

GENERIC · POWERTRAIN

P0659

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0659

Actuator Supply Voltage 'A' Circuit High

P0659 indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the supply circuit that feeds a group of actuators, often labeled 'A' in the service information. This circuit is typically a dedicated power feed from the PCM to components such as solenoids, relays, or motors, and a high voltage reading suggests a short to voltage or a fault in the PCM's internal driver.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Computer and output circuits

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp) with no other noticeable symptoms.
- One or more actuators (e.g., transmission shift solenoids, variable valve timing solenoid, or evap purge solenoid) may become inoperative.
- Rough running or stalling if the affected actuators are critical to engine operation.
- Transmission may enter limp mode or shift harshly if shift solenoids are on the affected circuit.
- In some cases, the engine may crank but not start if the fuel pump or ignition relay is on the circuit.
- Intermittent operation of accessories powered by the affected actuator supply.

Common causes, most likely first

- 1 Short to voltage on the actuator supply circuit wiring, often due to chafed insulation or contact with a higher-voltage wire.
- 2 Faulty actuator solenoid or relay with an internal short to voltage.
- 3 Corroded or damaged connector pins at the actuator or PCM, causing high resistance or intermittent short.
- 4 PCM internal driver failure, causing it to incorrectly report high voltage or to output excessive voltage.
- 5 Aftermarket accessories improperly wired into the actuator supply circuit.
- 6 Water intrusion into a connector or component, creating a conductive path to voltage.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes that might indicate a specific actuator fault.
- 2 Inspect the wiring harness and connectors for the affected actuator supply circuit for signs of damage, corrosion, or short to voltage.
- 3 Disconnect the actuator(s) on the circuit and measure resistance and voltage on the supply wire to isolate whether the fault is in the wiring, actuator, or PCM.
- 4 Perform a voltage drop test on the supply circuit under load to check for excessive resistance or unintended voltage.
- 5 If the wiring and actuators test good, suspect the PCM and perform pinout and continuity tests per service information before replacement.
- 6 Repair or replace damaged wiring, connectors, or actuators as needed, then clear codes and verify the repair with a test drive.
- 7 If the PCM is faulty, reprogram or replace it according to manufacturer procedures and perform relearn functions.

Common Misdiagnosis Traps for P0659

- A short to voltage on the actuator supply circuit can be caused by a faulty alternator or voltage regulator, so check charging system voltage if the code appears with other electrical issues.
- The code may set intermittently due to a loose ground connection, which can cause voltage spikes on the supply circuit; always check grounds before replacing parts.
- Some vehicles use a shared supply voltage for multiple actuators, so a single faulty actuator can affect the entire circuit and set P0659 without any other codes.
- Aftermarket electrical accessories tapped into the actuator supply circuit are a frequent cause of high voltage codes, especially if not properly fused.
- The PCM may set P0659 as a result of a low battery or jump-starting, so clear the code and see if it returns before extensive diagnostics.

Can I keep driving with P0659?

If the vehicle drives normally with only the check engine light on, it is generally safe to drive to a repair shop, but avoid heavy loads or long trips. If the vehicle is in limp mode or runs poorly, limit driving to a short distance to a safe location and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter (DMM)
- Wiring diagram and service information for the specific vehicle
- Test light or load tester
- Back probe pins and jumper wires



Reading P0659

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

Often seen with

P0641 Sensor Reference Voltage 'A' Circuit/Open · **P0642** Sensor Reference Voltage 'A' Circuit Low · **P0643** Sensor Reference Voltage 'A' Circuit High · **P0658** Actuator Supply Voltage 'A' Circuit Low · **P065A** Generator System Performance

See it working

Watch the animated explainer [Disc Brake Trainer: How Car Brakes Stop a Wheel](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0659/>

