

Diagnostic Trouble Code (DTC) Charts and Pinpoint Tests - 7.3L 2V DEVCT V8 (239kW/320PS) (J0)

Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.
REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

Module	DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
PCM	P0218:00	Transmission Fluid Temperature Sensor "A" Over Temperature Condition: No Sub Type Information	GO to Pinpoint Test Y
PCM	P0657:00	Actuator Supply Voltage "A" Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P0702:00	Transmission Control System Electrical: No Sub Type Information	GO to Pinpoint Test G
PCM	P0706:00	Transmission Range Sensor "A" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test C
PCM	P0707:00	Transmission Range Sensor "A" Circuit Low: No Sub Type Information	GO to Pinpoint Test C
PCM	P0708:00	Transmission Range Sensor "A" Circuit High: No Sub Type Information	GO to Pinpoint Test C
PCM	P0709:00	Transmission Range Sensor "A" Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test C
PCM	P0710:00	Transmission Fluid Temperature Sensor "A" Circuit: No Sub Type Information	GO to Pinpoint Test B
PCM	P0711:00	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test B
PCM	P0712:00	Transmission Fluid Temperature Sensor "A" Circuit Low: No Sub Type Information	GO to Pinpoint Test B
PCM	P0713:00	Transmission Fluid Temperature Sensor "A" Circuit High: No Sub Type Information	GO to Pinpoint Test B
PCM	P0715:00	Input/Turbine Shaft Speed Sensor "A" Circuit: No Sub Type Information	GO to Pinpoint Test D
PCM	P0716:00	Input/Turbine Shaft Speed Sensor "A" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test F
PCM	P0717:00	Input/Turbine Shaft Speed Sensor "A" Circuit No Signal: No Sub Type Information	GO to Pinpoint Test D
PCM	P0718:00	Input/Turbine Shaft Speed Sensor "A" Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test D
PCM	P0720:00	Output Shaft Speed Sensor Circuit: No Sub Type Information	GO to Pinpoint Test D
PCM	P0721:00	Output Shaft Speed Sensor Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test F
PCM	P0722:00	Output Shaft Speed Sensor Circuit No Signal: No Sub Type Information	GO to Pinpoint Test D
PCM	P0723:00	Output Shaft Speed Sensor Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test D
PCM	P0729:00	Gear 6 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test H
PCM	P0731:00	Gear 1 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test I
PCM	P0732:00	Gear 2 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test J
PCM	P0733:00	Gear 3 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test K
PCM	P0734:00	Gear 4 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test L
PCM	P0735:00	Gear 5 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test M
PCM	P0736:00	Reverse Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test N
PCM	P0740:00	Torque Converter Clutch Solenoid Circuit/Open: No Sub Type Information	GO to Pinpoint Test E
PCM	P0741:00	Torque Converter Clutch Solenoid Circuit Performance Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0743:00	Torque Converter Clutch Solenoid Circuit Electrical: No Sub Type Information	GO to Pinpoint Test E
PCM	P0748:00	Pressure Control Solenoid "A" Electrical: No Sub Type Information	GO to Pinpoint Test E

Module	DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
PCM	P0751:00	Shift Solenoid "A" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0752:00	Shift Solenoid "A" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P0753:00	Shift Solenoid "A" electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P0754:00	Shift Solenoid "A" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P0756:00	Shift Solenoid "B" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0757:00	Shift Solenoid "B" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P0758:00	Shift Solenoid "B" electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P0759:00	Shift Solenoid "B" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P0761:00	Shift Solenoid "C" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0762:00	Shift Solenoid "C" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P0763:00	Shift Solenoid "C" electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P0764:00	Shift Solenoid "C" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P0766:00	Shift Solenoid "D" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0767:00	Shift Solenoid "D" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P0768:00	Shift Solenoid "D" electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P0769:00	Shift Solenoid "D" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P076F:00	Gear 7 Ratio Incorrect: No Sub Type Information	GO to Pinpoint Test Q
PCM	P0771:00	Shift Solenoid "E" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P0772:00	Shift Solenoid "E" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P0773:00	Shift Solenoid "E" electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P0774:00	Shift Solenoid "E" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P077D:00	Output Shaft Speed Sensor Circuit High: No Sub Type Information	GO to Pinpoint Test D
PCM	P0791:00	Intermediate Shaft Speed Sensor "A" Circuit: No Sub Type Information	GO to Pinpoint Test D
PCM	P0792:00	Intermediate Shaft Speed Sensor "A" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test F
PCM	P0793:00	Intermediate Shaft Speed Sensor "A" Circuit No Signal: No Sub Type Information	GO to Pinpoint Test D
PCM	P0794:00	Intermediate Shaft Speed Sensor "A" Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test D
PCM	P07BF:00	Input/Turbine Shaft Speed Sensor "A" Circuit Low: No Sub Type Information	GO to Pinpoint Test D
PCM	P07C0:00	Input/Turbine Shaft Speed Sensor "A" Circuit High: No Sub Type Information	GO to Pinpoint Test D
PCM	P07C5:00	Intermediate Shaft Speed Sensor "A" Circuit Low: No Sub Type Information	GO to Pinpoint Test D
PCM	P07C6:00	Intermediate Shaft Speed Sensor "A" Circuit High: No Sub Type Information	GO to Pinpoint Test D
PCM	P07C7:00	Intermediate Shaft Speed Sensor "B" Circuit Low: No Sub Type Information	GO to Pinpoint Test D
PCM	P07C8:00	Intermediate Shaft Speed Sensor "B" Circuit High: No Sub Type Information	GO to Pinpoint Test D
PCM	P07D9:00	Gear 8 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test R
PCM	P07F6:00	Gear 9 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test S
PCM	P07F7:00	Gear 10 Incorrect Ratio: No Sub Type Information	GO to Pinpoint Test T
PCM	P0868:00	Transmission Fluid Pressure Low: No Sub Type Information	GO to Pinpoint Test U
PCM	P0882:00	TCM Power Input Signal Low: No Sub Type Information	GO to Pinpoint Test G
PCM	P0883:00	TCM Power Input Signal High: No Sub Type Information	GO to Pinpoint Test G
PCM	P0960:00	Pressure Control Solenoid "A" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test E
PCM	P0961:00	Pressure Control Solenoid "A" Control Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test E
PCM	P0962:00	Pressure Control Solenoid "A" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test E
PCM	P0963:00	Pressure Control Solenoid "A" Control Circuit High: No Sub Type Information	GO to Pinpoint Test E
PCM	P0973:00	Shift solenoid "A" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P0974:00	Shift solenoid "A" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A
PCM	P0976:00	Shift solenoid "B" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P0977:00	Shift solenoid "B" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A

Module	DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
PCM	P0979:00	Shift solenoid "C" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P097A:00	Shift solenoid "A" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P097B:00	Shift solenoid "B" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P097C:00	Shift solenoid "C" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P097D:00	Shift solenoid "D" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P097E:00	Shift solenoid "E" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P097F:00	Shift solenoid "F" Control Circuit/Open: No Sub Type Information	GO to Pinpoint Test A
PCM	P0980:00	Shift solenoid "C" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A
PCM	P0982:00	Shift solenoid "D" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P0983:00	Shift solenoid "D" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A
PCM	P0985:00	Shift solenoid "E" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P0986:00	Shift solenoid "E" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A
PCM	P0998:00	Shift solenoid "F" Control Circuit Low: No Sub Type Information	GO to Pinpoint Test A
PCM	P0999:00	Shift solenoid "F" Control Circuit High: No Sub Type Information	GO to Pinpoint Test A
PCM	P1397:00	System Voltage Out Of Self Test Range: No Sub Type Information	GO to Pinpoint Test G
PCM	P1636:00	Inductive Signature Chip Communication Error: No Sub Type Information	GO to Pinpoint Test V
PCM	P163E:00	Transmission Control Module Programming Error: No Sub Type Information	GO to Pinpoint Test W
PCM	P163F:00	Transmission ID Block Corrupted, Not Programmed: No Sub Type Information	GO to Pinpoint Test W
PCM	P1705:00	Transmission Range Circuit Not Indicating Park/Neutral During Self Test: No Sub Type Information	GO to Pinpoint Test C
PCM	P1711:00	Transmission Fluid Temperature Sensor Out Of Self Test Range: No Sub Type Information	GO to Pinpoint Test X
PCM	P1744:00	Torque Converter Clutch Solenoid Circuit Performance: No Sub Type Information	GO to Pinpoint Test O
PCM	P1783:00	Transmission Fluid Over Temperature Condition: No Sub Type Information	GO to Pinpoint Test Y
PCM	P1A02:00	Transmission One Way Clutch Performance: No Sub Type Information	GO to Pinpoint Test Z
PCM	P2669:00	Actuator Supply Voltage "B" Circuit/Open: No Sub Type Information	GO to Pinpoint Test E
PCM	P2700:00	Transmission Friction Element "A" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2701:00	Transmission Friction Element "B" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2702:00	Transmission Friction Element "C" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2703:00	Transmission Friction Element "D" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2704:00	Transmission Friction Element "E" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2705:00	Transmission Friction Element "F" Apply Time Range Performance: No Sub Type Information	GO to Pinpoint Test AA
PCM	P2707:00	Shift Solenoid "F" Performance/Stuck Off: No Sub Type Information	GO to Pinpoint Test O
PCM	P2708:00	Shift Solenoid "F" Stuck On: No Sub Type Information	GO to Pinpoint Test P
PCM	P2709:00	Shift Solenoid "F" Electrical: No Sub Type Information	GO to Pinpoint Test A
PCM	P2710:00	Shift Solenoid "F" Intermittent: No Sub Type Information	GO to Pinpoint Test A
PCM	P2745:00	Intermediate Shaft Speed Sensor "B" Circuit: No Sub Type Information	GO to Pinpoint Test D
PCM	P2746:00	Intermediate Shaft Speed Sensor "B" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test F
PCM	P2747:00	Intermediate Shaft Speed Sensor "B" Circuit No Signal: No Sub Type Information	GO to Pinpoint Test D
PCM	P2748:00	Intermediate Shaft Speed Sensor "B" Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test D
PCM	P2760:00	Torque Converter Clutch Pressure Control Solenoid Intermittent: No Sub Type Information	GO to Pinpoint Test E
PCM	P2769:00	Torque Converter Clutch Circuit Low: No Sub Type Information	GO to Pinpoint Test E
PCM	P2770:00	Torque Converter Clutch Circuit High: No Sub Type Information	GO to Pinpoint Test E

Module	DTC	Description	Action <i>New: hover over Pinpoint Test links to show title</i>
PCM	P27B4:00	Internal Control Module Transmission Gear Direction Control Performance: No Sub Type Information	GO to Pinpoint Test AB
PCM	P27B5:00	Internal Control Module Transmission Gear Ratio Control Performance: No Sub Type Information	GO to Pinpoint Test AB
PCM	P27B6:00	Internal Control Module Transmission Speed Sensor Performance: No Sub Type Information	GO to Pinpoint Test AB
PCM	P2801:00	Transmission Range Sensor "B" Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test C
PCM	P2802:00	Transmission Range Sensor "B" Circuit Low: No Sub Type Information	GO to Pinpoint Test C
PCM	P2803:00	Transmission Range Sensor "B" Circuit High: No Sub Type Information	GO to Pinpoint Test C
PCM	P2804:00	Transmission Range Sensor "B" Circuit Intermittent: No Sub Type Information	GO to Pinpoint Test C
PCM	P2805:00	Transmission Range Sensor "A/" "B" Correlation: No Sub Type Information	GO to Pinpoint Test C

Pinpoint Tests

[PINPOINT TEST A : SHIFT SOLENOIDS](#)

Refer to Wiring Diagrams Cell [30](#) for schematic and connector information.

Normal Operation and Fault Conditions

The 10R140 transmission uses 6 linear force shift solenoids (A, B, C, D, E, F) called Casting Integrated Direct Acting Solenoids (CIDAS). Unlike previous shift solenoids, they are mechanical in nature meaning no transmission fluid passes through them. They use an armature pin assembly that moves a control valve in the main control valve body to control and apply hydraulic fluid pressure. Each clutch (A, B, C, D, E, F) has a corresponding shift solenoid (A, B, C, D, E, F) that is directly proportional in that zero current equals zero pressure and maximum current equals maximum pressure. Since there is no pressure with zero current, none of the clutch packs are able to engage if the power is interrupted to the shift solenoids.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0657:00	Actuator Supply Voltage "A" Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the transmission solenoid power control 1 (TSPC1) circuit.
PCM P0753:00	Shift Solenoid "A" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0973, P0974 and/or P097A. Resolve the more specific DTC first.
PCM P0754:00	Shift Solenoid "A" Intermittent: No Sub Type Information	This DTC indicates a SSA fault, but the fault did not last long enough to set a more specific DTC.
PCM P0758:00	Shift Solenoid "B" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0976, P0977 and/or P097B. Resolve the more specific DTC first.
PCM P0759:00	Shift Solenoid "B" Intermittent: No Sub Type Information	This DTC indicates a SSB fault, but the fault did not last long enough to set a more specific DTC.
PCM P0763:00	Shift Solenoid "C" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0779, P0980 and/or P097C. Resolve the more specific DTC first.
PCM P0764:00	Shift Solenoid "C" Intermittent: No Sub Type Information	This DTC indicates a SSC fault, but the fault did not last long enough to set a more specific DTC.
PCM P0768:00	Shift Solenoid "D" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0982, P0983 and/or P097D. Resolve the more specific DTC first.
PCM P0769:00	Shift Solenoid "D" Intermittent: No Sub Type Information	This DTC indicates a SSD fault, but the fault did not last long enough to set a more specific DTC.
PCM P0773:00	Shift Solenoid "E" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0985, P0986 and/or P097E. Resolve the more specific DTC first.
PCM P0774:00	Shift Solenoid "E" Intermittent: No Sub Type Information	This DTC indicates a SSE fault, but the fault did not last long enough to set a more specific DTC.
PCM P0973:00	Shift Solenoid "A" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSA circuit.
PCM P0974:00	Shift Solenoid "A" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSA circuit.
PCM P0976:00	Shift Solenoid "B" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSB circuit.

