

2017 ACCESSORIES AND EQUIPMENT

Vehicle Access - Bolt EV

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Front Side Door Latch Fastener	9 N.m (80 lb in)
Front Side Door Lock Striker Screw	22 N.m (16 lb ft)
Front Side Door Outside Handle Bolt	4.5 N.m (40 lb in)
Front Side Door Outside Handle Bracket Fastener	5 N.m (44 lb in)
Liftgate Latch Bolt	22 N.m (16 lb ft)
Liftgate Latch Striker Bolt	22 N.m (16 lb ft)
Rear Side Door Latch Fastener	9 N.m (80 lb in)
Rear Side Door Lock Striker Screw	22 N.m (16 lb ft)
Rear Side Door Outside Handle Bolt	4.5 N.m (40 lb in)
Rear Side Door Outside Handle Bracket Fastener	5 N.m (44 lb in)

SCHEMATIC WIRING DIAGRAMS

DOOR LOCK/INDICATOR WIRING SCHEMATICS

Ajar Switches and Lock Indicators

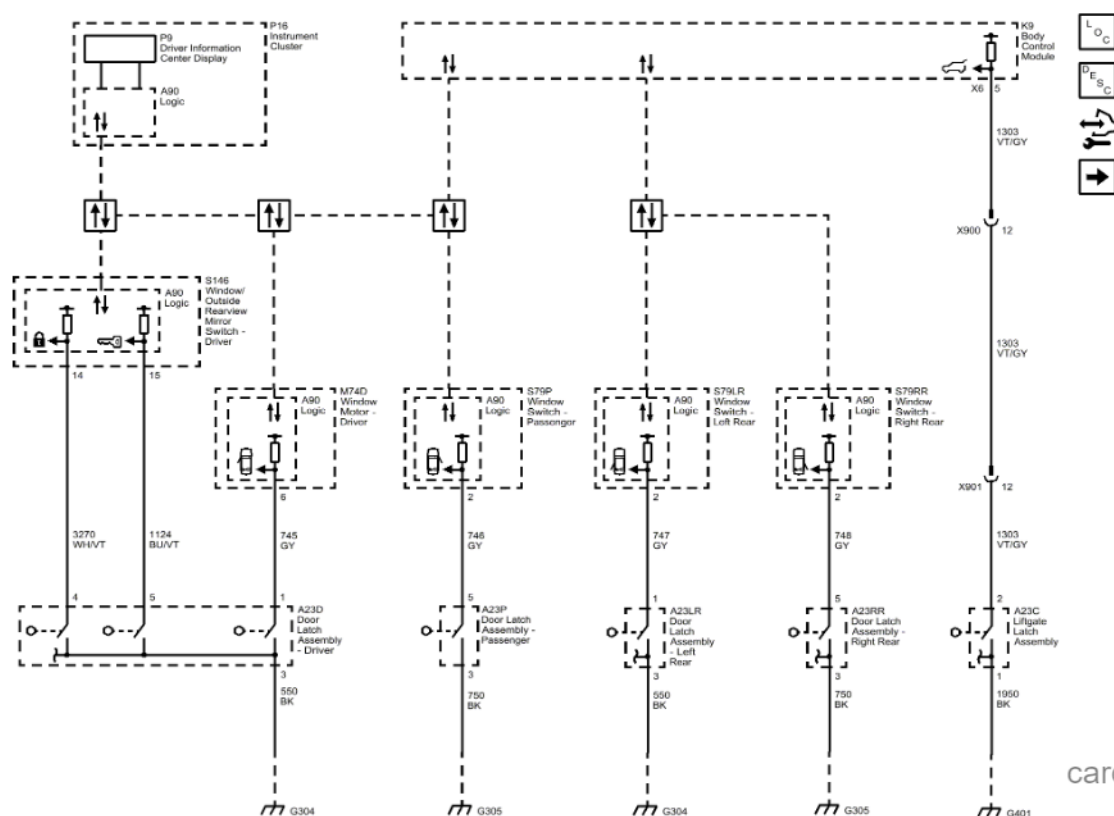


Fig. 1: Ajar Switches and Lock Indicators
 Courtesy of GENERAL MOTORS COMPANY

Lock Switches

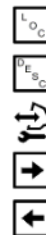
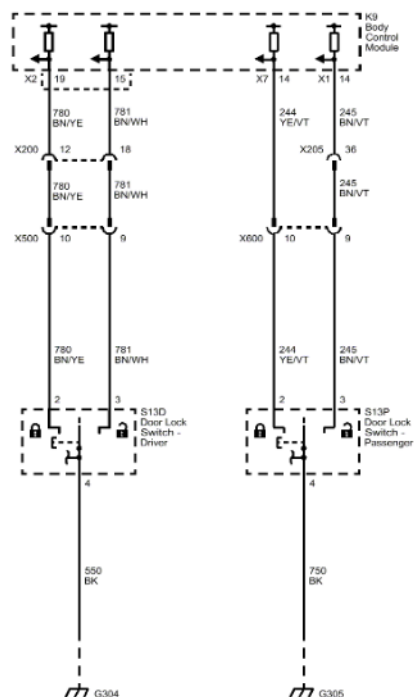


Fig. 2: Lock Switches
 Courtesy of GENERAL MOTORS COMPANY

Door Lock Actuators

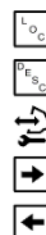
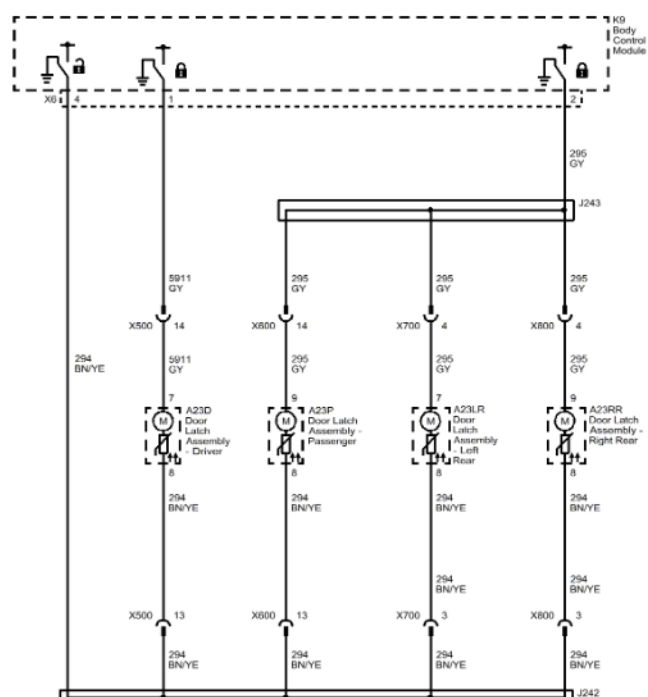


Fig. 3: Door Lock Actuators
 Courtesy of GENERAL MOTORS COMPANY

Door Handle Switches

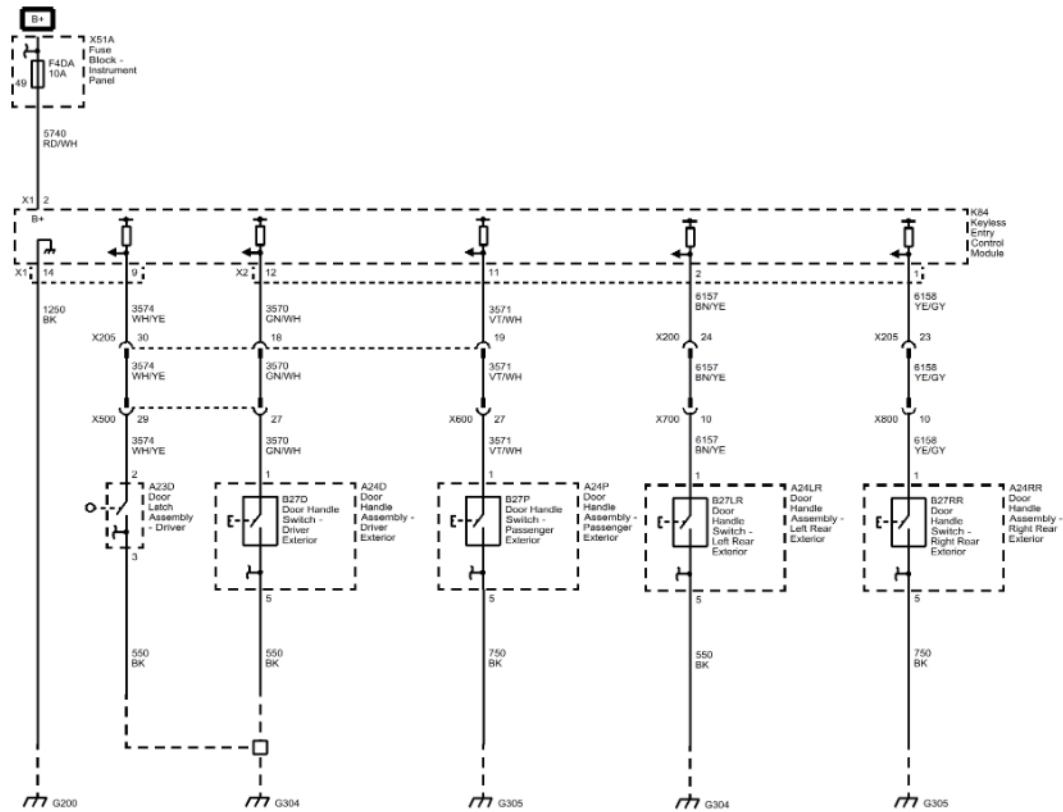
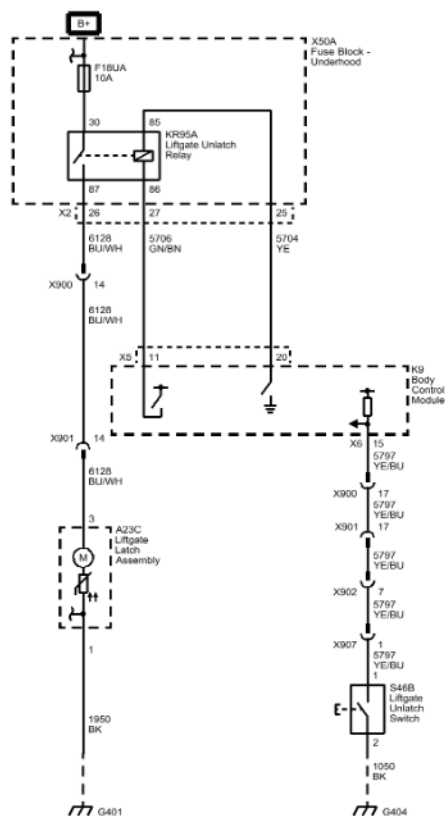


Fig. 4: Door Handle Switches
 Courtesy of GENERAL MOTORS COMPANY

RELEASE SYSTEMS WIRING SCHEMATICS

Liftgate Release



DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B1474 OR B3849: PASSENGER/DRIVER EXTERIOR DOOR HANDLE SWITCH CIRCUIT

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B1474

Passenger Exterior Door Handle Switch Circuit

DTC B3849

Driver Exterior Door Handle Switch Circuit

Symptom Byte Information: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Exterior Driver Door Handle Switch	B3849 02	1	1	-
Signal - Exterior Passenger Door Handle Switch	B1474 02	2	2	-
Ground - A24D Door Handle Assembly - Driver Exterior	-	1	-	-
Ground - A24P Door Handle Assembly - Passenger Exterior	-	2	-	-
1. B27D Door Handle Switch - Driver Exterior = Disabled 2. B27P Door Handle Switch - Passenger Exterior = Disabled				

Circuit/System Description

For an overview of the component/system, refer to: [Power Door Locks Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
B27D Door Handle Switch - Driver Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
B27P Door Handle Switch - Passenger Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.

Component	Description
K84 Keyless Entry Control Module	The control module also reads various switches and sensors and makes their values available via serial data.

Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

Conditions for Setting the DTC

B1474 02

Signal at B27P Door Handle Switch - Passenger Exterior = Short to Ground - For greater than 60 s

B3849 02

Signal t B27D Door Handle Switch - Driver Exterior = Short to Ground - For greater than 60 s

Actions Taken When the DTC Sets

B1474 02

B27P Door Handle Switch - Passenger Exterior = Disabled

B3849 02

B27D Door Handle Switch - Driver Exterior = Disabled

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

- [Door Lock/Indicator Schematics](#)
- [Remote Function Schematics](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. B27D Door Handle Switch - Driver Exterior - Not Pressed

Verify the scan tool parameter: Exterior Driver Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

3. B27P Door Handle Switch - Passenger Exterior - Not Pressed

Verify the scan tool parameter: Exterior Passenger Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

4. Operate the component: B27D Door Handle Switch - Driver Exterior - Pressed

Verify the scan tool parameter: Exterior Driver Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

5. Operate the component: B27P Door Handle Switch - Passenger Exterior - Pressed

Verify the scan tool parameter: Exterior Passenger Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

6. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: A24D Door Handle Assembly - Driver Exterior or A24P Door Handle Assembly - Passenger Exterior

3. Test for less than 10 Ω between the test points: Ground circuit terminal 5 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 5 at Component harness & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: K84 Keyless Entry Control Module

3. Test for infinite resistance between the test points: Signal circuit terminal 1 at Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: K84 Keyless Entry Control Module
- **If the specified state**
6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 5
7. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Active
 - **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector: K84 Keyless Entry Control Module
 3. Ignition - On / Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: Signal circuit terminal 1 at Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for less than 2 Ω between the test points:
 - Signal circuit terminal 1 at A24D Door Handle Assembly - Driver Exterior & Terminal 12 X2 at Control module harness
 - Signal circuit terminal 1 at A24P Door Handle Assembly - Passenger Exterior & Terminal 11 X2 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K84 Keyless Entry Control Module
 - **If the specified state**
8. Test or replace the component: A24 Door Handle Assembly

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector: A24D Door Handle Assembly - Driver Exterior or A24P Door Handle Assembly - Passenger Exterior
3. Test for infinite resistance between the test points: Signal terminal 1 & Ground terminal 5 - Not Pressed
 - **If less than infinite resistance**
Replace the component: A24 Door Handle Assembly
 - **If infinite resistance**
4. Test for less than 3 Ω between the test points: Signal terminal 1 & Ground terminal 5 - Pressed
 - **If 3 Ω or greater**
Replace the component: A24 Door Handle Assembly
 - **If less than 3 Ω**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Outside Handle Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B1534

Left Rear Door Handle Switch Circuit

DTC B1535

Right Rear Door Handle Switch Circuit

Symptom Byte Information: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Exterior Left Rear Door Handle Switch	B1534 02	1	1	-
Signal - Exterior Right Rear Door Handle Switch	B1535 02	2	2	-
Ground - A24LR Door Handle Assembly - Left Rear Exterior	-	1	-	-
Ground - A24RR Door Handle Assembly - Right Rear Exterior	-	2	-	-
1. B27LR Door Handle Switch - Left Rear Exterior = Disabled 2. B27RR Door Handle Switch - Right Rear Exterior = Disabled				

Circuit/System Description

For an overview of the component/system, refer to: [Power Door Locks Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
B27LR Door Handle Switch - Left Rear Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
B27RR Door Handle Switch - Right Rear Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
K84 Keyless Entry Control Module	The control module also reads various switches and sensors and makes their values available via serial data.

Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

Conditions for Setting the DTC

B1534 02

Left Rear Door Handle Switch Signal = Short to Ground - For greater than 60 s

B1535 02

Right Rear Door Handle Switch Signal = Short to Ground - For greater than 60 s

Actions Taken When the DTC Sets

B1534 02

B27LR Door Handle Switch - Left Rear Exterior = Disabled

B1535 02

B27RR Door Handle Switch - Right Rear Exterior = Disabled

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Verify the scan tool parameter: Exterior Left Rear Door Handle Switch = Inactive
 - **If not the specified state**

Refer to: Circuit/System Testing
 - **If the specified state**
3. Verify the scan tool parameter: Exterior Right Rear Door Handle Switch = Inactive
 - **If not the specified state**

Refer to: Circuit/System Testing
 - **If the specified state**

4. Operate the component: B27LR Door Handle Switch - Left Rear Exterior - Pressed

Verify the scan tool parameter: Exterior Left Rear Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

5. Operate the component: B27RR Door Handle Switch - Right Rear Exterior - Pressed

Verify the scan tool parameter: Exterior Right Rear Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

6. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: A24LR Door Handle Assembly - Left Rear Exterior or A24RR Door Handle Assembly - Right Rear Exterior

3. Test for less than 10 Ω between the test points: Ground circuit terminal 5 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 5 at Component harness & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: X2 at K84 Keyless Entry Control Module

3. Test for infinite resistance between the test points: Signal circuit terminal 1 at Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: K84 Keyless Entry Control Module

- **If the specified state**

6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 5

7. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Active

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)

2. Disconnect the electrical connector: X2 at K84 Keyless Entry Control Module

3. Ignition On/Vehicle in Service Mode.

4. Test for less than 1 V between the test points: Signal circuit terminal 1 at Component harness & Ground

- If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
5. Ignition/Vehicle - Off
 6. Test for less than 2 Ω between the test points:
 - Signal circuit terminal 1 AT A24LR Door Handle Assembly - Left Rear Exterior & Terminal 2 X2 at Control module harness
 - Signal circuit terminal 1 at A24RR Door Handle Assembly - Right Rear Exterior & Terminal 1 X2 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K84 Keyless Entry Control Module
 - **If the specified state**
 8. Test or replace the component: A24 Door Handle Assembly

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector: A24LR Door Handle Assembly - Left Rear Exterior or A24RR Door Handle Assembly - Right Rear Exterior
3. Test for infinite resistance between the test points: Signal terminal 1 & Ground terminal 5 - Not Pressed
 - **If less than infinite resistance**
Replace the component: A24 Door Handle Assembly
 - **If infinite resistance**
4. Test for less than 3 Ω between the test points: Signal terminal 1 & Ground terminal 5 - Pressed
 - **If 3 Ω or greater**
Replace the component: A24 Door Handle Assembly
 - **If less than 3 Ω**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Rear Side Door Outside Handle Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B297B OR B297C: DRIVER DOOR OPEN SWITCH CIRCUIT NOT PLAUSIBLE

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

DTC Descriptors

DTC B297B 5A

Driver Door Open Switch Circuit Not Plausible

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	B2A00 00, B297B 5A	B2A00 00, B297B 5A	B2A00 00, B297B 5A	-
Ground	-	1	-	-
1. Ajar Indicator Inoperative				

Circuit/System Description

The keyless entry control module provides a 12 V signal to the driver door open switch signal circuit. The driver window motor provides a 12 V signal to the driver door ajar switch signal circuit. The door open switches and the door ajar switches are integral to the driver door latch assembly.

The door open switch and the door ajar switch contacts will be open with the door is fully closed, the door switches within the door latch are designed so that the when the door is ajar, the contact in the door ajar switch closes, the voltage is pulled low and the window motor will then send a serial data message to the body control module indicating that the door is ajar. When the door is opened further, the contact in the door open switch will then close providing a ground for the door open signal circuit, the keyless entry control module will then detect that the door is open.

Conditions for Running the DTC

Battery voltage is between 9 - 16 V.

Conditions for Setting the DTC

B2A00 00

- The chassis control module detects the driver door open switch is Active while receiving a serial data message from the body control module that the driver door ajar switch is Inactive.
- The condition must be present for greater than 30 seconds

B297B 5A

- The keyless entry control module detects the driver door open switch is Active while receiving a serial data message from the body control module that the driver door ajar switch is Inactive.
- The condition must be present for greater than 30 seconds

Action Taken When the DTC Sets

B2A00 00, B297B 5A

The driver information center will display the Service Driver Door Switch message

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the keyless entry control module receives a serial data message from the body control module that the door is ajar before the keyless entry control module detects the door open switch is active, then the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

- [Remote Function Schematics](#)
- [Door Lock/Indicator Schematics](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Keyless Entry System Description and Operation

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Vehicle in Service Mode.
2. Verify the scan tool Body Control Module Driver Door Ajar Switch parameter changes between Inactive and Active when opening and closing the driver door.
 - **If the parameter does not change**
Refer to [Door Ajar Indicator Malfunction](#)
 - **If the parameter changes**
3. Verify the scan tool Keyless Entry Control Module Driver Door Ajar Switch parameter changes between Inactive and Active when opening and closing the driver door.
 - **If the parameter does not change**
Refer to Circuit/System Testing
 - **If the parameter changes**
4. All OK.

Circuit/System Testing

1. Vehicle OFF and all vehicle systems OFF, disconnect the harness connector at the A23D Door Latch Assembly-Driver. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
 - **If 10 Ω or greater**
 1. Vehicle OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Vehicle in Service Mode.
4. Verify the scan tool Driver Door Ajar Switch parameter is Inactive.
 - **If not Inactive**
 1. Vehicle OFF, disconnect the harness connector at the K84 Keyless Entry Control Module.
 2. Test for infinite resistance between the signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K84 Keyless Entry Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the circuit terminals 2 and ground.
6. Verify the scan tool Driver Door Ajar Switch parameter is Active.
 - **If not Active**

1. Vehicle OFF, disconnect the harness connector at the K84 Keyless Entry Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K84 Keyless Entry Control Module.
- **If Active**
7. Test or replace the A23D Door Latch Assembly-Driver

Component Testing

1. Vehicle OFF, disconnect the harness connector at the A23D Door Latch Assembly-Driver.
2. Test for infinite resistance between the signal terminal 2 and the ground terminal 3 with the switch in the open position.
 - **If less than infinite resistance**

Replace the A23D Door Latch Assembly-Driver.
 - **If infinite resistance**
3. Test for less than 3 Ω between the signal terminal 2 and the ground terminal 3 with the switch in the closed position.
 - **If 3 Ω or greater**

Replace the A23D Door Latch Assembly-Driver.
 - **If less than 3 Ω**
4. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Front Side Door Latch Replacement](#)
- [Control Module References](#) for keyless entry control module replacement, programming and setup

DTC B3125, B3130, OR B3135: DRIVER DOOR ONLY/ALL DOORS UNLOCK/LOCK CIRCUIT

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B3125

Driver Door Only Unlock Circuit

DTC B3130

All Doors Unlock Circuit

DTC B3135

Symptom Byte Information:**Symptom Byte List****Diagnostic Fault Information**

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Short to Voltage
B+ - Body Control Module	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-
Ground - Body Control Module	-	1, 2, 3, 4	-	-
Control - A23D Door Latch Assembly - Driver	B3125 02, B3130 02, B3135 02	1	B3125 01, B3130 01, B3135 01	-
Control - A23P Door Latch Assembly - Passenger	B3125 02, B3130 02, B3135 02	2	B3125 01, B3130 01, B3135 01	-
Control - A23LR Door Latch Assembly - Left Rear	B3125 02, B3130 02, B3135 02	3	B3125 01, B3130 01, B3135 01	-
Control - A23RR Door Latch Assembly - Right Rear	B3125 02, B3130 02, B3135 02	4	B3125 01, B3130 01, B3135 01	-
1. A23D Door Latch Assembly - Driver = Inoperative 2. A23P Door Latch Assembly - Passenger = Inoperative 3. A23LR Door Latch Assembly - Left Rear = Inoperative 4. A23RR Door Latch Assembly - Right Rear = Inoperative				

Circuit/System Description

For an overview of the component/system, refer to: [**Power Door Locks Description and Operation**](#)

Circuit	Description
B+ - Body Control Module	Supplied from a fuse.
Ground - Body Control Module	Chassis Ground
Control - Driver Door Unlock	The output circuit is switched from ground to 12 V to activate the component.
Control - All Doors Lock	The output circuit is switched from ground to 12 V to activate the component.
Control - Passenger Door Unlock	The output circuit is switched from ground to 12 V to activate the component.

Component	Description
A23 Door Latch Assembly	The door locks are actuated by a bidirectional DC motor that locks/unlocks the door so that it can not be opened from outside the vehicle (but still from inside).
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc. The control module also reads various switches and sensors and makes their values available via serial data.

Conditions for Running the DTC

Conditions for Setting the DTC

- B3125 01, B3130 01, B3135 01 Condition 1 - Control Circuit = Short to Voltage
- B3125 02, B3130 02, B3135 02 Condition 2 - Control Circuit = Short to Ground
- B3125 02, B3130 02, B3135 02 Condition 3 - B+ circuit at K9 Body Control Module = Short to Ground/Open/High Resistance

Actions Taken When the DTC Sets

All Doors Lock Command & All Doors Unlock Command = Inoperative

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

- [Door Lock/Indicator Schematics](#)
- [Body Control System Schematics](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Component View Reference

[Door Component Views](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)
- [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)

Scan Tool Reference

[Control Module References](#)

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

Verify the scan tool parameter: Driver Door Lock Switch = Inactive & Lock & Unlock

- **If not the specified state**

Refer to: Refer to [Power Door Locks Malfunction](#)

- **If the specified state**

3. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

Verify the component works as specified:

- A23D Door Latch Assembly - Driver = Lock & Unlock
- A23LR Door Latch Assembly - Left Rear = Lock & Unlock

- A23P Door Latch Assembly - Passenger = Lock & Unlock
- A23RR Door Latch Assembly - Right Rear = Lock & Unlock
- **If the component does not activate - A23D Door Latch Assembly - Driver**

Refer to: Circuit/System Testing - Test 1

- **If the component does not activate - A23LR Door Latch Assembly - Left Rear**

Refer to: Circuit/System Testing - Test 2

- **If the component does not activate - A23P Door Latch Assembly - Passenger**

Refer to: Circuit/System Testing - Test 2

- **If the component does not activate - A23RR Door Latch Assembly - Right Rear**

Refer to: Circuit/System Testing - Test 2

- **If none of the components operate**

Refer to: Circuit/System Testing - Test 3

- **If all functions work properly**

4. All OK.

Circuit/System Testing

Test 1

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: A23D Door Latch Assembly - Driver
3. Connect a test lamp between the test points: Control terminal 7 & Control terminal 8
4. Ignition - On / Vehicle - In Service Mode
5. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock
6. Verify the test lamp does not turn On and Off.

- **If the test lamp turns On and Off**

Test or replace the component: A23D Door Latch Assembly - Driver

- **If the test lamp does not turn On and Off**

7. Ignition/Vehicle - Off
8. Disconnect the electrical connector: X6 at K9 Body Control Module
9. Test for less than 2 Ω between the test points:
 - Control circuit terminal 7 at A23D Door Latch Assembly - Driver & Terminal 1 X6 at Control module harness
 - Control circuit terminal 8 at A23D Door Latch Assembly - Driver & Terminal 4 X6 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - **If less than 2 Ω**
10. Test or replace the component: K9 Body Control Module

Test 2

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the appropriate electrical connector:
 - A23LR Door Latch Assembly - Left Rear
 - A23P Door Latch Assembly - Passenger
 - A23RR Door Latch Assembly - Right Rear

3. Connect a test lamp between the test points:
 - A23P Door Latch Assembly - PassengerControl terminal 8 & Control terminal 9
 - A23LR Door Latch Assembly - Left RearControl terminal 7 & Control terminal 8
 - A23RR Door Latch Assembly - Right RearControl terminal 8 & Control terminal 9
4. Ignition - On / Vehicle - In Service Mode
5. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock
6. Verify the test lamp does not turn On and Off.
 - **If the test lamp turns On and Off**
 Test or replace the component: A23 Door Latch Assembly
 - **If the test lamp does not turn On and Off**
7. Ignition/Vehicle - Off
8. Disconnect the electrical connector: X6 at K9 Body Control Module
9. Ignition - On / Vehicle - In Service Mode
10. Test for less than 2 Ω between the test points:
 - Control circuit terminal 7 at A23LR Door Latch Assembly - Left Rear & Terminal 2 X6 at Control module harness
 - Control circuit terminal 8 at A23LR Door Latch Assembly - Left Rear & Terminal 4 X6 at Control module harness
 - Control circuit terminal 8 at A23P Door Latch Assembly - Passenger & Terminal 4 X6 at Control module harness
 - Control circuit terminal 9 at A23P Door Latch Assembly - Passenger & Terminal 2 X6 at Control module harness
 - Control circuit terminal 8 at A23RR Door Latch Assembly - Right Rear & Terminal 4 X6 at Control module harness
 - Control circuit terminal 9 at A23RR Door Latch Assembly - Right Rear & Terminal 2 X6 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - **If less than 2 Ω**
11. Test or replace the component: K9 Body Control Module

Test 3

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: X2 & X6 at K9 Body Control Module
3. Test for less than 10 Ω between the test points: Ground circuit terminal 3 X6 & Ground
 - **If 10 Ω or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 X6 & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
4. Ignition - On / Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 4 X2 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp

2. Test for less than 2 Ω between the test points: B+ circuit terminal 4 X2 & Output terminal at Fuse

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Verify the fuse is OK and there is voltage at the fuse.

• **If the test lamp does not turn On and the circuit fuse is open**

1. Ignition/Vehicle - Off & Remove - Test lamp

2. Disconnect the electrical connector:

- A23D Door Latch Assembly - Driver
- A23LR Door Latch Assembly - Left Rear
- A23P Door Latch Assembly - Passenger
- A23RR Door Latch Assembly - Right Rear

3. Test for infinite resistance between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: A23 Door Latch Assembly

• **If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector: X2 at K9 Body Control Module

8. Ignition - On / Vehicle - In Service Mode

9. Test for less than 1 V between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- **If greater than 1 V**

Repair the short to voltage on the circuit.

• **If 1 V or less**

10. Ignition/Vehicle - Off

11. Test for infinite resistance between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- **If less than infinite resistance**

Repair the short to ground on the circuit.

• **If infinite resistance**

12. Replace the component: K9 Body Control Module

Component Testing

1. Ignition/Vehicle - Off

2. Disconnect the appropriate electrical connector:

- A23D Door Latch Assembly - Driver
- A23P Door Latch Assembly - Passenger
- A23LR Door Latch Assembly - Left Rear
- A23RR Door Latch Assembly - Right Rear

3. Connect a 25 A fused jumper wire between the test points:

- A23D Door Latch Assembly - DriverControl terminal 7 & B+

- A23P Door Latch Assembly - PassengerControl terminal 8 & B+
- A23LR Door Latch Assembly - Left RearControl terminal 7 & B+
- A23RR Door Latch Assembly - Right RearControl terminal 8 & B+

CAUTION: Complete the testing as quickly as possible in order to prevent overheating and damaging the component.

