

MAZDA · POWERTRAIN

P1456

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1456 · Mazda

Fuel Tank Temperature Sensor Circuit

P1456 on a Mazda means the powertrain control module (PCM) has detected an abnormal signal from the fuel tank temperature sensor circuit, which is used to monitor fuel temperature for evaporative emission control. The PCM compares the sensor's voltage against expected values and flags the code when the reading falls outside the normal range for a calibrated period.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- A slight fuel smell or evaporative emission system odor in some cases
- Rough idle or hesitation if the faulty circuit affects fuel trim calculations
- Increased fuel consumption due to incorrect temperature compensation
- Failed emissions inspection because the evaporative system monitor is incomplete
- In rare cases, a no-start condition if the sensor shorts and disrupts shared reference voltage

Common causes, most likely first

- 1 Faulty fuel tank temperature sensor (internal failure or drift)
- 2 Damaged or corroded wiring harness at the sensor connector or along the body
- 3 Open or short circuit in the sensor signal or ground circuit
- 4 Loose or contaminated electrical connector pins at the sensor
- 5 Failed PCM driver or internal pull-up resistor (less common)
- 6 Fuel contamination or extreme temperatures causing sensor misreading (indirect cause)



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data for P1456, then clear the code and verify it returns
- 2 Visually inspect the fuel tank temperature sensor connector and wiring for damage, corrosion, or looseness
- 3 Measure sensor resistance with a multimeter and compare to Mazda specifications for the current fuel temperature
- 4 Backprobe the sensor signal wire at the PCM and check voltage with the key on, engine off, looking for a value outside the expected range
- 5 Check for continuity and short-to-ground on the signal and ground wires between the sensor and PCM
- 6 If wiring and sensor test good, substitute a known-good sensor and recheck live data to confirm the fault
- 7 Replace the fuel tank temperature sensor if resistance is out of spec, then clear codes and verify the monitor completes

Fuel tank temperature sensor diagnostic traps

- A common mistake is replacing the fuel tank temperature sensor when the real problem is a chafed wire behind the fuel tank where it rubs against the body seam.
- The fuel tank temperature sensor often shares a reference voltage or ground with other sensors, so a fault in a neighbouring circuit can set P1456 without the sensor itself being defective.
- On some Mazda models the sensor is integrated into the fuel pump module, so a failed sensor may require replacing the entire module rather than just the sensor.
- P1456 can be set by a fuel tank that was recently overfilled or by extreme ambient temperatures, causing a temporary out-of-range reading that does not indicate a hard failure.
- Always check for technical service bulletins (TSBs) for the specific Mazda model and year, as some harness routing or connector issues have known fixes.

Can I keep driving with P1456?

You can generally continue driving with P1456 because it rarely affects engine performance or safety, but avoid topping off the fuel tank excessively and have the circuit inspected soon to prevent potential evaporative system complications.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire piercing probes or backprobe pins
- Mazda service information for resistance specifications
- Socket set and trim removal tools for accessing the sensor



Reading P1456

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
- 4** Auxiliary emission controls.
- 56** The exact fault within that area.

Often seen with

P1455 Exhaust Gas Temperature Sensor 1 Range Performance · **P1455** Fuel Tank Level Sensor Circuit · **P1455** Fuel Tank Sending Unit Open Or Short 1.8L · **P1455** Substantial Leak or Blockage in Evaporative Emission Control · **P0451** Evaporative Emission System Pressure Sensor/Switch Range/Per · **P0452** Evaporative Emission System Pressure Sensor/Switch Low · **P0453** Evaporative Emission System Pressure Sensor/Switch High · **P0463** Fuel Level Sensor Circuit High Input

See it working

Watch the animated explainer [How a CVT Works: Belt and Pulley Transmission](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1456/>

