

GENERIC · POWERTRAIN

P021F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P021F

Cylinder 12 Injection Timing

P021F indicates that the powertrain control module has detected an injection timing fault specific to cylinder 12, typically by comparing the commanded injection event to the feedback signal from that cylinder's injector or the resulting crankshaft speed variation. The computer expects the fuel delivery to occur at a precise moment in the combustion cycle, and when the actual timing deviates beyond a calibrated threshold, this code is stored.

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 a noticeable vibration that feels like a miss on one cylinder
- Reduced engine power or a stumble during acceleration
- Increased fuel consumption as the engine compensates for poor combustion
- Occasional misfire or shaking under load, especially at higher speeds
- Hard starting or extended cranking in some cases

Common causes, most likely first

- 1 Faulty or sticking fuel injector on cylinder 12, causing delayed or inconsistent injection
- 2 Wiring damage or poor electrical connection at the cylinder 12 injector harness
- 3 Failed injection timing sensor or crankshaft position sensor providing inaccurate feedback
- 4 Contaminated or degraded engine oil affecting hydraulic lash adjusters or variable valve timing components
- 5 Internal engine wear, such as a worn camshaft lobe or lifter, altering the effective injection window
- 6 Software calibration issue in the powertrain control module requiring an update
- 7 Low fuel pressure or a restricted fuel rail affecting delivery timing to that cylinder



How to diagnose and fix it

- 1 Perform a visual inspection of the cylinder 12 injector connector and harness for corrosion, chafing, or loose pins
- 2 Check fuel pressure and verify the fuel system is delivering the specified volume and pressure
- 3 Use a scan tool to monitor injection timing parameters and compare cylinder 12 to other cylinders for deviation
- 4 Swap the cylinder 12 injector with a known-good injector from another cylinder and see if the fault follows
- 5 Test the injection timing sensor and crankshaft position sensor with an oscilloscope for signal integrity
- 6 Inspect engine oil condition and level, and verify variable valve timing operation if equipped
- 7 Reflash or update the powertrain control module software if a known calibration issue exists

Cylinder 12 timing faults often misdiagnosed

- A dirty or failing injector on cylinder 12 is frequently the root cause, yet many technicians replace the entire injector bank before testing individual injector performance.
- The code can be set by a marginal battery or charging system issue that causes voltage drops affecting injector driver operation, so always verify battery and ground integrity first.
- On engines with variable valve timing, a slow or stuck phaser can alter the effective injection timing window and trigger P021F without any injector fault at all.
- P021F does not always mean the injector is electrically failed; it can be a mechanical restriction or a calibration drift that only appears under specific load and temperature conditions.
- Related codes such as P0300 or P021E may accompany P021F, and ignoring those can lead to replacing the wrong component because the timing fault is a symptom rather than the cause.

Can I keep driving with P021F?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or sustained high-speed driving until the fault is diagnosed. Prolonged driving with a misfire or timing fault can damage the catalytic converter and increase repair costs.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter for electrical checks
- Oscilloscope for signal analysis of injector and sensor waveforms
- Fuel pressure gauge
- Noid light or injector test kit



Reading P021F

- 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).
- 1F** The exact fault within that area.

Often seen with

P0200 Injector Circuit Malfunction · **P021E** Cylinder 11 Injection Timing · **P0261** Cylinder 1 Injector Circuit Low
 · **P0264** Cylinder 2 Injector Circuit Low · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p021f/>

