

GENERIC · POWERTRAIN

P0604

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0604

Internal Control Module RAM Error

P0604 indicates that the engine control module (ECM) has detected an internal error within its own random access memory (RAM), which is used for temporary data storage and calculations. The ECM runs a self-test at key-on and during operation, and this code sets when the memory check fails, meaning the module cannot reliably store or retrieve data.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Computer and output circuits

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent engine stalling or rough running as the ECM loses data
- Poor fuel economy or erratic transmission shifting due to corrupted calculations
- Difficulty starting or a no-start condition if the RAM error is severe
- Other unrelated trouble codes stored simultaneously due to ECM confusion

Common causes, most likely first

- 1 Internal failure of the ECM's RAM memory chip or supporting circuitry
- 2 Low or unstable battery voltage causing the ECM's self-test to fail
- 3 Poor ground connections at the ECM or engine block corrupting memory signals
- 4 Electrical interference from aftermarket accessories or faulty ignition components
- 5 Water intrusion or corrosion inside the ECM connector or housing
- 6 A software glitch in the ECM firmware that requires reflashing

How to diagnose and fix it

- 1 Verify battery voltage and charging system output; recharge or replace the battery if low
- 2 Inspect and clean ECM ground connections and power supply terminals
- 3 Check for water intrusion or corrosion at the ECM connectors and repair as needed
- 4 Clear the code and perform a road test to see if it returns immediately
- 5 If the code persists, reflash or reprogram the ECM with the latest software
- 6 Substitute a known-good ECM of the same part number for testing, then replace if confirmed faulty
- 7 After replacement, perform any required relearn or programming procedures



What P0604 Really Tells You About the ECM

- A P0604 does not always mean the ECM is permanently damaged; a momentary voltage dip during cranking can trigger the RAM self-test failure and set the code.
- Many technicians replace the ECM prematurely when the actual cause is a bad ground or corroded connector that corrupts the memory check.
- Aftermarket electronic accessories, such as alarm systems or high-power audio, can introduce electrical noise that mimics an internal RAM error.
- Some vehicles require the ECM to be programmed with the vehicle's VIN and security information after replacement, so a used unit may not simply plug in and work.
- The code can be stored alongside communication codes like U0100 if the ECM's internal fault disrupts CAN bus messaging.

Can I keep driving with P0604?

If the check engine light is on but the engine runs normally, you may drive cautiously to a repair shop, but avoid long trips or heavy loads. If the engine stalls, runs poorly, or fails to start, stop driving and have the vehicle towed to prevent safety risks.

Tools that help

- OBD-II scan tool with live data and code clearing capability
- Digital multimeter for voltage and ground checks
- Battery load tester and charging system tester
- Basic hand tools for connector and ground access
- ECM programming device or J2534 pass-thru tool if reflashing is required

Reading P0604

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

Often seen with

P0600 Serial Communication Link Malfunction · **P0601** Internal Control Module Memory Checksum Error · **P0602** Control Module Programming Error · **P0603** Internal Control Module KAM Error · **U0100** Lost Communication With ECM/PCM A



See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0604/>

