• Transmission stuck in drive	• GSM • Transmission	• CHECK for DTCs related to the GSM. • CHECK for DTCs related to the transmission.
	• Internal transmission components damaged	• CHECK the park lock pawl actuator, park lock pawl actuator valve and linkage for damage. REFER to: Transmission (307-01B Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R80, Overhaul).
• SelectShiftâ„¢ Does Not Operate Correctly (Rotary Gear Shift)	• Unable to select M position	• SELECT P, R, N and D on the GSM. CHECK for TR REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation). sensor DTCs. If TR sensor DTCs are present, REFER to: Diagnostic Trouble Code (DTC) Charts and Pinpoint Tests - 2.3L EcoBoost (201kW/273PS) (307-01A Automatic Transmission, Transfer Case and Power Transfer Unit - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing). • INSTALL a new gearshift module. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
• -	• SelectShiftâ„¢ inoperative or does not operate correctly	• GO to Pinpoint Test L
• Progressive Range Selection Does Not Operate Correctly (Rotary Gear Shift)	• Paddle shifters	• GO to Pinpoint Test A

Pinpoint Tests

PINPOINT TEST A : PROGRESSIVE RANGE SELECTION DOES NOT OPERATE CORRECTLY (ROTARY GEAR SHIFT)

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

For progressive range selection, when the rotary gear shift knob is in the (D) position, the vehicle is not moving, and either the plus (+) or minus (-) switch is pressed, the IPC displays all available gear positions 1st, 2nd, 3rd, 4th, 5th, and 6th, through 10 are displayed with 1st gear highlighted. If the plus (+) switch is then pressed, the available gear positions are no longer displayed, until either the plus (+) or minus (-) switch is pressed again. The + and - switches used for the progressive range selection are shared with the Selectshiftâ„¢ system.

Possible Sources

- Circuitry open/shorted
- + and - Paddle Switches
- PCM

A1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using the diagnostic scan tool, perform the network test.

Do the PCM, IPC pass the network test?

Yes	GO to A2
No	To diagnose the module does not respond to the scan tool, REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

A2 CHECK THE SELECTSHIFTâ„¢ SYSTEM

- Ignition ON.
- OPERATE the Selectshiftâ„¢ system and upshift and downshift the transmission.

Does the Selectshiftâ„¢ system operate correctly?

Yes	RESOLVE any network and non-network DTCs in the PCM and IPC.
No	GO to Pinpoint Test L

PINPOINT TEST B : DTC P0562

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM requires an operating voltage between 9 and 16 volts. The GSM receives this voltage from the BCM and has a single ground circuit. Excessive resistance in one or more of these circuits, a discharged battery or a inoperative charging system results in the GSM setting a DTC.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P0562:00	System Voltage Low: No Sub Type Information	This DTC sets if the GSM operating voltage is lower than 9 volts.

Possible Sources

- Battery
- Fuses
- Wiring, terminals or connectors
- GSM

B1 RECHECK THE GSM (GEAR SHIFT MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the GSM DTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the GSM self-test.

Is DTC P0562 still present?

Yes	GO to B2
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

B2 CHECK FOR CHARGING SYSTEM DIAGNOSTIC TROUBLE CODES (DTCS) IN THE PCM (POWERTRAIN CONTROL MODULE)

- Using a diagnostic scan tool, retrieve all CMDTCs.

Are any charging system Diagnostic Trouble Codes (DTCs) present in the PCM?

Yes	DIAGNOSE the vehicle charging concern. REFER to: External Controls (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing).
No	GO to B3

B3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

- Carry out the Battery Condition Test.
  REFER to: External Controls (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing).

Did the battery pass the condition test?

Yes	GO to B4
No	INSTALL a new battery.

B4 CHECK THE GSM (GEAR SHIFT MODULE) VOLTAGE SUPPLY

- Ignition OFF.
- Disconnect GSM C3590.
- Ignition ON.
- Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-1		Ground

Is the voltage within 1 volt of the recorded battery voltage?

Yes	GO to B5
No	VERIFY BCM fuses 12 (7.5A) is OK. If OK, REPAIR the affected circuit for high resistance or an open. If not OK, REFER to the Wiring Diagrams manual to identify the cause of the circuit short.

B5 CHECK THE GSM (GEAR SHIFT MODULE) GROUND CIRCUIT FOR AN OPEN

- **NOTE:** *INSPECT the ground eyelet G214 and verify it is clean and tight.*

  Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-18	Ω	Ground
C3590-9	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to B6
No	REPAIR the circuit.

B6 VERIFY ALL WIRING CONNECTIONS

- Ignition OFF.
- Disconnect and inspect GSM C3590 and related in-line electrical connectors.
- Using a good light source, inspect **all** disconnected electrical connectors for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
  - spread terminals - install new terminals as necessary

Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?

Yes	GO to B7
No	REPAIR the connector, terminals as necessary.

B7 CHECK FOR CORRECT GSM (GEAR SHIFT MODULE) OPERATION

- Connect GSM C3590 and all related in-line electrical connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB (general service bulletin), SSM (special service message) or FSA (Field Service Action). If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST C : DTC (DIAGNOSTIC TROUBLE CODE) P0563

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM requires an operating voltage between 9 and 16 volts. The GSM receives this voltage from the BCM and has a single ground circuit. Excessive resistance or an open in one or more of these circuits, a discharged battery or a inoperative charging system results in the GSM setting a DTC.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P0563:00	System Voltage High: No Sub Type Information	This DTC sets if the GSM operating voltage is greater than 16 volts.

