

FORD · POWERTRAIN

P1636

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1636 · Ford

Inductive Signature Chip Communication Error

P1636 on Ford vehicles indicates the powertrain control module (PCM) has detected a communication failure with the inductive signature chip embedded in the ignition key, which is used for passive anti-theft verification. The PCM expects a valid inductive signature each time the key is turned on, and when that signal is missing or corrupted, it stores this code and may inhibit engine start.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Computer and output circuits

Symptoms you may notice

- The engine may crank but fail to start, or start and then stall immediately
- The theft warning light on the instrument cluster may flash rapidly or stay illuminated
- Intermittent no-start condition that often resolves after several attempts or after waiting
- The vehicle may start normally with a spare key but not with the primary key
- Often no symptoms besides the warning light if the fault is intermittent and the engine still starts

Common causes, most likely first

- 1 Faulty transceiver ring around the ignition lock cylinder that cannot read the key chip
- 2 Damaged or worn ignition key chip (inductive signature chip) inside the key head
- 3 Wiring damage or poor connection between the transceiver and the PCM, including chafed harness or corroded pins
- 4 PCM internal fault affecting the passive anti-theft signal processing circuit
- 5 Aftermarket remote starter or alarm system interfering with the transceiver signal
- 6 Moisture or debris contamination inside the transceiver connector or key cylinder area



How to diagnose and fix it

- 1 Verify the fault with a Ford-specific scan tool by reading passive anti-theft system (PATS) codes and checking for communication with the transceiver
- 2 Try starting the vehicle with a second known-good key to rule out a faulty key chip
- 3 Inspect the transceiver ring and its connector for corrosion, loose pins, or physical damage, and clean or reseat as needed
- 4 Check the wiring between the transceiver and the PCM for continuity, shorts to ground, and chafing, repairing any damaged sections
- 5 Perform a PATS parameter reset or key reprogramming procedure with a capable scan tool if the transceiver or PCM has been replaced
- 6 If the transceiver and wiring test good, substitute a known-good transceiver to see if the code clears and the vehicle starts reliably
- 7 As a last step, diagnose the PCM for internal faults only after all external PATS components and wiring have been ruled out

What Ford PATS Diagnostics Often Miss

- A weak or failing car battery can cause intermittent P1636 because the transceiver needs stable voltage to power the inductive coil, so always load-test the battery before condemning PATS parts.
- Aftermarket remote start systems spliced into the transceiver wiring are a frequent culprit, and removing or properly bypassing the aftermarket module often resolves the code without any Ford parts replacement.
- The code can set from a single failed key read during a cold morning and never return, so clearing it and monitoring for recurrence is smarter than immediately replacing the transceiver.
- A transceiver ring that is merely loose on the lock cylinder can cause P1636 because the key chip moves out of the inductive field, and simply reseating the ring may fix the fault.
- P1636 does not always mean the key is bad; a PCM that has lost its PATS memory after a low-voltage event can set this code and require a parameter reset rather than any hardware replacement.

Can I keep driving with P1636?

If the engine starts and runs normally, the vehicle is safe to drive to a repair shop, but avoid shutting it off in an unsafe location until the fault is repaired. If the engine will not start, do not keep cranking repeatedly because that can flood the engine and drain the battery, and have the vehicle towed instead.

Tools that help

- Ford-specific scan tool with PATS capability
- Digital multimeter for continuity and voltage checks
- Battery load tester
- Trim removal tools for accessing the transceiver ring
- Wiring diagram for the PATS circuit



Reading P1636

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Ford): its meaning depends on the make.
- 6** Computer and output circuits.
- 36** The exact fault within that area.

Often seen with

P1635 Data Bus Powertrain Missing Message From Air Condition Contr · **P1639** Accelerator Pedal Position Sensor 1/2 Range Performance · **P1640** Internal Control Module EEPROM Error · **P1635** 5V Reference Voltage to Sensors Low · **P1639** PCM 5V Reference Voltage Low · **P1640** PCM Fault / DTCs Available in Another Module · **P1635** Tire Axle Ratio Out of Acceptable Range · **P1639** Vehicle ID Block Corrupted or Not Programmed · **P1640** Powertrain DTCs Available in Another Module · **P1635** Throttle Valve Adaptation Lower Mechanical Stop Not Adapted · **P1639** Throttle Valve Position Control Throttle Stuck Permanently · **P1640** Internal Control Module ROM RAM Error

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/ford-p1636/>

