



Fault finding

17 INJECTION

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88 AIRBAG - SEAT BELT PRETENSIONERS AND WIRING

AB1C

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EDITION ANGLAISE

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Fault finding

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L7X 760 ENGINES

PETROL INJECTION FAULT FINDING

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This document introduces the special fault finding procedure applicable to all:
"BOSCH MOTRONIC ME 7.4.6" computers fitted on the **CLIO V6** with the **L7X760** engine.

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

- This Fault Finding Technical Note,
- The electrical wiring diagram of the function for the vehicle concerned,
- The CLIP or NXR diagnostic tool, a multimeter and test bornier no. 1613 Elé.

GENERAL APPROACH TO FAULT FINDING

- Use one of the diagnostic tools to identify the system fitted to the vehicle (to read the computer group, the program number, the Vdiag, etc.).

The identification is obtained by reading the following in the command window:

COMPUTER PART NUMBER

ME 7.4.6

VDIAG NUMBER

08

PROGRAM NUMBER (from)

12

- Find the Fault finding documents corresponding to the system identified.
- Take account of information contained in the introductory sections.

DESCRIPTION OF THE FAULT FINDING STAGES

1 FAULT CHECKING:

It is essential to start with this stage before any work is done on the vehicle.

Order of priority:

Electrical faults must be processed before On Board Diagnostic (OBD) faults (**DF111, DF112, DF113, DF114, DF185, DF186** misfiring on cylinders 1 to 6; **DF183, DF184** catalytic converters nos. 1 and 2; **DF202, DF203** fuel supply, rows A and B; **DF204 et DF205** ageing of upstream sensor, rows A and B).

Note that there must be no electrical faults either present or stored before dealing with OBD operational faults.

Other priorities are dealt with in the procedure for the fault in question, in the Notes section.

DESCRIPTION OF THE FAULT FINDING STAGES (continued)

Reminder: Each fault is interpreted depending on how it is stored (fault present, fault stored, fault present and stored). The checks defined for handling each fault are therefore only to be performed if the fault shown by the diagnostic tool is interpreted in the document for its type of storage. The storage type should be considered when using the diagnostic tool after switching the ignition off and on.

If a fault is interpreted when it is declared as stored, the conditions for applying fault finding appear in the NOTES box. If the conditions are not satisfied, use the fault finding strategy 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 stored by the fault finding tool but is only described in the documentation for a present fault.

2 CONFORMITY CHECK

The conformity check is designed to check the states and parameters which do not display any faults on the diagnostic tool when they are outside the permitted tolerance values. This phase therefore allows:

- Fault finding on faults which are not displayed but which may correspond to a customer complaint.
- Checking correct injection operation and ensuring that a fault will not reappear after repair.

In this section there is therefore a diagnostic test of states and parameters under the conditions of their test. If a state is not operating normally or a parameter is outside permitted tolerance values, you should consult the corresponding fault finding page.

3 CHECK FOR CORRECT REPAIR WITH THE DIAGNOSTIC TOOL

If the diagnostic tool check is correct, but the customer complaint is still present, the fault should be dealt with according to the customer complaint.

Dealing with the customer complaint:

This section has fault finding charts, which suggest a series of possible causes of the fault. These lines of investigation must only be used in the following cases:

- No fault observed on diagnostic tool.
- No fault detected during conformity check.
- The vehicle is not operating correctly

SPECIAL FEATURES OF THE ME 7.4.6 INJECTION SYSTEM

IMPORTANT: A computer is paired to the engine and the vehicle on which it is installed. Therefore do not try a computer on another vehicle then return it to the original vehicle.

1 MOTORISED THROTTLE BODY

1.1 General

Given that the motorised throttle body cannot make any adjustments between the actual value measured by the potentiometers and the mechanical position of the throttle, the ME 7.4.6 computer must be programmed to take over this operation.

During this operation, the position of the lower mechanical stop and the limp-home position on the throttle are programmed, and the potentiometer amplifier is balanced. The programmed values are stored in the computer memory. The **limit programming + storing of the programmed values** sequence equates to **initialising** the motorised throttle unit. The springs in the motorised throttle body are also tested.

The above initialisation process runs automatically and independently when the ignition is switched on, but only under certain input conditions. It may run several times when the ignition is on.

1.2 Throttle body programming procedure

Programming should be performed at least once correctly during the vehicle life cycle, that is, when switching on for the first time (original initialisation), then **each time either the computer or the motorised throttle body are changed**.

After the throttle valve is replaced and before reprogramming, you must **clear the programming**.

1. Switch on the ignition and wait at least 5 seconds without starting the engine: the throttle body matching is initialised automatically.
2. Switch off the ignition.
3. Wait before switching the ignition back on, to allow the computer time to store the programmed values:
 - at least 10 seconds if the engine is cold (coolant temperature lower than 85°C),
 - at least 130 seconds if the engine is warm (coolant temperature 90°C or above).
4. Switch on the ignition, start the engine and allow it to run at idling speed for one minute to stabilise the air leak rate through the motorised throttle body.

NOTE: A fault appears and the limp-home position is activated:

- If the automatic programming procedure (step 1 above) is interrupted before the five seconds has elapsed, and if step 3 is not observed.

1.3 Programming the backup position of the motorised throttle

The backup limp-home position is necessary for the throttle body position regulator and to identify the need for alignment when changing the motorised throttle body.

When the ignition is turned on, before the throttle body receives its power, the limp-home position is read on the two potentiometers and a plausibility calculation is carried out using values stored in the computer memory. If the values are different, the need for alignment and programming of the limp-home position is noted.

1.4 Testing the springs of the motorised throttle (automatic)

1.4.1 Testing the return springs

Opening up the throttle body from the limp-home position, then cutting the power stage of the motorised throttle body allows you to check the return force applied by the return springs. In the event of a fault, the limp-home position of the throttle body is activated.

The test only occurs if all of the following conditions are met:

- no irreversible cut-off in fuel delivery,
- motorised throttle body is supplied,
- no reaction to a dependability-type fault,
- regulation of throttle body position active,
- sufficient battery voltage (between 11 and 15 V),
- vehicle stopped,
- engine speed 250 rpm or less,
- coolant temperature above 6°C,
- air temperature above 6°C.

1.4.2 Testing spring opening

The forced return to the backup position caused by the opening of the spring can be checked by closing the throttle from the backup position in the closing direction then cutting off the power stage of the motorised throttle. In the event of a fault, the limp-home position of the throttle body is activated.

The test is only performed if all the conditions in paragraph 1.4.1 are met.

2 WARNING LIGHT MANAGEMENT

- The injection fault warning light (orange indicator light, level 1 fault) indicates a fault on the motorised throttle body or the accelerator pedal sensor, requiring repairs.
- The warning light for severe injection faults (red indicator light, level 2 fault) indicates that the injection system has detected a serious fault that must be repaired. The computer is reset prior to this warning light coming on (in customer complaints this comes across as jerky acceleration due to injection cut-outs signalling an imminent computer reset).
- The coolant temperature warning light comes on above 118°C.

- The OBD (On Board Diagnostic) warning light (orange engine icon) signals that the pollution threshold is being exceeded.

Each time ignition is switched on, the OBD warning light comes on to give a visual check. This light goes out three seconds after starting the engine.

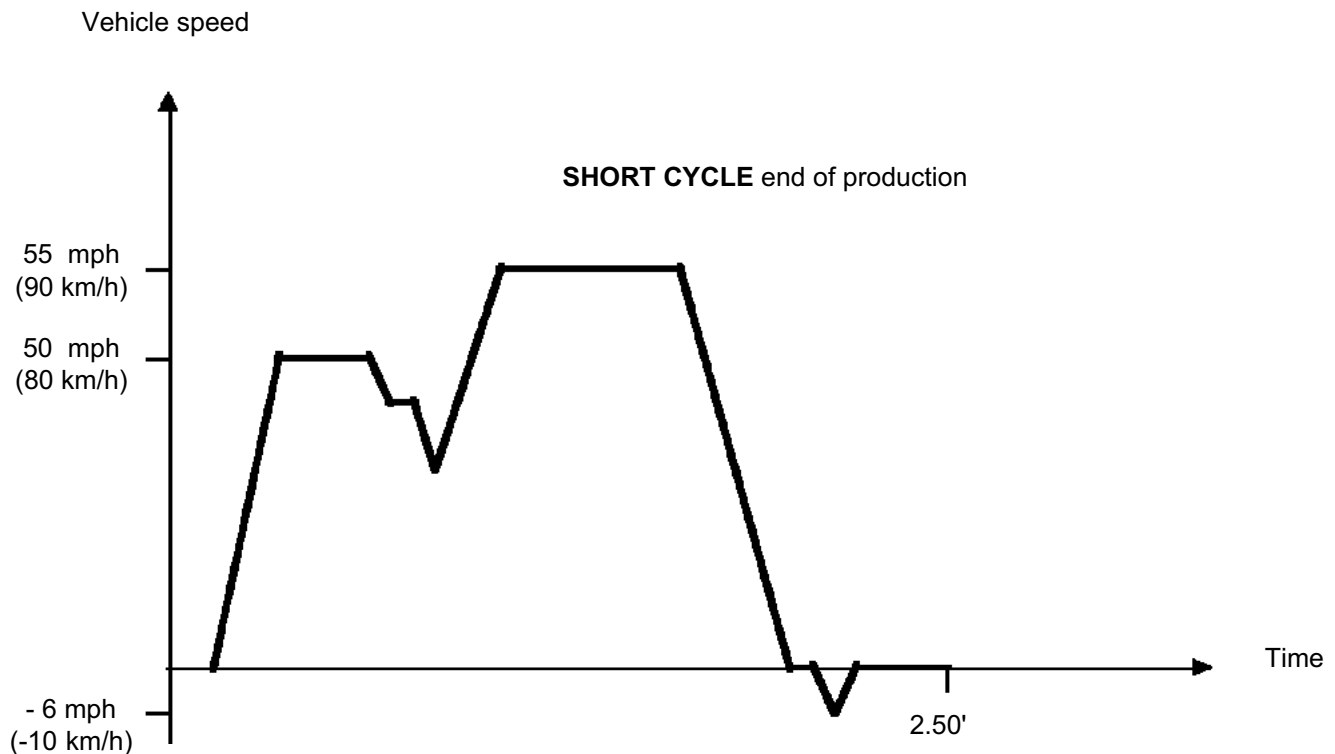
In normal operation, if the indicator light is lit continuously, the injection system is exceeding the pollution threshold due to an OBD fault (misfiring, ageing of the oxygen sensors or a fault on the fuel supply) or an electrical fault leading to an OBD fault (injector, coil, etc.). Flashing of this indicator light signifies a risk of catalytic converter damage.

3 OBD DRIVING TEST CONDITIONS

There are two ways of activating OBD tests:

- **A short cycle test** carried out on a rolling test bed at the end of the assembly line (see diagram below) requiring strict load, engine speed and torque conditions. This test requires a specific command from the end of line control tool and **therefore cannot be activated with the after-sales tool.**

The OBD operating test below is therefore only provided as an example but gives an indication of the speed levels to be used.



- **A customer road test** using engine speed and load ranges frequently encountered during the vehicle's life. This test is used to make present faults reappear or to confirm the repair of faults: **DF204** and **DF205** ageing of the upstream sensors, rows A and B, **DF183** and **DF184** catalytic converters Nos.1 and 2 and **DF202** and **DF203** fuel supply, rows A and B.

The six misfiring faults (**DF111** to **114**, **DF185** and **DF186**) are also OBD faults but this test is activated when the engine is started. It is therefore not necessary to perform a test to confirm that these faults have been repaired.

If the aforementioned OBD faults appear as stored on the diagnostic tool, the fault finding procedure should be applied without trying to make them reappear as present. The repair should then be confirmed by means of a road test.

3.1 Procedure to confirm the repair of an OBD fault

- Perform a complete check using the diagnostic tool.
- Read the OBD fault.
- **DO NOT CLEAR THE FAULT.**
- Click on the description of the fault in order to display the conditions under which the fault appears, then **MAKE A NOTE OF THEM OR PRINT THE SCREEN** (they disappear if the fault is cleared).
- Take note of the details given in the notes section of the fault in question (i.e. need to repair electrical faults before OBD faults).
- Apply the relevant fault finding procedure for the OBD fault and carry out the necessary repairs.
- Erase the faults with the diagnostic tool.
- If a part has been replaced, ensure that the computer has been configured and programmed correctly.
- Perform a driving test, reproducing the previously noted stored conditions.
- **DO NOT SWITCH THE IGNITION OFF AT THE END OF THE DRIVING TEST** (so you can display the results) and perform a fault finding procedure using the diagnostic tool.

THE REPAIR WILL BE CONFIRMED IF THE FAULT IS NO LONGER PRESENT.

3.2 Additional information about the conditions for performing the OBD test

The main operating conditions required to confirm the repair of an OBD fault are the conditions under which the fault appears (see section above). Nevertheless, the **catalytic converter** and **oxygen sensor** tests require some specific conditions:

- **The vehicle speed must be maintained at 55 mph (90 km/h) for at least 60 seconds with 25 to 60 % engine load (see OBD short cycle test).**

4 CORRESPONDENCE BETWEEN THE NAMES AND COLOURS OF THE COMPUTER CONNECTORS

- **Grey** 32-track computer connector: **connector A.**
- **Brown** 48-track computer connector: **connector B.**
- **Black** 48-track computer connector: **connector C.**

Fault finding - Interpretation of faults

DF003 PRESENT	<u>Air temperature sensor circuit</u> CO.1 : Open circuit or short circuit to +12 volts CC.0 : Short circuit to earth
NOTES	None.
Check the connection and condition of the air temperature sensor connector. Replace the connector if necessary.	
Ensure that the sensor is correctly inserted in the inlet manifold. Reposition it if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector A) track C4 —————> track 1 of the air temperature sensor computer (connector A) track D4 —————> track 2 of the air temperature sensor Repair if necessary.	
Check the resistance value of the sensor by measuring between track 1 and track 2 of the air temperature sensor. Replace the sensor if the resistance is not approximately: 2051 Ω \pm 125 Ω at 25 °C. (For more details, refer to the repair method for the electrical specifications of the sensor depending on temperature).	
With the ignition on, check for the presence of a 5 volt supply on track 2 of the sensor. If there is no supply, replace the injection computer (reprogram and configure the computer: see introduction).	
If the fault persists, replace the air temperature sensor.	

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

Fault finding - Interpretation of faults

DF004 PRESENT OR STORED	<u>Coolant temperature sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CO.1 : Open circuit or short circuit to +12 volts 1.DEF : Inconsistent signal
--	---

NOTES	Special notes: A short circuit on the sensor or a short circuit on the two tracks of the sensor will not necessarily be detected by the diagnostic tool (the computer gives priority to defect mode rather than to displaying the fault) but the overheating warning light will be switched on, the fans will switch on at second speed and the coolant temperature will be set to 120°C on the diagnostic tool (substitution value). If this case arises, the following fault finding procedure should be applied.
--------------	---

CO - CC.0 - CO.1	NOTES	Only run this fault finding procedure if a fault present with CO , CC.0 and CO.1 .
-------------------------	--------------	---

Check the connection and condition of the coolant temperature sensor connector. Replace the connector if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector A) track D3 —————→ track 1 of the coolant temperature sensor computer (connector A) track D2 —————→ track 2 of the coolant temperature sensor Repair if necessary.
Check the resistance value by measuring between track 1 and track 2 of the coolant temperature sensor. Replace the sensor if the resistance is not approximately: 5000 Ω ± 150 Ω at 25 °C. (For more details, refer to the repair method for the electrical specifications of the sensor depending on temperature).
With the ignition on, check for the presence of a 5 volt supply on track 2 of the sensor. If there is no supply, replace the injection computer (reprogram and configure the computer: see introduction).
If the fault persists, replace the coolant temperature sensor.

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

Fault finding - Interpretation of faults

DF004

(continued)

1.DEF

NOTES

Conditions for carrying out fault finding on stored faults: The fault is declared present after the engine is started (cold engine) and then allowed to warm to 60 °C.

Ensure **the conformity of the engine cooling circuit**: radiator in good condition, unobstructed flow of cooling air (radiator not blocked by leaves, etc.), coolant correctly bled, etc.

Using the diagnostic tool, monitor the temperature of the engine coolant (**PR002**). After starting (cold engine), at idle speed the temperature should rise uniformly without wavering. If the temperature rise is not linear (temperature curve rises or falls sharply), **replace** the coolant temperature sensor.

If the fault persists, **replace** the coolant temperature sensor.

AFTER REPAIR

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

Fault finding - Interpretation of faults

DF008 PRESENT OR STORED	<u>Fuel pump relay control circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
--	---

NOTES	Priority in the event of a number of faults: First, deal with the DF157 battery voltage fault if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running command AC010 fuel pump relay.
	Special note: On the after-sales diagram, the fuel pump relay is referred to as the injection relay.

Check the **condition of the clips** on the injection relay (on the engine fuse/relay plate).
Replace the clips if necessary.

Ensure the **presence of +12 V before ignition** on **track 1** and on **track 3** of the injection relay.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:
computer (connector C) **track H4** → **track 2** of the injection relay
Repair if necessary.

Check the **resistance value** of the relay by measuring between **track 1** and **track 2** of the relay. Replace the relay if the resistance is not approximately: **65 Ω ± 5 Ω** at 25 °C.

If the fault persists, **replace** the injection relay.

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

Fault finding - Interpretation of faults

DF010 PRESENT OR STORED	<u>Low-speed fan circuit (fan 1)</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
--	---

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running command AC271 low-speed fan relay.
	Special notes: This fault only appears on the diagnostic tool when the computer has detected a fault on the relay control circuit. It is therefore essential to refer to the vehicle diagram in order to check the power circuit of the fan assembly relays.

Check the **condition of the clips** of the fan 1 relays (on the engine fuse/relay plate).
Replace the clips if necessary.

Ensure the **presence of a +12 V before ignition feed** on **track 1** of the fan 1 relays (large purple 50 A relay and small black or grey 25 A relay: see diagrams).
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:
computer (connector B) **track J4** → **track 2** of the fan 1 relays
Repair if necessary.

Check the **resistance value** of the relays by measuring between **track 1** and **track 2** of the relays. Replace the relays if the resistance is not approximately:
– **85 Ω \pm 5 Ω** at 25°C for the 25 A black or grey relay.
– **65 Ω \pm 5 Ω** at 25°C for the purple 50A relay.

If the fault persists, **replace** the fan 1 relays.

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

Fault finding - Interpretation of faults

**DF011
PRESENT**Fault warning light circuit


CO : Open circuit
CC.0 : Short circuit to earth
CC.1 : Short circuit to +12 volts

NOTES

None.

Ensure **the presence of a +12 V before ignition feed** on the instrument panel connector (see instrument panel diagrams).
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector B) **track J3**  instrument panel connector
(see instrument panel diagrams)

Repair if necessary.

Check that the bulb is in good condition.
Replace it if necessary.

AFTER REPAIR

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

Fault finding - Interpretation of faults

DF014 PRESENT OR STORED	<u>Canister bleed solenoid valve circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or entering command AC016 canister bleed solenoid valve.
Check the connection and condition of the canister bleed solenoid valve connector. Replace the connector if necessary.	
With the ignition switched on, check for the presence of +12 V on track 1 of the canister bleed solenoid valve.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: injection relay track 5 —————> track 1 of the canister bleed solenoid valve Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: computer (connector C) track F4 —————> track 2 of the canister bleed solenoid valve Repair if necessary.	
Check the resistance value of the solenoid valve by measuring between track 1 and track 2 of the canister bleed solenoid valve. Replace the solenoid valve if the resistance is not approximately: 26 Ω ± 4 Ω at 23 °C.	
If the fault persists, replace the canister bleed solenoid valve.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF015 PRESENT or STORED	<u>Air conditioning authorisation signal</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
--	---

NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after switching on the air conditioning.
	Special notes: No injection or air conditioning faults must be present, since the defect modes of these computers can prevent the air conditioning from being switched on.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer connector B **track D3** —————→ **track 24** of the air conditioning computer
Repair if necessary.

If the fault persists, **carry out a fault finding procedure on the air conditioning system.**

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

Fault finding - Interpretation of faults

DF022
PRESENTComputer

NOTES

Special note:
Engine does not start.

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C)	track L3	————→	track 5 of the injection locking relay
computer (connector C)	track E1	————→	track 2 of the injection locking relay
computer (connector B)	track B4	————→	injection fuse: + after ignition (see vehicle wiring diagrams)
computer (connector A)	track H1	————→	earth
computer (connector B)	track L4	————→	earth
computer (connector B)	track M4	————→	earth
computer (connector C)	track M4	————→	earth

Repair if necessary.

If the fault persists, **replace** the injection computer (reprogram and configure the computer as necessary).

AFTER REPAIR

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

Fault finding - Interpretation of faults

DF030 PRESENT OR STORED	<u>Low-speed fan circuit (fan 2)</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running command AC272 high-speed fan relay.
	Special note: This fault only appears on the diagnostic tool when the computer has detected a fault on the relay control circuit. It is therefore essential to refer to the vehicle diagram in order to check the power circuit of the fan assembly relays.
Check the condition of the clips of the fan 2 relays (on the engine fuse/relay plate). Replace the clips if necessary.	
Ensure the presence of a +12 V before ignition feed on tracks 1 and 3 of the fan 2 relay (large purple 50A relay) and on track 1 of the second fan 2 relay (small black or grey 25A relay). Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector B) track K4 —————> track 2 of the fan 2 purple relay computer (connector B) track K4 —————> track 2 of the fan 2 black or grey relay Repair if necessary.	
Check the resistance value of the relays by measuring between track 1 and track 2 of the relays. Replace the relays if the resistance is not approximately: – 85 Ω ± 5 Ω at 25°C for the 25 A black or grey relay. – 65 Ω ± 5 Ω at 25°C for the purple 50A relay.	
If the fault persists, replace the fan 2 relays.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF032 PRESENT OR STORED	<u>Coolant temperature overheat warning light circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
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NOTES	None.
--------------	-------

Ensure **the presence of a +12 V before ignition feed** on the instrument panel connector (see instrument panel diagrams).
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:
computer (connector B) **track K3** → instrument panel connector
(see instrument panel diagrams)

Repair if necessary.

Check that the bulb is in good condition.
Replace it if necessary.

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

Fault finding - Interpretation of faults

DF045 PRESENT OR STORED	<u>Manifold pressure sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CO.1 : Open circuit or short circuit to +12 volts 1.DEF : Inconsistent signal
--	---

NOTES	Priority in the event of a number of faults: Deal with fault DF137 motorised throttle body first if it is present or stored.
--------------	---

CO - CC.0 - CO.1	NOTES	Only run this fault finding procedure if a fault present with open circuit, CC.0 and CO.1 .
-------------------------	--------------	--

Check **the connection and condition** of the pressure sensor connector.
Replace the connector if necessary.

Ensure that the pressure sensor is **correctly inserted in the inlet manifold**.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector A)	track B3	→	track 1	of the pressure sensor
computer (connector A)	track C3	→	track 2	of the pressure sensor
computer (connector A)	track A3	→	track 3	of the pressure sensor

Repair if necessary.

Check for the presence of a **5 volt supply** on **track 3** of the sensor. If there is no supply, **replace** the injection computer (reprogram and configure the computer: see introduction).

If the fault persists, **replace** the pressure sensor.

1.DEF	NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
--------------	--------------	---

Ensure there are no **air leaks** on the inlet manifold, particularly on the manifold pressure sensor (behind the manifold).

Check on the diagnostic tool that parameter **PR001** manifold pressure indicates a consistent value (if necessary perform a conformity check). If the pressure measurement is not consistent, **replace** the manifold pressure sensor.

If the fault persists, **replace** the manifold pressure sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF084 PRESENT OR STORED	<u>Cylinder 1 injector control</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short-circuit to +12 Volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running command AC040 injector cylinder 1.
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div><div>injection relay track 5</div><div>→</div><div>15-track clip connector track 7</div><div>→</div><div>injector 1 track 1</div></div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div><div>computer connector C track K1</div><div>→</div><div>15-track clip connector track 1</div><div>→</div><div>injector 1 track 2</div></div> Repair if necessary.	
Check the resistance value of the injector by measuring between tracks 1 and 2 of the injector. Replace the injector if the resistance is not approximately: 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector no. 1.	

AFTER REPAIR

Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter.
Deal with any other possible faults.

Fault finding - Interpretation of faults

DF085 PRESENT OR STORED	<u>Cylinder 2 injector control</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short-circuit to +12 Volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running command AC041 injector cylinder 2.
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div><div>injection relay track 5</div><div>→</div><div>black 15-track clip connector track 7</div><div>→</div><div>injector 2 track 1</div></div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div><div>computer connector C track J3</div><div>→</div><div>15-track clip connector track 2</div><div>→</div><div>injector 2 track 2</div></div> Repair if necessary.	
Check the resistance value of the injector by measuring between tracks 1 and 2 of the injector. Replace the injector if the resistance is not approximately: 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector no. 2.	

AFTER REPAIR

Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter.
Deal with any other possible faults.

Fault finding - Interpretation of faults

DF086 PRESENT OR STORED	<u>Cylinder 3 injector control</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short-circuit to +12 Volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or starting command AC042 injector cylinder 3.
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div><div>injection relay track 5</div><div>→</div><div>15-track clip connector track 7</div><div>→</div><div>injector 3 track 1</div></div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div><div>computer connector C track K3</div><div>→</div><div>15-track clip connector track 3</div><div>→</div><div>injector 3 track 2</div></div> Repair if necessary.	
Check the resistance value of the injector by measuring between tracks 1 and 2 of the injector. Replace the injector if the resistance is not approximately: 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector no. 3.	

AFTER REPAIR

Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter.
Deal with any other possible faults.

Fault finding - Interpretation of faults

DF087 PRESENT OR STORED	<u>Cylinder 4 injector control</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 Volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or starting command AC043 injector cylinder 4.
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="text-align: center;"> black 15-track clip connector track 7 </div> <div style="text-align: center;"> injector 4 track 1 </div> </div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> computer connector C track J4 </div> <div style="text-align: center;"> 15-track clip connector track 4 </div> <div style="text-align: center;"> injector 4 track 2 </div> </div> Repair if necessary.	
Check the resistance value of the injector by measuring between track 1 and track 2 of the injector. Replace the injector if the resistance is not approximately: 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector no. 4.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF111 PRESENT OR STORED	<u>Misfiring on cylinder 1</u>
NOTES	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 1. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 1. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of injector cylinder 1, – the conformity of the fuel. <p>Replace the faulty component.</p>	
AFTER REPAIR	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

DF112 PRESENT OR STORED	<u>Misfiring on cylinder 2</u>
NOTES	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 2. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 2. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of the cylinder 2 injector, – the conformity of the fuel. <p>Replace the faulty component.</p>	
AFTER REPAIR	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

DF113 PRESENT OR STORED	<u>Misfiring on cylinder 3</u>
NOTES	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 3. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 3. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of the cylinder 3 injector, – the conformity of the fuel. <p>Replace the faulty component.</p>	
AFTER REPAIR	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

DF114 PRESENT OR STORED	<u>Misfiring on cylinder 4</u>
NOTES	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 4. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 4. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of the injector of cylinder 4, – the conformity of the fuel. <p>Replace the faulty component.</p>	
AFTER REPAIR	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

DF118 PRESENT OR STORED	<u>Refrigerant fluid pressure sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
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NOTES	Priority in the event of a number of faults: Deal first with faults DF010 low-speed fan circuit and DF126 pedal potentiometer track 2 if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the air conditioning has been switched on and the passenger compartment blower unit is operating.

Check the **connection and condition** of the refrigerant pressure sensor connector.
Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector B)	track D4	→	track 1	of the refrigerant pressure sensor
computer (connector B)	track E4	→	track 2	of the refrigerant pressure sensor
computer (connector B)	track A3	→	track 3	of the refrigerant pressure sensor
		→	track 1	of the pedal potentiometer (track 2)

Repair if necessary.

With the ignition on, check for the presence of a **5 volt supply** on **track 2** of the sensor.
If there is no feed, **replace** the injection computer.

If the fault persists, **replace** the refrigerant fluid pressure sensor.

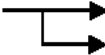


AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF125 PRESENT	<u>Pedal potentiometer circuit track 1</u> CO.1 : Open circuit or short circuit to +12 volts CO.0 : Open circuit or short circuit to earth 1.DEF : Inconsistent signal
NOTES	Priority in the event of a number of faults: deal with fault DF126 pedal potentiometer 2 circuit first if it is present or stored.
Check the connection and condition of the pedal potentiometer connector. Replace the connector if necessary.	
Check that the accelerator pedal is properly actuating the sensor.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector B) track A1 —————▶ track 3 of the accelerator pedal sensor computer (connector B) track K1 —————▶ track 2 of the accelerator pedal sensor computer (connector B) track B1 —————▶ track 4 of the accelerator pedal sensor Repair if necessary.	
Check the resistance value of pedal potentiometer no. 1 by measuring between track 2 and track 4 of the potentiometer. Replace the potentiometer if the resistance is not approximately: 1.2 KΩ ± 480 Ω at 20°C.	
With the ignition on, check for the presence of a 5 volt supply on track 4 of the potentiometer. If there is no supply, replace the injection computer (reprogram and configure the computer: see introduction).	
If the fault persists, replace the pedal potentiometer.	

AFTER REPAIR	Clear the fault memory. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF126 PRESENT	<u>Pedal potentiometer circuit track 2</u> CO.1 : Open circuit or short circuit to +12 volts CO.0 : Open circuit or short circuit to earth 1.DEF : Inconsistent signal
NOTES	None.
Check the connection and condition of the pedal potentiometer connector. Replace the connector if necessary.	
Check that the accelerator pedal is properly actuating the sensor.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector B) track A3  track 1 of the accelerator pedal sensor track 3 of the refrigerant pressure sensor computer (connector B) track A2  track 6 of the accelerator pedal sensor computer (connector B) track H1  track 5 of the accelerator pedal sensor Repair if necessary.	
Check the resistance value of pedal potentiometer no. 2 by measuring between track 5 and track 1 of the potentiometer. Replace the potentiometer if the resistance is not approximately: 1.7 KΩ ± 680 Ω to 20 °C.	
With the ignition on, check for the presence of a 5 volt supply on track 5 of the potentiometer. If there is no supply, replace the injection computer (reprogram and configure the computer: see introduction).	
If the fault persists, replace the pedal potentiometer.	

AFTER REPAIR	Clear the fault memory. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF135 PRESENT OR STORED	<u>Brake pedal sensor circuit</u> 1.DEF : Fault on one of the two brake pedal contacts 2.DEF : Fault on both brake pedal contacts						
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the brake pedal has been depressed for 2 seconds ten times.						
Check the connection and condition of the brake pedal switch connector. Replace the connector if necessary.							
Ensure correct adjustment of the brake pedal switch (refer to Repair methods).							
With the ignition on, check for presence of +12 V on track A1 and on track B1 of the brake switch.							
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector B) track B2 —————> track B3 of the brake switch computer (connector B) track M1 —————> track A3 of the brake switch Repair if necessary.							
Disconnect the pedal sensor connector and check the condition of the contacts using an ohmmeter. Replace the pedal sensor if it does not operate as specified below: <table><tr><td>Pedal at rest</td><td>Pedal depressed</td></tr><tr><td>continuity between tracks B1 and A3</td><td>insulation between tracks B1 and A3</td></tr><tr><td>insulation between tracks A1 and B3</td><td>continuity between tracks A1 and B3</td></tr></table>		Pedal at rest	Pedal depressed	continuity between tracks B1 and A3	insulation between tracks B1 and A3	insulation between tracks A1 and B3	continuity between tracks A1 and B3
Pedal at rest	Pedal depressed						
continuity between tracks B1 and A3	insulation between tracks B1 and A3						
insulation between tracks A1 and B3	continuity between tracks A1 and B3						

AFTER REPAIR

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

Fault finding - Interpretation of faults

DF137 PRESENT OR STORED	Motorised throttle unit 1.DEF : Signal outside upper limit. 2.DEF : Signal outside lower limit. 3.DEF : General motorised choke valve control fault
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NOTES	Priority in the event of a number of faults: Deal with fault DF045 manifold pressure sensor circuit first if it is present or stored.
	Special note: If the two potentiometers are faulty or if the throttle motor is faulty, the motorised throttle body will adopt the backup position (limp-home), characterised by an engine speed locked at approximately 1500 rpm. These two faults cause the injection fault warning light to come on (orange warning light on the display: level 1 injection fault).

1.DEF - 2.DEF	NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present following starting the engine and depressing the accelerator pedal.
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Check the **connection and condition** of the motorised throttle body connector.
Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C)	track C3	————→	track 3	of the motorised throttle
computer (connector C)	track B4	————→	track 4	of the motorised throttle
computer (connector C)	track C4	————→	track 5	of the motorised throttle valve
computer (connector C)	track B3	————→	track 6	of the motorised throttle valve

Repair if necessary.

With the ignition on, check the presence of a **5 volt supply** by measuring between **track 5 (+)** and **track 3** (earth) of the motorised throttle connector.
If there is no feed, **replace** the injection computer.

Check the **resistance value** of the throttle potentiometers by measuring between **track 3** and **track 5** of the motorised throttle body (connector disconnected). Replace the motorised throttle if the potentiometer resistance value is not approximately: **1.2 KΩ ± 240 Ω** at 20 °C.

If the fault persists, **replace** the motorised throttle.

AFTER REPAIR	If the computer or throttle housing has been replaced, program the throttle end stops (refer to the introduction to fault finding). Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF137

(continued)

3.DEF

NOTES

Conditions for applying the fault finding procedure to the stored fault:

The fault is declared present following starting the engine and pressing the accelerator pedal.

Check the **connection and condition** of the motorised throttle connector.
Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C) **track L4** —————> **track 1** of the motorised throttle

computer (connector C) **track M3** —————> **track 2** of the motorised throttle

Repair if necessary.

A simultaneous short circuit on both signals of the potentiometer may cause symbol 3.DEF to be displayed: connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

computer (connector C) **track B4** —————> **track 4** of the motorised throttle (signal no. 1)

computer (connector C) **track B3** —————> **track 6** of the motorised throttle (signal no. 2)

Repair if necessary.

Check the **resistance value** of the throttle motor by measuring between **tracks 1** and **2** of the motorised throttle body (connector disconnected). Replace the motorised throttle body if the motor resistance value is not approximately: $2\ \Omega \pm 1\ \Omega$ at 20 °C.

If the fault persists, **replace** the motorised throttle.

AFTER REPAIR

If the computer or throttle housing has been replaced, program the throttle end stops (refer to the introduction to fault finding).
Clear the fault memory.
Follow the instructions to confirm repair.
Deal with any other possible faults.

Fault finding - Interpretation of faults

DF157 PRESENT OR STORED	<u>Battery voltage</u>
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running for more than 3 minutes at a vehicle speed of > 0 mph/km/h.
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Make sure that the cable connecting the battery to the starter motor, the battery earth cable to the chassis and the chassis earth cable to the engine and transmission assembly (GMP) **are in good condition**.
 Repair if necessary.

Make sure that the **battery is in a good state of charge** and, if necessary, check the charging circuit.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector B) **track B4** —————> **injection fuse: +** after ignition feed (see vehicle diagrams)

computer (connector C) **track L3** —————> **track 5** of the injection locking relay

Repair if necessary.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF160 PRESENT OR STORED	Cylinder 5 injector control CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or starting command AC044 injector cylinder 5.
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Check **the connection and condition** of the injector connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the injector.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay track 5 → **15-track clip connector track 7** → **injector 5 track 1**
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer connector C track K4 → **15-track clip connector track 5** → **injector 5 track 2**
Repair if necessary.

Check the **resistance value** of the injector no. 5 by measuring between **track 1** and **track 2** of the injector.
Replace the injector if the resistance is not approximately: **14.5 Ω ± 0.7 Ω** at 20 °C.

If the fault persists, **replace** injector no. 5.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF161 PRESENT OR STORED	CYLINDER 6 INJECTOR CONTROL CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or starting command AC600 injector cylinder 6.
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Check **the connection and condition** of the injector connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the injector.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay track 5 → **15-track clip connector track 7** → **injector 6 track 1**
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer connector C track K2 → **15-track clip connector track 6** → **injector 6 track 2**
Repair if necessary.

Check the **resistance value** of injector no. 6 by measuring between **track 1** and **track 2** of the injector.
Replace the injector if the resistance is not approximately: **14.5 Ω ± 0.7 Ω** at 20 °C.

If the fault persists, **replace** injector no. 6.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF174 PRESENT OR STORED	<u>Camshaft circuit no. 1</u> CO : Open circuit CO.1 : Open circuit or short circuit to +12 volts CO.0 : Open circuit or short circuit to earth 1.DEF : No signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the camshaft sensor connector.
Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C) **track B1** —————> **track 1** of camshaft sensor no. 1

computer (connector C) **track C1** —————> **track 2** of camshaft sensor no. 1

computer (connector C) **track B2** —————> **track 3** of camshaft sensor no. 1

Repair if necessary.

With the ignition on, check for the presence of a **5 volt supply** by measuring between **track 3 (+)** and **track 1** (earth) of the camshaft sensor no. 1 connector.

If there is no supply, **replace** the injection computer (reprogram and configure the computer: see introduction).

If the fault persists, **replace** camshaft sensor no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF175 PRESENT OR STORED	<u>Camshaft sensor no. 2</u> CO : Open circuit CO.1 : Open circuit or short circuit to +12 volts CO.0 : Open circuit or short circuit to earth 1.DEF : No signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the connection and condition of the camshaft sensor connector. Replace the connector if necessary.		
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections:		
computer connector C	15-track clip connector	camshaft sensor no. 2
track B1	→ track 9	→ track 1
track C2	→ track 10	→ track 2
track B2	→ track 8	→ track 3
Repair if necessary.		
With the ignition on, check for the presence of a 5 volt supply by measuring between track 3 (+) and track 1 (earth) of the connector for camshaft sensor no. 2. If there is no supply, replace the injection computer (reprogram and configure the computer: see introduction).		
If the fault persists, replace camshaft sensor no. 2.		

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF176 PRESENT OR STORED	<u>Pinking sensor no. 1</u> CO : Open circuit CC : Short circuit
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NOTES	Priority in the event of a number of faults: Deal with faults DF174 and DF175 on camshaft sensors nos. 1 and 2 first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after a road test during which pinking regulation occurs (engine speed above 2520 rpm for 3 seconds with 35% load).

Check the **connection and condition** of the pinking sensor connector.
Replace the connector if necessary.

Check that the pinking sensor is **tightened** to torque (see repair methods for manufacturer's value).

Ensure that the engine is not making an **abnormal noise**.
If there is an abnormal noise, the cause of the noise must be eliminated before the sensor is checked.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C) **track A1** —————> **track 1** of pinking sensor no. 1

computer (connector C) **track A2** —————> **track 2** of pinking sensor no. 1

Repair if necessary.

If the fault persists, **replace** pinking sensor no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF177 PRESENT OR STORED	<u>Pinking sensor no. 2</u> CO : Open circuit CC : Short circuit
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NOTES	Priority in the event of a number of faults: Deal with faults DF174 and DF175 on camshaft sensors nos. 1 and 2 first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after a road test during which pinking regulation occurs (engine speed above 2520 rpm for 3 seconds with 35% load).

Check the **connection and condition** of the pinking sensor connector.
Replace the connector if necessary.

Check that the pinking sensor is **tightened** to torque (see repair methods for manufacturer's value).

Ensure that the engine is not making an **abnormal noise**.
If there is an abnormal noise, the cause of the noise must be eliminated before the sensor is checked.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C) **track A3** —————▶ **track 1** of pinking sensor no. 2

computer (connector C) **track A4** —————▶ **track 2** of pinking sensor no. 2

Repair if necessary.

If the fault persists, **replace** pinking sensor no. 2.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF178 PRESENT OR STORED	<u>Upstream oxygen sensor no. 1</u> CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal
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NOTES	Priority in the event of a number of faults: Deal with faults DF180 and DF181 downstream oxygen sensors nos. 1 and 2 first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after running the engine at idle speed for 2 minutes.
	Special note: A fault on upstream sensor no. 1 leads to an increase in pollution and the OBD warning light comes on.

Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

Check for **air leaks** on the exhaust system.

If the vehicle is driven frequently in town, **decoke the engine**.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector A) **track E4** → **track 4** of the oxygen sensor

computer (connector A) **track F4** → **track 3** of the oxygen sensor

Repair if necessary.

If the fault persists, **replace** the oxygen sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF179 PRESENT OR STORED	<u>Upstream oxygen sensor no. 2</u> CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal
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NOTES	Priority in the event of a number of faults: Deal with faults DF180 and DF181 downstream oxygen sensors nos. 1 and 2 first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after running the engine at idle speed for 2 minutes.
	Special note: A fault on upstream sensor no. 2 leads to an increase in pollution and the OBD warning light comes on.

Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

Check for **air leaks** on the exhaust system.

If the vehicle is driven frequently in town, **decoke the engine**.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector A) **track E2** —————> **track 4** of the oxygen sensor

computer (connector A) **track F2** —————> **track 3** of the oxygen sensor

Repair if necessary.

If the fault persists, **replace** the oxygen sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF180 PRESENT OR STORED	<u>Downstream oxygen sensor no. 1</u> CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been running at idling speed for four minutes.
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Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.
Check for air leaks on the exhaust system.
If the vehicle is driven frequently in town, decoke the engine .
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector A) track E3 —————> track 4 of the oxygen sensor computer (connector A) track F3 —————> track 3 of the oxygen sensor Repair if necessary.
If the fault persists, replace the oxygen sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF181 PRESENT OR STORED	<u>Downstream oxygen sensor no. 2</u> CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been running at idling speed for four minutes.
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Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

Check for **air leaks** on the exhaust system.

If the vehicle is driven frequently in town, **decoke the engine**.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector A) **track E1** —————> **track 4** of the oxygen sensor

computer (connector A) **track F1** —————> **track 3** of the oxygen sensor

Repair if necessary.

If the fault persists, **replace** the oxygen sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF182 PRESENT OR STORED	<u>Pinking correction</u> 1.DEF : Sensor faulty 2.DEF : Detection of signal outside upper or lower limit
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NOTES	Priority in the event of a number of faults: Deal with faults DF176 and DF177 pinking sensors nos. 1 and 2 first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after a road test during which pinking regulation occurs (engine speed above 2520 rpm for 5 seconds with 35% load).

2.DEF	NOTES	Apply this fault finding procedure only in the case of a fault present with 2 DEF .
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Check the connection and condition of the pinking sensor connector. Replace the connector if necessary.	
Check the tightness of the pinking sensors (see repair methods for manufacturer's values).	
Ensure that the engine is not making an abnormal noise . In the event of abnormal noise, the cause of the noise must be eliminated before running the sensor fault finding procedure.	
If the fault persists, replace the pinking sensor.	

1.DEF	NOTES	Apply this fault finding procedure only in the case of a fault present with 1.DEF .
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Ensure that the engine is not making an abnormal noise (engine damage) and ensure that the sensors are tightened to the correct torque .	
Replace the pinking sensors (even if no faults are present) to ensure that the fault is not due to the sensors. If the fault persists, replace the injection computer (reprogram and configure the computer: see introduction).	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF183 PRESENT OR STORED	<u>Catalytic converter no. 1</u>
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF180 and DF181 downstream oxygen sensor nos. 1 and 2; DF178 and DF179 upstream oxygen sensor nos. 1 and 2; DF111 , DF112 , DF113 , DF114 , DF185 and DF186 misfiring on cylinders 1 - 6; DF202 and DF203 fuel supply of rows A and B if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test where the speed has exceeded 55 mph (90 km/h). DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special note: A fault on catalytic converter no. 1 leads to an increase in pollution and the OBD warning light comes on.

Check that the oxygen sensors are **torque tightened**.

Ensure absence of **air leaks** on the exhaust system.
Repair if necessary.

Remove catalytic converter no. 1 and check **the condition of the filter element** inside (clogging).
If the filter element seems correct, shake the catalytic converter to check that there are no broken components inside (metallic noises).
Replace the catalytic converter if necessary.

If the fault persists, **replace** catalytic converter no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF184 PRESENT OR STORED	<u>Catalytic converter no. 2</u>
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF180 and DF181 downstream oxygen sensor nos. 1 and 2; DF178 and DF179 upstream oxygen sensor nos. 1 and 2; DF111 , DF112 , DF113 , DF114 , DF185 and DF186 misfiring on cylinders 1 - 6; DF202 and DF203 fuel supply of rows A and B if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test where the speed has exceeded 55 mph (90 km/h). DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special note: A fault on catalytic converter no. 2 leads to an increase in pollution and the OBD warning light comes on.

Check that the oxygen sensors are torque tightened .
Ensure absence of air leaks on the exhaust system. Repair if necessary.
Remove catalytic converter no. 2 and check the condition of the filter element inside (clogging). If the filter element seems correct, shake the catalytic converter to check that there are no broken components inside (metallic noises). Replace the catalytic converter if necessary.
If the fault persists, replace catalytic converter no. 2.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

<p>DF185 PRESENT OR STORED</p>	<p><u>Misfiring on cylinder 5</u></p>
<p>NOTES</p>	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 5. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 5. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of injector cylinder 5, – the conformity of the fuel. <p>Replace the faulty component.</p>	
<p>AFTER REPAIR</p>	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

DF186 PRESENT OR STORED	<u>Misfiring on cylinder 6</u>
NOTES	<p>Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 control; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 control; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198 to DF201, heating of upstream and downstream oxygen sensors, rows A and B, if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of damage to the catalytic converter.</p>
<p>Check the ignition system by checking the condition of the plug and the low and high voltage contacts of the coil of cylinder 6. Replace any faulty components.</p>	
<p>Check the compression ratio of cylinder 6. Repair if necessary.</p>	
<p>Check the flywheel target (warping or cracks). Replace the flywheel if necessary.</p>	
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>	
<p>If no fault is found, then there must be a fault in the fuel system. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of injector cylinder 6, – the conformity of the fuel. <p>Replace the faulty component.</p>	
AFTER REPAIR	<p>Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.</p>

Fault finding - Interpretation of faults

**DF188
PRESENT**Engine oil temperature sensorCO.1 : Open circuit or short circuit to +12 volts
CC.0 : Short circuit to earth**NOTES**

None.

