

MEGANE

1 Engine and peripherals

17C GAS INJECTION

LPG 3000

Program No: AB

Vdiag No: 08/10

Fault finding - Introduction	17C - 2
Fault finding - System operation	17C - 9
Fault finding - Replacement of components	17C - 13
Fault finding - Configurations and programming	17C - 14
Fault finding - Fault summary table	17C - 15
Fault finding - Interpretation of faults	17C - 16
Fault finding - Conformity check	17C - 54
Fault finding - Status Summary table	17C - 76
Fault finding - Interpretation of statuses	17C - 77
Fault finding - Interpretation of parameters	17C - 83
Fault finding - Command summary table	17C - 89
Fault finding - Interpretation of commands	17C - 90
Fault finding - Customer complaints	17C - 98
Fault finding - Fault finding chart (ALP)	17C - 99

V2

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 procedures applicable to all computers with the following specifications:

Vehicle (s): **LOGAN and MEGANE 2**
Function concerned: **Gas Injection**
Engines: **K4M 764/788/698**

Computer name: **GAS 3000**
Program No.: **AB**
Vdiag No.: **08/10**

2. PREREQUISITES FOR FAULT FINDING

Documentation type

Fault finding procedures (this manual):

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

Wiring Diagrams:

- Visu-Schéma.

Type of diagnostic tools

- **CLIP + multiplex line sensor**

Special tooling required

Special tooling required	
Multimeter	
Elé. 1681	Universal bornier

3. REMINDERS

Procedure for Mégane 2

To carry out fault finding on the vehicle's computers, switch the ignition to fault finding mode (forced + after ignition).

Proceed as follows:

- Put 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 on these computers is therefore not possible until after the ignition has been switched on in diagnostic mode (forced + after ignition) and the dipped beam headlights have been switched 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**),
- ensure that the + after ignition feed has been cut off by checking that the computer indicator lights on the instrument panel have gone out.

Procedure for Logan

To run fault finding on the vehicle computers, switch on the ignition. Connect the diagnostic tool and perform the required operations.

Faults

Faults are declared either present or stored (depending on whether they appeared in a certain situation and have disappeared since, or whether they remain but have not been 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 data that does not produce a fault on the diagnostic tool because the data is inconsistent. Therefore, this phase makes it possible to:

- run 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 the statuses and the parameters and the conditions for checking them.

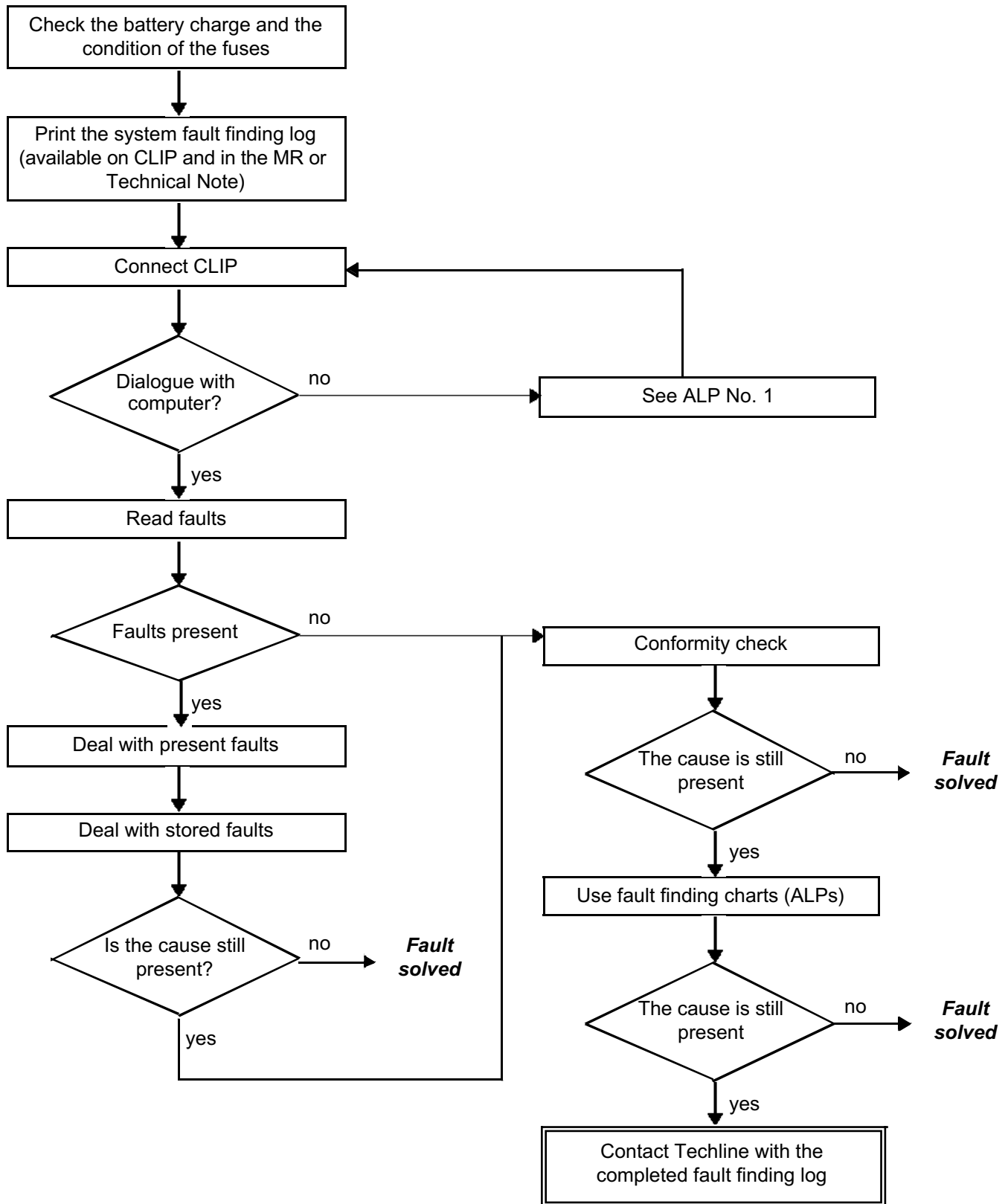
If a status is not behaving normally or a parameter is outside the permitted tolerance values, consult the corresponding fault finding page.

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 harness may temporarily remove the cause of a fault. Electrical measurements of voltage, resistance and insulation are generally correct, especially if the fault is not present when the analysis is made (stored fault).

Visual inspection

- look for damaged wiring under the bonnet and in the passenger compartment.
- carefully check the fuses, insulation and the correct routing of the wiring.
- look for signs of oxidation.

Tactile inspection

While manipulating the wiring harness, 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 the 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 the entire lines, then section by section.
- look for a short circuit to earth, to + 12V or with another wire.

If a fault is detected, apply the associated fault finding procedure and repair or replace the wiring.

2. FAULT FINDING LOG



IMPORTANT

IMPORTANT

Any fault on a complex system must undergo a thorough fault finding procedure 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 component when consulting the manufacturer.

**IT IS THEREFORE MANDATORY TO FILL OUT A FAULT FINDING LOG EVERY TIME
THE TECHLINE OR THE WARRANTY RETURN SERVICE ASKS FOR IT.**

You will always be asked for this log:

- when requesting technical assistance from the Techline,
- for approval requests when replacing parts for which approval is obligatory,
- to be enclosed when returning monitored parts on request. The log is needed for warranty reimbursement, and enables better analysis of the parts which have been removed.

5. SAFETY INSTRUCTIONS

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

- make sure that the battery is properly charged to avoid damaging the computers with a low charge,
- use the appropriate tools.

Safety instructions that must be followed before any operation is performed on the vehicle

- If a major LPG leak occurs, the vehicle must be isolated, away from buildings and any fire risks.
- the emergency services may be required to intervene if the situation cannot be controlled.
- all work on the LPG circuit must be performed by qualified and authorised personnel,
- do not try to open the tank. Never try to remove the multi-valve located at the end of the tank.
- do not clean the engine compartment using a pressure system with detergents.
- always refer to the RENAULT Workshop Repair Manual before performing any work.

Safety instructions that must be followed when any operation is performed on the vehicle

- all work must be carried out in a well-ventilated space,
- there must not be any naked flames, sparks, lit cigarettes or telephones near the area where work is being carried out,
- the operator must not wear acrylic clothes likely to generate static electricity.
- disconnect the battery and leave the vehicle on the ground,
- if working on the tank, drain it by running the engine in LPG mode,
- once drained and removed, the tank can be sent to GIAT, complete with its mounting,
- if work is to be done in the spray booth, remove the tank (with its mounting),
- the tank must not be subjected to temperatures greater than **50°C**.

Safety instructions that must be followed after any operation is performed on the vehicle

- after working on an LPG union, check that it is not leaking after it has been refitted,
- apply soapy water or the product distributed by **SODICAM**, part number **77 11 143 071** (leak detector) to the open union(s),
- fill the fuel tank with a few litres of LPG if it has been bled (the ignition must be switched off first),
- start the engine, put it in LPG mode and check again that there is no leak,
- if a leak is detected, retighten the union concerned. If the leak persists, refit the union,
- fill the fuel tank (**80%** of the total volume). start the engine, put it in LPG mode and check that there is no leak,
- after refitting, check that all the rubber and encased steel LPG pipes are not in contact with any parts that may cause them to wear and create an LPG leak.

ROAD TEST (in Petrol mode, then in LPG mode)

- check that the stabilisation time is normal,
- check that the engine does not stall under sudden braking and that it maintains a stable idle speed until the vehicle comes to a stop,
- put the vehicle in **4th** gear, at a steady speed of **36 mph (60 km/h)**. Check that the vehicle accelerates progressively under full load acceleration.

IMPORTANT

Before performing any work on the vehicle, drain the LPG circuit.

Only personnel who have undergone special LPG training can work with gas unions where gas is circulating and which run from the expansion valve via the fuel tank.

Equally, only these persons are permitted to perform servicing and repair operations on LPG vehicles.

Workshops can only carry out work on the fuel tank if they have a degassing burner. If the tank cannot be degassed, do not carry out any work and contact the **Comité Français du Butane et du Propane (French Butane and Propane Commission)** by fax on **01 41 97 02 89**.

Maintenance operations:

- no adjustment,
- removal of internal components is not permitted,
- if LPG clips are removed, they must be replaced,
- if LPG unions are removed, they must be replaced.

The tank must be bled before removing:

- the fuel tank,
- a component bolted to the fuel tank,

To remove the following, bleed all gas contained in the gas circuit (except the gas in the tank):

- the filler neck,
- the pipes,
- the filter,
- the pressure relief valve,
- the solenoid valve.

1. System operation:

Composition

- The LPG injection system consists of the:
- LPG tank,
- fuel sender,
- overpressure unit (thermally triggered),
- LPG solenoid valve relay,
- tank solenoid valve,
- reducer (LPG) or expansion valve (CNG),
- expansion valve,
- filling spigot or socket,
- LPG hose,
- tank pressure sensor,
- LPG pipes,
- unions,
- airtight cover,
- regulator valve or anti-return valve,
- excess pressure valve,
- LPG filter,
- temperature and pressure sensor,
- LPG computer,
- LPG expansion solenoid valve,
- gas injectors,
- LPG or petrol selection switch,
- fuel sender relay,
- LPG tank relay,
- fuel pump cut-off relay.

Operating principle

The GAS 3000 computer electronically manages the operation of the LPG systems (Liquefied Petroleum Gas) and CNG (Compressed Natural Gas).

The engine must be started in Petrol mode. The vehicle will automatically switch to "Gas" mode after starting if the "gas" configuration was selected beforehand. "Petrol" mode switches to "gas" mode after a certain time delay, which depends on the engine coolant temperature.

Petrol mode operates autonomously. Information is shared between the Petrol computer and the LPG computer via a CAN connection.

The K line shared by the two computers allows diagnostics to be run on both the petrol and the LPG systems.

The Petrol computer is also the supervisor of the LPG system and includes, in addition to petrol-specific functions, functions for adapting engine management programming to LPG operation.

Therefore, the Petrol computer includes settings and variables that are specific for LPG operation, e.g. ignition advance adjustment in LPG mode, LPG flow rate setting, richness regulation, engine operating mode, etc.

It controls the choice of program (petrol start-up etc.) and controls the transition phases for switching from one operating mode to the other: Petrol → Gas or Gas → Petrol. The fuel pump is regularly supplied to keep the system under pressure in the event of a possible return to "Petrol" mode (if the "Gas" tank is detected as empty or if a fault is detected).

