and 5** of the diagnostic socket. Repair if necessary.
Connect the bornier and check the **insulation, continuity and absence of unwanted resistance on the following connections:** UCH 40-track connector **track 1** → Fuse box UCH 40-track connector **track 33** → **+ After ignition supply** UCH 15-track connector **track B6** → **Earth** UCH 40-track connector **track 40** → **Track 7** of the diagnostic socket (line K) Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 2	**Direction indicators do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check the condition of the fuses and change them if necessary.
Activate the hazard warning lights switch and check that the **hazard warning lights switch** state **ET022** is active. If not, refer to the section dealing with this state. Activate the right-hand or left-hand direction indicators and check that the right-hand direction indicator switch and left-hand direction indicator switch states **ET028** and **ET029 are active.** If not, refer to the section about these states.
Check the condition of the UCH 15-track connector and replace it if necessary.
Check the **continuity** of the following connections: 15-track connector **track A4** ⟶ **Left-hand indicator** 15-track connector **track A3** ⟶ **Right-hand indicator** Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 3	**Side lights do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Activate the side lights switch and check that the **Side lights switch** state **ET020** is active. If not, refer to the section dealing with this state.
Check the side lights feed fuses F31 and F32, and replace them if necessary.
Check the **continuity** of the connection between: Switch **track B1** ⟶ **Side lights fuses (10A) F31 and F32** Repair if necessary.
Check the **continuity** of the connection between **Fuses (10A) F31 and F32** ⟶ Left-hand and right-hand side lights Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 4	**Dipped headlights do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check the dipped beam headlights feed fuses F29 and F30, and replace them if necessary.
Check the **continuity** of the connection between: Switch **track B5** ⟶ **Dipped beam headlight fuses** (10A) F29 and F30 Repair if necessary.
Check the **continuity** of the connection between: Dipped beam headlight fuses **(10A) F29 and F30** ⟶ Left-hand and right-hand dipped headlights Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 5	**Main beam headlights do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check the main beam headlights feed fuses F27 and F28, and replace them if necessary.
Check the **continuity** of the connection between: Switch **track B7** ⟶ **Main beam headlights fuses** (10A) F27 and F28 Repair if necessary.
Check the **continuity** of the connection between: Main beam headlight fuses **(10A) F27 and F28** ⟶ Left-hand and right-hand main beam headlights Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 6	**Reversing lights do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check fuse **F14 (25A),** repair if necessary.
Check the reversing light switch + after ignition feed on **track 2.** Repair if necessary.
Ensure the **continuity and insulation** of the connection between: Reversing light switch **track 1** ⟶ Reversing lights Repair if necessary.
Replace the switch if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 7	**Front fog lights do not operate**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check fuse **F9 (15A),** replace if necessary.
Side lights operating. Check the front fog light relay + after ignition feed on **track 1.** Repair if necessary.
Ensure the **continuity and insulation** of the connections between: **Earth** → **Track A2** front fog light relay **Fuse (F9) feed** → **Track A3** front fog light relay **Front fog lights** → **Track A5** front fog light relay Replace the relay if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 8	**Rear fog lights do not work**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.** **Check the bulbs.**

Check fuse **F33 (10A),** replace if necessary.
Ensure the **continuity and insulation** of the connection between: **Fuse F33 feed** ⟶ Rear fog lights Repair if necessary.
Replace the fuse box if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 9	**Rear screen washer does not work**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Check fuses **F14 (25A)** and **F15 (25A)**. Repair if necessary.
Check the wiper switch + after ignition feed on tracks **A7** and **B4.** Repair if necessary.
Ensure the **continuity and insulation** of the connections between: Switch **track B1** ⟶ **Track 1** screen washer pump Switch **track A4** ⟶ **Track 2** screen washer pump Repair if necessary.
Replace the screen washer pump if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 10	Windscreen wiper low speed does not operate

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Activate the **AC064 Windscreen wiper low speed** command and check the operation of the windscreen wiper.
Does the windscreen wiper operate?

YES

Check the wiper switch + after ignition feed on tracks **A7** and **B4.**
Repair if necessary.

Ensure the **continuity and insulation** of the connection between:
Switch **track A1** ⟶ **Track 25** UCH 40-track connector Passenger compartment
Repair if necessary.

NO

Check fuses **F14 (25A)** and **F15 (25A)** .
Repair if necessary.

