

GENERIC · POWERTRAIN

P0BBF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0BBF

Hybrid/EV Battery Pack Cooling Fan Supply Voltage Circuit/Open

P0BBF indicates that the hybrid or electric vehicle battery pack cooling fan control module has detected an open circuit or supply voltage fault on the fan's power feed. The computer expects a specific voltage on the fan supply circuit when the fan is commanded on, and it is seeing zero volts or an out-of-range value, which points to a break in the wiring, a blown fuse, or a failed fan assembly.

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

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message
- Often no symptoms besides the warning light, especially if the battery pack is not yet hot
- Reduced hybrid battery cooling performance, which may lead to power derating in hot weather or during heavy loads
- The cooling fan may not run at all when the battery pack reaches high temperatures
- Possible diagnostic trouble codes for battery pack overheating or hybrid system performance
- In some vehicles, the vehicle may enter a reduced power mode to protect the battery

Common causes, most likely first

- 1 Blown fuse or fusible link in the cooling fan supply circuit
- 2 Open or damaged wire in the fan power circuit, often due to rodent damage, chafing, or corrosion
- 3 Failed battery pack cooling fan motor (open winding or seized bearing)
- 4 Poor connection at the fan connector or at the control module connector
- 5 Faulty cooling fan control module or relay that does not pass supply voltage
- 6 Corroded or loose ground connection for the fan circuit
- 7 In rare cases, a faulty hybrid battery pack control module that incorrectly reports the fault



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in the hybrid battery control module
- 2 Inspect the cooling fan supply fuse and replace if blown, then recheck for the code
- 3 Visually inspect the fan wiring and connector for damage, corrosion, or loose pins
- 4 Disconnect the fan connector and measure supply voltage with the fan commanded on; if voltage is missing, trace the circuit back to the fuse/relay
- 5 Check the fan motor resistance and apply direct power to test fan operation
- 6 Test the fan control module or relay according to the service information, replacing if faulty
- 7 Clear codes and verify the fan operates correctly during a commanded test

Don't overlook the simple fuse first

- A blown fuse is the most common cause of this code, yet many technicians replace the fan motor before checking the supply circuit.
- Rodent damage to the fan wiring harness is frequently missed because the chewed section is hidden behind the battery pack cover.
- The code can set intermittently if the fan connector is loose or corroded, so a wiggle test while monitoring live data is valuable.
- A seized fan motor can blow the fuse repeatedly, so always check for free rotation of the fan blade before replacing fuses.
- This code does not always mean the fan is dead; a voltage drop in the ground circuit can also trigger the open-circuit detection.

Can I keep driving with P0BBF?

You can usually drive the vehicle short distances at moderate speeds, but avoid heavy acceleration or high ambient temperatures because the battery pack may overheat without cooling. If the hybrid system warning light is flashing or the vehicle enters reduced power mode, stop and have it serviced.

Tools that help

- OBD-II scan tool with hybrid system capability
- Digital multimeter
- Fuse puller and test light
- Wire repair kit with crimpers and heat shrink
- Service information for wiring diagrams and component locations



Reading P0BBF

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

Often seen with

P0A7F Hybrid/EV Battery Pack Deterioration · **P0AC4** Hybrid/EV Powertrain Control Module Requested MIL Illuminati · **P0AFA** Hybrid/EV Battery System Voltage Low · **P0BBE** Hybrid/EV Battery Pack Voltage Variation · **P0BC0** Hybrid/EV Battery Pack Cooling Fan Supply Voltage Circuit Lo

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0bbf/>

