

GENERIC · POWERTRAIN

P2028

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2028

Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor Circuit Intermittent

P2028 indicates that the powertrain control module (PCM) has detected an intermittent fault in the fuel vapor temperature sensor circuit, which is part of the evaporative emissions (EVAP) system. The sensor monitors the temperature of fuel vapor in the EVAP system, and the PCM sets this code when the signal momentarily drops out or becomes erratic, rather than failing completely.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp).
- Often no symptoms besides the warning light, as the EVAP system does not affect driveability.
- A slight fuel odor may be present if the fault is accompanied by a vapor leak.
- In rare cases, a rough idle or hesitation if the EVAP purge system is affected.
- No noticeable change in engine performance or fuel economy in most instances.

Common causes, most likely first

- 1 Loose, corroded, or damaged electrical connector at the fuel vapor temperature sensor.
- 2 Chafed, broken, or intermittently shorted wiring in the sensor circuit.
- 3 Faulty fuel vapor temperature sensor (internal intermittent open or short).
- 4 Poor ground connection for the sensor circuit.
- 5 PCM internal fault affecting the sensor signal processing (rare).
- 6 Extreme temperature fluctuations causing temporary sensor signal dropout (uncommon).



How to diagnose and fix it

- 1 Inspect the fuel vapor temperature sensor connector for tightness, corrosion, or damage; clean or repair as needed.
- 2 Perform a wiggle test on the sensor wiring harness while monitoring sensor data with a scan tool to identify intermittent connections.
- 3 Check the sensor's resistance or voltage output against manufacturer specifications and replace if out of range.
- 4 Verify the integrity of the ground circuit for the sensor using a multimeter and repair any high resistance.
- 5 Inspect the entire circuit for chafed or broken wires, especially near sharp edges or heat sources, and repair as necessary.
- 6 Clear the diagnostic trouble codes (DTCs) and road-test the vehicle to confirm the repair.
- 7 If the code persists after all checks, consult a professional technician for advanced diagnostics, including PCM testing.

Intermittent EVAP Sensor Faults Often Misdiagnosed

- A loose fuel cap can cause EVAP system pressure fluctuations that mimic a temperature sensor fault, so always check the cap first.
- The fuel vapor temperature sensor is sometimes integrated into the fuel tank pressure sensor, so replacing the wrong component is a common mistake.
- Intermittent codes often stem from wiring issues that only appear under specific conditions like vibration or temperature changes, making them hard to reproduce.
- This code does not always indicate a failed sensor; poor electrical connections are a frequent root cause.
- Scan tool data can show erratic temperature readings that help pinpoint the fault before replacing parts.

Can I keep driving with P2028?

The vehicle is safe to drive with this code because it does not affect engine performance or safety, but have it diagnosed soon to prevent potential EVAP system complications and to ensure emissions compliance.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire repair kit (splices, heat shrink, electrical tape)
- Contact cleaner
- Vehicle service manual for wiring diagrams and specifications



Reading P2028

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 28** The exact fault within that area.

Often seen with

P0455 EVAP System Leak Detected (Large) · **P0456** Evaporative Emission System Leak Detected (very small leak) · **P2025** Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor P · **P2026** Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor C · **P2027** Evaporative Emissions (EVAP) Fuel Vapor Temperature Sensor C

See it working

Watch the animated explainer [How a Boxer Engine Works: Flat Engine Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2028/>

