

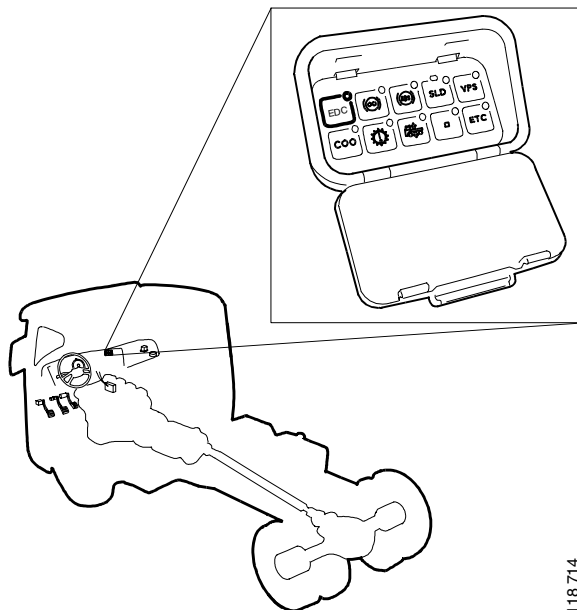
SCANIA

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Scania HPI injection system and EDC S6

troubleshooting



118 714

Contents

General	3
Fault codes	Working procedure	4
	How to read fault codes from the diagnostic lamp... ..	5
	How to erase fault codes.....	7
	Flashing codes	8
	List of fault codes	11
Location of components	106
Wiring Diagrams	108
Operational test	110

EDC S6

General

This booklet contains the following descriptions:

- Fault codes — how to present and erase them.

A list of the flashing codes which can be read, and the fault codes to which they correspond.

There is also a complete list of fault codes. The reason why fault codes are generated and how to rectify the fault is also described there. It is the same fault code list that is found in Scania Diagnos.

- An operational test. Perform the operational test after each repair.

Fault codes

Working procedure

Try to form a comprehensive view of the problem. Start by asking the driver the following:

- Fault symptoms
- Conditions in which the fault occurs
- How often the fault occurs
- If the warning lamp came on when the fault occurred
- If the warning lamp went out by itself when the fault ceased
- If the driver has erased the fault codes

Then, present all the stored fault codes. Present them either as flashing codes on the EDC diagnostic switch or via Scania Diagnos.

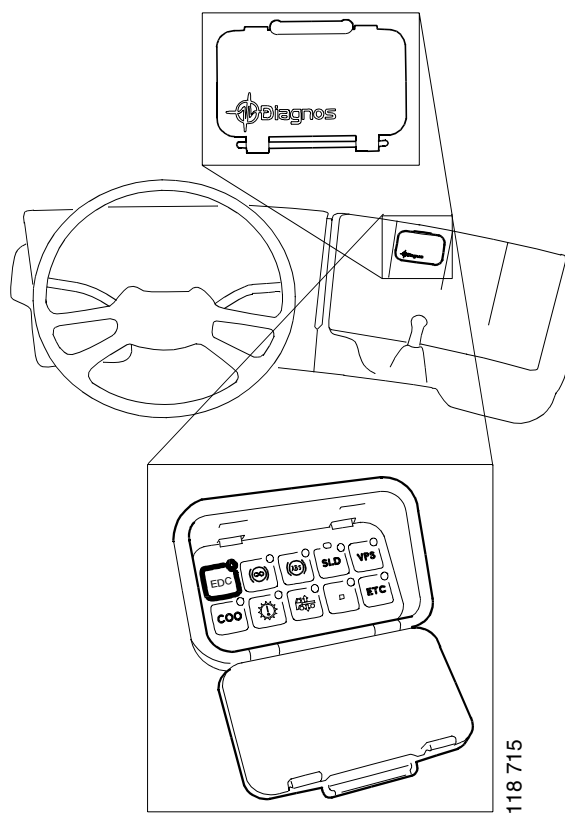
Compare them and try to conclude the probable cause of the fault before taking any other measures. The fault codes are stored in the order they were registered.

How to read fault codes from the diagnostic lamp

How to read the fault codes from the diagnostic lamp is described below.

You can see how to interpret the flashing codes on the next page.

- 1 Switch on the power using the starter key.
- 2 Press the diagnostic switch and note the number of short and long flashes. You have now presented one of the fault codes.
- 3 Repeat point 2 until you have presented all the fault codes. If the same fault code is flashed several times, there may only be one fault in the system.



Diagnostics switch and diagnostics lamp

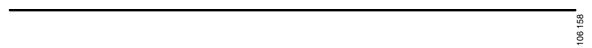
The long flashes (1 s) that come first represent units of ten. The shorter flashes (0.3 s) that follow represent units of one.

The example on the right symbolises fault code 25.



100 157

A single, very long flash (4 s) means that there are no fault codes stored in the memory.



100 158

How to erase fault codes

The EDC control unit memory is able to store 40 fault codes.

The fault codes are stored in two different places in the control unit. Erasing with the diagnostic switch erases the fault codes that are flashed on the diagnostic lamp.

However, the fault codes will remain stored in another memory that can only be accessed using Scania Diagnos.

Scania Diagnos is used to erase both fault code memories at the same time.

How to erase fault codes during delivery inspection

Fault codes are to be erased using Scania Diagnos during delivery inspection so that both memories are empty when the vehicle is delivered to the customer.

How to erase fault codes that are flashed on the diagnostic switch

How to erase fault codes that are flashed on the diagnostic lamp is described below. The fault codes will then continue to be stored elsewhere in the control unit — These fault codes are deleted using Scania Diagnos.

- 1 Start and switch off the engine once so that a shutdown test is carried out. Wait until the EDC warning lamp has gone out.
- 2 Press the diagnostic switch while turning the starter key to drive position for 3 seconds. Resetting is then complete.
- 3 Start the engine and check that the warning lamp goes out.
- 4 Press the diagnostic switch. The fault code memory should be empty; only one long flash should be seen.

Flashing codes

This is a list of the flashing codes which can be read and the fault codes to which they correspond. EDC S6 differs from previous EDC systems in that one flashing code corresponds to a number of different fault codes.

Flashing code	Fault code	Description
11	1100-1101	Overrevving
12	1100-1107	Engine speed sensor 1
13	1200-1207	Engine speed sensor 2
14	2000-2002	Coolant temperature sensor
15	2100-2102	Charge air temperature sensor
16	2200-2203	Charge air pressure sensor
18	2400-2403	Oil pressure sensor
19	D900-D902	Fuel temperature sensor
23	FFFE	Fault codes in the coordinator
24	3003	The brake pedal switches and the accelerator pedal sensor
25	3106	The accelerator pedal sensor and idling switch
33	3200-3205	Battery voltage
37	FFFD	Engine emergency stop
43	4000	Faulty CAN circuit
48	3300-3301	CAN message from coordinator
49	3403	Incorrect CAN version
61	4100	System shutdown
71	D000-D005	Pressure sensor, fuel supply pressure
72	D100-D105	Fuel pressure sensor, front bank
73	D200-D205	Fuel pressure sensor, rear bank
74	D300-D304	Fuel volume solenoid valves, front bank
75	D400-D404	Fuel volume solenoid valves, rear bank
76	D500-D504	Injection timing solenoid valves, front bank
77	D600-D604	Injection timing solenoid valves, rear bank

Flashing code	Fault code	Description
78	D700-D701, D706	Fuel shutoff valve
79	D800-804	Fault in the driver stage for the solenoid valves
83	4102	Internal control unit fault
84	4101	Memory fault in control unit
86	4300-4303	Internal control unit fault
87	4200-4202	Internal control unit fault
88	4400-4407	Internal control unit fault
89	E300	The software in the control unit has been altered in a prohibited manner.
96	E200	Coolant temperature too high.
98	2600-2601, 2700-2701	Voltage supply, sensor groups 1 and 2.
99	E000-E006	Internal control unit fault

List of fault codes

The fault codes are described on the following pages. You will be informed of why they are generated and how the fault can be rectified. The fault codes are described in the same manner in Scania Diagnos.

Further details on how the EDC system is connected to the other vehicle electric systems can be found in the connection and circuit diagrams in Workshop Manual Group 16. Information on the different electrical components of the EDC system is available in Scania Diagnosis and the section Electrical components in Group 16. There is also a brief description of checking and renewing the respective component.

Fault code 1000

Fault

Overrevving

Cause

The engine speed has been above 3000 rpm.

Remarks

The fuel injection (engine) cuts off when the engine speed exceeds 3000 rpm and stays off until the engine speed is below 3000 rpm. Subsequently, the engine will function normally.

The fault code is only generated if the gearbox is handled incorrectly, for example incorrect downshifting.

Action

Inform the driver of the risks of engine damage at high engine speeds.

Fault code 1001

Fault

Overrevving

Cause

The engine speed has been above 3276 rpm.

Remarks

The fuel injection (engine) cuts off when the engine speed exceeds 3000 rpm and stays off until the engine speed is below 3000 rpm. Subsequently, the engine will function normally.

The fault code is only generated if the gearbox is handled incorrectly, for example incorrect downshifting.

Action

Inform the driver of the risks of engine damage at high engine speeds.

Fault code 1100

Fault

When comparing the engine position engine speed sensor 1 and 2 supply different data.

Cause

The engine speed signals from engine speed sensor 1 and 2 have supplied conflicting data as to where in the working cycle the engine is.

Remarks

If there is only a fault code for one of the engine speed sensors, this may be due to the two cables for the engine speed sensor being mixed up.

If there is a fault code for both engine speed sensors the engine may have turned several revolutions backwards, e.g. if the engine stalled on a slope.

If the fault code is generated as soon as you try to start the engine, this may be due to the engine speed sensors being mixed up i.e. engine speed sensor 1 is in the engine speed sensor 2 position and vice versa.

