

MEGANE

1 Engine and peripherals

17B PETROL INJECTION

SAGEM 3000

Program No.: A7

Vdiag No.: 44, 48

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V6

Edition Anglaise

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

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

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1. SCOPE OF THIS DOCUMENT

This document presents the fault finding method applicable to all computers with the following specifications:

Vehicle(s): **Mégane II / Mégane Sport / Scénic II**
Function concerned: **Petrol injection**

Name of computer: **Sagem S3000**
Program no.: **A7**
Vdiag No.: **44, 48**

2. PREREQUISITES FOR FAULT FINDING

Documentation type

Fault finding procedures (this document):

- Assisted fault finding (integrated into the **diagnostic tool**), Dialogys.

Wiring Diagrams:

- Visu-Schéma (CD-ROM), paper.

Type of diagnostic tools

- **CLIP**

Special tooling required

Special tooling required	
	Multimeter
Elé. 1497	Bornier
Elé. 1681	Universal bornier

3. REMINDERS

Procedure

To run fault finding on the vehicle's computers, switch on the ignition in fault finding mode (forced + after ignition feed).

Proceed as follows:

- with the vehicle card in the card reader,
- press and hold Start button (longer than **5 seconds**) with start-up conditions not fulfilled,
- connect the diagnostic tool and perform the required operations.

Note:

The left-hand and right-hand xenon bulb computers are powered when the dipped headlights are lit. Fault finding procedures can only be carried out on them after the ignition has been switched on in fault finding mode (+ after ignition imposed) and the dipped headlights are on.

To **cut off the + after ignition feed**, proceed as follows:

- disconnect the diagnostic tool,
- press the Start button twice briefly (less than **3 seconds**),
- Check that the + after ignition feed has been cut off by checking that the computer warning lights on the instrument panel have gone out.

Faults

Faults are declared present or stored (depending on whether they appeared in a certain context and have disappeared since, or whether they remain present but are not diagnosed within the current context).

The **present** or **stored** status of faults should be taken into consideration when the diagnostic tool is switched on following + after ignition feed being activated (without any system components being active).

For a **present fault**, apply the procedure described in the **Interpretation of faults** section.

For a **stored fault**, note the faults displayed and apply the **Notes** section.

If the fault is **confirmed** when the instructions in the Notes section are applied, the fault is present. Deal with the fault.

If the fault is **not confirmed**, check:

- the electrical lines which correspond to the fault,
- the connectors for these lines (for oxidation, bent pins, etc.),
- the resistance of the component detected as faulty,
- the condition of the wires (melted or split insulation, wear).

Conformity check

The aim of the conformity check is to check the statuses and parameters that do not produce a fault display on the diagnostic tool when they are inconsistent. Therefore, this stage is used to:

- carry out fault finding on faults that do not have a fault display, and which may correspond to a customer complaint.
- check that the system is operating correctly and that there is no risk of a fault recurring after repairs.

This section gives the fault finding procedures for statuses and parameters and the conditions for checking them.

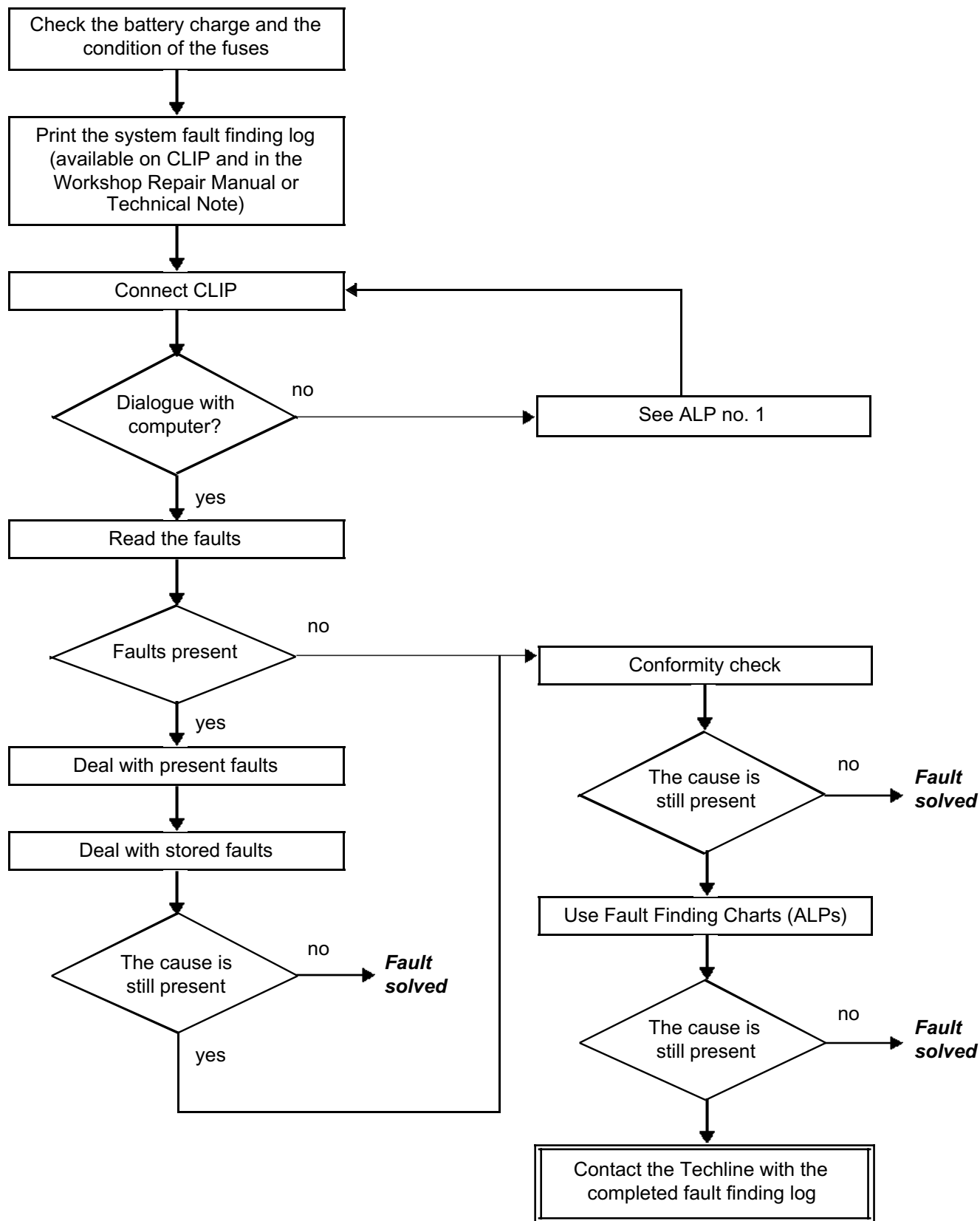
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

Customer complaints - Fault finding chart

If the test with the diagnostic tool is OK but the customer complaint is still present, the fault should be treated by **customer complaints**.

A summary of the overall procedure to follow is provided on the following page in the form of a flow chart.

4. FAULT FINDING PROCEDURE



4. FAULT FINDING PROCEDURE (continued)

Wiring check

Fault finding problems

Disconnecting the connectors and/or manipulating the wiring may temporarily remove the cause of a fault. Electrical measurements of the voltage, resistance and insulation are generally correct, especially if the fault is not present when analysing (stored fault).

Visual inspection

Look for damage under the bonnet and in the passenger compartment.
Carefully check the fuses, insulators and wiring harness routing.
Look for signs of oxidation.

Physical inspection

While manipulating the wiring, use the diagnostic tool to note any change in fault status from stored to present. Make sure that the connectors are properly locked.
Apply light pressure to the connectors.
Twist the wiring harness.
If there is a change in status, try to locate the source of the fault.

Inspection of each component

Disconnect the connectors and check the appearance of the clips and tabs, as well as their crimping (no crimping on the insulating section).
Make sure that the clips and tabs are properly locked in the sockets.
Check that no clips or tabs have been dislodged during connection.
Check the clip contact pressure using an appropriate model of tab.

Resistance check

Check the continuity of entire lines, then section by section.
Look for a short circuit to earth, to + 12 V or with another wire.
If a fault is detected, repair or replace the wiring harness.

5. FAULT FINDING LOG



IMPORTANT!

IMPORTANT

Any fault on a complex system requires thorough fault finding with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential document when consulting the manufacturer.

IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG EACH TIME FAULT FINDING IS CARRIED OUT.

You will always be asked for this log:

- when requesting technical assistance from Techline,
- for approval requests when replacing parts for which approval is mandatory,
- to be attached to monitored parts for which reimbursement is requested. The log is needed for warranty reimbursement, and enables better analysis of the parts removed.

6. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any damage or injury:

- check the battery voltage to avoid incorrect operation of computer functions,
- use the proper tools.

7. FAULT FINDING

Stored faults are managed the same way for all sensors and actuators.

A stored fault is cleared after 128 recurrence-free starts.

1. SYSTEM OPERATION

Composition

The injection system consists of the:

- accelerator potentiometer,
- accelerator pedal switch,
- TDC sensor,
- atmospheric pressure sensor,
- air temperature sensor,
- coolant temperature sensor,
- freon pressure sensor,
- upstream oxygen sensor,
- downstream oxygen sensor,
- cruise control switch,
- steering column switch,
- cruise control on/off switch,
- brake lights switch,
- fuel vapour absorber,
- injection computer,
- motorised throttle valve,
- four injectors,
- four pencil coils,
- + turbocharging pressure sensor,
- coolant pump
- turbocharging solenoid valve.

Computer

SAGEM S3000 flash EEPROM 128-track computer controlling the injection and the ignition.

Multipoint injection in sequential mode.

Connections to the other computers:

- Protection and Switching Unit (UPC)
- Passenger Compartment Control Unit (UCH),
- Automatic Transmission Electronic Control Unit (AUTO ECU).

Engine immobiliser

The immobiliser function is managed by the UCH and engine management computers.

Before any driver request (card + button press), the engine management and UCH computers exchange authentication CAN frames to determine whether or not to start the engine.

After more than five consecutive failed authentication attempts, the engine management computer goes into protection (anti-scanning) mode and no longer tries to authenticate the UCH computer. It only leaves this mode when the following sequence of operations is carried out:

- the ignition is left on for at least **60 seconds**,
 - ignition is switched off,
 - the injection computer self-supply cuts out when it should (the time varies according to engine temperature).
- After this, only one authentication attempt is allowed. If it too fails, the sequence of operations described above must be repeated.

If the engine management computer still fails to unlock, contact the Techline.

Impact detected

If an impact has been registered by the injection computer (Impact detected), switch off the ignition for **10 seconds** then switch it back on to start the engine. Then clear any faults.

WARNING

Disconnect the injection computer when carrying out any welding work on the vehicle.

2. OPERATIONAL SAFETY

Warning lights illumination

The S3000 injection system manages the illumination of three warning lights and the issuing of warning messages according to the severity of the faults detected, to inform the customer and to direct fault finding.

The injection computer manages the illumination of warning lights and warning messages displayed on the instrument panel. These warning lights illuminate during the starting phase and in the event of an injection fault or engine overheating.

The warning light illumination signals reach the instrument panel via the multiplex network.

Warning light illumination principle

During the starting phase (START button pressed) the **OBD** (On Board Diagnostic) warning light comes on for approximately **3 seconds** then goes out.

If there is an injection fault (**severity 1**), the **INJECTION FAULT** written message lights up followed by the **SERVICE** warning light. It indicates a reduced level of operation and a limited safety level.

The driver should carry out repairs as soon as possible.

Components involved:

- motorised throttle valve,
- accelerator pedal potentiometer,
- inlet manifold pressure sensor,
- computer,
- actuator feed,
- computer feed.

If there is a serious injection fault (**severity 2**), the red engine symbol and the word **STOP** appear (display with information display only), with the **ENGINE OVERHEATING** written message followed by the **STOP** warning light and a buzzer. If this happens, the vehicle must be stopped immediately.

When a fault causing excessive pollution in the exhaust fumes is detected, the **orange OBD warning light**, an engine symbol, will be lit:

- **flashing** in the event of a fault which might irreparably damaged the catalytic converter (destructive misfire). If this happens you must stop the vehicle immediately,
- **constantly** in the case of non-compliance with the anti-pollution standards (pollutant misfire, catalytic converter fault, oxygen sensor faults, inconsistency between the oxygen sensors and canister fault).

Mileage travelled with fault

This parameter serves to measure the distance travelled with one of the injection fault warning lights on: level 1 fault warning light (amber), coolant temperature overheating warning light, or OBD warning light.

The counter can be reset to **0** using the diagnostic tool.

Defect modes

Motorised throttle valve

In defect mode, the motorised throttle valve can have 6 different statuses.

Type 1

The throttle opening is less than the Safe mode position. The throttle is no longer activated and is automatically in Safe mode. The ESP, distance control and cruise control/speed limiter systems are disabled. The automatic transmission is in "Safe mode".

Type 2

The throttle opening is no longer actuated. The engine speed is limited by injection cut-off.

Type 3

Defect mode is associated with restructuring of the pedal setpoints (constant pedal setpoint for each gear).

Type 4

The associated defect mode restricts the throttle opening. The maximum throttle valve opening threshold results in a speed below **54 mph (90 km/h)**.

Type 5

The computer no longer processes torque changes requested by the ESP, distance control, cruise control/speed limiter and automatic gearbox systems.

This defect mode results from a computer malfunction, or a fault with the manifold or turbocharging pressure sensor.

The system then only uses the accelerator pedal signal.

The ESP, distance control and cruise control/speed limiter systems are disabled. The automatic transmission system is in Safe mode.

Type 6

The turbocharging valve no longer works.

PETROL INJECTION

Fault finding – System operation

Table of defect modes:

	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
DF002 Air temperature sensor circuit						1.DEF
DF004 Turbocharging pressure sensor circuit					1.DEF 2.DEF	1.DEF 2.DEF
DF008 Pedal potentiometer circuit gang 1			CO.0 CC.1 1.DEF	CO.0 CC.1 1.DEF		CO.0 CC.1 1.DEF
DF009 Pedal potentiometer circuit gang 2				CO.0 CC.1		CO.0 CC.1
DF011 Sensor supply voltage no. 1	1.DEF 2.DEF	1.DEF 2.DEF				
DF012 Sensor feed voltage no. 2				1.DEF 2.DEF		1.DEF 2.DEF
DF038 Computer	1.DEF	1.DEF	1.DEF	1.DEF	1.DEF	1.DEF
DF046 Battery voltage	1.DEF	1.DEF				1.DEF
DF054 Turbocharging solenoid valve control circuit						CO CC.0 CC.1
DF078 Motorised throttle control circuit	CC.1 1.DEF	CC.1 1.DEF				CC.1 1.DEF
DF079 Motorised throttle valve automatic control	1.DEF 2.DEF 3.DEF 4.DEF 5.DEF 6.DEF	1.DEF 2.DEF 3.DEF 4.DEF 5.DEF 6.DEF		4.DEF 5.DEF		1.DEF 2.DEF 3.DEF 4.DEF 5.DEF 6.DEF
DF089 Inlet manifold pressure sensor circuit					1.DEF 2.DEF	1.DEF 2.DEF
DF095 Throttle potentiometer circuit gang 1	CO.0 CC.1 1.DEF	CO.0 CC.1 1.DEF				CO.0 CC.1 1.DEF
DF096 Throttle potentiometer circuit gang 2				CO.0 CC.1		CO.0 CC.1

Connector (A), 32 tracks:

Track	Description
A1	Not used
A2	Cruise control on/off switch
A3	Engine CAN LOW multiplex connection
A4	Engine CAN HIGH multiplex connection
B1	Not used
B2	Not used
B3	Not used
B4	K-line diagnostics
C1	Not used
C2	Not used
C3	Speed limiter on/off switch
C4	+ Clutch switch signal
D1	+ after ignition feed via UPC
D2	Cruise control/speed limiter controls supply
D3	Cruise control programming feedback signal
D4	Not used
E1	Not used
E2	Not used
E3	Not used
E4	Brake pedal switch signal
F1	Not used
F2	Accelerator pedal potentiometer gang 2 + 5 V feed
F3	Accelerator pedal potentiometer signal, gang 2
F4	Accelerator pedal potentiometer earth, gang 2
G1	Battery + feed via the UPC
G2	Accelerator pedal potentiometer gang 1 + 5 V feed
G3	Not used
G4	Electronic earth
H1	Electronic earth
H2	Accelerator pedal potentiometer signal, gang 1
H3	Accelerator pedal potentiometer earth, gang 1
H4	Electronic earth

Connector (B), 48 tracks:

Track	Description
A1	Injector 1 - control
A2	Injector 2 - control
A3	Injector 3 - control
A4	Injector 4 - control
B1	Not used
B2	Pinking sensor screening
B3	Pinking sensor + signal
B4	Pinking sensor - signal
D1	Not used
D2	Not used
D3	Motorised throttle valve potentiometer gang 2 signal
D4	Computer self-power
E1	- turbocharging pressure sensor
E2	Air temperature sensor signal
E3	Air temperature sensor earth
E4	Engine speed and position sensor signal
F1	Turbocharging pressure sensor signal
F2	Coolant temperature sensor signal
F3	Engine speed and position sensor signal
F4	Coolant temperature sensor earth
G1	+ turbocharging pressure sensor
G2	Motorised throttle potentiometer + 5 V feed
G3	Motorised throttle valve potentiometer gang 1 signal
G4	Motorised throttle valve potentiometers common earth
H1	Not used
H2	Manifold pressure sensor + 5 V feed
H3	Manifold pressure sensor signal
H4	Manifold pressure sensor earth
I1	Not used
I2	Not used
I3	Not used
I4	Not used
J1	Not used
J2	Air conditioning pressostat signal
J3	AC pressure switch + 5 V supply
J4	Not used
K1	Not used
K2	Air conditioning pressostat earth
K3	Engine CAN LOW multiplex connection
K4	Engine CAN HIGH multiplex connection
L1	Electronic earth
L2	Not used
L3	Not used
L4	- coolant pump
M1	Electronic earth
M2	Battery + feed via the UPC
M3	+ motorised throttle valve motor
M4	- motorised throttle valve motor

Connector (C), 48 tracks:

Track	Description
A1	Not used
A2	Downstream oxygen sensor + signal
A3	Not used
A4	Not used
B1	Upstream oxygen sensor + signal
B2	Downstream oxygen sensor - signal
B3	Not used
B4	Not used
C1	Upstream oxygen sensor - signal
C2	Not used
C3	Not used
C4	Not used
D1	Fuel pump control by the UPC
D2	Not used
D3	Not used
D4	Not used
E1	Fuel vapour absorber bleed solenoid valve control
E2	Not used
E3	Not used
E4	Not used
F1	Not used
F2	Not used
F3	Not used
F4	Not used
G1	Not used
G2	Not used
G3	Not used
G4	- turbocharging solenoid valve
H1	Not used
H2	Not used
H3	Not used
H4	Not used
I1	Not used
I2	Not used
I3	Not used
I4	Not used
L1	Electronic earth
L2	Upstream oxygen sensor heating - control
L3	Downstream oxygen sensor heating - control
L4	Not used
M1	Electronic earth
M2	Not used
M3	Ignition coil 2 - 3 - control
M4	Ignition coil 1 - 4 - control

1. PROGRAMMING, REPROGRAMMING OR REPLACING THE COMPUTER

The system can be programmed and reprogrammed via the diagnostic socket using the RENAULT CLIP diagnostic tool (**Consult Technical Note 3585A or follow the instructions provided by the diagnostic tool**).

IMPORTANT

- switch on the diagnostic tool (mains or cigarette lighter supply),
- connect a battery charger (during the entire computer (re)programming procedure, the motor-driven fan assemblies are triggered automatically),
- observe the engine temperature instructions of the diagnostic tool before (re)programming.

Whenever the computer has been programmed, reprogrammed or replaced:

- switch off the ignition;
 - start and then stop the engine (to initialise the computer) and wait for 30 seconds,
 - switch on the ignition again and use the diagnostic tool to carry out the following steps:
- run command **VP010 Enter VIN**,
 - deal with any faults declared by the diagnostic tool. Clear the computer memory.
 - program the flywheel sensor target and throttle stops,
 - carry out a road test followed by another check with the diagnostic tool.

IMPORTANT

It is not possible to test an injection computer from the Parts Department because it can no longer be fitted on any other vehicle.

2. REPLACING OR REMOVING THE TDC SENSOR

When the TDC sensor is replaced or removed, the flywheel target has to be programmed.

3. REPLACING THE MOTORISED THROTTLE VALVE

When the throttle valve is replaced, the throttle stops must be programmed.

IMPORTANT

Never drive the vehicle without having programmed the throttle stops.

1. CONFIGURATION

Computer configuration by automatic detection

The computer can automatically configure itself based on the sensors or vehicle options it detects.

2. PROGRAMMING

Programming the flywheel target

Accelerate up to **4000 rpm** in 3rd gear then decelerate to power take-up* speed. Then repeat immediately.
Check the programming with **ET089**.

Programming the throttle end stops

After replacing the computer or motorised throttle valve, after switching on the ignition, wait **30 seconds** for the computer to memorise the MAXIMUM and MINIMUM stops.
Check the programming with **ET051**.

* This is the moment when, during deceleration with no load, the engine drops to idle speed and recovers torque.

PETROL INJECTION

Fault finding – Fault summary table

Tool faults	Hexadecimal DTC codes	Description	Level 1 fault warning light	No warning light on	OBD warning light
DF001	0115	Coolant temperature sensor circuit			1.DEF
DF002	0110	Air temperature sensor circuit			1.DEF
DF004	0235	Turbocharging pressure sensor circuit	1.DEF/2.DEF		1.DEF/2.DEF
DF008	0225	Pedal potentiometer circuit gang 1	CO.0/CC.1 1.DEF		
DF009	2120	Pedal potentiometer circuit gang 2	CO.0/CC.1		
DF011	0641	Sensor feed voltage no. 1	1.DEF/2.DEF		
DF012	0651	Sensor feed voltage no. 2	1.DEF/2.DEF		
DF026	0201	Cylinder 1 injector control circuit			CO/ CC.0 CC.1
DF027	0202	Cylinder 2 injector control circuit			CO/ CC.0 CC.1
DF028	0203	Cylinder 3 injector control circuit			CO/ CC.0 CC.1
DF029	0204	Cylinder 4 injector control circuit			CO/ CC.0 CC.1
DF037	0633	Engine immobiliser		1.DEF	
DF038	0606	Computer		1.DEF	
DF046	0560	Battery voltage		1.DEF	
DF049	0530	Refrigerant sensor circuit		1.DEF	
DF054	0243	Turbocharging solenoid valve control circuit			CO/ CC.0 CC.1

PETROL INJECTION

Fault finding – Fault summary table

Tool faults	Hexadecimal DTC codes	Description	Level 1 fault warning light	No warning light on	OBD warning light
DF059	0301	Misfiring on cylinder 1			1.DEF/2.DEF
DF060	0302	Misfiring on cylinder 2			1.DEF/2.DEF
DF061	0303	Misfiring on cylinder 3			1.DEF/2.DEF
DF062	0304	Misfiring on cylinder 4			1.DEF/2.DEF
DF065	0300	Combustion misfire			1.DEF/2.DEF
DF072	0351	Cylinder 1 ignition coil circuit			CO.0/CC.1
DF073	0352	Cylinder 2 ignition coil circuit			CO.0/CC.1
DF074	0353	Cylinder 3 ignition coil circuit			CO.0/CC.1
DF075	0354	Cylinder 4 ignition coil circuit			CO.0/CC.1
DF078	2101	Motorised throttle control circuit	CC.1/1.DEF		
DF079	0638	Motorised throttle valve automatic control		6.DEF	1.DEF/2.DEF 3.DEF/4.DEF 5.DEF
DF080	0010	Camshaft dephaser circuit			
DF081	0443	Canister bleed solenoid valve circuit			CO/ CC.0 CC.1
DF082	0135	Upstream oxygen sensor heating circuit			CO.0/CC.1
DF083	0141	Downstream oxygen sensor heating circuit			CO.0/CC.1

PETROL INJECTION

Fault finding – Fault summary table

Tool faults	Hexadecimal DTC codes	Description	Level 1 fault warning light	No warning light on	OBD warning light
DF084	0685	Actuator relay control circuit		1.DEF	
DF085	0627	Fuel pump relay control circuit			CO/ CC.0 CC.1
DF086	2600	Coolant pump control circuit		CO/ CO.0 CC.1	
DF088	0325	Pinking sensor circuit			1.DEF
DF089	0105	Inlet manifold pressure sensor circuit			1.DEF 2.DEF
DF091	0500	Vehicle speed signal			1.DEF
DF092	0130	Upstream oxygen sensor circuit			CO.0 CC.1 1.DEF
DF093	0136	Downstream oxygen sensor circuit			CO.0/CC.1
DF095	0120	Throttle potentiometer circuit gang 1	CO.0/CC.1 1.DEF		
DF096	0220	Throttle potentiometer circuit gang 2	CO.1/CC.0		
DF099	C101	TA* or BVR* connection via the multiplex network		1.DEF	
DF100	C155	Instrument panel multiplex connection		1.DEF	
DF101	C122	Multiplex ESP connection		1.DEF	
DF105	0585	Cruise control/speed limiter on/off circuit		1.DEF	
DF106	0575	Cruise Control/Speed Limiter function selector on steering wheel		1.DEF	
DF108	C115	LPG/CNG computer multiplex connection		1.DEF	

*AT: Automatic Transmission

*BVR: Sequential gearbox

PETROL INJECTION

Fault finding – Fault summary table

Tool faults	Hexadecimal DTC codes	Description	Level 1 fault warning light	No warning light on	OBD warning light
DF109	0313	Low fuel level misfire			1.DEF/2.DEF
DF110	0420	Catalytic converter			1.DEF
DF119	0340	Camshaft sensor signal			
DF125	0314	Torque sensor programming			1.DEF
DF126	1604	Passenger compartment heating resistor (RCH)		1.DEF	
DF127	0703	Brake switch no. 1 circuit		1.DEF	
DF128	0571	Brake switch 2 circuit		1.DEF	
DF154	0335	Flywheel signal sensor circuit			1.DEF/2.DEF
DF398	0170	Fuel circuit operating fault			1.DEF
DF455	0460	Low fuel level signal		1.DEF	
DF608	0830	Clutch pedal switch		1.DEF	
DF612	1605	Oil vapour anti-icing resistor circuit		CO.0	
DF635	1301	LPG cylinder 1 combustion misfire			1.DEF/2.DEF
DF636	1302	LPG cylinder 2 combustion misfire			1.DEF/2.DEF
DF637	1303	LPG cylinder 3 combustion misfire			1.DEF/2.DEF
DF638	1304	LPG cylinder 4 combustion misfire			1.DEF/2.DEF
DF639	1300	Combustion misfire in LPG mode			1.DEF/2.DEF/ 3.DEF

DF001 PRESENT	<u>COOLANT TEMPERATURE SENSOR CIRCUIT</u> 1.DEF: value outside tolerance range
------------------	---

NOTES	Priority for dealing with a combination of faults: Deal with fault DF011 Sensor supply voltage no. 1 first if it is present or stored.
	Special note: The OBD warning light is lit.

