

GENERIC · POWERTRAIN

P0E87

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0E87

Battery Charger B Voltage Sensor Circuit Low

P0E87 means the powertrain control module (PCM) has detected that the voltage signal from the battery charger B voltage sensor circuit is lower than the expected range for the current operating conditions. This sensor monitors the auxiliary battery charger output, and a low signal typically indicates a short to ground, a faulty sensor, or a wiring problem.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light
- Reduced charging system performance, possibly leading to a weak or dead battery over time
- Electrical accessories may dim or operate erratically if the auxiliary battery is not charging
- In some cases, the vehicle may enter a reduced power mode or fail to start after sitting
- A charging system warning light may also be present on some vehicles

Common causes, most likely first

- 1 Faulty battery charger B voltage sensor
- 2 Short to ground in the sensor signal circuit
- 3 Damaged or corroded wiring or connector at the sensor or PCM
- 4 Failed battery charger assembly (internal fault causing low signal)
- 5 PCM internal fault (rare)
- 6 Poor ground connection for the sensor or charger circuit



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P0E87 is current and not history
- 2 Visually inspect the battery charger B voltage sensor, its connector, and the wiring harness for damage, corrosion, or loose pins
- 3 Measure the sensor reference voltage and signal voltage with a digital multimeter (DMM) and compare to manufacturer specifications
- 4 Check the sensor ground circuit for excessive resistance using a voltage drop test
- 5 Disconnect the sensor and check for a short to ground on the signal circuit; repair wiring as needed
- 6 If wiring and connections are good, test the sensor with a known-good unit or follow the manufacturer's diagnostic flow for sensor replacement
- 7 After repairs, clear codes and verify the charging system operates correctly with a load test

Don't overlook the charger B ground circuit

- A poor ground connection at the battery charger B sensor or charger housing can cause a low voltage signal that mimics a failed sensor, so always perform a voltage drop test on the ground side before replacing parts.
- This code is often set by a weak or failing auxiliary battery that drags down the charger output, so load testing the battery and checking the charging system should be part of the diagnostic routine.
- On some vehicles, the battery charger B voltage sensor is integrated into the charger assembly and cannot be serviced separately, requiring replacement of the entire unit if diagnosed as faulty.
- Intermittent wiring faults from chafed harnesses near heat sources or moving components can set P0E87 sporadically, so wiggle-testing the harness while monitoring sensor data is a valuable step.
- P0E87 can be stored alongside charging system codes like P0562 or P0A0D, and misdiagnosing it as a simple sensor failure without checking the entire circuit often leads to repeat repairs.

Can I keep driving with P0E87?

You can usually drive the vehicle short distances to a repair shop, but avoid long trips or heavy electrical loads because the auxiliary battery may not charge properly and could leave you stranded. If the charging system warning light is on or the battery voltage gauge is low, stop driving and seek service immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter (DMM)
- Back probe pins or breakout box
- Wiring diagram for the specific vehicle
- Battery load tester
- Basic hand tools for connector and sensor access



Reading P0E87

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 87** The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0A0D** High Voltage System Interlock Circuit A High · **P0E86** Battery Charger B Voltage Sensor Circuit Range/Performance · **P0E88** Battery Charger B Voltage Sensor Circuit High

See it working

Watch the animated explainer [How a MAF Sensor Works: Hot-Wire Airflow Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0e87/>