Possible Sources

- Charging system concern
- Wiring, terminals or connectors
- GSM

C1 CHECK FOR HIGH VOLTAGE DTCS SET IN OTHER MODULES

- Using a diagnostic scan tool, retrieve all CMDTCs.

Are any charging system Diagnostic Trouble Codes (DTCs) present in the PCM?

Yes	DIAGNOSE the vehicle charging concern. REFER to: External Controls (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing).
No	GO to C2

C2 CHECK THE BATTERY VOLTAGE

- Turn off all interior lights, exterior lights and accessories.
- **NOTE:** *Do not allow the engine speed to increase above 2,000 RPM while performing this step or the generator may self-excite and result in default charging system output voltage. If engine speed goes above 2,000 RPM, turn the engine off and restart the engine before performing this step.*

  Start and run the engine at approximately 1,500 RPM for 3 minutes while monitoring the battery voltage.

Is the battery voltage between 11 and 15.2 volts?

Yes	GO to C3
No	DIAGNOSE the overcharging condition. REFER to: External Controls (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing).

C3 RECHECK THE GSM (GEAR SHIFT MODULE) FOR DTC (DIAGNOSTIC TROUBLE CODE) P0563

- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, clear the GSM DTCs.
- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, carry out the GSM self-test.

Is DTC P0563 still present?

Yes	GO to C4
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

C4 VERIFY ALL WIRING CONNECTIONS

- Ignition OFF.
- Disconnect and inspect GSM C482A and related in-line electrical connectors.
- Using a good light source, inspect **all** disconnected electrical connectors for the following:
  - corrosion - install new connector or terminal and clean the module pins
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
  - spread terminals - install new terminals as necessary

Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB (general service bulletin), SSM (special service message) or FSA (Field Service Action). If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new GSM module. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	REPAIR as necessary.

PINPOINT TEST D : DTC U0155

Refer to Wiring Diagrams Cell 14 for schematic and connector information.

Normal Operation and Fault Conditions

The IPC, GSM and BCM use information contained in messages on the HS-CAN.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM U0155:00	Lost Communication With Instrument Panel Cluster (IPC) Control Module: No Sub Type Information	The IPC, GSM and BCM use information contained in messages on the HS-CAN, when the GSM doesn't receive these messages for more than 5 seconds it sets this DTC.

Possible Sources

- Connectors damaged or pushed-out terminals, circuitry open, shorted to power or shorted to ground
- BCM
- IPC

D1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- **NOTE:** *If a GSM self-test is performed, make sure the drivers door is closed and locked.*

  Using the diagnostic scan tool, perform the network test.

Does the IPC module pass the network test?

Yes	GO to D2
No	To diagnose the module does not respond to the scan tool, REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

D2 CHECK FOR GSM (GEAR SHIFT MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Clear all DTCs.
- Using the diagnostic scan tool, perform the GSM self-test.

Is DTC U0155 present?

Yes	GO to D3
No	The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

D3 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE GSM (GEAR SHIFT MODULE) SELF-TEST

- Check for DTCs from the self-test.

Are any GSM DTCs present?

Yes	REFER to the GSM DTC chart and diagnose those DTCs first.
No	GO to D4

D4 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Check for DTCs from the self-test.

Is DTC U3000:49 present?

Yes	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).
No	GO to D5

D5 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0155 SET IN OTHER MODULES

- Using the diagnostic scan tool, perform the self-test for all modules.
- Retrieve the DTCs from all modules.

Is DTC U0155 present in the PCM or SCCM?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB (general service bulletin), SSM (special service message) or FSA (Field Service Action). If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new IPC. Click here to access Guided Routine (IPC).
No	The system is operating correctly at this time.

PINPOINT TEST E : DTC U0140

Refer to Wiring Diagrams Cell 14 for schematic and connector information.

Normal Operation and Fault Conditions

Sets in continuous memory in the GSM module if data messages received from the BCM are missing for 5 seconds or longer.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM U0140:00	Lost Communication With Body Control Module: No Sub Type Information	Sets in continuous memory in the GSM module if data messages received from the BCM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GSM
- BCM

E1 VERIFY THE SCAN TOOL COMMUNICATES WITH THE BCM (BODY CONTROL MODULE)

- Connect the diagnostic scan tool.
- Check that a vehicle session can be established using the scan tool.

Can a vehicle session be established?

Yes	GO to E2
No	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

E2 CHECK THE GSM (GEAR SHIFT MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Ignition ON.
- Using a diagnostic scan tool, perform the GSM self-test.
- Clear the DTCs.
- Wait 10 seconds.
- Repeat the GSM self-test.

Are any non-network DTCs present?

Yes	DIAGNOSE all non-network DTCs. REFER to DTC Chart: GSM.
No	GO to E3

E3 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the BCM self-test.

Are any non-network Diagnostic Trouble Codes (DTCs) present?

Yes	DIAGNOSE all non-network DTCs. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Diagnosis and Testing).
No	GO to E4

E4 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, check the GWM Continuous Memory DTCs.

Are any DTCs set?

Yes	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
No	GO to E5

E5 RECHECK THE GSM (GEAR SHIFT MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the GSM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the GSM DTCs.

Is DTC U0140 still present?

Yes	GO to E6
No	The system is operating correctly at this time. The DTC may have set due to high network traffic or an intermittent fault condition.

