

GENERIC · POWERTRAIN

P0B81

OBD-II TROUBLE CODE

P0B81

Hybrid/EV Battery Voltage Sense O Circuit

P0B81 indicates that the hybrid or electric vehicle battery pack control module has detected an abnormal voltage reading on the voltage sense circuit labeled 'O' within the high-voltage battery assembly. The circuit is used to monitor the voltage of a specific cell group or module, and the module's self-test has found the signal out of expected range, open, or shorted.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Professional	Hybrid propulsion

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message
- Often no symptoms besides the warning light, with the vehicle continuing to drive normally
- Reduced electric-only range or the engine starting more frequently than usual
- A sudden drop in state of charge or the battery gauge behaving erratically
- Entry into limp mode or refusal to start in some cases
- In rare instances, a burning smell or visible damage near the battery pack

Common causes, most likely first

- 1 A faulty voltage sense wire or connector at the battery module, often due to corrosion or vibration damage
- 2 A failed cell group or module within the high-voltage battery pack causing an abnormal voltage reading
- 3 A malfunctioning battery pack control module or voltage sensing interface
- 4 Loose or improperly seated high-voltage interlock connector affecting the sense circuit
- 5 Damage to the wiring harness from rodent chewing, chafing, or heat exposure
- 6 Internal failure of the voltage sense circuit board within the battery pack



How to diagnose and fix it

- 1 Use a scan tool to retrieve all hybrid battery-related codes and freeze-frame data, then clear codes and test-drive to see if P0B81 returns
- 2 Perform a visual inspection of the high-voltage battery pack connectors, wiring, and sense leads for corrosion, looseness, or damage
- 3 Check the voltage sense circuit 'O' for continuity and resistance against the manufacturer's specifications using a digital multimeter
- 4 Compare the voltage reading of the affected cell group to adjacent groups using a battery diagnostic tool to identify an outlier
- 5 If wiring and connectors are good, test the battery pack control module and its sensing inputs according to the service information
- 6 Replace the faulty voltage sense harness or connector if diagnosed, following high-voltage safety procedures
- 7 If a cell group or module is confirmed faulty, replace the affected battery module or pack as required by the manufacturer's procedure

What P0B81 Often Misses

- A loose or corroded high-voltage interlock connector can set P0B81 even when the battery cells themselves are perfectly healthy, so always inspect connectors before condemning the pack.
- The code can be stored intermittently by a momentary voltage spike or drop during aggressive driving or charging, and it may not reappear after clearing if the event was a one-time glitch.
- Technicians sometimes replace the entire battery pack when only a single voltage sense wire or connector is at fault, so resistance and continuity testing of the sense circuit is essential.
- P0B81 can be set by a weak 12-volt auxiliary battery causing low reference voltage to the battery control module, so check the 12-volt system before deep hybrid diagnostics.
- After any repair involving the high-voltage battery, the code may need to be cleared with a capable scan tool and the battery monitoring system reinitialized before the light will go out.

Can I keep driving with P0B81?

Do not continue driving with P0B81 set, because an undiagnosed high-voltage battery fault can lead to sudden loss of power or, in rare cases, a thermal event. Have the vehicle inspected by a qualified hybrid technician before further use, and avoid charging or aggressive driving until the fault is resolved.

Tools that help

- Hybrid-capable OBD-II scan tool with battery pack data access
- Digital multimeter with high-voltage rated probes
- Battery module diagnostic tester or cell voltage comparator
- Insulated hand tools and high-voltage safety gloves
- Service information for the specific vehicle's high-voltage battery layout



Reading P0B81

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

Often seen with

P0A7F Hybrid/EV Battery Pack Deterioration · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0B7F** Hybrid/EV Battery Voltage Sense N Circuit High · **P0B80** Hybrid/EV Battery Voltage Sense N Circuit Intermittent/Errat · **P0B82** Hybrid/EV Battery Voltage Sense O Circuit Range/Performance

See it working

Watch the animated explainer [How Regenerative Braking Works in Electric Cars](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0b81/>

