

GENERIC · POWERTRAIN

P0697

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0697

Sensor Reference Voltage 'C' Circuit/Open

P0697 indicates that the powertrain control module (PCM) has detected an open circuit or out-of-range voltage on the sensor reference voltage 'C' circuit, which is a 5-volt supply shared by multiple sensors. The PCM monitors this line and sets the code when the voltage falls outside the expected range, often affecting sensors such as the accelerator pedal position, throttle position, or manifold absolute pressure sensor.

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

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp) with no other noticeable symptoms.
- Rough idle or stumbling if the affected sensors include the throttle position or manifold absolute pressure sensor.
- Reduced engine performance or limp mode due to unreliable sensor signals.
- Poor fuel economy or increased emissions from incorrect air-fuel mixture calculations.
- Intermittent stalling or hesitation during acceleration when the reference voltage drops out.
- Other sensor-related codes stored simultaneously, such as P0122 or P0107, indicating shared circuit issues.

Common causes, most likely first

- 1 Open circuit in the reference voltage 'C' wiring, such as a broken wire or poor connection at a sensor or PCM connector.
- 2 Short to ground or short to voltage on the reference voltage 'C' circuit, often due to chafed wiring harness.
- 3 Faulty sensor internally shorted or drawing excessive current on the reference voltage 'C' circuit.
- 4 Corroded or damaged PCM connector pins causing high resistance on the reference voltage 'C' circuit.
- 5 Failed PCM driver for the reference voltage 'C' output, though this is less common.
- 6 Aftermarket accessories or improper wiring repairs tapping into the reference voltage 'C' circuit.



How to diagnose and fix it

- 1 Perform a visual inspection of the wiring harness and connectors related to the reference voltage 'C' circuit, looking for chafing, corrosion, or loose pins.
- 2 Use a digital multimeter to measure the reference voltage at each sensor that shares the 'C' circuit; expect approximately 5 volts with the key on and engine off.
- 3 Disconnect sensors one by one to see if the reference voltage returns to normal, isolating a faulty sensor that is loading down the circuit.
- 4 Check for continuity and resistance in the reference voltage 'C' wire between the PCM and each sensor, repairing any open or high-resistance faults.
- 5 Test for short to ground or short to voltage on the reference voltage 'C' circuit with the PCM and sensors disconnected.
- 6 Inspect and clean PCM connectors, and if the PCM is suspected, verify powers and grounds before considering replacement.
- 7 Clear the code and perform a road test to confirm the repair, ensuring the reference voltage remains stable under various operating conditions.

Shared 5-Volt Reference Circuit Pitfalls

- Many technicians replace the PCM prematurely when the actual fault is a shorted sensor on the shared 5-volt reference line, so always isolate sensors before condemning the module.
- The reference voltage 'C' circuit often feeds the accelerator pedal position sensor on drive-by-wire vehicles, and a fault there can cause reduced power mode without setting a pedal-specific code.
- Intermittent opens can be caused by flexing harness sections near the throttle body or pedal assembly, so wiggle-testing the harness while monitoring voltage is crucial.
- A code P0697 can be set by a low battery or charging system issue that causes the reference voltage to drop momentarily, so always verify battery and charging system health first.
- Aftermarket electrical accessories improperly tapped into the 5-volt reference can overload the circuit and set this code, so check for non-factory wiring.

Can I keep driving with P0697?

Driving with P0697 is generally not recommended because the fault can cause unpredictable sensor readings leading to stalling, reduced power, or poor emissions. If you must drive, avoid heavy acceleration and have the vehicle inspected promptly.



Tools that help

- Digital multimeter (DMM) with voltage and resistance measurement
- OBD-II scan tool with live data capability
- Wiring diagram for the specific vehicle
- Back probe pins or breakout box for connector testing
- Hand tools for connector and harness inspection

Reading P0697

- 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.
- 97** 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 · **P0698** Sensor Reference Voltage 'C' Circuit Low · **P0699** Sensor Reference Voltage 'C' Circuit High

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/p0697/>

