

Parking Aid

DTC Chart(s)

DTC Chart: 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
B115E:01	Camera Module: General Electrical Failure	<u>GO to Pinpoint Test A</u>
B115E:02	Camera Module: General Signal Failure	<u>GO to Pinpoint Test A</u>
B115E:08	Camera Module: Bus Signal/Message Failure	<u>GO to Pinpoint Test A</u>
B115E:49	Camera Module: Internal Electronic Failure	<u>GO to Pinpoint Test A</u>

B115E:55	Camera Module: Not Configured	• Sets in continuous memory and on-demand in the BCM when the rear parking aid camera is not configured. ◦ PERFORM the rear parking aid camera configuration using a diagnostic scan tool.
B115E:9A	Camera Module: Component or System Operating Conditions	• Sets as an on-demand DTC in the BCM when the prerequisite conditions are not met for the on-demand self test. ◦ INSPECT the tailgate to make sure it is fully closed and DIAGNOSE any other Diagnostic Trouble Codes (DTCs) present in the BCM. REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .
All other Diagnostic Trouble Codes (DTCs)	-	REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules) .

DTC Chart: IPMB

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
B115E:08	Camera Module: Bus Signal/Message Failure	• For vehicles with rear only parking aid camera, GO to Pinpoint Test A • For vehicles with 360 degree camera, GO to Pinpoint Test J

B115E:49	Camera Module: Internal Electronic Failure	- For vehicles with rear only parking aid camera, GO to Pinpoint Test A - For vehicles with 360 degree camera, GO to Pinpoint Test J
B115E:55	Camera Module: Not Configured	NOTE: A LIN circuit fault may prevent the front or rear camera from being configured properly. <i>VERIFY</i> the integrity of the LIN circuit wiring, terminals and connectors when diagnosing a camera configuration concern. - Sets in continuous memory and on-demand in the IPMB when the rear camera is not configured. - VERIFY the battery voltage and condition. - PERFORM the rear camera configuration using a diagnostic scan tool under Electrical>Service Functions>LIN New Module Initialization.
B148E:08	Front Camera: Bus Signal/Message Failure	GO to Pinpoint Test K
B148E:49	Front Camera: Internal Electronic Failure	GO to Pinpoint Test K
B148E:55	Front Camera: Not Configured	NOTE: A LIN circuit fault may prevent the front or rear camera from being configured properly. <i>VERIFY</i> the integrity of the LIN circuit wiring, terminals and connectors when diagnosing a camera configuration concern. - Sets in continuous memory and on-demand in the IPMB when the front camera is not configured. - VERIFY the battery voltage and condition. - PERFORM the front camera configuration using a diagnostic scan tool under Electrical>Service Functions>LIN New Module Initialization.
B14A4:11	Camera Power: Circuit Short To Ground	GO to Pinpoint Test L

B14A5:11	Multi-Camera View Switch: Circuit Short To Ground	GO to Pinpoint Test M
B1530:78	Trailer Aid Camera Angle Detection: Alignment or Adjustment Incorrect	REFER to: Parking Aid (413-13D Parking Aid - Vehicles With: Trailer Back Up Assist (TBA), Diagnosis and Testing). See DTC Chart: IPMB
C1001:78	Vision System Camera: Alignment or Adjustment Incorrect	• Sets in continuous memory and on-demand in the IPMB when the 360 degree view camera alignment has not been successfully completed. ◦ PERFORM the 360 degree view camera alignment using a diagnostic scan tool. REFER to: 360 Degree View Camera Alignment (413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).
U0121:87	Lost Communication With Anti-Lock Brake System (ABS) Control Module: Missing Message	GO to Pinpoint Test Q
U0159:87	Lost Communication With Parking Assist Control Module "A": Missing Message	GO to Pinpoint Test R
U0253:87	Lost Communication With Accessory Protocol Interface Module: Missing Message	GO to Pinpoint Test S
U0415:00	Invalid Data Received From Anti-Lock Brake System (ABS) Control Module: No Sub Type Information	• RETRIEVE and FOLLOW non-network Diagnostic Trouble Codes (DTCs) from the ABS module. 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.

U045A:00	Invalid Data Received From Parking Assist Control Module "A": No Sub Type Information	● RETRIEVE and FOLLOW non-network Diagnostic Trouble Codes (DTCs) from the PAM. REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing). ○ If no Diagnostic Trouble Codes (DTCs) are present in the PAM, DIAGNOSE the observable symptom.
U0554:00	Invalid Data Received From Accessory Protocol Interface Module: No Sub Type Information	● RETRIEVE and FOLLOW non-network Diagnostic Trouble Codes (DTCs) from the APIM. Refer to the appropriate section in Group 415 for the procedure. ○ If no Diagnostic Trouble Codes (DTCs) are present in the APIM, DIAGNOSE the observable symptom.
U1000:11	Solid State Driver Protection Active - Driver Disabled: Circuit Short To Ground	● The IPMB has temporarily disabled the LH and RH side parking aid camera voltage supply output due to a repetitive excessive current draw. ○ RETRIEVE and REPAIR all other IPMB Diagnostic Trouble Codes (DTC). REPEAT the IPMB self-test. ○ If DTC U1000:11 is still present after all other Diagnostic Trouble Codes (DTCs) have been addressed, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
U201A:55	Control Module Main Calibration Data: Not Configured	● VERIFY the battery voltage and condition. ● CHECK the vehicle service history for recent service actions related to this module. This DTC can set due to incomplete or incorrect PMI procedures. ○ If there have been recent service actions with this module, INSTALL As-Built data from Professional Technician Society (PTS), following the diagnostic scan tool instructions under Module Programming>As-Built. REFER to: Module Configuration (418-01 Module Configuration) . ○ If there have not been recent service actions

		with this module, INSTALL a new IPMB to correct the failure to retain configuration data. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
U2100:00	Initial Configuration Not Complete: No Sub Type Information	● VERIFY the battery voltage and condition. ● CHECK the vehicle service history for recent service actions related to this module. This DTC can set due to incomplete or incorrect PMI procedures. ○ If there have been recent service actions with this module, INSTALL As-Built data from Professional Technician Society (PTS), following the diagnostic scan tool instructions under Module Programming>As-Built. REFER to: Module Configuration (418-01 Module Configuration) . ○ If there have not been recent service actions with this module, INSTALL a new IPMB to correct the failure to retain configuration data. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
U3000:42	Control Module: General Memory Failure	● RETRIEVE and REPAIR all other IPMB Diagnostic Trouble Codes (DTCS) and REPEAT the IPMB self-test. ● If DTC U3000:42 is still present after all other Diagnostic Trouble Codes (DTCs) have been repaired, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).

U3000:49	Control Module: Internal Electronic Failure	- The IPMB has permanently disabled the LH and RH side parking aid camera voltage supply output because an excessive current draw has occurred more times than the module can withstand. - RETRIEVE and REPAIR all other IPMB Diagnostic Trouble Codes (DTC). REPEAT the IPMB self-test. - If DTC U3000:49 is still present after all other Diagnostic Trouble Codes (DTCs) have been addressed, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
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DTC Chart: APIM

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
C1001:01	Vision System Camera: General Electrical Failure	- If the vehicle is equipped with a rear only parking aid camera, GO to Pinpoint Test A - If the vehicle is equipped with a 360 degree view camera, GO to Pinpoint Test G
All other Diagnostic Trouble Codes (DTCs)	—	Refer to the appropriate section in Group 415 for the procedure.

DTC Chart: FCDIM

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
C1001:01	Vision System Camera: General Electrical Failure	• If the vehicle is equipped with a rear only parking aid camera, GO to Pinpoint Test A • If the vehicle is equipped with a 360 degree view camera, GO to Pinpoint Test G
All other Diagnostic Trouble Codes (DTCs)	—	REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles Without: SYNC) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .

