Instrumentation, Message Center and Warning Chimes

DTC Chart: Instrument Panel Cluster (IPC)

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).

DTC	Description	Action
P0460:11	Fuel Level Sensor "A" Circuit: Circuit Short To Ground	GO to Pinpoint Test C
P0460:13	Fuel Level Sensor "A" Circuit: Circuit Open	GO to Pinpoint Test C
P1534:01	Restraint Deployment Indicator Circuit: General Electrical Failure	  Click here to access Guided Routine (IPC). Diagnose all RCM Diagnostic Trouble Codes (DTCs). REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing).
P1706:00	High Vehicle Speed Observed in Park: No Sub Type Information	GO to Pinpoint Test AG
U0100:00	Lost Communication With ECM/PCM "A": No Sub Type Information	GO to Pinpoint Test BQ
U0102:00	Lost Communication with Transfer Case Control Module: No Sub Type Information	GO to Pinpoint Test BR
U0104:00	Lost Communication With Cruise Control Module: No Sub Type Information	GO to Pinpoint Test BS
U0121:00	Lost Communication With Anti-Lock Brake System (ABS) Control Module: No Sub Type Information	GO to Pinpoint Test BT
U0137:00	Lost Communication With Trailer Brake Control Module: No Sub Type Information	GO to Pinpoint Test BU
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	GO to Pinpoint Test BV
U0151:00	Lost Communication With Restraints Control Module: No Sub Type Information	GO to Pinpoint Test BW
U0159:00	Lost Communication With Parking Assist Control Module "A": No Sub Type Information	GO to Pinpoint Test BX

U0193:00	Lost Communication With "Digital Audio Control Module A": No Sub Type Information	GO to Pinpoint Test BY
U0212:00	Lost Communication With Steering Column Control Module: No Sub Type Information	GO to Pinpoint Test BZ
U0232:00	Lost Communication With Side Obstacle Detection Control Module - Left: No Sub Type Information	GO to Pinpoint Test CA
U0233:00	Lost Communication With Side Obstacle Detection Control Module - Right: No Sub Type Information	GO to Pinpoint Test CA
U023A:00	Lost Communication With Image Processing Module A: No Sub Type Information	GO to Pinpoint Test CC
U0256:00	Lost Communication With Front Controls Interface Module "A": No Sub Type Information	GO to Pinpoint Test CD
U0257:00	Lost Communication With Front Control/Display Interface Module: No Sub Type Information	GO to Pinpoint Test CE
U0260:00	Lost Communication With Seat Control Switch Module "A": No Sub Type Information	GO to Pinpoint Test CB
U0401:00	Invalid Data Received from ECM/PCM A: No Sub Type Information	This DTC sets when the IPC receives invalid network data for the speedometer, engine temperature or odometer data from the PCM. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the PCM and other modules on the network. Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. Refer to the appropriate section in Group 303 for the procedure. If no Diagnostic Trouble Codes (DTCs) are present in the PCM, DIAGNOSE the observable symptom.
U0401:81	Invalid Data Received from ECM/PCM A: Invalid Serial Data Received	This DTC sets when the IPC receives invalid network data for the speedometer or engine temperature data from the PCM. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the PCM and other modules on the network. Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.Refer to the appropriate section in Group 303 for the procedure. If no Diagnostic Trouble Codes (DTCs) are present in the PCM, DIAGNOSE the observable symptom.
U0401:82	Invalid Data Received from ECM/PCM A: Alive/Sequence Counter Incorrect/ Not Updated	GO to Pinpoint Test BQ
U0405:56	Invalid Data Received From Cruise Control Module: Invalid/Incompatible Configuration	This DTC sets when the IPC receives invalid network data for adaptive cruise control from the CCM. CHECK the vehicle service history for recent service actions related to this module. This DTC sets due to incomplete or incorrect PMI procedures. If there have been recent service actions with this module, REPEAT the PMI procedure as directed by the scan tool. If there have been no recent service actions, INSTALL a new module to correct the failure to retain configuration data.

U0415:82	Invalid Data Received From Anti-Lock Brake System (ABS) Control Module: Alive/Sequence Counter Incorrect/Not Updated	This DTC sets when the IPC receives invalid network data for adaptive cruise control from the ABS module. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the ABS module and other modules on the network. REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) . If no Diagnostic Trouble Codes (DTCs) are present in the ABS module, DIAGNOSE the observable symptom.
U0417:82	Invalid Data Received From Park Brake Control Module: Alive/Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test BT
U041E:00	Invalid Data Received From All Wheel Drive Control Module: No Sub Type Information	This DTC sets when the IPC receives invalid network data for the power distribution display from the TCCM. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the TCCM and other modules on the network. REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) . If no Diagnostic Trouble Codes (DTCs) are present in the TCCM, DIAGNOSE the observable symptom.
U0420:82	Invalid Data Received From Power Steering Control Module: Alive/ Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test CF
U0422:00	Invalid Data Received From Body Control Module: No Sub Type Information	This DTC sets when the IPC receives invalid network TPMS data from the BCM. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the BCM and other modules on the network. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) . If no Diagnostic Trouble Codes (DTCs) are present in the BCM, DIAGNOSE the observable symptom.
U0422:55	Invalid Data Received From Body Control Module: Not Configured	This DTC sets when the IPC receives invalid trailer sway network data from the BCM. CHECK the vehicle service history for recent service actions related to this module. This DTC sets due to incomplete or incorrect PMI procedures. If there have been recent service actions with this module, REPEAT the PMI procedure as directed by the scan tool. If there have been no recent service actions, INSTALL a new module to correct the failure to retain configuration data.
U0422:82	Invalid Data Received From Body Control Module: Alive/Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test BV
U0429:82	Invalid Data Received From Steering Column Control Module : Alive/ Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test BZ

U0452:81	Invalid Data Received From Restraints Control Module: Invalid Serial Data Received	This DTC sets when the IPC receives invalid network data from the RCM due to incorrect Belt-Minder® configuration in the IPC. RETRIEVE and REPAIR all non-network Diagnostic Trouble Codes (DTCs) in the RCM and other modules on the network. REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing). If no Diagnostic Trouble Codes (DTCs) are present in the RCM, DIAGNOSE the observable symptom.
U045A:82	Invalid Data Received From Parking Assist Control Module "A": Alive/ Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test BX
U0533:56	Invalid Data Received From Side Obstacle Detection Control Module-Left: Invalid/Incompatible Configuration	This DTC sets when the IPC receives invalid network data due to configuration mismatch between the IPC and the SODL. CHECK the vehicle service history for recent service actions related to this module. This DTC sets due to incomplete or incorrect PMI procedures. If there have been recent service actions with this module, REPEAT the PMI procedure as directed by the scan tool. If there have been no recent service actions, INSTALL a new module to correct the failure to retain configuration data.
U0533:82	Invalid Data Received From Side Obstacle Detection Control Module-Left: Alive/Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test CA
U0534:56	Invalid Data Received From Side Obstacle Detection Control Module-Right: Invalid/Incompatible Configuration	This DTC sets when the IPC receives invalid network data due to configuration mismatch between the IPC and the SODR. CHECK the vehicle service history for recent service actions related to this module. This DTC sets due to incomplete or incorrect PMI procedures. If there have been recent service actions with this module, REPEAT the PMI procedure as directed by the scan tool. If there have been no recent service actions, INSTALL a new module to correct the failure to retain configuration data.
U0534:82	Invalid Data Received From Side Obstacle Detection Control Module-Right: Alive/Sequence Counter Incorrect/Not Updated	GO to Pinpoint Test CA
U2100:00	Initial Configuration Not Complete: No Sub Type Information	CHECK the vehicle service history for recent service actions related to this module. This DTC sets due to incomplete or incorrect PMI procedures. If there have been recent service actions with this module, REPEAT the PMI procedure as directed by the scan tool. If there have been no recent service actions, INSTALL a new module to correct the failure to retain configuration data.
U3000:04	Control Module: System Internal Failure	CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If DTC U3000:04 is retrieved again,   Click here to access Guided Routine (IPC).
U3000:46	Control Module: Calibration/Parameter Memory Failure	CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If DTC U3000:46 is retrieved again,   Click here to access Guided Routine (IPC).
U3003:16	Battery Voltage: Circuit Voltage Below Threshold	GO to Pinpoint Test CG

U3003:17	Battery Voltage: Circuit Voltage Above Threshold	GO to Pinpoint Test CH
U300A:64	Ignition Switch: Signal Plausibility Failure	DTC U300A:64 sets in continuous memory when the IPC detects a messaged START input for 15 seconds or longer. Once the fault condition is detected, the IPC operates with limited functionality for 15 seconds then returns to full functionality. DTC U300A:64 sets in continuous memory when the IPC detects a messaged START input for 15 seconds or longer. Once the fault condition is detected, the IPC operates with limited functionality for 15 seconds then returns to full functionality. DIAGNOSE any ignition or starting system concerns. REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .

DTC Chart: Body Control Module (BCM)

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).

DTC	Description	Action
B1048:01	Brake Fluid Level Switch: General Electrical Failure	GO to Pinpoint Test S
B1048:7B	Brake Fluid Level Switch: Low Fluid Level	GO to Pinpoint Test S
B10F1:14	Key In Switch: Circuit Short To Ground or Open	GO to Pinpoint Test BJ
C1D00:11	Park Brake Apply Switch: Circuit Short To Ground	GO to Pinpoint Test S
All other DTCs	-	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

DTC Chart: Powertrain Control Module (PCM)

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).

DTC	Description	Action
P0461	Fuel Level Sensor "A" Circuit Range/Performance	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. If sent here from the PC/ED manual, GO to Pinpoint Test C
P0462	Fuel Level Sensor "A" Circuit Low	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. If sent here from the PC/ED manual, GO to Pinpoint Test C

P0463	Fuel Level Sensor "A" Circuit High	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. If sent here from the PC/ED manual, GO to Pinpoint Test C
P0521	Engine Oil Pressure Sensor/Switch "A" Circuit Range/Performance	GO to Pinpoint Test AC
P0522	Engine Oil Pressure Sensor/Switch "A" Circuit Low	GO to Pinpoint Test AC
P0523	Engine Oil Pressure Sensor/Switch "A" Circuit High	GO to Pinpoint Test AC
P0524	Engine Oil Pressure Too Low	GO to Pinpoint Test AC
P055F	Engine Oil Pressure Out of Range	GO to Pinpoint Test AC
P25B0	Fuel Level Sensor "A" Stuck	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. If sent here from the PC/ED manual, GO to Pinpoint Test C
All other DTCs	-	Refer to the appropriate section in Group 303 for the procedure.

DTC Chart: Steering Column Control Module (SCCM)

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).

DTC	Description	Action
B137F:09	Steering Wheel Left Switch Pack: Component Failure	GO to Pinpoint Test AM
B137F:11	Steering Wheel Left Switch Pack: Circuit Short To Ground	GO to Pinpoint Test AM
B137F:17	Steering Wheel Left Switch Pack: Circuit Voltage Above Threshold	GO to Pinpoint Test AM
All other DTCs	-	REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .

Symptom Chart(s)

Symptom Chart: Instrument Panel Cluster (IPC)

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).

Condition	Possible Sources	Actions

A module does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • Communication concern • Module	REFER to: Communications Network (418-00 Module Communications Network) .
The IPC is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test A
Multiple gauges, indicators, RTT indicators, warnings and chimes are inoperative or always on	Refer to the Pinpoint Test	GO to Pinpoint Test A
A virtual gauge is inoperative (high-level IPC only)	Refer to the Pinpoint Test	GO to Pinpoint Test B
Incorrect analog fuel gauge indication	Refer to the Pinpoint Test	GO to Pinpoint Test C
Incorrect analog engine oil pressure gauge indication	Refer to the Pinpoint Test	GO to Pinpoint Test D
The speedometer is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test E
Incorrect speedometer indication	Refer to the Pinpoint Test	GO to Pinpoint Test F
The odometer is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test G
The tachometer is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test H
Incorrect tachometer indication	Refer to the Pinpoint Test	GO to Pinpoint Test I
The analog temperature gauge is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test J
Incorrect analog temperature gauge indication	Refer to the Pinpoint Test	GO to Pinpoint Test K
The analog transmission temperature gauge is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test L
Incorrect analog transmission temperature gauge indication	Refer to the Pinpoint Test	GO to Pinpoint Test M
The 4x4 high or 4x4 low indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test N
The ABS warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test O
The airbag warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test P
The auto stop-start indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test Q
The brake warning indicator is never on	Refer to the Pinpoint Test	GO to Pinpoint Test R
The brake warning indicator is always on	Refer to the Pinpoint Test	GO to Pinpoint Test S
The charging system warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test T
The door ajar warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test U
The electronic park brake indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test V

The ELD indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test W
The engine over-temperature warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test X
The front fog lamp indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The high beam indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test Y
The hill descent indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test Z
The LH- RH turn signal indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The lights on indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The low fuel indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AB
The low engine oil pressure warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AC
The MIL is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AE
The powertrain malfunction (wrench) indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AF
The PRNDL indicator is never on or never displays P	Refer to the Pinpoint Test	GO to Pinpoint Test AG
The seatbelt warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AH
The sport mode indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AI
The stability-traction control indicator (sliding car icon) is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AJ
The stability-traction control disabled indicator (sliding car OFF icon) is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AK
The TPMS warning indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AL
The tow haul indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AI

Symptom Chart: Information And Message Center

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).

Condition	Possible Sources	Actions
The message center is not operating correctly	Refer to the Pinpoint Test	GO to Pinpoint Test AM

The LH or RH message center display is blank	Refer to the Pinpoint Test	GO to Pinpoint Test A
A virtual display is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test B
The compass is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test AN
The lane departure display is inoperative	Lane departure warning system concern	DIAGNOSE the lane keeping aid or lane keeping alert doesn't turn on or activate. REFER to: Lane Keeping System (419-07 Lane Keeping System) .
The DTE-Average Fuel Economy (AFE) display is inoperative	IPC	• CHECK the operation of the fuel gauge, the speedometer and the odometer. • If the fuel gauge does not operate correctly, GO to Pinpoint Test C • If the speedometer does not operate correctly, GO to Pinpoint Test E • If the odometer does not operate correctly, GO to Pinpoint Test G • If the speedometer, the fuel gauge and the odometer operate correctly,   Click here to access Guided Routine (IPC)..
The DTE display is incorrect or fluctuates	Refer to the Pinpoint Test	GO to Pinpoint Test AO
The digital speedometer displays the incorrect speed	Refer to the Pinpoint Test	DIAGNOSE the speedometer. GO to Pinpoint Test E
The engine hours and engine idle hours display is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test AP
The off road and powertrain distribution display is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test AQ
The outside air temperature display is incorrect or inoperative (displayed in the FCIM)	Refer to the Pinpoint Test	GO to Pinpoint Test AR
The Raptor status display is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test AS
The terrain management display is inoperative or doesn't display the correct features (Raptor only)	Refer to the Pinpoint Test	GO to Pinpoint Test AT
The trailer information or trailer backup assist displays are never displayed	Refer to the Pinpoint Test	GO to Pinpoint Test AU
A 4WD RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test N

The auto high beam RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AV
The auto stop-start RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test Q
The Blind Spot Information System (BLIS®) off RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AW
The charging system RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test T
The cruise control RTT is never on	Refer to the Pinpoint Test	GO to Pinpoint Test AX
The door ajar RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test U
The electronic park brake RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test V
The ELD RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test W
The engine over-temperature RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test X
The front fog lamp RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The hill descent RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test Z
The lane keeping system off RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AY
The LH- RH turn signal RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The lights on RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AA
The low fuel RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AB
The low engine oil pressure RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AC
The low washer fluid level RTT indicator is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AD
The powertrain malfunction (wrench) RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AF
The progressive range select/ SelectShift® indicator is never on	Refer to the Pinpoint Test	DIAGNOSE the PRNDL indicator. GO to Pinpoint Test AG
The steering mode RTT is never on	Refer to the Pinpoint Test	GO to Pinpoint Test AZ
The sport mode RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AI

The stability-traction control RTT (sliding car icon) is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AJ
The stability-traction control disabled RTT (sliding car OFF icon) is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AK
A terrain management system message is always displayed (Raptor only)	Terrain managment system concern	REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .
The TPMS RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AL
The tow haul RTT is never or always on	Refer to the Pinpoint Test	GO to Pinpoint Test AI
A 4WD fault message is always displayed	4WD concern	DIAGNOSE the 4WD system. REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .
The auto stop-start malfunction message is always displayed	Stop-start system concern	DIAGNOSE the auto stop-start indicator or auto stop-start RTT. GO to Pinpoint Test Q
A Blind Spot Information System (BLIS®)/Cross Traffic Alert (CTA) fault message is always displayed	Blind Spot Information System (BLIS®)/Cross Traffic Alert (CTA) system concern	DIAGNOSE the Blind Spot System (BLIS®)/Cross Traffic Alert (CTA) system. REFER to: Blind Spot Information System (419-04 Side and Rear Vision) .
A brake warning (brake fluid level low, parking brake applied or brake system malfunction) message is never or always on	• Message center concern • Brake warning indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly and the brake warning indicator is never on, GO to Pinpoint Test R • If the driver door ajar message functions correctly and the brake warning indicator is always on, GO to Pinpoint Test S
The charging system warning message is never or always on	• Message center concern • Charging system warning indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the charging system warning indicator or charging system RTT. GO to Pinpoint Test T

The check fuel fill inlet message is always displayed	Refer to the Pinpoint Test	GO to Pinpoint Test BA
An electronic parking brake message is never or always displayed	• Message center concern • EPAS system concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the electronic parking brake indicator or electronic parking brake RTT. GO to Pinpoint Test V
The EPAS (steering system) malfunction message is always on	• Message center concern • EPAS system concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the EPAS. REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).
The engine oil change message is never displayed	• Message center concern • The PCM has not reached the programmed mileage/ time based on the criteria required to display the message.	**NOTE:** *Using the system check in the message center, verify that the oil life is between 1 and 5% for the CHANGE ENGINE OIL SOON message or at 0% for the OIL CHANGE REQUIRED message.* • OPEN then CLOSE the driver door and VERIFY the driver door ajar message functions correctly. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly with the oil life between 0-5%,   Click here to access Guided Routine (IPC). • If the driver door ajar message functions correctly with the oil life **not** at the specified value, INFORM the customer how the message center functions and how the oil life messages are set.
The engine oil change message is always displayed	The oil life needs reset	RESET the oil life. REFER to the Owner's Literature.
The engine on warning message is always displayed	Refer to the Pinpoint Test	GO to Pinpoint Test BI

The engine over-temperature warning message is never or always displayed	• Message center concern • Engine over-temperature indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the engine over-temperature warning indicator or engine over-temperature RTT. GO to Pinpoint Test X
The factory or transport mode message is always displayed	Vehicle is in factory or transport mode	PLACE the vehicle in normal operation mode. REFER to: Transport and Factory Mode Deactivation (419-10 Multifunction Electronic Modules) .
A forward collision warning message is always displayed	Forward collision concern	DIAGNOSE the forward collision warning system. REFER to: Collision Warning and Collision Avoidance System (419-03 Collision Warning and Collision Avoidance System) .
The hill descent control malfunction message is always displayed	Hill descent control feature concern	DIAGNOSE the transmission and hill descent control feature. REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 6-Speed Automatic Transmission - 6R80, Diagnosis and Testing).
The lane keeping alert system warning message (keep hands on wheel) is never or always displayed	• Message center concern • Lane keeping alert warning chime concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the lane keeping alert warning chime. GO to Pinpoint Test BK
A lane departure warning system fault message is always displayed	Lane departure warning system concern	REFER to: Lane Keeping System (419-07 Lane Keeping System) .
A load shed warning message is always displayed	• Message center concern • Charging system indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the charging system warning indicator or charging system RTT. GO to Pinpoint Test T

A MyKey® menu is not available or incorrect	• MyKey® programmed key in use • Number of keys set to unlimited mode • Non-Ford approved remote start system installed	**NOTE:** *MyKey® may not be compatible with non-Ford approved remote start systems.* • REFER to the Owner's Literature.
The check parking aid message is always displayed	Parking aid system concern	DIAGNOSE the parking aid system. Refer to the appropriate section in Group 413 for the procedure.
A PATS key status (no key detected, key inside vehicle, key not inside vehicle or place key in keyholder) message is always displayed (push button start)	PATS concern	DIAGNOSE the PATS. Without push button start, REFER to: Passive Anti-Theft System (PATS) (419-01B Passive Anti-Theft System (PATS), Diagnosis and Testing). or with push button start, REFER to: Passive Anti-Theft System (PATS) (419-01C Passive Anti-Theft System (PATS) - Vehicles With: Keyless Vehicle System, Diagnosis and Testing).
The perimeter alarm message is always displayed	• Message center concern • Perimeter alarm concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, REFER to: Perimeter Anti-Theft Alarm (419-01A Perimeter Anti-Theft Alarm, Diagnosis and Testing).
The powertrain cooling warning message is always displayed	Engine over heating concern	DIAGNOSE the engine cooling system. Refer to the appropriate section in Group 303 for the procedure.
The PRNDL not in park (shift to park) message is always displayed	• Message center concern • PRNDL not in park warning chime concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the PRNDL. GO to Pinpoint Test AG
The service AdvanceTrac® malfunction warning is always displayed	• Message center concern • Stability-traction control indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the stability-traction control warning indicator or stability-traction control RTT. GO to Pinpoint Test AJ

The tire training complete message is never on	TPMS sensor training incomplete	**NOTE:** *This message only appears during the TPMS sensor training procedure.* • CARRY OUT the TPMS sensor training. REFER to: Tire Pressure Monitoring System (TPMS) Sensor Location Calibration (204-04B Tire Pressure Monitoring System (TPMS), General Procedures).
A TPMS malfunction message is never or always on	• Message center concern • TPMS warning indication concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the TPMS warning indicator or TPMS RTT. GO to Pinpoint Test AL
A tire training message (train left front, right front, left rear or right rear tire) message is never on	• TPMS warning indicator concern • TPMS sensor training concern	**NOTE:** *These messages only appear during the TPMS sensor training procedure.* • VERIFY the TPMS warning indicator functions. • If the TPMS warning indicator does not operate, GO to Pinpoint Test AL • If the Tire TPMS warning indicator operates, CARRY OUT the TPMS sensor training. REFER to: Tire Pressure Monitoring System (TPMS) Sensor Location Calibration (204-04B Tire Pressure Monitoring System (TPMS), General Procedures).
The tires not trained message is always on	TPMS sensor training concern	• This message only appears during the TPMS sensor training procedure. • CARRY OUT the TPMS sensor training. REFER to: Tire Pressure Monitoring System (TPMS) Sensor Location Calibration (204-04B Tire Pressure Monitoring System (TPMS), General Procedures).

A vehicle starting/ignition status (press brake to start or switch ignition off press power) message is always on	• Message center concern • Push button start concern	• OPEN then CLOSE the driver door and VERIFY the driver door ajar message displays correctly with the door open and closed. • If the driver door ajar message does not function correctly, GO to Pinpoint Test U • If the driver door ajar message functions correctly, DIAGNOSE the ignition/starting system concern. REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
The trailer connected messge is displayed when a trailer is not connected	• Trailer brake concern • Trailer electrical concern	DIAGNOSE the trailer connected message is falsely displayed. REFER to: Auxiliary Brake System - Vehicles With: Trailer Brake Control (206-10 Auxiliary Brake System, Diagnosis and Testing).
The trailer brake module fault message is always displayed	Trailer brake module concern	DIAGNOSE the trailer braking system. REFER to: Auxiliary Brake System - Vehicles With: Trailer Brake Control (206-10 Auxiliary Brake System, Diagnosis and Testing).
A trailer electrical warning message is always displayed	Trailer electrical concern	DIAGNOSE the trailer lighting. REFER to: Trailer Lamps (417-01 Exterior Lighting, Diagnosis and Testing).