PCM P0977:00	Shift Solenoid "B" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSB circuit.
PCM P0979:00	Shift Solenoid "C" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSC circuit.
PCM P097A:00	Shift Solenoid "A" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSA circuit.
PCM P097B:00	Shift Solenoid "B" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSB circuit.
PCM P097C:00	Shift Solenoid "C" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSC circuit.
PCM P097D:00	Shift Solenoid "D" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSD circuit.
PCM P097E:00	Shift Solenoid "E" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSE circuit.
PCM P097F:00	Shift Solenoid "F" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the SSF circuit.
PCM P0980:00	Shift Solenoid "C" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSC circuit.
PCM P0982:00	Shift Solenoid "D" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSD circuit.
PCM P0983:00	Shift Solenoid "D" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSD circuit.
PCM P0985:00	Shift Solenoid "E" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSE circuit.
PCM P0986:00	Shift Solenoid "E" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSE circuit.
PCM P0998:00	Shift Solenoid "F" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the SSF circuit.
PCM P0999:00	Shift Solenoid "F" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the SSF circuit.
PCM P2709:00	Shift Solenoid "F" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0998, P0999 and/or P097F. Resolve the more specific DTC first.
PCM P2710:00	Shift Solenoid "F" Intermittent: No Sub Type Information	This DTC indicates a SSF fault, but the fault did not last long enough to set a more specific DTC.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- Shift solenoid
- Transmission internal wiring harness
- TCM

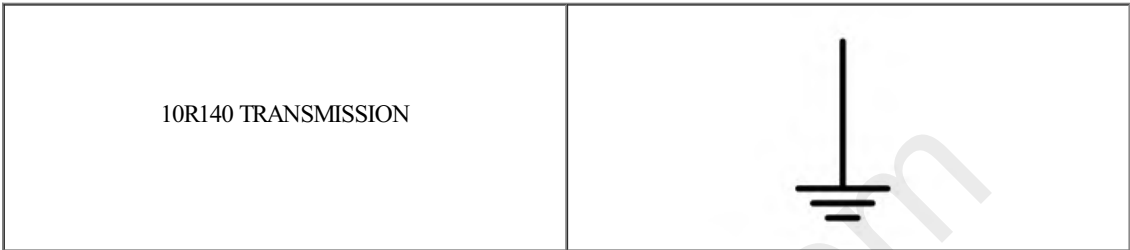
A1 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 1 (TSPC1) CIRCUIT FOR VOLTAGE

NOTE: This pinpoint test is written to address all shift solenoid electrical faults. For each test step, only the circuits related to the DTC retrieved during the KOEO test need to be tested.

- Ignition OFF.
- Disconnect Transmission Vehicle Harness [C168A](#).
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- **NOTE:** The PCM removes power from the Transmission Solenoid Power Control (TSPC) circuit when certain electrical faults are present. Use a meter with a min/max feature and/or recording capabilities. Make sure all test connections are made at the transmission harness connector before the ignition is turned ON to obtain a reading before the PCM removes power.

Connect the meter leads to [C168A-9](#) and ground.

- Enable the min/max or recording feature on the meter.
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C168A-9		Ground

Is the maximum recorded voltage greater than 11 volts?

Yes	GO to A4
No	GO to A2

A2 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 1 (TSPC1) CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#).
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Measure:

POWERTRAIN CONTROL MODULE (PCM)	10R140 TRANSMISSION
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Positive Lead	Measurement / Action	Negative Lead
C175T-2	Ω	C168A-9

Is the resistance less than 3 ohms?

Yes	GO to A3
No	REPAIR the circuit.

A3 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 1 (TSPC1) CIRCUIT FOR A SHORT TO GROUND

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POWERTRAIN CONTROL MODULE (PCM)	
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Positive Lead	Measurement / Action	Negative Lead
C175T-2	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	□ Click here to access Guided Routine (PCM). After programming the new PCM, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	REPAIR the circuit.

A4 CHECK THE SOLENOID CONTROL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#) .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Measure the resistance of the suspect solenoid control circuit using the following chart:

POWERTRAIN CONTROL MODULE (PCM)	10R140 TRANSMISSION
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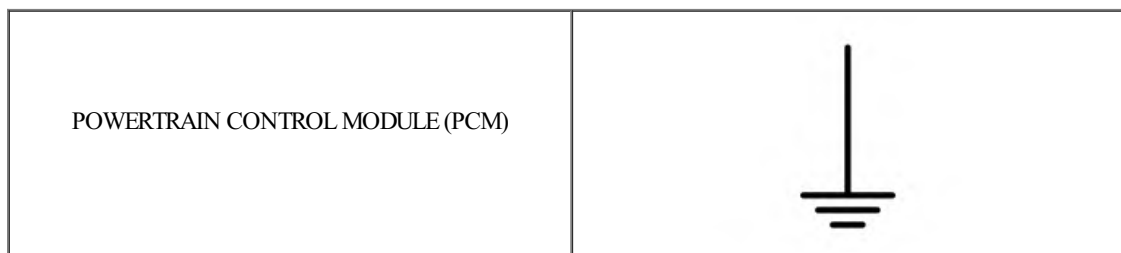
Positive Lead	Measurement / Action	Negative Lead
SSA C175T-19	Ω	C168A-14
SSF C175T-4	Ω	C168A-23
SSC C175T-34	Ω	C168A-16
SSB C175T-49	Ω	C168A-15
SSE C175T-5	Ω	C168A-22
SSD C175T-64	Ω	C168A-21

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to A5
No	REPAIR the circuit.

A5 CHECK THE SOLENOID CONTROL CIRCUIT FOR A SHORT TO GROUND

- Measure the resistance between the suspect solenoid control circuit and ground using the following chart:



Positive Lead	Measurement / Action	Negative Lead
SSA C175T-19	Ω	Ground
SSF C175T-4	Ω	Ground
SSC C175T-34	Ω	Ground
SSB C175T-49	Ω	Ground
SSE C175T-5	Ω	Ground
SSD C175T-64	Ω	Ground

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

Yes	GO to A6
No	REPAIR the circuit.

A6 CHECK THE SOLENOID CONTROL CIRCUIT FOR A SHORT TOGETHER WITH THE TRANSMISSION POWER CIRCUITS

- For SSA, measure:



Positive Lead	Measurement / Action	Negative Lead
C175T-19	Ω	C175T-1
C175T-19	Ω	C175T-2
C175T-19	Ω	C175T-35
C175T-19	Ω	C175T-36
C175T-19	Ω	C175T-42
C175T-19	Ω	C175T-50
C175T-19	Ω	C175T-55

- For SSF, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-4	Ω	C175T-1
C175T-4	Ω	C175T-2
C175T-4	Ω	C175T-35
C175T-4	Ω	C175T-36
C175T-4	Ω	C175T-42
C175T-4	Ω	C175T-50
C175T-4	Ω	C175T-55

- For SSC, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-34	Ω	C175T-1
C175T-34	Ω	C175T-2
C175T-34	Ω	C175T-35
C175T-34	Ω	C175T-36
C175T-34	Ω	C175T-42
C175T-34	Ω	C175T-50
C175T-34	Ω	C175T-55

- For SSB, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-49	Ω	C175T-1
C175T-49	Ω	C175T-2
C175T-49	Ω	C175T-35
C175T-49	Ω	C175T-36
C175T-49	Ω	C175T-42
C175T-49	Ω	C175T-50
C175T-49	Ω	C175T-55

- For SSE, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-5	Ω	C175T-1
C175T-5	Ω	C175T-2
C175T-5	Ω	C175T-35
C175T-5	Ω	C175T-36
C175T-5	Ω	C175T-42
C175T-5	Ω	C175T-50
C175T-5	Ω	C175T-55

- For SSD, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-64	Ω	C175T-1
C175T-64	Ω	C175T-2
C175T-64	Ω	C175T-35
C175T-64	Ω	C175T-36
C175T-64	Ω	C175T-42
C175T-64	Ω	C175T-50
C175T-64	Ω	C175T-55

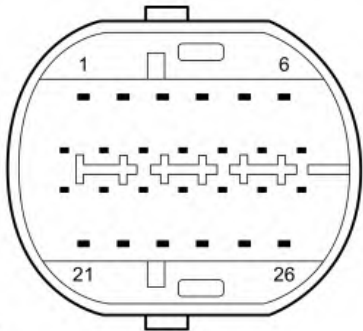
Are the resistances greater than 10,000 ohms on the suspect circuit?

Yes	GO to A7
No	REPAIR the circuit.

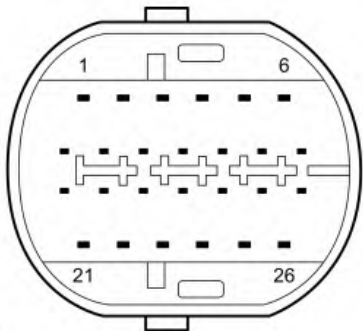
A7 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SOLENOID POWER CIRCUIT FOR AN OPEN

- Drain the transmission fluid and remove the transmission fluid pan.
REFER to: Transmission Fluid Pan, Gasket and Filter (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 6-Speed Automatic Transmission â€“ 6R100, Removal and Installation).
- Disconnect Shift Solenoid Connectors (A through F).
- Measure the resistance of the suspect solenoid power circuit using the table below:

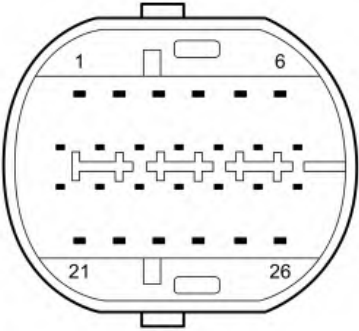
SSA

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1843-1

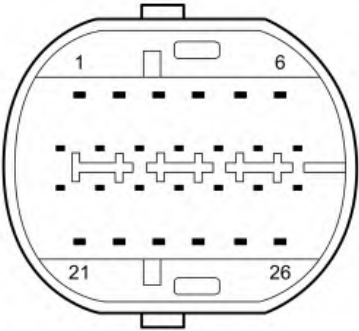
SSF

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1848-1

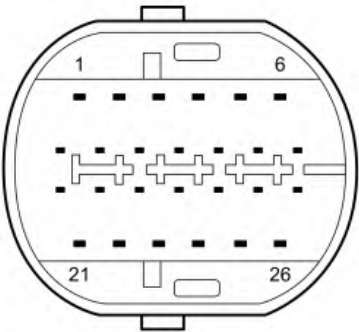
SSC

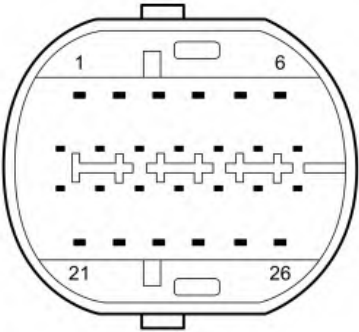
Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1845-1

SSB

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1844-1

SSE

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1847-1

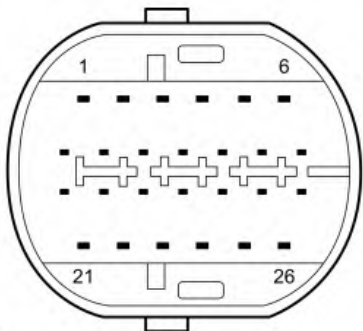
Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	C1846-1

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to A8
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R140, Removal and Installation).

A8 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SOLENOID POWER CIRCUIT FOR A SHORT TO GROUND

- Inspect the transmission internal wiring harness for chafing or bare wires.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 9	Ω	Ground

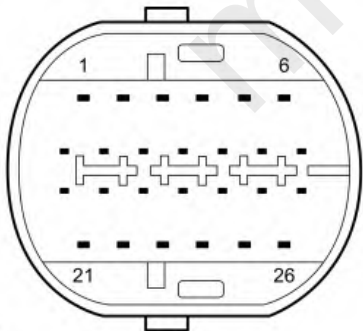
Is the resistance greater than 10,000 ohms?

Yes	GO to A9
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

A9 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SOLENOID CONTROL CIRCUIT FOR AN OPEN

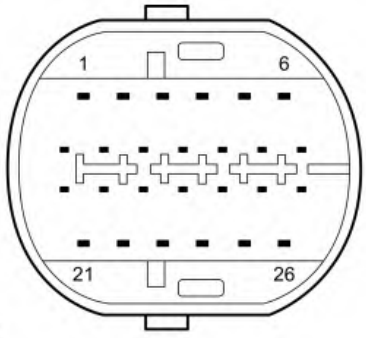
- Measure the resistance of the suspect solenoid control circuit using the table below:

SSA

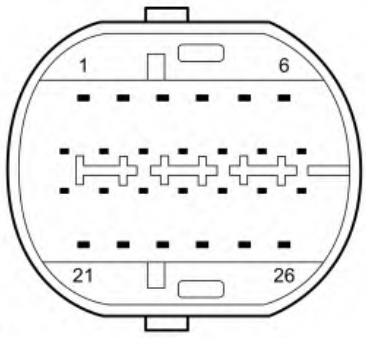
Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 14	Ω	C1843-2

SSF

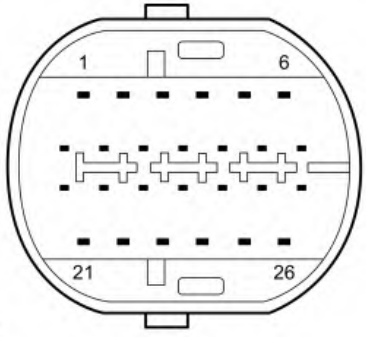
Positive Lead	Measurement / Action	Negative Lead
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 E275612 Transmission component side, pin 23	Ω	C1848-2
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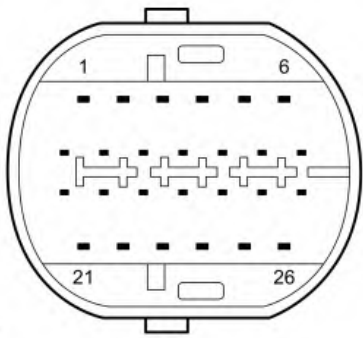
SSC

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 16	Ω	C1845-2

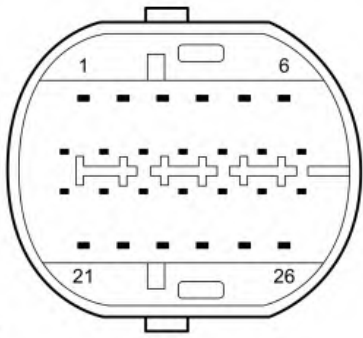
SSB

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 15	Ω	C1844-2

SSE

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 22	Ω	C1847-2

SSD

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 21	Ω	C1846-2

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to A10
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

A10 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SOLENOID CONTROL CIRCUIT FOR A SHORT TO GROUND

- Inspect the transmission internal wiring harness for chafing or bare wires.
- Measure the resistance between the suspect solenoid control circuit and ground using the table below:

