# P3851

## Fault code description

DEF temperature/level sensor - Short circuit to supply

## Possible cause

1. Open signal circuit in the harness, connectors or sensor.
2. Open return circuit in the harness, connectors or sensor.
3. Signal circuit shorted to supply voltage.

## Additional information

Before troubleshooting this fault code, check for multiple fault codes.

DEF injection into the SCR system may be disabled when the actual level is low.

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 ON.

The EAS-3 ECU detects that the DEF level sensor signal voltage is above a set value.

## Reset condition of fault code

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

To validate the repair, start the engine and let it idle for three minutes.

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# P3851, 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 fault codes

Troubleshooting steps

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

### Is fault code P3851 active?

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

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

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

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the DEF tank level sensor from the harness.
3. Inspect the DEF tank level 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 level sensor from the harness.
3. Place a jumper wire between the sensor signal pin and the earth pin at the sensor connector.
4. Turn the key switch ON.
5. Check for the appropriate circuit response after 30 seconds.
6. Use DAVIE to read the fault codes.

### Is fault code P3852 active and P3851 inactive?

- Yes – Replace the DEF temperature/level 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/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 harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 actuator from the harness.
3. Disconnect the DEF tank level sensor from the harness.
4. Check for an open circuit.
5. Measure the resistance of the DEF tank level 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 3B-1
- No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

## Step 3B-1: 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 level sensor from the harness.
4. Check for an open circuit.
5. Measure the resistance of the DEF tank level 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 3C
- No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 4A

## Step 3C: 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 level 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 level sensor signal pin and all other pins in the harness.

### Is the resistance greater than 100k ohms?

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

## Step 3D: 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 P3851 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 P3851 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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