

GENERIC · POWERTRAIN

P01DC

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01DC

Cylinder 9 Injection Timing Performance - Over Advanced

P01DC means the engine control module has detected that the fuel injector for cylinder 9 is spraying fuel too early relative to the commanded injection timing, a condition called over-advanced injection timing. The computer compares the actual injector response, typically via a fuel pressure or injector current feedback signal, against the expected timing window and sets this code when the deviation exceeds a calibrated threshold.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or a noticeable misfire sensation, especially when the engine is cold
- Reduced engine power or a limp-home mode on some vehicles
- Increased fuel consumption due to inefficient combustion
- Black smoke or fuel odor from the exhaust in severe cases
- Hard starting or extended cranking before the engine fires

Common causes, most likely first

- 1 Sticking or contaminated fuel injector for cylinder 9, causing delayed or erratic needle response
- 2 Faulty injector harness connector or chafed wiring at the cylinder 9 injector
- 3 Low fuel pressure or a restricted fuel filter that alters injector opening dynamics
- 4 Failed fuel rail pressure sensor or injector timing sensor providing inaccurate feedback
- 5 Engine control module software calibration issue or internal driver fault for that injector circuit
- 6 Mechanical wear in the high-pressure fuel pump affecting injection timing on common-rail systems
- 7 Debris or corrosion in the fuel system that partially blocks the injector inlet



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data to confirm the code is active and check for related injector or fuel pressure codes
- 2 Inspect the cylinder 9 injector connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Measure fuel pressure at the rail and compare to specification, replacing a restricted filter if pressure is low
- 4 Perform an injector balance or contribution test to compare cylinder 9 against the other cylinders
- 5 Check the fuel rail pressure sensor signal for accuracy and replace it if readings are erratic
- 6 Swap the cylinder 9 injector with a known-good injector from another cylinder to see if the code follows the injector
- 7 If the fault persists after electrical and fuel delivery checks, reprogram or replace the engine control module per manufacturer procedures

Over-advanced timing is rarely just the injector

- A weak or failing fuel pump can cause over-advanced injection timing because the injector opens more slowly against lower rail pressure, so always verify fuel pressure before condemning the injector.
- On common-rail diesel engines, a worn high-pressure pump or a sticking pressure control valve can produce this code on one cylinder without any injector fault at all.
- The code can be set by a momentary glitch in the injector feedback signal that does not repeat, so clear the code and road-test the vehicle before starting parts replacement.
- A dirty mass airflow sensor or a vacuum leak can alter the calculated injection timing on some strategies, making P01DC a secondary symptom rather than the root cause.
- After replacing an injector, many vehicles require a pilot injection learning or injector coding procedure with a scan tool, and skipping it can immediately reset P01DC.

Can I keep driving with P01DC?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or sustained high-speed driving because over-advanced injection timing can cause pre-ignition, elevated combustion temperatures, and long-term engine damage. If the check engine light is flashing or the engine is misfiring badly, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and injector balance capability
- Fuel pressure gauge or fuel rail pressure test kit
- Digital multimeter for circuit and sensor testing
- Noid light or injector pulse tester
- Hand tools for injector and connector access
- Manufacturer service information for timing and coding procedures



Reading P01DC

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

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P01D6** Cylinder 6 Injection Timing Performance - Over Advanced · **P01D8** Cylinder 7 Injection Timing Performance - Over Advanced · **P01DA** Cylinder 8 Injection Timing Performance - Over Advanced · **P0209** Injector Circuit/Open - Cylinder 9

See it working

Watch the animated explainer [How a Coolant Temperature Sensor Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01dc/>

