

P0038: HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2)

OVERVIEW

Severity	:	<div>High</div>
DIY Difficulty Level	:	<div>Intermediate</div>
Repair Cost	:	\$70-\$250
Can I Still Drive?	:	No

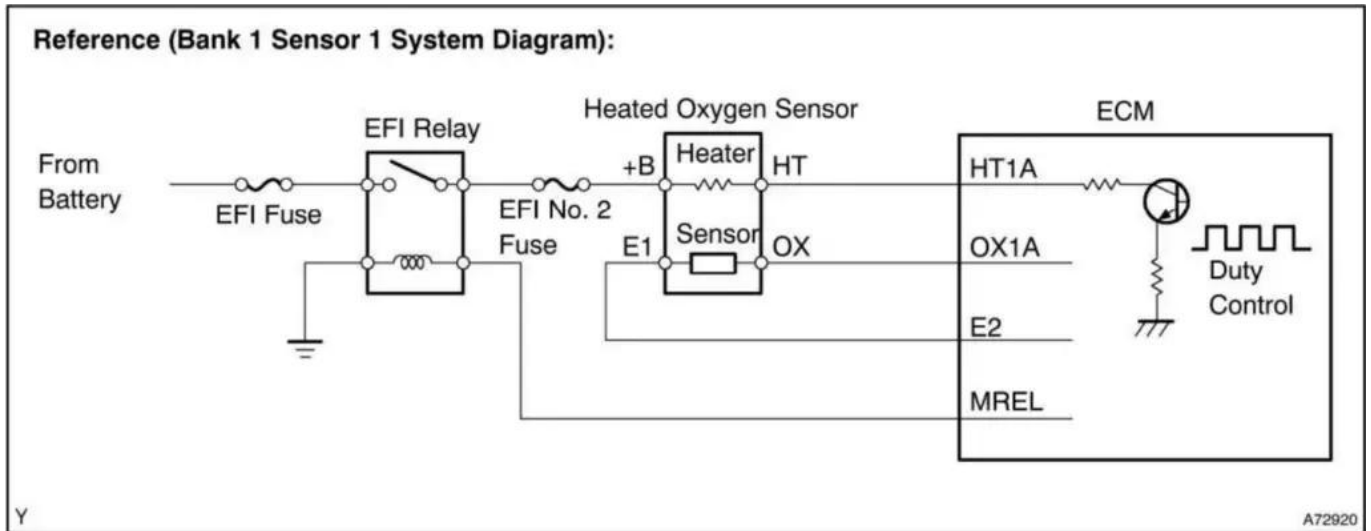
What Does The P0038 Code Mean?

Oxygen sensors with a heating element are common on today's engines. Heated Oxygen sensors (HO2S) are inputs used by the PCM (Powertrain Control Module) to determine oxygen content in the exhaust system.

The PCM uses the information gained from the Bank 1,2 HO2S mainly to monitor the efficiency of the catalytic converter. Integral to this sensor is a heater element. While in pre-OBd II vehicles an Oxygen sensor was a one wire sensor, now they are more commonly 4 wire sensors: Two dedicated to the oxygen sensor and two dedicated to the heater element. The oxygen sensor heater basically decreases the time needed to achieve closed loop. The PCM controls the heater on-time. The PCM also continuously monitors the heater circuits for abnormal voltages or in some cases, even abnormal amperages.

Depending on the make of vehicle, the Oxygen sensor heater is controlled one of two ways. (1) The PCM directly controls the voltage feed to the heater either directly or via a HO2S relay and a ground is supplied from the vehicle's common ground. (2) There is a fused 12 volt Battery feed (B+) that feeds 12 volts to the heater element anytime the ignition is on and the control of the heater is done by a driver in the PCM which controls the ground side of the heater circuit. Finding out which one you have is important because the PCM activates the heater under various circumstances. If the PCM detects an abnormally high voltage condition on the heater circuit, P0038 may set. This code is

only referring to the heating circuitry half of the Oxygen sensor.



P0038 wiring diagram

What Are The Symptoms Of The P0038 Code?

The most common symptom of a P0038 DTC is MIL (Malfunction indicator lamp) illumination. There would likely be no other symptoms.

What Are The Potential Causes Of The P0038 Code?

Potential causes of a P0038 code include:

- Faulty Bank 1,2 HO2S (Heated Oxygen sensor)
- Open in the heater control circuit (12 volt PCM controlled systems)
- Short to B+ (battery voltage) in the heater control circuit (12 volt PCM controlled systems)
- Open ground circuit (12 volt PCM controlled systems)
- Short to ground on heater control circuit (On PCM ground controlled systems)

How Can You Fix The P0038 Code?

First, do a visual inspection of the Bank 1, 2 HO2S (heated oxygen sensor) and its wiring harness. If there is any damage to the sensor or any damage to the wiring, fix it as needed. Check for bare wires where wiring enters sensor. This often can fatigue and cause shorts. Make sure wiring is routed away from exhaust. Repair wiring or replace sensor as necessary

If all appears okay, unplug the Bank 1,2 HO2S and verify that there is 12 volts B+ present with the key on engine off, (or ground is present, depending on the system). Verify the heater control (ground) circuit is intact. If so, remove the o2 sensor and inspect for damage. If you have access to resistance specifications you can use a Ohmmeter to perform a resistance test of the heater

element. Infinite resistance indicates an open in the heater. Replace the o2 sensor as necessary.

Reference Sources

[Diagnostic Trouble Code \(DTC\) Guide for P0038](#) - Ominitek Advanced Technologies, page 24.