

GENERIC · POWERTRAIN

P0BF0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0BF0

Drive Motor A Phase W Current Sensor Circuit High

P0BF0 means the computer that controls the electric drive motor has detected an abnormally high voltage signal from the current sensor that monitors the W phase of the three-phase motor circuit. The sensor is supposed to report how much current is flowing through that phase, and a high signal tells the controller that either the sensor circuit is faulty or the current is genuinely higher than expected.

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, often with no other noticeable symptoms
- Reduced power or a limp-home mode that limits motor output to protect the inverter and motor
- The vehicle may refuse to start or shift into drive if the controller sees the fault as critical
- Intermittent stalling or sudden loss of propulsion while driving, especially under load
- A warning message on the dash such as 'Electric Drive Fault' or 'Reduced Power'
- In rare cases, a burning smell or unusual noise from the motor area if the high current is real and causing overheating

Common causes, most likely first

- 1 A faulty current sensor on the W phase circuit, either internally shorted or reading out of calibration
- 2 Damaged or corroded wiring and connectors between the current sensor and the motor control module
- 3 A poor ground connection for the current sensor or the motor control module
- 4 An actual overcurrent condition in the W phase caused by a shorted motor winding or inverter fault
- 5 A failed motor control module that is misinterpreting the sensor signal
- 6 Water intrusion or contamination in the sensor connector or motor housing
- 7 Aftermarket accessories or improper repairs that disturbed the sensor wiring or shielding



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to see the conditions when P0BF0 set
- 2 Visually inspect the current sensor, its connector, and the wiring harness for damage, corrosion, or loose pins
- 3 Measure the sensor reference voltage and ground at the connector with a multimeter, comparing to the manufacturer's specification
- 4 Check the sensor signal voltage with a scope or meter while wiggling the harness to look for intermittent faults
- 5 Perform a resistance and insulation test on the W phase motor winding and compare to the other phases to rule out a genuine overcurrent
- 6 If the sensor and wiring check out, substitute a known-good sensor or follow the manufacturer's diagnostic flow to test the control module
- 7 Clear the codes and perform a road test to confirm the repair, then verify no pending codes return

What the W phase sensor really tells you

- A high signal from the current sensor does not automatically mean the sensor is bad; a shorted motor winding or inverter fault can drive real overcurrent that sets this code.
- Many technicians replace the current sensor only to find the connector pins are pushed back or corroded, so always perform a pin drag test and look for green crust inside the connector.
- The W phase current sensor is often shared with other phases in a single module, so a failure in one phase can affect the readings of the others and set related codes.
- This code can be set by a low 12-volt battery or a weak ground, because the sensor's reference voltage becomes unstable and the controller sees a false high signal.
- After any repair involving the motor or inverter, the sensor may need a relearn or calibration procedure, and skipping it can cause the code to return immediately.

Can I keep driving with P0BF0?

Do not continue driving with this code active, because a genuine overcurrent fault can damage the motor or inverter and may cause a sudden loss of power. Have the vehicle towed to a qualified service facility for diagnosis, and avoid driving until the fault is repaired.

Tools that help

- OBD-II scan tool with manufacturer-specific software for live data and freeze-frame
- Digital multimeter with min/max and duty-cycle functions
- Oscilloscope for capturing the current sensor signal waveform
- Insulation tester for checking motor winding resistance to ground
- Terminal pick and pin drag test kit for connector inspection
- Manufacturer service information for wiring diagrams and diagnostic flow charts



Reading P0BF0

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- F0** The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0BEF** Drive Motor A Phase W Current Sensor Circuit Low · **P0BF1** Drive Motor B Phase U Current Sensor Circuit · **P0BF2** Drive Motor B Phase U Current Sensor Circuit Range/Performan · **P0C00** Drive Motor A Current 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/p0bf0/>