Check the **connection and the condition** of the oil temperature sensor connector.
Replace the connector if necessary.

Check the **resistance value** of the oil temperature sensor by measuring between **track 1** and **track 2** of the sensor. Replace the sensor if the resistance is not approximately: **1554 Ω \pm 155 Ω** at 40 °C.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector A) **track D1** \longrightarrow **track 1** of the oil temperature sensor
earth \longrightarrow **track 2** of the oil temperature sensor

Repair if necessary.

If the fault persists, **replace** the engine oil temperature sensor.

AFTER REPAIR

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

Fault finding - Interpretation of faults

DF189 PRESENT OR STORED	<u>Engine flywheel target</u> 1.DEF : Inconsistent signal
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after starting the engine (or a starting attempt).
Check the connection and condition of the flywheel signal sensor connector. Replace the connector if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connections: computer (connector C) track E2 —————▶ track 1 of the engine speed sensor computer (connector C) track E3 —————▶ track 2 of the engine speed sensor Repair if necessary.	
Check the resistance value of the speed sensor by measuring between tracks 1 and 2 of the sensor. Replace the sensor if the resistance is not approximately: 375 Ω \pm 30 Ω .	
Remove the sensor and ensure it has not been rubbing against the flywheel target (flywheel warped). Replace the sensor if necessary.	
Check the condition of the flywheel and the condition of the sensor target (especially if it is removed). Replace the flywheel if necessary.	
If the fault persists, replace the flywheel signal sensor.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF190 PRESENT OR STORED	<u>Row A camshaft shift solenoid valve</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts 1.DEF : Solenoid valve A fault
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF004 coolant temperature sensor circuit; DF188 engine oil temperature sensor; DF174 and DF175 camshaft sensors nos. 1 and 2; DF238 engine speed sensor; DF137 motorised throttle body if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running at a speed between 700 and 4520 rpm for 10 seconds and the engine temperature has reached > 50°C.

Ensure that the oil and coolant temperature sensors indicate consistent values on the basis of parameters **PR002** (coolant temperature) and **PR183** (oil temperature).

Check the **connection and condition of the** solenoid valve connector.
Replace the connector if necessary.


With the ignition on, check for the **presence of +12 V** on **track 2** of the solenoid valve.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5**  **track 2** of the row A solenoid valve

Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track G1**  **track 1** of the row A solenoid valve

Repair if necessary.

Check the **resistance value** of the solenoid valve by measuring between **track 1** and **track 2** of the solenoid valve. Replace the solenoid valve if the resistance is not approximately: $12\ \Omega \pm 1\ \Omega$.

If the fault persists, **replace** the camshaft dephaser solenoid valve row A.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF191 PRESENT OR STORED	<u>Row B camshaft shift solenoid valve</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts 1.DEF : Solenoid valve B fault
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF004 coolant temperature sensor circuit; DF188 engine oil temperature sensor; DF174 and DF175 camshaft sensors nos. 1 and 2; DF238 engine speed sensor; DF137 motorised throttle body if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running at a speed between 700 and 4520 rpm for 10 seconds and the engine temperature has reached > 50°C.

Ensure that the oil and coolant temperature sensors indicate consistent values on the basis of parameters PR002 (coolant temperature) and PR183 (oil temperature).
Check the connection and condition of the solenoid valve connector. Replace the connector if necessary.
With the ignition on, check for the presence of +12 V on track 1 of the solenoid valve.
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div>injection relay track 5 → 15-track connector track 7 → solenoid valve row B track 1</div> Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div>computer connector C track F1 → 15-track connector track 15 → solenoid valve row B track 2</div> Repair if necessary.
Check the resistance value of the solenoid valve by measuring between track 1 and track 2 of the solenoid valve. Replace the solenoid valve if the resistance is not approximately: 12 Ω ± 1 Ω .
If the fault persists, replace the camshaft dephaser solenoid valve, row B.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF192 PRESENT OR STORED	<u>Cylinder coil no. 1 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH \pm 5%).

Check the **connection and condition** of the coil connector.
 Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 2** of the coil.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** —————> **track 2** of ignition coil no. 1
 Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector A) **track H2** —————> **track 1** ignition coil no. 1
 Repair if necessary.

Check the **resistance value** of the coil by measuring between **track 1** and **track 2** of the coil for the primary coil winding resistance. Replace the coil if the resistance is not approximately: **0.5 Ω \pm 0.2 Ω** .

If the fault persists, **replace** coil no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF193 PRESENT OR STORED	<u>Cylinder coil no. 2 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH \pm 5%).

Check the **connection and condition** of the coil connector.
 Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 2** of the coil.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** \longrightarrow **track 2** of ignition coil no. 2
 Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector A) **track H4** \longrightarrow **track 1** ignition coil no. 2
 Repair if necessary.

Check the **resistance value** of the coil by measuring between **track 1** and **track 2** of the coil for the primary coil winding resistance. Replace the coil if the resistance is not approximately: **0.5 Ω \pm 0.2 Ω** .

If the fault persists, **replace** coil no. 2.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF194 PRESENT OR STORED	<u>Cylinder coil no. 3 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH \pm 5%).

Check the **connection and condition** of the coil connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 2** of the coil.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** \longrightarrow **track 2** of ignition coil no. 3
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector A) **track H3** \longrightarrow **track 1** ignition coil no. 3
Repair if necessary.

Check the **resistance value** of the coil by measuring between **track 1** and **track 2** of the coil for the primary coil winding resistance. Replace the coil if the resistance is not approximately: **0.5 Ω \pm 0.2 Ω** .

If the fault persists, **replace** coil no. 3.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF195 PRESENT OR STORED	<u>Cylinder coil no. 4 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary coil winding cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the winding coil induction is more accurate: (0.55 mH \pm 5%).
Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the coil.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div style="display: flex; align-items: center; justify-content: center; gap: 20px;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="text-align: center;"> 15-track clip connector track 7 </div> <div style="text-align: center;"> ignition coil no. 4 track 1 </div> </div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div style="display: flex; align-items: center; justify-content: center; gap: 20px;"> <div style="text-align: center;"> computer connector A track G4 </div> <div style="text-align: center;"> 15-track clip connector track 12 </div> <div style="text-align: center;"> ignition coil no. 4 track 2 </div> </div> Repair if necessary.	
Check the resistance value of the coil by measuring between track 1 and track 2 of the coil for the primary coil winding resistance. Replace the coil if the resistance is not approximately: 0.5 Ω \pm 0.2 Ω .	
If the fault persists, replace coil no. 4.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF196 PRESENT OR STORED	<u>Cylinder coil no. 5 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ± 5%).
Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the coil.	
If there is no supply, check the insulation, continuity and absence of interference resistance on the following connection: <div>injection relay track 5 → 15-track clip connector track 7 → ignition coil no. 5 track 1</div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: <div>computer connector A track G3 → 15-track clip connector track 13 → ignition coil no. 5 track 2</div> Repair if necessary.	
Check the resistance value of the coil by measuring between track 1 and track 2 of the coil for the primary winding coil resistance. Replace the coil if the resistance is not approximately: 0.5 Ω ± 0.2 Ω .	
If the fault persists, replace coil no. 5.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF197 PRESENT OR STORED	<u>Cylinder coil no. 6 control</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary coil winding cannot be measured due to an internal diode. The low resistance of the primary coil winding does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH \pm 5%).

Check the **connection and condition** of the coil connector.
 Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the coil.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay track 5 \longrightarrow 15-track clip connector track 7 \longrightarrow ignition coil no. 6 track 1
 Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer connector A track G2 \longrightarrow 15-track clip connector track 14 \longrightarrow ignition coil no. 6 track 2
 Repair if necessary.

Check the **resistance value** of the coil by measuring between **track 1** and **track 2** of the coil for the primary winding coil resistance. Replace the coil if the resistance is not approximately: **0.5 Ω \pm 0.2 Ω** .

If the fault persists, **replace** coil no. 6.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF198 PRESENT OR STORED	<u>Upstream oxygen sensor heating no. 1</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the oxygen sensor.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** —————> **track 1** of upstream oxygen sensor no. 1
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track L1** —————> **track 2** of upstream oxygen sensor no. 1
Repair if necessary.

Check **the resistance value** of the sensor heating by measuring between **track 1** and **track 2** of the sensor and replace the sensor if its resistance is not approximately: $9\ \Omega \pm 1\ \Omega$ at 25°C.

If the fault persists, **replace** upstream oxygen sensor no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF199 PRESENT OR STORED	<u>Upstream oxygen sensor heating no. 2</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the oxygen sensor.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** —————→ **track 1** of upstream oxygen sensor no. 2

Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track M1** —————→ **track 2** of upstream oxygen sensor no. 2

Repair if necessary.

Check **the resistance value** of the sensor heating by measuring between **track 1** and **track 2** of the sensor and replace the sensor if its resistance is not approximately: $9\ \Omega \pm 1\ \Omega$ at 25°C.

If the fault persists, **replace** upstream oxygen sensor no. 2.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF200 PRESENT OR STORED	<u>Downstream oxygen sensor heating no. 1</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the oxygen sensor.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** —————→ **track 1** of downstream oxygen sensor no. 1
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track L2** —————→ **track 2** of downstream oxygen sensor no. 1
Repair if necessary.

Check **the resistance value** of the sensor heating by measuring between **track 1** and **track 2** of the sensor and replace the sensor if its resistance is not approximately: $9\ \Omega \pm 1\ \Omega$ at 25°C.

If the fault persists, **replace** the downstream oxygen sensor no. 1.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF201 PRESENT OR STORED	<u>Downstream oxygen sensor heating no. 2</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the oxygen sensor connector.
Replace the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track 1** of the oxygen sensor.

If there is no supply, check the **insulation, continuity and absence of interference resistance** on the following connection:

injection relay **track 5** —————→ **track 1** of downstream oxygen sensor no. 2
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track M2** —————→ **track 2** of downstream oxygen sensor no. 2
Repair if necessary.

Check **the resistance value** of the sensor heating by measuring between **track 1** and **track 2** of the sensor and replace the sensor if its resistance is not approximately: $9\ \Omega \pm 1\ \Omega$ at 25°C.

If the fault persists, **replace** downstream oxygen sensor no. 2.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF202 PRESENT OR STORED	<u>Row A fuel supply</u> 1.DEF : Pressure too low 2.DEF : Pressure too high 3.DEF : Fuel pressure regulation fault
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161 , injectors 1 - 6 control; DF180, DF181 , downstream oxygen sensors 1 and 2; DF178, DF179 , upstream oxygen sensors 1 and 2 and DF198, DF199, DF200 and DF201 heating of the upstream and downstream oxygen sensors from rows A and B.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop). The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fuel supply fault has a negative effect on engine operation (hesitation, etc.) and causes the OBD warning light to be permanently lit (after performing the test three times consecutively), which means that the vehicle is not complying with pollution standards.

Carry out a **full inspection of the fuel supply and injection system**, by checking:

- condition of the fuel filter,
- the petrol flow and pressure (3.5 bar),
- the cleanliness of the tank,
- the condition and correct operation of the injectors (no injector leaks).
- the conformity of the fuel,
- any air or fuel leaks on the fuel feed system.

Replace any faulty components.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF203 PRESENT OR STORED	<u>Row B fuel supply</u> 1.DEF : Pressure too low 2.DEF : Pressure too high 3.DEF : Fuel pressure regulation fault
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161 , injectors 1 - 6 control; DF180, DF181 , downstream oxygen sensors 1 and 2; DF178, DF179 , upstream oxygen sensors 1 and 2 and DF198, DF199, DF200 and DF201 heating of the upstream and downstream oxygen sensors from rows A and B.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop). The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fuel supply fault has a negative effect on engine operation (jerking, etc.) and causes the OBD warning light to be permanently lit (after performing the test three times consecutively), which means that the vehicle is not complying with pollution standards.

Carry out a **full inspection of the fuel supply and injection system**, by checking:

- the condition of the fuel filter,
- the petrol flow and pressure (3.5 bar),
- the cleanliness of the tank,
- the condition and correct operation of the injectors (no injector leaks).
- the conformity of the fuel,
- any air or fuel leaks on the fuel feed system.

Replace any faulty components.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF204 PRESENT OR STORED	<u>Ageing of upstream sensor on row A</u> 1.DEF: Inconsistent signal
NOTES	Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161 , injectors 1 to 6 control; DF180, DF181 , downstream oxygen sensors 1 and 2; DF178, DF179 , upstream oxygen sensors 1 and 2 and DF198, DF199, DF200 and DF201 , heating of the upstream and downstream oxygen sensors, rows A and B; DF202 and DF203 , fuel supply, rows A and B if present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test. The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fault related to ageing of the sensor causes the OBD warning light to come on, which indicates that the vehicle is not within pollution standards.
Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.	
Ensure that the wires have not been inverted between the upstream sensor and the downstream sensor.	
Check for air leaks on the exhaust system.	
If the vehicle is driven frequently in town, decoke the engine .	
If the fault persists, replace the upstream oxygen sensor, row A.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF205 PRESENT OR STORED	<u>Ageing of upstream sensor on row B</u> 1.DEF: Inconsistent signal
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF084, DF085, DF086, DF087, DF160, DF161 , injectors 1 to 6 control; DF180, DF181 , downstream oxygen sensors 1 and 2; DF178, DF179 , upstream oxygen sensors 1 and 2 and DF198, DF199, DF200 and DF201 , heating of the upstream and downstream oxygen sensors, rows A and B; DF202 and DF203 , fuel supply, rows A and B if present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test. The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fault related to ageing of the sensor causes the OBD warning light to come on, which indicates that the vehicle is not within pollution standards.

Check the **connection and condition** of the oxygen sensor connector.
 Replace the connector if necessary.

Ensure that the **wires have not been inverted** between the upstream sensor and the downstream sensor.

Check for **air leaks** on the exhaust system.

If the vehicle is used frequently in town, **decoke the engine**.

If the fault persists, **replace** the upstream oxygen sensor, row B.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF206 PRESENT OR STORED	COMPRESSOR CONTROL CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 volts
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine and switching on the air conditioning.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: computer (connector B) track C3 —————▶ track 2 of the compressor relay Repair if necessary.	
With the ignition on, check for the presence of a 12 volt supply on track 1 and track 3 of the compressor relay. Repair if necessary.	
Check the insulation, continuity and absence of interference resistance of the connection: compressor relay track 5 —————▶ track 2 of the compressor clutch Repair if necessary.	
Check for the presence of earth on track 1 of the compressor clutch connector. Repair if necessary.	
Check the resistance value of the compressor clutch between track 1 and track 2 of the connector. Replace the compressor if the resistance is not approximately: 3 Ω ± 0.6 Ω at 25°C.	
If the fault persists, replace the air conditioning compressor relay.	

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Interpretation of faults

DF238 PRESENT OR STORED	<u>Engine speed sensor</u> 1.DEF: No signal 2.DEF: The flywheel sensor signals a cyclic irregularity, which means: <ul style="list-style-type: none">– a target fault (more sensitive for automatic transmission)– a flywheel sensor air gap fault– micro-breaks in the flywheel sensor circuit 3.DEF: Signal inconsistency
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the **connection and condition** of the flywheel signal sensor connector and replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connections:

computer (connector C) **track E2** —————> **track 1** of the engine speed sensor

computer (connector C) **track E3** —————> **track 2** of the engine speed sensor

Repair if necessary.

Check the **resistance value** of the speed sensor by measuring between **track 1** and **track 2** of the sensor. Replace the sensor if the resistance is not approximately: **375 Ω \pm 30 Ω** .

Remove the sensor and ensure it has **not been rubbing** on the flywheel target (flywheel warped). Replace the sensor if necessary.

Check the **condition of the flywheel** and the condition of the sensor target (especially if it is removed). Replace the flywheel if necessary.

If the fault persists, **replace** the flywheel signal sensor.

AFTER REPAIR	Clear the fault memory. Follow the instructions to confirm repair. Deal with any other possible faults.
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Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.

Application conditions: engine stopped, ignition on, temp. 20°C.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
1	+ after ignition	ET001: + computer after ignition ----- PR004: computer supply voltage	ACTIVE ----- 11 < X < 14 V	In the event of a fault, perform the charge circuit fault finding procedure
2	Immobiliser	ET002: engine immobiliser	INACTIVE	None
3	Air conditioning	ET016: injection > air conditioning connection	ACTIVE	In the event of a fault, apply the fault finding procedure for fault DF015
4	Throttle position potentiometer (without pressing the accelerator pedal).	ET003: throttle position no load ----- ET005: fully open throttle position. ----- PR017: measured throttle position	ACTIVE ----- INACTIVE ----- 2 < X < 10 %	In the event of a fault, reprogram the motorised throttle. If the fault persists, apply the fault finding procedure for the DF137 motorised throttle fault.
5	Accelerator pedal position potentiometer (without depressing the accelerator pedal).	PR112: measured pedal position ----- ET128: accelerator pedal position: full load. ----- ET129: accelerator pedal position: no load	0% ----- INACTIVE ----- ACTIVE	In the event of a fault, apply the fault finding procedure for the pedal potentiometer track 1 and track 2 circuits faults (DF125 and DF126).
6	Air conditioning	ET141: air conditioning authorisation	INACTIVE	None

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.

Application conditions: engine stopped, ignition on, temp. 20°C.

NOTE: To ensure the temperature parameters are correct (without a thermometer), simply read these parameters when the engine is cold (in the morning).

The coolant temperature should be equal to the oil temperature and the air temperature.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
7	Air temperature sensor	PR003: Air temperature	X = temperature under bonnet $\pm 5^{\circ}\text{C}$ ($-40 < X < 128^{\circ}\text{C}$)	In the event of a fault, apply the fault finding procedure for the air temperature sensor fault (DF003).
8	Oil temperature sensor	PR183: oil temperature	X = temperature under bonnet $\pm 5^{\circ}\text{C}$ ($-40 < X < 154^{\circ}\text{C}$)	In the event of a fault, apply the fault finding procedure for the oil temperature sensor fault (DF188).
9	coolant temperature sensor	PR002: coolant temperature	X = temperature under bonnet $\pm 5^{\circ}\text{C}$ ($-40 < X < 140^{\circ}\text{C}$)	In the event of a fault, apply the fault finding procedure for the coolant temperature sensor fault (DF004).
10	Exhaust temperature	PR007: exhaust temperature	$0 < X < 1200^{\circ}\text{C}$	This temperature is an estimated temperature of the catalytic converter. There is no way of modifying this parameter.
11	Manifold pressure sensor	PR001: manifold pressure ----- PR016: atmospheric pressure	Atmospheric pressure $\pm 10\%$	In the event of a fault, apply the fault finding procedure for the manifold pressure sensor fault (DF045).

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.

Application conditions: engine stopped, ignition on, temp. 20°C.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
12	Downstream oxygen sensor	ET031: downstream oxygen sensor heating.	INACTIVE	In the event of a fault, run the fault finding procedure for the "no.1 and no.2 downstream oxygen sensors" faults (DF180 and DF181).
		PR221: downstream oxygen sensor no. 1	350 < X < 550 mV	
		PR223: downstream oxygen sensor no. 2	350 < X < 550 mV	
13	Upstream oxygen sensor	ET030: upstream O2 sensor heating	INACTIVE	In the event of a fault, apply the fault finding procedure for the upstream oxygen sensor nos. 1 and 2 faults (DF178 and DF179).
		PR220: upstream oxygen sensor no. 1	350 < X < 550 mV	
		PR222: upstream oxygen sensor no. 2	350 < X < 550 mV	
Command window				
14	Erasing the fault memory	RZ007: erasing the fault memory	Used for erasing stored faults.	None
15	Reinitialise programming	EF005: reinitialise programming	Used for reinitialising the programming.	None
16	Canister bleed	AC016: canister bleed solenoid valve	The canister bleed solenoid valve should operate	In the event of a fault, apply the fault finding procedure for the canister bleed solenoid valve circuit fault (DF014).

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Starting the actuator commands either **indicates faults** where these are stored or ensures that **the actuators are operating correctly**.
Application conditions: engine stopped, ignition on, temp. 20°C.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
17	Relay	AC010: fuel pump relay	The fuel pump should be heard operating	In the event of a fault , consult fault finding procedure AC010
		AC271: Low speed fan assembly relay	You should hear the fan running at low speed	In the event of a fault , consult fault finding procedure AC271
		AC272: High speed fan assembly relay	You should hear the fan running at high speed	In the event of a fault , consult fault finding procedure AC272
18	Camshaft dephaser solenoid valves	AC648: camshaft dephaser no. 1 control	It should be possible to hear the solenoid valve operating.	In the event of a fault , apply the fault finding procedure for the camshaft dephaser solenoid valve, row A fault (DF190).
		AC649: camshaft dephaser no. 2 control	It should be possible to hear the solenoid valve operating.	In the event of a fault , apply the fault finding procedure for the camshaft dephaser solenoid valve, row B fault (DF191).

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Starting the actuator command is used either to **indicate faults** where these are stored or to ensure that **the actuators are operating correctly**.
Application conditions: engine stopped, ignition on, temp. 20°C.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
Command window				
19	Oxygen sensors	AC261: upstream oxygen sensor heating	Although its action cannot be heard or seen, this command is used to check that the sensor heating function is operating correctly	In the event of a fault, apply the fault finding procedure for the upstream oxygen sensor nos. 1 and 2 heating faults (DF198 and DF199).
		AC262: downstream oxygen sensor heating	Although its action cannot be heard or seen, this command is used to check that the sensor heating function is operating correctly.	In the event of a fault, apply the fault finding procedure for the downstream oxygen sensor nos. 1 and 2 heating faults (DF200 and DF201).
20	Locking and unlocking the injectors	AC591: locking the injector command AC592: unlocking the injector command.	Used for turning the engine without starting (e.g. for measuring the compression).	None

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Starting the actuator commands either **indicates faults** where these are stored or ensures that **the actuators are operating correctly**.
Application conditions: engine stopped, ignition on, temp. 20°C.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
Command window				
21	Ignition	AC601: ignition, cylinder 1. ----- AC602: ignition, cylinder 2 ----- AC603: ignition, cylinder 3 ----- AC604: ignition, cylinder 4 ----- AC605: ignition, cylinder 5 ----- AC606: ignition, cylinder 6	The action of these commands cannot be seen or heard; the commands are therefore used for checking the reliability of the ignition system and where necessary identifying stored faults.	In the event of a fault, apply the fault finding procedure for the "cylinders 1 - 6 coil control" faults, depending on the coil involved (DF192 for cylinder 1, DF193 for cylinder 2, DF194 for cylinder 3, DF195 for cylinder 4, DF196 for cylinder 5 and DF197 for cylinder 6).
22	Petrol injection	AC040: injector, cylinder 1 ----- AC041: injector, cylinder 2 ----- AC042: injector, cylinder 3 ----- AC043: injector, cylinder 4 ----- AC044: injector, cylinder 5 ----- AC600: injector, cylinder 6	The action of these commands cannot be seen or heard; the commands are therefore used for checking the reliability of the injection system and where necessary identifying stored faults.	In the event of a fault, apply the fault finding procedure for the cylinders 1 - 6 injector control faults, depending on the injector involved (DF084 for cylinder 1, DF085 for cylinder 2, DF086 for cylinder 3, DF087 for cylinder 4, DF160 for cylinder 5 and DF161 for cylinder 6).

Fault finding - Conformity check

NOTES	Only check the conformity after a complete check with the diagnostic tool. Starting the actuator commands either indicates faults where these are stored or ensures that the actuators are operating correctly . Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or state Check or action	Display and notes	Fault finding
Command window				
23	Warning lights	AC211: Indicator light	The warning light should come on	In the event of a fault, apply the fault finding procedure for the fault warning light fault (DF011)
		AC212: coolant temperature warning light	The warning light should come on	In the event of a fault, apply the fault finding procedure for the coolant temperature overheat warning light circuit fault (DF032)
		AC627: MIL (malfunction indicator light)	The warning light should come on	In the event of a fault, consult fault finding procedure AC627

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Application conditions: engine warm at idling speed, without electrical consumers

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
1	+ after ignition	ET001: + computer after ignition ----- PR004: computer supply voltage	ACTIVE ----- 12 < X < 14.5 V	In the event of a fault, perform the charge circuit fault finding procedure
2	Immobiliser	ET002: engine immobiliser	INACTIVE	If active, run the fault finding procedure for the immobiliser system.
3	Air conditioning	ET016: Injection > Air conditioning connection.	ACTIVE	In the event of a fault, apply the fault finding procedure for fault DF015
4	Throttle position potentiometer (without pressing the accelerator pedal).	ET003: throttle position no load ----- ET005: fully open throttle position. ----- PR017: measured throttle position	ACTIVE ----- INACTIVE ----- 1.5 < X < 3 %	In the event of a fault, apply the fault finding procedure for the DF137 motorised throttle fault.
5	Accelerator pedal position potentiometer (without pressing the accelerator pedal).	PR112: measured pedal position ----- ET128: accelerator pedal position: full load. ----- ET129: accelerator pedal no load position	0 < X < 5 % ----- INACTIVE ----- ACTIVE	In the event of a fault, apply the fault finding procedure for the pedal potentiometer track 1 and track 2 circuits faults (DF125 and DF126).

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.

Application conditions: engine warm at idling speed, without electrical consumers

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
6	Air temperature sensor	PR003: Air temperature	X = engine temperature $\pm 5^{\circ}\text{C}$ $(-40 < X < 128^{\circ}\text{C})$	In the event of a fault, apply the fault finding procedure for the air temperature sensor fault (DF003).
7	Oil temperature sensor	PR183: oil temperature	X = engine temperature $\pm 5^{\circ}\text{C}$ $(-40 < X < 154^{\circ}\text{C})$	In the event of a fault, apply the fault finding procedure for the oil temperature sensor fault (DF188).
8	coolant temperature sensor	PR002: coolant temperature	X = engine temperature $\pm 5^{\circ}\text{C}$ $(-40 < X < 140^{\circ}\text{C}$ overheating warning light comes on at 118°C)	In the event of a fault, apply the fault finding procedure for the coolant temperature sensor fault (DF004).
9	Exhaust temperature	PR007: exhaust temperature	$0 < X < 1200^{\circ}\text{C}$	This temperature is an estimated temperature of the catalytic converter. There is no way of modifying this parameter.
10	Manifold pressure sensor	PR001: manifold pressure ----- PR016: atmospheric pressure	$250 < X < 450 \text{ mb}$ ----- = atmospheric pressure	In the event of a fault, apply the fault finding procedure for the manifold pressure sensor fault (DF045).

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Application conditions: engine warm at idling speed, without electrical consumers

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
11	Engine speed	PR006: engine speed	= engine idling speed specification ± 50 rpm	In the event of a fault: Apply the fault finding procedure for the engine speed sensor fault (DF238). None
		PR041: engine idling speed reference.	750 rpm ± 50 rpm if no fast idling	
		ET038: fast idle speed	INACTIVE (ACTIVE if air conditioning is operating and refrigerant pressure > 13 bar)	
		ET039: idle speed regulation	ACTIVE	
12	Engine	PR182: engine load	$10 < X < 25 \%$	None In the event of a fault, apply the fault finding procedure for the pinking sensor nos. 1 and 2 faults (DF176 and DF177). None
		PR108: engine torque	$-15 < X < 10$ Nm	
		PR013: average pinking signal	$0.5 < X < 2$ V	
		ET026: camshaft dephaser control	INACTIVE (at idling speed)	
13	Injection	ET072: injection cut-off	INACTIVE (ACTIVE for no load or overspeed)	None
		PR050: injection duration.	$2 < X < 5$ μ s	

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Test conditions: engine warm at idling speed, no electrical consumers.

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
14	Richness	ET037: mixture control	ACTIVE	In the event of a fault, apply the fault finding procedure for the fuel supply of rows A and B faults (DF202 and DF203).
		PR035: richness correction value	$0.75 < X < 1.25$	
		PR185: average richness factor, row 1.	$0.75 < X < 1.25$	
		PR186: average richness factor, row 2.	$0.75 < X < 1.25$	
		PR031: idle speed richness adaptive	$0 < X < 100 \%$	
15	Ignition	PR051: ignition advance.	$0 < X < 20 \text{ }^{\circ}\text{C}$	In the event of a fault, apply the fault finding procedure for the coil command cylinder 1 to 6 faults (DF192 to DF197) depending on the cylinder in question.
		PR036: coil charging time	$1700 < X < 2000 \text{ }\mu\text{s}$	
16	Canister bleed	PR023: canister bleed solenoid valve opening cycle ratio.	$0 < X < 25 \%$	In the event of a fault, apply the fault finding procedure for the canister bleed solenoid valve circuit fault (DF014).
		ET117: Canister bleed control	INACTIVE (ACTIVE when bleeding)	

Fault finding - Conformity check

NOTES

Only check the conformity after a complete check with the diagnostic tool.
Application conditions: engine warm at idling speed, without electrical consumers

Order	Function	Parameter or state Check or action	Display and notes	Fault finding
17	Downstream oxygen sensor	ET031: downstream oxygen sensor heating ----- PR221: downstream oxygen sensor no. 1 ----- PR223: downstream oxygen sensor no. 2	ACTIVE or INACTIVE depending on command ----- 300 < X < 900 mV ----- 300 < X < 900 mV	In the event of a fault, run the fault finding procedure for the "no.1 and no.2 downstream oxygen sensors" faults (DF180 and DF181).
18	Upstream oxygen sensor	ET030: upstream oxygen sensor heating ----- PR220: upstream oxygen sensor no. 1 ----- PR222: upstream oxygen sensor no. 2	ACTIVE or INACTIVE depending on command ----- 0 < X < 900 mV ----- 0 < X < 900 mV	In the event of a fault, apply the fault finding procedure for the upstream oxygen sensor nos. 1 and 2 faults (DF178 and DF179).
19	Air conditioning	ET141: air conditioning authorisation. ----- ET024: compressor control	ACTIVE if there are no injection faults leading to a reduction in engine performance and if there are no faults on the fans. ----- INACTIVE	None

Fault finding - Command interpretation

AC010

Fuel pump relay

NOTES

There must be no faults present.

Ensure the **correct condition of the fuel-pump** connectors.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector C) **track H4** → **track 2** of the fuel pump relay.
Repair if necessary.

Using the wiring diagram of the injection system, check:


- The relay supply,
 - The cleanliness of the fuel pump earths,
 - The condition of the fuel pump relay (coil resistance and condition of the power circuit),
 - the resistance of the fuel pump,
 - the connection in **track 5** of the relay → fuel pump connector (see vehicle diagrams).
- Repair if necessary.

AFTER REPAIR

If the fault persists

AC271	<u>Low-speed fan relay</u>
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NOTES	There must be no faults present.
-------	----------------------------------

Ensure the correct condition of the fan connectors. Repair if necessary.
Check the condition of the clips of the fan 1 relays (see vehicle diagram). Repair if necessary.
Ensure the presence of a +12 V before ignition feed on track 1 of the fan 1 relays (large purple 50A relay and small black or grey 25A relay: see diagrams). Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: computer (connector B) track J4  track 2 of the fan 1 relays Repair if necessary.
If the fault persists, using the wiring diagram of the engine cooling system, check: – The relay supply, – The cleanliness of the fan earths, – The condition of the fan relay (coil resistances and condition of power circuits), – The fan resistances. Repair if necessary.

AFTER REPAIR	If the fault persists
--------------	-----------------------

AC272

High-speed fan relay**NOTES**

There must be no faults present.

Ensure the **correct condition of the fan** connectors.
Repair if necessary.

Check the **condition of the clips** of the fan 2 relays (see vehicle diagram).
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the following connection:

computer (connector B) **track K4** —————▶ **track 2** of the fan 2 relay

Repair if necessary.

Using the wiring diagram of the engine cooling system, check:

- The relay supply,
- The cleanliness of the fan earths,
- The condition of the fan relay (coil resistances and condition of power circuits),
- The fan resistances.

Repair if necessary.

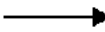
AFTER REPAIR

If the fault persists

Fault finding - Command interpretation

AC627	<u>MIL (malfunction indicator light)</u>
-------	--

NOTES	There must be no faults present.
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Ensure the presence of a +12 V before ignition feed on track... of the instrument panel connector (see instrument panel diagrams). Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance on the following connection: computer (connector B) track C4  instrument panel connector (see instrument panel diagrams) Repair if necessary.
Check that the bulb is in good condition. Replace it if necessary.

AFTER REPAIR	If the fault persists
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ALLOCATION OF TRACKS OF THE BLACK 15-TRACK CLIP CONNECTOR OF THE INJECTION SUB-HARNESS
(above cylinder row A).

Computer track no.	15-track clip track no.	Allocation
K1 connector C	1	injector no. 1 control (track 2)
J3 connector C	2	injector no. 2 control (track 2)
K3 connector C	3	injector no. 3 control (track 2)
J4 connector C	4	injector no. 4 control (track 2)
K4 connector C	5	injector no. 5 control (track 2)
K2 connector C	6	injector no. 6 control (track 2)
	7	+ after ignition feed, from track 5 of the injection relay
B2 connector C	8	+5 volts track 3 of the camshaft sensor, row B
B1 connector C	9	earth, track 1 of the camshaft sensor, row B
C2 connector C	10	signal, track 2 of the camshaft sensor, row B
	11	
G4 connector A	12	ignition coil no. 4 control (track 2)
G3 connector A	13	ignition coil no. 5 control (track 2)
G2 connector A	14	ignition coil no. 6 control (track 2)
F1 connector C	15	camshaft dephaser, row B control (track 2)

CORRESPONDENCE BETWEEN THE NAMES OF THE SENSORS AND ACTUATORS

- **Cylinder row B:** sensors and actuators no. 2 (this is the row of cylinders located under the inlet manifold).
- **Cylinder row A:** sensors and actuators no.1.

Fault finding - Customer complaints

NOTES	Only consult this customer complaint after a complete check using the diagnostic tool
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NO DIALOGUE WITH THE COMPUTER	CHART 1
STARTING FAULTS	CHART 2
IDLE SPEED FAULTS	CHART 3
BEHAVIOUR WHILE DRIVING	CHART 4

CHART 1	NO DIALOGUE WITH THE COMPUTER
---------	-------------------------------

NOTES	None.
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Try the diagnostic tool on another vehicle.																												
Check: – the connection between the diagnostic tool and the diagnostic socket (lead in good condition), – injection, engine and passenger compartment fuses. Repair if necessary.																												
Check for the presence of +12 volts battery on track 16 and an earth on track 5 and track 4 of the diagnostic socket. Repair if necessary.																												
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference resistance of the connections: <table><tr><td>computer connector A</td><td>track H1</td><td>—————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track L4</td><td>—————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track M4</td><td>—————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track B4</td><td>—————></td><td>+ after ignition feed</td></tr><tr><td>computer connector B</td><td>track H2</td><td>—————></td><td>track 7 diagnostic socket</td></tr><tr><td>computer connector C</td><td>track L3</td><td>—————></td><td>track 5 injection locking relay</td></tr><tr><td>computer connector C</td><td>track M4</td><td>—————></td><td>earth</td></tr></table>	computer connector A	track H1	—————>	earth	computer connector B	track L4	—————>	earth	computer connector B	track M4	—————>	earth	computer connector B	track B4	—————>	+ after ignition feed	computer connector B	track H2	—————>	track 7 diagnostic socket	computer connector C	track L3	—————>	track 5 injection locking relay	computer connector C	track M4	—————>	earth
computer connector A	track H1	—————>	earth																									
computer connector B	track L4	—————>	earth																									
computer connector B	track M4	—————>	earth																									
computer connector B	track B4	—————>	+ after ignition feed																									
computer connector B	track H2	—————>	track 7 diagnostic socket																									
computer connector C	track L3	—————>	track 5 injection locking relay																									
computer connector C	track M4	—————>	earth																									

AFTER REPAIR	Test using the diagnostic tool.
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CHART 2	STARTING FAULTS
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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Ensure that the engine immobiliser is not active (the red warning light should not be lit); if it is active, carry out the fault finding procedure for the engine immobiliser system.



Ensure that the starter motor is turning correctly (approximately 250 rpm).
If this is not the case:

- Check the condition of the battery, corrosion and tightness of the terminals.
- Make sure the engine earth strap is in good condition.
- Make sure that the battery lead to the starter motor is in good condition.
- Check the condition of the battery.
- Check that the starter motor is operating correctly.



Fuel supply check:

- Check that there is petrol present (the petrol gauge may be faulty).
- Check that the fuel is of the proper type.
- Check that no hoses are pinched (especially after a removal operation).
- Check the condition of the fuel filter; replace it if necessary.
- Make sure that the fuel tank breather is not blocked.
- Make sure that the fuel pump is running correctly and that petrol is reaching the injector rail.
- Check that the fuel pressure regulator is in good condition by checking the pressure (3.5 bar).



Air supply check:

- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Make sure that the air filter is in good condition; replace it if necessary.
- Disconnect the pipe which connects the canister bleed solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If there is no longer any disturbance, replace the canister bleed solenoid valve.



AFTER REPAIR	Test using the diagnostic tool.
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CHART 2 (continued)	
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Ignition check: <ul style="list-style-type: none">– Check the condition of the spark plugs; replace them if necessary.– Make sure that the spark plugs are correct for the engine type.– Remove the engine speed sensor and make sure it has not been rubbing on its target (increase in the air gap). If it has, check the condition of the engine flywheel.– Make sure that the ignition coils are in good condition.



Exhaust system check: <ul style="list-style-type: none">– Make sure that the exhaust system is in good condition.– Remove the catalytic converters and look at the condition of the filter element inside (clogging).– Shake the catalytic converters to see whether the filter element is broken (metallic noises).

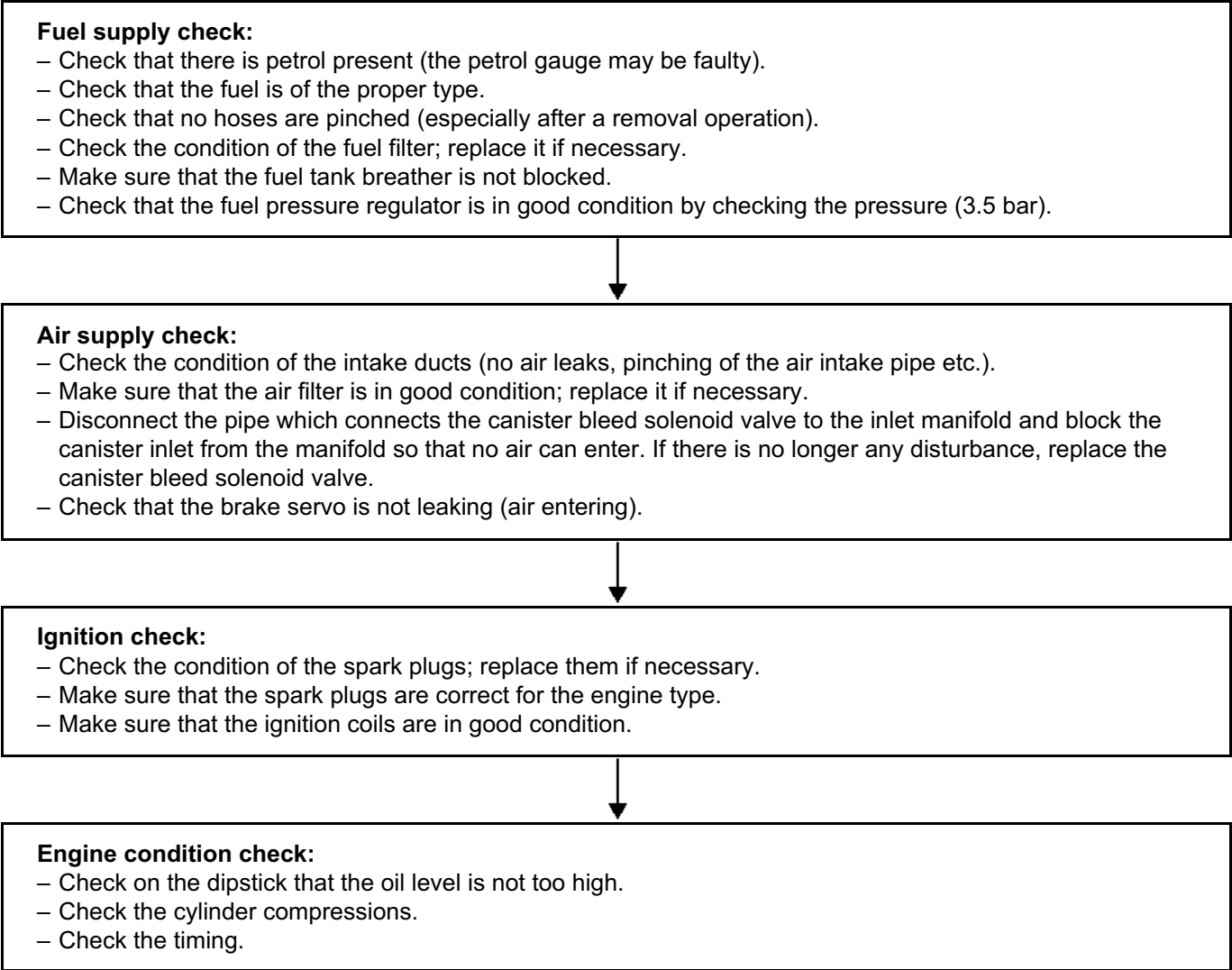


Engine condition check: <ul style="list-style-type: none">– Make sure that the engine can turn freely.– Check the cylinder compressions.– Check the timing.
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AFTER REPAIR	Test using the diagnostic tool.
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CHART 3	IDLE SPEED FAULTS
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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AFTER REPAIR	Test using the diagnostic tool.
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CHART 4	FAULTS WHEN DRIVING
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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Fuel supply check:

- Check that there is petrol present (the petrol gauge may be faulty).
- Check that the fuel is of the proper type.
- Check that no hoses are pinched (especially after a removal operation).
- Check the condition of the fuel filter; replace it if necessary.
- Make sure that the fuel tank breather is not blocked.
- Check that the fuel pressure regulator is in good condition by checking the pressure (3.5 bar).



Air supply check:

- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Make sure that the air filter is in good condition and not deformed; replace it if necessary.
- Disconnect the pipe which connects the canister bleed solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If there is no longer any disturbance, replace the canister bleed solenoid valve.
- Check that the brake servo is not leaking (air entering).
- Remove the air supply line of the motorised throttle body and check that the valve is not clogged.



Ignition check:

- Check the condition of the spark plugs; replace them if necessary.
- Make sure that the spark plugs are correct for the engine type.
- Make sure that the ignition coils are in good condition.
- Remove the engine speed sensor and make sure it has not been rubbing against its target (increase in the air gap). If it has, check the condition of the engine flywheel.



AFTER REPAIR	Test using the diagnostic tool.
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<div>CHART 4</div> <div>(continued)</div>	
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<div>Engine condition check:</div> <div><ul style="list-style-type: none">– Using the dipstick, check that the oil level is not too high.– Check the cylinder compressions.– Check the timing.– Check the condition of the engine speed sensor target (engine flywheel).– Make sure that the engine cooling system is operating correctly (so that the engine is operating under optimum conditions, neither too cold nor too hot).</div>



<div>Exhaust system check:</div> <div><ul style="list-style-type: none">– Make sure that the exhaust system is in good condition.– Remove the catalytic converters and look at the condition of the filter element inside (clogging).– Shake the catalytic converters to see whether the filter element is broken (metallic noises).</div>
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<div>Axle check:</div> <div><ul style="list-style-type: none">– Check that the wheels turn freely (callipers, drums and bearings not binding).– Check the tyre pressures and tread condition (bulges).</div>

<div>AFTER REPAIR</div>	<div>Test using the diagnostic tool.</div>
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AIR CONDITIONING

FAULT FINDING

CONTENTS

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Introduction	01
XR25 fiche	02
Interpretation of faults, states and parameters	04
Customer complaints	15
Fault finding charts	17
Help	49

This document presents the fault finding procedure applicable to **Bac Eco** type air conditioning fitted on the **Clio V6**.

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

- This Fault Finding Technical Note,
- The vehicle's wiring diagram,
- The CLIP or NXR or XR25 diagnostic tool and a multimeter.

NOTE: proceed as follows for the XR25 tool:

- Connect the XR25 to the diagnostic socket.
- ISO selector on **S8**
- Use log no. 61 and enter code **D17**

n.61

WARNING:

Conditions apply regarding the operation of the warning lights on the control panel:

- The AC warning light lights up when the air conditioning is requested and when the first ventilation speed is selected.
- Whether the air recirculation warning light comes on is not dependent on any specific conditions. It is stored after the ignition is switched off.
- The heated rear screen warning light comes on when the engine speed is > 600 rpm. Operation of the heated rear screen is limited to 15 minutes by a timer. Operation of this function is not stored when the ignition is switched off.