SHIFT SOLENOID A	
------------------	--

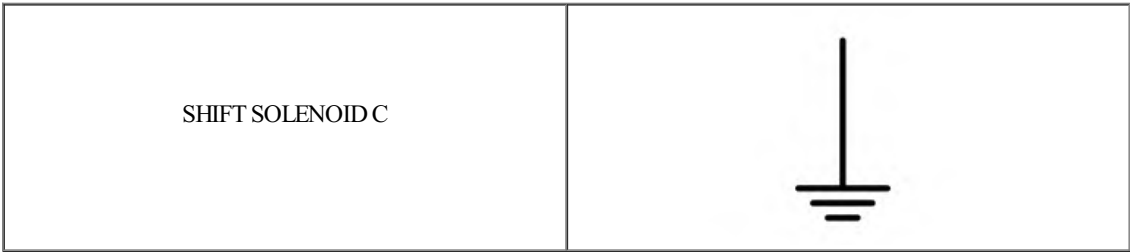
SSA

Positive Lead	Measurement / Action	Negative Lead
C1843-2	Ω	Ground

SHIFT SOLENOID F	
------------------	--

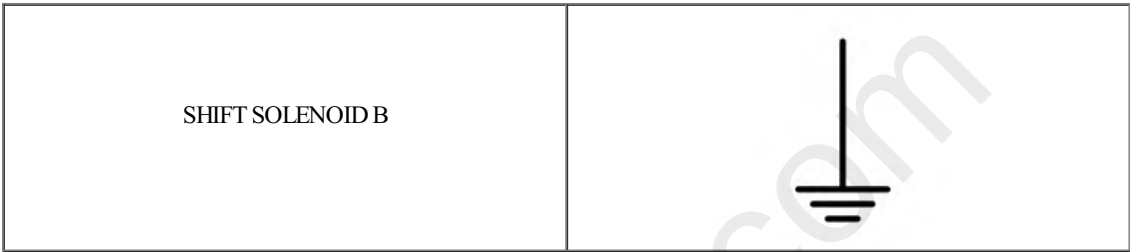
SSF

Positive Lead	Measurement / Action	Negative Lead
C1848-2	Ω	Ground



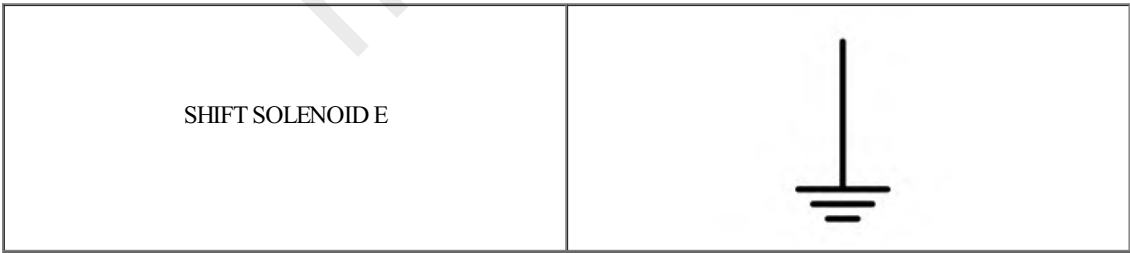
SSC

Positive Lead	Measurement / Action	Negative Lead
C1845-2	Ω	Ground



SSB

Positive Lead	Measurement / Action	Negative Lead
C1844-2	Ω	Ground



SSE

Positive Lead	Measurement / Action	Negative Lead
C1847-2	Ω	Ground

SHIFT SOLENOID D



SSD

Positive Lead	Measurement / Action	Negative Lead
C1846-2	Ω	Ground

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

Yes	GO to A11
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

A11 CHECK THE SOLENOID RESISTANCE

- Measure and record the resistance of the suspect shift solenoid.

Is the shift solenoid resistance between 4.8 and 5.4 ohms?

Yes	GO to A12
No	INSTALL a new shift solenoid. REFER to: Shift Solenoids (SS) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

A12 CHECK THE SOLENOID FOR A SHORT TO GROUND

- Measure and record the resistance between either pin of the suspect shift solenoid and ground.

Is the resistance greater than 10,000 ohms?

Yes	GO to A13
No	INSTALL a new shift solenoid. REFER to: Shift Solenoids (SS) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

A13 CHECK THE SOLENOID CONTROL CIRCUIT FOR AN OPEN WITH THE TRANSMISSION VEHICLE HARNESS CONNECTED

- Connect Transmission Vehicle Harness [C168A](#).
- Measure the resistance of the suspect solenoid control circuit using the table below:

Positive Lead	Measurement / Action	Negative Lead
SSA C1843-2	Ω	C175T-19
SSF C1848-2	Ω	C175T-4
SSC C1845-2	Ω	C175T-34
SSB C1844-2	Ω	C175T-49
SSE C1847-2	Ω	C175T-5
SSD C1846-2	Ω	C175T-64

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to A14
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

A14 CHECK THE SOLENOID POWER CIRCUIT FOR VOLTAGE AT THE SOLENOID WITH THE TRANSMISSION VEHICLE HARNESS CONNECTED

- Connect PCM [C175T](#).
- **NOTE:** The PCM removes power from the Transmission Solenoid Power Control (TSPC) circuit when certain electrical faults are present. Use a meter with a min/max feature and/or recording capabilities. Make sure all test connections are made at the transmission harness connector before the ignition is turned ON to obtain a reading before the PCM removes power.

Connect the meter leads to the suspect shift solenoid connector and ground.

- Enable the min/max or recording feature on the meter.
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
SSA C1843-1		Ground
SSF C1848-1		Ground
SSC C1845-1		Ground
SSB C1844-1		Ground
SSE C1847-1		Ground
SSD C1846-1		Ground

Is the maximum recorded voltage greater than 11 volts on the suspect circuit?

Yes	CONNECT all electrical connectors. CLEAR the DTC. CARRY OUT the KOEO and KOER self-tests. If the DTC returns, Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140). If the DTC does not return, the fault is no longer present and might have been caused by a terminal fitment issue.
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

PINPOINT TEST B : TRANSMISSION FLUID TEMPERATURE SENSOR

Refer to Wiring Diagrams Cell [30](#) for schematic and connector information.

Normal Operation and Fault Conditions

The TFT sensor is a temperature dependent resistor that is in contact with transmission fluid in the transmission sump area. The PCM monitors the voltage drop across the TFT sensor, which changes as transmission fluid temperature varies. The PCM uses the TFT sensor signal as an input for its strategy for shifting and TCC operation. The PCM also uses the TFT sensor signal for transmission fault detection and diagnostics.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0710:00	Transmission Fluid Temperature Sensor "A" Circuit: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0712 and/or P0713. Resolve the more specific DTC first.
PCM P0711:00	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance: No Sub Type Information	This DTC indicates the TFT sensor is reading within range, but the PCM detected no change when the vehicle was driven enough that the transmission fluid temperature should have changed.
PCM P0712:00	Transmission Fluid Temperature Sensor "A" Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the TFT sensor circuit.
PCM P0713:00	Transmission Fluid Temperature Sensor "A" Circuit High: No Sub Type Information	This DTC indicates an open circuit in the TFT sensor circuit.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- TFT sensor
- Transmission internal wiring harness
- PCM

B1 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR INPUT SIGNAL CIRCUIT

- Ignition OFF.
- Disconnect Transmission Vehicle Harness [C168A](#) .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Connect the diagnostic tool.
- Ignition ON.
- Access the PCM and monitor the TFT (Deg C) PID
- Access the PCM and monitor the TFT_V (V) PID

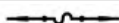
Does the TFT PID display approximately -40Â°C and the TFTV PID display 4.96 to 5.10 volts?

Yes	GO to B2
No	GO to B3

B2 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR SIGNAL RETURN CIRCUIT

- Connect a fused jumper to the transmission vehicle harness:

10R140 TRANSMISSION

Positive Lead	Measurement / Action	Negative Lead
C168A-13		C168A-20

Does the TFT PID display approximately 190Â°C and the TFTV PID display 0 volts?

Yes	GO to B8
No	GO to B3

B3 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR INPUT SIGNAL CIRCUIT FOR VOLTAGE

- Ignition ON.
- Measure:

10R140 TRANSMISSION	
---------------------	---

Positive Lead	Measurement / Action	Negative Lead
C168A-13		Ground

Is the voltage between 4.8 and 5.1 volts?

Yes	GO to B6
No	GO to B4

B4 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR INPUT SIGNAL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#).
- Measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-13	Ω	C175T-42

Is the resistance less than 3 ohms?

Yes	GO to B5
No	REPAIR the circuit.

B5 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR INPUT SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Measure:

10R140 TRANSMISSION	
---------------------	---

Positive Lead	Measurement / Action	Negative Lead
C168A-13	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140) .
No	REPAIR the circuit.

B6 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#).
- Measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-20	Ω	C175T-7

Is the resistance less than 3 ohms?

Yes	GO to B7
No	REPAIR the circuit.

B7 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO GROUND

- Measure:

10R140 TRANSMISSION	
---------------------	---

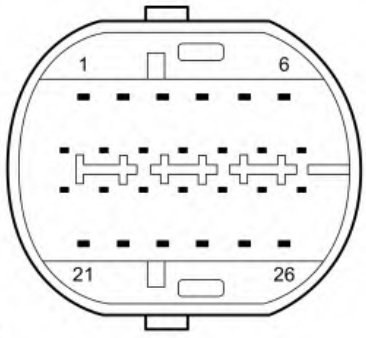
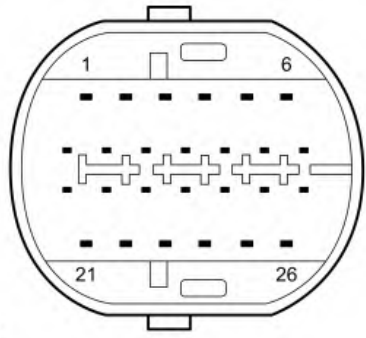
Positive Lead	Measurement / Action	Negative Lead
C168A-20	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission “10R140”).
No	REPAIR the circuit.

B8 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR FOR AN OPEN AT THE TRANSMISSION BULKHEAD CONNECTOR

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 13	Ω	 E275612 Transmission component side, pin 20

- Compare the measured resistance to the current temperature of the transmission fluid using the following chart.

°C	°F	Resistance (ohms)
-50 to -40	-58 to -40	41k-97k
-39 to -20	-39 to -4	14k-52k
-19 to -1	-3 to 31	5.5k-17k
0 to 20	32 to 68	2.3k-6.4k
21 to 40	69 to 104	1.1k-2.7k
41 to 70	105 to 158	0.4k-1.3k
71 to 90	159-194	236-445
91 to 110	195-230	140-247
111 to 130	231-266	87-145
131 to 150	267-302	55-90

Does the resistance match the specification on the temperature chart?

Yes	GO to B10
No	GO to B9

B9 CHECK TFT SENSOR RESISTANCE

- Remove the main control valve body.
REFER to: Main Control Valve Body (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).
- Disconnect TFT sensor [C1842](#) .
- Measure and record the resistance of the TFT sensor.
- Compare the measured resistance to the current temperature of the TFT sensor using the following chart.

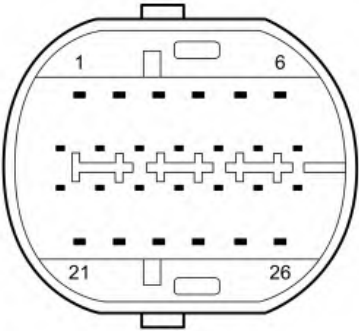
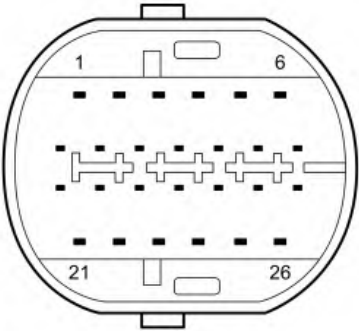
Â°C	Â°F	Resistance (ohms)
-50 to -40	-58 to -40	41k-97k
-39 to -20	-39 to -4	14k-52k
-19 to -1	-3 to 31	5.5k-17k
0 to 20	32 to 68	2.3k-6.4k
21 to 40	69 to 104	1.1k-2.7k
41 to 70	105 to 158	0.4k-1.3k
71 to 90	159-194	236-445
91 to 110	195-230	140-247
111 to 130	231-266	87-145
131 to 150	267-302	55-90

Does the resistance match the specification on the temperature chart?

Yes	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).
No	INSTALL a new TFT sensor. REFER to: Transmission Fluid Temperature (TFT) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).

B10 CHECK THE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR FOR A SHORT TO GROUND AT THE TRANSMISSION BULKHEAD CONNECTOR

- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 13	Ω	Ground
 E275612 Transmission component side, pin 20	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to B12
No	GO to B11

B11 CHECK THE TFT SENSOR FOR A SHORT TO GROUND

- Remove the main control valve body.
REFER to: Main Control Valve Body (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).
- Disconnect TFT sensor [C1842](#) .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
TFT sensor component side pin 1	Ω	Ground
TFT sensor component side pin 2	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).
No	INSTALL a new TFT sensor. REFER to: Transmission Fluid Temperature (TFT) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).

B12 CHECK THE RESISTANCE OF THE ENTIRE TFT (TRANSMISSION FLUID TEMPERATURE) SENSOR CIRCUIT

- Disconnect PCM [C175T](#).
- Connect Transmission vehicle harness [C168A](#).
- Measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-42	Ω	C175T-7

- Compare the measured resistance to the current temperature of the transmission fluid using the following chart.

$^{\circ}\text{C}$	$^{\circ}\text{F}$	Resistance (ohms)
-50 to -40	-58 to -40	41k-97k
-39 to -20	-39 to -4	14k-52k
-19 to -1	-3 to 31	5.5k-17k
0 to 20	32 to 68	2.3k-6.4k
21 to 40	69 to 104	1.1k-2.7k
41 to 70	105 to 158	0.4k-1.3k
71 to 90	159-194	236-445
91 to 110	195-230	140-247
111 to 130	231-266	87-145
131 to 150	267-302	55-90

Does the resistance match the specification on the temperature chart?

Yes	CONNECT all electrical connectors. CLEAR the DTC. CARRY OUT the KOEO and KOER self-tests. If the DTC returns, Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) . If the DTC does not return, the fault is no longer present and might have been caused by a terminal fitment issue.
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

PINPOINT TEST C : TRANSMISSION RANGE SENSOR

Refer to Wiring Diagrams Cell [30](#) for schematic and connector information.

