

TOYOTA · POWERTRAIN

P1600

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1600 · Toyota

ECM BATT Malfunction

P1600 on a Toyota means the engine control module (ECM) has detected a problem with its backup power circuit, which keeps the ECM's memory alive when the ignition is off. The ECM monitors the voltage on its dedicated battery feed and sets this code when that voltage drops below the expected threshold, indicating an open, high-resistance, or shorted circuit in the backup power path.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Toyota specific	Medium	Intermediate	Computer and output circuits

Symptoms you may notice

- The check engine light (CEL) is illuminated, often with no other noticeable symptoms.
- The engine may crank but fail to start or start and stall immediately.
- The radio and clock may lose their preset memory after the ignition is turned off.
- The ECM may lose adaptive learning data, causing rough running or poor fuel economy until it relearns.
- Intermittent no-start conditions, especially after the vehicle sits for extended periods.
- Other unrelated trouble codes may be stored due to disrupted ECM memory.

Common causes, most likely first

- 1 Blown fuse in the ECM backup power circuit (often labeled AM2, ECD, or similar in the under-hood fuse box).
- 2 Open or high-resistance wire between the battery positive terminal and the ECM backup power pin.
- 3 Corroded or loose connection at the battery positive terminal or at the ECM connector.
- 4 Faulty ignition switch or main relay that interrupts backup power to the ECM.
- 5 Short to ground on the backup power wire, blowing the fuse repeatedly.
- 6 Internal failure of the ECM itself, though this is less common than wiring or fuse issues.
- 7 Aftermarket accessories improperly tapped into the backup power circuit, causing voltage drops.



How to diagnose and fix it

- 1 Check all fuses related to the ECM backup power circuit in the under-hood and under-dash fuse boxes; replace any blown fuse and recheck.
- 2 Inspect the battery positive terminal and the ECM connector for corrosion, tightness, and clean any contamination.
- 3 Measure battery voltage at the ECM backup power pin with the ignition off; it should be within 0.5 volts of battery voltage.
- 4 Perform a voltage drop test on the backup power wire from the battery to the ECM to locate high-resistance points.
- 5 Check for shorts to ground on the backup power wire if the fuse blows repeatedly; isolate the circuit and repair the damaged wire.
- 6 Test the ignition switch and main relay for proper continuity and operation, replacing if faulty.
- 7 If all external circuits test good, substitute a known-good ECM to confirm internal failure before replacement.

Backup power faults that mimic other issues

- A weak or failing battery can cause P1600 even if it still starts the engine, because the ECM backup circuit is sensitive to voltage drops during cranking.
- Corrosion inside the wire harness, especially near the battery or in areas exposed to moisture, often creates high resistance that only shows up under load or temperature changes.
- Technicians sometimes replace the ECM prematurely when the real fault is a \$5 fuse or a corroded ground connection that was overlooked.
- P1600 can be set intermittently by a loose battery cable that makes good contact most of the time but momentarily disconnects during vibration.
- Aftermarket alarms or remote starters tapped into the backup power wire can introduce voltage drops that trigger this code without any factory component failure.

Can I keep driving with P1600?

You can usually drive the vehicle short distances to a repair shop, but avoid long trips or leaving the car parked for extended periods because the ECM may lose its memory and cause starting or driveability issues. If the engine stalls or fails to restart, stop driving and seek professional assistance.

Tools that help

- Digital multimeter (DMM) with voltage and resistance measurement
- Test light or automotive logic probe
- Fuse puller and assortment of automotive fuses
- Wire piercing probes or back-probe kit
- Service manual or wiring diagram for the specific Toyota model
- Battery terminal cleaner and dielectric grease



Reading P1600

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

Often seen with

P1603 Internal Control Module Self Check · **P1605** Rough Road Acceleration Sensor Electrical Malfunction · **P1604** Internal Control Module Driver Error · **P1602** Power Supply Terminal No 30 Low Voltage · **P1605** Knock Control CPU · **P1605** AT Diagnostic Communication Line · **P1602** Powertrain Control Module Communication Line To TCM Error, I · **P1601** Powertrain Control Module Communication Line To TCM Error · **P1605** Powertrain Control Module Keep Alive Memory Test Error · **P1604** Immobilizer System Fault · **P1603** Immobilizer System Fault · **P1603** EEPROM Malfunction · **P1605** Keep Alive Memory Test Failure · **P1601** ECM Over-Temperature · **P1604** Loss Of IPC Serial Data · **P1605** Loss Of HVAX Serial Data · **P1603** Serial Data Communication Problem · **P1602** PCM to ABS Module Communication Problem · **P1605** PCM Keep Alive Memory Test Error · **P1602** PCM Not Programmed · **P1604** Control Module Self Test Speed Monitoring · **P1602** Control Module Self Test Control Module Defective · **P1603** Control Module Self Test Torque Monitoring

See it working

Watch the animated explainer [How a Wideband Air-Fuel Sensor Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/toyota-p1600/>

