

GENERIC · POWERTRAIN

P2505

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2505

ECM/PCM Power Input Signal

P2505 indicates that the engine control module (ECM) or powertrain control module (PCM) has detected a problem with its main power input signal, meaning the voltage feed that keeps the computer alive and operating has dropped or become erratic. The computer monitors this input and sets the code when the signal falls outside the expected range, often due to a poor connection, damaged wire, or failing power source.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent stalling or no-start condition, especially when the engine is cold or under load
- Rough running or misfiring due to unstable power to the control module
- Electrical accessories behaving erratically or dimming lights
- Transmission shifting harshly or entering limp mode
- Complete failure of the engine to start if the power input is completely lost

Common causes, most likely first

- 1 Corroded, loose, or damaged battery terminals and cables
- 2 Blown fuses or faulty fusible links in the ECM/PCM power circuit
- 3 Damaged or chafed wiring between the battery and the ECM/PCM
- 4 Poor ground connection for the ECM/PCM
- 5 Failing ignition switch or main relay that supplies power to the ECM/PCM
- 6 Internal fault in the ECM/PCM itself (rare but possible)

How to diagnose and fix it

- 1 Inspect and clean battery terminals and cables, tightening them to the correct torque
- 2 Check all fuses and relays related to the ECM/PCM power supply, replacing any that are blown or suspect
- 3 Perform a voltage drop test on the power and ground circuits to the ECM/PCM to identify excessive resistance
- 4 Visually inspect the wiring harness for damage, chafing, or corrosion, repairing as needed
- 5 Test the ignition switch and main relay for proper operation, replacing if faulty
- 6 If all external circuits check out, test the ECM/PCM with a known-good unit or perform a bench test to confirm internal failure



Don't overlook the simple power supply

- A weak or failing battery can cause P2505 even if it still starts the engine, because the voltage may drop too low during cranking or under load.
- Corrosion inside a wire can increase resistance without visible damage, so a voltage drop test is more reliable than a simple continuity check.
- The code can be set by a momentary glitch, so always check for technical service bulletins (TSBs) for your specific vehicle before replacing parts.
- A poor ground connection at the ECM/PCM can mimic a power input fault, so never overlook ground circuits during diagnosis.
- After repairing the fault, the code may require several drive cycles to clear, and some vehicles need a relearn procedure for the ECM/PCM.

Can I keep driving with P2505?

If the vehicle is running normally, you can drive it to a repair shop, but avoid long trips or heavy loads. If the engine stalls, runs rough, or fails to start, stop driving and have the vehicle towed to prevent safety risks.

Tools that help

- Digital multimeter
- Test light
- Fuse puller
- Wire brush and terminal cleaner
- Socket set
- OBD-II scanner

Reading P2505

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

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P0600** Serial Communication Link Malfunction · **P0601** Internal Control Module Memory Checksum Error · **P0606** PCM Processor Fault



See it working

Watch the animated explainer [How an Elevator Works: Traction Lift in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2505/>

