



P1140 · Kia

Load Calculation Cross Check

P1140 on Kia vehicles indicates that the engine control module (ECM) has detected a discrepancy between the calculated engine load and the load value reported by the mass airflow (MAF) sensor or manifold absolute pressure (MAP) sensor. The ECM cross-checks these two load signals and sets the code when they deviate beyond a calibrated threshold for a specified time.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Kia specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or stumbling during acceleration due to incorrect fuel delivery calculations.
- Reduced engine performance or power, especially under load.
- Poor fuel economy as the ECM may default to a richer fuel mixture.
- Occasional engine hesitation or surge while driving.
- In some cases, the engine may enter limp mode, limiting speed and RPM.

Common causes, most likely first

- 1 Contaminated or failing mass airflow (MAF) sensor.
- 2 Vacuum leaks in the intake tract after the MAF sensor, causing unmetered air to enter.
- 3 Faulty manifold absolute pressure (MAP) sensor or its wiring.
- 4 Clogged or restricted air filter or intake system.
- 5 Exhaust gas recirculation (EGR) valve stuck open or leaking, affecting load calculations.
- 6 Wiring issues such as corroded connectors or damaged harness to the MAF or MAP sensor.
- 7 Engine mechanical problems like low compression or incorrect valve timing that alter actual load.

How to diagnose and fix it

- 1 Inspect the air intake system for leaks, loose clamps, or cracks between the MAF sensor and throttle body.
- 2 Clean the MAF sensor with a dedicated MAF cleaner and verify its connector is secure and corrosion-free.
- 3 Check the MAP sensor for proper operation using a scan tool to compare its reading with expected values.
- 4 Test for vacuum leaks using a smoke machine or propane enrichment method.
- 5 Verify EGR valve operation and ensure it is not stuck open or leaking.
- 6 Perform a compression test and check valve timing if other causes are ruled out.
- 7 Clear the code and perform a road test to confirm the repair, monitoring live data for load discrepancies.



Common Oversights in P1140 Diagnosis

- A dirty MAF sensor is frequently the culprit, but cleaning it may not always restore accuracy if the sensing element is permanently contaminated.
- Intake leaks after the MAF sensor are often missed because they may not trigger a lean code but still cause load calculation errors.
- The ECM may use the MAP sensor as a backup, so a failing MAP sensor can set P1140 without any driveability symptoms.
- Aftermarket air filters that are over-oiled can contaminate the MAF sensor and lead to this code.
- Always check for technical service bulletins (TSBs) specific to the Kia model, as some ECM software updates address false P1140 triggers.

Can I keep driving with P1140?

You can generally drive the vehicle with P1140, but avoid heavy acceleration or towing until diagnosed. Prolonged driving with a load calculation error may cause poor fuel economy or damage to the catalytic converter over time.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Smoke machine for vacuum leak detection
- MAF sensor cleaner
- Compression tester

Reading P1140

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Kia): its meaning depends on the make.
1	Fuel and air metering.
40	The exact fault within that area.

Often seen with

P0101 Mass/Volume Air Flow Circuit Range/Performance · **P0106** MAP/Barometric Pressure Circuit Range/Performance · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0401** EGR Flow Insufficient Detected



See it working

Watch the animated explainer [How Drive-by-Wire Works: Electronic Throttle Body](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/kia-p1140/>