4. Momentarily connect a jumper wire between the test points:

- A23D Door Latch Assembly - DriverControl terminal 8 & Ground
- A23P Door Latch Assembly - PassengerControl terminal 9 & Ground
- A23LR Door Latch Assembly - Left RearControl terminal 8 & Ground
- A23RR Door Latch Assembly - Right RearControl terminal 9 & Ground

5. Reverse the jumper wires 2 times between the terminals.

Verify the component works as specified: A23 Door Latch Assembly = Lock & Unlock

- **If not the specified state**

Replace the component: A23 Door Latch Assembly

- **If the specified state**

6. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Latch Replacement](#)
- [Rear Side Door Latch Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B3140, B3145, B3150, OR B3155: DOOR UNLOCK/LOCK SWITCH CIRCUIT

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

DTC Descriptors

DTC B3140 00

Driver Door Unlock Switch Circuit

DTC B3145 00

Passenger Door Unlock Switch Circuit

DTC B3150 00

Driver Front Door Lock Switch Circuit

DTC B3155 00

Passenger Front Door Lock Switch Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Lock Switch Lock Signal	B3150 00	2	2	-
Driver Door Lock Switch Unlock Signal	B3140 00	3	3	-
Driver Door Lock Switch Ground	-	1	-	-
Passenger Door Lock Switch Lock Signal	B3155 00	4	4	-
Passenger Door Lock Switch Unlock Signal	B3145 00	5	5	-
Passenger Door Lock Switch Ground	-	6	-	-
1. Driver Door Lock Switch Inoperative 2. Driver Door Lock Switch Lock Inoperative 3. Driver Door Lock Switch Unlock Inoperative 4. Passenger Door Lock Switch Lock Inoperative 5. Passenger Door Lock Switch Unlock Inoperative 6. Passenger Door Lock Switch Inoperative				

Circuit/System Description

The body control module (BCM) monitors the voltage level of the door lock and door unlock signal circuits. When the driver door lock switch is in the open position, the voltage level in the signal circuit will be near 12 V. When the driver door lock switch is pressed to the lock or unlock position, the voltage level in the appropriate signal circuit will drop to 0 V and the BCM will detect the voltage drop and command the door latches to perform the requested lock or unlock command.

Conditions for Running the DTC

The system voltage is 9 - 16 V.

Conditions for Setting the DTC

B3140 00

The BCM detects short to ground in the driver lock signal circuit for greater than 60 seconds.

B3145 00

The BCM detects short to ground in the passenger unlock signal circuit for greater than 60 seconds.

B3150 00

The BCM detects a short to ground in the driver lock signal circuit for greater than 60 seconds.

B3155 00

The BCM detects a short to ground in the passenger lock signal circuit for greater than 60 seconds.

Action Taken When the DTC Sets

B3140 00

The BCM will ignore the unlock signal and the doors will not unlock when using the driver door unlock switch.

B3145 00

The BCM will ignore the unlock signal and the doors will not unlock when using the passenger door unlock switch.

B3150 00

The BCM will ignore the lock signal and the doors will not lock when using the driver door lock switch.

B3155 00

The BCM will ignore the lock signal and the doors will not lock when using the passenger door lock switch.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Power Door Locks Description and Operation

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Vehicle in Service Mode.
2. Verify the scan tool Driver Door Lock Switch parameter changes from Inactive to Lock and Unlock when pressing the S13D Door Lock Switch-Driver.
 - **If the parameter does not change**
Refer to Circuit/System Testing.
 - **If the parameter changes**
3. Verify the scan tool Passenger Door Lock Switch parameter changes from Inactive to Lock and Unlock when pressing the S13P Door Lock Switch-Passenger.
 - **If the parameter does not change**
Refer to Circuit/System Testing.
 - **If the parameter changes**
4. All OK.

Circuit/System Testing

1. Vehicle OFF and all vehicle systems OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Vehicle OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Vehicle in Service Mode.
4. Verify the scan tool Door Lock Switch parameter is Inactive.
 - **If not Inactive**
 1. Vehicle OFF, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 3 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 3. Test for infinite resistance between the signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 3 and the ground circuit terminal 4.
6. Verify the scan tool Door Lock Switch parameter is Unlock.
 - **If not Unlock**
 1. Vehicle OFF, remove the fused jumper wire, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Unlock**
7. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 4.
8. Verify the scan tool Door Lock Switch parameter is Lock.
 - **If not Lock**
 1. Vehicle OFF, remove the fused jumper wire, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If Lock**
9. Test or replace the S13 Door Lock Switch.

Component Testing

Door Lock Switch

1. Vehicle OFF, disconnect the harness connector at the appropriate S13 Door Lock Switch.
2. Test for infinite resistance between the signal terminal 2 and the ground terminal 4 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S13 Door Lock Switch.
 - **If infinite resistance**
3. Test for infinite resistance between the signal terminal 3 and the ground terminal 4 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S13 Door Lock Switch
 - **If infinite resistance**
4. Test for less than 2 Ω between the signal terminal 2 and the ground terminal 4 with the switch in the Lock position.
 - **If 2 Ω or greater**

Replace the S13 Door Lock Switch.
 - **If less than 2 Ω**
5. Test for less than 2 Ω between the signal terminal 3 and the ground terminal 4 with the switch in the Unlock position.
 - **If 2 Ω or greater**

Replace the S13 Door Lock Switch.
 - **If less than 2 Ω**
6. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Door Lock Switch Replacement](#)
- [Control Module References](#) for BCM replacement, programming and setup

DTC B324A OR B3245: REAR CARGO DOOR UNLOCK MOTOR CIRCUIT/LOCK ACTUATOR CIRCUIT

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

DTC Descriptors

DTC B324A

Rear Cargo Door Unlock Motor Circuit

DTC B3245

Rear Cargo Door Lock Actuator Circuit

For symptom byte information refer to: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Unlatch Relay Control Terminal 85	B3245 02	1	1	-
Liftgate Unlatch Relay Control Terminal 86	-	1	B324A 01	-
1. Liftgate Release Malfunction				

Circuit/System Description

When the body control module (BCM) receives a liftgate release command, it will provide voltage to one side of the relay and ground to the other side of the relay. This will energize the relay causing the switch side of the relay to close and will then provide B+ voltage to the liftgate or rear closure latch.

Conditions for Running the DTC

- The system voltage is 9 - 16 V.
- When the relay is actively commanded by the BCM.

Conditions for Setting the DTC

B324A 01

The BCM detects a short to voltage in the liftgate release relay control circuit.

B3245 02

The BCM detects a short to ground in the liftgate release relay control circuit.

Action Taken When the DTC Sets

The liftgate latch will be inoperative.

Conditions for Clearing the DTC

- The DTC will be current for as long as the fault is present.
- When the fault is no longer present, the DTC will be a history DTC.
- A history DTC will clear after 50 ignition cycles.

Reference Information

Schematic Reference

Release Systems Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

Rear Hatch/Gate Description and Operation

Electrical Information Reference

- [**Circuit Testing**](#)
- [**Connector Repairs**](#)
- [**Testing for Intermittent Conditions and Poor Connections**](#)
- [**Wiring Repairs**](#)

Scan Tool Reference

cardiagn.com

[**Control Module References**](#) for scan tool information

Circuit/System Verification

1. Vehicle in Service Mode.
2. Verify the A23C Liftgate Latch Assembly activates by pressing the S46B Liftgate Unlatch Switch.
 - **If the A23C Liftgate Latch Assembly does not UNLATCH**

Refer to Circuit/System Testing.
 - **If the A23C Liftgate Latch Assembly does UNLATCH**
3. All OK.

Circuit/System Testing

1. Vehicle OFF, disconnect the KR95A Liftgate Unlatch Relay. Vehicle in Service Mode.
2. Connect a test lamp between the control circuit terminal 85 and ground.
3. Verify the test lamp illuminates when pressing the S46B Liftgate Unlatch Switch.
 - **If the test lamp is always OFF**
 1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If the test lamp is always ON**
 1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the K9 Body Control Module.
 - **If the test lamp turns ON and OFF**
4. Connect a test lamp between the control circuit terminal 86 and B+.
5. Verify the test lamp illuminates when pressing the S46B Liftgate Unlatch Switch.
 - **If the test lamp is always OFF**
 1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
 2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Vehicle OFF.
 4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.
 - **If the test lamp is always ON**
 1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If the test lamp turns ON and OFF**
6. Test or replace the KR95A Liftgate Unlatch Relay.

Relay Test

1. Vehicle OFF, disconnect the KR95A Liftgate Unlatch Relay.
2. Test for 60 - 200 Ω between terminals 85 and 86.
 - **If less than 60 Ω or greater than 200 Ω**
Replace the KR95A Liftgate Unlatch Relay.
 - **If between 60 - 200 Ω**
3. Test for infinite resistance between the terminals listed below:
 - 30 and 85
 - 30 and 86
 - 30 and 87
 - 87 and 86
 - **If less than infinite resistance**
Replace the KR95A Liftgate Unlatch Relay.
 - **If infinite resistance**
4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.
5. Test for less than 2 Ω between terminals 30 and 87.
 - **If 2 Ω or greater**
Replace the KR95A Liftgate Unlatch Relay.
 - **If less than 2 Ω**
6. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

- [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)
- [Control Module References](#) for BCM replacement, programming and setup

DTC P0CCC, P0CCE, OR P0CCF: CHARGE PORT DOOR POSITION SENSOR CIRCUIT

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC P0CCC 00

Charge Port Door Position Sensor Circuit

DTC P0CCE 00

Charge Port Door Position Sensor Circuit Low Voltage

DTC P0CCF 00

Charge Port Door Position Sensor Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	P0CCE 00	P0CCC 00, P0CCE 00	P0CCF 00	-
Ground	-	P0CCC 00, P0CCE 00	-	-

Circuit/System Description

For an overview of the component/system, refer to: [Charge Port Door Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 5 V.
Ground	Chassis Ground

Component	Description
B197 Charge Port Door Position Switch	The switch B197 has an internal resistor ladder network. A specific resistance is generated dependent on the position of the switch.
K114B Hybrid/EV Powertrain Control Module 2	The control module also reads various switches and sensors and makes their values available via serial data.

Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

Conditions for Setting the DTC

- P0CCC 00 - Charge Port Door Position Sensor Circuit = Voltage Out of Range
- P0CCE 00 - Charge Port Door Position Sensor Circuit = Short to Ground
- P0CCF 00 - Charge Port Door Position Sensor Circuit = Short to Voltage/Open/High Resistance

Actions Taken When the DTC Sets

Driver Information Display - Charge Port Door: Open = Not Displayed

Conditions for Clearing the DTC

DTC P0CCC 00, P0CCE 00, P0CCF 00 = Type C DTC

Reference Information

Schematic Reference

Plug-In Charging Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Front of Vehicle/Engine Compartment Component Views

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)

- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#)

[Circuit/System Verification](#)

1. Ignition - On / Vehicle - In Service Mode
2. Operate the component: Charge Port Door - Close

Verify the scan tool parameter: Charge Port Door = Closed

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

3. Operate the component: Charge Port Door - Open

Verify the scan tool parameter: Charge Port Door = open

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

4. All OK.

[Circuit/System Testing](#)

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: B197 Charge Port Door Position Switch
3. Test for less than 10 Ω between the test points: Ground circuit terminal 3 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect
2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 at Component harness & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode
5. Test for 4.8 to 5.2 V between the test points: 5 V Reference circuit terminal 1 & Ground

- **If less than 4.8 V**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: X2 at K114B Hybrid/EV Powertrain Control Module 2
3. Test for infinite resistance between the test points: 5 V Reference circuit terminal 1 at Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
4. Test for less than 2 Ω between the test points: 5 V Reference circuit terminal 1 at Component harness & Terminal 25 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.

- If less than 2 Ω - Replace the component: K114B Hybrid/EV Powertrain Control Module 2

- **If greater than 5.2 V**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: X2 at K114B Hybrid/EV Powertrain Control Module 2
3. Ignition - On / Vehicle - In Service Mode
4. Test for less than 1 V between the test points: 5 V Reference circuit terminal 1 at Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K114B Hybrid/EV Powertrain Control Module 2

- **If between 4.8 and 5.2 V**

6. Test or replace the component: B197 Charge Port Door Position Switch

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: B197 Charge Port Door Position Switch
3. Test for 185 to 190 Ω between the test points: Signal terminal 1 & Ground terminal 3 - The switch is in the open position.

- **If not in the specified range**

Replace the component: B197 Charge Port Door Position Switch

- **If in the specified range**

4. Test for 1865 to 1875 Ω between the test points: Signal terminal 1 & Ground terminal 3 - The switch is in the closed position.

- **If not in the specified range**

Replace the component: B197 Charge Port Door Position Switch

- **If in the specified range**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Charge Port Door Ajar Indicator Switch Replacement \(Except Dubai\)](#) [Charge Port Door Ajar Indicator Switch Replacement \(Dubai\)](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

SYMPTOMS - VEHICLE ACCESS

NOTE: The following steps must be completed before using the symptom tables.

1. Perform the [Diagnostic System Check - Vehicle](#) .
 - There are no DTCs set
 - The control modules can communicate via the serial data link
2. Review the system operation in order to familiarize yourself with the system functions. Refer to the following systems description:
 - [Door Ajar Indicator Description and Operation](#)
 - [Charge Port Door Description and Operation](#)
 - [Power Door Locks Description and Operation](#)
 - [Rear Hatch/Gate Description and Operation](#)

Several of the symptom procedures ask for a careful visual/physical check. This step is extremely important, it could lead to correcting a problem without further checks and can save valuable time. These checks include the following:

- Inspect for aftermarket devices which could affect the operation of the power door systems. Refer to [Checking Aftermarket Accessories](#) .
- Inspect the easily accessible or visible system components and harness connectors for obvious damage or conditions which could cause the symptom.

Intermittents

NOTE: Inspect for proper installation of electrical components if an intermittent condition exists. Inspect for aftermarket theft deterrent devices, lights, and cellular phones. Ensure that no aftermarket equipment is connected to the class 2 circuit. If you can not locate an intermittent condition, a cellular phone signal may cause the condition. Faulty electrical connections or wiring may also be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#) .

NOTE: The problem may or may not turn ON the SERVICE VEHICLE SOON indicator or store a DTC. Do not use the symptom tables to diagnose intermittent conditions. The malfunction must be present in order to locate the problem.

Poor electrical connections or wiring cause most intermittent conditions. Perform a careful visual/physical check for the following conditions:

- Poor mating of the connector halves or a terminal not fully seated in the connector body
- An improperly formed or damaged terminal
- Reform or replace connector terminals in the problem circuit in order to ensure proper contact tension.
- Poor terminal to wire connection requires removing the terminal from the connector body in order to perform the check.

Use a scan tool in order to help detect intermittent conditions. The scan tool has several features that can be used to locate an intermittent condition. The snapshot feature can capture and store data parameters within the scan tool when the malfunction occurs. This information can then be reviewed in order to see what caused the malfunction.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- [Charger Door Ajar Indicator Malfunction](#)
- [Exterior Door Handle Switch Malfunction](#)
- [Liftgate Release Malfunction](#)
- [Door Ajar Indicator Malfunction](#)
- [Power Door Lock Key Cylinder Switches Malfunction](#)
- [Power Door Locks Malfunction](#)

CHARGER DOOR AJAR INDICATOR MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

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DTC Descriptor

DTC P0CCC 00

Charge Port Door Position Sensor Circuit

DTC P0CCE 00

Charge Port Door Position Sensor Circuit Low Voltage

DTC P0CCF 00

Charge Port Door Position Sensor Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	P0CCE 00	P0CCC 00, P0CCE 00	P0CCF 00	-
Ground	-	P0CCC 00, P0CCE 00	-	-

Circuit/System Description

For an overview of the component/system, refer to: [Charge Port Door Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 5 V.
Ground	Chassis Ground

Component	Description
B197 Charge Port Door Position Switch	The switch B197 has an internal resistor ladder network. A specific resistance is generated dependent on the position of the switch.
K114B Hybrid/EV Powertrain Control Module 2	The control module also reads various switches and sensors and makes their values available via serial data.

Conditions for Running the DTC

Ignition - On / Vehicle - In Service Mode

Conditions for Setting the DTC

- P0CCC 00 - Charge Port Door Position Sensor Circuit = Voltage Out of Range
- P0CCE 00 - Charge Port Door Position Sensor Circuit = Short to Ground
- P0CCF 00 - Charge Port Door Position Sensor Circuit = Short to Voltage/Open/High Resistance

Actions Taken When the DTC Sets

Driver Information Display - Charge Port Door: Open = Not Displayed

Conditions for Clearing the DTC

DTC P0CCC 00, P0CCE 00, P0CCF 00 = Type C DTC

Reference Information

Schematic Reference

[Plug-In Charging Schematics](#)

Connector End View Reference

Component View Reference

Front of Vehicle/Engine Compartment Component Views

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Operate the component: Charge Port Door - Close

Verify the scan tool parameter: Charge Port Door = Closed

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

3. Operate the component: Charge Port Door - Open

Verify the scan tool parameter: Charge Port Door = open

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

4. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: B197 Charge Port Door Position Switch
3. Test for less than 10 Ω between the test points: Ground circuit terminal 3 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 at Component harness & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Test for 4.8 to 5.2 V between the test points: 5 V Reference circuit terminal 1 & Ground

- **If less than 4.8 V**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: X2 at K114B Hybrid/EV Powertrain Control Module 2
3. Test for infinite resistance between the test points: 5 V Reference circuit terminal 1 at Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
4. Test for less than 2 Ω between the test points: 5 V Reference circuit terminal 1 at Component harness & Terminal 25 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K114B Hybrid/EV Powertrain Control Module 2
- **If greater than 5.2 V**
 1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: X2 at K114B Hybrid/EV Powertrain Control Module 2
 3. Ignition - On / Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: 5 V Reference circuit terminal 1 at Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K114B Hybrid/EV Powertrain Control Module 2
- **If between 4.8 and 5.2 V**
6. Test or replace the component: B197 Charge Port Door Position Switch

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: B197 Charge Port Door Position Switch
3. Test for 185 to 190 Ω between the test points: Signal terminal 1 & Ground terminal 3 - The switch is in the open position.
 - **If not in the specified range**

Replace the component: B197 Charge Port Door Position Switch
 - **If in the specified range**
4. Test for 1865 to 1875 Ω between the test points: Signal terminal 1 & Ground terminal 3 - The switch is in the closed position.
 - **If not in the specified range**

Replace the component: B197 Charge Port Door Position Switch
 - **If in the specified range**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Charge Port Door Ajar Indicator Switch Replacement \(Except Dubai\)](#) [Charge Port Door Ajar Indicator Switch Replacement \(Dubai\)](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

EXTERIOR DOOR HANDLE SWITCH MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)

- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Exterior Driver Door Handle Switch	B3849 02	1	1	-
Signal - Exterior Passenger Door Handle Switch	B1474 02	2	2	-
Signal - Exterior Left Rear Door Handle Switch	B1534 02	3	3	-
Signal - Exterior Right Rear Door Handle Switch	B1535 02	4	4	-
Ground - A24D Door Handle Assembly - Driver Exterior	-	1	-	-
Ground - A24P Door Handle Assembly - Passenger Exterior	-	2	-	-
Ground - A24LR Door Handle Assembly - Left Rear Exterior	-	3	-	-
Ground - A24RR Door Handle Assembly - Right Rear Exterior	-	4	-	-
1. B27D Door Handle Switch - Driver Exterior = Disabled 2. B27P Door Handle Switch - Passenger Exterior = Disabled 3. B27LR Door Handle Switch - Left Rear Exterior = Disabled 4. B27RR Door Handle Switch - Right Rear Exterior = Disabled				

Circuit/System Description

For an overview of the component/system, refer to: [Power Door Locks Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
B27D Door Handle Switch - Driver Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
B27P Door Handle Switch - Passenger Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
B27LR Door Handle Switch - Left Rear Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
B27RR Door Handle Switch - Right Rear Exterior	The switch has a normally open contact. When the switch is activated, the signal circuit to the control module is grounded.
K84 Keyless Entry Control Module	The control module also reads various switches and sensors and makes their values available via serial data.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. B27D Door Handle Switch - Driver Exterior - Not Pressed

Verify the scan tool parameter: Exterior Driver Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

3. B27P Door Handle Switch - Passenger Exterior - Not Pressed

Verify the scan tool parameter: Exterior Passenger Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

4. B27LR Door Handle Switch - Left Rear Exterior - Not Pressed

Verify the scan tool parameter: Exterior Left Rear Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

5. B27RR Door Handle Switch - Right Rear Exterior - Not Pressed

Verify the scan tool parameter: Exterior Right Rear Door Handle Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

6. Operate the component: B27D Door Handle Switch - Driver Exterior - Pressed

Verify the scan tool parameter: Exterior Driver Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

7. Operate the component: B27P Door Handle Switch - Passenger Exterior - Pressed

Verify the scan tool parameter: Exterior Passenger Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

8. Operate the component: B27LR Door Handle Switch - Left Rear Exterior - Pressed

Verify the scan tool parameter: Exterior Left Rear Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

9. Operate the component: B27RR Door Handle Switch - Right Rear Exterior - Pressed

Verify the scan tool parameter: Exterior Right Rear Door Handle Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

10. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: A24 Door Handle Assembly

3. Test for less than 10 Ω between the test points: Ground circuit terminal 5 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 5 at Component harness & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: X2 at K84 Keyless Entry Control Module

3. Test for infinite resistance between the test points: Signal circuit terminal 1 at Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.

- If infinite resistance - Replace the component: K84 Keyless Entry Control Module
 - **If the specified state**
6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 5
 7. Verify the scan tool parameter: Exterior Door Handle Switch Circuit = Active
 - **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector: X2 at K84 Keyless Entry Control Module
 3. Ignition - On / Vehicle - In Service Mode
 4. Test for less than 1 V between the test points: Signal circuit terminal 1 at Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
 5. Ignition/Vehicle - Off
 6. Test for less than 2 Ω between the test points:
 - Signal circuit terminal 1 at A24D Door Handle Assembly - Driver Exterior & Terminal 12 X2 at Control module harness
 - Signal circuit terminal 1 at A24P Door Handle Assembly - Passenger Exterior & Terminal 11 X2 at Control module harness
 - Signal circuit terminal 1 at A24LR Door Handle Assembly - Left Rear Exterior & Terminal 2 X2 at Control module harness
 - Signal circuit terminal 1 at A24RR Door Handle Assembly - Right Rear Exterior & Terminal 1 X2 at Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K84 Keyless Entry Control Module
 - **If the specified state**
 8. Test or replace the component: A24 Door Handle Assembly

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector: A24 Door Handle Assembly
3. Test for infinite resistance between the test points: Signal terminal 1 & Ground terminal 5 - Not Pressed
 - **If less than infinite resistance**
Replace the component: A24 Door Handle Assembly
 - **If infinite resistance**
4. Test for less than 3 Ω between the test points: Signal terminal 1 & Ground terminal 5 - Pressed
 - **If 3 Ω or greater**
Replace the component: A24 Door Handle Assembly
 - **If less than 3 Ω**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Outside Handle Replacement](#)
- [Rear Side Door Outside Handle Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

LIFTGATE RELEASE MALFUNCTION

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using this diagnostic procedure.
- Review [Strategy Based Diagnosis](#) for an overview of the diagnostic approach.
- [Diagnostic Procedure Instructions](#) provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Liftgate Unlatch Relay B+	2	2	-	-
Liftgate Unlatch Switch Signal	1	1	1	-
Liftgate Unlatch Relay Control Terminal 86	-	2	B324A 01	-
Liftgate Unlatch Relay Control Terminal 85	B3245 02	2	2	-
Liftgate Latch Assembly Ground	-	2	-	-
Liftgate Unlatch Switch Ground	-	1	-	-
1. Liftgate Release Switch Malfunction 2. Liftgate Release Malfunction				

Circuit/System Description

The liftgate unlatch switch is an input to the body control module (BCM). The BCM supplies a 12 V signal to the liftgate unlatch switch and when the switch is pressed, signal circuit voltage goes low. When the BCM receives a liftgate release signal it will monitor the status to the door latches. If the vehicle doors are locked, the BCM will ignore the request, if the doors are unlocked, the BCM will supply voltage and ground to the liftgate release relay coil, energizing the relay. When the relay is energized, battery voltage flows through the closed contacts of the relay to the Liftgate Latch Assembly assembly which activates allowing for the liftgate to be raised to the open position.

Diagnostic Aids

An intermittent short to ground in the liftgate unlatch switch signal circuit may cause the BCM to command the liftgate to open if the vehicle is in park and the doors are unlocked. If the vehicle has a history of the liftgate opening unexpectedly, inspect the point where the wires enter the liftgate unlatch switch for corrosion or evidence of water intrusion.

Reference Information

Schematic Reference

- [Release Systems Schematics](#)
- [INLINE HARNESS CONNECTOR END VIEWS - INDEX](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Description and Operation

[Rear Hatch/Gate Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)

- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Vehicle in Service Mode.
2. Verify the scan tool Trunk Lid/Liftgate Window Exterior Unlatch Switch parameter changes between Active and Inactive when pressing and releasing the S46B Liftgate Unlatch Switch.

- **If the parameter does not change**

Refer to Circuit/System Testing - Liftgate Release Switch Inoperative

- **If the parameter changes**

NOTE: Verify all doors have been commanded UNLOCK with a scan tool prior to commanding the liftgate

3. Verify the A23C Liftgate Latch Assembly releases when commanding the Liftgate Unlatch with a scan tool

- **If the A23C Liftgate Latch Assembly does not release**

Refer to Circuit/System Testing - Liftgate Release Actuator Inoperative

- **If the A23C Liftgate Latch Assembly does release**

4. All OK.

Circuit/System Testing

Liftgate Release Switch Inoperative

1. Vehicle OFF and all vehicle systems OFF, disconnect the X907 inline harness connector at the S46B Liftgate Unlatch Switch. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 2 and ground.

- **If 10 Ω or greater**

1. Vehicle OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Vehicle in Service Mode.

4. Verify the scan tool Trunk Lid/Liftgate Window Exterior Unlatch Switch parameter is Inactive.

- **If not Inactive**

1. Vehicle OFF, disconnect the harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 1 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 2.

6. Verify the scan tool Trunk Lid/Liftgate Window Exterior Unlatch Switch parameter is Active.

- **If not Active**

1. Vehicle OFF, remove the 3 A fused jumper wire, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.

2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If Active**

7. Test or replace the S46B Liftgate Unlatch Switch.

Release Actuator Inoperative

1. Vehicle OFF, disconnect the KR95A Liftgate Unlatch Relay. Vehicle in Service Mode
2. Verify a test lamp illuminates between the B+ circuit terminal 30 and ground.
 - **If the test lamp does not illuminate**
 - Replace the X50A Fuse Block-Underhood
 - **If the test lamp illuminates**
3. Connect a test lamp between the control circuit terminal 85 and ground.
4. Vehicle in Service Mode, verify the test lamp turns ON and OFF when commanding the Liftgate Unlatch with a scan tool.

- **If the test lamp is always OFF**

1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the K9 Body Control Module.

- **If the test lamp turns ON and OFF**

5. Connect a test lamp between the control circuit terminal 86 and B+.
6. Verify the test lamp turns ON and OFF when commanding the Liftgate Unlatch with a scan tool.

- **If the test lamp is always OFF**

1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module, Vehicle in Service Mode.
2. Test for less than 1 V between the control circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V

3. Vehicle OFF.

4. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K9 Body Control Module.

- **If the test lamp is always ON**

1. Vehicle OFF, remove the test lamp, disconnect the harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If the test lamp turns ON and OFF**
7. Verify that a test lamp does not illuminate between the control circuit terminal 5 and ground.
- **If the test lamp illuminates**
- Repair the short to voltage on the control circuit
- **If the test lamp does not illuminate**
8. Vehicle OFF and all vehicle systems OFF, disconnect the harness connector at the A23C Liftgate Latch Assembly. It may take up to 2 minutes for all vehicle systems to power down.
9. Test for less than 10 Ω between the ground circuit terminal 1 and ground.
- **If 10 Ω or greater**
1. Vehicle OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 10 Ω**
10. Connect the harness connector at the A23C Liftgate Latch Assembly
11. Vehicle in Service Mode, connect a 10 A fused jumper wire between the B+ circuit terminal 30 and the control circuit terminal 87.
12. Verify the A23C Liftgate Latch Assembly is activated.
- **If the A23C Liftgate Latch Assembly does not activate**
1. Vehicle OFF, disconnect the harness connector at the A23C Liftgate Latch Assembly.
 2. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the A23C Liftgate Latch Assembly.
- **If the A23C Liftgate Latch Assembly activates**
13. Test or replace the KR95A Liftgate Unlatch Relay.

Component Testing

Liftgate Latch Assembly

1. Vehicle OFF, disconnect the harness connector at the A23C Liftgate Latch Assembly.
2. Install a 10 A fused jumper wire between the control terminal 3 and 12 V. Install a jumper wire between the ground terminal 1 and ground.
3. Verify the A23C Liftgate Latch Assembly activates
 - **If the A23C Liftgate Latch Assembly does not activate.**

Replace the A23C Liftgate Latch Assembly.

 - **If the A23C Liftgate Latch Assembly does activate.**
4. All OK

Liftgate Release Switch

1. Vehicle OFF, disconnect the X907 inline harness connector at the S46B Liftgate Unlatch Switch.
2. Test for infinite resistance between the signal circuit terminal 1 and the ground circuit terminal 2 with the switch in the open position.
 - **If less than infinite resistance**

Replace the S46B Liftgate Unlatch Switch.

 - **If infinite resistance**

3. Test for less than 3 Ω between the signal circuit terminal 1 and the ground circuit terminal 2 with the switch in the closed position.

- **If 3 Ω or greater**

Replace the S46B Liftgate Unlatch Switch.

- **If less than 3 Ω**

4. All OK

Relay Test

1. Vehicle OFF, disconnect the KR95A Liftgate Unlatch Relay.

2. Test for 60 - 200 Ω between terminals 85 and 86.

- **If less than 60 Ω or greater than 200 Ω**

Replace the KR95A Liftgate Unlatch Relay.

- **If between 60 - 200 Ω**

3. Test for infinite resistance between the terminals listed below:

- 30 and 85
- 30 and 86
- 30 and 87
- 87 and 86
- **If less than infinite resistance**

Replace the KR95A Liftgate Unlatch Relay.

- **If infinite resistance**

4. Install a 3 A fused jumper wire between relay terminal 85 and 12 V. Install a jumper wire between relay terminal 86 and ground.

5. Test for less than 2 Ω between terminals 30 and 87.

- **If 2 Ω or greater**

Replace the KR95A Liftgate Unlatch Relay.

- **If less than 2 Ω**

6. All OK

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair procedure.

- [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)
- [Liftgate Release Switch Replacement](#)
- [Liftgate Latch Replacement](#)
- [Control Module References](#) for BCM replacement, programming and setup

LIFTGATE AJAR INDICATOR MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	1	2	2	-
Ground	-	3	-	-
1. Trunk Open Display Message = Always On 2. Trunk Open Display Message = Disabled 3. A23C Liftgate Latch Assembly = Disabled				

Circuit/System Description

For an overview of the component/system, refer to: [Liftgate Ajar Indicator Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
A23C Liftgate Latch Assembly	The DC motor unlatches the liftgate. Once the liftgate is unlatched, a switch in the latch will close, grounding the signal circuit to the control module K9.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Reference Information

Schematic Reference

[Release Systems Schematics](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX](#)

Component View Reference

[Luggage Compartment/Rear of Vehicle Component Views](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#)

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Operate the component: Liftgate - Closed

Verify the scan tool parameter: Rear Closure Ajar Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

3. Operate the component: Liftgate - Ajar

Verify the scan tool parameter: Rear Closure Ajar Switch = Active

- **If not the specified state**

Refer to: Circuit/System Testing

- **If the specified state**

4. All OK.

Circuit/System Testing

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: A23C Liftgate Latch Assembly

3. Ignition - On / Vehicle - In Service Mode

4. Verify the scan tool parameter: Rear Closure Ajar Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: K9 Body Control Module

3. Test for infinite resistance between the test points: Signal circuit terminal 2 at Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: K9 Body Control Module

- **If the specified state**

5. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 2 & Ground circuit terminal 1

6. Verify the scan tool parameter: Rear Closure Ajar Switch = Active

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)

2. Disconnect the electrical connector: K9 Body Control Module

3. Ignition - On / Vehicle - In Service Mode

4. Test for less than 1 V between the test points: Signal circuit terminal 2 at Component harness & Ground

- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for less than 2 Ω between the test points: Signal circuit terminal 2 at Component harness & Terminal 5 X6 at Control module harness

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Replace the component: K9 Body Control Module

- **If the specified state**

7. Test or replace the component: A23C Liftgate Latch Assembly

Component Testing

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: A23C Liftgate Latch Assembly

3. Test for infinite resistance between the test points: Signal terminal 2 & Ground terminal 1 - The switch is in the open position.