Symptom Chart(s)

Rear Only Parking Aid Camera

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 Causes	Actions
The rear parking aid camera is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test A

The FDIM or FCDIM displays REAR VIDEO CAMERA IS UNAVAILABLE or CAMERA IS UNAVAILABLE PLEASE CONTACT YOUR DEALERSHIP and a black screen/no image	Refer to the Pinpoint Test	GO to Pinpoint Test A
Static/flashing/blinking/ flickering/scrolling or rolling image/screen/scrolling horizontal lines	Refer to the Pinpoint Test	- For vehicles without PTBA, GO to Pinpoint Test B - For vehicles with PTBA, GO to Pinpoint Test H
Poor image quality (foggy/ cloudy/fuzzy/blurry/hazy image or moisture/water in lens or black spots)	Refer to the Pinpoint Test	- For vehicles without PTBA, GO to Pinpoint Test B - For vehicles with PTBA, GO to Pinpoint Test H
Camera image quality concern during an auto-start-stop event	- Wiring, terminals or connectors - Direct Current/Direct Current (DC/DC) converter control module	REFER to: Direct Current/ Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/ Inverter) .
Frozen screen or slow screen transitions (vehicles with an 8 in (203 mm) touchscreen)	- FDIM - APIM	DIAGNOSE the APIM and FDIM. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information -

		Vehicles With: Sony Audio System) .
Frozen screen or slow screen transitions (vehicles with a 4.2 in (107 mm) centerstack infotainment display)	FCDIM	DIAGNOSE the FCDIM. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles Without: SYNC) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
Manual zoom function is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test E
Visual park aid alert is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test C
Active guidelines are inoperative or do not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test D
Fixed guidelines are inoperative or do not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test D
The video delay feature is inoperative or does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test F
Video image is upside down	- Internal parking aid camera failure - Incorrect parking aid camera installed on vehicle	INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .
All other image concerns	Refer to the Pinpoint Test	GO to Pinpoint Test A

360 Degree View Camera

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 Causes	Actions
The 360 degree camera system does not respond when the camera selection switch is pressed	Refer to the Pinpoint Test	GO to Pinpoint Test M
The Rear 360 + Normal view is not displayed on the FDIM when reverse gear is selected	Refer to the Pinpoint Test	GO to Pinpoint Test J
All 360 degree camera views are inoperative or do not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test G
One or more (not all) 360 degree camera views are inoperative or do not operate correctly	Refer to the Pinpoint Test	• INSPECT the camera views to determine which camera(s) is/are inoperative: ○ For the rear camera, GO to Pinpoint Test J ○ For the front camera, GO to Pinpoint Test K ○ For the LH and/or RH side camera, GO to Pinpoint Test L

Static/flashing/ blinking/flickering/ scrolling or rolling image/screen/ scrolling horizontal lines for one or more 360 degree camera views	Refer to the Pinpoint Test	GO to Pinpoint Test I
Poor image quality (foggy/cloudy/ fuzzy/blurry/hazy image or moisture/ water in lens or black spots) for one or more 360 degree camera views	Refer to the Pinpoint Test	GO to Pinpoint Test I
Camera images quality concern during an auto- start-stop event	• Wiring, terminals or connectors • Direct Current/Direct Current (DC/DC) converter control module	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter) .
The lower corners of the front, rear, or side camera image in the 360 degree camera view show vertical colored lines or appear greyed out	Refer to the Pinpoint Test	• PERFORM the 360 degree view camera alignment. REFER to: 360 Degree View Camera Alignment (413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures). • If the concern is still present after completing the 360 degree view camera alignment, GO to Pinpoint Test I
Frozen or slow screen transitions between 360 degree camera views	• IPMB	INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).

One or more of the images in the 360 degree camera view is misaligned	Camera alignment	PERFORM the 360 degree view camera alignment. REFER to: 360 Degree View Camera Alignment (413-13B Parking Aid - Vehicles With: Parking Aid Camera, General Procedures).
Manual zoom function is inoperative (rear camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test P
Visual park aid alert is inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test N
Active guidelines are inoperative or do not operate correctly (rear camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test O
Fixed guidelines are inoperative or do not operate correctly (rear camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test O
The video delay feature is inoperative or does not operate correctly (rear camera image only)	Refer to the Pinpoint Test	GO to Pinpoint Test F

Pinpoint Test(s)

The Rear Parking Aid Camera Is Inoperative - Vehicles With Rear Only Parking Aid Camera

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

BCM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B115E:01	Camera Module: General Electrical Failure	A continuous and on-demand DTC that sets in the BCM when an internal electrical failure is detected from the camera.
B115E:02	Camera Module: General Signal Failure	A continuous and on-demand DTC that sets in the BCM when invalid LIN data is received from the video camera.
B115E:08	Camera Module: Bus Signal/Message Failure	A continuous and on-demand DTC that sets in the BCM when there is a LIN communication fault from the video camera.
B115E:49	Camera Module: Internal Electronic Failure	A continuous and on-demand DTC that sets in the BCM when an internal electronic fault is detected in the rear video camera.

IPMB DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B115E:08	Camera Module: Bus Signal/Message Failure	A continuous and on-demand DTC that sets in the IPMB when expected LIN messages are not received from the rear parking aid camera.
B115E:49	Camera Module: Internal Electronic Failure	A continuous and on-demand DTC that sets in the IPMB when an internal electronic fault is detected in the rear video camera.

APIM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1001:01	Vision System Camera: General Electrical Failure	A continuous DTC that sets in the APIM when no video signal is detected from the rear camera when the vehicle is in REVERSE.

FCDIM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1001:01	Vision System Camera: General Electrical Failure	A continuous DTC that sets in the APIM when no video signal is detected from the rear camera when the vehicle is in REVERSE.

Possible Causes

- Wiring, terminals or connectors
- DCDC
- Communication concern
- Rear parking aid camera
- TR input concern
- Infotainment display concern
- LIN concern
- BCM (without PTBA)
- APIM (vehicles equipped with 8 in (203 mm) touchscreen)
- IPMB (with PTBA)

Visual Inspection and Diagnostic Pre-Checks

- Verify the tailgate is fully closed.
- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.

NOTE: Before disconnecting the camera, verify the connector is properly seated and latched.

**PINPOINT TEST A : THE REAR PARKING AID CAMERA IS INOPERATIVE -
VEHICLES WITH REAR ONLY PARKING AID CAMERA**

A1 CHECK AND CLEAN THE REAR CAMERA LENS

- Clean and make sure the rear video camera lens is clear of any debris.
- Ignition ON.
- Select REVERSE.
- Test the rear parking aid camera system and monitor the video image.
- Select PARK.

Is the concern still present?

Yes	GO to A2
No	The system is operating correctly at this time. The concern may have been caused by a dirt or debris on the camera lens.

A2 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- While monitoring the IPC PRNDL indicator, briefly select each gear in the entire range.

Does the IPC PRNDL indicator match the actual gear selection?

Yes	GO to A3
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

A3 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to A4
No	REFER to: Communications Network (418-00 Module Communications Network) .

A4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using the diagnostic scan tool, perform the DCDC self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter, Diagnosis and Testing).
No	For vehicles with PTBA, GO to A5 For vehicles without PTBA, GO to A6

A5 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using the diagnostic scan tool, perform the IPMB self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For IPMB Diagnostic Trouble Codes (DTCs) B115E:08 or B115E:49, GO to A10 For all other Diagnostic Trouble Codes (DTCs), REFER to the IPMB DTC Chart in this section.
No	For vehicles equipped with a 8 in (203 mm) touchscreen, GO to A7 For vehicles equipped with a 4.2 in (107 mm) centerstack infotainment display, GO to A8

A6 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For BCM Diagnostic Trouble Codes (DTCs) B115E:01, B115E:02, B115E:08, or B115E:49, GO to A10 For all other Diagnostic Trouble Codes (DTCs), REFER to the BCM DTC Chart in this section.
No	For vehicles equipped with a 8 in (203 mm) touchscreen, GO to A7 For vehicles equipped with a 4.2 in (107 mm) centerstack infotainment display, GO to A8

A7 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC C1001:01, GO to A10 For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . or REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
No	GO to A9

A8 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC C1001:01, GO to A10 For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
No	GO to A9

A9 CHECK THE VIDEO DISPLAY

- Observe the FDIM or FCDIM display.
- Select REVERSE.
- Wait 30 seconds.

Does the display switch to rear parking camera display mode?

Yes	Select PARK. GO to A10
No	Select PARK. DIAGNOSE the display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .

A10 CHECK FOR VOLTAGE TO THE REAR CAMERA

- Ignition OFF.
- Disconnect Rear Parking Aid Camera C4360.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to A11
No	Repair the circuit for an open.

