

MAZDA · POWERTRAIN

P1318

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1318 · Mazda

Injection Timing Piston Position Sensor Circuit

P1318 on Mazda vehicles indicates that the powertrain control module (PCM) has detected an implausible or missing signal from the injection timing piston position sensor circuit. This sensor reports the actual position of the injection pump's internal timing piston, and the PCM uses that data to fine-tune injection timing for optimal combustion; when the signal is out of range or absent, the PCM sets this code and may default to a fixed timing strategy.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or intermittent misfire, especially when the engine is cold
- Reduced engine power and sluggish acceleration due to default injection timing
- Poor fuel economy as the PCM reverts to a less efficient timing map
- Hard starting or extended cranking, particularly in cold weather
- Excessive black smoke from the exhaust under load, indicating over-advanced injection timing

Common causes, most likely first

- 1 Faulty injection timing piston position sensor or a sensor that has drifted out of specification
- 2 Damaged or corroded wiring harness and connectors between the sensor and the PCM
- 3 Contaminated or degraded engine oil affecting the hydraulic action of the timing piston
- 4 Sticking or worn injection pump timing piston assembly
- 5 Failed PCM driver circuit for the sensor reference voltage or ground
- 6 Air trapped in the injection pump advance mechanism after recent fuel system work



How to diagnose and fix it

- 1 Verify battery voltage and ground integrity at the PCM and sensor connectors before any parts replacement
- 2 Inspect the sensor wiring for chafing, corrosion, or loose pins, and perform a wiggle test while monitoring live data
- 3 Check engine oil condition and level; contaminated oil can prevent the timing piston from moving freely
- 4 Use a scan tool to compare commanded versus actual injection timing and watch the piston position sensor voltage for dropouts
- 5 Measure sensor resistance and output voltage against Mazda specifications, replacing the sensor only if it fails the test
- 6 If the sensor and wiring test good, remove and inspect the injection pump timing piston for scoring or sticking
- 7 After repairs, clear the code and perform a road test with live data to confirm the piston position signal tracks correctly

What the piston position sensor really does

- A P1318 can be set by a lazy sensor that still produces a signal but responds too slowly, so a simple resistance check may pass while live data reveals the fault.
- Low oil pressure or the wrong oil viscosity can mimic a failed sensor because the timing piston relies on oil pressure to move; always verify oil condition before condemning the sensor.
- The code often appears after fuel filter replacement if the system was not properly primed, trapping air that disrupts the hydraulic advance mechanism.
- A failing crankshaft position sensor can cause timing correlation errors that the PCM misinterprets as a piston position fault, so check for companion codes before replacing parts.
- On some Mazda diesel engines, a P1318 will not clear until the adaptive injection timing values are reset with a factory-level scan tool, even after a correct repair.

Can I keep driving with P1318?

You can usually drive the vehicle to a workshop, but avoid heavy acceleration, towing, or long trips because the PCM is running on a default timing map that can increase exhaust temperatures and fuel consumption. If the engine runs very rough, misfires, or enters limp mode, stop driving and arrange a tow to prevent damage to the injection pump or catalytic converter.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probing pins
- Factory service information for Mazda sensor specifications and wiring diagrams
- Oil pressure gauge and oil condition test kit
- Hand tools for connector and sensor access



Reading P1318

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

Often seen with

P1319 Knock Sensor 1 Circuit Short To Ground · **P1320** Knock Sensor 2 Circuit Short To Ground · **P1320** Igniter Circuit Malfunction No 5 · **P1319** Spark Plug Voltage Detection Module Reset Circuit Malfunction · **P1320** Ignition Signal · **P1319** Injection Timing Piston Position Sensor Circuit Range Perfor · **P1319** Spark Plug Voltage Detection Module Reset Circuit Malfunction · **P1320** Distributorless Ignition 4X Signal Intermittent · **P1320** IC Module 4X Ref Circuit Intermittent No Pulses · **P0216** Injector/Injection Timing Control Circuit · **P0335** Crankshaft Position Sensor A Circuit Malfunction · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1)

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/mazda-p1318/>