The GAS 3000 computer manages "gas" actuator control, i.e. the "gas" injectors, the gas system relays and solenoid valves, the fuel pump cut-off relay and the management of the fuel sender. Before switching to "Gas" mode, the computer always checks that the pressure and the temperature of the gas are correct and that the "gas" solenoid valves are open.

The combustible material is stored in an independent toric tank. LPG is stored in a semi-gaseous state at a pressure of approximately **15 bar**.

CNG is stored in a cylindrical tank in a gaseous state at a pressure of approximately **200 bar**, and is transported to the expansion valve/reducer via a rigid high pressure pipe. The rest of the system is a low pressure pipe going from the expansion valve/reducer to the injectors. For CNG, there is a gas filter between the expansion valve and the rail.

Malfunctions / Special cases

These are characterised by operation in Petrol mode, although the driver has selected LPG mode.

An operational fault must be caused by the LPG system if it cannot be reproduced in Petrol mode.

Forced Petrol mode when LPG is faulty.

The **level 1** warning light is controlled by the petrol injection computer; the gas warning light is controlled by the GAS 3000 computer.

The system automatically switches to "petrol" mode when the tank is empty or when the conditions allowing operation in "gas" mode are not satisfied.

Expansion valve (CNG):

– **Purpose:**

- It enables the pressure of the gas from the tank to be lowered to a value which is compatible with the injection system (injectors and temperature pressure sensor downstream from the expansion valve).
- The gas pressure is approximately **3 bar** at the expansion valve outlet.
- It regulates the pressure in the injector rail to the pressure in the manifold.

Reducer (LPG):

– **Purpose:**

- It has the same functions as the expansion valve. Furthermore, it ensures that the fuel switches from a liquid state to a gaseous state (the gas pressure is approximately **2 bar** at the reducer output).

– **Operation:**

The LPG expansion valve and the CNG reducer are essential components and are composed of:

- a stage for lowering the pressure from **25 bar** maximum to a pressure in line with the manifold pressure,

$$P_{\text{output}} = P_{\text{manifold}} + 0.85 \text{ bars (LPG)}$$

$$P_{\text{output}} = P_{\text{manifold}} + 1.8 \text{ bars (CNG with 100 bar of pressure in the tank)}$$

- a pressure regulator, comprised of a system of valves, springs and diaphragms,
- a cut-off solenoid valve,
- a water heating system.

– **The expansion solenoid valve**

This component controls only supply of gas to the expansion valve. Controlled by the computer, the solenoid valve allows LPG into the two stages of the expansion valve, thus supplying the LPG injectors.

2. Intersystem connections:

Connections to the other computers:

- Petrol injection computer,
- protection and switching unit
- instrument panel.

Note:

Before carrying out any work on the LPG system, check that the vehicle operates correctly in Petrol mode.

Sender and LPG indicator light programming:

– **LPG indicator light:**

Operating mode	LPG indicator light status	
	Megane 2	Logan
Petrol	Off	Off
Forced petrol due to LPG condition	Steady green	Off
Forced Petrol mode when LPG is faulty	Amber	Permanent flashing green
Forced Petrol mode for empty LPG tank	Flashing green	Flashing green (timed: 16-second)
Gas	Steady green	Steady green
Petrol to LPG Transition	Steady green	Steady green
LPG to Petrol Transition	Steady green	Off

– **Sender indicator light:**

Pressing the button determines which gauge is displayed ("petrol" level or "gas" level).

Illumination of the warning light for minimum gauge level depends only on the actual level of fuel in the tank.

COMPUTER REPLACEMENT OR REPROGRAMMING PROCEDURE

The system can be programmed and reprogrammed via the diagnostic socket using the RENAULT CLIP diagnostic tool (see **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,
- shut down all the electrical consumers (lights, interior lights, air conditioning, radio CD, etc.),
- wait for the engine to cool down (coolant temperature below 60 °C and air temperature below 50 °C).

After reprogramming or replacing the computer:

- Switch the ignition off and then on again.
- Start and run the engine in LPG mode then stop the engine (to initialise the computer) and wait for 30 seconds.
- Switch on the ignition and use the diagnostic tool to carry out the following steps:
 - use command **VP001 Write VIN**,
 - after the injection has been reprogrammed, stored faults may appear on other computers. Clear the memories of these computers,
 - carry out a road test followed by another check with the diagnostic tool.

1. CONFIGURATION

CF	LC010	LPG downstream temperature sensor	
		→ WITH	→ CNG
		→ NONE	→ LPG
CF	LC011	LPG downstream pressure sensor	
		→ NONE	
		→ SAGEMJ/JCAE	→ LPG
		→ BOSCH	→ CNG

GAS INJECTION

Fault finding - Fault summary table

Tool fault	Associated DTC	Description
DF003	2617	Engine speed inconsistency
DF007	1B47	Main relay circuit
DF013	1B40	Tank solenoid valve circuit
DF014	1B42	Gauge supply circuit
DF016	1685	Impact detected
DF017	1094	LPG leak detection downstream of expansion valve
DF018	0512	+ after ignition feed
DF019	1B05	LPG pressure sensor circuit
DF020	1B45	Fuel sender switching relay circuit
DF021	1B46	LPG tank solenoid valve relay circuit
DF022	1B60	Computer
DF024	1B43	Fuel pump cut-off relay circuit
DF026	C073	Multiplex network
DF029	1B20	LPG tank sender signal voltage
DF030	0657	LPG tank sender supply voltage
DF031	1B61	LPG pressure downstream from expansion valve
DF061	C100	Multiplex network
DF074	0336	TDC signal circuit
DF080	0560	Battery voltage
DF081	1B32	Cylinder 2 injector circuit
DF083	1B00	LPG pressure sensor circuit
DF087	1B34	Cylinder 4 injector circuit
DF088	1B33	Cylinder 3 injector circuit
DF092	1B05	Expansion valve downstream LPG pressure sensor circuit
DF095	1B10	LPG temperature sensor circuit
DF096	0641	Sensor supply voltage
DF098	1B31	Cylinder 1 injector circuit
DF099	1B49	Instrument panel indicator circuit
DF103	1B41	LPG expansion valve solenoid valve circuit

DF003 PRESENT OR STORED	<u>ENGINE SPEED CONSISTENCY</u> 1.DEF: Signal incoherent 2.DEF: Non-compliance with emission control standards
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NOTES	Conditions for applying fault finding procedures to stored faults: The fault is declared present after the engine has been running for 10 seconds in LPG mode.
	Appearance conditions: The fault appears when the difference between the hard-wired petrol computer engine speed signal and the multiplex network engine speed is greater than 300 rpm .

Manipulate the wiring between the LPG computer and the petrol computer in order to produce a change in status (present ↔ stored).
Look for any damage to the wiring harness and check the **connection** and **condition** of the LPG computer and its connections and carry out the same checks on the injection computer.
Repair if necessary.

Check the insulation and continuity on the wires of the following multiplex connections:

For Mégane 2:

LPG computer **track A1** —————→ **track K3, connector B**, petrol computer
LPG computer **track A2** —————→ **track K4, connector B**, petrol computer

For Logan:

LPG computer **track A1** —————→ **track 25** of the petrol computer
LPG computer **track A2** —————→ **track 26** of the petrol computer

Repair if necessary.

Check the insulation, continuity and the absence of interference resistance on the connection between:

LPG computer **track F1** —————→ **track C3, connector B**, of the petrol computer

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 displayed 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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DF007 PRESENT OR STORED	<p><u>MAIN RELAY CIRCUIT</u></p> <p>1.DEF: Voltage outside permitted range of values 2.DEF: Non-compliance with emission control standards</p>
NOTES	<p>Conditions for applying the fault finding procedure to stored faults:</p> <p>The fault is declared present after the engine has been started and switched to LPG mode.</p>
<p>Manipulate the wiring harness between the LPG computer and the main relay in order to produce a change in status. Look for any damage to the wiring harness and check the connection and condition of the main relay and its connections (present ↔ stored). If necessary, repair or replace the connector.</p>	
<p>With the ignition on, check for +12V on track 1 and track 3 of the main relay.</p> <p>If no + 12 V:</p> <ul style="list-style-type: none"> – disconnect the battery, – in the Protection and Switching Unit, disconnect the grey connector, – check the cleanliness and condition of the connections, – Use the universal bornier to check the continuity of the following connection: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>For Mégane 2:</p> <p>Protection and Switching Unit, grey connector, track 1</p> </div> <div style="text-align: center;"> <p>→</p> </div> <div style="text-align: center;"> <p>track 3 of the main relay</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>For Logan:</p> <p>Fuse box, track S4</p> </div> <div style="text-align: center;"> <p>→</p> </div> <div style="text-align: center;"> <p>track A5 of the main relay</p> </div> </div> <p>Repair if necessary.</p>	
<p>Check the insulation in relation to + 12V and the continuity and absence of interference resistance on the connection between:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>LPG computer track F4</p> </div> <div style="text-align: center;"> <p>→</p> </div> <div style="text-align: center;"> <p>track 2 of the main relay</p> </div> </div> <p>Repair if necessary.</p>	
<p>With the ignition on, check for earth on track 2 of the main relay. If, with the ignition on, the computer does not control the main relay on track 2 via an earth, contact the Techline.</p>	
<p>With the engine running, check that the relay clicks when LPG mode is selected. Replace the main relay if necessary.</p>	
<p>If the fault is still present, deal with the other faults, then proceed to the conformity check.</p>	

AFTER REPAIR	<p>Deal with any faults displayed 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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**DF013
PRESENT
OR
STORED**

TANK SOLENOID VALVE CIRCUIT

CC.1: Short circuit to + 12 Volts

1.DEF: Non-compliance with emission control standards

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Priority when dealing with a number of faults:

If fault **DF021 LPG tank solenoid valve relay circuit** or fault **DF018 + After ignition feed supply** or fault **DF016 Impact detected** are present or stored, deal with these faults first.

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after the engine is started and switched to LPG mode or when command **AC015 Tank solenoid valve** is executed.

Manipulate the wiring harness between the gas computer and the gas tank solenoid valves in order to produce a change in status (present ↔ stored).

Look for any damage to the wiring harness and check the **connection** and **condition** of the LPG tank solenoid valves and their connections.

Repair if necessary.

Check the **connection** and **condition** of the LPG tank solenoid valve relay connector and its connections.

Replace the connector if necessary.

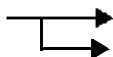
– check that the solenoid valve is supplied with **+12V** via **track E3** of the LPG computer.

– check for **+ 12V** on **track D** (for **Mégane 2**) or on **track A** (for **Logan**) of the LPG tank solenoid valve.

If necessary, check the **insulation to earth and the continuity and absence of interference resistance** on the following connections:

For Mégane 2:

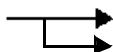
LPG tank solenoid valve **track D**



track B5 of the LPG tank solenoid valve relay
track E3, LPG computer

For Logan:

LPG tank solenoid valve **track A**



track B5 of the LPG tank solenoid valve relay
track E3, LPG computer

If the fault is still present, check the intermediate connectors (**R2 track 38**, for **Mégane 2**), (**R34 track 9**, for **Logan**).

Repair if necessary.

AFTER REPAIR

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

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

**DF013
CONTINUED**

Check for **earth** on **track E** (for **Mégane 2**) or on **track B** (for **Logan**) of the LPG tank solenoid valve.
Repair if necessary.

With the engine running, check that the LPG tank solenoid valve relay clicks when LPG mode is selected.

If the fault is still present, check the insulation in relation to +12 V and the continuity and absence of interference resistance on the following connections:

LPG computer **track E4** —————> **track 2** of the LPG tank solenoid valve relay

Repair if necessary.

With the ignition on, check for **+ 12 volts** on **track C2** of the LPG computer.
Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

LPG computer **track C2** —————> **track 1** of the LPG tank solenoid valve relay

Repair if necessary.

With the ignition on, check that the relay and the fuel pump are supplied with **+ 12V**.
Check the insulation in relation to + 12V and the continuity and absence of interference resistance on the connection between:

For Mégane 2:

Fuel pump relay **track 2** —————> **track 3** of the LPG tank solenoid valve relay

For Logan:

Fuel pump relay **track B5** —————> **track 3** of the LPG tank solenoid valve relay

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 displayed by the diagnostic tool.
Clear the computer memory.
Carry out a road test followed by another check with the diagnostic tool.