Symptom Chart: Warning Chimes

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).

Condition	Possible Sources	Actions
All the chimes are inoperative	IPC	GO to Pinpoint Test A
The active park assist chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BB
The adaptive cruise control warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BC
The airbag secondary warning chime is inoperative	• Normal condition • IPC	• Using a diagnostic scan tool, PERFORM the IPC self-test. • If DTC P1534:01 is present,  Click here to access Guided Routine (IPC). • If DTC P1534:01 is **not** present, the system is operating correctly. The airbag secondary warning chime sounds only when a fault in the airbag warning indicator is present and DTC P1534:01 is recorded.

The airbag secondary warning chime has activated	IPC	  Click here to access Guided Routine (IPC).
The Belt-Minder® feature is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BO
The Belt-Minder® cannot be deactivated	MyKey® programmed key in use	The system is operating correctly. Use an administrator key to disable the Belt-Minder®.
The Blind Spot Information System (BLIS)/ Cross Traffic Alert (CTA) warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BD
The chime always sounds	Refer to the Pinpoint Test	GO to Pinpoint Test BE
The chime only sounds from the IPC	Refer to the Pinpoint Test	GO to Pinpoint Test BF
The door ajar warning chime is inoperative	• Door ajar indication concern • IPC	• With the ignition OFF, the headlamps in the PARKING LAMPS position and the doors closed, OPEN the driver door and VERIFY the headlamps on warning chime sounds. • If the headlamps on chime sounds, DIAGNOSE the door ajar warning indictator or door ajar RTT. GO to Pinpoint Test U • If the headlamps on chime does not sound,   Click here to access Guided Routine (IPC).
The forward collision warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BG
The headlamps on warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BH
The ignition-engine on warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BI
The key-in-ignition warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BJ
The lane keeping alert warning chime is inoperative	Refer to the Pinpoint Test	**NOTE:** *The lane keeping aid warning chime only sounds to alert the driver that they have their hands off the steering wheel. Normal alerting is done through steering wheel vibrations, which cannot be felt when the driver's hands are not on the steering wheel.* GO to Pinpoint Test BK
The lane keeping alert warning chime sounds with the hands on the steering wheel	Road conditions	Certain road conditions could lead to false activation of the chime. REFER to: Lane Keeping System (419-07 Lane Keeping System) .
The memory-stored feedback warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BL

The message center warning chime is inoperative	• No warnings present • IPC	• With all the doors closed and the ignition OFF, PLACE the ignition ON. Once the IPC has completed the prove-out, OPEN the driver door and VERIFY the message center displays the door ajar RTT and the chime sounds once. • If the chime sounds, the system is operating correctly. The message center warning chime only sounds when a new warning is displayed in the message center. • If the door ajar message does not display, GO to Pinpoint Test U • If the door ajar message displays and the chime does not sound,  Click here to access Guided Routine (IPC).
The parking aid chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BB
The parking brake warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BM
The perimeter alarm chime is inoperative	• Perimeter alarm concern • IPC	GO to Pinpoint Test BN
The PRNDL not in park warning chime is inoperative	• PRNDL indication concern • IPC	• With the ignition OFF, the headlamps in the PARKING LAMPS position and the doors closed, OPEN the driver door and VERIFY the headlamps on warning chime sounds. • If the headlamps on chime sounds, DIAGNOSE the PRNDL indicator. GO to Pinpoint Test AG • If the headlamps on chime does not sound,  Click here to access Guided Routine (IPC).
The seatbelt warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BO
The service AdvanceTrac® chime is inoperative	• Stability-traction control concern • IPC	• With the ignition OFF, the headlamps in the PARKING LAMPS position and the doors closed, OPEN the driver door and VERIFY the headlamps on warning chime sounds. • If the headlamps on chime sounds, DIAGNOSE the stability-traction control indicator or stability-traction control RTT. GO to Pinpoint Test AJ • If the headlamps on chime does not sound,  Click here to access Guided Routine (IPC).
The turn signal-hazard on warning chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BP
The turn signal left on chime is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test BP

Pinpoint Tests

The IPC Is Inoperative/Multiple Gauges, Indicators, RTT Indicators, Warnings And Chimes Are Inoperative Or Always On

Normal Operation and Fault Conditions

See IPC component description.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

The IPC receives a hot at all times voltage from the BCM. The IPC receives the ignition status message for the RUN/START or ACC input from the BCM over the HS-CAN1.

Possible Sources

- Fuse
- Communication concern
- GWM
- IPC

Visual Inspection and Diagnostic Pre-checks

Inspect the BCM fuse 13 (7.5A).

PINPOINT TEST A : THE IPC (INSTRUMENT PANEL CLUSTER) IS INOPERATIVE/MULTIPLE GAUGES, INDICATORS, RTT (RECONFIGURABLE TELLTALE) INDICATORS, WARNINGS AND CHIMES ARE INOPERATIVE OR ALWAYS ON

A1 PERFORM THE NETWORK TEST FOR ALL MODULES

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

Do all equipped modules pass the network test?

Yes	GO to A2
No	REFER to: Communications Network (418-00 Module Communications Network) .

A2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to A3

A3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	INSTALL a new GWM. REFER to: Gateway Module A (GWM) (418-00 Module Communications Network, Removal and Installation). TEST the system for normal operation. If the IPC is still inoperative, Click here to access Guided Routine (IPC).

A Virtual Gauge Is Inoperative (High-Level IPC Only)

Normal Operation and Fault Conditions

See Virtual Gauges.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Engine Temperature Gauge

- If the engine coolant temperature data or engine overheat indication request messages are missing for less than 5 seconds, the IPC defaults the temperature gauge to the last indication state, based upon the last message received.
- If the engine coolant temperature data or engine overheat indication messages are missing for 5 seconds or longer, the IPC defaults the temperature gauge to the full hot position.

Fuel Gauge

- If the IPC does not receive the fuel level input for less than 33 seconds, the IPC defaults the fuel gauge to the last indication state based on the last input received.

- If the IPC does not receive the fuel level input for longer than 33 seconds, the IPC defaults the fuel gauge to empty (E).

Engine Oil Pressure Gauge

NOTE: *If equipped with stop-start, while the vehicle is at a stop and the engine shuts off, the engine oil pressure gauge drops to 0 and the low engine oil pressure warning indicator or RTT indicator turns off.*

- If the oil pressure warning indicator request message is missing for less than 5 seconds, the IPC defaults the engine oil pressure gauge the last indication based upon that last message received.
- If the IPC does not receive the oil pressure warning indicator request message for 5 seconds or longer, the IPC defaults the engine oil pressure gauge to 0 PSI.

Transmission Temperature Gauge

- If the transmission fluid temperature message is missing for less than 5 seconds, the IPC defaults the transmission temperature gauge to the last indication based upon that last message received.
- If the IPC does not receive the transmission fluid temperature message for 5 seconds or longer, the IPC defaults the transmission temperature gauge to full cold (C).

Turbo Boost Gauge

- If the turbo boost data message is missing for less than 5 seconds, the IPC defaults the turbo boost gauge to the last indication based upon the last message received.
- If the IPC does not receive the turbo boost data message for 5 seconds or longer, the IPC defaults the turbo boost gauge to 0 PSI.

Possible Sources

- Communication concern
- Gauge input concern
- IPC

PINPOINT TEST B : A VIRTUAL GAUGE IS INOPERATIVE (HIGH-LEVEL IPC (INSTRUMENT PANEL CLUSTER) ONLY)

B1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	For the engine temperature gauge or engine oil pressure gauge, GO to B3 For the fuel gauge, GO to Pinpoint Test C For the transmission temperature gauge or turbo boost gauge, GO to B2

B2 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO DISPLAY THE GAUGE

- Ignition ON.
- **NOTE:** *The IPC and message center navigation can be found in the Owner's Literature.*

  Using the message center controls, make sure the IPC is set to display the gauge in question.

Is the IPC set to display the gauge?

Yes	GO to B3
No	The IPC was not set to display the gauge in question. The virtual gauge is operating correctly.

B3 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the PCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 303-14 section.
No	GO to B4

B4 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the BCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the BCM self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to B5

B5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	  Click here to access Guided Routine (IPC).

Incorrect Fuel Gauge Indication

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Fuel Gauge and Fuel Level Sender.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P0460:11	Fuel Level Sensor "A" Circuit: Circuit Short To Ground	A continuous and on-demand DTC that sets in the IPC if the fuel level input is pulled low out of range on the fuel level input circuit indicating a short to ground for 33 seconds or longer. The IPC defaults the fuel gauge to empty (E).
P0460:13	Fuel Level Sensor "A" Circuit: Circuit Open	A continuous and on-demand DTC that sets in the IPC if the fuel level input is sent high out of range on the fuel level input circuit indicating an open or short to voltage for 33 seconds or longer. The IPC defaults the fuel gauge to empty (E).

PCM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P0461	Fuel Level Sensor "A" Circuit Range/Performance	Sets when the PCM determines the fuel level input signal repeatedly moves in and out of range, exceeding the minimum or maximum allowable calibrated parameters for a specified fuel fill percentage in the fuel tank. Follow the pinpoint test using the Diagnostic Trouble Codes (DTCs) set in the IPC.

P0462	Fuel Level Sensor "A" Circuit Low	Sets in the PCM when the PCM detects a short to ground on the fuel pump assembly signal circuit based on the messaged input received from the BCM. Follow the pinpoint test using the Diagnostic Trouble Codes (DTCs) set in the IPC.
P0463	Fuel Level Sensor "A" Circuit High	Sets in the PCM when the PCM detects an open or a short to voltage on the fuel pump assembly signal circuit based on the messaged input received from the BCM. Follow the pinpoint test using the Diagnostic Trouble Codes (DTCs) set in the IPC.
P25B0	Fuel Level Sensor "A" Stuck	Sets when the PCM determines the value of the fuel level input signal is stuck, that the fuel level input signal does not change or does not correspond with the calculated fuel usage. Follow the pinpoint test using the Diagnostic Trouble Codes (DTCs) set in the IPC.

Possible Sources

- Wiring, terminals or connectors
- Fuel pump assembly
- Fuel level sender (float and card)
- Fuel tank
- IPC

Visual Inspection and Diagnostic Pre-checks

Inspect the fuel tank for signs of damage that can affect the float operation inside the tank. For the analog fuel gauge, inspect the gauge needle for signs of binding or damage.

PINPOINT TEST C : INCORRECT FUEL GAUGE INDICATION

NOTE: *Following any fuel gauge repairs, remove BCM fuse 13 (7.5A) for one minute then reinstall to reset the fuel gauge timers.*

C1 CARRY OUT THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	For DTC P0460:11, GO to C2 For DTC P0460:13, GO to C5
No	If equipped with the low-level or mid-level IPC, GO to C9 If equipped with the high-level IPC, GO to C10

C2 CHECK THE FUEL LEVEL INPUT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Fuel Pump Assembly C4330.
- Ignition ON.
- Wait one minute.
- **NOTE:** *DTC P0460:11 can also be present when carrying out this step and should be disregarded at this time.*

  Using a diagnostic scan tool, repeat the IPC on-demand self-test.

Is DTC P0460:13 present?

Yes	GO to C11
No	GO to C3

C3 CHECK THE FUEL PUMP ASSEMBLY SIGNAL CIRCUIT FOR A SHORT TO GROUND AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition OFF.
- Disconnect IPC C220.

Is the resistance greater than 10,000 ohms?

Yes	GO to C4
No	REPAIR the circuit.

C4 CHECK THE FUEL PUMP ASSEMBLY SIGNAL AND RETURN CIRCUITS FOR A SHORT TOGETHER AT THE IPC (INSTRUMENT PANEL CLUSTER)

Is the resistance greater than 10,000 ohms?

Yes	GO to C15
No	REPAIR the circuits.

C5 CHECK THE FUEL PUMP ASSEMBLY FOR AN OPEN

- Ignition OFF.
- Disconnect Fuel Pump Assembly C4330.
- Ignition ON.
- Wait one minute.
- **NOTE:** *DTC P0460:13 can also be present when carrying out this step and should be disregarded at this time.*

  Using a diagnostic scan tool, repeat the IPC self-test.

Is DTC P0460:11 present?

Yes	REMOVE the fused jumper wire. GO to C11
No	REMOVE the fused jumper wire. GO to C6

C6 CHECK THE FUEL LEVEL SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition OFF.
- Disconnect IPC C220.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to C7

C7 CHECK THE FUEL LEVEL SIGNAL CIRCUIT FOR AN OPEN BETWEEN THE IPC (INSTRUMENT PANEL CLUSTER) AND THE FUEL PUMP ASSEMBLY

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to C8
No	REPAIR the circuit.

C8 CHECK THE FUEL LEVEL RETURN CIRCUIT FOR AN OPEN BETWEEN THE IPC (INSTRUMENT PANEL CLUSTER) AND THE FUEL PUMP ASSEMBLY

Is the resistance less than 3 ohms?

Yes	GO to C15
No	REPAIR the circuit.

C9 CARRY OUT THE IPC (INSTRUMENT PANEL CLUSTER) FUEL GAUGE ACTIVE COMMAND USING A SCAN TOOL

- Ignition ON.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC fuel gauge (FUELLEVEL) active command.
- Command the fuel gauge from 0% to 25%, 50%, 75% and 100% while observing the fuel gauge.

Does the fuel gauge begin at E (empty), move to approximately 1/4, 1/2, 3/4 and F (full)?

Yes	GO to C10
No	GO to C15

C10 INSPECT THE FUEL TANK

- Visually inspect the fuel tank for any damage or deformation.

Is the fuel tank OK?

Yes	GO to C11
No	VERIFY the fuel level sensor and fuel pump module are OK. INSTALL a new fuel tank. Refer to the appropriate section in Group 310 for the procedure.

C11 CHECK THE FUEL PUMP ASSEMBLY

- Disconnect and inspect the fuel pump assembly connector.
- Repair:
  - corrosion (install new connector or terminals-clean module pins)
  - damaged pins-install new terminals/pins
  - pushed-out pins-install new pins as necessary
- Reconnect the fuel pump assembly connector. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	GO to C12
No	The system is operating correctly at this time. The concern may have been caused by component connections. ADDRESS the root cause of any connector or pin issues.

C12 CHECK THE FUEL PUMP MODULE

NOTE: *The fuel pump module resistance measures between 10 ohms ± 2 ohms at the upper stop position and 180 ohms ± 4 ohms at the lower stop position.*

- Remove the fuel pump assembly.
- While moving the float arm from the lower stop position to the upper stop position measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
C4330 - Pin 1, component side.	Ω	C4330 - Pin 2, component side.

Does the resistance slowly decrease from approximately 180 ohms to 10 ohms?

Yes	GO to C14
No	GO to C13

C13 CHECK THE FUEL PUMP ASSEMBLY FOR CORRECT OPERATION

- Disconnect the fuel level sender (float and card) input wire from the fuel pump assembly.
- Measure the resistance between the fuel level sender (float and card) input wire and the fuel level sender (float and card) ground while slowly moving the float arm between the lower and upper stop position.

  Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Fuel Level Sensor (Component Side) - Pin 1	Ω	Fuel Level Sensor (Component Side) - Pin 2

Does the resistance slowly decrease from approximately 180 ohms at the lower stop to 10 ohms at the upper stop?

Yes	INSTALL a new fuel pump assembly. Refer to the appropriate section in Group 310 for the procedure.
No	INSTALL a new fuel level sender (float and card). Refer to the appropriate section in Group 310 for the procedure.

C14 CHECK THE FUEL PUMP ASSEMBLY SIGNAL AND RETURN CIRCUITS FOR HIGH RESISTANCE

- Ignition OFF.
- Disconnect IPC C220.

Is the resistance less than 3 ohms?

Yes	REMOVE the fused jumper wire. GO to C15
No	REMOVE the fused jumper wire. REPAIR the circuits for high resistance.

C15 CHECK FOR CORRECT IPC (INSTRUMENT PANEL CLUSTER) OPERATION

- Ignition OFF.
- Disconnect and inspect IPC connector and related in-line 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 IPC connector and related in-line connectors. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (IPC).
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.

Incorrect Analog Engine Oil Pressure Gauge Indication

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Engine Oil Pressure Gauge.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the oil pressure warning indicator request is missing for less than 5 seconds from the PCM, the IPC defaults the engine oil pressure gauge to the last indication state based on the last message received.

If the IPC does not receive the oil pressure warning indicator request from the PCM for 5 seconds or longer, the IPC defaults the engine oil pressure gauge to 0 PSI.

Possible Sources

- Communication concern
- Engine oil pressure sensor
- PCM concern

- GWM concern
- IPC

PINPOINT TEST D : INCORRECT ANALOG ENGINE OIL PRESSURE GAUGE INDICATION

NOTE: *If equipped with stop-start, while the vehicle is at a stop and the engine shuts off, the engine oil pressure gauge drops to 0 and the low engine oil pressure warning indicator or RTT indicator turns off.*

D1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to D2

D2 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) KOEO (KEY ON, ENGINE OFF) SELF-TEST

- Using a diagnostic scan tool, perform the PCM KOEO self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the PCM KOEO self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to the appropriate section in Group 303 for the procedure.
No	GO to D3

D3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to D4

D4 PERFORM THE ENGINE OIL PRESSURE GAUGE ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC engine oil pressure gauge (OIL_PRESS) PID.
- **NOTE:** *Make sure to set the scan tool to 0 PSI before beginning this step.*

  Command the engine oil pressure gauge on and off while monitoring the engine oil pressure gauge.

Does the engine oil pressure gauge move to high (H) when commanded on and return to low (L) when commanded off?

Yes	GO to D5
No	  Click here to access Guided Routine (IPC).

D5 CHECK THE ENGINE OIL PRESSURE WARNING INDICATOR OPERATION

- Ignition OFF.
- Monitor the engine oil pressure warning indicator prove-out.
- Ignition ON.
- Start the engine.
- Monitor the engine oil pressure warning indicator with the KOER.

Does the engine oil pressure warning indicator prove-out for 3 seconds, turn off after prove-out and remain off with the engine running?

Yes	GO to D6

No	GO to Pinpoint Test AC

D6 CHECK THE ENGINE OIL PRESSURE

- Test the engine oil pressure.

Was an engine oil pressure concern detected?

Yes	REPAIR the engine oil pressure concern. Refer to the appropriate section in Group 303 for the procedure.
No	INSTALL a new engine oil pressure sensor. Refer to the appropriate section in Group 303 for the procedure.

The Speedometer Is Inoperative

Normal Operation and Fault Conditions

See Speedometer.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the vehicle speed message is missing or invalid for 5 seconds or longer, the IPC defaults the speedometer to 0 km/h (0 mph).

Possible Sources

- Communication concern
- ABS input concern
- GWM concern
- PCM concern
- IPC

PINPOINT TEST E : THE SPEEDOMETER IS INOPERATIVE

E1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to E2

E2 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to E3

E3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to E4

E4 PERFORM THE SPEEDOMETER ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC speedometer (SPDOMETER) PID.
- Command the speedometer on and off while monitoring the speedometer.

Does the speed begin at 0 km/h (0 mph) move to 193 km/h (120 mph) and return to 0 km/h (0 mph)?

Yes	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.
No	  Click here to access Guided Routine (IPC).

Incorrect Speedometer Indication

Normal Operation and Fault Conditions

See Speedometer.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the vehicle speed message is missing or invalid for less than 5 seconds, the IPC defaults the speedometer to the last indication state, based upon the last message received.

Possible Sources

- Tire size
- ABS input concern
- IPC

Visual Inspection and Diagnostic Pre-checks

- Verify the tire size on the vehicle matches the tire size listed on the vehicle certification label.
  REFER to: Identification Codes (100-01 Identification Codes) .
- Verify the IPC applique is the original Ford equipped applique. An aftermarket installed applique can cause the speedometer or tachometer to be incorrectly calibrated or the needle to potentially stick or bind. Reference General Service Bulletin (GSB) Instrument Panel Cluster Mask/Lens Warrantable Versus Non-Warrantable Conditions.

PINPOINT TEST F : INCORRECT SPEEDOMETER INDICATION

F1 CHECK THE TIRE SIZE

- **NOTE:** *The correct tire size can be found on the vehicle certification label.*

  Verify the size of the tires installed on the vehicle matches the vehicle certification label.
  REFER to: Identification Codes (100-01 Identification Codes) .

Is the tire size correct?

Yes	GO to F2
No	INSTALL the correct size tires.

F2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to F3

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

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to F4

F4 PERFORM THE SPEEDOMETER ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC speedometer (SPDOMETER) PID.
- Command the speedometer in 10% increments while monitoring the speedometer. The speed indicated should increase in increments of approximately 19 km/h (12 mph) (except Raptor) or 23 km/h (14 mph) (Raptor) for each 10% change.

Except Raptor

Command	Indication Range
10% (19 km/h [12 mph])	19-20 km/h (12 mph)
20% (39 km/h [24 mph])	37-41 km/h (23-26 mph)
30% (58 km/h [36 mph])	56-63 km/h (35-39 mph)
40% (77 km/h [48 mph])	76-82 km/h (47-51 mph)
50% (97 km/h [60 mph])	93-103 km/h (58-64 mph)
60% (116 km/h [72 mph])	113-124 km/h (70-77 mph)
70% (135 km/h [84 mph])	130-145 km/h (81-90 mph)
80% (154 km/h [96 mph])	150-166 km/h (93-103 mph)
90% (174 km/h [108 mph])	169-187 km/h (105-116 mph)
100% (193 km/h [120 mph])	187-206 km/h (116-128 mph)

Raptor

Command	Indication Range
10% (23 km/h [14 mph])	19-20 km/h (14-15 mph)
20% (45 km/h [28 mph])	37-41 km/h (27-30 mph)
30% (68 km/h [42 mph])	56-63 km/h (35-39 mph)
40% (90 km/h [56 mph])	76-82 km/h (54-60 mph)
50% (113 km/h [70 mph])	93-103 km/h (68-75 mph)
60% (135 km/h [84 mph])	113-124 km/h (81-90 mph)
70% (158 km/h [98 mph])	130-145 km/h (95-105 mph)
80% (180 km/h [112 mph])	150-166 km/h (109-120 mph)

90% (203 km/h [126 mph])	169-187 km/h (122-135 mph)
100% (225 km/h [140 mph])	187-206 km/h (136-150 mph)

Does the speedometer increase within the specified range?

Yes	GO to F5
No	  Click here to access Guided Routine (IPC).

F5 CHECK THE PCM (POWERTRAIN CONTROL MODULE) VEHICLE SPEED PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the PCM vehicle speed (VSS) PID while driving the vehicle at 32 km/h (20 mph), 64 km/h (40 mph) and 97 km/h (60 mph).

Does the speedometer indicate between 31-34 km/h (19-21 mph), 63-69 km/h (39-43 mph) and 93-103 km/h (58-64 mph) at the 3 PCM PID values?

Yes	GO to F6
No	  Click here to access Guided Routine (IPC).