Check the + after ignition feed to the switch on **tracks A7** and **B4.**
Repair if necessary.

Ensure the **continuity and insulation** of the connections between:
Switch **track A1** ⟶ **Track 25** UCH 40-track connector Passenger compartment
Switch **track A4** ⟶ **Track B3** UCH 15-track connector Passenger compartment
Repair if necessary.

Ensure the **continuity and insulation** of the connection between:
Switch **track A3** ⟶ **Track 3** windscreen wiper motor
Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 11	**Windscreen wiper high speed does not work**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Check fuses **F14 (25A)** and **F15 (25A)**. Repair if necessary.
Check the wiper switch + after ignition feed on tracks **A7** and **B4.** Repair if necessary.
Ensure the **continuity and insulation** of the connection between: Switch **track A2** ⟶ **Track 4** wiper motor Repair if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 12	Rear screen wiper does not operate

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Check fuses **F14 (25A)** and **F15 (25A)**.
Repair if necessary.

Check the wiper switch + after ignition feed on tracks **A7** and **B4.**
Repair if necessary.

Ensure the **continuity and insulation** of the connections between:
- Switch **track B2** → **Track B9** rear wiper timer
- **Earth** → **Tracks B1 et B4** rear screen wiper timer
- **Fuse (F14) feed** → **Track B9** rear wiper timer

Repair if necessary.

Remove the timer relay and put a shunt across the tracks **B5 and B3.** Check the rear screen wiper relay feed on **tracks C1 and C5.**
Repair if necessary.
Ensure the **continuity and insulation** of the connection between:
- **Earth** → **Tracks C4 and C2** rear screen wiper relay

Replace the rear screen wiper relay if necessary.
Check the operation of the motor.
Rear screen wiper assembly.

Replace the rear screen wiper motor if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 13	**Windscreen washer does not work**

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Press the side lights switch and check that **windscreen washer switch** state **ET032** is active. If not, refer to the section dealing with this state.
Check fuses **F14 (25A)** and **F15 (25A)**. Repair if necessary.
Ensure the **continuity and insulation** of the connections between: Switch **track A4** ⟶ **Track 2** screen washer pump Switch **track B1** ⟶ **Track 1** screen washer pump Repair if necessary.
Replace the screen washer pump if necessary.

AFTER REPAIR	**Check the operation of the system.**

FAULT FINDING - FAULT FINDING CHARTS

CHART 14	Heated rear screen does not operate

NOTES	**Only consult this customer complaint after a complete check using the diagnostic tool.**

Press the rear screen de-icing switch and check that state **ET008 Rear de-icing button** is **pressed**.
If not, refer to the section dealing with this state.

Check the following fuses: **F16 (15A),** F13 (30A), F24 (15A) and F35 (10A).
Repair if necessary.

Activate the **AC043 heated rear screen** command.
Can you hear the relay clicking?

YES

Ensure the **continuity and insulation** of the connections between:
Rear screen relay → **Track A5** heated rear screen
Earth → Heated rear screen
Repair if necessary.

NO

Ensure the **continuity and insulation** of the connections between:
Fuse F13 feed → **Track A3** rear screen relay
Fuse F35 feed → **Track A5** rear screen relay
Fuse F24 feed → **Track A1** rear screen relay
UCH 40-track connector **track 3** → **Track A2** rear screen relay
Repair if necessary.

Replace the relay if necessary.

AFTER REPAIR	**Check the operation of the system.**

DESCRIPTION OF THE FAULT FINDING STAGES

DESCRIPTION OF THE MULTIPLEX NETWORK

The multiplex network consists of a twisted pair of wires connected to several vehicle computers.
These two wires are called CAN H and CAN L (connections 133 B and 133 C).
Two of the computers on the network contain an internal resistance of 120 Ω between the two wires: the injection computer and the UCH.

More than 200 data items are passed through this network. They are transmitted by some computers and used by others.
For example: the injection computer sends the engine speed, the instrument panel computer displays it.

TESTING THE MULTIPLEX NETWORK:

NOTES	Switch on the ignition and wait 10 seconds before starting the test.

This step is the essential starting point for any computer fault finding procedure.

It ensures that the network is correctly connected to the terminals of each computer and that the information is correctly sent to it and received by it.

The network test is the only function which can be selected after the choice of vehicle type.
After the network test, the other functions become accessible once more.