Check the cleanliness and condition of the coolant temperature sensor and its connections. Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.	
Using the universal bornier, check the insulation and continuity on the following connections: Computer, connector B track F2 —————> track B2 of the coolant temperature sensor Computer, connector B track F4 —————> track B1 of the coolant temperature sensor Repair if necessary.	
Measure the resistance of the coolant temperature sensor between tracks B1 and B2 . Replace the coolant temperature sensor if the resistance is not	
<div>12.6 kΩ ± 1.1 kΩ at - 10°C</div> <div>2.2 kΩ ± 112 Ω at 25°C</div> <div>810 Ω ± 39 Ω at 50°C</div> <div>282.6 Ω ± 7.8 Ω at 80°C</div> <div>114.6 Ω ± 2.6 Ω at 110°C</div> <div>87.7 Ω ± 1.9 Ω at 120°C</div>	
If the fault is still present, deal with the other faults then proceed to the conformity check.	

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF002
PRESENT

AIR TEMPERATURE SENSOR CIRCUIT

1.DEF: value outside tolerance range

NOTES

Priority for dealing with a combination of faults:

Deal with fault **DF012 Sensor feed no. 2 voltage** first, if it is present or stored.

Special note:

- the **OBD warning light** is lit,
- defect mode **type 6** for the throttle valve.

Check the **cleanliness** and **condition** of the air temperature sensor and its connections.
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.

Using the Universal bornier, check the **insulation** and **continuity** of the following connections:

Computer, connector **B, track E3** —————> **track 2** of the air temperature sensor

Computer, connector **B, track E2** —————> **track 1** of the air temperature sensor

Repair if necessary.

Measure the **resistance** of the air temperature sensor between **tracks 1** and **2**.

Replace the air temperature sensor if the **resistance** is not: **9.6 kΩ ± 9.6% at - 10°C**

2 kΩ ± 6% at 25°C

810 Ω ± 5.8% at 50°C

309 Ω ± 5.5% at 80°C

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF004 PRESENT OR STORED	<u>TURBOCHARGING PRESSURE SENSOR CIRCUIT</u> 1.DEF: voltage outside tolerances 2.DEF: data inconsistency
--	---

NOTES	Priority for dealing with a combination of faults: Deal with fault DF012 Sensor feed no. 2 voltage first, if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the ignition is switched on or with then engine running at an engine speed above 600 rpm .
	Special note: – the OBD warning light is lit, – Throttle valve defect mode types 5 and 6 .

Check the cleanliness, condition and the assembly of the turbocharging pressure sensor. Repair if necessary.
If the fault is still present, manipulate the harness so that the status changes (present ? stored). Look for any damage to the wiring harness, and check the condition and connection of the injection computer and turbocharging pressure sensor connectors. Repair if necessary.
If the fault is still present, check for + 5 V on track G1 and that the earth is present on track E1 of connector B of the injection computer. Contact the Techline if it is not correct.
If the fault is still present, disconnect the battery and the injection computer. Check the insulation, continuity and the absence of interference resistance on the following connections: Computer connector B, track E1 —————> Track 2 of the pressure sensor Computer connector B, track F1 —————> Track 3 of the pressure sensor Computer connector B, track G1 —————> Track 1 of the pressure sensor Repair if necessary.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm the repair: Deal with any other faults. Clear the stored faults.
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DF008 PRESENT OR STORED	<u>PEDAL POTENTIOMETER CIRCUIT GANG 1</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V 1.DEF: inconsistency between pedal gangs 1 and 2
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NOTES	Priority for dealing with a combination of faults: Deal with fault DF011 Sensor supply voltage no. 1 first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the accelerator pedal changes from no load to full load.
	Special note: – OBD fault warning light and severity 1 fault warning light illuminated, – throttle valve defect mode types 3, 4 and 6 .

Check that the pedal mechanism has not seized.
Check the cleanliness and condition of the throttle valve connections. Check the cleanliness and condition of the pedal potentiometer connections. Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.
Using the Universal bornier, check the insulation and continuity of the following connections: Computer, connector A, track H3 —————> Track 5 of the pedal potentiometer gang 1 Computer, connector A, track G2 —————> Track 3 of the pedal potentiometer gang 1 Computer, connector A, track H2 —————> Track 4 of the pedal potentiometer gang 1 Repair if necessary.
If the fault is still present , contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF009 PRESENT OR STORED	<u>PEDAL POTENTIOMETER CIRCUIT GANG 2</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Deal with fault DF012 Sensor feed no. 2 voltage first, if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the accelerator pedal changes from no load to full load.
	Special note: – level 1 fault warning light illuminated. – throttle valve defect mode types 4 and 6 .

Check that the pedal mechanism has not seized.
Check the cleanliness and condition of the throttle valve connections. Check the cleanliness and condition of the pedal potentiometer connections. Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.
Using the Universal bornier, check for insulation and continuity on the following connections: Computer, connector A, track F4 —————> Track 6 of the pedal potentiometer gang 2 Computer, connector A, track F2 —————> Track 2 of the pedal potentiometer gang 2 Computer, connector A, track F3 —————> Track 1 of the pedal potentiometer gang 2 Repair if necessary.
If the fault is still present , contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF011 PRESENT OR STORED	<u>SENSOR SUPPLY VOLTAGE NO. 1</u> 1.DEF: voltage outside tolerances 2.DEF: internal electronic fault
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NOTES	Priority for dealing with a combination of faults: Deal with the other faults first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after: <ul style="list-style-type: none">– the ignition is switched on.– loss of dialogue between the inter-systems (ESP, CC/SL),– power loss when accelerating.
	Special note: <ul style="list-style-type: none">– level 1 fault warning light illuminated,– Throttle valve defect mode types 1 and 2.

Check the **cleanliness** and **condition** of the throttle valve connections.
Check the **cleanliness** and **condition** of the pedal potentiometer connections.
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.

Sensor feed No. 1 is reserved for the following components:

- motorised throttle valve,
- coolant temperature sensor,
- pedal potentiometer gang 1,
- upstream and downstream oxygen sensors,
- motorised throttle potentiometer gangs 1 and 2.

If, with sensors disconnected the voltage is still less than **4.9 V** or greater than **5.1 V**:

- check the **insulation from earth** of the **+ 5 V** line of each of its sensors.

Use the "Universal bornier" to check the **insulation** and **continuity** of the following connections:

Computer, connector **B**, track **G2** —————> **Track 2** of the throttle valve

Computer, connector **A**, track **G2** —————> **Track 3** of the pedal potentiometer gang 1

Repair if necessary.

If the fault is still present, there is a computer fault. Contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF012 PRESENT OR STORED	SENSOR SUPPLY VOLTAGE No. 2 1.DEF: voltage outside tolerances 2.DEF: internal electronic fault
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NOTES	Priority for dealing with a combination of faults: Deal with the other faults first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after: <ul style="list-style-type: none">– the ignition is switched on.– loss of power when accelerating,– loss of inter-systems (ESP, CC/SL).
	Special note: <ul style="list-style-type: none">– level 1 fault warning light illuminated.– throttle valve defect mode types 4 and 6.

Check the **cleanliness** and **condition** of the throttle valve connections.
Check the **cleanliness** and **condition** of the pedal potentiometer connections.
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.

Sensor feed no. 2 is reserved for the following components:

- turbocharger pressure sensor,
- pedal potentiometer gang 2,
- coolant pressure sensor,
- Inlet manifold pressure sensor.

If, with the sensors disconnected, the voltage is still less than **4.9 V** or greater than **5.1 V**:

- check the **insulation from earth** of the **+ 5 V** line of each of its sensors.

Using the Universal bornier, check the **insulation** and **continuity** on the following connection:
Computer, connector **A**, track **F2** —————> **Track 2** of the pedal potentiometer gang 2
Repair if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF026 PRESENT OR STORED	<u>CYLINDER 1 INJECTOR 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 for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault appears after the engine has been running for a timed period of 10 seconds .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the cylinder 1 injector and its connections. Repair if necessary.
With the ignition on, check for + 12 V on track 1 of the cylinder 1 injector connector. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 from the Protection and switching unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> Track 1 of the cylinder 1 injector Repair if necessary. Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed is still not present on track 1 of the cylinder 1 injector connector with the ignition on, there is a fault with the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.
Using the Universal bornier, check for insulation and continuity on the following connection: Computer, connector B, track A1 —————> Track 2 of the cylinder 1 injector Repair if necessary.
Measure the resistance between tracks 1 and 2 of the cylinder 1 injector. Replace the cylinder 1 injector if the resistance is not 12 Ω ± 5% at 20°C .
If the fault is still present, replace the cylinder 1 injector. If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF027 PRESENT OR STORED	<u>CYLINDER 2 INJECTOR 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 for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first 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 for a timed period of 10 seconds .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the cylinder 2 injector and its connections. Repair if necessary.
With the ignition on, check for + 12 V on track 1 of the cylinder 2 injector connector. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 from the Protection and switching unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> Track 1 of the cylinder 2 injector Repair if necessary. Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed on track 1 is still not present on the cylinder 2 injector connector with the ignition on, there is a fault with the Protection and Switching Unit. Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.
Using the universal bornier, check for insulation and continuity on the following connection: Computer, connector B, track A2 —————> Track 2 of the cylinder 2 injector Repair if necessary.
Measure the resistance of the cylinder 2 injector between tracks 1 and 2 . Replace the cylinder 2 injector if the resistance is not 12 Ω ± 5% at 20°C .
If the fault is still present, replace the cylinder 2 injector. If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF028 PRESENT OR STORED	<u>CYLINDER 3 INJECTOR 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 for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault appears after the engine has been running for a timed period of 10 seconds .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the cylinder 3 injector and its connections. Repair if necessary.
With the ignition on, check for + 12 V on track 1 of the cylinder 3 injector connector. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 from the Protection and switching unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> Track 1 of the cylinder 3 injector Repair if necessary. Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed is still not present on track 1 of the cylinder 3 injector connector with the ignition on, there is a fault with the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.
Using the universal bornier, check for insulation and continuity on the following connection: Computer, connector B, track A3 —————> Track 2 of the cylinder 3 injector Repair if necessary.
Measure the resistance of the cylinder 3 injector between tracks 1 and 2 . Replace the cylinder 3 injector if the resistance is not 12 Ω ± 5% at 20°C .
If the fault is still present, replace the cylinder 3 injector. If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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<p>DF029 PRESENT OR STORED</p>	<p><u>CYLINDER 4 INJECTOR CONTROL CIRCUIT</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>Priority for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault appears after the engine has been running for a timed period of 10 seconds.</p>
	<p>Special note: – OBD warning light illuminated.</p>

<p>Check the cleanliness and condition of the cylinder 4 injector and its connections. Repair if necessary.</p>
<p>With the ignition on, check for a + 12 V feed on track 1 of the cylinder 4 injector connector. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 from the Protection and switching unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check the continuity on the following connection: Protection and Switching Unit PPM1 connector —————> Track 1 of the cylinder 4 injector Repair if necessary. Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed on track 1 is still not present on the cylinder 4 injector connector with the ignition on, there is a fault with the Protection and Switching Unit. Contact the Techline.</p>
<p>Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Repair if necessary.</p>
<p>Using the Universal bornier, check the insulation and continuity on the following connection: Computer, connector B, track A3 —————> Track 2 of the cylinder 4 injector Repair if necessary.</p>
<p>Measure the resistance of the cylinder 4 injector between tracks 1 and 2. Replace the cylinder 4 injector if the resistance is not 12 Ω ± 5% at 20°C.</p>
<p>If the fault is still present, replace the cylinder 4 injector. If the fault is still present, deal with the other faults then proceed to the conformity check.</p>

<p>AFTER REPAIR</p>	<p>Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.</p>
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DF037 PRESENT OR STORED	<u>ENGINE IMMOBILISER</u> 1.DEF: CAN connection fault
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NOTES	Priority for dealing with a combination of faults: Deal with the other faults first.
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Run a multiplex network test (see 88B, Multiplex).
If the fault is still present, run fault finding on the system (see 16A, Starting - Charging).

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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**DF038
PRESENT**

COMPUTER

1.DEF : internal electronic fault

NOTES

Priority for dealing with a combination of faults:

Deal with the other faults first.

Special note:

– Throttle valve defect mode **types 1 to 6.**

Contact the Techline.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF046 PRESENT OR STORED	BATTERY VOLTAGE 1.DEF: open circuit or short circuit
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NOTES	Priority for dealing with a combination of faults: Apply the procedure for dealing with fault DF084 Actuators relay control circuit first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared as present at an engine speed above 2000 rpm .
	Special note: – Throttle valve defect mode types 1, 2 and 6 .

Disconnect the battery and the injection computer. Check the cleanliness and condition of the computer connections. Repair if necessary.
Disconnect the connector marked PPM1 from the Protection and Switching Unit . Check the cleanliness and condition of the connections. Repair if necessary.
Using the Universal bornier, check for continuity on the following connection: Computer, connector B, track M2 —————> Protection and Switching Unit PPM1 connector track 1 Repair if necessary.
Carry out fault finding on the Protection and Switching Unit (the Protection and Switching Unit powers the injection system).
– clean the battery terminals and all connections to the + and the Earth . – check the battery voltage. – check the charging circuit (see MR 364 Mechanical, 16A, Starting - Charging). Repair or replace the faulty components, if necessary.

AFTER REPAIR	Deal with any faults detected by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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**DF049
PRESENT**

REFRIGERANT SENSOR CIRCUIT

1.DEF: voltage outside tolerance range

NOTES

Priority for dealing with a combination of faults:

Deal with **DF012 Sensor feed voltage No. 2** as a priority if it is present or stored.

Check the **cleanliness** and **condition** of the refrigerant pressure sensor and its connections.

Disconnect the battery and the injection computer.

Check the **cleanliness** and **condition** of the connections.

Use the "Universal bornier" to check the **insulation** and **continuity** of the following connections:

Computer, **connector B, track J2** —————> **Track B** of the refrigerant sensor

Computer, **connector B, track J3** —————> **Track C** of the refrigerant sensor

Computer, **connector B, track K2** —————> **Track A** of the refrigerant sensor

Repair if necessary.

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF054 PRESENT OR STORED	<u>TURBOCHARGING SOLENOID VALVE CONTROL CIRCUIT</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 the ignition is switched on or with then engine running at an engine speed above 600 rpm .
	Special note: <ul style="list-style-type: none">– OBD warning light illuminated.– Throttle valve defect mode type 6.

Check the cleanliness the condition and the assembly of the turbocharging pressure sensor. Repair if necessary.
If the fault is still present, manipulate the harness so that the status changes (present ⇒ stored). Look for possible damage to the harness, check the condition and connection of the injection computer and turbocharging pressure sensor connectors. Repair if necessary.
If the fault is still present, check for the + 12 V on track 2 of the turbocharging solenoid valve. If the + 12 V is not present, check the following connection for insulation, continuity and the absence of interference resistance : Turbocharging solenoid valve track 2 —————> track 2 of the PPM1 connector of the Protection and Switching Unit Repair if necessary.
If the fault is still present, disconnect the battery and the injection computer. Check the insulation, continuity and absence of interference resistance on the following connection: Computer, connector C, track G4 —————> Track 1 of the turbocharging solenoid valve Repair if necessary.
If the fault is still present, measure the resistance of the turbocharging solenoid valve between tracks 1 and 2 . Replace the turbocharging solenoid valve if the resistance is not: 10 kΩ no load 5 kΩ full load
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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<p>DF059 PRESENT OR STORED</p>	<p><u>COMBUSTION MISFIRES ON CYLINDER 1</u></p> <p>1.DEF: destructive misfiring 2.DEF: pollutant misfiring</p>
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<p>NOTES</p>	<p>Priority for dealing with a combination of faults:</p> <ul style="list-style-type: none"> – ignition: DF072, DF073, DF074 and DF075. – fuel supply system: DF026, DF027, DF028, DF029 and DF085. – engine flywheel signal: DF005 and DF125. <p>Check whether other cylinders have misfiring faults before starting the following fault finding procedure.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault is considered present under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – programming must be carried out. – warm engine (minimum 75°C), – idling with all the electrical consumers activated for 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – OBD warning light illuminated.

<p>Misfiring on cylinder 1 only</p>	<p>The fault is probably due to a component that can only affect this cylinder:</p> <ul style="list-style-type: none"> – check the cylinder 1 injector – check the condition and conformity of the spark plugs, – check the cylinder 1 pencil coil. <p>If everything is in order, check the same components on cylinder 4 (to cover a possible cylinder recognition error).</p> <ul style="list-style-type: none"> – Carry out the steps "according to the repair".
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<p>Combustion misfires in cylinders 1 and 4 (see DF059 Combustion misfires in cylinder 1 and DF062 Combustion misfires in cylinder 4)</p>	<p>The fault is probably due to a component that affects a pair of cylinders:</p> <ul style="list-style-type: none"> – check the relevant ignition coil circuit (apply the fault finding procedure DF720 Ignition coil circuit 1 or DF075 Ignition coil circuit 4), – check the condition and conformity of the spark plugs. – Carry out the steps "according to the repair".
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<p>AFTER REPAIR</p>	<p>Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – programming has been carried out, – warm engine (minimum 75°C). – running at idle speed with all electrical consumers drawing power for 15 minutes. – if the fault is still absent, check that the catalytic converter is in good condition. Use command SC006 Run OBD Test: Catalytic converter.
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DF059
CONTINUED

Combustion misfires on all four cylinders (see DF060, DF061 and DF062)

The fault is probably due to a component affecting all the cylinders:

- check that the correct fuel is being used,
- check the condition and conformity of the spark plugs.
- Carry out the steps "according to the repair".

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting,
- check the sensor/flywheel air gap,
- check the cylinder compressions,
- check the complete fuel supply system (see **Workshop Repair Manual 364 Mechanics, 13A, Fuel supply**),
- check the entire ignition system (see **MR 364, Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Carry out the steps "according to the repair".

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Ensure that all the faults have been dealt with.
Clear the stored faults. Do not clear the programming.
To check that the system has been properly repaired:

- there must be no further electrical faults,
- programming has been carried out,
- warm engine (minimum **75°C**).
- running at idle speed with all electrical consumers drawing power for **15 minutes**.
- if the fault is still absent, check that the catalytic converter is in good condition. Use command **SC006 Run OBD Test: Catalytic converter**.

DF060 PRESENT OR STORED	<u>COMBUSTION MISFIRING ON CYLINDER 2</u> 1.DEF: destructive misfiring 2.DEF: pollutant misfiring
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NOTES	Priority for dealing with a combination of faults: – ignition: DF072, DF073, DF074 and DF075. – fuel supply system: DF026, DF027, DF028, DF029 and DF085. – engine flywheel signal: DF005 and DF125. Check whether other cylinders have misfiring faults before starting the following fault finding procedure.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present under the following conditions: – there must be no further electrical faults, – programming must be carried out. – engine warm (min 75°C), – idling with all the electrical consumers activated for 15 minutes .
	Special note: – OBD warning light illuminated.

Combustion misfires in cylinder 2 only	The fault is probably due to a component that can only affect this cylinder: – check the cylinder 2 injector – check the condition and conformity of the spark plugs, – check the cylinder 2 pencil coil. If everything is in order, check the same components on cylinder 3 (to correct a possible cylinder identification error). – Carry out the steps "according to the repair".
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Misfires in cylinders 2 and 3 (see DF060 Misfires in cylinder 2 and DF061 Misfires in cylinder 3)	The fault is probably due to a component that affects a pair of cylinders: – check the relevant ignition coil circuit (apply the fault finding procedure DF073 Ignition coil circuit 2 or DF074 Ignition coil circuit 3), – check the condition and conformity of the spark plugs. – Carry out the steps "according to the repair".
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AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – there must be no further electrical faults, – programming has been carried out, – warm engine (minimum 75°C). – running at idle speed with all electrical consumers drawing power for 15 minutes . – if the fault is still absent, check that the catalytic converter is in good condition. Use command SC006 Run OBD Test: Catalytic converter .
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DF060
CONTINUED

Combustion misfires on all four cylinders (see DF060, DF061 and DF062)

- The fault is probably due to a component affecting all the cylinders:
- check that the correct fuel is being used,
 - check the condition and conformity of the spark plugs.
 - Carry out the steps "according to the repair".

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting,
- check the flywheel/sensor air gap
- check the cylinder compressions,
- check the complete fuel supply system (see **Workshop Repair Manual 364 Mechanics, 13A, Fuel supply**),
- check the entire ignition system (see **MR 364, Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Carry out the steps "according to the repair".

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

- Ensure that all the faults have been dealt with.
Clear the stored faults. Do not clear the programming.
To check that the system has been properly repaired:
- there must be no further electrical faults,
 - programming has been carried out,
 - warm engine (minimum **75°C**).
 - running at idle speed with all electrical consumers drawing power for **15 minutes**.
 - if the fault is still absent, check that the catalytic converter is in good condition. Use command **SC006 Run OBD Test: Catalytic converter**.

DF061 PRESENT OR STORED	<u>COMBUSTION MISFIRING ON CYLINDER 3</u> 1.DEF: destructive misfiring 2.DEF: pollutant misfiring
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NOTES	Priority for dealing with a combination of faults: – ignition: DF072, DF073, DF074 and DF075. – fuel supply system: DF026, DF027, DF028, DF029 and DF085. – engine flywheel signal: DF005 and DF125. Check whether other cylinders have misfiring faults before starting the following fault finding procedure.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present under the following conditions: – there must be no further electrical faults, – programming must be carried out. – engine warm (min 75°C), – idling with all the electrical consumers activated for 15 minutes .
	Special note: – OBD warning light illuminated.

Combustion misfires in cylinder 3 only	The fault is probably due to a component that can only affect this cylinder: – check the cylinder 3 injector, – check the condition and conformity of the spark plugs, – check the cylinder 3 pencil coil. If everything is in order, check the same components on cylinder 2 (to correct a possible cylinder identification error). – Carry out the steps "according to the repair".
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Misfires in cylinders 2 and 3 (see DF060 Misfires in cylinder 2 and DF061 Misfires in cylinder 3)	The fault is probably due to a component that affects a pair of cylinders: – check the relevant ignition coil circuit (apply the fault finding procedure DF073 Ignition coil circuit 2 or DF074 Ignition coil circuit 3), – check the condition and conformity of the spark plugs. – Carry out the steps "according to the repair".
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AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – there must be no further electrical faults, – programming has been carried out, – warm engine (minimum 75°C). – running at idle speed with all electrical consumers drawing power for 15 minutes . – if the fault is still absent, check that the catalytic converter is in good condition. Use command SC006 Run OBD Test: Catalytic converter .
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DF061
CONTINUED

Combustion misfires on all four cylinders (see DF060, DF061 and DF062)

The fault is probably due to a component affecting all the cylinders:

- check that the correct fuel is being used,
- check the condition and conformity of the spark plugs.
- Carry out the steps "according to the repair".

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting,
- check the flywheel/sensor air gap
- check the cylinder compressions,
- check the complete fuel supply system (see **Workshop Repair Manual 364 Mechanics, 13A, Fuel supply**),
- check the entire ignition system (see **MR 364, Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Carry out the steps "according to the repair".