F6 OBSERVE THE SPEEDOMETER OPERATION

- Observe the speedometer while operating at various speeds and stopping frequently.

Does the speedometer begin at 0 km/h (0 mph) and fully return to the 0 km/h (0 mph) position when the vehicle is stopped?

Yes	The speedometer is operating correctly at this time.
No	  Click here to access Guided Routine (IPC).

The Odometer Is Inoperative

Normal Operation and Fault Conditions

See Odometer.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the odometer count message is missing from the PCM for 5 seconds or longer, the IPC defaults the odometer display to all dashes (------).

If the odometer count message is deemed invalid by the IPC, the IPC defaults the odometer display to all dashes (------). If the NVM becomes corrupted or if any NVM failure occurs, odometer displays ERROR.

Possible Sources

- Communication concern
- PCM concern
- GWM concern
- IPC

PINPOINT TEST G : THE ODOMETER IS INOPERATIVE

G1 CHECK FOR CORRUPTED NON-VOLATILE MEMORY (NVM)

- Ignition ON.
- Observe the message center display area.

Does the odometer display ERROR?

Yes	  Click here to access Guided Routine (IPC).
No	GO to G2

G2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to G3

G3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.

The Tachometer Is Inoperative

Normal Operation and Fault Conditions

See Tachometer.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the IPC does not receive the engine rpm data from the PCM for 5 seconds or longer, the IPC defaults the tachometer to 0 rpm.

Possible Sources

- Communication concern
- PCM
- GWM
- IPC

PINPOINT TEST H : THE TACHOMETER IS INOPERATIVE

H1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to H2

H2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to H3

H3 PERFORM THE TACHOMETER ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC tachometer (TACH_IND) PID.
- **NOTE:** *Make sure to set the scan tool to 0 rpm before beginning this step.*

  Command the tachometer on and off while monitoring the tachometer.

Does the tachometer increase to approximately 8,000 rpm (low-level and mid-level IPC) or 7,000 rpm (high-level IPC) when commanded on and return to 0 rpm when commanded off?

Yes	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.
No	  Click here to access Guided Routine (IPC).

Incorrect Tachometer Indication

Normal Operation and Fault Conditions

See Tachometer.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the rpm data is missing for 5 seconds or less or if the IPC receives invalid rpm data for less than 5 seconds, the IPC defaults the tachometer to the last setting, based upon the last message received. If the engine rpm message is missing or invalid for 5 seconds or longer, the gauge can appear to momentarily freeze or become erratic.

Possible Sources

- PCM input concern
- IPC

Visual Inspection and Diagnostic Pre-checks

Verify the IPC applique is the original Ford equipped applique. An aftermarket installed applique can cause the speedometer or tachometer to be incorrectly calibrated or the needle to potentially stick or bind. Reference General Service Bulletin (GSB) Instrument Panel Cluster Mask/Lens Warrantable Versus Non-Warrantable Conditions.

PINPOINT TEST I : INCORRECT TACHOMETER INDICATION

I1 RETRIEVE THE RECORDED DTCS FROM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the PCM self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to the appropriate section in Group 303 for the procedure.
No	GO to I2

I2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to I3

I3 PERFORM THE TACHOMETER ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC tachometer (TACH_IND) PID.
- **NOTE:** *Make sure to set the scan tool to 0 rpm before beginning this step.*

  Command the tachometer in 10% increments while monitoring the tachometer.

Does the tachometer increase approximately 800 rpm (low-level and mid-level IPC) or 700 rpm (high-level IPC) with each 10% increment?

Yes	GO to I4
No	  Click here to access Guided Routine (IPC).

I4 CHECK THE PCM (POWERTRAIN CONTROL MODULE) RPM PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the PCM Parameter Identifications (PIDs).
- Select the PCM rpm PID (RPM).
- Set the PID to run the engine at 1,000, 1,500, 2,000 and 2,500 rpm.

Does the tachometer indication range between 944-1,056 at 1,000 rpm, 1,444-1,556 rpm at 1,500 rpm, 1,944-2,056 rpm at 2,000 rpm and 2,444-2,556 rpm at 2,500 rpm?

Yes	The tachometer is operating correctly at this time.
No	  Click here to access Guided Routine (IPC).

The Analog Temperature Gauge Is Inoperative

Normal Operation and Fault Conditions

See Temperature Gauge.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the IPC does not receive the engine coolant temperature message or if the engine coolant temperature message is deemed invalid from the PCM for 5 seconds or longer, the IPC defaults the temperature gauge to cold (C).

Possible Sources

- Communication concern
- PCM
- GWM concern
- IPC

PINPOINT TEST J : THE ANALOG TEMPERATURE GAUGE IS INOPERATIVE

J1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to J2

J2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to J3

J3 PERFORM THE TEMPERATURE GAUGE ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC temperature gauge (ENGCOOLNT) PID.
- **NOTE:** *Make sure to set the scan tool to 0 or full cold before beginning this step.*

  Command the temperature gauge on and off while monitoring the temperature gauge.

Does the temperature gauge start at cold (C), move to full hot (H) and return to cold (C)?

Yes	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.
No	  Click here to access Guided Routine (IPC).

Incorrect Analog Temperature Gauge Indication

Normal Operation and Fault Conditions

See Temperature Gauge.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the engine coolant temperature message is missing for less than 5 seconds or if the IPC receives invalid engine temperature data for less than 5 seconds, the IPC defaults the temperature gauge to the last setting, based upon the last temperature message received.

Possible Sources

- Engine cooling system concern
- PCM input concern
- IPC

PINPOINT TEST K : INCORRECT ANALOG TEMPERATURE GAUGE INDICATION

K1 CHECK FOR CORRECT OPERATION OF THE COOLING SYSTEM

- Ignition ON.
- Verify that the engine cooling system and thermostat are functioning correctly.

Does the engine cooling system and thermostat operate correctly?

Yes	GO to K2
No	Refer to the appropriate section in Group 303 for the procedure.

K2 RETRIEVE THE RECORDED DTCS FROM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the PCM self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.
No	GO to K3

K3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to K4

K4 CARRY OUT THE TEMPERATURE GAUGE ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC temperature gauge (ENGCOOLNT) PID.
- **NOTE:** *Make sure to set the scan tool to 0 or full cold before beginning this step.*

  Command the temperature gauge as follows:

Command	Indication Range
0% (under 38° C [100° F])	Full cold (C)
50% (823° C [180° F]-110° C [230° F])	Center of the gauge
100% (123° C [255° F])	Hot (H) (red line)

Does the temperature gauge operate according to the above specifications?

Yes	GO to K5
No	  Click here to access Guided Routine (IPC).

K5 CHECK THE PCM (POWERTRAIN CONTROL MODULE) TEMPERATURE PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the PCM Parameter Identifications (PIDs).
- Start the engine.
- Select the PCM temperature PID (CHT).
- With the engine running and temperature increasing, monitor the PCM temperature PID.

Does the PCM PID agree with the temperature gauge indication?

Yes	The temperature gauge is operating correctly at this time.
No	  Click here to access Guided Routine (IPC).

The Analog Transmission Temperature Gauge Is Inoperative

Normal Operation and Fault Conditions

See Transmission Temperature Gauge.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the IPC does not receive the transmission temperature data message or if the engine coolant temperature message is deemed invalid from the PCM for 5 seconds or longer, the IPC defaults the transmission temperature gauge to cold (C).

Possible Sources

- Communication concern
- PCM input concern
- GWM concern
- IPC

PINPOINT TEST L : THE ANALOG TRANSMISSION TEMPERATURE GAUGE IS INOPERATIVE

L1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to L2

L2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to L3

L3 PERFORM THE TACHOMETER ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC transmission temperature gauge (TRANSTEMP) PID.
- **NOTE:** *Make sure to set the scan tool to 0 or full cold before beginning this step.*

  Command the transmission temperature gauge on and off while monitoring the transmission temperature gauge.

Does the transmission temperature gauge start at cold (C), move to full hot (H) and return to cold (C)?

Yes	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.
No	  Click here to access Guided Routine (IPC).

Incorrect Analog Transmission Temperature Gauge Indication

Normal Operation and Fault Conditions

See Transmission Temperature Gauge.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the transmission temperature data message is missing for less than 5 seconds, the IPC defaults the transmission temperature gauge to the last setting, based upon the last message received.

Possible Sources

- Communication concern
- PCM input concern
- IPC

PINPOINT TEST M : INCORRECT TRANSMISSION ANALOG TEMPERATURE GAUGE INDICATION

M1 RETRIEVE THE RECORDED DTCS FROM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the PCM self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual.Refer to the appropriate section in Group 303 for the procedure.
No	GO to M2

M2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Using a diagnostic scan tool, perform the IPC self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs) from the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to M3

M3 CARRY OUT THE TEMPERATURE GAUGE ACTIVE COMMAND USING THE SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC transmission temperature gauge (TRANSTEMP) PID.
- **NOTE:** *Make sure to set the scan tool to 0 or full cold before beginning this step.*

  Command the transmission temperature gauge as follows:

Command	Indication Range
0% (under 32° C [0° F])	Full cold (C)
50% (65°-106° C [149°-223° F])	Center of the gauge
100% (150°-193° C [302°-379° F])	Hot (H) (red line)

Does the transmission temperature gauge operate according to the above specifications?

Yes	GO to M4
No	  Click here to access Guided Routine (IPC).

M4 CHECK THE PCM (POWERTRAIN CONTROL MODULE) TRANSMISSION TEMPERATURE PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool, view the PCM Parameter Identifications (PIDs).
- Start the engine.
- Select the PCM transmission temperature PID (TFT).
- With the engine running and the transmission temperature increasing, monitor the PCM transmission temperature PID.

Does the PCM PID agree with the temperature gauge indication?

Yes	The transmission temperature gauge is operating correctly at this time.
No	  Click here to access Guided Routine (IPC).

A 4WD Indicator Is Never Or Always On

See 4WD Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See 4WD RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

Normal Operation and Fault Conditions

If the 4x4 high or 4x4 low status message is missing for less than 5 seconds, the IPC defaults the specific indicator or RTT (4x2, 4x4 auto, 4x4 high or 4x4 low) to its last state (on or off) based upon the last message received.

If the 4x4 high or 4x4 low status message is missing for 5 seconds or longer, the IPC sets DTC U0102:00 and defaults the specific indicator or RTT (4x2, 4x4 high, 4x4 low or 4x4 auto) off.

Possible Sources

- Communication concern
- Message center concern
- TCCM concern

- GWM concern
- IPC

PINPOINT TEST N : A 4WD (FOUR-WHEEL DRIVE) INDICATOR IS NEVER OR ALWAYS ON

N1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a base IPC?

Yes	GO to N3
No	GO to N2

N2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to N4
No	GO to Pinpoint Test A

N3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC all warning lamps PID (ALL_LAMP).
- Command all the warning lamps on then off while observing the affected 4WD indicator.

Does the affected 4WD indicator turn on when commanded on and turn off when commanded off?

Yes	GO to N4
No	  Click here to access Guided Routine (IPC).

N4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to N5

N5 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the 4WD system. REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .

The ABS Warning Indicator Is Never Or Always On

See ABS Warning Indicator and ABS/Brake/Stability-Traction Control System Indication.

REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Normal Operation and Fault Conditions

If the ABS warning indicator request message is missing for less than 5 seconds, the IPC defaults the ABS warning indicator to its last indication state (on or off), based upon the last message received.

If the ABS warning indicator request message is missing for 5 seconds or longer, the IPC defaults the ABS warning indicator on.

Possible Sources

- Communication concern
- ABS concern
- GWM concern
- IPC

PINPOINT TEST O : THE ABS (ANTI-LOCK BRAKE SYSTEM) WARNING INDICATOR IS NEVER OR ALWAYS ON

O1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to O2

O2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC ABS warning indicator (ABS_LAMP) PID.
- Command the ABS warning indicator on then off while observing the ABS warning indicator.

Does the ABS warning indicator turn on when commanded on and turn off when commanded off?

Yes	GO to O3

No	  Click here to access Guided Routine (IPC).

O3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the ABS. REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .

The Airbag Warning Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Airbag Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the airbag indicator lamp request message is missing for less than 5 seconds, the IPC defaults the airbag warning indicator to its last indication state (on or off), based upon the last message received.

If the airbag indicator lamp request message is missing for 5 seconds or longer, the IPC defaults the airbag warning indicator on.

Possible Sources

- Communication concern
- SRS concern
- GWM concern
- IPC

PINPOINT TEST P : THE AIRBAG WARNING INDICATOR IS NEVER OR ALWAYS ON

P1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to P2

P2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to P3

P3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC airbag warning indicator (AIRBAG_LMP) PID.
- Command the airbag warning indicator on then off while observing the airbag warning indicator.

Does the airbag warning indicator turn on when commanded on and turn off when commanded off?

Yes	DIAGNOSE the SRS. REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing).
No	  Click here to access Guided Routine (IPC).

The Auto Stop-Start Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Auto Stop-Start Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Auto Stop-Start RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the stop-start mode indicator request message is missing for less than 5 seconds, the IPC defaults the auto stop-start warning indicator or auto stop-start RTT to its last indication state (on or off), based upon the last message received.

If the stop-start mode indicator request message is missing for 5 seconds or longer, the IPC defaults the auto stop-start indicator or auto stop-start RTT off.

Possible Sources

- Communication concern
- Message center concern
- PCM concern
- GWM concern
- IPC

PINPOINT TEST Q : THE AUTO STOP-START INDICATOR IS NEVER OR ALWAYS ON

Q1 VERIFY THE AUTO STOP-START FEATURE IS ENABLED

- Ignition ON.
- **NOTE:** *Refer to the Owner's Literature for message center menu navigation.*

  Using the message center controls, verify the stop-start feature is enabled.

Is the stop-start system enabled?

Yes	GO to Q2
No	ENABLE the stop-start feature and INFORM the customer how to enable the feature.

Q2 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a base IPC?

Yes	GO to Q4
No	GO to Q3

Q3 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to Q5
No	GO to Pinpoint Test A

Q4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC all lamps (ALL_LAMP) PID.
- Command all the indicators on then off while observing the auto stop-start indicator.

Does the auto stop-start indicator turn on when commanded on and turn off when commanded off?

Yes	GO to Q5
No	  Click here to access Guided Routine (IPC).

Q5 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to Q6

Q6 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to the appropriate section in Group 303 for the procedure.
No	GO to Q7

Q7 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the auto stop-start feature. Refer to the appropriate section in Group 303 for the procedure.

The Brake Warning Indicator is Never On

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Brake Warning Indicator, ABS/Brake/Stability-Traction Control System Indication descriptions and see Brake Fluid Level Switch component description.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the brake (red) warning indicator request, parking brake warning indicator request, red brake warning indicator request or electronic park brake (red) indicator request messages are missing or invalid for less than 5 seconds, the IPC defaults the brake warning indicator to the last indication state (on or off), based upon the last message received.

Possible Sources

- Brake fluid level switch
- Parking brake system concern (electronic parking brake)
- Parking brake switch (manual parking brake)
- BCM
- IPC

Visual Inspection and Diagnostic Pre-checks

Inspect the:

- brake fluid level switch for signs of any external damage.
- wiring harness for signs of a pinched harness causing a shorted circuit.
- verify the parking brake operates correctly when applied and released

PINPOINT TEST R : THE BRAKE WARNING INDICATOR IS NEVER ON

R1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Ignition ON.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC brake warning indicator (PBA_LMP) PID.
- Command the brake warning indicator on then off while observing the brake warning indicator.

Does the brake warning indicator turn on when commanded on and turn off when commanded off?

Yes	GO to R2
No	  Click here to access Guided Routine (IPC).

R2 DETERMINE IF THE BRAKE WARNING INDICATOR OPERATES WITH THE PARKING BRAKE APPLIED

- Apply the parking brake while monitoring the brake warning indicator.

Does the brake warning indicator illuminate?

Yes	GO to R6
No	If equipped with electronic parking brakes, DIAGNOSE the electronic parking brake system. REFER to: Parking Brake (206-05 Parking Brake and Actuation - Vehicles With: Electronic Parking Brake (EPB)) . If equipped with manual parking brakes, GO to R3

R3 CHECK THE PARKING BRAKE POSITION SWITCH

- Ignition OFF.
- Disconnect Parking Brake Position Switch C306.
- Ignition ON.

Does the brake warning indicator illuminate?

Yes	REMOVE the fused jumper wire. INSTALL a new parking brake position switch.
No	REMOVE the fused jumper wire. GO to R4

R4 CHECK THE PARKING BRAKE POSITION SWITCH GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to R5
No	REPAIR the circuit.

R5 CHECK THE PARKING BRAKE WARNING INDICATOR SIGNAL CIRCUIT FOR AN OPEN

- Disconnect BCM C2280E.

Is the resistance less than 3 ohms?

Yes	GO to R7
No	REPAIR the circuit.

R6 CHECK THE BRAKE FLUID LEVEL SWITCH OPERATION

- Ignition OFF.
- Disconnect Brake Fluid Level Switch C124.
- Ignition ON.
- Wait one minute.

Does the brake warning indicator illuminate?

Yes	VERIFY the brake fluid level is low enough to turn on the brake warning indicator or has been reported low enough to turn on the brake warning indicator. If the brake fluid level is currently low or has been reported low, INSTALL a new brake fluid level switch. If the brake fluid level is not currently low or has not been reported low, the system is operating correctly at this time.
No	GO to R7

R7 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 BCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

The Brake Warning Indicator is Always On

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Brake Warning Indicator, ABS/Brake/Stability-Traction Control System Indication descriptions and see Brake Fluid Level Switch component description. REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the brake (red) warning indicator request, parking brake warning indicator request, red brake warning indicator request or electronic park brake (red) indicator request messages are missing for 5 seconds longer, the IPC defaults the brake warning indicator on.

BCM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions

B1048:01	Brake Fluid Level Switch: General Electrical Failure	A continuous and on-demand DTC that sets in the BCM when the BCM detects an open on the brake fluid level switch input.
B1048:7B	Brake Fluid Level Switch: Low Fluid Level	An on-demand DTC that sets in the BCM if the BCM detects a low brake fluid level input from the brake fluid level switch.
C1D00:11	Park Brake Apply Switch: Circuit Short To Ground	An on-demand DTC that sets in the BCM if the BCM detects a short to ground on the parking brake input circuit.

Possible Sources

- Wiring, terminals or connectors
- Brake fluid level switch
- Parking brake position switch (manual parking brake)
- Parking brake system concern (electronic parking brake)
- Communication concern
- ABS concern
- GWM concern
- BCM
- IPC

Visual Inspection and Diagnostic Pre-checks

Inspect the:

- base brake system and the parking brake system for correct operation.
- brake fluid level switch connection and check for signs of connector terminal damage, corrosion or pushed-out pins.
- brake fluid level switch wiring for signs of a cut or opened circuit.
- brake fluid level switch for signs of any external damage.

PINPOINT TEST S : THE BRAKE WARNING INDICATOR IS ALWAYS ON

S1 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to S2

S2 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	For DTC B1048:01, GO to S8 For DTC B1048:7B, VERIFY the brake fluid level is low. If the brake fluid level is low, CORRECT the low brake fluid condition. REFER to: Hydraulic Brake Actuation (206-06 Hydraulic Brake Actuation) . If the brake fluid level is not low, INSTALL a new brake fluid level switch. For DTC C1D00:11, GO to S6 For all other Diagnostic Trouble Codes (DTCs), REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to S3

S3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to S4

S4 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	If equipped with electronic parking brakes, GO to S5 If equipped with manual parking brakes,   Click here to access Guided Routine (IPC).

S5 CHECK THE PARKING BRAKE OPERATION

- Check the parking brake operation while applying and releasing the parking brakes using the switch.

Do the parking brakes apply when switched on and release when switched off?

Yes	  Click here to access Guided Routine (IPC).
No	REFER to: Parking Brake (206-05 Parking Brake and Actuation - Vehicles With: Electronic Parking Brake (EPB)) .

S6 CHECK THE PARKING BRAKE POSITION SWITCH

- Ignition OFF.
- Disconnect Parking Brake Position Switch C306.
- Ignition ON.
- Using a diagnostic scan tool, view the BCM parking brake position switch Parameter Identifications (PIDs).
- Monitor the parking brake PID (PARK_BRK_SW) with the parking brake released.

Does the PID indicate the parking brake is released?

Yes	INSTALL a new parking brake position switch.
No	GO to S7

S7 CHECK THE PARKING BRAKE POSITION SWITCH INPUT CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect BCM C2280E.

Is the resistance greater than 10,000 ohms?

Yes	GO to S13
No	REPAIR the circuit.

S8 CHECK THE BRAKE FLUID LEVEL SWITCH INPUT CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect BCM C2280F.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to S9

S9 CHECK THE BRAKE FLUID LEVEL SWITCH INPUT CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect Brake Fluid Level Switch C124.

Is the resistance less than 3 ohms?

Yes	GO to S10
No	REPAIR the circuit.

S10 CHECK THE BRAKE FLUID LEVEL GROUND CIRCUIT FOR AN OPEN

Is the resistance less than 3 ohms?

Yes	GO to S11
No	REPAIR the circuit.

S11 CHECK THE BRAKE FLUID LEVEL SWITCH INPUT CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to S12
No	GO to S13

S12 CHECK THE BRAKE FLUID LEVEL SWITCH INPUT CIRCUIT FOR A SHORT TO GROUND WITH THE BRAKE FLUID LEVEL SWITCH DISCONNECTED

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new brake fluid level switch.
No	REPAIR the circuit.

S13 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 BCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

The Charging System Warning Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Charging System Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Charging System RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the battery low state of charge message is missing for less than 5 seconds, the IPC defaults the charging system warning indicator or charging system RTT to the last indication state (on or off), based upon on the last message received.

If the battery low state of charge message is missing for 5 seconds or longer, the IPC defaults the charging system warning indicator or charging system RTT on.

Possible Sources

- Charging system concern
- Communication concern
- Message center concern
- BCM concern
- GWM concern
- IPC

PINPOINT TEST T : THE CHARGING SYSTEM WARNING INDICATOR IS NEVER OR ALWAYS ON

T1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL
• Determine if the vehicle is equipped with a base IPC. REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) . **Is the vehicle is equipped with a base IPC?** **Yes** — GO to T3 **No** — GO to T2
T2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to T4
No	GO to Pinpoint Test A

T3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Ignition ON.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC charging system warning indicator (CHARGE_LMP) PID.
- Command the charging system warning indicator on then off while observing the charging system warning indicator.

Does the charging system warning indicator turn on when commanded on and turn off when commanded off?

Yes	GO to T4
No	  Click here to access Guided Routine (IPC).

T4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to T5

T5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to T6

T6 CHECK THE CHARGING SYSTEM OPERATION

- Check the charging system operation.

Does the charging system operate correctly?

Yes	GO to T7
No	REFER to the appropriate Charging System Diagnosis and Testing procedure in Section 414-00.

T7 MONITOR THE PCM (POWERTRAIN CONTROL MODULE) CHARGING SYSTEM INDICATOR LAMP INPUT

- Using a diagnostic scan tool, monitor the PCM charging system fault indicator lamp PID (GENFIL) with the KOEO and with the KOER.

Does the PCM PID indicate ON with the engine not running and OFF with the engine running?

Yes	GO to T8
No	If the charging system warning indicator is never on, the system is operating correctly at this time. If the charging system warning indicator is always on, DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

T8 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM connectors and related in-line 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 all the PCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new PCM. Refer to the appropriate section in Group 303 for the procedure.
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.

