

DTC P0521, P0522, or P0523

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 P0521: Engine Oil Pressure (EOP) Sensor Performance

DTC P0522: Engine Oil Pressure (EOP) Sensor Circuit Low Voltage.

DTC P0523: Engine Oil Pressure (EOP) Sensor Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Engine Oil Pressure 5-Volt Reference	P0522	1	P0522	P0523	P0521
Engine Oil Pressure Sensor Signal	P0522	1	P0522	P0523	P0521
Low Reference	--	1	P0523	--	P0521
1. Engine Oil Pressure Gage Inaccurate or Inoperative.					

Circuit/System Description

The engine oil pressure (EOP) sensor changes voltage based on the engine oil pressure. The EOP sensor is a 3-wire sensor comprising of the signal circuit, the low reference circuit and the 5-volt reference circuit. The engine control module (ECM) supplies 5 volts to the EOP sensor via the 5-volt reference circuit and provides ground via the EOP low reference circuit. The ECM monitors the signal circuit of the EOP sensor to determine the engine oil pressure sensor voltage is within the normal operating range of approximately 1-4 volts. When the engine oil pressure is high, the EOP sensor voltage is high and the ECM senses a high signal voltage. When the engine oil pressure is low, the EOP sensor voltage is low and the ECM senses a low signal voltage. The ECM sends the EOP information to the instrument panel cluster (IPC) via the serial data circuit.

Conditions for Running the DTC

The engine is running.

Conditions for Setting the DTC

P0521

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- The engine oil pressure is greater than 880 kPa (127.6 psi) and the engine speed is less than 640 RPM.
- The engine oil pressure is less than 8 kPa (1.16 psi) with the engine speed greater than 1520 RPM, engine oil temperature is between 80°C (176°F) and 110°C (230°F).
- The above condition is present is present for greater than 4 seconds.

P0522

- The ECM detects that the EOP sensor signal circuit is less than 0.2 volt with the engine oil temperature range is between 80°C (176°F) and 110°C (230°F).
- The above condition is present for greater than 10 seconds.

P0523

- The ECM detects that the EOP sensor signal circuit is greater than 4.8 volts with the engine oil temperature range is between 80°C (176°F) and 110°C (230°F).
- The above condition is present for greater than 10 seconds.

Action Taken When the DTC Sets

- The ECM records the operating conditions at the time the diagnostics test fails. The ECM displays this information in the Failure Records on the scan tool.
- The IPC illuminates the EOP indicator.

Conditions for Clearing the DTC

- The DTC becomes history when the conditions for setting the DTC are no longer present.
- The history DTC clears after 40 malfunction-free warm-up cycles.

Reference Information

Schematic Reference

[Instrument Cluster Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

Description and Operation

- [Indicator/Warning Message Description and Operation](#)
- [Instrument Cluster Description and Operation](#)

Electrical Information Reference

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

Scan Tool Reference

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

Circuit/System Verification

1. Engine running, observe the scan tool Engine Oil Pressure Sensor parameter. The reading should be between 0.2-4.8 volts.
2. Verify the engine oil pressure, refer to [Oil Pressure Diagnosis and Testing](#) for the 3.6L engine or [Oil Pressure Diagnosis and Testing](#) for the 4.8L, 5.3L, and 6.0L engines.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the engine oil pressure (EOP) sensor.
2. Ignition OFF, test for less than 1 ohm between the low reference circuit terminal 1 and ground.
If greater than the specified range, test the circuit for an open/high resistance. If the circuit tests normal, replace the ECM.
3. Ignition ON, test for 4.8-5.2 volts between the 5-volt reference circuit terminal 2 and ground.
If less than the specified range, test the 5-volt reference circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the ECM.
If greater than the specified range, test the 5-volt reference circuit for a short to voltage. If the circuit tests normal, replace the ECM.
4. Verify the scan tool Engine Oil Pressure Sensor parameter is less than 0.2 volt.
If greater than the specified range, test the signal circuit terminal 3 for a short to voltage. If the circuit tests normal, replace the ECM.
5. Install a 3A fused jumper wire between the signal circuit terminal 3 and the 5-volt reference circuit terminal 2. Verify the scan tool Engine Oil Pressure Sensor parameter is greater than 4.8 volts.
If less than the specified range, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the ECM.
6. If all circuits test normal, test or replace the EOP sensor.

Repair Instructions

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

- [Engine Oil Pressure Sensor and/or Switch Replacement](#) for 4.8L, 5.3L, 6.0L, 6.2L, or 7.0L engines
- [Engine Oil Pressure Sensor and/or Switch Replacement](#) for 3.6L engine
- [Control Module References](#) for ECM replacement, setup and programming