

GENERIC · POWERTRAIN

P0B7C

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0B7C

Hybrid/EV Battery Voltage Sense N Circuit

P0B7C indicates that the hybrid or electric vehicle battery pack's voltage sensing circuit for the 'N' position is reporting a voltage outside the expected range to the battery energy control module. The computer detects this when the signal from the voltage sense line for that specific cell group or module does not match the voltages reported by other sense circuits or the total pack voltage.

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 check engine light, often with no other noticeable symptoms.
- Reduced electric-only driving range or the vehicle refusing to enter EV mode.
- A sudden drop in available power or a message indicating reduced propulsion.
- The hybrid system may fail to start or may shut down unexpectedly while driving.
- In some cases, the vehicle may enter a limp-home mode with limited speed.

Common causes, most likely first

- 1 A faulty voltage sense wire or connector at the battery module for circuit N, often due to corrosion or loose pins.
- 2 A failed battery cell or module that is producing an abnormal voltage, causing the sense circuit to read out of range.
- 3 A defective battery energy control module (BECM) or voltage sensing interface inside the pack.
- 4 Damage to the wiring harness between the battery pack and the control module, such as chafing or rodent damage.
- 5 High resistance in the sense circuit due to a poor ground connection or degraded splice.
- 6 A malfunctioning voltage sensor or sensing IC within the battery pack, if equipped separately.



How to diagnose and fix it

- 1 Inspect the battery pack wiring harness and connectors for the N circuit for corrosion, looseness, or damage, and repair as needed.
- 2 Measure the voltage of the affected cell group or module directly with a multimeter and compare it to the value reported by the scan tool to confirm a sense circuit error.
- 3 Perform a voltage drop test on the sense circuit wiring to check for excessive resistance, and repair any high-resistance connections.
- 4 Check for technical service bulletins (TSBs) or software updates for the battery control module that may address voltage sensing accuracy.
- 5 If the sense circuit and cell voltages are within specification, test or replace the battery energy control module (BECM) as per manufacturer procedures.
- 6 If a battery module is found to have an internal fault causing the voltage deviation, replace the affected module according to the manufacturer's service instructions.

Before condemning the hybrid battery pack

- A loose or corroded connector on the voltage sense harness is a far more common cause of P0B7C than an actual failing battery module, so always inspect the pins and terminals first.
- The code can be set by a momentary glitch in the sense circuit that does not affect drivability, so clearing the code and performing a road test may reveal whether the fault is intermittent.
- On many hybrids, the voltage sense lines are part of a single harness that runs along the battery pack; damage from road debris or improper previous repairs is often overlooked.
- A weak 12-volt auxiliary battery can cause erratic behavior in the hybrid control modules and set false voltage sense codes, so always verify the 12-volt system is healthy before deep diagnostics.
- Replacing a battery module without reprogramming the battery energy control module may lead to repeated codes because the new module's voltage characteristics are not learned by the system.

Can I keep driving with P0B7C?

It is not safe to continue driving with P0B7C because the hybrid system may shut down unexpectedly or enter a reduced-power mode, increasing the risk of a crash. Have the vehicle towed to a qualified repair facility for diagnosis and repair.

Tools that help

- Hybrid/EV battery service disconnect tool
- Digital multimeter with high-voltage safety rating
- OBD-II scan tool with hybrid battery data capability
- Insulated hand tools
- Battery module voltage sensing harness test kit
- Manufacturer-specific diagnostic software



Reading P0B7C

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- 7C** The exact fault within that area.

Often seen with

P0A1F Battery Energy Control Module A Performance · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0B7A** Hybrid/EV Battery Voltage Sense M Circuit High · **P0B7B** Hybrid/EV Battery Voltage Sense M Circuit Intermittent/Errat · **P0B7D** Hybrid/EV Battery Voltage Sense N 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/p0b7c/>

