

Rear View Mirrors

DTC Chart: DDM

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
B11F6:11	Driver Folding Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test E
B11F6:15	Driver Folding Mirror Motor: Circuit Short To Battery or Open	GO to Pinpoint Test E
B1C09:11	Driver Left/Right Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test B
B1C09:15	Driver Left/Right Mirror Motor: Circuit Short To Battery Or Open	GO to Pinpoint Test B
B1C10:11	Driver Up/Down Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test B
B1C10:15	Driver Up/Down Mirror Motor: Circuit Short To Battery Or Open	GO to Pinpoint Test B
B1C13:11	Driver Up/Down Mirror Motor Feedback: Circuit Short To Ground	GO to Pinpoint Test C
B1C13:15	Driver Up/Down Mirror Motor Feedback: Circuit Short To Battery Or Open	GO to Pinpoint Test C
B1C14:11	Driver Left/Right Mirror Motor Feedback: Circuit Short To Ground	GO to Pinpoint Test C
B1C14:15	Driver Left/Right Mirror Motor Feedback: Circuit Short To Battery Or Open	GO to Pinpoint Test C
C1B15:11	Sensor Supply Voltage B: Circuit Short To Ground	GO to Pinpoint Test C
C1B15:15	Sensor Supply Voltage B: Circuit Short To Battery or Open	GO to Pinpoint Test C
All other DDM Diagnostic Trouble Codes (DTCs)	-	REFER to: Locks, Latches and Entry Systems (501-14 Handles, Locks, Latches and Entry Systems, Diagnosis and Testing).

DTC Chart: PDM

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
B11F7:11	Passenger Folding Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test E
B11F7:15	Passenger Folding Mirror Motor: Circuit Short To Battery or Open	GO to Pinpoint Test E
B1C11:11	Passenger Left/Right Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test B
B1C11:15	Passenger Left/Right Mirror Motor: Circuit Short To Battery Or Open	GO to Pinpoint Test B
B1C12:11	Passenger Up/Down Mirror Motor: Circuit Short To Ground	GO to Pinpoint Test B
B1C12:15	Passenger Up/Down Mirror Motor: Circuit Short To Battery Or Open	GO to Pinpoint Test B
B1C15:11	Passenger Up/Down Mirror Motor Feedback: Circuit Short To Ground	GO to Pinpoint Test C
B1C15:15	Passenger Up/Down Mirror Motor Feedback: Circuit Short To Battery Or Open	GO to Pinpoint Test C
B1C16:11	Passenger Left/Right Mirror Motor Feedback: Circuit Short To Ground	GO to Pinpoint Test C
B1C16:15	Passenger Left/Right Mirror Motor Feedback: Circuit Short To Battery Or Open	GO to Pinpoint Test C
C1B15:11	Sensor Supply Voltage B: Circuit Short To Ground	GO to Pinpoint Test C
C1B15:15	Sensor Supply Voltage B: Circuit Short To Battery or Open	GO to Pinpoint Test C
All other PDM Diagnostic Trouble Codes (DTCs)	-	REFER to: Locks, Latches and Entry Systems (501-14 Handles, Locks, Latches and Entry Systems, Diagnosis and Testing).

DTC Chart: IPMA

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
B1286:14	Interior Mirror: Circuit Short To Ground or Open	GO to Pinpoint Test G
All other IPMA Diagnostic Trouble Codes (DTCs)	-	REFER to: Lane Keeping System (419-07 Lane Keeping System, Diagnosis and Testing).

DTC Chart: FCIM

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
B1C83:12	Rear Defog Relay: Circuit Short to Battery	GO to Pinpoint Test D
B1C83:14	Rear Defog Relay: Circuit Short To Ground or Open	GO to Pinpoint Test D
All other FCIM Diagnostic Trouble Codes (DTCs)	-	Refer to the appropriate section in Group 415 for the procedure.

Symptom Chart(s)

Symptom Chart: Rear View Mirrors - Exterior

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).

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

Condition	Possible Sources	Action

One or both exterior mirrors fold inward due to wind pressure	- Power folding mirrors are not synchronized (vehicles equipped with folding mirrors only) - Mirror structural bracket is damaged	- For vehicles equipped with power folding mirror, SYNCHRONIZE the power folding mirrors. REFER to: Power Mirrors Synchronization (501-09 Rear View Mirrors, General Procedures). - If the concern is still present after the power folding mirrors synchronization procedure was performed, INSPECT the mirror for structural damage. If necessary, INSTALL a new 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). - For vehicles not equipped with power folding mirror, INSPECT the mirror for structural damage. If necessary, INSTALL a new 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).
Both exterior mirrors are inoperative (with or without memory mirrors)	- Wiring, terminals or connectors - Power window concern - Exterior mirror control switch (integral to the LH front door window control switch) - DDM	- VERIFY that all power windows can be operated normally from the LH front door window control switch. - If all power windows operate normally from the LH front door window control switch, INSTALL a new LH front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation). - If all power window do not operate normally from the LH front door window control switch, DIAGNOSE the power windows before continuing diagnostics of the exterior mirrors. REFER to: Glass, Frames and Mechanisms (501-11 Glass, Frames and Mechanisms, Diagnosis and Testing).
A single mirror is inoperative/ does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test A
A single mirror horizontal or vertical operation does not function correctly	Refer to the Pinpoint Test	GO to Pinpoint Test B
The exterior mirror memory recall feature is inoperative/ does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test C
One or both heated exterior mirrors are inoperative	Refer to the Pinpoint Test	GO to Pinpoint Test D

The heated exterior mirrors do not operate from the voice command	- Defrost system concern - Voice recognition system concern	- VERIFY the heated exterior mirrors operation using the FCIM defrost button (if equipped) or heated exterior mirror button (if equipped). - If the heated exterior mirrors are still inoperative, GO to Pinpoint Test D - If the heated exterior mirrors operate, REFER to: Information and Entertainment System (415-00C Information and Entertainment System - General Information - Vehicles With: Touchscreen Display, Diagnosis and Testing). REFER to: Information and Entertainment System (415-00A Information and Entertainment System - General Information - Vehicles Without: SYNC, Diagnosis and Testing).
The heated exterior mirrors do not operate from the touchscreen command	- Defrost system concern - APIM - FDIM	- VERIFY the heated exterior mirrors operation using the FCIM defrost button (if equipped) or heated exterior mirror button (if equipped). - If the heated exterior mirrors are still inoperative, GO to Pinpoint Test D - If the heated exterior mirrors operate, REFER to: Information and Entertainment System (415-00C Information and Entertainment System - General Information - Vehicles With: Touchscreen Display, Diagnosis and Testing). REFER to: Information and Entertainment System (415-00A Information and Entertainment System - General Information - Vehicles Without: SYNC, Diagnosis and Testing).
The RH and LH heated exterior mirrors do not defrost at the same rate	Normal operation of the heated exterior mirror	No action required, the system is operating correctly at this time.
The RH and/or LH power folding mirror is inoperative/ does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test E
The RH and LH power folding mirror do not fold and/ or unfold at the same rate of speed	Normal operation of the power folding mirror	No action required, the system is operating correctly at this time.
The RH and/or LH power telescoping mirror is inoperative/does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test F
The LH auto-dimming exterior mirror is inoperative or always in a darkened state	Refer to the Pinpoint Test	GO to Pinpoint Test G

An exterior mirror selection switch LED is inoperative (exterior mirror selection switch functions normally)	Exterior mirror selection switch	INSTALL a new left front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation).
The exterior mirror puddle lamp is inoperative or always on	Refer to the Pinpoint Test	REFER to: Interior Lighting (417-02 Interior Lighting, Diagnosis and Testing).
The exterior mirror turn signal is inoperative or always on	Refer to the Pinpoint Test	REFER to: Turn Signal and Hazard Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
The exterior mirror parking lamp is inoperative or always on	Refer to the Pinpoint Test	REFER to: Parking, Rear and License Plate Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
The exterior mirror spot lamp is inoperative or always on	Refer to the Pinpoint Test	REFER to: Spot Lamps (417-01 Exterior Lighting, Diagnosis and Testing).
The BLIS® indicator is inoperative or always on	Refer to the Pinpoint Test	REFER to: Blind Spot Information System (419-04 Side and Rear Vision, Diagnosis and Testing).

Symptom Chart: Rear View Mirrors - Interior

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).

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

Condition	Possible Sources	Action
The interior mirror is blemished	Interior mirror glass/housing is dirty	CLEAN the affected interior mirror surface
The interior mirror vibrates or is loose	Interior mirror mounting loose	If the mirror is still on the windshield, do not remove . ATTEMPT to fully seat the mirror first. If the mirror is still loose or vibrates, REMOVE and REINSTALL the mirror. If the condition still exists, INSTALL a new interior mirror. REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).
The interior auto-dimming mirror does not operate correctly	Refer to the Pinpoint Test	GO to Pinpoint Test H

Symptom Chart: Rear View Mirrors - Exterior Noise, Vibration and Harshness (NVH)

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).

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

Condition	Possible Sources	Action
Exterior mirror housing vibrates or is loose	Power folding mirrors are not synchronized (if equipped)	SYNCHRONIZE the power folding mirrors. REFER to: Power Mirrors Synchronization (501-09 Rear View Mirrors, General Procedures).
	Exterior mirror mounting nuts loose	TIGHTEN the exterior mirror mounting nuts. 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).
	Aftermarket air deflector/stone shields	If possible, REMOVE the aftermarket parts and ROAD TEST the vehicle. If the concern is no longer present, ADVISE the customer that the aftermarket components were causing the undesired vibration.
Exterior mirror glass vibrates or is loose	- Exterior mirror motor mounting screws loose - Exterior mirror glass loose	PRESS the center of the exterior mirror glass up, down, left and right to make sure the exterior mirror glass is seated correctly. If the exterior mirror glass is still loose, REMOVE the exterior mirror glass. INSPECT the exterior mirror backing plate for damage. INSPECT the exterior mirror motor mounting screws and TIGHTEN if necessary. If the exterior mirror backing plate is damaged, INSTALL a new exterior mirror glass. 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).

