P0526: COOLING FAN SPEED SENSOR CIRCUIT

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$50-$250**
Can I Still Drive?	:	**Yes**

What Does The P0526 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. In the case of the P0526 DTC, it means 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 P0527, P0528 and P0529

What Are The Symptoms Of The P0526 Code?

Symptoms of a P0526 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 P0526 Code?

Potential causes of a P0526 code include:

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

How Can You Fix The P0526 Code?

Step 1

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, fan clutch assembly or cooling fan.

Step 2

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, motor or fan module if equipped.

Step 3

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 power wire, signal wire and ground (if connected to the PCM/ECM).

Some vehicle manufacturers have issued a Technical Service Bulletin (TSB) for replacement of the sensor wiring harness. Replace or repair harness.

Step 4

PCM/ECM – Unplug harness connector at the cooling fan sensor with vehicle key on/engine off. Check for 5 volts reference source from the PCM using a wiring diagram for reference, with the

DVOM set to the volts scale, with positive lead on the power wire and negative lead to a known good ground.

Check for ground using the DVOM positive lead connected to known good power source (battery positive) and negative lead at the harness ground wire. Replace PCM/ECM if reference voltage is not being supplied.

Step 5

Cooling fan speed sensor – Disconnect harness connector from sensor and test for continuity using the DVOM set to ohms scale between the power and ground wires, resistance should be present between the two wires.

Step 6

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 volage should also increase. It may be necessary to monitor the fan speed using an advanced scan tool to verify actual fan speed matches the commanded fan speed. Replace cooling fan speed sensor in the event of a failed part.

Reference Sources

P0526 Cooling Fan Speed Sensor Circuit, OBD-Codes.