



P2D3E

Cold Start Hybrid/EV Battery Performance

P2D3E indicates that the hybrid or electric vehicle battery did not deliver the expected performance during a cold start, as judged by the battery energy control module. The computer monitors voltage, current, and temperature during the first moments of operation and sets this code when the battery's cold-weather output falls outside the programmed acceptable range.

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

Symptoms you may notice

- Illumination of the check engine light or hybrid system warning light, often with no other noticeable symptoms
- Reduced electric-only driving range or earlier-than-usual engine start in cold weather
- A message on the dashboard indicating reduced hybrid battery performance or limited power
- Slower acceleration or weaker regenerative braking feel during the first few minutes of a cold drive
- In rare cases, the vehicle may enter a fail-safe mode that limits speed or disables electric assist

Common causes, most likely first

- 1 Aging or degraded hybrid battery pack that can no longer deliver rated cold-cranking power
- 2 Low battery state of charge combined with cold ambient temperatures
- 3 A faulty battery temperature sensor reporting incorrect cold readings to the control module
- 4 Corroded or loose high-voltage battery terminal connections increasing resistance
- 5 A weak 12-volt auxiliary battery causing unstable module voltage during cold start
- 6 Software calibration in the battery energy control module that is overly sensitive to cold performance
- 7 Internal cell imbalance or a failing module within the high-voltage pack



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data for P2D3E to see the temperature and voltage conditions at fault set
- 2 Check the 12-volt auxiliary battery state of health and charging system output, as low module voltage can skew cold-start readings
- 3 Inspect and clean the high-voltage battery terminal connections and verify torque on the pack fasteners
- 4 Use a scan tool to compare battery temperature sensor readings against ambient temperature after a cold soak
- 5 Perform a battery pack capacity and internal resistance test with the manufacturer's diagnostic equipment
- 6 Check for and install any available battery energy control module software updates
- 7 If the pack fails performance testing, replace the affected battery module or pack according to service information

Cold-start battery code misdiagnosis traps

- A weak 12-volt battery is a commonly overlooked cause because it can drag down module supply voltage during cranking and make the high-voltage pack appear underperforming.
- This code does not automatically mean the high-voltage battery is failing; a single cold snap combined with a low state of charge can set it on a healthy pack.
- Technicians sometimes replace the battery pack when the real fault is a skewed temperature sensor that reports colder-than-actual readings to the control module.
- After battery module replacement or software reflash, the battery energy control module often requires a learned capacity reset, and skipping it can cause the code to return.
- Intermittent terminal corrosion can create resistance that only shows up under the high current demand of a cold start, so visual inspection alone is not enough.

Can I keep driving with P2D3E?

The vehicle is generally safe to drive to a service location, but avoid heavy acceleration and long trips until the fault is diagnosed. If the dashboard shows a reduced power or fail-safe message, limit driving to a short distance at low speed.

Tools that help

- OBD-II scan tool with hybrid and battery control module capability
- Digital multimeter with temperature probe
- Battery load tester and conductance tester
- Manufacturer-specific diagnostic software for battery pack testing
- Insulated safety gloves and high-voltage disconnect tools



Reading P2D3E

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- D** Hybrid propulsion.
- 3E** The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0A0D** High Voltage System Interlock Circuit A High · **P0A7F** Hybrid/EV Battery Pack Deterioration · **P0A80** Replace Hybrid/EV Battery Pack · **P0AFA** Hybrid/EV Battery System Voltage Low

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/p2d3e/>