- **If less than infinite resistance**

Replace the component: A23C Liftgate Latch Assembly

- **If infinite resistance**

4. Test for less than 3 Ω between the test points: Signal terminal 2 & Ground terminal 1 - The switch is in the closed position.

- **If 3 Ω or greater**

Replace the component: A23C Liftgate Latch Assembly

- **If less than 3 Ω**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Liftgate Latch Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DOOR AJAR INDICATOR MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Door Ajar Switch Signal	1	2	2	-
Passenger Door Ajar Switch Signal	1	2	2	-
Left Front Door Ajar Switch Signal	1	2	2	-
Right Front Door Ajar Switch Signal	1	2	2	-
Ground - A23D Door Latch Assembly - Driver	-	2	-	-
Ground - A23P Door Latch Assembly - Passenger	-	2	-	-
Ground - A23LR Door Latch Assembly - Left Rear	-	2	-	-
Ground - A23RR Door Latch Assembly - Right Rear	-	2	-	-
1. Door Ajar Indicator = Always On 2. Door Ajar Indicator - Driver Door = Always Off 3. Door Ajar Indicator - Passenger Door = Always Off 4. Door Ajar Indicator - Left Rear Door = Always Off 5. Door Ajar Indicator - Right Rear Door = Always Off				

Circuit/System Description

For an overview of the component/system, refer to: [Door Ajar Indicator Description and Operation](#).com

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Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
A23 Door Latch Assembly	The lock assemblies also contain a door ajar switch that is open when the door is closed.
M74 Window Motor	• Power Window Control • The control module also reads various switches and sensors and makes their values available via serial data.
S79 Window Switch	• Power Window Control • The control module also reads various switches and sensors and makes their values available via serial data.

Reference Information

Schematic Reference

Door Lock/Indicator Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs
- Relay Replacement (Attached to Wire Harness) Relay Replacement (Within an Electrical Center)

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Verify the appropriate scan tool door ajar switch parameter changes when opening and closing the vehicle doors.
 - **If the parameter state does not change**
Refer to: Circuit/System Testing
 - **If the parameter state changes**
3. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the appropriate electrical connector: A23 Door Latch Assembly
3. Test for less than 10 Ω between the test points: Ground circuit terminal 3 & Ground
 - **If 10 Ω or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 at Component harness & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
4. Ignition - On / Vehicle - In Service Mode
5. Verify the scan tool parameter: Door Ajar Switch = Inactive
 - **If not the specified state**
 1. Ignition/Vehicle - Off
 2. Disconnect the appropriate electrical connector:
 - M74 Window Motor
 - S79 Window Switch
 3. Test for infinite resistance between the test points:
 - A23D Door Latch Assembly - Driver Signal circuit terminal 1 at Component harness & Ground
 - A23P Door Latch Assembly - Passenger Signal circuit terminal 1 at Component harness & Ground
 - A23LR Door Latch Assembly - Left Rear Signal circuit terminal 1 at Component harness & Ground
 - A23RR Door Latch Assembly - Right Rear Signal circuit terminal 1 at Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component:
 - M74 Window Motor
 - S79 Window Switch
 - **If the specified state**
6. Connect a 3 A fused jumper wire between the test points:
 - A23D Door Latch Assembly - Driver Signal circuit terminal 1 & Ground circuit terminal 3
 - A23P Door Latch Assembly - Passenger Signal circuit terminal 1 & Ground circuit terminal 3
 - A23LR Door Latch Assembly - Left Rear Signal circuit terminal 1 & Ground circuit terminal 3
 - A23RR Door Latch Assembly - Right Rear Signal circuit terminal 1 & Ground circuit terminal 3
7. Verify the scan tool parameter: Door Ajar Switch = Active
 - **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
 2. Disconnect the electrical connector:
 - M74 Window Motor
 - S79 Window Switch
 3. Ignition - On / Vehicle - In Service Mode
 4. Test for less than 1 V between the test points:

- A23D Door Latch Assembly - Driver Signal circuit terminal 1 at Component harness & Ground
 - A23P Door Latch Assembly - Passenger Signal circuit terminal 1 at Component harness & Ground
 - A23LR Door Latch Assembly - Left Rear Signal circuit terminal 1 at Component harness & Ground
 - A23RR Door Latch Assembly - Right Rear Signal circuit terminal 1 at Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2 Ω between the test points:
- Signal circuit terminal 1 at A23D Door Latch Assembly - Driver & Signal circuit terminal 6 at M74D Window Motor - Driver
 - Signal circuit terminal 1 at A23P Door Latch Assembly - Passenger & Signal circuit terminal 6 at S79P Window Switch - Passenger
 - Signal circuit terminal 1 at A23LR Door Latch Assembly - Left Rear & Signal circuit terminal 6 at S79LR Window Switch - Left Rear
 - Signal circuit terminal 1 at A23RR Door Latch Assembly - Right Rear & Signal circuit terminal 6 at S79RR Window Switch - Right Rear
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component:
 - M74 Window Motor
 - S79 Window Switch
- **If the specified state**
8. Test or replace the component: A23 Door Latch Assembly

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the appropriate electrical connector: A23 Door Latch Assembly
3. Test for infinite resistance between the test points:
 - A23D Door Latch Assembly - Driver: Signal terminal 1 & Ground terminal 3 - The switch is in the open position.
 - A23P Door Latch Assembly - Passenger: Signal terminal 5 & Ground terminal 3 - The switch is in the open position.
 - A23LR Door Latch Assembly - Left Rear: Signal terminal 1 & Ground terminal 3 - The switch is in the open position.
 - A23RR Door Latch Assembly - Right Rear: Signal terminal 5 & Ground terminal 3 - The switch is in the open position.
 - **If less than infinite resistance**

Replace the component: A23 Door Latch Assembly

 - **If infinite resistance**
4. Test for less than 3 Ω between the test points:
 - A23D Door Latch Assembly - Driver: Signal terminal 1 & Ground terminal 3 - The switch is in the closed position.
 - A23P Door Latch Assembly - Passenger: Signal terminal 5 & Ground terminal 3 - The switch is in the closed position.
 - A23LR Door Latch Assembly - Left Rear: Signal terminal 1 & Ground terminal 3 - The switch is in the closed position.
 - A23RR Door Latch Assembly - Right Rear: Signal terminal 5 & Ground terminal 3 - The switch is in the closed position.

- If 3 Ω or greater

Replace the component: A23 Door Latch Assembly

- If less than 3 Ω

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Latch Replacement](#)
- [Rear Side Door Latch Replacement](#)
- [Front Side Door Window Switch Replacement](#)
- [Rear Side Door Window Switch Replacement](#)
- [Front Side Door Window Regulator Replacement](#)

POWER DOOR LOCK KEY CYLINDER SWITCHES MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal	1	1	1	-
Ground	-	1	-	-
1. B29D Door Lock Key Cylinder Switch - Driver = Disabled				

Circuit/System Description

For an overview of the component/system, refer to: [Power Door Locks Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 12 V.
Ground	Chassis Ground

Component	Description
A23 Door Latch Assembly	The door locks are actuated by a bidirectional DC motor that locks/unlocks the door so that it can not be opened from outside the vehicle (but still from inside). The assembly also contains a normally open door ajar switch that closes as soon as the door is not fully closed.
S146 Window/Outside Rearview Mirror Switch - Driver	The switch assembly has a 4-way switch to control the mirror movement (up, down, left, right) and a 2-position switch to select the left and right mirror.

Reference Information

Schematic Reference

[Door Lock/Indicator Schematics](#)

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**
- **Relay Replacement (Attached to Wire Harness)** **Relay Replacement (Within an Electrical Center)**

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Operate the component: S13D Door Lock Switch - Driver - Unlock
2. Operate the component: B29D Door Lock Key Cylinder Switch - Driver - Lock
3. Verify the component activates: A23LR Door Latch Assembly - Left Rear/A23P Door Latch Assembly - Passenger/A23RR Door Latch Assembly - Right Rear

- **If the component does not work as specified**

Refer to: Circuit/System Testing

- **If all functions work properly**

4. All OK.

Circuit/System Testing

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

- 1.
2. Ignition/Vehicle & All vehicle systems - Off
3. Disconnect the electrical connector: A23D Door Latch Assembly - Driver
4. Test for less than 10 Ω between the test points: Ground circuit terminal 3 & Ground
 - **If 10 Ω or greater**
 1. Ground Connection - Disconnect
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 at Component harness & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
5. Ignition - On / Vehicle - In Service Mode
6. Test for greater than 10 V between the test points: Signal circuit terminal 4 & Ground circuit terminal 3
 - **If 10 V or less**
 1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: S146 Window/Outside Rearview Mirror Switch - Driver
3. Test for infinite resistance between the test points: Signal circuit terminal 4 at Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
4. Test for less than 2 Ω between the test points: Signal circuit terminal 4 at Component harness & Signal circuit terminal 14 at S146 Window/Outside Rearview Mirror Switch - Driver
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: S146 Window/Outside Rearview Mirror Switch - Driver
- **If greater than 10 V**
7. Test or replace the component: A23D Door Latch Assembly - Driver

Component Testing

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: A23D Door Latch Assembly - Driver
3. Test for infinite resistance between the test points: Signal terminal 4 & Ground terminal 3 - The switch is in the open position.
 - **If less than infinite resistance**

Replace the component: A23D Door Latch Assembly - Driver
 - **If infinite resistance**
4. Test for less than 3 Ω between the test points: Signal terminal 4 & Ground terminal 3 - The switch is in the closed position.
 - **If 3 Ω or greater**

Replace the component: A23D Door Latch Assembly - Driver
 - **If less than 3 Ω**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Window Control Switch Replacement](#)
- [Front Side Door Latch Replacement](#)

POWER DOOR LOCKS MALFUNCTION

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Short to Voltage
B+ - Body Control Module	B3125 02, B3130 02, B3135 02	B3125 02, B3130 02, B3135 02	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Short to Voltage
Signal terminal 2 at S13D Door Lock Switch - Driver	B3150 00	2	2	-
Signal terminal 3 at S13D Door Lock Switch - Driver	B3140 00	3	3	-
Signal terminal 2 at S13P Door Lock Switch - Passenger	B3155 00	4	4	-
Signal terminal 3 at S13P Door Lock Switch - Passenger	B3145 00	5	5	-
Control - A23D Door Latch Assembly - Driver	B3125 02, B3130 02, B3135 02	7	B3125 01, B3130 01, B3135 01	-
Control - A23P Door Latch Assembly - Passenger	B3125 02, B3130 02, B3135 02	8	B3125 01, B3130 01, B3135 01	-
Control - A23LR Door Latch Assembly - Left Rear	B3125 02, B3130 02, B3135 02	9	B3125 01, B3130 01, B3135 01	-
Control - A23RR Door Latch Assembly - Right Rear	B3125 02, B3130 02, B3135 02	10	B3125 01, B3130 01, B3135 01	-
S13P Door Lock Switch - Passenger - Ground	-	6	-	-
Ground - S13D Door Lock Switch - Driver	-	1	-	-
Ground - Body Control Module	-	7, 8, 9, 10	-	-

1. S13D Door Lock Switch - Driver = Inoperative
2. Driver Door Lock Switch = Inoperative
3. Driver Door Unlock Switch = Inoperative
4. Passenger Door Lock Switch = Inoperative
5. Passenger Door Unlock Switch = Inoperative
6. S13P Door Lock Switch - Passenger = Inoperative
7. A23D Door Latch Assembly - Driver = Inoperative
8. A23P Door Latch Assembly - Passenger = Inoperative
9. A23LR Door Latch Assembly - Left Rear = Inoperative
10. A23RR Door Latch Assembly - Right Rear = Inoperative

Circuit/System Description

For an overview of the component/system, refer to: [Power Door Locks Description and Operation](#)

Circuit	Description
B+ - Body Control Module	Supplied from a fuse.
Signal	The control module input circuit has an internal resistance connected to 12 V.
Control - Driver Door Unlock	The output circuit is switched from ground to 12 V to activate the component.
Control - All Doors Lock	The output circuit is switched from ground to 12 V to activate the component.
Control - Passenger Door Unlock	The output circuit is switched from ground to 12 V to activate the component.
Ground - S13D Door Lock Switch - Driver	Chassis Ground

Circuit	Description
Ground - S13P Door Lock Switch - Passenger	Chassis Ground
Ground - Body Control Module	Chassis Ground

Component	Description
A23 Door Latch Assembly	The door locks are actuated by a bidirectional DC motor that locks/unlocks the door so that it can not be opened from outside the vehicle (but still from inside).
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.
S13P Door Lock Switch - Passenger	- The switch has a normally open contact. - When the switch is activated, the signal circuit to the control module is grounded.
S13D Door Lock Switch - Driver	- The switch has a normally open contact. - When the switch is activated, the signal circuit to the control module is grounded.

Reference Information

Schematic Reference

- [Door Lock/Indicator Schematics](#)
- [Body Control System Schematics](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)
- [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On / Vehicle - In Service Mode
2. Verify the scan tool parameter: Driver Door Lock Switch = Inactive
 - **If not the specified state**

Refer to: Circuit/System Testing - Test 1
 - **If the specified state**
3. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

Verify the scan tool parameter: Driver Door Lock Switch = Lock & Unlock

- **If not the specified state**

Refer to: Circuit/System Testing - Test 1

- **If the specified state**

4. Verify the scan tool parameter: Passenger Door Lock Switch = Inactive

- **If not the specified state**

Refer to: Circuit/System Testing - Test 1

- **If the specified state**

5. Operate the component: S13P Door Lock Switch - Passenger - Lock & Unlock

Verify the scan tool parameter: Passenger Door Lock Switch = Lock & Unlock

- **If not the specified state**

Refer to: Circuit/System Testing - Test 1

- **If the specified state**

6. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

Verify the component works as specified:

- A23D Door Latch Assembly - Driver = Lock & Unlock
- A23LR Door Latch Assembly - Left Rear = Lock & Unlock
- A23P Door Latch Assembly - Passenger = Lock & Unlock
- A23RR Door Latch Assembly - Right Rear = Lock & Unlock
- **If the component does not activate - A23D Door Latch Assembly - Driver**

Refer to: Circuit/System Testing - Test 2

- **If the component does not activate - A23LR Door Latch Assembly - Left Rear**

Refer to: Circuit/System Testing - Test 3

- **If the component does not activate - A23P Door Latch Assembly - Passenger**

Refer to: Circuit/System Testing - Test 3

- **If the component does not activate - A23RR Door Latch Assembly - Right Rear**

Refer to: Circuit/System Testing - Test 3

- **If none of the components operate**

Refer to: Circuit/System Testing - Test 4

- **If all functions work properly**

7. All OK.

Circuit/System Testing

Test 1

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

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1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: S13D Door Lock Switch - Driver/S13P Door Lock Switch - Passenger

3. Test for less than 10 Ω between the test points: Ground circuit terminal 4 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 4 at Component harness & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Verify the scan tool parameter: Driver Door Lock Switch or Passenger Door Lock Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: X1/X2/X7 at K9 Body Control Module

3. Test for infinite resistance between the test points:

- Signal circuit terminal 2 at Component harness & Ground
- Signal circuit terminal 3 at Component harness & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: K9 Body Control Module

- **If the specified state**

6. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 3 & Ground circuit terminal 4

7. Verify the scan tool parameter: Driver Door Lock Switch or Passenger Door Lock Switch = Unlock

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)

2. Disconnect the electrical connector: X1 or X2 at K9 Body Control Module

3. Ignition - On / Vehicle - In Service Mode

4. Test for less than 1 V between the test points: Signal circuit terminal 3 at Component harness & Ground

- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for less than 2 Ω between the test points:

- Signal circuit terminal 3 at S13D Door Lock Switch - Driver & Terminal 15 X2 at Control module harness
- Signal circuit terminal 3 at S13P Door Lock Switch - Passenger & Terminal 14 X1 at Control module harness
- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Replace the component: K9 Body Control Module

- **If the specified state**

8. Connect a 3 A fused jumper wire between the test points: Signal circuit terminal 2 & Ground circuit terminal 4

9. Verify the scan tool parameter: Driver Door Lock Switch or Passenger Door Lock Switch = Lock

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)

2. Disconnect the electrical connector: X2 or X7 at K9 Body Control Module

3. Ignition - On / Vehicle - In Service Mode

4. Test for less than 1 V between the test points: Signal circuit terminal 2 at Component harness & Ground

- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for less than 2 Ω between the test points:

- Signal circuit terminal 2 at S13D Door Lock Switch - Driver & Terminal 19 X2 at Control module harness
- Signal circuit terminal 2 at S13P Door Lock Switch - Passenger & Terminal 14 X7 at Control module harness
- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Replace the component: K9 Body Control Module

• **If the specified state**

10. Test or replace the component: S13D Door Lock Switch - Driver/S13P Door Lock Switch - Passenger

Test 2

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: A23D Door Latch Assembly - Driver

3. Connect a test lamp between the test points: Control circuit terminal 7 & Control circuit terminal 8

4. Ignition - On / Vehicle - In Service Mode

5. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

6. Verify the test lamp does not turn On and Off.

• **If the test lamp turns On and Off**

Test or replace the component: A23D Door Latch Assembly - Driver

• **If the test lamp does not turn On and Off**

7. Ignition/Vehicle - Off

8. Disconnect the electrical connector: X6 at K9 Body Control Module

9. Test for less than 2 Ω between the test points:

- Control circuit terminal 7 at A23D Door Latch Assembly - Driver & Terminal 1 X6 at Control module harness
- Control circuit terminal 8 at A23D Door Latch Assembly - Driver & Terminal 4 X6 at Control module harness
- If 2 Ω or greater - Repair the open/high resistance in the circuit.

• **If less than 2 Ω**

10. Test or replace the component: K9 Body Control Module

Test 3

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector:

- A23LR Door Latch Assembly - Left Rear
- A23P Door Latch Assembly - Passenger
- A23RR Door Latch Assembly - Right Rear

3. Connect a test lamp between the test points:

- A23P Door Latch Assembly - Passenger Control circuit terminal 9 & Control circuit terminal 8
- A23LR Door Latch Assembly - Left Rear Control circuit terminal 7 & Control circuit terminal 8
- A23RR Door Latch Assembly - Right Rear Control circuit terminal 9 & Control circuit terminal 8

4. Ignition - On / Vehicle - In Service Mode

5. Operate the component: S13D Door Lock Switch - Driver - Lock & Unlock

6. Verify the test lamp does not turn On and Off.

- **If the test lamp turns On and Off**

Test or replace the component: A23 Door Latch Assembly

- **If the test lamp does not turn On and Off**

7. Ignition/Vehicle - Off

8. Disconnect the electrical connector: X6 at K9 Body Control Module

9. Ignition - On / Vehicle - In Service Mode

10. Test for less than 2 Ω between the test points:

- Control circuit terminal 7 at A23LR Door Latch Assembly - Left Rear & Terminal 2 X6 at Control module harness
- Control circuit terminal 8 at A23LR Door Latch Assembly - Left Rear & Terminal 4 X6 at Control module harness
- Control circuit terminal 8 at A23P Door Latch Assembly - Passenger & Terminal 4 X6 at Control module harness
- Control circuit terminal 9 at A23P Door Latch Assembly - Passenger & Terminal 2 X6 at Control module harness
- Control circuit terminal 8 at A23RR Door Latch Assembly - Right Rear & Terminal 4 X6 at Control module harness
- Control circuit terminal 9 at A23RR Door Latch Assembly - Right Rear & Terminal 2 X6 at Control module harness
- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- **If less than 2 Ω**

11. Test or replace the component: K9 Body Control Module

Test 4

NOTE: It may take up to 2 min for all vehicle systems to power down before an accurate ground or low reference circuit continuity test can be performed.

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: X2 & X6 at K9 Body Control Module

3. Test for less than 10 Ω between the test points: Ground circuit terminal 3 X6 & Ground

- **If 10 Ω or greater**

1. Ground Connection - Disconnect

2. Test for less than 2 Ω between the test points: Ground circuit terminal 3 X6 & Ground Connection

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

4. Ignition - On / Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points: B+ circuit terminal 4 X2 & Ground

- **If the test lamp does not turn On and the circuit fuse is OK**

1. Ignition/Vehicle - Off & Remove - Test lamp

2. Test for less than 2 Ω between the test points: B+ circuit terminal 4 X2 & Output terminal at Fuse

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Verify the fuse is OK and there is voltage at the fuse.

- **If the test lamp does not turn On and the circuit fuse is open**

1. Ignition/Vehicle - Off & Remove - Test lamp

2. Disconnect the electrical connector:

- A23D Door Latch Assembly - Driver
- A23LR Door Latch Assembly - Left Rear
- A23P Door Latch Assembly - Passenger
- A23RR Door Latch Assembly - Right Rear

3. Test for infinite resistance between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: A23 Door Latch Assembly

- **If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector: X2 at K9 Body Control Module

8. Ignition - On / Vehicle - In Service Mode

9. Test for less than 1 V between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- **If greater than 1 V**

Repair the short to voltage on the circuit.

- **If 1 V or less**

10. Ignition/Vehicle - Off

11. Test for infinite resistance between the test points:

- Control circuit terminal 1 X6 at K9 Body Control Module & Ground
- Control circuit terminal 2 X6 at K9 Body Control Module & Ground
- Control circuit terminal 4 X6 at K9 Body Control Module & Ground
- **If less than infinite resistance**

Repair the short to ground on the circuit.

- **If infinite resistance**

12. Replace the component: K9 Body Control Module

Component Testing

S13 Door Lock Switch - Test

1. Ignition/Vehicle - Off

2. Disconnect the appropriate electrical connector: S13 Door Lock Switch

3. Test for infinite resistance between the test points:

- Signal terminal 2 & Ground terminal 4 - Switch - Not Pressed
- Signal terminal 3 & Ground terminal 4 - Switch - Not Pressed
- **If less than infinite resistance**

Replace the component: S13 Door Lock Switch

- **If infinite resistance**

4. Test for less than 3 Ω between the test points: Signal terminal 2 & Ground terminal 4 - Lock Switch - Pressed

- **If 3 Ω or greater**

Replace the component: S13 Door Lock Switch

- **If less than 3 Ω**

5. Test for less than 3 Ω between the test points: Signal terminal 3 & Ground terminal 4 - Unlock Switch - Pressed

- **If 3 Ω or greater**

Replace the component: S13 Door Lock Switch

- **If less than 3 Ω**

6. All OK.

A23 Door Latch Assembly

1. Ignition/Vehicle - Off

2. Disconnect the appropriate electrical connector:

- A23D Door Latch Assembly - Driver
- A23P Door Latch Assembly - Passenger
- A23LR Door Latch Assembly - Left Rear
- A23RR Door Latch Assembly - Right Rear

3. Connect a 25 A fused jumper wire between the test points: Control terminal 8 & B+

CAUTION: Complete the testing as quickly as possible in order to prevent overheating and damaging the component.

4. Momentarily connect a jumper wire between the test points:

- A23D Door Latch Assembly - Driver: Control terminal 7 & Ground
- A23P Door Latch Assembly - Passenger: Control terminal 9 & Ground
- A23LR Door Latch Assembly - Left Rear: Control terminal 7 & Ground
- A23RR Door Latch Assembly - Right Rear: Control terminal 9 & Ground

5. Reverse the jumper wires 2 times between the terminals.

Verify the component works as specified: A23 Door Latch Assembly = Lock & Unlock

- **If not the specified state**

Replace the component: A23 Door Latch Assembly

- **If the specified state**

6. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front Side Door Latch Replacement](#)
- [Rear Side Door Latch Replacement](#)
- [Door Lock Switch Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DOOR WILL NOT OPEN/CLOSE, DOOR BINDING, OR LOCKS, HANDLES, OR CYLINDERS DO NOT FUNCTION

Step	Action	Yes	No
DEFINITION: This diagnostic table is designed to address the mechanical diagnosis of the door latching system, which could include the inside and outside handles, latch rods/cables, latches, or latch cylinders.			

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
2	Were you sent here from a Vehicle Access Symptom Table?	Go to Step 3	Go to Symptoms - Vehicle Access
3	Does the door open with the outside handle?	Go to Step 4	Go to Step 10
4	Does the door open with the inside handle?	Go to Step 5	Go to Step 11
5	Does the manual latch knob latch and unlatch the latch smoothly without binding?	Go to Step 6	Go to Step 12
6	Does the door latch switch and/or the keyless entry transmitter latch and unlatch the door latch or door latches?	Go to Step 7	Go to Step 14
7	Is the outside key cylinder loose or does it rattle or fall out? (if equipped)	Go to Step 15	Go to Step 8
8	Does the outside key cylinder latch and unlatch the latch and function smoothly without binding? (if equipped)	Go to Step 9	Go to Step 16
9	Does the door bind, does it take excessive effort to open, or is it misaligned?	Go to Step 17	Go to Step 18
10	If the door will not open with the outside handle, or the handle is obstructed or loose, check the following: • For cold weather freezing, thaw as necessary. • Check the handle for foreign material. Remove material as necessary. • Check the handle grab bar for looseness or damage. Repair as necessary. • Check the handle for full travel. If the issue is not resolved, remove the trim panel as necessary to gain access to door hardware and check the following: • Check the handle chassis for loose fasteners, broken chassis inserts, loose or missing spring, or a loose, missing or bent rod lever. • Check for bent rod to the outside handle. • Check that the handle grab bar engages the rod lever properly. • Check for interference of rod and handle to other components in the door. • Check that handle rod is securely attached at both latch and handle. • Check if rod is positioned properly in the clip on the latch. At rest position, the handle should be fully against the down stop and the latch lever should be at the bottom of its travel. Correct by opening clip, repositioning rod in clip and closing clip till it snaps, as necessary. Did you find and correct the condition?	Go to Step 18	Go to Step 11

Step	Action	Yes	No
11	Door will not open with the inside handle: • Check the inside handle for foreign material. Remove material as necessary. • Check that the handle is secure. Correct as necessary. • If rear door, verify child security is not engaged. • Remove the trim panel as necessary to and check the inside handle rod/cable attachments at both the latch and handle. If the cable is kinked or pinched, correct as necessary. Did you find and correct the condition?	Go to Step 18	Go to Step 12
12	The door will not or is difficult to unlatch with the inside manual latch knob: • For cold weather freezing, thaw as necessary • Check the latch knob for a loose condition. Repair or replace as necessary. Check the latch knob for binding or dragging using the following procedure: 1. Remove the latch knob. 2. If condition goes away, check for drag/interference of the latch knob against the inner belt seal, or the trim panel. Correct as required. If further action is required, remove the trim panel and check the latch rod and latch knob for interference with the following: • Water deflector/paper • Side impact foam • Rod grommet in sheet metal • Glass run channel • Other rods or cables • Trim panel Did you find and correct the condition?	Go to Step 18	Go to Step 13

Step	Action	Yes	No
13	With a manual lock, if the latch will not function properly do the following: 1. Function the lock/unlatch lever on the latch to unlatch the latch. Check for high internal resistance. 2. With the door open, manually close the latch with a screwdriver. 3. Check the latch for internal binding by actuating the latch with the inside door handle lever. 4. Manually close the latch with a screwdriver again. 5. Check the latch for internal binding by actuating the latch with the outside door handle lever. Did you find and correct the condition?	Go to Step 18	Go to Step 14
14	If power locks are included in vehicle options and do not function with either the keyless entry transmitter or switch: 1. For cold weather freezing, thaw as necessary. 2. Remove trim pad as required and check the following: • Verify door harness has appropriate power connectors for switches and latch. • Check harness connector pins for corrosion. • Assure wire harness connectors are seated and locked properly at latch and switch. Remove and re-seat if required. • Check door harness for cuts/chafing/corrosion. Correct/replace as required. • Check for 12V at latch and door switch. Correct/proceed accordingly. • Check BCM for trouble codes. Correct/proceed accordingly. 3. If power locks still do not function do the following: 1. Remove latch from door cavity. 2. Connect latch to electrical connector outside the door. 3. Function power lock/unlatch switch in both latch and unlatch directions. Watch for lock/unlatch lever on latch to move completely from one position to the other. 4. If lever does not move, remove connector from old latch and attach to new latch outside of door cavity. 5. Verify new latch is functional, if so, attach rods and install new latch in door. Did you find and correct the condition?	Go to Step 18	Go to Step 15

Step	Action	Yes	No
15	If the key cylinder is loose do the following: • Remove the trim if necessary. • Check that the retaining clip is properly seated. (if equipped) • Check that the fastener is properly torqued. (if equipped) Did you find and correct the condition?	Go to Step 18	Go to Step 16
16	The outside key cylinder will not latch and unlatch the latch and function smoothly without binding: 1. For cold weather freezing, thaw as necessary 2. Remove trim if required. 3. Check that the key cylinder rod is securely attached both to the key cylinder pawl and the latch. 4. Check that key cylinder lever, rod and latch lever are free of interferences. Remove interferences as required. 5. Check that latch cylinder rod is routed properly. Re-route as required. 6. Remove rod from latch cylinder and actuate cylinder. Check for internal resistance. Lubricate latch cylinder as required 7. Verify Cylinder rotates with vehicle key. If not, code and replace cylinder to match vehicle key. See latch cylinder coding and replacing. Did you find and correct the condition?	Go to Step 18	Go to Step 17
17	The door is difficult to open: • Check for interference with the fender, adjacent door, body opening or door striker and adjust as necessary. • Check for binding door hinges. Lubricate or align/adjust as necessary. • Check the door check link for binding. Lubricate as necessary. • Adjust the door as necessary. Did you find and correct the condition?	Go to Step 18	Go to appropriate Door Lock Striker Adjustment procedure.

Step	Action	Yes	No
18	Verify proper operation of the door closing system. • Outside handle • Inside handle • Manual lock/unlatch • Outside key cylinder • Inside latch knob • Double pull handle • Power lock/unlatch • Key fob • Door switches • Door opening/closing effort Is the condition still present?	Go to Step 1	System OK

REPAIR INSTRUCTIONS

FRONT SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

Removal Procedure

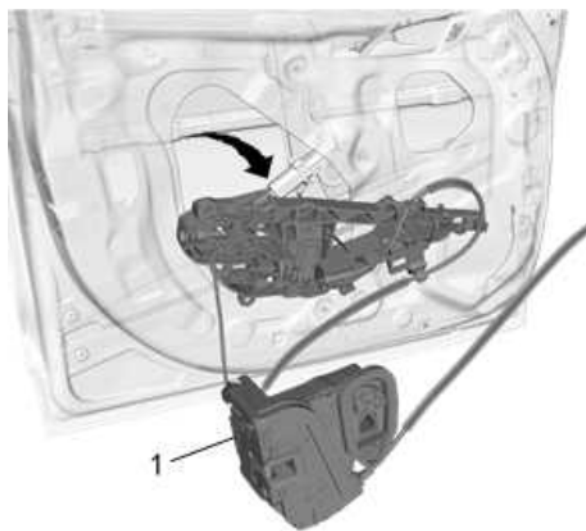


Fig. 6: Front Side Door Latch

Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Latch - Remove - [Front Side Door Latch Replacement](#)
2. Open the cable access cover.

