

GENERIC · POWERTRAIN

P004B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P004B

Turbocharger/Supercharger Boost Control B Circuit Range/Performance

P004B indicates that the powertrain control module has detected an out-of-range or performance fault in the 'B' circuit that controls boost pressure from the turbocharger or supercharger. The computer monitors the boost control solenoid or actuator circuit and compares commanded boost to actual boost, flagging the code when the circuit's electrical behavior or the resulting boost level falls outside the expected range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced engine power or a limp-home mode triggered by the PCM
- Poor acceleration or sluggish throttle response due to lost boost
- Audible hissing or whistling from the engine bay if a boost leak is present
- Rough idle or stumbling if the fault affects boost control at low engine speeds
- Increased fuel consumption as the engine compensates for incorrect boost

Common causes, most likely first

- 1 Faulty boost control solenoid or actuator on the 'B' circuit
- 2 Damaged, corroded, or disconnected wiring or connector at the boost control solenoid
- 3 Boost pressure sensor or MAP sensor providing inaccurate feedback to the PCM
- 4 Vacuum or boost hose leak between the turbocharger/supercharger and the intake manifold
- 5 Sticking or carbon-fouled turbocharger wastegate or variable-geometry turbo mechanism
- 6 Failed turbocharger recirculation valve or blow-off valve
- 7 PCM software issue or internal driver fault for the boost control circuit



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm when and under what conditions P004B sets
- 2 Visually inspect the boost control solenoid, its connector, and the associated wiring for damage or corrosion
- 3 Check all vacuum and boost hoses for cracks, loose clamps, or disconnected fittings
- 4 Test the boost control solenoid with a multimeter for correct resistance and verify it clicks when powered
- 5 Use a scan tool to command the boost control solenoid on and off while watching live boost pressure data
- 6 Compare commanded boost to actual boost pressure using a mechanical gauge to rule out sensor error
- 7 If electrical and vacuum checks pass, inspect the turbocharger wastegate or variable-geometry mechanism for sticking

What the B circuit really monitors

- The 'B' circuit designation often refers to a second boost control solenoid or a specific actuator circuit, so technicians who assume it is the primary solenoid waste time testing the wrong component.
 - A boost control solenoid that tests fine on a bench can still set P004B when its driver circuit in the PCM is weak or when the solenoid coil breaks down only at operating temperature.
 - Many P004B codes are caused by a small vacuum leak at the turbocharger inlet pipe or intercooler coupler that is invisible until the system is smoke-tested under pressure.
 - The PCM may set P004B even when the boost control solenoid is working perfectly if the boost pressure sensor is skewed, because the computer compares commanded boost to measured boost and blames the circuit.
- On variable-geometry turbochargers, a sticking unison ring or carbon buildup on the vanes can mimic a boost control circuit fault and set P004B without any electrical problem at all.

Can I keep driving with P004B?

You can usually drive the vehicle with P004B, but expect reduced power and avoid heavy acceleration or towing until the fault is repaired. Prolonged driving with a boost control fault can lead to overboost or underboost conditions that stress the turbocharger, so schedule diagnosis soon.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter
- Hand vacuum pump with gauge
- Smoke machine for boost leak testing
- Mechanical boost pressure gauge



Reading P004B

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 4B** The exact fault within that area.

Often seen with

P0045 Turbo/Super Charger Boost Control Solenoid Circuit/Open · **P0046** Turbo/Super Charger Boost Control Solenoid Circuit Range/Per · **P0047** Turbo/Super Charger Boost Control Solenoid Circuit Low · **P0048** Turbo/Super Charger Boost Control Solenoid Circuit High · **P0234** Engine Overboost Condition

See it working

Watch the animated explainer [Turbocharger Trainer: Boost, Wastegate and Intercooler](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p004b/>

