

GENERIC · POWERTRAIN

P0C4E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0C4E

Drive Motor A Position Exceeded Learning Limit

This code indicates that the control module for drive motor A has detected that the motor's position sensor learning process has exceeded its allowed limit, meaning the learned position offset is outside the range the software expects. The computer stores this fault when the motor's actual position, as reported by its internal sensor, does not match the expected position after a relearn or self-calibration routine.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the motor still operates normally
- Reduced power or limp mode in some hybrid or electric vehicles
- Rough operation or hesitation when the drive motor engages
- Inability to complete a motor position relearn procedure
- Unusual noises or vibration from the drive motor assembly

Common causes, most likely first

- 1 Faulty or contaminated drive motor position sensor
- 2 Damaged or corroded wiring in the motor position sensor circuit
- 3 Failed motor position relearn procedure due to low battery voltage or interrupted calibration
- 4 Internal fault in the drive motor assembly, such as a worn resolver or encoder
- 5 Control module software issue requiring an update or reprogramming
- 6 Mechanical binding or misalignment in the drive motor or transmission interface
- 7 Aftermarket or incorrect components installed during previous repairs



How to diagnose and fix it

- 1 Verify battery voltage and charge as needed before attempting any relearn or diagnosis
- 2 Scan all modules for related codes and record freeze-frame data to understand the conditions when the code set
- 3 Inspect the drive motor position sensor and its wiring harness for damage, corrosion, or loose connections
- 4 Perform a motor position relearn procedure using a factory-level scan tool and confirm whether it completes successfully
- 5 Check for mechanical binding or misalignment by rotating the motor shaft by hand where accessible and comparing to specifications
- 6 If the relearn fails, test the position sensor signal with an oscilloscope or multimeter according to manufacturer procedures
- 7 Replace the faulty position sensor or motor assembly as needed, then clear codes and verify the repair with a test drive

Why a Relearn Fails and What It Reveals

- A weak 12-volt battery is a common cause of a failed motor position relearn, so always confirm stable voltage before condemning the motor or sensor.
- The code does not always mean the motor is failing; a simple sensor contamination or wiring issue can push the learned offset beyond limits.
- Some vehicles require the motor position relearn to be performed after any transmission or clutch work, and skipping it can set this code.
- Aftermarket scan tools may not support the required bidirectional relearn procedure, leading to false diagnoses and unnecessary parts replacement.
- A binding or misaligned motor mount can cause the position sensor to read incorrectly during the learn cycle, mimicking an electrical fault.

Can I keep driving with P0C4E?

If the vehicle drives normally, you can drive it to a repair shop for diagnosis, but avoid hard acceleration or towing until the fault is resolved. If the vehicle enters limp mode or shows reduced power, limit driving to a short distance at low speed to reach a safe location.

Tools that help

- Factory-level scan tool with bidirectional control and relearn capability
- Digital multimeter
- Oscilloscope for signal analysis
- Battery charger or power supply
- Basic hand tools for inspection and disassembly



Reading P0C4E

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

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A40** Drive Motor A Position Sensor Circuit Range/Performance
 · **P0C4D** Hybrid/EV Battery Pack Coolant Pump A Supply Voltage Circuit · **P0C4F** Drive Motor B 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/p0c4e/>

