

MAZDA · POWERTRAIN

P1129

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1129 · Mazda

Downstream HO2S Sensors Swapped

P1129 on Mazda vehicles means the powertrain control module (PCM) has detected that the two downstream heated oxygen sensors (HO2S) are reporting values consistent with being plugged into the wrong connector. The PCM compares the switching activity and heater current of the downstream sensors after the catalytic converters and flags the code when the bank 1 and bank 2 signals are reversed.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air
metering

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Slightly rough running or hesitation if the swapped sensors are also slow to respond
- A pending P1129 that returns immediately after clearing if the connectors are still swapped
- Possible P0136 or P0156 codes for downstream sensor circuit faults stored alongside
- Fuel trim numbers that look normal at idle but drift at cruise because the PCM is misreading bank balance
- No driveability complaint at all in many cases, especially on V6 Mazdas with easy-to-swap connectors

Common causes, most likely first

- 1 Downstream HO2S connectors physically swapped between bank 1 and bank 2 during a prior sensor replacement
- 2 Harness repair or engine replacement where the downstream sensor pigtails were reconnected to the wrong sides
- 3 Aftermarket sensors with identical connectors and no keying, making a swap easy to miss
- 4 A damaged or corroded connector that forces a technician to re-pin the wrong wires
- 5 PCM reflash or replacement where the learned sensor configuration was not reset correctly



How to diagnose and fix it

- 1 Verify the stored code with a scan tool and check live downstream HO2S voltage on both banks to confirm the signals are reversed
- 2 Inspect the routing of the downstream sensor pigtails and confirm bank 1 (radiator side on transverse Mazdas) is connected to the bank 1 sensor
- 3 Trace both downstream sensor connectors back to the PCM and compare wire colors against the factory wiring diagram
- 4 Disconnect and swap the two downstream sensor connectors if they are found reversed, then clear the code and road test
- 5 Check for damaged connector locks or missing keyways that allowed the swap and repair or replace the affected pigtail
- 6 Clear adaptive fuel trim and oxygen sensor monitor data with the scan tool so the PCM relearns the correct bank balance
- 7 Road test through a complete drive cycle and confirm P1129 does not return before releasing the vehicle

Why downstream sensors get swapped

- The downstream sensors on many Mazda V6 engines have identical connectors and reach both sides of the exhaust, so a hurried sensor replacement can plug them in backwards without any forcing.
- P1129 does not mean either sensor is faulty; the sensors themselves often test perfectly and the only repair needed is to swap the connectors back.
- A swapped downstream pair can mask a real catalyst efficiency problem because the PCM is comparing the wrong bank signals, so always fix the swap before condemning a converter.
- Some aftermarket downstream sensors come with longer leads and no keyed connector, which makes a swap physically possible where the factory parts would not allow it.
- If the code returns immediately after swapping the connectors, check for a pinned-out or repaired harness where the wires were spliced to the wrong bank at the PCM.

Can I keep driving with P1129?

The vehicle is safe to drive with P1129 because the fault is a signal routing error rather than a failed component, but avoid long trips until the connectors are corrected. Driving with swapped downstream sensors can prevent the PCM from properly monitoring catalyst efficiency and may cause a failed emissions test.

Tools that help

- OBD-II scan tool with live data and mode 6 capability
- Digital multimeter
- Factory wiring diagram for the specific Mazda model
- Trim removal tool or pick for releasing connector locks
- Jack and jack stands or ramps for access to downstream sensors



Reading P1129

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
- 1** Fuel and air metering.
- 29** The exact fault within that area.

Often seen with

P0136 O2 Sensor Circuit Malfunction (Bank 1 Sensor 2) · **P0137** O2 Sensor Circuit Low Voltage (Bank 1 Sensor 2) · **P0156** O2 Sensor Circuit Malfunction (Bank 2 Sensor 2) · **P0157** O2 Sensor Circuit Low Voltage (Bank 2 Sensor 2) · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

See it working

Watch the animated explainer [Turbocharger Trainer: Boost, Wastegate and Intercooler](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1129/>

