

GENERIC · POWERTRAIN

P0E6D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0E6D

Hybrid/EV Battery Precharge Contactor Performance

P0E6D indicates that the hybrid or electric vehicle battery pack's precharge contactor did not perform as expected during the precharge sequence, meaning the computer detected an abnormal voltage rise or timing when connecting the high-voltage battery to the inverter. The precharge circuit uses a resistor to limit inrush current, and this code sets when the monitored voltage does not reach the expected level within the allotted time or behaves erratically.

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 service vehicle soon message
- Often no symptoms besides the warning light, with the vehicle continuing to operate normally
- Vehicle may refuse to enter 'Ready' mode or start, leaving you stranded
- Intermittent loss of high-voltage power while driving, leading to reduced power or limp mode
- Audible clicking from the battery pack area as the contactors attempt to close repeatedly
- Reduced electric-only range or forced engine operation in plug-in hybrids

Common causes, most likely first

- 1 Failed precharge contactor or its internal coil, causing it to not close or to chatter
- 2 Open or degraded precharge resistor, preventing the expected voltage rise during precharge
- 3 Faulty high-voltage battery pack voltage sensor or wiring to the battery energy control module
- 4 Corroded, loose, or damaged high-voltage connectors or terminals in the precharge circuit
- 5 Battery energy control module (BECM) software glitch or internal fault misinterpreting precharge voltage
- 6 Short or open in the precharge control circuit wiring between the BECM and the contactor
- 7 Contactor driver circuit failure inside the BECM or power control unit



How to diagnose and fix it

- 1 Retrieve all stored codes and freeze-frame data using a scan tool capable of reading hybrid/EV-specific modules, and record the precharge voltage parameters
- 2 Inspect high-voltage battery pack connectors and precharge circuit wiring for corrosion, looseness, or damage, following all high-voltage safety procedures
- 3 Measure the resistance of the precharge resistor and compare to specification; replace if out of range
- 4 Test the precharge contactor coil for continuity and actuation, and verify it closes when commanded
- 5 Check the high-voltage battery pack voltage sensor signal and wiring for accuracy against a known-good meter
- 6 Reprogram or update the battery energy control module with the latest software if a known calibration issue exists
- 7 If all external components test good, perform pinpoint tests on the BECM driver circuit and replace the BECM or power control unit as required

Precharge faults that fool good technicians

- A weak 12-volt auxiliary battery can cause contactor chatter and set a precharge performance code, so always load-test the 12-volt system before condemning high-voltage components.
- The precharge resistor often fails from repeated short drives that cycle the contactors without allowing a full precharge, and the resistor may test fine at room temperature but open when hot.
- Corrosion inside a high-voltage connector that looks clean from the outside can add resistance and skew the voltage rise, so a voltage drop test under load is more reliable than a visual inspection.
- Some vehicles set this code after a low-voltage event or jump start because the BECM logs an incomplete precharge sequence, and a simple code clear after restoring proper 12-volt power may resolve it.
- A failing inverter or motor controller that draws excessive current during precharge can mimic a contactor fault, so check for other high-voltage insulation or overcurrent codes before replacing the battery pack.

Can I keep driving with P0E6D?

Do not continue driving with this code if the vehicle will not enter Ready mode or if you experience intermittent power loss, as a failed precharge sequence can leave you stranded or cause a sudden loss of motive power. If the vehicle drives normally and only the warning light is on, schedule service promptly and avoid heavy acceleration or high-speed driving until the fault is repaired.



Tools that help

- Hybrid/EV-capable scan tool with manufacturer-specific software
- Digital multimeter with high-voltage rated probes
- Insulation tester (megohmmeter) for high-voltage circuit checks
- Battery load tester for the 12-volt auxiliary battery
- High-voltage safety gloves and insulated tools
- Oscilloscope for capturing precharge voltage waveform

Reading P0E6D

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
6D	The exact fault within that area.

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0A0F** Engine Failed to Start · **P0AA6** Hybrid/EV Battery Voltage System Isolation Fault · **P0E6C** Hybrid/EV Battery Precharge Contactor Control Circuit High · **P0E6E** Generator Torque Delivered Performance

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/p0e6d/>