DF014 PRESENT OR STORED	<u>GAUGE SUPPLY CIRCUIT</u> CC.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 volts
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NOTES	Special note: The system changes to forced petrol mode "LPG system fault" and refuses to change to LPG mode while the fault is present.
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Clear the faults from memory and then start the engine.

If the fault is still present, contact the Techline.

AFTER REPAIR	Deal with any faults displayed 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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DF016 PRESENT	<u>IMPACT DETECTED</u> 1.DEF: Impact detected 2.DEF: Non-compliance with emission control standards
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NOTES	Priority when dealing with a number of faults: If faults DF021 LPG tank solenoid valve relay circuit or fault DF018 + After ignition feed supply are present or stored, deal with these faults first.
	Special note: As soon as the LPG computer receives this signal, engine operation is prohibited.

If the vehicle has been involved in an accident:

Carry out any necessary repairs,

- clear the fault,
- switch off the ignition,
- wait for the engine immobiliser indicator light to flash,
- switch on the ignition,

If the fault does not recur, end the fault finding procedure.

If the fault recurs, carry out fault finding on the AIRBAG computer.

If the vehicle has not been involved in an accident:

Check for + 12V on **track 3** of the fuel pump cut-off relay and the LPG tank relay.

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF017
PRESENT
OR
STORED**

LPG LEAK DETECTION DOWNSTREAM OF THE EXPANSION VALVE

- 1.DEF: Leak detection
2.DEF: Non-compliance with emission control standards

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Fault finding procedure application conditions:

- clear the faults,
- start the engine,
- select LPG mode,
- wait for the engine to operate in LPG mode with the status **ET093 LPG mode** set to **YES**,
- turn the engine off,
- wait for **5 minutes**,
- confirm that the fault is present.

Special note:

To detect the leak, use the product distributed by **SODICAM**, available under **Part number 77 11 143 071** (leak detector).

Start the engine and select LPG mode. Wait for the engine to operate in LPG mode with the status **ET093 LPG Mode** set to **YES** and apply the **leak detector** product to:

- the expansion valve,
- the pipe between the expansion valve and the injector rail,
- the pipes between the injector rail and the injectors,
- the injector bodies.

Repair if necessary.

With the ignition on and the engine off, control the expansion valve solenoid valve using command **AC024 Expansion valve solenoid valve**.

Without disconnecting the pipes, carefully remove:

- the LPG injector rail,
- the LPG injectors.

Apply the leak detector product to the injector seats.

Replace the faulty injector(s) (see **MR 364 Mechanical, 17D, Gas injection, Injectors**).

If the fault is still present, **contact the Techline**.

AFTER REPAIR

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

DF018 PRESENT OR STORED	+ AFTER IGNITION SUPPLY CC.1: Short circuit to + 12 Volts 1.DEF: Abnormal voltage 2.DEF: Non-compliance with emission control standards
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NOTES	Priority when dealing with a number of faults: If faults DF021 LPG tank solenoid valve relay circuit or fault DF016 Impact detected are present or stored, deal with these faults first.
	Special note: To detect the leak, use the product distributed by SODICAM , available under Part number 77 11 143 071 (leak detector).

Manipulate the wiring harness between the LPG computer and the after ignition feed supply circuit in order to produce a change in status (present ↔ stored).
Look for any damage to the wiring harness and check the **connection and condition** of the after ignition feed supply circuit and its connections.
If necessary, repair or replace the connector.

With the ignition on, check for **+ 12 volts** on **track C2** of the LPG computer.
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 displayed 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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DF019
PRESENT
OR
STORED

LPG PRESSURE SENSOR CIRCUIT

CC.0: Short circuit to earth

CO.1: Open circuit or short circuit to + 12V

1.DEF: Non-compliance with emission control standards

NOTES

Special note:

The fault is declared present when the ignition is switched on.

Manipulate the wiring harness between the LPG computer and the LPG temperature/pressure sensor in order to produce a change in status (present to stored).

Look for any damage to the wiring harness and check the **connection and condition** of the LPG pressure/temperature sensor and its connections.

If necessary, repair or replace the connector.

Check for **+ 5V** on **track 3** of the LPG pressure/temperature sensor in LPG mode.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

LPG computer **track A3**  **track 3** of the LPG temperature/pressure sensor

Repair if necessary.

Check for **earth** on **track 1** of the LPG temperature/pressure sensor in LPG mode.

Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

LPG computer **track B3**  **track 1** of the LPG temperature/pressure sensor

Repair if necessary.

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

LPG computer **track C3**  **track 4** of the LPG temperature/pressure sensor

Repair if necessary.

Replace the sensor if the **LPG pressure** is not greater than **2 bar** in relation to the manifold pressure **PR001 Manifold pressure**.

Check the pressure value using parameters **PR001 Manifold pressure, PR003 Pressure difference: LPG/manifold** and **PR112 LPG pressure downstream of expansion valve** and ensure that **PR003 = PR112 - PR001**.

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

AFTER REPAIR

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

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

DF020 PRESENT OR STORED	<u>FUEL SENDER SWITCHING RELAY CIRCUIT</u> CC.1: Short circuit to + 12 Volts CO.0: Open circuit or short circuit to earth 2.DEF: Non-compliance with emission control standards
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC005 Fuel sender relay is executed.
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Manipulate the wiring harness between the LPG computer and the fuel sender relay in order to produce a change in status (present ↔ stored).

Look for possible damage to the wiring harness and check the **connection and condition** of the fuel sender relay and its connections.

Repair if necessary.

Check the **continuity and insulation** of the following connection:

Fuel sender relay **track 5** —————→ **track E3**, LPG computer

Replace the fuse if necessary.

With the ignition on, check for **+12V** on **track C1** of the LPG computer.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

LPG computer **track C1** —————→ **track B1** of the LPG or petrol selector switch

If the fault is still present, check the intermediate connector (**R34 on track 7**, for **Mégane 2** and **R212 on track B6**, for **Logan**).

Repair if necessary.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

LPG computer **track E4** —————→ **track 2** of the fuel sender relay

Repair if necessary.

In LPG operation, check for **earth** on **track 2** of the fuel sender relay.

If, with the ignition on, the computer does not control the fuel sender relay on **track 2** via an earth, contact the Techline.

If the fault is still present, replace the fuel sender relay.

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

AFTER REPAIR	Deal with any faults displayed 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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DF021 PRESENT OR STORED	<u>LPG TANK SOLENOID VALVE RELAY CIRCUIT</u> CC.1: Short circuit to + 12 Volts CO.0: Open circuit or short circuit to earth 1.DEF: Non-compliance with emission control standards
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NOTES	Priority when dealing with a number of faults: If fault DF024 Fuel pump cut-off relay circuit is present or stored, deal with this fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started and switched to LPG mode.

Manipulate the wiring harness between the LPG computer and the LPG tank solenoid valve relay in order to produce a change in status (present ↔ stored).
Look for possible damage to the wiring harness and check the **condition and connection** of the LPG tank solenoid valve relay and its connections.
If necessary, repair or replace the connector.

With the ignition on, check for **+ 12V** on **track 1** of the LPG tank solenoid valve relay and **track C2** of the LPG computer.

If no **+ 12 V**:

- disconnect the battery,
- in the Protection and Switching Unit, disconnect the grey connector,
- check the **cleanliness** and **condition** of the connections,
- Use the universal bornier to check the **continuity** of the following connection:

For Mégane 2:

Protection and Switching Unit, **grey connector, track 1** —————> **track 3** of the main relay

For Logan:

Fuse box, **track S4** —————> **track A5** of the main relay

Repair if necessary.

Check for **+ 12V** on **track 3** of the LPG tank solenoid valve relay.

If **+ 12V** is not present, use the universal bornier to check the **continuity** of the following connection:

For Mégane 2:

Tank solenoid valve relay **track 3** —————> **track 5** of the fuel pump relay

For Logan:

Double control relay unit **track B3** —————> **track B5** of the fuel pump relay

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF021
CONTINUED**

Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track E4** —————→ **track 2** of the gas tank solenoid valve relay

For Logan:

LPG computer **track E4** —————→ **track B2** of the double control relay unit

Repair if necessary.

With the ignition on, check for **earth** on **track 2** of the LPG tank solenoid valve relay.

If, with the ignition on, the computer does not control the LPG tank solenoid valve relay on **track 2** through an earth, contact the Techline.

With the engine running, check that the relay clicks when LPG mode is selected.

If the fault is still present, replace the LPG tank solenoid valve relay.

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

AFTER REPAIR

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

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

DF022 PRESENT	COMPUTER 1.DEF: Internal electronic fault 2.DEF: Non-compliance with emission control standards
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NOTES	Fault finding procedure application conditions: Only when fault is present.
	Special note: This fault appears when the ignition is switched off (power latch phase: computer data backup phase) or during the engine stop phase.

Clear the faults from memory and then start the engine.

If the fault is still present, **contact the Techline**.

AFTER REPAIR	Deal with any faults displayed 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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DF024 PRESENT OR STORED	FUEL PUMP CUT-OFF RELAY CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 Volts 1.DEF: Non-compliance with emission control standards
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NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with this fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been running for 10 seconds in LPG mode.

Manipulate the wiring harness between the LPG computer and the fuel pump cut-off relay in order to produce a change in status (present ↔ stored).
Look for any damage to the wiring harness and check the **connection** and **condition** of the fuel pump cut-off relay and its connections.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

Main relay **track 5** —————→ **track 1** of the fuel pump cut-off relay

For Logan:

Double control relay unit **track A3** —————→ **track B5** of the fuel pump cut-off relay

Repair if necessary.

Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

LPG computer **track F3** —————→ **track 2** of the fuel pump cut-off relay

Repair if necessary.

In LPG operating mode, using status **ET025 Fuel pump**, check that status **ET025** is **ACTIVE** when starting and then changes to **INACTIVE** after **1 minute**.

If **ET025** does not change to **INACTIVE**, check for **earth** on **track 2** of the fuel pump cut-off relay.

If, with the ignition on, the computer does not control the fuel pump cut-off relay on **track 2** through an earth, contact your Techline.

If the fault is still present, replace the fuel pump cut-off relay.

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

AFTER REPAIR	Deal with any faults displayed 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	MULTIPLEX NETWORK 1.DEF: No multiplex frames or values invalid (fault on the computer producing the signal or a CAN connection fault) 2.DEF: Non-compliance with emission control standards
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NOTES	None.
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Check the **insulation and continuity** on the wires of the following multiplex connections:

For Mégane 2:

LPG computer **track A1** —————→ **track K3, connector B**, petrol computer
LPG computer **track A2** —————→ **track K4, connector B**, petrol computer

For Logan:

LPG computer **track A1** —————→ **track 25** of the petrol computer
LPG computer **track A2** —————→ **track 26** of the petrol computer

Repair if necessary.

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

AFTER REPAIR	Deal with any faults displayed 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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**DF029
PRESENT
OR
STORED**

LPG TANK SENDER SIGNAL VOLTAGE

CO.0: Open circuit or short circuit to earth
CO.1: Open circuit or short circuit to + 12V
CC.0: Short circuit to earth
1.DEF: Non-compliance with emission control standards

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after the engine has been started and switched to LPG mode.

Manipulate the wiring harness between the LPG computer and the LPG tank sender in order to produce a change in status (present ↔ stored).

Look for any damage to the wiring harness and check the **connection and condition** of the LPG tank sender connector.

Replace the connector if necessary.

For Mégane II: Disconnect the connector from the LPG tank sender and measure the **resistance** between **tracks A and C (only for Mégane 2)**.

Replace the sender if the **resistance** value is different to the value shown in the table below (**only for Mégane 2**).

Check for the **presence of earth** on **track C** (for **Mégane 2**) or **track A3** (for **Logan**) of the LPG tank sender connector.

Repair if necessary.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track B1** —————→ **track B**, of the LPG tank sender

For Logan:

LPG computer **track D4** —————→ **track A2**, of the LPG tank sender

If the fault is still present, check the intermediate connectors (**R2 track 36**, for **Mégane 2**), (**R34 track 8 and R345 track B**, for **Logan**).

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 displayed by the diagnostic tool.

Clear the computer memory.

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

**DF029
CONTINUED**

Tank sender resistance in Ω ($\pm 2 \Omega$) (only for Mégane II)	Needle position
20	Full
290	Spare
320	Empty

AFTER REPAIR

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

**DF030
PRESENT
OR
STORED**

LPG TANK SENDER SUPPLY VOLTAGE

- 1.DEF: Voltage outside permitted range of values
- 2.DEF: Non-compliance with emission control standards

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after the engine has been started and switched to LPG mode.

