P3878

Fault code description

Heater element DEF inlet pipe - Short circuit to supply on ECU (D375) pin (A48)

Possible cause

1. Malfunctioning line heater relay.
2. Short circuit to supply 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 and the heater is commanded on.

The EAS-3 actuator detects that the line heater voltage is above 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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P3878, Diagnostic information

Technical data

"Heater element in line (L079)"

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 in line (L079)"

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 P3878 inactive?

- Yes – Proceed to step 4A
- No – Proceed to step 2A

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

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

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element in line from the harness.
3. Inspect the heater element in 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 resistance of the heater element in line

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the heater element in line from the harness.
3. Check the resistance of the heater element in line.
4. Measure the resistance of the heater element in line between the signal pin and the supply pin on the heater element connector.

Is the resistance greater than 2 ohms?

- Yes – Proceed to step 3A
- No – A short circuit or too low a resistance has been detected in the heater element in line. Replace the heater element in line - 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 a pin-to-pin short circuit in the harness

Troubleshooting steps

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

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 4A
- No – A pin-to-pin 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 P3878 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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