AIR CONDITIONING

Fault finding - XR25 fiche

62

MODEL OF FICHE TO BE USED

N° 62		S8		code : D 1 7		n. 61		
1	CAPSULATEUR				CODE PRESENT		<input type="checkbox"/>	
2	* 02 CARTEUR DE FLUIDE REFRIGERANT		CIRCUITS SONDES CARTEURS		EVAPORATEUR * 52		<input type="checkbox"/>	
3								
4	* 04 COMMANDE COMPRESSEUR				MOTEUR RECYCLAGE * 24		<input type="checkbox"/>	
5	* 06 COMMANDE LUNETTE ARRIERE DEGIVRANTE							
6	* 08 COMMANDE G.M.V. (2) (G25)				COMMANDE G.M.V. (1) (G20)		<input type="checkbox"/>	
7	<input type="checkbox"/> + 12 ACC				+ 12 LANTERNE <input type="checkbox"/>			
8	<input type="checkbox"/> AIR CLIMATISE				COMPRESSEUR ACTIF <input type="checkbox"/>			
9	<input type="checkbox"/> RECYCLAGE				COMMANDE / ACTION		RECYCLAGE ACTIF <input type="checkbox"/>	
10	<input type="checkbox"/> LUNETTE ARRIERE DEGIVRANTE (si configurée)				LUNETTE ARRIERE DEGIVRANTE ACTIVE <input type="checkbox"/>			

CLIMATISATION				CONTROLES ANNEXES : #...			
Effacement mémoire défauts : G 0 ** Fin de diagnostic : G13 *				03 Temp. ambiante °C 06 Vitesse G.M.V. % 14 Alimentation volts 15 Régime moteur t/min 16 Pression fluide réfrigérant bar			
11	<input type="checkbox"/> PETITE VITESSE	← groupe moto ventilateur →	<input type="checkbox"/> GRANDE VITESSE				
12	<input type="checkbox"/> INFO REGIME MOTEUR ABSENTE (SUIVANT VERSION)						
13	<input type="checkbox"/> INJECTION	← CLIMATISATION INTERDITE PAR : →	<input type="checkbox"/> T.A.	MODES COMMANDES : G...			
14	<input type="checkbox"/> sous pression	← Etat pression du gaz →	<input type="checkbox"/> sur pression	20 Lunette arrière dégivrante 21 Embrayage compresseur 22 Moto ventilateur vitesse 1 23 Moto ventilateur vitesse 2 24 Moteur recyclage 25 Sortie AC cycle 26 Sorties (températ)			
15	peut être allumé si trop froid : (14G) ou trop chaud : (14D)						
CONFIGURATION (affichage fixe)							
16	<input type="checkbox"/> lunette arrière dégivrante		<input type="checkbox"/> entrée tout ou rien				
17				<input type="checkbox"/> avec temporisation moteur recyclage			
18	<input type="checkbox"/> capteur de pression fluide		<input type="checkbox"/> capt de température évaporateur				
19	<input type="checkbox"/> siemens	TYPE DE SONDE	<input type="checkbox"/> hokuriku				
20	<input type="checkbox"/> behr		<input type="checkbox"/> eeprom				
				72 Ecr. date APV 73 Lect. date APV			
				Alim : V8 Retour diagnostic : D Ref. NPR : G764			
				17 FRA			

F121761

c13011.1

BARGRAPH SYMBOLS


FAULT BARGRAPHS (always on coloured background)

If lit, indicates a fault on the product tested. The associated text defines the fault.





This bargraph may be:

– Permanently lit	:	fault present
– Flashing	:	fault stored
– Not lit	:	fault absent or not found

STATE BARGRAPHS (always on white background)

	<p>Bargraph always located on the top right-hand side.</p> <p>If lit, indicates establishment of dialogue with the product computer.</p> <p>If it remains off:</p> <ul style="list-style-type: none">– The code does not exist.– There is a fault in the tool, the computer or the XR25 / computer connection.
--	---

The following bargraph representations indicate their initial state:
Initial state: (ignition on, engine stopped, no operator action)

	or		Not defined	is lit when the function of the condition described on the fiche is carried out.
			Off	
			On	goes out when the function or the condition described on the fiche is no longer carried out.

ADDITIONAL NOTES

Some bargraphs have a * function. The * command, when the bargraph is lit, enables additional information regarding the type of fault or the state to be displayed.

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 LH lit</div> <div><u>COMPUTER FAULT</u></div>	<div>Fiche n° 61</div>
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<div>NOTES</div>	<div>None.</div>
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<div>Replace the air conditioning control unit.</div>


<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>1</div> <div><div></div><div></div></div>	<div>Right-hand bargraph 1 off</div> <div><u>XR25 / CONTROL UNIT DIALOGUES</u></div>	<div>Fiche n° 61</div>
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<div>NOTES</div>	<div>None.</div>
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<div>Before establishing dialogue between the XR25 and the control unit, check that you have switched on the ignition.</div>
<div>Ensure that the XR25 is not the cause of the fault by trying to communicate with a computer on another vehicle. Check that the ISO interface is in position S8 and that you are using the latest version of the XR25 cassette and the correct access code (D 17).</div> <div>Check the battery voltage (U > 10.5 volts). Recharge the battery if necessary.</div>
<div>Check that the control unit connectors are inserted correctly.</div> <div>Check that the air conditioning control unit is supplied correctly:</div> <div><div>– earth on track 4 of the red 15-track connector</div><div>– + after ignition on track 6 of the red 15-track connector</div></div>
<div>Check that the diagnostic socket is correctly supplied:</div> <div><div><div><div><div>track K</div><div>————→</div><div>track 6</div></div><div><div>track L</div><div>————→</div><div>track 3</div></div></div><div><div>}</div><div>of the grey 30-track connector of the unit</div><div>of the air conditioning control unit</div></div></div></div>
<div>If there is still no dialogue between the XR25 and the control unit, replace the air conditioning control unit.</div>

<div>AFTER REPAIR</div>	<div>You may begin the fault finding procedure.</div>
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<div style="text-align: center;">2</div> 	<div style="display: flex; justify-content: space-between;"> <div> <p>Bargraph 2 LH lit</p> <p><u>REFRIGERANT PRESSURE SENSOR</u></p> <p>XR25 HELP: *02 : 2 def = low level (CC.0) 1 def = high level (CO, CC.1)</p> </div> <div style="text-align: right;"> <p>Fiche n° 61</p> </div> </div>
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NOTES	None.
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Low level

<p>Check that the refrigerant pressure sensor connector is inserted correctly. Engage the connector correctly if necessary.</p>
<p>Check the condition of the electrical wiring between tracks A, B and C of the sensor and tracks 9, 10 and 11 of the air conditioning control unit 30-track connector (sensor supplied with 5 V). Repair the faulty electrical wiring.</p>

If the fault persists, replace the refrigerant sensor.

<p><i>AFTER REPAIR</i></p>	<p>Enter G0** on the XR25. Check that the system is operating correctly.</p>
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<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 RH lit</div> <div>Fiche n° 61</div> <div><u>EVAPORATOR SENSOR</u></div> <div>XR25 HELP: *22 : 2 def = low level (CC.0)</div> <div>1 def = high level (CO, CC.1)</div>
--	---

NOTES	Timed period for measuring the sensor temperature.
-------	--

Check that the evaporator sensor connector is inserted correctly on the resistive module. Insert it correctly if necessary.
Check the condition of the electrical wiring between tracks 7 and 8 of the 15-track connector and tracks 12 and 29 of the air conditioning control unit grey 30-track connector . Repair the faulty electrical wiring.
Measure the resistance of the evaporator sensor using an ohmmeter. The resistance should be between 2 and 30 kohms . Is the resistance correct?

YES	Replace the air conditioning control unit.
-----	--

NO	Replace the evaporator sensor.
----	--------------------------------

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 LH lit</div> <div>Fiche n° 61</div> <div><u>COMPRESSOR CONTROL</u></div> <div>XR25 help : C.O. open circuit</div> <div> C.C.1 short circuit to 12 volts</div>
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NOTES	Before any removal, enter G0** on the XR25 and reinitialise the system.
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<p>Check the continuity and absence of short circuits of the electrical wiring between track 1 of the clutch and tracks 2 and 17 of the air conditioning control unit grey 30-track connector. Repair the electrical wiring if necessary.</p>
<p>Supply the compressor directly with 12 volts and check that it operates. Replace the compressor if necessary.</p>
<p>If the fault persists, replace the air conditioning control unit.</p>

AFTER REPAIR	<p>Check the system operates correctly by entering G21* on the XR25 (direct compressor control). Enter G0** on the XR25.</p>
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 RH lit</div> <div><u>AIR RECIRCULATION MOTOR</u></div>	<div>Fiche n° 61</div>
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<div>NOTES</div>	<div>None.</div>
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<div>Check that the connector is inserted correctly on the resistive module.</div>
<div>Check the condition of the air recirculation flap control motor. On the motor connector, measure the resistance between the two tracks. Replace the recirculation motor if necessary.</div>
<div>Check the continuity and insulation to earth and to 12 volts of the wiring between tracks: <div><div><div>module connector</div><div>resistive</div></div><div><div>{</div><div>2</div><div>→</div><div>1</div><div>}</div></div><div><div>27</div><div>26</div></div><div><div>}</div><div>blue 30-track connector</div><div>of the air conditioning control unit</div></div></div><div>Repair the faulty electrical wiring.</div></div>
<div>If the fault persists, replace the air conditioning control unit.</div>

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH lit</div> <div>Fiche n° 61</div> <div><u>HEATED REAR SCREEN SWITCH</u></div> <div>XR25 help : CO open circuit</div> <div>CC1 short circuit to 12 volts</div>
--	---

NOTES	Before any removal, enter G0** on the XR25 and reinitialise the system.
-------	---

Check the electric wiring between track 3 of the control panel and the heated rear screen relay and between track 24 of the air conditioning control unit 30-track connector and the heated rear screen relay. Repair the electrical wiring if necessary.
Check the supply of the heated rear screen relay (12 V on tracks 1, 3 and 5; 0 V on track 2). Replace the relay if necessary.
Check the continuity of the electrical wiring between the relay and the rear screen. Repair if necessary.
If the fault persists, check the resistance of the rear screen and repair the screen if necessary.

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH lit</div> <div>Fiche n° 61</div> <div>FAN 2 CONTROL</div> <div>XR25 help : CO open circuit</div> <div>CC1 short circuit to 12 volts</div>
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NOTES	<p>Check that the air conditioning has been selected. Check that bargraph 6 RH is not lit, if it is not, deal with bargraph 6 RH first. Enter G0** on the XR25. If left-hand bargraph 6 remains lit, you can begin the fault finding procedure.</p>
-------	---

<p>Check the operating state of the relay by entering G23* on the XR25. It should be possible to hear the fan operating. Can you hear the fan operating?</p>

NO	<p>Check the continuity and insulation from 12 volts of the electrical wiring between track F2 and track 23 of the air conditioning control unit 30-track connector. Repair the faulty electrical wiring.</p>
----	--

<p>If the fault persists, replace the fan 2 relay.</p>
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YES	<p>End of fault finding.</p>
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AFTER REPAIR	<p>Enter G0** on the XR25. Check that the system is operating correctly.</p>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH lit</div> <div>Fiche n° 61</div> <div>FAN 1 CONTROL</div> <div>XR25 help : CO open circuit</div> <div>CC1 short circuit to 12 volts</div>
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NOTES	<p>Check that the air conditioning has been selected. Enter G0** on the XR25. If bargraph 6 RH remains lit, you can begin the fault finding procedure.</p>
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Check the operating state of the relay by entering **G22*** on the XR25. It should be possible to hear the fan operating. Can you hear the fan operating?

NO	<p>Check the continuity and insulation from 12 volts of the electrical wiring between track M2 and track 22 of the air conditioning control unit 30-track connector. Repair the faulty electrical wiring.</p>
----	--

If the fault persists, replace the fan 1 relay.

YES	End of fault finding.
-----	-----------------------

AFTER REPAIR	<p>Enter G0** on the XR25. Check that the system is operating correctly.</p>
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH lit</div> <div>Fiche n° 61</div> <div><u>AIR CONDITIONING PROHIBITED BY THE INJECTION</u></div>
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<div>NOTES</div>	<div>This bargraph should not be lit when the engine is running.</div> <div>If it is lit, you can begin the fault finding procedure.</div> <div>Evaporator temperature must be > 1 °C and BG 14 G and 14 D must not be lit.</div>
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<div>First check that the air conditioning has been selected (selection on the control panel).</div>
<div>Check the continuity of the electrical wiring between:</div> <div><div><div>– track 5 of the injection computer and track 13 of the air conditioning computer 30-track connector for D7F 720, E7J, K7M, and A4 gearbox engines (PA information)</div><div>– track 23 of the injection computer and track 13 of the air conditioning computer 30-track connector for D7F 726 engines (PA information).</div></div></div> <div>Repair it if necessary.</div>
<div>Check the continuity of the electrical wiring between:</div> <div><div><div>– track 51 of the injection computer and track 18 of the air conditioning computer 30-track connector for D7F 720 and E7J engines,</div><div>– track 10 of the injection computer and track 18 of the air conditioning computer 30-track connector for D7F 726 engines.</div></div></div> <div>Repair it if necessary.</div>
<div>If the fault persists, refer to the conditions required for the injection in the injection fault finding section.</div>

<div>AFTER REPAIR</div>	<div>Check that the system is operating correctly.</div>
-------------------------	--

<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH lit</div> <div>Fiche n° 61</div> <div><u>AIR CONDITIONING PROHIBITED BY THE</u> <u>AUTOMATIC TRANSMISSION</u></div>
---	---

<div>NOTES</div>	<div>This bargraph should not be lit when the engine is running. If it is lit, you can begin the fault finding procedure.</div>
------------------	---

<div>Check the insulation to earth of the wiring between: – track 51 of the automatic transmission computer and track 19 of the air conditioning computer 30-track connector for K7M engines. Repair it if necessary.</div>
<div>If the fault persists, perform the automatic transmission fault finding procedure as this fault is linked to the automatic transmission.</div>

<div>AFTER REPAIR</div>	<div>Check that the system is operating correctly.</div>
-------------------------	--

Air distribution fault	CHART 1
Air flow fault	CHART 2
Heater performance poor	CHART 3
No heat	CHART 4
Too hot	CHART 5
Heating inadequate in the rear	CHART 6
De-icing/demisting performance poor	CHART 7
The heated rear screen does not work	CHART 8
Ventilation performance poor	CHART 9

PASSENGER COMPARTMENT INCONVENIENCE

Controls stiff	CHART 10
----------------	----------

PASSENGER COMPARTMENT FAN DOES NOT OPERATE

CHART 11

AIR RECIRCULATION DOES NOT WORK BUT THE WARNING LIGHT COMES ON

CHART 12

AIR CONDITIONING FAULTS

No cool air	CHART 13
Air too cold	CHART 14
Performance poor	CHART 15

COOLING FAN ASSEMBLY DOES NOT OPERATE

CHART 16

THE AIR CONDITIONING WARNING LIGHT DOES NOT COME ON

CHART 17

THE RECIRCULATION WARNING LIGHT DOES NOT COME ON

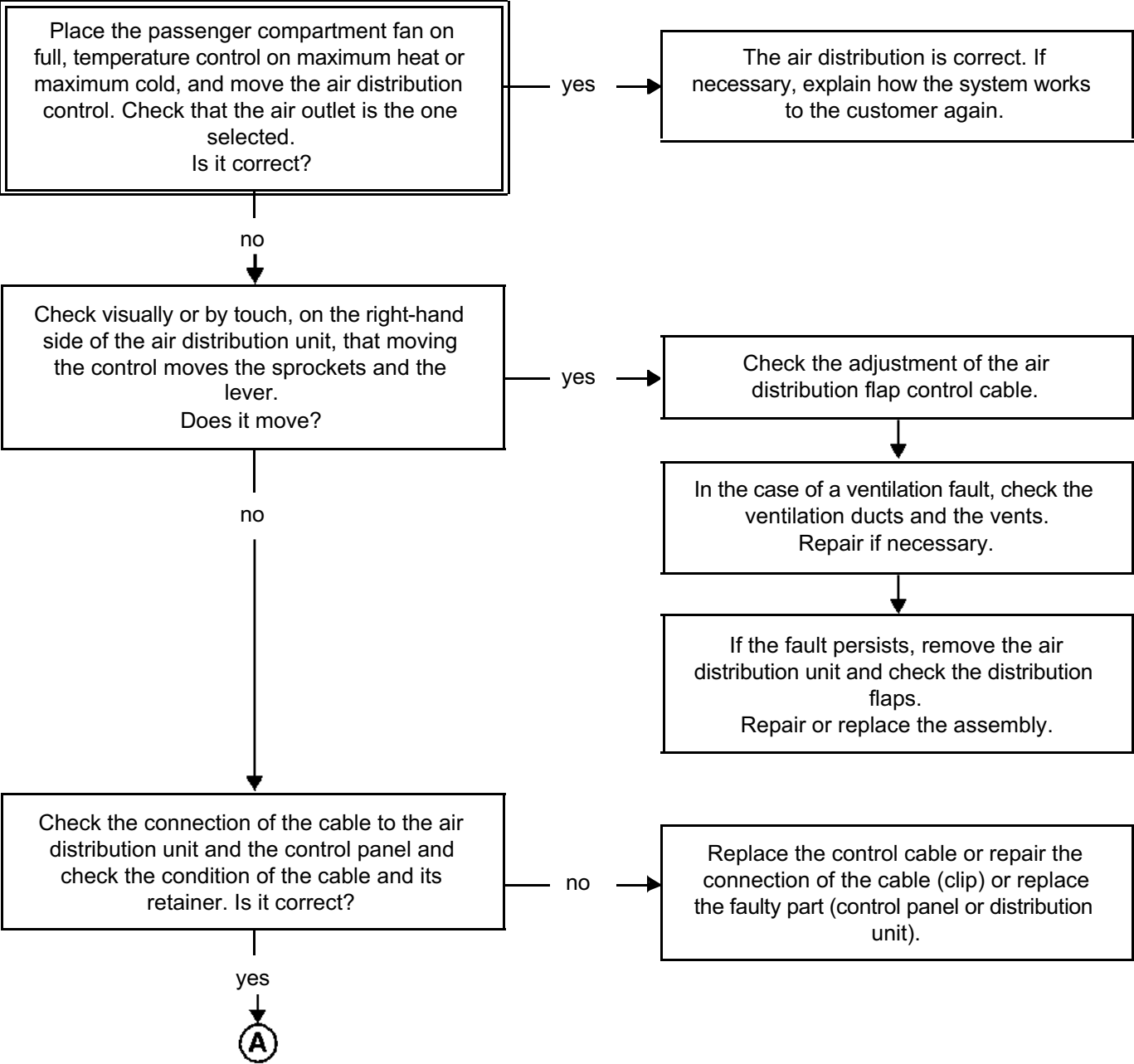
CHART 18

THE HEATED REAR SCREEN WARNING LIGHT DOES NOT COME ON

CHART 19

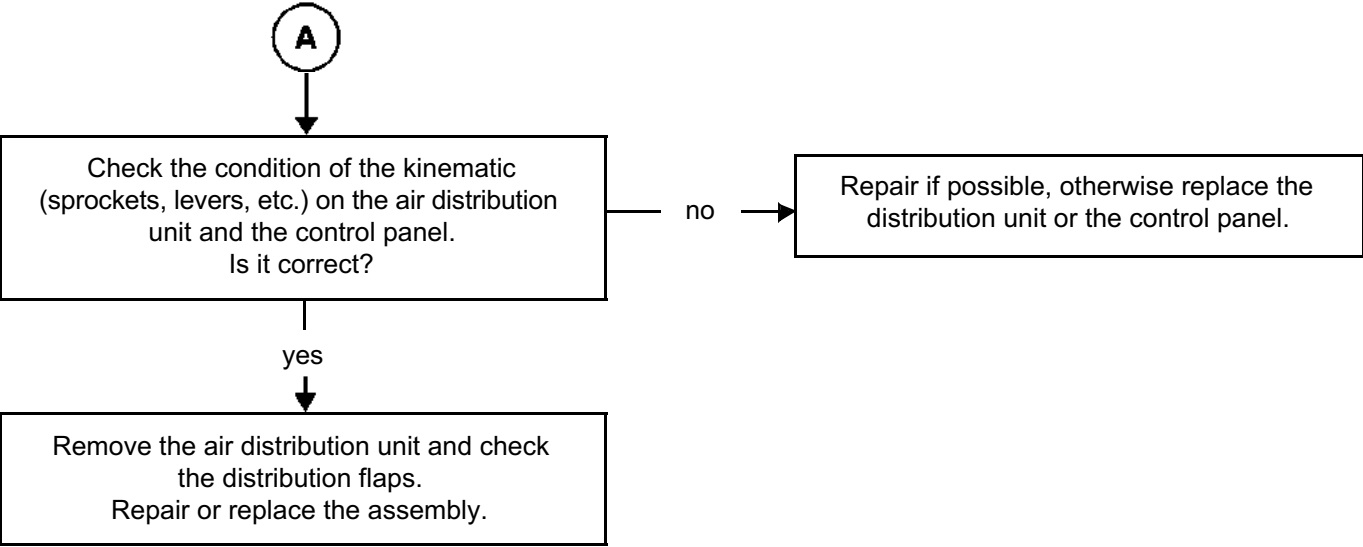
CHART 1	AIR DISTRIBUTION FAULTS
---------	-------------------------

NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non-automatic air conditioning.
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AFTER REPAIR	Check that the system is operating correctly.
--------------	---

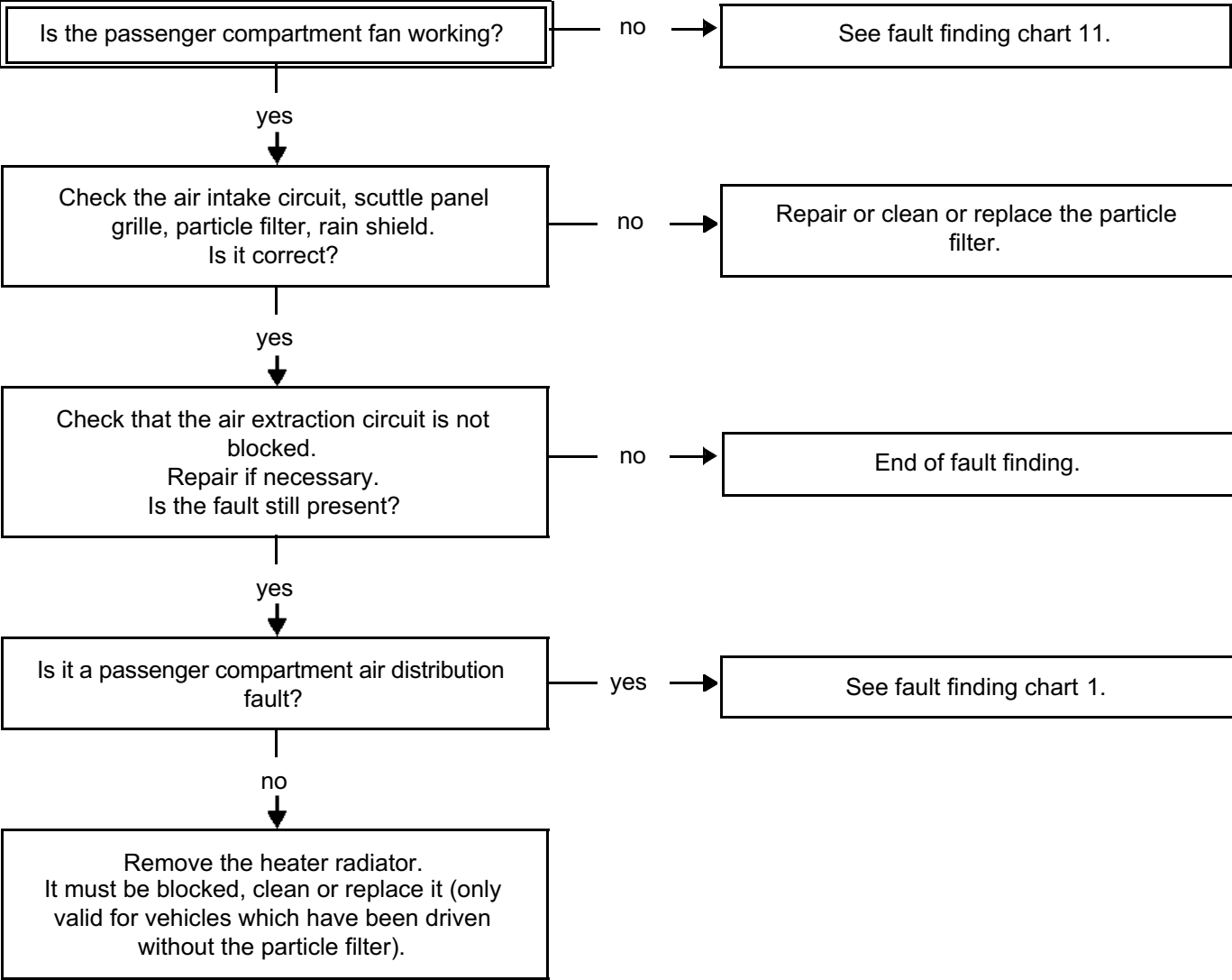
CHART 1 (continued)	
------------------------	--



AFTER REPAIR	Check that the system is operating correctly.
--------------	---

CHART 2	AIR FLOW FAULT
---------	----------------

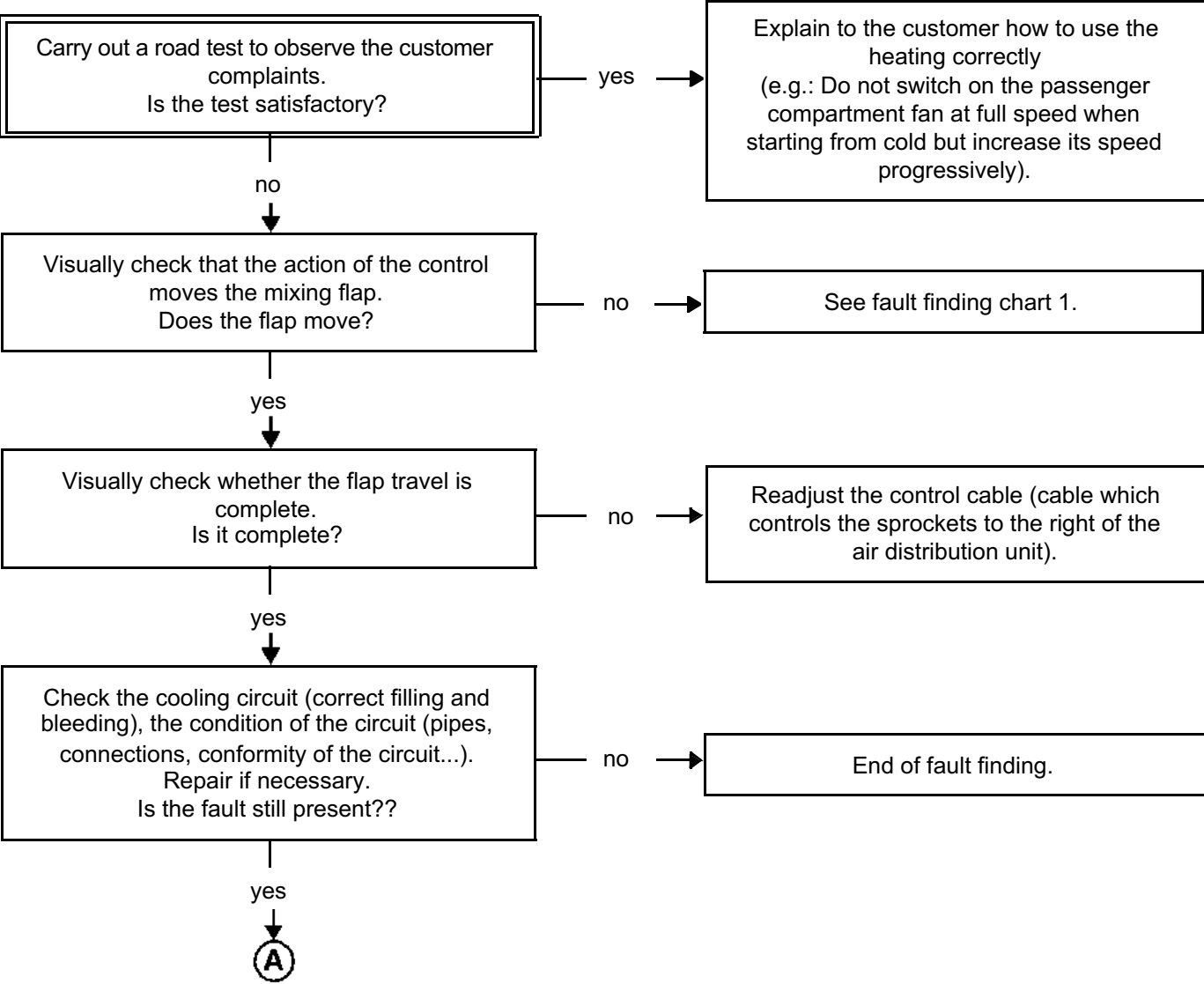
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non-automatic air conditioning.
-------	---



AFTER REPAIR	Check that the system is operating correctly.
--------------	---

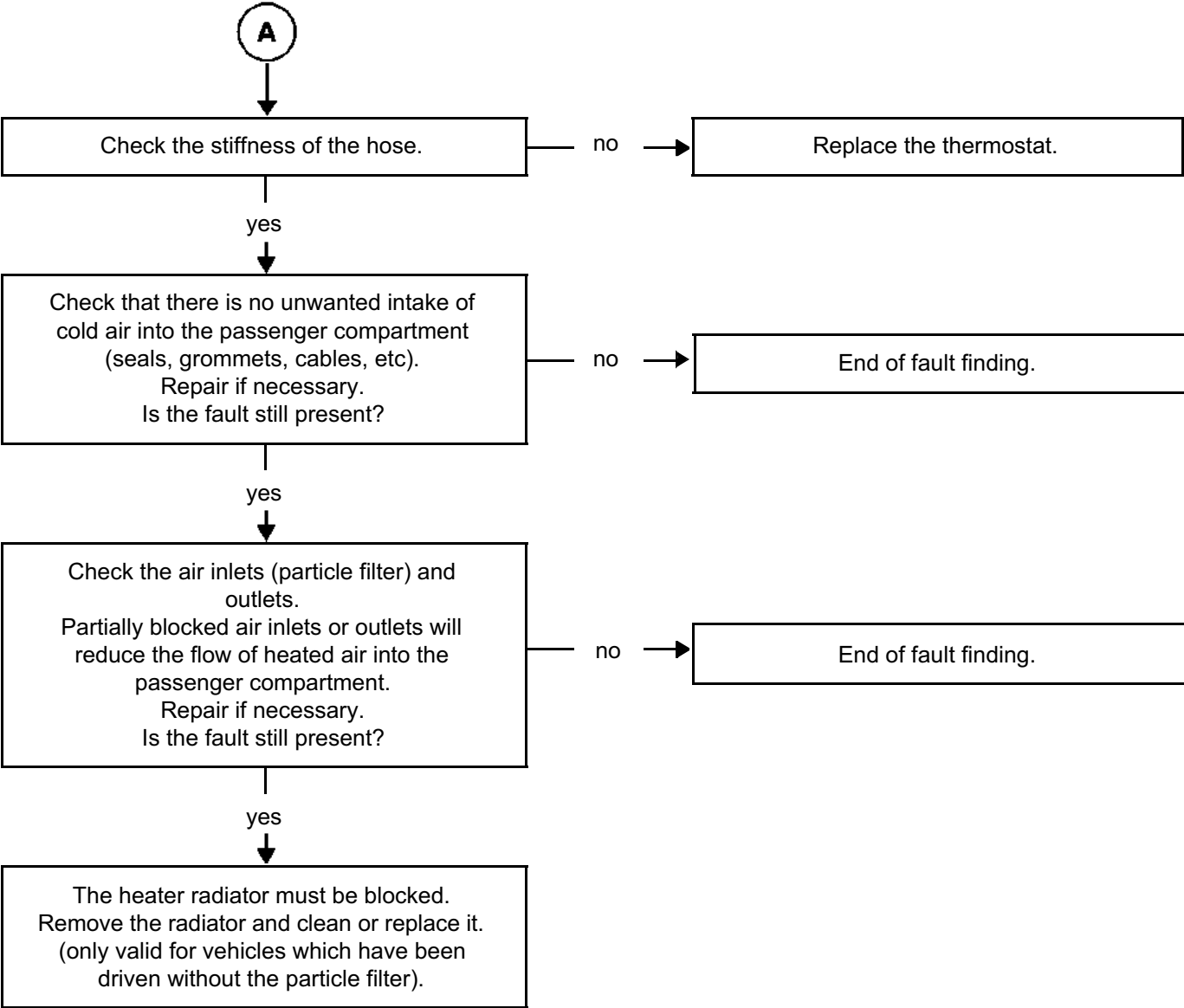
CHART 3	POOR HEATER PERFORMANCE
---------	-------------------------

NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non-automatic air conditioning.
-------	---



AFTER REPAIR	Check that the system is operating correctly.
--------------	---

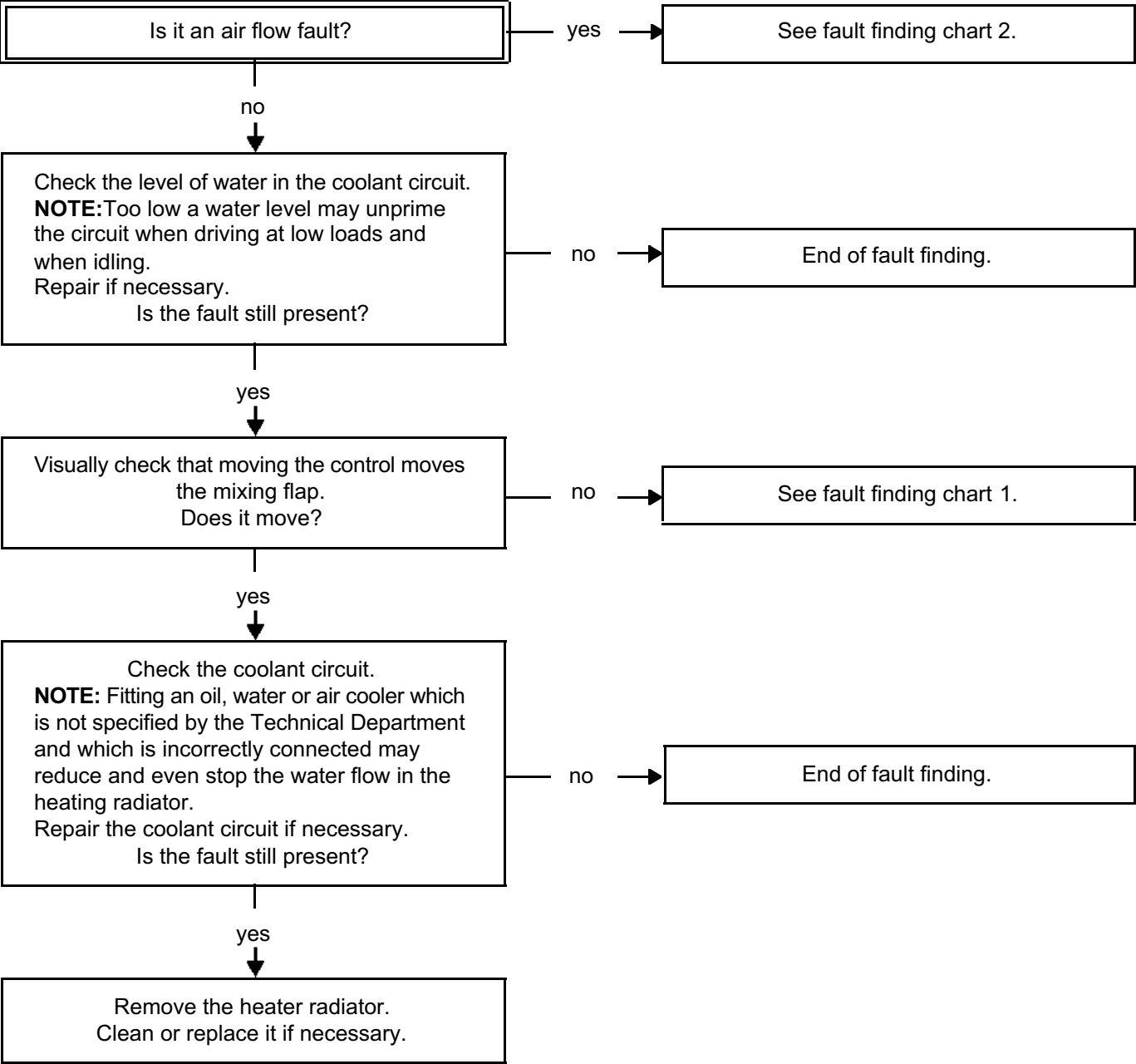
CHART 3 (continued)	
------------------------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
---------------------	--

CHART 4	NO HOT AIR
---------	------------

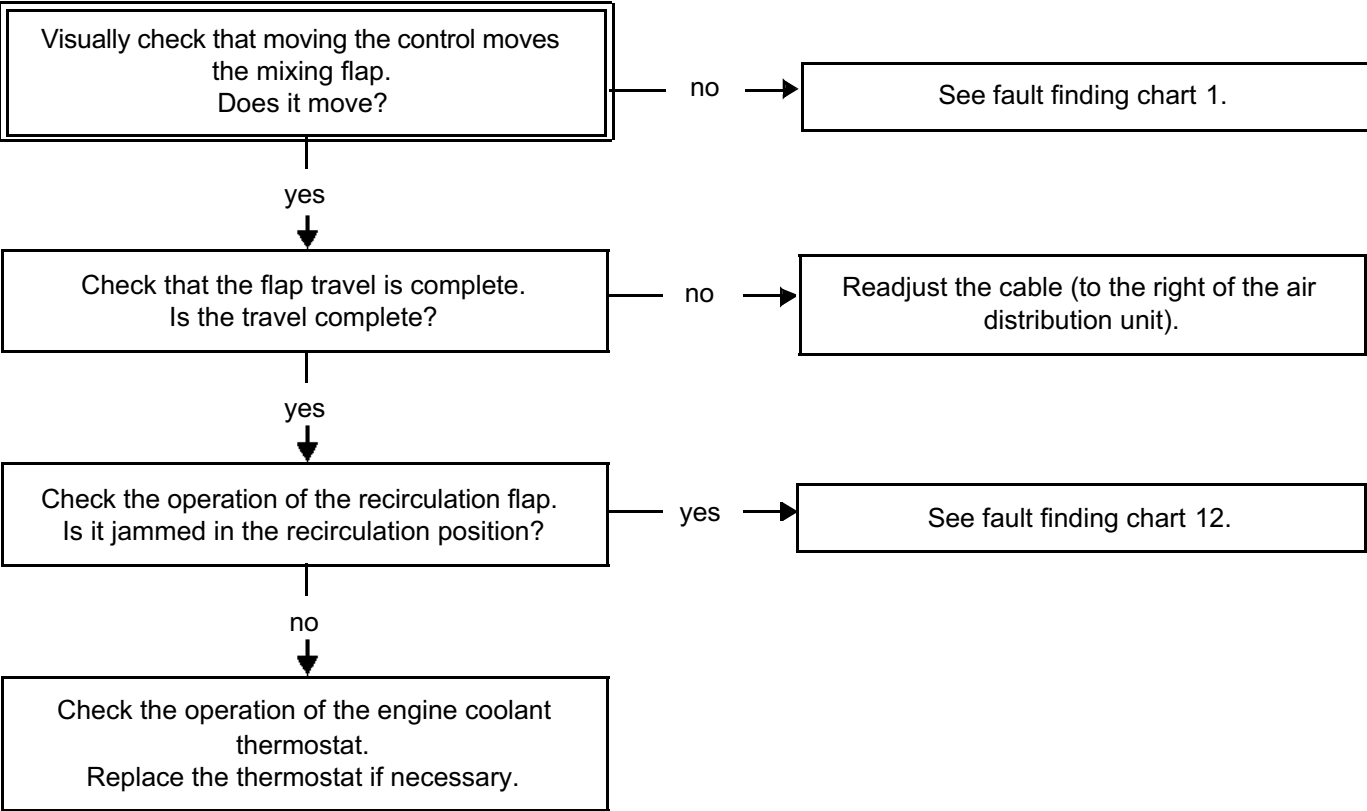
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non-automatic air conditioning.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 5	TOO MUCH HOT AIR
---------	------------------

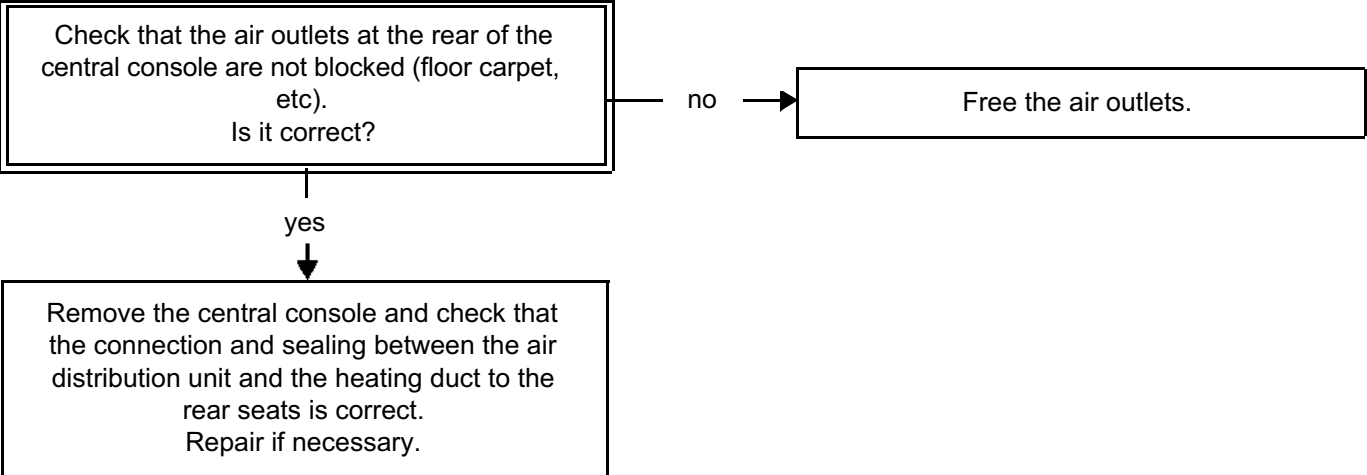
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that the system is operating correctly.
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CHART 6	HEATING INADEQUATE IN THE REAR
---------	--------------------------------

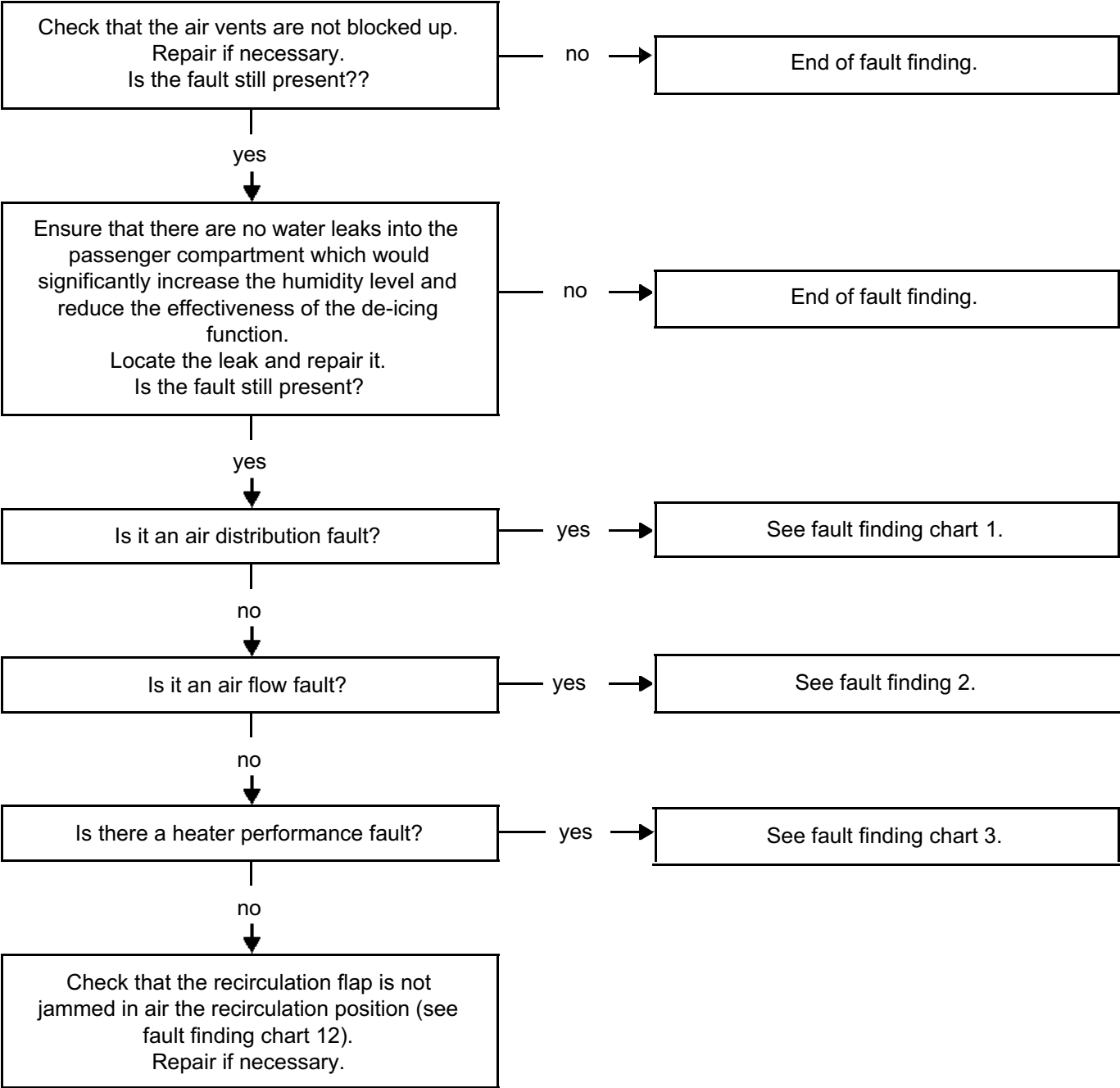
NOTES	None.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 7	DE-ICING/DEMISTING PERFORMANCE POOR
---------	-------------------------------------

