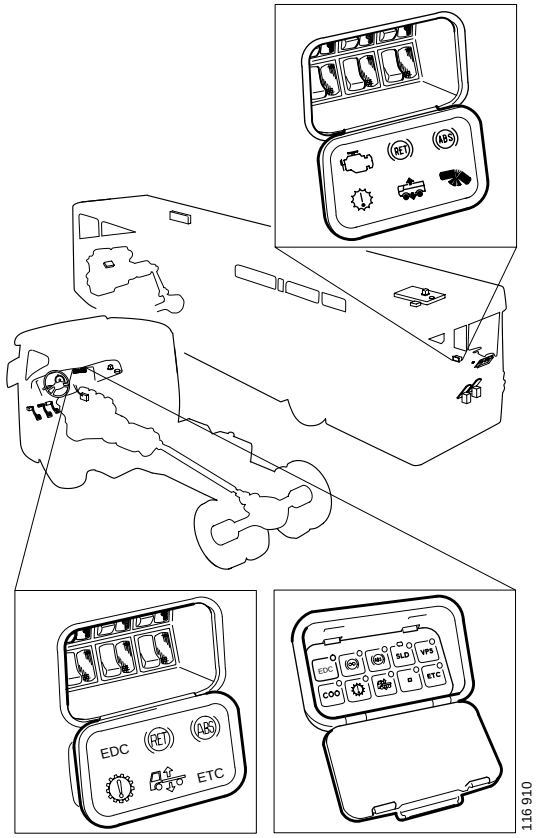
03:04-03

Issue 2 **en**

Fuel system with unit injector PDE and EDC MS6

Troubleshooting



The wiring diagrams have been removed from this booklet. Use the wiring diagrams in Scania Diagnos or Group 16 in the Workshop Manual. If you have any comments concerning the removal of the wiring diagrams, we would like to hear them. Copy the feedback form at the back of this booklet and send it to us.

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Contents

General

This booklet contains the following descriptions:

- Faults that do not generate fault codes.
- Fault codes — how to present and erase them.

  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.

Note: The wiring diagrams have been removed from this booklet.

Use the wiring diagrams in Scania Diagnos or Group 16 in the Workshop Manual.

All wiring diagrams and fault codes can be presented in Scania Diagnos without being connected to a vehicle or the program being run in demo mode. Click on the Run from database button and select the system you wish to troubleshoot.

Faults that do not generate fault codes

The table below contains descriptions of faults that can occur without generating fault codes.

Symptom	Cause/Action
Poor engine pulling power, output and torque.	Charge air pressure sensor is blocked. It will then react slower to changes in the charge air pressure or the charge air pressure sensor is stuck and giving a constant low charge air pressure. This will make the engine feel sluggish when the accelerator pedal is depressed. A fault code is not generated, as the signal from the sensor always remains within permitted limits.
	Reversed cables on the charge air pressure sensor can give a constant pressure signal within permitted limits.
	Air leak on the suction side of the feed pump. Try renewing the pipe and seals, as it is difficult to detect any leaks.
	Leaking overflow valve. Test pressurise the fuel system, refer to work description 03:04-01).
	Low supply pressure from the feed pump. The feed pump should deliver a pressure of 5.5-7.5 bar. Test pressurise the fuel system, refer to work description 03:04-01.
	Insufficient fuel to the engine. Make sure all the lines in the fuel system are free from obstructions.
Black smoke when accelerating.	The charge air pressure sensor has stuck and is giving a constantly high charge air pressure.
	Reversed cables on the charge air pressure sensor can give a constant pressure signal within permitted limits.

Symptom	Cause/Action
Engine runs at idling speed only.	+24 V voltage in on pin B14.
Engine will not start.	Break in the cable from pins B1 and B2 to earth.
	Break in the cable to pins B3 and B4 from supply +24 V.
	Break in the cable to pin B15 from starter lock, +24 V.
	Break in the cable from pin B27 to the supply relay.
	Faulty supply relay.
	Air in the fuel. Inspect for leaks in connections and lines before and after the feed pump, i.e. on the suction and delivery side of the system.
	Try renewing the pipes and seals, as it is difficult to detect a leak. Check especially the double O-rings between the fuel manifold and the cylinder heads.
	Check whether the overflow valve is leaking by test pressurising the fuel system, refer to work description 03:04-01.
Engine running erratically	Bad earth contact on pins B1 and B2. Make sure they are both secured properly on their terminal screws.
Engine surges slightly when cruise control is disengaged using the brake or clutch pedal.	Brake or clutch pedal switch opens too late.

