

FORD · POWERTRAIN

P1643

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1643 · Ford

Fuel Pump Monitor Circuit Low Input

P1643 on a Ford means the powertrain control module (PCM) has detected a low-voltage condition on the fuel pump monitor circuit, which is the feedback wire the PCM uses to confirm the fuel pump is receiving power and running. The PCM commands the fuel pump on and then watches the monitor circuit for the expected voltage; when that signal stays below the calibrated threshold, it logs this code and may illuminate the check engine light.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Computer and output circuits

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the fuel pump still runs normally
- Engine cranks but fails to start or starts only after a long crank when the monitor fault is severe
- Intermittent stalling or a sudden loss of power while driving, particularly under load
- Rough running or hesitation if the fuel pump is actually weak and the monitor circuit is reporting the truth
- A no-start condition that appears only in damp weather or after the vehicle sits overnight
- Fuel pump relay clicking or cycling repeatedly in some cases where the monitor circuit is shorted

Common causes, most likely first

- 1 A damaged or corroded fuel pump monitor wire between the PCM and the fuel pump connector, often at the tank harness
- 2 A failed fuel pump assembly where the internal monitor circuit or pump motor has an open or high-resistance path
- 3 A poor ground at the fuel pump mounting flange or the chassis ground point near the tank
- 4 A short to ground on the monitor circuit, frequently where the harness rubs against the frame or tank shield
- 5 A faulty fuel pump driver module (FPDM) on vehicles that use one, which can pull the monitor signal low
- 6 Corrosion or water intrusion in the fuel pump connector or the inline harness connector above the tank
- 7 A PCM internal fault on the monitor input circuit, which is rare but does occur after water intrusion into the PCM connector



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P1643, then clear the code and verify whether it returns immediately or only after a drive cycle
- 2 Inspect the fuel pump harness and connector at the tank for chafing, corrosion, or water intrusion, and repair any damaged wiring
- 3 Measure resistance and voltage drop on the fuel pump monitor circuit from the PCM connector to the fuel pump connector, comparing to the Ford service specification
- 4 Check the fuel pump ground circuit and the chassis ground point near the tank for cleanliness and tightness
- 5 Command the fuel pump on with a scan tool and watch the monitor circuit voltage to see whether the PCM is receiving the expected feedback
- 6 If the monitor circuit is intact, test the fuel pump assembly itself for correct resistance and current draw, and replace the pump if it is out of specification
- 7 On vehicles with a fuel pump driver module, swap or test the module before condemning the PCM, and only replace the PCM after all other circuits are verified

What the fuel pump monitor really checks

- The fuel pump monitor circuit is not a fuel pressure sensor; it is a feedback voltage the PCM uses to confirm the pump is powered, so a low reading often points to wiring or a ground rather than a weak pump.
- Many Fords will set P1643 and still run perfectly because the monitor circuit has a high-resistance connection that only drops voltage under certain conditions, so a simple key-on test can miss the fault.
- A common misdiagnosis is replacing the fuel pump when the actual problem is a corroded connector above the fuel tank that is exposed to road spray and salt.
- On vehicles with a fuel pump driver module, a failing module can pull the monitor signal low and set P1643 even though the pump itself is healthy, so test the module before dropping the tank.
- The PCM may set P1643 as a companion code when the fuel pump relay or inertia switch circuit has an issue, so always check for related codes before chasing the monitor wire.

Can I keep driving with P1643?

You can usually drive the vehicle if it starts and runs normally, but avoid long trips or heavy load until the fault is diagnosed because an intermittent fuel pump circuit can cause a sudden stall. If the engine cranks without starting or stalls repeatedly, stop driving and have the vehicle towed to prevent a no-start situation in traffic.

Tools that help

- OBD-II scan tool with Ford-specific software and bidirectional fuel pump control
- Digital multimeter with voltage drop and resistance capability
- Wiring diagram and connector pinout for the specific Ford model
- Fuel pressure gauge for confirming actual pump performance
- Hand tools for accessing the fuel pump connector and ground points



Reading P1643

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Ford): its meaning depends on the make.
- 6** Computer and output circuits.
- 43** The exact fault within that area.

Often seen with

P1235 Fuel Pump Control Circuit · **P1235** VSV 1/2/3 Circuit Range Performance · **P1233** Fuel Pump Driver Module Off-Line · **P1235** Fuel Pump Control Out of Range · **P0230** Fuel Pump Primary Circuit Malfunction · **P0231** Fuel Pump Secondary Circuit Low · **P0232** Fuel Pump Secondary Circuit High

See it working

Watch the animated explainer [How a Starter Motor Works: Pre-Engaged Starter](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1643/>

