

GENERIC · POWERTRAIN

P2E7B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E7B

Drive Motor A Excitation Current Sensor Circuit

P2E7B indicates that the powertrain control module has detected an abnormal signal from the excitation current sensor circuit for drive motor A, which is the sensor that monitors the field current supplied to the motor's excitation winding. The computer compares the sensor's voltage or current feedback against expected values and sets this code when the signal falls outside the valid range or behaves erratically.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Professional	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 limp mode, where the vehicle limits motor output to protect the drive system
- Intermittent hesitation or shudder during acceleration or regenerative braking
- A sudden loss of propulsion or inability to restart after the fault becomes active
- Unusual electrical noise or whining from the motor area in some cases

Common causes, most likely first

- 1 Faulty excitation current sensor or its internal electronics
- 2 Damaged, chafed, or corroded wiring in the sensor circuit, especially near connectors or high-vibration areas
- 3 Loose or contaminated connector pins at the sensor or controller
- 4 Failed or degraded excitation winding or its connections, causing abnormal current draw that the sensor correctly reports
- 5 Internal fault in the motor control module or inverter that processes the sensor signal
- 6 Water intrusion or debris in the sensor housing leading to signal corruption
- 7 Poor ground connection for the sensor or controller



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then clear codes and test-drive to see if P2E7B returns immediately or only under specific conditions
- 2 Visually inspect the excitation current sensor, its wiring harness, and connectors for damage, corrosion, or loose pins, and repair as needed
- 3 Measure the sensor's reference voltage and signal voltage with a multimeter and compare against the manufacturer's specification
- 4 Check the resistance of the excitation winding and its circuit to rule out a short or open that would cause abnormal current readings
- 5 Perform a wiggle test on the harness while monitoring sensor data to catch intermittent faults
- 6 If the sensor signal is out of range but wiring and windings are good, replace the excitation current sensor and retest
- 7 If the fault persists after sensor replacement, diagnose the motor control module or inverter for internal faults

What the excitation sensor code hides

- A loose ground or a corroded connector pin often mimics a failed sensor, so always check circuit integrity before condemning the sensor itself.
- The code can set intermittently from electrical noise generated by the inverter or motor, which means a new sensor may not fix the problem if shielding or routing is compromised.
- Some vehicles will set P2E7B as a history code after a low-voltage event such as a weak 12-volt battery, so verify battery health and charging system operation first.
- The excitation current sensor is sometimes integrated into the motor assembly, making replacement a larger job than on vehicles where it is a separate serviceable component.
- A failing excitation winding can produce a current signature that the sensor correctly reports as abnormal, so the sensor may be innocent even though the code points to its circuit.

Can I keep driving with P2E7B?

If the vehicle is in limp mode or has reduced power, avoid highway driving and seek service promptly because the fault can escalate to a sudden loss of propulsion. If the only symptom is a warning light and the car drives normally, you can drive cautiously to a repair shop, but do not ignore the code.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Oscilloscope for signal analysis
- Wiring diagram and service information
- Insulation resistance tester
- Terminal pick and contact cleaner



Reading P2E7B

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 7B** 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
 · **P2E7A** Hybrid/EV Electronics Coolant Pump C Overspeed · **P2E7C** A/C Compressor Control Module Internal Temperature Sensor B

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/p2e7b/>

