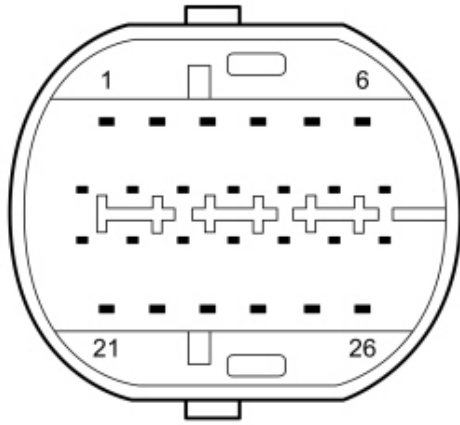


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2007 FORD Five Hundred OEM Service and Repair Workshop Manual

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E275612

Transmission component side, pin 20

Ω

C167-1

Are the resistances less than 3 ohms?

Yes

GO to [C10](#)

No

INSTALL a new transmission case harness.

REFER to: [Transmission Internal Wiring Harness](#)

(307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).

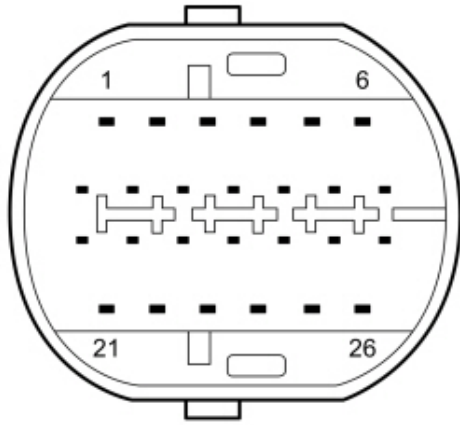
C10 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS TR (TRANSMISSION RANGE) SENSOR CIRCUITS FOR A SHORT TO GROUND

- Measure:

Positive Lead

Measurement /
Action

Negative
Lead

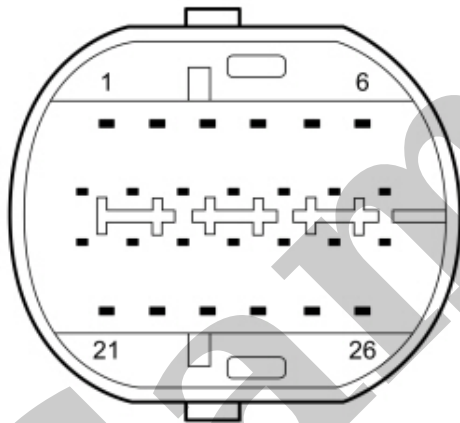


E275612

Transmission component side, pin 8

Ω

Ground



E275612

Transmission component side, pin 20

Ω

Ground

Are the resistances greater than 10,000 ohms?

Yes

GO to [C11](#)

No

INSTALL a new transmission case harness.

REFER to: [Transmission Internal Wiring Harness](#)


(307-01A Automatic Transmission - 10-Speed Automatic Transmission - 10R80, Removal and Installation).

Yes	GO to C13
------------	---------------------------

No	There is a terminal fitment issue. REPAIR any loose, damaged or bent terminals.
-----------	---

C13 CHECK THE TR (TRANSMISSION RANGE) SENSOR GROUND CIRCUIT THROUGH THE BULKHEAD CONNECTOR

- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C167-4		C167-1

Is the voltage approximately 9 volts?

Yes	<p>INSTALL a new TR (transmission range) sensor. REFER to: Transmission Range (TR) Sensor (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p>
------------	---

No	There is a terminal fitment issue. REPAIR any loose, damaged or bent terminals.
-----------	---

PINPOINT TEST D : TSS, OSS, ISSA, ISSB SENSORS (ELECTRICAL)

Refer to Wiring Diagrams Cell 30 for schematic and connector information.