The Door Ajar Warning Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Door Ajar Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Door Ajar RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the driver door ajar, passenger door ajar, left rear door ajar or right rear door ajar status message is missing for less than 5 seconds, the IPC defaults the door ajar warning indicator or the door ajar RTT to the last indication state (on or off), based upon the last message received.

If the driver door ajar, passenger door ajar, left rear door ajar or right rear door ajar status message is missing for 5 seconds or longer, the IPC defaults the door ajar warning indicator or the door ajar RTT off.

Possible Sources

- Interior lighting concern
- Communication concern
- Message center concern
- GWM concern
- BCM concern
- IPC

PINPOINT TEST U : THE DOOR AJAR WARNING INDICATOR IS NEVER OR ALWAYS ON

U1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a base IPC?

Yes	GO to U3
No	GO to U2

U2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.

- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to U4
No	GO to Pinpoint Test A

U3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Ignition ON.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC door ajar warning indicator (DOOR_AJAR) PID.
- Command the door ajar warning indicator on then off. Observe the door ajar warning indicator.

Does the door ajar warning indicator turn on when commanded on and turn off when commanded off?

Yes	GO to U4
No	  Click here to access Guided Routine (IPC).

U4 CHECK THE INTERIOR LIGHTING OPERATION

- Open and close each door while monitoring the interior lamps.

Do the interior lamps operate correctly with each door?

Yes	GO to U5
No	REFER to: Interior Lighting (417-02 Interior Lighting) .

U5 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to U6

U6 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to U7

U7 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	For a door ajar indication concern,   Click here to access Guided Routine (BCM). For the hood ajar indication on, DIAGNOSE the perimeter alarm does not arm from the hood ajar switch. REFER to: Perimeter Anti-Theft Alarm (419-01A Perimeter Anti-Theft Alarm, Diagnosis and Testing).

The Electronic Park Brake Indicator Is Never or Always On

Normal Operation and Fault Conditions

See Electronic Park Brake Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Electronic Park Brake RTT.

REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

NOTE: *The electronic park brake indicator only illuminates or flashes when a parking brake system fault is detected. The indicator is off under all other conditions.*

If the parking brake indicator request is missing for less than 5 seconds, the IPC defaults the electronic park brake indicator or electronic park brake RTT to its last indication state (on or off), based upon the last message received.

If the parking brake indicator request is missing for 5 seconds or longer, the IPC defaults the electronic park brake indicator or electronic park brake RTT on.

Possible Sources

- Communication concern
- Message center concern
- Electronic park brake system concern
- GWM concern
- IPC

PINPOINT TEST V : THE ELECTRONIC PARK BRAKE INDICATOR IS NEVER OR ALWAYS ON

V1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a base IPC?

Yes	GO to V3
No	GO to V2

V2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.

- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to V4
No	GO to Pinpoint Test A

V3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC all warning indicators (ALL_LAMP) PID.
- Command all the warning indicators on then off while observing the electronic park brake indicator.

Does the electronic park brake indicator turn on when commanded on and turn off when commanded off?

Yes	GO to V4
No	  Click here to access Guided Routine (IPC).

V4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to V5

V5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the electronic parking brakes. REFER to: Parking Brake (206-05 Parking Brake and Actuation - Vehicles With: Electronic Parking Brake (EPB)) .

The ELD Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See ELD Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See ELD RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the rear differential lock indicator request message is missing for less than 5 seconds, the IPC defaults the ELD indicator or ELD RTT to its last indication state (on or off), based upon the last message received.

If the rear differential lock indicator request message is missing for 5 seconds or longer, the IPC sets DTC U0102:00 and defaults the ELD indicator or ELD RTT off.

Possible Sources

- Communication concern
- Message center concern
- Locking differential concern
- GWM concern
- IPC

PINPOINT TEST W : THE ELD (ELECTRONIC LOCKING DIFFERENTIAL) INDICATOR IS NEVER OR ALWAYS ON

W1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to W4
No	GO to W2

W2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to W3
No	GO to Pinpoint Test A

W3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC ELD PID (DIFF_LOCK).
- Command the ELD indicator on then off while observing the ELD indicator.

Does the ELD indicator turn on when commanded on and turn off when commanded off?

Yes	GO to W4
No	  Click here to access Guided Routine (IPC).

W4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to W5

W5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the ELD. REFER to: Electronic Locking Differential (ELD) (205-02A Rear Drive Axle/Differential - Vehicles With: Ford 8.8 Inch Ring Gear, Diagnosis and Testing).

The Engine Over-Temperature Warning Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Engine Over-Temperature Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Engine Over-Temperature RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the engine coolant temperature data or engine overheat indication request messages are missing or invalid for less than 5 seconds, the IPC defaults the engine over-temperature warning indicator or engine over-temperature RTT to the last indication state (on or off), based upon on the last message received.

If the engine coolant temperature data request or engine overheat indication request messages are missing or invalid for 5 seconds or longer, the IPC sets DTC U0100:00 and defaults the engine over-temperature warning indicator or engine over-temperature RTT on.

Possible Sources

- Communication concern
- Message center concern
- GWM concern
- PCM input concern
- IPC

PINPOINT TEST X : THE ENGINE OVER-TEMPERATURE WARNING INDICATOR IS NEVER OR ALWAYS ON

X1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to X3
No	GO to X2

X2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to X4
No	GO to Pinpoint Test A

X3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC engine over-temperature warning indicator PID (COOLANT_LMP).
- Command the engine over temperature warning indicator on then off while observing the engine over temperature warning indicator.

Does the engine over temperature warning indicator turn on when commanded on and turn off when commanded off?

Yes	GO to X4
No	  Click here to access Guided Routine (IPC).

X4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to X5

X5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.

The High Beam Indicator Is Never or Always On

Normal Operation and Fault Conditions

See High Beam Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the headlamp high/low status message is missing for less than 5 seconds, the IPC defaults the high beam indicator to its last indication state (on or off), based upon the last message received.

If the headlamp high/low status message is missing for 5 seconds or longer, the IPC defaults the high beam indicator off.

Possible Sources

- Exterior lighting concern
- Communication concern
- BCM concern
- GWM concern
- IPC

PINPOINT TEST Y : THE HIGH BEAM INDICATOR IS NEVER OR ALWAYS ON

Y1 CHECK THE HIGH BEAMS LIGHTS

- Turn on the high beams.

Do the high beams operate correctly?

Yes	GO to Y2
No	REFER to: Headlamps (417-01 Exterior Lighting) .

Y2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to Y3

Y3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to Y4

Y4 CHECK THE HIGH BEAM INDICATOR OPERATION USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC high beam indicator (HIGH_BEAM) PID.
- Command the high beam indicator on and off while observing the high beam indicator.

Does the high beam indicator illuminate when commanded on and turn off when commanded off?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	  Click here to access Guided Routine (IPC).

The Hill Descent Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Hill Descent Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Hill Descent RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the hill descent mode message is missing for less than 5 seconds, the IPC defaults the hill descent indicator or hill descent RTT to its last indication state (on or off), based upon the last message received.

If the hill descent mode message is missing for 5 seconds or longer, the IPC defaults the hill descent indicator or hill descent RTT off.

Possible Sources

- Communication concern
- Message center concern
- Hill descent control system concern
- ABS concern
- GWM concern
- IPC

PINPOINT TEST Z : THE HILL DESCENT INDICATOR IS NEVER OR ALWAYS ON

Z1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to Z3
No	GO to Z2

Z2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to Z4
No	GO to Pinpoint Test A

Z3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC hill descent indicator PID (HILL_DESCENT).
- Command the hill descent indicator on then off while observing the hill descent indicator.

Does the hill descent indicator turn on when commanded on and turn off when commanded off?

Yes	GO to Z4
No	  Click here to access Guided Routine (IPC).

Z4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to Z5

Z5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all ABS module Diagnostic Trouble Codes (DTCs). REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .

The LH- RH Turn Signal, Front Fog Lamp Or Lights On Indicator Is Never or Always On

Normal Operation and Fault Conditions

See LH- RH Turn Signal Indicator, Front Fog Lamp Indicator or Lights On Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See LH- RH Turn Signal RTT, Front Fog Lamp RTT or Lights On RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the parklamp status, left turn lamp on request, right turn lamp on request or front fog lamp indicator message is missing for less than 5 seconds, the IPC defaults the LH- RH turn indicator, front fog lamp indicator, LH- RH turn RTT or front fog lamp RTT to its last indication state (on or off), based upon the last message received.

If the parklamp status, left turn lamp on request, right turn lamp on request or front fog lamp indicator message is missing for 5 seconds or longer, the IPC defaults the LH- RH turn indicator, front fog lamp indicator, LH- RH turn RTT or front fog lamp RTT off.

Possible Sources

- Turn signal concern
- Front fog lamp concern
- Parking lamp concern
- Communication concern
- Message center concern
- GWM concern
- BCM concern
- IPC

PINPOINT TEST AA : THE LH (LEFT-HAND) - RH (RIGHT-HAND) TURN SIGNAL, FRONT FOG LAMP OR LIGHTS ON INDICATOR IS NEVER OR ALWAYS ON

AA1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AA2

AA2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AA3

AA3 CHECK THE EXTERIOR LIGHTING OPERATION

- Ignition ON.
- Check the operation of the parking lamps, front fog lamps or turn signals.

Do the parking lamps, front fog lamps or turn signals operate correctly?

Yes	GO to AA4
No	For front fog lamps, REFER to: Fog Lamps (417-01 Exterior Lighting, Diagnosis and Testing). For parking lamps, REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting) . For turn signals, REFER to: Turn Signal and Hazard Lamps (417-01 Exterior Lighting) .

AA4 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base or mid-level IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a high-level IPC?

Yes	GO to AA5
No	For the front fog lamp indicator, GO to AA6 For the LH or RH turn indicator, GO to AA7 For the lights on indicator, GO to AA8

AA5 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to Pinpoint Test A

AA6 CHECK THE FOG LAMP INDICATOR OPERATION USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC fog lamp indicator (F_FOG_IND) PID.

Does the fog lamp indicator illuminate when commanded on and turn off when commanded off?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	  Click here to access Guided Routine (IPC).

AA7 CHECK THE LH (LEFT-HAND) AND RH (RIGHT-HAND) TURN INDICATOR OPERATION USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC RH or LH turn signal indicator (RH_TURN_L) or (LH_TURN_L) PID.
- Command the RH or LH turn signal indicator on and off while observing the RH or LH turn signal indicator.

Does the RH or LH turn signal indicator illuminate when commanded on and turn off when commanded off?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	  Click here to access Guided Routine (IPC).

AA8 CHECK THE LIGHTS ON INDICATOR OPERATION USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC lights on indicator (SIDELIGHT_LMP) PID.

Does the lights on indicator illuminate when commanded on and turn off when commanded off?

Yes	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	  Click here to access Guided Routine (IPC).

The Low Fuel Message Warning Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Low Fuel Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Low Fuel RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Fuel gauge concern
- Message center concern

- IPC

PINPOINT TEST AB : THE LOW FUEL WARNING INDICATOR IS NEVER OR ALWAYS ON

AB1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to AB3
No	GO to AB2

AB2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AB3
No	GO to Pinpoint Test A

AB3 VERIFY THE OPERATION OF THE FUEL GAUGE

- Ignition ON.
- Verify the fuel gauge operates correctly and there are no customer concerns with the fuel gauge.

Does the fuel gauge operate correctly without any customer concerns related to fuel gauge indication?

Yes	GO to AB4
No	GO to Pinpoint Test C

AB4 CONFIRM THE CURRENT FUEL LEVEL

- Enter the Dealer Test Mode.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .
- Scroll to the **Inst Fuel1** display.

Does the FLPM (second value) indicate 104 or less with an administrator key or between 104 and 164 with a MyKey® programmed key?

Yes	If the low fuel warning indicator is always on, the system is operating correctly at this time based on the current fuel level. If the low fuel warning indicator is never on,  Click here to access Guided Routine (IPC).
No	If the low fuel warning indicator is always on,  Click here to access Guided Routine (IPC). If the low fuel warning indicator is never on, the system is operating correctly at this time based on the current fuel level.

The Low Engine Oil Pressure Indicator Is Never Or Always On

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Low Engine Oil Pressure Warning Indicator.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

See Low Engine Oil Pressure RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the oil pressure warning indicator request or engine rpm data messages are missing less than 5 seconds, the IPC defaults the low engine oil pressure warning indicator or low engine oil pressure RTT to the last state (on or off), based upon the last message received.

If the oil pressure warning indicator request or engine rpm data messages are missing for 5 seconds or longer, the IPC defaults the low engine oil pressure warning indicator or low engine oil pressure RTT on.

DTC Chart - PCM

DTC	Description	Fault Trigger Conditions
P0521	Engine Oil Pressure Sensor/Switch "A" Circuit Range/Performance	Sets in the PCM when the PCM detects signal variation outside of the module parameters on the hardwired input from the engine oil pressure sensor.
P0522	Engine Oil Pressure Sensor/Switch "A" Circuit Low	Sets in the PCM when the PCM detects a short to ground on the hardwired input from the engine oil pressure sensor.
P0523	Engine Oil Pressure Sensor/Switch "A" Circuit High	Sets in the PCM when the PCM detects an open on the hardwired input from the engine oil pressure sensor.
P0524	Engine Oil Pressure Too Low	Sets in the PCM when the PCM detects low engine oil pressure.
P055F	Engine Oil Pressure Out of Range	Sets in the PCM when the PCM detects high engine oil pressure.

Possible Sources

- Wiring, terminals or connectors
- Tachometer concern
- Message center concern
- Engine oil pressure concern
- Engine oil pressure sensor
- GWM concern
- PCM
- IPC

Visual Inspection and Diagnostic Pre-checks

Inspect the:

- check engine oil level.
- engine for noise or other symptom indicating a low engine oil pressure concern.
- engine oil pressure sensor for signs of external damage.
- engine oil pressure sensor connector for signs of corrosion
- harness for damage indicating an open or short to ground.

PINPOINT TEST AC : THE LOW ENGINE OIL PRESSURE INDICATOR IS NEVER OR ALWAYS ON

NOTE: *If equipped with stop-start, while the vehicle is at a stop and the engine shuts off, the engine oil pressure gauge drops to 0 and the low engine oil pressure warning indicator or RTT indicator turns off.*

AC1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle is equipped with a base IPC?

Yes	GO to AC3
No	GO to AC2

AC2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AC4
No	GO to Pinpoint Test A

AC3 CHECK THE LOW ENGINE OIL PRESSURE WARNING INDICATOR OPERATION USING A SCAN TOOL

- Ignition ON.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC all warning lamps (ALL_LAMP) PID.
- Command all the warning lamps on and off while monitoring the low engine oil pressure warning indicator.

Does the low engine oil pressure warning indicator illuminate when commanded on and turn off when commanded off?

Yes	GO to AC4
No	  Click here to access Guided Routine (IPC).

AC4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AC5

AC5 CHECK THE TACHOMETER OPERATION

- Start the engine.
- Verify the tachometer operates.

Does the tachometer operate?

Yes	GO to AC6
No	GO to Pinpoint Test H

AC6 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AC7

AC7 CHECK THE ENGINE OIL PRESSURE

- Test the engine for low engine oil pressure.

Was a low engine oil pressure concern detected?

Yes	REPAIR the low engine oil pressure concern. Refer to the appropriate section in Group 303 for the procedure.
No	GO to AC8

AC8 CHECK FOR VOLTAGE AT THE ENGINE OIL PRESSURE SENSOR

- Ignition OFF.
- Disconnect Engine Oil Pressure Sensor C1642 (2.7L Engine) .
- Disconnect Engine Oil Pressure Sensor C1957 (3.3L Engine) .
- Disconnect Engine Oil Pressure Sensor C1657 (3.5L Engine) .
- Disconnect Engine Oil Pressure Sensor C103 (5.0L Engine) .
- Ignition ON.
- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-3		C103-2

Is the voltage approximately 5 volts?

Yes	GO to AC9
No	GO to AC12

AC9 CHECK THE ENGINE OIL PRESSURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect PCM C1232E (2.7L Engine).
- Disconnect PCM C1551E (3.3L Engine).
- Disconnect PCM C1915E (3.5L Engine).
- Disconnect PCM C1381E (5.0L Engine).
- Ignition ON.
- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-1		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to AC10

AC10 CHECK THE ENGINE OIL PRESSURE SENSOR SIGNAL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-1	Ω	C1381E-69

Is the resistance less than 3 ohms?

Yes	GO to AC11
No	REPAIR the circuit.

AC11 CHECK THE ENGINE OIL PRESSURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-1	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new engine oil pressure sensor. Refer to the appropriate section in Group 303 for the procedure. CLEAR the Diagnostic Trouble Codes (DTCs). TEST the system for normal operation. If the engine oil pressure indicator or RTT is still never or always on, GO to AC16
No	REPAIR the circuit.

AC12 CHECK THE ENGINE OIL PRESSURE SENSOR VREF CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect PCM C1232E (2.7L Engine).
- Disconnect PCM C1551E (3.3L Engine).
- Disconnect PCM C1915E (3.5L Engine).
- Disconnect PCM C1381E (5.0L Engine).
- Ignition ON.
- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-3		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to AC13

AC13 CHECK THE ENGINE OIL PRESSURE SENSOR VREF CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-3	Ω	C1381E-118

Is the resistance less than 3 ohms?

Yes	GO to AC14
No	REPAIR the circuit.

AC14 CHECK THE ENGINE OIL PRESSURE SENSOR VREF CIRCUIT FOR A SHORT TO GROUND

- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-3	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to AC15
No	REPAIR the circuit.

AC15 CHECK THE ENGINE OIL PRESSURE SENSOR RETURN CIRCUIT FOR AN OPEN

- Measure:

  Click to display connectors

  5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C103-2	Ω	C1381E-5

Is the resistance less than 3 ohms?

Yes	INSTALL a new engine oil pressure sensor. Refer to the appropriate section in Group 303 for the procedure. CLEAR the Diagnostic Trouble Codes (DTCs). TEST the system for normal operation. If the low engine oil pressure RTT is still never or always on, GO to AC16
No	REPAIR the circuit.

AC16 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM connectors and related in-line 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 PCM connectors and 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 On-Line Automotive Service Information System (OASIS) for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new PCM. Refer to the appropriate section in Group 303 for the procedure.
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.

The Low Washer Fluid Level RTT Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Low Washer Fluid Level Message Center Indicator.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Wiring, terminals or connectors
- Low washer fluid switch
- IPC

Visual Inspection and Diagnostic Pre-checks

Verify the washer fluid reservoir is full and the ignition has been cycled at least once prior to beginning the pinpoint test for an always on condition or the washer fluid is or has been reported low for a never on condition.

PINPOINT TEST AD : THE LOW WASHER FLUID LEVEL RTT (RECONFIGURABLE TELLTALE) INDICATOR IS NEVER OR ALWAYS ON

AD1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar message center warning indicator.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar message center warning indicator.

Is the door ajar message center warning indicator off with the door closed then does the message center warning indicator turn on with the door open?

Yes	If the low washer fluid level message center indicator is inoperative, GO to AD2 If the low washer fluid level message center indicator is always on, GO to AD5
No	GO to Pinpoint Test A

AD2 CHECK THE LOW WASHER FLUID INDICATOR OPERATION

- Ignition OFF.
- Disconnect Low Washer Fluid Level Switch C138.
- Ignition ON.
- Wait one minute.
- Observe the low washer fluid level message center indicator.

Is the low washer fluid level message center indicator on?

Yes	REMOVE the fused jumper wire. INSTALL a new washer fluid level switch. REFER to Section 501-16.
No	REMOVE the fused jumper wire. GO to AD3

AD3 CHECK THE WASHER FLUID LEVEL SWITCH GROUND CIRCUIT FOR AN OPEN AT THE WASHER FLUID LEVEL SWITCH

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to AD4
No	REPAIR the circuit.

AD4 CHECK THE WASHER FLUID LEVEL INPUT CIRCUIT FOR AN OPEN

- Disconnect IPC C220.

Is the resistance less than 3 ohms?

Yes	GO to AD7
No	REPAIR the circuit.

AD5 CHECK THE WASHER FLUID LEVEL INPUT CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Low Washer Fluid Level Switch C138.
- Ignition ON.
- Wait one minute.
- Observe the low washer fluid level message center indicator.

Did the low washer fluid level message center indicator turn off?

Yes	INSTALL a new washer fluid level switch. REFER to Section 501-16.

No	GO to AD6

AD6 CHECK THE LOW WASHER FLUID LEVEL INPUT CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect IPC C220.

Is the resistance greater than 10,000 ohms?

Yes	GO to AD7
No	REPAIR the circuit.

AD7 CHECK FOR CORRECT IPC (INSTRUMENT PANEL CLUSTER) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPC and all related in-line 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 IPC 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 On-Line Automotive Service Information System (OASIS) for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (IPC).
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.

The MIL Is Never Or Always On

Normal Operation and Fault Conditions

See MIL.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the MIL request message is missing or invalid for less than 5 seconds, the IPC defaults the MIL to its last state (on or off) based upon the last known good message received.

If the MIL request message is missing for 5 seconds or longer, the IPC defaults the MIL on.

Possible Sources

- Communication concern
- GWM concern
- PCM concern
- IPC

PINPOINT TEST AE : THE MIL (MALFUNCTION INDICATOR LAMP) IS NEVER OR ALWAYS ON

AE1 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST
• Ignition ON. • Using a diagnostic scan tool, perform the IPC self-test. **Are any Diagnostic Trouble Codes (DTCs) recorded?**

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AE2

AE2 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 Diagnostic Trouble Codes (DTCs) recorded?**

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AE3

AE3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC (MIL) PID.
- Command the MIL on and off while observing the indicator.

Does the MIL illuminate when commanded on and turn off when commanded off?

Yes	If the MIL is always on, DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). REFER to the appropriate 303-14 section. If the MIL is never on, the system is operating correctly at this time.
No	  Click here to access Guided Routine (IPC).

The Powertrain Malfunction (Wrench) Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Powertrain Malfunction (Wrench) Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the engine service required, transmission service required, 4WD service required or body service required request messages are missing or invalid for less than 5 seconds, the IPC defaults the powertrain malfunction (wrench) indicator or powertrain malfunction (wrench) RTT to its last state (on or off) based upon the last message received.

If the engine service required, transmission service required, 4WD service required or body service required request messages are missing for 5 seconds or longer, the IPC defaults the powertrain malfunction (wrench) indicator or powertrain malfunction (wrench) RTT on.

Possible Sources

- Communication concern
- Message center concern
- 4WD concern
- BCM concern
- GWM concern
- PCM concern
- IPC

PINPOINT TEST AF : THE POWERTRAIN MALFUNCTION (WRENCH) INDICATOR IS NEVER OR ALWAYS ON

AF1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to AF3
No	GO to AF2

AF2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AF4
No	GO to Pinpoint Test A

AF3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC powertrain malfunction (wrench) indicator (TRANSA_LMP) PID.
- Command the powertrain malfunction (wrench) indicator on and off while observing the indicator.

Does the powertrain malfunction (wrench) indicator illuminate when commanded on and turn off when commanded off?

Yes	GO to AF4
No	  Click here to access Guided Routine (IPC).

AF4 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AF5

AF5 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to AF6

AF6 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	If the powertrain malfunction (wrench) indicator is always on, DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). REFER to the appropriate 303-14 section or Refer to Powertrain Control/Emissions Diagnosis (PC/ED) manual. If the powertrain malfunction (wrench) indicator is never on, the system is operating correctly at this time.

