RENAULT

Technical Note 3726A

Vehicle	Engine
CLIO	**K4J 710 - 711 - 712 - 713 - 714** **K4M 708 - 744 - 745 - 748** **F4R 732 - 736 - 738**
KANGOO	**K4M 708 - 730 - 750 - 752 - 753 - 754**
MEGANE - SCENIC	**K4J 714 - 750** **K4M 700 - 701 - 708 - 709 - 712** **F4P 720 - 722** **F4R 744 - 746 - 747**

FAULT FINDING
PETROL INJECTION

COMPUTER TYPE: SIRIUS 34
PROGRAM N°: E5
VDIAG N°: 04 - 08 - 09

COMPUTER TYPE: EMS 31 - 34
PROGRAM N°: E5
VDIAG N°: 09

This note cancels and replaces Technical Notes 3475A - 3514A - 3554A - 3571A and pages 17-207 to 17-288 of Repair Manual 346 - Section 1

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PETROL INJECTION
Fault finding - Introduction

1. SCOPE OF THIS DOCUMENT

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

*Vehicle(s): **All types*** *Engines:* ***K4J 710-711-714-715*** ***K4M 708-709-712-730-744-745-750-752-770*** ***F4R 736-742-743-746-747*** ***F4P 720***

*Name of computer: **SIRIUS 34*** *Program N°: **E5*** *VDIAG N°: **04 - 08 - 09***

*Name of computer: **EMS 31-34*** *Program N°: **E5*** *VDIAG N°: **09***

2. PRE-REQUISITES FOR FAULT FINDING

Documentation type

> **Fault-finding procedure** (this document and the Technical Note on injection installed in the vehicle):
> – Assisted fault finding (incorporated into the diagnostic tool), paper version (Workshop Repair Manual or Technical Note) and Dialogys.
> **Wiring Diagrams:**
> – Visu-Schéma (CD-ROM), paper version.

Type of diagnostic tools

> – **CLIP**

Special tooling required

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

If the information obtained by the fault-finding tool requires checking electrical continuity, connect terminal Elé. 1497 or universal terminal Elé. 1681.

WARNING
● All tests with terminal **Elé. 1497** or **Elé. 1681** must be conducted with the battery disconnected. ● The terminal is only designed to be used with a multimeter. Never apply **12 V** to the checkpoints.

3. REMINDERS

Faults

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

The **present** or **stored** status of the fault should be considered when the diagnostic tool is switched on after the + after ignition feed is switched on (without any action on the system components).

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 notes 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).

| SIRIUS 34 / EMS 3134 |
| PROGRAM N°: E5 |
| VDIAG N°: 04 - 08 - 09 |

PETROL INJECTION

Fault finding - Introduction

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Conformity check

The conformity check is designed to check the statuses and parameters which do not display any faults on the diagnostic tool when inconsistent. Therefore, this stage is used to:
- carry out fault finding on faults that do not have a fault display, and which may correspond to a customer complaint,
- check that the system is operating correctly and that there is no risk of a fault recurring after repair.

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

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

Customer complaints - Fault finding chart

If the diagnostic tool check is correct, but the customer complaint is still present, the fault should be dealt with as a **customer complaint**.

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

5. FAULT FINDING LOG

⚠️ **WARNING**
All problems involving a complex system call for thorough diagnostics with the appropriate tools. The FAULT FINDING LOG, which should be completed during the procedure, enables you to keep track of the procedure which is carried out. It is an essential item when discussing the fault with the manufacturer.

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

You will always be asked for this report:
- When requesting technical assistance from the Techline.
- For certification requests when replacing parts that must be certified.
- Which must be attached to monitored parts for which reimbursement is requested. It is therefore used to decide whether a reimbursement will be made under warranty and leads to improved analysis of the removed parts.

6. SAFETY INSTRUCTIONS

All work on components requires obeying safety rules to prevent physical damage or human injury:
– Make sure the battery is properly charged to avoid damaging the computers with a low charge.
– Use the proper tools.

WIRING CHECK

Fault finding problems

Disconnecting the connectors and/or handling the wiring can delete the incident.
Electrical measurements of the voltage, resistance and insulation are generally correct, especially if the fault is not present (stored) when doing the testing.

Visual inspection

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

Tactile inspection

While handling the wiring, use the fault-finding tool to detect any change in the status of stored or present faults during the inspection:
– make sure the connectors are firmly locked,
– apply light pressure to the connectors,
– twist the bundle.

If a change of status occurs, try to visualize the incident.

Inspection of each component

Disconnect the connectors and inspect the appearance of clips and tabs.

Make sure the clips and tabs are properly connected in the cells.

Check the contact pressure of the clips.

Resistance test

Look for a short circuit to earth, to **+ 12 V** or to another wire.

Measure continuity on the full line, then section by section.

If a fault is detected, repair or replace the wiring harness.

PETROL INJECTION
Fault finding - Introduction

REPROGRAMMING THE COMPUTERS:

Reprogramming conditions:

- Ignition on.
- Engine stopped.
- Computer not protected.

Important recommendation following reprogramming:

The computer does not transmit any information on the multiplex network during reprogramming operations (it is "mute"). Therefore all the computers connected to the multiplex network receiving information from the injection computer will detect faults.

It is therefore essential, after reprogramming the injection computer, to clear the faults on all the computers in communication with the injection computer.

Program the throttle stops

Switch on the ignition for at least **5 seconds** without starting the engine: the throttle stops will be automatically programmed.
If the programming is not carried out, it is possible to start the engine, but driving the vehicle is forbidden as there is a high risk of stalling and/or unstable engine speeds.

Conduct a road test so that the computer reprograms the adaptive variables (torquemeter and richness); this prevents any possible driving discomfort when the customer leaves with the vehicle.

Programming conditions for engine adaptive variables:
- speed stabilised between **2500 rpm** and **3000 rpm** for at least **30 seconds**, then acceleration in 2nd gear to **4000 rpm**, followed by deceleration to idle speed.

STARTING THE VEHICLE AFTER AN IMPACT:

Upon receiving a signal through the multiplex network that the airbag computer has detected an impact, the injection computer (maximum 10 milliseconds):

Cuts off power to the fuel pump, ignition and petrol or LPG injection.

Status ET264 "computer locked following impact" changes to STATUS 1.

The only way to restarting is to switch off the ignition for at least 10 seconds.

The only way of clearing status ET264 is to clear the stored faults.

DEFECT MODES

If the motorised throttle system fails, various defect modes take effect and are displayed by status ET118 Motorised throttle in defect mode:

NO: NORMAL MODE

STATUS 1: MOTORISED THROTTLE IN LIMP-HOME MODE:

This defect mode maintains the engine at a constant speed irrespective of gear changes or the accelerator pedal position.
It is generally associated with: DF002 Throttle potentiometer circuit, DF226 Throttle stop programming, DF254 Motorised throttle body control or DF255 Security of throttle/pedal operation.
If no fault is present, check diagnostic PR275 Oscillation detection counter.

STATUS 2: INJECTION CUT-OFF:
This defect mode is not used on the SIRIUS 34 injection computer.

STATUS 3: PEDAL FAULT (loss of driver control):

When this defect mode is in use, there is a loss of pedal power, fast idle speed and the engine slows to idle speed if the brake pedal is depressed.
It is generally associated with: "DF125" Pedal potentiometer circuit track 1+ "DF129" Pedal potentiometer circuit or "DF125" Pedal potentiometer circuit track 1 + "DF126" Pedal potentiometer circuit track 2.
If no fault is present, check diagnostic PR275 Oscillation detection counter.

STATUS 4: REDUCTION OF ENGINE PERFORMANCE (limited performance):

This defect mode is indicated by: Limitation of the vehicle speed, limitation of the control section of the throttle, limitation of the vehicle acceleration (slow increase in the control section of the throttle).
It is generally associated with: DF002 Throttle potentiometer circuit, DF125 Pedal potentiometer circuit track 1, DF126 Pedal potentiometer circuit track 2, DF129 Pedal potentiometer circuit orDF258 First sensor reference voltage.
If no fault is present, check diagnostic PR275 Oscillation detection counter.

FAULT FINDING LOG

System: Injection

List of monitored parts: **Computer**

● <u>**Administrative identification**</u>

| Date | | | | | 2 | 0 | | |

Log completed by

| VIN | | | | | | | | | | | | | | | | | |

| Engine | | | | | | |

| Diagnostic tool | | CLIP | |

| Update version | | | |

● <u>**Customer complaint**</u>

	579	Does not start - fault		570	Stalling - cold starting faults		571	Stalling - warm starting faults
	586	Starting faults		572	Idling - unstable engine speed		574	Hesitation/flat spots
	573	Loss of power		520	Abnormal noise, vibrations		576	Smoke - exhaust odours
	569	Starting faults						

Other   Your comments:

● <u>**Conditions under which the customer complaint occurs**</u>

	001	When cold		005	While driving		008	When decelerating
	002	When warm		006	When changing gear		009	Sudden fault
	003	When stationary		007	When accelerating		010	Gradual deterioration
	004	Intermittently						

Other   Your comments:

● <u>**Documentation used in fault finding**</u>

Fault finding procedure used			
Type of diagnostic manual:	Repair Manual ❑	Technical Note ❑	Assisted fault finding ❑
Fault Finding Manual N°:			
Wiring diagram used			
Wiring Diagram Technical Note N°:			
Other documentation			
Title and/or part number:			

RENAULT

FD 01
Fault finding log

page to print or photocopy - page to print or photocopy - page to print or photocopy

FAULT FINDING LOG

System: Injection

● **Computer identification and parts exchanged for the system**

Part 1 part no.	
Part 2 part no.	
Part 3 part no.	
Part 4 part no.	
Part 5 part no.	

To be read with the diagnostic tool (Identification screen):

Computer part no.	
Supplier no.	
Program no.	
Software version	
Calibration n°	
VDIAG	

● **Faults found with the diagnostic tool**

Fault N°	Present	Stored	Fault name	Specification

● **Conditions under which fault occurs**

Status or Parameter N°	Parameter name	Value	Unit

● **System-specific information**

Description:

● **Additional information**

What factors led you to replace the computer?	
What other parts were replaced?	
Other defective functions?	
Your comments:	

FD 01
Fault finding log

RENAULT

DF002 PRESENT OR STORED	THROTTLE POTENTIOMETER CIRCUIT 1.DEF: throttle potentiometer circuit gang 1 2. DEF: throttle potentiometer circuit gang 2 3.DEF: inconsistency between throttle gang 1 and gang 2

NOTES	**Priorities in dealing with a number of faults:** Fault **DF152 Sensor second reference voltage** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.

1.DEF	Check the **connection and condition** of the throttle potentiometer connector. Replace the connector if necessary.

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

Computer **Track 7**	⟶	**Track 5** Throttle potentiometer
Computer **Track 82**	⟶	**Track 1** Throttle potentiometer
Computer **Track 17**	⟶	**Track 2** Throttle potentiometer

If this fault appears, carefully check the protective devices, insulation and routing of the engine wiring (see **Introduction**, **Wiring test**).

Repair if necessary.

Measure the **resistance of the throttle potentiometer** gang 1 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Replace the throttle potentiometer if the resistance is not approximately **1 kΩ**.

AFTER REPAIR	Vary the engine speed to confirm repair. Deal with any other faults. Clear the fault memory.

DF002 **CONTINUED 1**	17A-10

2.DEF	Check the **connection and condition** of the throttle potentiometer connector. Replace the connector if necessary.

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

    Computer **Track 7** ⟶ **Track 5** Throttle potentiometer
    Computer **Track 82** ⟶ **Track 1** Throttle potentiometer
    Computer **Track 13** ⟶ **Track 6** Throttle potentiometer

If this fault appears, carefully check the protective devices, insulation and routing of the engine wiring (see **Introduction**, **Wiring test**).

Repair if necessary.

Measure the **resistance of the throttle potentiometer** track 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).

Replace the throttle potentiometer if the resistance is not approximately **1 kΩ**.

AFTER REPAIR	Vary the engine speed to confirm repair. Deal with any other faults. Clear the fault memory.

Sirius 34 / ems3134 e5 v04 - 08 - 09 3.0

DF002 **CONTINUED 2**	17A- 11

3.DEF	Check the **connection and condition** of the throttle potentiometer connector. Replace the connector if necessary.

Connect the terminal in place of the computer and measure the **resistance of the throttle potentiometer** gang 1 and gang 2. Check that the resistance change of the throttle potentiometer is linear by pressing the throttle from no load to full load.

Gang 1 tracks: Computer **track 17** ⟶ **Track 7** Computer
 Computer **track 17** ⟶ **Track 82** Computer

and

Gang 2 tracks: Computer **track 13** ⟶ **Track 7** Computer
 Computer **track 13** ⟶ **Track 82** Computer

If this fault appears, carefully check the protective devices, insulation and routing of the engine wiring (see **Introduction**, **Wiring test**).

