Clio

1 Engine and peripherals

17B PETROL INJECTION

INJECTION SIM 32 / SIM 321
Program No.: D4
Vdiag No.: 04, 08

V2

Edition Anglaise

1. SCOPE OF THIS DOCUMENT

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

Vehicle (s): **LOGAN, SANDERO, THALIA 2 / SYMBOL 2, CLIO II F6**
Function concerned: **Petrol injection**
Engine concerned: **D4D 760 HI-FLEX** **D4F 728, 732, 736** **D4F 734 LPG**

Computer name: **SIEMENS SIM 32 - SIM 321**
Program No.: **D4**
Vdiag No.: **04 08**
LPG system fault finding is dealt with fully in **Technical Note 6521**

2. PREREQUISITES FOR FAULT FINDING

Documentation type:
   Fault finding procedures (this manual):
      – Assisted fault finding (integrated into the diagnostic tool), Dialogys.
   Wiring Diagrams:
      – Visu-Schéma (CD-ROM), paper.

Type of diagnostic tools
      – CLIP + SENSOR

Special tooling required

Special tooling required	
Multimeter	
Elé. 1681	**Universal bornier**

3. REMINDERS

Procedure

To run fault finding on the vehicle computers, switch on the ignition.

Faults

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

The **present** or **stored** status of the faults should be considered when the diagnostic tool is switched on after the + after ignition feed is switched on (with no system components being active).

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

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

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

If the fault is **not confirmed**, check:
– the electrical lines which correspond to the fault,
– the connectors on these lines (corrosion, bent pins, etc.),
– the resistance of the faulty component,
– the condition of the wires (melted or split insulation, wear).

Conformity check

The aim of the conformity check is to check data that does not produce a fault on the diagnostic tool when the data is inconsistent. Therefore, this stage is used to:

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

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

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

Customer complaints - Fault finding chart

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

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

4. FAULT FINDING PROCEDURE

```
┌─────────────────────────────────┐
│ Perform a pre-diagnostic on the │
│            system               │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│ Print the system fault finding  │
│ log (available on CLIP and in   │
│ the Workshop Repair Manual or   │
│ Technical Note)                 │
└─────────────────────────────────┘
                │
                ▼
┌─────────────────────────────────┐
│          Connect CLIP           │◄───────────────────────┐
└─────────────────────────────────┘                        │
                │                                           │
                ▼                                           │
          ◇ Dialogue with ◇  ──── no ───►  ┌──────────────────────────┐
          ◇   computer?  ◇                 │       See ALP no. 1       │
                │                          └──────────────────────────┘
               yes
                │
                ▼
┌─────────────────────────────────┐
│         Read the faults         │──────────────────┐
└─────────────────────────────────┘      no          │
                │                                     │
                ▼                                     ▼
         ◇ Faults present ◇            ┌──────────────────────────┐
                │                       │     Conformity check      │
               yes                      └──────────────────────────┘
                │                                     │
                ▼                                     ▼
┌─────────────────────────────────┐        ◇ The cause is still ◇ ── no ──► Fault
│    Deal with present faults      │        ◇      present      ◇            solved
└─────────────────────────────────┘                  │
                │                                    yes
                ▼                                     │
┌─────────────────────────────────┐                  ▼
│     Deal with stored faults      │        ┌──────────────────────────┐
└─────────────────────────────────┘        │ Use fault finding charts  │
                │                           │          (ALPs)           │
                ▼                           └──────────────────────────┘
       ◇ The cause is still ◇ ── no ──► Fault          │
       ◇     present       ◇            solved          ▼
                │                           ◇ The cause is still ◇ ── no ──► Fault
               yes                          ◇     present       ◇            solved
                │                                      │
                │                                      ▼
                └──────────────────────►   ┌──────────────────────────┐
                                           │ Contact the Techline with │
                                           │ the completed fault        │
                                           │ finding log                │
                                           └──────────────────────────┘
```

4. FAULT FINDING PROCEDURE (continued)

Wiring check

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

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

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

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

Resistance check
Check the continuity of entire lines, then section by section.
Look for a short circuit to earth, to **+ 12 V** or to another wire.

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

5. FAULT FINDING LOG

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IMPORTANT!

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

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

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

6. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any damage or injury:
– check the battery voltage to avoid incorrect operation of computer functions,
– use the proper tools.

1. SYSTEM OPERATION

The injection system is a **Hi-Flex** type.
The specific feature of Hi-Flex vehicles is their capacity to run with a fuel whose composition varies from petrol to ethanol.
The system recognises the level of alcohol in the fuel and consequently adapts the engine operation.
To do this, the vehicle is equipped with:
– a **SIEMENS**, **SIM 32** type injection computer,
– an additional **Hi-Flex** system.

Composition
The injection system consists of the:
– accelerator potentiometer,
– TDC sensor,
– manifold pressure sensor,
– air temperature sensor,
– coolant temperature sensor,
– refrigerant pressure sensor,
– upstream oxygen sensor,
– downstream oxygen sensor,
– brake light switch,
– fuel vapour absorber,
– injection computer,
– motorised throttle valve,
– 4 injectors,
– pinking sensor,
– Ignition coil,

The Hi-Flex system:
The system is used to check the level of alcohol in fuel coming from the main fuel tank.
With a high level of alcohol, at a low ambient temperature, the engine cannot start in a satisfactory manner without the addition of petrol (usually petrol with **24 %** alcohol).
To do this, the **Hi-Flex** system is composed of:

on an equipment level:
– additional fuel pump,
– additional fuel tank (**1 L**),
– additional fuel pump relay,
– additional fuel circuit solenoid valve.

on a software level:
– recognition of Hi-Flex vehicles,
– recognition of the fuel by observing the richness variance,
– control of the additional system for starting the engine based on the level of alcohol.

Computer
SIEMENS SIM32 type 112-track computer controlling the injection and ignition.
Multipoint injection in sequential mode. Connections to the other computers:
– Passenger Compartment Control Unit (UCH)
– Instrument panel
– Radio navigation (fitted according to the vehicle finishing level)
– Airbag
– ABS system (fitted according to the vehicle finishing level)

Immobiliser
The SIM 32 computer is equipped with lock software 2 type immobiliser programming (wired connection to UCH).
When the engine immobiliser is on, the red immobiliser warning light flashes.
After the ignition is switched on, the key code is sent to the UCH. If it is recognised, it authorises the engine to start and the injection to unlock.

Impact detected
If an impact has been stored by the injection computer (**ET077 Impact detected**), switch off the ignition for
10 seconds, then switch it back on so that the engine can be started. Clear the faults using command **RZ007 Fault memory**.

Fuel supply
Fuel is supplied by the fuel pump. Each time the ignition is switched on, it is activated for one second, to ensure a certain pressure in the circuit and to obtain correct starting, especially when the vehicle has not been used for a long period. When the engine is running, the fuel pump relay is always controlled.

Computer
The injectors are controlled according to several modes. The engine is started in semi-full group mode (injectors 1 and 4, then injectors 2 and 3 simultaneously) to ensure a correct start whether or not it is correctly phased, then it enters sequential mode.
In some rare cases, the engine starts incorrectly phased. Then, after it has gone into sequential injection mode and whilst the recognition program of cylinder 1 has not taken place, the injectors are offset by two cylinders: injection occurs in order 4-2-1-3 instead of the expected 1-3-4-2.
The injection duration is constantly calculated and may be zero, in the event of cut-off during deceleration or overspeed for example.

Engine phasing

In vehicles not fitted with a camshaft sensor, engine phasing is done by software: a first so-called Memo-phasing strategy phases the engine management on starting according to the data that was recorded at the previous stalling. Wait for the end of power-latch (saving of data in the computer = 30 seconds) before disconnecting the computer. Then, a second program confirms the first decision. It is based on torque analysis.

Air supply

The idle speed regulator performs all the calculations required for physical control of the idling speed actuator: the motorised throttle. When the conditions for idle regulation are met, at every instant the idle speed regulator repositions the motorised throttle to keep engine speed at the idle speed setpoint.

Idling speed

The idle speed setpoint is dependent on:
– the coolant temperature,
– the emission control programs,
– air conditioning requirements,
– a power-assisted steering operation,
– the passenger compartment heating resistors,
– the oil temperature (engine protection),
– the electric power balance (the speed is increased by **160 rpm** maximum if the battery voltage remains below **12.7 V**).

Ignition

Advance is calculated for each cylinder, and is limited to between - 23° and + 72° crankshaft angle, and includes possible corrections due to pinking.
Anti-pinking correction is the maximum advance value taken from the advance of one of the cylinders. If no cylinder "pinks", this correction is zero.

Richness

For the catalytic converter to operate at its best, the richness regulation controlled by the upstream sensor ensures a richness of about 1.
The upstream sensor supplies a voltage according to the image of the average engine richness: the voltage supplied to the computer represents a Rich-Lean signal.
For the upstream sensor to be operational very rapidly, it is heated. The heating works only when the engine is running. It is deactivated at a speed above **84 mph (140 km/h)** or when the engine is under load.

Additional fuel pump:

The additional fuel pump is designed to inject fuel from an additional tank (**approximately 1L**) including fuel with a **low alcohol level (E 24 %)**, in addition to the fuel injected from the main tank (**E 0 %** → E **100 %**).
The additional fuel pump is only operational during the **cold starting phase** according to the parameters on the composition of fuel in the main tank and engine coolant temperature.

Torque management

The torque structure is the system for managing engine torque. It is required for certain vehicle or engine functions.

Engine coolant temperature management

The engine is cooled by 1 or 2 fan assemblies (depending on vehicle equipment).
To ensure cooling, when the engine is running, fan 1 is activated when the coolant temperature goes beyond 99 °C and stops when it goes below 96 °C.

Fan unit 2 starts when the coolant temperature exceeds **102 °C** and stops when it drops below **99 °C**.
When the engine is stopped, only fan assembly 1 can be switched on for anti-percolation (as when the engine stops when very hot). The anti-percolation function is active with the ignition off for a determined period. During this time, fan assembly 1 is switched on if the coolant temperature exceeds **100 °C** and is switched off when it drops below 95 °C.
If a fault on the coolant temperature sensor circuit is detected, fan assembly 1 is on all the time.
If the engine coolant temperature goes beyond the alert threshold of **118 °C**, the injection computer directly commands the coolant temperature warning light or requests it from the instrument panel computer via the multiplex network, until the coolant temperature falls below **115 °C** again.
In addition to the engine requirements, the injection computer centralises the cooling requirements for the air conditioning function.

Air conditioning function
The SIM32 computer controls a cold loop type of air conditioning:
– request for air conditioning by logical link,
– acquisition of pressure in the air conditioning circuit,
– vehicle speed
– air conditioning compressor control,
– Fan assembly control for the requirements of this function.

The injection computer reconstitutes the power absorbed by the air conditioning compressor and fast idle speed requests by using the pressure acquired in the air conditioning circuit.
These signals are necessary for adapting the engine management (idle speed regulation, air flow correction, etc.), for several reasons:
– air conditioning compressor efficiency,
– more engine ruggedness due to torque hesitation caused by the compressor clutching and declutching,
– helping the alternator.
Fan assembly 1 and/or **2** requests are reconstituted according to the pressure in the air conditioning circuit and the vehicle speed. Briefly, the **fan assembly** demands are that much more important when speed is low and the pressure is high.
OBD
The OBD programs are as follows:
– catalytic converter fault finding,
– upstream sensor operational fault finding,
– misfire fault finding,
– fuel supply system fault finding.
The misfiring and fuel supply system fault finding is performed continuously. The operational fault finding for the upstream sensor and the catalytic converter can be only be carried out once per journey, and can never occur at the same time.

The EOBD fault manager does not replace or modify the normal electrical fault management. It is an additional extra to satisfy the EOBD standard. The requirements are:
– storage of EOBD faults,
– switching on the OBD warning light for all faults leading to EOBD emission thresholds being exceeded,
– making the OBD warning light flash for all misfire faults that damage the catalytic converter.

2. OPERATING SAFETY

Activation of the warning lights
The SIM32 injection system manages the activation of three warning lights according to the severity of the faults detected, with the aim of informing the customer and directing fault finding.
These warning lights illuminate during the starting phase and in the event of an injection fault or engine overheating.

Warning light illumination principle
When the ignition is switched on, the **OBD** (On Board Diagnostic) warning light comes on for approximately
3 seconds and then goes out.
When there is a (**level 1**) injection fault, the **SERVICE** warning light comes on. It indicates a reduced level of operation and a limited safety level.
The driver should carry out repairs as soon as possible.
Components involved:
– motorised throttle valve,
– accelerator pedal potentiometer,
– inlet manifold pressure sensor,
– computer,
– actuator feed,
– computer feed.

When there is a serious (**level 2**) injection fault, the red engine symbol followed by the **STOP** warning light coming on gives warning of an operational safety problem linked with the injection system. If this happens, the vehicle must be stopped immediately.

When a fault causing excessive pollution in the exhaust gases is detected, the **orange OBD warning light** with the engine symbol comes on:
– **flashing** in the event of a fault which might irreparably damaged the catalytic converter (destructive misfiring). If this happens, the vehicle must be stopped immediately.
– **continuously** in the case of non-compliance with the pollution control standards (pollutant misfiring, catalytic converter fault, lambda sensor fault, fuel system fault, faulty connection between the lambda sensors and petrol vapour absorber fault.

Mileage travelled with fault
The **PR106 Mileage counter fault warning light lit** parameter is for counting the distance travelled with one of the injection fault warning lights on: fault warning light level 1 (amber) and 2 (red). Parameter **PR105 OBD mileage counter warning light lit** is for counting the distance travelled with the OBD warning light on.
This counter is **reset** with the diagnostic tool via command **RZ007 Fault memory**.

Defect modes

Motorised throttle valve
In defect mode, the motorised throttle valve can have 5 different statuses.

ET564 Defect mode type 1
This status groups together the faults that prevent the throttle from being controlled.
It causes the throttle control to be stopped: the throttle is in its "safe" position. It is possible to modulate the torque by cylinder cut-off and advance by the pedal to keep the vehicle operational.
The ESP, cruise control/speed limiter and automatic/sequential gearbox systems change to defect mode. This type is always accompanied by type 2 defect mode.

ET565 Defect mode type 2
This status groups faults where the system has lost control of the air flow modulation. The associated defect mode limits the engine speed by injection cut-off (limitation of engine speed to **2400 rpm** at idle speed and **3500 rpm** in other gears.

ET566 Defect mode type 3
This status groups together faults allowing you to deduce that the system has lost the accelerator pedal signal, but still controls the air flow modulation (motorised throttle servo operational).
Defect mode is associated with a constant pedal setpoint for each gear ratio. The vehicle speed can vary by changing gear.
Suggested speeds on a flat road:
– 12 **mph** (20 km/h) max in 1st
– 21 **mph** (35 km/h) max in 2nd
– 27 **mph** (45 km/h) max in 3rd
– 39 **mph** (65 km/h) max in 4th
– Less than **54 mph (90 km/h)** in **5th and 6th**

ET567 Defect mode type 4
This status groups together faults affecting the motorised throttle and pedal monitoring system, or for which there is a backup operating mode that is viable for the system.
The associated defect mode is a limitation of the throttle opening according to the engine speed. This is expressed by the speed being limited to less than **54 mph (90** km/h) in 5th and the accelerator pedal feeling spongy.

ET568 Defect mode type 5
This status groups together faults affecting pressure and throttle control via the torque structure. Its effect is to go into pedal feedback mode instead of the permanent torque structure.

1. REPLACING, PROGRAMMING OR REPROGRAMMING THE COMPUTER

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

IMPORTANT
– Switch on the diagnostic tool (power supply from the mains or the cigarette lighter).
– Connect a battery charger (during the entire computer (re)programming procedure, the engine cooling fan assemblies are triggered automatically).
– Comply with the engine coolant temperature instructions provided in the fault finding tool before any (re)programming.

After programming, reprogramming or replacing the computer:
– Switch off the ignition.
– Start and then stop the engine (to initialise the computer) and wait for 30 seconds.
– Switch on the ignition and use the diagnostic tool to carry out the following steps:
Use command **VP020 Enter VIN**.
Following (re)programming of the injection system, stored faults may appear in other computers.
Clear the memory of these computers.
Activate command **RZ019 Programming reinitialisation**.
Program the flywheel sensor target and throttle stops.
Carry out a road test followed by another check with the diagnostic tool.

2. REPLACING OR REMOVING THE TDC SENSOR

When replacing or removing the TDC sensor, program the engine flywheel ring (see **Configurations and programming**).

IMPORTANT
– The injection computer retains the immobiliser code for life.
– The system has no security code.
– It is forbidden to perform tests with computers borrowed from the Parts Department or from another vehicle which must then be returned. These computers are hard-coded.
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3. REPLACING THE MOTORISED THROTTLE VALVE

When replacing the throttle valve, program the throttle stops (see **Configurations and programming**).

IMPORTANT
Never drive a vehicle without having programmed the throttle stops.
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4. OPERATION FOR REPLACING A TANK

When replacing a tank (main or additional), check the type of fuel and its alcohol level.
After replacing the tank, carry out **Hi-Flex Configuration** and **Alcohol level** programming (see **Configuration and programming**).

IMPORTANT
First check the fuel in the tank to be replaced as the vehicle could have problems starting and with misfiring.

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1. CONFIGURATION

Computer configuration by automatic detection

The computer automatically configures itself according to the sensors present and vehicle options it detects.

LC108	Connection air conditioning - - - - - ▶ injection
	Multiplex
	Wire
	None
LC004	Downstream oxygen sensor
	With
	None
LC113	Catalytic converter On-board diagnostics
	With
	None
LC117	Oxygen sensor OBD fault finding
	With
	None

2. PROGRAMMING

Programming the flywheel target
To be carried out when replacing or removing the TDC sensor, reprogramming the computer or after running command **RZ019 Reinitialising the programming**.

The coolant temperature must be over **35 °C**.
- Decelerate a first time with injection cut-off (feet off the brake, accelerator and clutch pedals) between **3500 and 3000 rpm**, in a gear above 2nd for at least **5 seconds**.
- Decelerate a second time with injection cut-off (feet off the brake, accelerator and clutch pedals) from **2400 to 2000 rpm**, in any gear above 2nd for at least **5 seconds**.

Checking the programming**: ET089 "Programming the flywheel target"** is **"Done"**.

Programming the throttle end stops
To be carried out when replacing or removing the motorised throttle valve, reprogramming the computer or after running command **RZ019 Reinitialising the programming**.
With the ignition on, wait **30 seconds** for the computer to program the max and min stops, then switch off the ignition and wait **30 seconds** at the end of Power Latch for the computer to store the programmed stops. Checking that programming: **ET051 Throttle stop programming** is **Done**.

Hi-Flex configuration programming

After the computer is replaced, with the ignition on, the computer is configured as **NON** Hi-Flex.
- Turn on the ignition, without starting the engine: the Hi-flex configuration is automatically programmed and detects the solenoid valve and additional pump.

– If the programming is not carried out, it is possible to start the engine but driving the vehicle is prohibited.

- If the programming is not carried out, it is possible to start the engine but driving the vehicle is prohibited.

Check the programming using status **ET652 Hi-flex configuration**.
Programming conditions for engine adaptive variables:
- battery voltage above **10 V** for the additional fuel pump,
- battery voltage above **6 V** for the additional fuel pump solenoid valve.