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Ensure that all the faults have been dealt with.
Clear the stored faults. Do not clear the programming.
To check that the system has been properly repaired:

- there must be no further electrical faults,
- programming has been carried out,
- warm engine (minimum **75°C**).
- running at idle speed with all electrical consumers drawing power for **15 minutes**.
- if the fault is still absent, check that the catalytic converter is in good condition. Use command **SC006 Run OBD Test: Catalytic converter**.

<p>DF062 PRESENT OR STORED</p>	<p><u>COMBUSTION MISFIRING ON CYLINDER 4</u></p> <p>1.DEF: destructive misfiring 2.DEF: pollutant misfiring</p>
<p>NOTES</p>	<p>Priority for dealing with a combination of faults:</p> <ul style="list-style-type: none"> – ignition: DF072, DF073, DF074 and DF075. – fuel supply system: DF026, DF027, DF028, DF029 and DF085. – engine flywheel signal: DF005 and DF125. <p>Check whether other cylinders have misfiring faults before starting the following fault finding procedure.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault is considered present under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – programming must be carried out. – engine warm (min 75°C), – idling with all the electrical consumers activated for 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – OBD warning light illuminated.
<p>Misfiring on cylinder 4 only</p>	<p>The fault is probably due to a component that can only affect this cylinder:</p> <ul style="list-style-type: none"> – check the cylinder 4 injector – check the condition and conformity of the spark plugs, – check the cylinder 4 pencil coil. <p>If everything is okay, check the same components on cylinder 1 (to correct a possible cylinder identification error). Carry out the steps "according to the repair".</p>
<p>Combustion misfires in cylinders 1 and 4 (see DF059 Combustion misfires in cylinder 1 and DF062 Combustion misfires in cylinder 4)</p>	<p>The fault is probably due to a component that affects a pair of cylinders:</p> <ul style="list-style-type: none"> – check the relevant ignition coil circuit (apply the fault finding procedure DF072 Ignition coil circuit 1 or DF075 Ignition coil circuit 4), – check the condition and conformity of the spark plugs. – Carry out the steps "according to the repair".
<p>AFTER REPAIR</p>	<p>Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – programming has been carried out, – warm engine (minimum 75°C). – running at idle speed with all electrical consumers drawing power for 15 minutes. – if the fault is still absent, check that the catalytic converter is in good condition. Use command SC006 Run OBD Test: Catalytic converter.

DF062
CONTINUED

Combustion misfires on all four cylinders (see DF060, DF061 and DF062)

The fault is probably due to a component affecting all the cylinders:

- check that the correct fuel is being used,
- check the condition and conformity of the spark plugs.
- Carry out the steps "according to the repair".

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting,
- check the flywheel/sensor air gap
- check the cylinder compressions,
- check the complete fuel supply system (see **Workshop Repair Manual 364 Mechanics, 13A, Fuel supply**),
- check the entire ignition system (see **MR 364, Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Carry out the steps "according to the repair".

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Ensure that all the faults have been dealt with.
Clear the stored faults. Do not clear the programming.
To check that the system has been properly repaired:

- there must be no further electrical faults,
- programming has been carried out,
- warm engine (minimum **75°C**).
- running at idle speed with all electrical consumers drawing power for **15 minutes**.
- if the fault is still absent, check that the catalytic converter is in good condition. Use command **SC006 Run OBD Test: Catalytic converter**.

DF065 PRESENT OR STORED	<u>COMBUSTION MISFIRES</u> 1.DEF: destructive misfiring 2.DEF: pollutant misfiring
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NOTES	Priority for dealing with a combination of faults: – ignition: DF072, DF073, DF074 and DF075 . – fuel supply system: DF026, DF027, DF028, DF029 and DF085 . – engine flywheel signal: DF005 and DF125 . – cylinder misfires: DF059, DF060, DF061 and DF062 .
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present under the following conditions: – there must be no further electrical faults, – programming must be carried out. – engine warm (min 75°C), – idling with all the electrical consumers activated for 15 minutes .
	Special note: – OBD warning light illuminated.

Check the injectors.
 Check the condition and conformity of the spark plugs.
 Check the ignition pencil coils.
 Check that the correct fuel is being used.

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting,
- check the flywheel/sensor air gap
- check the cylinder compressions,
- check the complete fuel supply system (see **Workshop Repair Manual 364 Mechanics, 13A, Fuel supply**),
- check the entire ignition system (see **MR 364, Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Carry out the steps "according to the repair".

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: - there must be no further electrical faults, - programming has been carried out, - the engine should be warm (minimum temperature 75°C), - running at idle speed with all the electrical consumers activated for 15 minutes , - if the fault is still absent, check that the catalytic converter is in working order. Use command SC006 Run OBD Test: Catalytic converter .
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DF072 PRESENT OR STORED	<u>IGNITION COIL CIRCUIT, CYLINDER 1</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Deal with faults DF046 Battery voltage , DF084 Actuator relay control circuit or DF085 Fuel pump relay control circuit first if they are present or stored. If the DF075 Cylinder 4 ignition coil circuit fault is also present or stored, deal with it first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for 10 seconds or after the engine has been running for 10 seconds .
	Special note: – OBD warning light illuminated.

Disconnect the cylinder 1 pencil coil connector. Check the cleanliness and condition of the pencil coil and its connections. Check that the correct fuel is being used.
Measure the primary and secondary resistance of the cylinder 1 pencil coil. Replace the cylinder 1 pencil coil if the resistances are not: – for K4 engines: primary resistance: $540\text{ m}\Omega \pm 27\text{ m}\Omega$ secondary resistance: $10.7\text{ k}\Omega \pm 1.6\text{ k}\Omega$ – for F4 engines: primary resistance: $520\text{ m}\Omega \pm 50\text{ m}\Omega$ secondary resistance: $6.7\text{ k}\Omega \pm 0.7\text{ k}\Omega$
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connections: Computer, connector C , track M4 —————> Track 2 of coil 1 Coil 4 track 2 —————> Track 1 of coil 1 Repair if necessary.
If the fault is still present, replace the defective pencil coil.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the fault memory.
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DF073 PRESENT OR STORED	<u>IGNITION COIL CIRCUIT, CYLINDER 2</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Deal with faults DF046 Battery voltage , DF084 Actuator relay control circuit or DF085 Fuel pump relay control circuit first if they are present or stored. If the fault DF074 Cylinder ignition coil circuit 3 is also present or stored, deal with it first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for 10 seconds or after the engine has been running for 10 seconds .
	Special note: – OBD warning light illuminated.

Disconnect the cylinder 2 pencil coil connector. Check the cleanliness and condition of the pencil coil and its connections. Check that the correct fuel is being used.
Measure the primary and secondary resistance of the cylinder 2 pencil coil. Replace the cylinder 2 pencil coil if the resistances are not: – for K4 engines: primary resistance: $540\text{ m}\Omega \pm 27\text{ m}\Omega$ secondary resistance: $10.7\text{ k}\Omega \pm 1.6\text{ k}\Omega$ – for F4 engines: primary resistance: $520\text{ m}\Omega \pm 50\text{ m}\Omega$ secondary resistance: $6.7\text{ k}\Omega \pm 0.7\text{ k}\Omega$
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connections: Computer, connector C , track M3 —————> Track 2 of coil 2 Coil 3 track 2 —————> Track 1 of coil 2 Repair if necessary.
If the fault is still present, replace the defective pencil coil.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the fault memory.
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<p>DF074 PRESENT OR STORED</p>	<p><u>IGNITION COIL CIRCUIT, CYLINDER 3</u></p> <p>CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V</p>
<p>NOTES</p>	<p>Priority for dealing with a combination of faults: Deal with faults DF046 Battery voltage, DF084 Actuator relay control circuit or DF085 Fuel pump relay control circuit first if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for 10 seconds or after the engine has been running for 10 seconds.</p>
	<p>Special note: – OBD warning light illuminated.</p>
<p>Disconnect the connector from the cylinder 3 pencil coil. Check the cleanliness and condition of the pencil coil and its connections. Check that the correct fuel is being used.</p>	
<p>Measure the primary and secondary resistance of the cylinder 3 pencil coil. Replace the cylinder 3 pencil coil if the resistances are not:</p> <ul style="list-style-type: none"> – for K4 engines: <ul style="list-style-type: none"> primary resistance: 540 mΩ ± 27 mΩ secondary resistance: 10.7 kΩ ± 1.6 kΩ – for F4 engines: <ul style="list-style-type: none"> primary resistance: 520 mΩ ± 50 mΩ secondary resistance: 6.7 kΩ ± 0.7 kΩ 	
<p>Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connections:</p> <p style="margin-left: 40px;">Computer, connector C, track M3 —————> Track 2 of coil 2 Coil 3 track 2 —————> Track 1 of coil 2</p> <p>Repair if necessary.</p>	
<p>Check for the + 12 V feed on track 1 of the cylinder 3 pencil coil connector with the ignition on. If + 12 V is not present:</p> <ul style="list-style-type: none"> – disconnect the battery, – disconnect the connector marked PPM2 in the Protection and Switching Unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit connector PPM1 track 8 —————> track 1 of the cylinder 3 pencil coil <p>Repair if necessary.</p>	
<p>Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed on track 1 is still not present on the cylinder 3 coil connector with the ignition on, there is a fault with the Protection and Switching Unit. Contact the Techline.</p>	
<p>If the fault is still present, replace the defective pencil coil.</p>	
<p>If the fault is still present, deal with the other faults then proceed to the conformity check.</p>	

<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the fault memory.</p>
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<p>DF075 PRESENT OR STORED</p>	<p><u>IGNITION COIL CIRCUIT, CYLINDER 4</u></p> <p>CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V</p>
<p>NOTES</p>	<p>Priority for dealing with a combination of faults: Deal with faults DF046 Battery voltage, DF084 Actuator relay control circuit or DF085 Fuel pump relay control circuit first if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for 10 seconds or after the engine has been running for 10 seconds.</p>
	<p>Special note: – OBD warning light illuminated.</p>
<p>Disconnect the rod coil connector on cylinder 4. Check the cleanliness and condition of the pencil coil and its connections. Check that the correct fuel is being used.</p>	
<p>Measure the primary and secondary resistance of the cylinder 4 pencil coil. Replace the cylinder 4 pencil coil if the resistances are not:</p> <ul style="list-style-type: none"> – for K4 engines: primary resistance: 540 mΩ ± 27 mΩ secondary resistance: 10.7 kΩ ± 1.6 kΩ – for F4 engines: primary resistance: 520 mΩ ± 50 mΩ secondary resistance: 6.7 kΩ ± 0.7 kΩ 	
<p>Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connections:</p> <p>Computer, connector C, track M4 —————→ track 2 of coil 1 Coil 4 track 2 —————→ track 1 of coil 1</p> <p>Repair if necessary.</p>	
<p>Check for the + 12 V feed on track 1 of the cylinder 4 pencil coil connector with the ignition on. If + 12 V is not present:</p> <ul style="list-style-type: none"> – disconnect the battery, – disconnect the connector marked PPM2 in the Protection and Switching Unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit connector PPM1 track 8 —————→ track 1 of the cylinder 4 pencil coil <p>Repair if necessary.</p>	
<p>Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed on track 1 is still not present on the cylinder 4 injector connector with the ignition on, there is a fault with the Protection and Switching Unit. Contact the Techline.</p>	
<p>If the fault is still present, replace the defective pencil coil.</p>	
<p>If the fault is still present, deal with the other faults then proceed to the conformity check.</p>	

<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.</p>
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**DF078
PRESENT
OR
STORED**

MOTORISED THROTTLE CONTROL CIRCUIT

CC.1 : short circuit to + 12 V

1.DEF: Motorised throttle general control fault

WARNING

Never drive the vehicle without having confirmed that no faults involving the throttle valve are present.

NOTES

Priority for dealing with a combination of faults:

If faults **DF095 Throttle potentiometer circuit gang 1** or **DF096 Throttle potentiometer circuit gang 2** are present, deal with these first.

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after:

- a change in engine speed,
- the air temperature must be between **5°C** and **105°C** inclusive.

Special note:

- **level 1 fault warning light** illuminated.
- throttle valve defect mode **types 1, 2 and 6**.

Check the **cleanliness** and **condition** of the throttle valve and its connections.

Manually check that the throttle **rotates properly**.

Disconnect the battery and the injection computer.

Check the **cleanliness** and **condition** of the connections.

Using the universal bornier, check for **insulation** and **continuity** on the following connections:

Computer, connector **B**, track **M3** —————> **Track 4** of the motorised throttle

Computer, connector **B**, track **M4** —————> **Track 3** of the motorised throttle

Computer, connector **B**, track **G4** —————> **Track 1** of the motorised throttle

Repair if necessary.

Measure the **resistance** of the throttle motor between **tracks M3** and **M4** of the computer.

Replace the throttle valve if the **resistance** is not **1.57 Ω at 23°C**.

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF079 PRESENT OR STORED	<p><u>MOTORISED THROTTLE VALVE SERVO</u></p> <p>1.DEF: motorised throttle stop search fault 2.DEF: motorised throttle rest position programming error 3.DEF: motorised throttle servo fault 4.DEF: the position memory function does not work 5.DEF: when the throttle bounces off the lower stop, a relatively large permanent discrepancy can be seen between the set position and actual position of the throttle. The bounce detection is based on this error. The oscillation fault, after N oscillations detected, activates the Limp Home defect mode. 6.DEF: when there is a micro-break on gang 1 of the sensor, the voltage delivered is minimal (0V), which broadly corresponds to complete throttle closure. We can then see the gang 1 signal lapse in relation to the gang 2 signal, which remains correct. This lapse speed of one gang in relation to another is used to detect micro-breaks. The micro-break fault does not activate any defect mode or illuminate any warning lights. 7.DEF: non-compliance with emission control standards</p>
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NOTES	<p>Priority for dealing with a combination of faults: Apply the procedure for dealing with faults DF011 Sensor supply voltage no. 1, DF078 Throttle potentiometer control circuit, DF095 Throttle potentiometer circuit gang 1 and DF096 Throttle potentiometer circuit gang 2 first if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after: – A change in engine speed. – the air temperature must be between 5°C and 105°C inclusive.</p>
	<p>Special note: If 1.DEF, 2.DEF or 3.DEF: – the OBD warning light is lit, – throttle valve defect mode types 1, 2 and 6. If 4.DEF or 5.DEF: – the OBD warning light is lit, – Throttle valve defect mode types 1, 2, 4 and 6.</p>

Check the **cleanliness**, **condition** and **fitting** of the throttle valve.
Repair if necessary.

If the fault is still present, manually check that the throttle valve **rotates correctly**.
Repair if necessary.

If the fault is still present, manipulate the harness in order to note a change in fault status (present → stored).
Look for possible damage to the wiring harness, check the **condition** and the **connection** of the connectors of the injection computer and motorised throttle valve.
Repair if necessary.

DF079
CONTINUED

For K4J 730/732/740 and F4R 774/776

If the fault is still present, disconnect the battery and the injection computer.

Check the **insulation, continuity and the absence of interference resistance** of the following connections:

- Computer connector **B, track M3** —————> **Track 4** of the motorised throttle valve
- Computer connector **B, track M4** —————> **Track 3** of the motorised throttle valve
- Computer connector **B, track G4** —————> **Track 1** of the motorised throttle valve
- Computer connector **B, track G3** —————> **Track 2** of the motorised throttle valve
- Computer connector **B, track G2** —————> **Track 5** of the motorised throttle valve
- Computer connector **B, track D3** —————> **Track 6** of the motorised throttle valve

Repair if necessary.

If the fault is still present, measure the **resistance** of the throttle motor between **tracks 3 and 4**.

Replace the throttle valve if the **resistance** is not approximately **1.57 Ω at 23°C**.

For K4M 760/761/782/812/813 and F4R 770/771

If the fault is still present, disconnect the battery and the injection computer.

Check the **insulation, continuity and the absence of interference resistance** of the following connections:

- Computer connector **B, track M3** —————> **Track 3** of the motorised throttle valve
- Computer connector **B, track M4** —————> **Track 5** of the motorised throttle valve
- Computer connector **B, track G4** —————> **Track 6** of the motorised throttle valve
- Computer connector **B, track G3** —————> **Track 1** of the motorised throttle valve
- Computer connector **B, track G2** —————> **Track 2** of the motorised throttle valve
- Computer connector **B, track D3** —————> **Track 4** of the motorised throttle valve

Repair if necessary.

If the fault is still present, measure the **resistance** of the throttle motor between **tracks 3 and 5**.

Replace the throttle valve if the **resistance** is not approximately **1.57 Ω at 23°C**.

If the throttle valve has been replaced, reinitialise RZ005 Programming.

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

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

DF080 PRESENT OR STORED	<u>CAMSHAFT DEPHASER CIRCUIT</u> CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to + 12 V 1.DEF: programming deviation 2.DEF: programming inconsistency 3.DEF: camshaft dephaser position fault 4.DEF: dephaser automatic control outside the limits 5.DEF: non-compliance with emission control standards
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NOTES	If faults DF046 or DF084 are present or stored, deal with them first. If faults DF154 Engine speed sensor circuit, DF119 Camshaft sensor signal and DF080 are all present, ignore DF080 and deal with the other 2 faults first.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present after a change in the engine speed.

See Technical Note 6506A, Injection fault finding, camshaft dephaser.

If the fault is still present, contact the Techline.

AFTER REPAIR	Apply the Stored fault diagnostic application conditions: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.
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<p>DF081 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>
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<p>NOTES</p>	<p>Priority for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.</p>
	<p>Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the ignition is switched on or command AC017 Canister bleed solenoid valve is run.</p>
	<p>Special note: – OBD warning light illuminated.</p>

<p>Check the cleanliness and condition of the fuel vapour absorber bleed solenoid valve connections. Repair if necessary.</p>
<p>Measure the resistance between tracks 1 and 2 of the fuel vapour absorber bleed solenoid valve. Replace the fuel vapour absorber bleed solenoid valve if the resistance is not 26 Ω ± 4 Ω at 23°C.</p>
<p>Check for + 12 V feed on track 1 of the fuel vapour absorber bleed solenoid valve connector, with the ignition on. If + 12 V is not present:</p> <ul style="list-style-type: none"> – disconnect the battery, – disconnect the connector marked PPM1 in the Protection and Switching Unit, – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> track 1 of the Fuel vapour absorber bleed solenoid valve <p>Repair if necessary.</p>
<p>Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed is still not present on track 1 of the fuel vapour absorber bleed solenoid valve connector with the ignition on, there is a fault with the Protection and Switching Unit. Contact the Techline.</p>
<p>Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Using the Universal bornier, check the insulation and continuity on the following connection: Computer, connector C, track E1 —————> track 2 of the fuel vapour absorber bleed solenoid valve</p> <p>Repair if necessary.</p>
<p>If the fault is still present, deal with the other faults then proceed to the conformity check.</p>

<p>AFTER REPAIR</p>	<p>Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.</p>
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DF082 PRESENT OR STORED	<u>UPSTREAM OXYGEN SENSOR HEATING CIRCUIT</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault appears after the engine has been running for a timed period of 10 seconds .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the upstream oxygen sensor connections. Repair if necessary.
Check for + 12 V feed on track A of the upstream oxygen sensor connector, with the ignition on. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 in the Protection and Switching Unit , – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> track A of the upstream oxygen sensor Repair if necessary.
Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed is still not present on track A of the upstream oxygen sensor connector with the ignition on, there is a fault with the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the Universal bornier, check the insulation and continuity on the following connection: Computer, connector C, track L2 —————> Track B of the upstream oxygen sensor Repair if necessary.
Measure the heating resistance between tracks A and B of the upstream oxygen sensor. Replace the upstream oxygen sensor if the resistance is not approximately 9 Ω at 20°C .
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF083 PRESENT OR STORED	<u>DOWNSTREAM OXYGEN SENSOR HEATING CIRCUIT</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault appears after the engine has been running for a timed period of 10 seconds .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the downstream oxygen sensor connections. Repair if necessary.
Check for the + 12 V feed on track A of the downstream oxygen sensor connector with the ignition on. If + 12 V is not present: – disconnect the battery, – disconnect the connector marked PPM1 in the Protection and Switching Unit , – check the cleanliness and condition of the connections, – using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit PPM1 connector —————> track A of the downstream oxygen sensor Repair if necessary.
Reconnect the Protection and Switching Unit connector and reconnect the battery. If the + 12 V feed is still not present on track A of the downstream oxygen sensor connector with the ignition on, there is a fault with the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the Universal bornier, check for insulation and continuity on the following connection: Computer, connector C , track L3 —————> track B of the downstream oxygen sensor Repair if necessary.
Measure the heating resistance between tracks A and B of the downstream oxygen sensor. Replace the downstream oxygen sensor if the resistance is not approximately 9 Ω at 20°C .
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF084 PRESENT OR STORED	<u>ACTUATOR RELAY CONTROL CIRCUIT</u> 1.DEF: open circuit or short circuit
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NOTES	None.
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Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the computer connections.
In the **Protection and Switching Unit**, disconnect connector **PEM** and check the **cleanliness** and **condition** of the connections.
Repair if necessary.

Using the Universal bornier, check the **insulation** and **continuity** on the following connection:
Computer, connector **B**, track **D4** —————> track **2** of the Protection and Switching Unit, connector **PEM**
Repair if necessary.

If the fault is still present, there is a fault in the Protection and Switching Unit (the actuator relay is in the Protection and Switching Unit and cannot be dismantled).
Contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF085 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	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when command AC015 Fuel pump relay is run.
	Special note: – OBD warning light illuminated.

Disconnect the battery and the injection computer.

Check the **cleanliness** and **condition** of the computer connections.

In the **Protection and Switching Unit**, disconnect connector **PEM** and check the **cleanliness** and **condition** of the connections.

Repair if necessary.

Using the Universal bornier, check the **insulation** and **continuity** on the following connection:

Computer, connector **C**, track **D1** —————> track **1** of the Protection and Switching Unit, connector **PEM**

Repair if necessary.

If the fault is still present, there is a fault in the Protection and Switching Unit (the fuel pump relay is in the Protection and Switching Unit and cannot be dismantled).

Contact the Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF086 PRESENT OR STORED	<u>COOLANT PUMP RELAY CONTROL CIRCUIT</u> CO : open circuit CO.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 with the engine running.
	IMPORTANT Check that when the coolant pump is active, the coolant circulates in reverse order to the usual circulation.

Check the cleanliness, condition and fitting of the coolant pump. Top up the coolant if necessary.
If the fault is still present, manipulate the harness to see if the status changes. Look for any harness damage, and check the condition and connection points of the injection computer and the coolant pump connectors. Repair if necessary.
If the fault is still present, check for + 12 V on track 2 of the coolant pump. If the + 12 V is not present on track 2 of the coolant pump, check the following connection for insulation, continuity and the absence of interference resistance : Coolant pump track 2 —————> track 1, connector PPM1 , of the Protection and Switching Unit Repair if necessary.
If the fault is still present, check the insulation, continuity and the absence of interference resistance on the following connections: Computer, connector C, track L4 —————> track 1 of the coolant pump Repair if necessary.
If the fault is still present, check that the resistance between tracks 1 and 2 of the coolant pump is neither zero nor infinite . Replace the coolant pump if necessary.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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DF088 PRESENT OR STORED	<u>PINKING SENSOR CIRCUIT</u> 1.DEF: pinking signal fault
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present in a warm engine road test at an engine speed of more than 2500 rpm .
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the pinking sensor and its connections. Check the tightness of the pinking sensor.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connections: Computer, connector B , track B3 —————> Track 2 of the pinking sensor Computer, connector B , track B4 —————> Track 1 of the pinking sensor Computer, connector B , track B2 —————> Shielding of the pinking sensor Repair if necessary.
Check the conformity of the fuel in the tank. Check the conformity of the spark plugs.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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DF089 PRESENT OR STORED	<u>INLET MANIFOLD PRESSURE SENSOR CIRCUIT</u> 1.DEF: voltage outside tolerance range 2.DEF: inconsistent signal
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NOTES	Priority for dealing with a combination of faults: Deal with DF012 Sensor feed voltage No. 2 fault as a priority if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after: – the ignition is switched off and dialogue is lost; – the ignition has been switched on again and dialogue re-established, – a 10 second delay at idle speed.
	Special note: – the OBD warning light is lit, – Throttle valve defect mode types 5 and 6 .

Check the cleanliness and condition of the manifold pressure sensor and its connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Use the "Universal bornier" to check the insulation and continuity of the following connections: Computer, connector B, track H2 —————> Track 1 of the manifold pressure sensor Computer, connector B, track H3 —————> Track 3 of the manifold pressure sensor Computer, connector B, track H4 —————> Track 2 of the manifold pressure sensor Repair if necessary.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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PETROL INJECTION

Fault finding – Interpretation of faults

17B

DF091 PRESENT OR STORED	<u>VEHICLE SPEED SIGNAL</u> 1.DEF: error in speed signal from the ABS
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running.
	Special note: – OBD warning light illuminated.

Run a multiplex network test (see 88B, Multiplex).

