Clio

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Engine and peripherals

Contents

This document presents the generic fault finding procedure applicable to all EDC15VM+ diesel injection computers fitted on the CLIO II F9Q782.

To undertake fault finding on this system, it is essential to have the following items available:
  – This section of the Workshop Repair Manual,
  – The wiring diagram of the function on the vehicle concerned,
  – The Clip or NXR diagnostic tool,
  – The control bornier Elé. 1621.

GENERAL APPROACH TO FAULT FINDING

– Use one of the diagnostic tools to identify the diesel injection system equipping the vehicle (reading of the computer family, program no., Vdiag, etc.).
– Locate the Fault finding documents corresponding to the system identified.
– Take note of information contained in the introductory sections.

DESCRIPTION OF THE FAULT FINDING PHASES

1 - CHECKING THE FAULTS

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

– Read the faults stored in the computer memory and use the Fault interpretation section of the documents.
  REMINDER: Each fault is interpreted depending on how it is stored (fault present, fault stored, fault present or stored). The checks defined for dealing with each fault are therefore only to be performed if the fault declared by the diagnostic tool is interpreted in the document for the way it is stored. The way in which the fault is stored should be considered when using a diagnostic tool after switching the ignition off then on again.
  If a fault is interpreted when it is declared as "stored", the conditions for applying fault finding appear in the "NOTES" box. When the conditions are not satisfied, use fault finding to check the circuit of the faulty part since the fault is no longer present on the vehicle. Perform the same operation when a fault is declared as stored by the diagnostic tool but is only interpreted in the documentation as a "present" fault.

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2 - CONFORMITY CHECK

The conformity check is designed to check the statuses and parameters which do not display any faults on the diagnostic tool when they are outside the permitted tolerance values. This phase is used to:
– diagnose problems when no faults are displayed which may correspond to a customer complaint.
– check that the injection is working correctly and ensure that a fault will not reappear after repair.

This section therefore provides a fault finding procedure for statuses and parameters and the conditions for checking them. If a status is not operating normally or a parameter is outside the permitted tolerance values, you should consult the corresponding fault finding page.

3 - DEALING WITH THE CUSTOMER COMPLAINT

If the diagnostic tool test is correct, but the customer complaint is still present, the problem should be dealt with in the customer complaint section.

This section has fault finding charts, which give a series of possible causes of the problem. These lines of investigation must only be used in the following cases:
– No fault observed on the diagnostic tool.
– No fault detected during the conformity check.
– The vehicle is not operating correctly.

COMPUTER FEATURES

1 - PROGRAMMING OPERATIONS

There are no specific conditions for the programming operations. The target is programmed automatically.

2 - CONFIGURATION OPERATIONS

Three functions can be configured in the computer:
– Heating and ventilation (CF579).
– Power-assisted steering pump assembly (CF580).
– Thermoplungers (CF581).

NOTE: configurations are taken into account at the end of the computer self-supply period. Therefore, after having selected the required configurations, switch the ignition off and wait for the end of the computer self-supply period (approximately 30 seconds) before switching the ignition back on again to check that the configurations have been registered correctly.

The electronic stability program function (on the Mégane only) is configured automatically and there is therefore no configuration operation for this function. However, it is possible to read the configuration of the electronic stability program function to see whether the vehicle is fitted with this function or not.

It is possible to read the configurations of the following functions:
– Heating and ventilation (LC034).
– Power-assisted steering pump assembly (LC032)
– Thermoplungers (LC035).
– Electronic stability program (LC031).

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FAULT WARNING LIGHT MANAGEMENT

The lighting of the warning lights on the instrument panel is governed by the faults detected.

FAULTS	LEVEL 1 FAULT WARNING LIGHT (preheating warning light: orange)	LEVEL 2 FAULT WARNING LIGHT (overheating warning light: red)	NO LIGHTING OF THE WARNING LIGHT
DF001 computer	...	**1.DEF**	**2.DEF**
DF002 coolant temperature sensor circuit	**CO.0 / CC.1**	...	**1.DEF**
DF004 vehicle speed sensor circuit	**1.DEF / 2.DEF**	...	...
DF005 needle lift sensor circuit	**1.DEF / 2.DEF** **3.DEF / 4.DEF**	...	...
DF012 battery voltage	...	...	**1.DEF / 2.DEF**
DF014 electrical solenoid circuit	**1.DEF**	**2.DEF**	...
DF019 air flow sensor circuit	**CO.0 / CC.1 / 1.DEF**	...	...
DF021 fuel temperature sensor	...	...	**CC.0 / CO.1 / 1.DEF**
DF022 air temperature sensor	...	...	**CC.0 / CO.1**
DF023 flywheel signal sensor circuit	...	**1.DEF**	**2.DEF**
DF027 EGR solenoid valve circuit	**CO.0 / 1.DEF**	...	**CC.1 / 2.DEF**
DF029 power-assisted steering relay control circuit	**CO.0 / CC.1**	...	...
DF045 preheating relay control circuit	...	...	**CC.0 / CC.1 / 1.DEF**
DF048 low-speed fan assembly circuit	...	...	**CO.0 / CC.1**
DF051 brake pedal switch circuit	...	...	**1.DEF**

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FAULTS	LEVEL 1 FAULT WARNING LIGHT (preheating warning light: orange)	LEVEL 2 FAULT WARNING LIGHT (overheating warning light: red)	NO LIGHTING OF THE WARNING LIGHT
DF058 sensor reference voltage	**1.DEF / 2.DEF**	...	...
DF068 engine immobiliser line	**1.DEF / 2.DEF**	...	...
DF071 pedal sensor circuit track 1	**CO.0 / CC.1 1.DEF / 2.DEF**	...	...
DF073 pedal sensor circuit track 2	**CO.0 / CC.1 / 1.DEF**	...	...
DF085 after ignition key signal	**1.DEF**	...	...
DF094 thermoplunger no. 1 relay	...	...	**CO.0 / CC.1**
DF104 thermoplunger no. 2 relay	...	...	**CO.0 / CC.1**
DF111 air conditioning cold loop control circuit	...	...	**CO.0 / CC.1**
DF113 refrigerant pressure sensor circuit	...	**2.DEF**	**CC.0 / 1.DEF**
DF125 main relay control circuit	**1.DEF**	...	...
DF126 fuel flow actuator circuit	**1.DEF**	**2.DEF**	...
DF139 injection advance sensor	**1.DEF / 2.DEF**	...	...
DF140 advance actuator control	...	**CO.0 / CC.1**	...
DF149 fuel flow sensor circuit	**1.DEF / 2.DEF**	**CC / 3.DEF**	...

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DF001 **PRESENT** **OR** **STORED**	COMPUTER 1.DEF : INTERNAL ELECTRICAL FAULT 2.DEF : ATMOSPHERIC PRESSURE SENSOR FAULT. REPLACE THE COMPUTER

NOTES	None.

1.DEF	*NOTES*	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the engine, allowing it to run for 5 seconds, switching the engine and the ignition off, waiting for the end of the computer self-supply period and then switching the ignition back on again.

Ensure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

Connect the bornier in place of the computer to ensure the **presence of a 12 volt supply** on **tracks 1, 2 and 37** of the computer. These supplies must be equal to the voltage measured at the battery terminals (± 0.5 volts).

If the previously checked supplies are not present or are not equal to the voltage measured at the battery terminals, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

computer **track 18** ⟶ **track 2** of the main relay (main relay control)
computer **track 1** ⟶ **track 5** of the injection locking relay (self-supply)
computer **track 2** ⟶ **track 5** of the injection locking relay (self-supply)
computer **track 37** ⟶ **injection fuse:** + after ignition feed (see vehicle diagram)
computer **track 4** ⟶ **earth**
computer **track 5** ⟶ **earth**

Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults. Reconfigure the computer if it has been replaced.

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DF001 CONTINUED	

If the previously checked connections are correct but the **12 volt supply** is still not present on **tracks 1 and 2** of the computer: **replace** the injection locking relay (main relay).
If **the 12 volt supply** is still not present on **track 37** of the computer: **check** the injection fuse (see vehicle diagrams). Replace if necessary.
If the supplies and earths of the computer are correct but if the fault is still present, **replace** the injection computer.

2.DEF	*NOTES*	Only apply this fault finding procedure if a fault is present with **2.DEF.**

Ensure that the air vent on the computer is not blocked. Clean if necessary.
Replace the injection computer.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults. Reconfigure the computer if it has been replaced.

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DF002 **PRESENT** **OR** **STORED**	<u>COOLANT TEMPERATURE SENSOR CIRCUIT</u> CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH CO.1 : OPEN CIRCUIT OR SHORT CIRCUIT TO +12V 1.DEF : INCONSISTENT SIGNAL

NOTES	None.

CO.0 *CO.1*	*NOTES*	Only apply this fault finding procedure if a fault is present with **CO.0** or **CO.1.**

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

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

   computer **track 112**   ⟶   **track 3** of the coolant temperature sensor
   computer **track 104**   ⟶   **track 2** of the coolant temperature sensor

Repair if necessary.

Check **the resistance value** of the sensor by measuring between:
track 2 and **track 3** of the coolant temperature sensor and replace the sensor if the resistance is not approximately: **2252 $\Omega \pm$ 112 Ω at 25°C.**
(For more details, consult the electrical properties of the sensor as a function of temperature in the repair method).

Check for the presence of a **5 volt supply** on **track B1** of the sensor.
If there is no supply, **change** the injection computer.

If the fault persists, **change** the coolant temperature sensor.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF002 CONTINUED	

1.DEF	*NOTES*	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present following an engine speed above 950 rpm.

Check the **conformity of the engine cooling system circuit**: radiator in good condition, unobstructed flow of cooling air (radiator not obstructed by leaves, etc.), coolant correctly bled, etc.

Using the diagnostic tool, monitor the temperature of the engine coolant (**PR002**). After starting (cold engine), at idle speed the temperature should rise uniformly without wavering. If the temperature rise is not linear (temperature curve rises or falls sharply), **change** the coolant temperature sensor.

If the fault persists, **change** the coolant temperature sensor.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF004 **PRESENT** **OR** **STORED**	VEHICLE SPEED SENSOR CIRCUIT 1.DEF : INCONSISTENT SIGNAL 2.DEF : INCONSISTENT VEHICLE SPEED

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present following: a road test with vehicle speed above 12 mph (20 km/h).

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

computer **track 20** ⟶ ABS computer

(see the vehicle's diagrams).
Repair if necessary.

Ensure that the speedometer **is operating** by performing a fault finding procedure on the instrument panel (auto-diagnostic by pressing the control panel button when the ignition is off then switching the ignition on whilst still pressing the button) as an instrument panel problem may affect the vehicle speed information.
Repair if necessary (refer to the fault finding technical note for the instrument panel).

If the speedometer is working and the previously checked connection is correct, perform **a fault finding procedure on the ABS** to ensure that none of the speed sensors are faulty and that the vehicle speed information supplied is consistent.
Repair if necessary (refer to the ABS fault finding note).

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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| **DF005**
PRESENT
OR
STORED | <u>NEEDLE LIFT SENSOR CIRCUIT</u>
1.DEF : INCONSISTENT SIGNAL
2.DEF : PERMANENT HIGH LEVEL
3.DEF : SHORT CIRCUIT TO EARTH
4.DEF : DETECTION OF EXCESS SPEED ON THE SECONDARY SPEED |

| *NOTES* | **Condition for applying the fault finding procedure to the stored fault.**
The fault is declared present after the engine has been started. |
| | **Priority for dealing with a combination of faults:**
– Deal first with the "**DF023** engine speed sensor circuit and **DF012** battery voltage"
faults if they are present or stored. |

Check the **connection and condition** of the needle lift sensor connector.
Repair if necessary.

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

     computer **track 101** ⟶ **track 2** of the needle lift sensor
     computer **track 109** ⟶ **track 1** of the needle lift sensor

Repair if necessary.

Check **the resistance value** of the sensor by measuring between:
track 1 and **track 2** of the needle lift sensor and replace the sensor if the resistance is not approximately:
100 $\Omega \pm$ 10 Ω at 25°C.

If the fault persists, **replace** the needle lift sensor.

| *AFTER REPAIR* | Erase all stored faults.
Follow the instructions to confirm repair.
Deal with any other possible faults. |

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DF012 PRESENT OR STORED	BATTERY VOLTAGE 1.DEF : BATTERY VOLTAGE TOO LOW 2.DEF : BATTERY VOLTAGE TOO HIGH

NOTES	**Special notes:** Symbol **1.DEF** appears for a voltage of approximately 6 volts (communications with the diagnostic tool cut off below 9 volts) and symbol **2.DEF** appears for a voltage of approximately 16.5 volts.

1.DEF	NOTES	Only apply this fault finding procedure if a fault is present with **1.DEF.**

Ensure that the cable connecting the battery to the starter motor, the battery earth cable to the chassis and the chassis earth cable to the engine and transmission assembly (GMP) **are in good condition.**

Ensure that the **battery is charged** correctly and, if necessary, check the charging circuit.

Connect the bornier in place of the computer to ensure the **conformity of the supplies** to **tracks 1, 2 and 37** of the computer. These supplies must be equal to the voltage measured at the battery terminals (± 0.5 volts).

If the previously checked supplies are not present or are not equal to the voltage measured at the battery terminals, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

   computer **track 18** ⟶ **track 2** of the main relay (main relay control)
   computer **track 1** ⟶ **track 5** of the main relay (self-supply)
   computer **track 2** ⟶ **track 5** of the main relay (self-supply)
   computer **track 37** ⟶ **injection fuse:** + after ignition feed (see vehicle diagrams)
   computer **track 4** ⟶ **earth**
   computer **track 5** ⟶ **earth**

Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF012 CONTINUED	

If the supply is still not present or correct on **tracks 1 and 2** of the computer, **replace the main relay**.

2.DEF	**NOTES**	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present following a road test at a vehicle speed above 2 mph (5 km/h) for 10 seconds.

Ensure that the cable connecting the battery to the starter motor, the battery earth cable to the chassis and the chassis earth cable to the engine and transmission assembly (GMP) **are in good condition.**

Ensure that the **battery is charged** correctly and, if necessary, check the charging circuit.

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

computer **track 1** ⟶ **track 5** of the main relay (self-supply)
computer **track 2** ⟶ **track 5** of the main relay (self-supply)
computer **track 37** ⟶ **injection fuse:** + after ignition feed (see vehicle diagram)

Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF014 PRESENT OR STORED	<u>ELECTRICAL SOLENOID CIRCUIT</u> 1.DEF: INCONSISTENCY 2.DEF: OPEN CIRCUIT, SHORT CIRCUIT TO EARTH OR SHORT CIRCUIT TO +12V

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the engine, allowing it to warm up to reach a coolant temperature of 50°C, switching the engine and the ignition off, waiting for the end of the computer self-supply period and then switching the ignition back on again.

Check **the connection and condition** of the electrical solenoid terminal.
Repair if necessary.

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

   computer **track 120** ⟶ **round electrical solenoid terminal**

Repair if necessary.

Using the diagnostic tool, start the command: **AC035** electrical solenoid.
The tool should display: command complete and it should be possible to hear the electrical solenoid closing.

If the command was not performed correctly:
Check **the resistance value** of the solenoid valve by measuring between:
The round electrical solenoid terminal and earth and replace the electrical solenoid if its resistance is not approximately: **7.5 $\Omega \pm$ 1 Ω at 25°C.**

If the fault persists, remove the electrical solenoid and ensure that it is not seized mechanically. Replace if necessary.

If the problem persists, **replace** the electrical solenoid.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF019 PRESENT OR STORED	<u>AIR FLOW SENSOR CIRCUIT</u> CC.1 : SHORT CIRCUIT TO +12V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH 1.DEF : SENSOR SUPPLY PROBLEM

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF058** sensor reference voltage" fault if it is present or stored. **Special notes:** The supply to the air flow sensor is common to the EGR copy potentiometer (common track) and to the pedal sensor, track 1 (computer internal connection) and therefore an air flow sensor supply fault is often associated to a supply fault on the pedal sensor, track 1. **NOTE:** disconnecting the sensors during a fault finding procedure (with the ignition on) to check the supplies causes faults to be relayed back to the diagnostic tool (e.g.: disconnecting the air flow sensor relays causes an open circuit on the air temperature sensor). These additional faults should therefore be ignored and erased after the repair.

1.DEF	*NOTES*	Only apply this fault finding procedure if a fault is present with **1.DEF.**

Check **the connection and condition** of the air flow sensor connector. Repair if necessary.
Disconnect the air flow sensor and check, with the ignition on, that there is a **5 volt supply** on **track 3** of the sensor. If there is no supply, connect the bornier in place of the computer and check (ignition off) **the insulation, continuity and absence of interference resistance** of the connection: computer **track 30** ⟶ **track 3** of the air flow sensor Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF019 CONTINUED 1	

If the previously checked connection is correct but the supply is still not present on **track 3** of the air flow sensor, ensure that the EGR potentiometer or the accelerator pedal sensor are not causing the voltage to drop, by disconnecting them each in turn. Replace the component which is causing the voltage to drop.

If the previous tests did not allow the supply to be reconnected to track 3 of the air flow sensor: Connect the bornier in place of the computer and check (ignition off) **the insulation, continuity and absence of interference resistance** of the connections:
 	
    computer **track 12** ⟶ **track 4** of the pedal potentiometer track 1
    computer **track 30** ⟶ **track 2** of the EGR valve
 	
Repair if necessary.

If the previous tests did not allow the 5 volt supply to be reconnected to the air flow sensor: **Replace the computer**.

CC.1 *CO.0*	*NOTES*	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after the engine has been started.

Check **the connection and condition** of the air flow sensor connector. Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF019 CONTINUED 2	

> Disconnect the air flow sensor and check that there is a **5 volt supply** on **track 3** of the sensor.
> If there is no supply, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:
>
> computer **track 30** ⟶ **track 3** of the air flow sensor
> computer **track 68** ⟶ **track 5** of the air flow sensor
> computer **track 49** ⟶ **track 2** of the air flow sensor
>
> Repair if necessary.

> If the fault persists, **replace** the air flow sensor.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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| **DF021**
PRESENT
OR
STORED | FUEL TEMPERATURE SENSOR CIRCUIT
CC.0 : SHORT CIRCUIT TO EARTH
CO.1 : OPEN CIRCUIT OR SHORT CIRCUIT TO +12V
1.DEF : INCONSISTENT SIGNAL |

| *NOTES* | **Condition for applying the fault finding procedure to the stored fault.**
The fault is declared present after the engine has been started. |
| | **Special notes:**
The fuel temperature sensor is located in the injection pump. |

Check **the connection and condition** of the black 7-track connector of the injection pump.
Repair if necessary.

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

     computer **track 111** ⟶ **track 5** of the black 7-track connector of the injection pump
     computer **track 103** ⟶ **track 6** of the black 7-track connector of the injection pump

Repair if necessary.

Using the diagnostic tool, view parameter: **PR001** fuel temperature and ensure that the information is consistent (see conformity check).

If the temperature displayed is not consistent or if it is stuck at 45°C:
Check **the resistance value** of the fuel temperature sensor by measuring between:
track 5 and **track 6** of the black 7-track connector of the injection pump and replace the temperature sensor if its resistance is not approximately: **2200 Ω - 2600 Ω at 20°C.**

If the problem persists, **replace** the fuel temperature sensor.

| *AFTER REPAIR* | Erase all stored faults.
Follow the instructions to confirm repair.
Deal with any other possible faults. |

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DF022 **PRESENT**	<u>AIR TEMPERATURE SENSOR CIRCUIT</u> CC.0 : SHORT CIRCUIT TO EARTH CO.1 : OPEN CIRCUIT OR SHORT CIRCUIT TO +12V

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF019** air flow sensor circuit" fault if it is present or stored.
	Special notes: The air temperature sensor is located in the air flowmeter.

Check **the connection and condition** of the black 6-track connector of the air flowmeter.
Repair if necessary.

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

    computer **track 49**   ⟶   **track 2** of the black 6-track connector of the air flowmeter
    computer **track 73**   ⟶   **track 1** of the black 6-track connector of the air flowmeter

Repair if necessary.

Using the diagnostic tool, view parameter: **PR003** air temperature and ensure that the information is consistent (see conformity check).

If the temperature displayed is not consistent or if it is stuck at 20°C:
Check **the resistance value** of the air temperature sensor by measuring between:
track 1 and **track 2** of the black 6-track connector of the air flowmeter, replace the flowmeter if the resistance of the sensor is not approximately: **2868 $\Omega \pm$ 200 Ω at 25°C.**

If the problem persists, **replace** the air flowmeter.

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

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DF023 **PRESENT** **OR** **STORED**	FLYWHEEL SIGNAL SENSOR CIRCUIT 1.DEF : INCONSISTENT SIGNAL 2.DEF : ABOVE MAXIMUM THRESHOLD.

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the engine, although the fault can revert to stored after the engine is switched off. The fault finding procedure must therefore be applied even if the fault is only stored.

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

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

  computer **track 102** ⟶ **track A** of the engine speed sensor
  computer **track 110** ⟶ **track B** of the engine speed sensor

Repair if necessary.

Check **the resistance value** of the engine speed sensor by measuring between:
track A and **track B** of the sensor, replace the sensor if the resistance is not approximately: **600** Ω - **800** Ω at **20°C**.

Remove the sensor and ensure it has **not been rubbing** on the flywheel target (flywheel warped or cracked) Replace the sensor if necessary.

Check the **condition of the engine flywheel** especially if it is removed (condition of teeth).
Change the flywheel if necessary.

If the fault persists, **change** the flywheel signal sensor.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF027 PRESENT OR STORED	<u>EGR SOLENOID VALVE CIRCUIT</u> CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT TO +12 V 1.DEF : DEVIATION ON POSITIVE LOOP 2.DEF : DEVIATION ON NEGATIVE LOOP

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF125** main relay control circuit" fault if it is present or stored.

CO.0 *CC.1*	*NOTES*	Only apply this fault finding procedure if a fault is present with **CO.0** or **CC.1.**

Check **the connection and condition of the connector** of the EGR valve and replace the connector if necessary.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection: computer **track 61** ⟶ **track 5** of the EGR valve Repair if necessary.
With the ignition on, ensure that there is a supply on track 1 of the valve connector. If there is no supply, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection: EGR valve **track 1** ⟶ **track 5** of the main relay Repair if necessary.
Check **the resistance value** of the EGR valve by measuring between: **track 1** and **track 2** of the valve and replace the valve if its resistance is not approximately: **8** $\Omega \pm$ **0.5** Ω at **20°C**.
If the fault persists, replace the EGR valve.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF027 CONTINUED 1	

	NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after the engine has been started.
1.DEF *2.DEF*		**Priority for dealing with a combination of faults:** – Deal first with the "**DF019** air flow sensor circuit" fault if it is present or stored.
		Special notes: The air flow sensor is also used to check that the EGR valve is operating correctly. **NOTE:** a fault on the air flow sensor prevents the EGR valve from being controlled.

With the engine running, view parameter "**PR125** EGR valve control" and check at various engine speeds that this parameter varies (on average from 25 - 95%).

Check that the air circuit and EGR valve are **sealed.**
Repair if necessary.

Remove the EGR valve and ensure that it is in the **closed position** (not stuck in an intermediate position). Repair if necessary by cleaning the valve.

If the valve remains stuck in an intermediate position even after cleaning, **replace** the EGR valve.
If the valve has returned to the closed position, reconnect the connector and using the diagnostic tool, erase the fault then start the command "**AC007** EGR valve" to ensure that it opens and closes correctly (no point of resistance).
Replace the valve if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF027 CONTINUED 2	13-22

If the control was performed correctly, refit the valve and check for problems on the air flow sensor (see special notes).

Check **the connection and condition** of the air flow sensor connector.
Repair if necessary.

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

computer **track 30** ⟶ **track 3** of the air flow sensor
computer **track 68** ⟶ **track 5** of the air flow sensor
computer **track 49** ⟶ **track 2** of the air flow sensor

Repair if necessary.

If the fault persists, **replace** the air flow sensor.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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| **DF029**
PRESENT
OR
STORED | POWER ASSISTED STEERING RELAY CONTROL CIRCUIT
CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH
CC.1 : SHORT CIRCUIT TO +12V |

| *NOTES* | **Condition for applying the fault finding procedure to the stored fault.**
The fault is declared present after starting the engine or starting the command: **AC036** power-assisted steering relay. |

Check the **condition of the clips** of the power-assisted steering relay on the engine fuse and relay board (see diagrams of the vehicle's relay plate).
Replace the clips if necessary.

With the ignition on ensure the **presence of +12 volts** on track 3 and on track 1 of the power-assisted steering relay (see vehicle diagrams).
Repair if necessary.

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

    computer **track 81**   ⟶   **track 2** of the power-assisted steering relay.

Repair if necessary.

Check **the resistance value** of the relay by measuring between:
track 1 and **track 2** of the power-assisted steering relay and replace the relay if the resistance is not approximately: **80** $\Omega \pm$ **5** Ω at **25°C**.

If the fault persists, **replace** the power-assisted steering relay.

| *AFTER REPAIR* | Erase all stored faults.
Follow the instructions to confirm repair.
Deal with any other possible faults. |

INJ.EDC15VM+1.1

DF045 **PRESENT** **OR** **STORED**	PREHEATING RELAY CONTROL CIRCUIT CC.1 : SHORT CIRCUIT TO +12 V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH 1.DEF : INCONSISTENT SIGNAL

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after preheating is started or after starting the command: **AC010** preheating relay.

CO.0 *CC.1*	*NOTES*	Only apply this fault finding procedure if a fault is present with **CO.0** or **CC.1**.

Check **the condition of the clips** of the preheating relay.
Replace the clips if necessary.

Check the **presence of +12 volts before ignition** on track 3 of the preheating relay.
Repair if necessary.

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

   computer **track 42** ⟶ **track 8** of the preheating relay

Repair if necessary.

Check **the resistance value** of the relay by measuring between:
track 8 and **track 3** of the preheating relay and replace the relay if the resistance is not approximately: **1300** $\Omega \pm$ **100** Ω at **25°C**.

If the fault persists, **replace** the preheating relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF045 CONTINUED 1	

1.DEF	**NOTES**	Only apply this fault finding procedure if a fault is present with **1.DEF**.

Check **the condition of the clips** of the preheating relay.
Replace the clips if necessary.

Check the **presence of +12 volts before ignition** on track 3 of the preheating relay.
Repair if necessary.

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

    computer **track 42** ➤ **track 8** of the preheating relay
    computer **track 33** ➤ **track 9** of the preheating relay

Repair if necessary.

Disconnect the preheating relay and check the **insulation, continuity and absence of interference resistance** of the connections:

    preheating relay **track 6** ➤ pre-heater plug **No. 1**
    preheating relay **track 7** ➤ pre-heater plug **No. 2**
    preheating relay **track 1** ➤ pre-heater plug **No. 3**
    preheating relay **track 2** ➤ pre-heater plug **No. 4**

Repair if necessary.

Check **the resistance value** of the relay by measuring between:
track 8 and **track 3** of the preheating relay and replace the relay if the resistance is not approximately: **1300** $\Omega \pm$ **100** Ω at **25°C**.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF045 CONTINUED 2	13-26

Ensure the pre-heater plugs are **working correctly** by starting the command "**AC010** preheating relay". Using an amps clamp, check that the control voltage is the same on the four plug leads or by ensuring that the plugs heat up correctly by checking visually (plugs removed) or else by touching the plugs (warning: do not start the command more than once as the plugs may be damaged and burns may result if touched).
Replace the faulty plug or plugs.

If the above checks do not solve the problem, **replace** the preheating relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF048 PRESENT OR STORED	LOW-SPEED FAN CIRCUIT CC.1 : SHORT CIRCUIT TO +12V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the command: **AC011** low-speed fan assembly relay.
	Priority for dealing with a combination of faults: – Deal first with the "**DF125** main relay control circuit" fault if it is present or stored.

Check **the condition of the clips** of the low-speed fan assembly relay on the engine fuse and relay plate (see relay plate diagrams of the vehicle in question).
Replace the clips if necessary.

With the ignition on ensure the **presence of +12 volts** on track 3 and on track 1 of the low-speed fan assembly relay (see diagrams of the vehicle in question).
Repair if necessary.

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

computer **track 60** ⟶ **track 2** of the low-speed fan assembly relay.

Repair if necessary.

Check **the resistance value** of the low-speed fan assembly relay by measuring between:
track 1 and **track 2** of the relay and replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at **25°C**.

If the fault persists, **replace** the low-speed fan assembly relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF051 **PRESENT** **OR** **STORED**	<u>BRAKE PEDAL SWITCH CIRCUIT</u> 1.DEF : CONSISTENCY OF BRAKE SIGNAL WITH REDUNDANT SWITCH

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after pressing the brake pedal ten times in succession.

Check **the connection and condition** of the connector of the brake pedal switch.
Repair if necessary.

Ensure **correct adjustment** of the brake pedal switch (refer to repair methods).

With the ignition on, check for **the presence of +12 volts** on the brake pedal switch by measuring between earth and tracks: **A1** and **B1.**
Repair if necessary.

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

computer **track 46** ⟶ **track A3** of the brake switch
computer **track 65** ⟶ **track B3** of the brake switch

Repair if necessary.

Disconnect the connector of the brake pedal sensor and check **the condition of the contacts** using an ohmmeter.
Replace the brake pedal sensor if it is not operating as described below:

<u>Pedal at rest</u>	<u>Pedal pressed</u>
insulation between tracks A1 and B3	continuity between tracks A1 and B3
continuity between tracks B1 and A3	insulation between tracks B1 and A3

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF058 **PRESENT**	<u>SENSOR REFERENCE VOLTAGE</u> 1.DEF : BELOW MINIMUM THRESHOLD 2.DEF : ABOVE MAXIMUM THRESHOLD

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF019** air flow sensor circuit, **DF071** pedal sensor circuit, track 1, **DF073** pedal sensor circuit, track 2, **DF113** refrigerant pressure sensor circuit and **DF027** EGR solenoid valve circuit" faults if they are present or stored.
	Special notes: No other faults should be present.

Replace the diesel injection computer.

AFTER REPAIR	Erase all stored faults. Reconfigure the computer according to the options fitted to the vehicle. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF068 **PRESENT**	<u>ENGINE IMMOBILISER LINE</u> 1.DEF : NO SIGNAL 2.DEF : INCONSISTENT SIGNAL

NOTES	None.

Perform a **fault finding procedure on the multiplex network** in order to ascertain if there are any faulty multiplex connections.
Repair if necessary (refer to the fault finding technical note for the multiplex network).

Using the diagnostic tool, check the UCH and ensure that its **immobiliser code has been programmed correctly**.
Reconfigure the UCH if necessary.

Carry out a starting test: if the vehicle does not start, **switch off the ignition and wait 15 seconds** (self-supply period of the computer) then try to start the engine again.
If the problem persists, repeat the operation three times.

If the vehicle still will not start, **replace the injection computer** to see whether the problem is caused by the inability to unlock the computer.

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF071 **PRESENT** **OR** **STORED**	<u>PEDAL SENSOR CIRCUIT TRACK 1</u> CC.1 : SHORT CIRCUIT TO +12 V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH 1.DEF : INCONSISTENT SIGNAL 2.DEF : SENSOR SUPPLY PROBLEM
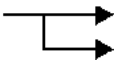
NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after pressing the accelerator pedal.
	Priority for dealing with a combination of faults: – Deal first with the "**DF058** sensor reference voltage" fault if it is present or stored.
	Special notes: The supply to the pedal sensor track 1 is common to the air flow sensor (computer internal connection) and to the EGR copy potentiometer (track common to the air flow sensor) and therefore a pedal sensor track 1 supply fault is often associated to a supply fault on the air flow sensor. **NOTE:** disconnecting the sensors during a fault finding procedure (with the ignition on) to check the supplies causes faults to be relayed back to the diagnostic tool (e.g.: disconnecting the air flow sensor relays back an open circuit on the air temperature sensor). These additional faults should therefore be ignored and erased after the repair.

2.DEF	*NOTES*	Only apply this fault finding procedure if a fault is present with **2.DEF.**

Check **the connection and condition** of the pedal sensor connector (on the accelerator pedal). **Change** the connector if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF071 CONTINUED 1	

Disconnect the accelerator pedal sensor and check that there is a **5 volt supply** on **track 4** of the sensor.
If there is no supply, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection:

    computer **track 12** ⟶ **track 4** of the pedal sensor track 1

Repair if necessary.

If the supply is still not present or if the line (**track 12**) is connected to earth or to +12 volts.
Disconnect the EGR connector and the air flowmeter connector then connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

    computer **track 30** ⟶ **track 3** of the air flow sensor
                            ⟶ **track 2** of the EGR potentiometer

Repair if necessary.

If the supply is not present on **track 4** of the pedal sensor track 1 (pedal sensor, air flow sensor and EGR disconnected) and if the previously checked connections are correct, connect the three components in turn to find out which one causes the voltage to drop: replace the faulty component.

If the previous tests did not allow the 5 volt supply to be reconnected to the pedal sensor track 1: **Replace the computer.**

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF071 CONTINUED 2	

CC.1 **CO.0** **1.DEF**	**NOTES**	Only apply this fault finding procedure if a fault is present with **CC.1, CO.0** or **1.DEF.**

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

Ensure the accelerator pedal moves the potentiometer correctly from its minimum end stop to its maximum end stop.

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

computer **track 50** ⟶ **track 2** of the pedal potentiometer track 1
computer **track 69** ⟶ **track 3** of the pedal potentiometer track 1
computer **track 12** ⟶ **track 4** of the pedal potentiometer track 1

Repair if necessary.

Check **the resistance value** of pedal potentiometer No. 1 by measuring between: **track 2** and **track 4** of the potentiometer and replace the potentiometer if its resistance is not approximately: **1.2 K**$\Omega \pm$ **480** Ω at 20°C.

If the fault persists, **change** the pedal potentiometer.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF073 **PRESENT** **OR** **STORED**	<u>PEDAL SENSOR CIRCUIT TRACK 2</u> CC.1 : SHORT CIRCUIT TO +12 V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH 1.DEF : SENSOR SUPPLY PROBLEM

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after pressing the accelerator pedal.
	Priority for dealing with a combination of faults: – Deal first with the "**DF058** sensor reference voltage" fault if it is present or stored.
	Special notes: The supply to the pedal sensor track 2 is common to the refrigerant pressure sensor (computer internal connection) and therefore a pedal sensor track 2 supply fault is often associated to a supply fault on the refrigerant pressure sensor. **NOTE:** disconnecting the sensors during a fault finding procedure (with the ignition on) to check the supplies causes faults to be relayed back to the diagnostic tool (e.g.: disconnecting the pedal sensor relays causes an open circuit of the pedal sensor circuit track 1). These additional faults should therefore be ignored and erased after the repair.

1.DEF	*NOTES*	Only apply this fault finding procedure if a fault is present with **1.DEF.**

Check **the connection and condition** of the pedal sensor connector (on the accelerator pedal). **Change** the connector if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

| **DF073**

CONTINUED 1 | |

Disconnect the accelerator pedal sensor and check that there is a **5 volt supply** on **track 5** of the sensor.
If there is no supply, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection:

   computer **track 31** ⟶ **track 5** pedal sensor track 2

Repair if necessary.

If the supply is still not present or if the line (**track 31**) is connected to earth or to +12 volts, disconnect the refrigerant pressure sensor connector then connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection:

   computer **track 94** ⟶ **track B** of the refrigerant pressure sensor

Repair if necessary.

If the supply is not present on **track 5** of the pedal sensor track 2 (pedal sensor and refrigerant pressure sensor disconnected) and if the previously checked connections are correct, connect the two components in turn to find out which one causes the voltage to drop: replace the faulty component.

If the previous tests did not allow the 5 volt supply to be reconnected to the pedal sensor track 2:
Replace the computer.

| *AFTER REPAIR* | Erase all stored faults.
Follow the instructions to confirm repair.
Deal with any other possible faults. |

INJ.EDC15VM+1.1

DF073 CONTINUED 2	

CC.1 **CO.0**	**NOTES**	Only apply this fault finding procedure if a fault is present with **CC.1** or **CO.0.**

Check **the connection and condition** of the accelerator pedal sensor connector. **Change** the connector if necessary.

Ensure the accelerator pedal moves the potentiometer correctly from its minimum end stop to its maximum end stop.

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

computer **track 31** ⟶ **track 5** of the pedal potentiometer track 2
computer **track 70** ⟶ **track 6** of the pedal potentiometer track 2
computer **track 51** ⟶ **track 1** of the pedal potentiometer track 2

Repair if necessary.

Check **the resistance value** of pedal potentiometer No. 2 by measuring between: **track 1** and **track 5** of the potentiometer and replace the potentiometer if its resistance is not approximately: **1.7 K$\Omega \pm$ 680** Ω at 20°C.

If the fault persists, **change** the pedal potentiometer.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

| **DF085**
PRESENT | AFTER IGNITION KEY SIGNAL
1.DEF : INCONSISTENT SIGNAL |

| *NOTES* | None. |

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

computer **track 37** ⟶ **+ After ignition feed** (see engine fuse board diagrams)
computer **track 4** ⟶ **earth**
computer **track 5** ⟶ **earth**

Repair if necessary.

If the previously checked connections are correct but if there is no supply on **track 37** of the computer, check the condition of **fuse F5** on the engine fuse board.
Replace if necessary.

If the supply is still not present on **track 37** of the computer, check that the 12 volt after ignition feed is reaching **fuse F5**.
Repair if necessary (see diagrams).

| *AFTER REPAIR* | Erase all stored faults.
Deal with any other possible faults. |

INJ.EDC15VM+1.1

DF094 **PRESENT** **OR** **STORED**	<u>THERMOPLUNGER RELAY No. 1</u> CC.0 : SHORT CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT TO +12V

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after the thermoplungers have operated (engine cold) or after starting the command **AC301** thermoplunger No. 1 relay.

Check **the condition of the clips** of the thermoplunger No. 1 relay in the engine relay and fuse plate (see diagrams of the engine relay plate).
Replace the clips if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 3 and track 1 of the thermoplunger No. 1 relay.
Repair if necessary (see relevant vehicle diagrams).

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

    computer **track 21** ⟶ **track 2** of the thermoplunger No. 1 relay

Repair if necessary.

Check **the resistance value** of thermoplunger No. 1 relay by measuring between:
track 1 and **track 2** of the relay, replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at 25°C.

If the fault persists, **replace** the thermoplunger No. 1 relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF104 PRESENT OR STORED	THERMOPLUNGER NO. 2 RELAY CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT TO +12V

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after the thermoplungers have operated (engine cold) or after starting the command **AC302** thermoplunger No. 2 relay.

Check **the condition of the clips** of the thermoplunger No. 2 relay in the engine relay and fuse plate (see diagrams of the engine relay plate).
Replace the clips if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 3 and track 1 of the thermoplunger No. 2 relay.
Repair if necessary (see relevant vehicle diagrams).

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

    computer **track 40** ⟶ **track 2** of the thermoplunger No. 2 relay

Repair if necessary.

Check **the resistance value** of thermoplunger No. 2 relay by measuring between:
track 1 and **track 2** of the relay and replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at 25°C.

If the fault persists, **replace** the thermoplunger No. 2 relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF111 **PRESENT** **OR** **STORED**	AIR CONDITIONING COLD LOOP RELAY CONTROL CIRCUIT CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT TO +12V

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the engine and switching on the air conditioning or starting the command **AC599** air conditioning compressor.
	Special notes: To start the command **AC599** air conditioning compressor, the air conditioning panel must be switched on along with the passenger compartment ventilation.

Check **the condition of the clips** of the air conditioning cold loop relay in the engine fuse and relay plate (see diagram of vehicle's relay plate).
Replace the clips if necessary.

With the ignition on, ensure the **presence of +12 volts** on track 3 and on track 1 of the
air conditioning cold loop relay.
Repair if necessary (see vehicle diagrams).

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

computer **track 29** ⟶ **track 2** of the air conditioning cold loop relay

Repair if necessary.

Check **the resistance value** of the air conditioning cold loop relay by measuring between:
track 1 and **track 2** of the relay, replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at 25°C.

If the fault persists, **replace** the air conditioning cold loop relay.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF113 **PRESENT**	<u>REFRIGERANT PRESSURE SENSOR CIRCUIT</u> CC.0 : SHORT CIRCUIT TO EARTH 1.DEF : PRESSURE TOO LOW 2.DEF : SENSOR SUPPLY PROBLEM

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF058** sensor reference voltage" fault if it is present or stored.
	Special notes: The supply to the refrigerant pressure sensor is common to the pedal sensor track 2 (computer internal connection) and therefore a refrigerant pressure sensor supply fault is often associated to a supply fault on the pedal sensor track 2. **NOTE:** disconnecting the sensors during a fault finding procedure (with the ignition on) to check the supplies causes faults to be relayed back to the diagnostic tool (e.g.: disconnecting the pedal sensor relays causes an open circuit of the pedal sensor circuit track 1). These additional faults should therefore be ignored and erased after the repair.

