

GENERIC · POWERTRAIN

P2C2B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C2B

Turbocharger/Supercharger Bypass Valve B Position Sensor Circuit Low

P2C2B indicates that the powertrain control module (PCM) has detected an abnormally low voltage on the signal circuit of the position sensor for bypass valve B in the turbocharger or supercharger system. This sensor reports the valve's position to the PCM, and a low signal typically means the circuit is shorted to ground or the sensor's internal resistance has dropped.

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.
- Reduced engine performance or a sudden loss of boost pressure.
- Rough idle or stalling when the bypass valve fails to close properly.
- Poor fuel economy due to incorrect air-fuel mixture control.
- In some cases, the engine may enter limp mode to protect the turbocharger.

Common causes, most likely first

- 1 A short to ground in the signal wire between the bypass valve position sensor and the PCM.
- 2 A faulty bypass valve position sensor with internal shorting or excessive wear.
- 3 Corroded, loose, or damaged electrical connectors at the sensor or PCM.
- 4 A defective bypass valve actuator that binds and forces the sensor out of range.
- 5 Water intrusion or physical damage to the sensor or wiring harness.
- 6 A PCM software glitch or internal fault incorrectly interpreting the signal (rare).



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related pending or history codes.
- 2 Visually inspect the bypass valve, sensor, and wiring harness for obvious damage, corrosion, or loose connections.
- 3 Disconnect the sensor connector and measure the signal circuit voltage with the key on; compare to manufacturer specifications.
- 4 Check the sensor's resistance or voltage output across its full range of motion and compare to the service manual.
- 5 Perform a wiggle test on the wiring harness while monitoring the sensor signal to detect intermittent shorts.
- 6 If the circuit tests good, replace the bypass valve position sensor and clear the code.
- 7 After repair, clear codes and perform a road test to confirm the code does not return.

Don't overlook the bypass valve itself

- A sticking or carbon-fouled bypass valve can cause the position sensor to read low even when the sensor and wiring are healthy, so always inspect the valve mechanism.
- The code can be set by a poor ground connection at the sensor or PCM, which is often overlooked when diagnosing low signal faults.
- On some vehicles, the bypass valve position sensor is integrated into the actuator and cannot be replaced separately, requiring a complete assembly.
- A low signal code may appear intermittently due to vibration or temperature changes, so a thorough wiggle test of the harness is essential.
- Do not assume the sensor is faulty; a shorted signal wire can mimic a failed sensor, and replacing the sensor without fixing the wire will not solve the problem.

Can I keep driving with P2C2B?

You can usually drive the vehicle with this code, but avoid aggressive acceleration or heavy load because the bypass valve may not function correctly, potentially causing overboost or underboost conditions. Have the fault diagnosed soon to prevent damage to the turbocharger or catalytic converter.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools (socket set, screwdrivers)
- Vacuum pump or hand-held pressure tester (if applicable)



Reading P2C2B

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

Often seen with

P0234 Engine Overboost Condition · **P0299** Turbo/Supercharger Underboost · **P2C2A** Turbocharger/Supercharger Bypass Valve B Position Sensor Cir · **P2C2C** Turbocharger/Supercharger Bypass Valve B Position Sensor Cir · **P2C2D** Turbocharger/Supercharger Bypass Valve B Position Exceeded L

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c2b/>