If the fault is still present, carry out fault finding on the **ABS - ESP system** (see 38C, Anti-lock braking system).

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF092 PRESENT OR STORED	<u>UPSTREAM OXYGEN SENSOR CIRCUIT</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V 1.DEF: component in bad condition
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NOTES	Priority for dealing with a combination of faults: Apply the procedure for dealing with faults DF011 Sensor supply voltage no. 1 , DF046 Battery voltage , DF082 Upstream oxygen sensor heating circuit or DF084 Actuator control relay circuit first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running after 5 minutes in richness regulation.
	Special note: – OBD warning light illuminated.

Check the cleanliness and condition of the upstream oxygen sensor connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the Universal bornier, check the insulation and continuity of the following connections: Computer, connector C , track C1 —————> Track D of the upstream oxygen sensor Computer, connector C , track B1 —————> Track C of the upstream oxygen sensor Repair if necessary.
Check the condition of the oxygen sensor, use command SC007 Run OBD Test: O2 sensor .
If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF093 PRESENT OR STORED	<u>DOWNSTREAM OXYGEN SENSOR CIRCUIT</u> CO.0 : open circuit or short circuit to earth CC.1 : short circuit to + 12 V
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NOTES	Priority for dealing with a combination of faults: Apply the procedure for dealing with faults DF011 Sensor supply voltage no.1 , DF046 Battery voltage , DF082 Upstream oxygen sensor heating circuit or DF084 Actuator relay control circuit first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after: <ul style="list-style-type: none">– a road test driving smoothly after the motor-driven fan assembly has been running, and the ET056 Double richness loop is ACTIVE.– a smooth driving road test after the fan unit has been in operation, immediately followed by a road test on a slope at no load (injection cut-off in the deceleration phase).
	Special note: <ul style="list-style-type: none">– OBD warning light illuminated.

Check the cleanliness and condition of the downstream oxygen sensor connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check the insulation and continuity on the following connections: Computer, connector C , track B2 —————> Track D of the downstream oxygen sensor Computer, connector C , track A2 —————> Track C of the downstream oxygen sensor Repair if necessary.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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**DF095
PRESENT
OR
STORED**

THROTTLE POTENTIOMETER CIRCUIT GANG 1

CO.0 : open circuit or short circuit to earth

CC.1 : short circuit to + 12 V

1.DEF: inconsistency between throttle gang 1 and gang 2

WARNING

Never drive the vehicle without having confirmed that no faults involving the throttle valve are present.

NOTES

Priority for dealing with a combination of faults:

If the fault **DF011 Sensor supply voltage no. 1** is present or stored, handle it first.

Conditions for applying the fault finding procedure to stored faults:

The fault is considered present after a change in the engine speed.

Special note:

- **level 1 fault warning light** illuminated.
- Throttle valve defect mode **types 1, 2 and 6**.

Check the **cleanliness** of the throttle valve and that the throttle **rotates properly** (no hard point).

Check **the cleanliness** and **condition** of the throttle valve connections.

Repair if necessary.

Disconnect the battery and the injection computer.

Check the **cleanliness** and **condition** of the connections.

Using the Universal bornier, check the **insulation** and **continuity** of the following connections:

Computer, connector **B**, track **G4** —————> **Track 1** of the throttle potentiometer gang 1

Computer, connector **B**, track **G3** —————> **Track 2** of the throttle potentiometer gang 1

Computer, connector **B**, track **G2** —————> **Track 5** of the throttle potentiometer gang 1

Repair if necessary.

If the throttle body is replaced, reinitialise the programming (RZ005).

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

**DF096
PRESENT
OR
STORED**

THROTTLE POTENTIOMETER CIRCUIT GANG 2

CO.1 : open circuit or short circuit to + 12 V
CC.0 : short circuit to earth

WARNING

Never drive the vehicle without having confirmed that no faults involving the throttle valve are present.

NOTES

Priority for dealing with a combination of faults:

If the fault **DF011 Sensor supply voltage no. 1** is present or stored, handle it first.

Conditions for applying the fault finding procedure to stored faults:

The fault is considered present after a change in the engine speed.

Special note:

- **level 1 fault warning light** illuminated.
- throttle valve defect mode **types 4 and 6**.

Check the **cleanliness** of the throttle valve and the **correct rotation** of the throttle (no hard point).
Check **the cleanliness** and **condition** of the throttle valve connections.
Repair if necessary.

Disconnect the battery and the injection computer.

Check the **cleanliness** and **condition** of the connections.

Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer, connector **B**, track **D3** —————→ **Track 6** of the throttle potentiometer gang 2

Computer, connector **B**, track **G2** —————→ **Track 5** of the throttle potentiometer gang 2

Computer, connector **B**, track **G4** —————→ **Track 1** of the throttle potentiometer gang 2

Repair if necessary.

If the throttle valve has been replaced, reinitialise RZ005 Programming.

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF099 PRESENT OR STORED	<u>AUTOMATIC TRANSMISSION OR SEQUENTIAL GEARBOX CONNECTION VIA THE MULTIPLEX NETWORK</u> 1.DEF: CAN connection fault
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NOTES	Priority for dealing with a combination of faults: Deal with faults DF084 Actuator relay control circuit or DF046 Battery voltage first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running.

Run a multiplex network test (see **88B, Multiplex**).

If the fault is still present, carry out fault finding on the **automatic transmission** system (see **MR 364, Mechanics, 21B, Sequential gearbox**).

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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PETROL INJECTION

Fault finding – Interpretation of faults

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**DF100
PRESENT
OR
STORED**

INSTRUMENT PANEL MULTIPLEX CONNECTION

1.DEF: CAN connection fault

NOTES

Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after an attempt is made to start the engine.

Run a multiplex network test (see **88B, Multiplexing**).

If the fault is still present, carry out fault finding on the **Instrument panel** system (see **83A, Instrument panel**).

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.
Clear the computer memory.
Carry out a road test followed by another check with the diagnostic tool.

**DF101
PRESENT
OR
STORED**

ELECTRONIC STABILITY PROGRAM MULTIPLEX CONNECTION

1.DEF: CAN connection fault

NOTES

Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after an attempt is made to start the engine.

Run a multiplex network test (see **88B, Multiplex**).

If the fault is still present, carry out fault finding on the **ABS - ESP system** (see **38C, Anti-lock braking system**).

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.
Clear the computer memory.
Carry out a road test followed by another check with the diagnostic tool.

DF105 PRESENT OR STORED	<u>CRUISE CONTROL/SPEED LIMITER ON/OFF CIRCUIT</u> 1.DEF: Cruise control/speed limiter on/off button inconsistency
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is present after a road test using the cruise control then the speed limiter function.
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Check the cleanliness and condition of the cruise control/speed limiter on/off switch and its connections. Repair if necessary
Check for the + 12 V feed on track A2 of the cruise control or speed limiter selector switch connector with the ignition on. Repair if necessary.
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Use the "Universal bornier" to check the insulation and continuity of the following connections: Computer, connector A, track A2 —————> Track A3 of the Cruise control - speed limiter on/off switch Computer, connector A, track C3 —————> Track B1 of the Cruise control - speed limiter on/off switch Repair if necessary.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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**DF106
PRESENT
OR
STORED**

CRUISE CONTROL/SPEED LIMITER SELECTOR SWITCH ON
STEERING WHEEL

1.DEF: inconsistent data

IMPORTANT

To remove or check the Cruise control/speed limiter control switches, the airbag must be removed (see MR 364, Mechanical, 88C, Airbag and pretensioners).

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is present after a road test using the cruise control then the speed limiter function.

Check **the cleanliness** and **condition** of the incrementing switches on the steering wheel and their connections.
Repair if necessary.

Check that **the earth** is present on **track 2** of the incrementing switches on the steering wheel.
Repair if necessary.

Disconnect the battery.

Disconnect the computer. Check the **cleanliness** and **condition** of the connections.

Using the Universal bornier, check the **insulation** and **continuity** of the following connections:

Computer, connector **A**, track **D2** —————> **Track 2** of the steering wheel control switch

Computer, connector **A**, track **D3** —————> **Track 1** of the steering wheel control switch

Repair if necessary.

If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

**DF108
PRESENT
OR
STORED**

LPG/CNG COMPUTER MULTIPLEXED CONNECTION

1.DEF: Multiplex signals absent or invalid values.

NOTES

Priority when dealing with a number of faults:

If **DF046 Battery voltage** faults are present or stored, deal with these first.

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present with the engine running.

Run a multiplex network test (see **88B, Multiplexing**).

If the fault is still present, perform fault finding on the **LPG Injection** system (see **17D, LPG injection**).

AFTER REPAIR

Follow the instructions to confirm repair.

Deal with any other faults.

Clear the stored faults.

DF109 PRESENT OR STORED	<u>LOW FUEL LEVEL MISFIRING</u> 1.DEF: destructive misfiring 2.DEF: pollutant misfiring
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NOTES	Priority for dealing with a combination of faults: – fuel supply system: DF085, DF026, DF027, DF028 and DF029. – combustion misfire: DF059, DF060, DF061, DF062, DF065 with 1.DEF or 2.DEF .
	Conditions for applying the fault finding procedure to stored faults: The fault is present after starting the engine and under the following conditions: – there must be no further electrical faults, – programming must be carried out. – warm engine (minimum 75°C). – idling with all the electrical consumers activated for 15 minutes .
	Special note: – OBD warning light illuminated.

Check that there is fuel in the tank.
Check that the correct fuel is being used.

If there is no present or stored misfiring fault, the misfiring was caused by the low fuel level.
Clear fault **DF109**.
– Carry out the steps "according to the repair".

AFTER REPAIR	Ensure that all the faults have been dealt with. Do not clear the programming. Checking that the system has been properly repaired: – there must be no further electrical faults, – programming has been carried out, – warm engine (minimum 75°C). – running at idle speed with all electrical consumers drawing power for 15 minutes . – if the fault is still absent, check that the catalytic converter is in good condition. Use command SC006 Run OBD Test: Catalytic converter .
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DF110 PRESENT OR STORED	<u>CATALYTIC CONVERTER</u> 1.DEF: EOBD HC pollutant emissions threshold has been exceeded
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NOTES	Priority for dealing with a combination of faults: Deal with the other faults first. There must be no other injection system faults, either present or stored. – combustion misfire: DF059, DF060, DF061, DF062, DF065 in 1.DEF or 2.DEF .
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present under the following conditions: – there must be no further electrical faults, – programming must be carried out. – warm engine (minimum 75°C). – idling with all the electrical consumers activated for 15 minutes .
	Special note: – OBD warning light illuminated.

Use command **SC006 Run OBD Test: Catalytic converter**.

This command must not be performed on a new catalytic converter; the result would be incorrect.

If the fault persists, contact your Techline.

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF119 PRESENT OR STORED	<u>CAMSHAFT SENSOR SIGNAL</u> 1.DEF: camshaft tooth event 2.DEF: dephasing measurement out of range
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NOTES	If faults DF084 or DF046 are present or stored, deal with them first. In the event of a combination of faults DF154 Flywheel signal sensor circuit , DF080 Camshaft dephaser circuit and DF119 , ignore fault DF080 and deal with the other 2 faults first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after a road test.

Check the cleanliness and the condition of the camshaft sensor connectors.
Check the condition and the cleanliness of the camshaft sensor.
With the ignition on, check for + 12 V on the camshaft sensor connector (see the connector track number in the appropriate wiring diagram). If + 12 V is not present: <ul style="list-style-type: none">– disconnect the battery,– disconnect the connector marked PPM1 in the Protection and Switching Unit,– check the cleanliness and condition of the connections,– Use the Universal bornier to check the continuity of the following connection: Protection and Switching Unit connector PPM1 track 2 —————> Camshaft sensor
Reconnect the Switching Protection Unit connector and reconnect the battery. With the ignition on, if there is still no + 12 V at the camshaft sensor connector, there is a fault in the Protection and Switching Unit . Contact the Techline.
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Use the universal bornier to check the insulation and continuity of the following connections: Computer track E2, connector C —————> Camshaft sensor Computer track F1, connector C —————> Camshaft sensor (see connector track numbers in the corresponding wiring diagram).
If the fault is still present, there is definitely a fault with the camshaft sensor target. Refer to the relevant section in the Workshop Repair Manual.

AFTER REPAIR	Apply the Stored fault diagnostic application conditions: <ul style="list-style-type: none">– If the fault is present, continue to deal with the fault.– If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.
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DF125 PRESENT OR STORED	<u>TORQUE METER PROGRAMMING</u> 1.DEF: programming not carried out
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NOTES	Signal: The torque meter analyses the crankshaft speed.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter motor has been running for 10 seconds or at an engine speed above 600 rpm .
	Special note: – OBD warning light illuminated.

Reinitialising the programming:

Run command **RZ005**.

Torque meter programming:

Accelerate up to **4000 rpm** in third gear then decelerate at no load to power take-up speed*.

Then repeat immediately.

In rare cases, fault **DF125** may appear.

(*This is the moment when, during deceleration with no load, the engine drops to idle speed and recovers torque)

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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**DF126
PRESENT
OR
STORED**

PASSENGER COMPARTMENT HEATING RESISTOR

1.DEF: No signal or inconsistent signal from the UCH

NOTES

Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after an attempt is made to start the engine.

Run a multiplex network test (see **88B, Multiplex**).

If the fault is still present, run fault finding on the **UCH** system (see **87A, UCH**).

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.
Clear the computer memory.
Carry out a road test followed by another check with the diagnostic tool.

**DF127
PRESENT
OR
STORED**

BRAKE SWITCH 1 CIRCUIT

1.DEF: fault on one of the two brake pedal contacts

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present:

- with the engine running,
- With the brake pedal depressed,
- With cruise control ON.

Check that the pedal assembly is in good condition.

Check **the cleanliness** and **condition** of the dual-contact brake switch and its connections.

Repair if necessary.

Disconnect the battery.

Disconnect the computer. Check the **cleanliness** and **condition** of the connections.

Using the Universal bornier, check the **insulation** and **continuity** on the following connection:

Computer, connector **A**, track **E4** —————▶ **Track 3** of the brake pedal

Repair if necessary.

If the fault is still present, replace the switch.

AFTER REPAIR

Deal with any faults declared by the diagnostic tool.

Clear the computer memory.

Carry out a road test followed by another check with the diagnostic tool.

DF128 PRESENT OR STORED	<u>BRAKE SWITCH 2 CIRCUIT</u> 1.DEF: fault on both brake pedal contacts
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NOTES	Priority for dealing with a combination of faults: Apply the procedure for dealing with fault DF127 Gang 1 switch circuit first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present: <ul style="list-style-type: none">– with the engine running,– With the brake pedal depressed,– With the cruise control ON with a cruising speed set.

Run a multiplex network test (see **88B, Multiplex**).

If the fault is still present, run fault finding on the **UCH** system (see **87A, UCH**).

AFTER REPAIR	Deal with any faults declared by the diagnostic tool. Clear the computer memory. Carry out a road test followed by another check with the diagnostic tool.
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DF154 PRESENT OR STORED	<u>FLYWHEEL SIGNAL SENSOR CIRCUIT</u> 1.DEF: flywheel target fault 2.DEF: no speed signal or interference signal
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NOTES	Priority for dealing with a combination of faults: In the event of a fault DF154 , DF119 Camshaft sensor signal and DF080 Camshaft dephaser circuit , ignore fault DF080 and deal with the other 2 faults first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter motor has been running for 10 seconds or at an engine speed above 600 rpm .
	Special note: – OBD warning light illuminated.

Check the **cleanliness**, **condition** and the **assembly** of the flywheel.
Repair if necessary.

If the flywheel has been replaced or removed, the flywheel target has to be reinitialised, then reprogrammed.

Programming reinitialisation:
Run command **RZ005**.

Carrying out the flywheel target programming:

Accelerate up to **4000 rpm** in third gear then decelerate, foot off the pedal, to power take-up speed*.
Then repeat immediately.

In rare cases, fault **DF125 Torquemeter programming** may appear.

(*This is the moment when, during deceleration with no load, the engine drops to idle speed and recovers torque).

DF398 PRESENT OR STORED	<u>FUEL CIRCUIT OPERATING FAULT</u> 1.DEF: petrol circuit fault
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NOTES	Priority for dealing with a combination of faults: Apply the procedure for dealing with faults DF081 Solenoid valve canister bleed and DF085 Fuel pump relay first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after an attempt is made to start the engine.
	Special note: – OBD warning light comes on.

Check the cleanliness, condition and fitting of the fuel vapour absorber. Repair if necessary.
If the fault is still present, adjust the harness so that the fault status changes (present → stored). Look for any damage to the wiring harness, and check the condition and connection of the injection computer and fuel vapour absorber connectors. Repair if necessary.
If the fault is still present, check for the + 12 V on track 1 of the fuel vapour absorber. If the + 12 V is not present, check the following connection for insulation, continuity and the absence of interference resistance : Fuel vapour absorber track 1 —————→ track 2 of connector PPM1 on the Protection and Switching Unit Repair if necessary.
If the fault is still present, disconnect the battery and the injection computer. Check the insulation, continuity and the absence of interference resistance on the following connection: Computer, connector C, track E1 —————→ petrol vapour absorber track 2 Repair if necessary.
If the fault is still present, measure the resistance between tracks 1 and 2 of the fuel vapour absorber bleed solenoid valve. Replace the bleed solenoid valve for the fuel vapour absorber if the resistance is not 26 Ω ± 4 Ω at 23 °C .
If the fault is still present, check the insulation, continuity and the absence of interference resistance on the following connections: Computer, connector C, track D1 —————→ track 1 of the PEM connector of the Protection and Switching Unit Repair if necessary.
If the fault is still present, deal with the other faults, then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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PETROL INJECTION

Fault finding – Interpretation of faults

17B

**DF455
PRESENT
OR
STORED**

LOW FUEL LEVEL SIGNAL

1.DEF: open circuit or short circuit

NOTES

Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after an attempt is made to start the engine.

Run a multiplex network test (see **88B, Multiplex**).

If the fault is still present, carry out fault finding on the **Instrument panel** system (see **83A, Instrument panel**).

AFTER REPAIR

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

DF608 PRESENT OR STORED	<u>CLUTCH PEDAL SWITCH</u> 1.DEF: signal incoherence
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running and a road speed above 36 mph (60 km/h) .
	Special note: The acquisition is made if the vehicle is not fitted with an automatic transmission.

Check the cleanliness, condition and assembly of the clutch pedal switch and its connections. Repair if necessary.
If the fault is still present, disconnect the switch. Check that when the clutch pedal is depressed, the switch is active, and that when the clutch pedal is released, that the switch is not active and that the recommendations regarding clutch pedal clearance are still valid (see MR 364, Mechanics,20A, Clutch Replace the switch if necessary.
If the fault is still present, manipulate the harness so that the status changes (present → stored). Look for any damage to the wiring harness, and check the condition and connection of the injection computer and clutch pedal switch connectors. Repair if necessary.
If the fault is still present, check the earth on track 2 of the switch. If there is no earth on track 2 , check the insulation, continuity and the absence of interference resistance on the following connection: Clutch pedal switch track 2 —————▶ earth Repair if necessary.
If the fault is still present, check the insulation, continuity and the absence of interference resistance on the following connections: Clutch pedal switch track 1 —————▶ Track C4, connector A , of the computer Repair if necessary.
If the fault is still present, deal with the other faults, then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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DF612 PRESENT OR STORED	<u>OIL VAPOUR DEFREEZE RESISTOR CIRCUIT</u> CO.0 : open circuit or short circuit to earth
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NOTES	Priority for dealing with a combination of faults: If the faults DF002 Air temperature sensor circuit , DF004 Turbocharging pressure circuit , DF009 Gang 2 pedal potentiometer circuit or DF046 Battery voltage are present, handle them first.
	Conditions for applying the fault finding procedure to stored faults: The fault appears after the ignition has been switched on.

Check the cleanliness and condition of the oil vapour defreeze resistor relay connections. Clean or replace as necessary.
Measure the resistance of the defreeze resistor relay between tracks 1 and 2 . Replace the relay if the resistance is not: 21 Ω at - 40 °C 9.5 Ω at 20 °C 13.4 Ω at 120 °C
With the ignition on, check for + 12 V on track 1 of the defreeze resistor relay. Repair if necessary.
Disconnect the battery. Disconnect the computer. Check the cleanliness and condition of the connections. Using the Universal bornier, check the insulation, continuity and the absence of interference resistance for the following connection: Computer, connector B , track L2 —————> track 2 of the oil vapour defreeze relay Repair if necessary.
If the fault is still present, deal with the other faults, then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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DF635 PRESENT OR STORED	<u>LPG CYLINDER 1 COMBUSTION MISFIRE</u> 1 DEF: Destructive misfire 2 DEF: Pollutant misfire 3 DEF: Non-compliance with emission control standards
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NOTES	Priority when dealing with a number of faults: – LPG fuel system: see 17C, LPG injection , – ignition: DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – flywheel signal: DF154 Flywheel signal sensor circuit DF125 "Torque sensor programming" Check whether there are other cylinders with an LPG combustion misfire fault detected by the tool before starting the following fault finding procedure.
	Conditions for applying the fault finding procedure to stored faults: The fault appears under the following conditions: – there must be no further electrical faults, – the programming must have been done, particularly the flywheel target, – warm engine (minimum 75 °C), – run the engine at idle speed with all electrical consumers switched on for approximately 15 minutes.
	Special note: – catalytic converter misfire: OBD warning light flashes when the fault is present then is continuously lit, – pollutant combustion misfire: OBD warning light lit continuously. – engine unstable, loss of power and vibrations.

Misfiring on cylinder 1 only	The fault is probably due to a component that can only affect this cylinder: – check the cylinder 1 pencil coil, – check the condition and conformity of the spark plugs, – check the cylinder 1 LPG injector If everything is in order, check the same components on cylinder 4 (to cover a possible cylinder recognition error).
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Combustion misfires on cylinders 1 and 4	The fault is probably due to a component that affects a pair of cylinders: – check the ignition coil circuit concerned (apply interpretation of fault DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – check the condition and conformity of the spark plugs.
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AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.
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<p>DF636 PRESENT OR STORED</p>	<p><u>LPG CYLINDER 2 COMBUSTION MISFIRE</u></p> <p>1 DEF: Destructive misfire 2 DEF: Pollutant misfire 3 DEF: Non-compliance with emission control standards</p>
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<p>NOTES</p>	<p>Priority when dealing with a number of faults:</p> <ul style="list-style-type: none"> – LPG fuel system: see 17C, LPG injection, – ignition: <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – flywheel signal: <ul style="list-style-type: none"> DF154 Flywheel signal sensor circuit DF125 "Torque sensor programming" <p>Check whether there are other cylinders with an LPG combustion misfire fault detected by the tool before starting the following fault finding procedure.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault appears under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – the programming must have been done, particularly the flywheel target, – warm engine (minimum 75 °C), – run the engine at idle speed with all electrical consumers switched on for approximately 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – catalytic converter misfire: OBD warning light flashes when the fault is present then is continuously lit, – pollutant combustion misfire: OBD warning light lit continuously. – engine unstable, loss of power and vibrations.

<p>Misfiring on cylinder 2 only</p>	<p>The fault is probably due to a component that can only affect this cylinder:</p> <ul style="list-style-type: none"> – check the cylinder 2 pencil coil, – check the condition and conformity of the spark plugs, – check the cylinder 2 LPG injector <p>If everything is in order, check the same components on cylinder 3 (to cover a possible cylinder recognition error).</p>
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<p>Combustion misfires in cylinders 2 and 3</p>	<p>The fault is probably due to a component that affects a pair of cylinders:</p> <ul style="list-style-type: none"> – check the ignition coil circuit concerned (apply interpretation of fault <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – check the condition and conformity of the spark plugs.
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<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.</p>
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<p>DF637 PRESENT OR STORED</p>	<p><u>LPG CYLINDER 3 COMBUSTION MISFIRE</u></p> <p>1 DEF: Destructive misfire 2 DEF: Pollutant misfire 3 DEF: Non-compliance with emission control standards</p>
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<p>NOTES</p>	<p>Priority when dealing with a number of faults:</p> <ul style="list-style-type: none"> – LPG fuel system: see 17C, LPG injection, – ignition: <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – flywheel signal: <ul style="list-style-type: none"> DF154 Flywheel signal sensor circuit DF125 "Torque sensor programming" <p>Check whether there are other cylinders with an LPG combustion misfire fault detected by the tool before starting the following fault finding procedure.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault appears under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – the programming must have been done, particularly the flywheel target, – warm engine (minimum 75 °C), – run the engine at idle speed with all electrical consumers switched on for approximately 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – catalytic converter misfire: OBD warning light flashes when the fault is present then is continuously lit, – pollutant combustion misfire: OBD warning light lit continuously. – engine unstable, loss of power and vibrations.