2.DEF	*NOTES*	Only apply this fault finding procedure if a fault is present with **2.DEF.**

Check the **connection and condition** of the refrigerant pressure sensor connector. Change the connector if necessary.
Disconnect the refrigerant pressure sensor and check that there is a **5 volt supply** on **track B** of the sensor. If there is no supply, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection: computer **track 94** ⟶ **track B** of the refrigerant pressure sensor Repair if necessary.

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF113 CONTINUED 1	

If the supply is still not present or if the line (**track 94**) is connected to earth or to +12 volts, disconnect the accelerator pedal sensor then connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection:

computer **track 31** ⟶ **track 5** pedal sensor track 2

Repair if necessary.

If the supply is not present on **track B** of the refrigerant pressure sensor (pedal sensor and refrigerant pressure sensor disconnected) and if the previously checked connections are correct, connect the two components in turn to find out which one causes the voltage to drop: replace the faulty component.

If the previous tests did not allow the 5 volt supply to be reconnected to the refrigerant pressure sensor: **Replace the computer**.

CC.0	*NOTES*	Only apply this fault finding procedure if a fault is present with **CC.0.**

Check the **connection and condition** of the refrigerant pressure sensor connector. Change the connector if necessary.

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

computer **track 89** ⟶ **track A** of the refrigerant pressure sensor
computer **track 94** ⟶ **track B** of the refrigerant pressure sensor
computer **track 97** ⟶ **track C** of the refrigerant pressure sensor

Repair if necessary.

If the fault persists, **change** the refrigerant pressure sensor.

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

INJ.EDC15VM+1.1

| **DF113** CONTINUED 2 | |

| *1.DEF* | *NOTES* | Only apply this fault finding procedure if a fault is present with **1.DEF.** |

Check the **connection and condition** of the refrigerant pressure sensor connector. Change the connector if necessary.

View parameter **PR192** refrigerant pressure and ensure that the pressure is greater than 2 bar (compressor operation prohibition safety function).

If the pressure is less than 2 bar, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

computer **track 89** ⟶ **track A** of the refrigerant pressure sensor
computer **track 94** ⟶ **track B** of the refrigerant pressure sensor
computer **track 97** ⟶ **track C** of the refrigerant pressure sensor

Repair if necessary.

If the connections are correct, ensure that the air conditioning system is **correctly filled** (see air conditioning fault finding) and that the system does not have any **refrigerant leaks**.
Repair the leaks or refill with refrigerant if necessary.

If the fault persists, **change** the refrigerant pressure sensor.

| *AFTER REPAIR* | Erase all stored faults. Deal with any other possible faults. |

INJ.EDC15VM+1.1

| DF125 PRESENT OR STORED | <u>MAIN RELAY CONTROL CIRCUIT</u> 1.DEF : RELAY CUT OFF TOO LATE |

| *NOTES* | **Condition for applying the fault finding procedure to the stored fault.** The fault is declared present after starting the engine then switching it and the ignition off, waiting for the end of the computer self-supply period and then switching the ignition back on again. |

Check the **condition of the clips** of the main relay on the engine fuse and relay plate (see vehicle relay plate diagrams).
Replace the clips if necessary.

Check the **presence of +12 volts before ignition** on track 3 and track 1 of the main relay. If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connections:

    main relay   **track 1** ⟶ **track 3** of the impact sensor
    main relay   **track 3** ⟶ **+ before ignition** (see vehicle diagrams)
    impact sensor **track 1**

If the connections are correct but if the supply is still not present on **track 1** of the main relay, ensure that the impact sensor is working correctly by checking the continuity between tracks 1 and 3 using an ohmmeter. If there is no continuity (impact sensor triggered), **replace** the impact sensor.

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

    computer **track 18** ⟶ **track 2** of the main relay

Repair if necessary.

Check **the resistance value** of the main relay by measuring between: **track 1** and **track 2** of the relay and replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at 25°C.

If the fault persists, **change** the main relay.

| *AFTER REPAIR* | Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults. |

INJ.EDC15VM+1.1

DF126 PRESENT OR STORED	<u>FUEL FLOW ACTUATOR CIRCUIT</u> 1.DEF : DEVIATION ON POSITIVE LOOP 2.DEF : DEVIATION ON NEGATIVE LOOP

NOTES	**Condition for applying the fault finding procedure to the stored fault.** The fault is declared present following an engine speed above 1200 rpm.
	Priority for dealing with a combination of faults: – Deal first with the **DF145** "fuel flow controller" and **DF125** "main relay control circuit" faults if they are present or stored.
	Special note: A deviation on the positive loop will lead to a lack of power whilst a deviation on the negative loop will cause the engine to stop. **Replacing the fuel flow actuator requires the pump to be adjusted internally on** **a diesel injection bench.**

Check **the connection and condition of the** black 7-track connector of the injector pump.
Change the connector if necessary.

With the ignition switched on, ensure there is a **12 volts** supply on **track 7** of the black 7-track connector of
the injection pump.
If there is no supply, check the **insulation, continuity and absence of interference resistance** of the
connection:

   black 7-track connector of the pump **track 7** ⟶ **track 5** of the main relay

Repair if necessary.

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

   computer **track 116** ⟶ **track 4** of the black 7-track connector of the pump (actuator control)
   computer **track 121**

Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF126 CONTINUED	

If the fault persists, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

computer **track 100** ⟶ **track 1** of the black 7-track connector of the injection pump
computer **track 108** ⟶ (flow slide valve reference)
computer **track 99** ⟶ **track 2** of the black 7-track connector of the injection pump
computer **track 107** ⟶ (flow slide valve position measurement)
computer **track 106** ⟶ **track 3** of the black 7-track connector of the injection pump
(flow slide valve mid point)

Repair if necessary.

Check **the resistance value** of the flow actuator by measuring between:
track 4 and **track 7** of the black 7-track connector of the injection pump and replace the fuel flow actuator (see notes above) if its resistance is not approximately: **0.4** Ω - **1** Ω (take the resistance of the multimeter wires into account).

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF139 **PRESENT** **OR** **STORED**	INJECTION ADVANCE SENSOR 1.DEF: DEVIATION ON POSITIVE LOOP 2.DEF: DEVIATION ON NEGATIVE LOOP

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF005** needle lift sensor circuit and **DF125** main relay control circuit" faults if they are present or stored.
	Condition for applying the fault finding procedure to the stored fault. The fault is declared present after starting the engine then accelerating at no load to between 1500 and 4500 rpm.
	Special notes: The computer uses the needle lift sensor to provide a copy signal of the injection advance actuator. The combination of these two components forms the injection advance sensor circuit.

Check **the connection and condition** of the black 3-track connector of the injection pump.
Change the connector if necessary.

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

computer **track 114** ⟶ **track 1** of the black 3-track connector of the injection pump

Repair if necessary.   (advance actuator control)

With the ignition switched on, ensure there is a **12 volts** supply on **track 2** of the black 3-track connector of the injection pump.
If there is no supply, check the **insulation, continuity and absence of interference resistance** of the connection:

track 2 of the black 3-track connector of the pump ⟶ **track 5** of the main relay

Repair if necessary.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

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DF139 CONTINUED	

Check **the resistance value** of the advance solenoid valve by measuring between:
track 1 and **track 2** of the black 3-track connector of the injection pump and replace the injection advance actuator if its resistance is not approximately: **10.3 Ω - 17.3 Ω at 20°C.**

If the fault persists, check **the connection and condition** of the connector of the needle lift sensor.
Repair if necessary.

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

      computer **track 101** ⟶ **track 2** of the needle lift sensor
      computer **track 109** ⟶ **track 1** of the needle lift sensor

Repair if necessary.

Check **the resistance value** of the sensor by measuring between:
track 1 and **track 2** of the needle lift sensor and replace the sensor if the resistance is not approximately:
100 Ω ± 10 Ω at 25°C.

If the fault persists, **replace** the injection advance actuator.

AFTER REPAIR	Erase all stored faults. Follow the instructions to confirm repair. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF140 **PRESENT**	ADVANCE ACTUATOR CONTROL CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT TO +12V

NOTES	None.

Check **the connection and condition** of the black 3-track connector of the injection pump.
Change the connector if necessary.

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

computer **track 114** ⟶ **track 1** of the black 3-track connector of the injection pump

Repair if necessary.   (advance actuator control)

With the ignition switched on, ensure there is a **12 volts** supply on **track 2** of the black 3-track connector of the injection pump.
If there is no supply, check the **insulation, continuity and absence of interference resistance** of the connection:

black 3-track connector of the pump **track 2** ⟶ **track 5** of the main relay

Repair if necessary.

Check **the resistance value** of the advance solenoid valve by measuring between:
track 1 and **track 2** of the black 3-track connector of the injection pump and replace the injection advance actuator if its resistance is not around: **10.3 Ω - 17.3 Ω at 20°C.**

If the fault persists, **replace** the injection advance actuator.

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

INJ.EDC15VM+1.1

DF149 **PRESENT**	<u>FUEL FLOW SENSOR CIRCUIT</u> CC : SHORT CIRCUIT 1.DEF : PARAMETER AT MAX END STOP. 2.DEF : PARAMETER AT MIN END STOP. 3.DEF : INTERNAL ELECTRICAL FAULT

NOTES	**Special notes:** The fault finding procedure on this controller is performed at a diesel temperature above 10°C and with a battery voltage greater than 10.5 volts. **Replacing the fuel flow actuator and its sensor requires the pump to be adjusted internally on a diesel injection bench.**

Check **the connection and condition of the** black 7-track connector of the injector pump.
Change the connector if necessary.

If the fault persists, connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connections:

computer **track 100** ⎯⎤⎯→ **track 1** of the black 7-track connector of the injection pump
computer **track 108** ⎯⎦ (flow slide valve reference)
computer **track 99** ⎯⎤⎯→ **track 2** of the black 7-track connector of the injection pump
computer **track 107** ⎯⎦ (flow slide valve position measurement)
computer **track 106** ⎯⎯⎯→ **track 3** of the black 7-track connector of the injection pump
(flow slide valve mid point)

Repair if necessary.

Check **the resistance value** of the flow controller by measuring between:
Track 1 and **track 3** of the black 7-track connector of the injection pump: **4.9 Ω - 6.5 Ω.**
Track 2 and **track 3** of the black 7-track connector of the injection pump: **4.9 Ω - 6.5 Ω.**
If the resistances of the flow actuator are not within these value ranges, replace the fuel flow actuator / sensor assembly (see notes above).

AFTER REPAIR	Erase all stored faults. Deal with any other possible faults.

INJ.EDC15VM+1.1

NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
1	Computer supply	**ET001:** computer + after ignition feed	**ACTIVE**	**In the event of a problem:** Apply the fault finding procedure for the charging circuit.
		PR004: computer supply voltage	**11.8 < X < 13.2 V**	
2	Immobiliser	**ET003:** engine immobiliser	**INACTIVE**	If active apply the fault finding procedure for the immobiliser system.
3	Accelerator pedal	**PR092:** pedal load (track 1)	no load: **X =0%** full load: **X =100%**	**In the event of a problem:** Apply **the fault finding procedure** for faults on the pedal sensor circuit, track 1 and track 2 (**DF071** and **DF073**).
		PR093: pedal load (track 2)	no load: **X =0%** full load: **X =100%**	
		PR242: calculated accelerator pedal position	no load: **X =0%** full load: **X =100%**	
		PR008: pedal potentiometer voltage, track 1	**X = 5 Volts** (± 0.2 Volts)	
		ET159: accelerator and brake pedal safety	**INACTIVE,** (**ACTIVE** if a pedal is pressed and then the other)	**For more information:** refer to the fault finding procedure for status **ET159**.

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NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
4	Fuel	**ET160:** electrical solenoid	**ACTIVE** for 30 seconds after the ignition is switched on, then **INACTIVE**.	**In the event of a problem:** Apply **the fault finding procedure** for the electrical solenoid circuit fault (**DF014**)
		PR248: advance actuator	**X = 95%**	**In the event of a problem:** Apply **the fault finding procedure** for the advance actuator control fault (**DF140**).
5	Fault warning lights	**ET008:** Overheating warning light	**ACTIVE** for 3 seconds when the ignition is switched on then **INACTIVE**(the warning light remains active for a level 2 injection fault).	**In the event of a problem:** Refer to the fault finding procedure for status **ET008**.
		ET125: preheating / fault warning light	**ACTIVE** during the preheating phase then **INACTIVE** (the warning light remains active for a level 1 injection fault).	**In the event of a problem:** refer to the fault finding procedure for status **ET125**.
6	Gas recirculation	**PR125:** EGR valve control	**X = 5%**	**In the event of a problem:** Apply **the fault finding procedure** for the EGR solenoid valve circuit fault (**DF027**).

INJ.EDC15VM+1.1

NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
7	Switches	**ET013:** Brake switch no. 1 signal	**ACTIVE** when the pedal is pressed **INACTIVE** if not.	**In the event of a problem:** Apply **the fault finding procedure** for the brake pedal switch circuit fault (**DF051**).
		ET014: Brake switch no. 2 signal	**ACTIVE** when the pedal is pressed **INACTIVE** if not.	
8	Relays	**ET037:** low-speed fan assembly relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the low-speed fan assembly circuit fault (**DF048**).
		ET038: high-speed fan assembly relay control	**INACTIVE**	**In the event of a problem:** Apply the fault finding procedure for status **ET038.**
		ET025: power-assisted steering relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the **power-assisted steering** relay control circuit fault (**DF029**).

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NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test conditions: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
8	Relays (continued)	**ET106:** thermoplunger no. 1 relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the thermoplunger no. 1 relay fault (**DF94**).
		ET107: thermoplunger no. 2 relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the thermoplunger no. 2 relay fault (**DF104**).
		ET027: pre-postheating relay control	**ACTIVE** during the preheating phase, then **INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the preheating relay control circuit fault (**DF104**).

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NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test application conditions: engine warm at idling speed, without electrical consumers.**	

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
1	Computer supply	**ET001:** computer + after ignition feed	**ACTIVE**	**In the event of a problem:** Apply the fault finding procedure for the charging circuit.
		PR004: computer supply voltage	**12 < X < 14.5 V**	
2	Immobiliser	**ET003:** engine immobiliser	**INACTIVE**	If active apply the fault finding procedure for the immobiliser system.
3	Coolant temperature sensor	**PR002:** coolant temperature	**X = engine temperature $\pm$ 5°C** (substitute value: **105°C**)	**In the event of a problem:** Apply **the fault finding procedure** for the coolant temperature sensor circuit fault (**DF002**).
4	Air temperature sensor	**PR003:** air temperature	**X = temperature under bonnet $\pm$ 5°C** (substitute value: **19.66°C**)	**In the event of a problem:** Apply **the fault finding procedure** for the air temperature sensor circuit fault (**DF022**).
5	Air flow	**PR050:** air flow measurement	**200 < X < 520 mg/st.**	**In the event of a problem:** Apply **the fault finding procedure** for the air flow sensor circuit fault (**DF019**).
		PR025: air flowmeter supply voltage	**X = 5 volts** **($\pm$ 0.2 V)**	
		PR016: atmospheric pressure	**X = atmospheric pressure** (substitute value: **1024 hPa**)	If the pressure does not vary (remains stuck on its substitute value): replace the computer.

NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test application conditions: engine warm at idling speed, without electrical consumers.**

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
6	Accelerator pedal	**PR092:**	pedal load (track 1)	no load: **X =0%** full load: **X =100%**	**In the event of a problem:** Apply **the fault finding procedure** for faults on the pedal sensor circuit, track 1 and track 2 (**DF071** and **DF073**).
		PR093:	pedal load (track 2)	no load: **X =0%** full load: **X =100%**	
		PR242:	calculated accelerator pedal position	no load: **X =0%** full load: **X =100%**	
		PR008	pedal potentiometer voltage, track 1	**X = 5 volts** (± **0.2 V**)	
		ET159:	accelerator and brake pedal safety	**INACTIVE,**(**ACTIVE** if a pedal is pressed and then the other)	**In the event of a problem:** refer to the fault finding procedure for status **ET159**.
7	Air conditioning	**PR192:**	refrigerant fluid pressure	**2 < X < 15 bar**	**In the event of a problem:** Apply **the fault finding procedure** for the refrigerant pressure sensor circuit fault (**DF113**).
		PR203:	refrigerant sensor voltage	**X = 5 volts** (± **0.2 V**)	
		ET006:	air conditioning request	**INACTIVE**	**In the event of a problem:** refer to the fault finding procedure for status **ET006**.
		ET116:	air conditioning compressor relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the air conditioning cold loop relay control circuit (**DF111**).

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	NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test application conditions: engine warm at idling speed, without electrical consumers.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
8	Fuel	**PR001:** Fuel temperature	**X = diesel temperature ± 5°C** (substitute value: **44.96 °C**)	**In the event of a problem:** Apply **the fault finding procedure** for the fuel temperature sensor circuit fault (**DF021**).
		PR033: fuel flow	**0.6 < X < 1.1 l/h**	**None.**
		ET160: electrical solenoid	**ACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the electrical solenoid circuit fault (**DF014**)
		PR248: advance actuator	**5% < X < 95%**	**In the event of a problem:** Apply **the fault finding procedure** for the advance actuator control fault (**DF140**).
9	Fault warning lights	**ET008:** Overheating warning light	**INACTIVE** (active for a level 2 injection fault)	**In the event of a problem:** refer to the fault finding procedure for status **ET008**.
		ET125: preheating / fault warning light	**INACTIVE** (active for a level 1 injection fault)	**In the event of a problem:** refer to the fault finding procedure for status **ET125**.

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| **NOTES** | Only check the conformity after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Test application conditions: engine warm at idling speed, without electrical consumers. |

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
10	Vehicle and engine speeds	**PR006:** engine speed	**X = 850 rpm**	**In the event of a problem:** Apply **the fault finding procedure** for the flywheel signal sensor circuit fault (**DF023**).
		PR062: idle speed reference	**X = 850 rpm**	**None.**
		PR018: vehicle speed	**X = 0 mph**	**In the event of a problem:** Apply **the fault finding procedure** for the vehicle speed sensor circuit fault (**DF004**).
11	Relays	**ET106:** thermoplunger no. 1 relay control	**INACTIVE** (**active** if coolant temperature = **5 < X < 85°C** and air temperature = **2 < X < 7°C,** control prohibited if the coolant temperature is 0°C due to metal part holding faults).	**In the event of a problem:** Apply **the fault finding procedure** for the thermoplunger no. 1 relay fault (**DF094**).
		ET107: thermoplunger no. 2 relay control		**In the event of a problem:** Apply **the fault finding procedure** for the thermoplunger no. 2 relay fault (**DF104**).
		ET027: Pre-postheating relay control	**INACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the preheating relay control circuit fault (**DF104**).

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NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test application conditions: engine warm at idling speed, without electrical consumers.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
11	Relays (continued)	**ET037:** low-speed fan assembly relay control	**ACTIVE** for a coolant temperature above **99°C** or when the air conditioning is switched on. **INACTIVE** for a coolant temperature below **96°C**.	**In the event of a problem:** Apply **the fault finding procedure** for the low-speed fan assembly circuit fault (**DF048**).
		ET038: high-speed fan assembly relay control	**ACTIVE** for a coolant temperature above **102°C** or for a freon pressure above **23 bar**). **INACTIVE** for a coolant temperature below **99 °C**.	**In the event of a problem:** Apply the fault finding procedure for status **ET038.**
		ET025: power-assisted steering relay control	**ACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the power-assisted steering relay control circuit fault (**DF029**).
12	Gas recirculation	**PR125:** EGR valve control	**5 % < X < 95%**	**In the event of a problem:** Apply **the fault finding procedure** for the EGR solenoid valve circuit fault (**DF027**).

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| NOTES | Only check the conformity after a **complete check** with the diagnostic tool.
The values indicated in this conformity check are given as examples.
Test conditions: engine warm at idling speed with air conditioning operating. |

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
1	Air conditioning	**PR192:**	refrigerant fluid pressure	**3 bar < X < 25 bar** (without any hesitation caused by the compressor starting).	**In the event of a problem:** Apply **the fault finding procedure** for the refrigerant pressure sensor circuit fault (**DF113**).
		PR203:	refrigerant sensor voltage	**X = 5 volts** (± **0.2 V**)	
		ET006:	air conditioning request	**ACTIVE**	**In the event of a problem:** refer to the fault finding procedure for status **ET006**.
		ET116:	air conditioning compressor relay control	**ACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the air conditioning cold loop relay control circuit (**DF111**).
2	Engine speed	**PR006:**	engine speed	**X = 875 rpm** (**900 rpm** if thermoplungers active **1000 rpm** if heated windscreen or heated rear screen active).	**In the event of a problem:** Apply **the fault finding procedure** for the flywheel signal sensor circuit fault (**DF023**).
		PR062:	idle speed reference		**None.**

DIESEL INJECTION
Fault finding - Conformity check

	NOTES	Only check the conformity after a **complete check** with the diagnostic tool. The values indicated in this conformity check are given as examples. **Test conditions: engine warm at idling speed with air conditioning operating.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
3	Low-speed fan assembly relay	**ET037:** low-speed fan assembly relay control	**ACTIVE**	**In the event of a problem:** Apply **the fault finding procedure** for the low-speed fan assembly circuit fault (**DF048**).
4	High-speed fan assembly relay	**ET038:** high-speed fan assembly relay control	**INACTIVE** or **ACTIVE** if the freon pressure is above **23 bar**.	**In the event of a problem:** Apply the fault finding procedure for status **ET038.**

	Air conditioning request
ET006	

NOTES	There must be no faults present or stored.

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

computer **track 34** ⟶ air conditioning computer (refer to air conditioning diagrams for the vehicle).

Repair if necessary.

If the fault persists, **carry out a fault finding procedure on the air conditioning.**

AFTER REPAIR	Restart the conformity check from the beginning.

INJ.EDC15VM+1.1

	Overheating warning light
ET008	

NOTES	**Special note::** the overheating warning light also acts as a level 2 injection fault warning light. To ensure that the warning light is operating correctly, it lights up for 3 seconds when the ignition is switched on.

When the overheating warning light comes on, ensure that parameter **PR002** coolant temperature shows a coherent value (see conformity check). If the value exceeds 120°C, this is indeed a case of engine overheating. In this case, check the cooling circuit and ensure that the fans are operating correctly by starting commands: **AC011** low-speed fan assembly relay and **AC012** high-speed fan assembly relay.
Carry out the necessary repairs.

If the coolant temperature is correct and if the overheating warning light is on, then the injection has experienced a level 2 fault.
This level 2 fault warning light comes on to indicate that the injection system has a serious fault requiring the driver or the injection computer to stop the engine.
The diesel injection system must be checked using the diagnostic tool and any faults repaired when this fault warning light comes on.
If no faults are shown by the diagnostic tool, refer to the introduction of the **fault warning light management** section to ascertain which components are affected when the level 2 injection fault warning light comes on, in order to work out which fault finding procedure should be carried out.

AFTER REPAIR	Restart the conformity check from the beginning.

INJ.EDC15VM+1.1

| **ET038** | high-speed fan assembly relay control |

| *NOTES* | There must be no faults present or stored. |

Check **the condition of the clips** of the high-speed fan assembly relay on the engine fuse and relay plate (see relay plate diagrams of the vehicle in question).
Replace the clips if necessary.

With the ignition switched on, check the **presence of +12 volts** on **track 3** and track 1 of the high-speed fan assembly relay.
(**track 3**: + battery / **track 1**: + after ignition feed from track 5 of the main relay).
Repair if necessary.

Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the connection: computer **track 62** ⟶ **track 2** of the high-speed fan assembly relay.
Repair if necessary.

Check the resistance value of the high-speed fan assembly relay by measuring between:
track 1 and **track 2** of the relay and replace the relay if its resistance is not approximately: **80** $\Omega \pm$ **5** Ω at 25°C.

If the fault persists, **replace** the high-speed fan assembly relay.

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

INJ.EDC15VM+1.1

ET125	Preheating / fault warning light

NOTES	**Special note:** The preheating warning light also acts as a level 1 injection fault warning light.

During normal operation, the preheating warning light comes on during the preheating phase then goes out.

If the warning light remains lit after the preheating phase (in the parameter screen, status: **ET027** preheating relay control switches to the **INACTIVE** status), then the injection has a level 1 fault. When this level 1 fault warning light comes on, the engine will operate in defect mode and will no longer respect anti-pollution standards. However, the driver is still able to drive the vehicle to the garage.
The diesel injection system must be checked using the diagnostic tool and any faults repaired when this fault warning light comes on.
If no faults are shown by the diagnostic tool, refer to the introduction of the **fault warning light management** section to ascertain which components are affected when the level 1 injection fault warning light comes on, in order to work out which fault finding procedure should be carried out.

AFTER REPAIR	Restart the conformity check from the beginning.

INJ.EDC15VM+1.1

ET159	Accelerator and brake pedal safety

NOTES	There must be no faults present or stored.

This status switches to active when the accelerator pedal and brake pedal are pressed at the same time or when one pedal is pressed and then the other.

This status is a safety device which prevents the engine from stalling (e.g. blocking of the flow slide valve).

When status **ET159** is active, the engine speed is limited to 1300 rpm.

The injection returns to normal operation (engine speed limitation discontinued) if both pedals are released and the engine speed is at a normal idling speed (850 rpm).

AFTER REPAIR	Restart the conformity check from the beginning.

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NOTES	Only refer to this customer complaint after a complete check using the diagnostic tool

NO COMMUNICATION WITH THE COMPUTER	CHART 1

STARTING PROBLEMS	CHART 2

IDLE SPEED PROBLEMS	CHART 3

PROBLEMS WHEN DRIVING	CHART 4

INJ.EDC15VM+1.1

| CHART 1 | **NO COMMUNICATION WITH THE COMPUTER** |

| *NOTES* | **None.** |

Try the diagnostic tool on another vehicle.

Check:
– the connection between the diagnostic tool and the diagnostic socket (wiring in good condition),
– the injection, engine and passenger compartment fuses.

Check for the presence of **+ 12 volts before ignition** on **track 16**, **+ 12 volts after ignition** on **track 1** and an **earth** on **tracks 4 and 5** 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** of the connections:

computer **track 1** ⟶ **track 5** of the main relay (computer self-supply)
computer **track 2** ⟶ **track 5** of the main relay (computer self-supply)
computer **track 37** ⟶ **+ after ignition** (passenger compartment fuse box)
computer **track 18** ⟶ **track 2** of the main relay (relay control)
computer **track 4** ⟶ **earth**
computer **track 5** ⟶ **earth**
computer **track 14** ⟶ **track 15** of the diagnostic socket (line L)
computer **track 16** ⟶ **track 7** of the diagnostic socket (line K)

Repair if necessary.

| *AFTER REPAIR* | Check with the diagnostic tool. |

INJ.EDC15VM+1.1

| **CHART 2** | **STARTING PROBLEMS**
(starting is difficult or impossible) |

| *NOTES* | **Only refer to this customer complaint after a check using the diagnostic tool** |

Ensure the conformity of parameter: "**PR002** coolant temperature", as an incorrect reading from the sensor alters or cancels the control of the preheating relay and has an effect on fuel flow management.

If no faults are displayed by the diagnostic tool, ensure that the problem is not linked to an **engine immobiliser system fault** by viewing status: **ET003** immobiliser (see checking conformity).
If necessary perform a fault finding procedure on the UCH.

Ensure that the starter motor rotates correctly (approximately 250 rpm).
If this is not the case:
– Check the condition of the battery, oxidization and tightness of the terminals.
– Ensure the engine earth strap is in good condition.
– Ensure that the battery lead to the starter motor is in good condition.
– Check the battery charge level.
– Check that the starter motor is operating correctly.

Preheating check:
– Ensure that the preheating is operating correctly by starting command: **AC010** preheating relay using the diagnostic tool. During this command, check for the presence of a 12 volt supply on the preheater plugs (measure using a voltmeter or amps clamps on each plug lead).
– If there is no electrical supply on one or several plugs, apply the fault finding procedure for fault: **DF045** preheating relay control circuit.
– If the plugs are correctly supplied, with the preheating relay connector disconnected, check the resistance of the plugs (**0.6** Ω $\pm$ **0.3** Ω). Replace the faulty plug or plugs.

A

| *AFTER REPAIR* | Check with the diagnostic tool. |

INJ.EDC15VM+1.1

| **CHART 2** CONTINUED 1 | |

A

Fuel supply check:
– Check that there is fuel present (the fuel gauge may be faulty).
– Check that the fuel is of the proper type.
– Check that no hoses are pinched (especially after a removal operation).
– Check the condition of the diesel filter and replace if necessary.
– Ensure that the fuel tank breather is not blocked.
– Ensure that there are no air leaks on the diesel supply system.
– Ensure that the impact sensor is operating correctly.

Air supply check:
– Check the condition of the inlet ducts (no air leaks, pinching of the air inlet pipe etc.).
– Ensure that the air filter is in good condition and replace if necessary.
– Check that the brake servo is not leaking (air leak).

Engine speed sensor check:
(if the engine starts and then stalls straightaway)
– Remove the engine speed sensor and ensure it has not been rubbing on its target (increase in the air gap). If it has, check the condition of the engine flywheel (warped or cracked).

Exhaust system check:
– Ensure that the exhaust system is in good condition.
– Remove the pre-catalytic converter and look at the condition of the filter element inside (clogging).
– Shake the pre-catalytic converter to see whether the filter element is broken (metallic noises) and replace if necessary.

B

| *AFTER REPAIR* | Check with the diagnostic tool. |

INJ.EDC15VM+1.1

CHART 2

CONTINUED 2

B

Engine condition check:
– Using the dipstick, check that the oil level is not too high.
– Ensure that the engine rotates freely.
– Check the cylinder compression.
– Check the timing.
– Check the injection pump setting (see repair methods).

EGR valve check:
– It may not be possible to start the engine if the EGR valve is stuck in the fully open position. Therefore in this case, the EGR valve must be removed to ensure that it has returned correctly to the closed position.
– If the valve is stuck in the open position, try to release it with a cleaning product.
– Replace the EGR valve if it cannot be released.

| *AFTER REPAIR* | Check with the diagnostic tool. |

INJ.EDC15VM+1.1

| **CHART 3** | **IDLE SPEED PROBLEMS** |

| *NOTES* | **Only refer to this customer complaint after a check using the diagnostic tool** |

Ensure the conformity of parameter: "**PR002** coolant temperature", (see conformity check) as an incorrect reading from the sensor has an effect on the flow and advance management of the injection pump.

Fuel supply check::
– Check that there is fuel present (the fuel 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 diesel filter and replace if necessary.
– Ensure that the fuel tank breather is not blocked.
– Ensure that there are no air leaks on the diesel supply system.
– Ensure that the impact sensor is operating correctly.

Air supply check:
– Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
– Ensure that the air filter is in good condition; change it if necessary.
– Check that the brake servo is not leaking (air entering).

Engine speed sensor check:
– Remove the engine speed sensor and ensure it has not been rubbing on its target (increase in the air gap).
  If it has, check the condition of the engine flywheel (warped or cracked).

Engine condition check:
– Using the dipstick, check that the oil level is not too high.
– Check the cylinder compressions.
– Check the timing.

| *AFTER REPAIR* | Check with the diagnostic tool. |

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| **CHART 4** | **PROBLEMS WHEN DRIVING** |

| *NOTES* | **Only refer to this customer complaint after a check using the diagnostic tool** |

Fuel supply check:
– Check that there is enough fuel present (the fuel gauge may be faulty).
– Check that no hoses are pinched (especially after a removal operation).
– Check the condition of the diesel filter and replace if necessary.
– Ensure that the fuel tank breather is not blocked.
– Ensure that there are no air leaks on the diesel supply system.
– Ensure that the impact sensor is operating correctly.

↓

Air supply check:
– Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
– Ensure that the air filter is in good condition and not deformed; change it if necessary.
– Check that the brake servo is not leaking (air entering).

↓

Engine speed sensor check:
– Remove the engine speed sensor and ensure it has not been rubbing on its target (increase in the air gap).
  If it has, check the condition of the engine flywheel (warped or cracked).

↓

Engine condition check:
– Using the dipstick, check that the oil level is not too high.
– Ensure that the engine cooling system is operating correctly (so that the engine is operating under optimum conditions, neither too cold nor too hot).

↓

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| *AFTER REPAIR* | Check with the diagnostic tool. |

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| CHART 4

CONTINUED | |

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EGR valve check:
– Engine hesitation or lack of performance may be caused if the EGR valve is stuck in the fully open position or if the valve moves slowly due to sticking. Therefore in this case, the EGR valve must be removed to ensure that it has returned correctly to the closed position.
– If the valve is stuck in the open position, try to release it with a cleaning product.
– Replace the EGR valve if it cannot be released.

Exhaust system check:
– Ensure that the exhaust system is in good condition.
– Remove the pre-catalytic converter and look at the condition of the filter element inside (clogging).
– Shake the pre-catalytic converter to see whether the filter element is broken (metallic noises) and replace if necessary.

Running gear check:
– Check that the wheels turn freely (calipers, drums or bearings not binding).
– Check the tyre pressures and tread condition (bulges).

| ***AFTER REPAIR*** | Check with the diagnostic tool. |

INJ.EDC15VM+1.1

GENERAL APPROACH TO FAULT FINDING

> **To carry out a fault finding test on the "SAGEM 2000 Vdiag 08" injection system, the following elements are required:**
>
>   – **The wiring diagram for the function on the vehicle concerned,**
>   – **Diagnostic tools (except XR 25).**
>   – **Multimeter.**
>   – **Test bornier: Elé. 1590.**

1 Use one of the diagnostic tools to identify the system fitted on the vehicle (reading the computer family - "SAGEM 2000 Vdiag 08").

   Note: if dialogue cannot be established with the computer, go directly to the "Customer complaint" section and consult Fault finding chart 1 "No communication with the computer".

2 Locate the Fault finding documents corresponding to the system identified.

3 Read the faults stored in the computer memory and use the "Fault interpretation" section of the documents.

   Reminder: *A fault should be interpreted when using the diagnostic tool after switching the ignition off then back on again.*
   Faults can be interpreted in two ways: either as present faults or stored faults.
   – *If the fault is declared as "present":*
     perform the fault finding procedure directly.
   – *If the fault is declared as "stored":*
     following the application instructions for the stored fault.
     If the fault does not switch to present, perform the fault finding procedure but do not replace the component.
     In both cases, finish the fault finding procedure by carrying out the instructions in the "After Repair" section.

4 Perform the conformity check *(appearance of possible faults not yet declared by the system's auto-diagnostic procedure)* **and apply the relevant fault finding procedures according to results.**

5 Confirm the repair (disappears of the "Customer complaint" and "Fault finding chart" sections).

6 Use the "Customer complaint" and "Fault finding chart" sections if the problem persists.

WARNING

Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".

BORNIER CHARACTERISTICS

Bornier Elé. 1590 consists of a 112 track fixed connector connected to a printed circuit on which are arranged 112 copper plated areas number from 1 to 112.

Using the wiring diagrams, it is easy to identify connections or other parts needing to be checked.

IMPORTANT

* All checks using bornier Elé. 1590 should only be performed with the battery disconnected.

* The bornier is designed to be used with an ohmmeter only. Under no circumstances should 12 volts be applied to the test points.

JSAA3082. 0

DF002 **PRESENT** **OR** **STORED**	THROTTLE POSITION POTENTIOMETER CIRCUIT DEF : Unidentified electrical fault

NOTES	**Warning: Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".**
	Deal first with faults DF125 and DF126 if they are present. **Conditions for applying the fault finding procedure to the stored fault:** – The fault is declared present after a variation in engine speed.

Check the **cleanliness, connection and condition** of the throttle position potentiometer connections.
If necessary change the connections.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track G4 connector B ⟶ **Throttle position potentiometer**
      Computer track G3 connector B ⟶ **Throttle position potentiometer**
      Computer track G2 connector B ⟶ **Throttle position potentiometer**
      Computer track D3 connector B ⟶ **Throttle position potentiometer**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly**.
Check that tracks 1 and 2 of the throttle position potentiometer **correctly follow their resistive curves**. (See the values in the "HELP" section).
Repair or change the throttle body if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	**If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").**
	Follow the instructions to confirm repair:
	   – Continue to deal with the fault if it is present.
	   – Ignore the fault if it is stored. Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF003 **PRESENT** **OR** **STORED**	<u>AIR TEMPERATURE SENSOR CIRCUIT</u> DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the fan has been activated with the engine running.

DEF	Check **the cleanliness, connection and condition** of the sensor and the connector. If necessary change the connections.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	    Computer track E3 connector B ⟶ Air temperature sensor
	    Computer track E2 connector B ⟶ Air temperature sensor
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

	Check **the resistance** of the air temperature sensor. (See the values in the "HELP" section). Replace the sensor if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| **DF003**

CONTINUED | 17-5 |

| **OBD** | *NOTES* | Run the engine until the fan engages. |

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

| **AFTER REPAIR** | If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal. |
| | Follow the instructions to confirm repair:
  – If the fault is present with symbol "DEF", continue to deal with the fault.
  – If the fault is stored with symbol "DEF", ignore it.
  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF004 **PRESENT** **OR** **STORED**	COOLANT TEMPERATURE SENSOR CIRCUIT DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the fan has been activated with the engine running.

DEF	Check **the cleanliness, connection and condition** of the sensor and the connector. If necessary change the connections.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections: 　　**Computer track F2 connector B ⟶ Coolant temperature sensor** 　　**Computer track F4 connector B ⟶ Coolant temperature sensor** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check **the resistance** of the air temperature sensor. (See the values in the "HELP" section). Replace the sensor if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: 　– If the fault is present with symbol "DEF", continue to deal with the fault. 　– If the fault is stored with symbol "DEF", ignore it. 　– If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF004 CONTINUED	

OBD	**NOTES**	Run the engine until the fan engages.

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF005 **PRESENT** **OR** **STORED**	PRESSURE SENSOR CIRCUIT DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after: – the ignition has been switched off and communications lost, – the ignition has been switched on again and communications re-established, – a 10 second timed period at idle speed.

DEF	Check that the manifold pressure sensor is correctly mounted. Check that the inlet line is sealed, from the throttle to the cylinder. Check that there are no defective seals. Check that the canister bleed is not disconnected nor blocked open. Check that the manifold air temperature sensor is correctly mounted. Check that the resonator is not cracked.
	Check **the cleanliness, connection and condition** of the sensor and its connection. Replace any parts if necessary.
	Using a vacuum pump, check the **consistency of the manifold pressure**. Check **the consistency** with parameter **PR001** on the diagnostic tool. Replace the sensor if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections: 　　**Computer track H2, connector B ⟶ Pressure sensor** 　　**Computer track H3, connector B ⟶ Pressure sensor** 　　**Computer track H4, connector B ⟶ Pressure sensor** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: 　– If the fault is present with symbol "DEF", continue to deal with the fault. 　– If the fault is stored with symbol "DEF", ignore it. 　– If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF005 CONTINUED	

OBD		*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	    – If the fault is present with symbol "DEF", continue to deal with the fault.
	    – If the fault is stored with symbol "DEF", ignore it.
	    – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF006 **PRESENT** **OR** **STORED**	<u>PINKING SENSOR CIRCUIT</u> DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present during a road test with engine warm and engine speed high.

DEF	Check **the conformity** of the fuel in the fuel tank.
	Check the conformity of the spark plugs.
	Check the pinking sensor is **tight.**
	Check **the cleanliness, connection and condition** of the sensor and the connector. Replace any parts if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	    Computer track A2 connector B ⟶ Pinking sensor
	    Computer track B2 connector B ⟶ Pinking sensor
	    Computer track C2 connector B ⟶ Pinking sensor screening
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF006 CONTINUED	

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

AFTER REPAIR	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF008 **PRESENT** **OR** **STORED**	FUEL PUMP RELAY CONTROL CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 V DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the ignition has been switched on.

CO.0 **CC.1** **DEF**	Check **the supply fuse** of the fuel pump relay. Change the fuse if necessary.
	Check **the cleanliness, connection and condition** of the fuel pump relay connector. Change the connector if necessary.
	Disconnect the relay. Check **the condition and cleanliness** of the contacts. With the ignition on, check for the presence of **+12 V on track 1** on the connector side of the fuel pump relay. Repair if necessary.
	Check **the resistance** of the fuel pump relay on **tracks 1 and 2.** (See the value in the "HELP" section). Change the fuel pump relay if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track D1 connector C ⟶ Fuel pump relay** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.
	
	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF008 CONTINUED	

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1 or DEF".

