

GENERIC · POWERTRAIN

P0A3B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A3B

Generator A Over Temperature

P0A3B indicates that the powertrain control module has detected an over-temperature condition in Generator A, which is the high-voltage motor-generator unit on hybrid and electric vehicles. The computer sets this code when the generator's internal temperature sensor reports a value above the calibrated threshold, typically due to excessive load, cooling system failure, or a sensor fault.

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 service vehicle soon message
- Reduced power output or limp-home mode engagement
- Generator may stop charging the high-voltage battery, leading to battery depletion
- Audible cooling fan running excessively or not at all
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Low or contaminated generator cooling fluid (where liquid-cooled)
- 2 Failed generator cooling fan or blocked air passages
- 3 Faulty generator temperature sensor or damaged wiring to the sensor
- 4 Overheating due to prolonged high-load operation such as towing or sustained steep grades
- 5 Internal generator fault causing excessive heat generation, such as winding degradation
- 6 Powertrain control module software calibration issue or logic error



How to diagnose and fix it

- 1 Use a scan tool to retrieve freeze-frame data and verify the temperature reading against ambient and operating conditions
- 2 Inspect the generator cooling system for fluid level, leaks, and fan operation, and repair as needed
- 3 Check the generator temperature sensor circuit for resistance, continuity, and short to ground or power
- 4 Compare the sensor reading with a known-good value using an infrared thermometer or manufacturer procedure
- 5 If the sensor is faulty, replace it and clear the code, then verify the reading normalizes
- 6 Inspect the generator for physical damage, debris buildup, or abnormal noise that could indicate internal failure
- 7 If all external checks pass, follow the manufacturer's diagnostic flow for internal generator faults or software updates

Generator over-temperature misdiagnosis traps

- A common mistake is replacing the generator when the actual fault is a \$20 temperature sensor or a chafed wire in the harness, so always verify sensor resistance before condemning the unit.
- On many hybrids, the generator shares a cooling loop with the inverter, so a low coolant level or a failing inverter pump can set P0A3B without any generator-specific issue.
- The code can be set by a temporary overheat event during a long climb or heavy load, and it may not return after clearing if the cooling system recovers, so do not assume a hard failure.
- Some vehicles use a model-based temperature estimate rather than a physical sensor, meaning a software calibration or a faulty current sensor can trigger this code without any real overheating.
- A failing 12-volt battery or poor ground connection can cause erratic sensor readings that mimic over-temperature, so check the basics before diving into the high-voltage system.

Can I keep driving with P0A3B?

Do not continue driving with this code active, as generator overheating can lead to permanent damage and a sudden loss of hybrid propulsion. Stop safely, allow the system to cool, and have the vehicle towed to a qualified service facility for diagnosis.

Tools that help

- Hybrid/EV-capable OBD-II scan tool with live data
- Digital multimeter with temperature probe
- Infrared thermometer
- Manufacturer service information and wiring diagrams
- Insulated safety gloves and high-voltage disconnect tools



Reading P0A3B

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0A1F** Battery Energy Control Module A Performance · **P0A3A** Generator Temperature Sensor Circuit Intermittent · **P0A3C** Drive Motor A Inverter Over Temperature · **P0A3D** Drive Motor B Inverter Over Temperature

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0a3b/>