<p>Misfiring on cylinder 3 only</p>	<p>The fault is probably due to a component that can only affect this cylinder: check the cylinder 3 pencil coil, check the condition and conformity of the spark plugs, check the cylinder 3 LPG injector If everything is in order, check the same components on cylinder 2 (to cover a possible cylinder recognition error).</p>
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<p>Combustion misfires in cylinders 2 and 3</p>	<p>The fault is probably due to a component that affects a pair of cylinders:</p> <ul style="list-style-type: none"> – check the ignition coil circuit concerned (apply interpretation of fault <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – check the condition and conformity of the spark plugs.
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<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.</p>
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<p>DF638 PRESENT OR STORED</p>	<p><u>LPG CYLINDER 4 COMBUSTION MISFIRE</u></p> <p>1 DEF: Destructive misfire 2 DEF: Pollutant misfire 3 DEF: Non-compliance with emission control standards</p>
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<p>NOTES</p>	<p>Priority when dealing with a number of faults:</p> <ul style="list-style-type: none"> – LPG fuel system: see 17C, LPG injection, – ignition: <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – flywheel signal: <ul style="list-style-type: none"> DF154 Flywheel signal sensor circuit DF125 "Torque sensor programming" <p>Check whether there are other cylinders with an LPG combustion misfire fault detected by the tool before starting the following fault finding procedure.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault appears under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – the programming must have been done, particularly the flywheel target, – warm engine (minimum 75 °C), – run the engine at idle speed with all electrical consumers switched on for approximately 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – catalytic converter misfire: OBD warning light flashes when the fault is present then is continuously lit, – pollutant combustion misfire: OBD warning light lit continuously. – engine unstable, loss of power and vibrations.

<p>Misfiring on cylinder 4 only</p>	<p>The fault is probably due to a component that can only affect this cylinder:</p> <ul style="list-style-type: none"> – check the pencil coil of cylinder 4, – check the condition and conformity of the spark plugs, – check the cylinder 4 LPG injector <p>If everything is in order, check the same components on cylinder 1 (to cover a possible cylinder recognition error).</p>
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<p>Combustion misfires on cylinders 1 and 4</p>	<p>The fault is probably due to a component that affects a pair of cylinders:</p> <ul style="list-style-type: none"> – check the ignition coil circuit concerned (apply interpretation of fault <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – check the condition and conformity of the spark plugs.
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<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.</p>
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<p>DF639 PRESENT OR STORED</p>	<p><u>COMBUSTION MISFIRE IN LPG MODE</u></p> <p>1 DEF: Destructive misfire 2 DEF: Pollutant misfire 3 DEF: Non-compliance with emission control standards</p>
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<p>NOTES</p>	<p>Priority when dealing with a number of faults:</p> <ul style="list-style-type: none"> – LPG fuel system: see 17C, LPG injection, – ignition: <ul style="list-style-type: none"> DF072 Cylinder 1 ignition coil circuit DF073 Cylinder 2 ignition coil circuit DF074 Cylinder 3 ignition coil circuit DF075 Cylinder 4 ignition coil circuit – flywheel signal: <ul style="list-style-type: none"> DF154 Flywheel signal sensor circuit DF125 "Torque sensor programming" <p>DF059 Combustion misfire in cylinder 1, DF060 Combustion misfire in cylinder 2, DF061 Combustion misfire in cylinder 3, DF062 Combustion misfire in cylinder 4.</p>
	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault appears under the following conditions:</p> <ul style="list-style-type: none"> – there must be no further electrical faults, – the programming must have been done, particularly the flywheel target, – warm engine (minimum 75 °C), – run the engine at idle speed with all electrical consumers switched on for approximately 15 minutes.
	<p>Special note:</p> <ul style="list-style-type: none"> – catalytic converter misfire: OBD warning light flashes when the fault is present then is continuously lit, – pollutant combustion misfire: OBD warning light lit continuously. – engine unstable, loss of power and vibrations.

Check the LPG injectors.
Check the condition and conformity of the spark plugs.
Check the ignition pencil coils.

If the fault is still present, carry out the following checks:

- check the flywheel sensor,
- check the condition and cleanliness of the flywheel,
- check the flywheel sensor mounting
- check the sensor/flywheel air gap,
- check the cylinder compression's,
- check the LPG fuel system,
- check the complete ignition system (see **MR 364 or 370 Mechanics, 17A, Ignition**),
- check the hydraulic tappets if there is camshaft noise (see **MR 364 or 370 Mechanics, 11A, Top and front of engine**).

If the fault is still present, deal with the other faults, then proceed to the conformity check.

<p>AFTER REPAIR</p>	<p>Follow the instructions to confirm repair. Deal with any other faults. Clear the stored faults.</p>
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PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide. **Application condition:** engine **off**, ignition **on**.

MAIN COMPUTER STATUSES AND PARAMETERS

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Battery voltage	PR071: Computer feed voltage	11 V < PR071 < 15 V	If there is a fault, use interpretation of PR071 Computer supply voltage .
2		ET001: Computer + after ignition feed	Presence of + After ignition feed Absent	
3	Water pump	ET543: Coolant pump control	For F4R Turbo engine only. ACTIVE: coolant pump running INACTIVE: coolant pump idle.	In the event of a fault, apply interpretation of DF086 Coolant pump relay control circuit .
4	Vehicle speed	PR089: Vehicle speed	Gives the vehicle speed in mph (km/h). This parameter is sent to the injection by the ABS computer via the multiplex network.	If there is a fault use the interpretation for DF091 Vehicle speed signal .
5	Clutch contact	ET040: Clutch pedal	Indicates recognition of clutch pedal contacts. RELEASED: Pedal released DEPRESSED: Pedal depressed UNAVAILABLE: Automatic transmission only	In the event of a fault, use the interpretation of ET040 Clutch pedal .

PETROL INJECTION

Fault finding – Conformity check

MAIN COMPUTER STATUSES AND PARAMETERS (continued)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
6	Brake contact	ET039: Brake pedal	Indicates recognition of brake pedal contacts. RELEASED: Pedal released DEPRESSED: Pedal depressed	If there is a fault, use the interpretation for ET039 Brake pedal.
7	Automatic gearbox connection	ET063: Park/Neutral position	AT only. YES: Automatic transmission is in parking/neutral position NO: Automatic transmission is not in parking/neutral position	If ET014 is inconsistent, perform a multiplex network test using the diagnostic tool, then if the test is in order, see the gearbox computer.
8	Faults	ET064: Level 1 injection fault	YES: fault present NO: fault absent	WITHOUT
9		ET065: Level 2 Injection fault	YES: fault present NO: fault absent	WITHOUT
10		PR105: OBD fault warning light lit mileage counter	Shows distance travelled with warning light on	
11		PR106: Mileage counter fault warning light lit	Shows distance travelled with warning light on	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine off, ignition on.

FUEL CIRCUIT SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Engine speed	PR055: Engine speed	Indicates the engine's speed of rotation in rpm. $0 \text{ rpm} < \text{PR055} < 500 \text{ rpm}$	In the event of a fault apply the interpretation for DF154 Flywheel signal sensor circuit .
2	Motorised throttle	PR014: Idling speed correction	Shows engine idling speed correction value. $\text{PR014} = 0 \text{ rpm}$. The idle speed regulator performs all of the calculations that allow the idle speed actuator to be controlled physically: the motorised throttle. The functional component of the regulator is adaptive (variation programming and ageing).	WITHOUT
3		PR054: Idle speed regulation	ACTIVE INACTIVE	If ACTIVE apply the interpretation for ET054 Idle speed regulation .
4		PR010: Idle speed regulation setpoint	The idle speed regulation setpoint depends on the coolant and oil temperature, the position of the gear lever, and which electrical consumers are operating. $752 \text{ rpm.} < \text{PR010} < 1216 \text{ rpm}$. If a manifold pressure sensor fault is present or stored, the idle speed setting is 896 rpm.	In the event of a fault apply the interpretation for ET054, Idle speed regulation .

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 1)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
5	Motorised throttle	PR090: Idle speed regulation programming value	- 12% < PR090 < 12% PR090, an adaptive built-in action, is a stored parameter designed to program variation and engine ageing for the idle speed regulator. These are programmed only when the engine is idling and warm, and no electrical consumers (electrical windscreen, air conditioning, GMV, power steering) have been selected. Therefore it adjusts slowly.	WITHOUT
6		PR141: Integral idling speed regulation correction	0% The built-in correction is continuously calculated to take into account consumer air demand.	
7	Motorised throttle	PR091: Theoretical idle speed regulation OCR	0% < PR091 < 100% When the conditions for regulation are met, the idle regulator continually repositions the motorised throttle to keep the engine speed at the idling speed setting. The motorised throttle opening ratio required to adhere to the engine speed setpoint is then given by parameter PR091.	

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 2)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
8	Oxygen sensor	ET055: Upstream sensor richness loop.	Loop open Loop closed	If the loop is closed, apply the interpretation for ET055 Upstream sensor richness loop .
9		PR138: Richness correction	0% In loop mode, the richness correction corrects the injection duration to obtain a fuel mixture as close as possible to a richness of 1. The correction value varies around 50, between 0 and 100.	WITHOUT
10		PR144: Self-adapting richness offset	0 < PR144 < 255 This parameter is used to detect any tendency of the injection system to increase or decrease the richness.	
11		PR143: Self-adapting richness gain	0 < PR143 < 255 This parameter is used to detect any tendency of the injection system to increase or decrease the richness.	
12		PR101: Duration of injection	0 ms	
13	Fuel consumption	PR103: Instantaneous fuel consumption	0 l/h	

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 3)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
14	Fuel pump	ET047: Fuel pump control circuit	ACTIVE INACTIVE	If ACTIVE , apply the interpretation for DF085 Fuel pump relay control circuit.
15		AC015: Fuel pump relay	The fuel pump should be heard operating	In the event of a fault, apply the interpretation of AC015 Fuel pump relay .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

SUB FUNCTION: CIRC. (TURBOCHARGING/INLET)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Air circuit pressure	PR035: Atmospheric pressure	700 mb < PR035 < 1047 mb	If not consistent, check that PR035 = PR032 = local atmospheric pressure, with the engine stopped and ignition on. In the event of a fault apply the interpretation for PR032 Inlet pressure .
2		PR032: Inlet pressure	121.5 mb < PR035 < 2200 mb	
3	Turbocharging	PR041: Turbocharging pressure	121.5 mb < PR041 < 2200 mb Default value: 1016 mb	In the event of a fault, apply the interpretation of DF004 Turbocharging pressure sensor circuit .
4		PR104: Turbocharging solenoid valve OCR setpoint	Shows the turbocharging solenoid valve opening ratio.	WITHOUT
5	Air temperature	PR058: Air temperature	- 40°C < PR058 < 120°C	In the event of a fault, apply the interpretation of DF002 Air temperature sensor circuit .
6	Coolant temperature	PR064: Coolant temperature	- 40°C < PR058 < 120°C	In the event of a fault, apply interpretation of DF001 Air temperature sensor circuit .
7	Turbocharging	AC004: Turbocharging solenoid valve	The turbocharging solenoid valve should be heard operating	In the event of a fault, apply interpretation of DF054 Turbocharging solenoid valve control circuit .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

DRIVER PARAMETERS SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Motorised throttle	ET085: Motorised throttle in defect mode	NO STATUS 0 STATUS 1 STATUS 2 STATUS 3 STATUS 4 STATUS 5	WITHOUT
2		ET051: Throttle stop programming	COMPLETED	Run command RZ005 Programming. If the parameters and statuses are still incorrect, contact the Techline.
3		PR097: Motorised throttle lower stop programmed value.	5.96% < PR097 < 13.96%	
4		PR113: Throttle lower stop after applying Offset	5.96% < PR113 < 13.96%	
5		PR096: Motorised throttle upper stop programmed value	PR096 = 87.99%	
6		ET082: Motorised throttle position	OPEN CLOSED NOT DETECTED	If NOT DETECTED, apply interpretation of ET082 Motorised throttle valve position .
7		PR118: Motorised throttle position gang 1	No load = 4% Full load = 99.02%	If there is a fault, use the interpretation for DF095 Throttle potentiometer circuit gang 1 .
8		PR119: Motorised throttle position gang 2	No load = 4% Full load = 100%	If there is a fault, use the interpretation for DF096 Throttle potentiometer circuit gang 2 .
9		PR116: Motorised throttle corrected position setpoint	No load = 0% Full load = 60%	WITHOUT
10		PR111: Motorised throttle position corrected value.	No load = 0% Full load = 60%	

PETROL INJECTION

Fault finding – Conformity check

DRIVER PARAMETERS SUB-FUNCTION (continued)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
11	Accelerator pedal and motorised throttle	ET075: Pedal released and throttle closed	DETECTED NOT DETECTED	If NOT DETECTED , interpretation for PR030 Accelerator pedal position followed by the interpretation for fault DF079 Motorised throttle valve servo control .
12	Accelerator pedal	PR112: No load programmed value	0% < PR112 < 15%	Run command RZ005 Programming . If the parameters and statuses are still incorrect, contact the Techline.
13		PR030: Accelerator pedal position	No load = <15% Full load = 85%	If there is a fault, apply interpretation of DF008 and DF009 Pedal sensor circuit gang 1 and gang 2 then DF011 and DF012 Sensor supply voltage 1 and 2 .
14		ET081: Accelerator pedal position	No load Full load NOT DETECTED	In the event of a fault apply the interpretation for PR030, Accelerator pedal position .
15	Motorised throttle	AC027: Motorised throttle	The motorised throttle should be heard operating	In the event of a fault, apply the interpretation for AC027 Motorised throttle .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

PREHEATING/IGNITION SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Flywheel target	ET089: Flywheel target programming	COMPLETED	WITHOUT
2	Engine phasing	ET061: Cylinder 1 recognition	NOT PERFORMED	
3	Flywheel	ET062: Flywheel signal	NOT DETECTED	
4	Ignition	PR001: Advance	0 °V	
5		PR095: anti-pinking correction	0 °V	
6	Flywheel	ET581: Petrol misfire	NO	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

EMISSION CONTROL/OBD SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Oxygen sensor	ET052: Upstream O ₂ sensor heating	ACTIVE INACTIVE	If ACTIVE , apply the interpretation of ET052 Upstream O₂ sensor heating .
2		ET053: Downstream O ₂ sensor heating	ACTIVE INACTIVE	Si ACTIF , apply the interpretation of ET053 Downstream O₂ sensor heating .
3		PR098: Upstream oxygen sensor voltage	120 mV < PR098 < 750 mV	If there is a fault, use interpretation of PR098 Upstream oxygen sensor voltage .
4		PR099: Downstream oxygen sensor voltage	120 mV < PR099 < 750 mV	If there is a fault, apply the interpretation of PR099 Downstream oxygen sensor voltage .
5	Canister	ET050: Canister bleed control	INACTIVE	WITHOUT
6		PR102: Canister bleed solenoid valve OCR*	0% < PR102 < 99.61%	
7	Flywheel	ET581: Petrol misfire	NO	
8	Canister	AC017: Canister bleed solenoid valve	The canister bleed solenoid valve should be heard operating	In the event of a fault, apply interpretation of AC017 Canister bleed solenoid valve .

* OCR: Opening Cyclic Ratio

PETROL INJECTION

Fault finding – Conformity check

EMISSION CONTROL/OBD SUB-FUNCTION (continued)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
9	Oxygen sensor	AC018: Upstream O2 sensor heating	The upstream oxygen sensor should heat up	In the event of a fault, apply the interpretation of DF082 Upstream O2 sensor heating circuit.
10		AC019: Downstream O2 sensor heating	The downstream oxygen sensor should heat up	In the event of a fault, apply the interpretation of DF083 Downstream O2 sensor heating circuit.
11	Oil vapour defreeze resistor	ET542: Oil vapour defreeze resistor	CONNECTED NOT CONNECTED	In the event of a fault, apply the interpretation for fault DF612 Oil vapour defreeze resistor circuit.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

COLD LOOP SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Air conditioning	ET079: Air conditioning present	Shows whether or not the vehicle is equipped with air conditioning. YES: Air conditioning is detected by the injection computer. NO: Air conditioning is not detected by the injection computer.	If inconsistent with the vehicle equipment, carry out a multiplex network test and apply the relevant procedure.
2		ET088: Compressor actuation request	The injection requests the UPC (via the multiplex network) to start the compressor. ACTIVE: The multiplex network should not be faulty on the Automatic Transmission, UPC or UCH systems. The UCH must send a compressor starting request to the injection. The coolant pressure sensor must not be defective. Satisfactory engine operating conditions (coolant temperature, engine load etc.). INACTIVE: One of the above conditions has not been met.	WITHOUT
3		ET004: Air conditioning authorisation	Non operational information, intended solely for diagnostic purposes. YES: Satisfactory engine operating conditions (coolant temperature, engine load etc.). The vehicle is not in a specific movement phase (hill start or stop etc.). NO: One of the above conditions has not been fulfilled.	

PETROL INJECTION

Fault finding – Conformity check

COLD LOOP SUBSYSTEM(continued 1)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
4	Refrigerant pressure	PR037: Refrigerant pressure	2 bar < PR037 < 27 bar Default value: 0 bar	If there is a fault, use the interpretation for PR037 Coolant pressure .
5	Engine speed	PR055: Engine speed	Shows the speed of rotation in rpm. 0 rpm < PR055 < 500 rpm	In the event of a fault apply the interpretation for DF154 Flywheel signal sensor circuit .
6	Motorised throttle	ET023: Fast idle speed request	UCH requests the injection system to increase the idling speed. ABSENT: The UCH has not made a request. PRESENT: The UCH has made a request.	If ET023 is inconsistent, run a multiplex network test using the diagnostic tool; then if the test is in order, consult the UCH.
7	Coolant temperature	PR064: Coolant temperature	- 40°C < PR064 < 120°C	In the event of a fault, apply the interpretation of DF001 Coolant temperature sensor circuit .
8	Vehicle speed	PR089: Vehicle speed	Gives the vehicle speed in mph (km/h). This parameter is sent to the injection by the ABS computer via the multiplex network.	In the event of a fault, apply the interpretation of DF091 Vehicle speed signal .
9	Air conditioning	PR125: Power used by the AC compressor	300 W	WITHOUT
10	GMV	ET014: Fan assembly 1 check	RUNNING STOPPED	If the ET014 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the UPC.
11		ET015: Fan assembly 2 check	RUNNING STOPPED	If the ET015 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the UPC.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

HEATING SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Coolant temperature	PR064: Coolant temperature	- 40°C < PR064 < 120°C	In the event of a fault, apply the interpretation of DF001 Coolant temperature sensor circuit .
2	Passenger compartment heating resistor	ET111: Number of fixed heating resistors	This status indicates that the injection computer is preventing any change to the number of passenger compartment heating resistors (RCH) activated (RCH already activated are not shut down, but no more can be added). This limit in the number of RCH is in response to the vehicle's requirements (power availability, torque requirement, etc.).	WITHOUT
3		ET112: Passenger compartment heating resistor cut-off	This status indicates that the injection computer is inhibiting all the passenger compartment heating resistors (RCH) in response to the vehicle's requirements (power availability, torque requirement, injection or air conditioning defect mode, etc.).	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Cruise control/ Speed limiter	ET042: Cruise control/ speed limiter.	<ul style="list-style-type: none"> - NOT DETECTED: Vehicle not equipped with cruise control/speed limiter function buttons or after reprogramming or programming the injection computer, the switch is in the rest position. - INACTIVE: When no buttons are pressed. - SPEED LIMITER: Main switch in speed limiter position. - CRUISE CONTROL: Main switch in cruise control position. 	In the event of a fault, apply the interpretation of status ET042 Cruise control/Speed limiter .
2		ET703: Cruise control/ speed limiter buttons	<ul style="list-style-type: none"> - INACTIVE: No cruise control/speed limiter button is pressed. - PLUS: When the cruise control/speed limiter "+" button is pressed. - MINUS: When the cruise control/speed limiter "-" button is pressed. - SUSPEND: When the cruise control/speed limiter "0" button is pressed. - RESUME: When the cruise control/speed limiter "R" button is pressed. 	In the event of a fault, consult the interpretation of status ET703 Cruise control/speed limiter button .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION (CONTINUED 1)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
3	Brake contact	ET704: Brake switch No. 1	- ACTIVE (brake pedal depressed) - INACTIVE (brake pedal released)	In the event of a fault, consult the interpretation of status ET704 Brake switch No. 1.
4		ET705: Brake switch No. 2	- ACTIVE (brake pedal depressed) - INACTIVE (brake pedal released)	In the event of a fault, consult the interpretation of status ET705 Brake switch No. 2.
5	Clutch pedal switch	ET405: Clutch pedal switch	- ACTIVE - INACTIVE	In the event of a fault, consult the interpretation of status ET405 Clutch switch.
6	Cruise control setpoint	PR130: Cruise control setpoint	Indicates the reference value requested by the driver (in mph (km/h))	WITHOUT

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION (CONTINUED 2)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
7	Cruise control/speed limiter deactivation	ET415: Cruise control/speed limiter deactivation	NONE: This status is present on the diagnostic tool when: <ul style="list-style-type: none"> – The computer has been reinitialised. – The computer has been reprogrammed. 	In the event of a fault, consult the interpretation of status ET415 Cruise control/speed limiter deactivation .
			- STATUS 1: Traction control request	
			- STATUS 2: Brake pedal depressed.	
			- STATUS 3: Clutch pedal depressed.	
			- STATUS 4: Suspend button pressed.	
			- STATUS 5: Cruise control or speed limiter monitoring.	
			- STATUS 6: Gear lever in neutral (manual gearbox) or N position (automatic transmission).	
			- STATUS 7: Inconsistency between the request and the vehicle speed.	
			- STATUS 8: Automatic transmission in defect mode.	
			- STATUS 9: Vehicle speed monitoring.	
			- STATUS 10: Monitoring by injection computer.	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

START SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Starting	ET076: Starting	AUTHORISED	The authorisation to start is given once the fuel pump is pressurised and if the motorised throttle has completed its stop and limp-home position programming phase.
2	Actuator relay control	ET048: Actuator relay control	ACTIVE INACTIVE	If ACTIVE apply the interpretation of DF084 Actuator relay control circuit .
3	Battery voltage	PR071: Computer feed voltage	11 V < PR071 < 15 V	If there is a fault, use interpretation of PR071 Computer supply voltage .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

PROTECTION SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Code programmed	ET006: Code programmed	States whether the immobiliser code has been programmed by the computer or not. YES: Code programmed NO: Code not programmed into the injection computer.	If NO, contact the Techline
2	Engine immobiliser	ET003: Engine immobiliser	Indicates the status of the immobiliser system. INACTIVE: The injection computer has recognised the immobiliser code transmitted by the UCH. ACTIVE: the injection computer does not recognise the immobiliser code transmitted by the UCH.	If ET003 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the UCH.
3	Impact detected	ET077: Impact detected	YES NO	If YES, switch off the ignition for 10 seconds, then switch it back on so the engine can be restarted. Then clear any faults.
4	Starting	ET076: Starting	AUTHORISED	The authorisation to start is given once the fuel pump is pressurised and if the motorised throttle has completed its stop and limp-home position programming phase.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application condition: engine **off**, ignition **on**.

TORQUE MANAGEMENT SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Torque	PR100: Torque lapse	0 N.m	If there is a fault, test the multiplex network; if the test is OK, check the automatic transmission.
2		PR015: Engine torque	0 N.m	
3		PR123: Estimated driver demand engine torque	0 Nm < PR123 < 200 Nm	
4		PR122: Torque received by automatic transmission converter	0 N.m	
5		PR124: Resistant engine torque transmitted via multiplex line	0 N.m	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, at **idle speed**.

MAIN COMPUTER STATUSES AND PARAMETERS

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Battery voltage	PR071: Computer feed voltage	13 V < PR071 < 15 V	If there is a fault, use interpretation of PR071 Computer supply voltage .
2		ET001: Computer + after ignition feed	+ after ignition feed absent	
3	Water pump	ET543: Coolant pump control	For F4R Turbo engine only. ACTIVE: coolant pump running INACTIVE: coolant pump idle	In the event of a fault, apply interpretation of DF086 Coolant pump relay control circuit .
4	Vehicle speed	PR089: Vehicle speed	Gives the vehicle speed in mph (km/h). This parameter is sent to the injection by the ABS computer via the multiplex network.	If there is a fault use the interpretation for DF091 Vehicle speed signal .
5	Clutch contact	ET040: Clutch pedal	Indicates recognition of clutch pedal contacts. RELEASED: Pedal released DEPRESSED: Pedal depressed UNAVAILABLE: Automatic transmission only	In the event of a fault, use the interpretation of ET040 Clutch pedal .
6	Brake contact	ET039: Brake pedal	Indicates recognition of brake pedal contacts. RELEASED: Pedal released DEPRESSED: Pedal depressed	If there is a fault, use the interpretation for ET039 Brake pedal .

PETROL INJECTION

Fault finding – Conformity check

MAIN COMPUTER STATUSES AND PARAMETERS (continued)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
7	Automatic gearbox connection	ET063: Park/Neutral position	AT only. YES: Automatic transmission is in parking/neutral position NO: Automatic transmission is not in parking/neutral position	If ET063 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the automatic transmission.
8	Faults	ET064: Level 1 injection fault	YES: fault present NO: fault absent	WITHOUT
9		ET065: Level 2 Injection fault	YES: fault present NO: fault absent	
10		PR105: OBD fault warning light lit mileage counter	Shows the distance covered with the warning light lit.	
11		PR106: Mileage counter fault warning light lit	Shows the distance covered with the warning light lit.	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, at **idle speed**.