Important note
When switching on the ignition, the computer detects the relay and not the additional pump.
Hi-flex detection does not guarantee that the pump is connected and operational.

Programming the level of alcohol

Fuel recognition is carried out by observing the drift of the richness controller.
It cannot therefore be carried out of the richness regulation is looped (**ET300 Richness regulation and ET056 Richness double loop ACTIVE**).

Programming procedure:

– start the engine,
– allow the engine coolant temperature to reach **75 °C**, check using parameter **PR064 Coolant temperature**,

– keep the engine running at 1500 rpm for at least 5 minutes,

– check that the programming has been carried out using status **ET671 "Alcohol level programming"** and parameter **PR748 "Injection time correction"**, (this parameter indicates a corrective factor for the injection time based on the alcohol level measured in the tank).

– the programming is saved when the ignition is switched off.

Note:
When the injection computer has not recognised the fuel composition, operation is **faulty**.

Tool fault	Associated DTC	Diagnostic tool name	Level 1 warning light	Level 2 warning light	OBD warning light
DF001	0115	Coolant temperature sensor circuit			1.DEF/2.DEF
DF002	0110	Air temperature sensor circuit			1.DEF/2.DEF
DF008	0225	Pedal potentiometer circuit gang 1	CC.0/CC.1/ 1.DEF/2.DEF		
DF009	2120	Pedal potentiometer circuit gang 2	CC.0/CC.1		
DF011	0641	Sensor supply voltage no. 1	1.DEF		
DF012	0651	Sensor supply voltage no. 2	1.DEF		
DF022	0650	OBD warning light circuit	CC.1 **with** ignition off/CC.0 continuously lit		
DF037	0633	Immobiliser			
DF038	0606	Computer			
DF040	0201	Cylinder 1 injector circuit			CO/CC.0/CC.1
DF041	0202	Cylinder 2 injector circuit			CO/CC.0/CC.1
DF042	0203	Cylinder 3 injector circuit			CO/CC.0/CC.1
DF043	0204	Cylinder 4 injector circuit			CO/CC.0/CC.1
DF046	0560	Battery voltage			
DF059	0301	Misfiring on cylinder 1			1.DEF/2.DEF
DF060	0302	Misfiring on cylinder 2			1.DEF/2.DEF
DF061	0303	Misfiring on cylinder 3			1.DEF/2.DEF

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Fault finding – Fault summary table

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Tool fault	Associated DTC	Diagnostic tool name	Level 1 warning light	Level 2 warning light	OBD warning light
DF062	0304	Misfiring on cylinder 4			1.DEF/2.DEF
DF081	0443	Canister bleed solenoid valve circuit			CO/CC.1
DF082	0135	Upstream oxygen sensor heating circuit			CO/CC.0/CC.1
DF083	0141	Downstream oxygen sensor heating circuit			CO/CC.0/CC.1
DF084	0685	Actuator relay control circuit			
DF085	0627	Fuel pump relay control circuit			
DF091	0500	Vehicle speed signal			
DF092	0130	Upstream oxygen sensor circuit			CO/CC.0/CC.1/ 1.DEF
DF093	0136	Downstream oxygen sensor circuit			CO/CC.0/CC.1
DF095	0120	Throttle potentiometer circuit gang 1	CO/CC.0/CC.1/ 1.DEF/2.DEF		
DF096	0220	Throttle potentiometer circuit gang 2	CO/CC.0/CC.1		
DF1067	01335	After-Sales tooth signal sensor circuit			
DF109	0313	Low fuel level misfiring			1.DEF/2.DEF
DF138	0680	Clutch pedal circuit			
DF154	0335	Engine speed sensor circuit			

Tool fault	Associated DTC	Diagnostic tool name	Level 1 warning light	Level 2 warning light	OBD warning light
DF176	0480	Low speed fan assembly circuit			
DF177	0481	High speed fan assembly circuit			
DF228	0504	Brake signal			
DF232	0530	Refrigerant pressure sensor circuit			
DF248	0655	Level 2 warning light circuit			
DF330	0325	Pinking sensor circuit			
DF353	0105	Inlet manifold pressure sensor circuit	1.DEF/2.DEF		1.DEF/2.DEF
DF361	0351	Ignition coil 1-4 circuit			CC.0/CC.1
DF362	0352	Ignition coil 2-3 circuit			CC.0/CC.1
DF394	0420	Catalytic converter operating fault			1.DEF
DF398	0170	Fuel circuit operating fault			
DF436	0300	Detection of engine misfiring			1.DEF/2.DEF
DF457	0315	Flywheel target			1.DEF
DF479	0638	Throttle valve servo	2.DEF/3.DEF/ 4.DEF/6.DEF		
DF489	0645	Air conditioning compressor control			
DF508	2101	Motorised throttle valve control	CC.0/CC.1		

Tool fault	Associated DTC	Diagnostic tool name	Level 1 warning light	Level 2 warning light	OBD warning light
DF584	0648	Coolant temperature warning light circuit		CC.1/CC.0	
DF884	1627	Additional fuel circuit pump relay			
DF894	1001	Additional fuel circuit solenoid valve			CO/CC.0/CC.1
DF1354	0624	Level 1 warning light circuit	CC.1/CC.0		

DF001 PRESENT OR STORED	COOLANT TEMPERATURE SENSOR CIRCUIT 1. DEF: Open circuit or short circuit 2. DEF: Non-compliance with emission control standards

NOTES	**Special notes:** When the fault is present, the OBD warning light is lit, and the low-speed fan assembly is on all the time. Refer to parameter **PR064 Coolant temperature**: If the tool displays **120°C**, there is a short circuit to 12 V or an open circuit. If the tool displays **-40°C**, there is a short circuit to earth.

Check the **cleanliness** and **condition** of the coolant temperature sensor and its connections.
Repair if necessary.

Measure **the resistance** of the coolant temperature sensor between **tracks 3 and 2**:
At -10°C: 12,500 Ω ± 1000 Ω
At 25°C: 2250 Ω ± 110 Ω
If the values are not correct, replace the coolant temperature sensor.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer track E1, connector C $\longrightarrow$ Track B1 of the coolant temperature sensor
Computer track D1, connector C $\longrightarrow$ Track B2 of the Coolant temperature sensor

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF001 / SIM32_V08_DF001

MR-432-X65-17B000$318.mif
V2

DF002 PRESENT OR STORED	AIR TEMPERATURE SENSOR CIRCUIT 1.DEF: Open circuit or short circuit 2.DEF: Non-compliance with emission control standards

NOTES	**Special notes:** Refer to parameter **PR054 Air temperature**: If the tool displays **120°C**, there is a short circuit to 12 V or an open circuit. If the tool displays **-40°C**, there is a short circuit to earth. the OBD warning light is on.

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

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

- at -10°C ⟶ **9500 Ω ± 950 Ω**
- at 25°C ⟶ **2050 Ω ± 125 Ω**

If the values are not correct, replace the air temperature sensor.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer track E2, connector C ⟶ Track 2 of the Air temperature sensor
Computer track D2, connector C ⟶ Track 1 of the air temperature sensor

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF002 / SIM32_V08_DF002

DF008 PRESENT OR STORED	<u>PEDAL POTENTIOMETER CIRCUIT GANG 1</u> CC.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 V 1.DEF: Inconsistency between pedal gang 1 and gang 2 2.DEF: Faulty sensor

NOTES	Priority when dealing with a number of faults: Deal with fault **DF012 Sensor supply voltage no. 2** first if it is present or stored.
	Conditions for applying the fault finding procedure to a stored fault: The fault is declared present following several depressions of the accelerator pedal.
	Special notes: **CC.0/CC.1/1.DEF:** The fault warning light level 1 is lit and the throttle valve goes into defect mode 4, causing the vehicle speed to be limited to **54 mph (90 km/h)** and a loss of power during accelerations (impression of having a spongy pedal). **2.DEF:** The throttle valve goes into defect mode 3, causing a loss of driver's demands (accelerator pedal no longer working).

Check that the pedal mechanism has not seized.
Repair if necessary.

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

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

Computer track H3, connector A   ⟶   Track 4 of the pedal potentiometer gang 1
Computer track G2, connector A   ⟶   Track 6 of the pedal potentiometer gang 1
Computer track H2, connector A   ⟶   Track 2 of the pedal potentiometer gang 1

Repair if necessary.

At no load, measure the **resistance** of the pedal potentiometer gang 1 between **tracks 6 and 4**.
If the value is not **1.7 kΩ ± 0.9 kΩ** replace the accelerator pedal.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF008 / SIM32_V08_DF008

MR-432-X65-17B000$318.mif
V2

DF009 **PRESENT** **OR** **STORED**	<u>PEDAL POTENTIOMETER CIRCUIT GANG 2</u> CC.0: Open circuit or short circuit to earth CC.1: Short circuit to + 12 V

NOTES	Priority when dealing with a number of faults: Deal with fault **DF011 Sensor supply voltage no. 1** first if it is present or stored.
	Conditions for applying the fault finding procedure to a stored fault: The fault is declared present following several depressions of the accelerator pedal.
	Special notes: The vehicle is liable to hesitate. The fault warning light level 1 is lit and the throttle valve goes into defect mode 4, causing the vehicle speed to be limited to **54 mph (90 km/h)** and a loss of power during accelerations (impression of having a spongy pedal).

Check that the pedal mechanism has not seized. Repair if necessary.
Check the **cleanliness** and **condition** of the pedal potentiometer and its connections. Disconnect the battery and the injection computer. Check the **cleanliness** and **condition** of the connections. Repair if necessary.

Use the universal bornier to check the **insulation** and **continuity** of the following connections:
 	
    Computer track F4, connector A   ⟶   Track 5 of the pedal potentiometer gang 2
    Computer track F2, connector A   ⟶   Track 3 of the pedal potentiometer gang 2
    Computer track F3, connector A   ⟶   Track 1 of the pedal potentiometer, gang 2
 	
Repair if necessary.

At no load, measure the **resistance** of the pedal potentiometer gang 2 between **tracks 3 and 5**. If the value is not **3 kΩ ± 2.2 kΩ**, replace the accelerator pedal.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF009 / SIM32_V08_DF009

| **DF011 PRESENT OR STORED** | <u>SENSOR SUPPLY VOLTAGE NO. 1</u>
1.DEF: Voltage outside permitted range of values |

| ***NOTES*** | Priorities when dealing with a number of faults:
Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored. |
| | **Special notes:**
The fault is declared present, with the ignition on, when the signal voltage is greater than **5.52 V** or less than **4.47 V**.
In case of short circuit to earth or to + 12 V, the level 1 warning light comes on. The injection changes to defect mode 4 and 5 which leads to a speed restriction of **54 mph (90 km/h)**, a loss of power during acceleration (impression of having a spongy accelerator pedal) and a loss of intersystems. |

Check the **cleanliness** and **condition** of the manifold pressure sensor connections and the resistance.
(consult **DF353 Inlet manifold pressure sensor circuit**).
Check the **cleanliness** and **condition** of the pedal potentiometer (gang 2) connections and the resistance.
(consult **DF009 Pedal potentiometer circuit gang 2**).
Check the **cleanliness** and **condition** of the refrigerant pressure sensor connections and the resistance.
Disconnect the battery and the injection computer (consult **DF232 Refrigerant pressure sensor circuit**).
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.

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

Track 3 of the accelerator pedal potentiometer	⟶	Computer, connector A, track F2
Track C of the manifold pressure sensor	⟶	Computer, connector C, track A2
Track B of the refrigerant pressure sensor	⟶	Computer, connector B, track D4

Repair if necessary.

If the fault is still present, make sure, with the ignition on, that there is 5 V feed to the above sensor terminals.

If the fault is still present, contact the Techline.

| ***AFTER REPAIR*** | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF011 / SIM32_V08_DF011

DF012 PRESENT OR STORED	<u>SENSOR SUPPLY VOLTAGE NO. 2</u> 1.DEF: Voltage outside permitted range of values

NOTES	**Special notes:** The fault is declared present, with the ignition on, when the signal voltage is greater than **5.52 V** or less than **4.47 V**. In case of short circuit to earth or to + 12 V, the level 1 warning light comes on. The injection changes to defect mode 1 and 2 which leads to a vehicle and engine speed restriction.

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

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

Track 6 of the accelerator pedal potentiometer ⟶ Computer, connector A track G2
Track 2 of the Motorised throttle valve ⟶ Computer, connector C, track B1

Repair if necessary.

– Disconnect the 6-track accelerator pedal potentiometer connector and check, with the ignition on, for 5 V on track **6** of the connector on the wiring harness end.
– Disconnect the 6-track motorised throttle valve connector and check, with the ignition on, for 5 V on track **2** of the connector on the wiring harness end.

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF012 / SIM32_V08_DF012

DF022 **PRESENT** **OR** **STORED**	<u>OBD WARNING LIGHT CIRCUIT</u> CO: Open circuit CC.0: Short circuit to earth CC.1: Short circuit to + 12 V

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running.
	Special notes: **CC.1:** Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is continuously lit with the ignition off. **CO:** Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is off at all times. **CC.0:** The warning light is continuously lit except when the ignition is off.

Check **the cleanliness** and **condition** of the warning light connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the injection computer connector B connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection

    Injection computer, connector B, track M2   ⟶   OBD warning light

(Check the connector track number on the instrument panel wiring diagram).
Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF022 / SIM32_V08_DF022

DF037 **PRESENT** **OR** **STORED**	<u>ENGINE IMMOBILISER</u> 1.DEF: Signal incoherent

NOTES	None.

Check the connection and condition of **connector A, track B3** of the injection computer.
Repair if necessary.

Check the connection and condition of the **UCH connector**.
Repair if necessary.

Check the insulation, continuity and absence of interference resistance of the connection.

Computer connector A, track B3   ⟶   connector B, track 36 of the UCH

See wiring diagram for vehicle. Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF037 / SIM32_V08_DF037

DF038 PRESENT OR STORED	<u>COMPUTER</u> 1. DEF to 5.DEF: Internal electronic fault

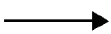| *NOTES*	**Special notes:** 1. DEF: defect mode 2. DEF: defect mode 3. DEF: defect mode 4. DEF: no restarting 5. DEF: defect mode.

Check for feed to the injection computer.
Disconnect the battery and the injection computer.
Check the **cleanliness and condition** of the connections.
Reconnect the battery.
Use the "Universal bornier" to check for 12 V feed on the following tracks:
  – Track D1, connector A.
  – Track J1, connector B.
  – Track G1, connector C.

Check for earths to the injection computer.
Disconnect the battery and the injection computer.
Check the **cleanliness and condition** of the connections.
Reconnect the battery.
Use the Universal bornier to check for earths on the following tracks:
  – Track G4, connector A.
  – Track H4, connector A.
  – Track L4, connector B.
  – Track M4, connector B.
  – Track H1, connector C.

If all the feeds and earths are correct, reprogram the computer (see **Replacement of components**).

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF038 / SIM32_V08_DF038

DF040 PRESENT OR STORED	<u>CYLINDER 1 INJECTOR CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: **CO/CC.1:** No injection on cylinder 1. Greatly reduced performance. OBD warning light comes on. **CC.0**: The injector is still open: there is a risk of the engine stalling or being damaged when starting. Greatly reduced performance. OBD warning light comes on.

Check the **cleanliness** and **condition** of the cylinder 1 injector and its connections (the numbering of the cylinders begins from the flywheel end).
Repair if necessary.

With the ignition on, check for + 12 V on Track **1** of the cylinder 1 injector connector.
If no + 12 V:
– disconnect the battery,
– check the **30 A fuse**, located on the power supply board, and the continuity of the fuse on track J3 of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Track **B5** of the actuator relay mounting   ⟶   Track 1 cylinder 1 injector

(Relay J of the engine fuse and relay box)
Repair if necessary.

If, with the ignition on, there is still no + 12 V on track **1** of the cylinder 1 injector connector, replace the actuator relay.

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

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75°C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

SIM32_V04_DF040 / SIM32_V08_DF040

| DF040
CONTINUED | |

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

Injection computer track F3, connector C $\longrightarrow$ Track 2 Cylinder 1 injector

Repair if necessary.

Measure the **resistance** of injector 1 between **tracks 1 and 2**:
If the value is not **12 Ω ± 0.6 Ω at 20°C**, replace the injector.

If the fault is still present, contact the Techline.

| *AFTER REPAIR* | Ensure that all the faults have been dealt with.
Clear the stored faults. Do not clear the programming.
To check that the system has been properly repaired:
– There must be no remaining electrical faults.
– The programming must have been carried out.
– The engine should be warm (minimum 75°C).
Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**. |

DF041 PRESENT OR STORED	<u>CYLINDER NO. 2 INJECTOR CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: **CO/CC.1:** No injection on cylinder 2. Greatly reduced performance. OBD warning light comes on. **CC.0**: The injector is still open: there is a risk of the engine stalling or being damaged when starting. Greatly reduced performance. OBD warning light comes on.

Check the **cleanliness** and **condition** of the cylinder 2 injector and its connections (the numbering of the cylinders begins from the flywheel end).
Repair if necessary.

With the ignition on, check for **+ 12 V** on Track 1 of the cylinder 2 injector connector.
If no + 12 V:
– disconnect the battery,
– check the **30 A fuse**, located on the power supply board, and the continuity of the fuse on track J3 of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

       Track **B5** of the actuator relay mounting   ⟶   Track 1 Cylinder 2 injector

(Relay J of the engine fuse and relay box)
Repair if necessary.

If, with the ignition on, there is still no + 12 V on track **1** of the cylinder 2 injector connector, replace the actuator relay.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75°C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

SIM32_V04_DF041 / SIM32_V08_DF041

DF041 CONTINUED	

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

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

     Injection computer track E4, connector C   ⟶   Track 2 Cylinder 2 injector

Repair if necessary.

Measure the **resistance** of injector 2 between **tracks 1 and 2**.
If the value is not **12 Ω ± 5% at 20°C**, replace the injector.

If the fault is still present, contact the Techline.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75°C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

DF042 PRESENT OR STORED	<u>CYLINDER NO. 3 INJECTOR CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF: Non-compliance with emission control standards

	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: **CO/CC.1:** No injection on cylinder 3. Greatly reduced performance. OBD warning light comes on. **CC.0**: The injector is still open: there is a risk of the engine stalling or being damaged when starting. Greatly reduced performance. OBD warning light comes on.

Check the **cleanliness** and **condition** of the cylinder 3 injector and its connections (the numbering of the cylinders begins from the flywheel end).
Repair if necessary.

With the ignition on, check for **+ 12 V** on Track 1 of the cylinder 3 injector connector. If no + 12 V:
– disconnect the battery,
– check the **30 A fuse**, located on the power supply board, and the continuity of the fuse on track J3 of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Track **B5** of the actuator relay mounting   ⟶   Track 1 Cylinder 3 injector

(Relay J of the engine fuse and relay box)
Repair if necessary.

If, with the ignition on, there is still no + 12 V on track **1** of the cylinder 3 injector connector, replace the actuator relay.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75 °C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

SIM32_V04_DF042 / SIM32_V08_DF042

DF042 CONTINUED	

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

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

Injection computer track F4, connector C ⟶ track 2 Cylinder 3 injector

Repair if necessary.

