



P2D5D

Battery Charging System Positive Contactor C Stuck Open

P2D5D indicates that the battery charging system's positive contactor C is stuck in the open position, preventing current from flowing through that circuit. The powertrain control module detects an unexpected lack of voltage or current when the contactor should be closed, typically during charging or high-load conditions.

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

Symptoms you may notice

- Illumination of the battery/charging system warning light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the contactor is only intermittently stuck
- Reduced or absent charging, leading to a slowly draining battery and eventual no-start
- Electrical accessories dimming or malfunctioning under load
- Voltage gauge reading lower than normal or fluctuating
- Inability to enter or complete a high-voltage charging session on electrified vehicles

Common causes, most likely first

- 1 Contactor coil failure or open circuit in the contactor control wiring
- 2 Stuck-open contactor contacts due to wear, arcing, or contamination
- 3 Poor electrical connection at the contactor terminals or ground points
- 4 Faulty battery monitoring sensor providing incorrect current feedback
- 5 Powertrain control module software error or internal driver fault
- 6 Damaged wiring harness between the contactor and the control module

How to diagnose and fix it

- 1 Connect a scan tool and record all stored codes and freeze-frame data to confirm P2D5D is current
- 2 Inspect the contactor, its connectors, and related wiring for corrosion, looseness, or damage
- 3 Measure resistance across the contactor coil and compare to specification
- 4 Check for voltage and ground signals at the contactor control circuit during a commanded close
- 5 Test the contactor's power contacts for continuity when commanded closed
- 6 Repair or replace faulty wiring, connectors, or the contactor as needed
- 7 Clear codes and perform a charging system test to verify the repair



What a stuck-open contactor really means

- A stuck-open contactor can mimic a failed alternator or battery, so always verify control signals before replacing major components.
- Intermittent faults often occur only under specific temperature or vibration conditions, making a wiggle test of the harness essential.
- Some vehicles use the contactor for both charging and load shedding, so the code may set without any charging complaint.
- A weak or failing 12-volt battery can cause spurious contactor codes by dropping voltage during module initialization.
- After replacement, some contactors require a learn or adaptation procedure with a scan tool to avoid recurring codes.

Can I keep driving with P2D5D?

If the warning light is on and charging voltage is normal, you may drive short distances to a repair shop, but avoid long trips or heavy electrical loads. If the battery is not charging, do not drive far; the vehicle may stall or fail to restart.

Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Wiring diagram for the charging system
- Basic hand tools
- Battery load tester

Reading P2D5D

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
D	Hybrid propulsion.
5D	The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P0A0D** High Voltage System Interlock Circuit A High · **P2D5C** Battery Charging System Positive Contactor C Stuck Closed · **P2D5E** Battery Charging System Positive Contactor C Control Circuit



See it working

Watch the animated explainer [How a MAP Sensor Works: Engine Vacuum and Load](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2d5d/>

