



P0C4F

Drive Motor B Position Exceeded Learning Limit

P0C4F means the controller responsible for drive motor B has tried to learn the motor's position offset or end stops and the learned value has moved outside the range the software considers valid. The computer is not reporting a hard sensor failure; it is reporting that the position learning routine produced a result it cannot trust, so it stores the code and may disable the affected operating mode.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Hybrid propulsion

Symptoms you may notice

- Warning light or hybrid/EV service message on the dashboard, often with no other noticeable symptom
- Reduced power or a limp-home mode that limits motor torque or vehicle speed
- Rough or delayed engagement when shifting between drive and reverse, or a clunk during motor direction changes
- The vehicle may refuse to start or move after the code sets, depending on how the manufacturer handles the fault
- Intermittent operation where the code clears after a key cycle and returns during the next drive cycle
- Unusual motor noise or vibration during low-speed maneuvering if the learned position is far enough off

Common causes, most likely first

- 1 A failing position sensor or resolver inside or on drive motor B that gives a drifting or noisy signal during the learn routine
- 2 Damaged or corroded wiring and connectors between the motor position sensor and the controller, especially at the motor housing
- 3 A mechanical issue such as a worn motor bearing, loose rotor, or binding in the reduction gear that prevents the motor from reaching the expected reference position
- 4 Low or unstable 12-volt supply or a weak auxiliary battery causing the controller to abort or corrupt the learning procedure
- 5 A software or calibration issue in the motor controller that needs a reflash or relearn procedure after a repair
- 6 A faulty motor controller or inverter assembly that cannot correctly process the position sensor signal
- 7 Aftermarket parts or repairs that changed the motor or sensor mounting geometry without performing the required learn procedure



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data, then check for related codes in the motor controller, inverter, and battery management systems before touching hardware
- 2 Inspect the 12-volt battery condition and charging system, because low voltage during a learn routine is a common and cheap-to-fix cause
- 3 Visually inspect the motor position sensor connector and harness for corrosion, chafing, or pushed pins, and perform a wiggle test while watching live position data
- 4 Check live data for the motor B position signal while slowly rotating the motor by hand or during a commanded learn procedure, looking for dropouts or non-linear readings
- 5 Verify mechanical freedom of the motor and reduction gear, including bearing play and any binding that would stop the rotor from reaching its reference position
- 6 Perform the manufacturer's position learn or calibration procedure with a capable scan tool after any sensor, motor, or controller replacement
- 7 If the signal and mechanics check out, follow the manufacturer's diagnostic flow for the motor controller, which may include a software update or controller replacement

What the learn limit really tells you

- This code is often set by a weak 12-volt battery or a voltage drop during the learn routine rather than by a failed motor, so load-test the battery before condemning expensive hardware
- A motor position sensor can pass a simple resistance check and still fail the learn limit because the fault appears only as noise or drift while the motor is moving
- The code does not always mean the motor is bad; a binding reduction gear or a damaged tone wheel can prevent the rotor from reaching the expected reference position and set the same code
- After replacing a motor, sensor, or controller, the learn procedure must be completed successfully or the code will return immediately even with good parts
- Related codes in the inverter or hybrid control module are common and should be diagnosed first, because a communication or supply fault elsewhere can abort the learn routine and set P0C4F as a secondary code

Can I keep driving with P0C4F?

The vehicle may enter a reduced-power mode, so avoid highway merging and heavy loads until the fault is diagnosed. If the car will not move or repeatedly drops into limp mode, park it and arrange service rather than continuing to drive.



Tools that help

- Manufacturer-level scan tool with bidirectional controls and the ability to run a motor position learn procedure
- Digital multimeter with min/max recording for checking supply voltage and sensor signals
- Oscilloscope for viewing the motor position sensor waveform while the motor is rotated
- Battery load tester or conductance tester
- Basic hand tools and a torque wrench for inspecting motor mounts and connectors

Reading P0C4F

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
C	Hybrid propulsion.
4F	The exact fault within that area.

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A45** Drive Motor B Position Sensor Circuit · **P0C4E** Drive Motor A Position Exceeded Learning Limit · **P0C50** Drive Motor A Position Sensor Circuit A Circuit

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/p0c4f/>