E6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERNS

NOTE: *If new modules were installed prior to the DTC being set, the module configuration can be incorrectly set during the PMI or the PMI may not have been carried out.*

- CHECK the vehicle service history for recent service actions related to the BCM or GSM. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part application
  - verify the configuration of replacement module was correct
    - re-configure module using as-built data if prior configuration is suspect
  - verify the module was not obtained from a like vehicle and installed into customer vehicle
    - return the swapped module to source vehicle and obtain new replacement module
- Operate the system and determine if the observable symptom is still present.

Is the observable symptom still present?

Yes	GO to E7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

E7 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the BCM and related in-line connectors.
- Repair:
  - corrosion (install new connector or terminals â€“ clean module pins)
  - damaged or bent pins â€“ install new terminals/pins
  - pushed-out pins â€“ install new pins as necessary
- Reconnect the BCM and all related in-line connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB (general service bulletin), SSM (special service message) or FSA (Field Service Action). If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, Click here to access Guided Routine, Click here to access Guided Routine (BCM).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST F : DTC U0121

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM communicates with the ABS module over the HS-CAN line. The modules exchange information such as gear position and vehicle speed, if the messages are not exchanged for more than 5 seconds a DTC is set.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM U0121:00	Lost Communication With Anti-Lock Brake System (ABS) Control Module "A": No Sub Type Information	Sets in continuous memory in the GSM if data messages received from the ABS are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- ABS
- GSM

F1 VERIFY THE SCAN TOOL COMMUNICATES WITH THE ABS (ANTI-LOCK BRAKE SYSTEM)

- Connect the diagnostic scan tool.
- Check that a vehicle session can be established using the scan tool.

Can a vehicle session be established?

Yes	GO to F2
No	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

F2 CHECK THE GSM (GEAR SHIFT MODULE) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Ignition ON.
- Using a diagnostic scan tool, perform the GSM self-test.
- Clear the DTCs.
- Wait 10 seconds.
- Repeat the GSM self-test.

Are any non-network DTCs present?

Yes	DIAGNOSE all non-network DTCs. REFER to DTC Chart: GSM.
No	GO to F3

F3 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) SELF-TEST

- Using a diagnostic scan tool, perform the ABS self-test.

Are any non-network DTCs present?

Yes	DIAGNOSE all non-network DTCs. REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control, Diagnosis and Testing).
No	GO to F4

F4 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, check the GWM Continuous Memory Diagnostic Trouble Codes (CMDTCs).

Are any DTCs set?

Yes	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).
No	GO to F5

F5 RECHECK THE GSM (GEAR SHIFT MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the GSM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the GSM DTCs.

Is DTC U0121 still present?

Yes	GO to F6
No	The system is operating correctly at this time. The DTC may have set due to high network traffic or an intermittent fault condition.

F6 CHECK FOR OTHER CAUSES OF NETWORK COMMUNICATION CONCERNS

NOTE: *If new modules were installed prior to the DTC being set, the module configuration can be incorrectly set during the PMI or the PMI may not have been carried out.*

- CHECK the vehicle service history for recent service actions related to the ABS or AWD. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part application
  - verify the configuration of replacement module was correct
    - re-configure module using as-built data if prior configuration is suspect
  - verify the module was not obtained from a like vehicle and installed into customer vehicle
    - return the swapped module to source vehicle and obtain new replacement module
- Operate the system and determine if the observable symptom is still present.

Is the observable symptom still present?

Yes	GO to F7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

F7 CHECK FOR CORRECT ABS (ANTI-LOCK BRAKE SYSTEM) OPERATION

- Ignition OFF.
- Disconnect and inspect the ABS and related in-line connectors.
- Repair:
  - corrosion (install new connector or terminals â€“ clean module pins)
  - damaged or bent pins â€“ install new terminals/pins
  - pushed-out pins â€“ install new pins as necessary
- Reconnect the ABS and all related in-line connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable service articles: TSB, GSB (general service bulletin), SSM (special service message) or FSA (Field Service Action). If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, Click here to access Guided Routine, Click here to access Guided Routine (ABS).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST G : DTC U0100

Refer to Wiring Diagrams Cell 14 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM uses information contained in messages from the PCM sent on the HS-CAN.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM U0100:00	Lost Communication With ECM/PCM "A": No Sub Type Information	This DTC sets if the GSM does not receive some or all of an expected message from the PCM over the HS-CAN2.
GSM U0100:87	Lost Communication With ECM/PCM "A": Missing Message	This DTC sets if the GSM does not receive some or all of an expected message from the PCM over the private CAN

Possible Sources

- Connectors damaged or pushed-out terminals, circuitry open, shorted to power or shorted to ground
- PCM
- GSM

G1 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using the diagnostic scan tool, perform the network test.

Does the PCM pass the network test?

Yes	GSM, GO to G2
No	To diagnose the module does not respond to the scan tool, REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

G2 CHECK FOR GSM (GEAR SHIFT MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

- Clear all DTCs.
- Using the diagnostic scan tool, perform the GSM self-test.

Is DTC U0100 present?

Yes	GO to G3
No	The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

G3 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE GSM (GEAR SHIFT MODULE) SELF-TEST

- Check for DTCs from the self-test.

Are any GSM DTCs present?

Yes	REFER to the GSM DTC chart and diagnose those DTCs first.
No	GO to G4

G4 CHECK THE HS-CAN2 (HIGH-SPEED CONTROLLER AREA NETWORK 2) WIRING FOR AN OPEN

- Disconnect GSM C3590 .
- Disconnect GWM C2431 .
- Measure:

GEAR SHIFT MODULE (GSM)	GATEWAY MODULE A (GWM)

Positive Lead	Measurement / Action	Negative Lead
C3590-2	Ω	C2431-17
C3590-3	Ω	C2431-18

Is the resistance less than 3 ohms?

