

GENERIC · POWERTRAIN

P2017

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2017

Intake Manifold Runner Position Sensor/Switch Circuit High (Bank 1)

P2017 means the powertrain control module (PCM) has detected a high-voltage condition on the intake manifold runner position sensor circuit for bank 1, which is the side of the engine containing cylinder one. The sensor reports the physical position of the intake manifold runner flaps, and the PCM sets this code when the signal voltage on the sensor circuit exceeds the expected range for the current operating conditions.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms noticed by the driver
- Rough or unstable idle quality, especially when the engine is cold
- Reduced engine performance or a noticeable lack of power at low and mid-range engine speeds
- Hesitation or stumble during light acceleration from a stop
- Poor fuel economy or increased fuel consumption over time
- In some cases, a limp-home mode with limited engine speed or power

Common causes, most likely first

- 1 A faulty intake manifold runner position sensor that has failed internally and is sending an abnormally high voltage signal
- 2 A short to voltage on the sensor signal circuit, often caused by chafed or damaged wiring near the intake manifold or engine harness
- 3 A poor or corroded ground connection at the sensor or at the engine ground point, which can skew the signal voltage high
- 4 A stuck or binding intake manifold runner flap mechanism that forces the sensor to report an out-of-range position
- 5 A damaged or disconnected vacuum actuator or linkage that controls the runner flaps, causing the sensor to read incorrectly
- 6 A faulty PCM driver or internal circuit issue, though this is the least likely cause and should only be considered after all other possibilities are ruled out



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data for P2017, then command the intake manifold runner through its full range while watching the sensor voltage to confirm the fault is present and identify whether the signal stays high or spikes.
- 2 Visually inspect the sensor, its electrical connector, and the wiring harness for signs of damage, corrosion, or loose pins, and repair any obvious wiring faults before replacing parts.
- 3 Back-probe the sensor connector and measure the signal voltage with the key on and engine off, comparing it to the manufacturer's specification to determine whether the sensor or the circuit is at fault.
- 4 Check the sensor ground circuit for excessive resistance using a voltage drop test, and clean or repair any corroded ground connections.
- 5 Inspect the intake manifold runner flap linkage and actuator for binding, disconnection, or mechanical damage that could hold the sensor in a high-reading position.
- 6 If the circuit and linkage check out, replace the intake manifold runner position sensor with a quality part and clear the code, then verify the repair by cycling the runner through its range and confirming the voltage stays within specification.
- 7 After any repair, perform a road test with the scan tool connected to confirm the code does not return and that the runner position sensor reads correctly under all operating conditions.

What a high runner sensor reading really means

- A high signal voltage does not automatically mean the sensor is bad; a short to voltage on the signal wire or a bad ground can produce the same reading, so circuit testing must come before parts replacement.
On many engines, the intake manifold runner position sensor is integrated into the runner actuator assembly and cannot be replaced separately, which changes the repair approach and cost significantly.
- A sticking or carbon-fouled runner flap can hold the sensor in a high position and set P2017 even when the sensor and wiring are perfectly healthy, so mechanical inspection of the intake tract is essential.
- This code can be set intermittently by a loose connector or a wire that rubs through only during certain engine movements, so a wiggle test of the harness while watching live data often reveals the fault.
- P2017 is sometimes stored alongside misfire or lean-condition codes when the runner flaps are stuck open, and repairing only the sensor without addressing the mechanical flap issue will lead to a repeat failure.

Can I keep driving with P2017?

The vehicle is generally safe to drive to a repair shop because the fault mainly affects performance and fuel economy rather than immediate safety, but avoid heavy acceleration or towing until it is repaired. If the engine enters limp-home mode or runs very poorly, limit driving to a short distance at low speed.



Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probe pins
- Hand tools for intake manifold and sensor removal
- Vacuum pump or hand-operated actuator tool for testing the runner mechanism
- Wiring diagram and manufacturer service information for the specific vehicle

Reading P2017

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 17** The exact fault within that area.

Often seen with

P0300 Random/Multiple Cylinder Misfire Detected · **P2004** Intake Manifold Runner Control Stuck Open (Bank 1)
 · **P2016** Intake Manifold Runner Position Sensor/Switch Circuit Low (B · **P2018** Intake Manifold Runner Position
 Sensor/Switch Circuit Interm · **P2019** Intake Manifold Runner Position Sensor/Switch Circuit (Bank

See it working

Watch the animated explainer [How a Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2017/>

