



P02A7

Cylinder 4 - Fuel Trim at Min Limit

P02A7 indicates that the powertrain control module has detected the fuel trim correction for cylinder 4 has reached its minimum limit, meaning the engine computer can no longer lean out the mixture for that cylinder. The computer commands the injector to deliver less fuel, but the exhaust gas sensor still reports a rich condition, so the trim stays pegged at the lean limit.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Fuel and air metering (injector circuits)

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or misfire sensation, especially when the engine is cold
- Decreased fuel economy due to excessive fuel delivery on one cylinder
- Black sooty exhaust or strong fuel odor from the tailpipe
- Slight hesitation or stumble during acceleration

Common causes, most likely first

- 1 Leaking or stuck-open fuel injector on cylinder 4
- 2 Faulty oxygen sensor or air-fuel ratio sensor reading rich incorrectly
- 3 Exhaust leak before the sensor causing false rich readings
- 4 High fuel pressure from a failing fuel pressure regulator
- 5 Restricted intake or air filter affecting only one cylinder
- 6 Wiring or connector issue to the cylinder 4 injector causing it to stay open
- 7 Mechanical issue such as a sticking valve or worn piston rings on cylinder 4

How to diagnose and fix it

- 1 Scan all stored codes and freeze-frame data to confirm P02A7 is the primary fault and not a secondary code
- 2 Inspect the air intake system for restrictions or leaks that could affect cylinder 4
- 3 Check fuel pressure with a gauge and compare to manufacturer specifications
- 4 Perform a cylinder balance test or injector flow test to isolate the faulty injector
- 5 Swap the cylinder 4 injector with another cylinder and see if the code follows the injector
- 6 Inspect the oxygen sensor and exhaust system for leaks or contamination
- 7 Replace the faulty injector or sensor as indicated by the tests, then clear codes and verify the repair



What a min-limit fuel trim really means

- A fuel trim at the minimum limit means the computer is trying to remove fuel, so the root cause is almost always a rich condition, not a lean one.
- A dirty mass airflow sensor can skew the global fuel trim and push one cylinder to its limit even if that cylinder's injector is fine.
- Exhaust leaks upstream of the oxygen sensor can draw in outside air and cause the sensor to report a false rich condition, leading to this code.
- A stuck-open injector may not always set a misfire code, so P02A7 can be the only clue to a mechanical fuel delivery problem.
- After repairs, the fuel trim must be reset and the vehicle driven through a complete drive cycle before the code will clear permanently.

Can I keep driving with P02A7?

You can drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because the rich condition can damage the catalytic converter and spark plugs over time. If the check engine light begins flashing, stop driving immediately and seek professional service.

Tools that help

- OBD-II scan tool with live data and fuel trim graphing
- Fuel pressure gauge
- Digital multimeter for injector and sensor testing
- Cylinder balance tester or injector flow bench
- Mechanic's stethoscope for listening to injector operation

Reading P02A7

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
2	Fuel and air metering (injector circuits).
A7	The exact fault within that area.

Often seen with

P0172 System Too Rich (Bank 1) · **P0175** System Too Rich (Bank 2) · **P02A6** Cylinder 4 - Fuel Trim at Max Limit · **P02A8** Cylinder 4 - Injector Restricted · **P0304** Cylinder 4 Misfire Detected



See it working

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

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p02a7/>

