

GENERIC · POWERTRAIN

P0649

OBD-II TROUBLE CODE

P0649

Speed Control Lamp Control Circuit

P0649 means the engine computer has detected a fault in the electrical circuit that controls the speed control lamp, which is the dashboard indicator that shows when cruise control is active or available. The computer monitors the lamp control wire for abnormal voltage or current and sets this code when the circuit does not behave as expected.

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

Symptoms you may notice

- The speed control indicator lamp on the dashboard does not light up when cruise control is switched on.
- The lamp stays illuminated constantly even when cruise control is turned off.
- Cruise control may fail to engage or may disengage unexpectedly while driving.
- Often no symptoms besides the warning light, because the lamp circuit is separate from the cruise control actuator.
- Other dashboard warning lights may illuminate if the fault affects shared power or ground circuits.

Common causes, most likely first

- A burned-out or faulty speed control indicator bulb or LED.
- A damaged or disconnected wiring harness between the engine computer and the instrument cluster lamp.
- Corroded or loose electrical connectors at the lamp socket, instrument cluster, or engine computer.
- A failed speed control lamp driver inside the engine computer, though this is less common.
- A short to ground or short to voltage in the lamp control wire.
- A faulty instrument cluster circuit board or lamp socket.
- Aftermarket accessories or poor previous repairs tapping into the lamp circuit.



How to diagnose and fix it

- 1 Verify the speed control lamp operation by turning the cruise control on and off while observing the dashboard indicator.
- 2 Check the bulb or LED in the instrument cluster and replace it if it is burned out or damaged.
- 3 Inspect the wiring harness and connectors between the engine computer and the instrument cluster for chafing, corrosion, or loose pins.
- 4 Measure resistance and voltage on the lamp control circuit with a digital multimeter to check for opens, shorts, or excessive resistance.
- 5 Test the lamp driver output at the engine computer connector with a test lamp or oscilloscope to confirm the computer is commanding the lamp on.
- 6 If the computer output is correct but the lamp does not light, repair the instrument cluster or replace the faulty lamp socket.
- 7 Clear the code and perform a road test to confirm the repair and ensure the code does not return.

What most technicians overlook with P0649

- A failed bulb or LED is the most common cause, yet many people replace the engine computer first because the code points to a control circuit.
- The speed control lamp circuit is often shared with other dashboard indicators, so a single bad ground can set multiple lamp codes.
- Aftermarket remote starters or alarm systems frequently tap into the speed control lamp wire and cause intermittent faults.
- P0649 can be set by a brief voltage spike during battery jump-starting, so always check for a stored history code before condemning parts.
- On some vehicles, the speed control lamp is controlled by the body control module rather than the engine computer, so the diagnostic path must follow the actual wiring diagram.

Can I keep driving with P0649?

The vehicle remains safe to drive because the speed control lamp is an indicator and does not affect engine operation or braking. However, avoid using cruise control until the fault is repaired, since a malfunctioning lamp circuit can sometimes interfere with cruise control engagement.

Tools that help

- Digital multimeter
- Test lamp
- OBD-II scan tool
- Trim removal tools
- Wiring diagram for the specific vehicle



Reading P0649

- 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.
- 49** The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P0648** Immobilizer Lamp Control Circuit · **P0650** Malfunction Indicator Lamp (MIL) Control Circuit Malfunction · **P0700** Transmission Control System Malfunction

See it working

Watch the animated explainer **V6 Engine Explained: 60° Bank and Firing Order** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0649/>

