

GENERIC · POWERTRAIN

P0BF3

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0BF3

Drive Motor B Phase U Current Sensor Circuit Low

P0BF3 indicates that the inverter controller for drive motor B has detected a low current condition on the phase U current sensor circuit, meaning the sensor's output voltage is below the expected range for the actual motor current. The computer compares the sensor signal against other phase currents and its own calculated values, and it sets this code when the U-phase signal stays too low for a calibrated time.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the hybrid or electric vehicle warning light, often with reduced power mode
- The vehicle may enter a fail-safe mode that limits motor torque or prevents the use of drive motor B
- A noticeable hesitation or lack of power when accelerating, especially under load
- In some cases, the vehicle may refuse to start or shift into gear if the fault is severe
- Often no symptoms besides the warning light, particularly if the fault is intermittent

Common causes, most likely first

- 1 Faulty phase U current sensor inside the drive motor B inverter
- 2 Damaged or corroded wiring or connector pins between the current sensor and the inverter controller
- 3 Poor electrical ground connection for the inverter or motor assembly
- 4 Internal failure in the inverter controller's signal processing circuit
- 5 Low 12-volt auxiliary battery voltage causing erratic sensor readings
- 6 Physical damage to the motor or inverter harness from debris or heat



How to diagnose and fix it

- 1 Verify the 12-volt auxiliary battery is fully charged and in good condition, as low voltage can cause false sensor codes
- 2 Inspect the inverter and motor harness connectors for corrosion, loose pins, or chafed wires, and repair as needed
- 3 Check the ground connections for the inverter and motor, cleaning and tightening any suspect fasteners
- 4 Use a scan tool to view live data for the phase U current sensor and compare it with phases V and W under known loads
- 5 Perform a resistance and voltage drop test on the sensor signal circuit to rule out wiring faults
- 6 If wiring and grounds are good, replace the phase U current sensor or the inverter assembly as required by the manufacturer's procedure
- 7 After repairs, clear the codes and perform a road test to confirm the fault does not return

What the phase U sensor code really means

- A low current sensor reading does not always mean the sensor has failed; a poor ground or a voltage drop in the signal circuit can pull the reading low and trigger this code.
- Intermittent connector fretting at the inverter is a common cause that is easily missed because the code may only set under specific vibration or temperature conditions.
- The inverter controller often sets this code when it detects a mismatch between the phase U current and the sum of phases V and W, so a fault in another phase sensor can sometimes cause a U-phase code.
- A weak 12-volt battery can cause the inverter's internal reference voltage to sag, leading to a false low-current reading that disappears after charging or replacing the battery.
- Replacing the inverter without first checking the motor windings for shorts or grounds can lead to a repeat failure of the new unit.

Can I keep driving with P0BF3?

Do not continue driving with this code active, as the vehicle may enter a reduced power mode without warning and the fault can affect the safe operation of the hybrid system. Have the vehicle inspected by a qualified technician before driving further, especially if the warning light is accompanied by a message to stop driving.

Tools that help

- Hybrid/EV-capable scan tool with live data
- Digital multimeter with min/max recording
- Oscilloscope for signal analysis
- Insulation tester for motor winding checks
- Manufacturer service information for wiring diagrams and test procedures



Reading P0BF3

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- F3** The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A45** Drive Motor B Position Sensor Circuit · **P0BF4** Drive Motor B Phase U Current Sensor Circuit High · **P0BF5** Drive Motor B Phase V Current Sensor Circuit · **P0BF6** Drive Motor B Phase V Current Sensor Circuit Range/Performan

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/p0bf3/>

