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## Fault- Finding

**13** LUCAS DIESEL INJECTION

**17** INJECTION

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SYSTEMS

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AND WIRING

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***BB0A - BB0C - BB0D - BB0E - CB0A - CB0C - CB0D - CB0E***

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# Fault-Finding

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# F8Q 630 ENGINE

## FAULT FINDING LUCAS DIESEL INJECTION

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#### **CONDITIONS FOR APPLYING THE TESTS DESCRIBED IN THIS FAULT FINDING DOCUMENT**

The tests described in this fault finding section should only be applied to the vehicle if the title of the fault treated corresponds exactly to the display noted on the XR25 when the ignition is switched on.

If a bargraph is interpreted when flashing, the conditions for confirming the presence of an actual fault (and the necessity of applying the fault finding) are shown in the "Notes" section or at the start of the bargraph interpretation.

If a bargraph is only interpreted if it is permanently illuminated, the application of these tests recommended in the fault finding document when the bargraph is flashing will not allow the cause of the memorised fault to be determined. In this case, only checking of the wiring and connections of the faulty component should be carried out (the fault is simply memorised as it was not present at the moment of testing).

**NOTE:** The ignition should be switched off before the XR25 is used.

#### **SPECIAL TOOLING REQUIRED FOR OPERATIONS ON THE DPC DIGITAL INJECTION SYSTEM**

- XR25 test kit.
- XR25 cassette N° 17 minimum.
- 25 track bornier **Elé. 1332** for testing using the computer connector.

# LUCAS DIESEL INJECTION

## Fault finding - XR25 fiche

13

PRESENTATION OF FICHE XR25 N° 60 SIDE 1/2

N°60 1/2		S8 code : <b>D 3 4</b> read : <b>EdIE</b>	
1	<input type="checkbox"/> ILLUMINATED <input type="checkbox"/> EXTINGUISHED	FAULT TEST TURN FICHE OVER	CODE PRESENT <input type="checkbox"/>
2	<input type="checkbox"/> * 02 COOLANT TEMP.	SENSOR CIRCUITS	AIR TEMPERATURE * 22 <input type="checkbox"/>
3	<input type="checkbox"/> * 03 LOAD POTENTIOMETER		FLYWHEEL SIGNAL <input type="checkbox"/>
4	<input type="checkbox"/> * 04 VEHICLE SPEED		ATMOSPHERIC PRESSURE * 24 <input type="checkbox"/>
5	<input type="checkbox"/> NEEDLE LIFT		ALTIMETRIC CORRECTOR * 25 <input type="checkbox"/>
6	<input type="checkbox"/> * 06 ADVANCE	SOL CIRCUITS	ACCEL. IDLE * 26 <input type="checkbox"/>
7			EGR * 27 <input type="checkbox"/>
8	<input type="checkbox"/> * 08 PREHEATER N°1	RELAY CTRL CIRCUITS	PREHEATER N°2 * 28 <input type="checkbox"/>
9			PAS ASSEMBLY * 29 <input type="checkbox"/>
10	<input type="checkbox"/> FAULT	TELL-TALE CIRCUITS	PREHEATING * 30 <input type="checkbox"/>

DIESEL INJECTION (FAULTS)			
Erase fault memory : G 0 **			
Request status check : G 0 1 *			
11	<input type="checkbox"/> GROUP N°1	PREHEATER PLUGS	GROUP N°2 <input type="checkbox"/>
12	<input type="checkbox"/> * 12 BATTERY	PF or PL NOT PROG. <input type="checkbox"/>	
13	<input type="checkbox"/> AIR CON. CUT-OFF		
14			
15			
16			
17			
18			
19			
20			

ADDITIONAL CHECKS : # . .	
02 Coolant temp.	°C
03 Air temperature	°C
04 Battery voltage	V
06 Engine speed	rpm
16 Atmos. pressure	h.Pa
17 Throttle pot.	%
18 Veh. speed	km/h
24 RCO EGR	%
32 Advance gap	crankshaft angle

End of test	: G13*
Part No	: G70*
Faults diagnosed : press V and 9	
Return to diag. mode : D	

17 ANG

FI21760-1

DPCF011.0

# LUCAS DIESEL INJECTION

## Fault finding - XR25 fiche

13

PRESENTATION OF FICHE XR25 N° 60 SIDE 2/2

N°60 2/2		read : 7d IE	
1	<input type="checkbox"/> EXTINGUISHED ILLUMINATED	STATUS TEST TURN FICHE OVER	CODE PRESENT <input type="checkbox"/>
2	<input type="checkbox"/> ADVANCE	SOL CONTROLS	ACCEL. IDLE <input type="checkbox"/>
3		EGR	<input type="checkbox"/>
4	<input type="checkbox"/> RESET FAULT MEMORIES	PREHEATING INHIBITED	<input type="checkbox"/>
5	<input type="checkbox"/> PREHEATER N°1	RELAY Controls	PREHEATER N°2 <input type="checkbox"/>
6	<input type="checkbox"/> PAS ASSEMBLY	ALTIMETRIC CORRECTOR	<input type="checkbox"/>
7			
8		AIR CON.	
9	<input type="checkbox"/> REQUEST	AUTHORISATION	<input type="checkbox"/>
10	<input type="checkbox"/> FAULTS	TELL-TALES	PREHEATING <input type="checkbox"/>
(NOTE : watch bargraph 20 LH)			
<b>DIESEL INJECTION</b> <b>(Status)</b> Erase fault memory : G 0 ** Request fault check : G 02 *			
11	<input type="checkbox"/> LOAD LEVER POSN.	INFO OUTPUT	ENGINE SPEED <input type="checkbox"/>
12			
13			
14			
15			
16			
17			
18	<input type="checkbox"/> WITH A.C.	COMPUTER CONFIGURATION	WITHOUT A.C. <input type="checkbox"/>
19	<input type="checkbox"/> WITH PAS	WITHOUT PAS	<input type="checkbox"/>
20	<input type="checkbox"/> FAULT PRESENT	XR25 MEMORY	0
ADDITIONAL CHECKS : # . . 02 Coolant temp. °C 03 Air temperature °C 04 Battery voltage V 06 Engine speed rpm 16 Atmos. pressure h.Pa 17 Throttle load % 18 Vehicle speed km/h 24 RCO EGR % 32 Advance gap CRANKSHAFT ANGLE			
CONTROL MODES : G . . (If engine stopped) 10*1* Relay preheater n°1 *2* Relay preheater n°2 16* Accel. idle 19* Altimetric corrector 21*1* Fault tell-tale 2* Preheater tell-tale 31* PR or PL/PF programming 32* Potentiometer adj. 36* Power-steering 50*x* Computer prog. 58*x* Computer config.			
See procedure on fiche REMINDER C			
End of test : G13* Part No : G70*			
Faults of test : press V and 9 Return to diag. mode : D			
17 ANG			

FI21760-2

DPCF011.0

## BARGRAPH SYMBOLS

## FAULTS (always on a coloured background)

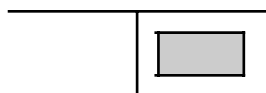


If illuminated, there is a fault with the product tested. The associated text defines the fault.

The bargraph may be :

- Permanently illuminated : fault present.
- Flashing : fault memorised
- Extinguished : no fault or not diagnosed

## STATUS (always on a white background)



Bargraph always at the top right hand side.

If illuminated dialogue has been established with the computer for the product.

If it remains extinguished:

- The code does not exist.
- There is a fault with the tool, the computer or the XR25 / computer connection.

The representation of the following bargraphs indicates their initial status:

Initial status: (ignition on, engine stopped, no operator action)



or



Indefinite

- illuminated when the function or condition on the fiche is met.



Extinguished



Illuminated - extinguishes when the function or condition on the fiche is no longer met

## ADDITIONAL NOTES

Certain bargraphs have a \*. The \*. command, when the bargraph is illuminated, allows additional information on the type of fault or status to be displayed.



<div>1</div> <div> <div></div> <div></div> </div>	<div>Fiche n° 60 1/2</div> <div> <div>Bargraph 1 RH extinguished</div> <div>Code present</div> </div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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<p>Ensure that the XR25 is not the cause of the fault by trying to communicate with the computer on another vehicle. If the XR25 is not the cause of the fault and dialogue is not established with another computer on the same vehicle, a faulty computer may be causing interference on the K and L fault finding lines. Disconnect connections successively to determine which computer is at fault.</p> <p>Check the ISO selector is on position S8, that you are using the latest XR25 cassette and the correct access code (D34).</p> <p>Check the battery voltage and carry out any necessary operations to ensure the correct voltage (U battery &gt; 10.5 volts).</p>	
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<p>Check the two 15 Amp fuses on the engine connection unit have not blown.</p> <p>Check the connection and condition of the connections on the computer connector and the intermediate connections R107 dashboard / front of engine and R67 front / engine.</p> <p>Check the computer is correctly fed:</p> <ul style="list-style-type: none"> <li>- Earth on track 2 of the computer connector (check the condition and tightness of the engine earth strap and the engine earth MH near to the gearbox housing).</li> <li>- + after ignition feed on track 1 of the computer connector.</li> </ul>	
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<p>Check the diagnostic socket is correctly fed:</p> <ul style="list-style-type: none"> <li>- Earth on track 5.</li> <li>- + before ignition feed on track 16.</li> </ul> <p>Check and ensure the continuity and insulation of the lines in the connection diagnostic socket/ computer:</p> <ul style="list-style-type: none"> <li>- Between track 10 of the computer connector and track 15 of the diagnostic socket.</li> <li>- Between track 13 of the computer connector and track 7 of the diagnostic socket.</li> </ul>	
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<p>If fault finding is not established after these operations, replace the computer (consult the "Aid" section for this operation).</p>	
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AFTER REPAIR	When communication is established, deal with any fault bargraphs which may be illuminated.
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Fault finding - Interpretation of XR25 bargraphs

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 LH illuminated</div> <div>Computer</div>	Fiche n° 60 1/2
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NOTES	None
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Replace the computer (consult the "Aid" section for this operation).

AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 RH illuminated</div> <div>Fiche n° 60 1/2</div> <div>Air temperature sensor circuit</div> <div>XR25 aid:   *22 :   <i>co.1</i> : Open circuit or short circuit to 12 volts                   <i>cc.0</i> : Short circuit or short circuit to earth</div>
--	--

NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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<i>co.1</i>	NOTES	If bargraphs 2LH and 3LH are also illuminated, look for a CO of the common sensor earth (track 3 of the computer connector)
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<p>Ensure the continuity and insulation in relation to + 12 volts of the connection between track 24 on the computer connector and track 2 of the air temperature sensor connector.</p> <p>Ensure the continuity of the connection between track 3 on the computer connector and track 1 of the air temperature sensor connector.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the air temperature sensor then erase the computer memory.</p> <p>If the "air temperature sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

<i>cc.0</i>	NOTES	None
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<p>Ensure insulation from earth of the connection between track 24 on the computer connector and track 2 of the air temperature sensor connector.</p> <p>Check to see if the sensor circuit (or the sensor) is in short circuit (resistance at 20°C = 3.5 Kohms).</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the air temperature sensor then erase the computer memory.</p> <p>If the "air temperature sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

AFTER REPAIR	<p>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</p> <p>Finish the operation by checking using the XR25.</p>
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<div>3</div> <div> <div></div> <div></div> </div>	<div>Bargraph 3 LH illuminated</div> <div>Fiche n° 60 1/2</div> <div>Load potentiometer circuit</div> <div>XR25 aid:   *03 :   <i>co.0</i> : Open circuit or short circuit to earth</div> <div>                              <i>cc.1</i> : Short circuit to 5 volts or to 12 volts</div> <div>                              <i>dEF</i> : Sensor feed fault</div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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co.0	NOTES	None
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<p>Ensure the continuity and insulation in relation to earth of the connection between track 23 on the computer connector and track 3 on the pump connector (10 tracks).</p> <p>Also ensure the insulation of this connection in relation to the connection between track 3 on the computer connector and track 5 on the pump connector (potentiometer earth).</p> <p>Also ensure the continuity of the connection between track 4 on the computer connector and track 4 on the pump connector.</p> <p>Look for a possible potentiometer short circuit (between tracks 4 and 5 on the 10 track connector) or a short circuit in its feed.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the load potentiometer ( consult the "Aid" section for this operation).</p> <p>If the "load potentiometer circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

cc.1	NOTES	If BG2LH and 2RH are also illuminated, look for a CO on the sensor earth (track 3 of the computer connector).
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<p>Ensure insulation from 5 volts and from 12 volts of the connection between track 23 on the computer connector and track 3 on the pump connector (10 tracks).</p> <p>Also ensure the insulation of this connection in relation to the connection between track 4 on the computer connector and track 4 on the pump connector(+ 5 volts potentiometer).</p> <p>Ensure the continuity of the connection between track 3 on the computer connector and track 5 on the pump connector.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the load potentiometer ( consult the "Aid" section for this operation).</p> <p>If the "load potentiometer circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>3</div> <div><div></div><div></div></div> <div>CONT</div>	
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dEF

NOTES

None

Ensure the insulation (+12 Volts and earth) of the connection between track 4 on the computer connector and track 4 of the pump connector (10 tracks).

If the fault persists after these tests, replace the load potentiometer ( consult the "Aid" section for this operation).

If the "load potentiometer circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).

AFTER REPAIR

Erase the computer memory (G0\*\*), switch the ignition off, then carry out a road test.  
Finish the operation by checking using the XR25.

3

Bargraph 3 RH flashing

Fiche n° 60 1/2

Engine speed sensor circuit

NOTES

The engine speed sensor circuit fault is present if the bargraph illuminates when the engine is running.

Use bornier Elé. 1332 for any operations on the computer connector.

Measure the resistance of the flywheel signal sensor at its connector. Replace the sensor if the resistance is not approximately 250 ohms.

Ensure the continuity and insulation of the following lines:

- Between track 8 on the computer connector and track B on the flywheel signal sensor connector.
- Between track 3 on the computer connector and track A on the flywheel signal sensor connector.

Also check the insulation between these two connections.

Test the connections on the 2 connectors.

Carry out a visual inspection of the general condition of the wiring and its routing for possible interference.

Check the positioning and condition of the sensor.

Check the condition of the target (deformation, mounting, noise....).

Check the conformity of the target: 2 gaps at 180°.


If the fault persists after these tests, replace the flywheel signal sensor.

If the "engine speed sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).

AFTER REPAIR

Erase the computer memory (G0\*\*), switch the ignition off, then carry out a road test.

Finish the operation by checking using the XR25.

<div>4</div> 	<div>Bargraph 4 LH flashing</div> <div>Fiche n° 60 1/2</div> <div>Vehicle speed sensor circuit</div> <div>XR25 aid:   *04 :   cc.0 : Short circuit to earth</div> <div>                  co.1 : Open circuit or short circuit to 12 volts</div>
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NOTES	The vehicle speed sensor circuit fault is present if the bargraph illuminates during a road test. Use bornier Elé. 1332 for any operations on the computer connector.
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cc.0	NOTES	None
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<p>Ensure the insulation from earth of the connection between track 12 on the computer connector and track B1 on the vehicle speed sensor connector.</p> <p>Also ensure the insulation of this connection in relation to the connection between track 3 on the computer connector and track B2 on the vehicle speed sensor connector.</p> <p>Test the connections on the 2 connectors.</p> <p>Check the vehicle speed sensor feed:</p> <ul style="list-style-type: none"> <li>- +after ignition feed on track A of the sensor connector</li> <li>- Earth on track B2 of the sensor connector.</li> </ul>
<p>If the fault persists after these tests, replace the vehicle speed sensor, then erase the computer memory.</p> <p>If the "vehicle speed sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

co.1	NOTES	None
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<p>Ensure the continuity and insulation in relation to 12 volts of the connection between track 12 on the computer connector and track B1 on the vehicle speed sensor connector.</p> <p>Also ensure the insulation of this connection in relation to the vehicle speed sensor+ after ignition feed line (track A of the sensor connector).</p> <p>Test the connections on the 2 connectors.</p> <p>Check the vehicle speed sensor feed:</p> <ul style="list-style-type: none"> <li>- +after ignition feed on track A of the sensor connector</li> <li>- Earth on track B2 of the sensor connector.</li> </ul>
<p>If the fault persists after these tests, replace the vehicle speed sensor, then erase the computer memory.</p> <p>If the "vehicle speed sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

AFTER REPAIR	Erase the computer memory (G0**), switch the ignition off, then carry out a road test. Finish the operation by checking using the XR25.
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 RH illuminated</div> <div><u>Atmospheric pressure sensor circuit</u></div>	<div>Fiche n° 60 1/2</div>
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<div>NOTES</div>	<div>None</div>
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Replace the computer (consult the "Aid" section for this operation).

<div>AFTER REPAIR</div>	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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5  


Bargraph 5 LH flashing

Fiche n° 60 1/2

Needle lift sensor circuit

NOTES

The needle lift sensor circuit fault is present if the bargraph illuminates when the engine is running. Use bornier Elé. 1332 for any operations on the computer connector.

Measure the resistance of the needle lift sensor at its connector.  
Replace the injector with the sensor if the resistance is not approximately 105 ohms.  
Ensure the continuity of the following connections:  
- Between track 7 on the computer connector and track 1 on the needle lift sensor connector.  
- Between track 3 on the computer connector and track 2 on the needle lift sensor connector.  
Test the connections on the 2 connectors.

Ensure the insulation of the connection between track 7 on the computer connector and track 1 on the needle lift sensor connector .  
Also ensure the insulation between the 2 lines on the needle lift sensor.

Also check the condition of the wiring between the sensor connector and the sensor.

The "needle lift sensor circuit" fault may be connected to absence of injection at the cylinder with the sensor.  
Check the condition of the injector and its fuel supply.

If the fault persists after these tests, replace the injector with the sensor.  
If the "needle lift sensor circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).

AFTER REPAIR

Erase the computer memory (G0\*\*), switch the ignition off, then carry out a road test.  
Finish the operation by checking using the XR25.

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 RH illuminated (<i>co.0</i>) or flashing (<i>cc.1</i>)</div> <div><u>Altimetric corrector control circuit</u></div> <div>Fiche n° 60 1/2</div> <div>XR25 aid:   *25 :   <i>co.0</i> : Open circuit or short circuit to earth                   <i>cc.1</i> : Short circuit to 12 volts</div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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<i>co.0</i>	NOTES	None
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<p>Measure the resistance of the altimetric corrector relay coil (in the engine connection unit). Replace the relay if the resistance is not approximately 85 ohms.</p> <p>Ensure the continuity and the insulation from earth of the connection between track 15 of the computer connector and terminal 2 of the corrector relay mounting.</p> <p>Ensure the presence of + after ignition feed on track 1 of the corrector relay mounting.</p> <p>Test the connections on the computer connector and the relay mounting.</p> <p>If the fault persists after these tests, replace the altimetric corrector relay.</p> <p>If the "altimetric corrector circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>
--

<i>cc.1</i>	NOTES	<p>Even if present at the moment of testing, this fault is declared by a flashing BG 5RH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode <b>G19*</b>.</p> <p>The fault is present if the bargraph flashes again.</p>
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<p>Measure the resistance of the altimetric corrector relay coil (in the engine connection unit). Replace the relay if the resistance is not approximately 85 ohms.</p> <p>Ensure the insulation from +12 volts of the connection between track 15 on the computer connector and terminal 2 on the corrector relay mounting.</p> <p>If the fault persists after these tests, replace the altimetric corrector relay.</p> <p>If the "altimetric corrector circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>
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AFTER REPAIR	<p>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</p> <p>Finish the operation by checking using the XR25.</p>
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<div>6</div> <div> <div></div> <div></div> </div>	<div>Bargraph 6 LH illuminated (<i>co.0/cc.1</i>) or flashing (<i>1.dEF</i>)</div> <div>Advance corrector circuit</div> <div>Fiche n° 60 1/2</div> <div> <div>XR25 aid:</div> <div>*06 :</div> <div> <div><i>co.0</i> :</div> <div>Open circuit or short circuit to earth</div> </div> <div> <div><i>cc.1</i> :</div> <div>Short circuit to 12 volts</div> </div> <div> <div><i>1.dEF</i> :</div> <div>Pump hydraulic control</div> </div> </div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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co.0	NOTES	None
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<p>Measure the resistance of the advance corrector at the 10 track pump connector (between tracks 2 and 7). Replace the advance corrector if the resistance is not approximately 12 ohms.</p> <p>Ensure the continuity of the connection between track 6 on the computer connector and track 7 on the pump connector.</p> <p>Ensure the presence of + after ignition feed on track 2 of the corrector connector, wiring side.</p> <p>Ensure the insulation from earth of the connection between track 6 on the computer connector and track 7 on the pump connector.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the advance corrector .</p> <p>If the "advance solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

cc.1	NOTES	None
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<p>Measure the resistance of the advance corrector at the 10 track pump connector (between tracks 2 and 7). Replace the advance corrector if the resistance is not approximately 12 ohms.</p> <p>Ensure the insulation from +12 volts of the connection between track 6 on the computer connector and track 7 on the pump connector.</p>
<p>If the fault persists after these tests, replace the advance corrector .</p> <p>If the "advance solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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<div>6</div> <div><div></div></div> <div>CONT</div>	
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1.dEF	NOTES	The fault is present if the bargraph is illuminated when the engine is running.
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This fault indicates that the advance corrector is seized, the injection pump has been incorrectly set or there is a fuel supply fault.  
It is taken into account when the advance noted by the needle lift sensor differs by more than 5° from the advance value requested by the computer.

**NOTE :** If there is a fault where the advance corrector is seized, there will be a characteristic noise when the ignition is switched on (irregular clicking of the corrector).

- Check the condition of the needle lift sensor cable and its connector.
- Check the condition of the fuel supply to the pump and the injectors (filter blocked, pipe kinked, air leak, ...).  
Check the type of diesel fuel used in extreme cold weather (a "summer " type diesel fuel may cause this fault at -15 °C).
- Check the pump timing and check the tightness of the pump pulley.

If the fuel supply, the needle lift sensor and the pump timing are correct, replace the advance corrector.

AFTER REPAIR	Erase the computer memory (G0**), switch the ignition off, then carry out a road test. Finish the operation by checking using the XR25.
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6

Bargraph 6 RH illuminated (co.0) or flashing (cc.1)

Fast idle solenoid valve circuit

Fiche n° 60 1/2

XR25 aid:

\*26 :

co.0 :

Open circuit or short circuit to earth

cc.1 :

Short circuit to 12 volts

NOTES

Use bornier Elé. 1332 for any operations on the computer connector.

co.0

NOTES

None

Measure the resistance of the fast idle solenoid valve at its connector. Replace the fast idle solenoid valve if the resistance is not approximately 45 ohms.

Ensure continuity of the connection between track 16 on the computer connector and track 1 on the fast idle solenoid valve connector.

Ensure the presence of + after ignition feed on track 2 on the fast idle solenoid valve connector, wiring side.

Ensure the insulation from earth of the connection between track 16 on the computer connector and track 1 on the fast idle solenoid valve connector.

Test the connections on the 2 connectors.

If the fault persists after these tests, replace the fast idle solenoid valve.

If the "fast idle solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).

cc.1

NOTES

Even if present at the moment of testing, this fault is still declared by a flashing BG 6RH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode G16\*.

The fault is present if the bargraph flashes again.

Measure the resistance of the fast idle solenoid valve at its connector. Replace the fast idle solenoid valve if the resistance is not approximately 45 ohms.

Ensure insulation from +12 volts of the connection between track 16 on the computer connector and track 1 on the fast idle solenoid valve connector.

If the fault persists after these tests, replace the fast idle solenoid valve.

If the "fast idle solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).

AFTER REPAIR

Erase the computer memory (G0\*\*), switch the ignition off, then carry out a road test.

Finish the operation by checking using the XR25.

<div>7</div> <div><div></div><div></div></div>	<div>Bargraph 7 RH illuminated (<i>co.0</i>) or flashing (<i>cc.1</i>)</div> <div><u>EGR solenoid valve circuit</u></div> <div>Fiche n° 60 1/2</div> <div>XR25 aid:   *27 :   <i>co.0</i> : Open circuit or short circuit to earth                               <i>cc.1</i> : Short circuit to 12 volts</div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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<i>co.0</i>	NOTES	None
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<p>Measure the resistance of the EGR solenoid valve at its connector. Replace the EGR solenoid valve if the resistance is not approximately 45 ohms.</p> <p>Ensure continuity of the connection between track 5 on the computer connector and track 1 of the EGR solenoid valve connector.</p> <p>Ensure the presence of + after ignition feed on track 2 of the EGR solenoid valve connector, wiring side.</p> <p>Ensure the insulation from earth of the connection between track 5 on the computer connector and track 1 of the EGR solenoid valve connector.</p> <p>Test the connections on the 2 connectors.</p> <p>If the fault persists after these tests, replace the EGR solenoid valve.</p> <p>If the "EGR solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>
--

<i>cc.1</i>	NOTES	Even if present at the moment of testing, this fault is still declared by a flashing BG 7RH side. To confirm its presence and the necessity of following the fault finding below, start the engine. The fault is present if the bargraph illuminates when the engine is running.
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<p>Measure the resistance of the EGR solenoid valve at its connector. Replace the EGR solenoid valve if the resistance is not approximately 45 ohms.</p> <p>Ensure insulation in relation to +12 volts of the connection between track 5 on the computer connector and track 2 of the EGR solenoid valve connector.</p> <p>If the fault persists after these tests, replace the EGR solenoid valve.</p> <p>If the "EGR solenoid valve circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>
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AFTER REPAIR	Erase the computer memory (G0**), switch the ignition off, then carry out a road test. Finish the operation by checking using the XR25.
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 LH illuminated (<i>co.0</i>) or flashing (<i>cc.1</i>)</div> <div><u>Preheating relay N° 1 control circuit</u></div> <div>Fiche n° 60 1/2</div> <div>XR25 aid:   *08 :   <i>co.0</i> : Open circuit or short circuit to earth                   <i>cc.1</i> : Short circuit to 12 volts</div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector.
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<i>co.0</i>	NOTES	None
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<p>Ensure the continuity and insulation in relation to earth of the connection between track 14 on the computer connector and track B1 on the relay unit connector.</p> <p>Ensure the presence of + after ignition feed on track A1 on the relay unit connector.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the relay unit.</p> <p>If the "preheating relay No. 1 control circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

<i>cc.1</i>	NOTES	<p>Even if present at the moment of testing, this fault is still declared by a flashing BG 8LH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode G10*1*.</p> <p>The fault is present if the bargraph flashes again.</p>
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<p>Ensure insulation in relation to 12 volts of the connection between track 14 on the computer connector and track B1 on the relay unit connector.</p> <p>Test the connections on the 2 connectors.</p>
<p>If the fault persists after these tests, replace the relay unit.</p> <p>If the "preheating relay No. 1 control circuit" fault reappears, replace the computer (consult the "Aid" section for this operation).</p>

AFTER REPAIR	<p>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</p> <p>Finish the operation by checking using the XR25.</p>
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<div>9</div> <div><div></div><div></div></div>	<div>Bargraph 9 RH illuminated (<i>co.0</i>) or flashing (<i>cc.1</i>)</div> <div>PAS pump assembly relay control circuit</div> <div>XR25 aid:   *29 :   <i>co.0</i> : Open circuit or short circuit to earth                   <i>cc.1</i> : Short circuit to 12 volts</div>	<div>Fiche</div> <div>n° 60 1/2</div>
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NOTES	Use bornier Elé. 1332 for any operations on the computer connector. If the vehicle is not fitted with air conditioning, ensure the computer is configured to "without air conditioning" (for without PAS pump assembly).
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co.0	NOTES	None
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Measure the resistance of the PAS pump assembly relay coil (in the engine connection unit). Replace the relay if its resistance is not approximately 80 ohms.  Ensure the continuity and insulation from earth of the connection between track 20 on the computer connector and terminal 2 on the pump assembly relay mounting.  Ensure the presence of + after ignition feed at terminal 1 of the pump assembly relay mounting.  Check the connections on the computer connector and the relay mounting.
If the fault persists after these tests, replace the PAS pump assembly relay. If the "PAS pump assembly relay control circuit" fault reappears, replace the injection computer (consult the "Aid" section for this operation).

cc.1	NOTES	Even if present at the moment of testing, this fault is still declared by a flashing BG 9RH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode G36*. The fault is present if the bargraph flashes again.
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Measure the resistance of the PAS pump assembly relay coil (in the engine connection unit). Replace the relay if its resistance is not approximately 80 ohms.  Ensure the insulation from + 12 Volts of the connection between track 20 of the computer connector and terminal 2 on the pump assembly relay mounting.
If the fault persists after these tests, replace the PAS pump assembly relay. If the "PAS pump assembly relay control circuit" fault reappears, replace the injection computer (consult the "Aid" section for this operation).

AFTER REPAIR	Erase the computer memory (G0**), switch the ignition off, then carry out a road test. Finish the operation by checking using the XR25.
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<div>10</div> <div><div></div><div></div></div>	<div>Bargraph 10 LH flashing</div> <div>Fiche n° 60 1/2</div> <div><u>Fault warning light circuit</u></div> <div>XR25 aid:   *10 :   cc.1 : Short circuit to 12 volts</div>
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NOTES	<div>Even if present at the moment of testing, this fault is still declared by a flashing BG 10LH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode G21*1*.</div> <div>The fault is present if the bargraph flashes again.</div> <div>Use bornier Elé. 1332 for any operations on the computer connector.</div>
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cc.1	NOTES	None
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<div>Ensure insulation in relation to 12 volts of the connection between track 18 of the computer connector and the instrument panel warning light (track 6 on connector MA).</div> <div>Test at the warning light bulb (bulb in short circuit).</div>
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AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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<div>10</div> <div> <div></div> <div></div> </div>	<div>Bargraph 10 RH illuminated (Co.0) or flashing (cc.1)</div> <div><u>Preheating warning light circuit</u></div> <div style="text-align: right;">Fiche n° 60 1/2</div> <div>           XR25 aid:   *30 :   cc.0 : Open circuit or short circuit to earth                              cc.1 : Short circuit to 12 volts         </div>
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<b>NOTES</b>	Use bornier Elé. 1332 for any operations on the computer connector.
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<b>co.0</b>	<b>NOTES</b>	None
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<p>Check the condition of the preheating warning light bulb then the presence of +after ignition feed at the warning light.</p> <p>Ensure the continuity and insulation in relation to earth of the connection between track 9 of the computer connector and the instrument panel preheating warning light (track 5 on CY connector).</p> <p>Test the connections on the computer connector.</p>
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<b>cc.1</b>	<b>NOTES</b>	<p>Even if present at the moment of testing, this fault is still declared by a flashing BG 10RH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start command mode G21*2*.</p> <p>The fault is present if the bargraph flashes again.</p>
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<p>Ensure insulation in relation to 12 volts of the connection between track 9 of the computer connector and the instrument panel preheating warning light (track 5 on connector CY).</p> <p>Test at the preheating warning light bulb (bulb in short circuit).</p>
---

<b>AFTER REPAIR</b>	<p>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</p> <p>Finish the operation by checking using the XR25.</p>
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<div>12</div> <div><div></div><div></div></div>	<div>Bargraph 12 RH illuminated</div> <div>Fiche n° 60 1/2</div> <div><u>Full load or no load not programmed</u></div>
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NOTES	None
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<p>Programme the full load position of the accelerator pedal using command <b>G31*</b> (do not adjust the load lever directly).</p> <p>Enter code <b>G31*</b> on the XR25 (engine speed zero).</p> <ul style="list-style-type: none"><li>- Press the accelerator pedal when the display flashes "PF". The display then shows "<b>bon</b>", "<b>Fin</b>" then "<b>6/7.dIE</b>" when the procedure has been completed correctly. Bargraph 12 RH side must be extinguished.</li><li>- Switch off the ignition.</li></ul>
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AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH flashing (<i>cc.1</i>)</div> <div>Fiche n° 60 1/2</div> <div><u>Air conditioning cut out information circuit</u></div> <div>XR25 aid:   *13 :   <i>cc.1</i> : Short circuit to 12 volts</div>
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NOTES	None
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cc.1	NOTES	Even if present at the moment of testing, this fault is still declared by a flashing BG 13LH side. To confirm its presence and the necessity of following the fault finding below, erase the computer memory then start the engine. The fault is present if the bargraph flashes when the engine is running.
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Ensure insulation in relation to 12 volts of the connection between track 19 on the computer connector and track 18 on the air conditioning computer CY connector.

Test the connections on the 2 connectors (+ intermediate connection engine / dashboard).

If the fault persists after these tests, replace the air conditioning control module.

If the "air conditioning cut out information" fault reappears, replace the diesel injection computer (consult the "Aid" section for this operation).

AFTER REPAIR	Erase the computer memory (G0**), switch the ignition off, then carry out a road test. Finish the operation by checking using the XR25.
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<div>2</div> <div><div><div></div></div><div><div></div></div></div> <div>3</div> <div><div></div><div><div></div></div></div>	<div>Bargraphs 2 RH and LH sides and bargraph 3 RH side</div> <div><u>Solenoid valve control</u></div> <div>Fiche n° 60 2/2</div>
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NOTES	None
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These bargraphs visualise the control of the various solenoid valves:

- Advance solenoid valve (bargraph 2 LH side is always illuminated).
- Fast idle solenoid valve .
- EGR solenoid valve.

<div>4</div> <div><div><div></div></div><div></div></div>	<div>Bargraph 4 LH side</div> <div>Fiche n° 60 2/2</div> <div><u>Erase stored faults</u></div> <div>XR25 aid : BG 4LH is illuminated if command mode G0** to erase the memory has been used since the last XR25 dialogue began.</div>
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NOTES	None
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<div>4</div> <div><div></div><div><div></div></div></div>	<div>Bargraph 4 RH side</div> <div>Fiche n° 60 2/2</div> <div><u>Preheating prevented</u></div> <div>XR25 aid : BG 4RH is illuminated if command mode G59*1* to prevent control of the heater plugs has been used since the last XR25 dialogue began.</div>
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NOTES	None
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AFTER REPAIR	Ensure the bargraphs operate correctly
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<div>5</div> <div> <div></div> <div></div> </div> <div>6</div> <div> <div></div> <div></div> </div>	<div>Bargraphs 5 and 6 RH and LH sides</div> <div>Fiche n° 60 2/2</div> <div>Relay control</div>
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NOTES	None
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<div>These bargraphs visualise the control of the various relays:</div> <div> <div>- Preheating relay N° 1.</div> <div>- Preheating relay N° 2 (not used).</div> <div>- Power assisted steering pump assembly relay (for AC + PAS).</div> <div>- Altimetric corrector relay.</div> </div>
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<div>9</div> <div> <div></div> <div></div> </div>	<div>Bargraphs 9 RH and 9 LH side</div> <div>Fiche n° 60 2/2</div> <div>Air conditioning</div> <div>XR25 aid : BG 9LH illuminated if AC requested</div> <div>BG 9RH illuminated if AC authorised</div>
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NOTES	If BG 9LH is extinguished when AC is requested, ensure the continuity and insulation of the connection between track 11 of the diesel computer connector and track 20 of the AC computer CY connector.
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<div>10</div> <div> <div></div> <div></div> </div>	<div>Bargraph 10 LH side</div> <div>Fiche n° 60 2/2</div> <div>Warning light control</div> <div>XR25 aid : BG 10LH is illuminated if the warning light on the instrument panel is controlled. This bargraph is normally illuminated; it extinguishes when the engine is running if there is no fault.</div>
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NOTES	None
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AFTER REPAIR	Ensure the bargraphs operate correctly
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<div>10</div> <div> <div></div> <div></div> </div>	<div>Bargraph 10 RH side</div> <div>Fiche n° 60 2/2</div> <div><u>Preheating warning light control</u></div> <div>XR25 aid : BG 10RH illuminated during the preheating phase</div>
NOTES	None

<div>11</div> <div> <div></div> <div></div> </div>	<div>Bargraph 11 LH side</div> <div>Fiche n° 60 2/2</div> <div><u>Load information output</u></div> <div>XR25 aid : This bargraph allows visualisation of the emission of the load lever position information (this information is not used for this application). It is permanently illuminated.</div>
NOTES	None

<div>11</div> <div> <div></div> <div></div> </div>	<div>Bargraph 11 RH side</div> <div>Fiche n° 60 2/2</div> <div><u>Engine speed information output</u></div> <div>XR25 aid : This bargraph allows visualisation of the emission of engine speed information. It is permanently illuminated.</div>
NOTES	None

AFTER REPAIR	Ensure the bargraphs operate correctly
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<div>18</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Bargraphs 18 and 19 RH and LH</div> <div><u>Computer configuration for with and without air conditioning/ with and without power assisted steering pump assembly</u></div>
NOTES	<div>Vehicles fitted with power assisted steering but without air conditioning must be configured to "without PAS".</div>

These bargraphs show the computer configuration for the air conditioning and pump assembly power assisted steering options.

Computers sold by the Parts Department are systematically configured for vehicles with air conditioning and with the PAS pump assembly.


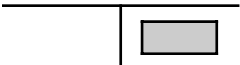



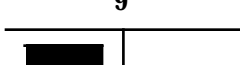
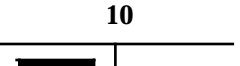
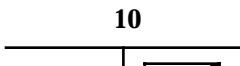
If the vehicle does not have air conditioning, use the command mode **G50\*4\*** to reverse the computer configuration (the opposite command exists for configuring to "with AC": **G50\*3\***).

If the vehicle is not fitted with a PAS pump assembly (vehicle without air conditioning), use command mode **G50\*9\*** to reverse the computer configuration (the opposite command exists for configuring to "with PAS": **G50\*8\***).

**NOTE :** Vehicles fitted with power assisted steering but without air conditioning must be configured to "without PAS".

AFTER REPAIR	<div>Erase the computer memory (G0**), switch the ignition off, then carry out a road test.</div> <div>Finish the operation by checking using the XR25.</div>
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NOTES	Engine cold, ignition on
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Order of operations	Function to check	Action	Bargraph	Display and notes
1	Dialogue with XR25	D34 (selector on S8)		<div>6. dIE</div> <div>Use fiche n° 60 fault test side</div>
2	Interpretation of normally illuminated bargraphs		<div>1</div> <div></div> <div>1</div> <div></div>	<div>Fault test</div> <div>Code present</div>
3	Change to status test mode	G01*		<div>7. dIE</div> <div>Use fiche n° 60 status test side</div>
4	Interpretation of normally illuminated bargraphs		<div>1</div> <div></div> <div>2</div> <div></div> <div>4</div> <div></div> <div>9</div> <div></div> <div>10</div> <div></div> <div>10</div> <div></div>	<div>Code present</div> <div>Advance corrector fed</div> <div>Illuminated if command mode G0** has been used since dialogue was started</div> <div>Illuminated if AC requested</div> <div>Fault warning light fed</div> <div>Illuminated in preheating phase</div>

NOTES	Engine cold, ignition on
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Order of operations	Function to check	Action	Bargraph	Display and notes
4 <i>(cont)</i>	Interpretation of normally illuminated bargraphs <i>(cont)</i>		<div>11</div> <div> <div></div> <div></div> </div>	Injection computer may give load lever position to other computers (not used)
			<div>11</div> <div> <div></div> <div></div> </div>	Injection computer may give engine speed information to other computers
5	Computer configuration		<div>18</div> <div> <div></div> <div></div> </div>	With AC
	with AC	G50*3*	<div>19</div> <div> <div></div> <div></div> </div>	With PAS with pump
	without AC	G50*4*	<div>18</div> <div> <div></div> <div></div> </div>	Without AC
		G50*9*	<div>19</div> <div> <div></div> <div></div> </div>	With conventional PAS
6	Absolute pressure sensor	# 16		X = local atmospheric pressure
7	Coolant temperature sensor	# 02		X = Ambient temperature ± 5 °C
8	Air temperature sensor	# 03		X = Ambient temperature ± 5 °C
9	EGR solenoid valve	# 24		X = 0

NOTES	Engine warm at idle speed after at least one operation of the engine cooling fan assembly (air conditioning not selected).
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Order of operations	Function to check	Action	Bargraph	Display and notes
1	Change to status test	G01*		<div>7. dIE</div> <div>Use fiche n° 60 status test side</div>
2	No faults		<div>20</div> <div><div></div><div></div></div>	Ensure this bargraph is not flashing, otherwise enter <b>G02*</b> and turn the fiche over. Repair the faulty component then erase the memory ( <b>G0**</b> ) and return to status testing ( <b>G01*</b> )
3	Battery voltage	# 04		13 volts < X < 14.5 volts

NOTES	Engine warm at idle speed after at least one operation of the engine cooling fan assembly (air conditioning not selected).
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Order of operations	Function to check	Action	Bargraph	Display and notes
4	Interpretation of normally illuminated bargraphs	-	<div>1</div> <div> <div></div> <div></div> </div>	Code present
			<div>2</div> <div> <div></div> <div></div> </div>	Advance corrector fed
			<div>2</div> <div> <div></div> <div></div> </div>	Illuminated if fast idle solenoid valve is fed
			<div>3</div> <div> <div></div> <div></div> </div>	Illuminated for 40 seconds at idle speed after starting phase
			<div>4</div> <div> <div></div> <div></div> </div>	Illuminated if command mode <b>G0**</b> has been used since the last dialogue took place
			<div>5</div> <div> <div></div> <div></div> </div>	Illuminated for post heating
			<div>6</div> <div> <div></div> <div></div> </div>	Illuminated if altimetric corrector is fed
			<div>6</div> <div> <div></div> <div></div> </div>	Illuminated if vehicle has a PAS pump assembly (AC version only)
			<div>9</div> <div> <div></div> <div></div> </div>	Illuminated if AC requested
			<div>9</div> <div> <div></div> <div></div> </div>	Illuminated if computer authorises operation of AC compressor

NOTES	Engine warm at idle speed after at least one operation of the engine cooling fan assembly (air conditioning not selected).
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Order of operations	Function to check	Action	Bargraph	Display and notes
4 (cont)	Interpretation of normally illuminated bargraphs (cont)	-	<div>11</div> <div> <div></div> <div></div> </div>	Injection computer may give load lever position to other computers (not used)
			<div>11</div> <div> <div></div> <div></div> </div>	Injection computer may give engine speed information to other computers
5	EGR solenoid valve	After starting phase for 40 seconds  # 24	<div>3</div> <div> <div></div> <div></div> </div>	EGR solenoid valve fed  X = 0
		After 40 seconds  # 24	<div>3</div> <div> <div></div> <div></div> </div>	X = 0
6	Computer configuration			
	with AC	G50*3*	<div>18</div> <div> <div></div> <div></div> </div>	With AC
		G50*8*	<div>19</div> <div> <div></div> <div></div> </div>	With PAS with pump
	without AC	G50*4*	<div>18</div> <div> <div></div> <div></div> </div>	Without AC
		G50*9*	<div>19</div> <div> <div></div> <div></div> </div>	With conventional PAS

## REPLACING THE COMPUTER

A) On these computers it is necessary to programme the load lever full load position (this value is required to replace and adjust the load lever position potentiometer).

### Programming procedure:

- Enter code **G31\*** on the XR25 (engine speed zero)
- Press the accelerator pedal until the display flashes "**PF**".  
The display then shows "**bon**", "**Fin**" then "**6/7.dIE**" when the procedure has been carried out correctly.  
Bargraph **12 RH side** must be extinguished.
- Switch off the ignition.

B) Lucas digital DPC injection computers are sold pre-configured to "with air conditioning".  
If the vehicle does not have air conditioning, use command **G50\*4\*** on the XR25 to programme "without air conditioning".

Lucas digital DPC injection computers are sold pre-configured to "with power assisted steering" (with power assisted steering pump assembly).

If the vehicle does not have a power assisted steering pump assembly (vehicle without air conditioning), use command **G50\*9\*** on the XR25 to programme "without power assisted steering".

Vehicles fitted with power assisted steering but without air conditioning must be configured to "without power assisted steering".

## REPLACING THE LOAD LEVER POSITION POTENTIOMETER

The load lever position potentiometer may only be replaced in After Sales if the full load position has been programmed into the computer before the fault with the potentiometer.

### Procedure for replacing and adjusting the load lever position potentiometer:

- Fit the new potentiometer into position without locking the mounting bolts.
- Connect the potentiometer and set up the XR25 (**S8** code **D34**).
- Start command **G32\*** on the XR25, keep the accelerator pedal fully depressed (do not touch the load lever directly) and turn the potentiometer until the display on the XR25 shows a value other than **H.L** (outside limits). Adjust the setting by turning the potentiometer to obtain 0.000 on the display (adjustment correct if value < 0.040).
- Tighten the mounting bolts with the potentiometer in this position then press \* to complete the adjustment procedure.



NOTES	Only consult these customer complaints after a complete check using the XR25.
-------	---

No dialogue from the computer to the XR25.	Chart 1
Idle speed too high (approximately 900 ± 50 rpm when air conditioning compressor is not operating)	Chart 2
No fast idle when air conditioning compressor is operating	Chart 3
Starting fault (engine will not start or is difficult to start).	Chart 4
Warning light illuminates with no fault shown by the XR25.	Chart 5
Vehicle produces black smoke at altitude	Chart 6
No engine speed information at instrument panel	Chart 7
Air conditioning compressor does not engage	Chart 8

# LUCAS DIESEL INJECTION

## Fault finding - Fault charts

**13****Chart 1****NO DIALOGUE FROM THE COMPUTER TO THE XR25.****NOTES**

Use bornier Elé. 1332 for any operations on the computer connector.

Ensure that the XR25 is not the cause of the fault by trying to communicate with the computer on another vehicle. If the XR25 is not the cause of the fault and dialogue is not established with another computer on the same vehicle, a faulty computer may be causing interference on the K and L fault finding lines. Disconnect connections successively to determine which computer is at fault.

Check the ISO selector is on position S8, that you are using the latest XR25 cassette and the correct access code (D34).

Check the battery voltage and carry out any necessary operations to ensure the correct voltage (U battery > 10.5 volts).

Check the two 15 Amp fuses on the engine connection unit have not blown.

Check the connection and condition of the connections on the computer connector and the intermediate connections R107 dashboard / front of engine and R67 front / engine.

Check the computer is correctly fed:

- Earth on track 2 of the computer connector (check the condition and tightness of the engine earth strap and the engine earth MH near to the gearbox housing).
- + after ignition feed on track 1 of the computer connector.

Check the diagnostic socket is correctly fed:

- Earth on track 5.
- + before ignition feed on track 16.

Check and ensure the continuity and insulation of the lines in the connection diagnostic socket/ computer:

- Between track 10 of the computer connector and track 15 of the diagnostic socket.
- Between track 13 of the computer connector and track 7 of the diagnostic socket.

If fault finding is not established after these operations, replace the computer (consult the "Aid" section for this operation).

**AFTER REPAIR**

Carry out a road test then check using the XR25.  
Deal with any illuminated fault bargraphs.

Chart 2	IDLE SPEED TOO HIGH WHEN AIR CONDITIONING NOT OPERATING (approximately 950 rpm)
---------	--

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

<p>This fault may be connected to fast idle operation.</p> <p>Check the sealing of the pneumatic circuit for the fast idle control (LDA and solenoid valve).</p> <p>Look for a short circuit to + 12 volts of the connection between track 11 on the injection computer and track 20 on the CY connector for the air conditioning computer ("AC Inj. / fast idle" information).</p>
---

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--

Chart 3	NO FAST IDLE WHEN AIR CONDITIONING COMPRESSOR IS OPERATING
---------	--

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

<p>Look for an open circuit or a short circuit to earth on the connection between track <b>11</b> on the injection computer and track <b>20</b> on the CY connector for the air conditioning computer ("AC Inj. / fast idle" information).</p> <p>This fault causes the absence of illumination of bargraph <b>9 LH side</b> "air conditioning requested".</p>
--

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--

# LUCAS DIESEL INJECTION

## Fault finding - Fault charts

<b>Chart 4</b>	<b>Starting fault without illumination of the warning light (engine will not start or is difficult to start)</b>
----------------	--

<b>NOTES</b>	Only consult this customer complaint after a complete check using the XR25.
--------------	---

If no fault is shown by the XR25, ensure that the fault is not caused by a faulty immobiliser system.

Check the operation of the preheating system:

Start command mode **G10\*1\*** and check for a voltage at the plugs.

If the plugs are not fed, check the connection of the 3 track connector on the relay unit and the condition of the 70 Amp fuse on the engine connection unit.

If the fault persists, check the fuel supply circuits (for the pump and the injectors).

If necessary, carry out a complete check of the engine (starter drive speed, pump timing, condition of injectors, rocker arm clearances, compression, .....).

<b>AFTER REPAIR</b>	Carry out a road test then check using the XR25.
---------------------	--

Chart 5	WARNING LIGHT ILLUMINATES WITH NO FAULT SHOWN BY THE XR25.
---------	--

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

If no fault is shown by the XR25, look for a short circuit to earth of the heater plug feed wiring or a plug short circuit fault.

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--

Chart 6	VEHICLE PRODUCES BLACK SMOKE AT ALTITUDE
---------	--

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

<p>Measure the resistance of the altimetric corrector at the 10 track pump connector (between tracks 1 and 6). Replace the altimetric corrector if the resistance is not approximately <b>15 ohms</b>.</p> <p>Ensure the continuity of the connection between track 1 on the pump connector, wiring side, and track 5 on the altimetric connector control relay mounting in the engine connection unit.</p> <p>Ensure the presence of earth on track 6 of the pump connector, wiring side.</p>
--

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--

Chart 7	NO ENGINE SPEED INFORMATION ON INSTRUMENT PANEL
---------	---

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

Ensure the continuity and insulation of the connection between track **21** on the diesel injection computer connector and track **7** on the black instrument panel connector (engine speed information).

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--



Chart 8	AIR CONDITIONING COMPRESSOR DOES NOT OPERATE
---------	--

NOTES	Only consult this customer complaint after a complete check using the XR25.
-------	---

Ensure the continuity and insulation of the connection between track **19** of the diesel injection computer connector and track **18** of the air conditioning CY computer connector (AC prevention connection).

AFTER REPAIR	Carry out a road test then check using the XR25.
--------------	--

# E7J 780 / K7M 744 ENGINES

## FAULT FINDING MULTIPOINT INJECTION

### CONTENTS

	Page
Introduction .....	01
XR25 fiche .....	06
Interpretation of XR25 bargraphs .....	09
Status and parameter check .....	30
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## SETTING UP DIALOGUE BETWEEN THE XR25 AND THE COMPUTER

- Connect the test kit to the diagnostic socket.
- Put the selector on **S8**
- Switch on the ignition.
- Enter **D13**

9.NJ

## COMPUTER IDENTIFICATION

The computer is not identified by reading a fault code but by reading the Part Number directly from the computer. After having set up a dialogue with the computer:

ENTER     **G70\***

7700

XXX

XXX

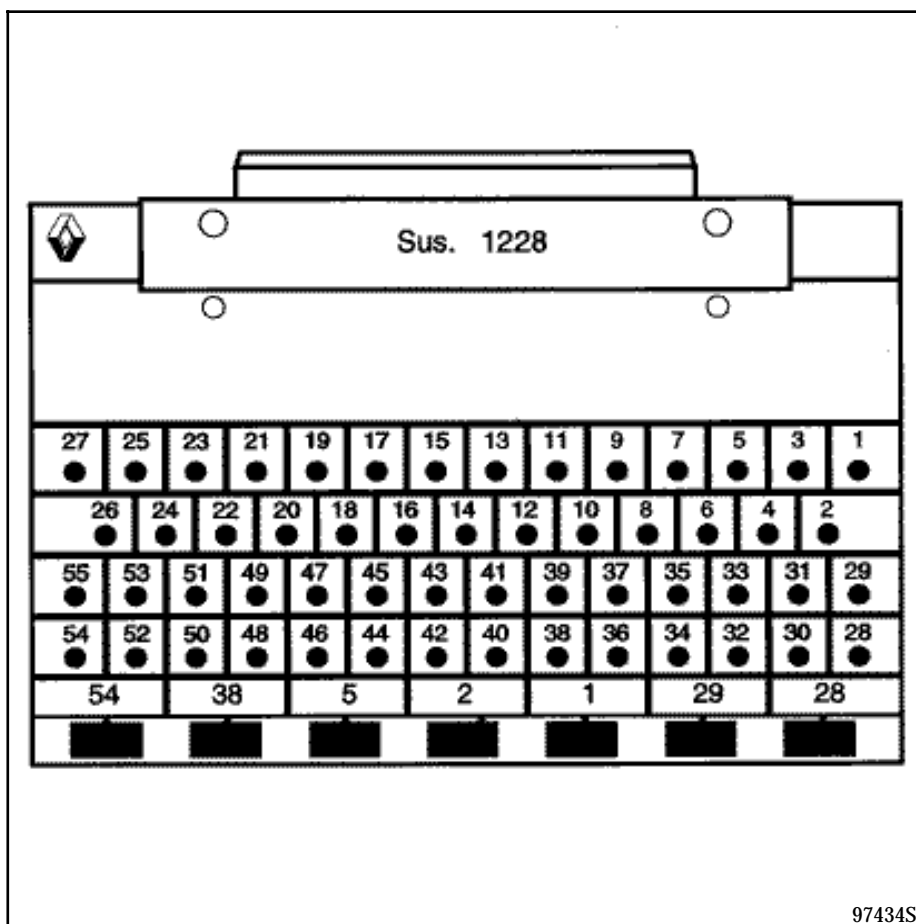
The Part Number will then appear on the central display in three sequences.

Each sequence is displayed for approximately two seconds. The display is repeated twice .

## ERASING THE MEMORY (ignition on)

After an operation on the injection system the computer's memory can be erased by using the code G0\*\*.

If the information obtained by the XR25 requires electrical continuities to be checked, connect bornier **Sus. 1228**.



Bornier **Sus. 1228** is a 55 track base with a printed circuit on which are 55 copper coated surfaces, numbered from 1 to 55.

Using the wiring diagrams, the tracks connecting the components to be tested can be easily identified.

**IMPORTANT :**

- All tests using bornier **Sus. 1228** must be carried out with the battery disconnected.
- The bornier is only designed to operate with an ohmmeter. Under no circumstances should 12 Volts be applied to the test points.

## DESCRIPTION OF THE FAULT-FINDING PHASES

The process described below is to be carried out in all cases of faults.

**XR25 FAULT-CHECKING**

This phase is the essential starting point for any intervention on the vehicle.

There are several constraints to the treatment of the bargraphs :

- A priority in the order of treatment when several bargraphs are illuminated.
- The interpretation of a bargraph depending on whether it is constantly illuminated or flashing .

Faults must be checked using the XR25 as described below:

- Switch off the ignition.
- Switch on the ignition and deal with any faults.
- Run the engine (or run at starter speed for 10 seconds) and deal with any faults.
- Carry out a road test and deal with any faults.

**1 - Order of priority**

A series of illuminated bargraphs corresponding to the sensors with the same 12 V or having the same earth, indicates a fault in this source. These priorities are dealt with in the "NOTES" section of the fault-finding of the bargraph concerned.

**2 - Input / output fault bargraphs****a) Illuminated :**

The fault is present : treat the fault following the method described in the "INTERPRETATION OF XR25 BARGRAPHS" section.

**b) Flashing :**

Note the bargraphs displayed on the XR25.

Erase the memory of the computer and attempt to re-illuminate the bargraph: ignition on, idle speed (or at starter speed) or by means of a road test (the "NOTES" section in the fault finding for the bargraph concerned may help to determine the conditions under which the bargraph will illuminate).

*If the bargraph has re-illuminated (fixed or flashing) :*

The fault is present once again. In this case, treat the fault bargraph.

*If the bargraph has not re-illuminated, check :*

- the electrical lines which correspond to the flashing fault,
- the connectors of these lines (for rust, bent pins...).
- the resistance of the component found to be faulty.
- the cleanliness of the wires (insulation melted or cut, friction..).

**NOTE :** If the customer complaint does not correspond to the fault bargraph which is flashing (example : Air temperature sensor fault bargraph flashing, but no customer complaint) ignore this memorised fault and erase it.

### **3 - No bargraphs illuminated**

If no bargraphs are illuminated on the XR25, carry out a status and parameter check. This may help in detecting a problem.

#### **XR25 CHECKING STATUSES AND PARAMETERS**

The status and parameter check is aimed at checking the statuses and parameters which do not illuminate any fault bargraphs if they are outside of permitted tolerance values. This phase allows :

- Faults to be found without the illumination of fault bargraphs which may correspond to a customer complaint (example : absence of no load information causing an unstable idle speed).
- The correct operation of the injection to be checked and the risk of faults appearing shortly after the repair to be eliminated.

This section contains fault-finding for statuses and parameters, under their test conditions (example : fault finding for # 01 ignition on and fault finding for # 01 engine running).

If a status does not operate normally or a parameter is outside of permitted tolerance values, consult the fault-finding page indicated in the "Fault-finding" column.

#### **XR25 CHECK CORRECT**

If the XR25 check is correct, but the customer complaint persists, the problem must be dealt with through customer complaints.

#### **Treatment of customer complaints**

This section has fault charts, which suggest a series of possible causes of the problem.

These lines of enquiry must only be used in the following cases :

- No fault bargraph appears on the XR25.
- No faults are detected during the checking of statuses and parameters.
- The vehicle is not operating correctly

#### **POST-REPAIR CHECK**

This operation is a simple check of the repair (by a command, or by an XR25 command mode ...).

This makes it possible to check that the system upon which the intervention has been carried out is correct electrically.

It is an introduction to the road test.

### ROAD TEST

A road test is essential in order to guarantee the correct operation of the vehicle and to test the quality of the repair. Its role is to make sure that no faults occur (or will occur) when driving.

In order to be significant, the road test is subject to special driving conditions.

#### Driving conditions for programming the adaptive variables:

During the road test, the engine speed must be stabilised for a few moments between:

260 < # 01 < 390 mbars	}	E7J 780 engine
then 390 < # 01 < 510 mbars		
then 510 < # 01 < 620 mbars		
then 620 < # 01 < 740 mbars		
then 740 < # 01 < 870 mbars		

250 < # 01 < 390 mbars	}	K7M 744 engine
then 390 < # 01 < 500 mbars		
then 500 < # 01 < 620 mbars		
then 620 < # 01 < 730 mbars		
then 730 < # 01 < 930 mbars		

Do not exceed an engine speed of 4800 rpm for the E7J 780 engine and 4000 rpm for the K7M 744 engine. The engine must be warm (coolant temperature > 75 °C).

For this test, start from a fairly low engine speed, in 3rd or 4th gear, and apply progressive acceleration to stabilise at the pressure required for 10 seconds in each zone.

The test must then be continued by driving normally, in a varied manner for 3 to 6 miles (5 to 10 km).

INJECTION  
Fault finding - XR25 fiche

17

PRESENTATION OF XR25 FICHE N° 27 SIDE 1/2

N°27 1/2		S8 code : D 1 3		read : 9nJ	
1	<input type="checkbox"/> ILLUMINATED → <input type="checkbox"/> EXTINGUISHED →	FAULT TEST TURN CARD		CODE PRESENT <input type="checkbox"/>	
2	<input type="checkbox"/>	COMPUTER		ENG. IMMOB. * 22 <input type="checkbox"/>	
3	<input type="checkbox"/>	AIR TEMPERATURE		O2 SENSOR * 23 <input type="checkbox"/>	
4	<input type="checkbox"/>	COOLANT TEMP.		VEHICLE SPEED <input type="checkbox"/>	
5	<input type="checkbox"/>	PRESSURE		FLYWHEEL SIGNAL * 25 <input type="checkbox"/>	
6	<input type="checkbox"/> * 06 PINKING	SENSOR CIRCUITS		THROTTLE POSITION <input type="checkbox"/>	
7	<input type="checkbox"/>	CAMSHAFT		FUEL TANK PRESSURE <input type="checkbox"/>	
8	<input type="checkbox"/> * 08 FUEL PUMP	RELAY CTRL CIRC.		BLOCKING * 28 <input type="checkbox"/>	
9	<input type="checkbox"/> * 09 ANTI-PERCOLATION			AIR PUMP * 29 <input type="checkbox"/>	
10	<input type="checkbox"/> * 10 O2 SENSOR OVERHEAT			BI MODE * 30 <input type="checkbox"/>	
<b>INJECTION (FAULTS)</b> Erase fault memory : G 0 ** Status check request : G01 *				<b>ADDITIONAL CHECKS : # . .</b>	
				01 PRESSURE mb 02 Coolant temp. °C 03 Air temp. °C 04 Computer feed V 05 O2 sensor V 06 Engine speed rpm 12 Idling RCO % 13 Pinking signal 14 Engine speed gap rpm 15 Pinking correct. 16 Atmos. pressure mb 17 Throttle pot. 18 Vehicle speed km/h 21 Auto. correct. of RCO idling speed % 23 Canister purge RCO % 24 RCO EGR % 30 Auto. correct. of rich. under high loads 31 Auto. correct. of rich. under low loads 35 Richness corr. 44 P. absorbed by AC compressor W	
11	<input type="checkbox"/> * 11 INJECTOR CIRCUIT	CONNECTION A.T. → INJ <input type="checkbox"/>		End of test: G 13 *	
12	<input type="checkbox"/> * 12 WARN. LAMP CIRC. DEF.	FUEL PUMP + INFO <input type="checkbox"/>		Part No : G 70 *	
13	<input type="checkbox"/> SAVE DATA IN MEMORY	ADAC * 33 <input type="checkbox"/>		Diagnosed faults : Press V and 9 Return to diagnostic mode : D	
14	<input type="checkbox"/> * 14 IDLE SPEED REG CIRC.	BLEED CANISTER CIRC. * 34 <input type="checkbox"/>		17 ANG	
15	<input type="checkbox"/> * 15 CONNECTION INJ. → AC	EGR CIRCUIT * 35 <input type="checkbox"/>			
16	<input type="checkbox"/> * 16 IGNITION COILS	COLD START INJECTORS * 36 <input type="checkbox"/>			
17	<input type="checkbox"/> * 17 MIL WARN. LIGHT				
18					
19					
20	<input type="checkbox"/> * 20 COMPUTER CONFIGURATION	XR25 MEMORY 0 <input type="checkbox"/>			

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JF5121.0



# INJECTION

## Fault finding - XR25 fiche


17

PRESENTATION OF XR25 FICHE N° 27 SIDE 2/2


N°27 2/2		read : 10 J																																																												
1	<div> <div>EXTINGUISHED</div> <div>ILLUMINATED</div> </div> <div> <div>STATUS TEST</div> <div>TURN CARD</div> </div>	CODE PRESENT <input checked="" type="checkbox"/>																																																												
2	<div>PG</div> <div>THROTTLE POSITIONS</div> <div>PL</div>	CONTROL MODES : G.. (IF ENGINE STOPPED)																																																												
3	<div>FLYWHEEL SIGNAL</div> <div>ACTIVE ENG. IMMOB.</div>	10* Fuel pump relay																																																												
4	<div>PARK/NEUTRAL POSITION</div> <div>+ APC COMPUTER</div>	11* Blocking relay																																																												
5	<div>TORQUE ADJUSTMENT</div> <div>RELAY CONTROL LOCKING</div>	12* AC compressor																																																												
6	<div>RICHNESS REGULATION</div> <div>IDLING REGULATION</div>	14* Idle speed reg. valve																																																												
7	<div>FUEL PUMP CONTROL</div> <div>BLEED CANISTER AUTHOR.</div>	16* Bleed canister valve																																																												
8	<div>ANTI-PERCOL. CTRL</div> <div>ELEC. W/SCREEN REQUESTED</div>	17* Anti percolation relay																																																												
9	<div>SELECTION</div> <div>ACCEL. IDLE SPEED</div>	21*1* Warn. light def.																																																												
10	<div>REQUEST</div> <div>AIR COND.</div> <div>COMPRESSION AUTHOR. OR PROHIBITED</div>	22* Air pump relay																																																												
(WARNING : monitor bar graph 20 left)		23* EGR valve																																																												
<h3>INJECTION (STATUS)</h3> <p>Erase fault memory : G 0 ** Request fault test : G 02 *</p>		24* Bi-mode inlet valve																																																												
11	<div>CAMSHAFT SIGNAL</div> <div>BLEED CANISTER + ACTIVE SOL VALVES</div>	31* Injector control																																																												
12	<div>EGR SV CONTROL</div> <div>MEMORISED FAULTS</div>	50*x* Computer set-up																																																												
13	<div>AIR PUMP CONTROL</div> <div>POWER STEERING PRESSOSTAT</div>	57*x* Idle speed adj.																																																												
14	<div>BI-MODE INLET CTRL</div> <div>COLD START INJECTORS</div>	58*x* Computer configuration																																																												
15	<div>SPEED SENSOR well connected</div>	59*x* INJ Lock/Unlock																																																												
16		60* Zeroing validation																																																												
17																																																														
18																																																														
19	<div>Veh. with AT</div> <div>COMPUTER CONFIGURATION</div> <div>Veh. with man. g/box</div>	<div>See procedure on REMINDER CARD C</div>																																																												
20	<div>FAULT PRESENT</div> <div>XR25 MEMORY</div>	<h3>ADDITIONAL CHECKS : # . .</h3> <table border="0"> <tr><td>01</td><td>Pressure</td><td>mb</td></tr> <tr><td>02</td><td>Coolant temp.</td><td>*C</td></tr> <tr><td>03</td><td>Air temp.</td><td>*C</td></tr> <tr><td>04</td><td>Computer feed</td><td>V</td></tr> <tr><td>05</td><td>O2 Sensor</td><td>V</td></tr> <tr><td>06</td><td>Engine speed</td><td>rpm</td></tr> <tr><td>12</td><td>Idling RCD</td><td>%</td></tr> <tr><td>13</td><td>Pinking signal</td><td></td></tr> <tr><td>14</td><td>Eng. speed gap</td><td>rpm</td></tr> <tr><td>15</td><td>Pinking correct.</td><td>d°</td></tr> <tr><td>16</td><td>Atmos. pressure</td><td>mb</td></tr> <tr><td>17</td><td>Throttle pot.</td><td></td></tr> <tr><td>18</td><td>Vehicle speed</td><td>km/h</td></tr> <tr><td>21</td><td>Auto. corr. RCD idle speed</td><td>%</td></tr> <tr><td>23</td><td>RCD bleed canister</td><td>%</td></tr> <tr><td>24</td><td>RCD EGR</td><td>%</td></tr> <tr><td>30</td><td>Auto. correct. rich. under high load</td><td></td></tr> <tr><td>31</td><td>Auto. corr. of richness</td><td></td></tr> <tr><td>35</td><td>Mixture regulation</td><td></td></tr> <tr><td>44</td><td>P. absorbed by AC compressor</td><td>W</td></tr> </table>	01	Pressure	mb	02	Coolant temp.	*C	03	Air temp.	*C	04	Computer feed	V	05	O2 Sensor	V	06	Engine speed	rpm	12	Idling RCD	%	13	Pinking signal		14	Eng. speed gap	rpm	15	Pinking correct.	d°	16	Atmos. pressure	mb	17	Throttle pot.		18	Vehicle speed	km/h	21	Auto. corr. RCD idle speed	%	23	RCD bleed canister	%	24	RCD EGR	%	30	Auto. correct. rich. under high load		31	Auto. corr. of richness		35	Mixture regulation		44	P. absorbed by AC compressor	W
01	Pressure	mb																																																												
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		17 ANG																																																												

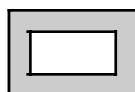
FI21727-2

### REPRESENTATION OF THE BARGRAPHS

-  Illuminates when a dialogue has been established with the product computer. If it remains extinguished:
- the code does not exist,
  - there is a fault in the tool, the computer or the line

### REPRESENTATION OF THE FAULTS (always on a coloured background)

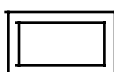



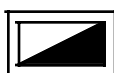
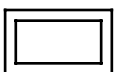

-  If illuminated, indicates a fault on the tested product, the associated text defines the fault.  
If flashing, there is a fault memorised for the product tested, the associated text defines the fault.

-  If extinguished, indicates that the fault has not been found on the tested product.



### REPRESENTATION OF THE STATUSES (always on a white background)

#### Engine off, ignition on, no operator action

The status bargraphs on the fiche are represented as the status 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 as  the test kit should give as information 
  - If on the fiche the bargraph is represented as  the test kit should give as information 
  - If on the fiche the bargraph is represented as  the test kit should give as information
- either  or 

#### Engine running

-  Extinguishes when the function or condition given on the fiche is no longer performed.
-  Illuminates when the function or condition given on the fiche is performed

Fiche n° 27 is a generic fiche used for several engines.

The different engines do not use all the bargraphs. To find out the bargraphs dealt with by the injection computer, after having set up a dialogue with the computer, press the V and 9 buttons simultaneously.

The bargraphs dealt with will:

- illuminate permanently for non memorisable fault bargraphs or status bargraphs,
- flash for memorisable fault bargraphs.

To return to fault finding mode, press button D.

Fault finding - Interpretation of XR25 bargraphs

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 RH side extinguished</div> <div>Fiche n° 27 side 1/2</div> <div><u>XR25 CIRCUIT</u></div> <div>XR25 aid: No connection, CO, CC-, CC+</div>
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NOTES	This bargraph must be illuminated for fault finding
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Test the XR25 on another vehicle.
<div>Check:</div> <div><div>- the injection, engine and passenger compartment fuses,</div><div>- the connection between the XR25 and the diagnostic socket,</div><div>- the position of the ISO selector (S8),</div><div>- the conformity of the cassette.</div></div> <div>Repair if necessary.</div>
<div>Check the presence of + 12 V on track 16 and earth on track 5 of the diagnostic socket.</div> <div>Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div><div>Computer2→Earth</div><div>Computer3→Earth</div><div>Computer11→7Diagnostic socket</div><div>Computer38→15Diagnostic socket</div><div>Computer24→Fuse F615 A</div><div>Computer32→Fuse F35 A</div><div>Computer28→3Coil 1-4</div><div>Computer29→3Coil 2-3</div></div> <div>Repair.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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## Fault finding - Interpretation of XR25 bargraphs


<div>2</div> <div><div></div><div></div></div>	<b>Bargraph 2 LH side illuminated</b> <u>COMPUTER CIRCUIT</u> <b>XR25 aid:</b> Computer faulty	Fiche n° 27 side 1/2
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<b>NOTES</b>	None
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The computer is incorrect or faulty.  
Replace the computer.

<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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## Fault finding - Interpretation of XR25 bargraphs

<div>2</div> 	<div>Bargraph 2 RH side illuminated <span style="float: right;">Fiche n° 27 side 1/2</span></div> <div><u>IMMOBILISER CIRCUIT</u></div> <div><b>XR25 aid:</b>   *22 = 1 dEF CO, CC- or CC+ line 37 on the computer                   *22 = 2 dEF Refer to the immobiliser fault finding</div>
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<b>NOTES</b>	Ignore this bargraph if the vehicle is not fitted with an immobiliser.
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Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the wiring on track **37 of the computer**.  
Repair if necessary.

If the fault persists, refer to the immobiliser fault finding.

<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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## Fault finding - Interpretation of XR25 bargraphs

<div>3</div> 	<b>Bargraph 3 LH side illuminated</b> <u>AIR TEMPERATURE SENSOR CIRCUIT</u> <b>XR25 aid:</b> CO, CC- or CC+line 20 or 46 on the computer	Fiche n° 27 side 1/2
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<b>NOTES</b>	If BG 6RH is also illuminated, check line 46 of the computer.
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Connect the bornier in place of the computer and check the insulation and continuity of the line:

<b>Computer</b>	<b>20</b>	————→	<b>2</b>	<b>Air temperature sensor</b>
<b>Computer</b>	<b>46</b>	————→	<b>1</b>	<b>Air temperature sensor</b>

Repair if necessary.

Check the resistance of the sensor. Replace it if necessary.

The fault persists! Replace the injection computer.

**IMPORTANT:** The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

**AFTER REPAIR**

Erase the computer memory using G0\*\*.  
Use the XR25 to check for faults (see Introduction).  
Remember to carry out a status and parameter check.

## Fault finding - Interpretation of XR25 bargraphs

<div>3</div> <div><div></div><div></div></div>	<b>Bargraph 3 RH side illuminated or flashing</b> <u>OXYGEN SENSOR CIRCUIT</u> <b>XR25 aid:</b> CO, CC- or CC+line 17 on the computer	Fiche n° 27 side 1/2
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<b>NOTES</b>	If BG 3RH is flashing, increase the engine speed to 2500 rpm for 5 minutes If BG3RH becomes permanently illuminated, deal with the fault.
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Check the connection and the condition of the connector on the oxygen sensor.

Check, **ignition on during the timed phase**, for :

- **earth on track B of the oxygen sensor**,
- **+ 12 V after the fuel pump relay on track A of the oxygen sensor**.

Repair if necessary.

Connect the bornier in place of the computer and check the insulation and continuity of the line:

**Computer 17 —————> C Oxygen sensor**

Repair if necessary.


The fault persists. Replace the oxygen sensor.

The fault persists! Replace the injection computer.

**IMPORTANT:** The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<b>AFTER REPAIR</b>	Run the engine for 5 minutes, then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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## Fault finding - Interpretation of XR25 bargraphs

<div>4</div> 	<div>Bargraph 4 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>COOLANT TEMPERATURE SENSOR CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+line 44 or 15 on the computer</div>
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<div>NOTES</div>	<div>If BG 6LH or BG 5LH or 4 RH is also illuminated, check line 44 of the computer.</div>
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Connect the bornier in place of the computer and check the insulation and continuity of the line:

**Computer 44** —————→ **B1 Coolant temperature sensor**

**Computer 15** —————→ **B2 Coolant temperature sensor**

Repair if necessary.

Check the resistance of the sensor. Replace it if necessary.

The fault persists! Replace the injection computer.

**IMPORTANT:** The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>4</div> <div><div></div><div></div></div>	<p><b>Bargraph 4 RH side illuminated or flashing</b> <span style="float: right;">Fiche n° 27 side 1/2</span></p> <p><u>VEHICLE SPEED CIRCUIT</u></p> <p><b>XR25 aid:</b> CO, CC- or CC+ line 12 on the computer</p>
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<p><b>NOTES</b></p>	<p>If BG 4LH or BG 5LH or BG 6LH is also illuminated, check line 44 on the computer. Carry out a road test and check #18 if BG 4 RH is flashing. Deal with this fault if BG 4 RH illuminates permanently during the road test or #18 = 0.</p>
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<p>Check on the vehicle speed sensor for:</p> <ul style="list-style-type: none"><li>- <b>earth on track B2,</b></li><li>- <b>+ 12 after ignition feed on track A.</b></li></ul> <p>Repair if necessary.</p>
<p>Check the sensor is correctly positioned.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</p> <p style="text-align: center;"><b>Computer    12    —————&gt;    B1    Vehicle speed sensor</b></p> <p>Repair if necessary.</p>
<p>The fault persists! Replace the sensor.</p>
<p>The fault persists! Replace the injection computer.</p> <p><b>IMPORTANT:</b>    <b>The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</b></p>

<p><b>AFTER REPAIR</b></p>	<p>Erase the computer memory using G0**.</p> <p>Use the XR25 to check for faults (see Introduction).</p> <p>Remember to carry out a status and parameter check.</p>
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Fault finding - Interpretation of XR25 bargraphs

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH side illuminated</div> <div><u>PRESSURE SENSOR CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 45, 44 or 16 on the computer</div>	Fiche n° 27 side 1/2
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NOTES	<div>If BG 6RH is also illuminated, check line 45 on the computer.</div> <div>If BG 6LH or BG 4LH or BG 4 RH is also illuminated, check line 44 on the computer.</div>
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<div>Check that the pressure sensor is connected correctly both electrically and pneumatically.</div> <div>Check the conformity of the pressure sensor pipe (it must not be holed or blocked...).</div>
<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer 45</div><div>→</div><div>C</div><div>Pressure sensor</div></div> <div><div>Computer 44</div><div>→</div><div>A</div><div>Pressure sensor</div></div> <div><div>Computer 16</div><div>→</div><div>B</div><div>Pressure sensor</div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the sensor.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>5</div> <div><div></div><div></div></div>	<b>Bargraph 5 RH side illuminated or flashing</b> <span>Fiche n° 27 side 1/2</span>
	<u>FLYWHEEL SIGNAL CIRCUIT</u> <b>XR25 aid:</b> *25 = CO.0    =>    CO or CC- line 33 or 34 *25 = CC.0    =>    CC- line 33 or 34 on the computer *25 = In      =>    sensor incorrectly connected


<b>NOTES</b>	If BG 5RH is flashing, erase the computer memory using G0**. Try to start the vehicle. If BG 5RH becomes permanently illuminated or flashes, deal with this fault.
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<div>*25 = CO.0 *25 = CC.0</div>	Check the condition of the flywheel, especially if it has been removed.
	Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line: <div>Computer    33    —————&gt;    B    Target sensor Computer    34    —————&gt;    A    Target sensor</div> Repair if necessary.
	The fault persists! Replace the sensor.
	The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<div>*25 = In</div>	Check the target sensor has been correctly connected (the sensor connector must not be inverted). Repair if necessary.
	The fault persists! Replace the sensor.

<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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## Fault finding - Interpretation of XR25 bargraphs

<div>6</div> 	<p><b>Bargraph 6 LH side illuminated or flashing</b> <span style="float: right;">Fiche n° 27 side 1/2</span></p> <p><u>PINKING SENSOR CIRCUIT</u></p> <p><b>XR25 aid:</b> CO, CC- or CC+ line 8 or 44 on the computer</p>
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<p><b>NOTES</b></p>	<p>If BG 6LH is flashing, erase the computer memory using G0**. Run the engine at 3000 rpm for 3 min. If BG 6LH becomes permanently illuminated or flashes, deal with this fault. If BG 4LH or BG 4 RH or BG 5LH is also illuminated, check line 44 on the computer.</p>
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Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:

**Computer 8** —————> **2 Pinking sensor**  
**Computer 44** —————> **1 Pinking sensor**  
**Computer 31** —————> **Pinking sensor screening**

Repair if necessary.

The fault persists! Replace the pinking sensor in question.

The fault persists! Replace the injection computer.

**IMPORTANT:** The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<p><b>AFTER REPAIR</b></p>	<p>Erase the computer memory using G0**.</p> <p>Use the XR25 to check for faults (see Introduction).</p> <p>Remember to carry out a status and parameter check.</p>
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Fault finding - Interpretation of XR25 bargraphs

<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>THROTTLE POTENTIOMETER CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 19, 45 or 46 on the computer</div>
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<div>NOTES</div>	<div>If BG 5LH is also illuminated, check line 45 on the computer.</div> <div>If BG 3LH is also illuminated, check line 46 on the computer.</div>
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Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:

Computer	19	→	2	Throttle potentiometer
Computer	45	→	1	Throttle potentiometer
Computer	46	→	3	Throttle potentiometer


Repair if necessary.

Check the resistance of the throttle potentiometer.  
The fault persists! Replace the throttle potentiometer.


The fault persists! Replace the injection computer.  
**IMPORTANT:** The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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## Fault finding - Interpretation of XR25 bargraphs

<div>8</div> 	<b>Bargraph 8 LH side illuminated or flashing</b> <span style="float: right;">Fiche n° 27 side 1/2</span> <u>FUEL PUMP CIRCUIT</u> <b>XR25 aid:</b> *08 = ignore this information CO, CC- or CC+ line 48 on the computer CO line 52 on the computer
<b>NOTES</b>	If BG 8LH is flashing, erase the computer memory using G0**. Try to start the engine. If BG 8LH is now permanently illuminated or flashing, deal with this fault. If BG 13RH is illuminated, deal with BG 8 LH first.
Enter the fuel pump relay command mode : <b>G10*</b> . Does the fuel pump relay click?	
<b>The fuel pump relay does not click</b>	Check the presence of <b>12 volts</b> on track <b>L1</b> on the fuel pump relay mounting. If necessary, repair the line to the fuse.
	Check the insulation, continuity and that there is no interference resistance on the line: <b>Computer    48    —————&gt;    2    Fuel pump relay</b> Repair if necessary.
	If the fuel pump relay still does not click, replace the fuel pump relay.
	The fault persists! Replace the injection computer. <b>IMPORTANT:</b> <b>The computer has probably been damaged by an electric shock.</b> <b>The cause of the damage must be found before fitting a new computer.</b>
<b>The fuel pump relay clicks</b>	Check the presence of <b>12 volts</b> on track <b>3</b> on the fuel pump relay mounting. If necessary, repair the line to the 30 A fuse.
	Check the insulation and continuity of the line: <b>Computer    52    —————&gt;    5    Fuel pump relay</b> Repair if necessary. <b>NOTE :</b> If there is a short circuit on this line, check all the users of this feed.
	If the fault persists, replace the fuel pump relay.
	The fault persists! Replace the injection computer. <b>IMPORTANT:</b> <b>The computer has probably been damaged by an electric shock.</b> <b>The cause of the damage must be found before fitting a new computer.</b>
<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.

## Fault finding - Interpretation of XR25 bargraphs

<div>11</div> <div></div>	<b>Bargraph 11 LH side illuminated or flashing</b> <span style="float: right;">Fiche n° 27 side 1/2</span> <u>INJECTOR CIRCUIT</u> <b>XR25 aid:</b> *11 = XX.CO    => CO or CC- line 30 or 4 on the computer *11 = XX.CC    => CC+ line 30 or 4 on the computer
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<b>NOTES</b>	XX = 14 => Cylinder 1 or 4 line 30 on the computer XX = 23 => Cylinder 2 or 3 line 4 on the computer If BG 11LH is flashing, erase the computer memory using G0**. Try to start the engine. If BG 11LH is now permanently illuminated or flashing, deal with this fault.
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When the ignition is switched on and during the timed phase, check for **12 V** on track **1 of the faulty injector**.

If necessary, repair the **line** from track **1** injector to track **5** fuel pump relay.

Connect the bornier in place of the computer and check the insulation and continuity of the line :

<b>Computer</b>	<b>30</b>	————→	<b>2</b>	<b>Injectors 1 and 4</b>
<b>Computer</b>	<b>4</b>	————→	<b>2</b>	<b>Injectors 2 and 3</b>

Repair if necessary.

The fault persists! Replace the faulty injector.

**NOTE :** Check the insulation and continuity of the lines for the other injectors and also check the resistance of these injectors.

The fault persists! Replace the injection computer.

**IMPORTANT:**    **The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.**

**AFTER REPAIR**

Turn the engine then erase the computer memory using G0\*\*.  
Use the XR25 to check for faults (see Introduction).  
Remember to carry out a status and parameter check.

<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>AT → INJECTION CIRCUIT</div> <div>XR25 aid:   None</div>
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NOTES	None
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This vehicle currently has no AT.

Check that the vehicle is **correctly configured for a manual gearbox** (status bargraph 19 RH side illuminated).


If this is not correct, use command mode **G50\*1\*** to **configure the vehicle with a manual gearbox**.

Erase the computer memory using **G0\*\*** and ignore this bargraph.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>13</div> <div></div>	<div>Bargraph 13 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>MEMORY CIRCUIT</u></div> <div>XR25 aid:    Loss of computer feed</div>
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NOTES	None
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This bargraph only illuminates when the computer feed has been cut (disconnection of the battery, the computer, ...).

Check the computer feed hygiene:

Computer                    24    —————>   Fuse      15 A    F6

Computer                    32    —————>   Fuse      5 A    F3

Repair if necessary.  
Turn the engine.  
Switch the ignition off.  
Switch the ignition on.  
Enter dialogue with the computer.  
Erase the computer memory using G0\*\*.