Wind noise	Foam gasket between exterior mirror housing and door is misaligned or damaged	VERIFY the gasket is in good condition. If necessary, REPOSITION the gasket between the exterior mirror housing and the door. The foam gasket is not serviceable and if it 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).
	Exterior mirror is not correctly fitted to the door	VERIFY there are no gaps between the exterior mirror and the door. If necessary, LOOSEN the exterior mirror nuts and REPOSITION the exterior mirror as necessary. 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).
	Exterior mirror impact damage	INSPECT the exterior mirror to ensure that there is no damage to the housing or glass.

Pinpoint Tests

A Single Mirror Is Inoperative/Does Not Operate Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

Possible Causes

- Wiring, terminals or connectors
- Power window concern
- Exterior mirror control switch (integral to the LH front window control switch)
- Exterior mirror motor
- Exterior mirror

Visual Inspection and Diagnostic Pre-Checks

- Inspect the suspect exterior mirror for damage or obstructions.

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

PINPOINT TEST A : A SINGLE MIRROR IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

A1 CHECK THE EXTERIOR MIRROR CONTROL SWITCH PARAMETER IDENTIFICATIONS (PIDS)

- Using a diagnostic scan tool, view the DDM Parameter Identifications (PIDs).
- Using a diagnostic scan tool, view the following DDM mirror control switch Parameter Identifications (PIDs):
 - L_MIR_SEL
 - R_MIR_SEL
 - MIR_SW_DOWN
 - MIR_SW_UP
 - MIR_SW_L
 - MIR_SW_R
- While monitoring the Parameter Identifications (PIDs), switch the mirror control switch to the left mirror and press each directional control switch.
- While monitoring the Parameter Identifications (PIDs), switch the mirror control switch to the right mirror and press each directional control switch.

Do the Parameter Identifications (PIDs) agree with the mirror control switch presses?

Yes	GO to A2
No	INSTALL a new LH front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation).

A2 CHECK THE SUSPECT EXTERIOR MIRROR MOTOR COMMON CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: LH Suspect Exterior Mirror: C521(with memory) or C516 (without memory).
- Disconnect: RH Suspect Exterior Mirror: C622 (with memory) or C601 (without memory).
- Disconnect: DDM C501B (left mirror).
- Disconnect: PDM C652B (right mirror).
- Measure:

Left mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C501B-17	Ω	C521-4

Left mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C501B-17	Ω	C516-4

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C652B-17	Ω	C622-4

Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C652B-17	Ω	C601-4

Is the resistance less than 3 ohms?

Yes	GO to A3
No	REPAIR the circuit.

A3 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	INSTALL a new exterior mirror motor in question. 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).
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).

A Single Mirror Horizontal Or Vertical Operation Does Not Function Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

DDM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1C09:11	Driver Left/Right Mirror Motor: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM if the DDM detects a higher than expected current draw when voltage is applied to the horizontal mirror motor circuit.
B1C09:15	Driver Left/Right Mirror Motor: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the DDM if the DDM detects a lower than expected current draw when voltage is applied to the horizontal mirror motor circuit.
B1C10:11	Driver Up/Down Mirror Motor: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM if the DDM detects a higher than expected current draw when voltage is applied to the vertical mirror motor circuit.
B1C10:15	Driver Up/Down Mirror Motor: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the DDM if the DDM detects a lower than expected current draw when voltage is applied to the vertical mirror motor circuit.

PDM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1C11:11	Passenger Left/Right Mirror Motor: Circuit Short To Ground	A continuous and on-demand DTC that sets in the PDM if the PDM detects a higher than expected current draw when voltage is applied to the horizontal mirror motor circuit.
B1C11:15	Passenger Left/Right Mirror Motor: Circuit Short To Battery Or Open	A continuous memory DTC that sets in the PDM if the PDM detects a lower than expected current draw when voltage is applied to the horizontal mirror motor circuit.
B1C12:11	Passenger Up/Down Mirror Motor: Circuit Short To Ground	A continuous memory DTC that sets in the PDM if the PDM detects a higher than expected current draw when voltage is applied to the vertical mirror motor circuit.
B1C12:15	Passenger Up/Down Mirror Motor: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the PDM if the PDM detects a lower than expected current draw when voltage is applied to the vertical mirror motor circuit.

Possible Causes

- Wiring, terminals or connectors
- Exterior mirror control switch (integral to the LH front window control switch)
- Power mirror system concern
- Exterior mirror motor
- Exterior mirror
- DDM
- PDM

Visual Inspection and Diagnostic Pre-Checks

- Inspect the suspect exterior mirror for damage or obstructions.

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

PINPOINT TEST B : A SINGLE MIRROR HORIZONTAL OR VERTICAL OPERATION DOES NOT FUNCTION CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

B1 CHECK THE MIRROR MOVEMENT

- Ignition ON.
- Operate the suspect exterior mirror in the up, down, left and right directions.

Does the suspect exterior mirror operate in any direction?

Yes	GO to B2
No	GO to Pinpoint Test A

B2 CHECK THE EXTERIOR MIRROR CONTROL SWITCH PARAMETER IDENTIFICATIONS (PIDS)

- Using a diagnostic scan tool, view the DDM Parameter Identifications (PIDs).
- Using a diagnostic scan tool, view the following DDM mirror control switch Parameter Identifications (PIDs):
 - L_MIR_SEL
 - R_MIR_SEL
 - MIR_SW_DOWN
 - MIR_SW_UP
 - MIR_SW_L
 - MIR_SW_R
- While monitoring the Parameter Identifications (PIDs), press the left mirror selection switch and press each directional control switch.
- While monitoring the Parameter Identifications (PIDs), press the right mirror selection switch and press each directional control switch.

Do the Parameter Identifications (PIDs) agree with the mirror control switch presses?

Yes	GO to B3
No	INSTALL a new LH front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation).

B3 CHECK THE OUTPUT TO THE SUSPECT EXTERIOR MIRROR

NOTICE: The following step uses a test lamp to simulate normal circuit loads. Use only a Rotunda Test Lamp (SGT27000) or 250-300mA incandescent bulb test lamp. To avoid connector terminal damage, use the Rotunda Flex Probe kit for the test lamp probe connection to the vehicle. Do not use the test lamp probe directly on any connector.

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror: C521(LH exterior mirror with memory), C622 (RH exterior mirror with memory, C516 (LH exterior mirror without memory) or C601(RH exterior mirror without memory).
- Ignition ON.
- Select the suspect exterior mirror by pressing the appropriate exterior mirror selection switch.
- Connect:

Click to display connectors

Left mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C516-5		Ground
C516-4		Ground

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C622-5		Ground

C622-4		Ground
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Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C601-5		Ground
C601-4		Ground

- Operate the mirror in left/right directions.

- Connect:

Click to display connectors

Left mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C516-3		Ground
C516-4		Ground

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C622-3		Ground
C622-4		Ground

Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C601-3		Ground
C601-4		Ground

- Operate the mirror in up/down directions.

Does the test lamp illuminate only when the direction button is pressed each directions?

Yes	GO to B4
No	GO to B5

B4 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	INSTALL a new exterior mirror motor in question. 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).
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).

B5 CHECK THE SUSPECT EXTERIOR MIRROR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: DDM C501B (left mirror).
- Disconnect: PDM C652B (right mirror).
- Ignition ON.
- Measure:

Click to display connectors

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C622-3		Ground

C622-4		Ground
C622-5		Ground

Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C601-3		Ground
C601-4		Ground
C601-5		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to B6

B6 CHECK THE SUSPECT EXTERIOR MIRROR CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.

- Measure:

Click to display connectors

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C622-3	Ω	Ground
C622-4		Ground
C622-5		Ground

Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C601-3	Ω	Ground
C601-4		Ground
C601-5		Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to B7
No	REPAIR the circuit in question.

B7 CHECK THE SUSPECT EXTERIOR MIRROR CIRCUITS FOR AN OPEN

- Measure:
- Click to display connectors

Right mirror with memory

Positive Lead	Measurement / Action	Negative Lead
C622-3	Ω	C652B-7
C622-4		C652B-17
C622-5		C652B-8

Right mirror without memory

Positive Lead	Measurement / Action	Negative Lead
C601-3	Ω	C652B-7

C601-4		C652B-17
C601-5		C652B-8

Are the resistances less than 3 ohms?

Yes	GO to B8
No	REPAIR the circuit in question.

