

GENERIC · POWERTRAIN

P0B6F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0B6F

Hybrid/EV Battery Voltage Sense K Circuit Low

P0B6F indicates that the hybrid or electric vehicle battery pack's voltage sensing circuit, specifically the channel labeled 'K', is reporting a voltage that is lower than the control module expects for the actual battery state. The battery energy control module (BECM) continuously monitors each cell group or module through dedicated sense lines, and it sets this code when the signal on the K circuit falls below a calibrated threshold, which usually points to a wiring problem, a faulty sense connection, or an internal battery pack issue rather than a simple sensor failure.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message on the dashboard
- Often no symptoms besides the warning light, especially if the voltage deviation is small
- Reduced electric-only range or the vehicle refusing to enter EV mode
- Intermittent loss of power or a sudden transition to limp-home mode
- The battery state-of-charge gauge behaving erratically or showing incorrect readings
- Possible charging system faults or the vehicle failing to accept a charge

Common causes, most likely first

- 1 Damaged, chafed, or corroded wiring in the voltage sense K circuit between the battery pack and the control module
- 2 Loose or contaminated connector pins at the battery module sense harness or the BECM connector
- 3 A failed cell group or module within the high-voltage battery pack causing an actual low voltage reading on that channel
- 4 Internal fault in the battery energy control module (BECM) affecting the sense circuit input
- 5 High-resistance ground connection shared by the voltage sensing circuitry
- 6 Moisture intrusion into the battery pack or sense harness connector causing signal degradation



How to diagnose and fix it

- 1 Retrieve all stored codes and freeze-frame data with a scan tool capable of reading hybrid/EV battery module data, then clear codes and verify whether P0B6F returns immediately.
- 2 Inspect the low-voltage sense harness and connectors at the battery pack and BECM for corrosion, loose pins, or chafed insulation, repairing as needed.
- 3 Measure resistance and voltage drop on the K circuit sense wire from the battery module connector to the BECM, comparing with the manufacturer's specifications.
- 4 Perform a battery module voltage check using the scan tool's live data to see whether the K channel reading matches a direct measurement at the module terminals.
- 5 Check and clean the ground connections for the BECM and battery pack sense circuitry, verifying less than 0.1 volt drop under load.
- 6 If wiring and connections are good, follow the manufacturer's diagnostic flow for internal BECM or battery module testing, which may require a battery pack integrity test.
- 7 Replace the faulty battery module, sense harness, or BECM only after confirming the fault is internal to that component, then clear codes and verify the repair with a road test.

Sense circuit faults that mimic battery failure

- A loose or corroded sense connector pin is the most common cause of this code, and it often gets misdiagnosed as a failing high-voltage battery pack, leading to unnecessary and expensive pack replacement.
- The K circuit designation refers to a specific voltage sensing channel, and on some vehicles the same physical wire may be shared with other sense channels through a multiplexed connector, so a single bad pin can set multiple related codes.
- This code can be set by a low 12-volt auxiliary battery if the BECM loses stable power during startup, so always verify the 12-volt system health before digging into the high-voltage side.
- Intermittent P0B6F codes that appear only in cold or damp weather often trace to moisture ingress in the battery pack vent or sense harness grommet, which a visual inspection may miss.
- Do not assume the battery pack is bad just because the code indicates a low voltage sense reading; the BECM compares the sense circuit against other channels, and a single skewed channel usually points to wiring rather than the cell itself.

Can I keep driving with P0B6F?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, prolonged highway driving, or relying on electric-only mode until the fault is diagnosed. If the vehicle enters limp-home mode or the battery gauge behaves erratically, stop driving and arrange a tow to prevent further damage to the high-voltage system.



Tools that help

- Hybrid/EV-capable scan tool with live battery module data
- Digital multimeter with low-resistance and voltage-drop capability
- Manufacturer service information and wiring diagrams
- Insulation tester for high-voltage circuit checks
- Terminal pick and contact cleaner for connector inspection

Reading P0B6F

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
B	Hybrid propulsion.
6F	The exact fault within that area.

Often seen with

P0A1F Battery Energy Control Module A Performance · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0B6D** Hybrid/EV Battery Voltage Sense K Circuit · **P0B6E** Hybrid/EV Battery Voltage Sense K Circuit Range/Performance · **P0B70** Hybrid/EV Battery Voltage Sense K Circuit High

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/p0b6f/>

