

GENERIC · POWERTRAIN

P0699

OBD-II TROUBLE CODE

P0699

Sensor Reference Voltage 'C' Circuit High

P0699 means the engine control module (ECM) has detected that the 5-volt reference voltage supplied to one or more sensors on circuit 'C' is higher than the expected range, typically near battery voltage or above 5.5 volts. The ECM monitors this reference line because sensors rely on a stable 5-volt supply to produce accurate signals, and an abnormally high voltage indicates a short to power, an open ground, or a faulty sensor pulling the line up.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Computer and output circuits

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or poor engine performance if the affected sensor is critical to fuel or air control
- Reduced fuel economy or erratic shifting if the reference voltage feeds a transmission sensor
- Intermittent stalling or hesitation during acceleration
- Failed emissions test due to an incomplete readiness monitor
- Other sensor-related codes stored simultaneously, such as P0107, P0112, or P0122

Common causes, most likely first

- 1 Short to battery voltage in the reference voltage 'C' circuit wiring, often due to chafed insulation or a pinched harness
- 2 Faulty sensor connected to the reference voltage 'C' circuit internally shorted to power
- 3 Open or high-resistance ground connection at the sensor or ECM, causing the reference voltage to float high
- 4 Corroded or damaged ECM connector pins on the reference voltage 'C' circuit
- 5 Failed ECM internal voltage regulator supplying the reference circuit
- 6 Aftermarket accessories or improper wiring repairs tapping into the reference circuit



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to identify which sensor or circuit is affected
- 2 Inspect the wiring harness and connectors for the reference voltage 'C' circuit for signs of chafing, corrosion, or loose pins
- 3 Measure reference voltage at each sensor on circuit 'C' with the key on, engine off, comparing to the specified 5 volts
- 4 Disconnect sensors one at a time on circuit 'C' to see if the high voltage returns to normal, isolating a faulty sensor
- 5 Check ground circuits for the affected sensors and the ECM for excessive resistance or voltage drop
- 6 Repair or replace damaged wiring, connectors, or the faulty sensor as indicated by tests
- 7 Clear codes and perform a road test to verify the repair and ensure the monitor completes

Reference voltage shorts you might overlook

- A common mistake is replacing the sensor first when the actual fault is a shorted harness rubbing against a metal bracket or engine component.
- The reference voltage 'C' circuit often feeds multiple sensors, so a single shorted sensor can pull down or disrupt the voltage for others, setting multiple codes.
- An open ground at the sensor can cause the reference voltage to read high on a scan tool even though the ECM is functioning correctly.
- Aftermarket electrical accessories improperly tapped into the reference circuit can backfeed voltage and set this code intermittently.
- The ECM itself is rarely the cause, so diagnose the circuit thoroughly before condemning the module.

Can I keep driving with P0699?

If the vehicle runs normally, you can drive cautiously to a repair shop, but avoid hard acceleration or towing. If the engine runs rough, stalls, or shifts erratically, stop driving and have the vehicle towed to prevent damage or unsafe operation.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with back-probing pins
- Wiring diagram for the specific vehicle
- Test light or jumper wires for circuit testing
- Socket set and trim removal tools for access



Reading P0699

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 6** Computer and output circuits.
- 99** The exact fault within that area.

Often seen with

P0107 MAP/Barometric Pressure Circuit Low Input · **P0641** Sensor Reference Voltage 'A' Circuit/Open · **P0651** Sensor Reference Voltage 'B' Circuit/Open · **P0697** Sensor Reference Voltage 'C' Circuit/Open · **P0698** Sensor Reference Voltage 'C' Circuit Low

See it working

Watch the animated explainer [Excavator Simulator: Hydraulics You Can Operate](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0699/>