B8 CHECK FOR CORRECT DDM (DRIVER DOOR MODULE) / PDM (PASSENGER DOOR MODULE) OPERATION

- Disconnect and inspect all DDM/ PDM 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 DDM/ PDM connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 DDM/ PDM. REFER to: Driver Door Module (DDM) (419-10 Multifunction Electronic Modules, Removal and Installation). REFER to: Passenger Door Module (PDM) (419-10 Multifunction Electronic Modules, Removal and Installation).
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No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.
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The Exterior Mirror Memory Recall Feature Is Inoperative/Does Not Operate Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

DDM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1C13:11	Driver Up/Down Mirror Motor Feedback: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM if the DDM detects a short to ground from the vertical position feedback circuit.
B1C13:15	Driver Up/Down Mirror Motor Feedback: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the DDM if the DDM detects a short to voltage or open from the vertical position feedback circuit.
B1C14:11	Driver Left/Right Mirror Motor Feedback: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM if the DDM detects a short to ground from the horizontal position feedback circuit.
B1C14:15	Driver Left/Right Mirror Motor Feedback: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the DDM if the DDM detects a short to voltage or open from the horizontal position feedback circuit.
C1B15:11	Sensor Supply Voltage B: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM/ PDM if the DDM/ PDM detects a short to ground from the exterior mirror position sensor voltage supply circuit.
C1B15:15	Sensor Supply Voltage B: Circuit Short To Battery or Open	A continuous and on-demand DTC that sets in the DDM/ PDM if the DDM/ PDM detects a short to voltage or open from the exterior mirror position sensor voltage supply circuit.

PDM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
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B1C15:11	Passenger Up/Down Mirror Motor Feedback: Circuit Short To Ground	A continuous and on-demand DTC that sets in the PDM if the PDM detects a short to ground from the vertical position feedback circuit.
B1C15:15	Passenger Up/Down Mirror Motor Feedback: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the PDM if the PDM detects a short to voltage or open from the vertical position feedback circuit.
B1C16:11	Passenger Left/Right Mirror Motor Feedback: Circuit Short To Ground	A continuous and on-demand DTC that sets in the PDM if the PDM detects a short to ground from the horizontal position feedback circuit.
B1C16:15	Passenger Left/Right Mirror Motor Feedback: Circuit Short To Battery Or Open	A continuous and on-demand DTC that sets in the PDM if the PDM detects a short to voltage or open from the horizontal position feedback circuit.
C1B15:11	Sensor Supply Voltage B: Circuit Short To Ground	A continuous and on-demand DTC that sets in the DDM/ PDM if the DDM/ PDM detects a short to ground from the exterior mirror position sensor voltage supply circuit.
C1B15:15	Sensor Supply Voltage B: Circuit Short To Battery or Open	A continuous and on-demand DTC that sets in the DDM/ PDM if the DDM/ PDM detects a short to voltage or open from the exterior mirror position sensor voltage supply circuit.

Possible Causes

- Wiring, terminals or connectors
- Memory seat system concern
- Power mirror system concern
- Exterior mirror motor
- Exterior mirror
- DDM
- PDM

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

NOTE: If the DDM or PDM detects a mirror motor feedback circuit fault, a timeout strategy disable the memory operations for 30 seconds to prevent system damage. After the 30 seconds timeout, normal operation resumes.

PINPOINT TEST C : THE EXTERIOR MIRROR MEMORY RECALL FEATURE IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

C1 CHECK THE MEMORY SEAT OPERATION

- Ignition ON.
- Check the operation of the memory seat recall function.

Does the memory seat recall function operate?

Yes	GO to C2
No	DIAGNOSE the memory seat system prior to continuing diagnostics for the exterior mirror memory recall feature. REFER to: Front Seats (501-10A Front Seats, Diagnosis and Testing).

C2 CHECK THE POWER MIRRORS OPERATION

- Check the operation of the of the up/down and left/right function of the suspect power mirrors.

Does the suspect mirror operate in all directions?

Yes	GO to C3
No	GO to Pinpoint Test A

C3 CHECK THE SUSPECT EXTERIOR MIRROR POSITION SENSOR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror C521 (left mirror) or C622 (right mirror).
- Disconnect: DDM C501B (left mirror).
- Disconnect: PDM C652B (right mirror).
- Ignition ON.
- Measure:

Click to display connectors

Right Mirror

Positive Lead	Measurement / Action	Negative Lead

C622-20		Ground
C622-10		Ground
C622-11		Ground
C622-9		Ground

Is any voltage present?

Yes	GO to C4
No	REPAIR the circuit in question.

C4 CHECK THE SUSPECT EXTERIOR MIRROR POSITION SENSOR CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Click to display connectors

Right Mirror

Positive Lead	Measurement / Action	Negative Lead
C622-20	Ω	Ground

C622-10		Ground
C622-11		Ground
C622-9		Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to C5
No	REPAIR the circuit in question.

C5 CHECK THE SUSPECT EXTERIOR MIRROR POSITION SENSOR CIRCUITS FOR AN OPEN

- Measure:

Click to display connectors

Right Mirror

Positive Lead	Measurement / Action	Negative Lead
C622-20	Ω	C652B-15
C622-10		C652B-6

C622-11		C652B-5
C622-9		C652B-16

Are the resistances less than 3 ohms?

Yes	GO to C6
No	REPAIR the circuit in question.

C6 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	INSTALL a new exterior mirror motor. 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). TEST the system for normal operation. If the concern is still present, GO to C7
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).

C7 CHECK FOR CORRECT DDM (DRIVER DOOR MODULE) / PDM (PASSENGER DOOR MODULE) OPERATION

- Disconnect and inspect all DDM/ PDM 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 DDM/ PDM connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 DDM/ PDM. REFER to: Driver Door Module (DDM) (419-10 Multifunction Electronic Modules, Removal and Installation). REFER to: Passenger Door Module (PDM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

One Or Both Heated Exterior Mirrors Are Inoperative

Refer to Wiring Diagrams Cell 56 for schematic and connector information.

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Glass, Frames and Mechanisms - System Operation and Component Description](#) (501-11 Glass, Frames and Mechanisms, Description and Operation).

FCIM DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1C83:12	Rear Defog Relay: Circuit Short to Battery	A continuous and on-demand DTC that sets in the FCIM if the FCIM detects a short to voltage on the heated mirror/rear window defrost relay control circuit.
B1C83:14	Rear Defog Relay: Circuit Short To Ground or Open	A continuous and on-demand DTC that sets in the FCIM if the FCIM detects an open or short to ground on the heated mirror/rear window defrost relay control circuit.

Possible Causes

- Fuse
- Wiring, terminals or connectors
- Rear window defrost relay
- Exterior mirror glass
- Exterior spotter mirror glass
- Exterior mirror
- FCIM
- BJB

Visual Inspection and Diagnostic Pre-Checks

- Inspect the suspect exterior mirror housing and glass for damage.
- Inspect BJB fuse 63 (15A) and BCM fuse 37 (15A).

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

PINPOINT TEST D : ONE OR BOTH HEATED EXTERIOR MIRRORS ARE INOPERATIVE

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

D1 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)

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

Is Diagnostic Trouble Codes (DTCs) B1C83:14 retrived?

Yes	GO to D2
No	GO to D5

D2 PERFORM THE FCIM (FRONT CONTROLS INTERFACE MODULE) SELF TEST WITH A KNOWN GOOD RELAY INSTALLED

- Ignition OFF.
- Replace the rear window defrost relay with a known good relay.
- Ignition ON.
- Using a diagnostic scan tool, clear the FCIM Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, perform the FCIM self-test.

Is Diagnostic Trouble Codes (DTCs) B1C83:14 present?

Yes	GO to D3
No	INSTALL a new rear window defrost relay.

D3 CHECK THE REAR WINDOW DEFROST RELAY CONTROL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect: Rear Window Defrost Relay.
- Disconnect: FCIM C2402A.

Is the resistance greater than 10,000 ohms?

Yes	GO to D4
No	REPAIR the circuit.

D4 CHECK THE REAR WINDOW DEFROST RELAY CONTROL CIRCUIT FOR AN OPEN

Is the resistance less than 3 ohms?

Yes	GO to D13
No	REPAIR the circuit.

D5 CHECK THE OPERATION OF THE HEATED EXTERIOR MIRRORS GLASS

NOTE: *The defrost system activates for 10 minutes*

- Start the engine.
- Activate the heated mirror/rear window defrost system.
- With the rear window defrost ON, using an infrared temperature gun or equivalent, measure the temperature of the LH and RH exterior mirrors glass for approximately 30 seconds, noting changes in temperature.

Does the temperature of at least one exterior mirror glass rise?

Yes	GO to D6
No	GO to D8

D6 CHECK THE VOLTAGE TO THE INOPERATIVE HEATED EXTERIOR REAR VIEW MIRROR GLASS

- Ignition OFF.
- Disconnect: Inoperative Heated Exterior Rear View Mirror, C521 (LH exterior mirror) or C622 (RH exterior mirror).
- Start the engine.
- **NOTE:** *The defrost system activates for 10 minutes*

With the engine running, activate the heated mirror/rear window defrost system.

- Measure:

LH mirror

Positive Lead	Measurement / Action	Negative Lead
C521-1		Ground

RH mirror

Positive Lead	Measurement / Action	Negative Lead

C622-1		Ground
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Is the voltage greater than 11 volts?

Yes	GO to D7
No	REPAIR the circuit.

D7 CHECK THE INOPERATIVE EXTERIOR REAR VIEW MIRROR GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

LH mirror)

Positive Lead	Measurement / Action	Negative Lead
C521-8	Ω	Ground

RH mirror

Positive Lead	Measurement / Action	Negative Lead
C622-8	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to D14
No	REPAIR the circuit

D8 CHECK THE REAR WINDOW DEFROST RELAY

- Ignition OFF.
- Replace the rear window defrost relay with a known good relay.
- Start the engine.
- **NOTE:** *The defrost system activates for 10 minutes.*

Activate the heated mirror/rear window defrost switch to the ON position.

- With the rear window defrost ON, using an infrared temperature gun or equivalent, measure the temperature of the LH and RH exterior mirrors glass for approximately 30 seconds, noting changes in temperature.

Does the temp of the exterior mirrors glass rise?