Replace the throttle potentiometer if necessary.

If the fault is still present, **replace** the throttle potentiometer.

AFTER REPAIR	Vary the engine speed to confirm repair. Deal with any other faults. Clear the fault memory.

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DF003 PRESENT OR STORED	<u>AIR TEMPERATURE SENSOR CIRCUIT</u>

NOTES	**Special notes:** Parameter **PR003 Air temperature** indicates the value read by the injection computer.

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

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

Computer **track 84** ⟶ **Track 1** Air temperature sensor
Computer **track 18** ⟶ **Track 2** Air temperature sensor

Repair if necessary.

Check that the air temperature **sensor resistance** is **not zero or infinity**
(Straight failure of the sensor).
Measure the **sensor resistance at various temperatures**.
Replace the air temperature sensor, if necessary.

Temperature	Resistance ± 20%
-10°C	9.5 kΩ
25°C	2 kΩ
50°C	810 Ω
80°C	309 Ω

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

DF004 **PRESENT** **OR** **STORED**	<u>COOLANT TEMPERATURE SENSOR CIRCUIT</u>

NOTES	**Special notes:** Parameter **PR002 Coolant temperature** indicates the value read by the injection computer.

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3JK** between components **244** and **120**,
– **3C** between components **244** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

Check that the **resistance** of the coolant temperature sensor is **not zero or equal to infinity** (straight failure of the sensor).
Measure the **sensor resistance at various temperatures**.
Replace the coolant temperature sensor, if necessary.

Temperature	Resistance ± 20%
-10°C	9.5 kΩ
25°C	2 kΩ
50°C	810 Ω
80°C	309 Ω
100°C	114 Ω
120°C	87 Ω

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

| **DF006**
PRESENT
OR
STORED | <u>PINKING SENSOR CIRCUIT</u> |

| *NOTES* | **Conditions for applying the fault finding procedure to stored faults:**
The fault is declared present with a sufficiently warm engine, engine above idling speed and a sufficiently high manifold pressure. |
| | **Special notes:**
Parameter **PR013 Pinking sensor signal** indicates the value read by the injection computer. |

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

Check the **tightness of the pinking sensor** on the engine block.
Retighten if necessary.

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

      Computer **track 12** ⟶ **Track 1** Pinking sensor
      Computer **track 72** ⟶ **Track 2** Pinking sensor
      Computer **track 19** ⟶ **Pinking sensor shielding**

Repair if necessary.

If the fault is still present, **replace** the pinking sensor.

| *AFTER REPAIR* | Follow the instructions to confirm the repair:
Deal with any other faults.
Clear the fault memory. |

DF008 **PRESENT** **OR** **STORED**	<u>FUEL PUMP RELAY CONTROL CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after running command **AC010 Fuel pump relay**.
	Special notes: Status **ET020 Fuel pump relay control** can help when dealing with this fault.

Check the **connection and condition of the fuel pump relay connector**.
Replace the connector if necessary.

Disconnect the relay.
With ignition on, check for the presence of **+12 V** on the **AP29** connection of component **236**.
If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the insulation and continuity of the connection between:
– **3AC** between components **236** and **120**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the resistance of the fuel pump relay coil.
Replace the fuel pump relay if necessary.

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

| **DF009**
PRESENT
OR
STORED | <u>ACTUATOR RELAY CONTROL CIRCUIT</u>
CO: open circuit
CC.1: short circuit to +12 V
CC.0: short circuit to earth |

| *NOTES* | **Special notes:**
Status **ET025 Actuator relay control** can help when dealing with this fault. |

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

Disconnect the relay.
With ignition on, check the presence of the **+12 V** on the **BP17** connection of component **238**.
If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the insulation and continuity of the connection between:
– **3AA** or **3GT** between components **238** and **120**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the resistance of the actuator relay coil.
Replace the actuator relay, if necessary.

| *AFTER REPAIR* | Deal with any other faults.
Clear the fault memory. |

DF010 **PRESENT** **OR** **STORED**	<u>LOW SPEED GMV CIRCUIT</u> CO: open circuit CC.1: short circuit to +12 V CC.0: short circuit to earth

NOTES	**Priorities in dealing with a number of faults:** The faults **DF004 Coolant temperature sensor circuit** and **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after running command **AC626 Low speed fan assembly**.
	Special notes: Status (**ET035** Low speed fan assembly) can help when dealing with this fault.

Check the **connection and condition of the low speed fan assembly relay connector.**
Replace the connector if necessary.

Disconnect the relay.
With ignition on, check for the presence of the **+12 V** on the **BP7** connection of component **700** (Clio) or **335** (Kangoo, Megane, Scenic).
If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the insulation and continuity of the connection between:
– **3JN** between components **700** and **120** (for Clio),
– **49J** between components **335** and **120** (for Kangoo),
– **3JN** between the components **335** and **120** (for Megane/Scenic).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the resistance of the low-speed fan relay coil.
Replace the low-speed fan relay if necessary.

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

DF011 PRESENT OR STORED	<u>FAULT WARNING LIGHT CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Conditions for detecting the fault:** This fault cannot be diagnosed on SIRIUS 34 VDIAG 08, 09 or EMS 3134 VDIAG 09 computers and therefore may not be present or stored because the "fault warning light" circuit is a connection via the multiplex network.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after running command **AC211 Fault warning light**.
	Special notes: Status **ET006 Fault warning light** can help when dealing with this fault.

VDIAG 04	With the ignition on, check that **12 V** is reaching the warning light. Repair the line if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and the absence of interference resistance** on the connection between: Computer **track 70**   ⟶   **Instrument panel fault warning light** Repair if necessary.

Check the condition of the warning light (if it does not light up). Replace it if necessary.

VDIAG 08 and 09	<u>**Switch on the ignition.**</u> **Test the multiplex network.**

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

DF012 **PRESENT** **OR** **STORED**	INJECTION ⟶ AC CONNECTION

NOTES	**Special notes:** Status **ET016 Injection - AC connection** can help when dealing with this fault.

Connect the bornier in place of the computer and check the **insulation, continuity and the absence of interference resistance** on the connection between:
– **38Z** or **38L** between components **419** and **120**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

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

DF014 PRESENT OR STORED	<u>CANISTER BLEED SOLENOID VALVE CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

	Priorities in dealing with a number of faults: Fault **DF009 Actuator relay circuit** should be dealt with first.
NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after running command **AC016 Canister bleed solenoid valve**.
	Special notes: Status **ET032 Canister bleed solenoid valve** can help when dealing with this fault.

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

With ignition on, check for the presence of **+12 V** on the **3NR** connection of component **371**.
If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Connect the bornier in place of the computer and check the **insulation, continuity and the absence of interference resistance** on the connection between:
– **3BB** between components **371** and **120**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

Measure the **resistance of the fuel vapour absorber solenoid valve.**
Replace the solenoid valve if the resistance is not approximately **26 Ω ± 4 at 23°C**.

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

DF018 **PRESENT** **OR** **STORED**	<u>UPSTREAM OXYGEN SENSOR HEATER CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running after running command **AC261 Upstream sensor heating**.
	Special notes: Status **ET030 Upstream sensor heating** can help when dealing with this fault.

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

With ignition on, check for the presence of **+12 V** on the **3NR** connection of component **887**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Connect the terminal in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connection between:
– **3GF** between components **887** and **120**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance** of the upstream oxygen sensor heating circuit.
Replace the upstream oxygen sensor if its resistance is not approximately **3.4 Ω at 20°C**.

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

| **DF022**
PRESENT | <u>COMPUTER</u>
1.DEF: Computer defective or not to specification |

| *NOTES* | None. |

Check that **the computer is the correct one for the vehicle**.

Reprogram the computer.

REPROGRAMMING THE COMPUTERS:
Reprogramming conditions:
– Ignition on
– Engine stopped
– Computer not protected
Important recommendation following reprogramming:
The computer does not transmit any information on the multiplex network during reprogramming operations (it is "mute"). Therefore all the computers connected to the multiplex network receiving information from the injection computer will detect faults.
It is therefore essential, after reprogramming the injection computer, to clear the faults on all the computers in communication with the injection computer.

Program the throttle stops:
Switch on the ignition for at least **5 seconds** without starting the engine: the throttle stops will be automatically programmed.
If the programming is not carried out, it is possible to start the engine, but driving the vehicle is forbidden as there is a high risk of stalling and/or unstable engine speeds.

| *AFTER REPAIR* | Clear the computer memory.
Perform a road test and then recheck with the diagnostic tool. |

| **DF022**
CONTINUED | 17A-23 |

Then conduct a road test so that the computer reprograms the adaptive variables (torquemeter and richness); this prevents any possible driving discomfort when the customer leaves with the vehicle.
The programming conditions for engine adaptive variables are:
– speed stabilised between **2500 rpm** and **3000 rpm** for at least **30 seconds**, then acceleration in 2nd gear to **4000 rpm**, followed by deceleration to idle speed.

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

| *AFTER REPAIR* | Clear the computer memory.
Perform a road test and then recheck with the diagnostic tool. |

DF024 **PRESENT**	<u>VEHICLE SPEED SENSOR CIRCUIT</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after: speed > **9 mph (15 km/h)** for more than **30 seconds**.
	Special notes: **Two types of connection are used: wire-frame and multiplex.** Check what type is used by reading configuration **LC038 Vehicle speed connection through the CAN**. Status **ET069 Speed sensor connection** and parameter **PR018 Vehicle speed** can help when dealing with this fault.

Wire connection	Connect the terminal in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between: Computer **track 53** ⟶ ABS Computer Repair if necessary.

CAN connection	<u>**Switch on the ignition.**</u> **Test the multiplex network.**

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

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DF025 **PRESENT** **OR** **STORED**	<u>FLYWHEEL SIGNAL SENSOR CIRCUIT</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after the engine has been started or running for at least **10 seconds.**
	Special notes: Parameter **PR006 Engine speed** can help when dealing with this fault.

Check the **connection and condition** of the engine speed sensor connector.
Replace the connector, if necessary

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

Computer **track 54** ⟶ **Track A** engine speed sensor
Computer **track 24** ⟶ **Track B** engine speed sensor

Repair if necessary.

Measure the **resistance** of the engine speed sensor.
Replace the engine speed sensor if its resistance is not between **200 and 270 Ω**.

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

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DF030 **PRESENT** **OR** **STORED**	<u>HIGH SPEED FAN ASSEMBLY CIRCUIT</u> CO: open circuit CC.1: short circuit to +12 V CC.0: short circuit to earth

NOTES	**Special notes:** **Overlook this fault if the vehicle is not equipped with the "High speed fan assembly" function (i.e. vehicle not fitted with air conditioning).**
	Priorities in dealing with a number of faults: Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after running command **AC625 High speed fan assembly**.

Check the **connection and condition of the high speed fan assembly relay connector.**
Replace the connector if necessary.

Disconnect the relay.
With the ignition on, check for **12 V on track 1 of the high speed fan assembly relay**.
Repair if necessary.

Check the insulation and continuity of the connection between:

Injection computer **track 69** ⟶ **Track 2** High speed fan assembly relay

Repair if necessary.

Measure the resistance of the high speed fan assembly relay coil.
Replace the high speed fan assembly relay if necessary.

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

DF031 PRESENT OR STORED	FAULT WARNING LIGHT CIRCUIT CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Conditions for detecting the fault:** This fault cannot be diagnosed on SIRIUS 34 VDIAG 08, 09 or EMS 3134 VDIAG 09 computers and therefore may not be present or stored because the "fault warning light" circuit is a connection via the multiplex network.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after running command **AC213 OBD (On Board Diagnostic) warning light (MIL)**.

VDIAG 04	With the ignition on, check that **12 V** is reaching the warning light. Repair the line if necessary.

	Connect the bornier in place of the computer and check the **insulation, continuity and the absence of interference resistance** on the connection between: Computer **track 40** ⟶ **Instrument panel OBD warning light** Repair if necessary.

	Check the condition of the warning light (if it does not light up). Replace it if necessary.

VDIAG 08 and 09	**Switch on the ignition.** **Test the multiplex network.**

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

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DF032 **PRESENT** **OR** **STORED**	<u>COOLANT TEMPERATURE OVERHEATING WARNING LIGHT CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Conditions for detecting the fault:** This fault cannot be diagnosed on SIRIUS 34 VDIAG 08, 09 or EMS 3134 VDIAG 09 computers and therefore may not be present or stored because the "fault warning light" circuit is a connection via the multiplex network.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after **the engine has been running at a speed > 3000 rpm.**

VDIAG 04	With the ignition on, check that **12 V** is reaching the warning light. Repair the line if necessary.