A11 CHECK FOR GROUND AT THE REAR CAMERA

Is the voltage greater than 11 volts?

Yes	GO to A13
No	For vehicles with an 8 in (203 mm) touchscreen, GO to A12 For vehicles with a 4.2 in (107 mm) centerstack infotainment display, REPAIR the circuit.

A12 CHECK THE CAMERA GROUND/SHIELD CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect APIM C2383A (vehicles without PTBA).
- Disconnect IPMB C2512A (vehicles with PTBA).

Is the resistance less than 3 ohms?

Yes	GO to A22
No	REPAIR the circuit.

A13 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect APIM C2383A (vehicles with an 8 in (203 mm) touchscreen).
- Disconnect FCDIM C2123 (vehicles with a 4.2 in (107 mm) centerstack infotainment display).
- Disconnect IPMB C2512A (vehicles with PTBA).
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to A14

A14 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to A15
No	REPAIR the circuit in question.

A15 CHECK VIDEO SIGNAL CIRCUITS FOR AN OPEN

- Measure:

Click to display connectors

Vehicles with PTBA

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	C2512A-12
C4360-4		C2512A-13

Are the resistances less than 3 ohms?

Yes	For vehicles without PTBA, GO to A16 For vehicles with PTBA, GO to A19
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No	REPAIR the circuit in question.
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A16 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE

- Disconnect BCM C2280E.
- Disconnect DC/ AC Inverter C2293A (if equipped with an AC power point).
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
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No	GO to A17
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A17 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN

- Ignition OFF.

Is resistance less than 3 ohms?

Yes	GO to A18
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No	REPAIR the circuit.
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A18 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND

Is resistance greater than 10,000 ohms?

Yes	GO to A23
No	REPAIR the circuit.

A19 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE

- Disconnect IPMB C2512A.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to A20

A20 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN

- Ignition OFF.

Is resistance less than 3 ohms?

Yes	GO to A21
No	REPAIR the circuit.

A21 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND

Is resistance greater than 10,000 ohms?

Yes	GO to A23
No	REPAIR the circuit.

A22 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

A23 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . If the concern is still present after camera replacement, for vehicles without PTBA, GO to A24 For vehicles with PTBA, GO to A25
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

A24 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the 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 the 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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

A25 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 APIM 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Poor Image Quality -Vehicles With Rear Only Parking Aid Camera

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

The video signal is transmitted from the camera to the APIM on shielded, twisted pair circuits. REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Dirty or scratched camera lens
- Wiring, terminals or connectors
- DCDC
- Rear parking aid camera
- APIM (vehicles with 8 in (203 mm) touchscreen)
- Interference from other sources

NOTE: *Before disconnecting the camera, verify the connector is properly seated and latched.*

PINPOINT TEST B : POOR IMAGE QUALITY - VEHICLES WITH REAR ONLY PARKING AID CAMERA

B1 CHECK AND CLEAN THE CAMERA LENS

- Clean and make sure the rear video camera lens is clear of any debris and scratches.
- Test the rear video camera system and inspect the video camera image.

Is the concern still present?

Yes	GO to B2
No	The system is operating correctly at this time. The concern may have been caused by dirt or debris on the camera lens or intermittent electromagnetic interference from an outside source.

B2 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using the diagnostic scan tool, perform the DCDC self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter, Diagnosis and Testing).
No	GO to B3

B3 CHECK THE VOLTAGE TO THE REAR CAMERA

- Ignition OFF.
- Disconnect Rear Parking Aid Camera C4360.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to B4
No	Repair the circuit for an open.

B4 CHECK THE REAR CAMERA GROUND CIRCUIT

Is the voltage greater than 11 volts?

Yes	GO to B6
No	For vehicles with an 8 in (203 mm) touchscreen, GO to B5 For vehicles with a 4.2 in (107 mm) centerstack infotainment display, REPAIR the circuit.

B5 CHECK THE REAR CAMERA GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect APIM C2383A.

Is the resistance less than 3 ohms?

Yes	GO to B10
No	REPAIR the circuit.

B6 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect APIM C2383A (vehicles with an 8 in (203 mm) touchscreen).
- Disconnect FCDIM C2123 (vehicles with a 4.2 in (107 mm) centerstack infotainment display).
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to B7

B7 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to B8
No	REPAIR the circuit in question.

B8 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VIDEO SHIELD

Are the resistances greater than 10,000 ohms?

Yes	GO to B9
No	REPAIR the circuit in question.

B9 CHECK VIDEO SIGNAL CIRCUITS FOR AN OPEN

- Measure:

Click to display connectors

4.2 in (107 mm) Centerstack Infotainment Display

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	C2123-12
C4360-4		C2123-6

Are the resistances less than 3 ohms?

Yes	GO to B11
No	REPAIR the circuit in question.

B10 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM connector.
- 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 APIM 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	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. Concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

B11 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera connector.
- 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 rear parking aid camera 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	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Visual Park Aid Alert Is Inoperative - Vehicles With Rear Only Parking Aid Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- Rear parking aid camera
- PAM (integral to the BCM)
- BCM concern
- FCDIM (vehicles equipped with 4.2 in (107 mm) display)
- APIM (vehicles equipped with 8 in (203 mm) touchscreen)

Visual Inspection and Diagnostic Pre-Checks

- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.

PINPOINT TEST C : THE VISUAL PARK AID ALERT IS INOPERATIVE

C1 VERIFY THE VISUAL PARK AID ALERT IS ENABLED - VEHICLES WITH REAR ONLY PARKING AID CAMERA	
• Ignition ON. • Verify that the visual park aid alert is enabled in the infotainment system settings menu. Refer to the Owner's Literature.	
Is the visual park aid alert enabled?	
Yes	GO to C2
No	ENABLE the visual park aid alert.
C2 PERFORM A NETWORK TEST	

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

Do all modules pass the network test?

Yes	GO to C3
No	REFER to: Communications Network (418-00 Module Communications Network) .

C3 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE PAM (PARKING ASSIST CONTROL MODULE) SELF-TEST

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

Are any PAM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REPAIR all PAM Diagnostic Trouble Codes (DTCs) before continuing this test. REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing).
No	GO to C4

C4 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any BCM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the BCM DTC Chart in this section.
No	For vehicles with an 8 in (203 mm) touchscreen, GO to C8 For vehicles with a 4.2 in (107 mm) centerstack infotainment display, GO to C5

C5 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) SELF-TEST

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

Are any FCDIM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles Without: SYNC) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
No	GO to C6

C6 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . If the concern is still present after camera replacement, GO to C7
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

C7 CHECK FOR CORRECT FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the FCDIM 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 FCDIM connector 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 the 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). 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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

C8 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

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

Are any APIM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
No	GO to C9

C9 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Guidelines Are Inoperative Or Do Not Operate Correctly - Vehicles With Rear Only Parking Aid Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- Rear parking aid camera
- LIN concern

- TRM concern
- ABS module concern (active guidelines only)
- PSCM concern (active guidelines only)
- BCM

Visual Inspection and Diagnostic Pre-Checks

- Verify that a trailer is not electrically connected to the vehicle.
- Verify the tailgate is fully closed.
- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.
- For active guideline concerns, verify the concern was not caused by the steering wheel being in the straight ahead position. Active guidelines are not displayed unless the steering wheel is rotated.

NOTE: *If the battery has been disconnected or discharged, or a module is disconnected or replaced, the active guidelines may be inoperative until the vehicle is driven on a flat and smooth road at 32 km/h (20 mph) or more, with hands placed loosely on the steering wheel and minimal steering correction for approximately 30 seconds.*

If the guidelines are remain inoperative, it may be necessary to disconnect the battery for 5 minutes with the driver's door open, then drive the vehicle for 5 miles in normal city driving before performing the procedure described above.

PINPOINT TEST D : THE GUIDELINES ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY - VEHICLES WITH REAR ONLY PARKING AID CAMERA

D1 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	If the vehicle is equipped with factory trailer tow, GO to D2 If the vehicle is not equipped with factory trailer tow, GO to D3
No	REFER to: Communications Network (418-00 Module Communications Network) .

