

GENERIC · POWERTRAIN

P0EB9

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0EB9

A/C Compressor Motor Phase V Current Sensor Circuit

P0EB9 indicates that the powertrain control module has detected an abnormal current reading from the phase V current sensor circuit of the air conditioning compressor motor, which is typically a three-phase electric compressor used in hybrid and electric vehicles. The computer compares the sensor signal against expected values for the commanded compressor speed and load, and it sets this code when the signal falls outside the valid range or is inconsistent with the other phase sensors.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- The air conditioning may stop blowing cold air entirely or intermittently, especially under high load or high ambient temperatures.
- The climate control system may default to a reduced performance mode or disable the compressor to protect the high-voltage system.
- A warning light or message on the dashboard, often accompanied by a service soon indicator for the hybrid or electric system.
- The compressor may run at a fixed speed or not engage at all, leading to poor cabin cooling.
- In some vehicles, the driver may notice no symptoms besides the warning light because the fault is stored but the compressor still operates within a limp-home strategy.
- Possible reduction in electric driving range if the climate control system draws power differently to compensate.



Common causes, most likely first

- 1 A faulty current sensor integrated into the compressor motor phase V circuit, which is often part of the compressor inverter assembly.
- 2 Damaged or corroded wiring and connectors between the compressor and the control module, including chafed harnesses or loose pins.
- 3 A failing compressor motor or inverter that draws abnormal current on phase V, causing the sensor to report out-of-range values.
- 4 Low or contaminated refrigerant oil affecting compressor lubrication and current draw, though this is less common on electric compressors.
- 5 A software or calibration issue in the compressor control module that misinterprets sensor data under certain operating conditions.
- 6 High-voltage system faults such as insulation degradation or a weak 12-volt supply to the control module, which can distort sensor readings.
- 7 Moisture intrusion into the compressor connector or sensor housing, leading to signal corruption.

How to diagnose and fix it

- 1 Retrieve all stored codes and freeze-frame data with a scan tool capable of reading hybrid/EV-specific modules, then clear the code and test-drive with the A/C on to see if it returns.
- 2 Visually inspect the compressor harness, connectors, and sensor wiring for signs of damage, corrosion, or loose pins, and repair any obvious faults.
- 3 Measure the current sensor signal voltage or waveform at the compressor connector with a multimeter or oscilloscope, comparing it to the manufacturer's specification.
- 4 Check the high-voltage system integrity and 12-volt power and ground supplies to the compressor control module, as low voltage can skew sensor readings.
- 5 Perform a refrigerant recovery and recharge to the exact specified weight, and verify that the compressor oil is clean and at the correct level.
- 6 If the sensor signal is out of range and wiring is good, replace the compressor inverter or sensor assembly as required by the manufacturer's procedure.
- 7 After repair, clear codes, run the A/C system through its full operating range, and verify that no codes return and that cabin cooling performance is restored.



Before condemning the A/C compressor

- A weak or failing 12-volt battery or poor ground connection can cause the current sensor to report erratic values, so always load-test the battery and check grounds before replacing expensive compressor components.
- The phase V current sensor is often integrated into the compressor inverter, meaning a sensor fault may require replacing the entire inverter assembly rather than a standalone sensor.
- On hybrid and electric vehicles, the A/C compressor is high-voltage and may be disabled by the control module when other high-voltage codes are present, so address any related high-voltage faults first.
- Intermittent connector problems at the compressor, especially on vehicles exposed to road salt or moisture, are a common cause that is easily missed during a quick visual inspection.
- Some manufacturers require a software update or calibration for the compressor control module to correct false current sensor readings, so check for technical service bulletins before parts replacement.

Can I keep driving with P0EB9?

You can generally continue driving because the fault primarily affects air conditioning performance and does not disable the vehicle, but avoid using the A/C under maximum load and have the system inspected soon to prevent potential compressor damage or high-voltage system complications.

Tools that help

- Hybrid/EV-capable scan tool with live data and freeze-frame capability
- Digital multimeter with min/max recording
- Oscilloscope for waveform analysis of the current sensor signal
- Refrigerant recovery and recharge station
- Insulation tester for high-voltage circuit checks
- Manufacturer service information for wiring diagrams and specifications

Reading P0EB9

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
B9	The exact fault within that area.



Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0EB8** A/C Compressor Motor Phase U Current Sensor Circuit Intermit · **P0EBA** A/C Compressor Motor Phase V Current Sensor Circuit Range/Pe · **P0EBB** A/C Compressor Motor Phase V Current Sensor Circuit Low · **P0EBC** A/C Compressor Motor Phase V Current Sensor Circuit High

See it working

Watch the animated explainer **V6 Engine Explained: 60° Bank and Firing Order** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0eb9/>

