

P0041 HO2S Bank 1 Sensor 2 Swapped With HO2S Bank 2 Sensor 2

Circuit Description

The engine control module (ECM) supplies a voltage near 450 mV between the heated oxygen sensor (HO2S) high signal circuit and the low reference circuit. The HO2S varies the voltage over a range from about 1,000 mV when the exhaust is rich, down through about 10 mV when the exhaust is lean.

The ECM monitors and stores the HO2S voltage information. The ECM evaluates the HO2S voltage samples in order to determine the amount of time that the HO2S voltage was out of range. The ECM compares the stored HO2S voltage samples taken within each sample period and determines if the majority of the samples are out of the operating range. If the ECM detects that the rear HO2S voltages are going in the opposite direction of what was commanded, this DTC sets.

DTC Descriptor

This diagnostic procedure supports the following DTC. DTC P0041 HO2S Bank 1 Sensor 2 Swapped With HO2S Bank 2 Sensor 2

Conditions for Running the DTC

- The engine is operating.
- The rear heated oxygen sensors are in closed loop.
- The ECM is commanding the secondary rear heated oxygen sensor fuel trim control.
- DTC P0041 runs continuously once the above conditions are met.

Conditions for Setting the DTC

- The ECM detects that the rear HO2S voltage for 1 bank of the engine is more than 680 mV while the other rear HO2S is less than 150 mV.
- The above conditions exists for more than 80 seconds.

Action Taken When the DTC Sets

- The control module illuminates the malfunction indicator lamp (MIL) on the second consecutive ignition cycle that the diagnostic runs and fails.
- The control module records the operating conditions at the time the diagnostic fails. The first time the diagnostic fails, the control module stores this information in the Failure Records. If the diagnostic reports a failure on the second consecutive ignition cycle, the control module records the operating conditions at the time of the failure. The control module writes the operating conditions to the Freeze Frame and updates the Failure Records.

Conditions for Clearing the MIL/DTC

- The control module turns OFF the malfunction indicator lamp (MIL) after 4 consecutive ignition cycles that the diagnostic runs and does not fail.
- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic.
- Clear the MIL and the DTC with a scan tool.

Diagnostic Aids

- This diagnostic detects if the rear heated oxygen sensors are not connected to the correct bank of the engine.
- For an intermittent condition, refer to Intermittent Conditions.

Step	Action	Yes	No
Schematic Reference: Engine Controls Schematics Connector End View Reference: Engine Control Module (ECM) Connector End Views or Engine Controls Connector End Views			
1	Did you perform the Diagnostic System Check–Engine Controls?	Go to Step 2	Go to Diagnostic System Check–Engine Controls
2	Are there any other DTCs set?	Go to Diagnostic Trouble Code (DTC) List	Go to Step 3

Step	Action	Yes	No
3	Switch the connector of heated oxygen sensor (HO2S) bank 1 sensor 2 with the HO2S bank 2 sensor 2. Refer to the appropriate procedure: • Heated Oxygen Sensor (HO2S) Replacement Bank 1 Sensor 2 on page 6-1659 • Heated Oxygen Sensor (HO2S) Replacement Bank 2 Sensor 2 on page 6-1662 Did you complete the replacement?	Go to Step 4	—
4	1. Clear the DTCs with a scan tool. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. 4. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records. Did the DTC fail this ignition?	Go to Step 2	Go to Step 5
5	Observe the Capture Info with a scan tool. Are there any DTCs that have not been diagnosed?	Go to Diagnostic Trouble Code (DTC) List	System OK