GENERIC · POWERTRAIN

P05CA

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P05CA

Economy Mode Switch Circuit High

P05CA indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the economy mode switch circuit, which typically means the switch is stuck open, the signal wire is shorted to power, or the ground reference is lost. The economy mode switch lets the driver select a fuel-saving calibration, and the PCM expects a specific voltage range on its signal line; a high reading falls outside that range and sets this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- The check engine light or service vehicle soon message illuminates on the dashboard.
- The economy mode indicator may fail to light or may stay illuminated regardless of switch position.
- The vehicle may remain in the default normal driving mode and refuse to enter economy mode.
- Fuel economy may be noticeably worse if the PCM defaults to a richer or more aggressive calibration.
- Often no symptoms besides the warning light, especially if the switch is rarely used.
- Some vehicles may display a message such as 'Economy mode unavailable' in the driver information center.

Common causes, most likely first

1. Economy mode switch internally stuck open or failed, preventing the signal circuit from being pulled low.
2. Open circuit in the signal wire between the switch and the PCM, causing the PCM to see a high voltage.
3. Short to voltage on the signal wire, often from chafed insulation against a power wire in the same harness.
4. Poor ground connection at the switch or at the PCM ground point, raising the reference voltage.
5. Corroded or loose electrical connector pins at the switch or PCM, adding resistance to the circuit.
6. Water intrusion into the switch or connector, leading to corrosion and an open circuit.
7. Less commonly, a faulty PCM driver or internal pull-up resistor in the PCM itself.

How to diagnose and fix it

1. Use a scan tool to read live data for the economy mode switch status and confirm the PCM sees a high voltage in both switch positions.
2. Visually inspect the switch, its connector, and the wiring harness for corrosion, chafing, or loose pins, and repair as needed.
3. Disconnect the switch and measure resistance across its terminals in both positions; replace the switch if it does not change state correctly.
4. With the switch disconnected, measure voltage on the signal wire at the switch connector; if it reads near battery voltage with the switch open, check for a short to power.
5. Check continuity of the signal wire from the switch connector to the PCM connector, and repair any open circuit.
6. Verify the ground circuit at the switch connector with a voltage drop test; clean or repair the ground point if resistance is excessive.
7. If all wiring and the switch test good, substitute a known-good PCM or perform a relearn procedure as directed by the manufacturer.

What the economy mode switch code hides

- A common oversight is replacing the switch without checking the ground circuit; a corroded ground can mimic a failed switch and set the same high-voltage code.
- The economy mode switch is often part of a multi-function stalk or center console assembly, so a failure in an unrelated button on the same module can cause this code.
- Some vehicles use a momentary switch that the PCM latches into memory; a high voltage can be stored simply because the switch was unplugged during service and the code was not cleared.
- A short to voltage on the signal wire may not blow a fuse, so visual fuse checks alone will not find the problem; a voltage measurement at the switch connector is required.
- Aftermarket accessories tapped into the console wiring can back-feed voltage onto the signal line and set P05CA without any fault in the factory switch.

Can I keep driving with P05CA?

The vehicle remains safe to drive because the economy mode switch only affects a convenience calibration and does not compromise engine control or safety systems. Avoid toggling the switch repeatedly until the fault is repaired, and clear the code after repairs to confirm it does not return.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Trim removal tools
- Contact cleaner and dielectric grease

Reading P05CA

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
5	Vehicle speed, idle control and auxiliary inputs.
CA	The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P05C9** Economy Mode Switch Circuit Low · **P05CB** Vehicle Hardware Incompatibility · **U0100** Lost Communication With ECM/PCM A

See it working

Watch the animated explainer **How a Padlock Works: Pin Tumbler Lock in X-Ray** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: https://www.autoveteran.tech/dtc-codes/p05ca/