

GENERIC · CHASSIS

C054F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C054F

Vacuum Sensor B Circuit Low

C054F indicates that the powertrain control module has detected an abnormally low voltage signal from a vacuum sensor, typically the sensor that monitors the vacuum level in the intake manifold or a vacuum-operated system. The computer expects the sensor's output to fall within a specific voltage range for the current operating conditions, and a sustained low reading tells the module that the circuit is grounded, shorted, or the sensor itself has failed.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Chassis	Generic (all makes)	Medium	Intermediate	Brakes, steering and suspension

Symptoms you may notice

- Illumination of the check engine light or a specific vacuum system warning lamp on the dashboard.
- Often no symptoms besides the warning light, especially if the fault is intermittent or only affects a non-critical vacuum circuit.
- Rough idle, stumbling, or hesitation during acceleration if the vacuum sensor is used for load calculation.
- Poor fuel economy or increased emissions due to incorrect air-fuel mixture calculations.
- Erratic operation of vacuum-controlled accessories such as the brake booster, HVAC doors, or turbocharger wastegate.
- In some cases, a noticeable loss of engine power or a limp-home mode if the module defaults to a fixed vacuum value.

Common causes, most likely first

- 1 A short to ground in the sensor signal wire, often caused by chafed insulation or a pinched harness.
- 2 A faulty vacuum sensor that internally shorts the signal circuit to ground.
- 3 Corroded or loose electrical connector pins at the sensor or the control module, creating high resistance or a partial short.
- 4 A defective control module driver circuit that incorrectly pulls the signal line low.
- 5 Water intrusion into the sensor or connector, leading to corrosion and a low-voltage signal.
- 6 Aftermarket accessories or poor previous repairs that tapped into the sensor wiring and introduced a ground fault.



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data to confirm the vacuum sensor voltage is below the expected range at the time of the fault.
- 2 Visually inspect the sensor, its connector, and the wiring harness for damage, corrosion, or signs of water intrusion, repairing any obvious faults.
- 3 Disconnect the sensor and measure the voltage on the signal wire with the key on; if it remains low, the short is in the harness or module, not the sensor.
- 4 Perform a resistance check from the sensor signal wire to ground with the sensor and module disconnected to isolate a short to ground in the harness.
- 5 If the harness tests good, substitute a known-good sensor and clear the code to see if the fault returns, confirming whether the sensor is the culprit.
- 6 Check for technical service bulletins or wiring diagrams specific to the vehicle to identify any known harness routing issues or module software updates.
- 7 If the fault persists after all circuit and sensor checks, diagnose the control module itself, looking for internal shorts or failed driver circuits.

What a low vacuum signal really tells you

- A low voltage on the vacuum sensor circuit does not automatically mean the sensor has failed; a short to ground anywhere along the signal wire will produce the same reading.
- Many technicians replace the sensor first only to find the code returns because the real problem is a chafed wire behind the engine block or near a sharp bracket.
- On vehicles with active grille shutters or variable valve timing, a vacuum sensor fault can be set by a mechanical vacuum leak that causes the sensor to read lower than expected, even though the electrical circuit is intact.
- Intermittent C054F codes often appear after heavy rain or car washing, pointing to water ingress at the connector rather than a failed component.
- A poor ground connection for the sensor or the control module can elevate the ground reference and make the signal voltage appear low, so always verify ground integrity before condemning parts.

Can I keep driving with C054F?

You can usually continue driving with this code, but avoid heavy acceleration or towing until it is repaired, because incorrect vacuum readings can affect fuel delivery and emissions. If the engine runs poorly or stalls, have the vehicle inspected promptly to prevent further damage.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probing pins
- Wiring diagram or service information for the specific vehicle
- Vacuum gauge for verifying actual engine vacuum
- Hand tools for connector and harness inspection

Reading C054F

C	Chassis: brakes, steering and suspension.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
5	Brakes, steering and suspension.
4F	The exact fault within that area.

Often seen with

C054E Vacuum Sensor B Range/Performance · **P0105** MAP/Barometric Pressure Circuit Malfunction · **P0106** MAP/Barometric Pressure Circuit Range/Performance · **P0107** MAP/Barometric Pressure Circuit Low Input · **P0108** MAP/Barometric Pressure Circuit High Input

See it working

Watch the animated explainer [How Hydraulic Brakes Work: Pedal to Caliper](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/c054f/>