	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

AFTER REPAIR	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| DF009
PRESENT
OR
STORED | <u>ACTUATOR RELAY CONTROL CIRCUIT</u>

DEF : Unidentified electrical fault |

| *NOTES* | **Conditions for applying the fault finding procedure to the stored fault:**
The fault is declared present after the ignition has been switched on. |

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

Check **the two supply fuses** of the actuator relay.
Replace if necessary.

Check **the cleanliness, connection and condition** of the actuator relay connector.
Change the connector if necessary.

Check **the resistance** of the actuator relay on **tracks 1 and 2.** (See the value in the "HELP" section).
Change the actuator relay if necessary.

Check for **the presence of 12 volts on track 1** on the connector side of the actuator relay.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Injection computer track D4 connector B ⟶ **Actuator relay**.

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF010 **PRESENT**	<u>LOW-SPEED FAN CIRCUIT</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 V DEF : Unidentified electrical fault

NOTES	***Deal first with fault DF004 if it is present.***

Check **the cleanliness, connection and condition** of the low-speed fan assembly relay connector.
Change the connector if necessary.

With the ignition on, check for **+12 V on track 1** of the relay
Repair if necessary.

Check **the resistance** of the low-speed fan assembly relay on **tracks 1 and 2.** (see value in the "HELP" section).
Change the low-speed fan assembly relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

    Computer track F1 connector C ⟶ **Low-speed fan assembly relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF011 **PRESENT** **OR** **STORED**	<u>FAULT WARNING LIGHT CIRCUIT</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts DEF : Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Instrument panel" section in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF014 PRESENT OR STORED	CANISTER BLEED SOLENOID VALVE CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with faults DF009 and DF019 if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the ignition has been switched on.

CO.0 CC.1 DEF	Check **the cleanliness, connection and condition** of the canister bleed solenoid valve connector. Change the connector if necessary.
	With the ignition on, check for the presence of **+12 Volts** on the canister bleed solenoid valve. Repair if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track E1 connector C ⟶ Canister bleed valve** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check the **resistance** of the canister bleed solenoid valve. (See the value in the "HELP" section). Change the solenoid valve if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	    – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault.
	    – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it.
	    – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF014 CONTINUED	

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1 or DEF".

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault. – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it. – If the fault is present or stored with symbol "OBD" (On Board Diagnostic), ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF017 **PRESENT** **OR** **STORED**	<u>FLYWHEEL SIGNAL INFORMATION</u> 1.DEF : Flywheel target fault 2.DEF : No tooth signal 1.OBD: (On Board Diagnostic) OBD fault: flywheel target 2.OBD: OBD fault: no flywheel signal

NOTES	**The pressure sensor should not be faulty when performing this fault finding test.** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present after operating the starter motor for 10 seconds or after the engine has been running for 2 minutes.

1.DEF **2.DEF**	Check **the position** of the flywheel sensor.
	Check **the cleanliness, connection and condition** of the sensor, the cable and its connector. Replace any parts if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	    Computer track E4 connector B ⟶ Flywheel signal sensor
	    Computer track F3 connector B ⟶ Flywheel signal sensor
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

	Check the **resistance of the flywheel signal sensor** (see the values in the help section). Replace the sensor if necessary.
	Check **the cleanliness and condition** of the flywheel.
	<u>**Note:**</u> If the target assembly has been altered, remember to adjust the programmed values.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal.

	Follow the instructions to confirm repair:
	    – If the fault is present with symbol "1.DEF or 2.DEF", continue to deal with the fault.
	    – If the fault is stored with symbol "1.DEF or 2.DEF", ignore it.
	    – If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF017 CONTINUED	

1.OBD **2.OBD**	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "1.DEF or 2.DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "1.DEF or 2.DEF".
– If the fault is still displayed with symbol "1.OBD or 2.OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "1.DEF or 2.DEF".

AFTER REPAIR	If the fault previously had the symbol "1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "1.DEF or 2.DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "1.DEF or 2.DEF", ignore it.
	  – If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF018 **PRESENT** **OR** **STORED**	UPSTREAM OXYGEN SENSOR HEATER CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short-circuit to +12 volts 1.DEF : Unidentified electrical fault 2.DEF : Oxygen sensor heating power not correct 1.OBD: (On Board Diagnostic) OBD fault: upstream oxygen sensor heating 2.OBD: OBD fault: upstream oxygen sensor heating power

NOTES	***Deal first with faults DF009 and DF019 if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the engine has been running for 10 seconds.

CO.0 **CC.1** **1.DEF** **2.DEF**	Check **the cleanliness, connection and condition** of the upstream oxygen sensor connector. Change the connector if necessary.
	With the ignition on, check for the presence of **+12 volts on track A** of the upstream oxygen sensor connector. Repair if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track G1 connector C ⟶ Upstream oxygen sensor** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check the **heating resistance** of the upstream oxygen sensor. (See the value in the "HELP" section). Replace the upstream oxygen sensor if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1, 1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 1.DEF or 2.DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1, 1.DEF or 2.DEF", ignore it.
	  – If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF018 CONTINUED	

1.OBD **2.OBD**	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO.0, CC.1 or 1.DEF or 2.DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1, 1.DEF or 2.DEF"
– If the fault is still displayed with symbol "1.OBD or 2.OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1, 1.DEF or 2.DEF".

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1, 1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 1.DEF or 2.DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1, 1.DEF or 2.DEF", ignore it.
	  – If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| DF019 PRESENT OR STORED | SUPPLY 1.DEF : Electrical fault to +12 Volts after actuator relay |

| *NOTES* | ***Deal first with fault DF009 if it is present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after: – the ignition has been switched off and communications lost, – the ignition has been switched on again and communications re-established. |

Disconnect the actuator relay.
Check **the cleanliness, connection and condition** of the actuator relay connections.
If necessary change the connections.

With the ignition on, check for **the presence of 12 volts on track 3** of the actuator relay.
If there is not 12 volts, check the supply fuse. (See the corresponding section in the workshop repair manual).
Check the insulation and continuity of the line.

Check **the resistance** of the actuator relay between **tracks 1** and **2**. (See the value in the "HELP" section).
Change the relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track G2 connector C   ⟶   **Injection actuator relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If this does not work, replace the actuator relay.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults. |

JSAA3082. 0

DF021 **PRESENT** **OR** **STORED**	<u>ENGINE IMMOBILISER</u> DEF: Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Engine immobiliser" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Engine immobiliser" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF022 **PRESENT** **OR** **STORED**	<u>COMPUTER</u> 1.DEF : Computer fault 2.DEF : Computer fault: motorised throttle control 3.DEF : Storage memory area fault 4.DEF : Engine immobiliser memory area fault

NOTES	**None.**

1.DEF **2.DEF**	Computer defective or not to specification. Replace the injection computer.

4.DEF **3.DEF**	**Do not change the injection computer immediately.** Carry out the following procedure: – Switch the ignition on and enter into dialogue with the computer. – Clear the computer memory. – Switch the ignition off and wait for loss of dialogue with the computer. – Switch the ignition on and enter into dialogue with the computer. If the computer fault is still present, carry out this procedure again. If the computer fault is still present after the fifth deletion attempt, change the injection computer.

AFTER REPAIR	Erase all stored faults.

JSAA3082. 0

DF030 **PRESENT**	HIGH-SPEED FAN CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 V DEF : Unidentified electrical fault

NOTES	***Deal first with fault DF004 if it is present.***

Check **the cleanliness, connection and condition** of the high-speed fan assembly relay connector.
Change the connector if necessary.

With the ignition on, check for **+12 V on track 1** of the relay
Repair if necessary.

Check **the resistance** of the high-speed fan assembly relay on **tracks 1 and 2**. (See the value in the "HELP" section).
Change the high-speed fan assembly relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track F2 connector C ⟶ **High-speed fan assembly relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF032 **PRESENT** **OR** **STORED**	COOLANT TEMPERATURE OVERHEATING WARNING LIGHT CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts DEF : Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Instrument panel" section in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF038 **PRESENT** **OR** **STORED**	DOWNSTREAM OXYGEN SENSOR HEATER CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short-circuit to +12 volts 1.DEF : Unidentified electrical fault 2.DEF : Oxygen sensor heating power not correct 1.OBD: (On Board Diagnostic) OBD fault: downstream oxygen sensor heating 2.OBD: OBD fault: downstream oxygen sensor heating power

NOTES	***Deal first with faults DF009 and DF019 if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the engine has been running for 10 seconds.

CO.0 **CC.1** **1.DEF** **2.DEF**	Check **the cleanliness, connection and condition** of the downstream oxygen sensor connector. Change the connector if necessary.
	With the ignition on, check for the presence of **+12 volts on track A** of the downstream oxygen sensor connector. Repair if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track G3 connector C ⟶ Downstream oxygen sensor** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check the **heating resistance** of the downstream oxygen sensor. (See the value in the "HELP" section). Replace the upstream oxygen sensor if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1, 1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 1.DEF or 2.DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1, 1.DEF or 2.DEF", ignore it.
	  – If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| DF038

CONTINUED | |

| **1.OBD**
2.OBD | *NOTES* | Run the engine until the fan engages. |

– If the symbol has changed to "CO.0, CC.1 or 1.DEF or 2.DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1, 1.DEF or 2.DEF"
– If the fault is still displayed with symbol "1.OBD or 2.OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1, 1.DEF or 2.DEF".

| *AFTER REPAIR* | If the fault previously had the symbol "CO.0, CC.1, 1.DEF or 2.DEF", the fault may change symbol and switch to "1.OBD or 2.OBD". This is normal. |
| | Follow the instructions to confirm repair:
– If the fault is present with symbol "CO.0, CC.1 1.DEF or 2.DEF", continue to deal with the fault.
– If the fault is stored with symbol "CO.0, CC.1, 1.DEF or 2.DEF", ignore it.
– If the fault is present or stored with symbol "1.OBD or 2.OBD", ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF052 PRESENT OR STORED	CYLINDER 1 INJECTOR CIRCUIT CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12V DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with faults DF009 and DF019 if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the engine has been running for 10 seconds.

CO CC. 0 CC.1 DEF	Check **the cleanliness, condition and connection** of the injector rail connector. Clean or replace whichever is necessary.
	With the ignition on, check for the presence of **+12 volts** on the injector rail connector. (See connector track number in the corresponding wiring diagram).
	Check **resistance of the cylinder 1 injector.** (See value in the "HELP" section and connector track numbers in the corresponding wiring diagram). Change the injector if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Injection computer track L4 connector B ⟶ cylinder 1 injector** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If this still does not work, remove the injector rail. Check **the cleanliness and condition** of the injector rail. Check the **electrical continuity** between the socket and the **cylinder 1 injector**. (See connector track numbers in the corresponding wiring diagram).
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| **DF052**

CONTINUED | |

| **OBD** | NOTES | Run the engine until the fan engages. |

– If the symbol has changed to "CO, CC. 0, CC.1 or DEF", the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO, CC. 0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO, CC. 0, CC.1 or DEF".

| **AFTER REPAIR** | If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal. |
| | Follow the instructions to confirm repair:
   – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault.
   – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it.
   – If the fault is present or stored with symbol "OBD", ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

| **DF053**
PRESENT
OR
STORED | <u>CYLINDER 2 INJECTOR CIRCUIT</u>
CO   : Open circuit
CC.0 : Short circuit to earth
CC.1 : Short circuit to +12V
DEF   : Unidentified electrical fault
OBD   : OBD fault (On Board Diagnostic) |

| *NOTES* | ***Deal first with faults DF009 and DF019 if they are present.***
<u>**Conditions for applying the fault finding procedure to the stored fault:**</u>
The fault is declared present after the engine has been running for 10 seconds. |

CO **CC.0** **CC.1** **DEF**	Check **the cleanliness, condition and connection** of the injector rail connector. Clean or replace whichever is necessary.
	With the ignition on, check for the presence of **+12 volts** on the injector rail connector. (See connector track number in the corresponding wiring diagram).
	Check **resistance of the cylinder 2 injector.** (See value in the "HELP" section and connector track numbers in the corresponding wiring diagram). Change the injector if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Injection computer track L3 connector B ⟶ cylinder 2 injector** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If this still does not work, remove the injector rail. Check **the cleanliness and condition** of the injector rail. Check the **electrical continuity** between the socket and the **cylinder 2 injector**. (See connector track numbers in the corresponding wiring diagram).
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF053 CONTINUED	

OBD		*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO, CC. 0, CC.1 or DEF", the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO, CC. 0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO, CC. 0, CC.1 or DEF".

	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

AFTER REPAIR	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| **DF054**
PRESENT
OR
STORED | <u>CYLINDER 3 INJECTOR CIRCUIT</u>

CO   : Open circuit
CC.0 : Short circuit to earth
CC.1 : Short circuit to +12V
DEF : Unidentified electrical fault
OBD : OBD fault (On Board Diagnostic) |

| *NOTES* | ***Deal first with faults DF009 and DF019 if they are present.***
<u>**Conditions for applying the fault finding procedure to the stored fault:**</u>
The fault is declared present after the engine has been running for 10 seconds. |

CO **CC.0** **CC.1** **DEF**	Check **the cleanliness, condition and connection** of the injector rail connector. Clean or replace whichever is necessary.
	With the ignition on, check for the presence of **+12 volts** on the injector rail connector. (See connector track number in the corresponding wiring diagram).
	Check **resistance of the cylinder 3 injector.** (See value in the "HELP" section and connector track numbers in the corresponding wiring diagram). Change the injector if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Injection computer track L2 connector B** ———▶ **cylinder 3 injector** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If this still does not work, remove the injector rail. Check **the cleanliness and condition** of the injector rail. Check the **electrical continuity** between the socket and the **cylinder 3 injector**. (See connector track numbers in the corresponding wiring diagram).
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

Follow the instructions to confirm repair:
  – If the fault is present with symbol "CO, CC.0, CC.1 or DEF", continue to deal with the fault.
  – If the fault is stored with symbol "CO, CC.0, CC.1 or DEF", ignore it.
  – If the fault is present or stored with symbol "OBD", ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF054 CONTINUED	17-35

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO, CC.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO, CC.0, CC.1 or DEF". – If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected. Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty. To perform this check, use the fault finding procedure for the symbol "CO, CC.0, CC.1 or DEF".

AFTER REPAIR	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault. – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it. – If the fault is present or stored with symbol "OBD", ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF055 **PRESENT** **OR** **STORED**	<u>CYLINDER 4 INJECTOR CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to +12V DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with faults DF009 and DF019 if they are present.*** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present after the engine has been running for 10 seconds.

CO **CC.0** **CC.1** **DEF**	Check **the cleanliness, condition and connection** of the injector rail connector. Clean or replace whichever is necessary.
	With the ignition on, check for the presence of **+12 volts** on the injector rail connector. (See connector track number in the corresponding wiring diagram).
	Check **resistance of the cylinder 4 injector.** (See value in the "HELP" section and connector track numbers in the corresponding wiring diagram). Change the injector if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Injection computer track M2 connector B** ⟶ **cylinder 4 injector** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	If this still does not work, remove the injector rail. Check **the cleanliness and condition** of the injector rail. Check the **electrical continuity** between the socket and the **cylinder 4 injector**. (See connector track numbers in the corresponding wiring diagram).
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO, CC.0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO, CC.0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF055 CONTINUED	

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO, CC.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO, CC.0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" (On Board Diagnostic) after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO, CC.0, CC.1 or DEF".

AFTER REPAIR	If the fault previously had the symbol "CO, CC. 0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO, CC. 0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO, CC. 0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF057 PRESENT OR STORED	UPSTREAM OXYGEN SENSOR CIRCUIT DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with other faults if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present following a 5 minute timed period in richness regulation (engine running).

DEF	Check that the manifold pressure sensor is correctly mounted. Check that the inlet line is sealed, from the throttle to the cylinder. Check that there are no defective seals. Check that the canister bleed circuit is sealed. Check that the manifold air temperature sensor is correctly mounted. Check that the throttle air temperature sensor is correctly mounted. Check that the resonator is not cracked.
	Check **the condition and assembly** of the upstream sensor. Replace the sensor if necessary.
	Check for **air leaks** on the exhaust system.
	If the vehicle is used frequently in towns, **decoke the engine**.
	Check **the cleanliness, connection and condition** of the upstream oxygen sensor connections. Change the connector if necessary.
	With the ignition on, check for **the presence of +12 Volts** on the upstream oxygen sensor. Repair if necessary.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: – If the fault is present with symbol "DEF", continue to deal with the fault. – If the fault is stored with symbol "DEF", ignore it. – If the fault is present or stored with symbol "OBD", ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

| **DF057**

CONTINUED | |

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

    Computer track C1 connector C ⟶ Oxygen sensor
    Computer track B1 connector C ⟶ Oxygen sensor

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the fault persists, replace the oxygen sensor.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| **OBD** | *NOTES* | Run the engine until the fan engages. |

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

| *AFTER REPAIR* | If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal. |
| | Follow the instructions to confirm repair:
    – If the fault is present with symbol "DEF", continue to deal with the fault.
    – If the fault is stored with symbol "DEF", ignore it.
    – If the fault is present or stored with symbol "OBD", ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF058 PRESENT OR STORED	DOWNSTREAM OXYGEN SENSOR CIRCUIT DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with fault DF057 if it is present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared as present in one of the following cases: – A road test whilst driving steadily after the fan has operated and with double richness loop **ET027** active. – A road test whilst driving steadily after the fan has operated and immediately following a road test on a slope whilst in the no load position (deceleration phase).

DEF	Check **the condition and assembly** of the downstream sensor. Replace the sensor if necessary.
	Check for **air leaks** on the exhaust system.
	If the vehicle is used frequently in towns, **decoke the engine**.
	Check **the cleanliness, connection and condition** of the downstream oxygen sensor connections. Change the connector if necessary.
	With the ignition on, check for **the presence of +12 Volts** on the downstream oxygen sensor. Repair if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	   Computer track A2 connector C ⟶ Oxygen sensor
	   Computer track B2 connector C ⟶ Oxygen sensor
	(See connector track numbers in the corresponding wiring diagram).
	Repair if necessary.

	If the fault persists, change the oxygen sensor.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	   – If the fault is present with symbol "DEF", continue to deal with the fault.
	   – If the fault is stored with symbol "DEF", ignore it.
	   – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

| **DF058**

CONTINUED | |

| **OBD** | *NOTES* | Run the engine until the fan engages. |

– If the symbol has changed to "DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "DEF".
– If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "DEF".

| **AFTER REPAIR** | If the fault previously had the symbol "DEF", the fault may change symbol and switch to "OBD". This is normal. |
| | Follow the instructions to confirm repair:
  – If the fault is present with symbol "DEF", continue to deal with the fault.
  – If the fault is stored with symbol "DEF", ignore it.
  – If the fault is present or stored with symbol "OBD", ignore it.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF061 **PRESENT** **OR** **STORED**	<u>IGNITION COIL 1 - 4 CIRCUIT</u> CO.0 : Open circuit or short circuit to earth. CC.1 : Short-circuit to +12 volts DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with faults DF009, DF019 or DF008 if they are present.*** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present after operating the starter motor for 10 seconds or after the engine has been running for 10 seconds.

CO.0 **CC.1** **DEF**	Disconnect the connector from the coil unit. Check **the cleanliness and condition** of the ignition coil unit and its connections. Clean or replace whichever is necessary.
	Check **the primary and secondary resistance** of the ignition coils. (see the values in the "HELP" section and the track numbers in the corresponding wiring diagram).
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track H2 connector C ⟶ Coil 1-4** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check the supply fuse of the fuel pump relay.
	Check **the continuity and insulation** of the line between the coil connector and the fuel pump relay. (This relay supplies the ignition coils).
	Check **the electrical resistance** of the fuel pump relay. (See the value in the "HELP" section). Change the relay if necessary.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF061 CONTINUED	17-43

Check **the cleanliness and condition** of the connections of the fuel pump relay. Clean or replace whichever is necessary.
Check **the insulation and continuity** of the line between **track 3** of the relay and supply fuse. Repair if necessary.
If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1 or DEF". – If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected. Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty. To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1 or DEF".

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.
	Follow the instructions to confirm repair: – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault. – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it. – If the fault is present or stored with symbol "OBD", ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF062 **PRESENT** **OR** **STORED**	<u>IGNITION COIL 2-3 CIRCUIT</u> CO.0 : Open circuit or short circuit to earth. CC.1 : Short-circuit to 12 volts DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	***Deal first with faults DF009, DF019 or DF008 if they are present.*** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present after operating the starter motor for 10 seconds or after the engine has been running for 10 seconds.

CO.0 **CC.1** **DEF**	Disconnect the connector from the coil unit. Check **the cleanliness and condition** of the ignition coil unit and its connections. Clean or replace whichever is necessary.
	Check **the primary and secondary resistance** of the ignition coils. (see the values in the "HELP" section and the track numbers in the corresponding wiring diagram).
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection: **Computer track H3 connector C** ⟶ **Coil 2-3** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Check the supply fuse of the fuel pump relay.
	Check **the continuity and insulation** of the line between coil 3 and the fuel pump relay. (This relay supplies the ignition coils).
	Check **the electrical resistance** of the fuel pump relay. (See the value in the "HELP" section). Change the relay if necessary.

AFTER REPAIR	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.

	Follow the instructions to confirm repair:
	  – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault.
	  – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it.
	  – If the fault is present or stored with symbol "OBD", ignore it.
	Deal with any other possible faults.
	Erase all stored faults.

JSAA3082. 0

DF062 CONTINUED	17-45

Check **the cleanliness and condition** of the connections of the fuel pump relay.
Clean or replace whichever is necessary.

Check **the insulation and continuity** of the line between **track 3** of the relay and supply fuse.
Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

OBD	*NOTES*	Run the engine until the fan engages.

– If the symbol has changed to "CO.0, CC.1 or DEF" after performing the instruction, the electrical fault has been detected. Consequently, it must be dealt with like a present fault with symbol "CO.0, CC.1 or DEF".
– If the fault is still displayed with symbol "OBD" after performing the instruction, the electrical fault was present several times but is no longer detected.
Consequently, the circuit should be checked without replacing the parts which are not clearly identified as being faulty.
To perform this check, use the fault finding procedure for the symbol "CO.0, CC.1 or DEF".

	If the fault previously had the symbol "CO.0, CC.1 or DEF", the fault may change symbol and switch to "OBD". This is normal.
AFTER REPAIR	Follow the instructions to confirm repair: – If the fault is present with symbol "CO.0, CC.1 or DEF", continue to deal with the fault. – If the fault is stored with symbol "CO.0, CC.1 or DEF", ignore it. – If the fault is present or stored with symbol "OBD", ignore it. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF064 **PRESENT** **OR** **STORED**	<u>VEHICLE SPEED SIGNAL</u> DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network", "Instrument panel" or "ABS / ESP" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" or "ABS / ESP" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF082 **PRESENT** **OR** **STORED**	<u>PETROL/LPG CONNECTION</u> DEF: Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" section in the Workshop Repair Manual.**

AFTER REPAIR	None.

JSAA3082. 0

| **DF083 PRESENT OR STORED** | <u>ABS / INJECTION CONNECTION</u> DEF: Unidentified electrical fault |

| *NOTES* | **None.** |

> – **Test the multiplex network.**
> – **Refer to the "Multiplex network" section in the Workshop Repair Manual.**

| *AFTER REPAIR* | None. |

JSAA3082. 0

DF102 PRESENT	<u>OXYGEN SENSOR OPERATING FAULT</u> OBD : OBD fault (On Board Diagnostic) 1.OBD: OBD fault detected whilst driving

NOTES	***Deal first with faults DF009, DF019, DF018, DF038, DF057 or DF058 if they are present.***

Check that the manifold pressure sensor is correctly mounted.
Check that the inlet line is sealed, from the throttle to the cylinder.
Check that there are no defective seals.
Check that the canister bleed circuit is sealed.
Check that the manifold air temperature sensor is correctly mounted.
Check that the throttle air temperature sensor is correctly mounted.
Check that the resonator is not cracked.

Check **the condition and assembly** of the upstream sensor.
Replace the sensor if necessary.

Check for **air leaks on the exhaust system**.

If the vehicle is used frequently in towns, **decoke the engine.**

Check **the cleanliness, connection and condition** of the upstream oxygen sensor connections.
Change the connector if necessary.

With the ignition on, check for **the presence of +12 Volts** on the upstream oxygen sensor.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track C1 connector C ——▶   Oxygen sensor
      Computer track B1 connector C ——▶   Oxygen sensor

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the fault persists, change the oxygen sensor.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF106 PRESENT	CATALYTIC CONVERTER OPERATING FAULT OBD : OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected whilst driving

NOTES	***Deal first with all other faults.***

Check that the exhaust system is completely **sealed.**
Repair if necessary.

If the vehicle is used frequently in towns, **decoke the engine.**

Check **the condition and assembly** of the downstream oxygen sensor.

Check the **connection and condition** of the connector and the wires of the downstream oxygen sensor.
Replace any parts if necessary.

– **Visually check the condition of the catalytic converter**. A deformity may be causing it to malfunction.
– **Visually check for signs of thermal shock.** A warm catalytic converter may be damaged if it comes into
  contact with cold water.
– Check that there has not been **any excessive consumption of oil or coolant**.
  Ask the customer if they have used an additive or other products of this kind. Such products can contaminate
  the catalytic converter and damage its performance sooner or later.
  This could destroy the catalytic converter.

If the cause of the destruction is identified, it is possible to change the catalytic converter.

**If you are replacing the catalytic converter, make absolutely sure that the problem has been resolved
otherwise the new catalytic converter may be damaged.**

**If the problem has still not been solved, deal with the other faults and then proceed to the conformity
check.**

AFTER REPAIR	Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF109 **PRESENT**	POLLUTANT MISFIRES OBD : OBD fault (On Board Diagnostic) 1.OBD: OBD fault detected whilst driving

NOTES	***Deal first with all other faults.*** **Refer to statuses ET093, ET094, ET095 and ET096 to ascertain how may** **cylinders are misfiring.**

Misfiring on one cylinder	This means that the problem is probably due to a component which can only act on this cylinder: – Injector problem. – Spark plug problem. (Check the conformity). – HT lead problem. – Ignition coil problem.

Misfiring on cylinders 1 and 4 or 2 and 3	This means that the problem is probably due to a component which can only act on this pair of cylinders: – Ignition coil problem.

Misfiring on all four cylinders	This means that the problem is probably due to a component which can only act on all the cylinders: – Check the conformity of the fuel. – Check the condition and conformity of the plugs.

If the problem is still present, perform the following checks:
– Check the flywheel sensor.
– Check the condition and cleanliness of the flywheel.
– Check the mounting of the flywheel sensor.
– Check the sensor / flywheel air gap.
– Check the cylinder compression.
– Check the whole fuel supply system. (See workshop repair manual).
– Check the whole ignition system. (See workshop repair manual).

AFTER REPAIR	Ensure that all faults have been dealt with. Erase the stored faults. It is not necessary to erase the programming. Checking that the system has been correctly repaired means: – There should be no further electrical faults. – All programming operations have been performed. – The engine should be warm (minimum 75°). – The engine should be left at idle speed with all consumers engaged for 15 minutes. If the fault reappears, continue the fault finding procedure.

JSAA3082. 0

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

NOTES	***Deal first with any faults relating to the ignition or fuel supply system if they are present.*** **Refer to statuses ET093, ET094, ET095 and ET096 to ascertain how may cylinders are misfiring.**

Misfiring on one cylinder	This means that the problem is probably due to a component which can only act on this cylinder: – Injector problem. – Spark plug problem. (Check the conformity). – HT lead problem. – Ignition coil problem.

Misfiring on cylinders 1 and 4 or 2 and 3	This means that the problem is probably due to a component which can only act on this pair of cylinders: – Ignition coil problem.

Misfiring on all four cylinders	This means that the problem is probably due to a component which can only act on all the cylinders: – Check the conformity of the fuel. – Check the condition and conformity of the plugs.

If the problem is still present, perform the following checks:
– Check the flywheel sensor.
– Check the condition and cleanliness of the flywheel.
– Check the mounting of the flywheel sensor.
– Check the sensor / flywheel air gap.
– Check the cylinder compression.
– Check the whole fuel supply system. (See workshop repair manual).
– Check the whole ignition system. (See workshop repair manual).

AFTER REPAIR	Ensure that all the faults have been dealt with. Erase the stored faults. It is not necessary to erase the programming. Checking that the system has been correctly repaired means: – There should be no further electrical faults. – All programming operations have been performed. – The engine should be warm (minimum 75°). – The engine should be left at idle speed with all consumers engaged for 15 minutes. If the fault reappears, continue the fault finding procedure.

JSAA3082. 0

| **DF116**
PRESENT | <u>OPERATING PROBLEM ON FUEL SYSTEM</u>
OBD : OBD fault (On Board Diagnostic)
1.OBD: OBD fault detected whilst driving |

| *NOTES* | ***Deal first with any faults relating to the ignition or fuel supply system if they are present.*** |

Check the whole fuel supply system. (Refer to the "Injection" section in the workshop repair manual).

Check the cleanliness of the fuel tank if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF117 **PRESENT**	<u>IMMOBILISER CODE NOT PROGRAMMED</u>

NOTES	*Deal first with fault DF022 if it is present.*

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Engine immobiliser" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Engine immobiliser" system if necessary.**

AFTER REPAIR	None.

| DF118
PRESENT
OR
STORED | REFRIGERANT PRESSURE SENSOR CIRCUIT
DEF: Unidentified electrical fault |

| *NOTES* | **Conditions for applying the fault finding procedure to the stored fault:**
The fault is declared present after the ignition has been switched on. |

Check **the cleanliness, connection and condition** of the refrigerant pressure sensor.
Clean or replace whichever is necessary.

Check **the electrical resistance** of the refrigerant sensor.
(See the value in the "HELP" section).
Replace the sensor if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

> **Computer track H2 connector B** ⟶ **Pressure sensor**
> **Computer track J3 connector B** ⟶ **Pressure sensor**
> **Computer track H4 connector B** ⟶ **Pressure sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF120 **PRESENT**	<u>OBD WARNING LIGHT CIRCUIT</u> CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Instrument panel" section in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF123 **PRESENT** **OR** **STORED**	THROTTLE POSITION POTENTIOMETER CIRCUIT TRACK 1 CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts

NOTES	**Warning: Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".**
	Conditions for applying the fault finding procedure to the stored fault: – The fault is declared present after a variation in engine speed.

Check the **cleanliness, connection and condition** of the throttle position potentiometer connections.
Change the connector if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

   Computer track G4 connector B   ⟶   Throttle position potentiometer track 1
   Computer track G3 connector B   ⟶   Throttle position potentiometer track 1
   Computer track G2 connector B   ⟶   Throttle position potentiometer track 1

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly**.
Check that **track 1** of the throttle position potentiometer **correctly follows its resistive curve.** (See the values in the "HELP" section).
Correct or change the throttle position potentiometer if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	**If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").** Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

| DF124 PRESENT OR STORED | THROTTLE POSITION POTENTIOMETER CIRCUIT TRACK 2 CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts |

| *NOTES* | **Warning: Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".** |
| | **Conditions for applying the fault finding procedure to the stored fault:** – The fault is declared present after a variation in engine speed. |

Check **the cleanliness, connection and condition** of the pedal potentiometer connections.
If necessary change the connections.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track D3 connector B ⟶ **Throttle position potentiometer track 2**
      Computer track G2 connector B ⟶ **Throttle position potentiometer track 2**
      Computer track G4 connector B ⟶ **Throttle position potentiometer track 2**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly** .
Check that **track 2** of the throttle position potentiometer **correctly follows its resistive curve.** (See the values in the "HELP" section).
Correct or change the throttle position potentiometer if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | **If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").** Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults. |

JSAA3082. 0

DF125 PRESENT OR STORED	PEDAL POTENTIOMETER CIRCUIT TRACK 1 CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts

NOTES	**Conditions for applying the fault finding procedure to the stored fault:** – The fault is declared present following a variation of the accelerator pedal from no-load to full load.

Check that the pedal is not mechanically seized.

Check the **cleanliness, connection and condition** of the throttle position potentiometer connections.
Change the connector if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

  Computer track H3 connector A ⟶ Pedal potentiometer track 1
  Computer track G2 connector A ⟶ Pedal potentiometer track 1
  Computer track H2 connector A ⟶ Pedal potentiometer track 1

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that **track 1** of the pedal potentiometer **correctly follows its resistive curve.** (See the values in the "HELP" section).
Correct or change the pedal potentiometer if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

| **DF126**
PRESENT
OR
STORED | THROTTLE POSITION POTENTIOMETER CIRCUIT TRACK 2
CO.0 : Open circuit or short circuit to earth
CC.1 : Short circuit to +12 volts |

| *NOTES* | **Conditions for applying the fault finding procedure to the stored fault:**
– The fault is declared present following a variation of the accelerator pedal from no-
load to full load. |

Check that the pedal is not mechanically seized.

Check the **cleanliness, connection and condition** of the throttle position potentiometer connections.
Change the connector if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

> **Computer track F4 connector A ⟶ Pedal potentiometer track 2**
> **Computer track F2 connector A ⟶ Pedal potentiometer track 2**
> **Computer track F3 connector A ⟶ Pedal potentiometer track 2**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that **track 2** of the pedal potentiometer **correctly follows its resistive curve.** (See the values in the "HELP" section).
Correct or change the pedal potentiometer if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF128 **PRESENT** **OR** **STORED**	AUTOMATIC TRANSMISSION OR SEQUENTIAL GEARBOX CAN CONNECTION DEF : Unidentified electrical fault OBD : OBD fault (On Board Diagnostic)

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" section in the Workshop Repair Manual.**

AFTER REPAIR	None.

JSAA3082. 0

DF129 **PRESENT** **OR** **STORED**	<u>PEDAL POTENTIOMETER CIRCUIT</u> DEF: Consistency of pedal potentiometer tracks

NOTES	***Deal first with faults DF125 or DF126 if they are present.*** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared as present in one of the following cases: – When the ignition is switched on without pressing the accelerator pedal for the first 10 seconds. – When the pedal potentiometer is varied gently from no load to full load. – When the accelerator is in the full load position for 10 seconds.

Check that the pedal is not mechanically seized.

Check **the cleanliness, connection and condition** of the pedal potentiometer connector.
Change the connector if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track H3 connector A   ⟶   Pedal potentiometer
      Computer track G2 connector A   ⟶   Pedal potentiometer
      Computer track H2 connector A   ⟶   Pedal potentiometer
      Computer track F4 connector A   ⟶   Pedal potentiometer
      Computer track F2 connector A   ⟶   Pedal potentiometer
      Computer track F3 connector A   ⟶   Pedal potentiometer

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that **tracks 1 and 2 of the pedal potentiometer** correctly follow their resistive curves.(See the values in the "HELP" section).
Change the pedal potentiometer if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF130 **PRESENT** **OR** **STORED**	<u>TRANSMISSION RATIO</u>

NOTES	**None.**

- **Test the multiplex network.**
- **Refer to the "Multiplex network" and "Automatic transmission" sections in the Workshop Repair Manual.**
- **Perform a fault finding procedure on the "Automatic transmission" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

| **DF131**
PRESENT
OR
STORED | <u>AUTOMATIC TRANSMISSION CONVERTER</u> |

| *NOTES* | **None.** |

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Automatic transmission" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Automatic transmission" system if necessary.**

| *AFTER REPAIR* | None. |

JSAA3082. 0

DF132 **PRESENT** **OR** **STORED**	<u>ELECTRIC WINDSCREEN</u> DEF: Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "UCH" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "UCH" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF134 **PRESENT** **OR** **STORED**	<u>INSTRUMENT PANEL CONNECTION</u> DEF: Unidentified electrical fault

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Instrument panel" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF135 PRESENT OR STORED	<u>BRAKE PEDAL SENSOR CIRCUIT</u> 1.DEF : Fault on one brake pedal contact 2.DEF : Fault on both brake pedal contacts

NOTES	***It is vital that the ABS is not defective when carrying out this test.*** <u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present following a long press on the brake pedal.

Check **the cleanliness, connection and condition** of the dual-contact switch along with its connections.
Clean or replace whichever is necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track E4 or G3 connector A ⟶ **Brake pedal switch**
      Computer track H2 connector B ⟶ **Brake pedal switch**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Confirm the repair. Erase all stored faults.

JSAA3082. 0

| **DF136**
PRESENT
OR
STORED | ACCELERATOR PEDAL / MOTORISED THROTTLE CIRCUIT

DEF : Consistency between the pedal position and the motorised throttle position
1.DEF : Fault on the +5 volt supply
2.DEF : Fault on potentiometer supply 1
3.DEF : Fault on potentiometer supply 2 |

| *NOTES* | **Warning: Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".** |
| | *Deal first with faults DF137, DF123, DF124, DF125, DF126, DF129 or DF002 if they are present.*
Conditions for applying the fault finding procedure to the stored fault:
The fault is declared present after a variation in engine speed. |

Check **the cleanliness, connection and condition** of the pedal potentiometer and its connections.
Clean or replace whichever is necessary.

Check **the cleanliness, connection and condition** of the motorised throttle and its connections.
Clean or replace whichever is necessary.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly** .
Check that tracks 1 and 2 of the throttle position potentiometer **correctly follow their resistive curves**. (See the values in the "HELP" section).
Clean or change the throttle body if necessary.

Check **the electrical resistance** of the throttle motor. (See the value in the "HELP" section).
Clean or change the throttle body if necessary.

Check that **the resistances of the pedal potentiometer, tracks 1 and 2** correctly follow their resistive curves.
(See the values in the "HELP" section).
Change the pedal potentiometer if necessary.

| *AFTER REPAIR* | **If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").**
Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF136 CONTINUED	

Disconnect the battery.

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

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

Computer track H3 connector	**A**	➞	**Pedal potentiometer**
Computer track G2 connector	**A**	➞	**Pedal potentiometer**
Computer track H2 connector	**A**	➞	**Pedal potentiometer**
Computer track F4 connector	**A**	➞	**Pedal potentiometer**
Computer track F2 connector	**A**	➞	**Pedal potentiometer**
Computer track F3 connector	**A**	➞	**Pedal potentiometer**
Computer track M3 connector	**B**	➞	**Motorised throttle body**
Computer track M4 connector	**B**	➞	**Motorised throttle body**
Computer track G4 connector	**B**	➞	**Motorised throttle position potentiometer**
Computer track D3 connector	**B**	➞	**Motorised throttle position potentiometer**
Computer track G2 connector	**B**	➞	**Motorised throttle position potentiometer**
Computer track G3 connector	**B**	➞	**Motorised throttle position potentiometer**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	**If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").** Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

| **DF137**
PRESENT
OR
STORED | <u>MOTORISED THROTTLE</u>

DEF   : Unidentified electrical fault
1.DEF : Motorised throttle control fault
2.DEF : Motorised throttle limit search fault
3.DEF : Motorised throttle control general fault |

NOTES	<u>**Warning:**</u> **Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".**
	<u>**Conditions for applying the fault finding procedure to the stored fault:**</u> The fault is declared present after a variation in engine speed.

Check **the cleanliness, connection and condition** of the connections.
Clean or replace whichever is necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track M3 connector B   ⟶   **Motorised throttle body**
      Computer track M4 connector B   ⟶   **Motorised throttle body**
      Computer track G4 connector B   ⟶   **Motorised throttle body**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the electrical resistance** of the throttle motor. (See the value in the "HELP" section).
Clean or change the throttle body if necessary.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly.**
Clean or replace whichever is necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | **If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").**
Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF138 **PRESENT** **OR** **STORED**	THERMOPLUNGER NO. 1 RELAY CONTROL CO.0 : Open circuit or short circuit to earth CC.1 : Short circuit to +12 volts DEF : Unidentified electrical fault

NOTES	***Deal first with faults DF003, DF004, DF009 or DF019 if they are present.*** **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after the ignition has been switched on.

Check **the cleanliness, connection and condition** of the connector of the thermoplunger no. 1 relay.
Replace if necessary.

Check **the resistance of the relay** of thermoplunger no. 1. (See the values in the "HELP" section).
Change the relay if necessary.

With the ignition on, check for the presence of **+12 volts on track 1** of thermoplunger no. 1 relay.
Repair the line up to the fuse if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

    Injection computer track D2 connector C ⟶ **Thermoplunger no. 1 relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

| **DF139**
PRESENT
OR
STORED | THERMOPLUNGER NO. 2 RELAY CONTROL

CO.0 : Open circuit or short circuit to earth
CC.1 : Short circuit to +12 volts
DEF : Unidentified electrical fault |

| *NOTES* | ***Deal first with faults DF003, DF004, DF009 or DF019 if they are present.***
Conditions for applying the fault finding procedure to the stored fault:
The fault is declared present after the ignition has been switched on. |

Check **the cleanliness, connection and condition** of the connector of the thermoplunger no. 2 relay.
Replace if necessary.

Check **the resistance of the relay** of thermoplunger no. 2. (See the values in the "HELP" section).
Change the relay if necessary.