Yes	GO to G5
No	REPAIR the circuit.

G5 CHECK THE GSM (GEAR SHIFT MODULE) PRIVATE CAN (CONTROLLER AREA NETWORK) WIRING FOR AN OPEN

- Disconnect For 2.3L engine, PCM C1381B .
- Disconnect For 3.0L engine, PCM C1551T .
- For 2.3L engine, measure:

GEAR SHIFT MODULE (GSM)	POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C3590-13	Ω	C1381B-65
C3590-14	Ω	C1381B-46

- For 3.0L engine, measure:

GEAR SHIFT MODULE (GSM)	POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C3590-13	Ω	C1551T-23
C3590-14	Ω	C1551T-8

Is the resistance less than 3 ohms?

Yes	GO to G6
No	REPAIR the circuit.

G6 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U0100 SET IN OTHER MODULES

- Using the diagnostic scan tool, perform the self-test for all modules.
- Retrieve the DTCs from all modules.

Is DTC U0100 present in the ABS or IPC modules?

Yes	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, discontinue this test and follow TSB instructions. If no TSBs address this concern, Click here to access Guided Routine (PCM).
No	If the reporting module is the GSM, CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, discontinue this test and follow TSB instructions. If no TSBs address this concern, INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).

PINPOINT TEST H : DTCS P0919, P0929, P1753

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM controls the customer gear selection by means of a rotary gear selector know.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P0919:00	Gear Shift Position Control Error: No Sub Type Information	This CMDTC sets if the GSM detects that the rotary gear shift knob is unable to return the rotary gear shift knob to Park due to an internal GSM failure.
GSM P0919:77	Gear Shift Position Control Error: Commanded Position Not Reachable	This CMDTC sets if the GSM detects that the rotary gear shift knob is unable to return the rotary gear shift knob to Park because the GSM is being physically restriced.
GSM P0929:00	Gear Shift Lock Solenoid/Actuator Circuit "A" Range/Performance: No Sub Type Information	This CMDTC sets if the GSM detects that the rotary gear shift knob is not returning to park during the auto rotate function due to an internal GSM failure.
GSM P0929:77	Gear Shift Lock Solenoid/Actuator Circuit "A" Range/Performance: Commanded Position Not Reachable	This CMDTC sets if the GSM detects that the rotary gear shift knob is not returning to park during the auto rotate function because the GSM is being physically restriced.
GSM P1753:00	Gear Shift Position Sensor Alignment: No Sub Type Information	This CMDTC sets if the GSM detects that the rotary gear shift knob is not within calibrated band for at least 60 seconds.

Possible Sources

- Inspect rotary shift knob for any interference issues that would cause it not to return to park.
- Connectors damaged or pushed-out terminals, circuitry open or high resistance in the voltage feed wiring to the GSM or a loose ground.
- Discharged battery/charging system
- GSM

H1 VERIFY THE BATTERY IS FULLY CHARGED

- **NOTE:** *If necessary connect the battery charger to the vehicle battery to insure a steady battery voltage while performing this test.*

  VERIFY battery is fully charged before proceeding with this test.
  REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Is the battery fully charged?

Yes	GO to H2
No	CHARGE or INSTALL a new battery if necessary. REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

H2 CHECK THE GSM (GEAR SHIFT MODULE) CONTINUOUS MEMORY DTC (DIAGNOSTIC TROUBLE CODE) S

- Using a diagnostic scan tool, perform the GSM self-test.
- Clear the CMDTCs.
- Ignition OFF.
- Wait 10 seconds.
- Start the engine.
- Repeat the GSM self-test.

Are any DTCs retrieved?

Yes	If DTC P0919 or P0929 are retrieved, GO to H3 If DTC P1753 is retrieved, GO to H5 If any other GSM DTCs are retrieved RESOLVE them first, REFER to the DTC chart.
No	GO to H4

H3 CHECK THE GSM (GEAR SHIFT MODULE) AUTO ROTATE FUNCTION

- Clear the CMDTCs.
- Ignition OFF.
- Start the engine.
- Sit in the driver seat with the seat belt unbuckled.
- Select DRIVE.
- OPEN the driver door.
- Using a diagnostic scan tool, perform the GSM self-test.

Does the rotary shift selector return to PARK and no DTCs set?

Yes	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.
No	INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).

H4 CHECK FOR CORRECT GSM (GEAR SHIFT MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all GSM 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
- Reconnect the GSM connectors. Make sure they seat and latch correctly.
- Operate the system and verify the concern is still present

Is the concern still present?

Yes	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

H5 CHECK FOR CORRECT GSM (GEAR SHIFT MODULE) SENSOR ALIGNMENT

- Clear the CMDTCs.
- Reprogram the GSM with the latest software.
- Start the engine.
- Select REVERSE.
- Select NEUTRAL.
- Select DRIVE.
- Select PARK.
- Confirm the GSM sits firmly in each position.
- Using a diagnostic scan tool, perform the GSM self-test.

Does the DTC return?

Yes	INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The system is operating correctly at this time.

PINPOINT TEST I : DTC P166B

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The PCM uses the driver door status inputs to shift the transmission into the park position when the operator is preparing to exit the vehicle. The PCM also uses the driver door staus input to display "Transmission not in Park" cluster message when the driver door opens and the transmission is not in P. The "Transmission not in Park" massage can display in the cluster when the transmission is not in P and the vehicle speed is below 2 mph if there is a door ajar issue and P166B sets in the GSM.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P166B:00	Drivers Door Status Correlation: No Sub Type Information	The GSM monitors the voltage signals on the 2 door status switch inputs. If these inputs fail a rational test between them, the DTC sets.

