P1581

Fault code description

Turbo speed - Data not rational, drifted high

Possible cause

1. Faulty wiring
2. Faulty connector
3. Faulty sensor

Additional information

Turbo speed monitoring

Set condition of fault code

The PMCI-2 detects a turbo speed that is below 125,001 rpm when the engine speed is above 1900 rpm and the VTG position is below 10%.

Reset condition of fault code

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

M028164 - 07/22/2015 17:11:20

P1581, Diagnostic information

Technical data

"Sensor, turbo speed (F683)"

Location of component(s)

"Location information, PMCI-2"

Electrical diagram(s)

"PMCI-2"

Description of component(s)

"Turbo speed sensor (F683)"

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 the 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.
- It is necessary to exit the 'active errors' screen in DAVIE and run the diagnostic test again to identify any 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

Visual inspection - Visually inspect all applicable connectors and harnesses for corrosion, damage and rubbing during each step of the diagnostic procedure. Proceed to step 2.

Step 2

With key OFF, disconnect the turbo speed sensor. Measure the resistance between the signal and earth pins of the turbo speed sensor.

Resistance values change with temperature

- If the resistance is acceptable – Proceed to step 3
- If the resistance is NOT acceptable – Replace the sensor and reconnect the harness, then proceed to the verification procedure listed at the end of this document

Step 3

With key OFF, disconnect the engine harness from the PMCI. Perform a continuity test on all the wires associated with the turbo speed sensor:

- If the continuity is acceptable – Proceed to step 4.
- If the continuity is NOT acceptable – Replace and reconnect the harness, then proceed to the verification procedure listed at the end of this document.

If the turbo speed sensor is replaced, do not over-tighten the zip tie around the wire harness convolute. Over-tightening can cause wire fretting.

Step 4

With key OFF, inspect the connection pins of the harness, sensor and PMCI:

- If the pins are acceptable – Proceed to step 5.
- If the pins are NOT acceptable – Replace and reconnect the engine harness. Proceed to the verification procedure listed at the end of this document.

Step 5

With key OFF, disconnect the turbo speed sensor and remove it from the turbo. Check for damage or debris:

- If no damage or debris is found – Proceed to step 6.
- If debris or damage is found – Clean or replace and proceed to the verification process at the end of this document.

If the turbo speed sensor is replaced, do not over-tighten the zip tie around the wire harness convolute. Over-tightening can cause wire fretting.

When removing the turbo speed sensor, ensure that the O-ring is also removed. This will prevent the accidental installation of two O-rings.

Step 6

With key OFF, inspect the turbo shaft for damage:

- If no damage is found – Proceed to step 7.
- If damage is found – See Engine Rapido for turbo repair.

Step 7

Possible PMCI failure – Contact the Engine Support Center for further instructions on replacement of the PMCI.

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.

M046536 - 07/22/2015 15:12:55