Manipulate the wiring harness between the LPG computer and the LPG tank sender in order to produce a change in status (present ↔ stored).

Look for any damage to the wiring harness and check the **connection and condition** of the LPG tank sender connector.

Replace the connector if necessary.

Check for a supply on **track A4** (for **Mégane 2**) or on **track B2** (for **Logan**) of the LPG computer and on **track A** (for **Mégane 2**) or on **track A2** (for **Logan**) of the fuel sender during **LPG operation**.

For **Mégane 2**: check the intermediate connectors **R2 track 39, R34 track 15 and R345 track A**.

Contact the Techline if the voltage value is not between **4.6V** and **5.2V**.

Check the **insulation** and **continuity** of the following connection:

For Mégane 2:

LPG computer **track D3** —————→ **track C** of the LPG tank sender

For Logan:

LPG computer **track D3** —————→ **track A1** of the LPG tank sender unit

If the fault is still present, check the intermediate connectors (**R2 track 37**, for **Mégane 2**, **R674 track 4**, for **Logan**) and (**R34 track 16 and R345 track C**, for **Mégane 2**).

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 displayed by the diagnostic tool.

Clear the computer memory.

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

DF031 PRESENT	<u>LPG PRESSURE DOWNSTREAM OF EXPANSION VALVE</u> 1.DEF: Signal incoherent 2.DEF: Signal outside lower limit 3.DEF: Signal outside upper limit 4.DEF: Non-compliance with emission control standards
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NOTES	None.
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Manipulate the wiring harness between the LPG computer and the LPG tank pressure sensor in order to produce a change in status (present ↔ stored).
Look for any damage to the wiring harness and check the **connection and condition** of the LPG pressure sensor downstream of the expansion valve and its connections.
If necessary, repair or replace the connector.

With the engine off, switch on LPG mode and check that the sender is not at minimum.
If necessary, put some LPG back into the tank.

Check that parameter **PR112 LPG pressure downstream of the expansion valve** is no more than **800 mbar** greater than the manifold pressure parameter **PR001 Manifold pressure**.
Check the pressure value using parameters **PR001 Manifold pressure**, **PR003 Pressure difference: LPG/manifold** and **PR112 LPG pressure downstream of expansion valve** and ensure that **PR003 = PR112 - PR001**.

Check that the LPG supply pipes are not pinched or crushed.
Replace the faulty pipes 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 displayed 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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DF061 PRESENT OR STORED	MULTIPLEX NETWORK 1.DEF: No multiplex frames or values invalid (fault on the computer producing the signal or a CAN connection fault) 2.DEF: Non-compliance with emission control standards
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NOTES	None.
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Check the **insulation and continuity** on the wires of the following multiplex connections:

For Mégane 2:

LPG computer **track A1** ➡ **track K3, connector B**, petrol computer
LPG computer **track A2** ➡ **track K4, connector B**, petrol computer

For Logan:

LPG computer **track A1** ➡ **track 25** of the petrol computer
LPG computer **track A2** ➡ **track 26** of the petrol computer

Repair if necessary.

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

AFTER REPAIR	Deal with any faults displayed 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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DF074 PRESENT OR STORED	<u>TDC SIGNAL CIRCUIT</u> 1.DEF: Signal incoherent 2.DEF: Non-compliance with emission control standards
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present following signal incoherence.
	Appearance conditions: The fault appears when the difference between the engine speed of the petrol computer sent by a wire connection and the engine speed sent by the multiplex network is greater than 300 rpm .

Manipulate the wiring between the LPG computer and the petrol computer in order to produce a change in status (present ↔ stored).
Look for any damage to the wiring harness and check the **connection and condition** of the TDC sensor and its connections.
If necessary, repair or replace the connector.

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track F1** → **track C3, connector B**, of the petrol computer

For Logan:

LPG computer **track F1** → **track 41, connector C12**, of the petrol computer

Check the **insulation and continuity** on the wires of the following multiplex connections:

For Mégane 2:

LPG computer **track A1** → **track K3, connector B**, petrol computer

LPG computer **track A2** → **track K4, connector B**, petrol computer

For Logan:

LPG computer **track A1** → **track 25** of the petrol computer

LPG computer **track A2** → **track 26** of the petrol computer

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 displayed 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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**DF080
PRESENT**

BATTERY VOLTAGE

- 1.DEF: Battery undervoltage
- 2.DEF: Battery voltage too high
- 3.DEF: Non-compliance with emission control standards

NOTES

Special note:

The fault is declared present if the voltage value is not between:
6V < Vbatt < 16V

Check the **condition of the battery** and the **charging circuit**.
Check the **condition** of the vehicle **earths**.

Check for **+ 12V** on **track H4** and **C2** of the LPG computer.
Repair if necessary.

Check for **earth** on **tracks G1** and **H1**.
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 displayed by the diagnostic tool.
Clear the computer memory.
Carry out a road test followed by another check with the diagnostic tool.

DF081 PRESENT OR STORED	CYLINDER 2 INJECTOR CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 Volts 1.DEF: Non-compliance with emission control standards
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IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with this fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC020 Cylinder 2 injector is executed.

Manipulate the wiring harness between the LPG computer and Injector number 2 until there is a change in status. (present ↔ stored).

Look for any damage to the wiring harness and check the **connection and condition** of injector 2 and its connections.

If necessary, repair or replace the connector.

Measure the **resistance** of injector 2 between **tracks 1 and 2**.

Replace the injector if the resistance value of the injector at **approximately 20°C** is not between:

$$0.7 \, \Omega < R < 1.45 \, \Omega$$

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

For **Mégane 2**:

General relay track A5	→	track 6 of the black intermediate connector (R37)
Black intermediate connector (R37) track 6	→	track 1 of injector 2

LPG computer track G4	→	track 2 of the black intermediate connector (R37)
Black intermediate connector (R37) track 2	→	track 2 of injector 2

For **Logan**:

Injector 2 track 1	→	track A1 of the double control relay unit
LPG computer track G4	→	track 2 of injector 2

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF081
CONTINUED**

With the ignition on,
– check for **+ 12V** on **track 1** of injector 2,
– check for **earth** on **track 2** of injector 2 when command **AC020 Cylinder 2 injector** is run.
Repair if necessary.

If the fault is still present, **contact the Techline**.

AFTER REPAIR

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

DF083 PRESENT OR STORED	<u>LPG PRESSURE SENSOR CIRCUIT</u> CC.0: Short circuit to earth CO.1: Open circuit or short circuit to + 12V 1.DEF: Non-compliance with emission control standards
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NOTES	None
	Special note: The fault is declared present when the ignition is switched on.

Manipulate the wiring harness between the Gas computer and the gas pressure sensor in order to produce a change in status (present to stored). Look for any damage to the wiring harness and check the connection and condition of the LPG pressure/temperature sensor and its connections. Replace or repair the connector(s) if necessary.	
Check for + 5V on track 1 of the LPG pressure/temperature sensor in LPG mode. Check the insulation in relation to earth and the continuity and the absence of interference resistance on the connection between: <div style="text-align: center; margin-top: 10px;"> LPG computer track A3 track 1 of the LPG temperature/pressure sensor </div> Repair if necessary.	
Check for earth on track 3 of the LPG temperature/pressure sensor in LPG mode. Check the insulation in relation to + 12V and the continuity and absence of interference resistance on the connection between: <div style="text-align: center; margin-top: 10px;"> LPG computer track B3 track 3 of the LPG temperature/pressure sensor </div> Repair if necessary.	
Check the insulation, continuity and the absence of interference resistance on the connection between: <div style="text-align: center; margin-top: 10px;"> LPG computer track C4 track 2 of the LPG pressure/temperature sensor </div> Repair if necessary.	
Replace the sensor if the LPG pressure is not greater than 2.5 bar in relation to the manifold pressure PR001 Manifold pressure . Check the pressure value using parameters PR001 Manifold pressure, PR003 Pressure difference: LPG/manifold and PR112 LPG pressure downstream of expansion valve and ensure that PR003 = PR112 - PR001 .	
If the fault is still present, contact the Techline.	

AFTER REPAIR	Deal with any faults displayed 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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DF087 PRESENT OR STORED	CYLINDER 4 INJECTOR CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 Volts 1.DEF: Non-compliance with emission control standards
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IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with this fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC018 Cylinder 4 injector is executed.

Manipulate the wiring harness between the LPG computer and Injector number 4 to produce a change in status. (present ↔ stored).
Look for any harness damage, and check the **condition and connection** of injector no. 4 and its connectors.
If necessary, repair or replace the connector.

Measure the **resistance** of injector 4 between **tracks 1 and 2**.
The injector resistance value at **approximately 20°C** should be between:
 $0.7 \, \Omega < R < 1.45 \, \Omega$
Replace the injector if necessary.

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

For Mégane 2 :	
General relay track 5	→
Black intermediate connector (R37) track 8	→
	track 8 of the black intermediate connector (R37)
	track 1 of injector 4
LPG Computer track H3	
Black intermediate connector (R37) track 4	→
	track 4 of the black intermediate connector (R37)
	track 2 of injector 4
For Logan :	
Injector 4 track 1	→
LPG Computer track H3	→
	track A1 of the double control relay unit
	track 2 of injector 4

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF087
CONTINUED**

With the ignition on,
– check for **+ 12V** on **track 1** of injector 4,
– check for **earth** on **track 2** of injector 4 when command **AC018 Cylinder 4 injector** is run.
Repair if necessary.

If the fault is still present, **contact the Techline**.

AFTER REPAIR

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

DF088 PRESENT OR STORED	CYLINDER 3 INJECTOR CIRCUIT CO.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 Volts 1.DEF: Non-compliance with emission control standards
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IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with this fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC019 Cylinder 3 injector is executed.

Manipulate the wiring harness between the LPG computer and Injector number 3 to produce a change in status. (present ↔ stored).

Look for any damage to the wiring harness and check the **connection and condition** of the injector and its connections.

If necessary, repair or replace the connector.

Measure the **resistance** of injector 3 between **tracks 1 and 2**.

The injector **resistance** value at **approximately 20°C** should be between:

$$0.7 \, \Omega < R < 1.45 \, \Omega$$

Replace the injector if necessary.

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

For Mégane 2:

General relay track 5	→	track 7 of the black intermediate connector (R37)
Black intermediate connector (R37) track 7	→	track 1 of injector 3

LPG computer track H2	→	track 3 of the black intermediate connector
Black intermediate connector (R37) track 3	→	track 2 of injector 3

For Logan:

Injector 3 track 1	→	track A1 of the double control relay unit
LPG computer track H2	→	track 2 of injector 3

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF088
CONTINUED**

With the ignition on,
– check for **+ 12V** on **track 1** of injector 3,
– check for **earth** on **track 2** of injector 3 when command **AC019 Cylinder 3 injector** is run.
Repair if necessary.

If the fault is still present, **contact the Techline**.

AFTER REPAIR

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

**DF092
PRESENT
OR
STORED**

LPG PRESSURE SENSOR DOWNSTREAM OF EXPANSION VALVE

CO.0: Short circuit to earth

CC.1: Open circuit or short circuit to + 12V

1.DEF: Non-compliance with emission control standards

NOTES

Fault finding procedure application conditions:
Present or stored fault.

Manipulate the wiring harness between the LPG computer and the LPG pressure/temperature sensor in order to produce a change in status (present ↔ stored).

Look for any damage to the wiring harness and check the **connection and condition** of the LPG pressure/temperature sensor and its connections.

If necessary, repair or replace the connector.

Check for **+ 5V** on **track 1** (for **Mégane 2**) or **track 3** (for **Logan**) of the LPG pressure/temperature sensor in LPG mode.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track A3** —————→ **track 1** of the LPG temperature/pressure sensor

For Logan:

LPG computer **track A3** —————→ **track 3** of the LPG temperature/pressure sensor

Repair if necessary.

Check for **earth** on **tracks 3 and 1** of the LPG pressure/temperature sensor in LPG mode.

Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track B3** —————→ **track 3** of the LPG temperature/pressure sensor

For Logan:

LPG computer **track B3** —————→ **track 1** of the LPG temperature/pressure sensor

Repair if necessary.

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track C4** —————→ **track 2** of the LPG pressure/temperature sensor

For Logan:

LPG computer **track E2** —————→ **track 2** of the LPG pressure/temperature sensor

Repair if necessary.

AFTER REPAIR

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

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

**DF092
CONTINUED**

Replace the sensor if the **pressure** is no more than **0.8 bar** greater than the manifold pressure **PR001 Manifold pressure**.

