

CHRYSLER · POWERTRAIN

P1431

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1431 · Chrysler

Fuel Level Sensor 2 Performance

P1431 on Chrysler vehicles indicates that the powertrain control module (PCM) has detected a performance problem with the fuel level sensor located in the secondary fuel tank, typically on dual-tank Ram trucks or chassis-cab models. The PCM monitors the sensor's signal voltage and compares it to expected values for the fuel volume; when the signal stays out of range, jumps erratically, or fails to change as fuel is added or consumed, the code is stored.

SYSTEM

Powertrain

CODE TYPE

Chrysler specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Fuel gauge reads incorrectly or fluctuates, especially when switching between tanks
- Fuel gauge may show empty or full when the tank is actually the opposite
- Often no symptoms besides the warning light, as the vehicle may still run normally
- Incorrect fuel level readings can cause the fuel transfer system to malfunction, leading to a stall or no-start if the active tank runs dry
- The driver may notice the fuel gauge does not update after refueling
- On dual-tank trucks, the gauge may not switch to the secondary tank when selected

Common causes, most likely first

- Faulty fuel level sensor (sending unit) in the secondary tank, worn or contaminated by fuel debris
- Damaged or corroded wiring harness or connector at the secondary tank sensor
- Open or short circuit in the signal or ground circuit between the sensor and the PCM
- Failed fuel tank selector switch or transfer pump control module affecting sensor readings
- PCM software issue or internal fault in the fuel level input circuit (rare)
- Mechanical binding or float arm sticking inside the secondary tank
- Corrosion or water intrusion in the connector causing intermittent signal



How to diagnose and fix it

- 1 Use a scan tool to read the fuel level sensor voltage and compare it to the actual fuel level in the secondary tank; verify the gauge operation when switching tanks.
- 2 Inspect the wiring and connector at the secondary fuel tank sensor for corrosion, chafing, or loose pins; repair as needed.
- 3 Check the resistance of the fuel level sensor with a multimeter while moving the float arm through its range; compare to Chrysler specifications.
- 4 Test the fuel tank selector switch and transfer pump control module for proper operation and signal output.
- 5 If the sensor resistance is out of specification or the float is binding, replace the fuel level sensor assembly in the secondary tank.
- 6 After repair, clear the code and verify the fuel gauge reads correctly and the code does not return during a test drive with tank switching.
- 7 If all external components test good, check for PCM software updates or, as a last resort, diagnose the PCM internal circuit.

Don't overlook the transfer pump control

- A stuck or failing fuel transfer pump can cause the secondary tank to overfill or run dry, which mimics a sensor failure and sets P1431 even when the sensor itself is good.
- The fuel level sensor on Chrysler dual-tank systems often fails due to sulfur contamination from fuel, which coats the resistive track and causes erratic readings before total failure.
- P1431 can be set by a loose or corroded ground connection at the secondary tank, which is commonly missed because the sensor and wiring appear intact.
- On some Ram trucks, the fuel gauge will default to the primary tank reading when the secondary sensor fails, leading drivers to believe the gauge is working normally until the tank runs dry.
- Replacing the fuel level sensor without checking the tank selector switch can lead to a repeat failure if the switch is sending incorrect signals to the PCM.

Can I keep driving with P1431?

You can usually continue driving, but avoid relying on the fuel gauge for the secondary tank and keep the primary tank well fueled to prevent running out. If the gauge behaves erratically or the truck stalls when switching tanks, have it diagnosed promptly to avoid being stranded.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Fuel pressure gauge (for transfer pump testing)
- Wiring diagram for the specific Chrysler model
- Basic hand tools for tank access



Reading P1431

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

Often seen with

P1432 Secondary Air Injection Valve Open · **P1433** Secondary Air Injection Pump Relay Circuit Open · **P1432** Fuel Level Sensor 2 Circuit Low Voltage · **P1433** Fuel Level Sensor 2 Circuit High Voltage · **P1432** Fuel Level Sensor 2 Circuit Low Voltage · **P1433** Fuel Level Sensor 2 Circuit High Voltage · **P1432** Secondary Air Injection System Incorrect Flow Detected · **P0460** Fuel Level Sensor Circuit Malfunction · **P0461** Fuel Level Sensor Circuit Range/Performance · **P0462** Fuel Level Sensor Circuit Low Input

See it working

Watch the animated explainer [How a MAF Sensor Works: Hot-Wire Airflow Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/chrysler-p1431/>

