P3931

Fault code description

Tank heater valve - Pressure pipe restricted

Possible cause

1. Troubleshoot all other active SCR-related faults before this fault.
2. Blocked or restricted DEF dosing valve.
3. Blocked or restricted DEF dosing valve supply line.

Additional information

This fault indicates that the supply module was able to build up pressure but could not complete the priming cycle.

DEF injection into the SCR system is disabled.

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

Set condition of fault code

This diagnostic runs once per drive cycle as part of the DEF pump module priming process.

This fault is set after 50 failed attempts to build up pressure.

The EAS-3 actuator has detected a mechanical failure of the dosing inlet lines and DEF is not being supplied to the dosing valve.

Reset condition of fault code

This fault code cannot be cleared with DAVIE.

To validate the repair, perform the 'DEF pump module override test' with DAVIE.

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

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P3931, 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

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

Is fault code P3931 active or are there more than two inactive counts?

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

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.
- Check for proper sealing at all connection points, including the DEF tank (two connections), pump module (three connections) and DEF dosing valve (one connection).
- Check the DEF filter on the pump module for blockages.

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 3A
- No – Proceed to step 2B

Step 2B: Check the pump module DEF pressure line

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the pump module DEF pressure line from the pump module.
3. Disconnect the pump module DEF pressure line from the DEF dosing valve.
4. Check the pump module DEF pressure line for blockages.

5. Check both ends of the pump module DEF pressure line for signs of build-up or blockages.
6. Blow compressed air through the pump module DEF pressure line to make sure it flows freely.

DEF will form white deposits around leaking connections.

Is the pump module DEF pressure line blocked or restricted?

- Yes – Try to clean the pump module DEF pressure line with lukewarm water and air. If necessary, replace the line. Proceed to step 3A
- No – Proceed to step 3A

Step by step 3: Check the DEF dosing valve

Step 3A: Inspect the DEF dosing valve and the decomposition pipe for blockages

Troubleshooting steps

1. Turn the key switch OFF.
2. Remove the DEF dosing valve.
3. Inspect the DEF dosing valve for signs of build-up, blockages or restrictions.
4. Inspect the inside of the decomposition pipe for signs of build-up, blockages or restrictions.

Is the DEF dosing valve or decomposition pipe blocked or restricted?

- Yes – Clean the decomposition pipe as necessary. Clean or replace the dosing valve - Proceed to step 3B
- No – Proceed to step 3B

Step 3B: Perform the DEF pump module override test

Troubleshooting steps

1. Turn the key switch OFF.

2. Connect all components.
3. Remove the DEF dosing valve.
4. Place the DEF dosing valve in a measuring container and cover the measuring container.
5. Check for a stuck closed or low flowing DEF dosing valve.
6. Perform the fuel DEF pump module override test. For more information, go to 'Explanatory notes to DAVIE'.

Make sure the DEF dosing valve is providing a uniform spray pattern while dosing.

Does the DEF dosing valve meet the specifications?

- Yes – Proceed to step 4A
- No – Damaged DEF dosing valve. Replace the DEF dosing valve - Proceed to step 4A

Step by step 4: Check the DEF quality

Step 4A: 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 5A
- 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 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 P3931 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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