GENERIC · POWERTRAIN

P24A0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P24A0

Closed Loop Particulate Filter Regeneration Control At Limit Temperature Too Low

P24A0 means the engine computer commanded a closed-loop regeneration of the particulate filter, but the filter bed temperature stayed below the threshold needed to burn off accumulated soot within the expected time. The computer monitors exhaust temperature sensors and knows the regeneration is failing to reach its target, so it stores this code and may limit further regeneration attempts.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms.
- Reduced engine power or limp mode if the filter becomes heavily loaded.
- Frequent active regeneration attempts that never seem to complete.
- A noticeable increase in fuel consumption as the engine tries to raise exhaust temperature.
- Possible black smoke or a strong diesel odor from the tailpipe under load.
- A message on the dash indicating the particulate filter is full or regeneration is required.

Common causes, most likely first

1. A faulty exhaust gas temperature sensor reading lower than actual temperature.
2. A stuck-open or leaking exhaust gas recirculation (EGR) valve cooling exhaust and preventing heat rise.
3. A thermostat stuck open, keeping engine coolant and exhaust temperatures too low.
4. A clogged or restricted particulate filter that cannot reach regeneration temperature due to excessive soot load.
5. A failing diesel oxidation catalyst (DOC) that no longer generates enough heat during regeneration.
6. Low fuel pressure or a failing fuel injector preventing the post-injection needed to raise exhaust temperature.
7. A damaged or disconnected exhaust temperature sensor wiring or connector.

How to diagnose and fix it

1. Scan all modules for stored and pending codes, and record freeze-frame data for P24A0.
2. Use a scan tool to compare exhaust temperature sensor readings against actual temperatures during a commanded regeneration.
3. Check the engine coolant thermostat operation and replace it if it is stuck open.
4. Inspect the EGR valve and cooler for leaks or sticking, and clean or replace as needed.
5. Perform a particulate filter soot load check and, if excessively high, carry out a forced regeneration or remove and clean the filter.
6. Test the diesel oxidation catalyst efficiency and replace it if it is no longer generating heat.
7. Verify fuel system pressure and injector operation, and repair any faults that prevent proper post-injection.

Why low exhaust temperature fools the system

- A thermostat stuck open is one of the most overlooked causes because it keeps the engine running cold and prevents the exhaust from reaching regeneration temperature.
- A faulty exhaust gas temperature sensor can report a low reading even when the filter is actually hot, causing the computer to abort a regeneration that was working correctly.
- Excessive soot load from a leaking EGR cooler or a failing injector can overwhelm the filter and make it impossible to reach the target temperature within the allowed time.
- The code does not always mean the particulate filter itself is bad; the filter may be fine but the heat source or temperature feedback is the real problem.
- Short-trip driving patterns prevent passive regeneration and can lead to this code even when all components are functioning normally.

Can I keep driving with P24A0?

You can usually continue driving to a workshop, but avoid long periods of idling and short stop-start trips that prevent regeneration. If the engine enters limp mode or the filter warning becomes urgent, stop driving and seek service to avoid damaging the filter.

Tools that help

- OBD-II scan tool with live data and bidirectional regeneration capability
- Infrared thermometer
- Digital multimeter
- Exhaust backpressure gauge
- Basic hand tools

Reading P24A0

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
4	Auxiliary emission controls.
A0	The exact fault within that area.

Often seen with

P0128 Coolant Thermostat (Coolant Temperature Below Thermostat Reg · **P0401** EGR Flow Insufficient Detected · **P2002** Particulate Trap Efficiency Below Threshold (Bank 1) · **P2453** Diesel Particulate Filter Pressure Sensor Circuit Range/Perf · **P2463** Diesel Particulate Filter Restriction - Soot Accumulation

See it working

Watch the animated explainer **Fuel Trims Explained: Short-Term and Long-Term** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p24a0/