Yes	INSTALL a new rear window defrost relay.
No	GO to D9

D9 CHECK THE REAR WINDOW DEFROST RELAY CONTROL CIRCUIT FOR SUPPLY VOLTAGE

- Ignition OFF.
- Disconnect: Rear Window Defrost Relay.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Rear Window Defrost Relay, cavity 3		Ground

Is the voltage greater than 11 volts?

Yes	GO to D10
No	REPAIR or INSTALL a new BJB.

D10 CHECK THE REAR WINDOW DEFROST RELAY CONTROL VOLTAGE SUPPLY

- Ignition ON.

- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Rear Window Defrost Relay, cavity 1		Ground

Is the voltage greater than 11 volts?

Yes	GO to D11
No	VERIFY that BCM fuse 37 (15A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

D11 CHECK THE HEATED EXTERIOR MIRROR SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Rear Window Defrost Relay.
- Disconnect: LH Exterior Mirror C521.

Is the resistance less than 3 ohms?

Yes	GO to D12
No	VERIFY that BJB fuse 63 (15A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

D12 CHECK THE REAR WINDOW DEFROST RELAY CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: FCIM C2402A.
- Ignition ON.
- Measure:

Click to display connectors

Positive Lead	Measurement / Action	Negative Lead
Rear Window Defrost Relay, cavity 2		Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to D13

D13 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Disconnect and inspect all FCIM connectors and related in-line connectors.
- Repair:
 - corrosion (install new connector or terminals - clean module pins)
 - damaged or bent pins - install new terminals/pins
 - pushed-out pins - install new pins as necessary
- Reconnect the FCIM connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 (FCIM).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

D14 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	INSTALL a new exterior mirror glass. 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).
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).

The RH And/Or LH Power Folding Mirror Is Inoperative/Does Not Operate Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

DTC	Description	Fault Trigger Conditions
B11F6:11	Driver Folding Mirror Motor: Circuit Short To Ground	A continuous memory and on-demand DTC that sets in the DDM if the DDM detects a greater than expected current draw when voltage is applied to the LH exterior mirror fold in circuit.
B11F6:15	Driver Folding Mirror Motor: Circuit Short To Battery or Open	A continuous memory and on-demand DTC that sets in the DDM if the DDM detects a lower than expected current draw when voltage is applied to the LH exterior mirror fold in circuit.
B11F7:11	Passenger Folding Mirror Motor: Circuit Short To Ground	A continuous memory and on-demand DTC that sets in the PDM if the PDM detects a greater than expected current draw when voltage is applied to the RH exterior mirror fold in circuit.
B11F7:15	Passenger Folding Mirror Motor: Circuit Short To Battery or Open	A continuous memory and on-demand DTC that sets in the PDM if the PDM detects a lower than expected current draw when voltage is applied to the RH exterior mirror fold in circuit.

Possible Causes

- The power fold mirror motor lockout feature is active
- Binding or obstructed power fold mirror
- Power fold mirrors not synchronized
- Communication network concern
- Power window concern
- Wiring, terminals or connectors
- Exterior mirror fold switch (integral to the LH front door window control switch)
- Exterior mirror
- Door module

Visual Inspection and Diagnostic Pre-Checks

- Verify all of the power windows can be opened and closed normally using the LH front door window control switch.
- Verify that the power folding mirrors are not binding or obstructed.
- Verify the lockout feature is disabled.

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

PINPOINT TEST E : THE RH (RIGHT-HAND) AND/OR LH (LEFT-HAND) POWER FOLDING MIRROR IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

NOTE: The power folding mirrors must be synchronized anytime the RH, LH or both power folding mirrors are folded or unfolded without using the power folding mirror control switch, or if a new power folding mirror has been installed. Refer to Power Folding Mirrors Synchronization in this section.

NOTE: If the exterior mirrors are folded and unfolded several times consecutively, the power lockout feature will disable the system for approximately 3-10 minutes to prevent damage to the power fold motors. After 3-10 minutes have elapsed, normal operation resumes.

E1 PERFORM A NETWORK TEST

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

Do the DDM and PDM pass the network test?

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

E2 CHECK THE DOOR MODULE DIAGNOSTIC TROUBLE CODES (DTCS)

- Using a diagnostic scan tool, perform the DDM and PDM self-test.

Are any DDM DTC Diagnostic Trouble Codes (DTCS) or PDM Diagnostic Trouble Codes (DTCS) present?

Yes	For DDM DTC B11F6:15 or PDM DTC B11F7:15, GO to E7 For DDM DTC B11F6:11 or PDM DTC B11F7:11, GO to E5 For all other DDM or PDM Diagnostic Trouble Codes (DTCS), REFER to: Locks, Latches and Entry Systems (501-14 Handles, Locks, Latches and Entry Systems, Diagnosis and Testing).
No	If both power folding mirrors are inoperative, GO to E3 If only one power folding mirror is inoperative, GO to E4

E3 CHECK THE LH (LEFT-HAND) FRONT DOOR WINDOW CONTROL SWITCH

- Operate all windows using the LH front door window control switch.

Do all the power windows operate correctly?

Yes	INSTALL a new LH front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation). If the concern is still present after switch replacement, GO to E11
No	DIAGNOSE the power windows before continuing diagnostics of the power folding mirrors. REFER to: Glass, Frames and Mechanisms (501-11 Glass, Frames and Mechanisms, Diagnosis and Testing).

E4 CHECK THE FOLD CIRCUIT FOR VOLTAGE AT THE SUSPECT EXTERIOR MIRROR

NOTICE: The following step uses a test lamp to simulate normal circuit loads. Use only a Rotunda Test Lamp (SGT27000) or 250-300mA incandescent bulb test lamp. To avoid connector terminal damage, use the Rotunda Flex Probe kit for the test lamp probe connection to the vehicle. Do not use the test lamp probe directly on any connector.

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror C521 or C622.
- Connect:

Click to display connectors

RH power folding mirror concern

Lead 1	Measurement / Action	Lead 2
C622-19		C601-18

- Ignition ON.
- Press the exterior mirror fold switch.

Does the test light illuminate when the exterior mirror fold switch is pressed?

Yes	GO to E12
No	For a RH power folding mirror concern, GO to E10 For a LH power folding mirror concern, GO to E11

E5 CHECK THE DOOR MODULE DIAGNOSTIC TROUBLE CODES (DTCs) WITH THE SUSPECT EXTERIOR MIRROR DISCONNECTED

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror C521 or C622.
- Ignition ON.
- Using a diagnostic scan tool, clear the DDM (LH power folding mirror concern) or PDM (RH power folding mirror concern) Diagnostic Trouble Codes (DTCs) and repeat the self-test.

Is DDM DTC B11F6:15 or PDM DTC B11F7:15 present?

Yes	GO to E12
No	GO to E6

E6 CHECK THE EXTERIOR MIRROR FOLD IN CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect: DDM C501B (LH power folding mirror concern) or PDM C652B (RH power folding mirror concern).
- Measure:

Click to display connectors

RH power folding mirror concern

Positive Lead	Measurement / Action	Negative Lead
C652B-18	Ω	Ground

Is the resistance greater than 10,000 ohms?

Yes	For a LH concern, GO to E11 For a RH concern, GO to E10
No	REPAIR the circuit.

E7 CHECK THE DOOR MODULE DIAGNOSTIC TROUBLE CODES (DTCs) WITH THE FOLD CIRCUITS JUMPERED TOGETHER

- Ignition OFF.
- Disconnect: Suspect Exterior Mirror C521 or C622.
- Connect:

Click to display connectors

RH power folding mirror concern

Positive Lead	Measurement / Action	Negative Lead
C622-19		C622-18

- Ignition ON.
- Using a diagnostic scan tool, clear the DDM (LH concern) or PDM (RH concern) Diagnostic Trouble Codes (DTCs) and repeat the self-test.

Is DDM DTC B11F6:11 or PDM DTC B11F7:11 present?

Yes	REMOVE the fused jumper wire. GO to E12
No	REMOVE the fused jumper wire. GO to E8

E8 CHECK THE FOLD CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: DDM C501B (LH power folding mirror concern) or PDM C652B (RH power folding mirror concern).
- Ignition ON.
- Measure:

Click to display connectors

RH power folding mirror concern

Positive Lead	Measurement / Action	Negative Lead
C622-19		Ground
C622-18		Ground

Is any voltage present?

Yes	REPAIR the affected circuit.
No	GO to E9

E9 CHECK THE FOLD CIRCUITS FOR AN OPEN

- Ignition OFF.

- Measure:

Click to display connectors

RH power folding mirror concern

Positive Lead	Measurement / Action	Negative Lead
C622-19	Ω	C652B-9
C622-18		C652B-18

Are the resistances less than 3 ohms?

Yes	For a LH power folding mirror concern, GO to E11 For a RH power folding mirror concern, GO to E10
No	REPAIR the affected circuit.

E10 CHECK FOR CORRECT PDM (PASSENGER DOOR MODULE) OPERATION

- Disconnect and inspect all PDM 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 PDM connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 PDM. REFER to: Passenger Door Module (PDM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

E11 CHECK FOR CORRECT DDM (DRIVER DOOR MODULE) OPERATION

- Disconnect and inspect all DDM 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 DDM connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 DDM. REFER to: Driver Door Module (DDM) (419-10 Multifunction Electronic Modules, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

E12 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	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).
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).