Symptom	Cause/Action
Cruise control not working.	Clutch pedal switch malfunction, which earths pin B20.
	+24 V voltage in on pin B33.
Cruise control cannot be disengaged using the clutch pedal.	Clutch pedal switch malfunction, which causes pin B20 not to earth when the pedal is depressed.
The vehicle runs erratically when cruise control is engaged.	Tachograph malfunctioning. The control unit thinks that the road speed is 0 km/h and is attempting to retain a fixed engine speed instead; it is running on the hand throttle function.
Speed limiter not working.	Tachograph malfunctioning.
The diagnostic lamp does not come on when the key is turned on or off but comes on when the diagnostic switch is pressed in.	Defective power stage in the diagnostic lamp or break in the cable pin B6. The control unit (power stage) can be ruined if the earth connection, pins B1 and B2, between the control unit and the chassis has a bad contact or break when the diagnostic switch is pressed in.
Diagnostic and warning lamp flash rapidly.	Programming error. Renew the control unit.
Diagnostic and warning lamp light constantly.	Communication with the coordinator is broken. The flashing codes cannot be presented.
Fuel and lubrication oil is running from the leak-off pipe (one on each cylinder)	One of the unit injector O-rings that seals against the respective medium is leaking.

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

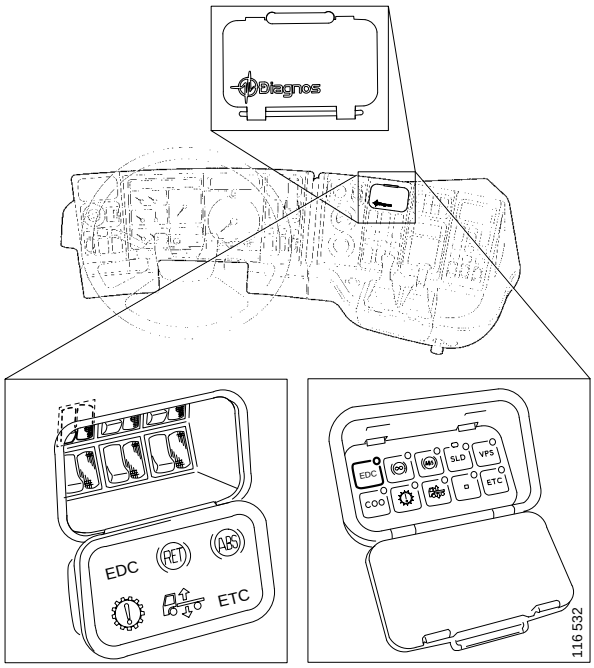
How to read the fault codes from the diagnostic lamp is described below.

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

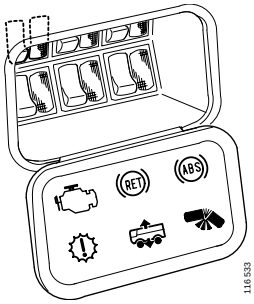
1 Switch on the power using the starter key.

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.



Two variants of diagnostic switch and diagnostic lamps fitted on trucks.

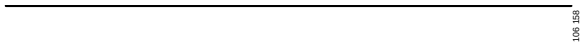


Diagnostic switch and diagnostic lamp on buses.

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.

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



How to erase fault codes

The EDC control unit memory has sufficient space to store all the 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 are then still stored in another location in the control unit — they can be deleted with 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.

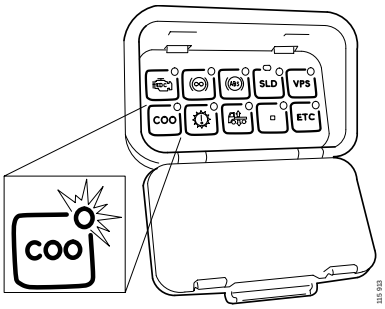
3 Start the engine and check that the warning lamp goes out.

4 Press the diagnostic switch. The fault code memory should be empty; only one long flash should be seen.

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.

Certain fault codes are described in two ways depending on whether the vehicle is equipped with a coordinator or not. You can see if the vehicle is equipped with a coordinator by looking at the diagnostic panel. If the vehicle is equipped with a coordinator, the switch shown in the illustration will be fitted. In addition, the lamp in the switch should come on for a few seconds when the power is activated using the starter key.



Use the wiring diagram in Scania Diagnos or Group 16 of the Workshop Manual.

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 11

Fault

At least one of the engine speed signals has shown over 3000 rpm.

Cause

The EDC control unit has detected that the frequency has been too high on at least one of the signals applied to pins A1 and A2.

Remarks

The unit injectors are shut off until both engine speed signals are below 3000 rpm. Subsequently, the engine will function normally.