Normal Operation and Fault Conditions

The 10R140 transmission uses a manual shifter to engage and disengage Park. The shifter position is detected by reading TR sensors A and B. The 10R140 transmission uses dual PWM output (at 125 Hz) TR sensors where the duty cycle of TR sensor A increases as the shifter is moved from Park to Sport and the duty cycle TR sensor B decreases as the shifter is moved from Park to Sport. Together, the sum of the two duty cycle signals should add up to 100%.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0706:00	Transmission Range Sensor "A" Circuit Range/Performance: No Sub Type Information	This DTC indicates the frequency of TR sensor A is out of range (expected to be 125 Hz +/- 50 Hz). This could be caused by an open or a short in the TR sensor power or ground circuits.
PCM P0707:00	Transmission Range Sensor "A" Circuit Low: No Sub Type Information	This DTC indicates the duty cycle of TR sensor A is out of range low (less than 7%). This could be caused by an open circuit or a short to ground in the TR sensor A circuit.
PCM P0708:00	Transmission Range Sensor "A" Circuit High: No Sub Type Information	This DTC indicates the duty cycle of TR sensor A is out of range high (greater than 93%). This could be caused by a short to power in the TR sensor A circuit.
PCM P0709:00	Transmission Range Sensor "A" Circuit Intermittent: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0706, P0707 and/or P0708. Resolve the more specific DTC first.
PCM P1705:00	Transmission Range Circuit Not Indicating Park/Neutral During Self Test: No Sub Type Information	This DTC indicates the TR sensor did not show park or neutral during a KOEO or KOER self-test.
PCM P2801:00	Transmission Range Sensor "B" Circuit Range/Performance: No Sub Type Information	This DTC indicates the frequency of TR sensor B is out of range (expected to be 125 Hz +/- 50 Hz). This could be caused by an open or a short in the TR sensor power or ground circuits.
PCM P2802:00	Transmission Range Sensor "B" Circuit Low: No Sub Type Information	This DTC indicates the duty cycle of TR sensor B is out of range low (less than 7%). This could be caused by an open circuit or a short to ground in the TR sensor B circuit.
PCM P2803:00	Transmission Range Sensor "B" Circuit High: No Sub Type Information	This DTC indicates the duty cycle of TR sensor B is out of range high (greater than 93%). This could be caused by a short to power in the TR sensor B circuit.
PCM P2804:00	Transmission Range Sensor "B" Circuit Intermittent: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P2801, P2802 and/or P2803. Resolve the more specific DTC first.
PCM P2805:00	Transmission Range Sensor "A"/ "B" Correlation: No Sub Type Information	This DTC indicates both TR sensors are within range, but the sum of their duty cycles is out of range (total duty cycle should be 96% to 104%).

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- TR sensor
- Transmission internal wiring harness
- PCM

C1 CHECK THE TR (TRANSMISSION RANGE) SENSOR OPERATION

- Ignition ON.
- Access the PCM and monitor the TR_A_DC (% Duty Cycle) PID
- Access the PCM and monitor the TR_B_DC (% Duty Cycle) PID
- Access the PCM and monitor the TR_A_FREQ (Hz) PID
- Move the selector lever into each range and stop.
- Observe the PID readings while wiggling the harness or driving the vehicle.
- Compare the PID readings to the selector lever position duty cycle using the following chart.

Typical TR Sensor(s) PWM Output

Gear	Transmission Range Sensor A		Transmission Range Sensor B	
	Min	Max	Min	Max
P	8.00	18.96	81.04	92.00
R	35.50	47.90	52.10	64.50
N	51.75	61.75	38.25	48.25
D	67.45	77.45	22.55	32.55
Sport	81.12	92.00	8.00	18.88

Is the TR_FREQ between 75 to 175 Hz, TR_A_DC and TR_B_DC within range, and do all remain steady when the harness is wiggled or the vehicle is driven?

Yes	The fault is not present at this time and might be intermittent. INSPECT all wiring connections for damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals. REPAIR as necessary.
No	Check the adjustment of the selector lever cable. REFER to: Selector Lever Cable Adjustment (307-05B Automatic Transmission External Controls - 10-Speed Automatic Transmission â€” 10R140, General Procedures). If the selector lever cable is properly adjusted, GO to C2

C2 CHECK THE TR (TRANSMISSION RANGE) SENSOR SIGNAL CIRCUITS FOR VOLTAGE

- Ignition OFF.
- Disconnect Transmission vehicle harness [C168A](#) .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Ignition ON.
- Measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-5		Ground
C168A-6		Ground

Are the voltages approximately 5 volts?

Yes	GO to C3
No	GO to C4

C3 CHECK THE TR (TRANSMISSION RANGE) SENSOR VREF CIRCUIT FOR VOLTAGE

- Ignition ON.
- Measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-8		Ground

Is the voltage approximately 9 volts?

Yes	GO to C6
No	GO to C4

C4 CHECK THE TR (TRANSMISSION RANGE) SENSOR VREF AND SIGNAL CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#) .
- Measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-5	Ω	C175T-36
C168A-6	Ω	C175T-55
C168A-8	Ω	C175T-35

Are the resistances less than 3 ohms?

Yes	GO to C5
No	REPAIR the circuit.

C5 CHECK THE TR (TRANSMISSION RANGE) SENSOR VREF AND SIGNAL CIRCUITS FOR A SHORT TO GROUND

- Measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-5	Ω	Ground
C168A-6	Ω	Ground
C168A-8	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	REPAIR the circuit.

C6 CHECK THE TR (TRANSMISSION RANGE) SENSOR GROUND CIRCUIT

- Ignition ON.
- Measure:

10R140 TRANSMISSION

Positive Lead	Measurement / Action	Negative Lead
C168A-8		C168A-20

Is the voltage approximately 9 volts?

Yes	GO to C8
No	GO to C7

C7 CHECK THE TR (TRANSMISSION RANGE) SENSOR GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#).
- Measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

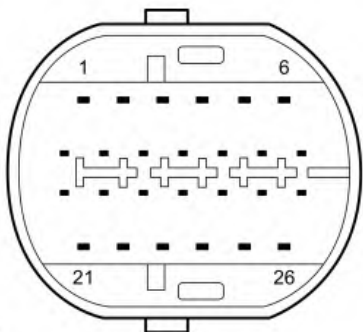
Positive Lead	Measurement / Action	Negative Lead
C168A-20	Ω	C175T-7

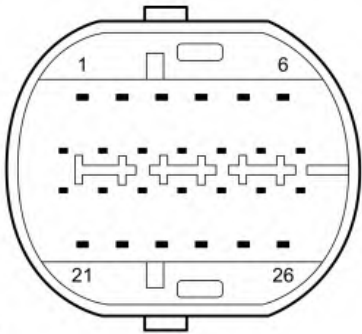
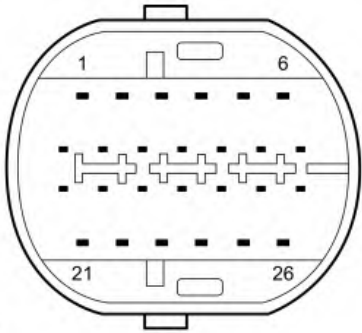
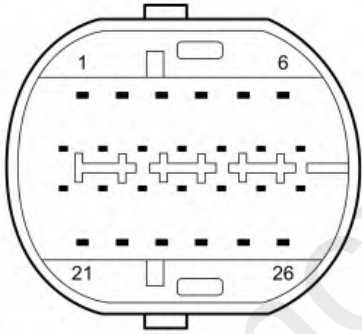
Is the resistance less than 3 ohms?

Yes	□ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140).
No	REPAIR the circuit.

C8 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS TR (TRANSMISSION RANGE) SENSOR CIRCUITS FOR AN OPEN

- Ignition OFF.
- Drain the transmission fluid and remove the transmission fluid pan.
REFER to: Transmission Fluid Pan, Gasket and Filter (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 6-Speed Automatic Transmission â€” 6R100, Removal and Installation).
- Disconnect TR sensor [C167](#).
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 5	Ω	C167-2

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 6	Ω	C167-3
 E275612 Transmission component side, pin 8	Ω	C167-4
 E275612 Transmission component side, pin 20	Ω	C167-1

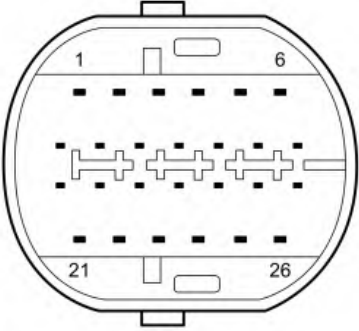
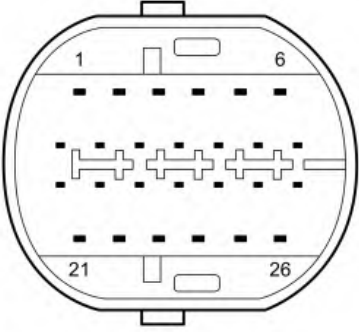
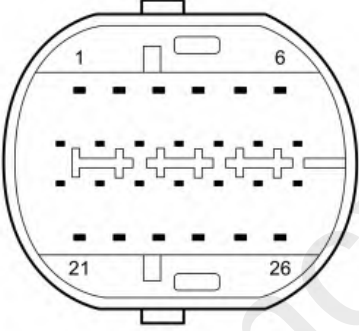
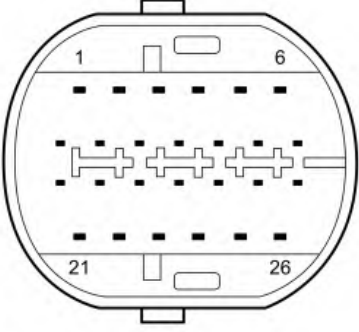
Are the resistances less than 3 ohms?

Yes	GO to C9
No	INSTALL a new transmission case harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission 6C: 10R140: Removal and Installation)

C9 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS TR (TRANSMISSION RANGE) SENSOR CIRCUITS FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 5	Ω	Ground
 E275612 Transmission component side, pin 6	Ω	Ground
 E275612 Transmission component side, pin 8	Ω	Ground
 E275612 Transmission component side, pin 20	Ω	Ground

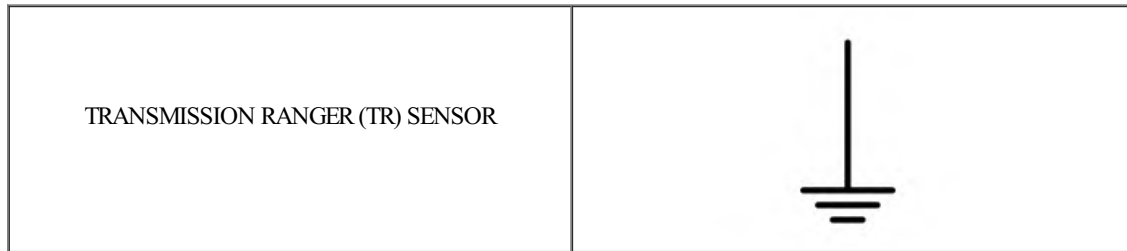
Are the resistances greater than 10,000 ohms?

Yes	GO to C10

No	INSTALL a new transmission case harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).
----	--

C10 CHECK THE TR (TRANSMISSION RANGE) SENSOR SIGNAL CIRCUITS FOR VOLTAGE THROUGH THE BULKHEAD CONNECTOR

- Connect Transmission Vehicle Harness [C168A](#) .
- Connect PCM [C175T](#) .
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C167-2		Ground
C167-3		Ground

Are the voltages approximately 5 volts?

Yes	GO to C11
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

C11 CHECK THE TR (TRANSMISSION RANGE) SENSOR VREF CIRCUIT FOR VOLTAGE THROUGH THE BULKHEAD CONNECTOR

- Ignition ON.
- Measure:

TRANSMISSION RANGER (TR) SENSOR	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C167-4		Ground

Is the voltage approximately 9 volts?

Yes	GO to C12
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

C12 CHECK THE TR (TRANSMISSION RANGE) SENSOR GROUND CIRCUIT THROUGH THE BULKHEAD CONNECTOR

- Ignition ON.
- Measure:

TRANSMISSION RANGER (TR) SENSOR

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

Is the voltage approximately 9 volts?

Yes	INSTALL a new TR sensor . REFER to: Transmission Range (TR) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R140, Removal and Installation).
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

[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 sensor is a Hall-effect type sensor that provides a signal to the PCM that changes in frequency as the rotating speed of the planetary carrier No. 2 varies. The PCM compares the TSS sensor signal with the engine speed information to determine the amount of slip occurring in the torque converter. The PCM also compares the TSS sensor signal with the OSS sensor signal to determine the gear ratio provided by the planetary carrier No. 4. The PCM uses the TSS sensor signal as an input for its strategies for shifts, TCC operation and for transmission fault detection and diagnostics.

OSS Sensor

The OSS sensor is a Hall-effect type sensor that provides a signal to the PCM that changes in frequency as the rotating speed of the rear planetary carrier No. 4 varies. The PCM compares the OSS sensor signal with the TSS sensor signal to determine the gear ratio provided by the rear planetary gearset. The PCM also uses the OSS sensor signal as an input for its strategies for shifts, TCC operation and for transmission fault detection and diagnostics.

Intermediate Shaft Speed A and B Sensors

The Intermediate Shaft Speed A (ISSA) and B (ISSB) sensors are Hall-effect type sensors that provide a signal to the PCM that changes in frequency as the rotating speed of the component being monitored changes. The ISSA sensor monitors the speed and rotational direction of ring gear 1 and the ISSB sensor monitors the speed and rotational direction of planetary carrier-1/ring gear 4. The Intermediate shaft speed sensors are used to monitor clutch states for transmission fault detection and diagnostics.

In certain gears, it is normal for the ISSA and/or ISSB sensors to show 0 RPM. The ISSA sensor will show 0 RPM in 1st through 6th gears, and the ISSB sensor will show 0 RPM in 1st and 2nd gears.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0715:00	Input/Turbine Shaft Speed Sensor "A" Circuit: No Sub Type Information	This DTC indicates an open circuit or a short to ground in the TSS sensor circuit.
PCM P0717:00	Input/Turbine Shaft Speed Sensor "A" Circuit No Signal: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0715, P07BF, and/or P07C0. Resolve the more specific DTC first.

