



P2C2C

Turbocharger/Supercharger Bypass Valve B Position Sensor Circuit High

P2C2C indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the signal circuit of the position sensor for bypass valve B on a turbocharger or supercharger. The sensor normally produces a voltage that varies with valve position, and a high reading usually means the signal circuit is shorted to voltage, the sensor has failed, or the valve is stuck.

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 power or limp mode due to the PCM limiting boost pressure.
- Poor acceleration or sluggish throttle response.
- Rough idle or stalling, especially after deceleration.
- Audible hissing or whistling from the turbocharger area if the valve is stuck open.
- Increased fuel consumption or rich-running conditions.

Common causes, most likely first

- 1 Faulty bypass valve position sensor B, internally shorted or damaged.
- 2 Short to voltage in the sensor signal circuit, often due to chafed wiring or a pinched harness.
- 3 Corroded or loose electrical connector at the bypass valve or PCM.
- 4 Failed bypass valve actuator or mechanical binding of the valve, causing the sensor to read out of range.
- 5 PCM internal fault, though rare, causing incorrect voltage interpretation.
- 6 Aftermarket modifications or poor previous repairs introducing voltage into the signal circuit.



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data and sensor voltage reading with the key on, engine off.
- 2 Visually inspect the bypass valve, sensor, and wiring harness for damage, corrosion, or loose connections.
- 3 Disconnect the sensor and measure reference voltage and ground at the connector to confirm the circuit integrity.
- 4 Backprobe the signal wire and check for a short to voltage by wiggling the harness while monitoring the multimeter.
- 5 If the circuit tests good, remove the sensor and inspect the valve for mechanical binding or carbon buildup.
- 6 Replace the bypass valve position sensor or the complete bypass valve assembly if the sensor is faulty.
- 7 Clear the diagnostic trouble codes and perform a road test to verify the repair and ensure the code does not return.

What a high bypass sensor reading really means

- A high voltage on the signal circuit does not always mean the sensor is bad; a short to voltage in the harness can mimic a failed sensor and is often overlooked.
- Some vehicles use a shared reference voltage for multiple sensors, so a fault in another sensor's circuit can pull the bypass sensor signal high.
- Mechanical binding of the bypass valve can cause the sensor to read out of range even when the electrical circuit is perfect, so always check valve operation.
- After replacing a sensor, a relearn or calibration procedure may be required on some models to prevent the code from resetting.
- Intermittent high-voltage codes can be caused by water intrusion into the connector, especially on vehicles driven in wet or salty conditions.

Can I keep driving with P2C2C?

It is generally safe to drive with this code if the vehicle is not in limp mode, but avoid heavy acceleration or towing until the fault is repaired. Prolonged driving with a faulty bypass valve can lead to turbocharger damage or poor fuel economy.

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)
- Electrical contact cleaner and dielectric grease



Reading P2C2C

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

Often seen with

P0045 Turbo/Super Charger Boost Control Solenoid Circuit/Open · **P00AF** Turbocharger/Supercharger Boost Control A Module Performance · **P0234** Engine Overboost Condition · **P2C2B** 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/p2c2c/>