D2 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE TRM (TRAILER MODULE) SELF-TEST

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

Are any TRM Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Trailer Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
No	GO to D3

D3 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE BCM (BODY CONTROL MODULE) SELF-TEST

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

Are any BCM Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to the BCM DTC Chart in this section.
No	For an active guideline concern, GO to D4 For a fixed guideline concern, GO to D6

D4 CHECK THE 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 ABS module Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to D5

D5 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

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

Are any PSCM Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
No	GO to D6

D6 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . If the concern is still present after camera replacement, GO to D7
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

D7 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 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (BCM).
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No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.
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The Manual Zoom Is Inoperative -Vehicles With Rear Only Parking Aid Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- Rear parking aid camera
- LIN concern
- FCDIM concern (vehicles with a 4.2 in (107 mm) centerstack infotainment display)
- APIM concern (vehicles with an 8 in (203 mm) touchscreen)

Visual Inspection and Diagnostic Pre-Checks

- If the rear video camera is not configured after replacement, some video functions will be inoperative. Verify the rear video camera configuration using the diagnostic scan tool.

PINPOINT TEST E : THE MANUAL ZOOM IS INOPERATIVE - VEHICLES WITH REAR ONLY PARKING AID CAMERA

E1 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

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

E2 CHECK FOR 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) present?

Yes	REFER to the BCM DTC Chart in this section.
No	For vehicles with an 8 in (203 mm) touchscreen, GO to E3 For vehicles with a 4.2 in (107 mm) centerstack infotainment display, GO to E4

E3 CHECK FOR RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes present?

Yes	For DTC C1001:01, GO to Pinpoint Test A For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . or REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
No	GO to E5

E4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC C1001:01, GO to Pinpoint Test A For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
No	GO to E5

E5 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Video Delay Is Inoperative Or Does Not Operate Correctly

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- TR data concern
- Vehicle speed data concern
- FCDIM concern (vehicles with a 4.2 in (107 mm) centerstack infotainment display)
- APIM concern (vehicles with an 8 in (203 mm) touchscreen)

Visual Inspection and Diagnostic Pre-Checks

- Verify the video delay feature is turned on in the settings menu. Refer to the Owner's Literature.

PINPOINT TEST F : THE VIDEO DELAY IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY

F1 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

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

F2 CHECK THE FOR CORRECT GEAR INPUT

- Apply the parking brake.
- While monitoring the reversing lamps, move the selector lever through the entire range.

Do the reversing lamps illuminate only when reverse gear is selected?

Yes	For vehicles with an 8 in (203 mm) touchscreen, GO to F3 For vehicles with a 4.2 in (107 mm) centerstack infotainment display, GO to F4
No	REFER to: Reversing Lamps (417-01 Exterior Lighting) .

F3 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC C1001:01, GO to Pinpoint Test A For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . or REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
No	GO to F5

F4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC C1001:01, GO to Pinpoint Test A For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: SYNC Without Touchscreen) .
No	GO to F6

F5 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM connector 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

F6 CHECK FOR CORRECT FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the FCDIM 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 FCDIM connector 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 the 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). 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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

All 360 Degree Camera Views Are Inoperative Or Do Not Operate Correctly

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

APIM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
C1001:01	Vision System Camera: General Electrical Failure	A continuous DTC that sets in the APIM when an expected video signal is not received from the IPMB.

Possible Causes

- Wiring, terminals or connectors
- DCDC
- Communication concern
- TR input concern
- Infotainment display concern
- IPMB

NOTE: Before disconnecting any of the cameras, verify the connectors are properly seated and latched.

PINPOINT TEST G : ALL 360 DEGREE CAMERA VIEWS ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY

G1 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition ON.
- While monitoring the IPC PRNDL indicator, briefly select each gear in the entire range.

Does the IPC PRNDL indicator match the actual gear selection?

Yes	GO to G2
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

G2 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to G3
No	REFER to: Communications Network (418-00 Module Communications Network) .

G3 CHECK THE DISPLAY

- **NOTE:** *Some fault conditions may cause the actual camera image(s) not to be displayed.*

Observe the FDIM.

- Select REVERSE.
- Wait 30 seconds.

Does the FDIM switch to parking aid camera display mode?

Yes	Select PARK. GO to G4
No	Select PARK. DIAGNOSE the display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .

G4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using the diagnostic scan tool, perform the IPMB self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to the IPMB DTC Chart in this section.
No	GO to G5

G5 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND THE APIM (SYNC MODULE)

- Ignition OFF.
- Disconnect IPMB C2512A.
- Disconnect APIM C2383A.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to G6

G6 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND THE APIM (SYNC MODULE)

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to G7
No	REPAIR the circuit in question.

G7 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND THE APIM (SYNC MODULE)

Are the resistances less than 3 ohms?

Yes	GO to G8
No	REPAIR the circuit in question.

G8 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO THE VIDEO SHIELD

Are the resistances greater than 10,000 ohms?

Yes	GO to G9
No	REPAIR the circuits.

G9 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Poor Image Quality - Vehicles With PTBA Rear Only Parking Aid Camera

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

The video signals are transmitted from each camera to the IPMB on shielded, twisted pair circuits. The IPMB processes the image data and sends a single video image to the APIM on shielded, twisted pair circuits.

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Dirty or scratched camera lens
- Wiring, terminals or connectors
- Camera
- IPMB
- FCDIM
- APIM

Visual Inspection and Diagnostic Pre-Checks

- Inspect the camera lenses for damage, dirt, debris and scratches.

NOTE: Before disconnecting any of the cameras, verify the connectors are properly seated and latched.

PINPOINT TEST H : POOR IMAGE QUALITY - VEHICLES WITH PTBA (PRO

TRAILER BACKUP ASSIST) REAR ONLY PARKING AID CAMERA

H1 CHECK AND CLEAN THE CAMERA LENS

- Clean and make sure the rear video camera lens is clear of any debris and scratches.
- Test the rear video camera system and inspect the video camera image.

Is the concern still present?

Yes	GO to H2
No	The system is operating correctly at this time. The concern may have been caused by dirt or debris on the camera lens or intermittent electromagnetic interference from an outside source.

H2 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using the diagnostic scan tool, perform the DCDC self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter, Diagnosis and Testing).
No	GO to H3

H3 CHECK FOR VOLTAGE AT THE CAMERA

- Ignition OFF.
- Disconnect Suspect parking aid camera.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to H4
No	Repair the circuit for an open.

H4 CHECK FOR GROUND AT THE CAMERA

Is the resistance less than 3 ohms?

Yes	GO to H6
No	GO to H5

H5 CHECK THE GROUND CIRCUIT FOR AN OPEN BETWEEN THE CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512A.

Is the resistance less than 3 ohms?

Yes	GO to H15
No	REPAIR the circuit.

H6 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE AT THE CAMERA

- Ignition OFF.
- Disconnect IPMB C2512A.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to H7

H7 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND AT THE CAMERA

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to H8
No	REPAIR the circuit in question.

H8 CHECK VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND CAMERA

Are the resistances less than 3 ohms?

Yes	GO to H14
No	REPAIR the circuit in question.

H9 CHECK FOR VOLTAGE AT THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512A.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to H10
No	INSPECT BCM fuse 36 (15A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit.

H10 CHECK FOR GROUND AT THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to H11
No	REPAIR the circuit.

H11 CHECK THE VIDEO SIGNAL AND SHIELD CIRCUITS FOR A SHORT TO VOLTAGE BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND DISPLAY

- Ignition ON.
- Disconnect APIM C2383A.
- Disconnect FCDIM C2123.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to H12

H12 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND DISPLAY

- Ignition OFF.

- Measure:

Click to display connectors

with touchscreen

Positive Lead	Measurement / Action	Negative Lead
C2512A-20	Ω	C2383A-14
C2512A-19		C2383A-15

Are the resistances less than 3 ohms?

Yes	GO to H13
No	REPAIR the circuit in question.

H13 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND DISPLAY

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to H15
No	REPAIR the circuit in question.

H14 CHECK FOR CORRECT PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the suspect parking aid camera 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 suspect parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

H15 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after IPMB replacement: For vehicles without a touchscreen, GO to H17 For vehicles with a touchscreen, GO to H16
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

H16 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

H17 CHECK FOR CORRECT FCDIM (FRONT CONTROL/DISPLAY INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the FCDIM 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 FCDIM connector 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 the 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). 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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Poor Image Quality - Vehicles With 360 Degree Camera

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

The video signals are transmitted from each camera to the IPMB on shielded, twisted pair circuits. The IPMB processes the image data and sends a single video image to the APIM on shielded, twisted pair circuits.