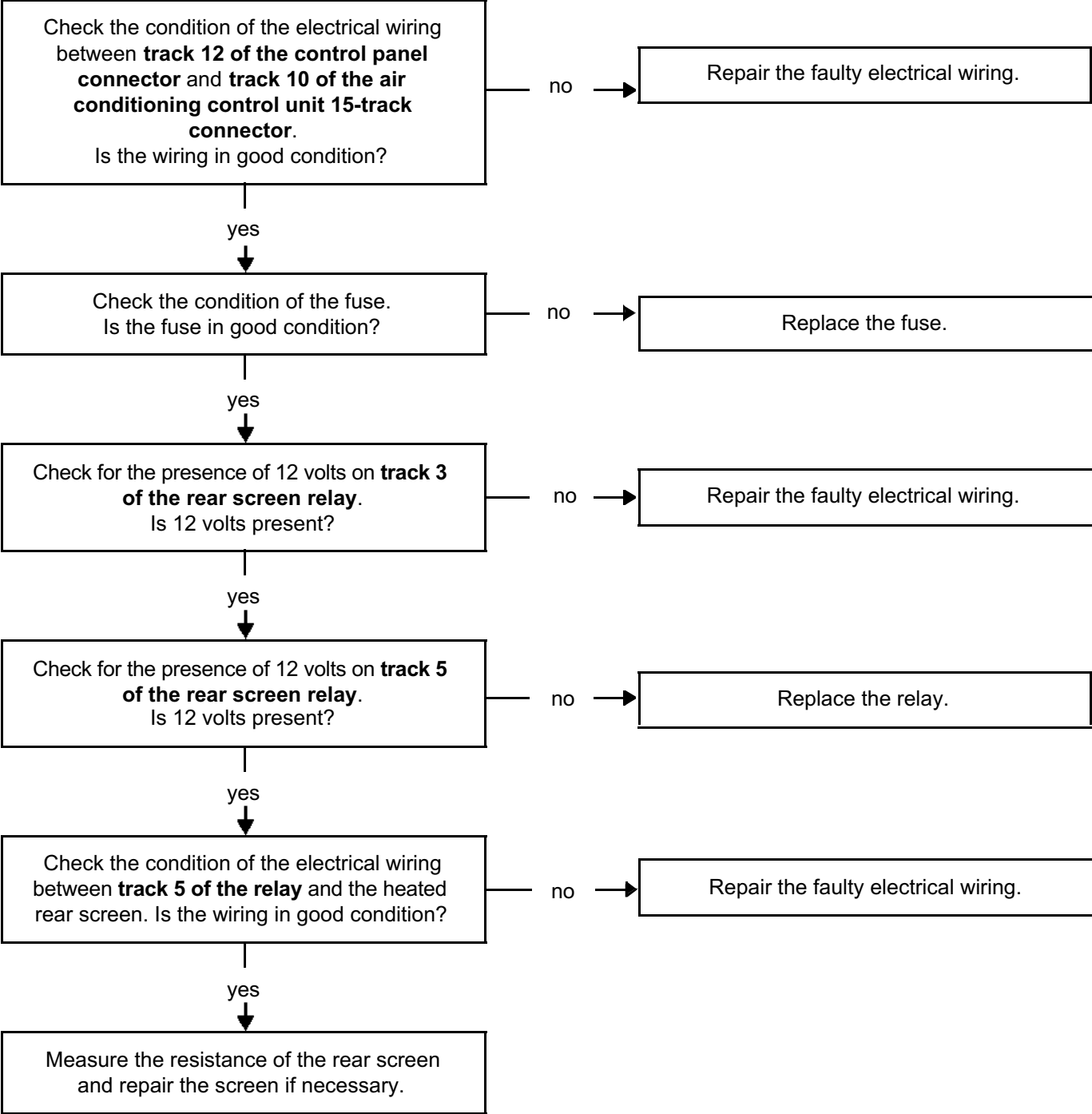
NOTES	Repair if necessary.
-------	----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 8	THE HEATED REAR SCREEN DOES NOT WORK
---------	--------------------------------------

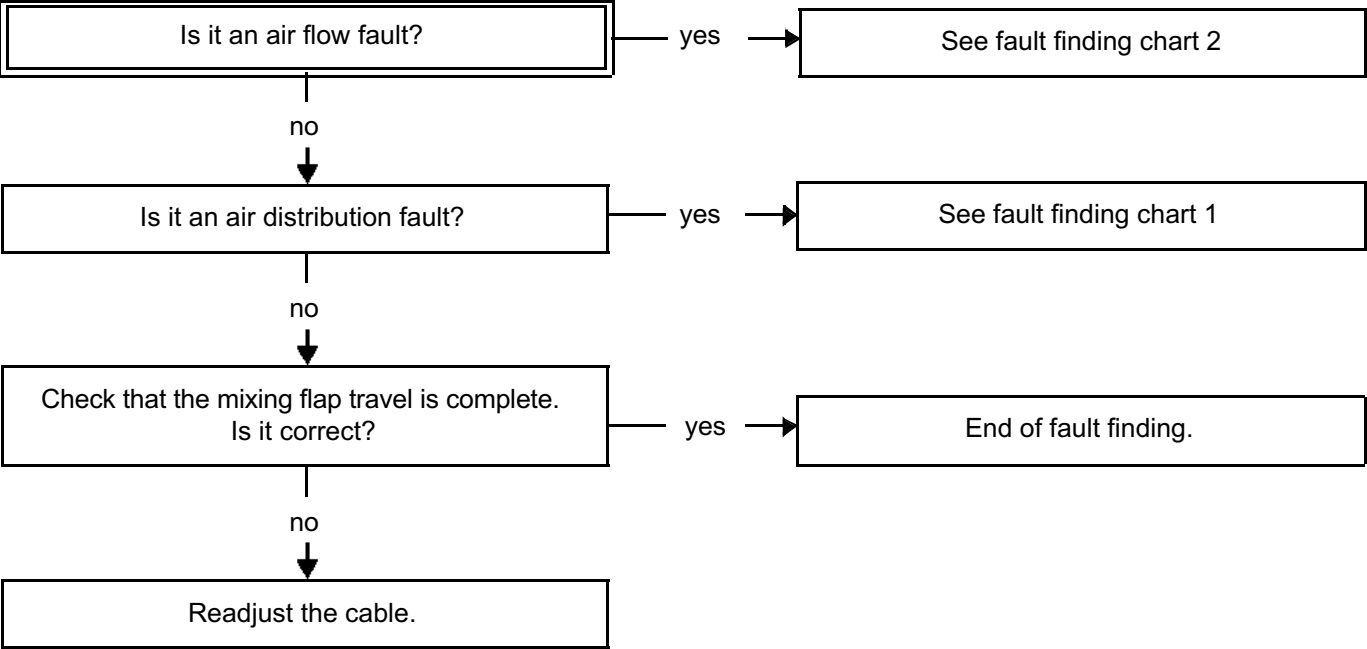
NOTES	Bargraphs 10 RH and 10 LH must be lit and bargraph 5 LH must not be lit. The engine speed must be above 600 rpm.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
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CHART 9	POOR VENTILATION PERFORMANCE
---------	------------------------------

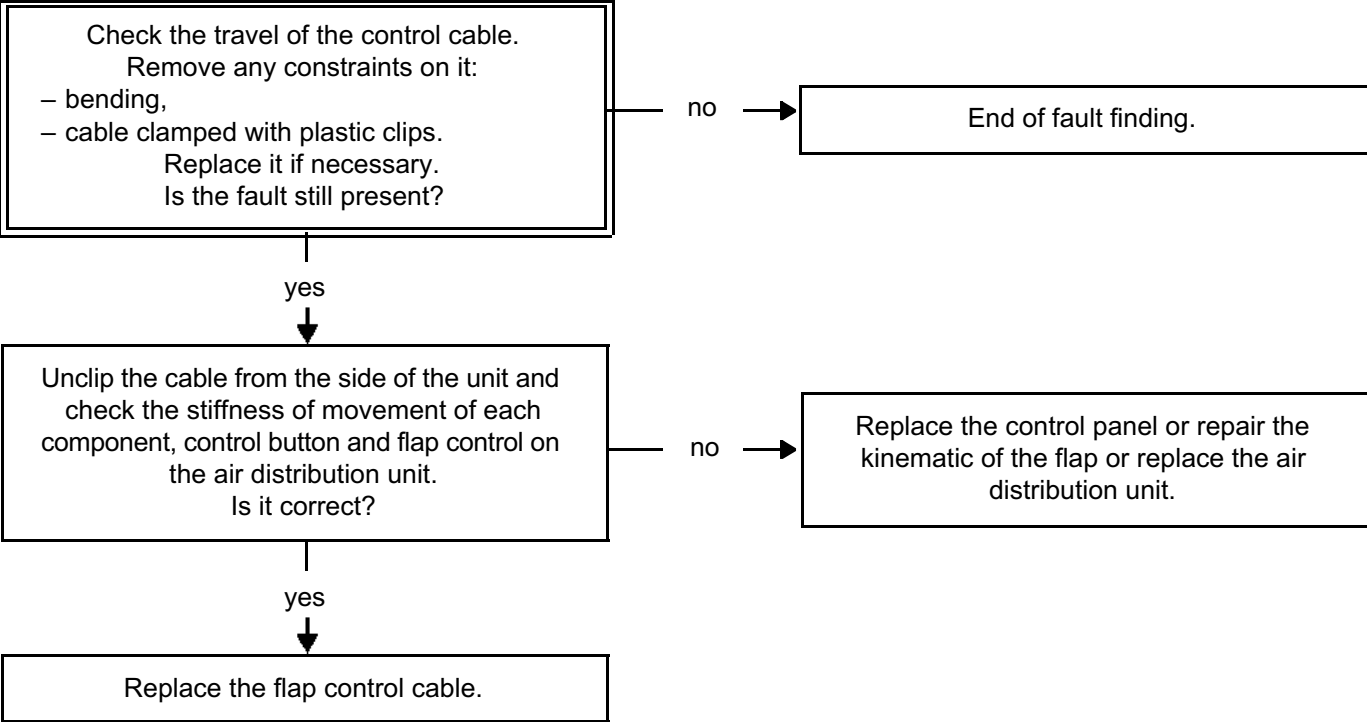
NOTES	None.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 10	CONTROLS STIFF (passenger compartment inconvenience)
----------	--

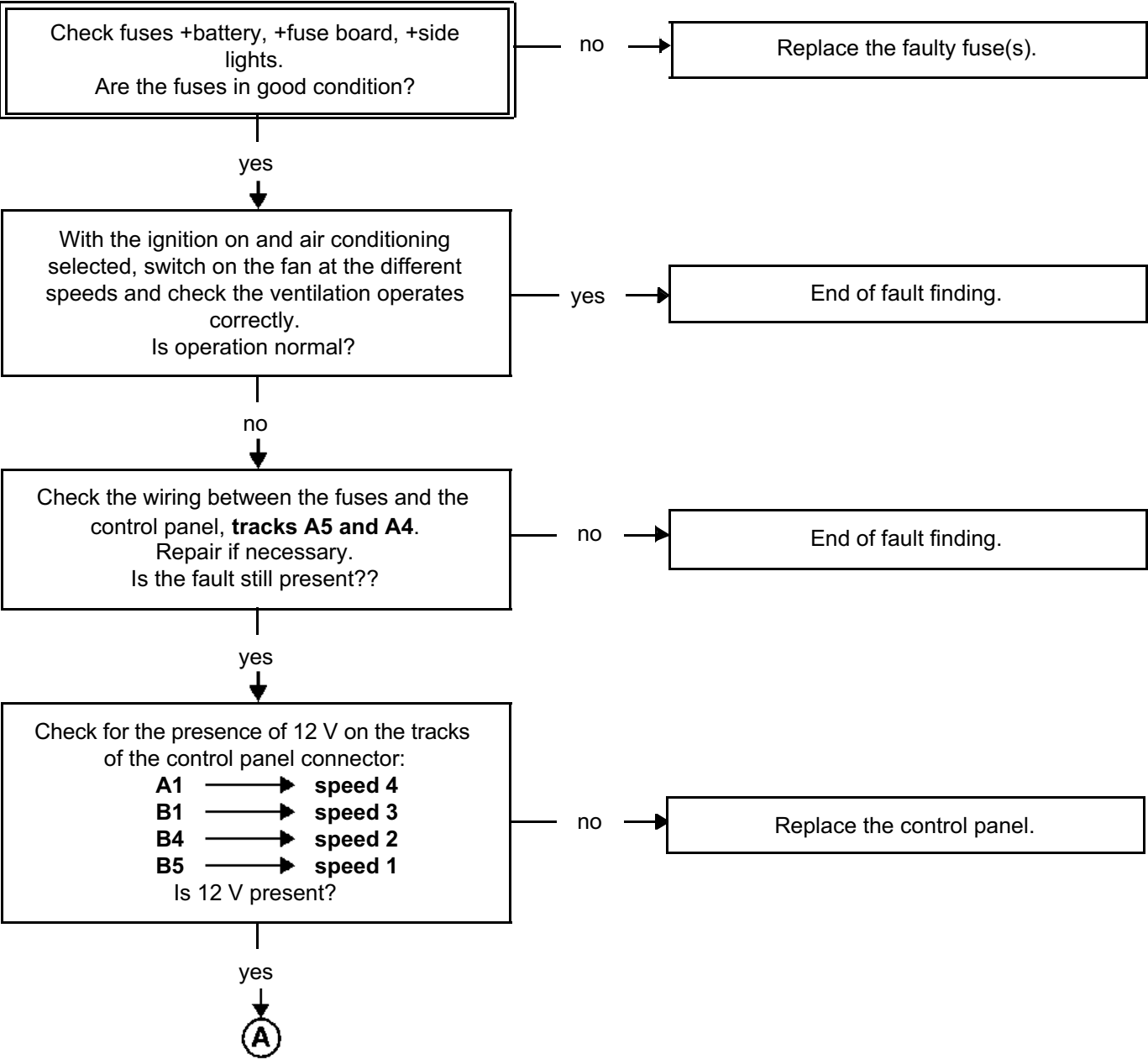
NOTES	None.
-------	-------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 11	PASSENGER COMPARTMENT FAN DOES NOT OPERATE
----------	--

NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non-automatic air conditioning.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 11

(continued)

A

On the resistive module of the passenger compartment fan, check for the presence of 12 volts on tracks

3 —————> speed 1
4 —————> speed 2
5 —————> speed 3
12 —————> speed 4

Is 12 V present?

no

Repair the electrical wiring between the control panel and the passenger compartment fan.

yes

Check that the 2-track connector is inserted correctly into the fan motor.
Is it correct?

no

Insert the connector correctly.

yes

On the resistive motor of the passenger compartment fan, check for the presence of 0 volts on **tracks 14 and 15**. Is 0 volts present?

no

Repair the electrical wiring.

yes

Does the fan operate at speed 4 but not at speeds 1, 2 or 3?

yes

Replace the resistive module.

no

Does the fan operate at speeds 1, 2 and 3 but not at speed 4?

yes

Check for the presence of 12 volts on **tracks 10 and 11 of the resistive module connector**.
Replace fuse BP1.

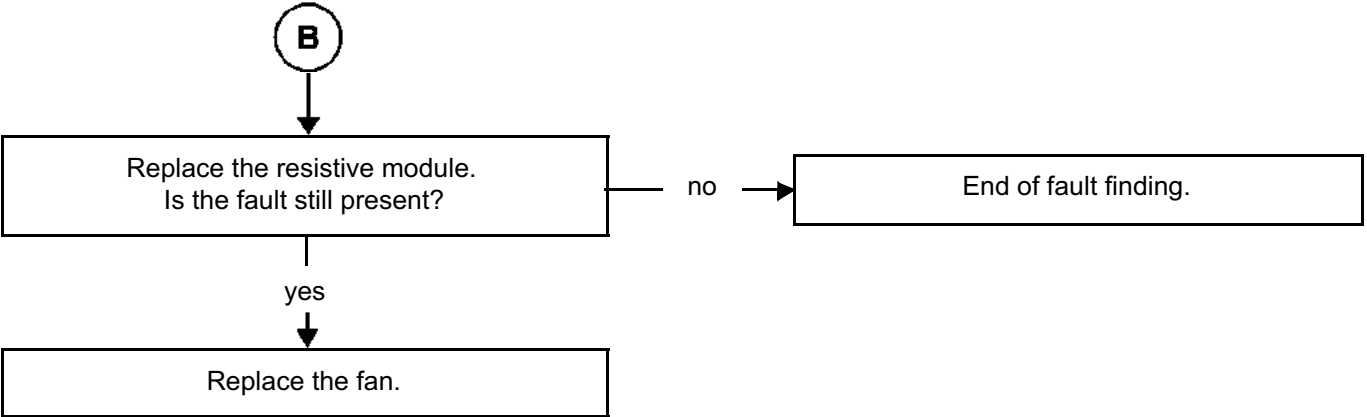
no

B

AFTER REPAIR

Check that the components which were removed are connected correctly.
Check that the system is operating correctly.

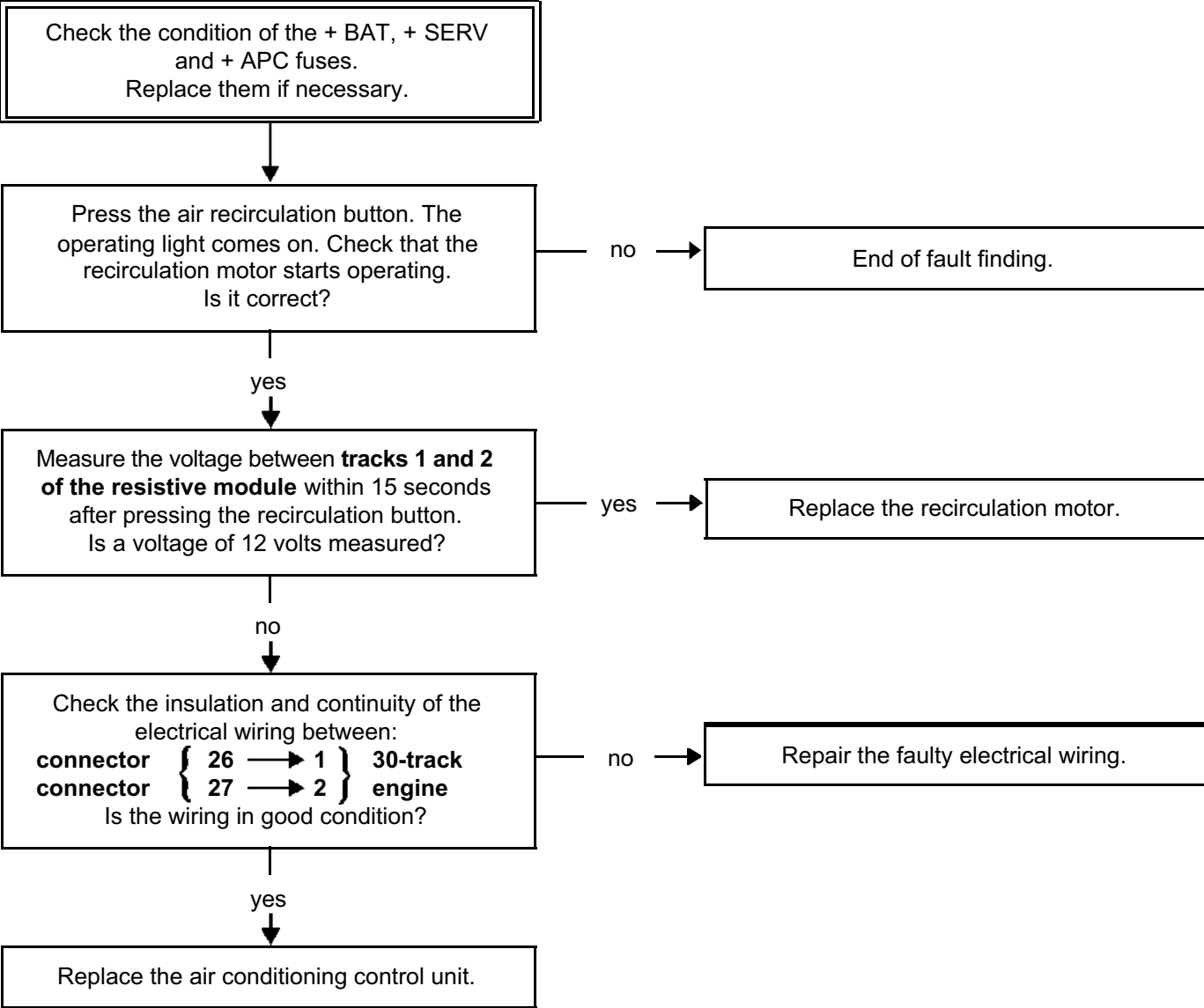
CHART 11 (continued)	
-------------------------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 12	AIR RECIRCULATION DOES NOT WORK BUT THE WARNING LIGHT COMES ON
----------	--

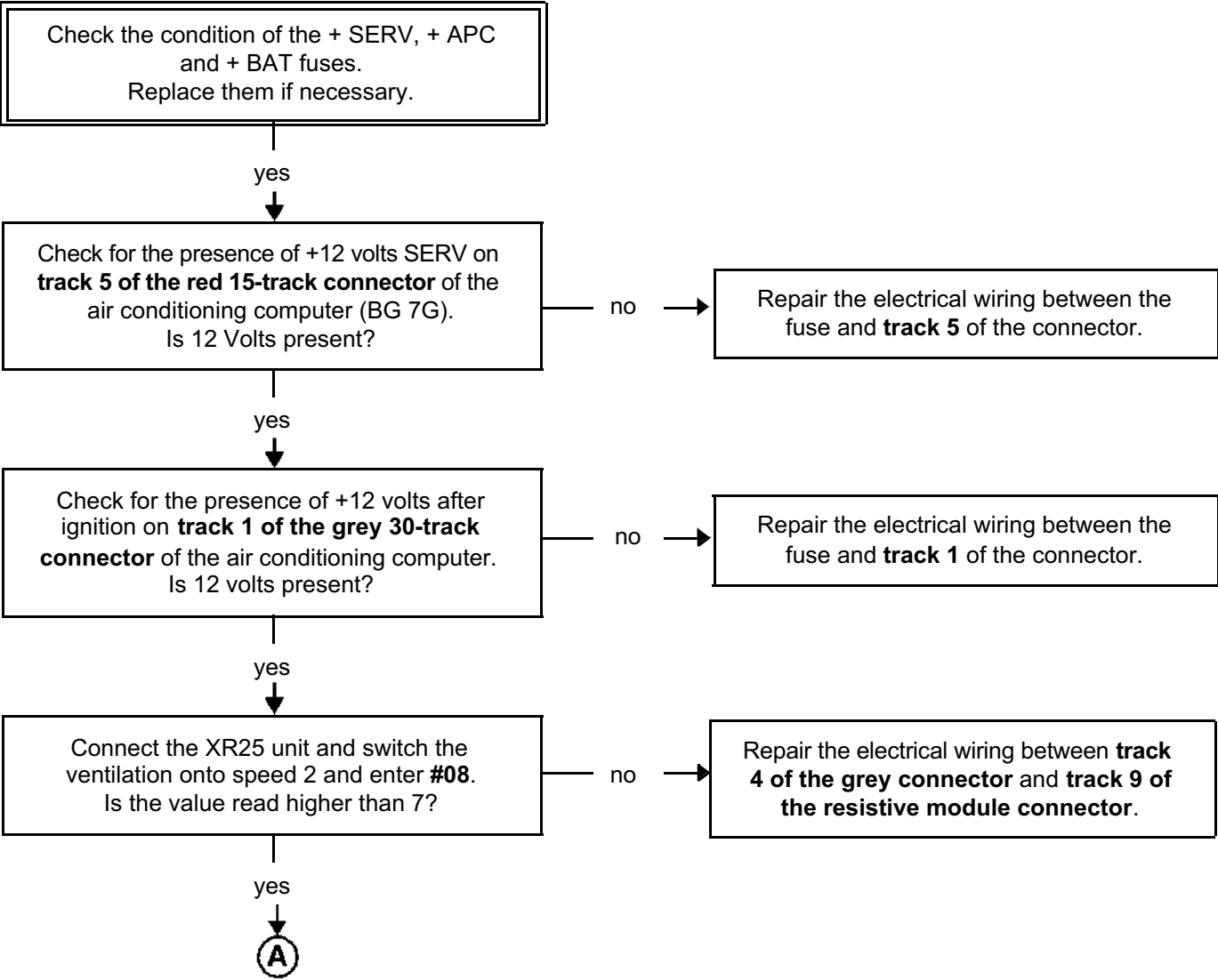
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 13	AIR CONDITIONING FAULTS No cool air
----------	--

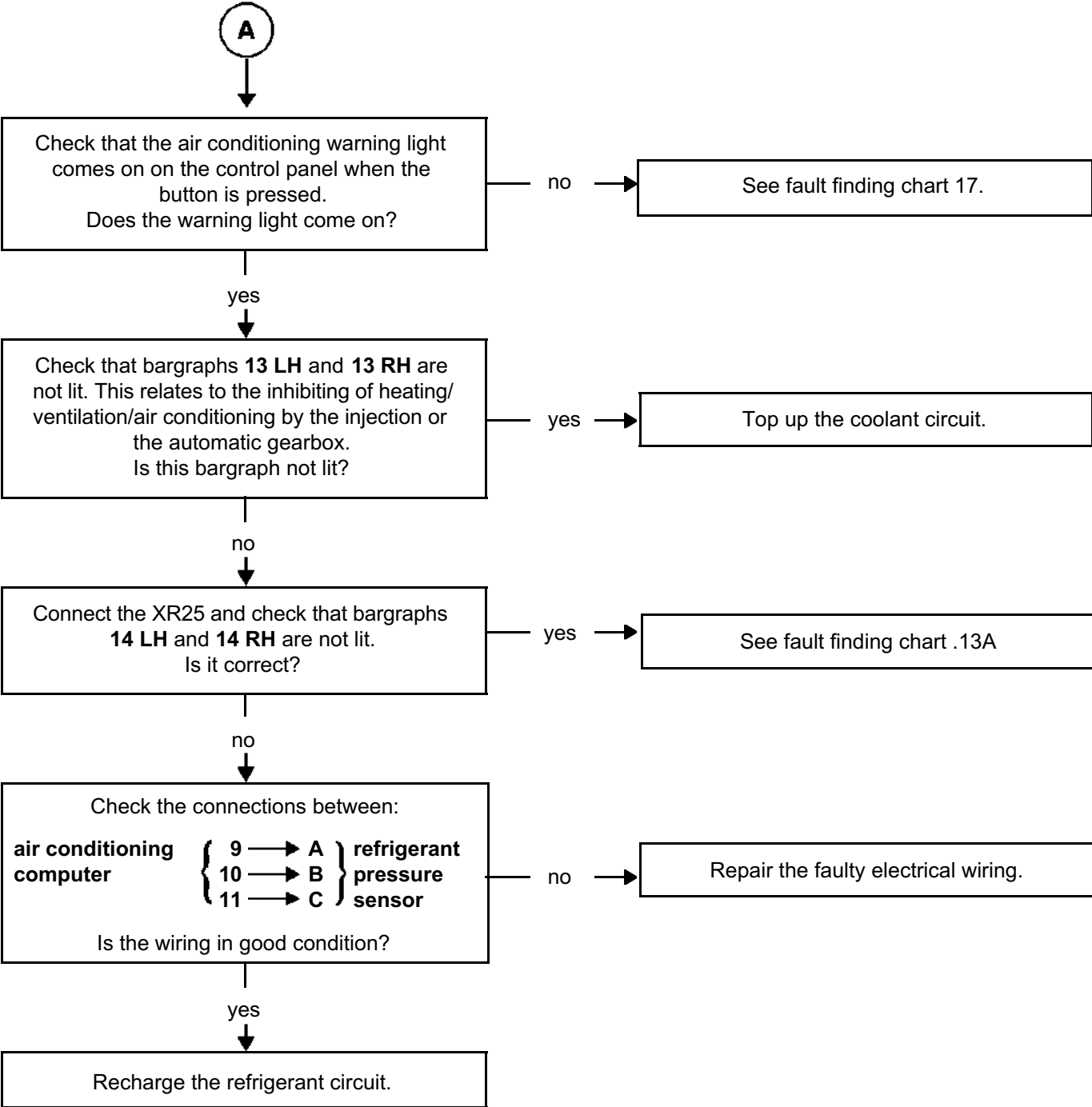
NOTES	Non-automatic air conditioning. The passenger compartment fan operates. Check that bargraphs 2 RH, 2 LH and 4 LH are not lid.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 13 (continued)	AIR CONDITIONING FAULTS No cool air
-------------------------	--

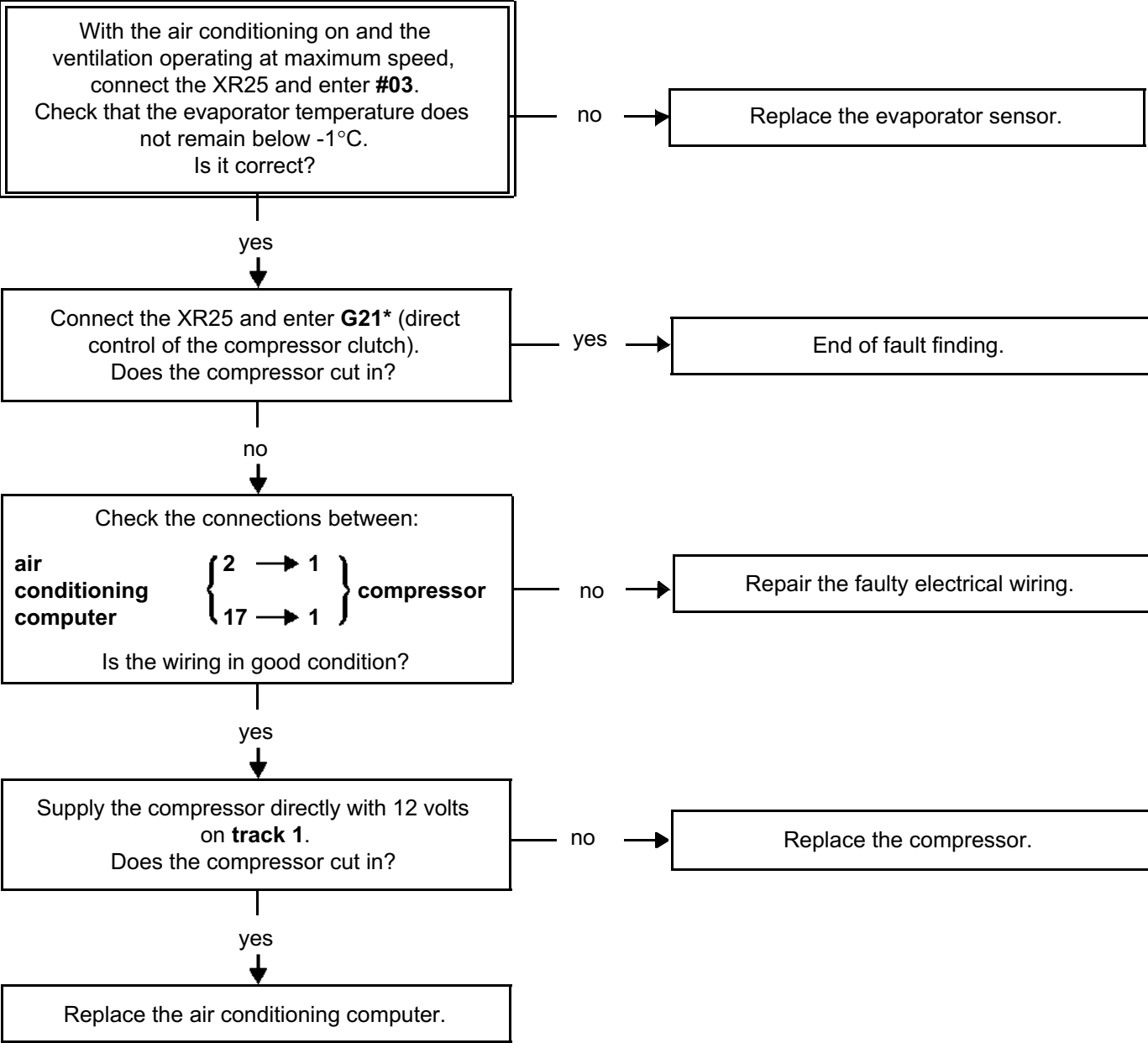
NOTES	Non regulated air conditioning. The passenger compartment fan operates.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 13 A	AIR CONDITIONING FAULTS No cool air
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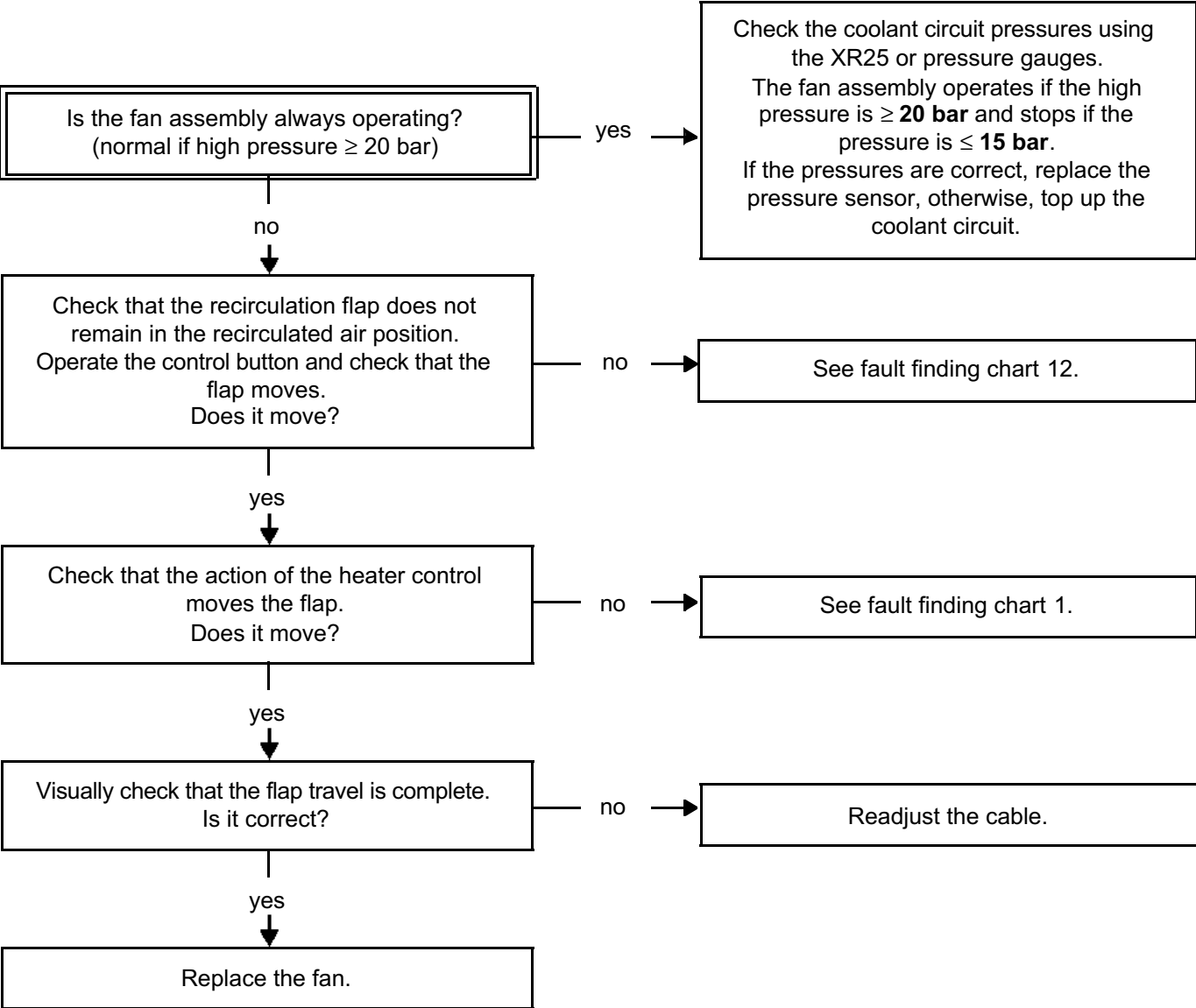
NOTES	Non regulated air conditioning. The passenger compartment fan operates. Check that bargraphs 2 RH, 2 LH and 4 LH are not lit.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 14	AIR CONDITIONING FAULTS Air too cold
----------	---

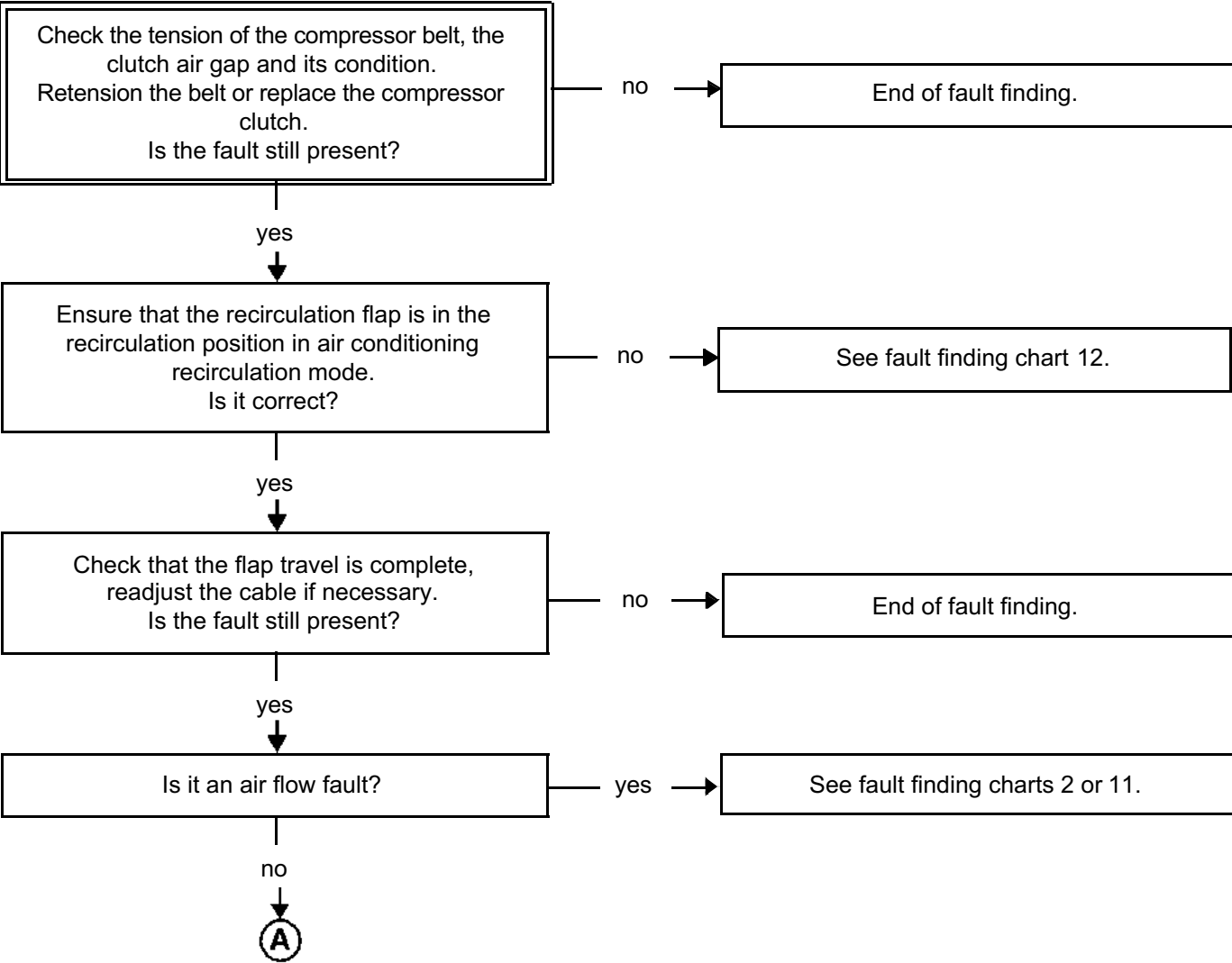
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

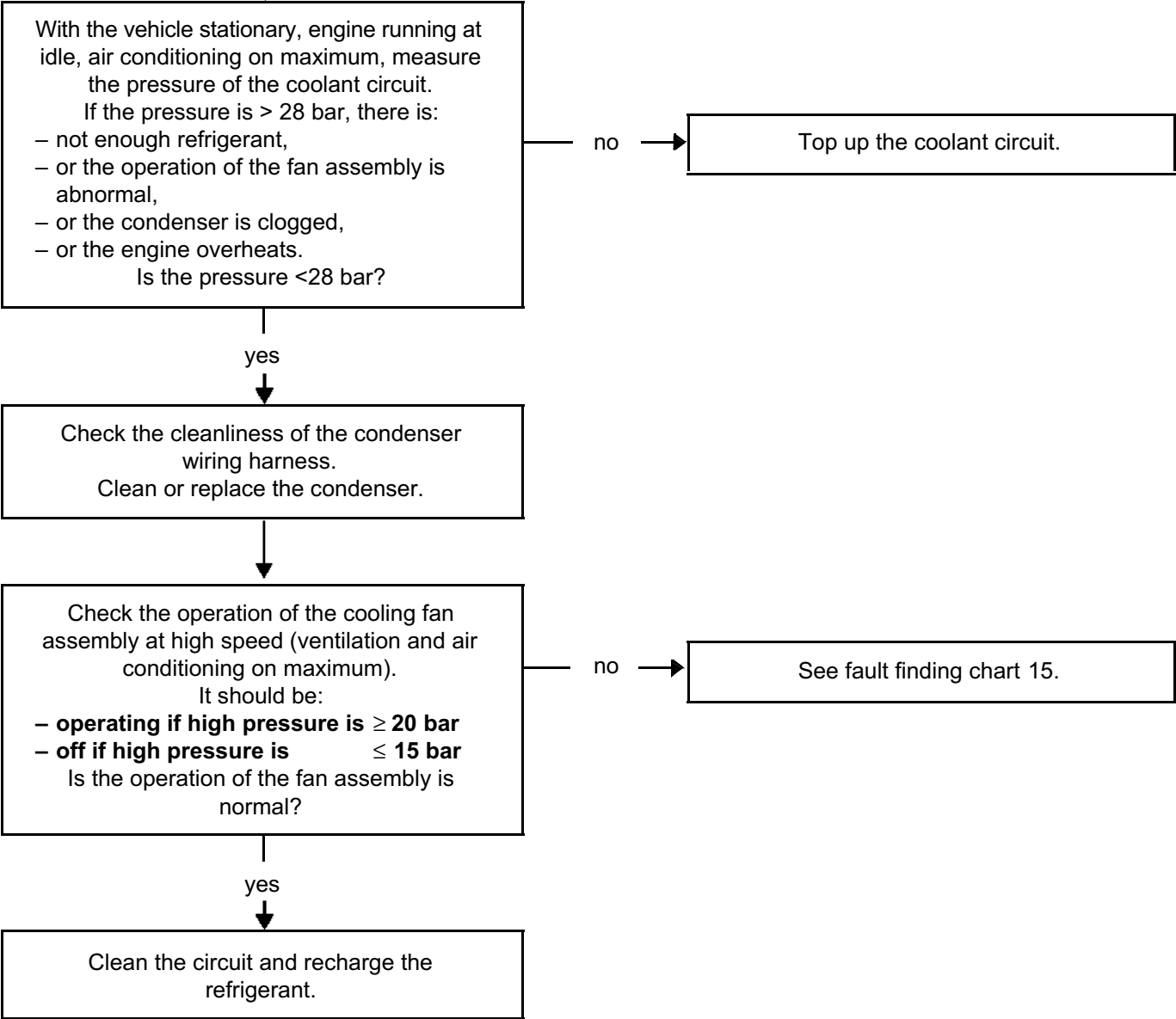
CHART 15	AIR CONDITIONING FAULTS Poor performance
----------	---

NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

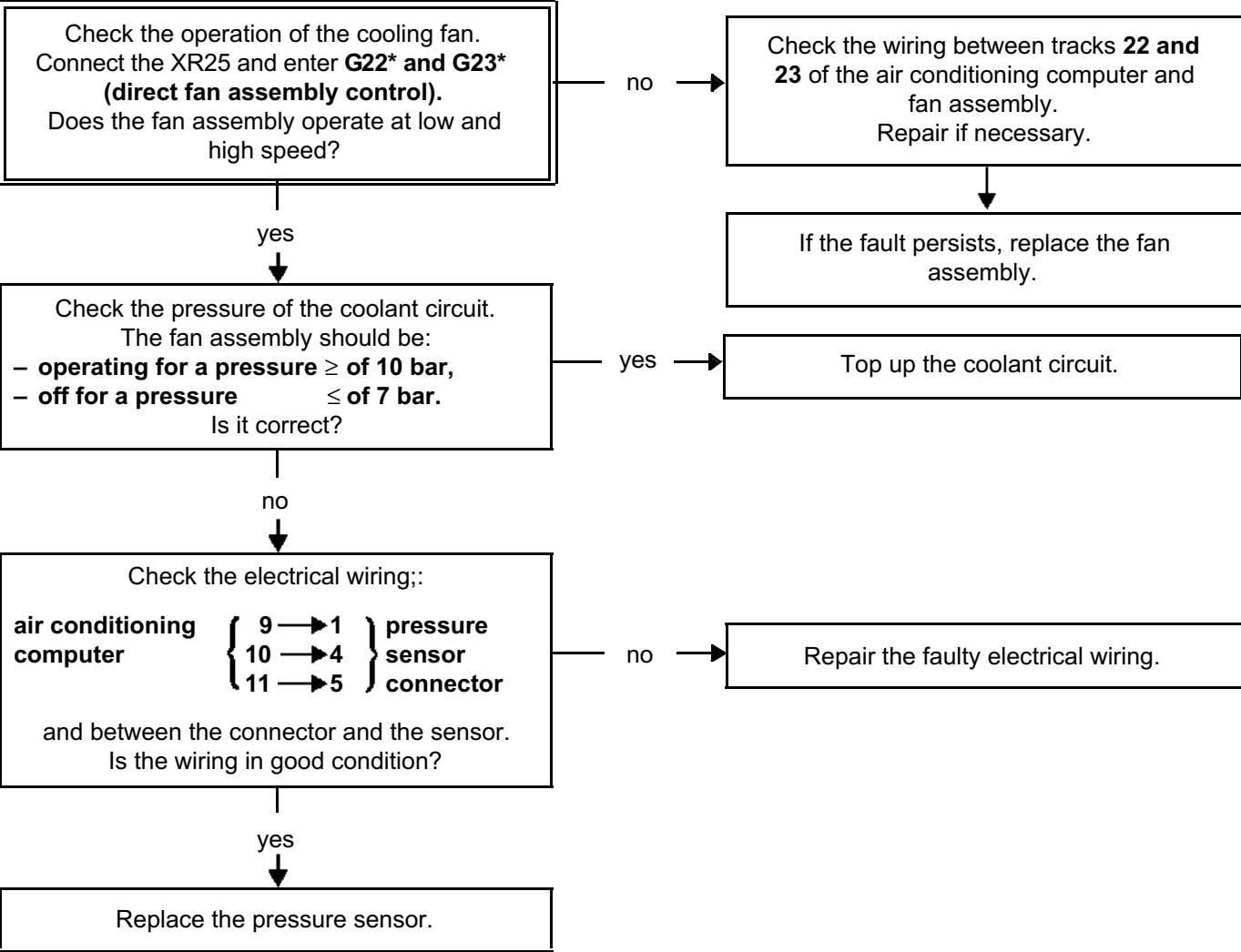
CHART 15 (continued)	
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 15A	AIR CONDITIONING FAULTS Performance poor
-----------	---

