

GENERIC · POWERTRAIN

P0A40

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A40

Drive Motor A Position Sensor Circuit Range/Performance

P0A40 indicates that the hybrid or electric vehicle control module has detected an out-of-range or erratic signal from the position sensor circuit of drive motor A, which is usually the main traction motor. The computer compares the sensor's reported rotor position against expected values from other sensors and flags the code when the signal is implausible, intermittent, or outside the learned range.

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 hybrid system warning light, often with no other noticeable symptoms
- Reduced power or a limp-home mode that limits vehicle speed
- Hesitation or shuddering during acceleration from a stop
- Unexpected engine shutdown or refusal to start in some cases
- Poor fuel economy or increased hybrid battery drain
- Audible whining or clicking from the motor area if the sensor signal is erratic

Common causes, most likely first

- 1 Faulty motor position sensor (resolver) or damaged sensor wiring
- 2 Corroded, loose, or chafed electrical connectors in the sensor circuit
- 3 Failed hybrid control module or inverter assembly
- 4 Mechanical damage to the motor rotor or resolver air gap
- 5 Software calibration issue in the hybrid control module
- 6 Contamination or debris interfering with the sensor signal
- 7 Aftermarket or incorrect replacement components affecting signal integrity



How to diagnose and fix it

- 1 Inspect the motor position sensor wiring and connectors for damage, corrosion, or looseness
- 2 Check for technical service bulletins (TSBs) or software updates for the hybrid control module
- 3 Perform a resistance and continuity test on the sensor circuit according to the manufacturer's specifications
- 4 Use a scan tool to monitor live motor position data and compare it with expected values during a test drive
- 5 Replace the motor position sensor if testing indicates an open, short, or out-of-range signal
- 6 Repair or replace damaged wiring harness sections and clear the code to verify the fix
- 7 If the sensor and wiring are good, diagnose the hybrid control module or inverter for internal faults

When the motor position sensor lies

- A weak or failing 12-volt auxiliary battery can cause erratic sensor signals and set P0A40 without any fault in the sensor itself.
- The motor position sensor is often integrated into the resolver assembly, so a faulty sensor may require replacing the entire resolver or motor component.
- Intermittent codes that appear only under certain temperature or vibration conditions often point to a wiring issue rather than a failed sensor.
- Some vehicles set P0A40 as a companion code when the hybrid battery state of charge is extremely low, leading to misdiagnosis of the sensor.
- After replacing the sensor or control module, a relearn or calibration procedure is typically required to prevent the code from returning.

Can I keep driving with P0A40?

Do not continue driving with P0A40 because the vehicle may enter a reduced-power mode or shut down unexpectedly, increasing the risk of a collision. Have the vehicle towed to a qualified hybrid repair facility for diagnosis.

Tools that help

- Hybrid-safe digital multimeter
- Oscilloscope for signal analysis
- Manufacturer-specific scan tool with live data capability
- Wiring diagram and service information
- Insulation tester for high-voltage circuits



Reading P0A40

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

Often seen with

P0A3F Drive Motor A Position Sensor Circuit · **P0A41** Drive Motor A Position Sensor Circuit Low · **P0A42** Drive Motor A Position Sensor Circuit High · **P0A43** Drive Motor A Position Sensor Circuit Intermittent · **P0A44** Drive Motor A Position Sensor Circuit Overspeed

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/p0a40/>

