P0087

Fault code description

Fuel pressure - Data valid but too low, Most severe

Possible cause

1. Internal or external fuel leaks
2. The fuel pressure control valve does not shut off
3. Faulty fuel lift pump
4. Faulty fuel pressure sensor (F801)

Additional information

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Set condition of fault code

This diagnostic starts 200 seconds after the engine has started and runs continuously from that point.

The PMCI-2 ECU detects if the fuel pressure is too low after 12 seconds at idle.

Reset condition of fault code

This fault code will change to inactive immediately after the diagnostic runs and passes.

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P0087, Diagnostic information

Technical data

"Sensor, fuel pressure (F801)"

Location of component(s)

"Location information, PMCI-2"

Electrical diagram(s)

"PMCI-2"

Description of component(s)

"Fuel pressure sensor (F801)"

Block diagram

"PMCI-2"

Step by step troubleshooting

Please perform the troubleshooting steps below using the breakout harness if necessary to check electrical components such as sensors, electrical control units or harnesses. Back probing is not recommended as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to electrical components.

- Use Rapido with chassis-specific settings for fuel specifications and the fuel pressure check procedure.
- The fault code is triggered when the fuel pressure is below 47 psi (325 kPa).
- This troubleshooting tree is based on the assumption that supply power and earth to the PMCI are functioning properly.
- Disconnecting the PMCI connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pin out locations, always refer to the technical data in Rapido.
- It is necessary to exit the 'active errors' screen in DAVIE and run the diagnostic test again to identify any change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive codes. Refer to the 'possible causes' section in Rapido.

Step 1

Start the engine.

- If the engine starts – Proceed to step 4.
- If the engine does not start – Proceed to step 2.

Step 2

Check the cranking fuel pressure with the PACCAR fuel pressure gauge kit. If this kit is not available, use a mechanical gauge in the fuel temp port.

- At starting speed, if the pressure is not approximately 14.5 psi (1.0 bar) – Proceed to step 3.
- At starting speed, if the pressure is approximately 14.5 psi (1.0 bar) – Contact Engine Support Center (ESC).

Step 3

Your results have determined that the issue is mechanical. Please diagnose and verify the following possible causes:

- No fuel.
- Fuel system leak.
- Air in fuel. If there is air in the fuel, run the engine from of an auxiliary fuel source to check if the air is coming from the chassis side or the engine.
- Excessive restriction between fuel lift pump and fuel tank.
- Fuel lift pump failure.
- Dirty fuel filters.
- Cracked fuel tank pick up tubes.
- Loose or broken ball and spring in fuel control valve at the left rear of the block.
- Loose fuel line fittings.
- Loose or damaged hand primer pump.
- Damaged O-ring on the fuel line going into the hand primer pump.

If no mechanical problem is found, contact the

Engine Support Center (ESC).

Step 4

Measure fuel pressure at 600 rpm and 2100 rpm. The results should be as follows:

- At idling speed (600 rpm) - approx. 65.3 psi (4.5 bar).
- At maximum no-load engine - speed (2100 rpm) approx. 130.0 psi (9.0 bar).

Does fuel pressure meet specification?

- Yes – Proceed to step 5.
- No – Possible causes are as follows:
  - Fuel system leak.
  - Air in fuel. If there is air in the fuel, run the engine from of an auxiliary fuel source to check if the air is coming from the chassis side or the engine.
  - Excessive restriction between fuel lift pump and fuel tank.
  - Fuel lift pump failure.
  - Dirty fuel filters.
  - Cracked fuel tank pick up tubes.
  - Loose or broken ball and spring in fuel control valve at the left rear of the block.
  - Loose fuel line fittings.
  - Loose or damaged hand primer pump.
  - Damaged O-ring on the fuel line going into the hand primer pump.

Step 5

Visually inspect all applicable connectors and harnesses for corrosion, damage and rubbing during each step of the diagnostic procedure. Proceed to step 6.

Step 6

Review the DAVIE log file and verify if the related error, P2541 Fuel pressure sensor under range, is active.

- If P2541 is active – Proceed to the appropriate troubleshooting tree.
- If P2541 is NOT active – Proceed to step 7.

Step 7

With Key ON, navigate DAVIE and monitor the fuel pressure sensor voltage. Compare the voltage found against the mechanical fuel gallery pressure measurement found in step 1 for the same RPM and refer to the comparison voltage/pressure chart found in Rapido.

- If the compared measurement falls within the chart – Proceed to the verification procedure.
- If the compared measurement DOES NOT fall within the chart – Replace the fuel pressure sensor and proceed to the verification procedure.

Verification procedure

With DAVIE connected and key ON, clear the errors. Start the engine and let it run from 600 rpm to the rated speed of 2100 rpm. Verify with DAVIE that the errors do not re-occur.

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