

MAZDA · POWERTRAIN

P1684

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1684 · Mazda

Metering Oil Pump Position Sensor Circuit

P1684 on a Mazda indicates that the powertrain control module (PCM) has detected an implausible signal from the metering oil pump position sensor circuit. This sensor reports the actual position of the metering oil pump, which delivers oil to the engine's apex seals in rotary engines, and the PCM sets the code when the voltage or position reading falls outside the expected range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Professional	Computer and output circuits

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or hesitation during acceleration if the pump fails to deliver sufficient oil.
- Reduced engine power or a limp mode in severe cases.
- Increased oil consumption or visible oil smoke from the exhaust.
- Difficulty starting or stalling, particularly on rotary engines with apex seal wear.
- A stored pending code or freeze-frame data showing the fault occurred under specific conditions.

Common causes, most likely first

- 1 Faulty metering oil pump position sensor or its internal circuitry.
- 2 Damaged or corroded wiring harness between the sensor and the PCM.
- 3 Loose or dirty electrical connector at the sensor or PCM.
- 4 Failed metering oil pump assembly, causing the sensor to read out of range.
- 5 PCM software glitch or internal fault, though rare.
- 6 Mechanical binding or obstruction in the metering oil pump linkage.



How to diagnose and fix it

- 1 Connect a scan tool and verify P1684 is current; record freeze-frame data to understand when the fault occurs.
- 2 Visually inspect the sensor connector and wiring for corrosion, chafing, or loose pins; repair as needed.
- 3 Measure the sensor's reference voltage and signal voltage with a multimeter and compare to Mazda specifications.
- 4 Check the resistance of the sensor across its terminals and compare to the factory range; replace if out of spec.
- 5 Perform a continuity test on each wire from the sensor to the PCM to rule out open or short circuits.
- 6 If wiring and sensor test good, substitute a known-good sensor and clear the code to see if it returns.
- 7 As a last step, reflash or replace the PCM only after confirming all other components are functioning correctly.

Rotary Engine Oil Metering Faults

- Many technicians misdiagnose P1684 as a simple sensor failure and replace the sensor without checking the metering oil pump itself, which can be worn and cause the sensor to read incorrectly.
- The code can be set intermittently by a poor ground connection at the engine block, leading to false sensor readings that disappear after cleaning the ground points.
- On Mazda rotary engines, a failing metering oil pump often produces no drivability symptoms until apex seal damage occurs, so ignoring the code can lead to catastrophic engine failure.
- A low oil level or incorrect oil viscosity can affect pump operation and trigger the code, so always check the oil condition and level before replacing parts.
- The PCM may set P1684 as a result of a CAN bus communication error with other modules, so scanning all systems for related codes is essential.

Can I keep driving with P1684?

It is not safe to continue driving with P1684 for an extended period because the metering oil pump may not be delivering adequate lubrication to the engine, which can lead to severe internal damage. Avoid high-speed or high-load driving and have the vehicle inspected by a qualified technician as soon as possible.

Tools that help

- OBD-II scan tool with Mazda-specific software
- Digital multimeter
- Wiring diagram for the specific Mazda model
- Socket set and trim removal tools
- Feeler gauges or precision measuring tools



Reading P1684

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
- 6** Computer and output circuits.
- 84** The exact fault within that area.

Often seen with

P1686 Control Unit Error Programming · **P1687** A/T FI Signal B High Input · **P1686** A/T FI Signal B Low Input · **P1683** Metering Oil Pump Temperature Sensor Circuit · **P1687** Metering Oil Pump Stepping Motor Cont Circuit · **P1685** Metering Oil Pump Stepping Motor Cont Circuit · **P1686** Metering Oil Pump Stepping Motor Cont Circuit · **P1686** A/T FI Signal B Low Input · **P1687** A/T FI Signal B High Input · **P1686** Driver 5 Line 6 · **P1687** Driver 5 Line 7 · **P1685** Driver 5 Line 5 · **P1683** Driver 5 Line 3 · **P1683** Speed Control Power Relay Or Speed Control 12 Volt Driver Ci · **P1686** No SKIM Bus Message Received · **P1687** No Cluster Bus Message · **P1685** Skim Invalid Key

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1684/>