Measure the **resistance** of injector 3 between **tracks 1 and 2**.
If the value is not **12 Ω ± 0.6 Ω at 20°C**, replace the injector.

If the fault is still present, contact the Techline.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75°C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

DF043 PRESENT OR STORED	**CYLINDER NO. 4 INJECTOR CIRCUIT** CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: **CO/CC.1:** No injection on cylinder 4. Greatly reduced performance. OBD warning light comes on. **CC.0**: The injector is still open: there is a risk of the engine stalling or being damaged when starting. Greatly reduced performance. OBD warning light comes on.

Check the **cleanliness** and **condition** of the cylinder 4 injector and its connections (the numbering of the cylinders begins from the flywheel end).
Repair if necessary.

With the ignition on, check for **+ 12 V** on Track **1** of the cylinder 4 injector connector.
If no **+ 12 V**:
– disconnect the battery,
– check the **30 A fuse**, located on the power supply board, and the continuity of the fuse on track J3 of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

    Track **B5** of the actuator relay mounting   ⟶   Track 1 cylinder 4 injector

(Relay J of the engine fuse and relay box)
Repair if necessary.

If, with the ignition on, there is still no **+ 12 V** on track **1** of the cylinder 4 connector, replace the actuator relay.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF043 / SIM32_V08_DF043

DF043 CONTINUED	

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

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

Injection computer track E3, connector C ⟶ Track 2 Cylinder 4 injector

Repair if necessary.

Measure the **resistance** of injector 4 between **tracks 1 and 2**.
If the value is not **12 Ω ± 0.6 Ω at 20°C**, replace the injector.

If the fault is still present, contact the Techline.

AFTER REPAIR	Ensure that all the faults have been dealt with. Clear the stored faults. Do not clear the programming. To check that the system has been properly repaired: – There must be no remaining electrical faults. – The programming must have been carried out. – The engine should be warm (minimum 75°C). Run the engine at idle speed with all electrical consumers drawing power for **15 minutes**.

DF046 PRESENT OR STORED	<u>BATTERY VOLTAGE</u> 1. DEF: Voltage outside permitted range of values

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with fault **DF084 Actuators relay control circuit** first if it is present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: The injection changes to defect mode 1 and 2 in the event of undervoltage leading to vehicle and engine speed restriction. The fault is declared present when the supply voltage after the actuator relay is less than **7 V** with an engine speed greater than **2000 rpm** or if the supply voltage after the actuator relay is greater than **16 V** with an engine speed below **480 rpm**.

Check the battery voltage when the ignition is switched on.
If the battery voltage is **< 10 V**, recharge the battery.

Check the condition of the battery terminals.
Repair if necessary.

Check the vehicle's charge circuit.
Repair if necessary.

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

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

Injection computer	Injection actuator relay
Connector C, Track G1 $\longrightarrow$	Track **B5**
Connector B, Track G1 $\longrightarrow$	Track **B2**

Repair if necessary.

With the ignition on, check for + 12 V on tracks **G1** of **connectors B and C** of the computer. If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF046 / SIM32_V08_DF046

DF059 PRESENT OR STORED	<u>COMBUSTION MISFIRES ON CYLINDER 1</u> 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

NOTES	**Priorities when dealing with several faults**: First deal with the ignition faults: – **DF361 Ignition coil circuit 1-4,** – **DF362 Ignition coil circuit 2-3,** fuel supply circuit faults – **DF040 Cylinder 1 injector circuit,** – **DF041 Cylinder 2 injector circuit,** – **DF042 Cylinder 3 injector circuit,** – **DF043 Cylinder 4 injector circuit,** – **DF085 Fuel pump relay control circuit,** flywheel signal faults – **DF154 Flywheel signal sensor circuit,** – **DF457 Engine flywheel target.**
	Conditions for applying the fault finding procedure to stored faults The fault is declared present after the engine starts.
	Special notes: **1. DEF:** As soon as the fault is detected, the injection is cut off on the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. The fault is declared present when the misfiring rate is above 15% for at least **1 and a half minutes**. **2. DEF**: The OBD warning light is continuously lit. The fault is declared present when the misfiring rate is above 4 % for at least **15 minutes**.

Misfiring on cylinder 1 only	The fault is probably due to a component that can only affect this cylinder: – check the valve clearance – check the cylinder 1 injector – check the condition and conformity of spark plug 1 – measure the compression of cylinder 1.

Misfiring on cylinders 1 and 4 (see **DF111 Misfiring on cylinder 1** and **DF114 Misfiring on cylinder 4**)	The fault is probably due to a component that affects a pair of cylinders: – check the relevant ignition coil circuit (apply fault finding procedure **DF361 Ignition coil circuit 1-4** or **DF362 Ignition coil circuit 2-3**) – check the condition and conformity of the spark plugs.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF059 / SIM32_V08_DF059

DF059 CONTINUED	

Misfiring on all four cylinders (see **DF060 Misfiring on cylinder 2, DF061 Misfiring on cylinder 3, DF062 Misfiring on cylinder 4**).	The fault is probably due to a component affecting all the cylinders – check that the correct fuel is being used, – check the condition and conformity of the spark plugs.

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

– check the flywheel sensor,
– check the condition and cleanliness of the flywheel target,
– check the flywheel signal sensor mounting,
– check the flywheel target/sensor gap,
– check the cylinder compressions,
– check the whole petrol supply circuit,
– check the whole ignition system,
– check the pinking sensor (tightness positioning).

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF060 PRESENT OR STORED	<u>COMBUSTION MISFIRING ON CYLINDER 2</u> 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

NOTES	**Priorities when dealing with several faults**: First deal with the ignition faults: – **DF361 Ignition coil circuit 1-4,** – **DF362 Ignition coil circuit 2-3,** fuel supply circuit faults – **DF040 Cylinder 1 injector circuit,** – **DF041 Cylinder 2 injector circuit,** – **DF042 Cylinder 3 injector circuit,** – **DF043 Cylinder 4 injector circuit,** – **DF085 Fuel pump relay control circuit,** flywheel signal faults – **DF154 Flywheel signal sensor circuit,** – **DF457 Engine flywheel target.**
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine starts.
	Special notes: **1. DEF:** As soon as the fault is detected, the injection is cut off from the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. The fault is declared present when the combustion misfiring rate is greater than 15% for at least 1 **minute 30 seconds**. **2.DEF**: The OBD warning light is continuously lit. The fault is declared present when the misfiring rate is above 4 % for at least **15 minutes**.

Misfiring on cylinder 2 only	The fault is probably due to a component that can only affect this cylinder – check the valve clearance, – check the cylinder 2 injector – check the condition and conformity of spark plug 2, – measure the compression of cylinder 2.

Misfiring on cylinders 2 and 3 (see **DF060 Misfiring on cylinder 2 and DF061 Misfiring on cylinder 3**)	The fault is probably due to a component that affects a pair of cylinders – Check the relevant ignition coil circuit (apply fault finding procedure **DF361 Ignition coil circuit 1-4** or **DF362 Ignition coil circuit 2-3**) and check the condition and conformity of the spark plugs.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF060 / SIM32_V08_DF060

DF060 CONTINUED	
Misfiring on all four cylinders (see DF059 Misfiring on cylinder 1, DF061 Misfiring on cylinder 3 and DF062 Misfiring on cylinder 4).	The fault is probably due to a component affecting all the cylinders – check that the correct fuel is being used, – check the condition and conformity of the spark plugs.

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

– check the flywheel sensor,
– check the condition and cleanliness of the flywheel target,
– check the flywheel signal sensor mounting,
– check the flywheel target/sensor gap,
– check the cylinder compressions,
– check the whole petrol supply circuit,
– check the whole ignition system,
– check the pinking sensor (tightness/positioning).

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF061 PRESENT OR STORED	<u>COMBUSTION MISFIRING ON CYLINDER 3</u> 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal with ignition faults first **– DF361 Ignition coil circuit 1-4,** **– DF362 Ignition coil circuit 2-3,** fuel supply circuit faults **– DF040 Cylinder 1 injector circuit,** **– DF041 Cylinder 2 injector circuit,** **– DF042 Cylinder 3 injector circuit,** **– DF043 Cylinder 4 injector circuit,** **– DF085 Fuel pump relay control circuit,** flywheel signal faults **– DF154 Flywheel signal sensor circuit,** **– DF457 Engine flywheel target.**
	Conditions for applying the fault finding procedure to stored faults The fault is declared present after the engine starts.
	Special notes: **1. DEF:** As soon as the fault is detected, the injection is cut off on the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. The fault is declared present when the misfiring rate is greater than 15% for at least **1 minute 30 seconds**. **2. DEF**: The OBD warning light is continuously lit. The fault is declared present when the misfiring rate is above 4 % for at least **15 minutes**.

Combustion misfires in cylinder 3 only	The fault is probably due to a component that can only affect this cylinder: – check the valve clearance, – check the cylinder 3 injector, – check the condition and conformity of spark plug 3, – measure the compression of cylinder 3.

Misfiring on cylinders 2 and 3 (see **DF060 Misfiring on cylinder 2 and DF061 Misfiring on cylinder 3**)	The fault is probably due to a component that affects a pair of cylinders: – check the relevant ignition coil circuit (apply fault finding procedure **DF361 Ignition coil circuit 1-4** or **DF362 Ignition coil circuit 2-3**) – check the condition and conformity of the spark plugs.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF061 / SIM32_V08_DF061

DF061 CONTINUED	

Misfiring on all four cylinders (see **DF059 Misfiring on cylinder 1, DF060 Misfiring on cylinder 2 and DF062 Misfiring on cylinder 4**).	The fault is probably due to a component affecting all the cylinders – check that the correct fuel is being used, – check the condition and conformity of the spark plugs.

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

– check the flywheel sensor,
– check the condition and cleanliness of the flywheel target,
– check the flywheel signal sensor mounting,
– check the flywheel target/sensor gap,
– check the cylinder compressions,
– check the whole petrol supply circuit,
– check the whole ignition system,
– check the pinking sensor (tightness/positioning).

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF062 PRESENT OR STORED	COMBUSTION MISFIRING ON CYLINDER 4 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal with ignition faults first – **DF361** Ignition coil circuit 1-4 – **DF362** Ignition coil circuit 2-3 fuel supply circuit faults – **DF040** Cylinder 1 injector circuit – **DF041** Cylinder 2 injector circuit – **DF042** Cylinder 3 injector circuit – **DF043** Cylinder 4 injector circuit – **DF085** Fuel pump relay control circuit flywheel signal faults – **DF154** Flywheel signal sensor circuit – **DF457** Engine flywheel target.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine starts.
	Special notes: **1.DEF:** As soon as the fault is detected, the injection is cut off from the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. The fault is declared present when the misfiring rate is greater than 15% for at least **1 minute 30 seconds**. **2.DEF**: The OBD warning light is continuously lit. The fault is declared present when the misfiring rate is above 4 % for at least **15 minutes**.

Misfiring on cylinder 4 only	The fault is probably due to a component that can only affect this cylinder – check the valve clearance, – check the cylinder 4 injector – check the condition and conformity of spark plug 4, – measure the compression of cylinder 4.

Misfiring on cylinders 1 and 4 (see **DF059 Misfiring on cylinder 1 and DF062 Misfiring on cylinder 4**)	The fault is probably due to a component that affects a pair of cylinders – check the relevant ignition coil circuit (apply fault finding procedure **DF361 Ignition coil circuit 1-4** or **DF362 Ignition coil circuit 2-3**), – check the condition and conformity of the spark plugs.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF062 / SIM32_V08_DF062

DF062 CONTINUED	

Misfiring on all four cylinders (see **DF059 Misfiring on cylinder 1**, **DF060 Misfiring on cylinder 2** and **DF061 Misfiring on cylinder 3**).	The fault is probably due to a component affecting all the cylinders – check that the correct fuel is being used, – check the condition and conformity of the spark plugs.

If the fault is still present, carry out the following checks:
– check the flywheel sensor,
– check the condition and cleanliness of the flywheel target,
– check the flywheel signal sensor mounting,
– check the flywheel target/sensor gap,
– check the cylinder compressions,
– check the whole petrol supply circuit,
– check the whole ignition system,
– check the pinking sensor (tightness positioning).
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF081 PRESENT OR STORED	CANISTER BLEED SOLENOID VALVE CIRCUIT CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running or on command **AC016 Canister bleed solenoid valve**.
	Special notes: **CO/CC.1**: The valve remains stuck closed: there is a smell of petrol. the OBD warning light is on. **CC.0**: The valve remains stuck open: hesitation when driving, risk of engine stalling and difficult to restart the engine.

Check **the cleanliness** and **condition** of the fuel vapour absorber bleed solenoid valve connections.
Repair if necessary.

Measure **the resistance** of the fuel vapour absorber bleed solenoid valve between **tracks 1 and 2**
● at **+ 23°C**: **26 Ω ± 4 Ω**
● at **- 40°C**: **20 Ω ± 3 Ω**
If the values are incorrect, replace the canister bleed solenoid valve.

Check, with the ignition on, for **+ 12 V** on track 1 of the fuel vapour absorber bleed solenoid valve connector. If no **+ 12 V**:
– disconnect the battery,
– check the **30 A fuse** located on the power supply board, and for continuity between the fuse and track **J3** of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

    Track J5 of the actuator relay mounting ⟶ Track 1 of the canister bleed solenoid valve

(Relay J of the engine fuse and relay box)
Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF081 / SIM32_V08_DF081

DF081 CONTINUED	

Disconnect the battery.
Disconnect the computer. Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Computer, connector B, track M3 ⟶ Track 2 of the fuel vapour absorber bleed solenoid valve

Repair if necessary.

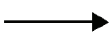| AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

| DF082 PRESENT OR STORED | <u>UPSTREAM OXYGEN SENSOR HEATING CIRCUIT</u>
CO : Open circuit
CC.0 : Short circuit to earth
CC.1 : Short circuit to + 12 volts
1. DEF : Non-compliance with emission control standards |

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running or when using command **AC261 Upstream O$_2$ sensor heating**.
	Special notes: **CO/CC.1**: No upstream sensor heating: the vehicle is polluting and the OBD warning light is illuminated. **CC.0**: Upstream sensor heating on continuously from switching on the ignition: risk of sensor being irreparably damaged.

Check the **cleanliness** and **condition** of the upstream oxygen sensor and its connections.
Repair if necessary.

Measure the **resistance** of the upstream oxygen sensor heater between tracks A and B. If the value is not **9.6 Ω ± 1.5 Ω at 21°C**, replace the upstream oxygen sensor.

With the ignition on, check for **+ 12 V** on track **A** of the upstream oxygen sensor connector. If no **+ 12 V**:
– disconnect the battery,
– check the condition of the **30 A** fuse **F1** located on the power supply fuse board,
– check the **cleanliness** and **condition** of the connections,
– Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Actuator relay, Track **B5** ⟶ Upstream oxygen sensor, Track A

Repair if necessary.
Reconnect the **30 A** fuse F1 and reconnect the battery.
If, with the ignition on, there is still no **+ 12 V** on the upstream oxygen sensor connector, there is a fault in the actuator relay located in the engine fuse and relay box. Check the relay and replace it if necessary.

| AFTER REPAIR | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF082 / SIM32_V08_DF082

DF082 **CONTINUED**	

Disconnect the battery and the injection computer.
Check the **cleanliness and condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Injection computer, connector C, Track G2 ⟶ Upstream oxygen sensor, Track B

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF083 PRESENT OR STORED	DOWNSTREAM OXYGEN SENSOR HEATING CIRCUIT CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Priority when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to a stored fault: The fault is declared present with the engine running or when using command **AC262 Downstream O$_2$ sensor heating**.
	Special notes: **CO/CC.1**: Fault finding of the upstream oxygen sensor is inhibited. **CC.0**: Upstream sensor heating on continuously from switching on the ignition: risk of sensor being irreparably damaged.

Check the **cleanliness** and **condition** of the downstream oxygen sensor and its connections.
Repair if necessary.

Measure the **resistance** of the upstream oxygen sensor heater between tracks A and B. If the value is not **9.6 Ω ± 1.5 Ω at 21°C**, replace the upstream oxygen sensor.

With the ignition on, check for **+ 12 V** on track **A** of the upstream oxygen sensor connector. If no **+ 12 V**:
– disconnect the battery,
– check the condition of the **30 A** fuse **F1** located on the power supply fuse board,
– check the **cleanliness** and **condition** of the connections,
– Use the "universal bornier" to check the **insulation** and **continuity** of the following connection:

Actuator relay, Track **B5** ⟶ Downstream lambda sensor, Track A

Repair if necessary.
Reconnect the **30 A** fuse **F1** and reconnect the battery.
If, with the ignition on, there is still no **+ 12 V** on the upstream oxygen sensor connector, there is a fault in the actuator relay located in the engine fuse and relay box. Check the relay and replace it if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF083 / SIM32_V08_DF083

DF083 CONTINUED	

Disconnect the battery and the injection computer.
Check the **cleanliness and condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

  Injection computer, connector B, Track M7 ⟶ Downstream lambda sensor, Track B

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF084 PRESENT OR STORED	ACTUATOR RELAY CONTROL CIRCUIT CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF: Abnormal voltage

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: This relay supplies the following actuators: the injectors, the throttle control, the oxygen sensor heaters, the petrol vapour absorber, track **G1** of **connector C** of the injection computer and fan assembly relays 1 and 2. **CO/CC.1:** No actuator supply: same effect as running out of fuel. The vehicle stalls and will not start again. **CC.0:** The actuators are supplied all the time: high electrical consumption when stationary. **Intermittent CO:** Intermittent relay cut-off: jerking when driving.

Check for **+ 12 V before ignition feed** on track **J1** of the actuator relay.
In the event of a fault, check the 30 A fuse **F1** of the power supply of this relay, located on the power supply board.

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

Computer track G1, connector B ⟶ Actuator relay board, track **B2**

Repair if necessary.

With the ignition on, check for an earth on track **B2** of the actuator relay.
If, with the ignition on, the computer does not control the actuator relay on track **B2** by an earth, contact the Techline.

If the fault is still present, replace the actuator relay.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF084 / SIM32_V08_DF084

DF085 **PRESENT** **OR** **STORED**	<u>FUEL PUMP RELAY CONTROL CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running or on command **AC010 Fuel pump relay**.
	Special notes: **CO/CC.1:** The symptoms of the fault are exactly like those of running out of fuel. The vehicle stalls and cannot be restarted. There is no ignition. **CC.0:** There is danger of fire in the event of petrol leaking during an accident. **Intermittent CO:** Risk of intermittent ignition cut-out and battery replacement; risk of misfiring.

Check for **+ 12 V after ignition feed** on track **B1** of the fuel pump relay.
In the event of a fault, check the power supply fuse **F5 (15 A)** of this relay, located on the power supply fuse board.

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

Computer track E1, connector B $\longrightarrow$ Fuel pump relay board, track **A2**

Repair if necessary.

Whilst starting or applying command AC010 Fuel pump relay, check for earth on track **A2** of the fuel pump relay. If, whilst starting, the computer does not control the fuel pump relay on track **A2** via an earth, contact the Techline.

