

GENERIC · POWERTRAIN

P0A46

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A46

Drive Motor B Position Sensor Circuit Range/Performance

P0A46 indicates that the hybrid or electric vehicle control module has detected an implausible or out-of-range signal from the position sensor circuit of drive motor B, which is the motor that typically provides propulsion or regenerative braking. The computer compares the sensor's reported rotor position against expected values from other sensors and operating conditions, and it sets this code when the signal does not track correctly or falls outside the valid range.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the hybrid system warning light or check engine light, often with a message to service the hybrid system
- Reduced power or a limp-home mode that limits vehicle speed
- The engine may fail to start or the vehicle may refuse to move because the hybrid controller cannot safely command motor B
- Rough or erratic operation during acceleration or regenerative braking
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Faulty position sensor (resolver) internal to drive motor B
- 2 Damaged, chafed, or corroded wiring in the motor B position sensor circuit
- 3 Loose or contaminated connector pins at the motor B resolver or hybrid control module
- 4 Failed or failing hybrid control module or inverter assembly that processes the sensor signal
- 5 Mechanical damage to the motor B rotor or resolver mounting that alters the air gap
- 6 Electrical interference from aftermarket accessories or poor grounding affecting the low-level sensor signal



How to diagnose and fix it

- 1 Perform a visual inspection of the motor B position sensor harness and connectors for damage, corrosion, or loose pins
- 2 Check for technical service bulletins (TSBs) or known issues for the specific vehicle make and model related to this code
- 3 Use a scan tool to view live data for motor B position sensor voltage or duty cycle and compare with motor A or expected values
- 4 Measure resistance and continuity of the sensor circuit wiring between the motor B resolver and the hybrid control module, repairing any opens or shorts
- 5 Substitute a known-good sensor or module only after confirming wiring integrity, following the manufacturer's diagnostic flow chart
- 6 Clear the code and perform a road test to verify the repair, monitoring for code reoccurrence

Resolver signal faults often misdiagnosed

- A common oversight is replacing the hybrid control module before checking the resolver air gap, as a loose or damaged resolver mounting can mimic a failed sensor.
- Intermittent codes often stem from wiring harness chafing near the motor mount or through the firewall, which only shows up under vibration or temperature changes.
- The position sensor circuit is a low-voltage signal, so a poor ground at the motor or chassis can corrupt the signal without any obvious driveability symptom.
- Some vehicles set P0A46 as a companion code when the 12-volt battery is weak or the hybrid system voltage is low, so always verify battery condition first.
- Aftermarket electrical accessories or improper jump-starting can introduce noise into the resolver circuit and trigger this code even when the sensor is healthy.

Can I keep driving with P0A46?

Do not continue driving with this code active because the hybrid system may enter a fail-safe mode that reduces power or disables the motor, increasing the risk of a crash. Have the vehicle towed to a qualified hybrid repair facility for diagnosis.

Tools that help

- OBD-II scan tool with hybrid system capability
- Digital multimeter (DMM)
- Oscilloscope for signal analysis
- Manufacturer-specific diagnostic software
- Wire terminal removal tools
- Service information for the specific vehicle



Reading P0A46

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- A** Hybrid propulsion.
- 46** 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 · **P0A45** Drive Motor B Position Sensor Circuit · **P0A47** Drive Motor B Position Sensor Circuit Low · **P0A4B** Generator Position Sensor 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/p0a46/>

