

GM · POWERTRAIN

**P1298**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1298 · GM

## Lean Operation At Wide Open Throttle

P1298 on GM vehicles indicates that the powertrain control module has detected a lean air/fuel mixture during wide open throttle operation, meaning the engine is receiving too much air or not enough fuel when you demand maximum power. The computer monitors fuel trim and oxygen sensor feedback under heavy load and sets this code when the mixture stays lean beyond an acceptable threshold.

SYSTEM

Powertrain

CODE TYPE

GM specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air  
metering (injector  
circuits)

### Symptoms you may notice

- Check engine light illuminated, often with no other noticeable symptoms during normal driving
- Engine may feel sluggish or hesitate when accelerating hard or merging onto a highway
- Possible loss of power or reduced engine performance at wide open throttle
- Occasional engine misfire or sputtering under heavy load
- Poor fuel economy or a rich-running condition after the code sets if the computer adds fuel to compensate

### Common causes, most likely first

- 1 Vacuum leak from a cracked or disconnected intake hose, intake manifold gasket, or PCV hose
- 2 Weak or failing fuel pump that cannot maintain pressure and volume under high demand
- 3 Clogged fuel filter restricting fuel flow during wide open throttle
- 4 Dirty or failing mass airflow sensor underreporting air intake
- 5 Leaking intake manifold gasket allowing unmetered air into the engine
- 6 Faulty oxygen sensor or wiring giving inaccurate feedback to the computer
- 7 Exhaust leak upstream of the oxygen sensor causing false lean readings



## How to diagnose and fix it

- 1 Inspect all intake and vacuum hoses for cracks, loose clamps, or disconnected fittings and repair as needed
- 2 Check fuel pressure and volume at the rail under load; compare to GM specifications for your engine
- 3 Replace the fuel filter if it has not been serviced recently and recheck fuel pressure
- 4 Clean the mass airflow sensor with approved cleaner and verify its readings with a scan tool
- 5 Perform a smoke test on the intake system to locate hidden vacuum leaks
- 6 Test the oxygen sensors and their wiring for proper switching and voltage signals
- 7 If all else checks out, inspect the fuel pump and fuel pump control module for intermittent failure under high demand

## What most technicians miss on P1298

- A weak fuel pump often passes a static pressure test but fails to deliver enough volume under wide open throttle, so always check fuel pressure and volume while the engine is under load.
- Intake manifold gasket leaks on GM V8 engines can be temperature-sensitive and only show up when the engine is hot, so a cold smoke test may miss them.
- The mass airflow sensor can be contaminated by an aftermarket oiled air filter, causing it to underreport airflow and set a lean code without any driveability complaint.
- An exhaust leak before the oxygen sensor pulls in outside air and fools the sensor into reporting a lean condition, even when the engine is actually running rich.
- P1298 can be set by a failing fuel pump control module on vehicles that use a pulse-width-modulated fuel pump, so check for related fuel pump codes before replacing the pump.

## Can I keep driving with P1298?

You can drive the vehicle gently to a repair shop, but avoid wide open throttle and heavy load situations such as towing or climbing steep grades until the fault is repaired. Prolonged lean operation under load can damage pistons and catalytic converters, so schedule diagnosis soon.

## Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Fuel pressure gauge with a long hose for road testing
- Smoke machine for intake leak detection
- Digital multimeter for sensor and wiring tests
- Mass airflow sensor cleaner
- Vacuum gauge



## Reading P1298

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

## Often seen with

**P0087** Fuel Rail/System Pressure - Too Low · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

## See it working

Watch the animated explainer [How a MAP Sensor Works: Engine Vacuum and Load](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1298/>

