

GENERIC · POWERTRAIN

P004E

OBD-II TROUBLE CODE

P004E

Turbocharger/Supercharger Boost Control A Circuit Intermittent/Erratic

P004E indicates that the powertrain control module (PCM) has detected an intermittent or erratic signal on the boost control circuit for turbocharger or supercharger 'A'. The circuit typically controls a solenoid or actuator that regulates boost pressure, and the PCM sees the electrical signal jumping, dropping out, or behaving unpredictably rather than following a smooth commanded pattern.

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
- Intermittent loss of boost pressure, causing sluggish acceleration or reduced power
- Rough running or hesitation under load when the boost control signal fluctuates
- Overboost condition that may trigger a limp mode or reduced engine power
- Audible clicking or cycling from the boost control solenoid, especially at idle or light throttle
- Poor fuel economy or increased turbo lag during normal driving

Common causes, most likely first

- 1 Damaged, chafed, or corroded wiring in the boost control solenoid circuit, particularly at connectors or where the harness passes near hot or moving components
- 2 Faulty boost control solenoid or actuator that fails intermittently due to heat, contamination, or internal wear
- 3 Loose or poor electrical connection at the solenoid or PCM, often caused by vibration or corrosion
- 4 Vacuum or boost leaks in the hoses feeding the solenoid or actuator, causing the PCM to see erratic feedback
- 5 Sticking or carbon-fouled variable geometry turbo (VGT) mechanism or wastegate actuator that loads the circuit irregularly
- 6 PCM software glitch or internal driver fault that misreads a normal signal as erratic (less common)



How to diagnose and fix it

- 1 Inspect the boost control solenoid connector and wiring for chafing, corrosion, or loose pins, and repair as needed
- 2 Check all vacuum and boost hoses for cracks, splits, or loose clamps, and replace any damaged hose
- 3 Measure the resistance of the boost control solenoid and compare it to the manufacturer's specification to rule out an open or shorted coil
- 4 Back-probe the solenoid circuit at the PCM and monitor the signal with a multimeter or oscilloscope while wiggling the harness to catch intermittent faults
- 5 Test the solenoid with a known-good actuator or apply a commanded duty cycle with a scan tool to verify smooth operation
- 6 Inspect the turbocharger wastegate or VGT linkage for binding or carbon buildup, and clean or replace components as required
- 7 If all electrical and mechanical checks pass, update the PCM software or replace the PCM only after confirming the fault is internal

Intermittent boost faults that fool technicians

- A boost control solenoid that tests fine on a bench can still fail intermittently when hot, so always perform a wiggle test and monitor live data during a road test.
- Corrosion inside a connector that looks clean from the outside is a common cause of erratic signals, especially on vehicles driven in wet or salty conditions.
- A sticking wastegate or VGT mechanism can cause the PCM to see an erratic circuit signal even when the wiring and solenoid are perfect, so mechanical checks are essential.
- P004E is often stored alongside boost pressure sensor codes, and replacing the sensor without fixing the circuit will not resolve the underlying issue.
- Some aftermarket boost controllers or piggyback tuners can introduce erratic signals that mimic a failed solenoid, so check for modifications before condemning factory parts.

Can I keep driving with P004E?

You can usually drive the vehicle with P004E, but avoid heavy acceleration or towing until the fault is repaired, because intermittent boost control can cause sudden power loss or overboost that may damage the turbocharger over time.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probe pins
- Oscilloscope for capturing intermittent signals
- Hand vacuum pump with gauge for testing hoses and actuators
- Wiring diagram and manufacturer service information for the specific vehicle



Reading P004E

- 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.
- 4E** 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/p004e/>