0 - Failure of the test

It is possible that the network test cannot be carried out.

To carry out this check, the tool investigates the **Air bag** and **UCH (Passenger compartment ECU)** computers to find out the network topology (diagram) version and which computers are present on the network of the vehicle being repaired.

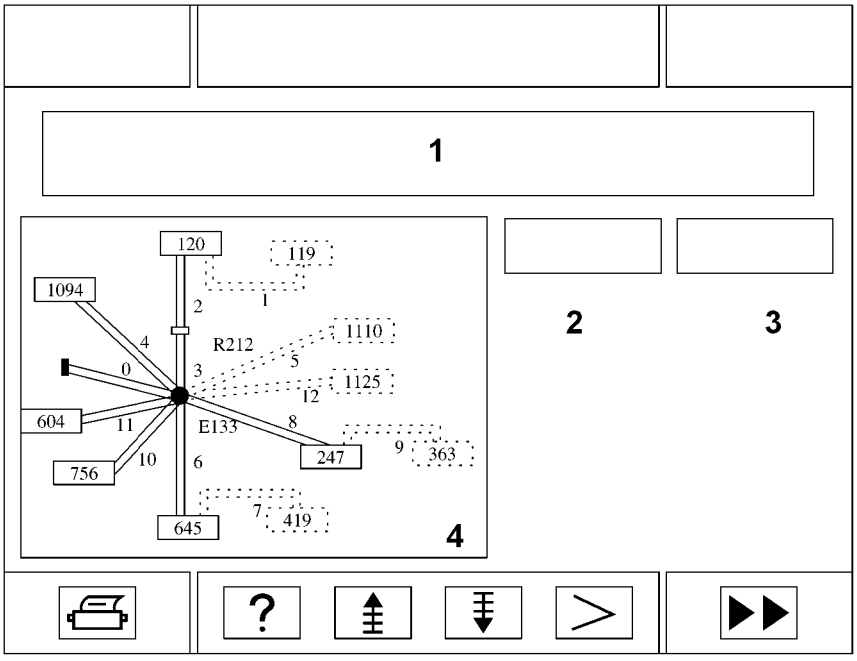
If no configuration is detected, check the feeds to the computers (Air bag and UCH in particular). After checking and repairing the feeds if necessary, refer to "Multiplex network out of service" diagnostic.

If the configurations are inconsistent between the computers, the tool asks the user to reconfigure the computers. Refer to the **"Network configuration" section**.

1 - Result of the test

The tool displays a diagram of the network showing the faulty, not diagnosed and good segments (see screen below).

A <u>segment</u> is the length of the CAN H and CAN L twisted pair connecting two components (computer, cable joint, or connection).



1: Test result
2 and 3: list of faulty segments and/or unrecognized computers
4: network diagram:

green segment: operational segment **red segment: faulty segment** **black segment: segment not checked**	**green computer: present and recognized** **red computer: recognized but not present** **white computer: cannot be checked**

FAULT FINDING - INTRODUCTION

2 - Dealing with faulty segments

a) All segments are faulty or not checked:

The tool offers two screens: one shows the network diagram with the faulty segments and the other shows the network diagram and the unrecognized computers (non-conforming computers), undetected computers (which have not answered the tool), or computers which cannot be checked (ones which are present on the multiplex network but cannot be checked with the tool).
You can switch from one diagram to the other at any time.

If all the segments are faulty and if no computer has responded, there is a problem with the power supply to the computers.

Deal with faults according to the procedure shown in the section:
"MULTIPLEX NETWORK OUT OF SERVICE".

b) Only a few segments are faulty

The tool offers two screens:
One with the network diagram showing the faulty segments and the other with the network diagram showing the computers not recognized (computers not meeting the specification), not detected (not responding to the tool) or those which cannot be checked.
You can switch from one diagram to the other at any time.

If there are unrecognized or undetected computers at the ends of faulty segments, check the feeds and the conformity of the computers first by carrying out a diagnostic check on each computer.

Deal with faults according to the procedure shown in the section:
"MULTIPLEX SEGMENT FAULT".

3 - Absence of faults, or segments which cannot be checked

If no fault is detected by the diagnostic tool, it is advisable to refer to the **"SEGMENT NOT CHECKED"** section to make sure that these segments are functioning correctly.