Check the manifold pressure sensor sealing.

Check the pressure value using parameters **PR001 Manifold pressure, PR003 Pressure difference: LPG/manifold** and **PR112 LPG pressure downstream of expansion valve** and ensure that **PR003 = PR112 - PR001**.

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

AFTER REPAIR

Deal with any faults displayed by the diagnostic tool.

Clear the computer memory.

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

**DF095
PRESENT
OR
STORED**

LPG TEMPERATURE SENSOR CIRCUIT

- 1.DEF : Signal outside lower limit
- 2.DEF : Signal outside upper limit
- 3.DEF : Non-compliance with emission control standards

IMPORTANT

Before working on an LPG supply circuit component, always refer to the appropriate section of the Workshop Repair Manual (see 17D, LPG Injection, Introduction, Safety advice for all operations).

NOTES

Conditions for applying the fault finding procedure to stored faults:

- The fault is declared present after the engine has been started and switched to LPG mode.

Manipulate the wiring harness between the LPG computer and the LPG temperature/pressure sensor in order to produce a change in status (present to stored).

Look for any damage to the harness, and check the **connection and condition** of the LPG pressure/temperature sensor and its connectors.

If necessary, repair or replace the connector.

Check for **+ 5 V** on **track 3** of the LPG pressure/temperature sensor in LPG mode.

Check the following connections for **insulation from earth, continuity and absence of extraneous resistance**:

LPG computer **track A3** ➡ **track 3** of the LPG pressure/temperature sensor

Repair if necessary.

Check for **earth** on **track 1** of the LPG pressure/temperature sensor in LPG mode.

Check the following connections for **insulation from +5 V, continuity and absence of extraneous resistance**:

LPG computer **track B3** ➡ **track 1** of the LPG pressure/temperature sensor

Repair if necessary.

Check the **insulation, the continuity and absence of unwanted resistance** on the connection between:

LPG computer **track E2** ➡ **track 2** of the LPG pressure/temperature sensor

Repair if necessary.

Measure the **resistance** of the temperature sensor.

Replace the sensor if the **resistance** is not:

2.5 kΩ ± 0.1 kΩ at 20 °C
1.2 kΩ ± 0.1 Ω at 40 °C

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

AFTER REPAIR

Deal with any faults displayed 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**

SENSOR SUPPLY VOLTAGE

- 1.DEF : Voltage outside permitted range of values
- 2.DEF : Non-compliance with emission control standards

NOTES

Conditions for applying the fault finding procedure to stored faults:

The fault is declared present after the engine has been running for **10 seconds** in LPG mode.

Manipulate the wiring harness between the LPG computer and the LPG temperature/ pressure sensor in order to produce a change in status (present ↔ stored).

Look for any damage to the harness, and check the **connection and condition** of the LPG pressure/temperature sensor and its connectors.

If necessary, repair or replace the connector.

Check for **+ 5 V** on **track A4** and **A3** (for **Mégane 2**) and on **track B2** and **A3** (for **Logan**) and for **earth** on **track B3** and **D3** (for **Mégane 2**) or **tracks G1** and **H1** (for **Logan**) of the LPG computer.

Repair if necessary.

If incorrect, contact the Techline.

Check for a supply on **tracks A3** and **A4** of the LPG computer.

The voltage value must be between:

$$4.8 < V < 5.2$$

Check the **insulation** and **continuity** of the following connections:

For Mégane 2:

LPG computer track A4	————→	track B of the LPG tank sender
LPG computer track A3	————→	track 1 of the LPG pressure sensor

For Logan:

LPG computer track B2	————→	track A2 of the LPG tank sender
LPG computer track A3	————→	track 3 of the LPG pressure 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 displayed by the diagnostic tool.

Clear the computer memory.

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

DF098 PRESENT OR STORED	CYLINDER 1 INJECTOR CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to + 12 V 1.DEF : Non-compliance with emission control standards
--	---

IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with it first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC021 Cylinder 1 injector is executed.

Manipulate the wiring harness between the injection computer and the cylinder 1 injector in order to produce a change in status (present ↔ stored).
Look for any harness damage, and check the **condition and connection points** of the injector and its connections.
If necessary, repair or replace the connector.

Measure the **resistance** of injector 1 between **tracks 1 and 2**.
The injector resistance value at **roughly 20 °C** must be between:
 $0.77 \, \Omega < R < 1.43 \, \Omega$
Replace the injector if necessary.

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

For Mégane 2:

General relay **track 5** → **track 15 of the black intermediate connector (R37)**

Black intermediate connector (R37) track 5 → **track 1 of injector 1**

LPG computer **track G3** → **track 1 of the black intermediate connector (R37)**

Black intermediate connector (R37) track 1 → **track 2 of injector 1**

For Logan:

Injector 1 **track 1** → **track A1 of the double relay control unit relay**

LPG computer **track G3** → **track 2 of injector 1**

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF098
CONTINUED**

With the ignition on,
– check for **+12 V** on **track 1** of injector 1,
– check for **earth** on **track 2** of injector 1 when command **AC021 Cylinder 1 injector** is executed.
Repair if necessary.

If the fault is still present, **contact the Techline**.

AFTER REPAIR

Deal with any faults displayed 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>INSTRUMENT PANEL INDICATOR LIGHT CIRCUIT</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to + 12 V 1.DEF : Non-compliance with emission control standards
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NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine has been started and switched to LPG mode.
	Special note: Status ET099 LPG system faulty may help in dealing with this fault.

Check the **insulation and continuity** on the wires of the following multiplex connections:

For Mégane 2:

LPG computer track A1	—————▶	track 17 of the instrument panel
LPG computer track A2	—————▶	track 18 of the instrument panel
LPG computer track A2	—————▶	track 4 of the instrument panel

For Logan:

LPG computer track C1	—————▶	track 23 of the instrument panel
LPG computer track E1	—————▶	track 11 of the instrument panel
LPG computer track D4	—————▶	track 19 of the instrument panel

Repair if necessary.

If the LPG in operation indicator light does not light up normally, carry out fault finding on the instrument panel (see 83A, Instrument panel).

AFTER REPAIR	Deal with any faults displayed 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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DF103 PRESENT OR STORED	<u>LPG EXPANSION VALVE SOLENOID VALVE CIRCUIT</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to + 12 V 1.DEF : Non-compliance with emission control standards
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IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES	Priority when dealing with a number of faults: If fault DF021 LPG tank solenoid valve relay circuit is present or stored, deal with it first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine is started and switched to LPG mode or when command AC024 LPG expansion solenoid valve is executed.

Manipulate the wiring harness between the LPG computer and the LPG expansion valve solenoid valve in order to produce a change in status (present ↔ stored).

Look for possible damage to the harness, and check the **condition and connection** of the LPG expansion valve solenoid valve and its connectors.

Repair if necessary.

Measure the **resistance** between **tracks 1 and 2** of the LPG expansion valve solenoid valve.

Replace the solenoid valve if the **resistance** is not **approximately $12.6 \Omega \pm 1.3 \Omega$** .

Check the following connections for **insulation from earth, continuity and absence of extraneous resistance**:

For Mégane 2:

LPG expansion valve solenoid valve **track 1** —————→ **track 5** of the main relay

For Logan:

LPG expansion valve solenoid valve **track 1** —————→ **Intermediate connector (R674) track 1**

Intermediate connector (R674) track 1 —————→ **track A3** of the main relay

Repair if necessary.

AFTER REPAIR	Deal with any faults displayed 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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**DF103
CONTINUED**

Check the following connections for **insulation from +12 V, continuity and absence of extraneous resistance**:

For Mégane 2:

LPG expansion valve solenoid valve **track 2** —————> **track G2** of the LPG computer

For Logan:

LPG expansion valve solenoid valve **track 2** —————> **Intermediate connector (R674) track 2**

Intermediate connector (R674) track 2 —————> **track G2** of the LPG computer

Repair if necessary.

With the engine running, check that the LPG expansion valve solenoid valve clicks when the LPG mode is selected or command **AC024 LPG expansion valve solenoid valve** is executed.

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

AFTER REPAIR

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

NOTES

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

MAIN SCREEN

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	Main relay	ET049: General relay	INACTIVE	In the event of a fault, apply the interpretation of DF007 Main relay circuit .
2	Petrol/LPG mode consistency	ET021: Mode selected	LPG	NONE
3		ET094: Petrol mode	NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
4		PR093: LPG mode	NO	
5	Engine speed	PR006: Engine speed	PR006 = 0 mph (0 km/h)	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6		PR012: Engine speed multiplex signal	PR012 = 0 mph (0 km/h)	In the event of a fault, apply the interpretation of DF074 TDC signal circuit .
7	LPG switch	ET105: LPG switch	PRESSED RELEASED	In the event of a fault, apply the interpretation of DF020 Fuel sender switching relay circuit .
8	Sensor voltage	PR114: Sensor feed voltage	4.9 V < PR114 < 5 V	In the event of a fault, apply the interpretation of DF096 Sensor supply voltage .

NOTES

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

MAIN SCREEN (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
9	Temperatures	PR103: Air temperature	Indicates the temperature – of water in °C. – of air in °C. – of gas in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer. With a cold engine, the three temperatures should be almost identical.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
10		PR002: Coolant temperature		
11	Gas temperature	PR113: Gas temperature		NONE

NOTES

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

SUB-FUNCTION: PETROL → LPG TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET094: Petrol mode	NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
2		ET084: Forced petrol mode, empty tank	NO	If YES , carry out a multiplex network test. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
3		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 Forced petrol mode, LPG fault .
4		ET021: Mode selected	LPG	NONE
5		ET100: LPG system ready	NO	If there is inconsistency, apply the interpretation of status ET100 LPG system ready .
6		ET022: Waiting for LPG conditions	NO	If there is inconsistency, apply the interpretation of status ET022 Waiting for LPG conditions .

NOTES

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

SUB-FUNCTION: PETROL → LPG TRANSITION (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
7	LPG / Petrol switch	ET096: Petrol to LPG Transition	NO	When the LPG operating mode has been selected, if ET022 Waiting for LPG conditions is NO and ET100 LPG system ready is YES , then ET096 Petrol to LPG transition should be YES . If there is inconsistency, apply the interpretation of status ET096 .
8		ET093: LPG mode	NO	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
9	Petrol injection signals	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 0 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
10		PR002: Coolant temperature	Indicates the temperature – of water in °C. – of air in °C. – of gas in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	
11		PR103: Air temperature		
12	LPG temperature	PR113: LPG Temperature	With a cold engine, the three temperatures should be almost identical.	NONE

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **switched off**, **ignition on** and Petrol mode selected.

SUB-FUNCTION: LPG → PETROL TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET093: LPG mode	NO	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
2		ET021: Mode selected	PETROL	NONE
3		ET095: LPG to Petrol Transition	NO	NONE
4		ET094: Petrol mode	NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
5		ET084: Forced petrol mode, empty tank	NO	If YES , test the multiplex network. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
6		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 "Forced petrol mode, LPG fault" .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **switched off**, **ignition on** and Petrol mode selected.

SUB-FUNCTION: LPG → PETROL TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
7	Petrol injection signals	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 0 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
8		PR002: Coolant temperature	Indicates the temperature – of water in °C. – of air in °C.	
9		PR103: Air temperature	Check the consistency of the temperatures by performing fault finding on the petrol computer. With a cold engine, the two temperatures should be almost identical.	

NOTES

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

SUB-FUNCTION: OPERATION IN LPG MODE

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET021: Mode selected	LPG	NONE
2		ET093: LPG mode	YES	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
3	Petrol injection signals	PR006: Engine speed	Shows the engine's speed of rotation in rpm. PR006 = 0 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
4	LPG expansion valve solenoid valve	ET106: LPG expansion valve solenoid valve	CLOSED	The LPG expansion valve solenoid valve must be OPEN during LPG operation with the engine running and CLOSED in petrol operation. If inconsistent, apply the interpretation of DF103 "LPG expansion valve solenoid valve circuit" .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application condition: Engine **stopped**, **ignition on** and **LPG mode** selected.

SUB-FUNCTION: OPERATION IN LPG MODE (CONTINUED 1)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
5	Manifold pressure	PR001: Manifold pressure	Indicates the inlet manifold vacuum pressure in mb. PR001 = atmospheric pressure	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6	LPG pressure	PR003: Pressure difference: LPG/manifold	Calculation of the difference between LPG pressure and manifold pressure in mb. PR003 \approx 800 mbar	Check that: PR112 - PR001 = PR003
7		PR112: LPG pressure downstream of expansion valve	Indicates the LPG pressure downstream of the expansion valve in mb. PR112 = PR001 + 800 mbar	In the event of a fault, apply the interpretation of DF092 Expansion valve downstream LPG pressure sensor circuit and DF017 LPG leak detection downstream of expansion valve.

