

DTC P2097 or P2099 (with LLT)

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](#) provides an overview of each diagnostic category.

DTC Descriptors

DTC P2097: Post Catalyst Fuel Trim System High Limit Bank 1

DTC P2099: Post Catalyst Fuel Trim System High Limit Bank 2

Circuit Description

Fuel trim bias is used to keep the post catalyst air/fuel ratio within a predetermined range. This allows optimal catalyst efficiency under light load conditions at a steady cruise. The engine control module (ECM) constantly monitors how lean or rich the fuel trim bias is commanded, to determine if the fuel trim bias is greater than a calibrated amount.

Conditions for Running the DTC

- Before the ECM can report DTC P2097 or P2099 failed, DTCs P0030, P0031, P0032, P0050, P0051, P0052, P0130, P0131, P0132, P0133, P0135, P0137, P0138, P013A, P013C, P013E, P014A, P0140, P0141, P0150, P0151, P0152, P0153, P0155, P0157, P0158, P0160, P0161, P2232, P2235, P2270, P2271, P2272, and P2273 must run and pass.
- DTC P0100, P0101, P0102, P0103, P0111, P0112, P0113, P0116, P0117, P0118, P0119, P0420, P0430, P0442, P0443, P0455, P0458, or P0459 is not set.
- The engine speed is 1,280-3,480 RPM.
- The engine load is 17-65 percent and steady.
- The closed loop fuel control is active for greater than 1 second.
- The calculated exhaust gas temperature is greater than 250°C (482°F).
- DTCs P2097 and P2099 run continuously when the conditions above have been met for greater than 130 seconds.

Conditions for Setting the DTC

The rich correction limit for a condition causing a lean air/fuel ratio has been exceeded for greater than 4 seconds or for a cumulative of 30 seconds.

Action Taken when the DTC Sets

DTCs P2097 and P2099 are Type B DTCs.

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Conditions for Clearing the MIL/DTC

DTCs P2097 and P2099 are Type B DTCs.

Diagnostic Aids

- An HO2S will not cause this DTC to set without the occurrence of circuit related HO2S DTCs. Do not replace an HO2S to address this DTC.
- An exhaust system leak that may not be audible can set this DTC.

Reference Information

Schematic Reference

[Engine Controls Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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 there is no other HO2S or fuel trim DTC set.
 - ☐ If any other HO2S or fuel trim DTC is set, refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#).
2. Verify that none of the following conditions exist:
 - Exhaust system leaks--Refer to [Exhaust Leakage](#)
 - Engine vacuum leaks
 - Low fuel system pressure--Refer to [Fuel System Diagnosis](#).
 - Fuel that is contaminated--Refer to [Alcohol/Contaminants-in-Fuel Diagnosis](#).

- Lean fuel injectors--Refer to [Fuel Injector Solenoid Coil Test](#).
 - If you find any of the above conditions, repair as necessary.

Warning: Refer to [Road Test Warning](#) in the Preface section.

Note: A road load condition is necessary to obtain closed loop.

3. 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.

Repair Instructions

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