The PRNDL, SelectShift® Or Range Select Indicator Is Never On Or Never Displays P

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See PRNDL Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the transmission gear display or transmission gear display mode message is missing for less than 5 seconds, the display remains in the last indication state (on or off), based upon the last message received.

If the transmission gear display or transmission gear display mode message is missing for 5 seconds or longer, the IPC defaults the display off.

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P1706:00	High Vehicle Speed Observed in Park: No Sub Type Information	A continuous and on-demand DTC that sets in the IPC if the IPC detects a park detect input with vehicle speed over 16 km/h (10 mph), indicating the vehicle is in park while in motion.

Possible Sources

- Wiring, terminals or connectors
- Communication concern
- Park detect switch
- Transmission concern
- GWM concern

- BCM
- IPC

Visual Inspection And Diagnostic Pre-checks

Verify the vehicle is not in transport mode.

PINPOINT TEST AG : THE PRNDL, SELECTSHIFT® OR RANGE SELECT INDICATOR IS NEVER ON OR NEVER DISPLAYS P

AG1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any DTCs recorded?

Yes	For DTC P1706:00, GO to AG5 For all other Diagnostic Trouble Codes (DTCs), REFER to DTC Chart: IPC in this section.
No	GO to AG2

AG2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AG3

AG3 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

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

Are any transmission related DTCs recorded?

Yes	REFER to the appropriate 303-14 section.
No	GO to AG4

AG4 CHECK THE TRANSMISSION RANGE INPUT TO THE PCM (POWERTRAIN CONTROL MODULE)

- Using a diagnostic scan tool, view the PCM Parameter Identifications (PIDs).
- Select the PCM transmission range PID (TR).
- Monitor the transmission range input while shifting through the selector lever positions.

Does the transmission range input match the selector lever positions?

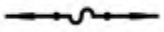
Yes	GO to AG5
No	DIAGNOSE the transmission range sensor. REFER to: External Controls (307-05 Automatic Transmission External Controls) .

AG5 BYPASS THE SELECTOR LEVER AND CHECK THE PARK DETECT INPUT TO THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition OFF.
- Disconnect Brake Shift Interlock C2008 (Column Shift).
- Disconnect Selector Lever C3245 (Floor Shift).
- Connect a fused jumper wire:

  Click to display connectors

  Floor Shift

Lead 1	Measurement / Action	Lead 2
C3245-2		Ground

- Ignition ON.
- Monitor the PRNDL indicator with the fused jumper wire installed and with the fused jumper wire removed.

Does the PRNDL display P with the fused jumper wire connected and blank with the fused jumper wire removed?

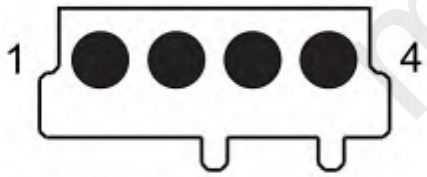
Yes	REMOVE the fused jumper wire. GO to AG6
No	REMOVE the fused jumper wire. GO to AG7

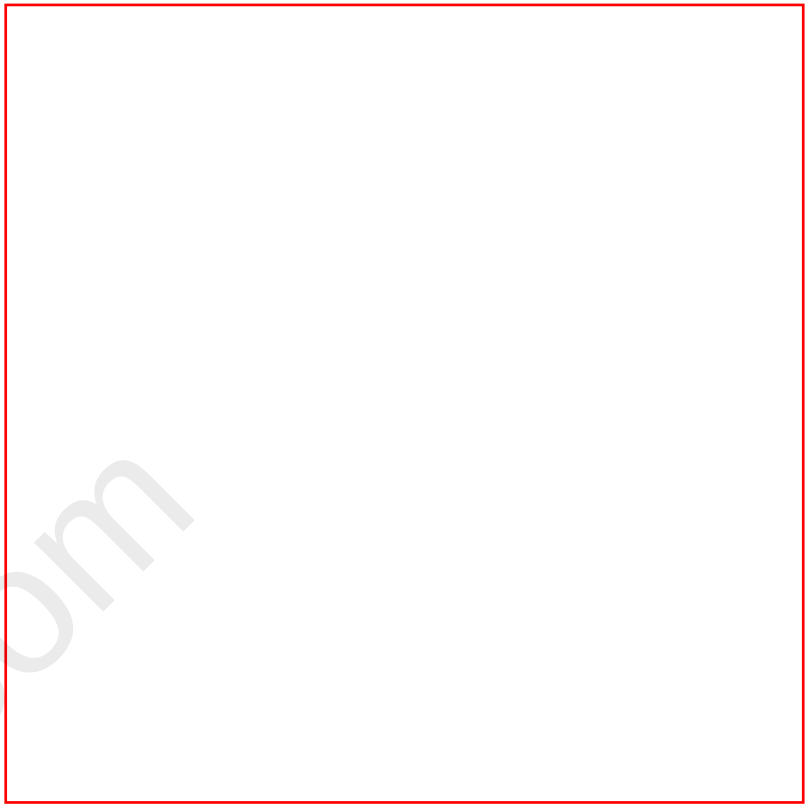
AG6 CHECK THE PARK DETECT SWITCH OPERATION

NOTE: *Make sure the selector lever is fully set in the PARK (P) position and do not touch or press the selector lever or shift button while measuring resistance.*

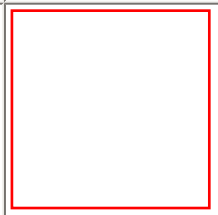
- Place the selector lever in PARK (P).
- Measure:

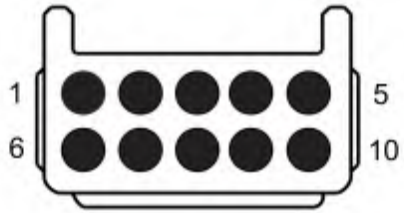
Column Shift

Positive Lead	Measurement / Action	Negative Lead
 E257555 Selector Lever C2008 Pin 2, Component Side		

		 Selector Lever C2008 Pin 1, Component Side

Floor Shift

Positive Lead	Measurement / Action	Negative Lead
		



E257556

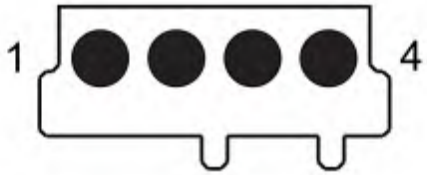
Selector Lever C3245 Pin 2, Component Side

Selector Lever C3245 Pin 4, Component Side

- Place the selector lever in NEUTRAL (N).
- Measure:

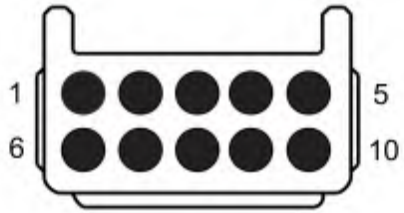
Column Shift

Positive Lead	Measurement / Action	Negative Lead

 E257555 Selector Lever C2008 Pin 2, Component Side		Selector Lever C2008 Pin 1, Component Side

Floor Shift

Positive Lead	Measurement / Action	Negative Lead



E257556

Selector Lever C3245 Pin 2, Component Side

Selector Lever C3245 Pin 4, Component Side

Is the resistance less than 3 ohms with the selector lever in PARK (P) and greater than 10,000 ohms with the selector leverl in NEUTRAL (N)?

Yes	REPAIR the ground circuit.
No	INSTALL a new selector lever. REFER to: Selector Lever Assembly - Vehicles With: Column Shift (307-05 Automatic Transmission External Controls, Removal and Installation). or REFER to: Selector Lever Assembly - Vehicles With: Floor Shift (307-05 Automatic Transmission External Controls, Removal and Installation).

AG7 CHECK THE SELECTOR LEVER INPUT CIRCUIT FOR AN OPEN BETWEEN THE IPC (INSTRUMENT PANEL CLUSTER) AND THE SELECTOR LEVER

- Ignition OFF.
- Disconnect IPC C220.
- Measure:

  Click to display connectors

  Floor Shift

Positive Lead	Measurement / Action	Negative Lead
C220-4	Ω	C3245-2

Is the resistance less than 3 ohms?

Yes	GO to AG8
No	REPAIR the circuit.

AG8 CHECK THE SELECTOR LEVER INPUT CIRCUIT FOR A SHORT TO GROUND AT THE IPC (INSTRUMENT PANEL CLUSTER)

Is the resistance greater than 10,000 ohms?

Yes	GO to AG9
No	REPAIR the circuit.

AG9 CHECK FOR CORRECT IPC (INSTRUMENT PANEL CLUSTER) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPC connector and related in-line 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 IPC connector and related in-line connectors. Make sure it seats and latches correctly.

- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (IPC).
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.

The Seatbelt Warning Indicator Is Never or Always On

Normal Operation and Fault Conditions

See Seatbelt Warning Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

If the driver seatbelt buckle status is missing for less than 5 seconds, the IPC defaults the seatbelt warning indicator to its last indication state (on or off), based upon the last message received.

If the driver seatbelt buckle status message is missing for 5 seconds or longer, the IPC defaults the seatbelt warning indicator off.

Possible Sources

- Driver seatbelt buckle concern
- Communication concern
- GWM concern
- SRS concern
- IPC

PINPOINT TEST AH : THE SEATBELT WARNING INDICATOR IS NEVER OR ALWAYS ON

AH1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AH2

AH2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AH3

AH3 CHECK THE DRIVER SEATBELT BUCKLE STATUS

- Using a diagnostic scan tool, monitor the RCM driver seatbelt buckle PID (SBELT_D_ST) while buckling and unbuckling the driver seatbelt.

Does the PID display BUCKLED with the seatbelt buckled and UNBUCKLED with the seatbelt unbuckled?

Yes	GO to AH4
No	INSTALL a new driver seatbelt buckle. REFER to: Front Seatbelt Buckle (501-20A Seatbelt Systems, Removal and Installation).

AH4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC seatbelt warning indicator (SBLT_LAMP) PID.
- Command the seatbelt warning indicator on and off while observing the seatbelt warning indicator.

Does the seatbelt warning indicator illuminate when commanded on and turn off when commanded off?

Yes	INSTALL a new RCM. REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation).
No	  Click here to access Guided Routine (IPC).

The Sport Mode Indicator Or Tow Haul Mode Indicator Is Never Or Always On

Normal Operation and Fault Conditions

See Sport Mode Indicator or Tow Haul Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Sport Mode RTT or Tow Haul RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the powertrain mode message is missing or invalid for less than 5 seconds, the IPC defaults the sport mode indicator or tow haul indicator to its last state (on or off) based upon the last message received.

If the powertrain mode message is missing for 5 seconds or longer, the IPC defaults the sport mode RTT or tow haul RTT on.

Possible Sources

- Communication concern
- Message center concern
- GWM concern
- PCM concern
- IPC

PINPOINT TEST AI : THE SPORT MODE INDICATOR OR TOW HAUL MODE INDICATOR IS NEVER OR ALWAYS ON

AI1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base IPC?

Yes	GO to AI3
No	GO to AI2

AI2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AI4
No	GO to Pinpoint Test A

AI3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC all warning lamps PID (ALL_LAMP).
- Command all the warning lamps on then off while observing the sport mode indicator or tow haul indicator.

Does the sport mode indicator or tow haul indicator turn on when commanded on and turn off when commanded off?

Yes	GO to AI4
No	  Click here to access Guided Routine (IPC).

AI4 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AI5

AI5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs).Refer to the appropriate section in Group 303 for the procedure.

The Stability-Traction Control Indicator (Sliding Car Icon) Is Never Or Always On

Normal Operation and Fault Conditions

See Stability-Traction Control Indicator (Sliding Car Icon).
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Stability-Traction Control RTT (Sliding Car Icon).
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the stability-traction control indicator request is missing or invalid for less than 5 seconds, the IPC defaults the stability-traction control indicator or stability-traction control RTT (sliding car icon) to the last indication state (on or off), based upon the last message received.

If the IPC does not receive the stability-traction control indicator request for 5 seconds or longer, the IPC defaults the stability-traction control indicator or stability-traction control RTT (sliding car icon) on.

Possible Sources

- Communication concern
- Message center concern
- Stability-traction control system concern
- GWM concern
- IPC

PINPOINT TEST AJ : THE STABILITY-TRACTION CONTROL INDICATOR (SLIDING CAR ICON) IS NEVER OR ALWAYS ON

AJ1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base or mid-level IPC?

Yes	GO to AJ3
No	GO to AJ2

AJ2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AJ4
No	GO to Pinpoint Test A

AJ3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC stability-traction control indicator (TC/IVD/RSCLMP) PID.
- Command the stability-traction control indicator (sliding car icon) on and off while observing the stability-traction control indicator (sliding car icon).

Does the stability-traction control indicator (sliding car icon) illuminate when commanded on and turn off when commanded off?

Yes	GO to AJ4
No	  Click here to access Guided Routine (IPC).

AJ4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AJ5

AJ5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	If the stability-traction control indicator (sliding car icon) is never on, the system is operating correctly. If the stability-traction control indicator (sliding car icon) is always on, DIAGNOSE all ABS module Diagnostic Trouble Codes (DTCs). REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .

The Stability-Traction Control Disabled Indicator (Sliding Car OFF Icon) Is Never Or Always On

Normal Operation and Fault Conditions

See Stability-Traction Control Disabled Indicator (Sliding Car OFF Icon).
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See Stability-Traction Disabled Control RTT (Sliding Car OFF Icon).
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the stability-traction control disabled indicator request is missing or invalid for less than 5 seconds, the IPC defaults the stability-traction control disabled indicator or stability-traction control disabled RTT (sliding car OFF icon) to the last indication state (on or off), based upon the last message received.

If the IPC does not receive the stability-traction control disabled indicator request for 5 seconds or longer, the IPC defaults the stability-traction control disabled indicator or stability-traction control disabled RTT (sliding car OFF icon) off.

When a MyKey® programmed key is in use and the AdvanceTrac® on feature is configured always on, the traction control system cannot be disabled and the traction control indicator or traction control RTT does not turn on when the traction control disable button is pressed. The traction control indicator or traction control RTT still functions

correctly to indicate a traction control system fault and a traction control active event.

Possible Sources

- MyKey® programmed key in use
- Stability-traction control system concern
- Stability-traction control system cannot be disabled
- Communication concern
- Message center concern
- GWM concern
- IPC

PINPOINT TEST AK : THE STABILITY-TRACTION CONTROL DISABLED INDICATOR (SLIDING CAR OFF ICON) IS NEVER OR ALWAYS ON

AK1 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base or mid-level IPC?

Yes	GO to AK3
No	GO to AK2

AK2 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AK4
No	GO to Pinpoint Test A

AK3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC stability-traction control disabled indicator (sliding car OFF icon) (STAB_TC_LMP) PID.
- Command the stability-traction control disabled indicator (sliding car OFF icon) on and off while observing the stability-traction control disabled indicator (sliding car OFF icon).

Does the stability-traction control disabled indicator (sliding car OFF icon) illuminate when commanded on and turn off when commanded off?

Yes	GO to AK4
No	  Click here to access Guided Routine (IPC).

AK4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AK5

AK5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AK6

AK6 CHECK FOR THE KEY TYPE

- Check if the key is a MyKey® programmed key or an administrator key. Refer to the Owner's Literature.

Is the key an administrator key?

Yes	GO to AK7
No	GO to AK8

AK7 CHECK FOR THE ADVANCETRAC® ON FEATURE CONFIGURED ALWAYS ON

- Check if the AdvanceTrac® feature is configured always on. Refer to the Owner's Literature.

Is the AdvanceTrac® feature configured always on?

Yes	The traction control system cannot be disabled when the AdvanceTrac® on feature is configured always on.
No	GO to AK8

AK8 CHECK THE TRACTION CONTROL SWITCH OPERATION

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select and monitor the IPC traction control switch PID (STAB_CTRL_SW) while pressing and releasing the traction control switch.

Does the traction control switch PID match the switch position?

Yes	The system is operating correctly at this time.
No	DIAGNOSE the stability-traction control cannot be disabled. REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .

The TPMS Warning Indicator Is Never or Always On

Normal Operation and Fault Conditions

See TPMS Indicator.
REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

See TPMS RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the tire pressure warning indicator message is missing for 5 seconds or less, the TPMS warning indicator or TPMS RTT remains in its last indication state (on or off), based upon the last message received.

If the tire pressure warning indicator message is missing for 5 seconds or longer, the IPC flashes the TPMS warning indicator or TPMS RTT for approximately 75 seconds, then illuminates the TPMS warning indicator or TPMS RTT.

Possible Sources

- Low tire pressure
- Communication concern
- Message center concern
- GWM concern
- TPMS concern
- IPC

PINPOINT TEST AL : THE TPMS (TIRE PRESSURE MONITORING SYSTEM) WARNING INDICATOR IS NEVER OR ALWAYS ON

AL1 CHECK THE TIRE PRESSURE

- Verify the tire pressure in all tires meets the recommended tire pressures on the vehicle certification label.
  REFER to: Identification Codes (100-01 Identification Codes) .

Do all the tires meet the recommended tire pressures?

Yes	GO to AL2
No	CORRECT the tire pressures.

AL2 IDENTIFY THE IPC (INSTRUMENT PANEL CLUSTER) LEVEL

- Determine if the vehicle is equipped with a base or mid-level IPC.
  REFER to: Instrument Panel Cluster (IPC) (413-01 Instrumentation, Message Center and Warning Chimes) .

Is the vehicle equipped with a base or mid-level IPC?

Yes	GO to AL4
No	GO to AL3

AL3 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AL5
No	GO to Pinpoint Test A

AL4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) INDICATOR LAMP CONTROL ACTIVE COMMAND USING A SCAN TOOL

- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Select the IPC TPMS warning indicator (TPMWARN_LMP) PID.
- Command the TPMS warning indicator on and off while observing the TPMS warning indicator.

Does the TPMS warning indicator illuminate when commanded on and turn off when commanded off?

Yes	GO to AL5
No	  Click here to access Guided Routine (IPC).

AL5 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AL6

AL6 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any DTCs recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to AL7

AL7 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	If the TPMS warning indicator is never on, the system is operating correctly. If the TPMS warning indicator is always on, DIAGNOSE the TPMS. REFER to: Tire Pressure Monitoring System (TPMS) (204-04B Tire Pressure Monitoring System (TPMS), Diagnosis and Testing).

The Message Center Is Not Operating Correctly

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Steering Wheel Switch-Message Center (in Component Description).

REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

SCCM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B137F:09	Steering Wheel Left Switch Pack: Component Failure	A continuous and on-demand DTC that sets in the SCCM when the SCCM detects a message center switch pressed for 2 minutes or longer.
B137F:11	Steering Wheel Left Switch Pack: Circuit Short To Ground	A continuous and on-demand DTC that sets in the SCCM when the SCCM detects a short to ground on the message center switch input circuit.
B137F:17	Steering Wheel Left Switch Pack: Circuit Voltage Above Threshold	A continuous and on-demand DTC that sets in the SCCM when the SCCM detects an open or short to voltage on the message center switch input circuit.

Possible Sources

- Wiring, terminals or connectors
- Clockspring
- Message center switch (part of the LH steering wheel switch)
- SCCM
- IPC

PINPOINT TEST AM : THE MESSAGE CENTER IS NOT OPERATING CORRECTLY

WARNING: Incorrect repair techniques or actions can cause an accidental Supplemental Restraint System (SRS) deployment. Never compromise or depart from these instructions. Failure to precisely follow all instructions could result in serious personal injury from an accidental deployment.

AM1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AM2

AM2 PERFORM THE SCCM (STEERING COLUMN CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	For DTC B137F:09, INSTALL a new LH steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation). For DTC B137F:11, GO to AM5 For DTC B137F:17, GO to AM8 For all other Diagnostic Trouble Codes (DTCs), REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
No	GO to AM3

AM3 CHECK THE STEERING WHEEL SWITCH INPUT TO THE SCCM (STEERING COLUMN CONTROL MODULE)

- Using a diagnostic scan tool, view the SCCM Parameter Identifications (PIDs).
- Select the LH steering wheel switch Parameter Identifications (PIDs) (L_CURS_LFT, L_CURS_RGT, L_CURS_UP, L_CURS_DWN and L_CURS_OK).

Do the Parameter Identifications (PIDs) match the switch positions?

Yes	  Click here to access Guided Routine (IPC).
No	GO to AM4

AM4 CHECK THE SCCM (STEERING COLUMN CONTROL MODULE) OUTPUT AT THE LH (LEFT-HAND) STEERING WHEEL SWITCH

- Ignition OFF.
- Remove the driver airbag.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect LH Steering Wheel Switch C2998.
- Ignition ON.

Is the voltage approximately 5 volts?

Yes	INSTALL a new LH steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

No	GO to AM13

AM5 CHECK THE MESSAGE CENTER SWITCH FOR A SHORT TO GROUND

- Ignition OFF.
- Remove the driver airbag.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect LH Steering Wheel Switch C2998.
- Ignition ON.
- Using a diagnostic scan tool, perform the SCCM self-test.

Is DTC B137F:17 recorded?

Yes	INSTALL a new LH steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).
No	GO to AM6

AM6 CHECK THE STEERING WHEEL SWITCH HARNESS FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Upper Clockspring C218B.
- Ignition ON.
- Using a diagnostic scan tool, perform the SCCM self-test.

Is DTC B137F:17 recorded?

Yes	REPAIR the steering wheel harness or INSTALL a new steering wheel as necessary. REFER to: Steering Wheel (211-04 Steering Column, Removal and Installation).
No	GO to AM7

AM7 CHECK THE CLOCKSPRING FOR A SHORT TO GROUND

- Ignition OFF.
- Remove clockspring from the SCCM.
- Ignition ON.
- Using a diagnostic scan tool, perform the SCCM self-test.

Is DTC B137F:17 recorded?

Yes	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).
No	GO to AM13

AM8 CHECK THE MESSAGE CENTER SWITCH FOR AN OPEN

- Ignition OFF.
- Remove the driver airbag.
  REFER to: Driver Airbag (501-20B Supplemental Restraint System, Removal and Installation).
- Disconnect LH Steering Wheel Switch C2998.
- **NOTE:** *If the fused jumper wire fails, repair the signal circuit for a short to voltage.*
- Ignition ON.
- Using a diagnostic scan tool, perform the SCCM self-test.

Is DTC B137F:11 recorded?

Yes	REMOVE the fused jumper wire. INSTALL a new LH steering wheel switch. REFER to: Steering Wheel Multifunction Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).
No	REMOVE the fused jumper wire. GO to AM9

AM9 CHECK THE STEERING WHEEL HARNESS MESSAGE CENTER SWITCH SIGNAL CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect Clockspring C218B.

Is the resistance less than 3 ohms?

Yes	GO to AM10
No	REPAIR the steering wheel harness or INSTALL a new steering wheel as necessary. REFER to: Steering Wheel (211-04 Steering Column, Removal and Installation).

AM10 CHECK THE STEERING WHEEL HARNESS MESSAGE CENTER SWITCH RETURN CIRCUIT FOR AN OPEN

Is the resistance less than 3 ohms?

Yes	GO to AM11
No	REPAIR the steering wheel harness or INSTALL a new steering wheel as necessary. REFER to: Steering Wheel (211-04 Steering Column, Removal and Installation).