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application condition: Engine **stopped**, **ignition on** and **LPG mode** selected.

SUB-FUNCTION: OPERATION IN LPG MODE (CONTINUED 2)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
8	LPG flow rate setting	PR111: LPG flow rate setting	Indicates the LPG flow rate setpoint in g/h. PR111 = 0 g/h	NONE
9	LPG injection duration	PR110: LPG injection timing	Displays the injection duration in ms. PR110 = 0 ms	
10	Tank sender	PR013: LPG tank sender supply voltage	4.8 V < PR008 < 5.2 V	In the event of a fault, apply the interpretation of fault DF030 LPG tank sender supply voltage .
11		PR009: LPG tank sender signal voltage	Indicates the signal voltage compared to the pressure in the LPG tank.	For Logan: In the event of a fault, apply the interpretation of fault DF029 LPG tank sender signal voltage . For Mégane II: In the event of a fault, apply the interpretation of fault DF029 LPG tank sender signal voltage and parameters PR009 and PR116 .
12		PR116: Sender resistance	For Logan: Ignore this parameter. For Mégane II: Tank full: 20 Ω ± 2 Ω Reserve tank: 290 Ω ± 2 Ω Tank empty: 320 Ω ± 2 Ω	
13	LPG temperature	PR113: LPG Temperature	Gives the LPG temperature in °C. - 40°C < PR113 < 120°C	NONE
14	Fuel pump	ET025: Fuel pump	ACTIVE	ACTIVE when operating in Petrol mode. If there is inconsistency, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **switched off**, **ignition on** and Petrol mode selected.

SUB-FUNCTION: OPERATION IN PETROL MODE

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET021: Mode selected	PETROL	NONE
2		ET094: Petrol mode	NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
3		ET084: Forced petrol mode, empty tank	NO	If YES , test the multiplex network. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
4		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 Forced petrol mode, LPG fault .
5	Petrol injection signal	PR006: Engine speed	Shows the engine's speed of rotation in rpm. PR006 = 0 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6	Manifold pressure	PR001: Manifold pressure	Indicates the inlet manifold vacuum pressure in mb. PR001 = Atmospheric pressure	

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **switched off**, **ignition on** and Petrol mode selected.

SUB-FUNCTION: OPERATION IN PETROL MODE (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
7	Fuel pump	ET025: Fuel pump	ACTIVE	ACTIVE when operating in Petrol mode. If there is inconsistency, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
8	Petrol injection signal	PR002: Coolant temperature	Indicates the temperature – of water in °C. – of air in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer. With a cold engine, the two temperatures should be almost identical.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
9		PR103: Air temperature		

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and LPG mode selected.

MAIN SCREEN

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	Main relay	ET049: General relay	ACTIVE	In the event of a fault, apply the interpretation of DF007 Main relay circuit .
2	Petrol/LPG mode consistency	ET021: Mode selected	LPG	NONE
3		ET094: Petrol mode	NORMAL Then NO	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
4		PR093: LPG mode	NO Then YES	
5	Engine speed	PR006: Engine speed	PR006 = 750 rpm ± 50 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6		PR012: Engine speed multiplex signal	PR012 = 0 mph (0 km/h)	In the event of a fault, apply the interpretation of DF074 TDC signal circuit .
7	LPG switch	ET105: LPG switch	PRESSED	In the event of a fault, apply the interpretation of DF020 Fuel sender switching relay circuit .
8	Sensor voltage	PR114: Sensor feed voltage	4.9 V < PR114 < 5 V	In the event of a fault, apply the interpretation of DF096 Sensor supply voltage .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **running at idle speed at 80°C** and LPG mode selected.

MAIN SCREEN (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
9	Temperatures	PR103: Air temperature	Indicates the temperature – of water in °C. – of air in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
10		PR002: Coolant temperature		
11	LPG temperature	PR113: LPG temperature	Gives the LPG temperature in °C. - 40°C < PR113 < 120°C	NONE

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **running at idle speed at 80°C** and LPG mode selected.

SUB-FUNCTION: PETROL → LPG TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET094: Petrol mode	NORMAL Then NO	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
2		ET084: Forced petrol mode, empty tank	NO	If YES , carry out a multiplex network test. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
3		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 "Forced petrol mode, LPG fault" .
4		ET021: Mode selected	LPG	NONE
5		ET100: LPG system ready	YES	If there is inconsistency, apply the interpretation of status ET100 LPG system ready .
6		ET022: Waiting for LPG conditions	NO	If there is inconsistency, apply the interpretation of status ET022 Waiting for LPG conditions .
7		ET096: Petrol to LPG Transition	NO Then YES	When the LPG operating mode has been selected, if ET022 Waiting for LPG conditions is NO and ET100 LPG system ready is YES , then ET096 Petrol to LPG Transition should be YES . If NO , apply the interpretation of ET096 .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and LPG mode selected.

SUB-FUNCTION: PETROL → LPG TRANSITION (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
8	LPG / Petrol switch	ET093: LPG mode	NO Then YES	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
9	Petrol injection signals	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 750 rpm ± 50 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
10		PR002: Coolant temperature	Indicates the engine coolant temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
11		PR103: Air temperature	Indicates the air temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	
12	LPG temperature	PR113: LPG Temperature	Gives the LPG temperature in °C. - 40°C < PR113 < 120°C	NONE

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **running at idle speed at 80°C** and Petrol mode selected.

SUB-FUNCTION: LPG → PETROL TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET093: LPG mode	YES Then NO	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
2		ET021: Mode selected	PETROL	NONE
3		ET095: LPG to Petrol Transition	YES NO	NONE
4		ET094: Petrol mode	NO Then NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
5		ET084: Forced petrol mode, empty tank	NO	If YES , test the multiplex network. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
6		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 Forced petrol mode, LPG fault .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and Petrol mode selected.

SUB-FUNCTION: LPG → PETROL TRANSITION

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
7	Petrol injection signals	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 750 rpm ± 50 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
8		PR002: Coolant temperature	Indicates the engine coolant temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	
9		PR103: Air temperature	Indicates the air temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and LPG mode selected.

SUB-FUNCTION: OPERATION IN LPG MODE

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET021: Mode selected	LPG	NONE
2		ET093: LPG mode	YES	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
3	Petrol injection signals	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 750 rpm ± 50 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
4	LPG expansion valve solenoid valve	ET106: LPG expansion valve solenoid valve	OPEN	The LPG expansion valve solenoid valve must be OPEN in LPG operation with the engine running and CLOSED in petrol operation. If there is inconsistency, apply the interpretation of DF103 LPG expansion valve solenoid valve circuit .
5	Manifold pressure	PR001: Manifold pressure	Indicates the inlet manifold vacuum pressure in mb.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6	LPG pressure	PR003: Pressure difference: LPG/ manifold	Calculation of the difference between LPG pressure and manifold pressure in mb. PR003 ≈ 800 mbar	Check that: PR112 - PR001 = PR003
7		PR112: LPG pressure downstream of expansion valve	Indicates the LPG pressure downstream of the expansion valve in mb. PR112 = PR001 + 800 mbar	In the event of a fault, apply the interpretation of DF092 Expansion valve downstream LPG pressure sensor circuit and DF017 LPG leak detection downstream of expansion valve .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and LPG mode selected.

SUB-FUNCTION: OPERATION IN LPG MODE (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
8	LPG flow rate setting	PR111: LPG flow rate setting	Indicates the LPG flow rate setpoint in g/h. 0 g/h < PR111 < 600 g/h	NONE
9	LPG injection duration	PR110: LPG injection timing	Displays the injection duration in ms. PR110 ≈ 5 ms	
10	Tank sender	PR013: LPG tank sender supply voltage	4.8 V < PR008 < 5.2 V	In the event of a fault, apply the interpretation of DF030 LPG tank sender supply voltage .
11		PR009: LPG tank sender signal voltage	Indicates the signal voltage compared to the pressure in the LPG tank.	For Logan: In the event of a fault, apply the interpretation of DF029 LPG tank sender signal voltage .
12		PR116: Sender resistance	For Logan: Ignore this parameter. For Mégane II: Tank full: 20 Ω ± 2 Ω Reserve tank: 290 Ω ± 2 Ω Tank empty: 320 Ω ± 2 Ω	For Mégane II: In the event of a fault, apply the interpretation of fault DF029 LPG tank sender signal voltage and parameters PR009 and PR116 .

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **running at idle speed at 80°C** and LPG mode selected.

SUB-FUNCTION: OPERATION IN LPG MODE (CONTINUED 2)

13	LPG temperature	PR113: LPG Temperature	Gives the LPG temperature in °C. - 40°C < PR113 < 120°C	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
14	Fuel pump	ET025: Fuel pump	INACTIVE after 1 minute	ACTIVE when operating in Petrol mode. If there is inconsistency, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples.
Application conditions: Engine running at idle speed at 80°C and Petrol mode selected.

SUB-FUNCTION: OPERATION IN PETROL MODE

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
1	LPG / Petrol switch	ET021: Mode selected	PETROL	NONE
2		ET094: Petrol mode	NORMAL	Check the consistency between statuses ET094 Petrol mode and ET093 LPG mode . If there is inconsistency, contact the Techline.
3		ET084: Forced petrol mode, empty tank	NO	If YES , test the multiplex network. If the multiplex network is correct, check that the LPG tank is full. If the tank is full, apply the interpretation of status ET084 Forced petrol mode, tank empty .
4		ET023: Forced Petrol mode, LPG fault	NO	If YES , apply the interpretation of status ET023 Forced petrol mode, LPG fault .
5	Petrol injection signal	PR006: Engine speed	Indicates the engine's speed of rotation in rpm. PR006 = 750 rpm ± 50 rpm	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
6	Manifold pressure	PR001: Manifold pressure	Indicates the inlet manifold vacuum pressure in mb.	

NOTES

Only perform this conformity check after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Application conditions: Engine **running at idle speed at 80°C** and Petrol mode selected.

SUB-FUNCTION: OPERATION IN PETROL MODE (CONTINUED)

Order	Function	Parameter or Status checked or Action	Display and notes	Fault finding
7	Fuel pump	ET025: Fuel pump	ACTIVE	ACTIVE during operation in petrol mode. If there is inconsistency, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults
8	Petrol injection signal	PR002: Coolant temperature	Indicates the engine coolant temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	In the event of a fault, carry out a full fault finding procedure on the petrol injection system. Deal with any other faults.
9		PR103: Air temperature	Indicates the air temperature in °C. Check the consistency of the temperatures by performing fault finding on the petrol computer.	

Tool status	Diagnostic tool title
ET021	Selected mode
ET022	Waiting for LPG conditions
ET023	Forced petrol mode when LPG is faulty
ET025	Fuel pump
ET049	Main relay
ET084	Forced petrol mode with empty tank
ET093	LPG Mode
ET094	Petrol mode
ET095	LPG to Petrol Transition
ET096	Petrol to LPG Transition
ET099	LPG system faulty
ET100	LPG system ready
ET105	LPG switch
ET106	LPG expansion valve solenoid valve

ET022	<u>WAITING FOR LPG CONDITIONS</u> YES NO
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IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES

There must be no present or stored faults.
Ignition on, engine stopped.

Status **ET022** indicates **YES** for a variable period during which the computer checks that the LPG system is operating correctly.

Variable duration depending on:

- **ET100 LPG system ready,**
- **PR002 Coolant temperature,**
- **PR103 Air temperature,**
- **PR113 LPG temperature.**

Apply the interpretation of faults **DF103 LPG expansion valve solenoid valve circuit** and **DF007 Main relay circuit**.

Manipulate the wiring harness between the LPG computer and the petrol computer until a change in status is noted.

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

For Mégane 2:

LPG computer track A1	—————>	track K3, connector B, petrol computer
LPG computer track A2	—————>	track K4, connector B, petrol computer

For Logan:

LPG computer track A1	—————>	track 25 of the fuel computer
LPG computer track A2	—————>	track 26 of the fuel computer

Repair if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR

Follow the instructions to confirm repair.

ET023	<u>FORCED PETROL MODE, FAULTY LPG</u> YES NO
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NOTES	There must be no present or stored faults. Ignition on, engine stopped.
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Status **ET023** indicates **YES** if a fault is detected in LPG mode when LPG mode is selected.

