

MAZDA · POWERTRAIN

P1631

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1631 · Mazda

Generator Output Voltage Signal No Output

P1631 on a Mazda means the powertrain control module (PCM) is not receiving the expected generator output voltage signal from the charging system. The PCM monitors the generator's feedback circuit and sets this code when the signal is missing or out of range, indicating the alternator is not reporting its output correctly.

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

Symptoms you may notice

- Battery warning light illuminated on the dashboard
- Dimming headlights or interior lights, especially at idle
- Battery repeatedly going flat or requiring jump starts
- Electrical accessories such as radio or climate control behaving erratically
- Often no symptoms besides the warning light if the alternator is still charging

Common causes, most likely first

- Failed alternator/generator internal voltage regulator or feedback circuit
- Open or shorted generator output signal wire between alternator and PCM
- Corroded or loose alternator connector pins
- Blown fuse or fusible link in the charging system circuit
- Poor engine ground or battery negative cable connection
- Faulty PCM (rare, but possible after other causes are ruled out)

How to diagnose and fix it

- Check battery voltage at rest and with engine running; a healthy charging system should show 13.5–14.5 volts at the battery
- Inspect the alternator connector and wiring for corrosion, looseness, or damage, and clean or repair as needed
- Check all charging system fuses and fusible links with a multimeter, not just visually
- Perform a voltage drop test on the ground circuit between the alternator case and battery negative
- Back-probe the generator output signal wire at the PCM and at the alternator to check for continuity and correct voltage
- If the signal circuit is intact but no output is present, replace the alternator/generator
- Clear the code and verify the charging system operates correctly with a scan tool live data check



What Mazda techs check before replacing the alternator

- A loose or corroded battery terminal can mimic a failed alternator by causing voltage irregularities that set P1631, so always clean and tighten connections first.
- On many Mazdas, the generator output signal is a dedicated wire that can chafe against the engine block or accessory belt, causing an intermittent open circuit that only shows up when the engine is hot or vibrating.
- P1631 can be stored by a weak battery that drops voltage during cranking, so load-test the battery before condemning the alternator.
- Some aftermarket alternators do not replicate the OEM feedback signal correctly, leading to a repeat P1631 even though charging voltage appears normal.
- The PCM may set P1631 along with charging system codes like P0562 or P0620, so scan all modules to avoid chasing only one code.

Can I keep driving with P1631?

You can drive a short distance to a repair shop if the battery warning light is on but the engine runs normally, but avoid long trips or heavy electrical loads because the battery may drain and leave you stranded. If the lights are dimming or the engine stumbles, stop and have the vehicle towed.

Tools that help

- Digital multimeter
- Scan tool with live data capability
- Battery load tester
- Wire probe set
- Basic hand tools (wrenches, sockets, screwdrivers)

Reading P1631

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



Often seen with

P1634 Accelerator Pedal Position Sensor 2 Signal Too High · **P1633** Accelerator Pedal Position Sensor 2 Signal Too Low · **P1632** Accelerator Pedal Position Sensor 1 Power Supply Malfunction · **P1633** ECM · **P1634** Generator Terminal B Circuit Open · **P1632** Battery Voltage Detection Circuit for Alternator Regulator · **P1633** Battery Overcharge Fault · **P1633** Battery Overcharge · **P1634** Alternator B Open 1.8L · **P1632** Battery Voltage Detection Circuit for Alternator Regulator 1 · **P1633** Ignition Power Circuit Low Voltage · **P1634** Ignition 1 Power Circuit Low Voltage · **P1632** Anti-Theft Fuel Disable Signal Received · **P1634** Data Output Link Circuit Failure · **P1633** Throttle Valve Adaptation Limp Home Position · **P1634** Throttle Valve Adaptation Spring Test Failed · **P1632** Throttle Valve Adaptation Condition Not Met · **P0562** System Voltage Low · **P0620** Generator Control Circuit Malfunction

See it working

Watch the animated explainer [How Airbags Work: A 50 km/h Crash in Slow Motion](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1631/>

