

GENERIC · POWERTRAIN

P0BF1

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0BF1

Drive Motor B Phase U Current Sensor Circuit

P0BF1 indicates that the powertrain control module has detected an implausible signal from the current sensor that monitors the U phase of the drive motor B circuit, which is a key part of the hybrid or electric propulsion system. The computer compares the sensor's reported current against expected values and other phase sensors, and it sets this code when the readings fall outside the acceptable range or are inconsistent with the motor's commanded output.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Reduced power or limp mode, often limiting vehicle speed
- The hybrid or electric system may shut down, preventing the vehicle from starting or moving
- Intermittent hesitation or shuddering during acceleration
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Faulty current sensor on the U phase of drive motor B
- 2 Damaged or corroded wiring or connector at the current sensor or motor
- 3 Open or short circuit in the sensor signal or reference circuit
- 4 Failed inverter or motor control module affecting sensor readings
- 5 Internal motor fault causing abnormal current draw
- 6 Software glitch in the control module requiring recalibration or update



How to diagnose and fix it

- 1 Use a scan tool to retrieve all stored codes and freeze-frame data, then clear codes and test-drive to see if P0BF1 returns
- 2 Visually inspect the current sensor, its connector, and the wiring harness for damage, corrosion, or loose pins
- 3 Measure resistance and continuity of the sensor signal and reference circuits to rule out wiring faults
- 4 Check the sensor's output signal with an oscilloscope or multimeter while monitoring live data to verify proper waveform and voltage
- 5 If the sensor signal is erratic or absent, replace the current sensor and retest
- 6 If the sensor and wiring are good, diagnose the inverter or motor control module for internal faults
- 7 Perform any applicable software updates or recalibration procedures for the motor control system

Before you replace the current sensor

- A loose or corroded connector at the motor often mimics a failed current sensor, so always inspect the pins and terminals before condemning the sensor.
The code can be set by a weak 12-volt auxiliary battery causing low reference voltage to the sensor, so check battery health and charging system first.
- In some cases, a software calibration issue in the motor control module triggers this code without any hardware fault, and a reflash resolves it.
- Aftermarket or improperly installed electrical accessories can introduce noise into the sensor circuit, leading to false readings and this code.
The U phase current sensor is sometimes integrated into the motor assembly, making replacement more involved than a standalone sensor.

Can I keep driving with P0BF1?

If the vehicle enters limp mode or the hybrid system shuts down, do not continue driving because you may lose power unexpectedly. Even if the car seems to drive normally, schedule a diagnostic inspection soon to avoid potential safety risks and further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Oscilloscope for waveform analysis
- Factory service information for wiring diagrams and procedures
- Insulation resistance tester (megohmmeter)



Reading P0BF1

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- F1** The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A46** Drive Motor B Position Sensor Circuit Range/Performance
 · **P0BF0** Drive Motor A Phase W Current Sensor Circuit High · **P0BF2** Drive Motor B Phase U Current Sensor Circuit Range/Performan · **P0BF3** Drive Motor B Phase U Current Sensor Circuit Low

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/p0bf1/>