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

For Mégane 2:

LPG computer track A1	————→	track K3, connector B , petrol computer
LPG computer track A2	————→	track K4, connector B , petrol computer

For Logan:

LPG computer track A1	————→	track 25 of the fuel computer
LPG computer track A2	————→	track 26 of the fuel computer

Repair if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair.
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ET084	<u>FORCED PETROL MODE WITH EMPTY TANK</u> YES NO
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IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES	There must be no present or stored faults. Ignition on, engine stopped.
	Special note Check that there is LPG in the tank. Check that there is no fault on the petrol injection computer. Test the petrol injection computer (see 17B, Petrol injection).

Status **ET084** indicates **YES** if the LPG tank is empty and LPG mode is selected.

Using parameters **PR001 Manifold pressure** and **PR112 LPG pressure downstream of the expansion valve**, check that **PR112 - PR001 = 800 mbar**.

If **PR112 - PR001 < 800 mbar**, check:

- the LPG tank solenoid valve (see **DF013 Tank solenoid valve circuit**),
- the expansion valve,
- the LPG pressure downstream of the expansion valve (see **PR112 LPG pressure downstream of expansion valve**).

Repair or replace the faulty components, if necessary.

If the status is still not correct, check:

- that the injectors are functioning correctly, using commands **AC018 Cylinder 4 injector**, **AC019 Cylinder 3 injector**, **AC020 Cylinder 2 injector** and **AC021 Cylinder 1 injector**,
- the condition of the hoses between the expansion valve and the injectors.

Repair the faulty components if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair.
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ET095	<u>LPG TO PETROL TRANSITION</u> YES NO
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NOTES	There must be no present or stored faults. Ignition on, engine stopped.
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Status **ET095** indicates **YES** for a variable period during the transition from LPG to petrol mode.

Check that the fuel pump starts when petrol mode is entered.

Check that status **ET025 Fuel pump** becomes **ACTIVE**.

If the fuel pump does not start, **check**:

- the fuel pump cut-off relay (see **DF024 Fuel pump cut-off relay circuit**),
- the petrol computer (see **17B, Petrol injection**).

Repair or replace the faulty components, if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair.
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ET096	<u>PETROL TO LPG TRANSITION</u> YES NO
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IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES	There must be no present or stored faults. Ignition on, engine stopped.
	Special note The duration of the transition varies according to the outside temperature.

Status **ET095** indicates **YES** for a variable period during the transition from LPG to petrol mode.

Check that the fuel pump starts when petrol mode is entered.

Check that status **ET025 Fuel pump** becomes **ACTIVE**.

If the fuel pump does not start, **check**:

- the fuel pump cut-off relay (see **DF024 Fuel pump cut-off relay circuit**),
- the petrol computer (see **17B, Petrol injection**).

Repair or replace the faulty components, if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm the repair:
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ET100	<u>LPG SYSTEM READY</u> YES NO
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IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES

There must be no present or stored faults.
Ignition on, engine stopped.

Status **ET100** indicates **YES** if no LPG fault is present.

Check:

- the LPG tank solenoid valve (see **DF013 Tank solenoid valve circuit**),
- the general relay (see **DF007 Main relay circuit**),
- the LPG expansion valve solenoid valve (see **DF103 LPG expansion valve solenoid valve**),
- the LPG pressure sensor (see **DF092 Expansion valve downstream pressure sensor circuit**),
- the LPG pressure in the tank (see **DF031 LPG pressure downstream of expansion valve**).

Repair or replace the faulty components, if necessary.

Check:

- the LPG filling hoses,
- the supply hoses upstream of the expansion valve,
- the expansion valve,
- the hoses downstream of the expansion valve.

Repair or replace the faulty components, if necessary.

If the status is still not correct, contact the Techline.

AFTER REPAIR

Follow the instructions to confirm repair.

Tool parameter	Diagnostic tool title
PR001	Manifold pressure
PR002	Coolant temperature
PR003	Pressure difference: LPG/ manifold
PR006	Motor speed
PR007	LPG tank sender signal voltage
PR012	Engine speed multiplex signal
PR013	LPG tank sender supply voltage
PR103	Air temperature
PR110	LPG injection duration
PR111	LPG flow rate setpoint
PR112	LPG pressure downstream of expansion valve
PR113	LPG temperature
PR114	Sensor supply voltage
PR116	Sender resistance

PR003

PRESSURE DIFFERENCE: LPG/ MANIFOLD

IMPORTANT

For an operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

There must be no present or stored faults.
Engine running in LPG mode.

Check that the **pressure difference** is **800 mbar**.

Check the consistency in pressure difference using parameters **PR001 Manifold pressure**, **PR003 Pressure difference: LPG/manifold** and **PR112 LPG pressure downstream of expansion valve** and ensure that **PR003 = PR112 - PR001**.

If the fault is still present, manipulate the wiring harness between the manifold pressure sensor and the LPG pressure/temperature sensor in order to produce a change in status.

Check the **connection and condition** of the manifold pressure sensor and the LPG pressure / temperature sensor, and its connections.

If necessary, repair or replace the connector.

If the pressure difference is still inconsistent, apply the interpretation of fault **DF031 LPG pressure downstream of expansion valve**.

If the fault is still present, replace the LPG pressure/temperature sensor (see MR 364 Mechanical, 17D, LPG injection).

If the fault is still present, **check the manifold pressure sensor by testing the Petrol computer** (see 17B, Petrol injection, Interpretation of faults).

If the fault is still present, contact the Techline.

AFTER REPAIR

Follow the instructions to confirm repair.

PR007	<u>LPG TANK SENDER SIGNAL VOLTAGE</u>
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NOTES	There must be no present or stored faults. Ignition on, engine stopped.
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Using the LPG tank sender signal voltage value **PR007** and measure the **resistance**, using a multimeter between **tracks A** and **C** (for **Mégane 2**) or **tracks A1** and **A2** (for **Logan**).
Check the consistency between these values using the table below.

In the event of inconsistency, check **for earth** on **track D** or **C** (for **Mégane 2**) or **track 3** or **4** (for **Logan**) of LPG tank pressure sensor connector.
Repair if necessary.

Check the **insulation against earth, continuity and the absence of interference resistance** of the connections between:

For Mégane 2:

LPG computer track A4	→	track A of the LPG tank sender
LPG computer track D3	→	track C of the LPG tank sender

For Logan:

LPG computer track B2	→	track A2 of the LPG tank sender
LPG computer track D3	→	track A1 of the LPG tank sender unit

Repair if necessary.

Pressure sensor voltage in V (± 0.5 V)	Needle position
4	Full
1	Reserve
0	Empty

AFTER REPAIR	Follow the instructions to confirm repair.
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PR112	<u>LPG PRESSURE DOWNSTREAM OF EXPANSION VALVE</u>
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NOTES	There must be no present or stored faults. Ignition on, engine stopped.
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Check that the **LPG pressure downstream of the expansion valve** is not more than **800 mbar** greater than the manifold pressure **PR001 Manifold pressure**.

Check the pressure value using parameters **PR001 Manifold pressure**, **PR003 Pressure difference: LPG/manifold** and **PR112 LPG pressure downstream of expansion valve** and ensure that **PR003 = PR112 - PR001**.

If the fault is still present, manipulate the wiring harness between the LPG computer and the LPG pressure/temperature sensor to produce a status change.

Check the **connection and condition** of the LPG pressure/temperature sensor and its connections.
If necessary, repair or replace the connector.

Check for **+ 5V** on **track 1** (for **Mégane 2**) or **track 3** (for **Logan**) of the LPG pressure/temperature sensor in LPG mode. Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track A3** —————→ **track 1** of the LPG temperature/pressure sensor

For Logan:

LPG computer **track A3** —————→ **track 3** of the LPG temperature/pressure sensor

Repair if necessary.

Check for **earth** on **track 3** (for **Mégane 2**) or **track 1** (for **Logan**) of the LPG pressure/temperature sensor in LPG mode.

Check the **insulation in relation to + 12V and the continuity and absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track B3** —————→ **track 3** of the LPG temperature/pressure sensor

For Logan:

LPG computer **track B3** —————→ **track 1** of the LPG temperature/pressure sensor

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair.
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**PR112
CONTINUED**

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track C4** —————> **track 2** of the LPG pressure/temperature sensor

For Logan:

LPG computer **track C3** —————> **track 4** of the LPG pressure/temperature sensor

LPG computer **track E2** —————> **track 2** of the LPG pressure/temperature sensor

Repair if necessary.

If the fault is still present, replace the LPG pressure/temperature sensor.

If the fault is still present, check the expansion valve (see **MR 364 Mechanical, 17D, LPG injection**).

AFTER REPAIR

Follow the instructions to confirm repair.

PR116	<u>SENDER RESISTANCE</u>
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NOTES	There must be no present or stored faults. Ignition on, engine stopped.
	Special Note For Logan: Ignore this parameter.

Use a multimeter to measure the **resistance** between **tracks A** and **C** (for **Mégane 2**) of the LPG tank sender.

Tank sender resistance in Ω ($\pm 2 \Omega$)	Needle position
20	Full
290	Spare
320	Empty

AFTER REPAIR	Follow the instructions to confirm repair.
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Tool command	Diagnostic tool title
RZ001	Memory fault
AC005	Fuel sender relay
AC011	Fuel pump cut-out relay
AC015	Tank solenoid valve
AC018	Cylinder 4 injector
AC019	Cylinder 3 injector
AC020	Cylinder 2 injector
AC021	Cylinder 1 injector
AC022	Sequential actuator control
AC024	LPG expansion valve solenoid valve
VP001	Enter VIN

AC005	<u>FUEL TANK SENDER RELAY</u>
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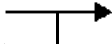

NOTES	With ignition on and engine stopped.
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Switch on the ignition and run command **AC005**.


If the fuel sender relay does not click 10 times, carry out the fault finding procedure below.

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track E4**  **Earth**
Fuel sender relay **track B2** 

For Logan:

LPG computer **track E4**  **Earth**
Double relay control unit **track B2** 

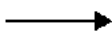
Repair if necessary.

Check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

Fuel sender relay **track B3**  **track B5** of the fuel sender relay

For Logan:

Double relay control unit **track B3**  **track B5** of the fuel pump relay

Repair if necessary.

If the fault is still present, replace the fuel sender relay (see MR 364 Mechanics, 17D, LPG injection).

AFTER REPAIR	Repeat the conformity check from the start.
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AC015	<u>TANK SOLENOID VALVE</u>
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NOTES	With ignition on and engine stopped.
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Switch on the ignition and run command **AC015**.

If the tank solenoid valve does not click ten times, carry out the fault finding procedure below.

Look for possible damage to the harness, and check the **condition and connection** of the LPG tank solenoid valve and its connectors.
Repair if necessary.

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

Check for **+12 V** on **track 1** of the LPG tank relay and **track C2** of the LPG computer.
Repair if necessary.

With the ignition on, check for **earth** on **track 2** of the LPG tank solenoid valve relay.
If, with the ignition on, the computer does not control the LPG tank solenoid valve relay on **track 2** through an earth, contact the Techline.

– Check that the solenoid valve is supplied with **+12 V** by **track E4** of the LPG computer.
If necessary, check the **insulation, continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track E4** —————> **track 2** of the LPG tank relay

For Logan:

LPG computer **track E4** —————> **track B2** of the double relay control unit

Repair if necessary.

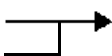
AFTER REPAIR	Repeat the conformity check from the start.
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**AC015
CONTINUED**

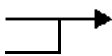
– Check for **+12 V** on **track 5** of the LPG tank relay.

If necessary, check the following connections for **insulation from earth, continuity and absence of extraneous resistance**:

For Mégane 2:

LPG computer **track E3**  **track 5** of the LPG tank relay
LPG tank solenoid valve **track D**

For Logan:

LPG computer **track E3**  **track B5** of the double relay control unit
LPG tank solenoid valve **track 1**

Repair if necessary.

Check for **earth** on **track E** (for **Mégane 2**) or on **track 2** (for **Logan**) of the LPG tank solenoid valve.

Repair if necessary.

With the engine running, check that the LPG tank solenoid valve clicks when the LPG mode is selected.

If the fault is still present, replace the LPG tank solenoid valve (see MR 364 Mechanics, 17D, LPG injection).

AFTER REPAIR

Repeat the conformity check from the start.

