

P3856

Fault code description

DEF tank temperature - Too low

Possible cause

1. In-range malfunction of the DEF temperature/level sensor.
2. Damaged wiring harness.
3. Damaged EAS-3 actuator ECU.
4. Ambient temperature sensor signal value unlikely.
5. Ambient temperature sensor failure.

Additional information

A default DEF temperature of 32°F (0°C) is used for calculations.

Set condition of fault code

This diagnostic runs when the key switch is turned ON after a 10-hour cold soak.

The EAS-3 ECU detects that the difference between the DEF tank temperature sensor reading and ambient temperature is more than 86°F (30°C).

Reset condition of fault code

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



This diagnostic runs when the key switch is turned ON after a 10-hour cold soak.

M027882 - 07/22/2015 18:03:36

This information applies exclusively to the entered chassis number or the selected engine type. Please take into account that this information may change daily. Therefore the provided information is only valid on 12-19-2015. You cannot derive any rights from the information provided with respect to vehicles and/or components of another series, with another chassis number, and/or of another date. (/)

P3856, Diagnostic information

Technical data

["Sensor, DEF temperature/level \(F851\)"](#)

Location of component(s)

["Location information, EAS-3"](#)

Electrical diagram(s)

Refer to the OEM service manual for more information.

Description of component(s)

["Sensor, DEF temperature/level \(F851\)"](#)

Block diagram

["Block diagram EAS-3"](#)

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.



- 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 related fault codes

Troubleshooting steps

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

Is fault code P009A, P0072 or P0073 active?

- **Yes** – Proceed with the appropriate fault code.
- **No** – Proceed to step 1B

Step 1B: Check for fault codes

Troubleshooting steps

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

Is fault code P3853 or P3854 active?

- **Yes** – Proceed with fault code P3853 or P3854.
- **No** – Proceed to step 2A

Step by step 2: Check the DEF tank temperature sensor and the circuit

Step 2A: Inspect the DEF tank temperature sensor and connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the DEF tank temperature sensor from the harness.
3. Inspect the DEF tank temperature sensor 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 DEF tank temperature sensor from the harness.
3. Turn the key switch ON.
4. Check for the appropriate circuit response after 30 seconds.
5. Use DAVIE to read the fault codes.

Is fault code P3853 active?

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

Step 2C: Check the circuit response

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the DEF tank temperature sensor from the harness.
3. Turn the key switch ON.

4. Place a jumper wire between the sensor signal pin and the earth pin at the sensor connector.
5. Check for the appropriate circuit response after 30 seconds.
6. Use DAVIE to read the fault codes.

Is fault code P3854 active?

- **Yes** – A damaged sensor has been detected. Replace the sensor. Proceed to step 4A
- **No** – Proceed to step 3A

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?

- **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 harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 actuator from the harness.
3. Disconnect the DEF tank temperature sensor from the harness.
4. Check for an open circuit.
5. Measure the resistance of the DEF tank temperature sensor earth wire between the EAS-3 actuator connector pin and the sensor connector pin.

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 harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 actuator from the harness.
3. Disconnect the DEF tank temperature sensor from the harness.
4. Check for an open circuit.
5. Measure the resistance of the DEF tank temperature sensor signal wire between the EAS-3 actuator connector pin and the sensor 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-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 DEF tank temperature sensor from the harness.
4. Check for a pin-to-pin short circuit.
5. Measure the resistance between the EAS-3 actuator connector DEF tank temperature sensor signal pin and all other pins in the harness.

Is the resistance greater than 100k ohms?

- **Yes** – Proceed to step 3E
- **No** – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

Step 3E: Check for an inactive fault code

Troubleshooting steps

1. Connect all components.
2. Turn the key switch ON.
3. Check for the appropriate circuit response after 30 seconds.
4. Use DAVIE to read the fault codes.

Is fault code P3856 inactive?

- **Yes** – The removal and re-installation of the connector corrected the fault - Proceed to step 4A
- **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 on replacement of the EAS-3 actuator.

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 P3856 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

M046803 - 07/23/2015 02:23:54

This information applies exclusively to the entered chassis number or the selected engine type. Please take into account that this information may change daily. Therefore the provided information is only valid on 12-19-2015. You cannot derive any rights from the information provided with respect to vehicles and/or components of another series, with another chassis number, and/or of another date. (/)