The fault code has probably been generated during an incorrect downshift that has made the engine overrev – consequently, the EDC system is not at fault. The fault code may also have been generated in connection with interference of the engine speed signal.

Action

Check the signals from the main engine speed sensor on the flywheel and compare them with the auxiliary engine speed sensor on the camshaft gear.

Check any visible faults on the engine speed sensors, connectors and wiring.

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

Fault code 12

Fault

The main engine speed sensor on the flywheel has indicated an erroneous signal. The fault code may have been generated for any of four reasons:

1. The EDC control unit has not received any signal from the main engine speed sensor.

2. The signal from the main engine speed sensor has shown implausible variations in engine speed from pulse to pulse.

3. The signal from the main engine speed sensor has alternated between correct and incorrect values a number of times.

4. The engine speed signals from the main engine speed sensor on the flywheel and the auxiliary engine speed sensor on the camshaft gear have given conflicting information on where in the working cycle the engine was.

Cause

1. No signal applied to pin A1.

2. The frequency of the signal applied to pin A1 has been too irregular.

3. The signal applied to pin A1 has alternated between incorrect and correct values.

4. Phase fault between the signals applied to pins A1 and A2.

Remarks

The fault code can, for example, be generated due to any of the following four reasons.

1. If the sensor cables are connected incorrectly. If the cables are reversed, the signal will be inverted.

2. If the distance between the sensor and the flywheel is incorrect.

3. If the timing gear has been assembled incorrectly.

4. If the engine speed sensors cannot agree on where in the working cycle the engine is at present – the EDC control unit will then use the main engine speed sensor. Engine torque will be limited if the engine is running. The engine will not start if the EDC control unit registers the fault during a start attempt. Fault code 13 will then be generated simultaneously.

Engine torque is limited as long as the fault is active. The engine will function as normal again if the fault ceases.

The engine will be switched of if fault code 13 is generated simultaneously, i.e. if both engine speed sensors are faulty.

Action

Check the signals from the main engine speed sensor on the flywheel and compare them with the auxiliary engine speed sensor on the camshaft gear.

Measure the resistance of the main engine speed sensor.

Check any visible faults on the main engine speed sensor, connectors and wiring.

Check for a fault in the timing gear, e.g. excessive play.

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

Fault code 13

Fault

The signal from the auxiliary engine speed sensor on the camshaft gear has been incorrect. The fault code may have been generated for any of four reasons:

1. The signal from the auxiliary engine speed sensor has been absent.

2. The signal from the auxiliary engine speed sensor has shown implausible variations in engine speed from pulse to pulse.

3. The signal from the auxiliary engine speed sensor has alternated between incorrect and correct values a number of times.

4. The speed signals from the main engine speed sensor on the flywheel and the auxiliary engine speed sensor on the camshaft gear have given conflicting information on where in the working cycle the engine was.

Cause

1. No signal applied to pin A2.

2. The frequency of the signal applied to pin A2 has been too irregular.

3. The signal applied to pin A2 has alternated between incorrect and correct values.

4. Phase fault between the signals applied to pins A1 and A2.

Remarks

The fault code can for example, be generated due to any of the following four reasons.

1. If the sensor cables are connected incorrectly. If the cables are reversed, the signal will be inverted.

2. If the distance between the sensor and the flywheel is incorrect.

3. If the timing gear has been assembled incorrectly.

4. If the engine speed sensors cannot agree on where in the working cycle the engine is at present – the EDC control unit will then use the main engine speed sensor. Engine torque will be limited if the engine is running. The engine will not start if the EDC control unit registers a fault during a start attempt. Fault code 12 will then be generated simultaneously.

Engine torque is limited as long as the fault is active. The engine will function as normal again if the fault ceases.

If fault code 12 occurs at the same time, i.e. both engine speed sensors are faulty, the engine will be switched off.

Action

Check the signals from the main engine speed sensor on the flywheel and compare them with the auxiliary engine speed sensor on the camshaft gear.

Measure the resistance of the auxiliary engine speed sensor.

Check any visible faults on the auxiliary engine speed sensor, connectors and wiring.

Check for a fault in the timing gear, e.g. excessive play.

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

Fault code 14

Fault

The signal from the coolant temperature sensor has been implausible.

Cause

The voltage between the EDC control unit pins A22 and A5 has been too low or too high.

Remarks

The fault code is generated if the voltage is lower than 0.49 V (above 130ºC) or higher than 4.62 V (below –40ºC). The EDC control unit will then use a pre-programmed temperature of 60ºC.