If the fault is still present, change the fuel pump relay.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF085 / SIM32_V08_DF085

| **DF091 PRESENT OR STORED** | <u>VEHICLE SPEED SIGNAL</u> 1. DEF: Open circuit or short circuit 2. DEF: Non-compliance with emission control standards |

| *NOTES* | Conditions for applying the fault finding procedure to stored faults. The fault is considered present when the engine is running. |

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

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

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

Computer track A3, connector A   ⟶   Instrument panel
Computer track A4, connector A   ⟶   Instrument panel

(see the connector track numbers on the corresponding wiring diagram)
Repair if necessary.

If the fault is still present, deal with the other faults and contact the Techline if necessary.

For non-multiplex vehicles:
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.
Check the **condition** and **condition** of the sensor.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Computer track H3, connector B   ⟶   Vehicle speed sensor

Repair if necessary.

| *AFTER REPAIR* | Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults. |

SIM32_V04_DF091 / SIM32_V08_DF091

	UPSTREAM OXYGEN SENSOR CIRCUIT
DF092 **PRESENT** **OR** **STORED**	CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Component in poor condition 2. DEF : Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.

Check the **cleanliness** and **condition** of the upstream oxygen sensor connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

        Computer track B3, connector C ⟶ Track D of the upstream oxygen sensor
        Computer track C3, connector C ⟶ Track C of the upstream oxygen sensor

Repair if necessary.

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF092 / SIM32_V08_DF092

DF093 PRESENT OR STORED	<u>DOWNSTREAM OXYGEN SENSOR CIRCUIT</u> CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal first with the faults **DF084 Actuator relay control circuit** and **DF046 Battery voltage** if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.

Check the **cleanliness** and **condition** of the upstream oxygen sensor connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer track A4, connector B ⟶ Track D of the downstream oxygen sensor
Computer track A3, connector B ⟶ Track C of the downstream oxygen sensor

Repair if necessary.

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF093 / SIM32_V08_DF093

	THROTTLE POTENTIOMETER CIRCUIT GANG 1
DF095 PRESENT OR STORED	CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts 1. DEF : Inconsistency between throttle gang 1 and gang 2 2. DEF : Component in poor condition

WARNING
Never drive the vehicle without having made sure that there are no throttle valve faults present.

	Priorities when dealing with a number of faults: Deal with fault **DF012 Sensor supply voltage no. 2** first if it is present or stored.
NOTES	**Special notes:** **CO/CC.0/CC.1/1.DEF:** The throttle valve goes into defect mode 1 and 2, causing the vehicle and engine speed to be limited. The ESP and cruise control/speed limiter are deactivated. **2.DEF:** The fault warning light level 1 is lit and the injection goes into defect mode 4, causing the vehicle speed to be limited to **54 mph (90 km/h)** and a loss of power during accelerations (impression of having a spongy pedal).

Check the **cleanliness** of the throttle valve and that the throttle **rotates properly** (no hard point).
Check the **cleanliness** and **condition** of the throttle valve connections.
Repair if necessary.
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer, connector C, track B2 ⟶ Throttle potentiometer, track 1
Computer, connector C, track C1 ⟶ Throttle potentiometer, track 4
Computer, connector C, track B1 ⟶ Throttle potentiometer, track 2
Computer, connector A, track H2 ⟶ Pedal potentiometer, track 2

Repair if necessary.

If the fault is still present, replace the motorised throttle valve unit.

AFTER REPAIR	If the throttle valve has been replaced, program the throttle stops, RZ008 Reinitialising the programming. Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF095 / SIM32_V08_DF095

DF096 PRESENT OR STORED	THROTTLE POTENTIOMETER CIRCUIT GANG 2 CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 volts

WARNING
Never drive the vehicle without having made sure that there are no throttle valve faults present.

NOTES	Priorities when dealing with a number of faults: Deal with fault **DF012 Sensor feed voltage no. 2** first if it is present or stored.
	Special notes: The fault warning light level 1 is lit and the injection goes into defect mode 4, causing the vehicle speed to be limited to **54 mph (90 km/h)** and a loss of power during accelerations (impression of having a spongy pedal).

Check the **cleanliness** of the throttle valve and that the throttle **rotates properly** (no resistance).
Check the **cleanliness** and **condition** of the throttle valve connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections

Computer connector C, track C2	⟶	Throttle potentiometer, track 3
Computer, connector C, track B1	⟶	Throttle potentiometer, track 2
Computer, connector C, track C1	⟶	Throttle potentiometer, track 4
Computer, connector A, track F3	⟶	Pedal potentiometer, track 1

Repair if necessary.

If the fault is still present, replace the motorised throttle valve unit.

AFTER REPAIR	If the throttle valve has been replaced, program the throttle stops, RZ008 Reinitialising the programming. Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF096 / SIM32_V08_DF096

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V2

DF109 PRESENT OR STORED	<u>LOW FUEL LEVEL MISFIRING</u> 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with several faults: First deal with faults: – **DF085 Fuel pump relay control circuit,** – **DF040 Cylinder 1 injector circuit,** – **DF041 Cylinder 2 injector circuit,** – **DF042 Cylinder 3 injector circuit,** – **DF043 Cylinder 4 injector circuit,** – **DF059 Misfiring on cylinder 1,** – **DF060 Misfiring on cylinder 2,** – **DF061 Misfiring on cylinder 3,** – **DF062 Misfiring on cylinder 4** – **DF436 Combustion misfiring detection.** Check whether they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: **1. DEF:** The fault is declared present when the misfiring rate is above **15%** for at least **1 minute 30 seconds**. **2. DEF:** The fault is declared as present when the misfiring rate is above **4%** for at least **15 minutes**.
	Special notes: **1. DEF:** As soon as the fault is detected, the injection is cut off on the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. **2. DEF**: The OBD warning light is continuously lit.

Check:
– the level of fuel in the tank,
– that the fuel grade and type are correct,
– the fuel filter,
– the fuel pump,
– the fuel lines,
– the fuel pressure.
If there is no present or stored misfiring fault, the misfiring was caused by the low fuel level.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF109 / SIM32_V08_DF109

DF138 PRESENT OR STORED	<u>CLUTCH PEDAL CIRCUIT</u> 1. DEF: Component in poor condition

NOTES	None.

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

Check the continuity between tracks 1 and 2 of the **clutch pedal switch** in the depressed position.
If it is not correct, replace the **clutch pedal switch**.

Check for earth on track 1 of the **clutch pedal switch**.
Repair if necessary.

Check the condition and connection of **connector A** of the **injection computer**.
Repair if necessary.

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

     Injection computer, connector A, track C4   ⟶   Track 2 **clutch pedal switch**

Repair if necessary.

If there is still a fault, replace the **clutch switch**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF138 / SIM32_V08_DF138

DF154 **PRESENT** **OR** **STORED**	<u>FLYWHEEL SIGNAL SENSOR CIRCUIT</u> 1. DEF: Open circuit or short circuit 2. DEF: Tooth lost 3. DEF: Non-compliance with emission control standards

	Conditions for applying the fault finding procedure to stored faults: The fault is declared present whilst the engine is being started or when it is running.
NOTES	**Special notes:** In the event of a tooth signal loss, the injection and ignition are cut off: the engine stalls and cannot be restarted. If intermittent **CO**, there are 2 possibilities: – loss of teeth < 2 teeth, automatic resetting to the next long tooth, – loss of teeth > 2 teeth, resynchronising after 1 rotation, risk of bucking and stalling at idle speed.

Check the **fixing** and **positioning** of the TDC sensor.
Repair if necessary.

Manipulate the wiring harness between the injection computer and the TDC sensor in such a way as to mark the passing of the "present" status to "stored".
Look for possible damage to the harness and check the **connection and condition** of the **flywheel signal** sensor and its connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

    Injection computer, connector C, track A4   ⟶   Track 1 of the flywheel signal sensor
    Injection computer, connector C, track B4   ⟶   Track 2 of the flywheel signal sensor

Repair if necessary.

Measure the **resistance** of the tooth signal sensor between **tracks A** and B.
If the value is not between **175 Ω and 295 Ω at 23°C**, replace the **flywheel signal** sensor.

Disconnect the computer, use the universal bornier to check the **signal** from the **flywheel signal sensor**. If it is fitted, use the Clip oscilloscope and make sure the square pulse signal of the sensor is not faulty (interference, tooth missing, etc.). If there is interference on the signal, check the air gap of the **flywheel signal sensor**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF154 / SIM32_V08_DF154

DF176 PRESENT OR STORED	LOW-SPEED FAN ASSEMBLY CIRCUIT CO : Open circuit CC.0 : Short circuit to earth CC.1 : Short circuit to + 12 V

NOTES	Priorities when dealing with a number of faults: Deal first with faults **DF084 Actuator relay control circuit and DF046 Battery voltage** if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the ignition is on or on command **AC271 Low-speed fan assembly**.
	Special notes: **CO/CC.1:** No activation of fan assembly 1. **CC.0:** Permanent activation of fan assembly 1.

Check for **+ 12 V after ignition feed** on track **E1** of the low speed fan assembly relay. If no + 12 V:
– disconnect the battery,
– check the **30 A fuse** located on the power supply board, and for continuity between the fuse and track **J3** of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Track **B5** of the actuator relay mounting ⟶ Track **A1** of the low-speed fan assembly relay mounting

(Relay J of the engine fuse and relay box)　　　　　　　(Relay E of the engine fuse and relay box)
Repair if necessary.

Disconnect the computer. Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Computer, connector B, track D1 ⟶ Track **A2** of the low-speed fan assembly relay mounting

Repair if necessary.

Check for an earth on **track E2** of the **low-speed fan assembly relay mounting** when applying command **AC271 Low-speed fan assembly relay**.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF176 / SIM32_V08_DF176

| **DF177**
PRESENT
OR
STORED | <u>HIGH-SPEED FAN ASSEMBLY CIRCUIT</u>
CO : Open circuit
CC.0 : Short circuit to earth
CC.1 : Short circuit to + 12 V |

NOTES	Priorities when dealing with a number of faults: Apply the procedure for dealing with faults **DF084 Actuators relay control circuit** or **DF046 Battery voltage** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running or during command **AC272 High-speed fan assembly relay**.
	Special notes: **CO/CC.1:** No activation of fan assembly 2: Engine liable to overheat. **CC.0:** Permanent activation of fan assembly 2.

Check for **+ 12 V after ignition feed** on track **E1** of the high-speed fan assembly relay. If no + 12 V:
– disconnect the battery,
– check the **30 A fuse**, located on the power supply board, and the continuity of the fuse on track J3 of the **actuator relay** board,
– Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

    Track **B5** of the actuator relay mounting   ⟶   Track A1 of the high-speed fan assembly relay mounting

(Relay J of the engine fuse and relay box)   (Relay A of the engine fuse and relay box)
Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

    Computer, connector B, track F1   ⟶   Track 2 of the high-speed fan assembly relay mounting

Repair if necessary.

Check for an earth on track A2 of the high-speed fan relay mounting when applying command **AC272 High-speed fan assembly relay**.

| **AFTER REPAIR** | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF177 / SIM32_V08_DF177

| DF228 PRESENT OR STORED | <u>BRAKE SIGNALS</u>
1. DEF: Faulty sensor
2. DEF: Non-compliance with emission control standards |

| *NOTES* | Conditions for applying the fault finding procedure to stored faults:
The fault is declared present after the brake pedal has been depressed several times. |

Check the **condition** of the pedal assembly.
Check **the cleanliness** and **condition** of the dual-contact brake switch and its connections.
Repair if necessary.

With the ignition on, check for **+ 12 V** on **tracks A1** and **B1** of the brake pedal switch.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

     Injection computer, connector A, track E4   ⟶   Brake pedal, track B3
     Injection computer, connector A, track E3   ⟶   Brake pedal, track A3

Repair if necessary.

If the fault is still present, replace the switch.

| *AFTER REPAIR* | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF288 / SIM32_V08_DF228

| **DF232 PRESENT OR STORED** | <u>REFRIGERANT PRESSURE SENSOR CIRCUIT</u>
1. DEF: Open circuit or short circuit |

| *NOTES* | Priorities when dealing with a number of faults:
Deal with fault **DF011 Sensor supply voltage no. 1** first if it is present or stored. |
| | **Special notes:**
The fault is declared present, with the ignition on, when the signal voltage is greater than **4.985 V** or less than **0.024 V**.
When the fault is present and stored, parameter **PR037 Refrigerant pressure** displays a default value: 0 bar, and the air conditioning does not operate. |

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

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

    Injection computer, connector B, track D4 ⟶ Refrigerant sensor, track B
    Injection computer, connector B, track E3 ⟶ Refrigerant sensor, track C
    Injection computer, connector B, track E4 ⟶ Refrigerant sensor, track A

Repair if necessary.

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

| *AFTER REPAIR* | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF232 / SIM32_V08_DF232

DF248 PRESENT OR STORED	LEVEL 2 WARNING LIGHT CIRCUIT CO: Open circuit CC.0: Short circuit to earth CC.1: Short circuit to + 12 V

NOTES	**CC.1**: Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is continuously lit with the ignition key off. **CO**: Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is permanently off. **CC.0**: The warning light is continuously lit except when the ignition is off.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the instrument panel connections, component code **247**.
If the connector is faulty and there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Check the illumination of the level 2 warning light by running command **AC274 Level 2 warning light**.

Check the cleanliness and condition of the injection computer connections, component code **120**.
If the connector is faulty and there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

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

– **3NY** between components **120** and **247**

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

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF248 / SIM32_V08_DF248

DF330 PRESENT OR STORED	<u>PINKING SENSOR CIRCUIT</u> 1. DEF: Open circuit or short circuit 2. DEF: Non-compliance with emission control standards

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present with the engine running with an engine coolant temperature above **75°C** and the engine speed above **1500 rpm**.
	Special notes: The wiring harness connecting the injection computer to the sensor is "shielded". For this reason, a short circuit to + 12 V is unlikely.

Check **the cleanliness** and **condition** of the pinking sensor and its connections. Check the **tightness** of the pinking sensor (**20 N.m**).
Repair if necessary.

Measure **the insulation resistance** of the pinking sensor between tracks 1 and 2.
If the value is not above **1 M**Ω, replace the pinking sensor.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer track C4, connector C   ⟶   Track 2 of the pinking sensor
Computer track D4, connector C   ⟶   Track 1 of the pinking sensor

Repair if necessary.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF330 / SIM32_V08_DF330

| DF353 PRESENT OR STORED | MANIFOLD PRESSURE SENSOR CIRCUIT
1. DEF: Signal inconsistency
2. DEF: Open circuit or short circuit
3. DEF: Non-compliance with emission control standards |

| NOTES | Conditions for applying the fault finding procedure to stored faults:
The fault is declared present with the engine running after a few seconds. |
| | **Special notes:**
The injection switches to defect mode 5.
The vehicle stalls under idle speed. The OBD and level 1 warning lights are lit (minimum idle speed of **900 rpm**).
2. DEF: CO or CC
If there is an **open circuit** or **short circuit** to earth: the manifold pressure sensor signal is approximately 0.
If there is a **short circuit** to + 12 V: the manifold pressure sensor signal is around 5 V. |

Check the **cleanliness** and **condition** of the manifold pressure sensor and its connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

Computer, connector C, track A1 ⟶ Manifold pressure sensor, track A
Computer, connector C, track A2 ⟶ Manifold pressure sensor, track C
Computer, connector C, track A3 ⟶ Manifold pressure sensor, track B

Repair if necessary.

If the fault is still present, carry out the following checks:
The inlet line must be perfectly sealed, from the throttle valve to the cylinder head.
Check:
– the condition of the air filter,
– that the air inlet circuit is not blocked,
– the sealing between the throttle valve and inlet manifold,
– the tightness of the manifold pressure sensor,
– the fuel vapour absorber bleed, which must not be jammed open,
– the fuel vapour absorber bleed system sealing,
– the brake servo system sealing,
– the cylinder head oil vapour recovery system sealing,
– the sealing between the inlet manifold and cylinder head,
– the exhaust pipe sealing between the cylinder head and catalytic converter.
Repair if necessary.

| AFTER REPAIR | Follow the instructions to confirm repair:
If the fault is present, continue to deal with the fault.
If the fault is stored, ignore it.
Deal with any other faults.
Clear the stored faults. |

SIM32_V04_DF353 / SIM32_V08_DF353

DF361 PRESENT OR STORED	IGNITION COIL 1 - 4 CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short-circuit to +12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal with faults **DF046 Battery voltage, DF084 Actuator relay control circuit** or **DF085 Fuel pump relay control circuit** first if they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for **10 seconds** or after the engine has been running for **10 seconds**.
	Special notes: **CO.0**: coil continuously supplied; risk of damage to the coil. **CC.1**: coil never supplied; injection cut-off on the pair of faulty cylinders and possible damage to the catalytic converter.

Disconnect the ignition quadruple coil module connector and check the **cleanliness** and **condition** of its connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the **cleanliness** and **condition** of the connections. Repair if necessary.
Use the universal bornier to check the **insulation** and **continuity** of the following connection: Computer track G4, connector C ⟶ Track D of the ignition quadruple coil module If the fault is still present, replace the ignition quadruple coil module.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF361 / SIM32_V08_DF361

DF361 CONTINUED	

With the ignition on, check for + 12 V **after ignition** on track **B** of the connector for the ignition quadruple coil module.
If no + 12 V:
– disconnect the battery,
– disconnect the fuel pump relay in the engine relay unit,
– check the **cleanliness** and **condition** of the connections,
– Use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Track A5 of the fuel pump relay mounting   ⟶   **Track B** of the ignition quadruple coil module connector

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Repair if necessary.
Reconnect the fuel pump relay and reconnect the battery.
If, with the ignition on, there is still no + 12 V on **track B** of the connector of the ignition quadruple coil module, replace the fuel pump relay.

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

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF362 PRESENT OR STORED	IGNITION COIL 2 - 3 CIRCUIT CO.0 : Open circuit or short circuit to earth CC.1 : Short-circuit to +12 volts 1. DEF : Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal with faults **DF046 Battery voltage, DF084 Actuator relay control circuit** or **DF085 Fuel pump relay control circuit** first whether they are present or stored.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the starter has been in operation for **10 seconds** or after the engine has been running for **10 seconds**.
	Special notes: CO.0: coil continuously supplied, risk of coil destruction. CC.1: coil never supplied, injection cut-off on the pair of faulty cylinders, possible damage to the catalytic converter.

Disconnect the ignition quadruple coil module connector and check the **cleanliness** and **condition** of its connections. Repair if necessary.
Disconnect the battery and the injection computer. Check the **cleanliness** and **condition** of the connections. Repair if necessary.
Use the universal bornier to check the **insulation** and **continuity** of the following connection: Computer track H4, connector C ⟶ Track A of the ignition quadruple coil module If the fault is still present, replace the ignition quadruple coil module.
If the fault is still present, deal with the other faults then proceed to the conformity check.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF362 / SIM32_V08_DF362

| **DF362 CONTINUED** | |

With the ignition on, check for + 12 V **after ignition** on **track B** of the connector of the ignition quadruple coil module.
If no **+ 12 V**:
– disconnect the battery,
– disconnect the fuel pump relay in the engine relay unit,
– check the **cleanliness** and **condition** of the connections,
– use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Track A5 of the fuel pump relay mounting   ⟶   **Track B** of the ignition quadruple coil module connector

Repair if necessary.
Reconnect the fuel pump relay and reconnect the battery.
If, with the ignition on, there is still no + 12 V on **track B** of the connector of the ignition quadruple coil module, replace the fuel pump relay.