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1101

Fault

The signal from engine speed sensor 1 is too low.

Cause

The engine speed signal is below the level it ought to be at for the current engine speed.

The fault code may be due to the distance between the sensor and the flywheel being too great.

The control unit increases the sensitivity of the sensor to avoid more fault codes. Therefore, the fault code will not be regenerated even if the fault still remains. This increase in the sensitivity of the sensor may lead to other fault codes being generated. These fault codes can be ignored.

The control unit can increase the sensitivity of the sensor in two stages. The automatic adjustment by the control unit does not affect the function of the control unit in any way.

Remarks

The fault does not affect the operation of the engine, i.e. no limited power output.

Action

If the fault has occurred more than twice, check the engine speed sensor, the distance between the engine speed sensor and the flywheel (maximum 1.5 mm permitted), also check the connectors and wiring.

Fault code 1102

Fault

Open circuit in the signal from engine speed sensor 1.

Cause

The signal from engine speed sensor 1 has indicated an implausible engine speed increase during the time the control unit waited for the space in the pulse pattern to pass.

If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery.

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensor, connectors and wiring.

Fault code 1103

Fault

Disturbance of the signal from engine speed sensor 1.

Cause

The signal from engine speed sensor 1 has indicated an implausible engine speed increase during the time the control unit waited for the space in the pulse pattern to pass.

If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensor, connectors and wiring.

Fault code 1104

Fault

Disturbance of the signal from engine speed sensor 1.

Cause

The signal from engine speed sensor 1 has indicated an implausible engine speed increase between two subsequent pulses.

If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensor, connectors and wiring.

Fault code 1105

Fault

Open circuit in the signal from engine speed sensor 1.

Cause

The signal from engine speed sensor 1 has indicated an implausible engine speed decrease between two subsequent pulses.

If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery.

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensor, connectors and wiring.

Fault code 1106**Fault**

The signal from engine speed sensor 1 has been faulty since starting the engine.

Cause

The control unit has not been able to find a plausible signal from engine speed sensor 1.

This fault code can be generated when starting in extreme cold or when starting with a poor battery.

Remarks

The engine will not start if the fault is active on both engine speed sensors.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1107**Fault**

The signal from engine speed sensor 1 is missing.

Cause

The signal from the engine speed sensor has been missing for some time.

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

Action

Check the engine speed sensor, connectors and wiring.

Fault code 1200

Fault

When comparing the engine position engine speed sensor 1 and 2 supply different data.

Cause

The engine speed signals from engine speed sensor 1 and 2 have supplied conflicting data as to where in the working cycle the engine is.

Remarks

If there is only a fault code for one of the engine speed sensors, this may be due to the two cables for the engine speed sensor being mixed up.

If there is a fault code for both engine speed sensors the engine may have turned several revolutions backwards, e.g. if the engine stalled on a slope.

If the fault code is generated as soon as you try to start the engine, this may be due to the engine speed sensors being mixed up i.e. engine speed sensor 1 is in the engine speed sensor 2 position and vice versa.

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1201

Fault

The signal from engine speed sensor 2 is too low.

Cause

The engine speed signal is below the level it ought to be at for the current engine speed.

The fault code may be due to the distance between the sensor and the flywheel being too great.

The control unit increases the sensitivity of the sensor to avoid more fault codes. Therefore, the fault code will not be regenerated even if the fault still remains. This increase in the sensitivity of the sensor may lead to other fault codes being generated. These fault codes can be ignored.

The control unit can increase the sensitivity of the sensor in two stages. The automatic adjustment by the control unit does not affect the function of the control unit in any way.

Remarks

The fault does not affect the operation of the engine, i.e. no limited power output.

Action

If the fault has occurred more than twice, check the engine speed sensor, the distance between the engine speed sensor and the flywheel (maximum 1.5 mm permitted), also check the connectors and wiring.

Fault code 1202

Fault

Open circuit in the signal from engine speed sensor 2.

Cause

The signal from engine speed sensor 2 has indicated an implausible engine speed increase during the time the control unit waited for the space in the pulse pattern to pass. If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1203

Fault

Disturbance of the signal from engine speed sensor 2.

Cause

The signal from engine speed sensor 2 has indicated an implausible engine speed increase during the time the control unit waited for the space in the pulse pattern to pass. If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1204

Fault

The signal from engine speed sensor 2 is faulty.

Cause

The signal from engine speed sensor 2 has indicated an implausible engine speed increase between two subsequent pulses. If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1205

Fault

Open circuit in the signal from engine speed sensor 2.

Cause

The signal from engine speed sensor 2 has indicated an implausible engine speed decrease between two subsequent pulses. If the fault code for no signal, fault code 1107, has been generated at the same time, then the signal must have been absent for several engine rotations, otherwise the fault is due to a temporary disturbance.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

If both engine speed sensors are faulty the engine will shut down.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1206

Fault

The signal from engine speed sensor 2 has been faulty from the beginning.

Cause

The control unit has not been able to locate a plausible signal from engine speed sensor 2.

This fault code can be generated when starting in extreme cold or when starting with a poor battery

Remarks

The engine will not start if the fault is active on both engine speed sensors.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 1207

Fault

The signal from engine speed sensor 2 is missing.

Cause

The signal from the engine speed sensor has been missing for some time.

Remarks

If one of the engine speed sensors is faulty the maximum torque is reduced by approximately 30% (as long as the fault is active) and the high idling speed is reduced.

Action

Check the engine speed sensors, connectors and wiring.

Fault code 2000

Fault

The voltage has been above 4.90 V (below -40°C), i.e. the coolant temperature was below its lower limit.

Cause

The voltage between pin 1 and 2 in connector A7 is too high.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (60°C).

The idle speed cannot be adjusted as long as the fault is active.

A cold engine results in poor starting and uneven idle speed.

Action

Check the signal from the coolant temperature sensor.

Check that the coolant and charge air are about the same temperature when the engine is cold.

Measure the resistance of the coolant temperature sensor.

Check any visible faults on the coolant temperature sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2001

Fault

The voltage has been below 0.44 V (above 130°C), i.e. the coolant temperature was above its upper limit.

Cause

The voltage between pin 1 and 2 in connector A7 is too low.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (60°C).

The idle speed cannot be adjusted as long as the fault is active.

A cold engine results in poor starting and uneven idle speed.

Action

Check the signal from the coolant temperature sensor.

Check that the coolant and charge air are about the same temperature when the engine is cold.

Measure the resistance of the coolant temperature sensor.

Check any visible faults on the coolant temperature sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2002

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the coolant temperature sensor.

Remarks

If the fault arises, the control unit uses a pre-programmed temperature value (60°C).

The idle speed cannot be adjusted as long as the fault is active.

A cold engine results in poor starting and uneven idle speed.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code 2100

Fault

The voltage has been above 4.90 V (below -40°C), i.e. the charge air temperature was below its lower limit.

Cause

The voltage between pin 3 and 4 in connector A10 is too high.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (40°C).

As long as the fault is present, the engine responds more slowly than normal to throttle actuation in cold conditions. This is because the smoke limiter is not operating correctly.

Action

Check the signal from the charge air temperature sensor.

Check that the coolant and charge air are about the same temperature when the engine is cold.

Measure the resistance of the charge air temperature sensor.

Check any visible faults on the charge air temperature sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2101

Fault

The voltage has been below 0.44 V (above 130°C), i.e. the charge air temperature was above its upper limit.

Cause

The voltage between pin 3 and 4 in connector A10 is too low.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (40°C).

As long as the fault is present, the engine responds more slowly than normal to throttle actuation in cold conditions. This is because the smoke limiter is not operating correctly.

Action

Check the signal from the charge air temperature sensor.

Check that the coolant and charge air are about the same temperature when the engine is cold.

Measure the resistance of the charge air temperature sensor.

Check any visible faults on the charge air temperature sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2102

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the charged air temperature sensor.

Remarks

If the fault arises, the control unit uses a pre-programmed temperature value (40°C).

As long as the fault is present, the engine responds more slowly than normal to throttle actuation in cold conditions. This is because the smoke limiter is not operating correctly.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code 2200

Fault

The voltage has been above 4.66 V (greater than 4.0 bar absolute pressure), i.e. above the upper limit for charge air pressure.

Cause

The voltage between pin 2 and 3 connector A10 is too high.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (approximately 1.7 bar absolute pressure).

The charge pressure sensor detects the absolute pressure in the intake manifold (the barometric pressure plus the positive pressure provided by the turbo).

Engine torque is limited by approximately 30% as long as the fault is active.

In addition, the engine responds more slowly than normal to throttle actuation. This is because the smoke limiter is not operating correctly.

Action

Check the signal from the charge air pressure sensor.

Check any visible faults on the charge air pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2201

Fault

The voltage has been below 0.329 V (below 0.4 bar absolute pressure), i.e. below the lower limit for charge air pressure.

Cause

The voltage between pin 2 and 3 connector A10 is too low.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (approximately 1.7 bar absolute pressure).

The charge pressure sensor detects the absolute pressure in the intake manifold (the barometric pressure plus the positive pressure provided by the turbo).

Engine torque is limited by approximately 30% as long as the fault is active.

In addition, the engine responds more slowly than normal to throttle actuation. This is because the smoke limiter is not operating correctly.

Action

Check the signal from the charge air pressure sensor.

Check any visible faults on the charge air pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

If the fault remains, check that the intake system is not blocked by for example ice or debris.

Also check that the air bellows are OK, that they are not squeezed together.

Fault code 2202

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the charge pressure sensor.

Remarks

If the fault arises, the control unit uses a pre-programmed pressure value (approximately 1.7 bar absolute pressure).

The charge pressure sensor detects the absolute pressure in the intake manifold (the barometric pressure plus the positive pressure provided by the turbo).

