

GENERIC · POWERTRAIN

P0A93

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0A93

Inverter A Cooling System Performance

P0A93 indicates that the powertrain control module has detected a performance fault in the cooling system for inverter A, which is the power electronics assembly that converts DC voltage to AC for the electric drive motor. The computer monitors coolant temperature, pump operation, and sometimes flow or fan status, and it sets this code when the inverter cooling loop is not maintaining the expected temperature range or response time.

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

Symptoms you may notice

- Illumination of the check engine light or a dedicated hybrid/EV warning message, often with no other noticeable symptoms
- Reduced power output or a limp-home mode triggered by the inverter overheating protection strategy
- Intermittent or complete loss of electric propulsion, especially during sustained high-load driving or hot ambient temperatures
- Coolant leaks or low coolant level in the inverter cooling circuit, sometimes accompanied by a sweet smell or visible residue
- Audible cooling fan or coolant pump running continuously or erratically after the vehicle is shut off
- Overheating warnings or temperature gauge fluctuations on the instrument cluster, though many vehicles lack a dedicated inverter temperature gauge

Common causes, most likely first

- 1 Low coolant level or air trapped in the inverter cooling circuit due to a leak, improper bleed procedure, or a failing coolant cap
- 2 Failed or weak electric coolant pump that cannot maintain adequate flow through the inverter cooling loop
- 3 Blocked or restricted coolant passages inside the inverter cold plate or radiator, often from debris, corrosion, or degraded coolant
- 4 Faulty coolant temperature sensor or wiring harness issue causing the control module to misread inverter temperature
- 5 Cooling fan failure or relay fault that prevents adequate airflow across the inverter radiator during low-speed or stationary operation
- 6 Internal inverter fault causing excessive heat generation that overwhelms an otherwise healthy cooling system
- 7 Software calibration issue in the powertrain control module that misinterprets normal cooling system behavior as a performance fault



How to diagnose and fix it

- 1 Check the inverter cooling system coolant level and condition, then pressure-test the system to locate any leaks before replacing parts
- 2 Verify that the electric coolant pump runs when commanded and measure its current draw or flow output to confirm it meets specification
- 3 Inspect the cooling fan operation and related relays or fuses, commanding the fan on with a scan tool to confirm it engages at the correct temperature
- 4 Use a scan tool to read live inverter coolant temperature data and compare it to actual measured temperature with an infrared thermometer to validate the sensor
- 5 Perform a cooling system bleed procedure according to the manufacturer's service information to remove trapped air that can cause false performance codes
- 6 Check for technical service bulletins or software updates for the powertrain control module that address inverter cooling system calibration
- 7 If all external cooling components pass inspection, test the inverter assembly for internal faults or restricted cold plate flow before condemning the unit

Before you replace the inverter assembly

- A significant number of P0A93 codes are caused by nothing more than low coolant or air trapped in the system after a repair, so always verify the bleed procedure was performed correctly before assuming a hard part failure.
- The electric coolant pump can fail intermittently, working fine at idle but seizing or slowing down under heat and vibration, so a static resistance check is not enough and you must observe live pump command and flow data.
- Some vehicles set P0A93 when the cooling fan relay sticks open even though the pump and coolant are fine, and the fan circuit is often overlooked because the code points specifically to the inverter.
- A failing 12-volt auxiliary battery or poor ground connection can cause the coolant pump to run weakly or erratically, mimicking a pump failure and leading to unnecessary replacement.
- The code does not always mean the inverter is overheating right now; it can be a stored history code from a single low-coolant event, so check freeze-frame data and clear the code to see if it returns before authorizing major repairs.

Can I keep driving with P0A93?

Do not continue driving with this code active because inverter overheating can lead to sudden loss of propulsion or permanent damage to the power electronics. If you must move the vehicle, keep the speed and load low and stop immediately if any overheating warning appears.



Tools that help

- Scan tool with hybrid/EV capability to read live inverter temperature and pump command data
- Infrared thermometer to verify actual coolant temperatures
- Coolant pressure tester and bleed kit
- Digital multimeter for checking pump current draw and circuit continuity
- Factory service information for cooling system bleed procedures and wiring diagrams

Reading P0A93

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0A94** DC/DC Converter A Performance · **P0A95** High Voltage Fuse A · **P0A96** Hybrid/EV Battery Pack Cooling Fan 2 Control Circuit/Open · **P0C73** Hybrid Battery Pack Cooling Pump Performance

See it working

Watch the animated explainer [How Misfire Detection Works: Crankshaft Speed](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0a93/>

