

FORD · POWERTRAIN

P1516

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1516 · Ford

Intake Manifold Runner Control Input Error

P1516 on Ford vehicles means the powertrain control module (PCM) has detected an electrical input error from the intake manifold runner control (IMRC) system, which manages the butterfly valves in the intake runners to optimize airflow at different engine speeds. The PCM expects a specific voltage or signal from the IMRC actuator or sensor circuit, and the reading falls outside the acceptable range, indicating a fault in the wiring, actuator, or control module.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slight hesitation or stumble during light acceleration, especially when the engine is cold
- Reduced engine power or poor throttle response at certain RPM ranges
- Rough idle or unstable idle quality in some cases
- Decreased fuel economy due to incorrect intake airflow tuning
- In rare cases, a noticeable lack of top-end power as the runners fail to open

Common causes, most likely first

- 1 Faulty intake manifold runner control (IMRC) actuator or solenoid
- 2 Damaged or disconnected wiring in the IMRC circuit (open, short, or high resistance)
- 3 Corroded or loose electrical connector at the IMRC actuator or PCM
- 4 Failed IMRC position sensor (if equipped) sending an incorrect signal
- 5 Carbon buildup or mechanical binding in the intake runner linkage, preventing proper movement
- 6 PCM software glitch or internal fault (less common)
- 7 Vacuum leak or diaphragm failure in vacuum-operated IMRC systems (on older Ford engines)



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P1516 is the primary fault and not a secondary code.
- 2 Visually inspect the IMRC actuator, linkage, and electrical connector for damage, corrosion, or disconnected wires.
- 3 Check the IMRC circuit wiring for continuity, shorts to ground, and resistance using a digital multimeter, referring to the Ford service manual for pinouts.
- 4 Test the IMRC actuator with a bidirectional scan tool to command it open and closed while observing live data for position and voltage changes.
- 5 If vacuum-operated, inspect vacuum hoses and the actuator diaphragm for leaks or tears using a vacuum pump.
- 6 Clean or repair mechanical binding in the intake runner linkage, and verify free movement of the butterfly valves.
- 7 Replace the faulty IMRC actuator, sensor, or repair wiring as needed, then clear codes and verify the repair with a road test.

What Ford Techs Check Before Replacing IMRC

- A stuck or carbon-fouled IMRC linkage can mimic an electrical fault by forcing the actuator to draw excessive current, setting P1516 even when the actuator itself is good.
- On many Ford engines, the IMRC is vacuum-operated, and a leaking vacuum hose or failed diaphragm often sets P1516 without any electrical issue, so always check vacuum integrity first.
- P1516 can be triggered by a low battery or charging system problem that causes a voltage spike or drop, so verify battery and alternator health before condemning the IMRC.
- The IMRC position sensor signal can be skewed by a poor ground connection at the engine block, leading to false P1516 codes that disappear after cleaning grounds.
- After replacing the IMRC actuator, some Ford models require a PCM relearn or idle relearn procedure to prevent the code from returning immediately.

Can I keep driving with P1516?

You can usually drive with P1516, but expect reduced performance and possible hesitation; avoid heavy acceleration or towing until the fault is repaired to prevent further damage to the intake system.

Tools that help

- OBD-II scan tool with bidirectional control and live data capability
- Digital multimeter
- Vacuum pump and gauge (for vacuum-operated IMRC systems)
- Basic hand tools (screwdrivers, socket set, pliers)
- Ford service manual or wiring diagram for pinouts and specifications



Reading P1516

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

Often seen with

P1519 Intake Camshaft Control Bank 1 Malfunction · **P1517** Main Relay Circuit Electrical Malfunction · **P1518** Main Relay Circuit Short To B+ · **P1517** Idle Air Control Solenoid Signal 4 Circuit High Input · **P1518** Starter Switch Circuit Low Input · **P1519** IAC Valve Circuit Failure · **P1517** Cranking Neutral Drive Fault · **P1517** Cranking Neutral Drive Fault · **P1519** IAC Valve Circuit Failure · **P1517** Throttle Actuator Control (TAC) Module Performance · **P1518** Throttle Actuator Control (TAC) Module Serial Data Circuit · **P1519** Electronic Throttle Module Low Volts Communication Disable · **P1517** Intake Manifold Runner Control Input Error · **P1519** Intake Manifold Runner Control Stuck Open · **P1518** Intake Manifold Runner Control Fault Stuck Open · **P1519** Electronic Throttle Module Low Volts Communication Disable · **P1518** Throttle Actuator Control (TAC) Module Serial Data Circuit · **P1517** Throttle Actuator Control (TAC) Module Performance · **P1519** A Camshaft Position Actuator Bank 1 · **P2004** Intake Manifold Runner Control Stuck Open (Bank 1) · **P2005** Intake Manifold Runner Control Stuck Open (Bank 2)

See it working

Watch the animated explainer [Car Relay Test Bench: Test 4-Pin and 5-Pin Relays](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1516/>

