



1 Engine and peripherals

17B PETROL INJECTION

CB1U - CB1H

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EDITION ANGLAISE

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

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

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Engine and peripherals

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This document introduces the special fault finding procedure applicable to all computers:
"BOSCH MOTRONIC ME 7.4.6" fitted to the CLIO V6 phase II with an L7X 762 engine.

- The following are required for carrying out fault finding on this system:
- This Fault Finding Technical Note,
 - The electrical wiring diagram of the function for the vehicle concerned,
 - The CLIP or NXR diagnostic tool, a multimeter and test bornier no. 1613 Elé.

GENERAL APPROACH TO FAULT FINDING

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

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

COMPUTER PART NUMBER	ME 7.4.6
VDIAG NUMBER	08
PROGRAM NUMBER (from)	12

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

DESCRIPTION OF THE FAULT FINDING STAGES

1 FAULT CHECKING

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

Order of priority:

Electrical faults must be processed before On Board Diagnostic (OBD) faults (**DF111, DF112, DF113, DF114, DF185, DF186** misfiring on cylinders 1 to 6; **DF183, DF184** catalytic converters nos. 1 and 2; **DF202, DF203** fuel supply, rows A and B; **DF204 and DF205** ageing of upstream sensor, rows A and B); **DF198, DF199** heating of upstream oxygen sensors 1 and 2.

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

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

DESCRIPTION OF THE FAULT FINDING STAGES (continued)

NOTE:

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

If a fault is interpreted when it is declared as stored, the conditions for applying fault finding appear in the NOTES box. If the conditions are not met, use the fault finding procedure to check the circuit of the faulty component, since the fault is no longer present on the vehicle.

Perform the same operation when a fault is declared "stored" by the fault finding tool but is only described in the documentation for a "present" fault.

2 CONFORMITY CHECK

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

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

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

3 DIAGNOSTIC TOOL TEST OK

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

Dealing with the customer complaint:

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

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

SPECIAL FEATURES OF THE ME 7.4.6 INJECTION SYSTEM

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

1 MOTORISED THROTTLE VALVE

1.1 General information

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

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

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

1.2 Throttle programming procedure

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

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

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

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

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

1.3 Programming the motorised throttle limp-home position

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

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

1.4 Testing the motorised throttle springs (automatic)

1.4.1 Testing the return springs

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

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

- no irreversible cut-off in fuel supply,
- motorised throttle is powered,
- no reaction to a dependability-type fault,
- throttle position regulation active,
- sufficient battery voltage (between 11 and 15 V),
- vehicle stopped,
- engine speed nil,
- engine coolant temperature above 6°C,
- air temperature above 6°C.

1.4.2 Testing spring opening

Closing the throttle from the limp-home position, then cutting the power stage of the motorised throttle, allows you to check forced return to the limp-home position caused by opening the spring. In the event of a fault, the limp-home position of the throttle is activated.

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

2 WARNING LIGHT MANAGEMENT

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

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

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

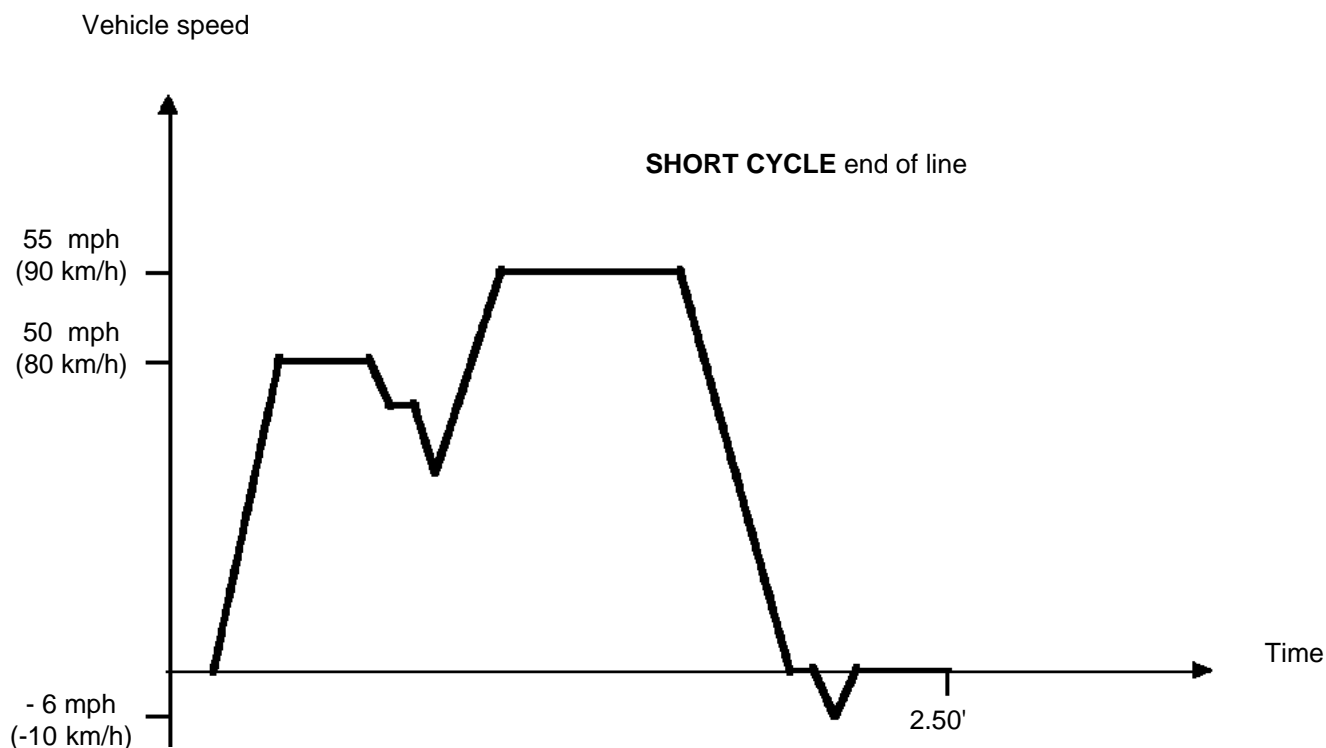
In normal operation, if the indicator light is lit continuously, the injection system is exceeding the pollution threshold due to an OBD fault (misfiring, ageing of the oxygen sensors or a fault on the fuel supply) or an electrical fault leading to an OBD fault (injector, coil, etc.). **Flashing of this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

3 OBD TEST DRIVING CONDITIONS

There are two ways of activating OBD tests:

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

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



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

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

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

3.1 Procedure to confirm the repair of an OBD fault

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

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

3.2 Additional information about the conditions for performing the OBD test

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

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

4 CORRESPONDENCE BETWEEN COMPUTER CONNECTOR NAMES AND COLOURS

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

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

AFTER REPAIR	Clear the stored faults. Deal with any other possible faults.
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DF004 PRESENT OR STORED	<u>Coolant temperature sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CO.1 : Open circuit or short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Special notes: A short circuit on the sensor or a short circuit on the two tracks of the sensor will not necessarily be detected by the diagnostic tool (the computer gives priority to defect mode rather than to reporting the fault) but the overheating warning light will be switched on, the engine cooling fans will switch on in second gear and the coolant temperature will be set to 120°C on the diagnostic tool (substitute value). If this case arises, the following fault finding procedure should be applied.
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CO - CC.0 - CO.1	NOTES	Run this fault finding procedure only in case of a fault present with CO , CC.0 and CO.1 .
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Check the connection and condition of the coolant temperature sensor connector. Replace the connector if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector A) track D3 —————> track 1 of the coolant temperature sensor computer (connector A) track D2 —————> track 2 of the coolant temperature sensor Repair if necessary.
Measure the resistance of the coolant temperature sensor between tracks 1 and 2 . Replace the sensor if the resistance is not approximately: 5000 Ω ±150 Ω at 25 °C. (For more details, refer to the repair method for the electrical specifications of the sensor depending on temperature).
With the ignition on, check for the presence of a 5 volt supply on track 1 of the sensor. If there is no supply, contact your Techline.
If the fault persists, replace the coolant temperature sensor.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF004 (continued)	
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
1.DEF	NOTES	Conditions for carrying out fault finding on stored faults: The fault is declared present after the engine is started (cold engine) and then allowed to warm to 60 °C.
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Ensure the conformity of the engine cooling circuit : radiator in good condition, unobstructed flow of cooling air (radiator not blocked by leaves, etc.), coolant circuit correctly bled, etc.
Using the diagnostic tool, monitor the engine coolant temperature (PR002). After starting (cold engine), at idle speed the temperature should rise uniformly without wavering. If the temperature rise is not linear (temperature curve rises or falls sharply), replace the coolant temperature sensor.
If the fault persists, replace the coolant temperature sensor.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF008 PRESENT OR STORED	<u>Fuel pump relay control circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Priority in the event of a number of faults: First, deal with the DF157 "Battery voltage" fault if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the relay using the AC010 "fuel pump relay" command.
	Special note: On the after-sales diagram, the fuel pump relay is referred to as the injection relay.

Check the condition of the clips on the injection relay (on the engine fuse/relay plate). Replace the clips if necessary.
Ensure the presence of +12 V before ignition on track 1 and on track 3 of the injection relay. Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector C) track H4  track 2 of the injection relay Repair if necessary.
Measure the resistance between tracks 1 and 2 of the relay. Replace the relay if the resistance is not approximately: 65 Ω ± 5 Ω at 25 °C.
If the fault persists, replace the injection relay.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF010 PRESENT OR STORED	<u>Low-speed fan circuit (fan assembly 1)</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the relay using the AC271 "Low-speed fan relay" command.
	Special notes: This fault only appears on the diagnostic tool when the computer has detected a fault on the relay control circuit. It is therefore essential to refer to the vehicle diagram in order to check the power circuit of the fan assembly relays.

Check the condition of the clips of the fan assembly 1 relays (on the engine fuse/relay plate). Replace the clips if necessary.
Ensure the presence of +12 V before ignition on track 1 of the fan assembly 1 relays (large purple 50 A relay and small black or grey 25 A relay: see diagrams). Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector B) track J4 —————> track 2 of the fan assembly 1 relays Repair if necessary.
Measure the resistance of the relays by measuring between tracks 1 and 2 of the relays. Replace the relays if the resistance is not approximately: – 85 Ω ± 5 Ω at 25°C for the black or grey 25 A relay. – 65 Ω ± 5 Ω at 25°C for the purple 50A relay.
If the fault persists, replace the fan assembly 1 relays.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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<p>DF014 PRESENT OR STORED</p>	<p><u>Canister bleed solenoid valve circuit</u></p> <p>CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the solenoid valve using the AC016 "Canister bleed solenoid valve" command.</p>
<p>Check the connection and condition of the canister bleed solenoid valve connector. Replace the connector if necessary.</p>	
<p>With the ignition switched on, check for the presence of +12 V on track 1 of the canister bleed solenoid valve. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection:</p> <p style="text-align: center;">injection relay track 5 —————→ track 1 of the canister bleed solenoid valve</p> <p>Repair if necessary.</p>	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection:</p> <p style="text-align: center;">computer (connector C) track F4 —————→ track 1 of the canister bleed solenoid valve</p> <p>Repair if necessary.</p>	
<p>Measure the resistance of the canister bleed solenoid valve between tracks 1 and 2. Replace the solenoid valve if the resistance is not approximately: 26 Ω ± 4 Ω at 23 °C.</p>	
<p>If the fault persists, replace the canister bleed solenoid valve.</p>	

<i>AFTER REPAIR</i>	<p>Clear the stored faults.</p> <p>Follow the instructions to confirm repair.</p> <p>Deal with any other possible faults.</p>
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DF015 PRESENT OR STORED	<u>Air conditioning authorisation signal</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V DEF : Unidentified electrical fault
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after switching on the air conditioning.
	Special notes: No injection or air conditioning faults must be present, since the defect modes of these computers can prevent the air conditioning from being switched on.

Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer connector B track D3 —————> track 24 of the air conditioning computer Repair if necessary.
If the fault persists, carry out a fault finding procedure on the air conditioning system.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF022 PRESENT	Computer
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NOTES	Special note: Engine does not start.
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Make sure that the battery charge is correct. If it is not correct, carry out fault finding on the charge circuit.	
Connect the borrier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector C) track L3 —————> track 5 of the injection locking relay computer (connector C) track E1 —————> track 2 of the injection locking relay computer (connector B) track B4 —————> injection fuse: + after ignition (see vehicle wiring diagrams) computer (connector A) track H1 —————> earth computer (connector B) track L4 —————> earth computer (connector B) track M4 —————> earth computer (connector C) track M4 —————> earth Repair if necessary.	
If the fault persists, contact your Techline.	

AFTER REPAIR	Clear the stored faults. Deal with any other possible faults.
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<p>DF030 PRESENT OR STORED</p>	<p><u>Low-speed fan circuit (fan assembly 2)</u></p> <p>CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the relay using the AC272 "High-speed fan relay" command.</p>
	<p>Special note: This fault appears on the diagnostic tool only when the computer has detected a fault on the relay control circuit. It is therefore essential to refer to the vehicle diagram in order to check the power circuit of the fan assembly relays.</p>
<p>Check the condition of the clips of the fan assembly 2 relays (on the engine fuse/relay plate). Replace the clips if necessary.</p>	
<p>Ensure the presence of a +12 V before ignition on tracks 1 and 3 of the fan assembly 2 relay (large purple 50A relay) and on track 1 of the second fan assembly 2 relay (small black or grey 25A relay). Repair if necessary.</p>	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector B) track K4 —————> track 2 of the fan assembly 2 purple relay computer (connector B) track K4 —————> track 2 of the fan assembly 2 black or grey relay</p> <p>Repair if necessary.</p>	
<p>Measure the resistance between tracks 1 and 2 of the relays. Replace the relays if the resistance is not approximately:</p> <ul style="list-style-type: none"> – 90 Ω ± 5 Ω at 25°C for the black or grey 25 A relay. – 65 Ω ± 5 Ω at 25°C for the purple 50A relay. 	
<p>If the fault persists, replace the fan assembly 2 relays.</p>	

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF045 PRESENT OR STORED	<u>Inlet manifold pressure sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CO.1 : Open circuit or short circuit to +12 V 1.DEF : Inconsistent signal
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NOTES	Priority in the event of a number of faults: Deal with fault DF137 "Motorised throttle" first if it is present or stored.
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CO - CC.0 - CO.1	NOTES	Run this fault finding procedure only in case of a present fault with CO , CC.0 and CO.1 .
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Ensure that the pressure sensor is correctly inserted in the inlet manifold.
Check the connection and condition of the pressure sensor connector. Replace the connector if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector A) track B3 —————→ track 1 of the pressure sensor computer (connector A) track C3 —————→ track 2 of the pressure sensor computer (connector A) track A3 —————→ track 3 of the pressure sensor Repair if necessary.
Check for the presence of a 5 volt supply on track 3 of the sensor. If there is no supply, contact your Techline.
If the fault persists, change the pressure sensor.

1.DEF	NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Ensure there are no air leaks on the inlet manifold, particularly on the inlet manifold pressure sensor (behind the manifold).
Check on the diagnostic tool that parameter PR001 "Manifold pressure" indicates a consistent value (if necessary perform a conformity check). If the pressure measurement is not consistent, replace the manifold pressure sensor.
If the fault persists, replace the manifold pressure sensor.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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<p>DF084 PRESENT OR STORED</p>	<p><u>Cylinder injector 1 command</u></p> <p>CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the injector using the AC040 "Cylinder injector 1" command.</p>
<p>Note: *<u>In the event of CC.0:</u> the ignition on the faulty cylinders is maintained to prevent exhaust combustion problems, as the injectors are then permanently open. *<u>In the event of C0 or CC.1:</u> the engine functions on all cylinders except for the faulty cylinders.</p> <p>Check the connection and condition of the injector connector. Replace the connector if necessary.</p> <p>With the ignition on, check for the presence of +12 V on track 1 of the injector.</p> <p>If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="text-align: center;"> <p>injection relay 15-track calliper connector injector 1</p> <p>track 5 track 7 track 1</p> <p>→ → →</p> </div> <p>Repair if necessary.</p> <p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="text-align: center;"> <p>computer connector C 15-track calliper connector injector 1</p> <p>track K1 track 1 track 2</p> <p>→ → →</p> </div> <p>Repair if necessary.</p> <p>Measure the resistance of the injector across tracks 1 and 2. Replace the injector if the resistance is not approximately 14.5 Ω ± 0.7 Ω at 20 °C.</p> <p>If the fault persists, replace injector No. 1.</p>	

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.</p>
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<i>AFTER REPAIR</i>	<p>Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter.</p> <p>Deal with any other possible faults.</p>
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DF086 PRESENT OR STORED	<u>Cylinder injector 3 command</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the injection using the AC042 "Cylinder injector 3" command.
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Note: * <u>In the event of CC.0:</u> ignition on the faulty cylinders is maintained to prevent exhaust combustion problems, as the injectors are then permanently open. * <u>In the event of C0 or CC.1:</u> the engine functions on all cylinders except for the faulty cylinders.	
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="margin: 0 10px;"> → </div> <div style="text-align: center;"> 15-track calliper connector track 7 </div> <div style="margin: 0 10px;"> → </div> <div style="text-align: center;"> injector 3 track 1 </div> </div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> computer connector C track K3 </div> <div style="margin: 0 10px;"> → </div> <div style="text-align: center;"> 15-track calliper connector track 3 </div> <div style="margin: 0 10px;"> → </div> <div style="text-align: center;"> injector 3 track 2 </div> </div> Repair if necessary.	
Measuring the resistance of the injector across tracks 1 and 2 . Replace the injector if the resistance is not approximately 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector No. 3.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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<p>DF087 PRESENT OR STORED</p>	<p><u>Cylinder injector 4 command</u></p> <p>CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or running the AC043 "Cylinder injector 4" command.</p>
<p>Note: *<u>In the event of CC.0:</u> ignition on the faulty cylinders is maintained to prevent exhaust combustion problems, as the injectors are then continuously open. *<u>In the event of C0 or CC.1:</u> the engine functions on all cylinders except for the faulty cylinders.</p> <p>Check the connection and condition of the injector connector. Replace the connector if necessary.</p> <p>With the ignition on, check for the presence of +12 V on track 1 of the injector.</p> <p>If there is no supply, check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> <p>injection relay track 5</p> </div> <div style="text-align: center;"> <p>————→</p> </div> <div style="text-align: center;"> <p>black 15-track calliper connector track 7</p> </div> <div style="text-align: center;"> <p>————→</p> </div> <div style="text-align: center;"> <p>injector 4 track 1</p> </div> </div> <p>Repair if necessary.</p> <p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> <p>computer connector C track J4</p> </div> <div style="text-align: center;"> <p>————→</p> </div> <div style="text-align: center;"> <p>15-track calliper connector track 4</p> </div> <div style="text-align: center;"> <p>————→</p> </div> <div style="text-align: center;"> <p>injector 4 track 2</p> </div> </div> <p>Repair if necessary.</p> <p>Measure the resistance of the injector across tracks 1 and 2. Replace the injector if the resistance is not approximately 14.5 Ω ± 0.7 Ω at 20 °C.</p> <p>If the fault persists, replace injector No. 4.</p>	

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.</p>
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DF111 PRESENT OR STORED	<u>Misfiring on cylinder 1</u>
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NOTES	<p>Priority in the event of a number of faults: First deal with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command"; DF192, DF193, DF194, DF195, DF196, DF197, "Cylinder coils 1 to 6 command"; DF238, "Engine speed sensor"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF202, DF203, "Fuel supply for rows A and B" and DF198, DF201 "Heating of upstream and downstream oxygen sensors, rows A and B"; DF165, "Misfiring detection" if present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.</p>

Check the ignition system by checking **the condition of the spark plug** and the low and high voltage contacts of the coil of cylinder 1.
Replace any faulty components.

Check the **compression ratio** of cylinder 1.
Repair if necessary.

Check **the flywheel ring gear** (warping or cracks).
Replace the flywheel if necessary.

Ensure that there are **no leaks** on the inlet manifold.
Repair if necessary.

If no fault is found, then there must be **a fault in the fuel circuit**. Therefore check:

- the condition of the fuel filter,
- the petrol flow and pressure (the pressure should be equal to 3.5 bar),
- the cleanliness of the tank,
- the condition of cylinder injector 1,
- the conformity of the fuel.

Replace the faulty component.

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF112 PRESENT OR STORED	<u>Misfiring on cylinder 2</u>
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NOTES	Priority in the event of a number of faults: First deal with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command"; DF192, DF193, DF194, DF195, DF196, DF197, "Cylinder coils 1 to 6 command"; DF238, "Engine speed sensor"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF202, DF203, "Fuel supply for rows A and B" and DF198, DF201 "Heating of upstream and downstream oxygen sensors, rows A and B"; DF165, "Misfiring detection" if present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.
	Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system by checking the condition of the spark plug and the low and high voltage contacts of the coil of cylinder 2. Replace any faulty components.
Check the compression ratio of cylinder 2. Repair if necessary.
Check the flywheel ring gear (warping or cracks). Replace the flywheel if necessary.
Ensure that there are no leaks on the inlet manifold. Repair if necessary.
If no fault is found, then there must be a fault in the fuel circuit . Therefore check: <ul style="list-style-type: none">– the condition of the fuel filter,– the petrol flow and pressure (the pressure should to be equal to 3.5 bar),– the cleanliness of the tank,– the condition of cylinder injector 2,– the conformity of the fuel. Replace the faulty component.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF113 PRESENT OR STORED	<u>Misfiring on cylinder 3</u>
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NOTES	Priority in the event of a number of faults: First deal with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command"; DF192, DF193, DF194, DF195, DF196, DF197, "Cylinder coils 1 to 6 command"; DF238, "Engine speed sensor"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF202, DF203, "Fuel supply for rows A and B" and DF198, DF201 "Heating of upstream and downstream oxygen sensors, rows A and B"; DF165, "Misfiring detection" if present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.
	Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system by checking the condition of the spark plug and the low and high voltage contacts of the coil of cylinder 3. Replace any faulty components.
Check the compression ratio of cylinder 3. Repair if necessary.
Check the flywheel ring gear (warping or cracks). Replace the flywheel if necessary.
Ensure that there are no leaks on the inlet manifold. Repair if necessary.
If no fault is found, then there must be a fault in the fuel circuit . Therefore check: <ul style="list-style-type: none">– the condition of the fuel filter,– the petrol flow and pressure (the pressure should to be equal to 3.5 bar),– the cleanliness of the tank,– the condition of the cylinder 3 injector,– the conformity of the fuel. Replace the faulty component.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF114 PRESENT OR STORED	<u>Misfiring on cylinder 4</u>
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NOTES	<p>Priority in the event of a number of faults: First deal with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 control"; DF192, DF193, DF194, DF195, DF196, DF197, "Cylinder coils 1 to 6 control"; DF238, "Engine speed sensor"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF202, DF203, "Fuel supply for rows A and B" and DF198, DF201 "Heating of upstream and downstream oxygen sensors, rows A and B"; DF165, "Misfiring detection" if present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.</p>

Check the ignition system by checking **the condition of the spark plug** and the low and high voltage contacts of the coil of cylinder 4.
Replace any faulty components.

Check the **compression ratio** of cylinder 4.
Repair if necessary.

