

VOLKSWAGEN · POWERTRAIN

P1507

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1507 · Volkswagen

Idle System Learned Value Lower Limit Attained

P1507 on a Volkswagen means the engine control module (ECM) has learned an idle trim value that has hit its lowest allowed limit, so the engine is running leaner at idle than the computer can compensate for. The ECM stores this code when the long-term idle adaptation value stays pinned at the bottom of its range during closed-loop idle operation.

SYSTEM

Powertrain

CODE TYPE

Volkswagen specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the lean condition is mild
- Rough or unstable idle, sometimes with a slight shake at stoplights
- Idle speed that hangs high or dips low when coming to a stop
- Occasional hesitation or stumble when accelerating from idle
- Poor fuel economy if the lean condition persists
- A faint fuel or vacuum smell in the engine bay from a small leak

Common causes, most likely first

- 1 Vacuum leak from a cracked or disconnected intake hose, PCV hose, or intake manifold gasket
- 2 Dirty or failing mass air flow (MAF) sensor reporting less air than actually enters
- 3 Leaking intake manifold gasket or throttle body gasket allowing unmetered air
- 4 Sticking or contaminated idle air control (IAC) valve or electronic throttle body carbon buildup
- 5 Weak fuel pump or restricted fuel filter causing low fuel pressure at idle
- 6 Leaking fuel injector O-rings or a faulty injector affecting idle mixture
- 7 Crankcase ventilation system fault, such as a failed PCV valve or breather hose, altering idle airflow



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P1507, then clear the code and verify it returns under idle conditions
- 2 Inspect the intake tract and vacuum hoses for cracks, loose clamps, and disconnected lines using a smoke machine or carb cleaner
- 3 Clean the throttle body and idle air control passages, then perform a throttle body adaptation reset with a scan tool
- 4 Check MAF sensor readings against expected values at idle and under load, and clean or replace the sensor if contaminated
- 5 Measure fuel pressure at idle and under load, and inspect the fuel filter and pump for restrictions
- 6 Perform a propane or smoke test around the intake manifold gasket and injector seals to find hidden leaks
- 7 After repairs, clear adaptations and drive the vehicle through a complete idle learn cycle, then confirm P1507 does not return

Idle learn limits and hidden vacuum leaks

- A P1507 often sets without any driveability complaint because the ECM has already pushed the idle mixture as far lean as it can, masking the leak at normal speeds.
- Technicians frequently replace the MAF sensor first, but a smoke test of the intake system finds the real cause in most cases and costs far less.
- On many Volkswagen engines, a dirty throttle body alone can push the idle adaptation to its lower limit, so cleaning and re-adapting the throttle is a smart first repair.
- The code can be triggered by a failing PCV valve or a cracked breather hose that only leaks at idle vacuum, so inspect the crankcase ventilation system carefully.
- After any repair, the ECM must relearn idle; skipping the adaptation reset can make P1507 reappear even when the mechanical fault is fixed.

Can I keep driving with P1507?

You can usually drive the car short distances to a repair shop, but avoid prolonged idling and heavy loads because a lean idle mixture can raise combustion temperatures. If the check engine light starts flashing or the engine runs very rough, stop driving and have it towed.

Tools that help

- OBD-II scan tool with Volkswagen-specific software for reading adaptations and freeze-frame data
- Smoke machine for intake leak detection
- Carburetor cleaner or propane enrichment tool for vacuum leak testing
- Digital multimeter for checking sensor and actuator circuits
- Fuel pressure gauge for verifying pump and regulator operation
- Basic hand tools for hose clamps, throttle body removal, and sensor replacement



Reading P1507

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Volkswagen): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 07** The exact fault within that area.

Often seen with

P0101 Mass/Volume Air Flow Circuit Range/Performance · **P0171** System Too Lean (Bank 1) · **P0505** Idle Control System Malfunction · **P0507** Idle Control System RPM Higher Than Expected · **P2187** System Too Lean at Idle (Bank 1)

See it working

Watch the animated explainer [How a Refrigerator Works: The Cooling Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1507/>