As long as the fault is active, the cold start characteristics of the engine will be impaired and idling speed will be increased to 600 rpm and cannot be adjusted.

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 15

Fault

The signal from the charge air temperature sensor has been implausible.

Cause

The voltage between the EDC control unit pins A21 and A17 has been too low or too high.

Remarks

The fault code is generated if the voltage is lower than 0.49 V (above 130ºC) or higher than 4.62 V (below –40ºC). The EDC control unit will then use a pre-programmed temperature of 40ºC.

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 16

Fault

The signal from the charge air pressure sensor has been implausible.

Cause

The voltage applied to the EDC control unit pin A12 has been too low or too high.

Remarks

The fault code is generated if the voltage is lower than 0.35 V (0.5 bar absolute pressure) or higher than 4.66 V (4.0 bar absolute pressure). The EDC control unit will then use a pre-programmed pressure of approx. 1.7 bar.

The charge air pressure sensor detects the absolute pressure in the intake manifold, i.e. the atmospheric pressure plus the overpressure provided by the turbocharger.

Engine torque is limited as long as the fault is active.

Action

Check the signal from the charge air pressure sensor.

Check that the charge air and the atmosphere are about the same pressure when the engine is off.

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 18

Fault

The signal from the oil pressure sensor is implausible.

Cause

The voltage applied to the EDC control unit pin A9 has been too low or too high.

Remarks

The fault code is generated if the voltage is below 0.35 V or in excess of 4.66 V. The EDC control unit will then use a pre-programmed pressure of 0 bar.

The oil pressure sensor detects the engine oil 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 21 — for vehicles without coordinator

Fault

Implausible signal from the control for cruise control.

Cause

Voltage too low or too high between pins B8 and B25. May also be an impermissible voltage level between the different functions: ACC, RES, RET, ON and OFF.

Remarks

The cruise control, hand throttle and engine idling speed adjustment will not function as long as the fault is present.

The control unit interprets voltage level as follows:

0.67-1.03 V, ACC

1.50-1.89 V, RES

2.37-2.82 V, RET

3.20-3.57 V, ON

3.57-4.40 V, OFF

Action

Check the control, connectors and wiring.

Fault code 21 — for vehicles with coordinator

Fault

The CAN message from the coordinator concerning the position of the cruise control is either absent or has shown an implausible value.

Cause

One of the following faults has occurred to the CAN message from the coordinator to EDC control unit pins B11 and B12.

1. The CAN message concerning the position of the cruise control is absent.

or

2. The coordinator has indicated that there is a fault on the signal from the cruise control switch.

Remarks

Cruise control, hand throttle and engine idling speed adjustment will not function as long as the fault is present.

If the CAN message concerning the position of the cruise control is absent, there may be a fault in either the wiring for CAN communication or the in the coordinator.

If the coordinator has indicated that there is a fault in the signal from the cruise control switch, the wiring for CAN communication is probably not at fault.

Action

Check the message from the coordinator concerning the position of the cruise control switch.

Trouble shoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 22 — for vehicles without coordinator

Fault

The brake pedal switches have supplied conflicting signals on the position of the pedal. One switch has indicated that the pedal was released while the other switch has indicated that it was depressed.

Cause

Pins B26 and B31 have both been earthed at the same time or they have both been without an earth connection at the same time.

Remarks

Both brake pedal switches have been closed or been open at the same time for more than five minutes.

The cruise control, hand throttle and engine idling speed adjustment will not function as long as the fault is present.

Action

Check the switches, the connectors and wiring.

Fault code 22 — for vehicles with coordinator

Fault

The CAN message from the coordinator concerning the brake pedal switches is either absent or has shown an implausible value.

Cause

One of the following faults has occurred to the CAN message from the coordinator to EDC control unit pins B11 and B12.

1. The CAN message concerning the brake pedal switches is absent.

or

2. The coordinator has indicated that there is a fault in the signals from the brake pedal switches – they have given conflicting signals.

Remarks

Cruise control, hand throttle and engine idling speed adjustment will not function as long as the fault is present.

If the CAN message concerning the brake pedal switches is absent, there may be a fault in either the wiring for CAN communication or in the coordinator.

If the coordinator has indicated that there is a fault in the signals from the brake pedal switches, the wiring for CAN communication is probably not at fault. The brake pedal switches must give conflicting signals for longer than 5 minutes before the fault code can be generated.

Action

Check the message from the coordinator concerning the positions of the brake pedal switches.

Troubleshoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 24 — for vehicles without coordinator

Fault

Signals indicating that the accelerator pedal and the brake pedal have both been depressed at the same time.