The RH And/Or LH Power Telescoping Mirror Is Inoperative/Does Not Operate Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

Possible Causes

- The power telescoping mirror motor lockout feature is active
- Binding or obstructed power telescoping mirror
- Power telescoping mirrors not synchronized
- Fuse
- Wiring, terminals or connectors
- Power telescoping mirror relay
- Power telescoping mirror control switch (integral to the LH front door window control switch)
- Power telescoping mirror

Visual Inspection and Diagnostic Pre-Checks

- Verify that the power telescoping mirrors are not binding or obstructed.
- Verify all of the power windows can be opened and closed normally using the LH front door window control switch.
- Inspect BJB fuse 41 (10A).
- Verify the lockout feature is disabled.

NOTE: Clean the entire mirror assembly and glass to assist in verification of the customer concern and/or impact damage. Do not clean any mirror glass or housing with an ice scraper, razor blade, abrasive pad, harsh chemicals or petroleum based cleaning products, as these may damage the mirror glass and/or housing.

PINPOINT TEST F : THE RH (RIGHT-HAND) AND/OR LH (LEFT-HAND) POWER TELESCOPING MIRROR IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

NOTE: If the exterior mirrors are extended and retracted several times consecutively, the power lockout feature will disable the system for approximately 3-10 minutes to prevent damage to the power telescoping mirror motors. After 3-10 minutes have elapsed, normal operation resumes.

NOTE: The trailer tow power telescoping mirrors must be synchronized anytime the RH, LH or both power telescoping mirrors are folded or unfolded without using the power telescoping mirror control switch, or if a new power telescoping mirror has been installed. Refer to Power Folding Mirrors Synchronization in this section.

F1 VERIFY THE OPERATION OF THE POWER TELESCOPING MIRRORS

- Ignition ON.
- Activate the power telescoping mirrors inward and outward.

Are both power telescoping mirrors inoperative?

Yes	VERIFY the BJB fuse 41 (10A) is OK. If OK, GO to F2 If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.
No	For the LH power telescoping mirror inoperative, GO to F10 For the RH power telescoping mirror inoperative, GO to F11

F2 CHECK THE EXTERIOR MIRROR EXTEND RELAY

- Ignition OFF.
- Disconnect: Exterior Mirror Extend Relay.
- Install a known good relay.
- Ignition ON.
- Check the operation of the telescoping mirrors.

Is the concern is still present?

Yes	REMOVE the known good relay. GO to F3
No	REMOVE the known good relay. INSTALL a new exterior mirror extend relay.

F3 CHECK THE EXTERIOR MIRROR RETRACT RELAY

- Ignition OFF.
- Connect: Exterior Mirror Extend Relay.
- Disconnect: Exterior Mirror Retract Relay.
- Install a known good relay.
- Ignition ON.
- Check the operation of the telescoping mirrors.

Is the concern is still present?

Yes	REMOVE the known good relay. GO to F4
No	REMOVE the known good relay. INSTALL a new exterior mirror extend relay.

F4 CHECK THE POWER TELESCOPING MIRROR RELAYS VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: Exterior Mirror Extend Relay.
- Ignition ON.
- Measure:

Extend relay

Positive Lead	Measurement / Action	Negative Lead

E194557		Ground
--	---	--------

BJB extend relay, cavity 5

Retract relay

Positive Lead	Measurement / Action	Negative Lead
E194558		Ground

BJB retract relay, cavity 5

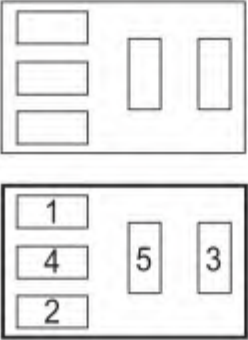
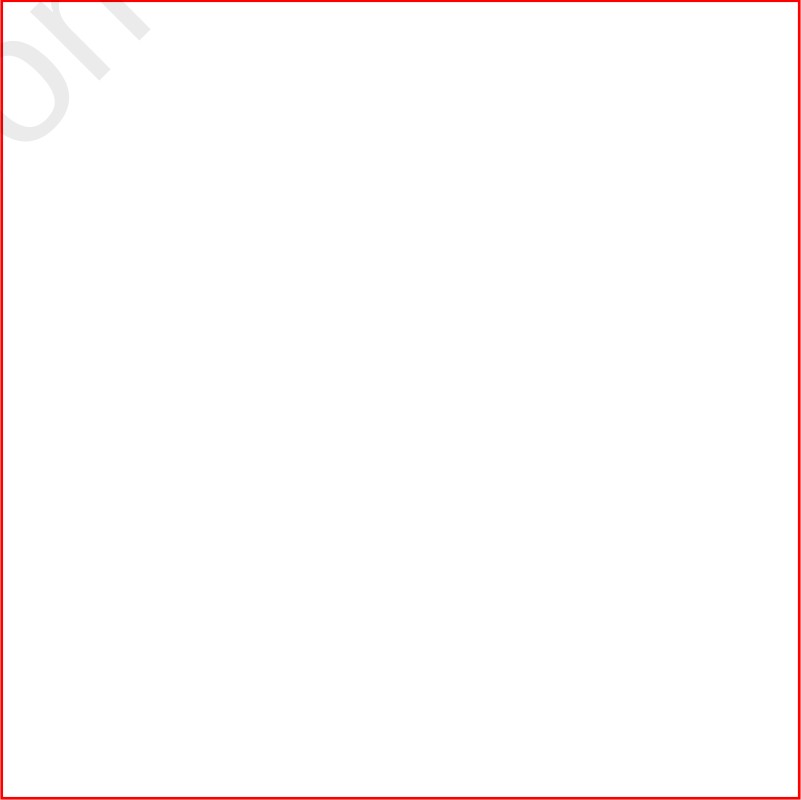
Are the voltages are greather than 11 volts?

Yes	GO to F5
No	REPAIR the circuit in question.

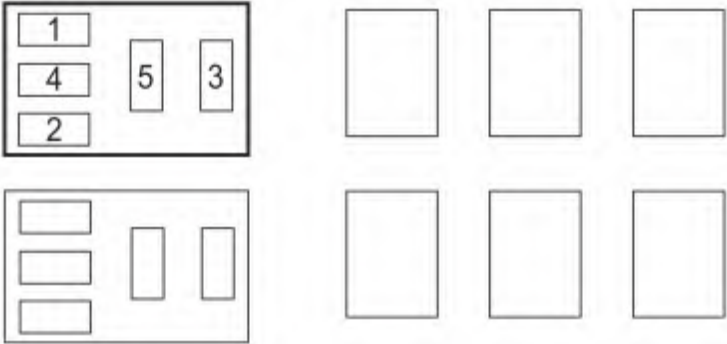
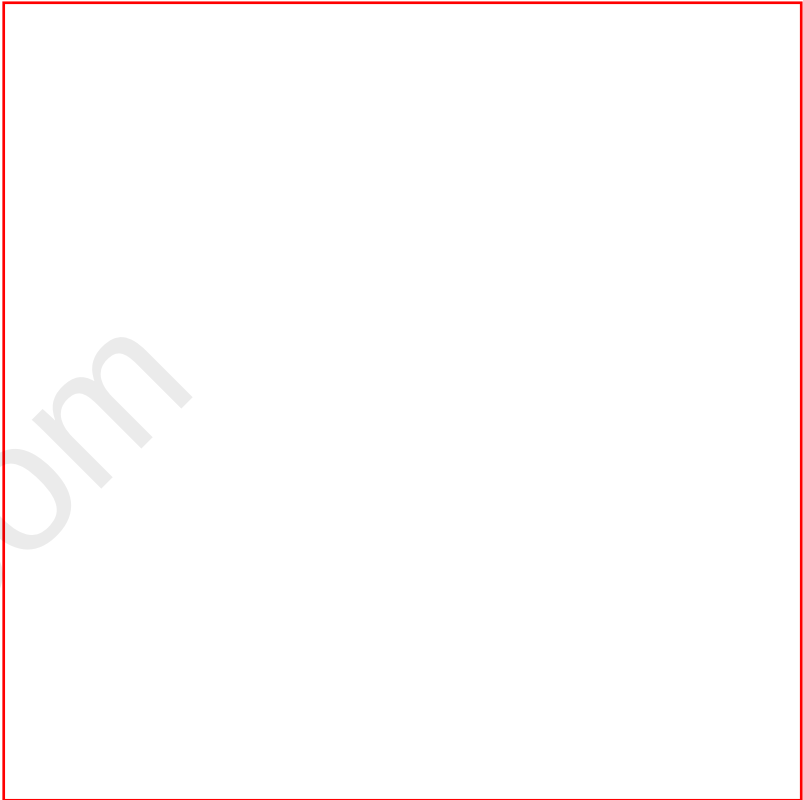
F5 CHECK THE POWER TELESCOPING MIRROR RELAYS COIL GROUND CIRCUITS FOR AN OPEN

- Measure:

Extend relay

Positive Lead	Measurement / Action	Negative Lead
 E194557 BJB extend relay, cavity 5		 BJB extend relay, cavity 1

Retract relay

Positive Lead	Measurement / Action	Negative Lead
 E194558 BJB retract relay, cavity 5		 BJB retract relay, cavity 1

