

P0046

Fault code description

VTG turbo charger actuator - Reference position or internal error

Possible cause

1. Turbo (VTG) is stuck
2. Damaged actuator
3. Damaged turbo (VTG)

Additional information

Learned VTG stops out of range

Set condition of fault code

-

Reset condition of fault code

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

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P0046, Diagnostic information

Technical data

["Actuator, rotary speed \(L037\)"](#)

Location of component(s)

["Location information, PMCI-2"](#)

Electrical diagram(s)

["PMCI-2"](#)

Description of component(s)

["Actuator, rotary speed \(L037\)"](#)

["Turbo \(VTG\)"](#)

Block diagram

["PMCI-2"](#)

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.



- This troubleshooting tree is based on the assumption that the 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

Update the engine software to ensure that the truck has the most recent version.

Key cycle the vehicle.

Does the code remain/become active?

- **Yes** – Proceed to step 4.
- **No** – Proceed to step 2.

Step 2

Perform the turbocharger actuator effort test in DAVIE. Use the Engine Support Center to assist with interpreting this test.

Does the actuator travel meet the required specifications?

- **Yes** – Proceed to step 3.
- **No** – Proceed to step 4.

Step 3

Perform the verification procedure. Do the fault codes re-occur?

- **Yes** – Proceed to step 4.
- **No** – Complete repair.

Step 4

Use the sector span tool to check the range of travel for the turbo sector gear. Follow the job instructions 'Replace VTG turbocharger actuator' in Engine Rapido.

Is the turbo sector gear able to reach both span zones (regardless of the effort needed to move it)?

- **Yes** – Proceed to step 5.
- **No** – Turbo will need to be replaced.

Step 5

Check turbo sector gear teeth for damage.

Have damaged turbo sector gear teeth been found?

- **Yes** – Turbo will need to be replaced.
- **No** – Proceed to step 6.

Step 6

Check the actuator output gear for damage.

Is the actuator output gear damaged?

- **Yes** – Turbo will need to be replaced.
- **No** – Proceed to step 7.

Step 7

Check the actuator output gear for adequate rotation (minimum of one complete rotation).

Is the actuator output rotation adequate?

- **Yes** – Proceed to step 8.
- **No** – Actuator will need to be replaced.

Step 8

Re-install and re-initialise the turbo actuator.

Check codes.

Is P0046 still active?

- **Yes** – Contact the Engine Support Center.
- **No** – Proceed to the verification procedure.

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 re-occur.

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