With the ignition on, check for the presence of **+12 volts after ignition feed on track 1** of thermoplunger no. 2 relay.
Repair the line up to the fuse if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

     Injection computer track J4 connector B ——▶ **Thermoplunger no. 2 relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF168 **PRESENT** **OR** **STORED**	AIR INTAKE CIRCUIT OBD : OBD fault (On Board Diagnostic) 1.OBD: OBD fault detected whilst driving

NOTES	**Warning: Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".**
	Deal first with faults DF123, DF124, DF125, DF126, DF129, DF136, DF137 or DF002 if they are present. **Conditions for applying the fault finding procedure to the stored fault:** The fault is declared present after a variation in engine speed.

Check that the manifold pressure sensor is correctly mounted.
Check that the inlet line is sealed, from the throttle to the cylinder.
Check that there are no defective seals.
Check that the canister bleed is not disconnected nor blocked open.
Check that the manifold air temperature sensor is correctly mounted.
Check that the resonator is not cracked.

AFTER REPAIR	Follow the instructions to confirm repair. Deal with any other possible faults. Erase all stored faults.

JSAA3082. 0

DF233 **PRESENT** **OR** **STORED**	<u>ESP</u>

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "ABS/ESP" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "ABS/ESP" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

| DF235
PRESENT
OR
STORED | <u>CRUISE CONTROL / SPEED LIMITER</u>
1.DEF : Controls at the steering wheel
2.DEF : Inconsistency |

| *NOTES* | **<u>Conditions for applying the fault finding procedure to the stored fault:</u>**
The fault is declared present following a road test using the cruise control then the speed limiter function. |
| | **Warning: The air bag must be removed in order to remove or check the "Cruise control/Speed limiter" control switches.**
Refer to the "Air bag" section in the workshop repair manual.
<u>Follow the safety instructions</u>. |

1.DEF	Check **the cleanliness, connection and condition** of the increase switches at the steering wheel and their connections. Clean or replace whichever is necessary.
	Check for the presence of **earth** on the increase switches at the steering wheel. (See connector track numbers in the corresponding wiring diagram). Repair if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	    Computer track D2 connector A ⟶ **Steering wheel switch**
	    Computer track D3 connector A ⟶ **Steering wheel switch**
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

	Replace the switch if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

| **DF235**

CONTINUED | |

2.DEF	Check **the cleanliness, connection and condition** of the increase switches at the steering wheel and their connections. Clean or replace whichever is necessary.
	With the ignition on, check for the presence of **+12 volts** on the cruise control/speed limiter selector switch. (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Disconnect the battery. Disconnect the computer. Check **the cleanliness and condition** of the connections. Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections: **Computer track A2 connector A ⟶ Cruise control/speed limiter on/off switch** **Computer track C3 connector A ⟶ Cruise control/speed limiter on/off switch** (See connector track numbers in the corresponding wiring diagram). Repair if necessary.
	Replace the switch if necessary.
	If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

| *AFTER REPAIR* | Follow the instructions to confirm repair.
Deal with any other possible faults.
Erase all stored faults. |

JSAA3082. 0

DF249 **PRESENT** **OR** **STORED**	<u>AUTOMATIC TRANSMISSION</u> 1.DEF : Gear change too long 2.DEF : Torque setting 3.DEF : Torque limitation setting

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Automatic transmission" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Automatic transmission" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

DF283 **PRESENT**	<u>LPG SYSTEM</u>

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "LPG" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "LPG" system if necessary.**

AFTER REPAIR	None.

JSAA3082. 0

NOTES	Ignition on, engine stopped.
	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
SUPPLY FUNCTION				
1	Battery voltage	**ET001:** Computer +after ignition **PR 004:** Computer supply voltage	**ACTIVE** 11.8 < X < 13.2 V	In the event of a problem: consult fault finding procedure **PR004**
SENSOR FUNCTION				
2	Engine flywheel signal	*Activate the starter motor* **ET060:** Flywheel signal engine running	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET060**
3	Coolant temperature sensor	**PR002:** Coolant temperature	Engine temperature ± 5 ˚C	In the event of a problem: consult fault finding procedure **PR002**
4	Air temperature sensor	**PR003:** Air temperature	Temperature under bonnet ± 5 ˚C	In the event of a problem: consult fault finding procedure **PR003**
5	Atmospheric pressure sensor	**PR016:** Atmospheric pressure **PR001:** Inlet manifold vacuum	1000 mb ± 3% (atmospheric pressure) 1000 mb ± 3% (atmospheric pressure)	In the event of a problem: consult fault finding procedure **PR001**

JSAA3082. 0

NOTES	Ignition on, engine stopped.
	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		PEDAL FUNCTION		
6	Accelerator pedal	***No-load accelerator pedal***		
		ET129: Accelerator pedal position: No load	**ACTIVE**	In the event of a problem: consult fault finding procedure **PR112**
		ET128: Accelerator pedal position: Full load	**INACTIVE**	
		PR112: Measured pedal position	$15° \pm 1°$	
		PR120: No-load programming of pedal	$15° \pm 1°$	
		Accelerator pedal slightly pressed		
		ET129: Accelerator pedal position: No load	**INACTIVE**	In the event of a problem: consult fault finding procedure **PR112**
		ET128: Accelerator pedal position:Full load	**INACTIVE**	
		Accelerator pedal fully pressed		
		ET129: Accelerator pedal position: No load	**INACTIVE**	In the event of a problem: consult fault finding procedure **PR112**
		ET128: Accelerator pedal position: Full load	**ACTIVE**	
		PR112: Measured accelerator pedal position	$92° \pm 4°$	

JSAA3082. 0

	NOTES	Ignition on, engine stopped.
	NOTES	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
7	Brake pedal	**Brake pedal released** **ET110:** Brake pedal **ET143:** Brake pedal redundant (Confirmation signal)	**INACTIVE** **INACTIVE**	In the event of a problem: consult fault finding procedure **ET110, ET143**
		Brake pedal pressed **ET110:** Brake pedal **ET143:** Brake pedal redundant (Confirmation signal)	**ACTIVE** **ACTIVE**	In the event of a problem: consult fault finding procedure **ET110, ET143**
8	Clutch pedal	**Clutch pedal released** **ET182:** Clutch pedal switch	**INACTIVE**	In the event of a problem: consult fault finding procedure **ET182**
		Clutch pedal pressed **ET182:** Clutch pedal switch	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET182**

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NOTES	Ignition on, engine stopped.
	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		MOTORIZED THROTTLE BODY FUNCTION		
9	Motorized throttle body	***No-load accelerator pedal*** **ET111:** Programming throttle stops	**ACTIVE**	In the event of a problem: turn off the ignition and wait for the dialogue to stop. Switch on the ignition again.
		ET118: Motorized throttle in defect mode	**INACTIVE**	In the event of a problem: a fault is declared by the diagnostic tool.
		ET130: Motorized throttle body closed	**ACTIVE**	
		PR113: Motorized throttle body position specifications	**15° ± 2°**	
		PR017: Measured throttle position	**15° ± 2°**	In the event of a problem: consult fault finding procedure **PR017**
		PR110: Measured throttle position track 1	**15° ± 2°**	
		PR111: Measured throttle position track 2	**15° ± 2°**	
		PR119: Motorized throttle body bottom stop	**13° ± 2°**	
		Accelerator pedal fully pressed **ET118:** Motorized throttle in defect mode	**INACTIVE**	In the event of a problem: a fault is declared by the diagnostic tool.
		ET131: Motorized throttle body open	**ACTIVE**	
		PR113: Motorized throttle body position specifications	**91° ± 3°**	
		PR017: Measured throttle position	**91° ± 3°**	In the event of a problem: consult fault finding procedure **PR017**
		PR110: Measured throttle position track 1	**91° ± 3°**	
		PR111: Measured throttle position track 2	**91° ± 3°**	
		PR118: Motorized throttle body top stop	**94° ± 3°**	

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	Ignition on, engine stopped.
NOTES	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		CRUISE CONTROL / SPEED LIMITER FUNCTION		
10	Cruise control/ speed limiter	***Switch in "Speed limiter" position*** **ET192:** Speed limiter control function	**STATUS1:** Speed limiter function	In the event of a problem: consult fault finding procedure **ET192**
		Switch in "Cruise control" position **ET192:** Speed limiter control function	**STATUS2:** Cruise control	In the event of a problem: consult fault finding procedure **ET192**
		Instrument panel switch in "Speed limiter" position and control switch on steering wheel pressed on + **ET192:** Speed limiter control function	**STATUS3:** Increase switch on	In the event of a problem: consult fault finding procedure **ET192**
		Instrument panel switch in "Speed limiter" position and control switch on steering wheel pressed on - **ET192:** Speed limiter control function	**STATUS4:** Decrease switch on	In the event of a problem: consult fault finding procedure **ET192**
		Instrument panel switch in "Speed limiter" position and control switch on steering wheel pressed to "suspend" position. **ET192:** Speed limiter control function	**STATUS5:** Suspend switch pressed	In the event of a problem: consult fault finding procedure **ET192**

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	NOTES	Ignition on, engine stopped.
		The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
10 (Continued)	Cruise-control/ speed limiter	***Instrument panel switch in "Speed limiter" position and control switch on steering wheel pressed to "resume" position.*** **ET192:** Speed limiter control function	**STATUS6:** Resume switch pressed	In the event of a problem: consult fault finding procedure **ET192**
		ACTUATOR CONTROLS		
11	Fuel supply	**AC010:** Fuel pump relay	You should hear the petrol pump operating	In the event of a problem: consult fault finding procedure **AC010**
12	Fan	**AC271:** Fan assembly relay - low speed	The fan should be heard running at low speed	In the event of a problem: consult fault finding procedure **AC271**
		AC272: Fan assembly relay - high speed	The fan should be heard running at high speed	In the event of a problem: consult fault finding procedure **AC272**
13	Canister bleed	**AC016:** Canister bleed solenoid valve	The canister bleed solenoid valve should be heard operating	In the event of a problem: consult fault finding procedure **AC016**
14	Motorized throttle body	**AC612 :** Motorized throttle body	The motorized throttle should be heard operating	In the event of a problem: consult fault finding procedure **AC612**

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NOTES	Engine warm at idle speed, no electrical consumers.
	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		Electrical supply function		
1	Battery voltage	**ET001:** : + after ignition feed computer **PR004:** Computer supply voltage	**ACTIVE** 13 < X < 14.5 V	In the event of a problem: consult fault finding procedure **PR004**
		Sensor function		
2	Flywheel signal	***ET060: Flywheel signal engine running***	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET060**
3	Atmospheric pressure sensor	**PR016:** Atmospheric pressure **PR001:** Inlet manifold vacuum	1000 mb $\pm$ 3% (atmospheric pressure) 280 < X < 360 mb	In the event of a problem: consult fault finding procedure **PR001**
4	Pinking sensors	**PR013:** Pinking signal **PR015:** Pinking signal correction	Should not be equal to 0. Should change when engine speed changes. $X \leq 5$	In the event of a problem: consult fault finding procedure **PR013**
		Fan assembly function		
5	Cooling fan assembly	**PR002:** Coolant temperature **ET035:** Low-speed fan	The fan should cut in when the coolant temperature exceeds 99°C **ACTIVE**	In the event of a problem: consult fault finding procedure **ET035**
		PR002: Coolant temperature **ET036:** High-speed fan	The fan should cut in when the coolant temperature exceeds 102 °C **ACTIVE**	In the event of a problem: consult fault finding procedure **ET036**

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		Engine warm at idle speed, no electrical consumers.		
NOTES		The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.		

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		Idle speed regulation function		
6	Idle speed regulation	**ET039:** Idle speed regulation	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET039**
		PR 006: Engine speed	725 < X < 775 rpm	
		PR041: Engine idling speed reference	725 < X < 775 rpm	
		PR055: Engine idling speed reference in After Sales *(Option of reducing or increasing the idling speed by means of parametric commands VP004 and VP003)*	Between 0 and 16 rpm as required	
		PR040: Engine idling speed range	-25< X <+25 rpm	
		PR022: RCO signal idling	6% < X < 15 %	
		PR021: Modification of RCO signal idling	-6 % < X < 6%	
		Richness regulation function		
7	Richness-ratio regulation	**ET037:** Richness regulation	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET037**
		PR009: Upstream sensor voltage	20 < X < 800 mV	
		PR035: Richness-ratio correction value	0 < X < 255	
		Oxygen sensor function		
8	Upstream oxygen sensor	**ET030:** Upstream oxygen sensor heating	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET030**
		ET157: Upstream sensor status	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET157**
9	Downstream oxygen sensor	**ET158:** Downstream sensor status	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET158**
		ET031: Downstream oxygen sensor heating	**ACTIVE**	In the event of a problem: consult fault finding procedure **ET031**

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	Road test
NOTES	The values shown in this conformity check are only examples. If necessary, consult the specific function specifications in the Workshop Repair Manual.

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
		Sensor function		
1	Pinking sensor	***Vehicle under load.*** **PR013:** Pinking signal **PR015:** Pinking signal correction	Should not be equal to 0. Should change when engine speed changes. $X \leq 5$	In the event of a problem: consult fault finding procedure **PR013**
2	Atmospheric pressure sensor	**PR016:** Atmospheric pressure **PR001:** Inlet manifold vacuum	1000 mb $\pm$ 3% (atmospheric pressure) $280 < X < 360$ mb	In the event of a problem: consult fault finding procedure **PR001**
		Pollutant emissions		
3	Pollutant emissions	***2500 rpm after driving.*** ***With the engine at idling speed, wait for stabilization.***	CO < 0.3 % CO2 > 13.5 % O2 < 0.8 % HC < 100 ppm 0.97 < l < 1.03 CO < 0.5 % HC < 100 ppm 0.97 < l < 1.03	In the event of a problem: consult the Technical Note on Anti-pollution

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	UPSTREAM OXYGEN SENSOR HEATING
ET030	

NOTES	There must be no faults present or stored.

Check **the cleanliness, connection and condition** of the upstream oxygen sensor connector.
Change the connector if necessary.

Check the **heating resistance** of the upstream oxygen sensor. (See the value in the "HELP" section).
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for the presence of **+12 volts on track A** of the upstream oxygen sensor connector.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track G1 connector C ⟶ **Upstream oxygen sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

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| **ET031** | DOWNSTREAM OXYGEN SENSOR HEATING |

| *NOTES* | There must be no faults present or stored. |

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

Check the **heating resistance** of the downstream oxygen sensor. (See the value in the "HELP" section).
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for the presence of **+12 volts on track A** of the downstream oxygen sensor connector.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track G3 connector C   ⟶   Downstream oxygen sensor

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

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ET035	<u>LOW SPEED FAN</u>

NOTES	There must be no faults present or stored.

Check the cleanliness and general condition of the fan assembly (no point of resistance).

Check the **cleanliness, connection and condition** of the fan assembly relay connector.
Change the connector if necessary.

Disconnect the low-speed fan relay.
Check for **the presence of +12 Volts on track 3** on the connector side of the relay.
With the ignition on, check for the presence of **+12 Volts on track 1** on the connector side of the relay.
Repair if necessary.

Check **the resistance of the low-speed fan assembly relay** on **tracks 1 and 2**. (See the value in the "HELP" section).
Change the low-speed fan relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track F1 connector C ——▶ **Low-speed fan relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Disconnect the low-speed fan relay.
Check **the insulation, the continuity and the absence of interference resistance** of the connection between **track 5** of the relay and the fan assembly.
Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the earth connection of the fan assembly.
Repair if necessary.

If it still does not operate, change the fan assembly.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

| ET036 | HIGH SPEED FAN |

| NOTES | There must be no faults present or stored. |

Check the cleanliness and general condition of the fan assembly (no point of resistance).

Check the **cleanliness, connection and condition** of the fan assembly relay connector.
Change the connector if necessary.

Disconnect the high-speed fan relay.
Check for the presence of **+12 Volts on track 3** on the connector side of the relay.
With the ignition on, check for the presence **of +12 Volts on track 1** on the connector side of the relay.
Repair if necessary.

Check **the resistance of the high-speed fan assembly relay** on **tracks 1 and 2**. (See the value in the "HELP" section).
Change the high-speed fan relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:
      Computer track F2 connector C ——▶ High-speed fan relay

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Disconnect the high-speed fan relay.
Check **the insulation, the continuity and the absence of interference resistance** of the connection between **track 5** of the relay and the fan assembly.
Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the earth connection of the fan assembly.
Repair if necessary.

If it still does not operate, change the fan assembly.

| AFTER REPAIR | Restart the conformity check from the beginning. |

JSAA3082. 0

ET037	RICHNESS REGULATION

NOTES	There must be no faults present or stored.

If the vehicle is used frequently in towns, **decoke the engine**.

Check **the cleanliness, connection and condition** of the upstream oxygen sensor connector.
Change the connector if necessary.

Check the **heating resistance** of the upstream oxygen sensor. (See the value in the "HELP" section).
Replace the upstream oxygen sensor if necessary.

Check the **signal circuit resistance of the upstream oxygen sensor. (See the value in the "HELP" section).**
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for the presence of **+ 12 volts on** the upstream oxygen sensor connector.
(See connector track number in the corresponding wiring diagram).
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track C1 connector C ⟶ **Upstream oxygen sensor**
      Computer track B1 connector C ⟶ **Upstream oxygen sensor**
      Computer track G1 connector C ⟶ **Upstream oxygen sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

– Check the condition of the air filter.
– Check the plugs and the complete ignition circuit.
– Check that the canister bleed circuit is sealed.
– Check that the inlet manifold and exhaust system are completely sealed.
– Check the whole fuel supply system and filter.
– Check the fuel pressure.
– If idling is irregular, check the valve clearances and the timing.

Change the oxygen sensor if the incident persists.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

ET039	<u>IDLE SPEED REGULATION</u>

NOTES	There must be no faults present or stored.

NOTES	**Idle speed is too slow.**

– Clean the air supply circuit (throttle body, idle speed regulation stepper motor), since it may be dirty.
– Check the engine oil level (too high --> splashing).
– Check the engine compression
– Check the valve clearances and timing.
– Check ignition.
– Check the injectors

NOTES	**Idle speed is too high.**

– Check the engine oil level.
– Check that the pressure sensor is operating correctly.
– Check the correctness of the pipes on the manifold.
– Check the pneumatically controlled solenoid valves.
– Check the manifold gaskets.
– Check the throttle body gaskets.
– Check the brake servo sealing.
– Check that the restrictions are present in the oil vapour rebreathing circuit.
– Check the valve clearances and timing.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

| **ET060** | FLYWHEEL SIGNAL WITH ENGINE RUNNING |

| *NOTES* | There must be no faults present or stored. |

Check **the cleanliness, connection and condition** of the target sensor, its connector and the cable.
Replace any parts if necessary.

Check that the flywheel sensor **is correctly mounted** .
Check the sensor / flywheel **air gap** .

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track E4 connector B ⟶ **Target sensor**
      Computer track F3 connector B ⟶ **Target sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check the **resistance** of the target sensor. (See the value in the "HELP" section).
Replace the sensor if necessary.

If there is still a fault, **check the cleanliness and condition** of the flywheel.

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

JSAA3082. 0

ET110	<u>BRAKE PEDAL</u>

NOTES	There must be no faults present or stored.

Check the condition of the pedal mounting.

Check **the cleanliness, connection and condition** of the dual-contact brake switch and its connection.
Replace any parts if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

     Computer track E4 or G3 connector A ⟶ **Brake pedal**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If it still does not operate, change the switch.

Refer to the ABS fault finding procedure if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

ET143	<u>BRAKE PEDAL REDUNDANT</u> (Confirmation signal)

NOTES	**None.**

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "ABS/ESP" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "ABS/ESP" system if necessary.**

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

	UPSTREAM SENSOR STATUS
ET157	

NOTES	There must be no faults present or stored.

Check that the manifold pressure sensor is correctly mounted.
Check that the inlet line is sealed, from the throttle to the cylinder.
Check that there are no defective seals.
Check that the canister bleed circuit is sealed.
Check that the manifold air temperature sensor is correctly mounted.
Check that the throttle air temperature sensor is correctly mounted.
Check that the resonator is not cracked.

Check **the condition and assembly** of the upstream sensor.

Check for **air leaks** on the exhaust system.

If the vehicle is used frequently in towns, **decoke the engine**.

Check **the cleanliness, connection and condition** of the upstream oxygen sensor connector.
Change the connector if necessary.

Check the **upstream oxygen sensor circuit resistance. (See the value in the "HELP" section).**
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for **the presence of +12 Volts** on the upstream oxygen sensor.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track C1 connector B ⟶ **Upstream oxygen sensor**
      Computer track B1 connector B ⟶ **Upstream oxygen sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

ET158	<u>DOWNSTREAM SENSOR STATUS</u>

NOTES	There must be no faults present or stored.

Check **the condition and assembly** of the downstream sensor.

If the vehicle is used frequently in towns, **decoke the engine**.

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

Check the **resistance** of the downstream oxygen sensor circuit. (See the value in the "HELP" section).
Replace the downstream oxygen sensor if necessary.

With the ignition on, check for the presence of **+12 Volts** on the downstream oxygen sensor.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track B2 connector B ⟶ Downstream oxygen sensor
      Computer track A2 connector B ⟶ Downstream oxygen sensor

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

ET182	<u>CLUTCH PEDAL SWITCH</u>

NOTES	There must be no faults present or stored.

Check the condition of the pedal mounting.

Check **the cleanliness, connection and condition** of the clutch pedal switch and its connection.
Clean or replace whichever is necessary.

Check for the presence of earth on the clutch pedal switch.
(See connector track number in the corresponding wiring diagram).
Repair if necessary.

– **Test the multiplex network.**
– **Refer to the "Multiplex network" and "Instrument panel" sections in the Workshop Repair Manual.**
– **Perform a fault finding procedure on the "Instrument panel" system if necessary.**

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

ET192	<u>CRUISE CONTROL/SPEED LIMITER</u>

NOTES	There must be no faults present or stored.
	<u>Warning</u>: The air bag must be removed in order to remove or check the "Cruise control/Speed limiter" control switches. **Refer to the "Air bag" section in the workshop repair manual.**

STATUS1 **STATUS2**	Check **the cleanliness, connection and condition of the start switch** of the cruise control / speed limiter and the connection and condition of its connector. Replace any parts if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:
	   Computer track A2 connector A ⟶ Cruise control/speed limiter switch
	   Computer track C3 connector A ⟶ Cruise control/speed limiter switch
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

STATUS3 **STATUS4** **STATUS5** **STATUS6**	Check **the cleanliness, connection and condition** of the increase switches at the steering wheel and their connectors. Replace any parts if necessary.

	Disconnect the battery.
	Disconnect the computer. Check **the cleanliness and condition** of the connections.
	Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:
	   Computer track D2 connector A ⟶ Steering wheel switch
	   Computer track D3 connector A ⟶ Steering wheel switch
	
	(See connector track numbers in the corresponding wiring diagram).
	
	Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

PR001	<u>MANIFOLD PRESSURE</u>

NOTES	There must be no faults present or stored.

Check that the manifold pressure sensor is correctly mounted.
Check that the inlet line is sealed, from the throttle to the cylinder.
Check that there are no defective seals.
Check that the canister bleed is not disconnected nor blocked open.
Check that the manifold air temperature sensor is correctly mounted.
Check that the throttle air temperature sensor is correctly mounted.
Check that the resonator is not cracked.

Check **the cleanliness, connection and condition** of the sensor and its connection.
Replace any parts if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track H2 connector B ⟶ **Pressure sensor**
      Computer track H3 connector B ⟶ **Pressure sensor**
      Computer track H4 connector B ⟶ **Pressure sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that the pressure sensor **is correctly pneumatically connected** and that the hose is in good condition.

Using a vacuum pump, check the **consistency of the manifold pressure**.
Check **the consistency** with parameter **PR001** on the diagnostic tool.
Replace the sensor if necessary.

If PR001 > Maximum at idling speed:
Check the valve clearance.
Check that the canister bleed is closed at idling speed.
Check the cylinder compressions.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

PR002	COLANT TEMPERATURE

NOTES	There must be no faults present or stored.

Check **the cleanliness, connection and condition** of the coolant temperature sensor connector.
Change the connector if necessary.

Check the **resistance** of the coolant temperature sensor at different temperatures. (See the values in the "HELP" section).
Change the coolant temperature sensor if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track F2 connector B   ⟶   **Coolant temperature sensor**
      Computer track F4 connector B   ⟶   **Coolant temperature sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

	AIR TEMPERATURE
PR003	

NOTES	There must be no faults present or stored.

Check **the cleanliness, connection and condition** of the manifold air temperature sensor connector.
Change the connector if necessary.

Check the **resistance** of the manifold air temperature sensor at different temperatures. (See the values in the "HELP" section).
Change the air temperature sensor if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track E3 connector B ⟶ **Manifold air temperature sensor**
      Computer track E2 connector B ⟶ **Manifold air temperature sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

| **PR004** | <u>COMPUTER SUPPLY VOLTAGE</u> |

| *NOTES* | There must be no faults present or stored.
No electrical consumers. |

| **Ignition on** | **If the voltage is minimum:**
Check the battery and charge circuit.
(See the corresponding section in the workshop repair manual). |
| | **If the voltage is maximum:**
Check the charge circuit with and without electrical consumers.
(See the corresponding section in the workshop repair manual). |

| **At idle speed** | **If the voltage is minimum:**
Check the battery and charge circuit.
(See the corresponding section in the workshop repair manual). |
| | **If the voltage is maximum:**
Check that the charging voltage is correct with and without electrical consumers.
(See the corresponding section in the workshop repair manual). |

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

JSAA3082. 0

	PINKING SIGNAL
PR013	

NOTES	There must be no faults present or stored.

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

Check the conformity of the fuel in the fuel tank.

Check the conformity of the spark plugs.

Check the pinking sensor is **tight.**

Check **the cleanliness, connection and condition** of the sensor and the connector.
Replace any parts if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

        Computer track A2 connector B ⟶ Pinking sensor
        Computer track B2 connector B ⟶ Pinking sensor
        Computer track C2 connector B ⟶ Pinking sensor screening

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the fault persists, change the pinking sensor.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

| **PR017** | <u>MEASURED THROTTLE POSITION</u> |

| *NOTES* | <u>**Warning:**</u> **Never drive the vehicle without having checked that the computer does not contain any faults relating to the "Throttle body".** |
| | There must be no faults present or stored. |

Check that there are no **foreign bodies** in the throttle valve.

Check the **cleanliness, connection and condition** of the throttle position potentiometer connectors.
Replace any parts if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track G4 connector B ⟶ **Throttle potentiometer**
      Computer track D3 connector B ⟶ **Throttle potentiometer**
      Computer track G2 connector B ⟶ **Throttle potentiometer**
      Computer track G3 connector B ⟶ **Throttle potentiometer**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that **the resistances of the throttle position potentiometer, tracks 1 and 2**, are correctly following their curves, by varying the throttle from no load to full load. (See the values in the "HELP" section).
Correct or change the throttle position potentiometer if necessary.

| *AFTER REPAIR* | **If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").**
Restart the conformity check from the beginning. |

JSAA3082. 0

PR030	<u>RICHNESS ADAPTIVE OPERATION</u>

NOTES	There must be no faults present or stored. If the **PR030** or **PR031** is near the min. stop, there is too much petrol. If the **PR030** or **PR031** is near the max. stop, there is insufficient petrol.

– Check the condition of the air filter.
– Check the plugs and the complete ignition circuit.
– Check that the canister bleed circuit is sealed.
– Check that the inlet manifold and exhaust system are completely sealed.
– Check the whole fuel supply system and filter.
– Check the fuel pressure.
– If idling is irregular, check the valve clearances and the timing.

If the vehicle is used frequently in towns, **decoke the engine**.

Check **the cleanliness, connection and condition** of the upstream oxygen sensor connector.
Change the connector if necessary.

Check the **heating resistance** of the upstream oxygen sensor. (See the value in the "HELP" section).
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for the presence of **+12 volts on track A** of the upstream oxygen sensor connector.
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

      Computer track C1 connector C ⟶ **Upstream oxygen sensor**
      Computer track B1 connector C ⟶ **Upstream oxygen sensor**
      Computer track G1 connector C ⟶ **Upstream oxygen sensor**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Change the oxygen sensor if the incident persists.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

	MEASURED ACCELERATOR PEDAL POSITION
PR112	

NOTES	There must be no faults present or stored.

Check that the pedal is not mechanically seized.

Check **the cleanliness, connection and condition** of the pedal potentiometer connector.
Change the connector if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

Computer track H3 connector A ⟶ **Pedal potentiometer**
Computer track G2 connector A ⟶ **Pedal potentiometer**
Computer track H2 connector A ⟶ **Pedal potentiometer**
Computer track F4 connector A ⟶ **Pedal potentiometer**
Computer track F2 connector A ⟶ **Pedal potentiometer**
Computer track F3 connector A ⟶ **Pedal potentiometer**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check that **the resistances of the pedal potentiometer, tracks 1 and 2** correctly follow their resistive curves.
(See the values in the "HELP" section).
Change the pedal potentiometer if necessary.

If the incident persists, change the pedal potentiometer.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

	FUEL PUMP RELAY
AC010	

NOTES	There must be no faults present or stored.

Check **the supply fuse** of the fuel pump relay.
Change the fuse if necessary.

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

Disconnect the relay.
With the ignition on, check for the presence of **+12 V on track 1** on the connector side of the fuel pump relay.
Repair if necessary.

Check **the resistance** of the fuel pump relay on **tracks 1 and 2.**
(See the value in the "HELP" section).
Change the fuel pump relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track D1 connector C ⟶ Petrol pump relay

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the fault persists, change the relay.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

| **AC016** | CANISTER-BLEED SOLENOID VALVE |

| *NOTES* | There must be no faults present or stored. |

Check **the cleanliness, connection and condition** of the canister bleed solenoid valve connector.
Change the connector if necessary.

With the ignition on, check for the presence of **+12 Volts** on the canister bleed solenoid valve.
Repair if necessary.

Check the **resistance** of the canister bleed solenoid valve. (See the value in the "HELP" section).
Change the solenoid valve if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

     Computer track E1 connector C ⟶ **Canister bleed solenoid valve**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

If the fault persists, change the solenoid valve.

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

| **AC271** | <u>LOW-SPEED FAN RELAY</u> |

| *NOTES* | There must be no faults present or stored. |

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

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

Check **the resistance of the low-speed fan assembly relay** on **tracks 1 and 2.** (see value in the "HELP" section).
Change the low-speed fan relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track F1 connector C ⟶ **Low-speed fan relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the connection between **track 5** of the relay and the fan assembly.
Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the earth connection of the fan assembly.
Repair if necessary.

Check the **condition** of the fan assembly.
Replace the fan assembly if necessary.

| *AFTER REPAIR* | Restart the conformity check from the beginning. |

JSAA3082. 0

AC272	HIGH-SPEED FAN RELAY

NOTES	There must be no faults present or stored.

Check **the cleanliness, connection and condition** of the high-speed fan assembly relay connector.
Change the connector if necessary.

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

Check **the resistance of the high-speed fan assembly relay** on **tracks 1 and 2**. (See the value in the "HELP" section).
Change the high-speed fan relay if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connection:

      Computer track F2 connector C   ⟶   **High-speed fan relay**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the connection between **track 5** of the relay and the fan assembly.
Repair if necessary.

Check **the insulation, the continuity and the absence of interference resistance** of the earth connection of the fan assembly.
Repair if necessary.

Check the **condition** of the fan assembly.
Replace the fan assembly if necessary.

AFTER REPAIR	Restart the conformity check from the beginning.

JSAA3082. 0

AC612	<u>MOTORISED THROTTLE</u>

NOTES	<u>**Warning:**</u> **Never leave a vehicle on the road without having checked that the computer does not contain any faults relating to the "Throttle body".**
	There must be no faults present or stored.

Check **the cleanliness** of the throttle body and that the throttle **rotates correctly.**
Clean or replace whichever is necessary.

Check **the cleanliness, connection and condition** of the connections.
Clean or replace whichever is necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

       Computer track M3 connector B   ➞   **Motorised throttle body**
       Computer track M4 connector B   ➞   **Motorised throttle body**
       Computer track G4 connector B   ➞   **Motorised throttle body**

(See connector track numbers in the corresponding wiring diagram).

Repair if necessary.

Check **the electrical resistance** of the throttle motor. (See the value in the "HELP" section).
Clean or change the throttle body if necessary.

AFTER REPAIR	**If the throttle body has been replaced, all programmed values must be reinitialised ("RZ008").** Restart the conformity check from the beginning.

ELECTRICAL RESISTANCE OF COMPONENTS

Resistance values of components at 20°C:

Injectors ⟶ **1.8 ohms ± 5%**

Actuator relays ⟶ **65 ohms ± 10%**

Throttle motor ⟶ **1.5 ohms ± 5%**

Canister bleed solenoid valve ⟶ **25 ohms ± 10%**

Primary ignition coils ⟶ **0.5 ohms**

Secondary ignition coils ⟶ **11 kohms ± 20%**

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Flywheel sensor ⟶ **230 ohms ± 20%**

Upstream oxygen sensor heater ⟶ **9 ohms ± 10%**

Downstream oxygen sensor heater ⟶ **9 ohms ± 10%**

Thermoplunger no. 1 relay ⟶ **65 ohms ± 10%**

Thermoplunger no. 2 relay ⟶ **65 ohms ± 10%**

Thermoplungers ⟶ **1 ohm ± 5%**

High-speed fan relay ⟶ **65 ohms ± 10%**

Low-speed fan relay ⟶ **65 ohms ± 10%**

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Values of variable resistance components:

Temperature in °C	- 10	25	50	80	110
Manifold air temperature sensor in ohms	10450 to 8585	2120 to 1880	860 to 760	-	-
Coolant temperature sensor in ohms	-	2360 to 2140	850 to 770	290 to 275	117 to 112

Accelerator pedal potentiometer (20°C)		
No load track 1	Tracks G2 and H2, connector A of computer **3240 ohms ± 20%**	Tracks H3 and H2, connector A of computer **1950 ohms ± 20%**
Full load track 1	Tracks G2 and H2, connector A of computer **1600 ohms ± 20%**	Tracks H3 and H2, connector A of computer **3100 ohms ± 20%**
No load track 2	Tracks F2 and F3, connector A of computer **4530 ohms ± 20%**	Tracks F3 and F4, connector A of computer **1920 ohms ± 20%**
Full load track 2	Tracks F2 and F3, connector A of computer **5600 ohms ± 20%**	Tracks F3 and F4, connector A of computer **5350 ohms ± 20%**

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Throttle position potentiometer MGI (20°C)		
Throttle position *"Limp-home" track 1* (Throttle position, engine stopped)	Tracks G3 and G2, connector B of computer **1180 ohms** ± **20%**	Tracks G3 and G4, connector B of computer **1910 ohms** ± **20%**
Throttle position *full open track 1* (Keep the throttle open manually)	Tracks G3 and G2, connector B of computer **1940 ohms** ± **20%**	Tracks G3 and G4, connector B of computer **740 ohms** ± **20%**
Throttle position *"Limp-home" track 2* (Throttle position engine stopped)	Tracks D3 and G2, connector B of computer **1045 ohms** ± **20%**	Tracks D3 and G4, connector B of computer **1770 ohms** ± **20%**
Throttle position *full open track 2* (Keep the throttle open manually)	Tracks D3 and G2, connector B of computer **1890 ohms** ± **20%**	Tracks D3 and G4, connector B of computer **685 ohms** ± **20%**

JSAA3082. 0

| *NOTES* | **Only consult the customer complaints after a complete check using the diagnostic tool.** |
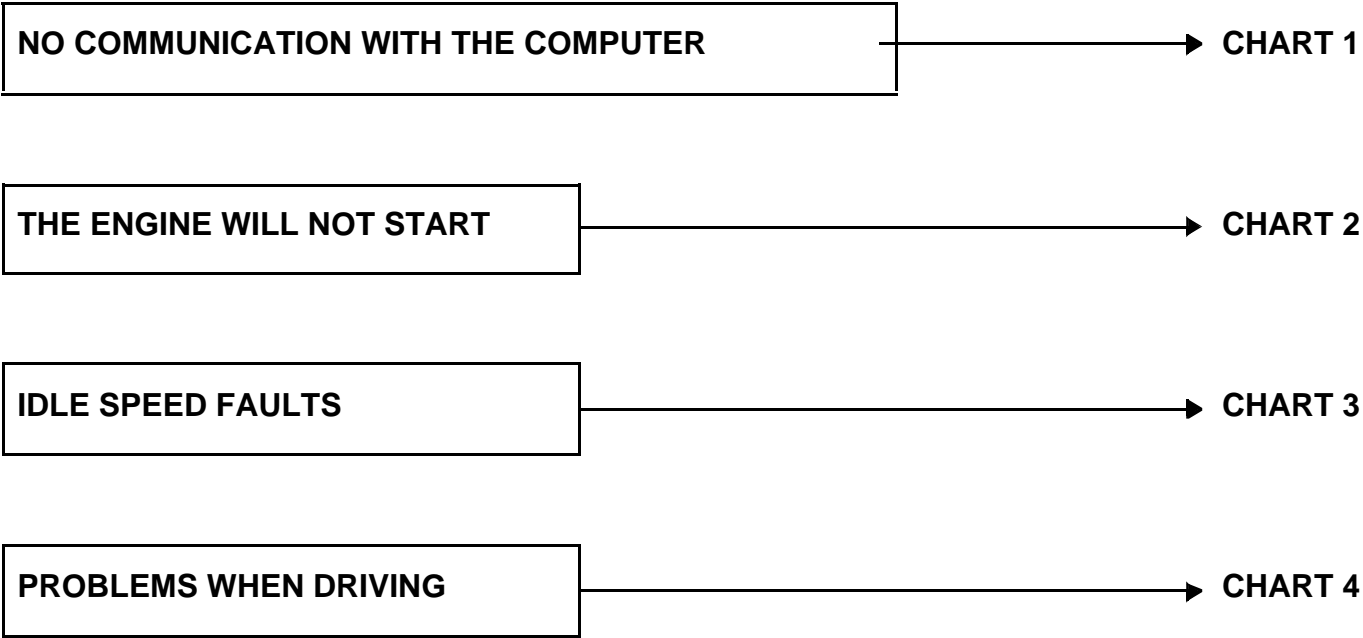
NO COMMUNICATION WITH THE COMPUTER   ➤ **CHART 1**

THE ENGINE WILL NOT START   ➤ **CHART 2**

IDLE SPEED FAULTS   ➤ **CHART 3**

PROBLEMS WHEN DRIVING   ➤ **CHART 4**

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

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| **CHART 1** | **NO COMMUNICATION WITH THE COMPUTER** |

| *NOTES* | **None.** |

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

Try the diagnostic tool on another vehicle.

– Check the injection, engine and passenger compartment fuses.
– Check **the cleanliness and condition** of the diagnostic socket on the vehicle and its connections.
– Use the diagnostic socket to check the following tracks:

> **Track 1** ——————▶ **+ after ignition feed**
> **Track 16** ——————▶ **+ battery feed**
> **Tracks 4 and 5** ——————▶ **Earth**

Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check **the cleanliness and condition** of the connections.
Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** of the following connections:

> **Injection computer track H1 connector C** ——————▶ **Earth**
> **Injection computer track H4 connector A** ——————▶ **Earth**
> **Injection computer track G4 connector A** ——————▶ **Earth**
> **Injection computer track B4 connector A** ——————▶ **Diagnostic socket track 7**
> **Injection computer track A4 connector B** ——————▶ **+ after ignition feed**
> **Injection computer track G2 connector C** ——————▶ **+ after ignition**

Repair if necessary.

Check **the cleanliness, connection and condition** of the injection actuator relay connectors.
Change the connector if necessary.

Check **the resistance** of the injection actuator relay. (See the value in the "HELP" section).
Change the actuator relay if necessary.

Check for the presence of **+ 12 volts on track 1** of the injection actuator relay.
Rectify the line to the fuse.

Check the insulation and continuity of the connection between:

> **Injection computer track D4 connector B** ——————▶ **Injection actuator relays**

Repair if necessary.

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

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| CHART 2 | **THE VEHICLE WILL NOT START** |

| *NOTES* | **Follow CHART 2 after a full check using the diagnostic tool.**
(Refer to the Workshop Repair Manual for specific operations if necessary). |

If the starter motor does not engage, there may be a problem with the engine immobiliser.
Check the engine immobiliser using the diagnostic tool.

– Check that the impact sensor is not switched on. Check that it is functioning correctly.

– Check the cleanliness and condition of the battery.
– Check that the battery is correctly earthed to the vehicle body.
– Check the battery connections.
– Check the battery charge.

– Check that the starter motor is properly connected.
– Check that the starter motor is operating correctly. (See the corresponding section in the workshop repair manual).

