GENERIC · POWERTRAIN

P021E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P021E

Cylinder 11 Injection Timing

P021E is a generic powertrain code indicating that the engine control module has detected an abnormal condition in the injection timing for cylinder 11, which is typically part of a diesel engine's fuel injection system. The computer compares the commanded injection timing to the actual timing reported by the cylinder's injector or a related sensor 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 (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
- Reduced engine power or limp mode under load
- Increased fuel consumption and black smoke from the exhaust
- Hard starting or extended cranking before the engine fires
- Audible knocking or clattering from the engine bay during acceleration

Common causes, most likely first

1. Faulty or sticking fuel injector on cylinder 11
2. Wiring damage or poor electrical connection at the cylinder 11 injector harness
3. Failed injection timing sensor or crankshaft position sensor providing erratic signals
4. Contaminated or degraded engine oil affecting hydraulic injector performance
5. Low fuel pressure or air in the fuel system from a clogged filter or failing lift pump
6. Engine control module software calibration issue or internal fault

How to diagnose and fix it

1. Connect a scan tool and record all stored and pending codes, then check for related injector circuit codes before clearing anything.
2. Inspect the cylinder 11 injector harness and connector for chafed wires, corrosion, or loose pins, and repair as needed.
3. Perform a fuel system pressure test and replace the fuel filter if pressure is below specification.
4. Use a scan tool to run an injector balance or contribution test to compare cylinder 11 against the others.
5. Check engine oil condition and level, as degraded oil can affect hydraulic injector timing on some systems.
6. Swap the cylinder 11 injector with a known-good injector from another cylinder and see if the code follows the injector.
7. If the fault persists, verify the injection timing sensor signal with an oscilloscope and replace the sensor or reprogram the engine control module as directed by service information.

Cylinder 11 injection timing traps to avoid

- Cylinder 11 is often the last injector in the firing order on large diesel engines, so a single faulty injector can set this code without affecting overall drivability much.
- A weak battery or poor ground connection can cause the injector driver circuit to misreport timing, leading to a false P021E without any injector fault.
- On some engines, the injection timing sensor is integrated into the injector itself, so replacing just the sensor is not possible and the whole injector must be replaced.
- This code can be set by air ingress in the fuel system after a filter change or low-pressure pump replacement, so always check for air bubbles in the fuel line before condemning the injector.
- Do not overlook the engine control module calibration; a software update may correct a known timing calculation error that triggers P021E intermittently.

Can I keep driving with P021E?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because prolonged driving with incorrect injection timing can damage the injector, catalytic converter, or engine internals. If the engine enters limp mode or runs very rough, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and injector balance test capability
- Digital multimeter for circuit and resistance checks
- Fuel pressure test gauge
- Oscilloscope for analyzing injector and sensor signals
- Hand tools including socket set and torque wrench

Reading P021E

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).
1E	The exact fault within that area.

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P020B** Cylinder 2 Injection Timing · **P021D** Cylinder 10 Injection Timing · **P021F** Cylinder 12 Injection Timing · **P0263** Cylinder 1 Contribution/Balance

See it working

Watch the animated explainer **How a Rotary Engine Works: Wankel in X-Ray** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p021e/