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

| *AFTER REPAIR* | Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults. |

DF394 PRESENT OR STORED	<u>CATALYTIC CONVERTER OPERATING FAULT</u> 1. DEF: Component in poor condition 2. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal with any other fault first.
	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after the engine starts.
	Special notes: the OBD warning light is on.

Firstly check **the appearance** and **condition** of the catalytic converter and make sure there is no:
– air intake,
– heat shock,
– misfiring,
– coolant consumption,
– oil consumption.
Check all the electrical faults, clear them from the memory and check that fault **DF436 Combustion misfire detection** is not present or stored.

AFTER REPAIR	Follow the instructions to confirm repair: If the fault is present, continue to deal with the fault. If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF394 / SIM32_V08_DF394

DF398 PRESENT OR STORED	<u>FUEL CIRCUIT OPERATING FAULT</u> 1. DEF: Component in poor condition 2. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: Deal firstly with fault **DF085 Fuel pump relay control circuit**.
	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running. Difficulty starting, loss of comfort, loss of power.

Operational fault finding on the fuel circuit must detect a malfunction in the fuel feed system that causes the EOBD pollutant emission thresholds to be exceeded. The on-board diagnostic can detect:
– clogging of the injectors or an injector flow fault,
– a fault in the supply system (pressure regulator, fuel pump, filter, etc.),
– a poor connection in the petrol or injection circuits.

Check:
– the fuel pressure,
– the fuel filter,
– the fuel pipes,
– clogging of the injectors or an injector flow fault,
– that there are no petrol leakages.
(See **MR 392 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 13A, fuel supply**).

AFTER REPAIR	Follow the instructions to confirm repair: **– If the fault is present, continue to deal with the fault.** – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF398 / SIM32_V08_DF398

DF436 PRESENT OR STORED	<u>DETECTION OF ENGINE MISFIRING</u> 1. DEF: Destructive misfiring 2. DEF: Polluting misfiring 3. DEF: Non-compliance with emission control standards

	Priorities when dealing with a number of faults: Deal with ignition faults first **DF361 Ignition coil circuit 1-4,** **DF362 Ignition coil circuit 2-3,** fuel supply circuit faults **DF040 Cylinder 1 injector circuit,** **DF041 Cylinder 2 injector circuit,** **DF042 Cylinder 3 injector circuit,** **DF043 Cylinder 4 injector circuit,** **DF085 Fuel pump relay control circuit,** flywheel signal faults **DF154 Flywheel signal sensor circuit,** **DF457 Engine flywheel target.**
NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present when the engine is running for at least **15 minutes** (see Special notes).
	Special notes: **1. DEF:** As soon as the fault is detected, the injection is cut off on the faulty cylinder(s) to limit the temperature increase in the catalytic converter. The OBD warning light flashes for as long as the fault is present. The fault is declared present when the combustion misfiring rate is greater than **15%** for at least **1 minute 30 seconds**. **2. DEF**: The OBD warning light is continuously lit. The fault is declared present when the combustion misfiring rate is greater than **4%** for at least **15 minutes**.

If the fault is still present, carry out the following checks:
– check the flywheel sensor,
– check the condition and cleanliness of the flywheel,
– check the flywheel sensor mounting,
– check the flywheel/sensor air gap
– check the cylinder compressions,
– check the entire petrol supply system (see **MR 392 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 13A, Fuel supply)**,
– Check the entire ignition system (see **MR 392 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 17A, Ignition)**.
– check the pinking sensor (tightness positioning).
– check the timing of the valves.

AFTER REPAIR	Follow the instructions to confirm repair: **– If the fault is present, continue to deal with the fault.** – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF436 / SIM32_V08_DF436

DF457 **PRESENT** **OR** **STORED**	<u>FLYWHEEL TARGET</u> 1. DEF: Flywheel target fault: - Missing tooth - Tooth length outside tolerance range - Eccentricity on the target - Air gap outside tolerance range 2. DEF: Non-compliance with emission control standards

NOTES	Conditions for applying the fault finding procedure to stored faults The fault is considered present when the engine is running.
	Special notes: the OBD warning light is on.

If the flywheel has been replaced or removed, restart the programming of the flywheel target, then reprogram.
Reinitialise programming:
Run command **RZ019 Programming reinitialisation**.

Programming the flywheel signal:
The engine must be warm. Decelerate the first time with injection cut-off (feet off the brake, accelerator and clutch pedals) between **3500** and **3000 rpm**, in a gear higher than 2nd for at least **5 seconds**.
Make a second deceleration with injection cut-off (feet off the brake, accelerator and clutch pedals) between **2400** and **2000 rpm**, in any gear higher than 2nd for at least **5 seconds**.

If the fault is still present:
Check the mounting and condition of the engine speed sensor.
Check **the cleanliness** and **condition** of the flywheel.
Check the **condition** and **count** the number of teeth on the target.
Repair or replace the engine flywheel if necessary.

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: **– If the fault is present, continue to deal with the fault.** – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF457 / SIM32_V08_DF457

DF479 **PRESENT** **OR** **STORED**	<u>MOTORISED THROTTLE VALVE SERVO</u> 1. DEF: Detection of micro-cuts 2. DEF: Motorised throttle stop search fault 3. DEF: Faulty flap return spring 4. DEF: Incorrect position of throttle valve in safe mode 5. DEF: Motorised throttle valve flap vibrating 6. DEF: Motorised throttle control fault 7. DEF: Intake supply circuit 8. DEF: Non-compliance with emission control standards

NOTES	Priorities when dealing with a number of faults: If faults **DF095 Throttle potentiometer circuit gang 1,** **DF096 Throttle potentiometer circuit gang 2,** **DF011 Sensor supply voltage no. 1** are present or stored, deal with these first.
	Conditions for applying the fault finding procedure to stored faults: **1.3.4.5.6. DEF**: The fault is declared present with the engine running or on activating command **AC621 Motorised throttle**. **2. DEF:** The fault is declared present when the throttle stops are programmed, **RZ019 Programming reinitialisation**. **7. DEF:** The fault is declared present as soon as the injection switches to defect mode 2 to 6.
	Special notes: **2.6. DEF**: When this fault is present, the level 1 warning light comes on. The injection changes to defect mode 1 and 2 which leads to a vehicle and engine speed restriction. **3.4. DEF**: When this fault is present, the level 1 warning light comes on. The injection goes into defect mode 4, resulting in a speed limitation of **54 mph (90 km/h)** and a loss of power when accelerating (impression of having a spongy pedal).

Check the **cleanliness, condition** and **assembly** of the throttle valve.
Repair if necessary.
If the fault is still present, manually check that the throttle valve rotates correctly.
Repair if necessary.
If the fault is still present, adjust the harness so that the fault status changes.
Look for any harness damage, and check the **condition** and **connection** of the injection computer connectors.
Repair if necessary.

AFTER REPAIR	If the throttle valve has been replaced, program the throttle stops (see Configurations and programming). Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF479 / SIM32_V08_DF479

DF479 CONTINUED	

If the fault is still present, disconnect the battery and the injection computer. Check the **insulation, continuity and the absence of interference resistance** on the following connections:

Computer connector C track G3	➞	Track 5 of the motorised throttle valve
Computer connector C track H3	➞	Track 6 of the motorised throttle valve
Computer connector C track B2	➞	Track 1 of the motorised throttle valve
Computer connector C track B1	➞	Motorised throttle valve track 2
Computer connector C track C2	➞	Track 3 of the motorised throttle valve
Computer connector C track C1	➞	Track 4 of the motorised throttle valve
Computer connector A track G2	➞	Track 6 of the pedal potentiometer
Computer connector A, track H2	➞	Track 2 of the pedal potentiometer
Computer connector A, track H3	➞	Track 4 of the pedal potentiometer
Computer connector A track F2	➞	Track 3 of the pedal potentiometer
Computer connector A track F3	➞	Track 1 of the pedal potentiometer
Computer connector A track F4	➞	Track 5 of the pedal potentiometer

Repair if necessary.

If the fault is still present, check the resistance of the throttle valve motor between **tracks 5 and 6**. If the value is not approximately **1000** Ω **± 250** replace the throttle valve.

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

AFTER REPAIR	If the throttle valve has been replaced, program the throttle stops (see Configurations and programming). Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

DF489 PRESENT OR STORED	<u>AIR CONDITIONING COMPRESSOR CONTROL</u> CO: Open circuit CC.0: Short circuit to earth CC.1: Short circuit to + 12 V

NOTES	Conditions for applying the fault finding procedure to stored faults The fault is declared present with the engine running and whilst pressing the air conditioning command button.
	Special notes: **CO/CC.1:** Impossible to switch on the air conditioning. **CC.0:** Air conditioning continuously on.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the warning light connections, component code **120**.
If the connector is faulty and there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

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

– **38K** between components **120** and **474**

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

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF489 / SIM32_V08_DF489

| DF508 PRESENT OR STORED | MOTORISED THROTTLE VALVE CONTROL 1. DEF: Component in poor condition |

WARNING
Never drive the vehicle without having made sure that there are no throttle valve faults present.

NOTES	Priorities when dealing with a number of faults: If faults **DF095 Throttle potentiometer circuit track 1** or **DF096 Throttle potentiometer circuit track 2** are present, deal with these first.
	Conditions for applying the fault finding procedure to a stored fault: The fault is declared present on activating command **AC621 Motorised throttle**.
	Special notes: In the event of faults, warning light level 1 lights up. The injection changes to defect mode 1 and 2 which leads to a vehicle and engine speed restriction.

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

Manually check that the throttle **rotates properly**.
Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Repair if necessary.

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

Computer track G3, connector C   ⟶   Track 5 of the motorised throttle
Computer track H3, connector C   ⟶   Track 6 of the motorised throttle

Repair if necessary.

Measure the **resistance** of the throttle valve motor between **tracks 5 and 6**.
If the value is not **1000 Ω ± 250** replace the throttle valve.

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

| *AFTER REPAIR* | If the throttle valve has been replaced, program the throttle stops (see Configurations and programming). Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults. |

SIM32_V04_DF508 / SIM32_V08_DF508

DF584 PRESENT OR STORED	<u>COOLANT TEMPERATURE WARNING LIGHT CIRCUIT</u> CO: Open circuit CC.0: Short circuit to earth CC.1: Short circuit to + 12 V

NOTES	**Special notes:** **CC.1**: Warning light continuously lit, ignition off. **CO**: Short circuit to earth. **CC.0:** The warning light is continuously lit with the ignition off.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the instrument panel connections, component code **247**.
If the connector is faulty and there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Disconnect the battery and the injection computer.
Check **the cleanliness** and **condition** of the injection computer connector, component code **120**.
Use the universal bornier to check the **insulation**, **continuity and the absence of interference resistance** on the following connection:

– **31A** between components **120** and **247**

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

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

SIM32_V04_DF584 / SIM32_V08_DF584

| **DF884 PRESENT OR STORED** | ADDITIONAL FUEL CIRCUIT PUMP RELAY CO : Open circuit CC.1 : Short-circuit to +12 volts CC.0 : Short circuit to earth |

| *NOTES* | Conditions for applying the fault finding procedure to stored faults: The fault is declared present after cold starting (use of the "Hi-flex" system) or after using command **AC009 Additional fuel circuit pump relay**. |
| | **Special notes:** **C.O or CC.1:** additional fuel pump no longer activated. **CC.0:** additional fuel pump always supplied, no possible cut-off of the pump and coils by the ECU. |

Manipulate the wiring harness between the fuel computer and the additional fuel pump relay in order to mark a status change (present or stored)
Look for possible damage to the harness, and check the connections and condition of the additional fuel pump relay connector.
Replace the connector if necessary.

Disconnect the relay.
With the ignition switched on, check for **+ 12 V** on **track 1** of the additional fuel pump relay connector.
Repair if necessary.

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

Fuel computer connector **B**, **track k1** ⟶ **track 2** of the additional fuel pump relay connector

Repair if necessary.

Measure the **resistance** of the coil between **tracks 1** and **2** of the additional fuel pump relay.
Replace the additional fuel pump relay if the **resistance** is not **330 Ω ± 10 %**.

| *AFTER REPAIR* | Vary the engine speed to confirm repair. Deal with any other faults. Clear the stored faults. |

SIM32_V04_DF884 / SIM32_V08_DF884

DF894 PRESENT OR STORED	ADDITIONAL FUEL CIRCUIT SOLENOID VALVE CO: Open circuit CC.1: Short circuit to + 12 V CC.0: Short circuit to earth

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present after cold starting (use of the "Hi-flex" system) or after using command **AC013 Additional fuel circuit solenoid valve**.
	Special notes: **C.O or CC.1:** solenoid valve jammed shut, OBD indicator light on. **CC.0:** valve always open, risk of stalling.

Manipulate the wiring harness between the fuel computer and the additional fuel circuit solenoid valve in order to mark a status change (present or stored).
Look for possible damage to the harness, and check the connections and condition of the additional fuel circuit solenoid valve.
Replace the connector if necessary.

With the ignition on check for the presence of **+ 12 V** on **track 1** of the additional fuel circuit solenoid valve connector.

Using the universal bornier, check the insulation, continuity and absence of interference resistance for the connection between:

Fuel computer connector **B, track G1** ⟶ **track 1** of the additional fuel circuit solenoid valve

Main relay **track 5** ⟶

Repair if necessary.

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

Fuel computer connector **B, track C1** ⟶ **track 2** of the additional fuel circuit solenoid valve
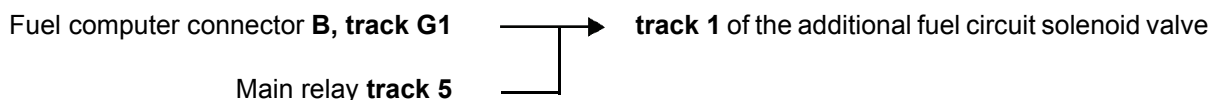
Repair if necessary.

Measure the **resistance** between **tracks 1** and **2** of the additional fuel circuit solenoid valve.
Replace the additional fuel circuit solenoid valve if the **resistance** is not:
24.6 Ω ± 3 Ω at -10°C
28.5 Ω ± 3 Ω at 24°C
29.8 Ω ± 3 Ω at 45°C

AFTER REPAIR	Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF894 / SIM32_V08_DF894

DF1067 PRESENT OR STORED	AFTER-SALES TOOTH SIGNAL SENSOR CIRCUIT 1. DEF: Tooth lost

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is declared present whilst the engine is being started or when it is running.
	Special notes: In the event of a tooth signal loss, the injection and ignition are cut off: the engine stalls and cannot be restarted.

Check the **fixing** and **positioning** of the TDC sensor.
Repair if necessary.

Manipulate the wiring harness between the injection computer and the TDC sensor in such a way as to mark the passing of the "present" status to "stored".
Look for possible damage to the harness and check the **connection and condition** of the **flywheel signal** sensor and its connections.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

    Injection computer, connector C, track A4   ⟶   Track A of the flywheel signal sensor
    Injection computer, connector C, track B4   ⟶   Track B of the flywheel signal sensor

Repair if necessary.

Measure the **resistance** of the tooth signal sensor between **tracks A** and B.
If the value is not between **200 Ω and 270 Ω at 23°C**, replace the **flywheel signal** sensor.

Disconnect the computer, use the universal bornier to check the **signal** from the **flywheel signal sensor**. If it is fitted, use the Clip oscilloscope and make sure the square pulse signal of the sensor is not faulty (interference, tooth missing, etc.). If there is interference on the signal, check the air gap of the **flywheel signal sensor**.

If the fault is still present, contact the Techline.

AFTER REPAIR	Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF1067 / SIM32_V08_DF1067

DF1354 PRESENT OR STORED	<u>LEVEL 1 WARNING LIGHT CIRCUIT</u> CO: open circuit CC.0: short circuit to earth CC.1: short circuit to + 12 volts

NOTES	Conditions for applying the fault finding procedure to stored faults: The fault is considered present when the engine is running.
	Special notes: **CC.1:** Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is continuously lit with the ignition off. **CO:** Risk of going into defect mode without signal and no ignition **3 seconds** from switching on the ignition. The warning light is off at all times. **CC.0:** The warning light is continuously lit except when the ignition is off.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the instrument panel connections, component code **247**.
If the connector is faulty and there is a repair method (see **Technical Note 6015A, Repairing electrical wiring, Wiring: Precautions for repair**), repair the connector, otherwise replace the wiring.

Disconnect the battery and the injection computer.
Check **the cleanliness** and **condition** of the injection computer connector, component code **120**.
Use the universal bornier to check the **insulation**, **continuity** and the **absence of interference resistance** on the following connection:

– **3NX** between components **120** and **247**

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

AFTER REPAIR	Follow the instructions to confirm repair: – If the fault is present, continue to deal with the fault. – If the fault is stored, ignore it. Deal with any other faults. Clear the stored faults.

SIM32_V04_DF1354 / SIM32_V08_DF1354

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUNCTION: AIR CIRC. (TURBO/INLET)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Air circuit	**PR055:** Motor speed	Indicates the engine's speed of rotation in rpm. **0 rpm.**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR190:** Engine idle speed value	The idle speed regulation setting depends on coolant and oil temperature, the position of the gearbox selector, and what electrical consumers are running. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm.**	If there is a fault, apply interpretation of **ET054 Idle speed regulation**.
3		**PR058:** Air temperature	With the engine cold, this parameter must equal **PR064 "Coolant temperature"** Default values: **- 40 °C** Default values: **120 °C**	In the event of a fault, apply the interpretation of **DF002 Air temperature sensor circuit**.
4		**PR421:** Manifold pressure	Approximately **1000 mbar**	In the event of a fault, apply interpretation of **DF353 Manifold pressure sensor circuit**.

| **NOTES** | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on. |

FUNCTION: FUEL CIRCUIT

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1		**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **0 rpm.**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**ET652:** HIFLEX configuration	YES	NONE
3	Fuel circuit	**ET671:** Programming the level of alcohol	**NOT PERFORMED**	NONE
4		**PR190:** Engine idle speed value	The idle speed regulation setpoint depends on the oil and coolant temperature and on the operation of the electrical consumers. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm.**	If there is a fault, apply interpretation of **ET054 Idle speed regulation**.
5		**ET001:** + Computer After ignition	PRESENT	If there is a fault, apply **ALP 1**.
6		**PR071:** Computer feed voltage	**11 V < PR071 < 15 V**	If there is a fault, apply the interpretation of **DF046 Battery voltage**.

	NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUNCTION: FUEL CIRCUIT (CONTINUED 1)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
7		**ET290:**	Fuel pump relay control	INACTIVE	In the event of a fault apply the interpretation for **DF085, Fuel pump relay control circuit**
8		**PR101:**	Duration of injection	0 ms	NONE
9		**ET670:**	Additional fuel pump relay control	INACTIVE	NONE
10		**PR742:**	Additional petrol circuit SV OCR	**0 %**	NONE
11	Fuel circuit	**PR748:**	Injection duration correction	It varies between **0** and **1 ms** **0**: no injection time correction, **1**: significant increase in injection time, **0.1**: default value displayed in Non-"HI-FLEX" mode	In the event of a fault, apply the interpretation of **PR748 Injection duration correction**.
12		**PR091:**	Theoretical idle speed regulation OCR	Approximately **23 %**	NONE
13		**PR090:**	Idle speed regulation programmed value	Approximately **7 %**	NONE
14		**ET300:**	Richness regulation	ACTIVE	NONE
15		**PR438:**	Richness correction value	**0 % < PR438 < 100 %** Close to **50 %**	These parameters serve to determine the trend towards increasing or decreasing richness.
16		**PR139:**	Operating adaptive richness	Approximately **10 %**	

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUEL FUNCTION (CONTINUED 2)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
17	Fuel circuit	**PR144:**	Self-adapting richness offset	**0 % < PR144 < 100 %** Close to **50 %**	These parameters serve to determine the trend towards increasing or decreasing richness.
18		**PR143:**	Self-adapting richness gain	**0 % < PR143 < 100 %** Close to **50 %**	

PETROL INJECTION
Fault finding – Conformity check

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUNCTION: DRIVER PARAMETERS

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Driver parameters	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **0 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR190:** Idle speed setpoint	The idle speed regulation setpoint depends on the oil and coolant temperature and on the operation of the electrical consumers. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm.**	In the event of a fault apply the interpretation for **ET054, Idle speed regulation**.
3		**ET082:** Motorised throttle position	CLOSED	In the event of a fault, apply the interpretation for **DF095 Throttle potentiometer circuit gang 1**.
4		**PR429:** Measured throttle position	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer circuit gang 1** and **DF096 Throttle potentiometer circuit gang 2**
5		**PR118:** Measured throttle position gang 1	Approximately **14 %**	
6		**PR119:** Measured throttle position gang 2	Approximately **14 %**	

| | NOTES | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples.
Application condition: Engine stopped, ignition on. |

FUNCTION: DRIVER PARAMETER (CONTINUED 1)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
7	Driver parameters	**ET081:**	Accelerator pedal position	NO LOAD	In the event of a fault apply the interpretation for **PR030, Accelerator pedal position**.
8		**ET405:**	Clutch pedal switch	ACTIVE if clutch pedal is depressed INACTIVE if clutch pedal is released	In the event of a fault, apply interpretation of **DF138 "Clutch pedal circuit"**.
9		**PR424:**	Programming the no-load position value	Approximately **14 %**	NONE
10		**PR030:**	Accelerator pedal position	Approximately **14 %**	In the event of a fault apply the interpretation for **PR030, Accelerator pedal position**.
11		**PR568:**	Pedal position gang 1	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF008 Pedal potentiometer ganged circuit 1**.
12		**PR569:**	Pedal position gang 2	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF009 Pedal potentiometer ganged circuit 2**.

| NOTES | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples.
Application condition: Engine stopped, ignition on. |

FUNCTION: DRIVER PARAMETER (CONTINUED 2)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
13	Motorised throttle	PR539:	Measured throttle voltage, gang 1	Approximately **0.70 V**	
14		PR538:	Measured throttle voltage, gang 2	Approximately **0.70 V**	
15	Driver parameters	PR089:	Vehicle speed	**0 mph (0 km/h)**	If there is a fault use the interpretation for **DF091 Vehicle speed signal**.
16		ET054:	Idle speed regulation	INACTIVE	NONE
17		ET237:	Brake pedal	With pedal released: RELEASED With pedal depressed: DEPRESSED	In the event of a fault, apply the interpretation of **DF228 Brake signals**.

| NOTES | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples.
Application condition: Engine stopped, ignition on. |

FUNCTION: DRIVER PARAMETER (CONTINUED 3)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
18	Motorised throttle	**PR097:**	Motorised throttle lower stop programmed value	**10 %**	In the event of a fault, apply interpretation of **DF095 Throttle potentiometer track 1 and DF096 Throttle potentiometer track 2**.
19		**PR096:**	Motorised throttle upper stop programmed value	**20 %**	
20		**PR587:**	Motorised throttle lower stop gang 1	Approximately **0.50 V**	In the event of a fault, apply the interpretation for **DF095 Throttle potentiometer circuit gang 1**.
21		**PR588:**	Motorised throttle lower stop gang 2	Approximately **4.50 V**	If there is a fault, use the interpretation for **DF096 Throttle potentiometer circuit gang 2**.
22		**PR589:**	Motorised throttle upper stop gang 1	Approximately **1 V**	If there is a fault, use the interpretation for **DF095 Throttle potentiometer circuit gang 1**.
23		**PR590:**	Motorised throttle upper stop gang 2	Approximately **4 V**	If there is a fault, use the interpretation for **DF096 Throttle potentiometer circuit gang 2**.
24		**PR111:**	Motorised throttle position corrected value	Approximately **50 %**	If there is a fault, use the interpretation for **DF095 Throttle potentiometer circuit gang 1**.

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUNCTION: DRIVER PARAMETER (CONTINUED 4)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
25		**ET051:**	Throttle stop programming	PERFORMED	In the event of a fault, apply the procedure described in **Configuration and programming**.
26		**ET564:**	Type 1 defect mode	INACTIVE	In the event of a fault, see interpretation of the defect modes (see **System operation**).
27		**ET565:**	Type 2 defect mode	INACTIVE	
28		**ET566:**	Type 3 defect mode	INACTIVE	
29		**ET567:**	Type 4 defect mode	INACTIVE	
30		**ET568:**	Type 5 defect mode	INACTIVE	
31		**PR106:**	Mileage counter fault warning light lit	This mileometer climbs on illumination of the fault warning light	NONE
32		**PR105:**	OBD fault warning light lit mileage counter	This mileometer climbs on illumination of the OBD warning light	NONE

| NOTES | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on. |

IGNITION ADVANCE/PREHEATING FUNCTION

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1		**PR055:**	Motor speed	Indicates the engine's speed of rotation in **rpm**. **0 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**ET062:**	Engine flywheel signal	NOT DETECTED	
3		**ET061:**	Cylinder 1 recognition	NOT PERFORMED	In the event of a fault, apply the interpretation for **ET061 "Cylinder 1 recognition"**.
4	Ignition advance/ preheating	**ET089:**	Flywheel target programming	PERFORMED	In the event of a fault, see Configuration and programming.
5		**PR571:**	Pinking signal	0	In the event of a fault, apply interpretation of **DF330 Pinking sensor circuit**.
6		**PR095:**	Anti-pinking correction	**0 ° Crankshaft angle**	NONE
7		**PR448:**	Ignition advance	Approximately **-24 °V**	NONE
8		**ET095:**	Misfire fault finding	INACTIVE	NONE

| **NOTES** | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples.
Application condition: Engine stopped, ignition on. |

FUNCTION: EMISSION CONTROL AND OBD

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Emission control/OBD	ET300:	Richness regulation	ACTIVE	NONE
2		ET056:	Richness double loop	INACTIVE	NONE
3		ET093:	Catalytic converter fault finding	INACTIVE	In the event of a fault, apply the interpretation of **DF092 Upstream oxygen sensor circuit**.
4		ET094:	Upstream sensor fault finding	INACTIVE	In the event of a fault, apply the interpretation of **DF092 Upstream oxygen sensor circuit**.
5		ET095:	Misfire fault finding	INACTIVE	In the event of a fault, apply interpretation of **DF436 Misfire detection**.
6		ET437:	Fuel circuit OBD fault finding	INACTIVE	NONE

| NOTES | Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on. |

FUNCTION: EMISSION CONTROL AND OBD (CONTINUED)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
7	Emission control/OBD	**PR098:**	Upstream oxygen sensor voltage	**0 mV < PR098 < 1000 mV** Close to **500 mV**	In the event of a fault, apply the interpretation of **DF092 Upstream oxygen sensor circuit**.
8		**PR099:**	Downstream oxygen sensor voltage	**0 mV < PR099 < 1000 mV** Close to **500 mV**	In the event of a fault, apply interpretation of **DF093 Downstream oxygen sensor circuit**.
9		**ET052:**	Upstream O_2 sensor heating	INACTIVE	In the event of a fault, apply interpretation of **DF082 Upstream oxygen sensor heating circuit**.
10		**ET053:**	Downstream O_2 sensor heating	INACTIVE	In the event of a fault, apply interpretation of **DF083 Downstream oxygen sensor heating circuit**.
11		**ET050:**	Canister bleed control	INACTIVE	In the event of a fault, apply the interpretation of **DF081 canister bleed solenoid valve circuit**.
12		**PR102:**	Canister bleed solenoid valve OCR	**0 %**	In the event of a fault, apply the interpretation of **DF081 canister bleed solenoid valve circuit**.
13		**PR105:**	OBD fault warning light lit mileage counter	This mileometer climbs on illumination of the OBD warning light.	NONE

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

COLD LOOP FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1		**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **0 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR064:** Coolant temperature	Indicates the engine coolant temperature.	If there is a fault use the interpretation for **DF001 Coolant temperature sensor circuit**.
3	Air conditioning	**PR190:** Engine idle speed value	The idle speed regulation setpoint depends on the oil and coolant temperature and on the operation of the electrical consumers. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm**.	If there is a fault, apply interpretation of **ET054 Idle speed regulation**.
4		**ET219:** Fast idle speed	INACTIVE	NONE

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

COLD LOOP FUNCTION (CONTINUED 1)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
5	Air conditioning	**ET321:**	Air conditioning compressor	INACTIVE	NONE
6		**PR037:**	Refrigerant pressure	**0 bar** (Air conditioning inactive)	In the event of a fault apply the interpretation for **PR037 "Refrigerant pressure"**.
7		**ET143:**	Low speed fan assembly relay control	INACTIVE	In the event of a fault, apply interpretation of **DF176 Low speed fan assembly circuit**.
8		**ET144:**	High speed fan assembly relay control	INACTIVE	In the event of a fault, apply interpretation of **DF177 High speed fan assembly circuit**.
9		**PR125:**	Power absorbed by the air conditioning compressor	Around **360 W**	In the event of a fault, apply interpretation of **ET321 Air conditioning compressor**.

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

FUNCTION: STARTING

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1		**ET077:** Impact detected	NO	In the event of a fault, apply the interpretation of **ET077 Impact detected**.
2	Starting	**ET076:** Starting	AUTHORISED	Authorisation to start is given once the petrol pump is pressurised and if the motorised throttle has emerged from the stop and limp-home position programming phase.
3		**ET001:** Computer + after ignition feed	PRESENT	In the event of a fault, apply the interpretation of **ALP1**.
4		**PR071:** Computer feed voltage	**11 V < PR071 < 15 V**	In the event of a fault, apply the interpretation of **DF046 Battery voltage**.
5		**ET048:** Actuator relay control	ACTIVE	In the event of a fault apply the interpretation for **DF084, "Actuator relay control circuit"**.
6		**ET038:** Engine	STOPPED	In the event of a fault, apply the interpretation of status **ET038 Engine**.

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

PROTECTION FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Immobiliser	**ET003:** Immobiliser	INACTIVE	In the event of a fault, apply the interpretation of **DF037 Immobiliser**.
2		**ET341:** Immobiliser code programmed	YES	In the event of a fault, apply the interpretation of **ET341 Immobiliser code programmed**.
3		**ET077:** Impact detected	NO	In the event of a fault, apply the interpretation of **ET077 Impact detected**.
4		**ET076:** Starting	AUTHORISED	In the event of a fault, apply the interpretation of **ET076 Starting**.

NOTES	Only check conformity after a **full check** with the diagnostic tool. The values indicated in this conformity check are given as examples. Application condition: Engine stopped, ignition on.

TORQUE MANAGEMENT FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Torque management	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **0 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR015:** Engine torque	Engine torque is calculated based on analysis of the time taken for the flywheel signal sensor teeth to pass by.	NONE

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

FUNCTION: AIR CIRC. (TURBO/INLET)

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Air inlet circuit	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. About **750 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR190:** Engine idle speed value	The idle speed regulation setpoint depends on the oil and coolant temperature and on the operation of the electrical consumers. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm.**	In the event of a fault, apply the interpretation of **ET054 Idle speed regulation**.
3		**PR058:** Air temperature	This parameter must be equal to the ambient temperature. Default values: **- 40 °C** Default values: **120 °C**	In the event of a fault, apply the interpretation of **DF002 Air temperature sensor circuit**.
4		**PR421:** Manifold pressure	Around **500 mbar**	In the event of a fault, apply the interpretation of **DF353 Manifold pressure sensor circuit**.

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

FUNCTION: FUEL CIRCUIT

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
1	Fuel circuit	**PR055:**	Motor speed	Gives the engine's rotational speed in rpm. About **750 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**ET652:**	HIFLEX configuration	YES	NONE
3		**ET671:**	Programming the level of alcohol	NOT PERFORMED	Status **ET300 Richness regulation** should be ACTIVE so that the programming is COMPLETED.
4		**PR190:**	Engine idle speed value	The idle speed regulation setting depends on coolant and oil temperature, the position of the gearbox selector, and what electrical consumers are running. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setting is **832 rpm**.	If there is a fault, apply interpretation of **ET054 Idle speed regulation**.
5		**ET001:**	+ Computer After ignition	Present The engine is running	If there is a fault, apply **ALP 1**.

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

FUEL CIRCUIT FUNCTION (CONTINUED)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
6	Fuel circuit	PR071:	Computer feed voltage	**11 V < PR071 < 15 V**	If there is a fault, apply the interpretation of **DF046 Battery voltage**.
7		ET290:	Fuel pump relay control	ACTIVE	In the event of a fault apply the interpretation for **DF085, Fuel pump relay control circuit**
8		PR101:	Duration of injection	**3 ms < PR101 < 4 ms**	NONE
9		ET670:	Additional fuel pump relay control	INACTIVE (except when starting from cold)	NONE
10		PR742:	Additional fuel circuit solenoid valve OCR	**0 %**	NONE
11		PR748:	Injection duration correction	It varies between **0** and **1 ms** **0**: no injection time correction, **1**: significant increase in injection time, **0.1**: default value displayed in Non-HI-FLEX mode.	In the event of a fault, apply the interpretation of **PR748 Injection duration correction**.
12		PR091:	Theoretical idling speed regulation OCR	Approximately **27 %**	NONE
13		PR090:	Idle speed regulation programmed value	Approximately **7 %**	NONE
14		ET300:	Richness regulation	ACTIVE	NONE
15		PR438:	Richness correction value	**0 % < PR438 < 100 %** Close to **50 %**	These parameters serve to determine the trend towards increasing or decreasing richness.
16		PR139:	Operating adaptive richness	Approximately **10 %**	
17		PR144:	Self-adapting richness offset	**0 % < PR144 < 100 %** approximately **50 %**	
18		PR143:	Self-adapting richness gain	**0 % < PR143 < 100 %** approximately **50 %**	

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

FUNCTION: DRIVER PARAMETERS

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Driver parameters	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. Approximately **750 rpm**.	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR190:** Idle speed setpoint	The idle speed regulation setpoint depends on the oil and coolant temperature and on the operation of the electrical consumers. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setpoint is **832 rpm.**	In the event of a fault, apply the interpretation for **ET054, Idle speed regulation**.
3		**ET082:** Motorised throttle position	CLOSED	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer circuit gang 1**.
4		**PR429:** Measured throttle position	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer circuit gang 1** and **DF096 Throttle potentiometer circuit gang 2**.
5		**PR118:** Measured throttle position gang 1	Approximately **14 %**	
6		**PR119:** Measured throttle position gang 2	Approximately **14 %**	

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

FUNCTION: DRIVER PARAMETER (CONTINUED 1)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
7		**ET081:**	Accelerator pedal position	NO LOAD	In the event of a fault apply the interpretation for **PR030, Accelerator pedal position**.
8		**ET405:**	Clutch pedal switch	ACTIVE if clutch pedal is depressed INACTIVE if clutch pedal is released	In the event of a fault, apply the interpretation of **DF138 "Clutch pedal circuit"**.
9		**PR424:**	Programming the no-load position value	Approximately **14 %**	NONE
10	Driver parameters	**PR030:**	Accelerator pedal position	Approximately **14 %**	In the event of a fault, apply the interpretation of **PR030, Accelerator pedal position**.
11		**PR568:**	Pedal position gang 1	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF008 Pedal potentiometer ganged circuit 1**.
12		**PR569:**	Pedal position gang 2	Approximately **14 %**	In the event of a fault, apply the interpretation of **DF009 Pedal potentiometer ganged circuit 2**.

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

FUNCTION: DRIVER PARAMETER (CONTINUED 2)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
13	Motorised throttle	**PR539:**	Measured throttle voltage, gang 1	Approximately **0.70 V**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer track 1 and DF096 Throttle potentiometer track 2**.
14		**PR538:**	Measured throttle voltage, gang 2	Approximately **0.70 V**	
15	Driver parameters	**PR089:**	Vehicle speed	**0 mph (0 km/h)**	If there is a fault use the interpretation for **DF091 Vehicle speed signal**.
16		**ET054:**	Idle speed regulation	INACTIVE	NONE
17		**ET237:**	Brake pedal	With pedal released: RELEASED With pedal depressed: DEPRESSED	In the event of a fault, apply the interpretation of **DF228 Brake signals**.

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

FUNCTION: DRIVER PARAMETER (CONTINUED 3)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
18	Motorised throttle	**PR097:**	Motorised throttle lower stop programmed value	Approximately **10 %**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer track 1 and DF096 Throttle potentiometer track 2**
19		**PR096:**	Motorised throttle upper stop programmed value	Approximately **20 %**	
20		**PR587:**	Motorised throttle lower stop gang 1	Approximately **0.50 V**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer circuit gang 1**.
21		**PR588:**	Motorised throttle lower stop gang 2	Approximately **4.50 V**	If there is a fault, use the interpretation for **DF096 Throttle potentiometer circuit gang 2**.
22		**PR589:**	Motorised throttle upper stop gang 1	Approximately **1 V**	If there is a fault, use the interpretation for **DF095 Throttle potentiometer circuit gang 1**.
23		**PR590:**	Motorised throttle upper stop gang 2	Approximately 4 V	If there is a fault, use the interpretation for **DF096 Throttle potentiometer circuit gang 2**.
24		**PR111:**	Motorised throttle position corrected value	**0 %**	In the event of a fault, apply the interpretation of **DF095 Throttle potentiometer circuit gang 1**.