AM11 CHECK THE MESSAGE CENTER SWITCH SIGNAL CIRCUIT THROUGH THE CLOCKSPRING FOR AN OPEN

- Remove clockspring from the SCCM.
- Measure:

  Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Upper Clockspring (Component Side) - Pin 14	Ω	Lower Clockspring (Component Side) - Pin 6

Is the resistance less than 3 ohms?

Yes	GO to AM12
No	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).

AM12 CHECK THE MESSAGE CENTER SWITCH RETURN CIRCUIT THROUGH THE CLOCKSPRING FOR AN OPEN

- Measure:

  Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Upper Clockspring (Component Side) - Pin 8	Ω	Lower Clockspring (Component Side) - Pin 9

Is the resistance less than 3 ohms?

Yes	GO to AM13
No	INSTALL a new clockspring. REFER to: Clockspring (501-20B Supplemental Restraint System, Removal and Installation).

AM13 CHECK FOR CORRECT SCCM (STEERING COLUMN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all the SCCM connectors and related in-line 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 all the SCCM connectors and 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 On-Line Automotive Service Information System (OASIS) for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new SCCM. REFER to: Steering Column Control Module (SCCM) (211-05 Steering Wheel and Column Electrical Components, 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.

The Compass Is Inoperative

Normal Operation and Fault Conditions

See Compass Display.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the compass direction message is missing or invalid for 5 seconds or less, the compass displays the last vehicle direction based upon the last known good compass display message received.

If the compass direction message is invalid or missing for more than 5 seconds, the IPC defaults the display to all dashes (---).

Possible Sources

- Communication concern
- APIM
- GWM concern
- IPC

PINPOINT TEST AN : THE COMPASS IS INOPERATIVE

AN1 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the APIM self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to the appropriate section in Group 415 for the procedure.
No	GO to AN2

AN2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AN3

AN3 RETRIEVE THE RECORD DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST
• Using a diagnostic scan tool, perform the IPC self-test. **Are any Diagnostic Trouble Codes (DTCs) recorded?** **Yes** — REFER to DTC Chart: IPC in this section. **No** —   Click here to access Guided Routine (APIM).

The DTE Display Is Incorrect Or Fluctuates

Normal Operation and Fault Conditions

NOTE: *The DTE display and the fuel gauge both use the fuel level input from the fuel tank to provide their respective functions. If the fuel gauge doesn't function correctly, both the fuel gauge and the DTE display are affected.*

NOTE: *The actual DTE can be higher or lower than the DTE displayed in the message center due to changes in driving conditions. It is important to understand how the DTE is calculated and the factors that impact the DTE display when determining how to address any DTE concerns.*

The DTE is calculated in the IPC using the Running Average Fuel Economy (RAFE), which is the fuel economy over a much longer distance than the Instantaneous Fuel Economy (IFE), and the fuel level input from the fuel sender(s) to determine how many miles the vehicle can be driven based on the remaining fuel in the tank.

NOTE: *Even if the fuel economy is relatively constant, the DTE can vary in the short term by up to 50 miles, but is usually within 10 miles.*

The IPC defaults to a base programmed fuel economy when the battery is initially connected and adjusts upward or downward based on driving habits and conditions.

Since the DTE is calculated and averaged over a longer period of time, varying driving conditions can have a significant impact on the current or short term DTE as opposed to the displayed DTE. This difference often leads to customer complaints of incorrect or invalid DTE.

The following list provides some (not all) of the driving conditions that may lead to an incorrect or fluctuating DTE concern:

- Changing between towing/not towing
- Changing driving between city and highway
- Allowing the vehicle to idle for long periods of time
- Using the remote start feature (if equipped) frequently or allowing the vehicle to warm up, particularly when parked on a grade
- Parking or driving on grades
- Not using a type of fuel (E85 or non ethanol based) consistently
- Over-fueling or not filling the tank completely (partial refueling)

To better illustrate the affects of how driving conditions can affect DTE, please refer to the examples below.

The example below illustrates how the following observations are normal and expected since the low fuel reminder is triggered from a fuel volume and not from a fixed distance to empty.

If while driving, the low fuel reminder (low fuel indicator and low fuel warning message) displays when the DTE equals 94.4 km (59 miles) and the driver adds 11.36 L (3 gallons) of fuel, the new DTE may become 124.8 km (78 miles). After continued driving, the low fuel reminder may now display when the DTE equals 83.2 km (52 miles).

The next example (below) illustrates what occurs when idling on an incline. In this example, the customer should be made aware of how the condition will correct after a few minutes of idling on a level surface.

If the customer stops and parks the vehicle on an incline in a driveway, then in the morning remote starts the vehicle, allowing the engine to idle, the DTE may now equal 184 km (115 miles). As the customer drives, the low fuel reminder displays when the DTE equals 148.8 km (93 miles). Finally, after 5 more minutes of driving, the DTE is back to 80 km (50 miles).

In this example, the fuel gauge and the DTE display can be out of sync, but self-corrects after several minutes of driving.

Possible Sources

- Fuel gauge concern
- Changes in driving conditions such as:
  - towing
  - extended idle times
  - parking on any grades
  - alcohol in the fuel
  - refueling patterns
- IPC configuration

Visual Inspection and Diagnostic Prechecks

Make sure to record the Running Average Fuel Economy (RAFE) prior to disconnecting the battery, removing the IPC or BCM fuse 13 (7.5A). If any of the previous conditions occur, the vehicle must be driven over time to allow the DTE calculations to adjust.

PINPOINT TEST AO : THE DTE (DISTANCE TO EMPTY) DISPLAY IS INCORRECT OR FLUCTUATES

AO1 REVIEW AND INVESTIGATE THE FOLLOWING DRIVING CONDITIONS WITH THE CUSTOMER

- Determine whether the driver changes the following driving conditions:
  - changing between towing/not towing, city/highway driving
  - use of extended idle times
  - use of remote start frequently (if equipped)
  - parking/driving on grades
  - use of E85 fuel exclusively or switching to non-Ethanol fuel
  - over filling the fuel tank or not filling the tank completely (partial refueling)

Does the driver change driving conditions?

Yes	Advise the customer how changing driving conditions can affect the current short-term DTE as opposed to the displayed long-term DTE.
No	GO to AO2

AO2 CHECK THE FUEL GAUGE FOR CORRECT OPERATION

- Ignition ON.
- Verify the fuel gauge is functioning and correctly indicating the remaining fuel level.

Is the fuel gauge operating correctly?

Yes	GO to AO3
No	GO to Pinpoint Test C

AO3 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AO4

AO4 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	The vehicle configuration is most likely incorrect for the fuel tank size. INSTALL As-Built data from Professional Technician Society (PTS) following scan tool instructions under Module Programming>As-Built.

The Engine Hours And Engine Idle Hours Display Is Inoperative

Normal Operation and Fault Conditions

See Engine Hours Display and Engine Idle Hours Display.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the engine rpm data message is missing or invalid for less than 5 seconds, the IPC defaults engine hours and engine idle hours displays to the last display based on the last message received.

If the vehicle speed message is missing or invalid for 5 seconds or longer, the IPC sets DTC U0100:00 and defaults the engine hours and engine idle hours to the last displayed value with no additional accumulation.

Possible Sources

- Speedometer indication concern
- Tachometer indication concern
- IPC

PINPOINT TEST AP : THE ENGINE HOURS AND ENGINE IDLE HOURS DISPLAY IS INOPERATIVE

AP1 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE ENGINE HOUR AND ENGINE IDLE HOUR DISPLAY SCREEN

- Ignition ON.
- **NOTE:** *The IPC and message center navigation can be found in the Owner's Literature.*

  Using the message center controls, make sure the IPC is set to the engine hour and engine idle hour display screen.

Is the IPC set to the engine hour and engine idle hour display screen?

Yes	GO to AP2
No	The engine hour and engine idle hour display is operating correctly. The IPC was not set to the correct display screen.

AP2 CHECK THE SPEEDOMETER FOR CORRECT OPERATION

- Verify the speedometer operates correctly.

Does the speedometer operate correctly?

Yes	For the engine idle hour display, GO to AP3 For the engine hour display, GO to AP4
No	GO to Pinpoint Test E

AP3 CHECK THE TACHOMETER FOR CORRECT OPERATION

- Verify the tachometer operates correctly.

Does the tachometer operate correctly?

Yes	GO to AP4
No	GO to Pinpoint Test H

AP4 RETRIEVE THE RECORD DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	  Click here to access Guided Routine (IPC).

The Off Road And Powertrain Distribution Display Is Inoperative

Normal Operation and Fault Conditions

See Powertrain Distribution Display.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the 4WD data, gear lever position, wheel torque or vehicle speed messages are missing for less than 5 seconds, the IPC defaults the display fill area in front of the front wheels and behind the rear wheels to the last setting based upon the last message received.

If the 4WD data, gear lever position, wheel torque or vehicle speed messages are missing for 5 seconds or longer, the IPC defaults the display fill area in front of the front wheels and behind the rear wheels off.

If the vehicle roll angle display or vehicle pitch angle display messages are missing for less than 5 seconds, the IPC defaults the roll and pitch display to the last display based on the last data received.

If the vehicle roll angle display or vehicle pitch angle display messages are missing for 5 seconds or longer, the IPC defaults the roll and pitch display to 0 with the text display blank

Possible Sources

- Communication concern
- ABS module concern
- GWM concern
- PCM concern
- TCCM concern
- IPC

PINPOINT TEST AQ : THE OFF ROAD AND POWERTRAIN DISTRIBUTION DISPLAY IS INOPERATIVE

AQ1 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE POWERTRAIN DISTRIBUTION DISPLAY SCREEN

- Ignition ON.
- **NOTE:** *The IPC and message center navigation can be found in the Owner's Literature.*

  Using the message center controls, make sure the IPC is set to the off road and powertrain distribution display screen.

Is the IPC set to the off road and power distribution display screen?

Yes	GO to AQ2
No	The off road and power distribution display is operating correctly. The IPC was not set to the correct display screen.

AQ2 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) KOEO (KEY ON, ENGINE OFF) SELF-TEST

- Using a diagnostic scan tool, perform the PCM KOEO self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Refer to the appropriate section in Group 303 for the procedure.
No	GO to AQ3

AQ3 PERFORM THE TCCM (TRANSFER CASE CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the TCCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .
No	GO to AQ4

AQ4 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

- Using a diagnostic scan tool, perform the ABS module self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to AQ5

AQ5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	  Click here to access Guided Routine (IPC).

The Outside Air Temperature Display Is Inoperative Or Incorrect (Displayed In The FCIM)

Normal Operation and Fault Conditions

The Ambient Air Temperature (AAT) sensor is hardwired to the PCM through separate input and return circuits. The PCM provides a reference voltage to the Ambient Air Temperature (AAT) sensor and monitors the change in voltage resulting from changes in resistance as determined by outside air temperature. The PCM sends the ambient air temperature message to the GWM through the HS-CAN1. The GWM sends the air ambient temperature message to the FCIM over the MS-CAN.

The PCM is programmed to update the messaged outside temperature data at different rates depending on several criteria to prevent false temperature displays due to a condition known as heat soaking. Heat soaking is where the outside air temperature is hotter in the location of the Ambient Air Temperature (AAT) sensor than the actual outside air temperature.

When the sensed outside temperature rises, the display updates slowly at varying rates based on vehicle speed. When the sensed outside temperature drops, the display updates more quickly following the drop experienced by the Ambient Air Temperature (AAT) sensor.

If the ambient air temperature filtered message is missing or invalid for 5 seconds or more from the PCM, the FCIM displays all dashes (- -) in the outside air temperature display area.

If the air ambient temperature filtered message is missing or invalid for less than 5 seconds, the touchscreen defaults the outside air temperature display to the last temperature

reading, based upon the last message received. The FDIM provides for customer interaction through the touchscreen display.

The FDIM plugs directly into the APIM, and therefore does not communicate directly on any network and no external circuits are connected.

Possible Sources

- Communication concern
- Ambient Air Temperature (AAT) sensor
- GWM concern
- PCM concern
- FCIM

PINPOINT TEST AR : THE OUTSIDE AIR TEMPERATURE DISPLAY IS INOPERATIVE OR INCORRECT (DISPLAYED IN THE FCIM (FRONT CONTROLS INTERFACE MODULE))

AR1 RESET THE OUTSIDE AIR TEMPERATURE DISPLAY

- Ignition ON.
- On the HVAC controls, press the A/C and Recirc buttons simultaneously, then release both. Within 2 seconds press the A/C button again.

Does the message center display the correct outside air temperature?

Yes	The system is operating correctly at this time.
No	GO to AR2

AR2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform a network test.

Does the PCM, GWM, HVAC module and the APIM pass the network test?

Yes	GO to AR3
No	DIAGNOSE the PCM, GWM, HVAC module or APIM does not communicate with the diagnostic scan tool. REFER to: Communications Network (418-00 Module Communications Network) .

AR3 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE the PCM. REFER to the appropriate 303-14 section.
No	GO to AR4

AR4 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 415-00 section.
No	GO to AR5

AR5 CHECK THE GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AR6

AR6 CHECK THE OUTSIDE AIR TEMPERATURE CONCERN

- Verify the customer outside air temperature display concern.

Is the outside air temperature display concern for an incorrect temperature display?

Yes	GO to AR7
No	INSTALL a new FCIM. REFER to the appropriate 415-00 section.

AR7 CHECK THE AMBIENT AIR TEMPERATURE INPUT TO THE PCM (POWERTRAIN CONTROL MODULE)

- Using an infrared temperature scanner or similar tool, measure and record the temperature of the ambient air temperature sensor body.
- Ignition ON.
- Using a diagnostic scan tool, view the PCM Parameter Identifications (PIDs).
- Select the ambient air temperature PID (AAT).
- Monitor the ambient air temperature PID and compare the PID value with the recorded temperature of the ambient air temperature sensor body.

Does the ambient air temperature PID match the recorded ambient air temperature sensor measurement within +/- 3°C (+/- 5°F)?

Yes	GO to AR8
No	GO to AR9

AR8 CHECK THE OUTSIDE AIR TEMPERATURE DISPLAY UPDATE

- Drive the vehicle above 33 km/h (20 mph) to allow the outside air temperature display to update.

Did the outside air temperature display update toward the actual ambient air temperature?

Yes	The system is operating correctly at this time. Explain to the customer the operation of the system as it relates to the update strategy.
No	INSTALL a new FCIM. REFER to the appropriate 415-00 section.

AR9 CHECK THE AMBIENT AIR TEMPERATURE SENSOR RESISTANCE

- Ignition OFF.
- Disconnect PCM C1232B (2.7L GTDI Engine).
- Disconnect PCM C1551B (3.3L TiVCT Engine).
- Disconnect PCM C1915B (3.5L GTDI Engine).
- Disconnect PCM C1381B (5.0L Engine).
- Measure:

  Click to display connectors

5.0L Engine

Positive Lead	Measurement / Action	Negative Lead
C1381B-84	Ω	C1381B-43

- Compare the ambient temperature sensor resistances using the table below.

Outside Air Temperature		Ambient Air Temperature Sensor Value
Celcius	**Fahrenheit**	**Resistance (K ohms)**
-1.1° to 4.4°	30° to 40°	27.49 to 33.47
4.4° to 10°	40° to 50°	22.06 to 28.86
10° to 15.6°	50° to 60°	16.63 to 23.10
15.6° to 21.1°	60° to 70°	11.74 to 17.32
21.1° to 26.7°	70° to 80°	9.34 to 12.14
26.7° to 32.2°	80° to 90°	8.49 to 9.62
32.2° to 37.8°	90° to 100°	5.93 to 7.87
37.8° to 43.3°	100° to 110°	4.78 to 6.11

Does the resistance match the table specifications above?

Yes	GO to AR11
No	GO to AR10

AR10 CHECK THE AMBIENT AIR TEMPERATURE SENSOR RESISTANCE

- Disconnect Ambient Air Temperature Sensor C132.
- Compare the ambient temperature sensor resistances using the table below.

Outside Air Temperature		Ambient Air Temperature Sensor Value
Celcius	**Fahrenheit**	**Resistance (K ohms)**
-1.1° to 4.4°	30° to 40°	27.49 to 33.47
4.4° to 10°	40° to 50°	22.06 to 28.86
10° to 15.6°	50° to 60°	16.63 to 23.10
15.6° to 21.1°	60° to 70°	11.74 to 17.32
21.1° to 26.7°	70° to 80°	9.34 to 12.14
26.7° to 32.2°	80° to 90°	8.49 to 9.62
32.2° to 37.8°	90° to 100°	5.93 to 7.87
37.8° to 43.3°	100° to 110°	4.78 to 6.11

Does the resistance match the table specifications above?

Yes	The ambient air temperature sensor is operating correctly. REPAIR the circuits for high circuit resistance.
No	GO to AR12

AR11 CHECK THE AMBIENT AIR TEMPERATURE (AAT) SENSOR FOR OBSTRUCTIONS OR DEBRIS

- Check the area around the Ambient Air Temperature (AAT) sensor for any obstructions or debris such as leaves or paper.

Is the area around the Ambient Air Temperature (AAT) sensor free from any obstructions or debris?

Yes	GO to AR12
No	CLEAR all debris or obstructions as necessary to allow for the free flow of air around the Ambient Air Temperature (AAT) sensor.

AR12 CHECK THE AMBIENT AIR TEMPERATURE (AAT) SENSOR OPERATION

- Disconnect Ambient Air Temperature (AAT) Sensor C132.

- Inspect the connector and wiring:
  - water intrusion
  - corrosion
  - damaged pins
  - pushed-out pins

Are there any signs of water intrusion, corrosion, damaged or pushed out pins?

Yes	REPAIR the Ambient Air Temperature (AAT) sensor connector or wiring for any water intrusion, corrosion, damaged or pushed out pins.
No	INSTALL a new ambient air temperature sensor.

The Raptor Status Display Is Inoperative Or Doesn't Display Correctly

Normal Operation and Fault Conditions

See Raptor Status Screen Display.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the 4WD data is missing for 5 seconds or longer, the IPC defaults the driveline display display off.

If the steering wheel angle message is missing, the IPC defaults the steering angle text off and displays the wheels in the straight ahead position with the lines connecting the front and rear wheels off.

If the rear differential lock status message is missing for 5 seconds or longer, the IPC defaults the locked differntial image in the graphic off.

If the hill descent message request is missing for 5 seconds or longer, the IPC displays FAULT in place of the indicator.

If the stabilty-traction control and stablility-traction control disabled messages are missing for 5 seconds or longer, the IPC defaults the stablity-traction control indicators to disabled or off.

Possible Sources

- Communication concern
- Stability-traction control concern
- EPAS concern
- ELD concern
- 4WD concern
- Hill descent control concern
- IPC

PINPOINT TEST AS : THE RAPTOR STATUS DISPLAY IS INOPERATIVE OR DOESN'T DISPLAY CORRECTLY

AS1 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE RAPTOR DISPLAY SCREEN

- Ignition ON.
- **NOTE:** *The IPC and message center navigation can be found in the Owner's Literature.*

  Using the message center controls, select the off road tab and make sure the IPC is set to Raptor Status display screen.

Is the Raptor status screen display selected?

Yes	GO to AS2
No	The Raptor display is operating correctly. The IPC was not set to the correct display screen.

AS2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AS3

AS3 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

- Using a diagnostic scan tool, perform the ABS module self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to AS4

AS4 PERFORM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the PSCMself-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).
No	GO to AS5

AS5 PERFORM THE TCCM (TRANSFER CASE CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the TCCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .
No	  Click here to access Guided Routine (IPC).

The Terrain Management Display Is Inoperative Or Doesn't Display The Correct Features (Raptor Only)

Normal Operation and Fault Conditions

See Terrain Management System.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the 4WD status, 4WD mode display, brake drive mode, drive mode switch status, steering effort status or powertrain drive mode status messages are missing for 5 seconds or longer, the IPC defaults the terrain managment display to normal mode.

For additional information related to the terrain managment system or displays,
REFER to: Four-Wheel Drive Systems (308-07 Four-Wheel Drive Systems) .

Possible Sources

- Communication concern

- Terrrain managment system concern
- ABS concern
- EPAS concern
- PCM concern
- 4WD concern

PINPOINT TEST AT : THE TERRAIN MANAGEMENT DISPLAY IS INOPERATIVE OR DOESN'T DISPLAY THE CORRECT FEATURES (RAPTOR ONLY)

AT1 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the TCCM, PSCM, ABS module, PCM and SCCM pass the network test?

Yes	GO to AT2
No	REFER to: Communications Network (418-00 Module Communications Network) .

AT2 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to AT3

AT3 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

- Using a diagnostic scan tool, perform the ABS module self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to AT4

AT4 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) KOEO (KEY ON, ENGINE OFF) SELF-TEST

- Using a diagnostic scan tool, perform the KOEOself-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 303-14 section.
No	GO to AT5

AT5 PERFORM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the PSCMself-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).
No	GO to AT6

AT6 PERFORM THE SCCM (STEERING COLUMN CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the SCCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
No	DIAGNOSE the terrain management system. REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .

The Trailer Information Or Trailer Backup Assist Display Is Inoperative

Normal Operation and Fault Conditions

See Trailer Information Display and Trailer Backup Assist Display.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Communication concern
- Trailer backup assist concern
- PSCM concern
- IPC

PINPOINT TEST AU : THE TRAILER INFORMATION OR TRAILER BACKUP ASSIST DISPLAY IS INOPERATIVE

AU1 VERIFY THE IPC (INSTRUMENT PANEL CLUSTER) IS SET TO THE TRAILER INFORMATION DISPLAY SCREEN

- Ignition ON.
- **NOTE:** *The IPC and message center navigation can be found in the Owner's Literature.*

  Using the message center controls, make sure the IPC is set to the trailer information display screen.

Is the IPC set to the trailer information display screen?

Yes	GO to AU2
No	The trailer information display is operating correctly. The IPC was not set to the correct display screen.

AU2 RETRIEVE THE RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AU3

AU3 PERFORM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, perform the PSCM self-test.
- Check for recorded Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).
No	GO to AU4

AU4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the trailer backup assist system. REFER to: Parking Aid (413-13D Parking Aid - Vehicles With: Trailer Back Up Assist (TBA), Diagnosis and Testing).

The Auto High Beam RTT Is Never Or Always On

Normal Operation and Fault Conditions

See Auto High Beam RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the auto high beam status display message is missing for less than 5 seconds, the IPC defaults the auto high beam RTT to its last indication state (on or off), based upon the last message received.

If the auto high beam status display message is missing for 5 seconds or longer, the IPC defaults the high beam RTT off.

Possible Sources

- Communication concern
- IPMA concern
- IPC

PINPOINT TEST AV : THE AUTO HIGH BEAM RTT (RECONFIGURABLE TELLTALE) IS NEVER OR ALWAYS ON

AV1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AV2
No	GO to Pinpoint Test A

AV2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AV3

AV3 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Lane Keeping System (419-07 Lane Keeping System) .
No	DIAGNOSE the auto high beams. REFER to: Headlamps (417-01 Exterior Lighting) .

The Blind Spot Information System (BLIS®) Off RTT Is Never Or Always On

Normal Operation and Fault Conditions

See Blind Spot Monitoring System (BLIS®) Off RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the cross traffic alert left or cross traffic right message is missing or invalid for less than 5 seconds, the IPC defaults the Blind Spot Information System (BLIS®) off RTT to the last state (on or off), based upon the last message received.

If the cross traffic alert left or cross traffic right message is missing or invalid for 5 seconds or longer, the IPC defaults the Blind Spot Information System (BLIS®) off RTT off.