PCM P0718:00	Input/Turbine Shaft Speed Sensor "A" Circuit Intermittent: No Sub Type Information	This DTC indicates a TSS sensor fault, but the fault did not last long enough to set a more specific DTC.
PCM P0720:00	Output Shaft Speed Sensor Circuit: No Sub Type Information	This DTC indicates an open circuit or a short to ground in the OSS sensor circuit.
PCM P0722:00	Output Shaft Speed Sensor Circuit No Signal: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0720, P077C and/or P077D. Resolve the more specific DTC first.
PCM P0723:00	Output Shaft Speed Sensor Circuit Intermittent: No Sub Type Information	This DTC indicates an OSS sensor fault, but the fault did not last long enough to set a more specific DTC.
PCM P077D:00	Output Shaft Speed Sensor Circuit High: No Sub Type Information	This DTC indicates a short to power in the OSS sensor circuit.
PCM P0791:00	Intermediate Shaft Speed Sensor "A" Circuit: No Sub Type Information	This DTC indicates an open circuit or a short to ground in the intermediate shaft speed sensor A circuit.
PCM P0793:00	Intermediate Shaft Speed Sensor "A" Circuit No Signal: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0791, P07C5, and/or P07C6. Resolve the more specific DTC first.
PCM P0794:00	Intermediate Shaft Speed Sensor "A" Circuit Intermittent: No Sub Type Information	This DTC indicates an intermediate shaft speed sensor A fault, but the fault did not last long enough to set a more specific DTC.
PCM P07BF:00	Input/Turbine Shaft Speed Sensor "A" Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the TSS sensor circuit.
PCM P07C0:00	Input/Turbine Shaft Speed Sensor "A" Circuit High: No Sub Type Information	This DTC indicates a short to power in the TSS sensor circuit.
PCM P07C5:00	Intermediate Shaft Speed Sensor "A" Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the intermediate shaft speed sensor A circuit.
PCM P07C6:00	Intermediate Shaft Speed Sensor "A" Circuit High: No Sub Type Information	This DTC indicates a short to power in the intermediate shaft speed sensor A circuit.
PCM P07C7:00	Intermediate Shaft Speed Sensor "B" Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the intermediate shaft speed sensor B circuit.
PCM P07C8:00	Intermediate Shaft Speed Sensor "B" Circuit High: No Sub Type Information	This DTC indicates a short to power in the intermediate shaft speed sensor B circuit.
PCM P2745:00	Intermediate Shaft Speed Sensor "B" Circuit: No Sub Type Information	This DTC indicates an open circuit or a short to ground in the intermediate shaft speed sensor B circuit.
PCM P2747:00	Intermediate Shaft Speed Sensor "B" Circuit No Signal: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P2745, P07C7, and/or P07C8. Resolve the more specific DTC first.
PCM P2748:00	Intermediate Shaft Speed Sensor "B" Circuit Intermittent: No Sub Type Information	This DTC indicates an intermediate shaft speed sensor B fault, but the fault did not last long enough to set a more specific DTC.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires or ground and missing or damaged seals
- TSS sensor
- OSS sensor
- Intermediate shaft speed A (ISSA) sensor
- Intermediate shaft speed B (ISSB) sensor
- PCM

D1 CHECK THE SENSOR VREF CIRCUIT FOR VOLTAGE

NOTE: This pinpoint test is written to address all speed sensor electrical faults. For each test step, only the circuits related to the DTC retrieved during the KOEO test need to be tested.

- Ignition OFF.
- Disconnect Transmission vehicle harness [C168A](#).
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Ignition ON.
- For the OSS and ISSA sensors, measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-7		Ground

- For the TSS and ISSB sensors, measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-8		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 A SHORT TO GROUND

- Ignition OFF.
- Disconnect PCM [C175T](#).
- For the OSS and ISSA sensors, measure:

10R140 TRANSMISSION	
---------------------	--

Positive Lead	Measurement / Action	Negative Lead
C168A-7	Ω	Ground

- For the TSS and ISSB sensors, measure:

10R140 TRANSMISSION	
---------------------	---

Positive Lead	Measurement / Action	Negative Lead
C168A-8	Ω	Ground

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

Yes	GO to D3
No	REPAIR the circuit.

D3 CHECK THE SENSOR VREF CIRCUIT FOR AN OPEN

- Ignition ON.
- For the OSS and ISSA sensors, measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-7	Ω	C175T-50

- For the TSS and ISSB sensors, measure:

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-8	Ω	C175T-35

Is the resistance less than 3 ohms on the suspect circuit?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	REPAIR the circuit.

D4 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#) .
- For the OSS sensor, measure

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-4	Ω	C175T-51

- For the TSS sensor, measure

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-1	Ω	C175T-38

- For the ISSA sensor, measure

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-2	Ω	C175T-37

- For the ISSB sensor, measure

10R140 TRANSMISSION	POWERTRAIN CONTROL MODULE (PCM)
---------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C168A-3	Ω	C175T-54

D5 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO GROUND

Is the resistance less than 5 ohms on the suspect circuit?

Yes	GO to D5	
No	REPAIR the circuit.	
POWERTRAIN CONTROL MODULE (PCM)		

Positive Lead	Measurement / Action	Negative Lead
C175T-51	Ω	Ground

- For the TSS sensor, measure

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-38	Ω	Ground

- For the ISSA sensor, measure

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-37	Ω	Ground

- For the ISSB sensor, measure

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-54	Ω	Ground

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

D6 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TOGETHER WITH THE VOLTAGE CIRCUITS

- | | |
|-----|--------------------------|
| Yes | GO to D6 |
| No | REPAIR the circuit. |

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-51	Ω	C175T-1
C175T-51	Ω	C175T-2
C175T-51	Ω	C175T-35
C175T-51	Ω	C175T-36
C175T-51	Ω	C175T-42
C175T-51	Ω	C175T-50
C175T-51	Ω	C175T-55

- For the TSS sensor, measure

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-38	Ω	C175T-1
C175T-38	Ω	C175T-2
C175T-38	Ω	C175T-35
C175T-38	Ω	C175T-36
C175T-38	Ω	C175T-42
C175T-38	Ω	C175T-50
C175T-38	Ω	C175T-55

- For the ISSA sensor, measure

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-37	Ω	C175T-1
C175T-37	Ω	C175T-2
C175T-37	Ω	C175T-35
C175T-37	Ω	C175T-36
C175T-37	Ω	C175T-42
C175T-37	Ω	C175T-50
C175T-37	Ω	C175T-55

- For the ISSB sensor, measure

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-54	Ω	C175T-1
C175T-54	Ω	C175T-2
C175T-54	Ω	C175T-35
C175T-54	Ω	C175T-36
C175T-54	Ω	C175T-42
C175T-54	Ω	C175T-50
C175T-54	Ω	C175T-55

D7 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SENSOR VREF CIRCUIT FOR AN OPEN

Are the resistances greater than 10,000 ohms on the suspect circuit?

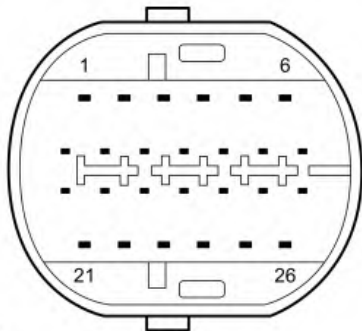
- REMOVE the main control valve body.

REFER to: Main Control Valve Body (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission at 10R140, Removal and Installation).

Yes, GO to [D7](#).

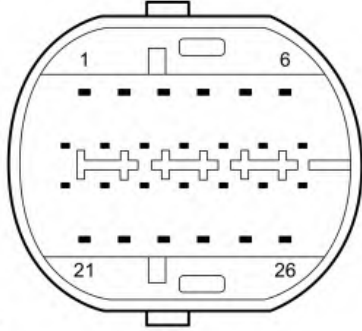
No, REPAIR the circuit.

- Disconnect for OSS sensor [C1107](#).
- Disconnect for TSS sensor [C3106](#).
- Disconnect for ISSA sensor [C1836](#).
- Disconnect for ISSB sensor [C1837](#).
- For the OSS sensor, measure:

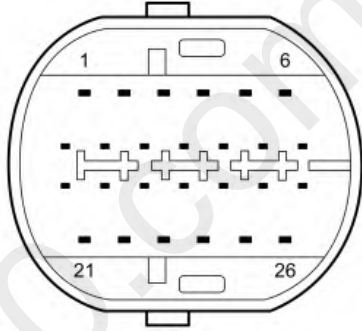
Positive Lead	Measurement / Action	Negative Lead
C1107-2	Ω	 E275612 Transmission component side, pin 7

- For the TSS sensor, measure

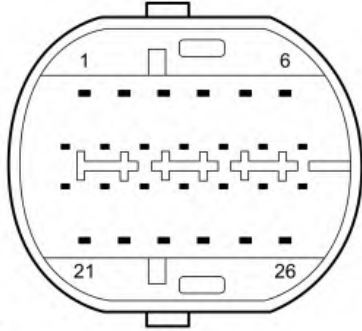
Positive Lead	Measurement / Action	Negative Lead

Positive Lead	Measurement / Action	Negative Lead
C3106-1	Ω	 E275612 Transmission component side, pin 8

- For the ISSA sensor, measure

Positive Lead	Measurement / Action	Negative Lead
C1836-2	Ω	 E275612 Transmission component side, pin 7

- For the ISSB sensor, measure

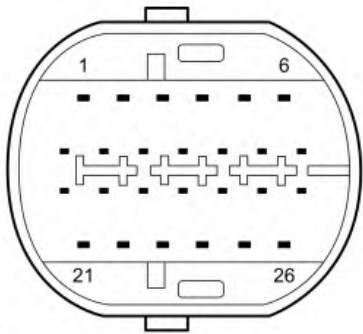
Positive Lead	Measurement / Action	Negative Lead
C1837-2	Ω	 E275612 Transmission component side, pin 8

Is the resistance less than 3 ohms on the suspect circuit?

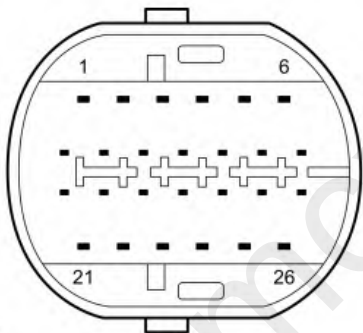
Yes	GO to D8
D8 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SENSOR VREF CIRCUIT FOR A SHORT TO GROUND	
No	INSTALL a new transmission case wiring harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€™ 10R140, Removal and Installation).

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- For the OSS and ISSA sensors, measure:

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

- For the TSS and ISSB sensors, measure

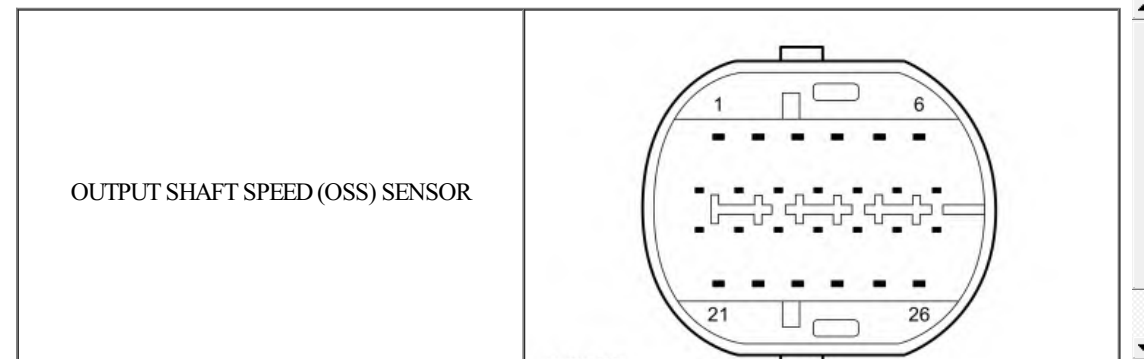
Positive Lead	Measurement / Action	Negative Lead
 E275612 Transmission component side, pin 8	Ω	Ground

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

Yes	GO to D9
No	INSTALL a new transmission case wiring harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

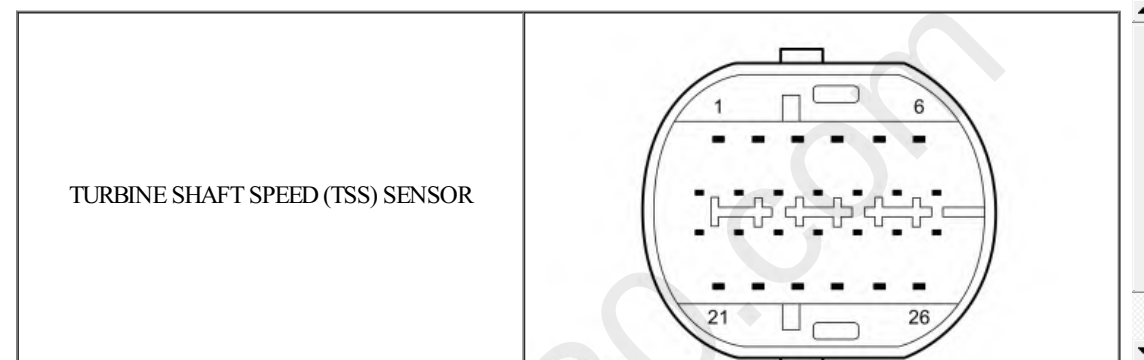
D9 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

- For the OSS sensor, measure:



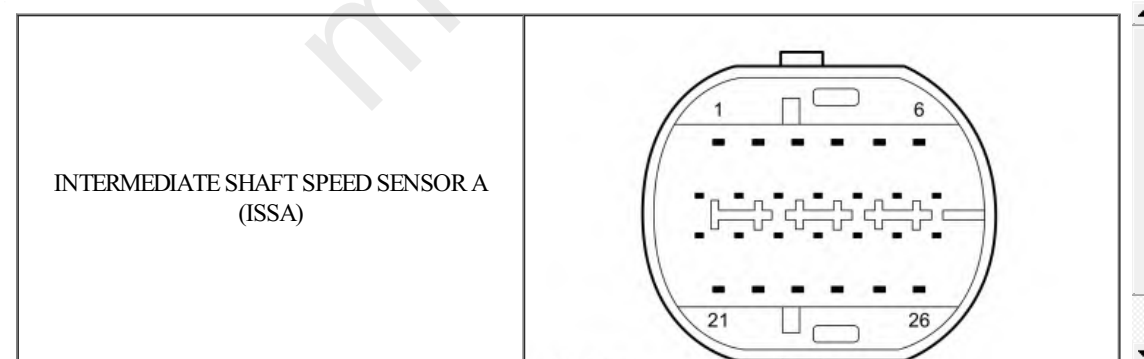
Positive Lead	Measurement / Action	Negative Lead
C1107-1	Ω	Transmission component side, pin 4

- For the TSS sensor, measure:



Positive Lead	Measurement / Action	Negative Lead
C3106-2	Ω	Transmission component side, pin 1

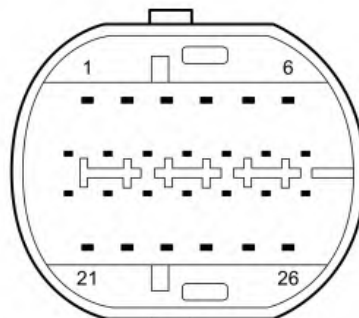
- For the ISSA sensor, measure:



Positive Lead	Measurement / Action	Negative Lead
C1836-1	Ω	Transmission component side, pin 2

- For the ISSB sensor, measure:

INTERMEDIATE SHAFT SPEED SENSOR B
(ISSB)