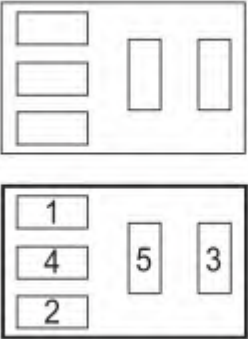
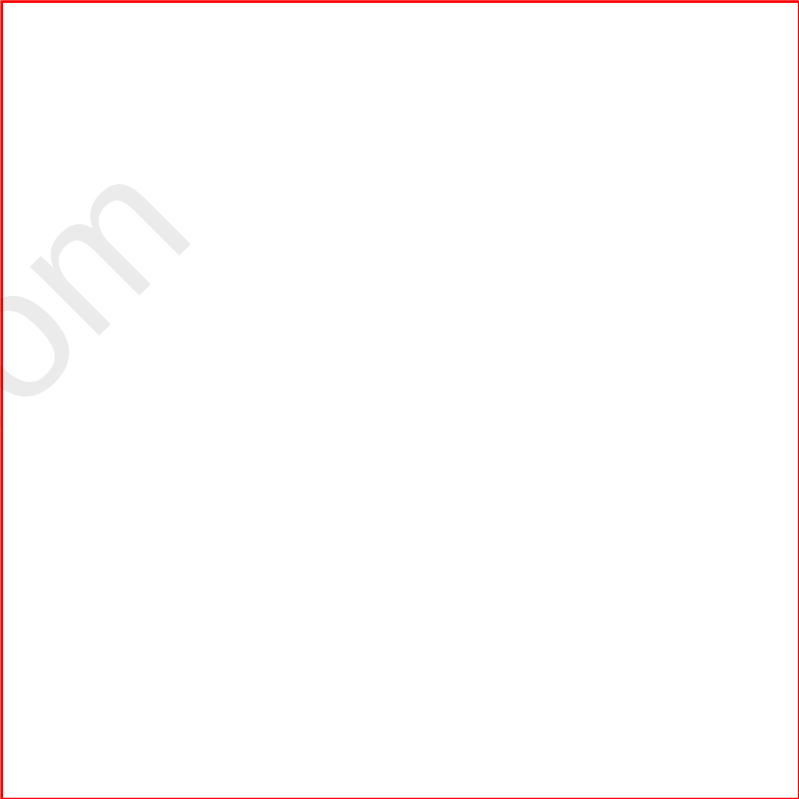
Are the voltages are greather than 11 volts?

Yes	GO to F6
No	REPAIR the circuit in question.

F6 CHECK THE POWER TELESCOPING MIRROR RELAYS SWITCH GROUND CIRCUITS FOR AN OPEN

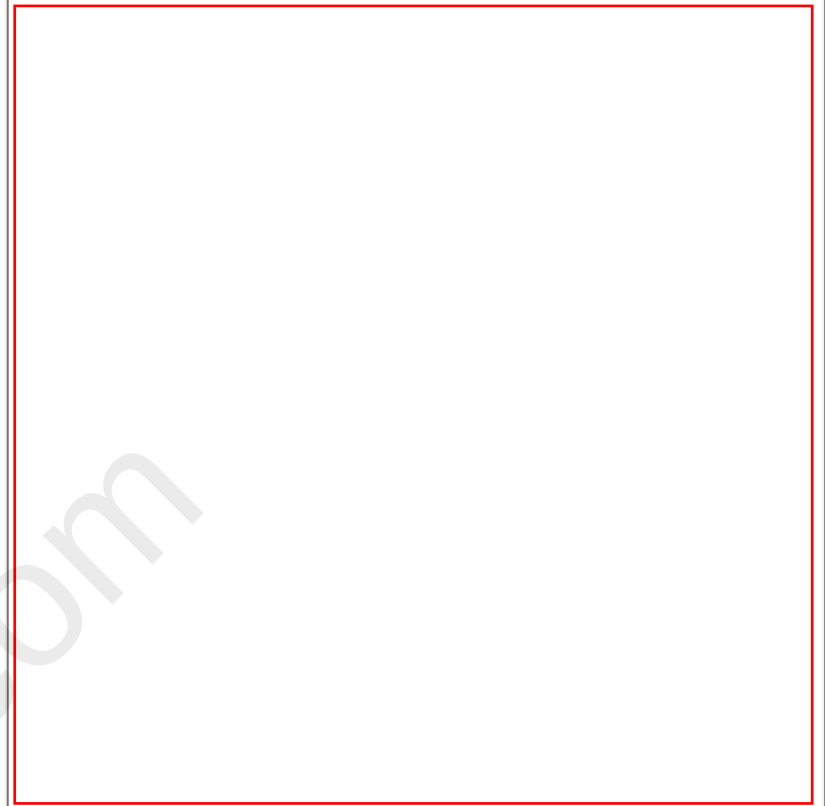
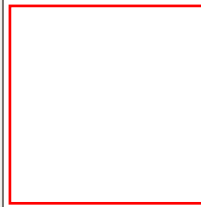
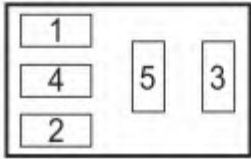
- Measure:

Extend relay

Positive Lead	Measurement / Action	Negative Lead
 E19457 BJB extend relay, cavity 5		 BJB extend relay, cavity 4

Retract relay

Positive Lead	Measurement / Action	Negative Lead



E194558

BJB retract relay, cavity 5

BJB retract relay, cavity 4

Is the voltage greater than 11 volts?

Yes	GO to F7
No	REPAIR the circuit in question.

F7 CHECK THE SUSPECT RELAY CONROL CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: LH Front Door Window Control Switch C535.
- Ignition ON.
- Measure:

Click to display connectors

Extend relay

Positive Lead	Measurement / Action	Negative Lead
BJB extend relay, cavity 2		Ground

Click to display connectors

Retract relay

Positive Lead	Measurement / Action	Negative Lead
BJB retract relay, cavity 2		Ground

Is any voltage present?

Yes	REPAIR the circuit in question.
No	GO to F8

F8 CHECK THE SUSPECT RELAY CONTROL CIRCUITS FOR AN OPEN

- Ignition OFF.

- Measure:

Click to display connectors

Retract relay

Positive Lead	Measurement / Action	Negative Lead
BJB retract relay, cavity 2	Ω	C535-3

Are the resistances less than 3 ohms?

Yes	GO to F9
No	REPAIR the circuit in question.

F9 CHECK THE SUSPECT RELAY CONTROL CIRCUIT FOR A SHORT TO GROUND

- Measure:

Click to display connectors

Extend relay

Positive Lead	Measurement / Action	Negative Lead
BJB extend relay, cavity 2	Ω	Ground

Click to display connectors

Retract relay

Positive Lead	Measurement / Action	Negative Lead
BJB retract relay, cavity 2	Ω	Ground

Are the resistances greater than 10,000 ohms?

Yes	INSTALL a new LH front door window control switch. REFER to: Front Door Window Control Switch - Vehicles With: Front Power Windows (501-11 Glass, Frames and Mechanisms, Removal and Installation).
No	REPAIR the circuit in question.

F10 CHECK THE SUSPECT RELAY OUTPUT CIRCUIT FOR AN OPEN

- Ignition OFF.
- Remove the telescoping mirrors extend **and** retract relays.
- Disconnect: LH Exterior Mirror C521.

Is the resistances less than 3 ohms?

Yes	GO to F12
No	REPAIR the affected circuit.

F11 CHECK THE SUSPECT RELAY OUTPUT CIRCUIT FOR AN OPEN

- Ignition OFF.
- Remove the telescoping mirrors extend **and** retract relays.
- Disconnect: RH Exterior Mirror C622.

Is the resistances less than 3 ohms?

Yes	GO to F12
No	REPAIR the affected circuit.

F12 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror motors for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	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).
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).

The LH Exterior Auto-Dimming Mirror Is Inoperative Or Always In A Darkened State

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

DTC	Description	Fault Trigger Conditions
B1286:14	Interior Mirror: Circuit Short To Ground or Open	A continuous memory DTC that sets in the IPMA when the IPMA detects a short to ground on the LH exterior auto-dimming mirror output circuit.

Possible Causes

- Wiring, terminals or connectors
- LH exterior mirror glass
- LH exterior mirror

- Interior auto-dimming mirror concern
- IPMA (integral to the interior auto-dimming mirror)

PINPOINT TEST G : THE LH (LEFT-HAND) EXTERIOR AUTO-DIMMING MIRROR IS INOPERATIVE OR ALWAYS IN A DARKENED STATE

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

G1 VERIFY THE INTERIOR AUTO-DIMMING MIRROR FORWARD AND REARWARD FACING SENSORS ARE NOT BLOCKED

- Visually verify the forward and rearward facing sensors are not blocked or obstructed. Sources of obstruction can include:
 - Stickers, window decals or tags.
 - Tool road or parking passes.
 - Fold-down screens for TVs or DVD players.
 - Non-OEM window tinting.
 - Dirt and debris.
 - Camper shells.
 - Decorative objects hung from mirror.

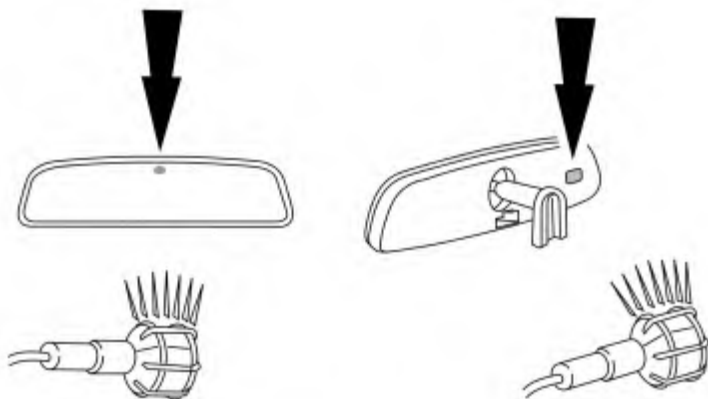
Are either of the sensors blocked?