Possible Sources

- Connectors damaged or pushed-out terminals, circuitry open, shorted to power or shorted to ground
- Driver door ajar switch #1
- Driver door ajar switch #2
- GSM

I1 RUN GSM SELF-TEST AND RETRIEVE AND RECORD ALL DTCS

- **NOTE:** *If a GSM self-test is performed, the driver door must be fully closed. A false P166B DTC sets if the driver door is opened or not fully closed during the self-test.*

  Using the diagnostic scan tool, run the GSM self-test and retrieve all DTCs.

Is DTC P166B present?

Yes	GO to I2
No	The system is operating correctly at this time.

I2 CHECK THE DOOR STATUS CIRCUIT #1 FOR AN OPEN

- Disconnect GSM C3590 .
- Disconnect Driver Door Ajar Switch C525B .
- Inspect the connectors for damaged or pushed-out terminals.
- Measure:

GEAR SHIFT MODULE (GSM)	FRONT DOOR LATCH LH

Positive Lead	Measurement / Action	Negative Lead
C3590-4	Ω	C525B-2

Is the resistance less than 3 ohms?

Yes	GO to I3
No	REPAIR the circuit.

I3 CHECK THE DOOR STATUS CIRCUIT #1 FOR A SHORT TO GROUND

- Connect Driver Door Ajar Switch C525B .
- Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-4	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to I4
No	REPAIR the circuit.

I4 CHECK THE DOOR STATUS CIRCUIT #2 FOR AN OPEN

- Disconnect BCM C2280E .
- Inspect the connector for damaged or pushed-out terminals.
- Measure:

GEAR SHIFT MODULE (GSM)	BODY CONTROL MODULE (BCM)

Positive Lead	Measurement / Action	Negative Lead
C3590-15	Ω	C2280E-33

Is the resistance less than 3 ohms?

Yes	GO to I5
No	REPAIR the circuit.

I5 CHECK THE DOOR STATUS CIRCUIT #2 FOR A SHORT TO GROUND

- Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-15	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to I6
No	REPAIR the circuit.

I6 CHECK THE DOOR STATUS #1 CIRCUIT AND DOOR STATUS #2 CIRCUIT FOR A SHORT TO POWER

- Ignition ON.
- Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-4	V	Ground
C3590-15	V	Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to I7

I7 VERIFY THE GSM FAULT

- Connect BCM C2280E .
- Connect Driver Door Ajar Switch C526 .
- Connect GSM C3590 .
- **NOTE:** *If a GSM self-test is performed, the driver door must be fully closed. A false P166B DTC sets if the driver door is opened or not fully closed during the self-test.*

  Using the diagnostic scan tool, run the GSM self-test and retrieve all DTCs.

Is the concern still present?

Yes	INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The system is operating correctly at this time.

PINPOINT TEST J : DTC P0814, P0915

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM has two sensors that monitor the rotary knob position and LEDs indicating the selected range.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P0814:00	Transmission Range Display Circuit: No Sub Type Information	This CMDTC sets if the GSM is sensing an issue with the GSM LED indication.
GSM P0915:00	Gear Shift Position Circuit "A" Range/Performance: No Sub Type Information	This CMDTC sets if the GSM detects a fault with one or both sensors measuring the rotary knob position.

Possible Sources

- Connectors damaged or pushed-out terminals, circuitry open or high resistance in the voltage feed wiring to the GSM or a loose ground.
- Discharged battery/charging system
- GSM

J1 VERIFY THE BATTERY IS FULLY CHARGED

- **NOTE:** *If necessary connect the battery charger to the vehicle battery to insure a steady battery voltage while performing this test.*

  VERIFY battery is fully charged before proceeding with this test.
  REFER to: External Controls (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Diagnosis and Testing).

Is the battery fully charged?

Yes	GO to J2
No	CHARGE or INSTALL a new battery if necessary. REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

J2 CHECK GSM CALIBRATION LEVEL

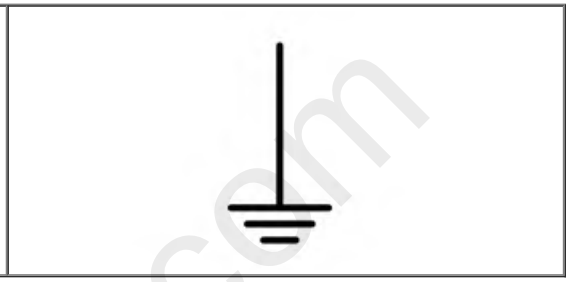
- VERIFY the GSM calibration is at the latest level.

Is the GSM calibration at the latest level?

Yes	GO to J3
No	REFER to: Module Programming (418-01 Module Configuration, General Procedures).

J3 CHECK POWER CIRCUIT TO GSM FOR AN OPEN

- Ignition OFF.
- Disconnect GSM C3590 .
- Ignition ON.
- Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-1	V	Ground

Is the voltage 11 volts or greater

Yes	GO to J4
No	CHECK fuse 12 (7.5A), if OK REPAIR the open circuit, if not OK, REFER to the wiring diagram manual to diagnose the short circuit.

