



P1407 · Mazda

No EGR Flow Detected

P1407 on a Mazda means the powertrain control module (PCM) commanded the exhaust gas recirculation (EGR) valve to open but saw no corresponding change in manifold absolute pressure (MAP) or mass airflow (MAF) sensor readings, so it concludes no exhaust gas is actually flowing. The PCM monitors the pressure or airflow shift that should occur when the EGR valve opens and flags this code when that shift is absent.

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

Symptoms you may notice

- The check engine light is on, and often there are no other symptoms besides the warning light.
- A slight hesitation or stumble during light-throttle acceleration when the EGR valve is commanded open.
- Rough idle or idle surge on some Mazda engines, especially when the EGR valve is stuck partially open.
- A noticeable decrease in fuel economy over time as the PCM adjusts fuel delivery for the missing EGR flow.
- Intermittent pinging or spark knock under load if the EGR system is not cooling combustion temperatures as designed.
- Failed emissions inspection due to the illuminated check engine light and the EGR monitor not completing.

Common causes, most likely first

- 1 Carbon buildup clogging the EGR valve pintle or the passages in the intake manifold, which is the most common cause on higher-mileage Mazdas.
- 2 A failed or sticking EGR valve that does not move when commanded, often due to carbon or a worn internal motor.
- 3 A cracked, disconnected, or carbon-blocked EGR tube or hose between the exhaust manifold and the valve.
- 4 A faulty MAP sensor or MAF sensor that cannot detect the pressure or airflow change the PCM expects when EGR opens.
- 5 A wiring problem in the EGR valve control circuit, such as an open, short, or corroded connector, preventing the valve from actuating.
- 6 A restricted exhaust system or a clogged EGR passage inside the cylinder head on engines with internal EGR routing.
- 7 A PCM calibration issue or a rare internal PCM driver failure that prevents the EGR valve from being commanded correctly.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1407 is the only EGR-related code and to see the conditions when it set.
- 2 Inspect the EGR valve, tube, and intake passages visually for carbon buildup, cracks, or disconnected hoses, and clean or replace as needed.
- 3 Command the EGR valve open and closed with a scan tool while watching MAP or MAF sensor values to verify the valve moves and the sensor responds.
- 4 Check the EGR valve control circuit with a multimeter for power, ground, and signal integrity at the valve connector and at the PCM.
- 5 Test the MAP or MAF sensor response independently by comparing its readings to expected values during a snap-throttle test.
- 6 Remove and bench-test the EGR valve if command and circuit tests are inconclusive, checking for smooth travel and correct resistance.
- 7 After repairs, clear the code and complete the EGR monitor drive cycle to confirm the repair and ensure the code does not return.

Carbon buildup often mimics a dead EGR valve

- On many Mazda engines, the EGR passages in the intake manifold clog with carbon long before the valve itself fails, so cleaning the passages is often the real fix.
- A P1407 does not always mean the EGR valve is bad; a lazy MAP sensor or a dirty MAF sensor can fail to report the pressure change the PCM expects, setting the code with a perfectly good valve.
- Technicians who replace the EGR valve without checking the EGR tube for cracks or blockages frequently see the code return within a few drive cycles.
- The PCM may only run the EGR monitor under specific conditions such as steady cruise at a certain speed and engine temperature, so a vehicle that is only short-tripped may take weeks to set the code.
- A sticking EGR valve that hangs open can cause a rough idle and lean misfire codes alongside P1407, and those symptoms may lead a technician to chase ignition or fuel faults first.

Can I keep driving with P1407?

You can usually continue driving with P1407 because the engine runs in a default mode without EGR flow, but avoid heavy load and long uphill pulls until it is repaired since the missing EGR can cause spark knock and higher combustion temperatures. Have the fault diagnosed soon to prevent carbon from worsening and to ensure the vehicle passes emissions testing.



Tools that help

- OBD-II scan tool with bidirectional control and live data capability
- Digital multimeter for circuit testing
- Hand tools including socket set and screwdrivers for valve removal
- Carburetor or intake cleaner and brushes for carbon removal
- Vacuum pump or smoke machine for checking EGR tube integrity

Reading P1407

- 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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- 07** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0401** EGR Flow Insufficient Detected · **P0402** EGR Flow Excessive Detected · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

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-p1407/>

