

GENERIC · POWERTRAIN

P0E90

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0E90

Drive Motor A Inverter Voltage Sensor B Circuit Range/Performance

P0E90 indicates that the inverter for drive motor A has detected an abnormal voltage reading from its 'B' voltage sensor circuit, which is used to monitor the high-voltage bus or phase voltage. The computer sets this code when the sensor signal falls outside the expected range or does not correlate properly with other voltage measurements, often indicating a faulty sensor, wiring issue, or inverter internal problem.

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
- Reduced power or limp mode, as the inverter may limit motor output to protect the system
- The vehicle may refuse to start or enter 'ready' mode if the fault is severe
- Inconsistent or erratic power delivery during acceleration
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Faulty voltage sensor B inside the inverter assembly
- 2 Damaged or corroded wiring or connector at the inverter voltage sensor circuit
- 3 High-voltage cable or busbar connection issue causing voltage signal anomalies
- 4 Internal inverter fault, such as a failed sensing circuit or control board
- 5 Software or calibration error in the inverter control module
- 6 Moisture intrusion or contamination in the inverter housing affecting sensor operation

How to diagnose and fix it

- 1 Use a scan tool to retrieve all stored codes and freeze-frame data, and check for related codes in other modules
- 2 Visually inspect the inverter wiring harness and connectors for damage, corrosion, or loose pins
- 3 Perform a voltage drop test on the sensor circuit and compare readings with manufacturer specifications
- 4 Check for technical service bulletins (TSBs) or software updates for the inverter control module
- 5 If the sensor is serviceable separately, replace it; otherwise, replace the inverter assembly as needed
- 6 Clear codes and perform a road test to verify the repair, monitoring live data for the voltage sensor signal



Voltage Sensor B Circuit Pitfalls

- A common misdiagnosis is replacing the entire inverter when the fault is simply a chafed wire in the sensor circuit, so always perform a thorough wiring inspection first.
- Intermittent codes can be caused by loose connector terminals that only act up under vibration or temperature changes, so wiggle tests and load tests are essential.
- The code may set due to a low 12-volt battery or charging system issue affecting the inverter's reference voltage, so check the auxiliary battery condition before condemning high-voltage components.
- Some vehicles require a specific relearn or calibration procedure after sensor replacement, and skipping it can cause the code to return immediately.
- Related codes in the battery energy control module or motor control module can indicate a communication or high-voltage interlock issue that mimics a sensor fault.

Can I keep driving with P0E90?

If the vehicle enters limp mode or refuses to start, do not continue driving; have it towed to a qualified technician. If the car drives normally with only the warning light on, limit driving to a short distance to a repair shop and avoid heavy acceleration or high-speed driving.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter with high-voltage safety rating
- Insulation tester or megohmmeter for high-voltage circuit checks
- Manufacturer-specific diagnostic software or app
- Basic hand tools for connector and panel access
- Safety gloves and insulated tools for high-voltage work

Reading P0E90

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

Often seen with

P0A0A High Voltage System Interlock Circuit A · **P0C00** Drive Motor A Current Low · **P0D00** Control Pilot Charging Ventilation Switch Circuit/Open · **P0E91** Drive Motor A Inverter Voltage Sensor B Circuit Low · **P0E92** Drive Motor A Inverter Voltage Sensor B Circuit High



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/p0e90/>

