

GENERIC · POWERTRAIN

P0209

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0209

Injector Circuit/Open - Cylinder 9

P0209 indicates that the powertrain control module has detected an open circuit in the fuel injector circuit for cylinder 9, meaning the electrical path to that injector is broken or has excessive resistance. The computer commands the injector to fire but sees no expected current flow or voltage drop, so it flags the circuit as open.

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

Symptoms you may notice

- Rough idle or misfire, especially noticeable at low speeds
- Engine hesitation or stumble during acceleration
- Often no symptoms besides the warning light, particularly on engines with many cylinders where one dead cylinder is less noticeable
- Reduced fuel economy due to the affected cylinder not contributing power
- Possible shaking or vibration from the engine bay

Common causes, most likely first

- Failed fuel injector solenoid with an open internal coil
- Damaged or disconnected electrical connector at the injector
- Broken, chafed, or corroded wire in the injector harness
- Open circuit in the injector driver circuit inside the powertrain control module (PCM)
- Poor ground connection for the injector circuit
- Rodent damage to wiring insulation

How to diagnose and fix it

- Inspect the injector connector for looseness, corrosion, or pushed-out pins and reseal or repair as needed
- Check the injector harness for continuity and shorts between the PCM and the injector using a wiring diagram
- Measure the resistance of the injector coil with a multimeter and compare to specification
- Perform a injector balance test or use a noid light to confirm the PCM is commanding the injector
- If the circuit and injector test good, check for a faulty PCM driver by back-probing the control wire
- Replace the faulty injector if its coil is open or out of specification
- Repair or replace damaged wiring and clear the code, then verify the repair with a test drive



Cylinder 9 injector circuit quirks

- Cylinder 9 exists only on engines with nine or more cylinders, such as certain V10 or V12 configurations, so confirm the engine actually has a ninth cylinder before chasing this code.
- A common misdiagnosis is replacing the injector when the real fault is a chafed wire in the harness near a hot exhaust component or a sharp bracket.
- The PCM may set P0209 even if the injector still clicks during a noid light test, because the driver circuit can detect an open only under load or at specific pulse widths.
- Corrosion inside the injector connector can create an intermittent open that only appears after the engine warms up and vibration increases.
- Always check for related misfire codes like P0309 first; a misfire code alone does not confirm an injector circuit fault, but together they point to that cylinder.

Can I keep driving with P0209?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because the misfire can overheat the catalytic converter and waste fuel. If the engine shakes violently or flashes the check engine light, stop driving and have it towed.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Noid light
- Wiring diagram for the injector circuit
- Basic hand tools and terminal pick set

Reading P0209

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).
09	The exact fault within that area.

Often seen with

P0208 Injector Circuit/Open - Cylinder 8 · **P0210** Injector Circuit/Open - Cylinder 10 · **P0309** Cylinder 9 Misfire Detected · **P2146** Fuel Injector Group 'A' Supply Voltage Circuit/Open · **P2149** Fuel Injector Group 'B' Supply Voltage Circuit/Open



See it working

Watch the animated explainer [How an Oxygen Sensor Works: Live 3D Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0209/>