The engine responds more slowly than normal to throttle actuation. This is because the smoke limiter is not operating correctly.

Action

Clear the fault code memory, start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code 2203

Fault

The control unit does not rely on the charge pressure sensor signal even though it is within the tolerances.

Cause

The voltage from the charge air pressure sensor has been implausible when compared with other pressure sensors, or there has been an implausible pressure change in relation to the current operating conditions.

Remarks

If the pressure signal is implausible, the control unit uses a pre-programmed pressure value (approximately 1.7 bar absolute pressure).

The charge pressure sensor detects the absolute pressure in the intake manifold (the barometric pressure plus the positive pressure provided by the turbo).

The engine responds more slowly than normal to throttle actuation. This is because the smoke limiter is not operating correctly.

Action

Check the signal from the charge air pressure sensor.

Check any visible faults on the charge air pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

If the fault remains, check that the intake system is not blocked by for example ice or debris.

Also check that the air bellows are OK, that they are not squeezed together.

The fault code can also be generated if the intake system is not sealed or if the turbo is defective.

Fault code 2400

Fault

The voltage has been above 4,79 V (greater than 8.3 bar relative pressure), i.e. above the upper limit for oil pressure.

Cause

The voltage between pin 3 and 4 in connector A9 is too high.

Remarks

The oil pressure gauge in the instrument panel indicates 2,5 bar, irrespective of engine speed.

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (2.5 bar relative pressure).

Action

Check the signal from the oil pressure sensor.

Check any visible faults on the oil pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2401

Fault

The voltage has been below 0.147 V (below 0.2 bar relative pressure), i.e. below the lower limit for oil pressure.

Cause

The voltage between pin 3 and 4 in connector A9 is too low.

Remarks

The oil pressure gauge in the instrument panel indicates 2,5 bar, irrespective of engine speed.

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (2.5 bar relative pressure).

Action

Check the signal from the oil pressure sensor.

Check any visible faults on the oil pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2402

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the oil pressure sensor.

Remarks

The oil pressure gauge in the instrument panel indicates 2,5 bar, irrespective of engine speed.

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (2.5 bar relative pressure).

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code 2403

Fault

The control unit does not rely on the oil pressure sensor signal even though it is within the tolerances.

Cause

The voltage from the oil pressure sensor has been implausible when compared with other pressure sensors, or there has been an implausible pressure change in relation to the current operating conditions.

Remarks

The oil pressure gauge in the instrument panel indicates 2,5 bar, irrespective of engine speed.

If the voltage is outside the permitted range, the control unit uses a pre-programmed pressure value (2.5 bar relative pressure).

Action

Check the signal from the oil pressure sensor.

Check any visible faults on the oil pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2600

Fault

The voltage has been above 5.2 V for one of the sensors in sensor group 1, which includes the oil pressure sensor and the fuel pressure sensor for the front bank, cylinder 1-3.

Cause

Short circuit to battery voltage.

Remarks

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the oil pressure sensor and the fuel pressure sensor for the front bank, cylinder 1-3.

Check for any visible faults in the oil pressure sensor, the fuel pressure sensor, the connectors and the wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2601

Fault

The voltage has been below 4.8 V for one of the sensors in sensor group 1, which includes the oil pressure sensor and the fuel pressure sensor for the front bank, cylinder 1-3.

Cause

Short circuit between the voltage supply to the sensor and the sensor earthing point.

Remarks

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the oil pressure sensor and the fuel pressure sensor for the front bank, cylinder 1-3.

Check for any visible faults in the oil pressure sensor, the fuel pressure sensor, the connectors and the wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2700

Fault

The voltage has been above 5.2 V for one of the sensors in sensor group 2, which includes the sensor for charge air temperature and charge air pressure, the fuel supply pressure sensor and the fuel pressure sensor for the rear bank, cylinder 4-6.

Cause

Short circuit to battery voltage.

Remarks

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the sensor for charge air temperature and charge air pressure, the fuel supply pressure sensor and the fuel pressure sensor for the rear bank, cylinder 4-6.

Check for any visible faults on the sensor for charge air temperature and charge air pressure, the fuel supply pressure sensor, the fuel pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 2701

Fault

The voltage has been below 4.8 V for one of the sensors in sensor group 2, which includes the charge air temperature and charge air pressure sensor, the fuel supply pressure sensor and the fuel pressure sensor for the rear bank, cylinder 4-6.

Cause

Short circuit between the voltage supply to the sensor and the sensor earthing point.

Remarks

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the sensor for charge air temperature and charge air pressure, the fuel supply pressure sensor and the fuel pressure sensor for the rear bank, cylinder 4-6.

Check for any visible faults on the sensor for charge air temperature and charge air pressure, the fuel supply pressure sensor, the fuel pressure sensor, connectors and wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code 3003

Fault

The CAN message from the coordinator, about the brake pedal switches and the accelerator pedal sensor potentiometer, has indicated an implausible value.

Cause

A CAN message from the coordinator to the EDC control unit has indicated that there is a fault in the signals to the brake pedal switches and the accelerator pedal sensor potentiometer.

Remarks

The CAN communication wiring is probably not faulty.

The coordinator has probably received signals about the accelerator and brake pedals being in depressed position simultaneously for more than 20 consecutive brake applications.

The purpose of the fault code is to detect whether the accelerator pedal fails to return as it should, e.g. because of a faulty return spring.

Action

First check that there is 0% acceleration when the accelerator pedal is released.

If this is the case, check that the brake signal is inactive when the brake pedal is released.

Check the message from the coordinator about the positions of the brake pedal switches and the position of the accelerator pedal.

Erase the fault code memory and check whether the fault code is generated again.

Carry out troubleshooting of the coordinator.

Check the wiring for CAN communication and the connectors.

Do not forget to clear any fault codes in the coordinator!

Fault code 3106

Fault

Internal fault in the coordinator or the EDC control unit.

Cause

The EDC control unit and the coordinator do not agree about the relation between the accelerator pedal and the idle speed switch.

Remarks

The fault results in 0% throttle actuation and limp home speed of 750 rpm as long as the fault is active.

Action

First check if there are any fault codes relating to the accelerator pedal in the coordinator and rectify these.

Then clear the fault code and test drive the vehicle for approximately 10 minutes.

If the fault code has been regenerated, renew the coordinator.

Clear the fault code again and test drive the vehicle for approximately 10 minutes.

If the fault code has been regenerated, renew the EDC control unit.

Fault code 3200**Fault**

The control unit has received information that the battery voltage has been above 47 V for 0.2 seconds.

Cause

The voltage between pin 1/6 and 2/7 in connector B1 is too high.

Remarks

The engine will shut down immediately if the battery voltage exceeds 47 V and the vehicle speed = 0 km/h.

If the vehicle speed is > 0 km/h, the engine will idle for 5 minutes before it is shut down.

The fault can occur when jump starting the vehicle.

Action

Check the battery and alternator.

Check the connectors and wiring.

Fault code 3201**Fault**

The control unit has received information that the battery voltage has been below 9 V for 0.2 seconds.

Cause

The voltage between pin 1/6 and 2/7 in connector B1 is too low.

Remarks

The fault may arise during cold starting if the battery is in poor condition.

Action

Check the battery and alternator.

Check the connectors and wiring.

Fault code 3202

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the battery voltage signal.

Remarks

A pre-programmed value is used (28 V) as long as the fault is active.

Action

Erase the fault code. Test start the engine and accelerate the engine to full speed.

Renew the control unit if the fault code is regenerated.

Fault code 3203

Fault

The control unit does not rely on the battery voltage signal even though it is within the tolerances.

Cause

The battery voltage signal has been implausible when compared to the normal values at certain operating stages.

Remarks

Action

Check the battery and alternator.

Check the connectors and wiring.

Fault code 3204**Fault**

The battery voltage has been within the range of 30.56 V - 47,00 V for 5 seconds.

Cause

The voltage between pin 1/6 and 2/7 in connector B1 is too high.

Remarks

The engine will start to idle if the battery voltage has been between 30.56 V and 47.00 V for 15 minutes.

Action

Check the battery and alternator.
Check the connectors and wiring.

Fault code 3205**Fault**

The battery voltage has been within the range of 9.00 V - 21.44 V for 5 seconds.

Cause

The voltage between pin 1/6 and 2/7 in connector B1 is too low.

Remarks

The fault code will not be generated if the engine speed is below 400 rpm to prevent incorrect generation of fault codes when starting.

Action

Check the battery and alternator.
Check the connectors and wiring.

Fault code 3300

Fault

There is no CAN message from the coordinator.

Cause

CAN messages from the coordinator (accelerator pedal, brake, cruise control etc.) cannot be read on pin 9 and 10 on connector B1.

Remarks

The fault results in 0% throttle actuation and limp home speed of 750 rpm.

Action

If the fault code has only been generated once, this may be due to the voltage to the coordinator having been interrupted while the EDC control unit has been supplied with voltage.

If the fault code is generated frequently, this is probably due to a wiring/connection fault.

If fault code 4000 is generated at the same time, renew the EDC control unit.

General fault diagnosis:

Clear the fault codes and test start the engine. Switch the ignition off and on again.

If the fault code is regenerated, check the wiring and clean the connectors.

If this does not help, check that the control units receive ignition voltage OFF/ON (U15) at the same time.

If everything else is OK, first renew the coordinator, and if this does not help renew the EDC control unit.

Do not forget to check/clear any fault codes in the coordinator!

Fault code 3301

Fault

There is no CAN message from the coordinator.

Cause

CAN messages from the coordinator (engine speed control, torque limiter etc.) cannot be read on pin 9 and 10 on connector B1.

Remarks

The fault results in 0% throttle actuation and limp home speed of 750 rpm.