**NOTE :**   memorised faults are erased. It would therefore be useful to carry out a road test to check there are no faults on the injection system.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>13</div> <div><div></div><div></div></div>	<b>Bargraph 13 RH side illuminated or flashing</b>	Fiche n° 27 side 1/2
	<u>ADAC CIRCUIT</u>	
	<b>XR25 aid:</b> *33 = CC.0    CO, CC- line 50 on the computer *33 = CC.1    CC+ line 50 on the computer	

<b>NOTES</b>	If another bargraph is illuminated, refer to the fault finding for that bargraph. If your vehicle does not have ADAC, ignore this bargraph.
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Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on track <b>50</b> on the computer.  Repair.
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<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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Fault finding - Interpretation of XR25 bargraphs

<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>IDLE SPEED REGULATION CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 40 or 35 or 9 or 36 on the computer</div>
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NOTES	<div>If BG 14LH is flashing, erase the computer memory using G0**. Try to start the engine (if the engine will not start, keep trying with the starter motor). If BG 14LH becomes permanently illuminated or flashes, deal with this fault.</div> <div>Following G59*1* and trying to start the engine, BG 14 LH may illuminate. In this case, ignore it and erase it.</div>
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<div>Check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer 40 —————&gt; B idle speed regulation stepping motor</div><div>Computer 35 —————&gt; A idle speed regulation stepping motor</div><div>Computer 9 —————&gt; D idle speed regulation stepping motor</div><div>Computer 36 —————&gt; C idle speed regulation stepping motor</div></div> <div>Repair if necessary.</div> <div>NOTE : This operation can be carried out without having to remove the throttle body.</div>
<div>Check the resistance of the idle speed regulation stepping motor.</div> <div>Check the idle speed regulation valve if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>14</div> <div><div></div><div></div></div>	<b>Bargraph 14 RH side illuminated</b>	Fiche n° 27 side 1/2
	<u>CANISTER BLEED CIRCUIT</u>	
	<b>XR25 aid:</b> *34 = CO.0    CO, CC- line 42 on the computer *34 = CC.1    CC+ line 42 on the computer	

<b>NOTES</b>	If BG 14RH is flashing, erase the computer memory using G0**. Start the engine. If BG 14RH becomes permanently illuminated when the engine is running, deal with this fault.
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Check the resistance of the canister bleed valve. Replace the valve if necessary.
Check, <b>ignition on and during the timed phase</b> , for <b>12 V</b> on track <b>A</b> of the <b>canister bleed</b> .  Repair if necessary.
Connect the bornier in place of the computer and check the insulation and continuity of the line:  <b>Computer      42      —————&gt;    B      Canister bleed valve</b>  Repair if necessary.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> <b>The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</b>

<b>AFTER REPAIR</b>	Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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Fault finding - Interpretation of XR25 bargraphs

<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER → AC CONNECTION CIRCUIT</div> <div>XR25 aid:   *15 = 1dEF : injection / AC connection fault (track 51)                   *15 = 2dEF : AC connection fault (track 5)</div>
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NOTES	<div>Check that the vehicle has air conditioning and if it is not fitted with air conditioning, deal with the other bargraphs first.</div> <div>Engine running, select the air conditioning function.</div>
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<div>Connect the bornier in place of the computer and check the insulation and continuity of the line for track 5 and track 51 on the computer.</div> <div>Repair if necessary.</div>
<div>If the fault persists, refer to the air conditioning fault finding.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs


<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>EGR CIRCUIT</u></div> <div>XR25 aid:   None</div>
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NOTES	None
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Ignore the illumination of this bargraph as the vehicle is not fitted with EGR.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>16</div> <div></div>	<div>Bargraph 16 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER → MPA CONNECTION CIRCUIT</div> <div>XR25 aid:    *16 = XX.CO    =&gt; CO line 28 or 29 on the computer</div> <div>                  *16 = XX.CC    =&gt; CC+ or CC- line 28 or 29 on the computer</div>
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NOTES	<div>XX = 14 =&gt; Cylinder 1 or 4 line 28 on the computer</div> <div>XX = 23 =&gt; Cylinder 2 or 3 line 29 on the computer</div> <div>NOTE : If there is an open circuit, it is possible for *16 = XX.CC instead of *16 = XX.CO.</div>
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<div>Check the + after ignition feed to the coil concerned on track 2.</div> <div>Repair if necessary.</div>
<div>Check the resistance of the faulty coil.</div> <div>Replace the coil if necessary.</div>
<div>Check the hygiene of the anti-interference condenser on track 1 of the coil.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line :</div> <div>Computer    29 → 3    Coil 2-3</div> <div>Computer    28 → 3    Coil 1-4</div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:    The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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NOTES	Engine stopped, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Dialogue with XR25	D13 (selector on S8)	<div>1</div> <div><div></div><div></div></div> <div>1</div> <div><div></div><div></div></div>	<div>Fault test</div> <div>9.NJ</div> <div>Use fiche 27</div> <div>Code present</div>	Deal with fault bargraph
2	Change to status test	G01*	<div>1</div> <div><div></div><div></div></div>	<div>10.NJ</div> <div>Status test</div>	None
3	Battery voltage	# 04		11.8 < X < 13.2 V	DIAG 1
4	Computer configuration		<div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Computer configured to manual gearbox</div> <div>Computer configured to automatic transmission</div>	See Fiche "Reminder C" to configure vehicle
5	Immobiliser	Ignition on	<div>3</div> <div><div></div><div></div></div>	This status bargraph must be extinguished when the ignition is on to indicate that the immobiliser is not active.	DIAG 12



NOTES	Engine stopped, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	16 < X < 50 (E7J 780) 19 < X < 51 (K7M 744)	DIAG 2
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>		
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	185 < X < 243 (E7J 780) 190 < X < 243 (K7M 744)	
7	Pressure sensor	# 01		X = Atmospheric pressure	DIAG 9
8	Coolant temperature sensor	# 02		X = Engine temperature ± 5 °C	DIAG 3
9	Air temperature sensor	# 03		X = Temperature under bonnet ± 5 °C	DIAG 4
10	Fan assembly	G17*		Fan must operate	DIAG 17
11	Fault warning light	Switch ignition on		Fault warning light must illuminate then extinguish	DIAG 19
12	AC	AC selected G12*		AC compressor should be heard	DIAG 16

NOTES	Carry out the actions below <b>if the engine does not start.</b> Otherwise, refer to the following pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Flywheel signal sensor	Starter	<div>3</div> <div><div></div><div></div></div>	Illuminated if TDC information is detected	DIAG 5
2	Fuel pump	G10*		Fuel pump should be heard to operate	DIAG 6
3	Ignition	Connect Optima Station		Starting test. Complete guide on Optima Station	Use Optima 5800 Station
4	Fuel pressure	Connect pressure gauge to fuel inlet and activate starter motor		Pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section
5	Injector command	Starter		Fuel must come out of the injector	DIAG 11
6	Engine compression	Connect Optima Station		Complete guide on Optima Station	Use Optima 5800 Station
7	Flywheel	Connect Optima Station		Oscilloscope. Complete guide on Optima Station	Use Optima 5800 Station

NOTES	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Charging circuit	# 04		$13 < X < 14.5 \text{ V}$	DIAG 1
2	Throttle potentiometer	No load	<div>2</div> <div><div></div><div></div></div>	Illuminated (does not flash!)	DIAG 2
3	Idle speed regulation	# 06 # 12 # 21	<div>6</div> <div><div></div><div></div></div>	$700 < X < 800 \text{ rpm}$ $2 \% < X < 15 \% \text{ (E7J 780)}$ $6 \% < X < 15 \% \text{ (K7M 744)}$  $- 2.4 \% < X < 6.2 \%$	DIAG 7
4	Anti-pinking circuit	# 13 (at 3500 rpm, no load)		$X \text{ variable and not zero}$	DIAG 8
5	Pressure circuit	# 01  # 16		$300 \leq X \leq 400 \text{ mb}$ (E7J 780) $250 \leq X \leq 350 \text{ mb}$ (K7M 744)  $X = \text{atmospheric pressure}$	DIAG 9
6	Richness regulation	# 35  # 05	<div>6</div> <div><div></div><div></div></div>	$0 < X < 255$ $X \text{ varies around } 128$  $0.050 \leq X \leq 0.900 \text{ V}$	DIAG 10 See also DIAG 15

NOTES	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
7	Fuel pressure	Connect a pressure gauge to the gallery and activate the starter motor		Pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section
8	AC	AC selected   # 06 # 44	<div>10</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div>	<div>Illuminated when AC requests compressor operation</div> <div>Illuminated when injection authorises operation of compressor</div> <div>800 &lt; X &lt; 900 rpm X &gt; 0</div>	DIAG 16
9	Power assisted steering pressostat	Turn wheels to full lock	<div>13</div> <div><div></div><div></div></div>	Illuminated when wheels turned to full lock	DIAG 18



DIAG 1	<div>Fiche n° 27</div> <div>BATTERY VOLTAGE</div> <div>XR25 aid: Battery voltage, ignition on, Minimum &lt; # 04 &lt; Maximum Battery voltage, idle speed, Minimum &lt; # 04 &lt; Maximum</div>
NOTES	No fault bargraphs should be illuminated. No consumers

Ignition on

If # 04 < Minimum, the battery is discharged: Check the charging circuit to determine the cause of this fault.
If # 04 > Maximum, the battery may be overcharged: Check the charging voltage is correct with and without consumers.

At idle speed

If # 04 < Minimum, the charging voltage is too low: Check the charging circuit to determine the cause of this fault.
If # 04 > Maximum, the charging voltage is too high: The alternator regulator is faulty. Repair this fault and check the electrolyte level in the battery.

NOTE:  
The battery and the charging circuit may be checked using the OPTIMA 5800 station (measurement does not require the battery to be disconnected, which retains the memories of the computers).

AFTER REPAIR	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 2</b>	<b>THROTTLE POTENTIOMETER</b> <b>XR25 aid:</b> # 17 outside tolerances # 17 does not vary when throttle moves Status BG 2LH or 2RH, incorrect illumination	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Ignition on or engine running.
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<b>Status bargraph 2RH incorrect illumination</b>	<b>NOTES</b>	None
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Check the insulation, continuity and the absence of interference resistance on the line:		
<b>Computer</b>	<b>19</b> —————→ <b>2</b>	<b>Throttle potentiometer</b>
<b>Computer</b>	<b>45</b> —————→ <b>1</b>	<b>Throttle potentiometer</b>
<b>Computer</b>	<b>46</b> —————→ <b>3</b>	<b>Throttle potentiometer</b>
Repair if necessary.		
If the fault is still present, replace the throttle potentiometer.		

<b># 17 is fixed</b>	<b>NOTES</b>	None
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Check the resistance of the throttle potentiometer when the throttle butterfly is moved.
If the resistance varies, check the electrical lines of the sensor.
If the resistance does not vary, check that the sensor is connected mechanically to the throttle. If necessary, replace the sensor.

<b># 17 outside tolerances</b>	<b>NOTES</b>	None
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Check the upper and lower stops of the throttle butterfly. Check the accelerator control (points of resistance and friction). Repair.
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<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

DIAG 3	<div>COOLANT TEMPERATURE</div> <div>Fiche n° 27</div> <div>XR25 aid: # 02 = Engine temperature ± 5 °C</div>
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NOTES	No fault bargraphs should be illuminated.
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If the value read is incoherent, check the sensor is correctly following the standard table of values for "resistance as a function of temperature".

Replace the sensor if the values are incorrect (**NOTE** : If a sensor is incorrect, this is often due to an electric shock).

Check the insulation, continuity and that there is no interference resistance on the electrical line :

Computer	15	→	B2	Coolant temperature sensor
Computer	44	→	B1	Coolant temperature sensor

Repair.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 4</b>	<div>AIR TEMPERATURE</div> <div>Fiche n° 27</div> <div>XR25 aid: # 03 = Temperature under the bonnet ± 5 °C</div>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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<p>If the value read is incoherent, check the sensor is correctly following the standard table of values for "resistance as a function of temperature".</p> <p>Replace the sensor if the values are incorrect (<b>NOTE</b> : If a sensor is incorrect, this is often due to an electric shock).</p>										
<p>Check the insulation, continuity and that there is no interference resistance on the electrical line :</p> <table><tr><td><b>Computer</b></td><td><b>20</b></td><td><b>————→</b></td><td><b>2</b></td><td><b>Air temperature sensor</b></td></tr><tr><td><b>Computer</b></td><td><b>46</b></td><td><b>————→</b></td><td><b>1</b></td><td><b>Air temperature sensor</b></td></tr></table> <p>Repair.</p>	<b>Computer</b>	<b>20</b>	<b>————→</b>	<b>2</b>	<b>Air temperature sensor</b>	<b>Computer</b>	<b>46</b>	<b>————→</b>	<b>1</b>	<b>Air temperature sensor</b>
<b>Computer</b>	<b>20</b>	<b>————→</b>	<b>2</b>	<b>Air temperature sensor</b>						
<b>Computer</b>	<b>46</b>	<b>————→</b>	<b>1</b>	<b>Air temperature sensor</b>						

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 5</b>	<b>TDC DETECTION</b>  <b>XR25 aid:</b> Status BG 3 LH incorrect illumination	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. When the starter motor is activated.
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Check the sensor is correctly mounted.
Check the condition of the target (if it has been removed).
Check the insulation, continuity and that there is no interference resistance on the electrical line : <div><div><div>Computer</div><div>33</div><div>————→</div><div>B</div><div>Flywheel signal sensor</div></div><div><div>Computer</div><div>34</div><div>————→</div><div>A</div><div>Flywheel signal sensor</div></div></div> Repair. If necessary, replace the sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 6	<div>FUEL PUMP</div> <div>Fiche n° 27</div> <div>XR25 aid:    The command mode should cause the fuel pump to operate</div>
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NOTES	No fault bargraphs should be illuminated.
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Check the impact sensor is correctly clipped in.
<div>Check the fuel pump fuse.</div> <div>Check the insulation and continuity of the wiring:</div> <div><div>Fuel pump fuse</div><div>—————&gt;</div><div>3</div><div>Fuel pump relay</div></div> <div>Repair if necessary.</div>
<div>Check the insulation and continuity of the wiring:</div> <div><div>Fuel pump relay</div><div>Impact sensor</div><div>5</div><div>—————&gt;</div><div>—————&gt;</div><div>Impact sensor</div><div>C1 Fuel pump</div></div> <div>Repair if necessary.</div>
Check the hygiene and presence of earth on track C2 of the fuel pump.
<div>If + 12 V is not reaching the fuel pump, replace the fuel pump relay.</div> <div>If + 12 V is reaching the fuel pump, replace the fuel pump.</div>

AFTER REPAIR	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 7</b>	<b>IDLE SPEED REGULATION</b> <b>XR25 aid:</b> Engine speed , Minimum < # 06 < Maximum	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the insulation, continuity and that there is no interference resistance on the line:		
<b>Computer</b>	<b>9</b>	<b>→ D Idle speed regulation motor</b>
<b>Computer</b>	<b>35</b>	<b>→ A Idle speed regulation motor</b>
<b>Computer</b>	<b>40</b>	<b>→ B Idle speed regulation motor</b>
<b>Computer</b>	<b>36</b>	<b>→ C Idle speed regulation motor</b>
Repair if necessary and continue fault finding using the value for # 06.		

<b># 06 &lt; Minimum</b>	<b>NOTES</b>	The idle speed is too low
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Idle speed regulation is not maintaining the idle speed.	
<ul style="list-style-type: none"><li>- Clean the air supply circuit (throttle body, idle regulation valve), since it is probably contaminated.</li><li>- Check the engine oil level (too high ---&gt; splashing).</li><li>- Check and ensure correct fuel pressure.</li><li>- Using the OPTIMA 5800 station, check the engine compression.</li><li>- Check the valve clearances and the timing.</li></ul>	
If all these points are correct, replace the idle regulation motor.	

<b># 06 &gt; Maximum</b>	<b>NOTES</b>	The idle speed is too high
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An air leak may be affecting the idle speed regulation programming.	
<ul style="list-style-type: none"><li>- Check the connections on the manifold.</li><li>- Check the hygiene of the pipes on the manifold.</li><li>- Check the pneumatically controlled solenoid valves.</li><li>- Check the manifold gaskets.</li><li>- Check the throttle body gaskets.</li><li>- Check the sealing of the brake servo.</li><li>- Check the restrictions are present in the oil vapour rebreathing circuit.</li><li>- Check the fuel pressure.</li></ul>	
If all these points are correct, replace the idle speed regulation motor.	

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 8	<div>Fiche n° 27</div> <div>ANTI-PINKING CIRCUIT</div> <div>XR25 aid: # 13 is not zero and variable for fast idle or under load</div>
NOTES	No fault bargraphs should be illuminated.

The pinking sensor should give a signal which is variable and not zero, to prove that it is recording the mechanical vibrations of the engine.

If the signal is zero:

- Check the sensor is correctly screwed in.
- Check the insulation and continuity of the wiring:

Computer

8

→

2

Pinking sensor

Computer

44

→

1

Pinking sensor

Computer

2

→

Pinking sensor screening

If necessary, replace the sensor.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 9</b>	<div>Fiche n° 27</div> <p><b>PRESSURE CIRCUIT</b></p> <p><b>XR25 aid:</b> Ignition on # 01 not coherent At idle speed # 01 &lt; Minimum or # 01 &gt; Maximum # 16 not coherent</p>
<b>NOTES</b>	No fault bargraphs should be illuminated.

# 01 not coherent  
ignition on  
# 01 < Minimum at idle  
speed  
# 16 not coherent

Check the insulation, continuity and that there is no interference resistance on the line:

Computer	45	→	C	Pressure sensor
Computer	44	→	A	Pressure sensor
Computer	16	→	B	Pressure sensor

Repair if necessary.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

# 01 > Maximum at idle  
speed

The manifold pressure is often a sign of incorrect engine operation. Check

- the sealing of the pipe between the manifold and the sensor,
- the valve clearances,
- the canister bleed valve which should be closed at idle speed,
- cylinder compression using the OPTIMA 5800 station.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 10	<div>RICHNESS REGULATION</div> <div>XR25 aid: Richness regulation faulty</div>	Fiche n° 27
NOTES	<div>No fault bargraphs should be illuminated.</div> <div>Ignition correct (a check may be made using the OPTIMA 5800 station).</div> <div>No other status bargraph should show a fault.</div>	

Check the connection and condition of the oxygen sensor connector.	
<div>Ignition on, during the timed phase, check for:</div> <div>- earth on track <b>B of the oxygen sensor</b>.</div> <div>- <b>+ 12 V after the fuel pump relay on track A of the oxygen sensor</b>.</div> <div>Repair if necessary.</div>	
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div>Computer 17 —————&gt; C Oxygen sensor</div> <div>Repair if necessary.</div>	
<div>Check the resistance of the injectors and that there is no interference resistance on the lines:</div> <div>Computer 4 —————&gt; 2 Injectors 2 and 3</div> <div>Computer 30 —————&gt; 2 Injectors 1 and 4</div> <div>Repair if necessary.</div>	
<div>Check the sealing of the canister bleed valve (a leak can disrupt the richness considerably).</div> <div>Check the sealing of the exhaust pipe upstream from the oxygen sensor.</div> <div>Check the sealing of the inlet manifold.</div> <div>If the vehicle has only been driven in town, the sensor is contaminated (try driving under load).</div> <div>Check the fuel pressure.</div> <div>If the idle speed is unstable, check the valve clearances.</div> <div>Check the injectors (flow and shape of the jet).</div> <div>If necessary, replace the oxygen sensor.</div>	

AFTER REPAIR	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 11</b>	<b>INJECTOR</b> <b>XR25 aid:</b> CO or CC - line 30 of the computer for injectors 1 and 4 CO or CC - line 4 of the computer for injectors 2 and 3	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the resistance of the faulty injector. Replace it if necessary.

Check the insulation and continuity of the line:

injectors 1 and 4	Computer	30	————→	2 injectors
injectors 2 and 3	Computer	4	————→	2 injectors

Repair if necessary.

During command mode operation, check for + 12 Volts on track 1 of the faulty injector.  
Repair.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 12</b>	<b>IMMOBILISER</b> <b>XR25 aid:</b> Status BG 3RH illuminated, ignition on	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the insulation and continuity of the wiring for track **37** on the injection computer.

If the fault persists, refer to the immobiliser fault finding.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 13</b>	<b>VEHICLE SPEED</b>  <b>XR25 aid:</b> # 18 = Speed read on speedometer in km/h	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Check on a road test.
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If the value read is incoherent:

- Check that the sensor is correctly mounted and supplied:
  - **+12 V on A1**
  - **Earth on B2**
- Check the insulation, continuity and that there is no interference resistance on the line:  
**Computer      12 —————> B1   vehicle speed sensor**

**NOTE :** Check the different functions that use this information.

Repair.

The fault persists! Replace the speed sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 14</b>	<b>ADAPTIVE RICHNESS</b>  <b>XR25 aid:</b> Minimum < # 30 < Maximum Minimum < # 31 < Maximum	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Carry out the programming operations.
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Ensure the canister bleed valve is sealed.

Erase the computer memory.

Engine warm , running at idle speed, check the values for # 30 and # 31.

- **If # 30 or # 31 is at a MAXIMUM, there is not enough fuel .**
- **If # 30 or # 31 is at a MINIMUM, there is too much fuel.**

Ensure the hygiene, cleanliness and correct operation of :

- filter.
- fuel pump.
- fuel circuit.
- fuel tank.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 15	<div>EMISSION OF POLLUTANTS</div> <div>Fiche n° 27</div> <div>XR25 aid:   None</div>
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NOTES	No fault bargraphs should be illuminated.
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$0.97 \leq \lambda \leq 1.03$ at 2500 rpm.	NOTES	The oxygen sensor loops correctly at 2500 rpm.
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If CO > 0.3 % at 2500 rpm.
The catalytic converter is faulty. <b>NOTE</b> : it is vital to determine the cause of the catalytic converter damage to avoid a new converter also being damaged.

If $\lambda < 0.97$ or $\lambda > 1.03$ at idle speed
Check the sensor earth and heating. Check there is no air leak at the manifold.

$0.97 \leq \lambda \leq 1.03$ at 2500 rpm.	NOTES	The oxygen sensor does not loop correctly at 2500 rpm.
There is a fault with the injection or the sensor.		

AFTER REPAIR	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

Fiche n° 27

## DIAG 15

CONT

## NOTES

No fault bargraphs should be illuminated.

 $\lambda > 1.03$   
at 2500 rpm.

## NOTES

None

The oxygen sensor loops correctly at 2500 rpm.

Check there is no leak at the exhaust.  
Check that an injector has not seized.  
Check the fuel pressure is not too low.

The oxygen sensor does not loop correctly at 2500 rpm.

Check there is not an injection fault.  
Check there is not an ignition fault.  
Check the sensor is not faulty.  
Check the fuel pressure.

 $\lambda < 0.97$   
at 2500 rpm

## NOTES

The oxygen sensor does not loop correctly at 2500 rpm. CO &gt; 0.3 % at 2500 rpm.

Check the pressure sensor.  
Check the sensor.  
Check that an injector is not faulty.

## AFTER REPAIR

Start the status and parameter check again from the beginning.

## Fault finding - Status and parameter interpretation

<b>DIAG 16</b>	<b>AIR CONDITIONING</b> <b>XR25 aid:</b> Status BG 10LH or 10 RH, incorrect illumination	Fiche n° 27
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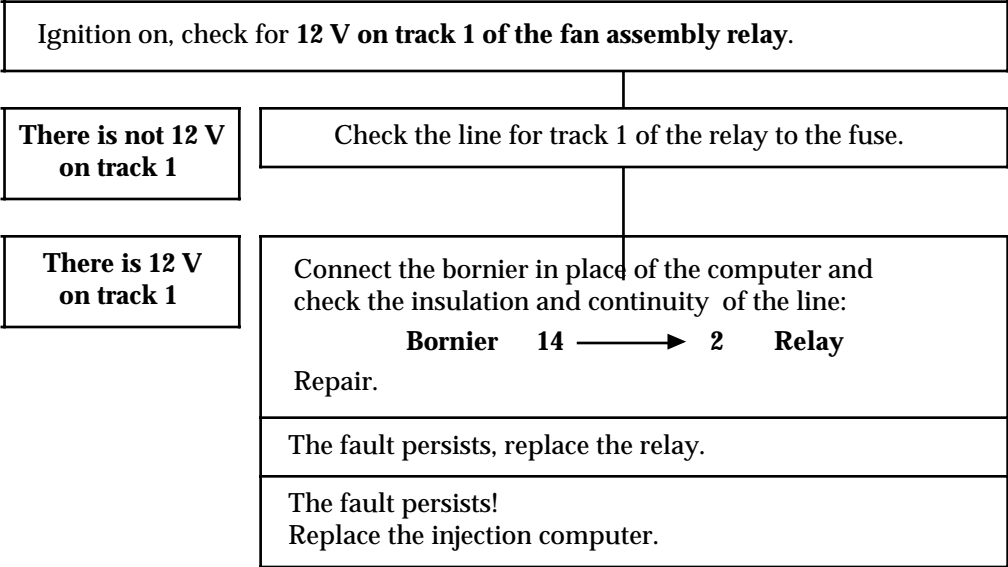
<b>NOTES</b>	No fault bargraphs should be illuminated.
--------------	---

Check the insulation and continuity of the lines for track 5 and track 51 on the injection computer.  
Repair if necessary.  
Refer to the fault finding for the air conditioning.

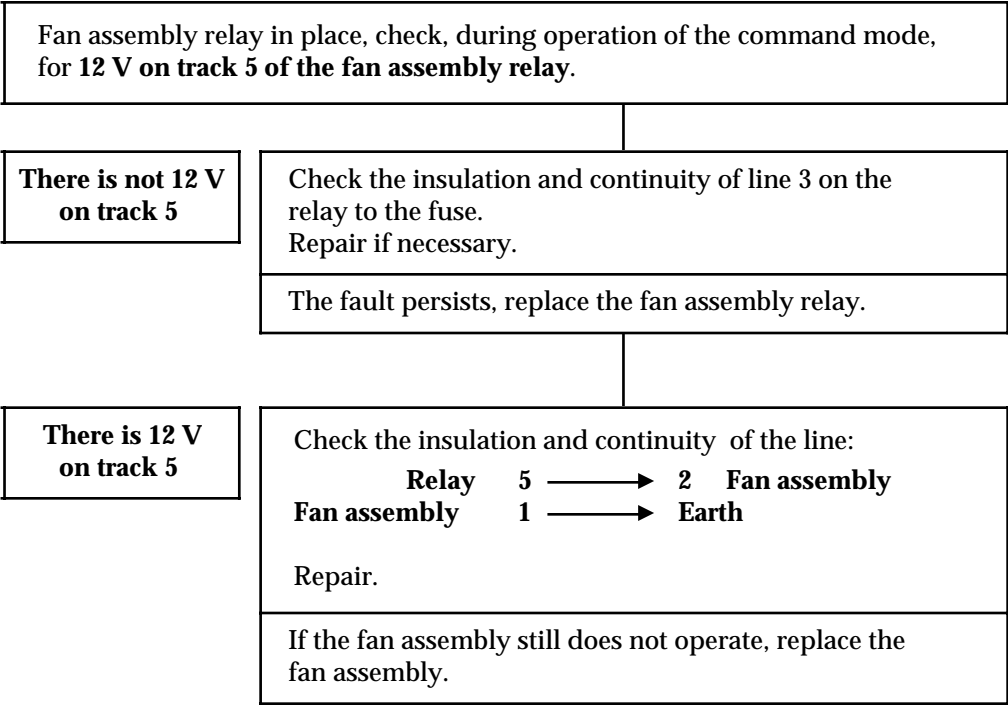
<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 17	ANTIPERCOLATION RELAY	Fiche n° 27
	XR25 aid: The fan assembly must operate when command mode G17* is used.	
NOTES	No fault bargraphs should be illuminated.	

The antipercolation relay does not click when its command mode is used



The antipercolation relay does click when its command mode is used



AFTER REPAIR	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 18</b>	<b>POWER ASSISTED STEERING PRESSOSTAT</b>  <b>XR25 aid:</b> None	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the correct operation of the power assisted steering (oil level, ...).  
Check the insulation and continuity of the line for track 13 on the injection computer.  
Check the power assisted steering pressostat is correctly connected.  
Repair if necessary.

If all these points are correct, replace the power assisted steering pressostat.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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## Fault finding - Status and parameter interpretation

<b>DIAG 19</b>	<b>FAULT WARNING LIGHT CIRCUIT</b>  <b>XR25 aid:</b> None  <div>Fiche n° 27</div>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the condition of the warning light and its feed.  
Repair if necessary.

Connect the bornier in place of the computer and check the insulation and continuity of the line for **track 43** on the computer.

Repair.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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NOTES	Only refer to this customer complaint after a complete check using the XR25.
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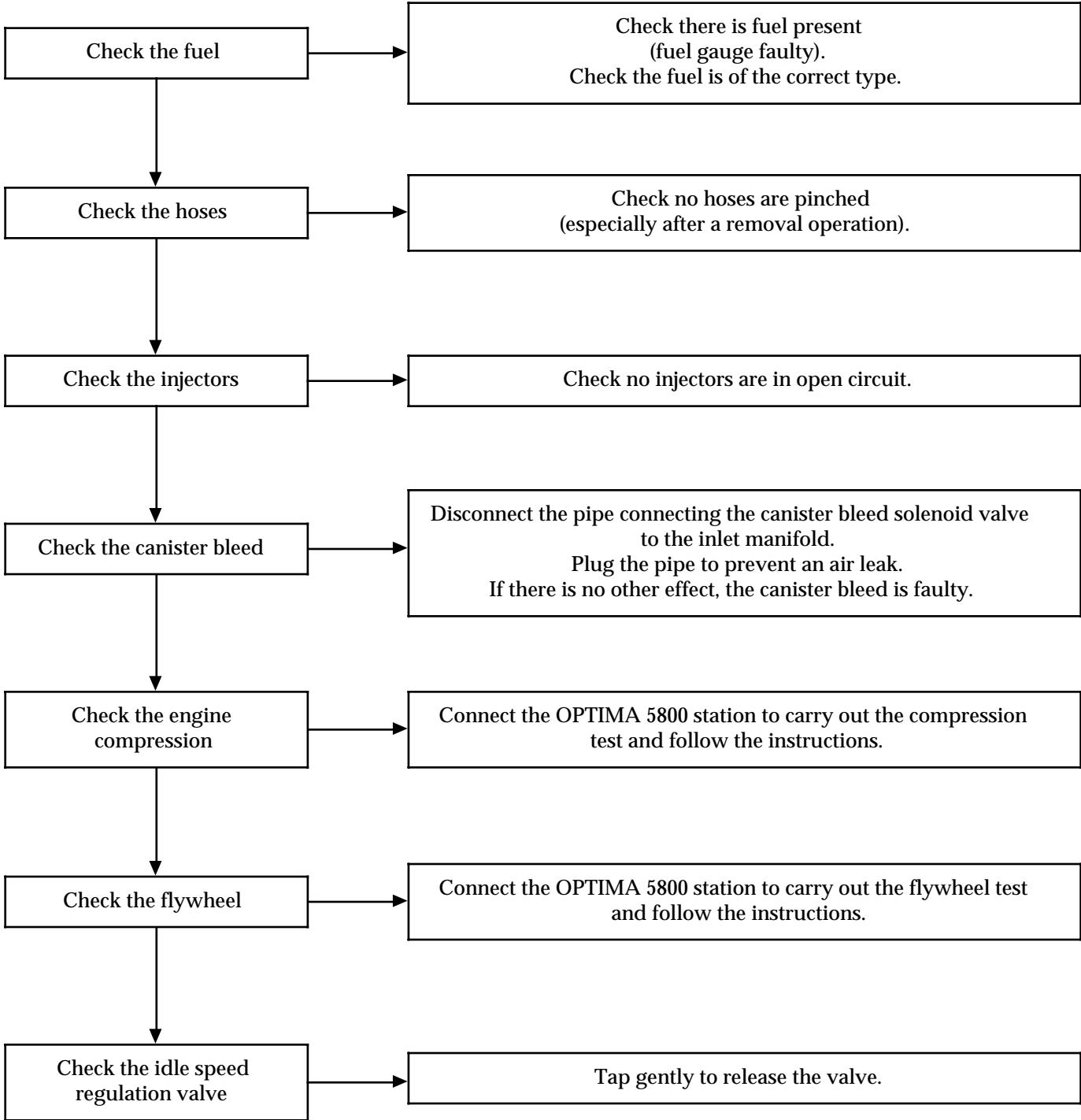
STARTING FAULTS ————— Chart 1

IDLE SPEED FAULTS ————— Chart 2

BEHAVIOUR WHILE DRIVING ————— Chart 3

Chart 1	STARTING FAULTS
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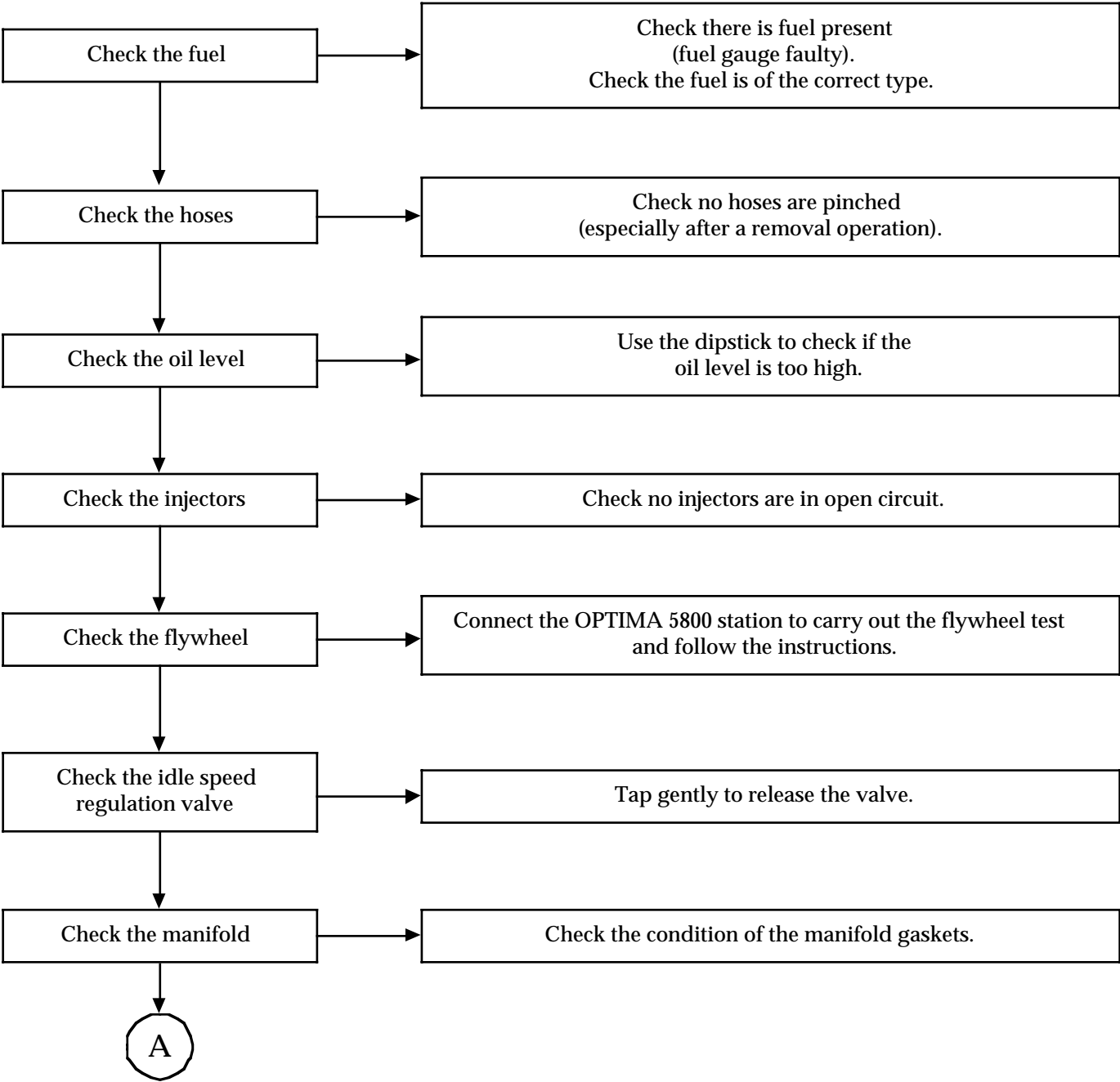
NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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Chart 2	IDLE SPEED FAULTS
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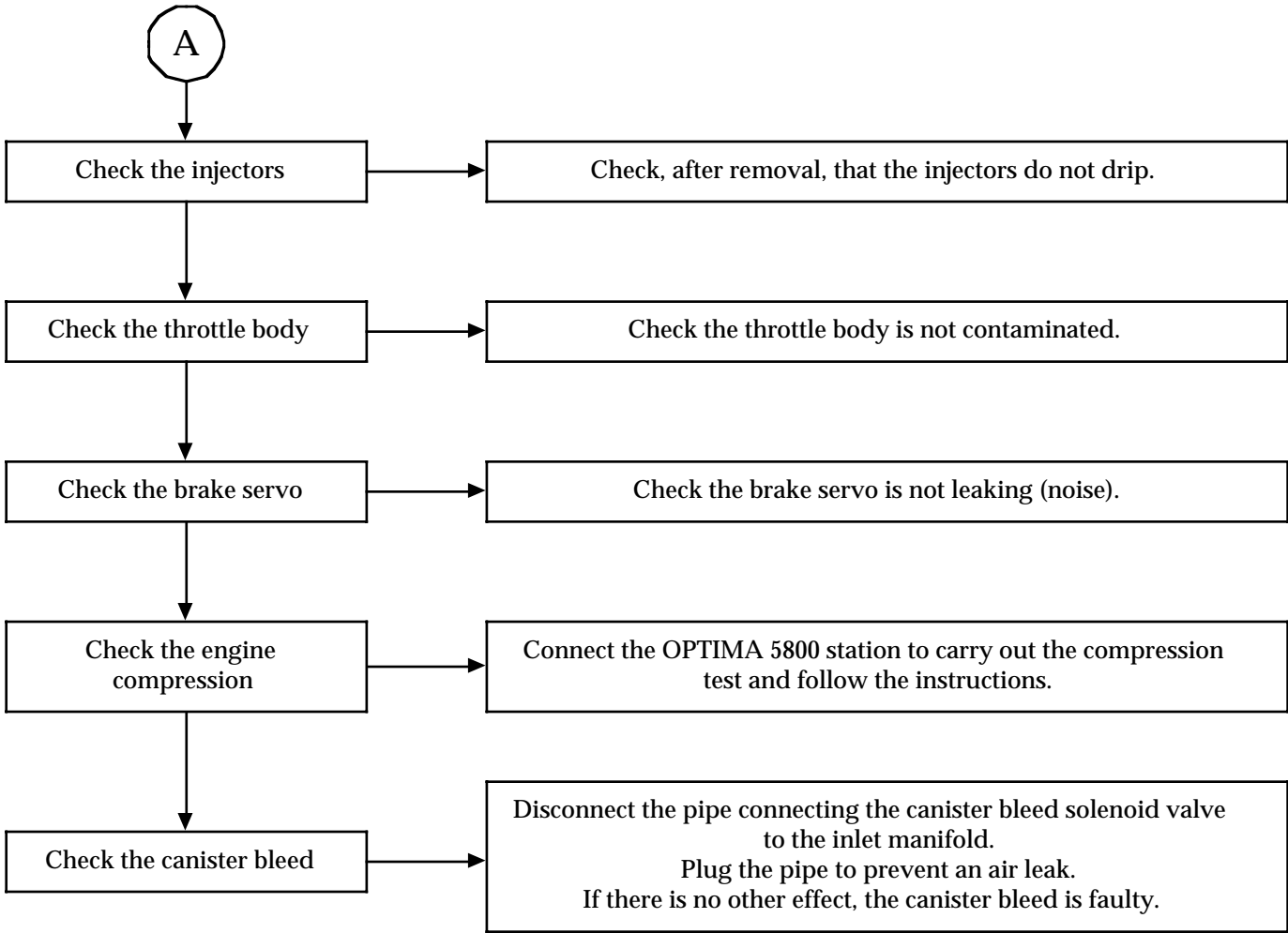
NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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Chart 2 CONT	
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NOTES	Only refer to this customer complaint after a complete check using the XR25.
-------	--



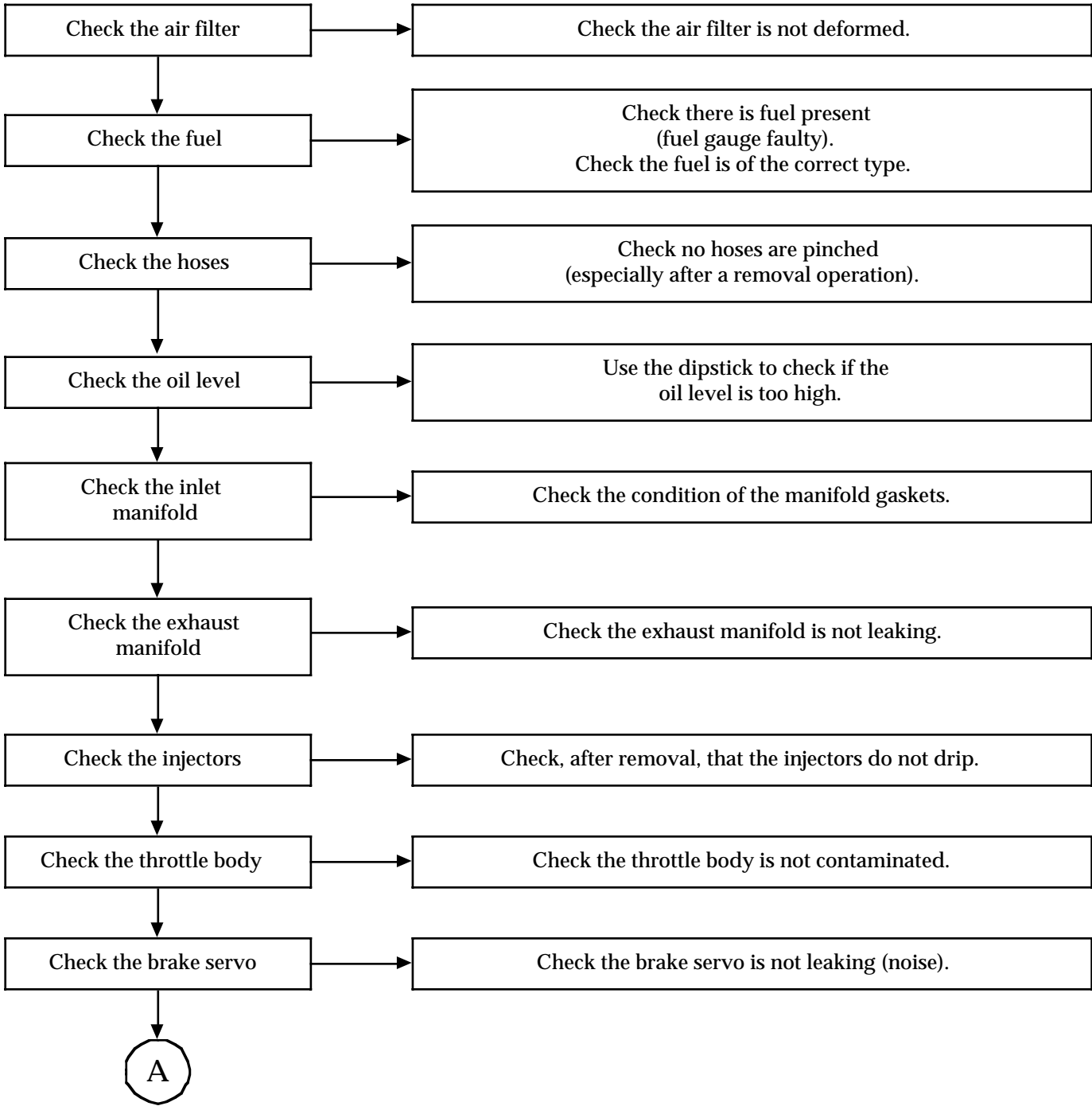
AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
--------------	---

Chart 3

BEHAVIOUR WHILE DRIVING

NOTES

Only refer to this customer complaint after a complete check using the XR25.



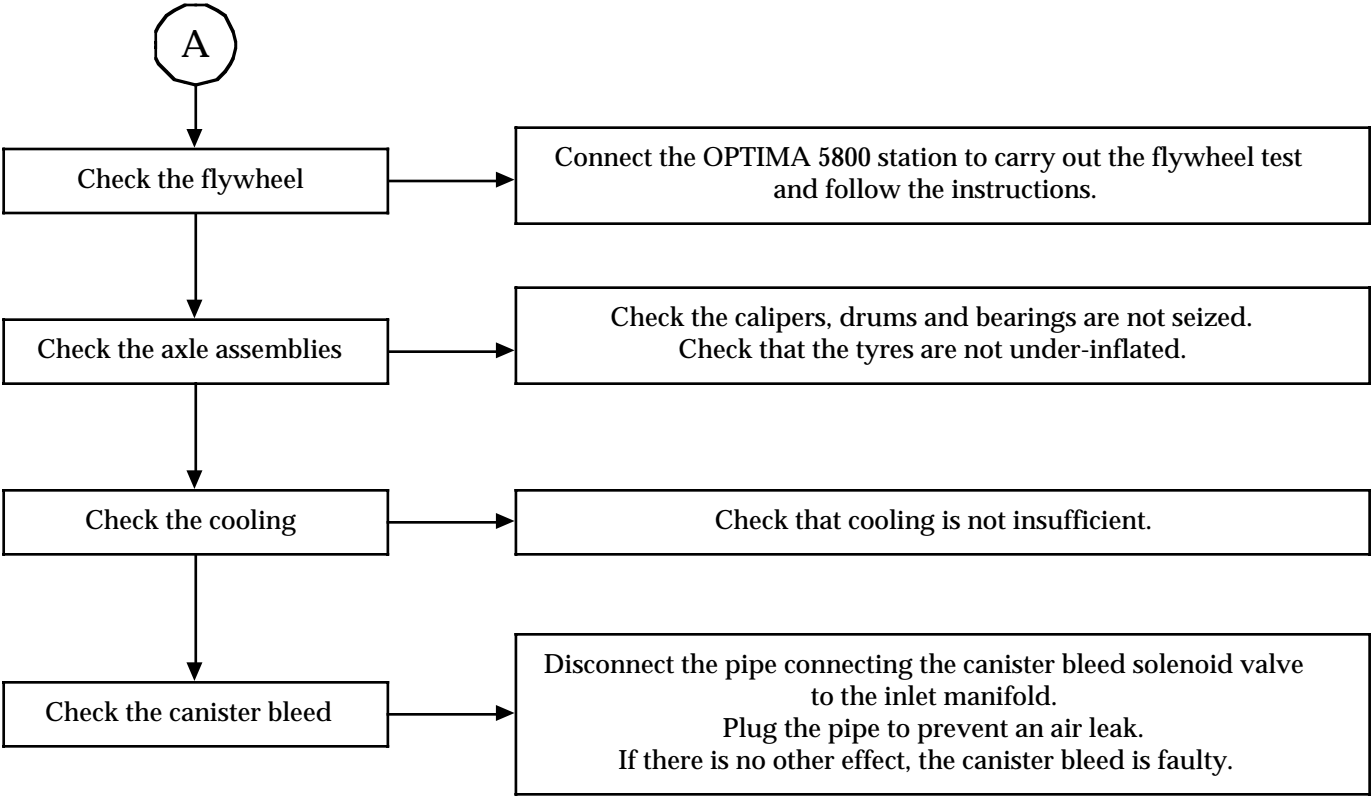
AFTER REPAIR

Erase the computer memory using G0\*\* and carry out a road test.

**Chart 3**  
**CONT**

**NOTES**

Only refer to this customer complaint after a complete check using the XR25.



**AFTER REPAIR**

Erase the computer memory using G0\*\* and carry out a road test.

For further details, refer to section 12

Injector resistance = 14.5  $\Omega$

Idle regulation stepping  
motor resistance : A - D = 52  $\Omega$   
B - C = 52  $\Omega$

Canister bleed valve resistance = 35  $\Omega$

Ignition coil resistance : Primary = 1-3 ; 2-3 = 1  $\Omega$   
1-2 = 0.5  $\Omega$   
Secondary = 10 k $\Omega$

Oxygen sensor heating resistance = 3 to 15  $\Omega$

Throttle potentiometer resistance : no load 1-2 = 5440  $\Omega$  full load 1-2 = 2200  $\Omega$   
1-3 = 4500  $\Omega$  1-3 = 4460  $\Omega$   
2-3 = 2160  $\Omega$  2-3 = 5340  $\Omega$

Flywheel signal resistance = 220  $\Omega$

Fuel pressure = 3 bars ignition on/ 2.5 bars at idle speed

Value for: CO = 0.3 % maximum

HC = 100 ppm maximum

CO<sub>2</sub> = 14.5 % minimum

Lambda =  $0.97 < \lambda < 1.03$





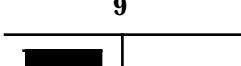
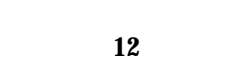


Sensor resistance					
Temperature in °C	0	20	40	80	90
<b>Air temperature sensor</b> Resistance in ohms	7470 to 11970	3060 to 4045	1315 to 1600	-	-
<b>Coolant temperature sensor</b> Resistance in ohms	6700 to 8000	2600 to 3000	1100 to 1300	270 to 300	200 to 215



NOTES	Engine cold, ignition on.
-------	---------------------------

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D13 (selector on S8)		<div>9.NJ</div> Use fiche n° 27 fault test side
2	Interpretation of normally illuminated bargraphs		<div>1</div> <div><div></div><div></div></div> <div>1</div> <div><div></div><div></div></div>	 Fault test  Code present
3	Immobiliser		<div>2</div> <div><div></div><div></div></div>	If the vehicle does not have an immobiliser, this bargraph may be illuminated.
4	Change to status test	G01*		<div>10.NJ</div> Use fiche n° 27 status test side

NOTES	Engine cold, ignition on.
-------	---------------------------

Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Interpretation of normally illuminated bargraphs		1 	Code present
			2 	No load recognition
			3 	Illuminated if immobiliser active
			4 	+ after ignition information received
			9 	Always illuminated if AC option is present
			12 	Illuminates after erasing the memory to indicate that the operation has been carried out correctly
			19 	Computer configured for:  manual gearbox (G50*2*)
			19 	automatic transmission (G50*1*)

NOTES	Engine cold, ignition on.
-------	---------------------------

Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	16 < X < 50 (E7J 780) 19 < X < 51 (K7M 744)
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>	
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	185 < X < 243 (E7J 780) 190 < X < 243 (K7M 744)
7	Absolute pressure sensor	# 01		X = Local atmospheric pressure
8	Coolant temperature sensor	# 02		X = Ambient temperature ± 5 °C
9	Air temperature sensor	# 03		X = Ambient temperature ± 5 °C
10	Idle speed regulation stepping motor	# 12		The value read is variable depending on the coolant temperature : 7 % ≤ X ≤ 100 %
11	Engine speed	# 06		X = 0 rpm
12	Canister bleed	# 23		X = 0.7 %

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected).
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test mode	G01*		<div>10.NJ</div> Use fiche n° 27 status test side
2	No fault present		<div>20</div> <div><div></div><div></div></div>	Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche. <b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 DEF.  Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)
3	Battery voltage	# 04  if in # 04  then # 06		13 volts < X < 14.5 volts  X < 12.7 volts  E7J 780 engine Engine speed < X < 930 rpm nominal  K7M 744 engine Engine speed < X < 912 rpm nominal
4	Interpretation of normally illuminated bargraphs	-	<div>1</div> <div><div></div><div></div></div> <div>2</div> <div><div></div><div></div></div>	Code present    No load recognition

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected).
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
4 (cont)	Interpretation of normally illuminated bargraphs (cont)	-	<div>3</div> <div><div></div><div></div></div> <div>4</div> <div><div></div><div></div></div> <div>6</div> <div><div></div><div></div></div> <div>6</div> <div><div></div><div></div></div> <div>7</div> <div><div></div><div></div></div> <div>8</div> <div><div></div><div></div></div> <div>9</div> <div><div></div><div></div></div> <div>12</div> <div><div></div><div></div></div>	<div>Engine speed information received</div> <div>+ after ignition information received</div> <div>Idle speed regulation active</div> <div>Richness regulation active</div> <div>Fuel pump active</div> <div>Illuminated if fan assembly is controlled (K7M 744 only)</div> <div>Always illuminated if AC option is present</div> <div>Illuminates after erasing the memory to indicate that the operation has been carried out correctly</div>

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected).
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
4 (cont)	Interpretation of normally illuminated bargraphs (cont)	-	<div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	Computer configured for:  manual gearbox (G50*2*)  automatic transmission (G50*1*)
5	Idle speed	<div>Without air conditioning operating</div> <div># 06</div> <div># 12</div> <div># 44</div> <div>Air conditioning selected</div> <div># 44</div> <div># 06</div> <div>PAS pressostat</div>	<div>6</div> <div><div></div><div></div></div> <div>9</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div> <div>13</div> <div><div></div><div></div></div> <div># 06</div>	<div>X = 750 ± 50 rpm</div> <div>2 % &lt; X &lt; 15 % (E7J 780)</div> <div>6 % &lt; X &lt; 15 % (K7M 744)</div> <div>X ≈ 250 W</div> <div>Illuminated depending on status of air conditioning</div> <div>250 ≤ X ≤ 4000 W if AC requests fast idle speed</div> <div>X = 880±50 rpm (E7J 780)</div> <div>X = 850±50 rpm (K7M 744)</div> <div>X = 800±50 rpm (E7J 780)</div> <div>X = 850±50 rpm (K7M 744)</div>

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Anti-pinking noise measurement	# 13 (3500 rpm, no load)		X variable or not zero
7	Manifold pressure	# 01 no consumers		X is variable and approximately $350 \pm 50$ mb (E7J 780) or $300 \pm 50$ mb (K7M 744) (this pressure varies with altitude)
8	Richness regulation	Stable engine speed of 2500 rpm then idle speed  # 05  # 35	<div>6</div> <div><div></div><div></div></div> <div>6</div> <div><div></div><div></div></div>	X varies in the range from 50 to 900 mV approximately  X is close to 128 and varies slightly with a maximum of 255 and minimum of 0
9	Adaptive idle speed correction	# 21		- $2.4 \% < X < 6.2 \%$ (average value after erasing the memory: 0)
10	Canister bleed	# 23	<div>7</div> <div><div></div><div></div></div>	Canister bleed is prevented. The solenoid valve remains closed. X = 0.7 %
11	PAS pressostat	# 06	<div>13</div> <div><div></div><div></div></div>	X = 800 rpm (E7J 780) X = 850 rpm (K7M 744)

NOTES	Checks to be carried out during a road test.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test	G01*		<div>10.NJ</div> <p>Use fiche n° 27 status test side</p>
2	No fault present		<div>20</div> <div><div></div><div></div></div>	<p>Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche.</p> <p><b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 dEF.</p> <p>Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)</p>
3	Canister bleed	# 23	<div>11</div> <div><div></div><div></div></div>	Canister bleed is authorised X = variable and > 0.7
4	Vehicle speed information	# 18		X = vehicle speed read on speedometer
5	Pinking sensor	Vehicle under load and engine speed 2000 rpm  # 13  # 15		<p>X = variable and not zero</p> <p><math>0 \leq X \leq 7</math> (if there is a sensor fault, the advance is retarded systematically by 3° , which is not visible using # 15)</p>





# D7F 720 ENGINE - 35 tracks

## MULTIPOINT INJECTION FAULT FINDING

### CONTENTS

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SETTING UP DIALOGUE BETWEEN THE XR25 AND THE COMPUTER

- Connect the test kit to the diagnostic socket.
- Put the selector on **S8**
- Switch on the ignition.
- Enter **D13**

9.NJ

COMPUTER IDENTIFICATION

The computer is not identified by reading a fault code but by reading the Part Number directly from the computer. After having set up a dialogue with the computer:

ENTER      G70\*

7700

XXX

XXX

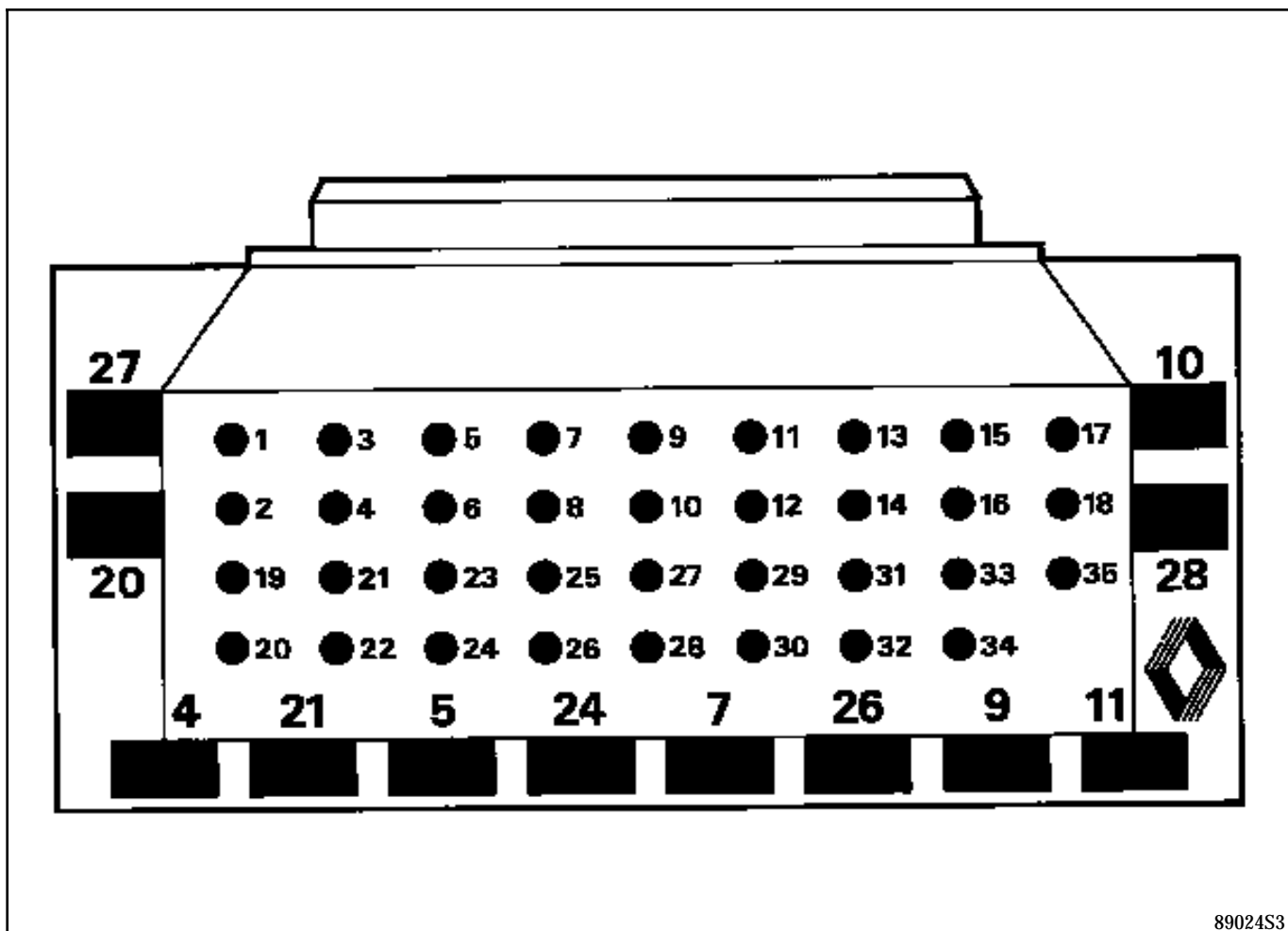
The Part Number will then appear on the central display in three sequences.

Each sequence is displayed for approximately two seconds. The display is repeated twice .

ERASING THE MEMORY (ignition on)

After an operation on the injection system the computer's memory can be erased by using the code G0\*\* .

If the information obtained by the XR25 requires electrical continuities to be checked, connect bornier **MS 1048**.



89024S3

Bornier **MS 1048** is a 35 track base with a printed circuit on which are 35 copper coated surfaces, numbered from 1 to 35.

Using the wiring diagrams, the tracks connecting the components to be tested can be easily identified.

### IMPORTANT :

- All tests using bornier **MS 1048** must be carried out with the battery disconnected.
- The bornier is only designed to operate with an ohmmeter. Under no circumstances should 12 Volts be applied to the test points.

## DESCRIPTION OF THE FAULT-FINDING PHASES

The process described below is to be carried out in all cases of faults.

### XR25 FAULT-CHECKING

This phase is the essential starting point for any intervention on the vehicle.

There are several constraints to the treatment of the bargraphs :

- A priority in the order of treatment when several bargraphs are illuminated.
- The interpretation of a bargraph depending on whether it is constantly illuminated or flashing .

Faults must be checked using the XR25 as described below:

- Switch off the ignition.
- Switch on the ignition and deal with any faults.
- Run the engine (or run at starter speed for 10 seconds) and deal with any faults.
- Carry out a road test and deal with any faults.

#### 1 - Order of priority

A series of illuminated bargraphs corresponding to the sensors with the same 12 V or having the same earth, indicates a fault in this source. These priorities are dealt with in the "NOTES" section of the fault-finding of the bargraph concerned.

#### 2 - Input / output fault bargraphs

##### a) Illuminated :

The fault is present : treat the fault following the method described in the "INTERPRETATION OF XR25 BARGRAPHS" section.

##### b) Flashing :

Note the bargraphs displayed on the XR25.

Erase the memory of the computer and attempt to re-illuminate the bargraph: ignition on, idle speed (or at starter speed) or by means of a road test (the "NOTES" section in the fault finding for the bargraph concerned may help to determine the conditions under which the bargraph will illuminate).

*If the bargraph has re-illuminated (fixed or flashing) :*

The fault is present once again. In this case, treat the fault bargraph.

*If the bargraph has not re-illuminated, check :*

- the electrical lines which correspond to the flashing fault,
- the connectors of these lines (for rust, bent pins...).
- the resistance of the component found to be faulty.
- the cleanliness of the wires (insulation melted or cut, friction..).

**NOTE :** If the customer complaint does not correspond to the fault bargraph which is flashing (example : Air temperature sensor fault bargraph flashing, but no customer complaint) ignore this memorised fault and erase it.

### **3 - No bargraphs illuminated**

If no bargraphs are illuminated on the XR25, carry out a status and parameter check. This may help in detecting a problem.

#### **XR25 CHECKING STATUSES AND PARAMETERS**

The status and parameter check is aimed at checking the statuses and parameters which do not illuminate any fault bargraphs if they are outside of permitted tolerance values. This phase allows :

- Faults to be found without the illumination of fault bargraphs which may correspond to a customer complaint (example : absence of no load information causing an unstable idle speed).
- The correct operation of the injection to be checked and the risk of faults appearing shortly after the repair to be eliminated.

This section contains fault-finding for statuses and parameters, under their test conditions (example : fault finding for # 01 ignition on and fault finding for # 01 engine running).

If a status does not operate normally or a parameter is outside of permitted tolerance values, consult the fault-finding page indicated in the "Fault-finding" column.

#### **XR25 CHECK CORRECT**

If the XR25 check is correct, but the customer complaint persists, the problem must be dealt with through customer complaints.

#### **Treatment of customer complaints**

This section has fault charts, which suggest a series of possible causes of the problem.

These lines of enquiry must only be used in the following cases :

- No fault bargraph appears on the XR25.
- No faults are detected during the checking of statuses and parameters.
- The vehicle is not operating correctly

#### **POST-REPAIR CHECK**

This operation is a simple check of the repair (by a command, or by an XR25 command mode ...).

This makes it possible to check that the system upon which the intervention has been carried out is correct electrically.

It is an introduction to the road test.

## ROAD TEST

A road test is essential in order to guarantee the correct operation of the vehicle and to test the quality of the repair. Its role is to make sure that no faults occur (or will occur) when driving.

In order to be significant, the road test is subject to special driving conditions.

### **Driving conditions for programming the adaptive variables:**

During the road test, the engine speed must be stabilised for a few moments between:

260 < # 01 < 385 mbars  
then 385 < # 01 < 510 mbars  
then 510 < # 01 < 635 mbars  
then 635 < # 01 < 760 mbars  
then 760 < # 01 < 970 mbars

Do not exceed an engine speed of 4400 rpm

The engine must be warm (coolant temperature > 75 °C).

For this test, start from a fairly low engine speed, in 3rd or 4th gear, and apply progressive acceleration to stabilise at the pressure required for 10 seconds in each zone.

The test must then be continued by driving normally, in a varied manner for 3 to 6 miles (5 to 10 km).

## PRESENTATION OF XR25 FICHE N° 27 SIDE 1/2

N°27 1/2		S8 code : D 1 3		read : 9nJ	
1	<input type="checkbox"/> ILLUMINATED → <input type="checkbox"/> EXTINGUISHED →	FAULT TEST TURN CARD		CODE PRESENT <input type="checkbox"/>	
2	<input type="checkbox"/>	COMPUTER		ENG. IMMOB. * 22 <input type="checkbox"/>	
3	<input type="checkbox"/>	AIR TEMPERATURE		O2 SENSOR * 23 <input type="checkbox"/>	
4	<input type="checkbox"/>	COOLANT TEMP.		VEHICLE SPEED <input type="checkbox"/>	
5	<input type="checkbox"/>	PRESSURE		FLYWHEEL SIGNAL * 25 <input type="checkbox"/>	
6	<input type="checkbox"/> * 06 PINKING	SENSOR CIRCUITS		THROTTLE POSITION <input type="checkbox"/>	
7	<input type="checkbox"/>	CAMSHAFT		FUEL TANK PRESSURE <input type="checkbox"/>	
8	<input type="checkbox"/> * 08 FUEL PUMP	RELAY CTRL CIRC.		BLOCKING * 28 <input type="checkbox"/>	
9	<input type="checkbox"/> * 09 ANTI-PERCOLATION			AIR PUMP * 29 <input type="checkbox"/>	
10	<input type="checkbox"/> * 10 O2 SENSOR OVERHEAT			BI MODE * 30 <input type="checkbox"/>	

INJECTION (FAULTS)		
Erase fault memory : G 0 ** Status check request : G01 *		
11	<input type="checkbox"/> * 11 INJECTOR CIRCUIT	CONNECTION A.T. → INJ <input type="checkbox"/>
12	<input type="checkbox"/> * 12 WARN. LAMP CIRC. DEF.	FUEL PUMP + INFO <input type="checkbox"/>
13	<input type="checkbox"/> SAVE DATA IN MEMORY	ADAC * 33 <input type="checkbox"/>
14	<input type="checkbox"/> * 14 IDLE SPEED REG CIRC.	BLEED CANISTER CIRC. * 34 <input type="checkbox"/>
15	<input type="checkbox"/> * 15 CONNECTION INJ. → AC	EGR CIRCUIT * 35 <input type="checkbox"/>
16	<input type="checkbox"/> * 16 IGNITION COILS	COLD START INJECTORS * 36 <input type="checkbox"/>
17	<input type="checkbox"/> * 17 MIL WARN. LIGHT	
18		
19		
20	<input type="checkbox"/> * 20 COMPUTER CONFIGURATION	XR25 MEMORY 0 <input type="checkbox"/>

ADDITIONAL CHECKS : # . .	
01	PRESSURE mb
02	Coolant temp. °C
03	Air temp. °C
04	Computer feed V
05	O2 sensor V
06	Engine speed rpm
12	Idling RCO %
13	Pinking signal
14	Engine speed gap rpm
15	Pinking correct.
16	Atmos. pressure mb
17	Throttle pot.
18	Vehicle speed km/h
21	Auto. correct. of RCO idling speed %
23	Canister purge RCO %
24	RCO EGR %
30	Auto. correct. of rich. under high loads
31	Auto. correct. of rich. under low loads
35	Richness corr.
44	P. absorbed by AC compressor W

End of test: G 13 *	
Part No : G 70 *	
Diagnosed faults : Press V and 9 Return to diagnostic mode : D	

17	ANG
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FI21727-1



## PRESENTATION OF FICHE XR25 N° 27 SIDE 2/2

N°27 2/2		read : 10 J
1	<div> <div>EXTINGUISHED</div> <div>ILLUMINATED</div> </div> <div> <div>STATUS TEST</div> <div>TURN CARD</div> </div>	CODE PRESENT <input checked="" type="checkbox"/>
2	<div>PG</div> <div>THROTTLE POSITIONS</div> <div>PL</div>	CONTROL MODES : G.. (IF ENGINE STOPPED)
3	<div>FLYWHEEL SIGNAL</div> <div>ACTIVE ENG. IMMOB.</div>	10* Fuel pump relay
4	<div>PARK/NEUTRAL POSITION</div> <div>+ APC COMPUTER</div>	11* Blocking relay
5	<div>TORQUE ADJUSTMENT</div> <div>RELAY CONTROL LOCKING</div>	12* AC compressor
6	<div>RICHNESS REGULATION</div> <div>IDLING REGULATION</div>	14* Idle speed reg. valve
7	<div>FUEL PUMP CONTROL</div> <div>BLEED CANISTER AUTHOR.</div>	16* Bleed canister valve
8	<div>ANTI-PERCOL. CTRL</div> <div>ELEC. W/SCREEN REQUESTED</div>	17* Anti percolation relay
9	<div>SELECTION</div> <div>ACCEL. IDLE SPEED</div>	21*1* Warn. light def.
10	<div>REQUEST</div> <div>AIR COND.</div> <div>COMPRESSION AUTHOR. OR PROHIBITED</div>	22* Air pump relay
(WARNING : monitor bar graph 20 left)		23* EGR valve
INJECTION (STATUS)		24* Bi-mode inlet valve
Erase fault memory : G 0 **		31* Injector control
Request fault test : G 02 *		50*x* Computer set-up
11	<div>CAMSHAFT SIGNAL</div> <div>BLEED CANISTER + ACTIVE SOL VALVES</div>	57*x* Idle speed adj.
12	<div>EGR SV CONTROL</div> <div>MEMORISED FAULTS</div>	58*x* Computer configuration
13	<div>AIR PUMP CONTROL</div> <div>POWER STEERING PRESSOSTAT</div>	59*x* INJ Lock/Unlock
14	<div>BI-MODE INLET CTRL</div> <div>COLD START INJECTORS</div>	60* Zeroing validation
15	<div>SPEED SENSOR well connected</div>	
16		
17		
18		
19	<div>Veh. with AT</div> <div>COMPUTER CONFIGURATION</div> <div>Veh. with man. g/box</div>	<div>See procedure on REMINDER CARD C</div>
20	<div>FAULT PRESENT</div> <div>XR25 MEMORY</div>	ADDITIONAL CHECKS : # . .
		01 Pressure mb
		02 Coolant temp. °C
		03 Air temp. °C
		04 Computer feed V
		05 O2 Sensor V
		06 Engine speed rpm
		12 Idling RCD %
		13 Pinking signal
		14 Eng. speed gap rpm
		15 Pinking correct. d°
		16 Atmos. pressure mb
		17 Throttle pot.
		18 Vehicle speed km/h
		21 Auto corr.RCD idle speed %
		23 RCD bleed canister %
		24 RCD EGR %
		30 Auto corr.drich under/high back
		31 Auto. corr. of richness
		35 Mixture regulation
		44 P. absorbed by W
		AC compressor
		End of test : G 13 *
		Part No : G 70 *
		Diagnosed faults : Press V and 9
		Return to diagnostic mode : D
		17 ANG

FI21727-2

REPRESENTATION OF THE BARGRAPHS

Illuminates when a dialogue has been established with the product computer. If it remains extinguished:

- the code does not exist,
- there is a fault in the tool, the computer or the line

REPRESENTATION OF THE FAULTS (always on a coloured background)

If illuminated, indicates a fault on the tested product, the associated text defines the fault.  
If flashing, there is a fault memorised for the product tested, the associated text defines the fault.

If extinguished, indicates that the fault has not been found on the tested product.

REPRESENTATION OF THE STATUSES (always on a white background)

Engine off, ignition on, no operator action

The status bargraphs on the fiche are represented as the status 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 as
- If on the fiche the bargraph is represented as
- If on the fiche the bargraph is represented as

either or

the test kit should give as information

the test kit should give as information

the test kit should give as information

Engine running

Extinguishes when the function or condition given on the fiche is no longer performed.

Illuminates when the function or condition given on the fiche is performed

Fiche n° 27 is a generic fiche used for several engines.

The different engines do not use all the bargraphs. To find out the bargraphs dealt with by the injection computer, after having set up a dialogue with the computer, press the V and 9 buttons simultaneously.

The bargraphs dealt with will:

- illuminate permanently for non memorisable fault bargraphs or status bargraphs,
- flash for memorisable fault bargraphs.

To return to fault finding mode, press button D.

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 RH extinguished</div> <div>Fiche n° 27 side 1/2</div> <div>XR25 CIRCUIT</div> <div>XR25 aid:   No connection, CO, CC-, CC+</div>
--	--

NOTES	This bargraph must be illuminated for fault finding
-------	---

Test the XR25 on another vehicle.
<div>Check:</div> <div><div>- the connection between the XR25 and the diagnostic socket (condition of the XR25 cable)</div><div>- the position of the ISO selector (S8),</div><div>- the conformity of the cassette.</div><div>- the injection, engine and passenger compartment fuses,</div></div> <div>Repair if necessary.</div>
<div>Check the presence of + 12 V on track 16 and earth on track 5 of the diagnostic socket.</div> <div>Repair if necessary.</div>
<div>Check, ignition on, for 12 V on track:</div> <div><div>- 1 on the main relay,</div><div>- 3 on the main relay,</div><div>- 1 on the fuel pump relay.</div></div> <div>Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div><div>Computer    4   →   Earth</div><div>Computer   16   →   Earth</div><div>Computer   34   →   Earth</div><div>Computer    9   →   7   Diagnostic socket</div><div>Computer   10   →   15  Diagnostic socket</div><div>Computer   18   →   5   Main relay</div><div>Computer   26   →   2   Main relay</div><div>Computer   20   →   2   Fuel pump relay</div></div> <div>Repair if necessary.</div>
<div>Ignition on, check for 12 V on track 5 of the main relay:</div> <div><div>- If there is 12 V on track 5 of the main relay: replace the fuel pump relay.</div><div>- If there is not 12 V on track 5 of the main relay: replace the main relay.</div></div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER CIRCUIT</div> <div>XR25 aid:    Computer faulty</div>
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NOTES	None
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The computer is incorrect or faulty.  
Replace the computer.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>IMMOBILISER CIRCUIT</div> <div>XR25 aid:   *22 = 1 dEF CO, CC- or CC+ line 30 on the computer</div> <div>                  *22 = 2 dEF Refer to the immobiliser fault finding</div>
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NOTES	Ignore this bargraph if the vehicle is not fitted with an immobiliser.
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Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the wiring on track <b>30</b> of the computer. Repair if necessary.
If the fault persists, refer to the immobiliser fault finding.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>3</div> <div><div></div><div></div></div>	<div>Bargraph 3 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>AIR TEMPERATURE SENSOR CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+line 2 or 15 on the computer</div>
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NOTES	<div>For certain faults BG 6RH may be flashing</div> <div>If BG 4LH or BG 5LH or BG 6LH or BG 6RH are also illuminated,check line 15 on the computer.</div>
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<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div><div>Computer2</div><div>→</div><div>2</div><div>Air temperature sensor</div></div> <div><div>Computer15</div><div>→</div><div>1</div><div>Air temperature sensor</div></div> <div>Repair if necessary.</div>	
<div>Check the resistance of the sensor. Replace it if necessary.</div>	
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>	

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>3</div> <div><div></div><div></div></div>	<div>Bargraph 3 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>OXYGEN SENSOR CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+line 22 on the computer CO line 4 on the computer</div>
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NOTES	<div>If BG 3RH is flashing, increase the engine speed to 2500 rpm for 5 minutes</div> <div>If BG 3RH becomes permanently illuminated, deal with the fault.</div>
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<div>Check the connection and the condition of the connector on the oxygen sensor.</div>
<div>Check, <b>ignition on during the timed phase</b>, for :</div> <div>- <b>earth on track B of the oxygen sensor</b>,</div> <div>- <b>+ 12 V after the fuel pump relay on track A of the oxygen sensor</b>.</div> <div>Repair if necessary.</div>
<div>Check for the presence of earth on track 4 on the injection computer.</div> <div>Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div><b>Computer 22 —————&gt; C Oxygen sensor</b></div> <div>Repair if necessary.</div>
<div>The fault persists. Replace the oxygen sensor.</div>
<div>The fault persists! Replace the injection computer.</div> <div><b>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</b></div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COOLANT TEMPERATURE SENSOR CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+line 15 or 6 on the computer</div>
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NOTES	<div>If BG 3LH or BG 5LH or BG 6LH or BG 6RH is also illuminated, check line 15 on the computer. For certain faults, BG 4LH is only permanently illuminated when the engine is running.</div>
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<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div>Computer 15 —————&gt; B1 Coolant temperature sensor</div> <div>Computer 6 —————&gt; B2 Coolant temperature sensor</div> <div>Repair if necessary.</div>
<div>Check the resistance of the sensor. Replace it if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>VEHICLE SPEED CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 8 on the computer</div>
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NOTES	Carry out a road test checking #18 if BG 4 RH is flashing. Deal with this fault if BG 4 RH illuminates permanently during the road test or #18 = 0
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Check the sensor is correctly positioned.
Check on the vehicle speed sensor for: - earth on track B2, - + 12 after ignition feed on track A. Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line: <div>Computer      8      —————&gt;      B1      Vehicle speed sensor</div> Repair if necessary.
The fault persists! Replace the sensor.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>PRESSURE SENSOR CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 5, 15 or 23 on the computer</div>
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NOTES	<div>If BG 6RH is also illuminated, check line 5 on the computer.</div> <div>If BG 4LH or BG 3LH or BG 6LH or BG 6RH is also illuminated, check line 15 on the computer.</div>
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<div>Check that the pressure sensor is connected correctly both <b>electrically and pneumatically</b>.</div> <div>Check the conformity of the pressure sensor pipe (it must not be holed or blocked...).</div>
<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer5→CPressure sensor</div><div>Computer15→APressure sensor</div><div>Computer23→BPressure sensor</div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the sensor.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>FLYWHEEL SIGNAL CIRCUIT</div> <div>XR25 aid:   *25 = CO.0   =&gt;   CO or CC- line 13 or 31 on the computer</div> <div>                  *25 = CC.0   =&gt;   CC- line 13 or 31 on the computer</div> <div>                  *25 = In     =&gt;   sensor incorrectly connected</div>
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NOTES	<div>BG 5RH is often seen to flash if *25 = dEF as its illumination is very quick. In certain cases BG 5RH may illuminate then extinguish.</div> <div>In this case enter *25 and try to illuminate BG 5RH under starter speed.</div>
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<div>*25 = CO.0</div> <div>*25 = CC.0</div>	<div>Check the resistance of the target sensor.</div> <div>Replace the sensor if necessary.</div>
	<div>Check the condition of the flywheel, especially if it has been removed.</div>
	<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div>Computer   13   ————&gt;   B   Target sensor</div> <div>Computer   31   ————&gt;   A   Target sensor</div> <div>Repair if necessary.</div>
	<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:   The computer has probably been damaged by an electric shock.</div> <div>                  The cause of the damage must be found before fitting a new computer.</div>

<div>*25 = In</div>	<div>Check the target sensor has been correctly connected (the sensor connector must not be inverted).</div> <div>Repair if necessary.</div>
	<div>The fault persists! Replace the sensor.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>PINKING SENSOR CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 1 or 15 on the computer</div>
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NOTES	<div>For certain faults BG 6LH will only illuminate permanently at 3000 rpm. for 1 minute. If BG 4LH or BG 5LH or BG 3LH or BG 6RH is also illuminated, check line 15 on the computer.</div>
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<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div>Computer 1 → 2 Pinking sensor</div> <div>Computer 15 → 1 Pinking sensor</div> <div>Computer 16 → Pinking sensor screening</div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the pinking sensor.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>THROTTLE POTENTIOMETER CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 3, 5 or 15 on the computer</div>
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NOTES	<div>If BG 6RH is flashing and BG 3LH is fixed, deal with BG 3LH. If BG 5LH is also illuminated, check line 5 on the computer. If BG 4LH or BG 5LH or BG 6LH or BG 3LH is also illuminated, check line 15 on the computer .</div>
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<div>Check the resistance of the throttle potentiometer.</div> <div>Replace the throttle potentiometer if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div><div>Computer</div><div>3</div><div>→</div><div>C</div><div>Throttle potentiometer</div></div><div><div>Computer</div><div>5</div><div>→</div><div>B</div><div>Throttle potentiometer</div></div><div><div>Computer</div><div>15</div><div>→</div><div>A</div><div>Throttle potentiometer</div></div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>FUEL PUMP CIRCUIT</div> <div>XR25 aid: Just detection of CC+ on line 20 of the computer</div>
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NOTES	CO or CC- on line 20 of the computer prevents dialogue with the computer. In certain cases of faults, BG 11 LH or BG 14 RH may also be illuminated.
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Check the insulation from 12 V of line : <div>Computer 20 → 2 Fuel pump relay</div> Repair if necessary.
The fault persists! Replace the fuel pump relay.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>INJECTOR CIRCUIT</div> <div>XR25 aid:   *11 = XX.CO   =&gt; CO or CC- line 32 or 33 of the computer</div> <div>                  *11 = XX.CC   =&gt; CC+ line 32 or 33 of the computer</div>
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NOTES	<div>XX = 14 =&gt; Cylinder 1 or 4 line 33 of the computer</div> <div>XX = 23 =&gt; Cylinder 2 or 3 line 32 of the computer</div> <div>If BG 8LH or BG 14 RH is also illuminated, refer to BG 8LH</div>
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<div>Check the resistance of the valve for the two faulty injectors.</div> <div>Replace the injector/s if necessary.</div>
<div>When the ignition is switched on and during the timed phase, check for 12 V on track 1 of the faulty injector.</div> <div>If necessary, repair the line from track 1 injector to track 5 fuel pump relay.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line :</div> <div>Computer    33   →   2    Injectors 1 and 4</div> <div>Computer    32   →   2    Injectors 2 and 3</div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:   The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>11</div> <div><div></div><div></div><div></div></div>	<div>Bargraph 11 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>AT→ INJECTION CIRCUIT</div> <div>XR25 aid:   None</div>
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NOTES	None.
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Ignore the illumination of this bargraph with this computer.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>12</div> <div><div></div><div></div></div>	<div>Bargraph 12 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>FAULT WARNING LIGHT CIRCUIT</u></div> <div>XR25 aid :   *12 = CC.1 : CC+ line 19 on the computer                   *12 = CO.0 : CO or CC- line 19 on the computer</div>
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NOTES	None
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<div>Check the condition of the warning light and its feed. Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of <b>line 19 of the computer</b>. Repair.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>MEMORY CIRCUIT</u></div> <div>XR25 aid:    Loss of computer feed</div>
<div>NOTES</div>	<div>None</div>

This bargraph only illuminates when the computer feed has been cut (disconnection of the battery, the computer, ...).

Check the computer feed hygiene:

Computer	18	→	5	Main relay
Main relay	3	→		Fuse
Computer	26	→	2	Main relay
Main relay	1	→		Fuse
Computer	20	→	2	Fuel pump relay
Fuel pump relay	1	→		Fuse

Repair if necessary.  
Turn the engine.  
Switch the ignition off and wait for the loss of dialogue between the XR25 and the computer.  
Switch the ignition on.  
Enter dialogue with the computer.  
Erase the computer memory using G0\*\*.

**NOTE :** memorised faults are erased. It would therefore be useful to carry out a road test to check there are no faults on the injection system.

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>IDLE SPEED REGULATION CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 11 or 12 or 28 or 29 on the computer</div>
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<div>NOTES</div>	<div>If BG 14 LH is flashing, erase the computer memory using G0**.</div> <div>Turn the engine.</div> <div>If BG 14 LH is now permanently illuminated or flashing, deal with this fault.</div>
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<div>Check the resistance of the idle speed regulation stepping motor.</div> <div>Check the idle speed regulation valve if necessary.</div>
<div>Check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer11</div><div>—————&gt;</div><div>D</div><div>idle speed regulation stepping motor</div></div> <div><div>Computer12</div><div>—————&gt;</div><div>A</div><div>idle speed regulation stepping motor</div></div> <div><div>Computer28</div><div>—————&gt;</div><div>B</div><div>idle speed regulation stepping motor</div></div> <div><div>Computer29</div><div>—————&gt;</div><div>C</div><div>idle speed regulation stepping motor</div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>CANISTER BLEED CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 24 on the computer</div>
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NOTES	If BG 8 LH or BG 11 LH is also illuminated, refer to BG 8 LH.
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<div>Check the resistance of the canister bleed valve.</div> <div>Replace the valve if necessary.</div>
<div>Check, ignition on , for 12 V on track A of the canister bleed.</div> <div>Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div>Computer      24      →      B      Canister bleed valve</div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:    The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>COMPUTER</u> → <u>AC CONNECTION CIRCUIT</u></div> <div>XR25 aid:   None</div>
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NOTES	None
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Ignore the illumination of this bargraph with this computer.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>16</div> <div><div></div><div></div></div>	<div>Bargraph 16 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER → MPA CONNECTION CIRCUIT</div> <div>XR25 aid:   *16 = XX.CO   =&gt; CO or CC- line 17 or 35 of the computer</div> <div>                  *16 = XX.CC   =&gt; CC+ line 17 or 35 of the computer</div>
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NOTES	<div>XX = 14 =&gt; Cylinder 1 or 4 line 35 of the computer</div> <div>XX = 23 =&gt; Cylinder 2 or 3 line 17 of the computer</div> <div>If BG 16 LH is flashing, erase the computer memory using G0**. Turn the engine. If BG 16 LH illuminates permanently or flashes, deal with this fault.</div>
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Check the hygiene of the anti-interference condenser on track 4 of the coil.
Check the resistance of the coil. Replace the coil if necessary.
Check the + after ignition feed to the coil concerned on track 3. Repair if necessary.
Connect the bornier in place of the computer and check the insulation and continuity of the line : <div>Computer   17 →   2   Coil</div> <div>Computer   35 →   1   Coil</div> Repair if necessary.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Dialogue with XR25	D13 (selector on S8)	<div>1</div> <div><div></div><div></div></div> <div>1</div> <div><div></div><div></div></div>	Fault test <div>9.NJ</div> Use fiche 27 Code present	Deal with fault bargraph
2	Change to status test	G01*	<div>1</div> <div><div></div><div></div></div>	<div>10.NJ</div> Status test	None
3	Battery voltage	# 04		11.8 < X < 13.2 V	DIAG 1
4	Computer configuration		<div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	Computer configured to manual gearbox  Computer configured to automatic transmission	See Fiche "Reminder C" to configure vehicle
5	Immobiliser (if option)	Ignition on	<div>3</div> <div><div></div><div></div></div>	This status bargraph must be extinguished when the ignition is on to indicate that the immobiliser is not active.	DIAG 12

NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	10 < X < 50	DIAG 2
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>		
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	185 < X < 245	
7	Pressure sensor	# 01		X = Atmospheric pressure	DIAG 9
8	Coolant temperature sensor	# 02		X = Engine temperature ± 5 °C	DIAG 3
9	Air temperature sensor	# 03		X = Temperature under bonnet ± 5 °C	DIAG 4
10	Fan assembly	G17*		Fan must operate	DIAG 16
11	Fault warning light	G21*1*		Fault warning light must illuminate then extinguish	DIAG 18
12	Canister bleed	G16*		Canister bleed valve must be heard to operate	DIAG 19



Fault finding - Status and parameter checks

NOTES	Carry out the actions below <b>if the engine does not start.</b> Otherwise, refer to the following pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Flywheel signal sensor	Starter	<div>3</div> <div><div></div><div></div></div>	Illuminated if TDC information is detected	DIAG 5
2	Fuel pump	G10*		Fuel pump should be heard to operate	DIAG 6
3	Ignition	Connect Optima Station		Starting test. Complete guide on Optima Station	Use Optima 5800 Station
4	Fuel pressure	Connect pressure gauge to fuel inlet and activate starter motor		Pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section
5	Injector command	Starter		Fuel must come out of the injector	DIAG 11
6	Engine compression	Connect Optima Station		Complete guide on Optima Station	Use Optima 5800 Station
7	Flywheel	Connect Optima Station		Oscilloscope. Complete guide on Optima Station	Use Optima 5800 Station

NOTES	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Charging circuit	# 04		$13 < X < 14.5 \text{ V}$	DIAG 1
2	Throttle potentiometer	No load	<div>2</div> <div><div></div><div></div></div>	Illuminated (does not flash!)	DIAG 2
3	Idle speed regulation	# 06 # 12 # 21	<div>6</div> <div><div></div><div></div></div>	$690 < X < 790 \text{ rpm}$ $4 \% < X < 14 \%$ $- 4.3 \% < X < 3.9 \%$	DIAG 7
4	Anti-pinking circuit	# 13 (at 3500 rpm, no load)		X variable and not zero	DIAG 8
5	Pressure circuit	# 01 # 16		$270 \leq X \leq 500 \text{ mb}$ X = atmospheric pressure	DIAG 9
6	Richness regulation	# 35 # 05	<div>6</div> <div><div></div><div></div></div>	$0 < X < 255$ X varies around 128 $0.050 \leq X \leq 0.900 \text{ V}$	DIAG 10 See also DIAG 15

NOTES	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
7	Fuel pressure	Connect a pressure gauge to the fuel inlet and activate the starter motor		Pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section
8	Power assisted steering pressostat	Turn wheels to full lock	<div>13</div> <div><div></div><div></div></div>	Illuminated when wheels turned to full lock	DIAG 17

NOTES	Check during road test.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Vehicle speed information	# 18		X = speed read on speedometer in km/h	DIAG 13
2	Adaptive richness	Program- ming  # 30  # 31		  106 ≤ X ≤ 150  106 ≤ X ≤ 150	DIAG 14
3	Emission of pollutants	2500 rpm after driving  At idle speed, wait for stabilisation		  CO < 0.3 % CO2 > 13.5 % O2 < 0.8 % HC < 100 ppm 0.97 < λ < 1.03  CO < 0.5 % HC < 100 ppm 0.97 < λ < 1.03	DIAG 15 see also DIAG 10

DIAG 1	<div>Fiche n° 27</div> <div>BATTERY VOLTAGE</div> <div>XR25 aid:    Battery voltage, ignition on, Minimum &lt; # 04 &lt; Maximum                     Battery voltage, idle speed, Minimum &lt; # 04 &lt; Maximum</div>
NOTES	No fault bargraphs should be illuminated. No consumers

Ignition on

<div>If # 04 &lt; Minimum, the battery is discharged: Check the charging circuit to determine the cause of this fault.</div>
<div>If # 04 &gt; Maximum, the battery may be overcharged: Check the charging voltage is correct with and without consumers.</div>

At idle speed

<div>If # 04 &lt; Minimum, the charging voltage is too low: Check the charging circuit to determine the cause of this fault.</div>
<div>If # 04 &gt; Maximum, the charging voltage is too high: The alternator regulator is faulty. Repair this fault and check the electrolyte level in the battery.</div>

**NOTE:**  
The battery and the charging circuit may be checked using the OPTIMA 5800 station (measurement does not require the battery to be disconnected, which retains the memories of the computers).

