

- IPMB
- APIM

Visual Inspection and Diagnostic Pre-Checks

- Inspect the camera lenses for damage, dirt, debris and scratches.
- Perform an APIM reset and reevaluate the concern prior to following this pinpoint test. REFER to: Reset the SYNC Module [APIM] .



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

DIAGNOSIS AND TESTING > PARKING AID > PINPOINT TEST(S) > PINPOINT TEST H : POOR IMAGE QUALITY - VEHICLES WITH 360 DEGREE CAMERA > PINPOINT TEST H : POOR IMAGE QUALITY - VEHICLES WITH 360 DEGREE CAMERA

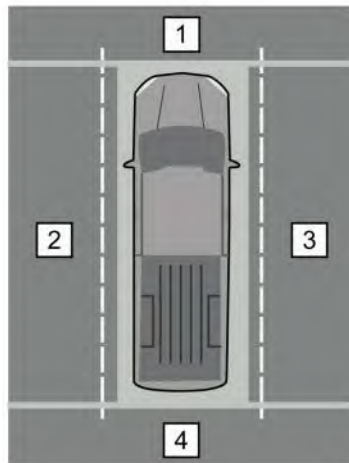
H1 INSPECT THE CAMERA IMAGES

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 H10
No	GO to H2

H2 CHECK FOR VOLTAGE AT THE AFFECTED CAMERA

Ignition OFF.

Disconnect Suspect parking aid camera.

Ignition ON.

Press the camera selection switch.

Measure:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
C1663-1		Ground

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-4		Ground

RH Camera

Positive Lead	Measurement / Action	Negative Lead
C6104-4		Ground

Rear Camera

Positive Lead	Measurement / Action	Negative Lead
C4360-1		Ground

Is the voltage greater than 11 volts?

Yes	GO to H5
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No	For the front or rear camera, INSPECT BJB fuse 113 (7.5A). If the fuse is OK, repair the circuit for an open. If the fuse is not OK, REFER to the OEM WIRING DIAGRAMS to identify the possible causes of the short circuit. For the LH or RH side camera, GO to H3
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H3 CHECK THE SIDE CAMERA VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

Ignition OFF.

Disconnect IPMB C2512B .

Measure:

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-4	Ω	C2512B-10

RH Camera

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

Is the resistance less than 3 ohms?

Yes	GO to H4
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No	REPAIR the circuit.
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H4 CHECK THE SIDE CAMERA VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO GROUND

Measure:

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-4	Ω	Ground

RH Camera

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

Is the resistance greater than 10, 000 ohms?

Yes	GO to H16
No	REPAIR the circuit.

H5 CHECK FOR GROUND AT THE AFFECTED CAMERA

Measure:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
C1663-5	Ω	Ground

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-1	Ω	Ground

RH Camera

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

Rear Camera

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

Is the resistance less than 3 ohms?

Yes	GO to H7
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No	GO to H6
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H6 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:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
C1663-5	Ω	C2512B-12

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-1	Ω	C2512B-1

RH Camera

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

Rear Camera

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

Is the resistance less than 3 ohms?

Yes	GO to H16
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No	REPAIR the circuit.
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H7 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO VOLTAGE AT THE SUSPECT CAMERA

Ignition OFF.

Disconnect IPMB C2512A and C2512B .

Ignition ON.

Measure:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
C1663-3		Ground
C1663-4		Ground

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-2		Ground
C5104-3		Ground

RH Camera

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

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 H8

H8 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND AT THE SUSPECT CAMERA

Ignition OFF.

Measure:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
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C1663-3	Ω	Ground
C1663-4	Ω	Ground

LH Camera

Positive Lead	Measurement / Action	Negative Lead
C5104-2	Ω	Ground
C5104-3	Ω	Ground

RH Camera

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

Rear Camera

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

Are the resistances greater than 10, 000 ohms?

Yes	GO to H9
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No	REPAIR the circuit in question.
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H9 CHECK VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND SUSPECT CAMERA

Measure:

Front Camera

Positive Lead	Measurement / Action	Negative Lead
C1663-3	Ω	C2512B-5
C1663-4	Ω	C2512B-6

LH Camera

Positive Lead	Measurement / Action	Negative Lead
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C5104-2	Ω	C2512B-3
C5104-3	Ω	C2512B-2

RH Camera

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

Rear Camera

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

Are the resistances less than 3 ohms?

Yes	GO to H15
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No	REPAIR the circuit in question.
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H10 CHECK FOR VOLTAGE AT THE IPMB (IMAGE PROCESSING MODULE B)

Ignition OFF.

Disconnect IPMB C2512A .

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2512A-10		Ground

Is the voltage greater than 11 volts?

Yes	GO to H11
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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 OEM WIRING DIAGRAMS to identify the possible causes of the short circuit.
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H11 CHECK FOR GROUND AT THE IPMB (IMAGE PROCESSING MODULE B)

Ignition OFF.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2512A-6	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to H12
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No	REPAIR the circuit.
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H12 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 C2383 .

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2512A-20		Ground
C2512A-19		Ground
C2512A-18		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
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No	GO to H13
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H13 CHECK THE VIDEO SIGNAL CIRCUITS FOR AN OPEN BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND APIM (SYNC MODULE)

Ignition OFF.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2512A-20	Ω	C2383-14
C2512A-19	Ω	C2383-15

Are the resistances less than 3 ohms?

Yes	GO to H14
No	REPAIR the circuit in question.

H14 CHECK THE VIDEO SIGNAL CIRCUITS FOR A SHORT TO GROUND BETWEEN THE IPMB (IMAGE PROCESSING MODULE B) AND APIM (SYNC MODULE)

Ignition OFF.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C2512A-20	Ω	Ground
C2512A-19	Ω	Ground

Are the resistances greater than 10, 000 ohms?

Yes	GO to H16
No	REPAIR the circuit in question.

H15 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 . REFER to: Rear Parking Aid Camera . REFER to: Side Parking Aid Camera .
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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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H16 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. If the concern is still present after IPMB replacement, GO to H17
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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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H17 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
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