

GENERIC · POWERTRAIN

# P0AE5

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P0AE5

### Hybrid/EV Battery Precharge Contactor A Control Circuit Range/Performance

P0AE5 indicates that the hybrid or electric vehicle's battery management system has detected an out-of-range or performance fault in the control circuit for the precharge contactor A, which is the relay that safely connects the high-voltage battery to the rest of the vehicle's electrical system through a resistor before the main contactor closes. The computer monitors the circuit for expected voltage and current behavior and sets this code when the signals do not match the commanded state.

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

### Symptoms you may notice

- Illumination of the hybrid system warning light or master warning indicator
- The vehicle may refuse to start or enter 'Ready' mode, leaving you with a no-start condition
- A message on the dash such as 'Hybrid System Failure' or 'Check Hybrid System'
- Possible reduction in power or limited driving speed if the vehicle does enter ready mode
- Often no symptoms besides the warning light, especially if the fault is intermittent

### Common causes, most likely first

- 1 Faulty precharge contactor A itself, such as worn contacts or a stuck armature
- 2 Damaged or corroded wiring or connectors in the precharge contactor control circuit
- 3 A failed precharge resistor that alters the expected current profile during precharge
- 4 Poor ground connection for the contactor coil or control module
- 5 Malfunctioning battery management system or control module driver for the contactor
- 6 Low 12-volt auxiliary battery voltage causing erratic contactor operation



## How to diagnose and fix it

- 1 Perform a thorough visual inspection of the precharge contactor, its connectors, and the wiring harness for damage, corrosion, or loose pins
- 2 Check the 12-volt auxiliary battery state of charge and condition, as low voltage can cause false contactor codes
- 3 Measure the resistance of the precharge contactor coil and compare to specifications, and check for continuity through the control circuit
- 4 Use a scan tool to command the precharge contactor on and off while monitoring the control circuit voltage and current to verify operation
- 5 Inspect the precharge resistor for signs of overheating or open circuit, and replace if out of specification
- 6 If the circuit and resistor are good, test the contactor by applying power directly to the coil and listening for a click, then check for continuity across the power terminals when closed
- 7 Replace the precharge contactor assembly if it fails electrical or mechanical testing, and clear the code to verify the repair

## What the precharge contactor code hides

- A weak or failing 12-volt battery is a common culprit behind this code because the contactor coil needs a solid voltage supply to pull in reliably, and a sagging battery can cause intermittent performance faults.
- The precharge contactor works with a resistor to limit inrush current, so a fault in the resistor or its connections can set this code even when the contactor itself is fine.
- Technicians sometimes replace the contactor only to find the real problem is a chafed wire in the control circuit, so always perform a voltage drop test on both the power and ground sides of the coil.
- This code can be set by a momentary glitch during a low-voltage event, so after repairs, clear the code and drive the vehicle through several key cycles to confirm it does not return.
- On some vehicles, the precharge contactor is part of a non-serviceable assembly, and the entire high-voltage battery junction box must be replaced, so check service information before ordering parts.

## Can I keep driving with P0AE5?

Do not continue driving with this code active, as a faulty precharge contactor can prevent the high-voltage system from energizing safely or cause a sudden loss of power. Have the vehicle inspected by a qualified hybrid technician before attempting to drive further.

## Tools that help

- Digital multimeter with high-voltage safety rating
- OBD-II scan tool with hybrid system capabilities
- Insulation tester or megohmmeter for high-voltage circuit checks
- Basic hand tools for connector and component access
- Service information for the specific vehicle model



### Reading P0AE5

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- A** Hybrid propulsion.
- E5** The exact fault within that area.

### Often seen with

**P0A0D** High Voltage System Interlock Circuit A High · **P0A0F** Engine Failed to Start · **P0AE6** Hybrid/EV Battery Precharge Contactor A Control Circuit Low · **P0AE7** Hybrid/EV Battery Precharge Contactor A Control Circuit High · **P0AE8** Hybrid/EV Battery Temperature Sensor D Circuit

### 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/p0ae5/>

