

DTC P2598 or P2599

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provide an overview of each diagnostic category.

DTC Descriptor

DTC P2598 Turbocharger Boost Control Position Performance – Low Position

DTC P2599 Turbocharger Boost Control Position Performance – High Position

Circuit/System Description

The position of the turbocharger vanes is controlled by the Engine Control Module (ECM). The ECM utilizes a turbocharger vane control solenoid valve to control the turbocharger vanes, and a turbocharger vane position sensor to verify the position of the vanes. The ECM will vary the boost dependent upon the load requirements of the engine. The turbocharger vane position sensor provides the ECM with a signal voltage relative to the vane position.

Conditions for Running the DTC

- DTC P003A, P006E, P006F, P0045, P0047, P0048, P2564, or P2565 is not set.
- The engine coolant temperature is between 70–123°C (158–253°F).
- The engine is running for greater than 30–210 s, depending on the engine coolant temperature at start.
- The turbocharger vane position learn procedure is not active and has completed and passed since the last clearing of fault code memory.
- The ambient air temperature is greater than –15°C (5°F).
- DTC P2598 and P2599 run continuously whenever the above conditions are met.

Conditions for Setting the DTC

P2598

The ECM detects that the difference between actual vane position and desired vane position is greater than 15 % for greater than 10 s.

P2599

The ECM detects that the difference between actual vane position and desired vane position is less than 15% for greater than 10 s.

Action Taken When the DTC Sets

- DTC P2598 and P2599 are Type B DTCs.
- Diesel Particulate Filter (DPF) Regeneration is Inhibited.

Conditions for Clearing the MIL/DTC

DTC P2598 and P2599 are Type B DTCs.

Diagnostic Aids

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A restricted oil supply feed to the turbocharger may cause this DTC to set.

Reference Information

Schematic Reference

[Engine Controls Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

[Turbocharger System Description](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

DTC Type Reference

[Powertrain Diagnostic Trouble Code \(DTC\) Type Definitions](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Ignition ON, observe the scan tool DTC information. Verify DTCP06D2, P168C, or P168D is not set.
⇒ If a DTC is set, refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#) for further diagnosis.
2. Engine running, observe the scan tool TC Vane Position Sensor and the Desired TC Vane Position parameters. Command the TC vane position sensor in 5 % increments from 0–100 %. The parameters should remain within 2 % throughout the commanded range.
3. Engine running, observe the scan tool TC Vane Position Sensor and the Desired TC Vane Position parameters while slowly increasing the engine speed to 2,500 RPM and slowly returning to idle speed. The parameters should remain near or equal throughout the engine speed range.
4. Operate the vehicle within the Conditions for Running the DTC to verify the DTC does not reset. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.

Circuit/System Testing

1. Inspect the turbocharger for debris, sticking vanes, or damage. Refer to [Turbocharger Cleaning and Inspection](#).
⇒ If a condition is found, clean or replace the turbocharger as necessary.
2. Inspect the Q41 turbocharger vane position control solenoid valve and B112 turbocharger Vane Position Sensor for damage or sticking.
⇒ If a condition is found, test or replace the affected component as necessary.

Component Testing

Turbocharger Vane Position Control Solenoid Valve

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1. Ignition OFF, disconnect the harness connector at the Q41 turbocharger vane position control solenoid valve.
2. Measure the resistance across the Q41 turbocharger vane position control solenoid valve terminals. The resistance should be between 3–7 Ω .
⇒ If greater than the specified range, replace the Q41 turbocharger vane position control solenoid valve.
3. Test for infinite resistance between each Q41 turbocharger vane position control solenoid valve terminal and the solenoid valve housing.
⇒ If less than the specified range, replace the Q41 turbocharger vane position control solenoid valve.

Turbocharger Vane Position Sensor

1. Remove the B112 turbocharger vane position sensor.
2. Connect the B112 turbocharger vane position sensor harness connector.
Note: It is normal for the TC Vane Position Sensor voltage to quickly return to approximately 4.9 V as the plunger reaches its fully depressed position.
3. Ignition ON, observe the scan tool TC Vane Position Sensor voltage while slowly depressing the plunger at the end of the B112 turbocharger vane position sensor. The voltage should decrease smoothly from approximately 4.9–0.2 V.
⇒ If the TC Vane Position Sensor parameter drops out or spikes, replace the B112 turbocharger vane position sensor.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

- [Turbocharger Replacement](#)
- [Turbocharger Control Solenoid Valve Replacement](#)
- [Turbocharger Vane Position Sensor Replacement](#)
- If any service has been performed on the turbocharger or on the turbocharger components, a turbocharger relearn must be performed. Refer to [Turbocharger Learn](#)
- [Control Module References](#) for ECM replacement, setup, and programming