

P0051: OXYGEN (A/F) SENSOR HEATER CONTROL CIRCUIT LOW (BANK 2 SENSOR 1)

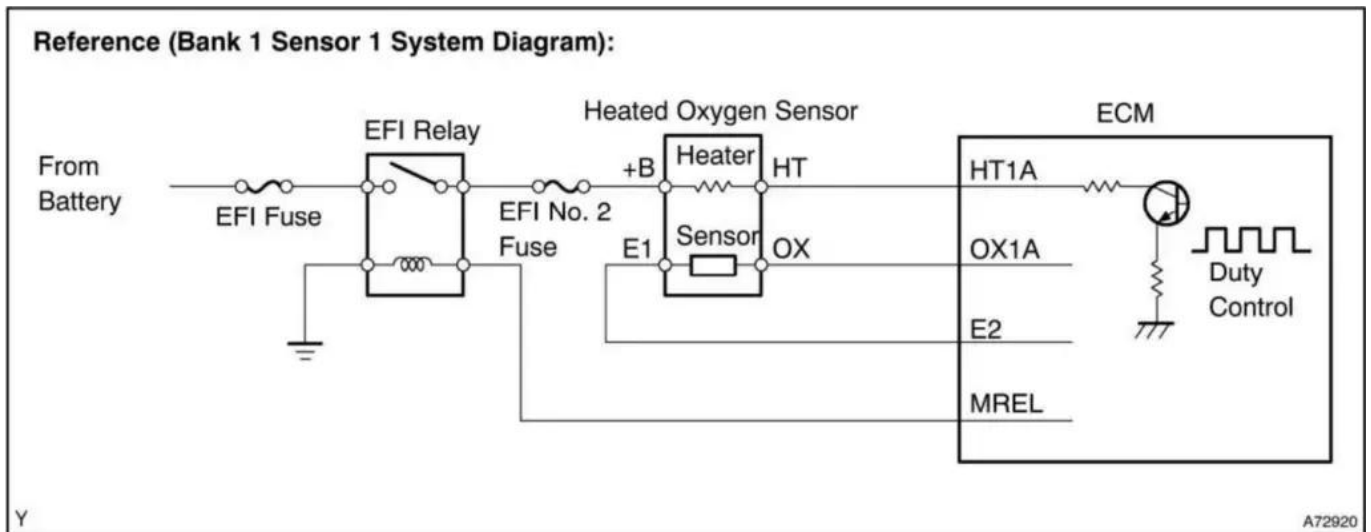
OVERVIEW

Severity	:	<div><div>Medium</div></div>
DIY Difficulty Level	:	<div><div>Intermediate</div></div>
Repair Cost	:	\$100-\$200
Can I Still Drive?	:	Yes (Short-term only)

What Does The P0051 Code Mean?

A P0051 DTC trouble code refers to the O2 sensor (oxygen sensor) located on Bank 2 in front of the catalytic converter. There is also an oxygen sensor behind the converter which is Sensor #2. Bank #2 is the side of the engine that does not contain cylinder #1.

This O2 sensor #1 may also be referred to as an air/fuel ratio sensor since on some vehicles it is. It detects the amount of oxygen in the exhaust gas compared to the outside air and then the vehicle's computer adjusts the air/fuel ratio going into the engine. The sensor is less effective when the exhaust gas temperature is low, so it includes a heater which is activated to help get better readings from the A/F O2 sensor. Essentially this P0051 code means that the resistance of the heater circuit is lower than normal. In most cases, that resistance level must fall below 0.8 A to trigger the DTC code.



P0051 wiring diagram

Note: This code is very similar in nature to [P0031](#), [P0032](#), and [P0052](#)

What Are The Symptoms Of The P0051 Code?

Most likely you'll not notice any symptoms other than the MIL (malfunction indicator lamp, a.k.a. the check engine light) will illuminate.

What Are The Potential Causes Of The P0051 Code?

A P0051 DTC trouble code may be caused by one or more of the following:

- A short in the heater circuit in the sensor
- A failed O2 sensor heater
- Wiring/connectors broken/frayed leading to sensor and/or relay
- Failed PCM/ECM

How Can You Fix The P0051 Code?

To fix a P0051 DTC code, you'll need to do a proper diagnosis. To do that, you'll want to inspect the wiring and connectors leading to the sensor. Also if equipped with a heater relay and fuse, you'll want to check those as well. Use a digital volt ohm meter to:

- check for 12 volts at the heater circuit feed (hint: unplug the sensor and check at the wiring connector to do this measurement)
- check the ground circuit for continuity
- measure the resistance of the heater circuit (done on the sensor itself)
- measure the resistance and voltage of the wiring

Refer to a service manual for the correct specifications (volts, ohms) for your vehicle. On some Toyota vehicles this code is triggered when the resistance of the heater circuit is below 0.8 A.

With that said, a common fix for this DTC is to replace the air/fuel (O2 oxygen) sensor #1 on bank 2 (the side of the engine that doesn't contain cylinder #1).

Please keep in mind that OEM (original equipment) replacement sensors are recommended (from the dealer). Aftermarket sensors can be less reliable and of poorer quality (not always, but more often). There's also a chance that replacement parts for the P0051 code may also fall under a federal emissions warranty (check with your dealer to see if it's covered).

Reference Sources

[Diagnostic Trouble Code \(DTC\) Guide for P0051](#) - Ominitek Advanced Technologies, pages 24-25.