J4 CHECK GSM GROUND FOR AN OPEN

- Ignition OFF.
- **NOTE:** *INSPECT the ground eyelet G214 and verify it is clean and tight.*

  Measure:

GEAR SHIFT MODULE (GSM)	

Positive Lead	Measurement / Action	Negative Lead
C3590-18	Ω	Ground
C3590-9	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to J5
No	REPAIR the circuit.

J5 CHECK THE GSM (GEAR SHIFT MODULE) CONTINUOUS MEMORY DTC (DIAGNOSTIC TROUBLE CODE) S

- Using a diagnostic scan tool, perform the GSM self-test.
- Clear the CMDTCs.
- Ignition OFF.
- Wait 10 seconds.
- Start the engine.
- Select REVERSE.
- Select NEUTRAL.
- Select DRIVE.
- Select PARK.
- Repeat the GSM self-test.

Is DTC P0814 or P0915 the only DTC retrieved again?

Yes	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The GSM is operating correctly at this time.

PINPOINT TEST K : DTCS P07EC, P07ED

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

The GSM contains 3 contacts beneath the center button. If one contact is not recognized by the GSM then DTC sets.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P07EC:00	Transmission Range Multi-Function Select Circuit: No Sub Type Information	This DTC sets in continuous memory if one of the 3 internal contacts for the M button function is faulty. A message is displayed on the message center warning that a given range is unavailable.
GSM P07ED:00	Transmission Range Multi-Function Select Circuit Stuck: No Sub Type Information	A DTC P07ED can be set in â€œHistoryâ€, if the Center Button is held down for 60 seconds or more. If DTC P07ED is set in continuousâ€™ memory continue with the diagnostics. The GSM contains 3 contacts beneath the center button. If two or more contacts report â€˜closedâ€™ for 60 seconds or more, the GSM then sets DTC P07ED.

Possible Sources

- Connectors damaged or pushed-out terminals, circuitry open, shorted to power or shorted to ground
- Brake transmission shift interlock override switch
- Clean or remove any foreign material or debris found near the rotary gear shift knob center button.
- GSM

K1 INSPECT GEAR SHIFT M BUTTON AND BTSI OVERRIDE SWITCH

- INSPECT the gear shift M button switch for debris or foreign materials that might cause binding or sticking.

Is any debris or foreign material present?

Yes	CLEAN any debris or foreign material from the gear shift buttons.
No	GO to K2

K2 CHECK GSM SWITCHES PID STATUS

- Connect the diagnostic tool.
- Ignition ON.
- Using a diagnostic scan tool, MONITOR the following PIDs:
  - M button: SBW_SLM_SW_1, SBW_SLM_SW_2, SBW_SLM_SW_3

Do any of the switch PID readings indicate that any of the gear shift M button switches are pressed?

Yes	If the gear shift M button PID indicates one or more of the switch contacts are pressed, GO to K3
No	System is working properly at this time, if a symptom is present go to the symptom chart.

K3 CHECK FOR CORRECT GSM (GEAR SHIFT MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all GSM 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
- Reconnect the GSM connectors. Make sure they seat and latch correctly.
- Operate the system and verify the concern is still present

Is the concern still present?

Yes	CHECK OASIS for any applicable TSBs. If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no TSBs address this concern, INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

PINPOINT TEST L : SELECTSHIFTâ„¢ INOPERATIVE OR DOES NOT OPERATE CORRECTLY

Refer to Wiring Diagrams Cell 29 for schematic and connector information.

Normal Operation and Fault Conditions

Each paddle shift switch is a momentary contact switch integral to the steering wheel. When the selector lever is placed in the sport shift position, the upshift/downshift feature becomes activated and allows the operator to upshift or downshift without removing their hands from the steering wheel.

Possible Sources

- Circuitry open/shorted
- Selectshiftâ„¢ switches
- PCM

L1

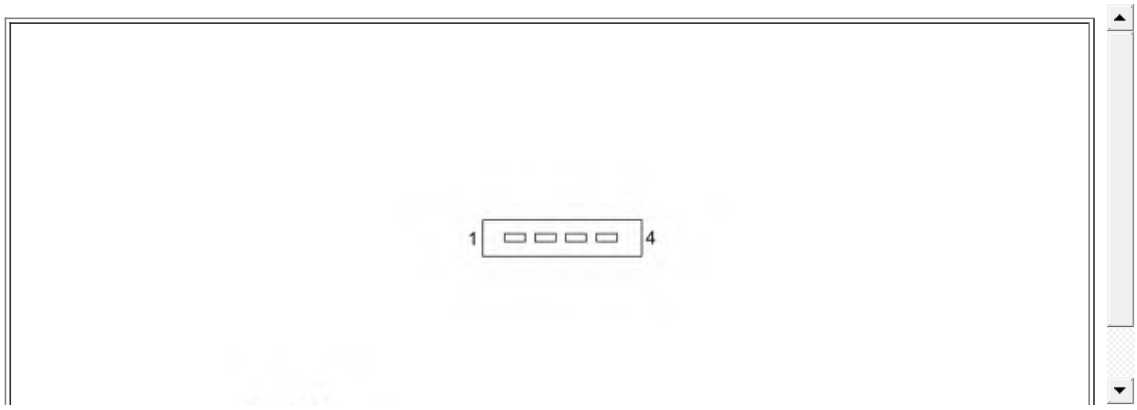
- Road test the vehicle PRESS the M button on the rotary gear shift know and use the + and - switches to upshift and downshift the transmission.

Does the Selectshiftâ„¢ work properly?