– Check that the ignition coil unit is not cracked.
– Check the condition and cleanliness of the ignition coil unit.
– Check the condition and conformity of the plugs.
– Check the secondary ignition circuit.
– Check the mounting, the cleanliness, the condition and the air gap of the flywheel signal sensor.
– Check the condition of the flywheel.

– Ensure that the air intake circuit is not blocked.

– Check that there is petrol in the tank (the petrol gauge may be faulty).
– Check that the tank vent is not blocked.
– Check that the petrol is of the proper type.
– Check that there are no leaks in the fuel circuit, from the tank to the injectors.
– Check that no hoses are pinched (especially after a removal operation).
– Check the condition of the petrol filter.
– Check the reliability of the petrol pump
– Check the fuel pressure.
– Check that the injectors operate correctly.

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

– Check the timing.

– Check the engine compression

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

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CHART 3	**IDLE SPEED PROBLEMS**

NOTES	**Follow CHART 3 after a full check using the diagnostic tool.** (Refer to the Workshop Repair Manual for specific operations if necessary).

– Check on the dipstick that the oil level is not too high

– Check the condition and cleanliness of the ignition coil unit.
– Check the condition and conformity of the plugs.
– Check the secondary ignition circuit.
– Check the mounting, the cleanliness, the condition and the air gap of the flywheel signal sensor.
– Check condition and the cleanliness of the flywheel.

– Ensure that the air intake circuit is not blocked.
– Check that the inlet line is sealed, from the throttle to the cylinder.
– Check that there are no defective seals.

– Check that the canister bleed is not disconnected nor blocked open.
– Check that there are no leaks on the canister bleed circuit.
– Check that there are no leaks on the brake servo circuit.

– Check that the manifold air temperature sensor is correctly mounted.
– Check that the manifold pressure sensor is correctly mounted.
– Check that the resonator is not cracked.
– Check that throttle valve unit is not clogged.
– Check that the throttle rotates correctly.

– Check that the tank vent is not blocked.
– Check that the petrol is of the proper type.
– Check that there are no leaks in the fuel circuit, from the tank to the injectors.
– Check that no hoses are pinched (especially after a removal operation).
– Check the condition of the petrol filter.
– Check the reliability of the fuel pump.
– Check the fuel pressure.
– Check that the injectors operate correctly.

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

– Check the timing.

– Check the engine compression

AFTER REPAIR	Test using the diagnostic tool.

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CHART 4	PROBLEMS WHEN DRIVING

NOTES	**Follow CHART 4 after a full check using the diagnostic tool.** (Refer to the Workshop Repair Manual for specific operations if necessary).

– Check on the dipstick that the oil level is not too high

– Check the exhaust manifold is not leaking.

– Check the condition of the air filter.

– Check the condition and cleanliness of the ignition coil unit.
– Check the condition and conformity of the plugs.
– Check the secondary ignition circuits.
– Check the mounting, the cleanliness, the condition and the air gap of the flywheel signal sensor.
– Check condition and the cleanliness of the flywheel.

– Ensure that the air intake circuit is not blocked.
– Check that the inlet line is sealed, from the throttle to the cylinder.
– Check that there are no defective seals.

– Check that the canister bleed is not disconnected nor blocked open.
– Check that there are no leaks on the canister bleed circuit.
– Check that there are no leaks on the brake servo circuit.

– Check that the manifold air temperature sensor is correctly mounted.
– Check that the manifold pressure sensor is correctly mounted.
– Check that the resonator is not cracked.
– Check that throttle valve unit is not clogged.
– Check that the throttle rotates correctly.

– Check that the tank vent is not blocked.
– Check that the petrol is of the proper type.
– Check that there are no leaks in the fuel circuit, from the tank to the injectors.
– Check that no hoses are pinched (especially after a removal operation).
– Check the condition of the petrol filter.
– Check the reliability of the petrol pump
– Check the fuel pressure.
– Check that the injectors operate correctly.

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

– Check the timing.

– Check the engine compression

AFTER REPAIR	Test using the diagnostic tool.

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This document contains the general fault finding procedures applicable to all "5NR, VDIAG 04" computers fitted to all CLIO II vehicles from June 2001 (European version).

To undertake fault finding on this system, it is essential to have the following items available:

– **The section of the Workshop Repair Manual,**
– **The wiring diagrams for the function on the vehicle concerned,**
– **The test bornier No. 1618 Elé, a multimeter and the CLIP or NXR diagnostic tool.**

GENERAL APPROACH TO FAULT FINDING

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

Identification is made by reading the following information:

COMPUTER PART NUMBER	**5 NR**
VDIAG NUMBER	**04**
PROGRAM NUMBER (from:)	**24**

– Locate the Fault finding documents corresponding to the system identified.
– Take note of information contained in the introductory sections.

DESCRIPTION OF THE FAULT FINDING PHASES

1 - CHECKING THE FAULTS

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

Order of priority

Electrical faults must be dealt with before OBD (on-board diagnostics) faults (**DF111**, **DF112**, **DF113**, **DF114**, misfires in cylinders 1 to 4; **DF165** detection of misfires; **DF102** oxygen sensor operating fault; **DF106** catalytic converter operating fault; **DF116** fuel system operating fault).
Note that no electrical fault may be present or stored in the memory when dealing with OBD (on-board diagnostics) operating faults.
Other priorities are dealt with in the "NOTES" section of the diagnostic procedure for the fault in question.

Reminder: Each fault is interpreted for a particular type of storage (fault present, fault stored in memory, fault present or stored). The checks defined for handling each fault are therefore only to be performed if the fault shown by the diagnostic tool is interpreted in the document for its type of storage. The storage type should be considered when using the diagnostic tool after the ignition has been switched off and switched back on.
If a fault is interpreted when it is declared stored, the conditions for application of the fault finding procedure appear in the NOTES box. If these conditions are not satisfied, use the fault finding procedure to check the circuit of the faulty part concerned. This indicates that the fault is no longer present on the vehicle.
Perform the same procedure if a fault is declared "stored" by the diagnostic tool and it is only interpreted in the document as a "present" fault.

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2 - CONFORMITY CHECK

The conformity check is designed to check the statuses and parameters which do not display any faults on the diagnostic tool when they are outside the permitted tolerance values. This phase allows:
– Breakdowns to be diagnosed without a fault being displayed (e.g. as a result of a customer complaint).
– Correct operation of the injection to be checked to ensure that after repair the parameters and statuses are correct.

This section gives the diagnostic procedures for statuses and parameters and the conditions for checking them. If a status is not operating normally or a parameter is outside permitted tolerance values, you should consult the diagnostic page corresponding to the element concerned.

N.B.: the substitution values shown in the conformity check correspond to the default values that the computer uses when the element concerned no longer sends information to the computer or the information is inconsistent.

3 - CHECK THAT REPAIR IS CORRECT WITH THE DIAGNOSTIC TOOL

If the checks using the diagnostic tool are satisfactory, but the customer complaint is still present, the problem should be dealt with using the "Customer complaint" diagnostic.

Dealing with the customer complaint

This section has fault finding charts, which suggest a series of possible causes of the problem. These lines of investigation must only be used in the following cases:
– No fault observed on diagnostic tool.
– No fault detected during conformity check.
– The vehicle is not operating correctly.

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GENERAL OBSERVATIONS

1 - FAULT WARNING LIGHT MANAGEMENT

The warning lights on the instrument panel (configuration with 3 active bulbs) light up according to the faults detected.

Level 1 safety warning light (orange injection warning light):	**Level 2 safety warning light** (red coolant temperature warning light).	**EOBD warning light** (orange pollution warning light)
– throttle control – throttle programming – automatic throttle control – pedal sensor – throttle potentiometer – brake pedal signal – manifold pressure sensor – air component – inlet manifold – computer – sensors' reference voltage – main relay – heating and ventilation + after relay	– coolant temperature warning (permanent lighting of the coolant temperature warning light): – computer (coolant temperature warning light flashing):	– engine misfiring – catalytic converter – oxygen sensors – upstream oxygen sensor heater – fuel system – canister – fuel richness autoadaptives

N.B.: lighting of the level 2 warning light, apart from fault codes linked to engine cooling, necessitates **replacing the computer having switched the ignition off and on and confirming the lighting of the latter.**

2 - PROGRAMMING OPERATIONS:

The programming operations below will be necessary every time one of the following items is replaced in After Sales operation: **computer, throttle body** and every time the autoadaptive systems are adjusted.

2.1 Operation for programming the throttle end stop:
This operation is carried out the first time the ignition is switched on after the computer or the throttle body has been changed, and whenever the ignition is switched on, provided the battery voltage is correct and the coolant temperature is in excess of 6°C.
This operation is automatic (it only requires the ignition to be switched on) and lasts 3 seconds.
The programmed position is stored when the ignition is switched off.
Correct programming is shown by the absence of faults in this function and is required for satisfactory driving behaviour.

2.1.1 Programming of the backup position of the motorized throttle valve:
This programming involves the computer learning the value of the minimum stop of the throttle valve. This operation is also carried out as the system ages, if the stop stored is moved.

2.1.2 Programming the bottom stop of the throttle:
Following the programming of the emergency stop of the throttle valve, the throttle valve is set to closed and its position stored in order to utilize the full control range currently available.

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GENERAL OBSERVATIONS

2.2 Minimum throttle air inlet programming operation:

This operation consists of allowing the engine to run at idle speed until the coolant temperature reaches 60°C, in order to enable the computer to carry out the calculation for the line when the torque is applied (estimated time starting from a coolant temperature of 20°C: approximately 3 minutes).
This operation will be stored in the computer memory when the ignition is switched off.

2.3 Operation to program the phonic wheel (toothed ring) for detecting engine misfires:

There are two levels of programming:
– A limited range programming for EOBD tests. This programming is carried out at the start of the tests by acceleration under no load until the engine speed limit is reached, then return to idle speed for cutoff and renewed power take up.
– Full programming, used for fault finding which explores all levels of operation. This programming takes place while the car is being driven in 2nd or 3rd gear to reach maximum engine speed at 120 km/h and return to idle speed by a long deceleration to take up the power again and idle.

2.4 Operation for programming the presence of the power assisted steering sensor:

This operation consists of turning the steering to full lock twice, with the engine running at idle speed.

2.5 Operation to prime the fuel system after replacement of the computer:

This operation consists of the first Key Off / Key On transition (new computer) to activate the fuel pump for 20 seconds. This activation is triggered with the ignition switched on, by pressing the accelerator pedal to 3/4 of its full travel for one second. It will be activated if this operation did not take place the first time. It will not be activated later unless data is downloaded or a new computer is fitted.

2.6 No load/full load recognition operation:

This operation is not necessary with 5NR injection.

2.7 Autoadaptive systems resetting operation:

This operation consists of leaving the engine running at idle speed for 15 minutes (throttle programming carried out).

2.8 Operation of automatic recognition of the options present:

This operation, carried out automatically by the 5NR system, prevents a diversity of software references by creating a single communal software for all the applications relating to the equipment present on the vehicle.
N.B.: the recognition of the heating and ventilation system configuration is carried out with the engine running on first actuation of the heating and ventilation system control, with the passenger compartment ventilation fan set to the required speed.
Warning: for the Sequential Gearbox, it has been decided to opt for specific software for the 5NR.

– SETTING THE COMPUTER SELF-FEED (power-latch):

This feed is timed (approximately 10 seconds) and its purpose is:
– improved warm start function
– fans post-ventilation request function
– computer locking management
– storing auto-adaptive systems and fault codes.

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OBD (on-board diagnostics) TEST ACTIVATION PROCEDURE:

For upstream sensor and catalytic converter test:
– First, repair non-OBD faults.
– Warm up the engine (check at least twice that the engine cooling fans cut in) until the second richness closed loop is reached
– Set the engine to run at 3000 rpm under no load.
– Start the test from the tool.
– Read off the results obtained.
– Return to idle speed.

For the fuel supply test:
– First, repair non-OBD faults.
– Warm up the engine (check at least twice that the engine cooling fans cut in) until the second richness closed loop is reached.
– Return to idle speed.
– Read off the results obtained.
– Deal with any faults found.

For the engine misfires test:
– First, repair non-OBD faults.
– Warm up the engine (check at least twice that the engine cooling fans cut in) until the second richness closed loop is reached.
– There are two possibilities:
　a) the programming of the phonic wheel has not been erased: the test is activated as soon as the engine is started (no need to start the test from the tool)
　b) the programming of the phonic wheel has been erased (programming erase function): start the engine misfires test by means of the diagnostic tool and program the phonic wheel at the same time (acceleration under no load until the speed limiter cuts in, then return to idle speed).
– Read off the results obtained.
– Deal with any faults found.

COMPUTER CONNECTOR CORRESPONDENCES:

– **Black** 48-way computer connector: **Connector A**.
– **Brown** 48-way computer connector: **Connector B**.

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DF003 **PRESENT**	<u>AIR TEMPERATURE SENSOR CIRCUIT</u> CC.0 : SHORT-CIRCUIT TO EARTH CO.1 : OPEN CIRCUIT OR SHORT CIRCUIT TO +12 V

NOTES	**Special notes:** The air temperature sensor is located in the inlet manifold.
	Priority for dealing with a combination of faults: – Deal first with the "**DF152** second sensor reference voltage" fault if it is present or stored.

Connect the bornier in place of the computer and check the sensor's **resistance value** between **track D3** and **track E4** of computer connector B.
The sensor should have a resistance of approximately **2050 Ω at 25°C** (consult the Repair Step for electrical specifications of the sensor as a function of temperature).
Ensure the two connections are **insulated from earth and from +12 volts**.

If the measurement gives an incorrect value or if the fault persists (bad contacts): **remove the inlet manifold** to gain access to the air temperature sensor.

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

Ensure that the sensor is **correctly mounted** on the throttle body.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
      computer connector B **track D3** $\longrightarrow$ **track 1** of the air temperature sensor
      computer connector B **track E4** $\longrightarrow$ **track 2** of the air temperature sensor
Repair if necessary.

Verify the presence of a **5 volt feed** on **track 1** of the sensor.
If there is no feed, **change** the injection computer.

If the fault persists, **change** the air temperature sensor.

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

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DF004 PRESENT OR STORED	COOLANT TEMPERATURE SENSOR CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CO.1 : OPEN CIRCUIT OR SHORT CIRCUIT TO +12V 1.DEF : SIGNAL INCONSISTENCY

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF219 throttle position potentiometer reference voltage,** **DF151** first sensor reference voltage and **DF152** second sensor reference voltage" faults if these are present or stored.

CC.0 *CO.1*	*NOTES*	Only apply this fault finding procedure if a fault is present with **CC.0** or **CO.1**

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

Connect the bornier in place of the computer and check the **insulation, continuity and absence of**
interference resistance of the connections:
      computer connector B **track F1** ⟶ **track B1** of the coolant temperature sensor
      computer connector B **track D4** ⟶ **track B2** of the coolant temperature sensor
Repair if necessary.

Check **the resistance value** of the sensor by measuring between:
Track B1 and **track B2** of the coolant temperature sensor. Replace the sensor if the resistance is not
approximately: **2360 Ω at 25°C.**
(For specific fault finding on the sensor, consult the electrical properties of the sensor as a function of
temperature in the repair method).

Verify the presence of a **5 volt feed** on **track B1** of the sensor.
If there is no feed, **change** the injection computer.

If the fault persists, **change** the coolant temperature sensor.

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

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DF004 CONTINUED	

1.DEF	*NOTES*	**Condition for the application of the fault finding procedure on a stored fault, only in the case of signal inconsistency.** The fault is declared present after the engine is started (cold engine) then allowed to warm up to **60°C**.

Verify the **conformity of the engine cooling system**: radiator in good condition, unobstructed flow of cooling air (radiator not obstructed by leaves, etc.), coolant circuit correctly bled, etc.

Using the diagnostic tool, monitor the temperature of the engine coolant **(PR002)**.
After starting (cold engine), at idle speed the temperature should rise uniformly without wavering.
If the temperature rise is not linear (temperature curve rises or falls sharply), **change** the coolant temperature sensor.

If the fault persists, **change** the coolant temperature sensor.

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

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	PINKING SENSOR CIRCUIT
DF006 **PRESENT**	CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT ON + 12 V

NOTES	None.

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

Check that the pinking sensor is **tightned** to torque (see repair methods for manufacturer's value).

Ensure that the engine does not make an **abnormal** noise.
If there is an abnormal noise, start by eliminating the cause of the noise before checking the sensor.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
        computer connector B **track C2** ⟶ **track 1**   of the pinking sensor
        computer connector B **track C3** ⟶ **track 2**   of the pinking sensor
        computer connector B **track D2** ⟶ **shielding** of the sensor
Repair if necessary.

If the fault persists, **change** the pinking sensor.

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

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	FUEL PUMP CONTROL RELAY CIRCUIT
DF008 **PRESENT**	CC.1 : SHORT-CIRCUIT TO + 12 V CO.0 : OPEN CIRCUIT OR SHORT CIRCUIT TO EARTH

NOTES	None.

Check the **condition of the clips** of the fuel pump relay on the engine fuse and relay board (see diagrams for the vehicle and model year concerned).
Replace the clips if necessary.

With the ignition switched on, check the **presence of a + 12 volts supply** on track 3 and on track 1 of the fuel pump relay, with relay in place on the plate.
Repair if necessary.

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

     computer connector A **track G1** ⟶ **track 2** of the fuel pump relay
Repair if necessary.

Check **the resistance value** of the relay by measuring between:
Track 1 and **track 2** of the fuel pump relay. Replace the relay if the resistance is not approximately **84** $\Omega \pm$ **2** Ω **at 25°C.**

AFTER REPAIR	Run the **AC010** fuel pump relay command to check that the pump is operating correctly. Clear the fault memory. Deal with any other possible faults.

DF010 PRESENT OR STORED	<u>LOW SPEED FAN CIRCUIT</u> CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF004** coolant temperature sensor circuit and **DF032** coolant temperature overheating warning light circuit" faults if these are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine is started or the **AC626** fan unit, low speed command is run from the diagnostic tool.

Check **the condition of the clips** of the fan unit low speed relay (on the engine fuse and relay board).
Replace the clips if necessary.

With the ignition switched on, check the **presence of +12 volts** on **track 3** and **track 1** of the fan unit low speed relay.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
     computer connector A   **track C2** ⟶ **track 2** of the fan unit low speed relay.
Repair if necessary.

Check **the resistance value** of the relay by measuring between:
Track 1 and **track 2** of the fan unit low speed relay. Replace the relay if the resistance is not approximately **64 $\Omega \pm$ 2 Ω at 25°C.**

Check the supply and the earth connection of the low-speed fan assembly.
If this is correct, check the condition and correct operation of the low-speed fan assembly.

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

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DF014 **PRESENT** **OR** **STORED**	CANISTER BLEED SOLENOID VALVE CIRCUIT CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** after relay feed faults if they are present or stored.
	Conditions for applying the fault finding procedures to the fault stored: The fault is declared present when the engine is warm and running at **1500 rpm** or the "**AC016** canister bleed solenoid valve" command is started.
	Special notes: The valve is normally closed when the engine is not running. Bleeding takes place with the engine running (but not at idle speed). A canister valve which is mechanically jammed will not be detected by the electrical diagnostic system, but if there is an input signal fault on the upstream sensor **(DF207)**, follow mechanical fault finding for the valve (if the valve is jammed open).

Check the **connection and condition of the** canister bleed solenoid valve connector.
Change the connector if necessary.

With the ignition switched on, check the **presence of +12 V** on track 1 of the canister bleed solenoid valve.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
          injection relay **track 5** ⟶ **track 1** of the canister bleed solenoid valve.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
      computer connector A **track M3** ⟶ **track 2** of the canister bleed solenoid valve
Repair if necessary.

Check **the resistance value** of the relay by measuring between:
Track 1 and **track 2** of the low-speed fan assembly relay. Replace the relay if the resistance is not approximately **26 Ω ± 4 Ω at 23°C.**

If the fault persists, **change** the canister bleed solenoid valve.

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

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PETROL INJECTION
Fault finding - Fault interpretation

| **DF018**
PRESENT
OR
STORED | ## UPSTREAM OXYGEN SENSOR HEATER CIRCUIT
CC : SHORT-CIRCUIT |
|---|---|

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF076** main relay and **DF157** battery voltage" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

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

With the ignition switched on, check the **presence of +12 V** on **track A** of the oxygen sensor.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:

       injection locking relay **track 5** ⟶ **track A** of the upstream oxygen sensor

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

       computer connector B **track M4** ⟶ **track B** of the upstream oxygen sensor

Repair if necessary.

Check the **resistance value** of the oxygen sensor heater by measuring between:
Track A and **track B** of the sensor. Replace the sensor if the resistance is not approximately **3.3** $\Omega \pm$ **0.5** Ω **at 23°C**.

If the incident persists, **change** the oxygen sensor.

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

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DF022 **PRESENT**	COMPUTER 1.DEF : COMPUTER INTERNAL ELECTRICAL FAULT

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF236** + after relay feed" fault if it is present or stored.

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

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

     computer connector A **track L3** ——► **track 5** of the main relay

     computer connector A **track L4** ——► **injection fuse:** + battery feed

       (refer to diagrams for the   vehicle and year of make in question)

     computer connector A **track M4** ——► **injection fuse:** + after ignition feed

       (refer to diagrams for the vehicle and year of make in question).

     computer connector B **track L2** ——► **earth**

     computer connector B **track L3** ——► **earth**

     computer connector B **track L4** ——► **earth**

Repair if necessary.

If the fault persists, **change** the injection computer.

AFTER REPAIR	Program the throttle stop and the throttle air valve (see introduction). Clear the fault memory. Deal with any other possible faults.

INJ.5NR-1.0

DF025 PRESENT OR STORED	<u>FLYWHEEL SIGNAL SENSOR CIRCUIT</u> 1.DEF : TOOTH SIGNAL ABSENT

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF157** battery voltage fault if it is present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the starter motor has been activated for 4 seconds without the accelerator being pressed.

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

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
- computer connector B **track A2** ⟶ **track A** of the engine speed sensor
- computer connector B **track A1** ⟶ **track B** of the engine speed sensor

Repair if necessary.

Check **the resistance value** of the engine speed sensor by measuring between:
Track A and **track B** of the sensor. Replace the sensor if the resistance is not approximately **200 Ω to 270 Ω at 25°C.**

Remove the sensor and check whether **it has been rubbing** on the engine flywheel target (flywheel run-out). Replace the sensor if necessary.

Check the **condition of the engine flywheel** especially if it is removed (condition of teeth).
Change the flywheel if necessary.

If the fault persists, **change** the flywheel signal sensor.

AFTER REPAIR	Follow the instructions to confirm repair. Clear the fault memory. Carry out reprogramming (see introduction). Deal with any other possible faults.

INJ.5NR-1.0

DF032 **PRESENT** **OR** **STORED**	<u>DOWNSTREAM OXYGEN SENSOR HEATER CIRCUIT</u> CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF157** battery voltage and **DF010** fan unit low speed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the ignition is switched on or the "**AC212** coolant temperature warning light" command is run.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
> computer connector A   **track E3** ⟶   **Instrument panel**
> (refer to diagrams for the vehicle and year of make in question).
Repair if necessary.

If the warning light does not come on, check that it is connected to the **+12 volts supply.**
Check that the bulb is in good condition.
Repair if necessary.

If the connection, the bulb and its feed are correct, **look in the context stored in the memory** (relating to the appearance of the fault) to see whether there has been genuine overheating, by displaying the coolant temperature parameter (**PR002**).

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

INJ.5NR-1.0

DF038 PRESENT OR STORED	DOWNSTREAM OXYGEN SENSOR HEATER CIRCUIT CC : SHORT-CIRCUIT

| *NOTES* | **Priority for dealing with a combination of faults:**
– First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored. |
| | **Condition for the application of the fault finding procedure to a stored fault.**
The fault is declared present after the engine has been started. |

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

With the ignition on, check for the **presence of +12V** on **track A** of the oxygen sensor.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:

    injection locking relay   **track 5**   ⟶   **track A** of the downstream oxygen sensor

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

    computer connector A **track M1**   ⟶   **track B** of the downstream oxygen sensor.
Repair if necessary.

Check the **resistance value** of the oxygen sensor heater by measuring between:
Track A and **track B** of the sensor. Replace the sensor if the resistance is not approximately **3.3** $\Omega \pm$ **0.5** Ω **at 23°C**.

If the incident persists, **change the oxygen sensor**.

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

INJ.5NR-1.0

PETROL INJECTION
Fault finding - Fault interpretation

DF044 **PRESENT**	IMMOBILISER CIRCUIT 1.DEF : SIGNAL INCONSISTENCY

NOTES	**Special notes:** Engine does not start. This fault only appears when the injection computer is unlocked. The injection computer communicates with the UCH through the bias of the multiplex network.

Check the multiplex network using the diagnostic tool.

Using the diagnostic tool, check the UCH (or the multi-timer unit, depending on the equipment of the vehicle concerned) and make sure that its **immobiliser code has been programmed correctly**.
Reconfigure the UCH (or the multi-timer unit) if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
      computer connector A   **track J4** ⟶   **UCH**
(refer to diagrams for the vehicle and year of make in question).
      computer connector A   **track H3** ⟶   **UCH**
(refer to diagrams for the vehicle and year of make in question).
Repair if necessary.

Carry out a starting test: if the vehicle does not start, **switch off the ignition and wait 15 seconds** (self-supply period of the computer) then try to start the engine again.
If the problem persists, repeat the operation three times.

If the vehicle still will not start, **replace the injection computer** to see whether the problem is caused by the inability to unlock the computer.

If the problem persists, **replace the UCH**.

AFTER REPAIR	Clear the fault memory. If the injection computer has been replaced, reprogram the throttle stop and the minimum air gap of the throttle (see introduction). Deal with any other possible faults.

INJ.5NR-1.0

DF045 **PRESENT** **OR** **STORED**	<u>MANIFOLD PRESSURE SENSOR</u> 1.DEF : BELOW MINIMUM THRESHOLD 2.DEF : ABOVE MAXIMUM THRESHOLD 3.DEF : INCONSISTENCY BETWEEN THE CALCULATED PRESSURE AND THE TRUE PRESSURE

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF157** battery voltage and **DF151** primary sensor reference voltage" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

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

Ensure that the sensor **is correctly installed** in the manifold and that there is no air leak (check **the condition of the seal** of the sensor).

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

      computer connector B **track F2** ⟶ **track A** of the pressure sensor
      computer connector B **track F3** ⟶ **track B** of the pressure sensor
      computer connector B **track B2** ⟶ **track C** of the pressure sensor

Repair if necessary.

Verify the presence of a **5 volt feed** on **track C** of the sensor.
If there is no feed, **change** the injection computer.

If the fault persists, **change** the pressure sensor.

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

INJ.5NR-1.0

DF061 PRESENT OR STORED	<u>IGNITION COIL 1 - 4 CIRCUIT</u> CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.
	Special notes: The ignition coils are fed by the fuel pump relay. This relay is timed when the ignition is switched on (without starting the engine), so the feed to the coils must be measured during this period or by running the **AC010** fuel pump relay command from the diagnostic tool.

Check the **connection and condition** of the coil unit connector. Change the connector if necessary.
With the ignition on, check for **the presence of +12 V** on **track B** of the ignition coil unit.
If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection: fuel pump relay **track 5** ⎯⎯⎯⎯▶ **track B** of the coil unit. Repair if necessary.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection: computer connector B **track M3** ⎯⎯⎯⎯▶ **track D** of the coil connector. Repair if necessary.
Check **the resistance value** of the coil by measuring between: **Track B** and **track D** of the coil. Replace the coil unit if the resistance is not approximately **0.4** $\Omega \pm$ **0.02** Ω **at 25°C**.
If the fault persists, change the coil unit.

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

INJ.5NR-1.0

DF062 **PRESENT** **OR** **STORED**	<ins>IGNITION COIL 2-3 CIRCUIT</ins> CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.
	Special notes: The ignition coils are fed by the fuel pump relay. This relay is timed when the ignition is switched on (without starting the engine), so the feed to the coils must be measured during this period or by running the **AC010** fuel pump relay command from the diagnostic tool.

Check the **connection and condition** of the coil unit connector. Change the connector if necessary.

With the ignition on, check for **the presence of +12 V** on **track B** of the ignition coil unit.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
> fuel pump relay **track 5** ⟶ **track B** of the coil unit.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
> computer connector B **track M2** ⟶ **track A** of the coil connector.
Repair if necessary.

Check the **resistance value** of the coil by measuring between:
Track B and **track A** of the coil. Replace the coil unit if the resistance is not approximately **0.4** $\Omega \pm$ **0.02** Ω **at 25°C.**

If the fault persists, **change** the coil unit.

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

INJ.5NR-1.0

DF064 PRESENT OR STORED	<u>VEHICLE SPEED SIGNAL</u> 1.DEF : VEHICLE SPEED SENSOR SIGNAL ERRATIC

NOTES	**Condition for the application of the fault finding procedure to a stored fault.** Carry out a test drive cycle at over 4 mph (5 km/h). When the coolant temperature is equal to or greater than 30°C, go into cutoff mode (no load deceleration) for 4 seconds while maintaining the engine speed in the range between **2000** and **5000 rpm**.
	Special note: The computer receives the vehicle speed information through the multiplex network.

Fault finding procedure for vehicles not equipped with the electronic stability program.

Check the multiplex network using the diagnostic tool.
Using the parameter window of the diagnostic tool, make sure that the vehicle speed appears consistent: **PR018** (vehicle speed). If the speed shown is inconsistent, refer to the fault finding procedure for the ABS system and the instrument panel; this passes on the vehicle speed information supplied by the ABS system computer.
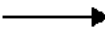
Fault finding procedure for vehicles equipped with the electronic stability program.

Check the multiplex network using the diagnostic tool.
If the diagnostic tool does not show a fault, refer to the fault finding procedure for the ABS system.

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

INJ.5NR-1.0

DF076 **PRESENT** **OR** **STORED**	<u>MAIN RELAY</u> CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Condition for the application of the fault finding procedure to a stored fault.** The fault is declared present after the engine has been started.
	Special notes: The main relay may be called the injection locking relay on the injection wiring diagrams.

Check the **condition of the clips** of the main relay on the engine fuse and relay board (see relay board diagrams for the vehicle and model year concerned).
Replace the clips if necessary.

Verify the **presence of 12 volts before ignition** on track 3 and track 1 of the main relay.
Repair if necessary.

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

     computer connector A **track M2** ⟶ **track 2** of the main relay

Repair if necessary.

Check **the resistance value** of the relay by measuring between:
Track 1 and **track 2** of the main relay. Replace the relay if the resistance is not approximately **84 $\Omega \pm 1\ \Omega$ at 25°C**.

If the fault persists, **change** the main relay.

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

INJ.5NR-1.0

DF084 PRESENT OR STORED	CYLINDER 1 INJECTOR CONTROL CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

Connect the bornier in place of the computer and check **the resistance value** of the injector by measuring between:
Track J1 of computer connector B and **track 5** of the main relay (or **track C** of the grey 3-way connector on top of the computer).
The injector should have a resistance approximately **14.5 $\Omega \pm$ 0.7 Ω at 23°C** (this value does not take into account any interference resistance in the line).
Make sure that **track J1** of computer connector B **is insulated from earth and from the battery voltage** and that **track 5** of the main relay is insulated from earth.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the injectors.

Check the **connection and condition** of the no. 1 cylinder injector connector.
Change the connector if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 1 of the injector.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
        main relay **track 5** ⟶ **track 1** of injector no. 1.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
      computer connector B **track J1** ⟶ **track 2** of injector no. 1
Repair if necessary.

If the fault persists, **change** injector no. 1.

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

INJ.5NR-1.0

DF085 PRESENT OR STORED	<u>CYLINDER 2 INJECTOR CONTROL</u> CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

Connect the bornier in place of the computer and check **the resistance value** of the injector by measuring between:
track K1 of computer connector B and **track 5** of the main relay (or **track C** of the grey 3-way connector on top of the computer).
The injector should have a resistance approximately **14.5 Ω $\pm$ 0.7 Ω at 23°C** (this value does not take into account any interference resistance in the line).
Make sure that **track K1** of computer connector B **is insulated from earth and from the battery voltage** and that **track 5** of the main relay is insulated from earth.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the injectors.

Check the **connection and condition** of the no. 2 cylinder injector connector.
Change the connector if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 1 of the injector.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
main relay **track 5** ⟶ **track 1** of injector no. 2
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
computer connector B **track K1** ⟶ **track 2** of injector no. 2
Repair if necessary.

If the incident persists, **change** injector no. 2.

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

INJ.5NR-1.0

DF086 **PRESENT** **OR** **STORED**	<u>CYLINDER 3 INJECTOR CONTROL</u> CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

Connect the bornier in place of the computer and check **the resistance value** of the injector by measuring between:
Track K3 of computer connector B and **track 5** of the main relay (or **track C** of the grey 3-way connector on top of the computer).
The injector should have a resistance approximately **14.5 Ω $\pm$ 0.7 Ω at 23°C** (this value does not take into account any interference resistance in the line).
Make sure that **track K3** of computer connector B **is insulated from earth and from +12 volts** and that **track 5** of the main relay is insulated from earth.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the injectors.

Check the **connection and condition** of the no. 3 cylinder injector connector.
Change the connector if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 1 of the injector.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
        main relay **track 5** ⟶ **track 1** of injector no. 3
Repair if necessary.

Connect the bornier in place of the computer and check **the insulation, continuity and absence of interference resistance** on the connection between:
      computer connector B **track K3** ⟶ **track 2** of injector no. 3
Repair if necessary.

If the fault persists, **change** injector no. 3.

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

INJ.5NR-1.0

DF087 PRESENT OR STORED	CYLINDER 4 INJECTOR CONTROL CO : OPEN CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT TO + 12 V

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the **DF076** main relay, **DF157** battery voltage and **DF236** + after relay feed faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

Connect the bornier in place of the computer and check **the resistance value** of the injector by measuring between:
Track K4 of computer connector B and **track 5** of the main relay (or **track C** of the grey 3-way connector on top of the computer).
The injector should have a resistance approximately **14.5 $\Omega \pm$ 0.7 Ω at 23°C** (this value does not take into account any interference resistance in the line).
Make sure that **track K4** of computer connector B **is insulated from earth and from +12 volts** and that **track 5** of the main relay is insulated from earth.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the injectors.

Check the **connection and condition** of the no. 4 cylinder injector connector.
Change the connector if necessary.

With the ignition switched on, check the **presence of +12 volts** on track 1 of the injector.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
        main relay **track 5** ⟶ **track 1** of injector no. 4
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
        computer connector B **track K4** ⟶ **track 2** of injector no. 4
Repair if necessary.

If the fault persists, **change** injector no. 4.

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

INJ.5NR-1.0

DF102 **PRESENT** **OR** **STORED**	<u>OXYGEN SENSOR OPERATING FAULT</u> 1.DEF : REDUCED FREQUENCY

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF084, DF085, DF086, DF087,** cylinders 1 to 4 injector controls; **DF018, DF038, DF207, DF208**, input signal and heater circuit for both oxygen sensors, **DF111, DF112, DF113, DF114, DF165**, detection of engine misfires and **DF106** catalytic converter operating fault.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after a test drive cycle or engine warm-up at idle speed which enables the richness regulation phase of the two sensors to start: – The **ET185** upstream sensor richness loop status should have the designation **STATUS2**: closed loop. – The **ET184** 2nd richness loop control status should have the designation **STATUS2** : closed loop. Make sure that the engine cooling fan cuts in at least twice. Set the engine speed to **3000 rpm**, then start an OBD (on-board diagnostics) test of the oxygen sensors (see introduction).
	Special notes: This fault finding procedure only concerns the upstream oxygen sensor. If the presence of this fault is confirmed (three journeys with this fault), the OBD (on-board diagnostics) warning light comes on.

Carry out a check on the **fuel pressure** (check the regulator and the fuel pump).
Make sure there are no air leaks into the exhaust system. Repair if necessary.
Verify the condition of the air intake circuit and its filter element. Repair if necessary.
If there is no fault on the upstream sensor input signal, **replace the upstream oxygen sensor.** Otherwise, carry out the **DF207** fault finding procedure.

AFTER REPAIR	Carry out reprogramming (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

INJ.5NR-1.0

| DF106
PRESENT
OR
STORED | CATALYTIC CONVERTER OPERATING FAULT
1.DEF : CATALYTIC CONVERTER OPERATING FAULT |

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF084, DF085, DF086, DF087,** cylinders 1 to 4 injector commands; **DF018, DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors, and **DF111, DF112, DF113, DF114, DF165**, detection of engine misfires.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after a test drive cycle or engine warm-up at idle speed which enables the richness regulation phase of the two sensors to start: – The **ET185** upstream sensor richness loop status should have the designation **STATUS2**: closed loop. – The **ET184** 2nd richness loop control status should have the designation **STATUS2** : closed loop. Make sure that the engine cooling fan cuts in at least twice. Set the engine speed to **3000 rpm**, then start an OBD (on-board diagnostics) test of the catalytic converter (see introduction).
	Special notes: If the presence of this fault is confirmed (three road tests with this fault), the OBD (on-board diagnostics) warning light comes on.

| Check the **tightness** of the oxygen sensors. |
| Ensure absence of **air leaks** on the exhaust system.
Repair if necessary. |
| Verify the condition of the air intake circuit and its filter element.
Repair if necessary. |
| Remove the catalytic converter and check the **condition of the filter element** inside (clogging).
If the **filter element** seems correct, shake the catalytic converter to check that there are no components broken inside (metallic noises).
Replace the catalytic converter if necessary. |
| If the fault persists, **change** the catalytic converter. |

| AFTER REPAIR | Carry out reprogramming (see introduction).
Follow the instructions to confirm repair.
Clear the fault memory.
Deal with any other possible faults. |

INJ.5NR-1.0

DF111 **PRESENT** **OR** **STORED**	<u>MISFIRING IN CYLINDER 1</u> 1.DEF : NONCOMPLIANCE WITH EMISSION CONTROL STANDARDS 2.DEF : RISK OF CATALYTIC CONVERTER DAMAGE

	Priority for dealing with a combination of faults: – First deal with the following faults if they are present or stored: **DF061** ignition coils 1 - 4 circuit, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF025** flywheel signal sensor circuit and **DF018**, **DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
NOTES	**Condition for the application of the fault finding procedure to a stored fault.** The fault is declared present after an OBD (on-board diagnostics) misfires test: – If the programming of the phonic wheel has not been erased, the OBD (on-board diagnostics) misfires test is carried out automatically with the engine running at idle speed for one and a half minutes if the engine is cold or for 30 seconds if the engine is warm. – Before the OBD (on-board diagnostics) misfires test can be run from the diagnostic tool, programming must be erased and then the test run (see introduction).
	Special notes: Misfiring will be indicated by lighting of the OBD warning light, which indicates that the vehicle is running beyond the anti-pollution standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system and the **condition of the plug** and the radio interference suppresser. Repair if necessary.

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

Check the **engine flywheel target** (disc warped or cracked). Repair if necessary.

Make sure there is **no leakage** at the inlet manifold and that the filter element is in good condition. Repair if necessary.

If no fault is found, then there must be **a problem with the fuel system**. Therefore check: – condition of the fuel filter – fuel flow rate and pressure. – cleanness of the tank. – condition of the cylinder 1 injector. – conformity of the fuel. Replace the defective component.

AFTER REPAIR	Carry out reprogramming (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

INJ.5NR-1.0

DF112 **PRESENT** **OR** **STORED**	<u>MISFIRING IN CYLINDER 2</u> 1.DEF : NONCOMPLIANCE WITH EMISSION CONTROL STANDARDS 2.DEF : RISK OF CATALYTIC CONVERTER DAMAGE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF061** ignition coils 2 - 3 circuit, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF025** flywheel signal sensor circuit and **DF018**, **DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after an OBD (on-board diagnostics) misfires test: – If the programming of the phonic wheel has not been erased, the OBD (on-board diagnostics) misfires test is carried out automatically with the engine running at idle speed for one and a half minutes if the engine is cold or for 30 seconds if the engine is warm. – Before the OBD (on-board diagnostics) misfires test can be run from the diagnostic tool, programming must be erased and then the test run (see introduction).
	Special notes: Misfiring will be indicated by lighting of the OBD warning light, which indicates that the vehicle is running beyond the anti-pollution standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system and the **condition of the plug** and the radio interference suppresser.
Repair if necessary.

Check the **compression ratio** of cylinder 2.
Repair if necessary.

Check the **engine flywheel target** (disc warped or cracked).
Repair if necessary.

Make sure there is **no leakage** at the inlet manifold and that the filter element is in good condition.
Repair if necessary.

If no fault is found, then there must be **a problem with the fuel system**. Therefore check:
– condition of the fuel filter
– fuel flow rate and pressure.
– cleanness of the tank.
– condition of the injector of cylinder 2,
– conformity of the fuel.
Replace the defective component.

