



P1413 · Kia

EGR Differential Pressure Sensor Signal High

P1413 on a Kia means the engine computer has detected an excessively high signal voltage from the EGR (exhaust gas recirculation) differential pressure sensor, which measures the pressure difference across the EGR valve to verify actual exhaust flow. The computer expects the sensor's signal to stay within a calibrated range, and a sustained high voltage tells it the sensor circuit is reporting a pressure condition that is either impossible or far outside normal EGR operation.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or stumbling when the engine is cold
- Slight hesitation or surge during light acceleration
- Reduced fuel economy over time as the computer limits EGR operation
- In some cases, a stored code but no drivability complaint at all

Common causes, most likely first

- 1 Failed or contaminated EGR differential pressure sensor
- 2 Damaged, chafed, or disconnected sensor wiring or connector
- 3 Clogged or carbon-blocked EGR passage or differential pressure ports
- 4 Stuck or carbon-fouled EGR valve preventing normal pressure differential
- 5 Corroded or poor ground connection at the sensor or engine block
- 6 Rarely, a faulty engine control module (ECM) driver circuit

How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data to confirm when the high voltage sets
- 2 Inspect the sensor connector and wiring for chafing, corrosion, or loose pins
- 3 Check the sensor's reference voltage and ground with a multimeter at the connector
- 4 Remove and inspect the EGR differential pressure sensor and its ports for carbon blockage
- 5 Clean or replace the EGR valve and passages if flow is restricted
- 6 Compare sensor live data against a known-good value or perform a bidirectional EGR test
- 7 Replace the EGR differential pressure sensor if voltage remains high with correct reference and ground



What a high EGR pressure signal really means

- A high signal voltage often indicates a sensor that is reading a pressure differential that does not exist, which is frequently caused by a blocked port rather than a failed sensor.
- Technicians who replace the sensor without checking the EGR passages often see the code return because carbon buildup keeps the differential pressure artificially high.
- A poor ground at the sensor can add resistance and push the signal voltage high, mimicking a failed sensor even when the sensor is good.
- This code does not always mean the EGR valve itself is faulty; the valve may be working correctly while the sensor circuit misreports the pressure.
- On some Kia models, a disconnected or cracked vacuum hose to the EGR system can create a pressure condition that sets P1413 without any sensor fault.

Can I keep driving with P1413?

You can generally continue driving with P1413 because the engine computer will limit EGR operation to protect the engine, but avoid long trips or heavy loads until the fault is repaired. Prolonged driving with a faulty EGR system can increase emissions and may eventually affect fuel economy and engine smoothness.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Socket set and screwdrivers
- Carburetor or EGR cleaner and soft brushes
- Vacuum pump or hand-held pressure tester

Reading P1413

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Kia): its meaning depends on the make.
4	Auxiliary emission controls.
13	The exact fault within that area.

Often seen with

P1404 EGR Flow Adaptation Not Carried Out · **P1414** Secondary Air Injection System Bank 2 Leak Detected · **P1404** EGR Control · **P1404** Exhaust Gas Recirculation System Valve 2 · **P1404** IAT B Circuit Malfunction · **P1414** Secondary Air Injection System Monitor Circuit High Voltage · **P1404** Exhaust Gas Recirculation System Valve 2 · **P1404** Heated Catalyst Current Too High During Heating Bank 2 · **P1414** Secondary Air Injection System Monitor Circuit High · **P0401** EGR Flow Insufficient Detected · **P0402** EGR Flow Excessive Detected · **P0403** EGR Circuit Malfunction



See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/kia-p1413/>