Action

If the fault code has only been generated once, this may be due to the voltage to the coordinator having been interrupted while the EDC control unit has been supplied with voltage.

If the fault code is generated frequently, this is probably due to a wiring/connection fault.

If fault code 4000 is generated at the same time, renew the EDC control unit.

General fault diagnosis:

Clear the fault codes and test start the engine. Switch the ignition off and on.

If the fault code is regenerated, check the wiring and clean the connectors.

If this does not help, check that the control units receive ignition voltage OFF/ON (U15) at the same time.

If everything else is OK, first renew the coordinator, and if this does not help renew the EDC control unit.

Do not forget to check/clear any fault codes in the coordinator!

Fault code 3403

Fault

Incorrect CAN version.

Cause

The coordinator and the control unit do not agree which CAN version is being used.

Remarks

The fault results in 0% throttle actuation and limp home speed of 750 rpm.

The fault can only arise after the control unit has been renewed.

Action

Check the coordinator and the EDC control unit part number/identification.

Renew the control unit with incorrect part number.

Fault code 4000

Fault

Internal fault in the control unit.

Cause

Fault in the CAN communication circuit.

Remarks

The fault results in 0% throttle actuation and limp home speed of 750 rpm as long as the fault is active.

The fault affects the communication of the EDC control unit with the other control units.

Information about accelerator pedal position and other controls in the cab will not reach the EDC control unit.

Engine speed, coolant temperature and oil pressure are no longer displayed.

Messages from other systems (e.g. TC (traction control) and Opticruise) do not reach the EDC control unit.

If the CAN circuit starts to function properly again, the control unit will first have to carry out a shutdown test before it can regard the fault as inactive.

Action

Clear the fault code memory and switch off/on the power with the starter key.

Renew the control unit if the fault code is regenerated.

Fault code 4100

Fault

The control unit was interrupted before completion of the shutdown test.

Cause

The voltage to pins 1 and 6 on connector B1 has disappeared too early.

Remarks

During the shutdown test, the control unit carries out a function test after the power is switched off using the key.

The engine torque is limited if the shutdown test is interrupted 10 consecutive times.

The fault code can also result in it taking longer to start the engine.

The fault is assumed to have been rectified as soon as the control unit is able to perform a shutdown test without interruption.

The engine must always be switched off using the key. If a battery master switch is fitted, it must not be switched off before the warning lamp goes out.

Action

Check that the warning lamp is on for a short period after the power is switched off using the key.

Check the connectors and wiring to control unit pins 1 and 6 on connector B1.

The voltage supply may be interrupted if extra equipment has been connected.

Fault code 4101

Fault

Data transfer to the control unit memory has been interrupted.

Cause

Data transfer to the control unit memory takes place both during operation and when switching off the engine. This fault code is generated if the transfer is interrupted. This may have been caused by for example a too low voltage to the control unit.

Remarks

The fault code can result in it taking longer to start the engine.

Action

Check the battery and alternator.

Clear the fault code memory and switch off/on the power with the starter key.

Check if the fault code has been generated again. Renew the control unit if the fault code is regenerated.

Fault code 4102

Fault

Internal fault in the control unit.

Cause

The control unit has discovered that the fault code memory or another memory in the control unit is not functioning correctly.

Remarks

The fault code can result in it taking longer to start the engine.

Action

Clear the fault code memory and switch off/on the power with the starter key.

Check if the fault code has been generated again. Renew the control unit if the fault code is regenerated.

Fault code 4200

Fault

Internal fault in the control unit.

Cause

The control unit has detected that one of the control unit's memories is not functioning correctly.

Remarks

The fault will also result in a fault code for battery voltage and fuel pressure.

If the memory starts to function properly again, the control unit will first have to carry out a shutdown test before it can regard the fault as inactive.

Action

If the fault code has only been generated once:

Clear the fault code memory and switch off/on the power with the starter key.

Renew the control unit if the fault code is regenerated.

Renew the control unit if the fault code is generated several times.

Fault code 4201

Fault

Internal fault in the control unit.

Cause

The control unit has detected that one of the control unit's memories is not functioning correctly.

Remarks

The fault will also result in a fault code for temperature sensor and charge pressure sensor.

If the memory starts to function properly again, the control unit will first have to carry out a shutdown test before it can regard the fault as inactive.

Action

If the fault code has only been generated once:

Clear the fault code memory and switch off/on the power with the starter key.

Renew the control unit if the fault code is regenerated.

Renew the control unit if the fault code is generated several times.

Fault code 4300

Fault

Internal fault in the control unit.

Cause

The internal hardware check of the control unit indicated a fault.

Remarks

The EDC control unit switches off the fuel supply to the unit injectors by shutting the solenoid valves as long as the fault is active.

As a result, it takes longer to start the engine or the engine cannot be started at all.

Action

Clear the fault code memory and switch off/on the power with the starter key.

Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code 4301

Fault

Internal fault in the control unit.

Cause

The internal hardware check of the control unit indicated a fault.

Remarks

The EDC control unit switches off the fuel supply to the unit injectors by shutting the solenoid valves as long as the fault is active.

This often results in short intervals of engine malfunction or if the fault is active over an extended period of time, the engine stalling.

Fault code 4303 will also be generated.

The fault code can be generated as a result of one of the fault codes 3200, 3500, or E000-E006 being generated.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4302

Fault

Internal fault in the control unit.

Cause

The internal hardware check of the control unit indicated a fault.

Remarks

The control unit will not switch off as long as the fault is active.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4303

Fault

Internal fault in the control unit.

Cause

The internal hardware check of the control unit indicated a fault.

Remarks

The fault often results in short intervals of engine malfunction. If the fault is active over an extended period of time, fault code 4301 will also be generated.

The fault code can be generated as a result of one of the fault codes 3200, 3500, or E000-E006 being generated.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4400**Fault**

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4401**Fault**

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4404

Fault

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4405

Fault

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4406**Fault**

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code 4407**Fault**

Internal fault in the control unit.

Cause

A memory fault has occurred in the control unit.

Remarks

The vehicle cannot be started or driven as long as the fault is active.

Action

Clear the fault code memory and try to start the vehicle. If the fault code is regenerated and the vehicle does not start, renew the control unit.

If the vehicle starts, drive the vehicle for approximately 10 minutes.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D000

Fault

The voltage has been above 4.79 V (above 25.9 bar absolute pressure), i.e. the fuel supply pressure was above its upper limit.

Cause

The voltage between the control unit pins 9 and 10 in connector B2 is too high, or there is a fault with the voltage supply to sensor group 1 (pin 2 in connector A1 or pin 2 in connector A9).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (21,4 bar absolute pressure).

Engine torque is limited by approximately 30% as long as the fault is active.

If a fault is indicated on the oil pressure sensor at the same time, it is probably the shared voltage supply which is faulty.

Action

Check the signal from the fuel supply pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D001

Fault

The voltage has been below 0.147 V (below - 2.1 bar absolute pressure), i.e. the fuel supply pressure was below its lower limit.

Engine torque is limited by approximately 30% as long as the fault is active.

Cause

The voltage between the control unit pins 9 and 10 in connector B2 is too low, or there is a fault with the voltage supply to sensor group 1 (pin 2 in connector A1 or pin 2 in connector A9).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (21,4 bar absolute pressure).

If the oil pressure sensor value is incorrect at the same time, it is probably the shared voltage supply for the sensors which is faulty.

Action

Check the signal from the fuel supply pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D002

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the fuel supply pressure sensor.

Remarks

If the fault is active, the control unit uses a pre-programmed value (21,4 bar absolute pressure).

Engine torque is limited by 30% as long as the fault is active.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code D004

Fault

The control unit does not rely on the fuel supply pressure sensor signal even though it is within the electrical tolerances.

Cause

The supply pressure is implausibly high in comparison with normal pressure for different operational conditions.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (21,4 bar absolute pressure).

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the overflow valve.

Check the signal from the fuel feed pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D005

Fault

The control unit does not rely on the fuel supply pressure sensor signal even though it is within the electrical tolerances.

Cause

The supply pressure is implausibly low in comparison with normal pressure for different operational conditions.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (21,4 bar absolute pressure).

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the fuel supply pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

The fault may also be due to any of the following causes:

One of the two overflow valves opens too early.

The fuel shut-off valve is closed.

The fuel filter is blocked.

Air in the fuel or out of fuel.

Defect supply pump.

Serious leakage in the fuel system.

Fault code D100

Fault

The voltage has been above 4.79 V (above 20.3 bar absolute pressure), i.e. above the upper limit for the fuel pressure to the front bank, cylinder 1-3.

Cause

The voltage between pin 3 and 2 in connector A1 is too high, or there is a fault with the voltage supply to sensor group 2 (pin 8 in connector B2, pin 1 in connector A1).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

If the value from the fuel pressure sensor for the rear bank, cylinder 4-6 is incorrect at the same time, it is probably the shared voltage supply for the sensors which is faulty.

Engine torque is limited by 30% as long as the fault is active.

Action

Check the signal from the fuel pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D101

Fault

The voltage has been below 0.147 V (under - 1.2 bar absolute pressure), i.e. below the lower limit for the fuel pressure to the front bank, cylinder 1-3.

Cause

The voltage between pin 3 and 2 in connector A1 is too low, or there is a fault with the voltage supply to sensor group 2 (pin 8 in connector B2, pin 1 in connector A1).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

If the value from the fuel pressure sensor for the rear bank, cylinder 4-6 is incorrect at the same time, it is probably the shared voltage supply for the sensors which is faulty.

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the fuel pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D102

Fault

Internal fault in the control unit.

Cause

The control unit could not process (convert) the signal from the fuel pressure sensor on the front bank, cylinder 1-3.

Remarks

If the fault is active, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code D103

Fault

The fuel pressure to one or two cylinders in the front bank, cylinder 1-3, is too high.