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

Computer **track 38** ⟶ **Coolant temperature overheating warning light on instrument panel**

Repair if necessary.

Check the condition of the warning light (if it does not light up).
Replace it if necessary.

VDIAG 08 and 09	<u>**Switch on the ignition.**</u> **Test the multiplex network.**

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

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DF038 **PRESENT** **OR** **STORED**	**DOWNSTREAM OXYGEN SENSOR HEATER CIRCUIT** CO: open circuit CC.0: short circuit to +12 V CC.1: short circuit to earth

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running, hot, and not idling, or after running command **AC262 Downstream oxygen sensor heating**.
	Special notes: Status **ET031 Downstream sensor heating** can help when dealing with this fault.

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

With the ignition on, check for **12 V on the oxygen sensor**.
Repair the electrical line to the actuator relay.

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

    Computer **track 68** ——▶ **Oxygen sensor**

Repair if necessary.

Measure the **resistance** of the oxygen sensor heating circuit.
Replace the oxygen sensor if its resistance is not approximately **3.4 Ω at 20°C**.

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

DF044 PRESENT OR STORED	IMMOBILISER CIRCUIT

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: the fault is declared present following: absence or delay of the encoded signal > **2 seconds**.
	Special notes: **Two types of connection are used: wire-frame and multiplex.** Statuses **ET002 Engine immobiliser** and **ET099 Immobiliser code programmed** can help when dealing with this fault.

Wire connection	Connect the terminal in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between: Computer **track 58** ⟶ **engine immobiliser** Repair if necessary.

CAN connection	**Switch on the ignition.** **Test the multiplex network.**

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

DF045 **PRESENT** **OR** **STORED**	<u>MANIFOLD PRESSURE SENSOR CIRCUIT</u> DEF: pressure sensor fault 1.DEF: inconsistency between the calculated pressure and the true pressure.

NOTES	**Priorities in dealing with a number of faults:** Fault **DF258 First sensor reference voltage** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine starts.
	Special notes: Parameter **PR016 Atmospheric pressure** can help when dealing with this fault.

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3AJP** between components **147** and **120** (for Clio),
– **3AJQ** between components **147** and **120** (for Clio),
– **3AJR** between components **147** and **120** (for Clio),
– **3GN** between components **147** and **120** (for Kangoo, Megane, Scenic),
– **3D** between components **147** and **120** (for Kangoo, Megane, Scenic),
– **3F** between components **147** and **120** (for Kangoo, Megane, Scenic),

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

With the engine running, the computer performs a **test to check the consistency between the measured manifold pressure and the calculated pressure** from the throttle position and the engine speed.

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

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

DF052 **PRESENT** **OR** **STORED**	<u>CYLINDER 1 INJECTOR CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.

Check the **connection and condition of the connector** of injector 1.
Replace the connector, if necessary

With the ignition on **check for + 12 V on track 1 of the injector 1 connector**

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

Injection computer **track 59** ⟶ **Track 2** injector 1

Repair if necessary.

Measure the **resistance of injector 1**.
Replace the injector if the resistance is not approximately **14.5 Ω at 20°C**.

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

DF053 **PRESENT** **OR** **STORED**	<u>CYLINDER 2 INJECTOR CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.

Check the **connection and condition of the connector** of injector 2.
Replace the connector if necessary.

With the ignition on **check for + 12 V on track 1 of the injector 2 connector**.

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

    Injection computer **track 90** ⟶ **Track 2** injector 2

Repair if necessary.

Measure the **resistance of injector 2**.
Replace the injector if the resistance is not approximately **14.5 Ω at 20°C**.

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

| **DF054**
PRESENT
OR
STORED | <ins>CYLINDER 3 INJECTOR CIRCUIT</ins>
CO: open circuit
CC.0: short circuit to earth
CC.1: short circuit to +12 V |

| *NOTES* | **Priorities in dealing with a number of faults:**
Fault **DF009 Actuator relay circuit** should be dealt with first. |
| | **Conditions for applying the fault finding procedure to stored faults:**
The fault is declared present when the engine is running.
If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy. |

Check the **connection and condition of the connector** of injector 3.
Replace the connector, if necessary

With the ignition on, **check for + 12 V on track 1 of the injector 3 connector**.

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

    Injection computer **track 60** ⟶ **Track 2** injector 3

Repair if necessary.

Measure the **resistance of injector 3**.
Replace the injector if the resistance is not approximately **14.5 Ω at 20°C**.

| *AFTER REPAIR* | Deal with any other faults.
Clear the fault memory. |

DF055 **PRESENT** **OR** **STORED**	<u>CYLINDER 4 INJECTOR CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.

Check the **connection and condition of the connector** of injector 4.
Replace the connector, if necessary

With the ignition on, **check for + 12 V on track 1 of the injector 4 connector.**

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

    Injection computer **track 89**   ⟶   **Track 2** injector 4

Repair if necessary.

Measure the **resistance of injector 4**.
Replace the injector if the resistance is not approximately **14.5 Ω at 20℃**.

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

DF057 **PRESENT** **OR** **STORED**	<u>UPSTREAM OXYGEN SENSOR CIRCUIT</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after the engine has been running for at least 5 minutes **(ET037 Richness regulation: ACTIVE)**.
	Note: The fault is only stored if the computer took into account the richness correction default value during this fault: **PR035 Richness correction value set at 128**.
	Special notes: Two assemblies are possible: 3-wire or 1-wire sensor.

3-wire sensor	Check **the connection and condition** of the upstream oxygen sensor connector. Replace the connector if necessary.
	Connect the terminal in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connection between: – **3GH** between components **887** and **120**, – **3GK** between components **887** and **120**. If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, **replace** the upstream oxygen sensor.

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

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DF057 PRESENT OR STORED CONTINUED	17A-37

1-wire sensor	Check **the connection and condition** of the upstream oxygen sensor connector. Replace the connector if necessary.
	Connect the bornier in place of the computer; **check the insulation, continuity, and the absence of interference resistance** on the connection between: – **3GK** between components **887** and **120**, If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.
	If the fault is still present, **replace** the upstream oxygen sensor.

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

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DF058 **PRESENT** **OR** **STORED**	<u>DOWNSTREAM OXYGEN SENSOR CIRCUIT</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** If the fault is declared as present after the engine has been running for at least 5 minutes.

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

Connect the bornier in the place of the computer; **check the insulation, continuity and the absence of interference resistance** on the connections between:
– **3GJ** between components **242** and **120**,
– **3GL** between components **242** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, **replace** the downstream oxygen sensor.

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

DF061 **PRESENT** **OR** **STORED**	<u>IGNITION COIL 1 - 4 CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF008 Fuel pump relay control circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.

Check **the connection and condition of the connectors** of coils 1 and 4.
Replace the connector(s) if necessary.

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

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

coil 1 **track 2** ⟶ **Track 1** coil 4

Repair if necessary.

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

injection computer **track 32** ⟶ **Track 2** coil 4

fuel pump relay **track 5** ⟶ **Track 1** coil 1

Repair if necessary.

Check the **resistance of coils 1 and 4.**
Replace the coil(s) if their primary circuit resistance is not approximately **0.5 Ω** and their **secondary** circuit resistance is not approximately **10.7 kΩ**.

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

DF062 **PRESENT** **OR** **STORED**	<u>IGNITION COIL 2-3 CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF008 Fuel pump relay control circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.

Check **the connection and condition of the connectors** of coils 2 and 3.
Replace the connector(s) if necessary.

With the ignition on **check for + 12 V on track 1 of the coil 2 connector.**

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

coil 2 **tracks 2** ⟶ **Track 1** coil 3

Repair if necessary.

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

injection computer **track 1** ⟶ **Track 2** coil 3
fuel pump relay **track 5** ⟶ **Track 1** coil 2

Repair if necessary.

Measure the **resistance of coils 2 and 3**.
Replace the coil(s) if their primary circuit resistance is not approximately **0.5 Ω** and their **secondary** circuit resistance is not approximately **10.7 kΩ**.

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

| **DF063**
PRESENT
OR
STORED	<u>CAMSHAFT DEPHASER</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running depending on certain special conditions (coolant temperature, pressure, speed) or during actuator command **AC491 Camshaft dephaser**. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.
	Special notes: Status (**ET026 Camshaft dephaser**) can help when dealing with this fault.

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

With the ignition on, check for **12 V on the camshaft dephaser solenoid valve.**
Repair if necessary.

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

Computer **track 37** ⟶ **camshaft dephaser solenoid valve**

Repair if necessary.

Measure the **resistance of the camshaft-dephaser solenoid valve.**
Replace the solenoid valve if its resistance is not approximately **7.2 Ω at 20°C**.

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

DF082 **PRESENT** **OR** **STORED**	PETROL ⟷ LPG CONNECTION

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after it has been detected for longer than 2 seconds with the engine running.
	Special notes: Status **ET200 Injection - LPG connection** can help when dealing with this fault. When this fault is present the vehicle operates in **forced petrol mode**.

Switch on the ignition.

Test the multiplex network.

AFTER REPAIR	None.

DF102 **PRESENT** **OR** **STORED**	<u>OXYGEN SENSOR OPERATING FAULT</u> OBD: OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected while driving

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after a test to detect a malfunction causing the hydrocarbon pollutant emissions **to exceed the EOBD threshold**. This test can only be performed once during a road test under the following conditions: vehicle speed between **38 mph (63 km/h)** and **78 mph (130 km/h)** and engine speed between **1800** and **4000 rpm**.

Check that there are no **air leaks on the exhaust system**.

If the vehicle is mainly used for urban driving, **clean the exhaust system**.

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

With ignition on, check the presence of the **+12 V** on the **3NR** connection of component **887**.

If the connector is faulty and if there is a repair method (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – There must be no remaining electrical faults. – - A road test should be performed, but the conditions required for the test may be difficult to recreate in an After-Sales environment.

DF102 CONTINUED	17A-44

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3GF** between components **887** and **120**,
– **3GK** between components **887** and **120**,
– **3GH** between components **887** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **heating resistance** of the upstream oxygen sensor.
Replace the oxygen sensor if its resistance is not approximately **3.4 Ω at 20**°C.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – There must be no remaining electrical faults. – - A road test should be performed, but the conditions required for the test may be difficult to recreate in an After-Sales environment.

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| SIRIUS 34 / EMS 3134 |
| PROGRAM N°: E5 |
| VDIAG N°: 04 - 08 - 09 |

PETROL INJECTION
Fault finding - Interpretation of faults

17A

DF106 **PRESENT** **OR** **STORED**	<u>CATALYTIC CONVERTER OPERATING FAULT</u> OBD: OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected while driving

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after a test to detect a malfunction causing the hydrocarbon pollutant emissions **to exceed the EOBD threshold**. Conduct this test at a vehicle speed between **38 mph (63 km/h)** and **78 mph (130 km/h)** and an engine speed between **1800** and **4000 rpm**.

Check that there are no **air leaks on the exhaust system**.
Repair if necessary.

Visually check the condition of the catalytic converter. A deformity may be causing it to malfunction.

Check for visual signs of thermal shock. A splash of cold water on the hot catalytic converter or driving through water can damage it.

Make sure there has been no excessive oil or coolant consumption.
Ask the customer if he has used an additive or other products of this kind. Such products can contaminate the catalytic converter and damage its performance sooner or later.

Check if the engine has been misfiring. This could damage the catalytic converter.

If the cause of the damage has been determined, replace the catalytic converter. If the cause of the damage has not been determined, the new catalytic converter could quickly become damaged.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – There must be no remaining electrical faults. – - A road test should be performed, but the conditions required for the test may be difficult to recreate in an After-Sales environment.

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DF109 **PRESENT** **OR** **STORED**	<u>POLLUTANT MISFIRES</u> OBD: OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected while driving

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present with the engine running and coolant temperature greater than 75°C.
	Note: **ET093 Misfire on cylinder n° 1** **ET094 Misfire on cylinder n° 2** **ET095 Misfire on cylinder n° 3** **ET096 Misfire on cylinder n° 4** Give information on the nature and location of the fault.

One cylinder is declared faulty **ET093** or **ET094** or **ET095** or **ET096**	For this reason, the problem is probably due to an item associated with this cylinder only: – injector problem, – spark plug problem and/or damage, – problem with the coil, – oil seeping in through the valve stem joints, – Engine compression problem.

Cylinders 1 and 4 or cylinders 2 and 3 declared faulty **ET093** and **ET096** or **ET094** and **ET095**	The problem is probably due to a factor that can only affect this pair of cylinders: – problem with the high-voltage-side coil, – problem on the control side of the coil, – engine compression problem, – oil seeping in through the valve stem joints.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – there should be no further electrical faults, – the engine should be warm, – run at idling speed with all electrical consumers drawing power for 15 minutes. If the fault reappears, continue the fault finding procedure.

