



P1715 · Ford

SSB Inductive Signature Malfunction

P1715 on Ford vehicles indicates that the powertrain control module (PCM) has detected an invalid inductive signature from the solid state ballast (SSB) circuit, which is used to monitor the transmission range sensor or a related solenoid. The PCM expects a specific voltage spike pattern when the circuit is energized, and this code sets when the signature is missing, distorted, or outside the expected range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Professional	Transmission

Symptoms you may notice

- Illuminated check engine light or transmission control indicator lamp
- Harsh or delayed transmission shifts
- Transmission may default to limp mode or fail to engage certain gears
- Erratic speedometer or odometer operation if the vehicle speed sensor shares the circuit
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Damaged or chafed wiring in the SSB circuit, particularly near the transmission connector
- 2 Corroded or loose electrical connector at the transmission range sensor or solenoid pack
- 3 Failed solid state ballast component inside the transmission solenoid body
- 4 Faulty transmission range sensor (TRS) or internal mode switch
- 5 PCM internal driver circuit failure (rare but possible)
- 6 Aftermarket electrical accessories improperly tapped into the transmission harness



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then clear codes and test-drive to see if P1715 returns
- 2 Visually inspect the transmission harness and connectors for chafing, corrosion, or loose pins, especially at the SSB circuit
- 3 Measure resistance and check for continuity on the SSB circuit between the PCM and transmission connector, comparing to Ford service specifications
- 4 Perform a wiggle test on the harness while monitoring SSB signal with a lab scope or scan tool to catch intermittent faults
- 5 If wiring and connectors are good, remove the transmission pan and inspect the solenoid body and internal harness for damage or contamination
- 6 Replace the faulty solenoid body or transmission range sensor as indicated by diagnostic results, then clear codes and verify repair with a test drive
- 7 If the fault persists after all external checks, diagnose the PCM driver circuit and replace the PCM only as a last resort

SSB signature faults often misdiagnosed

- A common mistake is replacing the transmission solenoid body without first checking the external harness for chafed wires near the bell housing, which can short the SSB signal intermittently.
- The SSB inductive signature is a voltage spike generated when the circuit is energized; a weak or missing spike can be caused by a poor ground at the transmission case, not just a failed component.
- Aftermarket remote starters or alarm systems tapped into the transmission range circuit can distort the inductive signature and set P1715 without any hard transmission failure.
- On some Ford models, a low or failing battery can cause the PCM to misread the SSB signature during cranking, setting a false P1715 that disappears after a battery replacement.
- P1715 does not always mean the transmission needs internal repair; many cases are resolved by cleaning and tightening the main transmission connector and applying dielectric grease.

Can I keep driving with P1715?

You can usually drive the vehicle with P1715 stored, but avoid heavy acceleration or towing until the fault is repaired because the transmission may enter limp mode without warning. If the transmission is shifting harshly or slipping, limit driving to a short distance to a repair shop.



Tools that help

- OBD-II scan tool with Ford-specific software
- Digital multimeter
- Oscilloscope or lab scope
- Ford service information for SSB circuit specifications
- Transmission jack and basic hand tools for pan removal

Reading P1715

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

Often seen with

P1716 Wheel Speed Signal 2 Range Performance · **P1716** Shift Solenoid 3 Mechanical Fault · **P1716** SSC Inductive Signature Malfunction · **P0705** Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P0707** Transmission Range Sensor Circuit Low · **P0708** Transmission Range Sensor Circuit High

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/ford-p1715/>