AFTER REPAIR	Start the status and parameter check again from the beginning.
--------------	--

DIAG 2	<div>THROTTLE POTENTIOMETER</div> <div>Fiche n° 27</div> <div>XR25 aid:   # 17 outside tolerances                   # 17 does not vary when throttle moves                   Status BG 2LH or 2RH, incorrect illumination</div>
NOTES	No fault bargraphs should be illuminated. Ignition on or engine running.

Status bargraph 2RH incorrect illumination	NOTES	None
---	-------	------

Check the resistance of the throttle potentiometer. Replace the throttle potentiometer if necessary.
Check the insulation, continuity and absence of interference resistance of the line: <div><div>Computer   3   →   C   Throttle potentiometer</div><div>Computer   5   →   B   Throttle potentiometer</div><div>Computer   15 →   A   Throttle potentiometer</div></div> <div>Repair if necessary.</div>

# 17 is fixed	NOTES	None
---------------	-------	------

Check the resistance of the throttle potentiometer when the throttle butterfly is moved.
If the resistance varies, check the electrical lines of the sensor.
If the resistance does not vary, check that the sensor is connected mechanically to the throttle. If necessary, replace the sensor.

# 17 outside tolerances	NOTES	None
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Check the upper and lower stops of the throttle butterfly. Check the accelerator control (points of resistance and friction). Repair.
---

AFTER REPAIR	Start the status and parameter check again from the beginning.
--------------	--

DIAG 3	<div>Fiche n° 27</div> <div>COOLANT TEMPERATURE</div> <div>XR25 aid:    # 02 = Engine temperature ± 5 °C</div>
NOTES	No fault bargraphs should be illuminated.

If the value read is incoherent, check the sensor is correctly following the standard table of values for "resistance as a function of temperature".

Replace the sensor if the values are incorrect (**NOTE** : If a sensor is incorrect, this is often due to an electric shock).

Check the insulation, continuity and that there is no interference resistance on the electrical line :

Computer	6	————→	B2	Coolant temperature sensor
Computer	15	————→	B1	Coolant temperature sensor

Repair.

AFTER REPAIR	Start the status and parameter check again from the beginning.
--------------	--

DIAG 4	<div>AIR TEMPERATURE</div> <div>Fiche n° 27</div> <div>XR25 aid:    # 03 = Temperature under the bonnet ± 5 °C</div>
--------	--

NOTES	No fault bargraphs should be illuminated.
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If the value read is incoherent, check the sensor is correctly following the standard table of values for "resistance as a function of temperature".

Replace the sensor if the values are incorrect (**NOTE** : If a sensor is incorrect, this is often due to an electric shock).

Check the insulation, continuity and that there is no interference resistance on the electrical line :

Computer	2	→	2	Air temperature sensor
Computer	15	→	1	Air temperature sensor

Repair.

AFTER REPAIR	Start the status and parameter check again from the beginning.
--------------	--



<b>DIAG 5</b>	<b>TDC DETECTION</b>  <b>XR25 aid:</b> Status BG 3LH, incorrect illumination	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. When the starter motor is activated.
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Check the resistance of the TDC sensor. Replace the sensor if necessary.										
Check the sensor is correctly mounted. Repair if necessary.										
Check the condition of the target (if it has been removed). Repair if necessary.										
Check the insulation, continuity and that there is no interference resistance on the electrical line :  <table><tr><td>Computer</td><td>13</td><td>————→</td><td>B</td><td>Flywheel signal sensor</td></tr><tr><td>Computer</td><td>31</td><td>————→</td><td>A</td><td>Flywheel signal sensor</td></tr></table> Repair.	Computer	13	————→	B	Flywheel signal sensor	Computer	31	————→	A	Flywheel signal sensor
Computer	13	————→	B	Flywheel signal sensor						
Computer	31	————→	A	Flywheel signal sensor						

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 6	<div>FUEL PUMP</div> <div>Fiche n° 27</div> <div>XR25 aid:   The command mode should cause the fuel pump to operate</div>
--------	---

NOTES	No fault bargraphs should be illuminated.
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Check the fuel pump fuse.  
Check the insulation and continuity of the wiring:

Fuel pump fuse

—————>

3

Fuel pump relay

Repair if necessary.

Check the insulation and continuity of the wiring:

Fuel pump relay  
Impact sensor

5

—————>

Impact sensor  
C1 Fuel pump

Repair if necessary.

Check the hygiene and presence of earth on track **C2 of the fuel pump**.

If + 12 V is not reaching the fuel pump, replace the fuel pump relay.

If + 12 V is reaching the fuel pump, replace the fuel pump.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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DIAG 7	<div>IDLE SPEED REGULATION</div> <div>Fiche n° 27</div> <div>XR25 aid:    Engine speed , Minimum &lt; # 06 &lt; Maximum</div>
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NOTES	No fault bargraphs should be illuminated.
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<div>Check the resistance of the idle speed regulation stepping motor. Replace the idle speed regulation valve if necessary.</div>
<div>Check the insulation and continuity of the line:</div> <div><div><div>Computer    11    —————&gt; D    Idle speed regulation motor</div><div>Computer    12    —————&gt; A    Idle speed regulation motor</div><div>Computer    28    —————&gt; B    Idle speed regulation motor</div><div>Computer    29    —————&gt; C    Idle speed regulation motor</div></div><div>Repair if necessary and continue fault finding using the value for # 06.</div></div>

# 06 < Minimum	NOTES	The idle speed is too low
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<div>Idle speed regulation is not maintaining the idle speed.</div> <div><div>- Clean the air supply circuit (throttle body, idle regulation valve), since it is probably contaminated.</div><div>- Check the engine oil level (too high ---&gt; splashing).</div><div>- Check and ensure correct fuel pressure.</div><div>- Using the OPTIMA 5800 station, check the engine compression.</div><div>- Check the valve clearances and the timing.</div></div> <div>If all these points are correct, replace the idle regulation motor.</div>
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# 06 > Maximum	NOTES	The idle speed is too high
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<div>An air leak may be affecting the idle speed regulation programming.</div> <div><div>- Check the connections on the manifold.</div><div>- Check the hygiene of the pipes on the manifold.</div><div>- Check the pneumatically controlled solenoid valves.</div><div>- Check the manifold gaskets.</div><div>- Check the throttle body gaskets.</div><div>- Check the sealing of the brake servo.</div><div>- Check the restrictions are present in the oil vapour rebreathing circuit.</div><div>- Check the fuel pressure.</div></div> <div>If all these points are correct, replace the idle speed regulation motor.</div>
--

AFTER REPAIR	Start the status and parameter check again from the beginning.
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DIAG 8	<div>ANTI-PINKING CIRCUIT</div> <div>Fiche n° 27</div> <div>XR25 aid: # 13 is not zero and variable for fast idle or under load</div>
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NOTES	No fault bargraphs should be illuminated.
-------	---

The pinking sensor should give a signal which is variable and not zero, to prove that it is recording the mechanical vibrations of the engine.

If the signal is zero:

- Check the sensor is correctly screwed in.
- Check the insulation and continuity of the wiring:

Computer

1

→

2

Pinking sensor

Computer

15

→

1

Pinking sensor

Computer

16

→

Pinking sensor screening

If necessary, replace the sensor.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 9</b>	<div>Fiche n° 27</div> <b>PRESSURE CIRCUIT</b> <b>XR25 aid:</b> Ignition on # 01 not coherent At idle speed # 01 < Minimum or # 01 > Maximum # 16 not coherent
<b>NOTES</b>	No fault bargraphs should be illuminated.

# 01 not coherent  
ignition on  
# 01 < Minimum at idle  
speed  
# 16 not coherent

Check the insulation, continuity and that there is no interference resistance on the line:

Computer5→C

Computer15→A

Computer23→B

Pressure sensor

Pressure sensor

Pressure sensor

Repair if necessary.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

# 01 > Maximum at idle  
speed

The manifold pressure is often a sign of incorrect engine operation. Check

- the sealing of the pipe between the manifold and the sensor,
- the valve clearances,
- the canister bleed valve which should be closed at idle speed,
- cylinder compression using the OPTIMA 5800 station.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 10</b>	<b>RICHNESS REGULATION</b> <b>XR25 aid:</b> Richness regulation faulty	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Ignition correct (a check may be made using the OPTIMA 5800 station). No other status bargraph should show a fault.
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Using a vacuum pump fitted with a pressure gauge, check the coherence of # 01. If incoherence is present, refer to "DIAG 9 # 01 incoherent, ignition on".
Check the sealing of the canister bleed valve (a leak can disrupt the richness considerably). Check the sealing of the exhaust pipe upstream from the oxygen sensor. Check the sealing of the inlet manifold. If the vehicle has only been driven in town, the sensor is contaminated (try driving under load). Check the fuel pressure. If the idle speed is unstable, check the valve clearances. Check the injectors (flow and shape of the jet). If necessary, replace the oxygen sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 11</b>	<b>INJECTOR</b> <b>XR25 aid:</b> CO or CC - line 33 of the computer for injectors 1 and 4 CO or CC - line 32 of the computer for injectors 2 and 3	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the resistance of the faulty injector. Replace it if necessary.
During command mode operation, check for + 12 Volts on track 1 of the faulty injector. Repair.
Check the insulation and continuity of the line: <div>injectors 1 and 4    Computer    33    —————&gt;    2 injectors</div> <div>injectors 2 and 3    Computer    32    —————&gt;    2 injectors</div> Repair if necessary.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 12	<div>IMMOBILISER</div> <div>Fiche n° 27</div> <div>XR25 aid:    Status BG 3RH, incorrect illumination</div>
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NOTES	No fault bargraphs should be illuminated.
-------	---

Check the insulation and continuity of the wiring for track <b>30</b> on the injection computer.
If the fault persists, refer to the immobiliser fault finding.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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DIAG 13	<div>VEHICLE SPEED</div> <div>Fiche n° 27</div> <div>XR25 aid: # 18 = Speed read on speedometer in km/h</div>
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NOTES	No fault bargraphs should be illuminated. Check on a road test.
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<div>If the value read is incoherent:</div> <div><div>- Check that the sensor is correctly mounted and supplied:<ul style="list-style-type: none"><li>+12 V on A1</li><li>Earth on B2</li></ul></div><div>- Check the insulation, continuity and that there is no interference resistance on the line:</div><div>Computer 8 —————&gt; B1 vehicle speed sensor</div><div>NOTE : check the various functions using this information.</div><div>Repair.</div></div>
The fault persists! Replace the speed sensor.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<p><b>DIAG 14</b></p>	<p style="text-align: right;">Fiche n° 27 side 2/2</p> <p><b>ADAPTIVE RICHNESS</b></p> <p><b>XR25 aid:</b>    Minimum &lt; # 30 &lt; Maximum                                     Minimum &lt; # 31 &lt; Maximum</p>
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<p><b>NOTES</b></p>	<p>No fault bargraphs should be illuminated.          Carry out the programming operations.</p>
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Ensure the canister bleed valve is sealed.

Erase the computer memory.

Engine warm , running at idle speed, check the values for # 30 and # 31.

- **If # 30 or # 31 is at a MAXIMUM, there is not enough fuel .**
- **If # 30 or # 31 is at a MINIMUM, there is too much fuel.**

Ensure the hygiene, cleanliness and correct operation of :

- filter
- fuel pump
- fuel circuit
- fuel tank.

<p><b>AFTER REPAIR</b></p>	<p>Start the status and parameter check again from the beginning.</p>
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DIAG 15	<div>EMISSION OF POLLUTANTS</div> <div>Fiche n° 27</div> <div>XR25 aid:   None</div>
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NOTES	No fault bargraphs should be illuminated.
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0.97 ≤ λ ≤ 1.03 at 2500 rpm	NOTES	The oxygen sensor loops correctly at 2500 rpm.
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If CO > 0.3 % at 2500 rpm
The catalytic converter is faulty. <b>NOTE</b> : it is vital to determine the cause of the catalytic converter damage to avoid a new converter also being damaged.

If λ < 0.97 or λ > 1.03 at idle speed
Check the sensor earth and heating. Check there is no air leak at the manifold.

0.97 ≤ λ ≤ 1.03 at 2500 rpm	NOTES	The oxygen sensor does not loop correctly at 2500 rpm.
There is a fault with the injection or the sensor.		

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 15</b>  CONT	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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$\lambda > 1.03$ at 2500 rpm	<b>NOTES</b>	None
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The oxygen sensor loops correctly at 2500 rpm.
Check there is no leak at the exhaust. Check that an injector has not seized. Check the fuel pressure is not too low.

The oxygen sensor does not loop correctly at 2500 rpm.
Check there is not an injection fault. Check there is not an ignition fault. Check the sensor is not faulty. Check the fuel pressure.

$\lambda < 0.97$ at 2500 rpm.	<b>NOTES</b>	The oxygen sensor does not loop correctly at 2500 rpm., CO > 0.3 % at 2500 rpm.
		Check the pressure sensor. Check the sensor. Check that an injector is not faulty.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 16</b>	<div>Fiche n° 27</div> <b>ANTIPERCOLATION RELAY</b> <b>XR25 aid:</b> The fan assembly must operate when command mode G17* is used.
<b>NOTES</b>	No fault bargraphs should be illuminated.

The antipercolation relay does not click when its command mode is used

Ignition on, check for **12 V on track 1 of the fan assembly relay.**

There is not 12 V on track 1

Check the line for track 1 of the relay to the fuse.

There is 12 V on track 1

Connect the bornier in place of the computer and check the insulation and continuity of the line:  
**Bornier 27 —————> 2 Relay**  
Repair.

The fault persists, replace the relay.

The fault persists!  
Replace the injection computer.

The antipercolation relay does click when its command mode is used

Fan assembly relay in place, check, during operation of the command mode, for **12 V on track 5 of the fan assembly relay.**

There is not 12 V on track 5

Check the insulation and continuity of line 3 on the relay to the fuse.  
Repair if necessary.

The fault persists, replace the fan assembly relay.

There is 12 V on track 5

Check the insulation and continuity of the line:  
**Relay 5 —————> 1 Fan assembly**  
**Fan assembly 2 —————> Earth**  
Repair.

If the fan assembly still does not operate, replace the fan assembly.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 17</b>	<div>Fiche n° 27</div> <div><b>POWER ASSISTED STEERING PRESSOSTAT</b></div> <div><b>XR25 aid:</b>   None</div>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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<p>Check the correct operation of the power assisted steering (oil level, ...).</p> <p>Check the power assisted steering pressostat is correctly connected.</p> <p>Check the insulation and continuity of the line for track 7 on the injection computer.</p> <p>Repair if necessary.</p>
<p>If all these points are correct, replace the power assisted steering pressostat.</p>

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 18	<div>FAULT WARNING LIGHT CIRCUIT</div> <div>XR25 aid:   None</div>	Fiche n° 27
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NOTES	No fault bargraphs should be illuminated.
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Check the condition of the warning light and its feed. Repair if necessary.
Connect the bornier in place of the computer and check the insulation and continuity of the line <b>track 19 on the computer</b> .  Repair.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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DIAG 19	<div>CANISTER BLEED</div> <div>Fiche n° 27</div> <div>XR25 aid:    G16* = Canister bleed command</div>
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NOTES	No fault bargraphs should be illuminated.
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Check the resistance of the canister bleed valve. Replace the valve if necessary.
Ignition on, check during the timed phase for the presence of 12 V on track A of the canister bleed valve. Repair if necessary.

Connect the bornier in place of the computer and check the insulation and continuity of the line: <div>Computer      24    —————&gt;    B    Canister bleed valve</div> Repair if necessary.
Replace the canister bleed solenoid valve. <b>NOTE</b> : when replacing the valve, shake it over a sheet of white paper, and also shake the adjacent pipes. If pieces of carbon fall out, the canister must also be replaced.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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NOTES	Only refer to this customer complaint after a complete check using the XR25.
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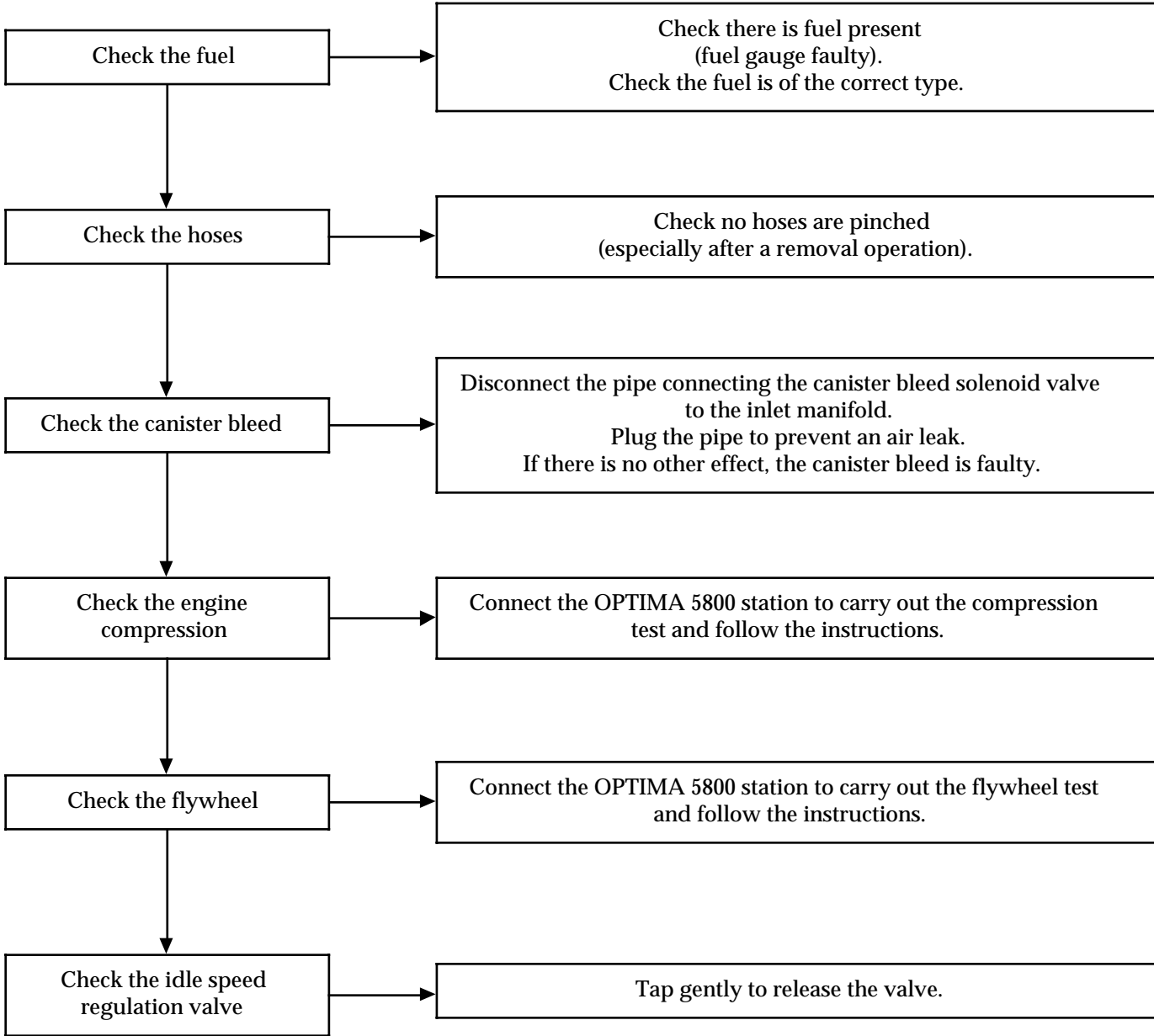
STARTING FAULTS ————— Chart 1

IDLE SPEED FAULTS ————— Chart 2

BEHAVIOUR WHILE DRIVING ————— Chart 3

Chart 1	STARTING FAULTS
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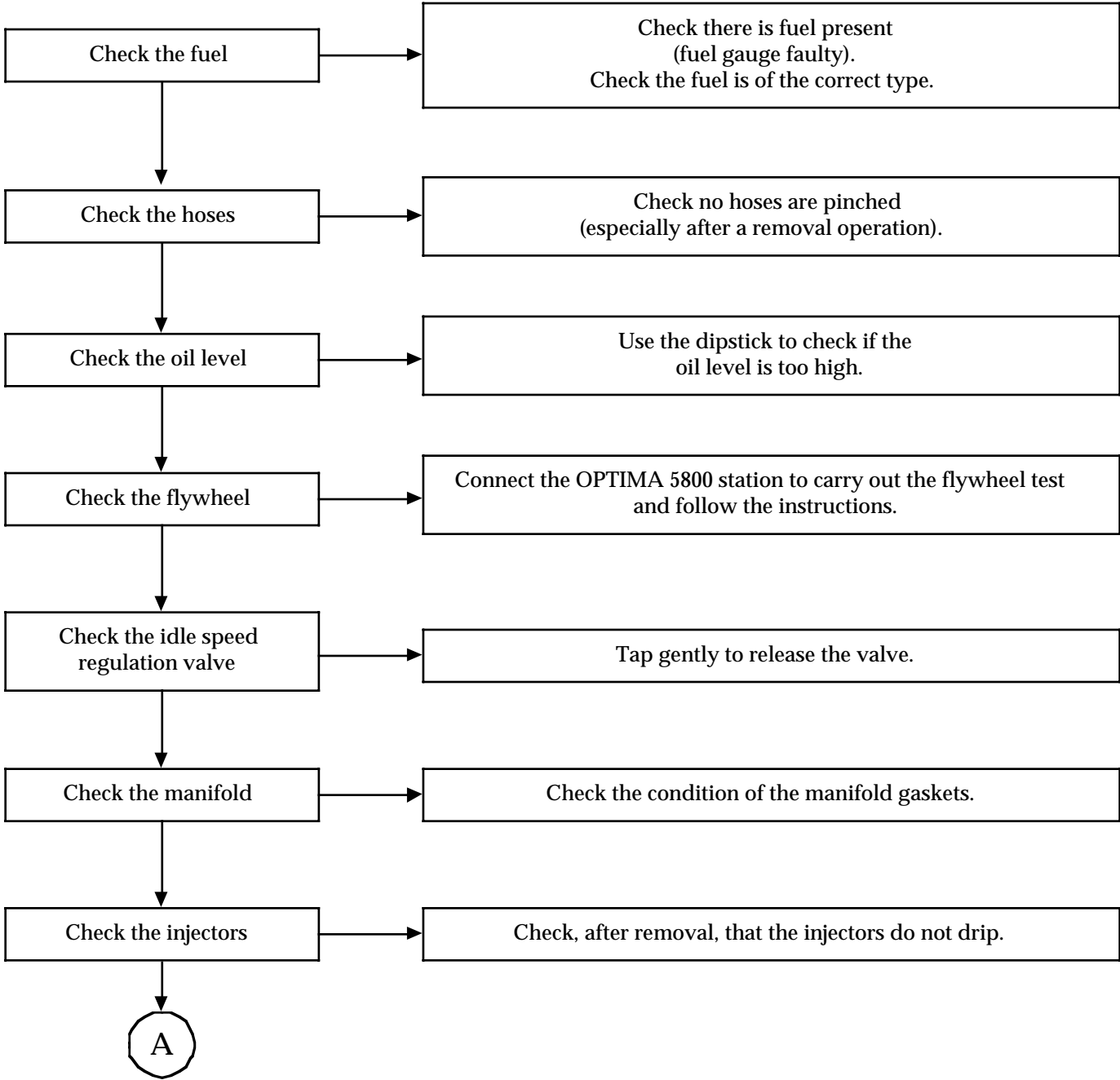
NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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Chart 2	IDLE SPEED FAULTS
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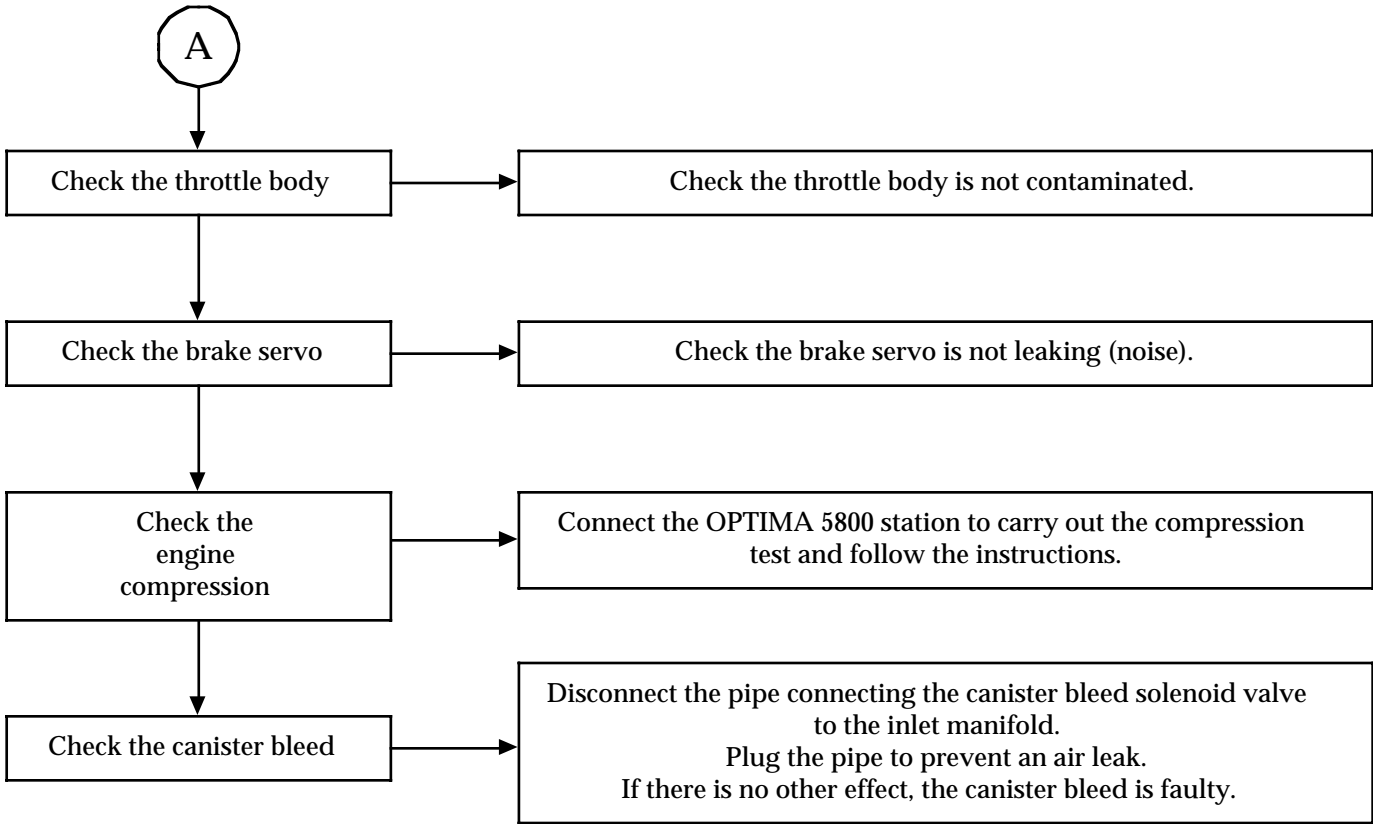
NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
--------------	---

Chart 2 CONT	
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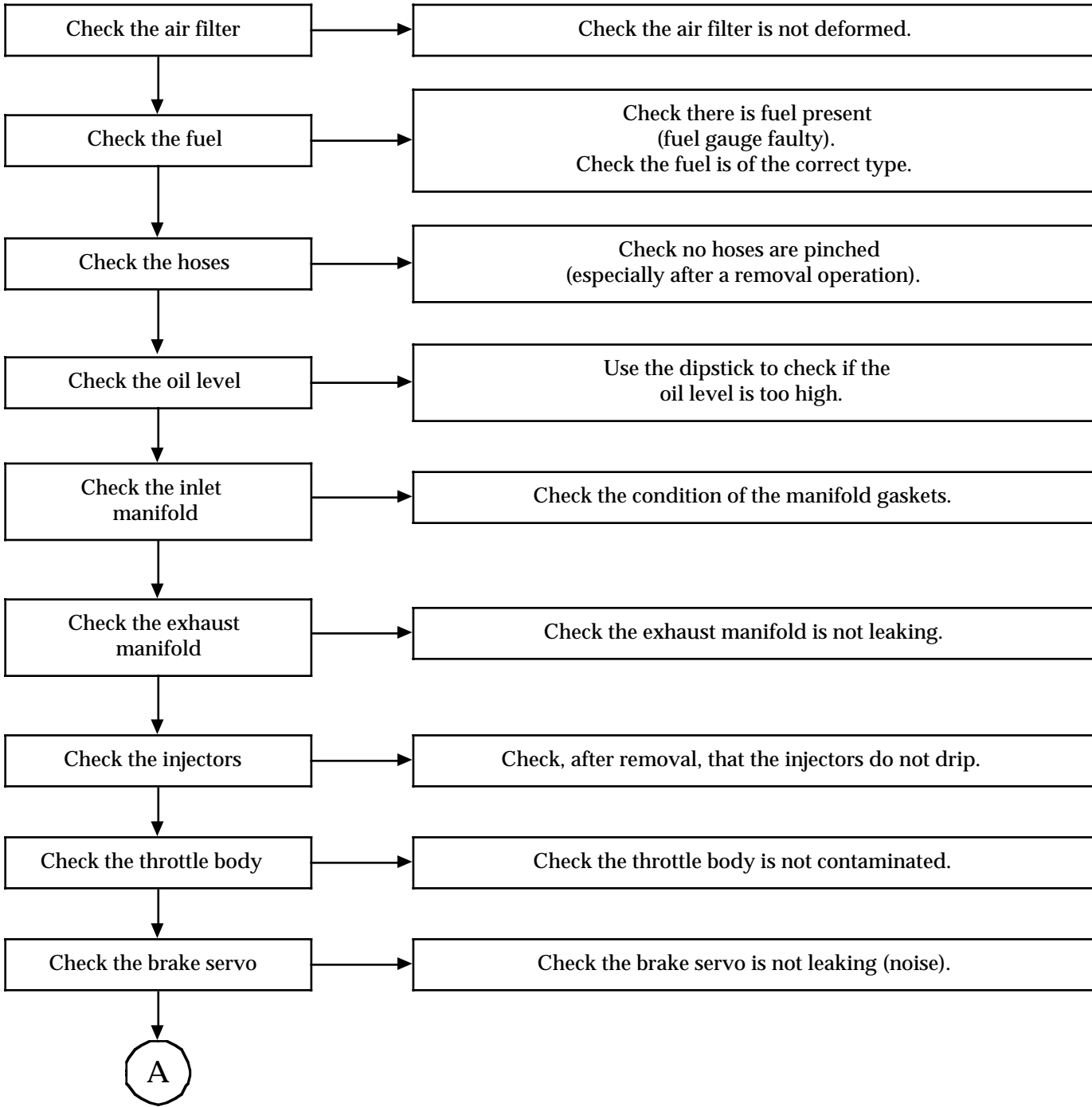
NOTES	Only refer to this customer complaint after a complete check using the XR25.
-------	--



AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
--------------	---

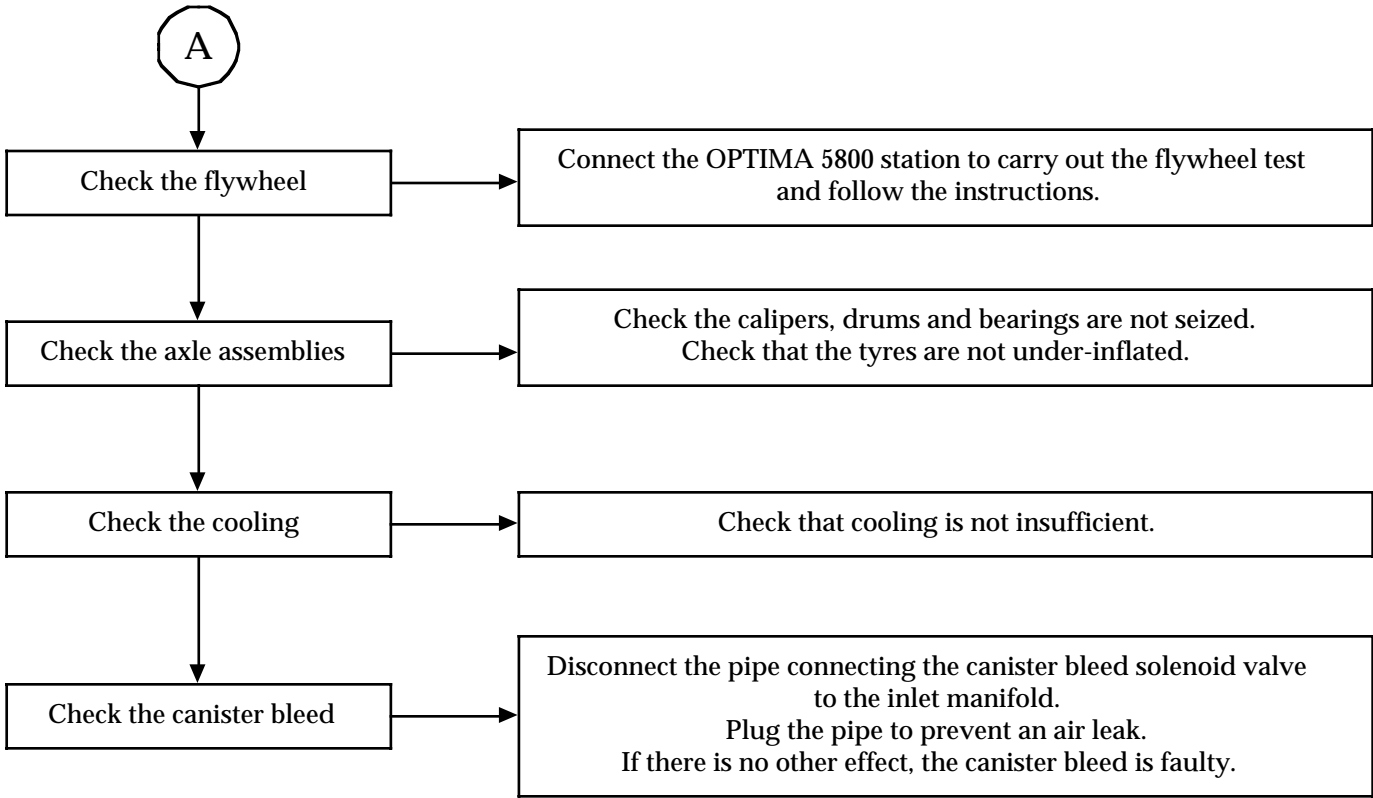
Chart 3	BEHAVIOUR WHILE DRIVING
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NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
--------------	---

Chart 3 CONT	
NOTES	Only refer to this customer complaint after a complete check using the XR25.



AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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For further details, refer to section 12

Injector resistance	=	14.5 Ω		
Idle regulation stepping motor resistance	:	A - D= 100 Ω B - C = 100 Ω		
Canister bleed valve resistance	=	35 Ω		
Ignition coil resistance	:	Primary = 1-4 ; 1-3 ; 2-3 ; 2-4 3-4 = 1.5 Ω = 0.6 Ω		
		Secondary = 8 kΩ		
Oxygen sensor heating resistance	=	3 to 15 Ω		
Throttle potentiometer resistance	:	no load A-B = 1300 Ω A-C = 1360 Ω B-C = 2300 Ω	full load	A-B= 1300 Ω A-C= 2350 Ω B-C = 1260 Ω
Flywheel signal resistance	=	220 Ω		
Fuel pressure	=	3 bars ignition on/ 2.5 bars at idle speed		
Value for: CO	=	0.3 % maximum		
HC	=	100 ppm maximum		
CO2	=	14.5 % minimum		
Lambda	=	0.97 < λ < 1.03		





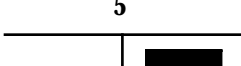
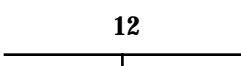

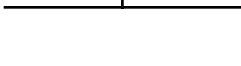
Sensor resistance					
Temperature in °C	0	20	40	80	90
Air temperature sensor Resistance in ohms	5000 to 7000	1700 to 3300	500 to 1550	-	-
Coolant temperature sensor Resistance in ohms	6700 to 8000	2600 to 3000	1100 to 1300	270 to 300	200 to 215

NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D13 (selector on S8)		<div>9.NJ</div> Use fiche n° 27 fault test side
2	Interpretation of normally illuminated bargraphs		<div>1</div> <div><div></div></div> <div>1</div> <div><div></div></div>	 Fault test  Code present
3	Immobiliser		<div>2</div> <div><div></div></div>	If the vehicle does not have an immobiliser, this bargraph should be illuminated.
4	Change to status test	G01*		<div>10.NJ</div> Use fiche n° 27 status test side



NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Interpretation of normally illuminated bargraphs		1 	Code present
			2 	No load recognition
			3 	Illuminated if immobiliser active
			4 	+ after ignition information received
			5 	Locking relay control effective
			12 	Illuminates after erasing the memory to indicate that the operation has been carried out correctly
			12 	Computer configured for:  manual gearbox (G50*2*)
			19 	automatic transmission (G50*1*)

NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	10 < X < 50
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>	
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	
7	Absolute pressure sensor	# 01		X = Local atmospheric pressure
8	Coolant temperature sensor	# 02		X = Ambient temperature ± 5 °C
9	Air temperature sensor	# 03		X = Ambient temperature ± 5 °C
10	Idle speed regulation stepping motor	# 12		The value read is variable depending on the coolant temperature : 11 % ≤ X ≤ 100 %
11	Engine speed	# 06		X = 0 rpm
12	Canister bleed	# 23		X = 0.7 %

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test mode	G01*		<div>10.NJ</div> Use fiche n° 27 status test side
2	No fault present		<div>20</div> <div><div></div></div>	Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche. <b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 dEF.  Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)
3	Battery voltage	# 04  if in # 04  then # 06		13 volts < X < 14.5 volts  X < 12.7 volts  Engine speed < X < 880 rpm nominal

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
4	Interpretation of normally illuminated bargraphs	-	<div>1</div> <div><div></div><div></div></div>	Code present
			<div>2</div> <div><div></div><div></div></div>	No load recognition
			<div>3</div> <div><div></div><div></div></div>	Engine speed information received
			<div>4</div> <div><div></div><div></div></div>	+ after ignition information received
			<div>5</div> <div><div></div><div></div></div>	Locking relay control effective
			<div>6</div> <div><div></div><div></div></div>	Idle speed regulation active
			<div>6</div> <div><div></div><div></div></div>	Richness regulation active

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
4 (cont)	Interpretation of normally illuminated bargraphs (cont)	-	<div>7</div> <div><div></div><div></div></div> <div>12</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Fuel pump active</div> <div>Illuminates after erasing the memory to indicate that the operation has been carried out correctly</div> <div>Computer configured for:</div> <div>manual gearbox (G50*2*)</div> <div>automatic transmission (G50*1*)</div>
5	Idle speed	# 06  # 12	<div>6</div> <div><div></div><div></div></div>	<div>X = 740 ± 50 rpm</div> <div>4 % &lt; X &lt; 14 %</div>
6	Anti-pinking noise measurement	# 13 (3500 rpm, no load)		X variable and not zero

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
7	Manifold pressure	# 01 no consumers		X is variable and is approximately $270 \leq X \leq 430$ mb (this pressure varies with altitude)
8	Richness regulation	Stable engine speed of 2500 rpm then idle speed  # 05  # 35	<div>6</div> <div><div></div><div></div></div> <div>6</div> <div><div></div><div></div></div>	X varies in the range from 50 to 900 mV approximately  X is close to 128 and varies slightly with a maximum of 255 and minimum of 0
9	Adaptive idle speed correction	# 21		- 4.3 % < X < 3.9 % (average value after erasing the memory: 0)
10	Canister bleed	# 23	<div>11</div> <div><div></div><div></div></div>	Canister bleed is prevented. The solenoid valve remains closed. X = 0.7 %
11	PAS pressostat	# 06	<div>13</div> <div><div></div><div></div></div>	X = 800 rpm
12	Fan assembly	# 02		The fan should operate when the temperature exceeds 99 °C.

NOTES	Checks to be carried out during a road test.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test	G01*		<div>10.NJ</div> Use fiche n° 27 status test side
2	No fault present		<div>20</div> <div><div></div><div></div></div>	<p>Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche.</p> <p><b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 dEF.</p> <p>Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)</p>
3	Canister bleed	# 23	<div>11</div> <div><div></div><div></div></div>	Canister bleed is authorised X = variable and > 0.7
4	Vehicle speed information	# 18		X = vehicle speed read on speedometer
5	Pinking sensor	Vehicle under load and engine speed 2000 rpm  # 13  # 15		<p>X = variable and not zero</p> <p><math>0 \leq X \leq 6</math> (if there is a sensor fault, the advance is retarded systematically by 4° , which is not visible using # 15)</p>

<b>NOTES</b>	Checks to be carried out during a road test.
--------------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Adaptive richness	<p>After programming phase</p> <p># 30</p> <p># 31</p>		<p><math>106 \leq X \leq 150</math> (average value after erasing the memory: 128)</p> <p><math>106 \leq X \leq 150</math> (average value after erasing the memory: 128)</p>



# D7F 720 ENGINE - 55 tracks

## MULTIPOINT INJECTION FAULT FINDING

### CONTENTS

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SETTING UP DIALOGUE BETWEEN THE XR25 AND THE COMPUTER

- Connect the test kit to the diagnostic socket.
- Put the selector on **S8**
- Switch on the ignition.
- Enter **D13**

9.NJ

COMPUTER IDENTIFICATION

The computer is not identified by reading a fault code but by reading the Part Number directly from the computer. After having set up a dialogue with the computer:

ENTER      G70\*

7700

XXX

XXX

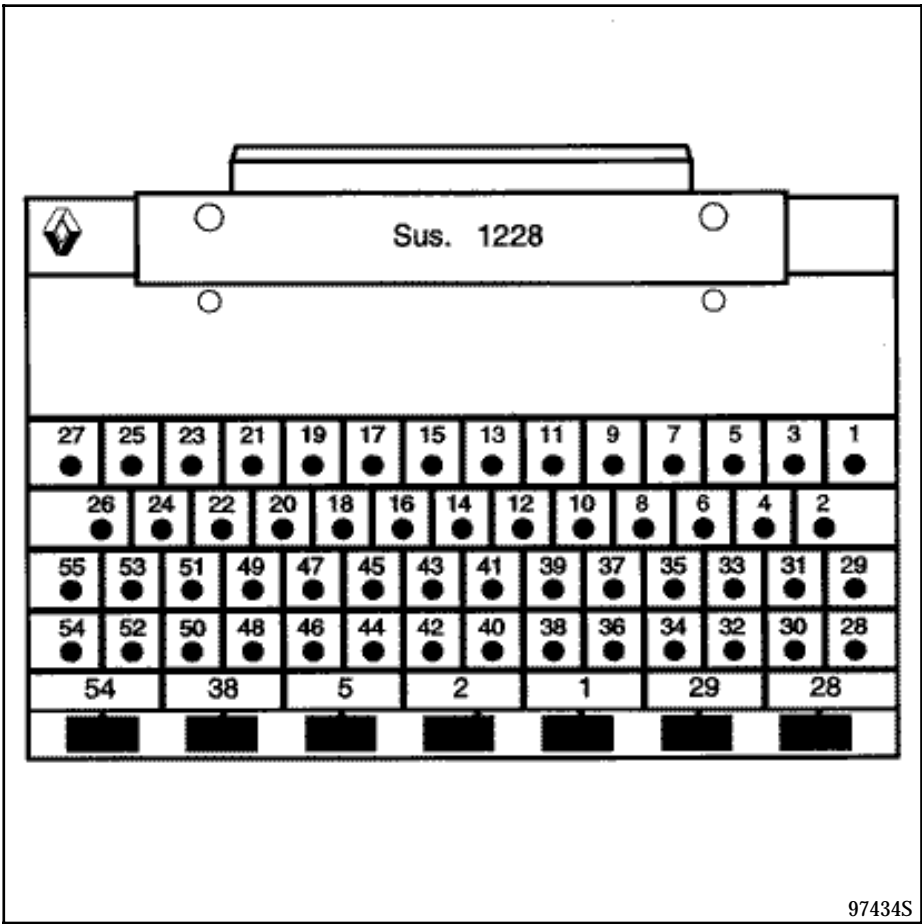
The Part Number will then appear on the central display in three sequences.

Each sequence is displayed for approximately two seconds. The display is repeated twice .

ERASING THE MEMORY (ignition on)

After an operation on the injection system the computer's memory can be erased by using the code G0\*\* .

If the information obtained by the XR25 requires electrical continuities to be checked, connect bornier **Sus 1228**.



Bornier **Sus 1228** is a 55 track base with a printed circuit on which are 55 copper coated surfaces, numbered from 1 to 55.

Using the wiring diagrams, the tracks connecting the components to be tested can be easily identified.

**IMPORTANT :**

- All tests using bornier **Sus 1228** must be carried out with the battery disconnected.
- The bornier is only designed to operate with an ohmmeter. Under no circumstances should 12 Volts be applied to the test points.

## DESCRIPTION OF THE FAULT-FINDING PHASES

The process described below is to be carried out in all cases of faults.

### XR25 FAULT-CHECKING

This phase is the essential starting point for any intervention on the vehicle.

There are several constraints to the treatment of the bargraphs :

- A priority in the order of treatment when several bargraphs are illuminated.
- The interpretation of a bargraph depending on whether it is constantly illuminated or flashing .

Faults must be checked using the XR25 as described below:

- Switch off the ignition.
- Switch on the ignition and deal with any faults.
- Run the engine (or run at starter speed for 10 seconds) and deal with any faults.
- Carry out a road test and deal with any faults.

#### 1 - Order of priority

A series of illuminated bargraphs corresponding to the sensors with the same 12 V or having the same earth, indicates a fault in this source. These priorities are dealt with in the "NOTES" section of the fault-finding of the bargraph concerned.

#### 2 - Input / output fault bargraphs

##### a) Illuminated :

The fault is present : treat the fault following the method described in the "INTERPRETATION OF XR25 BARGRAPHS" section.

##### b) Flashing :

Note the bargraphs displayed on the XR25.

Erase the memory of the computer and attempt to re-illuminate the bargraph: ignition on, idle speed (or at starter speed) or by means of a road test (the "NOTES" section in the fault finding for the bargraph concerned may help to determine the conditions under which the bargraph will illuminate).

*If the bargraph has re-illuminated (fixed or flashing) :*

The fault is present once again. In this case, treat the fault bargraph.

*If the bargraph has not re-illuminated, check :*

- the electrical lines which correspond to the flashing fault,
- the connectors of these lines (for rust, bent pins...).
- the resistance of the component found to be faulty.
- the cleanliness of the wires (insulation melted or cut, friction..).

**NOTE :** If the customer complaint does not correspond to the fault bargraph which is flashing (example : Air temperature sensor fault bargraph flashing, but no customer complaint) ignore this memorised fault and erase it.

### **3 - No bargraphs illuminated**

If no bargraphs are illuminated on the XR25, carry out a status and parameter check. This may help in detecting a problem.

#### **XR25 CHECKING STATUSES AND PARAMETERS**

The status and parameter check is aimed at checking the statuses and parameters which do not illuminate any fault bargraphs if they are outside of permitted tolerance values. This phase allows :

- Faults to be found without the illumination of fault bargraphs which may correspond to a customer complaint (example : absence of no load information causing an unstable idle speed).
- The correct operation of the injection to be checked and the risk of faults appearing shortly after the repair to be eliminated.

This section contains fault-finding for statuses and parameters, under their test conditions (example : fault finding for # 01 ignition on and fault finding for # 01 engine running).

If a status does not operate normally or a parameter is outside of permitted tolerance values, consult the fault-finding page indicated in the "Fault-finding" column.

#### **XR25 CHECK CORRECT**

If the XR25 check is correct, but the customer complaint persists, the problem must be dealt with through customer complaints.

#### **Treatment of customer complaints**

This section has fault charts, which suggest a series of possible causes of the problem.

These lines of enquiry must only be used in the following cases :

- No fault bargraph appears on the XR25.
- No faults are detected during the checking of statuses and parameters.
- The vehicle is not operating correctly

#### **POST-REPAIR CHECK**

This operation is a simple check of the repair (by a command, or by an XR25 command mode ...).

This makes it possible to check that the system upon which the intervention has been carried out is correct electrically.

It is an introduction to the road test.

**ROAD TEST**

A road test is essential in order to guarantee the correct operation of the vehicle and to test the quality of the repair. Its role is to make sure that no faults occur (or will occur) when driving.

In order to be significant, the road test is subject to special driving conditions.

**Driving conditions for programming the adaptive variables:**

During the road test, the engine speed must be stabilised for a few moments between:

260 < # 01 < 385 mbars  
then 385 < # 01 < 510 mbars  
then 510 < # 01 < 635 mbars  
then is 635 < # 01 < 760 mbars  
then 760 < # 01 < 970 mbars

Do not exceed an engine speed of 4400 rpm

The engine must be warm (coolant temperature > 75 °C).

For this test, start from a fairly low engine speed, in 3rd or 4th gear, and apply progressive acceleration to stabilise at the pressure required for 10 seconds in each zone.

The test must then be continued by driving normally, in a varied manner for 3 to 6 miles (5 to 10 km).

## PRESENTATION OF XR25 FICHE N° 27 SIDE 1/2

N°27 1/2		S8 code : D 1 3		read : 9nJ	
1	<input type="checkbox"/> ILLUMINATED <input type="checkbox"/> EXTINGUISHED	FAULT TEST TURN CARD		CODE PRESENT <input type="checkbox"/>	
2	<input type="checkbox"/>	COMPUTER		ENG. IMMOB. * 22 <input type="checkbox"/>	
3	<input type="checkbox"/>	AIR TEMPERATURE		O2 SENSOR * 23 <input type="checkbox"/>	
4	<input type="checkbox"/>	COOLANT TEMP.		VEHICLE SPEED <input type="checkbox"/>	
5	<input type="checkbox"/>	PRESSURE		FLYWHEEL SIGNAL * 25 <input type="checkbox"/>	
6	<input type="checkbox"/> * 06 PINKING	SENSOR CIRCUITS		THROTTLE POSITION <input type="checkbox"/>	
7	<input type="checkbox"/>	CAMSHAFT		FUEL TANK PRESSURE <input type="checkbox"/>	
8	<input type="checkbox"/> * 08 FUEL PUMP	RELAY CTRL. CIRC.		BLOCKING * 28 <input type="checkbox"/>	
9	<input type="checkbox"/> * 09 ANTI-PERCOLATION			AIR PUMP * 29 <input type="checkbox"/>	
10	<input type="checkbox"/> * 10 O2 SENSOR OVERHEAT			BI MODE * 30 <input type="checkbox"/>	

INJECTION (FAULTS)		
Erase fault memory : G 0 ** Status check request : G01 *		
11	<input type="checkbox"/> * 11 INJECTOR CIRCUIT	CONNECTION A.T. → INJ <input type="checkbox"/>
12	<input type="checkbox"/> * 12 WARN. LAMP CIRC. DEF.	FUEL PUMP + INFO <input type="checkbox"/>
13	<input type="checkbox"/> SAVE DATA IN MEMORY	ADAC * 33 <input type="checkbox"/>
14	<input type="checkbox"/> * 14 IDLE SPEED REG. CIRC.	BLEED CANISTER CIRC. * 34 <input type="checkbox"/>
15	<input type="checkbox"/> * 15 CONNECTION INJ. → AC	EGR CIRCUIT * 35 <input type="checkbox"/>
16	<input type="checkbox"/> * 16 IGNITION COILS	COLD START INJECTORS * 36 <input type="checkbox"/>
17	<input type="checkbox"/> * 17 MIL WARN. LIGHT	
18		
19		
20	<input type="checkbox"/> * 20 COMPUTER CONFIGURATION	XR25 MEMORY 0 <input type="checkbox"/>

ADDITIONAL CHECKS : #	
01	PRESSURE mb
02	Coolant temp. °C
03	Air temp. °C
04	Computer feed V
05	O2 sensor V
06	Engine speed rpm
12	Idling RCO %
13	Pinking signal
14	Engine speed gap rpm
15	Pinking correct.
16	Atmos. pressure mb
17	Throttle pot.
18	Vehicle speed km/h
21	Auto. correct. of RCO idling speed %
23	Canister purge RCO %
24	RCO EGR %
30	Auto. correct. of rich. under high loads
31	Auto. correct. of rich. under low loads
35	Richness corr.
44	P. absorbed by AC compressor W

End of test: G 13 *	
Part No : G 70 *	
Diagnosed faults : Press V and 9	
Return to diagnostic mode : D	

17	ANG
----	-----

FI21727-1


## PRESENTATION OF FICHE XR25 N° 27 SIDE 2/2

N°27 2/2		read : 10 J
1	<div> <div>EXTINGUISHED</div> <div>ILLUMINATED</div> </div> <div> <div>STATUS TEST</div> <div>TURN CARD</div> </div>	CODE PRESENT <input checked="" type="checkbox"/>
2	<div>PG</div> <div>THROTTLE POSITIONS</div> <div>PL</div>	CONTROL MODES : G.. (IF ENGINE STOPPED)
3	<div>FLYWHEEL SIGNAL</div> <div>ACTIVE ENG. IMMOB.</div>	10* Fuel pump relay
4	<div>PARK/NEUTRAL POSITION</div> <div>+ APC COMPUTER</div>	11* Blocking relay
5	<div>TORQUE ADJUSTMENT</div> <div>RELAY CONTROL LOCKING</div>	12* AC compressor
6	<div>RICHNESS REGULATION</div> <div>IDLING REGULATION</div>	14* Idle speed reg. valve
7	<div>FUEL PUMP CONTROL</div> <div>BLEED CANISTER AUTHOR.</div>	16* Bleed canister valve
8	<div>ANTI-PERCOL. CTRL</div> <div>ELEC. W/SCREEN REQUESTED</div>	17* Anti percolation relay
9	<div>SELECTION</div> <div>ACCEL. IDLE SPEED</div>	21*1* Warn. light def.
10	<div>REQUEST</div> <div>AIR COND.</div> <div>COMPRESSION AUTHOR. OR PROHIBITED</div>	22* Air pump relay
(WARNING : monitor bar graph 20 left)		23* EGR valve
INJECTION (STATUS)		24* Bi-mode inlet valve
Erase fault memory : G 0 **		31* Injector control
Request fault test : G 02 *		50*x* Computer set-up
11	<div>CAMSHAFT SIGNAL</div> <div>BLEED CANISTER + ACTIVE SOL VALVES</div>	57*x* Idle speed adj.
12	<div>EGR SV CONTROL</div> <div>MEMORISED FAULTS</div>	58*x* Computer configuration
13	<div>AIR PUMP CONTROL</div> <div>POWER STEERING PRESSOSTAT</div>	59*x* INJ Lock/Unlock
14	<div>BI-MODE INLET CTRL</div> <div>COLD START INJECTORS</div>	60* Zeroing validation
15	<div>SPEED SENSOR well connected</div>	
16		
17		
18		
19	<div>Veh. with AT</div> <div>COMPUTER CONFIGURATION</div> <div>Veh. with man. g/box</div>	<div>See procedure on REMINDER CARD C</div>
20	<div>FAULT PRESENT</div> <div>XR25 MEMORY</div>	ADDITIONAL CHECKS : # . .
		01 Pressure mb
		02 Coolant temp. °C
		03 Air temp. °C
		04 Computer feed V
		05 O2 Sensor V
		06 Engine speed rpm
		12 Idling RCD %
		13 Pinking signal
		14 Eng. speed gap rpm
		15 Pinking correct. d°
		16 Atmos. pressure mb
		17 Throttle pot.
		18 Vehicle speed km/h
		21 Auto corr.RCD idle speed %
		23 RCD bleed canister %
		24 RCD EGR %
		30 Auto corr.drich under/high back
		31 Auto. corr. of richness
		35 Mixture regulation
		44 P. absorbed by W
		AC compressor
		End of test : G 13 *
		Part No : G 70 *
		Diagnosed faults : Press V and 9
		Return to diagnostic mode : D
		17 ANG

FI21727-2




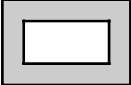
REPRESENTATION OF THE BARGRAPHS

- 
- Illuminates when a dialogue has been established with the product computer. If it remains extinguished:

  - the code does not exist,
  - there is a fault in the tool, the computer or the line

REPRESENTATION OF THE FAULTS (always on a coloured background)

- 
- If illuminated, indicates a fault on the tested product, the associated text defines the fault.  
If flashing, there is a fault memorised for the product tested, the associated text defines the fault.

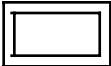
- 
- If extinguished, indicates that the fault has not been found on the tested product.

REPRESENTATION OF THE STATUSES (always on a white background)

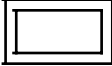
Engine off, ignition on, no operator action


The status bargraphs on the fiche are represented as the status 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 as





the test kit should give as information


- If on the fiche the bargraph is represented as

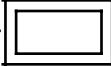


the test kit should give as information



- If on the fiche the bargraph is represented as



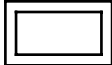

the test kit should give as information
- either



or



Engine running

- 
- Extinguishes when the function or condition given on the fiche is no longer performed.
- 
- Illuminates when the function or condition given on the fiche is performed

Fiche n° 27 is a generic fiche used for several engines.

The different engines do not use all the bargraphs. To find out the bargraphs dealt with by the injection computer, after having set up a dialogue with the computer, press the V and 9 buttons simultaneously.

The bargraphs dealt with will:

- illuminate permanently for non memorisable fault bargraphs or status bargraphs,
- flash for memorisable fault bargraphs.

To return to fault finding mode, press button D.

<div>1</div> <div><div></div><div></div></div>	<p><b>Bargraph 1 RH extinguished</b></p> <p><u>XR25 CIRCUIT</u></p> <p><b>XR25 aid:</b>    No connection, CO, CC-, CC+</p>	Fiche n° 27 side 1/2
--	--	----------------------

<p><b>NOTES</b></p>	<p>This bargraph must be illuminated for fault finding</p>
---------------------	--

Test the XR25 on another vehicle.																																
Check: <ul style="list-style-type: none"><li>- the connection between the XR25 and the diagnostic socket (condition of the XR25 cable),</li><li>- the position of the ISO selector (S8),</li><li>- the conformity of the cassette,</li><li>- the injection, engine and passenger compartment fuses.</li></ul> Repair if necessary.																																
Check the presence of + 12 V on track 16 and earth on track 5 of the diagnostic socket. Repair if necessary.																																
Check, ignition on, for 12 V on track: <ul style="list-style-type: none"><li>- 1 on the main relay,</li><li>- 3 on the main relay,</li><li>- 1 on the fuel pump relay.</li></ul> Repair if necessary.																																
Connect the bornier in place of the computer and check the insulation and continuity of the line:  <table><tr><td>Computer</td><td>18</td><td>→</td><td>Earth</td></tr><tr><td>Computer</td><td>2</td><td>→</td><td>Earth</td></tr><tr><td>Computer</td><td>3</td><td>→</td><td>Earth</td></tr><tr><td>Computer</td><td>11</td><td>→</td><td>7 Diagnostic socket</td></tr><tr><td>Computer</td><td>38</td><td>→</td><td>15 Diagnostic socket</td></tr><tr><td>Computer</td><td>1</td><td>→</td><td>5 Main relay</td></tr><tr><td>Computer</td><td>40</td><td>→</td><td>2 Main relay</td></tr><tr><td>Computer</td><td>48</td><td>→</td><td>2 Fuel pump relay</td></tr></table> Repair if necessary.	Computer	18	→	Earth	Computer	2	→	Earth	Computer	3	→	Earth	Computer	11	→	7 Diagnostic socket	Computer	38	→	15 Diagnostic socket	Computer	1	→	5 Main relay	Computer	40	→	2 Main relay	Computer	48	→	2 Fuel pump relay
Computer	18	→	Earth																													
Computer	2	→	Earth																													
Computer	3	→	Earth																													
Computer	11	→	7 Diagnostic socket																													
Computer	38	→	15 Diagnostic socket																													
Computer	1	→	5 Main relay																													
Computer	40	→	2 Main relay																													
Computer	48	→	2 Fuel pump relay																													
Ignition on, check for 12 V on track 5 of the main relay: <ul style="list-style-type: none"><li>- If there is 12 V on track 5 of the main relay: replace the fuel pump relay.</li><li>- If there is not 12 V on track 5 of the main relay: replace the main relay.</li></ul>																																

<p><b>AFTER REPAIR</b></p>	<p>Erase the computer memory using G0**.</p> <p>Use the XR25 to check for faults (see Introduction).</p> <p>Remember to carry out a status and parameter check.</p>
----------------------------	---

<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 LH side illuminated.</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER CIRCUIT</div> <div>XR25 aid: computer faulty</div>
--	---

NOTES	None
-------	------

The computer is incorrect or faulty.  
Replace the computer.

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
--------------	---

Fault finding - Interpretation of XR25 bargraphs

<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>IMMOBILISER CIRCUIT</div> <div>XR25 aid:   *22 = 1 dEF CO, CC- or CC+ line 37 of the computer</div> <div>                  *22 = 2 dEF Refer to the immobiliser fault finding section</div>
--	--

NOTES	Ignore this bargraph if the vehicle is not fitted with an immobiliser.
-------	--

Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the wiring on track 37 of the computer. Repair if necessary.
If the fault persists, refer to the immobiliser fault finding.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
--------------	--

<div>3</div> <div><div></div><div></div></div>	<div>Bargraph 3 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>AIR TEMPERATURE SENSOR CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+line 20 or 46 of the computer</div>
--	--

NOTES	If BG 6RH is also illuminated, check line 46 of the computer.
-------	---

Connect the bornier in place of the computer and check the insulation and continuity of the line.	
Computer	20 → 2 Air temperature sensor
Computer	46 → 1 Air temperature sensor
Repair if necessary.	
Check the resistance of the sensor. Replace if necessary.	
The fault persists! Replace the injection computer.	
IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.	

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>3</div> <div><div></div><div></div></div>	<div>Bargraph 3 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>OXYGEN SENSOR CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+line 17 of the computer CO line 18 of the computer</div>
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NOTES	<div>If BG 3RH is flashing, increase the engine speed to 2500rpm for 5 minutes.</div> <div>If BG 3RH becomes permanently illuminated, deal with the fault.</div>
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Check the connection and the condition of the connector on the oxygen sensor.

Check, ignition on during the timed phase, for :  
- earth on track B of the oxygen sensor,  
- + 12 V after the fuel pump relay on track A of the oxygen sensor.  
Repair if necessary.

Check for the presence of earth on track 18 of the injection computer.  
Repair if necessary.

Connect the bornier in place of the computer and check the insulation and continuity of the line:  
Computer 17                      →                      C Oxygen sensor  
Repair if necessary.

The fault persists. Replace the oxygen sensor.

The fault persists! Replace the injection computer.  
**IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.**

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COOLANT TEMPERATURE SENSOR CIRCUIT</div> <div>XR25 aid : CO, CC- or CC+line 44 or 15 of the computer</div>
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NOTES	<div>If BG 6LH or BG 5LH is also illuminated , check line 44 of the computer. For certain faults, BG 4LH is only permanently illuminated when the engine is running.</div>
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<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div>Computer 44 → B 1 Coolant temperature sensor</div> <div>Computer 15 → B 2 Coolant temperature sensor</div> <div>Repair if necessary.</div>	
<div>Check the resistance of the sensor. Replace it if necessary.</div>	
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>	

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>VEHICLE SPEED CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 12 of the computer</div>
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NOTES	Carry out a road test checking #18 if BG 4 RH is flashing. Deal with this fault if BG 4 RH illuminates permanently during the road test or #18 = 0
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Check the sensor is correctly positioned.
Check on the vehicle speed sensor for: - earth on track B2, -+ 12 after ignition feed on track A. Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line: <div>Computer    12    —————&gt;    B1    Vehicle speed sensor</div> Repair if necessary.
The fault persists! Replace the sensor.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>PRESSURE SENSOR CIRCUIT</div> <div>XR25 aid : CO, CC- or CC+ line 45, 44 or 16 of the computer</div>
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NOTES	<div>If BG 6RH is also illuminated, check line 45 of the computer.</div> <div>If BG 6LH or BG 4LH is also illuminated, check line 44 of the computer.</div>
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<div>Check that the pressure sensor is <b>connected correctly both electrically and pneumatically</b>.</div> <div>Check the conformity of the pressure sensor pipe (it must not be pierced or blocked...).</div>
<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer45</div><div>→</div><div>C</div><div>Pressure sensor</div></div> <div><div>Computer44</div><div>→</div><div>A</div><div>Pressure sensor</div></div> <div><div>Computer16</div><div>→</div><div>B</div><div>Pressure sensor</div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the sensor.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>5</div> <div><div></div><div></div></div>	<b>Bargraph 5 RH side illuminated or flashing</b> <span>Fiche n° 2 side 1/2</span>
	<u>FLYWHEEL SIGNAL CIRCUIT</u> <b>XR25 aid:</b> *25 = CO.0    =>    CO or CC- line 33 or 34 of the computer *25 = CC.0    =>    CC- line 33 or 34 of the computer *25 = In     =>    sensor incorrectly connected

<b>NOTES</b>	BG 5RH is often seen to flash if *25 = dEF as its illumination is very quick. In certain cases BG 5RH may illuminate then extinguish. In this case enter *25 and try to illuminate BG 5RH under starter speed.
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<div>*25 = CO.0</div> <div>*25 = CC.0</div>	Check the resistance of the target sensor. Replace the sensor if necessary.
	Check the condition of the flywheel, especially if it has been removed.
	Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line: <div>Computer    33    —————&gt;    B    Target sensor</div> <div>Computer    34    —————&gt;    A    Target sensor</div> Repair if necessary.
	The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

<div>*25 = In</div>	Check the target sensor has been correctly connected (the sensor connector must not be inverted). Repair if necessary.
	The fault persists! Replace the sensor.

<b>AFTER REPAIR</b>	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH side illuminated or flashing</div> <div>Fiche n° 2 side 1/2</div> <div><u>PINKING SENSOR CIRCUIT</u></div> <div>XR25 aid: CO, CC- or CC+ line 54 or 44 of the computer</div>
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NOTES	For certain faults BG 6LH will only illuminate permanently at 3000 rpm. for 1 minute. If BG 4LH or BG 5LH is also illuminated, check line 44 of the computer.
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<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div>Computer54</div><div>→</div><div>2 Pinking sensor</div></div> <div><div>Computer44</div><div>→</div><div>1 Pinking sensor</div></div> <div><div>Computer31</div><div>→</div><div>Pinking sensor screening</div></div> <div>Repair if necessary.</div>	
The fault persists! Replace the pinking sensor.	
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>	

AFTER REPAIR	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>THROTTLE POTENTIOMETER CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 19, 45 or 46 of the computer</div>
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<div>NOTES</div>	<div>If BG 5LH is also illuminated, check line 45 of the computer.</div> <div>If BG 3LH is also illuminated, check line 46 of the computer.</div>
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<div>Check the resistance of the throttle potentiometer.</div> <div>Replace the throttle potentiometer if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div><div>Computer</div><div>19</div><div>→</div><div>C</div><div>Throttle potentiometer</div></div><div><div>Computer</div><div>45</div><div>→</div><div>B</div><div>Throttle potentiometer</div></div><div><div>Computer</div><div>46</div><div>→</div><div>A</div><div>Throttle potentiometer</div></div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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Fault finding - Interpretation of XR25 bargraphs

<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>FUEL PUMP CIRCUIT</div> <div>XR25 aid: Only detection of CC+ on line 48 of the computer</div>
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NOTES	CO or CC- on line 48 of the computer prevents dialogue with the computer. In certain cases of faults, BG 11 LH or BG 14 RH may also be illuminated.
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Check the insulation from 12 V of line : <b>Computer 48</b> —————→ <b>2 Fuel pump relay</b> Repair if necessary.
The fault persists! Replace the fuel pump relay.
The fault persists! Replace the injection computer. <b>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</b>


AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>INJECTOR CIRCUIT</div> <div>XR25 aid:    *11 = XX.CO    =&gt; CO or CC- line 30 or 4 of the computer</div> <div>                  *11 = XX.CC    =&gt; CC+ line 30 or 4 of the computer</div>
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NOTES	<div>XX = 14 =&gt; Cylinder 1 or 4 line 30 of the computer</div> <div>XX = 23 =&gt; Cylinder 2 or 3 line 4 of the computer</div> <div>If BG 8LH or BG 14 RH is also illuminated, refer to BG 8LH</div>
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<div>Check the resistance of the two faulty injectors.</div> <div>Replace the injector/s if necessary.</div>
<div>When the ignition is switched on and during the timed phase, check for 12 V on track 1 of the faulty injector.</div> <div>If necessary, repair the line from track 1 injector to track 5 fuel pump relay.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line :</div> <div><div>Computer    30 —————&gt; 2    Injectors 1 and 4</div><div>Computer    4   —————&gt; 2    Injectors 2 and 3</div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:    The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 RH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div><u>AUTOMATIC TRANSMISSION</u>        <u>INJECTION CIRCUIT</u></div> <div>XR25 aid:    None</div>
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<div>NOTES</div>	<div>None</div>
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Ignore this bargraph, as this vehicle is not fitted with automatic transmission.

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>12</div> <div><div></div><div></div></div>	<div>Bargraph 12 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>FAULT WARNING LIGHT CIRCUIT</u></div> <div>XR25 aid:   *12 = CO.0   CO or   CC- line 43 on the computer</div> <div>                  *12 = CC.1   CC+ line 43 on the computer</div>
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NOTES	None
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<p>Check the condition of the warning light and its feed. Repair if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation and continuity of the <b>line 43 on the computer</b>.</p> <p>Repair.</p>

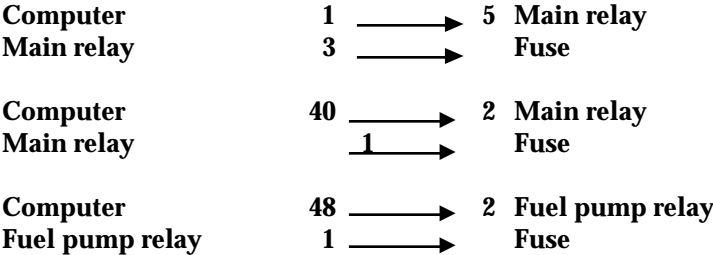
AFTER REPAIR	<p>Erase the computer memory using G0**.</p> <p>Use the XR25 to check for faults (see Introduction).</p> <p>Remember to carry out a status and parameter check.</p>
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<div>13</div> <div><div></div><div></div></div>	<div>Bargraph 13 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div><u>MEMORY CIRCUIT</u></div> <div>XR25 aid:    Loss of computer feed.</div>
<div>NOTES</div>	<div>None</div>

This bargraph only illuminates when the computer feed has been cut (disconnection of the battery, the computer, ...).

Check the computer feed hygiene:



Repair if necessary.

Run the engine.

Switch the ignition off and wait for the loss of dialogue between the XR25 and the computer.

Switch the ignition on.

Enter dialogue with the computer.

Erase the computer memory using G0\*\*.

**NOTE :**        Memorised faults are erased. It would therefore be useful to carry out a road test to check there are no faults on the injection system.

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>IDLE SPEED REGULATION CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 8 or 35 or 9 or 36 of the computer</div>
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<div>NOTES</div>	<div>If BG 14 LH is flashing, erase the computer memory using G0**.</div> <div>Turn the engine.</div> <div>If BG 14 LH is now permanently illuminated or flashing, deal with this fault.</div>
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<div>Check the resistance of the idle speed regulation stepping motor.</div> <div>Check the idle speed regulation valve if necessary.</div>
<div>Check the insulation, continuity and that there is no interference resistance on the line:</div> <div><div><div>Computer</div><div>8</div><div>—————&gt;</div><div>D</div><div>idle speed regulation stepping motor</div></div><div><div>Computer</div><div>35</div><div>—————&gt;</div><div>A</div><div>idle speed regulation stepping motor</div></div><div><div>Computer</div><div>9</div><div>—————&gt;</div><div>B</div><div>idle speed regulation stepping motor</div></div><div><div>Computer</div><div>36</div><div>—————&gt;</div><div>C</div><div>idle speed regulation stepping motor</div></div></div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT: The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

<div>AFTER REPAIR</div>	<div>Erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14RH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>CANISTER BLEED CIRCUIT</div> <div>XR25 aid: CO, CC- or CC+ line 42 of the computer</div>
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NOTES	If BG 8 LH or BG 11 LH is also illuminated, refer to BG 8 LH.
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<div>Check the resistance of the canister bleed valve.</div> <div>Replace the valve if necessary.</div>
<div>Check, ignition on , for 12 V on track A of the canister bleed valve.</div> <div>Repair if necessary.</div>
<div>Connect the bornier in place of the computer and check the insulation and continuity of the line:</div> <div>Computer      42      —————&gt;      B      Canister bleed valve</div> <div>Repair if necessary.</div>
<div>The fault persists! Replace the injection computer.</div> <div>IMPORTANT:    The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.</div>

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**.</div> <div>Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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<div>15</div> <div><div></div><div></div></div>	<div>Bargraph 15 LH side illuminated</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER → AC CONNECTION CIRCUIT</div> <div>XR25 aid: CC + 12 V line 51 of the computer</div>
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NOTES	Check that the vehicle has air conditioning, if not, ignore this bargraph.
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Connect the bornier in place of the computer and check the insulation and continuity of line 51 of the computer. Repair if necessary.
If the fault persists, consult the air conditioning fault finding section.

AFTER REPAIR	Erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction). Remember to carry out a status and parameter check.
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<div>16</div> <div><div></div><div></div></div>	<div>Bargraph 16 LH side illuminated or flashing</div> <div>Fiche n° 27 side 1/2</div> <div>COMPUTER → MPA CONNECTION CIRCUIT</div> <div>XR25 aid:   *16 = XX.CO   =&gt; CO or CC- line 28 or 29 of the computer</div> <div>                  *16 = XX.CC   =&gt; CC+ line 28 or 29 of the computer</div>
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NOTES	<div>XX = 14 =&gt; Cylinder 1 or 4 line 28 of the computer</div> <div>XX = 23 =&gt; Cylinder 2 or 3 line 29 of the computer</div> <div>If BG 16 LH is flashing, erase the computer memory using G0**. Turn the engine. If BG 16 LH illuminates permanently or flashes, deal with this fault.</div>
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Check the hygiene of the anti-interference condenser on track 4 of the coil.
Check the resistance of the coil. Replace the coil if necessary.
Check the + after ignition feed to the coil concerned on track 3. Repair if necessary.
Connect the bornier in place of the computer and check the insulation and continuity of the line : <div>Computer   29 → 2   Coil</div> <div>Computer   28 → 1   Coil</div> Repair if necessary.
The fault persists! Replace the injection computer. <b>IMPORTANT:</b> The computer has probably been damaged by an electric shock. The cause of the damage must be found before fitting a new computer.

AFTER REPAIR	<div>Turn the engine then erase the computer memory using G0**. Use the XR25 to check for faults (see Introduction).</div> <div>Remember to carry out a status and parameter check.</div>
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NOTES	Engine stopped, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Dialogue with XR25	D13 (selector on S8)	<div>1</div> <div><div></div><div></div></div> <div>1</div> <div><div></div><div></div></div>	<div>Fault test</div> <div>9.NJ</div> <div>Use fiche 27</div> <div>Code present</div>	Deal with fault bargraph
2	Change to status test	G01*	<div>1</div> <div><div></div><div></div></div>	<div>10.NJ</div> <div>Status test</div>	None
3	Battery voltage	# 04		11.8 < X < 13.2 V	DIAG 1
4	Computer configuration		<div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Computer configured to manual gearbox</div> <div>Computer configured to automatic transmission</div>	See Fiche 'Reminder C' to configure the vehicle
5	Immobiliser (if option)	Ignition on	<div>3</div> <div><div></div><div></div></div>	<div>This status bargraph must be extinguished when the ignition is on to indicate that the immobiliser is not active.</div>	DIAG 12

NOTES	Engine stopped, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	10 < X < 50	DIAG 2
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>		
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	185 < X < 245	
7	Pressure sensor	# 01		X = Atmospheric pressure	DIAG 9
8	Coolant temperature sensor	# 02		X = Engine temperature ± 5 °C	DIAG 3
9	Air temperature sensor	# 03		X = Temperature under bonnet ± 5 °C	DIAG 4
10	Fan assembly	G17*		The fan must operate	DIAG 17
11	Fault warning light	G21*1*		The fault warning light must illuminate then extinguish	DIAG 19
12	Canister bleed	G16*		The canister bleed valve must be heard to operate	DIAG 20

NOTES	Carry out the actions below if the engine does not start. Otherwise, refer to the following pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Flywheel signal sensor	Starter	<div>3</div> <div><div></div><div></div></div>	Illuminated if TDC information detected	DIAG 5
2	Fuel pump	G10*		Fuel pump should be heard to operate	DIAG 6
3	Ignition	Connect Optima Station		Starting test, complete guide on Optima Station	Use Optima 5800 Station
4	Fuel pressure	Connect pressure gauge to fuel inlet and activate starter motor		The pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section
5	Injection command	Starter		Fuel must come out of the injector	DIAG 11
6	Engine compression	Connect Optima Station		Complete guide on Optima Station	Use Optima 5800 Station
7	Flywheel	Connect Optima Station		Oscilloscope. Complete guide on Optima Station	Use Optima 5800 Station



Fault finding - Status and parameter checks

<b>NOTES</b>	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Charging circuit	# 04		$13 < X < 14.5 \text{ V}$	DIAG 1
2	Throttle potentiometer	No load	<div>2</div> <div><div></div><div></div></div>	Illuminated(does not flash!)	DIAG 2
3	Idle speed regulation	# 06 # 12 # 21	<div>6</div> <div><div></div><div></div></div>	$690 < X < 790 \text{ rpm}$ $4 \% < X < 14 \%$ $- 4.3 \% < X < 3.9 \%$	DIAG 7
4	Anti-pinking circuit	# 13 (at 3500 rpm, no load)		X variable and not zero	DIAG 8
5	Pressure circuit	# 01 # 16		$270 \leq X \leq 430 \text{ V}$ X = atmospheric pressure	DIAG 9
6	Richness regulation	# 35 # 05	<div>6</div> <div><div></div><div></div></div>	$0 < X < 255$ X varies around 128 $0.050 \leq X \leq 0.900 \text{ V}$	DIAG 10 See also DIAG 15
7	Fuel pressure	Connect a pressure gauge to the fuel gallery and activate the starter motor		Pressure gauge must show 2.5 bars	Fuel pressure, see Workshop Repair Manual or section

NOTES	Carry out the actions below (engine warm, at idle speed, no consumers) if the engine starts. Otherwise refer to the previous pages.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
8	Air conditioning	AC selected	<div>9</div> <div><div></div><div></div></div>	Extinguished if fast idle is not active	DIAG 16
		# 06 # 44	<div>10</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div>	Illuminated if the air conditioning requests compressor operation  Illuminated if the injection authorises compressor operation  690 ≤ X ≤ 790 rpm  250 ≤ X ≤ 4000 W	
9	Power assisted steering prestostat	Turn wheels to full lock	<div>9</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div>	800 ≤ X ≤ 900 rpm  250 ≤ X ≤ 4000 W	DIAG 18
			<div>13</div> <div><div></div><div></div></div>	Illuminated when wheels turned to full lock	

NOTES	Check during road test.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes	Fault finding
1	Vehicle speed information	# 18		X = speed read on the speedometer in km/h	DIAG 13
2	Adaptive richness	After programming # 30 # 31		$106 \leq X \leq 150$ $106 \leq X \leq 150$	DIAG 14
3	Emission of pollutants	2500rpm after driving  At idle speed, wait for stabilisation		$CO < 0.3 \%$ $CO_2 > 13.5 \%$ $O_2 < 0.8 \%$ $HC < 100 \text{ ppm}$ $0.97 < \lambda < 1.03$  $CO < 0.5 \%$ $HC < 100 \text{ ppm}$ $0.97 < \lambda < 1.03$	DIAG 15 see also DIAG 10

<b>DIAG 1</b>	<div>Fiche n° 27</div> <b>BATTERY VOLTAGE</b>  <b>XR25 aid:</b> Battery voltage ignition on, Minimum< # 04 < Maximum Battery voltage idle speed, Minimum< # 04 < Maximum
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Ignition on

<b>If # 04 &lt; Minimum, the battery is discharged:</b> Check the charging circuit to determine the cause of this fault.
<b>If # 04 &gt; Maximum, the battery may be overcharged:</b> Check the charging voltage is correct with and without consumers.

At idle speed

<b>If # 04 &lt; Minimum, the charging voltage is too low:</b> Check the charging circuit to determine the cause of this fault.
<b>If # 04 &gt; Maximum, the charging voltage is too high:</b> The alternator regulator is faulty. Repair this fault and check the electrolyte level in the battery.

**NOTE:**  
The battery and the charging circuit may be checked using the OPTIMA 5800 station (measurement does not require the battery to be disconnected, which retains the memories of the computers).

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 2</b>	<b>THROTTLE POTENTIOMETER</b> XR25 aid:# 17 outside tolerances # 17 does not vary when throttle moves Status BG 2LH or 2RH, incorrect illumination	Fiche n° 27
<b>NOTES</b>	No fault bargraphs should be illuminated. Ignition on or engine running.	

<b>Status bargraph 2RH incorrect illumination</b>	<b>NOTES</b>	None
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Check the resistance of the throttle potentiometer. Replace the throttle potentiometer if necessary.		
Check the insulation and the continuity of the line:		
<b>Computer 19</b>	————→	<b>C Throttle potentiometer</b>
<b>Computer 45</b>	————→	<b>B Throttle potentiometer</b>
<b>Computer 46</b>	————→	<b>A Throttle potentiometer</b>
Repair if necessary.		

<b># 17 is fixed</b>	<b>NOTES</b>	None
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Check the resistance of the throttle potentiometer when the throttle is activated.		
If the resistance varies, check the electrical lines of the sensor.		
If the resistance does not vary, check that the sensor is connected mechanically to the throttle. If necessary, replace the sensor.		