Cause

Input voltage on pin B23 too high at the same time as pin B31 has been earthed or pin B26 has not been earthed.

Remarks

The accelerator pedal and brake pedal must have been depressed at the same time for more than 20 consecutive brake applications for the fault code to be generated. 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.

The input voltage on pin B23 has been above 0.45 V at the same time as the brake pedal has been depressed.

A fault in the brake pedal switches generates fault code 22. A fault in the accelerator pedal sensor throttle actuation switch or potentiometer generates fault code 25.

Action

Check the movement of the accelerator pedal.

Fault code 24 — for vehicles with coordinator

Fault

The EDC control unit has received a CAN message from the coordinator indicating that the accelerator pedal and the brake pedal have both been depressed at the same time.

Cause

The CAN message from the coordinator to the EDC control unit pins B11 and B12 has indicated that the accelerator pedal and the brake pedal have both been depressed at the same time.

Remarks

The wiring for CAN communication is probably not at fault.

The coordinator has probably received signals indicating that the accelerator and brake pedals have been depressed at the same time for more than 20 brake applications in succession.

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

Action

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

Troubleshoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 25 — for vehicles without coordinator

Fault

The fault code may be generated for two reasons:

Implausible signal from the accelerator pedal sensor potentiometer.

Implausible deviation between the accelerator pedal sensor potentiometer and the throttle actuation switch.

Cause

Input voltage on pin B23 too low or too high.

Input voltage on pin B23 too low at the same time as pin B17 is earthed. Alternatively, input voltage on pin B23 too high at the same time as pin B17 is not earthed.

Remarks

If the fault is due to an implausible voltage from the potentiometer, the following will apply:

The voltage from the potentiometer was below 0.25 V or in excess of 4.00 V.

The vehicle can be driven to the nearest workshop in limp home mode using the throttle actuation switch. In limp home mode, releasing the accelerator pedal gives engine idling speed and depressing it (throttle actuation switch closed) gives half full throttle.

The cruise control can be used when the road speed exceeds 35 km/h.

Throttle actuation is reduced to engine idling speed when this fault arises. The engine torque is limited.

If the fault is due to an implausible difference between the potentiometer and the throttle actuation switch, the following applies:

The voltage from the potentiometer was lower than 0.49 V while the throttle actuation switch was closed. Alternatively, the voltage was in excess of 0.90 V while the throttle actuation switch was open.

The engine runs at a slightly higher than normal idling speed (750 rpm). The engine does not respond to the accelerator pedal. The cruise control can be used when the road speed exceeds 35 km/h.

Action

Check the potentiometer. Compare the potentiometer and throttle actuation switch. Check the connectors and wiring.

Fault code 25 — for vehicles with coordinator

Fault

The CAN message from the coordinator concerning the accelerator pedal sensor potentiometer is either absent or has shown an implausible value.

Cause

One of the following faults has occurred to the CAN message from the coordinator to EDC control unit pins B11 and B12.

1. The CAN message concerning the accelerator pedal sensor potentiometer is absent.

or

2. The coordinator has indicated that there is either a fault in the signal from the accelerator pedal sensor potentiometer or too great a difference between the signals from the accelerator pedal sensor potentiometer and the throttle actuation switch.

Remarks

If the CAN message concerning the accelerator pedal sensor potentiometer is absent, the following will apply:

1. The vehicle can be driven to the nearest workshop in limp home mode using the throttle actuation switch. In limp home mode, releasing the accelerator pedal gives engine idling speed and depressing it (throttle actuation switch closed) gives half full throttle.

2. The cruise control can be used when the road speed exceeds 35 km/h.

3. Throttle actuation is reduced to engine idling speed when this fault arises. The engine torque is limited.

If the coordinator indicates that there is either a fault in the signal from the accelerator pedal sensor potentiometer or too great a difference between the signals from the accelerator pedal sensor potentiometer and the throttle actuation switch, the following will apply:

1. The engine runs at a slightly higher than normal idling speed (750 rpm).

2. The engine does not respond to the accelerator pedal.

3. The cruise control can be used when the road speed exceeds 35 km/h.

The fault code is generated if the throttle actuation switch is inactivated while the accelerator pedal sensor indicates more than 45% throttle actuation.

The fault code is also generated if the throttle actuation switch is activated while the accelerator pedal sensor indicates less than 0.4% throttle actuation.

Action

Check the message from the coordinator concerning the position of the accelerator pedal.

Compare the messages from the coordinator concerning the positions of the accelerator pedal and the throttle actuation switch.

Troubleshoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 26 — for vehicles without coordinator

Fault

No road speed signal or it is implausible.

