

GENERIC · POWERTRAIN

P0EAD

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0EAD

A/C Compressor Motor Voltage Sensor B Circuit High

P0EAD indicates that the powertrain control module has detected an abnormally high voltage on the signal circuit for the air conditioning compressor motor voltage sensor B. This sensor monitors the voltage supplied to the electric A/C compressor motor, and a high reading typically means the signal circuit is shorted to voltage or the sensor's ground reference is lost.

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

Symptoms you may notice

- The air conditioning system may stop cooling entirely or blow only warm air.
- The A/C compressor clutch may fail to engage or the electric compressor may not spin.
- A warning light on the dashboard, often the check engine light or a dedicated A/C system warning.
- The climate control panel may show a flashing or steady A/C fault indicator.
- In some vehicles, the engine cooling fans may run continuously as a failsafe.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- A short to voltage on the sensor B signal circuit, often from chafed wiring against a hot or moving component.
- A faulty A/C compressor motor voltage sensor B internal to the compressor assembly.
- A poor ground connection for the sensor or compressor motor, causing a reference voltage shift.
- Corroded or pushed-back pins in the compressor motor voltage sensor connector.
- A failed powertrain control module driver for the sensor circuit, though this is less common.
- Aftermarket accessories or improper previous repairs that tapped into the sensor wiring.



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P0EAD is current and not history.
- 2 Inspect the compressor motor voltage sensor B connector and wiring for corrosion, chafing, or loose pins.
- 3 Measure the sensor B signal voltage with a multimeter and compare to the manufacturer's specification; a reading near 5 volts or battery voltage indicates a short to voltage.
- 4 Check the sensor ground circuit for excessive resistance (more than 1 ohm) back to the powertrain control module.
- 5 Disconnect the sensor and recheck the signal circuit voltage; if it remains high, repair the short to voltage in the harness.
- 6 If the circuit tests good, substitute a known-good sensor or compressor assembly to verify the sensor is not internally shorted.
- 7 Clear codes and perform a road test with the A/C on to confirm the repair and ensure no pending codes return.

Don't replace the compressor on a voltage code

- A high voltage reading on sensor B often comes from a lost ground reference rather than a true short to power, so check grounds before condemning the sensor.
- The compressor motor voltage sensor is frequently integrated into the electric compressor and cannot be replaced separately, but the fault is often in the external harness.
- A weak or failing 12-volt battery or charging system can cause erratic sensor voltages that set this code without any wiring fault.
- Some vehicles set P0EAD when the A/C system is overcharged or has a restricted condenser, causing the compressor to work harder and the sensor signal to spike.
- After a collision repair or engine replacement, pinched harnesses near the compressor are a common cause that visual inspection alone may miss.

Can I keep driving with P0EAD?

You can usually drive the vehicle safely with this code because the engine and transmission are not affected, but the air conditioning may not work and prolonged driving with a shorted circuit could damage the compressor or control module. Avoid using the A/C until the fault is diagnosed, and have the circuit checked promptly.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with back-probing pins
- Wiring diagram for the A/C compressor motor voltage sensor circuit
- Socket set and trim removal tools for access to the compressor
- Insulation piercing probes or breakout box for circuit testing



Reading P0EAD

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

Often seen with

P0532 A/C Refrigerant Pressure Sensor 'A' Circuit Low · **P0641** Sensor Reference Voltage 'A' Circuit/Open · **P0EA9** Auxiliary Cooling System Performance · **P0EAC** A/C Compressor Motor Voltage Sensor B Circuit Low · **P0EAE** A/C Compressor Motor Voltage Sensor B Circuit Intermittent/E

See it working

Watch the animated explainer [How a Gyroscope Works: Gimbals and Precession](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0ead/>