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

FUNCTION: DRIVER PARAMETER (CONTINUED 4)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
25	Motorised throttle	**ET051:**	Throttle stop programming	PERFORMED	In the event of a fault, apply the procedure described in **Configuration and programming**.
26		**ET564:**	Type 1 defect mode	INACTIVE	In the event of a fault, see the interpretation of the defect modes (see **System operation**).
27		**ET565:**	Type 2 defect mode	INACTIVE	
28		**ET566:**	Type 3 defect mode	INACTIVE	
29		**ET567:**	Type 4 defect mode	INACTIVE	
30		**ET568:**	Type 5 defect mode	INACTIVE	
31		**PR106:**	Mileage counter fault warning light lit	This mileometer climbs on illumination of the fault warning light	NONE
32		**PR105:**	OBD fault warning light lit mileage counter	This mileometer climbs on illumination of the OBD warning light	NONE

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

FUNCTION: IGNITION ADVANCE

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Ignition advance	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **About 750 rpm**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**ET062:** Engine flywheel signal	DETECTED	
3		**ET061:** Cylinder 1 recognition	NOT PERFORMED	In the event of a fault, apply the interpretation of **ET061 "Cylinder 1 recognition"**.
4		**ET089:** Target programming	PERFORMED	In the event of a fault, (see Configuration and programming).
5		**PR571:** Pinking signal	**About 13000**	In the event of a fault, apply interpretation of **DF330 Pinking sensor circuit**.
6		**PR095:** Anti-pinking correction	**0 °V**	NONE
7		**PR448:** Ignition advance	**- 3 °V < PR448 < 4.5 °V**	NONE
8		**ET095:** Misfire fault finding	PERFORMED	NONE

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

FUNCTION: EMISSION CONTROL AND OBD

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Emission control/OBD	**ET300:** Richness regulation	ACTIVE	NONE
2		**ET056:** Richness double loop	INACTIVE	NONE
3		**ET093:** Catalytic converter fault finding	INACTIVE	In the event of a fault, apply interpretation of **DF092 Upstream oxygen sensor circuit**.
4		**ET094:** Upstream sensor fault finding	INACTIVE	In the event of a fault, apply the interpretation of **DF092 Upstream oxygen sensor circuit**.
5		**ET095:** Misfire fault finding	PERFORMED	In the event of a fault, apply interpretation of **DF436 Misfire detection**.
6		**ET437:** Fuel circuit OBD fault finding	INACTIVE	NONE
7		**PR098:** Upstream oxygen sensor voltage	The upstream oxygen sensor voltage should vary under acceleration between **0** and **1 V** and must not be fixed (variation must be greater than **+/- 50 mV**).	In the event of a fault, apply the interpretation of **DF092 Upstream oxygen sensor circuit**.

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

FUNCTION: EMISSION CONTROL AND OBD (CONTINUED)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
8	Emission control/OBD	**PR099:**	Downstream oxygen sensor voltage	The downstream oxygen sensor voltage must vary between **50 mV and 1 V**.	In the event of a fault, apply the interpretation of **DF093 Downstream oxygen sensor circuit**.
9		**ET052:**	Upstream O_2 sensor heating	ACTIVE	In the event of a fault, apply the interpretation of **DF082 Upstream oxygen sensor heating circuit**.
10		**ET050:**	Canister bleed control	INACTIVE	In the event of a fault, apply the interpretation of **DF081 Canister bleed solenoid valve circuit**.
11		**ET053:**	Downstream O_2 sensor heating	INACTIVE when engine started then ACTIVE after approximately **10** minutes with engine loaded.	In the event of a fault, apply the interpretation of **DF083 Downstream oxygen sensor heating circuit**.
12		**PR102:**	Canister bleed solenoid valve OCR	**0 %**	In the event of a fault, apply the interpretation of **DF081 Canister bleed solenoid valve circuit**.
13		**PR105:**	OBD fault warning light lit mileage counter	This mileometer climbs on illumination of the OBD warning light.	NONE

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

COLD LOOP FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1		**PR055:** Motor speed	Gives the engine's rotational speed in rpm. Approximately **750 rpm**.	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR064:** Coolant temperature	Indicates the engine coolant temperature.	If there is a fault use the interpretation for **DF001 Coolant temperature sensor circuit**.
3	Air conditioning	**PR190:** Engine idle speed value	The idle speed regulation setting depends on coolant and oil temperature, the position of the gearbox selector, and what electrical consumers are running. **PR190 = 752 rpm ± 25 rpm** If a manifold pressure sensor fault is present or stored, the idle speed setting is **832 rpm**.	If there is a fault, apply interpretation of **ET054 Idle speed regulation**.
4		**ET219:** Fast idle speed	ACTIVE/INACTIVE	NONE

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

COLD LOOP FUNCTION (CONTINUED 1)

Order	Function	Parameter or Status checked or Action		Display and Notes	Fault finding
5	Air conditioning	**ET321:**	Air conditioning compressor	INACTIVE	NONE
6		**PR037:**	Refrigerant pressure	Approximately 8 bars (Air conditioning active)	In the event of a fault, apply the interpretation of **PR037 "Refrigerant pressure"**.
7		**ET143:**	Low speed fan assembly relay control	INACTIVE	In the event of a fault, apply the interpretation of **DF176 Low speed fan assembly circuit**.
8		**ET144:**	High speed fan assembly relay control	INACTIVE	In the event of a fault, apply the interpretation of **DF177 High speed fan assembly circuit**.
9		**PR125:**	Power absorbed by the air conditioning compressor	Approximately **300 W**	NONE

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

FUNCTION: STARTING

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1		**ET077:** Impact detected	NO	In the event of a fault, apply the interpretation of **ET077 Impact detected**.
2		**ET076:** Starting	AUTHORISED	Authorisation to start is given once the petrol pump is pressurised and if the motorised throttle has emerged from the stop and limp-home position programming phase.
3	Starting	**ET001:** + Computer After ignition	PRESENT	In the event of a fault, apply the interpretation of **ALP1**.
4		**PR071:** Computer feed voltage	**11 V < PR071 < 15 V**	If there is a fault, apply the interpretation of **DF046 Battery voltage**.
5		**ET048:** Actuator relay control	ACTIVE	In the event of a fault, apply the interpretation for **DF084, "Actuator relay control circuit"**.
6		**ET038:** Engine	RUNNING	In the event of a fault, apply the interpretation of status **ET038 Engine**.

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

PROTECTION FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Immobiliser	**ET003:** Immobiliser	INACTIVE	If there is a fault, apply the interpretation of **DF037 Immobiliser**.
2		**ET341:** Immobiliser code programmed	YES	If there is a fault, apply the interpretation of **ET341 Immobiliser code programmed**.
3		**ET077:** Impact detected	NO	In the event of a fault, apply the interpretation of **ET077 Impact detected**.
4		**ET076:** Starting	AUTHORISED	Authorisation to start is given once the petrol pump is pressurised and if the motorised throttle has emerged from the stop and limp-home position programming phase.

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

TORQUE MANAGEMENT FUNCTION

Order	Function	Parameter or Status checked or Action	Display and Notes	Fault finding
1	Torque management	**PR055:** Motor speed	Gives the engine's rotational speed in rpm. **0 rpm.**	In the event of a fault apply the interpretation for **DF154 Flywheel signal sensor circuit**.
2		**PR015:** Engine torque	Engine torque is calculated based on analysis of the time taken for the flywheel signal sensor teeth to pass by.	NONE

Tool status	Diagnostic tool title
ET001	+ Computer After ignition
ET003	Immobiliser
ET038	Engine
ET048	Actuator relay control
ET050	Canister bleed control
ET051	Throttle stop programming
ET052	Upstream O_2 sensor heating
ET053	Downstream O_2 sensor heating
ET054	Idle speed regulation
ET056	Richness double loop
ET061	Cylinder 1 recognition
ET062	Engine flywheel signal
ET076	Starting
ET077	Impact detected
ET081	Accelerator pedal position
ET082	Motorised throttle position
ET089	Flywheel target programming
ET093	Catalytic converter fault finding
ET094	Upstream sensor fault finding
ET095	Misfire fault finding
ET0143	Low speed fan assembly relay control
ET0144	High speed fan assembly relay control
ET219	Fast idle speed
ET237	Brake pedal
ET290	Fuel pump relay control
ET300	Richness regulation
ET321	Air conditioning compressor
ET341	Immobiliser code programmed
ET405	Clutch pedal switch
ET437	Fuel circuit OBD fault finding
ET564	Type 1 defect mode

Tool status	Diagnostic tool title
ET565	Type 2 defect mode
ET566	Type 3 defect mode
ET567	Type 4 defect mode
ET568	Type 5 defect mode
ET652	HIFLEX configuration
ET670	Additional fuel pump relay control
ET671	Programming the level of alcohol

ET038	<u>ENGINE</u> – Stopped – Shim – Running – Under starter

NOTES	**Special notes:** Only perform these tests if the status does not correspond with the system programming functions.

STATUS DEFINITION	**STOPPED**: This status indicates that the engine is stopped. **STARTING**: This status indicates that the engine is being started. **RUNNING**: This status indicates that the engine is running. **STALLED**: This status indicates that the engine is stalled.

Conformity check with the engine stopped and the ignition on, or with the engine running and the engine coolant temperature > 80°C.

STOPPED	Status **ET038** is "stopped" if the engine ignition is on without the starter engaged.

STARTING	Status **ET038** is "starting" when the engine is in starting phase.

RUNNING	Status **ET038** is "running" if the engine has started.

STALLED	Status **ET038** is "stalled" when the engine has stalled. The vehicle is still under + after ignition feed.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET038 / SIM32_V08_ET038

ET054	<u>IDLING SPEED REGULATION</u> – Active – Inactive

NOTES	There must be no present or stored faults.

Check:
– engine oil level (too high, splashing),
– that the exhaust pipe is not blocked (catalytic converter damaged),
– the cleanliness and conformity of the air filter,
– that the air inlet circuit is not blocked,
– that the throttle valve is not clogged,
– the condition and conformity of the spark plugs,
– the fuel circuit system,
– the fuel pressure and flow (see **Technical Note 3522A, 17B, Petrol injection**),
– the condition and cleanliness of the injectors,
– the cylinder compressions,
– the timing adjustment,
Repair or replace the faulty components, if necessary.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET054 / SIM32_V08_ET054

ET054 CONTINUED	

NOTES	There must be no present or stored faults.

Check:
- the engine oil level (too high → splashing),
- that the restrictions are present in the oil vapour rebreathing circuit,
- the sealing between the throttle valve and inlet manifold,
- the manifold pressure sensor sealing,
- the fuel vapour absorber bleed, which must not be jammed open,
- the fuel vapour absorber bleed system sealing,
- the brake servo system sealing,
- the sealing between the inlet manifold and cylinder head,
- the oil vapour recovery circuit sealing between the inlet manifold and cylinder head,
- the fuel pressure and flow (see **Technical Note 3522A, 17B, Petrol injection**),
- the condition and cleanliness of the injectors,
- the cylinder compressions,
- the timing adjustment,

Repair or replace the faulty components, if necessary.

AFTER REPAIR	Repeat the conformity check from the start.

| **ET061** | <u>CYLINDER 1 RECOGNITION</u>
– Completed
– Not completed |

| *NOTES* | **Special notes:**
Carry out the checks only if the COMPLETED and NOT COMPLETED statuses are inconsistent. |

Engine phasing:

On engines without a camshaft sensor, the engine phasing is performed by software.

A "Memo-phasing" program is run first to phase the engine management on starting according to the data saved from the previous setting. It is essential to wait **30 seconds** (time to save data) before disconnecting the computer.

Then, a second program confirms the first decision. It is based on torque analysis. The torque calculation is based on the analysis of the time taken for the engine flywheel teeth to pass by. The engine speed should be between **320 rpm** and **5000 rpm**.

Command **RZ019 Programming reinitialisation** must be applied and the flywheel target programmed. (see **Configuration and programming**).

Check the programming using **ET089 Flywheel target programming**.

| *AFTER REPAIR* | Repeat the conformity check from the start. |

SIM32_V04_ET061 / SIM32_V08_ET061

ET077	<u>IMPACT DETECTED</u> – Yes – No

NOTES	There must be no present or stored faults.
	Special notes: The fault appears when the UCH receives a frontal impact signal from the airbag computer on the multiplex network. As soon as the UCH receives this signal, engine operation is prohibited.

If the vehicle has been involved in an accident:
– carry out any necessary repairs,
– switch off the ignition for **10 seconds**,
– switch on the ignition again.
If **ET077 Impact detected** remains **Yes**, carry out fault finding on the airbag computer.
If the vehicle has not been involved in an accident, carry out a fault finding procedure on the airbag computer.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET077 / SIM32_V08_ET077

	PROGRAMMING THE ENGINE FLYWHEEL TARGET
ET089	– Not completed – Completed – STATUS 1: Flywheel target fault

NOTES	There must be no present or stored faults.

It is necessary to correct the acquisition faults due to the engine target. Program the target by:
– a first deceleration with injection cut-off (feet off the brake, accelerator and clutch pedals) between **3500 and 3000 rpm**, in any gear higher than 2nd for at least **5 seconds**.
– a second deceleration with injection cut-off (feet off the brake, accelerator and clutch pedals) between **2400 and 2000 rpm**, in any gear higher than 2nd for at least **5 seconds**.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET089 / SIM32_V08_ET089

ET300	RICHNESS REGULATION – Active – Inactive

NOTES	There must be no present or stored faults.

If the vehicle is driven frequently in town, carry out a cleaning operation (clogging of the oxygen sensors and the catalytic converter).

Check the cleanliness and condition of the upstream oxygen sensor connections.
Clean or change the connections if necessary.

Check the heating resistance of the upstream oxygen sensor.
Replace the upstream oxygen sensor if necessary.

Check the resistance of the upstream oxygen sensor signal circuit.
Replace the upstream oxygen sensor if necessary.

With the ignition on, check for **+ 12 V** 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.
Use the bornier to check the insulation, continuity and the absence of interference resistance on the following connections:

Computer track **B3**, connector **C**	⟶	Upstream oxygen sensor track **D**
Computer track **C3**, connector **C**	⟶	Upstream oxygen sensor track **C**
Computer track **G2**, connector **C**	⟶	Upstream oxygen sensor track **B**

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET300 / SIM32_V08_ET300

ET300 CONTINUED	17B-130

Check: the condition of the air filter the status and conformity of the spark plugs as well as the entire the ignition circuit the sealing between the throttle valve and inlet manifold the air temperature sensor sealing the manifold pressure sensor sealing the canister bleed, which should not be jammed open the canister bleed system sealing there is no leak between the inlet manifold and cylinder head the cylinder head exhaust pipe up to the catalytic converter the cleanliness and condition of the fuel filter the sealing of the entire fuel circuit the fuel pressure of the fuel circuit the condition and cleanliness of the injectors.
If the idle speed is not stable, check: the timing adjustment the valve clearance.
If the fault persists, replace the upstream oxygen sensor.
Drive the vehicle to check the repair.

AFTER REPAIR	Repeat the conformity check from the start.

ET321	AIR CONDITIONING COMPRESSOR – Active – Inactive

NOTES	There must be no present or stored faults.

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

Injection computer **track B1**, connector **A** ⟶ **track 2**, Air conditioning control relay

If the fault is still present, check the air conditioning **(see MR 388 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 62A, Air conditioning, Refrigerant circuit: Check)**.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET321 / SIM32_V08_ET321

ET341	<u>IMMOBILISER CODE PROGRAMMED</u> – No – Yes

NOTES	**Special notes:** Only perform these tests if the status does not correspond with the system programming functions.

STATUS DEFINITION	"YES": This status indicates that the immobiliser code has been programmed in the injection computer. "NO": This status indicates that the computer has not saved the immobiliser code in its memory.

Conformity check with the engine stopped and the ignition on, or with the engine running and the engine coolant temperature > 80°C.

YES	The immobiliser code has been programmed.

NO	Check the insulation, continuity and absence of interference resistance of the connection Computer connector A, track B3 ⟶ connector B, track 36 of the UCH See wiring diagram for vehicle. Repair if necessary.
	If the fault is still present, check the UCH **(see MR 390 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6), 82A, Immobiliser, Fault Finding)**.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET341 / SIM32_V08_ET341

	HI-FLEX CONFIGURATION – Yes – No
ET652	

NOTES	There must be no present or stored faults.

Status **ET652 Hi-Flex Configuration** is **YES** when switching on the ignition, if the Hi-Flex system is present on the vehicle.
If status **ET652 Hi-Flex Configuration** is **NO** or if the Hi-Flex system is not present on the vehicle, follow the fault finding procedure below.

Program the Hi-Flex configuration (see **Configurations and programming, Hi-Flex configuration**):
– Turn on the ignition, without starting the engine: the Hi-flex configuration is automatically programmed and detects the solenoid valve and additional pump.

If status **ET652High-Flex configuration** remains NO, check the battery voltage and vehicle earths.
Repair if necessary.

Check that the additional fuel tank pump relay and solenoid valve are operating correctly using commands **AC009 Additional fuel circuit pump relay** and **AC013 Additional fuel circuit solenoid valve**.
Deal with the fault shown if necessary (see **DF884 Additional fuel circuit pump relay** or **DF894 Additional fuel circuit solenoid valve**).

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET652 / SIM32_V08_ET652

	ADDITIONAL FUEL PUMP RELAY CONTROL
ET670	– Inactive – Active

NOTES	There must be no present or stored faults.

Status **ET670 Additional fuel pump relay control** should be **ACTIVE** during a **cold starting** phase if the Hi-Flex system is present on the vehicle and has been detected by the fuel computer.

Status **ET670 Additional fuel pump relay control** remains **INACTIVE** if the alcohol level in the tank is low and the coolant temperature high (the Hi-Flex system does not engage).

If status **ET670 Additional fuel pump relay control** is **INACTIVE** during a cold starting phase, follow the fault finding procedure below.

Check that the relay is operating correctly by running command **AC009 Additional fuel circuit pump relay**. Replace the relay if necessary.

Disconnect the relay.
With the ignition switched on, check for **+ 12 V** on **tracks1** and **3** of the additional fuel pump relay connector. Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET670 / SIM32_V08_ET670

ET671	<u>PROGRAMMING THE ALCOHOL LEVEL</u> – Completed – Not completed – In progress

NOTES	There must be no present or stored faults.

Status **ET671 Alcohol level programming** must be **PERFORMED** if the Hi-flex system is present on the vehicle and has been detected by the injection computer.
If status **ET671 Alcohol level programming** is **NOT PERFORMED**, follow the procedure below.

Reprogram the alcohol level (see the Configurations and programming, Alcohol level programming section):
– start the engine,
– allow the engine coolant temperature to reach **75°C**, check using parameter **PR064 Coolant temperature**,
– run the engine at **1500 rpm** for at least **5 minutes**,
– Check that programming is performed using status **ET671 Alcohol level programming**.
– the programming is saved when the ignition is switched off.

If the fault is still present, contact the Techline.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ET671 / SIM32_V08_ET671

Tool parameter	Diagnostic tool title
PR015	Engine torque
PR030	Accelerator pedal position
PR037	Refrigerant pressure
PR055	Motor speed
PR058	Air temperature
PR064	Coolant temperature
PR071	Computer feed voltage
PR089	Vehicle speed
PR090	Idle speed regulation programmed value
PR091	Theoretical idle speed regulation OCR
PR095	Anti-pinking correction
PR096	Motorised throttle upper stop programmed value
PR097	Motorised throttle lower stop programmed value
PR098	Upstream oxygen sensor voltage
PR099	Downstream oxygen sensor voltage
PR101	Duration of injection
PR102	Canister bleed solenoid valve OCR*
PR105	Mileometer OBD fault warning light lit
PR106	Mileometer fault warning light lit
PR111	Motorised throttle position corrected value
PR118	Measured throttle position gang 1
PR119	Measured throttle position gang 2
PR125	Power absorbed by the air conditioning compressor
PR139	Operating adaptive richness
PR143	Self-adapting richness gain
PR144	Self-adapting richness offset
PR190	Engine idle speed value
PR421	Manifold pressure
PR424	Programming the no-load position value
PR429	Measured throttle position
PR438	Richness correction value

*OCR: Opening cycle ratio

Tool parameter	Diagnostic tool title
PR448	Ignition advance
PR538	Measured throttle voltage, gang circuit 2
PR539	Measured throttle voltage, gang circuit 1
PR568	Pedal position gang 1
PR569	Pedal position gang 2
PR571	Pinking signal
PR587	Motorised throttle lower stop gang 1
PR588	Motorised throttle lower stop gang 2
PR589	Motorised throttle upper stop gang 1
PR590	Motorised throttle upper stop gang 2
PR742	Additional fuel circuit solenoid valve OCR
PR748	Injection duration correction

*OCR: Opening cycle ratio

PR030	ACCELERATOR PEDAL POSITION

NOTES	Special notes: Apply the checks only if: "No load" **PR030** >**15**% or if "Full load" **PR030** <**90**%.

