

MITSUBISHI · POWERTRAIN

P1500

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1500 · Mitsubishi

Alternator FR Terminal Circuit

P1500 on Mitsubishi vehicles indicates that the engine control module (ECM) has detected an abnormal signal from the alternator's FR (field return) terminal circuit, which is used to monitor the alternator's load on the engine. The ECM expects a specific voltage pattern on this circuit and sets the code when the signal is out of range, indicating a fault in the wiring, connector, or alternator itself.

SYSTEM

Powertrain

CODE TYPE

Mitsubishi
specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed,
idle control and
auxiliary inputs

Symptoms you may notice

- Battery warning light illuminated on the dashboard
- Dimming or flickering headlights and interior lights
- Battery frequently going dead or needing a jump start
- Erratic engine idle or stalling, especially when electrical loads are applied
- Often no symptoms besides the warning light

Common causes, most likely first

- 1 Faulty alternator, particularly a failed FR terminal or internal regulator
- 2 Damaged or corroded wiring between the alternator FR terminal and the ECM
- 3 Loose or dirty electrical connectors at the alternator or ECM
- 4 Blown fuse or fusible link in the charging circuit
- 5 Poor ground connection for the alternator or engine block
- 6 ECM internal fault (rare)

How to diagnose and fix it

- 1 Inspect the battery and charging system basics: check battery voltage and alternator belt condition
- 2 Visually inspect the alternator FR terminal wiring and connector for damage or corrosion
- 3 Measure voltage on the FR circuit at the alternator and at the ECM to check for continuity and correct signal
- 4 Check for blown fuses or fusible links related to the charging system
- 5 Perform a voltage drop test on the ground circuits for the alternator and ECM
- 6 If wiring and connections are good, test the alternator output and FR signal with an oscilloscope or scan tool
- 7 Replace the alternator if the FR terminal or internal regulator is confirmed faulty



Before you replace the alternator

- A loose or corroded FR terminal connector is a common cause that mimics a failed alternator, so always inspect the connector before condemning the alternator.
- The FR signal is a duty-cycle signal that the ECM uses to adjust idle speed; a fault can cause idle problems even if the battery still charges.
- Some aftermarket alternators do not provide the correct FR signal, leading to repeated P1500 codes even though the charging system works.
- The code can be set by a poor ground connection at the engine block, which affects the FR circuit reference voltage.
- Always check for related codes like P0500 or P0560, as they can indicate a shared power or ground issue.

Can I keep driving with P1500?

You can drive the vehicle short distances, but avoid relying on it for long trips because the alternator may not be charging correctly, leading to a dead battery and stalling. Have the charging system inspected promptly to prevent being stranded.

Tools that help

- Digital multimeter
- OBD-II scan tool
- Oscilloscope (for FR signal analysis)
- Wire probe set
- Service manual for wiring diagrams

Reading P1500

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mitsubishi): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 00** The exact fault within that area.

Often seen with

P1242 Cylinder 6 Injector Circuit Open Circuit · **P1600** Power Supply Terminal No 15 Low Voltage · **P1241** Cylinder 5 Injector Circuit Open Circuit · **P1600** ECM BATT Malfunction · **P1600** PCM TCM Serial Communication Circuit Fault · **P1241** Throttle Vent Control Motor Circuit 1 Malfunction · **P1242** Throttle Vent Control Motor Circuit 2 Malfunction · **P1600** Serial Communication Link · **P1600** Loss Of KAM Power Circuit Open · **P1241** Sensor Power Supply Low Input · **P1242** Sensor Power Supply High Input · **P1600** Loss Of Kam Power Circuit Open · **P1241** Throttle Vent Control Motor Circuit 1 Malfunction · **P1242** Throttle Vent Control Motor Circuit 2 Malfunction · **P1600** PCM Battery Loss / TCM Communication Loss · **P1600** Loss of KAM Power Open Circuit · **P0500** Vehicle Speed Sensor Malfunction · **P0560** System Voltage Malfunction

See it working

Watch the animated explainer [Readiness Monitors and the OBD-II Drive Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mitsubishi-p1500/>