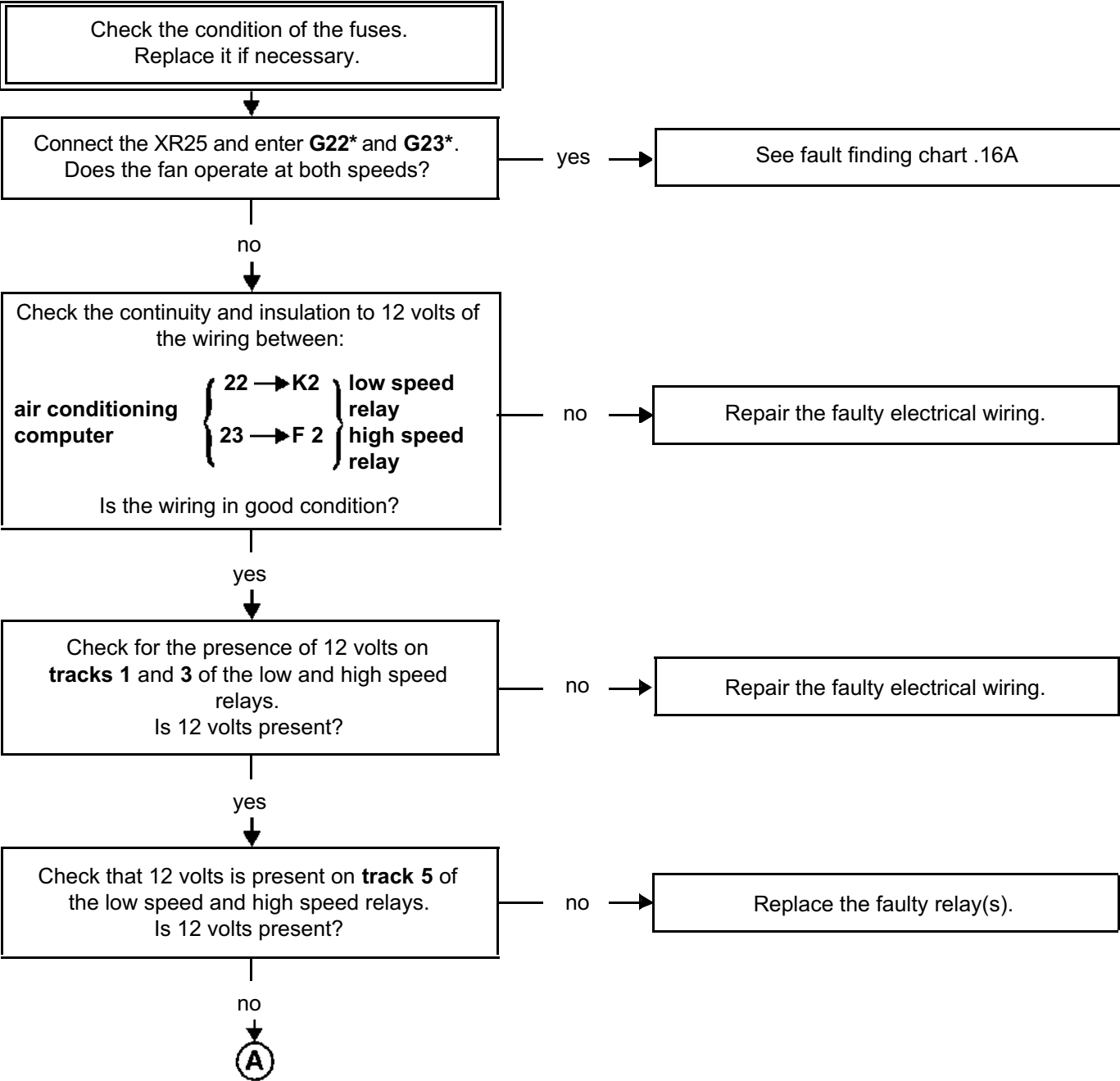
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

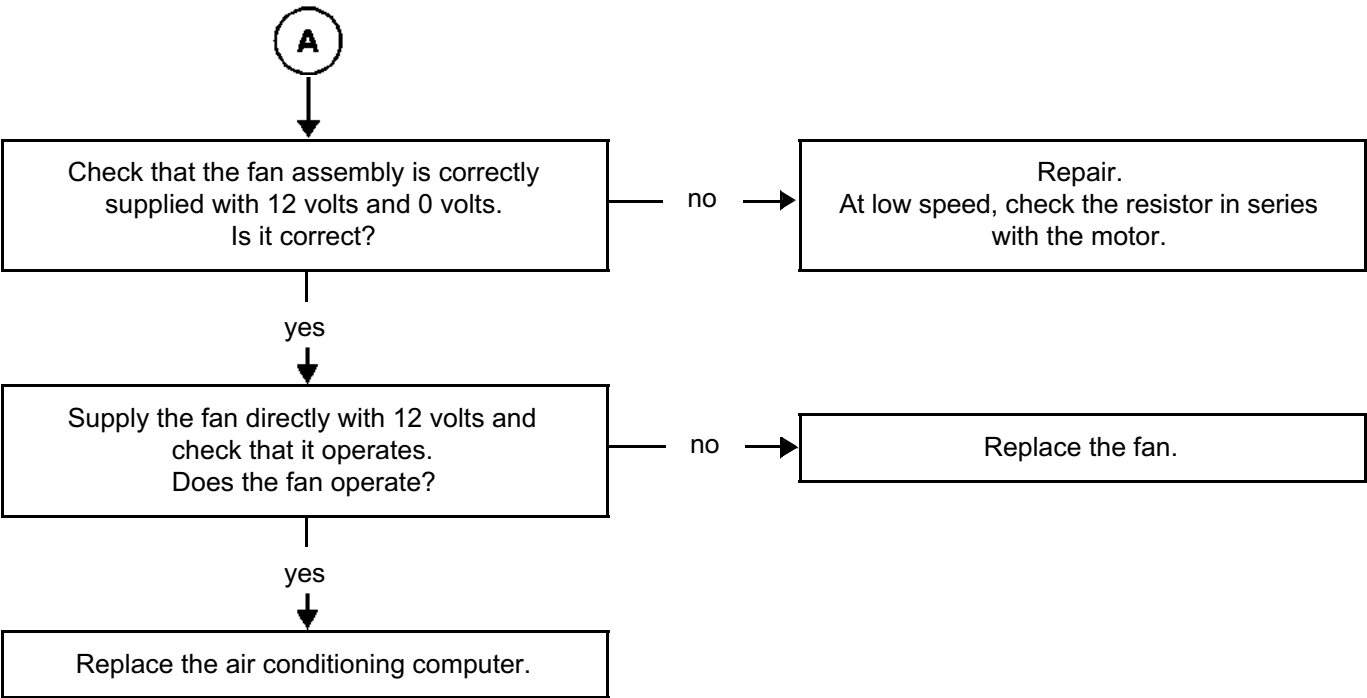
CHART 16	COOLING FAN DOES NOT OPERATE
----------	------------------------------

NOTES	Non regulated air conditioning. The compressor operates.
-------	---



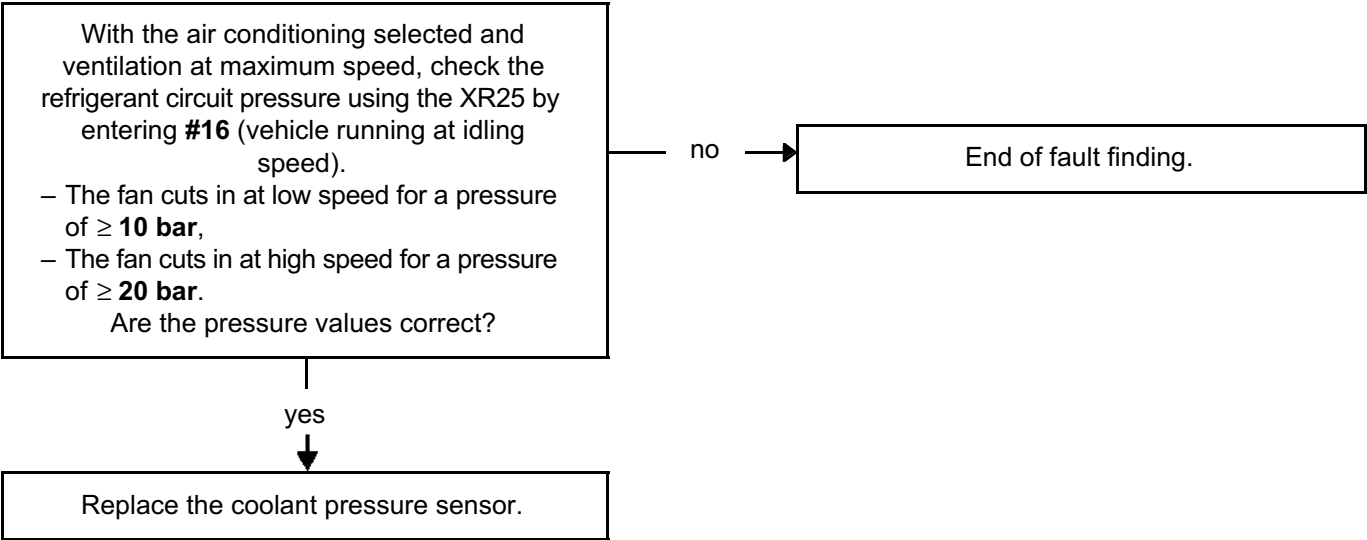
AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 16 (continued)	
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

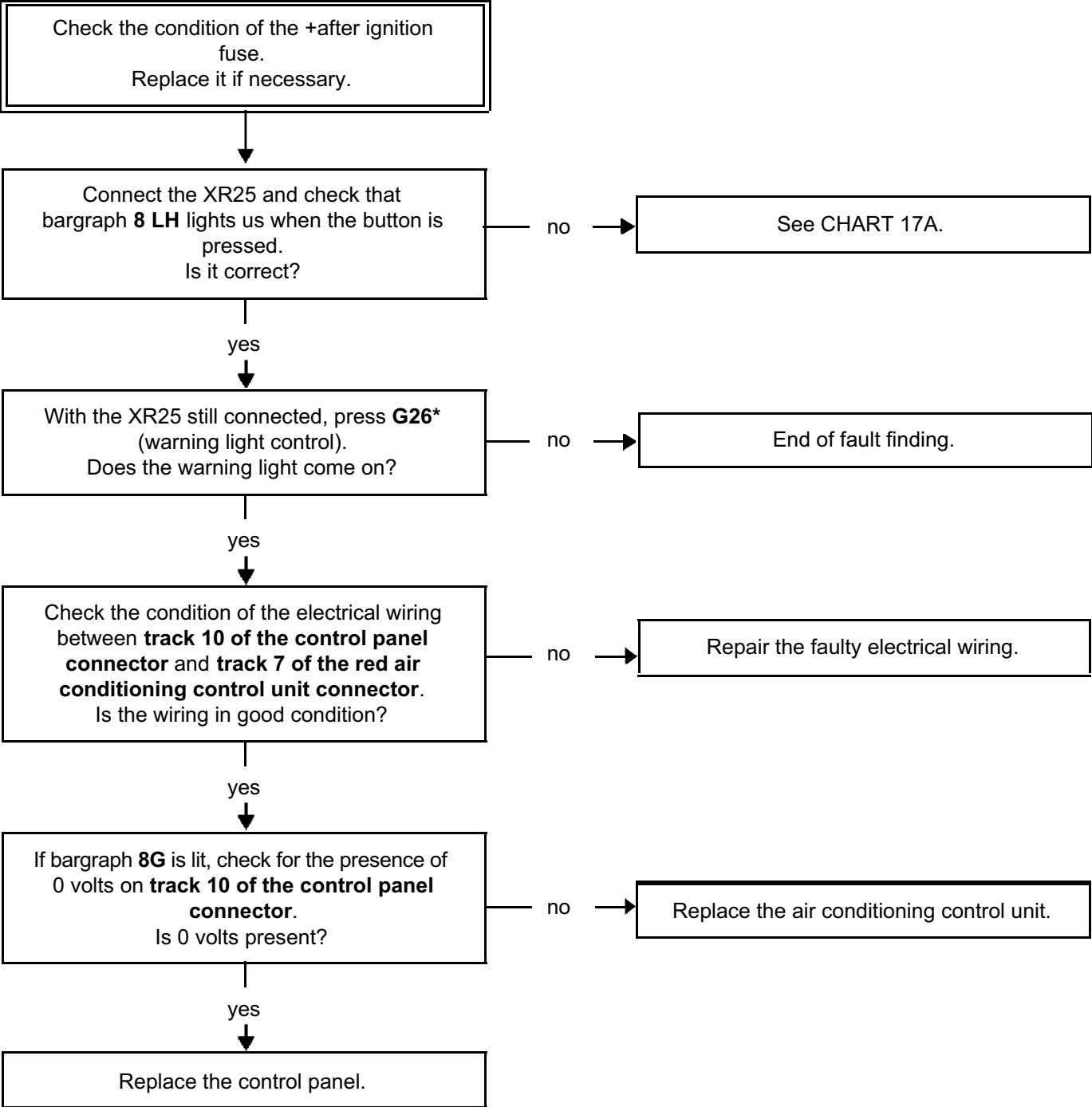
CHART 16 (continued 1)	
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 17	THE AIR CONDITIONING WARNING LIGHT DOES NOT COME ON
----------	---

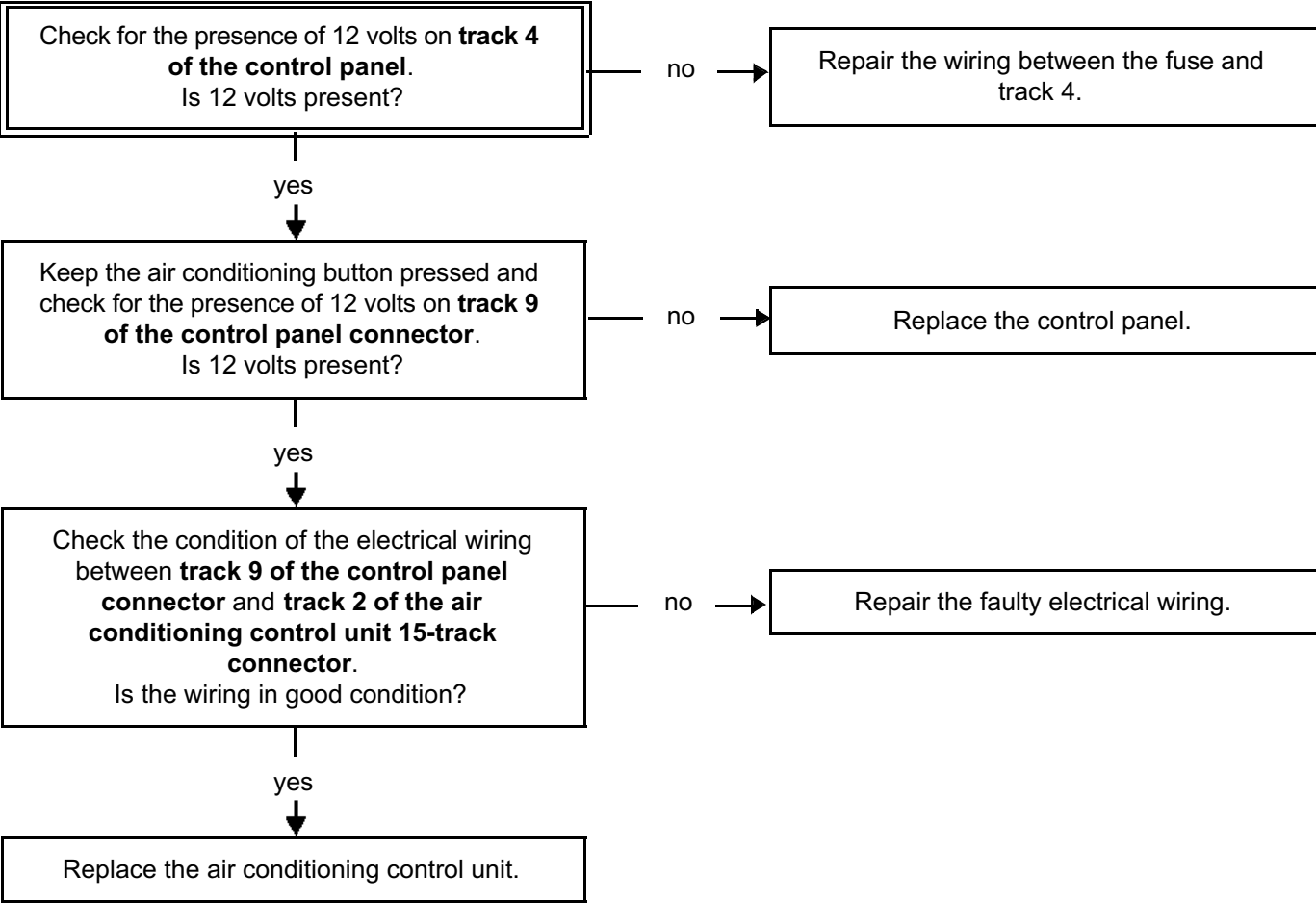
NOTES	+after ignition feed.
-------	-----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 17A	THE AIR CONDITIONING WARNING LIGHT DOES NOT COME ON
-----------	---

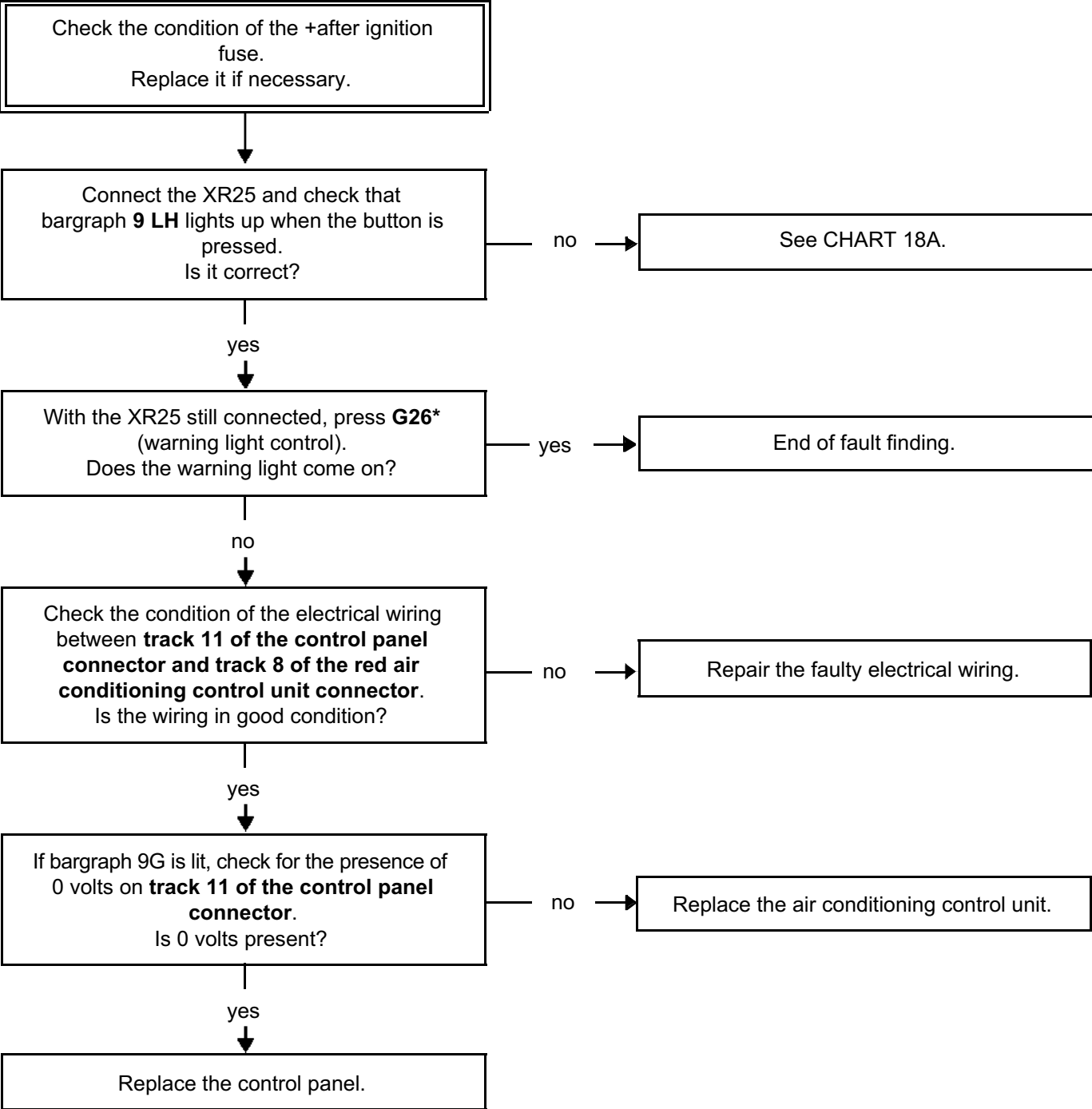
NOTES	+after ignition feed.
-------	-----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 18	THE RECIRCULATION WARNING LIGHT DOES NOT COME ON
----------	--

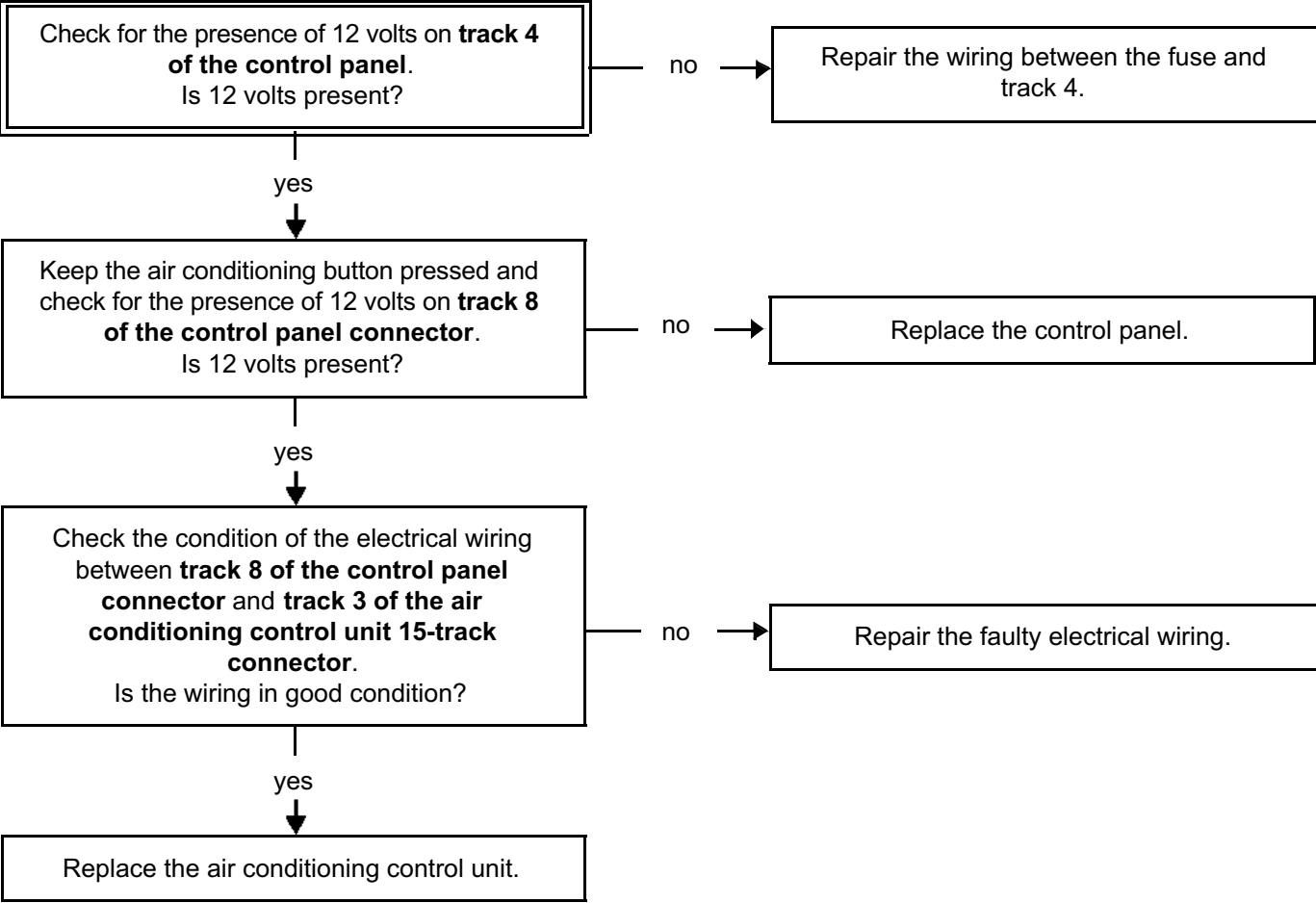
NOTES	+after ignition feed.
-------	-----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 18A	THE RECIRCULATION WARNING LIGHT DOES NOT COME ON
-----------	--

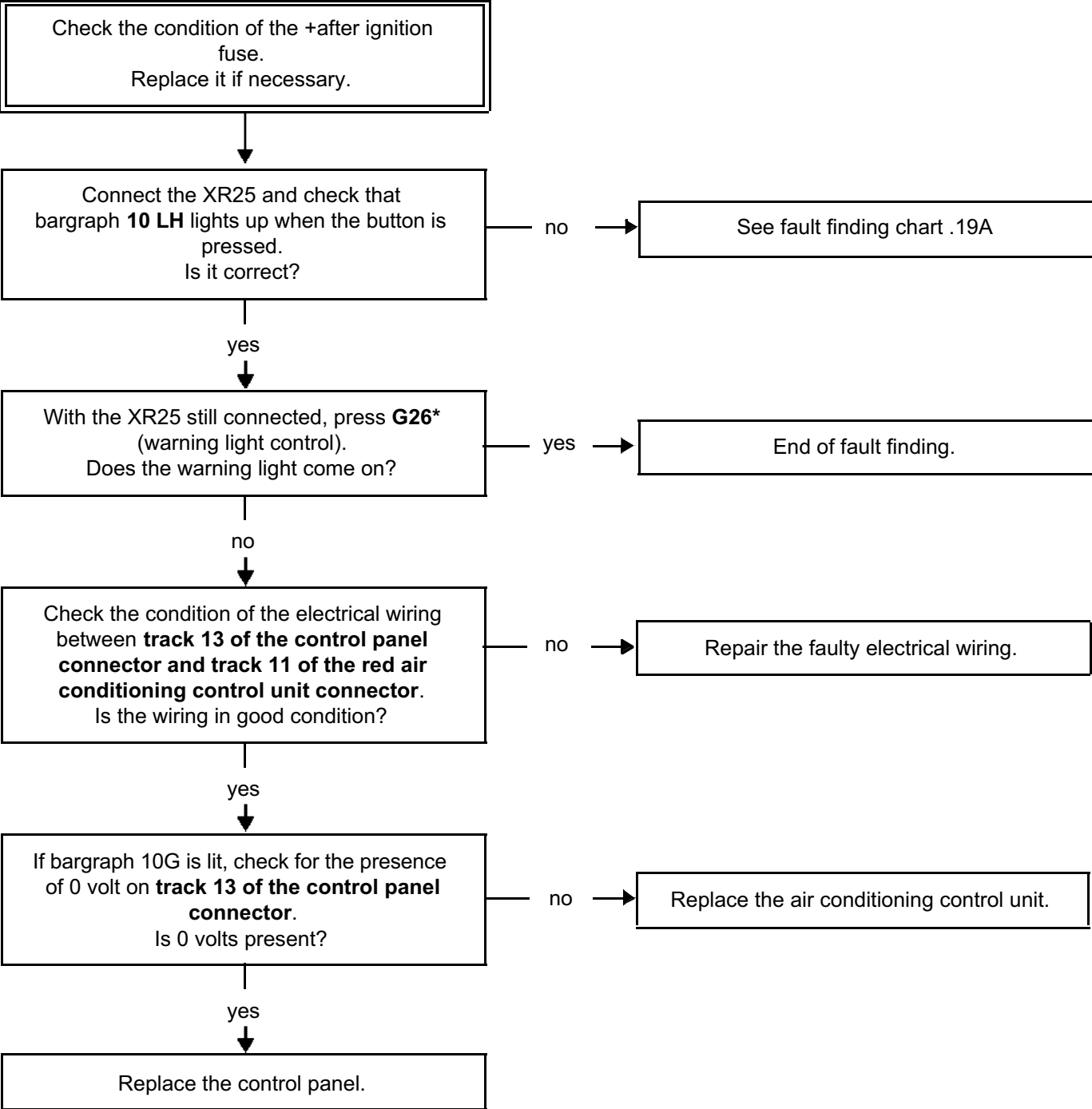
NOTES	+after ignition feed.
-------	-----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 19	THE HEATED REAR SCREEN WARNING LIGHT DOES NOT COME ON
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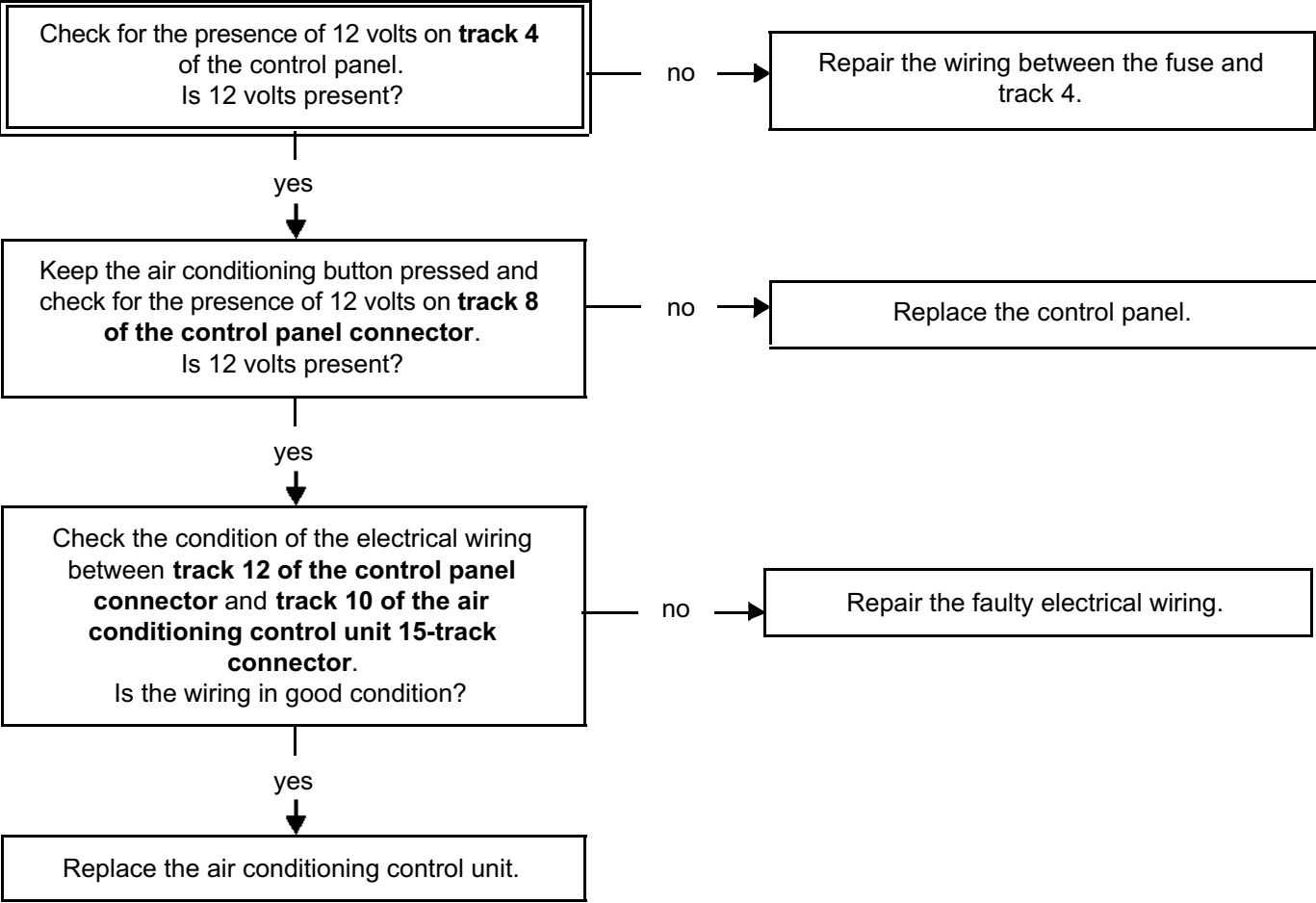
NOTES	+after ignition feed.
-------	-----------------------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 19A	THE HEATED REAR SCREEN WARNING LIGHT DOES NOT COME ON
-----------	---

NOTES	+after ignition feed.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

ADDITIONAL CHECKS

Commands

Command modes are accessible directly for the Clip and NXR diagnostic tool. Use the following procedure for the XR25:

COMMAND MODE G--*

To use this function, enter G on the XR25 keypad, then the number of the command selected followed by an asterisk.

G20*: heated rear screen switch

G21*: compressor clutch control

G22*: fan at low speed control

G23*: fan at high speed control

G24*: recirculation motor control

G26*: control panel warning lights control

G13*: end of fault finding.

COMMAND MODE

03: evaporator temperature

08: fan assembly speed

#15: engine speed

#16: refrigerant pressure in the circuit

Computer configuration:

IMPORTANT: The XR25 is not able to perform the configuration reading and computer configuration procedures. The Clip or NXR diagnostic tools only must be used.

IMPORTANT: The configuration reading or computer configuration operations are essential in the following cases:

- Incorrect or no operation of the air conditioning without any detected fault.
- Replacement of the air conditioning computer.

1 Configuration reading / configuration

1.1 Configuration reading

- Using the Clip or NXR diagnostic tools, select **command** mode.
- Select the **Read configuration** menu.
- Read the configuration.

WARNING: the configuration parameters specific to the Clio V6 are described in section **1.2 Configuration**.

1.2 Configuration

- Using the Clip or NXR diagnostic tools, select **command** mode.
- Select the **Configuration** menu.
- Configure the computer as described below:

C006 Without refrigerant sensor

C012 Without evaporator temperature sensor

C015 With recirculation motor timer

C018 With one-touch type control

C020 With Sanden compressor

C021 Hokoriku sensor configuration

C025 Configuration with recirculation flap auto setting

WARNING: This configuration is specific to the Clio V6. It is necessary to ensure the air conditioning operates correctly.

IMMOBILISER

FAULT FINDING

CONTENTS

	Page
Introduction	01
Interpretation of faults	02
Conformity check	12
Interpretation of states	13
Customer complaints	17
Fault finding charts	18

This document presents the general fault finding procedure applicable to all immobiliser function computers on phase 1 CLIO V6 vehicles.

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

- Workshop Repair Manual for the vehicle concerned,
- the electrical wiring 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 to identify the system fitted to the vehicle (reading the computer family, the program no., the Vdiag no., etc.).
- Find the Fault finding documents corresponding to the system identified.
- Include information contained in the **Introduction** sections.
- 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 particular type of storage (fault present, fault stored in memory, fault present or stored). The checks defined for dealing with each fault are therefore only to be performed if the fault declared by the diagnostic tool is interpreted in the document for 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 the conditions for applying fault finding appear in the NOTES box. If the conditions are not satisfied, use the fault finding strategy 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

- diagnostic tool (except XR25)
- Electrical bornier **Elé. 1622**,
- Multimeter.

OPERATING CHARACTERISTIC

The immobiliser system is based on recognition of the key on each + after ignition by inductive connection between the transponder integrated into the key and the aerial of the transponder ring.

Key authentication is validated by the codes stored in the UCH, even though the vehicle is protected (immobiliser active).

The immobiliser system is automatically activated after 10 seconds each time the ignition is switched off.

OPERATION:

- When the user inserts their key into the ignition switch and switches on the + after ignition, the UCH sends a request to the key via the transponder ring.
- Following this request, the key sends a unique response to the UCH.
- If the UCH recognises this response, (which means that the key is among those programmed into the UCH) the UCH then sends back a new message (challenge).
- The key deciphers the message. If the message is recognised, the key sends back its response.
- The UCH compares the response with the value stored in its memory.
- If this response is recognised by the UCH, then the authentication is successful. All dialogues between the key and the UCH are encrypted (including data read / write dialogues).
- Once key authentication is successful, the UCH authorises operation of the engine management computer (exchange of an immobiliser code with the injection computer).

IMPORTANT

- The time required for the authentication of the key can lead the user, who has made a starter request, to believe that the starter motor has a variable response time and that a time gap ensues between the request made by the user and the operation of the starter motor.
- When authentication is taking place in the injection system, the UCH drives the starter relay for 1.5 seconds.
- If authentication is not complete after this time, the UCH will no longer drive the starter relay.

Key recognition in normal operation

	IMMOBILISER WARNING LIGHT
Vehicle protected (without after Ignition)	Warning light flashes at 1 Hertz
Key recognised, injection protection lifted	Warning light comes on for 3 seconds, then goes out
Key recognised, injection protected or blank	Warning light remains on after 3 seconds
Key not recognised	Warning light flashes at 4 Hertz

TRANSPONDER AND RADIO-FREQUENCY KEY PROGRAMMING

All the normal After-Sales procedures must be performed after entering the vehicle After-Sales repair code on the diagnostic tool.

- There is no number marked on the key.
- At the time of delivery, the vehicle does not have a label showing the code.

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

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

- Spare keys are supplied **uncoded, without a number and without metal insert**.
- The UCH can store a maximum of four keys.
The remote control and the battery have no effect on the engine immobiliser and **only the transponder, which is not coded**, enables the engine 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. They 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. If necessary, please contact your Techline.**

- **There are three types of component on the vehicle**

● **Parts without codes**

– **The transponder ring**

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

● **Coded parts**

– **The injection computer**

the injection receives codes from the UCH.

Programming takes place after the + after ignition is switched on and a key is recognised as assigned to the vehicle, without the user or RENAULT dealer intervening in the procedure. Programming a code into this part means it cannot be used on any other vehicle.

● **Parts coded by an After-Sales procedure**

– **The UCH and the keys**

simply fitting or using these new or blank parts on a vehicle is not sufficient to program the code. As long as the After-Sales programming procedure has not been carried out, these parts remain blank.

By contrast, if the programming procedure is carried out, the parts are coded and can therefore be used on another vehicle, even if the key programming procedure has failed. The keys are still programmed with the code entered into the tool.

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: Specific command** menu, select and confirm the **SC027: Program UCH line**.
- The tool displays **Remove the key from the ignition switch** since, if the ignition is not switched off, the UCH will reject the After-Sales code.
- The tool displays **Please enter the After-Sales code**. With the ignition off, enter the After-Sales secret code (12 hexadecimal characters) and confirm it.
- If the code format is correct, the tool displays **Insert a key which has already been programmed to the vehicle**; switch the + after ignition on and the programming procedure starts.
- The tool displays **UCH programming done, 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.

EVENT OF FAILURE

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 incorrect code has been entered, the key is assigned to another vehicle, or the key or ring is not functioning (see whether the fault, present or stored, should be dealt with first, and carry out a state and conformity check).
- **"The UCH is not blank, please start the key programming procedure".**
The UCH has already been coded on this vehicle. Therefore key programming and not UCH programming must be used.
- **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 provided by the key does not correspond to the vehicle, or the code does not correspond to the key used.
- **The key inserted is blank. Please present another key already programmed on the vehicle.**
The key is blank. Restart the key programming procedure on a key assigned to 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: Specific command** menu, select and confirm the **SC028: Program keys command**.
- 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 After-Sales secret code (12 hexadecimal characters) and confirm it.
- The tool displays **Warning: keys not present will no longer be active. Restart the procedure to reallocate them**: Programming is in progress.
- 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 **"Insert the key in the ignition switch and switch on, then confirm"**.
- Switch on the ignition with a new or old key assigned to the vehicle, the screen displays **"1 key programmed"**; confirm: the screen displays **"Remove the key from the ignition 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 keys maximum), then press enter. The screen displays **2, 3 or 4 keys programmed** then **Remove the key from the ignition switch**.

WARNING

The keys used must be old keys for 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 submitted before interruption of the procedure are no longer blank and can only be assigned to this vehicle**.

EVENT OF FAILURE

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.**
- If the code provided by the tool is incorrect, the tool displays: Incorrect code.
If, after verification, the code provided by the tool and the code present on the server are identical, contact your Techline.

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 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.

Fault finding - Interpretation of faults

DF067 PRESENT	<u>RING CONNECTION</u>  <u>DECODER CONNECTION</u> CO : Open circuit
NOTES	Conditions of use on a present fault: If DF103 is present , deal with fault DF1003 first. The fault is declared present when the ignition is switched on (+ after ignition).
CO	<div>Check the connection and the condition of the transponder aerial connector. Repair if necessary.</div> <div>Check the connection and condition of the UCH 40-track connector. Repair if necessary.</div> <div>Check the insulation, continuity and resistance of the connections between: UCH 40-track connector track 22  track 4 transponder aerial Repair if necessary.</div> <div>Check the ring/decoder connection using the second key for the vehicle or a key for another vehicle type: phase 2 Clio II, phase 2 Master II, Twingo fitted with a UCH, multiplex Kangoo, or Trafic II.</div> <div>If the fault persists, replace the transponder aerial.</div>
AFTER REPAIR	Deal with any other possible faults. Clear the fault memory.

Fault finding - Interpretation of faults

DF069 PRESENT	<p><u>DECODER CONNECTION</u> ➔ <u>RING CONNECTION</u></p> <p>DEF : No authentication between the transponder code and the codes stored by the UCH computer: key not recognised.</p>
NOTES	<p>Conditions for applying the fault finding procedure to the stored fault: The fault is declared present when the ignition is switched on (+ after ignition).</p>
DEF	<p>Check state ET103 "Key code received": if the key code is valid, the state is "YES". Reallocate the keys using the diagnostic tool.</p>
	<p>Replace the key if necessary.</p>
	<p>If the fault persists, contact your Techline.</p>
AFTER REPAIR	<p>Deal with any other possible faults. Clear the fault memory.</p>

Fault finding - Interpretation of faults

DF103 PRESENT OR STORED	<p><u>RING CIRCUIT → TRANSPONDER</u></p> <p>CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 V</p>
NOTES	<p>Conditions for applying the diagnostic procedure to the fault stored: The fault is declared present when the ignition is switched on (+ after ignition).</p>
CC.0	<p>Check the connection and the condition of the transponder aerial connector. Repair if necessary.</p> <p>Check for the presence of a + 12V supply on track 3 of the transponder aerial. Repair if necessary.</p> <p>Check the connection and condition of the UCH 40-track connector. Repair if necessary.</p> <p>Check the continuity and insulation of the UCH/transponder aerial connection. Repair if necessary.</p>
CC.1	<p>Check the transponder aerial connectors. Repair if necessary.</p> <p>Check for the presence of earth on the decoder ring: earth → track 2 transponder ring</p> <p>Check the UCH connectors. Repair if necessary.</p> <p>Check the insulation against + 12 V of the connection between: track 22 of the 40-track connector → track 4 of the transponder ring the UCH Repair if necessary.</p>
AFTER REPAIR	<p>Deal with any other possible faults. Clear the fault memory.</p>

Fault finding - Interpretation of faults

DF104 PRESENT OR STORED	<u>FAULT IN THE UCH</u>
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NOTES	<p>The fault is declared present when the ignition is switched off.</p> <p>Special notes: if there is a fault stored in the memory, check that there are no other faults present and clear the faults. Don not deal with a stored fault.</p>
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If the fault is still present, contact your Techline.

AFTER REPAIR	<p>Follow the instructions to confirm repair.</p> <p>Deal with any other possible faults.</p> <p>Clear the fault memory.</p>
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Fault finding - Interpretation of faults

DF105 PRESENT OR STORED	<u>IMMOBILISER WARNING LIGHT CIRCUIT</u> 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 when the ignition is switched on (+ after ignition).
CC.0	<p>Check the connection and the condition of the instrument panel connector. Repair if necessary.</p> <p>Check the connection and condition of the UCH 40-track connector. Repair if necessary.</p> <p>Check the continuity and insulation against earth of connection:</p> <p style="text-align: center;">UCH 40-track connector track 2 —————> instrument panel</p> <p>Repair if necessary.</p>
CC.1	<p>Check the connection and the condition of the instrument panel connector. Repair if necessary.</p> <p>Check the connection and condition of the UCH 40-track connector. Repair if necessary.</p> <p>Check the continuity and insulation from + 12 V of the connection:</p> <p style="text-align: center;">UCH 40-track connector track 2 —————> track 5 30-track connector instrument panel</p> <p>Repair if necessary.</p>
AFTER REPAIR	Deal with any other possible faults. Erase 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	Immobiliser	ET060: Engine immobiliser	ACTIVE INACTIVE	In the event of a fault, consult the fault finding procedure for state ET060
		ET103: Key code received	State YES when + after ignition is switched on	In the event of a fault: consult the fault finding procedure for state ET103.
		ET104: Key code valid	state YES when + after ignition is switched on	In the event of a fault, consult the fault finding procedure for state ET104
		ET167: Immobiliser warning light	ACTIVE/INACTIVE	In the event of a fault, apply DF105 immobiliser warning light fault diagnostic procedure
2	Programming:	ET178: Central Unit blank	NO repair code stored in the UCH	If the UCH is blank or injection state is equal to YES, refer to programming procedure
		ET181: Blank transponder key	State: NO	If the ET181 state is YES, see Programming the key/ transponder

Fault finding - Interpretation of states

ET103 PRESENT OR STORED	<u>KEY CODE RECEIVED</u>
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NOTES	<p>Check that no fault is present or stored.</p> <p>If the state remains NO, try another key assigned to the vehicle before performing any operation.</p> <p>If the state changes to YES when the second vehicle key is used, replace the first key.</p>
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ET103 NO: ignition on and key assigned to the vehicle

Check that state **ET154 +12 V after ignition present** is **YES** with the ignition on. If state **ET154** is **NO**, use fault finding procedure **ET154**.

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 state **KEY CODE RECEIVED** changes to **YES**, replace the vehicle keys.

