

MAZDA · POWERTRAIN

P1402

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1402 · Mazda

EGR Valve Position Sensor Circuit

P1402 on a Mazda means the powertrain control module (PCM) has detected an abnormal signal from the exhaust gas recirculation (EGR) valve position sensor circuit. The PCM expects a specific voltage range from the sensor as the EGR valve moves, and when the signal stays out of range or does not change as commanded, it stores this code and turns on the check engine light.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Check engine light illuminated on the dashboard, often with no other noticeable symptoms
- Rough idle or stumbling when the engine is cold or at low speed
- Slight hesitation or surge during light acceleration
- Poor fuel economy or increased fuel consumption over time
- In some cases, a noticeable decrease in engine power or sluggishness
- Intermittent check engine light that comes and goes with temperature or vibration

Common causes, most likely first

- Faulty EGR valve position sensor integrated into the EGR valve assembly
- Wiring harness damage such as chafed, corroded, or broken wires between the sensor and PCM
- Loose or corroded electrical connector at the EGR valve position sensor
- Carbon buildup on the EGR valve pintle or sensor plunger causing binding and incorrect position readings
- Failed EGR valve actuator or mechanical binding inside the valve preventing proper movement
- PCM software issue or internal driver fault (less common)
- Vacuum supply problem or clogged EGR passage affecting valve operation and sensor feedback



How to diagnose and fix it

- 1 Connect a scan tool and read live data for the EGR valve position sensor voltage while commanding the valve open and closed; compare to specification.
- 2 Visually inspect the EGR valve position sensor connector and wiring for corrosion, loose pins, or chafing; repair or replace damaged sections.
- 3 Check the EGR valve for carbon buildup and mechanical binding; clean the valve passages and pintle if accessible without replacement.
- 4 Perform a resistance and voltage test on the position sensor according to Mazda service information; replace the EGR valve assembly if the sensor is faulty.
- 5 Verify vacuum supply to the EGR valve (if applicable) and check for clogged EGR passages in the intake manifold.
- 6 Clear the code and perform a drive cycle to confirm the repair; recheck live data to ensure the sensor signal tracks commanded position.
- 7 If the code persists after all electrical and mechanical checks, consult Mazda service information for possible PCM reprogramming or replacement.

Common misdiagnosis traps for P1402

- A dirty EGR valve often mimics a failed position sensor because carbon buildup restricts movement and the sensor reports an out-of-range signal; cleaning the valve can resolve the code without parts replacement.
- Wiring harness issues near the EGR valve are frequently overlooked because the connector looks fine from the outside; a wiggle test with live data can reveal intermittent faults.
- Some technicians replace the EGR valve only to find the code returns due to a clogged EGR passage in the intake manifold, which must be cleaned separately.
- P1402 can be set by a low battery or charging system problem that causes voltage spikes, so always verify battery and charging system health before condemning the sensor.
- On certain Mazda models, the EGR position sensor is not sold separately from the valve assembly, making proper diagnosis critical to avoid unnecessary expense.

Can I keep driving with P1402?

You can usually continue driving with P1402, but avoid long periods of idling or heavy load until the fault is repaired. Prolonged driving with a faulty EGR system can lead to increased emissions, reduced fuel economy, and potential damage to other emission components.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Hand tools for removing and cleaning EGR valve
- Mazda service information or wiring diagrams
- Vacuum pump and gauge (if applicable)

Reading P1402

- 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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- 4** Auxiliary emission controls.
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- 02** The exact fault within that area.

Often seen with

P1403 EGR Flow Deviation · **P1401** EGR Valve Power Stage Short To Ground · **P1401** Sub-Throttle Position Sensor Range Performance Problem · **P1401** Fuel Tank Pressure Control System Performance · **P1401** EGR Temperature Sensor · **P1401** EGR Lifting Sender B283 · **P1401** DPFE Sensor Circuit High Input · **P1401** EGR Control Solenoid Circuit Signal Low · **P1401** Exhaust Gas Recirculation Valve Position Circuit · **P1403** Exhaust Gas Recirculation System Valve 1 · **P1401** Differential Pressure Feedback Electronic Sensor Circuit High · **P1403** Differential Pressure Feedback Electronic Sensor Hoses Reversed · **P1403** Loss Of 5 Volts To EGR Sensor · **P1401** Heated Catalyst Current Too High During Heating Bank 1 · **P1403** Carbon Canister Shut Off Valve Control Circuit Electrical · **P0401** EGR Flow Insufficient Detected · **P0403** EGR Circuit Malfunction · **P0402** EGR Flow Excessive Detected

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1402/>

