P3899

Fault code description

EAS-3 actuator ECU - Short circuit to ground on ECU (D375) pin (B6) or pin (B7) or pin (B8)

Possible cause

1. Battery voltage too low.
2. A damaged alternator causing low voltage.
3. A weak or damaged battery.

Additional information

There are 4 battery inputs into the connectors that provide un-switched battery supply to the EAS-3 actuator. To reduce the possibility of damaging a new ECU, all other active fault codes must be investigated prior to replacing the ECU.

DEF injection into the SCR system is disabled.

Set condition of fault code

This diagnostic runs continuously.

EAS-3 supply voltage is below the minimum system voltage level.

Reset condition of fault code

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

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P3899, Diagnostic information

Technical data

"Power supply and earth of EAS-3 actuator (D375)"

"CAN connection, EAS-3 actuator (D375)"

Location of component(s)

"Location information, EAS-3"

Electrical diagram(s)

Refer to the OEM service manual for more information.

Description of component(s)

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Block diagram

"Block diagram EAS-3"

Step by step troubleshooting

Please perform the troubleshooting steps below by utilizing 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 P3899 active?

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

Step by step 2: Check the EAS-3 actuator and the harness

Step 2A: 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?

- 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 voltage to the EAS-3 actuator

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the EAS-3 actuator from the harness.
3. Check the power supply and return circuit to the EAS-3 actuator.
4. Measure the voltage between the EAS-3 actuator battery supply circuit and return circuit at the EAS-3 connector.

Check the voltage at key ON, while cranking the engine and with the engine running at idle.

Is voltage within 1 VDC of the battery voltage?

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

Step by step 3: Check the battery and the harness

Step 3A: Check the battery connections

Troubleshooting steps

1. Turn the key switch OFF.
2. Check the positive and negative battery terminals.

Are the connections tight and corrosion-free?

- Yes – Proceed to step 3B
- No – Tighten and/or clean the connections.

Refer to the OEM manual. Proceed to step 4A

Step 3B: Inspect if the fuse is installed correctly

Troubleshooting steps

1. Turn the key switch OFF.
2. Check if the fuse is installed correctly and not blown.

Is the fuse installed correctly and in good order?

- Yes – Proceed to step 3C
- No – Install the fuse correctly or replace the fuse after the cause has been rectified. Refer to the OEM manual. Proceed to step 4A

Step 3C: Check for an open circuit in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the battery.
3. Disconnect the EAS-3 actuator from the harness.
4. Check for an open circuit.
5. Measure the resistance of all EAS-3 actuator supply wires between the EAS-3 unit connector pins and the positive battery terminal.
6. Measure the resistance of all EAS-3 actuator ground wires between the EAS-3 unit connector pins and the negative battery terminal.

Is the resistance less than 10 ohms?

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

Step 3D: Check for a short circuit the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the battery.
3. Disconnect the EAS-3 actuator from the harness.
4. Check for a short circuit.
5. Measure the resistance from the EAS-3 actuator supply pins to the EAS-3 unit connector ground pins.

Is the resistance greater than 100k ohms?

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

Step 3E: Check for short circuit to ground in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the battery.
3. Disconnect the EAS-3 actuator from the harness.
4. Check for a short circuit to ground.
5. Measure the resistance from the EAS-3 actuator supply pins to the engine ground.

Is the resistance greater than 100k ohms?

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

Step 3F: Check for a pin-to-pin short circuit in the harness

Troubleshooting steps

1. Turn the key switch OFF.
2. Disconnect the battery.

3. Disconnect the EAS-3 actuator from the harness.
4. Check for a pin-to-pin short circuit.
5. Measure the resistance between the EAS-3 actuator supply pins to all other pins in the harness.
6. Measure the resistance between the EAS-3 actuator ground pins to all other pins in the harness.

Is the resistance greater than 100k ohms?

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

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 P3899 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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