

GENERIC · POWERTRAIN

P2D2E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2D2E

Cold Start Intake Manifold Runner Performance Bank 2

P2D2E indicates that the powertrain control module detected a performance problem with the intake manifold runner system on bank 2 during a cold start. The computer commands the runner actuator to a specific position and compares the actual position or resulting airflow change against what is expected, flagging the code when the response falls outside the calibrated range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling immediately after a cold start that may smooth out as the engine warms
- Reduced engine power or sluggish acceleration during the first few minutes of driving
- Occasional lean misfire codes or hesitation on bank 2 when the engine is cold
- A slight whistle or rattle from the intake manifold area during cold-start runner actuation

Common causes, most likely first

- 1 Carbon buildup or sludge on the intake manifold runner flaps or linkage, restricting movement on bank 2
- 2 A faulty intake manifold runner actuator or vacuum motor that fails to move the flaps through their full range
- 3 A damaged or disconnected vacuum line supplying the runner actuator on bank 2
- 4 A failed intake manifold runner position sensor that reports an incorrect flap position
- 5 Wiring damage, corrosion, or a loose connector at the runner actuator or position sensor on bank 2
- 6 A stuck or binding runner control valve or flap shaft due to wear or debris
- 7 A software calibration issue in the powertrain control module that misinterprets cold-start runner behavior



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then verify the freeze-frame data to confirm the fault occurred during a cold start
- 2 Visually inspect the bank 2 intake manifold runner actuator, linkage, and vacuum lines for obvious damage, disconnection, or binding
- 3 Command the runner actuator through its full range with a bidirectional scan tool while watching the position sensor feedback for smooth, consistent movement
- 4 Check the vacuum supply to the actuator with a vacuum gauge and compare it to the manufacturer's specification during cold-start conditions
- 5 Clean the intake manifold runner flaps and linkage with an approved carbon solvent if buildup is found, then re-test actuator movement
- 6 Test the runner position sensor and actuator circuits for resistance, continuity, and shorts, repairing any damaged wiring or connectors
- 7 If all mechanical and electrical checks pass, reflash or replace the powertrain control module only after confirming the calibration is the root cause

Cold-start runner faults that fool technicians

- A runner actuator that tests fine on a warm engine can still fail the cold-start test because thermal contraction changes clearances and vacuum behavior, so always reproduce the fault from a true cold soak.
- Carbon buildup on the runner flaps is often the real culprit even when the actuator and sensor pass electrical tests, and a simple visual inspection with a borescope can save hours of circuit diagnosis.
- This code can be set by a vacuum leak that only appears when the engine is cold, such as a cracked vacuum reservoir or a hardened hose that seals as it warms, so smoke-test the intake system cold.
- Technicians sometimes replace the bank 2 runner actuator when the actual problem is a shared vacuum supply or a bank 1 component affecting overall manifold behavior, so verify bank-specific commands before condemning parts.
- A weak battery or low charging voltage during cranking can cause the runner actuator to move too slowly on the first cold start, setting P2D2E without any hard part failure.

Can I keep driving with P2D2E?

The vehicle is generally safe to drive, but avoid heavy acceleration or towing until the fault is repaired because the runner system affects cold-start emissions and low-speed torque. If the check engine light begins flashing or the engine runs very rough, stop driving and have it inspected promptly.



Tools that help

- OBD-II scan tool with bidirectional control and live data
- Vacuum gauge and hand vacuum pump
- Digital multimeter
- Borescope or inspection mirror
- Carbon-safe intake cleaner and shop rags
- Basic hand tools and socket set

Reading P2D2E

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

Often seen with

P2004 Intake Manifold Runner Control Stuck Open (Bank 1) · **P2005** Intake Manifold Runner Control Stuck Open (Bank 2) · **P2019** Intake Manifold Runner Position Sensor/Switch Circuit (Bank · **P2D2D** Cold Start Intake Manifold Runner Performance Bank 1 · **P2D2F** Cold Start Turbocharger/Supercharger A Underboost

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2d2e/>