Cause

Input signal to pin B29 is absent, showing implausibly high road speed, has too high a frequency or has too low or too high a voltage level.

Remarks

The signal from the tachograph indicated a road speed in excess of 150 km/h. Cruise control, hand throttle and engine idling speed adjustment do not function.

The fault code is generated only if the engine is running.

When this fault is present, the control unit uses a pre-programmed road speed value (15 km/h).

This fault code is also generated in the event of an open circuit or short circuit in the cable between the tachograph and the control unit.

The fault code may also be generated by external electrical interference. Only the system that limits maximum road speed, in this case EDC, may be connected to tachograph output D3.

The road speed signal voltage is an internal voltage level in the control unit. It cannot be measured with a multimeter.

Action

Check the function of the tachograph on the disc or during a test drive. If the tachograph is functioning correctly, check the wiring between the tachograph and the control unit.

Fault code 26 — for vehicles with coordinator

Fault

The CAN message from the coordinator concerning the road speed is either absent or has shown an implausible value.

Cause

One of the following faults has occurred to the CAN message from the coordinator to EDC control unit pins B11 and B12.

1. The CAN message concerning the road speed is absent.

or

2. The coordinator has indicated that there is a fault on the road speed signal from the tachograph.

Remarks

The fault code is generated only if the engine is running.

Cruise control, hand throttle and engine idling speed adjustment will not function when the fault is present. The emergency shutdown function does not turn off the engine but the engine goes to idling speed.

The EDC control unit will then use a pre-programmed road speed value of 15 km/h.

If the coordinator indicates that there is a fault in the road speed signal from the tachograph, the wiring for CAN communication is probably not at fault.

If the CAN message concerning the road speed signal is absent, there may be a fault in the wiring for CAN communication or in the coordinator.

Action

Check the message from the coordinator concerning the road speed.

Troubleshoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 29

Fault

The signal from the atmosphere pressure sensor has been implausible.

Cause

The voltage from the atmosphere pressure sensor integrated in the EDC control unit has been too low or too high.

Remarks

The fault code is generated if the voltage is below 0.20 V or in excess of 4.93 V.

If the voltage is outside the above range, the EDC control unit will use the pre-programmed pressure value of 1.0 bar.

Action

Check the signal from the atmosphere pressure sensor.

Check that the charge air and the atmosphere are the same pressure when the engine is off.

Erase the fault code memory and check whether the fault code is generated again. Renew the EDC control unit if the fault code is generated again.

Fault code 33

Fault

The EDC control unit has interpreted the battery voltage as being abnormally low or high.

Cause

The voltage applied to the EDC control unit pins B3 and B4 has been too low or too high.

Remarks

The fault code is generated if the voltage is below 22 V or in excess of 30 V.

The fault code is generated only if the engine is running.

Engine torque is limited as long as the fault is active. The engine operates as normal if the fault disappears.

If the voltage is outside the range 22-30 V, the EDC control unit uses a pre-programmed value of approx. 28 V.

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

Action

Check the signal for the battery voltage and compare with the battery voltage measured with a multimeter.

Check any visible faults on the connectors and wiring.

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

Fault code 37 — for vehicles without coordinator

Fault

Signal from the emergency shutdown switch. In buses, the signal can come from the switch in the rear central electric unit in the engine compartment.

Cause

Pin B22 on the control unit is earthed.

Remarks

If the vehicle is stationary, the engine is switched off. When the vehicle is being driven, the engine speed drops to idling speed. This allows the use of power steering etc.

The fault code is generated every time the emergency shutdown switch is used. As soon as the emergency shutdown switch is reset, the fault disappears. The fault code is automatically erased when the voltage is switched off with the starter key.

Action

Check the switch, the connectors and wiring.

Fault code 37 — for vehicles with coordinator

Fault

CAN message from the coordinator that the engine must be (emergency) shut down.

Cause

CAN message from the coordinator to the EDC control unit pins B11 and B12 that the engine must be (emergency) shut down.

Remarks

If the vehicle is stationary, the engine is switched off. When the vehicle is being driven, the engine speed drops to idling speed. This allows the use of power steering etc.

The fault code is generated every time the emergency shutdown switch, if fitted, is used. As soon as the emergency shutdown switch is reset, the fault disappears.

The fault code can also be generated if the VPS (Vehicle Protection System) is activated.

Action

Check the message from the coordinator concerning the status of the function.

Troubleshoot the coordinator system.

Check the wiring for CAN communication and the connectors.

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

Fault code 39

Fault

The EDC control unit cannot control the fan.

Cause

The voltage between the EDC control unit pins A10 and A16 has been too low or too high. There may also be an internal fault in the EDC control unit.

