P1137

Fault code description

Lambda sensor heater power supply - Incorrect

Possible cause

1. Faulty wiring
2. Faulty connector
3. Power supply too low
4. Faulty sensor

Additional information

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Set condition of fault code

This fault is set when the PMCI-2 ECU detects that the supply voltage is below 9 volts for more than 5 seconds when the lambda sensor is heating or operational.

Reset condition of fault code

Battery voltage must be greater than 10.8 V for more than 5 seconds when the lambda sensor is heating or operational to reset this fault.

To validate the repair, switch off the ignition for at least 15 seconds and then switch it on again.

Start the engine and let it idle for 2 minutes. Drive the vehicle until the coolant temperature is at least 70°C [158°F]. Once the minimum target temperature has been reached, proceed at a minimum speed of 80 km/h [50 mph] in the highest gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible.

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P1137, Diagnostic information

Technical data

"Sensor, lambda (F834)"

Location of component(s)

"Location information, PMCI-2"

Electrical diagram(s)

"PMCI-2"

Description of component(s)

"Lambda sensor (F834)"

Block diagram

"PMCI-2"

Step by step troubleshooting

Please perform the troubleshooting steps below by utilising the breakout harness if necessary to check electrical components such as sensors, electronic 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.

- 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 a 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: Check for fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Use DAVIE to check whether the fault code is present.

Is this fault code present as an active fault code?

- Yes – Proceed to step 2.
- No – Proceed to any other fault codes present.

Step 2: Visual Inspection

Troubleshooting steps

1. Visually inspect the associated component connections and wiring for any of the following:
   - Moisture or dirt in the connections
   - Damage to the wire harness or insulation
   - ECU connections are damaged or disconnected
   - Battery damage or loose battery terminal(s)
   - Loose or broken clamps on the air system
   - Sensor is not correctly installed

Was there evidence of any of the above?

- Yes – Proceed to step 3.
- No – Clean, adjust, repair, or replace affected components for any issues identified.

  Use DAVIE to re-check for the presence of active faults. If this related fault is no longer active, then this issue has been resolved. If this related fault is still active, continue to step 3.

Step 3: Electrical Checks (F834)

Troubleshooting steps

1. Measure battery voltage at batteries.

Is the voltage above 9.0 volts?

- Yes – Check for loose ground cables on chassis. Proceed to step 4.
- No – Charge batteries. Re-check for faults, if faults are still active, proceed to step 4.

Step 4: Disconnect Lambda sensor

Troubleshooting steps

1. With key on, measure the voltage at pin 4 of F834 with respect to chassis ground.

Is the measured voltage within 0.5 V of battery voltage?

- Yes – Replace sensor. Proceed to step 6.
- No – Key OFF, perform continuity test from pin 4 of F834 to A141 pin 2.

  Continuity good. Proceed to step 5.

  Continuity not OK. Make appropriate repairs to circuit or replace harness if needed. Proceed to step 6.

Step 5: Battery voltage at vehicle

Troubleshooting steps

1. Measure the battery voltage at vehicle side of A141 pin 2.

Is the measured voltage within 0.5 V of battery?

- Yes – Repair or replace engine harness. Proceed to step 6.
- No – Troubleshoot vehicle power to connector A141 pin 2. Use ECAT for vehicle chassis specific wiring diagrams. Proceed to step 6.

Step 6: Use DAVIE to re-check for the presence of active faults

Troubleshooting steps

Is the fault code inactive?

- Yes –- Issue resolved. Proceed to step 7.
- No – Contact the Engine Support Center (ESC) for further assistance.

Step 7: Validate repair

Troubleshooting steps

1. Key the ignition off for at least 15 seconds, then key it on again.
2. Start the engine and let it idle for 2 minutes.
3. Drive the vehicle until the coolant temperature is at least 70°C [158°F].
4. Once the minimum target temperature has been reached, proceed at a minimum speed of 80 km/h [50 mph] in the highest gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control.
5. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible.

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