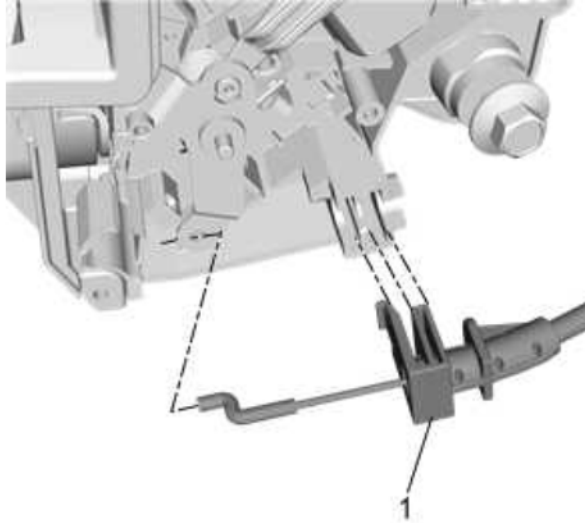


Fig. 7: Front Side Door Inside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

3. Front Side Door Inside Handle Cable at Front Side Door Latch - Remove

Installation Procedure

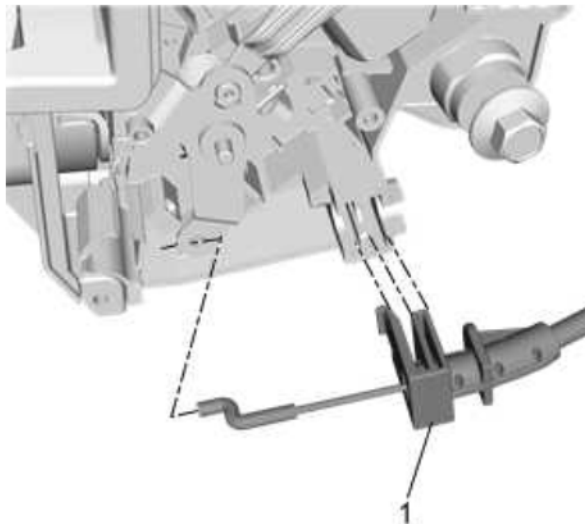


Fig. 8: Front Side Door Inside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Inside Handle Cable at Front Side Door Latch - Install
2. Close the cable access cover.

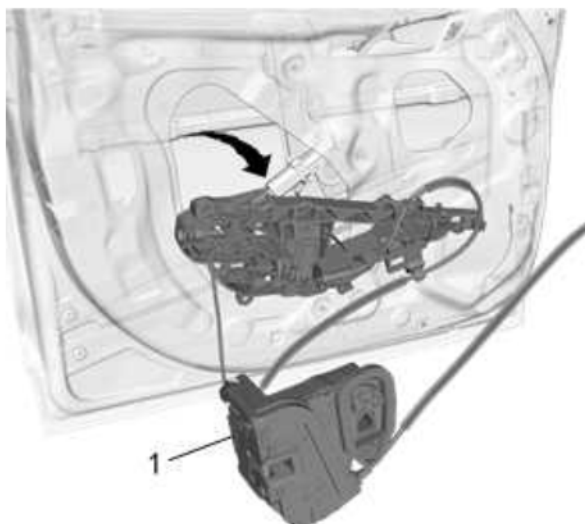


Fig. 9: Front Side Door Latch

Courtesy of GENERAL MOTORS COMPANY

3. Front Side Door Latch - Install - [Front Side Door Latch Replacement](#)

NOTE: Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR INSIDE HANDLE CABLE REPLACEMENT

Removal Procedure

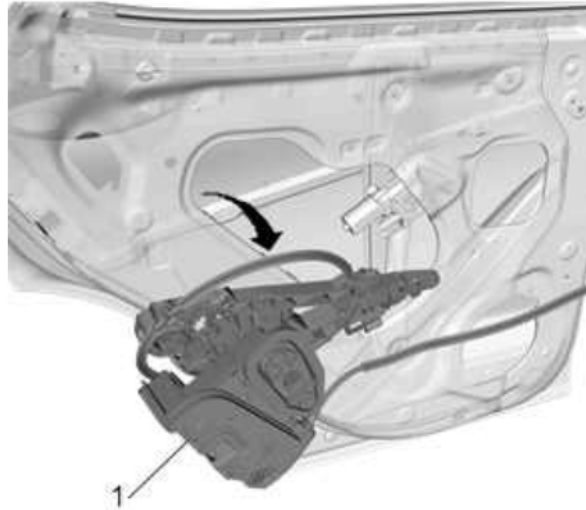


Fig. 10: Rear Side Door Latch

Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Latch - Remove - [Rear Side Door Latch Replacement](#)
2. Open the cable access cover.

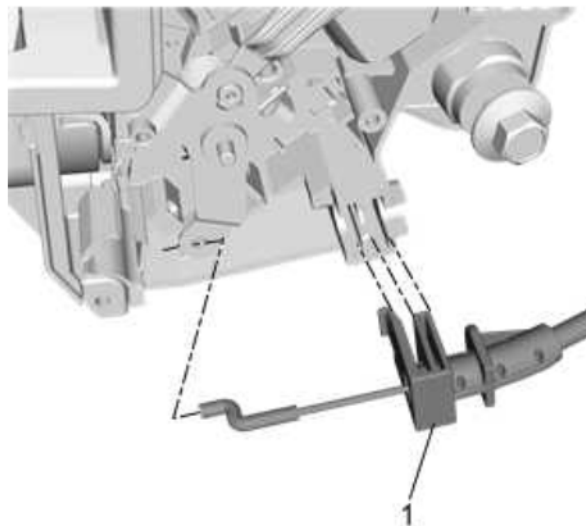


Fig. 11: Rear Side Door Inside Handle Cable

Courtesy of GENERAL MOTORS COMPANY

3. Rear Side Door Inside Handle Cable at Rear Side Door Latch - Remove

Installation Procedure

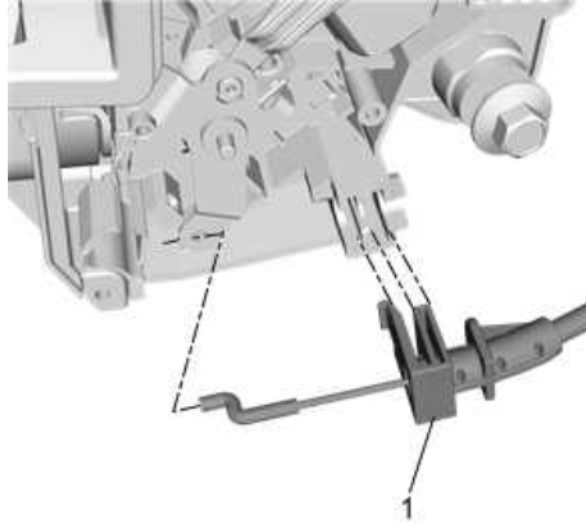


Fig. 12: Rear Side Door Inside Handle Cable

Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Inside Handle Cable at Rear Side Door Latch - Install
2. Close the cable access cover.

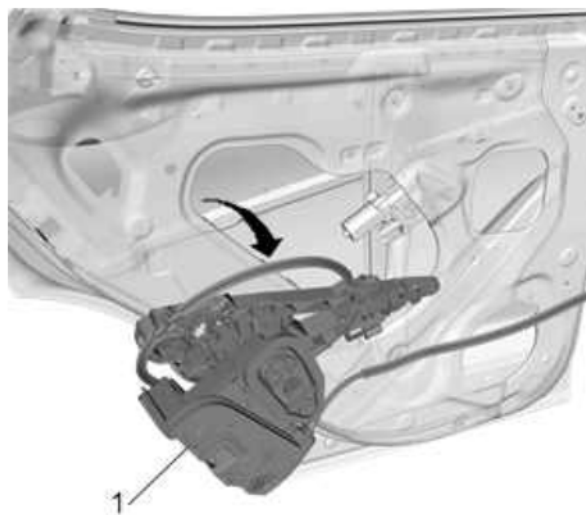


Fig. 13: Rear Side Door Latch

Courtesy of GENERAL MOTORS COMPANY

3. Rear Side Door Latch - Install - [Rear Side Door Latch Replacement](#)

NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR LOCK CYLINDER REPLACEMENT

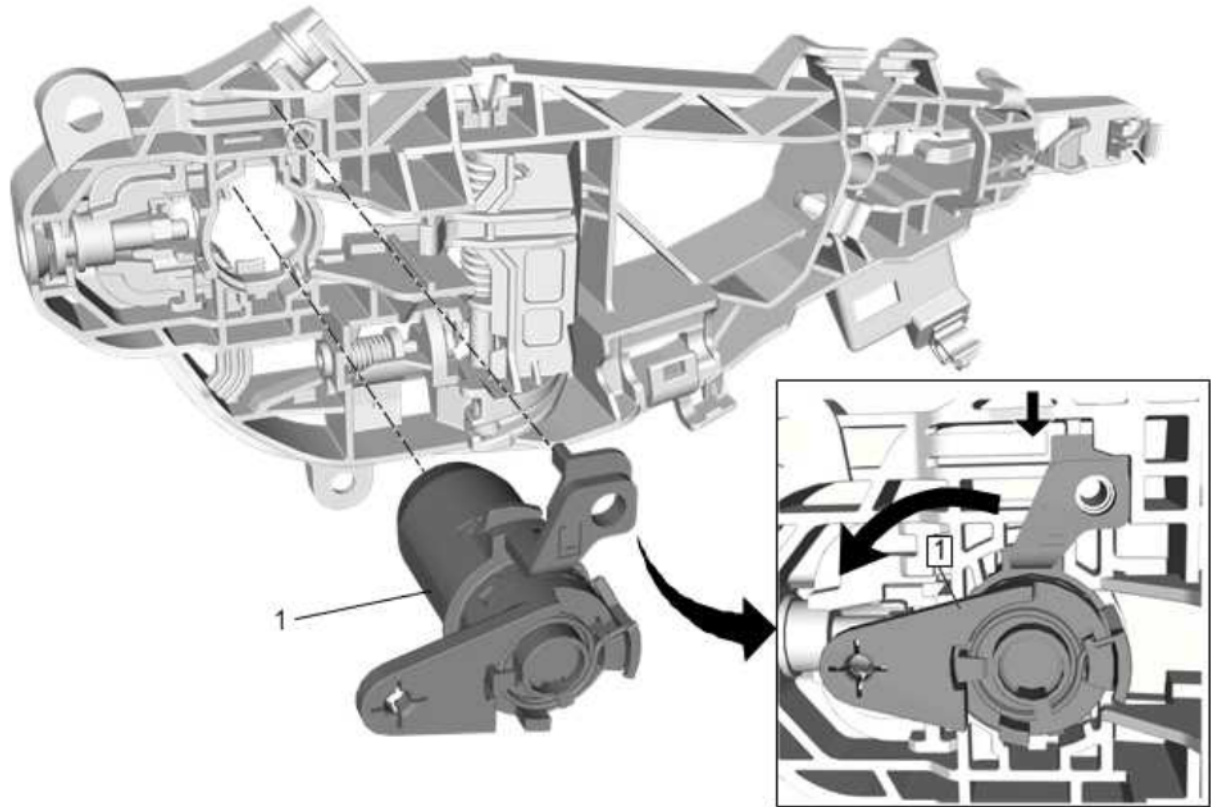


Fig. 14: Front Side Door Lock Cylinder
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
<u>Front Side Door Lock Cylinder Rod Replacement</u>	
1	Front Side Door Lock Cylinder Procedure Release the integral retainer, rotate the cylinder counter-clockwise to unlock and remove the cylinder. NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR OUTSIDE HANDLE REPLACEMENT

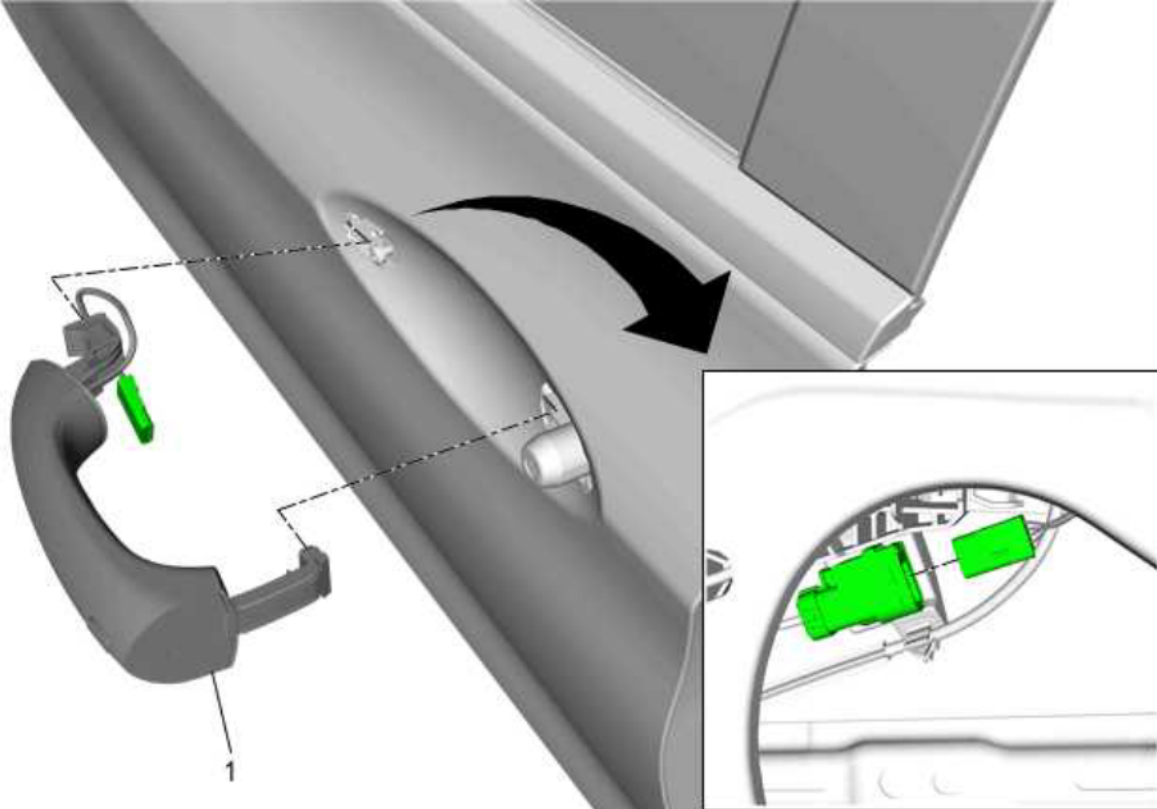


Fig. 15: Front Side Door Outside Handle
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures <u>Front Side Door Water Deflector Replacement</u> <u>Front Side Door Lock Cylinder Opening Cover Replacement</u>	
1	Front Side Door Outside Handle Procedure 1. Disconnect the electrical connector. 2. Pull the front side door outside handle rearward to release it from the handle housing. NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

Removal Procedure

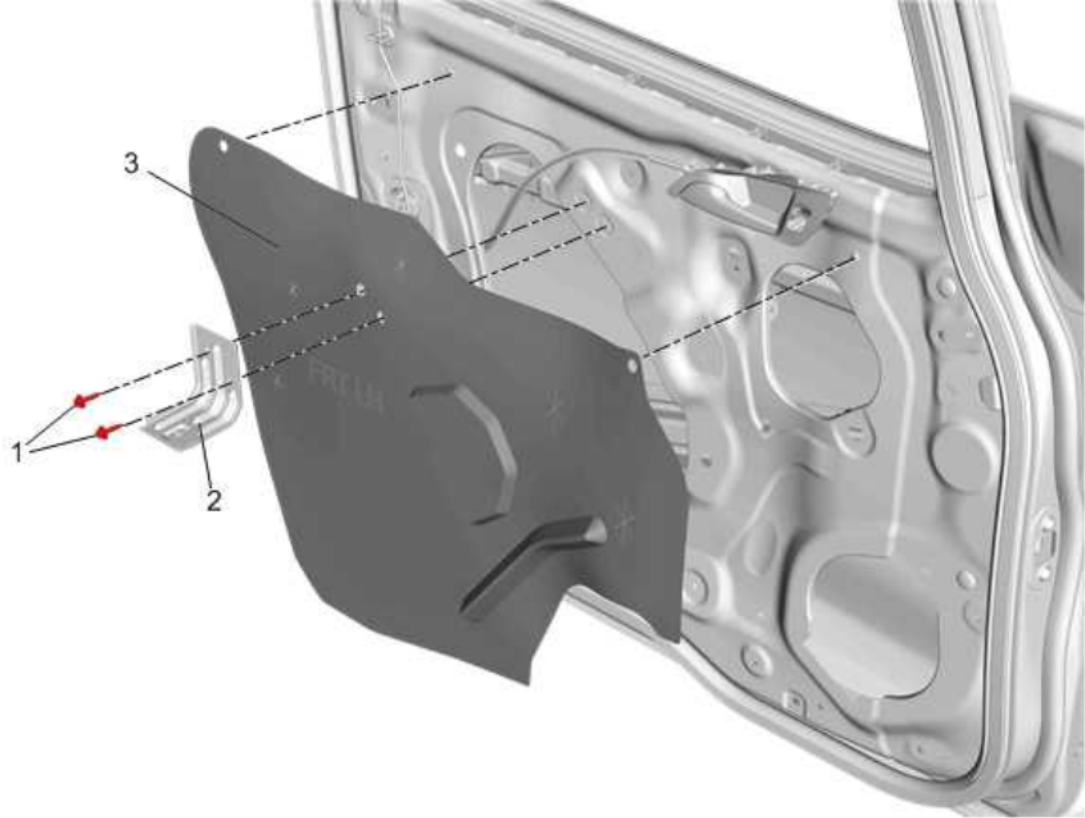


Fig. 16: Front Side Door Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Water Deflector - Remove - [**Front Side Door Water Deflector Replacement**](#)

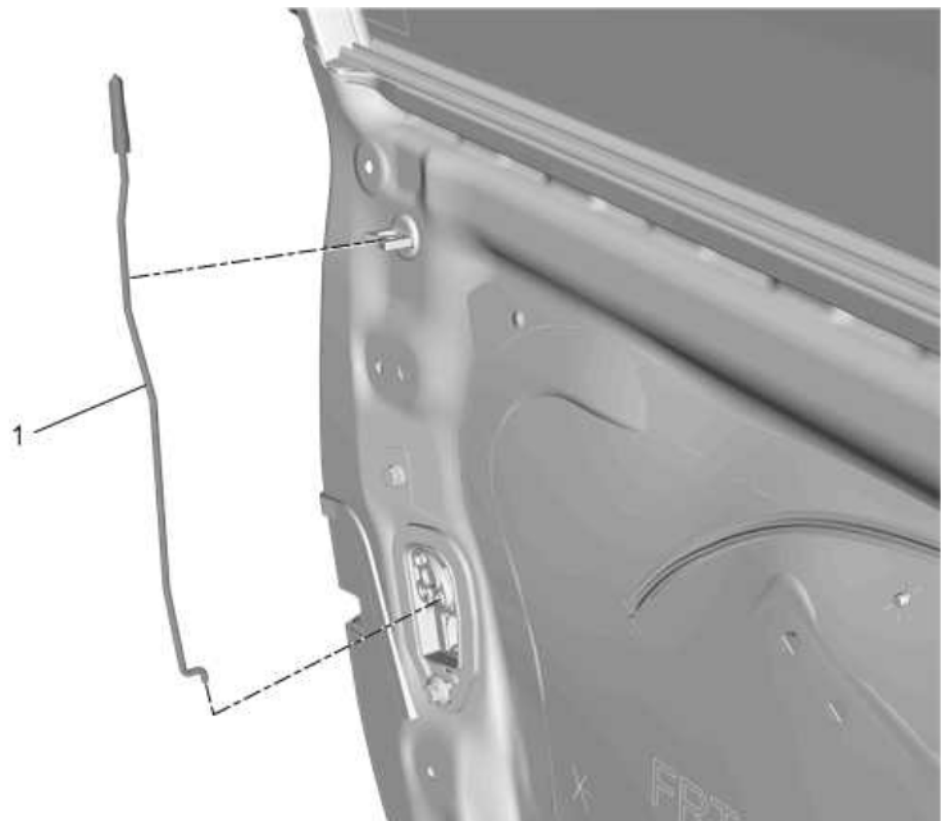


Fig. 17: Front Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

2. Front Side Door Locking Rod Knob - Remove - [**Front Side Door Locking Rod Knob Replacement**](#)

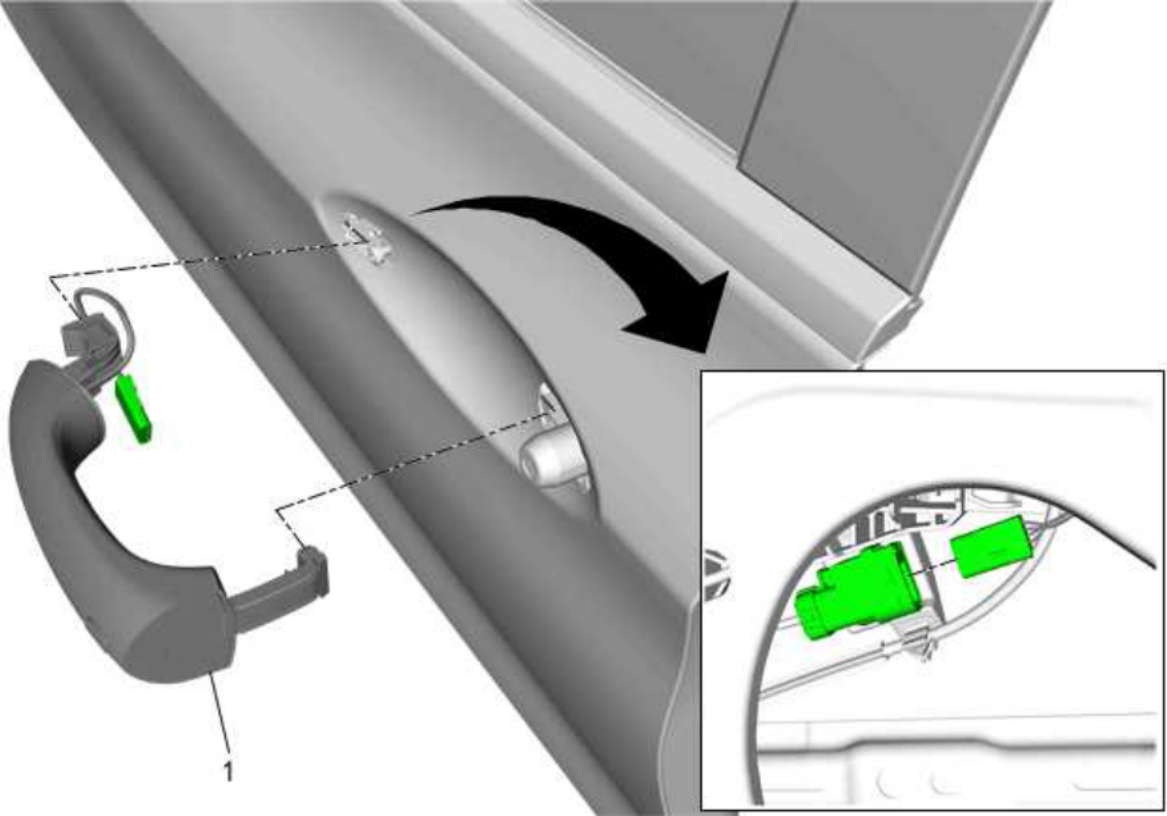


Fig. 18: Front Side Door Outside Handle
 Courtesy of GENERAL MOTORS COMPANY

3. Front Side Door Outside Handle - Remove - **Front Side Door Outside Handle Replacement**

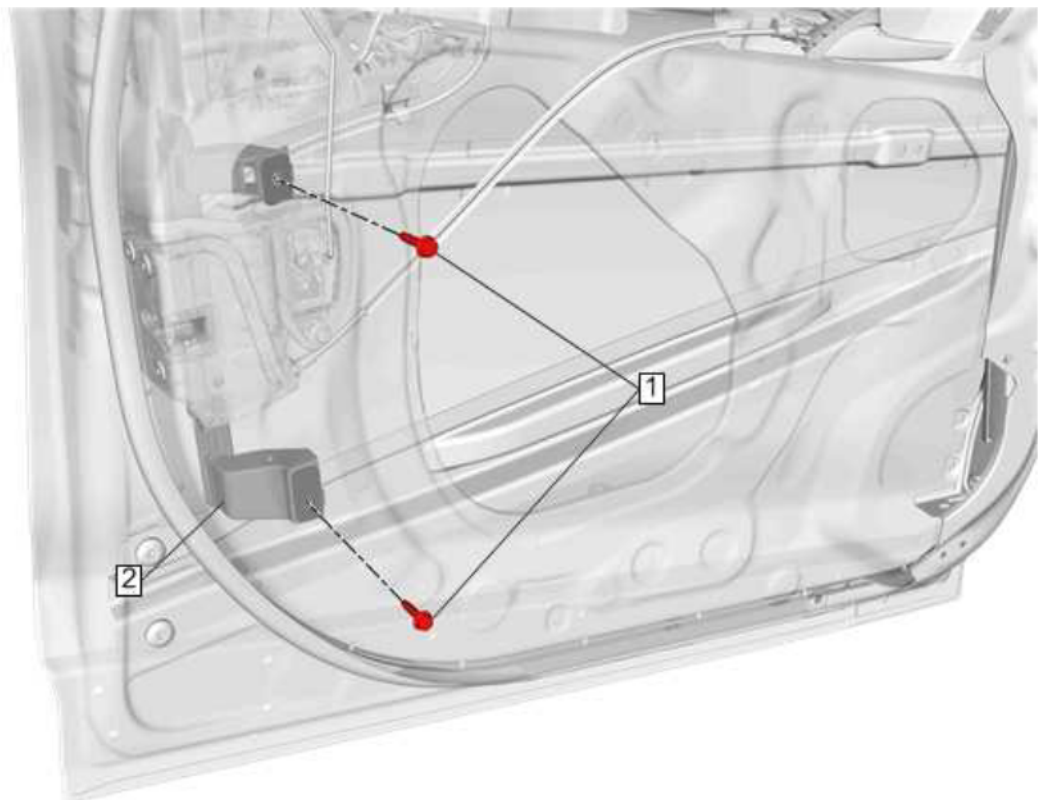


Fig. 19: Front Side Door Window Channel Retainer
 Courtesy of GENERAL MOTORS COMPANY

4. Front Side Door Window Channel Retainer - Remove - **Front Side Door Window Channel Retainer Replacement**

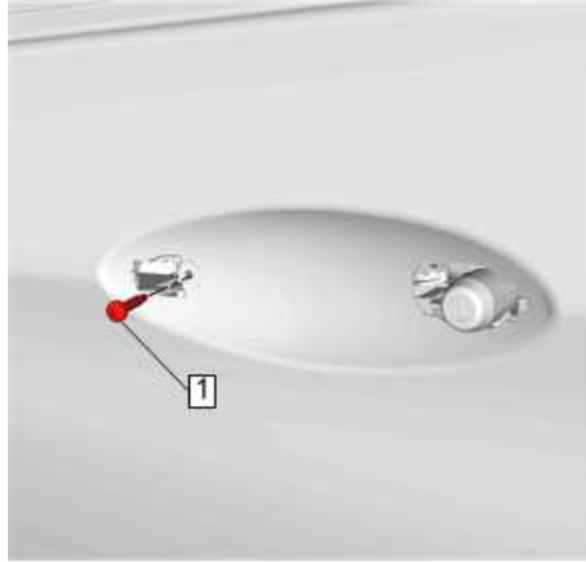


Fig. 20: Front Side Door Outside Handle Bracket Fastener
Courtesy of GENERAL MOTORS COMPANY

5. Front Side Door Outside Handle Bracket Fastener - Remove

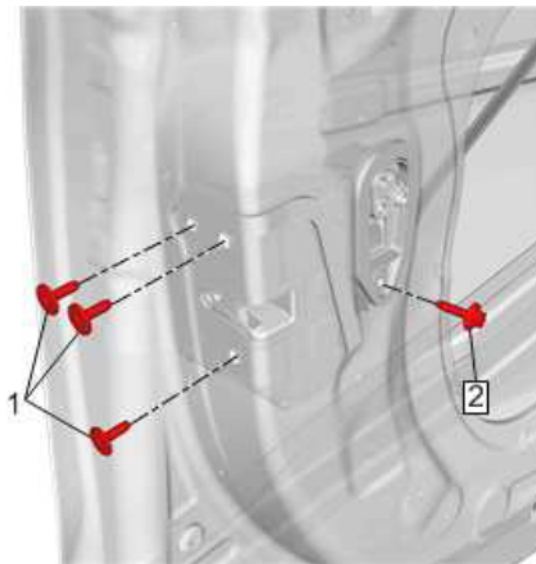


Fig. 21: Front Side Door Latch Fastener
Courtesy of GENERAL MOTORS COMPANY

6. Front Side Door Latch Fastener (1) (Qty: 3) - Remove

7. Front Side Door Latch Fastener (2) - Remove

8. Unclip and disconnect the electrical connector from the bracket and latch assemblies.

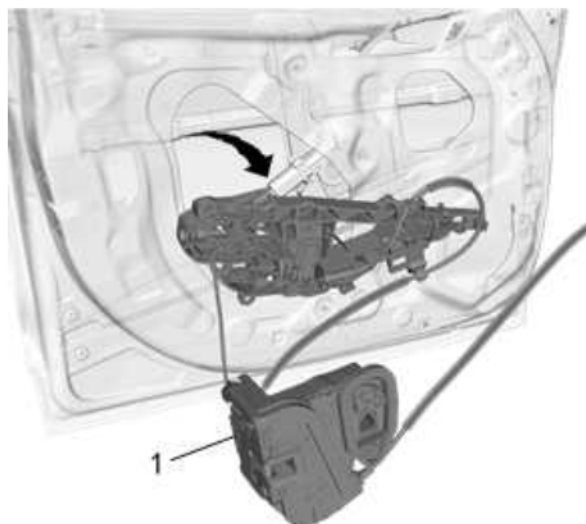


Fig. 22: Front Side Door Outside Handle Bracket
Courtesy of GENERAL MOTORS COMPANY

9. Remove the front side door latch with front side door outside handle bracket (1) from front side door.

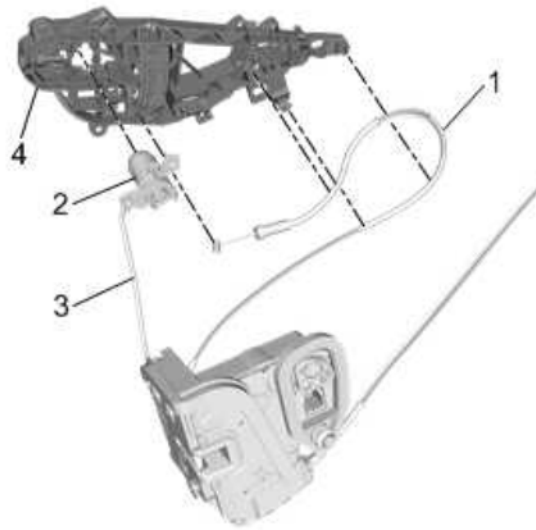


Fig. 23: Front Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

10. Front Side Door Outside Handle Cable (1) at Front Side Door Outside Handle Bracket (4) - Remove - **Front Side Door Outside Handle Cable Replacement**
11. {If equipped} Front Side Door Lock Cylinder (2) at Front Side Door Outside Handle Bracket (4) - Remove - **Front Side Door Lock Cylinder Replacement**
12. Front Side Door Lock Cylinder Rod (3) at Front Side Door Outside Handle Bracket (4) - Remove - **Front Side Door Lock Cylinder Rod Replacement**

Installation Procedure

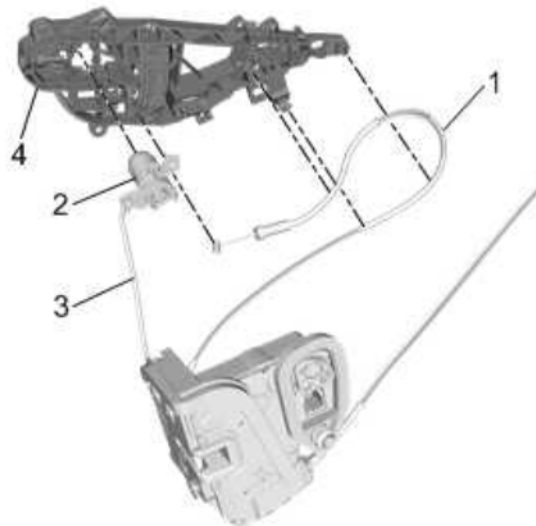


Fig. 24: Front Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Outside Handle Cable (1) at Front Side Door Outside Handle Bracket (4) - Install - **Front Side Door Outside Handle Cable Replacement**
2. { If equipped } Front Side Door Lock Cylinder (2) at Front Side Door Outside Handle Bracket (4) - Install - **Front Side Door Lock Cylinder Replacement**
3. Front Side Door Lock Cylinder Rod (3) at Front Side Door Outside Handle Bracket (4) - Install - **Front Side Door Lock Cylinder Rod Replacement**
4. Connect and clip electrical connector in place.