Positive Lead	Measurement / Action	Negative Lead
C1837-1	Ω	Transmission component side, pin 3

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to D10
No	INSTALL new transmission case wiring harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission at TOR140 Removal and Installation)

D10 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO GROUND

- For the OSS sensor, measure:

OUTPUT SHAFT SPEED (OSS) SENSOR	
---------------------------------	---

Positive Lead	Measurement / Action	Negative Lead
C1107-1	Ω	Ground

- For the TSS sensor, measure:

TURBINE SHAFT SPEED (TSS) SENSOR	
----------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C3106-2	Ω	Ground

- For the ISSA sensor, measure:

INTERMEDIATE SHAFT SPEED SENSOR A (ISSA)



Positive Lead	Measurement / Action	Negative Lead
C1836-1	Ω	Ground

- For the ISSB sensor, measure:

INTERMEDIATE SHAFT SPEED SENSOR B (ISSB)



Positive Lead	Measurement / Action	Negative Lead
C1837-1	Ω	Ground

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

Yes	GO to D11
No	INSTALL a new transmission case wiring harness. REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

D11 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN WITH THE TRANSMISSION CONNECTED

- Connect Transmission Vehicle Harness [C168A](#) .
- For the OSS sensor, measure:

OUTPUT SHAFT SPEED (OSS) SENSOR

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
---------------	----------------------	---------------

Positive Lead	Measurement / Action	Negative Lead
C1107-1	Ω	C175T-51

- For the TSS sensor, measure

TURBINE SHAFT SPEED (TSS) SENSOR	POWERTRAIN CONTROL MODULE (PCM)
----------------------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C3106-2	Ω	C175T-38

- For the ISSA sensor, measure

INTERMEDIATE SHAFT SPEED SENSOR A (ISSA)	POWERTRAIN CONTROL MODULE (PCM)
--	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C1836-1	Ω	C175T-37

- For the ISSB sensor, measure

INTERMEDIATE SHAFT SPEED SENSOR B (ISSB)	POWERTRAIN CONTROL MODULE (PCM)
--	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C1837-1	Ω	C175T-54

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to D12
-----	---------------------------

No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.
----	---

D12 CHECK THE SENSOR VREF CIRCUIT FOR VOLTAGE AT THE SENSOR

- Connect PCM [C175T](#) .
- Ignition ON.
- For the OSS sensor, measure:

OUTPUT SHAFT SPEED (OSS) SENSOR	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C1107-2		Ground

- For the TSS sensor, measure

TURBINE SHAFT SPEED (TSS) SENSOR	
----------------------------------	---

Positive Lead	Measurement / Action	Negative Lead
C3106-1		Ground

- For the ISSA sensor, measure

INTERMEDIATE SHAFT SPEED SENSOR A (ISSA)	
--	--

Positive Lead	Measurement / Action	Negative Lead
C1836-2		Ground

- For the ISSB sensor, measure

INTERMEDIATE SHAFT SPEED SENSOR B (ISSB)



Positive Lead	Measurement / Action	Negative Lead
C1837-2		Ground

Are the voltages 8.0 to 9.2 volts?

Yes	INSTALL a new sensor. REFER to: Output Shaft Speed (OSS) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation). REFER to: Turbine Shaft Speed (TSS) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation). REFER to: Intermediate Speed Sensor A (ISSA) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation). REFER to: Intermediate Speed Sensor B (ISSB) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

[PINPOINT TEST E : TCC, LPC SOLENOIDS](#)

Refer to Wiring Diagrams Cell [30](#) for schematic and connector information.

Normal Operation and Fault Conditions

The TCC is controlled by a directly proportional solenoid. Transmission line pressure is controlled by an inversely proportional solenoid (0 current = max pressure, max current = min line pressure). The TCC and LPC solenoids are controlled by smart drivers capable of detecting open, short to ground or short to power faults. In the event of an open circuit or short to power fault the TCC circuit is failed open. The TCC and LPC solenoids share a high side driver. Anytime power is removed the transmission defaults to MAX line pressure with the TCC released.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0740:00	Torque Converter Clutch Solenoid Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the TCC solenoid circuit.
PCM P0743:00	Torque Converter Clutch Solenoid Circuit Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0740, P2769 and/or P2770. Resolve the more specific DTC first.
PCM P0748:00	Pressure Control Solenoid "A" Electrical: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0960, P0962 and/or P0963. Resolve the more specific DTC first.
PCM P0960:00	Pressure Control Solenoid "A" Control Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the LPC solenoid circuit.
PCM P0961:00	Pressure Control Solenoid "A" Control Circuit Range/Performance: No Sub Type Information	This DTC indicates an LPC solenoid fault, but the fault did not last long enough to set a more specific DTC.
PCM P0962:00	Pressure Control Solenoid "A" Control Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the LPC solenoid circuit.
PCM P0963:00	Pressure Control Solenoid "A" Control Circuit High: No Sub Type Information	This DTC indicates a short to power in the LPC solenoid circuit.
PCM P2669:00	Actuator Supply Voltage "B" Circuit/Open: No Sub Type Information	This DTC indicates an open circuit in the transmission solenoid power control 2 (TSPC2) circuit.
PCM P2760:00	Torque Converter Clutch Pressure Control Solenoid Intermittent: No Sub Type Information	This DTC indicates a TCC solenoid fault, but the fault did not last long enough to set a more specific DTC.
PCM P2769:00	Torque Converter Clutch Circuit Low: No Sub Type Information	This DTC indicates a short to ground in the TCC solenoid circuit.
PCM P2770:00	Torque Converter Clutch Circuit High: No Sub Type Information	This DTC indicates a short to power in the TCC solenoid circuit.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires and missing or damaged seals
- TCC solenoid
- LPC solenoid
- Transmission internal wiring harness
- PCM

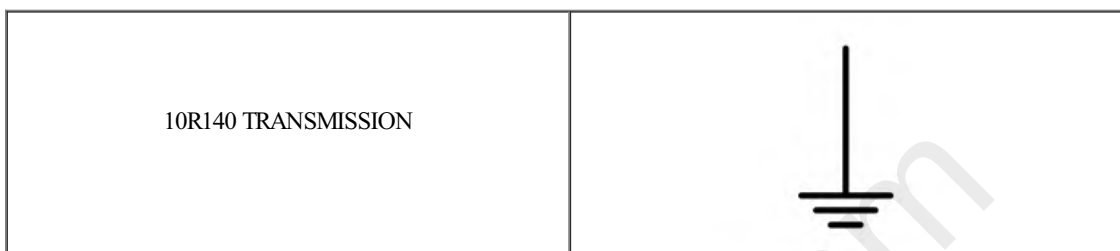
E1 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 2 (TSPC2) CIRCUIT FOR VOLTAGE

NOTE: This pinpoint test is written to address both TCC solenoid and LPC solenoid electrical faults. For each test step, only the circuits related to the DTC retrieved during the KOEO test need to be tested.

- Ignition OFF.
- Disconnect Transmission vehicle harness [C168A](#) .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- **NOTE:** The PCM removes power from the Transmission Solenoid Power Control (TSPC) circuit when certain electrical faults are present. Use a meter with a min/max feature and/or recording capabilities. Make sure all test connections are made at the transmission harness connector before the ignition is turned ON to obtain a reading before the PCM removes power.

Connect the meter leads to [C168A-11](#) and ground.

- Enable the min/max or recording feature on the meter.
- Ignition ON.
- Measure:



Positive Lead	Measurement / Action	Negative Lead
C168A-11		Ground

Is the maximum recorded voltage greater than 11 volts?

Yes	GO to E4
No	GO to E2

E2 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 2 (TSPC2) CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#) .
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- Measure:

POWERTRAIN CONTROL MODULE (PCM)	10R140 TRANSMISSION
---------------------------------	---------------------

Positive Lead	Measurement / Action	Negative Lead
C175T-1	Ω	C168A-11

Is the resistance less than 3 ohms?

Yes	GO to E3
No	REPAIR the circuit.

E3 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 2 (TSPC2) CIRCUIT FOR A SHORT TO GROUND

- Measure:

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€™ 10R140) .
No	REPAIR the circuit.

E4 CHECK THE SOLENOID CONTROL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM [C175T](#).
- Inspect the connector for damaged or pushed out terminals, corrosion, loose wires and missing or damaged seals.
- For the TCC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)	10R140 TRANSMISSION
---------------------------------	---------------------

Positive Lead	Measurement / Action	Negative Lead
C175T-79	Ω	C168A-25

- For the LPC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)	10R140 TRANSMISSION
---------------------------------	---------------------

Positive Lead	Measurement / Action	Negative Lead
C175T-63	Ω	C168A-24

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to E5
No	REPAIR the circuit.

E5 CHECK THE SOLENOID CONTROL CIRCUIT FOR A SHORT TO GROUND

- For the TCC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-79	Ω	Ground

- For the LPC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)	
---------------------------------	--

Positive Lead	Measurement / Action	Negative Lead
C175T-63	Ω	Ground

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

Yes	GO to E6
No	REPAIR the circuit.

E6 CHECK THE SOLENOID CONTROL CIRCUITS FOR A SHORT TO THE TRANSMISSION POWER CIRCUITS

- For the TCC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C175T-79	Ω	C175T-1
C175T-79	Ω	C175T-2
C175T-79	Ω	C175T-35
C175T-79	Ω	C175T-36
C175T-79	Ω	C175T-42
C175T-79	Ω	C175T-50
C175T-79	Ω	C175T-55

- For the LPC solenoid, measure:

POWERTRAIN CONTROL MODULE (PCM)

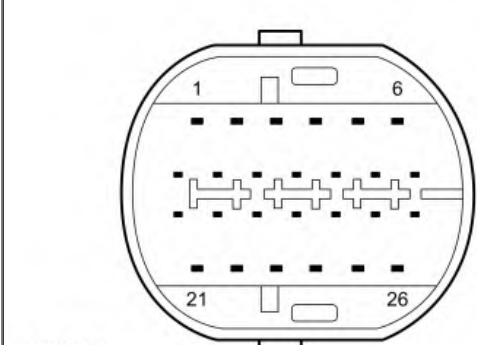
Positive Lead	Measurement / Action	Negative Lead
C175T-63	Ω	C175T-1
C175T-63	Ω	C175T-2
C175T-63	Ω	C175T-35
C175T-63	Ω	C175T-36
C175T-63	Ω	C175T-42
C175T-63	Ω	C175T-50
C175T-63	Ω	C175T-55

Are the resistances greater than 10,000 ohms on the suspect circuit?

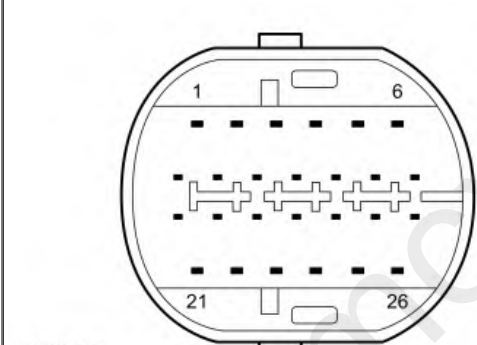
Yes	GO to E7
No	REPAIR the circuit.

E7 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS CIRCUITS FOR AN OPEN

- Ignition OFF.
- Drain the transmission fluid and remove the transmission fluid pan.
REFER to: Transmission Fluid Pan, Gasket and Filter (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R140, Removal and Installation).
- Disconnect TCC solenoid [C1841](#) .
- Disconnect LPC solenoid [C1840](#) .
- For the TCC solenoid, measure:

			TORQUE CONVERTER CLUTCH (TCC) SOLENOID		
Positive Lead		Measurement / Action		Negative Lead	
Transmission component side, pin 11		Ω		C1841-1	
Transmission component side, pin 25		Ω		C1841-2	

- For the LPC solenoid, measure:

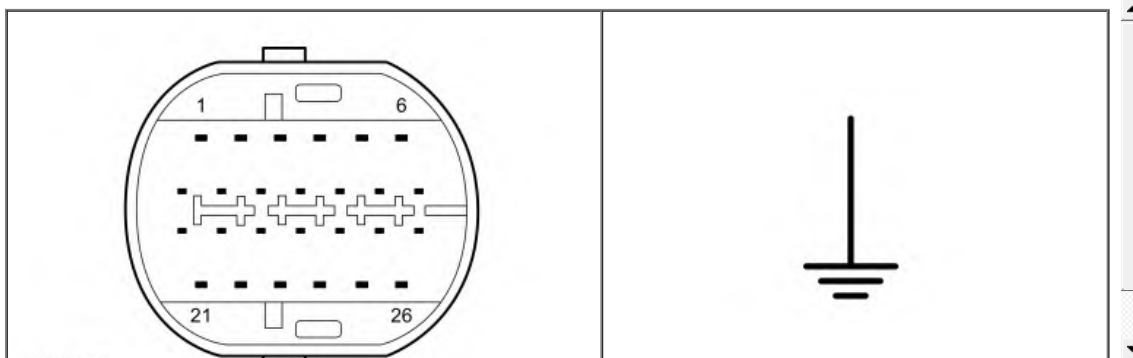
			LINE PRESSURE CONTROL (LPC) SOLENOID		
Positive Lead		Measurement / Action		Negative Lead	
Transmission component side, pin 11		Ω		C1840-1	
Transmission component side, pin 24		Ω		C1840-2	

Are the resistances less than 3 ohms on the suspect circuits?

Yes	GO to E8
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission & 10R140, Removal and Installation).

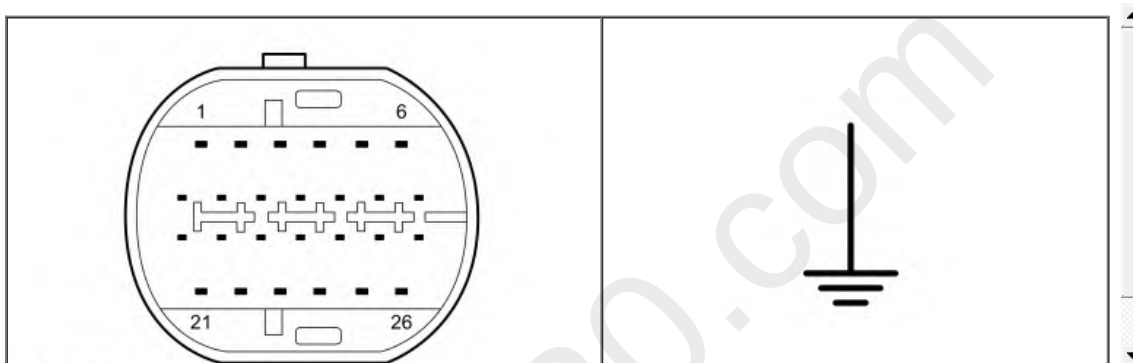
E8 CHECK THE TRANSMISSION INTERNAL WIRING HARNESS CIRCUITS FOR A SHORT TO GROUND

- For the TCC solenoid, measure:



Positive Lead	Measurement / Action	Negative Lead
Transmission component side, pin 11	Ω	Ground
Transmission component side, pin 25	Ω	Ground

- For the LPC solenoid, measure:



Positive Lead	Measurement / Action	Negative Lead
Transmission component side, pin 11	Ω	Ground
Transmission component side, pin 24	Ω	Ground

Are the resistances greater than 10,000 ohms on the suspect circuits?

