

GM · POWERTRAIN

P1194

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1194 · GM

Incorrect Or Irrational Performance Has Been Detected For The PWM

P1194 on a GM vehicle means the powertrain control module (PCM) has detected an irrational or incorrect performance from a pulse-width-modulated (PWM) circuit or device, typically the fuel pump or evap purge solenoid driver. The PCM commands a specific duty cycle and monitors the circuit for expected voltage or current feedback, and when the actual response does not match the commanded PWM signal within calibrated limits, this code is stored.

SYSTEM

Powertrain

CODE TYPE

GM specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or stumble if the affected PWM device is the evap purge solenoid stuck open or closed
- Intermittent hard starting or stalling if the fuel pump PWM driver is faulty
- Poor fuel economy or rich/lean fuel trim shifts depending on the device affected
- A faint clicking or buzzing from the evap canister area if the purge solenoid is cycling erratically
- Reduced power or limp mode in some GM platforms when the PCM deems the PWM output unreliable

Common causes, most likely first

- 1 Failed evap purge solenoid with a shorted or open internal coil
- 2 Wiring damage (chafed, corroded, or pinched) in the PWM control circuit between the PCM and the solenoid or pump driver
- 3 Faulty fuel pump control module (FPCM) on vehicles that use PWM fuel pump control
- 4 PCM driver circuit failure or software calibration issue
- 5 Poor ground connection at the solenoid, pump module, or chassis grounding point
- 6 Aftermarket or incorrect replacement solenoid with wrong resistance or inductance
- 7 Corrosion or water intrusion at the connector causing intermittent PWM feedback



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, then record freeze-frame data to see what conditions set P1194
- 2 Inspect the evap purge solenoid and fuel pump control module connectors for corrosion, water, or loose pins
- 3 Measure resistance of the suspected PWM solenoid or pump driver and compare to GM service specifications
- 4 Back-probe the PWM control wire at the PCM and at the component to check for continuity and short-to-ground or short-to-voltage
- 5 Command the PWM device on and off with a scan tool and observe whether the actual duty cycle or current feedback follows the command
- 6 Check all grounds related to the circuit, including the PCM ground and the component mounting ground, for voltage drop
- 7 If wiring and component tests pass, reflash or replace the PCM only after confirming the driver output is truly faulty

PWM driver faults that fool good technicians

- P1194 is often set by a lazy evap purge solenoid that still clicks when commanded but has a coil resistance that drifts with temperature, so a cold resistance check can pass while the code returns hot.
- On GM trucks and SUVs with a fuel pump control module, a failing FPCM can set P1194 without any fuel delivery symptom because the PCM is monitoring the PWM command circuit, not actual fuel pressure.
- A loose or corroded ground at the evap canister bracket or the fuel pump module flange is a common hidden cause that looks like a failed solenoid or PCM driver.
- Technicians sometimes replace the purge solenoid only to have P1194 return because the connector terminal tension was lost and the PWM feedback signal was intermittent at the pin.
- This code does not always mean the PWM device itself has failed; a shorted or chafed harness section near the exhaust or battery tray can mimic a component failure.

Can I keep driving with P1194?

You can usually drive the vehicle with P1194 stored, but avoid extended idling or heavy load if the evap purge solenoid is suspected because a stuck-open purge valve can cause a rough idle or hard start. If the fuel pump PWM circuit is involved, watch for stalling or a no-start and have it diagnosed before a long trip.

Tools that help

- Scan tool with bidirectional PWM command capability
- Digital multimeter with duty cycle and frequency functions
- Back-probe kit or breakout harness
- Wiring diagram for the specific GM platform
- Vacuum pump and evap system smoke tester



Reading P1194

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

Often seen with

P0443 EVAP Purge Control Valve Circuit Malfunction · **P0449** Evaporative Emission System Vent Valve/Solenoid Circuit · **P0452** Evaporative Emission System Pressure Sensor/Switch Low · **P0453** Evaporative Emission System Pressure Sensor/Switch High · **P0455** EVAP System Leak Detected (Large)

See it working

Watch the animated explainer [How a Refrigerator Works: The Cooling Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1194/>