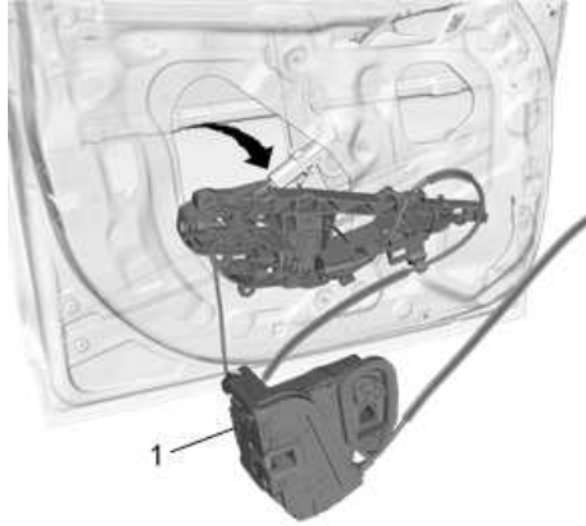


Fig. 25: Front Side Door Outside Handle Bracket
 Courtesy of GENERAL MOTORS COMPANY

5. Install the front side door latch with front side door outside handle bracket (1) to the front side door.

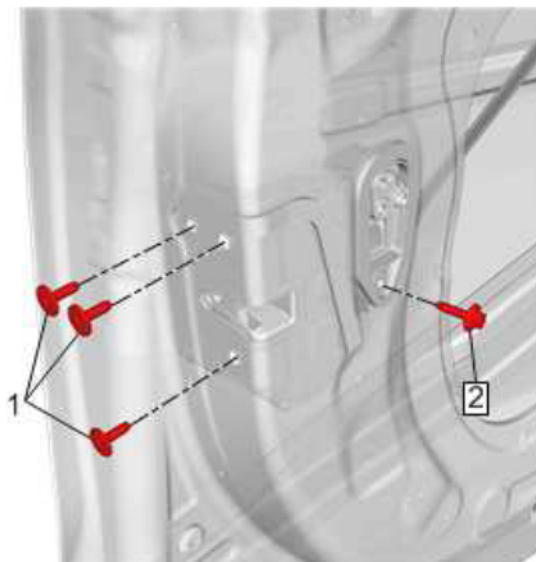


Fig. 26: Front Side Door Latch Fastener
 Courtesy of GENERAL MOTORS COMPANY

CAUTION: Fastener Caution

6. Front Side Door Latch Fastener (1) (Qty: 3) - Install and tighten to 9 N.m (80 lb in)
7. Front Side Door Latch Fastener (2) - Install and tighten to 9 N.m (80 lb in)

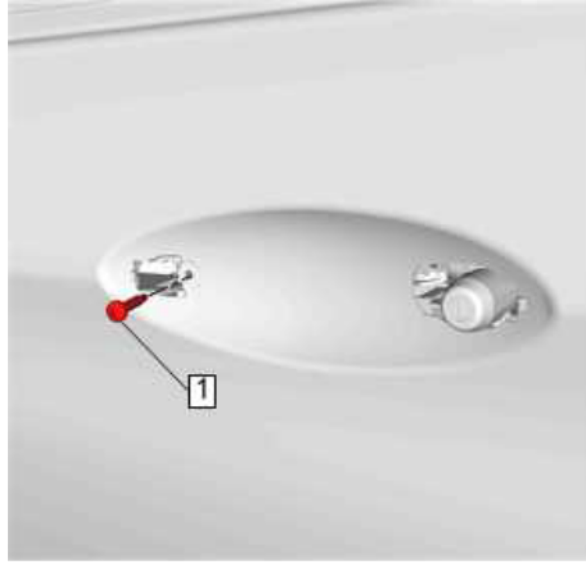


Fig. 27: Front Side Door Outside Handle Bracket Fastener
 Courtesy of GENERAL MOTORS COMPANY

8. Front Side Door Outside Handle Bracket Fastener - Install and tighten to 5 N.m (44 lb in)

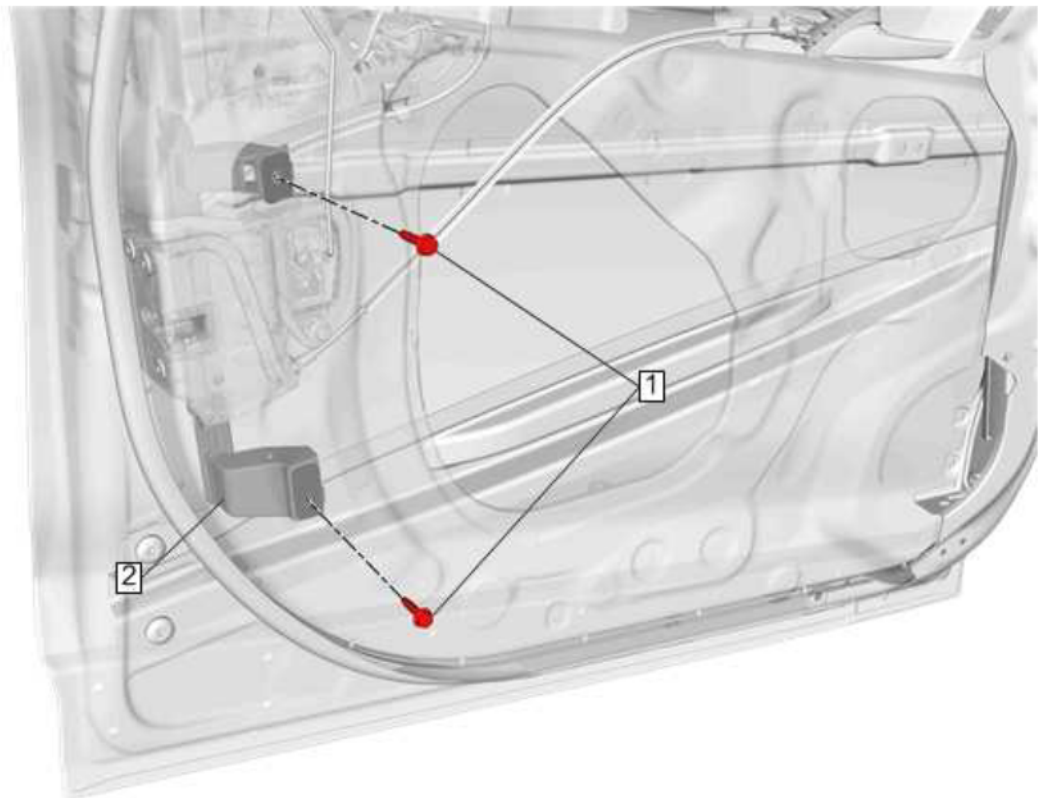


Fig. 28: Front Side Door Window Channel Retainer
 Courtesy of GENERAL MOTORS COMPANY

9. Front Side Door Window Channel Retainer - Install - **Front Side Door Window Channel Retainer Replacement**

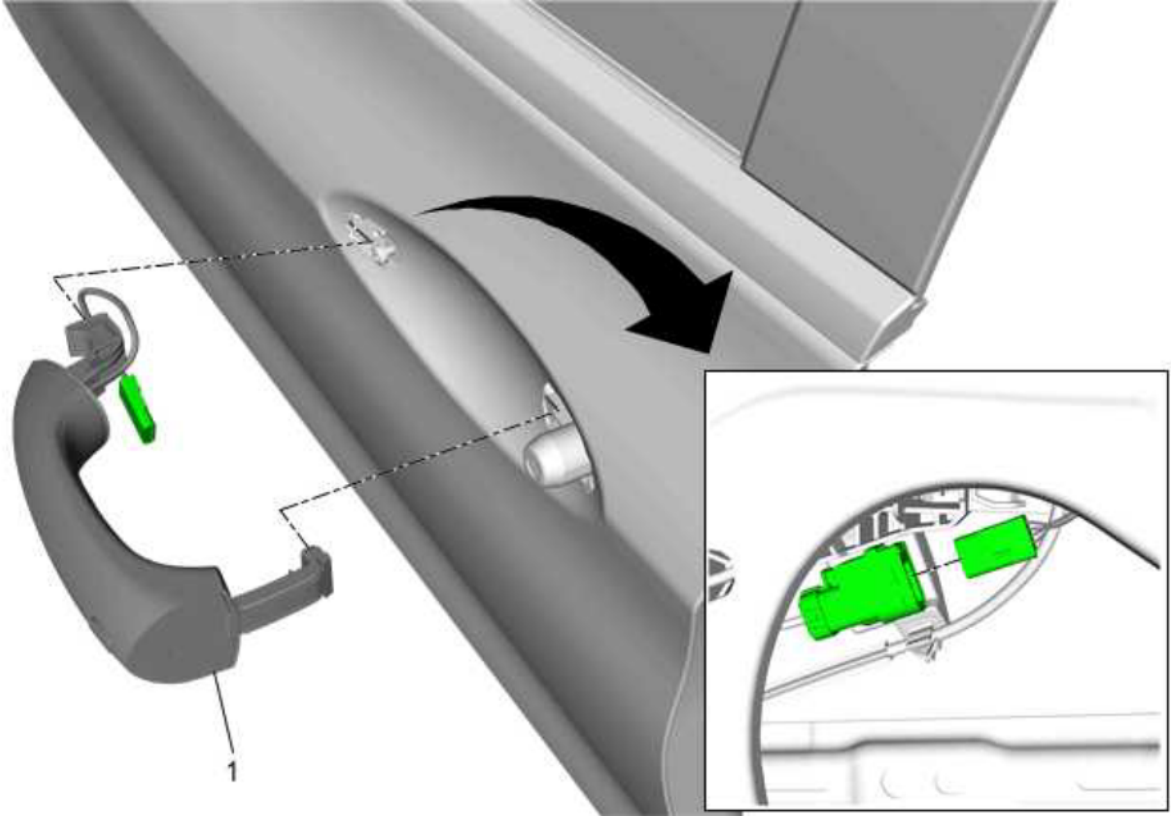


Fig. 29: Front Side Door Outside Handle
 Courtesy of GENERAL MOTORS COMPANY

10. Front Side Door Outside Handle - Install - **Front Side Door Outside Handle Replacement**

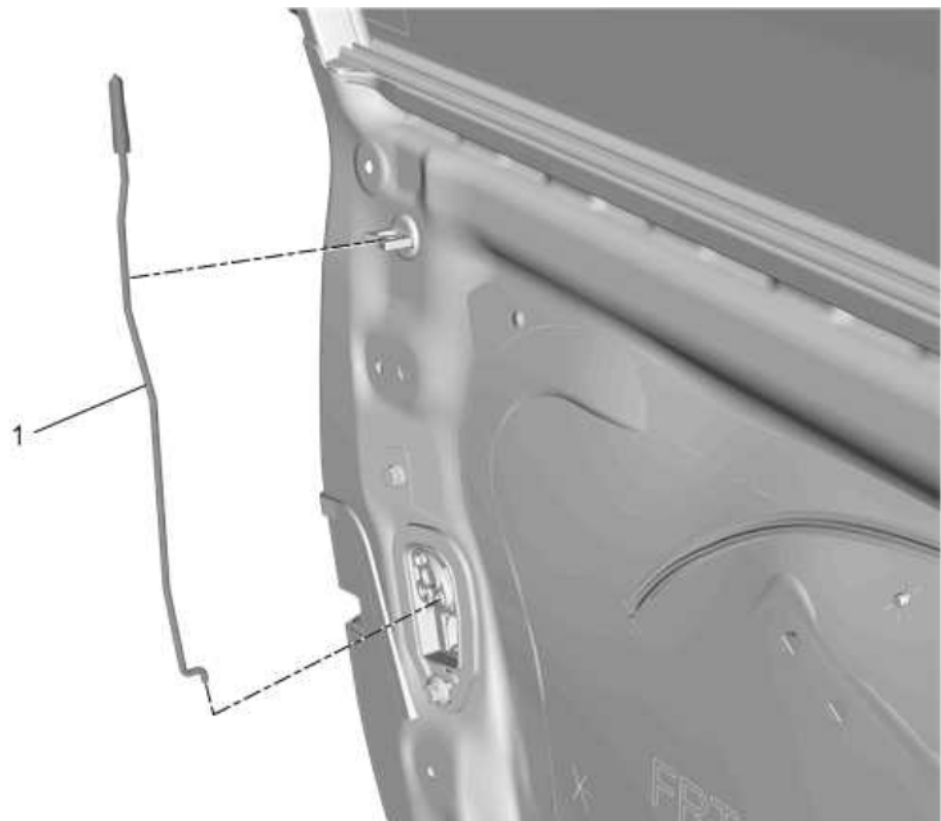


Fig. 30: Front Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

11. Front Side Door Locking Rod Knob - Install - **Front Side Door Locking Rod Knob Replacement**

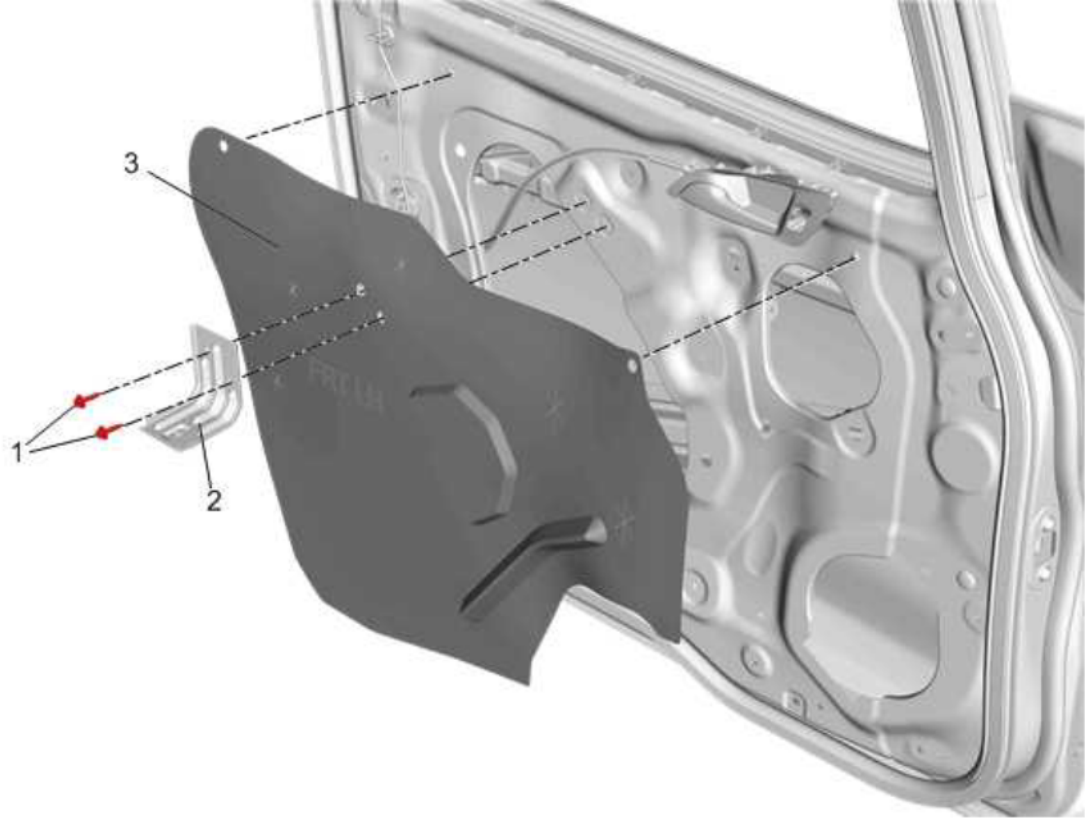


Fig. 31: Front Side Door Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

12. Front Side Door Water Deflector - Install - **Front Side Door Water Deflector Replacement**

NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR OUTSIDE HANDLE CABLE REPLACEMENT

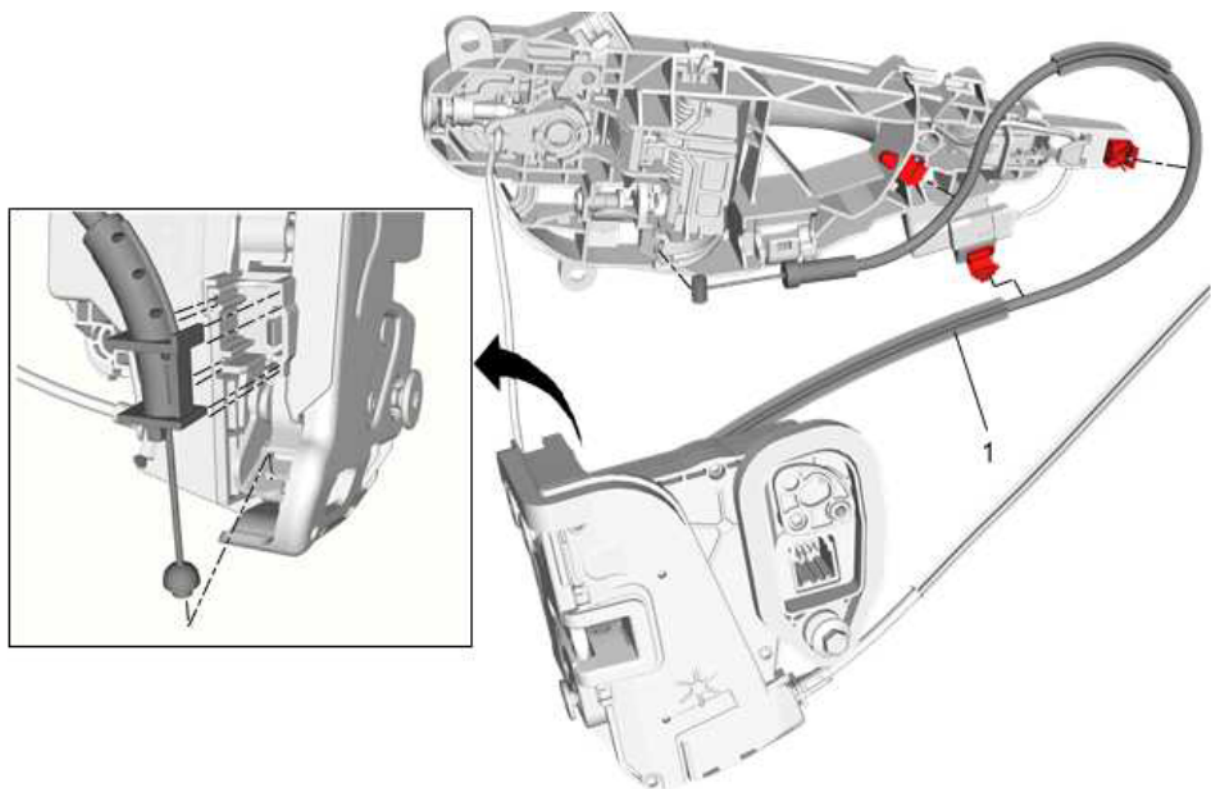


Fig. 32: Front Side Door Outside Handle Cable
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name	cardiagn.com

Callout	Component Name
Preliminary Procedure	
Front Side Door Latch Replacement	
1	Front Side Door Outside Handle Cable Procedure 1. Front Side Door Outside Handle Cable at Retainer - Remove 2. Release the cable from the back of the latch assembly 3. Front Side Door Outside Handle Cable at Front Side Door Outside Handle Bracket - Remove NOTE: Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR OUTSIDE HANDLE BRACKET REPLACEMENT

Removal Procedure

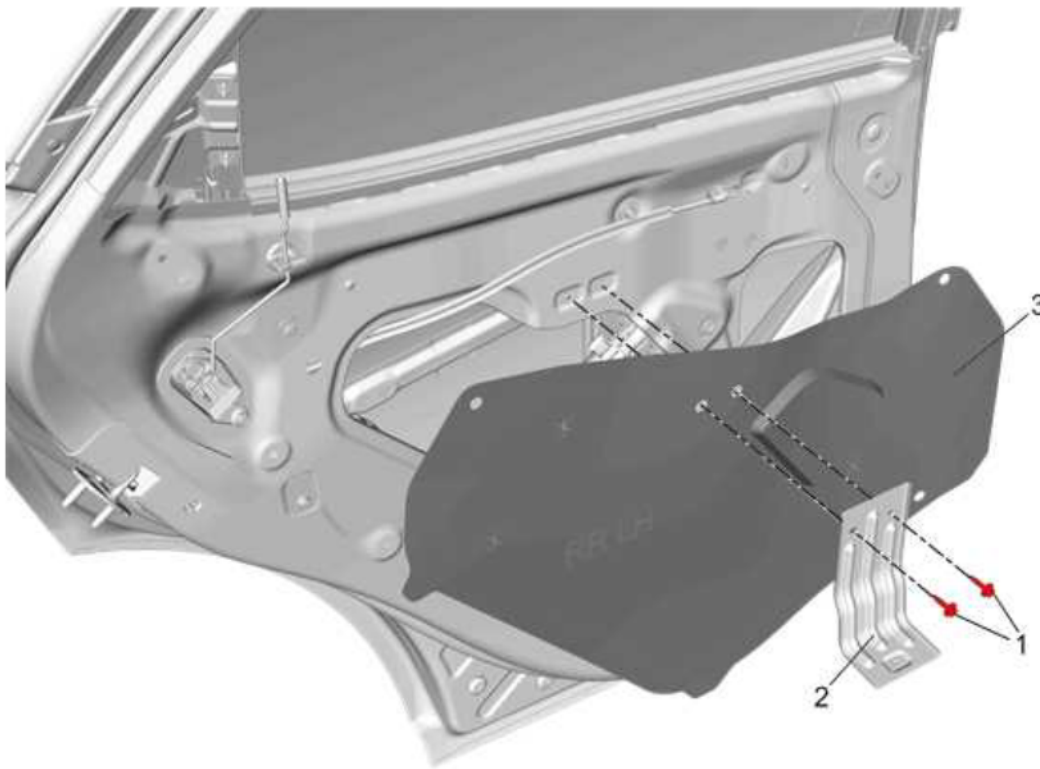


Fig. 33: Rear Side Door Water Deflector

Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Water Deflector - Remove - [Rear Side Door Water Deflector Replacement](#)

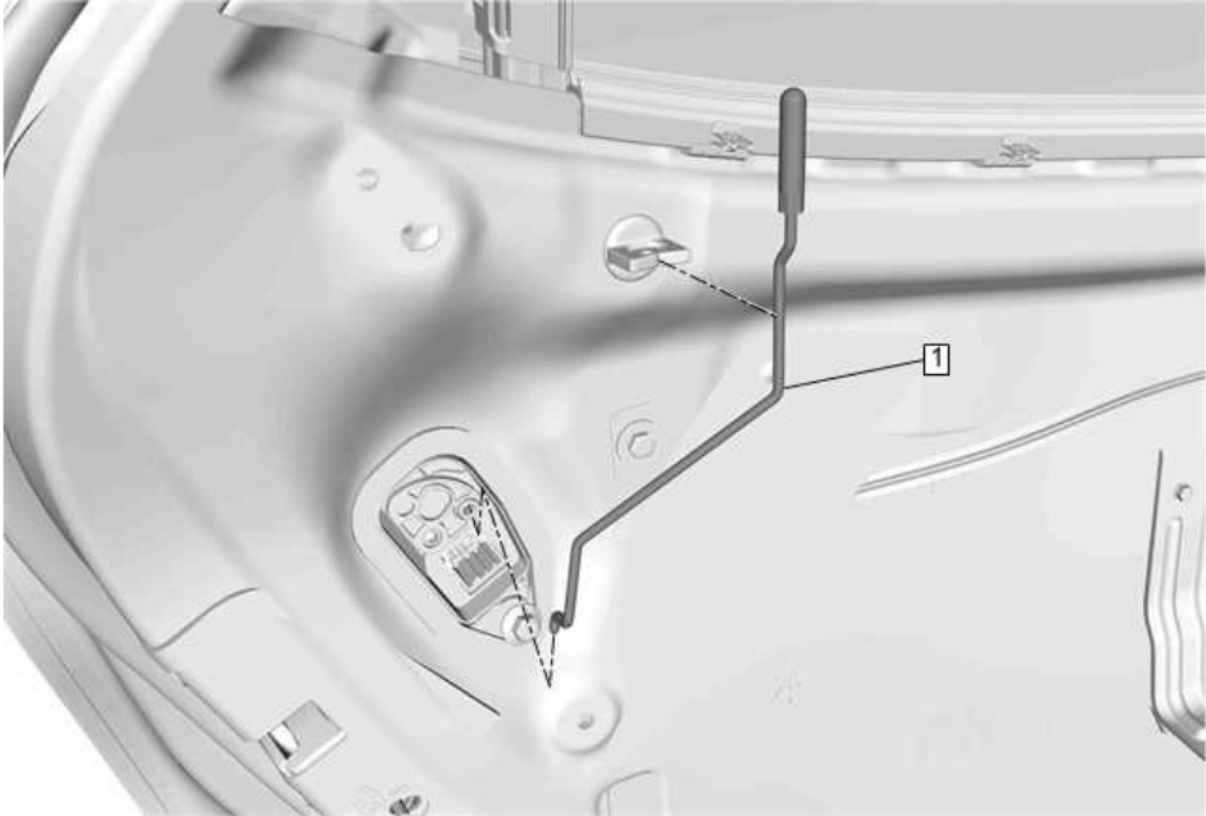


Fig. 34: Rear Side Door Locking Rod Knob

Courtesy of GENERAL MOTORS COMPANY

2. Rear Side Door Locking Rod Knob - Remove - **Rear Side Door Locking Rod Knob Replacement**

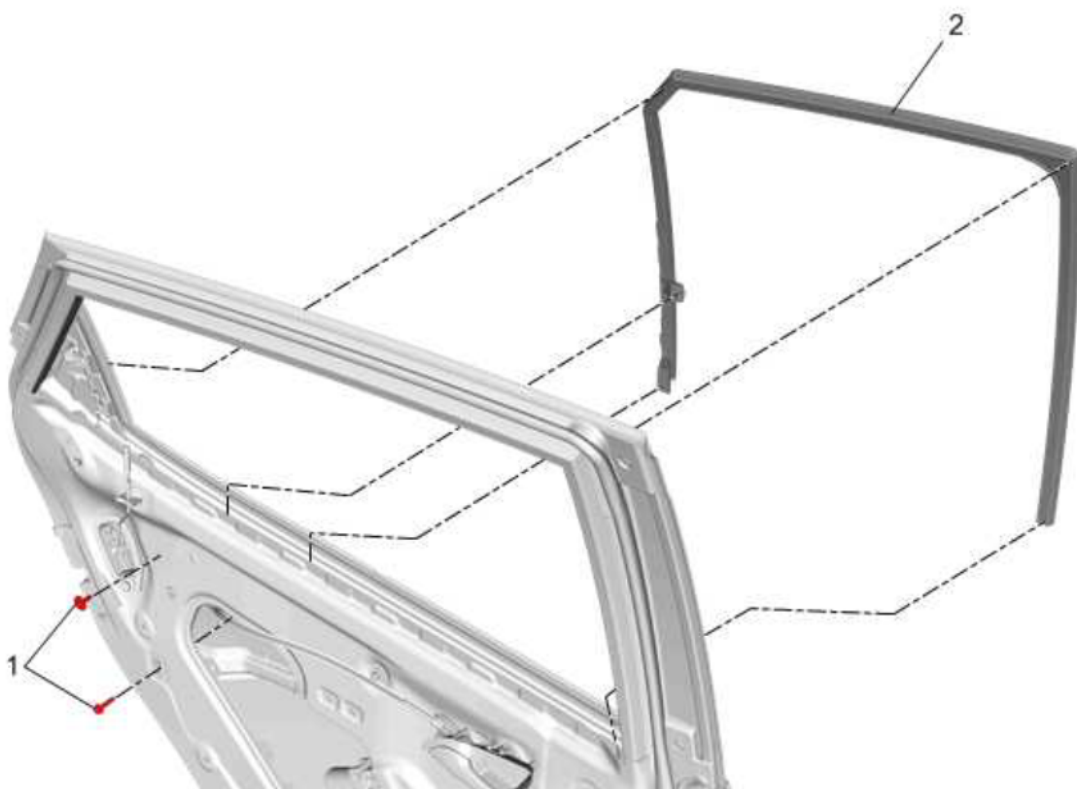


Fig. 35: Rear Side Door Window Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

3. Remove the rear side door window channel rear retainer bolts and reposition the channel as necessary. **Rear Side Door Window Weatherstrip Replacement**

