

GENERIC · POWERTRAIN

# P2BC0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P2BC0

### Turbocharger/Supercharger Bypass Valve A Driver Current/Temperature Too High

P2BC0 indicates that the powertrain control module (PCM) has detected an excessively high current or temperature in the driver circuit for the turbocharger or supercharger bypass valve A. This circuit controls the valve that regulates boost pressure, and the PCM sets the code when the current draw or the driver's internal temperature exceeds safe limits, typically due to a short to ground, a failing valve, or a wiring fault.

| 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 limp mode condition due to boost control being disabled.
- Poor acceleration or sluggish throttle response, especially during heavy load.
- Possible turbocharger overboost or underboost symptoms if the bypass valve fails to operate.
- In some cases, the engine may enter a reduced power mode to protect the turbocharger.

#### Common causes, most likely first

- 1 Short circuit to ground in the bypass valve driver circuit wiring.
- 2 Faulty bypass valve solenoid or actuator with an internal short or excessive current draw.
- 3 Corroded, damaged, or loose electrical connectors at the bypass valve or PCM.
- 4 Failed driver circuit inside the PCM, often due to overheating or component failure.
- 5 Aftermarket or incorrect bypass valve installed that does not meet current specifications.
- 6 Water intrusion or contamination in the bypass valve connector causing increased resistance.



## How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related codes in the boost control system.
- 2 Visually inspect the bypass valve, its connector, and the wiring harness for damage, corrosion, or loose pins.
- 3 Measure the resistance of the bypass valve solenoid and compare it to the manufacturer's specification.
- 4 Check for a short to ground in the driver circuit by disconnecting the PCM and testing the wire with a multimeter.
- 5 If the wiring and valve are good, test the PCM driver circuit with a known-good load or oscilloscope to confirm internal failure.
- 6 Replace the faulty bypass valve or repair the wiring as needed, then clear the code and verify the repair with a test drive.
- 7 If the PCM is confirmed faulty, replace or reprogram the PCM according to the manufacturer's procedure.

## Bypass valve driver faults often misdiagnosed

- A shorted bypass valve solenoid can damage the PCM driver, so replacing only the PCM without fixing the valve will lead to a repeat failure.
- The code can be set by a intermittent wiring short that only occurs under vibration or heat, so a wiggle test of the harness is essential.
- Some vehicles use a smart actuator with integrated electronics; a failed actuator can set this code even if the solenoid coil tests good.
- A dirty or sticking bypass valve can increase current draw and trigger the code without any visible wiring issue.
- The PCM may set this code along with boost control codes like P0045 or P0243, but P2BC0 specifically points to the driver circuit, not the valve's mechanical operation.

## Can I keep driving with P2BC0?

Driving with this code is generally safe for short distances, but the engine may enter limp mode or have reduced power, so avoid heavy acceleration and towing until repaired. Prolonged driving with a shorted circuit could damage the PCM, so schedule diagnosis promptly.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Test light or load tester
- Oscilloscope (optional for advanced diagnosis)



### Reading P2BC0

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- C0** The exact fault within that area.

### Often seen with

**P0045** Turbo/Super Charger Boost Control Solenoid Circuit/Open · **P0243** Turbocharger Wastegate Solenoid A Malfunction · **P0245** Turbo/Super Charger Wastegate Solenoid 'A' Low · **P2BC1** Charge Air Cooler Coolant Pump A Stuck/Stalled · **P2BC2** Charge Air Cooler Coolant Pump A Supply Voltage Circuit

### 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/p2bc0/>