AC018	<u>CYLINDER INJECTOR NO. 4</u>
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NOTES	With ignition on and engine stopped.
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Switch on the ignition and run command **AC018**.
If the injector does not vibrate 10 times, perform the fault finding procedure for **DF087 Cylinder 4 injector circuit**.

AFTER REPAIR	Repeat the conformity check from the start.
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AC019

CYLINDER INJECTOR NO. 3

NOTES

With ignition on and engine stopped.

Switch on the ignition and run command **AC019**.

If the injector does not vibrate 10 times, perform the fault finding procedure for **DF088 Cylinder 3 injector circuit**.

AFTER REPAIR

Repeat the conformity check from the start.

AC020

CYLINDER 2 INJECTOR

NOTES

With ignition on and engine stopped.

Switch on the ignition and run command **AC020**.

If the injector does not vibrate 10 times, perform the fault finding procedure for **DF081 Cylinder 2 injector circuit**.

AFTER REPAIR

Repeat the conformity check from the start.

AC021	<u>CYLINDER INJECTOR NO. 1</u>
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NOTES	With ignition on and engine stopped.
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Switch on the ignition and run command **AC021**.
If the injector does not vibrate 10 times, perform the fault finding procedure for **DF098 Cylinder 1 injector circuit**.

AFTER REPAIR	Repeat the conformity check from the start.
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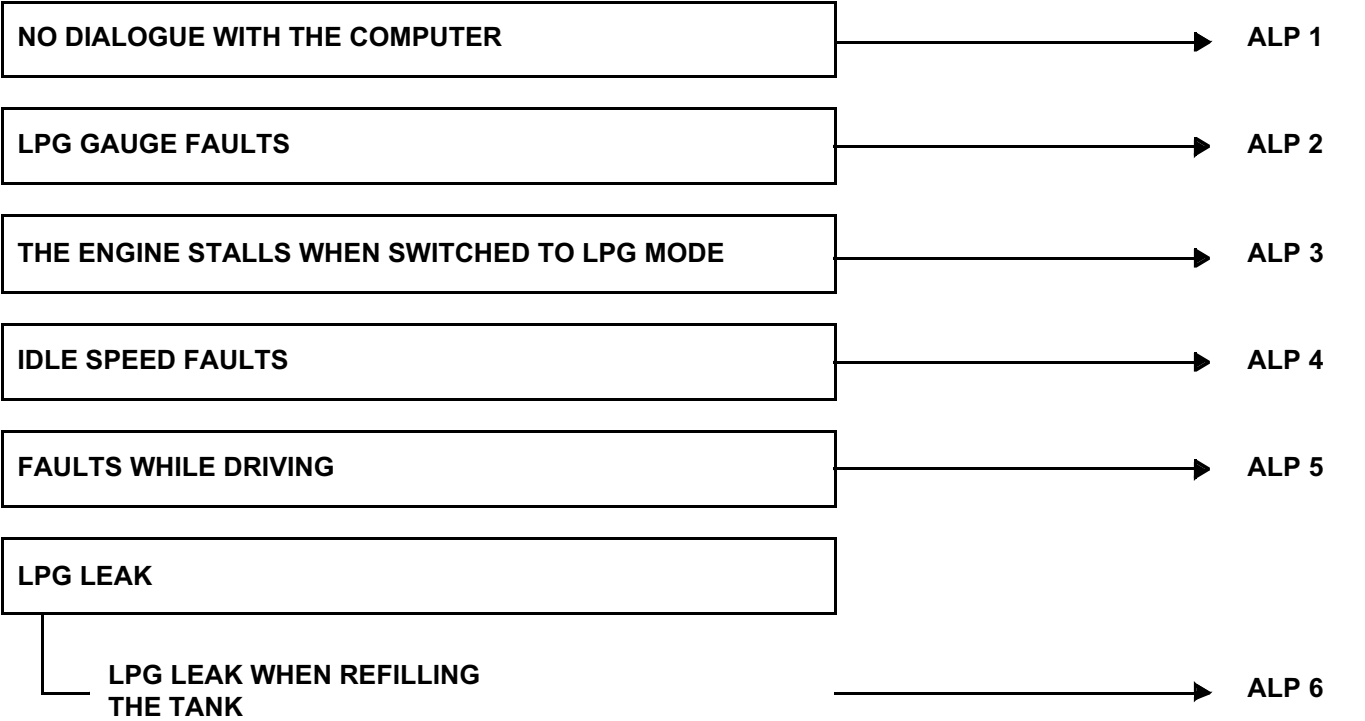
AC024	<u>LPG EXPANSION VALVE SOLENOID VALVE</u>
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NOTES	With ignition on and engine stopped.
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Switch on the ignition and run command **AC024**.
If the LPG expansion valve solenoid valve does not click 10 times, follow the interpretation of fault **DF103 LPG expansion valve solenoid valve circuit**.

AFTER REPAIR	Repeat the conformity check from the start.
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NOTES	Only check the customer complaint after performing a complete check with the fault finding tool.
	IMPORTANT For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction).



ALP 1	No dialogue with the computer
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NOTES	None.
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Check for a **+ 12 V battery feed** on **track H4** and a **+ 12 V after ignition feed** (using the **forced + after ignition mode**, see **Introduction** section) on **track C2** of the LPG computer.
Repair if necessary.

Check **the condition of the battery and the vehicle earths**.
Repair if necessary.

Try the diagnostic tool on another vehicle.

– check the connection between the diagnostic tool and the diagnostic socket (lead in good condition),
– check fuse **F5 (15 A)** (for **Mégane 2**) and fuses **F04 (10A)** and **F29 (15A)** (for **Logan**).
Repair if necessary.

Check the insulation, continuity and the absence of interference resistance on the connections between:

LPG computer track H1	————→	Earth
LPG computer track G1	————→	Earth
LPG computer track B4	————→	track 7 of the diagnostic socket

Repair if necessary.

Use the diagnostic socket to check the following tracks:

Track 1	————→	+ After ignition
Track 16	————→	+ Battery
Tracks 4 and 5	————→	Earth

Repair if necessary.

AFTER REPAIR	Check using the diagnostic tool.
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ALP 2

LPG sender fault

For Mégane II

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Check that there is LPG in the tank.

Disconnect the LPG tank sender connector and check the **voltage** of the sensor signal using parameter **PR007 LPG tank sender signal voltage**.

Replace the sensor if the signal **voltage** is not approximately:

4.8 V tank full
1 V in reserve
0.2 V tank empty

Check for **earth** on **track C** (for **Mégane 2**) of the LPG tank connector.
Repair if necessary.

Check the **insulation in relation to earth and the continuity and the absence of interference resistance** on the connection between:

For Mégane 2:

LPG computer **track B1** —————→ **track B** of the LPG tank sender

If the fault is still present, check the intermediate connectors (**R2 track 36** and **R34 track 34** for **Mégane 2**).
Repair if necessary.

If the fault is still present, check the LPG tank pressure sensor (see **MR 364 Mechanical, 17D, LPG injection**).

AFTER REPAIR

Check using the diagnostic tool.

**ALP 2
CONTINUED 1**

For Logan

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Ask the customer if the problem always arises.
If it is not the case, do not replace the sensor, as it is not the cause.

Is the fault that the tank is not displaying full when it has just been filled with LPG?

NO

YES

Check that the tank has just been filled with LPG, otherwise refill it.
If the customer complaint is reproduced, continue fault finding.
If not, the fault does not always arise. **Do not replace the sensor** and deal with the next customer complaint.

Disconnect the connector from the LPG tank sender and measure the **resistance** between **tracks A1** and **A**.
Replace the LPG tank sender if the **resistance** value is less than **5 kOhms**, because the sensor is incorrect.

If the fault is still present, **contact the Techline**.

Is the fault related to the LPG warning not being displayed when the tank is empty?

YES

A

AFTER REPAIR

Check using the diagnostic tool.

**ALP 2
CONTINUED 2**



Check that the tank is empty, otherwise empty it by going for a drive.
If the customer complaint is reproduced, continue fault finding.
If not, the fault does not always arise. **Do not replace the sensor** and deal with the next customer complaint.

Disconnect the connector from the LPG tank sender and measure the **resistance** between **tracks A1** and **A**.
Replace the LPG tank sender if the **resistance** value is **greater than 2.1 kOhms**, because the sensor is incorrect.

If the fault is still present, **contact the Techline**.

AFTER REPAIR

Check using the diagnostic tool.

ALP 3

The engine stalls when switched to LPG mode

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Check that there is LPG in the tank.

Check the condition of the air filter.
Replace the filter if necessary.

Check that the LPG supply pipes are not pinched or crushed.
Replace the faulty pipes if necessary.

Check the expansion valve cooling circuit (see **MR 364 Mechanics, 17D, LPG injection, Expansion valve**).
Repair the circuit if necessary.

Measure the **resistance** between **tracks 1** and **2** of the injectors.
Replace the injectors if their **resistance** value at **approximately 20°C** is not between:
 $0.77 \Omega < R < 1.43 \Omega$

Check the following connections for insulation from earth, continuity and absence of extraneous resistance:

Main relay track 5	→	track 1 of injector 1
Main relay track 5	→	track 1 of injector 2
Main relay track 5	→	track 1 of injector 3
Main relay track 5	→	track 1 of injector 4

Check the **insulation from + 12 V**, the **continuity** and the **absence of interference resistance** of the connections between:

LPG computer track G3	→	track 2 of injector 1
LPG computer track G4	→	track 2 of injector 2
LPG computer track H2	→	track 2 of injector 3
LPG Computer track H3	→	track 2 of injector 4

If necessary, repair the defective connections.

AFTER REPAIR

Check using the diagnostic tool.

**ALP 3
CONTINUED**

Test the operation of the injectors.
Run commands **AC018 Cylinder 4 injector**, **AC019 Cylinder 3 injector**, **AC020 Cylinder 2 injector** and **AC021 Cylinder 1 injector**.

Run the engine in petrol mode.
Disconnect the LPG tank connector and switch to LPG mode.
Check for **+ 12 Von track 1** of the LPG tank relay connector.
Repair if necessary.

Check for **earth** on **track 2** of the LPG tank relay connector.
Repair if necessary.

Measure the **resistance** between **tracks A4** and **A5** (for **Mégane 2**) or **tracks 1** and **2** (for **Logan**) of the LPG tank solenoid valve.
Replace the solenoid valve if the **resistance** value is not **approximately 12.6 Ω**.

AFTER REPAIR

Check using the diagnostic tool.

ALP 4

Idle speed faults

IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES

Check that there is no fault in **petrol mode**.
Check that there is LPG in the tank.

Check that hoses are not blocked or pinched (especially after removal operations).
Repair the faulty component or components.

Check the condition of the air filter.
Replace the air filter if necessary.

Check the expansion valve cooling circuit (see **MR 364 Mechanical**, 17D, LPG injection, Expansion valve).
Repair the circuit if necessary.

Check the conformity of the spark plugs.
Replace the filter if necessary.

Test the operation of the injectors.
Run and interpret commands **AC018 Cylinder 4 injector**, **AC019 Cylinder 3 injector**, **AC020 Cylinder 2 injector** and **AC021 Cylinder 1 injector**.

AFTER REPAIR

Check using the diagnostic tool.

ALP 5

Faults occurring while driving

IMPORTANT

When carrying out an operation on an LPG supply circuit component, consult the safety instructions (see 17D, Gas injection, Introduction, Safety instructions for all operations).

NOTES

Check that there is no fault in **petrol mode**.

Check that hoses are not blocked or pinched (especially after removal operations).
Repair the faulty component or components.

Check the condition of the air filter.
Replace the air filter if necessary.

Check the expansion valve cooling circuit (see **MR 364 Mechanical, 17D, LPG injection, Expansion valve**).
Repair the circuit if necessary.

Check the conformity of the spark plugs.
Replace the filter if necessary.

Test the operation of the injectors.
Run and interpret commands **AC018 Cylinder 4 injector, AC019 Cylinder 3 injector, AC020 Cylinder 2 injector** and **AC021 Cylinder 1 injector**.

AFTER REPAIR

Check using the diagnostic tool.

ALP 6

LPG leak

IMPORTANT

For any operation on a component of the LPG supply circuit, consult the safety instructions (see 17D, LPG injection, Introduction, Safety instructions for all operations).

NOTES

None.

Open the plastic cover on the filler neck.
Check that the filler neck is in good condition.
Change the filler spigot if necessary.
Check that there are no leaks along the pipe that runs from the filler spigot to the LPG tank.
(Fill up with LPG to carry out this operation).
Repair the pipe if necessary.

AFTER REPAIR

Check using the diagnostic tool.