DIAGNOSTICS - MULTIPLEX NETWORK OUT OF SERVICE

NOTES	First check that the computers have a power supply. Switch off the ignition, remove the key, check that the side lights are off and wait 1 minute. Take the measurements via the diagnostic socket of the vehicle.

Finding the fault type	***NOTES***	Use the diagram of the multiplex network of the vehicle (diagram of the diagnostic socket).

Measure the resistance between **tracks 6** and **14** of the diagnostic socket.

What is the resistance?

0 Ω	The two lines are short-circuited. Refer to the section **"Help with finding network short circuits"**.
Between 60 and 130 Ω	For **track 6** and **track 14**, measure earth continuity and the voltage. Establish which track is short-circuited to earth or to + battery. Refer to the section **"Help with finding network short circuits"**.
Open circuit	Disconnect the injection and verify that the two multiplex network tracks are continuous with the diagnostic socket:

Yes	Check the resistance between the two network tracks <u>on the injection computer.</u> If the resistance is not **120** Ω > replace the computer.
No	Choose tracks on another computer as reference (e.g.: UCH) and repeat the measurement. If the result is the same, there is a danger that the CAN wire joints may be damaged. In that case, check the continuity of the whole multiplex network. If the wire joints are damaged, replace the passenger compartment harness.

AFTER REPAIR	Perform another multiplexed network test. Clear the stored faults on all the computers connected to the network. Deal with any other possible faults. The immobiliser warning light may be on. In that case, leave the ignition on for 30 seconds, switch off and wait at least one minute. Turn the ignition on again, the light should go out. If it does not, refer to the injection computer diagnostic.

DIAGNOSTICS - MULTIPLEX SEGMENT FAULT

NOTES	**First check that the computer at the end of the segment is correctly fed (earth, + battery, + accessories or + after ignition).** **Always check the computer specification.** **Warning:** the tool may not be able to precisely identify the faulty segment. It will suggest several in order of failure probability. **Start by checking the first segment.**

Disconnect the ends of the segment.
(If one of the ends is a wire joint, the two wires cannot be disconnected.
In that case, disconnect a computer located at the end of a good segment, starting from the wire joint, e.g.: On Board Diagnostic (OBD) socket)

Verifier the continuity of the two tracks (see help table on the next page).

Check the condition of the connectors.
Reconnect and try again.

Has the fault been rectified?

No	Are there other faulty segments?	
	Yes	Deal with the other faulty segments using the same procedure.
	No	First replace the computer at the end of the segment having the highest probability of being faulty. If in doubt, always replace computers with an impedance (UCH and injection) last.

AFTER REPAIR	Perform another multiplexed network test. Clear the stored faults on all the computers connected to the network. Deal with any other possible faults. The immobiliser warning light may be on. In that case, leave the ignition on for 30 seconds, switch off and wait at least one minute. Turn the ignition on again, the light should go out. If it does not, refer to the injection computer diagnostic.

DIAGNOSTICS - SEGMENTS NOT DIAGNOSED

NOTES	**On this vehicle, the only segments which cannot be diagnosed are:** – diagnostic socket segment – Communication Control Unit segment (data communication/multimedia option) **If there are others, verify that all the computers have been identified.** **Reminder: the instrument panel cannot be checked and it does not have a K line but it is, however, present on the multiplex network.**

To test the other segments, simply switch on the ignition and open the driver's door.
It must be shown as open on the central display.

Refer to the appropriate section of the Information/Navigation system.

In the event of a fault, refer to the **"Multiplex segment fault"** section.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.

DIAGNOSTICS - HELP WITH FINDING NETWORK SHORT CIRCUITS

NOTES	**Use the diagram of the multiplex network of the vehicle (diagram of the diagnostic socket).** Switch off the ignition and remove the ignition key. Verify that the side lights are off. Wait 1 minute. In the event of a short-circuit to + battery, leave the battery connected.

The procedure consists of gradually disconnecting the network components and isolating the faulty section.

Disconnect the grey passenger compartment/engine connection (R 67)

– Check the condition of the connections to the connector on the engine side and to the connector on the passenger compartment side,
– verify whether the fault has disappeared on the passenger compartment side and engine side.

Which is the faulty section?

After each disconnection:
– Verify whether the fault has disappeared (in which case, replace the computer),
– Check the condition of the connectors and clips and that their insulation is correct.
– Reconnect.