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Dirty or scratched camera lens
- Wiring, terminals or connectors
- Camera(s)
- IPMB
- APIM

Visual Inspection and Diagnostic Pre-Checks

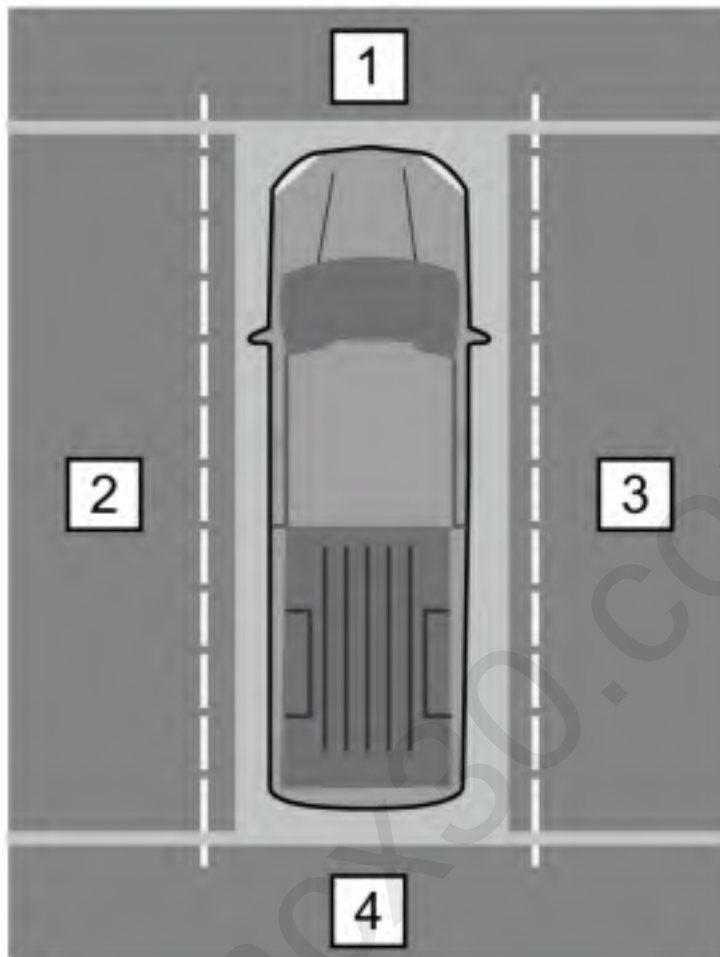
- Inspect the camera lenses for damage, dirt, debris and scratches.

NOTE: *Before disconnecting any of the cameras, verify the connectors are properly seated and latched.*

PINPOINT TEST I : POOR IMAGE QUALITY - VEHICLES WITH 360 DEGREE CAMERA

I1 INSPECT THE CAMERA IMAGES

- Ignition ON.
- Press the camera selection switch.
- Inspect the 360 degree view image to determine which camera image(s) is/are affected.
 - **1** - Front camera
 - **2** - LH camera
 - **3** - RH camera
 - **4** - Rear camera



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Does the poor image quality affect more than one camera image?

Yes	GO to I11
No	For the rear camera, GO to I2 For all others, GO to I3

I2 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using the diagnostic scan tool, perform the DCDC self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter, Diagnosis and Testing).
No	GO to I3

I3 CHECK FOR VOLTAGE AT THE AFFECTED CAMERA

- Ignition OFF.
- Disconnect Suspect parking aid camera.
- Ignition ON.
- Press the camera selection switch.
- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-1		Ground

Is the voltage greater than 11 volts?

Yes	GO to I6
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No	For the rear camera, repair the circuit for an open. For the front camera, INSPECT BJB fuse 15 (7.5 A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit. For the LH or RH side camera, GO to I4
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I4 CHECK THE SIDE CAMERA VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect IPMB C2512B.
- Measure:

Click to display connectors

RH Camera

Positive Lead	Measurement / Action	Negative Lead
C6104-4	Ω	C2512B-10

Is the resistance less than 3 ohms?

Yes	GO to I5
No	REPAIR the circuit.

I5 CHECK THE SIDE CAMERA VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND

- Measure:

Click to display connectors

RH Camera

Positive Lead	Measurement / Action	Negative Lead
C6104-4	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to I17
No	REPAIR the circuit.

I6 CHECK FOR GROUND AT THE AFFECTED CAMERA

- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-5	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to I8
No	GO to I7

I7 CHECK THE SUSPECT GROUND CIRCUIT FOR AN OPEN BETWEEN THE CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512A and C2512B.
- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-5	Ω	C2512A-11

Is the resistance less than 3 ohms?

Yes	GO to I17
No	REPAIR the circuit.

I8 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE AT THE SUSPECT CAMERA

- Ignition OFF.
- Disconnect IPMB C2512A and C2512B.
- Ignition ON.
- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-3		Ground
C4360-4		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to I9

I9 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND AT THE SUSPECT CAMERA

- Ignition OFF.
- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	Ground
C4360-4		Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to I10
No	REPAIR the circuit in question.

I10 CHECK VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND SUSPECT CAMERA

- Measure:

Click to display connectors

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-3	Ω	C2521A-12
C4360-4		C2521A-13

Are the resistances less than 3 ohms?

Yes	GO to I16
No	REPAIR the circuit in question.

I11 CHECK FOR VOLTAGE AT THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512A.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to I12
No	INSPECT BCM fuse 36 (15A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit.

I12 CHECK FOR GROUND AT THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to I13
No	REPAIR the circuit.

I13 CHECK THE VIDEO SIGNAL AND SHIELD CIRCUITS FOR A SHORT TO VOLTAGE BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND APIM (SYNC MODULE)

- Ignition ON.
- Disconnect APIM C2383A.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to I14

I14 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND APIM (SYNC MODULE)

- Ignition OFF.

Are the resistances less than 3 ohms?

Yes	GO to I15
No	REPAIR the circuit in question.

I15 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND APIM (SYNC MODULE)

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to I17
No	REPAIR the circuit in question.

I16 CHECK FOR CORRECT PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the suspect parking aid camera 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 suspect parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new parking aid camera. REFER to: Front Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . REFER to: Side Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

I17 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after IPMB replacement, GO to I18
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

I18 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Rear Parking Aid Camera Is Inoperative Or Does Not Operate Correctly - Vehicles With 360 Degree Camera

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

IPMB DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B115E:08	Camera Module: Bus Signal/Message Failure	A continuous and on-demand DTC that sets in the IPMB when expected LIN messages are not received from the rear parking aid camera.
B115E:49	Camera Module: Internal Electronic Failure	A continuous and on-demand DTC that sets in the IPMB when an internal electronic fault is detected in the rear video camera.

Possible Causes

- Wiring, terminals or connectors
- DCDC
- Communication concern
- Rear parking aid camera
- TR input concern
- Vehicle speed input concern
- Display concern
- IPMB concern

NOTE: Before disconnecting any of the cameras, verify the connectors are properly seated and latched.

PINPOINT TEST J : THE REAR PARKING AID CAMERA IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY - VEHICLES EQUIPPED WITH 360 DEGREE CAMERA

J1 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition ON.
- While monitoring the IPC PRNDL indicator, briefly select each gear in the entire range.

Does the IPC PRNDL indicator match the actual gear selection?

Yes	GO to J2
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

J2 CHECK FOR CORRECT SPEEDOMETER OPERATION

- Verify the operation of the speedometer.

Does the speedometer operate correctly?

Yes	GO to J3
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

J3 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to J4
No	REFER to: Communications Network (418-00 Module Communications Network) .

J4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using the diagnostic scan tool, perform the DCDC self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module (414-05 Voltage Converter/Inverter, Diagnosis and Testing).
No	GO to J5

J5 CHECK THE DISPLAY

- **NOTE:** *Some fault conditions may cause the actual camera image(s) not to be displayed.*

Observe the FDIM.

- Select REVERSE.
- Wait 30 seconds.

Does the FDIM switch to parking aid camera display mode?

Yes	Select PARK. GO to J6
No	Select PARK. DIAGNOSE the display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .

J6 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using the diagnostic scan tool, perform the IPMB self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC B115E:08 or B115E:49, GO to J7 For all other Diagnostic Trouble Codes (DTCs), REFER to the IPMB DTC Chart in this section.
No	GO to J7

J7 CHECK FOR VOLTAGE AT THE REAR PARKING AID CAMERA

- Ignition OFF.
- Disconnect Rear Parking Aid Camera C4360.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to J8
No	REPAIR the circuit for an open.

J8 CHECK FOR GROUND AT THE REAR PARKING AID CAMERA

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to J10
No	GO to J9

J9 CHECK THE GROUND/SHIELD CIRCUIT FOR AN OPEN BETWEEN THE REAR PARKING AID CAMERA AND THE IPMB (IMAGE PROCESSING MODULE B)

- Disconnect IPMB C2512A and C2512B.

Is the resistance less than 3 ohms?

Yes	GO to J17
No	REPAIR the circuit.

J10 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE BETWEEN THE REAR PARKING AID CAMERA AND THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512A.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to J11

J11 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE REAR PARKING AID CAMERA AND THE IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to J12
No	REPAIR the circuit in question.

J12 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE REAR PARKING AID CAMERA AND THE IPMB (IMAGE PROCESSING MODULE B)

Are the resistances less than 3 ohms?

Yes	GO to J13
No	REPAIR the circuit in question.

J13 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE AT THE REAR PARKING AID CAMERA

- Disconnect front parking aid camera C1663.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to J14

J14 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN BETWEEN THE REAR PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Is resistance less than 3 ohms?

Yes	GO to J15
No	REPAIR the circuit.

J15 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND AT THE REAR PARKING AID CAMERA

Is resistance greater than 10,000 ohms?

Yes	GO to J16
No	REPAIR the circuit.

J16 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . If the concern is still present after camera replacement, GO to J17
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

J17 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Front Parking Aid Camera Is Inoperative Or Does Not Operate Correctly

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

IPMB DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B148E:08	Front Camera: Bus Signal/Message Failure	A continuous and on-demand DTC that sets in the IPMB when expected LIN messages are not received from the front parking aid camera.
B148E:49	Front Camera: Internal Electronic Failure	A continuous and on-demand DTC that sets in the IPMB when an internal electronic fault is detected in the front parking aid camera.

Possible Causes

- Wiring, terminals or connectors
- Fuse
- Front parking aid camera
- Communication concern
- TR input concern
- Vehicle speed input concern
- Display concern
- IPMB concern

Visual Inspection and Diagnostic Pre-Checks

- BJB fuse 15 (7.5 A).

NOTE: Before disconnecting any of the cameras, verify the connectors are properly seated and latched.

PINPOINT TEST K : THE FRONT PARKING AID CAMERA IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY

K1 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition ON.
- While monitoring the IPC PRNDL indicator, briefly select each gear in the entire range.

Does the IPC PRNDL indicator match the actual gear selection?

Yes	GO to K2
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

K2 CHECK FOR CORRECT SPEEDOMETER OPERATION

- Verify the operation of the speedometer.

Does the speedometer operate correctly?

Yes	GO to K3
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

K3 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to K4
No	REFER to: Communications Network (418-00 Module Communications Network) .

K4 CHECK THE DISPLAY

- **NOTE:** *Some fault conditions may cause the actual camera image(s) not to be displayed.*

Observe the FDIM.

- Select REVERSE.
- Wait 30 seconds.

Does the FDIM switch to parking aid camera display mode?

Yes	Select PARK. GO to K5
No	Select PARK. DIAGNOSE the display. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .

K5 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using the diagnostic scan tool, perform the IPMB self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC B148E:08 or B148E:49, GO to K6 For all other Diagnostic Trouble Codes (DTCs), REFER to the IPMB DTC Chart in this section.
No	GO to K6

K6 CHECK FOR VOLTAGE AT THE FRONT PARKING AID CAMERA

- Ignition OFF.
- Disconnect Front Parking Aid Camera C1663.
- Ignition ON.

Is the voltage greater than 11 volts?

Yes	GO to K7
No	INSPECT BJB fuse 15 (7.5 A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the short circuit.

K7 CHECK FOR GROUND AT THE FRONT PARKING AID CAMERA

- Ignition OFF.

Is the resistance less than 3 ohms?

Yes	GO to K9
No	GO to K8

K8 CHECK THE GROUND/SHIELD CIRCUIT FOR AN OPEN BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Disconnect IPMB C2512A and C2512B.

Is the resistance less than 3 ohms?

Yes	GO to K16
No	REPAIR the circuit.

K9 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- Disconnect IPMB C2512B.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to K10

K10 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Are the resistances greater than 10,000 ohms?

Yes	GO to K11
No	REPAIR the circuit in question.

K11 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

Are the resistances less than 3 ohms?

Yes	GO to K12
No	REPAIR the circuit in question.

K12 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE AT THE FRONT PARKING AID CAMERA

- Disconnect IPMB C2512A.
- Disconnect rear parking aid camera C4360.
- Ignition ON.

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to K13

K13 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.

Is resistance less than 3 ohms ?

Yes	GO to K14
No	REPAIR the circuit.

K14 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND AT THE FRONT PARKING AID CAMERA

Is resistance greater than 10,000 ohms?

Yes	GO to K15
No	REPAIR the circuit.

K15 CHECK FOR CORRECT FRONT PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the front parking aid camera 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 front parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new front parking aid camera. REFER to: Front Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) . If the concern is still present after camera replacement, GO to K16
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

K16 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The LH And/Or RH Side Parking Aid Camera Is Inoperative Or Does Not Operate Correctly

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

IPMB DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B14A4:11	Camera Power: Circuit Short To Ground	A continuous and on-demand DTC that sets in the IPMB when an excessive current draw is detected on the LH and RH side parking aid camera voltage supply circuit.

Possible Causes

- Wiring, terminals or connectors
- Side parking aid camera
- Communication concern
- TR input concern
- Vehicle speed input concern
- IPMB

NOTE: Before disconnecting any of the cameras, verify the connectors are properly seated and latched.

PINPOINT TEST L : THE LH (LEFT-HAND) AND/OR RH (RIGHT-HAND) SIDE PARKING AID CAMERA IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY

L1 CHECK FOR CORRECT GEAR INPUT AT THE IPC (INSTRUMENT PANEL CLUSTER)

- Ignition ON.
- While monitoring the IPC PRNDL indicator, briefly select each gear in the entire range.

Does the IPC PRNDL indicator match the actual gear selection?

Yes	GO to L2
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

L2 CHECK FOR CORRECT SPEEDOMETER OPERATION

- Verify the operation of the speedometer.

Does the speedometer operate correctly?

Yes	GO to L3
No	REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes) .

L3 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to L4
No	REFER to: Communications Network (418-00 Module Communications Network) .

L4 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using the diagnostic scan tool, perform the IPMB self-test.

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC B14A4:11, GO to L5 For all other Diagnostic Trouble Codes (DTCs), REFER to the IPMB DTC Chart in this section.
No	GO to L8

L5 CHECK THE IPMB (IMAGE PROCESSING MODULE B) DIAGNOSTIC TROUBLE CODES (DTCS) WITH THE LH (LEFT-HAND) SIDE PARKING AID CAMERA DISCONNECTED

- Ignition OFF.
- Disconnect LH Side Parking Aid Camera C5104.
- Ignition ON.
- Using the diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs) and perform the self-test.

Is DTC B14A4:11 still present?

Yes	GO to L6
No	GO to L15

L6 CHECK THE IPMB (IMAGE PROCESSING MODULE B) DIAGNOSTIC TROUBLE CODES (DTCS) WITH THE RH (RIGHT-HAND) SIDE PARKING AID CAMERA DISCONNECTED

- Ignition OFF.
- Disconnect RH Side Parking Aid Camera C6104.
- Ignition ON.
- Using the diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs) and perform the self-test.

Is DTC B14A4:11 still present?

Yes	GO to L7
No	GO to L15

L7 CHECK FOR THE LH (LEFT-HAND) AND RH (RIGHT-HAND) SIDE PARKING AID CAMERA VOLTAGE SUPPLY CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect IPMB C2512B.
- Measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-4	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to L17
No	REPAIR the circuit.

