

GENERIC · POWERTRAIN

P2BB7

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2BB7

Engine Coolant Temperature Sensor 6 Range/Performance

P2BB7 indicates that the powertrain control module has detected an out-of-range or performance fault in the circuit for engine coolant temperature sensor 6, which is one of several coolant temperature sensors used on some engines for precise thermal management. The computer compares the sensor's signal against expected values and other temperature inputs, and it sets this code when the signal does not change as expected or falls outside a plausible range.

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
- Inaccurate or erratic temperature gauge readings on the dashboard
- Poor fuel economy or rough running during warm-up
- Cooling fan running constantly or not engaging when needed
- Hard starting or stalling when the engine is cold
- Reduced engine performance or power derating in some vehicles

Common causes, most likely first

- 1 Faulty engine coolant temperature sensor 6 itself, due to internal failure or contamination
- 2 Damaged or corroded wiring or connector at the sensor 6 circuit
- 3 Open or short circuit in the sensor signal or ground circuit
- 4 Coolant level low or air pockets causing the sensor to read incorrectly
- 5 Thermostat stuck open or closed, affecting the rate of temperature change
- 6 Faulty powertrain control module, though this is rare



How to diagnose and fix it

- 1 Verify coolant level and condition, and pressure test the cooling system for leaks
- 2 Inspect the sensor 6 connector and wiring for corrosion, damage, or loose pins
- 3 Measure the resistance of sensor 6 with a multimeter and compare to specifications
- 4 Check the sensor signal voltage at the powertrain control module while warming the engine
- 5 Test the thermostat operation to ensure the engine reaches and maintains proper temperature
- 6 Replace the faulty sensor 6 if resistance or signal is out of range
- 7 Clear the code and perform a road test to confirm the repair

Why sensor 6 often gets misdiagnosed

- Many technicians replace the primary coolant temperature sensor when the fault actually lies with sensor 6, which is a separate component on engines with multiple sensors.
- A stuck-open thermostat can cause the coolant temperature to rise too slowly, setting a performance code for sensor 6 even when the sensor itself is good.
- Air pockets in the cooling system after a coolant service can cause erratic readings from sensor 6 and trigger this code intermittently.
- Corrosion inside the sensor connector can create resistance that mimics a failing sensor, so always inspect the terminals before replacing parts.
- This code can be set by a faulty ground connection shared with other sensors, leading to false readings that affect multiple systems.

Can I keep driving with P2BB7?

You can usually continue driving with this code, but avoid heavy loads or long trips until it is diagnosed, because inaccurate coolant temperature data can affect fuel mixture and cooling fan operation. If the engine temperature gauge shows overheating or the vehicle enters limp mode, stop and seek professional service.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Cooling system pressure tester
- Infrared thermometer
- Socket set and wire probe kit



Reading P2BB7

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- B7** The exact fault within that area.

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg

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/p2bb7/>