AFTER REPAIR	Carry out reprogramming (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF113 **PRESENT** **OR** **STORED**	<u>MISFIRING IN CYLINDER 3</u> 1.DEF : NONCOMPLIANCE WITH EMISSION CONTROL STANDARDS 2.DEF : RISK OF CATALYTIC CONVERTER DAMAGE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF062** ignition coils 2 - 3 circuit, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF025** flywheel signal sensor circuit and **DF018**, **DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after an OBD (on-board diagnostics) misfires test: – If the programming of the phonic wheel has not been erased, the OBD (on-board diagnostics) misfires test is carried out automatically with the engine running at idle speed for one and a half minutes if the engine is cold or for 30 seconds if the engine is warm. – Before the OBD (on-board diagnostics) misfires test can be run from the diagnostic tool, programming must be erased and then the test run (see introduction).
	Special notes: Misfiring will be indicated by lighting of the OBD warning light, which indicates that the vehicle is running beyond the anti-pollution standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system and the **condition of the plug** and the radio interference suppresser.
Repair if necessary.

Check the **compression ratio** of cylinder 3.
Repair if necessary.

Check the **engine flywheel target** (disc warped or cracked).
Repair if necessary.

Make sure there is **no leakage** at the inlet manifold and that the filter element is in good condition.
Repair if necessary.

If no fault is found, then there must be **a problem with the fuel system**. Therefore check:
– condition of the fuel filter
– fuel flow rate and pressure.
– cleanness of the tank.
– condition of the injector of cylinder 3,
– Conformity of the fuel.
Replace the defective component.

AFTER REPAIR	Carry out reprogramming (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF114 **PRESENT** **OR** **STORED**	<u>MISFIRING IN CYLINDER 4</u> 1.DEF : NONCOMPLIANCE WITH EMISSION CONTROL STANDARDS 2.DEF : RISK OF CATALYTIC CONVERTER DAMAGE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF061** ignition coils 1 - 4 circuit, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF025** flywheel signal sensor circuit and **DF018**, **DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after an OBD (on-board diagnostics) misfires test: – If the programming of the phonic wheel has not been erased, the OBD (on-board diagnostics) misfires test is carried out automatically with the engine running at idle speed for one and a half minutes if the engine is cold or for 30 seconds if the engine is warm. – Before the OBD (on-board diagnostics) misfires test can be run from the diagnostic tool, programming must be erased and then the test run (see introduction).
	Special notes: Misfiring will be indicated by lighting of the OBD warning light, which indicates that the vehicle is running beyond the anti-pollution standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system and the **condition of the plug** and the radio interference suppresser.
Repair if necessary.

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

Check the **engine flywheel target** (disc warped or cracked).
Repair if necessary.

Make sure there is **no leakage** at the inlet manifold and that the filter element is in good condition.
Repair if necessary.

If no fault is found, then there must be **a problem with the fuel system**. Therefore check:
– condition of the fuel filter
– fuel flow rate and pressure.
– cleanness of the tank.
– condition of the injector of cylinder 4,
– Conformity of the fuel.
Replace the defective component.

AFTER REPAIR	Carry out reprogramming (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF116 **PRESENT** **OR** **STORED**	<u>FUEL SYSTEM OPERATING FAULT</u> 1.DEF : O2SENSOR FAULT: WEAK MIXTURE 2.DEF : O2 SENSOR FAULT: RICH MIXTURE 3.DEF : WEAK MIXTURE DRIFT 4.DEF : RICH MIXTURE DRIFT 5.DEF : WEAK MIXTURE GAIN 6.DEF : RICH MIXTURE GAIN

NOTES	**Priority for dealing with a combination of faults:** – First deal with the "**DF084** to **DF087** cylinders 1 to 4 injector commands" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after a test drive cycle or engine warm-up at idle speed which enables the mixture control phase of the two sensors to start: – The **ET185** upstream sensor mixture loop status should have the designation **STATUS2**: closed loop. – The **ET184** 2nd mixture loop control status should have the designation **STATUS2** : closed loop. Make sure that the engine cooling fan cuts in at least twice. Start the OBD (on-board diagnostics) fuel system test.

Carry out a **fuel pressure** check (see repair methods).

Carry out a check on the **canister drain solenoid valve** circuit (see repair methods).

Make sure that there are **no leaks in the fuel system**. Repair if necessary.

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

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| **DF118**
PRESENT
OR
STORED | COOLANT PRESSURE SENSOR CIRCUIT
CC.0 : SHORT-CIRCUIT TO EARTH
CC.1 : SHORT-CIRCUIT ON + 12 V |
|---|---|

NOTES	**Priority for dealing with a combination of faults:** – First deal with the "**DF152** second pressure sensor reference voltage" and "**DF010** fan low speed circuit" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the air conditioning has been switched on and the passenger compartment blower unit is operating.

Check the **connection and condition** of the coolant pressure sensor connector.
Change the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
      computer connector A   **track K2** ⟶ **track A** of the coolant pressure sensor
      computer connector A   **track C1** ⟶ **track B** of the coolant pressure sensor
      computer connector A   **track J1** ⟶ **track C** of the coolant pressure sensor
Repair if necessary.

Verify the presence of a **5 volt feed** on **track B** of the sensor.
If there is no feed, **change** the injection computer.

If the fault persists, **change** the coolant pressure sensor.

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

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| **DF125**
PRESENT
OR
STORED | PEDAL POTENTIOMETER TRACK 1 CIRCUIT
CC.0 : SHORT-CIRCUIT TO EARTH
CC.1 : SHORT-CIRCUIT ON + 12 V
1.DEF : DETECTION OF SIGNAL OUTSIDE UPPER OR LOWER LIMIT |
|---|---|

NOTES	**Priority for dealing with a combination of faults:** – First deal with the "**DF151** first sensor reference voltage" and "**DF152** second sensor reference voltage" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present when the ignition is switched on and the accelerator pedal depressed
	Special notes: The accelerator pedal position sensor is located on the bulkhead below the brake servo. There is no need to program no load and full load position recognition.

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

Make sure that the accelerator pedal **moves the potentiometer correctly** (from the minimum end stop to the maximum end stop).

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

  computer connector A **track H1** ⟶ **track 3** of the pedal potentiometer track 1
  computer connector A **track C4** ⟶ **track 2** of the pedal potentiometer track 1
  computer connector A **track B1** ⟶ **track 4** of the pedal potentiometer track 1
Repair if necessary.

Verify the presence of a **5 volt feed** on **track 4** of the potentiometer.
If there is no feed, **change** the injection computer.

Check the **resistance value** of the pedal potentiometer track 1 by measuring between:
Track 2 and **track 4** of the potentiometer. Replace the pedal sensor if the resistance is not in the order of
1200 $\Omega \pm$ 480 Ω at 25°C.

If the fault persists, **change** the pedal sensor.

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

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DF126 **PRESENT** **OR** **STORED**	PEDAL POTENTIOMETER TRACK 2 CIRCUIT CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT ON + 12 V

	Priority for dealing with a combination of faults: – First deal with the "**DF151** first pressure sensor reference voltage" and "**DF152** second sensor reference voltage" faults if they are present or stored.
NOTES	**Condition for the application of the fault finding procedure to a stored fault.** The fault is declared present when the ignition is switched on and the accelerator pedal depressed
	Special notes: The accelerator pedal position sensor is located on the bulkhead below the brake servo. There is no need to program no load and full load position recognition.

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

Make sure that the accelerator pedal **moves the potentiometer correctly** (from the minimum end stop to the maximum end stop).

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
    computer connector A   **track K1** ⟶ **track 6** of the pedal potentiometer track 2
    computer connector A   **track F1** ⟶ **track 5** of the pedal potentiometer track 2
    computer connector A   **track B4** ⟶ **track 1** of the pedal potentiometer track 2
Repair if necessary.

Verify the presence of a **5 volt feed** on **track 5** of the potentiometer.
If there is no feed, **change** the injection computer.

Check the **resistance value** of the pedal potentiometer track 2 by measuring between:
Track 5 and **track 1** of the potentiometer. Replace the pedal sensor if the resistance is not in the order of **1700 $\Omega \pm$ 680 Ω at 25°C.**

If the fault persists, **change** the pedal sensor.

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

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DF135 PRESENT OR STORED	<u>BRAKE-PEDAL SENSOR CIRCUIT</u> 1.DEF : SIGNAL INCONSISTENCY

NOTES	**Condition for the application of the fault finding procedure to a stored fault.** The fault is declared present following application of 2-second pressure on the brake pedal ten times.

Check the connector on the brake-pedal switch for **proper mating** and its general condition.
Change the connector if necessary.

Ensure **correct adjustment** of the brake-pedal switch (refer to repair methods).

With the ignition on, check for **presence of a voltage U = 12 volts** on channel **A1** and on channel **B1** of the brake light switch.

Connect the bornier in place of the computer and check the: **insulation, continuity and absence of interference resistance** of the connections:
     computer connector A **track B3** ——► **track A3** of the brake light switch
     computer connector A **track C3** ——► **track B3** of the brake light switch.
Repair if necessary.

Disconnect the pedal-sensor connector and check **condition of contacts** using an ohmmeter.
Change The pedal sensor if it does not operate as specified below:

Pedal in rest position	**Pressing the pedal**
continuity between tracks B1 and A3	insulation between tracks B1 and A3
insulation between tracks A1 and B3	continuity between tracks A1 and B3

If the incident persists, **carry out fault finding procedure on the multiplex network** (the information from sensor **track A3** is fed to the injection computer via the multiplex network).

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

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DF137 **PRESENT**	<u>MOTORISED THROTTLE</u> CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT ON + 12 V 1.DEF : ABOVE MAXIMUM THRESHOLD

NOTES	**Special notes:** The motorised throttle is located in the inlet manifold.
	Priority when dealing with a number of faults:: – First deal with the "**DF151** first sensor reference voltage" and "**DF152** second sensor reference voltage" faults if they are present or stored.

Connect the bornier in place of the computer and check **the resistance value** of the throttle motor by measuring between:
   track L1 and **track M1** of computer connector B.
   The throttle motor should have a resistance in the order of **2 $\Omega \pm$ 1 Ω at 25°C.**
Ensure the two connections are **insulated from earth and from +12 volts**.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the motorised throttle.

Check the **connection and condition** of the motorised throttle connector.
Change the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
   computer connector B **track L1** ⟶ **track 3** of the motorised throttle
   computer connector B **track M1** ⟶ **track 4** of the motorised throttle
Repair if necessary.

If the fault persists, **change** the motorised throttle.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Clear the fault memory. Deal with any other possible faults.

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| **DF145**
PRESENT | <u>MULTIPLEX NETWORK</u>

17-162 |

| *NOTES* | **Special note:**
Once communication has been established, the diagnostic tool will automatically carry out a fault finding sequence on the multiplex network. |

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

     computer connector A **track J4** ⟶ **UCH**
     computer connector A **track H3** ⟶ **UCH**

(refer to diagrams for the vehicle and year of make in question).
Repair if necessary.

If the connections are correct, carry out **the UCH fault finding procedure**.
If necessary, replace the UCH.

If the fault persists, **change** the injection computer.

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

DF146 **PRESENT** **OR** **STORED**	<u>MIXTURE CONTROL</u> 1.DEF : SET TO MINIMUM STOP POSITION 2.DEF : SET TO MAXIMUM STOP POSITION 3.DEF : MIXTURE ADJUSTMENT IN UPPER STOP POSITION 4.DEF : MIXTURE ADJUSTMENT IN LOWER STOP POSITION

NOTES	**Priority for dealing with a combination of faults:**
	– First deal with the following faults if they are present or stored: **DF084, DF085,**
	   DF086 and **DF087** cylinders 1 to 4 injector commands and **DF018, DF102, DF207,**
	   upstream oxygen sensor input signal and heater circuit.

	Conditions for applying the fault finding strategy to the fault stored:
	The fault is declared present after a test drive cycle or engine warm-up at idle speed
	which enables the mixture control phase of the two sensors to start:
	– The "**ET185** upstream sensor mixture loop status" should have the designation
	   STATUS2: loop closed.
	– The **ET184** 2nd mixture loop control status should have the designation **STATUS2**:
	   loop closed.
	Make sure that the engine cooling fan cuts in at least twice.

	Special notes: This fault only affects the D4D engine.

Carry out a **full inspection of the fuel supply and injection system**, by checking:
– Condition of the fuel filter
– Fuel flow rate and pressure.
– Cleanness of the tank.
– Condition and correct operation of the injectors.
– Conformity of the fuel.
– Whether any air is entering the fuel supply system.
Check the condition and conformity of the intake and exhaust manifolds.
Replace any faulty components.

AFTER REPAIR	Reset the self-adapting systems. Program the throttle stop and the air valve (see introduction). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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| **DF151**
PRESENT | FIRST SENSOR REFERENCE VOLTAGE
CC.0 : SHORT-CIRCUIT TO EARTH
CC.1 : SHORT CIRCUIT ON + 12 V |

| *NOTES* | None. |

Check the **connection and condition** of the sensor connectors: pedal potentiometer and manifold pressure sensor.
Change the connectors if necessary.

With the ignition switched on, check that the **5 volt feed** is in fact connected to the sensors on the following tracks:
– **track 3** of the pedal potentiometer (potentiometer no.2)
– **track C** of the manifold pressure sensor.

If the sensors are not receiving the 5 volt feed:
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:

computer connector A **track F1** ⟶ **track 3** of the pedal potentiometer
computer connector B **track B2** ⟶ **track C** of the manifold pressure sensor.
Repair if necessary.

Clear the fault stored, disconnect all the sensors and reconnect them one by one to check which of these sensors is responsible for the fault.

If no sensor is faulty and if the connections are correct, **replace** the injection computer.

| *AFTER REPAIR* | Program the throttle stop and the throttle air valve (see introduction).
Clear the fault memory.
Deal with any other possible faults. |

INJ.5NR-1.0

| **DF152**
PRESENT | SECOND SENSOR REFERENCE VOLTAGE
CC.0 : SHORT-CIRCUIT TO EARTH
CC.1 : SHORT CIRCUIT ON + 12 V |

| *NOTES* | None. |

Check the **connection and condition** of the connectors of the following sensors: pedal potentiometer, throttle potentiometer, coolant pressure sensor, air temperature sensor and coolant temperature sensor.
Change the connectors if necessary.

With the ignition switched on, check that the **5 volt feed** is in fact connected to the sensors on the following tracks:
– **track 6** of the pedal potentiometer (potentiometer no.1)
– **track 5** of the motorised throttle (feed to both potentiometers)
– **track B** of the coolant pressure sensor
– **track 1** of the air temperature sensor
– **track B1** of the coolant temperature sensor

If the sensors are not receiving the 5 volt feed:
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:

computer connector A   **track B1**   ⟶   **track 6** of the pedal potentiometer
computer connector B   **track C1**   ⟶   **track 5** of the motorised throttle valve
computer connector A   **track C1**   ⟶   **track B** of the coolant pressure sensor
computer connector B   **track E4**   ⟶   **track 1** of the air temperature sensor
computer connector B   **track F1**   ⟶   **track B1** of the coolant temperature sensor
Repair if necessary.

Clear the fault stored, disconnect all the sensors and reconnect them one by one to check which of these sensors is responsible for the fault.

If no sensor is faulty and if the connections are correct, **replace** the injection computer.

| *AFTER REPAIR* | Program the throttle stop and the throttle air valve (see introduction).
Clear the fault memory.
Deal with any other possible faults. |

INJ.5NR-1.0

| **DF157**
PRESENT
OR
STORED | <u>BATTERY VOLTAGE</u>
CC.0 : SHORT-CIRCUIT TO EARTH
CC.1 : SHORT-CIRCUIT ON + 12 V |

| ***NOTES*** | **Condition for the application of the fault finding procedure to a stored fault.**
The fault is declared present following a timed period of **50 seconds** with the engine running at a speed greater than **900 rpm**. |

Make sure that the cable connecting the battery to the starter motor, the battery earth cable to the chassis and the chassis earth cable to the engine and transmission assembly (GMP) **are in good condition.**

Make sure that the **battery is in a good state of charge** and, if necessary, check the charging circuit.

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

     computer connector A   **track L4** ⟶ **injection fuse:** + battery feed

(refer to diagrams for the vehicle and year of make in question).

Repair if necessary.

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

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DF158 **PRESENT** **OR** **STORED**	<u>SPEED-CONTROL FUNCTION</u>

	Priority for dealing with a combination of faults: – First deal with the "**DF135** brake pedal sensor circuit" and "**DF247** cruise control or speed limiter button" faults if they are present or stored.
NOTES	**Condition for the application of the fault finding procedure to a stored fault.** The fault is declared present following operation of the cruise-control/speed limiter controls.

Using the status window of the diagnostic tool and the information given in status interpretation **ET194**, ensure that there is no fault or parameter impeding the operation of the cruise control.

Apply the fault finding procedure on the basis of the parameter detected defective by the status interpretation **ET194**. For example, if the fault relates to the brake switch or the vehicle speed signal, apply the fault finding procedures for those parts.

Using the status window of the diagnostic tool and the information given in status interpretation **ET192**, ensure that the actuation of the steering wheel and instrument panel buttons are sending the correct signals to the injection computer.

If the data for status "**ET192**" are not to specification:
Check **the connection and condition of the connector** of the steering wheel rotary switch and the condition of the connector of the cruise control (in the steering wheel). Replace the connector(s) if necessary.

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

      computer connector A **track J2** ⟶ **track 1** of the connector to the steering-wheel controls (in the wheel)

      computer connector A **track G2** ⟶ **track 2** of the connector to the steering-wheel controls (in the wheel)

Repair if necessary.

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

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| **DF158PRESENT**

CONTINUED | |

Ensure the presence of a **5-volt supply** by measuring between **track 1** and **track 2** of the connector to the steering-wheel controls (in the wheel).
If the supply is not present, but the previous checks carried out are correct and the supply to the computer is correct, **replace the injection computer**.

If the problem persists, check the **connection and condition of the connector** of the cruise control on the instrument panel; replace the connector if necessary.

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

computer connector A **track F3** ———▶ **track A3** of the cruise-control ON/OFF switch.
computer connector A **track G4** ———▶ **track B1** of the cruise-control ON/OFF switch.
Repair if necessary.

Ensure the presence of a 12 volt after ignition supply on track A2 of the connector of the on/off control of the cruise control/speed limiter.
Repair if necessary.

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

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DF159 **PRESENT** **OR** **STORED**	<u>SPEED LIMITER FUNCTION</u>

NOTES	**Priority for dealing with a combination of faults:** – First deal with the "**DF135** brake pedal sensor circuit" and " **DF158** cruise control function" and **DF247** cruise control or speed limiter button" faults if they are present or stored
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present following operation of the cruise-control/speed limiter controls.

Using the status window of the diagnostic tool and the information given in status interpretation **ET194**, ensure that there is no fault or parameter impeding the operation of the cruise control.

Apply the fault finding procedure on the basis of the parameter detected defective by the status interpretation **ET194**. For example, if the fault relates to the brake switch or the vehicle speed signal, apply the fault finding procedures for those parts.

Using the status window of the diagnostic tool and the information given in status interpretation **ET192**, ensure that the actuation of the steering wheel and instrument panel buttons are sending the correct signals to the injection computer.

If the data for status "**ET192**" are not to specification:
Check **the connection and condition of the connector** of the steering wheel rotary switch and the condition of the connector of the speed limiter (in the steering wheel). Replace the connector(s) if necessary.

Ensure the presence of a **5-volt supply** by measuring between **track 1** and **track 2** of the connector to the steering-wheel controls (in the wheel).
If the supply is not present, but the previous checks carried out are correct and the supply to the computer is correct, **replace the injection computer**.

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

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DF159 CONTINUED	

If the problem persists, check the **connection and condition of the connector** of the cruise control/speed limiter on the instrument panel; replace the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
　　　　computer connector A **track F3** ⟶ **track A3** of the cruise-control ON/OFF switch.
　　　　computer connector A **track G4** ⟶ **track B1** of the cruise-control ON/OFF switch.
Repair if necessary.

Ensure the presence of a 12 volt after ignition supply on track A2 of the connector of the on/off control of the cruise control/speed limiter.
Repair if necessary.

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

DF165 **PRESENT** **OR** **STORED**	<u>DETECTION OF ENGINE MISFIRES</u> 1.DEF : NONCOMPLIANCE WITH EMISSION CONTROL STANDARDS 2.DEF : RISK OF CATALYTIC CONVERTER DAMAGE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF061** ignition coils 1 & 4 circuit, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF025** flywheel signal sensor circuit and **DF018**, **DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after an OBD (on-board diagnostics) misfires test: – If the programming of the phonic wheel has not been erased, the OBD (on-board diagnostics) misfires test is carried out automatically with the engine running at idle speed for one and a half minutes if the engine is cold or for 30 seconds if the engine is warm. – Before the OBD (on-board diagnostics) misfires test can be run from the diagnostic tool, programming must be erased and then the test run (see preliminary fault finding).
	Special notes: Misfiring will be indicated by illumination of the OBD warning light, which indicates that the vehicle is running beyond the pollution standards. Flashing of the OBD warning light indicates the risk of destruction of the catalytic converter.

Check the ignition system and the **condition of the plugs** and the radio interference suppresser. Repair if necessary.
Check the **compression ratio** of the engine. Repair if necessary.
Check the **engine flywheel target** (disc warped or cracked). Repair if necessary.
Make sure there is **no leakage** at the inlet manifold and that the air filter is in good condition. Repair if necessary.
If no anomaly is found, then there must be **a problem with the fuel system**. Therefore check: – condition of the fuel filter – fuel flow rate and pressure. – cleanness of the tank. – condition of the injectors. – conformity of the fuel. Replace any faulty components.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF167 **PRESENT** **OR** **STORED**	THROTTLE ANGLE SENSOR CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT-CIRCUIT ON + 12 V 1.DEF : VOLTAGE OUTSIDE PERMITTED RANGE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the "**DF151** first sensor reference voltage" and "**DF152** second sensor reference voltage" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present when the ignition is switched on and the accelerator pedal depressed
	Special notes: The motorised throttle is located in the inlet manifold.

Connect the bornier in place of the computer and check **the resistance value** of the throttle potentiometers by measuring between: **track C1** and **track G1** of the computer connector B.
The potentiometers should have a resistance in the order of **2500 $\Omega \pm$ 500 Ω**.

If the measurements give incorrect values: **remove the inlet manifold** to gain access to the motorised throttle.

Check the **connection and condition** of the motorised throttle connector.
Change the connector if necessary.

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

       computer connector B   **track G1** ⟶ **track 1** of the motorised throttle valve
       computer connector B   **track G3** ⟶ **track 2** of the motorised throttle valve
       computer connector B   **track C1** ⟶ **track 5** of the motorised throttle valve
       computer connector B   **track F4** ⟶ **track 6** of the motorised throttle valve
Repair if necessary.

Verify the presence of a **5 volt feed** on **track 5** of the motorised throttle.
If there is no feed, **change** the injection computer.

If the fault persists, **change** the motorised throttle.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF168 **PRESENT** **OR** **STORED**	<u>AIR INTAKE CIRCUIT</u> 1.DEF : SIGNAL INCOHERENCE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the **DF045** manifold pressure sensor and **DF137** motorised throttle faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been running at idle speed for 10 seconds.

Check the **condition of the air filter** (clogging or deformation).
Replace the air filter if necessary.

Verify the **conformity of the air intake circuit** (air filter inlet pipe crushed, etc.).
Repair if necessary.

Make sure that there are **no air leaks**, especially round the injection computer seal.

Make sure that there is **no point of resistance** in the movement of the motorised throttle.
Repair if necessary.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF182 PRESENT OR STORED	<u>PINKING CORRECTION</u> 1.DEF : DETECTION OF SIGNAL OUTSIDE UPPER OR LOWER LIMIT

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF061** ignition coils 1 - 4, **DF084** to **DF087** cylinders 1 to 4 injector commands, **DF146** mixture control and **DF018, DF038, DF102, DF207, DF208**, input signal and heater circuit for both oxygen sensors.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present if the engine is running at more than **2100 rpm** and the coolant temperature is above **10°C**.

Check the **connection and condition** of the pinking sensor connector. Change the connector if necessary.
Check the **tightness** of the pinking sensor (see repair methods for manufacturer's value).
Ensure that the engine does not make an **abnormal noise**. If there is an abnormal noise, the cause of the noise must be eliminated before the sensor is checked.
Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections: computer connector B **track C2** ⟶ **track 1** of the pinking sensor computer connector B **track C3** ⟶ **track 2** of the pinking sensor computer connector B **track D2** ⟶ **shielding** of the sensor Repair if necessary.
Verify the **conformity** of the fuel and the spark plugs. Repair if necessary.
Carry out a **conformity check** to verify that the mixture adjustment is operating correctly.
If the fault persists, **change** the pinking sensor.

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

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DF207 **PRESENT** **OR** **STORED**	UPSTREAM SENSOR INPUT SIGNAL CC.1 : SHORT CIRCUIT ON + 12 V 1.DEF : BELOW MINIMUM THRESHOLD 2.DEF : ABOVE MAXIMUM THRESHOLD

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF076** main relay, **DF157** battery voltage, **DF236** + after relay feed, **DF111, DF112, DF113, DF114, DF165** detection of engine misfires and **DF146** mixture control.
	Condition for the application of the fault finding procedure to a stored fault. – Carry out a test drive. When the engine is warm, go into cutoff mode (no-load deceleration) for about 5 seconds. If necessary, repeat the operation three times successively.
	Special notes: Make sure that the canister valve is not mechanically jammed (even if the diagnostic tool detects no canister valve fault).

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

Verify the condition of the air intake circuit and the filter element.

Ensure absence of **air leaks** on the exhaust system.

If the vehicle is used frequently in towns, **decoke the engine.**

With the ignition switched on, check the **presence of +12 volts** on track A of the upstream oxygen sensor.

If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection:
       injection locking relay **track 5** ⟶ **track A** of the upstream oxygen sensor
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
     computer connector B **track E3** ⟶ **track C** of the upstream oxygen sensor
     computer connector B **track D1** ⟶ **track D** of the upstream oxygen sensor
Repair if necessary.

If the fault persists, **change** the oxygen sensor (tighten to the correct torque).

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

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

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DF208 **PRESENT** **OR** **STORED**	<u>DOWNSTREAM SENSOR INPUT SIGNAL</u> CC.1 : SHORT-CIRCUIT ON + 12 V 1.DEF : BELOW MINIMUM THRESHOLD 2.DEF : ABOVE MAXIMUM THRESHOLD

NOTES	**Priority for dealing with a combination of faults:**
	– First deal with the following faults if they are present or stored: **DF076** main relay,
	   DF157 battery voltage, **DF236** + after relay feed, **DF111, DF112, DF113, DF114,**
	   DF165 detection of engine misfires and **DF146** mixture control.

	Condition for the application of the fault finding procedure to a stored fault. – Carry out a test drive. When the engine is warm, go into cutoff mode (no-load deceleration) for about 10 seconds. If necessary, repeat the operation three times successively.

Check the **connection and condition** of the downstream oxygen sensor connector. Change the connector if necessary.
Verify the condition and conformity of the exhaust manifold and the filter element.
Make sure that there are **no air leaks** into the exhaust system.
If the vehicle is used frequently in towns, **decoke the engine.**
With the ignition switch on, check the **presence of +12 volts** on **track A** of the downstream oxygen sensor.
If there is no feed, check the **insulation, continuity and absence of interference resistance** of the connection: injection locking relay   **track 5** ⟶ **track A**   of the downstream oxygen sensor Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
     computer connector A   **track H2** ⟶ **track C**   of the downstream oxygen sensor
     computer connector A   **track E1** ⟶ **track D**   of the downstream oxygen sensor
Repair if necessary.

If the fault persists, **change** the oxygen sensor (tighten to the correct torque).
If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

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

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DF216 PRESENT	THROTTLE BODY MOTOR CONTROL 1.DEF : INCONSISTENCY BETWEEN THROTTLE POSITION AND CONTROL

NOTES	**Priority for dealing with a combination of faults:** – First deal with the **DF045** manifold pressure sensor and **DF137** motorised throttle faults if they are present or stored.
	Special notes: The motorised throttle is located in the inlet manifold.

Connect the bornier in place of the computer and check **the resistance value** of the throttle motor by measuring between:
     track L1 and **track M1** of computer connector B.
The throttle motor should have a resistance in the order of **2 Ω $\pm$ 1 Ω at 25°C.**

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the motorised throttle.

Check the **connection and condition** of the motorised throttle connector.
Change the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
     computer connector B **track L1** ———▶ **track 3** of the motorised throttle
     computer connector B **track M1** ———▶ **track 4** of the motorised throttle
Repair if necessary.

If the fault persists, **change** the motorised throttle.

If replacement of the motorised throttle does not solve the problem, **change the injection computer**.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Clear the fault memory. Deal with any other possible faults.

INJ.5NR-1.0

DF218 **PRESENT** **OR** **STORED**	AIR COMPONENT 1.DEF: INCONSISTENCY BETWEEN THE CALCULATED PRESSURE AND THE TRUE PRESSURE

NOTES	**Priority for dealing with a combination of faults:** – First deal with the **DF045** manifold pressure sensor and **DF137** motorised throttle faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been started.

Make sure that the **manifold pressure parameter (PR001)** in the parameters window relating to the fault is possible. Then check it in the current parameters window (to detect any drift in the pressure sensor signal). If necessary, **replace the pressure sensor** and compare the two signals.

If the signal is correct, remove the inlet manifold and verify the correct operation and condition of the throttle body (contamination of the throttle valve, point of resistance, etc.).

Check the **conformity of the air intake circuit** (clogging, air leaks, etc.).
Repair if necessary.

If the fault persists, **change** the manifold pressure sensor.

If after replacing the pressure sensor the fault persists, **change** the motorised throttle.

AFTER REPAIR	Carry out reprogramming (see preliminary fault finding). Follow the instructions to confirm repair. Clear the fault memory. Deal with any other possible faults.

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DF226 **PRESENT**	<u>THROTTLE STOP PROGRAMMING</u> CC.0 : SHORT-CIRCUIT TO EARTH 1.DEF : SIGNAL INCOHERENCE 2.DEF : DETECTION OF SIGNAL OUTSIDE UPPER OR LOWER LIMIT

NOTES	**Priority for dealing with a combination of faults:** – First deal with the following faults if they are present or stored: **DF125, DF126** pedal potentiometers track 1 and track 2, **DF137** motorised throttle and **DF167** throttle angle sensor.
	Special notes: Programming of the motorised throttle can only be carried out above **6° C.**

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

Connect the bornier in place of the computer and check **the values of the resistances,** of the throttle motor and the throttle potentiometers by measuring between:
>   **Track L1** and **track M1** of computer connector B for the throttle motor.
>   The throttle motor should have a resistance in the order of **2** Ω $\pm$ **1** Ω.
And **track C1** and **track G1** of computer connector B for the potentiometers.
The potentiometers should have a resistance in the order of **2500** Ω $\pm$ **500** Ω.

If the measurement gives an incorrect value: **remove the inlet manifold** to gain access to the motorised throttle.

Check the **connection and condition** of the motorised throttle connector.
Change the connector if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connections:
>   computer connector B **track L1** ⟶ **track 3** of the motorised throttle valve
>   computer connector B **track M1** ⟶ **track 4** of the motorised throttle valve
>   computer connector B **track G1** ⟶ **track 1** of the motorised throttle valve
>   computer connector B **track G3** ⟶ **track 2** of the motorised throttle valve
>   computer connector B **track C1** ⟶ **track 5** of the motorised throttle valve
>   computer connector B **track F4** ⟶ **track 6** of the motorised throttle valve
Repair if necessary.

If the fault persists, **change** the motorised throttle.

AFTER REPAIR	Program the throttle stop and the throttle air valve (see introduction). Clear the fault memory. Deal with any other possible faults.

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DF228 **PRESENT** **OR** **STORED**	AIR CONDITIONING COMPRESSOR CONTROL CC.0 : SHORT-CIRCUIT TO EARTH CC.0 : SHORT-CIRCUIT ON + 12 V

NOTES	**Priority for dealing with a combination of faults:** – Deal first with the "**DF004** coolant temperature sensor, **DF025** engine speed sensor circuit, **DF064** vehicle speed information, **DF118** coolant sensor circuit and **DF125** and **DF126** pedal potentiometer circuit track 1 and track 2" faults if they are present or stored.
	Condition for the application of the fault finding procedure to a stored fault. The fault is declared present after the engine has been switched on and the air conditioning is operating.

Check, with the ignition on, for the earth of the brown 25 A relay of the air conditioning compressor under the bonnet.
Change the relay if the resistance is not 60 Ω or ± 5 Ω.

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

computer connector A **track A4** ⟶ **track 85** (2) of the air conditioning compressor relay.
computer connector A **track D2** ⟶ **track 24** green connector A of the control unit of the air conditioning (controlled heating and ventilation system)
⟶ **track 12** green connector A of the control unit of the air conditioning (non-controlled heating and ventilation system)

Repair if necessary.

Test the air conditioning system.

If the fault persists, change the injection computer.

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

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DF230 **PRESENT**	<u>COMPUTER</u> 1.DEF : COMPUTER INTERNAL ELECTRONIC FAULT

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF236** + after relay feed" fault if it is present or stored.

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

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

computer connector A　**track L3** ⟶ **track 5** of the main relay

computer connector A　**track L4** ⟶ **injection fuse:** + battery feed

(refer to diagrams for the vehicle and year of make in question).

computer connector A　**track M4** ⟶ **injection fuse:** + after ignition feed

(refer to diagrams for the vehicle and year of make in question).

computer connector B　**track L2** ⟶ **earth**

computer connector B　**track L3** ⟶ **earth**

computer connector B　**track L4** ⟶ **earth**

Repair if necessary.

If the fault persists, **change** the injection computer.

AFTER REPAIR	Program the throttle stop and the throttle air valve (see introduction). Clear the fault memory. Deal with any other possible faults.

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| **DF231**
PRESENT | COMPUTER
1.DEF : COMPUTER INTERNAL ELECTRONIC FAULT |

| ***NOTES*** | **Priority for dealing with a combination of faults:**
– First, deal with the "**DF236** + after relay feed" fault if it is present or stored. |

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

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

        computer connector A **track L3** ⟶ **track 5** of the main relay

        computer connector A **track L4** ⟶ **injection fuse:** + battery feed

(refer to diagrams for the vehicle and year of make in question).

        computer connector A **track M4** ⟶ **injection fuse:** + after ignition feed

(refer to diagrams for the vehicle and year of make in question).

        computer connector B **track L2** ⟶ **earth**

        computer connector B **track L3** ⟶ **earth**

        computer connector B **track L4** ⟶ **earth**

Repair if necessary.

If the fault persists, **change** the injection computer.

| ***AFTER REPAIR*** | Program the throttle stop and the throttle air valve (see introduction).
Clear the fault memory.
Deal with any other possible faults. |

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	COMPUTER
DF232 **PRESENT**	1.DEF : COMPUTER INTERNAL ELECTRONIC FAULT

NOTES	**Priority for dealing with a combination of faults:** – First, deal with the "**DF236** + after relay feed" fault if it is present or stored.

Make sure that **the battery is correctly charged**. If it is not, carry out fault finding on the charging circuit.

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

       computer connector A   **track L3**   ⟶   **track 5** of the main relay

       computer connector A   **track L4**   ⟶   **injection fuse:** + battery feed

(refer to diagrams for the vehicle and year of make in question).

       computer connector A   **track M4**   ⟶   **injection fuse:** + after ignition feed

(refer to diagrams for the vehicle and year of make in question).

       computer connector B   **track L2**   ⟶   **earth**

       computer connector B   **track L3**   ⟶   **earth**

       computer connector B   **track L4**   ⟶   **earth**

Repair if necessary.

If the fault persists, **change** the injection computer.

AFTER REPAIR	Program the throttle stop and the throttle air valve (see introduction). Clear the fault memory. Deal with any other possible faults.

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DF236 PRESENT	<u>+ AFTER RELAY FEED</u> CC.0 : SHORT-CIRCUIT TO EARTH CC.1 : SHORT CIRCUIT ON + 12 V

NOTES	None.

Check **the condition of the clips** of the injection locking relay (main relay) on the engine fuse and relay board.
Replace the clips if necessary.

Verify the **presence of +12 volts before ignition** on track 3 and track 1 of the main relay.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** of the connection:
computer connector A   **track L3** ⟶ **track 5** of the power-latch relay.
Repair if necessary.

Check **the resistance value** of the relay by measuring between:
Track 1 and **track 2** of the power-latch relay. Replace the relay if the resistance is not in the order of
84 $\Omega \pm$ 1 Ω.

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

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| **DF247**
PRESENT
OR
STORED | <u>CRUISE CONTROL OR SPEED LIMITER BUTTON</u>

17-185 |

| ***NOTES*** | **Conditions for applying the fault finding procedure to the fault stored:**:
The fault is declared present following operation of the cruise-control/speed limiter controls. |

Using the status window of the diagnostic tool and the information given in status interpretation **ET194**, ensure that there is no fault or parameter impeding the operation of the cruise control.

Apply the fault finding procedure on the basis of the parameter detected defective by the status interpretation **ET194**. For example, if the fault relates to the brake switch or the vehicle speed signal, apply the fault finding procedures for those parts.

Using the status window of the diagnostic tool and the information given in status interpretation **ET192**, ensure that the actuation of the steering wheel and instrument panel buttons are sending the correct signals to the injection computer.

If the data for status "**ET192**" are not to specification:
Check **the connection and condition of the connector** of the steering wheel rotary switch and the condition of the connector of the cruise control (in the steering wheel). Replace the connector(s) if necessary.

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

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DF247	
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Check **the resistance values of the** control switches of the cruise control as below.
Check the resistance between **track J2** and **track G2** of computer **connector A**.
– "repeat" button pressed: R = 900 ohms
– "suspend" button pressed: R = 0
– "set/plus" button pressed: R = 300 ohms
– "set/minus" button pressed: R = 100 ohms
Replace the switches if necessary.

Disconnect the connector on the speed limiter / cruise control switch, and check the **condition of the contacts** using an ohmmeter.
Change the switch if it does not operate as specified below:

switch set to cruise control function		**switch set to speed limiter function**
continuity between **tracks A2** and **A3**	⟶	insulation between **tracks A2** and **A3**
insulation between **tracks A2** and **B1**	⟶	continuity between **tracks A2** and **B1**

Repair if necessary.