<b># 17 outside tolerances</b>	<b>NOTES</b>	None
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Check the upper and lower stops of the throttle. Check the accelerator control (points of resistance and friction). Repair.		
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<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.	
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<b>DIAG 3</b>	<div>Fiche n° 27</div> <b>COOLANT TEMPERATURE</b>  XR25 aid:# 02 = Engine temperature $\pm 5\text{ }^{\circ}\text{C}$
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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<p>If the value read is inconsistent, check the sensor correctly follows the standard table of values for "resistance as a function of temperature".</p> <p>Replace the sensor if the values are incorrect (<b>NOTE</b> : If a sensor is incorrect, this is often due to an electric shock).</p>
<p>Check the insulation, continuity and that there is no interference resistance on the electrical line :</p> <p><b>Computer 15</b>    <math>\longrightarrow</math>    <b>B2 Coolant temperature sensor</b></p> <p><b>Computer 44</b>    <math>\longrightarrow</math>    <b>B1 Coolant temperature sensor</b></p> <p>Repair.</p>

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 4</b>	<div>AIR TEMPERATURE</div> <div>Fiche n° 27</div> <div>XR25 aid:# 03 = Temperature under the bonnet ± 5 °C</div>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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<p>If the value read is incoherent, check the sensor correctly follows the standard table of values for "resistance as a function of temperature".</p> <p>Replace the sensor if the values are incorrect (<b>NOTE</b> : If a sensor is incorrect, this is often due to an electric shock).</p>
<p>Check the insulation, continuity and that there is no interference resistance on the electrical line :</p> <div><div>Computer20</div><div>————→2</div><div>Air temperature sensor</div><div>Computer46</div><div>————→1</div><div>Air temperature sensor</div></div> <p>Repair.</p>

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 5	<div>TDC DETECTION</div> <div>XR25 aid:Status BG 3LH, incorrect illumination</div>	Fiche n° 27
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NOTES	No fault bargraphs should be illuminated. When the starter motor is activated.
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Check the resistance of the TDC sensor. Replace the sensor if necessary.
Check the sensor is correctly mounted. Repair if necessary.
Check the condition of the target (if it has been removed). Repair if necessary.
Check the insulation, continuity and that there is no interference resistance on the electrical line : Computer 33 —————> B Flywheel signal sensor Computer 34 —————> A Flywheel signal sensor Repair.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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DIAG 6	<div>FUEL PUMP</div> <div>Fiche n° 27</div> <div>XR25 aid: The command mode should cause the fuel pump to operate.</div>
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NOTES	No fault bargraphs should be illuminated.
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<div>Check the fuel pump fuse.</div> <div>Check the insulation and continuity of the wiring:</div> <div>Fuel pump fuse                      3   Fuel pump relay</div> <div>Repair if necessary.</div>	<div>→</div>
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<div>Check the insulation and continuity of the wiring:</div> <div>Fuel pump relay 5                      Impact sensor</div> <div>Impact sensor                      C1   Fuel pump</div> <div>Repair if necessary.</div>	<div>→</div> <div>→</div>
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Check the hygiene and presence of earth on track C2 of the fuel pump.
<div>If + 12 V is not reaching the fuel pump, replace the fuel pump relay.</div> <div>If + 12 V is reaching the fuel pump, replace the fuel pump.</div>

AFTER REPAIR	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 7</b>	<b>IDLE SPEED REGULATION</b>  XR25 aid: Engine speed , Minimum < # 06 < Maximum	<b>Fiche n° 27</b>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the resistance of the idle speed regulation stepping motor. Replace the idle speed regulation valve if necessary.				
Check the insulation and continuity of the line:				
Computer	8	————→	D	Idle speed regulation motor
Computer	35	————→	A	Idle speed regulation motor
Computer	9	————→	B	Idle speed regulation motor
Computer	36	————→	C	Idle speed regulation motor
Repair if necessary and continue fault finding using the value for # 06.				

<b># 06 &lt; Minimum</b>	<b>NOTES</b>	The idle speed is too low
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Idle speed regulation is not maintaining the idle speed. <ul style="list-style-type: none"><li>- Clean the air supply circuit (throttle body, idle speed regulation valve), since it is probably contaminated.</li><li>- Check the engine oil level (too high ---&gt; splashing).</li><li>- Check and ensure correct fuel pressure.</li><li>- Using the OPTIMA 5800 station, check the engine compression.</li><li>- Check the valve clearances and the timing.</li></ul> If all these points are correct, replace the idle regulation motor.
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<b># 06 &gt; Maximum</b>	<b>NOTES</b>	The idle speed is too high
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An air leak may be affecting the idle speed regulation programming. <ul style="list-style-type: none"><li>- Check the connections on the manifold.</li><li>- Check the hygiene of the pipes on the manifold.</li><li>- Check the pneumatically controlled solenoid valves.</li><li>- Check the manifold gaskets.</li><li>- Check the throttle body seals.</li><li>- Check the sealing of the brake servo.</li><li>- Check the restrictions are present in the oil vapour rebreathing circuit.</li><li>- Check the fuel pressure.</li></ul> If all these points are correct, replace the idle speed regulation motor.
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<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 8	<div>ANTI-PINKING CIRCUIT</div> <div>XR25 aid:# 13 is not zero and variable for fast idle or under load</div>	Fiche n° 27
NOTES	No fault bargraphs should be illuminated.	

The pinking sensor should give a signal which is variable and not zero, to prove that it is recording the mechanical vibrations of the engine.

If the signal is zero:

- Check the sensor is correctly screwed in.
  - Check the insulation and continuity of the wiring:
- Computer54

—————>

2Pinking sensor

Computer44

—————>

1Pinking sensor

Computer31

—————>

Pinking sensor screening

If necessary, replace the sensor.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 9</b>	<b>PRESSURE CIRCUIT</b> <b>XR25 aid:</b> Ignition on # 01 not coherent At idle speed # 01 < Minimum or # 01 > Maximum # 16 not coherent	Fiche n° 27
<b>NOTES</b>	No fault bargraphs should be illuminated.	

# 01 not coherent  
ignition on  
# 01 < Minimum at idle  
speed  
# 16 not coherent

Check the insulation, the continuity and that there is no interference on the line:

<b>Computer</b>	<b>45</b>	————→	<b>C</b>	<b>Pressure sensor</b>
<b>Computer</b>	<b>44</b>	————→	<b>A</b>	<b>Pressure sensor</b>
<b>Computer</b>	<b>16</b>	————→	<b>B</b>	<b>Pressure sensor</b>

Repair if necessary.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

# 01 > Maximum at idle  
speed

The manifold pressure is often a sign of incorrect engine operation. Check

- the sealing of the pipe between the manifold and the sensor,
- the valve clearances,
- the canister bleed valve which should be closed at idle speed,
- cylinder compression using the OPTIMA 5800 station.

If all these points are correct, replace the sensor.  
A vacuum pump with a pressure gauge may be used to check coherence with # 01 and to show a faulty sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 10</b>	<b>RICHNESS REGULATION</b> XR25 aid:      Richness regulation faulty	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Ignition correct (a check may be made using the OPTIMA 5800 station). No other status bargraph should show a fault.
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Using a vacuum pump fitted with a pressure gauge, check the coherence of # 01. If incoherence is present, refer to "DIAG 9 # 01 incoherent, ignition on".
Check the sealing of the canister bleed valve (a leak can disrupt the richness considerably). Check the sealing of the exhaust pipe upstream from the oxygen sensor. Check the sealing of the inlet manifold. If the vehicle has only been driven in town, the sensor is contaminated (try driving under load). Check the fuel pressure. If the idle speed is unstable, check the valve clearances. Check the injectors (flow and shape of the jet). If necessary, replace the oxygen sensor.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 11</b>	<div>Fiche n° 27</div> <b>INJECTOR</b> <b>XR25 aid :</b> CO or CC - line 30 of the computer for injectors 1 and 4 CO or CC - line 4 of the computers for injectors 2 and 3
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the resistance of the faulty injector. Replace it if necessary.
During command mode operation, check for + 12 Volts on track 1 of the faulty injector. Repair.
Check the insulation and continuity of the line: injectors 1 and 4    Computer 30    —————> 2 injectors injectors 2 and 3    Computer 4    —————> 2 injectors Repair if necessary.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 12</b>	<b>IMMOBILISER</b>  <b>XR25 aid</b> : Status BG 3RH, illuminated when ignition switched on	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the insulation and continuity of the wiring for track 37 on the injection computer.
If the fault persists, refer to the immobiliser fault finding.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 13</b>	<b>VEHICLE SPEED</b>  <b>XR25 aid:</b> # 18 = Speed read on speedometer in km/h	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated. Check with a road test.
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<p>If the value read is incoherent:</p> <ul style="list-style-type: none"><li>- Check that the sensor is correctly mounted and fed:<ul style="list-style-type: none"><li>• <b>+12 V on A1</b></li><li>• <b>Earth on B2</b></li></ul></li><li>- Check the insulation, continuity and that there is no interference resistance on the line:</li></ul> <p>Computer 12            B1 vehicle speed sensor</p> <p><b>NOTE :</b> check the various functions using this information.</p> <p>Repair.</p>	<p>The fault persists! Replace the speed sensor.</p>
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<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 14</b>	<div>Fiche n° 27</div> <b>ADAPTIVE RICHNESS</b>  <b>XR25 aid:</b> Minimum < # 30 < Maximum Minimum < # 31 < Maximum
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<b>NOTES</b>	No fault bargraphs should be illuminated. Carry out the programming operations.
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Ensure the canister bleed valve is sealed.
Erase the computer memory. Engine warm , running at idle speed, check the values for # 30 and # 31. - <b>If # 30 or # 31 is at a MAXIMUM, there is not enough fuel.</b> - <b>If # 30 or # 31 is at a MINIMUM, there is too much fuel.</b>
Ensure the hygiene, cleanliness and correct operation of : - filter - fuel pump - fuel circuit - fuel tank.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 15	<div>EMISSION OF POLLUTANTS</div> <div>Fiche n° 27</div> <div>XR25 aid: None</div>
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NOTES	No fault bargraphs should be illuminated.
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$0.97 \leq \lambda \leq 1.03$ at 2500 rpm	NOTES	The oxygen sensor loops correctly at 2500 rpm.
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If CO > 0.3 % at 2500 rpm	
	The catalytic converter is faulty. <b>NOTE</b> : it is vital to determine the cause of the catalytic converter damage to avoid a new converter also being damaged.

If $\lambda < 0.97$ or $\lambda > 1.03$ at idle speed	
	Check the sensor earth and heating. Check there is no air leak at the manifold.

$0.97 \leq \lambda \leq 1.03$ at 2500 rpm	NOTES	The oxygen sensor does not loop correctly at 2500 rpm.
		It is an injection or sensor fault.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 15</b>  CONT	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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$\lambda > 1.03$ at 2500 rpm	<b>NOTES</b>	None
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The oxygen sensor loops correctly at 2500 rpm.
Check there is no leak at the exhaust. Check that an injector has not seized. Check the fuel pressure is not too low.

The oxygen sensor does not loop correctly at 2500 rpm.
Check there is not an injection fault. Check there is not an ignition fault. Check the sensor is not faulty. Check the fuel pressure.

$\lambda < 0.97$ at 2500 rpm.	<b>NOTES</b>	The oxygen sensor does not loop correctly at 2500 rpm, CO > 0.3 % at 2500 rpm.
		Check the pressure sensor. Check the sensor. Check that an injector is not faulty.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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Fault finding - Status and parameter interpretation

<b>DIAG 16</b>	<div>AIR CONDITIONING</div> <div>XR25 aid:Status BG 10LH or 10RH incorrect illumination</div> <div>Fiche n° 27</div>
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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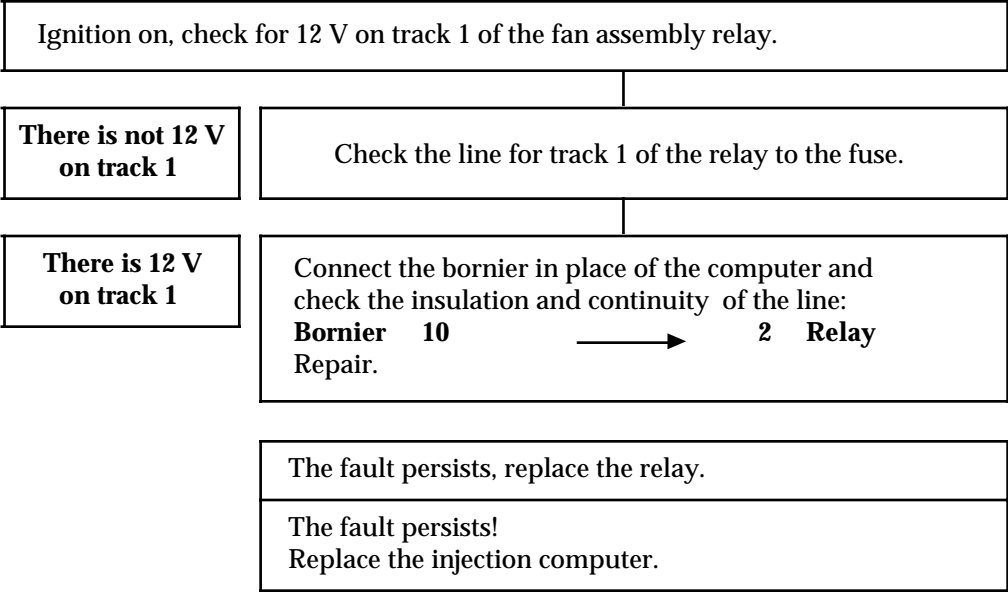
Check the insulation and continuity of lines <b>track 5 and track 51</b> of the injection computer. Repair if necessary. Consult the air conditioning fault finding.
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<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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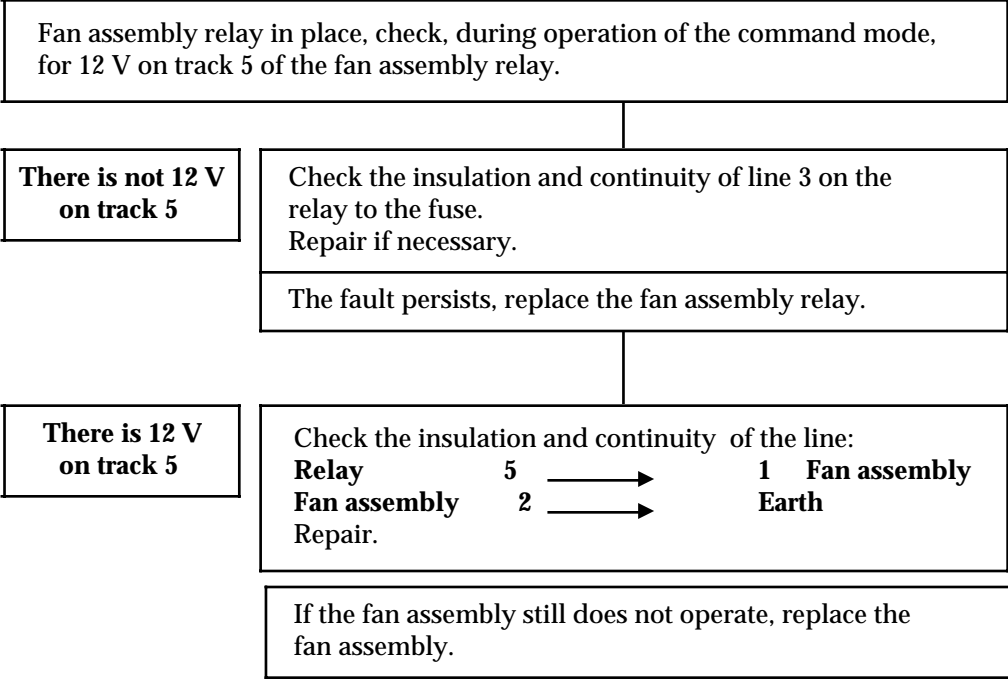
Fault finding - Status and parameter interpretation

DIAG 17	<div>Fiche n° 27</div> <div>ANTIPERCOLATION RELAY</div> <div>XR25 aid:      The fan assembly must operate when command mode G17* is used.</div>
NOTES	No fault bargraphs should be illuminated.

The antipercolation relay  
does not click when its  
command mode is used



The antipercolation relay  
does click when its  
command mode is used



AFTER REPAIR	Start the status and parameter check again from the beginning.
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<b>DIAG 18</b>	<p><b>POWER ASSISTED STEERING PRESSOSTAT</b></p> <p><b>XR25 aid :</b>None.</p>	Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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<p>Check the correct operation of the power assisted steering (oil level, ...).</p> <p>Check the power assisted steering pressostat is correctly connected.</p> <p>Check the insulation and continuity of the line for track 13 on the injection computer.</p> <p>Repair if necessary.</p>
<p>If all these points are correct, replace the power assisted steering pressostat.</p>

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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<b>DIAG 19</b>	<b>FAULT WARNING LIGHT CIRCUIT</b> <b>XR25 aid:</b> None Fiche n° 27
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<b>NOTES</b>	No fault bargraphs should be illuminated.
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Check the condition of the warning light and its feed. Repair if necessary.
Connect the bornier in place of the computer and check the insulation and continuity of the line <b>track 43 on the computer</b> . Repair.

<b>AFTER REPAIR</b>	Start the status and parameter check again from the beginning.
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DIAG 20	<div>CANISTER BLEED</div> <div>Fiche n° 27</div> <div>XR25 aid: G16* = Canister bleed command</div>
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NOTES	No fault bargraphs should be illuminated.
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Check the resistance of the canister bleed valve. Replace the valve if necessary.
Ignition on, check during the timed phase for the presence of 12 V on track A of the canister bleed valve. Repair if necessary.

Connect the bornier in place of the computer and check the insulation and continuity of the line: <div>Computer      42      —————&gt;      B      Canister bleed valve</div> Repair if necessary.
Replace the canister bleed solenoid valve. <b>NOTE</b> : when replacing the valve, shake it over a sheet of white paper, and also shake the adjacent pipes. If pieces of carbon fall out, the canister must also be replaced.

AFTER REPAIR	Start the status and parameter check again from the beginning.
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Fault finding - Customer complaints

NOTES	Only refer to this customer complaint after a complete check using the XR25.
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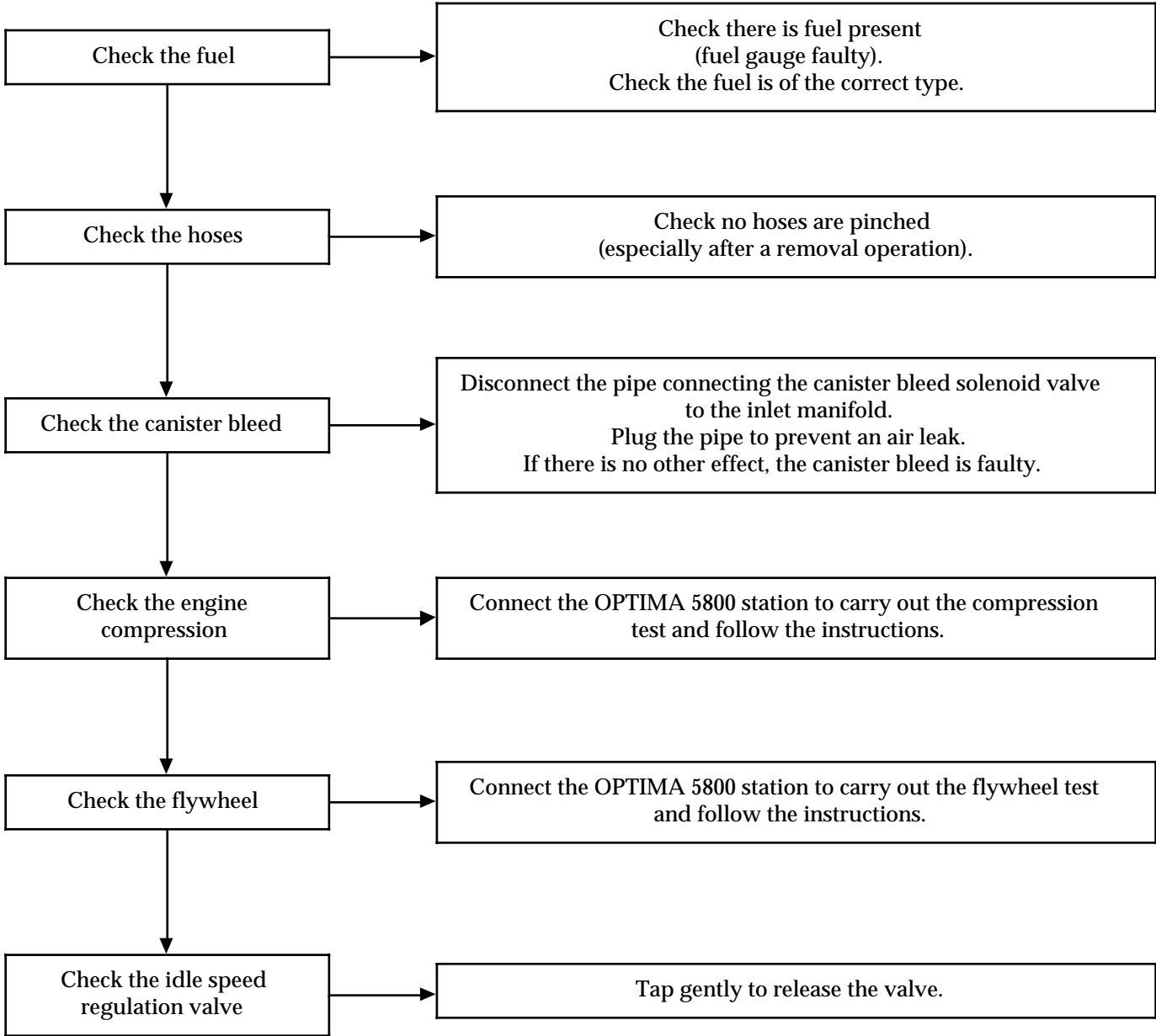
STARTING FAULTS \_\_\_\_\_ Chart 1

IDLE SPEED FAULTS \_\_\_\_\_ Chart 2

BEHAVIOUR WHILE DRIVING \_\_\_\_\_ Chart 3

<b>Chart 1</b>	<b>STARTING FAULTS</b>
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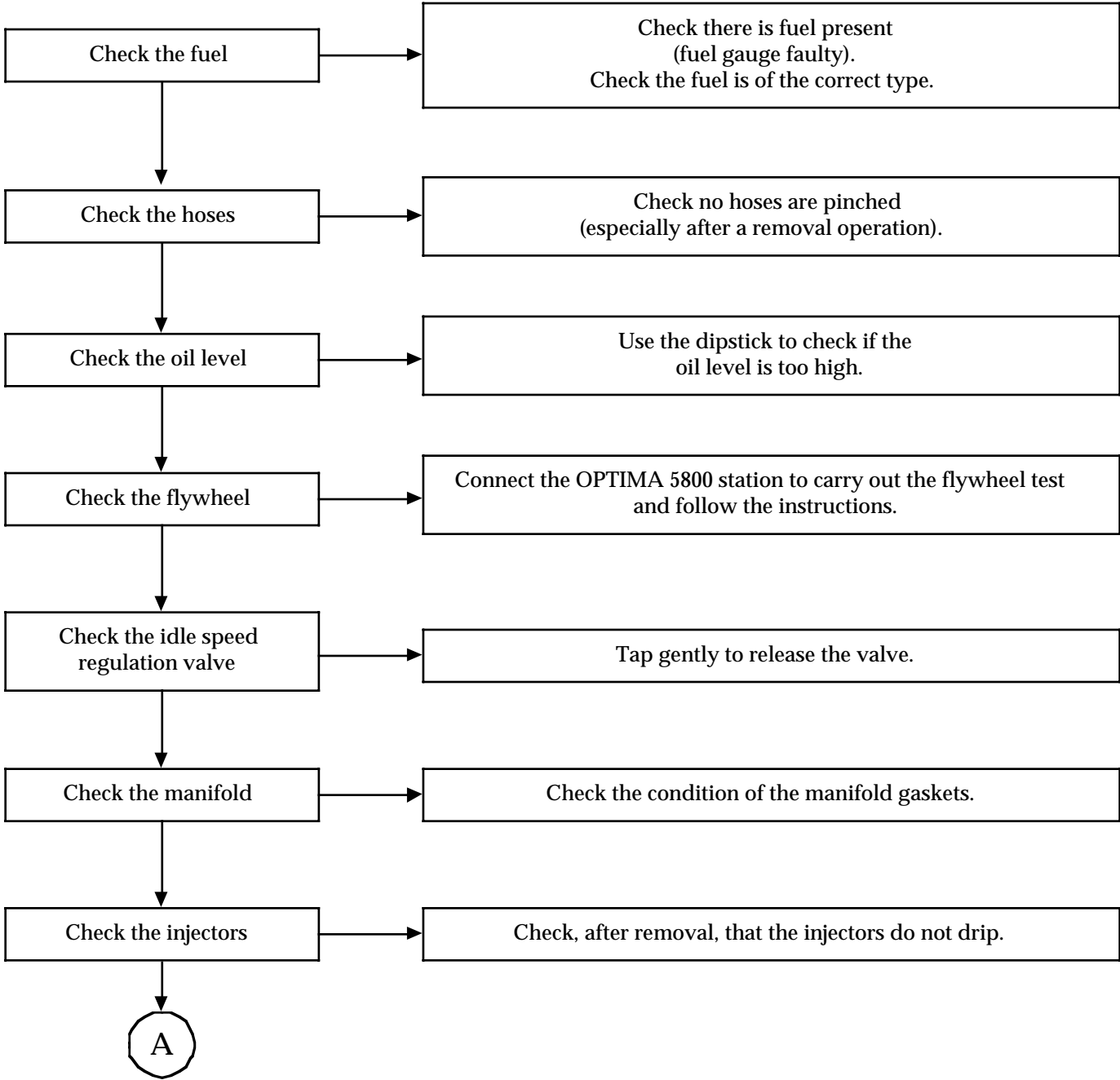
<b>NOTES</b>	Only refer to this customer complaint after a complete check using the XR25.
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<b>AFTER REPAIR</b>	Erase the computer memory using G0** and carry out a road test.
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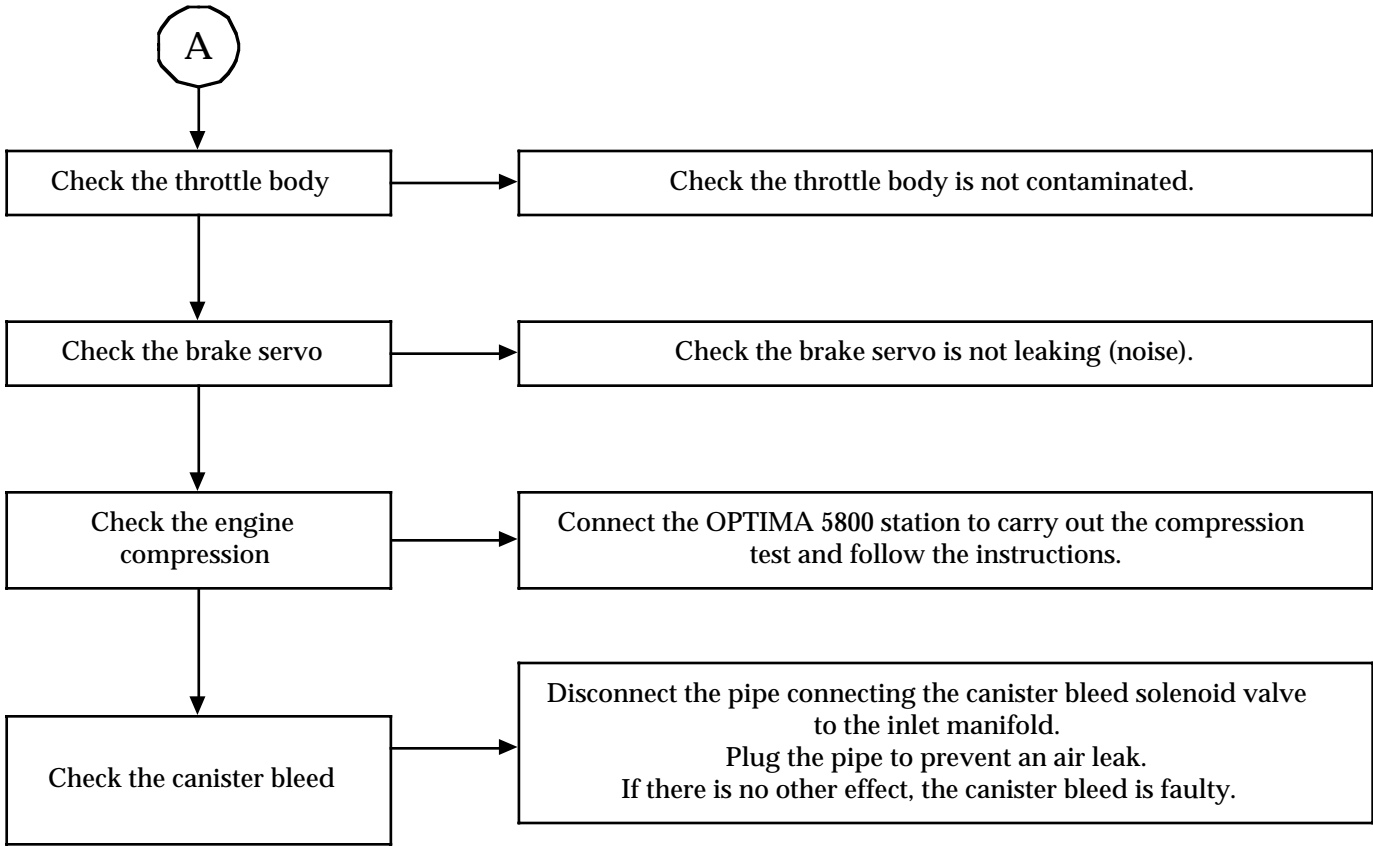
<b>Chart 2</b>	<b>IDLE SPEED FAULTS</b>
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<b>NOTES</b>	Only refer to this customer complaint after a complete check using the XR25.
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<b>AFTER REPAIR</b>	Erase the computer memory using G0** and carry out a road test.
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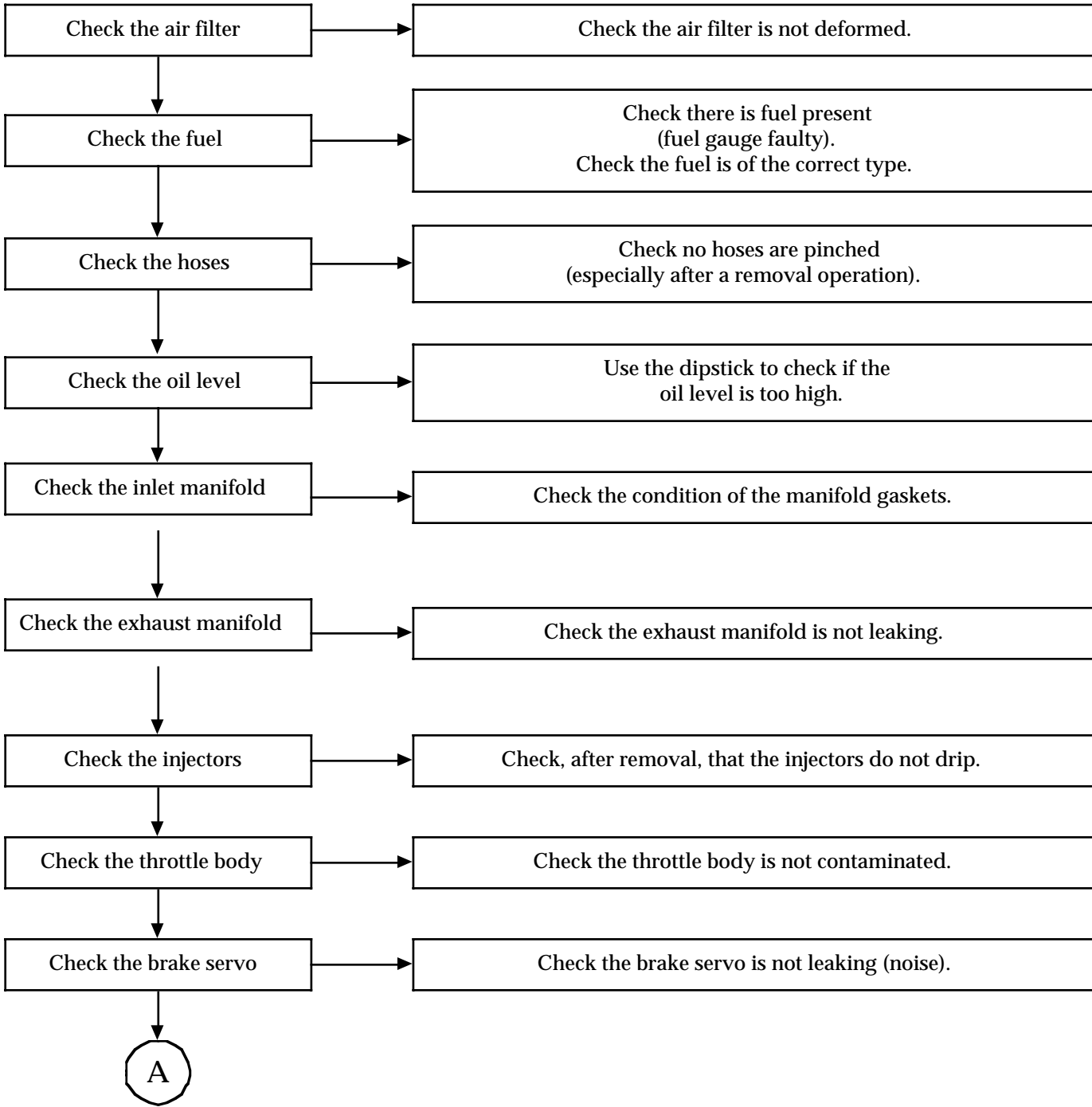
Chart 2 CONT	
NOTES	Only refer to this customer complaint after a complete check using the XR25.



AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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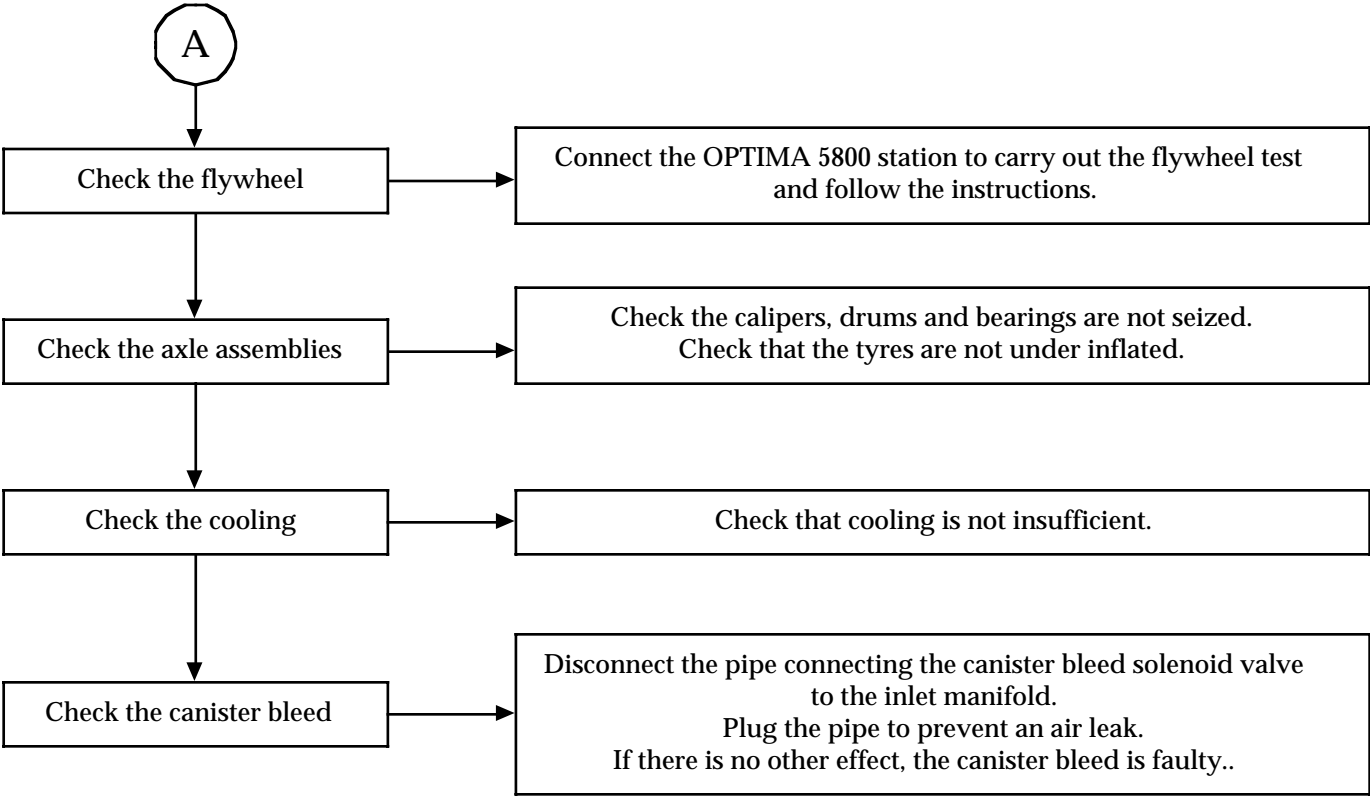
Chart 3	BEHAVIOUR WHILE DRIVING
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NOTES	Only refer to this customer complaint after a complete check using the XR25.
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AFTER REPAIR	Erase the computer memory using G0** and carry out a road test.
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<b>Chart 3</b> <b>CONT</b>	
<b>NOTES</b>	Only refer to this customer complaint after a complete check using the XR25.



<b>AFTER REPAIR</b>	Erase the computer memory using G0** and carry out a road test.
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For further details, refer to section 12

Injector resistance	=	14.5 $\Omega$		
Idle regulation stepping motor resistance	:	A - D = 100 $\Omega$ B - C = 100 $\Omega$		
Canister bleed valve resistance	=	35 $\Omega$		
Ignition coil resistance	:	Primary = 1-4 ; 1-3 ; 2-3 ; 2-4 = 1.5 $\Omega$ 3-4 = 0.6 $\Omega$  Secondary = 8 k $\Omega$		
Oxygen sensor heating resistance	=	3 to 15 $\Omega$		
Throttle potentiometer resistance	:	no load A-B= 1300 $\Omega$ A-C= 1360 $\Omega$ B-C = 2300 $\Omega$	full load A-B= 1300 $\Omega$ A-C= 2350 $\Omega$ B-C = 1260 $\Omega$	
Flywheel signal resistance	=	220 $\Omega$		
Fuel pressure	=	3 bars ignition on/ 2.5 bars at idle speed		
Value for: CO	=	0.3 % maximum		
HC	=	100 ppm maximum		
CO2	=	14.5 % minimum		
Oxygen	=	0.97 < $\lambda$ < 1.03		

Sensor resistance					
Temperature in $^{\circ}\text{C}$	0	20	40	80	90
Air temperature sensor Resistance in ohms	5000 to 7000	1700 to 3300	500 to 1550	-	-
Coolant temperature sensor Resistance in ohms	6700 to 8000	2600 to 3000	1100 to 1300	270 to 300	200 to 215

NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D13 (selector on S8)		<div>9.NJ</div> Use fiche n° 27 fault test side
2	Interpretation of normally illuminated bargraphs		<div>1</div> <div><div></div><div></div></div> <div>1</div> <div><div></div><div></div></div>	 Fault test   Code present
3	Immobiliser		<div>2</div> <div><div></div><div></div></div>	If the vehicle does not have an immobiliser, this bargraph should be illuminated.
4	Change to status test	G01*		<div>10.NJ</div> Use fiche n° 27 status test side



NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Interpretation of normally illuminated bargraphs		<div>1</div> <div><div></div><div></div></div> <div>2</div> <div><div></div><div></div></div> <div>3</div> <div><div></div><div></div></div> <div>4</div> <div><div></div><div></div></div> <div>5</div> <div><div></div><div></div></div> <div>9</div> <div><div></div><div></div></div> <div>12</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Code present</div> <div>No load recognition</div> <div>Illuminated if immobiliser active</div> <div>+ after ignition information received</div> <div>Locking relay control effective</div> <div>Always illuminated if air conditioning option available</div> <div>Illuminates after erasing the memory to indicate that the operation has been carried out correctly</div> <div>Computer configured for: Manual gearbox (G50*2*)</div> <div>Automatic transmission(G50*1*)</div>

NOTES	Engine cold, ignition on.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Throttle position potentiometer	No load # 17	<div>2</div> <div><div></div><div></div></div>	10 < X < 50
		Accelerator pedal slightly depressed	<div>2</div> <div><div></div><div></div></div>	
		Full load # 17	<div>2</div> <div><div></div><div></div></div>	185 < X < 245
7	Absolute pressure sensor	# 01		X = Local atmospheric pressure
8	Coolant temperature sensor	# 02		X = Ambient temperature ± 5 °C
9	Air temperature sensor	# 03		X = Ambient temperature ± 5 °C
10	Idle speed regulation stepping motor	# 12		The value read is variable depending on the coolant temperature : : 11 % ≤ X ≤ 100 %
11	Engine speed	# 06		X = 0 rpm
12	Canister bleed	# 23		X = 0.7 %

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once(air conditioning not selected)
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test	G01*		<div>10.NJ</div> Use fiche n° 27 status test side
2	No fault present		<div>20</div> <div><div></div><div></div></div>	Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche. <b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 dEF.  Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)
3	Battery voltage	# 04  if in # 04  then # 06		13 volts < X < 14.5 volts  X < 12.7 volts  Engine speed < X < 880 rpm nominal

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once(air conditioning not selected)
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
4	Interpretation of normally illuminated bargraphs	-	1 <div><div></div><div></div></div>	Code present
			2 <div><div></div><div></div></div>	No load recognition
			3 <div><div></div><div></div></div>	Engine speed information received
			4 <div><div></div><div></div></div>	+ after ignition information received
			5 <div><div></div><div></div></div>	Locking relay control effective
			6 <div><div></div><div></div></div>	Idle speed regulation active
			6 <div><div></div><div></div></div>	Richness regulation active

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected)
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
4 (cont)	Interpretation of normally illuminated bargraphs (cont)	-	<div>7</div> <div><div></div><div></div></div> <div>9</div> <div><div></div><div></div></div> <div>12</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div> <div>19</div> <div><div></div><div></div></div>	<div>Fuel pump active</div> <div>Always illuminated if air conditioning option available</div> <div>illuminates after erasing the memory to indicate that the operation has been carried out correctly</div> <div>Computer configured for:</div> <div>Manual gearbox (G50*2*)</div> <div>Automatic transmission(G50*1*)</div>

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected)
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Engine idle speed	Without air conditioning	<div>6</div> <div><div></div><div></div></div>	X = 740 ± 50 rpm  4 % < X < 14 %  X ≈ 250 W
		# 06	<div>9</div> <div><div></div><div></div></div>	
		# 12	<div></div> <div><div></div><div></div></div>	
		# 44		
		With air conditioning and without fast idle request	<div>9</div> <div><div></div><div></div></div>	
		# 06	<div>10</div> <div><div></div><div></div></div>	
		# 44		
		With air conditioning and fast idle request	<div>9</div> <div><div></div><div></div></div>	
		# 06	<div>10</div> <div><div></div><div></div></div>	
		# 44		
				X = 740 ± 50 rpm  250 ≤ X ≤ 4000 W
6	Anti-pinking noise measurement	# 13 (3500 rpm, no load)		X variable and not zero

NOTES	Engine warm, at idle speed, after fan assembly has operated at least once (air conditioning not selected)
-------	---

Order of operations		Function to be checkedAction	Bargraph	Display and notes
7	Manifold pressure	# 01 no consumers		X is variable and is approximately $270 \leq X \leq 430$ mb (this pressure varies with altitude)
8	Richness regulation	Stable engine speed of 2500 rpm then idle speed  # 05  # 35	<div>6</div> <div><div></div><div></div></div> <div>6</div> <div><div></div><div></div></div>	X varies in the range from 50 to 900 mV approximately  X is close to 128 and varies slightly with a maximum of 255 and minimum of 0
9	Adaptive idle speed correction	# 21		- 4.3 % < X < 3.9 % (average value after erasing the memory : 0)
10	Canister bleed	# 23	<div>11</div> <div><div></div><div></div></div>	Canister bleed is prevented. The solenoid valve remains closed. X = 0.7 %
11	PAS pressostat	# 06	<div>13</div> <div><div></div><div></div></div>	X = 800 rpm
12	Fan assembly	# 02		The fan must operate when the temperature exceeds 99 °C

NOTES	Checks to be carried out during a road test.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Change to status test	G01*		<div>10.NJ</div> <p>Use fiche n° 27 status test side</p>
2	No fault present		<div>20</div> <div><div></div><div></div></div>	<p>Ensure this bargraph is not flashing, otherwise enter G02* and turn over the fiche.</p> <p><b>IMPORTANT:</b> This bargraph may flash if the vehicle has no immobiliser. Ignore this bargraph if fault bargraph 2 RH side is illuminated and *22 = 2 dEF.</p> <p>Repair the faulty component the erase the memory (G0**) and return to the status test (G01*)</p>
3	Canister bleed	# 23	<div>11</div> <div><div></div><div></div></div>	<p>Canister bleed is authorised X = variable and &gt; 0.7</p>
4	Vehicle speed information	# 18		<p>X = vehicle speed read on speedometer</p>
5	Pinking sensor	Vehicle under load and engine speed 2000 rpm  # 13  # 15		<p>X = variable and not zero</p> <p><math>0 \leq X \leq 6</math> (if there is a sensor fault, the advance is retarded systematically by 4° , which is not visible using # 15)</p>



<b>NOTES</b>	Checks to be carried out during a road test.
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Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Adaptive richness	After programming phase  <b># 30</b>  <b># 31</b>		$106 \leq X \leq 150$ (average value after erasing the memory : 128)  $106 \leq X \leq 150$ (average value after erasing the memory : 128)

# ABS BOSCH 5.3

## FAULT FINDING

### CONTENTS

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**CONDITIONS FOR APPLICATION FOR THE TESTS DEFINED IN THIS FAULT FINDING**

The tests described in this fault finding are only to be applied when the wording of the fault corresponds exactly to the display on the XR25 kit.

If a fault is dealt with because there is a flashing bargraph, the conditions for confirming the existence of an actual fault (and the need to apply the fault finding ) can be found in the "Notes" or at the beginning of the bargraph interpretation.

If a bargraph is only interpreted when it is permanently illuminated, the application of the recommended tests in the fault finding when the bargraph is flashing will not allow you to determine the origin of the memorisation of this fault. In this case, only a test of the wiring and the connections of the component in question must be carried out (the fault is simply memorised as it was not present at the time of testing).

**NOTE :** The ignition must have been switched off before the XR25 kit is used.

**INDISPENSABLE TOOLING REQUIRED FOR OPERATIONS ON THE ABS SYSTEM**

- XR25 kit.
- XR25 cassette n° 17 minimum.

**Reminders :** When there is intermittent fault memorisation, the ABS warning light will illuminate the next time the vehicle is used until the car reaches 7.5mph (12 km/h). When the fault is memorised, a counter relating to the fault is set at 40 . This value is reduced by one each time the ignition is turned on if the fault is not present when the vehicle exceeds 7.5mph (12 km/h). When the reading on the counter is equal to 1, it remains at 1 and the fault is not erased.

## PRESENTATION OF XR25 FICHE N° 53

N°53		S8 code : D 1 1		read : n.53	
1	<input type="checkbox"/>	FEED / COMPUTER		CODE PRESENT <input type="checkbox"/>	
2	<input type="checkbox"/>	FR LH	INLET SOL. VALVE CIRCUIT		FR RH <input type="checkbox"/>
3	<input type="checkbox"/>	RR LH			RR RH <input type="checkbox"/>
4	<input type="checkbox"/>	FR LH	EXHAUST SOL. VALVE CIRCUIT		FR RH <input type="checkbox"/>
5	<input type="checkbox"/>	RR LH			RR RH <input type="checkbox"/>
6	<input type="checkbox"/>	FR LH	WHEEL SPEED SENSOR CIRCUIT		FR RH <input type="checkbox"/>
7	<input type="checkbox"/>	RR LH			RR RH <input type="checkbox"/>
8	<input type="checkbox"/>	FR LH	WHEEL SPEED SIGNAL SENSORS		FR RH <input type="checkbox"/>
9	<input type="checkbox"/>	RR LH			RR RH <input type="checkbox"/>
10				PUMP MOTOR CIRCUITS	*30 <input type="checkbox"/>

### BOSCH ABS

Erase fault memory : G 0 \*\*  
End of test : G13 \*

**ADDITIONAL CHECKS : # . .**  
(see note)

01	FR RH wheel speed	Km/h
02	FR LH wheel speed	Km/h
03	RR RH wheel speed	Km/h
04	RR LH wheel speed	Km/h
06	feed	volts

12 computer identification  
 2 5 5. 5 II X66  
 2 2 0. 5 II X85 / 76  
 2 14. 5 II X54 PH2  
 90 Card number (53)

11	<input type="checkbox"/>	SOL. VALVE FEED	
12	<input type="checkbox"/>	STOP CIRCUIT (CO)	TARGET FOR ONE WHEEL <input type="checkbox"/>
13	<input type="checkbox"/>	BRAKE PEDAL DEPRESSED ← → RELEASED <input type="checkbox"/>	
14			
15			
16			
17			
18			
19			
20			

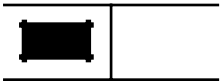
NOTE : for safety, the computer can exit diag. when driving along

**17** ANG

FI21753

SYMBOLISATION OF THE BARGRAPHS

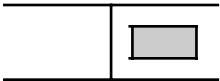
- Of faults (always on coloured background) :



If illuminated, signals a fault on the product tested. The associated text describes the fault.  
This bargraph may be:

- Illuminated : fault present.
- flashing : fault memorised.
- Extinguished : fault absent or not found.

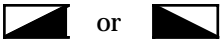
- Of status (always on white background) :



Bargraph is always on the upper right hand side  
If illuminated, this signals the establishment of dialogue with the product computer  
If it remains extinguished :

- The code does not exist.
- There is a fault in the XR25, the computer or the XR25/computer connection.

The representation of the following bargraphs indicates their initial status:  
Initial status : (ignition on, engine stopped, without operator action).



or

Indefinite illuminated when the function or condition specified on the fiche is met

Extinguished

Illuminated extinguished when the function or condition specified on the fiche is no longer met.

- Supplementary information:

Certain bargraphs have a \*. Command\*.., when the bargraph is illuminated, allows supplementary information on the type of fault or status arising to be displayed.

<div>1</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 1, right hand side extinguished</div> <div><u>Code present</u></div>
--	---

NOTES	None
-------	------

Check that the XR25 kit is not the cause of the fault by trying to communicate with the computer of another vehicle. If the XR25 kit is not at fault and it will not communicate with any other computer in the same vehicle, it is possible that a faulty computer is corrupting fault finding lines K and L . Locate this computer by disconnecting the lines one by one.

Check that the ISO interface is correctly in position **S8** and that you are using the most recent XR25 cassette and the correct access code.

Check the battery voltage and carry out the necessary operations to obtain the correct voltage(9.5 Volts< U battery<17.5 Volts)

Check the presence and condition of the ABS fuse on the passenger compartment fuse board (**10A**).

Check the connection of the computer connector and the condition of its connection.

Check the connection and condition of the connections at the intermediate connection **R107** dashboard / front of engine and **R255** front of engine / ABS.

Check the ABS earth wires (tighten the two earth screws above the ABS assembly).

Check that the computer is correctly fed :

- **earth on track 19** of the **31 track connector**,
- **+ after ignition feed on track 15** of the **31track connector**.

Check that the diagnostic socket is correctly fed :

- **+ before ignition feed on track 16**,
- **earth on track 5**.

Check the continuity and insulation of the lines in the diagnostic socket / ABS computer connection:

- between track **12** of the computer connector and track **15** of the diagnostic socket,
- between track **11** of the computer connector and track **7** of the diagnostic socket.

If dialogue is still not established after these tests, replace the ABS computer.,

AFTER REPAIR	When communication is established, deal with any fault bargraphs which may be illuminated.
--------------	--

Fault finding - Interpretation of XR25 bargraphs

<div>1</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 1 left hand side illuminated</div> <div><u>Power supply/computer</u></div>
--	---

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

Check the condition and position of the **60A** ABS fuse in the engine connection unit.

Ensure continuity between this fuse and tracks 17 and 18 of the computer connector (presence of positive before ignition feed on both tracks). Check the tightness and condition of the battery terminals.

Check the connections on the 31 track connector of the ABS computer.

Check the ABS earths (above the hydraulic assembly) and visually check all the ABS wiring.

Erase the computer memory, exit the fault finding (**G13\***) and switch off the ignition.

Carry out a new XR25 test. If the "power supply / computer" fault persists, replace the ABS computer.

AFTER REPAIR	After replacing the computer, carry out another XR25 test.
--------------	--

<div>2 - 3 - 4 - 5</div> <div><div><div></div></div><div></div></div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraphs 2, 3, 4 or 5 right or left hand side flashing</div> <div><u>Solenoid valve circuit</u></div>
---	--

<div>NOTES</div>	<div>Even if present at time of testing, these faults will always be declared by a flashing bargraph.</div> <div>To confirm their presence and therefore the need to apply the fault finding described below start command G20*. The fault is present if the bargraph appears illuminated at the end of the command.</div> <div>If bargraph 11 left hand side is also illuminated, deal with bargraph 11 left hand side as a priority.</div>
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<div>Check the ABS earths (tightening of the two screws above the hydraulic assembly).</div> <div>Check the condition and position of the 60A ABS fuse in the engine connection unit.</div> <div>Check the connection and condition of the connections on the 31 track connector of the computer.</div>
---

<div>Erase the computer memory, exit the fault finding mode(G13*) switch off the ignition.</div> <div>Switch on the ignition and carry out a new test with the XR25 kit, using command G20*.</div> <div>If the fault "solenoid valve circuit"reappears, replace the ABS computer.</div>
---

<div>AFTER REPAIR</div>	<div>Erase computer memory(GO**).</div> <div>Carry out a road test followed by a check with the XR25 kit.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 6 left hand side illuminated</div> <div><u>Front left wheel sensor circuit</u></div>
--	---

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

Check the connection and condition of the sensor connections.  
If the connector is correct, check the resistance of the sensor at its connector..  
Replace the sensor if its resistance is not approximately **1.6 Kohms (1.6 Kohms ± 320 ohms)**.

If the resistance is correct, check and ensure the continuity of the connection between the sensor connector and the computer connector:

- between one track of the sensor connector and track 7 of the computer connector,
- between the other track of the sensor connector and track 6 of the computer connector.

Also check the insulation between these connections.

Carry out a visual inspection of the sensor wiring and check the quality of the connection on the 31 track computer connector.

If all the checks are correct, reconnect the computer and the wheel speed sensor then erase the computer memory.

Exit fault finding mode(**G13\***) and switch off the ignition.

Switch the ignition on and replace the sensor if the fault reappears.

If the fault reappears after replacing the sensor, replace the computer.

AFTER REPAIR	Erase computer memory( <b>GO**</b> ). Carry out a road test followed by a check with the XR25 kit.
--------------	---

6

Fiche n° 53

Bargraph 6 Right hand side illuminated

Front right wheel sensor circuit

NOTES	None.
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Check the connection and condition of the sensor connections.

If the connector is correct, check the resistance of the sensor at its connector.  
Replace the sensor if its resistance is not approximately **1.6 Kohms (1.6 Kohms ± 320 ohms)**.

If the resistance is correct , check and ensure the continuity of the connections between the sensor connector and the computer connector :

- between one track of the sensor connector and **track 3** of the computer connector,
- between the other track of the sensor connector and **track 5** of the computer connector.

Also check the insulation between these connections.

Carry out a visual inspection of the sensor wiring and check the quality of the connections on the 31 track computer connector.

If all the checks are correct, reconnect the computer and the wheel speed sensor, then erase the computer memory.

Exit the fault finding mode(**G13\***) and switch off the ignition.

Switch the ignition on and replace the sensor if the fault reappears .

If the fault reappears after replacing the sensor, replace the computer.

AFTER REPAIR	Erase computer memory( <b>GO**</b> ). Carry out a road test followed by a check with the XR25 kit.
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<div>7</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 7 left hand side illuminated</div> <div><u>Rear left wheel sensor circuit</u></div>
--	--

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

Check the connection and condition of the sensor connections.

Check the connections at the intermediate connection under the body (R101).

If the connector and connection are correct, check the resistance of the sensor at its connector. Replace the sensor if the resistance is not approximately **1.6 Kohms (1.6 Kohms ± 320 ohms)**.

If the resistance is correct, check and ensure the continuity of the connections between the sensor connector and the computer connector :

- between one track of the sensor connector and **track 8** of the computer connector (via **track B** of the connector under the body **R101**),

- between the other track of the sensor connector and **track 9** of the computer connector (via **track A** of the connector under the body **R101**).

Also check the insulation between these connections.

Carry out a visual inspection of the sensor wiring and check the quality of the connections on the 31 track computer connector.

If all checks are correct, reconnect the computer and wheel speed sensor, then erase the computer memory.

Exit fault finding mode(G13\*) and switch off the ignition.

Switch on the ignition and replace the sensor if the fault reappears.

If the fault reappears after replacing the sensor, replace the computer.

AFTER REPAIR	Erase computer memory(GO**). Carry out a road test followed by a check with the XR25 kit.
--------------	--

<div>7</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 7 Right hand side illuminated</div> <div><u>Rear right wheel sensor circuit</u></div>
--	--

NOTES	None.
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<p>Check the connection and condition of the sensor connections.</p> <p>Check the connections at the intermediate connector under the body (<b>R101</b>).</p> <p>If the connector and connection are correct , check the resistance of the sensor at its connector. Replace the sensor if its resistance is not approximately <b>1.6 Kohms (1.6 Kohms ± 320 ohms)</b>.</p>
--

<p>If the resistance is correct, check and ensure the continuity of the connections between the sensor connector and the computer connector :</p> <ul style="list-style-type: none"><li>- between one track of the sensor connector and <b>track 1</b> of the computer connector (via <b>track D</b> of the connector under the body <b>R101</b>),</li><li>-between the other track of the sensor connector and <b>track 2</b> of the computer connector (via <b>track C</b> of the connector under the body <b>R101</b>).</li></ul> <p>Also check the insulation between these connections.</p> <p>Carry out a visual inspection of sensor wiring and check the quality of the connections on the 31 track computer connector.</p>
---

<p>If all checks are correct, reconnect the computer and the wheel speed sensor, then erase the computer memory.</p> <p>Exit fault finding mode(<b>G13*</b>) and switch off the ignition.</p> <p>Switch on the ignition and replace the sensor if the fault reappears.</p> <p>If the fault reappears after replacing the sensor, replace the computer.</p>
--

AFTER REPAIR	<p>Erase computer memory(<b>GO**</b>).</p> <p>Carry out a road test followed by a check with the XR25 kit.</p>
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8



Fiche n° 53

**Bargraph 8 right or left hand side flashing**  
Front right or front left wheel sensor signal

NOTES

Even if they are present at time of testing, these faults will always be declared by BG 8 flashing on the left or right hand side.

To confirm their presence and therefore the need to apply the fault finding below, carry out a road test. The fault is present if the bargraph illuminates during the test.

If bargraphs 6 and 8 left hand side are both illuminated, deal with bargraph 6 first.

If bargraphs 6 and 8 right hand side are both illuminated, deal with bargraph 6 first.

Check the quality of the wheel speed sensor mounting (its position and that it is tightened to recommended torque).Check the sensor / target air gap over one wheel revolution : **0.1 mm < air gap < 1.9 mm**. Check conformity of the target (condition, **number of teeth=26**)

Check the connection and condition of the sensor connections.  
If the connector is correct , check the resistance of the sensor at its connector.  
Replace the sensor if its resistance is not approximately **1.6 Kohms (1.6 Kohms ± 320 ohms)**.

Carry out a visual inspection of the sensor wiring and check the quality of the connections on the 31 track computer connector.

If all checks are correct, reconnect the computer and the wheel speed sensor, then erase the computer memory.  
Leave fault finding mode(**G13\***) and carry out a road test. Replace the sensor if the fault reappears.

If the fault reappears after replacing the sensor, it may be caused by an operating fault on a solenoid valve and it is therefore necessary to carry out the hydraulic check of the solenoid valves with the XR25 kit with command **G03\*** or **G04\*** (consult the section "Aid"). If the ten unlocking/locking cycles do not occur on one of the wheels, replace the hydraulic assembly.


If the hydraulic assembly is not at fault, replace the computer.

AFTER REPAIR

Erase computer memory(**GO\*\***).

Carry out a road test followed by a check with the XR25 kit.

9



Fiche n° 53

**Bargraph 9 right or left hand side flashing**  
Rear left or rear right wheel sensor signal

NOTES

Even if present at time of test, these faults will always be declared by BG9 flashing on the left or right hand side.

To confirm their presence and therefore the need to apply the fault finding below, carry out a road test. The fault is present if the bargraph illuminates during the test.

If bargraphs 7 and 9 left hand side are both illuminated, deal with bargraph 7 first.

If bargraphs 7 and 9 right hand side are both illuminated, deal with bargraph 7 first.

Check the quality of the wheel speed sensor mounting (position and torque tightening).  
Check the connection and condition of the sensor connections.  
Check the connections at the intermediate connector under the body **R101**.  
If the connector is correct, check the resistance of the sensor at its connector.  
Replace the sensor if its resistance is not approximately **1.6 Kohms (1.6 Kohms ± 320 ohms)**.

Carry out a visual inspection of the sensor wiring and check the quality of the connections on the 31 track computer connector.

If all checks are correct, reconnect the computer and the wheel speed sensor, then erase the computer memory. Leave fault finding mode(**G13\***) and carry out a road test.  
If the fault reappears, check the conformity of the target:condition, **number of teeth = 26**.

If all checks are correct, erase the computer memory, leave fault finding mode and carry out a road test.  
Replace the sensor if the fault reappears.

If the fault reappears after replacing sensor, it could be caused by a solenoid valve operating fault. It is therefore necessary to carry out a hydraulic test of the solenoid valves with the XR25 kit with command **G05\*** or **G06\*** (consult section "Aid"). If the ten unlocking/locking cycles do not occur on one of the wheels, replace the hydraulic assembly.


If the hydraulic assembly is not at fault, replace the computer.

AFTER REPAIR

Erase computer memory(**GO\*\***).

Carry out a road test followed by a check with the XR25 kit.

10



Bargraph 10 right hand side illuminated or flashing

Fiche n° 53

Pump motor circuit

XR25 aids: \* 30      1.dEF : Permanent signal or CO earth.  
                                 2.dEF : Motor not turning over.

NOTES

If bargraph 10 RH is flashing, confirm the presence of the fault and therefore the need to apply fault finding below, using command G20\* on the XR25 kit.

The fault is present if the bargraph re-illuminates at the end of the command.

1.dEF

NOTES

Replace the computer if the pump motor is operating permanently.

Check the ABS earths (tightening of the two earth bolts above the hydraulic assembly).

Check/ ensure continuity between the ABS earth and **track 16** of the computer connector.

Check locking of the two-track connector of the pump motor.

If all checks are correct, reconnect the computer and erase the memory with command **G0\*\***.

Leave fault finding mode(**G13\***) and carry out a road test.

Replace the computer if the fault reappears.

2.dEF

NOTES


None.

Replace the hydraulic assembly (mechanical locking of the pump, ...).

AFTER REPAIR

Erase computer memory(G0\*\*).

Carry out a road test followed by a check with the XR25 kit.

<div>11</div> 	<div>Fiche n° 53</div> <div>Bargraph 11 left hand side illuminated</div> <div><u>Solenoid valve power supply fault</u></div>
NOTES	None.

<p>Carry out operations necessary for obtaining correct voltage between <b>tracks 19 and 17/18</b> of the 31-track ABS computer connector (<b>9.5 volts &lt; correct voltage &lt; 17.5 volts</b>) :</p> <ul style="list-style-type: none"> <li>- Check tightness and condition of battery terminals.</li> <li>- Check the <b>60A</b> fuse in the engine connection unit (white base).</li> <li>- Ensure continuity between the <b>60A</b> fuse and <b>tracks 17 and 18</b> of the computer connector.</li> <li>- Check the ABS earths (tightening of the two earth bolts above the hydraulic assembly).</li> <li>- Check/ ensure continuity between the ABS earth and <b>track 19</b> of the computer connector.</li> </ul>	
<p>If all the checks are correct, reconnect the computer then erase its memory with command <b>G0**</b>.</p> <p>Leave fault finding mode(<b>G13*</b>) and carry out a road test. Replace the computer if the fault reappears.</p>	

AFTER REPAIR	Erase computer memory(GO**). Carry out a road test followed by a check with the XR25 kit.
--------------	--



Fault finding - Interpretation of XR25 bargraphs

<div>12</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 12 left hand side illuminated or flashing</div> <div><u>Brake light circuit</u></div>
---	--

NOTES	None.
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Press the brake pedal while observing **right and left bargraph 13**.

Are the positions "pedal released" and "pedal depressed" registered?

YES	Check the two brake light bulbs and the earth of the rear light units (no earthing of <b>track 14</b> across the bulbs when pedal is not depressed ).
-----	---

NO	Apply the fault finding described in the interpretation of <b>bargraph 13 right and left</b> hand side for " <b>Bargraph 13 left hand side extinguished, brake pedal depressed</b> ".
----	---

AFTER REPAIR	Erase computer memory(GO**). Carry out a road test followed by a check with the XR25 kit.
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Fault finding - Interpretation of XR25 bargraphs

<div>12</div> <div><div></div><div></div></div>	<div>Fiche n° 53</div> <div>Bargraph 12 right hand side flashing</div> <div><u>Target of one of the wheels</u></div>
---	--

<div>NOTES</div>	<div>Even if present at moment of testing, this fault will always be declared by BG 12 RH side flashing.</div> <div>To confirm its presence and therefore the need to apply the fault finding below, carry out a road test. The fault is present if the bargraph illuminates during the test.</div>
------------------	---

<div>Check the quality of wheel speed sensor mountings (position and that they are tightened to the recommended torque).</div> <div>Check the conformity of the targets :condition, <b>number of teeth= 26.</b></div>
---

<div>AFTER REPAIR</div>	<div>Erase computer memory(GO**).</div> <div>Carry out a road test followed by a check with the XR25 kit.</div>
-------------------------	---

<div>13</div> <div><div></div><div></div></div>	<b>Bargraph 13 right and left</b> <b><u>Brake pedal</u></b> Illuminated on left hand side if pedal depressed. Illuminated on right hand side if pedal not depressed.
<b>NOTES</b>	Carry out checks only if illumination of the bargraph is not consistent with the pedal position.

Bargraph 13 left hand side extinguished, brake pedal depressed

BG 13 right remains permanently illuminated.

If brake lights are operating :

- Ensure continuity between dashboard / rear left **R2** connector on **track 3** and **track 14** of the ABS computer connector .  
Intermediate connection dashboard / front of engine **R107** (track G7) and front of engine / ABS **R255** (track 8).

If brake lights are not operating :

- Check condition and adjustment of brake light switch as well as the **15A** fuse for the brake lights (on the passenger compartment fuse board). Replace if necessary.
- Disconnect the brake light switch, then check / ensure presence of + **after ignition feed** on **track B1** of the connector
- Check operation of brake light switch (closed contact between **tracks A3 and B1**).
- Check and ensure continuity between **track A3** of the brake light switch connector and the dashboard / rear left hand side **R2** connector on **track 3**.

Bargraph 13 permanently illuminated on left hand side

- Check the condition and adjustment of the brake light switch. Replace if necessary.
- Check the operation of the brake light switch contact (closed contact between **tracks A3 and B1**). Replace the brake light switch if there is permanent continuity between the two tracks.
- Check and ensure insulation from **12 volts** of the connection between **track A3** of the brake light switch connector and **track 14** of the ABS computer connector .  
Intermediate connectors :      Dashboard / Front of engine **R107** on **track G7**.  
Front of engine / ABS **R255** on **track 8**.


<b>AFTER REPAIR</b>	Carry out a road test followed by a check with the XR25 kit.
---------------------	--

NOTES	Only carry out this conformity check after a complete XR25 check.
-------	---


Order of operations	Function to be checked	Action	Bargraph	Display and Comments
1	Dialogue with XR25	D11 (selector on S8)		
2	Computer conformity	#12		
3	Operation of ABS warning light- computer initialisation check	Ignition on		Two second illumination of warning light when ignition is switched on (consult fault finding if it remains illuminated or if it does not illuminate)
4	Acknowledgement that brake pedal is not pressed		13 	
5	Acknowledgement that brake pedal is pressed	Press brake pedal	13 	

Solenoid valve control for hydraulic inspection: G03\* to G06\*


Lift vehicle so that the wheels can be turned and check that they turn freely.  
Keep the brake pedal pressed down so that the wheel being tested cannot be turned by hand (do not press the brake too hard to ensure you are at the releasing limit).

Enter G0X\*       Ten cycles of unlocking/locking must be noted for the wheel concerned.

Pump motor control : G08\*

Enter G08\* and apply brake       Pump operation must be noted for 2 seconds.

Pump motor and solenoid valve control : G20\*

Enter G20\* and apply brake       Brief motor and solenoid valve operation must be noted.

Bleeding of hydraulic circuits : G15\*3\* front left / G15\*4\* front right / G15\*5\* rear left / G15\*6\* rear right

Apply the procedure described in the section "Bleeding the circuits" in the Workshop Repair Manual.

Fault finding - Customer Complaints

NOTES	Only consult this section after a complete check with the XR25 kit.
-------	---

WARNING LIGHT FAULTS

ABS warning light does not illuminate for 3 seconds after ignition switched on.	Chart 1
Permanent illumination of ABS warning light , ignition on.	Chart 2
ABS and / or brake warning light illuminates again after engine starts.	Chart 3
Temporary illumination of ABS and /or brake warning light when driving.	Chart 3
Brake warning light does not illuminate 1 second after switching on ignition	Chart 4
Brake warning light permanently illuminated, ignition on.	Chart 5
ABS and brake warning lights permanently illuminated, ignition on.	Chart 6

FAULTS NOTED WHEN BRAKING WITH ABS REGULATION

Locking of one or more wheels.	Chart 7
Pulling.	Chart 8
Wandering.	Chart 9
Unexpected ABS operation at low speed and little force applied to brake.	Chart 10
Unexpected ABS operation on poor road surface.	Chart 11
Unexpected ABS operation when using special equipment (mobile phone,CB...).	Chart 12
Extension of brake pedal travel following a regulation phase (with an irregular pedal when regulation begins).	Chart 13
Spongy pedal.	Chart 14
Brake pedal vibration.	Chart 15
Noise from pump, pipes or hydraulic assembly .	Chart 16

Fault finding - Customer Complaints

NOTES	Only consult this section after a complete check with the XR25 kit.
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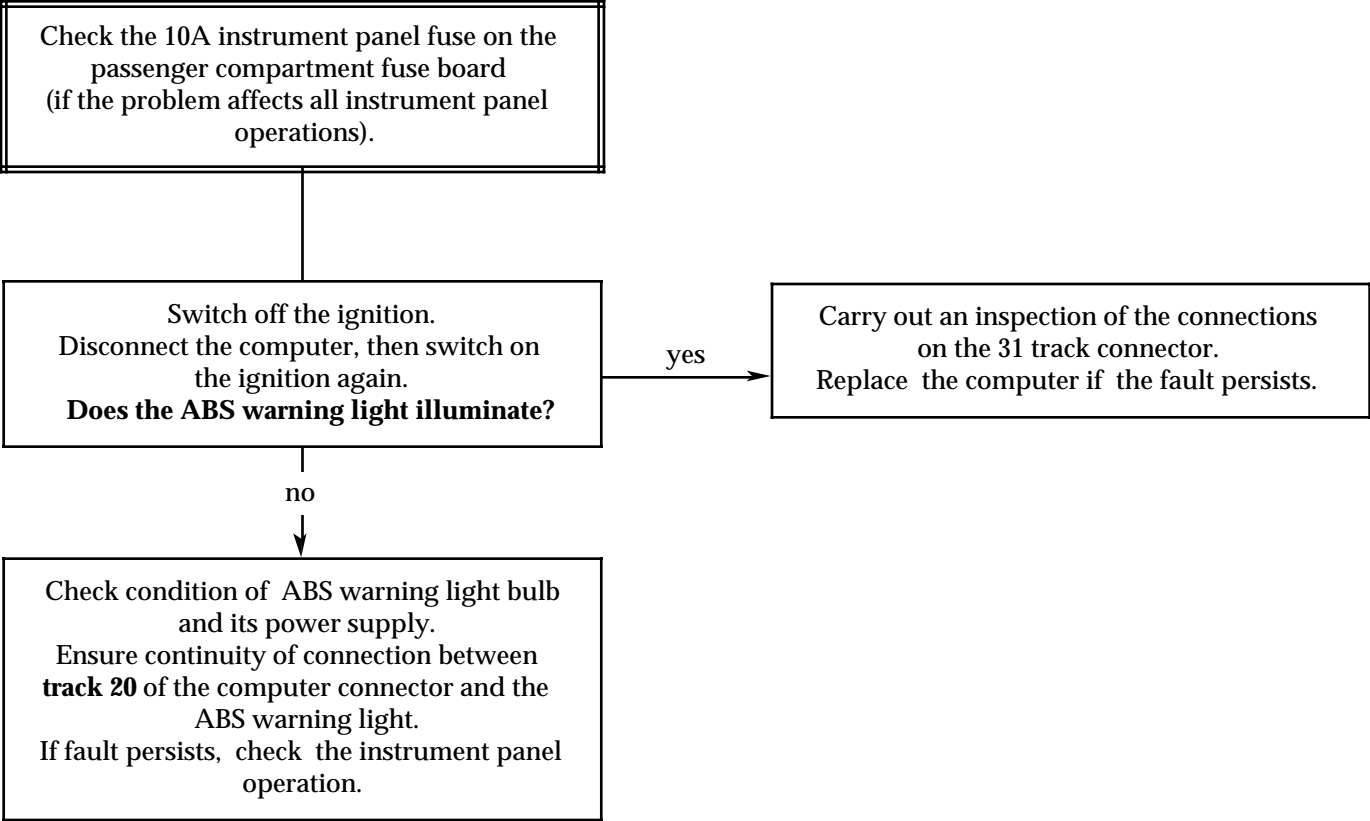
OTHER CASES

- ABS and brake warning lights do not illuminate, computer disconnected.

Chart 17
- No communication with ABS computer.

Chart 18

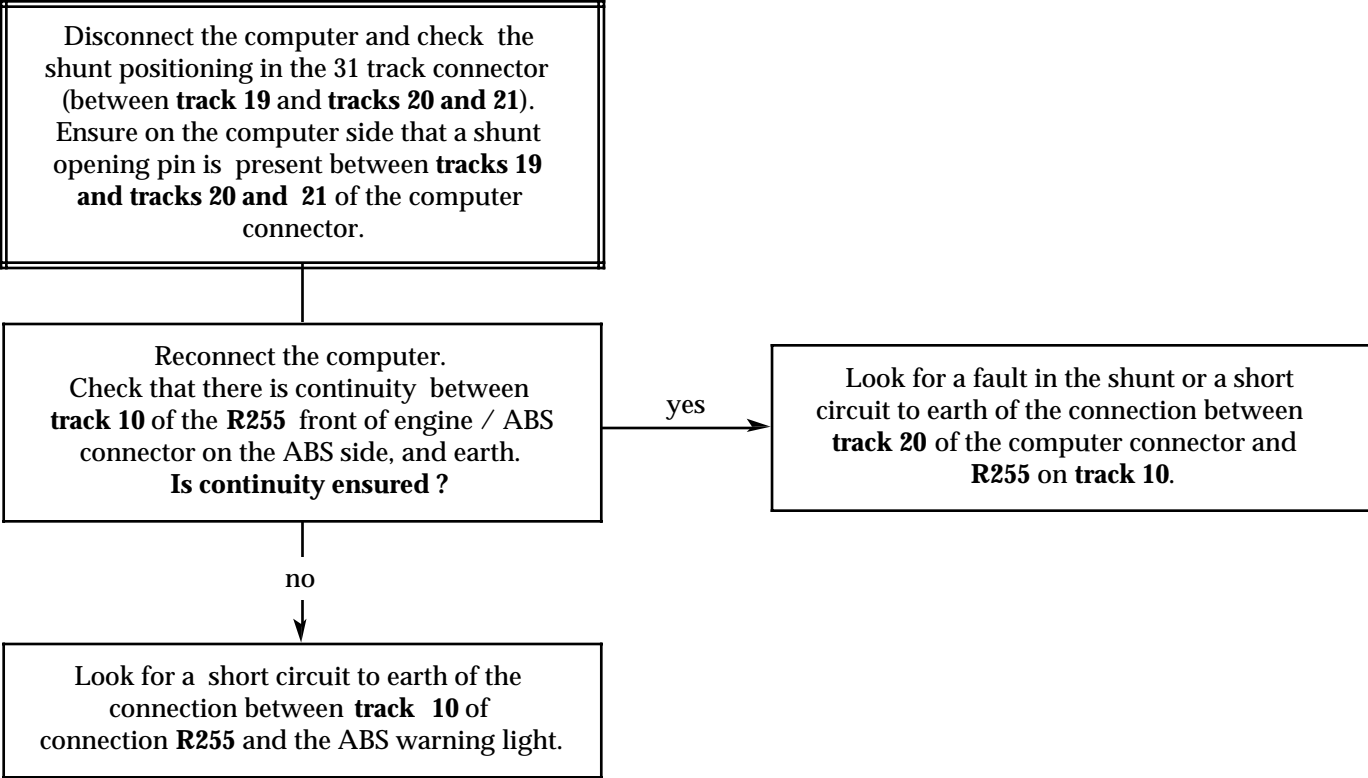
Chart 1	ABS WARNING LIGHT DOES NOT ILLUMINATE FOR 3 SECONDS WHEN IGNITION SWITCHED ON
NOTES	Only consult this section after a complete check with the XR25 kit.



AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--



Chart 2	ABS WARNING LIGHT PERMANENTLY ILLUMINATED WHEN IGNITION SWITCHED ON (no fault declared by XR25)
NOTES	Only consult this section after a complete check with the XR25 kit.



AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Chart 3	REILLUMINATION OF ABS AND / OR BRAKE WARNING LIGHT AFTER STARTING THE ENGINE TEMPORARY ILLUMINATION OF ABS AND / OR BRAKE WARNING LIGHT WHEN DRIVING
---------	---

NOTES	Only consult this section after a complete check with the XR25 kit.
-------	---

Check the voltage of the computer power supply : **9.5 volts < correct voltage < 17.5 volts.**

If necessary, carry out the following operations :

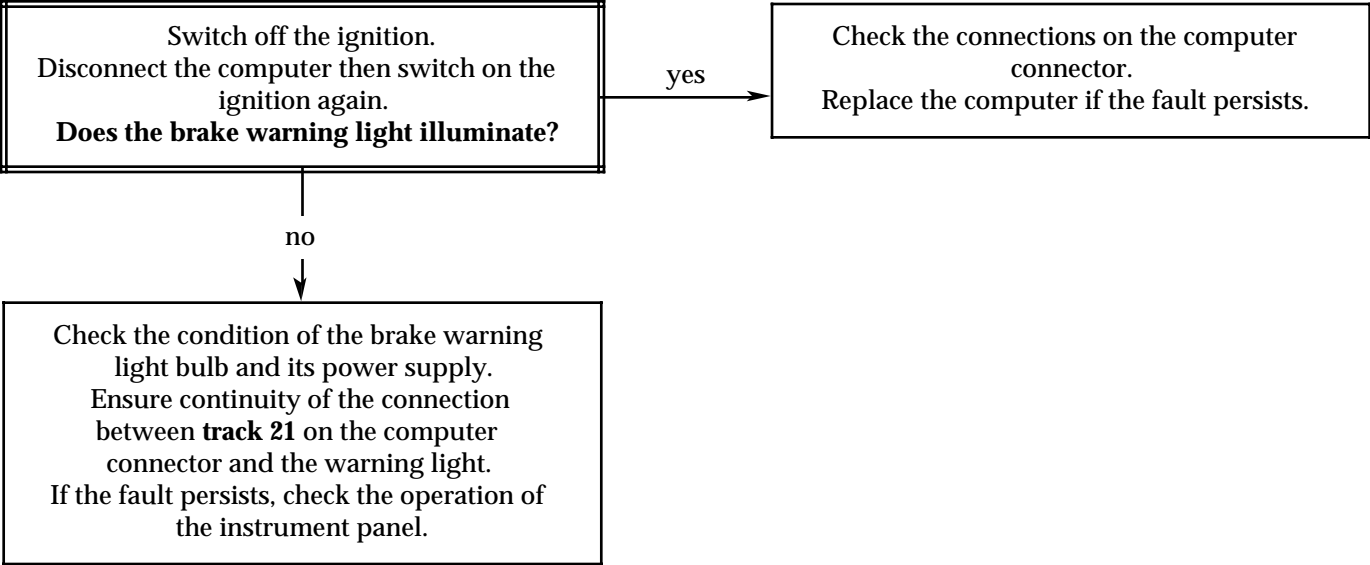
- Check the battery charge (check the charging circuit if necessary).
- Check the tightness and condition of the battery terminals.
- Check the ABS earths (tightness of two earth bolts above the ABS assembly).

Disconnect the computer and check the condition and the positioning of the shunt in the 31 track connector (between **track 19** and **tracks 20 and 21**).

Check on the computer side, the condition of the shunt opening pin.

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Chart 4	<b>BRAKE WARNING LIGHT DOES NOT ILLUMINATE 1 SECOND AFTER SWITCHING ON IGNITION</b>
NOTES	Only consult this section after a complete check with the XR25 kit.



AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Fault finding - Fault charts

Chart 5	<b>BRAKE WARNING LIGHT PERMANENTLY ILLUMINATED, IGNITION ON</b>
---------	---

<b>NOTES</b>	Only consult this section after a complete check with the XR25 kit.
--------------	---

<p>This warning light is multi-purpose.</p> <ul style="list-style-type: none"><li>- Check the position of the handbrake and the circuit for its switch.</li><li>- Check the brake fluid level in the reservoir.</li><li>- Check the brake pad wear.</li></ul>
---

Ensure the insulation in relation to earth of the connection between <b>track 21</b> on the computer connector and the brake warning light.
---

<b>AFTER REPAIR</b>	Carry out a road test, then a check with the XR25 kit.
---------------------	--

Chart 6	ABS AND BRAKE WARNING LIGHTS PERMANENTLY ILLUMINATED, IGNITION ON.
---------	---

NOTES	Only consult this section after a complete check with the XR25 kit.
-------	---

<p>Check the <b>10A ABS fuse</b> on the passenger compartment fuse board.</p> <p>Check the ABS earths (tightness of two earth bolts above the ABS assembly).</p> <p>Check the computer and the intermediate connections <b>R107</b> dashboard / front of engine and <b>R255</b> front of engine / ABS are correctly connected (also check the condition of the connections).</p> <p>Check that the computer is correctly fed:</p> <ul style="list-style-type: none"><li>- Ensure the presence of + <b>after ignition feed on track 15</b> of the computer connector.</li><li>- Ensure the continuity to earth of tracks <b>16 and 19</b> on the computer connector.</li></ul>	
---	--

If the fault persists, refer to Chart 2 and Chart 5.
--

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Chart 7	LOCKING OF ONE OR MORE WHEELS
NOTES	Only consult this section after a complete check with the XR25 kit.

REMINDER: Wheel locking on a vehicle equipped with ABS, or tyre squeal, considered by the customer as locking, can be linked to a normal reaction of the system and should not be systematically considered as a fault :

- locking is allowed below **3.75 mph ( 6 km/h)** (the system will not provide regulation).

- Braking with ABS regulation under very bad road conditions (high degree of tyre squeal).

- -----

On the other hand, if there really is wheel locking on one or more wheels, lift the vehicle so the wheels can be turned, and check :

- a possible incorrect connection in the speed sensor connection.

• Use operations **#01, #02, #03 and #04** while turning the appropriate wheel and ensure the consistency of the results obtained .

• If the value measured is zero, turn the other wheels to confirm a bad electrical connection of the sensors and repair the wiring.

- A possible incorrect connection of the hydraulic assembly pipes.

• Use operations **G03\*, G04\*, G05\* and G06\*** while applying the brake and check for the ten cycles of unlocking/locking on the wheel concerned (consult section "Aid").

• If the ten cycles do not occur on the wheel tested, (wheel remains locked), see if they occur on another wheel (if a bad connection is confirmed: repair).

• If the ten cycles do not occur on a wheel and the pipes are correctly connected, replace the hydraulic assembly.

• Check the condition of the ABS targets and that they conform.

• Also check the sensor/target air gap by rotating each of the front wheels (the rear wheels cannot be checked) :

Front 0.1 mm < air gap over one rotation < 1.9 mm.