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DF109 **CONTINUED**	17A-47

Four cylinders are declared faulty **ET093** and **ET094** or **ET095** and **ET096**	The problem is probably due to a factor that can only affect all the cylinders. – fuel filter problem, – fuel pump problem, – problem with type of petrol, – engine compression problem, – oil seeping in through the valve stem joints.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – there should be no further electrical faults, – the engine should be warm, – run at idling speed with all electrical consumers drawing power for 15 minutes. If the fault reappears, continue the fault finding procedure.

DF110 **PRESENT** **OR** **STORED**	<u>DESTRUCTIVE MISFIRE</u> OBD: OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected while driving

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present with the engine running and coolant temperature greater than 75°C.
	Note: **ET093 Misfire on cylinder n° 1** **ET094 Misfire on cylinder n° 2** **ET095 Misfire on cylinder n° 3** **ET096 Misfire on cylinder n° 4** Give information on the nature and location of the fault.

One cylinder is declared faulty **ET093** or **ET094** or **ET095** or **ET096**	The problem is probably due to a component that can only affect this cylinder: – injector problem, – spark plug problem and/or damage, – problem with the coil, – oil seeping in through the valve stem joints.

Cylinders 1 and 4 or cylinders 2 and 3 declared faulty **ET093** and **ET096** or **ET094** and **ET095**	The problem is probably due to a factor that can only affect this pair of cylinders: – problem with the high-voltage-side coil, – problem on the control side of the coil, – oil seeping in through the valve stem joints.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – there should be no further electrical faults, – the engine should be warm, – run at idling speed with all electrical consumers drawing power for 15 minutes. If the fault reappears, continue the fault finding procedure.

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DF110 **CONTINUED**	17A-49

Four cylinders are declared faulty **ET093** and **ET094** or **ET095** and **ET096**	The problem is probably due to a factor that can only affect all the cylinders. – fuel filter problem, – fuel pump problem, – problem with type of fuel or pollution (presence of water, diesel, etc.), – oil seeping in through the valve stem joints.

AFTER REPAIR	Check that all faults have been dealt with. Clear the stored faults. It is not necessary to clear the programming. To check that the system has been repaired correctly: – there should be no further electrical faults, – the engine should be warm, – run at idling speed with all electrical consumers drawing power for 15 minutes. If the fault reappears, continue the fault finding procedure.

DF118 **PRESENT** **OR** **STORED**	REFRIGERANT PRESSURE SENSOR CIRCUIT

NOTES	**Priorities in dealing with a number of faults:** Fault **DF258 First sensor reference voltage** should be dealt with first.
	Special notes: Parameter **PR027 Refrigerant pressure** can help when dealing with this fault.

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

Connect the bornier in place of the computer and check the **insulation, continuity, and the absence of interference resistance on the connections between**:
– **38U** between components **1202** and **120**,
– **38Y** between components **1202** and **120**,
– **38X** between components **1202** and **120**.

If this fault appears, meticulously inspect the protective devices, insulation and path of the engine wiring (see Preliminaries, Wiring test).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance of the refrigerant pressure sensor**.
If necessary replace the sensor.

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

DF125 **PRESENT** **OR** **STORED**	<u>PEDAL POTENTIOMETER CIRCUIT GANG 1</u>

NOTES	**Priorities in dealing with a number of faults:** Fault **DF152 Second sensor reference voltage** should be dealt with first.
	Warning: For **KANGOO** vehicles: – Always shunt the connection of **intermediate connector R181**, applying the procedure specific to **Kangoo** from **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair (section: Connector - Repair)**. – **Check if the fault and the problem are still present. If yes, continue the fault finding procedure.**

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LS** between components **921** and **120**,
– **3LR** between components **921** and **120**,
– **3LT** between components **921** and **120**.

If this fault appears, meticulously inspect the protective devices, insulation and path of the engine wiring (see Preliminaries, Wiring test).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance of the pedal potentiometer** gang 1 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Measure the **resistance of the potentiometer in various positions**.
Replace the pedal potentiometer if necessary.

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

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DF126 PRESENT OR STORED	<u>PEDAL POTENTIOMETER CIRCUIT GANG 2</u>

NOTES	**Priorities in dealing with a number of faults:** Fault **DF258 First sensor reference voltage** should be dealt with first.
	Warning: For **KANGOO** vehicles: – Always shunt the connection of **intermediate connector R181**, applying the procedure specific to **Kangoo** from **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair (section: Connector - Repair)**. – **Check if the fault and the problem are still present. If yes, continue the fault finding procedure.**

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LW** between components **921** and **120**,
– **3LU** between components **921** and **120**,
– **3LV** between components **921** and **120**.

If this fault appears, meticulously inspect the protective devices, insulation and path of the engine wiring (see Preliminaries, Wiring test).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Measure the **resistance of the pedal potentiometer** gang 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Measure the **resistance of the potentiometer in various positions**.
Replace the pedal potentiometer if necessary.

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

DF129 **PRESENT** **OR** **STORED**	<u>PEDAL POTENTIOMETER CIRCUIT</u> 1.DEF: Inconsistency between pedal gangs 1 and 2 2.DEF: pedal potentiometer fault

NOTES	**Priorities in dealing with a number of faults:** Faults **DF152 Second sensor reference voltage** and **DF258 First sensor reference voltage** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present during smooth transition of the pedal potentiometer from no load to full load.
	Warning: For **KANGOO** vehicles: – Always shunt the connection of **intermediate connector R181**, applying the procedure specific to **Kangoo** from **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair (section: Connector - Repair)**. – **Check if the fault and the problem are still present. If yes, continue the fault finding procedure.**

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LS** between components **921** and **120**,
– **3LR** between components **921** and **120**,
– **3LT** between components **921** and **120**,
– **3LW** between components **921** and **120**,
– **3LU** between components **921** and **120**,
– **3LV** between components **921** and **120**.

If this fault appears, meticulously inspect the protective devices, insulation and path of the engine wiring (see Preliminaries, Wiring test).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

AFTER REPAIR	For a present fault, press the accelerator pedal from no load to full load to confirm repair. Deal with any other faults. Clear the fault memory.

| **DF129**
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Measure the **resistance of the pedal potentiometer** (the resistance is **zero or equal to infinity** in the event of a straight failure).
Check that the potentiometer resistance follows the proper curve, by pressing the pedal from no load to full load.
Check parameter **(PR202)**: **the voltage difference between gang 1 and gang 2 must be less than 0.52 V**.
Check that the pedal is operating the potentiometers correctly.
Replace the accelerator pedal potentiometer if necessary.

| *AFTER REPAIR* | For a present fault, press the accelerator pedal from no load to full load to confirm repair.
Deal with any other faults.
Clear the fault memory. |

DF135 **PRESENT** **OR** **STORED**	<u>BRAKE PEDAL SENSOR CIRCUIT</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present after the ignition has been switched on for > 20 seconds.
	Special notes: Status **ET132 Brake pedal depressed** can help when dealing with this fault.

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

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **65A** between components **160** and **120**,
– **5A** or **H28** between components **160** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If the fault is still present, **replace** the brake pedal switch.

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

DF138 **PRESENT** **OR** **STORED**	THERMOPLUNGER N° 1 RELAY CONTROL CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Faults **DF009 "fuel pump relay control circuit"**, **DF003 "air temperature sensor circuit"**, **DF004 "coolant temperature sensor circuit"** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is reported present after running command **AC002 Thermoplunger n° 1 relay"**.

Check the **connection and condition of the relay connector** of thermoplunger n° 1.
Replace the connector if necessary.

Check for **+ 12 V after ignition on track 1** of the thermoplunger n° 1 relay.
Repair the wiring up to the fuse if necessary.

Check the insulation and continuity of the connection between:

Injection computer track 34 ⟶ **Thermoplunger n° 1 relay**

Check **the relay coil** of thermoplunger n° 1.
Replace the relay if necessary.

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

DF139 **PRESENT** **OR** **STORED**	THERMOPLUNGER N° 2 RELAY CONTROL CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Faults **DF009 "fuel pump relay control circuit"**, **DF003 "air temperature sensor circuit"**, **DF004 "coolant temperature sensor circuit"** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is reported present after running command **AC620 Thermoplunger n° 2 relay**.

Check **the connection and condition of the relay connector** of thermoplunger n° 2.
Replace the relay if necessary.

Check for the presence of **+ 12 V after ignition on track 1** of the thermoplunger n° 2 relay.
Repair the wiring up to the fuse if necessary.

Check the insulation and continuity of the connection between:

    Injection computer track 4 ⟶ Thermoplunger n° 2 relay

Check **the connection and condition of the relay connector** of thermoplunger n° 2.
Replace the connector if necessary.

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

DF152 PRESENT OR STORED	<u>SECOND SENSOR REFERENCE VOLTAGE</u> 1.DEF: supply fault to tracks 1 and 2 on the throttle potentiometer and to track 1 on the pedal potentiometer

NOTES	**Priorities in dealing with a number of faults:** If faults **DF152 "sensor second reference voltage"**, **DF002 "throttle potentiometer circuit"** and **DF125 "pedal potentiometer circuit track 1"** are present or stored, first do the following diagnostics.
	Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.

Check the **connection and condition of the connectors** on the pedal potentiometer and throttle potentiometer.
Replace the connectors if necessary.

With the ignition switched on, check for the presence of +5 volts on the following tracks:
– **3LR** between components **921** and **120**,
– **3MN** between components **1076** and **120**.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LS** between components **921** and **120**,
– **3MP** between components **1076** and **120**,
– **3MQ** between components **1076** and **120**.

If faults DF152, DF002 and DF125 are all reported, meticulously inspect the protective devices, insulation and path of the engine wiring: see the "Wire testing" segment of the "Preliminaries" section.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

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

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

DF170 **PRESENT** **OR** **STORED**	TA ◄──► INJECTION CONNECTION 17A-59

NOTES	**Priorities in dealing with a number of faults:** Fault **DF003 "air temperature sensor circuit"** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: the fault is declared present after the engine has been running for > 3 seconds.

Switch on the ignition.

Test the multiplex network.

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

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DF189 PRESENT OR STORED	<u>FLYWHEEL TARGET</u>

NOTES	**Conditions for applying the fault finding procedure to stored faults:** the fault is declared present when the engine is running at a speed > **600 rpm.** for at least **10 seconds**.
	Special notes: Parameter **PR006 Engine speed** and status **ET148 Tooth signal in progress** can help with the treatment of this fault.

This fault indicates that the computer is not receiving the tooth signal.

This fault finding strategy is based on **checking the consistency** between the successive engine strokes, allowing you to detect whether or not the engine has actually stopped. To do this, **watch the manifold pressure develop**.
If the engine has actually stopped, the manifold pressure is stable; if not, fault **DF189 flywheel target** is detected.

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

Measure the **resistance** of the engine speed sensor.
Replace the engine speed sensor if its resistance is not between **200 and 270 Ω**.

If the fault has still not disappeared, deal with the other faults and then proceed to the conformity check.

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

DF226 PRESENT	<u>THROTTLE END STOP PROGRAMMING</u>

NOTES	**Priorities in dealing with a number of faults:** Faults **DF003 "coolant temperature sensor circuit"** and **DF004 "air temperature sensor circuit"** should be dealt with first.
	Special notes: It is possible to start the engine when this fault is present, but **driving the vehicle is forbidden** as there is a high risk of stalling and/or unstable engine speeds.

This fault indicates that the computer has not stored **the minimum and maximum throttle stop programming values** in its memory.
This fault appears after **replacement of the motorised throttle valve, computer reprogramming or replacement, or an open circuit in one of the two throttle motor power wires**.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3AJC** between components **1076** and **120**,
– **3AJB** between components **1076** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Check the condition and fit of the clips and of the motorised throttle valve and injection computer connectors.

Switch on the ignition for at least **5 seconds** without starting the engine: **the throttle stops will be automatically programmed**.

If the fault has still not disappeared, deal with the other faults and then proceed to the conformity check.

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

DF228 **PRESENT** **OR** **STORED**	<u>AIR CONDITIONING COMPRESSOR CONTROL</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Conditions for applying the fault finding procedure to stored faults:** **The fault is declared present:** after running command **AC003 "air-conditioning compressor"**.
	Special notes: **Status ET070 "Climate control compressor"** can help with the treatment of this fault.

Check the **connection and condition of the air conditioning compressor connector**

Replace the connector if necessary.

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

> **Injection computer track 39** ⟶ **Air conditioning compressor**

Repair if necessary.

If the fault has still not disappeared, deal with the other faults and then proceed to the conformity check.