Check **the flywheel ring gear** (warping or cracks).
Replace the flywheel if necessary.

Ensure that there are **no leaks** on the inlet manifold.
Repair if necessary.

If no fault is found, then there must be **a fault in the fuel circuit**. Therefore check:

- the condition of the fuel filter,
- the petrol flow and pressure (the pressure should to be equal to 3.5 bar),
- the cleanliness of the tank,
- the condition of cylinder injector 4,
- the conformity of the fuel.

Replace the faulty component.

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF118 PRESENT OR STORED	<u>Refrigerant fluid pressure sensor circuit</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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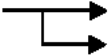
NOTES	Priority in the event of a number of faults: Deal first with faults DF010 "Low-speed fan circuit" and DF126 "Pedal potentiometer track 2" if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the air conditioning has been switched on and the passenger compartment fan assembly is operating.

Check the connection and condition of the refrigerant pressure sensor connector. Replace the connector if necessary.
Connect the borrier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: <div><div>computer (connector B) track D4</div><div>computer (connector B) track E4</div><div>computer (connector B) track A3</div></div> <div><div>→ track 1 of the refrigerant pressure sensor</div><div>→ track 2 of the refrigerant pressure sensor</div><div>→ track 3 of the refrigerant pressure sensor</div><div>→ track 1 of the pedal potentiometer (track 2)</div></div> Repair if necessary.
With the ignition on, check for the presence of a 5 volt supply on track 2 of the sensor. If there is no power supply, contact your Techline.
If the fault persists, replace the refrigerant fluid pressure sensor.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF125 PRESENT	<u>Pedal potentiometer circuit track 1</u> CO.1 : Open circuit or short circuit to +12 V CO.0 : Open circuit or short circuit to earth 1.DEF : Inconsistent signal
NOTES	Priority in the event of a number of faults: deal with fault DF126 "Pedal potentiometer circuit 2" first if it is present or stored.
Check the connection and condition of the pedal potentiometer connector. Replace the connector if necessary.	
Check that the accelerator pedal is properly actuating the sensor.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector B) track A1 —————▶ track 3 of the accelerator pedal sensor computer (connector B) track K1 —————▶ track 2 of the accelerator pedal sensor computer (connector B) track B1 —————▶ track 4 of the accelerator pedal sensor Repair if necessary.	
Measure the resistance of track 1 across potentiometer tracks 2 and 4 . Replace the potentiometer if the resistance is not approximately: 1.2 KΩ ± 480 Ω at 20°C.	
With the ignition on, check for the presence of a 5 volt supply on track 4 of the potentiometer. If there is no power supply, contact your Techline (carry out programming and configurations again: see introduction).	
Replace the pedal potentiometer if the fault persists.	

AFTER REPAIR	<p>Clear the stored faults.</p> <p>Deal with any other possible faults.</p>
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DF126 PRESENT	<p><u>Pedal potentiometer circuit track 2</u></p> <p>CO.1 : Open circuit or short circuit to +12 V CO.0 : Open circuit or short circuit to earth 1.DEF : Inconsistent signal</p>
NOTES	None.
Check the connection and condition of the pedal potentiometer connector. Replace the connector if necessary.	
Check that the accelerator pedal is properly actuating the sensor.	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <div><div>computer (connector B) track A3</div><div>computer (connector B) track A2</div><div>computer (connector B) track H1</div></div> <div></div> <div>track 1 of the accelerator pedal sensor track 3 of the refrigerant pressure sensor track 6 of the accelerator pedal sensor track 5 of the accelerator pedal sensor</div> <p>Repair if necessary.</p>	
Measure the resistance of track 2 across potentiometer tracks 5 and 1 . Replace the potentiometer if the resistance is not approximately 1.7 kΩ ± 680 Ω at 20 °C.	
With the ignition on, check for the presence of a 5 volt supply on track 5 of the potentiometer. If there is no power supply, contact your Techline (carry out programming and configurations again: see introduction).	
Replace the pedal potentiometer if the fault persists.	

AFTER REPAIR	<p>Clear the stored faults. Deal with any other possible faults.</p>
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<p>DF135 PRESENT OR STORED</p>	<p><u>Brake pedal sensor circuit</u> CO.1 : Open circuit or short circuit to +12 V</p>						
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the brake pedal has been depressed for 2 seconds ten times.</p>						
<p>Check the connection and condition of the brake pedal switch connector. Replace the connector if necessary.</p>							
<p>Ensure correct adjustment of the brake pedal switch (refer to Repair methods).</p>							
<p>With the ignition on, check for presence of +12 V on track A1 and track B1 of the brake light switch.</p>							
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector B) track B2 —————▶ track B3 of the brake light switch computer (connector B) track M1 —————▶ track A3 of the brake light switch Repair if necessary.</p>							
<p>Disconnect the pedal sensor connector and check the condition of the contacts using an ohmmeter. Replace the pedal sensor if it does not operate as specified below:</p> <table border="0"> <tr> <td data-bbox="222 1121 385 1153">Pedal at rest</td> <td data-bbox="786 1121 1009 1153">Pedal depressed</td> </tr> <tr> <td data-bbox="118 1153 563 1185">continuity between tracks B1 and A3</td> <td data-bbox="697 1153 1127 1185">insulation between tracks B1 and A3</td> </tr> <tr> <td data-bbox="118 1185 563 1218">insulation between tracks A1 and B3</td> <td data-bbox="697 1185 1127 1218">continuity between tracks A1 and B3</td> </tr> </table>		Pedal at rest	Pedal depressed	continuity between tracks B1 and A3	insulation between tracks B1 and A3	insulation between tracks A1 and B3	continuity between tracks A1 and B3
Pedal at rest	Pedal depressed						
continuity between tracks B1 and A3	insulation between tracks B1 and A3						
insulation between tracks A1 and B3	continuity between tracks A1 and B3						

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF137 PRESENT OR STORED	<u>Motorised throttle valve</u> 1.DEF : Signal outside upper limit 2.DEF : Signal outside lower limit 3.DEF : General motorised throttle control fault
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NOTES	Priority in the event of a number of faults: Deal with fault DF045 "Manifold pressure sensor circuit" first if it is present or stored.
	Special note: If the two potentiometers are faulty or if the throttle motor is faulty, the motorised throttle will adopt the backup position (limp-home), characterised by an engine speed locked at approximately 1500 rpm. These two faults cause the injection fault warning light to come on (orange warning light on the display: level 1 injection fault).

1.DEF - 2.DEF	NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after starting the engine and depressing the accelerator pedal.
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Check the connection and condition of the motorised throttle connector. Replace the connector if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressors on the following connections: computer (connector C) track C3 —————> track 5 of the motorised throttle computer (connector C) track B4 —————> track 2 of the motorised throttle computer (connector C) track C4 —————> track 3 of the motorised throttle computer (connector C) track B3 —————> track 6 of the motorised throttle valve Repair if necessary.	
With the ignition on, check the presence of a 5 volt supply by measuring between track 3 (+) and track 5 (earth) of the motorised throttle connector. If there is no power supply, contact your Techline.	
Measure the resistance between tracks 3 and 5 of the motorised throttle (connector disconnected). Replace the motorised throttle if the potentiometer resistance value is not approximately: 1.2 kΩ ± 240 Ω at 20 °C.	
If the fault persists, replace the motorised throttle.	

AFTER REPAIR	If the computer or throttle valve has been replaced, program the throttle end stops (refer to the introduction to fault finding). Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF137	
(continued)	

3.DEF	NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after starting the engine and pressing the accelerator pedal.
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<p>Check the connection and condition of the motorised throttle connector. Replace the connector if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector C) track L4 —————> track 1 of the motorised throttle computer (connector C) track M3 —————> track 4 of the motorised throttle</p> <p>Repair if necessary.</p>
<p>A simultaneous short circuit of both potentiometer signals may cause symbol 3.DEF to be displayed: connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector C) track B4 —————> track 2 of the motorised throttle (signal No. 1) computer (connector C) track B3 —————> track 6 of the motorised throttle (signal No. 2)</p> <p>Repair if necessary.</p>
<p>Measure the resistance between tracks 1 and 2 of the motorised throttle (connector disconnected). Replace the motorised throttle if the motor resistance value is not approximately 2 Ω ± 1 Ω at 20 °C.</p>
<p>If the fault persists, replace the motorised throttle.</p>

AFTER REPAIR	<p>If the computer or throttle valve has been replaced, program the throttle stops (refer to the introduction to fault finding).</p> <p>Clear the stored faults.</p> <p>Follow the instructions to confirm repair.</p> <p>Deal with any other possible faults.</p>
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DF157 PRESENT OR STORED	<u>Battery voltage</u>
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running for more than 3 minutes at a vehicle speed of > 0 mph/kph.
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Make sure that the cable connecting the battery to the starter motor, the battery earth cable to the chassis and the chassis earth cable to the engine and transmission assembly are in sound condition . Repair if necessary.
Make sure that the battery is in a good state of charge and, if necessary, check the charging circuit.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector B) track B4 —————> injection fuse: + after ignition feed (see vehicle diagrams) computer (connector C) track L3 —————> track 3 of the injection locking relay Repair if necessary.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF160 PRESENT OR STORED	<u>Cylinder injector 5 command</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the injection using the AC044 "Cylinder injector 5" command.
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Note:

*In the event of CC.0: ignition on the faulty cylinders is maintained to prevent exhaust combustion problems, as the injectors are then permanently open.

*In the event of C0 or CC.1: the engine functions on all cylinders except for the faulty cylinders.

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

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

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

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

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

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

Measure the **resistance** across **injector tracks 1 and 2**.
Replace the injector if the resistance is not approximately **14.5 Ω ± 0.7 Ω** at 20 °C.

If the fault persists, replace injector No. 5.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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DF161 PRESENT OR STORED	<u>Cylinder injector 6 command</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine or controlling the injection using the AC600 "Cylinder injector 6" command.
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Note: * <u>In the event of CC.0:</u> ignition on the faulty cylinders is maintained to prevent exhaust combustion problems, as the injectors are then permanently open. * <u>In the event of C0 or CC.1:</u> the engine functions on all cylinders except for the faulty cylinders.	
Check the connection and condition of the injector connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the injector. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> 15-track calliper connector track 7 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> injector 6 track 1 </div> </div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> computer connector C track K2 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> 15-track calliper connector track 6 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> injector 6 track 2 </div> </div> Repair if necessary.	
Measure the resistance across injector tracks 1 and 2 . Replace the injector if the resistance is not approximately 14.5 Ω ± 0.7 Ω at 20 °C.	
If the fault persists, replace injector No. 6.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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DF165 PRESENT OR STORED	<u>Detection of engine misfiring</u>
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NOTES	<p>Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after starting the engine, without electrical faults, with the engine warm and with programming carried out.</p> <p>If the following faults are present or stored, deal with them first.</p> <ul style="list-style-type: none">– Injectors: DF084, DF085, DF086, DF087, DF160, DF161– Coils: DF192 to DF197– Engine speed sensor: DF238– Oxygen sensor: DF178, DF179, DF202 and DF203– Fuel supply: DF198 and DF201
	<p>Special note: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards.</p> <p>Flashing of the OBD indicator light signifies a risk of catalytic converter damage.</p>

<p>Check the condition and conformance of the spark plugs. Check the ignition coils. Check that the correct petrol is being used.</p>
<p>Check the connections, mounting and condition of the engine speed sensor. Check the flywheel ring gear (cleanliness, warping or cracks). Check the sensor/ring air gap. Check that the fuel supply circuit is working properly. Check the whole ignition system. Check that the camshaft dephasers are working properly.</p>
<p>If the fault has still not been resolved, deal with the other faults and then proceed to the conformity check.</p>