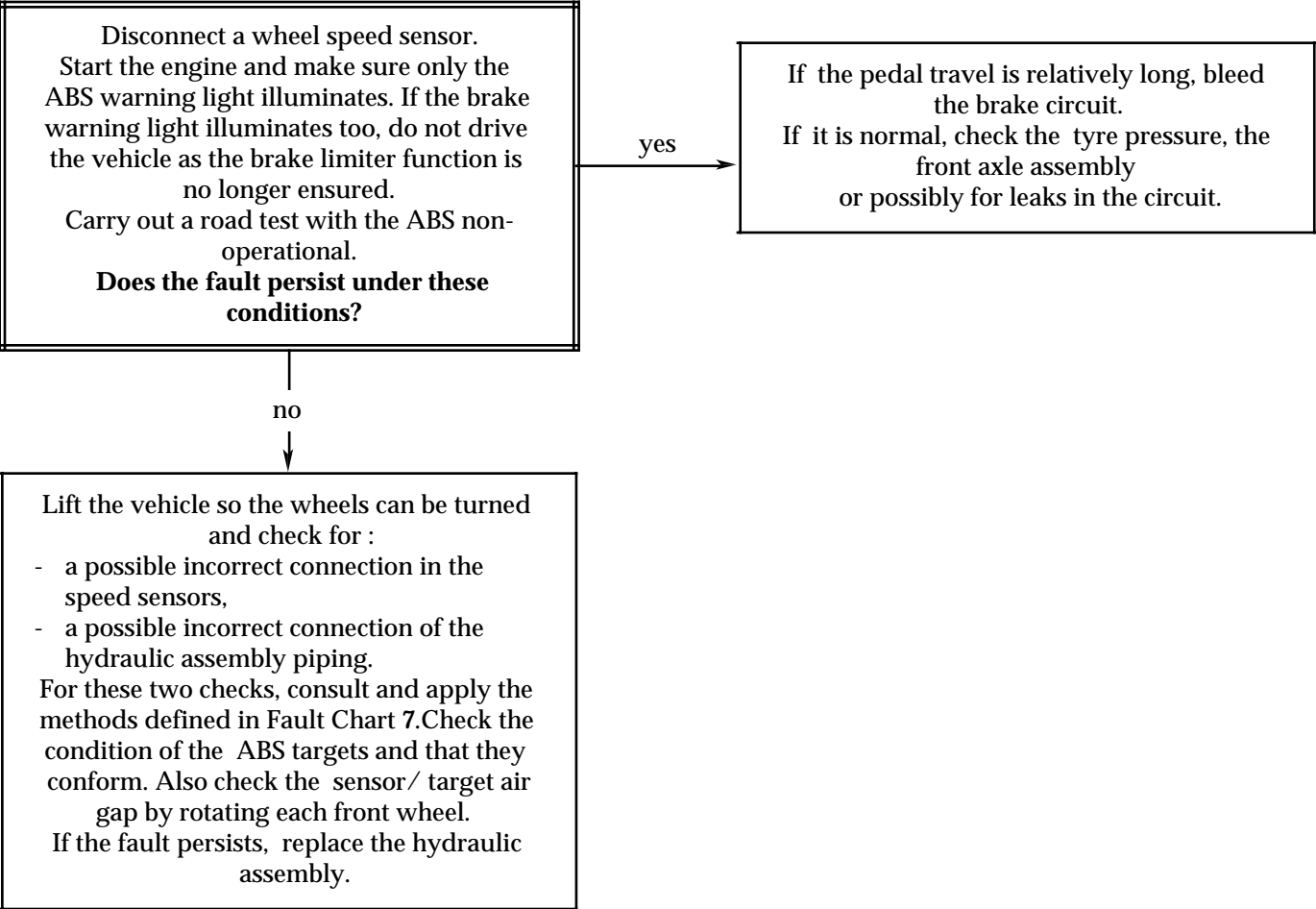
If the fault persists after these checks, replace the hydraulic assembly.

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
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B65531.0

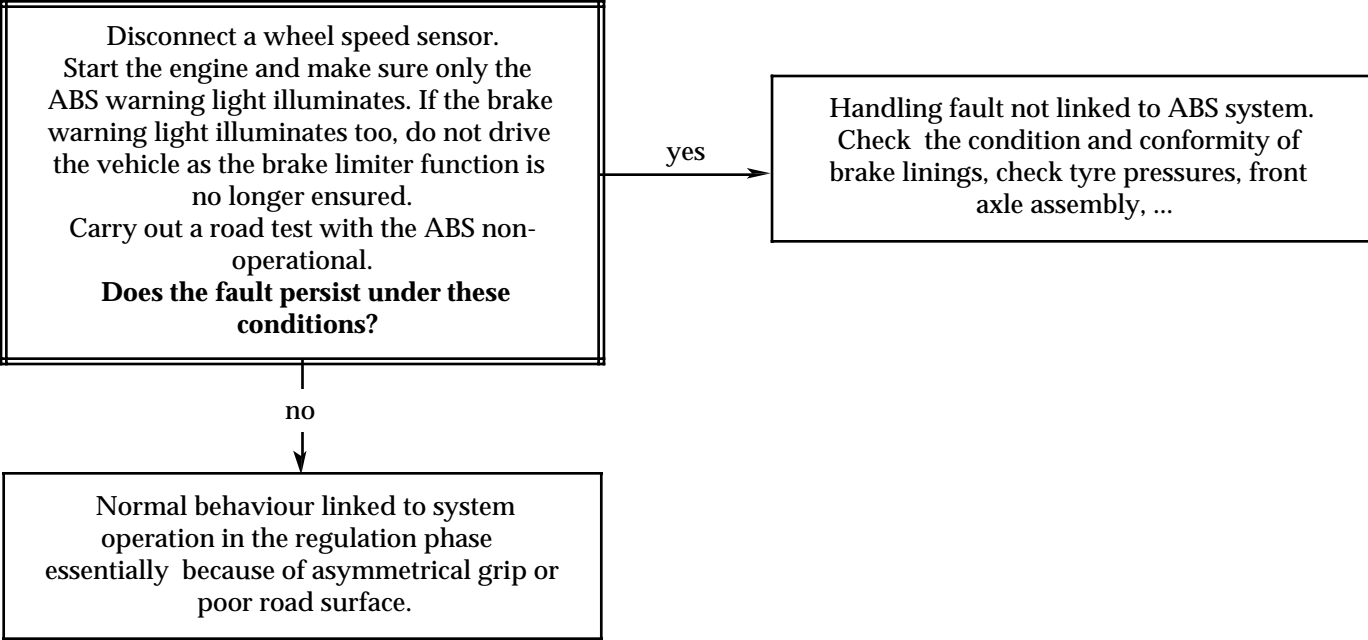
38-28

Chart 8	PULLING
NOTES	Only consult this section after a complete check with the XR25 kit.



AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
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Chart 9	WANDERING
NOTES	Only consult this section after a complete check with the XR25 kit.



AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--



Fault finding - Fault charts

Chart 10	UNEXPECTED ABS OPERATION AT LOW SPEEDS AND WHEN LITTLE PRESSURE APPLIED TO BRAKE PEDAL
NOTES	Only consult this section after a complete check with the XR25 kit.

<p>It is possible to feel brake pedal vibrations which are linked to reactions of the system in particular situations :</p> <ul style="list-style-type: none"><li>- Crossing speed bumps.</li><li>- Rear inside wheel lifts on tight bends.</li></ul> <p>This feeling may be connected to the simple action of the brake limiter when pressure is limited at the rear axle assembly.</p> <p>If the problem is different, check the speed sensors connectors ( micro-breaks) as well as the air gaps.</p>
--

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Fault finding - Fault charts

Chart 11	UNEXPECTED ABS OPERATION UNDER POOR ROAD CONDITIONS
NOTES	Only consult this section after a complete check with the XR25 kit.

Under poor road conditions, it is normal to feel jerky operation and vibration of the pedal and a higher degree of tyre squeal than on a good road surface.  
This results in a feeling that there is variation in efficiency, but this is normal.

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Fault finding - Fault charts

Chart 12	UNEXPECTED ABS OPERATION WHEN USING SPECIAL EQUIPMENT (MOBILE PHONE,CB...)
NOTES	Only consult this section after a complete check with the XR25 kit.

Check that equipment causing the problem during use is approved.  
Check that this equipment has been correctly installed without modification to the original wiring, in particular, that of the ABS (connections to **earth** and + **after ignition/ before ignition** of the ABS are not permitted).

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Chart 13	<b>BRAKE PEDAL TRAVEL EXTENDED FOLLOWING A REGULATION PHASE (WITH IRREGULAR PEDAL AT START OF REGULATION)</b>
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<b>NOTES</b>	Only consult this section after a complete check with the XR25 kit.
--------------	---

Passage of air from the hydraulic assembly regulation channels to brake circuits. Bleed the circuits according to the procedure recommended in the Workshop Repair Manual (use of XR25 command modes.). After the operation, carry out a road test with ABS regulation.	
---	--

--	--

If the fault persists, carry out the preceding operation once or twice more. If customer complaint is particularly serious and bleeding brings about no improvement, replace the hydraulic assembly.	
---	--

<b>AFTER REPAIR</b>	Carry out a road test, then a check with the XR25 kit.
---------------------	--

Fault finding - Fault charts

Chart 14	SPONGY PEDAL
NOTES	Only consult this section after a complete check with the XR25 kit.

<p>Presence of air in the brake circuits.</p> <p>Bleed the circuits in the conventional way starting with the <b>rear right</b>, then <b>rear left</b> , <b>front left then front right</b>.</p> <p>Repeat the operation if necessary.</p>
--

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Fault finding - Fault charts

Chart 15	BRAKE PEDAL VIBRATION
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NOTES	Only consult this section after a complete check with the XR25 kit.
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Normal reaction of the brake pedal during an ABS regulation phase or pressure limitation at the rear axle assembly ("brake limiter" function).

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Chart 16	NOISE FROM THE PUMP, PIPES OR HYDRAULIC ASSEMBLY
NOTES	Only consult this section after a complete check with the XR25 kit.

- Assembly vibration: check the presence and condition of the rubber assembly mounting pads.
- Vibration of pipes : check that all pipes are well clipped into their fixing clips and that there is no contact between pipes or between pipes and bodywork.

To determine the origin of the noise, it is possible to use functions **G03\***, **G04\***, **G05\*** and **G06\*** on the XR25 kit (consult section "Aid").

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

Fault finding - Fault charts

Chart 17	ABS AND BRAKE WARNING LIGHTS DO NOT ILLUMINATE, COMPUTER DISCONNECTED
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NOTES	Only consult this section after a complete check with the XR25 kit.
-------	---

Disconnect the ABS computer . Check if the shunt is present between <b>track 19</b> and <b>tracks 20 and 21</b> of the computer connector.
---

AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--



Chart 18	LACK OF COMMUNICATION WITH ABS COMPUTER
NOTES	Only consult this section after a complete check with the XR25 kit.

<p>Check that the XR25 kit is not the cause of the fault by trying to communicate with the computer of another vehicle. If the XR25 kit is not at fault and it will not communicate with any other computer in the same vehicle, it is possible that a faulty computer is corrupting fault finding lines K and L . Locate this computer by disconnecting the lines one by one.</p> <p>Check that the ISO interface is correctly in position <b>S8</b> and that you are using the most recent XR25 cassette and the correct access code.</p> <p>Check the battery voltage and carry out the necessary operations to obtain the correct voltage(9.5 Volts&lt; U battery&lt;17.5 Volts)</p>	
--	--

<p>Check the presence and condition of the ABS fuse on the passenger compartment fuse board (<b>10A</b>).</p> <p>Check the connection of the computer connector and the condition of its connection.</p> <p>Check the connection and condition of the connections at the intermediate connection <b>R107</b> dashboard / front of engine and <b>R255</b> front of engine / ABS.</p> <p>Check the ABS earth wires (tighten the two earth screws above the ABS assembly).</p> <p>Check that the computer is correctly fed :</p> <ul style="list-style-type: none"><li>- <b>earth</b> on <b>track 19</b> of the <b>31 track connector</b>,</li><li>- <b>+ after ignition feed</b> on <b>track 15</b> of the <b>31track connector</b>.</li></ul>	
--	--

<p>Check that the diagnostic socket is correctly fed :</p> <ul style="list-style-type: none"><li>- <b>+ before ignition feed</b> on <b>track 16</b>,</li><li>- <b>earth</b> on <b>track 5</b>.</li></ul> <p>Check the continuity and insulation of the lines in the diagnostic socket / ABS computer connection:</p> <ul style="list-style-type: none"><li>- between track <b>12</b> of the computer connector and track <b>15</b> of the diagnostic socket,</li><li>- between track <b>11</b> of the computer connector and track <b>7</b> of the diagnostic socket.</li></ul>	
---	--

If dialogue is still not established after these tests, replace the ABS computer.,	
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AFTER REPAIR	Carry out a road test, then a check with the XR25 kit.
--------------	--

# AIR CONDITIONING

## FAULT FINDING

### CONTENTS

	Page
Introduction .....	01
XR25 fiche .....	02
Interpretation of XR25 bargraphs .....	04
Customer complaints .....	15
Fault charts .....	17
Aid .....	49

- Connect the XR25 to the diagnostic socket.
- ISO selector in position **S8**
- Using fiche 61, enter code **D17**

n.61

**PRECAUTION :**

Conditions apply to the illumination of the warning lights on the control panel:

- The AC warning light illuminates when there is a request for air conditioning operation and when the fan is set to the first speed.
- The air recycling warning light illuminates under no particular conditions. It is memorised when the ignition is switched off.
- The heated rear screen warning light illuminates when engine speed > 600 rpm and there is a time limit of 15 minutes for operation of the heated screen. The function is not memorised when the ignition is switched off.

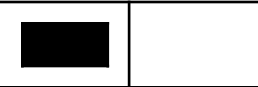
## PRESENTATION OF XR25 FICHE N° 61

N°61		S8 code : D 1 7 read : n5 l	
1	COMPUTER	CODE PRESENT	
2	* 02 REFRIGERANT FLUID SENSOR	EVAPORATOR * 22	
3	SENSOR CIRCUITS		
4	* 04 COMPRESSOR CONTROL	RECYCLING MOTOR * 24	
5	* 05 REAR SCREEN DEMISTER CTRL		
6	* 06 FAN MOTOR CTRL (2) (CC. 1)	COMMANDE G.M.V (1) (CC. 1) * 28	
7	+12 ACC	+ 12 BULB	
8	AIR CON. AIR	COMPRESSOR ACTIVE	
9	RECYCLING	RECYCLING ACTIVE	
10	REAR SCREEN DEMISTER (if configured)	REAR SCREEN DEMISTER ACTIVE	
<h3>AIR CON.</h3> <p>Erase fault memory : G 0 ** End of test : G13 *</p>			
11	LOW SPEED ← cooling fan assy → HIGH SPEED		
12	NO ENGINE SPEED INFO (DEPENDENT ON VERSION)		
13	INJECTION ← AIR CON. PROHIBITED BY : → A.T		
14	under pressure ← Gas pressure status → over pressure		
15	may be illuminated if too cold : (14LH) or too hot (14 RH)		
16	CONFIGURATION (fixed display)		
17	Rear screen demister entry all or nothing		
18	fluid pressure sensor with recycling motor timer		
19	siemens evaporator temp. sensor		
20	behr hokuriku eeprom		
<h3>ADDITIONAL CHECKS : #..</h3> <p>03 Evaporator temp. °C 08 Fan speed % 14 Supply Volts 15 Engine speed rpm 16 Refrigerant fluid pressure bar</p> <h3>CONTROL MODES : G...*</h3> <p>20 Rear screen demister 21 Compressor clutch 22 Fan speed 1 23 Fan speed 2 24 Recycling motor 25 AC cycled outlet 26 Tell-tale outlets</p> <p>72 Write A/S date 73 Read A/S date</p> <p>Help : V9 Return to diag. mode : D Part No : G70a</p>			
17 ANG			

FI21761

BARGRAPH SYMBOLS

FAULTS (always on a coloured background)

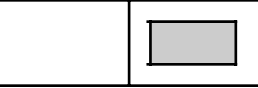


If illuminated, this indicates a fault on the product tested. The associated text defines the fault.

The bargraph may be :

- Permanently illuminated : fault present.
- Flashing : fault memorised.
- Extinguished : no fault or fault not found.

STATUS (always on a white background)




Bargraph always at the top right hand side.


If illuminated dialogue has been established with the computer for the product.

If it remains extinguished:

- The code does not exist.
- There is a fault with the tool, the computer or the XR25 / computer connection.



or



The representation of the following bargraphs indicates their initial status:

Initial status: (ignition on, engine stopped, no operator action)

Indefinite	illuminated when the function or condition on the fiche is met.
Extinguished	
Illuminated	extinguishes when the function or condition specified on the fiche is no longer being met.

ADDITIONAL NOTES

Certain bargraphs have a \*. The \*.. command, when the bargraph is illuminated, allows additional information on the type of fault or status to be displayed.

<div>1</div> <div><div></div><div></div></div>	<div>Left hand bargraph 1 illuminated</div> <div>Fiche n° 61</div> <div><u>COMPUTER FAULT</u></div>
--	---

<div>NOTES</div>	<div>None</div>
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Change the air conditioning control unit

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

<div>1</div> <div><div></div><div></div></div>	<div>Right hand bargraph 1 extinguished</div> <div><u>XR25 / CONTROL UNIT COMMUNICATION</u></div>	<div>Fiche n° 61</div>
<div>NOTES</div>	<div>None</div>	

<div>Before establishing communication between the XR25 and the control unit, check that the ignition is switched on.</div>
<div>Ensure that the XR25 is not the cause of the fault by trying to communicate with a computer on another vehicle.</div> <div>Check that the ISO interface is in position <b>S8</b> and that you are using the latest version of the XR25 cassette and the correct access code (<b>D 17</b>).</div> <div>Check the battery voltage (<b>U &gt; 10.5 volts</b>). Recharge the battery if necessary.</div>
<div>Check that the control unit connectors are engaged correctly.</div> <div>Check that the air conditioning control unit is correctly supplied:</div> <div><div>- <b>earth on track 4</b> of the red 15 track connector</div><div>- <b>+ after ignition on track 6</b> of the red 15 track connector</div></div>
<div>Check that the diagnostic socket is correctly supplied:</div> <div><div><div><div>track K</div><div>track L</div></div><div><div>→</div><div>→</div></div><div><div>track 6</div><div>track 3</div></div></div> of the air conditioning control unit grey <b>30 track connector</b></div>
<div>If there is still no dialogue between the XR25 and the control unit, change the air conditioning control unit.</div>

<div>AFTER REPAIR</div>	<div>You may begin the fault finding procedure.</div>
-------------------------	---

<div>2</div> <div><div></div><div></div></div>	<div>Left hand bargraph 2 illuminated</div> <div>Fiche n° 61</div> <div><u>REFRIGERANT FLUID PRESSURE SENSOR</u></div> <div>XR25 aid :     *02   : 2 def = low level (CC.0)                               1 def = high level (CO, CC.1)</div>
NOTES	None

Low level

<div>Check that the refrigerant fluid pressure sensor connector is correctly engaged. Engage the connector correctly if necessary.</div>
<div>Check the condition of the wiring between <b>tracks A, B and C</b> on the sensor and <b>tracks 9, 10 and 11</b> of the 30 track connector for the air conditioning control unit (the sensor is supplied with 5V). Repair the faulty electrical wiring.</div>
<div>If the fault persists, replace the refrigerant fluid pressure sensor.</div>

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



<div>2</div> <div><div></div><div></div></div>	<div>Right hand bargraph 2 illuminated</div> <div>Fiche n° 61</div> <div><u>EVAPORATOR SENSOR</u></div> <div>XR25 aid :     *22   : 2 def = high level (CO, CC.1)                           1 def = low level (CC.0)</div>
--	--

<div>NOTES</div>	<div>Timed period at level of sensor temperature measurement.</div>
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<div>Check that the evaporator sensor connector is correctly clipped into the resistance module. Reconnect it if necessary.</div>
<div>Check the condition of the wiring between <b>tracks 7 and 8 of the 15 track connector</b> and <b>tracks 12 and 29 of the grey 30 track connector</b> of the air conditioning control unit. Repair the faulty wiring.</div>
<div>Use an ohmmeter to measure the resistance of the evaporator sensor. You should measure a resistance between <b>2 and 30 kohms</b>. Do you measure this resistance?</div>

<div>YES</div>	<div>Replace the air conditioning control unit.</div>
<div>NO</div>	<div>Replace the evaporator sensor.</div>

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

<div>4</div> <div><div></div><div></div></div>	<div>Left hand bargraph 4 illuminated</div> <div>Fiche n° 61</div> <div><u>COMPRESSOR CONTROL</u></div> <div>XR25 aid :    C.O.    open circuit</div> <div>                  C.C.1   short circuit to 12 volts</div>
--	--

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

<p>Check the continuity and that there is no short circuit on the wiring between <b>track 1</b> of the clutch and <b>tracks 2 and 17 of the grey 30 track connector</b> of the air conditioning control unit.</p> <p>Repair the wiring if necessary.</p>
<p>Supply the compressor directly with 12 Volts and check that it operates.</p> <p>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 <b>G21*</b> on the XR25 (direct compressor control).</p> <p>Enter <b>G0**</b> on the XR25.</p>
--------------	---

<div>4</div> <div><div></div><div></div></div>	<div>Right hand bargraph 4 illuminated</div> <div><u>AIR RECYCLING MOTOR</u></div> <div>Fiche n° 61</div>
NOTES	None

Check that the evaporator sensor connector is correctly clipped into the resistance module.
Check the condition of the air recycling flap control motor. On the motor connector, measure the resistance between the two tracks. Replace the recycling motor if necessary.
Check the continuity and insulation from earth and from 12 Volts of the wiring between tracks: <div><div>resistance module connector</div><div><div>{</div><div>2 1</div><div>→ →</div><div>27 26</div><div>}</div></div><div>30 track blue connector for air conditioning control unit</div></div> <div>Repair the faulty wiring.</div>
If the fault persists, replace the air conditioning control unit.

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

<div>5</div> <div><div></div><div></div></div>	<div>Left hand bargraph 5 illuminated</div> <div>Fiche n° 61</div> <div><u>HEATED REAR SCREEN CONTROL</u></div> <div>XR25 aid :    C.O.    open circuit</div> <div>                  C.C.1   short circuit to 12 volts</div>
--	--

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

Check the electric wiring between track <b>3 on the control panel</b> and the <b>heated rear screen relay</b> and between <b>track 24</b> of the <b>30 track connector</b> for the <b>air conditioning control unit</b> and the rear screen relay. Repair the wiring if necessary.
---

Check the rear screen relay feed (12 V on tracks 1, 3 and 5 ; 0 V on track 2). Replace the relay if necessary.
Check the continuity of the 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 operates correctly.
--------------	--

<div>6</div> <div><div></div><div></div></div>	<div>Left hand bargraph 6 illuminated</div> <div>Fiche n° 61</div> <div>FAN (2) CONTROL</div> <div>XR25 aid :    C.O.    open circuit</div> <div>                  C.C.1   short circuit to 12 volts</div>
--	--

NOTES	Check that the air conditioning has been selected. Check that right hand bargraph 6 is extinguished, if it is not, deal with right hand bargraph 6 first. Enter G0** on the XR25. If left hand bargraph 6 remains illuminated, you can begin the fault finding procedure.
-------	---

Check the relay operation by entering <b>G23*</b> on the XR25. The fan should be heard to operate. Can the fan be heard to operate?
--

NO	Check the continuity and insulation in relation to <b>12 volts</b> of the wiring between track <b>F2</b> and <b>track 23 of the 30 track connector</b> for the <b>air conditioning control unit</b> . Repair the faulty wiring.
----	--

If the fault persists, replace the relay for fan 2.
---

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

AFTER REPAIR	Enter G0** on the XR25. Check that the system operates correctly.
--------------	--

<div>6</div> <div><div></div><div></div></div>	<div>Right hand bargraph 6 illuminated</div> <div>Fiche n° 61</div> <div>FAN (1) CONTROL</div> <div>XR25 aid : C.O. open circuit</div> <div>C.C.1 short circuit to 12 volts</div>
--	---

NOTES	<div>Check that the air conditioning has been selected.Enter G0** on the XR25.</div> <div>If right hand bargraph 6 remains illuminated, you can begin the fault finding procedure.</div>
-------	--


<div>Check the relay operation by entering G23* on the XR25. The fan should be heard to operate.</div> <div>Can the fan be heard to operate?</div>
--

NO	<div>Check the continuity and insulation in relation to 12 volts of the wiring between track M2 and track 22 of the 30 track connector for the air conditioning control unit.</div> <div>Repair the faulty wiring.</div>
----	--

<div>If the fault persists, replace the relay for fan 1.</div>
--

YES	<div>End of fault finding.</div>
-----	----------------------------------

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

<div>13</div> <div></div>	<div>Left hand bargraph 13 illuminated</div> <div><u>AIR CONDITIONING PROHIBITED BY INJECTION</u></div>	Fiche n° 61
NOTES	<div>This bargraph should be extinguished when the engine is running.</div> <div>If it is illuminated, you can begin the fault finding procedure.</div> <div>The evaporator temperature must be &gt; - 1 °C and BG 14 LH and 14 RH must be extinguished.</div>	

First check that the air conditioning has been selected (selection on the control panel).

<div>Check the continuity of the wiring between:</div> <div><ul style="list-style-type: none"><li>- track 5 on the injection computer and track 13 of the 30 track AC computer connector for engines D7F 720, E7J, K7M AT4 (AP information)</li><li>- track 23 on the injection computer and track 13 of the 30 track AC computer connector for engines D7F 726 (AP information).</li></ul></div> <div>Repair if necessary.</div>
<div>Check the continuity of the wiring between:</div> <div><ul style="list-style-type: none"><li>- track 51 on the injection computer and track 18 of the 30 track AC computer connector for engines D7F 720 and E7J,</li><li>- track 10 on the injection computer and track 18 of the 30 track AC computer connector for engines D7F 726.</li></ul></div> <div>Repair if necessary.</div>
<div>If the problem persists, check the injection fault finding procedure, as it is a problem related to the injection.</div>

AFTER REPAIR	Check the system operates correctly.
--------------	--------------------------------------

<div>13</div> <div><div></div><div></div></div>	<div>Right hand bargraph 13 illuminated</div> <div>Fiche n° 61</div> <div><u>AIR CONDITIONING PROHIBITED BY AUTOMATIC TRANSMISSION</u></div>
---	--

<div>NOTES</div>	<div>This bargraph should be extinguished when the engine is running. If it is illuminated, you can begin the fault finding procedure.</div>
------------------	--

<div>Check the insulation from earth of the wiring between : - track 51 of the AT computer and track 19 of the 30 track AC computer connector for engines K7M. Repair if necessary.</div>
---

<div>If the problem persists, check the automatic transmission fault finding procedure, as it is a problem related to the automatic transmission.</div>
---

<div>AFTER REPAIR</div>	<div>Check the system operates correctly.</div>
-------------------------	---



	Air distribution problem	Chart 1
	Air flow problem	Chart 2
	Heating not effective	Chart 3
	No heat	Chart 4
	Too much heat	Chart 5
	Heating inadequate in the rear	Chart 6
	Demisting/deicing ineffective	Chart 7
	Heated rear screen does not operate	Chart 8
	Ventilation ineffective	Chart 9

PASSENGER COMPARTMENT INCONVENIENCE

Controls stiff	Chart 10
----------------	----------

PASSENGER COMPARTMENT FAN DOES NOT OPERATE

Chart 11

AIR RECYCLING DOES NOT OPERATE BUT THE WARNING LIGHT OPERATES

Chart 12

AIR CONDITIONING PROBLEMS

No cold air	Chart 13
Too much cold air	Chart 14
Ineffective	Chart 15

COOLING FAN DOES NOT OPERATE

Chart 16

AIR CONDITIONING WARNING LIGHT DOES NOT ILLUMINATE

Chart 17

AIR RECYCLING WARNING LIGHT DOES NOT ILLUMINATE

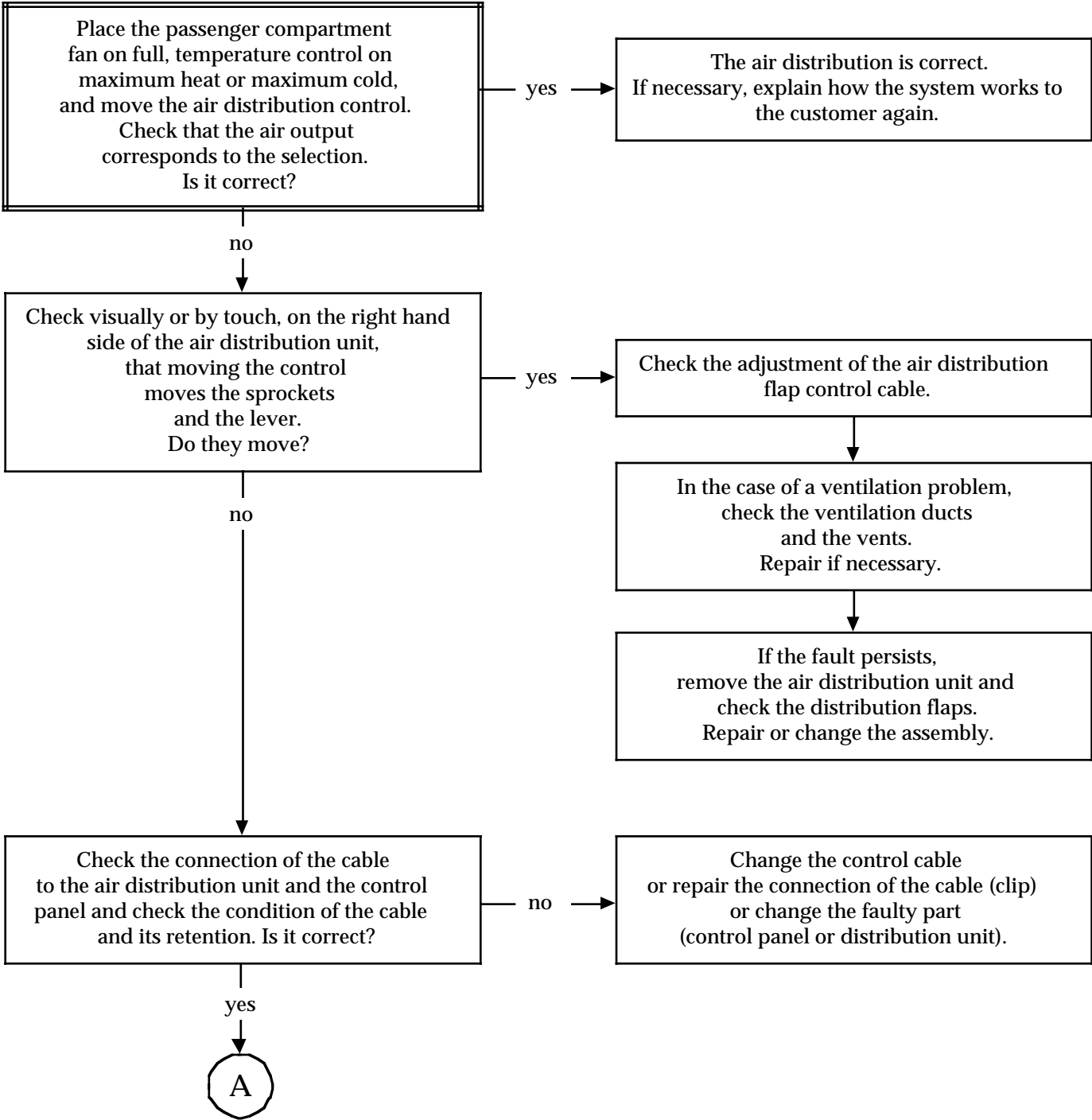
Chart 18

REAR SCREEN WARNING LIGHT DOES NOT ILLUMINATE

Chart 19

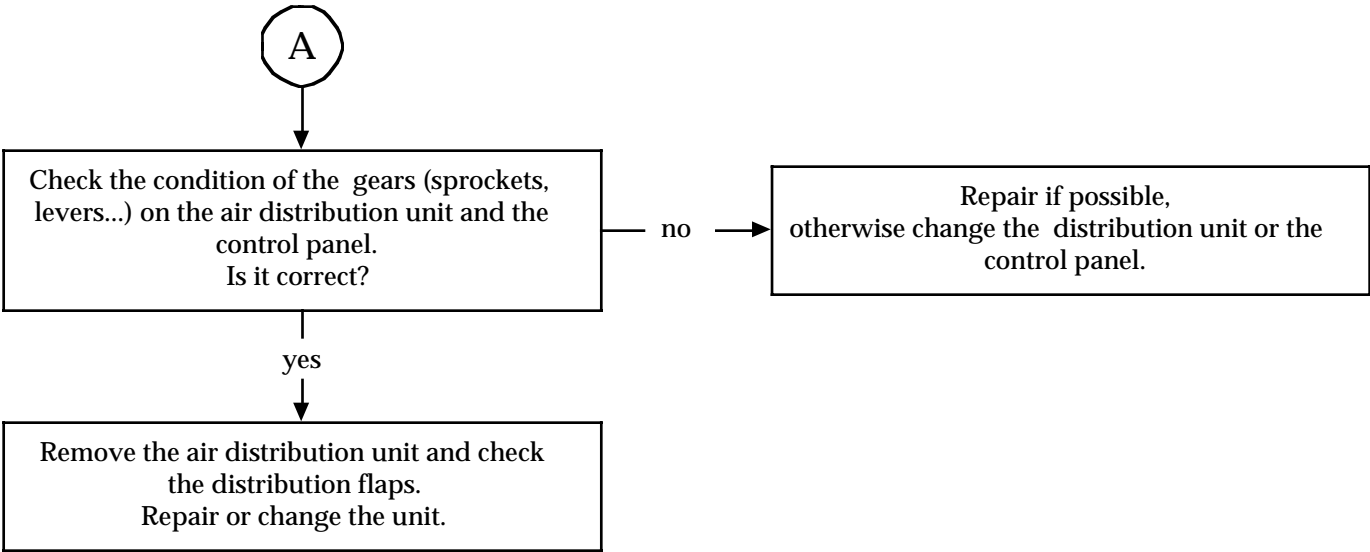
Chart 1	AIR DISTRIBUTION PROBLEMS
---------	---------------------------

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 operates correctly.
--------------	---

Chart 1 CONT	
-----------------	--



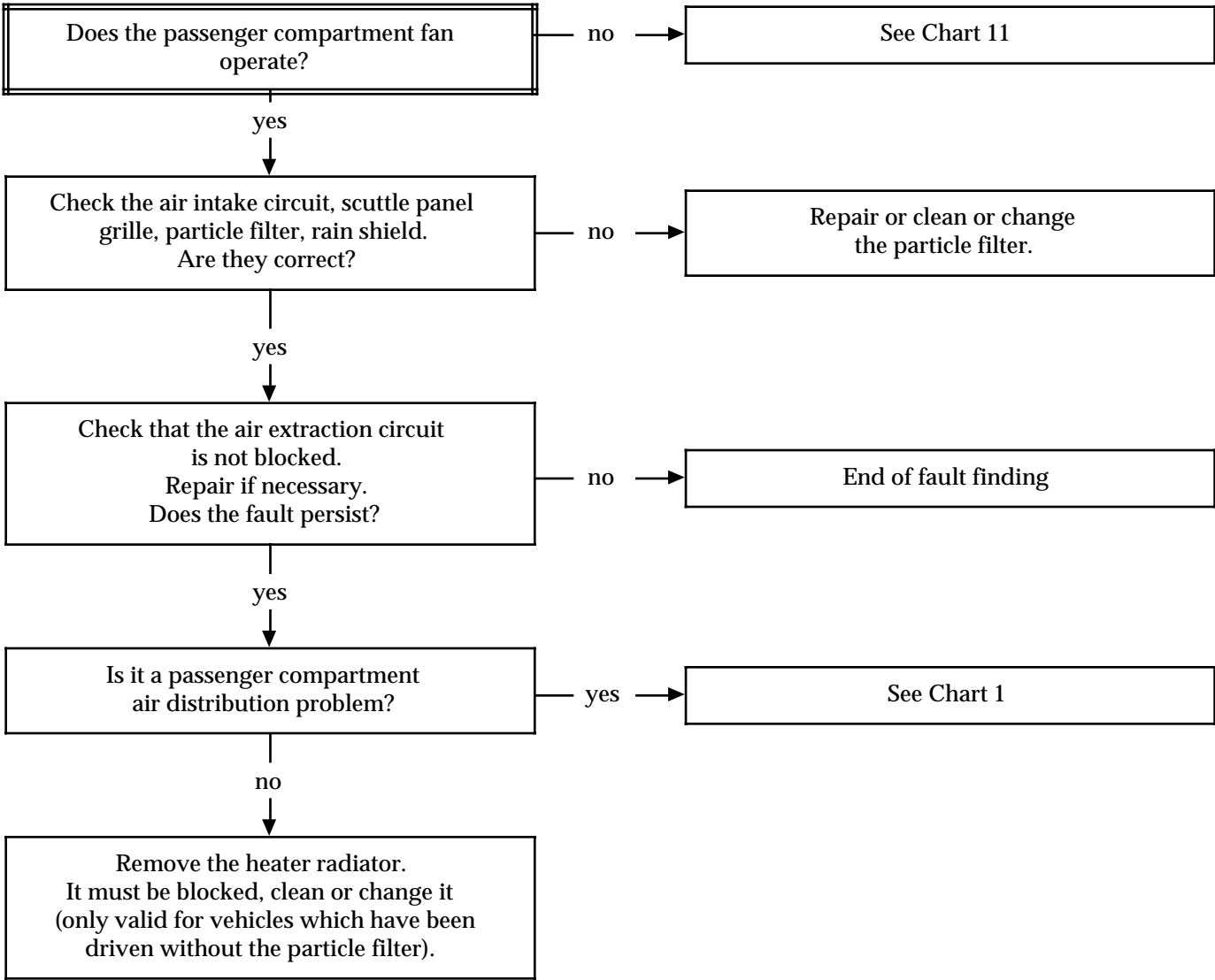
AFTER REPAIR	Check that the system operates correctly.
--------------	---

Chart 2

AIR FLOW PROBLEM

NOTES

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

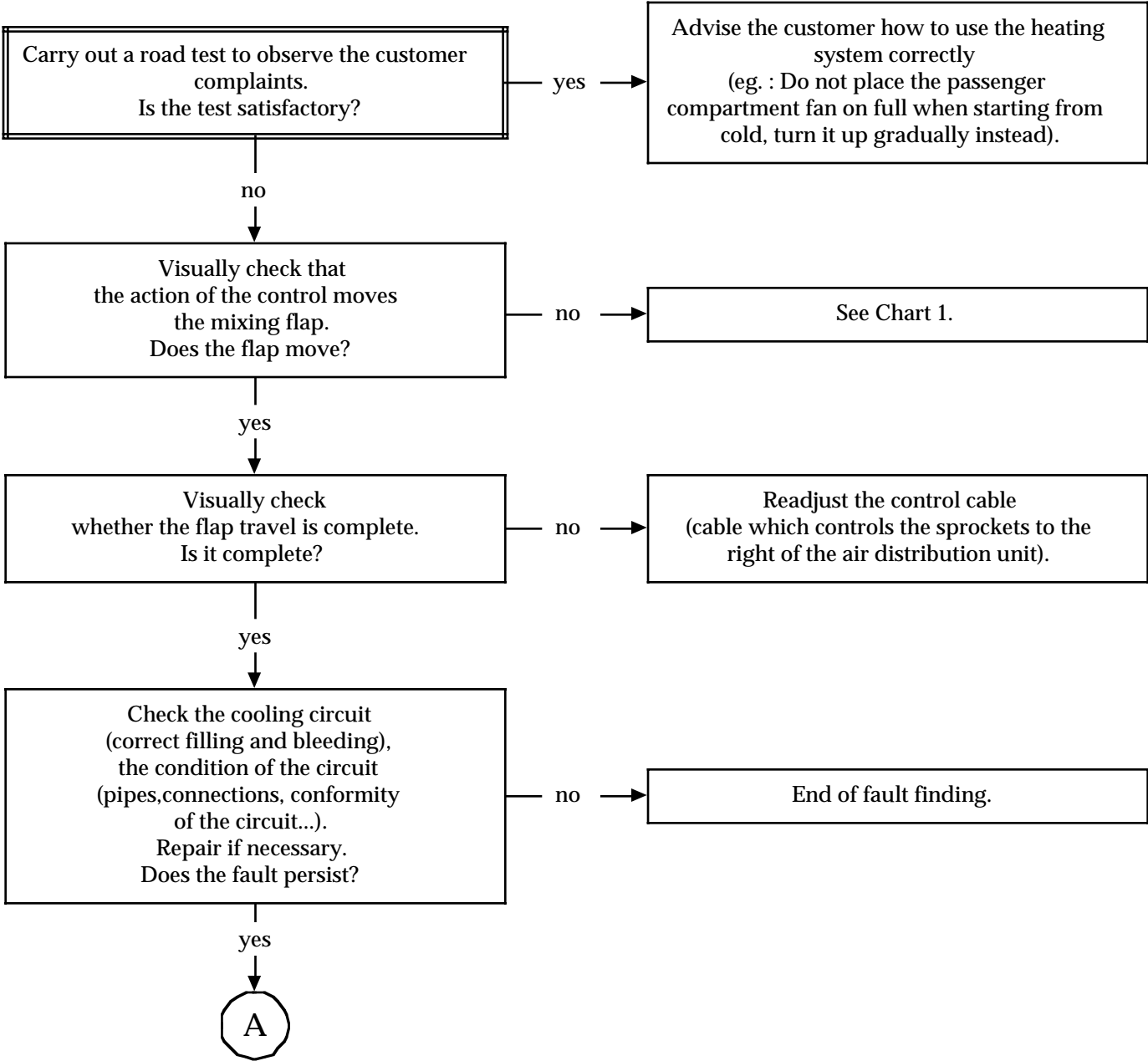


AFTER REPAIR

Check that the system operates correctly.

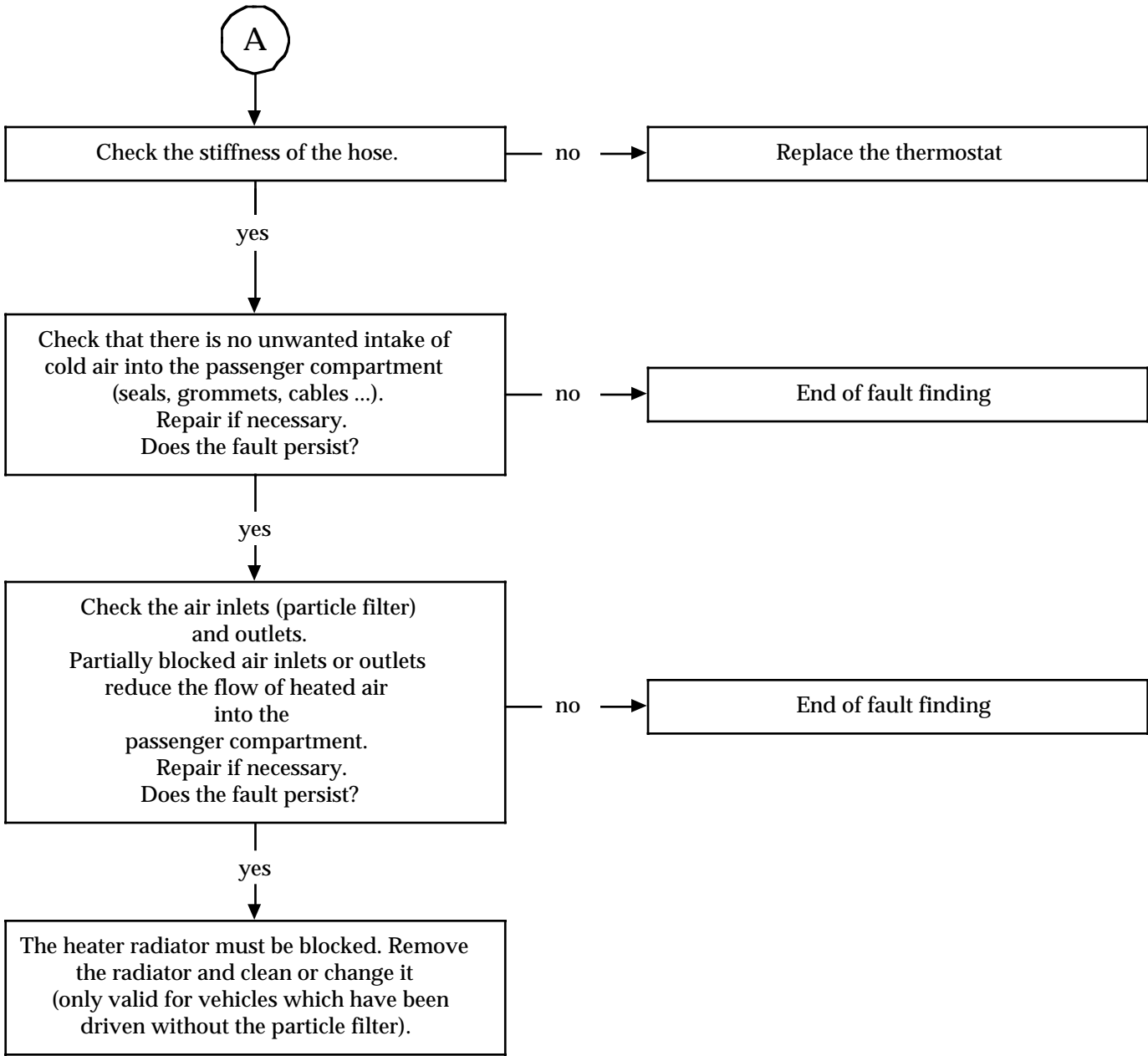
Chart 3	HEATING INEFFECTIVE
---------	---------------------

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 operates correctly.
--------------	---

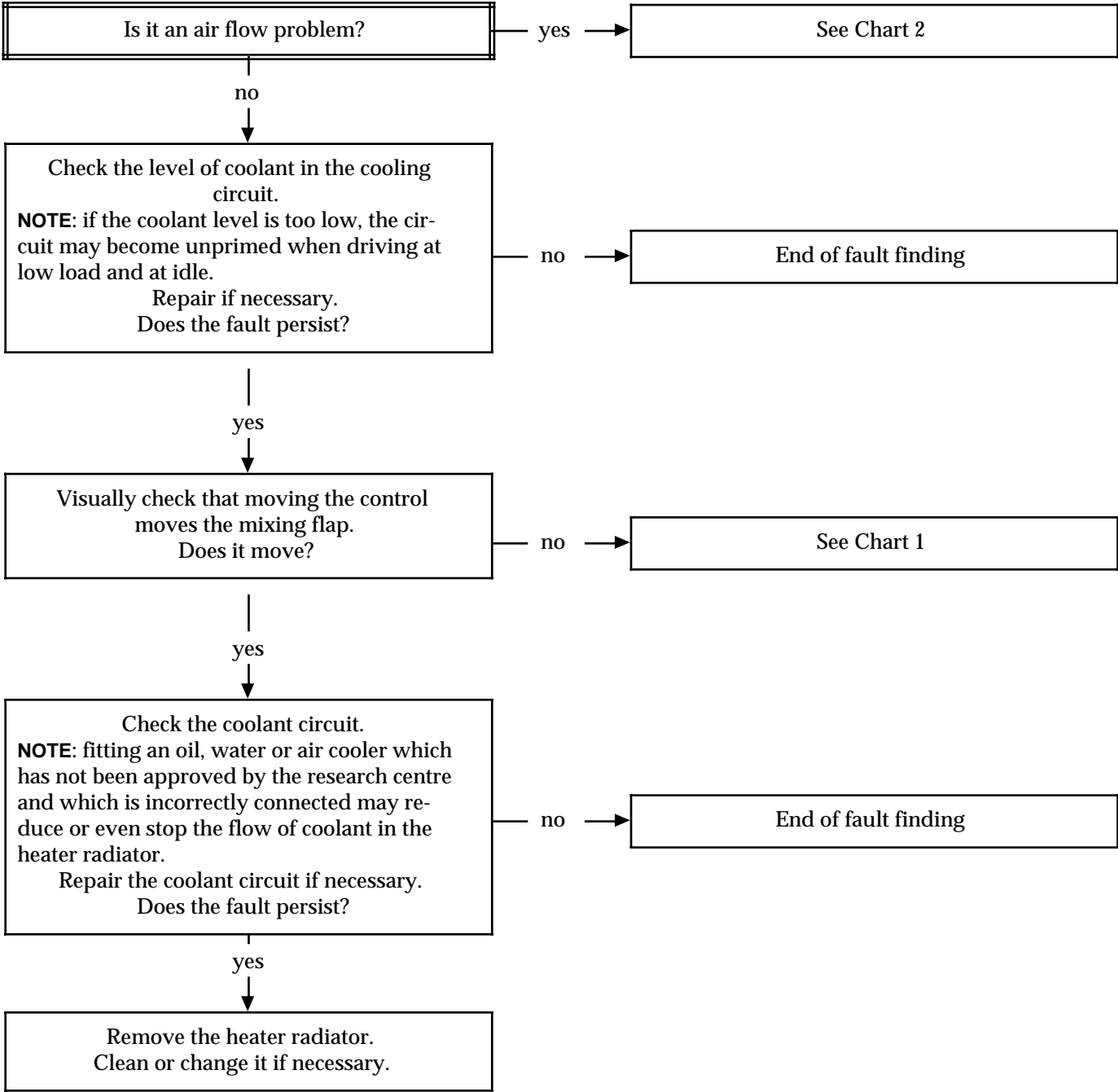
Chart 3 CONT	
-----------------	--



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 4	NO HEAT
---------	---------

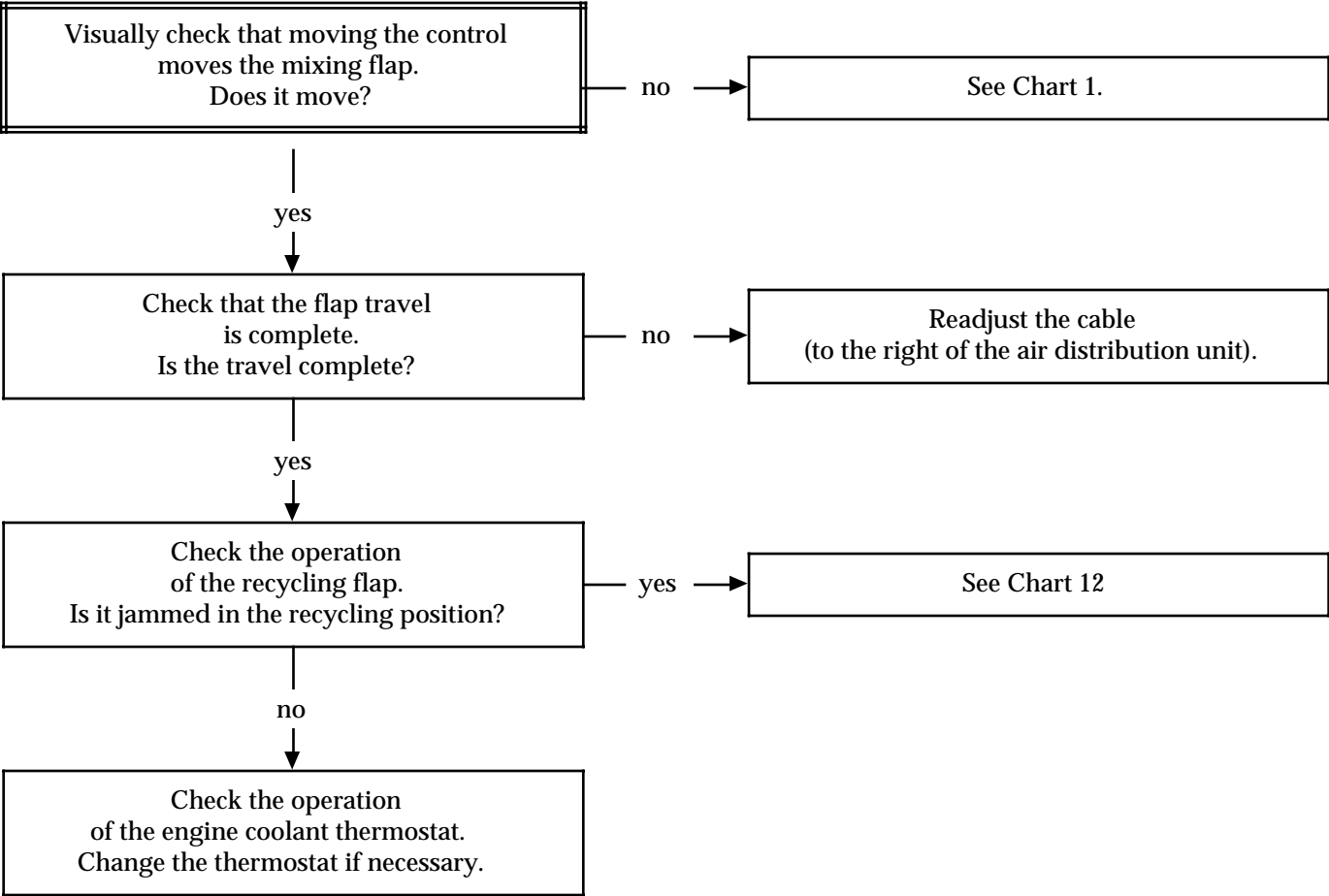
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

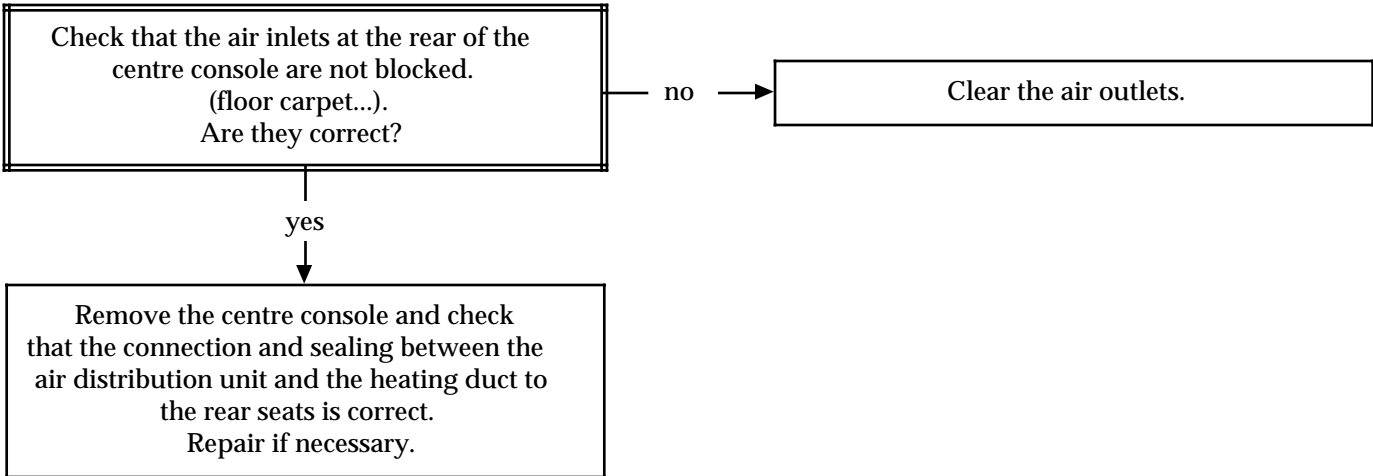


Chart 5	TOO MUCH HEAT
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.



AFTER REPAIR	Check that the system operates correctly.
--------------	---

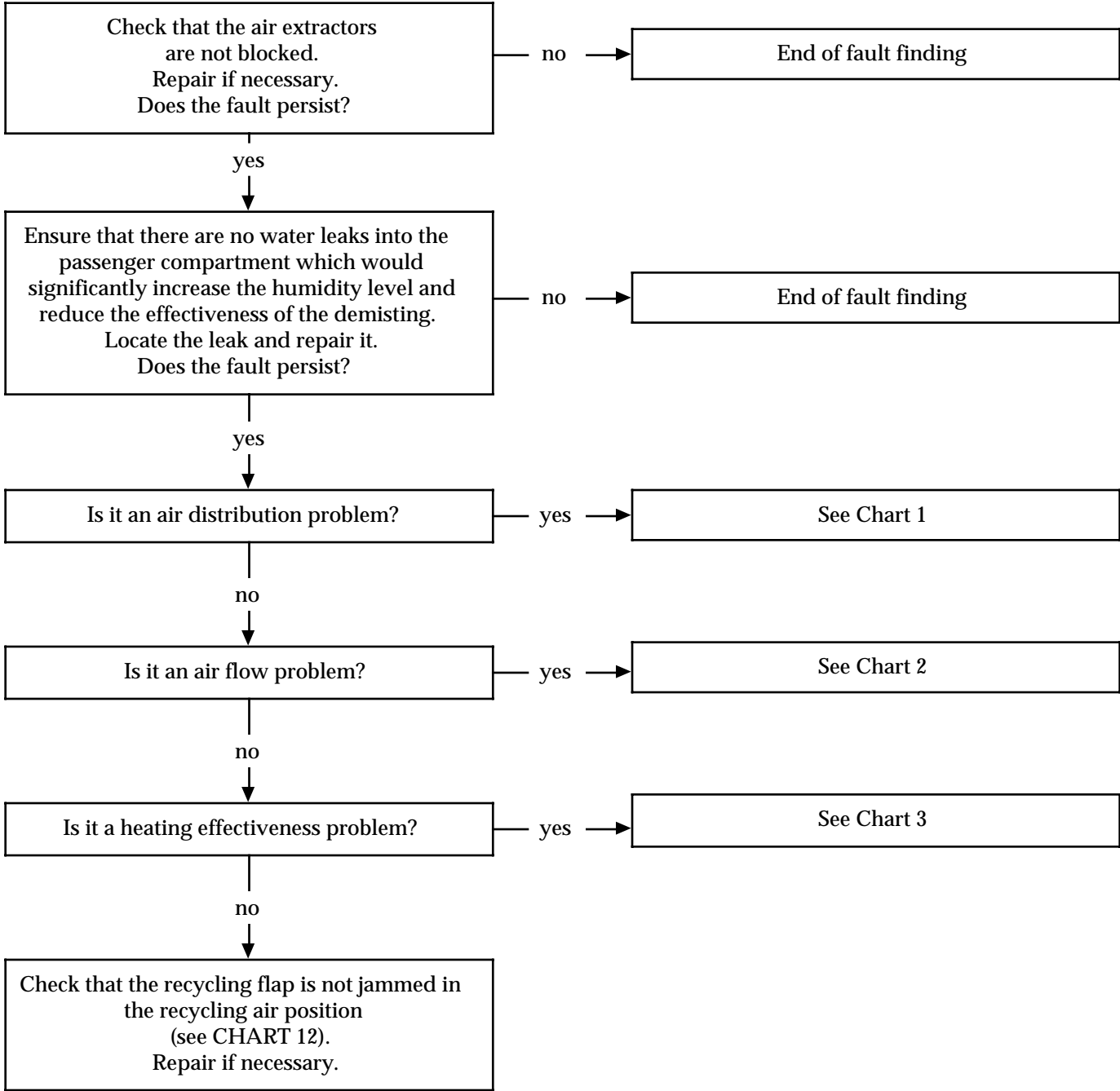
Chart 6	HEATING INADEQUATE IN THE REAR
NOTES	None



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 7	DEMISTING/DEICING INEFFECTIVE
---------	-------------------------------

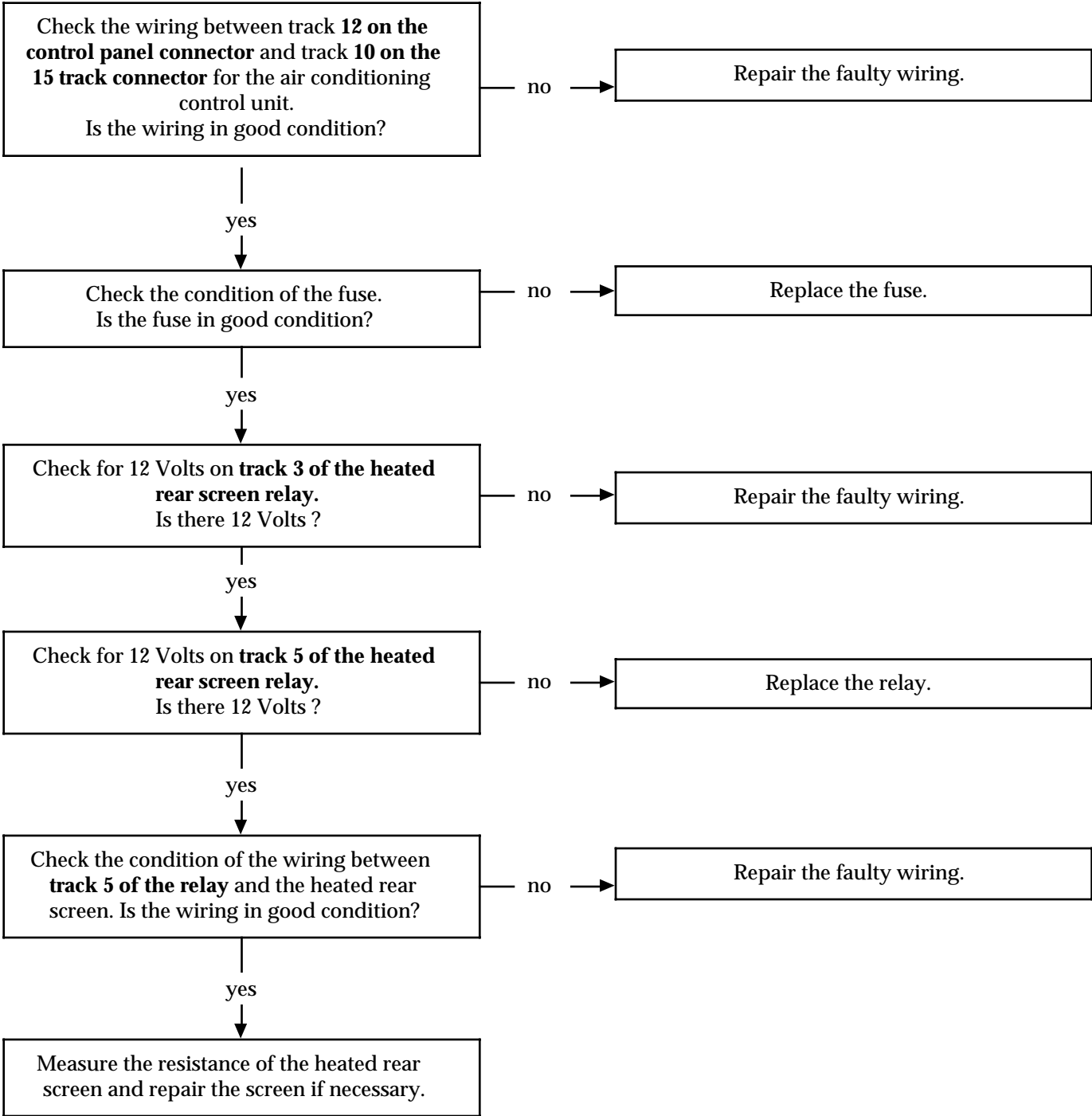
NOTES	Check that the windows are clean on the inside.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

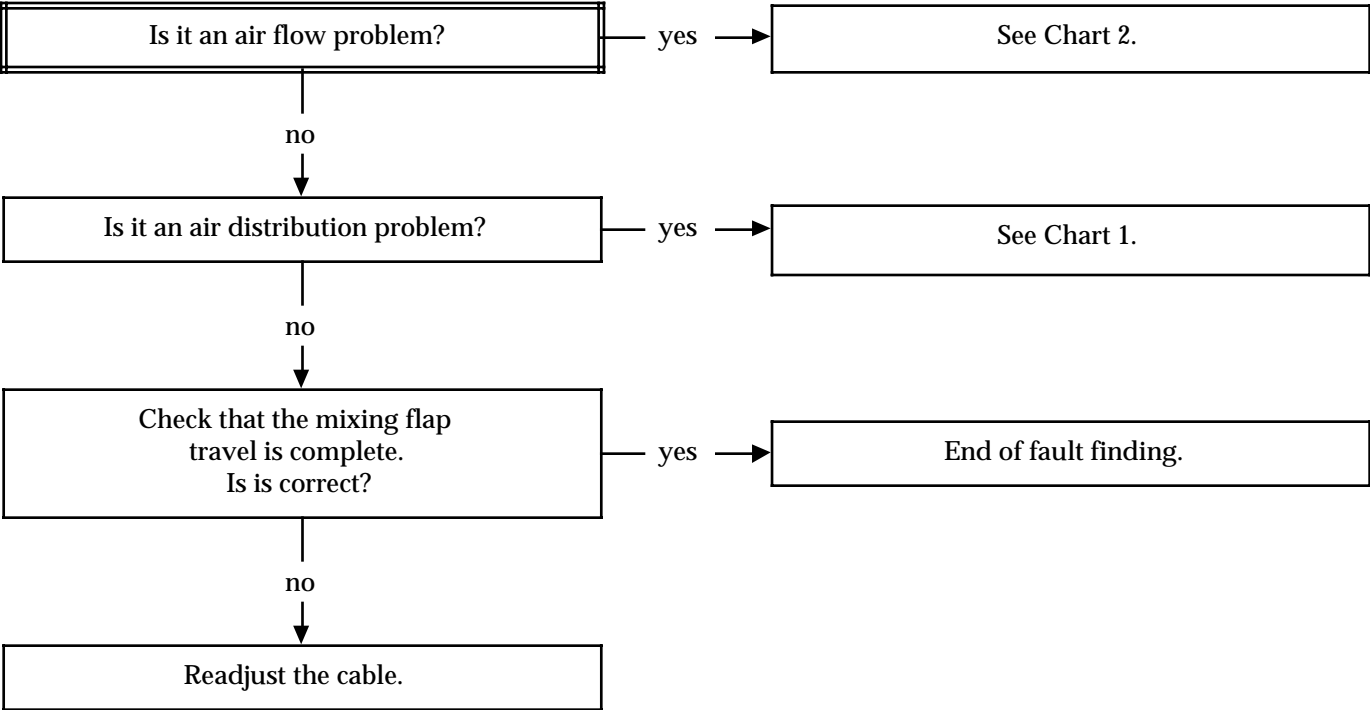
Chart 8	HEATED REAR SCREEN DOES NOT OPERATE
---------	-------------------------------------

NOTES	Bargraphs 10 RH and 10 LH must be illuminated and bargraph 5 LH must be extinguished. The engine speed must be higher than 600 rpm.
-------	--



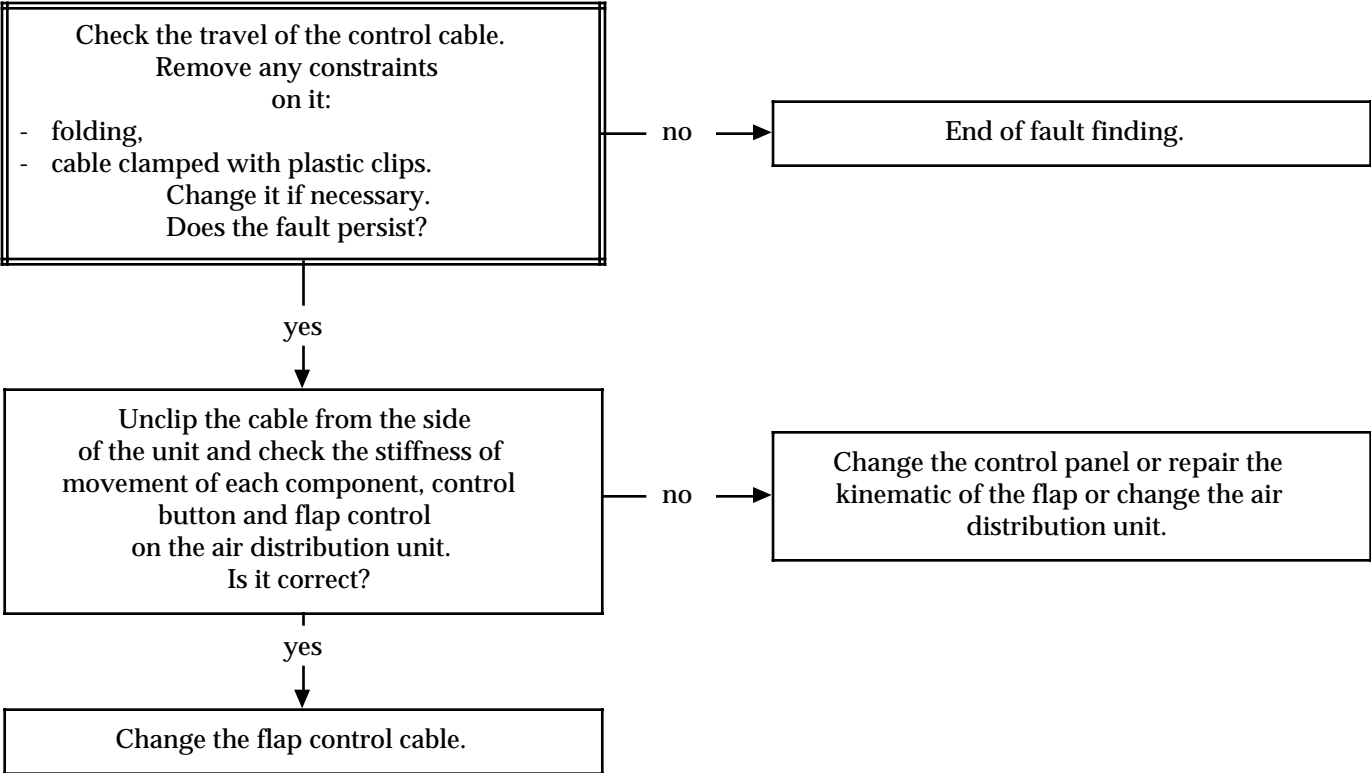
AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 9	VENTILATION INEFFECTIVE
NOTES	None.



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

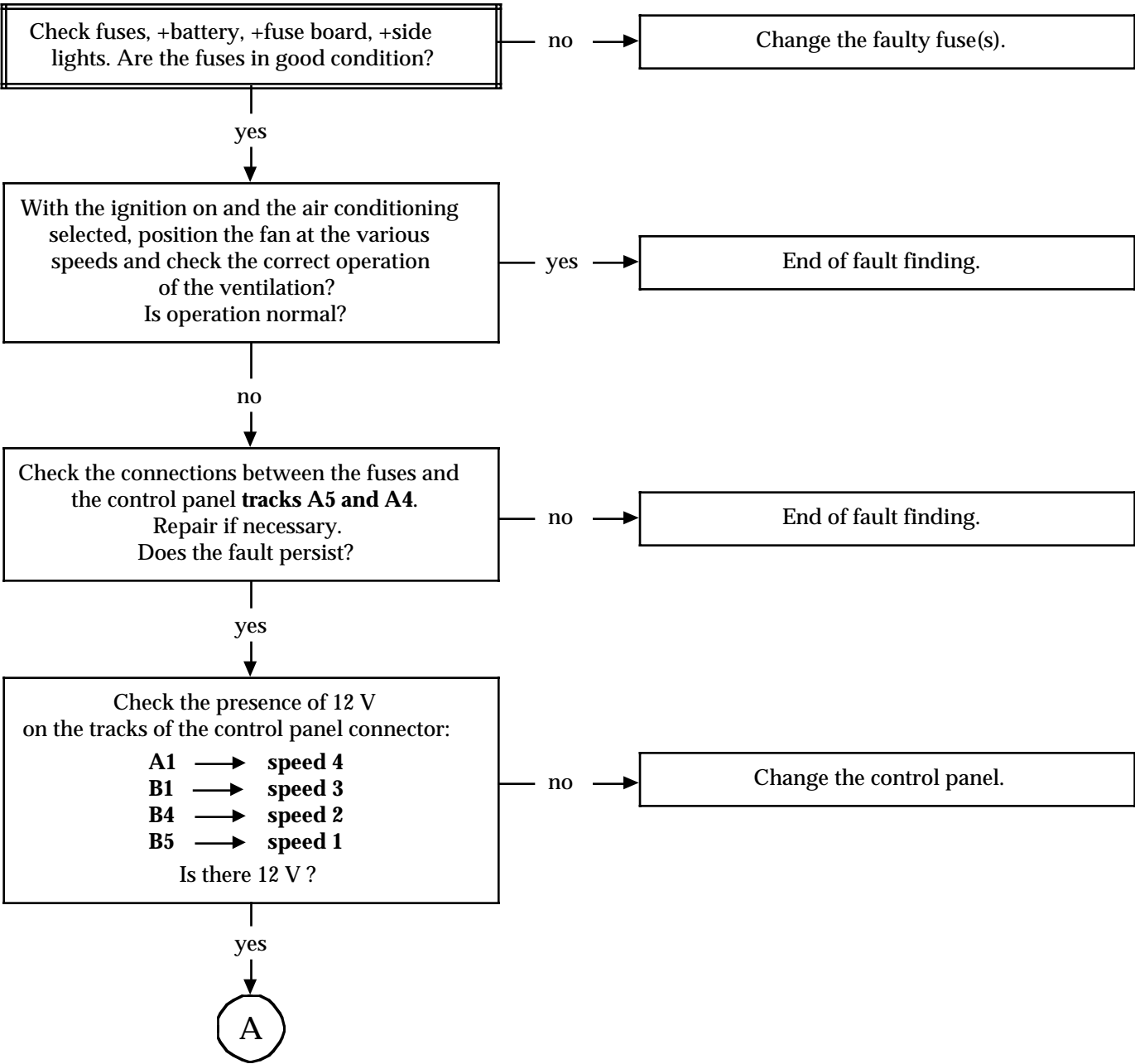
Chart 10	STIFFNESS OF THE CONTROLS (passenger compartment inconvenience)
NOTES	None.



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

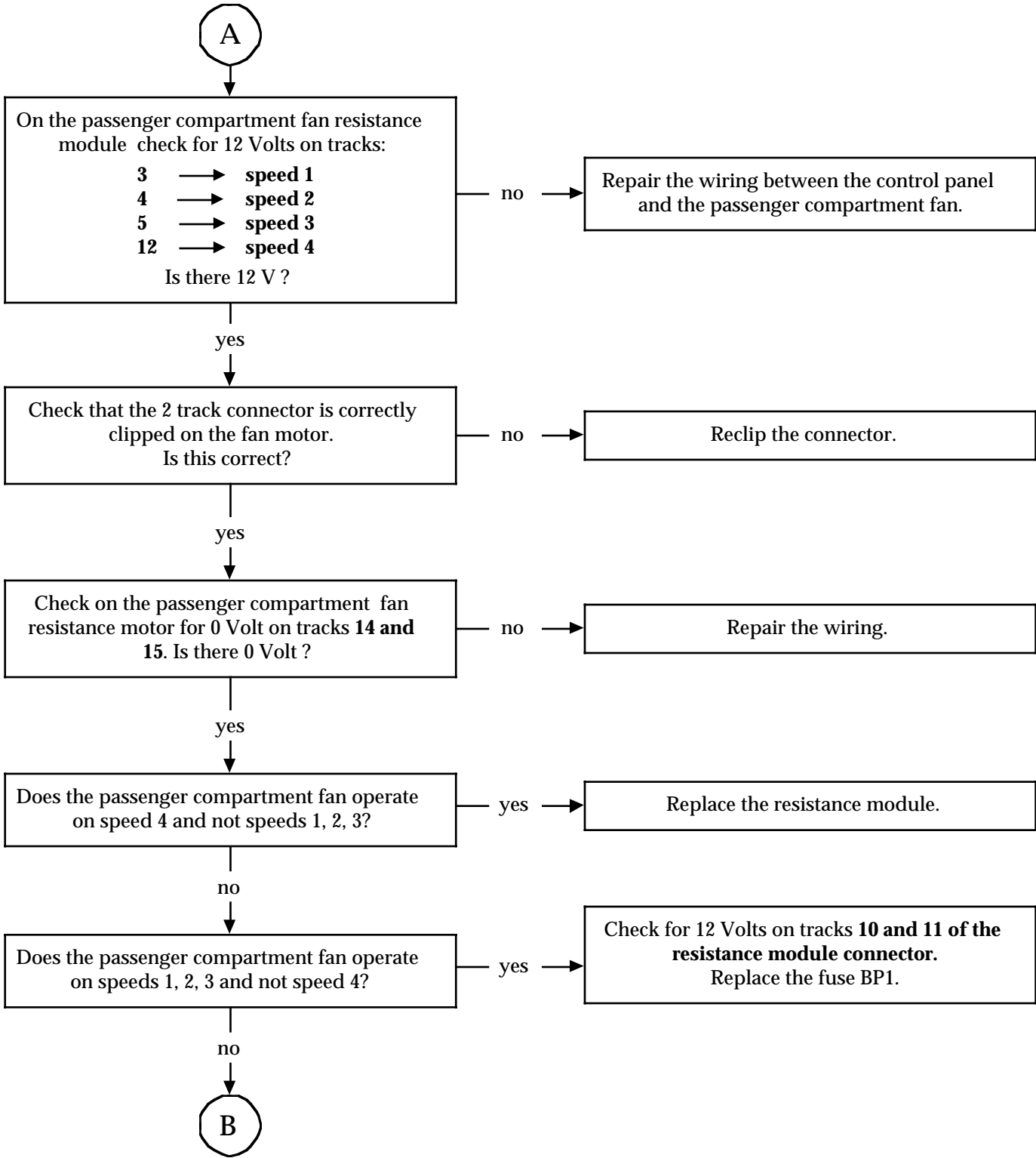
Chart 11	PASSENGER COMPARTMENT FAN DOES NOT OPERATE
----------	--

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



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 11  
CONT

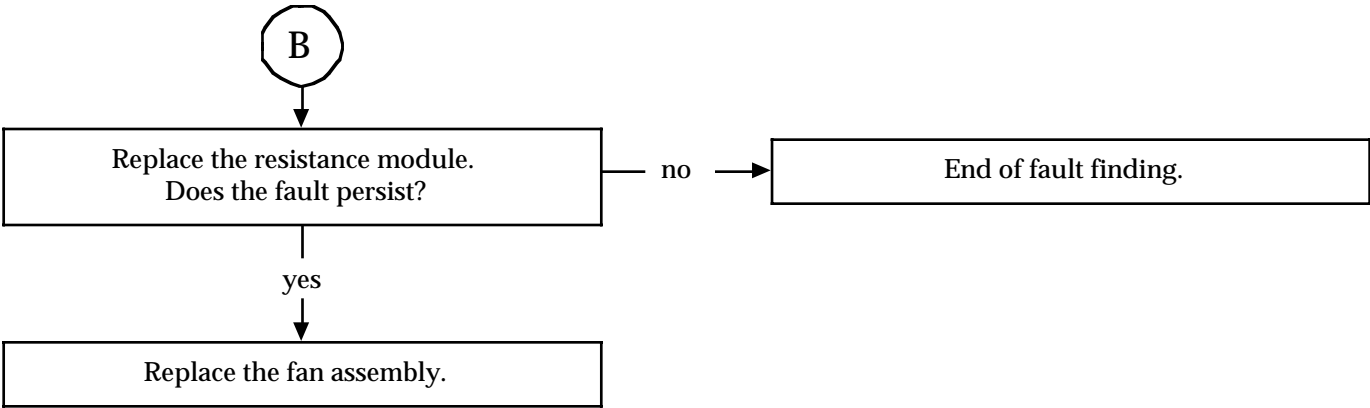


**AFTER REPAIR**

Check that components that have been disconnected are correctly reconnected.  
Check that the system operates correctly.