Yes	If possible, REMOVE the obstruction. If it is not possible to remove the obstruction, ADVISE the customer the blockage will affect the operation of the interior and LH exterior auto-dimming mirrors.
No	GO to G2

G2 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - DAYLIGHT CONDITIONS

- Ignition ON.
- Select PARK.
- **NOTE:** Base electrochromatic mirror shown. IPMA mirror is similar.

Use a bright lamp to illuminate the forward facing sensor and the rearward facing sensor. The mirror should adjust to a high reflectance state (mirror will be clear).



E149159

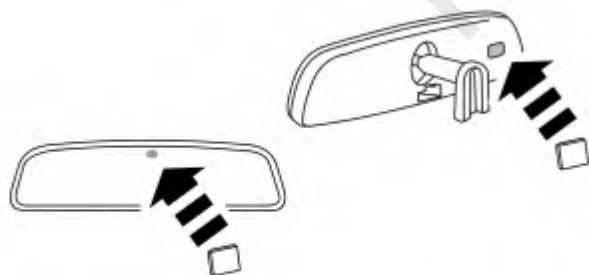
Did the interior auto-dimming mirror adjust to a high reflectance (clear) state?

Yes	GO to G3
No	GO to Pinpoint Test H

G3 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - NIGHTTIME CONDITIONS

- NOTE:** Covering the sensor(s) with a finger or hand is not adequate for this step.

Cover the forward and rearward facing sensors with black electrical tape or other dark material. The mirror should adjust to a high reflectance state (mirror will be clear).



E149155

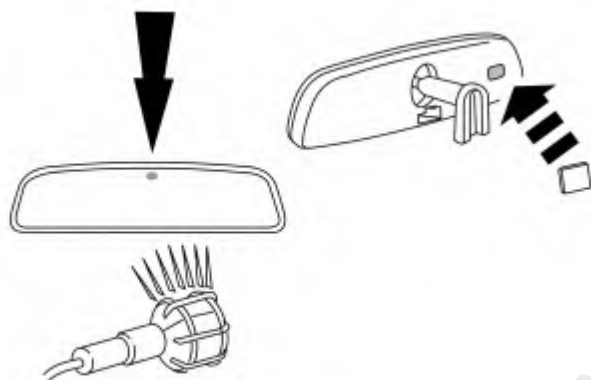
Did the interior auto-dimming mirror adjust to a high reflectance (clear) state?

Yes	GO to G4
No	GO to Pinpoint Test H

G4 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - NIGHTTIME CONDITIONS WITH GLARE

- **NOTE:** Covering the sensor(s) with a finger or hand is not adequate for this step.

Remove the black electrical tape or other dark material from the rearward facing sensor.



E149156

- Use a bright light to illuminate the rearward facing sensor. The mirror should adjust to a lower reflectance state (mirror will be dark).

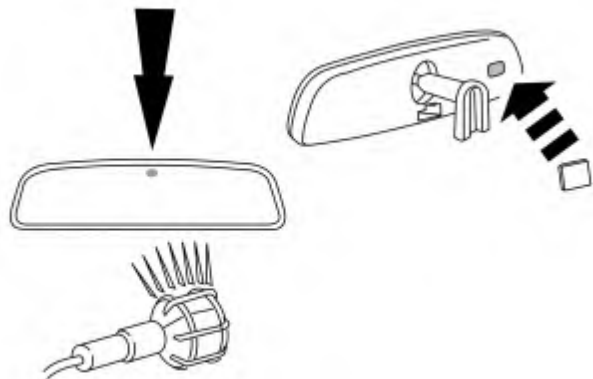
Did the interior auto-dimming mirror adjust to a low reflectance (dark) state?

Yes	GO to G5
No	GO to Pinpoint Test H

G5 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - VEHICLE IN REVERSE AND NIGHTTIME CONDITIONS WITH GLARE

- **NOTE:** Covering the sensor(s) with a finger or hand is not adequate for this step.

Continue to illuminate the rearward facing sensor with the forward facing sensor covered.



- E149156
- Select REVERSE.

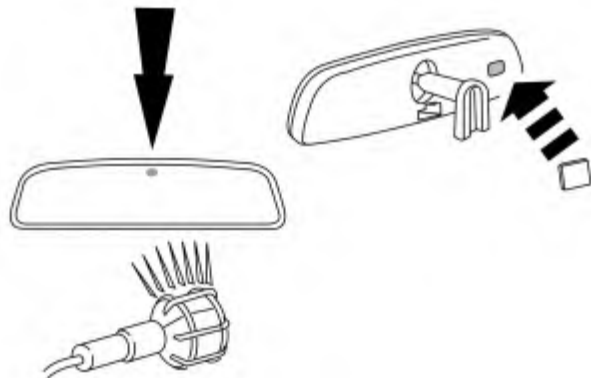
Did the interior auto-dimming mirror adjust to a high reflectance (clear) state after reverse was selected?

Yes	If the LH exterior auto-dimming mirror is inoperative, GO to G6 If the LH exterior auto-dimming mirror is always in a low reflectance (dark) state, GO to G9
No	GO to Pinpoint Test H

G6 CHECK FOR VOLTAGE AT THE LH (LEFT-HAND) EXTERIOR AUTO-DIMMING MIRROR WHILE SIMULATING NIGHTTIME CONDITIONS WITH GLARE

- Select PARK.
- Ignition OFF.
- Disconnect: LH Exterior Mirror C516 (without memory mirrors) or LH Exterior Mirror C521 (with memory mirrors).
- Ignition ON.
- **NOTE:** Covering the sensor(s) with a finger or hand is not adequate for this step.

Illuminate the rearward facing sensor with the forward facing sensor covered.



- E149156

- Measure:

Click to display connectors

With memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C521-2		C521-6

Is any voltage present?

Yes	GO to G12
No	GO to G7

G7 CHECK FOR AN OPEN BETWEEN THE LH (LEFT-HAND) EXTERIOR MIRROR AND THE INTERIOR AUTO-DIMMING MIRROR

- Ignition OFF.
- Disconnect: Interior Auto-Dimming Mirror C9039 (without IPMA) or Interior Auto-Dimming Mirror C9012 (with IPMA).
- Measure:

Click to display connectors

With IPMA, with memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C521-2	Ω	C9012-5
C521-6		C9012-6

Are the resistances less than 3 ohms?

Yes	GO to G8
No	REPAIR the affected circuit.

G8 CHECK THE LH (LEFT-HAND) EXTERIOR AUTO-DIMMING MIRROR CIRCUITS FOR A SHORT TOGETHER

- Measure:

Without memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C516-2	Ω	C516-6

With memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C521-2	Ω	C521-6

Is the resistance greater than 10,000 ohms?

Yes	GO to G9
No	REPAIR the affected circuits.

G9 CHECK THE LH (LEFT-HAND) EXTERIOR AUTO-DIMMING MIRROR CIRCUITS FOR VOLTAGE WHILE SIMULATING NIGHTTIME CONDITIONS

- Select PARK.
- Ignition OFF.
- Disconnect: LH Exterior Mirror C516 (without memory mirrors) or LH Exterior Mirror C521 (with memory mirrors).
- Ignition ON.
- **NOTE:** *Covering the sensor(s) with a finger or hand is not adequate for this step.*

Cover the forward and rearward facing sensors with black electrical tape or other dark material. The mirror should adjust to a high reflectance state (mirror will be clear).



- E149155
- Measure:

Click to display connectors

With memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C521-2		C521-6

Is any voltage present?

Yes	GO to G10
No	GO to G12

G10 CHECK THE LH (LEFT-HAND) EXTERIOR AUTO-DIMMING MIRROR CIRCUITS FOR A SHORT TO VOLTAGE WITH THE INTERIOR AUTO DIMMING MIRROR DISCONNECTED

- Ignition OFF.
- Disconnect: Interior Auto-Dimming Mirror C9039 (without IPMA) or Interior Auto-Dimming Mirror C9012 (with IPMA).
- Ignition ON.
- Measure:

Without memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C516-2		Ground
C516-6		Ground

With memory mirrors

Positive Lead	Measurement / Action	Negative Lead
C521-2		Ground
C521-6		Ground

Is any voltage present?

Yes	REPAIR the affected circuit.
No	If the vehicle is equipped with an IPMA, GO to G11 If the vehicle is not equipped with an IPMA, INSTALL a new interior auto-dimming 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).

G11 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Disconnect and inspect all IPMA connectors and related in-line connectors.
- Repair:
 - corrosion (install new connector or terminals - clean module pins)
 - damaged or bent pins - install new terminals/pins
 - pushed-out pins - install new pins as necessary
- Reconnect the IPMA connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 IPMA (integral to the interior auto-dimming mirror). REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).
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No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.
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G12 CHECK THE EXTERIOR MIRROR JUMPER HARNESS

- Inspect the exterior mirror jumper harness between the vehicle harness and the mirror glass for:
 - Open or short circuits
 - Damaged or pushed out pins
 - Corrosion

Is the harness OK?

Yes	INSTALL a new LH exterior mirror glass. 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).
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).

The Interior Auto-Dimming Mirror Does Not Operate Correctly

Refer to Wiring Diagrams Cell 124 for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: [Rear View Mirrors - System Operation and Component Description](#) (501-09 Rear View Mirrors, Description and Operation).

Possible Causes

- Fuse
- Wiring, terminals or connectors
- TR data concern
- Reverse lamp concern
- Interior auto-dimming mirror

- IPMA (integral to the interior auto-dimming mirror) if equipped

Visual Inspection and Diagnostic Pre-Checks

- Inspect BCM fuse 36 (15A).

