

GENERIC · POWERTRAIN

P0461

OBD-II TROUBLE CODE

P0461

Fuel Level Sensor Circuit Range/Performance

P0461 means the powertrain control module (PCM) has compared the fuel level sensor signal against expected values and found it outside the normal range or behaving erratically. The PCM monitors the sensor voltage as the fuel level changes and flags this code when the signal does not track a plausible fuel level over time. This is a range/performance fault, not a simple open or short circuit.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Fuel gauge reads empty, full, or fluctuates erratically regardless of actual fuel level
- Often no symptoms besides the warning light, especially if the gauge still appears to work
- Fuel gauge may drop to empty and trigger a low-fuel warning when the tank is actually partly full
- Inconsistent fuel gauge readings between key cycles or after refueling
- Remote start or fuel-related convenience features may be disabled by the PCM
- Possible inaccurate distance-to-empty or fuel economy displays

Common causes, most likely first

- Faulty fuel level sensor (sending unit) inside the fuel tank, worn or contaminated by fuel deposits
- Damaged, corroded, or chafed wiring between the fuel level sensor and the PCM
- Poor electrical connection at the fuel pump module harness or chassis ground
- Failed fuel pump module assembly where the sensor is integrated and the float arm binds
- PCM software calibration issue or internal PCM fault (less common)
- Aftermarket or incorrect fuel level sensor installed previously
- Fuel tank deformation or debris obstructing the float arm travel



How to diagnose and fix it

- 1 Verify the fuel gauge reading against actual fuel level by filling the tank and observing gauge response
- 2 Scan all modules for stored codes and check freeze-frame data for fuel level sensor voltage
- 3 Inspect the fuel pump module harness connector and ground for corrosion, looseness, or damage
- 4 Measure the fuel level sensor resistance or voltage at the connector while moving the float arm through its range
- 5 Compare sensor signal at the PCM connector to rule out wiring faults between the tank and PCM
- 6 Replace the fuel level sensor or fuel pump module assembly if the sensor signal is erratic or out of specification
- 7 Clear codes and perform a road test with several key cycles to confirm the repair

What the fuel gauge won't tell you

- A fuel level sensor can pass a static resistance check but still set P0461 because the fault is intermittent and only appears as the float moves over a certain portion of its travel.
Corroded terminals at the fuel pump module connector are a frequent cause that mimics a failed sensor, so always inspect the connector before condemning the sender.
- Some vehicles set P0461 when the fuel level sensor signal is plausible but does not change enough during a refueling event, which can be caused by a stuck float arm rather than an electrical fault.
- After a fuel pump module replacement, the new sensor may need a relearn or calibration procedure, and skipping it can cause P0461 to return immediately.
A weak or failing fuel pump can draw excessive current and disturb the sensor ground circuit, so check fuel pump current draw when the sensor tests normal.

Can I keep driving with P0461?

The vehicle remains safe to drive because the fault affects only fuel gauge accuracy, but you should refuel based on mileage rather than the gauge until it is repaired. Avoid relying on the distance-to-empty display, as it may be inaccurate and could leave you stranded.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Fuel tank sending unit wrench or lock ring tool
- Hand tools for trim and fuel tank access
- Wiring diagram for the fuel level sensor circuit



Reading P0461

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 61** The exact fault within that area.

Often seen with

P0460 Fuel Level Sensor Circuit Malfunction · **P0462** Fuel Level Sensor Circuit Low Input · **P0463** Fuel Level Sensor Circuit High Input · **P0464** Fuel Level Sensor 'A' Circuit Intermittent · **P2066** Fuel Level Sensor 'B' Performance

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0461/>