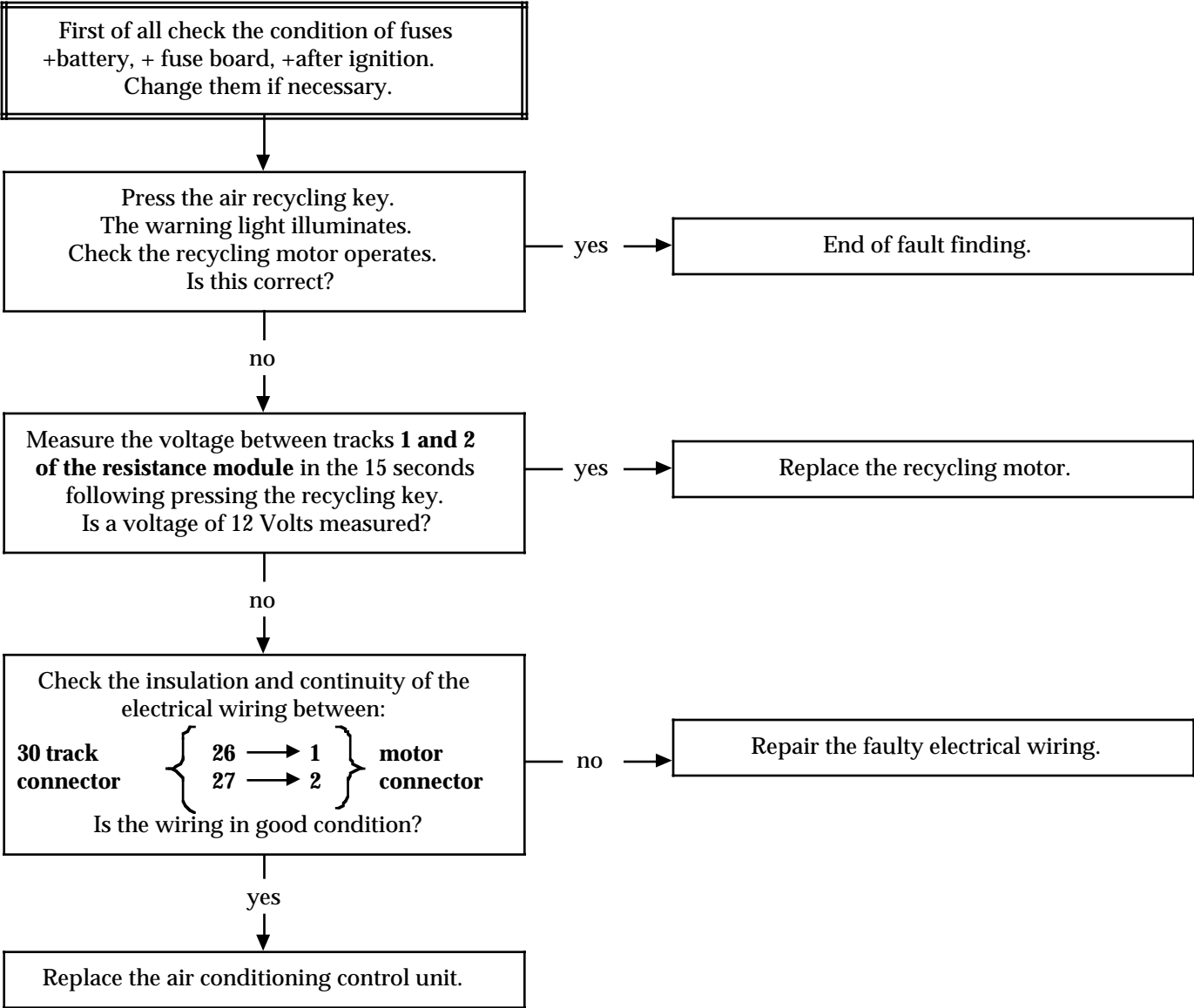
Chart 11 CONT	
------------------	--



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 12	AIR RECYCLING DOES NOT OPERATE BUT THE WARNING LIGHT OPERATES
----------	---

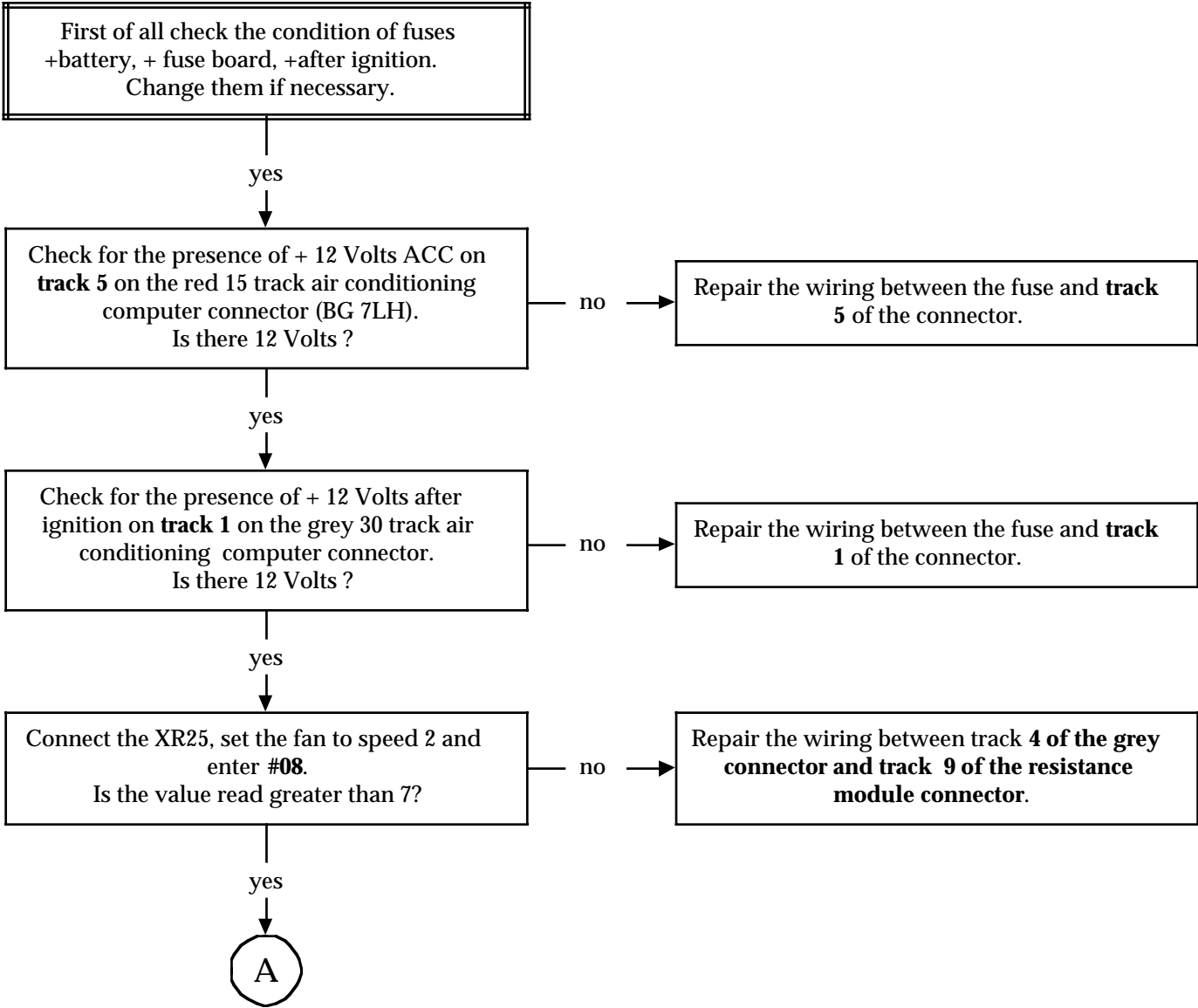
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 13	AIR CONDITIONING PROBLEMS No cold air
----------	--

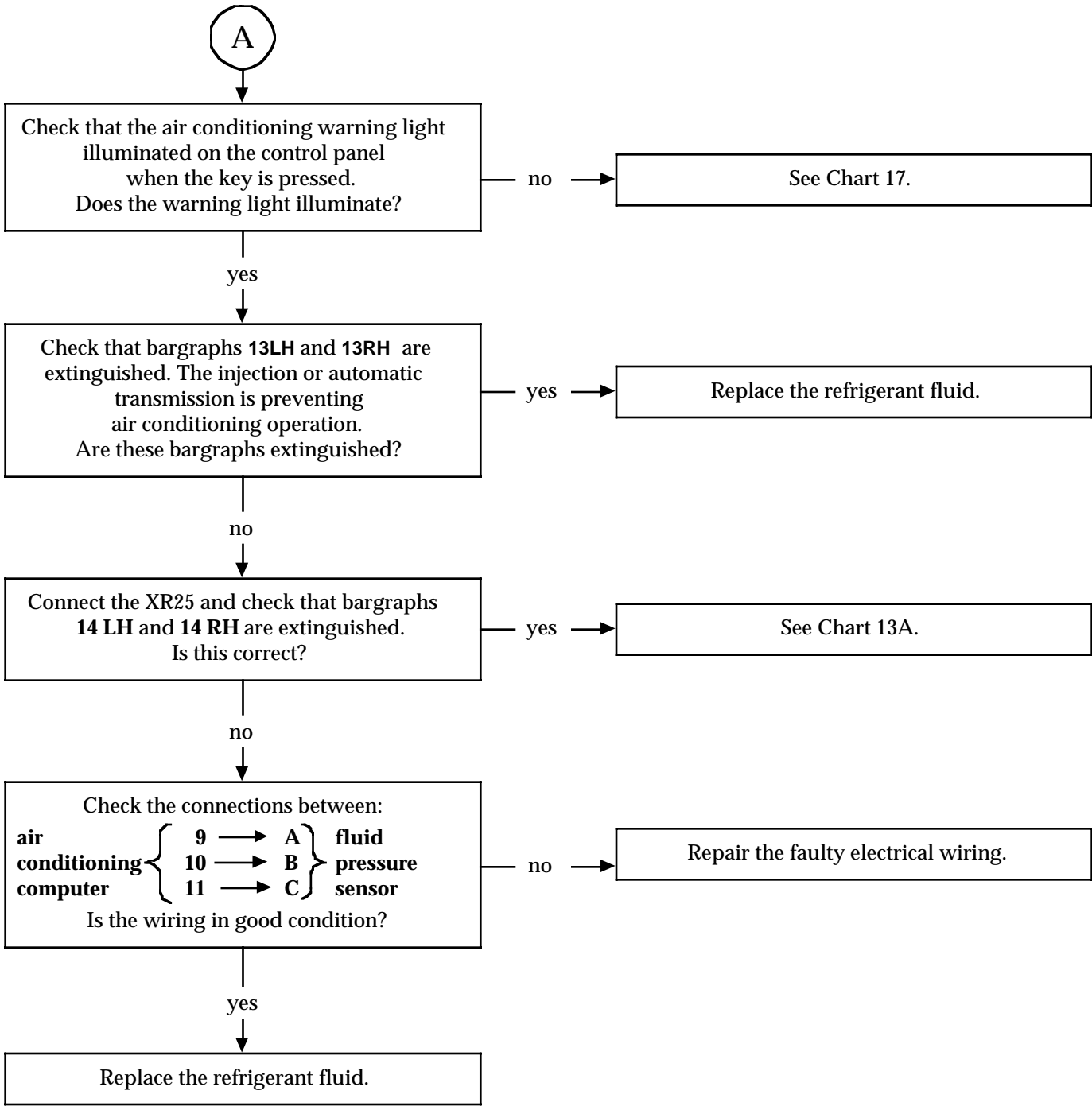
NOTES	Non regulated air conditioning. The passenger compartment fan operates. Check that bargraphs 2RH, 2LH and 4LH are extinguished.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 13 CONT	AIR CONDITIONING PROBLEMS No cold air
------------------	--

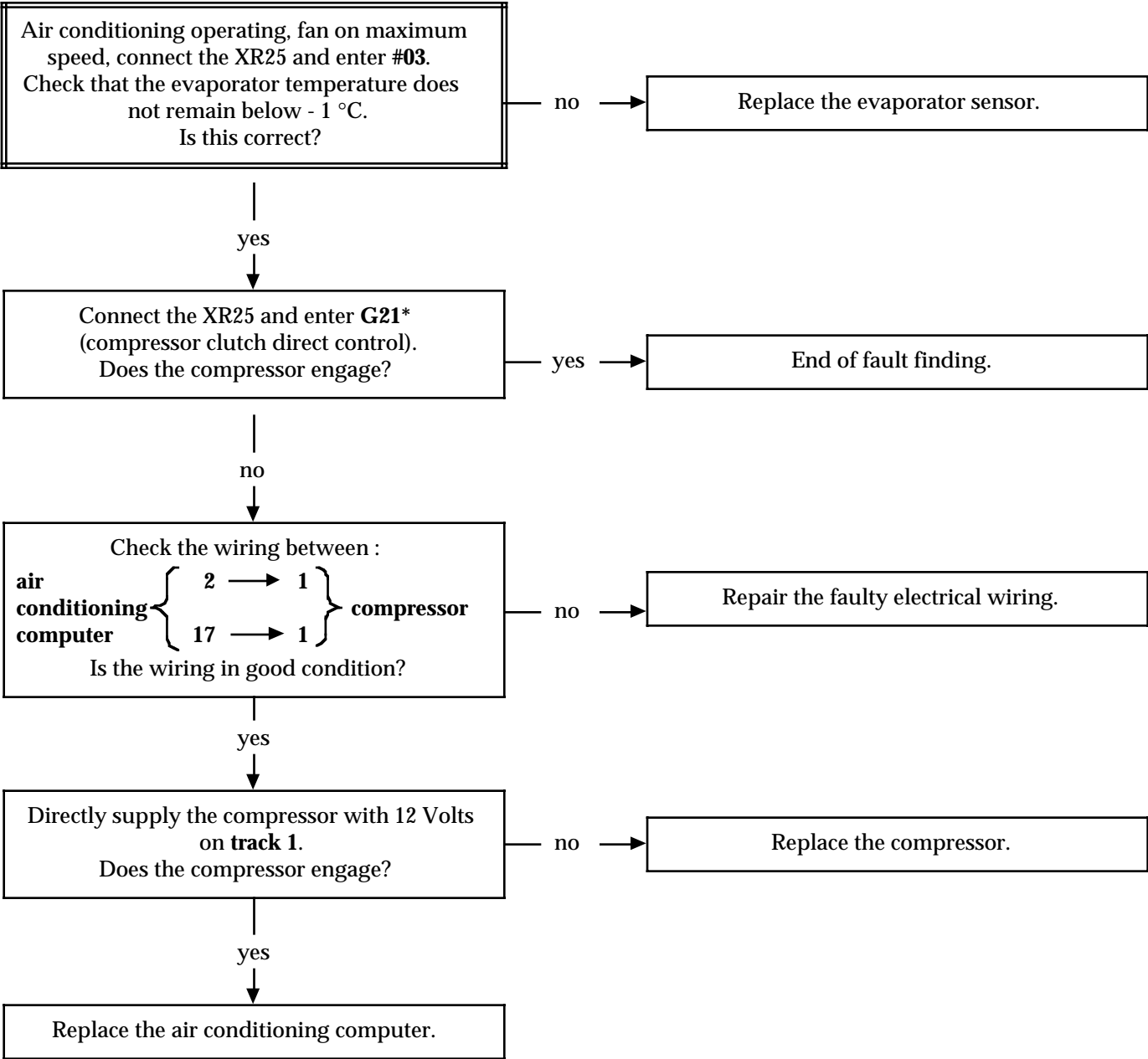
NOTES	Non regulated air conditioning. The passenger compartment fan operates.
-------	--



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 13 A	AIR CONDITIONING PROBLEMS No cold air
------------	--

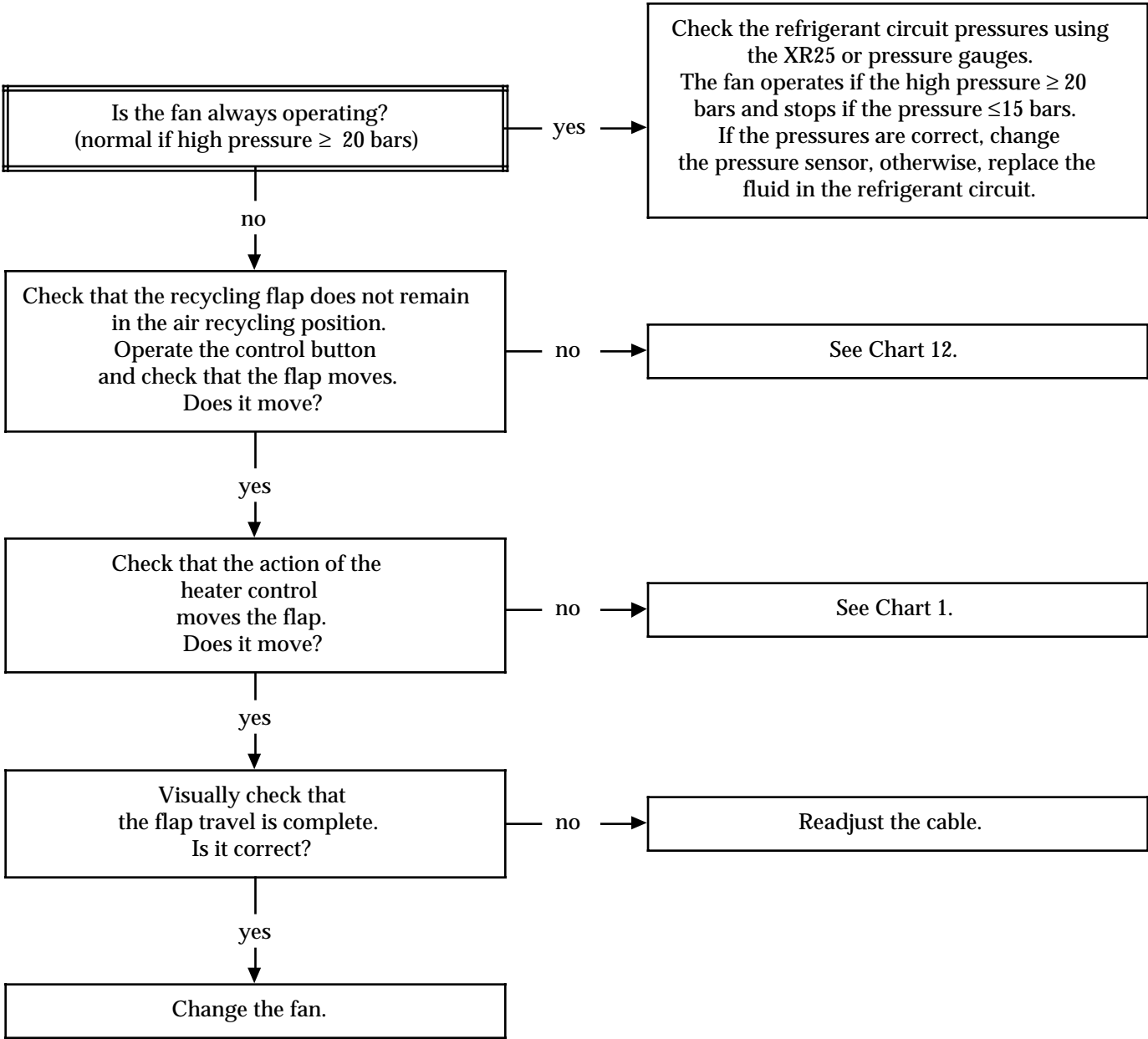
NOTES	Non regulated air conditioning. The passenger compartment fan operates. Check that bargraphs 2RH, 2LH and 4LH are extinguished.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 14	AIR CONDITIONING PROBLEMS Too much cold air
----------	--

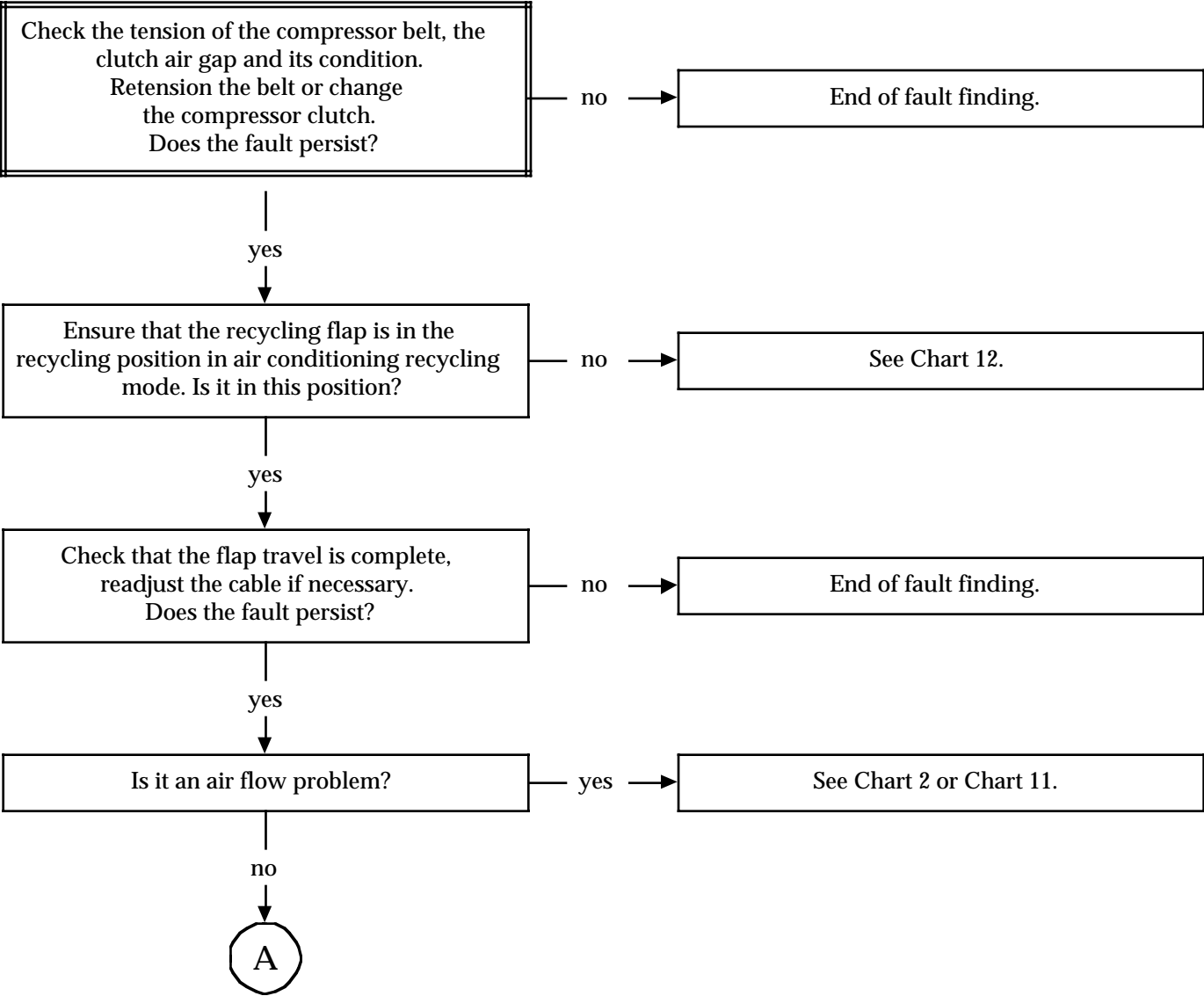
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

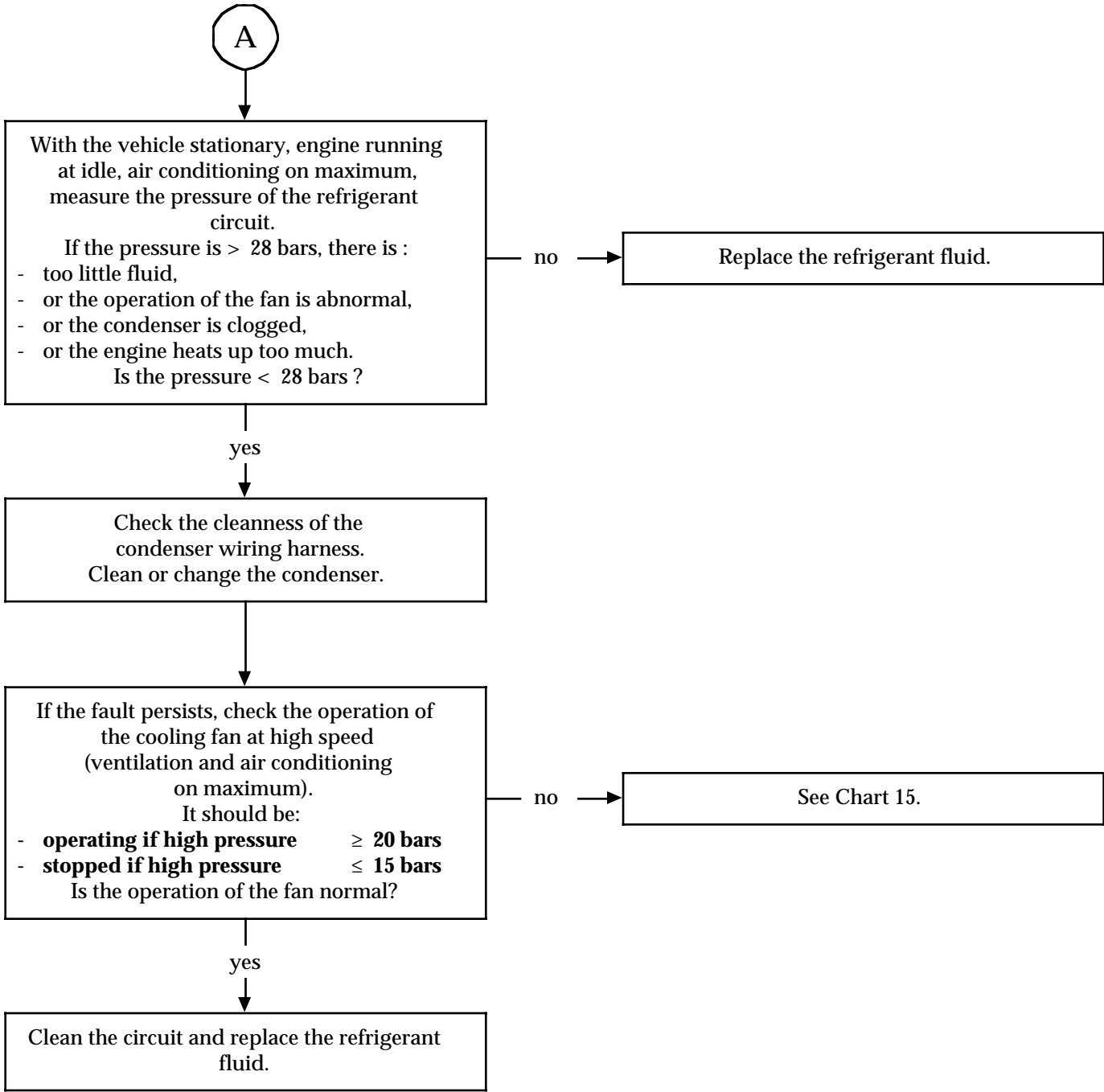
Chart 15	AIR CONDITIONING PROBLEMS Ineffectiveness
----------	--

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



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 15 CONT	
------------------	--

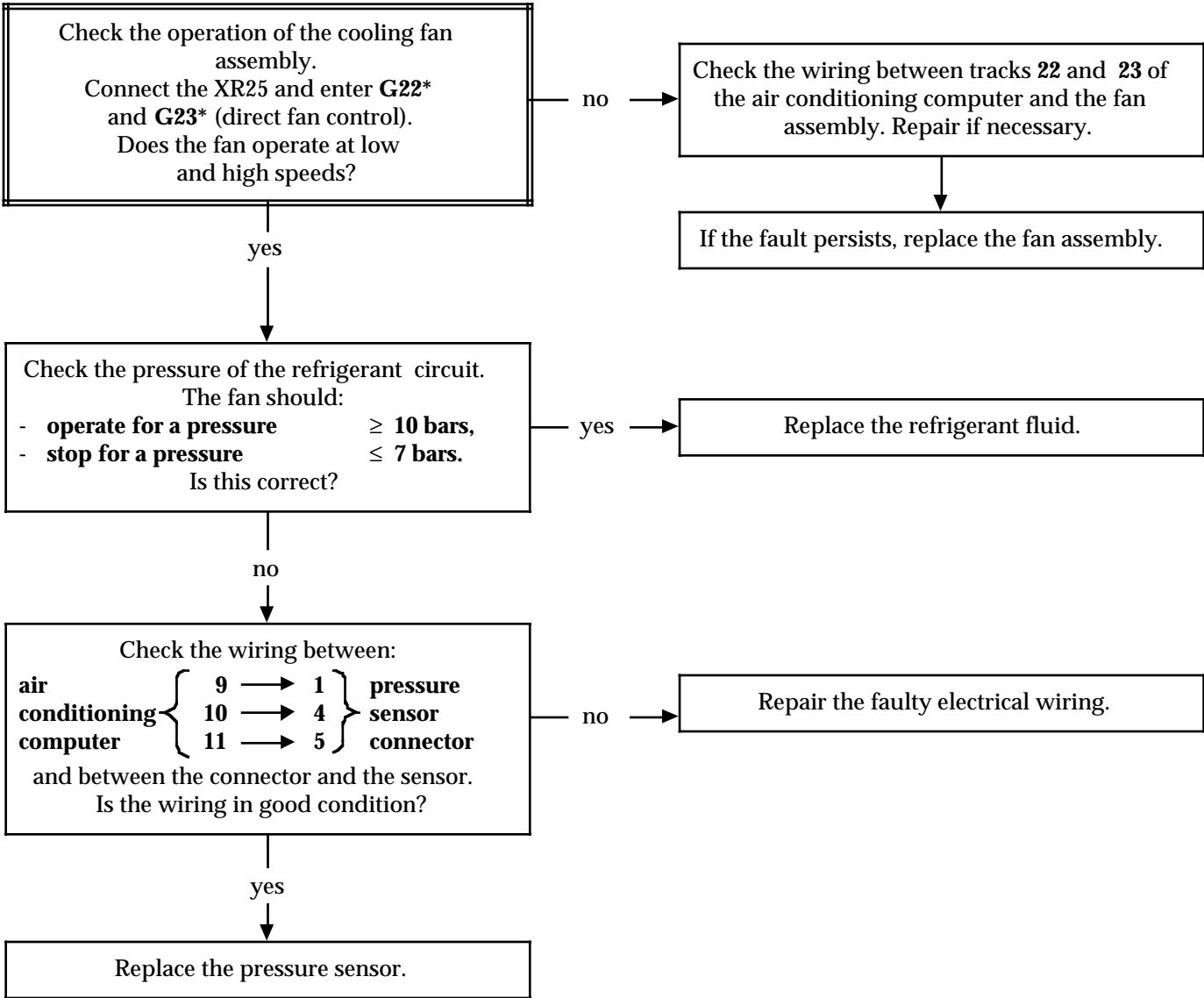


<b>AFTER REPAIR</b>	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
---------------------	---



Chart 15A	AIR CONDITIONING PROBLEMS Ineffectiveness
-----------	--

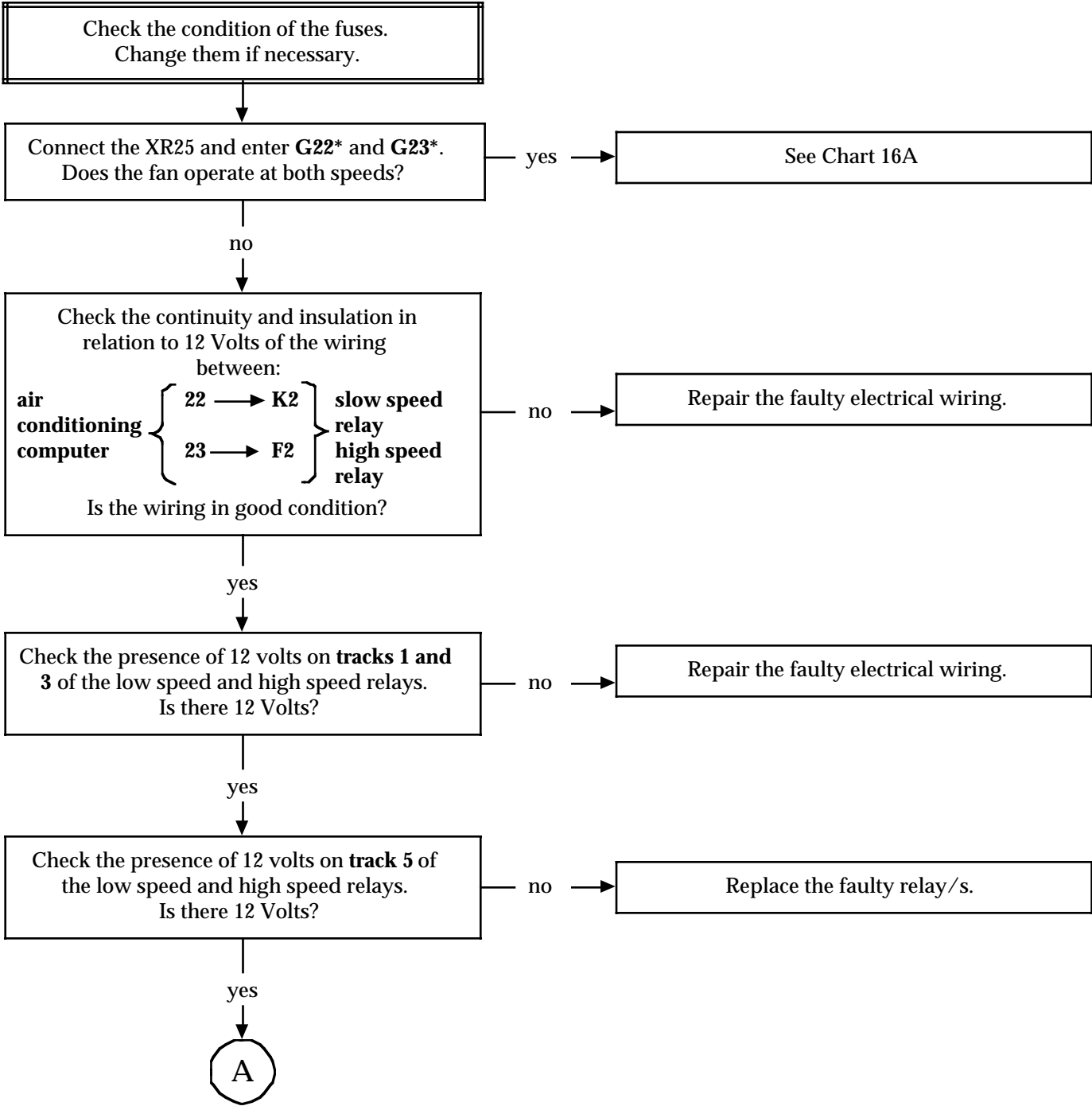
NOTES	Before carrying out any work, check that the customer uses the air conditioning correctly. Non regulated air conditioning.
-------	---



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

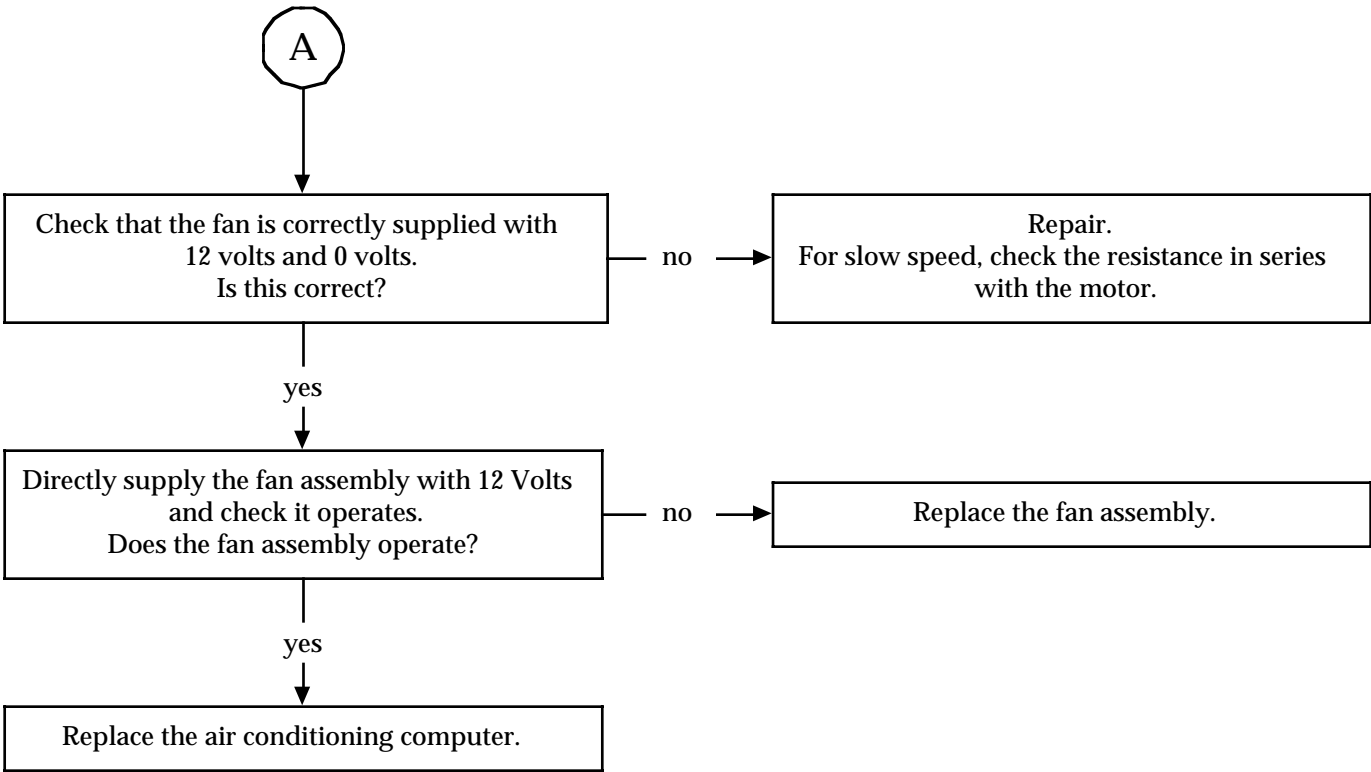
Chart 16	COOLING FAN DOES NOT OPERATE
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NOTES	Non regulated air conditioning. The compressor operates.
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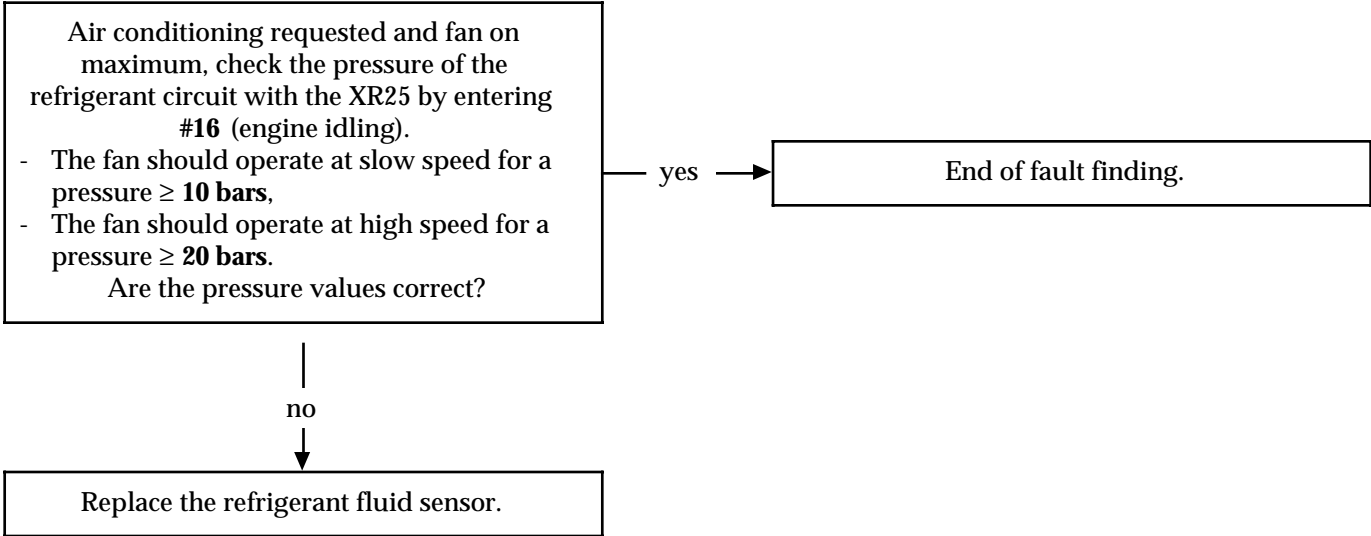
AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 16 CONT	
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AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

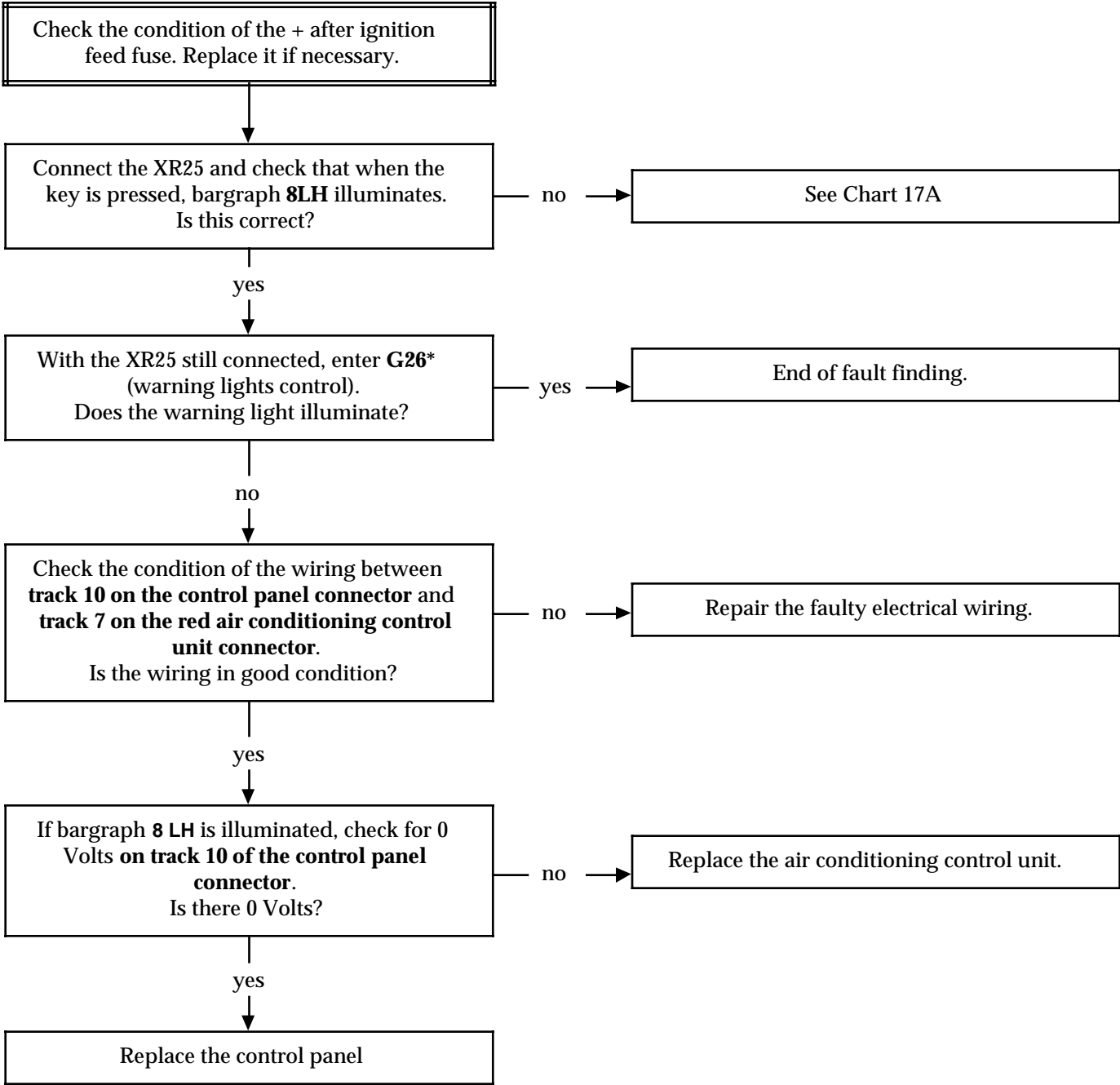
Chart 16 CONT 1	
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AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 17	AIR CONDITIONING WARNING LIGHT DOES NOT ILLUMINATE
----------	--

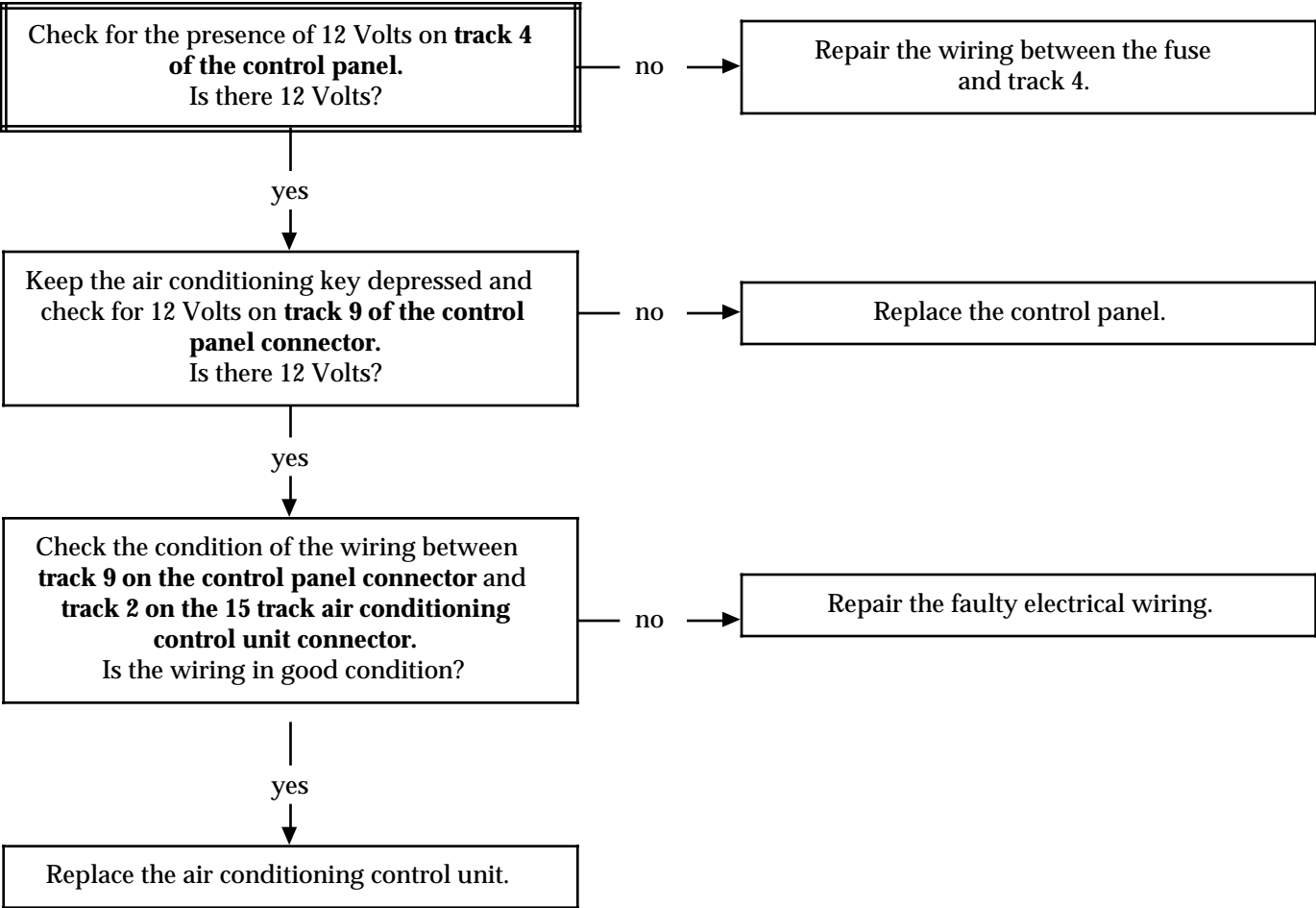
NOTES	+ after ignition feed
-------	-----------------------



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 17A	AIR CONDITIONING WARNING LIGHT DOES NOT ILLUMINATE
-----------	--

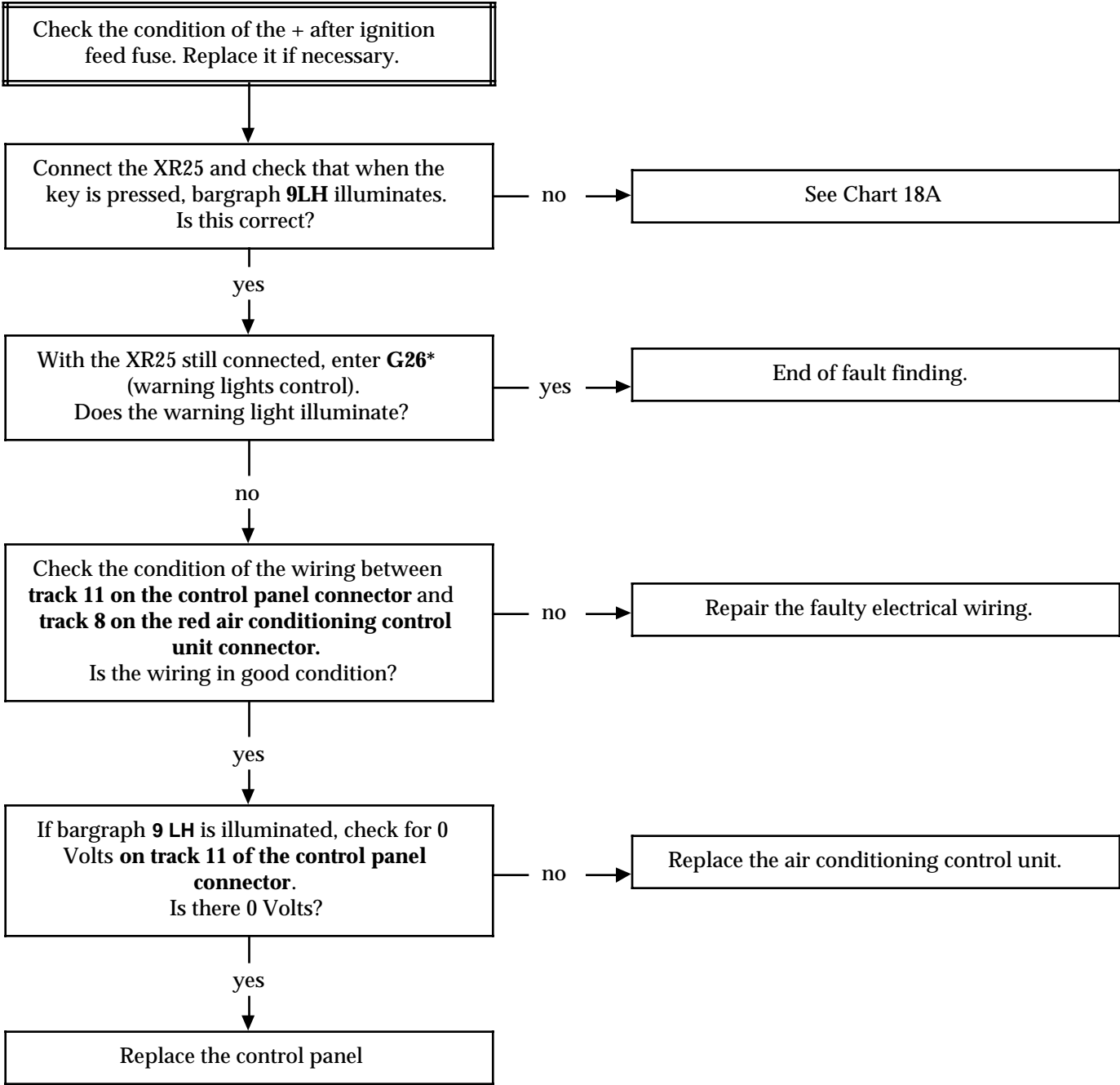
NOTES	+ after ignition feed
-------	-----------------------



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 18	AIR RECYCLING WARNING LIGHT DOES NOT ILLUMINATE
----------	---

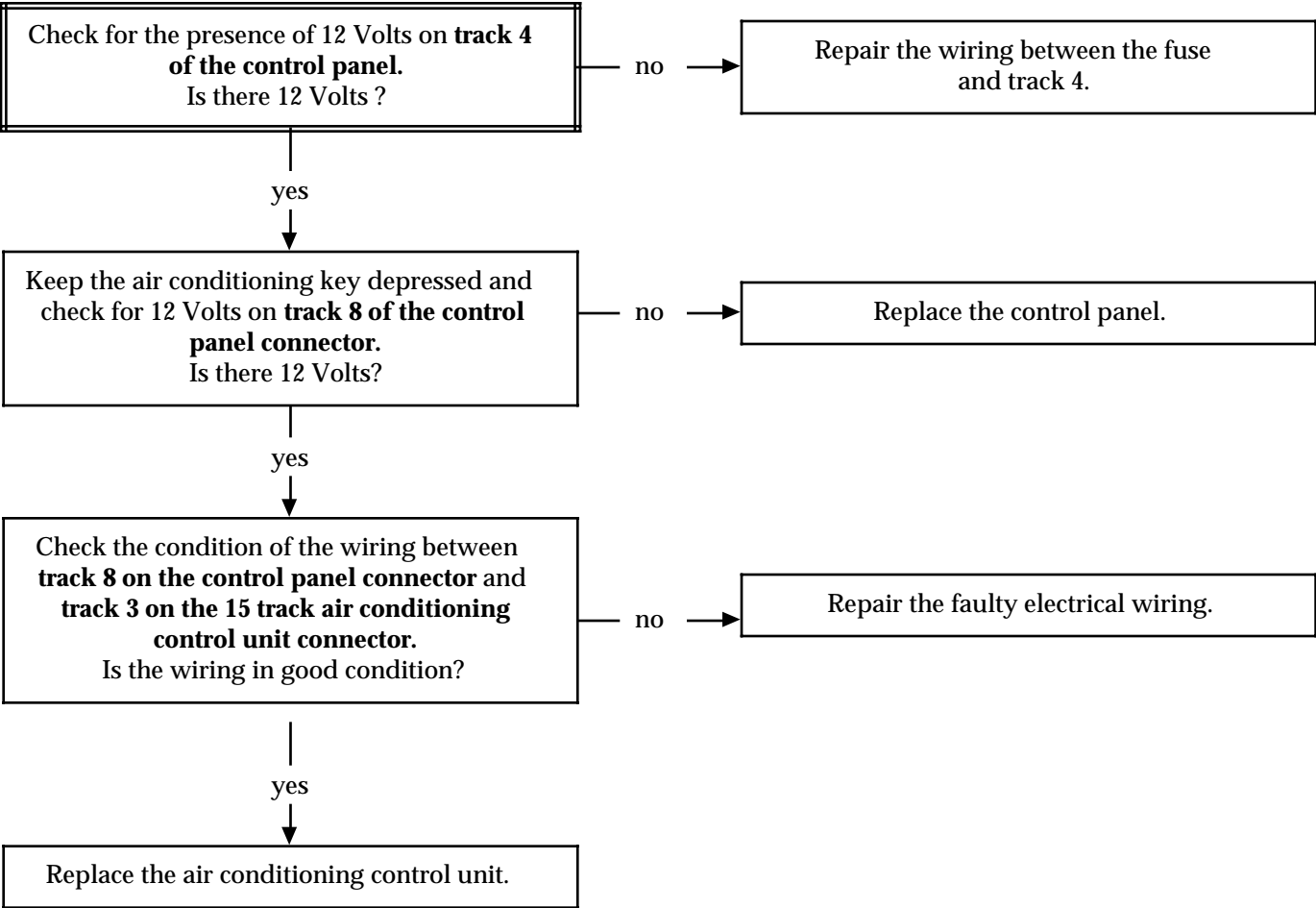
NOTES	+ after ignition feed
-------	-----------------------



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 18A	AIR RECYCLING WARNING LIGHT DOES NOT ILLUMINATE
-----------	---

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

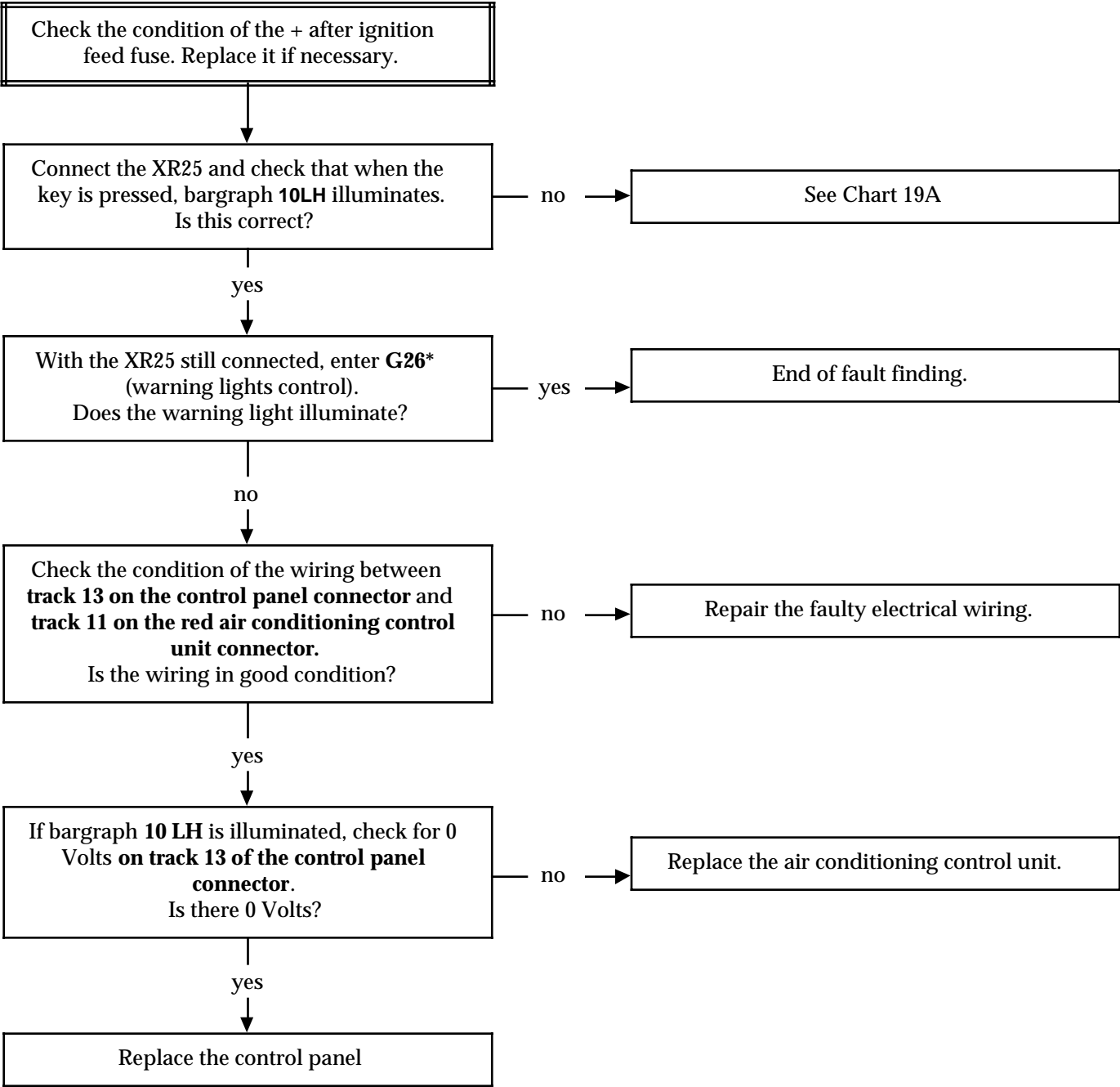


AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---



Chart 19	HEATED REAR SCREEN WARNING LIGHT DOES NOT ILLUMINATE
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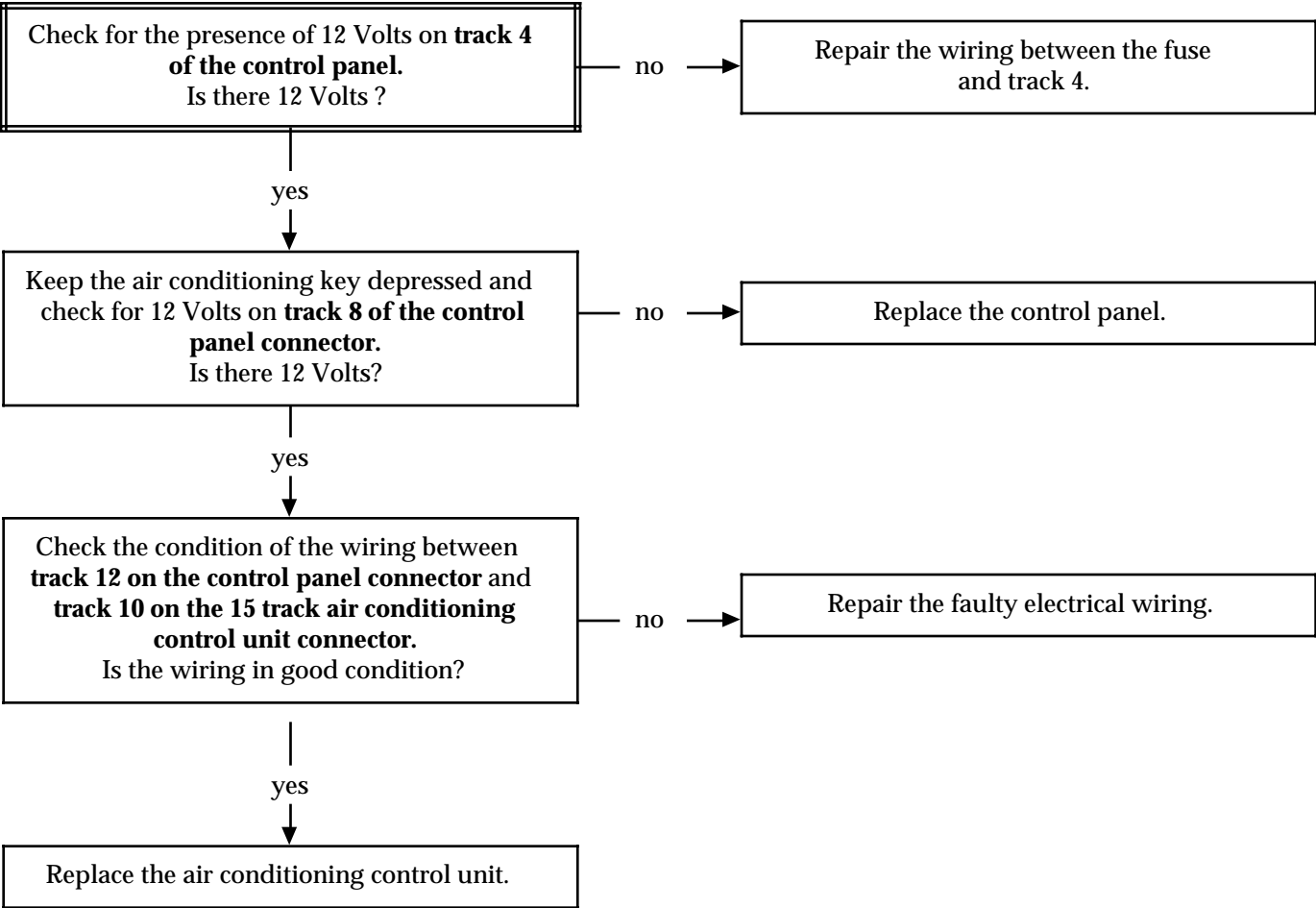
NOTES	+after ignition feed
-------	----------------------



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

Chart 19A	HEATED REAR SCREEN WARNING LIGHT DOES NOT ILLUMINATE
-----------	--

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



AFTER REPAIR	Check that components that have been disconnected are correctly reconnected. Check that the system operates correctly.
--------------	---

**ADDITIONAL TESTS****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 control

**G21\*** : compressor clutch control

**G22\*** : fan low speed control

**G23\*** : fan high speed control

**G24\*** : recycling 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 fluid pressure in the circuit

# IMMOBILISER

## FAULT FINDING

### SUMMARY

	Page
Introduction .....	01
XR25 fiche .....	02
Interpretation of XR25 bargraphs .....	04
Customer complaints (petrol version) .....	11
Fault charts (petrol version) .....	12
Customer complaints (diesel version) .....	21
Fault charts (diesel version) .....	22
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Assistance .....	34

**NOTE :**

The decoder unit is incorporated in the multi-timer unit (BMT).

**INSTALLATION OF XR25 DIALOGUE / MULTI-TIMER UNIT**

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

n.56

**IMPORTANT:**

If there is a dialogue problem with the XR25 during fault finding on the immobiliser system for diesel vehicles, it will be necessary to disconnect the injection computer or the injection relay fuse during the test.

**PRECAUTION**

When carrying out the test using a multimeter, avoid using a test pin on connectors where the test pin is of a size which could damage the clips and lead to a poor contact.

**Pay attention to key head numbers.**

**ERASING THE MEMORY**


After repairing the immobiliser system, enter **G0\*\*** on the keyboard of the XR25 kit to proceed with erasing the memorised fault.

## PRESENTATION OF XR25 FICHE N° 56

<b>N°56</b>		<b>S8</b>		<b>code :</b> <b>D 5 6</b>		<b>read :</b> <b>n56</b>	
1	<input type="checkbox"/>	possible check on other side of fiche (x65)				CODE PRESENT <input type="checkbox"/>	
2	<input type="checkbox"/>	TYPE OF PLIP	<input type="checkbox"/> IR	<input type="checkbox"/> RF	COMPUTER CONFIGURATION (fixed display)		INTERIOR LIGHT TIMER <input type="checkbox"/>
3	<input type="checkbox"/>	PROGRAMMING	1 key <input type="checkbox"/> 2 keys <input type="checkbox"/>				DIESEL CODED SOL VALVE <input type="checkbox"/>
4	<input checked="" type="checkbox"/>	+ ACCESSOIRES PRESENT				+ APC PRESENT <input type="checkbox"/>	
5	<input type="checkbox"/>	ELECTRIC DOOR LOCK BUTTON (CPE)					
6	<input type="checkbox"/>	DIESEL SOL ACQUITTAL				FAULTS	
7	<input type="checkbox"/>	KEY INTERROGATION (CC) (only if valeo unit)				CODED LINE * 26 <input type="checkbox"/>	
8	<input checked="" type="checkbox"/>	RE-READ DIESEL ACQ	KEY PRESENT <input type="checkbox"/>		CONTROL MODES : G...*		
9	<input type="checkbox"/>	PROTECTED MODE ENFORCED	RECVD (key code) <input type="checkbox"/>		23 Diesel sol. mechanical control Only if line 3 RH and line 6 RH/LH <input type="checkbox"/>		
10	<input type="checkbox"/>	IMMOBILISER ACTIVE	VALID <input type="checkbox"/>		Test: Switch off ignition, enter 023* Switch ign. on again, valve opens and closes for 20 secs (audible check)		
<b>IMMOBILISER (PLIP and KEY)</b> To read other side : G 02 * Erase memory : G 0 **							
11	<input checked="" type="checkbox"/>	ACTIVATE PLIP (UNLOCKING)	SIGNAL RECVD		SIGNAL CORRECT <input type="checkbox"/>		03 Interior light control
12	<input type="checkbox"/>	INT. LIGHT CUT-OUT PRESENT USING PLIP (option depending on equip.)					
13	<input checked="" type="checkbox"/>	ACTIVATE PLIP (signal)	UNLOCKING		LOCKING		08 Opening movement
14	<input checked="" type="checkbox"/>	* 14 PRESS BUTTON : CPE	UNLOCKING(1)		LOCKING(0)		09 Closing movement
15	<input checked="" type="checkbox"/>	AUTHORISED	ELECTRIC WINDOW (PLIP) (witch anti-pinch)		WINDOW CLOSING <input type="checkbox"/>		15 Raising electric window
16	<input checked="" type="checkbox"/>	DOOR SWITCHES (ILLUM. IF DOOR OPEN)					
17	<input type="checkbox"/>	PROGRAMMING OR RESYNCHRO IN PROGRESS	PLIP		NOT PROGRAMMED <input type="checkbox"/>		04 Protected mode enforced
18	<input type="checkbox"/>	PROGRAMMING 1st KEY	KEY		PROGRAMMING AUTHORISED <input type="checkbox"/>		40*xxxx* security entry code
19	<input type="checkbox"/>	NOT PROGRAMMED			PROGRAMMING NOT LOCKED (G60*) <input type="checkbox"/>		Part No : G70 *
20	<input type="checkbox"/>						
SEE REPAIR MANUAL <b>17</b> ANG							

FI21756


DESCRIPTION OF BARGRAPHS



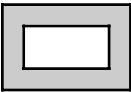
**Illuminates when dialogue is established with the product computer**, if it remains extinguished :

- the code does not exist,
- there is a line , computer or tool fault.

REPRESENTATION OF FAULTS (always on coloured background)



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

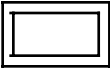
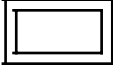






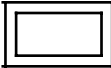

**Extinguished**, indicates non-detection of fault on the product tested.

REPRESENTATION OF STATUS (always on white background)

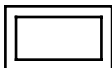
Engine stopped, ignition on, no operator action

Status Bargraphs on the fiche are shown as they should appear, engine stopped, ignition on, without operator action


- If on the fiche, the Bargraph is shown as  the kit should show 
- If on the fiche, the Bargraph is shown as  the kit should show 
- If on the fiche, the Bargraph is shown as  the kit should show 

either  or 

Engine running



Extinguished when operation or condition specified on the fiche is no longer met.



Illuminated when operation or condition specified on the fiche is met.

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 RH side extinguished</div> <div>Fiche n° 56</div> <div><u>XR25 / MULTI-TIMER UNIT COMMUNICATION</u></div>
--	---

NOTES	Check that lines K and L are not being disrupted by another computer.
-------	---

<p>Check the condition of the + before ignition fuse.</p> <p>Replace the fuse if necessary.</p>
<p>Ensure that the XR25 is not the cause of the fault by trying to communicate with another computer on the vehicle (air conditioning computer, injection computer,...).</p> <p>Check that the ISO interface is in position <b>S8</b>, that you are using the latest XR25 cassette and the correct access code (<b>D 56</b>).</p> <p>Check the battery voltage (<b>U &gt; 10.5 volts</b>). Recharge the battery if necessary.</p>
<p>Check that the yellow multi-timer unit connector is correctly connected.</p> <p>Check that the multi-timer unit is correctly fed:</p> <ul style="list-style-type: none"><li>- earth on <b>track A1 of the black connector</b> for the multi-timer unit.</li><li>- + before ignition feed on <b>track B1 of the black connector</b> for the multi-timer unit.</li></ul>
<p>Ensure the diagnostic socket is correctly fed.</p> <p>Check and ensure the continuity and insulation of the wiring for tracks <b>14 and 1 of the yellow connector</b> for the multi-timer unit.</p>
<p>If there is still no dialogue between the XR25 and the multi-timer unit, replace the multi-timer unit.</p>

AFTER REPAIR	<p>When communication has been established, deal with any illuminated fault bargraphs.</p> <p>Carry out a conformity check.</p>
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<div>3</div> <div><div></div><div></div></div>	<div>Bargraph 3 RH side incorrect illumination</div> <div>Fiche n° 56</div> <div><u>CODED DIESEL SOLENOID VALVE CONFIGURATION</u></div>
--	---

NOTES	None.
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Use the XR25 to correctly configure the multi-timer unit.

On the XR25, enter

G22\*1\* for a petrol vehicle  
G22\*2\* for a diesel vehicle

**NOTE :** for a diesel version, incorrectly configuring the multi-timer unit does not prevent the immobiliser from operating correctly. If there is a fault, however, the immobiliser warning light will not illuminate.

AFTER REPAIR	<div>Erase the memorised fault by entering G0** on the XR25.</div> <div>Carry out a conformity check.</div> <div>Check the operation of the immobiliser system.</div>
--------------	---

<div>4</div> <div><div></div><div></div></div>	<div>Bargraph 4 RH side incorrect illumination</div> <div>Fiche n° 56</div> <div><u>+ AFTER IGNITION FEED PRESENT</u></div>
--	---

<div>NOTES</div>	<div>Reminder. For normal operation:</div> <div><div>- BG 4RH illuminated, ignition switch in + after ignition position</div><div>- BG 4RH extinguished, ignition switch in position other than + after ignition</div></div>
------------------	--

<div>Check the condition of the + after ignition fuse.</div> <div>Replace the fuse if necessary.</div>
<div>Ignition on, check for + <b>12 volts on track 6 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there 12 volts ?</div>

<div>YES</div>	<div>Replace the multi-timer unit .</div>
<div>NO</div>	<div>Repair the wiring between <b>track 6 of the yellow connector</b> for the multi-timer unit and the passenger compartment fuse board.</div>

<div>AFTER REPAIR</div>	<div>Carry out a conformity check.</div> <div>Check the operation of the immobiliser system.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH side illuminated</div> <div>Fiche n° 56</div> <div><u>ACCEPTANCE (CLEARANCE) OF THE SIGNAL BY THE DIESEL SOLENOID VALVE</u></div>
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NOTES	<div>Check that the computer configuration is correct:</div> <div><div>- diesel : bargraph 3 RH side illuminated</div><div>- petrol: bargraph 3 RH side extinguished</div></div>
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Set the XR25 to pulse detection mode (button "G", input on terminal "Vin").  
Ignition on, check for pulses on **track 15 of the yellow connector for the multi-timer unit** (test connectors for the multi-timer unit and coded electronic unit of the solenoid valve connected).  
Ignition on, if no pulses are noted, replace the multi-timer unit.

Switch on the ignition for longer than 30 consecutive seconds, then switch it off and wait for the immobiliser warning light to flash (immobiliser active).  
Switch on the ignition again and wait for bargraph 8 LH side to illuminate permanently.  
Is bargraph 8 LH side permanently illuminated?

YES	Replace the multi-timer unit .
NO	Replace the solenoid valve coded electronic unit.

AFTER REPAIR	<div>Erase the memorised fault by entering G0** on the XR25.</div> <div>Carry out a conformity check.</div> <div>Check the operation of the immobiliser system.</div>
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraphs 6 LH side and 6 RH side illuminated</div> <div>Fiche n° 56</div> <div><u>DIESEL SOLENOID VALVE AND CODED LINE CLEARANCE</u></div>
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NOTES	Before beginning fault finding, switch on the ignition for more than 30 consecutive seconds then switch off the ignition.
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For the diesel version, if <b>bargraphs 6 LH side and 6 RH side</b> are illuminated, check the impact sensor.
Ensure that the solenoid valve coded electronic unit is correctly connected and check the solenoid valve is supplied with 12 Volts.
Check the condition of the wiring between <b>track 15 of the yellow connector</b> of the multi-timer unit and <b>track 8 on the coded solenoid valve connector</b> . Repair if necessary.
Set the XR25 to pulse detection mode (button "G", input on terminal "Vin"). Ignition on, check for pulses on <b>track 15 of the yellow connector</b> of the multi-timer unit (test with connectors for the multi-timer unit and coded electronic unit of the solenoid valve connected). Do you note any pulses?

YES	Replace the electronic unit on the solenoid valve.
-----	--

NO	Replace the multi-timer unit .
----	--------------------------------

AFTER REPAIR	Erase the memorised fault by entering G0** on the XR25. Carry out a conformity check. Check the operation of the immobiliser system.
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH side illuminated</div> <div><u>CODED LINE</u></div>	<div>Fiche n° 56</div>
--	--	------------------------

<div>NOTES</div>	<div>None.</div>
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For the petrol version, if bargraph 6 RH side is illuminated, check the impact sensor.

Check the continuity and insulation from earth and 12 volts of the wiring between **track 15 of the yellow connector for the multi-timer unit** and **track \*\* of the injection computer**.  
Repair the wiring if necessary.

Set the XR25 to pulse detection mode (button "G", input on terminal "Vin").  
Ignition on, check for pulses on **track 15 of the yellow connector for the multi-timer unit** (test with the multi-timer unit and injection computer connectors connected).  
Do you note any pulses?

<div>YES</div>	<div>Replace the injection computer.</div>
<div>NO</div>	<div>Replace the multi-timer unit .</div>

\*\* track : 30, 37 or 58 depending on engine

<div>AFTER REPAIR</div>	<div>Erase the memorised fault by entering G0** on the XR25. Carry out a conformity check. Check the operation of the immobiliser system.</div>
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82-10

<b>NOTES</b>	Only consult these customer complaints after a complete check using the XR25
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NO XR25 / MULTI-TIMER UNIT COMMUNICATION	Chart 1
IGNITION ON, THE IMMOBILISER WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)	Chart 2
THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED (even with the ignition off) OR REMAINS EXTINGUISHED	Chart 3
IGNITION ON, THE INJECTION WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)	Chart 4
WHEN DRIVING (deceleration) AND AT IDLE SPEED, THE INJECTION WARNING LIGHT FLASHES PERMANENTLY	Chart 5
THE VEHICLE CANNOT BE STARTED	Chart 6

Chart 1	NO XR25 / MULTI-TIMER UNIT COMMUNICATION
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NOTES	Lines L and K are used by several computers which may disrupt them. If the fault persists, it may be advisable to check that lines L and K are not being affected.
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Check the condition of the + before ignition fuse.  
Replace the fuse if necessary.



Ensure that the XR25 is not the cause of the fault by trying to communicate with another computer on the vehicle (air conditioning computer, injection computer,...).

Check that the ISO interface is in position **S8**, that you are using the latest XR25 cassette and the correct access code (**D 56**).

Check the battery voltage (**U > 10.5 volts**). Recharge the battery if necessary.



Check that the 18 track multi-timer unit connector is correctly connected.

Check that the multi-timer unit is correctly fed:

- earth on **track A1 of the black connector** for the multi-timer unit.
- + before ignition feed on **track B1 of the black connector** for the multi-timer unit.



Ensure the diagnostic socket is correctly fed.

Check and ensure the continuity and insulation of the wiring for tracks **1 and 14 of the yellow connector** for the multi-timer unit.

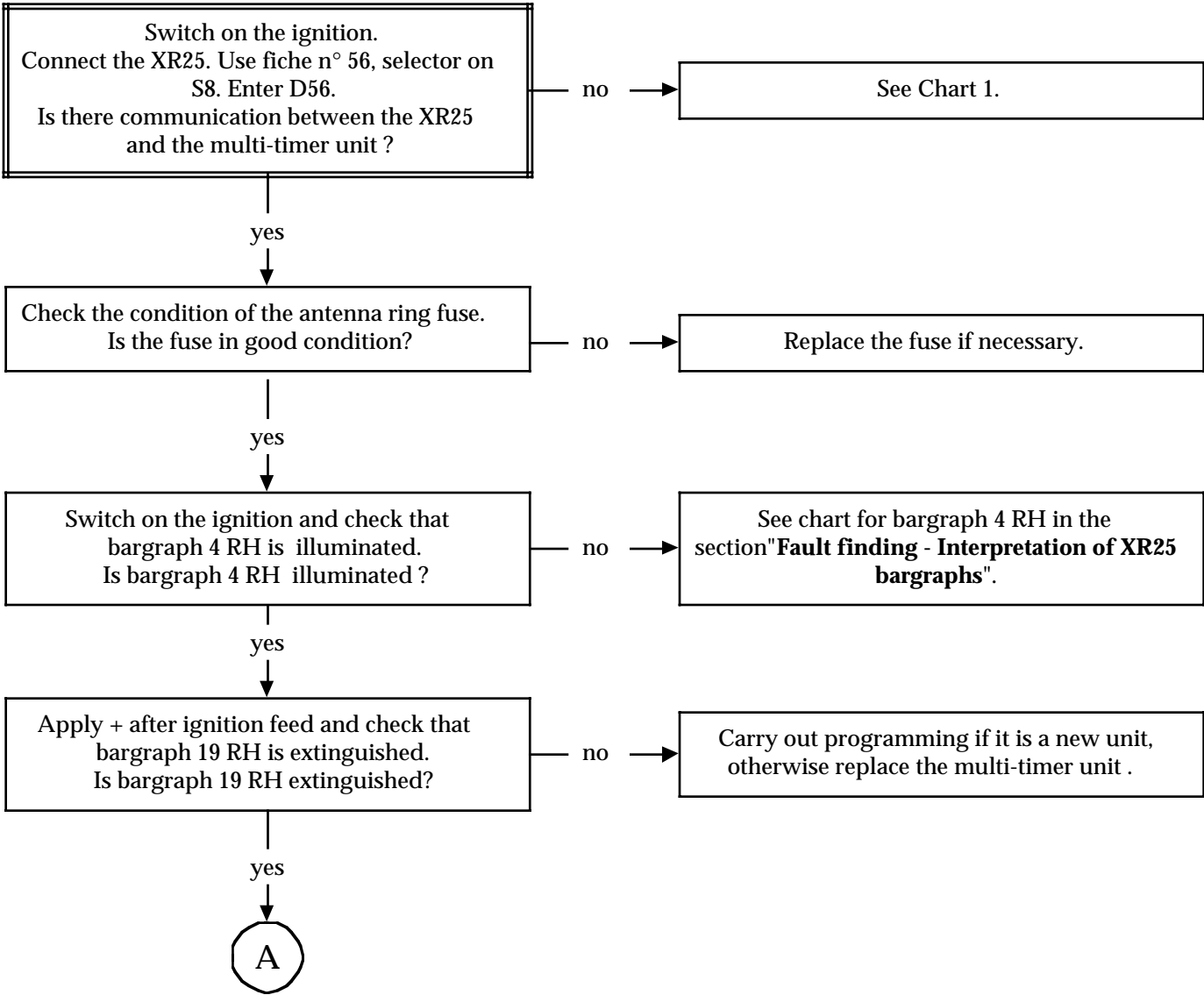


If there is still no dialogue between the XR25 and the multi-timer unit, replace the multi-timer unit.

AFTER REPAIR	When communication has been established, deal with any illuminated fault bargraphs. Carry out a conformity check.
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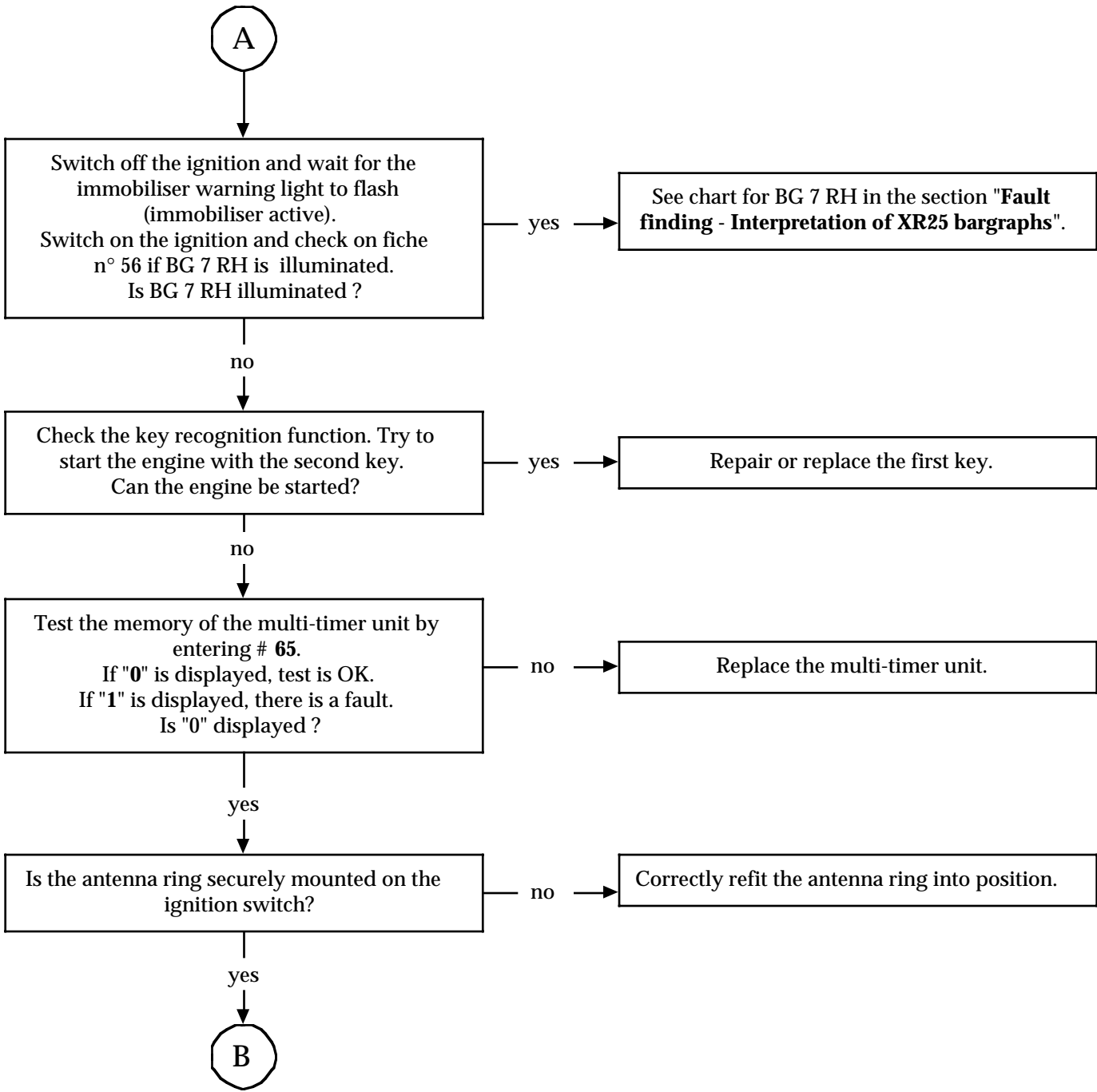


Chart 2	IGNITION ON, THE IMMOBILISER WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)
NOTES	None



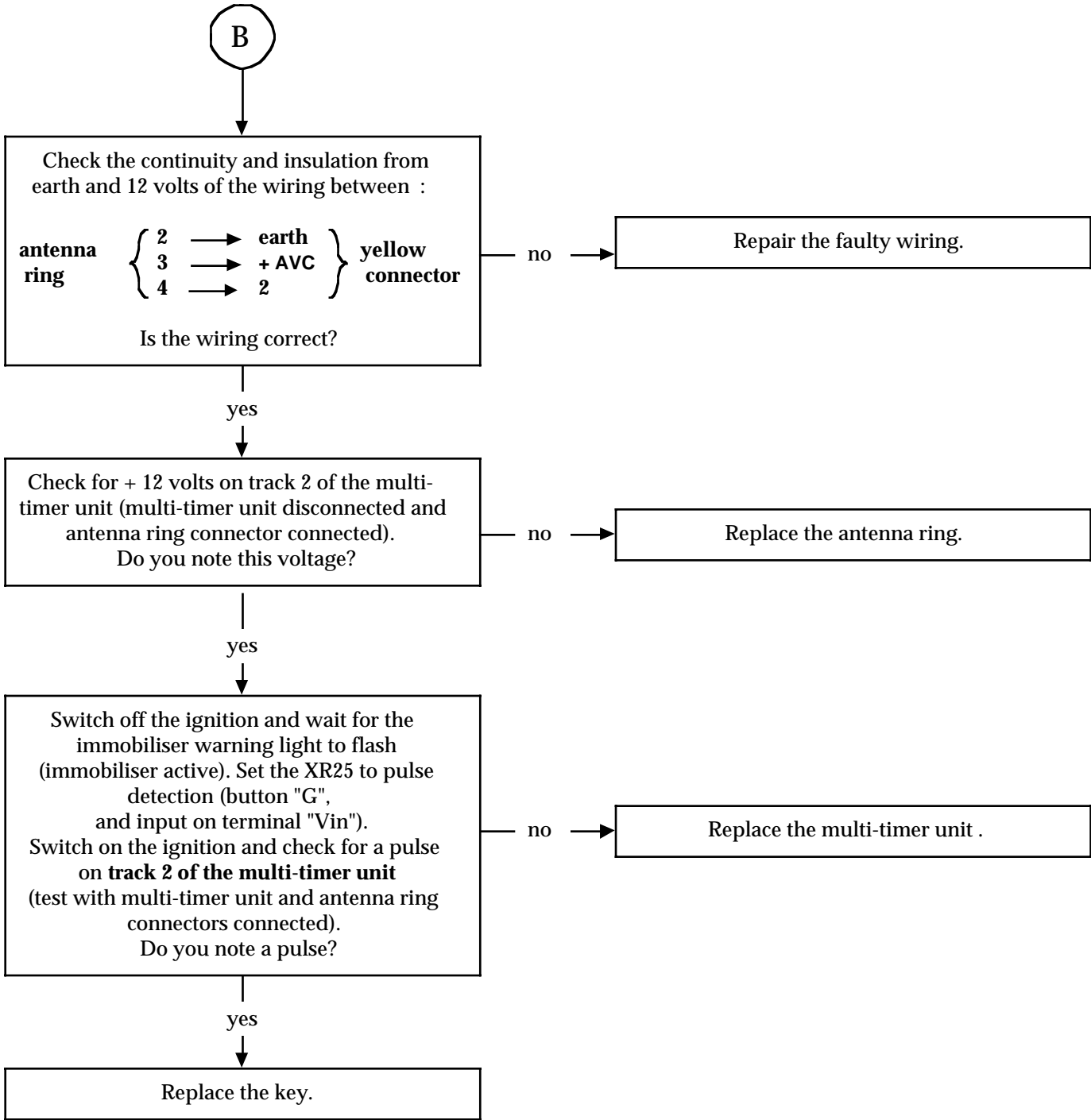
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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Chart 2 CONT 1	
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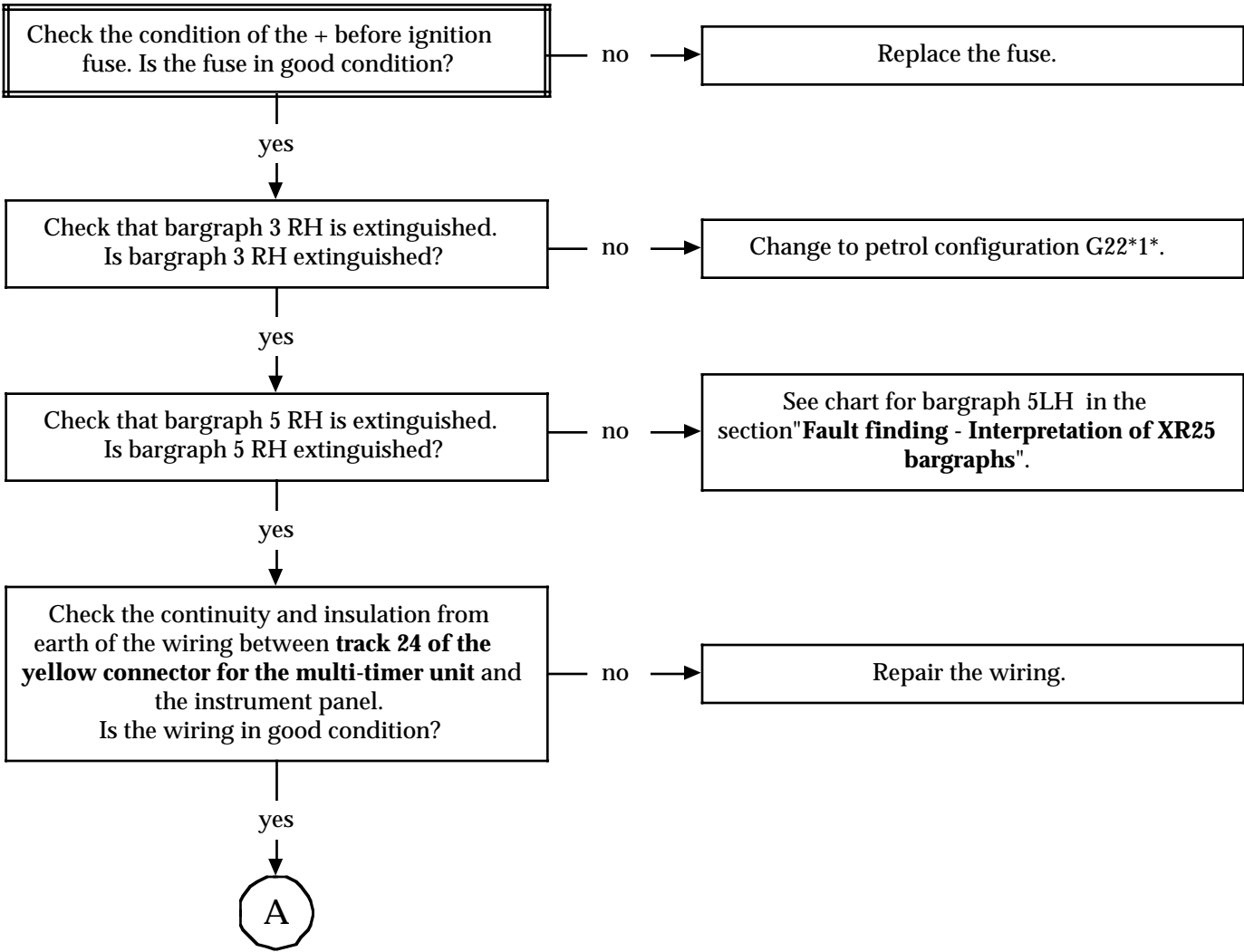
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
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Chart 2  
CONT 2



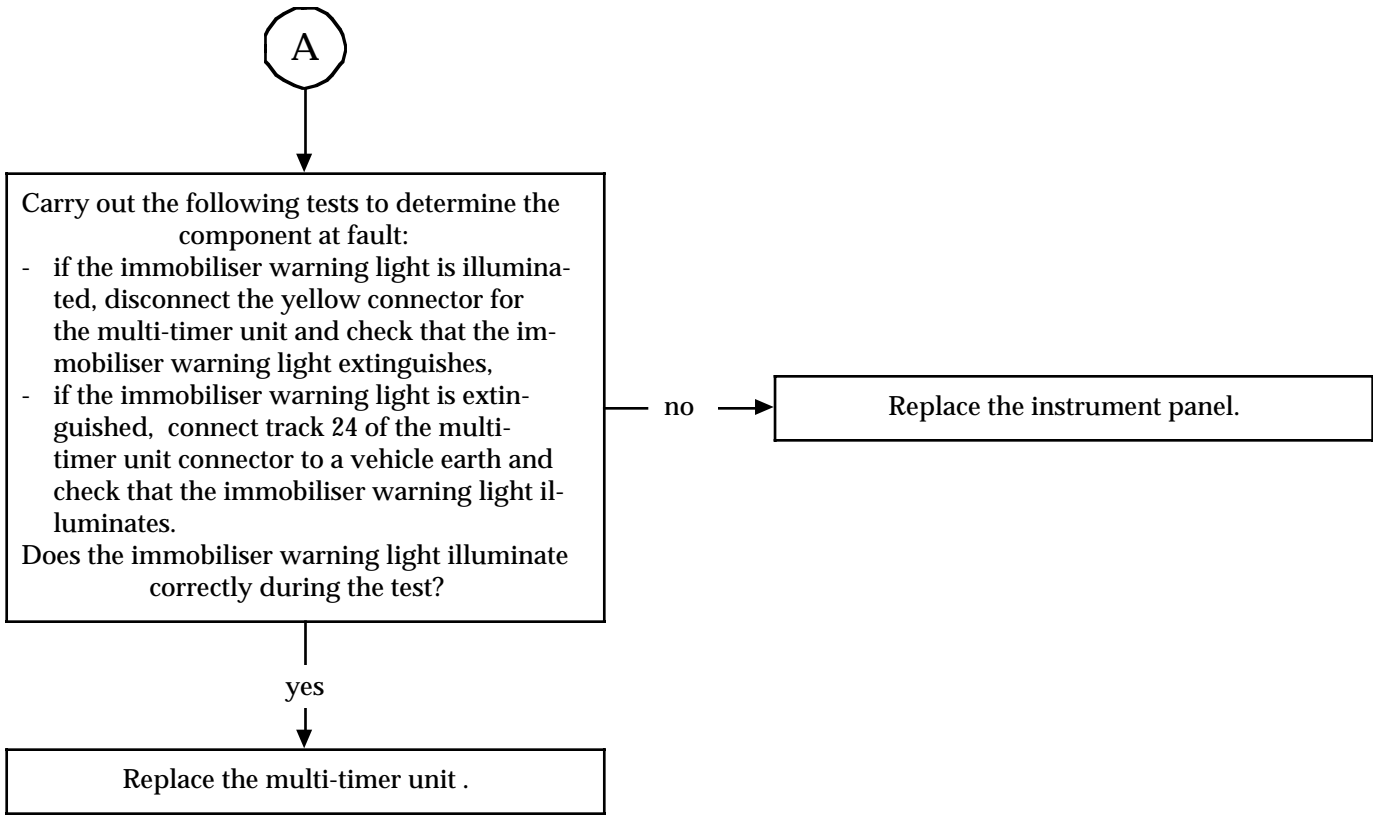
**AFTER REPAIR**      Carry out a conformity check.  
Check the operation of the immobiliser system.