L8 CHECK FOR VOLTAGE AT THE LH (LEFT-HAND) AND RH (RIGHT-HAND) SIDE PARKING AID CAMERA

- Ignition OFF.
- Disconnect LH Side Parking Aid Camera C5104.
- Disconnect RH Side Parking Aid Camera C6104.
- Ignition ON.
- Press the camera selection switch.
- Measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-4		Ground

Is the voltage greater than 11 volts?

Yes	GO to L10
No	GO to L9

L9 CHECK THE LH (LEFT-HAND) AND RH (RIGHT-HAND) SIDE PARKING AID CAMERA VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect IPMB C2512B.
- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-4	Ω	C2512B-10

Is the resistance less than 3 ohms?

Yes	GO to L17
No	REPAIR the circuit in question

L10 CHECK FOR GROUND AT THE LH (LEFT-HAND) AND RH (RIGHT-HAND) SIDE PARKING AID CAMERA

- Ignition OFF.
- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-1	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to L12
No	GO to L11

L11 CHECK THE GROUND/SHIELD CIRCUIT FOR AN OPEN BETWEEN THE SIDE PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Disconnect IPMB C2512B.
- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-1	Ω	C2512B-7

Is the resistance less than 3 ohms?

Yes	GO to L17
No	REPAIR the circuit in question.

L12 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE AT THE LH (LEFT-HAND) AND RH (RIGHT-HAND) SIDE PARKING AID CAMERA

- Ignition OFF.
- Disconnect IPMB C2512B.
- Ignition ON.
- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-2		Ground
C6104-3		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to L13

L13 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE SIDE PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- Ignition OFF.
- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-2	Ω	Ground
C6104-3		Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to L14
No	REPAIR the circuit in question.

L14 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE FRONT PARKING AID CAMERA AND IPMB (IMAGE PROCESSING MODULE B)

- For the inoperative camera, measure:

Click to display connectors

RH

Positive Lead	Measurement / Action	Negative Lead
C6104-2	Ω	C2512B-9
C6104-3		C2512B-8

Are the resistances less than 3 ohms?

Yes	GO to L15
No	REPAIR the circuit in question.

L15 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Ignition OFF.
- Inspect the exterior mirror jumper harness between the vehicle harness and the side parking aid camera for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	GO to L16
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No	REPAIR the harness as necessary. If the harness cannot be repaired, INSTALL a new exterior mirror. REFER to: Exterior Mirror - Vehicles With: Long Arm Mirrors (501-09 Rear View Mirrors, Removal and Installation). REFER to: Exterior Mirror - Vehicles With: Short Arm Mirrors (501-09 Rear View Mirrors, Removal and Installation).
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L16 CHECK FOR CORRECT SIDE PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the side parking aid camera 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 side parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new side parking aid camera. REFER to: Side Parking Aid Camera (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after camera replacement, GO to L17
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

L17 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The 360 Degree View Camera System Does Not Respond When The Camera Selection Switch Is Pressed

Refer to Wiring Diagrams Cell 145 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

IPMB DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B14A5:11	Multi-Camera View Switch: Circuit Short To Ground	A continuous and on-demand DTC that sets in the IPMB when the camera selection switch is stuck closed or the circuit is shorted to ground.

Possible Causes

- Wiring, terminals or connectors
- Camera selection switch
- IPMB

Visual Inspection and Diagnostic Pre-Checks

- Inspect the camera selection switch to verify that the switch is not damaged or stuck in the pressed position.

PINPOINT TEST M : THE 360 DEGREE VIEW CAMERA SYSTEM DOES NOT RESPOND WHEN THE CAMERA SELECTION SWITCH IS PRESSED

M1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) retrieved?

Yes	For DTC B14A5:11, GO to M2 For all other Diagnostic Trouble Codes (DTCs), REFER to the IPMB DTC Chart in this section.
No	GO to M4

M2 CHECK THE CAMERA SELECTION SWITCH

- Ignition OFF.
- Disconnect Camera Selection Switch C2480.
- Ignition ON.
- Using a diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs) and repeat the self-test.

Is DTC B14A5:11 still present?

Yes	GO to M3
No	INSTALL a new camera selection switch. REFER to: Parking Aid Switch (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).

M3 CHECK THE CAMERA SELECTION SWITCH CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect IPMB C2512A.

Is the resistance greater than 10,000 ohms?

Yes	GO to M6
No	REPAIR the circuit.

M4 CHECK FOR GROUND AT THE CAMERA SELECTION SWITCH

- Ignition OFF.
- Disconnect Camera Selection Switch C2480.

Is the resistance less than 3 ohms?

Yes	GO to M5
No	REPAIR the circuit.

M5 CHECK THE CAMERA SELECTION SWITCH CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect IPMB C2512A.

Is the resistance less than 3 ohms?

Yes	INSTALL a new camera selection switch. REFER to: Parking Aid Switch (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation). If the concern is still present after replacing the switch, GO to M6
No	REPAIR the circuit.

M6 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Visual Park Aid Alert Is Inoperative - Vehicles With 360 Degree View Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- PAM (integral to the BCM) concern
- APIM
- IPMB

Visual Inspection and Diagnostic Pre-Checks

- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.

PINPOINT TEST N : THE VISUAL PARK AID ALERT IS INOPERATIVE - VEHICLES WITH 360 DEGREE VIEW CAMERA

N1 VERIFY THE VISUAL PARK AID ALERT IS ENABLED

- Ignition ON.
- Verify that the visual park aid alert is enabled in the infotainment system settings menu. Refer to the Owner's Literature.

Is the visual park aid alert enabled?

Yes	GO to N2
No	ENABLE the visual park aid alert.

N2 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to N3
No	REFER to: Communications Network (418-00 Module Communications Network) .

N3 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE PAM (PARKING ASSIST CONTROL MODULE) SELF-TEST

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

Are any PAM Diagnostic Trouble Codes (DTCs) recorded?

Yes	REPAIR all PAM Diagnostic Trouble Codes (DTCs) before continuing this test. REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing).
No	GO to N4

N4 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

Are any IPMB Diagnostic Trouble Codes (DTCs) recorded?

Yes	REFER to the IPMB DTC Chart in this section.
No	If the visual park aid alert for the 360 degree overhead view is inoperative, GO to N5 For all other views, GO to N6

N5 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

N6 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern,  Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Guidelines Are Inoperative Or Do Not Operate Correctly - Vehicles Equipped With 360 Degree View Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- Steering wheel angle data concern (active guidelines only)
- IPMB
- TRM concern

Visual Inspection and Diagnostic Pre-Checks

- Verify that a trailer is not electrically connected to the vehicle.
- Verify the tailgate is fully closed.
- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.
- For active guideline concerns, verify the concern was not caused by the steering wheel being in the straight ahead position. Active guidelines are not displayed unless the steering wheel is rotated.

NOTE: *If the battery has been disconnected or discharged, or a module is disconnected or replaced, the active guidelines may be inoperative until the vehicle is driven on a flat and smooth road at 32 km/h (20 mph) or more, with hands placed loosely on the steering wheel and minimal steering correction for approximately 30 seconds.*

If the guidelines are remain inoperative, it may be necessary to disconnect the battery for 5 minutes with the driver's door open, then drive the vehicle for 5 miles in normal city driving before performing the procedure described above.

PINPOINT TEST O : THE GUIDELINES ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY - VEHICLES EQUIPPED WITH 360 DEGREE VIEW CAMERA

O1 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	If the vehicle is equipped with factory trailer tow, GO to O2 If the vehicle is not equipped with factory trailer tow, GO to O3
No	REFER to: Communications Network (418-00 Module Communications Network) .

O2 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE TRM (TRAILER MODULE) SELF-TEST

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

Are any TRM Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Trailer Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
No	GO to O3

O3 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

- Using a scan tool, perform the IPMB self-test.

Are any IPMB Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to the IPMB DTC Chart in this section.
No	For an active guideline concern, GO to O4 For a fixed guideline concern, GO to O6

O4 CHECK THE 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 ABS module Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to O5

O5 CHECK THE DIAGNOSTIC TROUBLE CODES (DTCs) FROM THE PSCM (POWER STEERING CONTROL MODULE) SELF-TEST

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

Are any PSCM Diagnostic Trouble Codes (DTCs) retrieved?