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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<p>DF173 PRESENT OR STORED</p>	<p><u>Coil charging time adjustment</u> CC.1 : Short-circuit to +12 Volts CO.0 : Open circuit or short circuit to earth</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after controlling the ignition coils using commands AC601 to AC606.</p>
<p>For a short circuit to +12 V, the richness regulation and injector are cut off until the next time the engine is started.</p>	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the wiring of each coil up to the computer.</p> <p>computer (connector A) track H2 —————→ track 1 of coil 1 computer (connector A) track H4 —————→ track 1 of coil 2 computer (connector A) track H3 —————→ track 1 of coil 3 computer (connector A) track G4 —————→ track 1 of coil 4 computer (connector A) track G3 —————→ track 1 of coil 5 computer (connector A) track G2 —————→ track 1 of coil 6</p>	
<p>Measure the resistance of the primary windings between tracks 1 and 2 of each coil. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω.</p>	
<p>If all the charging times are > 1.5 ms, the power section is short-circuited to earth.</p> <p>A short circuit to earth can cause damage to the coil charging time adjustment dial gauge in the computer.</p>	
<p>If the connections and coils are correct, contact your Techline.</p>	

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF174 PRESENT OR STORED	<u>Camshaft circuit No. 1</u> CO : Open circuit CO.1 : Open circuit or short circuit to +12 V CO.0 : Open circuit or short circuit to earth 1.DEF : No signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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<p>Check the connection and condition of the camshaft sensor connector. Replace the connector if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector C) track B1 —————▶ track 1 of camshaft sensor No. 1 computer (connector C) track C1 —————▶ track 2 of camshaft sensor No. 1 computer (connector C) track B2 —————▶ track 3 of camshaft sensor No. 1</p> <p>Repair if necessary.</p>
<p>With the ignition on, check for the presence of a 5 volt supply by measuring across track 3 (+) and track 1 (earth) of the camshaft sensor No. 1 connector. If there is no power supply, contact your Techline (carry out programming and configurations again: see introduction).</p>
<p>If the fault persists, replace camshaft sensor No. 1.</p>

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF175 PRESENT OR STORED	<u>Camshaft sensor No. 2</u> CO : Open circuit CO.1 : Open circuit or short circuit to +12 V CO.0 : Open circuit or short circuit to earth 1.DEF : No signal
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
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Check the connection and condition of the camshaft sensor connector. Replace the connector if necessary.		
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:		
computer connector C	15-track calliper connector	camshaft sensor No. 2
track B1	→ track 9	→ track 1
track C2	→ track 10	→ track 2
track B2	→ track 8	→ track 3
Repair if necessary.		
With the ignition on, check for the presence of a 5 volt supply by measuring across track 3 (+) and track 1 (earth) of the camshaft sensor No. 2 connector. If there is no power supply, contact your Techline (carry out programming and configurations again: see introduction).		
If the fault persists, replace camshaft sensor No. 2.		

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF176 PRESENT OR STORED	<u>Pinking sensor No. 1</u> CO : Open circuit CC : Short circuit
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NOTES	Priority in the event of a number of faults: Deal with faults DF174 and DF175 "Camshaft sensors Nos. 1 and 2" first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after a road test during which pinking correction occurs (engine speed above 2520 rpm for 3 seconds with 35% load).

Check the connection and condition of the pinking sensor connector. Replace the connector if necessary.
Check that the pinking sensor is tightened to the required torque (see repair methods for manufacturer's value).
Ensure that the engine is not making an abnormal noise . If there is an abnormal noise, the cause of the noise must be eliminated before fault finding is performed on the sensor. Active pinking correction generates a preventive advance withdrawal equal to -12 V .
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector C) track A1 —————> track 1 of pinking sensor No. 1 computer (connector C) track A2 —————> track 2 of pinking sensor No. 1 Repair if necessary.
If the fault persists, replace pinking sensor No. 1.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF177 PRESENT OR STORED	<u>Pinking sensor No. 2</u> CO : Open circuit CC : Short circuit
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NOTES	Priority in the event of a number of faults: Deal with faults DF174 and DF175 "Camshaft sensors Nos. 1 and 2" first if they are present or stored.
	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after a road test during which pinking correction occurs (engine speed above 2520 rpm for 3 seconds with 35% load).

Check the connection and condition of the pinking sensor connector. Replace the connector if necessary.
Check that the pinking sensor is tightened to the required torque (see repair methods for manufacturer's value).
Ensure that the engine is not making an abnormal noise . If there is an abnormal noise, the cause of the noise must be eliminated before fault finding is performed on the sensor. Active pinking correction generates a preventive advance withdrawal equal to -12 V .
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector C) track A3 —————> track 1 of pinking sensor No. 2 computer (connector C) track A4 —————> track 2 of pinking sensor No. 2 Repair if necessary.
If the fault persists, replace pinking sensor No. 2.

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

Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.
Check for air leaks on the exhaust system.
If the vehicle is driven frequently in town, and especially if the sensor voltage oscillates very slowly, perform decoking .
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector A) track E4 —————> track 4 of the oxygen sensor computer (connector A) track F4 —————> track 3 of the oxygen sensor Repair if necessary.
If the fault persists, replace the oxygen sensor.

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

Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.
Check for air leaks on the exhaust system.
If the vehicle is driven frequently in town, and especially if the sensor voltage oscillates very slowly, perform decoking .
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector A) track E2 —————> track 4 of the oxygen sensor computer (connector A) track F2 —————> track 3 of the oxygen sensor Repair if necessary.
If the fault persists, replace the oxygen sensor.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF180 PRESENT OR STORED	<u>Downstream oxygen sensor No. 1</u> CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been running at idle speed for four minutes.
Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.	
Check for air leaks on the exhaust pipe.	
If the vehicle is driven frequently in town, and especially if the sensor voltage oscillates very slowly, perform decoking .	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections: computer (connector A) track E3 —————▶ track 4 of the oxygen sensor computer (connector A) track F3 —————▶ track 3 of the oxygen sensor Repair if necessary.	
If the fault persists, replace the oxygen sensor.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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<p>DF181 PRESENT OR STORED</p>	<p><u>Downstream oxygen sensor No. 2</u></p> <p>CO : Open circuit CC : Short circuit 1.DEF : Inconsistent signal</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been running at idling speed for four minutes.</p>
<p>Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.</p>	
<p>Check for air leaks on the exhaust system.</p>	
<p>If the vehicle is driven frequently in town, and especially if the sensor voltage oscillates very slowly, perform decoking.</p>	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector A) track E1 —————▶ track 4 of the oxygen sensor computer (connector A) track F1 —————▶ track 3 of the oxygen sensor</p> <p>Repair if necessary.</p>	
<p>If the fault persists, replace the oxygen sensor.</p>	

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

2.DEF	NOTES	Apply this fault finding procedure only in the case of a fault present with 2.DEF .
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Check the connection and condition of the pinking sensor connector. Replace the connector if necessary.
Check the tightness of the pinking sensors (see repair methods for manufacturer's values).
Ensure that the engine is not making an abnormal noise . In the event of abnormal noise, the cause of the noise must be eliminated before running the sensor fault finding procedure. Active pinking correction generates a preventive advance withdrawal equal to -12 V .
If the fault persists, replace the pinking sensor.

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

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF183 PRESENT OR STORED	<u>Catalytic converter No. 1</u>
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NOTES	Priority in the event of a number of faults: Deal first with faults DF180 and DF181 , "Downstream oxygen sensors No. 1 and No. 2"; DF178, DF179 , "Upstream oxygen sensors 1 and 2"; DF111, DF112, DF113, DF114, DF185 and DF186 , "Misfiring on cylinders 1 to 6"; DF202, DF203 , "Fuel supply of rows A and B" if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test where the speed has exceeded 55 mph (90 km/h). ABOVE ALL, DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special note: A fault on catalytic converter No. 1 leads to an increase in pollution and the OBD warning light comes on.

Check that the oxygen sensors are suitably tightened and check their conformity.
Ensure absence of air leaks on the exhaust system. Repair if necessary.
Remove catalytic converter No. 1 and check the condition of the filter element inside (clogging). If the filter element seems correct, shake the catalytic converter to check that there are no broken components inside (metallic noises). Replace the catalytic converter if necessary.
If the fault persists, replace catalytic converter No. 1.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF184 PRESENT OR STORED	<u>Catalytic converter No. 2</u>
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NOTES	Priority in the event of a number of faults: Deal first with faults DF180 and DF181 , "Downstream oxygen sensors No. 1 and No. 2"; DF178, DF179 , "Upstream oxygen sensors 1 and 2"; DF111, DF112, DF113, DF114, DF185 and DF186 , "Misfiring on cylinders 1 to 6"; DF202, DF203 , "Fuel supply of rows A and B" if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test where the speed has exceeded 55 mph (90 km/h). ABOVE ALL, DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special note: A fault on catalytic converter No. 2 leads to an increase in pollution and the OBD warning light comes on.

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

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF185 PRESENT OR STORED	<u>Misfiring on cylinder 5</u>
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NOTES	Priority in the event of a number of faults: First deal with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command" ; DF192, DF193, DF194, DF195, DF196, DF197, "Cylinder coils 1 to 6 command"; DF238, "Engine speed sensor"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF202, DF203, "Fuel supply for rows A and B" and DF198, DF201 "Heating of upstream and downstream oxygen sensors, rows A and B"; DF165 "Misfiring detection" if present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.
	Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system by checking the condition of the spark plug and the low and high voltage contacts of the coil of cylinder 5. Replace any faulty components.
Check the compression ratio of cylinder 5. Repair if necessary.
Check the flywheel ring gear (warping or cracks). Replace the flywheel if necessary.
Ensure that there are no leaks on the inlet manifold. Repair if necessary.
If no fault is found, then there must be a fault in the fuel circuit . Therefore check: <ul style="list-style-type: none">– the condition of the fuel filter,– the petrol flow and pressure (the pressure should to be equal to 3.5 bar),– the cleanliness of the tank,– the condition of cylinder injector 5,– the conformity of the fuel. Replace the faulty component.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF186 PRESENT OR STORED	<u>Misfiring on cylinder 6</u>
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NOTES	<p>Priority in the event of a number of faults: First deal with faults "DF084, DF085, DF086, DF087, DF160, DF161, injectors 1 to 6 command; DF192, DF193, DF194, DF195, DF196, DF197, cylinder coils 1 to 6 command; DF238, engine speed sensor; DF180, DF181, downstream oxygen sensors 1 and 2; DF178, DF179, upstream oxygen sensors 1 and 2; DF202, DF203, fuel supply, rows A and B and DF198, DF201 heating of upstream and downstream oxygen sensors, rows A and B" DF 165 "Misfiring detection" if present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The OBD (On Board Diagnostic) warning light will come on to show that the engine is misfiring, which means that the vehicle does not comply with emission control standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.</p>

<p>Check the ignition system by checking the condition of the spark plug and the low and high voltage contacts of the coil of cylinder 6. Replace any faulty components.</p>
<p>Check the compression ratio of cylinder 6. Repair if necessary.</p>
<p>Check the flywheel ring gear (warping or cracks). Replace the flywheel if necessary.</p>
<p>Ensure that there are no leaks on the inlet manifold. Repair if necessary.</p>
<p>If no fault is found, then there must be a fault in the fuel circuit. Therefore check:</p> <ul style="list-style-type: none"> – the condition of the fuel filter, – the petrol flow and pressure (the pressure should to be equal to 3.5 bar), – the cleanliness of the tank, – the condition of cylinder injector 6, – the conformity of the fuel. <p>Replace the faulty component.</p>

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF187 PRESENT OR STORED	<u>Minimum fuel level signal</u>
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NOTES	Application conditions for stored faults: The fault is declared present if the fuel level in the tank is low. (< 10L)
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Check the connection and condition of the fuel sender connector.
Check the level of fuel in the tank: Add fuel if necessary.
Check that the gauge float moves freely. Check that the resistive track of the gauge is in good condition.
Measure the resistance between track A1 and track B1 of the gauge. Replace the gauge if the resistance is not > 20 Ω at the maximum fuel level and 290 Ω at the minimum level.

