P3843

Fault code description

Pump module (L074) - Unable to prime

Possible cause

1. Low DEF level in the DEF tank.
2. The line heaters are not successfully thawing the frozen DEF.
3. The DEF pressure line between the pump module and dosing valve is kinked, broken or disconnected.
4. The DEF supply line between the DEF tank and pump module is kinked, broken or disconnected.
5. The DEF supply and return lines between the DEF tank and pump module are swapped.
6. Failed pump module.
7. DEF contamination.

Additional information

The pump module will be unable to inject DEF into the SCR system.

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

Set condition of fault code

This diagnostic runs when the SCR system is trying to prime.

The EAS-3 ECU detects that the pump module has been unable to prime itself for a calibratable number of attempts.

Reset condition of fault code

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

This fault code cannot be cleared with DAVIE.

To validate the repair, perform the 'DEF pump

module override test' with DAVIE.

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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. (/)

P3843, Diagnostic information

Technical data

"Pump module (L074)"

Location of component(s)

"Location information, EAS-3"

Electrical diagram(s)

Refer to the OEM service manual for more information.

Description of component(s)

"Pump module (L074)"

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

Is fault code P3843 active or are there more than two inactive counts?

- Yes – Proceed to step 1B
- No – Proceed to step 6A

Step 1B: Check for a low DEF tank level

Troubleshooting steps

1. Make sure the DEF tank is not empty and the level gauge is accurate.
2. Turn the key switch ON.
3. Use DAVIE to check for fault codes.

Is the DEF tank empty or fault code P3820, P3821 or P3822 active?

- Yes – Fill the DEF tank. Proceed to step 5A.
- No – Proceed to step 1C

Step 1C: Check for related fault codes

Troubleshooting steps

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

Are fault codes P3847, P3850, P3923, P3924, P3925, P3926, P3930, P3931 or P3932 active?

- Yes – Proceed with the appropriate fault

code before fault code P3843

- No – Proceed to step 2A

Step by step 2: Check the DEF dosing system lines and fittings

Step 2A: Inspect the DEF dosing system for external leaks

Troubleshooting steps

1. Turn the key switch OFF.
2. Inspect the following DEF lines between:
    1. The DEF tank and the pump module (supply and return line).
    2. The pump module and the DEF dosing valve.
3. Inspect the abovementioned DEF lines and associated fittings/connectors.
    - Check the supply and return line connections are not swapped at the pump module or DEF tank connections. Swapped DEF line connectors cause the pump module to fail to prime.
    - Check the DEF tank connections (supply and return lines) for cracks and pitting.
    - Check all three pump module connections and fittings for loose, leaking or damaged connections.
    - Disconnect the supply line, pressure line and return line pump module connectors and look for signs of white deposit build-up or blockages.
    - Check the supply line for signs of leakage or openings that will allow the pump module to suck in air with the DEF.
    - Verify proper sealing at all connection points, including the DEF tank (two connections), pump module (three connections) and dosing valve (one

connection).

DEF will form white deposits around leaking connections.

Are any swapped, damaged, leaking or restricted DEF lines/fittings/connections detected in the system?

- Yes – Repair the DEF line/fitting/connection. Proceed to step 5A
- No – Proceed to step 2B

Step 2B: Check the pump module DEF supply line

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the pump module DEF supply line from the pump module.
3. Disconnect the pump module DEF supply line from the DEF tank.
4. Check the pump module DEF supply line for blockages.
5. Check both ends of the pump module DEF supply line for signs of build-up or blockages.
6. Blow compressed air through the pump module DEF supply line to make sure it flows freely.

DEF will form white deposits around leaking connections.

Is the pump module DEF supply line blocked or restricted?

- Yes – Try to clean the pump module DEF supply line with lukewarm water and air. If necessary, replace the line. Proceed to step 4A
- No – Proceed to step 2C

Step 2C: Check for air in the diesel exhaust fluid.

Troubleshooting steps

1. Turn the key switch ON.
2. Check for air in the DEF by performing the 'DEF pump module override test' with DAVIE.

Is air detected in the DEF?

- Yes – Check the pump module fittings, the DEF supply line and fittings between the pump module and DEF tank, and the DEF tank fittings for damage/leaks. Replace or repair damaged/leaking components. Proceed to step 5A
- No – Proceed to step 3A

Step by step 3: Check the DEF dosing valve and the circuit

Step 3A: Inspect the DEF dosing valve and connector pins

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the DEF dosing valve from the harness.
3. Inspect the DEF dosing valve harness and 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 damage
    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 5A
- 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 DEF dosing valve from the harness.
4. Check for a pin-to-pin short circuit.
5. Measure the resistance between the EAS-3 actuator connector DEF dosing valve signal pin and the earth pin.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 3A
- No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 5A

Step by step 4: Check the DEF tank filter.

Step 4A: Inspect the DEF tank filter for blockages.

Troubleshooting steps

1. Turn the key switch OFF.
2. Remove the DEF tank filter from the DEF tank. Refer to the OEM service manual.
3. Inspect the DEF tank filter for signs of blockages or build-up.

Is the DEF tank filter blocked?

- Yes – Clean or replace the DEF tank filter. Proceed to step 5A
- No – Proceed to step 5A

Step by step 5: Check the pump module operation

Step 5A: Check the pump module for proper operation.

Troubleshooting steps

1. Connect all components.

2. Remove the DEF dosing valve from the decomposition pipe.
3. Perform the DEF pump module override test. For more information, go to 'Explanatory notes to DAVIE'.

Does the DEF pump module meet the specifications?

- Yes – Proceed to step 6A
- No – Replace the pump module filter. Perform the DEF pump module override test again with the new filter. If the measured volume of DEF is still not within the specifications, replace the pump module. Proceed to step 6A

Step by step 6: Check the DEF quality

Step 6A: Inspect the DEF quality

Troubleshooting steps

1. Turn the key switch OFF.
2. Check the DEF quality:
   - Visually inspect the DEF in the tank for signs of debris or contamination.
   - Use a DEF refractometer to measure the urea concentration.
   - Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank.

Is the DEF free of contamination and within the specifications?

- Yes – Proceed to step 7A
- No – The fluid in the tank is not pure DEF. Drain the tank, clean the system and fill the tank with DEF. Proceed to step 7A

Step by step 7: Clear the fault code

Step 7A: 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 P3843 inactive?

- Yes – Proceed to step 7B
- 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 7B: 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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