



P1312 · Mazda

Injection Pump Timing Actuator Circuit

P1312 on Mazda vehicles indicates that the powertrain control module (PCM) has detected an electrical fault in the injection pump timing actuator circuit, which controls the fuel injection timing on diesel engines. The PCM monitors the actuator's command and feedback signals and sets this code when the circuit is open, shorted, or the actuator fails to respond as expected.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	High	Professional	Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or engine misfire, especially when cold
- Reduced engine power or limp mode activation
- Excessive black smoke from the exhaust due to incorrect injection timing
- Poor fuel economy and increased fuel consumption
- Hard starting or extended cranking before the engine fires

Common causes, most likely first

- 1 Faulty injection pump timing actuator (solenoid or servo) internally shorted or open
- 2 Damaged or corroded wiring harness between the PCM and the timing actuator
- 3 Loose or corroded electrical connectors at the actuator or PCM
- 4 Failed PCM driver circuit for the timing actuator
- 5 Contaminated or degraded engine oil affecting actuator operation (on oil-controlled systems)
- 6 Mechanical binding or wear inside the injection pump affecting actuator movement

How to diagnose and fix it

- 1 Perform a visual inspection of the actuator connector and wiring for damage, corrosion, or loose pins
- 2 Check the actuator's resistance and compare to factory specifications using a digital multimeter
- 3 Backprobe the actuator circuit at the PCM to verify command and feedback signals with a scan tool
- 4 Inspect the injection pump timing actuator for mechanical binding or contamination, and clean or replace as needed
- 5 Repair any wiring faults, including soldering and heat-shrinking damaged sections
- 6 Clear the diagnostic trouble codes (DTCs) and perform a road test to verify the repair
- 7 If the actuator and wiring are good, test the PCM driver circuit and replace the PCM if faulty



Common Misdiagnosis Traps for P1312

- A weak or failing battery or charging system can cause voltage drops that mimic a faulty timing actuator, so always check battery health and grounds first.
- On some Mazda diesel engines, the timing actuator is integrated into the injection pump and cannot be replaced separately, leading to unnecessary pump replacement if not diagnosed correctly.
- Dirty engine oil can clog the actuator's internal passages on oil-controlled systems, causing P1312 without any electrical fault; regular oil changes are critical.
- The code can be set intermittently by a poor connection that only acts up under vibration or temperature changes, so wiggle-test the harness while monitoring live data.
- A failed PCM is rare, but a shorted actuator can damage the PCM driver; always check for a shorted actuator before installing a new PCM to avoid repeat failure.

Can I keep driving with P1312?

Driving with P1312 is not recommended because incorrect injection timing can cause engine damage, excessive smoke, and poor performance. If you must drive, avoid heavy loads and high speeds, and have the vehicle diagnosed as soon as possible.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific Mazda model
- Basic hand tools (socket set, screwdrivers, pliers)
- Oscilloscope (optional for advanced signal analysis)

Reading P1312

- P** Powertrain: engine, transmission and emissions.
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- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
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- 3** Ignition system and misfire.
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- 12** The exact fault within that area.

Often seen with

P1313 Misfire Rate Catalyst Damage Fault Bank 1 · **P1313** A Camshaft Position Plausibility · **P0251** Injection Pump Fuel Metering Control 'A' (Cam/Rotor/Injector) · **P0252** Injection Pump Fuel Metering Control 'A' Range/Performance (· **P0253** Injection Pump Fuel Metering Control 'A' Low (Cam/Rotor/Inje



See it working

Watch the animated explainer [How a Helicopter Flies: Rotor and Tail in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1312/>