Chart 3	THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED (even with the ignition off) OR REMAINS EXTINGUISHED
NOTES	Check that the multi-timer programming has been correctly carried out.



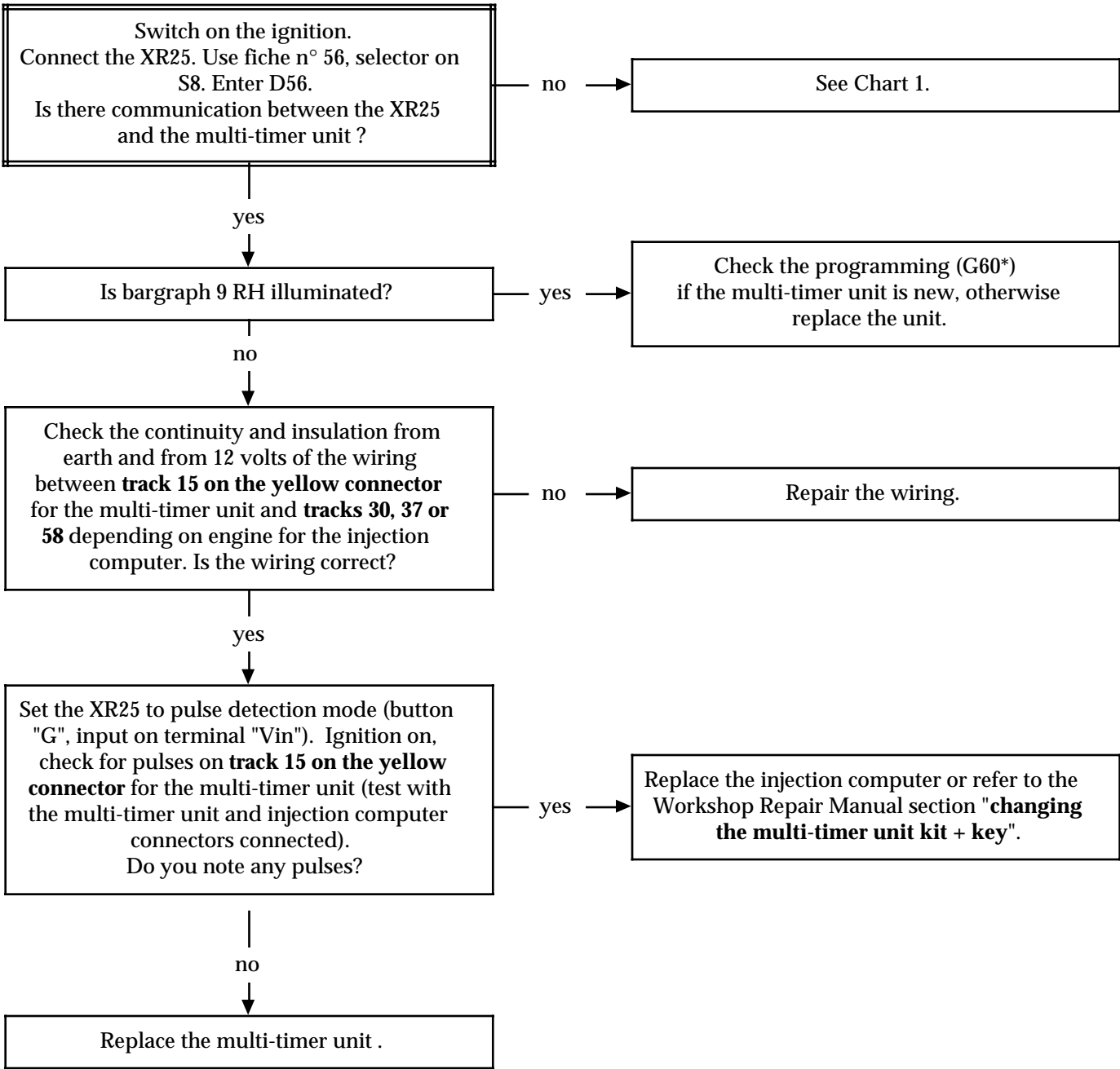
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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Chart 3 CONT	
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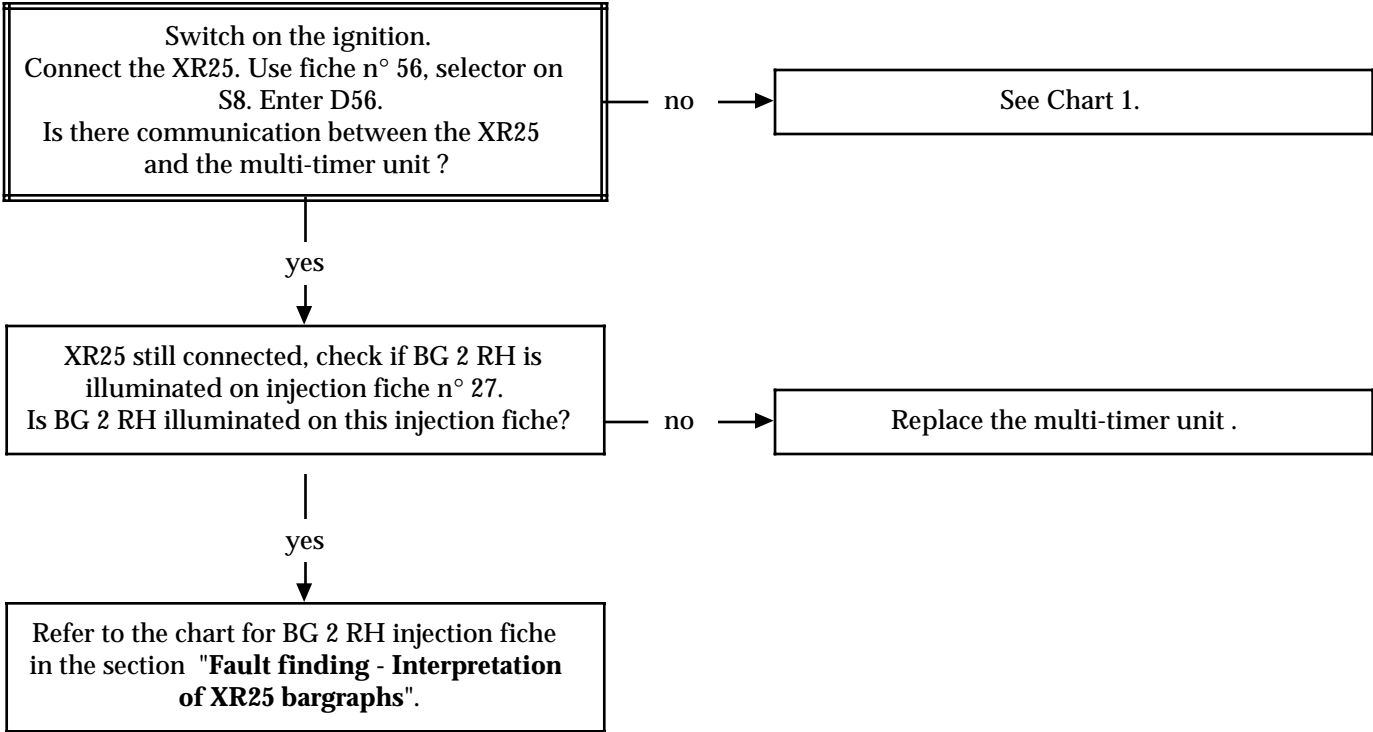
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
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Chart 4	IGNITION ON, THE INJECTION WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)
NOTES	None



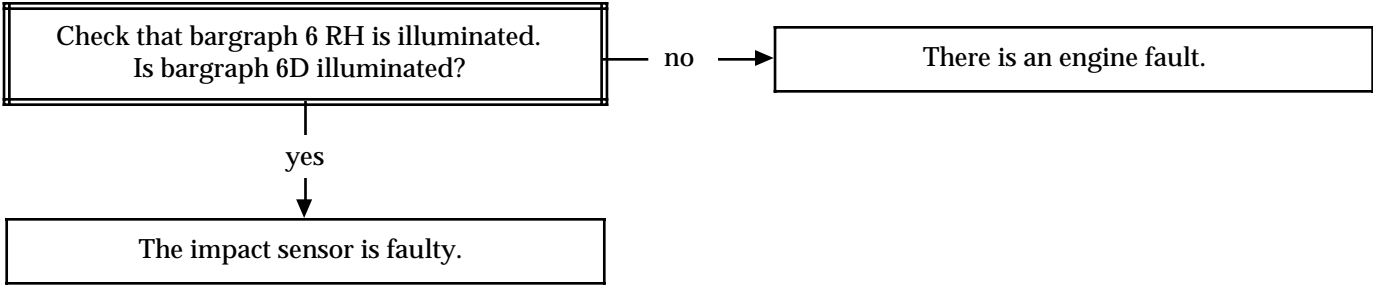
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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Chart 5	WHEN DRIVING (deceleration) AND AT IDLE SPEED, THE INJECTION WARNING LIGHT FLASHES PERMANENTLY
NOTES	None



AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
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Chart 6	THE VEHICLE CANNOT BE STARTED
NOTES	None



AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
--------------	---



NOTES	Only consult these customer complaints after a complete check using the XR25
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NO XR25 / MULTI-TIMER UNIT COMMUNICATION	Chart 1
IGNITION ON, THE IMMOBILISER WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)	Chart 2
THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED FOR MORE THAN 30 CONSECUTIVE SECONDS, IGNITION ON (the immobiliser warning light illuminates permanently as soon as the ignition is switched on, in the 16 seconds following switching on the ignition or the immobiliser warning light illuminates permanently for more than 30 consecutive seconds)	Chart 3
WHEN THE IGNITION IS SWITCHED ON, THE IMMOBILISER WARNING LIGHT ILLUMINATES FOR 3 SECONDS THEN EXTINGUISHES, BUT THE VEHICLE CANNOT BE STARTED	Chart 4
THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED (even with the ignition off) OR REMAINS EXTINGUISHED	Chart 5
THE INJECTION AND IMMOBILISER WARNING LIGHTS ARE ILLUMINATED (3 seconds ON then OFF) BUT THE VEHICLE CANNOT BE STARTED	Chart 6

Chart 1	NO XR25 / MULTI-TIMER UNIT COMMUNICATION
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NOTES	Lines L and K are used by several computers which may disrupt them. If the fault persists, it may be advisable to check that lines L and K are not being affected.
-------	--

Check the condition of the + before ignition fuse.  
Replace the fuse if necessary.



Ensure that the XR25 is not the cause of the fault by trying to communicate with another computer on the vehicle (air conditioning computer, injection computer,...).

Check that the ISO interface is in position **S8**, that you are using the latest XR25 cassette and the correct access code (**D 56**).

Check the battery voltage (**U > 10.5 volts**). Recharge the battery if necessary.



Check that the 18 track multi-timer unit connector is correctly connected.

Check that the multi-timer unit is correctly fed:

- earth on **track A1 of the black connector** for the multi-timer unit.
- + before ignition feed on **track B1 of the black connector** for the multi-timer unit.



Ensure the diagnostic socket is correctly fed.

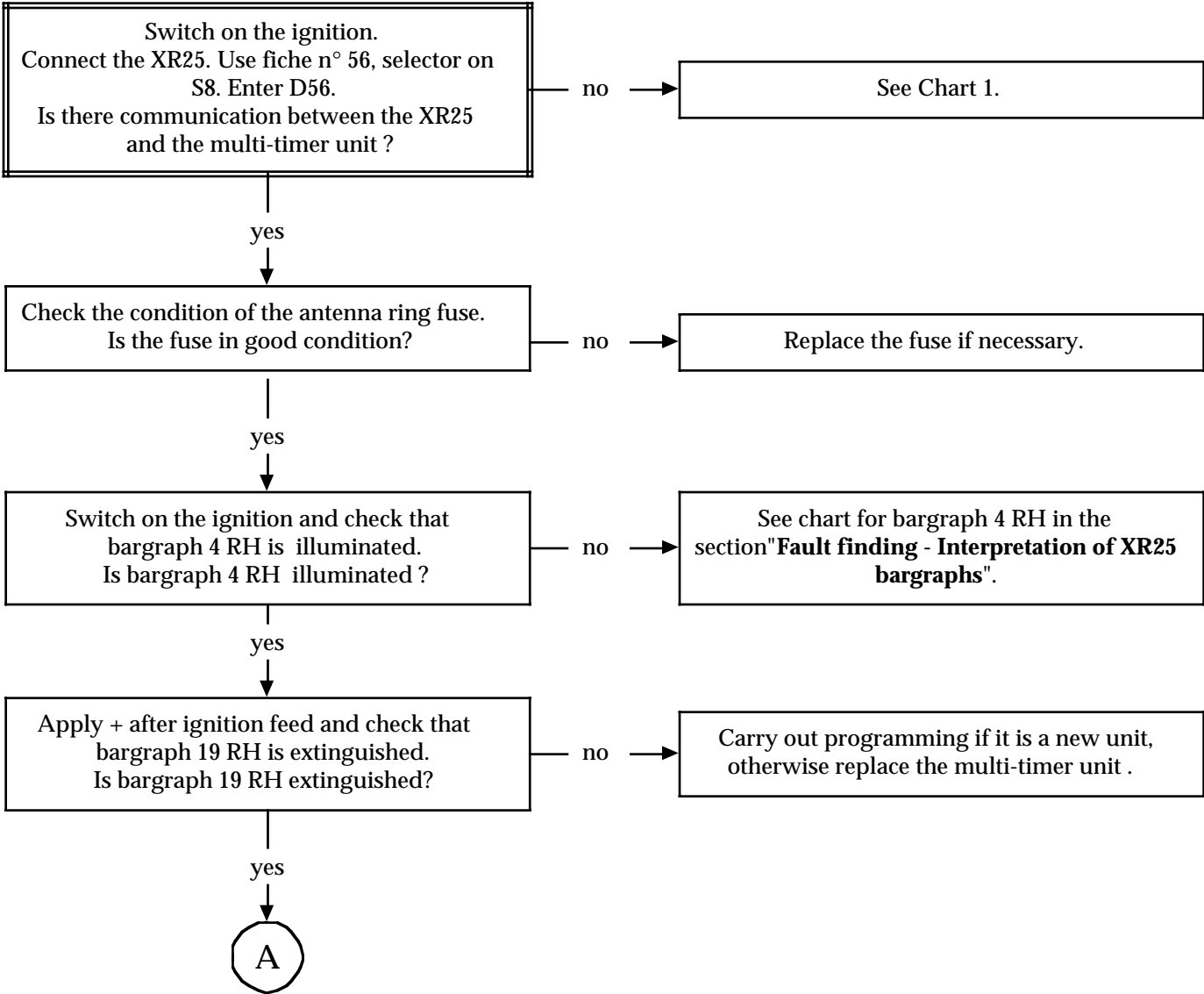
Check and ensure the continuity and insulation of the wiring for tracks **1 and 14 of the yellow connector** for the multi-timer unit.



If there is still no dialogue between the XR25 and the multi-timer unit, replace the multi-timer unit.

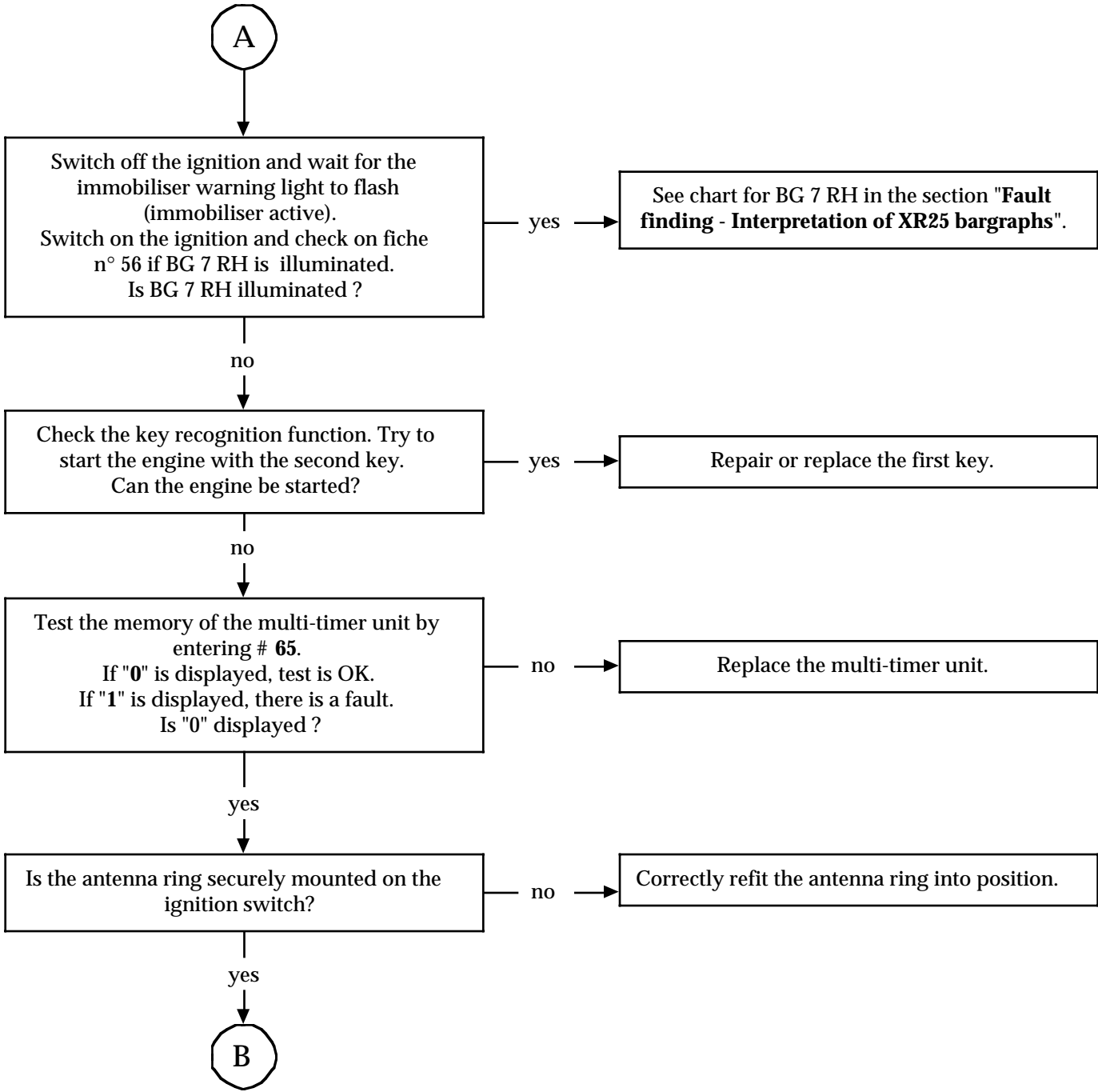
AFTER REPAIR	When communication has been established, deal with any illuminated fault bargraphs. Carry out a conformity check.
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Chart 2	IGNITION ON, THE IMMOBILISER WARNING LIGHT FLASHES PERMANENTLY (starting is impossible)
NOTES	None



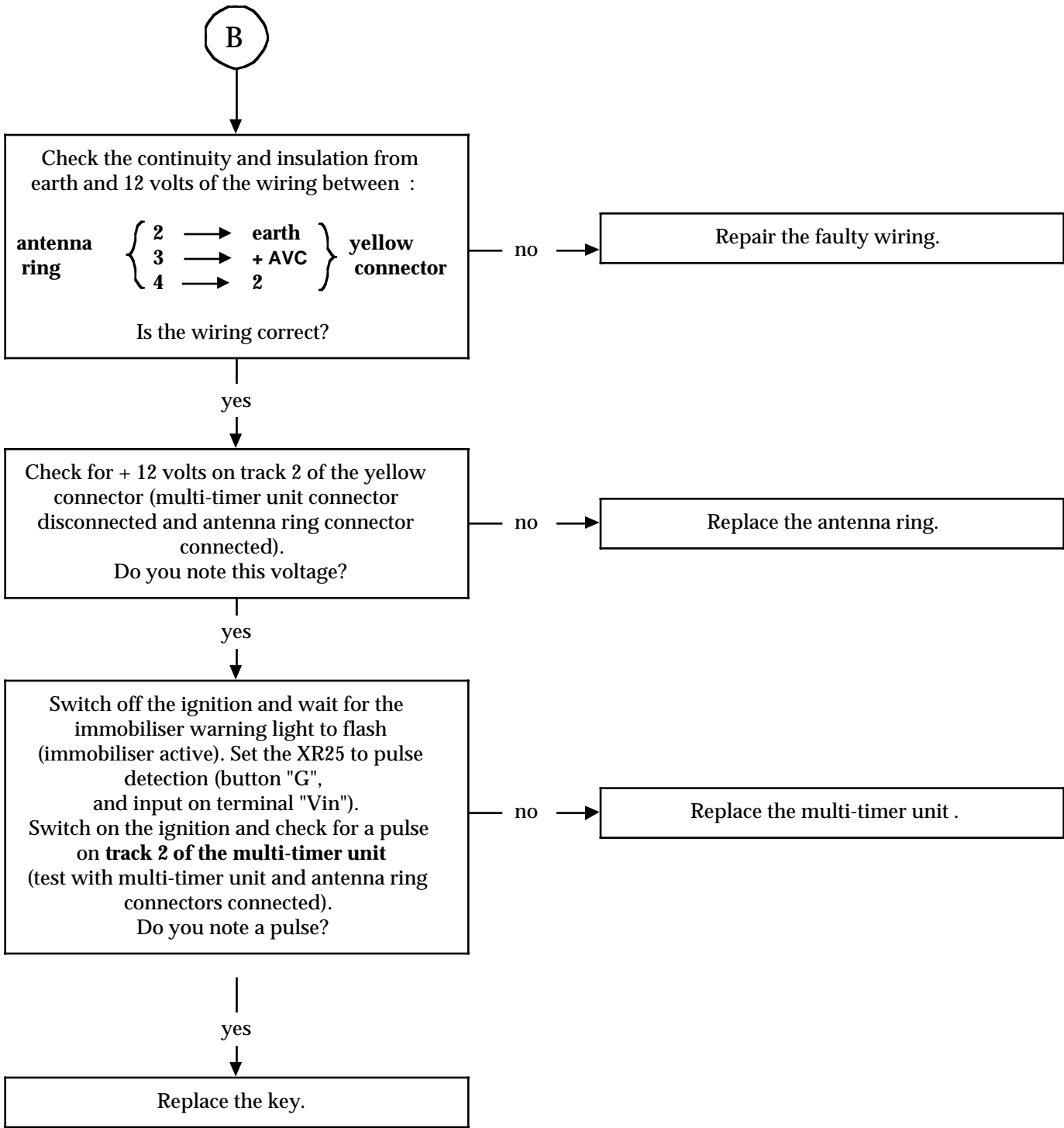
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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Chart 2 CONT 1	
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AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
--------------	---

Chart 2  
CONT 2

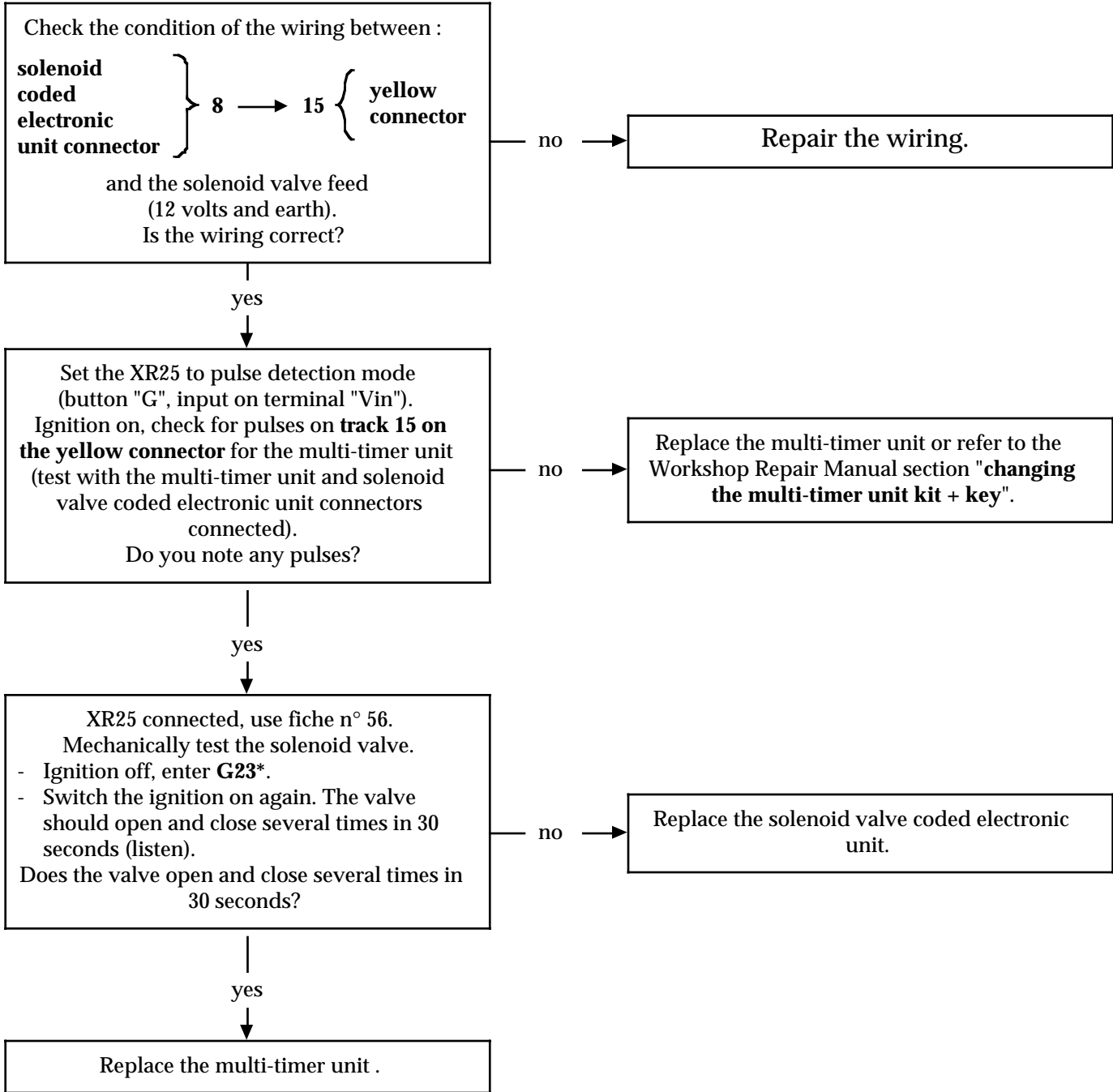


AFTER REPAIR

Carry out a conformity check.  
Check the operation of the immobiliser system.

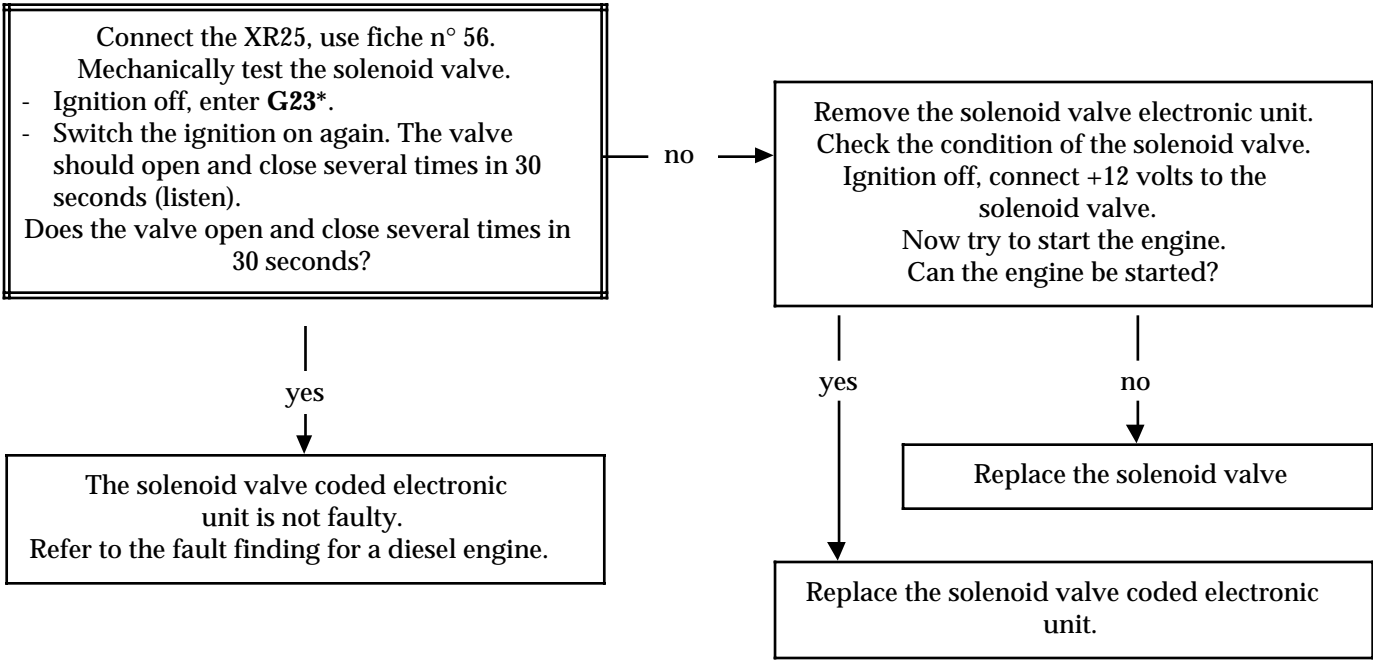
Chart 3	THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED FOR MORE THAN 30 CONSECUTIVE SECONDS, IGNITION ON (the immobiliser warning light illuminates permanently as soon as the ignition is switched on, in the 16 seconds following switching on the ignition or the immobiliser warning light illuminates permanently for more than 30 consecutive seconds)
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NOTES	None
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AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
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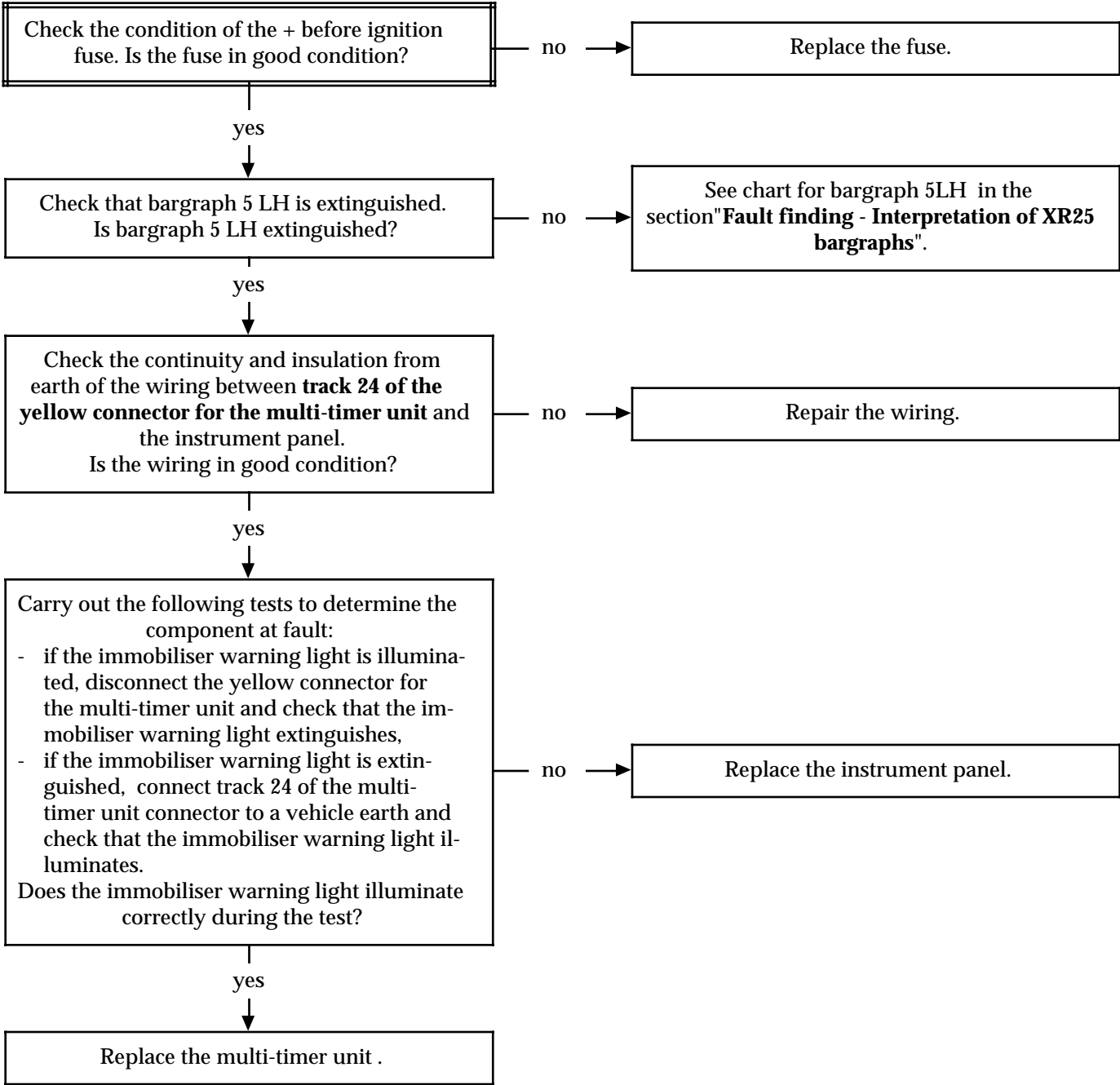
Chart 4	WHEN THE IGNITION IS SWITCHED ON, THE IMMOBILISER WARNING LIGHT ILLUMINATES FOR 3 SECONDS THEN EXTINGUISHES, BUT THE VEHICLE CANNOT BE STARTED
NOTES	None



AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
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Chart 5	THE IMMOBILISER WARNING LIGHT REMAINS ILLUMINATED (even with the ignition off) OR REMAINS EXTINGUISHED
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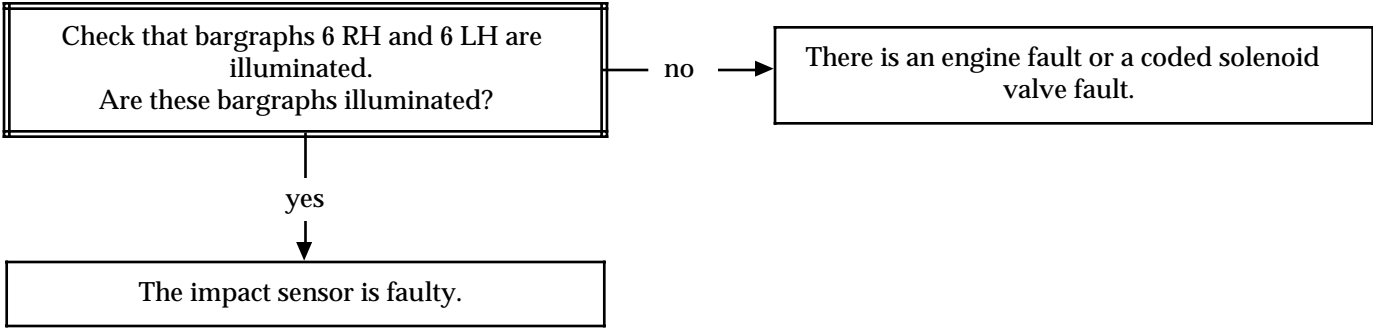
NOTES	Check that the multi-timer programming has been correctly carried out.
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AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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Chart 6	THE VEHICLE CANNOT BE STARTED
NOTES	None

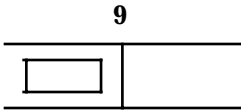
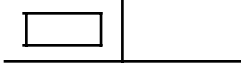
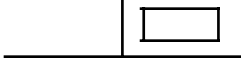
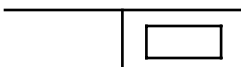


AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system. Erase the faults using G0**.
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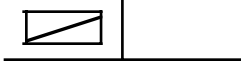
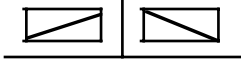
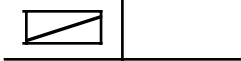
NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D56 (selector on S8)		<div>n.56</div>
2			<div>1</div> <div><div></div><div></div></div>	Code present
3	Conformity of multi-timer unit	G70*		<div>X X X</div> <div>Part Number displayed in 2 sequences</div>
4	Interpretation of bargraphs normally illuminated		<div>3</div> <div><div></div><div></div></div>	Illuminated if programmed for both keys Extinguished if programmed for one key
5	Computer configuration to petrol / diesel		<div>3</div> <div><div></div><div></div></div>	Illuminated if configured for a diesel vehicle with coded solenoid valve. Extinguished if configured for a petrol vehicle Command : <ul style="list-style-type: none"><li>- G22*1* petrol configuration.</li><li>- G22*2* configuration for diesel with coded solenoid valve</li></ul>

NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
6	Forced protection mode			Illuminated only after entering command <b>G04*</b> on the XR25. Vehicle cannot be started as long as <b>BG 9LH</b> is illuminated.
7	Immobiliser status			Illuminated if immobiliser active : switch off the ignition and wait approximately 10 seconds for the <b>BG 10LH</b> to illuminate. Extinguished if immobiliser inactive.
8	Presence of the key			Illuminated when the ignition is switched on if the key is coded (on condition that the vehicle was protected before the ignition was switched on, immobiliser warning light flashing). <b>NOTE</b> : in normal operation, <b>bargraphs 8RH, 9 RH and 10 RH</b> should be illuminated together.
9	Reception of key code			Illuminated when the ignition is switched on if the key is coded and has the correct format (on condition that the vehicle was protected before the ignition was switched on, immobiliser warning light flashing). <b>NOTE</b> : In normal operation , <b>bargraphs 8RH , 9RH and 10RH</b> should be illuminated together.

NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
10	Valid key code		<div>10</div> 	<p>Illuminated when the ignition is turned on if the key is coded and has the correct format and code (on condition that the vehicle was protected before the ignition was turned on, immobiliser warning light flashing).</p> <p><b>NOTE:</b> In normal operation <b>bargraphs 8RH, 9RH and 10RH</b> should be illuminated together.</p>
11	Reception of door switch information		<div>11</div> 	<p>Illuminated if the doors are open</p>
12	Information received on programming in progress or resynchronisation of decoder or programming not carried out		<div>12</div> 	<p>17LH illuminated if programming or resynchronisation in progress. 17RH illuminated if programming not carried out</p>
13	Programming of 1st key information received		<div>13</div> 	<p>Illuminated if programming of 1st key in progress</p>

NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
14	Reception of door switch information		<div>14</div> <div><div></div><div></div></div>	Illuminated if multi-timer unit has not been programmed with any keys.
	Reception of programming not locked information		<div>14</div> <div><div></div><div></div></div>	Illuminated when programming has not been locked by command G60*.
15	Reception of information that security code input is blocked for a timed period		<div>15</div> <div><div></div><div></div></div>	Illuminated after entering 3 incorrect security codes (antiscanning) Wait for this bargraph to extinguish with the ignition on (approximately 15 minutes) before entering a new code.

## ADDITIONAL CHECKS

## COMMAND MODES G--\*

To use this function, enter G on the XR25 , then the number of the command followed by a star.

- 04** Forced protection mode : activates the immobiliser function even if the key is correct, which allows starting prevention to be checked. Bargraph 9 left should illuminate.  
This command must be entered when the ignition is off and the immobiliser function is active.  
**IMPORTANT:** switching the ignition off cancels this command.
- 05** Immobiliser warning light command (illuminates immobiliser warning light for 3 seconds ).
- 13** End of fault finding.
- 22** Configuration :  
- **G 22 \* 1 \*** = configuration for petrol vehicles (Bargraph 3RH should be extinguished).  
- **G 22 \* 2 \*** = configuration for diesel vehicles with coded solenoid valve (Bargraph 3RH should be illuminated).
- 23** Forced solenoid valve test mode (used only on diesel vehicles).  
Activates coded solenoid valve (opening/closing) for approximately 30 seconds (listen).  
**NOTE:**  
- the multi-timer unit must be configured for a diesel vehicle  
- Bargraph 8 left should be illuminated during the test.
- 40** Entering the security code (Bargraph 10 LH must be illuminated and the ignition must be on).  
This command mode may be used to enter the security code, but does not decode the injection computer or the coded solenoid valve.  
Enter the emergency code number for the vehicle on the XR25 and validate with "\*".  
If the code number is correct, "**bon**" is displayed on the XR25 and Bargraph 10 LH extinguishes.  
If the code number is incorrect, "**Fin**" is displayed on the XR25 and Bargraph 10 LH remains illuminated.  
  
**IMPORTANT:** **three attempts** may be made to enter the code. If, after the third attempt, the code is not valid, you must wait for **15 minutes** before another attempt may be made (between each attempt to enter the code, the ignition must be switched off and on again).
- 70** Reading the Part Number (multi-timer unit reference).

# MULTI-TIMER UNIT

## FAULT FINDING

### CONTENTS

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## INSTALLATION OF XR25 / MULTI-TIMER UNIT (BMT) DIALOGUE

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

2n.57

## PRECAUTION

When carrying out the test using a multimeter, avoid using a test pin on connectors where the test pin is of a size which could damage the clips and lead to a poor contact.

## ERASING THE MEMORY

After repairing the multi-timer unit, enter **G0\*\*** on the keyboard of the XR25 kit to proceed with erasing the memorised fault.




## PRESENTATION OF XR25 FICHE N° 57

N°57		read : 2057	
1		CODE PRESENT <input type="checkbox"/>	
2	OVERSPEED ARABIE <input type="checkbox"/>	<b>CONTROL MODES : G...*</b>  03 Interior light 17 Dipped beam 18 Bulbs 19 Indicator 11 Door tell-tale 08 Doors unlocking 09 Doors locking 28 Front screen wiper 29 Rear screen wiper 12 Lights 'on' warning  24 Driver's window lower 25 Driver's window raise 05 Immobiliser tell-tale 33 Headlamp washer 37 Buzzer 06 Open signal 07 Close signal 38 Plus after ignition	
3	COMPUTER CONFIGURATION		
4	RUNNING-LIGHT <input type="checkbox"/> VARIABLE FR. WIPER SPEED <input type="checkbox"/>		
5	DRIVER'S WINDOW RISER <input type="checkbox"/> RELAY <input type="checkbox"/>		
6	LOCKING <input type="checkbox"/> UNLOCKING <input type="checkbox"/>		
7	REAR WASH/WIPE button <input type="checkbox"/> FRONT <input type="checkbox"/>		
8	OIL PRESSURE <input type="checkbox"/> SIDE LIGHTS <input type="checkbox"/>		
9	LOWER WINDOW RISER button <input type="checkbox"/> RAISE <input type="checkbox"/>		
10	+ ACCESSORIES DEPENDING ON VERSION <input type="checkbox"/> + AFTER IGNITION <input type="checkbox"/>		
<b>MULTI-TIMER UNIT</b>  To read other side : G 0 1 * Erase fault memory : G 0 **			
11	OVERSPEED <input type="checkbox"/>	<b>ADDITIONAL CHECKS : # ..</b>  01 Vehicle speed km/h 02 Battery voltage V 04 Screen wiper timer switch position 14 Equipment level	
12	REAR WASH/WIPE <input type="checkbox"/> FRONT WASH/WIPE <input type="checkbox"/>		
13	RAISE driver's window riser <input type="checkbox"/> LOWER <input type="checkbox"/>		
14	FRONT wiper speed <input type="checkbox"/> screen wiper park front <input type="checkbox"/>		
15	REAR wiper speed <input type="checkbox"/> screen wiper park rear <input type="checkbox"/>		
16	SIDELIGHTS <input type="checkbox"/> DIPPED <input type="checkbox"/>		
17	REVERSE GEAR LIGHTING CTRL <input type="checkbox"/> MAIN BEAM <input type="checkbox"/>		
18	HAZARD <input type="checkbox"/> INDICATOR <input type="checkbox"/>		
19	CONTROL CLUTCH (if control. clutch/lever in 3 and accelerate) <input type="checkbox"/>		
20	OIL PRESSURE ( <input type="checkbox"/> ) engine running <input type="checkbox"/>		
		17 ANG	


FI21757

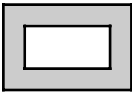
DESCRIPTION OF BARGRAPHS

- 
- Illuminates when dialogue is established with the product computer**, if it remains extinguished :

  - the code does not exist,
  - there is a line , computer or tool fault.

REPRESENTATION OF FAULTS (always on coloured background)

- 
- Illuminated**, indicates a fault on the part tested, the associated text defines the fault.

- 
- Extinguished**, indicates non-detection of fault on the product tested.

REPRESENTATION OF STATUS (always on white background)

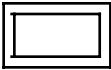
Engine stopped, ignition on, no operator action

Status Bargraphs on the fiche are shown as they should appear, engine stopped, ignition on, without operator action


- If on the fiche, the Bargraph is shown as

- If on the fiche, the Bargraph is shown as


- If on the fiche, the Bargraph is shown as




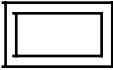
the kit should show

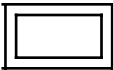

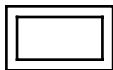


the kit should show




the kit should show



either  or 
- Engine running
- 

Extinguished when operation or condition specified on the fiche is no longer met.



Illuminated when operation or condition specified on the fiche is met.
- bmt1112.0
- 87-3

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH side illuminated</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 fuse .</div> <div>Replace it if necessary.</div>
<div>Connect the XR25 and enter <b>G24*</b> and <b>G25*</b>.</div> <div>The electric window relays should click.</div> <div>Do the relays click?</div>

NO	Replace the faulty relay/s. If the fault persists, replace the multi-timer unit.
----	--

YES	<div>Disconnect the <b>blue 26 track connector</b> and press the electric window button to raise the window.</div> <div>Check for the presence of 12 V on track <b>1 of the connector</b> and 0 V on track <b>2 of the connector</b>.</div> <div>Is this correct?</div>
NO	<div>Check the continuity of the wiring between the relays and the electric window motor.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the electric window button.</div>
YES	Replace the electric window motor.

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

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 RH side illuminated</div> <div>Fiche n° 57</div> <div>RELAYS</div>
--	--

NOTES	Check that bargraph 10 RH is illuminated (+after ignition feed present)
-------	---

Check the correct operation of each component in the multi-timer unit.

If a component is not operating correctly, connect the XR25 and enter the command mode for the faulty component

- G08\* for door unlocking,
- G09\* for door locking,
- G17\* for the dipped headlights,
- G18\* for the side lights,
- G19\* for the hazard warning lights,
- G24\* for lowering the driver's electric window,
- G25\* for raising the driver's electric window,
- G28\* for the front wiper,
- G29\* for the rear wiper,
- G33\* for the headlight washers,
- G38\* for + after ignition feed.

When the command mode for each component is entered, the corresponding relay should click.

If a relay does not click, replace it.

If the fault persists, replace the multi-timer unit.

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
--------------	---

<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 LH side illuminated</div> <div>Fiche n° 57</div> <div><u>DOOR LOCKING</u></div>
--	---

<div>NOTES</div>	<div>Check that bargraph 5 RH is extinguished, otherwise deal with that bargraph first.</div>
------------------	---

<div>Check the insulation in relation to earth of the wiring between <b>track 7 of the yellow connector</b> for the multi-timer unit and track <b>1 of the door locking button</b>.</div> <div>Repair the faulty wiring if necessary.</div>
<div>Replace the door locking button.</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 the system operates correctly.</div>
-------------------------	--

<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 RH side illuminated</div> <div>Fiche n° 57</div> <div><u>DOOR UNLOCKING</u></div>
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<div>NOTES</div>	<div>Check that bargraph 5 RH is extinguished, otherwise deal with that bargraph first.</div>
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<div>Check the insulation in relation to earth of the wiring between <b>track 22 of the yellow connector</b> for the multi-timer unit and track <b>5 of the door locking button</b>.</div> <div>Repair the faulty wiring if necessary.</div>
<div>Replace the door locking button.</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 the system operates correctly.</div>
-------------------------	--

<div>7</div> <div><div></div><div></div></div>	<div>Bargraph 7 LH side illuminated</div> <div>Fiche n° 57</div> <div><u>REAR SCREEN WASHER</u></div>
--	---

NOTES	None
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<div>Check the insulation from 12 Volts of the wiring between :</div> <div><div>wiper stalk</div><div><div>{</div><div>B1 → 16</div><div>B1 → B1</div></div><div><div>yellow connector for the multi-timer unit</div><div>washer pump</div></div></div> <div>Repair the faulty wiring.</div>
<div>Check for the presence of 12 V on track <b>B1 of the wiper stalk</b> when the rear washer is activated.</div> <div>Replace the stalk if you do not note 12 V.</div>
<div>Check that the washer pump is operating by supplying it directly with 12 V on track <b>B1</b>.</div> <div>Replace the pump if necessary.</div>
<div>Check the condition of the wiring between track <b>A1 on the pump</b> and track <b>A4 on the wiper stalk</b>.</div> <div>Repair the wiring if necessary.</div>
<div>If the fault persists, replace the multi-timer unit.</div>

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

7

Bargraph 7 RH side illuminated

Fiche n° 57

WINDSCREEN WASHER

NOTES	None
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Check the insulation from 12 V of the wiring between :

wiper stalk

A4

A4

→

→

3

A1

yellow connector for the multi-timer unit

washer pump

Repair the wiring if necessary.

Check for the presence of 12 V on track **A4 of the wiper stalk** when the windscreen washer is activated.  
Replace the stalk if you do not note 12 V.

Check that the washer pump is operating by supplying it directly with 12 V on track **A1**.  
Replace the pump if necessary.

Check the condition of the wiring between track **B1 on the pump** and track **B1 on the wiper stalk**.  
Repair the wiring if necessary.

If the fault persists, replace the multi-timer unit.

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 LH side illuminated</div> <div><u>OIL PRESSURE</u></div>	<div>Fiche n° 57</div>
--	--	------------------------

<div>NOTES</div>	<div>None</div>
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<div>Check the insulation from earth of the wiring between track <b>1 on the oil pressure switch</b> and track <b>20 of the yellow connector</b> for the multi-timer unit.</div> <div>Repair the wiring if necessary.</div>
<div>Replace the the oil pressure 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 the system operates correctly.</div>
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 RH side illuminated</div> <div>Fiche n° 57</div> <div><u>DIPPED HEADLIGHTS</u></div>
--	--

<div>NOTES</div>	<div>Check that bargraph 5 RH is extinguished, otherwise deal with that bargraph first.</div>
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<div>Check the continuity and insulation from 12 V of the wiring between track <b>B5 on the lights stalk</b>, the <b>left and right hand headlights</b> and between <b>track B5 and track 6 of the blue connector</b> for extreme cold versions.</div> <div>Repair if necessary.</div>
--

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check the system operates correctly.</div>
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<div>9</div> <div><div></div><div></div></div>	<div>Bargraph 9 LH side illuminated</div> <div>Fiche n° 57</div> <div><u>DRIVER'S ELECTRIC WINDOW LOWER</u></div>
--	---

<div>NOTES</div>	<div>None</div>
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<div>Check that the button is not jammed in the lower position.</div> <div><div>- If it is, release or replace the button.</div><div>- If it is not jammed, refer to the chart for bargraph 13 RH side.</div></div>
---

<div>AFTER REPAIR</div>	<div>Enter G0** on the XR25.</div> <div>Check the system operates correctly.</div>
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<div>9</div> <div><div></div><div></div></div>	<div>Bargraph 9 RH side illuminated</div> <div>Fiche n° 57</div> <div><u>DRIVER'S ELECTRIC WINDOW RAISE</u></div>
--	---

NOTES	None
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<div>Check that the button is not jammed in the raise position.</div> <div><div>- If it is, release or replace the button.</div><div>- If it is not jammed, refer to the chart for bargraph 13 LH side.</div></div>
---

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check the system operates correctly.</div>
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<div>10</div>	<b>Bargraph 10 LH side extinguished or permanently illuminated</b> Fiche n° 57 <u>ACCESSORIES CIRCUIT</u>
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NOTES	None
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The bargraph is permanently illuminated with no action at the ignition switch.

Check for the presence of 12 V on track **5 of the yellow connector** for the multi-timer unit.  
Is there 12 V ?

YES	Check the insulation from 12 V of the wiring between the <b>ignition switch</b> and track <b>5 of the yellow connector</b> . Repair if necessary. If the fault persists, replace the ignition switch.
NO	Replace the multi-timer unit.

The bargraph is permanently extinguished with no action at the ignition switch.

Check for the presence of 12 V on track **5 of the yellow connector** for the multi-timer unit when starting.  
Is there 12 V ?

YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.

Check the continuity and insulation from earth of the wiring between :

fuse BP 13

yellow connector

1

5

→

→

4

3

ignition switch

ignition switch

Is the wiring correct?

YES	Replace the ignition switch.
NO	Repair the faulty wiring.

If the fault persists, replace the multi-timer unit.

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
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<div>10</div> <div><div></div><div></div></div>	<div>Bargraph 10 RH side extinguished or permanently illuminated</div> <div>Fiche n° 57</div> <div><u>AFTER IGNITION FEED</u></div>
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<div>NOTES</div>	<div>None</div>
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<div>The bargraph is permanently illuminated, ignition switch in off position.</div>	
<div>Check for the presence of 12 V on track <b>6 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there 12 V ?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation from 12 V of the wiring between track <b>6 of the yellow connector</b> and track <b>1 of the ignition switch</b>.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the ignition switch.</div>

<div>The bargraph remains extinguished after + after ignition feed is applied.</div>	
<div>Check for the presence of 12 V on track <b>6 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there 12 V ?</div>	
<div>YES</div>	<div>Replace the multi-timer unit.</div>
<div>NO</div>	<div>Check the condition of fuse F2.</div> <div>Replace it if necessary.</div>
<div>Check the continuity and insulation from earth of the wiring between :</div> <div><div><div><div>fuse BP 13</div><div>yellow connector</div></div><div><div>1</div><div>6</div></div><div><div>→</div><div>→</div></div><div><div>4</div><div>1</div></div><div><div>ignition switch</div><div>ignition switch</div></div></div></div>	
<div>Is the wiring correct?</div>	
<div>NO</div>	<div>Repair the faulty wiring.</div>
<div>YES</div>	<div>Replace the ignition 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 the system operates correctly.</div>
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<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 LH side extinguished or permanently illuminated Fiche n° 57</div> <div><u>OVERSPEED CIRCUIT</u></div>
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<div>NOTES</div>	<div>Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first (Arabia equipment only).</div>
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<div>The bargraph is permanently illuminated with no action on the overspeed switch.</div>	
<div>Check for the presence of 12 V on track <b>10 of the blue connector</b> for the multi-timer unit.</div> <div>Is there 12 V ?</div>	
<div>NO</div>	<div>Replace the multi-timer unit.</div>
<div>YES</div>	<div>Check the insulation from 12 V of the wiring between <b>the overspeed switch</b> and track <b>10 of the blue connector</b> .</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the overspeed switch.</div>

<div>The bargraph remains extinguished when the overspeed programming switch is pressed.</div>	
<div>Check for the presence of 12 V on track <b>10 of the blue connector</b> for the multi-timer unit.</div> <div>Is there 12 V ?</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 from earth of the wiring between :</div> <div><div><div><div>fuse BP 13</div><div>blue connector</div></div><div><div>1</div><div>10</div></div><div><div>————→</div><div>————→</div></div><div><div>overspeed switch</div><div>overspeed switch</div></div></div></div>	
<div>Is the wiring correct?</div>	
<div>NO</div>	<div>Repair the faulty wiring.</div>
<div>YES</div>	<div>Replace the overspeed 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 the system operates correctly.</div>
-------------------------	--

<div>12</div> <div></div>	<b>Bargraph 12 LH side extinguished or permanently illuminated</b> Fiche n° 57 <u>REAR WIPER CIRCUIT</u>
---	---

<b>NOTES</b>	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
--------------	---

The bargraph is permanently illuminated with no action at the rear wiper stalk.	
Check for the presence of 12 V on track <b>16 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between track <b>16 of the yellow connector</b> and track <b>B1 of the stalk</b> . Repair if necessary.  If the fault persists, replace the rear wiper stalk.

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

<b>AFTER REPAIR</b>	Enter G0** on the XR25. Check the system operates correctly.
---------------------	---



12


Bargraph 12 RH side extinguished or permanently illuminated Fiche n° 57  
WINDSCREEN WIPER CIRCUIT

NOTES	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
-------	---

The bargraph is permanently illuminated with no action at the windscreen wiper stalk.	
Check for the presence of 12 V on track <b>3 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between track <b>3 of the yellow connector</b> and track <b>A4 on the stalk</b> . Repair if necessary.  If the fault persists, replace the windscreen wiper stalk.

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

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
--------------	---

<div>13</div> <div></div>	<b>Bargraph 13 LH side extinguished or permanently illuminated</b> Fiche n° 57 <u>ONE-TOUCH WINDOW BUTTON IN RAISE POSITION</u>
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<b>NOTES</b>	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first and check that bargraph 5 RH is extinguished.
--------------	---

The bargraph is permanently illuminated with no action on the electric window switch.	
Check for the presence of 0 V on track <b>1 of the blue connector</b> for the multi-timer unit. Is there 0 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from earth of the wiring between track <b>1 of the blue connector</b> and track <b>2 of the switch</b> . Repair if necessary.  If the fault persists, replace the electric window switch.

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

<b>AFTER REPAIR</b>	Enter G0** on the XR25. Check the system operates correctly.
---------------------	---


<div>13</div> <div><div></div><div></div></div>	<b>Bargraph 13 RH side extinguished or permanently illuminated</b> Fiche n° 57 <u>ONE-TOUCH WINDOW BUTTON IN LOWER POSITION</u>
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<b>NOTES</b>	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first and check that bargraph 5 RH is extinguished.
--------------	---

The bargraph is permanently illuminated with no action on the electric window switch.	
Check for the presence of 0 V on track <b>2 of the blue connector</b> for the multi-timer unit. Is there 0 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from earth of the wiring between track <b>2 of the blue connector</b> and track <b>6 of the switch</b> . Repair if necessary.  If the fault persists, replace the electric window switch.

The bargraph remains extinguished when the switch is pressed.	
Check for the presence of 0 V on track <b>2 of the blue connector</b> for the multi-timer unit. Is there 0 V ?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation from 12 V of the wiring between track <b>2 of the blue connector</b> and track <b>6 of the switch</b> . Repair if necessary.
If the fault persists, replace the electric window switch.	

<b>AFTER REPAIR</b>	Enter G0** on the XR25. Check the system operates correctly.
---------------------	---

14  


Bargraph 14 LH side extinguished or permanently illuminated Fiche n° 57  
WINDSCREEN WIPER TIMER

NOTES	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
-------	---

The bargraph is permanently illuminated with no action at the wiper stalk.	
Check for the presence of 12 V on track <b>18 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between track <b>18 of the yellow connector</b> and track <b>A1</b> of the wiper stalk. Repair the faulty wiring.

The bargraph remains extinguished when the wiper stalk is activated.																
Check for the presence of 12 V on track <b>18 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?																
YES	Replace the multi-timer unit.															
NO	Check the condition of fuse F4. Replace it if necessary.															
Check the continuity and insulation from earth of the wiring between :																
<table><tr><td><b>yellow connector</b></td><td><b>18</b></td><td><b>————→</b></td><td><b>A1</b></td><td><b>wiper stalk</b></td></tr><tr><td><b>wiper stalk</b></td><td><b>A3</b></td><td><b>————→</b></td><td><b>A1</b></td><td><b>wiper motor</b></td></tr><tr><td><b>wiper stalk</b></td><td><b>A6</b></td><td><b>————→</b></td><td><b>K3</b></td><td><b>relay</b></td></tr></table>		<b>yellow connector</b>	<b>18</b>	<b>————→</b>	<b>A1</b>	<b>wiper stalk</b>	<b>wiper stalk</b>	<b>A3</b>	<b>————→</b>	<b>A1</b>	<b>wiper motor</b>	<b>wiper stalk</b>	<b>A6</b>	<b>————→</b>	<b>K3</b>	<b>relay</b>
<b>yellow connector</b>	<b>18</b>	<b>————→</b>	<b>A1</b>	<b>wiper stalk</b>												
<b>wiper stalk</b>	<b>A3</b>	<b>————→</b>	<b>A1</b>	<b>wiper motor</b>												
<b>wiper stalk</b>	<b>A6</b>	<b>————→</b>	<b>K3</b>	<b>relay</b>												
Is the wiring correct?																
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 the system operates correctly.
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<div>14</div> <div> <div></div> <div></div> </div>	<div>Bargraph 14 RH side extinguished or permanently illuminated</div> <div>Fiche n° 57</div> <div>WINDSCREEN WIPER PARK</div>
--	--

NOTES	<div>Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first</div>
-------	--

The bargraph remains extinguished .	
<div>Check for the presence of 0 V on track <b>10 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there 0 V ?</div>	
YES	Replace the multi-timer unit.
NO	<div>Check the continuity and insulation in relation to 12 V of the wiring between track <b>10 of the yellow connector</b> and track <b>A2</b> of the wiper motor.</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the windscreen wiper motor.</div>

The bargraph remains illuminated and the wiper moves from its park position.	
<div>Check for the presence of 0 V on track <b>10 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there 0 V ?</div>	
NO	Replace the multi-timer unit.
YES	<div>Check the insulation from earth of the wiring between track <b>10 of the yellow connector</b> and track <b>A2</b> of the windscreen wiper motor.</div> <div>Repair if necessary.</div>
If the fault persists, replace the windscreen wiper motor.	

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

15  


Bargraph 15 LH side extinguished or permanently illuminated Fiche n° 57  
REAR WIPER TIMER

NOTES	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
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The bargraph is permanently illuminated without activation of the wiper stalk.	
Check for the presence of 12 V on track <b>4 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between track <b>4 of the yellow connector</b> and track <b>B2</b> of the wiper stalk. Repair the faulty wiring.

The bargraph remains extinguished when the wiper stalk is activated.	
Check for the presence of 12 V on track <b>4 of the yellow connector</b> for the multi-timer unit. Is there 12 V ?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F3. Replace it if necessary.
Check the continuity and insulation from earth of the wiring between : <div><div>yellow connector</div><div>wiper stalk</div><div>relay</div></div> <div><div>4</div><div>→</div><div>B2</div></div> <div><div>B4</div><div>→</div><div>L5</div></div> <div><div>L3</div><div>→</div><div>1</div></div> <div><div>wiper stalk</div><div>relay</div><div>motor</div></div>	
Is the wiring correct?	
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 the system operates correctly.
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<div>15</div> <div><div></div><div></div></div>	<b>Bargraph 15 RH side extinguished or permanently illuminated</b> Fiche n° 57 <u>REAR WIPER PARK POSITION</u>
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<b>NOTES</b>	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
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The bargraph remains permanently illuminated.	
Check for the presence of 0 V on track <b>19 of the yellow connector</b> for the multi-timer unit. Is there 0 V ?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation in relation to 12 V of the wiring between track <b>19 of the yellow connector</b> and track <b>3 of the wiper motor</b> . Repair if necessary. If the fault persists, replace the rear wiper motor.

The bargraph remains extinguished .	
Disconnect the rear wiper unit. Does the bargraph illuminate?	
YES	Replace the rear wiper motor.
NO	Check for the presence of 0 V on track <b>19 of the yellow connector</b> for the multi-timer unit. Is there 0 V ? <div><div>NO</div>Replace the multi-timer unit.</div> <div><div>YES</div>Check the insulation from earth of the wiring between track <b>19 of the yellow connector</b> and track <b>3 of the windscreen wiper motor</b>. Repair the faulty wiring.</div>

<b>AFTER REPAIR</b>	Enter G0** on the XR25. Check the system operates correctly.
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<div>16</div> <div><div></div><div></div></div>	<div>Bargraph 16 LH side extinguished or permanently illuminated</div> <div>Fiche n° 57</div> <div>SIDE LIGHTS CIRCUIT</div>
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NOTES	None
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The bargraph is permanently illuminated with no action on the lights stalk	
Check for the presence of 12 V on track 17 of the yellow connector for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	<div>Check the insulation from 12 V of the wiring between :</div> <div>yellow connector 17 —————&gt; B LH side light</div> <div>lights stalk B1 —————&gt; B LH and RH side lights</div> <div>Repair if necessary.</div> <div>If the fault persists, replace the lights stalk.</div>

The bargraph remains extinguished when the lights stalk is activated.	
Check for the presence of 12 V on track 17 of the yellow connector for the multi-timer unit. Is there 12 V ?	
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 from earth of the wiring between :</div> <div>yellow connector 17 —————&gt; B LH side light</div> <div>lights stalk B1 —————&gt; B LH and RH side lights</div> <div>Is the wiring correct?</div>	
NO	Repair the faulty wiring.
YES	Replace the lights stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	<div>Enter G0** on the XR25.</div> <div>Check the system operates correctly.</div>
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16


Bargraph 16 RH side extinguished or permanently illuminated Fiche n° 57  
DIPPED HEADLIGHTS CIRCUIT

NOTES	Check for "extreme cold" versions only.
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The bargraph is permanently illuminated with no action on the lights stalk.	
Check for the presence of 12 V on track <b>6 of the blue connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between : <b>lights stalk</b> <b>B5</b> $\longrightarrow$ <b>fuse F9</b> <b>fuse</b> <b>F9</b> $\longrightarrow$ <b>C</b> <b>RH and LH headlights</b> Repair if necessary. If the fault persists, replace the lights stalk.

The bargraph remains extinguished when the lights stalk is activated.	
Check for the presence of 12 V on track <b>6 of the blue connector</b> for the multi-timer unit. Is there 12 V ?	
YES	Replace the multi-timer unit.
NO	Check the condition of fuse F9. Replace it if necessary.
Check the continuity and insulation from earth of the wiring between :  <b>blue connector</b> <b>6</b> $\longrightarrow$ <b>B5</b> <b>lights stalk</b> <b>fuse BP13</b> <b>1</b> $\longrightarrow$ <b>B3</b> <b>lights stalk</b>  Is the wiring correct?	
NO	Repair the faulty wiring.
YES	Replace the lights stalk.
If the fault persists, replace the multi-timer unit.	

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
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17  


Bargraph 17 LH side extinguished or permanently illuminated Fiche n° 57  
REVERSING CIRCUIT

NOTES	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
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The bargraph is permanently illuminated with no action for reverse gear.	
Check for the presence of 12 V on track <b>3 of the blue connector</b> for the multi-timer unit. Is there 12 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from 12 V of the wiring between track <b>3 of the blue connector</b> and track <b>2 of the reverse gear switch</b> . Repair if necessary.  If the fault persists, replace the reverse gear switch.

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

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
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<div>18</div> <div><div></div><div></div></div>	<div>Bargraph 18 LH side extinguished or permanently illuminated</div> <div>Fiche n° 57</div> <div><u>HAZARD WARNING LIGHTS CONTROL</u></div>
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NOTES	None
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The bargraph is permanently illuminated with no action on the hazard warning lights switch.	
Check for the presence of 0 V on track <b>23 of the yellow connector</b> for the multi-timer unit. Is there 0 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from earth of the wiring between track <b>23 of the yellow connector</b> and track <b>6 of the hazard warning lights control</b> . Repair if necessary.  If the fault persists, replace the hazard warning lights switch.

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

AFTER REPAIR	Enter G0** on the XR25. Check the system operates correctly.
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Is there 0 V ?

If the fault persists, replace the hazard warning lights switch and / or the lights stalk.

Is there 0 V ?

If the fault persists, replace the hazard warning lights switch and / or the lights stalk.

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<div>20</div> <div><div></div><div></div></div>	<b>Bargraph 20 RH side extinguished or permanently illuminated</b> Fiche n° 57 <u>OIL PRESSURE</u>
---	---

<b>NOTES</b>	Check that bargraph 10 RH is illuminated, otherwise deal with this bargraph first
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The bargraph remains extinguished when the engine is running.	
Check for the presence of 0 V on track <b>20 of the yellow connector</b> for the multi-timer unit. Is there 0 V ?	
NO	Replace the multi-timer unit.
YES	Check the insulation from earth of the wiring between track <b>20 of the yellow connector</b> and track <b>1 of the oil pressure switch</b> . Repair the faulty wiring.
If the fault persists, replace the oil pressure gauge.	

The bargraph remains illuminated when the engine is not running.	
Check for the presence of 0 V on track <b>20 of the yellow connector</b> for the multi-timer unit. Is there 0 V ?	
YES	Replace the multi-timer unit.
NO	Check the continuity and insulation in relation to 12 V of the wiring between track <b>20 of the yellow connector</b> and track <b>1 of the oil pressure switch</b> . Repair the faulty wiring.
If the fault persists, replace the oil pressure gauge.	

<b>AFTER REPAIR</b>	Enter G0** on the XR25. Check the system operates correctly.
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**RUNNING LIGHTS FAULT**

- Running lights fault - side lights **Chart 1**
- Running lights fault - dipped headlights **Chart 2**

**COURTESY LIGHT FAULT**

- Courtesy light remains extinguished **Chart 3**
- Courtesy light remains illuminated **Chart 4**

**INDICATOR FAULT**

- Loss of indicator function **Chart 5**
- Indicators permanently illuminated **Chart 6**
- Constant indicator noise with no indicator illumination **Chart 7**
- Relay operating twice as fast and bulbs extinguished **Chart 8**

**HAZARD WARNING LIGHTS FAULT**

- Hazard warning lights do not operate **Chart 9**

**OPENING ELEMENTS WARNING LIGHT FAULT**

- Warning light remains extinguished **Chart 10**
- Warning light remains illuminated **Chart 11**

**ELECTRIC WINDOW FAULT**

- Electric windows do not operate **Chart 12**

WINDSCREEN WIPER FAULT

	Windscreen wipers do not stop in park position for intermittent wiping or for washing	Chart 13
	Wipers do not return to park position after + after ignition	Chart 14
	Windscreen wipers do not operate for intermittent wipe	Chart 15
	Windscreen wipers do not operate for washing	Chart 16
	Windscreen wipers do not operate for high speed	Chart 17
	Variable intermittent wiping does not operate	Chart 18

REAR SCREEN WIPER FAULT

	Rear screen wiper does not stop in park position for intermittent wiping or for washing	Chart 19
	Rear screen wiper does not operate	Chart 20
	Rear screen wiper does not operate for washing	Chart 21
	Rear screen wiper does not operate for reverse gear	Chart 22

HEADLIGHT WASHER FAULT

	Headlight washers do not operate	Chart 23
	Headlight washers operate permanently	Chart 24

Chart 1	RUNNING LIGHTS FAULT - SIDE LIGHTS
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NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5 RH and the presence of status bargraphs 10 LH, 10 RH, 16 LH, 16 RH and 4 LH.
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Check the condition of the maxi-fuse BP11.  
Replace it if necessary.

Connect the XR25 and enter **G18\***.  
The side lights should illuminate.  
Do they illuminate?

Replace the multi-timer unit.

Check the condition of the wiring between:

Fuse **BP11** → **B2** lights stalk  
lights stalk **B1** → **B** side lights  
and between track **17 of the yellow connector** of the multi-timer unit and the left hand side light.

Repair if necessary.

AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 2	RUNNING LIGHTS FAULT - DIPPED HEADLIGHTS
---------	--

NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5 RH and the presence of status bargraphs 10 LH, 10 RH, 16 LH, 16 RH and 4 LH.
-------	--

Check the condition of the maxi-fuse BP13.  
Replace it if necessary.

Connect the XR25 and enter G17\*.  
The dipped headlights should illuminate.  
Do they illuminate?

Replace the multi-timer unit.

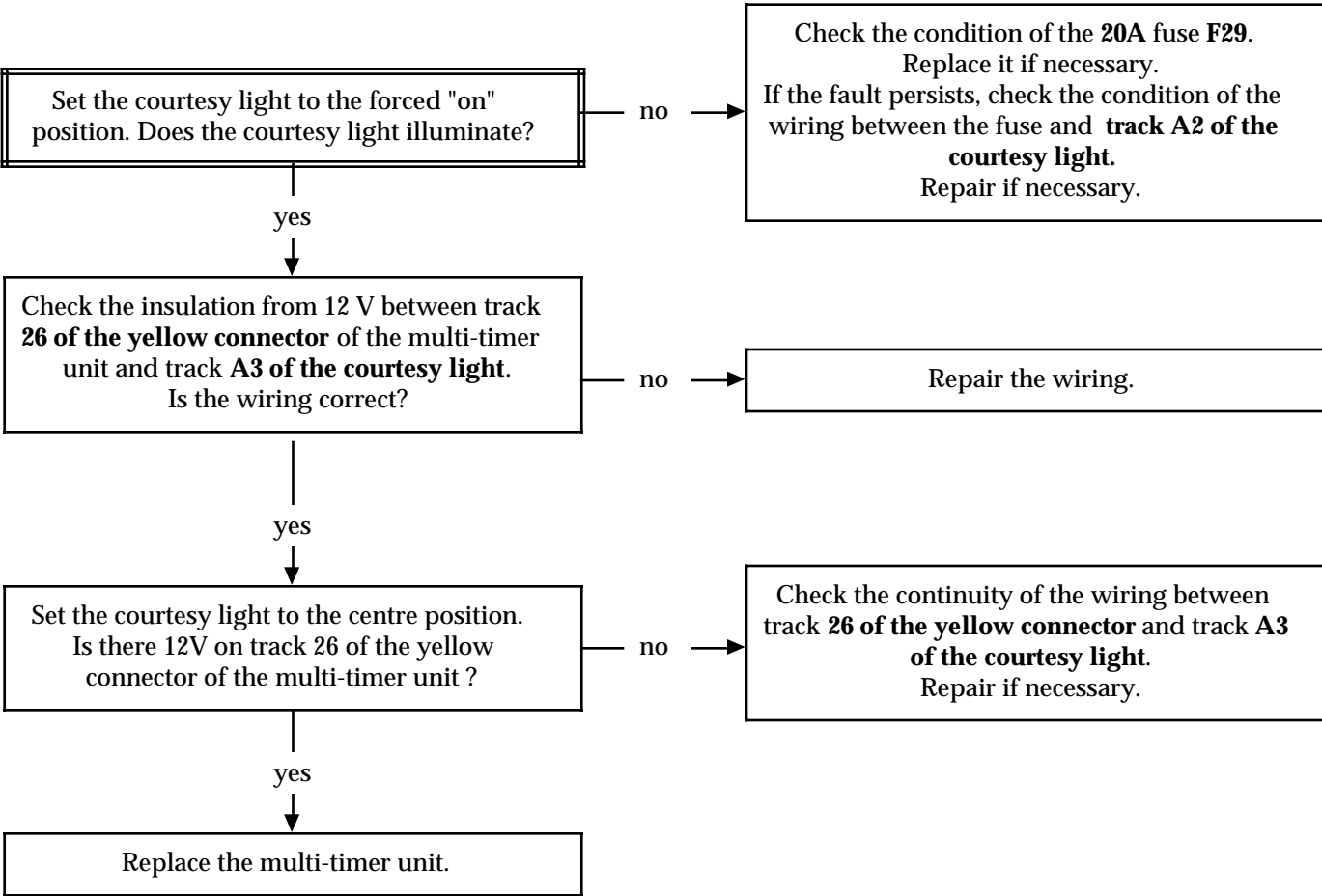
Check the condition of the wiring between:

Fuse BP13 → B3 lights stalk  
lights stalk B5 → C dipped headlights

Repair if necessary.

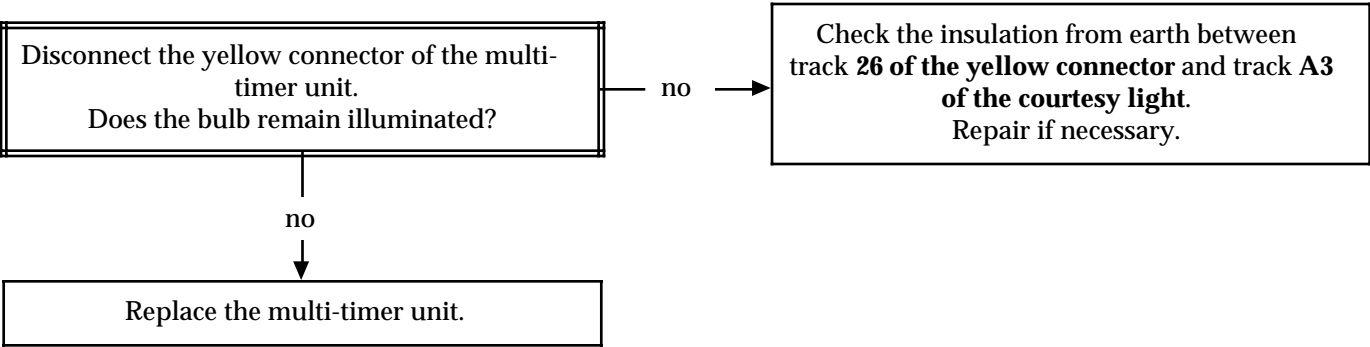
AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 3	COURTESY LIGHT REMAINS EXTINGUISHED
NOTES	None



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 4	COURTESY LIGHT REMAINS ILLUMINATED, DOORS CLOSED
NOTES	None



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 5	LOSS OF INDICATOR FUNCTION
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NOTES	Only consult this customer complaint after checking for the presence of status bargraph 10 RH and the absence of fault bargraph 5 RH.
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Refer to the chart for bargraph 18 RH side.
---

AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 6	INDICATORS PERMANENTLY ILLUMINATED
NOTES	Only consult this customer complaint after checking for the presence of status bargraph 10 RH and the absence of fault bargraph 5 RH.

Refer to the chart for bargraph 18 RH side.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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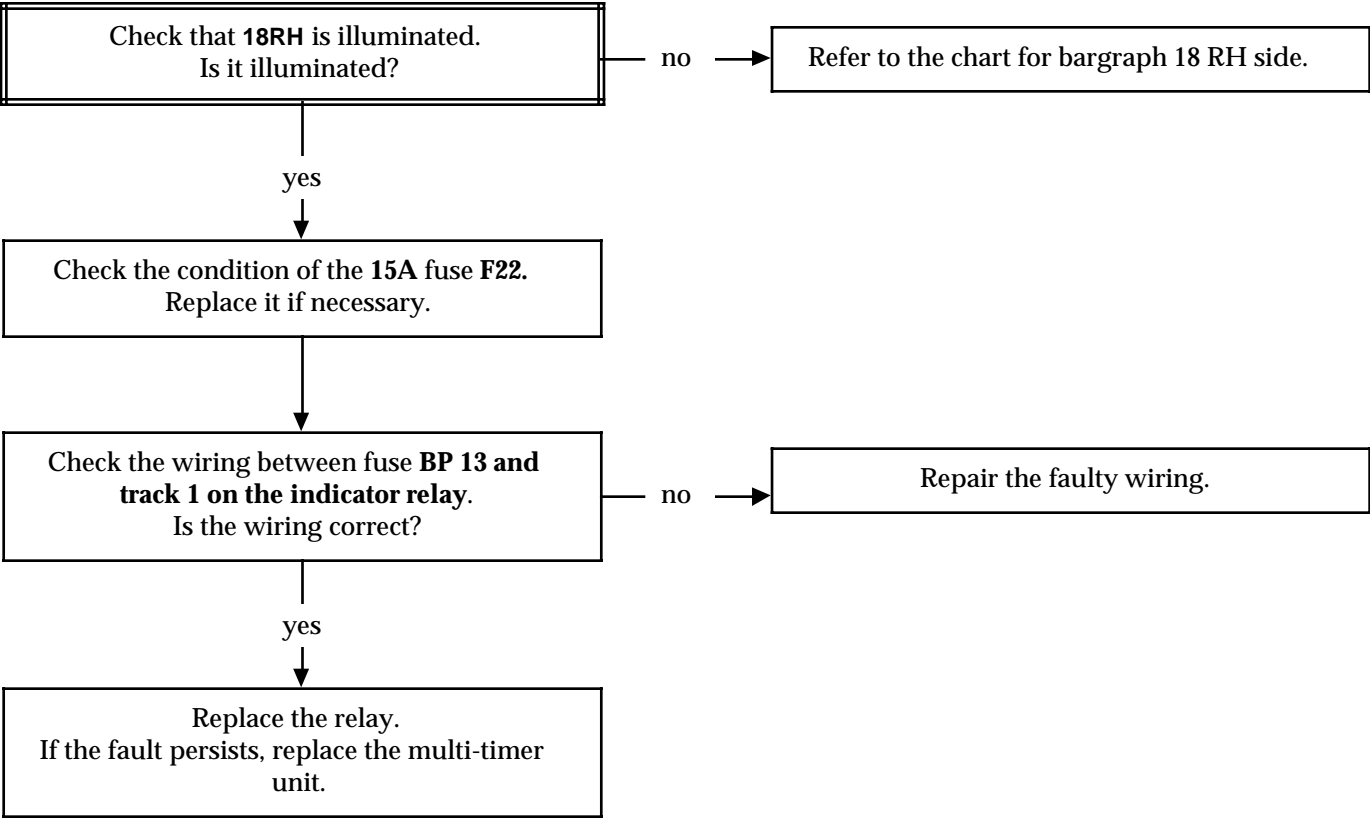
Chart 7	CONSTANT INDICATOR NOISE WITH NO INDICATOR ILLUMINATION
NOTES	Only consult this customer complaint after checking for the presence of status bargraph 10 RH and the absence of fault bargraph 5 RH.