Yes	REFER to: Steering Wheel and Column Electrical Components (211-05 Steering Wheel and Column Electrical Components) .
No	GO to O6

O6 CHECK FOR CORRECT IPMB (IMAGE PROCESSING MODULE B) OPERATION

- Ignition OFF.
- Disconnect and inspect the IPMB 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 IPMB 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new IPMB. REFER to: Image Processing Module B (IPMB) (413-13B Parking Aid - Vehicles With: Parking Aid Camera, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

The Manual Zoom Is Inoperative -Vehicles With 360 Degree View Camera

Normal Operation and Fault Conditions

REFER to: Parking Aid (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .

Possible Causes

- Communication concern
- Rear parking aid camera
- LIN concern
- APIM concern

Visual Inspection and Diagnostic Pre-Checks

- If the rear parking aid camera is not configured after replacement, some video functions will be inoperative. Verify the rear parking aid camera configuration using the diagnostic scan tool.

PINPOINT TEST P : THE MANUAL ZOOM IS INOPERATIVE - VEHICLES WITH 360 DEGREE VIEW CAMERA

P1 PERFORM A NETWORK TEST

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

Do all modules pass the network test?

Yes	GO to P2
No	REFER to: Communications Network (418-00 Module Communications Network) .

P2 CHECK FOR RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REFER to the BCM DTC Chart in this section.
No	GO to P3

P3 CHECK FOR RECORDED DIAGNOSTIC TROUBLE CODES (DTCS) FROM THE APIM (SYNC MODULE) SELF-TEST

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

Are any Diagnostic Trouble Codes present?

Yes	For DTC C1001:01, GO to Pinpoint Test A For all other Diagnostic Trouble Codes (DTCs), REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
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No	GO to P4
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P4 CHECK FOR CORRECT REAR PARKING AID CAMERA OPERATION

- Ignition OFF.
- Disconnect and inspect the rear parking aid camera 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 rear parking aid camera 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 the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new rear parking aid camera. REFER to: Rear Parking Aid Camera (413-13 Parking Aid - Vehicles With: Parking Aid Camera) .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

DTC U0121:87

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

Normal Operation and Fault Conditions

The IPMB communicates with the ABS module on the HS-CAN2.

DTC	Description	Fault Trigger Conditions
U0121:87	Lost Communication With Anti-Lock Brake System (ABS) Control Module: Missing Message	Sets in continuous memory in the IPMB if expected messages from the ABS module are not received for 5 seconds or more when the ignition is on.

Possible Causes

- Communication network concern
- ABS Module
- IPMB

PINPOINT TEST Q : DTC (DIAGNOSTIC TROUBLE CODE) U0121:87

Q1 VERIFY THE CUSTOMER CONCERN	
• Ignition ON. • Verify whether an observable symptom is present.	
Is an observable symptom present?	
Yes	GO to Q2
No	CLEAR the DTC. The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.
Q2 CHECK THE COMMUNICATION NETWORK	

- Using a diagnostic scan tool, perform the network test

Does the ABS module pass the network test?

Yes	GO to Q3
No	REFER to: Communications Network (418-00 Module Communications Network) .

Q3 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	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to: Anti-Lock Brake System (ABS) and Stability Control (206-09 Anti-Lock Brake System (ABS) and Stability Control) .
No	GO to Q4

Q4 PERFORM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to the IPMB DTC Chart in this section.
No	GO to Q5

Q5 RECHECK THE IPMB (IMAGE PROCESSING MODULE B) DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, retrieve the IPMB Continuous Memory Diagnostic Trouble Codes (CMDTCs).

Is DTC U0121:87 still present?

Yes	GO to Q6
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.

Q6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

- CHECK the vehicle service history for recent service actions related to the ABS module or IPMB 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 Q7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

Q7 CHECK FOR CORRECT ABS (ANTI-LOCK BRAKE SYSTEM) MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all ABS module 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 ABS module 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 Technical Service Bulletin (TSB) exists for this concern, DISCONTINUE this test and FOLLOW the Technical Service Bulletin (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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

DTC U0159:87

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

Normal Operation and Fault Conditions

The IPMB communicates with the PAM through the HS-CAN2, GWM and HS-CAN1.

DTC	Description	Fault Trigger Conditions
U0159:87	Lost Communication With Parking Assist Control Module "A": Missing Message	Sets in continuous memory in the IPMB if expected messages from the PAM are not received for 5 seconds or more when the ignition is on.

Possible Causes

- Communication network concern
- PAM (integral to the BCM)
- IPMB
- GWM

PINPOINT TEST R : DTC (DIAGNOSTIC TROUBLE CODE) U0159:87

R1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify whether an observable symptom is present.

Is an observable symptom present?

Yes	GO to R2
No	CLEAR the DTC. The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

R2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test

Does the PAM pass the network test?

Yes	GO to R3
No	REFER to: Communications Network (418-00 Module Communications Network) .

R3 PERFORM THE PAM (PARKING ASSIST CONTROL MODULE) SELF-TEST

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to: Parking Aid (413-13A Parking Aid - Vehicles With: Rear Parking Aid, Diagnosis and Testing).
No	GO to R4

R4 PERFORM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to the IPMB DTC Chart in this section.
No	GO to R5

R5 RECHECK THE IPMB (IMAGE PROCESSING MODULE B) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Using a diagnostic scan tool, retrieve the IPMB Continuous Memory Diagnostic Trouble Codes (CMDTCs).

Is DTC U0159:87 still present?

Yes	GO to R6
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.

R6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

- CHECK the vehicle service history for recent service actions related to the PAM or IPMB.
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.

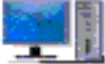
Is the observable symptom still present?

Yes	GO to R7
No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.

R7 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM 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 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 Technical Service Bulletin (TSB) exists for this concern, DISCONTINUE this test and FOLLOW the Technical Service Bulletin (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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

DTC U0253:87

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

Normal Operation and Fault Conditions

The IPMB communicates with the APIM through the HS-CAN2, GWM and HS-CAN1.

DTC	Description	Fault Trigger Conditions
U0253:87	Lost Communication With Accessory Protocol Interface Module: Missing Message	Sets in continuous memory in the IPMB if expected messages from the APIM are not received for 5 seconds or more when the ignition is on.

Possible Causes

- Communication network concern
- APIM
- IPMB
- GWM

PINPOINT TEST S : DTC (DIAGNOSTIC TROUBLE CODE) U0253:87

S1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify whether an observable symptom present.

Is an observable symptom present?

Yes	GO to S2
No	CLEAR the DTC. The system is operating correctly at this time. The DTC may have been set due to high network traffic or an intermittent fault condition.

S2 CHECK THE COMMUNICATION NETWORK

- Using a diagnostic scan tool, perform the network test

Does the APIM pass the network test?

Yes	GO to S3
No	REFER to: Communications Network (418-00 Module Communications Network) .

S3 PERFORM THE APIM (SYNC MODULE) SELF-TEST

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

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

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Touchscreen Display) . REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information - Vehicles With: Sony Audio System) .
No	GO to S4

S4 PERFORM THE IPMB (IMAGE PROCESSING MODULE B) SELF-TEST

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

Are any Diagnostic Trouble Codes (DTCs) recorded?

Yes	DIAGNOSE all non-network Diagnostic Trouble Codes (DTCs). REFER to the IPMB DTC Chart in this section.
No	GO to S5

S5 RECHECK THE IPMB (IMAGE PROCESSING MODULE B) CONTINUOUS MEMORY DIAGNOSTIC TROUBLE CODES (CMDTCS)

- Using a diagnostic scan tool, clear the IPMB Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.
- Retrieve the IPMB Continuous Memory Diagnostic Trouble Codes (CMDTCS).

Is DTC U0253:87 still present?

Yes	GO to S6
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.

S6 CHECK FOR OTHER CAUSES OF COMMUNICATION NETWORK CONCERN

- CHECK the vehicle service history for recent service actions related to the APIM or IPMB.
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?

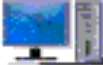
Yes	GO to S7
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No	The system is operating correctly at this time. The concern may have been due to incorrect parts replacement procedures or incorrect module configuration.
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S7 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect the APIM 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 APIM 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 Technical Service Bulletin (TSB) exists for this concern, DISCONTINUE this test and FOLLOW the Technical Service Bulletin (TSB) instructions. If no Technical Service Bulletins (TSBs) address this concern,   Click here to access Guided Routine (APIM).
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.