GENERIC · POWERTRAIN

P2D2D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2D2D

Cold Start Intake Manifold Runner Performance Bank 1

P2D2D indicates that the engine computer has detected a performance problem with the intake manifold runner control system on bank 1 during a cold start. The computer commands the runner flaps to a specific position for cold-start efficiency and emissions, then monitors the result through manifold pressure or airflow sensors; when the expected change does not occur within the calibrated time, it stores this code.

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 or unstable idle immediately after a cold start, especially in low ambient temperatures.
- Slight hesitation or stumble during the first few minutes of driving after a cold start.
- Reduced fuel economy over time if the runner flaps remain stuck in one position.
- In some cases, a faint rattle or ticking from the intake manifold area when the engine is cold, indicating a loose or worn linkage.

Common causes, most likely first

1. Carbon buildup or sludge on the intake manifold runner flaps or their pivot shafts, restricting movement.
2. A failed or sticking vacuum actuator or electric motor that operates the runner control linkage.
3. A disconnected, cracked, or leaking vacuum hose supplying the runner actuator.
4. A faulty intake manifold runner control solenoid or position sensor sending incorrect feedback.
5. Wear or binding in the mechanical linkage between the actuator and the runner flaps.
6. A wiring fault, such as an open circuit or poor ground, in the runner control circuit.
7. A rare internal failure of the intake manifold itself, such as a broken flap shaft or damaged bearing.

How to diagnose and fix it

1. Verify the code with a scan tool and check for any related codes in the intake manifold runner control or mass airflow sensor circuits.
2. Inspect all vacuum hoses and electrical connectors at the runner actuator and solenoid for cracks, looseness, or corrosion.
3. Command the runner control through the scan tool and observe whether the actuator moves and whether the manifold pressure or airflow reading changes as expected.
4. Remove the intake manifold or runner assembly as needed and clean carbon deposits from the flaps and pivot points using an approved intake cleaner.
5. Test the actuator and solenoid with a hand vacuum pump or direct power source to confirm they operate smoothly through their full range.
6. Replace any failed actuator, solenoid, sensor, or damaged hose, then clear the code and perform a cold-start relearn or drive cycle to verify the repair.
7. If the mechanical linkage or manifold internals are worn beyond cleaning, replace the affected intake manifold runner assembly.

Cold-start runner faults that fool technicians

- This code often sets only during a cold start because the runner flaps are commanded to a position they rarely use when the engine is warm, so a sticking flap may pass every warm-engine test.
- A dirty mass airflow sensor or a small vacuum leak can skew the manifold pressure readings enough to trigger P2D2D even when the runner flaps move freely, so verify airflow data before condemning the actuator.
- Many technicians replace the actuator only to find the pivot shafts are carboned up; always check that the flaps move by hand through their full travel before installing new parts.
- On some engines the runner control is vacuum-operated and the vacuum reservoir or check valve is shared with other systems, so a fault elsewhere can cause this code to set without any runner component being defective.
- The code does not always mean the runner flaps are stuck; a slow or lazy actuator that still moves but not within the expected time can set P2D2D, so observe actuator response time with a scan tool.

Can I keep driving with P2D2D?

You can usually continue driving, but avoid hard acceleration or heavy loads until the fault is repaired, because the engine may not deliver full power or fuel economy. 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 capability
- Hand vacuum pump with gauge
- Digital multimeter
- Basic socket and wrench set
- Intake cleaner and shop rags
- Flashlight or inspection mirror

Reading P2D2D

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
D	Hybrid propulsion.
2D	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) · **P2015** Intake Manifold Runner Position Sensor/Switch Circuit Range/ · **P2D2C** Engine Coolant Temperature Measurement System - Multiple Sen · **P2D2E** Cold Start Intake Manifold Runner Performance Bank 2

See it working

Watch the animated explainer **EV Powertrain Trainer: How an Electric Car Drives** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p2d2d/