

GENERIC · POWERTRAIN

P050F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P050F

Brake Assist Vacuum Too Low

P050F indicates that the engine control module has detected insufficient vacuum in the brake assist system, meaning the brake booster may not receive enough vacuum to provide normal power assist. The computer typically monitors a vacuum sensor or switch in the booster circuit and sets this code when vacuum stays below the expected threshold for a calibrated time.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- A hard or stiff brake pedal that requires noticeably more effort to stop the vehicle
- A brake pedal that feels firm and does not sink slightly when the engine is started
- A hissing noise from the brake pedal area or engine bay when the brakes are applied
- An illuminated brake warning light or check engine light on the dashboard
- Often no symptoms besides the warning light, especially if the vacuum loss is intermittent or small
- Reduced engine performance or rough idle if the vacuum leak also affects the intake system

Common causes, most likely first

- 1 A cracked, split, or disconnected vacuum hose between the intake manifold and brake booster
- 2 A failed brake booster check valve that allows vacuum to bleed off when the engine is off or under load
- 3 An internal leak in the brake booster diaphragm or housing
- 4 A faulty vacuum sensor or switch that reports low vacuum when actual vacuum is normal
- 5 A restricted or leaking vacuum pump on vehicles that use a mechanical or electric vacuum pump for brake assist
- 6 Engine intake vacuum leaks from a failed gasket, PCV hose, or other unmetered air source that reduce available vacuum
- 7 Wiring or connector problems at the vacuum sensor, check valve solenoid, or booster pressure sensor



How to diagnose and fix it

- 1 Inspect all vacuum hoses between the intake manifold, vacuum pump, check valve, and brake booster for cracks, soft spots, or loose connections
- 2 Test the brake booster check valve with a hand vacuum pump to confirm it holds vacuum and opens correctly under pressure
- 3 Measure actual engine vacuum with a vacuum gauge at the booster supply hose and compare it to the specification for the engine
- 4 Check the vacuum sensor or switch signal with a scan tool while applying and releasing the brake pedal to see if the reported value tracks actual vacuum
- 5 Perform a brake booster leak test by running the engine, shutting it off, and listening for a vacuum leak or watching for a pedal that does not hold its assist
- 6 Inspect the vacuum pump operation on vehicles equipped with one, verifying it produces the specified vacuum and runs when commanded
- 7 Repair any intake vacuum leaks and clear the code, then road test the vehicle to confirm the code does not return

What a low vacuum code really means

- A brake booster that passes a static vacuum test can still leak only when the pedal is pressed, so a dynamic pedal-held vacuum test is often needed to catch an internal diaphragm leak.
- The check valve is a common failure that is frequently overlooked because it is a small plastic part that can stick open or closed without any visible damage.
- On engines with low natural intake vacuum, such as turbocharged or direct-injection engines, a separate vacuum pump is used and its failure can set P050F even when the booster itself is healthy.
- A vacuum sensor that reads low due to a poor electrical connection or contaminated sensing port can mimic a failed booster, so always verify the sensor signal before replacing expensive brake components.
- This code does not always mean the brake booster is bad; a simple cracked vacuum hose or a leaking intake gasket can reduce vacuum enough to trigger it.

Can I keep driving with P050F?

Because this code directly affects brake assist, reduce speed and avoid heavy traffic until the fault is repaired; if the brake pedal feels hard or stopping distance increases, stop driving and have the vehicle towed.

Tools that help

- Hand vacuum pump with gauge
- Scan tool with live data capability
- Vacuum gauge
- Hose clamp pliers
- Digital multimeter



Reading P050F

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 0F** The exact fault within that area.

Often seen with

P1479 High Fan Control Primary Circuit · **P1479** Transmission Fan Relay Circuit Open Or Shorted · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0505** Idle Control System Malfunction

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p050f/>

