P3882

Fault code description

Heater element DEF return pipe - Short circuit to ground on ECU (D375) pin (A2)

Possible cause

1. Malfunctioning line heater relay.
2. Short circuit to ground in the line heater harness.
3. Malfunctioning EAS-3 actuator.

Additional information

This fault may result in engine torque reduction or vehicle speed limiting.

Set condition of fault code

This diagnostic runs continuously when the key switch is in the ON position.

The EAS-3 actuator detects that the line heater voltage is below an established value.

Reset condition of fault code

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

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P3882, Diagnostic information

Technical data

"Heater element return line (L078)"

Location of component(s)

"Location information, EAS-3"

Electrical diagram(s)

Refer to the OEM service manual for more information.

Description of component(s)

"Heater element return line (L078)"

Block diagram

"Block diagram EAS-3"

Step by step troubleshooting

Please perform the troubleshooting steps below by utilising 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.

- Disconnecting the EAS 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.
- It is necessary to exit the fault code menu 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 fault codes. Refer to the 'possible causes' section.

Step by step 1: Check fault codes

Step 1A: Check for fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Use DAVIE to check for fault codes.

Is fault code P3882 inactive?

- Yes – Proceed to step 4A
- No – Proceed to step 1B

Step 1B: Check for active line heating relay fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Use DAVIE to check for line heating fault codes.

Is fault code P3908, P3909 or P3910 active?

- Yes – Proceed to the appropriate fault code
- No – Proceed to step 1C

Step 1C: Check for multiple active line heater fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Use DAVIE to check for active line heater fault codes.

Are fault codes P3876, P3879 and P3882 all active?

- Yes – There is an open circuit or short

circuit to earth in the line heater power supply circuit harness - Proceed to step 4A

Possible causes are:

1. line heater relay switch side stuck in the open position
2. blown line heater supply fuse
3. open circuit or short to earth in the line heater power supply circuit harness

- No – Proceed to step 2A

Step by step 2: Check the heater element return line and the circuit

Step 2A: Inspect the heater element return line and connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element return line from the harness.
3. Inspect the heater element return line connector for:
    1. corroded or dirty pins
    2. damaged pins
    3. pushed back or expanded pins
    4. loose connector
    5. moisture in or on the connector
    6. connector shell damaged
    7. missing or damaged connector seals
    8. wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 4A
- No – Proceed to step 2B

Step 2B: Check the circuit response

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element return line from the harness.
3. Place a jumper wire between the heater element return line signal pin and the supply pin at the heater element return line connector.
4. Turn the key switch ON and start the engine.
5. Check for the appropriate circuit response after 60 seconds.
6. Use DAVIE to read the fault codes.

Is fault code P3881 active?

- Yes – Proceed to step 2C
- No – Proceed to step 3A

Step 2C: Check the fault codes and verify the heater element return line condition

Troubleshooting steps

1. Turn the key switch OFF.
2. Connect the heater element return line to the harness.
3. Turn the key switch ON and start the engine.
4. Check for the appropriate circuit response after 60 seconds.
5. Use DAVIE to read the fault codes.
6. Shut down the engine and repeat this process one more time to allow all diagnostic checks to complete.

Is fault code P3883 active?

- Yes – An open circuit or short circuit to earth has been detected in the heater element return line. Replace the heater element return line. Proceed to step 4A
- No – The removal and re-installation of the connector corrected the fault. Proceed to

step 4A

Step by step 3: Check the EAS-3 actuator and the harness

Step 3A: Inspect the EAS-3 actuator and the harness connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 actuator from the harness.
3. Inspect the harness and EAS-3 actuator connector for:
    1. corroded or dirty pins
    2. damaged pins
    3. pushed back or expanded pins
    4. loose connector
    5. moisture in or on the connector
    6. connector shell damaged
    7. missing or damaged connector seals
    8. wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 4A
- No – Proceed to step 3B

Step 3B: Check for an open circuit in the heater element return line supply harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element return line from the harness.
3. Disconnect the line heating relay.
4. Check for an open circuit.
5. Measure the resistance of the harness between the return line heating supply

pin and pin 87 of the line heating relay.

Is the resistance less than 10 ohms?

- Yes – Proceed to step 3C
- No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

Step 3C: Check for an open circuit in the heater element return line signal harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element return line from the harness.
3. Disconnect the EAS-3 actuator from the harness.
4. Check for an open circuit.
5. Measure the resistance of the heater element return line signal wire between the EAS-3 actuator and the heater element return line connector pin.

Is the resistance less than 10 ohms?

- Yes – Proceed to step 3D
- No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

Step 3D: Check for a pin to earth short circuit in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element return line from the harness.
3. Disconnect the EAS-3 actuator from the harness.
4. Check for a pin to earth short circuit.
5. Measure the resistance between the heater element return line connector signal pin and earth.

Is the resistance greater than 100k ohms?

- Yes – Return to the troubleshooting steps - Proceed to step 1A

  If all the steps have been completed and checked again, contact the Engine Support Center for further instructions on replacement of the EAS-3 actuator.
- No – A pin to earth short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

Step by step 4: Clear the fault code

Step 4A: Disable the fault code

Troubleshooting steps

1. Connect all components.
2. Operate the system within the 'reset condition of the fault code' found in the fault code information.
3. Use DAVIE to verify if the fault codes are inactive.

Is fault code P3882 inactive?

- Yes – Proceed to step 4B
- No – Return to the troubleshooting steps - Proceed to step 1A

  If all the steps have been completed and checked again, contact the Engine Support Center for further instructions.

Step 4B: Clear the inactive fault codes

Troubleshooting steps

1. Connect all components
2. Turn the key switch ON.
3. Use DAVIE to clear the inactive fault codes.

Have all the fault codes been cleared?

- Yes – Repair complete

- No – Troubleshoot any remaining active fault codes

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