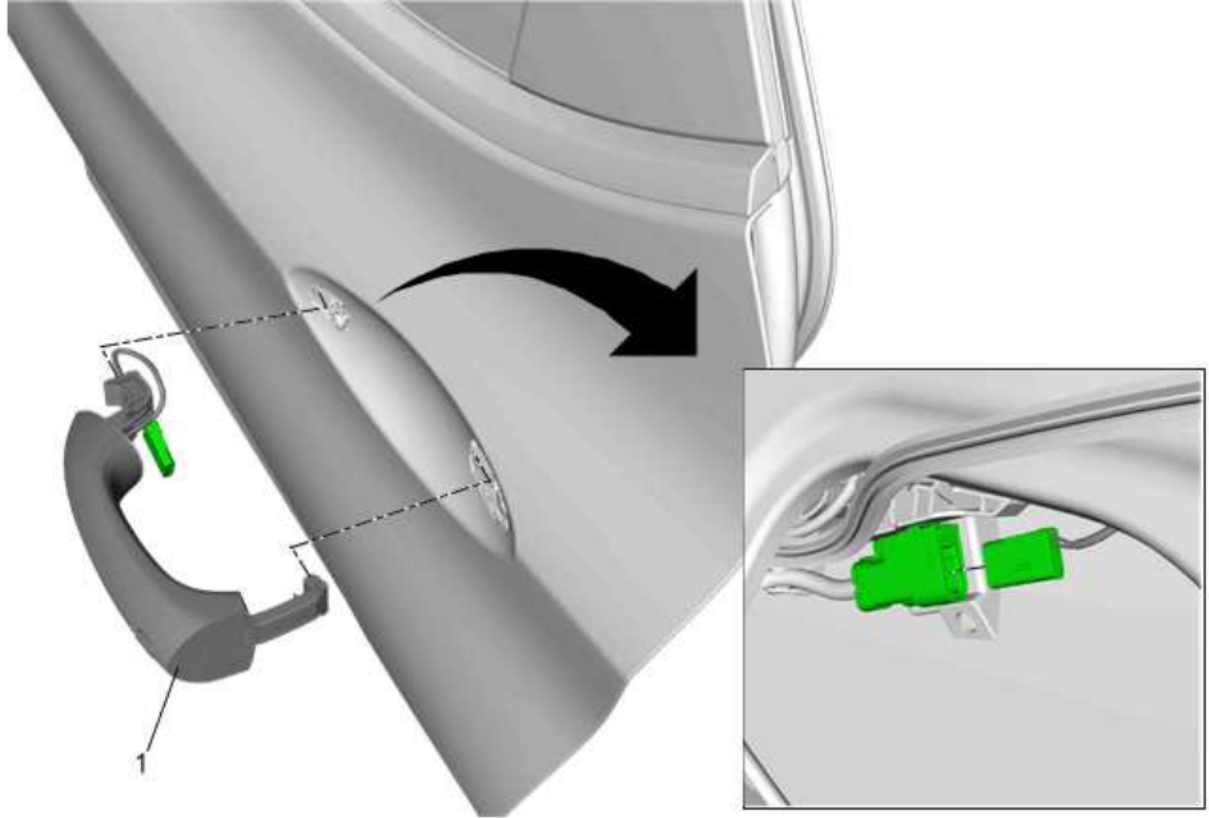


Fig. 36: Rear Side Door Outside Handle

Courtesy of GENERAL MOTORS COMPANY

4. Rear Side Door Outside Handle - Remove - **Rear Side Door Outside Handle Replacement**

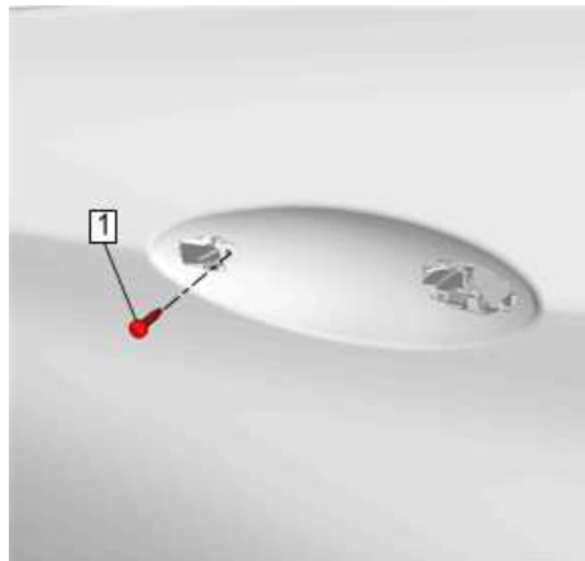


Fig. 37: Rear Side Door Outside Handle Bracket Fastener

Courtesy of GENERAL MOTORS COMPANY

5. Rear Side Door Outside Handle Bracket Fastener - Remove

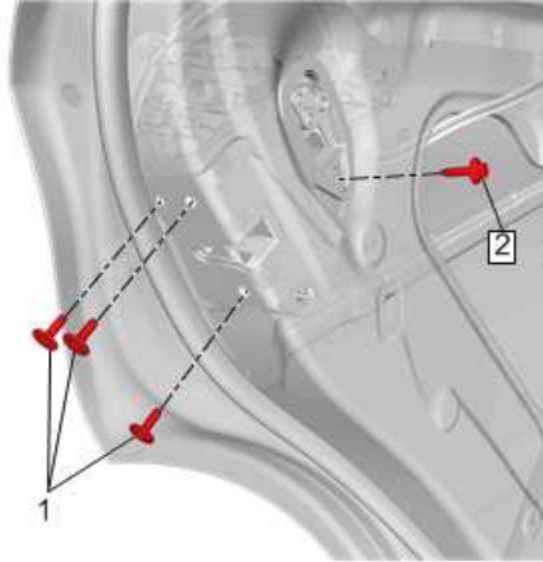


Fig. 38: Rear Side Door Latch Fastener

Courtesy of GENERAL MOTORS COMPANY

6. Rear Side Door Latch Fastener (1) (Qty: 3) - Remove
7. Rear Side Door Latch Fastener (2) - Remove
8. Disconnect and unclip the electrical connector.

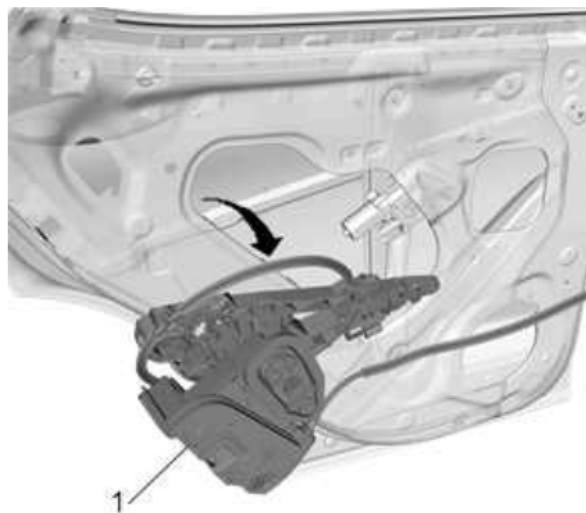


Fig. 39: Rear Side Door Outside Handle Bracket

Courtesy of GENERAL MOTORS COMPANY

9. Remove the rear side door latch with rear side door outside handle bracket (1) from rear side door.



Fig. 40: Rear Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

10. Rear Side Door Outside Handle Cable at Rear Side Door Outside Handle Bracket - Remove - **Rear Side Door Outside Handle Cable Replacement**

Installation Procedure



Fig. 41: Rear Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Outside Handle Cable at Rear Side Door Outside Handle Bracket - Install - **Rear Side Door Outside Handle Cable Replacement**
2. Connect and clip the electrical connector in place.

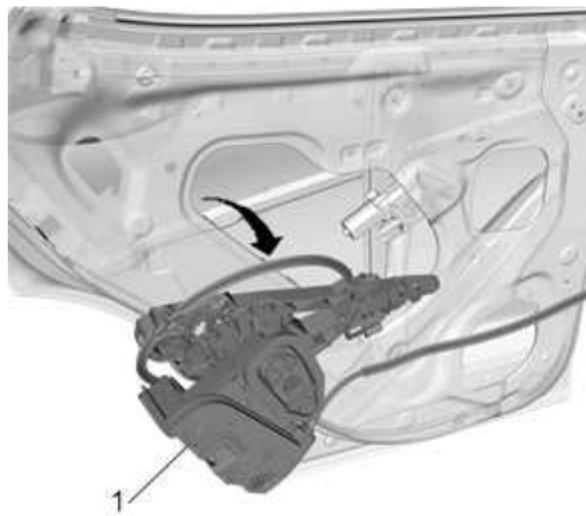


Fig. 42: Rear Side Door Latch
Courtesy of GENERAL MOTORS COMPANY

3. Install the rear side door latch with rear side door outside handle bracket to the rear side door.

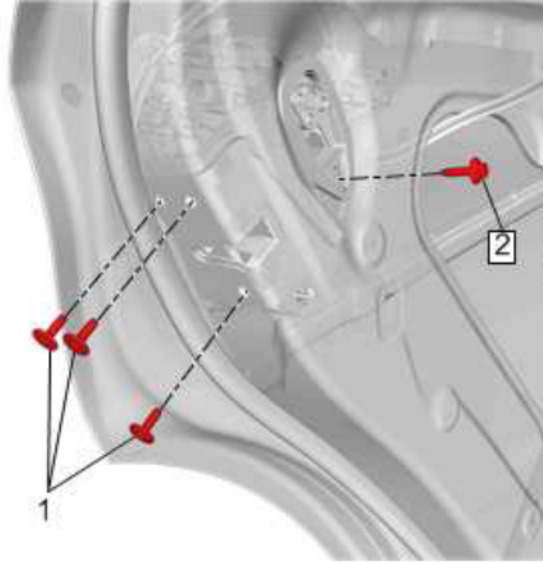


Fig. 43: Rear Side Door Latch Fastener

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Fastener Caution

4. Rear Side Door Latch Fastener (1) (Qty: 3) - Install and tighten to 9 N.m (80 lb in)
5. Rear Side Door Latch Fastener (2) - Install and tighten to N.m (80 lb in)

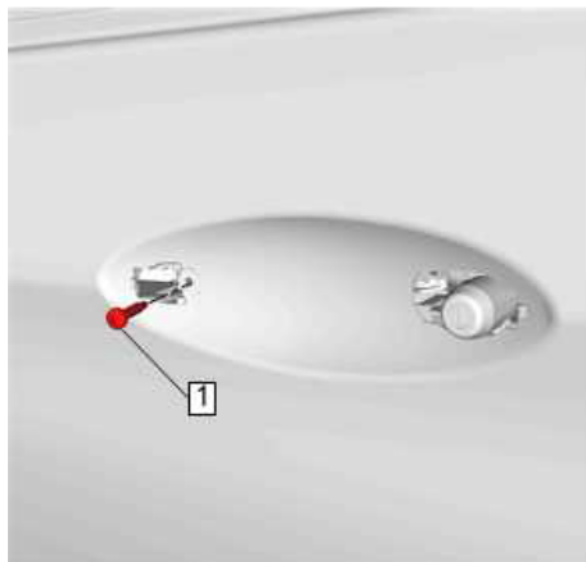


Fig. 44: Front Side Door Outside Handle Bracket Fastener

Courtesy of GENERAL MOTORS COMPANY

6. Rear Side Door Outside Handle Bracket Fastener - Install and tighten to 5 N.m (44 lb in)

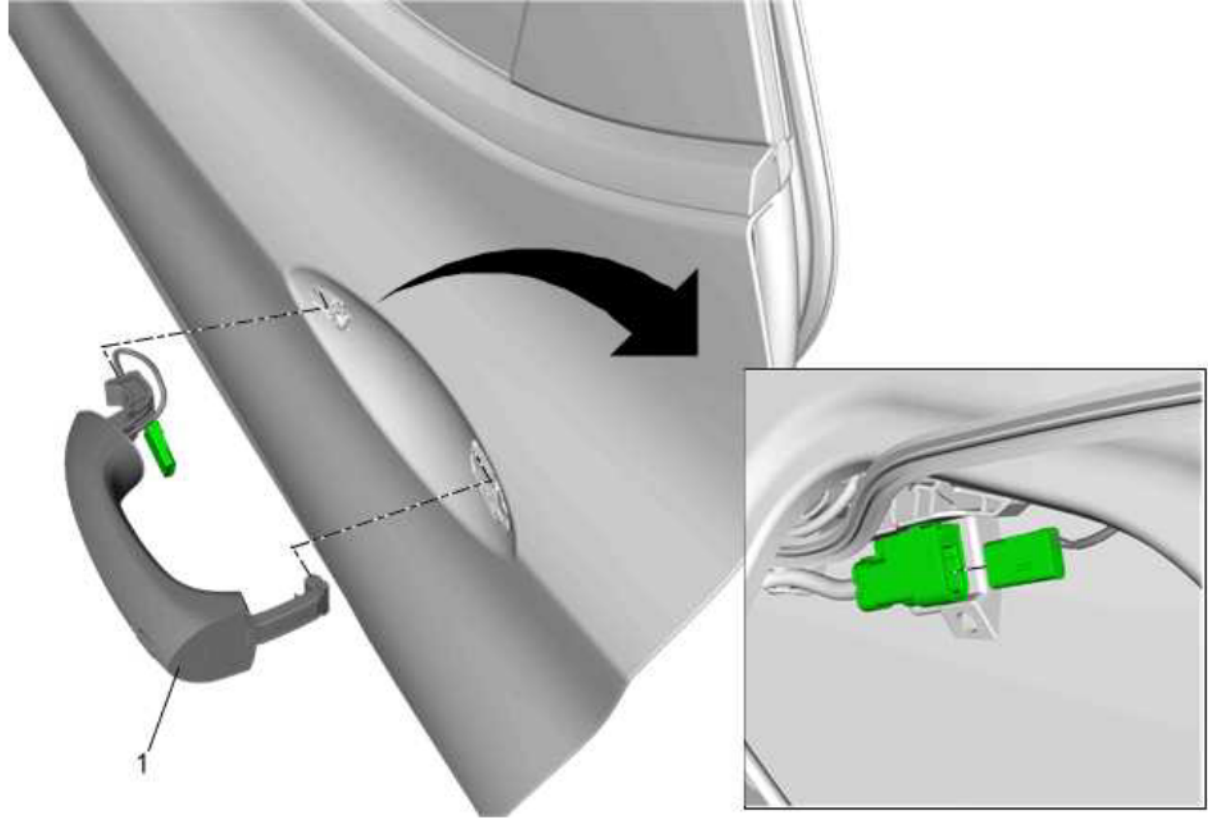


Fig. 45: Rear Side Door Outside Handle

Courtesy of GENERAL MOTORS COMPANY

7. Rear Side Door Outside Handle - Install - **Rear Side Door Outside Handle Replacement**

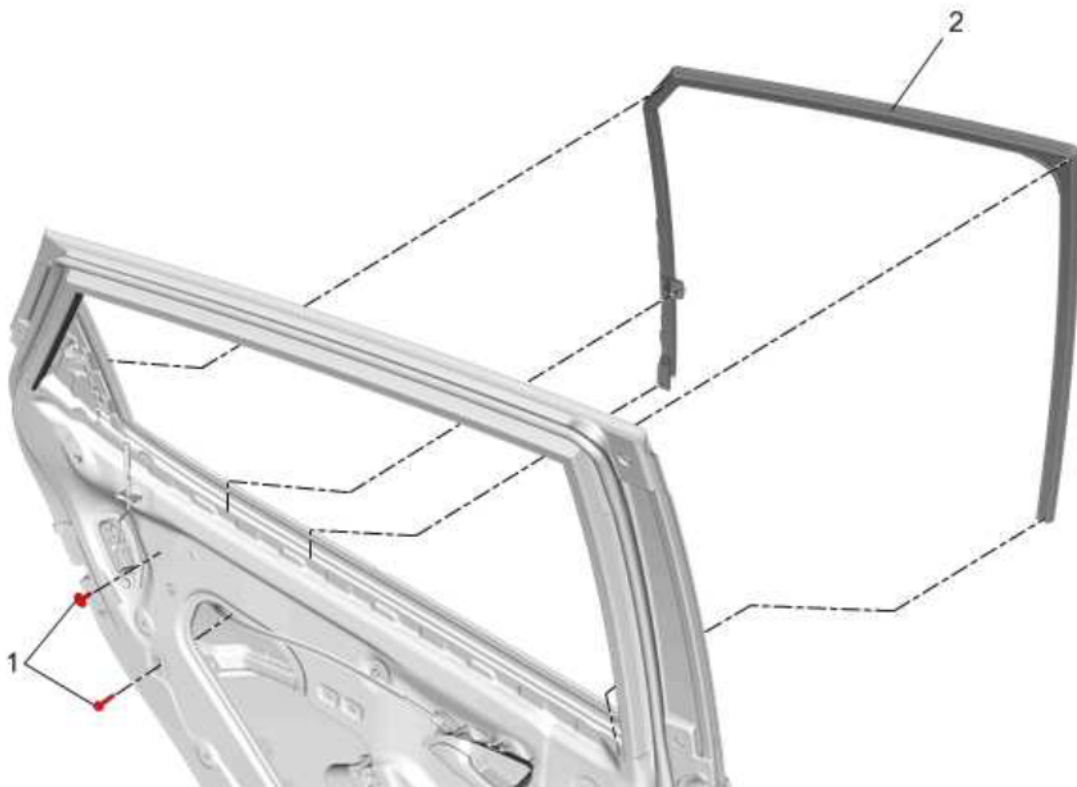


Fig. 46: Rear Side Door Window Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

8. Position channel and install the rear side door window channel rear retainer bolts. **Rear Side Door Window Weatherstrip Replacement**

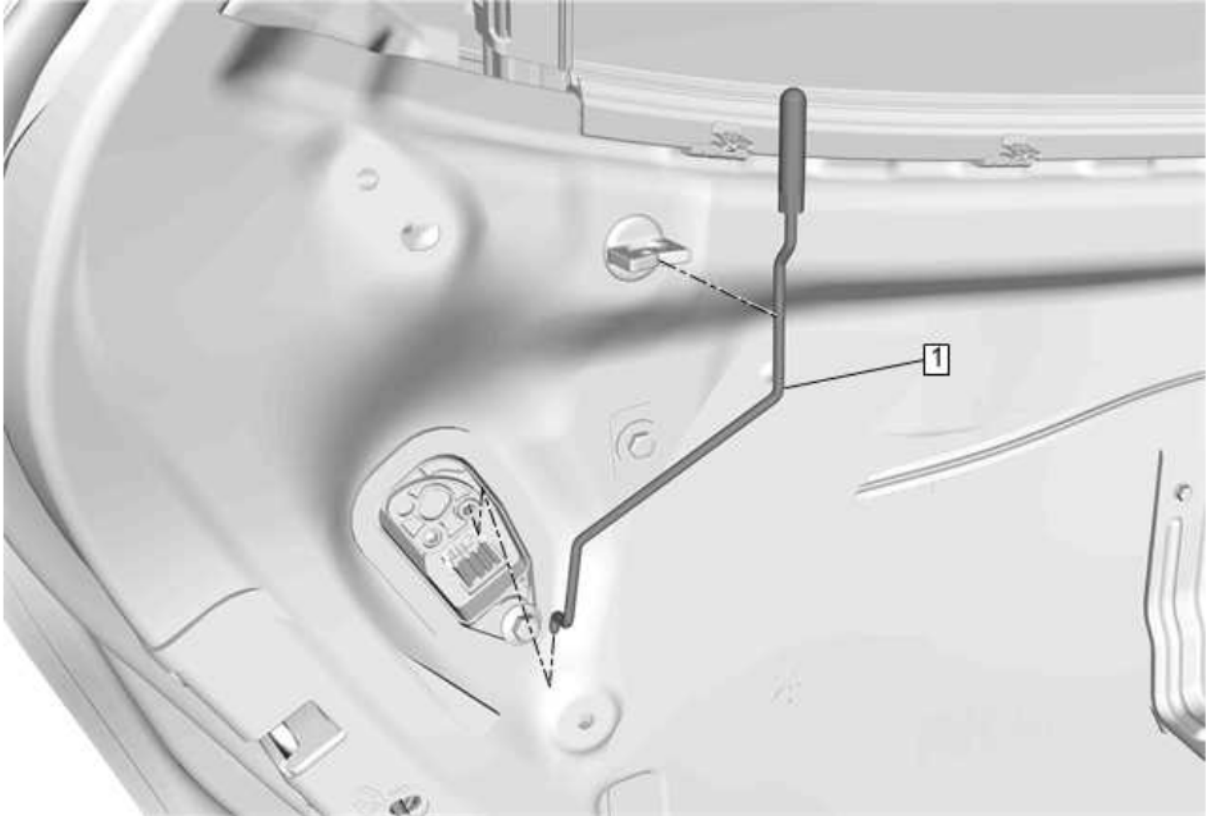


Fig. 47: Rear Side Door Locking Rod Knob

Courtesy of GENERAL MOTORS COMPANY

9. Rear Side Door Locking Rod Knob - Install - [**Rear Side Door Locking Rod Knob Replacement**](#)

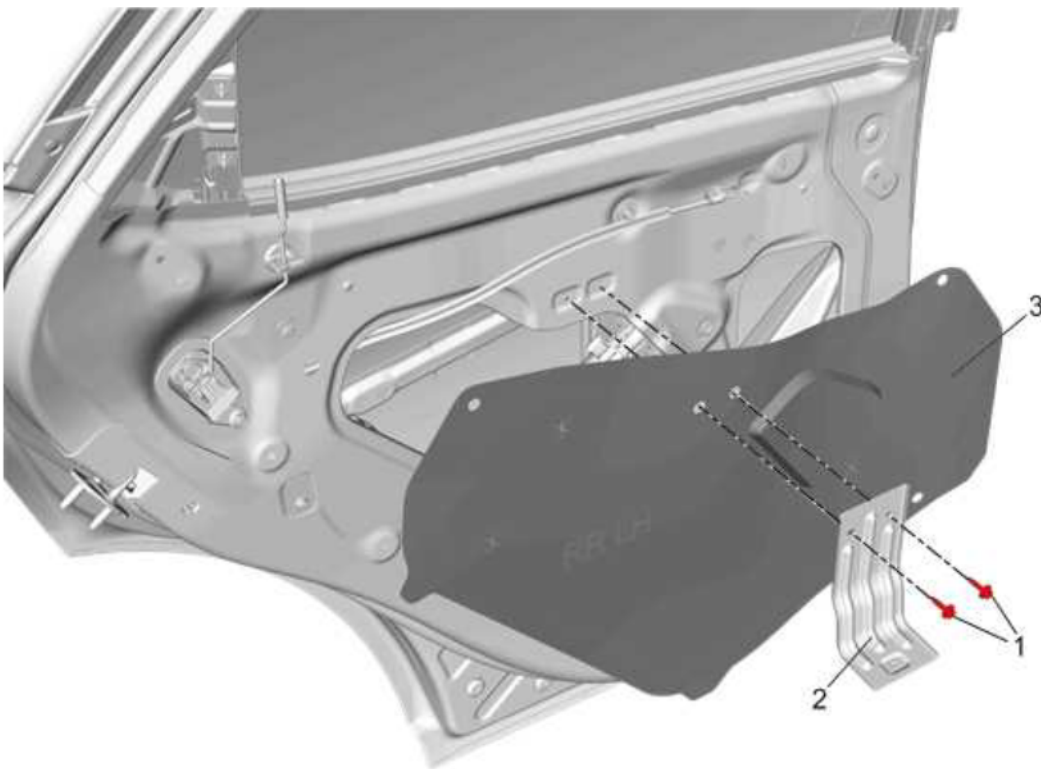


Fig. 48: Rear Side Door Water Deflector

Courtesy of GENERAL MOTORS COMPANY

10. Rear Side Door Water Deflector - Install - [**Rear Side Door Water Deflector Replacement**](#)

NOTE: Ensure that the door lock system operates properly before installing the trim.

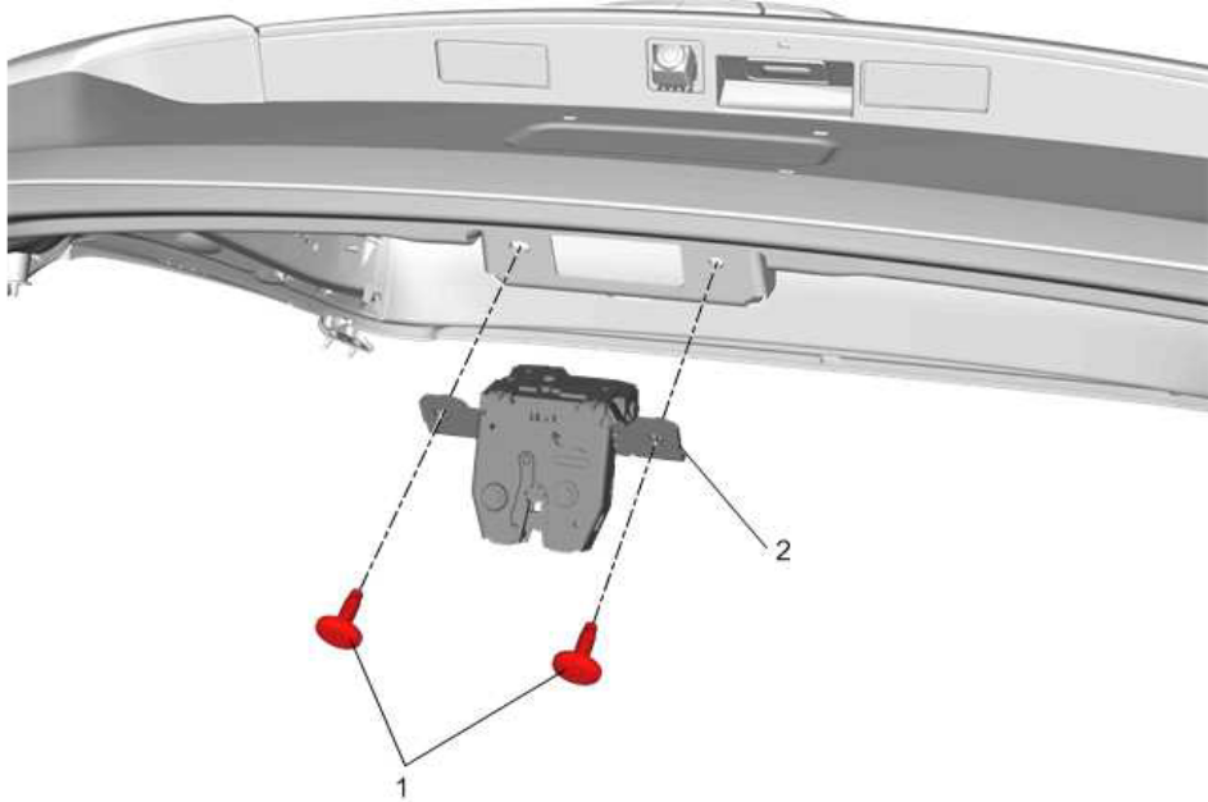


Fig. 49: Liftgate Latch

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
<u>Liftgate Lower Trim Finish Panel Replacement</u>	
1	Liftgate Latch Bolt CAUTION: <u>Fastener Caution</u> Tighten 22 N.m (16 lb ft)
2	Liftgate Latch Procedure Disconnect the electrical connector.

REAR SIDE DOOR OUTSIDE HANDLE REPLACEMENT

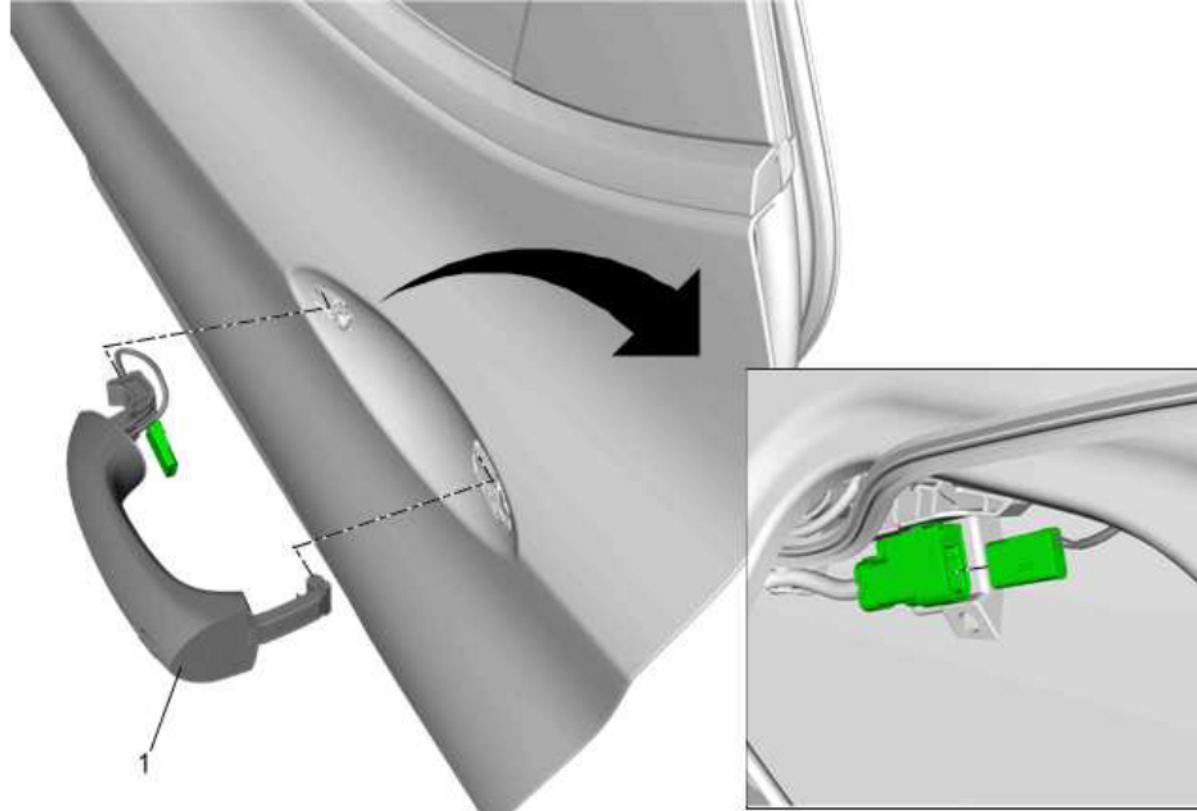


Fig. 50: Rear Side Door Outside Handle
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures <u>Rear Side Door Water Deflector Replacement</u> <u>Rear Side Door Lock Cylinder Opening Cover Replacement</u>	
1	Rear Side Door Outside Handle Procedure 1. Disconnect the electrical connector. 2. Pull the outside handle rearward to release it from the handle housing. NOTE: Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR OUTSIDE HANDLE CABLE REPLACEMENT

