

GENERIC · POWERTRAIN

P2B29

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B29

Hybrid/EV Battery Pack Coolant Pump A Overspeed - Dry Run

P2B29 indicates that the hybrid or electric vehicle battery pack coolant pump A has been detected running at an excessive speed, which the control module interprets as a dry-run condition where the pump is spinning without adequate coolant. The computer typically sets this code when the pump's feedback signal or current draw indicates it is operating outside the expected load range for a properly primed cooling system.

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

Symptoms you may notice

- Illumination of the hybrid system warning light or service vehicle soon message
- Reduced electric driving range or power output due to battery thermal management entering a protective mode
- Audible whining or humming from the coolant pump that is louder or higher-pitched than normal
- Overheating of the high-voltage battery pack, which may trigger additional derate or shutdown codes
- Often no symptoms besides the warning light, especially if the dry-run condition is intermittent

Common causes, most likely first

- 1 Low coolant level in the hybrid battery cooling loop due to a leak or improper fill procedure
- 2 Air trapped in the coolant system after recent service, causing the pump to cavitate and overspeed
- 3 Faulty coolant pump A that is failing internally and spinning faster than commanded
- 4 Blocked or restricted coolant passage in the battery pack cooling circuit
- 5 Damaged or disconnected coolant pump wiring or connector, leading to erratic feedback signals
- 6 Failed coolant pump control module or relay that is supplying incorrect voltage to the pump
- 7 Contaminated coolant that has degraded and is causing pump lubrication issues



How to diagnose and fix it

- 1 Check the coolant level in the hybrid battery reservoir and inspect for visible leaks at hoses, clamps, and the pump housing
- 2 Perform a coolant system bleed procedure according to the manufacturer's instructions to remove trapped air
- 3 Use a scan tool to command the coolant pump on and off while monitoring live data for pump speed and current draw
- 4 Inspect the coolant pump electrical connector and wiring for corrosion, loose pins, or damage
- 5 Test the coolant pump with a known-good power source or bidirectional scan tool to verify it operates smoothly without overspeed
- 6 If the pump is faulty, replace it and refill the cooling system with the specified coolant, then bleed thoroughly
- 7 Clear the code and perform a road test to confirm the pump maintains proper speed and the code does not return

Dry-run codes often misdiagnosed as pump failure

- A significant number of P2B29 codes are set after a coolant service where air was not properly bled from the battery cooling loop, causing the pump to run dry and overspeed.
- The code can be triggered by a weak 12-volt battery or charging system issue that causes the pump control module to behave erratically, so always verify battery health first.
- Some vehicles use a variable-speed coolant pump that reports speed via a PWM signal; a damaged signal wire can mimic a dry-run condition even when coolant flow is normal.
- A restricted coolant passage inside the battery pack can cause the pump to overspeed as it tries to overcome the blockage, so flow testing is essential before replacing the pump.
- After replacing the coolant pump, the cooling system must be vacuum-filled or bled with a scan tool to prevent immediate re-setting of the code.

Can I keep driving with P2B29?

It is not advisable to continue driving with this code because the battery pack may not be properly cooled, which can lead to reduced performance or permanent damage. Limit driving to a short distance to a repair facility and avoid heavy acceleration or high ambient temperatures.

Tools that help

- OBD-II scan tool with bidirectional control and live data capabilities
- Coolant refractometer or hydrometer to check coolant concentration
- Vacuum coolant refill tool or bleed kit
- Digital multimeter for electrical testing
- Factory service information for coolant bleeding procedures



Reading P2B29

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

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0A93** Inverter A Cooling System Performance · **P0C73** Hybrid Battery Pack Cooling Pump Performance · **P2B28** Hybrid/EV Battery Pack Coolant Pump A Performance · **P2B2A** Hybrid/EV Electronics Coolant Pump A Overspeed - Dry Run

See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2b29/>