Yes	GO to E9
No	INSTALL a new transmission internal wiring harness (both pieces). REFER to: Transmission Internal Wiring Harness (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€™ 10R140, Removal and Installation).

E9 CHECK THE SOLENOID RESISTANCE

- Measure and record the resistance of the suspect solenoid.
REFER to: Shift Solenoids (SS) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission
â€“ 10R140, Removal and Installation).
Compare the recorded value with the chart below:

Solenoid	Ohms
LPC solenoid	4.6 to 5.2
TCC solenoid	4.6 to 5.2

Is the solenoid resistance within specification?

Yes	GO to E10
No	INSTALL a new solenoid for the solenoid that failed the resistance check. REFER to: Shift Solenoids (SS) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).

E10 CHECK THE SOLENOID FOR A SHORT TO GROUND

- Measure and record the resistance between either pin of the suspect solenoid and ground.

Is the resistance greater than 10,000 ohms?

Yes	GO to E11
No	INSTALL a new solenoid. REFER to: Shift Solenoids (SS) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Removal and Installation).

E11 CHECK THE SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN WITH THE TRANSMISSION CONNECTED

- Connect Transmission Vehicle Harness [C168A](#).
- For the TCC solenoid, measure:

TORQUE CONVERTER CLUTCH (TCC) SOLENOID	POWERTRAIN CONTROL MODULE (PCM)
--	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C1841-2	Ω	C175T-79

- For the LPC solenoid, measure

LINE PRESSURE CONTROL (LPC) SOLENOID	POWERTRAIN CONTROL MODULE (PCM)
--------------------------------------	---------------------------------

Positive Lead	Measurement / Action	Negative Lead
C1840-2	Ω	C175T-63

Is the resistance less than 3 ohms on the suspect circuit?

Yes	GO to E12
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

E12 CHECK THE TRANSMISSION SOLENOID POWER CONTROL 2 (TSPC2) CIRCUIT FOR VOLTAGE AT THE SOLENOID

- Connect PCM [C175T](#).
- Ignition ON.
- For the TCC solenoid, measure:

TORQUE CONVERTER CLUTCH (TCC) SOLENOID	
--	--

Positive Lead	Measurement / Action	Negative Lead
C1841-1		Ground

- For the LPC solenoid, measure

LINE PRESSURE CONTROL (LPC) SOLENOID	
--------------------------------------	---

Positive Lead	Measurement / Action	Negative Lead
C1840-1		Ground

Is the voltage greater than 11 volts on the suspect circuit?

Yes	CONNECT all electrical connectors. CLEAR the DTC. CARRY OUT the KOEO and KOER self-tests. If the DTC returns, Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) . If the DTC does not return, the fault is no longer present and might have been caused by a terminal fitment issue.
No	There is a terminal fitment issue. REPAIR the vehicle wiring harness.

PINPOINT TEST F : OSS, TSS, ISSA, ISSB SENSOR (PERFORMANCE)

Refer to Wiring Diagrams Cell [30](#) for schematic and connector information.

Normal Operation and Fault Conditions

TSS Sensor

The TSS sensor is a Hall-effect type sensor that provides a signal to the PCM that changes in frequency as the rotating speed of the planetary carrier No. 2 varies. The PCM compares the TSS sensor signal with the engine speed information to determine the amount of slip occurring in the torque converter. The PCM also compares the TSS sensor signal with the OSS sensor signal to determine the gear ratio provided by the planetary carrier No. 4. The PCM uses the TSS sensor signal as an input for its shift strategies and TCC operation. The PCM also uses the TSS sensor signal for transmission fault detection and diagnostics.

OSS Sensor

The OSS sensor is a Hall-effect type sensor that provides a signal to the PCM that changes in frequency as the rotating speed of the rear planetary carrier No. 4 varies. The PCM also compares the OSS sensor signal with the TSS sensor signal to determine the gear ratio provided by the rear planetary gearset. The PCM uses the OSS sensor signal as an input for its shift strategies and TCC operation. The PCM also uses the OSS sensor signal for transmission fault detection and diagnostics.

Intermediate Speed Sensors A and B

The Intermediate Shaft Speed A (ISSA) and B (ISSB) sensors are Hall-effect type sensors that provide a signal to the PCM that changes in frequency as the rotating speed of the component being monitored changes. The ISSA sensor monitors the speed and rotational direction of ring gear 1 and the ISSB sensor monitors the speed and rotational direction of planetary carrier-1/ring gear 4. The Intermediate shaft speed sensors are used to monitor clutch states for transmission fault detection and diagnostics.

In certain gears, it is normal for the ISSA and/or ISSB sensors to show 0 RPM. The ISSA sensor will show 0 RPM in 1st through 6th gears, and the ISSB sensor will show 0 RPM in 1st and 2nd gears.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0716:00	Input/Turbine Shaft Speed Sensor "A" Circuit Range/Performance: No Sub Type Information	This DTC indicates the TSS sensor failed a rationality test. This could be caused by too large of a sensor air gap, a sensor fault, or an undetected clutch fault.
PCM P0721:00	Output Shaft Speed Sensor Circuit Range/Performance: No Sub Type Information	This DTC indicates the OSS sensor failed a rationality test. This could be caused by too large of a sensor air gap, a sensor fault, or an undetected clutch fault.
PCM P0792:00	Intermediate Shaft Speed Sensor "A" Circuit Range/Performance: No Sub Type Information	This DTC indicates intermediate shaft speed sensor A failed a rationality test. This could be caused by too large of a sensor air gap, a sensor fault, or an undetected clutch fault.
PCM P2746:00	Intermediate Shaft Speed Sensor "B" Circuit Range/Performance: No Sub Type Information	This DTC indicates intermediate shaft speed sensor B failed a rationality test. This could be caused by too large of a sensor air gap, a sensor fault, or an undetected clutch fault.

Possible Sources

- Connectors damaged or pushed-out terminals, corrosion, loose wires or ground and missing or damaged seals
- Loose sensor or incorrect air gap
- Intermittent short to ground
- shaft speed sensor

F1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Using a diagnostic scan tool, perform the PCM self-test.
- If any electrical speed sensor diagnostic trouble codes (DTCs) are present resolve them first.

Is P0716, P0721, P0792 and/or P2746 present?

Yes	For DTC P0716, GO to F2 For DTC P0721, GO to F3 For DTC P0792, GO to F4 For DTC P2746, GO to F5
No	For all other diagnostic trouble codes (DTCs), refer to the DTC chart. Otherwise the fault may be intermittent.

F2 CHECK THE TSS SENSOR

- If any other TSS sensor diagnostic trouble codes (DTCs) are present resolve them first. If DTC P0716 is present alone, INSPECT the TSS electrical connections for loose connections. Confirm the TSS sensor is not loose. INSPECT the TSS tone wheel (part of No. 2 carrier) for damage.

Were any issues found?

Yes	REPAIR wiring connections or INSTALL new parts as necessary.
No	INSTALL a new TSS sensor. REFER to: Turbine Shaft Speed (TSS) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

F3 CHECK THE OSS SENSOR

- If any other OSS sensor diagnostic trouble codes (DTCs) are present resolve them first. If DTC P0721 is present alone, INSPECT the OSS electrical connections for loose connections. Visually check the air gap and confirm the OSS sensor is not loose. INSPECT OSS tone wheel (part of No. 4 carrier) for damage.

Were any issues found?

Yes	REPAIR wiring connections or INSTALL new parts as necessary.
No	INSTALL a new OSS sensor. REFER to: Output Shaft Speed (OSS) Sensor (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

F4 CHECK THE INTERMEDIATE SHAFT SPEED A (ISSA) SENSOR

- If any other ISSA sensor diagnostic trouble codes (DTCs) are present resolve them first. If DTC P0792 is present alone, INSPECT the ISSA sensor electrical connections for loose connections. Visually check the air gap and confirm the ISSA sensor is not loose. INSPECT ISSA trigger wheel (part of the No. 1 ring gear) for damage.

Were any issues found?

Yes	REPAIR wiring connections or INSTALL new parts as necessary.
No	INSTALL a new ISSA. REFER to: Intermediate Speed Sensor A (ISSA) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

F5 CHECK INTERMEDIATE SHAFT SPEED B (ISSB) SENSOR

- If any other ISSB sensor diagnostic trouble codes (DTCs) are present resolve them first. If DTC P2746 is present alone, INSPECT the ISSB sensor electrical connections for loose connections. Visually check the air gap and confirm the ISSB sensor is not loose. INSPECT the ISSB sensor trigger wheel (part of the clutch and planetary container cylinder) for damage.

Were any issues found?

Yes	REPAIR wiring connections or INSTALL new parts as necessary.
No	INSTALL a new ISSB. REFER to: Intermediate Speed Sensor B (ISSB) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Removal and Installation).

PINPOINT TEST G : DTC P0702, P0882, P0883, P1397

Refer to Wiring Diagrams Cell [29](#) for schematic and connector information.

Normal Operation and Fault Conditions

The PCM monitors the supplied voltage and sets a DTC if the voltage rises above or falls below threshold.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0702:00	Transmission Control System Electrical: No Sub Type Information	This DTC indicates the PCM detected a supply voltage either above or below threshold.
PCM P0882:00	TCM Power Input Signal Low: No Sub Type Information	This DTC indicates the PCM detected a supply voltage of less than 9 volts.
PCM P0883:00	TCM Power Input Signal High: No Sub Type Information	This DTC indicates the PCM detected a supply voltage of greater than 21 volts.
PCM P1397:00	System Voltage Out Of Self Test Range: No Sub Type Information	This DTC indicates the PCM detected a voltage supply outside the allowed self-test range of 11 to 18 volts during a KOEO or a KOER self-test.

Possible Sources

- Charging system concern
- Connectors damaged or pushed-out terminals, corrosion, loose wires or ground and missing or damaged seals
- Low voltage to the PCM

G1 RECHECK FOR THE VOLTAGE FAULT DTC (DIAGNOSTIC TROUBLE CODE) IN THE PCM (POWERTRAIN CONTROL MODULE)

- Ignition OFF.
- Disconnect and inspect all PCM connectors.
- Repair:
 - corrosion (install new connector or terminals - clean module pins)
 - damaged or bent pins - install new terminals/pins
 - pushed-out pins - install new pins as necessary
- Check the PCM power and ground circuits for opens or short to ground. Refer to the Wiring Diagrams manual to identify the cause of any circuit faults.
- Reconnect all PCM connectors.
- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P0702, P0882, P0883 and/or P1397 still present?

Yes	DIAGNOSE the vehicle charging concern. REFER to: Charging System - 6.2L V8 (414-00 Charging System - General Information, Diagnosis and Testing).
No	If the PCM does not communicate with the scan tool, REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing). Otherwise, the system is operating properly at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

[PINPOINT TEST H : DTC P0729](#)

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio diagnostic trouble codes (DTCs) are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0729:00	Gear 6 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 6th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 6th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch slipping
- C clutch stuck on
- D clutch suck off
- E clutch slipping
- F clutch slipping

H1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0729 present in the PCM?

Yes	Check the A clutch for slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for being stuck on. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck off or slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST 1 : DTC P0731

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0731:00	Gear 1 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 1st gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 1st gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch stuck off or slipping
- B clutch stuck off or slipping
- E clutch stuck off or slipping
- Low one-way clutch slipping or damaged

I1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0731 present in the PCM?

Yes	Check the A clutch for being stuck off or slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the B clutch for being stuck off or slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the E clutch for being stuck off or slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the low one-way clutch for slipping. REFER to: Low One-Way Clutch Assembly (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST J : DTC P0732

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0732:00	Gear 2 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 2nd gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 2nd gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch slipping
- B clutch slipping
- C clutch stuck off or slipping
- D clutch stuck off or slipping
- E clutch stuck on

J1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0732 present in the PCM?

Yes	Check the A clutch for slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the B clutch for slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for being stuck off or slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck off or slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for being stuck on. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST K : DTC P0733

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0733:00	Gear 3 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 3rd gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 3rd gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch slipping
- B clutch stuck on
- C clutch slipping
- D clutch slipping
- E clutch stuck off or slipping

K1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0733 present in the PCM?

Yes	Check the A clutch for slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the B clutch for being stuck on. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for being stuck off or slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST L : DTC P0734

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0734:00	Gear 4 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 4th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 4th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch slipping
- C clutch slipping
- D clutch slipping
- E clutch stuck on
- F clutch stuck off or slipping

L1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0734 present in the PCM?

Yes	Check the A clutch for slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Diagnosis and Testing). Check the C clutch for slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Diagnosis and Testing). Check the D clutch for slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Description and Operation). Check the E clutch for being stuck on. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Description and Operation). Check the F clutch for being stuck off or slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST M : DTC P0735

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0735:00	Gear 5 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 5th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 5th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch slipping
- C clutch slipping
- D clutch stuck on
- E clutch stuck off or slipping
- F clutch slipping

M1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0735 present in the PCM?

Yes	Check the A clutch for slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck on. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for being stuck off or slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST N : DTC P0736

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0736:00	Reverse Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to reverse. The fault did not last long enough to set a more specific DTC. The failsafe logic disables reverse for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch stuck off or slipping
- B clutch stuck off or slipping
- D clutch stuck off or slipping
- E clutch stuck on
- F clutch stuck off or slipping

N1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0735 present in the PCM?