The fault code has been generated due to any of the following causes.

1. The driver stage is short-circuited to chassis ground.

2. Either the driver stage is short-circuited to +24 V or there is a break.

Remarks

While the fault is active, the fan will be fully engaged - it then follows the engine speed.

The fault code is generated only when the voltage is turned on.

The voltage must be turned off and then on before the EDC control unit will consider the fault as being inactive.

The fault code is generated if an EDC control unit is programmed for an electrically controlled fan and the vehicle is fitted with a mechanically controlled fan.

Action

Disconnect the solenoid valve connector on the fan ring and check that the voltage is +24 V when the power is turned on.

Measure the resistance of the solenoid valve.

Check using Scania Programmer that the EDC control unit is programmed for the type of fan that is fitted on the vehicle.

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

Fault code 43

Fault

Fault in the CAN communication circuit.

Cause

Internal fault in the EDC control unit.

Remarks

The fault does not affect the function of the engine. However, the other EDC control units will not receive engine information. Other systems (such as ABS/TC, EBS and Opticruise) cannot take control of engine operation.

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

Action

Erase the fault code memory and check whether the fault code is generated again. Renew the EDC control unit if the fault code is generated again.

Fault code 48

Fault

There has been a fault in the CAN communication with the coordinator.

Cause

CAN communication with the coordinator, to the EDC control unit pins B11 and B12, has been broken.

Remarks

The wiring for CAN communication is probably at fault.

The engine will behave as follows for as long as the fault is active:

- The controls in the driver area, e.g. the accelerator pedal, will not affect the engine.

- The engine runs at a slightly higher than normal idling speed (750 rpm). Therefore, a low gear can be engaged and the vehicle can be driven in limp-home mode.

Diagnostic and warning lamp lights constantly. The flashing codes cannot be presented.

Action

Check the wiring for the CAN communication between the EDC control unit and the coordinator.

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

Fault code 49

Fault

There has been a fault in the CAN communication with the coordinator.

Cause

The EDC control unit has not been able to interpret the CAN message from the coordinator. The CAN message is input on the EDC control unit pins B11 and B12.

Remarks

The engine will behave as follows for as long as the fault is active:

- The controls in the driver area, e.g. the accelerator pedal, will not affect the engine.

- The engine runs at a slightly higher than normal idling speed (750 rpm). Therefore, a gear can be engaged and the vehicle can be driven in limp-home mode.

The fault can occur only after renewing the EDC control unit or coordinator and the new part is not compatible with the EDC control unit or coordinator that is still in the vehicle.

Action

Check that the correct version of the EDC control unit and coordinator is being used.

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

Fault code 51 — for 6 cylinder engines

Fault

Implausible current consumption by the unit injector for cylinder 1.

Cause

Current consumption between pins A28 and A24 is too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 52 and 53 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 51 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 51 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 1 has been implausible.

Cause

Current consumption between pins A35 and A24 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 54, 56 and 57 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 51 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 52 — for 6 cylinder engines

Fault

Implausible current consumption by the unit injector for cylinder 2.

Cause

Current consumption between pins A27 and A24 is too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 52 and 53 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 52 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 52 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 2 has been implausible.

Cause

Current consumption between pins A27 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 51, 53, 55 and 58 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 52 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 53 — for 6 cylinder engines

Fault

Current consumption by the unit injector for cylinder 3 has been implausible.

Cause

Current consumption between pins A26 and A24 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 52 and 53 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 53 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 53 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 3 has been implausible.

Cause

Current consumption between pins A28 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 52, 53, 55 and 58 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 53 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 54 — for 6 cylinder engines

Fault

Current consumption by the unit injector for cylinder 4 has been implausible.

Cause

Current consumption between pins A33 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 54, 55 and 56 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 54 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 54 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 4 has been implausible.

Cause

Current consumption between pins A34 and A24 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 54, 56 and 57 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 54 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 55 — for 6 cylinder engines

Fault

Current consumption by the unit injector for cylinder 5 has been implausible.

Cause

Current consumption between pins A35 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 54, 55 and 56 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 55 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 55 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 5 has been implausible.

Cause

Current consumption between pins A26 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 52, 53, 55 and 58 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 55 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 56 — for 6 cylinder engines

Fault

Current consumption by the unit injector for cylinder 6 has been implausible.

Cause

Current consumption between pins A34 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

Different fault symptoms may occur, depending on the kind of fault concerned.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55 and 56 are all generated at the same time.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 54, 55 and 56 are all generated at the same time.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 56 and the corresponding fault code for the other cylinder are generated at the same time. For this type of fault the engine must run for about 4 minutes before the fault code will be generated.

