

GENERIC · POWERTRAIN

P0DE1

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0DE1

Hybrid/EV Battery Cell Balancing Circuit N Stuck On

P0DE1 indicates that the battery energy control module has detected the cell balancing circuit for battery cell group N is stuck in the active state, meaning the balancing resistor or switch for that cell group remains energized when it should be off. The module monitors the balancing circuit and sets this code when the control line stays grounded or the circuit draws current continuously, which can lead to excessive drain on that cell group and an imbalance in the high-voltage battery pack.

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

Symptoms you may notice

- Illumination of the hybrid/EV system warning light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the imbalance is still small
- Gradual loss of electric-only range or reduced hybrid fuel economy as the pack becomes imbalanced
- A noticeable drop in state of charge for one cell group compared with others on a battery scan tool
- In more advanced cases, the vehicle may enter a reduced-power or limp mode to protect the pack
- Possible repeated 12-volt battery drain if the balancing circuit remains energized while the vehicle is off

Common causes, most likely first

- 1 A failed cell balancing resistor that has shorted or changed value, keeping the circuit continuously conductive
- 2 A stuck-closed balancing switch, such as a MOSFET or relay inside the battery pack, that cannot open
- 3 A short to ground in the balancing control wiring between the battery energy control module and the cell group
- 4 A faulty battery energy control module driver that holds the balancing line active
- 5 Corrosion or contamination on the balancing circuit board causing a permanent conductive path
- 6 A damaged cell group that draws abnormal current and mimics a stuck balancing circuit
- 7 Manufacturing defects or loose internal connections within the battery pack assembly



How to diagnose and fix it

- 1 Use a scan tool to read the battery energy control module data and confirm which cell group N is flagged and whether balancing is commanded on or off
- 2 Perform a visual inspection of the high-voltage battery pack connectors, wiring harness, and circuit board for signs of corrosion, burning, or loose pins
- 3 Measure the resistance of the balancing resistor for cell group N and compare it with the service information specification
- 4 Check the balancing control line for a short to ground with the module disconnected, using a multimeter and wiring diagram
- 5 Test the balancing switch or MOSFET for proper switching operation, looking for a stuck-closed condition
- 6 If the circuit board or switch is faulty, replace the affected balancing circuit board or battery pack assembly as directed by the manufacturer
- 7 After repair, clear the code and perform a battery pack balancing procedure or drive cycle to verify the code does not return

When the balancing circuit is not the real culprit

- A weak or failing cell group can draw current continuously and set a stuck-balancing code even when the balancing circuit itself is healthy, so always compare cell voltages under load before condemning the circuit board.
- The code often appears after a low-voltage event or a jump start, because a momentary glitch in the battery energy control module can latch the balancing driver on until the code is cleared and the module is reset.
- On some vehicles, the balancing circuit is integrated into the battery pack and cannot be serviced separately, so technicians should verify the exact service strategy before ordering parts.
- A stuck balancing circuit may not trigger any drivability symptom for weeks, but it slowly drains one cell group and can cause a permanent capacity loss if left unrepaired.
- Related codes such as P0DE0 or P0DE2 for adjacent cell groups often set together, indicating a shared control line or module driver fault rather than individual resistor failures.

Can I keep driving with P0DE1?

You can usually continue driving to a service location if the only symptom is the warning light, but avoid leaving the vehicle parked for long periods and do not ignore a reduced-power message. If the vehicle enters limp mode or you notice a significant drop in electric range, have it inspected promptly to prevent further battery pack damage.



Tools that help

- OBD-II scan tool with hybrid/EV battery data capability
- Digital multimeter with resistance and continuity functions
- Manufacturer service information and wiring diagrams
- Insulated hand tools for high-voltage safety
- Battery pack balancing or diagnostic software

Reading P0DE1

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
D	Hybrid propulsion.
E1	The exact fault within that area.

Often seen with

P0A95 High Voltage Fuse A · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0BBD** Hybrid/EV Battery Pack Voltage Variation Exceeded Limit · **P0DE0** Hybrid/EV Battery Cell Balancing Circuit N · **P0DE2** Hybrid/EV Battery Cell Balancing Circuit N Stuck Off

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/p0de1/>