AFTER REPAIR	Clear the stored faults. Deal with any other possible faults.
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DF188 PRESENT	<u>Engine oil temperature sensor</u> CO.1 : Open circuit or short circuit to +12 V CC.0 : Short circuit to earth
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NOTES	None.
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<p>Check the connection and the condition of the oil temperature sensor connector. Replace the connector if necessary.</p>
<p>Measure the resistance of the oil temperature sensor across tracks 1 and 2. Replace the sensor if the resistance is not approximately 1554 Ω ± 155 Ω at 40 °C.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p style="margin-left: 40px;">computer (connector A) track D1 —————> track 1 of the oil temperature sensor</p> <p style="margin-left: 100px;">earth —————> track 2 of the oil temperature sensor</p> <p>In the event of short circuit to +12V, replace the oil temperature sensor. Repair if necessary.</p>
<p>If the fault persists, replace the oil temperature sensor.</p>

AFTER REPAIR	<p>Clear the stored faults. Deal with any other possible faults.</p>
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**DF189
PRESENT
OR
STORED**

Engine flywheel ring gear

1.DEF : Inconsistent signal

NOTES

Conditions for applying the fault finding procedure to the stored fault:
The fault is declared present after starting the engine (or a starting attempt).

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

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

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

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

Repair if necessary.

Measure the **resistance** of the engine speed sensor across **tracks 1 and 2**.
Replace the sensor if the resistance is not approximately **375 Ω ± 30 Ω**.

Remove the sensor and ensure it has **not been rubbing** against the flywheel ring gear (flywheel warped).
If necessary replace the sensor.

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



Replace the flywheel signal sensor if the fault persists.

AFTER REPAIR

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

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

<p>Ensure that the oil and coolant temperature sensors indicate consistent values on the basis of parameters PR002 "Coolant temperature" and PR183 "Oil temperature".</p>
<p>Check the connection and condition of the solenoid valve connector. Replace the connector if necessary.</p>
<p>With the ignition on, check for the presence of +12 V on track 2 of the solenoid valve. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: injection relay track 5  track 2 of the row A solenoid valve Repair if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector C) track G1  track 1 of the row A solenoid valve Repair if necessary.</p>
<p>Measure the resistance across solenoid valve tracks 1 and 2. Replace the solenoid valve if the resistance is not approximately 12 Ω ± 1 Ω.</p>
<p>If the fault persists, replace the camshaft row A dephaser solenoid valve.</p>

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF191 PRESENT OR STORED	Camshaft row B shift solenoid valve CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 V 1.DEF : Solenoid valve B fault
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NOTES	Priority in the event of a number of faults: Deal firstly with faults DF004 "Coolant temperature sensor circuit" ; DF188 "Engine oil temperature sensor" ; DF174 and DF175 "Camshaft sensors Nos. 1 and 2" ; DF238 "Engine speed sensor" ; DF137 "Motorised throttle" if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running at a speed between 700 and 4520 rpm for 10 seconds and the engine temperature has reached > 50°C.

<p>Ensure that the oil and coolant temperature sensors indicate consistent values on the basis of parameters PR002 "Coolant temperature" and PR183 "Oil temperature".</p>
<p>Check the connection and condition of the solenoid valve connector. Replace the connector if necessary.</p>
<p>With the ignition on, check for the presence of +12 V on track 1 of the solenoid valve. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="text-align: center;"> 15-track connector track 7 </div> <div style="text-align: center;"> solenoid valve row B track 2 </div> </div> <p>Repair if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="text-align: center;"> computer connector C track F1 </div> <div style="text-align: center;"> 15-track connector track 15 </div> <div style="text-align: center;"> solenoid valve row B track 1 </div> </div> <p>Repair if necessary.</p>
<p>Measure the resistance across solenoid valve tracks 1 and 2. Replace the solenoid valve if the resistance is not approximately 12 Ω ± 1 Ω.</p>
<p>If the fault persists, replace the camshaft row B dephaser solenoid valve.</p>

AFTER REPAIR	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF193 PRESENT OR STORED	<u>Cylinder coil No. 2 command</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ± 5%).
Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 2 of the coil. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: injection relay track 5 —————▶ track 2 of ignition coil No. 2 Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector A) track H4 —————▶ track 1 ignition coil No. 2 Repair if necessary.	
Measure the resistance of the coil across track 1 and track 2 for the primary winding resistance. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω .	
If the fault persists, replace coil No. 2.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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DF194 PRESENT OR STORED	<u>Cylinder coil No. 3 command</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ±5%).
Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 2 of the coil. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: injection relay track 5 —————▶ track 2 of ignition coil No. 3 Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector A) track H3 —————▶ track 1 ignition coil No. 3 Repair if necessary.	
Measure the resistance of the coil across track 1 and track 2 for the primary winding resistance. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω .	
If the fault persists, replace coil No. 3.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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DF195 PRESENT OR STORED	<u>Cylinder coil No. 4 command</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ±5%).

Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the coil. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> injection relay track 5 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> 15-track calliper connector track 7 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> ignition coil No. 4 track 2 </div> </div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> computer connector A track G4 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> 15-track calliper connector track 12 </div> <div style="margin: 0 10px;">→</div> <div style="text-align: center;"> ignition coil No. 4 track 1 </div> </div> Repair if necessary.	
Measure the resistance of the coil across track 1 and track 2 for the primary winding resistance. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω .	
If the fault persists, replace coil No. 4.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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<p>DF196 PRESENT OR STORED</p>	<p><u>Cylinder coil No. 5 command</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth</p>
<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.</p>
	<p>Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ±5%).</p>
<p>Check the connection and condition of the coil connector. Replace the connector if necessary.</p>	
<p>With the ignition on, check for the presence of +12 V on track 1 of the coil. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>injection relay track 5</p> </div> <div style="margin: 0 20px;"> <p>————→</p> </div> <div style="text-align: center;"> <p>15-track calliper connector track 7</p> </div> <div style="margin: 0 20px;"> <p>————→</p> </div> <div style="text-align: center;"> <p>ignition coil No. 5 track 2</p> </div> </div> <p>Repair if necessary.</p>	
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection:</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>computer connector A track G3</p> </div> <div style="margin: 0 20px;"> <p>————→</p> </div> <div style="text-align: center;"> <p>15-track calliper connector track 13</p> </div> <div style="margin: 0 20px;"> <p>————→</p> </div> <div style="text-align: center;"> <p>ignition coil No. 5 track 1</p> </div> </div> <p>Repair if necessary.</p>	
<p>Measure the resistance of the coil across track 1 and track 2 for the primary winding resistance. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω.</p>	
<p>If the fault persists, replace coil No. 5.</p>	

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.</p>
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DF197 PRESENT OR STORED	<u>Cylinder coil No. 6 command</u> CC.1 : Short circuit to +12 V CO.0 : Open circuit or short circuit to earth
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after the engine has been started.
	Special notes: The resistance of the secondary winding coil cannot be measured due to an internal diode. The low resistance of the primary winding coil does not necessarily give a very accurate measurement (resistance of the multimeter leads). Measuring the coil winding induction is more accurate: (0.55 mH ±5%).

Check the connection and condition of the coil connector. Replace the connector if necessary.	
With the ignition on, check for the presence of +12 V on track 1 of the coil. If there is no power supply, check the insulation, continuity and absence of interference suppressers on the following connection: <div><div>injection relay track 5</div><div>→</div><div>15-track calliper connector track 7</div><div>→</div><div>ignition coil No. 6 track 2</div></div> Repair if necessary.	
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: <div><div>computer connector A track G2</div><div>→</div><div>15-track calliper connector track 14</div><div>→</div><div>ignition coil No. 6 track 1</div></div> Repair if necessary.	
Measure the resistance of the coil across track 1 and track 2 for the primary winding resistance. Replace the coil if the resistance is not approximately 0.5 Ω ± 0.2 Ω .	
If the fault persists, replace coil No. 6.	

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Perform an OBD driving cycle (see introduction) to ensure that the injector fault has not damaged the catalytic converter. Deal with any other possible faults.
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<p><i>AFTER REPAIR</i></p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF202 PRESENT OR STORED	<u>Row A fuel supply</u> 1.DEF : Pressure too low 2.DEF : Pressure too high 3.DEF : Fuel pressure regulation fault
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NOTES	Priority in the event of a number of faults: Deal first with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2" and DF198, DF199, DF200 and DF201, "Heating of upstream and downstream oxygen sensors, rows A and B".
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop). The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. ABOVE ALL, DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fuel supply fault has a negative effect on engine operation (engine jerks and flat spots, etc.) and causes the OBD warning light to be permanently lit (after performing the test three times consecutively), which means that the vehicle does not comply with emission control standards.

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

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

Replace any faulty components.

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

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

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

Replace any faulty components.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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DF204 PRESENT OR STORED	<u>Ageing of upstream sensor on row A</u> 1.DEF: Inconsistent signal
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NOTES	Priority in the event of a number of faults: Deal first with faults DF084, DF085, DF086, DF087, DF160, DF161, "Injectors 1 to 6 command"; DF180, DF181, "Downstream oxygen sensors 1 and 2"; DF178, DF179, "Upstream oxygen sensors 1 and 2"; DF198, DF199, DF200 et DF201, "Heating of upstream and downstream oxygen sensors, rows A and B"; DF202 and DF203, "Rows A and B fuel supply" if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has warmed up (in a closed richness double loop) during a road test. The fault finding procedure for this fault should be applied even if it is only stored and the repair confirmed with a road test. ABOVE ALL, DO NOT CLEAR THE FAULT without having noted down the conditions under which the fault appears (see the introduction section on performing the OBD test).
	Special notes: A fault related to ageing of the sensor causes the OBD warning light to come on, which indicates that the vehicle does not comply with emission control standards.

Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.
Ensure that the wiring has not been inverted between the upstream sensor and the downstream sensor.
Check for air leaks on the exhaust system.
If the vehicle is driven frequently in town, decoke the engine .
If the fault persists, replace upstream oxygen sensor, row A.

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

Check the connection and condition of the oxygen sensor connector. Replace the connector if necessary.
Ensure that the wires have not been inverted between the upstream sensor and the downstream sensor.
Check for air leaks on the exhaust system.
If the vehicle is driven frequently in town, decoke the engine .
If the fault persists, replace upstream oxygen sensor, row B.

