

MAZDA · POWERTRAIN

P1720

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1720 · Mazda

Vehicle Speed Sensor 2 Signal Error

P1720 on a Mazda means the powertrain control module (PCM) has detected an error in the signal from Vehicle Speed Sensor 2, which is typically the output speed sensor mounted on the automatic transaxle. The PCM compares this signal against the expected speed from the other speed sensors and flags the code when the two do not agree or the signal drops out.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- The check engine light or automatic transaxle warning light illuminates on the dashboard.
- The speedometer may read zero, jump erratically, or disagree with actual road speed.
- The transmission may shift harshly, hold a gear too long, or refuse to shift into overdrive.
- The torque converter clutch may fail to lock up, causing higher highway rpm and worse fuel economy.
- Cruise control may stop working or disengage on its own.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- 1 A dirty, loose, or corroded electrical connector at the Vehicle Speed Sensor 2 on the transaxle.
- 2 A failed Vehicle Speed Sensor 2 itself, usually due to heat, age, or debris on the sensor tip.
- 3 Damaged or chafed wiring between the sensor and the PCM, often near the transaxle or through the firewall.
- 4 A faulty or slipping speed sensor reluctor ring or tone wheel inside the transaxle.
- 5 Low or contaminated automatic transaxle fluid causing erratic sensor readings.
- 6 A PCM software issue or internal fault, which is rare but possible on older Mazdas.
- 7 A mismatched or incorrectly installed sensor after a previous repair or transmission service.



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to see the conditions when P1720 set.
- 2 Inspect the Vehicle Speed Sensor 2 connector and wiring for corrosion, looseness, or chafing, and repair as needed.
- 3 Check automatic transaxle fluid level and condition, and top up or service the fluid if it is low or dirty.
- 4 Use a scan tool to compare live Vehicle Speed Sensor 2 data with the other speed sensors while driving, looking for dropouts or erratic readings.
- 5 Test the sensor with a multimeter for resistance and AC voltage output while spinning the wheels, and replace it if out of specification.
- 6 Check the reluctor ring or tone wheel for damage or debris through the sensor hole, and clean or replace if necessary.
- 7 If all external checks pass, perform a pinpoint test of the wiring back to the PCM and reflash or replace the PCM only as a last resort.

What Mazda techs check before replacing the sensor

- A loose or corroded connector at the transaxle is far more common than a failed sensor, so always wiggle-test the plug while watching live data before condemning the part.
- On many Mazdas, Vehicle Speed Sensor 2 is the output speed sensor, and its signal is also used by the speedometer and cruise control, so a fault can cause symptoms that seem unrelated to the transmission.
- Aftermarket sensors and incorrect part numbers are a frequent cause of repeat P1720 codes, so verify the sensor matches the Mazda part number for the specific model and year.
- A low or aerated transaxle fluid can make the speed sensor signal erratic without any sensor fault, so check fluid level and condition before electrical diagnosis.
- The code can set intermittently from a chafed wire that only shorts when the engine moves under load, so a road test with a scan tool graphing the signal is often more revealing than a static test.

Can I keep driving with P1720?

You can usually drive the car to a shop, but avoid sustained highway speeds and heavy acceleration because the transmission may shift unpredictably or fail to lock the torque converter. If the speedometer is dead or the transmission is in limp mode, keep speeds low and get it diagnosed promptly.



Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter
- Jack and jack stands or a lift
- Basic socket and wrench set
- Contact cleaner and dielectric grease
- Mazda service information or wiring diagram for the specific model

Reading P1720

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Mazda): its meaning depends on the make.
7	Transmission.
20	The exact fault within that area.

Often seen with

P0500 Vehicle Speed Sensor Malfunction · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction · **P0730** Incorrect Gear Ratio · **U0100** Lost Communication With ECM/PCM A

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1720/>