Check the condition of the UCH **P201 40-track connector** and the transponder ring connection.
Repair if necessary.

Check the **continuity, insulation and absence of interference resistance** of the connections:
Track 8 of the UCH **P201 40-track connector** —————→ **track 4** of the transponder ring connector

If the fault persists, contact your Techline.

Fault finding - Interpretation of states

ET104 PRESENT OR STORED	<u>VALID KEY CODE</u>
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NOTES	Check that no fault is present or stored. If the state remains NO , try another key assigned to the vehicle before performing any operation.
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ET104: NO despite the ignition being switched on (+ after ignition) and the key belonging to the vehicle
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Check that state ET103 Key code received is YES with the ignition on. If state ET103 is NO , use fault finding procedure ET103 .
Carry out reallocation of the keys with the After-Sales code.
If the fault persists, replace the whole set of vehicle keys.

Fault finding - Interpretation of states

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 being switched on

Check there is no fault before dealing with this state.

Check that state **ET154 + 12 V after ignition** is **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 states **ET103** and **ET104** are **YES**, carry out a fault finding procedure 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.

Fault finding - Interpretation of states

ET154	<u>+ 12 V AFTER IGNITION PRESENT</u>
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NOTES	None.
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ET154 INACTIVE, ignition on

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

ET154 ACTIVE, ignition off

<p>Use a multimeter to check the absence of + 12 V in the passenger compartment fuse holder with the ignition off. Repair if necessary.</p>
<p>If no voltage, contact your Techline.</p>

NOTES	Only consult these customer complaints after a complete check using the diagnostic tool.
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CUSTOMER COMPLAINTS

- NO DIALOGUE WITH THE UCHCHART 1
- THE VEHICLE WILL NOT STARTCHART 2

Fault finding - Fault finding charts

CHART 1	No dialogue with the UCH
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NOTES	None.
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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 interference resistance of the connections between: UCH 40-track connector track 1 —————> fuse box UCH 40-track connector track 33 —————> + after ignition feed 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	Test using the diagnostic tool.
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CHART 2	The vehicle will not start
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NOTES	This customer complaint should only be investigated after a complete check has been run using the diagnostic tool.
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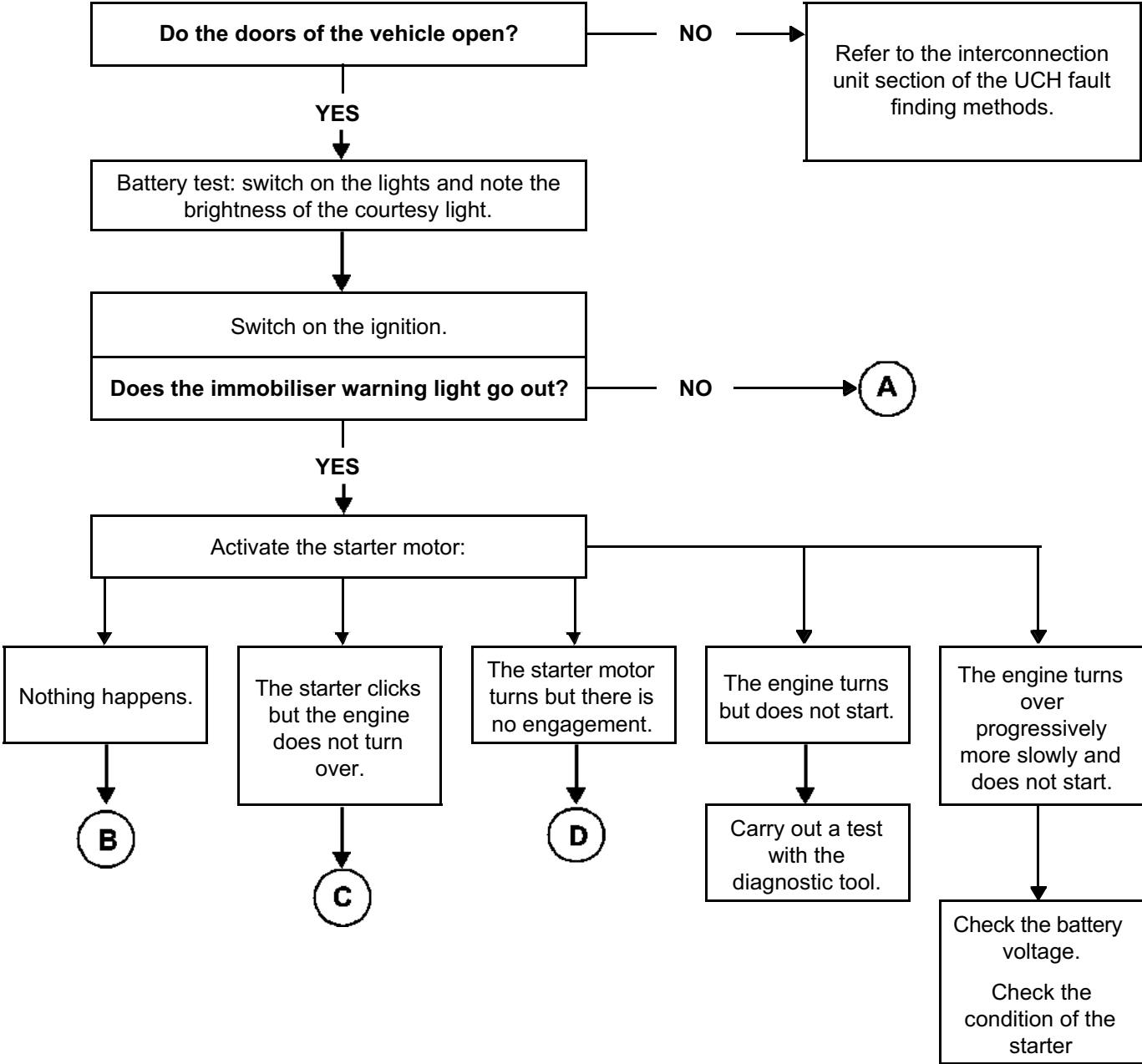
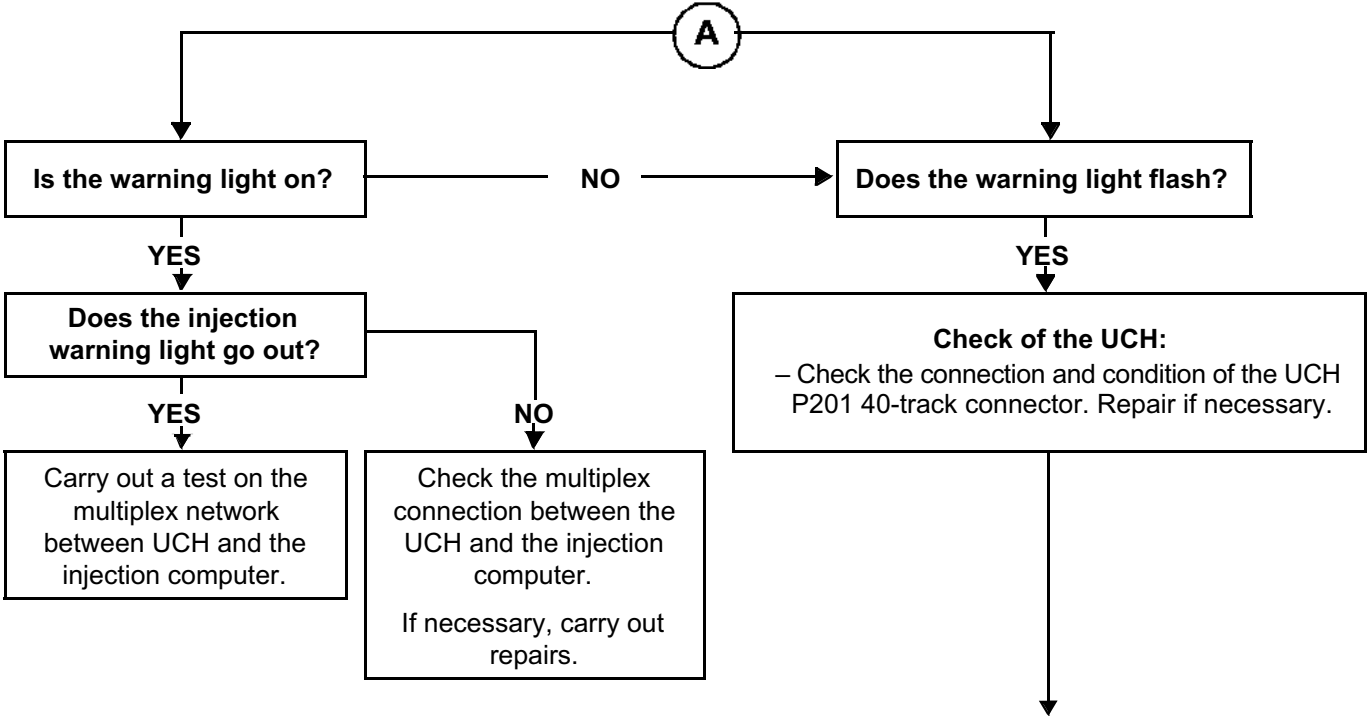


CHART 2
CONTINUED 1

NOTES

This customer complaint should only be investigated after a complete check has been run using the diagnostic tool.



Check of the engine immobiliser system:

– With the ignition on, the engine immobiliser warning light should flash continuously.
Check for the presence of a before ignition supply on track 3 and an earth on track 2 of the transponder ring connector. Repair if necessary (see the vehicle wiring diagram).

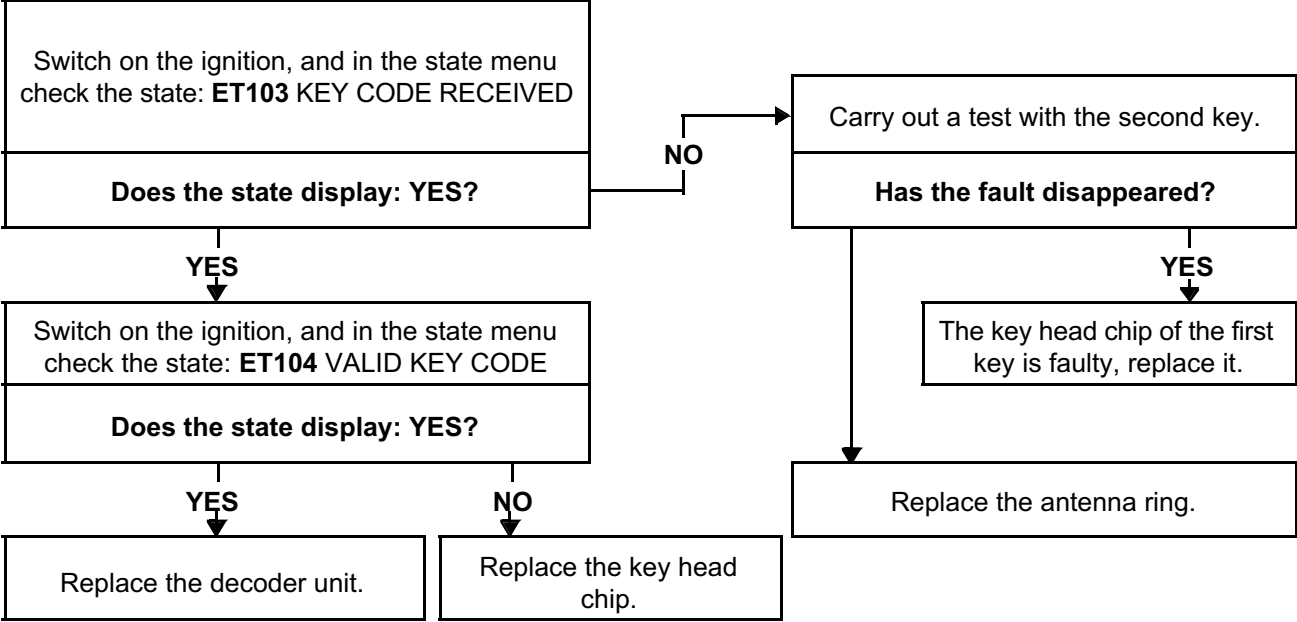


CHART 2
CONTINUED 2

NOTES

This customer complaint should only be investigated after a complete check has been run 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 against + 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 fault remains, check that the starter motor is functioning correctly.
Replace it if necessary.

CHART 2
CONTINUED 3

NOTES

This customer complaint should only be investigated after a complete check has been run using the diagnostic tool.

C

Check the battery voltage and check the earth straps connecting the power train to the vehicle chassis.

Ensure that the engine is not jammed or seized.

CHART 2
CONTINUED 4

NOTES

This customer complaint should only be investigated after a complete check has been run using the diagnostic tool.

D

Check that the starter operates correctly.
Replace it if necessary.

If the fault has still not been resolved, check the timing belt.

MULTI-TIMER UNIT

FAULT FINDING

CONTENTS

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This document presents the fault finding procedure applicable to the multi-timer unit fitted on the **Clio V6**.

The following are required for carrying out fault finding on this system:

- This Fault Finding Technical Note,
- The vehicle's wiring diagram,
- The CLIP or NXR or XR25 diagnostic tool and a multimeter.

SETTING UP A DIALOGUE BETWEEN THE XR 25 AND THE MULTI-TIMER UNIT

- Connect the XR25 to the diagnostic socket.
- ISO selector on **S8**
- Enter **D56**, then **G02***.

2n.57

WARNING

When carrying out checks using a multimeter, avoid using a contact tip on the connectors the size of which could damage the clips and result in poor contact.

CLEARING THE MEMORY:

After repairing the immobiliser system, enter G0** on the XR25 keypad to clear the stored fault.

MULTI-TIMER UNIT

Fault finding - XR25 fiche

87

MODEL OF FICHE TO BE USED

N°57		lire : 2n57	
1			CODE PRESENT <input type="checkbox"/>
2	SURVITESSE ARABIE <input type="checkbox"/>		MODES COMMANDES : G...* 03 Allumage plafonnier 17 Feux de croisement 18 Lanternes 19 Clignotant 11 Voyant ouvrant 06 Décondamnation ouvrants 09 Condammation ouvrants 28 Essue vitre avant 29 Essue vitre arrière 12 Double éclairage 24 Descarte vitre conducteur 25 Montée vitre conducteur 05 Voyant antidémarage 33 Lave projecteur 37 Buzzer 06 Logique ouverture 07 Logique fermeture 30 Plus après contact
3	CONFIGURATION DU CALCULATEUR		
4	<input type="checkbox"/> RUNNING -LIGHT	CADENCEMENT AVANT VARIABLE <input type="checkbox"/>	
5	<input type="checkbox"/> LEVE-VITRE CONDUCTEUR	RELAIS <input type="checkbox"/>	
6	<input type="checkbox"/> CONDAMNATION	DECONDAMNATION <input type="checkbox"/>	
7	<input type="checkbox"/> ARRIERE	bouton LAVE-VITRE AVANT <input type="checkbox"/>	
8	<input type="checkbox"/> PRESSION HUILE	FEU CROISEMENT <input type="checkbox"/>	
9	<input type="checkbox"/> DESCENTE	bouton LEVE-VITRE MONTEE <input type="checkbox"/>	
10	<input type="checkbox"/> + ACCESSOIRES SUIVANT VERSION + APRES CONTACT <input type="checkbox"/>		
BOITIER MULTI TEMPORISATION Pour lire autre coté : G 0 1 * Effacement mémoire défauts : G 0 **			
11	<input type="checkbox"/> SURVITESSE	ACTION SUR BOUTONS	
12	<input type="checkbox"/> LAVE VITRE ARRIERE	LAVE VITRE AVANT <input type="checkbox"/>	
13	<input type="checkbox"/> MONTEE	lève-vitre conducteur	DESCENTE <input type="checkbox"/>
14	<input type="checkbox"/> cadencement AVANT	arrêt fixe avant <input type="checkbox"/>	
15	<input type="checkbox"/> cadencement ARRIERE	essue vitre arrière <input type="checkbox"/>	
16	<input type="checkbox"/> POSITION	CROISEMENT <input type="checkbox"/>	
17	<input type="checkbox"/> MARCHE ARRIERE	COMMANDE FEUX ROUTE <input type="checkbox"/>	
18	<input type="checkbox"/> DETRESSE	CLIGNOTANT <input type="checkbox"/>	
19	EMBRAYAGE PILOTE (si embrayage piloté/levier en 3 et accélérer) <input type="checkbox"/>		
20	PRESSION HUILE <input type="checkbox"/> (<input type="checkbox"/>) moteur tournant		
CONTROLES ANNEXES : J .. 01 Vitesse véhiculé km/h 02 Tension batterie V 04 Position bague cadencement essue-vitre 14 Niveau équipement			
Aide : V9 Retour diagnostic : D Réf. MPR : G70 *			
17 FRA			

F111757

bmt 1112.0

REPRESENTATION OF BARGRAPHS



Lights up when dialogue is established with the component computer, if it remains off:
– the code does not exist,
– there is a line, tool or computer fault.

REPRESENTATION OF FAULTS (always on a coloured background)



Lit, indicates a fault on the part tested, the associated text defines the fault.



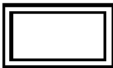
Not lit, indicates non-detection of fault on the product tested.

REPRESENTATION OF STATE (always on a white background)

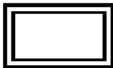
Engine stopped, ignition on, no operator action

The state bargraphs on the fiche are represented as the state which they should have when the engine is off, the ignition is on and there is no operator action

– If on the fiche, the bargraph is represented



the XR25 should display



– If on the fiche, the bargraph is represented



the XR25 should display

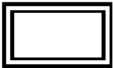


– If on the fiche, the bargraph is represented



the XR25 should display

or



or



Engine running



Unlit when the function or condition described on the fiche is no longer carried out.



Lit when the function or condition described on the fiche is carried out.

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH lit</div> <div>Fiche n° 57</div> <div><u>DRIVER'S ELECTRIC WINDOW</u></div>
--	--

NOTES	None.
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<div>Check the condition of the fuse. Replace it if necessary.</div>
<div>Connect the XR25 and enter G24* and G25*. It should be possible to hear the electric window relays clicking. Can you hear the relays clicking?</div>

NO	Replace the faulty relay(s). If the fault persists, replace the multi-timer unit.
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YES	<div>Disconnect the blue 26-track connector and press the electric window up button. Check for the presence of 12 V on track 1 of the connector and 0 V on track 2 of the connector. Is it correct?</div> <div><div>NO</div><div>Check the continuity of the electrical wiring between the electric window relays and motor. Repair if necessary. If the fault persists, replace the electric window button.</div></div> <div><div>YES</div><div>Replace the electric window motor.</div></div>
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AFTER REPAIR	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 RH lit</div> <div>RELAY</div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 10D is lit (+ after ignition feed present).</div>
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<div><div>Check that each component of the multi-timer unit is operating correctly. If any components are faulty, connect the XR25 and enter the command modes corresponding to the faulty component:</div><div><div><div>– G08* for unlocking of the doors,</div><div>– G09* for locking of the doors,</div><div>– G17* for the dipped beam headlights,</div><div>– G18* for the side lights,</div><div>– G19* for the hazard warning lights,</div><div>– G24* for lowering of driver's window,</div><div>– G25* for raising of driver's window,</div><div>– G28* for the windscreen wipers,</div><div>– G29* for the rear wiper,</div><div>– G33* for the headlight washers,</div><div>– G38* for the positive after ignition feed.</div></div><div><div>It should be possible to hear the relay of the tested component clicking when the command mode is entered. If one or several relays do not click, replace the faulty relay(s). If the fault persists, replace the multi-timer unit.</div></div></div></div>
--

<div>AFTER REPAIR</div>	<div><div>Enter G0** on the XR25.</div><div>Check that the system is operating correctly.</div></div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH lit</div> <div><u>DOOR LOCKING</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 5 RH is not lit, if it is not, deal with the bargraph first.</div>
------------------	---

<div>Check the insulation to earth of the electrical wiring between track 7 of the yellow multi-timer unit connector and track 1 of the door locking button. Repair the faulty wiring if necessary.</div>
<div>Replace the door locking button. If the fault persists, replace the multi-timer unit.</div>

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH lit</div> <div><u>DOOR UNLOCKING</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 5 RH is not lit, if it is not, deal with the bargraph first.</div>
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<div>Check the insulation to earth of the electrical wiring between track 22 of the yellow multi-timer unit connector and track 5 of the door locking button. Repair the faulty wiring if necessary.</div>
<div>Replace the door locking button. If the fault persists, replace the multi-timer unit.</div>

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>7</div> <div><div></div><div></div></div>	<div>Bargraph 7 LH lit</div> <div>Fiche n° 57</div> <div><u>REAR SCREEN WASHER</u></div>
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NOTES	None.
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<div>Check the insulation to 12 volts of the electrical wiring between: stalk { B1 → 16 yellow connector of the multi-timer unit windscreen wiper { B1 → B1 washer pump Repair the faulty electrical wiring.</div>
<div>Check for the presence of 12 V on track B1 of the wiper stalk when the rear screen washer is operated. Replace the stalk if 12 V is not present.</div>
<div>Check that the washer pump operates by supplying it directly with 12 V on track B1. Replace the pump if necessary.</div>
<div>Check the condition of the electrical wiring between track A1 of the pump and track A4 of the wiper stalk. Repair the electrical wiring if necessary.</div>
<div>If the fault persists, replace the multi-timer unit.</div>

AFTER REPAIR	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>7</div> <div><div></div><div></div></div>	<div>Bargraph 7 RH lit</div> <div>Fiche n° 57</div> <div><u>WINDSCREEN WASHER</u></div>
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NOTES	None.
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<div>Check the insulation to 12 volts of the electrical wiring between: stalk { A4 → 3 yellow connector of the multi-timer unit wiper { A4 → A1 washer pump Repair the electrical wiring if necessary.</div>
<div>Check for the presence of 12 V on track A4 of the wiper stalk when the windscreen washer is operated. Replace the stalk if 12 V is not present.</div>
<div>Check that the washer pump operates by supplying it directly with 12 V on track A1. Replace the pump if necessary.</div>
<div>Check the condition of the electrical wiring between track B1 of the pump B1 and track B1 of the wiper stalk. Repair the electrical wiring if necessary.</div>
<div>If the fault persists, replace the multi-timer unit.</div>

AFTER REPAIR	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 LH lit</div> <div><u>OIL PRESSURE</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>None.</div>
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<div>Check the insulation to earth of the electrical wiring between track 1 of the oil pressure switch and track 20 of the yellow multi-timer unit connector. Repair the electrical wiring if necessary.</div>
<div>Replace the oil pressure switch. If the fault persists, replace the multi-timer unit.</div>

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 RH lit</div> <div><u>DIPPED HEADLIGHTS</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 5 RH is not lit, if it is not, deal with bargraph 5 RH first.</div>
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<div>Check the continuity and insulation to 12 V of the electrical wiring between track B5 of the lighting stalk, the right-hand and left-hand headlights and between track B5 and track 6 of the blue connector for cold climate versions only. Repair if necessary.</div>
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<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>9</div> <div><div></div><div></div></div>	<div>Bargraph 9 LH lit</div> <div><u>LOWERING OF DRIVER'S WINDOW</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>None.</div>
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<div>Check that the button is not jammed in the down position.<ul style="list-style-type: none">– If it is, release or replace the button.– If it is not jammed, refer to the procedure for bargraph 13 RH.</div>
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<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
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<div>9</div> <div><div></div><div></div></div>	<div>Bargraph 9 RH lit</div> <div>Fiche n° 57</div> <div><u>RAISING OF DRIVER'S WINDOW</u></div>
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NOTES	None.
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<div>Check that the button is not jammed in the up position.</div> <div><div>- If it is, release or replace the button.</div><div>- If it is not jammed, refer to the procedure for bargraph 13 LH.</div></div>

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>10</div> <div><div></div><div></div></div>	<div>Bargraph 10 LH permanently off or lit</div> <div><u>ACCESSORIES CIRCUIT</u></div>	Fiche n° 57
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NOTES	None.
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The bargraph is permanently lit without operating the ignition switch.	
Check for the presence of 12 V on track 5 of the yellow multi-timer unit connector . Is 12 V present?	
YES	Check the insulation to 12 V of the electrical wiring between the ignition switch and track 5 of the yellow connector . Repair if necessary. If the fault persists, replace the ignition switch.
NO	Replace the multi-timer unit.

The bargraph is permanently off without operating the ignition switch.	
Check for the presence of 12 V on track 5 of the multi-timer unit yellow connector when cranking. Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div><div>fuse BP 13</div><div>1</div><div>→</div><div>4</div><div>ignition switch</div></div><div><div>yellow connector</div><div>5</div><div>→</div><div>3</div><div>ignition switch</div></div></div> Is the wiring in good condition?	
YES	Replace the ignition switch.
NO	Repair the faulty electrical wiring.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>10</div> <div><div></div><div></div></div>	<div>Bargraph 10 RH permanently unlit</div> <div>Fiche n° 57</div> <div><u>AFTER IGNITION</u></div>
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NOTES	None.
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The bargraph is permanently lit with the ignition switch in the off position.	
Check for the presence of 12 V on track 6 of the yellow multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to 12 V of the electrical wiring between track 6 of the yellow connector and track 1 of the ignition switch . Repair if necessary. If the fault persists, replace the ignition switch.

The bargraph remains unlit when the ignition is switched on.	
Check for the presence of 12 V on track 6 of the yellow multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F2. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div><div>fuse BP 13</div><div>1</div><div>→</div><div>4</div><div>ignition switch</div></div><div><div>yellow connector</div><div>6</div><div>→</div><div>1</div><div>ignition switch</div></div></div> Is the wiring in good condition?	
NO	Repair the faulty electrical wiring.
YES	Replace the ignition switch.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 LH permanently unlit or lit</div> <div><u>OVERSPEED CIRCUIT</u></div>	Fiche n° 57
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with the bargraph first (Arabia equipment only).
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The bargraph is permanently lit without operating the overspeed programming switch.	
Check for the presence of 12 V on track 10 of the blue multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to 12 V of the electrical wiring between the overspeed switch and track 10 of the blue connector . Repair if necessary. If the fault persists, replace the overspeed switch.

The bargraph remains unlit when the overspeed programming switch is pressed.	
Check for the presence of 12 V on track 10 of the blue multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div>fuse BP 13</div><div>1</div><div>→</div><div>overspeed switch</div></div> <div><div>blue connector</div><div>10</div><div>→</div><div>overspeed switch</div></div> Is the wiring in good condition?	
NO	Repair the faulty electrical wiring.
YES	Replace the overspeed switch.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>12</div> <div><div></div><div></div></div>	<div>Bargraph 12 LH permanently unlit or lit</div> <div><u>REAR SCREEN WIPER CIRCUIT</u></div>	Fiche n° 57
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.
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The bargraph is permanently lit without operating the rear wiper stalk.	
Check for the presence of 12 V on track 16 of the yellow multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to 12 V of the electrical wiring between track 16 of the yellow connector and track B1 of the stalk . Repair if necessary. If the fault persists, replace the rear wiper stalk.

The bargraph remains unlit when the rear screen wiper control is operated.	
Check for the presence of 12 V on track 16 of the multi-timer unit yellow connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div><div>fuse BP 13</div><div>1</div><div>→</div><div>B4</div><div>rear screen wiper stalk</div></div><div><div>yellow connector</div><div>16</div><div>→</div><div>B1</div><div>rear screen wiper stalk</div></div></div> Is the wiring in good condition?	
NO	Repair the faulty electrical wiring.
YES	Replace the rear screen wiper stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>12</div> <div><div></div><div></div></div>	<div>Bargraph 12 RH permanently unlit or lit</div> <div><u>WINDSCREEN WIPER CIRCUIT</u></div>	Fiche n° 57
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.
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The bargraph is permanently lit without operating the windscreen wiper stalk.	
Check for the presence of 12 V on track 3 of the yellow multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to 12 V of the electrical wiring between track 3 of the yellow connector and track A4 of the stalk . Repair if necessary. If the fault persists, replace the windscreen wiper stalk.

The bargraph remains unlit when the windscreen wiper control is operated.	
Check for the presence of 12 V on track 3 of the yellow multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div><div>fuse BP 13</div><div>1</div><div>→</div><div>A7</div><div>windscreen wiper stalk</div></div><div><div>yellow connector</div><div>3</div><div>→</div><div>A4</div><div>windscreen wiper stalk</div></div></div> Is the wiring in good condition?	
NO	Repair the faulty electrical wiring.
YES	Replace the windscreen wiper stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH permanently unlit or lit</div> <div>Fiche n° 57</div> <div><u>ONE-TOUCH ELECTRIC WINDOW BUTTON</u></div> <div><u>IN THE RAISE POSITION</u></div>
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NOTES	<div>Check that bargraph 10 RH is lit, if it is not, deal with the bargraph first and check that bargraph 5 RH is not lit.</div>
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The bargraph is permanently lit without operating the electric window switch.	
Check for the presence of 0 V on track 1 of the blue multi-timer unit connector . Is 0 V present?	
NO	Replace the multi-timer unit.
YES	<div>Check the insulation to earth of the electrical wiring between track 1 of the blue connector and track 2 of the switch.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the electric window switch.</div>

The bargraph remains unlit when the electric window is pressed.	
Check for the presence of 0 V on track 1 of the blue multi-timer unit connector . Is 0 V present?	
YES	Replace the multi-timer unit.
NO	<div>Check the continuity and insulation to 12 V of the electrical wiring between track 1 of the blue connector and track 2 of the switch.</div> <div>Repair if necessary.</div>
If the fault persists, replace the electric window switch.	

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 RH permanently unlit</div> <div>Fiche n° 57</div> <div><u>ONE-TOUCH ELECTRIC WINDOW BUTTON</u></div> <div><u>IN THE LOWER POSITION</u></div>
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with the bargraph first and check that bargraph 5 RH is not lit.
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The bargraph is permanently lit without operating the electric window switch.	
Check for the presence of 0 V on track 2 of the blue multi-timer unit connector . Is 0 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to earth of the electrical wiring between track 2 of the blue connector and track 6 of the switch . Repair if necessary. If the fault persists, replace the electric window switch.

The bargraph remains unlitwhen the electric window is pressed.	
Check for the presence of 0 V on track 2 of the blue multi-timer unit connector . Is 0 V present?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation to 12 V of the electrical wiring between track 2 of the blue connector and track 6 of the switch . Repair if necessary.
If the fault persists, Replace the electric window switch.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 LH permanently unlitor lit</div> <div><u>WINDSCREEN WIPER TIMER</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.</div>
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<div>The bargraph is permanently lit without operating the wiper stalk.</div>	
<div>Check for the presence of 12 V on track 18 of the yellow multi-timer unit connector.</div> <div>Is 12 V present?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation to 12 V of the electrical wiring between track 18 of the yellow connector and track A1 of the wiper stalk.</div> <div>Repair the faulty electrical wiring.</div>

<div>The bargraph remains unlitwhen the wiper stalk is operated.</div>	
<div>Check for the presence of 12 V on track 18 of the yellow multi-timer unit connector.</div> <div>Is 12 V present?</div>	
<div>YES</div>	<div>Replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the condition of fuse F4.</div> <div>Replace it if necessary.</div>
<div>Check the continuity and insulation to earth of the electrical wiring between:</div> <div><div><div>yellow connector</div><div>wiper stalk</div><div>wiper stalk</div></div><div><div>18</div><div>A3</div><div>A6</div></div><div><div>→</div><div>→</div><div>→</div></div><div><div>A1</div><div>A1</div><div>K3</div></div><div><div>wiper stalk</div><div>wiper motor</div><div>relay</div></div></div> <div>Is the wiring in good condition?</div>	
<div>NO</div>	<div>Repair the faulty wiring.</div>
<div>YES</div>	<div>Replace the wiper stalk.</div>
<div>If the fault persists, replace the multi-timer unit.</div>	

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 RH permanently unlit or lit</div> <div>Fiche n° 57</div> <div><u>WINDSCREEN WIPER PARK POSITION</u></div>
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.
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The bargraph remains not lit.	
Check for the presence of 0 V on track 10 of the yellow multi-timer unit connector . Is 0 V present?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation to 12 V of the electrical wiring between track 10 of the yellow connector and track A2 of the wiper motor. Repair if necessary. If the fault persists, replace the windscreen wiper motor.

The bargraph remains lit and the wiper moves away from the park position.	
Check for the presence of 0 V on track 10 of the yellow multi-timer unit connector . Is 0 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to earth of the electrical wiring between track 10 of the yellow connector and track A2 of the windscreen wiper motor. Repair if necessary.
If the fault persists, replace the windscreen wiper motor.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 LH permanently unlitor lit</div> <div>Fiche n° 57</div> <div><u>REAR SCREEN WIPER INTERMITTENT WIPE</u></div>
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.
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The bargraph is permanently lit without operating the wiper stalk.	
Check for the presence of 12 V on track 4 of the yellow multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	Check the insulation to 12 V of the electrical wiring between track 4 of the yellow connector and track B2 of the wiper stalk. Repair the faulty electrical wiring.

The bargraph remains unlit when the wiper stalk is operated.	
Check for the presence of 12 V on track 4 of the yellow multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation to earth of the electrical wiring between: <div><div>yellow connector</div><div>4</div><div>→</div><div>B2</div><div>wiper stalk</div></div> <div><div>wiper stalk</div><div>B4</div><div>→</div><div>L5</div><div>relay</div></div> <div><div>relay</div><div>L3</div><div>→</div><div>1</div><div>motor</div></div> Is the wiring in good condition?	
NO	Repair the faulty wiring.
YES	Replace the wiper stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 RH permanently unlit or lit</div> <div>Fiche n° 57</div> <div><u>REAR SCREEN WIPER PARK POSITION</u></div>
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NOTES	Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.
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The bargraph remains permanently lit.	
Check for the presence of 0 V on track 19 of the yellow multi-timer unit connector . Is 0 V present?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation to 12 V of the electrical wiring between track 19 of the yellow connector and track 3 of the wiper motor . Repair if necessary. If the fault persists, replace the rear wiper motor.

The bargraph remains unlit.	
Disconnect the rear wiper unit. Does the bargraph illuminate?	
YES	Replace the rear screen wiper motor.
NO	Check for the presence of 0 V on track 19 of the yellow multi-timer unit connector . Is 0 V present?
	NO Replace the multi-timer unit.
	YES Check the insulation to earth of the electrical wiring between track 19 of the yellow connector and track 3 of the windscreen wiper motor . Repair the faulty wiring.

AFTER REPAIR	Enter G0** on the XR25. Check that the system is operating correctly.
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<div>16</div> <div></div>	<div>Bargraph 16 LH permanently unlit or lit</div> <div><u>SIDE LIGHTS CIRCUIT</u></div>	Fiche n° 57
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NOTES	None.
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The bargraph is permanently lit without operating the lighting stalk.	
Check for the presence of 12 V on track 17 of the yellow multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	<div>Check the insulation to 12 V of the electrical wiring between:</div> <div>yellow connector 17 —————> B left-hand side light</div> <div>lighting stalk B1 —————> B left and right side lights</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the lighting stalk.</div>

The bargraph remains unlit when the lighting stalk is operated.	
Check for the presence of 12 V on track 17 of the yellow multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	<div>Check the condition of fuse F26.</div> <div>Replace it if necessary.</div>
<div>Check the continuity and insulation to earth of the electrical wiring between:</div> <div>yellow connector 17 —————> B left-hand side light</div> <div>lighting stalk B1 —————> B left and right side lights</div> <div>Is the wiring in good condition?</div>	
NO	Repair the faulty electrical wiring.
YES	Replace the lighting stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>16</div> <div><div></div><div></div></div>	<div>Bargraph 16 RH permanently unlit or lit</div> <div><u>DIPPED HEADLIGHTS CIRCUIT</u></div>	Fiche n° 57
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NOTES	Only to be checked on cold climate versions.
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The bargraph is permanently lit without operating the lighting stalk.	
Check for the presence of 12 V on track 6 of the blue multi-timer unit connector . Is 12 V present?	
NO	Replace the multi-timer unit.
YES	<div>Check the insulation to 12 V of the electrical wiring between: lighting stalk B5 —————> fuse F9 fuse F9 —————> C left and right-hand headlights Repair if necessary. If the fault persists, replace the lighting stalk.</div>

The bargraph remains unlit when the lighting stalk is operated.	
Check for the presence of 12 V on track 6 of the blue multi-timer unit connector . Is 12 V present?	
YES	Replace the multi-timer unit.
NO	<div>Check the condition of fuse F9. Replace it if necessary.</div>
<div>Check the continuity and insulation to earth of the electrical wiring between: blue connector 6 —————> B5 lighting stalk fuse BP13 1 —————> B3 lighting stalk Is the wiring in good condition?</div>	
NO	Repair the faulty electrical wiring.
YES	Replace the lighting stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>17</div> <div><div></div><div></div></div>	<div>Bargraph 17 LH permanently unlit or lit</div> <div><u>REVERSE GEAR CIRCUIT</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.</div>
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<div>The bargraph is permanently lit without selecting reverse gear.</div>	
<div>Check for the presence of 12 V on track 3 of the blue multi-timer unit connector.</div> <div>Is 12 V present?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation to 12 V of the electrical wiring between track 3 of the blue connector and track 2 of the reverse gear switch.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the reverse gear switch.</div>

<div>The bargraph remains unlit when reverse gear is selected.</div>	
<div>Check for the presence of 12 V on track 3 of the blue multi-timer unit connector.</div> <div>Is 12 V present?</div>	
<div>YES</div>	<div>Replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the condition of fuse F3.</div> <div>Replace it if necessary.</div>
<div>Check the continuity and insulation to earth of the electrical wiring between:</div> <div><div><div><div>blue connector</div><div>3</div></div><div>→</div><div><div>2</div><div>reverse gear switch</div></div></div><div><div><div>fuse BP 13</div><div>1</div></div><div>→</div><div><div>1</div><div>reverse gear switch</div></div></div></div> <div>Is the wiring in good condition?</div>	
<div>NO</div>	<div>Repair the faulty electrical wiring.</div>
<div>YES</div>	<div>Replace the reverse gear switch.</div>
<div>If the fault persists, replace the multi-timer unit.</div>	

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>18</div> <div><div></div><div></div></div>	<div>Bargraph 18 LH permanently unlit or lit</div> <div><u>HAZARD WARNING LIGHTS CONTROL</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>None.</div>
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<div>The bargraph is permanently lit without operating hazard warning lights switch.</div>	
<div>Check for the presence of 0 V on track 23 of the yellow multi-timer unit connector.</div> <div>Is 0 V present?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation to earth of the electrical wiring between track 23 of the yellow connector and track 6 of the hazard warning lights switch.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the hazard warning lights switch.</div>

<div>The bargraph remains unlit when the hazard warning lights switch is pressed.</div>	
<div>Check for the presence of 0 V on track 23 of the yellow multi-timer unit connector.</div> <div>Is 0 V present?</div>	
<div>YES</div>	<div>Replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the continuity and insulation to 12 V of the electrical wiring between:</div> <div><div><div>yellow connector</div><div>23</div><div>→</div><div>6</div><div>hazard warning lights control</div></div><div><div>hazard warning lights control</div><div>8</div><div>→</div><div>earth</div></div></div> <div>Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the multi-timer unit.</div>	

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
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<div>18</div> <div><div></div><div></div></div>	<div>Bargraph 18 RH permanently unlit or lit</div> <div><u>INDICATORS CONTROL</u></div>	<div>Fiche n° 57</div>
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<div>NOTES</div>	<div>Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.</div>
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<div>The bargraph remains unlit after operating the indicator control.</div>	
<div>Switch off the ignition and check for the presence of earth on track A3 of the black multi-timer unit connector.</div> <div>Is 0 V present?</div>	
<div>YES</div>	<div>Replace the indicator relay.</div> <div>Switch on the ignition and check that the bargraph is lit.</div> <div>If the fault persists, replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the continuity and insulation to 12 V of the electrical wiring between:</div> <div><div><div>black connector A3</div><div>→</div><div>A6 lighting stalk</div></div><div><div>A3</div><div>→</div><div>4 hazard warning lights control</div></div></div> <div>Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the hazard warning lights switch and/or the lighting stalk.</div>	

<div>The bargraph remains lit without operating the indicator control.</div>	
<div>Switch off the ignition and check for the presence of earth on track A3 of the black multi-timer unit connector.</div> <div>Is 0 V present?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation to earth of the wiring between:</div> <div><div><div>black connector A3</div><div>→</div><div>A6 lighting stalk</div></div><div><div>A3</div><div>→</div><div>4 hazard warning lights control</div></div></div> <div>Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the hazard warning lights switch and/or the lighting stalk.</div>	

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check that the system is operating correctly.</div>
-------------------------	---

<div>20</div> <div><div></div><div></div></div>	<div>Bargraph 20 RH permanently unlit or lit</div> <div><u>OIL PRESSURE</u></div>	<div>Fiche n° 57</div>
---	---	------------------------

<div>NOTES</div>	<div>Check that bargraph 10 RH is lit, if it is not, deal with this bargraph first.</div>
------------------	---

<div>The bargraph remains unlit when the engine is running.</div>	
<div>Check for the presence of 0 V on track 20 of the yellow multi-timer unit connector. Is 0 V present?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation to earth of the electrical wiring between track 20 of the yellow connector and track 1 of the oil pressure switch. Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the oil pressure switch.</div>	

<div>The bargraph remains permanently lit with the engine off.</div>	
<div>Check for the presence of 0 V on track 20 of the yellow multi-timer unit connector. Is 0 V present?</div>	
<div>YES</div>	<div>Replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the continuity and insulation to 12 V of the electrical wiring between track 20 of the yellow connector and track 1 of the oil pressure switch. Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the oil pressure switch.</div>	

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25. Check that the system is operating correctly.</div>
-------------------------	--

RUNNING LIGHTS FAULT	
Fault on the running lights - side lights	CHART 1
Fault on the running lights - dipped beam	CHART 2
COURTESY LIGHT FAULT	
The courtesy light remains off permanently	CHART 3
The courtesy light remains on permanently	CHART 4
FAULT WITH THE INDICATORS	
Loss of the indicators function	CHART 5
Indicators permanently on	CHART 6
Permanent indicator noise without operating the indicators	CHART 7
Relay operating at double frequency and lights off	CHART 8
HAZARD WARNING LIGHTS FAULT	
The hazard warning lights do not work	CHART 9
DOOR STATUS WARNING LIGHT FAULT	
The warning light remains off permanently	CHART 10
The warning light remains on permanently	CHART 11
ELECTRIC WINDOW FAULT	
The electric windows do not operate	CHART 12

WINDSCREEN WIPER FAULT

	The windscreen wipers do not stop in the park position for intermittent wipe or for screen washing	CHART 13
	Wipers do not return to the park position after switching on the ignition	CHART 14
	The windscreen wipers do not operate in intermittent mode	CHART 15
	The windscreen wipers do not operate in wash mode	CHART 16
	The windscreen wipers do not operate in high speed mode	CHART 17
	Variable intermittent wipe does not operate	CHART 18

REAR WIPER FAULT

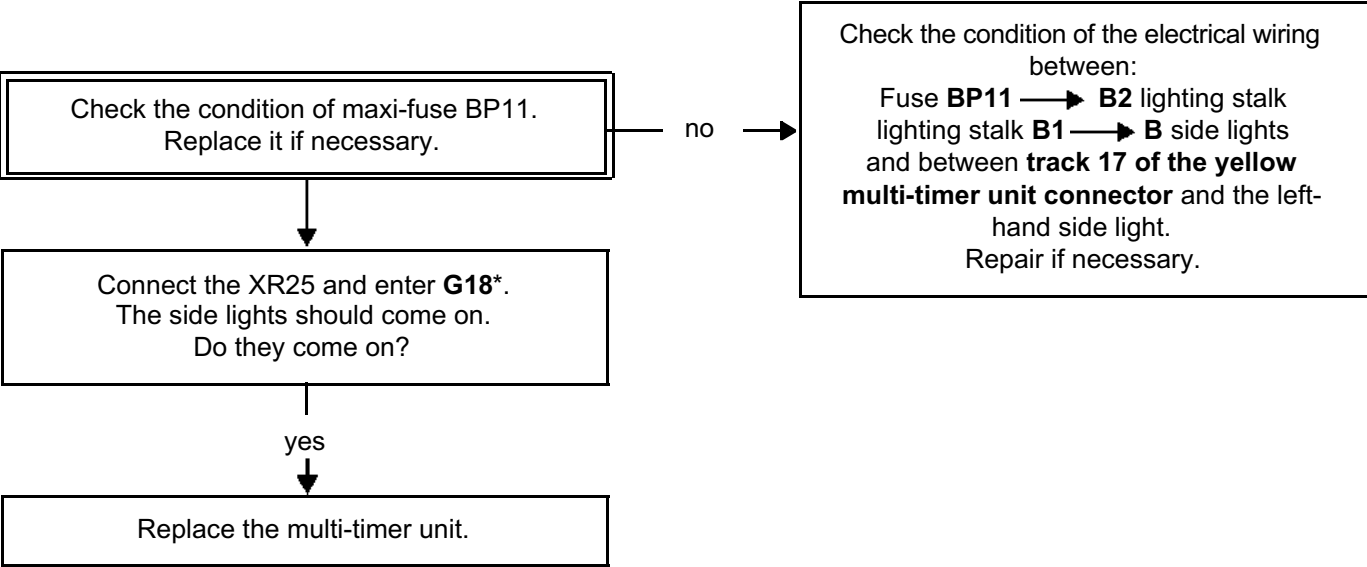
	The rear wiper does not stop in the park position for intermittent wipe or for screen washing	CHART 19
	The rear screen wiper does not operate	CHART 20
	The rear wiper does not operate in wash mode	CHART 21
	The rear wiper does not operate in reverse gear	CHART 22

HEADLIGHT WASHER FAULT

	The headlight washers do not operate	CHART 23
	The headlight washers operate permanently	CHART 24