Yes	The Selectshiftâ„¢ is working properly at this time. INSPECT harness connectors for loose terminals or corrosion.
No	For upshift switch concerns, GO to L2 For downshift switch concerns, GO to L7 If both switches are inoperative, GO to L12

L2 CHECK THE UPSHIFT PADDLE SWITCH

- Remove the driver air bag module.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect Upshift Paddle Switch C2428 .
- Measure:



Positive Lead	Measurement / Action	Negative Lead
Paddle Switch Component side resistance pin 1.	Ω	Paddle Switch Component side resistance pin 2.

Is the resistance less than 1.5 ohms with upshift switch pressed and greater than 10,000 ohms when released?

Yes	GO to L3
No	INSTALL a new upshift paddle switch. REFER to: Upshift Paddle Switch (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).

L3 CHECK THE UPSHIFT SIGNAL CIRCUIT FOR VOLTAGE

- Ignition OFF.
- Disconnect Upper Clock spring C218B .
- Inspect the connector for damaged or pushed-out terminals.
- Ignition ON.
- Measure:

CLOCKSPRING	

Positive Lead	Measurement / Action	Negative Lead
C218B-1	V	Ground

Is the voltage greater than 11 volts?

Yes	GO to L12
No	GO to L4

L4 CHECK THE UPSHIFT SIGNAL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM C1381B .
- Inspect the connectors for damaged or pushed-out terminals.
- Measure:

CLOCKSPRING	POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C218A-5	Ω	C1381B-6

Is the resistance less than 3 ohms?

Yes	GO to L5
No	REPAIR the circuit.

L5 CHECK THE UPSHIFT SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Measure:

CLOCKSPRING	

Positive Lead	Measurement / Action	Negative Lead
C218A-5	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to L6
No	REPAIR the circuit.

L6 CHECK THE CLOCKSPRING CIRCUITS FOR AN OPEN

- Connect PCM .
- Disconnect Clockspring .
- Ignition ON.
- Measure:

CLOCKSPRING	CLOCKSPRING

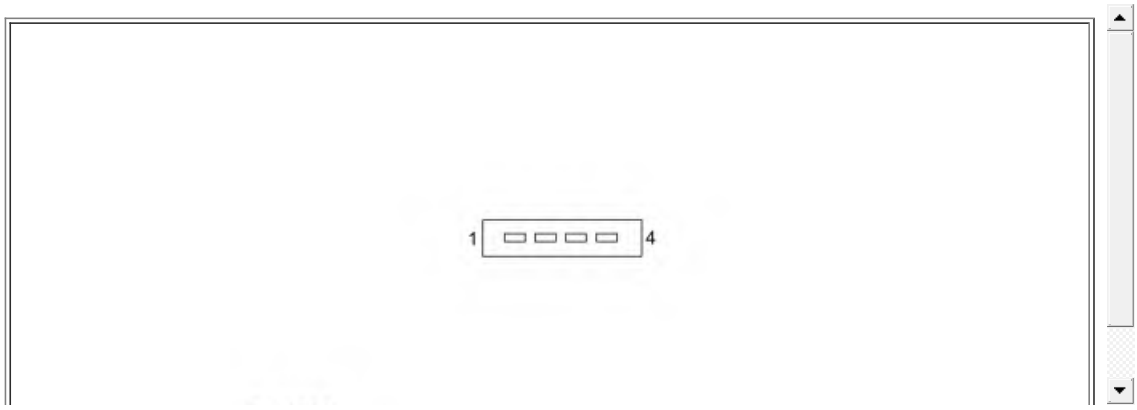
Positive Lead	Measurement / Action	Negative Lead
Component Side C218B-1	Ω	Component Side C218A-5

Is the resistance less than 3 ohms?

Yes	Click here to access Guided Routine (PCM).
No	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).

L7 CHECK THE DOWNSHIFT PADDLE SWITCH

- Remove the driver air bag module.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect Downshift Paddle Shifter C2429 .
- Measure:



Positive Lead	Measurement / Action	Negative Lead
Paddle Switch Component side resistance pin 3	Ω	Paddle Switch Component side resistance pin 4

Is the resistance less than 1.5 ohms with upshift switch pressed and greater than 10,000 ohms when released?

Yes	GO to L9
No	INSTALL a new upshift paddle switch. REFER to: Downshift Paddle Switch (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).

L8 CHECK THE DOWNSHIFT SIGNAL CIRCUIT FOR VOLTAGE

- Ignition OFF.
- Disconnect Downshift Paddle Shifter C2429 .
- Inspect the connector for damaged or pushed-out terminals.
- Ignition ON.
- Measure:

DOWNSHIFT PADDLE SWITCH	

Positive Lead	Measurement / Action	Negative Lead
C2429-4	V	Ground

Is the voltage greater than 11 volts?

Yes	GO to L12
No	GO to L9

L9 CHECK THE DOWNSHIFT SIGNAL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect PCM .
- Inspect the connector for damaged or pushed-out terminals.
- Measure:

CLOCKSPRING	POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C218B-2	Ω	C1381B-65

Is the resistance less than 3 ohms?

Yes	GO to L10
No	REPAIR the circuit.

L10 CHECK THE DOWNSHIFT SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Measure:

CLOCKSPRING	

Positive Lead	Measurement / Action	Negative Lead
C218B-2	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to L11
No	REPAIR the circuit.

L11 CHECK THE CLOCKSPRING CIRCUIT FOR AN OPEN

- Connect PCM .
- Ignition ON.
- Measure:

CLOCKSPRING	CLOCKSPRING

Positive Lead	Measurement / Action	Negative Lead
Component Side C218B-2	Ω	Component Side C218A-6

Is the resistance less than 3 ohms?

