

P0528: FAN SPEED SENSOR CIRCUIT NO SIGNAL

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$50-\$250
Can I Still Drive?	:	Yes (Short-term only)

What Does The P0528 Code Mean?

Some vehicles are equipped with a sensor at the end of the cooling fan that detects movement during vehicle operation. The sensor is used to determine if the fan is running on a fan clutch equipped vehicle, or used to verify fan speed commanded by the Powertrain Control Module (PCM) or Engine Control Module (ECM) matches the actual fan speed detected on an electric fan equipped vehicle.

The sensor used is a 3 wire, hall effect sensor which uses a 5 volt reference source from the PCM, a ground wire and a signal wire to the PCM to determine fan speed. A P0528 means that the PCM/ECM has determined there is a fault with the sensor or wiring.

Note: Be careful not to touch an electric fan as it may turn on even when the vehicle is not operating. This code is similar to [P0526](#), [P0527](#) and [P0529](#)

What Are The Symptoms Of The P0528 Code?

Symptoms of a P0528 DTC may include:

- Malfunction Indicator Lamp illumination (a.k.a. Check Engine Light)
- Vehicle may be overheating or running hotter than normal

What Are The Potential Causes Of The P0528 Code?

Potential causes of a P0528 code include:

- Faulty fan clutch or electric fan
- Open circuit in cooling fan sensor harness or connector
- Faulty PCM/ECM
- Faulty cooling fan speed sensor
- Accessory belt broken

How Can You Fix The P0528 Code?

Verify the operation of Fan Clutch equipped

Visually verify the fan is spinning while the engine is operating. If the fan is not spinning, this may be caused by a broken accessory belt or a failed fan clutch assembly. Replace accessory belt or fan clutch assembly.

Verify the operation of Electrical Fan equipped

Visually verify the fan is turning on and off when the PCM/ECM commands the fan to operate when the engine reaches certain temperatures. The fan may be automatically turned on when the air conditioner is turned on. If the fan is not operating, check the electrical harness connector, fuses or relays that operate the electric fan. Some fans may be turned on using an on/off relay or activated by Pulse Width Modulation (PWM) with variable speed fans. Repair electrical fan circuit, replace electric fan assembly, fan motor, or driver module.

Inspect cooling fan sensor harness

Check for loose connections and damaged wiring that may have come in contact with cooling fan. Unplug cooling fan sensor connector and connector at PCM and check for resistance using a Digital Volt Ohm Meter (DVOM) with leads at each end of the signal wire. Some vehicle manufacturers have issued a Technical Service Bulletin (TSB) for replacement of the sensor wiring harness. Replace or repair harness.

Check PCM/ECM

Disconnect fan speed sensor harness and PCM/ECM harness, using a DVOM with positive and negative leads connected to each end, check for excessive resistance in signal wire circuit. Back-probe signal wire using a DVOM set to the volts scale or a graphing multimeter at the sensor harness and the PCM/ECM with the positive lead on the signal wire and negative lead to a known good ground to determine if the voltage is present from the fan speed sensor. If signal is present and not received by the PCM/ECM, replace PCM/ECM.

Inspect cooling fan speed sensor

Disconnect harness connector from sensor and test for continuity using the DVOM set to Ohms scale between the power, ground and signal wires, no resistance should be present between the signal wire and either the ground or power wires. If resistance is present there may be an internal short.

The signal wire may only be tested during actual fan operation by back probing the harness connector with the DVOM set to volts scale, or a graphing multimeter with the positive lead on the signal wire and the negative lead to a known good ground, since the hall effect sensor used operates by creating a magnetic field that changes voltage while the fan is spinning. As fan speed increases, the voltage should also increase. Replace cooling fan speed sensor in the event of a failed part.

Reference Sources

[Diagnostic Trouble Code \(DTC\) Charts and Descriptions for P0528](#) - Page 84.