

GENERIC · POWERTRAIN

P2516

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2516

A/C Refrigerant Pressure Sensor 'B' Circuit Range/Performance

P2516 indicates that the powertrain control module (PCM) has detected an out-of-range or erratic signal from the 'B' refrigerant pressure sensor circuit, which is used to monitor air conditioning (A/C) system pressure. The PCM expects a predictable voltage or digital message within a specific range, and when the signal falls outside that window or behaves erratically, it stores this code and may disable the A/C compressor to protect the system.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- The air conditioning may stop cooling or blow warm air because the compressor is disabled.
- The A/C compressor clutch may fail to engage at all, even when the climate control is set to maximum cooling.
- The A/C warning light or a general check engine light may illuminate on the dashboard.
- In some vehicles, the radiator cooling fan may run continuously or not at all due to shared pressure sensor logic.
- Often no symptoms besides the warning light, especially if the fault is intermittent and the PCM has not yet disabled the compressor.
- Poor fuel economy or altered engine idle quality if the PCM adjusts engine load based on a faulty pressure reading.

Common causes, most likely first

- 1 A failed A/C refrigerant pressure sensor 'B' that produces a skewed or intermittent signal.
- 2 Damaged, corroded, or loose wiring or connector pins in the sensor circuit, often due to vibration or heat exposure.
- 3 A short to ground or short to voltage in the signal or reference circuit, sometimes caused by chafed harness insulation.
- 4 Low refrigerant charge or a system pressure that is genuinely out of normal operating range, which the sensor correctly reports as abnormal.
- 5 A faulty PCM or a software calibration issue that misinterprets a valid sensor signal, though this is less common.
- 6 Contamination or debris on the sensor diaphragm, leading to a restricted or sluggish response.
- 7 Aftermarket accessories or previous repairs that tapped into the sensor wiring and introduced resistance or interference.



How to diagnose and fix it

- 1 Connect a scan tool and read live data for the A/C refrigerant pressure sensor 'B' to see if the voltage or pressure reading is stuck, erratic, or out of range.
- 2 Visually inspect the sensor, its connector, and the wiring harness for corrosion, chafing, or loose pins, and repair any obvious damage.
- 3 Check the refrigerant charge with a manifold gauge set to confirm the system pressure is within specification, ruling out a genuine low or high pressure condition.
- 4 Backprobe the sensor connector to measure reference voltage and signal voltage, comparing them to the manufacturer's expected values for the ambient temperature.
- 5 Perform a wiggle test on the harness while watching live data to catch intermittent faults that only appear under vibration or heat.
- 6 If the sensor signal is confirmed faulty and wiring is intact, replace the A/C refrigerant pressure sensor 'B' and clear the code to verify the repair.
- 7 If the code persists after sensor replacement, check for a faulty PCM or require a software update, and consult the factory service information for pinpoint tests.

What a pressure sensor code really means

- A genuine low refrigerant charge can set P2516 because the sensor accurately reports pressure below the expected range, so always verify system pressure before condemning the sensor.
- The 'B' sensor is often a second pressure sensor used for different control strategies, and on some vehicles it monitors high-side pressure for fan control, so a fault can affect cooling fan operation even when the A/C seems fine.
- Intermittent codes that appear only on hot days or after long drives often point to a failing sensor that drifts with temperature rather than a wiring fault, so replicate the condition before testing.
- A poor ground connection shared with other sensors can pull the reference voltage down and set this code along with others, so check grounds before replacing parts.
- Some vehicles use a linear pressure sensor while others use a simple switch; misdiagnosing the type can lead to testing the wrong circuit and replacing the wrong component.

Can I keep driving with P2516?

You can generally continue driving with P2516 because the PCM disables the A/C compressor to protect the system, but avoid using the A/C until the fault is repaired to prevent potential compressor damage. If the engine cooling fan also stops working, monitor engine temperature closely and avoid heavy traffic or prolonged idling.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Manifold gauge set for A/C refrigerant pressure
- Backprobe pins or breakout box
- Factory service information for voltage and pressure specifications

Reading P2516

- 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.
-
- 16** The exact fault within that area.

Often seen with

P0532 A/C Refrigerant Pressure Sensor 'A' Circuit Low · **P0533** A/C Refrigerant Pressure Sensor 'A' Circuit High
 · **P0645** A/C Clutch Relay Control Circuit · **P2515** A/C Refrigerant Pressure Sensor 'B' Circuit · **P2517** A/C Refrigerant Pressure Sensor 'B' Circuit Low

See it working

Watch the animated explainer [How an EGR Valve Works: Exhaust Gas Recirculation](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2516/>

