U1159

Fault code description

VTG turbo charger actuator - CAN communication error

Possible cause

- Breakdown in communication in the CAN network
- Interruption, short circuit to earth or short circuit to supply in the CAN network wiring
- Loss of power supply to the VTG

Additional information

CAN message monitoring

Set condition of fault code

The PMCI-2 detects an invalid message rate.

Reset condition of fault code

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

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U1159, Diagnostic information

Technical data

"CAN connections of PMCI-2 electronic unit (D365)"

Location of component(s)

"Location information, PMCI-2"

Electrical diagram(s)

"PMCI-2"

Description of component(s)

-

Block diagram

"PMCI-2"

Step by step troubleshooting

Please perform the troubleshooting steps below by utilising 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.

- This troubleshooting tree is based on the assumption that supply power and earth to the PMCI are functioning properly.
- Disconnecting the PMCI 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 in Rapido.
- Exit the 'active errors' screen 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 codes. Refer to the 'possible causes' section in Rapido.

Step 1

With DAVIE connected and key ON, reprogram the engine basis software with the most recent PRS file.

Navigate through DAVIE and monitor errors.

- If the fault is still active – Proceed to step

2.

- If the fault is NO longer active – Proceed to the verification procedure.

Step 2

With key OFF, disconnect the actuator (L037) from the harness and inspect the connectors and harness 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. Damage to the 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 the verification procedure listed at the end of this document.
- No – Proceed to step 3

Step 3

With the connector disconnected, turn the key ON. Check the voltage between the earth terminal and the supply terminal circuit at the connector harness. (Refer to the OEM manual for the system voltage)

- If the voltage found is within the specifications – Proceed to step 5.
- If the voltage found is NOT within the specifications – Proceed to Step 4.

Step 4A

Inspect the batteries to verify that they meet

specifications.

- Replace batteries as needed – Proceed to the verification step.
- If battery replacement is not needed – Proceed to step 4B.

Step 4B

Verify power and ground wiring are not damaged.

- If wiring issue found – Repair or replace wiring. Proceed to the verification step.
- If no issue is found or fix does NOT resolve issue – Proceed to step 4C.

Step 4C

Connect the actuator (L037). With key ON, gently bend, twist and pull the connections, and in between connections in the harness to the actuator (L037), in an attempt to replicate the fault and/or change the fault status. Check for intermittent connection as well as reoccurring or new fault codes.

- If issue found. – Repair or replace the wiring. Proceed to the verification procedure.
- If there were no issues found. – Proceed to step 5.

Step 5

Check that isolating any component on the same CAN network does not change the fault code status. Is the fault code status changed?

- Yes – Solve the fault code for this component first.
- No – Proceed to step 6

Step 6

Check the resistance between CAN-H and

CAN-L at the actuator connector. Is the resistance within 120 ohms (+/-12 ohms)?

- Yes – Proceed to step 7
- No – Contact the Engine Support Center for further instruction on the turbo actuator.

Step 7

Check the resistance between CAN-H and CAN-L at the actuator connector (engine harness side). Is the resistance within 120 ohms (+/-12 ohms)?

- Yes – Proceed to step 9
- No – Proceed to step 8

Step 8

Check the resistance between CAN-H and CAN-L at the PMCI-2 ECU. Is the resistance within 120 ohms (+/-12 ohms)?

- Yes – Replace harness. Proceed to the verification procedure listed at the end of this document.
- No – Contact the Engine Support Center for further instruction on replacement of the PMCI-2 ECU.

Step 9

Check the resistance between actuator supply/earth to CAN-H and CAN-L at the actuator connector. Is the resistance within specifications (> 5000 ohms)?

- Yes – Proceed to step 10
- No – Contact the Engine Support Center for further instruction on replacement of the turbo actuator.

Step 10

Contact the Engine Support Center for further instruction.

Verification procedure

With DAVIE connected and key ON, clear the errors. Start the engine and let it idle to verify with DAVIE that the errors do not reoccur.

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