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

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| | NOTES | Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide).
Conditions for the application of this check: engine stopped, ignition on. |

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
1	Computer supply	**ET001**	+ after ignition computer	**ACTIVE**	**In the event of a problem:** perform the charge circuit fault finding procedure
		PR004	computer supply voltage	11 < x < 14 V	
2	Immobiliser	**ET002**	engine immobiliser	**INACTIVE**	If active or if immobiliser code not programmed use the diagnostic procedure for the Engine immobiliser system.
		ET099	immobiliser code programmed	**YES**	
3	Coolant temperature sensor	**PR002**	coolant temperature	X = engine temperature $\pm$ 5 ˚C	**If there is a problem:** perform the fault finding procedure for the coolant temperature sensor **(DF004)**.
		PR143	coolant temperature sensor voltage.	0 < X < 5 V	
4	Air temperature sensor	**PR003**	air temperature	X = temperature under bonnet $\pm$ 5 ˚C	**If there is a problem:** perform the fault finding procedure for the air temperature sensor **(DF003)**.
		PR144	air temperature sensor voltage.	0 < X < 5 V	
5	Manifold pressure sensor	**PR001**	manifold pressure	= atmospheric pressure	**If there is a problem:** perform the fault finding procedure for the manifold pressure sensor **(DF045)**.
		PR016	atmospheric pressure		
6	Engine operation.	**ET142**	engine	**STATUS1**: ignition on and engine stopped.	**For more information consult the fault finding procedure for status ET142.**

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NOTES	Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide). **Conditions for the application of this check: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
7	Throttle position potentiometer (in no load position).	ET003	throttle position no load	**ACTIVE**	**If there is a problem:** use the diagnostic procedure for the throttle angle sensor **(DF167)**.
		ET005	throttle position valve - full load position.	**INACTIVE**	
		PR017	measured throttle position	0 < X < 20 d°	
		PR165	throttle track 2 voltage measured.	4.08 V ± 0.3 V	
		PR166	throttle track 1 voltage measured.	0.96 V ± 0.3 V	
8	Motorised throttle body	ET109	motorised throttle body	**STATUS1**: toe-out movement **STATUS2**: closure movement	**If there is a problem:** use the fault finding procedure for the motorised throttle (**DF137**).
		ET111	programming choke-valve stops	**YES**	If the status displays **NO**, re-program the motorised throttle (see preliminary diagnostics).
		PR113	motorised throttle position setting	0 < X < 20 d°	**None.**
		PR118	motorised choke valve upper stop.	0.78 V ± 0.16 V	**If there is a problem:** perform the fault finding procedure for the throttle angle sensor **(DF167)**.
		PR119	motorised choke valve lower stop	0.39 V ± 0.1 V	
9	Accelerator pedal position potentiometer	PR112	measured pedal position	17 < X < 83 d°	**If there is a problem:** perform the fault finding procedure for the pedal potentiometer track 1 and track 2 circuits **(DF125 and DF126).**
		PR150	pedal angle 1 voltage measured	0.5 < X < 4.5 V	
		PR151	pedal angle 2 voltage measured	0.2 < X < 2.5 V	

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NOTES	Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide). **Conditions for the application of this check: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
10	Cruise control / Speed limiter	**ET192**	speed-control function	**INACTIVE** (**STATUS 2** if the vehicle is not fitted with the speed control function, default value)	For vehicles fitted with the speed control function, if the status is not **inactive**, refer to status interpretation **ET192**.
		ET194	deactivation of cruise-control / speed limiter.	**INACTIVE** (**STATUS 6** if the vehicle is not fitted with the speed control function, default value)	For vehicles fitted with the speed control function, if the status is not **inactive**, refer to status interpretation **ET194**.
11	Brake pedal	**ET143**	redundant brake pedal	**STATUS 1** (brake pedal not in use).	If the status shows **inactive**, perform the fault finding procedure for the brake pedal sensor circuit (**DF135**).
12	Impact detected by the injection computer.	**ET265**	impact detected by the injection computer.	**NO**	If the status shows **STATUS 1**, refer to status interpretation **ET265**

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NOTES	Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide). **Conditions for performance: Engine warm at idle speed, no electrical consumers.**

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
1	Computer supply	ET001	+ after ignition computer	**ACTIVE**	**In the event of a problem:** perform the **charge circuit** fault finding procedure.
		PR004	computer supply voltage	11 < x < 14 V	
2	Immobiliser	ET002	engine immobiliser	**INACTIVE**	If active or if immobiliser code not programmed use the diagnostic procedure for the Engine immobiliser system.
		ET099	immobiliser code programmed	**YES**	
3	Coolant temperature sensor	PR002	coolant temperature	X = engine temperature ± 5°C(substitute value: 84°C).	**If there is a problem:** perform the fault finding procedure for the coolant temperature sensor **(DF004)**.
		PR143	coolant temperature sensor voltage.	0 < X < 5 V	
4	Air temperature sensor	PR003	air temperature	X = temperature under bonnet ± 5°C(substitute value: 30°C).	**If there is a problem:** perform the fault finding procedure for the air temperature sensor **(DF003)**.
		PR144	air temperature sensor voltage.	0 < X < 5 V	
5	Accelerator pedal position potentiometer (no load).	PR0112	measured pedal position	5 < X < 30 d°	**In the event of problems**: run the diagnostic procedure for the "pedal potentiometer track 1 and 2 circuits" faults **(DF125 and DF126)**.
		PR150	pedal angle 1 voltage measured	0.298 < X < 0.800 V	
		PR151	pedal angle 2 voltage measured	0.298 < X < 0.425 V	

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NOTES	Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide). **Conditions for performance: Engine warm at idle speed, no electrical consumers.**	

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
6	Throttle position potentiometer	**ET003 :**	throttle position no load	**ACTIVE**	**If there is a problem:** perform the fault finding procedure for the throttle angle sensor **(DF167).**
		ET005	throttle position valve - full load position.	**INACTIVE**	
		PR017	measured throttle position	0 < X < 20 d°	
		PR165	throttle track 2 voltage measured.	3.5 < X < 5 V	
		PR166	throttle track 1 voltage measured.	0 < X < 1.5 V	
7	Motorised throttle body	**ET109**	motorised throttle body	**STATUS1**: toe-out movement **STATUS2**: toe-out movement	**If there is a problem:** perform the fault finding procedure for the motorised throttle **(DF137)**.
		ET111	programming choke-valve stops	**YES**	If the status displays **NO**, re-program the motorised throttle (see fault finding introduction).
		PR113	motorised throttle position setting	0 < X < 20 d°	**None.**
		PR132	motorised throttle RCO.	30 < X < 50%	
		PR118	motorised choke valve upper stop	0.78 V ± 0.16 V	**If there is a problem:** perform the fault finding procedure for the throttle angle sensor **(DF167).**
		PR119	motorised choke valve lower stop	0.39 V ± 0.1 V	
8	Manifold pressure sensor	**PR001**	manifold pressure	216 < X < 504 mb	**If there is a problem:** perform the fault finding procedure for the manifold pressure sensor **(DF045).**
		PR016	atmospheric pressure	= local atmospheric pressure	

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	NOTES	Only carry out this conformity check after a **full check** with the diagnostic tool (the values shown in this conformity check are only given as a guide). **Conditions for performance: Engine warm at idle speed, no electrical consumers.**

Order	Function	Parameter or status Check or action		Display and notes	Fault finding
9	Air conditioning	ET009	air conditioning request	**ACTIVE** if requested	In the event of a problem, perform a fault finding test on fault: "**DF228** compressor control".
		ET076	air conditioning authorisation	**YES**	
		PR027	refrigerant fluid pressure	1 < X < 10 B.	**If there is a problem**: apply the fault finding procedure for the refrigerant fluid pressure sensor **(DF118).**
10	Adaptive richness adjustment	PR030	operating adaptive richness	- 25.5 < X < 22 %	Since these parameters are directly managed by the injection computer, it is difficult for the After Sales network to interpret them.
		PR031	idle adaptive richness	- 50.5 < X < 50 %	
		PR140	rapid mixture correction.	- 33 < X < 50 %	
		PR142	average mixture correction.	- 33 < X < 50 %	
11	Engine operation.	ET142	engine	**STATUS3**: engine at idle speed.	**For more information consult the fault finding procedure for status ET142.**
		PR006	engine speed	750 ± 50 rpm	**If there is a problem**: consult the fault finding chart: idle speed problem **(CHART 3).**
		PR041	engine idling speed reference.	750 ± 50 rpm	
		ET038	fast idle speed	**INACTIVE**	**None.**
		ET039	idle speed regulation	**ACTIVE**	
		PR051	ignition advance.	-5 < X < 15 ˚ V.	Since these parameters are directly managed by the injection computer, it is difficult for the After Sales network to interpret them.
		PR050	injection duration.	2.16 < X < 5.88 ms.	
		PR036	coil charging time	1180 ms	

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ET142	<u>ENGINE</u>

NOTES	These statuses give an indication of **engine operation** and can be used for the detection of faults when the conditions required for detection (whether stored or present) are special. **For example:** engine deceleration for a given timed period.

List of conditions associated with status **ET142**:

STATUS1: ignition on and engine stopped.

STATUS2: engine being turned by starter motor.

STATUS3: engine at idle speed.

STATUS4: stable idle speed.

STATUS5: engine acceleration.

STATUS6: engine deceleration.

STATUS7: petrol injection cutoff request.

STATUS8: injection cutoff return.

AFTER REPAIR	Begin the conformity check again at the status concerned.

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	Speed-control function
ET192	

NOTES	**Special notes:** the conditions below appear on the fault finding tool screen by clicking on the blue icon showing **ET192**.

When the injection system shows fault **DF158** cruise control function, **DF159** speed limiter function and/or **DF247** cruise control or speed limiter button, the status screen enables a fault finding to be carried out on the system by means of statuses **ET192** and **ET194**.

Status **ET192** enables you to check the correct operation of the buttons or the speed limiter.

When the vehicle is stationary with ignition on without actuation of the cruise control or speed limiter, status **ET192** should be inactive (see checking conformity).

List of conditions associated with status **ET192**:

STATUS 1:   suspend button pressed.

STATUS 2:   repeat button pressed.

STATUS 3:   speed limiter ON/OFF switch pressed.

STATUS 4:   cruise control ON/OFF switch pressed.

STATUS 5:   increase switch on (set +).

STATUS 6:   increase switch on (set -).

If status **ET194** is not inactive and shows one of these conditions a check must be made with the ohmmeter of the relevant button, which should be replaced if necessary.

If status **ET194** is inactive but fault **DF158** cruise control function, **DF159** speed limiter function and/or **DF247** cruise control or speed limiter button is present, the correct operation of these buttons must be ensured using these technical specifications.

AFTER REPAIR	If necessary repeat the application of the fault finding procedure for fault **DF158, DF159** and/or **DF247** or carry out a road test to confirm the correct functioning of the system.

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	Deactivation of cruise-control / speed limiter.
ET194	17-195

	Special notes:
NOTES	the conditions below appear on the fault finding tool screen by clicking on the blue icon showing '**ET194**.

When the injection system shows fault **DF158** cruise control function, **DF159** speed limiter function and/or **DF247** cruise control or speed limiter button, the status screen enables a fault finding to be carried out on the system by means of statuses **ET192** and **ET194**.

Status **ET194** indicates the reasons why the cruise control or speed limiter function is interrupted.

When the vehicle is stationary with ignition on without actuation of the cruise control or speed limiter, status **ET194** should be inactive (see checking conformity).

List of conditions associated with status **ET194**:

STATUS 1: vehicle speed invalid. **STATUS 2**: vehicle speed not refreshed.	These two conditions indicate a problem with the vehicle speed signal. This signal reaches the injection computer through the multiplex network. To resolve this problem it is necessary to perform a **fault finding procedure on the multiplex network**.
STATUS 3: problem detected by the injection computer.	This condition indicates that an injection fault is preventing the function from starting (defect mode). It is therefore necessary to perform the fault finding procedure associated with the fault showed by the diagnostic tool.
STATUS 4: Fault on cruise-control or speed limiter.	Perform **the fault finding procedure** for fault **DF158** cruise control function and/or **DF159** speed limiter function.

AFTER REPAIR	If necessary repeat the application of the fault finding procedure for fault **DF158, DF159** and/or **DF247** or carry out a road test to confirm the correct functioning of the system.

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ET194 CONTINUED 1	

STATUS 5: brake pedal pressed.	Pressing the brake pedal cuts off the cruise control or speed limiter function. If the status remains active without pressing the brake pedal, perform the **fault finding procedure** for fault **DF135** brake pedal sensor.
STATUS 6: engine / gearbox decoupling.	This condition only affects vehicles fitted with the electronic stability program for engines with manual gearbox.
STATUS 7: gear lever in neutral position.	This condition is only active in the case of vehicles fitted with automatic transmission. If this condition is present, perform the **fault finding procedure for the automatic transmission**.
STATUS 8: inconsistency between the request and the vehicle speed.	This condition indicates a poor conductor request. However an inconsistency in the vehicle speed signal may cause this condition to appear. In this case perform a **fault finding procedure on the multiplex network**, of the ABS and the instrument panel.
STATUS 9: press the suspend button.	Pressing the suspend button cuts off the cruise control or speed limiter function. If the status remains active without pressing the suspend button, perform the **fault finding procedure** for fault **DF247** cruise control or speed limiter button.

AFTER REPAIR	If necessary repeat the application of the **fault finding procedure** for fault **DF158, DF159** and/or **DF247** or carry out a road test to confirm the correct functioning of the system.

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ET194 CONTINUED 2	17-197

STATUS 10: antiskid request.	This condition is only active in the case of vehicles fitted with the electronic stability program. An antiskid request cuts off the cruise control or speed limiter function. If this condition remains active perform **a fault finding procedure on the ABS system**.

AFTER REPAIR	If necessary repeat the application of the fault finding procedure for fault **DF158, DF159** and/or **DF247** or carry out a road test to confirm the correct functioning of the system.

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	IMPACT DETECTED BY THE INJECTION COMPUTER
ET265	

	Special notes:
NOTES	the conditions below appear on the fault finding tool screen by clicking on the blue icon showing **ET265**.

The airbag function is activated if an impact is detected by the airbag computer, which transmits the signal to the injection computer via the multiplex network, via the UCH. On receiving this signal, the computer locks the fuel pump relay and the injectors.

The unlocking of the relay will not be activated until the ignition has been off for 10 seconds.

This operation will cause the fault warning light to be come on for longer than usual when the ignition is switched on. The fault warning light will resume its normal operation after the fault has been cleared.

<u>List of conditions associated with status **ET265**</u>:

NON: no impact has been detected by the injection computer.	None
STATUS 1: an impact has been detected by the injection computer	To unlock the computer, switch the ignition off for 10 seconds, then clear the fault.

	Check how long the fault warning light stays on when switching on the ignition and restart the vehicle to confirm the repair.
AFTER REPAIR	Repeat the above procedure if necessary.

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NOTES	Only refer to this customer complaint after a complete check using the fault finding tool

NO COMMUNICATION WITH THE COMPUTER	——————— CHART 1

STARTING PROBLEMS	——————— CHART 2

IDLE SPEED FAULTS	——————— CHART 3

PROBLEMS WHEN DRIVING	——————— CHART 4

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CHART 1	**NO COMMUNICATION WITH THE COMPUTER**

NOTES	None.

Try the fault finding tool on another vehicle.

Check:
– the connection between the fault finding tool and the diagnostic socket (lead in good condition),
– injection, engine and passenger compartment fuses.

Verify the presence of **+12 volts from the battery** on **track 16** and **connection to earth** on **track 5** and **track 4** of the diagnostic socket.
Repair if necessary.

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

computer connector A	**track L3** ⟶	**track 5** of the injection locking relay
computer connector A	**track L4** ⟶	**+ battery** (engine fuse box)
computer connector A	**track M4** ⟶	**+ after ignition** (passenger compartment fuse box)
computer connector A	**track M2** ⟶	**track 2** of the injection locking relay
computer connector B	**track L2** ⟶	**earth**
computer connector B	**track L3** ⟶	**earth**
computer connector B	**track L4** ⟶	**earth**
computer connector A	**track H3** ⟶	**track 14** of the diagnostic socket
computer connector A	**track J4** ⟶	**track 6** of the diagnostic socket
computer connector A	**track K4** ⟶	**track 7** of the diagnostic socket

Repair if necessary.

AFTER REPAIR	Check with the fault finding tool.

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| CHART 2 | **STARTING PROBLEMS** |

| **NOTES** | Only refer to this customer complaint after a check using the diagnostic tool |

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

Ensure that the starter motor is turning correctly (approximately **250 rpm**).
If this is not the case:
– Check the condition of the battery, corrosion and tightness of the terminals.
– Make sure the engine earth strap is in good condition.
– Make sure that the battery lead to the starter motor is in good condition.
– Check the condition of the battery.
– Check that the starter motor is operating correctly.

Fuel supply check:
– Check that there is actually fuel in the tank (fuel gauge not defective)
– 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 fuel filter; change it if necessary.
– Make sure that the fuel tank breather is not blocked.
– Make sure that the impact sensor is operating correctly.
– Make sure that the petrol pump is running correctly and that petrol is reaching the injector rail.
– Make sure that the fuel pressure regulator is in good condition by checking the pressure.

Air supply check:
– Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
– Make sure that the air filter is in good condition; change it if necessary.
– Disconnect the pipe which connects the canister drain solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If there is no longer any disturbance, change the canister bleed solenoid valve.

(**A**)

| **AFTER REPAIR** | Check with the fault finding tool. |

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| **CHART 2** | |
| CONTINUED | INJ.5NR-1.0 (17-202 area placeholder) |

(A)

Ignition check:
– Check the condition of the spark plugs; change them if necessary.
– Make sure that the spark plugs are correct for the engine type.
– Check the condition of the ignition wiring (wires hardened or cracked).
– 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.

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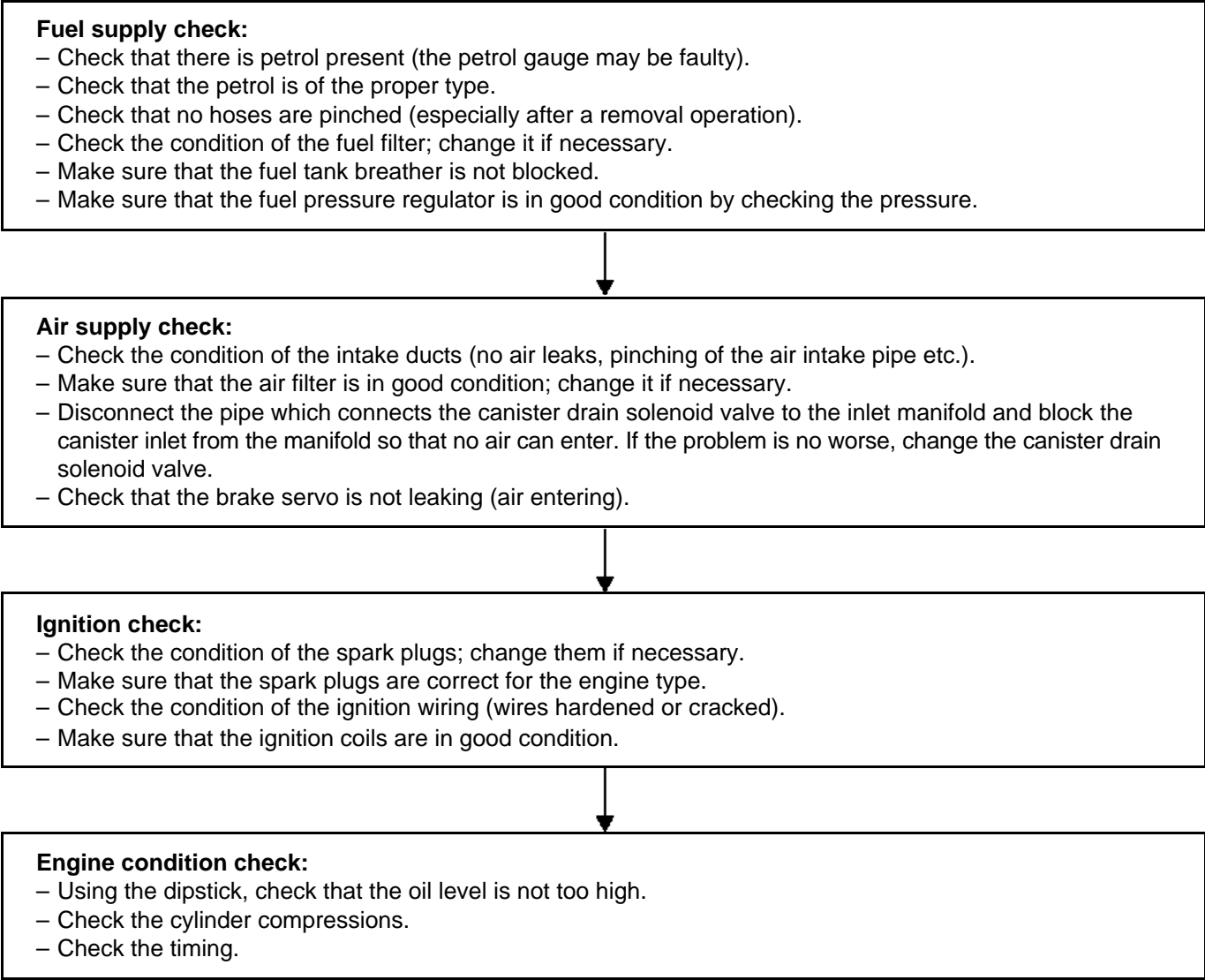– Shake the catalytic converter to see whether the filter element is broken (metallic noises)

Engine condition check:
– Make sure that the engine turns freely.
– Check the cylinder compressions.
– Check the timing.

| **AFTER REPAIR** | Check with the fault finding tool. |

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| **CHART 3** | **IDLE SPEED FAULTS** |

| *NOTES* | Only refer to this customer complaint after a check using the diagnostic tool |

Fuel supply check:
– 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 fuel filter; change it if necessary.
– Make sure that the fuel tank breather is not blocked.
– Make sure that the fuel pressure regulator is in good condition by checking the pressure.

Air supply check:
– Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
– Make sure that the air filter is in good condition; change it if necessary.
– Disconnect the pipe which connects the canister drain solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If the problem is no worse, change the canister drain solenoid valve.
– Check that the brake servo is not leaking (air entering).

Ignition check:
– Check the condition of the spark plugs; change them if necessary.
– Make sure that the spark plugs are correct for the engine type.
– Check the condition of the ignition wiring (wires hardened or cracked).
– Make sure that the ignition coils are in good condition.

Engine condition check:
– Using the dipstick, check that the oil level is not too high.
– Check the cylinder compressions.
– Check the timing.

| *AFTER REPAIR* | Check with the fault finding tool. |

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CHART 4	PROBLEMS WHEN DRIVING

NOTES	Only refer to this customer complaint after a check using the diagnostic tool

Fuel supply check:
– 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 fuel filter; change it if necessary.
– Make sure that the fuel tank breather is not blocked.
– Make sure that the fuel pressure regulator is in good condition by checking the pressure.

Air supply check:
– Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
– Make sure that the air filter is in good condition and not deformed; change it if necessary.
– Disconnect the pipe which connects the canister drain solenoid valve to the inlet manifold and block the canister inlet from the manifold so that no air can enter. If the problem is no worse, change the canister drain solenoid valve.
– Check that the brake servo is not leaking (air entering).
– Remove the air feed line of the motorised choke valve and check that the valve is not clogged.

Ignition check:
– Check the condition of the spark plugs; change them if necessary.
– Make sure that the spark plugs are correct for the engine type.
– Check the condition of the ignition wiring (wires hardened or cracked).
– Make sure that the ignition coils are in good condition.
– Remove the engine speed sensor and make sure it has not been rubbing on its target (increase in the air gap). If it has, check the condition of the engine flywheel.

(A)

AFTER REPAIR	Check with the fault finding tool.

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CHART 4 CONTINUED	

$$\textbf{(A)}$$

Engine condition check:
– Using the dipstick, check that the oil level is not too high.
– Check the cylinder compressions.
– Check the timing.
– Check the condition of the engine speed sensor target (engine flywheel).
– Make sure that the engine cooling system is operating correctly (so that the engine is operating under optimum conditions, neither too cold nor too hot).

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

Running gear check:
– Check that the wheels turn freely (calipers, drums or bearings not binding).
– Check the tyre pressures and tread condition (bulges).

AFTER REPAIR	Check with the fault finding tool.

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> **This document introduces the generic fault finding procedure applicable to all computers of type "SIRIUS 34 Vdiag 04 and 08".**
>
> <u>**ENGINES:**</u>
>
> **K4J 710 / 711 / 714 / 715**
> **K4M 708 / 709 / 730 / 744 / 745 / 770**
> **F4R 736 / 742 /743 / 746 / 747**
> **F4P 720.**
>
> **To undertake fault finding on this system, it is essential to have the following items available:**
> - **The "Generic Fault Finding" Technical Note**
> - **The wiring diagram for the function on the vehicle concerned.**
> - **the tools listed under the heading Special tooling required.**

<u>GENERAL APPROACH TO FAULT FINDING:</u>

– Use one of the fault finding tools to identify the system fitted on the vehicle (reading the computer series SIRIUS 34 Vdiag 04 and 08).

– Locate the Fault finding documents corresponding to the system identified.

– Take note of information contained in the introductory sections.

– Read the faults stored in the computer memory and use the Fault interpretation section of the documents.
  Reminder: Each fault is interpreted for a particular type of storage (fault present, fault stored, fault present or stored). The checks defined for handling each fault are therefore only to be performed if the fault shown by the fault finding tool is interpreted in the document for its type of storage. The storage type should be considered when using the fault finding tool after the ignition has been switched off and switched back on.
  If a fault is interpreted when it is stated to be "stored", the conditions for application of the diagnostic routine appear in the "NOTES" box. When these conditions are not satisfied, use the fault finding procedure to check the circuit of the faulty part since the fault is no longer present on the vehicle. Follow the same procedure when a fault is declared stored by the fault finding tool but is only interpreted in the documentation for a present fault.

– Carry out the conformity check (appearance of possible faults not yet identified by the system's auto-diagnostic procedure) and apply the relevant fault finding strategies according to the results.

– Confirm the repair (disappearance of the problem reported by the customer).

– Use the Customer complaints fault finding procedures if the fault persists.

Essential special tooling for operations on the "SIRIUS 34 Vdiag 04 and 08" system:

– **Diagnostic tools (except XR 25).**
– **Multimeter.**
– **Bornier: Elé. 1497.**

Fault finding special features:

The injection computer provides Fault type information (e.g. CO.0, 1.DEF,...) for the majority of faults present. This information is always limited to "DEF" when one of these faults is stated to be stored, even if the fault is present but the conditions for handling it are not present (cannot obtain a 1.DEF or a CO.0 for a stored fault).

In this case, and if the fault is interpreted in the fault finding when it is only "stored", apply the conditions for confirmation of the actual presence of the fault, given in "NOTES" in the section "Conditions for application of the fault finding strategy to the stored fault".

If the fault is present, apply this information to display the Fault type on the fault finding tool and thus the relevant fault finding procedure.

If the information obtained by the fault finding tool requires electrical continuities to be checked, connect bornier Elé. 1497.

IMPORTANT:

* All tests using bornier **Elé. 1497**, must only be carried out with the battery disconnected.

* The bornier is only designed to operate with a multimeter. Under no circumstances should 12 volts be applied to the test points.

REPROGRAMMING THE COMPUTERS:

Reprogramming conditions:
– With the ignition on:
– Engine stopped
– Computer not protected

Important recommendation following reprogramming:
During the reprogramming of a computer, it does not transmit any information on the multiplex network (it is "mute"). Therefore all the computers connected to the multiplex network detecting the information generated by 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.

Starting the vehicle after an impact:

On receiving an impact detection signal emitted by the airbag computer on the multiplex network, the injection computer will do the following, having received the signal (after maximum 10 milliseconds): Stop the fuel pump supply, the ignition and the petrol or LPG injection.
Status 264 "computer locked following impact" changes to STATUS 1.
The only way of restarting is to switch off the ignition for 10 seconds.
The only way of clearing status ET264 is to clear the faults stored.

Defect modes:

In the case of failure of the motorised throttle, various defect modes are applied and are displayed by status <u>"ET118" Motorised throttle in defect mode</u>:

NO: **NORMAL MODE**

STATUS 1:   **MOTORISED THROTTLE IN LIMP-HOME MODE:**
             This defect mode is indicated by a constant engine speed for every gear ratio, whatever the position of the accelerator pedal.
             It is associated with: "DF002" Throttle potentiometer circuit, "DF226" Throttle stop programming, "DF254" Motorised throttle request or "DF255" Security of operation of throttle/pedal.

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):**
             This defect mode is indicated by: no effect of pedal, fast idling and if the brake pedal is pressed the engine speed changes to idle speed.
             It is 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

STATUS 4:   **REDUCTION OF ENGINE PERFORMANCE (limitation of performance):**
             This defect mode is indicated by: Limitation of the vehicle speed, limitation of the command section of the throttle, limitation of the vehicle acceleration (slow increase in the command section of the throttle).
             It is associated with: "DF002" Throttle potentiometer circuit, "DF125" Pedal potentiometer circuit track 1, "DF126" Pedal potentiometer circuit track 2, "DF129" Pedal potentiometer circuit or "DF258" First sensor reference voltage.

| DF002
PRESENT
OR
STORED | <u>THROTTLE POTENTIOMETER CIRCUIT</u>
1.DEF : throttle position potentiometer circuit track 1
2.DEF : throttle position potentiometer circuit track 2
3.DEF : inconsistency between throttle track 1 and track 2 |

| *NOTES* | **Processing priority in event of stacked faults:**
Second sensor reference voltage fault **DF 152** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
If the fault becomes present with 1.DEF, 2.DEF or 3.DEF, carry out this fault finding strategy. |

1.DEF	Check the **connection and condition** of the throttle potentiometer connector. Change 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 Repair if necessary.
	Check the **resistance of throttle potentiometer** track 1 (the resistance is **zero or equal to infinity** in the event of a straight failure). Change the throttle potentiometer if the resistance is not approximately **1 Kohms**.

2.DEF	Check the **connection and condition** of the throttle potentiometer connector. Change 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 Repair if necessary.
	Check the **resistance of throttle potentiometer** track 1 (the resistance is **zero or equal to infinity** in the event of a straight failure). Change the throttle potentiometer if the resistance is not approximately **1 Kohms**.

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

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| DF002 **PRESENT OR STORED** | <u>CONTINUED</u> |

| *NOTES* | **Conditions for applying the diagnostic to stored faults.:** If the fault becomes present with 1.DEF, 2.DEF or 3.DEF, carry out this fault finding strategy. |

| **3.DEF** | Check the **connection and condition** of the throttle potentiometer connector. Change the connector if necessary. |
| | Connect the bornier in place of the computer and check the **resistance of throttle potentiometer** tracks 1 and 2. Operate the throttle, moving from no load to full load, to ensure that the potentiometer resistance is developing in a linear fashion. |

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

and

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

Replace the throttle potentiometer if necessary.

If the fault persists, **replace** the throttle potentiometer.

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

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

| *NOTES* | **Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on. |
| | **Special notes:** The parameter (**PR003** air temperature) gives the value read by the injection computer. |

Check the **connection and condition** of the air temperature sensor connector.
Change 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 **resistance of the** air temperature sensor is not **zero or equal to infinity** (unequivocal failure of the sensor).
Check the **sensor resistance at various temperatures.**
Change the air temperature sensor if necessary.

Temperature	Resistance +/- 20%
-10°C	9.5 Kohms
25°C	2 Kohms
50°C	810 Ohms
80°C	309 Ohms

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

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

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on.
	Special notes: The parameter **(PR 002 coolant temperature)** gives the value read by the injection computer.

Check the **connection and condition** of the coolant temperature sensor connector.
Change 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 73** ⟶ **track B1** Coolant temperature sensor
Computer **track 46** ⟶ **track B2** Coolant temperature sensor
Repair if necessary.

Check that the **resistance of the water coolant temperature sensor** is not **zero or equal to infinity** (unequivocal failure of the sensor).
Check the **sensor resistance at various temperatures.**
Change the coolant temperature sensor if necessary.

Temperature	Resistance +/- 20%
-10°C	9.5 Kohms
25°C	2 Kohms
50°C	810 Ohms
80°C	309 Ohms
110°C	114 Ohms
120°C	87 Ohms

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

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

NOTES	**Conditions for applying the diagnostic 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: The parameter **(PR 013 pinking sensor signal)** gives the value read by the injection computer.

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

Check **clamping 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 screening**

Repair if necessary.

If the fault persists, **replace** the pinking sensor.

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

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DF008 **PRESENT** **OR** **STORED**	FUEL PUMP CONTROL RELAY CIRCUIT CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition is switched on or the **AC 010** command is run. Fuel pump relay.
	Special notes: Status **ET 020** fuel pump control relay) can help with the treatment of this fault.

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

Disconnect the relay.
Check, with the ignition on, for **+ 12 volts on track 1 of the fuel pump relay**
Repair if necessary.

Check the insulation and continuity of the connection between:
      Injection computer **track 9**   ⟶   **Track 2** fuel pump relay
Repair if necessary.

Check the resistance of the fuel pump relay coil.
Change the fuel pump relay if necessary.

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

SIRIUS 34 E5 V04-08 2.0

DF009 **PRESENT** **OR** **STORED**	ACTUATOR CONTROL RELAY CIRCUIT CO : open circuit CC.1 : short circuit to 12 volts CC.0 : short circuit to earth

NOTES	**Conditions for applying the diagnostic to stored faults.:** If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.
	Special notes: Status **ET 025** actuator control relay can help with the treatment of this fault.

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

Disconnect the relay.
With the ignition on, check for the presence of **+ 12 volts on track 1 of the actuator relay.**
Repair if necessary.

Check the insulation and continuity of the connection between:
     Injection computer **track 10** ⟶ **Track 2** Actuator relay
Repair if necessary.

Check the resistance of the actuator relay coil.
Change the actuator relay if necessary.

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

SIRIUS 34 E5 V04-08 2.0

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

NOTES	**Processing priority in event of stacked faults:** Coolant temperature sensor circuit fault **DF004** and actuator relay circuit fault **DF009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after switching on the ignition or entering command **AC626** low speed fan assembly relay.
	Special notes: Status **ET 035** low speed fan assembly can help with the treatment of this fault.

Check the **connection and the condition of the connector to the low-speed fan relay.**
Change the connector if necessary.

Disconnect the relay.
With the ignition on, check for the presence of **+ 12 volts on track 1 of the low speed fan assembly relay.**
Repair if necessary.

Check the insulation and continuity of the connection between:
      Injection computer **track 11**   ———▶   **track 2** Low speed fan assembly relay
Repair if necessary.

Check the resistance of the low speed fan assembly relay coil.
Replace the low speed fan assembly relay if necessary.

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

DF011 **PRESENT** **OR** **STORED**	FAULT WARNING LIGHT CIRCUIT CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Conditions for detecting the fault:** This fault cannot be diagnosed on a SIRIUS 34 VDIAG 08 computer 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 diagnostic to stored faults.: The fault is declared present after the ignition is switched on or the **AC 211** command is run. Fault warning light
	Special notes: Status **ET 006** fault warning light can help with the treatment of this fault.

VDIAG 04	With the ignition on, check that 12 volts is reaching the warning light. Repair the line if necessary.
	Connect the bornier in place of the computer; **check the insulation, continuity and absence of interference resistance** on the connection between: Computer **track 70** ⟶ **Fault warning light on instrument panel** Repair if necessary.
	Check **the condition of the warning light** (if it is not lit). Change it if necessary.

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

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

SIRIUS 34 E5 V04-08 2.0

DF012 **PRESENT** **OR** **STORED**	<u>INJECTION CONNECTION</u> ⟶ AC

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on.
	Special notes: Status **ET016 injection-AC connection** can help with the treatment of this fault.

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

      Computer **track 81** ⟶ **air conditioning control unit**

Repair if necessary.

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

SIRIUS 34 E5 V04-08 2.0

| DF014
PRESENT
OR
STORED | CANISTER BLEED SOLENOID VALVE CIRCUIT
CO   : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after switching on the ignition or entering command **AC016** Canister bleed solenoid valve.
	Special notes: Status **ET032 canister bleed solenoid valve** can help with the treatment of this fault.

Check the **connection and condition of the** canister bleed solenoid valve connector.
Change the connector if necessary.

With the ignition on, check for the presence of **12 volts on the canister bleed solenoid valve**.
Repair if necessary.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between:
      Injection computer **track 8**   ⟶   **Canister bleed solenoid valve**
Repair if necessary.

Check the **resistance of the canister bleed solenoid valve.**
Change the solenoid valve if the resistance is not approximately **26 Ohms ± 4 at 23˚C.**

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

| DF018
PRESENT
OR
STORED | UPSTREAM OXYGEN SENSOR HEATER CIRCUIT
CO : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009**should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present with the engine running or the **AC 261** command is run. Upstream sensor heating
	Special notes: Status **ET 030** upstream sensor heating can help with the treatment of this fault.

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

With the ignition on, check for the presence of **12 volts on the oxygen sensor**.
Rectify the electrical line to the actuator relay.

Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between:
    Computer **track 65** ⟶ **Oxygen sensor**
Repair if necessary.

Check the **resistance** of the upstream oxygen sensor heating circuit.
Change the oxygen sensor if the resistance is not approximately **3.4 Ohms at 20˚C.**

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

SIRIUS 34 E5 V04-08 2.0

| **DF022**
PRESENT | COMPUTER
1.DEF : Computer defective or incorrect |

| ***NOTES*** | None. |

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

Reprogram the computer.
Then program the throttle valve stops: Switch on the ignition and wait at least 5 seconds without starting the engine: the throttle valve stops are 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.

REPROGRAMMING THE COMPUTERS:
Reprogramming conditions:
– Ignition on.
– Engine stopped
– Computer not protected
Important recommendation following reprogramming:
During the reprogramming of a computer, it does not transmit any information on the multiplex network (it is "mute"). Therefore all the computers connected to the multiplex network detecting the information generated by 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.

If the fault is still present, replace the computer.

| ***AFTER REPAIR*** | Clear the computer memory.
Perform a road test then a new test with the fault finding tool. |

SIRIUS 34 E5 V04-08 2.0

DF024 **PRESENT** **OR** **STORED**	<u>VEHICLE SPEED SENSOR CIRCUIT</u> 17-223

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the engine has been running at > 10 mph (15 km/h) for more than 30 seconds.
	Special notes: **Two types of connection are used: wire frame connections and multiplex connections.** Consult configuration reading **LC 038 to check which type is in use.** Status **ET 069 sensor connection** and parameter **PR018 vehicle speed**) can help with the treatment of this fault.

Wire connection	Connect the bornier 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 repair. Deal with any other possible faults. Clear the fault memory.

SIRIUS 34 E5 V04-08 2.0

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

NOTES	**Conditions for applying the diagnostic 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 with the treatment of this fault.

Check the **connection and condition** of the engine speed sensor connector.
Change 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.

Check the **resistance** of the engine speed sensor.
Change the engine speed sensor if the resistance is not between **200 and 270 Ohms.**

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

SIRIUS 34 E5 V04-08 2.0

DF030 **PRESENT** **OR** **STORED**	<u>HIGH-SPEED FAN CIRCUIT</u> CO : open circuit CC.1 : short circuit to 12 volts 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).**
	Processing priority in event of stacked faults: Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after the ignition is switched on or the **AC 625** command is run. High speed fan assembly

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

Disconnect the relay.
With the ignition on, check for the presence of **+ 12 volts 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.

Check the resistance of the high speed fan assembly relay coil.
Change the high speed fan assembly relay if necessary.

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

SIRIUS 34 E5 V04-08 2.0

DF031 **PRESENT** **OR** **STORED**	<u>FAULT WARNING LIGHT CIRCUIT</u> CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Conditions for detecting the fault:** This fault cannot be diagnosed on a SIRIUS 34 VDIAG 08 computer 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 diagnostic to stored faults.: The fault is declared present after the ignition is switched on or the **AC 213** command is run. OBD (MIL) warning light.

VDIAG 04	With the ignition on, check that **12 volts** is reaching the warning light. Repair the line if necessary.
	Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between: Computer **track 40** ⟶ **OBD warning light on instrument panel** Repair if necessary.
	Check **the condition of the warning light** (if it is not lit). Change it if necessary.

VDIAG 08	~~**Switch on the ignition.**~~ **Test the multiplex network.**

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

SIRIUS 34 E5 V04-08 2.0

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

| *NOTES* | **Conditions for detecting the fault:**
This fault cannot be diagnosed on a SIRIUS 34 VDIAG 08 computer 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 diagnostic to stored faults.:**
The fault is declared present with: **the engine running at a speed of > 3000 rpm.** |

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

	Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between:
	    Computer **track 38** ⟶ **Coolant temperature overheat warning**
	                        light on instrument panel
	Repair if necessary.

	Check **the condition of the warning light** (if it is not lit). Change it if necessary.

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

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

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

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after the ignition is switched on or the **AC 262** command is run. Downstream oxygen sensor heater
	Special notes: Status **ET031** Downstream sensor heating can help with the treatment of this fault.

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

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

Connect the bornier 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.

Check the **resistance** of the upstream oxygen sensor heating circuit.
Change the sensor if the resistance is not approximately **3.4 Ohms at 20**°C.

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

DF044 **PRESENT** **OR** **STORED**	<u>IMMOBILISER CIRCUIT</u> 17-229

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic 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 connections and multiplex** **connections.** Statuses **ET002 Engine immobiliser** and **ET099 Immobiliser code programmed** **can help with the treatment of this fault.**

Wire **connection**	Connect the bornier 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 possible faults. Clear the fault memory.

SIRIUS 34 E5 V04-08 2.0

| **DF045**
PRESENT
OR
STORED | MANIFOLD PRESSURE SENSOR CIRCUIT

DEF : pressure sensor fault
1.DEF : inconsistency between the calculated pressure and the true pressure. |

	Processing priority in event of stacked faults: First sensor reference voltage fault **DF 258** should be dealt with first.
NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the engine has been running.
	Special notes: Parameter **PR016 atmospheric pressure** can help with the treatment of this fault.

Check the **connection and condition** of the pressure sensor connector.
Change 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 15 ⟶ **pressure sensor**
       Computer track 78 ⟶ **pressure sensor**
       Computer track 16 ⟶ **pressure sensor**
Repair if necessary.

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

If the fault persists, **change** the pressure sensor.

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

| **DF052**
PRESENT
OR
STORED | <u>CYLINDER INJECTOR CIRCUIT 1</u>

CO   : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

| *NOTES* | **Processing priority in event of stacked faults:**
Actuator relay circuit fault **DF 009** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present with the engine 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 injector 1 connector.
Change the connector if necessary.

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

Check the **insulation, the continuity and absence of interference resistance** on the connection between:
       Injection computer **track 59** ——▶ **Track 2** injector 1
Repair if necessary.