Engine	The recommended order for disconnecting engine computers is as follows: – First disconnect the automatic gearbox or the LPG computer. – Disconnect the injection computer and identify the faulty section: injection / passenger compartment connection
passenger compartment	The recommended order for disconnecting passenger compartment computers is as follows: Disconnect: – instrument panel, – Communication Control Unit. – Air bag, – UCH.

DIAGNOSTICS - HELP WITH FINDING NETWORK SHORT CIRCUITS

If the fault has not disappeared check the condition of the wiring.

If the fault is not visible, **replace the wiring**.

		Input			Output		
		Connector	CAN H	CAN L	Connector	CAN H	CAN L
F4R injection	S2000	Black	A4	A3			
F9Q injection	EDC15VM+	Black	A7	A6			
G9U injection	EDC15C3	Black	A7	A6			
LPG injection	Sagem 4C	Brown	A2	A1			
Carminat		Black	6	7			
Airbag	ACU3	Grey	58	59			
UCH	Sagem	Brown	20	19	Brown	10	9
Instrument panel	Sagem	Red	10	11			
R67 connector	Clip holder	White	8	9			

AFTER REPAIR	Perform another multiplexed network test. Clear the stored faults on all the computers connected to the network. Deal with any other possible faults. The immobiliser warning light may be on. In that case, leave the ignition on for 30 seconds, switch off and wait at least one minute. Turn the ignition on again, the light should go out. If it does not, refer to the injection computer diagnostic.

INCONSISTENT NETWORK CONFIGURATION

NOTES	**On this vehicle, the computers containing the configuration are:** **– UCH** **– air bag** **The configuration is entered with the ignition on.** **It is run automatically during a network test, when the tool detects a fault on one of the computers.** **It can be run from the multiplex network test result screens (command button at bottom right of screen).**

The tool shows both configurations: for the UCH and the air bag.

Select the computer to be modified.

The tool displays the configuration of the other computer at the same time.
(see next screen page)

The steps are as follows:

– choice of network topology version

This is the multiplex network diagram version. This version is increased with each development change of the multiplex network harness for this vehicle.
This information is available in the world vehicle database or in the other computer.

– Choice of the vehicle's computers present on the network

There are as basic:
– Air bag,
– injection system,
– the UCH,
– instrument panel (computer cannot be tested by the tool).

+ the vehicle options:
– "Navigation or data communication" Central Communications Unit, (computer cannot be tested by the tool).

WARNING:
If a computer is connected to the multiplex network but it is not one of the two computers configured (air bag and UCH), it will not be checked during the multiplex network test.

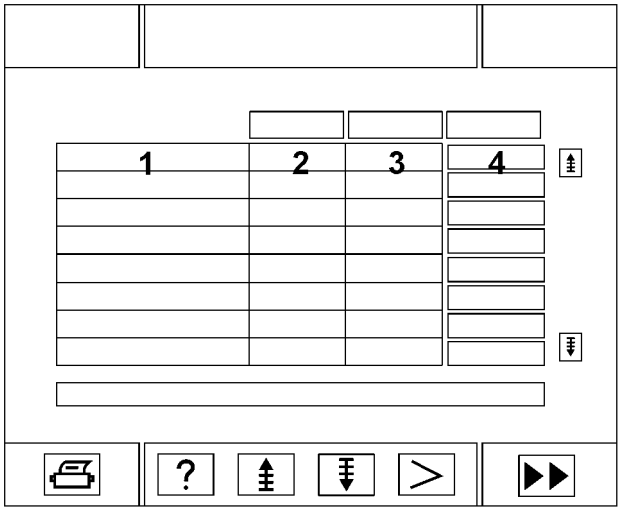
In order to include a computer in the configuration, it is necessary to produce a configuration inconsistency by making the instrument panel absent from the air bag, then restart the test.

The tool will show a configuration error and display a list of all the computers available for the vehicle type.

Correct the configuration by making the instrument panel present on the air bag, then enter the missing computer as present on the air bag and then on the UCH.

Repeat the multiplex network test.

CONFIGURATION SCREEN



An illustration of the empty configuration screen is shown above
In column (1), a list of the possible computers and the topology version.
In column (2), the existing configuration in the computer not selected.
In column (3), the existing configuration in the computer selected.
In column (4), the desired configuration for the computer selected.

AFTER REPAIR	Deal with any other possible faults.