CHART 1	RUNNING LIGHTS - SIDE LIGHTS FAULT
---------	------------------------------------

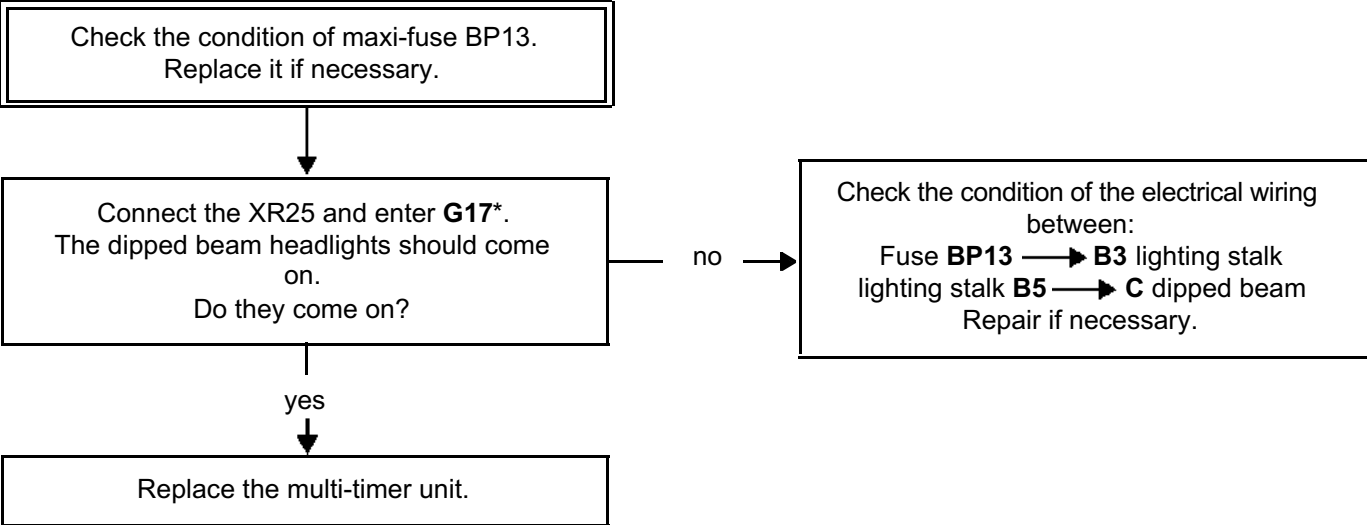
NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent and state bargraphs 10 LH, 10 RH, 16 LH, 16 RH and 4 LH are present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 2	RUNNING LIGHTS - DIPPED BEAM FAULT
---------	------------------------------------

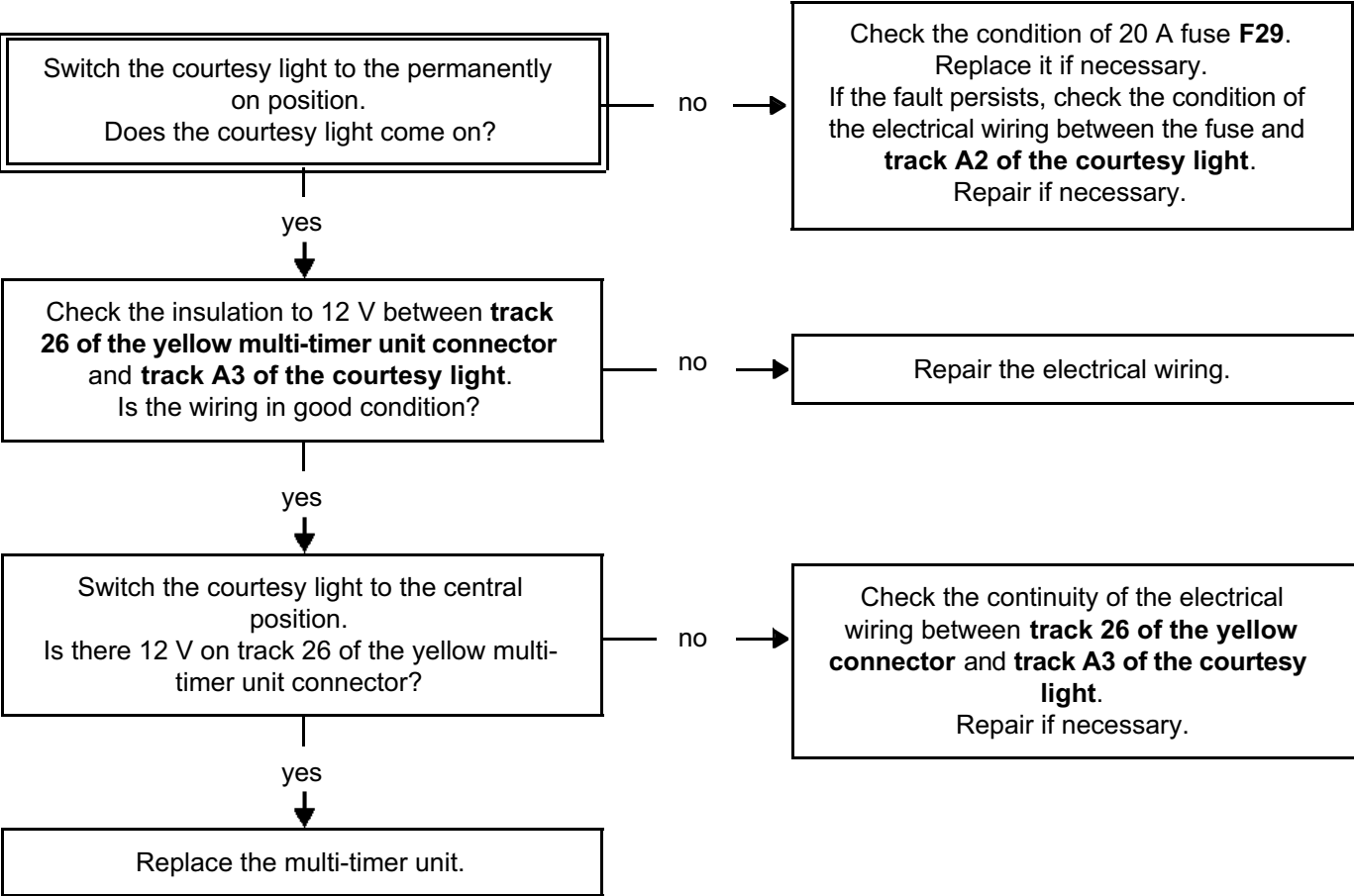
NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent and state bargraphs 10 LH, 10 RH, 16 LH, 16 RH and 4 LH are present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 3	THE COURTESY LIGHT REMAINS PERMANENTLY OFF
---------	--

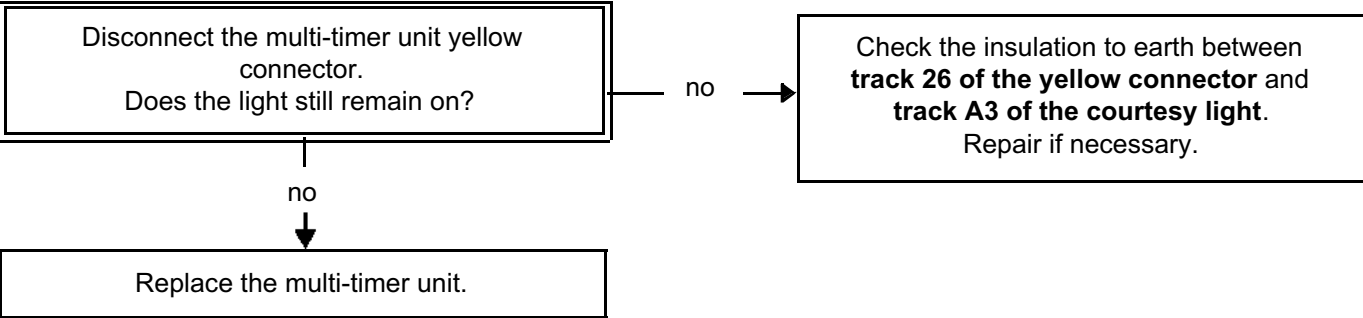
NOTES	None.
-------	-------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 4	THE COURTESY LIGHT REMAINS PERMANENTLY ON, DOORS CLOSED
---------	---

NOTES	None.
-------	-------



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 5	LOSS OF THE INDICATORS FUNCTION
---------	---------------------------------

NOTES	Only refer to this customer complaint after having checked that fault bargraph 10 RH is present and fault bargraph 5 RH is absent.
-------	--

Refer to bargraph 18 RH.

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 6	THE INDICATORS ARE PERMANENTLY ON
---------	-----------------------------------

NOTES	Only refer to this customer complaint after having checked that fault bargraph 10 RH is present and fault bargraph 5 RH is absent.
-------	--

Refer to bargraph 18 RH.

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 7	PERMANENT INDICATOR NOISE WITHOUT OPERATING THE INDICATORS
---------	--

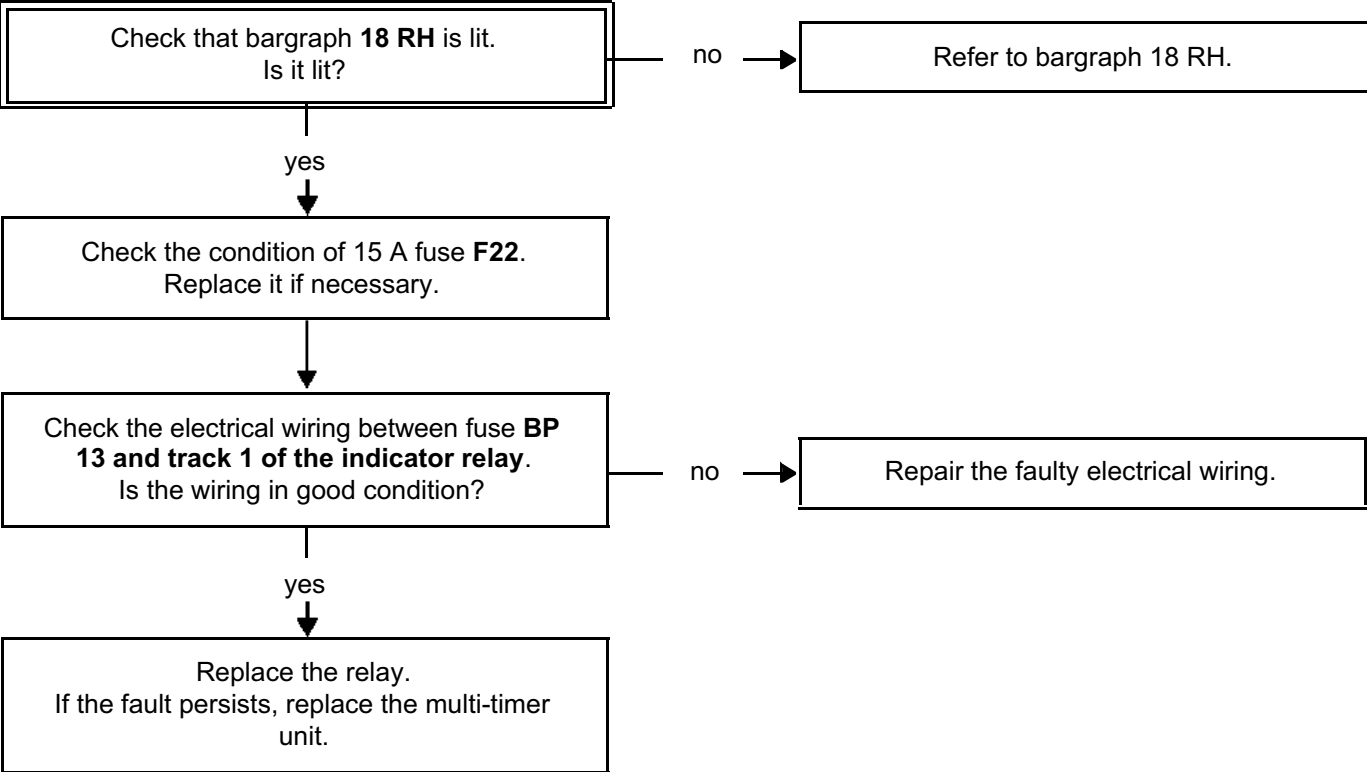
NOTES	Only refer to this customer complaint after having checked that fault bargraph 10 RH is present and fault bargraph 5 RH is absent.
-------	--

Refer to bargraph 18 RH.

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 8	RELAY OPERATING AT DOUBLE FREQUENCY AND LIGHTS OFF
---------	--

NOTES	Only refer to this customer complaint after having checked that fault bargraph 10 RH is present and fault bargraph 5 RH is absent.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 9

THE HAZARD WARNING LIGHTS DO NOT WORK

NOTES

Only refer to this customer complaint after having checked that fault bargraph 18 LH is present and fault bargraph 5 RH is absent.

Check for the presence of 12 V on **track 2** of the hazard warning lights switch.
Is 12 V present?

yes

Replace the hazard warning lights switch.

no

Check the condition of the electrical wiring between:

lighting stalk **A6** → **A3** multi-timer unit black connector

lighting stalk **A6** → **2** hazard warning lights control

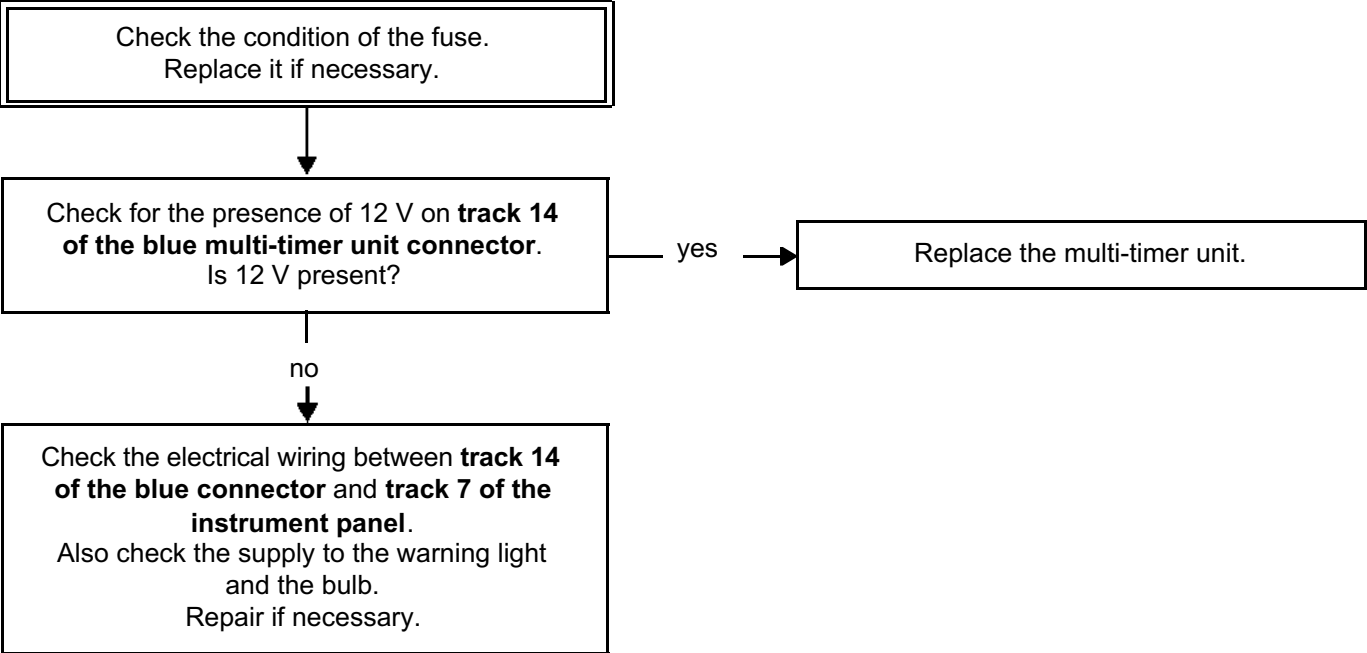
Repair the faulty wiring.

AFTER REPAIR

Check that the components which were removed are connected correctly.
Check that the system is operating correctly.

CHART 10	THE DOOR STATUS WARNING LIGHTS REMAINS PERMANENTLY OFF
----------	--

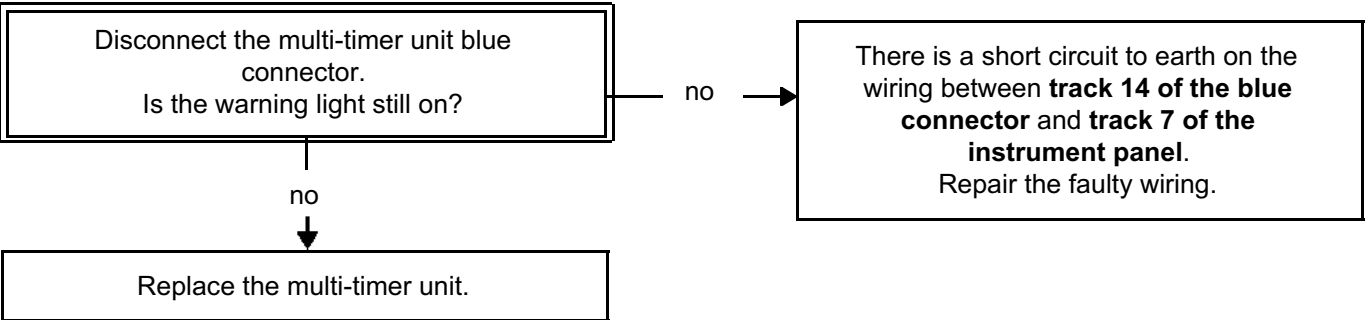
NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 11	THE DOOR STATUS WARNING LIGHTS REMAINS PERMANENTLY ON
----------	---

NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 12	THE ELECTRIC WINDOWS DO NOT OPERATE
----------	-------------------------------------

NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent and state bargraphs 13 LH, 13 RH, 10 LH and 10 RH are present.
-------	--

Check the mechanical operation of the electric window system. Repair if necessary. If the fault persists, replace the multi-timer unit.

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 13	THE WINDSCREEN WIPERS DO NOT STOP IN THE PARK POSITION FOR INTERMITTENT WIPE OR FOR SCREEN WASHING
----------	--

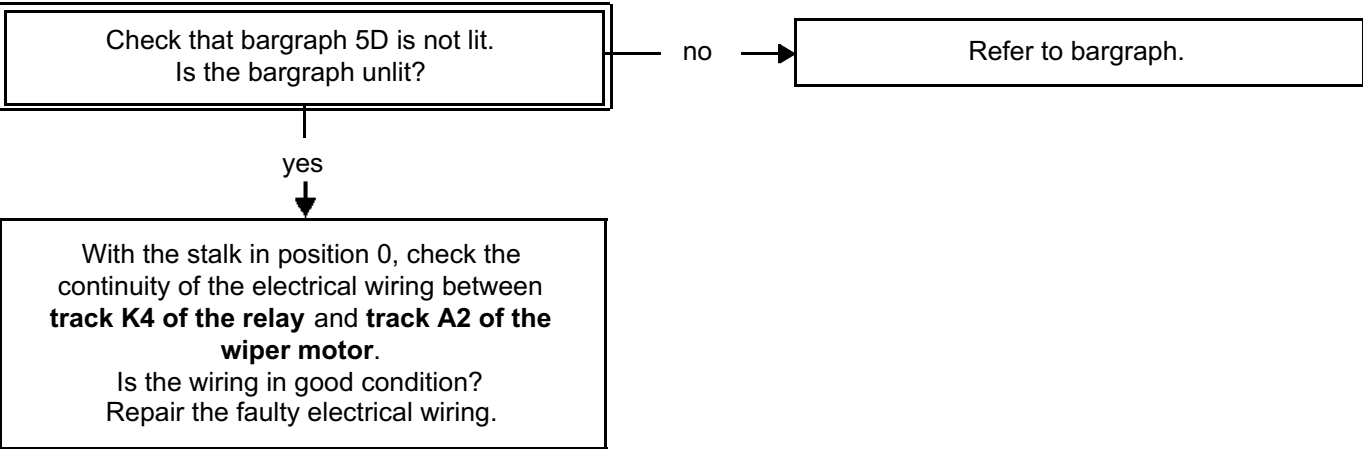
NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 LH, 12 RH, 14 LH and 14 RH are present.
-------	--

Check the mechanical operation of the windscreen wiper system. Repair if necessary. If the fault is still present, replace the multi-timer unit.
--

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 14	THE WINDSCREEN WIPERS DO NOT STOP IN THE PARK POSITION AFTER SWITCHING ON THE + AFTER IGNITION
----------	--

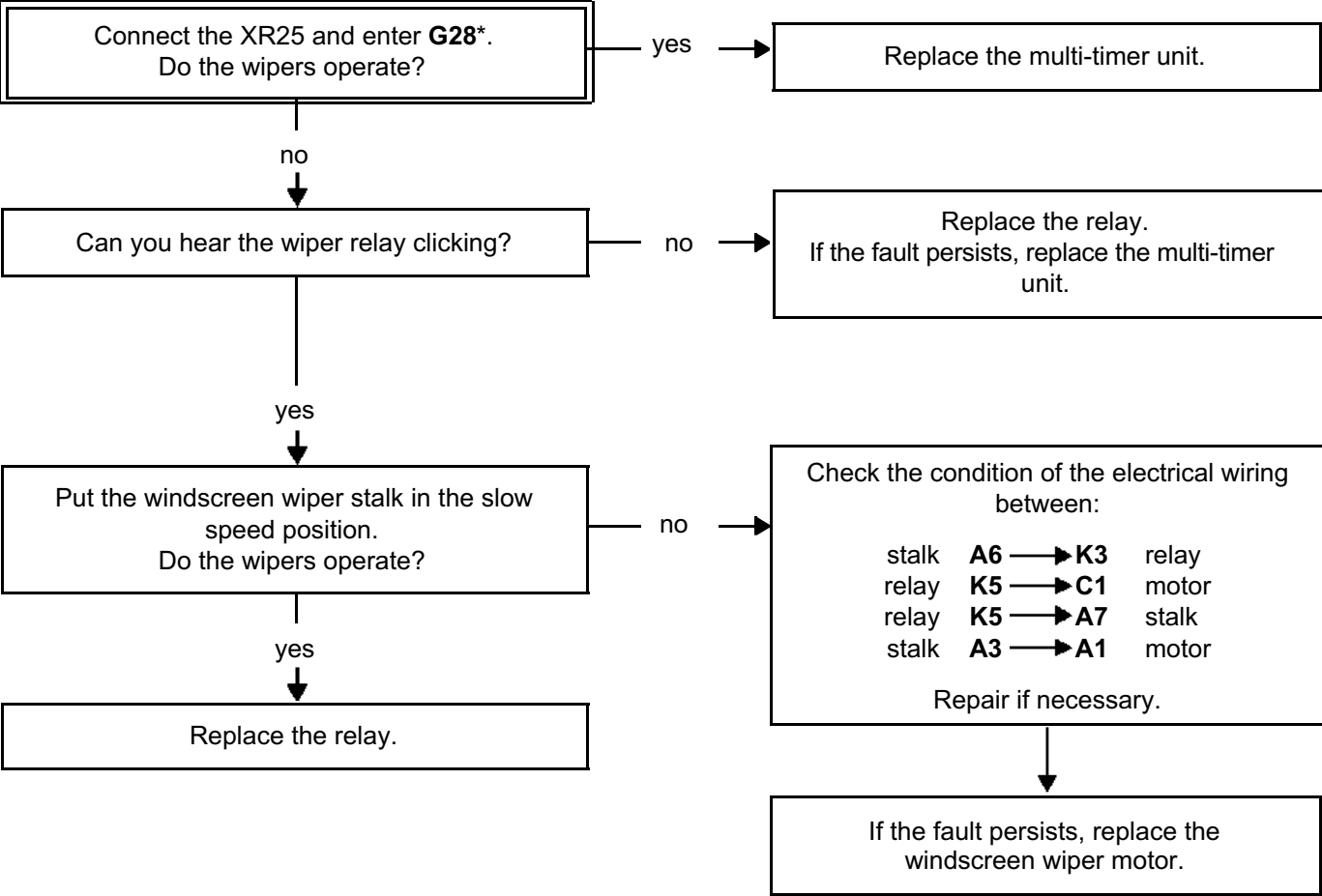
NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 LH, 12 RH, 14 LH and 14 RH are present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 15	THE WINDSCREEN WIPERS DO NOT OPERATE IN INTERMITTENT MODE
----------	---

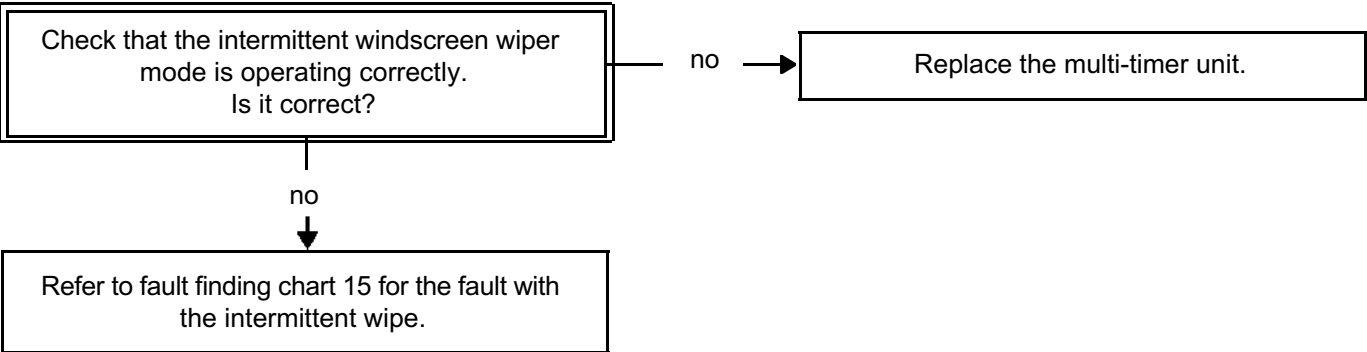
NOTES	Only refer to this customer complaint after having checked that state bargraph 14 LH is present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 16	THE WINDSCREEN WIPERS DO NOT OPERATE IN WASH MODE
----------	---

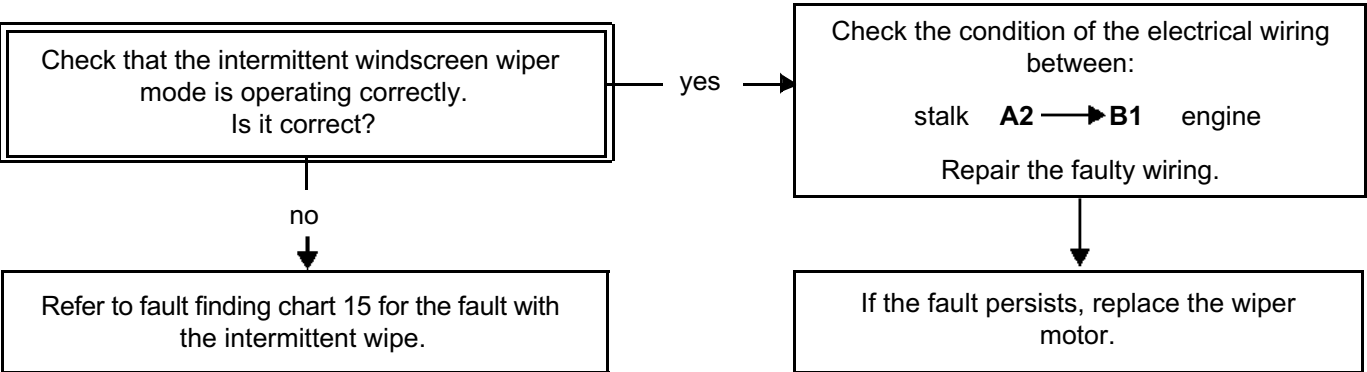
NOTES	Only refer to this customer complaint after having checked that state bargraph 12 RH is present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 17	THE WINDSCREEN WIPERS DO NOT OPERATE IN HIGH SPEED MODE
----------	---

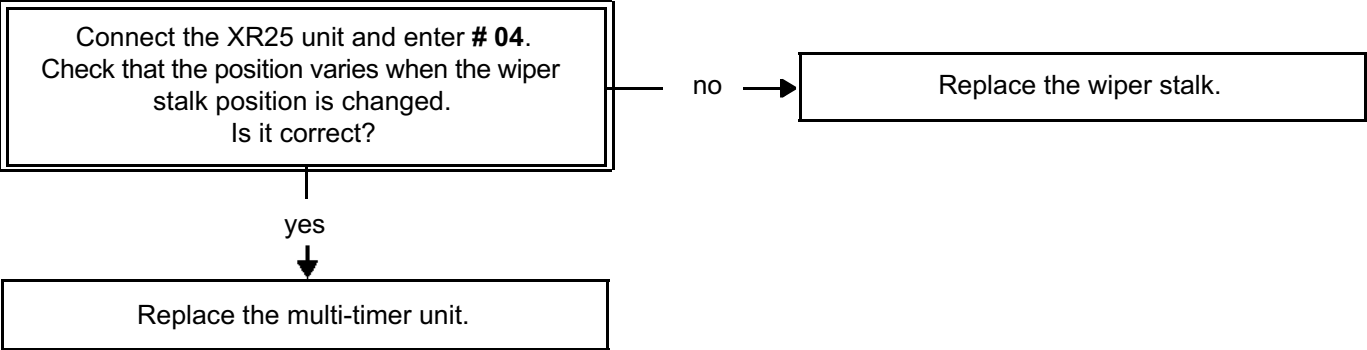
NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 LH, 12 RH, 14 LH and 14 RH are present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 18	VARIABLE INTERMITTENT WIPE DOES NOT OPERATE
----------	---

NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 LH, 14 LH and 14 RH are present.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 19	THE REAR WIPER DOES NOT STOP IN THE PARK POSITION FOR INTERMITTENT WIPE OR FOR SCREEN WASHING
----------	--

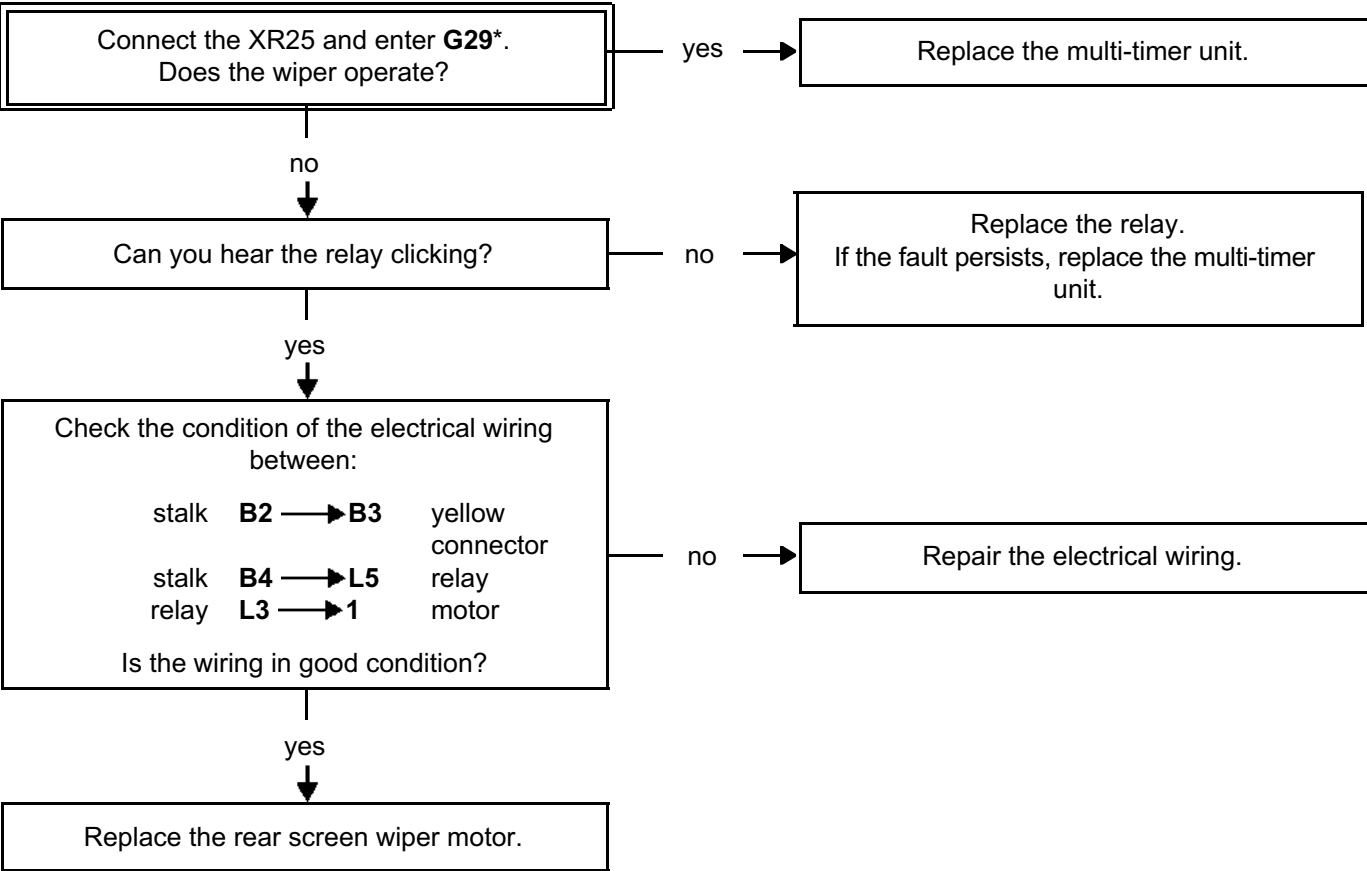
NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 RH and 15 RH are present and that no fault bargraphs are present.
-------	---

Check the mechanical operation of the wiper system. Repair if necessary. If the fault persists, replace the multi-timer unit.

AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 20	THE REAR WIPER DOES NOT OPERATE
----------	---------------------------------

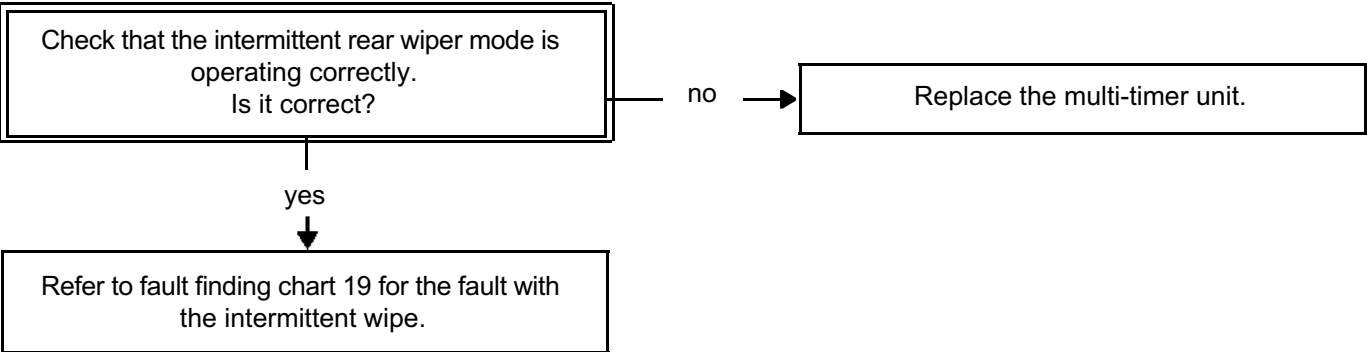
NOTES	Only refer to this customer complaint after having checked that state bargraphs 10 RH, 15 LH and 15 RH are present.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 21	THE REAR WIPER DOES NOT OPERATE IN WASH MODE
----------	--

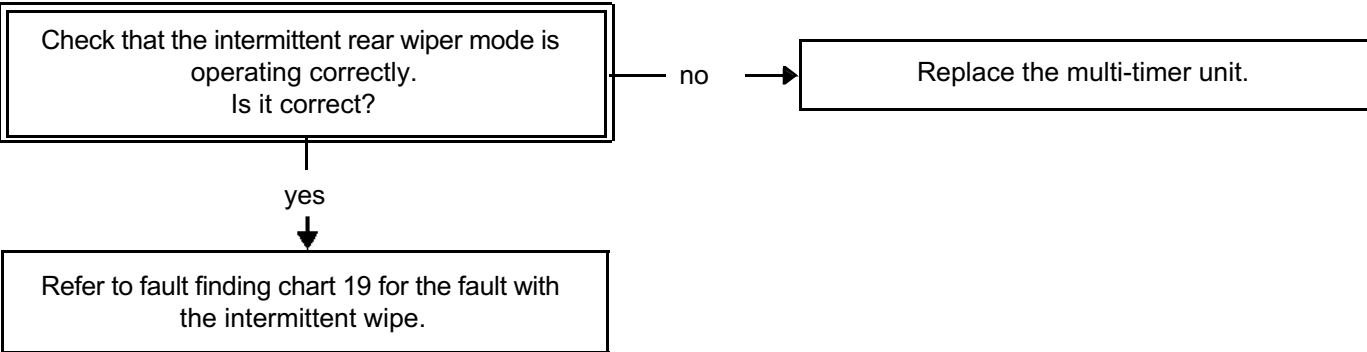
NOTES	Only refer to this customer complaint after having checked that state bargraph 12 LH is present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 22	THE REAR WIPER DOES NOT OPERATE IN REVERSE GEAR
----------	---

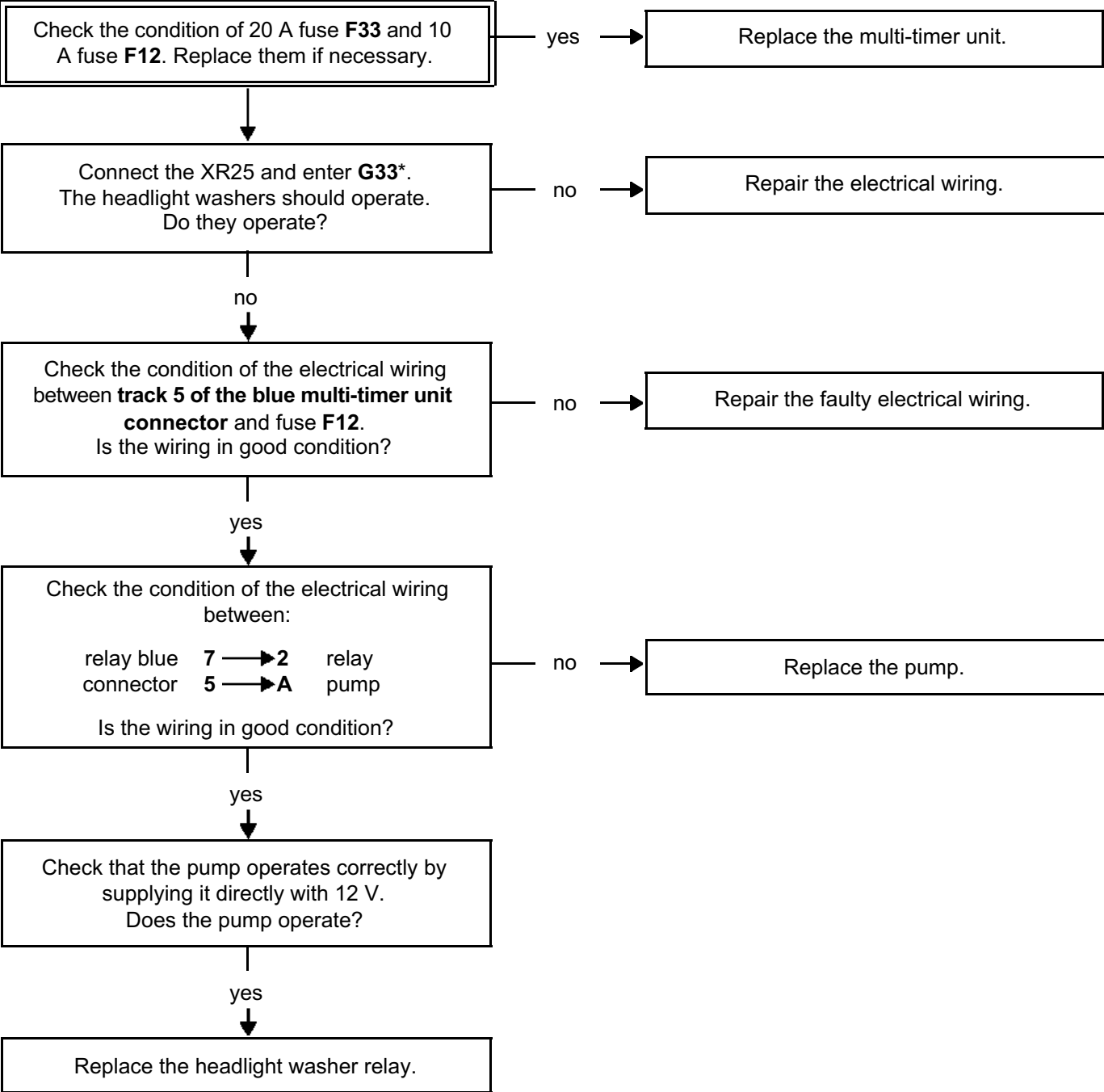
NOTES	Only refer to this customer complaint after having checked that state bargraphs 14 LH and 17 LH are present.
-------	--



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 23	THE HEADLIGHT WASHERS DO NOT OPERATE
----------	--------------------------------------

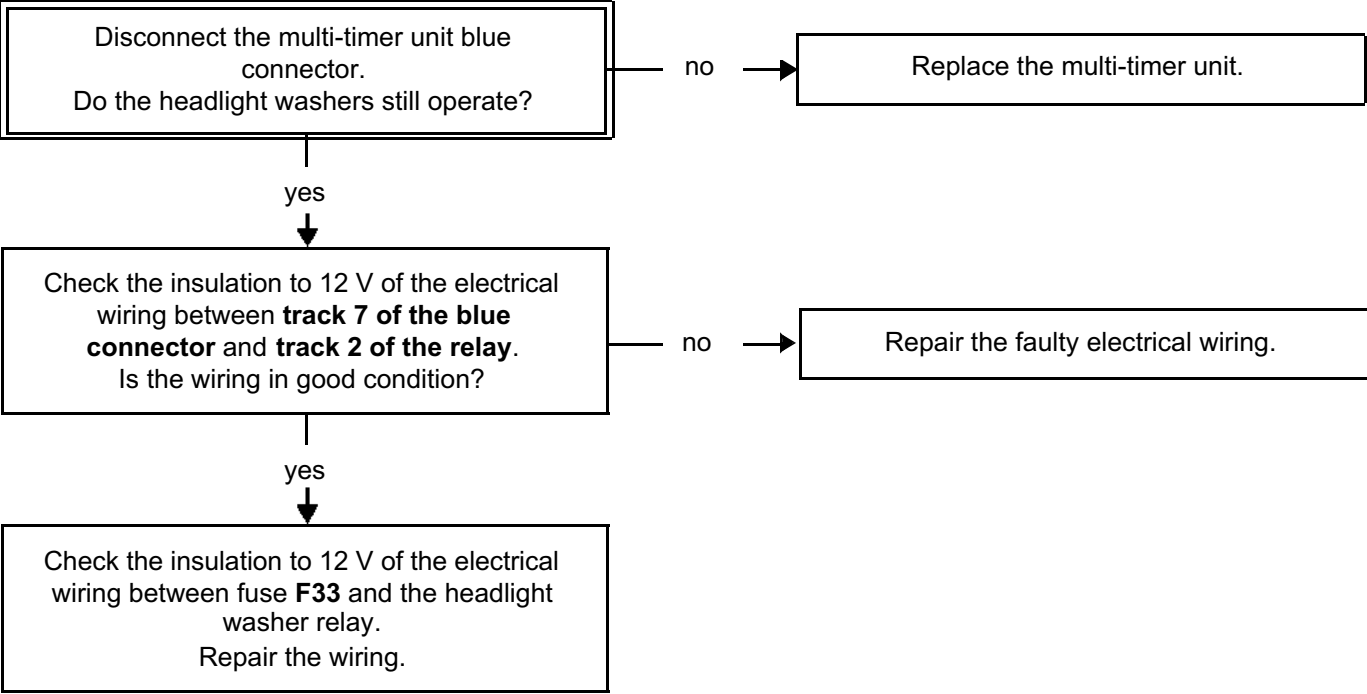
NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent and state bargraphs 10 RH, 10 LH, 12 RH, 16 RH and 17 RH are present.
-------	---



AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--

CHART 24	THE HEADLIGHT WASHERS OPERATE PERMANENTLY
----------	---

NOTES	Only refer to this customer complaint after having checked that fault bargraph 5 RH is absent and state bargraphs 10 LH, 10 RH, 12 RH, 16 RH, and 17 RH are present.
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AFTER REPAIR	Check that the components which were removed are connected correctly. Check that the system is operating correctly.
--------------	--








MULTI-TIMER UNIT

Fault finding - Conformity check

87

NOTES

If a fault bargraph is lit, refer to the corresponding fault chart.

Order of operations	Function to be checked	Action	Bargraph	Display and Notes
1	XR25 dialogue	D56 (switch on S8) then G02*		<div>2.n57</div> Use fiche 57
2	Conformity of the multi-timer unit	G70		<div>XXXX</div> Parts Stores no. displayed in three sets
3	Interpretation of bargraphs		<div>2</div>  <div>4</div>  <div>4</div> 	<p>Lit - overspeed buzzer configured (Arabia) (level 4)</p> <p>Lit - front intermittent ring present and configured</p> <p>Lit - running lights configured</p>
4	<p>Checking faults</p> <p>Interpretation of ignition on bargraphs</p>		<div>5, 6, 7, 8, 9</div>  <div>5, 6, 7, 8, 9</div>  <div>10</div>  <div>10</div> 	<p>Lit if faults present</p> <p>Indicates that the multi-timer unit receives the + after ignition feed</p> <p>Indicates that the multi-timer unit receives the + relay plate feed (N3 and N4)</p>

MULTI-TIMER UNIT

Fault finding - Conformity check

87

NOTES

If a fault bargraph is lit, refer to the corresponding fault chart.