Yes	Check the A clutch for being stuck off or slipping. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the B clutch for being stuck off or slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck off or slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for being stuck on. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for being stuck off or slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST O : DTC P0741, P0751, P0756, P0761, P0766, P0771, P07A8, P07AA

Normal Operation and Fault Conditions

The PCM monitors clutch applications. It sets a DTC if it detects a non-electrical fault that caused a clutch to fail to apply.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0741:00	Torque Converter Clutch Solenoid Circuit Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the TCC to fail to apply. When this DTC is present, the failsafe logic disables TCC lock.
PCM P0751:00	Shift Solenoid "A" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the A clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the A clutch, which allows only 7th through 10th gears.
PCM P0756:00	Shift Solenoid "B" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the B clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the B clutch, which allows only 3rd through 7th gears.
PCM P0761:00	Shift Solenoid "C" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the C clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the C clutch, which allows only reverse and 6th and 8th gears.
PCM P0766:00	Shift Solenoid "D" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the D clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the D clutch, which allows only 5th and 9th gears.
PCM P0771:00	Shift Solenoid "E" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the E clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the E clutch, which allows only reverse and 2nd, 4th and 10th gears.
PCM P1744:00	Torque Converter Clutch Solenoid Circuit Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with P0741. Resolve the more specific DTC first.
PCM P2707:00	Shift Solenoid "F" Performance/Stuck Off: No Sub Type Information	This DTC indicates a non-electrical fault that caused the F clutch to fail to apply. When this DTC is present, the failsafe logic disables all gears that use the F clutch, which allows only 1st through 3rd gears.

Possible Sources

- Shift solenoid stuck off
- Stuck control valve
- Contamination in the main control valve body
- Clutch damaged
- Hydraulic circuit leak

01 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0741, P0751, P0756, P0761, P0766, P0771, P1744, and/or P2707 present in the PCM?

Yes	For DTC P0741 and/or P1744, TCC does not apply condition, REFER to: Torque Converter Clutch (TCC) (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For DTC P0751, A clutch does not apply condition, REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For DTC P0756, B clutch does not apply condition, REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For DTC P0761, C clutch does not apply condition, REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For DTC P0766, D clutch does not apply condition, REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). For DTC P0771, E clutch does not apply condition, REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). For DTC P2707, F clutch does not apply condition, REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST P : DTC P0752, P0757, P0762, P0767, P0772, P2808

Normal Operation and Fault Conditions

The PCM monitors clutch applications. It sets a DTC if it detects a non-electrical fault that causes a clutch to fail to release.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0752:00	Shift Solenoid "A" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the A clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the A clutch, which allows only reverse and 1st through 6th gears.
PCM P0757:00	Shift Solenoid "B" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the B clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the B clutch, which allows only reverse, 1st, 2nd and 8th through 10th gears.
PCM P0762:00	Shift Solenoid "C" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the C clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the C clutch, which allows only 2nd through 5th and 7th, 9th and 10th gears.
PCM P0767:00	Shift Solenoid "D" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the D clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the D clutch, which allows all gears except 5th and 9th.
PCM P0772:00	Shift Solenoid "E" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the E clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the E clutch, which allows only 1st, 3rd and 5th through 9th gears.
PCM P2708:00	Shift Solenoid "F" Stuck On: No Sub Type Information	This DTC indicates a non-electrical fault that caused the F clutch to remain applied when it was commanded off. When this DTC is present, the failsafe logic disables all gears that do not use the F clutch, which allows only reverse and 4th through 10th gears.

Possible Sources

- Shift solenoid stuck on
- Stuck control valve
- Contamination in the main control valve body
- Clutch damaged

P1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using the diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0752, P0757, P0762, P0767, P0772 and/or P2708 present in the PCM?

Yes	DTC P0752, A clutch always applied condition, REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). DTC P0757, B clutch always applied condition, REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). DTC P0762, C clutch always applied condition, REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). DTC P0767, D clutch always applied condition, REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). DTC P0772, E clutch always applied condition, REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). DTC P2708, F clutch always applied condition, REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST Q : DTC P076F

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P076F:00	Gear 7 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 7th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 7th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- A clutch stuck on
- C clutch stuck off or slipping
- D clutch slipping
- E clutch slipping
- F clutch slipping

Q1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P076F present in the PCM?

Yes	Check the A clutch for being stuck on. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for being stuck off or slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST R : DTC P07D9

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P07D9:00	Gear 8 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 8th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 8th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- B clutch stuck off or slipping
- C clutch stuck on
- D clutch slipping
- E clutch slipping
- F clutch slipping

R1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P07D9 present in the PCM?

Yes	Check the B clutch for being stuck off or slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for being stuck on. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST S : DTC P07F6

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P07F6:00	Gear 9 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 9th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 9th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- B clutch slipping
- C clutch stuck off or slipping
- D clutch stuck on
- E clutch slipping
- F clutch slipping

S1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P07F6 present in the PCM?

Yes	Check the B clutch for slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for being stuck off or slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck on. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for slipping. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST T : DTC P07F7

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC if it detects ratio errors but is unable to detect which clutch caused the issue. The transmission logic disables the gear in question. If multiple incorrect gear ratio DTCs are set, look for a common clutch involved in the operation of those gear applications. If no common clutch errors are found, look for line pressure or pump pressure issues.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P07F7:00	Gear 10 Incorrect Ratio: No Sub Type Information	This DTC indicates a gear ratio error either in or while shifting to 10th gear. The fault did not last long enough to set a more specific DTC. The failsafe logic disables 10th gear for the remainder of the key cycle during which the fault occurred.

Possible Sources

- Transmission fluid contamination
- Low line pressure
- B clutch slipping
- C clutch slipping
- D clutch stuck off or slipping
- E clutch stuck on
- F clutch slipping

T1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P07F7 present in the PCM?

Yes	Check the B clutch for slipping. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the C clutch for slipping. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Check the D clutch for being stuck off or slipping. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the E clutch for being stuck on. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). Check the F clutch for slipping. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST U : DTC P0868

Normal Operation and Fault Conditions

The PCM monitors clutch applications for all gears. It sets a DTC for low transmission fluid pressure if multiple clutches do not properly apply.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0868:00	Transmission Fluid Pressure Low: No Sub Type Information	This DTC indicates a non-electrical fault causing 2 or more clutches to fail to apply. The PCM understands this as most likely caused by low line pressure.

Possible Sources

- Transmission fluid contamination
- Low line pressure

U1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, retrieve all PCM continuous memory diagnostic trouble codes (CMDTCs).

Is DTC P0735 present in the PCM?

Yes	Check the transmission fluid for contamination. REFER to: Preliminary Inspection (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). Carry out the line pressure test. REFER to: Special Testing Procedures (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST V : DTC P1636

Normal Operation and Fault Conditions

The PCM uses internal drivers to control the solenoid low sides and provide commanded current. These drivers communicate with the PCM internally.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P1636:00	Inductive Signature Chip Communication Error: No Sub Type Information	This DTC indicates an internal PCM loss of communication with the low side solenoid drivers. When communication is lost, the solenoid states become unknown, so the PCM opens the high side of the circuit, releasing all clutches. Only neutral is available with the TCC released and maximum line pressure.

Possible Sources

- Internal PCM component failure

VI CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P1636 present in the PCM?

Yes	□ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST W : DTC P163E, P163F

Normal Operation and Fault Conditions

The PCM stores the transmission identification information in memory. If the transmission identification is incorrect or is not programmed, a DTC sets.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P163E:00	Transmission Control Module Programming Error: No Sub Type Information	This DTC indicates the transmission identification does not match the version stored in the PCM calibration.
PCM P163F:00	Transmission ID Block Corrupted, Not Programmed: No Sub Type Information	This DTC indicates the transmission identification is not programmed in the PCM calibration.

Possible Sources

- Incorrect or corrupted PCM calibration.

W1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, program the PCM with the latest software.
REFER to: Module Programming (418-01 Module Configuration, General Procedures).
- Carry out the transmission strategy download.
REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P163E or P163F present in the PCM?

Yes	□ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	The fault is not present at this time.

[PINPOINT TEST X : DTC P1711](#)

Normal Operation and Fault Conditions

The PCM monitors transmission fluid temperature during KOEO and KOER self-tests, and assumes the self-tests will be run on a cold vehicle at room temperature.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P1711:00	Transmission Fluid Temperature Sensor Out Of Self Test Range: No Sub Type Information	This DTC indicates the PCM detected the TFT sensor out of self-test range during a KOEO or a KOER self-test. The PCM expects a transmission fluid temperature reading between 30Â°F (-1Â°C) and 248Â°F (120Â°C).

Possible Sources

- Transmission fluid temperature outside of self-test range
- Incorrect or corrupted PCM calibration.

X1 CHECK THE TRANSMISSION FLUID TEMPERATURE

- Ignition ON.
- Using a diagnostic scan tool, monitor PID TFT.

Does PID TFT show between 30Â°F (-1Â°C) and 220Â°F (104Â°C)?

Yes	GO to X2
No	If the monitored temperature is plausible, either warm the transmission fluid temperature or let it cool into self-test range, then GO to X2 If the monitored temperature is not plausible, GO to Pinpoint Test B

X2 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P1711 present in the PCM?

Yes	☐ Click here to access Guided Routine (PCM). After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€ˆ 10R140) .
No	The fault is not present at this time and may have been caused by performing a self-test with the transmission fluid temperature out of the expected range.

[PINPOINT TEST Y : DTC P0218, P1783](#)

Normal Operation and Fault Conditions

The PCM monitors transmission fluid temperature. If the temperature exceeds a threshold, it sets a DTC. The PCM might limit powertrain torque to prevent further damage to the transmission.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P0218:00	Transmission Fluid Temperature Sensor "A" Over Temperature Condition: No Sub Type Information	This DTC indicates the PCM detected a transmission fluid over temperature condition. While this DTC is stored, the PCM limits engine torque to prevent further transmission overheating. Resolve any TFT sensor electrical diagnostic trouble codes (DTCs) first.
PCM P1783:00	Transmission Overtemperature Condition: No Sub Type Information	This DTC indicates the transmission fluid temperature was greater than 275Â°F (135Â°C) for more than 5 seconds.

Possible Sources

- Transmission overheating concern

Y1 RECHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTCs from the PCM.
- Access the PCM and monitor the TFT (Deg C) PID
- Road test the vehicle long enough for the transmission fluid temperature to stop increasing.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P0218 and/or P1783 still present?

Yes	If any TFT sensor circuit DTCs are present, resolve those first. If only DTC P0218 and/or P1783 returns, REFER to: Transmission Cooling (307-02A Transmission Cooling - 6-Speed Automatic Transmission â€“ 6R100, Diagnosis and Testing).
No	The system is operating correctly at this time. The DTC may have been set due to an extreme driving condition.

PINPOINT TEST Z: DTC P1A02

Normal Operation and Fault Conditions

The PCM monitors the low one-way clutch application. The low one-way clutch locks to prevent sun gear 1 from rotating backward in gears 1A and 2A.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P1A02:00	Transmission One Way Clutch Performance: No Sub Type Information	This DTC indicates the low one-way clutch failed to engage gear 1A and/or 2A 3 times, allowing sun gear 1 to rotate backward. When this DTC sets the failsafe logic disables gears 1A and 2A.

Possible Sources

- Low one-way clutch failure

Z1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC for the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, carry out the PCM self-test.

Did DTC P1A02 return?

Yes	Check the low one-way clutch for slipping. REFER to: Low One-Way Clutch Assembly (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R140, Diagnosis and Testing).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST AA : DTC P2700, P2701, P2702, P2703, P2704, 2705

Normal Operation and Fault Conditions

The PCM monitors clutch applications if a non electrical fault is detected for the clutches a DTC is set in memory.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P2700:00	Transmission Friction Element "A" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P0751 or P0752. Resolve the more specific DTC first.
PCM P2701:00	Transmission Friction Element "B" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P0756 or P0757. Resolve the more specific DTC first.
PCM P2702:00	Transmission Friction Element "C" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P0761 or P0762. Resolve the more specific DTC first.
PCM P2703:00	Transmission Friction Element "D" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P0766 or P0767. Resolve the more specific DTC first.
PCM P2704:00	Transmission Friction Element "E" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P0771 or P0772. Resolve the more specific DTC first.
PCM P2705:00	Transmission Friction Element "F" Apply Time Range/Performance: No Sub Type Information	This DTC illuminates the wrench light in conjunction with either P2707 or P2708. Resolve the more specific DTC first.

Possible Sources

- Clutch stuck on
- Clutch stuck off
- Clutch damaged

AA1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the DTC from the PCM.
- Road test the vehicle.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTCP2700, P2701, P2702, P2703, P2704 or P2705 present in the PCM?

Yes	For P2700, if either DTC P0751 or P0752 are set resolve them first. Otherwise, check the A clutch for a slipping or harsh apply. REFER to: A Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For P2701, if either DTC P0756 or P0757 are set resolve them first. Otherwise, check the B clutch for a slipping or harsh apply. REFER to: B Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For P2702, if either DTC P0761 or P0762 are set resolve them first. Otherwise, check the C clutch for a slipping or harsh apply. REFER to: C Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). For P2703, if either DTC P0766 or P0767 are set resolve them first. Otherwise, check the D clutch for a slipping or harsh apply. REFER to: D Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). For P2704, if either DTC P0771 or P0772 are set resolve them first. Otherwise, check the E clutch for a slipping or harsh apply. REFER to: E Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation). For P2705, if either DTC P2707 or P2708 are set resolve them first. Otherwise, check the F clutch for a slipping or harsh apply. REFER to: F Clutch (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Description and Operation).
No	The fault is not present at this time and may be intermittent.

PINPOINT TEST AB : DTC P27B4, P27B5, P27B6**Normal Operation and Fault Conditions**

The PCM monitors the TSS, OSS, ISSA and ISSB sensors to verify the operational gear matches the selected gear. If the PCM detects a reverse gear when forward gear is selected, a forward gear when reverse is selected, an incorrect gear ratio or a mismatch between speed sensors, it will set a DTC.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
PCM P27B4:00	Internal Control Module Transmission Gear Direction Control Performance: No Sub Type Information	This DTC indicates the PCM detected a reverse engagement when a forward gear was selected, or a forward engagement when reverse was selected.
PCM P27B5:00	Internal Control Module Transmission Gear Ratio Control Performance: No Sub Type Information	This DTC indicates a mismatch between the speed sensor readings and the commanded gear ratio.
PCM P27B6:00	Internal Control Module Transmission Speed Sensor Performance: No Sub Type Information	This DTC indicates a mismatch between the TSS, ISSA and ISSB sensors.

Possible Sources

- Clutch fault
- Speed sensor fault
- PCM

AB1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear all diagnostic trouble codes.
- Road test the vehicle.
- Using a diagnostic scan tool, carry out the PCM self-test.

Is DTC P27B4, P27B5 and/or P27B6 present in the PCM?

Yes	If any speed sensor or clutch fault diagnostic trouble codes are present, RESOLVE those first. If any gear engagement symptoms are present, RESOLVE those second. REFER to: Diagnosis By Symptom (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140, Diagnosis and Testing). If only DTC P27B4, P27B5 and/or P27B6 is present, Click here to access Guided Routine (PCM) . After programming the new module, CARRY OUT the transmission strategy download. REFER to: Transmission Strategy Download (307-01 Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€” 10R140) .
No	The fault is not present at this time.