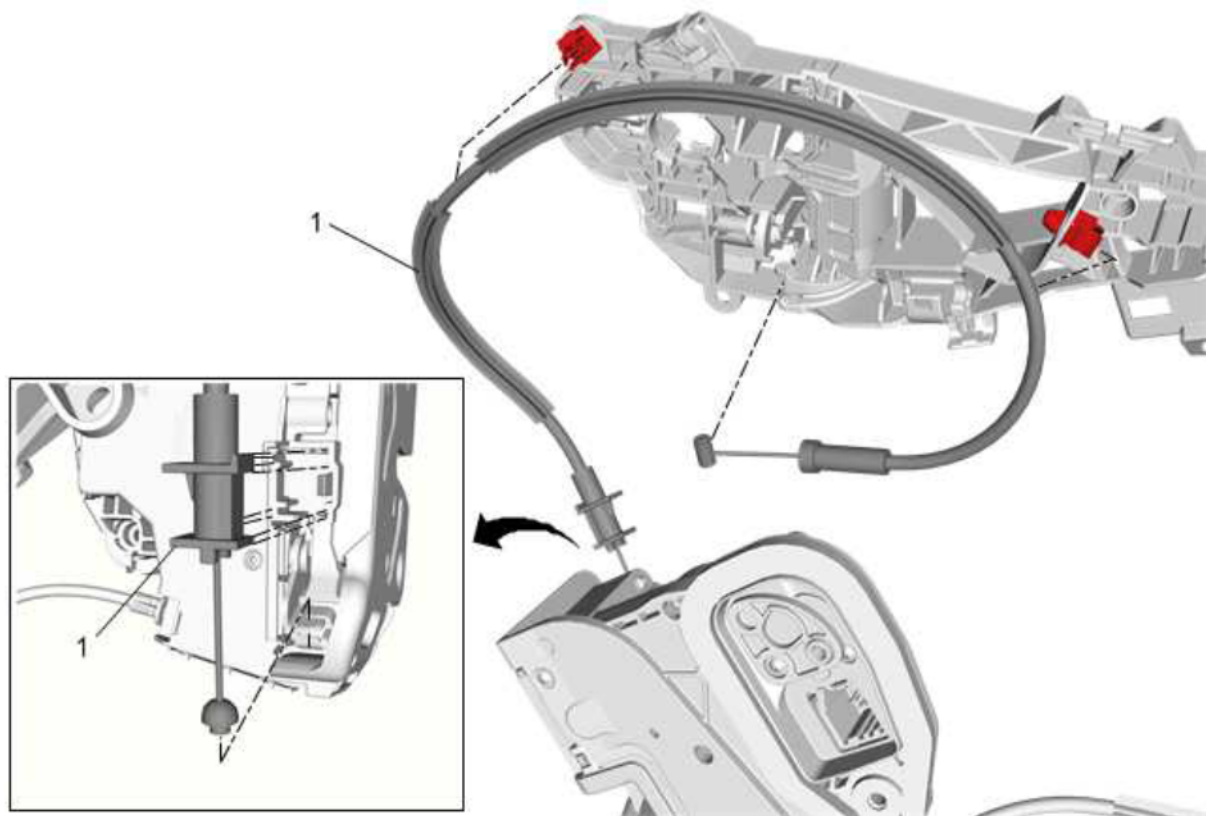


Fig. 51: Rear Side Door Outside Handle Cable
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
<u>Rear Side Door Latch Replacement</u>	
1	Rear Side Door Outside Handle Cable
	Procedure
	1. Rear Side Door Outside Handle Cable at Retainer - Remove 2. Release the cable from the back of the latch assembly 3. Rear Side Door Outside Handle Cable at Rear Side Door Outside Handle Bracket - Remove NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR LATCH REPLACEMENT

Removal Procedure

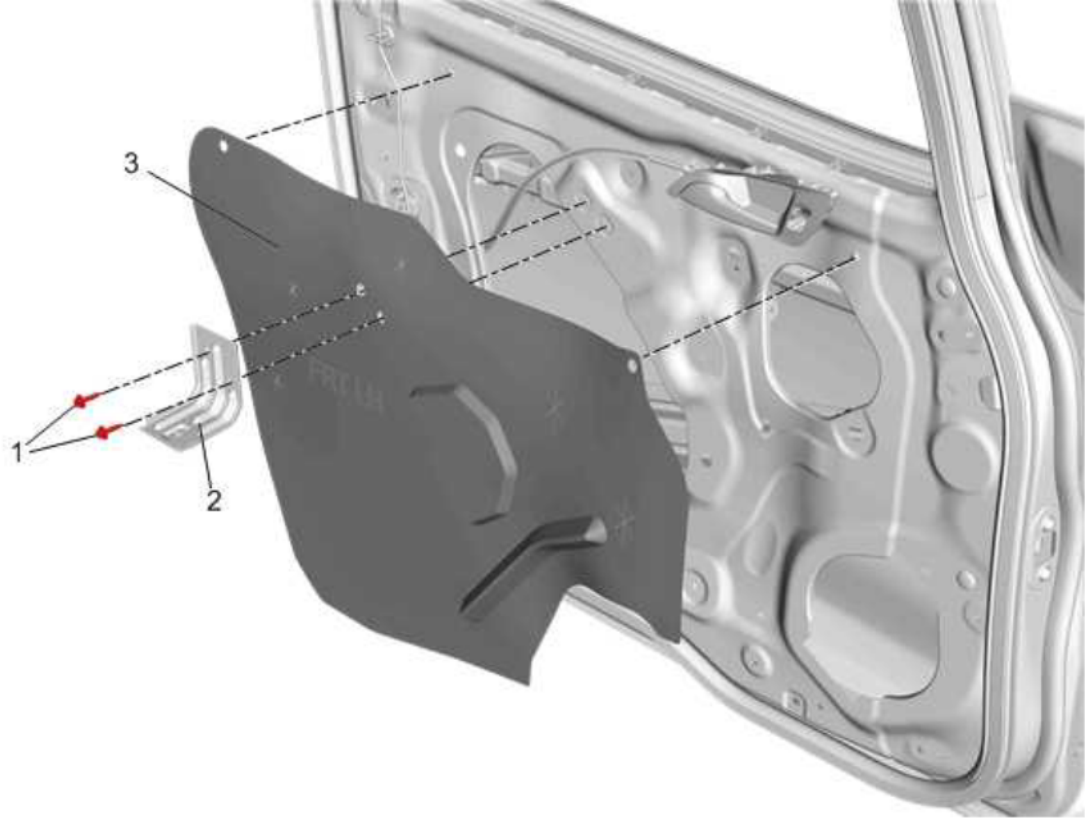


Fig. 52: Front Side Door Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Water Deflector - Remove - [**Front Side Door Water Deflector Replacement**](#)

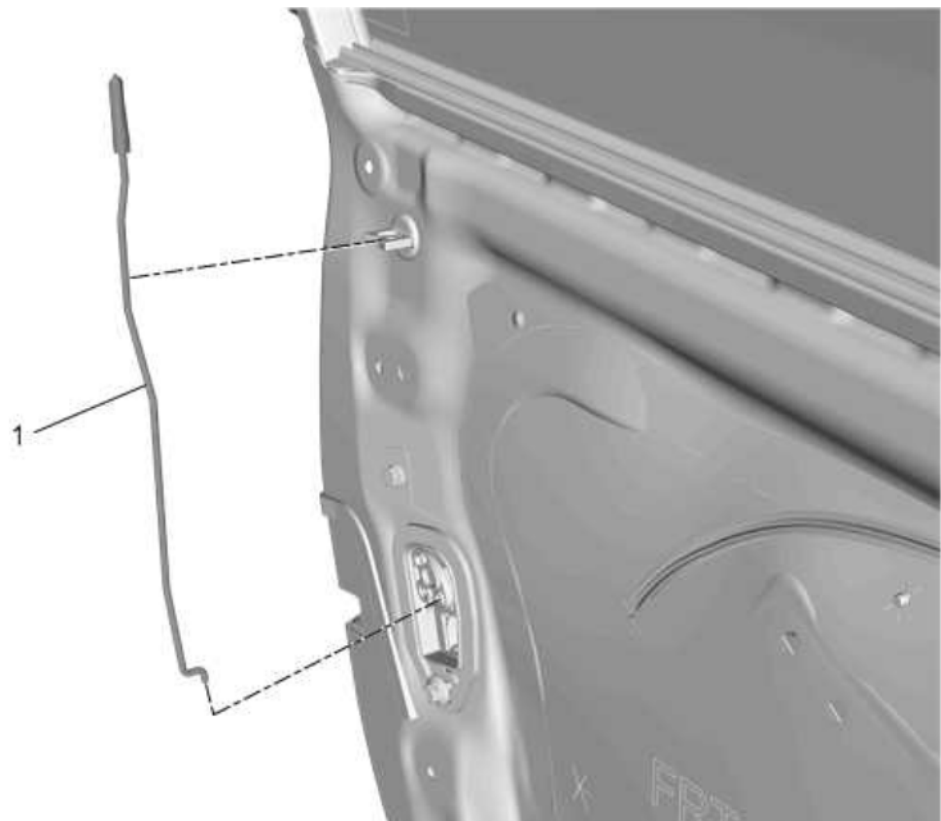


Fig. 53: Front Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

2. Front Side Door Locking Rod Knob - Remove - [**Front Side Door Locking Rod Knob Replacement**](#)

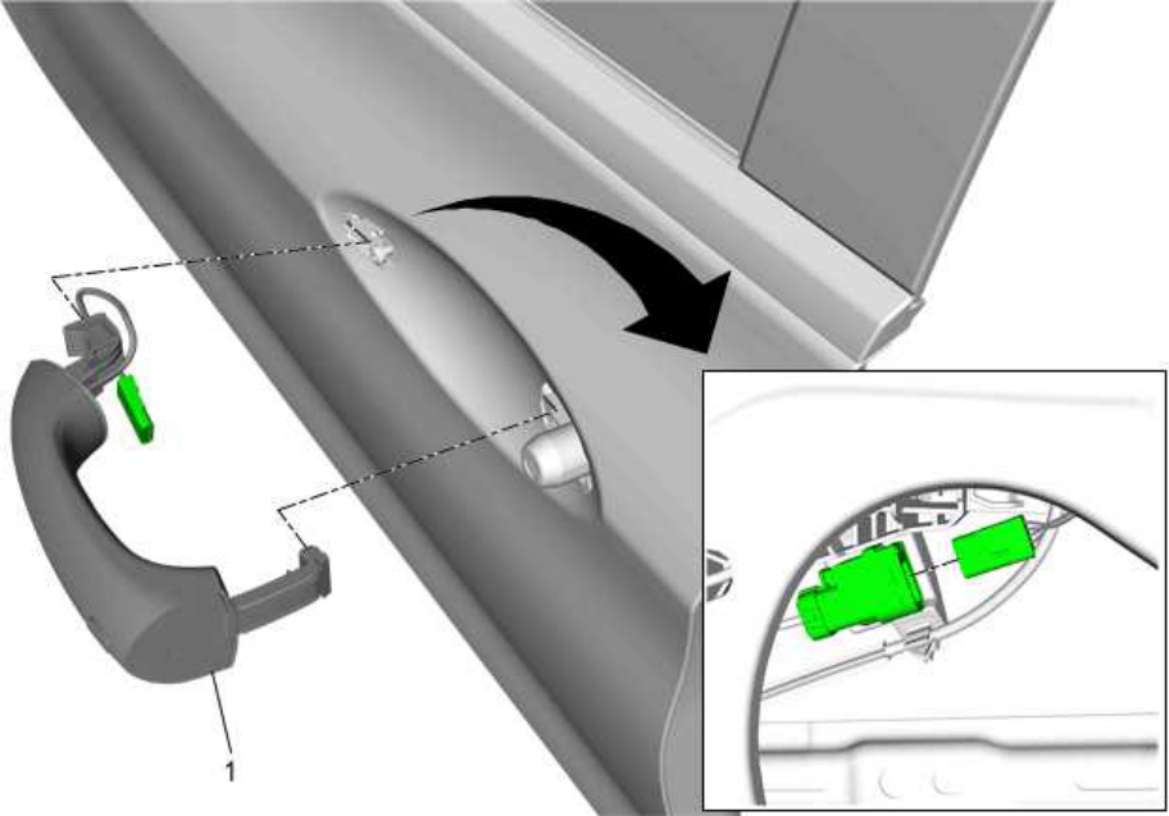


Fig. 54: Front Side Door Outside Handle

Courtesy of GENERAL MOTORS COMPANY

3. Front Side Door Outside Handle - Remove - **Front Side Door Outside Handle Replacement**

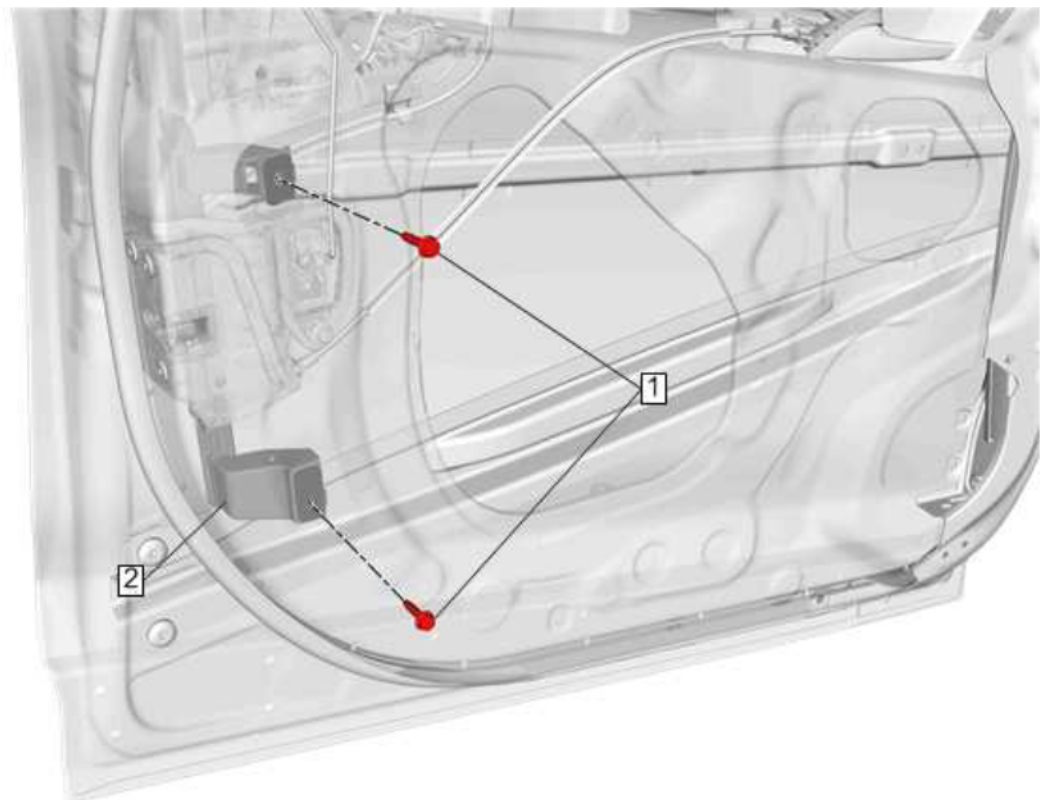


Fig. 55: Front Side Door Window Channel Retainer

Courtesy of GENERAL MOTORS COMPANY

4. Front Side Door Window Channel Retainer - Remove - **Front Side Door Window Channel Retainer Replacement**

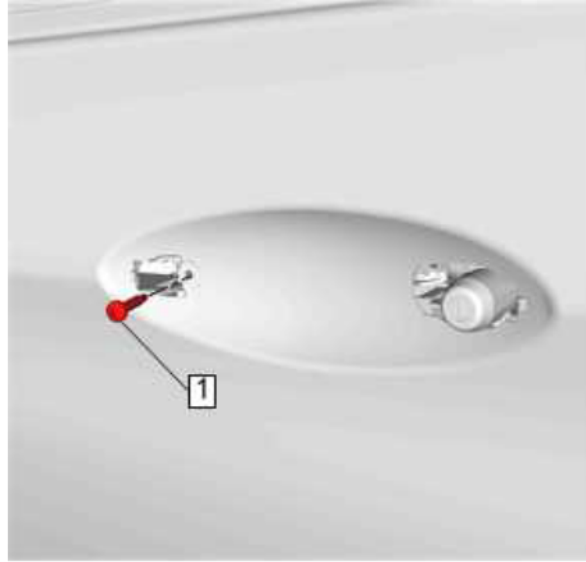


Fig. 56: Front Side Door Outside Handle Bracket Fastener
Courtesy of GENERAL MOTORS COMPANY

5. Front Side Door Outside Handle Bracket Fastener - Remove

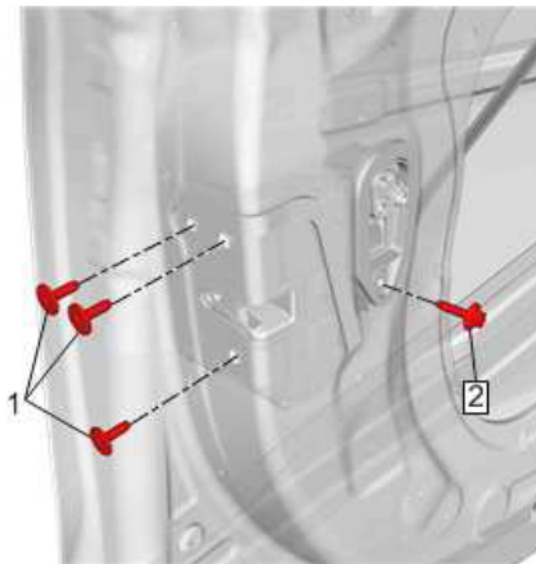


Fig. 57: Front Side Door Latch Fastener
Courtesy of GENERAL MOTORS COMPANY

6. Front Side Door Latch Fastener (1) (Qty: 3) - Remove

7. Front Side Door Latch Fastener (2) - Remove

8. Unclip and disconnect the electrical connector from the bracket and latch assemblies.

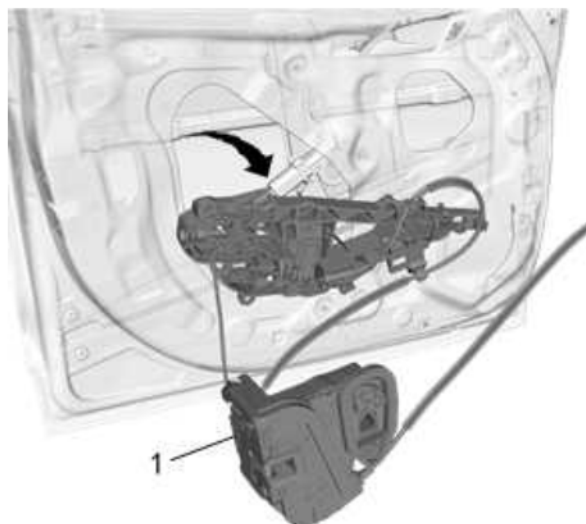


Fig. 58: Front Side Door Outside Handle Bracket
Courtesy of GENERAL MOTORS COMPANY

9. Remove the front side door latch with front side door outside handle bracket (1) from front side door.

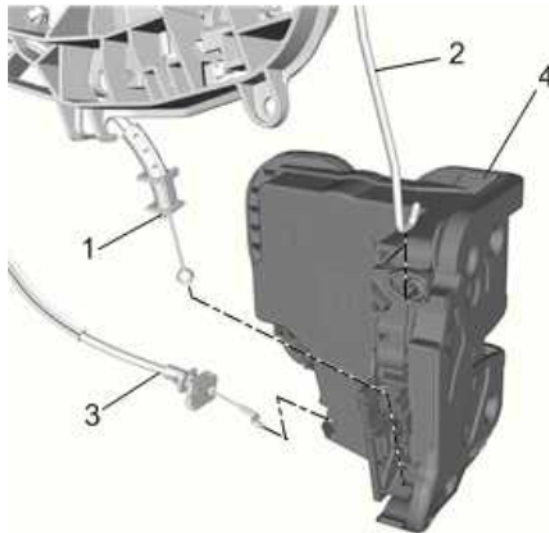


Fig. 59: Front Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

10. Front Side Door Outside Handle Cable (1) at Front Side Door Latch (4) - Remove - **Front Side Door Outside Handle Cable Replacement**
11. { If equipped } Front Side Door Lock Cylinder Rod (2) at Front Side Door Latch (4) - Remove - **Front Side Door Lock Cylinder Rod Replacement**
12. Front Side Door Inside Handle Cable (3) at Front Side Door Latch (4) - Remove - **Front Side Door Inside Handle Cable Replacement**

Installation Procedure

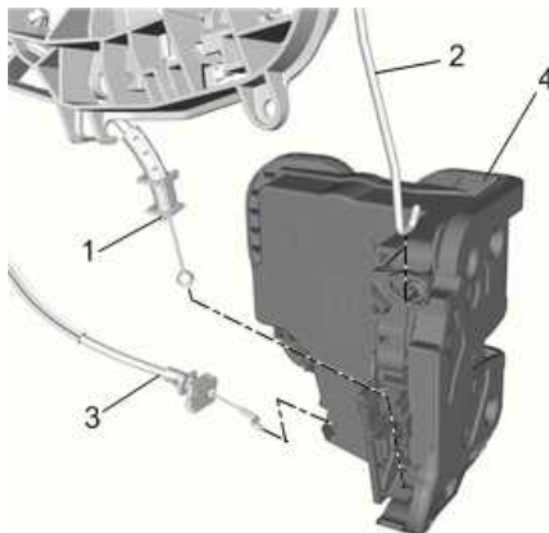


Fig. 60: Front Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

1. Front Side Door Outside Handle Cable (1) at Front Side Door Latch (4) - Install - **Front Side Door Outside Handle Cable Replacement**
2. { If equipped } Front Side Door Lock Cylinder Rod (2) at Front Side Door Latch (4) - Install - **Front Side Door Lock Cylinder Rod Replacement**
3. Front Side Door Inside Handle Cable (3) at Front Side Door Latch (4) - Install - **Front Side Door Inside Handle Cable Replacement**

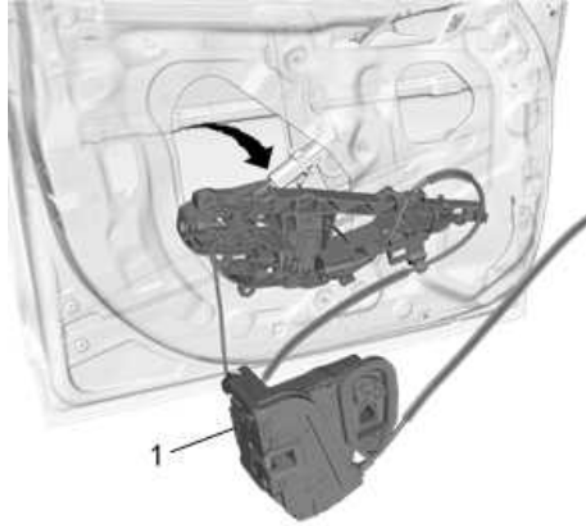


Fig. 61: Front Side Door Outside Handle Bracket
 Courtesy of GENERAL MOTORS COMPANY

4. Install the front side door latch with front side door outside handle bracket to the front side door.
5. Connect and clip the electrical connector in place.

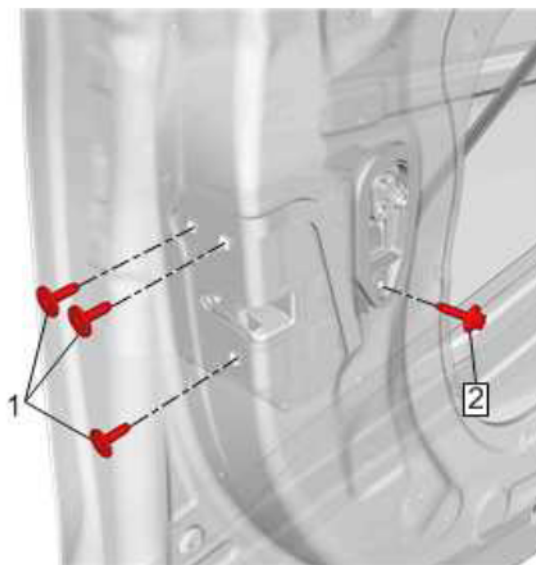


Fig. 62: Front Side Door Latch Fastener
 Courtesy of GENERAL MOTORS COMPANY

CAUTION: Fastener Caution

6. Front Side Door Latch Fastener (1) (Qty: 3) - Install and tighten to 9 N.m (80 lb in)
7. Front Side Door Latch Fastener (2) - Install and tighten to 9 N.m (80 lb in)

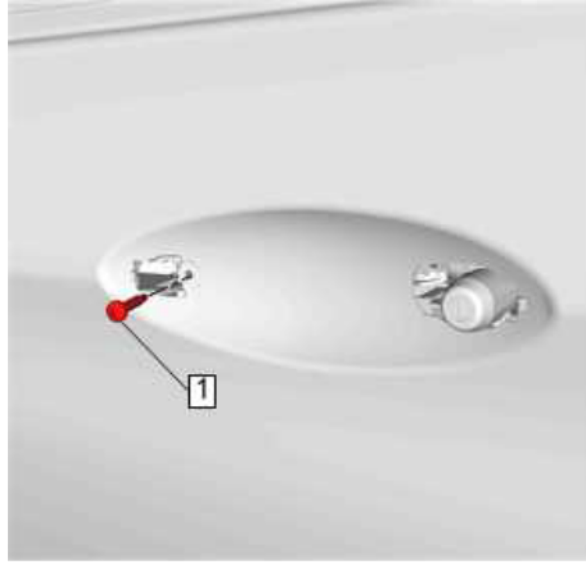


Fig. 63: Front Side Door Outside Handle Bracket Fastener
 Courtesy of GENERAL MOTORS COMPANY

8. Front Side Door Outside Handle Bracket Fastener (1) - Install and tighten to 5 N.m (44 lb in)

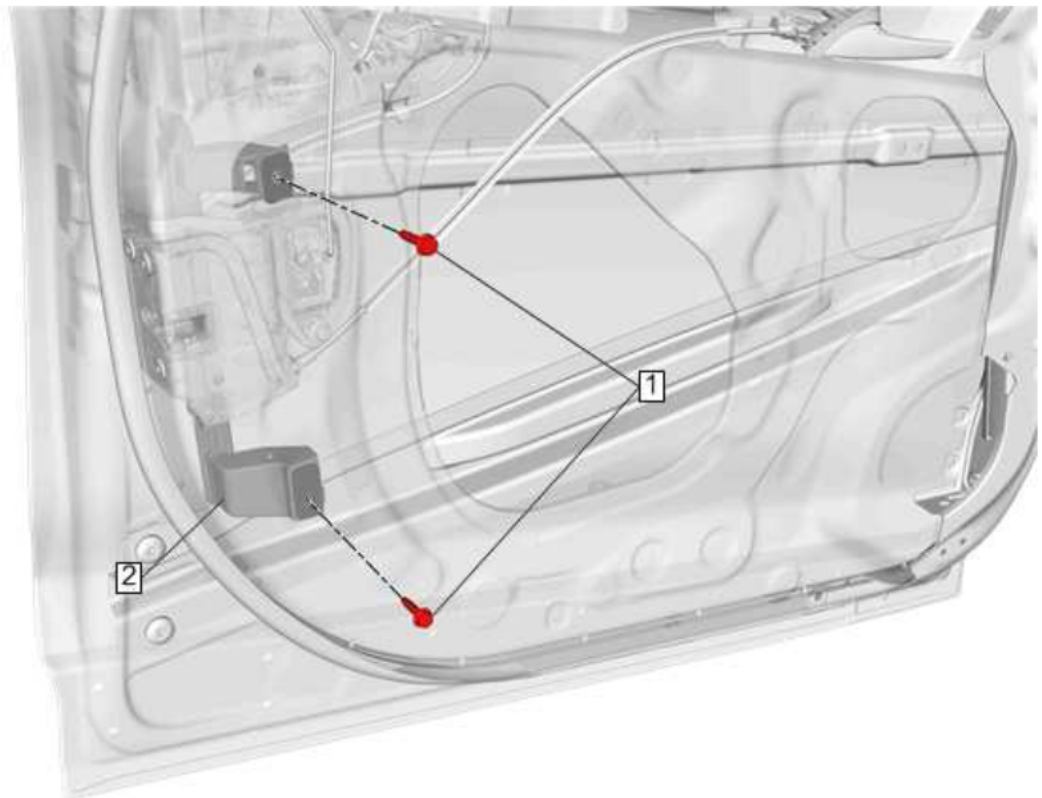


Fig. 64: Front Side Door Window Channel Retainer
 Courtesy of GENERAL MOTORS COMPANY