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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<p>DF206 PRESENT OR STORED</p>	<p><u>COMPRESSOR CONTROL</u></p> <p>CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V</p>
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<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after starting the engine and switching on the air conditioning.</p>
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<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector B) track C3 —————> track 2 of the compressor relay Repair if necessary.</p>
<p>With the ignition on, check for the presence of a 12 volt supply on track 1 and track 3 of the compressor relay. Repair if necessary.</p>
<p>Check the insulation, continuity and absence of interference suppressers of the connection: compressor relay track 5 —————> track 1 of the compressor clutch Repair if necessary.</p>
<p>Check for the presence of earth on track 1 of the compressor clutch connector. Repair if necessary.</p>
<p>Measure the resistance of the compressor clutch across track 1 and track 2 of the connector. Replace the compressor if the resistance is not approximately 3 Ω ± 0.6 Ω at 25°C.</p>
<p>If the fault persists, replace the air conditioning compressor relay.</p>

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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<p>DF238 PRESENT OR STORED</p>	<p><u>Engine speed sensor</u></p> <p>1.DEF: No signal</p> <p>2.DEF: The flywheel sensor signals a cyclic irregularity, which means:</p> <ul style="list-style-type: none"> – a ring gear fault (more sensitive for automatic transmission) – a flywheel sensor air gap fault – micro-breaks in the flywheel sensor circuit <p>3.DEF: Signal inconsistency</p>
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<p>NOTES</p>	<p>Conditions for applying the fault finding procedure to the stored fault:</p> <p>The fault is declared present after the engine has been started.</p>
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<p>Check the connection and condition of the flywheel signal sensor connector and replace the connector if necessary.</p>
<p>Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <p>computer (connector C) track E2 —————▶ track 1 of the engine speed sensor</p> <p>computer (connector C) track E3 —————▶ track 2 of the engine speed sensor</p> <p>Repair if necessary.</p>
<p>Measure the resistance of the engine speed sensor across tracks 1 and 2. Replace the sensor if the resistance is not approximately 375 Ω ± 30 Ω.</p>
<p>Remove the sensor and ensure it has not been rubbing against the flywheel ring gear (flywheel warped). If necessary replace the sensor.</p>
<p>Check the condition of the flywheel and the condition of the sensor ring gear (especially if it is removed). Replace the flywheel if necessary.</p>
<p>Replace the flywheel signal sensor if the fault persists.</p>

<p>AFTER REPAIR</p>	<p>Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.</p>
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DF381 PRESENT OR STORED	<u>Gear change indicator light.</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12 V
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NOTES	Conditions for applying the fault finding procedure to the stored fault: The fault is declared present after controlling the gear change indicator light using command AC005 .
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<p>Check the mounting of the engine speed sensor and its connections.</p> <p>Check the continuity and absence of interference suppressers between:</p> <p>the computer (connector C) track E2 —————> track 1 of the engine speed sensor</p> <p>the computer (connector C) track E3 —————> track 2 of the engine speed sensor</p>
<p>Check the continuity and absence of interference suppressers between:</p> <p>the computer (connector C) track L2 —————> track K of the anti-return diode</p> <p>anti-return diode track A —————> track 3 of the instrument panel red connector</p>
<p>If all these checks are correct, carry out an instrument panel fault finding procedure.</p>

AFTER REPAIR	Clear the stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.
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NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
1	Measured pedal position	ET128: Accelerator pedal position: full load.	INACTIVE	In the event of a problem, apply fault interpretation
		ET129: Accelerator pedal no load position	ACTIVE	DF125 "pedal potentiometer circuit track 1"
		PR112 Measured pedal position	0%	DF126 "pedal potentiometer circuit track 2"
2	O2 sensor check	ET030: Heating of upstream O2 sensor	INACTIVE	If there is a problem, apply fault interpretation DF178 to DF181 "Oxygen sensor".
		ET031: Heating of downstream O2 sensor	INACTIVE	
3	Throttle position	ET003: Throttle position, no load	ACTIVE	In the event of a fault, reprogram the motorised throttle. If the problem persists, apply interpretation of fault DF137 "motorised throttle"
		ET005: Throttle position full load		
		PR017: Measured throttle position	$2 < X < 10 \%$	
4	Computer power supply	ET001: computer + after ignition	ACTIVE	In the event of a fault, perform the charging circuit fault finding procedure
		PR004: Computer supply voltage	$11 < X < 14 \text{ V}$	
5	Manifold pressure sensor	PR001: Manifold pressure	Atmospheric pressure $\pm 10\%$	In the event of a problem, apply interpretation of fault DF045 "Manifold pressure sensor".
		PR016: Atmospheric pressure		
6	Oil temperature	PR183: Oil temperature	$-40 < X < 154 \text{ }^{\circ}\text{C}$ X = engine oil temperature	In the event of a problem, apply interpretation of fault DF188 "Oil temperature sensor".

NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
7	Warning lights:	PR137: Mileage counter severity level 1 warning light	X Km/m X indicates the number of miles/kilometers travelled with the warning light on	If there is a problem, perform the fault finding procedure for the instrument panel
		PR138: Mileage counter severity level 2 warning light		
		PR181: Mileage counter OBD fault warning light on		
		ET006: Fault warning light	INACTIVE	
8	Oxygen sensor	PR220: Upstream oxygen sensor N°1	100 < X < 950 mV	If there is a problem, apply interpretation of faults DF178 to DF181 "oxygen sensor".
		PR222: Upstream oxygen sensor N°2	100 < X < 950 mV	
		PR221: Downstream oxygen sensor N°1	100 < X < 950 mV	
		PR223: Downstream oxygen sensor N°2	100 < X < 950 mV	

NOTES	Only check the conformity after a complete check with the diagnostic tool. Actuator control can either indicate faults where these are stored, or else ensure that the actuators are operating correctly . Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
9	Canister bleed	AC016: Canister bleed solenoid valve	The canister bleed solenoid valve should work	In the event of a problem, apply interpretation of fault DF014 "Canister bleed solenoid valve circuit".
10	Relay	AC010: fuel pump relay	The fuel pump should be heard operating	In the event of a problem, apply the AC010 command interpretation
		AC271: Low-speed fan relay	You should be able to hear the fan assembly turning at low speed.	In the event of a problem, apply the AC271 command interpretation
		AC272: High-speed fan relay	You should be able to hear the fan assembly turning at high speed.	In the event of a problem, apply the AC272 command interpretation
11	Camshaft dephaser solenoid valves	AC648: camshaft dephaser No. 1 command	It should be possible to hear the solenoid valve operating.	In the event of a problem, apply interpretation of fault DF190 "Camshaft row A shift solenoid valve"
		AC649: camshaft dephaser No. 2 command	It should be possible to hear the solenoid valve operating.	In the event of a problem, apply interpretation of fault DF191 "Camshaft row B shift solenoid valve"

NOTES	Only check the conformity after a complete check with the diagnostic tool. Actuator control can either indicate faults where these are stored, or else ensure that the actuators are operating correctly . Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
12	Oxygen sensors	AC261: heating of upstream oxygen sensor	Although its action cannot be heard or seen, this command is used to check that the sensor heating function is operating correctly	In the event of a problem, apply interpretation of faults DF198 and DF199 "Heating of upstream oxygen sensors Nos. 1 and 2" .
		AC262: heating of downstream oxygen sensor	Although its action cannot be heard or seen, this command is used to check that the sensor heating function is operating correctly.	In the event of a problem, apply interpretation of faults DF200 and DF201 "Heating of downstream oxygen sensors Nos. 1 and 2" .
13	Locking and unlocking the injectors	AC591: injector command locking Command AC591 "Injector command locking" is only valid for one starter actuation.	Used for turning the engine with the starter without starting (e.g. for measuring the compression).	
		AC592: injector command unlocking. Run command AC591 , without actuating the starter, before command AC592 "Injector command unlocking" ; otherwise the conditions will not be met.	Run command AC592	

NOTES	Only check the conformity after a complete check with the diagnostic tool. Actuator control can either indicate faults where these are stored, or else ensure that the actuators are operating correctly . Application conditions: engine stopped, ignition on, temp. 20°C.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
14	Ignition	AC601: ignition, cylinder 1. ----- AC602: ignition, cylinder 2 ----- AC603: ignition, cylinder 3 ----- AC604: ignition, cylinder 4 ----- AC605: ignition, cylinder 5 ----- AC606: ignition, cylinder 6	The action of these commands cannot be seen or heard; the commands are therefore used for checking the reliability of the ignition system and where necessary identifying stored faults.	In the event of a fault , apply fault interpretation "Cylinder coils 1 to 6 command", depending on the coil involved (DF192 for cylinder 1, DF193 for cylinder 2, DF194 for cylinder 3, DF195 for cylinder 4, DF196 for cylinder 5, DF197 for cylinder 6)
15	Petrol injection	AC040: cylinder injector 1 ----- AC041: cylinder injector 2 ----- AC042: cylinder injector 3 ----- AC043: cylinder injector 4 ----- AC044: cylinder injector 5 ----- AC600: cylinder injector 6	The action of these commands cannot be seen or heard; the commands are therefore used for checking the reliability of the injection system and where necessary identifying stored faults.	In the event of a fault , apply fault interpretation "Cylinder injectors 1 to 6 command", depending on the injector involved (DF084 for cylinder 1, DF085 for cylinder 2, DF086 for cylinder 3, DF087 for cylinder 4, DF160 for cylinder 5, DF161 for cylinder 6)
16	AC compressor	AC003: Air conditioning compressor	Used to engage the air conditioning compressor clutch	None
17	Warning light	AC005: Gear change indicator light.	Used to operate the indicator light	In the event of a problem , apply interpretation of fault DF381 "Gear change indicator light" .

NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine warm at idling speed, without electrical consumers
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
1	Ignition advance	PR051: Ignition advance	$0 < X < 20^{\circ}$	In the event of a fault, apply fault interpretation "Cylinder coils 1 to 6 command" (DF192 to DF197) depending on the cylinder in question.
		PR036: Coil charging time	$1.3 < X < 2 \text{ ms}$	
		PR013 Average pinking signal	$0.5 < X < 2 \text{ V}$	In the event of a problem, apply fault interpretation "Pinking sensors N°1 and N°2" (DF176 and DF177)
		ET026: Camshaft dephaser control	INACTIVE (at idling speed)	None
2	Engine operating condition	ET001: Computer + after ignition feed	ACTIVE	If there is a problem: carry out a fault finding test on the charging circuit.
		ET150: Actuator relay	ACTIVE	None
		ET020: Fuel pump control relay	ACTIVE	In the event of a problem, apply interpretation of fault "Fuel pump relay control circuit" (DF008)
		ET002: Immobiliser	INACTIVE	If active, run the fault finding procedure for the immobiliser system.
		PR006: Engine speed	X rpm (X = engine rotation speed)	In the event of a problem, apply interpretation of fault "Engine speed sensors" (DF238)
		PR002: Coolant temperature	$-40 < X < 140^{\circ}\text{C}$ (overheating warning light comes on above 118°C)	In the event of a problem, apply interpretation of fault "Coolant temperature sensors" (DF004)

NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine warm at idling speed, without electrical consumers
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
3	Engine overheating	ET150: Actuator relay	ACTIVE	None
		PR002: Coolant temperature	-40 < X < 140°C (overheating warning light comes on above 118°C)	In the event of a problem, apply interpretation of fault "Coolant temperature sensors" (DF004)
		PR139: Counter km/m coolant warning light	X Km/m X indicates the number of miles/kilometers travelled with the coolant temperature warning light on	None
4	Measured pedal position	ET128: Accelerator pedal position: full load.	INACTIVE	In the event of a problem, apply fault interpretation "Pedal potentiometer circuit track 1 and track 2" (DF125 and DF126)
		ET129: Accelerator pedal no load position	ACTIVE	
		PR112: Measured pedal position	0%	
		PR182: Engine load	10 < X < 25%	None
5	O2 sensor check	ET030: Heating of upstream O2 sensor	INACTIVE	In the event of a problem, apply "Oxygen sensors" fault interpretation (DF178 to DF181 and DF198 to 201)
		ET031: Heating of downstream O2 sensor	INACTIVE	None
		ET073: Oxygen sensor	ACTIVE	In the event of a problem, apply "Engine speed sensors" fault interpretation (DF238)
		PR006: Engine speed	X rpm (X = engine rotation speed)	
		PR007: Exhaust temperature	X°C (X = exhaust temperature)	None

NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine warm at idling speed, without electrical consumers
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
5 (contin- ued)	O2 sensor check	PR009: Upstream oxygen sensor voltage	100 < X < 950 mV	In the event of a problem, apply the "Oxygen sensors" fault finding procedure (DF178 to DF181 and DF198 to DF201)
		PR010: Downstream oxygen sensor voltage	100 < X < 950 mV	
6	Throttle position	ET003: No load throttle position	ACTIVE	In the event of a fault, reprogram the motorised throttle. If the fault persists, apply fault finding procedure DF137 "Motorised throttle"
		ET005: Full load throttle position	INACTIVE	
		PR017: Measured throttle position	1.5 < X < 3 %	
		PR006: Engine speed	X rpm (X = engine rotation speed)	In the event of a problem, apply the "Engine speed sensor" fault interpretation (DF238)
		PR041 Engine idling speed setpoint.	750 rpm ± 50 rpm without fast idle speed	None
7	Supply system	ET047: Richness regulation	ACTIVE	In the event of a fault, apply "Fuel supply of rows A and B" fault interpretation (DF202 and DF203).
		ET039: Idle speed regulation	ACTIVE	None
		ET020: Fuel pump relay control	ACTIVE	In the event of a problem, apply the "Fuel pump relay control circuit" fault interpretation (DF008)
		ET026: Camshaft dephaser command	INACTIVE (at idling speed)	None
		ET073: Oxygen sensor	ACTIVE	None

NOTES	Only check the conformity after a complete check with the diagnostic tool. Application conditions: engine warm at idling speed, without electrical consumers
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
8	Supply system	PR031: Idle speed richness adaptive	$0 < X < 100 \%$	In the event of a fault, apply "Fuel supply of rows A and B" fault interpretation (DF202 and DF203).
		PR035: Richness correction value	$0.75 < X < 1.25$	
		PR185: Average richness factor, row 1.	$0.75 < X < 1.25$	
		PR186: Average richness factor, row 2.	$0.75 < X < 1.25$	
		PR029: Fuel consumption.	X l/h	None
9	Computer power supply	ET001: Computer + after ignition feed	ACTIVE	If there is a problem: carry out a fault finding test on the charging circuit.
		PR004: Computer supply voltage	$11 < X < 14.5 \text{ V}$	
10	Manifold pressure sensor	PR001: Manifold pressure	$250 < X < 450 \text{ mb}$	In the event of a problem, apply the "Manifold pressure sensor" fault interpretation (DF045)
		PR016: Atmospheric pressure	X = atmospheric pressure ($980 < P < 1050$)	
11	Oil temperature	PR183: Oil temperature	$-40 < X < 154^{\circ}\text{C}$ X = engine oil temperature If CC + then $t^{\circ} = 140^{\circ}\text{C}$ If CO then $t^{\circ} = -40^{\circ}\text{C}$	In the event of a problem, apply the "Oil temperature sensor" fault interpretation (DF188)
12	Engine torque	PR108: Engine torque	$-15 < X < 10 \text{ Nm}$ X = engine torque	None

NOTES	Only check the conformity after a complete check with the diagnostic tool. Test conditions: engine warm at idling speed, no electrical consumers.
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Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
13	Richness	PR030: Operating richness adaptive	0.70 < X < 1.3	In the event of a problem, apply the "Oxygen sensor" fault interpretation (DF178 to DF181)
14	Canister bleed	PR023: Canister bleed solenoid valve RCO signal ----- ET117: Canister bleed command	0 < X < 25 % ----- INACTIVE ACTIVE when bleeding	In the event of a problem, apply the "Canister bleed solenoid valve circuit" fault interpretation (DF014)
15	Warning lights:	PR137: Mileage counter severity level 1 warning light PR138: Mileage counter severity level 2 warning light PR181: Mileage counter OBD fault warning light on ----- ET006: Fault warning light	X Km/m X indicates the number of miles/ kilometers travelled with the warning light on ----- INACTIVE	If there is a problem, perform the fault finding procedure for the instrument panel
16	Oxygen sensor	PR220: Upstream oxygen sensor N°1 PR222: Upstream oxygen sensor N°2 PR221: Downstream oxygen sensor N°1 PR223: Downstream oxygen sensor N°2	100 < X < 950 mV 100 < X < 950 mV 100 < X < 950 mV 100 < X < 950 mV	In the event of a problem, apply the "oxygen sensor" fault interpretation (DF178 to DF181)
17	Air conditioning compressor	ET024: COMPRESSOR CONTROL	INACTIVE	None
18	Injection cut-off	ET072: Injection cut-off	INACTIVE ACTIVE for no load or overspeed	None

NOTES

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

Order	Function	Parameter or State Checked or Action	Display and notes	Fault finding
19	Percolation	ET022: Anti-percolation relay control	INACTIVE Monitoring for 2 mins after switching off the ignition, activation of low-speed fan if T° engine coolant > 102°C	None
20	Power assisted steering pressure switch	ET034: Power assisted steering pressure switch	INACTIVE ACTIVE , if steering wheel turned	If there is a problem, check the insulation, continuity and absence of interference suppressers on the pressure switch
21	Cruise control/ Speed limiter	ET362: Control at steering wheel	STATE 1: Suspend button pressed STATE 2: Resume button pressed STATE 3: Incrementing button pressed STATE 4: Decrementing button pressed	In the event of a problem, apply interpretation of states ET362 - ET363 - ET364 - ET365
		ET363: ON/OFF switch	STATE 10: Speed limiter ON/OFF button pressed STATE 11: Cruise control ON/OFF button pressed STATE 12: INACTIVE	
		ET365: Deactivation by cruise control/ speed limiter	STATE 10: Cruise control/speed limiter fault STATE 11: Problem detected by computer STATE 12: Vehicle speed invalid STATE 13: Vehicle speed not refreshed	

ET362 ET363 ET365	<u>Control at steering wheel</u> <u>ON/OFF switch</u> <u>Deactivation by cruise control/speed limiter</u>
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NOTES	There must be no faults present or stored.
	<u>WARNING:</u> The airbag must be removed in order to remove or check the cruise control/speed limiter control switches. Refer to the Airbag section in the Workshop Repair Manual.

<p>Check the cleanliness, connection and condition of the cruise control/speed limiter start switch and the connection and condition of its connector. Repair or replace it, if necessary.</p>								
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <table><tr><td>computer (connector A)</td><td>track G1</td><td>————→</td><td>track 1 ON/OFF switch</td></tr><tr><td>computer (connector A)</td><td>track B2</td><td>————→</td><td>track 2 ON/OFF switch</td></tr></table> <p>Repair if necessary.</p>	computer (connector A)	track G1	————→	track 1 ON/OFF switch	computer (connector A)	track B2	————→	track 2 ON/OFF switch
computer (connector A)	track G1	————→	track 1 ON/OFF switch					
computer (connector A)	track B2	————→	track 2 ON/OFF switch					
<p>Check the cleanliness, connection and condition of the incrementing switches on the steering wheel and their connectors. Repair or replace if necessary.</p>								
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connections:</p> <table><tr><td>computer (connector B)</td><td>track L1</td><td>————→</td><td>track A3 control on steering wheel</td></tr><tr><td>computer (connector B)</td><td>track C1</td><td>————→</td><td>track B1 control on steering wheel</td></tr></table> <p>Repair if necessary.</p>	computer (connector B)	track L1	————→	track A3 control on steering wheel	computer (connector B)	track C1	————→	track B1 control on steering wheel
computer (connector B)	track L1	————→	track A3 control on steering wheel					
computer (connector B)	track C1	————→	track B1 control on steering wheel					

AFTER REPAIR	Repeat the conformity check from the start.
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Fault finding - Dealing with command modes

AC010

Fuel pump relay

NOTES

There must be no faults present.

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

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference suppressers** on the following connection:
computer (connector C) **track H4** —————> **track 2** of the fuel pump relay.
Repair if necessary.

Using the wiring diagram of the injection system, check:

- the relay power supply,
- the cleanliness of the fuel pump earths,
- the condition of the fuel pump relay (coil resistance and condition of the power circuit),
- the resistance of the fuel pump,
- the **track 5** connection of the relay —————> fuel pump connector (see vehicle wiring diagrams).


Repair if necessary.

AFTER REPAIR

Repeat the conformity check from the start.

AC271	<u>Low-speed fan relay</u>
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NOTES	There must be no faults present.
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Ensure the correct condition of the fan assembly connectors. Repair if necessary.
Check the condition of the clips of the fan assembly 1 relays (see vehicle wiring diagrams). Repair if necessary.
Ensure the presence of +12 V before ignition on track 1 of the fan assembly 1 relays (large purple 50A relay and small black or grey 25A relay: see diagrams). Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector B) track J4  track 2 of the fan assembly 1 relays Repair if necessary.
If the fault persists, using the wiring diagram of the engine cooling system, check: – the relay power supply, – the cleanliness of the fan assembly earths, – the condition of the fan assembly relay (coil resistances and condition of power circuits), – the fan assembly resistances. Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.
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AC272	<u>High-speed fan relay</u>
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NOTES	There must be no faults present.
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Ensure the correct condition of the fan assembly connectors. Repair if necessary.
Check the condition of the clips on the fan assembly 2 relays (see vehicle wiring diagrams). Repair if necessary.
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers on the following connection: computer (connector B) track K4 —————▶ track 2 of the fan assembly 2 relay Repair if necessary.
Using the wiring diagram of the engine cooling system, check: – the relay power supply, – the cleanliness of the fan assembly earths, – the condition of the fan relay (coil resistances and condition of power circuits), – the fan assembly resistances. Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.
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RZ005 "Reinitialising programming"

This command can clear the auto-adaptives stored by the injection computer.

RZ007 "Clear stored fault"

This command can clear the faults present or stored in the injection computer.

ALLOCATION OF TRACKS ON THE BLACK 15-TRACK CALLIPER CONNECTOR OF THE INJECTION SUB-HARNESS

(above cylinder row A).

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

CORRESPONDENCE BETWEEN SENSOR AND ACTUATOR NAMES

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

NOTES	Only consult this customer complaint after a complete check using the diagnostic tool
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NO DIALOGUE WITH THE COMPUTER	CHART 1
STARTING PROBLEMS	CHART 2
IDLE SPEED PROBLEMS	CHART 3
BEHAVIOUR WHILE DRIVING	CHART 4
ENGINE STOPPING/STALLING - JERKY ENGINE	CHART 5
LACK OF POWER	CHART 6
TOO MUCH POWER	CHART 7
NOISY ENGINE	CHART 8

CHART 1	No dialogue with the computer
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NOTES	None.
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Try the diagnostic tool on another vehicle.																												
Check: – the connection between the diagnostic tool and the diagnostic socket (lead in good condition), – injection, engine and passenger compartment fuses. Repair if necessary.																												
Check for the presence of battery +12 volts on track 16 and an earth on track 5 and track 4 of the diagnostic socket. Repair if necessary.																												
Connect the bornier in place of the computer and check the insulation, continuity and absence of interference suppressers of the connections: <table><tr><td>computer connector A</td><td>track H1</td><td>————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track L4</td><td>————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track M4</td><td>————></td><td>earth</td></tr><tr><td>computer connector B</td><td>track B4</td><td>————></td><td>+ after ignition feed</td></tr><tr><td>computer connector B</td><td>track H2</td><td>————></td><td>track 7 diagnostic socket</td></tr><tr><td>computer connector C</td><td>track L3</td><td>————></td><td>track 5 injection locking relay</td></tr><tr><td>computer connector C</td><td>track M4</td><td>————></td><td>earth</td></tr></table>	computer connector A	track H1	————>	earth	computer connector B	track L4	————>	earth	computer connector B	track M4	————>	earth	computer connector B	track B4	————>	+ after ignition feed	computer connector B	track H2	————>	track 7 diagnostic socket	computer connector C	track L3	————>	track 5 injection locking relay	computer connector C	track M4	————>	earth
computer connector A	track H1	————>	earth																									
computer connector B	track L4	————>	earth																									
computer connector B	track M4	————>	earth																									
computer connector B	track B4	————>	+ after ignition feed																									
computer connector B	track H2	————>	track 7 diagnostic socket																									
computer connector C	track L3	————>	track 5 injection locking relay																									
computer connector C	track M4	————>	earth																									

AFTER REPAIR	Test using the diagnostic tool.
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CHART 2

Starting problems

NOTES

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

Ensure that the engine immobiliser is not active (the red warning light should not be lit); if it is active, carry out the fault finding procedure for the engine immobiliser system.