Yes	Click here to access Guided Routine (PCM).
No	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).

L12 CHECK THE SIGNAL RETURN CIRCUIT FOR A SHORT TO GROUND

- Remove the driver air bag module.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect PCM .
- Ignition ON.
- **Without active steering** measure:

CLOCKSPRING	

Positive Lead	Measurement / Action	Negative Lead
C218A-7	Ω	Ground

Is the voltage greater than 10,000 ohms?

Yes	GO to L13
No	REPAIR the circuit.

L13 CHECK THE SIGNAL RETURN CIRCUIT FOR AN OPEN

- Connect PCM .
- Ignition ON.
- Measure:

CLOCKSPRING	POWERTRAIN CONTROL MODULE (PCM)

Positive Lead	Measurement / Action	Negative Lead
C218A-7	Ω	C1381B-4

Is the resistance less than 3 ohms

Yes	INSTALL a new PCM. Click here to access Guided Routine (PCM).
No	REPAIR the circuit.

L14 CHECK THE CLOCKSPRING CIRCUIT FOR AN OPEN

- Connect PCM C1381B .
- Ignition ON.
- Measure:

CLOCKSPRING	CLOCKSPRING

Positive Lead	Measurement / Action	Negative Lead
Component Side C218A-7	Ω	Component Side C218B-3

Is the resistance less than 3 ohms?

Yes	INSTALL a new PCM. Click here to access Guided Routine (PCM).
No	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).

PINPOINT TEST M : DTC P0605, P0606, P0607, P06B8

Normal Operation and Fault Conditions

When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM P0605:00	Internal Control Module Read Only Memory (ROM) Error: No Sub Type Information	When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.
GSM P0606:00	Control Module Processor: No Sub Type Information	When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.
GSM P0607:00	Control Module Performance: No Sub Type Information	When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.
GSM P06B8:00	Internal Control Module Non-Volatile Random Access Memory (NVRAM) Error: No Sub Type Information	When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.
GSM P164E:00	Internal Control Module Transmission Range Select Performance: No Sub Type Information	When the GSM initializes at key on it does internal memory and configuration tests, it sets a DTC when this test fails.

Possible Sources

- Incorrect or corrupted GSM calibration.

M1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, Program the GSM.
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the GSM self-test.

Are DTCs P0605, P0606, P0607, P06B8, P164E present?

Yes	INSTALL a new GSM. REFER to: Gear Shift Module (GSM) (307-05A Automatic Transmission External Controls - 10-Speed Automatic Transmission â€“ 10R60, Removal and Installation).
No	The fault is may have been a faulty PCM calibration.

PINPOINT TEST N : DTC U0301

Normal Operation and Fault Conditions

The GSM and the PCM communicate frequently in order to operate the transmission shift sequences. It sets a DTC if the GSM detects an incorrect PCM software set.

DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Condition
GSM U0301:00	Software Incompatibility with ECM/PCM: No Sub Type Information	Transmission cannot exit Park. CLEAR the DTC. REPROGRAM the original PCM with the latest PCM software. PERFORM the PCM self-test. If the DTC returns, Click here to access Guided Routine (PCM).

Possible Sources

- Incorrect or corrupted PCM calibration.

N1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, Program the PCM. REPROGRAM the original PCM with the As-Built data following scan tool instructions.
- Wait 10 seconds.
- Using a diagnostic scan tool, carry out the PCM self-test.

Does DTC U0301 set in the GSM?

Yes	INSTALL a new PCM. Click here to access Guided Routine (PCM).
No	The fault is may have been a faulty PCM calibration. .

General Procedures

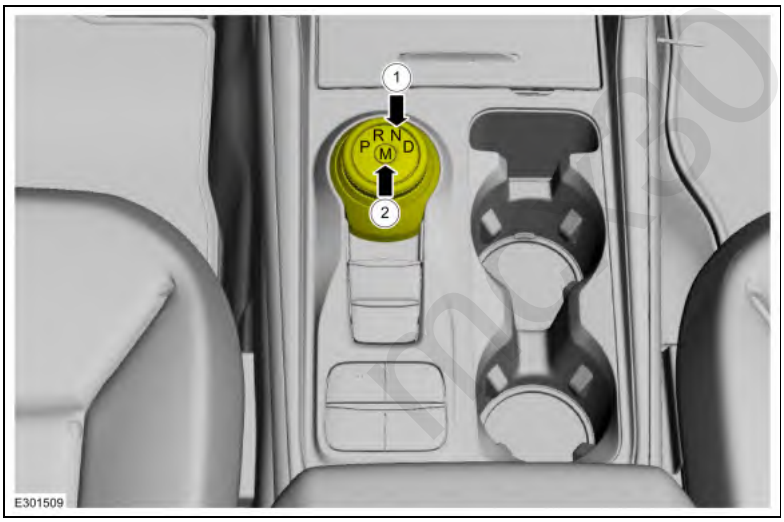
Stay in Neutral

Activation

1. **NOTE:** *If the vehicle has a discharged battery, an external power source is required. If the battery discharges while in Stay in Neutral Mode, the park lock pawl solenoid will release and the transmission will return to Park. Do not tow the vehicle in this mode.*

   Apply the parking brake.

2. Rotate the GSM dial to N, then press the M button within 5 seconds to enter Stay in Neutral Mode. N on the GSM will slowly blink and a message will appear on the IPC.



3. To exit Stay in Neutral Mode, press the brake pedal and shift to P, or if the engine is running press the brake pedal and shift to any other gear.