Cause

The control unit has discovered that the pressure from the solenoid valve to the injector does not drop as expected due to an obstruction in the fuel supply to the injector.

The fault code can be generated if the vehicle has not been driven for some time, especially in cold weather, as air might have entered the system. The fault code will be generated, either when starting or within two minutes after starting.

Remarks

As a result, the engine is running unevenly due to no fuel supply to one or two cylinder.

Action

Bleed the fuel system and bring the engine to operating temperature.

If the engine runs unevenly despite bleeding the fuel system and bringing the engine to operating temperature, carry out the following:

Change injectors on the front bank, cylinder 1-3.

Clean the fuel rail (clean the ducts for injection timing and fuel with compressed air).

Clean the fuel ducts in the cylinder heads on the front bank, cylinder 1-3.

If it becomes evident that the fault is due to debris in the fuel system, check the fuel filter and change if necessary.

Fault code D104

Fault

The fuel pressure to all cylinders in the front bank, cylinder 1-3, is too high.

Cause

The fuel volume solenoid valve may be stuck open.

The fuel pressure sensor signal is incorrectly high in relation to the expectation of the control unit considering the current engine load.

Remarks

As a result, the engine speed is limited to between 500 and 550 rpm by means of the fuel shut-off valve. The engine runs very unevenly.

Action

Check the wiring and clean the connectors to the solenoid valves and the pressure sensor on the front bank, cylinder 1-3.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the fuel volume solenoid valve and if necessary the fuel pressure sensor.

Fault code D105

Fault

The fuel pressure to all cylinders on the front bank, cylinder 1-3, is too low.

Cause

The fault can be due to any of the following factors:

Serious leakage after the fuel volume solenoid valve.

Restriction in the fuel volume solenoid valve.

The fuel duct between the solenoid valve and the fuel pressure sensor is blocked.

The fuel volume solenoid valve is constantly closed.

The fuel pressure sensor signal is incorrectly low in relation to the expectation of the control unit considering the current engine load.

Remarks

Possible results of the fault are smoke, engine running unevenly and poor engine output.

Action

Check the wiring and clean the connectors to the solenoid valve and the fuel pressure sensor on the front bank, cylinder 1-3.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, check the fuel duct, renew the fuel volume solenoid valve, the fuel pressure sensor or the fuel manifold.

Fault code D200

Fault

The voltage has been above 4.79 V (above 20.3 bar absolute pressure), i.e. above the upper limit for the fuel pressure to the rear bank, cylinder 4-6.

Cause

The voltage between pin 6 and 7 in connector A1 is too high, or there is a fault on the power supply to sensor group 2 (pin 8 in connector B2 or pin 1 in connector A1).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

If the value from the fuel pressure sensor for the front bank, cylinder 1-3 is incorrect at the same time, it is probably the shared voltage supply for the sensors which is faulty.

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the fuel pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D201

Fault

The voltage has been below 0.147 V (under-1.2 bar absolute pressure), i.e. below the lower limit for the fuel pressure to the rear bank, cylinder 4-6.

Cause

The voltage between pin 6 and 7 in connector A1 is too low, or there is a fault on the power supply to sensor group 2 (pin 8 in connector B2 or pin 1 in connector A1).

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

If the value from the fuel pressure sensor for the front bank, cylinder 1-3 is incorrect at the same time, it is probably the shared voltage supply for the sensors which is faulty.

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Check the signal from the fuel pressure sensor.

Check for any visible faults on the sensor and the wiring.

Clean the connectors.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D202

Fault

Internal fault in the control unit.

Cause

The control unit has not been able to process (convert) the signal from the fuel pressure sensor on the rear bank, cylinder 4-6.

Remarks

If the fault is active, the control unit uses a pre-programmed value (0.448 bar absolute pressure).

Engine torque is limited by approximately 30% as long as the fault is active.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code D203

Fault

The fuel pressure to one or two cylinders on the rear bank, cylinder 4-6, is too high.

Cause

The pressure pulse from the solenoid valve to the injector is too long because there is an obstruction on the flow of fuel to the injector.

The fault code can be generated if the vehicle has not been driven for some time, especially in cold weather, as air might have entered the system. The fault code will be generated, either when starting or within two minutes after starting.

Remarks

As a result, the engine is running unevenly due to no fuel supply to one or two cylinder.

Action

Bleed the fuel system and bring the engine to operating temperature.

If the engine runs unevenly despite bleeding the fuel system and bringing the engine to operating temperature, carry out the following:

Change injectors on the rear bank, cylinder 4-6.

Clean the fuel rail (clean the ducts for injection timing and fuel with compressed air).

Clean the fuel ducts in the cylinder heads on the rear bank, cylinder 4-6.

If it becomes evident that the fault is due to debris in the fuel system, check the fuel filter and change if necessary.

Fault code D204

Fault

The fuel pressure to all cylinder on the rear bank, cylinder 4-6, is too high.

Cause

The fuel volume solenoid valve may be stuck open.

The fuel pressure sensor signal is incorrectly high in relation to the expectation of the control unit considering the current engine load.

Remarks

As a result, the engine speed is limited to between 500 and 550 rpm by means of the fuel shut-off valve. The engine runs very unevenly.

Action

Check the wiring and clean the connectors to the solenoid valves and the pressure sensor on the front bank, cylinder 4-6.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the fuel volume solenoid valve and if necessary the fuel pressure sensor.

Fault code D205

Fault

The fuel pressure to all cylinders on the rear bank, cylinder 4-6, is too low.

Cause

The fault can be due to any of the following factors:

Serious fuel leakage after the fuel volume solenoid valve.

Restriction in the fuel volume solenoid valve.

The fuel duct between the solenoid valve and the fuel pressure sensor is blocked.

The fuel volume solenoid valve is constantly closed.

The fuel pressure sensor signal is incorrectly low in relation to the expectation of the control unit considering the current engine load.

Remarks

Possible results of the fault are smoke, engine running unevenly and poor engine output.

Action

Check the wiring and clean the connectors to the solenoid valve and the fuel pressure sensor on the rear bank, cylinder 4-6.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, check the fuel duct, renew the fuel volume solenoid valve, the fuel pressure sensor or the fuel manifold.

Fault code D300**Fault**

The fuel volume solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Shorted to +24 V alternatively between pin 1 and 2 on connector B2.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D301**Fault**

The fuel volume solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Pin 1 and 2 on connector B2 shorted to earth.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D302

Fault

The fuel volume solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Open circuit to pin 1 and 2 on connector B2.

Remarks

As a result, the engine only runs on three cylinders.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D303

Fault

The fuel volume solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Monitoring pin 1 and 2 on connector B2 indicates implausible values compared to other solenoid valves.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the control unit and if necessary the fuel volume solenoid valve.

Fault code D304

Fault

The fuel volume solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Monitoring pin 1 and 2 on connector B2 indicates that the voltage is too low to control the solenoid valve.

Remarks

As a result, the engine will probably run unevenly.

The engine torque is limited by approximately 30%.

Action

If fault code 3201 is also present, low battery voltage is active, rectify the battery fault first.

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the fuel volume solenoid valve and if necessary the control unit.

Fault code D400

Fault

The fuel volume solenoid valve on the rear bank, cylinder 4-6 is faulty.

Cause

Short circuit to +24 V alternatively between pin 4 and 5 on connector A1.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D401

Fault

The fuel volume solenoid valve on the rear bank, cylinder 4-6 is faulty.

Cause

Pin 4 and 5 on connector A1 shorted to earth.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D402**Fault**

The fuel volume solenoid valve on the rear bank, cylinder 4-6 is faulty.

Cause

Open circuit to pin 4 and 5 on connector A1.

Remarks

As a result, the engine only runs on three cylinders.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the fuel volume solenoid valve.

Fault code D403**Fault**

The fuel volume solenoid valve on the rear bank, cylinder 4-6 is faulty.

Cause

Monitoring pin 4 and 5 on connector A1 indicates implausible values compared to other solenoid valves.

Remarks

As a result, the engine runs very unevenly.

Action

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the control unit and if necessary the fuel volume solenoid valve.

Fault code D404

Fault

The fuel volume solenoid valve on the rear bank, cylinder 4-6 is faulty.

Cause

Monitoring pin 4 and 5 on connector A1 indicates that the voltage is too low to control the solenoid valve.

Remarks

As a result, the engine will probably run unevenly.

The engine torque is limited by approximately 30%.

Action

If fault code 3201 is also present, low battery voltage is active, rectify the battery fault first.

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the fuel volume solenoid valve and if necessary the control unit.

Fault code D500**Fault**

The injection timing solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Shorted to +24 V alternatively between pin 6 and 7 on connector B2.

Remarks

As a result, the engine runs very unevenly and the whole front bank (cylinder 1-3) will probably be shut off.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D501**Fault**

The injection timing solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Pin 6 and 7 on connector B2 shorted to earth.

Remarks

As a result, the engine runs very unevenly and the whole front bank (cylinder 1-3) will probably be shut off.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D502

Fault

The injection timing solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Open circuit to pin 6 and 7 on connector B2.

Remarks

As a result, the engine only runs on three cylinders.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D503

Fault

The injection timing solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Monitoring pin 6 and 7 on connector B2 indicates implausible values compared to other solenoid valves.

Remarks

As a result, the engine runs very unevenly and the whole front bank (cylinder 1-3) will probably be shut off.

Action

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the control unit and if necessary the injection timing solenoid valve.

Fault code D504

Fault

The injection timing solenoid valve on the front bank, cylinder 1-3 is faulty.

Cause

Monitoring pin 6 and 7 on connector B2 indicates that the voltage is too low to control the solenoid valve.

Remarks

As a result, the engine will probably run unevenly.

The engine torque is limited by approximately 30%.