Check that the pedal mechanism has not seized.
Check **the cleanliness** and **condition** of the pedal potentiometer connections.
Repair if necessary.

If the fault is still present, replace the pedal potentiometer.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_PR030 / SIM32_V08_PR030

	REFRIGERANT PRESSURE
PR037	

NOTES	There must be no present or stored faults.

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

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

    Injection computer, connector B, track D4   ⟶   track B of the refrigerant sensor
    Injection computer, connector B, track E3   ⟶   track C of the refrigerant sensor
    Injection computer, connector B, track E4   ⟶   track A of the refrigerant sensor

Repair if necessary.

If the fault is still present, replace the refrigerant sensor.
If the fault is still present, check the air conditioning circuit **(see MR 364 (for LOGAN, SANDERO, THALIA 2/ SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 62A, Air conditioning)**.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_PR037 / SIM32_V08_PR037

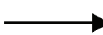| **PR095**	<u>ANTI-PINKING CORRECTION</u>

NOTES	There must be no present or stored faults.

The pinking sensor must not supply a zero signal, proving that it is recording the mechanical vibrations of the engine.
If the **PR095 Anti-pinking correction** is not within **0 V** and **8 V**:

Check that there is the **correct** fuel in the fuel tank.
Repair if necessary.

Check the **condition** and **conformity** of the spark plugs.
Repair if necessary.

Check the **tightness** of the pinking sensor.
Repair if necessary.

Check the **cleanliness** and **condition** of the pinking sensor connectors.
Repair if necessary.

Disconnect the battery and the injection computer.
Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connections:

    Injection computer connector C, track C4   ⟶   Pinking sensor, track 2
    Injection computer, connector C, track D4   ⟶   Pinking sensor, track 1
    Injection computer, connector C, track D3   ⟶   Pinking sensor screening

Repair if necessary.

If the fault is still present, replace the pinking sensor

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_PR095 / SIM32_V08_PR095

PR742	ADDITIONAL FUEL CIRCUIT SOLENOID VALVE OCR

NOTES	There must be no present or stored faults.

Check the **cleanliness** and **condition** of the additional fuel circuit solenoid valve connections.
Repair if necessary.

Measure the **resistance** between **tracks 1** and **2** of the additional fuel circuit solenoid valve.
Replace the additional fuel circuit solenoid valve if the **resistance** is not:
24.6 Ω ± 3 Ω at -10°C
28.5 Ω ± 3 Ω at 25°C
29.8 Ω ± 3 Ω at 45°C

With the ignition on check for the presence of **+ 12 V** on **track 1** of the additional fuel tank pump solenoid valve connector.

Using the universal bornier, check the insulation, continuity and absence of interference resistance for the connection between:

    Injection computer **connector C, track G1** $\longrightarrow$ **track 1** of the additional fuel tank pump solenoid valve

Repair if necessary.

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

    injection computer **connector B, track C1** $\longrightarrow$ **track 2** of the additional fuel tank pump solenoid valve

Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_PR742 / SIM32_V08_PR742

PR748	<u>INJECTION DURATION CORRECTION</u>

NOTES	**Special Note** Fault **DF092 Upstream oxygen sensor circuit** must be neither present nor stored.

The correction of the injection duration depends on the estimated alcohol level in the main tank, and whether the **cold starting** procedure for the engine with the Hi-Flex system is carried out accordingly.

Status **ET671 Alcohol level programming** should be **PERFORMED**. This indicates that the percentage of alcohol in the tank has been detected.
This percentage varies between **0** to **100%**.

If status **ET671 Alcohol level programming** is **Not completed**, repeat the programming procedure (see Configurations and programming, Alcohol level programming).

Manipulate the wiring harness between the fuel computer and the upstream oxygen sensor in order to mark a status change (present or stored)
Look for possible damage to the harness, and check the connections and condition of the upstream oxygen sensor connector.
Replace the connector if necessary.

In the case of a 3-wire sensor, using the universal bornier, check **the insulation, continuity and the absence of interference resistance** of the connections between:

Petrol computer **connector C, track B3** ⟶ **track D** of the upstream oxygen sensor
Petrol computer, **connector C, track C3** ⟶ **track C** of the upstream oxygen sensor

Repair if necessary.

If the fault is still present, **replace** the upstream oxygen sensor.
If the fault is still present, contact the techline.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_PR748 / SIM32_V08_PR748

Tool command	Diagnostic tool name
SC009	Catalytic converter test
SC010	Oxygen sensor test
RZ007	Fault memory
RZ019	Reinitialise programming
AC009	Additional fuel circuit pump relay
AC010	Fuel pump relay
AC013	Additional fuel circuit solenoid valve
AC016	Canister bleed solenoid valve
AC212	Coolant temperature warning light
AC213	OBD warning light
AC261	Upstream O_2 sensor heating
AC262	Downstream O_2 sensor heating
AC271	Low speed fan assembly relay
AC272	High speed fan assembly relay
AC273	Level 1 warning light
AC274	Level 2 warning light
AC591	Injector control locking
AC592	Injector control unlocking
AC621	Motorised throttle
AC656	Air conditioning compressor relay control
VP007	Decrease idling speed
VP011	Increase idling speed
VP020	Enter VIN
LC004	Downstream oxygen sensor
LC108	Air conditioning $\rightarrow$ Injection connection

AC010	<u>FUEL PUMP RELAY</u>

NOTES	There must be no present or stored faults.

FUEL PUMP RELAY TEST
Check the cleanliness, condition and operation of the fuel pump relay.
Check for 12 V after ignition feed on track B1 of the fuel pump relay. If there is no + 12 V: check fuse F5 **15A** on the power supply plate.

Activate command **AC010 Fuel pump relay**.
If the relay does not click:
    – disconnect the battery,
    – disconnect injection computer connector B,
    – check the **cleanliness** and **condition** of the connections,
– Use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Injection computer, Connector B, track E1   ⟶   Fuel pump relay plate track B2

Repair if necessary.

If the fault is still present, replace the relay after having checked the winding.

FUEL PUMP TEST,
Check the cleanliness, condition and operation of the fuel pump.
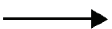Disconnect the fuel pump.
Check the **cleanliness** and **condition** of the connections.
Activate command **AC010 Fuel pump relay**.
With the ignition switched on, check for **+ 12 V** on **track C1** of the 6-track fuel pump connector.
If + 12 V is not present:
– disconnect the battery,
– disconnect the fuel pump relay,
– check the **cleanliness** and **condition** of the connections,
– Use the universal bornier to check the **insulation** and **continuity** of the following connection:

      Fuel pump 6-track connectors track C1   ⟶   Fuel pump relay plate track B5

Repair if necessary.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_AC010 / SIM32_V08_AC010

AC010 CONTINUED	17B-145

IF THE PUMP DOES NOT WORK,
check for **earth** on the 6-track fuel pump connector (track C2).
Repair if necessary.
Reconnect the fuel pump relay and reconnect the battery. Activate command **AC010 Fuel pump relay**.
Check for + 12 V on track C1 of the 6-track fuel pump connector.

If the pump still does not work, replace it.

AFTER REPAIR	Repeat the conformity check from the start.

AC016	<u>CANISTER BLEED SOLENOID VALVE</u>

NOTES	There must be no present or stored faults.

Check the **cleanliness** and **condition** of the fuel vapour absorber bleed solenoid valve connections.
Repair if necessary.

Measure **the resistance** of the fuel vapour absorber bleed solenoid valve between **tracks 1 and 2**.
– at 23 °C: 26 Ω ± 4 Ω
– at - 40 °C: 20 Ω ± 3 Ω
If the values are incorrect, replace the canister bleed solenoid valve.

Check, with the ignition on, for + 12 V on track 1 of the 2-track fuel vapour absorber bleed solenoid valve connector. If + 12 V is not present:
– disconnect the battery,
– check the **cleanliness** and **condition** of the connections,
use the universal bornier to check the **insulation** and **continuity** of the following connection:

Actuator relay track J5 $\longrightarrow$ Fuel vapour absorber track 1

Repair if necessary.

Disconnect the battery.
Disconnect the computer. Check the **cleanliness** and **condition** of the connections.
Use the universal bornier to check the **insulation** and **continuity** of the following connection:

Injection computer, connector B track M3 $\longrightarrow$ Fuel vapour absorber bleed solenoid valve track 2

Repair if necessary.
If the fault is still present, replace the solenoid valve.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_AC016 / SIM32_V08_AC016

| **AC621** | <u>MOTORISED THROTTLE</u> |

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

IMPORTANT
Never drive the vehicle without ensuring that there are no throttle valve faults.

Activate command **AC621 Motorised throttle**.
The throttle must open and close 15 times.
If the motorised throttle does not work, apply interpretation of **DF479 Motorised throttle valve servo**.

| *AFTER REPAIR* | If the throttle unit has been replaced, reinitialise the programming (RZ008). Repeat the conformity check from the start. |

SIM32_V04_AC621 / SIM32_V08_AC621

NOTES	Only consult "customer complaints" after performing a complete check with the diagnostic tool. IMPORTANT: never drive the vehicle without ensuring that there are no throttle valve faults.

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

STARTING IS DIFFICULT OR IMPOSSIBLE	→ **ALP 2**

IDLE SPEED FAULTS	→ **ALP 3**

FAULTS WHILE DRIVING	→ **ALP 4**

AFTER REPAIR	Repeat the conformity check from the start.

ALP 1	**No dialogue with the computer**

Test the diagnostic tool on another vehicle which is in perfect working order.
Check that the sensor's green indicator light comes on.
If you cannot establish dialogue with the second vehicle, follow the instructions in the **CLIP diagnostic tool check** section.
Establish dialogue with the second vehicle, follow the instructions in the **Vehicle check** section.

CLIP DIAGNOSTIC TOOL CHECK	Check **the cleanliness** and **condition** of the diagnostic socket contacts on the vehicle. Check the condition of the cable from the diagnostic socket to the sensor and the cleanliness and condition of the connections. Check the sensor connections. Check the condition of the cable from the sensor to the CLIP tool and the cleanliness and condition of the connections. Check the cleanliness and condition of the CLIP socket. If the fault is still present, contact the techline.

VEHICLE CHECK	Check the **electrical voltage** of the battery. Check the **condition and cleanliness** of the battery terminals. Check the **condition** of the battery earth lead and that it makes **good electrical contact** with the bodywork.
	Check the **cleanliness and proper connection** of the injection computer earth terminal to the bodywork.
	Check the **30 A fuse** of the Protection and Switching Unit main power supply and **the condition and cleanliness** of the contacts (see Protection and Switching Unit fault finding).
	Check the **5 A fuse** of the injection computer after ignition feed as well as **the condition and cleanliness** of the contacts. (Continued on next page)

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ALP01 / SIM32_V08_ALP01

ALP 1 **CONTINUED**	

VEHICLE CHECK **(CONTINUED)**	Use the Universal bornier and on the **vehicle diagnostic socket** check the following tracks:

Track 1   ⟶   + After ignition feed
Track 16   ⟶   + battery feed
Tracks 4 and 5   ⟶   **Earth**

Repair if necessary.

Check the **continuity** of the **K** communication line:

Injection computer track B4 ⟶ Vehicle diagnostic **socket track 7**
connector A

Repair if necessary.

Disconnect the computer **earth** terminal from the negative battery terminal. Check the **continuity and insulation** on the following tracks:
Earth terminal

Injection computer track H1 ⟶ Earth terminal
connector C
Injection computer track L4 ⟶ Earth terminal
connector B
Injection computer track M4 ⟶ Earth terminal
connector B
Injection computer track G4 ⟶ Earth terminal
connector A
Injection computer track H4 ⟶ Earth terminal
connector A
Injection computer track H1 ⟶ **Earth terminal**
connector A

Disconnect the + computer connection terminal from the positive terminal of the battery. Check **the continuity and insulation** of the following tracks:

Injection computer track J1 ⟶ **+ Terminal**
connector B

AFTER REPAIR	Repeat the conformity check from the start.

ALP 2	**Difficult or impossible to start**

NOTES	Apply **ALP 2** after a complete check with the diagnostic tool.

If the starter does not start, there may be a fault with the engine immobiliser.
Carry out a fault finding procedure on the UCH.

Check the condition of the battery.
Check the cleanliness, condition and tightness of the battery terminals. Check that the battery is correctly earthed to the vehicle bodywork. Check that the + battery leads are correctly connected.

Check that the starter motor is properly connected.
Check the correct operation of the starter (see **MR 385 (for LOGAN, SANDERO, THALIA 2/SYMBOL 2) or MR430 (for CLIO II F6) Mechanical, 16A, Starting - charging**).

Check the condition and conformity of the spark plugs.
Check the mounting, cleanliness and condition of the flywheel signal sensor.
Check the flywheel signal sensor air gap.
Check the condition of the flywheel.

Check that the air filter is not clogged.
Check that the air inlet circuit is not blocked.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ALP02 / SIM32_V08_ALP02

ALP 2 CONTINUED	

Check that the Hi-flex system is operating correctly for Flex-Fuel vehicles:
– check that status **ET652 Hi-flex Configuration** is **YES**,
– check that the status **ET671 Alcohol level programming** is **PERFORMED** and check injection duration correction in the main tank using parameter **PR748 Injection duration correction**. Check the conformity of the fuel in the additional tank,
– check the additional fuel pump relay using command **AC009 Additional fuel circuit pump relay**.
– check the additional fuel circuit solenoid valve using command **AC013 Additional fuel circuit solenoid valve**,
For vehicles in Extreme Cold countries Super Ethanol or E85:
In case of low temperature, check using parameter **PR748 Injection duration correction** that the alcohol percentage is approximately equal to **70%**.
Check that there is fuel in the tank (fuel sender fault).
Check that the tank vent is not blocked.
Check that the fuel is of the correct type.
Check that there are no leaks in the fuel system, from the tank to the injectors.
Check that there are no kinked hoses (especially after a removal operation).
Check the fuel flow rate and pressure.
Check the sealing of the injectors, and that they are working properly.

Check that the exhaust system is not blocked and the catalytic converter not clogged.

Check the timing setting.

Check the cylinder compressions.

AFTER REPAIR	Repeat the conformity check from the start.

ALP 3	**Idle speed faults**

NOTES	Apply **ALP 3** after a complete check using the diagnostic tool.
	WARNING Never drive the vehicle without checking first that there are no throttle valve faults.

Check that the Hi-flex system is operating correctly for Flex-Fuel vehicles:
– check that status **ET652 Hi-flex Configuration** is **YES**,
– check that status **ET671 Alcohol level programming** is **PERFORMED**, and check the fuel alcohol level in the main tank using parameter **PR748 Injection duration correction**,
– check the conformity of the fuel in the additional tank,
– check the additional fuel pump relay using command **AC009 Additional fuel circuit pump relay**.
– check the additional fuel circuit solenoid valve using command **AC013 Additional fuel circuit solenoid valve**,

Check that the oil level is not too high.

Check the inlet system sealing, from the throttle to the cylinder head.
Check that the fuel vapour absorber bleed is not disconnected or jammed open.
Check that there are no leaks in the fuel vapour absorber bleed system.
Check that there are no leaks in the braking assistance system.
Check that there are no leaks in the oil vapour recovery circuit (manifold - cylinder head).
Check that there are no leaks around the manifold pressure sensor.
Check that there are no leaks around the air temperature sensor.

Check that the air filter is not clogged.
Check that the air inlet circuit is not blocked.
Check that throttle valve is not clogged.

Check the electrical resistance of the coil secondary circuits.
Check the condition and conformity of the spark plugs.
Check the mounting, cleanliness and condition of the flywheel signal sensor.
Check the flywheel signal sensor air gap.
Check the condition and cleanliness of the flywheel.

AFTER REPAIR	Repeat the conformity check from the start.

SIM32_V04_ALP03 / SIM32_V08_ALP03

ALP 3 CONTINUED	17B-154

Check that the tank vent is not blocked. Check that the fuel is of the correct type. Check that there are no leaks in the fuel system, from the tank to the injectors. Check that there are no kinked hoses (especially after a removal operation). Check the fuel flow rate and pressure. Check that the injectors are working properly.
Check that the exhaust system is not blocked and the catalytic converter not clogged.
Check the timing setting.
Check the cylinder compressions.

AFTER REPAIR	Repeat the conformity check from the start.

| **ALP 4** | **Faults occurring while driving** |

| **NOTES** | Apply **ALP 4** after a complete check using the diagnostic tool. |
| | WARNING
Never drive the vehicle without checking first that there are no throttle valve faults. |

Check that the oil level is not too high.

Check that the Hi-flex system is operating correctly for Flex-Fuel vehicles:
– check that status **ET652 Hi-flex Configuration** is **YES**,
– check that status **ET671 Alcohol level programming** is **PERFORMED** and check the injection duration correction of the fuel in the main tank using parameter **PR748 Injection duration correction**.
– check the conformity of the fuel in the additional tank,
– check the additional fuel pump relay using command **AC009 Additional fuel circuit pump relay**,
– check the additional fuel circuit solenoid valve using command **AC013 Additional fuel circuit solenoid valve**,

Check the electrical resistance of the coil secondary circuits.
Check the condition and conformity of the spark plugs.
Check the mounting, cleanliness and condition of the flywheel signal sensor.
Check the flywheel signal sensor air gap.
Check the condition and cleanliness of the flywheel.

Check that the air filter is not clogged.
Check that the air inlet circuit is not blocked.
Check that throttle valve is not clogged.
Check the inlet system sealing, from the throttle to the cylinder head.

Check that the fuel vapour absorber bleed is not disconnected or jammed open.
Check that there are no leaks in the fuel vapour absorber bleed system.
Check that there are no leaks in the braking assistance system.
Check that there are no leaks in the oil vapour recovery system (manifold/cylinder head).
Check that there are no leaks around the manifold pressure sensor.
Check that there are no leaks around the air temperature sensor.

| **AFTER REPAIR** | Repeat the conformity check from the start. |

SIM32_V04_ALP04 / SIM32_V08_ALP04

| ALP 4 CONTINUED | 17B-156 |

| Check that the tank vent is not blocked.
Check that the fuel is of the correct type.
Check that there are no leaks in the fuel system, from the tank to the injectors.
Check that there are no kinked hoses (especially after a removal operation).
Check the fuel flow rate and pressure.
Check that the injectors are working properly. |
| Check that the exhaust system is not blocked and the catalytic converter not clogged. |
| Check the timing setting. |
| Check the cylinder compressions. |

| *AFTER REPAIR* | Repeat the conformity check from the start. |