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

DF235 **PRESENT** **OR** **STORED**	<u>CRUISE CONTROL/SPEED LIMITER</u> 1.DEF: Fault on one brake pedal contact 2.DEF: Fault on both brake pedal contacts 3.DEF: Controls at the steering wheel 4.DEF: on/off switch 5.DEF: electronic stability program

NOTES	**Conditions for applying the fault finding procedure to stored faults:** The fault is declared present following a road test using the cruise control and the speed limiter functions.

1.DEF **2.DEF**	Check the **connection and condition** of the brake pedal sensor connector. Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **65A** between components **160** and **120**,
– **5A** or **H28** between components **160** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

If the fault is still present, **replace** the brake pedal switch.

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

DF235 CONTINUED 1	17A-64

3.DEF	Check **the connection and condition** of the cruise control/speed limiter switches on the steering wheel controls. Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **86G** between components **627** and **120** (Clio and Kangoo) or **689** (Megane/Scenic),
– **86M** between components **627** and **120** (Clio and Kangoo) or **689** (Megane/Scenic).

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

Check that the steering wheel controls are functioning correctly.
Replace the switch(es) if necessary.

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

DF235 CONTINUED 2	17A-65

4.DEF	Check **the connection and condition** of the cruise control/speed limiter switches on the steering wheel controls. Replace the connector if necessary.

	Connect the bornier in place of the computer and check the **insulation, the continuity, and absence of interference resistance** on the connections between: – **3FX** between components **1081** and **120**, – **3PD** between components **1081** and **120**. If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it. Repair if necessary.

	Check the correct operation of the cruise control/speed limiter ON/OFF switch. Replace the switch if necessary.

5.DEF	**With the engine running and engine speed > at 800 rpm.:** **Test the multiplex network if the vehicle is fitted with this option.**

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

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DF236 **STORED**	<u>+ AFTER RELAY FEED</u>

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.

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

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

Disconnect the relay and check for **12 V on track 3** of the relay holder.
Repair if necessary.

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

    Injection computer track 66   ⟶   **Track 5 Actuator relays**

Repair the line if necessary.

Connect the relay and, with the ignition on, check for **the presence of 12 volts on track 5** of the actuator relay holder.
Replace the relay if necessary.

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

DF251 **STORED**	**+ AFTER IGNITION SUPPLY**

NOTES	**Conditions for applying the fault finding procedure to stored faults:** This fault can only be declared stored, because communication is lost with the fault finding tool if it is present.

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

Check the insulation to earth on track 29 of the injection computer connector.
Repair the line if necessary.

With the ignition on:

Check for the presence of **12 V** on **track 29 of the injection computer**.

Repair the line if necessary.

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

DF253 **PRESENT** **OR** **STORED**	<u>ENGINE EARTH</u> 17A-68

NOTES	**None.**

In the event of **the 1-wire upstream sensor** being "without earth return", track 44 is used to receive the engine earth signal. If this occurs, **the computer cannot control the downstream sensor**.

Connect the terminal in the place of the computer; **check the insulation, continuity and the absence of interference resistance** on the connection between:

    Computer **track 44** ———▶ Vehicle earth

Repair if necessary.

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

DF254 PRESENT OR STORED	<u>MOTORISED THROTTLE VALVE CONTROL</u> 1.DEF: internal fault on the throttle valve unit or the computer: faulty microprocessor 2.DEF: Motorised throttle control fault

NOTES	**Priorities in dealing with a number of faults:** Faults **DF009 "actuator relay circuit"** and **DF236 "power + after relay"** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.
	Special notes: It is possible to start the engine when this fault is present, but **driving the vehicle is forbidden** as engine speed is constant irrespective of the accelerator pedal position.

1.DEF	If this fault appears and is characterized 1 DEF, **contact your Techline**.

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

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| **DF254 PRESENT OR STORED** **CONTINUED** | 17A-70 |

| ***2.DEF*** | Check the **connection and condition** of the throttle valve unit connector. Replace the connector if necessary. |

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3AJC** between components **1076** and **120**,
– **3AJB** between components **1076** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If this fault occurs, meticulously inspect the protective devices, insulation and path of the engine wiring; if possible, move it manually while the engine is running to make sure the wiring is not being damaged: see "Wire testing" in the Preliminaries section.

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

Then program the throttle stops: switch on the ignition and wait at least 5 seconds without starting the engine: the throttle valve will be programmed automatically. If the programming is not carried out, it is possible to start the engine, but driving the vehicle is forbidden as there is a high risk of stalling and/or unstable engine speeds.

| ***AFTER REPAIR*** | Deal with any other faults. Clear the fault memory. |

DF255 **PRESENT** **OR** **STORED**	<u>SECURITY OF THROTTLE/PEDAL OPERATION</u> 1.DEF: Coherence between the position of the pedal and the position of the throttle

NOTES	**Priorities in dealing with a number of faults:** Fault **DF152 Second sensor reference voltage** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: **This fault only becomes present when the longest gear is selected and two acceleration/deceleration sequences have been carried out.** But this test is not carried out when: – There is a coupling request originating from the automatic transmission or the ESP (electronic stability program). – The power limitation strategy is active. – A fault is detected on the motorised throttle valve system (DF002, DF226, DF254). – The cruise control or speed limiter is active.
	Special notes: **The only way of clearing the stored is to use service RZ008 "programming reinitialisation".**

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

AFTER REPAIR	Apply the procedures to confirm that the repair is successful. Deal with any other faults. Clear the fault memory.

DF255 **CONTINUED 1**	17A-72

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LS** between components **921** and **120**,
– **3LR** between components **921** and **120**,
– **3LT** between components **921** and **120**,
– **3LW** between components **921** and **120**,
– **3LU** between components **921** and **120**,
– **3LV** between components **921** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

Check the **resistance of pedal potentiometer** tracks 1 and 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Measure the **resistance of the potentiometer in various positions**.
Replace the pedal potentiometer if necessary.

AFTER REPAIR	Apply the procedures to confirm that the repair is successful. Deal with any other faults. Clear the fault memory.

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| **DF255**
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Check the **connection and condition** of the throttle potentiometer connector.
Replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3MN** between components **921** and **120**,
– **3MO** between components **921** and **120**,
– **3MQ** between components **921** and **120**,
– **3MP** between components **921** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Repair if necessary.

Measure the **resistance of the throttle potentiometer** track 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Replace the throttle potentiometer if the resistance is not between **750 Ω < X < 1250 Ω**.

If the problem is still not resolved, the computer needs to be reprogrammed.

| *AFTER REPAIR* | Apply the procedures to confirm that the repair is successful.
Deal with any other faults.
Clear the fault memory. |

DF255 **CONTINUED 3**	17A-74

REPROGRAMMING THE COMPUTERS:

Reprogramming conditions:

– Ignition on.

– Engine stopped.

– Computer not protected.

Important recommendation following reprogramming:

The computer does not transmit any information on the multiplex network during reprogramming operations (it is "mute"). Therefore all the computers connected to the multiplex network receiving information from the injection computer will detect faults.

It is therefore essential, after reprogramming the injection computer, to clear the faults on all the computers in communication with the injection computer.

Then program the throttle stops:

Switch on the ignition for at least 5 seconds without starting the engine: the throttle stops will be automatically programmed.

If the programming is not carried out, it is possible to start the engine, but driving the vehicle is forbidden as there is a high risk of stalling and/or unstable engine speeds.

Conduct a road test so that the computer reprograms the adaptive variables (torquemeter and richness); this prevents any possible driving discomfort when the customer leaves with the vehicle.

The programming conditions for engine adaptive variables are:

– speed stabilised between **2500 rpm** and **3000 rpm** for at least **30 seconds**, then acceleration in 2nd gear to **4000 rpm**, followed by deceleration to idle speed.

AFTER REPAIR	Apply the procedures to confirm that the repair is successful. Deal with any other faults. Clear the fault memory.

DF258 **PRESENT** **OR** **STORED**	<u>FIRST SENSOR REFERENCE VOLTAGE</u> 1.DEF: supply fault to the manifold pressure, pedal track 2 or refrigerant pressure sensors

NOTES	**Priorities in dealing with a number of faults:** If faults **DF258 "sensor first reference voltage"**, **DF126 "pedal potentiometer track 2 circuit"**, **DF045 "manifold pressure sensor circuit"** and **DF118 "refrigerant pressure sensor circuit"** (if the vehicle is equipped with refrigerant sensor) are present or stored, first perform the following diagnostics.
	Conditions for applying the fault finding procedure to stored faults: Apply the fault finding procedure whether the fault is present or stored.

Check the **connection and condition of the connectors** on the pedal potentiometer, manifold pressure sensor and coolant pressure sensor (if fitted).

Replace the connectors if necessary.

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

| DF258
PRESENT
OR
STORED

CONTINUED | 17A-76 |

With the ignition switched on, check for the presence of +5 V on the following connections:
– **3LU** of component **921**,
– **3AJQ** of component **147** (Clio),
– **3D** of component **147** (Kangoo, Megane, Scenic),
– **38Y** of component **1202**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

Connect the bornier in place of the computer and check the **insulation, continuity, and absence of interference resistance** on the connections between:
– **3LU** between components **921** and **120**,
– **3AJQ** between components **147** and **120** (Clio),
– **3D** between components **147** and **120** (Kangoo, Megane, Scenic)
– **38Y** between components **1202** and **120**.

If the connection or connections are faulty and there is a repair procedure (see **Technical Note 6015A, Electrical wiring repair, Wiring: Precautions for repair**), repair the wiring, otherwise replace it.

If faults DF258, DF126, DF118 and DF045 (if the vehicle has a refrigerant sensor) all occur, meticulously inspect the protective devices, insulation and path of the engine wiring: see the "Wiring test" segment in the "Preliminaries" section.

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

| *AFTER REPAIR* | Deal with any other faults.
Clear the fault memory. |

DF308 PRESENT OR STORED	DUAL-MODE INTAKE SOLENOID VALVE CO: open circuit CC.0: short circuit to earth CC.1: short circuit to +12 V

NOTES	**Priorities in dealing with a number of faults:** Fault **DF009 Actuator relay circuit** should be dealt with first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the ignition is switched on and the battery voltage exceeds **10 V**. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.
	Special notes: **This fault applies only to the F4R 736 engine (Renault Sport).** The command is active if the vehicle is in 2nd gear at a speed < **4800 rpm.** or in 3rd gear at a speed < **3260 rpm.**, if the vehicle speed is less than **72 mph (120 km/h)**, and if no fault in the vehicle speed is detected. If **the fault is present with CC.1** (short circuit to **12 V**), it is not detected unless the dual-mode stop valve is activated (valve closed). **If the fault is present with CC.0 and C.0** (short circuit to earth and open circuit) it is detected even if the dual-mode stop valve is not activated (valve open).

Check the **connection and condition** of the dual-mode stop valve connector.

Replace the connector if necessary.

Check, **with the ignition on, for + 12 V on track 2 of the dual-mode stop valve connector.**

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

Injection computer **track 63** ⟶ **Track 1** dual-mode stop valve

Repair if necessary.

Check **the electrical resistance** of the dual-mode stop valve.
Replace the dual-mode stop valve if its resistance is not approximately **45 Ω**.

AFTER REPAIR	Apply the procedures to confirm that the repair is successful. Deal with any other faults. Clear the fault memory.

	NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
1	+ after ignition	**ET001:** + computer after ignition	ACTIVE	**In the event of a problem**: check the charge circuit.
		PR004: computer supply voltage	11 < X < 14 V	
2	Engine immobiliser	**ET002:** engine immobliser	INACTIVE	**In the event of a problem:** Test the multiplex network.
		ET099: immobiliser code programmed	ACTIVE	
3	Computer	**ET264:** computer locked following an impact - NO	NO	**In the event of a fault:** Refer to the fault finding for **ET264 Computer locked following an impact**
4	Pressure sensor	**PR016:** atmospheric pressure	X = atmospheric pressure ±10%	**In the event of a problem:** Use fault-finding procedure **DF045 "manifold sensor circuit"**
		PR001: manifold pressure	X = atmospheric pressure ±10%	
5	Accelerator pedal (released)	**ET129:** accelerator pedal no load	ACTIVE	In the event of a problem: Apply **fault finding procedures**: **DF125, DF126 and DF129 Pedal potentiometer circuit gang 1**, **Potentiometer circuit gang 2** and **Pedal potentiometer circuit**.
		ET128: accelerator pedal at full load	INACTIVE	
		PR203: pedal travel	X < 20%	
		PR206: pedal position gang 1	X < 20%	
		PR207: pedal position gang 2	X < 20%	
6	Throttle valve (accelerator pedal released).	**ET118:** motorised throttle valve in defect mode	NO	**In the event of a fault:** Refer to the fault finding for **ET118 Motorised throttle in defect mode**

| NOTES | The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.** |

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
6 continued	Throttle valve (accelerator pedal released)	**ET003:** throttle position no load	ACTIVE	**In the event of a problem:** Apply **Fault finding procedures DF002 and DF226 Throttle potentiometer circuit** and **Throttle stop programming**.
		ET005: throttle position: full load	INACTIVE	
		PR017: measured throttle position	X = throttle valve position specification ±10 %	
		PR113: motorised throttle valve position setpoint	X < 20%	
		PR110: measured throttle position gang 1	X < 20%	
		PR197: difference between throttle valve gangs 1 and 2	X < 3%	
		PR111: measured throttle position gang 2	X < 20%	
		PR198: minimum stop position programmed gang 1	X = position in % of minimum stop programmed gang 1 for an MGI throttle valve or X = value of the limp-home position for a VDO throttle valve	
		PR199: maximum stop position programmed gang 1	X = position in % of maximum stop programmed gang 1 for an MGI throttle valve or X = value of the limp-home position for a VDO throttle valve	

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
6 continued	Throttle valve (accelerator pedal released)	**PR200:** minimum stop position programmed gang 2	X = position in % of minimum stop programmed track 2 for an MGI throttle valve or X = value of the limp-home position for a VDO throttle valve	**In the event of a problem:** Apply **Fault finding procedures DF002 and DF226 Throttle potentiometer circuit** and **Throttle stop programming**.
		PR201: maximum stop position programmed gang 2	X = position in % of maximum stop programmed gang 2 for an MGI throttle valve or X = value of the limp-home position for a VDO throttle valve	

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**			

7	Upstream oxygen sensor	**ET030:** upstream sensor heating	INACTIVE	**In the event of a problem**: Apply **fault finding procedures DF018 and DF057 Upstream oxygen sensor heating circuit** and **Upstream oxygen sensor circuit**.
		ET037: mixture control	INACTIVE	
		PR009: upstream oxygen sensor voltage	Set value of approximately 400 mV	
		PR035: richness correction value	Approximately 128	
8	Downstream oxygen sensor	**ET031:** downstream sensor heating	INACTIVE	In the event of a problem: Apply **fault finding procedures DF038 and DF058 Downstream sensor heating circuit** and **Downstream oxygen sensor circuit**.
		PR010: downstream oxygen sensor voltage	Set value of approximately 400 mV	
9	Brake pedal (released)	**ET132:** brake pedal pressed	INACTIVE	In the event of a problem: Apply **fault finding procedure DF135 Brake pedal circuit**.
		ET143: brake pedal redundant	INACTIVE	

	NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
10	Cruise control/ speed limiter	**cruise control START/ STOP button pressed** **ET192:** Cruise control/ speed limiter function	**STATUS 1:** Cruise control on/off switch pressed	In the event of a problem: apply the **fault finding procedure** for the cruise control / speed limiter (DF235) fault and consult the wiring diagram of the vehicle concerned.
		cruise control START/ STOP button pressed **ET192:** Cruise control/ speed limiter function	**STATUS 2:** Speed limiter ON/OFF **switch** pressed	
		Speed limiter on/off switch pressed and Suspend switch on steering-wheel control pressed **ET192:** Cruise control/ speed limiter function	**STATUS 3:** Suspend switch pressed	
		Speed limiter on/off switch pressed and Resume switch on steering-wheel control pressed **ET192:** Cruise control/ speed limiter function	**STATUS 4:** Resume switch pressed	
		Speed limiter on/off switch pressed and + switch on steering-wheel control pressed **ET192:** Cruise control/ speed limiter function	**STATUS 5:** Incrementation switch pressed	

	NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
10 continued	Cruise control/ speed limiter	**Speed limiter on/off switch pressed and + switch on steering-wheel control pressed** **ET192:** Cruise control/ speed limiter function	**STATUS 6:** Decrementation switch pressed	In the event of a problem: Use **fault-finding procedure DF235 "cruise control/ speed limiter"** and check the wiring diagram for the vehicle model
11	Clutch pedal	**Clutch pedal released** **ET182:** Clutch pedal switch	**INACTIVE:** Only on vehicles equipped with cruise control / speed limiter	**IN the event of a problem consult the wiring diagram for the vehicle concerned**
		Clutch pedal depressed **ET182:** Clutch pedal switch	**ACTIVE:** On vehicles not equipped with cruise control/speed limiter this status does not change	

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action	Display and Notes	Fault finding
		Command Window		
8	Fuel pump relay	**AC010:** fuel pump relay	The fuel pump should be heard operating	In the event of a problem, check diagnostic AC010 "fuel pump relay control".
9	Air conditioning compressor	**AC003:** air conditioning compressor	You should hear the air conditioning clutch compressor engage	In the event of a problem, use **fault-finding procedure** DF228 "air-conditioning compressor control".
10	Fuel vapour absorber solenoid valve	**AC016:** canister bleed solenoid valve	The fuel vapour absorber solenoid valve should be heard operating	In the event of a problem, use **fault-finding procedure:** DF014 "canister bleed solenoid valve circuit".
11	Camshaft dephaser	**AC491:** camshaft shifter	The camshaft dephaser should operate.	**In the event of a fault**, apply **the fault finding procedure** for fault: **DF063 Camshaft dephaser**.
12	Motorised throttle valve	**AC621:** motorised throttle valve	The motorised throttle valve should operate	In the event of a problem, use **fault-finding procedure:** DF254 "motorised throttle control".
13	Low speed fan assembly	**AC626:** Low speed fan assembly	It should be possible to hear the fan running at low speed.	In the event of a problem, check diagnostic AC626 "low-speed fan assembly".

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action		Display and Notes	Fault finding
		Window Commands (continued)			
14	High speed fan assembly	**AC625:**	High speed fan assembly	It should be possible to hear the fan running at high speed.	In the event of a problem, check diagnostic AC625 "high-speed fan assembly".
15	Thermoplunger n° 1 relay	**AC002:**	thermoplunger n° 1 relay	You should hear the thermoplunger n° 1 relay engage	In the event of a problem, check diagnostic **AC002 Thermoplunger N° 1 relay"**.
16	Thermoplunger n° 2 relay	**AC620:**	Thermoplunger n° 2 relay	You should hear the thermoplunger n° 2 and 3 relays engage	I**n the event of a fault**, refer to the fault finding for **AC620 Thermoplunger N° 2 relay**.
17	Dual-mode intake solenoid valve	**AC024:**	dual-mode intake solenoid valve	The dual-mode intake solenoid valve should work	In the event of a problem, use **fault-finding procedure** DF308 "dual-mode intake solenoid valve".

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action		Display and Notes	Fault finding
1	Pressure sensor	**PR016:**	atmospheric pressure	X = atmospheric pressure ±10%	**In the event of a fault: Apply the fault finding procedure** for fault **DF045 Manifold sensor circuit**.
		PR001:	manifold pressure	X < 500 mbar	
2	Idle speed	**PR006:**	idle speed	X = Idle speed specifications + 50 rpm	**None**
		PR041:	engine idling speed reference	730 < X < 780 rpm	
		ET039:	idle speed regulation	ACTIVE	
		PR275:	"oscillation detection counter"	X = 0	**In the event of a problem: Check the diagnostic of parameter PR275 "oscillation detection counter"**
3	Power assisted steering pressure switch	**ET067:**	power assisted steering pressostat connection	ACTIVE	**None**
		ET034:	power assisted steering pressostat	ACTIVE if steering wheel is moved	
4	Richness regulation	**ET037:**	mixture control	ACTIVE	**In the event of a fault: Apply fault finding procedures** for faults: **DF057 and DF058 Upstream oxygen sensor circuit and Downstream oxygen sensor circuit**.
		PR009:	upstream oxygen sensor voltage	50 < X < 800 mV	
		PR010:	downstream oxygen sensor voltage	The value should be as stable as possible	
		PR035:	richness correction value	The value should be around 128	

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action		Display and Notes	Fault finding
5	Air conditioning	**Air conditioning requested by the driver**			**In the event of a fault: Apply the fault finding procedure** for faults **DF012 Injection - AC connection**, **DF118 Refrigerant sensor circuit and DF228 Air conditioning compressor control**.
		ET016:	Injection/AC ◀ ▶ connection	ACTIVE	
		ET009:	air conditioning request	ACTIVE	
		ET070:	air conditioning compressor	ACTIVE	
		PR027:	refrigerant fluid pressure	0 < X < 32 bars	
		PR044:	power used by the AC compressor	X > 300 W	
		ET038:	fast idle speed ACTIVE	ACTIVE	
6	Coolant temperature sensor	**PR002:**	Coolant temperature	X = Engine temperature ± 5°C - 40 < X < + 120 °C	**In the event of a problem, use fault-finding procedure DF004 "coolant temperature sensor circuit".**
7	Air temperature sensor	**PR003:**	Air temperature	X = Temperature under bonnet ± 5°C - 40 < X < + 120 °C	**In the event of a fault, apply the fault finding procedure** for fault **DF003 Air temperature sensor circuit**.
8	Pinking sensor	**PR013:**	average pinking signal	The value should not be constant	In the event of a problem, use fault-finding procedure DF006 "pinking sensor circuit".
		PR015:	pinking signal correction	X < 5	

NOTES	The values indicated in this conformity check are given for reference purposes only. It is therefore vital to consult the Technical Note which deals with your vehicle. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or Status Check or Action		Display and Notes	Fault finding
Status window				
			LPG requested by the driver		
1	LPG	ET200:	"petrol/LPG connection"	ACTIVE	In the event of a problem, consult diagnostic ET200
		ET236:	"LPG mode request"	ACTIVE	In the event of a problem, consult diagnostic ET236
		ET257:	"LPG ready"	YES	In the event of a problem, consult diagnostic ET257
		ET234:	"Balance conditions in LPG mode"	OK	In the event of a problem, consult diagnostic ET234
		ET237:	"LPG tank empty"	NO	In the event of a problem, consult diagnostic ET237
		ET258:	"LPG fault"	NO	In the event of a problem, consult diagnostic ET258
		ET134:	"Transition from petrol to LPG mode"	ACTIVE	In the event of a problem, consult diagnostic ET134
		ET133:	"Transition from LPG to petrol mode"	INACTIVE	In the event of a problem, consult diagnostic ET133
		ET114:	"Operating in petrol mode"	INACTIVE	In the event of a problem, consult diagnostic ET114
		ET113:	"Operating in LPG mode"	ACTIVE	In the event of a problem, consult diagnostic ET113

AC002	THERMOPLUNGER N° 1 RELAY CONTROL

NOTES	No faults should be present or stored in the diagnostic tool.

Check **the connection and condition of the thermoplunger n˚ 1** relay connector.
Replace the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** on **track 3 of the thermoplunger n˚ 1** relay connector.

Repair if necessary using the relevant **wiring diagram**.

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

Thermoplunger n °1 track 5 ⟶ Thermoplunger n° 1
Thermoplunger n° 1 ⟶ Vehicle earth

Repair if necessary.

Reconnect the relay.
Check for **+ 12 V** on **track 5 of the thermoplunger N∞1 relay connector by using command AC002 Thermoplunger N° 1 relay"**.

Replace the relay if necessary.

Check the resistance of thermoplunger n° 1.
Replace thermoplunger nξ 1 if necessary.

AC010	<u>FUEL PUMP CONTROL RELAY</u>

NOTES	No faults should be present or stored in the diagnostic tool.

Check the **connection and condition of the fuel pump relay connector**.

Replace the connector if necessary.

Disconnect the relay.

Check for the presence of **+ 12 V** on **track 3** of the fuel pump relay connector.

Repair if necessary using the relevant **wiring diagram**.

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

Fuel pump relay **track 5** ⟶ **Track 1** of the inertia impact sensor

Repair if necessary.

Check **the absence of resistance** between:

Inertia impact sensor **track 1** ⟶ **Track 3** of the inertia impact sensor

Replace the inertia impact sensor if necessary.

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

Inertia impact sensor **track 3** ⟶ **Track C1** of the fuel pump
Fuel pump **track C2** ⟶ **Vehicle earth**

Repair if necessary.

Reconnect the relay.
Check for the presence of **+ 12 V** on **track 5 of the fuel pump relay connector by using command AC010 "fuel pump relay control"**.

Replace the relay if necessary.

If the fault persists, change the petrol pump.

AC620	<u>THERMOPLUNGER N° 2 RELAY</u>

NOTES	No faults should be present or stored in the fault finding tool.

Check **the connection and condition of the thermoplunger n° 2** relay connector.

Replace the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** on **track 3 of the thermoplunger n° 2** relay connector.

Repair if necessary using the relevant **wiring diagram**.

