P3974

Fault code description

Diesel Oxidation Catalyst (DOC) performance - Degraded

Possible cause

1. Soot blocking the front face of the diesel oxidation catalyst (DOC).
2. Engine oil or fuel contamination of the diesel oxidation catalyst (DOC).
3. A cracked or contaminated diesel oxidation catalyst (DOC).
4. A malfunction in the aftertreatment fuel injection system.
5. A leaking exhaust system between the turbocharger and the DPF unit.

Additional information

An in-range failure of the exhaust temperature before the DOC sensor or the exhaust temperature before the DPF sensor can cause this fault code. Make sure there are no fault codes related to the exhaust temperature sensors before troubleshooting this fault code.

Active DPF regeneration may be disabled.

Set condition of fault code

This diagnostic runs continuously when the key switch is in the ON position, when the engine is running and active regeneration of the DPF is underway or at the end of a stationary regeneration.

The EAS-3 ECU detects that the temperature difference across the aftertreatment DOC during active regeneration is not conforming to the expected temperature increase.

Reset condition of fault code

To validate the repair, perform the 'DPF regeneration' test with DAVIE.

Technical data

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P3974, Diagnostic information

Technical data

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Location of component(s)

"Location information, EAS-3"

Electrical diagram(s)

Refer to the OEM service manual for more information.

Description of component(s)

"DPF unit"

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 the 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 P3974 active?

- Yes – Proceed to step 1B
- No – Proceed to step 5A

Step 1B: Check for fault codes

Troubleshooting steps

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

Is a fault code related to the DOC or DPF temperature sensors active?

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

Step 1C: Check for fault codes

Troubleshooting steps

1. Turn the key switch ON.
2. Check for engine related fault codes
3. Use DAVIE to check for fault codes.

Is fault code P3777 or P3778 active?

- Yes – Proceed with fault code P3777 or P3778

- 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.

Are exhaust system leaks found?

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

Step by step 3: Check the aftertreatment exhaust gas temperature sensors

Step 3A: Monitor the exhaust gas temperature sensors

Troubleshooting steps

1. Turn the key switch ON.
2. Engine idling greater than ten minutes.
3. Monitor the exhaust gas temperature sensors with DAVIE.
   - Idle the engine for ten minutes to stabilise the exhaust gas temperatures.
   - If any fault occurs, go to the appropriate fault code.
   - If no fault occurs, record the value of the DOC and DPF exhaust gas temperature sensors

Does the value of the sensors vary by more than 75°F (24°C)?

- Yes – Proceed to step 3B after completing the following checks.
  - Check for a short circuit from the signal pin of the relevant temperature sensor

to all other pins in the harness.

- Check for a short circuit in the DOC/DPF temperature sensor interface.
- If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors.

- No – Proceed to step 3B

Step 3B: Inspect the DOC

Troubleshooting steps

1. Turn the key switch OFF.
2. Remove the DOC.
3. Check the DOC for:
   - Blockage of soot and/or oil contamination in the catalyst
   - Cracks or damage to any cells in the catalyst

Any problems found during the inspection of the DOC?

- Yes – An engine related failure which causes excessive contamination is the cause. Proceed to step 5A
- No – Proceed to step 4A

Step by step 4: Check the fuel dosing module

Step 4A: Inspect the fuel dosing module

Troubleshooting steps

1. Turn the key switch OFF.
2. Remove the fuel dosing module.
3. Place the fuel dosing module in a measuring container and cover the measuring container.
4. Perform the 'fuel dosing module leak test', the 'fuel shut-off valve leak test' and the 'fuel dosing system override test'. For

more information go to 'Explanatory notes to DAVIE'.

Does the fuel dosing module meet the specifications?

- Yes – Proceed to step 5A
- No – Failed fuel dosing module Replace the fuel dosing module – Proceed to step 5A

Step by step 5: Clear the fault code

Step 5A: 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 P3974 inactive?

- Yes – Proceed to step 5B
- 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 5B: 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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