Normal Operation and Fault Conditions TSS Sensor The TSS (turbine shaft speed) sensor is a Hall-effect type sensor that provides a signal to the PCM (powertrain control module) that changes in frequency as the rotating speed of the planetary carrier No. 2 varies. The PCM (powertrain control module) compares the TSS (turbine shaft speed) sensor signal with the engine speed information to determine the amount of slip occurring in the torque converter. The PCM (powertrain control module) also compares the TSS (turbine shaft speed) sensor signal with the OSS (output shaft speed) sensor signal to determine the gear ratio

PCM (powertrain control module) P0723:00	Output Shaft Speed Sensor Circuit Intermittent: No Sub Type Information	This DTC (diagnostic trouble code) indicates an OSS (output shaft speed) sensor fault, but the fault did not last long enough to set a more specific DTC (diagnostic trouble code) .
PCM (powertrain control module) P077D:00	Output Shaft Speed Sensor Circuit High: No Sub Type Information	This DTC (diagnostic trouble code) indicates a short to power in the OSS (output shaft speed) sensor circuit.
PCM (powertrain control module) P0791:00	Intermediate Shaft Speed Sensor 'A' Circuit: No Sub Type Information	This DTC (diagnostic trouble code) indicates an open circuit or a short to ground in the intermediate shaft speed A (ISSA) sensor circuit.
PCM (powertrain control module) P0793:00	Intermediate Shaft Speed Sensor 'A' Circuit No Signal: No Sub Type Information	This DTC (diagnostic trouble code) illuminates the wrench light in conjunction with P0791, P07C5, and/or P07C6. Resolve the more specific DTC (diagnostic trouble code) first.
PCM (powertrain control module) P0794:00	Intermediate Shaft Speed Sensor 'A' Circuit Intermittent: No Sub Type Information	This DTC (diagnostic trouble code) indicates an intermediate shaft speed A (ISSA) sensor fault, but the fault did not last long enough to set a more specific DTC (diagnostic trouble code) .
PCM (powertrain control module) P07BF:00	Input/Turbine Shaft Speed Sensor 'A' Circuit Low: No Sub Type Information	This DTC (diagnostic trouble code) indicates a short to ground in the TSS (turbine shaft speed) sensor circuit.
PCM (powertrain control module) P07C0:00	Input/Turbine Shaft Speed Sensor 'A' Circuit High: No Sub Type Information	This DTC (diagnostic trouble code) indicates a short to power in the TSS (turbine shaft speed) sensor circuit.
PCM (powertrain control module) P07C5:00	Intermediate Shaft Speed Sensor 'A' Circuit Low: No Sub Type Information	This DTC (diagnostic trouble code) indicates a short to ground in the intermediate shaft speed A (ISSA) sensor circuit.
PCM (powertrain control module) P07C6:00	Intermediate Shaft Speed Sensor 'A' Circuit High: No Sub Type Information	This DTC (diagnostic trouble code) indicates a short to power in the intermediate shaft speed A (ISSA) sensor circuit.
PCM (powertrain control module)	Intermediate Shaft Speed Sensor 'B' Circuit Low: No Sub	This DTC (diagnostic trouble code) indicates a short to ground in the intermediate shaft speed B (ISSB)

- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Ignition ON.
- For the OSS (output shaft speed) and ISSA sensors, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-7	\bar{V}	Ground

- For the TSS (turbine shaft speed) and ISSB sensors, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-8	\bar{V}	Ground

Is the voltage approximately 9 volts on the suspect circuit?

Yes	GO to D4
------------	--------------------------

No	GO to D2
-----------	--------------------------

D2 CHECK THE SENSOR VREF CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM (powertrain control module) C1232T .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- For the OSS (output shaft speed) and ISSA sensors, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-7	Ω	C1232T-49



Yes

Guided Routine available in the on-line Workshop Manual.
 After programming the new PCM (powertrain control module)
 , CARRY OUT the transmission strategy download.
 REFER to: [Transmission Strategy Download](#)
 (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, General
 Procedures).

No

REPAIR the short to ground.