Action

Check whether any fault codes have been generated for the other unit injectors.

Check connectors, wiring and unit injector solenoid valves.

Fault code 56 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 6 has been implausible.

Cause

Current consumption between pins A33 and A24 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 51, 54, 56 and 57 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 56 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 57 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 7 has been implausible.

Cause

Current consumption between pins A32 and A24 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A24. Fault codes 51, 54, 56 and 57 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 57 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 58 — for 8 cylinder engines

Fault

Current consumption by the unit injector for cylinder 8 has been implausible.

Cause

Current consumption between pins A29 and A25 has been too low or too high. Alternatively, the change in current consumption when the solenoid valve operates is too fast or too slow.

Remarks

The following different fault symptoms may occur, depending on the kind of fault concerned.

The defective cylinder is turned off and the engine continues to run on the other cylinders. Engine torque is limited to reduce uneven running. A fault code is generated for the defective cylinder only.

Half of the cylinders are turned off and the engine continues to run on the remaining cylinders in the event of an open circuit in the cable from pin A25. Fault codes 52, 53, 55 and 58 are all generated at the same time.

The engine will run somewhat unevenly if the injection timing deviates from the expected value. The deviation must be greater than 0.2 ms for more than 4 minutes before the fault code can be generated.

The engine will run very unevenly if two solenoid valves are short-circuited to each other. Fault code 58 and the corresponding fault code for the other cylinder are generated at the same time.

The engine will be switched off if the fault is one that causes fault codes to be generated for all cylinders. Fault codes 51, 52, 53, 54, 55, 56, 57 and 58 are all generated at the same time.

Action

Check the injection deviation in Scania Diagnos.

Check whether any fault codes have been generated for the other unit injectors.

Check for any visible faults on connectors, wiring and unit injector solenoid valves.

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

Fault code 61

Fault

The EDC control unit has been interrupted before the shutdown test was finished.

Cause

The input voltage on pins B3 and B4 has disappeared too early.

Remarks

During the shutdown test, the EDC control unit carries out a operational 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 is assumed to have been rectified as soon as the EDC 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 connectors and wiring to the EDC control unit pins B3, B4 and B27. The voltage supply may be interrupted if extra equipment has been connected.

Check the function of the supply relay or test with a new relay.

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

Fault code 64

Fault

The EDC control unit receives a voltage supply despite the starter key being in the locked position.

Cause

Input voltage applied to pins B3 and B4 although no input voltage on pin B15.

Remarks

There is still power to the supply relay after the shutdown test is complete.

The warning lamp is on continuously despite the power being switched off. The function of the engine is not affected, i.e. the engine can be restarted.

If the warning lamp is on, the supply relay must be removed before the EDC control unit connector can be disconnected.

Action

Remove the supply relay.

If the warning lamp is still on, the wiring to pins B3 and B4 is probably short-circuited to +24 V.

If the warning lamp goes out, you can measure the resistance in the wire to pin B27 to see if it is short-circuited to earth. If it is not short-circuited, the relay is probably defective. In which case, renew the relay.

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

Fault code 81

Fault

Internal fault in the EDC control unit

Cause

The internal monitoring system in the EDC control unit has detected a fault.

Remarks

The EDC control unit immediately shuts down the unit injectors (the engine is turned off).

Action

Renew the EDC control unit.

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

Fault code 82

Fault

The EDC control unit has detected a fault during the shutdown test.

Cause

In connection with shutdown, the EDC control unit detected a fault in the microcomputer system.

Remarks

If the EDC control unit detects a fault during the shutdown test, engine torque will be limited next time the engine is started.

The EDC control unit must first carry out a successful shutdown test before it will regard the fault as inactive and normal torque is restored.

Action

Erase the fault code memory and check whether the fault code is generated again. Renew the EDC control unit if the fault code is generated again.

Fault code 83

Fault

Internal fault in the EDC control unit

Cause

The EDC control unit has detected that the fault code or operating data memory is not functioning properly.

Remarks

The fault does not affect engine function.

Action

Erase the fault code memory and check whether the fault code is generated again. Renew the EDC control unit if the fault code is generated again.

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.

It is our ambition that mechanics and technicians working with troubleshooting, repair and service should have access to correct and appropriate Workshop Manuals.

By letting us know of your experiences and views on our manuals, you will be helping us to maintain the high standard you expect from our service literature.

Write down your comments on a sheet of paper or photocopy this page and send it to us at the address below. You are also welcome to send your comments by fax.

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Views/suggestions

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Workshop Manual concerned: .....