Action

If fault code 3201 is also present, low battery voltage is active, rectify the battery fault first.

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the injection timing solenoid valve and if necessary the control unit.

Fault code D600

Fault

The solenoid valve for injection timing on the rear bank, cylinder 4-6, is faulty.

Cause

Short circuit to +24 V alternatively between pin 9 and 10 on connector A1.

Remarks

As a result, the engine runs very unevenly and the whole rear bank (cylinder 4-6) will probably be shut off.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D601

Fault

The solenoid valve for injection timing on the rear bank, cylinder 4-6, is faulty.

Cause

Pin 9 and 10 on connector A1 shorted to earth.

Remarks

As a result, the engine runs very unevenly and the whole rear bank (cylinder 4-6) will probably be shut off.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D602**Fault**

The solenoid valve for injection timing on the rear bank, cylinder 4-6, is faulty.

Cause

Open circuit to pin 9 and 10 on connector A1.

Remarks

As a result, the engine only runs on three cylinders.

Action

Check the wiring and clean the connectors.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, renew the injection timing solenoid valve.

Fault code D603**Fault**

The solenoid valve for injection timing on the rear bank, cylinder 4-6, is faulty.

Cause

Monitoring pin 9 and 10 on connector A1 indicates implausible values compared to other solenoid valves.

Remarks

As a result, the engine runs very unevenly and the whole rear bank (cylinder 4-6) will probably be shut off.

Action

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the control unit and if necessary the injection timing solenoid valve.

Fault code D604

Fault

The solenoid valve for injection timing on the rear bank, cylinder 4-6, is faulty.

Cause

Monitoring pin 9 and 10 on connector A1 indicates that the voltage is too low to control the solenoid valve.

Remarks

As a result, the engine will probably run very unevenly.

The engine torque is limited by approximately 30%.

Action

If fault code 3201 is also present, low battery voltage is active, rectify the battery fault first.

Check the wiring and clean connector A1, B2 and the connector to the solenoid valve.

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault remains, first renew the injection timing solenoid valve and if necessary the control unit.

Fault code D700

Fault

Open circuit in the fuel shut-off valve.

Cause

The control unit sends high frequency pulse signals to the fuel shut-off valve and has discovered that the signal is always too high.

This may be caused by an open circuit in the leads to the fuel shut-off valve or an open circuit within the fuel shut-off valve.

Alternatively, pin 4 on connector B2 may be shorted to +24 V.

Remarks

If there is an open circuit on the leads or in the fuel shut-off valve, the fuel supply will be shut off and the engine will stall.

If pin 4 on connector B2 is shorted to +24 V, the valve is constantly open.

Action

Check the wiring and the fuel shut-off valve.

Fault code D701

Fault

Short circuit in the fuel shut-off valve.

Cause

The control unit has tried to control the voltage to the fuel shut-off valve without any success. This may be caused by a short circuit in the fuel shut-off valve or that pin 4 in connector B2 is shorted to earth.

Remarks

The fuel shut-off valve will be shut off and the engine will stall.

Action

Check the wiring and the fuel shut-off valve.

Fault code D706

Fault

The fuel shut-off valve is stuck open.

Cause

The supply pressure does not decrease fast enough when the engine is shut down with the fuel shut-off valve.

Remarks

When the engine is switched off using the key, the fuel volume and injection timing solenoid valves will try to keep the engine running while the fuel shut-off valve signals to shut the engine down.

If this fails, e.g. the supply pressure does not decrease significantly, a fault code is generated and the fuel volume and injection timing solenoid valves will shut the engine down.

As the fault code is generated when the engine is shut down, it will only be cleared once the engine has been shut down successfully.

As a result, the engine torque is reduced by 30%.

Action

Also check if fault code D700 or D701 has been generated. If fault code D700 or D701 has been generated, there is probably an electrical fault which should be rectified first.

If fault code D700 or D701 has not been generated, first renew the fuel shut-off valve and if necessary the fuel supply pressure sensor.

Start and stop the engine, switch the power on using the key and clear the fault code. Start and stop the engine again and check that the fault code has been cleared.

Fault code D800

Fault

Internal fault in the control unit.

Cause

Fault in the driver stage to the fuel volume solenoid valve for the front bank, cylinder 1-3.

Remarks

As a result, the engine will probably run unevenly.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D801

Fault

Internal fault in the control unit.

Cause

Fault in the driver stage to the fuel volume solenoid valve for the rear bank, cylinder 4-6.

Remarks

As a result, the engine will probably run unevenly.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D802**Fault**

Internal fault in the control unit.

Cause

Fault in the driver stage to the injection timing solenoid valve for the front bank, cylinder 1-3.

Remarks

As a result, cylinder 1-3 shuts down.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D803**Fault**

Internal fault in the control unit.

Cause

Fault in the driver stage to the injection timing solenoid valve for the rear bank, cylinder 4-6.

Remarks

As a result, cylinder 4-6 shuts down.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D804

Fault

Internal fault in the control unit.

Cause

The voltage on several driver stages is too low.

Remarks

As a result, the engine will probably run unevenly. The engine torque is reduced by 30%.

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

Check if the fault code has been generated again. If the fault code has been regenerated, renew the control unit.

Fault code D900

Fault

The voltage has been above 4.90 V (below -40°C), i.e. the fuel temperature was below its lower limit.

Cause

The voltage between pins 3 and 10 in connector B2 is too high.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (40°C).

Action

Check the signal from the fuel temperature sensor.

Measure the resistance of the fuel temperature sensor.

Check for any visible faults on the fuel temperature sensor, the connectors and the wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D901

Fault

The voltage has been below 0.440 V (above 130°C), i.e. the fuel temperature was above its upper limit.

Cause

The voltage between pins 3 and 10 in connector B2 is too high.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (40°C).

Action

Check the signal from the fuel temperature sensor.

Measure the resistance of the fuel temperature sensor.

Check for any visible faults on the fuel temperature sensor, the connectors and the wiring.

Then, erase the fault code memory and check whether the fault code is generated again.

Fault code D902

Fault

Internal fault in the control unit.

Cause

The control unit has not been able to process (convert) the signal from the fuel temperature sensor.

Remarks

If the voltage is outside the permitted range, the control unit uses a pre-programmed temperature value (40°C).

Action

Clear the fault code memory. Start the engine and accelerate the engine to full speed.

If the fault code is regenerated, renew the control unit.

Fault code E000**Fault**

Internal fault in the control unit.

Cause

The control unit supplies the fuel volume solenoid valve on the front bank, cylinder 1-3, with an incorrect activation time.

Remarks

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E001**Fault**

Internal fault in the control unit.

Cause

The control unit supplies the fuel volume solenoid valve on the rear bank, cylinder 4-6, with an incorrect activation time.

Remarks

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E003

Fault

Internal fault in the control unit.

Cause

The control unit measures the engine speed on engine speed sensor 1 incorrectly due to an internal fault in the control unit.

Remarks

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E004

Fault

Internal fault in the control unit.

Cause

The control unit measures the engine speed on engine speed sensor 2 incorrectly due to an internal fault in the control unit.

Remarks

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E005**Fault**

Internal fault in the control unit.

Cause**Remarks**

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E006**Fault**

Internal fault in the control unit.

Cause**Remarks**

The fuel injection (the engine) is switched off as long as the fault is active.

As a result, the fault may also generate other fault codes.

Action

Clear the fault code and drive the vehicle for approximately 10 minutes. Check if the fault code has been generated again.

If the fault code has been regenerated, renew the control unit.

Fault code E200

Fault

The fault code is generated when the coolant temperature is above 104°C.

Cause

For some reason, the coolant temperature has become too high.

Remarks

When the coolant temperature is above 104°C, the maximum engine torque is limited to prevent the engine from overheating. Engine power is gradually reduced, with a maximum reduction of 30% at 106°C.

Action

Ensure that the engine cooling system is functioning correctly.

Fault code E300

Fault

The program in the control unit has been altered in a prohibited manner.

Cause

The program in the control unit has been altered in a prohibited manner, e.g. by using a programming tool not approved by Scania.

Remarks

The fault results in 0% throttle actuation and engine speed drops to idle speed.

Action

Renew the control unit.

Fault code FFFD**Fault**

Signal from the emergency shutdown switch.

Cause

A CAN message from the coordinator indicates that the emergency shutdown switch, which is connected to the coordinator, is activated.

Remarks

If the vehicle is stationary, the engine is switched off.

If the vehicle is moving, the engine will begin to idle. This allows the use of power steering etc.

It is not possible to use the cruise control.

The fault code is generated every time the emergency shutdown switch is used. The fault is no longer active as soon as the emergency shutdown switch is reset.

Action

Check the switch, connectors and wiring.

Fault code FFFE**Fault**

There are fault codes in the coordinator.

Cause

There are one or more fault codes in the coordinator that have affected the function of the engine.