Check the **injector 1 resistance.**
Change the injector if the resistance is not approximately **14.5 Ohms at 20˚C.**

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

SIRIUS 34 E5 V04-08 2.0

DF052 **PRESENT** **OR** **STORED**	CYLINDER INJECTOR CIRCUIT 2 CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present with the engine 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 injector 2 connector.
Change the connector if necessary.

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

Check the **insulation, the continuity and absence of interference resistance** on the connection between:
     Injection computer **track 90** ⟶ **Track 2** injector 2
Repair if necessary.

Check the **resistance of injector 2**.
Change the injector if the resistance is not approximately **14.5 Ohms at 20˚C.**

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

DF054 **PRESENT** **OR** **STORED**	CYLINDER INJECTOR CIRCUIT 3 CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present with the engine 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 injector 3 connector.
Change the connector if necessary.

With the **ignition on, check for the presence of + 12 volts 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.

Check the **resistance of injector 3**.
Change the injector if the resistance is not approximately **14.5 Ohms at 20˚C.**

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

| **DF055**
PRESENT
OR
STORED | <u>CYLINDER INJECTOR CIRCUIT 4</u>

CO   : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

| *NOTES* | **Processing priority in event of stacked faults:**
Actuator relay circuit fault **DF 009** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present with the engine running.
If the fault becomes present with CO, CC0 or CC1, carry out this fault finding strategy. |

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

With the **ignition on, check for the presence of + 12 volts 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.

Check the **resistance of injector 4**.
Change the injector if the resistance is not approximately **14.5 Ohms at 20˚C.**

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

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

| *NOTES* | **Conditions for applying the diagnostic to stored faults.:** The fault is declared present following: richness regulation loop closed 1: Status **(ET037: ACTIVE).** The fault is only stored if the computer has taken into account the richness correction value invested during the present fault: parameter **PR035 fixed at 128.** |
| | **Special notes:** Two fittings are possible: three-wire sensor and single-wire sensor. |

Three-wire sensor	Check the **connection and condition of the oxygen sensor connector**. Change 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 80** ⟶ Oxygen sensor Computer **track 45** ⟶ Oxygen sensor Repair if necessary.
	If the incident persists, **replace** the oxygen sensor.

Single-wire sensor	Check the **connection and condition of the oxygen sensor connector**. Change the connector if necessary.
	Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance** on the connection between: Computer **track 45** ⟶ Oxygen sensor Repair if necessary.
	If the incident persists, **replace** the oxygen sensor.

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

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| **DF056**
PRESENT
OR
STORED | <u>DOWNSTREAM OXYGEN SENSOR CIRCUIT</u> |

| *NOTES* | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present following: double loop active. |

Check the **connection and condition of the oxygen sensor connector**.
Change 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 76** ━━━━▶ Oxygen sensor
      Computer **track 44** ━━━━▶ Oxygen sensor
Repair if necessary.

If the incident persists, **replace** the oxygen sensor.

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

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| **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 volts |

| *NOTES* | **Processing priority in event of stacked faults:**
fuel pump control relay circuit fault **DF 008** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present with the engine 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 coil 1 and 4 connectors.
Replace the connector(s) if necessary.

With the **ignition on, check for the presence of +12 volts on track 1 of the coil 1 connector.**.

Check the **insulation, the continuity and absence of interference resistance** on the connection between:
          coil 1 **track 2** ⟶ **Track 1** coil 4
Repair if necessary.

Check the **insulation, continuity and 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.**
Change the coil(s) if their primary circuit resistance is not approximately **0.5 Ohms** and their secondary circuit resistance is not approximately **10.7 Kohms.**

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

DF062 **PRESENT** **OR** **STORED**	IGNITION COIL 2-3 CIRCUIT CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Processing priority in event of stacked faults:** fuel pump control relay circuit fault **DF 008** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present with the engine 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 coil 2 and 3 connectors.
Replace the connector(s) if necessary.

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

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

        coil 2 **track 2**   ⟶   **Track 1** coil 3

Repair if necessary.

Check the **insulation, continuity and 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.

Check the **resistance of coils 2 and 3.**
Change the coil(s) if their primary circuit resistance is not approximately **0.5 Ohms** and their secondary circuit resistance is not approximately **10.7 Kohms.**

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

DF063 **PRESENT** **OR** **STORED**	<u>CAMSHAFT SHIFTER</u> CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF 009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present with the engine running according to certain special conditions (coolant temperature, pressure, speed) or when actuator command **AC491** camshaft shifter is entered. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.
	Special notes: Status **ET026 camshaft shifter**) can help with the treatment of this fault.

Check the **connection and condition of the camshaft shifter solenoid valve connector**.
Change the connector if necessary.

With the ignition on, check for the presence of **12 volts on the camshaft shifter solenoid valve.**
Repair if necessary.

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

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

Repair if necessary.

Check the **resistance of the camshaft shifter solenoid valve.**
Change the solenoid valve if the resistance is not approximately **7.2 Ohms at 20°C.**

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

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DF082 **PRESENT** **OR** **STORED**	CONNECTION BETWEEN PETROL ←⎯⎯→ LPG

NOTES	None.

Do not take account of this fault because it is not active on this vehicle.

AFTER REPAIR	None.

SIRIUS 34 E5 V04-08 2.0

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 whilst driving

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after a test to detect a malfunction causing the HC emissions **to exceed the EOBD threshold**. This test can only be performed once during a road test under the following conditions: Vehicle speed between 40 and 80 mph (63 and 130 km/h) and engine speed between 1800 and 4000 rpm.

Check for **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.
Change the connector if necessary.

With the ignition on, check for the presence of **+ 12 volts on track A of the upstream oxygen sensor.**
Repair 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:

  Computer track 65 ⟶ Oxygen sensor
  Computer track 45 ⟶ Oxygen sensor
  Computer track 80 ⟶ Oxygen sensor
Repair if necessary.

Check the **heating resistance** of the upstream oxygen sensor.
Change the oxygen sensor if necessary.

AFTER REPAIR	Ensure that all the faults have been processed. Erase the stored faults. It is not necessary to erase the programming. Checking the correct state of repair of the system entails: – - There should be no further 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.

SIRIUS 34 E5 V04-08 2.0

DF106 **PRESENT** **OR** **STORED**	CATALYTIC CONVERTER OPERATING FAULT OBD : OBD fault (On Board Diagnostic) 1.OBD: OBD fault present 2.OBD: OBD fault detected whilst driving

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after a test to detect a malfunction causing the HC emissions **to exceed the EOBD threshold**. Perform this test under the following conditions: Vehicle speed between 40 and 80 mph (63 and 130 km/h) and engine speed between 1800 and 4000 rpm.

Check for **air leaks on the exhaust system.**
Repair if necessary.

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

Visually check for signs of thermic shock. A warm catalytic converter may be damaged if it comes into contact with cold water.

Ensure absence of excessive consumption of oil or coolant.
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 found, you can change the catalytic converter. If you change the catalytic converter without finding the cause, the new catalytic converter could quickly be damaged.

AFTER REPAIR	Ensure that all the faults have been dealt with. Erase the stored faults. It is not necessary to erase the programming. Checking the correct state of repair of the system entails: – There should be no further 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 whilst driving

NOTES	**ET093** Misfire on cylinder 1 **ET094** Misfire on cylinder 2 **ET095** Misfire on cylinder 3 **ET096** Misfire on cylinder 4 Give information on the nature and location of the fault.

One cylinder is declared faulty - **ET093** or **ET094** or **ET095** or **ET096**	This means that the problem is probably due to a component which can only act on this cylinder: – Problem on the injector. – Problem on the spark plug. – Problem on the coil. – Engine compression problem.

Cylinders 1 and 4 or cylinders 2 and 3 declared faulty **ET093** and **ET096** or **ET094** and **ET095**	This means that the problem is probably due to a component which can only act on this pair of cylinders: – Problem on the coil on the high voltage side. – Problem on the coil on the control side. – Engine compression problem.

Four cylinders declared faulty - **ET093** and **ET094** and **ET095** and **ET096**	This means that the problem is probably due to a component which can only act on all the cylinders: – Petrol filter problem. – fuel pump problem. – Petrol type problem... – Engine compression problem.

AFTER REPAIR	Ensure that all the faults have been dealt with. Erase the stored faults. It is not necessary to erase the programming. Checking the correct state of repair of the system entails: – There should be no further electrical faults. – The engine should be warm. – Establish idling speed with all electrical users engaged for 15 minutes. If the fault resurfaces, continue the fault finding procedure.

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

NOTES	**ET093** Misfire on cylinder 1 **ET094** Misfire on cylinder 2 **ET095** Misfire on cylinder 3 **ET096** Misfire on cylinder 4 Give information on the nature and location of the fault.

One cylinder is declared faulty - **ET093** or **ET094** or **ET095** or **ET096**	This means that the problem is probably due to a component which can only act on this cylinder: – Problem on the injector. – Problem on the spark plug. – Problem on the coil.

Cylinders 1 and 4 or cylinders 2 and 3 declared faulty **ET093** and **ET096** or **ET095** and **ET095**	This means that the problem is probably due to a component which can only act on this pair of cylinders: – Problem on the coil on the high voltage side. – Problem on the coil on the control side.

Four cylinders declared faulty - **ET093** and **ET094** and **ET095** and **ET096**	This means that the problem is probably due to a component which can only act on all the cylinders: – Petrol filter problem. – fuel pump problem. – Petrol type problem...

AFTER REPAIR	Ensure that all the faults have been dealt with. Erase the stored faults. It is not necessary to erase the programming. Checking the correct state of repair of the system entails: – There should be no further electrical faults. – The engine should be warm. – Establish idling speed with all electrical users engaged for 15 minutes. If the fault resurfaces, continue the fault finding procedure.

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DF118 **PRESENT** **OR** **STORED**	COOLANT PRESSURE SENSOR CIRCUIT 17-245

NOTES	**Processing priority in event of stacked faults:** First sensor reference voltage fault **DF 258** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after the ignition has been switched on.
	Special notes: Parameter **PR027** coolant pressure can help with the treatment of this fault.

Check the **connection and condition of the air conditioning sensor connector.**
Change 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:

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

Repair if necessary.

Check **the resistance of the air conditioning pressure sensor.**
Replace the sensor if necessary.

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

| **DF125 PRESENT OR STORED** | PEDAL POTENTIOMETER TRACK 1 CIRCUIT |

| **NOTES** | **Processing priority in event of stacked faults:** Second sensor reference voltage fault **DF 152** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on. |

Check the **connection and condition** of the pedal potentiometer connector.
Change 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 14 ⟶ **Pedal potentiometer track 1**
Computer track 6 ⟶ **Pedal potentiometer track 1**
Computer track 75 ⟶ **Pedal potentiometer track 1**

Repair if necessary.

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

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

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

	Processing priority in event of stacked faults: First sensor reference voltage fault **DF 258** should be dealt with first.
NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on.

Check the **connection and condition** of the pedal potentiometer connector.
Change 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 43** ⟶ **Pedal potentiometer circuit track 2**
> **Computer track 71** ⟶ **Pedal potentiometer circuit track 2**
> **Computer track 87** ⟶ **Pedal potentiometer circuit track 2**

Repair if necessary.

Check the **resistance of pedal position potentiometer** track 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Check the **resistance of the potentiometer in various positions.**
Change the pedal potentiometer if necessary.

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

DF129 **PRESENT**	PEDAL-POTENTIOMETER CIRCUIT 1.DEF : inconsistency between pedal track 1 and track 2 2.DEF : pedal potentiometer fault

NOTES	**Processing priority in event of stacked faults:** Second sensor reference voltage fault **DF 152** and First sensor reference voltage fault **DF 258** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after the ignition has been switched on. OR The fault is declared present during smooth transition of the pedal potentiometer from no load to full load.

Check the **connection and condition** of the pedal potentiometer connector.
Change 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 14	⟶	**Pedal potentiometer**
Computer track 6	⟶	**Pedal potentiometer**
Computer track 75	⟶	**Pedal potentiometer**
Computer track 43	⟶	**Pedal potentiometer**
Computer track 71	⟶	**Pedal potentiometer**
Computer track 87	⟶	**Pedal potentiometer**

Repair if necessary.

Check 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 tracks 1 and 2 must be less than 0.52 volts.**
Check that the pedal is operating the potentiometers correctly.
Change 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 possible faults. Clear the fault memory.

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

17-249 |

| **NOTES** | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present after the ignition has been switched on for > 20 seconds. |
| | **Special notes:**
Status **ET 132** brake pedal depressed can help with the treatment of this fault. |

Check **the connection and condition** of the brake pedal sensor connector.
Change 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 53** ⟶ **Brake-pedal contact**
> **Computer track 52** ⟶ **Brake-pedal contact**

Repair if necessary.

If the fault persists, **replace** the brake pedal switch.

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

| **DF138**
PRESENT
OR
STORED | THERMOPLUNGER 1 RELAY CONTROL
CO   : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

NOTES	**Processing priority in event of stacked faults:** Fuel pump control relay circuit fault **DF009**, air temperature sensor circuit fault **DF003** and coolant temperature sensor circuit fault **DF004** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after switching on the ignition or entering command **AC002** Thermoplunger relay no. 1.

Check the connector on the No.1 thermoplunger relay **proper mating** and its general condition.
Change the connector if necessary.

Check the presence **of the + 12 volt after-ignition on track 1** of the No.1 thermoplunger relay.
Repair the line up to the fuse if necessary.

Check the insulation and continuity of the connection between:
      Injection computer track 34   ⟶   Thermoplunger no. 1 relay

Check the **coil of the** No.1 thermoplunger relay.
Change the relay if necessary.

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

| **DF139**
PRESENT
OR
STORED | THERMOPLUNGER 2 RELAY CONTROL

CO   : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

| *NOTES* | **Processing priority in event of stacked faults:**
Fuel pump control relay circuit fault **DF 009**, air temperature sensor circuit fault **DF003** and coolant temperature sensor circuit fault **DF004** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present after switching on the ignition or entering command **AC620** Thermoplunger relay no. 2. |

Check **the connection and condition** of the thermoplunger no. 2 relay connector.
Change the connector if necessary.

Check for the presence **+ 12 volts after ignition on track 1** of the thermoplunger no. 2 relay.
Repair the line up to the fuse if necessary.

Check the insulation and continuity of the connection between:
      Injection computer track 4 ——▶ **Thermoplunger relay no. 2**

Check the **coil of the** No.2 thermoplunger relay.
Change the relay if necessary.

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

SIRIUS 34 E5 V04-08 2.0

DF0152 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	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on. If the fault becomes present with 1.DEF, carry out this fault finding strategy.

1.DEF	This fault indicates an **internal computer fault; replace the computer.**

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

SIRIUS 34 E5 V04-08 2.0

| **DF170**
PRESENT
OR
STORED | <u>CONNECTION BETWEEN AUTOMATIC TRANSMISSION</u>
<u>AND ←——→ INJECTION</u> |

| **NOTES** | **Processing priority in event of stacked faults:**
The fault on the air temperature sensor circuit - DF003 - should to be processed first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present after the engine has been running at idle speed for > 3 seconds. |

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

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

SIRIUS 34 E5 V04-08 2.0

	ENGINE-FLYWHEEL TARGET
DF189 **PRESENT** **OR** **STORED**	CO : open circuit CC.0 : short circuit to earth CC.1 : short circuit to 12 volts

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present following a delay of at least 10 seconds with the engine running at a speed of > 600 rpm.
	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 development of the manifold pressure.**
If the engine has actually stopped, the manifold pressure is stable; if not, the flywheel target fault is displayed.

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

Check the **resistance** of the speed sensor.
Change the engine speed sensor if the resistance is not between **200 and 270 Ohms.**

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

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

SIRIUS 34 E5 V04-08 2.0

DF226 **PRESENT**	PROGRAMMING throttle-VALVE STOPS 17-255

NOTES	**Processing priority in event of stacked faults:** Coolant temperature sensor circuit fault **DF003** and air temperature sensor circuit fault **DF004** 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 valve stop programming values** in its memory.
The fault is declared present after **the throttle body has been replaced or the computer has been reprogrammed or replaced.**

Switch on the ignition and wait at least 5 seconds without starting the engine; **the throttle valve stops are programmed automatically.**

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

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

| **DF228**
PRESENT | AIR CONDITIONING COMPRESSOR CONTROL
CO : open circuit
CC.0 : short circuit to earth
CC.1 : short circuit to 12 volts |

| *NOTES* | **The fault is declared present:** on switching on the ignition or when the **AC003** command is run. Heating and ventilation compressor |
| | **Special notes:**
Status **ET070 air conditioning compressor** can help with the treatment of this fault. |

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

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

Repair if necessary.

Check the **connection and condition of the air conditioning compressor connector.**
Change the connector if necessary.

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

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

Repair if necessary.

If the problem has still not been solved, deal with the other faults and then proceed to the conformity check.

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

SIRIUS 34 E5 V04-08 2.0

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 diagnostic 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 switch connector. Change 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 53** ⟶ **Brake-pedal contact** 　　　　　**Computer track 52** ⟶ **Brake-pedal contact** Repair if necessary.
	If the fault persists, **replace** the brake pedal switch.

3.DEF	Check **the connection and condition** of the cruise control/speed limiter switches on the steering wheel controls. Change 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: 　　**Injection computer track 58** ⟶ **Steering wheel switch** 　　**Injection computer track 77** ⟶ **Steering wheel switch** Repair if necessary.
	Check the reliability of the steering wheel controls. Replace the switch(es) if necessary.

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

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| **DF235**
PRESENT
OR
STORED | <u>CONTINUED</u> |

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

| **4.DEF** | Check **the connection and condition** of the cruise control/speed limiter switches on the steering wheel controls.
Change 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:

Injection computer track 23 ⟶ **Cruise-control/speed limiter ON/OFF switch**

Injection computer track 49 ⟶ **Cruise-control/speed limiter ON/OFF switch**

Repair if necessary.

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

| **5.DEF** | <u>**With the engine running and engine speed > at 800 rpm**</u>:
Test the multiplex network (for vehicles fitted with this option). |

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

| **DF236**
PRESENT
OR
STORED | + AFTER RELAY FEED |

| **NOTES** | **Processing priority in event of stacked faults:**
Actuator relay circuit fault **DF009** should be dealt with first. |
| | **Conditions for applying the diagnostic to stored faults.:**
The fault is declared present after the ignition has been switched on. |

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

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

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

Check the **insulation, the continuity and absence of interference resistance** on the connection between:
      Injection computer track 66 ⟶ **Actuator relay track 5**
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.
Change the relay if necessary.

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

SIRIUS 34 E5 V04-08 2.0

| **DF251**
STORED | <u>+ AFTER IGNITION SUPPLY</u> |

| *NOTES* | **Conditions for applying the diagnostic 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** between:

      Injection computer track 29 ⟶ **vehicle earth**

Repair the line if necessary.

<u>**With the ignition on**</u>:
Check for the presence of **12 volts** on **track 29 of the injection computer.**
Repair the line if necessary.

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

SIRIUS 34 E5 V04-08 2.0

DF253 **PRESENT** **OR** **STORED**	<u>ENGINE EARTH</u>

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on.

In the event of **the single-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 bornier in place of the computer; **check the insulation, continuity and absence of interference resistance** on the connection between:

     Computer **track 44** ⟶ **Vehicle earth**

Repair if necessary.

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

SIRIUS 34 E5 V04-08 2.0

| **DF254** **PRESENT** **OR** **STORED** | MOTORISED THROTTLE BODY CONTROL
1.DEF : internal fault on the throttle body unit or the computer: faulty microprocessor |

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF009** and fault **DF236** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present after the ignition has been switched on.
	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.

Check the **connection and condition** of the throttle body unit connector.
Change 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 61** ⟶ Throttle potentiometer
Computer **track 62** ⟶ Throttle potentiometer

Repair if necessary.

If the fault persists, **replace** the motorised throttle body unit.
Then program the throttle valve stops: Switch on the ignition and wait at least 5 seconds without starting the engine: the throttle valve stops are 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.

| **1.DEF** | This fault indicates an **internal computer fault; replace the computer**. |

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

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

NOTES	**Processing priority in event of stacked faults:** Second sensor reference voltage fault **DF 152** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: **For this fault to be present it is necessary to have selected the highest ratio and carried out two clear "acceleration/deceleration" sequences**. 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 system (DF002, DF226, DF254). – The cruise control or speed limiter is active.
	Special notes: **The only way of clearing the fault stored is to use the "reinitialisation of the programming" service.**

Check the **connection and condition** of the pedal potentiometer connector.
Change 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 14	➤	Pedal potentiometer
Computer track 6	➤	Pedal potentiometer
Computer track 75	➤	Pedal potentiometer
Computer track 43	➤	Pedal potentiometer
Computer track 71	➤	Pedal potentiometer
Computer track 87	➤	Pedal potentiometer

Repair if necessary.

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

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

SIRIUS 34 E5 V04-08 2.0

DF255 PRESENT OR STORED	<u>CONTINUED</u>

Check the **connection and condition** of the throttle potentiometer connector.
Change 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
Computer **track 17** ⟶ **Track 2** Throttle potentiometer

Repair if necessary.

Check the **resistance of throttle potentiometer** track 2 (the resistance is **zero or equal to infinity** in the event of a straight failure).
Change the throttle potentiometer if the resistance is not approximately **1Kohms +/- 25%.**

If the problem is still not resolved, the computer needs to be reprogrammed.
Then program the throttle valve stops: Switch on the ignition and wait at least 5 seconds without starting the engine: the throttle valve stops are 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.

REPROGRAMMING THE COMPUTERS:
Reprogramming conditions:
– Ignition on.
– Engine stopped
– Computer not protected
Important recommendation following reprogramming:
During the reprogramming of a computer, it does not transmit any information on the multiplex network (it is "mute"). Therefore all the computers connected to the multiplex network detecting the information generated by 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.

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

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

NOTES	**Conditions for applying the diagnostic to stored faults.:** The fault is declared present after the ignition has been switched on. If the fault becomes present with 1.DEF, carry out this fault finding strategy.

1.DEF	This fault indicates an **internal computer fault;** replace the computer.

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

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

NOTES	**Processing priority in event of stacked faults:** Actuator relay circuit fault **DF009** should be dealt with first.
	Conditions for applying the diagnostic to stored faults.: The fault is declared present when the ignition is switched on and the battery voltage exceeds 10 volts. If the fault becomes present with CO, CC.0 or CC.1, carry out this fault finding strategy.
	Special notes: **Disregard this fault only on engine F4R 736 (Renault Sport).** The command is active if the vehicle is in 2nd gear at a speed < 4800 rpm or in the 3rd gear at a speed < 3260 rpm, if the vehicle speed is less than 120 Km/h, and if no fault is detected on the vehicle speed. **If the fault is present with CC.1** (short circuit to 12 volts) it is not detected unless the bi-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 bi-mode stop valve is not activated (valve open).

Check the **connection and condition of the bi-mode stop valve connector**.
Change the connector if necessary.

With the **ignition on, check for the presence of +12 volts on track 2 of the bi-mode stop valve connector.**

Check the **insulation, the continuity and absence of interference resistance** on the connection between:
     Injection computer **track 63** ⟶ **Track 1** bi-mode stop valve
Repair if necessary.

Check **the electrical resistance** of the bi-mode stop valve.
If the resistance is not about **45 ohms, replace the bi-mode stop valve.**

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

SIRIUS 34 E5 V04-08 2.0

| 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. **Conditions of application: engine stopped, ignition on.** |

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
1	+ after ignition	**ET001:** + after ignition computer	ACTIVE	**If there is a problem:** check the charge circuit.
		PR004: computer supply voltage	11 < X < 14 volts	
2	Immobiliser	**ET002:** engine immobiliser	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	**In the event of a problem:** Consult fault finding procedure **ET264**.
4	Pressure sensor	**PR016:** atmospheric pressure	X = atmospheric pressure ± 10%	**In the event of a problem:** Perform the manifold pressure sensor circuit fault finding procedure (**DF045**)
		PR001: manifold pressure	X = atmospheric pressure ± 10%	
5	Accelerator pedal (released)	**ET129:** accelerator pedal no load	ACTIVE	**In the event of a problem:** Perform the **fault finding procedure for** the following faults: potentiometer pedal circuit track 1, potentiometer pedal circuit track 2 and potentiometer pedal circuit **(DF125, DF126 and DF129)**
		ET128: accelerator pedal Full load	INACTIVE	
		PR203: pedal travel	X < 20%	
		PR206: pedal position track 1	X < 20%	
		PR207: pedal position track 2	X < 20%	
6	Throttle body (accelerator pedal released)	**ET118:** motorised throttle valve in defect mode	NO	**In the event of a problem:** Consult fault finding procedure **ET118**.

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. **Conditions of application: engine stopped, ignition on.**	

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
6 (con-tinued)	Throttle body (accelerator pedal released)	**ET003:** throttle position no load	ACTIVE	**In the event of a problem**: Perform the **fault finding procedures** for the following faults: throttle potentiometer circuit and throttle valve stop programming **(DF002 and DF226)**
		ET005: throttle position: full load	INACTIVE	
		PR017: measured throttle position	X = throttle body position specifications ± 10 %	
		PR113: motorised throttle body position specifications	X < 20%	
		PR110: measured throttle position track 1	X < 20%	
		PR111: measured throttle position track 2	X < 3%	
		PR198: minimum stop position programmed track 1	X = position in % of minimum stop programmed track 1 for a throttle body, MGI make or X = value of the limp-home position for a throttle body, make VDO	
		PR199 maximum stop position programmed track 1	X = position in % of maximum stop programmed track 1 for a throttle body, MGI make or X = value of the limp-home position for a throttle body, make VDO	

	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. **Conditions of application: engine stopped, ignition on.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
6 (con- tinued)	Throttle body (accelerator pedal released)	**PR200:** minimum stop position programmed track 2	X = position in % of minimum stop programmed track 2 for a throttle body, MGI make or X = value of the limp-home position for a throttle body, make VDO	**In the event of a problem**: Perform the **fault finding procedures** for the following faults: throttle potentiometer circuit and throttle valve stop programming **(DF002 and DF226)**
		PR201: maximum stop position programmed track 2	X = position in % of maximum stop programmed track 2 for a throttle body, MGI make or X = value of the limp-home position for a throttle body, make VDO	
7	Upstream oxygen sensor	**ET030:** upstream sensor heating	INACTIVE	**In the event of a problem**: Perform **the fault finding procedures**for the upstream oxygen sensor heating circuit and upstream oxygen sensor circuit **(DF018 and DF057)**
		ET037: mixture control	INACTIVE	
		PR009: upstream oxygen sensor voltage	Value fixed at approximately 400 mvolts	
		PR035: richness correction value	Approximately 128	
8	Downstream oxygen sensor	**ET031:** downstream sensor heating	INACTIVE	**If there is a problem**: apply the **diagnostic procedure** for the following faults: downstream sensor input signal and downstream oxygen sensor heater circuit **(DF038 and DF058)**
		PR010: downstream oxygen sensor voltage	Value fixed at approximately 400 mvolts	
9	Brake pedal (released)	**ET032:** brake pedal pressed	INACTIVE	**In the event of a problem**: Perform the brake pedal circuit **fault finding procedure (DF135**)
		ET143: redundant brake pedal	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. **Conditions of application: engine stopped, ignition on.** |

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
10	Cruise control/ speed limiter	**Speed limiter ON/OFF switch 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.
		Speed limiter ON/OFF switch 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 Suspend switch on steering-wheel control pressed **ET192:** cruise-control/ speed limiter function	**STATUS 4:** Restart 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. **Conditions of application: engine stopped, ignition on.** |

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
10 (con- tinued)	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:** apply the **fault finding procedure** for the **cruise control / speed limiter (DF235)** fault and consult the wiring diagram of the vehicle concerned.
11	Clutch pedal	**Clutch pedal released** **ET182:** clutch pedal switch _ _ _ _ _ _ _ _ _ _ _ _ _ **Clutch pedal pressed** **ET182:** clutch pedal switch	**INACTIVE:** Only on vehicles equipped with cruise control / speed limiter _ _ _ _ _ _ _ _ _ _ _ _ _ **ACTIVE:** On vehicles not equipped with cruise control / speed limiter this status does not change	**IN the event of a problem consult the wiring diagram for the vehicle concerned**

	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. **Conditions of application: 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	You should hear the fuel pump operating	**In the event of a problem:** consult fault finding procedure **AC010**.
9	Air conditioning compressor	**AC003:** air conditioning compressor	You should hear the air conditioning clutch compressor engage	**In the event of a problem:** perform **fault finding procedure DF228**
10	Canister bleed solenoid valve	**AC016:** canister bleed solenoid valve	The canister bleed solenoid valve should operate	**In the event of a problem:** perform the Canister bleed solenoid valve circuit fault finding procedure (**DF014**)
11	Camshaft shifter	**AC491:** camshaft shifter	The camshaft shifter should operate	**In the event of a problem:** perform the camshaft shifter fault finding procedure (**DF063**)
12	Motorised throttle body	**AC621:** motorised throttle body	The motorised throttle body should operate	**In the event of a problem:** perform the Motorised throttle body fault finding procedure (**DF254**)
13	low speed fan assembly	**AC626:** low speed fan assembly	You should hear the fan running at low speed	**In the event of a problem:** consult fault finding strategy **AC626**
14	High speed fan assembly	**AC625:** High speed fan assembly	You should hear the fan running at high speed	**In the event of a problem:** consult fault finding strategy **AC625**
15	Thermoplunger relay no. 1	**AC002:** thermoplunger relay no. 1	You should hear the thermoplunger no. 1 relay engage	**In the event of a problem:** consult fault finding strategy **AC002**
16	Thermoplunger relay no. 2	**AC620:** thermoplunger relay no. 2	You should hear the relays on thermoplungers nos. 2 and 3 engage	**In the event of a problem:** consult fault finding strategy **AC620**
17	Bi-mode intake solenoid valve	**AC002:** bi-mode intake solenoid valve	The bi-mode intake solenoid valve should be heard operating	**In the event of a problem:** perform the bi-mode intake solenoid valve circuit fault finding procedure (**DF308**).

	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. **Application conditions: engine warm at idling speed, without electrical users.**

Order	Function	Parameter or status Check or action	Display and notes	Fault finding
1	Pressure sensor	**PR016:** atmospheric pressure **PR001:** manifold pressure	X = atmospheric pressure ± 10% X< 500 mbars	**In the event of a problem:** Perform the manifold pressure sensor circuit fault finding procedure (**DF045**)
2	Idle speed	**PR006:** idle speed **PR041:** engine idling speed reference. **ET039:** idle speed regulation	X = Idle speed specifications ± 50 rpm 730 < X < 780 rpm ACTIVE	**None.**
3	Power assisted steering pressure switch	**ET067:** power assisted steering pressostat connection **ET034:** power assisted steering pressostat	ACTIVE ACTIVE if steering wheel is moved	**None.**
4	Richness regulation	**ET037:** mixture control **PR009:** upstream oxygen sensor voltage **PR010:** downstream oxygen sensor voltage **PR035:** richness correction value	ACTIVE 50 < X < 800 mV The value should be as stable as possible The value should be in the region of 128	**In the event of a problem, perform the**Upstream oxygen sensor circuit and the Downstream oxygen sensor circuit **fault finding procedures (DF057 and DF058**)

	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. **Application conditions: engine warm at idling speed, without electrical users.**

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 **problem: apply the fault finding procedure** for faults "**DF012, DF118 et DF228**".
		ET016:	connection between injection ←→ AC	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	
6	Coolant temperature sensor	**PR002:**	coolant temperature	X = Engine temperature ± 5 °C - 40 < X < +120°C	In the event of a **problem: perform the fault finding procedure** on the coolant temperature sensor circuit (**DF004**)
7	Air temperature sensor	**PR003:**	air temperature	X = Engine temperature ± 5 °C - 40 < X < +120°C	In the event of a **problem, perform the fault finding procedure** on the air temperature sensor circuit (**DF003**)
8	Pinking sensor	**PR013:**	average pinking signal	The value should not be constant	In the event of a **problem,perform the Pinking sensor**circuit fault finding procedure (**DF006**)
		PR015:	pinking signal correction	X < 5	

	FUEL PUMP CONTROL RELAY
AC010	17-275

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

Check the **connection and condition of the petrol pump relay connector.**
Change the connector if necessary.

Disconnect the relay.
With the ignition on, check for the presence of **12 volts** on **track 3 of the petrol pump relay connector.**
Repair if necessary using the relevant **wiring diagram**.

Check the **insulation and continuity** of the connection between:
Petrol 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
Change the inertia impact sensor if necessary.

Check **the insulation and continuity** of the connections between:
Inertia impact sensor **track 3** ⟶ **Track C1** of the petrol pump
Petrol pump **track C2** ⟶ **Vehicle earth**
Repair if necessary.

If the fault persists, change the petrol pump.

AC626	<u>LOW SPEED FAN</u>

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

Check the **connection and condition of the connector to the low-speed fan relay.**
Change the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** 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 connections between:

> Low speed fan assembly relay track 5 ⟶ **Engine cooling fan 1**
> **Fan 1** ⟶ **Vehicle earth**

Repair if necessary.

Check that fan no. 1 is not seized and that the helix turns easily.
Replace fan no. 1 if necessary.

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

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AC625	<u>HIGH SPEED FAN</u>

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**.
Change the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** 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 connections between:

    High speed fan assembly relay track 5 ⟶ **Engine cooling fan 2**
    Fan 2 ⟶ **Vehicle earth**

Repair if necessary.

Check that fan no. 2 is not seized and that the helix turns easily.
Replace fan no. 2 if necessary.

CONDITIONS	**FAN 2 ACTIVE**
Air conditioning pressure > 24 bar	YES
Air conditioning pressure > 18 bar + vehicle speed > 20 km/h	YES
Coolant temperature with engine running > 102 ˚C	YES
Coolant temperature with engine running < 95 ˚C	NO

| **AC002** | <u>THERMOPLUNGER RELAY NO. 1</u>

17-278 |

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

Check the **connection and condition of the thermoplunger no. 1 relay**.
Change the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** on **track 3 of the thermoplunger no. 1 relay connector**.
Repair if necessary using the relevant **wiring diagram**.

Check **the insulation and continuity** of the connections between:
      Thermoplunger no. 1 relay track 5   ⟶   **Thermoplunger no. 1**
      Thermoplunger no. 1   ⟶   **Vehicle earth**
Repair if necessary.

Check the resistance of thermoplunger no. 1.
Replace thermoplunger no. 1 if necessary.

	THERMOPLUNGER RELAY NO. 2
AC620	17-279

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

Check **the connection and condition** of the thermoplunger no. 2 relay connector.
Change the connector if necessary.

Disconnect the relay.
Check for the presence of **+ 12 volts** on **track 3 of the thermoplunger no. 2 relay connector**.
Repair if necessary using the relevant **wiring diagram**.

Check **the insulation and continuity** of the connections between:
　　　　Thermoplunger no. 2 relay track 5　⟶　**Thermoplungers nos. 2 and 3**
　　　　Thermoplungers nos. 2 and 3　⟶　**Vehicle earth**
Repair if necessary.

Check the resistance of thermoplungers nos. 2 and 3.
Replace thermoplunger no. 2 and/or 3 if necessary.

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	CLUTCH PEDAL SWITCH
ET182	

NOTES	There must be no faults present or stored.

On vehicles not equipped with the speed control function	There is no clutch pedal switch on vehicles not equipped with the speed control function. **Status ET182 "clutch pedal switch" still shows ACTIVE.**

On vehicles not equipped with the speed control function	On vehicles equipped with the speed control function There is a clutch pedal switch on vehicles equipped with the speed control 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, in the case of a problem with the clutch pedal switch, there is a strategy to detect racing of the engine speed; in this case the cruise control is automatically disconnected.
	Check **the cleanliness, connection and condition** of the clutch pedal switch connector. Change the connector if necessary.
	With the ignition on, check for the presence of **+ 12 volts** 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 **track 48** ⟶ **track A2** clutch pedal switch Repair if necessary.

	COMPUTER LOCKED FOLLOWING AN IMPACT
ET264	17-281

NOTES	There must be no faults present or stored.

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

Status 264 "computer locked following impact" changes to STATUS 1.

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

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

ET118	<u>MOTORISED CHOKE VALVE IN DEFECT MODE</u>

NOTES	There must be no faults present or stored.

NO	NORMAL MODE

STATUS 1	MOTORISED THROTTLE IN LIMP-HOME MODE: This defect mode is indicated by a constant engine speed for every gear ratio, whatever the position of the accelerator pedal. It is associated with: "DF002" Throttle potentiometer circuit, "DF226" Throttle stop programming, "DF254" Motorised throttle request or "DF255" Security of operation of throttle/pedal.

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

STATUS 3	PEDAL FAULT (loss of driver control): This defect mode is indicated by: no effect of pedal, fast idling and if the brake pedal is pressed the engine speed changes to idle speed. It is 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.

STATUS 4	REDUCTION OF ENGINE PERFORMANCE (limitation of performance): This defect mode is indicated by: Limitation of the vehicle speed, limitation of the command section of the throttle, limitation of the vehicle acceleration (slow increase in the command section of the throttle). It is associated with: "DF002" Throttle potentiometer circuit, "DF125" Pedal potentiometer circuit track 1, "DF126" Pedal potentiometer circuit track 2, "DF129" Pedal potentiometer circuit or "DF258" First sensor reference voltage.

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

NO COMMUNICATION WITH THE COMPUTER	CHART 1

STARTING PROBLEMS	CHART 2

IDLE SPEED FAULTS	CHART 3

PROBLEMS WHEN DRIVING	CHART 4

NO AIR CONDITIONING	CHART 5

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| **CHART 1** | **NO COMMUNICATION WITH THE COMPUTER** |

| *NOTES* | **None.** |

Try the fault finding tool on another vehicle.

Check:
– the connection between the fault finding tool and the diagnostic socket (lead in good condition),
– injection, engine and passenger compartment fuses.
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, the continuity and absence of spurious 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 Volts 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 ⟶ **diagnostic socket track 7**
Repair if necessary.

| *AFTER REPAIR* | Test using the fault finding tool. |

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| **CHART 2** | **STARTING PROBLEMS** |

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

- Check the condition of the battery.
- Check the tightness and oxidation 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 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 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.

↓

- Make sure that the air filter is in good condition; change it if necessary.
- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Disconnect the pipe that links the canister bleed solenoid valve to the intake manifold and plug it so that no air can escape. If the disturbance stops, the canister bleed is at fault.

↓

- 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 turns freely.
- Check the engine compression
- Check the timing.

| *AFTER REPAIR* | Test using the fault finding tool. |

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| **CHART 3** | **IDLE SPEED PROBLEMS** |

| *NOTES* | **This customer complaint should only be investigated after a complete check has been run using the fault finding 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 that the petrol pressure regulator is in good condition by checking the pressure.

↓

● Make sure that the air filter is in good condition; change it if necessary.
● Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
● Disconnect the pipe that links the canister bleed solenoid valve to the intake manifold and plug it so that no air can escape. If the disturbance stops, the canister bleed is at fault.

↓

● Check that the spark plugs are in good condition and that they correspond to the engine type; change them if necessary.
● Make sure that the ignition coils are in good condition.

↓

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

↓

● Check on the dipstick that the oil level is not too high.
● Check the engine compression
● Check the timing.

| *AFTER REPAIR* | Test using the fault finding tool. |

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CHART 4	**PROBLEMS WHEN DRIVING**

NOTES	**This customer complaint should only be investigated after a complete check has been run using the fault finding 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 that the petrol pressure regulator is in good condition by checking the pressure.

↓

- Make sure that the air filter is in good condition; change it if necessary.
- Check the condition of the intake ducts (no air leaks, pinching of the air intake pipe etc.).
- Disconnect the pipe that links the canister bleed solenoid valve to the intake manifold and plug it so that no air can escape. If the disturbance stops, the canister bleed is at fault.

↓

- Check that the spark plugs are in good condition and that they correspond to the engine type; change them if necessary.
- 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 on 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 fault finding tool.

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CHART 5	**NO AIR CONDITIONING**

NOTES	**This customer complaint should only be investigated after a complete check has been run using the fault finding 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.** Change 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: **Injection computer track 79** ⟶ **Coolant pressure sensor** **Injection computer track 83** ⟶ **Coolant pressure sensor** **Injection computer track 47** ⟶ **Coolant pressure sensor** Repair if necessary.
	Check **the resistance of the air conditioning pressure sensor.** Replace the sensor if necessary.

NO	Check the **connection and condition of the air conditioning compressor connector.** Change the connector if necessary.
	Connect the bornier in place of the computer and check the **insulation, continuity and absence of interference resistance on the connection between:** **Injection computer track 39** ⟶ **Air conditioning compressor** Repair if necessary.
	Check **that the air conditioning compressor clutch is engaging properly** by entering command **AC003** (air conditioning compressor) in the fault finding tool. Repair if necessary.

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

AFTER REPAIR	Test using the fault finding tool.

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