

# P219A

## DTC P219A or P219B

### Diagnostic Instructions

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

### DTC Descriptors

#### DTC P219A

- Fuel Trim Cylinder Balance Bank 1

#### DTC P219B

- Fuel Trim Cylinder Balance Bank 2

### Circuit/System Description

The Fuel Trim Cylinder Balance diagnostic detects a rich or lean cylinder to cylinder air/fuel ratio imbalance in each bank. The diagnostic monitors the pre-catalyst heated oxygen sensor (HO2S) signal's frequency and amplitude characteristics by calculating an accumulated voltage over a predetermined sample period. An imbalance is indicated when multiple samples of the accumulated voltage are consistently higher than the desired value.

### Conditions for Running the DTC

- \* DTCs P0030, P0036, P0050, P0053, P0059, P0101, P0102,

P0103, P0106, P0107, P0108, P0117, P0118, P0128, P0131, P0132, P0133, P0134, P0135, P0151, P0152, P0153, P0154, P0155, P0201-P0206, P0300, P0301-P0306, P0411, P0412, P0418, P0442, P0443, P0446, P0449, P0452, P0453, P0454, P0455, P0496, P1133, P1153, P1516, P2101, P2119, P2120, P2125, P2135, P2138, P2176, P2431, P2432, P2433, P2440, P2A00, P2A03 are not set.

- \* The device control is not active.
- \* The intrusive diagnostics are not active.
- \* The engine overspeed protection is not active.
- \* The power take-off (PTO) is not active.
- \* The traction control is not active.
- \* The fuel control is in air-fuel Closed Loop.
- \* The system voltage is more than 10 V, or less than 18 V.
- \* The engine run time is greater than 100 s.
- \* The engine coolant temperature (ECT) is greater than -20°C (-4°F).
- \* The engine speed is greater than 425 RPM, but less than 6,000 RPM.
- \* The mass air flow is greater than 25 g/s, but less than 510 g/s.

### **Conditions for Setting the DTC**

Multiple samples of the pre-catalyst HO<sub>2</sub>S accumulated voltage are consistently greater than the desired value.

### **Action Taken When the DTC Sets**

DTCs P219A and P219B are Type B DTCs.

### **Conditions for Clearing the MIL/DTC**

DTCs P219A and P219B are Type B DTCs.

### **Diagnostic Aids**

- \* The fuel trim cylinder balance diagnostic is very sensitive to

heated oxygen sensor (HO2S) design. A non-OE sensor or an incorrect part number may set a false DTC.

- \* Monitoring the misfire current counters, or misfire graph, may help to isolate the cylinder that is causing the condition.

## **Reference Information**

### **Schematic Reference**

Engine Controls Schematics [\[1\]\[2\]](#)Electrical Diagrams

### **Connector End View Reference**

Component Connector End Views [Connector End Views By Name](#)

### **Electrical Information Reference**

- \* Circuit Testing [Circuit Testing](#)
- \* Troubleshooting with a Test Lamp [Troubleshooting with a Test Lamp](#)
- \* Testing for Intermittent Conditions and Poor Connections [Testing for Intermittent Conditions and Poor Connections](#)
- \* Wiring Repairs [Wiring Repairs](#)

## **DTC Type Reference**

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

### **Scan Tool Reference**

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

## **Circuit/System Testing**

1. Read and record the Freeze Frame/Failure Records data taking note of the speed and load at which the DTC set.
2. Diagnose any other DTCs that are set. Refer to Diagnostic Trouble Code (DTC) List - Vehicle [Diagnostic Trouble Code \(DTC\) List -](#)

### Vehicle.

3. With the engine idling and the transmission in the Park or Neutral position, observe the manifold absolute pressure (MAP) sensor parameter. The MAP sensor parameter should be between 19-42 kPa.

- If the MAP sensor parameter is not between 19-42 kPa, refer to DTC P0106 [P0106](#) or DTC P0107 or P0108 [P0107](#).

4. Inspect the air induction system for modified, damaged, leaking, or restricted components.

5. Inspect the crankcase ventilation system for improper operation.

6. Inspect the vacuum hoses for splits, kinks, and improper connections.

7. Inspect for vacuum leaks at the intake manifold, the throttle body, and the injector O-rings.

8. Test for a restricted, damaged, leaking, or modified exhaust system from the catalytic converter forward. Refer to Symptoms - Engine Exhaust [Symptoms - Engine Exhaust](#).

9. Test the fuel injectors for improper operation. Refer to Fuel Injector Diagnosis .

10. Test for fuel contamination. Refer to Alcohol/Contaminants-in-Fuel Diagnosis .

11. Test for excessive fuel in the crankcase due to leaking injectors.

12. Test the ignition system for improper operation. Refer to Electronic Ignition System Diagnosis [Electronic Ignition System Diagnosis](#).

13. Test the engine for any mechanical conditions such as sticking valves, lifters, etc., which could alter the flow into the combustion chamber. Refer to Symptoms - Engine Mechanical [Symptoms - Engine Mechanical](#).

### **Repair Instructions**

Perform the Diagnostic Repair Verification [Verification Tests](#) after completing the diagnostic procedure. Verify the repair under the same speed and load as noted in the Freeze Frame/Failure Records data recorded during testing.