Possible Sources

- Communication concern
- GWM concern
- SODL concern
- SODR concern
- IPC

PINPOINT TEST AW : THE BLIND SPOT INFORMATION SYSTEM (BLIS®) OFF RTT (RECONFIGURABLE TELLTALE) IS NEVER OR ALWAYS

ON

AW1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AW2
No	GO to Pinpoint Test A

AW2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AW3

AW3 PERFORM THE SODL (SIDE OBSTACLE DETECTION CONTROL MODULE LH) AND SODR (SIDE OBSTACLE DETECTION CONTROL MODULE RH) SELF-TESTS

- Using a diagnostic scan tool, perform the SODL and SODR self-tests.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Blind Spot Information System (419-04 Side and Rear Vision) .
No	GO to AW4

AW4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the Blind Spot Information System (BLIS®). REFER to: Blind Spot Information System (419-04 Side and Rear Vision) .

The Cruise Control RTT Is Never On

Normal Operation and Fault Conditions

See Cruise Control RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the cruise control status, cruise control override or cruise control set speed message is missing or deemed invalid by the IPC for less than 5 seconds, the IPC defaults the cruise control indicator to the last indication state (on or off), based upon the last message received.

If the cruise control status, cruise control override or cruise control set speed message is missing or if the data is deemed invalid by the IPC for 5 seconds or longer, the IPC defaults the cruise control indicator off.

Possible Sources

- Communication concern
- Cruise control concern
- IPC

PINPOINT TEST AX : THE CRUISE CONTROL RTT (RECONFIGURABLE TELLTALE) IS NEVER ON

AX1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AX2
No	GO to Pinpoint Test A

AX2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AX3

AX3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the cruise control system. For base cruise control, REFER to: Cruise Control (419-03 Cruise Control) . For ACC, REFER to: Cruise Control (419-03 Cruise Control - Vehicles With: Adaptive Cruise Control) .

The Lane Keeping System Off RTT Is Never Or Always On

Normal Operation and Fault Conditions

See Lane Keeping System Off RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the lane keeping indicator request is missing for less than 5 seconds, the IPC defaults the lane keeping system off RTT to the last indication state (on or off), based upon the last message received.

If the lane keeping indicator request is missing for 5 seconds or longer, the IPC defaults the lane keeping systerm off RTT off.

Possible Sources

- Lane departure warning system concern
- Communication concern
- GWM concern
- IPMA concern
- IPC

PINPOINT TEST AY : THE LANE KEEPING SYSTEM OFF RTT (RECONFIGURABLE TELLTALE) IS NEVER OR ALWAYS ON

AY1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AY2
No	GO to Pinpoint Test A

AY2 CHECK THE LANE DEPARTURE SWITCH OPERATION

- Press the lane departure switch to turn the system on then off again.

Does the lane keeping system off RTT turn on then off again?

Yes	The system is operating correctly at this time. The system was turned off.
No	GO to AY3

AY3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AY4

AY4 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST
• Using a diagnostic scan tool, perform the IPMA self-test. **Are any Diagnostic Trouble Codes (DTCs) recorded?**

Yes	REFER to: Lane Keeping System (419-07 Lane Keeping System) .
No	GO to AY5

AY5 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 Diagnostic Trouble Codes (DTCs) recorded?**

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the lane departure warning system. REFER to: Lane Keeping System (419-07 Lane Keeping System) .

The Steering Mode RTT Is Never On

Normal Operation and Fault Conditions

See Steering Mode RTT.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the steering effort status message is missing or deemed invalid by the IPC for less than 5 seconds, the IPC defaults the steering mode RTT to the last indication state (on or off), based upon the last message received.

If the steering effort status message is missing or if the data is deemed invalid by the IPC for 5 seconds or longer, the IPC defaults the steering mode RTT off.

Possible Sources

- Communication concern
- EPAS concern
- GWM concern
- IPC

PINPOINT TEST AZ : THE STEERING MODE RTT (RECONFIGURABLE TELLTALE) IS NEVER ON

AZ1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors, the hood and luggage compartment lid.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to AZ2
No	GO to Pinpoint Test A

AZ2 VERIFY THE STEERING MODE SYSTEM OPERATES CORRECTLY

- **NOTE:** *Refer to the Owner's Literature for additional information on selecting the different steering modes.*

  Verify the steering effort changes modes.

Does the steering effort change when selecting different modes?

Yes	GO to AZ3
No	DIAGNOSE the EPAS steering effort mode selection. REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).

AZ3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to AZ4

AZ4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	  Click here to access Guided Routine (IPC).

The Check Fuel Fill Inlet Message Is Always Displayed

Normal Operation and Fault Conditions

See Check Fuel Fill Inlet Message.
REFER to: Message Center (413-01 Instrumentation, Message Center and Warning Chimes) .

If the check fuel fill inlet message request is missing for less than 5 seconds, the IPC defaults the check fuel fill inlet message center message to the last indication state, based upon the last message received.

If the check fuel fill inlet message request is missing for 5 seconds or longer, the IPC defaults the check fuel fill inlet message center message off.

Possible Sources

- Evaporative emissions system concern
- GWM concern
- PCM concern
- IPC

PINPOINT TEST BA : THE CHECK FUEL FILL INLET MESSAGE IS ALWAYS DISPLAYED

BA1 CHECK THE MESSAGE CENTER OPERATION

- Ignition ON.
- Close all doors and the hood.
- Clear all message center warnings by pressing the OK button for each warning present.
- Monitor the door ajar RTT.
- Open the driver door.
- Clear the message center popup warning.
- Monitor the door ajar RTT.

Is the door ajar RTT off with the door closed, and on with the door open?

Yes	GO to BA2
No	GO to Pinpoint Test A

BA2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BA3

BA3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all PCM Diagnostic Trouble Codes (DTCs). Refer to the appropriate section in Group 303 for the procedure.

The Active Park Assist-Parking Aid Chime Is Inoperative

Normal Operation and Fault Conditions

See Active Park Assist Chime or Parking Aid Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Parking aid system concern
- Communication concern
- GWM concern
- IPC
- PAM concern

PINPOINT TEST BB : THE ACTIVE PARK ASSIST-PARKING AID CHIME IS INOPERATIVE

BB1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BB2
No	  Click here to access Guided Routine (IPC).

BB2 VERIFY THE CHIMES FUNCTION THROUGH THE AUDIO SPEAKERS

- Ignition OFF.
- Ignition ON.
- Monitor the location of the seatbelt warning chime (front/rear audio speakers or IPC) when the ignition is transitioned from OFF to RUN.

Does the chime sound through the audio speakers?

Yes	GO to BB4
No	GO to BB3

BB3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BB4

BB4 PERFORM THE PAM (PARKING ASSIST CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	Parking aid without active park assist. REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing). Parking aid with active park assist. REFER to: Parking Aid (413-13C Parking Aid - Vehicles With: Active Park Assist, Diagnosis and Testing).
No	GO to BB5

BB5 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST
• Using a diagnostic scan tool, perform the IPC self-test. **Are any Diagnostic Trouble Codes (DTCs) recorded?** **Yes** — REFER to DTC Chart: IPC in this section. **No** — DIAGNOSE the parking aid. For parking aid without active park assist. REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing). Parking aid with active park assist. REFER to: Parking Aid (413-13C Parking Aid - Vehicles With: Active Park Assist, Diagnosis and Testing).

The Adaptive Cruise Control Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Adaptive Cruise Control Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Adaptive cruise control concern
- Communication concern
- GWM concern
- IPC

PINPOINT TEST BC : THE ADAPTIVE CRUISE CONTROL WARNING CHIME IS INOPERATIVE

BC1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BC2
No	  Click here to access Guided Routine (IPC).

BC2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BC3

BC3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BC4

BC4 CHECK THE CRUISE CONTROL DISPLAY IN THE MESSAGE CENTER

- Verify the adaptive cruise control display functions in the message center when the adaptive cruise control is in operation.

Does the cruise control display operate in the message center?

Yes	DIAGNOSE the cruise control system. For base cruise control, REFER to: Cruise Control (419-03 Cruise Control) . or for ACC REFER to: Cruise Control (419-03 Cruise Control - Vehicles With: Adaptive Cruise Control) .
No	GO to Pinpoint Test AX

The Blind Spot Information System (BLIS®)/Cross Traffic Alert (CTA) Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Blind Spot Information System (BLIS®) Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Communication concern
- Blind Spot Information System (BLIS®) concern
- GWM concern
- IPC

PINPOINT TEST BD : THE BLIND SPOT INFORMATION SYSTEM (BLIS®)/CROSS TRAFFIC ALERT (CTA) WARNING CHIME IS INOPERATIVE

BD1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BD2

No	  Click here to access Guided Routine (IPC).

BD2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BD3

BD3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the Blind Spot Information System (BLIS®)/Cross Traffic Alert (CTA) system. REFER to: Blind Spot Information System (419-04 Side and Rear Vision) .

The Chime Always Sounds

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See PRNDL Not In Park Warning Chime, Key-In-Ignition Chime, Ignition-Engine On Warning Chime and Headlamps On Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Exterior lighting concern
- Interior lighting concern
- PRNDL concern
- Wiring, terminals or connectors

- Ignition switch
- Ignition lock cylinder housing
- BCM concern
- IPC

PINPOINT TEST BE : THE CHIME ALWAYS SOUNDS

BE1 CHECK THE IPC (INSTRUMENT PANEL CLUSTER) FOR MESSAGE CENTER MESSAGES

- Ignition OFF.
- Ignition ON.
- Check the IPC and message center for illuminated warning indicator or message center displays.

Does the IPC have any RTT or warning indicators illuminated or message center messages displayed?

Yes	REPAIR all message center indication concerns first. REFER to Symptom Chart: IPC or Symptom Chart: Information And Message Center, in this section.
No	GO to BE2

BE2 CHECK THE EXTERIOR LIGHTING OPERATION

- Place the headlamp switch in the OFF position.
- Close all doors.
- Wait one minute.
- Observe the exterior lights.

Are the headlamps and parking lamps off?

Yes	GO to BE3
No	REFER to: Headlamps (417-01 Exterior Lighting) . or REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting) .

BE3 CHECK THE INTERIOR LIGHTING OPERATION

- Open and close the driver door.
- Observe the interior lights.

Do the interior lights operate correctly from the driver door?

Yes	GO to BE4
No	REFER to: Interior Lighting (417-02 Interior Lighting) .

BE4 CHECK THE PRNDL OPERATION

- Apply the parking brake.
- Move the selector lever through all the ranges while observing the PRNDL.

Does the PRNDL operate correctly and display the correct position matching the selector lever position?

Yes	GO to BE5
No	GO to Pinpoint Test AG

BE5 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to BE6

BE6 CHECK THE BCM (BODY CONTROL MODULE) INPUT PIDS FROM THE IGNITION SWITCH

- Using a diagnostic scan tool, view the BCM Parameter Identifications (PIDs).
- Select and monitor the BCM ignition switch (IGN_SW_ACC), (IGN_SW_RUN) and (IGN_SW_KEY_IN) Parameter Identifications (PIDs) while cycling the ignition switch through the ACC, OFF, and RUN states.

Do the BCM Parameter Identifications (PIDs) match the ignition switch position?

Yes	  Click here to access Guided Routine (IPC).
No	For ignition RUN or ACC concerns, DIAGNOSE the ignition switch outputs to the BCM. REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) . For key-in-ignition concern, GO to BE7

BE7 CHECK THE KEY-IN-IGNITION INPUT CIRCUIT FOR VOLTAGE AT THE BCM (BODY CONTROL MODULE)

- Ignition OFF.
- Disconnect BCM C2280B.
- Remove the key from the ignition cylinder.

Is any voltage present?

Yes	GO to BE8
No	GO to BE10

BE8 CHECK THE KEY-IN-IGNITION INPUT WITH THE IGNITION SWITCH DISCONNECTED

- Disconnect Ignition Switch C250.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to BE9

BE9 CHECK THE IGNITION SWITCH OPERATION

- Perform the ignition switch component test.
  Refer to Wiring Diagrams Cell 149 for schematic and connector information.

Does the ignition switch pass the component test?

Yes	INSTALL a new ignition lock cylinder housing.
No	INSTALL a new ignition switch. REFER to: Ignition Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

BE10 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 BCM connectors and related in-line 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 On-Line Automotive Service Information System (OASIS) for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

The Chime Only Sounds From The IPC

Normal Operation and Fault Conditions

REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Wiring, terminals or connectors
- Communication concern
- ACM concern
- APIM concern
- DACMC concern
- DSP concern

PINPOINT TEST BF : THE CHIME ONLY SOUNDS FROM THE IPC (INSTRUMENT PANEL CLUSTER)

BF1 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

- Ignition ON.
- Using a diagnostic scan tool, perform the IPC self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BF2

BF2 PERFORM THE ACM (AUDIO FRONT CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 415-00 section.
No	GO to BF3

BF3 PERFORM THE APIM (SYNC MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 415-00 section.
No	If equipped with 2.7L GTDI or 3.5L GTDI engine, GO to BF4 If **not** equipped with 2.7L GTDI or 3.5L GTDI engine, GO to BF5

BF4 PERFORM THE DACMC (DIGITAL AUDIO CONTROL MODULE C) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 415-00 section.
No	GO to BF5

BF5 CHECK FOR CORRECT AUDIO SYSTEM OPERATION

- Operate the audio system in AM/ FM mode.

Does the audio system operate correctly?

Yes	If **not** equipped with the Bang & Olufsen audio system, GO to BF7 If equipped with the Bang & Olufsen audio system, GO to BF6
No	DIAGNOSE the audio system. REFER to the appropriate 415-00 section.

BF6 PERFORM THE AUDIO DSP (AUDIO DIGITAL SIGNAL PROCESSING MODULE) MODULE SELF-TEST

- Using a diagnostic scan tool, perform the audio DSP module self-test.

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the appropriate 415-00 section.
No	GO to BF8

BF7 CHECK FOR CORRECT ACM (AUDIO FRONT CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all the ACM connectors and related in-line 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 ACM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new ACM. REFER to the appropriate 415-00 section.
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.

BF8 CHECK FOR CORRECT AUDIO DSP (AUDIO DIGITAL SIGNAL PROCESSING MODULE) MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all the audio DSP module connectors and related in-line 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 audio DSP module connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, discontinue this test and follow TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new audio DSP module. REFER to the appropriate 415-00 section.
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.

The Forward Collision Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Forward Collision Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Forward collision system concern
- Communication concern
- CCM concern (without pre-collision assist)
- IPMA concern (with pre-collision assist)
- GWM concern
- IPC

PINPOINT TEST BG : THE FORWARD COLLISION WARNING CHIME IS INOPERATIVE

BG1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BG2
No	  Click here to access Guided Routine (IPC).

BG2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	If equipped with pre-collision assist, GO to BG4 If not equipped with pre-collision assist, GO to BG3

BG3 PERFORM THE CCM (CRUISE CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Cruise Control (419-03 Cruise Control - Vehicles With: Adaptive Cruise Control) .
No	GO to BG5

BG4 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Lane Keeping System (419-07 Lane Keeping System) .
No	GO to BG5

BG5 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE the collision avoidance system. REFER to: Collision Warning and Collision Avoidance System (419-03 Collision Warning and Collision Avoidance System) .

The Headlamps On Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Headlamps On Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- GWM concern
- BCM concern
- IPC

PINPOINT TEST BH : THE HEADLAMPS ON WARNING CHIME IS INOPERATIVE

BH1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BH2
No	  Click here to access Guided Routine (IPC).

BH2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BH3

BH3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

The Ignition-Engine On Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Headlamps On Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Interior lighting concern
- PRNDL indication concern
- GWM concern
- IPC

PINPOINT TEST BI : THE IGNITION-ENGINE ON WARNING CHIME IS INOPERATIVE

BI1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BI2
No	  Click here to access Guided Routine (IPC).

BI2 CHECK THE DOOR AJAR INDICATION

- Open the driver door.
- Observe the door ajar warning indicator or door ajar RTT.

Does the door ajar warning indicator or door ajar RTT turn on with the driver door ajar?

Yes	GO to BI3
No	GO to Pinpoint Test U

BI3 CHECK THE PRNDL OPERATION

- Shift the transmission range selector through the ranges while observing the PRNDL indication.

Does the PRNDL indication match the selected transmission range?

Yes	GO to BI4
No	GO to Pinpoint Test AG

BI4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	DIAGNOSE all GWM Diagnostic Trouble Codes (DTCs). REFER to: Communications Network (418-00 Module Communications Network) .

The Key-In-Ignition Warning Chime Is Inoperative

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

See Key-In-Ignition Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

BCM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B10F1:14	Key In Switch: Circuit Short To Ground or Open	A continuous and on-demand DTC that sets in the BCM if an open is detected on the key-in-ignition switch input with the ignition ON.

Possible Sources

- Wiring, terminals or connectors
- Interior lighting concern
- Key-in-ignition switch (part of the ignition switch)
- BCM
- IPC

PINPOINT TEST BJ : THE KEY-IN-IGNITION WARNING CHIME IS INOPERATIVE

BJ1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Monitor the seatbelt warning chime when the ignition switch is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BJ2
No	  Click here to access Guided Routine (IPC).

BJ2 CHECK THE INTERIOR LAMPS OPERATION

- Open and close the driver door.
- Observe the interior lamps.

Do the interior lamps operate correctly from the driver door?

Yes	GO to BJ3
No	REFER to: Interior Lighting (417-02 Interior Lighting) .

BJ3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BJ4

BJ4 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Is DTC B10F1:14 present?

Yes	GO to BJ5
No	GO to BJ9

BJ5 CHECK THE KEY-IN-IGNITION INPUT CIRCUIT FOR VOLTAGE

- Ignition OFF.
- Insert the key into the ignition cylinder.
- Disconnect BCM C2280B.

Is the voltage greater than 11 volts?

Yes	GO to BJ9
No	GO to BJ6

BJ6 CHECK THE KEY-IN-IGNITION INPUT CIRCUIT FOR SHORT TO GROUND

- Remove the key from the ignition cylinder.

Is the resistance greater than 10,000 ohms?

Yes	GO to BJ7
No	REPAIR the circuit.

BJ7 CHECK THE KEY-IN-IGNITION INPUT CIRCUIT FOR OPEN

- Disconnect Ignition Switch C250.

Is the resistance less than 3 ohms?

Yes	GO to BJ8
No	REPAIR the circuit.

BJ8 CHECK THE IGNITION SWITCH

- Remove the ignition switch.
  REFER to: Ignition Switch - Vehicles With: Keyless Vehicle System (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

- Perform the ignition switch component test.

Is the ignition switch OK?

Yes	INSTALL a new ignition lock cylinder housing.
No	INSTALL a new ignition switch. REFER to: Ignition Switch (211-05 Steering Wheel and Column Electrical Components, Removal and Installation).

BJ9 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 BCM connectors and related in-line 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 On-Line Automotive Service Information System (OASIS) for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

The Lane Keeping Alert Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Lane Keeping Alert Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Communication concern
- Lane keeping warning system concern
- GWM concern
- IPC

PINPOINT TEST BK : THE LANE KEEPING ALERT WARNING CHIME IS INOPERATIVE

BK1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BK2
No	  Click here to access Guided Routine (IPC).

BK2 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BK3

BK3 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BK4

BK4 CHECK THE LANE KEEPING SYSTEM OPERATION

- Verify the lane keeping system operate correctly.

Does the lane keeping system operate correctly?

Yes	The system is operating correctly at this time. Inform the customer that this chime only operates with the hands off the steering wheel.
No	REFER to: Lane Keeping System (419-07 Lane Keeping System) .

The Memory-Stored Feedback Chime Is Inoperative

Normal Operation and Fault Conditions

See Memory-Stored Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Memory set feature concern
- DSM
- IPC

PINPOINT TEST BL : THE MEMORY-STORED FEEDBACK CHIME IS INOPERATIVE

BL1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BL2
No	  Click here to access Guided Routine (IPC).

BL2 CHECK THE MEMORY SET FEATURE

- Verify the memory set procedure can successfully change the memory preferences.

Does the memory set procedure successfully change the memory preferences?

Yes	GO to BL3
No	REFER to: Front Seats (501-10 Front Seats) .

BL3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	DIAGNOSE all GWM Diagnostic Trouble Codes (DTCs). REFER to: Communications Network (418-00 Module Communications Network) .

The Parking Brake Warning Chime Is Inoperative

Normal Operation and Fault Conditions

See Parking Brake Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Brake warning indication concern
- Communication concern
- GWM concern
- IPC

Visual Inspection And Diagnostic Pre-checks

Check the operation of the parking brake warning chime with the vehicle moving at least 10 km/h (6.2 mph) and the parking brake slightly applied (just enough to turn the brake warning indicator on without damaging the rear brakes).

PINPOINT TEST BM : THE PARKING BRAKE WARNING CHIME IS INOPERATIVE

BM1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BM2
No	  Click here to access Guided Routine (IPC).

BM2 CHECK THE BRAKE WARNING INDICATOR FOR CORRECT OPERATION

- Apply the parking brake.
- Observe the brake warning indicator.

Does the brake warning indicator illuminate?

Yes	GO to BM3
No	GO to Pinpoint Test R

BM3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BM4

BM4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

The Perimeter Alarm Chime Is Inoperative

Normal Operation and Fault Conditions

See Perimeter Alarm Warning Chime.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Perimeter alarm concern
- GWM concern
- BCM concern
- IPC

PINPOINT TEST BN : THE PERIMETER ALARM CHIME IS INOPERATIVE

BN1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Monitor the seatbelt warning chime when the ignition switch is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BN2
No	  Click here to access Guided Routine (IPC).

BN2 CHECK THE OPERATION OF THE PERIMETER ALARM

- Arm the perimeter alarm using the remote key locking feature (key fob).
- Wait approximately 15 seconds for the system to arm.
- Open the driver door using the interior door handle.

Does the perimeter alarm sound after 12 seconds?

Yes	GO to BN3
No	REFER to: Perimeter Anti-Theft Alarm (419-01A Perimeter Anti-Theft Alarm, Diagnosis and Testing).

BN3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BN4

BN4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	DIAGNOSE all BCM Diagnostic Trouble Codes (DTCs). REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

The Seatbelt Warning Chime Or The Belt-Minder® Feature Is Inoperative

Normal Operation and Fault Conditions

See Seatbelt Warning Chime and Belt-Minder® Feature.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Belt-Minder® deactivated
- Communication concern
- Seatbelt warning indication concern
- Vehicle speed input concern
- BCM concern
- GWM concern
- RCM
- IPC

PINPOINT TEST BO : THE SEATBELT WARNING CHIME OR THE BELT-MINDER® FEATURE IS INOPERATIVE

BO1 CHECK THE HEADLAMPS ON WARNING CHIME

- Ignition OFF.
- Turn the headlamps on.
- Remove the ignition key (except push button start) or place the ignition OFF (with push button start).
- Open the driver door.
- Monitor the headlamps on warning chime.

Does the headlamps on warning chime operate?

Yes	GO to BO2
No	  Click here to access Guided Routine (IPC).

BO2 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition ON.
- Monitor the seatbelt warning chime when the ignition switch is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	For the Belt-Minder®, GO to BO3
No	GO to BO5

BO3 CHECK THE SPEEDOMETER OPERATION

- Ignition ON.
- Verify the speedometer operates.

Does the speedometer operate?

