P3802

Fault code description

Exhaust gas temperature after SCR catalyst - Data erratic, intermittent or incorrect

Possible cause

1. Exhaust temperature after SCR catalyst sensor stuck in-range.
2. High resistance in the exhaust temperature after SCR catalyst sensor signal or return lines.
3. Malfunctioning SCR temperature sensor interface.
4. Polluted DEF.
5. A leaking exhaust system between the turbocharger and the SCR unit.
6. Software corruption

Additional information

The EAS-3 ECU will use a default temperature value of 486°F (252°C) for the exhaust temperature after SCR catalyst.

DEF injection into the SCR system is disabled.

A polluted DEF, for example with diesel fuel, could cause a temperature rise in the catalyst and therefore cause the fault.

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

Engine management system fault code U113F could be set in combination with this fault code. Always start the diagnostic session with P3802.

Set condition of fault code

The set condition depends on the "release sequence number"

Release sequence number <11:

This diagnostic runs when the following conditions are met:

1. the engine has been running for five

minutes;

2. the exhaust temperatures before and after the SCR catalyst are between 217°F (103°C) and 1112°F (600°C);
3. the exhaust gas mass flow is 5.47 oz/sec (approx. 155 gram/sec); and
4. a DPF regeneration has not occurred for 900 seconds, to allow the exhaust temperatures to return to normal levels.

The EAS-3 ECU detects that the exhaust temperature after SCR catalyst does not match the engine operating conditions.

Release sequence number ≥11:

This diagnostic runs when the following conditions are met:

1. the engine has been running for five minutes;
2. the exhaust temperatures before and after the SCR catalyst are between 302°F (150°C) and 1112°F (600°C);
3. the exhaust gas mass flow is 5.47 - 7.05 oz/sec (155 - 200 gram/sec); and
4. a DPF regeneration has not occurred for 1200 seconds, to allow the exhaust temperatures to return to normal levels.

The EAS-3 ECU detects that the exhaust temperature after SCR catalyst does not match the engine operating conditions.

Reset condition of fault code

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

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P3802, Diagnostic information

Reset condition of fault code

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

Technical data

"Sensor, exhaust temperature after catalyst (F842)"

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, exhaust temperature after catalyst (F842)"

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 P3800 or P3801 active?

- Yes – Proceed with fault code P3800 or P3801
- No – Proceed to step 2A

Step 1B: Check freeze frame data

Troubleshooting steps

1. Look at the freeze-frame data for the after SCR temperature in the P3802 and U113F codes.
2. Use the DAVIE log file to review the freeze-frame data stored under each fault code.

Is the after SCR temperature listed as 3212.4F?

- Yes – Reprogram the PMCI-2, EAS-3 and DCU to the current software levels. Proceed to step 6.
- No – Proceed to step 2A

Step by step 2: Check the exhaust system

Step 2A: Inspect the exhaust system for leaks

Troubleshooting steps

1. Turn the key switch OFF.
2. Visually inspect the exhaust system between the turbocharger outlet and the aftertreatment system for leaks. Leaks can be identified by noise or discolouration caused by the hot gases escaping.

Are exhaust system leaks found?

- Yes – Repair or replace the leaking components. Proceed to step 6A
- No – Proceed to step 3A

Step by step 3: Check the exhaust temperature after SCR catalyst sensor and the circuit

Step 3A: Inspect the exhaust temperature after SCR catalyst sensor and connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the exhaust temperature after SCR catalyst sensor from the catalyst temperature sensor interface module.
3. Inspect the catalyst temperature sensor interface module and exhaust temperature after SCR catalyst 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. Damaged connector shell
    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 6A
- No – Proceed to step 3B

Step 3B: Check the circuit response

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the exhaust temperature after SCR catalyst sensor from the catalyst temperature sensor interface module.
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 P3800 active?

- Yes – Proceed to step 3C
- No – Proceed to step 4A

Step 3C: Check the circuit response

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the exhaust temperature after SCR catalyst sensor from the catalyst temperature sensor interface module.
3. Place a jumper wire between the sensor signal pin and the earth pin at the sensor connector of the catalyst temperature sensor interface module.
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 P3801 active?

- Yes – A damaged sensor has been detected. Replace the sensor. Proceed to step 6A
- No – Proceed to step 4A

Step by step 4: Check the catalyst temperature sensor interface module

Step 4A: Inspect the catalyst temperature sensor interface module

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect all temperature sensors and the harness from the catalyst temperature sensor interface module.
3. Inspect the catalyst temperature sensor interface module 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. Damaged connector shell
    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 catalyst temperature sensor interface module - Proceed to step 6A
- No – Proceed to step 4B

Step 4B: Check for an open circuit in the catalyst temperature sensor interface module

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect all temperature sensors and the harness from the catalyst temperature sensor interface module.
3. Check for an open circuit.
4. Measure the resistance of each circuit contained within the catalyst temperature sensor interface module.

Is the resistance less than 10 ohms?

- Yes – Proceed to step 4C
- No – An open circuit has been detected in the catalyst temperature sensor interface module. Replace the catalyst temperature sensor interface module - Proceed to step 6A

Step 4C: Check for a pin-to-pin short circuit in the catalyst temperature sensor interface module

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect all temperature sensors and the harness from the catalyst temperature sensor interface module.
3. Check for a pin-to-pin short circuit.
4. Measure the resistance between each pin in each connector in the catalyst temperature sensor interface module to all other pins in the catalyst temperature sensor interface module.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 5A
- No – A pin-to-pin short circuit has been detected in the catalyst temperature sensor interface module. Replace the catalyst temperature sensor interface module - Proceed to step 6A

Step by step 5: Check the EAS-3 unit and the harness

Step 5A: Inspect the EAS-3 unit and the harness connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 unit from the harness.
3. Inspect the harness and EAS-3 unit 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. Damaged connector shell
    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 6A
- No – Proceed to step 5B

Step 5B: Check for a pin-to-pin short circuit in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 unit from the harness.
3. Disconnect the exhaust temperature after SCR catalyst sensor from the harness.
4. Check for a pin-to-pin short circuit.
5. Measure the resistance between the EAS-3 unit connector exhaust temperature after SCR catalyst sensor signal pin and all other pins in the

harness.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 5C
- No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 6A

Step 5C: Check for a pin-to-pin short circuit in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 unit from the harness.
3. Disconnect the exhaust temperature after SCR catalyst sensor from the harness.
4. Check for a pin-to-pin short circuit.
5. Measure the resistance between the EAS-3 unit connector exhaust temperature after SCR catalyst sensor earth pin and all other pins in the harness.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 5D
- No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 6A

Step 5D: Check for a pin to earth short circuit

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 unit from the harness.
3. Disconnect the exhaust temperature after SCR catalyst sensor from the harness.
4. Check for a pin to earth short circuit.
5. Measure the resistance between the

EAS-3 unit connector exhaust temperature after SCR catalyst sensor signal pin and earth.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 6A
- No – A pin to earth short circuit on the signal wire has been detected in the harness. Repair or replace the harness - Proceed to step 6A

Step by step 6: Clear the fault code

Step 6A: 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 P3802 inactive?

- Yes – Proceed to step 6B
- 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 6B: 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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