

GENERIC · POWERTRAIN

P2B18

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B18

Cylinder 5 Injection Pulse Offset Not Learned

P2B18 indicates that the engine control module (ECM) has not successfully learned the injection pulse offset for cylinder 5, which is a fuel injector correction value used to balance fuel delivery across all cylinders. The ECM monitors crankshaft speed fluctuations during combustion events and expects to complete a learn routine for each injector, but for cylinder 5 that adaptation has not been stored or has failed to complete.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight rough idle or vibration that may be more pronounced when the engine is cold.
- Intermittent misfire sensation or hesitation during light acceleration.
- Slightly reduced fuel economy over time as the ECM relies on default injector values.
- In some cases, a stored pending code or freeze-frame data showing the fault occurred during a specific driving condition.

Common causes, most likely first

- 1 A faulty or dirty fuel injector on cylinder 5 that prevents the ECM from completing the learn routine.
- 2 Carbon buildup or mechanical wear in cylinder 5 causing inconsistent combustion pulses.
- 3 A weak or failing ignition coil or spark plug on cylinder 5 that affects combustion stability.
- 4 Low fuel pressure or a restricted fuel line that disproportionately affects one cylinder during learn conditions.
- 5 An intermittent electrical fault in the cylinder 5 injector circuit, such as a chafed wire or poor connector pin tension.
- 6 A software calibration issue in the ECM that prevents the offset learn from finalizing under certain conditions.
- 7 A vacuum leak or intake manifold gasket leak near cylinder 5 that skews the learned offset.



How to diagnose and fix it

- 1 Connect a scan tool and verify the code is current, then check for any related misfire or fuel trim codes that could indicate a root cause.
- 2 Inspect the cylinder 5 spark plug and ignition coil for wear or damage, and replace them if they show signs of fouling or failure.
- 3 Perform a fuel injector balance test or cylinder contribution test to compare cylinder 5 against the others.
- 4 Check fuel pressure and volume against the manufacturer's specification to rule out a supply issue.
- 5 Inspect the cylinder 5 injector electrical connector and wiring for corrosion, looseness, or damage, and repair as needed.
- 6 Run the manufacturer's specific injector offset learn procedure with a capable scan tool, following all preconditions such as engine temperature and battery voltage.
- 7 If the learn still fails, remove and professionally clean or replace the cylinder 5 fuel injector, then repeat the learn procedure.

What the offset learn really needs

- The injection pulse offset learn is often blocked by something as simple as a low battery or unstable idle, so verify battery voltage and ensure all accessories are off before running the routine.
- A dirty mass airflow sensor or a small vacuum leak can prevent the ECM from achieving the stable combustion needed to learn the offset, even though the fault points to cylinder 5.
- Many technicians replace the cylinder 5 injector prematurely when the real problem is a worn spark plug or a failing ignition coil that only shows up under the specific learn conditions.
- On some vehicles, the offset learn will not complete until the engine has reached a specific coolant temperature and the transmission is in a particular gear, so always follow the factory preconditions exactly.
- This code can set after a battery replacement or ECM reprogramming if the learn procedure was not performed, and it does not necessarily indicate a physical fault with cylinder 5.

Can I keep driving with P2B18?

The vehicle is generally safe to drive with this code because it does not indicate an immediate safety hazard, but prolonged driving with an unlearned offset can lead to rough running and reduced fuel economy. Avoid heavy acceleration or towing until the fault is diagnosed and the learn procedure is completed.

Tools that help

- OBD-II scan tool with bidirectional control and manufacturer-specific learn functions
- Fuel pressure gauge
- Digital multimeter
- Spark plug socket and torque wrench
- Fuel injector balance tester or cylinder contribution tester



Reading P2B18

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- 18** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0205** Injector Circuit/Open - Cylinder 5 · **P0305** Cylinder 5 Misfire Detected · **P2B17** Cylinder 4 Injection Pulse Offset Exceeded Learning Limit · **P2B19** Cylinder 5 Injection Pulse Offset Exceeded Learning Limit

See it working

Watch the animated explainer [How a Six-Speed Manual Gearbox Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2b18/>

