

GM · POWERTRAIN

**P1284**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1284 · GM

## Fuel Injection Pump Battery Voltage Out Of Range

P1284 on GM vehicles means the engine control module (ECM) has detected that the battery voltage supplied to the fuel injection pump circuit is outside the expected operating range. The ECM monitors this voltage to ensure the pump's electronic actuator receives stable power, and it sets the code when the signal falls too low or spikes too high.

SYSTEM

Powertrain

CODE TYPE

GM specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

### Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Engine may crank but fail to start or stall shortly after starting
- Rough idle or misfire under load due to inconsistent fuel delivery
- Reduced engine power or limp mode in some GM models
- Intermittent hesitation or stumble during acceleration

### Common causes, most likely first

- 1 Weak or failing vehicle battery, especially under load
- 2 Corroded, loose, or damaged battery cables and ground connections
- 3 Blown fuse or faulty relay in the fuel injection pump power circuit
- 4 Chafed or shorted wiring between the ECM and the injection pump
- 5 Failing fuel injection pump actuator or internal pump electronics
- 6 Faulty ECM power supply or ground circuit (less common)

### How to diagnose and fix it

- 1 Perform a battery load test and check charging system output with a multimeter
- 2 Inspect and clean battery terminals, grounds, and the injection pump harness connectors
- 3 Check the fuse and relay that supply power to the fuel injection pump circuit
- 4 Measure voltage at the injection pump connector while cranking and running, comparing to battery voltage
- 5 Perform a voltage drop test on the power and ground sides of the circuit to locate excessive resistance
- 6 If voltage is correct at the pump, test the pump actuator resistance and compare to GM specifications
- 7 Repair or replace damaged wiring, then clear the code and verify the repair with a test drive



## Voltage Drop Tests Beat Parts Swapping

- A battery that passes a basic load test can still drop voltage under the high current demand of a cold start, so test it while cranking.
- Corroded ground straps on the engine block often cause this code because the pump circuit shares grounds with other high-current components.
- The code can set intermittently from a loose connector that only loses contact during engine vibration, so wiggle-test the harness while monitoring live data.
- A failing injection pump actuator can draw excessive current and pull the supply voltage out of range, mimicking a wiring fault.
- Some GM trucks store P1284 alongside glow plug or injector codes when the common power feed is compromised, so check for shared-circuit codes first.

## Can I keep driving with P1284?

If the engine starts and runs normally, you can drive cautiously to a repair shop, but avoid heavy acceleration or long trips. If the engine stalls, misfires badly, or enters limp mode, stop driving and have the vehicle towed to prevent damage to the injection pump.

## Tools that help

- Digital multimeter with voltage drop capability
- Battery load tester
- OBD-II scan tool with live data
- Wiring diagram for the specific GM model
- Basic hand tools for connector and terminal inspection

## Reading P1284

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (GM): its meaning depends on the make.
- 2** Fuel and air metering (injector circuits).
- 84** The exact fault within that area.

## Often seen with

**P0230** Fuel Pump Primary Circuit Malfunction · **P0231** Fuel Pump Secondary Circuit Low · **P0232** Fuel Pump Secondary Circuit High · **P0562** System Voltage Low · **P0563** System Voltage High



## See it working

Watch the animated explainer **Fuel Trims Explained: Short-Term and Long-Term** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1284/>

