

GENERIC · POWERTRAIN

P0657

OBD-II TROUBLE CODE

P0657

Actuator Supply Voltage 'A' Circuit/Open

P0657 means the engine control module (ECM) has detected an open circuit or voltage supply fault on the shared power feed it provides to a group of actuators, such as solenoids and relays. The ECM monitors this actuator supply voltage and sets the code when the voltage on that circuit falls outside the expected range, typically indicating an open connection or a short to ground.

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
- Multiple transmission shift issues or harsh shifting if the affected actuators include shift solenoids
- Erratic operation of systems powered by the actuator supply, such as variable valve timing or turbo wastegate control
- The engine may enter limp mode or have reduced power
- In some cases, the vehicle may stall or fail to start if the open circuit affects a critical relay

Common causes, most likely first

- 1 Open or damaged wire in the actuator supply circuit, often due to chafing or corrosion
- 2 Poor connection at the ECM connector or at an intermediate connector
- 3 Failed actuator (solenoid or relay) that has an internal open circuit, pulling the supply voltage down
- 4 Blown fuse or fusible link that feeds the actuator supply circuit
- 5 Corroded or loose ground connection for the actuators
- 6 Faulty ECM driver circuit (less common)



How to diagnose and fix it

- 1 Check all fuses related to the actuator supply circuit and replace any that are blown
- 2 Inspect the wiring harness for obvious damage, chafing, or corrosion, especially near connectors and heat sources
- 3 Disconnect the ECM and the actuators, then perform a continuity test on the supply wire to locate an open circuit
- 4 Check for short to ground on the supply wire using a multimeter set to resistance or voltage
- 5 Test each actuator individually for internal resistance to rule out a failed component
- 6 Clean and tighten ground connections and apply dielectric grease to prevent future corrosion
- 7 If all wiring and actuators test good, suspect the ECM and perform a pin-out test or substitute with a known-good unit

What the actuator supply circuit really feeds

- P0657 often appears alongside transmission codes like P0700 or P0750 because the actuator supply powers shift solenoids, so a single open circuit can trigger multiple codes.
- A common oversight is replacing the ECM when the real problem is a chafed wire behind the engine block or near the exhaust manifold, where heat damage is hidden.
- The actuator supply voltage is shared by several components, so a shorted solenoid can pull the entire circuit down and set P0657 even though the solenoid itself is the root cause.
- Some vehicles use a relay to feed the actuator supply; a failing relay can cause intermittent P0657 without any visible wiring damage.
- P0657 does not always mean the ECM is faulty; in many cases, a simple corroded connector pin is the culprit, so always inspect connectors before condemning the module.

Can I keep driving with P0657?

You can usually drive the vehicle with P0657 set, but if you notice harsh shifting, reduced power, or stalling, limit driving to reach a repair shop. Avoid heavy acceleration or towing until the fault is fixed, as the affected actuators may not function correctly.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Wiring diagram for the specific vehicle
- Test light
- Socket set and trim removal tools



Reading P0657

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

Often seen with

P0562 System Voltage Low · **P0658** Actuator Supply Voltage 'A' Circuit Low · **P0659** Actuator Supply Voltage 'A' Circuit High · **P0700** Transmission Control System Malfunction · **P0750** Shift Solenoid 'A'

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0657/>