Refer to the chart for bargraph 18 RH side.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

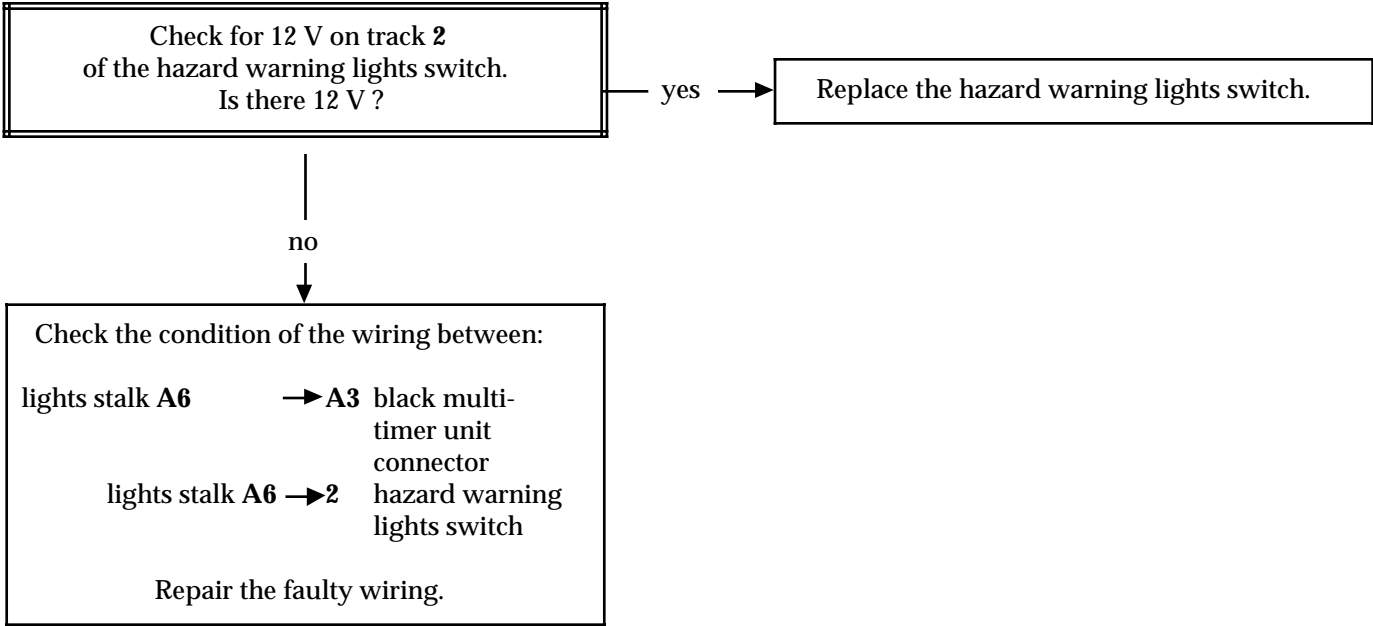
Chart 8	RELAY OPERATING TWICE AS FAST AND BULBS EXTINGUISHED
---------	--

NOTES	Only consult this customer complaint after checking for the presence of status bargraph 10 RH and the absence of fault bargraph 5 RH.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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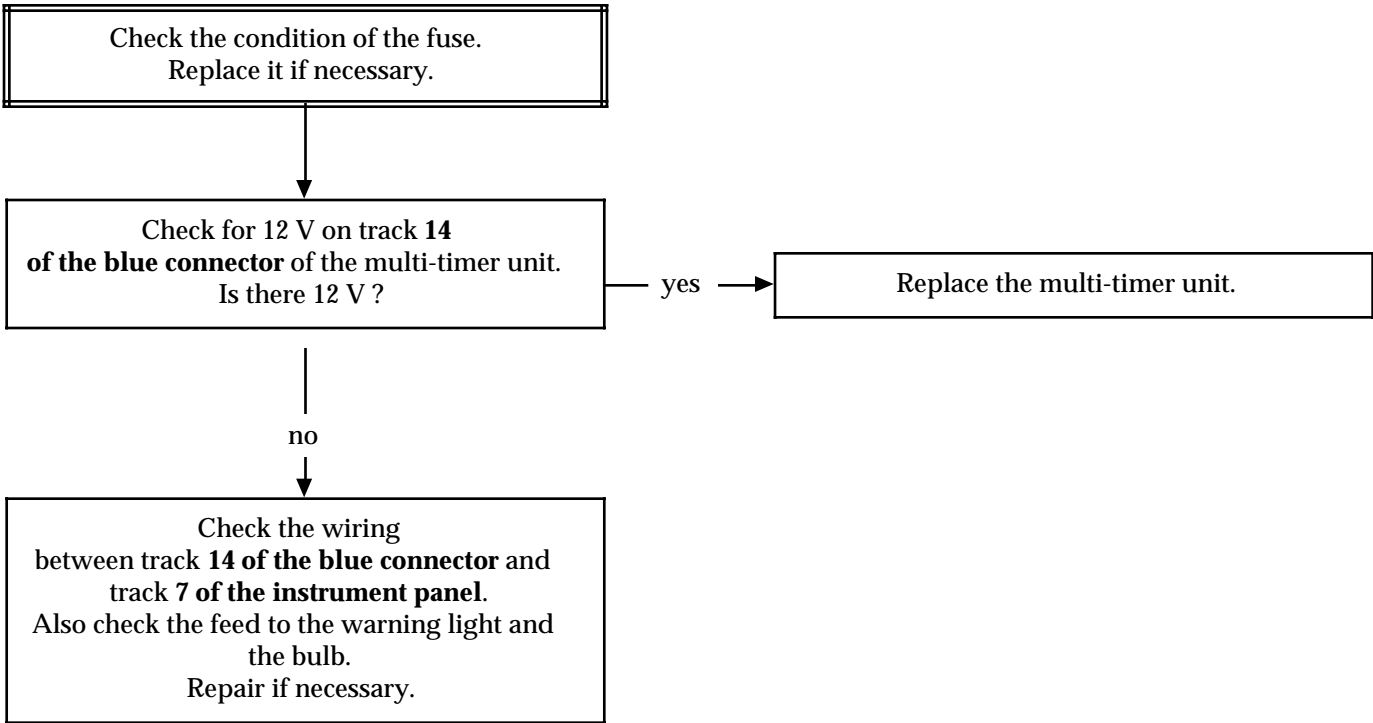
Chart 9	HAZARD WARNING LIGHTS DO NOT OPERATE
NOTES	Only consult this customer complaint after checking for the presence of status bargraph 18LH and the absence of fault bargraph 5 RH.



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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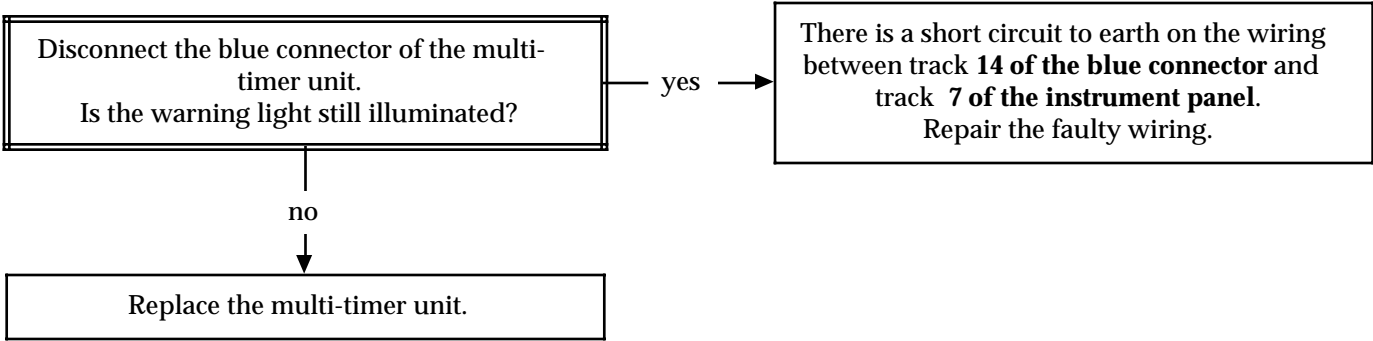
Chart 10	OPENING ELEMENTS WARNING LIGHT REMAINS EXTINGUISHED
NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5 RH.



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 11	OPENING ELEMENTS WARNING LIGHT REMAINS ILLUMINATED
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NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5 RH.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 12	ELECTRIC WINDOWS DO NOT OPERATE
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NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5RH and the presence of status bargraphs 13 LH, 13 RH, 10 LH and 10 RH.
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<p>Check the mechanical operation of the electric window system is correct. Repair if necessary. If the fault persists, replace the multi-timer unit.</p>
---

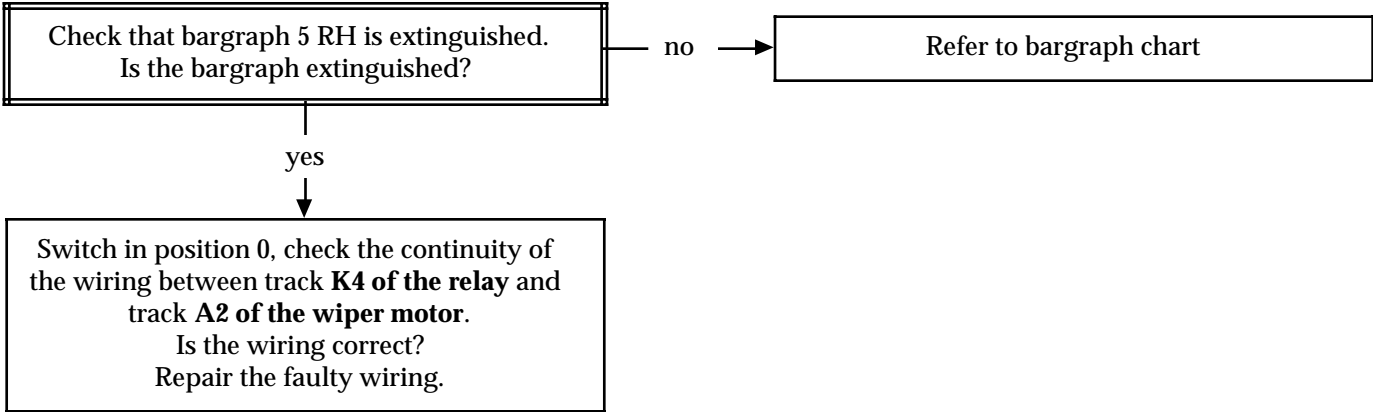
AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 13	WINDSCREEN WIPERS DO NOT STOP IN PARK POSITION FOR INTERMITTENT WIPING OR FOR WASHING
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10LH, 12RH, 14LH, 14RH.

<p>Check the mechanical operation of the windscreen wipers is correct. Repair if necessary. If the fault persists, replace the multi-timer unit.</p>
--

AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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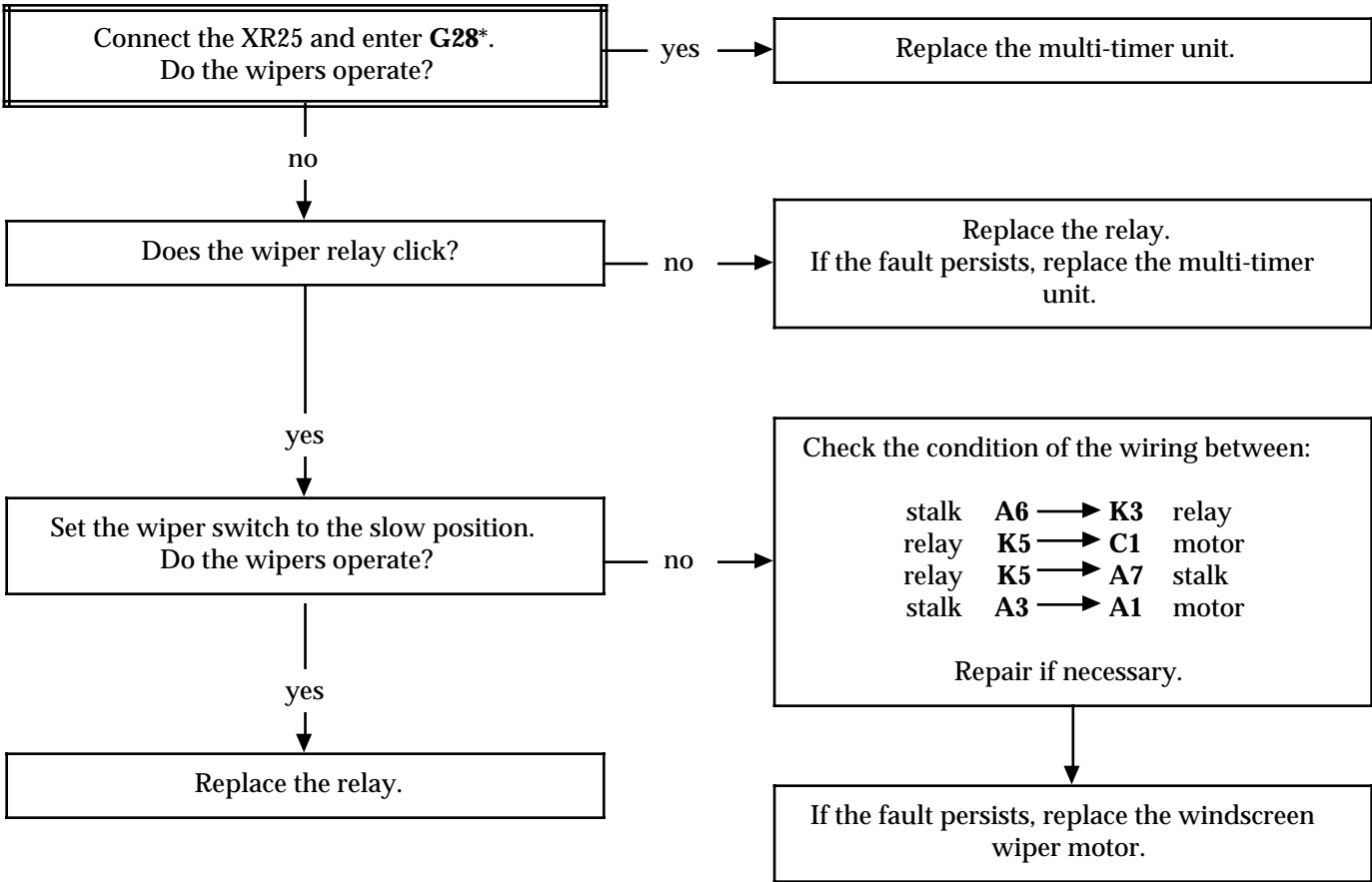
Chart 14	WIPERS DO NOT RETURN TO PARK POSITION AFTER + AFTER IGNITION FEED APPLIED
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10LH, 12RH, 14LH, 14RH.



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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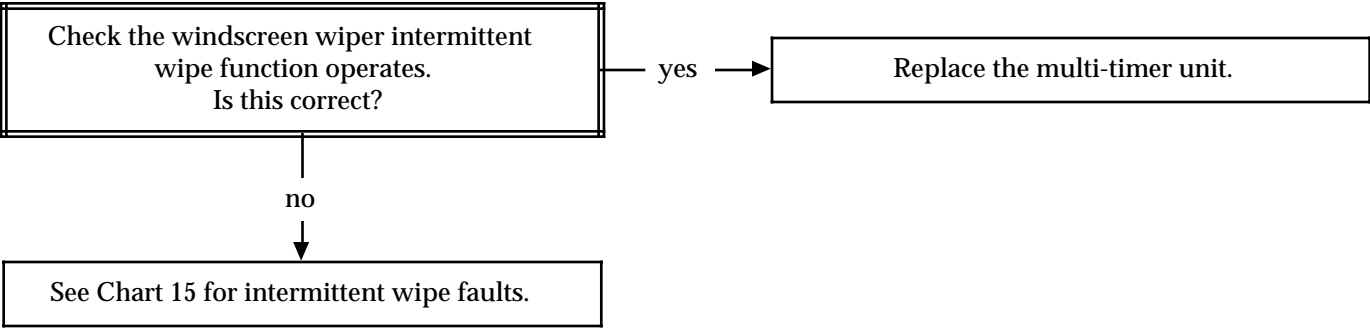
Chart 15	WINDSCREEN WIPERS DO NOT OPERATE FOR INTERMITTENT WIPE
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NOTES	Only consult this customer complaint after checking for the presence of status bargraph 14LH.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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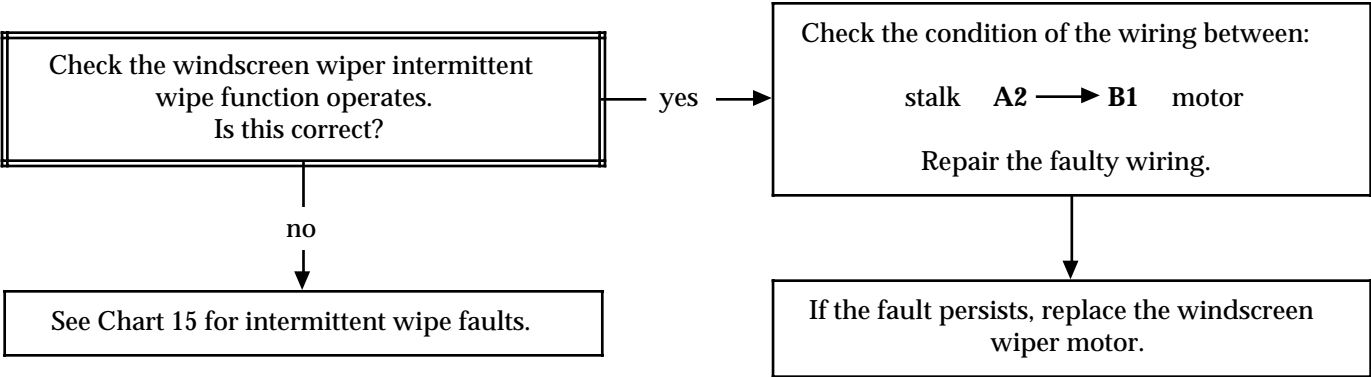
Chart 16	WINDSCREEN WIPERS DO NOT OPERATE FOR WASHING
NOTES	Only consult this customer complaint after checking for the presence of status bargraph 12RH.



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 17	WINDSCREEN WIPERS DO NOT OPERATE FOR HIGH SPEED
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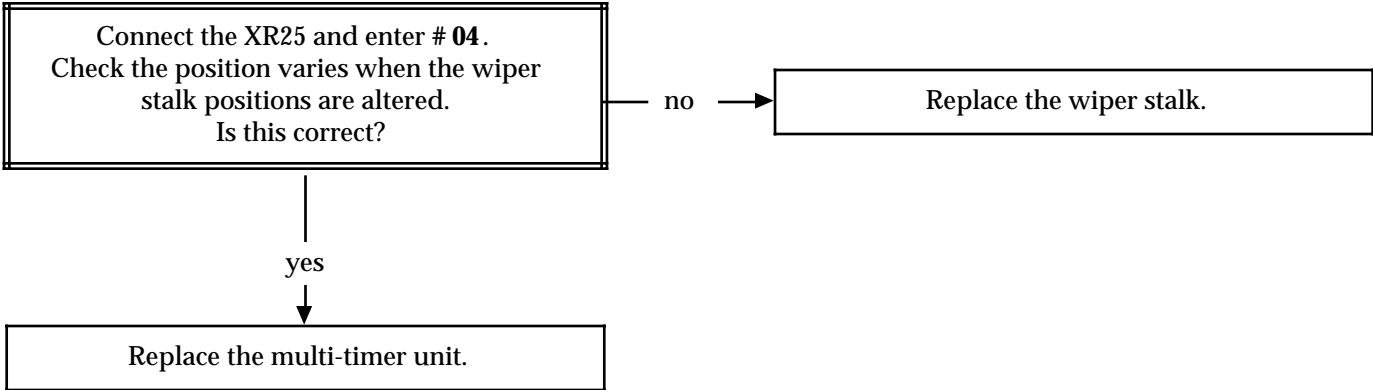
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10LH, 12RH, 14LH, 14RH.
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AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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Chart 18	VARIABLE INTERMITTENT WIPING DOES NOT OPERATE
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10LH, 14LH, 14RH



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
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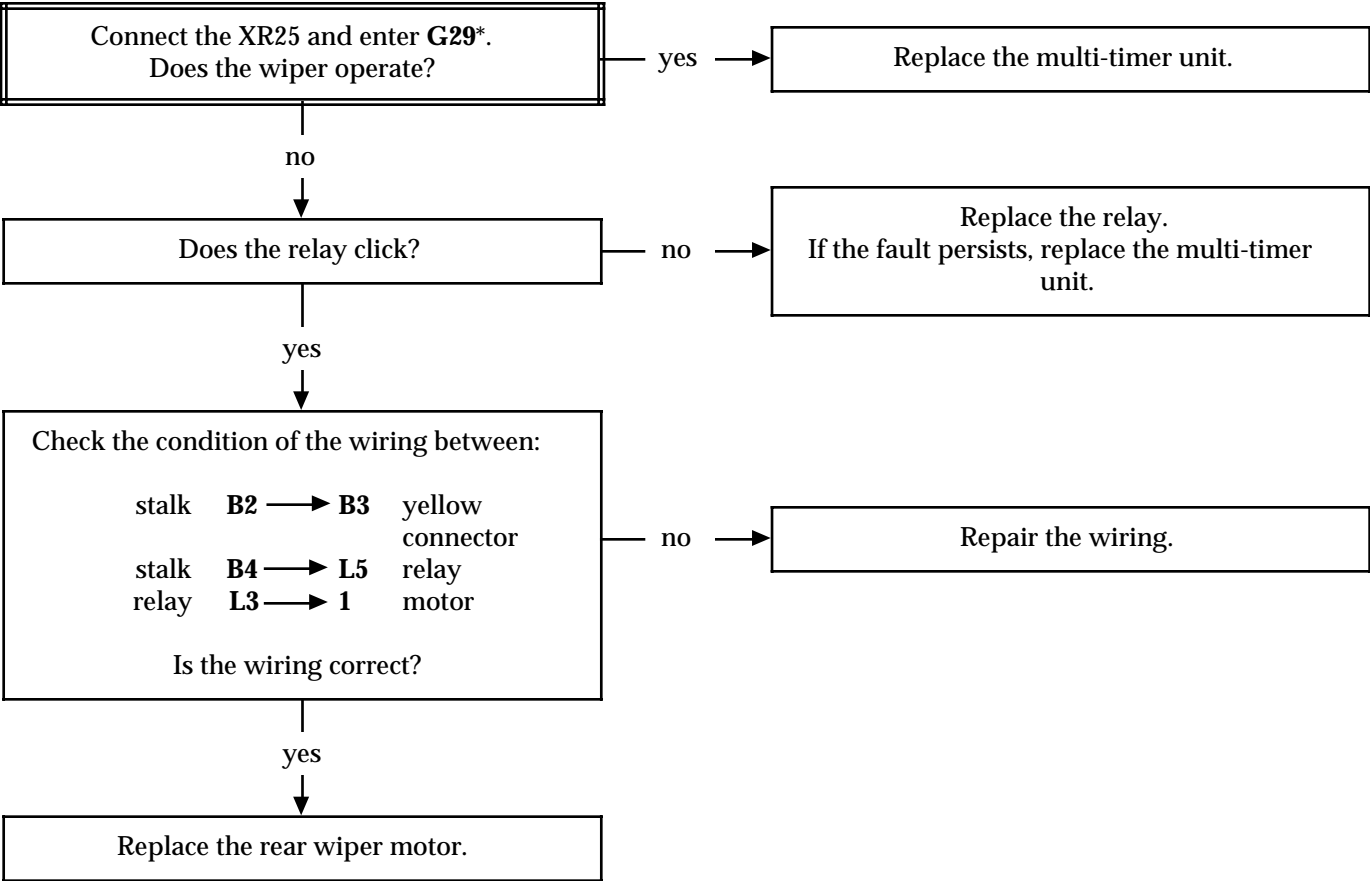
Chart 19	REAR SCREEN WIPER DOES NOT STOP IN PARK POSITION FOR INTERMITTENT WIPING OR FOR WASHING
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10RH, 15RH and the absence of fault bargraphs.

<p>Check the mechanical operation of the wiper is correct. Repair if necessary. If the fault persists, replace the multi-timer unit.</p>
--

AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 20	REAR SCREEN WIPER DOES NOT OPERATE
----------	------------------------------------

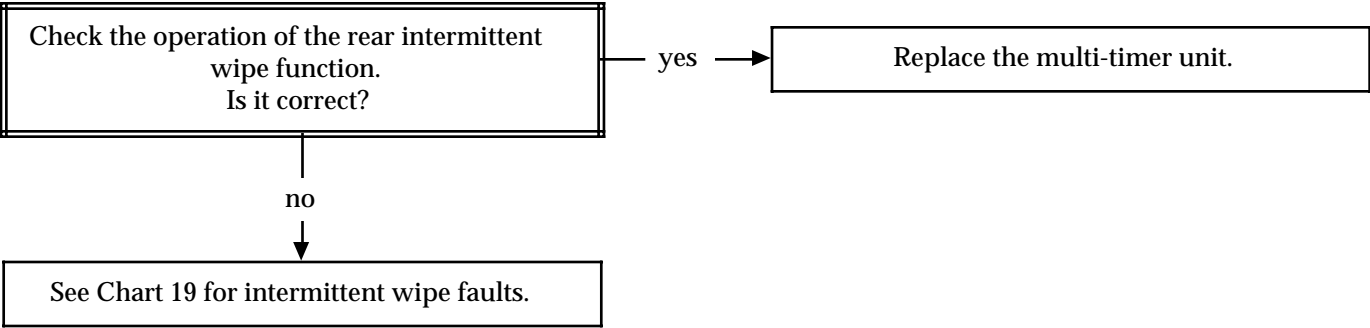
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 10RH, 15LH, 15RH.
-------	--



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 21	REAR SCREEN WIPER DOES NOT OPERATE FOR WASHING
----------	--

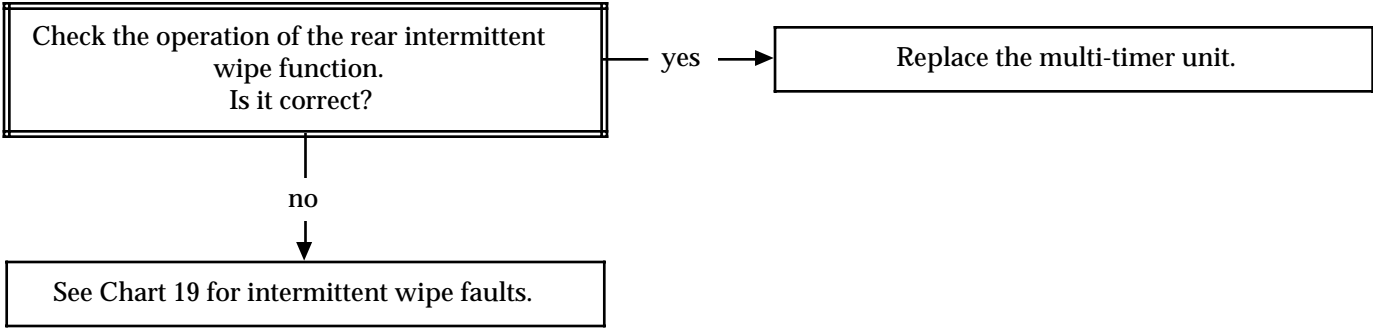
NOTES	Only consult this customer complaint after checking for the presence of status bargraph 12LH.
-------	---



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 21	REAR SCREEN WIPER DOES NOT OPERATE FOR REVERSE GEAR
----------	---

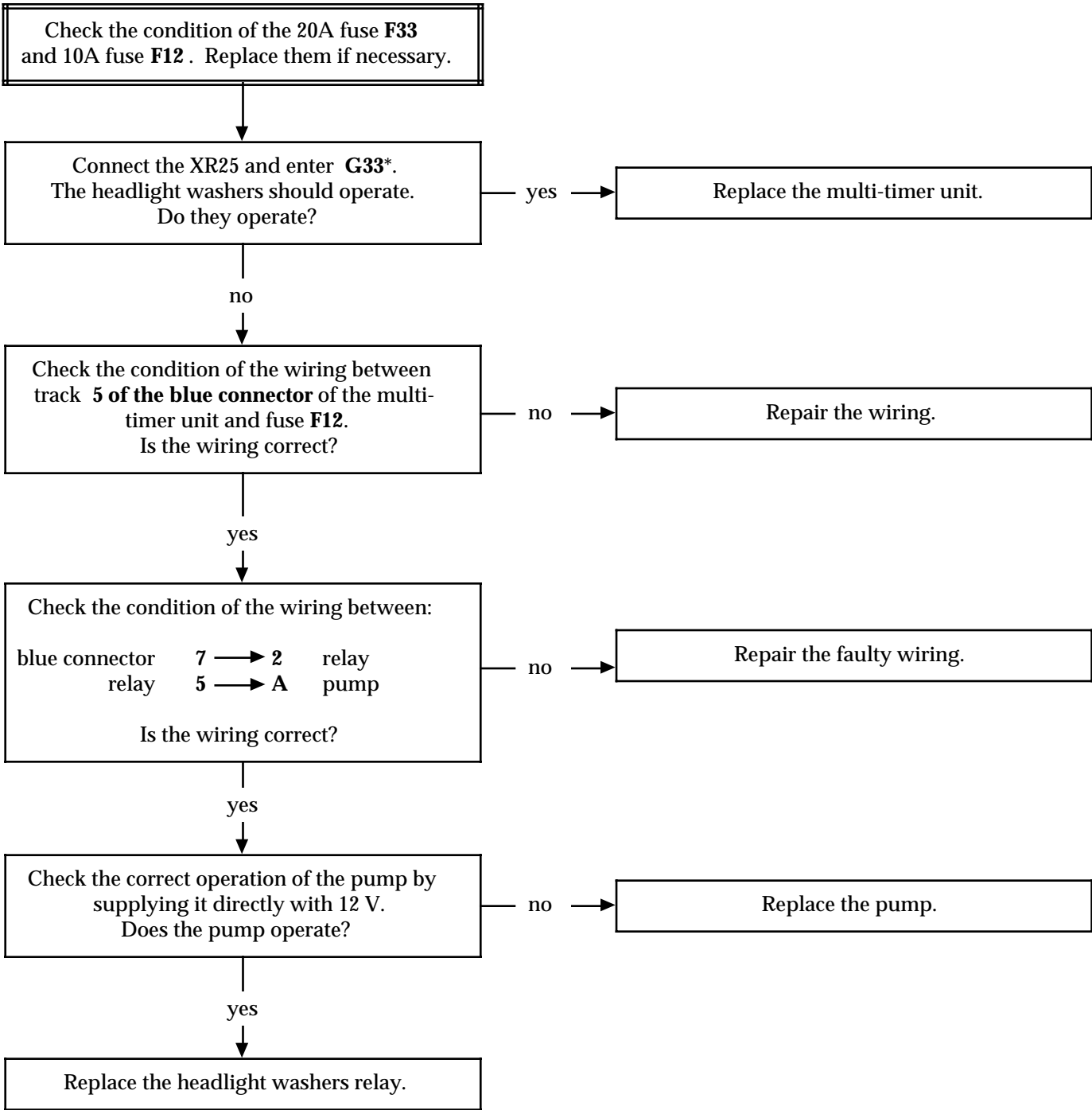
NOTES	Only consult this customer complaint after checking for the presence of status bargraphs 14LH, 17LH.
-------	--



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 23	HEADLIGHT WASHERS DO NOT OPERATE
----------	----------------------------------

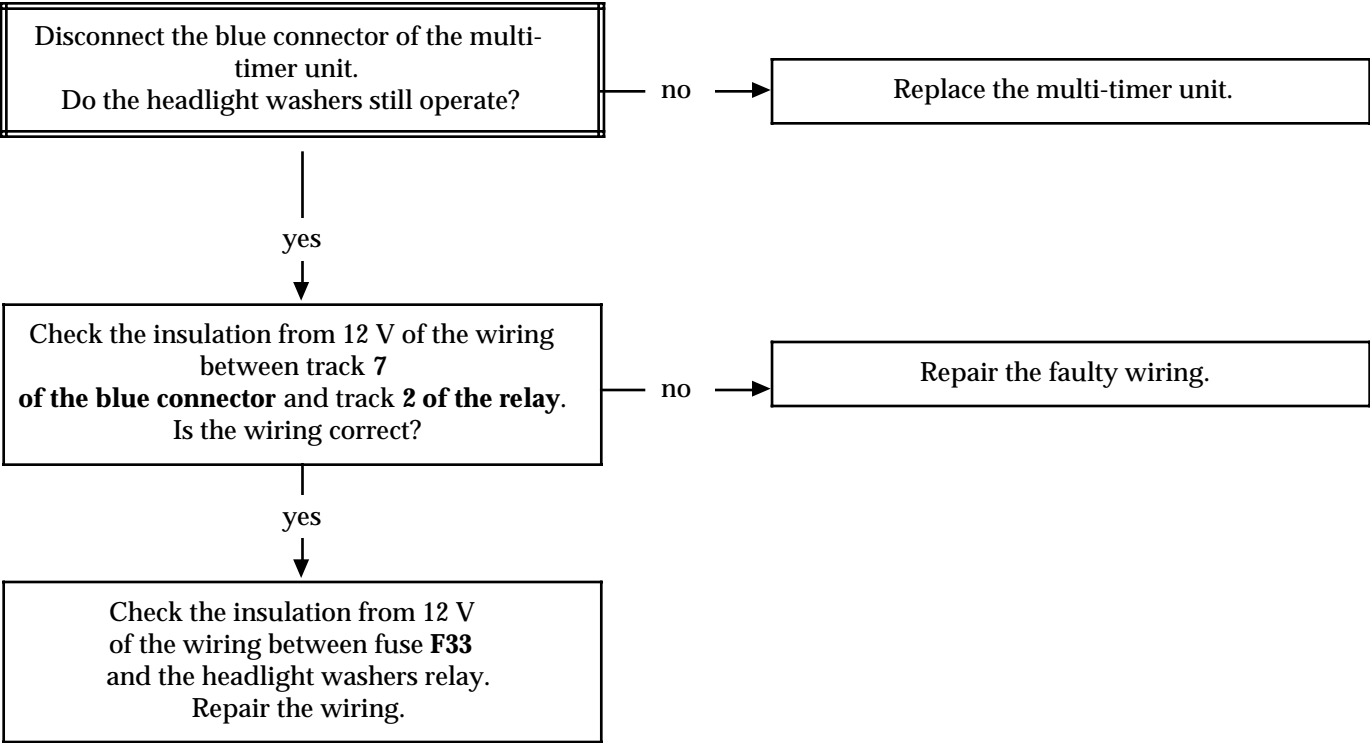
NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5RH and the presence of status bargraphs 10RH, 10LH, 12RH, 16RH, 17RH.
-------	--



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

Chart 24	HEADLIGHT WASHERS OPERATE PERMANENTLY
----------	---------------------------------------

NOTES	Only consult this customer complaint after checking for the absence of fault bargraph 5RH and the presence of status bargraphs 10LH, 10RH, 12RH, 16RH, 17RH.
-------	--



AFTER REPAIR	Check the components which have been disconnected are correctly reconnected. Check the system operates correctly.
--------------	--

NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D56 (selector on S8) then G02*		<div>2.n57</div> Use fiche 57
2	Conformity of the multi-timer unit	G70		<div>XXXX</div> Part Number displayed in 3 sequences
3	Interpretation of bargraphs		<div>2</div> <div><div></div><div></div></div> <div>4</div> <div><div></div><div></div></div> <div>4</div> <div><div></div><div></div></div>	<p>Illuminated if overspeed buzzer configured for Arabia (level 4)</p> <p>Illuminated if front intermittent wipe ring present and configured</p> <p>Illuminated if running lights configured</p>
4	Checking faults    Interpretation of + after ignition bargraphs		<div>5,6,7,8,9</div> <div><div></div><div></div></div> <div>5,6,7,8,9</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div> <div>10</div> <div><div></div><div></div></div>	<div><div></div><div></div></div> <p>Illuminated if faults present</p> <p>indicates multi-timer unit receives + after ignition feed</p> <p>indicates multi-timer unit receives + accessories feed (L3 and L4)</p>



NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Command button check		<div>12</div> <div><div></div><div></div></div>	Illuminated when windscreen wiper activated (ignition on)
			<div>12</div> <div><div></div><div></div></div>	Illuminated when rear wiper activated (ignition on)
			<div>13</div> <div><div></div><div></div></div>	Illuminated when driver's window lower button pressed (levels L2, L3 and L4)
			<div>13</div> <div><div></div><div></div></div>	Illuminated when driver's window raise button pressed (levels L2, L3 and L4)
6	Interpretation of wipers bargraphs		<div>14</div> <div><div></div><div></div></div>	Illuminated when windscreen wiper is parked
	Command button check		<div>14</div> <div><div></div><div></div></div>	Illuminated for intermittent windscreen wiping
	Interpretation of wipers bargraphs		<div>15</div> <div><div></div><div></div></div>	Illuminated when rear wiper is parked
	Command button check		<div>15</div> <div><div></div><div></div></div>	Illuminated for intermittent rear windscreen wiping
	Interpretation of lights control bargraphs		<div>16</div> <div><div></div><div></div></div>	Illuminated for dipped headlights (level 4)
			<div>16</div> <div><div></div><div></div></div>	Illuminated for side lights
			<div>17</div> <div><div></div><div></div></div>	Illuminated for main beam headlights

NOTES	If a fault bargraph illuminates, refer to the corresponding fault chart.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
7	Command button check		<div>17</div> <div><div></div><div></div></div>	Illuminated for reverse gear, ignition on (levels 3 and 4)
8	Command button check		<div>18</div> <div><div></div><div></div></div>	Illuminated for hazard warning lights (ignition on)
	Command button check		<div>18</div> <div><div></div><div></div></div>	Illuminated direction indicators active (ignition on)
9	Interpretation of automatic clutch warning light bargraph		<div>19</div> <div><div></div><div></div></div>	Illuminated if automatic clutch and lever in position 3 and accelerating
	Interpretation of oil pressure warning light bargraph		<div>20</div> <div><div></div><div></div></div>	Illuminated engine running (oil pressure information) for levels 3 and 4

COMMAND MODES G--\*

- G03\* = illuminates courtesy light
- G08\* = unlocks opening elements
- G09\* = locks opening elements
- G11\* = opening elements warning light
- G12\* = lights on reminder buzzer
- G17\* = dipped headlights
- G18\* = side lights
- G19\* = indicators
- G24\* = driver's window lower
- G25\* = driver's window raise
- G28\* = windscreen wipers
- G29\* = rear screen wiper
- G33\* = headlight washers
- G37\* = buzzer
- G38\* = + after ignition feed

ADDITIONAL TESTS #-

- # 01 = vehicle speed
- # 02 = battery voltage
- # 04 = ring position; intermittent wipers
- # 14 = equipment level

# AIR BAG AND PRETENSIONERS

## FAULT FINDING

### CONTENTS

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Introduction .....	01
XR25 fiche .....	02
Interpretation of XR25 bargraphs .....	03
Checking conformity .....	19
Aid .....	20

**CONDITIONS FOR THE APPLICATION OF THE CHECKS DEFINED IN THIS FAULT FINDING**

The checks defined in this fault finding should only be applied to a vehicle when the fault bargraph is illuminated, indicating that the fault is present on the vehicle at the time of checking. Only a computer fault will require replacement of the computer, whether the bargraph is permanently illuminated or flashing .

If the fault is not present but simply memorised, the bargraph flashes and application of the checks recommended in the fault finding section will not allow the origin of the fault to be found. In this case, only a check of the wiring and the connection of the component in question must be carried out (it is possible to test the wiring concerned in fault finding mode to try to obtain permanent illumination of the bargraph ).

**TOOLING REQUIRED FOR OPERATIONS ON THE AIR BAG AND SEAT BELT PRETENSIONER SYSTEMS :**

- XR25 (with minimum XR25 cassette N° 17).
- XRBAG the updated N° 4 version (with the new 30 track B40 yellow computer base adaptor).

**REMINDER:**

When carrying out an operation on the air bag/seat belt pretensioner systems , it is essential to lock the computer with the XR25 command G80\* to avoid all risk of triggering at the wrong time (all firing lines will be inhibited). This operating mode will be indicated by illumination of the warning light on the instrument panel.

Never carry out any measuring operations on the air bag and pretensioners trigger lines with equipment other than the XRBAG.

Before using a dummy ignition module, ensure that its resistance is between 1.8 and 2.5 ohms.

## PRESENTATION OF XR25 FICHE N° 48

<b>N°48</b>		<b>S8</b>	code : <b>D 4 9</b>	read : <b>2Ab</b>
1	COMPUTER	CODE PRESENT		
2	*02 SUPPLY VOLTAGE	CONFIGURATION		
3	reserved	reserved		
4	reserved	reserved		
5	reserved	reserved		
6	*06 RESISTANCE (driver)	LINES AIRBAG	INSULATION (driver or passenger) *26	
7	*07 RESISTANCE (passenger)		INSULATION (driver or passenger) *27	
8	*08 RESISTANCE (driver)			
9	*09 RESISTANCE (passenger)			
10	*10 AIRBAG FAULT	TELL-TALE CIRC.	reserved	

AIRBAGS/PRETENSIONERS			ADDITIONAL CHECKS : # . .
Erase fault memory : G 0 ** End of test : G13 *			01 computer feed v 02 n° identifying the vehicle type
11	at own request	LOCKING causes following an impact	
12	reserved	reserved	
13	reserved	reserved	
14	reserved	reserved	
15	reserved	reserved	<b>2Ab</b> SUPPLIER N°2
16	(  ) ALL TRIGGERS LOCKED	computer STATUS	CONTROL MODES : G...*
17			
18	computer CONFIGURATION (fixed display)		72 enter A/S date 73 read A/S date
19	WITH PASS. AIRBAG		Help : V9 Return to diag. mode : D Part no : G70 *
20	reserved		

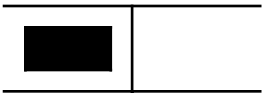
  

	SEE REPAIR MANUAL	<b>17</b> ANG
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FI21748

MEANING OF BARGRAPHS

FAULT BARGRAPHS (always on coloured background)

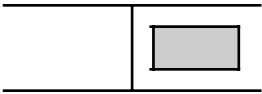


If illuminated, indicates a fault on the product tested. The associated text defines the fault.

This bargraph could be :

- Illuminated : fault present.
- Flashing : fault memorised.
- Extinguished : fault absent or not found.

STATUS BARGRAPHS (always on a white background)



Bargraph always located on the top right hand side

If illuminated , indicates establishment of dialogue with the product computer.

If it remains extinguished :

- The code does not exist.
- There is a tool, computer or XR25 / computer connection fault.

The following bargraph representations indicate their initial status :

Initial status: (ignition on, engine stopped, no operator action)

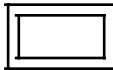


or



Indefinite

illuminated when the operation or the condition specified on the fiche is met.



Extinguished



Illuminated extinguished when the operation or the condition specified on the fiche is no longer met.

ADDITIONAL SPECIFICATIONS

Certain bargraphs have a \*. The command \*.., when the bargraph is illuminated, allows additional information on the type of fault or status to be displayed.

<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 right hand side extinguished</div> <div><u>Code present</u></div>	Fiche n° 48
--	---	-------------

NOTES	None
-------	------

Ensure that the XR25 is not the cause of the fault by trying to communicate with the computer on another vehicle. If the XR25 is not faulty and dialogue is not established with another computer on the same vehicle, a faulty computer may be disrupting the **K** and **L** fault finding lines. Disconnect computers in turn to locate the faulty computer.

Check that the ISO selector is in position **S8**, that the latest XR25 cassette and the correct access code are being used.

Check the battery voltage and carry out the operations necessary to obtain the correct voltage (**9 volts < U battery < 18 volts**).

Check the presence and condition of the 15 A air bag fuse.

Check the condition of the computer connector and the condition of the connections.

Check that the computer is correctly fed :

- Disconnect the air bag computer and fit the 30 track adaptor B40 of the XRBAG.
- Check and ensure the presence + after ignition feed between the terminals marked **earth 1 / earth 2** and + **after ignition**.

Check that the diagnostic socket is correctly fed :

- + **Before ignition feed on track 16**.
- **Earth on track 5**.

Check the continuity and insulation of the lines of the diagnostic socket / air bag computer connection:

- Between the terminal marked **L** and track **15** of the diagnostic 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 air bag computer (consult the section on "Aid" for this operation).

AFTER REPAIR	When communication is established, deal with any illuminated fault bargraphs.
--------------	---



<div>1</div> <div><div></div><div></div></div>	<div>Bargraph 1 left hand side illuminated or flashing</div> <div>Computer</div>	<div>Fiche n° 48</div>
--	--	------------------------

<div>NOTES</div>	<div>None</div>
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Replace the air bag computer (consult the section "Aid" for this operation).

<div>AFTER REPAIR</div>	<div>None</div>
-------------------------	-----------------

<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 left hand side illuminated</div> <div>Fiche n° 48</div> <div><u>Voltage supply</u></div> <div>XR25 aid:   *02 :   1.dEF : Voltage too low                               2.dEF : Voltage too high                               3.dEF : Too many micro-breaks                               dEF   : Cumulative between faults 1.dEF/2.dEF/3.dEF</div>
--	--

NOTES	Use the 30 track adaptor of the XRBAG to operate on the computer connector .
-------	--

1.dEF - 2.dEF	NOTES	None
---------------	-------	------

Carry out the operations necessary to obtain the correct computer power supply : <b>9 volts ± 0.1 &lt; correct voltage &lt; 18 volts ± 0.1.</b> <ul style="list-style-type: none"><li>- Check the battery charge.</li><li>- Check the charge circuit.</li><li>- Check the tightness and condition of the battery terminals.</li><li>- Check the computer earth .</li></ul>
---

3.dEF	NOTES	None
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For a micro-break fault, check the computer power supply lines : <ul style="list-style-type: none"><li>- Condition of the computer connections.</li><li>- Condition of the computer earths (tracks 6 and 20 on the 30 track connector to the FRH pillar earth).</li><li>- Condition / position of the fuse.</li><li>- Condition and tightening of battery terminals.</li></ul>
--

dEF	NOTES	None
-----	-------	------

The <i>dEF</i> display on the kit indicates the minimum memorisation of 2 of the 3 faults declared by the display <b>1.dEF, 2.dEF and 3.dEF</b> (bargraph flashing). Operation: <ul style="list-style-type: none"><li>- Check the battery charge.</li><li>- Check the charge circuit.</li><li>- Check the tightness and condition of the battery terminals.</li><li>- Condition of the computer connections.</li><li>- Check the computer earth .</li><li>- Condition / position of the fuse.</li></ul>
--

AFTER REPAIR	Erase the computer memory using the command G0**.
--------------	---

<div>2</div> <div><div></div><div></div></div>	<div>Bargraph 2 right hand side illuminated</div> <div><u>Configuration</u></div>	Fiche n° 48
--	---	-------------

NOTES	None
-------	------

The illumination of **bargraph 2 RH side** corresponds to an incoherence between the computer configuration and the vehicle equipment detected by the computer.  
The vehicle must be fitted with a passenger air bag and the computer must be configured for "without passenger air bag" shown by **bargraph 19 LH side** extinguished.  
Modify the computer configuration using command G20\*1\*.

AFTER REPAIR	Erase the computer memory using the command G0**, then switch off the ignition. Carry out another check using the XR25.
--------------	--

<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 left hand side illuminated</div> <div>Fiche n° 48</div> <div><u>Resistance on the driver's air bag line</u></div> <div>XR25 aid :   *06 :   CC : Short-circuit CO : Open circuit</div>
--	--

NOTES	Never carry out measurements on the trigger lines with equipment other than the XRBAG.
-------	--

Lock the computer with the command <b>G80*</b> on the XR25. Switch off the ignition and remove the two mounting bolts of the steering wheel cushion. Check that it is correctly connected.
Disconnect the steering wheel cushion and connect a dummy ignition module to the ignition module connector . Switch on the ignition and carry out an XR25 check. Replace the air bag cushion if the fault has been memorised (fault no longer declared).
With the ignition switched off, disconnect, then reconnect the connector for the rotary switch below the steering wheel. Operate on the connection if <b>bargraph 6 left hand side</b> begins to flash .
The XRBAG tool MUST be used for checking resistance at <b>point C2</b> of the driver's air bag circuit. If the value obtained is not correct, replace the rotary switch below the steering wheel.

Reconnect the rotary switch below the steering wheel, disconnect the computer connector and fit the 30 track adaptor B40. The XRBAG tool MUST be used for checking resistance on the wire marked <b>A</b> on the adaptor. If the value obtained is not correct, check the 30 track connector connection ( <b>tracks 10 and 11</b> ) and replace the wiring if necessary.
--

If the checks carried out have not proven the existence of a fault, replace the air bag computer (consult the section "Aid" for this operation). Reconnect the driver's air bag ignition module and remount the steering wheel cushion.
--

AFTER REPAIR	Erase the computer memory using the command <b>G0**</b> then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command <b>G81*</b> . Destroy the air bag cushion if it has been replaced (tool Elé. 1287).
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<div>6</div> <div><div></div><div></div></div>	<div>Bargraph 6 right hand side illuminated</div> <div>Fiche n° 48</div> <div><u>Insulation of driver's or passenger's air bag line</u></div> <div>XR25 aid : *26 : CC.1 : Short circuit at 12 volts CC.0 : Short circuit to earth</div>
--	--

NOTES	Never carry out measurements on the trigger lines with equipment other than the XRBAG. If the vehicle does not have a passenger air bag, only test on the cable marked A on the adapter (driver's air bag circuits).
-------	--

Lock the computer using command G80\* on the XR25.  
Switch off the ignition, disconnect the computer connector and fit the 30 track adapter B40.  
The XRBAG must be used to measure the insulation appropriate to this type of fault as shown by the XR25 on the **cables marked A and B** for the adapter.  
**On which adapter cable is the insulation fault noted?**

Cable A	NOTES	Fault on driver's air bag circuits
---------	-------	------------------------------------

Switch off the ignition and reconnect the computer connector.  
Remove the 2 mounting bolts for 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 air bag circuit .  
If the value obtained is not correct , replace the rotary switch under the steering wheel .  
If the value obtained is correct at **C2**, check the condition of the connections on the computer.  
Replace the air bag wiring if the fault persists.

Cable B	NOTES	Fault on passenger's air bag circuits
---------	-------	---------------------------------------

Check the condition of the connections on the computer.  
Replace the air bag wiring if the fault persists.

If the checks carried out have not proven the existence of an insulation fault on one of the air bag circuits, check the connections on the computer.  
Replace the air bag computer if the fault persists (consult the section "Aid" for this operation).

AFTER REPAIR	Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command G81*. Destroy the air bag cushion or module if it has been replaced (tool Elé. 1287).
--------------	---

<div>7</div> 	<b>Bargraph 7 left hand side illuminated</b> <u>Resistance on passenger air bag line</u> <b>XR25 aid :</b> *07 : CC : Short circuit CO : Open circuit	Fiche n° 48
---	--	-------------

**NOTES**

Never carry out measurements on the trigger lines with equipment other than the XRBAG. If the vehicle does not have a passenger air bag, refer to the fault finding for bargraph 19 LH side.

Lock the computer using command G80\* on the XR25.  
Switch off the ignition, disconnect the computer connector and fit the 30 track adaptor B40.  
The XRBAG tool **MUST** be used for checking resistance on the wire marked **B** on the adaptor.  
**Is the value obtained correct?**

YES

If the value obtained is correct at **wire B** on the adaptor, check the condition of the computer connection .

NO

If the value obtained is not correct at **wire B** on the adaptor, check the 30 track connector connection (**tracks 13 and 14**).

If the value remains incorrect, switch off the ignition and remove the dashboard to gain access to the wiring of the passenger's air bag module . Disconnect the ignition module of the passenger's air bag module, connect a dummy ignition module to the ignition module , then use the XRBAG to measure the resistance on the wire marked **B** on the adaptor.


If the value obtained is correct , replace the passenger's air bag module .

If the value obtained is not correct, replace the air bag wiring.

Reconnect the computer and the ignition module of the passenger's air bag module , then switch on the ignition again.  
Carry out an XR25 check.  
If the kit still indicates the presence of a passenger's air bag line fault and the checks carried out show no evidence of a fault, replace the air bag computer (consult the section "Aid" for this operation).

**AFTER REPAIR**

Erase the computer memory using the command G0\*\* then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command G81\*.  
Destroy the passenger air bag cushion if it has been replaced (tool **Elé. 1287**).

<div>7</div> 	<div>Bargraph 7 right hand side illuminated</div> <div>Fiche n° 48</div> <div><u>Insulation of driver or passenger pretensioner lines</u></div> <div>XR25 aid : *27 : CC.1 : Short circuit to 12 volts CC.0 : Short circuit to earth</div>
---	--

<b>NOTES</b>	Never carry out measurements on the trigger lines with equipment other than the XRBAG.
--------------	--

Lock the computer using command G80\* on the XR25.  
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 an XR25 check.  
If the fault has been memorised (fault no longer declared), check the condition of the seat wiring.  
Replace the driver's pretensioner if the wiring is not faulty.  
Then carry out the same operation on the passenger's pretensioner (if not a driver's side fault).

The XRBAG tool MUST be used for measuring 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).  
Then carry out the same measurement on the passenger's pretensioner line (if not a driver's side fault).

Disconnect the computer connector and fit the 30 track adaptor B40.  
The XRBAG tool MUST be used for measuring insulation appropriate to the type of fault on the adaptor wires marked **C (Passenger)** and **D (Driver)**.  
If one of the values obtained is not correct, check the 30 track connector connection (**tracks 3 / 4 for wire C and 1/2 for wire D**) and replace the wiring if necessary.

If the checks carried out have not proven the existence of a fault on one of the pretensioner circuits, replace the air bag computer (consult the section "Aid" for this operation).  
Reconnect the ignition modules of the seat belt pretensioners.

<b>AFTER REPAIR</b>	Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command G81*. Destroy the pretensioner(s) if it has been replaced (tool <b>Elé. 1287</b> ).
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<div>8</div> <div><div></div><div></div></div>	<div>Bargraph 8 left hand side illuminated</div> <div>Fiche n° 48</div> <div><u>Resistance on driver's pretensioner line</u></div> <div>XR25 aid :   *08 :   CC : Short circuit CO : Open circuit</div>
--	---

NOTES	Never carry out measurements on the trigger lines with equipment other than the XRBAG.
-------	--


Lock the computer using command G80* on the XR25. Switch off the ignition and check ignition module of the driver's pretensioner is correctly connected.
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 an XR25 check. Replace the driver's pretensioner if the fault has been memorised (fault no longer declared).
The XRBAG tool MUST be used for checking resistance at <b>point C1</b> (seat connector) on the line of the driver's pretensioner . If the value obtained is not correct , replace the wiring between points <b>C1 and C3</b> (seat wiring).
Disconnect the computer connector and fit the 30 track adaptor B40. The XRBAG tool MUST be used for checking resistance on the wire marked <b>D</b> of the adaptor . If the value obtained is not correct, check the 30 track connector connection ( <b>tracks 1 and 2</b> ) and replace the wiring if necessary.

If the checks carried out have not proven the existence of a fault, replace the air bag computer (consult the section "Aid" for this operation). Reconnect the ignition module of the driver's pretensioner .
--

AFTER REPAIR	Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command G81*. Destroy the pretensioner if it has been replaced (tool <b>Elé. 1287</b> ).
--------------	--



9



Bargraph 9 right hand side illuminated

Fiche n° 48

Resistance on the passenger's pretensioner line

XR25 aid : \*09 : CC : Short circuit  
CO : Open circuit

NOTES

Never carry out measurements on the trigger lines with equipment other than the XRBAG.


- Lock the computer using command G80\* on the XR25. Switch off the ignition and check that the ignition module of the passenger's pretensioner is correctly connected.
- 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 an XR25 check.  
Replace the passenger's pretensioner if the fault has been memorised (fault no longer declared).
- 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 30 track adaptor.  
The XRBAG tool MUST be used for checking resistance on the wire marked **C** on the adaptor.  
If the value obtained is not correct , check the 30 track connector connection (**tracks 3 and 4**) and replace the wiring if necessary.

If the checks carried out have not proven the existence of a fault, replace the air bag computer (consult the section "Aid" for this operation).  
Reconnect the ignition module of the passenger's pretensioner .

AFTER REPAIR

Erase the computer memory using the command G0\*\* then switch off the ignition. Carry out another check using the XR25 and, if there is no fault, unlock the computer using command G81\*.  
Destroy the pretensioner if it has been replaced (tool **Elé. 1287**).

10



Bargraph 10 left hand side illuminated

Fiche n° 48

Air bag fault warning light circuit

XR25 aid:   \*10 :   CC.1 : Short circuit to 12 volts  
                  CO.0 : Open circuit or short circuit to earth

NOTES

Use the 30 track XRBAG adaptor to operate on the computer connector .

CC.1

NOTES

None

Lock the computer using command G80\* on the XR25.  
Check the condition of the warning light bulb .  
Ensure insulation from **12 volts** of the connection between the warning light and track 7 of the 30 track connector.  
If the checks carried out have not proven the existence of a fault, replace the air bag computer (consult the section "Aid" for this operation).

CO.0

NOTES

None

Warning light extinguished after ignition

Lock the computer using command G80\* on the XR25.  
Check the condition of the warning light bulb.  
Ensure the insulation of the connection between the warning light and track 7 of the 30 track connector.  
Ensure that **12 volts** are reaching the warning light .  
If the checks carried out have not proven the existence of a fault, disconnect the computer connector and fit the 30 track XRBAG adaptor . Use the XRBAG in testing mode to check the operation of the warning light on the instrument panel from the grey adaptor wire marked 1.  
If it is possible to illuminate the warning light using the XRBAG, replace the air bag computer (consult the section "Aid" for this operation).  
If it is impossible to operate the warning light , repeat the preceding checks.

Warning light illuminated after ignition

Lock the computer using command G80\* on the XR25.  
Ensure the insulation from earth of the connection between the warning light and track 7 of the 30 track connector .  
If the checks carried out have not proven the existence of a fault, replace the air bag computer (consult the section "Aid" for this operation).

AFTER REPAIR

Erase the computer memory using the command G0\*\* then switch off the ignition. Carry out another check using the XR25 and if there is no fault, unlock the computer using command G81\*.

<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 left hand side illuminated</div> <div><u>Computer locked (voluntary request)</u></div>	Fiche n° 48
---	---	-------------

NOTES	None
-------	------

<p>This bargraph 11 left hand side allows computer locked status to be seen . When it is illuminated, all trigger lines are inhibited, preventing the release of the air bags and the seat belt pretensioners. This bargraph is normally illuminated in two situations :</p> <ul style="list-style-type: none"><li>- The computer is new (it is sold in locked mode).</li><li>- The XR25 computer locking command has been used during an operation on the vehicle (G80*).</li></ul>
--

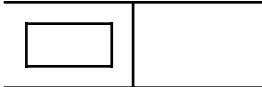
AFTER REPAIR	Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and if there is no fault, unlock the computer using command G81*.
--------------	---

<div>11</div> <div><div></div><div></div></div>	<div>Bargraph 11 right hand side illuminated</div> <div><u>Computer locked after an impact</u></div>	Fiche n° 48
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NOTES	First deal with bargraph 1 LH side if this is also illuminated (computer fault).
-------	--

<p>This bargraph is normally illuminated when an impact has been detected by the system and the computer was not locked before the impact. The computer may be used again if the computer fault bargraph is not also illuminated.</p>
<p>Replace any components which have been triggered (air bags and pretensioners). Unlock the computer using command G81*. Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and ensure that no faults are present.</p>

AFTER REPAIR	Erase the computer memory using the command G0** then switch off the ignition. Carry out another check using the XR25 and if there is no fault, unlock the computer using command G81*.
--------------	---

<div>16</div> 	<b>Bargraph 16 left hand side</b> <u>All trigger lines locked</u> <div>Fiche n° 48</div>
<b>NOTES</b>	None

This bargraph 16 left hand side allows computer locked status to be seen .

When it is illuminated, all trigger lines are inhibited, preventing the release of the air bags and the seat belt pretensioners.

This bargraph is normally illuminated in the following situations :

- The computer is new (it is sold in locked mode).
- The XR25 computer locking command has been used during an operation on the vehicle (G80\*).
- The computer is locked after an impact.

Bargraph 16 left hand side is therefore illuminated together with bargraphs 11 RH side and LH side.

**AFTER REPAIR**

Erase the computer memory using the command G0\*\* then switch off the ignition. Carry out another check using the XR25 and if there is no fault, unlock the computer using command G81\*.

<div>19</div> <div><div></div><div></div></div>	<div>Bargraph 19 left hand side</div> <div>Fiche n° 49</div> <div><u>Computer configuration "with passenger air bag"</u></div>
---	--

NOTES	None
-------	------

Bargraph 19 left hand side allows the computer configuration to be visualised and to ensure that it is correct for the vehicle.

If bargraph 19 left hand side is illuminated and the vehicle does not have a passenger air bag, use command **G20\*0\*** to configure for "without air bag passenger".

AFTER REPAIR	Erase the computer memory using the command <b>G0**</b> then switch off the ignition. Carry out another check using the XR25.
--------------	---

NOTES	Only carry out this conformity check after a complete XR25 check.
-------	---

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D49 (selector on S8)		<div>2.Ab</div>
2	Computer conformity	#02		<div>6</div>
3	Computer configuration		<div>19</div> <div><div></div><div></div></div>	Ensure that the computer configuration shown by this bargraph corresponds to the vehicle equipment.
4	Warning light operation - check computer initialisation	Switch on the ignition		3 second illumination of the warning light when switching on the ignition (consult fault finding if it remains illuminated or if it does not illuminate).

**REPLACING THE AIR BAG COMPUTER**

The air bag computers are sold in locked mode to avoid all risk of release at the wrong time (all trigger lines are inhibited). This operational mode is indicated by the illumination of the warning light on the instrument panel.

When replacing the air bag computer, follow this procedure :

- Ensure that the ignition is switched off.
- Replace the computer.
- Carry out an XR25 check.
- Unlock the computer using command **G81\***, only when no fault is declared by the XR25.

If the vehicle is not fitted with a passenger air bag, configure the computer to "without air bag passenger" using command G20\*0\*.



# REMOTE CONTROL FOR DOOR LOCKING FAULT FINDING

## CONTENTS

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## INSTALLATION OF XR25 DIALOGUE / MULTI-TIMER UNIT

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

n.56

## PRECAUTION

When carrying out the test using a multimeter, avoid using a test pin on connectors where the test pin is of a size which could damage the clips and lead to a poor contact.

**Pay attention to key head numbers.**

## ERASING THE MEMORY

After repairing the immobiliser system, enter **G0\*\*** on the keyboard of the XR25 kit to proceed with erasing the memorised fault.

**Resynchronising the keys**

- Press the central locking button for a few seconds until the immobiliser warning light illuminates and the door motors operate.
- Check that bargraphs 14LH, 14RH, 17LH, 17RH illuminate for a few seconds.
- Press the PLIP key twice; the doors will unlock then lock.
- Check bargraphs 14LH, 14RH, 17LH, 17RH again.

The resynchronisation is complete.

**Programming a second PLIP key or a replacement key**

- Enter G04\* and check that bargraph 9 LH is illuminated.
- Put the key in the ignition and switch the ignition on (+APC).
- Enter G40\*, then the security code (4 character code from Techline) and validate with \* (the display shows "FIN").
- Switch off the ignition. Enter command mode G32\*. The door motors operate.
- Press the remote control twice, the door motors operate again.

## PRESENTATION OF XR25 FICHE N° 56

N°56		S8 code : D 5 6		read : n56	
1	<input type="checkbox"/>	possible check on other side of fiche (x65)			CODE PRESENT <input type="checkbox"/>
2	<input type="checkbox"/>	TYPE OF PLIP	<input type="checkbox"/> IR	COMPUTER CONFIGURATION	INTERIOR LIGHT TIMER <input type="checkbox"/>
3	<input type="checkbox"/>	PROGRAMMING	1 key <input type="checkbox"/> 2 keys <input type="checkbox"/>	(fixed display)	DIESEL CODED SOL VALVE <input type="checkbox"/>
4	<input type="checkbox"/>	+ ACCESSOIRES PRESENT			+ APC PRESENT <input type="checkbox"/>
5	<input type="checkbox"/>	ELECTRIC DOOR LOCK BUTTON (CPE)			
6	<input type="checkbox"/>	DIESEL SOL ACQUITTAL			FAULTS
7	<input type="checkbox"/>	KEY INTERROGATION (CC) (only if valeo unit)			CODED LINE * 26 <input type="checkbox"/>
8	<input type="checkbox"/>	RE-READ DIESEL ACQ	KEY PRESENT <input type="checkbox"/>	CONTROL MODES : G...*	
9	<input type="checkbox"/>	PROTECTED MODE ENFORCED	RECVD (key code) <input type="checkbox"/>	23 Diesel sol. mechanical control Only if line 3 RH and line 6 RH/LH <input type="checkbox"/>	
10	<input type="checkbox"/>	IMMOBILISER ACTIVE	VALID <input type="checkbox"/>	Test Switch off ignition, enter G23*. Switch ign. on again, valve opens and closes for 30 secs (audible check)	
<p align="center"><b>IMMOBILISER (PLIP and KEY)</b></p> <p align="center">To read other side : G 02 * Erase memory : G 0 **</p>					
11	<input type="checkbox"/>	ACTIVATE PLIP (UNLOCKING)	SIGNAL RECVD	SIGNAL CORRECT <input type="checkbox"/>	03 Interior light control
12	<input type="checkbox"/>	INT. LIGHT CUT-OUT PRESENT USING PLIP (option depending on equip.)			08 Opening movement
13	<input type="checkbox"/>	ACTIVATE PLIP (signal)	UNLOCKING	LOCKING <input type="checkbox"/>	09 Closing movement
14	<input type="checkbox"/>	* 14 PRESS BUTTON : CPE	UNLOCKING(1)	LOCKING(0)	15 Raising electric window
15	<input type="checkbox"/>	AUTHORISED	ELECTRIC WINDOW (PLIP) (witch anti-pinch)		04 Protected mode enforced
16	<input type="checkbox"/>	DOOR SWITCHES (ILLUM. IF DOOR OPEN)			40*** security entry code
17	<input type="checkbox"/>	PROGRAMMING OR RESYNCHRO IN PROGRESS	PLIP	NOT PROGRAMMED <input type="checkbox"/>	Part No : G70 *
18	<input type="checkbox"/>	PROGRAMMING 1st KEY	KEY	PROGRAMMING AUTHORISED <input type="checkbox"/>	
19	<input type="checkbox"/>	NOT PROGRAMMED	KEY	PROGRAMMING NOT LOCKED (G60*) <input type="checkbox"/>	
20	<input type="checkbox"/>				TIMED DELAY SECURITY CODE ENTRY <input type="checkbox"/>
<p align="center">SEE REPAIR MANUAL</p>					
					17 ANG

FI21756

DESCRIPTION OF BARGRAPHS



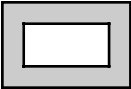
**Illuminates when dialogue is established with the product computer**, if it remains extinguished :

- the code does not exist,
- there is a line , computer or tool fault.

REPRESENTATION OF FAULTS (always on coloured background)



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



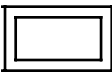
**Extinguished**, indicates non-detection of fault on the product tested.

REPRESENTATION OF STATUS (always on white background)

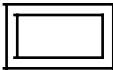
**Engine stopped, ignition on, no operator action**

Status Bargraphs on the fiche are shown as they should appear, engine stopped, ignition on, without operator action

- If on the fiche, the Bargraph is shown as
- If on the fiche, the Bargraph is shown as
- If on the fiche, the Bargraph is shown as



the kit should show



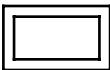
the kit should show



the kit should show

either  or 


**Engine running**



Extinguished when operation or condition specified on the fiche is no longer met.



Illuminated when operation or condition specified on the fiche is met.

<div>1</div> 	<div>Bargraph 1 RH side extinguished</div> <div>Fiche n° 56</div> <div><u>XR25 / MULTI-TIMER UNIT COMMUNICATION</u></div>
---	---

NOTES	Check that lines K and L are not disrupted by another computer.
-------	---

Check the condition of the + before ignition feed fuse. Replace the fuse if necessary.
Ensure that the XR25 is not the cause of the fault by trying to communicate with another computer on the vehicle (air conditioning computer, injection computer,...). Check that the ISO selector is in position <b>S8</b> , that the latest XR25 cassette is being used with the correct access code ( <b>D 56</b> ). Check the battery voltage ( <b>U &gt; 10.5 volts</b> ). Recharge the battery if necessary.
Check that the 18 track multi-timer unit connector is correctly connected. Check that the multi-timer unit is correctly fed: - <b>earth on track A1 of the black connector</b> for the multi-timer unit. - <b>+ before ignition feed on track B1 of the black connector</b> for the multi-timer unit.
Ensure the diagnostic socket is correctly fed. Check and ensure the continuity and insulation of the wiring for tracks <b>1 and 14 of the yellow connector</b> for the multi-timer unit.
If dialogue is still not established between the XR25 and the multi-timer unit, replace the unit.

AFTER REPAIR	When communication has been established, deal with any illuminated fault bargraphs. Carry out a conformity check.
--------------	--

<div>5</div> <div><div></div><div></div></div>	<div>Bargraph 5 LH side illuminated</div> <div>Fiche n° 56</div> <div><u>CENTRAL LOCKING BUTTON</u></div>
--	---

NOTES	Check that the central locking button is not permanently present due to a mechanical problem.
-------	---

Check the insulation from earth of the wiring between :	
<div>multi-timer unit yellow connector</div>	<div><div><div>22</div><div>7</div></div><div><div>→</div><div>→</div></div><div><div>5</div><div>1</div></div></div> <div>central locking button</div>
Repair if necessary.	
If the fault persists, replace the central locking button.	

AFTER REPAIR	Erase the memory using G0** on the XR25. Carry out a conformity check. Check the operation of the immobiliser system.
--------------	---

11

Bargraph 11 LH side illuminated and bargraph 11 RH side extinguished

Fiche n° 56

NOTES

If BG 17 RH side is illuminated, do not apply the fault finding as the multi-timer unit is new. Carry out the procedure for programming the PLIP keys. Only consult this fault finding below if BG 11 LH side remains extinguished after trying to lock or unlock the vehicle doors using the PLIP.

Check that the key will mechanically open the door.  
Can the door be opened?

NO

Use the correct key.

YES

Check the condition of the key battery and resynchronise the key.Press the PLIP.  
If the doors do not open, replace the key.

If the fault persists, replace the multi-timer unit.

AFTER REPAIR

Carry out a conformity check.  
Check the operation of the immobiliser system.



<div>11</div> <div><div></div><div></div></div>	<div>Bargraphs 11 LH side and 11 RH side extinguished</div> <div>Fiche n° 56</div>
---	--

<div>NOTES</div>	<div>Do not consult the fault finding below if, when the PLIP is pressed, <b>BG 11 LH side illuminates for 3 seconds and BG 11 RH side remains extinguished.</b></div> <div>Check that the keys belong to the vehicle.</div>
------------------	--

<div>Check that the key tell-tale illuminates when the key is pressed.</div> <div>Replace the battery if necessary and replace the key if the fault persists.</div>
<div>Connect the XR25 as a pulse detector (<b>button G, input via terminal Vin</b>) and check for the presence of a signal on track <b>11 of the yellow connector</b> for the multi-timer unit.</div> <div>Is there a signal?</div>

<div>YES</div>	<div>Check the condition of the wiring between <b>track 11 of the yellow connector and track 2</b> on the PLIP receiver.</div> <div>Repair if necessary.</div>
----------------	--

<div>NO</div>	<div>Replace the PLIP receiver.</div>
---------------	---------------------------------------

<div>AFTER REPAIR</div>	<div>Carry out a conformity check.</div> <div>Check the operation of the immobiliser system.</div>
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<div>14</div> <div><div></div><div></div></div>	<div>Bargraph 14 LH side illuminated or extinguished after pressing the PLIP</div> <div>Fiche n° 56</div>
---	---

NOTES	Bargraph 10 LH side must be illuminated.
-------	--

<div>Check the continuity and insulation in relation to 12 V and earth of the wiring between:</div> <div><div>multi-timer unit yellow connector</div><div><div>{</div><div>22 → 5 7 → 1</div><div>}</div></div><div>central locking button</div></div> <div>Repair the wiring if necessary or replace the switch.</div>	
if the fault persists, replace the multi-timer unit.	

AFTER REPAIR	<div>Erase the memory using G0** on the XR25.</div> <div>Carry out a conformity check.</div> <div>Check the operation of the immobiliser system.</div>
--------------	--

NOTES	Only refer to these customer complaints after a complete check using the XR25.
-------	--

- OPENING ELEMENTS CANNOT BE LOCKED OR UNLOCKED
- Chart 1
- DOOR OPENING PROBLEM USING PLIP FUNCTION
- Chart 2

Chart 1	OPENING ELEMENTS CANNOT BE LOCKED OR UNLOCKED
NOTES	Check that no fault bargraphs are illuminated. If they are, deal with those bargraphs first.

Check the correct operation of the mechanical opening system for the opening elements.

Otherwise replace the multi-timer unit.

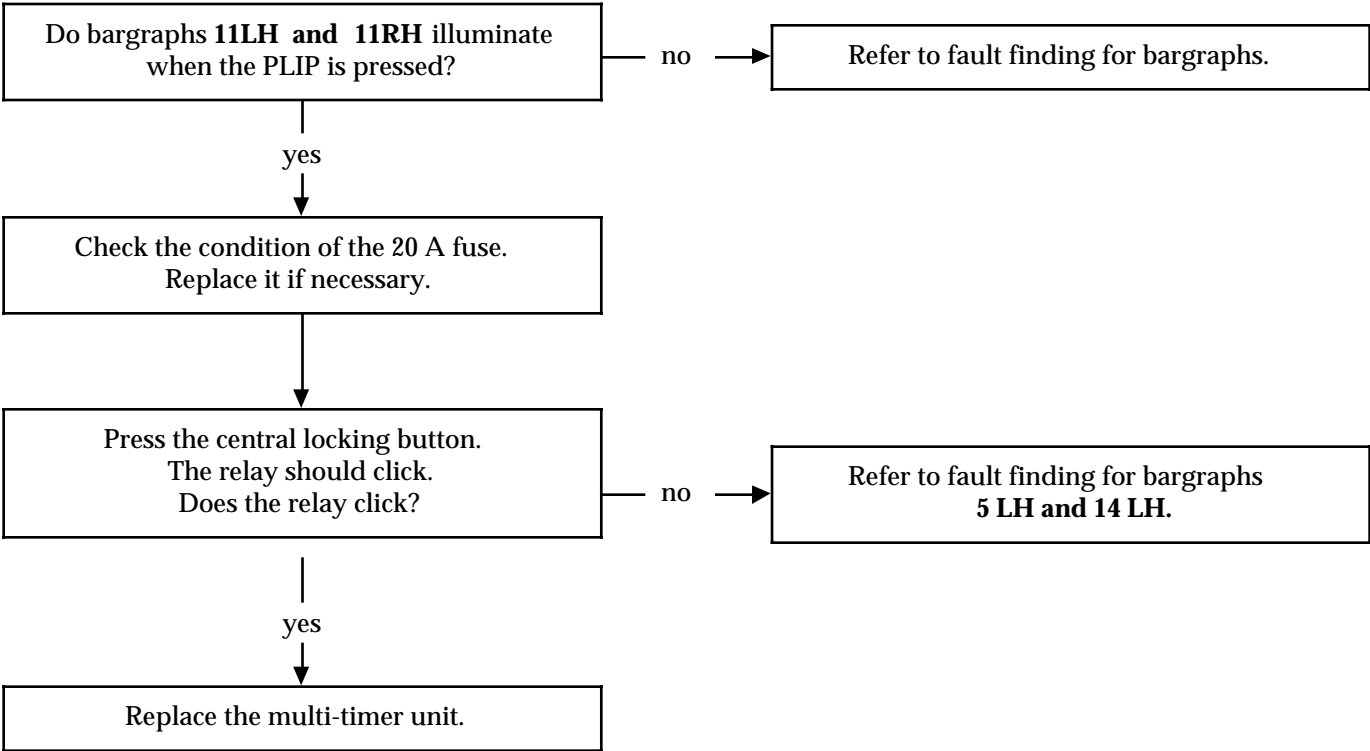
AFTER REPAIR	Carry out a conformity check. Check the operation of the immobiliser system.
--------------	---

Chart 2

DOOR OPENING PROBLEM USING PLIP FUNCTION

NOTES

Check that no fault bargraphs are illuminated.  
If they are, deal with those bargraphs first.



AFTER REPAIR

Carry out a conformity check.  
Check the operation of the immobiliser system.

NOTES	If a fault bargraph illuminates, refer to the corresponding fault finding.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
1	Dialogue with XR25	D56 (selector on S8)		<div>n.56</div>
2			<div>1</div> <div><div></div><div></div></div>	Code present
3	Multi-timer unit conformity	G70*		<div>X X X</div> Part No. displayed in 2 sequences
4	Interpretation of bargraphs normally illuminated		<div>2</div> <div><div></div><div></div></div> <div>2</div> <div><div></div><div></div></div> <div>3</div> <div><div></div><div></div></div>	<p>Remote control type:</p> <ul style="list-style-type: none"><li>- Illuminated for infrared remote control.</li><li>- Extinguished for radio frequency remote control</li></ul> <p>Illuminated if fitted with courtesy light timer. Extinguished if not fitted with courtesy light timer.</p> <p>Illuminated for programming with 2 keys. Extinguished if programming with 1 key.</p>

NOTES	If a fault bargraph illuminates, refer to the corresponding fault finding.
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
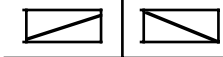
Order of operations	Function to be checked	Action	Bargraph	Display and notes
5	Computer configuration as petrol/diesel		<div>3</div> <div><div></div><div></div></div>	<p>Illuminated if configured for a diesel vehicle. Extinguished if configured for a petrol vehicle. Command :</p> <ul style="list-style-type: none"><li>- G22 *1* configuration for petrol</li><li>- G22 *2* configuration for diesel</li></ul>
6	Forced protection mode		<div>9</div> <div><div></div><div></div></div>	<p>Illuminated only after entering G04* on the XR25. Vehicle cannot be started while BG 9 LH side is illuminated.</p>
7	Immobiliser status		<div>10</div> <div><div></div><div></div></div>	<p>Illuminated if immobiliser is active: switch off ignition and wait for 10 seconds for BG 10 LH to illuminate permanently. Extinguished if immobiliser inactive.</p>
8	Presence of the key		<div>8</div> <div><div></div><div></div></div>	<p>Illuminated when ignition switched on if a coded key is used (on condition that the vehicle was protected before switching on the ignition, immobiliser warning light flashing). <b>NOTE:</b> for normal operation, bargraph 8 RH, 9 RH and 10 RH illuminate together</p>

NOTES	If a fault bargraph illuminates, refer to the corresponding fault finding.
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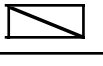
Order of operations	Function to be checked	Action	Bargraph	Display and notes
9	Reception of the key code		<div>9</div> <div><div></div><div></div></div>	<p>Illuminated when ignition switched on if a coded key of the correct format is used (on condition that the vehicle was protected before switching on the ignition, immobiliser warning light flashing).</p> <p><b>NOTE:</b> for normal operation, bargraph 8 RH, 9 RH and 10 RH illuminate together</p>
10	Key code valid		<div>10</div> <div><div></div><div></div></div>	<p>Illuminated when ignition switched on if a coded key of the correct format is used (on condition that the vehicle was protected before switching on the ignition, immobiliser warning light flashing).</p> <p><b>NOTE:</b> for normal operation, bargraph 8 RH, 9 RH and 10 RH illuminate together</p>
11	Reception of infrared signal from the PLIP		<div>11</div> <div><div></div><div></div></div> <div>11</div> <div><div></div><div></div></div>	<p>Illuminated for approximately 3 seconds if the infrared signal is received by the multi-timer unit via the infrared receiver.</p> <p>Illuminated for approximately 3 seconds if the infrared signal received by the multi-timer unit via the infrared receiver is a correct signal.</p>
12	Presence of interior lighting cut-out after PLIP operation		<div>12</div> <div><div></div><div></div></div>	Not used



NOTES	If a fault bargraph illuminates, refer to the corresponding fault finding.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
13	Reception of door lock/unlock information from the central door locking button		<div>14</div> <div></div>	<p>Illuminated when door lock/unlock information is received from the central door locking button.</p> <p>Enter * 14 on the XR25 to determine the information received by the multi-timer unit:</p> <ul style="list-style-type: none"><li>- if * 14 = 0 door lock information</li><li>- if * 14 = 1 door unlock information</li></ul>
14	Sending of door lock/unlock information by the multi-timer unit to the locking micromotors		<div>14</div> <div></div>	<p>Illuminated when door lock/unlock information is sent from the multi-timer unit to the locking micromotors.</p> <p>Enter * 34 on the XR25 to determine the information sent by the multi-timer unit:</p> <ul style="list-style-type: none"><li>- if * 34 = 0 door unlock information</li><li>- if * 34 = 1 door lock information</li></ul> <p>(NOTE : ignore what is written on fiche n° 56, XR25 cassette, n° 16).</p>
15	Reception of electric window information		<div>15</div> <div></div>	Not used

NOTES	If a fault bargraph illuminates, refer to the corresponding fault finding.
-------	--

Order of operations	Function to be checked	Action	Bargraph	Display and notes
16	Reception of door switch information		<div>16</div> <div></div>	Illuminated if doors are open
17	Reception of information that programming is underway or multi-timer resynchronisation or programming has not been carried out		<div>17</div> <div></div>	17 LH illuminated if programming or resynchronisation underway. 17 RH illuminated if programming has not been carried out
18	Reception of programming with 1st key information		<div>18</div> <div></div>	Illuminated if programming of 1st key underway
19	Reception of information that programming has not been carried out  Reception of information that programming has not been locked		<div>19</div> <div> <div>19</div><div></div></div>	
20	Reception of information that security code input has been temporarily blocked		<div>20</div> <div></div>	

## ADDITIONAL TESTS

## COMMAND MODES G--\*

To use this function, enter G on the XR25 followed by the number of the command mode selected and a star.

- 03** Courtesy light command (illuminates the courtesy light for 3 seconds).
- 04** Forced protection mode: activates the immobiliser function even if the key is correct, which allows checking of starting prevention. Bargraph 9 LH side must illuminate.  
This command must be entered when the ignition is off and the immobiliser is active.
- IMPORTANT:** switching off the ignition cancels this command.
- 05** Immobiliser warning light command (illuminates the immobiliser warning light for 3 seconds).
- 08** Door unlock command (operates the micromotors for 3 seconds, unlock side).
- 09** Door lock command (operates the micromotors for 3 seconds, lock side).
- 13** End fault finding.
- 22** Configuration :  
- **G 22 \* 1 \*** = configuration for petrol (bargraph 3 RH side must be extinguished).  
- **G 22 \* 2 \*** = configuration for diesel (bargraph 3 RH side must be illuminated).
- 23** Solenoid valve forced test mode (used on diesel vehicles only).  
Activates the coded solenoid valve (open / close) for approximately 30 seconds (listen).  
**NOTE:**  
- the multi-timer unit must be configured for diesel  
- bargraph 8 LH side must be illuminated during the test.

## ADDITIONAL TESTS

## COMMAND MODES G--\*

To use this function, enter G on the XR25 followed by the number of the command mode selected and a star.

- 32** Programming for 2nd PLIP key.
- 40** Entering the security code (bargraph 10 LH side must be illuminated and the ignition must be on). This mode can be used for entering the security code, but does not allow decoding of the injection computer or coded solenoid valve.  
Enter the security code number for the vehicle on the XR25 and validate with "\*".  
If the code number is correct, "**bon**" is displayed on the XR25 and bargraph 10 LH side extinguishes.  
If the code number is incorrect, "**Fin**" is displayed on the XR25 and bargraph 10 LH side remains illuminated.  
**IMPORTANT:** three attempts to enter the code may be made. If, at the end of the third attempt, the code is invalid, you must wait for **15 minutes** before another attempt may be made (the ignition must be switched off and on again between each attempt to enter the code).
- 47** Courtesy light timer configuration:  
- **G 47 \* 0 \*** = cancels courtesy light timer.  
- **G 47 \* 1 \*** = activates courtesy light timer.
- 70** Reading the part number (of the multi-timer unit).

## LIST OF VARIOUS #

- 26** Source of the last opening element command:  
1 → Infrared remote control  
2 → Central locking button
- 27** Type of last opening element command:  
1 → Unlock  
2 → Lock
- 95** Manufacturer (1 = Valéo, 2 = Sagem).