Yes	GO to BO4
No	GO to Pinpoint Test E

BO4 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BO5

BO5 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to BO6

BO6 PERFORM THE RCM (RESTRAINTS CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing).
No	GO to BO7

BO7 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BO8

BO8 CHECK THE DRIVER AND FRONT PASSENGER SEATBELT BUCKLE SWITCH

- Using a diagnostic scan tool, monitor the RCM driver and front passenger seatbelt buckle Parameter Identifications (PIDs) (SBELT_D_ST) and (SBLT_P_ST) while buckling and unbuckling the seatbelt.

Do the Parameter Identifications (PIDs) display BUCKLED with the seatbelt buckled and UNBUCKLED with the seatbelt unbuckled?

Yes	GO to BO9
No	INSTALL a new seatbelt buckle. REFER to: Front Seatbelt Buckle (501-20A Seatbelt Systems, Removal and Installation).

BO9 CHECK THE BELT-MINDER® CONFIGURATION

NOTE: *Verify that an administrator key is used for this test and not a MyKey® programmed key. When a MyKey® programmed key is used, the Belt-Minder® is automatically turned on and cannot be disabled (if previously disabled by an administrator, the Belt-Minder® remains disabled when an administrator key is used).*

- Verify the Belt-Minder® is activated or configured on for the seating position in question.
  REFER to: Seatbelt Minder Deactivating/Activating (413-01 Instrumentation, Message Center and Warning Chimes, General Procedures).

Is the Belt-Minder® activated for the seating position in question?

Yes	If the Belt-Minder® is always on above 10 km/h (6 mph) with the seatbelt unfastened, the system is operating correctly. If the Belt-Minder® is always on with the seatbelt fastened or never on with the seatbelt unfastened above 10 km/h (6 mph), INSTALL a new RCM. REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, Removal and Installation).
No	ACTIVATE the Belt-Minder® for the seating position in question. REFER to: Seatbelt Minder Deactivating/Activating (413-01 Instrumentation, Message Center and Warning Chimes, General Procedures).

The Turn Signal-Hazard On Chime Or Turn Signal Left On Chime Is Inoperative

Normal Operation and Fault Conditions

See Turn Signal On Chime Tone.
REFER to: Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

Possible Sources

- Turn signal indication concern
- Communication concern
- BCM concern
- IPC

PINPOINT TEST BP : THE TURN SIGNAL-HAZARD ON CHIME OR TURN SIGNAL LEFT ON CHIME IS INOPERATIVE

BP1 CHECK THE SEATBELT WARNING CHIME OPERATION

- Ignition OFF.
- Ignition ON.
- Unbuckle the driver seatbelt.
- Monitor the seatbelt warning chime when the ignition is transitioned from OFF to RUN for 6 seconds.

Does the seatbelt warning chime operate for approximately 6 seconds?

Yes	GO to BP2
No	  Click here to access Guided Routine (IPC).

BP2 CHECK THE TURN SIGNAL INDICATOR OPERATION

- Verify the RH and LH turn signal indicators operate correctly.

Do the turn signal indicators operate correctly?

Yes	GO to BP3
No	GO to Pinpoint Test AA

BP3 PERFORM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	  Click here to access Guided Routine (IPC).

U0100:00 or U0401:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0100:00	Lost Communication With ECM/PCM "A": No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the PCM through the GWM are missing for 5 seconds or longer.
U0401:82	Invalid Data Received from ECM/PCM A: Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if updated data messages for adaptive cruise control are not received from the PCM for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- PCM
- IPC concern

PINPOINT TEST BQ : U0100:00 OR U0401:82

BQ1 VERIFY THE SCAN TOOL COMMUNICATES WITH THE PCM (POWERTRAIN CONTROL MODULE)

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

Can a vehicle session be established?

Yes	GO to BQ2
No	REFER to: Communications Network (418-00 Module Communications Network) .

BQ2 CHECK THE IPC (INSTRUMENT PANEL CLUSTER) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, perform the IPC self-test.
- Clear the Diagnostic Trouble Codes (DTCs).
- Wait 10 seconds.
- Repeat the IPC self-test.

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to DTC Chart: IPC in this section.
No	GO to BQ3

BQ3 PERFORM THE PCM (POWERTRAIN CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to the appropriate 303-14 section.
No	GO to BQ4

BQ4 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 Diagnostic Trouble Codes (DTCs) set?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BQ5

BQ5 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0100:00 or U0401:82 still present?

Yes	GO to BQ6
No	The system is operating correctly at this time. The DTC may have set due to high network traffic or an intermittent fault condition.

BQ6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

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 PCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BQ7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BQ7 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the PCM and all related in-line 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 PCM 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new PCM. REFER to the appropriate 303-14 section.
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.

U0102:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0102:00	Lost Communication with Transfer Case Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the TCCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- TCCM
- IPC concern

PINPOINT TEST BR : U0102:00

BR1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BR2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BR2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the TCCM pass the network test?

Yes	GO to BR3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BR3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BR4

BR4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BR5

BR5 PERFORM THE TCCM (TRANSFER CASE CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Four-Wheel Drive Systems - Vehicles With: 2-Speed Torque On Demand Transfer Case (308-07 Four-Wheel Drive Systems) . or REFER to: Four-Wheel Drive Systems - Vehicles With: Electronic Shift Transfer Case (308-07 Four-Wheel Drive Systems) .
No	GO to BR6

BR6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0102:00 still present?

Yes	GO to BR7
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.

BR7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

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 TCCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BR8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BR8 CHECK FOR CORRECT TCCM (TRANSFER CASE CONTROL MODULE) OPERATION

- Ignition OFF.

- Disconnect and inspect TCCM connector and related in-line 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 TCCM connector and related in-line connectors. Make sure it seats and latches correctly.

- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new TCCM. REFER to: Transfer Case Control Module (TCCM) (308-07A Four-Wheel Drive Systems, 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.

U0104:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0104:00	Lost Communication With Cruise Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the CCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- CCM
- IPC concern

PINPOINT TEST BS : U0104:00

BS1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BS2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BS2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the CCM pass the network test?

Yes	GO to BS3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BS3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BS4

BS4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BS5

BS5 PERFORM THE CCM (CRUISE CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Cruise Control (419-03 Cruise Control - Vehicles With: Adaptive Cruise Control) .
No	GO to BS6

BS6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0104:00 still present?

Yes	GO to BS7
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.

BS7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

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 CCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BS8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BS8 CHECK FOR CORRECT CCM (CRUISE CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all CCM connectors and related in-line 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 all the CCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new CCM. REFER to: Cruise Control Module (CCM) (419-03 Cruise Control - Vehicles With: Adaptive Cruise Control) .
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.

U0121:00 And U0417:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0121:00	Lost Communication With Anti-Lock Brake System (ABS) Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the ABS module through the GWM are missing for 5 seconds or longer.
U0417:82	Invalid Data Received From Park Brake Control Module: Alive/Sequence Counter Incorrect/ Not Updated	Sets in continuous memory in the IPC if electronic brake data received from the ABS module through the GWM is missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- ABS module
- IPC concern

PINPOINT TEST BT : U0121:00 AND U0417:82

BT1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BT2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BT2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the ABS module pass the network test?

Yes	GO to BT3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BT3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BT4

BT4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BT5

BT5 PERFORM THE ABS (ANTI-LOCK BRAKE SYSTEM) MODULE SELF-TEST

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

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

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to BT6

BT6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0121:00 or U0417:82 still present?

Yes	GO to BT7
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.

BT7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

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 module, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BT8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BT8 CHECK FOR CORRECT ABS (ANTI-LOCK BRAKE SYSTEM) MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all ABS module connectors and related in-line 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 all the ABS module connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new ABS module. REFER to: Anti-Lock Brake System (ABS) Module (206-09 Anti-Lock Brake System (ABS) and Stability Control, 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.

U0137:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0137:00	Lost Communication With Trailer Brake Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the TBM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- TBM

- IPC connector

PINPOINT TEST BU : U0137:00

BU1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BU2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BU2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the TBM pass the network test?

Yes	GO to BU3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BU3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BU4

BU4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BU5

BU5 PERFORM THE TBM (TRAILER BRAKE CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Auxiliary Brake System - Vehicles With: Trailer Brake Control (206-10 Auxiliary Brake System, Diagnosis and Testing).
No	GO to BU6

BU6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0137:00 still present?

Yes	GO to BU7
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.

BU7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

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 TBM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BU8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BU8 CHECK FOR CORRECT TBM (TRAILER BRAKE CONTROL MODULE) OPERATION

- Ignition OFF.

- Disconnect and inspect all TBM connectors and related in-line 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 all the TBM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new TBM. REFER to: Trailer Brake Control Module (TBM) (206-10 Auxiliary Brake System, 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.

U0140:00 Or U0422:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0140:00	Lost Communication With Body Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the BCM through the GWM are missing for 5 seconds or longer.
U0422:82	Invalid Data Received From Body Control Module: Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if load shed, power child lock or park lock data messages received from the BCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- BCM
- IPC concern

PINPOINT TEST BV : U0140:00 OR U0422:82

BV1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BV2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BV2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the BCM pass the network test?

Yes	GO to BV3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BV3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BV4

BV4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BV5

BV5 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	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to BV6

BV6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0140:00 or DTC U0422:82 still present?

Yes	GO to BV7
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.

BV7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BV8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BV8 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 all the BCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

U0151:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0151:00	Lost Communication With Restraints Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the RCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- RCM
- IPC concern

PINPOINT TEST BW : U0151:00

BW1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BW2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BW2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the RCM pass the network test?

Yes	GO to BW3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BW3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BW4

BW4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BW5

BW5 PERFORM THE RCM (RESTRAINTS CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Airbag Supplemental Restraint System (SRS) - Raptor (501-20B Supplemental Restraint System, Diagnosis and Testing).
No	GO to BW6

BW6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0151:00 still present?

Yes	GO to BW7
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.

BW7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 RCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BW8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BW8 CHECK FOR CORRECT RCM (RESTRAINTS CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all RCM connectors and related in-line 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 all the RCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new RCM. REFER to: Restraints Control Module (RCM) (501-20B Supplemental Restraint System, 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.

U0159:00 Or U045A:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0159:00	Lost Communication With Parking Assist Control Module "A": No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the PAM (part of the BCM) through the GWM are missing for 5 seconds or longer.
U045A:82	Invalid Data Received From Parking Assist Control Module "A": Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if updated data messages received from the PAM (part of the BCM) through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- PAM (part of the BCM)
- IPC concern

PINPOINT TEST BX : U0159:00 OR U045A:82

BX1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BX2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BX2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the PAM pass the network test?

Yes	GO to BX3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BX3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BX4

BX4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BX5

BX5 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	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to BX6

BX6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0159:00 or U045A:82 still present?

Yes	GO to BX7
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.

BX7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 PAM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BX8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BX8 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM connectors and related in-line 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 all the BCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   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.

U0193:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0193:00	Lost Communication With "Digital Audio Control Module A": No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the ACM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- ACM
- IPC concern

PINPOINT TEST BY : U0193:00

BY1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BY2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BY2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the ACM pass the network test?

Yes	GO to BY3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BY3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BY4

BY4 PERFORM THE ACM (AUDIO FRONT CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BY5

BY5 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0193:00 still present?

Yes	GO to BY6
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.

BY6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 ACM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BY7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BY7 CHECK FOR CORRECT ACM (AUDIO FRONT CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all ACM connectors and related in-line 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 all the ACM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new ACM. Refer to the appropriate section in Group 415 for the procedure.
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.

U0212:00 Or U0429:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0212:00	Lost Communication With Steering Column Control Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the SCCM through the GWM are missing for 5 seconds or longer.
U0429:82	Invalid Data Received From Invalid Data Received From Steering Column Control Module: Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if data messages received from the SCCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- SCCM module
- IPC concern

PINPOINT TEST BZ : U0212:00 OR U0429:82

BZ1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to BZ2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

BZ2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the SCCM pass the network test?

Yes	GO to BZ3
No	REFER to: Communications Network (418-00 Module Communications Network) .

BZ3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to BZ4

BZ4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to BZ5

BZ5 PERFORM THE SCCM (STEERING COLUMN CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
No	GO to BZ6

BZ6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0212:00 or U0429:82 still present?

Yes	GO to BZ7
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.

BZ7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 SCCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 BZ8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

BZ8 CHECK FOR CORRECT SCCM (STEERING COLUMN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all SCCM connectors and related in-line 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 all the SCCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new SCCM. REFER to: Steering Column Control Module (SCCM) (211-05 Steering Wheel and Column Electrical Components, 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.

U0232:00, U0233:00, U0533:82 Or U0534:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0232:00	Lost Communication With Side Obstacle Detection Control Module - Left: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the SODL through the GWM are missing for 5 seconds or longer.
U0233:00	Lost Communication With Side Obstacle Detection Control Module - Right: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the SODR through the GWM are missing for 5 seconds or longer.

U0533:82	Invalid Data Received From Side Obstacle Detection Control Module-Left: Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if updated data messages received from the SODL through the GWM are missing for 5 seconds or longer.
U0534:82	Invalid Data Received From Side Obstacle Detection Control Module-Right: Alive/ Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if updated data messages received from the SODR through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- SODL
- SODR
- IPC concern

PINPOINT TEST CA : U0232:00, U0233:00, U0533:82 OR U0534:82

CA1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CA2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CA2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the SODL or SODR pass the network test?

Yes	GO to CA3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CA3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CA4

CA4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to CA5

CA5 PERFORM THE SODL (SIDE OBSTACLE DETECTION CONTROL MODULE LH) OR SODR (SIDE OBSTACLE DETECTION CONTROL MODULE RH) SELF-TEST

- Using a diagnostic scan tool, perform the SODL or SODR self-test.

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

Yes	REFER to: Blind Spot Information System (419-04 Side and Rear Vision) .
No	GO to CA6

CA6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0232:00, U0233:00, U0533:82 or U0534:82 still present?

Yes	GO to CA7
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.

CA7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 SODL, SODR, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CA8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CA8 CHECK FOR CORRECT SODL (SIDE OBSTACLE DETECTION CONTROL MODULE LH) OR SODR (SIDE OBSTACLE DETECTION CONTROL MODULE RH) OPERATION

- Ignition OFF.
- Disconnect and inspect all SODL or SODR connectors and related in-line 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 all the SODL or SODR connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new SODL or SODR. REFER to: Side Obstacle Detection Control Module (419-04 Side and Rear Vision, 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.

U0260:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0260:00	Lost Communication With Seat Control Switch Module "A" No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the DSM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- DSM
- IPC concern

PINPOINT TEST CB : U0260:00

CB1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CB2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CB2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the DSM pass the network test?

Yes	GO to CB3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CB3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CB4

CB4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to CB5

CB5 PERFORM THE DSM (DRIVER FRONT SEAT MODULE) SELF-TEST

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

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

Yes	REFER to: Front Seats (501-10 Front Seats) .
No	GO to CB6

CB6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0260:00 still present?

Yes	GO to CB7
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.

CB7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 DSM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CB8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CB8 CHECK FOR CORRECT DSM (DRIVER FRONT SEAT MODULE) OPERATION

- Ignition OFF.

- Disconnect and inspect all DSM connectors and related in-line 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 all the DSM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new DSM. REFER to: Driver Front Seat Module (DSM) (501-10 Front Seats) .
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.

U023A:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U023A:00	Lost Communication With Image Processing Module A: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the IPMA through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- IPMA (part of the interior rear view mirror)
- IPC concern

PINPOINT TEST CC : U023A:00

CC1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CC2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CC2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the IPMA pass the network test?

Yes	GO to CC3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CC3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CC4

CC4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to CC5

CC5 PERFORM THE IPMA (IMAGE PROCESSING MODULE A) SELF-TEST

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

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

Yes	REFER to: Lane Keeping System (419-07 Lane Keeping System) .
No	GO to CC6

CC6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U023A:00 still present?

Yes	GO to CC7
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.

CC7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 IPMA, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CC8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CC8 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Ignition OFF.
- Disconnect and inspect all IPMA connectors and related in-line 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 all the IPMA connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMA (part of the interior rear view mirror). REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, 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.

U0256:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0256:00	Lost Communication With Front Controls Interface Module "A": No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the FCIM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- GWM concern
- FCIM
- IPC concern

PINPOINT TEST CD : U0256:00

CD1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CD2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CD2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the FCIM pass the network test?

Yes	GO to CD3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CD3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CD4

CD4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to CD5

CD5 PERFORM THE FCIM (FRONT CONTROLS INTERFACE MODULE) SELF-TEST

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

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

Yes	REFER to the appropriate 415-00 section.
No	GO to CD6

CD6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0256:00 still present?

Yes	GO to CD7
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.

CD7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 FCIM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CD8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CD8 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all FCIM connectors and related in-line 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 all the FCIM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new FCDIM. REFER to the appropriate 415-00 section.
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.

U0257:00

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0257:00	Lost Communication With Front Controls/Display Interface Module: No Sub Type Information	Sets in continuous memory in the IPC if data messages received from the FCDIM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- FCDIM
- IPC concern

PINPOINT TEST CE : U0257:00

CE1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CE2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CE2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the FCDIM pass the network test?

Yes	GO to CE3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CE3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CE4

CE4 PERFORM THE FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) SELF-TEST

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

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

Yes	Without SYNC®, REFER to: Front Control/Display Interface Module (FCDIM) (415-00A Information and Entertainment System - General Information - Vehicles Without: SYNC, Removal and Installation). With SYNC®, REFER to: Front Control/Display Interface Module (FCDIM) (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
No	GO to CE5

CE5 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0257:00 still present?

Yes	GO to CE6
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.

CE6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 FCDIM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CE7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CE7 CHECK FOR CORRECT FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all FCDIM connectors and related in-line 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 all the FCDIM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new FCDIM. REFER to: Front Control/Display Interface Module (FCDIM) (415-00A Information and Entertainment System - General Information - Vehicles Without: SYNC, Removal and Installation). or REFER to: Front Control/Display Interface Module (FCDIM) (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .

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.

U0420:82

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U0420:82	Invalid Data Received From Power Steering Control Module: Alive/Sequence Counter Incorrect/Not Updated	Sets in continuous memory in the IPC if updated data messages received from the PSCM through the GWM are missing for 5 seconds or longer.

Possible Sources

- Communication concern
- Battery voltage concern
- GWM concern
- PSCM
- IPC

PINPOINT TEST CF : U0420:82

CF1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

Yes	GO to CF2
No	CLEAR the DTC. The system is operating normally at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

CF2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test.

Does the BCM pass the network test?

Yes	GO to CF3
No	REFER to: Communications Network (418-00 Module Communications Network) .

CF3 PERFORM THE IPC (INSTRUMENT PANEL CLUSTER) SELF-TEST

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

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

Yes	REFER to DTC Chart: IPC in this section.
No	GO to CF4

CF4 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 Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Communications Network (418-00 Module Communications Network) .
No	GO to CF5

CF5 PERFORM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

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

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

Yes	REFER to: Power Steering (211-02 Power Steering, Diagnosis and Testing).
No	GO to CF6

CF6 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPC Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the continuous memory self-test.
- Check the IPC Diagnostic Trouble Codes (DTCs).

Is DTC U0420:82 still present?

Yes	GO to CF7
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.

CF7 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may 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 PSCM, GWM or IPC. If recent service history is found:
  - verify correct replacement module was installed
    - HVBOM may be used to verify correct part fitment
  - 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 CF8
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

CF8 CHECK FOR CORRECT PSCM (POWER STEERING CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PSCM connectors and related in-line 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 all the PSCM connectors and 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 Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, refer to the EPAS symptom chart.   Click here to access Guided Routine (EPAS).
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.

U3003:16

Refer to Wiring Diagrams Cell 60 for schematic and connector information.

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U3003:16	Battery Voltage: Circuit Voltage Below Threshold	Sets in the IPC in continuous memory if the IPC detects battery voltage below 9 volts on the voltage supply circuit for 5 seconds or longer.

Possible Sources

- Wiring, terminals or connectors
- High circuit resistance
- Charging system concern
- IPC

PINPOINT TEST CG : U3003:16

CG1 RECHECK THE IPC (INSTRUMENT PANEL CLUSTER) DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, clear the Diagnostic Trouble Codes (DTCs).
- Wait 10 seconds.
- Using a diagnostic scan tool, perform the IPC self-test.

Is DTC U3003:16 still present?

Yes	GO to CG2
No	The system is operating correctly at this time. The DTC may have been set due to a previous low battery voltage condition.

CG2 CHECK FOR CHARGING SYSTEM DIAGNOSTIC TROUBLE CODES (DTCS) IN THE BCM (BODY CONTROL MODULE)

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

Are any charging system Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
No	GO to CG3

CG3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

- Check the battery condition and verify the battery is fully charged.
  REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing).

Is the battery OK and fully charged?

Yes	GO to CG4
No	If the battery is discharged, DIAGNOSE the cause of the low battery condition. REFER to: Battery (414-01 Battery, Mounting and Cables, Diagnosis and Testing). If the battery condition fails, INSTALL a new battery. REFER to: Battery (414-01 Battery, Mounting and Cables, Removal and Installation).

CG4 CHECK THE IPC (INSTRUMENT PANEL CLUSTER) VOLTAGE PID

- Measure and record the voltage at the battery.
- Using a diagnostic scan tool, view the IPC Parameter Identifications (PIDs).
- Monitor the IPC voltage (MODULE_VOLT) PID

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to CG7
No	GO to CG5

CG5 CHECK THE IPC (INSTRUMENT PANEL CLUSTER) VOLTAGE SUPPLY

- Ignition OFF.
- Disconnect IPC C220.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to CG6
No	REPAIR the circuit for high circuit resistance.

CG6 CHECK THE IPC (INSTRUMENT PANEL CLUSTER) GROUND

Is the voltage greater than 11 volts?

Yes	GO to CG7
No	REPAIR the circuit for high circuit resistance.

CG7 CHECK FOR CORRECT IPC (INSTRUMENT PANEL CLUSTER) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPC connector and related in-line 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 IPC connector and related in-line connectors. Make sure it seats and latches correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (IPC).

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.

U3003:17

Normal Operation and Fault Conditions

IPC DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
U3003:17	Battery Voltage: Circuit Voltage Above Threshold	Sets in the IPC in continuous memory if the IPC detects battery voltage above 16 volts on the voltage supply circuit for 5 seconds or longer.

Possible Sources

- Charging system concern
- IPC

PINPOINT TEST CH : U3003:17

CH1 CHECK FOR OVERCHARGING DIAGNOSTIC TROUBLE CODES (DTCS) SET IN OTHER MODULES

- Ignition ON.
- Using a diagnostic scan tool, perform self-test on all modules.
- Retrieve the continuous memory DTCs from all modules.

Is DTC B1317, B1676, P0563 (PCM), U3003:17 or U3006:17 set in more than one module?

Yes	DIAGNOSE the overcharging condition. REFER to the appropriate Charging System Diagnosis and Testing procedure in Section 414-00.
No	GO to CH2

CH2 CHECK THE BATTERY VOLTAGE

- Turn off all interior/exterior lights and accessories.
- Start and run the engine at approximately 2,000 rpm for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to 15.5 volts or higher?

Yes	DIAGNOSE the overcharging condition. REFER to the appropriate Charging System Diagnosis and Testing procedure in Section 414-00.
No	GO to CH3

CH3 RECHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U3003:17

- Ignition OFF.
- Ignition ON.
- Using a diagnostic scan tool, clear the continuous memory DTCs.
- Carry out the IPC self-test.

Is DTC U3003:17 present?

Yes	  Click here to access Guided Routine (IPC).
No	The system is operating correctly at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.