

GENERIC · POWERTRAIN

# P2605

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P2605

### Intake Air Heater 'A' Circuit/Open

P2605 indicates that the engine control module has detected an open circuit in the intake air heater 'A' circuit, meaning the electrical path to the heater element is broken or has excessive resistance. The computer commands the heater on and monitors the circuit for expected current flow, but it sees no current or an incomplete circuit.

| SYSTEM     | CODE TYPE           | SEVERITY | FIX DIFFICULTY | AREA                         |
|------------|---------------------|----------|----------------|------------------------------|
| Powertrain | Generic (all makes) | Low      | Intermediate   | Computer and output circuits |

### Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Hard starting or rough idle in cold ambient temperatures due to lack of intake air heating.
- Extended cranking time before the engine fires when temperatures drop below freezing.
- White smoke or poor combustion quality immediately after a cold start.
- Possible reduction in fuel economy during warm-up if the heater is used for emissions control.
- In some vehicles, a message on the driver information center indicating a service engine soon condition.

### Common causes, most likely first

- 1 Failed intake air heater element with an open internal coil.
- 2 Broken or corroded wiring between the heater and the control module or relay.
- 3 Open fuse or fusible link supplying power to the intake air heater circuit.
- 4 Faulty intake air heater relay that does not close or has high resistance contacts.
- 5 Loose or corroded ground connection for the heater circuit.
- 6 Damaged connector pins or terminals at the heater or module.
- 7 Rarely, an internal open circuit in the engine control module driver.



## How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related pending or history codes.
- 2 Inspect the intake air heater fuse and relay, replacing any blown fuse or faulty relay.
- 3 Visually inspect the heater element and its connectors for corrosion, damage, or loose pins.
- 4 Measure resistance across the heater element with a multimeter; an open circuit indicates a failed heater.
- 5 Check for battery voltage at the heater connector when the heater is commanded on; if absent, trace the power and ground circuits.
- 6 Perform a voltage drop test on the power and ground sides of the circuit to locate excessive resistance.
- 7 If all external circuits test good, consult the factory service information to test the control module driver before replacement.

## What a P2605 really tells you

- A P2605 can set even when the heater element itself is good, because the code only reports an open circuit, not a shorted or underperforming heater.  
Many technicians replace the intake air heater without first checking the relay and fuse, which are common failure points on aging vehicles.
- The intake air heater is often used for emissions compliance during cold starts, so a failure may not cause a drivability complaint in warmer climates.
- Corrosion inside the heater connector can create an open circuit that intermittently appears and disappears with temperature changes, leading to a stored code without a current fault.  
On some vehicles, the intake air heater circuit is monitored only during a specific cold-start strategy, so the code may not set until the first freezing morning.

## Can I keep driving with P2605?

You can generally continue driving with a P2605, but cold starting may be harder and emissions may increase during warm-up. Avoid extended driving in sub-freezing temperatures without addressing the fault, as repeated hard starts can stress the battery and starter.

## Tools that help

- OBD-II scan tool
- Digital multimeter
- Test light
- Factory service information or wiring diagram
- Basic hand tools



## Reading P2605

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 6** Computer and output circuits.
- 05** The exact fault within that area.

## Often seen with

**P2604** Intake Air Heater 'A' Circuit Range/Performance · **P2606** Intake Air Heater 'B' Circuit Range/Performance · **P2607** Intake Air Heater 'B' Circuit Low · **P2608** Intake Air Heater 'B' Circuit High · **P2609** Intake Air Heater System Performance

## See it working

Watch the animated explainer [How a Boxer Engine Works: Flat Engine Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2605/>