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

Thermoplunger relay n° 2 track 5   ⟶   **Thermoplungers n° 2 and n° 3**
Thermoplungers n° 2 and n° 3   ⟶   **Vehicle earth**

Repair if necessary.

Reconnect the relay.
Check for the presence of **+ 12 V** on **track 5 of the thermoplunger n° 2 relay connector by using command AC620 Thermoplunger N° 2 relay**.

Replace the relay if necessary.

Check the resistance of thermoplungers n° 2 and n° 3.

Replace thermoplunger n° 2 and/or n° 3 if necessary.

AC625	HIGH-SPEED FAN ASSEMBLY

NOTES	No faults should be present or stored in the fault finding tool.

Check **the connection and condition of the high-speed fan assembly relay connector**.

Replace the connector if necessary.

Disconnect the relay.
Check for **+ 12 V** on **track 3** of the high speed fan assembly relay connector.

Repair if necessary using the relevant **wiring diagram**.

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

    High-speed fan unit relay ⟶ **track 5 Engine cooling fan 2**
    Engine cooling fan 2 ⟶ **Vehicle earth**

Repair if necessary.

Reconnect the relay.
Check for the presence of **+ 12 V** on **track 5 of the high-speed fan assembly relay connector by using command AC625 "high-speed fan assembly"**.

Replace the relay if necessary.

Check that engine cooling fan n° 2 is not seized and that the helix turns easily.

Replace the engine cooling fan n° 2 if necessary.

CONDITIONS	ACTIVE ENGINE COOLING FAN 2
Air-conditioning pressure > 24 bar	YES
Air-conditioning pressure > 18 bar + vehicle speed > 12 mph (20 km/h)	YES
Coolant temperature with engine running > 102 °C	YES
Coolant temperature with engine running < 95 °C	NO

| **AC626** | <u>LOW-SPEED FAN ASSEMBLY</u> |

| *NOTES* | No faults should be present or stored in the fault finding tool. |

Check the **connection and condition** of the low-speed fan relay connector.

Replace the connector if necessary.

Disconnect the relay.
Check for **+ 12 V** on **track 3** of the low-speed fan assembly relay connector.

Repair if necessary using the relevant **wiring diagram**.

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

Low-speed fan unit relay $\longrightarrow$ track 5 Engine cooling fan 1
Engine cooling fan 1 $\longrightarrow$ Vehicle earth

Repair if necessary.

Reconnect the relay.
Check for the presence of **+ 12 V** on **track 5 of the low-speed fan assembly relay connector** by using **command AC626 "low-speed fan assembly"**.

Replace the relay if necessary.

Check that engine cooling fan n§ 1 is not seized and that the helix turns easily.

Replace engine cooling fan n§ 1 if necessary.

CONDITIONS	FAN 1 ACTIVE
Coolant temperature with engine off < 95 ℃	NO
Coolant temperature with engine off > 100 ℃	YES
Air conditioning requested and authorised	YES
Coolant temperature with engine running > 99 ℃	YES
Coolant temperature with engine running < 96 ℃	NO

ET113	<u>OPERATION IN LPG MODE</u>

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG). Status **ET237 "tank empty"** should be NO. Status **ET258 "LPG fault"** should be NO. Status **ET257 "LPG ready"** should be YES. Status **ET234 Conditions for switching to LPG mode** should be OK.

When all the balance conditions are united, the system moves to: **ET134 transition from petrol mode to LPG mode active**.

On decelerating, or after a delay, when both fuels have been recovered, the system moves to: **ET113 operation in LPG mode Active**.

Consult the LPG fault finding strategy if the fault persists.

	OPERATION IN PETROL MODE
ET114	

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG). Status **ET237 "tank empty"** should be NO. Status **ET258 "LPG fault"** should be NO. Status **ET257 "LPG ready"** should be YES. Status **ET234 Conditions for switching to LPG mode** should be OK.

Starting the engine is always done in petrol mode, ET114 ACTIVE.

The status will be ET114 "forced petrol mode operation" still ACTIVE if:

– status **ET237 "tank empty" is YES**

– status **ET258 "LPG fault" is YES**

– status **ET234 "balance conditions in LPG mode" is NOT OK**

When all the balance conditions are united, the system moves to **ET134 "transition from petrol to LPG mode" ACTIVE,** then to **ET113 "operation in LPG mode" ACTIVE,** and then to **ET114 "operation in petrol mode" INACTIVE.**

Consult the LPG fault finding strategy if the fault persists.

ET118	MOTORISED THROTTLE BODY IN DEFECT MODE
	17A-96

NOTES	**If any of the defect modes "status 1", "status 3" or "status 4" occur, meticulously check the protective devices, insulation and path of the engine wiring; if possible, see the "Wire testing" segment in the "Preliminaries" section.**

NO	NORMAL MODE

STATUS 1	MOTORISED THROTTLE IN LIMP-HOME MODE: This defect mode maintains the engine at a constant speed irrespective of gear changes or accelerator pedal position. It is usually associated with: **DF002 "throttle potentiometer circuit", DF226 "throttle stop programming", DF254 "motorised throttle control" or DF255 "throttle/pedal operation safety".** **If no fault is present, check diagnostic PR275 Oscillation detection counter.** **If this defect mode occurs, meticulously inspect the protective devices, insulation and path of the engine wiring; if possible, move it manually while the engine is running to make sure the wiring is not being damaged.**

STATUS 2	INJECTION CUT-OFF: This defect mode is not used on the SIRIUS 34 injection computer.

STATUS 3	PEDAL FAULT (loss of driver control): When this defect mode is in use, there is a loss of pedal power, fast idle speed and the engine slows to idle speed if the brake pedal is depressed. It is usually associated with **DF125 Pedal potentiometer circuit gang 1** + **DF129 Pedal potentiometer circuit** or **DF125 Pedal potentiometer circuit gang 1** + **DF126 Pedal potentiometer circuit gang 2**. **If no fault is present, check diagnostic PR275 Oscillation detection counter.** **If this defect mode occurs, meticulously inspect the protective devices, insulation and path of the engine wiring; if possible, move it manually while the engine is running to make sure the wiring is not being damaged.**

ET118 CONTINUED	17A-97

| STATUS 4 | REDUCTION OF ENGINE PERFORMANCE (limitation of performance):
This defect mode is indicated by: Limitation of the vehicle speed, limitation of the control section of the throttle, limitation of the vehicle acceleration (slow increase in the control section of the throttle).
It is usually associated with **DF002 Throttle potentiometer circuit, DF125 Pedal potentiometer circuit gang 1, DF126 Pedal potentiometer circuit gang 2, DF129 Pedal potentiometer circuit** or **DF258 Sensor first reference voltage**.
If no fault is present, check diagnostic PR275 Oscillation detection counter.
If this defect mode occurs, meticulously inspect the protective devices, insulation and path of the engine wiring; if possible, move it manually while the engine is running to make sure the wiring is not being damaged. |

	TRANSITION FROM LPG MODE TO PETROL MODE
ET133	17A-98

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG).

After operating in LPG mode ET113 ACTIVE, if **ET236 "LPG mode operation request" becomes INACTIVE**, status **ET133 "transition from LPG to petrol mode" changes to ACTIVE**.
Then status ET114 "operation in petrol mode" becomes ACTIVE.

Consult the LPG fault finding strategy if the fault persists.

ET134	<u>TRANSITION FROM PETROL MODE TO LPG MODE</u> 17A-99

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG). Status **ET237 "tank empty"** should be NO. Status **ET258 "LPG fault"** should be NO. Status **ET257 "LPG ready"** should be YES. Status **ET234 Conditions for switching to LPG mode** should be OK.

After **ET236 "request for LPG mode operation" ACTIVE**, if all the balance conditions are met, the status changes to **ET134 "transition from petrol to LPG mode" ACTIVE**.
Then **ET113 "operation in LPG mode" ACTIVE**.

Consult the LPG fault finding strategy if the fault persists.

ET182	CLUTCH PEDAL SWITCH

NOTES	There must be no present or stored faults.

Vehicle not equipped with the cruise control/ speed limiter function	There is no clutch pedal switch on vehicles not equipped with the cruise control/ speed limiter function. **Status ET182, clutch pedal switch, still displays ACTIVE.**

Vehicle equipped with the cruise control/speed limiter function	There is a clutch pedal switch on vehicles equipped with the cruise control/speed limiter function. **Status ET182 "clutch pedal switch" shows ACTIVE** if the clutch pedal is pressed. **Status ET182 "clutch pedal switch" shows INACTIVE** if the clutch pedal is released. Even though there is no fault finding procedure on this signal, there is a strategy to detect racing of the engine speed in the case of a problem with the clutch pedal switch. If it is used, the cruise control is automatically disconnected.

Check **the connection and condition of the clutch pedal switch connector**. Replace the connector if necessary.

Check for the presence of **+ 12 V** on **track A1 of the clutch pedal switch connector**.

Repair if necessary using the relevant **wiring diagram**.

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

Injection computer **track 48** ⟶ **track A2** clutch pedal switch

Repair if necessary.

	INJECTION/LPG CONNECTION
ET200	

NOTES	There must be no present or stored faults.

The computer recognises that it is connected to an LPG computer when the ignition is switched on, and stores this information for life.

The information is transmitted by the multiplex network.

Switch on the ignition.

Test the multiplex network.

| SIRIUS 34 / EMS 3134 |
| PROGRAM N°: E5 |
| VDIAG N°: 04 - 08 - 09 |

PETROL INJECTION

Fault finding - Interpretation of statuses

17A

| **ET234** | CONDITIONS FOR SWITCHING TO LPG MODE |

| *NOTES* | There must be no present or stored faults.
This condition applies only to vehicle XA0B engine K4M 712 (LPG). |

The **ET234 "conditions for switching to LPG mode"** signal is sent by the fuel injection computer to indicate whether or not it will allow operation in LPG mode.
The injection computer authorises operation in LPG mode if the following conditions are met:

– **If it has received signal: ET257 "LPG ready": YES** (this signal comes from the LPG computer and is sent to the fuel injection computer through the multiplex network).

– **If the air temperature is sufficiently high** (to prevent any risks of the LPG injectors icing up).

– **Following a delay according to the coolant temperature when starting the engine.**

Switch on the ignition.

Test the multiplex network.

Consult the LPG fault finding strategy if the fault persists.

	LPG MODE REQUEST
ET236	

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG).

Status **ET236 "LPG mode request"** indicates attainment of the petrol/LPG switch position requested by the driver.

This signal comes from the LPG computer and is sent to the fuel injection computer through the multiplex network.

Switch on the ignition.

Test the multiplex network.

Consult the LPG fault finding strategy if the fault persists.

ET237	LPG TANK EMPTY

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG).

The fuel injection computer calculates that the LPG tank is empty on the basis of these criteria:

– **the signal from the upstream sensor and richness regulation** (indicating abnormally poor operation).

– **detection of successive engine stalls when switching into LPG mode.**

– **it takes an LPG pressure reading downstream from the pressure relief valve** (this information is issued by the LPG computer and transmitted to the fuel injection computer via the multiplex network).

This diagnostic is done in the fuel injection computer to enable automatic return to petrol operation mode when the LPG tank is reported empty:
Status ET237 "tank empty" is YES.

Switch on the ignition.

Test the multiplex network.

Consult the LPG fault finding strategy if the fault persists.

	LPG READY
ET257	

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG).

The signal **ET257 LPG ready** is sent by the LPG computer to indicate that the LPG system is ready to operate.

The information is transmitted by the multiplex network.

Switch on the ignition.

Test the multiplex network.

Consult the LPG fault finding strategy if the fault persists.

	LPG FAULT
ET258	

NOTES	There must be no present or stored faults. This condition applies only to vehicle XA0B engine K4M 712 (LPG).

The **ET258 "LPG fault"** signal is sent by the LPG computer to indicate that the LPG system has detected an electrical or operational fault in one of these components and can no long ensure proper engine operation.

The information is transmitted by the multiplex network.

Switch on the ignition.

Test the multiplex network.

Consult the LPG fault finding strategy if the fault persists.

| SIRIUS 34 / EMS 3134 |
| PROGRAM N°: E5 |
| VDIAG N°: 04 - 08 - 09 |

PETROL INJECTION
Fault finding - Interpretation of statuses

17A

	COMPUTER LOCKED FOLLOWING AN IMPACT
ET264	

NOTES	There must be no present or stored faults.

On receiving an impact detection signal emitted by the air bag computer on the multiplex network, the injection computer will do the following, having received the signal (after a maximum of 10 milliseconds): Stop the fuel pump supply, the ignition and the petrol or LPG injection.

Status ET264 "computer locked following impact" changes to STATUS 1.