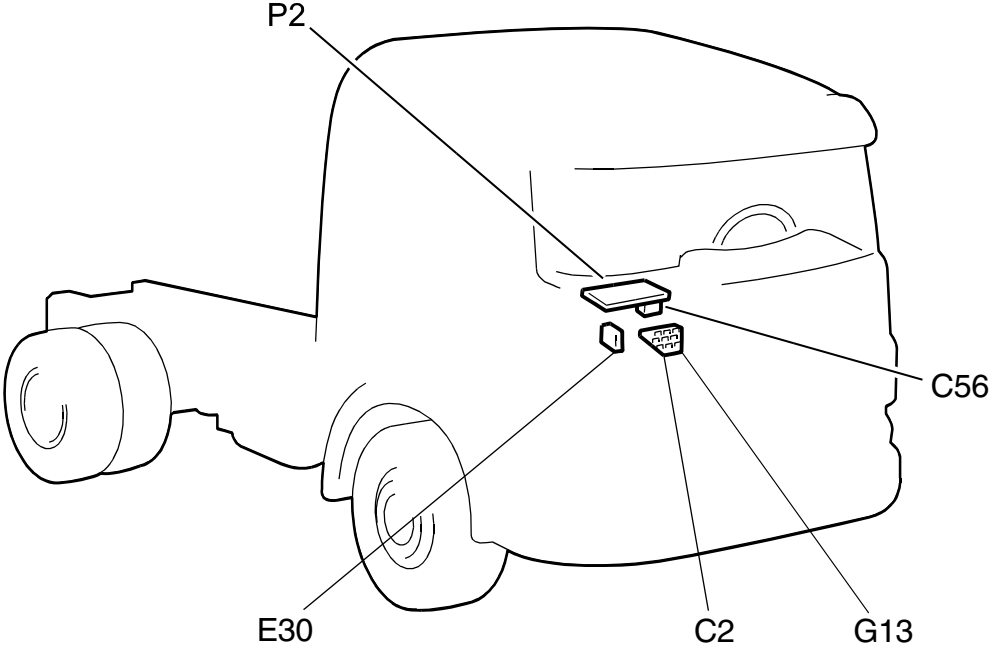
Remarks

The fault code is generated if there are fault codes in the coordinator which affect the function of the engine.

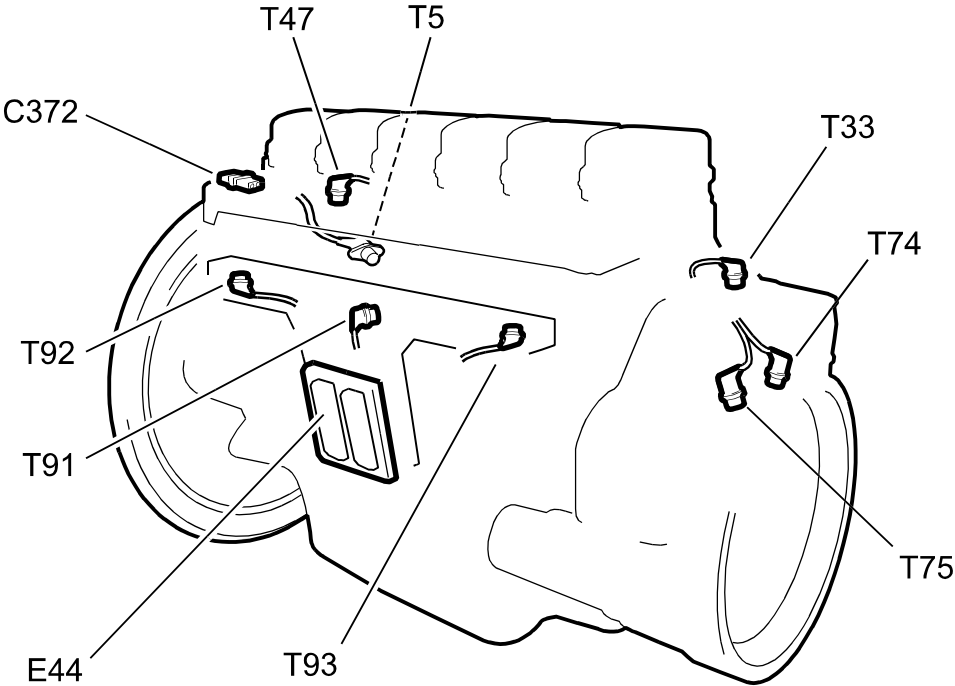
Action

If the fault code is active, check the fault codes in the coordinator.