FUEL CIRCUIT SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Engine speed	PR055: Engine speed	Indicates the engine's speed of rotation in rpm. 700 rpm < PR055 < 6500 rpm	In the event of a fault, apply the interpretation for DF154 Flywheel signal sensor circuit .
2	Motorised throttle	PR014: Idling speed correction	Shows engine idling speed correction value. 0 rpm < PR014 < 224 rpm. The idle speed regulator performs all of the calculations that allow the idle speed actuator to be controlled physically: the motorised throttle. This regulator has a built-in adaptive component (variation and ageing programming).	WITHOUT
3		ET054: Idle speed regulation	ACTIVE INACTIVE	If INACTIVE apply the interpretation for ET054 Idling speed regulation .
4		PR010: Idle speed regulation setpoint	The idle speed regulation setpoint depends on the coolant and oil temperature, the position of the gear lever, and which electrical consumers are operating. 752 rpm < PR010 < 1216 rpm. If a manifold pressure sensor fault is present or stored, the idle speed setting is 896 rpm.	In the event of a fault, apply the interpretation of ET054 Idle speed regulation .

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 1)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
5	Motorised throttle	PR090: Idle speed regulation programming value	- 12% < PR090 < 12% PR090, an adaptive built-in action, is a stored parameter designed to program variation and engine ageing for the idle speed regulator. These are programmed only when the engine is idling and warm, and no electrical consumers (electrical windscreen, air conditioning, GMV, power steering) have been selected. Therefore it adjusts slowly.	WITHOUT
6		PR141: Integral idling speed regulation correction	4.7% < PR141 < 32% The built-in correction is continuously calculated to take into account consumer demand for air.	
7	Motorised throttle	PR091: Theoretical idle speed regulation OCR	5% < PR091 < 50% When the conditions for regulation are met, the idle regulator continually repositions the motorised throttle to keep the engine speed at the idling speed setting. The motorised throttle opening ratio required to adhere to the engine speed setpoint is then given by parameter PR091.	

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 2)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
8	Oxygen sensor	ET055: Upstream sensor richness loop.	Loop open	In the event of a fault, apply the interpretation of ET055 Upstream sensor richness loop.
9		PR138: Richness correction	0% < PR138 < 100% In loop mode, the richness correction corrects the injection duration to obtain a fuel mixture as close as possible to a richness of 1. The correction value varies around 50.	WITHOUT
10		PR144: Self-adapting richness offset	0 < PR144 < 255 This parameter is used to detect any tendency of the injection system to increase or decrease the richness.	
11		PR143: Self-adapting richness gain	0 < PR143 < 255 This parameter is used to detect any tendency of the injection system to increase or decrease the richness.	
12	Injection	PR101: Duration of injection	AT IDLE SPEED 2 ms < PR101 < 5 ms	
13	Fuel consumption	PR103: Instantaneous fuel consumption	AT IDLE SPEED PR103 ≈ 12/h	

PETROL INJECTION

Fault finding – Conformity check

FUEL CIRCUIT SUB-FUNCTION (continued 3)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
14	Fuel pump	ET047: Fuel pump control circuit	ACTIVE INACTIVE	If INACTIVE interpretation for DF085 Fuel pump relay control circuit.
15	Fuel pump	AC015: Fuel pump relay	The fuel pump should be heard operating	In the event of a fault, apply the interpretation of AC015 Fuel pump relay.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, at **idle speed**.

SUB FUNCTION: CIRC. (TURBOCHARGING/INLET)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Air circuit pressure	PR035: Atmospheric pressure	700 mb < PR035 < 1047 mb	If not consistent, check PR035 = PR032 = local atmospheric pressure, with the engine stopped and ignition on. In the event of a fault apply the interpretation for PR032, Inlet pressure
2		PR032: Inlet pressure	114.1 mb < PR035 < 2200 mb	
3	Turbocharging	PR041: Turbocharging pressure	121.5 mb < PR041 < 2200 mb Default value: 1016 mb	In the event of a fault, apply the interpretation of DF004 Turbocharging pressure sensor circuit .
4		PR104: Turbocharging solenoid valve OCR setpoint	Shows the turbocharging solenoid valve opening ratio.	WITHOUT
5	Air temperature	PR058: Air temperature	- 40°C < PR058 < 120°C	In the event of a fault, apply the interpretation of DF002 Air temperature sensor circuit .
6	Coolant temperature	PR064: Coolant temperature	75°C < PR058 < 120°C	In the event of a fault, apply interpretation of DF001 Air temperature sensor circuit .
7	Turbocharging	AC004: Turbocharging solenoid valve	The turbocharging solenoid valve should be heard operating	In the event of a fault, apply interpretation of DF054 Turbocharging solenoid valve control circuit .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, at **idle speed**.

DRIVER PARAMETERS SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Motorised throttle	ET085: Motorised throttle in defect mode	NO STATUS 0 STATUS 1 STATUS 2 STATUS 3 STATUS 4 STATUS 5	WITHOUT
2		ET051: Throttle stop programming	COMPLETED	Run command RZ005 Programming. If the parameters and statuses are still incorrect, contact the Techline.
3		PR097: Motorised throttle lower stop programmed value.	5.96% < PR097 < 13.96%	
4		PR113: Throttle lower stop after applying offset	5.96% < PR113 < 13.96%	
5		PR096: Motorised throttle upper stop programmed value	PR096 = 87.99%	
6		ET082: Motorised throttle position	OPEN CLOSED NOT DETECTED	If NOT DETECTED , apply interpretation of ET082 Motorised throttle valve position .
7		PR118: Motorised throttle position gang 1	No load = 4% Full load = 99.02%	If there is a fault, use the interpretation for DF095 Throttle potentiometer circuit gang 1 .
8		PR119: Motorised throttle position gang 2	No load = 4% Full load = 100%	If there is a fault, use the interpretation for DF096 Throttle potentiometer circuit gang 2 .
9		PR116: Motorised throttle corrected position setpoint	No load = 0% Full load = 83%	WITHOUT
10		PR111: Motorised throttle position corrected value.	No load = 0% Full load = 83%	

PETROL INJECTION

Fault finding – Conformity check

DRIVER PARAMETERS SUB-FUNCTION (continued)

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
11	Accelerator pedal and motorised throttle	ET075: Pedal released and throttle closed	DETECTED NOT DETECTED	If NOT DETECTED , apply interpretation of PR030 Accelerator pedal position , then interpretation of ET082 Motorised throttle position .
12	Accelerator pedal	PR112: No load programmed value	0% < PR112 < 15%	Run command RZ005 Programming. If the parameters and statuses are still incorrect, contact the Techline.
13		PR030: Accelerator pedal position	No load = 0% Full load = 85%	In the event of a fault apply the interpretation for DF008 and DF009 , Pedal sensor circuit gang 1 and gang 2 then DF011 and DF012 Sensor supply voltage no.1 and no.2.
14		ET081: Accelerator pedal position	No load Full load NOT DETECTED	In the event of a fault apply the interpretation for PR030 , Accelerator pedal position .
15	Motorised throttle	AC027: Motorised throttle	The motorised throttle should be heard operating	In the event of a fault, apply the interpretation for AC027 Motorised throttle .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **thorough check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, at **idle speed**.

PREHEATING/IGNITION SUB-FUNCTION

Order	Function	Parameter or Status Checked or Action	Display and notes	Fault finding
1	Flywheel target	ET089: Flywheel target programming	COMPLETED	WITHOUT
2	Engine phasing	ET061: Cylinder 1 recognition	COMPLETED	In the event of a fault, apply interpretation of ET061 Cylinder 1 recognition .
3	Flywheel	ET062: Flywheel signal	DETECTED	In the event of a fault, apply interpretation of ET062 Engine flywheel signal .
4	Ignition	PR001: Advance	0°V < PR001 < 10°V	WITHOUT
5		PR095: Anti-pinking correction	0°V < PR095 < 8°V	
6	Flywheel	ET581: Petrol misfire	NO	In the event of a fault, apply interpretation of DF065 Misfiring .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

EMISSION CONTROL/OBD SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Oxygen sensor	ET052: Upstream O2 sensor heating	ACTIVE INACTIVE	In the event of a fault, apply the interpretation for ET052 Upstream O2 sensor heating .
2		ET053: Downstream O2 sensor heating	ACTIVE INACTIVE	In the event of a fault, apply the interpretation for ET053 Downstream O2 sensor heating .
3		PR098: Upstream oxygen sensor voltage	120 mV < PR098 < 750 mV	If there is a fault, use interpretation of PR098 Upstream oxygen sensor voltage .
4		PR099: Downstream oxygen sensor voltage	120 mV < PR099 < 750 mV	If there is a fault, apply the interpretation of PR099 Downstream oxygen sensor voltage .
5	Canister	ET050: Canister bleed control	INACTIVE	NONE
6		PR102: Canister bleed solenoid valve OCR*	0 % < PR102 < 99.61 %	
7	Flywheel	ET581: Petrol misfire	YES NO	If YES , apply the interpretation for fault DF065 Misfire .
8	Canister	AC017: Canister bleed solenoid valve	The canister bleed solenoid valve should be heard operating	In the event of a fault, apply interpretation of AC017 Canister bleed solenoid valve .

*OCR: Opening cyclic ratio

PETROL INJECTION

Fault finding – Conformity check

EMISSION CONTROL/OBD SUB-FUNCTION (continued)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
9	Oxygen sensor	AC018: Upstream O2 sensor heating	The upstream oxygen sensor should heat up	In the event of a fault, apply the interpretation for DF082 Upstream O2 sensor heating circuit.
10		AC019: Downstream O2 sensor heating	The downstream oxygen sensor should heat up	In the event of a fault, apply the interpretation of DF083 Downstream O2 sensor heating circuit.
11	Oil vapour defreeze resistor	ET542: Oil vapour defreeze resistor	CONNECTED NOT CONNECTED	If there is a fault, apply the interpretation for the fault DF612 Oil vapour defreeze resistor circuit.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

COLD LOOP SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Air conditioning	ET079: Air conditioning present	<p>States whether the vehicle is fitted with air conditioning or not.</p> <p>YES: Air conditioning is detected by the injection computer.</p> <p>NO: Air conditioning is not detected by the injection computer.</p>	If inconsistent with the vehicle equipment, carry out a multiplex network test and apply the relevant procedure.
2		ET088: Compressor actuation request	<p>The injection requests the UPC (via the multiplex network) to start the compressor.</p> <p>ACTIVE: The multiplex network must not be defective on the Automatic transmission, UPC or UCH systems. The UCH must send a compressor starting request to the injection. The coolant pressure sensor must not be defective. Satisfactory engine operating conditions (coolant temperature, engine load etc.).</p> <p>INACTIVE: One of the above conditions has not been met.</p>	NONE
3		ET004: Air conditioning authorisation	<p>Non operational information, intended solely for diagnostic purposes.</p> <p>YES: Satisfactory engine operating conditions (coolant temperature, engine load etc.). The vehicle is not in a specific movement phase (hill start or stop etc.).</p> <p>NO: One of the above conditions has not been fulfilled.</p>	

PETROL INJECTION

Fault finding – Conformity check

COLD LOOP SUB-FUNCTION (continued)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
4	Refrigerant pressure	PR037: Refrigerant pressure	2 bar < PR037 < 27 bar Default value: 0 bar	If there is a fault, use the interpretation for PR037 Coolant pressure .
5	Engine speed	PR055: Engine speed	Shows the speed of rotation in rpm. 700 rpm < PR055 < 6500 rpm	In the event of a fault apply the interpretation for DF154 Flywheel signal sensor circuit .
6	Motorised throttle	ET023: Fast idle speed request	UCH requests the injection system to increase the idling speed. ABSENT: The UCH did not issue a request PRESENT: The UCH has issued a request	If ET023 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the UCH
7	Coolant temperature	PR064: Coolant temperature	75 °C < PR064 < 120 °C	If there is a fault use the interpretation for DF001 Coolant temperature sensor circuit .
8	Vehicle speed	PR089: Vehicle speed	Gives the vehicle speed in mph (km/h). This parameter is sent to the injection by the ABS computer via the multiplex network.	If there is a fault use the interpretation for DF091 Vehicle speed signal .
9	Air conditioning	PR125: Power absorbed by the air conditioning compressor	300 W < PR125 < 3000 W	NONE
10	GMV	ET014: Fan unit 1 check	RUNNING STOPPED	If ET014 or ET015 are inconsistent, perform a multiplex network test using the diagnostic tool, then if the test is in order, see the UPC.
11		ET015: Fan unit 2 check	RUNNING STOPPED	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

HEATING SUB-FUNCTION:

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Coolant temperature	PR064: Coolant temperature	75 °C < PR064 < 120 °C	If there is a fault use the interpretation of DF001 Coolant temperature sensor circuit .
2	RCH	ET111: RCH number set	This status indicates that the injection computer is preventing any change to the number of passenger compartment heating resistors (RCH) activated (RCH already activated are not shut down, but no more can be added). This limit in the number of RCH is in response to the vehicle's requirements (power availability, torque requirement, etc.).	NONE
3		ET112: RCH cut-off	This status indicates that the injection computer is inhibiting all the passenger compartment heating resistors (RCH) in response to the vehicle's requirements (power availability, torque requirement, injection or air conditioning defect mode, etc.).	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Cruise control/ Speed limiter	ET042: Cruise control/ speed limiter.	<ul style="list-style-type: none"> - NOT DETECTED: Vehicle not equipped with cruise control/speed limiter function buttons or after reprogramming or programming the injection computer, the switch is in the rest position. - INACTIVE: When no buttons are pressed. - SPEED LIMITER: Main switch in speed limiter position. - CRUISE CONTROL: Main switch in cruise control position. 	In the event of a fault, apply the interpretation of status ET042 Cruise control/Speed limiter .
2		ET703: Cruise control/ speed limiter buttons	<ul style="list-style-type: none"> - INACTIVE: No cruise control/speed limiter button is pressed. - PLUS: When the cruise control/speed limiter "+" button is pressed. - MINUS: When the cruise control/speed limiter "-" button is pressed. - SUSPEND: When the cruise control/speed limiter "0" button is pressed. - RESUME: When the cruise control/speed limiter "R" button is pressed. 	In the event of a fault, consult the interpretation of status ET703 Cruise control/speed limiter button .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION (CONTINUED 1)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
3	Brake switch	ET704: Brake switch No. 1	- ACTIVE (brake pedal depressed) - INACTIVE (brake pedal released)	In the event of a fault, consult the interpretation of status ET704 "Brake switch no. 1" .
4		ET705: Brake switch No. 2	- ACTIVE (brake pedal depressed) - INACTIVE (brake pedal released)	In the event of a fault, consult the interpretation of status ET705 Brake switch no. 2 .
5	Clutch pedal switch	ET405: Clutch pedal switch	- ACTIVE - INACTIVE	In the event of a fault, consult the interpretation of status ET405 "Clutch switch" .
6	Cruise control setpoint	PR130: Cruise control setpoint	Indicates the reference value requested by the driver (in mph (km/h))	NONE

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

CRUISE CONTROL/SPEED LIMITER SUB-FUNCTION (CONTINUED 2)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
7	Cruise control/speed limiter deactivation	ET415: Cruise control/speed limiter deactivation	NONE: This status is present on the diagnostic tool when: – The computer has been reinitialised. – The computer has been reprogrammed.	In the event of a fault, consult the interpretation of status ET415 Cruise control/speed limiter deactivation .
			- STATUS 1: Traction control request	
			- STATUS 2: Brake pedal depressed.	
			- STATUS 3: Clutch pedal depressed.	
			STATUS 4: Suspend button pressed.	
			- STATUS 5: Cruise control or speed limiter monitoring.	
			- STATUS 6: Gear lever in neutral (manual gearbox) or N position (automatic transmission).	
			- STATUS 7: Inconsistency between the request and the vehicle speed.	
			- STATUS 8: Automatic transmission in defect mode.	
			- STATUS 9: Vehicle speed monitoring.	
			- STATUS 10: Monitoring by injection computer.	

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

START SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Starting	ET076: Starting	AUTHORISED	The authorisation to start is given once the fuel pump is pressurised and if the motorised throttle has completed its stop and limp-home position programming phase.
2	Actuator relay control	ET048: Actuator relay control	ACTIVE INACTIVE	If ACTIVE apply the interpretation of DF084 Actuator relay control circuit .
3	Battery voltage	PR071: Computer supply voltage	13 V < PR071 < 15 V	If there is a fault, use interpretation of PR071 Computer supply voltage .

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

PROTECTION SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Code programmed	ET006: Code programmed	Indicates whether immobiliser code programmed into computer. – YES : Code programmed – NO : Code not programmed into injection computer.	If NO , contact the Techline
2	Engine immobiliser	ET003: Engine immobiliser	Indicates the status of the immobiliser system. – INACTIVE : The injection computer has recognised the immobiliser code transmitted by the UCH. – ACTIVE : the injection computer does not recognise the immobiliser code transmitted by the UCH.	If ET003 is inconsistent, carry out a multiplex network test using the diagnostic tool. If the test is correct check the UCH.
3	Impact detected	ET077: Impact detected	YES NO	If YES , switch off the ignition for 10 seconds, then switch it back on so the engine can be restarted. Then clear any faults.
4	Starting	ET076: Starting	AUTHORISED	The authorisation to start is given once the fuel pump is pressurised and if the motorised throttle has completed its stop and limp-home position programming phase.

PETROL INJECTION

Fault finding – Conformity check

NOTES

Only check conformity after a **full check** with the diagnostic tool.
The values shown in this conformity check are given as a guide.
Application conditions: Engine **warm**, **idling**.

TORQUE MANAGEMENT SUB-FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Torque	PR100: Torque lapse	0 Nm	If there is a fault, test the multiplex network; if the test is OK, check the automatic transmission.
2		PR015: Engine torque	- 50 Nm < PR015 < 200 Nm	
3		PR123: Estimated driver demand engine torque	0 Nm < PR123 < 200 Nm	
4		PR122: Torque received by automatic transmission converter	0 Nm	
5		PR124: Resistant engine torque transmitted via multiplex line	0 Nm	

PETROL INJECTION

Fault finding – Status summary table

Tool Status	Diagnostic tool title
ET001	+ After ignition computer feed
ET003	Engine immobiliser
ET004	Air conditioning authorisation
ET006	Code programmed
ET014	Fan unit 1 check
ET015	Fan unit 2 check
ET023	Fast idle speed request
ET042	Cruise control/speed limiter
ET047	Fuel pump control circuit
ET048	Actuator relay control
ET050	Canister bleed control
ET051	Throttle stop programming
ET052	Upstream O2 sensor heating
ET053	Downstream O2 sensor heating
ET054	Idle speed regulation
ET055	Upstream sensor richness loop.
ET057	Misfiring on cylinder 1
ET058	Misfiring on cylinder 2
ET059	Misfiring on cylinder 3
ET060	Misfiring on cylinder 4
ET062	Flywheel signal
ET063	Park/Neutral position
ET064	Level 1 injection fault
ET065	Level 2 Injection fault
ET066	LPG Fault
ET067	LPG Ready
ET068	LPG tank empty
ET069	Operation in LPG mode
ET070	Operation in petrol mode
ET071	Transition from petrol mode to LPG mode
ET072	Transition from LPG mode to petrol mode
ET073	Condition for switching to LPG mode

PETROL INJECTION

Fault finding – Status summary table

Tool Status	Diagnostic tool title
ET074	OBD warning light lit by AT*
ET075	Pedal released and throttle closed
ET076	Starting
ET077	Impact detected
ET079	Air conditioning present
ET081	Accelerator pedal position
ET082	Motorised throttle position
ET083	Camshaft dephaser in defect mode
ET084	Camshaft dephaser
ET086	Camshaft dephaser control
ET088	Compressor actuation request
ET089	Flywheel target programming
ET111	RCH* number set
ET112	RCH* cut-off
ET405	Clutch pedal switch
ET415	Deactivation of cruise control/speed limiter
ET542	Oil vapour defreeze resistor
ET543	Coolant pump control
ET564	Type 1 defect mode
ET565	Type 2 defect mode
ET566	Type 3 defect mode
ET567	Type 4 defect mode
ET568	Type 5 defect mode
ET569	Type 6 defect mode
ET582	LPG combustion misfire fault finding
ET703	Cruise control/speed limiter buttons
ET704	Brake switch No. 1
ET705	Brake switch No. 2

*AT: automatic transmission

*RCH: passenger compartment heating resistor

ET042	<u>CRUISE-CONTROL/SPEED LIMITER</u>
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NOTES	There must be no present or stored faults.
	IMPORTANT To remove or check the cruise control/speed limiter control switches you need to remove the airbag (see MR 364 Mechanical, 88C, Airbag and pretensioners).

NOT DETECTED	<p>If the vehicle does not have buttons for the cruise control or speed limiter functions, status ET042 is permanently NOT DETECTED. This confirms that the cruise control/speed limiter function is not present on the vehicle.</p> <p>If the vehicle is fitted with cruise control or speed limiter function buttons, the main switch is in rest (or neutral) position and the injection computer has just been programmed or reprogrammed, then status ET042 is NOT DETECTED. To activate the cruise control or speed limiter function, press the main switch in the cruise control position and then in the speed limiter position. Return to rest position. The tool displays status ET042: INACTIVE. If not, several steps must be checked:</p> <ol style="list-style-type: none">1 Return to the page on testing the multiplex network with the CLIP program. Repeat the multiplex network test. Re-establish dialogue with the injection computer. Check status ET042. If ET042 is INACTIVE, the injection computer has detected the various positions of the main switch. The cruise control/speed limiter is active.2 If status ET042 is still NOT DETECTED, check that the vehicle's owner has not had the cruise control/speed limiter function disabled in the past. Contact the Techline.
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AFTER REPAIR	Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool .
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ET042 CONTINUED 1	
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INACTIVE	<p>When the main switch is in rest position (or neutral), status ET042 is INACTIVE. If CRUISE CONTROL or SPEED LIMITER appears despite the main button being in the rest (or neutral) position, carry out the following operations:</p> <p>Check the connections on the steering column top control module.</p> <p>Check for + 12 V APC on track 9 of the steering column top control module connector.</p> <p>Disconnect the top steering column control module connector and with the switch in the rest position, check the insulation between tracks 9 and 6 and between tracks 9 and 12.</p> <p>Check the continuity of the top steering column control module connector between tracks 9 and 6, with the switch in the speed limiter position.</p> <p>Check the continuity of the steering column top control module connector on tracks 9 and 12, with the control in the cruise control position.</p> <p>If the these checks do not produce the correct results, replace the steering column top control module.</p>
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AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>
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ET042 CONTINUED 2	
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SPEED LIMITER	When the driver presses the main switch in the speed limiter position, status ET042 becomes SPEED LIMITER .	
	If CRUISE CONTROL or INACTIVE appears although the switch was pressed in the speed limiter position, carry out the following operations:	
	Check the connections on the steering column top control module .	
	Check for + 12 V APC on track 9 of the steering column top control module connector.	
	Disconnect the top steering column control module connector and with the switch in the rest position, check the insulation between tracks 9 and 6 and between tracks 9 and 12 .	
	Check the continuity of the top steering column control module connector between tracks 9 and 6 , with the switch in the speed limiter position.	
	Check the continuity of the steering column top control module connector on tracks 9 and 12 , with the control in the cruise control position.	
If the these checks do not produce the correct results, replace the steering column top control module .		
Check the insulation, continuity and absence of interference resistance on the following connections:		
<div><div>Steering column top control module, white connector track 12</div><div>→</div><div>Injection computer, black connector track A2</div></div>		
<div><div>Steering column top control module, white connector track 6</div><div>→</div><div>Injection computer, black connector track C3</div></div>		
Check the engine management computer connections. Repair if necessary.		

AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a check with the diagnostic tool.</p>
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ET042 CONTINUED 3	
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CRUISE CONTROL	When the driver presses the main switch in the speed limiter position, status ET042 becomes SPEED LIMITER .	
	If CRUISE CONTROL or INACTIVE appears although the switch was pressed in the speed limiter position, carry out the following operations:	
	Check the connections on the steering column top control module .	
	Check for + 12 V APC on track 9 of the steering column top control module connector.	
	Disconnect the top steering column control module connector and with the switch in the rest position, check the insulation between tracks 9 and 6 and between tracks 9 and 12 .	
	Check the continuity of the top steering column control module connector between tracks 9 and 6 , with the switch in the speed limiter position.	
	Check the continuity of the steering column top control module connector on tracks 9 and 12 , with the control in the cruise control position.	
	If the these checks do not produce the correct results, replace the steering column top control module .	
	Check the insulation, continuity and absence of interference resistance on the following connections:	
	Steering column top control module, white connector track 12	 Injection computer, black connector track A2
	Steering column top control module, white connector track 6	 Injection computer, black connector track C3
	Also check the engine management computer connectors. Repair if necessary.	

AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>
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ET052	<u>UPSTREAM O2 SENSOR</u>
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NOTES	There must be no present or stored faults.
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Check the cleanliness and condition of the upstream oxygen sensor and its connections. Repair if necessary.
With the ignition on, check for + 12 V on track A of the upstream oxygen sensor connector. If + 12 V is not present: <ul style="list-style-type: none">– disconnect the battery,– disconnect the connector marked PPM1 from the Protection and Switching Unit,– check the cleanliness and condition of the connections,– using the Universal bornier, check the continuity on the following connection: Protection and Switching Unit track 2 connector PPM1 —————> track A of the upstream oxygen sensor Reconnect the Protection and Switching Unit connector and reconnect the battery. With the ignition on, if there is still no + 12 V at the upstream oxygen sensor connector, there is a fault in the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connection: Injection computer, connector C, track L2 —————> track B of the upstream oxygen sensor Repair if necessary.
Measure the heating resistance between tracks A and B of the upstream oxygen sensor. Replace the upstream oxygen sensor if the resistance is not approximately 9 Ω at 20 °C .
If the fault is still present, replace the upstream oxygen sensor.

AFTER REPAIR	Repeat the conformity check from the start.
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ET053	<u>DOWNSTREAM O2 SENSOR HEATING</u>
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NOTES	There must be no present or stored faults.
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Check the cleanliness and condition of the downstream oxygen sensor and its connections. Repair if necessary.
Check for the + 12 V feed on track A , downstream oxygen sensor connector with the ignition on. If + 12 V is not present: <ul style="list-style-type: none">– disconnect the battery,– disconnect the connector marked PPM1 in the Protection and Switching Unit,– check the cleanliness and condition of the connections,– using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit track 2 connector PPM1 —————> track A of the downstream oxygen sensor Reconnect the Protection and Switching Unit connector and reconnect the battery. With the ignition on, if the + 12 V is still not present on the downstream oxygen sensor connector, there is a fault in the Protection and Switching Unit . Contact the Techline.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check for insulation and continuity on the following connection: Injection computer, connector C, track L3 —————> track B of the downstream oxygen sensor Repair if necessary.
Measure the heating resistance between tracks A and B of the downstream oxygen sensor. Replace the downstream oxygen sensor if the resistance is not approximately 9 Ω at 20 °C .
If the fault is still present, replace the downstream oxygen sensor.

AFTER REPAIR	Repeat the conformity check from the start.
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ET054	<u>IDLING SPEED REGULATION</u>
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NOTES	There must be no present or stored faults.
	Check the parameters PR032, PR058, PR064, PR118, PR119 and PR030. Check that all these parameters are completely correct.

IDLING SPEED TOO LOW

<p>Check:</p> <ul style="list-style-type: none">– the engine oil level (too high → splashing),– that the exhaust pipe is not blocked (catalytic converter damaged),– the cleanliness and conformity of the air filter,– that the air inlet circuit is not blocked,– that the throttle valve is not clogged,– the condition and conformity of the spark plugs,– the fuel circuit sealing,– the fuel pressure and flow (see MR 364 Mechanics, 17B, Petrol injection),– the condition and cleanliness of the injectors,– the cylinder compression's,– the timing adjustment,– the hydraulic tappets if there is camshaft noise (see MR 364 Mechanics, 11A, Top and front of engine). <p>Repair the defective component if necessary.</p>

ET054
CONTINUED

IDLING SPEED
TOO HIGH

Check:

- the engine oil level (too high → oil combustion),
 - that the restrictions are present in the oil vapour rebreathing circuit,
 - the sealing between the throttle valve and inlet manifold,
 - the manifold pressure sensor sealing,
 - the fuel vapour absorber bleed, which must not be jammed open,
 - the fuel vapour absorber bleed system sealing,
 - the brake servo system sealing,
 - the sealing between the inlet manifold and cylinder head,
 - the oil vapour recovery circuit sealing between the inlet manifold and cylinder head,
 - the fuel pressure and flow (see **MR 364 Mechanics, 17B, Petrol injection**),
 - the condition and cleanliness of the injectors,
 - the cylinder compression's,
 - the timing adjustment,
 - the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanics, 11A, Top and front of engine**).
- Repair the defective component if necessary.

AFTER REPAIR

Repeat the conformity check from the start.

ET055	<u>UPSTREAM SENSOR RICHNESS LOOP</u>
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NOTES	There must be no present or stored faults.
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<p>Check the cleanliness and condition of the upstream oxygen sensor connections. Repair if necessary.</p>
<p>With the ignition on, check for + 12 V on track A of the upstream oxygen sensor connector. If + 12 V is not present:</p> <ul style="list-style-type: none">– disconnect the battery,– disconnect the connector marked PPM1 in the Protection and Switching Unit,– check the cleanliness and condition of the connections,– using the Universal bornier, check for continuity on the following connection: Protection and Switching Unit track 2 connector PPM1 —————> track A of the upstream oxygen sensor <p>Reconnect the Protection and Switching Unit connector and reconnect the battery. With the ignition on, if there is still no + 12 V at the upstream oxygen sensor connector, there is a fault in the Protection and Switching Unit. Contact the Techline.</p>
<p>Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check the insulation and continuity on the following connections:</p> <ul style="list-style-type: none">Injection computer connector C, track C1 —————> track D of the upstream oxygen sensorInjection computer, connector C, track B1 —————> track C of the upstream oxygen sensorInjection computer, connector C, track L2 —————> track B of the upstream oxygen sensor <p>Repair if necessary.</p>
<p>Measure the heating resistance between tracks A and B of the upstream oxygen sensor. Replace the upstream oxygen sensor if the resistance is not approximately 9 Ω at 20 °C.</p>
<p>Check the condition and secure fitting of the upstream oxygen sensor. If the vehicle is driven frequently in town, carry out a decoking procedure.</p>

ET055
CONTINUED

Check:

- the condition of the air filter,
- that the air inlet circuit is not blocked,
- the condition and conformity of the spark plugs,
- the sealing between the throttle valve and inlet manifold,
- the manifold pressure sensor sealing,
- the fuel vapour absorber bleed, which must not be jammed open,
- the fuel vapour absorber bleed system sealing,
- the brake servo system sealing,
- the turbocharger safety valve circuit sealing,
- the cylinder head oil vapour recovery system sealing,
- the sealing between the inlet manifold and cylinder head,
- the exhaust pipe sealing between the cylinder head and catalytic converter.
- the fuel flow rate and pressure.

If the idling speed is not stable, check:

- the timing adjustment,
- the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanical, 11A, Top and front of engine**),
- the cylinder compression's.

Drive the vehicle to check the repair.

Repair the defective components.

AFTER REPAIR

Repeat the conformity check from the start.

ET062	<u>FLYWHEEL SIGNAL</u>
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NOTES	There must be no present or stored faults.
	Information: If the flywheel has been replaced or removed, reinitialise the flywheel target programming.

Check the mounting and positioning of the TDC sensor (see MR 364 Mechanics, 10A, Engine and peripherals). Repair if necessary.
Check the cleanliness and condition of the TDC sensor and its connections. Check the condition of the wire. Repair if necessary.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check the insulation and continuity on the following connections: Injection computer, connector B , track E4 —————> Track 2 of the TDC sensor Injection computer, connector B , track F3 —————> track 1 of the TDC sensor Repair if necessary.
Measure the resistance of the TDC sensor between tracks 1 and 2 . Replace the sensor if the resistance is not 200 to 270 Ω at 23 °C .
If the sensor has been replaced, reset the flywheel signal programming. Flywheel signal programming reinitialisation procedure: Accelerate up to 4000 rpm in third gear ratio, then decelerate to power take-up speed*. Then repeat immediately. (* This is the moment when, during deceleration with no load, the engine drops to idle speed and recovers torque.) If the fault is still present, check the cleanliness and condition of the flywheel.

AFTER REPAIR	If the TDC sensor has been replaced, reinitialise the programming (RZ005). Repeat the conformity check from the start.
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ET405	<u>CLUTCH PEDAL SWITCH</u>
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NOTES	Special notes: Only apply the checks if the INACTIVE and ACTIVE statuses are not consistent with the pedal position.
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STATUS “INACTIVE” and clutch pedal depressed	Check the condition and fitting of the clutch switch . Check the continuity on the connection between track 1 of the clutch switch connector and track C4 of the black 32-track connector A of the injection computer . Check for earth on track 2 of the clutch switch connector. Repair if necessary.									
	Remove the clutch switch and test its operation:									
	<table><tr><th></th><th>Continuity between tracks</th><th>Insulation between tracks</th></tr><tr><td>Switch pressed (Clutch pedal released)</td><td>1 and 2</td><td>-</td></tr><tr><td>Switch released (Clutch pedal depressed)</td><td>-</td><td>1 and 2</td></tr></table>			Continuity between tracks	Insulation between tracks	Switch pressed (Clutch pedal released)	1 and 2	-	Switch released (Clutch pedal depressed)	-
	Continuity between tracks	Insulation between tracks								
Switch pressed (Clutch pedal released)	1 and 2	-								
Switch released (Clutch pedal depressed)	-	1 and 2								

Replace the switch if necessary.

AFTER REPAIR	Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a check with the diagnostic tool .
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ET405
CONTINUED

STATUS
“ACTIVE” and
clutch pedal
released

Check the condition and fitting of the **clutch switch**.

Remove the **clutch switch** and test its operation:

	Continuity between tracks	Insulation between tracks
Switch pressed (Clutch pedal released)	1 and 2	-
Switch released (Clutch pedal depressed)	-	1 and 2

Replace the switch if necessary.

Check and ensure the **earth** insulation of the connection between **track 1** of the **clutch switch** connector and **track C4** of the black 32-track connector **A** of the **injection computer**.

AFTER REPAIR

Deal with any other faults. Clear the fault memory.
Switch off the ignition and carry out a road test followed by a test with the **diagnostic tool**

ET415	<u>CRUISE CONTROL/SPEED LIMITER DEACTIVATION</u>
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NOTES	Special notes: Apply the conformity check to see if the statuses are consistent with the system operating programs.
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Note:

Cruise control can be activated when the vehicle speed exceeds **18 mph (30 km/h)**.

Status **ET415** shows various factors that cause deactivation of the cruise control/speed limiter function, due to a driver demand or the external environment (example **STATUS 1**).

IMPORTANT

Clear the fault memory by running command **RZ007 Fault memory**, to reset this status to **WITHOUT**.

NONE	This status is present on the diagnostic tool if: The computer has been reinitialised. The computer has been reprogrammed
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STATUS 1	Traction control request
	<p>If the vehicle is fitted with a traction control system, the cruise control function is deactivated every time the ABS computer calls for traction control.</p> <p>Status ET415 becomes STATUS 1 when driving with the cruise control active (ET042 Cruise control/Speed limiter: CRUISE CONTROL) and traction control is requested. This deactivates cruise control.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 becomes STATUS 1 with no traction control request (see 38C, Anti-lock braking system).</p>

AFTER REPAIR	Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool
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<p>ET415 1(CONTINUED)</p>	
<p>STATUS 2</p>	<p>Brake pedal depressed</p> <p>The cruise control function is deactivated when the brake pedal is depressed. Status ET415 becomes STATUS 2 when driving with cruise control active (ET042 Cruise control/Speed limiter: CRUISE CONTROL) and the brake pedal is depressed. This deactivates cruise control.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 becomes STATUS 2 without depressing the brake pedal, consult the interpretation of statuses ET704 Brake switch no. 1 and ET705 Brake switch no. 2.</p>
<p>STATUS 3</p>	<p>Clutch pedal depressed</p> <p>Manual gearbox ONLY</p> <p>The cruise control function is deactivated when the gearbox is not coupled to the engine (clutch pedal depressed). Status ET415 becomes STATUS 3 when driving with cruise control active (ET042 Cruise control/speed limiter: CRUISE CONTROL) and the clutch pedal is depressed. This deactivates cruise control.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 becomes STATUS 3 without the clutch pedal being depressed, consult the interpretation of status ET405: Clutch pedal.</p> <p>If the vehicle is fitted with an automatic transmission: Test the multiplex network: check the configuration of the multiplex network in relation to the vehicle's technical specification, especially the configuration of the automatic transmission computer (see 88B, Multiplexing)</p>
<p>STATUS 4</p>	<p>Cancel button pressed</p> <p>The cruise control/speed limiter function is deactivated whenever the suspend button is pressed.</p> <p>Status ET415 becomes STATUS 4 while driving when:</p> <ul style="list-style-type: none"> - the cruise control is active, or - The speed limiter is active, - and the driver presses the 0 button. <p>This action deactivates the Cruise control/Speed limiter.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 becomes STATUS 4 without pressing the 0 button, consult the interpretation of status ET703 Cruise control/speed limiter buttons and run fault finding on the R/0 control button located on the right-hand side of the steering wheel.</p>
<p>AFTER REPAIR</p>	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a test with the diagnostic tool</p>

<p>ET415 (CONTINUED 2)</p>	
<p>STATUS 5</p>	<p>Cruise control or speed limiter monitoring</p> <p>This status appears when the vehicle brakes or decelerates sharply without the injection computer receiving a signal indicating that the brake pedal switch has been pressed.</p> <p>If status ET415 is STATUS 5, refer to the interpretation of:</p> <ul style="list-style-type: none"> - status ET042 Cruise control/Speed limiter, - status ET703 Cruise control/speed limiter buttons, - status ET704 Brake switch no. 1, - and status ET705 Brake switch No 2, <p>to test the cruise control/speed limiter system components and find the defective component.</p> <p>In addition, check the operation of the accelerator pedal, and use the diagnostic tool to check for a fault on it. Deal with them if necessary.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 changes to STATUS 5, deal with present faults or those stored in the injection computer.</p> <p>If the fault is still present, contact Techline.</p>
<p>STATUS 6</p>	<p>Gear lever in neutral (manual gearbox) or the neutral position (automatic gearbox)</p> <p>Status ET415 becomes STATUS 6, when driving with cruise control active (ET042: Cruise control/speed limiter: CRUISE CONTROL) and:</p> <ul style="list-style-type: none"> - If the driver puts the gear lever in neutral position on a manual gearbox without declutching or, - if the gear lever is in neutral on an automatic gearbox. <p>This deactivates cruise control.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 becomes STATUS 6 without shifting the gear lever into neutral on a manual gearbox without declutching, or into neutral on an automatic transmission, run fault finding on the ABS computer and check the configuration of the tyre size stored in the computer. If the configuration is correct, contact the Techline.</p>
<p>AFTER REPAIR</p>	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>

<p>ET415 (CONTINUED 3)</p>	
<p>STATUS 7</p>	<p>Inconsistency between the request and the vehicle speed</p> <p>Status ET415 becomes STATUS 7 if the computer detects too great a difference between the speed requested by the driver and the vehicle speed. This could occur when driving with cruise control active (ET042 Cruise control/ speed limiter: CRUISE CONTROL) and when there is a significant difference. This inconsistency deactivates cruise control.</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status ET415 changes to STATUS 7 where there is no significant difference in the levels, contact the Techline.</p>
<p>STATUS 8</p>	<p>Automatic transmission in defect mode.</p> <p>Status ET415 becomes STATUS 8, when driving with cruise control active (ET042: Cruise control/speed limiter: CRUISE CONTROL) and if the automatic transmission is in defect mode.</p> <p>This signal is conveyed on the multiplex line and deactivates the cruise control.</p> <p>Carry out a multiplex network test, then run fault finding on the automatic transmission computer. Deal with any present or stored faults (see 23A, Automatic transmission, interpretation of faults). Clear the automatic transmission computer fault memory by running command RZ007 "Fault memory". Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory". If status 8 continues, contact the Techline.</p>
<p>STATUS 9</p>	<p>Vehicle speed monitoring</p> <p>Status ET415 changes to STATUS 9 if the vehicle speed received by the computer is invalid or absent.</p> <p>This signal is conveyed on the multiplex line and deactivates the cruise control. Carry out a multiplex network test, then run fault finding on the ABS computer. Deal with any present or stored faults (see 38C, Interpretation of faults).</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory". If STATUS 9 is still present, contact the Techline.</p>
<p>AFTER REPAIR</p>	<p>Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>

ET415 (CONTINUED 4)	
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STATUS 10	Monitoring by injection computer
	<p>Status ET415 becomes STATUS 10 when driving with cruise control active (ET042 Cruise control/speed limiter: CRUISE CONTROL) if the injection computer detects a fault anywhere in the engine management system, or an engine speed that is too high or too low.</p> <p>This signal is conveyed on the multiplex line and deactivates the cruise control.</p> <p>Carry out a multiplex network test, then run fault finding on the injection computer. Deal with present or stored faults (see Interpretation of faults).</p> <p>Reinitialise status ET415 on the injection computer by running command RZ007 "Fault memory".</p> <p>If status 10 continues, contact the Techline.</p>

AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>
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ET703	<u>CRUISE CONTROL/SPEED LIMITER BUTTONS</u>
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NOTES	Special notes: Only perform these tests if the statuses do not correspond with the system programming functions.
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INACTIVE	<p>Status ET703 becomes "INACTIVE" when none of the cruise control/speed limiter buttons is pressed. These buttons are located on the steering wheel.</p> <p>If status ET703 does not display "INACTIVE",</p> <ul style="list-style-type: none"> ● check the condition of the cruise control/speed limiter +/- button and the condition of its connector, check the condition of the cruise control/speed limiter R/0 button and the condition of its connector.
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INCREASE	<p>Status ET703 becomes PLUS when the cruise control/speed limiter + button is pressed. This button is on the steering wheel, on the left-hand side.</p> <p>If status ET703 does not display PLUS, check the condition of the cruise control/speed limiter +/- button, and the condition of its connector. Repair if necessary.</p> <p>To carry out these checks and measurements in complete safety, observe the recommendations for removing the driver's front airbag (see MR 364/370 Mechanical, Electrical equipment 88C, Airbag and seat belt pretensioners, Driver's front airbag, Removal - Refitting).</p> <ul style="list-style-type: none"> ● Measure the resistance on the button between tracks P1 and P0 while pressing the "+" button of component 331. <p>If the resistance is not approximately 300 Ω, check the continuity of the connection when the button is not pressed.</p> <p>If there is continuity, replace the +/- control button.</p> <p>If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Repair precautions), repair the wiring, otherwise replace it.</p>
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AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>
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<p>ET703 CONTINUED 1</p>	
<p>DECREASE</p>	<p>Status ET703 becomes MINUS when the cruise control/speed limiter - button is pressed. This button is on the steering wheel, on the left-hand side.</p> <p>If status ET703 does not change to MINUS, check the condition of the cruise control/speed limiter “+/-” button, and the condition of its connector. Repair if necessary.</p> <p>To carry out these checks and measurements in complete safety, observe the recommendations for removing the driver's front airbag (see MR 364/370 Mechanical, Electrical equipment 88C, Airbag and seat belt pretensioners, Driver's front airbag, Removal - Refitting). Repair if necessary.</p> <p>Measure the resistance on the button between tracks P1 and P0 while pressing the “-” button of component 331.</p> <p>If the resistance is not approximately 100 Ω, check the continuity of the connection when the button is in rest position. If there is continuity, replace the “+/-” control button. If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Repair precautions), repair the wiring, otherwise replace it.</p>
<p>SUSPEND</p>	<p>Status ET703 becomes SUSPEND when the cruise control/speed limiter R button is pressed. This button is located on the steering wheel, to the right.</p> <p>If status ET703 does not change to SUSPEND, check the condition of the cruise control/speed limiter R/0 button, and the condition of its connector.</p> <p>To carry out these checks and measurements in complete safety, observe the recommendations for removing the driver's front airbag (see MR 364/370 Mechanical, Electrical equipment 88C, Airbag and seat belt pretensioners, Driver's front airbag, Removal - Refitting).</p> <p>Measure the resistance on the button between tracks P1 and P0 while pressing the “0” button of component 331.</p> <p>If the resistance is not approximately 0 Ω, replace the R/0 control button. If there is continuity, replace the “R/0” control button. If there is a repair method (see Technical Note 6015A, Repairing electrical wiring, Wiring: Repair precautions), repair the wiring, otherwise replace it.</p>
<p>AFTER REPAIR</p>	<p>Deal with any other faults. Clear the fault memory. Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>

ET703 CONTINUED 2	
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RESUME	<p>Status ET703 becomes RESUME when the cruise control/speed limiter R button is pressed. This button is located on the steering wheel, to the right.</p> <p>If status ET703 does not change to RESUME, check the condition of the cruise control/speed limiter R/0 button, and the condition of its connector. Repair if necessary.</p> <p>To carry out these checks and measurements in complete safety, observe the recommendations for removing the driver's front airbag (see MR 364/370 Mechanical, Electrical equipment 88C, Airbag and seat belt pretensioners, Driver's front airbag, Removal - Refitting).</p> <p>Measure the resistance on the button between tracks P1 and P0 while pressing the "R" button of component 331.</p> <p>If the resistance is not approximately 900 Ω, check the continuity of the connection when the button is not pressed.</p> <p>If there is continuity, replace the "R/0" control button. If there is a repair procedure (see Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair), repair the wiring, otherwise replace it.</p>
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AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory.</p> <p>Switch off the ignition and carry out a road test followed by a test with the diagnostic tool.</p>
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PETROL INJECTION

Fault finding – Parameter summary table

Tool parameter	Diagnostic tool title
PR001	Advance
PR010	Idle speed regulation setpoint
PR014	Idling speed correction
PR015	Engine torque
PR018	Estimated air flow
PR028	Pedal position (gang 1)
PR029	Pedal position (gang 2)
PR030	Accelerator pedal position
PR032	Inlet pressure
PR035	Atmospheric pressure
PR037	Refrigerant pressure
PR041	Turbocharging pressure
PR055	Engine speed
PR058	Air temperature
PR064	Coolant temperature
PR071	Computer feed voltage
PR089	Vehicle speed
PR090	Idle speed regulation programming value
PR091	Theoretical idle speed regulation OCR
PR095	Anti-pinking correction
PR096	Motorised throttle upper stop programmed value.
PR097	Motorised throttle lower stop programmed value.
PR098	Upstream oxygen sensor voltage
PR099	Downstream oxygen sensor voltage
PR100	Torque lapse
PR101	Duration of injection
PR102	Canister bleed solenoid valve OCR*

*OCR: Opening cycle ratio

PETROL INJECTION

Fault finding – Parameter summary table

Tool parameter	Diagnostic tool title
PR103	Instantaneous fuel consumption
PR105	OBD fault warning light lit mileage counter
PR106	Mileage counter fault warning light lit
PR111	Motorised throttle position corrected value.
PR112	No load programmed value
PR113	Lower throttle stop after applying offset
PR116	Motorised throttle corrected position setpoint
PR118	Measured throttle position gang 1
PR119	Measured throttle position gang 2
PR122	Torque received by AT* converter
PR123	Estimated driver demand engine torque
PR124	Resistant engine torque transmitted via multiplex line
PR125	Power absorbed by the air conditioning compressor
PR127	Heating resistor max. authorised power
PR130	Cruise control setpoint.
PR138	Richness correction
PR141	Integral idling speed regulation correction
PR143	Self-adapting richness gain
PR144	Self-adapting richness offset
PR846	Turbocharging solenoid valve opening cycle ratio

*OCR: Opening cycle ratio

*AT: automatic transmission

*SV: Solenoid valve

PR030	<u>ACCELERATOR PEDAL POSITION</u>
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NOTES	There must be no present or stored faults.
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<p>Check that the pedal mechanism has not seized.</p> <p>Check the cleanliness and condition of the pedal potentiometer connections.</p> <p>Repair if necessary.</p>																		
<p>Disconnect the battery and the injection computer.</p> <p>Check the cleanliness and condition of the connections.</p> <p>Using the Universal bornier, check the insulation and continuity of the following connections:</p> <table><tr><td>Injection computer, connector A, track H3</td><td>————></td><td>track 5 of the pedal potentiometer</td></tr><tr><td>Injection computer, connector A, track G2</td><td>————></td><td>track 3 of the pedal potentiometer</td></tr><tr><td>Injection computer, connector A, track H2</td><td>————></td><td>track 4 of the pedal potentiometer</td></tr><tr><td>Injection computer, connector A, track F4</td><td>————></td><td>track 6 of the pedal potentiometer</td></tr><tr><td>Injection computer, connector A, track F2</td><td>————></td><td>track 2 of the pedal potentiometer</td></tr><tr><td>Injection computer, connector A, track F3</td><td>————></td><td>track 1 of the pedal potentiometer</td></tr></table> <p>Repair if necessary.</p>	Injection computer, connector A , track H3	————>	track 5 of the pedal potentiometer	Injection computer, connector A , track G2	————>	track 3 of the pedal potentiometer	Injection computer, connector A , track H2	————>	track 4 of the pedal potentiometer	Injection computer, connector A , track F4	————>	track 6 of the pedal potentiometer	Injection computer, connector A , track F2	————>	track 2 of the pedal potentiometer	Injection computer, connector A , track F3	————>	track 1 of the pedal potentiometer
Injection computer, connector A , track H3	————>	track 5 of the pedal potentiometer																
Injection computer, connector A , track G2	————>	track 3 of the pedal potentiometer																
Injection computer, connector A , track H2	————>	track 4 of the pedal potentiometer																
Injection computer, connector A , track F4	————>	track 6 of the pedal potentiometer																
Injection computer, connector A , track F2	————>	track 2 of the pedal potentiometer																
Injection computer, connector A , track F3	————>	track 1 of the pedal potentiometer																
<p>If the fault is still present, replace the pedal potentiometer.</p>																		

AFTER REPAIR	Repeat the conformity check from the start.
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PR032	<u>INLET PRESSURE</u>
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NOTES	There must be no present or stored faults.
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Check the **cleanliness** and **condition** of the manifold pressure sensor and its connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Using the Universal bornier, check the **insulation** and **continuity** of the following connections:
Computer, connector **B, track H2** —————▶ **track 1** of the manifold pressure sensor.
Computer, connector **B, track H3** —————▶ **track 3** of the manifold pressure sensor
Computer, connector **B, track H4** —————▶ **track 2** of the manifold pressure sensor
Repair if necessary.