The only way of restarting is to switch off the ignition for at least 10 seconds.

The only way to erase status ET264 is with command RZ007 "erase stored fault".

PR275	<u>OSCILLATION DETECTION COUNTER</u>

NOTES	None.

Parameter **PR275 "oscillation detection counter"** makes it possible to count abnormal throttle vibrations caused either by engine vibrations, or by micro-breaks in the power supply to the motorised throttle valve. **The counter increases from 0 to 255.**
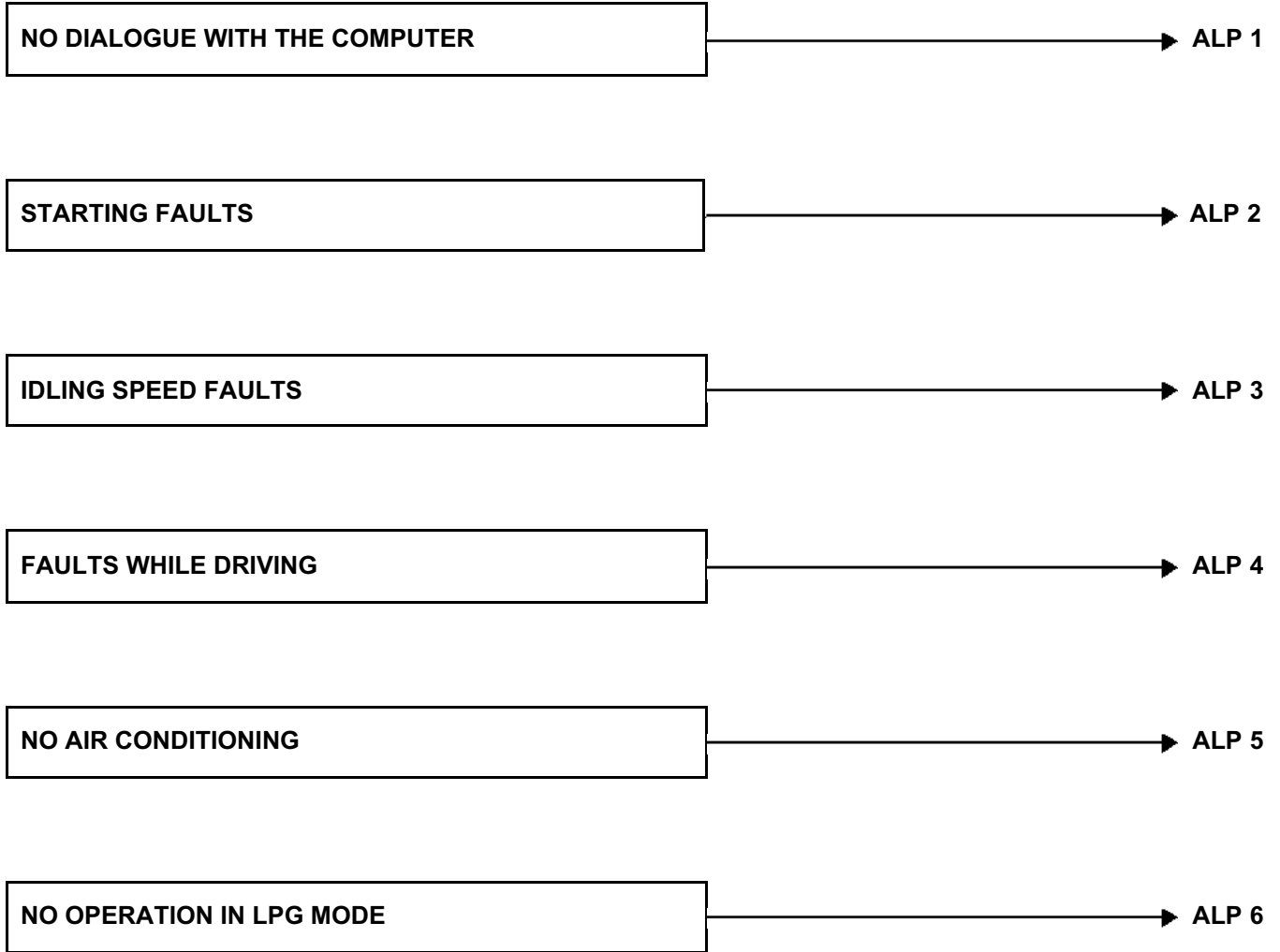
A micro-break in the motorised throttle valve's power supply is sufficient to trigger defect-mode engine operation. Status ET118 "throttle in defect mode" then indicates STATUS 1, 3 or 4.
The injection fault warning light does not always come on and the fault-finding tool finds none.
After turning the ignition off and on, the defect mode disappears.

When this counter indicates a value higher than 0:
Check the condition and fit of the clips and of the motorised throttle valve and injection computer connectors.
Repair.

To reset the counter to 0: Erase the computer's memory with command RZ 007 "erase stored fault".

If the problem persists, **contact your Techline**.

PETROL INJECTION
Fault finding - Customer complaints

17A

| NOTES | Customer Complaints should only be investigated after a complete check has been run using the diagnostic tool. |

NO DIALOGUE WITH THE COMPUTER ➞ **ALP 1**

STARTING FAULTS ➞ **ALP 2**

IDLING SPEED FAULTS ➞ **ALP 3**

FAULTS WHILE DRIVING ➞ **ALP 4**

NO AIR CONDITIONING ➞ **ALP 5**

NO OPERATION IN LPG MODE ➞ **ALP 6**

ALP 1	**No dialogue with the computer**

NOTES	None.

Try the diagnostic tool on another vehicle.

Check:

– the connection between the diagnostic tool and the diagnostic socket (lead in good condition),
– the injection, engine and passenger compartment fuses.
– Try to communicate with another computer on the same vehicle.

Repair if necessary.

Check that + 12 volts is present on track 16 of the diagnostic socket.

Repair if necessary.

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

Diagnostic socket track 5 ⟶ vehicle earth
Diagnostic socket track 4 ⟶ vehicle earth

Repair if necessary.

Ensure the presence of **+ 12 V** on:

– **Injection computer track 30**
– **Injection computer track 29 (ignition on)**

Repair if necessary.

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

Injection computer track 3 ⟶ vehicle earth
Injection computer track 28 ⟶ vehicle earth
Injection computer track 33 ⟶ vehicle earth
Injection computer track 67 ⟶ vehicle earth
Injection computer track 56 ⟶ track 7 diagnostic socket

Repair if necessary.

AFTER REPAIR	Test using the diagnostic tool.

ALP 2	**Starting faults**

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

- Check the condition of the battery.
- Check the tightness and oxydisation of the terminals.
- Check that the wiring on the battery/starter motor and battery/vehicle earth is in good condition.
- Check that the starter motor rotates properly.

↓

- Check that there is fuel present (fuel gauge faulty).
- Check that the fuel is of the proper type.
- Check that no hoses are pinched (especially after one has been removed).
- Check the condition of the petrol filter.
- Check that the tank vent is not blocked.
- Make sure that the fuel pump is running correctly and that petrol is reaching the injector rail.
- Make sure that the petrol pressure regulator is in good condition by checking the pressure.

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- Make sure that the air filter is in good condition; replace it if necessary.
- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Disconnect the hose connecting the fuel vapour canister solenoid valve to the inlet manifold and block the hose to prevent air intake: if there is no more disturbance, the fuel vapour canister solenoid valve is the problem.

↓

(**A**)

AFTER REPAIR	Test using the diagnostic tool.

ALP 2 CONTINUED	17A-112

(A)

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

- Check that the exhaust system is not blocked nor the catalytic converter clogged.

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

AFTER REPAIR	Test using the diagnostic tool.

ALP 3	**Idling speed faults**

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

- Check that there is petrol present (the petrol gauge may be faulty).
- Check that the petrol is of the proper type.
- Check that no hoses are pinched (especially after a removal operation).
- Check the condition of the petrol filter.
- Check that the tank vent is not blocked.
- Make sure the breather canister is not blocked and that the fuel vapour absorber is not clogged.
- Make sure that the petrol pressure regulator is in good condition by checking the pressure.

↓

- Make sure that the air filter is in good condition; replace it if necessary.
- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Disconnect the hose connecting the fuel vapour canister solenoid valve to the inlet manifold and block the hose to prevent air intake: if there is no more disturbance, the fuel vapour canister solenoid valve is the problem.

↓

- Check that the spark plugs are in good condition and that they correspond to the engine type; change them if necessary.
- Make sure the spark plugs have resistance by checking for the letter R in the supplier's part number. If in doubt, check their resistance, which must be between **3000** and **8000 W**.
- Make sure that the ignition coils are in good condition.

↓

- Check that the exhaust system is not blocked nor the catalytic converter clogged.

↓

- Check with the dipstick that the oil level is not too high.
- Check the engine compression.
- Check the timing.

AFTER REPAIR	Test using the diagnostic tool.

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| **ALP 4** | **Starting faults** |

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

- Check that there is petrol present (the petrol gauge may be faulty).
- Check that the petrol is of the proper type.
- Check that no hoses are pinched (especially after a removal operation).
- Check the condition of the petrol filter.
- Check that the tank vent is not blocked.
- Make sure the breather canister is not blocked and that the fuel vapour absorber is not clogged.
- Make sure that the petrol pressure regulator is in good condition by checking the pressure.

- Make sure that the air filter is in good condition; replace it if necessary.
- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Disconnect the hose connecting the fuel vapour canister solenoid valve to the inlet manifold and block the hose to prevent air intake: if there is no more disturbance, the fuel vapour canister is the problem.

- Check that the spark plugs are in good condition and that they correspond to the engine type; change them if necessary.
- Make sure the spark plugs have resistance by checking for the letter R in the supplier's part number. If in doubt, check their resistance, which must be between **3000** and **8000 W**.
- Make sure that the ignition coils are in good condition.

- Check that the exhaust system is not blocked nor the catalytic converter clogged.

- Check that the engine cooling system is working correctly.
- Check with the dipstick that the oil level is not too high.
- Check the engine compression.
- Check the timing.

- Check that the wheels turn freely (calipers, drums and bearings not seized).
- Check the condition of the tyre pressures.

| *AFTER REPAIR* | Test using the diagnostic tool. |

ALP 5	**NO AIR CONDITIONING**

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

Does parameter PR027 "coolant pressure" have a value of zero?

YES	**Test the air conditioning charge.** Repair if necessary.

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

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

Injection computer track 79	⟶	**Coolant pressure sensor**
Injection computer track 83	⟶	**Coolant pressure sensor**
Injection computer track 47	⟶	**Coolant pressure sensor**

Repair if necessary

Measure the **resistance of the air-conditioning pressure sensor**.
If necessary replace the sensor.

AFTER REPAIR	Test using the diagnostic tool.

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ALP 5 **CONTINUED**	17A-116

NO	Check the **connection and condition of the air conditioning compressor connector.** Replace the connector if necessary.

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

Injection computer track 39 ⟶ **Air conditioning compressor**

Repair if necessary.

Check **that the air conditioning compressor clutch is engaging properly** with diagnostic tool command **AC003 "Air conditioning compressor"**.
Repair if necessary.

Consult the fault finding strategy for the heating and ventilation if the incident persists.

AFTER REPAIR	Test using the diagnostic tool.

ALP 6	**NO OPERATION IN LPG MODE**

NOTES	**This customer complaint should only be investigated after a complete check has been run using the diagnostic tool.** **There must be no faults present or stored in the LPG system.**

Does status **ET200 "LPG-injection connection"** display **ACTIVE?** — no → **Test the multiplex network.** If no faults are found: **consult the LPG system fault-finding strategy.**

↓ yes

Does status **ET258 "LPG fault"** display **YES?** — yes → **Test the multiplex network.** If no faults are found: **consult the LPG system fault-finding strategy.**

↓ no

Does status **ET236 "LPG mode request"** display **ACTIVE?** — no → **Test the multiplex network.** If no faults are found: **consult the LPG system fault-finding strategy.**

↓ yes

Does status **ET237 "LPG tank empty"** display **YES?** — yes → The computer detected abnormally poor operation by the richness regulation and its upstream sensor signal, or successive engine stalls while switching to LPG mode:
Check the LPG system diagnostics: (Check the LPG level and pressure).

↓ no

Does status **ET257 "LPG ready"** display **YES?** — no → **Test the multiplex network.** If no faults are found: **consult the LPG system fault-finding strategy.**

↓ yes

Does status **ET234 "balance conditions in LPG mode"** display **OK?** — no → Check that the air temperature is high enough to prevent the injectors icing up.

Test the multiplex network. If no faults are found: **consult the system diagnostics.**

↓ yes

Consult the LPG fault finding strategy if the fault persists.

AFTER REPAIR	Test using the diagnostic tool.