Order of operations	Function to be checked	Action	Bargraph	Display and Notes
5	Control button check		<div>12</div> <div><div></div><div></div></div>	Comes on when the windscreen wipers are activated (ignition on)
			<div>12</div> <div><div></div><div></div></div>	Comes on when the rear wiper is activated (ignition on)
			<div>13</div> <div><div></div><div></div></div>	Comes on when the driver's electric window lower button is operated (levels N2, N3 and N4)
			<div>13</div> <div><div></div><div></div></div>	Comes on when the driver's electric window raise button is operated (levels N2, N3 and N4)
6	Interpretation of wiper bargraphs		<div>14</div> <div><div></div><div></div></div>	Comes on when the windscreen wipers stop
	Control button check		<div>14</div> <div><div></div><div></div></div>	Comes on in windscreen wiper intermittent position
	Interpretation of wiper bargraphs		<div>15</div> <div><div></div><div></div></div>	Comes on when the rear wiper stops
	Control button check		<div>15</div> <div><div></div><div></div></div>	Comes on in rear wiper intermittent position
	Interpretation of headlights control bargraphs		<div>16</div> <div><div></div><div></div></div>	Comes on in dipped beam position (level 4)
			<div>16</div> <div><div></div><div></div></div>	Comes on in side lights position
			<div>17</div> <div><div></div><div></div></div>	Comes on in main beam position

MULTI-TIMER UNIT

Fault finding - Conformity check

87

NOTES

If a fault bargraph is lit, refer to the corresponding fault chart.

Order of operations	Function to be checked	Action	Bargraph	Display and Notes
7	Control button check		<div>17</div> <div><div></div><div></div></div>	Comes on in reverse gear with the ignition on (level 3 and 4)
8	Control button check		<div>18</div> <div><div></div><div></div></div>	Comes on when the hazard warning lamps are on (ignition on)
	Control button check		<div>18</div> <div><div></div><div></div></div>	Comes on when the indicators are operating (ignition on)
9	Interpretation of the managed clutch warning light bargraph		<div>19</div> <div><div></div><div></div></div>	Comes on if clutch managed and lever in position 3 and accelerating
	Interpretation of the oil pressure warning light bargraph		<div>20</div> <div><div></div><div></div></div>	Comes on with engine running (oil pressure information) for levels 3 and 4

1- Commands

Command modes are accessible directly for the Clip and NXR diagnostic tool. Use the following procedure for the XR25 unit:

G--* COMMAND MODES

- G03*** = courtesy light illumination
- G08*** = door unlocking
- G09*** = door locking
- G11*** = door status warning light
- G12*** = lights on reminder buzzer
- G17*** = dipped headlights
- G18*** = side lights
- G19*** = indicators
- G24*** = driver's electric window down
- G25*** = driver's electric window up
- G28*** = windscreen wipers
- G29*** = rear wiper
- G33*** = headlight washer
- G37*** = buzzer
- G38*** = + After ignition

ADDITIONAL CHECKS

- # 01** = vehicle speed
- # 02** = battery voltage
- # 04** = windscreen wiper intermittent ring position
- # 14** = equipment level

AIRBAG AND PRETENSIONERS

FAULT FINDING

CONTENTS

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Introduction	88-2
Interpretation of faults	88-3
Conformity check	88-20
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 <u>Side airbag</u>	
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FAULT FINDING - INTRODUCTION

This fault finding section contains two parts:

- For systems with front airbag only - marked "Front".
- For systems with front and side airbags - marked "Side".

CONDITIONS FOR APPLICATION OF THE TESTS DEFINED IN THIS FAULT FINDING

In this fault finding procedure, each fault is interpreted depending on how it is stored (fault present, fault stored, fault present or stored). The checks defined for handling each fault are therefore only to be performed on the vehicle if the fault stated by the diagnostic tool is described for its type of storage.

If a fault is only interpreted in this fault finding procedure if it is declared as present, applying the fault finding procedure when the fault is only stored will not allow the reason why this fault was stored to be located. In this case only, the wiring and the faulty component connections should be checked (it is possible to access the wiring concerned in fault finding mode to try to display the change from stored fault to present fault).

If a fault is interpreted when it is declared as stored, the conditions for confirming the actual presence of the fault (and the need to carry out the fault finding procedure) are given in the Notes box or at the beginning of the interpretation of the fault.

Note: Switch off the ignition before using the diagnostic tool.

TOOLING REQUIRED FOR OPERATIONS ON THE AIRBAG AND SEAT BELT PRETENSIONER SYSTEMS:

- Diagnostic tool (except XR25).
- XRBAG with update no. 4 for front airbags (with the yellow B40 30-track adaptor at the base of the computer).
- XRBAG with update no. 5 for side airbags (with the new orange B50 50-track adaptor at the base of the computer).

REMINDER:

When carrying out an operation on the airbag/seat belt pretensioner systems, it is essential to use the computer locking command to avoid any risk of accidental triggering (all firing lines will be inhibited). The locked mode is signalled when the instrument panel warning light comes on.

If the operation is being performed following an impact during which the pretensioners and/or airbags were triggered, it will only be possible to lock the computer after an unlocking command has been given.

Following an impact during which the pretensioners and/or airbag were triggered, stored faults can only be cleared after a computer unlocking command has been given.

Never carry out measuring operations on the airbag and pretensioner ignition lines using any tool other than the XRBAG.

Before using a dummy ignition module, ensure that its resistance is between 1.8 and 2.5 ohms.

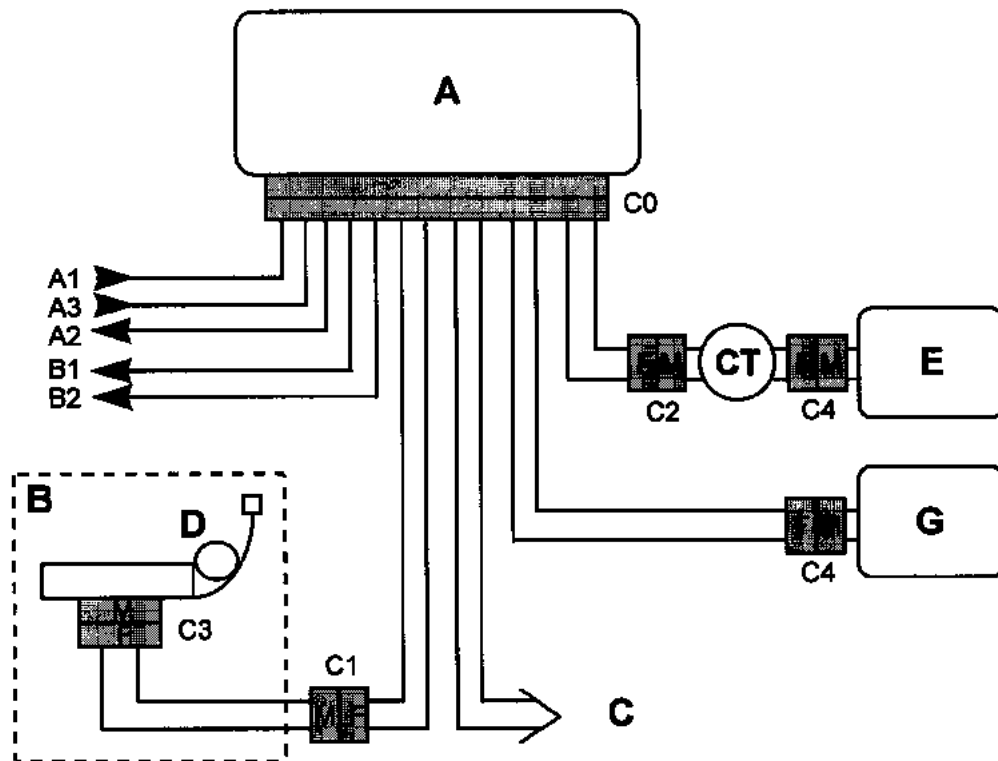
Ensure during the operation that the supply voltage to the computer does not drop below 10 volts (# 01).

Airbags and seat belt pretensioners

FAULT FINDING - INTRODUCTION

XRBAG FICHE

Pretensioners, front airbags



DI8826

Connections are identical for the side airbags and pretensioners on both seats.

- A** Central unit
B Driver's seat
C Passenger seat
D Pretensioner
E Driver's airbag ignition module
G Passenger airbag ignition module

- CT** Rotary switch
A1 + 12 volts
A2 Warning light
A3 Earth
B1 } Diagnostic lines
B2 }

FRONT AIRBAGS		
	Measuring point	Correct value
Driver	C0, C2 and C4	2.1 to 7 ohms
Passenger	C0 and C4	1.3 to 4.5 ohms
PRETENSIONERS		
	Measuring point	Correct value
	C0, C1 and C3	1.3 to 4.5 ohms

Correct insulation value: display $\geq 100.h$ or 9999 flashing.

FAULT FINDING - FAULT INTERPRETATION

DF001 PRESENT OR STORED	<u>Computer</u>
----------------------------------	-----------------

NOTES	None.
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Replace the airbag computer (consult the Help section for this operation).

AFTER REPAIR	None.
--------------	-------

Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF002 PRESENT	<u>Computer voltage supply</u> 1.DEF : Too many micro-breaks 2.DEF : Supply voltage too low 3.DEF : Supply voltage too high
--------------------------	--

NOTES	Use the B40 adaptor of the XRBAG to work on the computer connector.
--------------	---

1.DEF	NOTES	None.
--------------	--------------	-------

For a micro-cut fault, check the computer power supply lines: <ul style="list-style-type: none">– Condition of the computer connections.– Condition of computer earths (track 6 and 20 of the 30-track connector towards front right-hand pillar earth).– Condition / position of the fuse.– Condition and tightening of battery terminals.
--

2.DEF - 3.DEF	NOTES	None.
----------------------	--------------	-------

Carry out the operations necessary to obtain the correct voltage supply to the computer: 9 volts ± 0.1 < correct voltage < 18 volts ± 0.1. <ul style="list-style-type: none">– Check the battery charge.– Check the charge circuit.– Check the tightening and the condition of the battery terminals.– Check the computer earth.

AFTER REPAIR	Clear the computer memory.
---------------------	----------------------------

Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF003 PRESENT	<u>Driver's front airbag circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
--------------------------	--

NOTES	Never carry out measuring operations on ignition lines using any tool other than XRBAG.
--------------	---

CO - CC	NOTES	None.
----------------	--------------	-------

Lock the computer using the command on the diagnostic tool. Switch off the ignition and remove the two mounting bolts from the steering wheel cushion. Check that it is correctly connected.
Disconnect the airbag cushion and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the airbag if the fault is now stored (fault no longer declared as present).
With the ignition switched off, disconnect and reconnect the connector of the rotary switch at the steering wheel. Repair the wiring if the fault is now just stored (fault no longer declared present).
The XRBAG tool must be used for checking resistance at point C2 of the driver's airbag circuit. If the value obtained is incorrect, replace the rotary switch under the steering wheel.
Reconnect the rotary switch under the steering wheel, disconnect the computer connector and fit the B40 30-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked A on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 10 and 11) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the five shunt opening pins for the 30-track connector. Check the condition of the computer connections. Check the condition of the 30-track connector (locking system, etc).
--

AFTER REPAIR	Reconnect the computer and the airbag ignition module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the airbag cushion if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF003 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and remove the two mounting bolts from the steering wheel cushion. Check the condition of the trigger wire.
The XRBAG tool must be used for measuring insulation appropriate to the type of fault at point C2 of the driver's front airbag circuit. If the value obtained is incorrect, replace the rotary switch under the steering wheel.
Reconnect the rotary switch under the steering wheel, disconnect the computer connector and fit the B40 30-track adaptor . The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the wire marked A on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 10 and 11) and replace the wiring if necessary.

AFTER REPAIR	Reconnect the computer and the airbag ignition module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the airbag cushion if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FRONT

FAULT FINDING - FAULT INTERPRETATION

<p>DF004 PRESENT</p>	<p><u>Passenger's front airbag circuit</u></p> <p>CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth</p>
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<p>NOTES</p>	<p>Never carry out measurements on the ignition lines with equipment other than the XRBAG.</p>
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<p>CO - CC</p>	<p>NOTES</p>	<p>None.</p>
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Lock the computer using the command on the diagnostic tool.
Switch off the ignition, disconnect the computer connector and fit the **B40 30-track adaptor**.
The XRBAG tool must be used for checking resistance on the **wire marked B** on the adaptor.
Is the value obtained correct?

<p>YES</p>	<p>If the value obtained is correct on wire B of the adaptor, check on the base of the airbag computer for the presence of the five shunt opening pins on the 30-track connector. Check the condition of the computer connections. Check the condition of the 30-track connector (locking system, connections, etc.)</p>
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<p>NO</p>	<p>If the value obtained is not correct on wire B of the adaptor, check the connections on the 30-track connector (tracks 13 and 14).</p> <p>If the value remains incorrect, switch off the ignition and remove the dashboard cover to gain access to the wiring of the passenger airbag module. Disconnect the passenger airbag ignition module, connect a dummy ignition module to the ignition module connector then re-measure the resistance on the wire marked B on the adaptor, using XRBAG. If the value obtained is correct, replace the passenger's airbag module. If the value obtained is not correct, replace the airbag wiring.</p>
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<p>AFTER REPAIR</p>	<p>Reconnect the computer and the ignition module of the passenger's airbag module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the passenger's airbag module if it has been replaced (tool Elé. 1287).</p>
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF004 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition, disconnect the computer connector and fit the B40 30-track adaptor . The XRBAG tool must be used for measuring the insulation appropriate to the type of fault declared by the diagnostic tool on the wire marked B on the adaptor. Is the value obtained correct?

YES	Check the condition of the connections on the 30-track connector (tracks 13 and 14).
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NO	Check the condition of the connections on the computer 30-track connector (tracks 13 and 14).
	If the value remains incorrect, replace the airbag wiring.

AFTER REPAIR	Reconnect the computer and the ignition module of the passenger's airbag module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the passenger's airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF010 PRESENT	<u>Airbag fault warning light circuit</u> CC.1 : Short circuit to 12 volts CO.0 : Open circuit or short circuit to earth
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NOTES	Use the B40 30-track adaptor of the XRBAG to work on the computer connector.
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CC.1	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Check the condition of the warning light bulb. Ensure the insulation to 12 volts of the connection between the warning light and track 7 of the 30-track connector .

CO.0	NOTES	None.
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Warning light off when ignition on

Lock the computer using the command on the diagnostic tool. Check the condition of the warning light bulb. Ensure the continuity of the connection between the warning light and track 7 of the 30-track connector . Ensure that 12 volts reach the warning light. If the checks carried out did not show the presence of a fault, disconnect the computer connector and fit the B40 30-track adaptor of XRBAG. Use XRBAG to test the operation of the instrument panel warning light from the grey wire marked 1 on the adaptor. If it is possible to illuminate the warning light using the XRBAG, replace the airbag computer (consult the "Aid" section for this operation). If it is impossible to operate the warning light, repeat the preceding checks.

Warning light on when ignition on

Lock the computer using the command on the diagnostic tool. Disconnect the airbag computer and check for the presence, on the base, of the five pins which open the connector shunts. Ensure the insulation to earth of the connection between the warning light and track 7 of the 30-track connector .

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF029 PRESENT	<u>Driver's pretensioner circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and check that the driver's pretensioner ignition module is connected correctly.
Disconnect the ignition module of the driver's pretensioner and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the driver's pretensioner if the fault is now stored (fault no longer declared as present).
The XRBAG tool must be used for measuring the resistance at point C1 (seat connector) on the driver's pretensioner line. If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).
Disconnect the computer connector and fit the B40 30-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked D on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 1 and 2) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the five shunt opening pins for the 30-track connector. Check the condition of the computer connections. Check the condition of the 30-track connector (locking system, etc).
--

AFTER REPAIR	Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF029 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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<p>Lock the computer using the command on the diagnostic tool.</p> <p>Disconnect the ignition module of the driver's pretensioner and connect a dummy ignition module to the ignition module connector.</p> <p>Switch on the ignition and carry out a check using the diagnostic tool.</p> <p>If the fault is now stored (fault no longer declared as present), check the condition of the seat wiring.</p> <p>Replace the driver's pretensioner if the wiring is not faulty.</p>
<p>The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at point C1 (seat connector) of the driver's pretensioner line.</p> <p>If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).</p>
<p>Disconnect the computer connector and fit the B40 30-track adaptor.</p> <p>The XRBAG tool must be used for measuring insulation appropriate to the type of fault on the wire marked D on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 1 and 2) and replace the wiring if necessary.</p>

<p>If the checks carried out have not shown the presence of a fault on the driver's pretensioner circuits, check on the base of the airbag computer for the presence of the five shunt opening pins for the 30-track connector.</p> <p>Check the condition of the computer connections.</p> <p>Check the condition of the 30-track connector (locking system, etc).</p>

AFTER REPAIR	<p>Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).</p>
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF030 PRESENT	<u>Passenger's pretensioner circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and check that the passenger's pretensioner ignition module is connected correctly.
Disconnect the ignition module of the passenger's pretensioner and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the passenger's pretensioner if the fault has been stored (fault no longer indicated).
The XRBAG tool must be used for checking resistance at point C1 (seat connector) of the passenger's pretensioner line. If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).
Disconnect the computer connector and fit the B40 30-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked C on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 3 and 4) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the five shunt opening pins for the 30-track connector. Check the condition of the computer connections. Check the condition of the 30-track connector (locking system, etc).
--

AFTER REPAIR	Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF030 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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<p>Lock the computer using the command on the diagnostic tool.</p> <p>Disconnect the ignition module of the passenger's pretensioner and connect a dummy ignition module to the ignition module connector.</p> <p>Switch on the ignition and carry out a check using the diagnostic tool.</p> <p>If the fault is now stored (fault no longer declared as present), check the condition of the seat wiring.</p> <p>Replace the passenger's pretensioner if the wiring is not faulty.</p>

<p>The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at point C1 (seat connector) of the passenger pretensioner line.</p> <p>If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).</p>
<p>Disconnect the computer connector and fit the B40 30-track adaptor.</p> <p>The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the wire marked C on the adaptor. If the value obtained is not correct, check the 30-track connector connections (tracks 3 and 4) and replace the wiring if necessary.</p>

<p>If the checks carried out have not shown the presence of a fault on the passenger pretensioner circuits, check on the base of the airbag computer for the presence of the five shunt opening pins for the 30-track connector.</p> <p>Check the condition of the computer connections.</p> <p>Check the condition of the 30-track connector (locking system, etc).</p>
--

AFTER REPAIR	<p>Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).</p>
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FAULT FINDING - FAULT INTERPRETATION

DF034 PRESENT	<u>Computer locked</u>
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NOTES	None.
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This fault allows display of the locked state of the computer. When it occurs, all the ignition lines are inhibited, preventing triggering of the airbags and seat belt pretensioners.
This fault normally occurs in two cases:

- The computer is new (it is sold locked).
- The computer locking command using the fault finding tool was used during an operation on the vehicle.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF035 PRESENT	<u>Erasing of the fault memory locked</u>
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NOTES	None.
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This fault is normally present following an impact in the presence of stored faults.
This lock prevents the contexts of the impacts which led to the systems being triggered from being accidentally cleared (the contexts are cleared by the fault memory erasing command).
These contexts will be used to make it easier to repair damaged vehicles and also for subsequent assessment purposes.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF045 PRESENT	<u>Driver's front airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the driver's front airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF046 PRESENT	<u>Passenger front airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the passenger front airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF047 PRESENT	<u>Driver's pretensioner configuration</u>
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NOTES	None.
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The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the driver's pretensioner.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF048 PRESENT	<u>Passenger pretensioner configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the passenger pretensioner.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - CONFORMITY CHECK

NOTES	Only perform this conformity check after a complete check with the diagnostic tool.
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Order	Function	Parameter or state Check or action	Display and notes	Fault finding
1	Computer conformity	PR002: VEHICLE TYPE	Clio II: 06 Replace computer if not correct	None
2	Computer conformity	Driver's pretensioner Passenger pretensioner Driver's front airbag Passenger front airbag	Ensure that the computer configuration corresponds to the vehicle equipment	None
3	Warning light operation Computer initialisation check.	Switch on the ignition	Warning light comes on for 3 seconds when the ignition is switched on	None

Airbags and seat belt pretensioners

DIAGNOSTICS - HELP

REPLACING THE AIRBAG COMPUTER

The airbag computers are sold in locked mode to avoid all risk of accidental triggering (all ignition lines are inhibited). The locked mode is signalled when the instrument panel warning light comes on.

Follow this procedure when replacing an airbag computer:

- Ensure that the ignition is switched off.
- Replace the computer.
- Carry out a check using the diagnostic tool.
- If necessary modify the computer configuration using the "Computer configuration" command.
- Unlock the computer only if no faults are indicated by the diagnostic tool.

Airbags and seat belt pretensioners

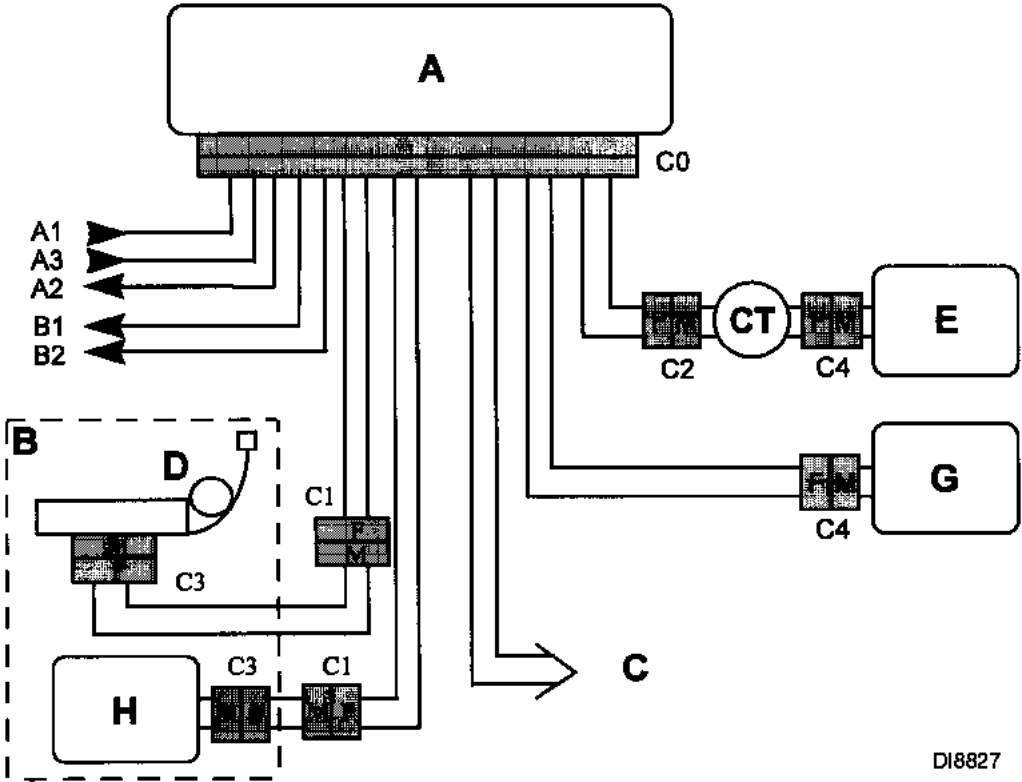
DIAGNOSTICS - DIAGNOSTIC CHARTS

CHART 1	ABSENCE OF DIALOGUE WITH THE AIRBAG COMPUTER
NOTES	None.
<p>Try to establish dialogue with a computer on another vehicle to ensure that the diagnostic tool is not faulty. If the tool is not the cause of the fault and dialogue cannot be established with any other computer on the same vehicle, it may be that a faulty computer is disrupting diagnostic lines K and L. Disconnect the computers one at a time to locate the fault. Check the battery voltage and carry out the necessary operations to obtain a correct voltage (10.5 volts < battery voltage >16 volts).</p>	
<p>Check the presence and condition of the airbag computer supply voltage fuse. Check that the computer connector is properly connected and check the condition of its wiring. Check that the computer is correctly supplied: – Disconnect the airbag computer and fit the XRBAG B40 30-track adaptor. – Check and ensure the presence of + after ignition feed between the terminals marked earth and + after ignition feed (APC).</p>	
<p>Check the diagnostic socket is fed correctly: – + after ignition on track 16. – Earth on track 5. Check the continuity and insulation of the lines of the fault finding socket / airbag computer connection: – Between the terminal marked L and track 15 of the fault finding socket. – Between the terminal marked K and track 7 of the diagnostic socket.</p>	
<p>If dialogue is still not established after these various checks, replace the airbag computer (refer to the Help section for this operation).</p>	
AFTER REPAIR	When dialogue is established, deal with any faults indicated.

FAULT FINDING - INTRODUCTION

XR BAG FICHE

Pretensioners, front and side airbags



Connections are identical for the side airbags and pretensioners on both seats.

- A

Central unit
- B

Driver's seat
- C

Passenger seat
- D

Pretensioner
- E

Driver's airbag ignition module
- G

Passenger airbag ignition module
- H

Side airbag ignition module
- CT

Rotary switch
- A1

+ 12 volts
- A2

Warning light
- A3

Earth
- B1

} Diagnostic lines
- B2

FRONT AIRBAGS		
	Measuring point	Correct value
Driver	C0, C2 and C4	2.1 - 7 ohms
Passenger	C0 and C4	1.3 - 4.5 ohms
SIDE AIRBAGS AND PRETENSIONERS		
	Measuring point	Correct value
	C0, C1 and C3	1.3 - 4.5 ohms

Correct insulation value: display≥ 100.h or 9999 flashing.

FAULT FINDING - FAULT INTERPRETATION

DF001 PRESENT OR STORED	<u>Computer</u>
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NOTES	None.
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Replace the airbag computer (consult the Help section for this operation).

AFTER REPAIR	None.
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FAULT FINDING - FAULT INTERPRETATION

DF002 PRESENT	<u>Computer voltage supply</u> 1.DEF : Too many micro-breaks 2.DEF : Supply voltage too low 3.DEF : Supply voltage too high
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NOTES	Use the B50 adaptor of the XRBAG to operate on the computer connector.
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1.DEF	NOTES	None.
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For a micro-cut fault, check the computer power supply lines: <ul style="list-style-type: none">– Condition of the computer connections.– Condition of computer earths (tracks 6 and 30 of the 50-track connector towards front right-hand pillar earth).– Condition / position of the fuse.– Condition and tightening of battery terminals.

2.DEF - 3.DEF	NOTES	None.
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Carry out the necessary operations to obtain the correct voltage supply to the computer: 9 volts ± 0.1 < correct voltage < 18 volts ± 0.1. <ul style="list-style-type: none">– Check the battery charge.– Check the charge circuit.– Check the tightening and the condition of the battery terminals.– Check the computer earth.

AFTER REPAIR	Clear the computer memory.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF003 PRESENT	<u>Driver's front airbag circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and remove the 2 mounting bolts from the steering wheel cushion. Check that it is correctly connected.
Disconnect the airbag cushion and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the airbag if the fault is now stored (fault no longer declared as present).
With the ignition switched off, disconnect and reconnect the connector of the rotary switch at the steering wheel. Repair the wiring if the fault is now just stored (fault no longer declared present).
The XRBAG tool must be used for checking resistance at point C2 of the driver's airbag circuit. If the value obtained is incorrect, replace the rotary switch under the steering wheel.
Reconnect the rotary switch under the steering wheel, disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked C on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 10 and 11) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the seven shunt opening pins for the 50-track connector. Check the condition of the computer connections. Check the state of the 50-track connector (locking system, etc).

AFTER REPAIR	Reconnect the computer and the airbag ignition module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the airbag cushion if it has been replaced (tool Elé. 1287).
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FAULT FINDING - FAULT INTERPRETATION

DF003 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and remove the two mounting bolts from the steering wheel cushion. Check the condition of the trigger wire.
The XRBAG tool must be use for measuring insulation appropriate to the type of fault at point C2 of the driver's front airbag circuit. If the value obtained is incorrect, replace the rotary switch under the steering wheel.
Reconnect the rotary switch under the steering wheel, disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the wire marked C on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 10 and 11) and replace the wiring if necessary.

AFTER REPAIR	Reconnect the computer and the airbag ignition module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the airbag cushion if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

<p>DF004 PRESENT</p>	<p><u>Passenger's front airbag circuit</u></p> <p>CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth</p>
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<p>NOTES</p>	<p>Never carry out measurements on the ignition lines with equipment other than the XRBAG.</p>
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<p>CO - CC</p>	<p>NOTES</p>	<p>None.</p>
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Lock the computer using the command on the diagnostic tool.
Switch off the ignition, disconnect the computer connector and fit the **B50 50-track adaptor**. The XRBAG tool must be used for checking the resistance on the **wire marked D** on the adaptor.
Is the value obtained correct?

<p>YES</p>	<p>If the value obtained is correct on wire D of the adaptor, check on the base of the airbag computer for the presence of the seven shunt opening pins on the 50-track connector. Check the condition of the computer connections. Check the condition of the 50-track connector (locking system, wiring, etc.).</p>
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<p>NO</p>	<p>If the value obtained is not correct on wire D of the adaptor, check the connections on the 50-track connector (tracks 13 and 14)</p> <p>If the value remains incorrect, switch off the ignition and remove the dashboard cover to gain access to the wiring of the passenger airbag module. Disconnect the ignition module of the passenger's airbag module, connect a dummy ignition module to the ignition module, then use the XRBAG to measure the resistance on the wire marked D on the adaptor. If the value obtained is correct, replace the passenger's airbag module. If the value obtained is not correct, replace the airbag wiring.</p>
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<p>AFTER REPAIR</p>	<p>Reconnect the computer and the ignition module of the passenger's airbag module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the passenger's airbag module if it has been replaced (tool Elé. 1287).</p>
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF004 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
Switch off the ignition, disconnect the computer connector and fit the **B50 50-track adaptor**. The XRBAG tool must be used for measuring the insulation appropriate to the type of fault declared by the diagnostic tool on the **wire marked D** on the adaptor.
Is the value obtained correct?

YES	Check the condition of the connections on the 50-track computer connector (tracks 13 and 14).
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NO	Check the condition of the connections on the 50-track computer connector (tracks 13 and 14).
	If the value remains incorrect, replace the airbag wiring.

AFTER REPAIR	Reconnect the computer and the ignition module of the passenger's airbag module, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the passenger airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF008 PRESENT	<u>Driver's side airbag circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
 The XRBAG tool must be used for measuring the resistance at **point C1** (seat connector) on the airbag module line on the driver's side.
Is the value obtained correct?

YES	<p>Check the seat connector connections (point C1). Visually inspect the seat wiring. Reconnect point C1.</p> <p>Disconnect the computer connector and fit the B50 50-track adaptor. The XRBAG tool must be used for measuring the resistance on the wire marked E on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 16 and 17) and replace the wiring if necessary. If the value obtained is correct on wire E of the adaptor, check on the base of the computer for the presence of the seven shunt opening pins of the 50-track connector. Check the condition of the computer connections. Check the condition of the 50-track connector (locking system, wiring, etc.).</p>
NO	<p>Check the seat connector connections. Strip the driver's seat and check that the airbag ignition module is connected correctly.</p> <p>Disconnect the driver's side airbag ignition module, connect a dummy ignition module to the ignition module connector then re-measure the resistance on XRBAG at point C1. If the value obtained is correct, replace the driver's side airbag module. If the value obtained is still not correct, replace the wiring between points C1 and C3 (seat wiring).</p>

AFTER REPAIR	Reconnect the computer and the ignition module of the driver's side airbag module then switch on the ignition. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the side airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF008 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at **point C1** (seat connector) of the driver's side airbag module line.
Is the value obtained correct?

YES	Check the seat connector connections (point C1). Visually inspect the seat wiring. Reconnect point C1 . Disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be use for measuring the insulation appropriate to the type of fault on the wire marked E on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 16 and 17) and replace the wiring if necessary.
NO	Check the seat connector connections. Replace the wiring between points C1 and C3 (seat wiring).

AFTER REPAIR	Reconnect the computer and the ignition module of the driver's side airbag module then switch on the ignition. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the side airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF009 PRESENT	<u>Passenger side airbag circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
 The XRBAG tool must be used for measuring the resistance at **point C1** (seat connector) on the passenger side airbag module line.
Is the value obtained correct?

YES	Check the seat connector connections (point C1). Visually inspect the seat wiring. Reconnect point C1 . Disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked F on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 18 and 19) and replace the wiring if necessary. If the value obtained is correct on wire F of the adaptor, check on the base of the computer for the presence of the seven shunt opening pins on the 50-track connector. Check the condition of the computer connections. Check the condition of the 50-track connector (locking system, wiring, etc.).
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NO	Check the seat connector connections. Strip the passenger seat and check that the airbag ignition module is connected correctly. Disconnect the passenger side airbag ignition module, connect a dummy ignition module to the ignition module connector then re-measure the resistance on XRBAG at point C1 . If the value obtained is correct, replace the passenger's side airbag module. If the value obtained is still not correct, replace the wiring between points C1 and C3 (seat wiring).
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AFTER REPAIR	Reconnect the computer and the ignition module of the passenger side airbag module then switch the ignition back on. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the side airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF009 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at **point C1** (seat connector) of the passenger's side airbag module line.
Is the value obtained correct?

YES	Check the seat connector connections (point C1). Visually inspect the seat wiring. Reconnect point C1 . Disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the wire marked F on the adaptor. If the value obtained is not correct, check the 50 track connector connections (tracks 18 and 19) and replace the wiring if necessary.
NO	Check the seat connector connections. Replace the wiring between points C1 and C3 (seat wiring).

AFTER REPAIR	Reconnect the computer and the ignition module of the passenger side airbag module then switch the ignition back on. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the side airbag module if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF010 PRESENT	<u>Airbag fault warning light circuit</u> CC.1 : Short circuit to 12 volts CO.0 : Open circuit or short circuit to earth
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NOTES	Use the XRBAG 50-track adaptor to carry out work on the computer connector.
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CC.1	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Check the condition of the warning light bulb. Ensure the insulation to 12 volts of the connection between the warning light and track 7 of the 50-track connector.

CO.0	NOTES	None.
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Warning light off when ignition on

Lock the computer using the command on the diagnostic tool. Check the condition of the warning light bulb. Ensure the continuity of the connection between the warning light and track 7 of the 50-track connector. Ensure that 12 volts reach the warning light. If the checks carried out did not show the presence of a fault, disconnect the computer connector and fit the 50-track XRBAG adaptor . Use XRBAG to test the operation of the instrument panel warning light from the grey wire marked 2 on the adaptor. If it is possible to illuminate the warning light using the XRBAG, replace the airbag computer (consult the "Aid" section for this operation). If it is impossible to operate the warning light, repeat the preceding checks.
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Warning light on when ignition on

Lock the computer using the command on the diagnostic tool. Disconnect the airbag computer and check the presence, on the base, of the seven pins which open the connector shunts. Ensure the insulation to earth of the connection between the warning light and track 7 of the 50-track connector.
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AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF029 PRESENT	<u>Driver's pretensioner circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and check that the driver's pretensioner ignition module is connected correctly.
Disconnect the ignition module of the driver's pretensioner and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the driver's pretensioner if the fault is now stored (fault no longer declared as present).
The XRBAG tool must be used for measuring the resistance at point C1 (seat connector) on the driver's pretensioner line. If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).
Disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for checking the resistance on the wire marked A on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 1 and 2) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the seven shunt opening pins for the 50-track connector. Check the condition of the computer connections. Check the state of the 50-track connector (locking system, etc).

AFTER REPAIR	Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF029 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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<p>Lock the computer using the command on the diagnostic tool. Disconnect the ignition module of the driver's pretensioner and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. If the fault is now stored (fault no longer declared as present), check the condition of the seat wiring. Replace the driver's pretensioner if the wiring is not faulty.</p>	
<p>The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at point C1 (seat connector) of the driver's pretensioner line. If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).</p>	
<p>Disconnect the computer connector and fit the B50 50-track adaptor. The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the wire marked A on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 1 and 2) and replace the wiring if necessary.</p>	
<p>If the checks carried out have not shown the presence of a fault on the driver's pretensioner circuits, check on the base of the airbag computer for the presence of the seven shunt opening pins for the 50-track connector. Check the condition of the computer connections. Check the condition of the 50-track connector (locking system, etc).</p>	

AFTER REPAIR	<p>Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).</p>
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF030 PRESENT	<u>Passenger's pretensioner circuit</u> CC : Short circuit CO : Open circuit CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth
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NOTES	Never carry out measurements on the ignition lines with equipment other than the XRBAG.
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CO - CC	NOTES	None.
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Lock the computer using the command on the diagnostic tool. Switch off the ignition and check that the passenger's pretensioner ignition module is connected correctly.
Disconnect the ignition module of the passenger's pretensioner and connect a dummy ignition module to the ignition module connector. Switch on the ignition and carry out a check using the diagnostic tool. Replace the passenger's pretensioner if the fault has been stored (fault no longer indicated).
The XRBAG tool must be used for measuring the resistance at point C1 (seat connector) on the driver's pretensioner line. If the value obtained is not correct, replace the wiring between points C1 and C3 (seat wiring).
Disconnect the computer connector and fit the B50 50-track adaptor . The XRBAG tool must be used for checking resistance on the wire marked B on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 3 and 4) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault, check on the base of the airbag computer for the presence of the seven shunt opening pins for the 50-track connector. Check the condition of the computer connections. Check the state of the 50-track connector (locking system, etc).

AFTER REPAIR	Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).
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Airbags and seat belt pretensioners

SIDE

FAULT FINDING - FAULT INTERPRETATION

DF030 PRESENT (continued)	
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CC.1 - CC.0	NOTES	None.
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Lock the computer using the command on the diagnostic tool.
Disconnect the ignition module of the passenger's pretensioner and connect a dummy ignition module to the ignition module connector.
Switch on the ignition and carry out a check using the diagnostic tool.
If the fault is now stored (fault no longer declared as present), check the condition of the seat wiring.
Replace the passenger's pretensioner if the wiring is not faulty.

The XRBAG tool must be used for measuring the insulation appropriate to the type of fault at **point C1** (seat connector) of the passenger pretensioner line.
If the value obtained is not correct, replace the wiring between **points C1** and **C3** (seat wiring).

Disconnect the computer connector and fit the **B50 50-track adaptor**.
The XRBAG tool must be used for measuring the insulation appropriate to the type of fault on the **wire marked B** on the adaptor. If the value obtained is not correct, check the 50-track connector connections (tracks 3 and 4) and replace the wiring if necessary.

If the checks carried out have not shown the presence of a fault on the passenger pretensioner circuits, check on the base of the airbag computer for the presence of the seven shunt opening pins for the 50-track connector.
Check the condition of the computer connections.
Check the state of the 50-track connector (locking system, etc).

AFTER REPAIR	Reconnect the computer and the ignition module of the pretensioner, then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer. Destroy the pretensioner if it has been replaced (tool Elé. 1287).
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FAULT FINDING - FAULT INTERPRETATION

DF033 PRESENT	<u>Side sensor programming not carried out</u>
NOTES	None.

The presence of this fault means that the side sensor identification has not been programmed by the airbag computer (this identification allows the computer to check that the side sensors are the correct ones for the vehicle).
This bargraph is normally lit when the computer is new (it is sold without identification).
Program the side sensor identification using the "Side sensor programming" command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF034 PRESENT	<u>Computer locked</u>
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NOTES	None.
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This fault allows display of the locked state of the computer. When it occurs, all the ignition lines are inhibited, preventing triggering of the airbags and seat belt pretensioners. This fault normally occurs in two cases:

- The computer is new (it is sold locked).
- The computer locking command using the fault finding tool was used during an operation on the vehicle.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF035 PRESENT	<u>Erasing of the fault memory locked</u>
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NOTES	None.
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This fault is normally present following an impact in the presence of stored faults.
This lock prevents the contexts of the impacts which led to the systems being triggered from being accidentally cleared (the contexts are cleared by the fault memory erasing command).
These contexts will be used to make it easier to repair damaged vehicles and also for subsequent assessment purposes.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF036 PRESENT	<u>Faulty driver's side sensor signal (or in open circuit)</u>
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NOTES	None.
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Lock the computer using the command on the diagnostic tool.
Check that the driver's side sensor is connected correctly and check its wiring.
Check the condition of the computer connections (tracks 20 and 21).
Check the condition of the 50-track connector (locking system, wiring, etc.).
Replace the wiring if the fault persists.

AFTER REPAIR	Reconnect the computer and the driver's side sensor then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF037 PRESENT	<u>Driver's side sensor identification</u>
NOTES	None.

This fault normally occurs when the computer detects a mismatch between the recognition signal transmitted by the side sensor and the way it was programmed.
Either the side sensor is not appropriate for the vehicle or the computer has come from another vehicle.
If the sensor was replaced, fit another sensor appropriate to the vehicle.
If the computer comes from another vehicle, use the "Side sensor programming" command on the diagnostic tool to modify the computer programming.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF038 PRESENT	<u>Driver's side sensor</u>
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NOTES	None.
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Replace the driver's side sensor.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF039 PRESENT	<u>Driver's side sensor circuit</u>
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NOTES	None.
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Lock the computer using the command on the diagnostic tool.
Check that the driver's side sensor is connected correctly and check its wiring.
Check the condition of the computer connections (tracks 20 and 21).
Check the condition of the 50-track connector (locking system, wiring, etc.).
Replace the wiring if the fault persists.

AFTER REPAIR	Reconnect the computer and the driver's side sensor then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF040 PRESENT	<u>Passenger's side sensor circuit</u>
NOTES	None.

Lock the computer using the command on the diagnostic tool.
Check that the passenger's side sensor is connected correctly and check its wiring.
Check the condition of the computer connections (tracks 22 and 23).
Check the condition of the 50-track connector (locking system, wiring, etc.).
Replace the wiring if the fault persists.

AFTER REPAIR	Reconnect the computer and the passenger's side sensor then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF041 PRESENT	<u>Faulty passenger side sensor signal (or in open circuit)</u>
NOTES	None.

Lock the computer using the command on the diagnostic tool.
Check that the passenger's side sensor is connected correctly and check its wiring.
Check the condition of the computer connections (tracks 22 and 23).
Check the condition of the 50-track connector (locking system, wiring, etc.).
Replace the wiring if the fault persists.

AFTER REPAIR	Reconnect the computer and the passenger's side sensor then switch on the ignition again. Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF042 PRESENT	<u>Passenger side sensor identification</u>
NOTES	None.

This fault normally occurs when the computer detects a mismatch between the recognition signal transmitted by the side sensor and the way it was programmed.
Either the side sensor is not appropriate for the vehicle or the computer has come from another vehicle.
If the sensor was replaced, fit another sensor appropriate to the vehicle.
If the computer comes from another vehicle, use the "Side sensor programming" command on the diagnostic tool to modify the computer programming.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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FAULT FINDING - FAULT INTERPRETATION

DF043 PRESENT	<u>Passenger's side sensor</u>
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NOTES	None.
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Replace the passenger side sensor.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Carry out the check again using the diagnostic tool and, if there are no faults, unlock the computer.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF045 PRESENT	<u>Driver's front airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the driver's front airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF046 PRESENT	<u>Passenger front airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the passenger front airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF047 PRESENT	<u>Driver's pretensioner configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the driver's pretensioner.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF048 PRESENT	<u>Passenger pretensioner configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the passenger pretensioner.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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Airbags and seat belt pretensioners

FAULT FINDING - FAULT INTERPRETATION

DF049 PRESENT	<u>Driver's side airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the driver's side airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF050 PRESENT	<u>Passenger side airbag configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with ignition lines which are not declared in the computer configuration, in particular the ignition line of the passenger side airbag.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF051 PRESENT	<u>Driver's side sensor configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with side airbag sensors which are not declared in the computer configuration, in particular the driver's side sensor.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - FAULT INTERPRETATION

DF052 PRESENT	<u>Passenger side sensor configuration</u>
NOTES	None.

The presence of this fault indicates an inconsistency between the computer configuration and the vehicle equipment detected by the computer.
The vehicle must be fitted with side airbag sensors which are not declared in the computer configuration, in particular the passenger side sensor.
Modify the computer configuration using the Configuration of system components command on the diagnostic tool.

AFTER REPAIR	Erase the computer memory then switch off the ignition. Check again using the diagnostic tool.
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FAULT FINDING - CONFORMITY CHECK

NOTES	Only perform this conformity check after a complete check with the diagnostic tool.
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Order	Function	Parameter or state Check or action	Display and notes	Fault finding
1	Computer conformity	PR002: VEHICLE TYPE	Clio II: 06 Replace computer if not correct	None
2	Computer conformity	Driver's pretensioner Passenger pretensioner Driver's front airbag Passenger front airbag Driver's side airbag Passenger side airbag Driver's side sensor Passenger's side sensor	Ensure that the computer configuration corresponds to the vehicle equipment	None
3	Warning light operation Computer initialisation check.	Switch on the ignition	Warning light comes on for 3 seconds when the ignition is switched on	None

Airbags and seat belt pretensioners

DIAGNOSTICS - HELP

REPLACING THE AIRBAG COMPUTER

The airbag computers are sold in locked mode to avoid all risk of accidental triggering (all ignition lines are inhibited). The locked mode is signalled when the instrument panel warning light comes on.

Follow this procedure when replacing an airbag computer:

- Ensure that the ignition is switched off.
- Replace the computer.
- Carry out a check using the diagnostic tool.
- If necessary modify the computer configuration using the "Computer configuration" command.
- Unlock the computer only if no faults are indicated by the diagnostic tool.

DIAGNOSTICS - DIAGNOSTIC CHARTS

CHART 1	ABSENCE OF DIALOGUE WITH THE AIRBAG COMPUTER
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NOTES	None.
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Try to establish dialogue with a computer on another vehicle to make sure that the diagnostic tool is not faulty. If the tool is not the cause of the fault and dialogue cannot be established with any other computer on the same vehicle, it may be that a faulty computer is disrupting diagnostic lines **K** and **L**. Disconnect the computers one at a time to locate the fault.

Check the battery voltage and carry out the necessary operations to obtain a correct voltage (10.5 volts < battery voltage > 16 volts).

Check the presence and condition of the airbag computer supply voltage fuse.

Check that the computer connector is properly connected and check the condition of its wiring.

Check that the computer is correctly supplied:

- Disconnect the airbag computer and fit the **B50 50-track adaptor** of the XRBAG.
- Check and ensure the presence of **+ after ignition feed** between the terminals marked **earth** and **+ after ignition feed (APC)**.

Verify that the diagnostic socket is correctly supplied:

- **+ before ignition** on **track 16**.
- **Earth** on **track 5**.

Check the continuity and insulation of the lines of the fault finding socket / airbag computer connection:

- Between the terminal marked **L** and **track 15** of the fault finding socket.
- Between the terminal marked **K** and **track 7** of the diagnostic socket.

If dialogue is still not established after these various checks, replace the airbag computer (refer to the Help section for this operation).

AFTER REPAIR	When dialogue is established, deal with any faults indicated.
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