Ensure that the starter motor is rotating correctly (approximately 250 rpm).

If this is not the case:

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



Fuel supply check:

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



Air supply check:

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



AFTER REPAIR

Test using the diagnostic tool.

CHART 2 (continued)	
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Ignition check:

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



Exhaust system check:

- Make sure that the exhaust system is in good condition.
- Remove the catalytic converters and look at the condition of the filter element inside (clogging).
- Shake the catalytic converters to see whether the filter element is broken (metallic noises).



Engine condition check:

- Make sure that the engine can turn freely.
- Check engine compression.
- Check the timing setting.

AFTER REPAIR	Test using the diagnostic tool.
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CHART 3

Idle speed problems

NOTES

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

Fuel supply check:

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



Air supply check:

- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Make sure that the air filter is in good condition; replace it if necessary.
- Disconnect the pipe connecting the canister bleed solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If there is no longer any disturbance, replace the canister bleed solenoid valve.
- Check that the brake servo is not leaking (air entering).
- Check the accelerator control and the lower mechanical end stop of the throttle valve.
- Test the absolute pressure sensor.



Ignition check:

- Check the condition of the spark plugs; replace them if necessary.
- Make sure that the spark plugs are correct for the engine type.
- Make sure that the ignition coils are in good condition.



Engine condition check:

- Check, on the dipstick, that the oil level is not too high.
- Check engine compression.
- Check the timing setting.



Exhaust system check:

- Make sure that the exhaust system is in good condition.
- Remove the catalytic converters and look at the condition of the filter element inside (clogging).
- Shake the catalytic converters to see whether the filter element is broken (metallic noises).

AFTER REPAIR

Test using the diagnostic tool.

CHART 4

Behaviour while driving

NOTES

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

Fuel supply check:

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



Air supply check:

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



Ignition check:

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



AFTER REPAIR

Test using the diagnostic tool.

CHART 4 (continued)	
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Engine condition check:

- Using the dipstick, check that the oil level is not too high.
- Check engine compression.
- Check the timing setting.
- Check the condition of the engine speed sensor ring gear (engine flywheel).
- Make sure that the engine cooling system is operating correctly (so that the engine is operating in optimum conditions, neither too cold nor too hot).



Exhaust system check:

- Make sure that the exhaust system is in good condition.
- Remove the catalytic converters and look at the condition of the filter element inside (clogging).
- Shake the catalytic converters to see whether the filter element is broken (metallic noises).



Axle check:

- Check that the wheels turn freely (no seizing of callipers, drums or bearings).
- Check the tyre pressures and tread condition (bulges).

AFTER REPAIR	Test using the diagnostic tool.
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CHART 5	Engine stops/stalls - Jerky engine
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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Fuel supply check:

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



Air supply check:

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



Ignition check:

- Check the condition of the spark plugs; replace them if necessary.
- Make sure that the spark plugs are correct for the engine type.
- Make sure that the ignition coils are in good condition.



Exhaust system check:

- Make sure that the exhaust system is in good condition.
- Remove the catalytic converters and look at the condition of the filter element inside (clogging).
- Shake the catalytic converters to see whether the filter element is broken (metallic noises).



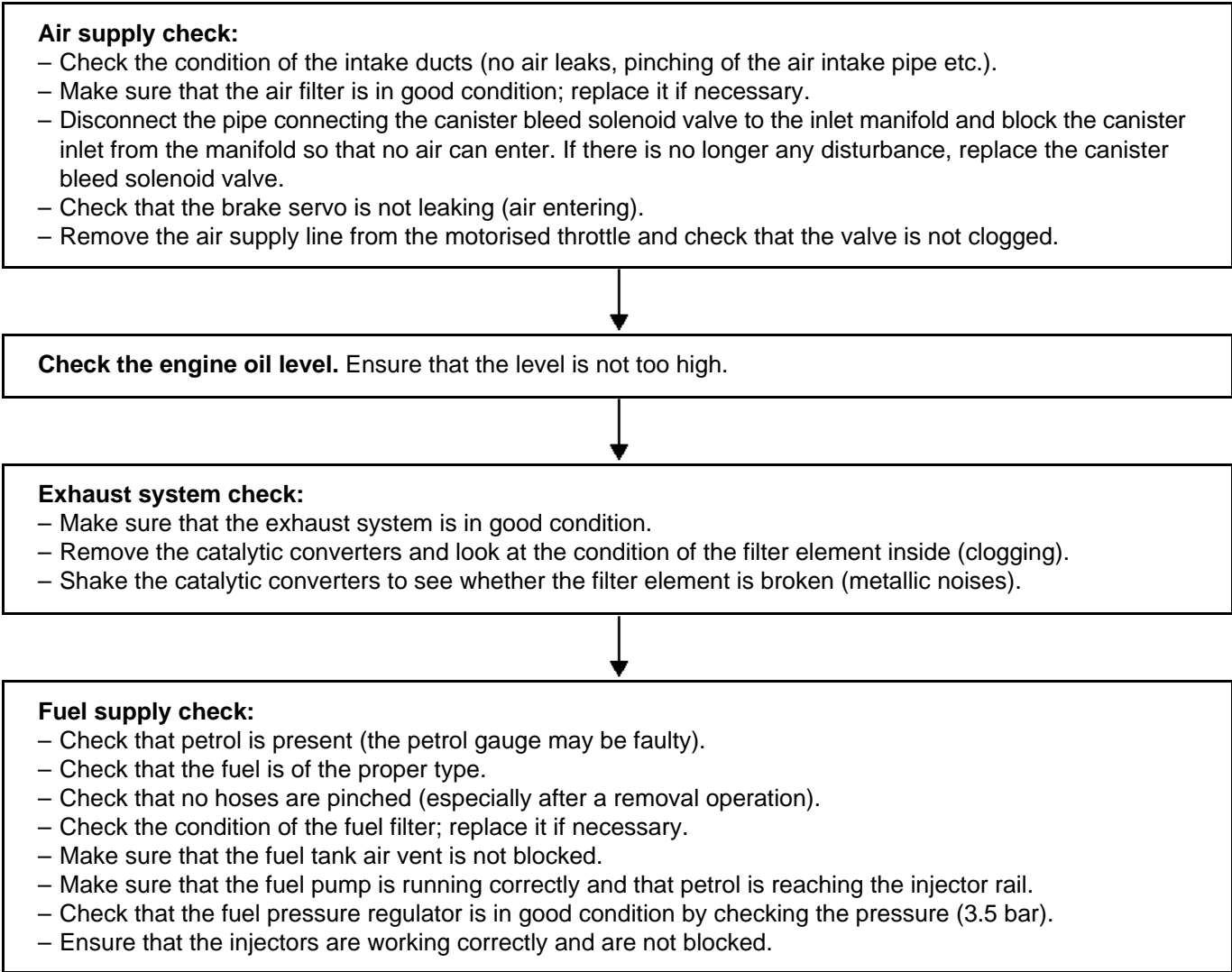
Engine condition check:

- Using the dipstick, check that the oil level is not too high.
- Check engine compression.
- Check the timing setting.
- Check the condition of the engine speed sensor ring gear (engine flywheel).
- Make sure that the engine cooling system is operating correctly (so that the engine is operating in optimum conditions, neither too cold nor too hot).

AFTER REPAIR	Perform a complete check using the diagnostic tool.
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CHART 6	Lack of power
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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AFTER REPAIR	Perform a complete check using the diagnostic tool.
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CHART 7

Too much power

NOTES

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

Air supply check:

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



Fuel supply check:

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



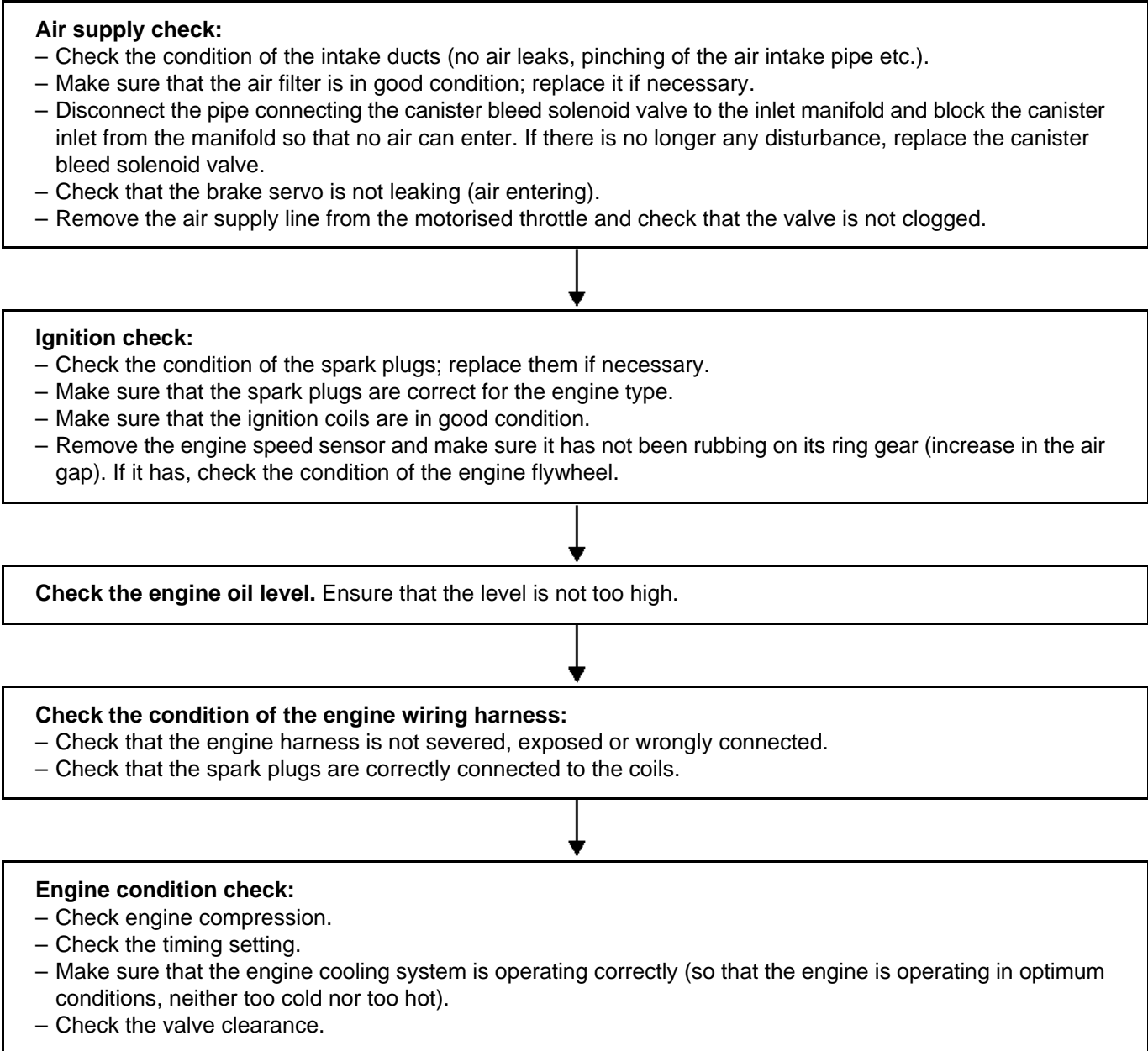
Check that the engine has not sucked in its oil (engine racing).

AFTER REPAIR

Perform a complete check using the diagnostic tool.

CHART 8	Noisy engine
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NOTES	This customer complaint should only be investigated after a check has been carried out using the diagnostic tool.
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AFTER REPAIR	Perform a complete check using the diagnostic tool.
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