

GM · POWERTRAIN

P1693

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1693 · GM

Tachometer Circuit Voltage Low

P1693 on a GM vehicle means the powertrain control module (PCM) has detected an abnormally low voltage on the tachometer signal circuit, which is the wire that carries engine speed information from the ignition control module or PCM output to the instrument cluster. The PCM monitors this circuit and sets the code when the voltage falls below the expected threshold for a calibrated amount of time, indicating an open, short to ground, or faulty tachometer driver.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Low	Intermediate	Computer and output circuits

Symptoms you may notice

- The tachometer needle may sit at zero or fluctuate erratically while the engine is running.
- The service engine soon or check engine light illuminates on the dashboard.
- Often no symptoms besides the warning light, especially if the tachometer is not closely watched.
- Possible rough running or stalling if the low voltage is caused by a faulty ignition control module that also affects spark timing.
- In some cases, other dashboard gauges or warning lights may behave oddly if the tachometer circuit shares a ground or reference with the cluster.

Common causes, most likely first

- A damaged or corroded tachometer signal wire between the ignition control module and the instrument cluster, often due to chafing or rodent damage.
- A faulty ignition control module that fails to output a proper tachometer signal.
- A short to ground on the tachometer circuit, which pulls the voltage low.
- A poor ground connection at the instrument cluster or engine block, causing reference voltage to drop.
- A defective instrument cluster tachometer driver circuit that loads the signal line.
- Loose or corroded connectors at the PCM, ignition control module, or cluster.
- In rare cases, a failing PCM that misinterprets a good signal as low voltage.



How to diagnose and fix it

- 1 Inspect the tachometer signal wire and connectors for visible damage, corrosion, or loose pins, and repair as needed.
- 2 Check the ground connections at the engine block, chassis, and instrument cluster for cleanliness and tightness.
- 3 Use a digital multimeter to measure voltage on the tachometer signal circuit with the key on and engine running, comparing to the manufacturer's specification.
- 4 Disconnect the ignition control module and check for a short to ground or open on the signal wire; repair the wire if faulty.
- 5 Swap in a known-good ignition control module if the signal wire tests good but no output is present.
- 6 If the signal is present at the cluster but the tachometer still reads low, test or replace the instrument cluster.
- 7 Clear the code and verify the repair by test-driving the vehicle and confirming the tachometer operates correctly and the code does not return.

Tachometer Circuit Low Voltage Traps

- A common misdiagnosis is replacing the instrument cluster when the real fault is a chafed signal wire in the engine harness near the exhaust manifold, where heat damage is frequent.
- The tachometer signal on many GM vehicles is a pulse-width modulated square wave, so a standard voltmeter may show an average voltage that looks low even when the circuit is healthy; use an oscilloscope or a frequency-capable meter for accurate testing.
- This code can be set by a failing ignition control module that still produces enough spark to run the engine, so do not assume the module is good just because the engine starts.
- Aftermarket alarm or remote start installations often tap into the tachometer wire, and a poor splice can introduce the low-voltage condition that sets P1693.
- On some GM platforms, the tachometer signal is generated by the PCM and sent to the cluster over a serial data bus, so a communication fault elsewhere can mimic a tachometer circuit problem.

Can I keep driving with P1693?

You can generally continue driving with P1693 because the fault mainly affects the tachometer display and does not impair engine operation, but avoid ignoring it if the engine also runs rough or stalls, which could indicate a failing ignition control module.

Tools that help

- Digital multimeter with frequency or duty cycle capability
- Oscilloscope for waveform analysis
- Wiring diagram for the specific GM vehicle
- Socket set and trim removal tools
- Scan tool capable of reading GM manufacturer-specific codes



Reading P1693

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (GM): its meaning depends on the make.
- 6** Computer and output circuits.
- 93** The exact fault within that area.

Often seen with

P1362 Cylinder 3 Ignition Circuit Short To B+ · **P1350** Ignition Coil Power Output Stage 3 Open · **P1361** Cylinder 3 Ignition Circuit Open · **P1350** VVT Sensor Circuit Malfunction Bank 2 · **P1362** TDC1 Sensor No Signal · **P1361** TDC Sensor Intermittent Interruption · **P1350** Injection Sensor Solenoid · **P1362** Ignition Coil C Secondary Circuit · **P1361** Ignition Coil B Secondary Circuit · **P1361** Ignition Coil Cylinder 1 No Activation · **P1362** Ignition Coil Cylinder 2 No Activation · **P1361** TDC Sensor Intermittent Interruption · **P1362** TDC1 Sensor No Signal · **P1361** IC Circuit Low Voltage · **P1362** IC Cylinder 2 Not Toggling After Enable · **P1350** Ignition Control System · **P1361** Ignition Control IC Circuit Low Voltage · **P1362** Ignition Coil C Secondary Circuit Malfunction · **P1361** IC Circuit Low Voltage · **P1362** IC Cylinder 2 Not Toggling After Enable · **P1350** Ignition Control System · **P1361** Misfire Cylinder 10 With Fuel Cut-off · **P1362** Misfire During Start Cylinder 11 · **P1350** Misfire During Start Cylinder 5 · **P0335** Crankshaft Position Sensor A Circuit Malfunction · **P0336** Crankshaft Position Sensor A Circuit Range/Performance

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1693/>