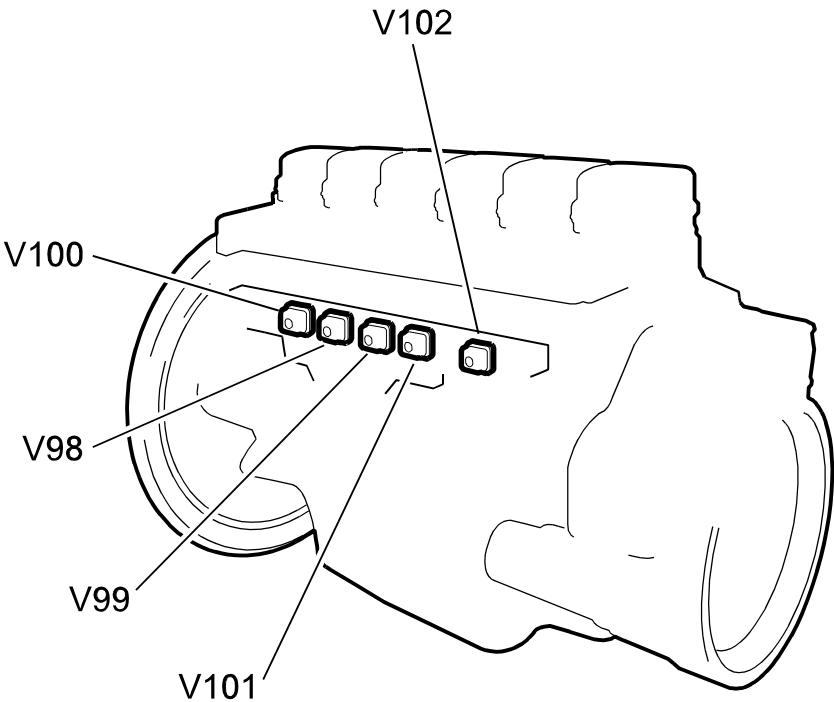
Location of components



118 389

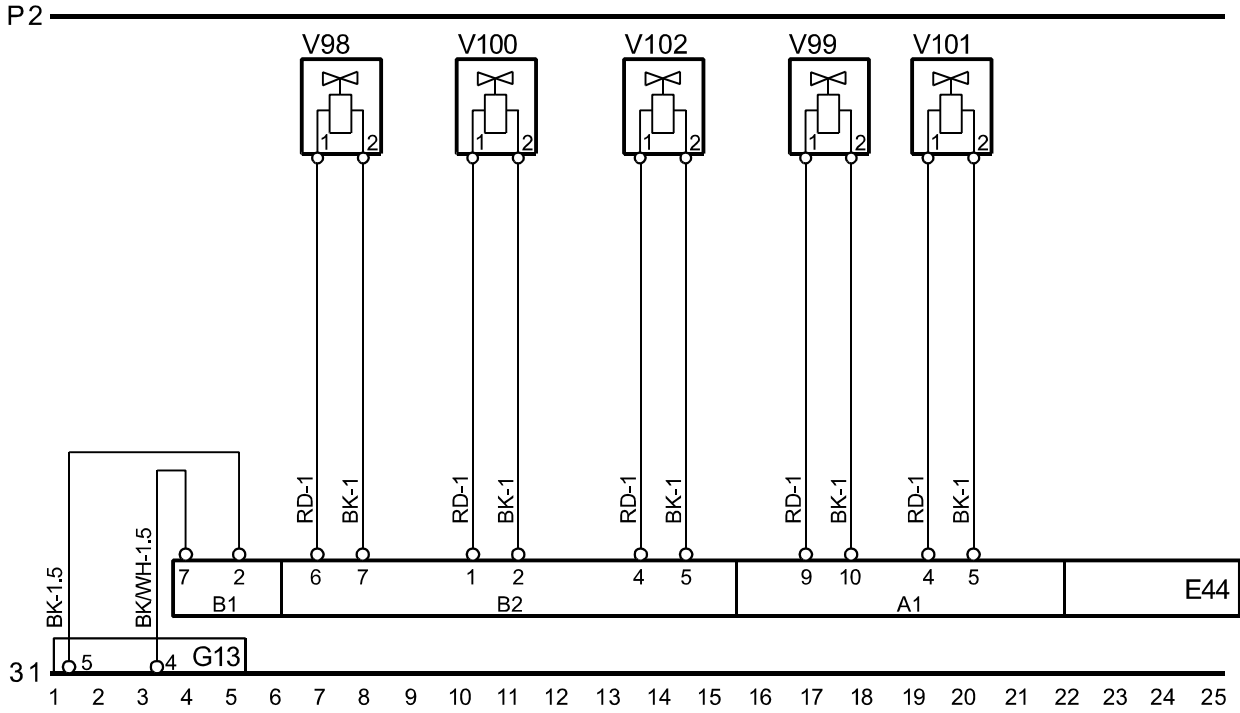


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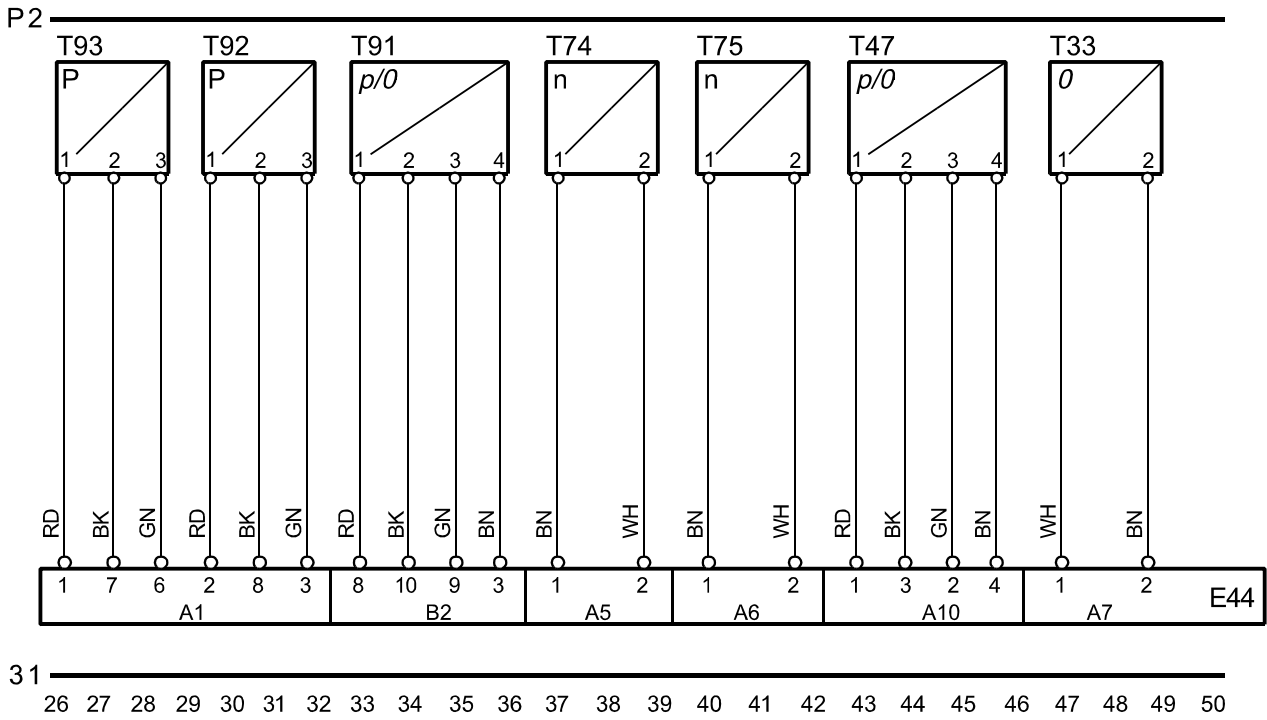


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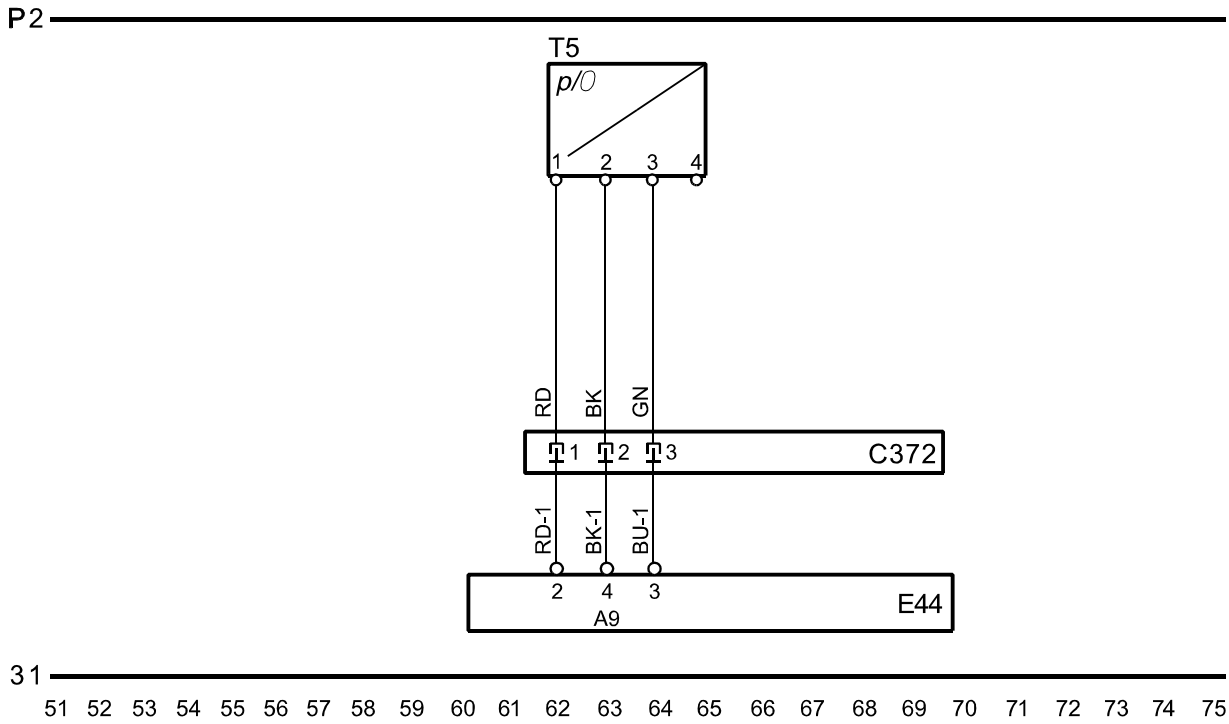
Wiring Diagrams



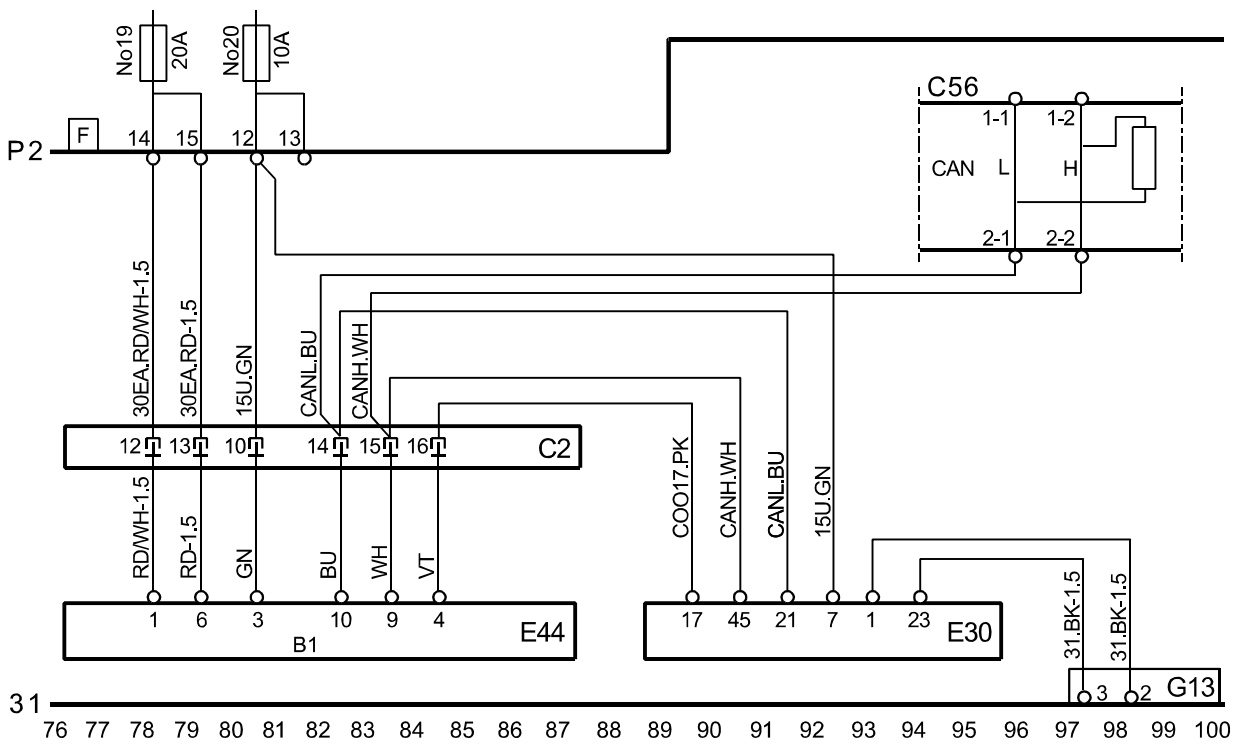
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Operational test

The following operational test must be performed on the EDC system after each repair.

- 1 Erase the fault code memory using a PC and SD2.
- 2 Start the engine. The engine idling speed is 500-700 rpm. The engine idling speed will automatically increase to 600 rpm if the coolant temperature is below 20-60°C (the temperature limit differs between various engine types).
- 3 Put the cruise control switch in the ON position.
- 4 Press RES. The engine speed increases to the stored hand throttle speed (500-2000 rpm).
- 5 Press RET. The engine speed gradually decreases.
- 6 Press ACC. The engine speed gradually increases.
- 7 Press the switch lightly towards OFF (spring-loaded position). The engine speed decreases to idling speed.
- 8 Press RES. The engine speed increases to the stored hand throttle speed.
- 9 Press lightly on the clutch pedal. The engine speed decreases to idling speed.
- 10 Press RES. The engine speed increases to the stored hand throttle speed.
- 11 Press lightly on the brake pedal. The engine speed decreases to idling speed.
- 12 Press RES. The engine speed increases to the stored hand throttle speed.
- 13 Push down the retarder hand lever. The engine speed decreases to idling speed.
- 14 Press RES. The engine speed increases to the stored hand throttle speed.
- 15 Depress the exhaust brake floor switch. The engine speed decreases to idling speed.
- 16 Engage a low gear and slowly release the clutch without touching the accelerator pedal. Select a gear that gives a road speed of 5 km/h at engine idling speed.
- 17 Increase the road speed by pressing ACC. At 10 km/h, the hand throttle will be disengaged (the engine returns to idling speed). If the engine speed exceeds 2000 rpm before the road speed of 10 km/h is attained, a higher gear must be selected.
- 18 Depress the accelerator pedal. Check that the engine speed corresponds to the position of the accelerator pedal and that the engine reacts as it should when depressing the accelerator.
- 19 Switch off the engine. The EDC lamp comes on for about 3 seconds.
- 20 Check the flashing code memory with the diagnostic button in the vehicle. The lamp gives one long flash (4 s), i.e. no faults are stored.

Checking the idling speed

- 1 Run the engine until it reaches normal operating temperature. The idling speed is reduced to the set value.
- 2 Check the idling speed. Generally speaking, the idling speed should be the lowest speed at which the engine runs smoothly. The engine idling speed can be adjusted between 500 and 700 rpm.