D4 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM (powertrain control module) C1232T .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- For the OSS (output shaft speed) sensor, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-4	Ω	C1232T-71

- For the TSS (turbine shaft speed) sensor, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-1	Ω	C1232T-68

- For the ISSA sensor, measure:

- For the ISSA sensor, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-2	Ω	Ground

- For the ISSB sensor, measure:

Positive Lead	Measurement / Action	Negative Lead
C168A-3	Ω	Ground

Is the resistance greater than 10,000 ohms on the suspect circuit?

Yes	GO to D6
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No	REPAIR the short to ground.
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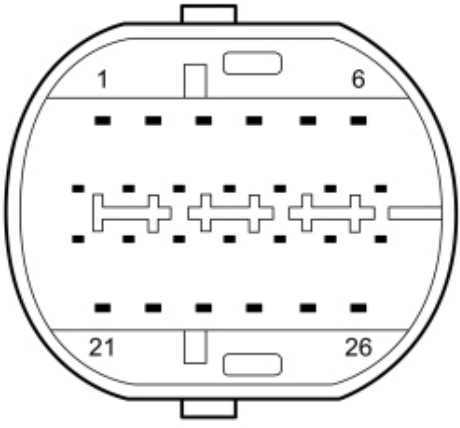
D6 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO POWER

- Ignition ON.
- For the OSS (output shaft speed) sensor, measure:

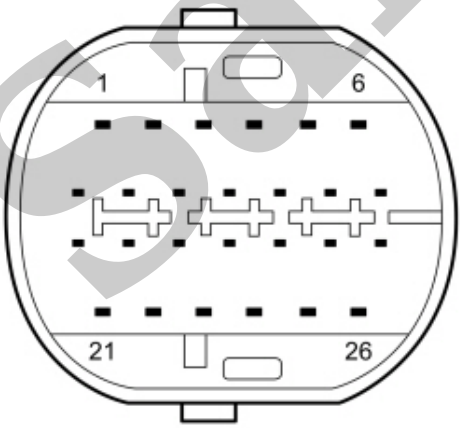
Positive Lead	Measurement / Action	Negative Lead
C168A-4	\bar{V}	Ground

- For the TSS (turbine shaft speed) sensor, measure:

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
 <p data-bbox="231 705 335 739">E275612</p> <p data-bbox="191 851 670 884">Transmission component side, pin 7</p>	<p data-bbox="1093 526 1125 571">Ω</p>	<p data-bbox="1324 548 1436 582">C1107-2</p>

- For the TSS (turbine shaft speed) sensor, measure:

Positive Lead	Measurement / Action	Negative Lead
 <p data-bbox="231 1624 335 1657">E275612</p> <p data-bbox="191 1758 670 1792">Transmission component side, pin 8</p>	<p data-bbox="1093 1433 1125 1478">Ω</p>	<p data-bbox="1324 1456 1436 1489">C3106-2</p>

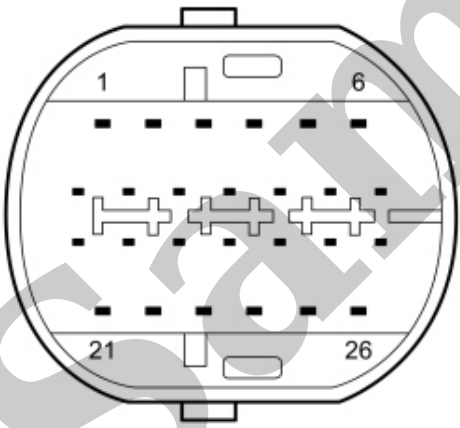
- For the ISSA sensor, measure:

Yes	GO to D8
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No	<p>INSTALL a new transmission case wiring harness.</p> <p>REFER to: Transmission Internal Wiring Harness (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Removal and Installation).</p>
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D8 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SENSOR VREF CIRCUIT FOR A SHORT TO GROUND

- For the OSS (output shaft speed) and ISSA sensors, measure:

Positive Lead	Measurement / Action	Negative Lead
 <p>E275612</p> <p>Transmission component side, pin 7</p>	Ω	Ground

- For the TSS (turbine shaft speed) and ISSB sensors, measure:

Positive Lead	Measurement / Action	Negative Lead