

GENERIC · POWERTRAIN

P2C49

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C49

Coolant Pump D Control Circuit Performance/Stuck Off

P2C49 indicates that the engine control module has detected a performance fault in the control circuit for coolant pump D, specifically that the pump is stuck off or not responding as commanded. The computer monitors the circuit and expects a certain electrical response when the pump is activated, but it sees a condition that suggests the pump is not running or the circuit cannot deliver the required current.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Engine overheating or higher than normal coolant temperatures, especially during heavy load or idle
- Reduced heater performance or no heat from the vents
- Coolant temperature gauge fluctuating or reading higher than usual
- Possible limp mode or reduced engine power if overheating is detected
- Coolant leaks or low coolant level if the pump failure is mechanical

Common causes, most likely first

- 1 Faulty coolant pump D (mechanical or electrical failure)
- 2 Open or short circuit in the pump control wiring or connector
- 3 Blown fuse or faulty relay supplying power to the pump
- 4 Corroded or damaged electrical connector at the pump
- 5 Failed engine control module driver for the pump circuit (rare)
- 6 Low coolant level or air pockets causing the pump to run dry and seize
- 7 Restricted coolant flow or blocked passages increasing pump load



How to diagnose and fix it

- 1 Verify coolant level and condition; top off or flush if contaminated
- 2 Scan all modules for related codes and check freeze frame data for conditions when the fault set
- 3 Inspect the coolant pump D electrical connector and wiring for damage, corrosion, or loose pins
- 4 Test the pump control circuit with a multimeter or oscilloscope to confirm power, ground, and signal integrity
- 5 Check the fuse and relay for the coolant pump circuit and replace if faulty
- 6 Command the coolant pump on with a scan tool and listen for operation; if no response, test the pump directly with power and ground
- 7 If the pump fails direct testing, replace the coolant pump and clear codes; if the circuit tests good but the pump does not run, suspect the ECM driver and perform further diagnostics

Don't replace the pump before checking these

- A stuck-off coolant pump D can be caused by a simple blown fuse or relay, so always check those first before condemning the pump itself.
The code may set intermittently due to a poor electrical connection that only acts up under certain conditions, such as vibration or temperature changes.
- Some vehicles use the coolant pump for multiple functions like cabin heating or battery cooling, so a failure may not always cause obvious engine overheating.
- A scan tool that can command the pump on and off is essential; without it, you may misdiagnose a communication issue as a pump failure.

After replacing the pump, the cooling system must be bled properly to avoid air locks that can cause the new pump to run dry and fail prematurely.

Can I keep driving with P2C49?

If the engine temperature remains normal and the only symptom is the warning light, you can drive cautiously to a repair shop, but avoid heavy loads and long idles. If the temperature gauge climbs above normal or you see steam, pull over and stop the engine to prevent serious damage.

Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Test light
- Socket set and wrenches
- Coolant drain pan
- Oscilloscope (optional for advanced circuit testing)



Reading P2C49

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

Often seen with

P2C46 Battery Isolation/Voltage Stabilization Control Circuit High · **P2C47** Battery Isolation/Voltage Stabilization Control Circuit Inte · **P2C48** Coolant Pump C Control Circuit Performance/Stuck Off · **P2C4A** Clutch Actuator Position Sensor Circuit · **P2C4B** Clutch Actuator Position Sensor Circuit Range/Performance

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/p2c49/>