PINPOINT TEST H : THE INTERIOR AUTO-DIMMING MIRROR DOES NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may cause damage to the connector. Use only Rotunda Flex Probes (NUD105-R025D)

H1 VERIFY THE OPERATION OF THE REVERSE LAMPS

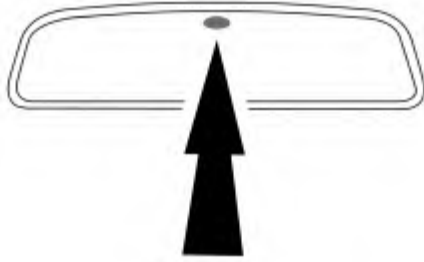
- Ignition ON.
 - **NOTE:** *If the TR sensor is malfunctioning and the reverse lamps are inoperative or always on, the interior auto-dimming mirror will not function properly.*
- Move the selector lever through the entire range while monitoring the reverse lamps.
- Select PARK.

Do the reverse lamps illuminate ONLY in REVERSE?

Yes	GO to H2
No	DIAGNOSE the reversing lamps. REFER to: Reversing Lamps (417-01 Exterior Lighting, Diagnosis and Testing).

H2 INSPECT THE MIRROR FOR PROPER INSTALLATION

- Inspect the interior auto-dimming mirror to make sure the rearward facing sensor is at the top of the mirror glass.



E149165

Is the rearward facing sensor at the top of the interior auto-dimming mirror glass?

Yes	GO to H3
No	INSTALL the interior auto-dimming mirror with the rearward facing sensor at the top of the mirror glass. REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).

H3 VERIFY THE FORWARD AND REARWARD FACING SENSORS ARE NOT BLOCKED

- Visually verify the forward and rearward facing sensors are not blocked or obstructed. Sources of obstruction can include:
 - Stickers, window decals or tags.
 - Tool road or parking passes.
 - Fold-down screens for TVs or DVD players.
 - Non-OEM window tinting.
 - Dirt and debris.
 - Camper shells.
 - Decorative objects hung from mirror.

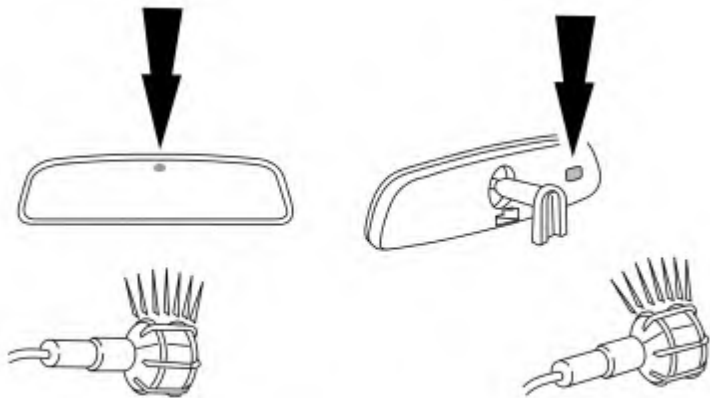
Are either of the sensors blocked?

Yes	If possible, REMOVE the obstruction. If it is not possible to remove the obstruction, ADVISE the customer the blockage will affect the operation of the auto-dimming mirror.
No	GO to H4

H4 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - DAYLIGHT CONDITIONS

- **NOTE:** Base electrochromatic mirror shown. IPMA mirror is similar.

Use a bright lamp to illuminate the forward facing sensor and the rearward facing sensor. The mirror should adjust to a high reflectance state (mirror will be clear).



- E149159

Did the mirror adjust to a high reflectance (clear) state?

Yes	GO to H5
No	INSTALL a new interior auto-dimming mirror. REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).

H5 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - NIGHTTIME CONDITIONS

- **NOTE:** Covering the sensor(s) with a finger or hand is not adequate for this step.

Cover the forward and rearward facing sensors with black electrical tape or other dark material. The mirror should adjust to a high reflectance state (mirror will be clear).



• E149155

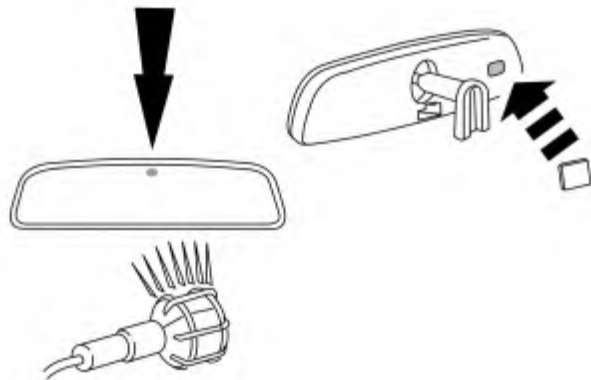
Did the mirror adjust to a high reflectance (clear) state?

Yes	GO to H6
No	INSTALL a new interior auto-dimming mirror. REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).

H6 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - NIGHTTIME CONDITIONS WITH GLARE

- **NOTE:** *Covering the sensor(s) with a finger or hand is not adequate for this step.*

Remove the black electrical tape or other dark material from the rearward facing sensor.



E149156

- Use a bright light to illuminate the rearward facing sensor. The mirror should adjust to a lower reflectance state (mirror will be dark).

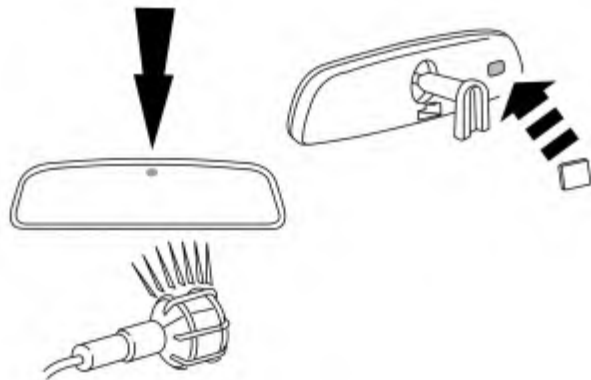
Did the mirror adjust to a low reflectance (dark) state?

Yes	GO to H7
No	GO to H8

H7 VERIFY THE OPERATION OF THE INTERIOR AUTO-DIMMING MIRROR - VEHICLE IN REVERSE AND NIGHTTIME CONDITIONS WITH GLARE

- **NOTE:** *Covering the sensor(s) with a finger or hand is not adequate for this step.*

Continue to illuminate the rearward facing sensor with the forward facing sensor covered.



E149156

- Select REVERSE.

Did the mirror adjust to a high reflectance (clear) state after reverse was selected?

Yes	Select PARK. The system is operating correctly at this time. REVIEW the operation of the interior auto-dimming mirror feature with the customer.
No	If the vehicle is equipped with an IPMA, GO to H11 If the vehicle is not equipped with an IPMA, GO to H10

H8 CHECK FOR VOLTAGE TO THE INTERIOR AUTO-DIMMING MIRROR

- Ignition OFF.
- Disconnect: Interior Auto-Dimming Mirror C9039 (without IPMA) or Interior Auto-Dimming Mirror C9012 (with IPMA).
- Ignition ON.
- Measure:

Click to display connectors

With IPMA

Positive Lead	Measurement / Action	Negative Lead
C9012-1		Ground

Is the voltage greater than 11 volts?

Yes	GO to H9
No	VERIFY that BCM fuse 36 (15A) is OK. If the fuse is OK, REPAIR the circuit. If the fuse is not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

H9 CHECK FOR GROUND AT THE INTERIOR AUTO-DIMMING MIRROR

- Ignition OFF.
- Measure:

Click to display connectors

With IPMA

Positive Lead	Measurement / Action	Negative Lead
C9012-7	Ω	Ground

Is the resistance less than 3 ohms?

Yes	Vehicles with an IPMA, GO to H12 Vehicles without an IPMA, GO to H10
No	REPAIR the circuit.

H10 CHECK THE REVERSE INHIBIT CIRCUIT FOR VOLTAGE AT THE INTERIOR AUTO-DIMMING MIRROR WITH THE VEHICLE IN REVERSE

- Ignition ON.
- Select REVERSE.

Is the voltage greater than 11 volts?

Yes	INSTALL a new interior auto-dimming mirror. REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).
No	REPAIR the circuit.

H11 PERFORM A NETWORK TEST

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

Do the PCM, GWM and IPMA pass the network test?

Yes	GO to H12
No	REFER to: Communications Network (418-00 Module Communications Network, Diagnosis and Testing).

H12 CHECK FOR IPMA (IMAGE PROCESSING MODULE A) DIAGNOSTIC TROUBLE CODES (DTCs)

- Ignition ON.
- Select REVERSE.
- Wait 15 seconds.
- Select PARK.
- Using a diagnostic scan tool, check the IPMA Diagnostic Trouble Codes (DTCs).

Are any Diagnostic Trouble Codes (DTCs) present?

Yes	REFER to: Lane Keeping System (419-07 Lane Keeping System, Diagnosis and Testing).
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No	GO to H13
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H13 CHECK FOR CORRECT IPMA (IMAGE PROCESSING MODULE A) OPERATION

- Disconnect and inspect all IPMA connectors and related in-line connectors.
- Repair:
 - corrosion (install new connector or terminals - clean module pins)
 - damaged or bent pins - install new terminals/pins
 - pushed-out pins - install new pins as necessary
- Reconnect the IPMA connectors and related in-line connectors. Make sure they seat and latch correctly.
- Operate the system to 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 IPMA (integral to the interior auto-dimming mirror). REFER to: Interior Rear View Mirror (501-09 Rear View Mirrors, Removal and Installation).
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.