If the fault is still present, replace the manifold pressure sensor.

If the fault is still present, carry out the following checks:
The inlet line must be perfectly sealed, from the throttle valve to the cylinder head.
Check:
– the condition of the air filter,
– that the air inlet circuit is not blocked,
– the sealing between the throttle valve and inlet manifold,
– the manifold pressure sensor sealing,
– the fuel vapour absorber bleed, which must not be jammed open,
– the fuel vapour absorber bleed system sealing,
– the brake servo system sealing,
– that there are no leaks in the turbocharger safety valve circuit,
– the cylinder head oil vapour recovery system sealing,
– the sealing between the inlet manifold and cylinder head,
– the exhaust pipe sealing between the cylinder head and catalytic converter.
Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.
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PR037	<u>REFRIGERANT PRESSURE</u>
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NOTES	There must be no present or stored faults.
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Check **the cleanliness** and **condition** of the refrigerant pressure sensor and its connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Using the universal bornier, check the **insulation** and **continuity** on the following connections:
Injection computer, connector **B, track J2** —————> **track B**, refrigerant pressure sensor
Injection computer, connector **B, track J3** —————> **track C** of the refrigerant sensor
Injection computer, connector **B, track K2** —————> **track A** of the refrigerant sensor
Repair if necessary.

If the fault is still present, replace the refrigerant sensor.
If the fault is still present, check the air conditioning circuit (see MR 364, Mechanics, 62A, Air conditioning).

AFTER REPAIR	Repeat the conformity check from the start.
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PR074	<u>BATTERY VOLTAGE</u>
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NOTES	There must be no present or stored faults. No electrical consumers.
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Ignition on	If the voltage is at minimum: Check the battery and the charging circuit (see MR 364 Mechanical, 16A, Starting - Charging). If the voltage is at maximum: Check that the charging voltage is correct and that no electrical consumers are on (see 16A, Starting - charging).
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At idling speed	If the voltage is at minimum: Check the battery and the charging circuit (see MR 364 Mechanical, 16A, Starting - Charging). If the voltage is at maximum: Check that the charging voltage is correct and that no electrical consumers are on (see 16A, Starting - charging).
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AFTER REPAIR	Repeat the conformity check from the start.
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PR095	<u>ANTI-PINKING CORRECTION</u>
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NOTES	There must be no present or stored faults.
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The pinking sensor must not supply a zero signal, proving that it is recording the mechanical vibrations of the engine.
Check that there is the correct fuel in the fuel tank. Repair if necessary.
Check the condition and conformity of the spark plugs. Repair if necessary.
Check the tightness of the pinking sensor. Repair if necessary.
Check the cleanliness and the condition of the pinking sensor connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the cleanliness and condition of the connections. Using the universal bornier, check the insulation and continuity on the following connections: Injection computer, connector B , track B3 —————> track 2 of the pinking sensor Injection computer, connector B , track B4 —————> track 2 of the pinking sensor Injection computer, connector B , track B2 —————> Pinking sensor shielding Repair if necessary.
If the fault is still present, replace the pinking sensor.

AFTER REPAIR	Repeat the conformity check from the start.
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PR098	<u>UPSTREAM OXYGEN SENSOR VOLTAGE</u>
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NOTES	There must be no present or stored faults.
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Check the **cleanliness** and **condition** of the upstream oxygen sensor connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check **the cleanliness** and **condition** of the connections.
Using the universal bornier, check the **insulation** and **continuity** on the following connections:
Injection computer connector **C, track C1** —————> **track D** of the upstream oxygen sensor
Injection computer, connector **C, track B1** —————> **track C** of the upstream oxygen sensor
Repair if necessary.

Check that the upstream oxygen sensor is **secure**.
Repair if necessary.

If the vehicle is driven frequently in town, **carry out a decoking procedure**.

Check that **there are no leaks** in the exhaust system, from the manifold to the catalytic converter.
Repair if necessary.

If the fault is still present, replace the upstream oxygen sensor.
If the fault has still not been cured, continue with the checks.
Check:
– the condition of the air filter,
– that the air inlet circuit is not blocked,
– the condition and conformity of the spark plugs,
– that the catalytic converter is not clogged,
– the sealing between the throttle valve and inlet manifold,
– the manifold pressure sensor sealing,
– the fuel vapour absorber bleed, which must not be jammed open,
– the fuel vapour absorber bleed system sealing,
– the brake servo system sealing,
– the cylinder head oil vapour recovery system sealing,
– the sealing between the inlet manifold and cylinder head,
– the exhaust pipe sealing between the cylinder head and catalytic converter.
– the fuel flow rate and pressure.

PR098
CONTINUED

If the idle speed is not stable, check:

- the timing adjustment,
- the hydraulic tappets if there is camshaft noise (see **MR 364 Mechanical, 11A, Top and front of engine**),
- the cylinder compression's.

Drive the vehicle to check the repair.

AFTER REPAIR

Repeat the conformity check from the start.

PR099	<u>DOWNSTREAM OXYGEN SENSOR VOLTAGE</u>
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NOTES	There must be no present or stored faults.
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Check the cleanliness and condition of the downstream oxygen sensor connections. Repair if necessary.
Disconnect the battery and the injection computer. Using the universal bornier, check the insulation and continuity on the following connections: Injection computer, connector C , track A2 —————> track D of the downstream oxygen sensor Injection computer, connector C , track B2 —————> track C of the downstream oxygen sensor Repair if necessary.
Check that the downstream oxygen sensor is secure . Repair if necessary.
If the vehicle is driven frequently in town, carry out the unclogging procedure (oxygen sensors and catalytic converter clogging).
Check that the exhaust pipe is completely leak free . Repair if necessary.
Replace the downstream oxygen sensor.
If the fault is still present, the catalytic converter is certainly damaged.
If the catalytic converter is defective, determine the cause of the destruction, otherwise the new catalytic converter may be damaged in turn.
Remove the catalytic converter.
Possible reasons for the destruction of a catalytic converter: – deformation (impact), – thermal shock (cold water splashed onto a hot catalytic converter can damage it), – defective injector or ignition : the catalytic converter is damaged by contact with fuel (coil fault, coil control fault, injector jammed open), – injector leak , – abnormal oil or coolant consumption (defective cylinder head gasket), – use of a fuel additive or other equivalent product (obtain information from the customer because this type of product can contaminate the catalytic converter and render it useless sooner or later).
Look up the service history of the vehicle or, if this is not possible, ask the customer if the vehicle has had injection or ignition faults.
If the cause of the catalytic converter damage has been found and the fault has disappeared, replace the catalytic converter.

AFTER REPAIR	Repeat the conformity check from the start.
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PETROL INJECTION

Fault finding – Command summary table

17B

Tool commands	Diagnostic tool title
SC006	Start OBD test: catalytic converter
SC007	Start OBD test: O2 sensors
RZ001	Fault memory
RZ005	Programming
AC004	Turbocharging solenoid valve
AC015	Fuel pump relay
AC017	Canister bleed solenoid valve
AC018	Upstream O2 sensor heating
AC019	Downstream O2 sensor heating
AC027	Motorised throttle
VP008	Unlock injector command
VP010	Enter VIN
VP013	Lock injector command

SC006	<u>RUN OBD TEST: CATALYTIC CONVERTER</u>
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NOTES	IMPORTANT: Do not perform this test with a new catalytic converter.
	Repair all the electrical faults and clear them from the memory. Program the flywheel target ET089 Programming the engine flywheel target . Check the appearance and condition of the catalytic converter. Check there are no air leaks, thermal shock, misfiring, coolant or oil consumption. It is preferable to run this command with a warm engine. This reduces the time it takes for the catalytic converter to heat up.

The purpose of this command is to determine the condition of the catalytic converter

Procedure:

- **Engine stopped.**
- **Run command SC006.**
- **Start the vehicle without losing the + after ignition feed**
- Wait for the command result.

At the end of this test, four different results are possible:

- **Status 1:** Fault finding not carried out/impossible to obtain the necessary conditions.
- **Status 2:** Component in an average condition.
- **Status 3:** Component in good condition.
- **Status 4:** Component in poor condition.

When the command is complete and after the result has been read, stop the engine and start it again to obtain the conditions relating to normal use.

If the result is **Status 1**: check for any faults, and the engine flywheel target programming using **ET089**.

If the result is **Status 2** or **Status 4**: replace the catalytic converter.

If the result is **Status 3**: the catalytic converter is in good condition.

AFTER REPAIR	Deal with any other faults. Clear the fault memory. Switch off the ignition and perform a road test followed by a check using the diagnostic tool .
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SC007	<u>RUN OBD TEST: O2 SENSOR</u>
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NOTES	<p>Repair all the electrical faults and clear them from the memory. Program the flywheel target ET089 Programming the engine flywheel target.</p> <p>It is preferable to run this command with a warm engine. This reduces the time it takes for the catalytic converter to heat up.</p>
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The aim of this command is to detect a fault causing the EOBD* threshold for pollutant emissions to be exceeded.

There are two kinds of oxygen sensor damage:

- mechanical damage to the component (breakage, cut in wire) which leads to an electrical fault,
- chemical or thermal damage to the component leading to a slower response time of the sensor and to the increase in the average reaction time.

Procedure:

- **Engine stopped.**
- **Run command SC007.**
- **Start the vehicle without losing the + after ignition feed**
- Wait for the command result.

Fault finding is entirely autonomous. When completed, the throttle control ceases and the engine returns to idling speed regulation operation.

At the end of this test, four different results are possible:

- **Status 1:** Fault finding not carried out/impossible to obtain the necessary conditions.
- **Status 2:** Component in an average condition.
- **Status 3:** Component in good condition.
- **Status 4:** Component in poor condition.

When the command is complete and after the result has been read, stop the engine and start it again to obtain the conditions relating to normal use.

If the result is **Status 1**: check for any faults, and the engine flywheel target programming using **ET089**.

If the result is **Status 2** or **Status 4**: replace the sensor.


If the result is **Status 3**: the sensor is in good condition.

*EOBD: European On Board Diagnostics

AFTER REPAIR	<p>Deal with any other faults. Clear the fault memory. Switch off the ignition and perform a road test followed by a check using the diagnostic tool.</p>
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AC015	<u>FUEL PUMP RELAY</u>
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NOTES	There must be no present or stored faults.
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IF THE RELAY DOES NOT CLICK	<p>Disconnect the battery and the injection computer. Check the cleanliness and condition of the computer connections. In the Protection and Switching Unit disconnect the PEM connector and check the cleanliness and condition of the connections. Using the Universal bornier, check for insulation and continuity on the following connection:</p> <p>Injection computer track D1 connector C  track 1 of the Protection and Switching unit PEM</p> <p>Repair if necessary.</p> <p>If the fault is still present, there is a fault in the Switching Protection Unit (the fuel pump relay is in the Switching Protection Unit and is not removable). Contact the Techline.</p>
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AC015
CONTINUED

IF THE PUMP DOES
NOT OPERATE

Disconnect the fuel pump.
Check the **cleanliness** and **condition** of the connections.
Check **for the + 12 V feed** on the fuel pump connector with the ignition on (see **Technical Note 8227 Wiring Diagram, MEGANE II, 456**).
If there is no **+ 12V**:
– disconnect the battery,
– disconnect the connector marked **PPH2** in the **Protection and Switching Unit**,
– check the **cleanliness** and **condition** of the connections,
– using the Universal bornier, check for **continuity** on the following connection:
Protection and Switching Unit
connector PPH2 track 5 —————> Fuel pump connector
Repair if necessary.

Reconnect the Protection and Switching Unit connector and reconnect the battery.
If the **+ 12 V feed** is still not present on the fuel pump relay connector with the ignition on, there is a fault with the **Protection and Switching Unit**.
Contact the Techline.

Check **that the earth** on the fuel pump connector is present with the ignition on (see **Technical Note 8227 Wiring Diagram, MEGANE II, 456**).
Repair if necessary.

If the fault is still present, replace the fuel pump.

AFTER REPAIR

Repeat the conformity check from the start.

AC017	<u>CANISTER BLEED SOLENOID VALVE</u>
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NOTES	There must be no present or stored faults.
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Check the **cleanliness** and **condition** of the fuel vapour absorber bleed solenoid valve connections.
Repair if necessary.

Measure the **resistance** between **tracks 1** and **2** of the fuel vapour absorber bleed solenoid valve. Replace the fuel vapour absorber bleed solenoid valve if the **resistance** is not **26 Ω \pm 4 Ω at 23°C**.

Check for **+ 12 V feed** on **track 1** of the fuel vapour absorber bleed solenoid valve with the ignition on.

If there is no **+ 12V**:

- disconnect the battery,
- disconnect the connector marked **PPM1** in the **Protection and Switching Unit**,
- check the **cleanliness** and **condition** of the connections,
- using the Universal bornier, check the **continuity** on the following connection:

Protection and Switching Unit **connector PPM1 track 2**  **track 1** of the fuel vapour absorber bleed solenoid valve

Repair if necessary.

Reconnect the **Protection and Switching Unit** connector and reconnect the battery.


With the ignition on, if the **+ 12 V** is still not present on the fuel vapour absorber canister bleed solenoid valve connector, there is a fault with the **Protection and Switching Unit**.

Contact the Techline.

Disconnect the battery.

Disconnect the computer. Check the **cleanliness** and **condition** of the connections.

Using the Universal bornier, check for **insulation** and **continuity** on the following connection:

Injection computer, connector **C, track E1**  **track 2** of the fuel vapour absorber bleed solenoid valve

Repair if necessary.

If the fault persists, replace the solenoid valve.

AFTER REPAIR	Repeat the conformity check from the start.
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AC027

MOTORISED THROTTLE

WARNING

Never drive the vehicle without checking first that there are no throttle valve faults.

NOTES

There must be no present or stored faults.

Switch on the ignition and activate command **AC027**.

If the motorised throttle does not work, apply the interpretation for **DF079 Motorised throttle valve automatic control**.

AFTER REPAIR

If the throttle valve has been replaced, reinitialise the programming (RZ005).
Repeat the conformity check from the start.

ELECTRICAL RESISTANCE OF COMPONENTS ON THE F4R ENGINE

Ambient temperature ~ 20 °C

Injectors	→	14.5 Ω ± 5 %
Throttle valve motor	→	2.3 Ω ± 10 %
Fuel vapour absorber solenoid valve	→	25 Ω ± 20 %
Camshaft dephaser solenoid valve	→	7.2 Ω ± 10 %
Pencil coils	→	Primary: 0.5 Ω ± 5 % Secondary: 10.7 kΩ ± 15 %
Flywheel signal sensor	→	230 Ω ± 20 %
Upstream oxygen sensor heating	→	9 Ω ± 10 %
Downstream oxygen sensor heating	→	9 Ω ± 10 %

F4R ENGINE

Values for components with variable electrical resistance:

AIR TEMPERATURE SENSOR DAV IATS 04 - PIE 7700101451 B	
Temperature in °C	Electrical resistance in Ω
- 40	49930 \pm 15 %
- 10	9540 \pm 10 %
25	2050 \pm 6 %
50	810 \pm 6 %
80	309 \pm 6 %
110	135 \pm 6 %
120	105 \pm 6 %

COOLANT TEMPERATURE SENSOR SYLEA 402114 02 - PIE 7700113867	
Temperature in °C	Electrical resistance in Ω
- 40	75780 \pm 10 %
- 10	12460 \pm 10 %
25	2250 \pm 5 %
50	810 \pm 5 %
80	283 \pm 5 %
110	115 \pm 5 %
120	88 \pm 5 %

NOTES	Only refer to the customer complaints after performing a complete check using the diagnostic tool. WARNING Never drive the vehicle without checking first that there are no throttle valve faults.
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NO DIALOGUE WITH THE COMPUTER	ALP 1
THE ENGINE WILL NOT START	ALP 2
IDLING SPEED FAULTS	ALP 3
FAULTS WHILE DRIVING	ALP 4
NOISE WHEN COLD (K4M)	Technical Note 6506A ALP 1
SUSPECTED NOISE WITH NO FAULT ON THE DEPHASER SYSTEM (F4R)	Technical Note 6506A ALP 2
OIL LEAK FROM THE CAMSHAFT DEPHASER	Technical Note 6506A ALP 7
OIL LEAK FROM THE CAMSHAFT DEPHASER SOLENOID VALVE	Technical Note 6506A ALP 8

AFTER REPAIR	Repeat the conformity check from the start.
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PETROL INJECTION

Fault finding – Fault Finding Chart

17B

ALP 1

No dialogue with the computer

NOTES

None

Test the diagnostic tool on another vehicle in perfect working order.
Check that the sensor's green indicator light comes on.
Communication with the second vehicle is impossible, follow the instructions in the **CLIP diagnostic tool check** section.
If you establish dialogue with the second vehicle, follow the instructions in the **Vehicle check** section.

CLIP DIAGNOSTIC TOOL CHECK

Check the **cleanliness** and **condition** of the diagnostic socket contacts which connect to the vehicle.
Check the **condition** of the cable from the diagnostic socket to the sensor, and the cleanliness and condition of the connections.
Check the sensor connections.
Check the **condition** of the cable from the sensor to the CLIP tool, and the cleanliness and condition of the connections.
Check the **cleanliness** and **condition** of the CLIP socket.
If the fault is still present, contact Techline.

CLIP VEHICLE CHECK

Check the **electrical voltage** of the battery.
Check the **cleanliness** and **condition** of the battery terminals.
Check the **condition** and **tightness** of the cable going from the battery + terminal to the Protection and Switching Unit.
Check the **condition** of the battery earth cable and ensure that there is a **good electrical connection** with the bodywork.

Check the injection computer earth terminal for **cleanliness** and make sure it is **properly connected** to the bodywork.

Check the Protection and Switching Unit's main **30A power supply fuse**, plus the **condition** and **cleanliness** of the contacts (see Protection and Switching Unit fault finding).

Check the injection computer after ignition feed **5A fuse**, plus the **condition** and **cleanliness** of the contacts.

AFTER REPAIR

Repeat the conformity check from the start.

ALP 1 CONTINUED 1	
CLIP VEHICLE CHECK (CONTINUED 1)	Using the Universal bornier, check the following tracks on the vehicle's diagnostic socket :
	Track 1 + ➡ After ignition Track 16 + ➡ Battery Tracks 4 and 5 ➡ Earth
	Repair if necessary.
	Disconnect the battery and the injection computer. Check the cleanliness and condition of the computer connections. Using the universal bornier, check for continuity on the CAN communication lines:
	Injection computer track A4 connector A ➡ track 6 of the

ALP 1 CONTINUED 2	
CLIP VEHICLE CHECK (CONTINUED 2)	<p>In the Protection and Switching Unit disconnect the "PEM" connector and check the cleanliness and condition of the connections. Using the Universal bornier, check for insulation and continuity on the following connection: Computer, connector B, track D4 —————> Protection and Switching Unit connector PEM track 2</p> <p>Repair if necessary.</p> <p>In the Protection and Switching Unit disconnect the "PPM1" connector and check the cleanliness and condition of the connections. Using the universal bornier, check the continuity on the following connection: Computer, connector B, track M2 —————> Protection and Switching Unit connector PPM1 track 1</p> <p>Repair if necessary.</p> <p>In the Protection and Switching Unit disconnect the "PEH" connector and check the cleanliness and condition of the connections. Using the universal bornier, check the continuity on the following connection: Computer, connector A, track D1 —————> Protection and Switching Unit, PEH connector, track 1</p> <p>Repair if necessary.</p> <p>If the fault is still present, contact the Techline.</p>
AFTER REPAIR	Repeat the conformity check from the start.

ALP 2	The engine will not start
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NOTES	Follow ALP 2 after a complete check with the diagnostic tool. <i>(Use the relevant section in the Workshop Repair Manual to carry out certain operations).</i>
	WARNING Never drive the vehicle without checking first that there are no throttle valve faults.

If the starter motor does not operate, there may be a fault with the engine immobiliser. Carry out a fault finding procedure on the UCH.
Check the condition of the battery. Check the cleanliness, condition and tightness of the battery terminals. Check that the battery is correctly earthed to the vehicle bodywork. Check that the + battery leads are correctly connected.
Check that the starter motor is properly connected. Check that the starter works (see MR 364 Mechanics, 16A, Starting-charging).
Check the condition and conformity of the spark plugs. Check the mounting, cleanliness and condition of the flywheel signal sensor. Check the flywheel signal sensor air gap. Check the condition of the flywheel.
Check that the air filter is not clogged. Check that the air inlet circuit is not blocked.
Check that there is fuel in the tank (fuel sender fault). Check that the tank vent is not blocked. Check that the fuel is of the correct type. Check that there are no leaks in the fuel system, from the tank to the injectors. Check that there are no kinked hoses (especially after a removal operation). Check the fuel flow rate and pressure. Check the sealing of the injectors, and that they are working properly.
Check that the exhaust system is not blocked and the catalytic converter not clogged.
Check the timing setting.
Check the cylinder compressions.
Check the hydraulic tappets if there is camshaft noise.

AFTER REPAIR	Repeat the conformity check from the start.
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ALP 3	Idle speed faults
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NOTES	Fill in ALP 3 after a complete check using the diagnostic tool. <i>(Use the relevant section in the Workshop Repair Manual to carry out certain operations).</i>
	WARNING Never drive the vehicle without checking first that there are no throttle valve faults.

Check that the oil level is not too high.
Check the inlet system sealing, from the throttle to the cylinder head. Check that the fuel vapour absorber bleed is not disconnected or jammed open. Check that there are no leaks in the fuel vapour absorber bleed system. Check that there are no leaks in the braking assistance system. Check that there are no leaks in the oil vapour recovery system (manifold/cylinder head). Check that there are no leaks around the manifold pressure sensor. Check that there are no leaks around the air temperature sensor.
Check that the air filter is not clogged. Check that the air inlet circuit is not blocked. Check that throttle valve is not clogged.
Check the condition of the pencil coils and the cleanliness of their connections. Check the electrical resistance of the pencil coil secondary circuits. Check the condition and conformity of the spark plugs. Check the mounting, cleanliness and condition of the flywheel signal sensor. Check the flywheel signal sensor air gap. Check the condition and cleanliness of the flywheel.
Check that the tank vent is not blocked. Check that the fuel is of the correct type. Check that there are no leaks in the fuel system, from the tank to the injectors. Check that there are no kinked hoses (especially after a removal operation). Check the fuel flow rate and pressure. Check that the injectors are working properly.
Check that the exhaust system is not blocked and the catalytic converter not clogged.
Check the timing setting.
Check the cylinder compressions.
Check the hydraulic tappets if there is camshaft noise.

AFTER REPAIR	Repeat the conformity check from the start.
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ALP 4	Faults occurring while driving
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NOTES	Fill in ALP 4 after a complete check using the diagnostic tool. <i>(Use the relevant section in the Workshop Repair Manual to carry out certain operations).</i>
	WARNING Never drive the vehicle without checking first that there are no throttle valve faults.

Check that the oil level is not too high.
Check the condition of the pencil coils and the cleanliness of their connections. Check the electrical resistance of the pencil coil secondary circuits. Check the condition and conformity of the spark plugs. Check the mounting, cleanliness and condition of the flywheel signal sensor. Check the flywheel signal sensor air gap. Check the condition and cleanliness of the flywheel.
Check that the air filter is not clogged. Check that the air inlet circuit is not blocked. Check that throttle valve is not clogged. Check the inlet system sealing, from the throttle to the cylinder head.
Check that the fuel vapour absorber bleed is not disconnected or jammed open. Check that there are no leaks in the fuel vapour absorber bleed system. Check that there are no leaks in the braking assistance system. Check that there are no leaks in the oil vapour recovery system (manifold/cylinder head). Check that there are no leaks around the manifold pressure sensor. Check that there are no leaks around the air temperature sensor.
Check that the tank vent is not blocked. Check that the fuel is of the correct type. Check that there are no leaks in the fuel system, from the tank to the injectors. Check that there are no kinked hoses (especially after a removal operation). Check the fuel flow rate and pressure. Check that the injectors are working properly.
Check that the exhaust system is not blocked and the catalytic converter not clogged.
Check the timing setting.
Check the cylinder compressions.
Check the hydraulic tappets if there is camshaft noise.

AFTER REPAIR	Repeat the conformity check from the start.
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