9. Front Side Door Window Channel Retainer - Install - **Front Side Door Window Channel Retainer Replacement**

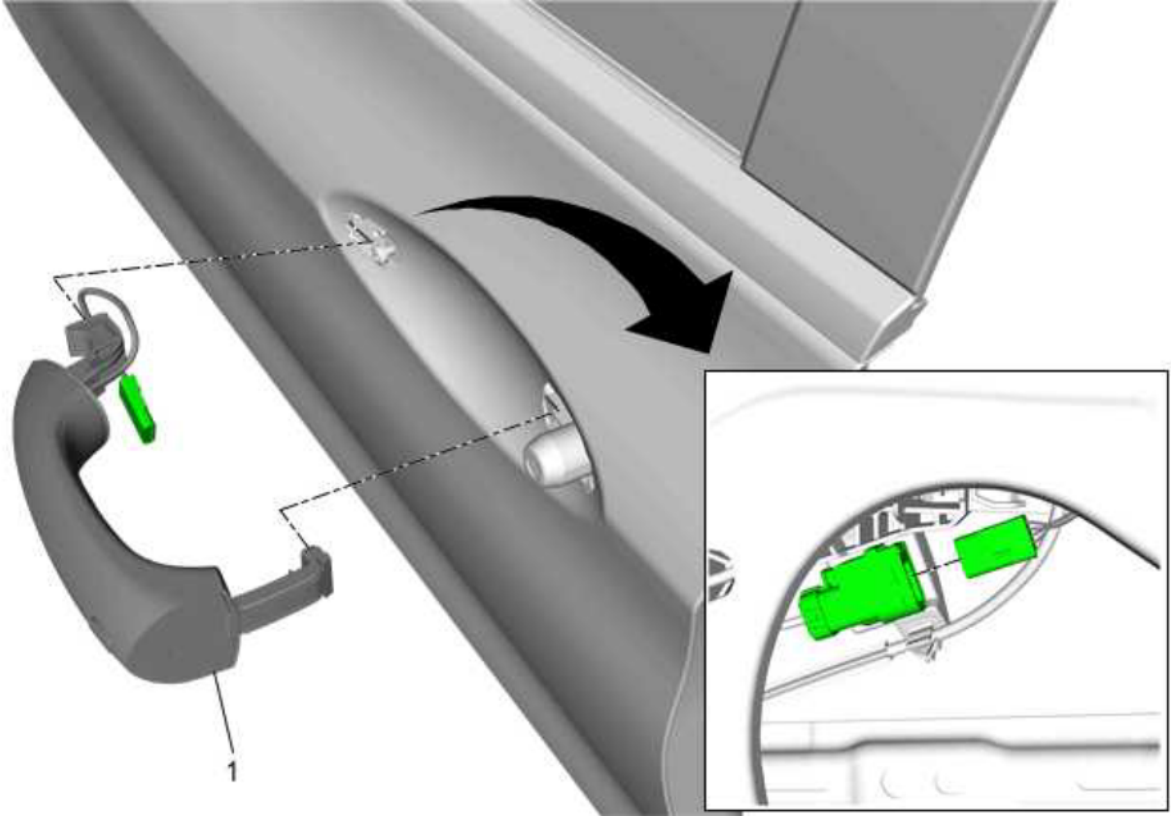


Fig. 65: Front Side Door Outside Handle
 Courtesy of GENERAL MOTORS COMPANY

10. Front Side Door Outside Handle - Install - **Front Side Door Outside Handle Replacement**

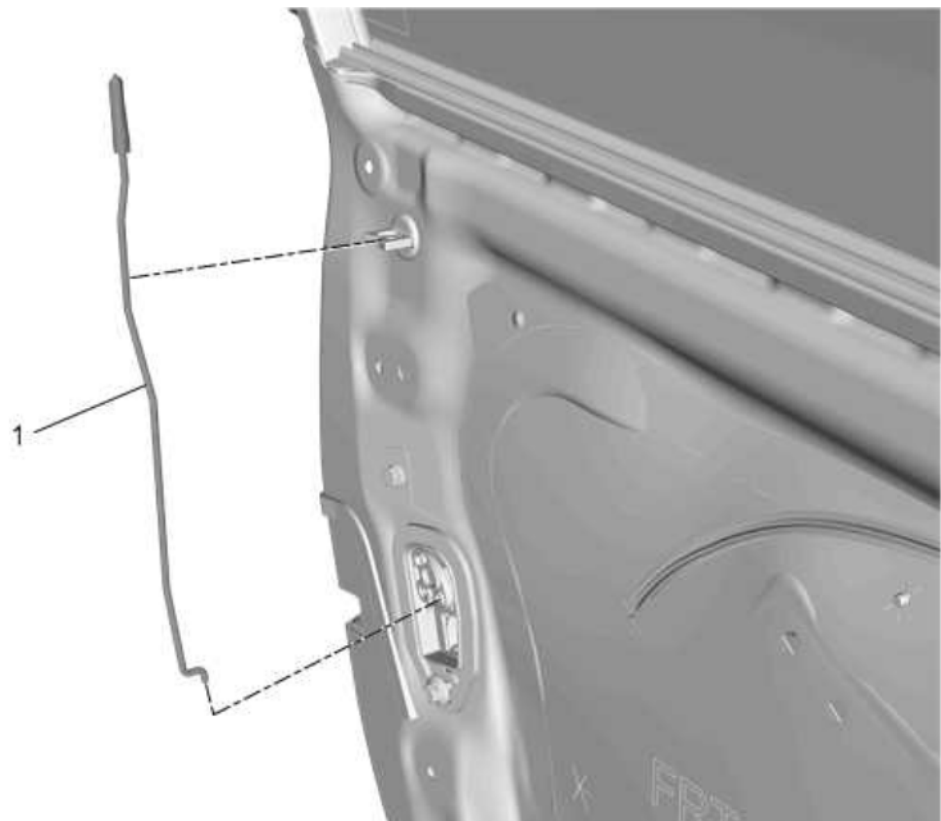


Fig. 66: Front Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

11. Front Side Door Locking Rod Knob - Install - **Front Side Door Locking Rod Knob Replacement**

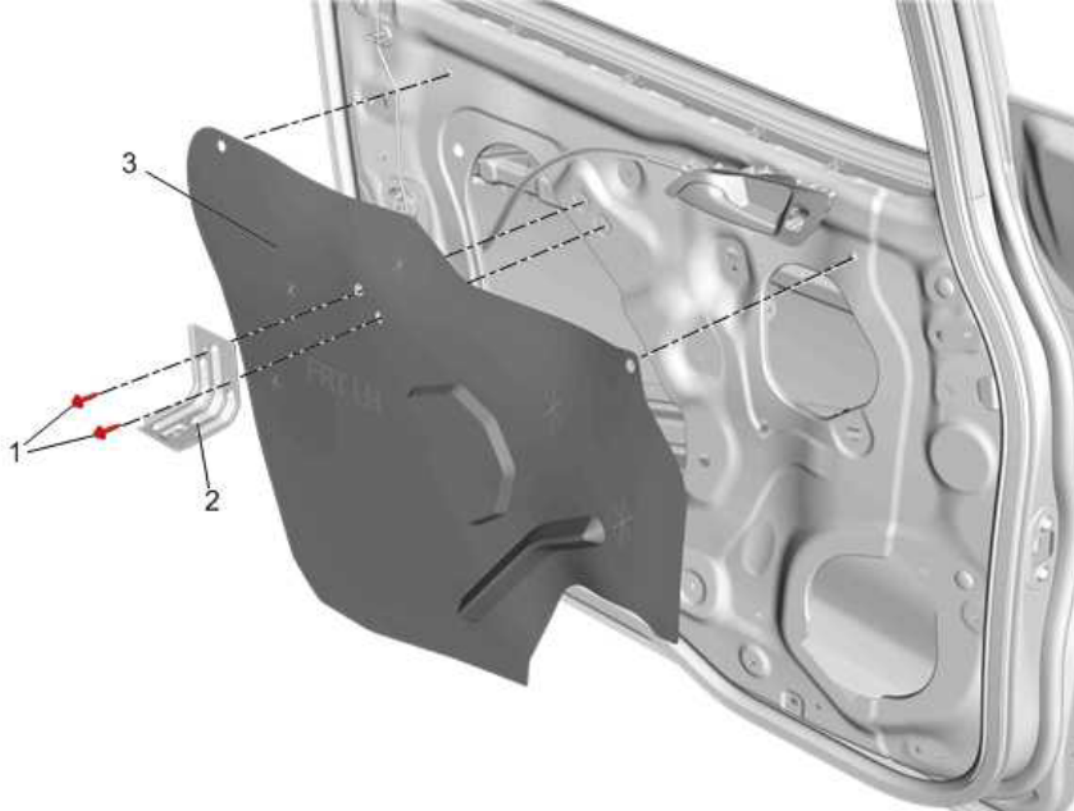


Fig. 67: Front Side Door Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

12. Front Side Door Water Deflector - Install - **Front Side Door Water Deflector Replacement**

NOTE: Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR LATCH REPLACEMENT

Removal Procedure

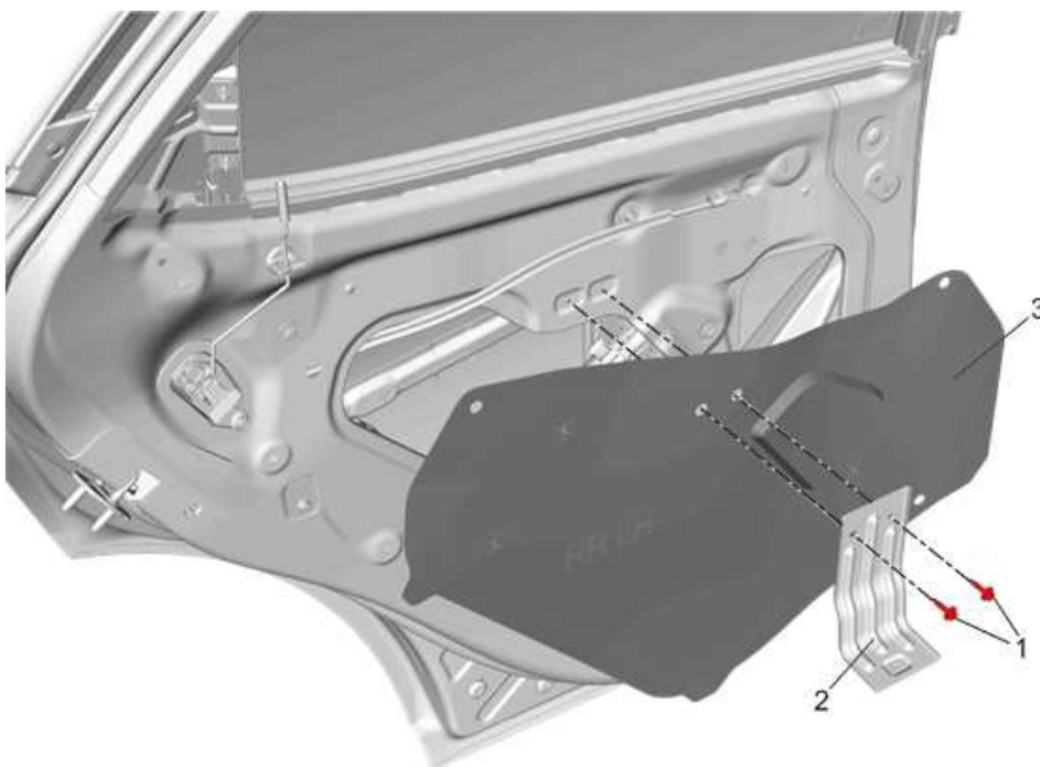


Fig. 68: Rear Side Door Water Deflector
 Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Water Deflector - Remove - [Rear Side Door Water Deflector Replacement](#)

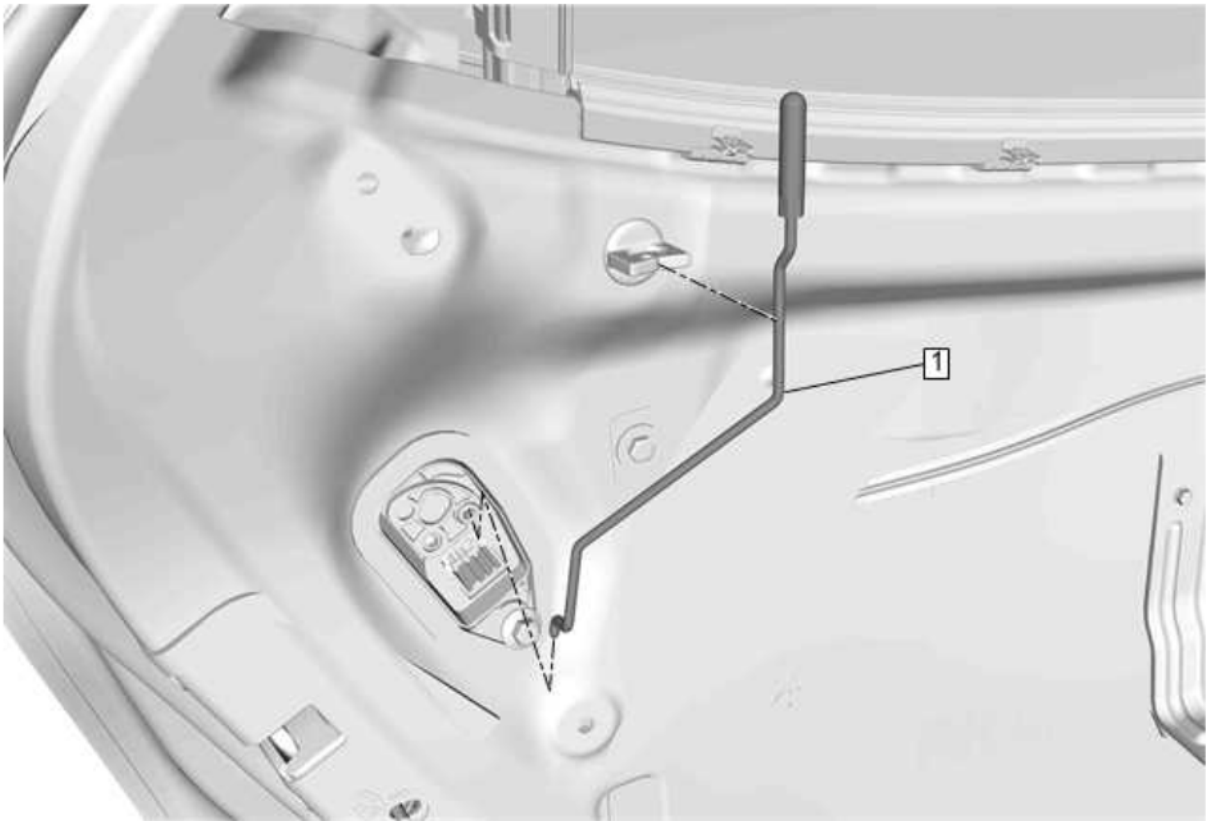


Fig. 69: Rear Side Door Locking Rod Knob

Courtesy of GENERAL MOTORS COMPANY

2. Rear Side Door Locking Rod Knob - Remove - [Rear Side Door Locking Rod Knob Replacement](#)

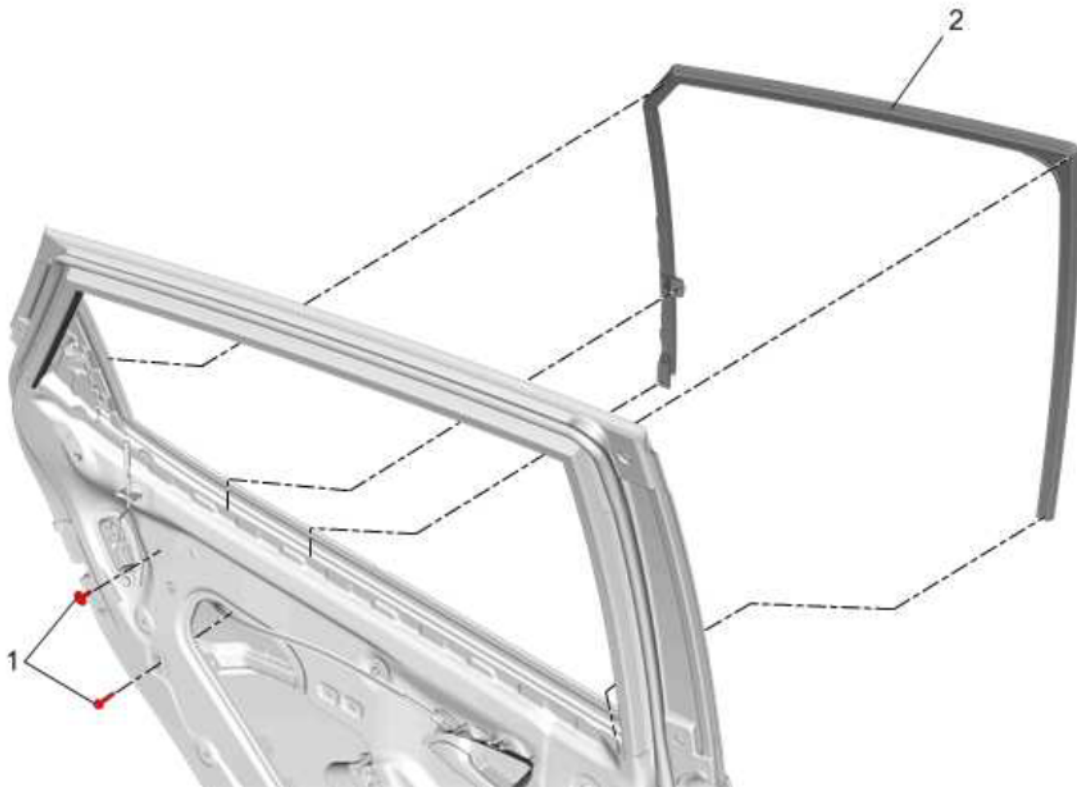


Fig. 70: Rear Side Door Window Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

3. Remove the rear side door window channel rear retainer bolts and reposition the channel as necessary. [Rear Side Door Window Weatherstrip Replacement](#)

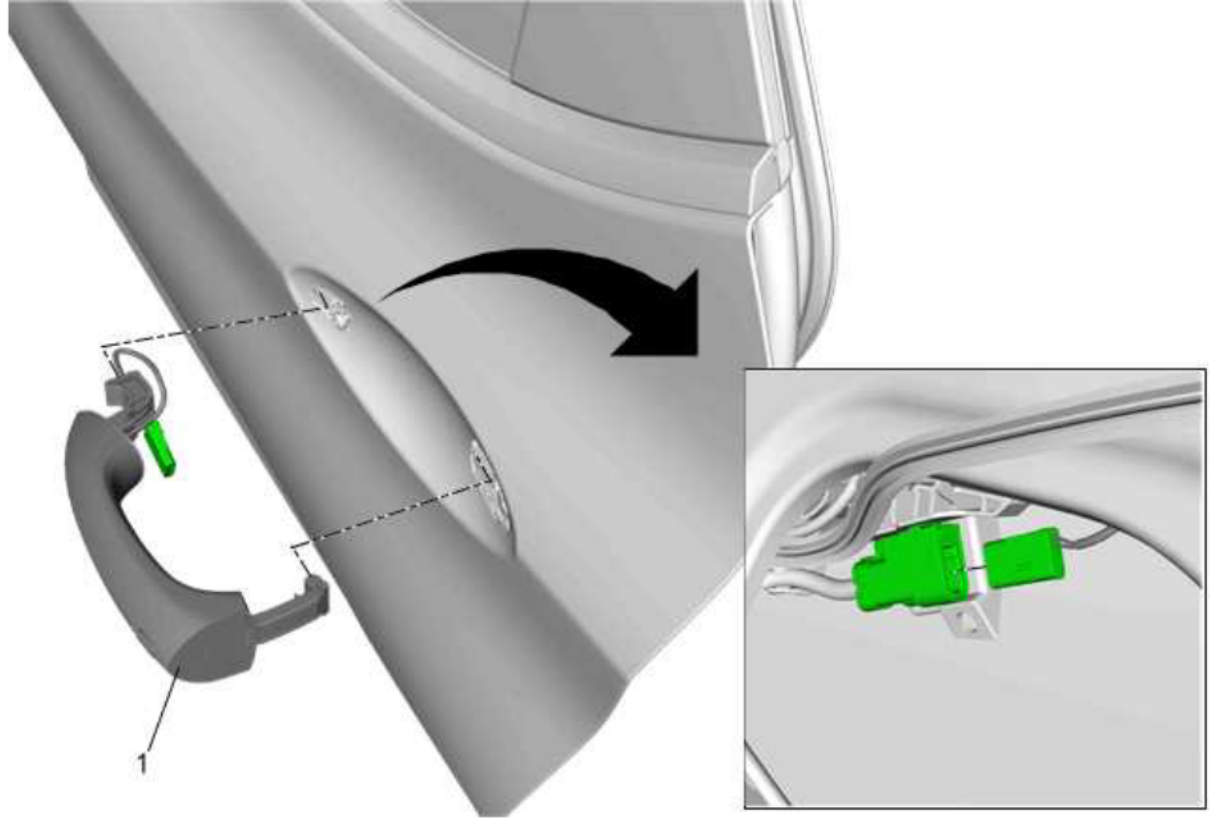


Fig. 71: Rear Side Door Outside Handle

Courtesy of GENERAL MOTORS COMPANY

4. Rear Side Door Outside Handle - Remove - **Rear Side Door Outside Handle Replacement**

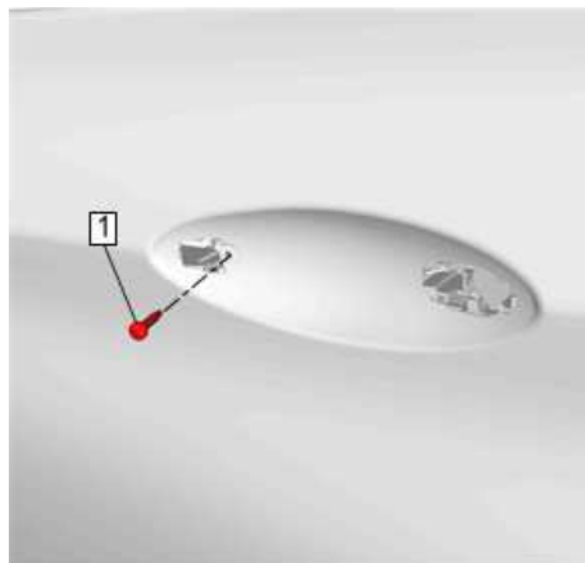


Fig. 72: Rear Side Door Outside Handle Bracket Fastener

Courtesy of GENERAL MOTORS COMPANY

5. Rear Side Door Outside Handle Bracket Fastener - Remove

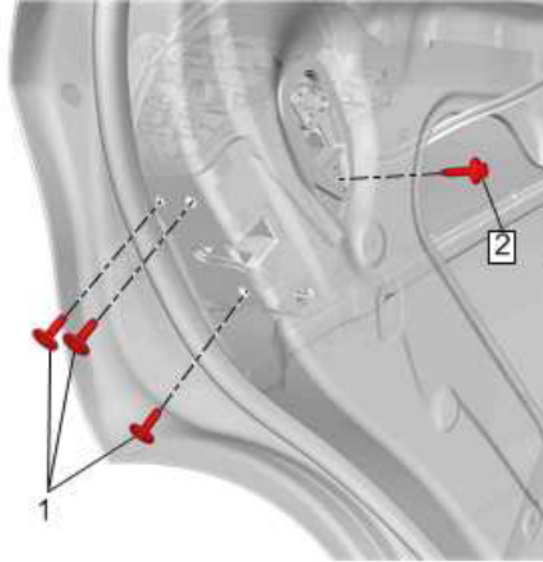


Fig. 73: Rear Side Door Latch Fastener

Courtesy of GENERAL MOTORS COMPANY

6. Rear Side Door Latch Fastener (1) (Qty: 3) - Remove
7. Rear Side Door Latch Fastener (2) - Remove
8. Disconnect and unclip the electrical connector.

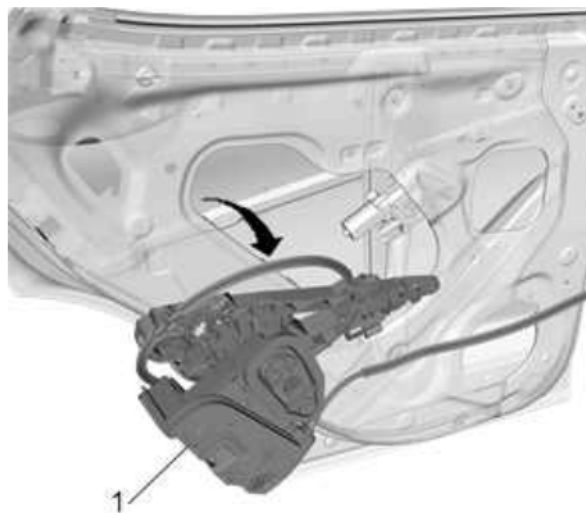


Fig. 74: Rear Side Door Outside Handle Bracket

Courtesy of GENERAL MOTORS COMPANY

9. Remove the rear side door latch with rear side door outside handle bracket (1) from rear side door.

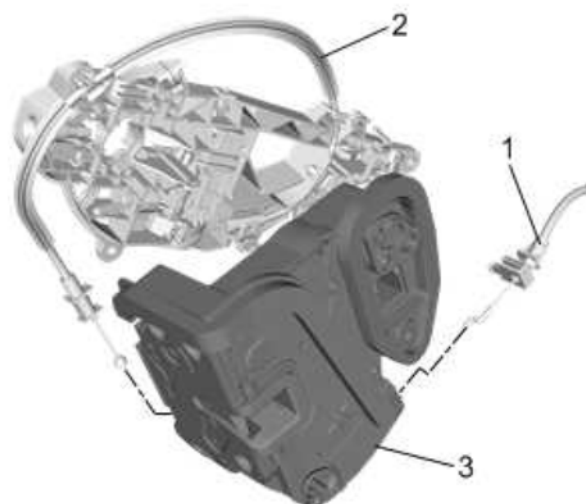


Fig. 75: Rear Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

10. Rear Side Door Outside Handle Cable (1) at Rear Side Door Latch (3) - Remove - [Rear Side Door Outside Handle Cable Replacement](#)
11. Rear Side Door Inside Handle Cable (2) at Rear Side Door Latch (3) - Remove - [Rear Side Door Inside Handle Cable Replacement](#)

Installation Procedure

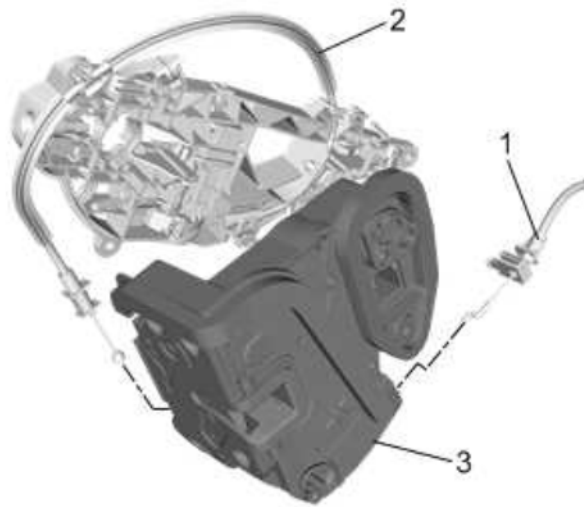


Fig. 76: Rear Side Door Outside Handle Cable
Courtesy of GENERAL MOTORS COMPANY

1. Rear Side Door Outside Handle Cable (1) at Rear Side Door Latch (3) - Install - [Rear Side Door Outside Handle Cable Replacement](#)
2. Rear Side Door Inside Handle Cable (2) at Rear Side Door Latch (3) - Install - [Rear Side Door Inside Handle Cable Replacement](#)
3. Connect and clip the electrical connector in place.

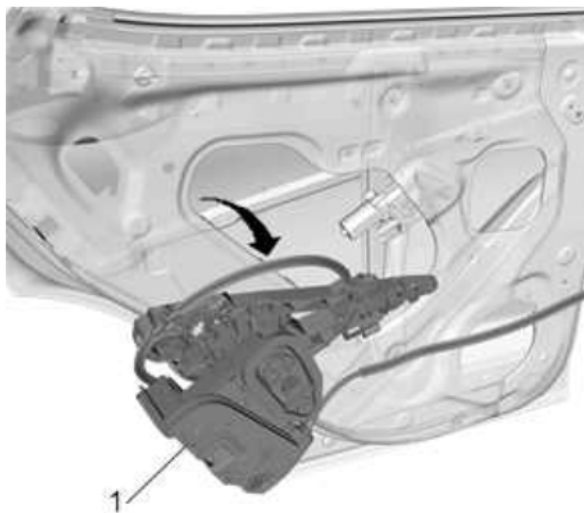


Fig. 77: Rear Side Door Outside Handle Bracket
Courtesy of GENERAL MOTORS COMPANY

4. Install the rear side door latch with rear side door outside handle bracket to the rear side door.

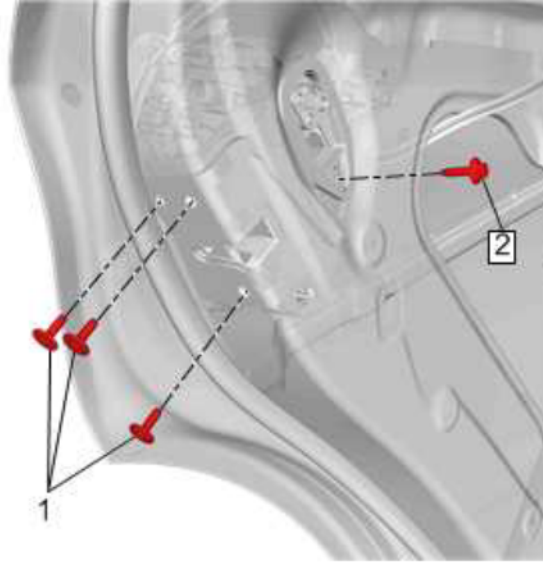


Fig. 78: Rear Side Door Latch Fastener

Courtesy of GENERAL MOTORS COMPANY

CAUTION: Fastener Caution

5. Rear Side Door Latch Fastener (1) (Qty: 3) - Install and tighten to 9 N.m (80 lb in)
6. Rear Side Door Latch Fastener (2) - Install and tighten to 9 N.m (80 lb in)

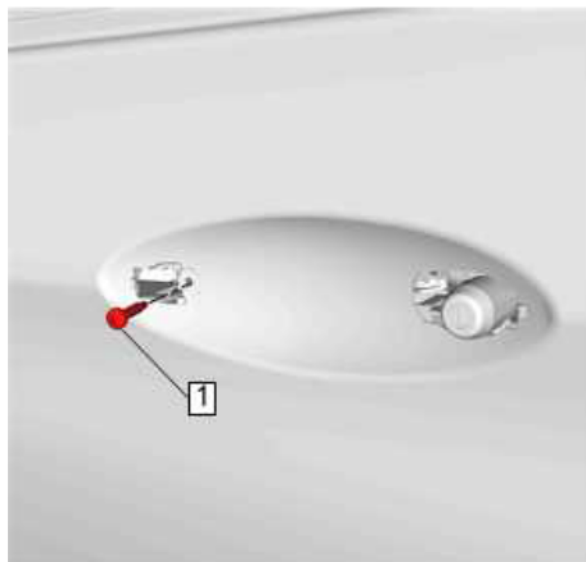


Fig. 79: Front Side Door Outside Handle Bracket Fastener

Courtesy of GENERAL MOTORS COMPANY

7. Rear Side Door Outside Handle Bracket Fastener (1) - Install and tighten to 5 N.m (44 lb in)

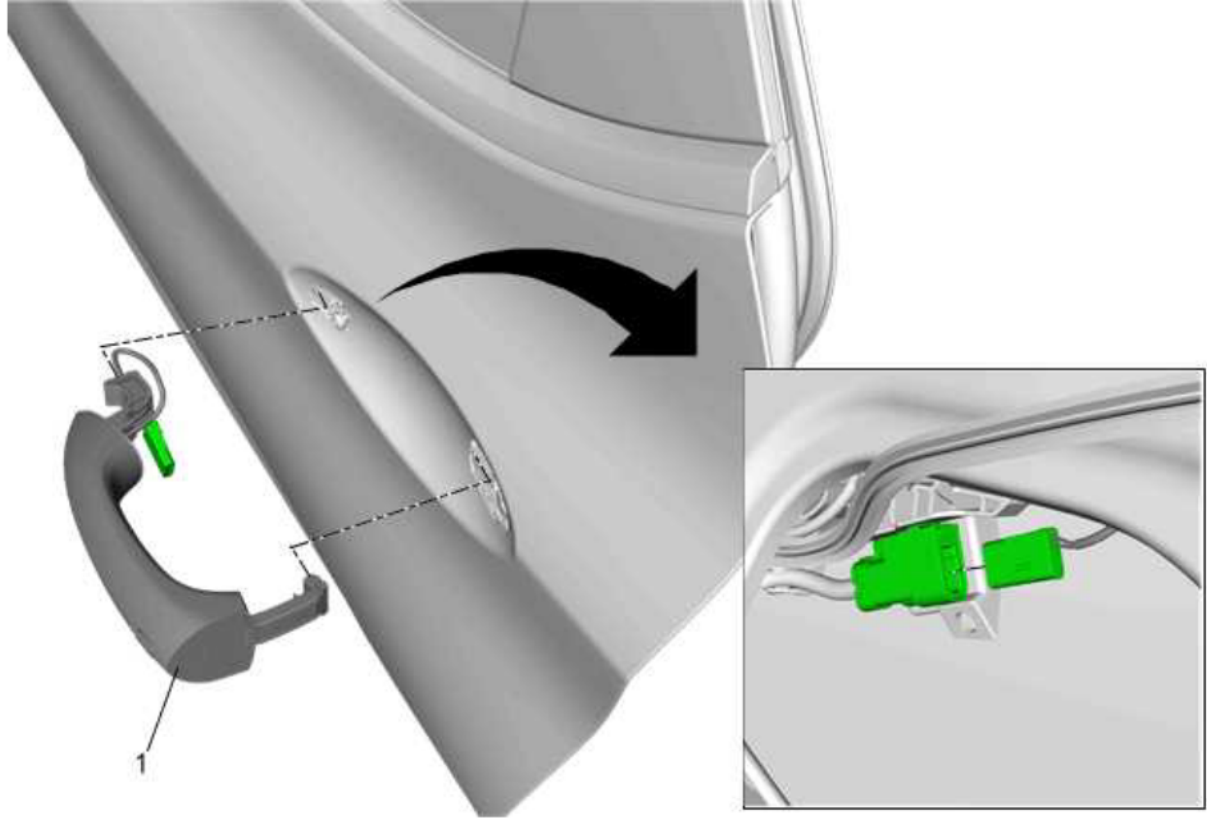


Fig. 80: Rear Side Door Outside Handle

Courtesy of GENERAL MOTORS COMPANY

8. Rear Side Door Outside Handle - Install - [Rear Side Door Outside Handle Replacement](#)

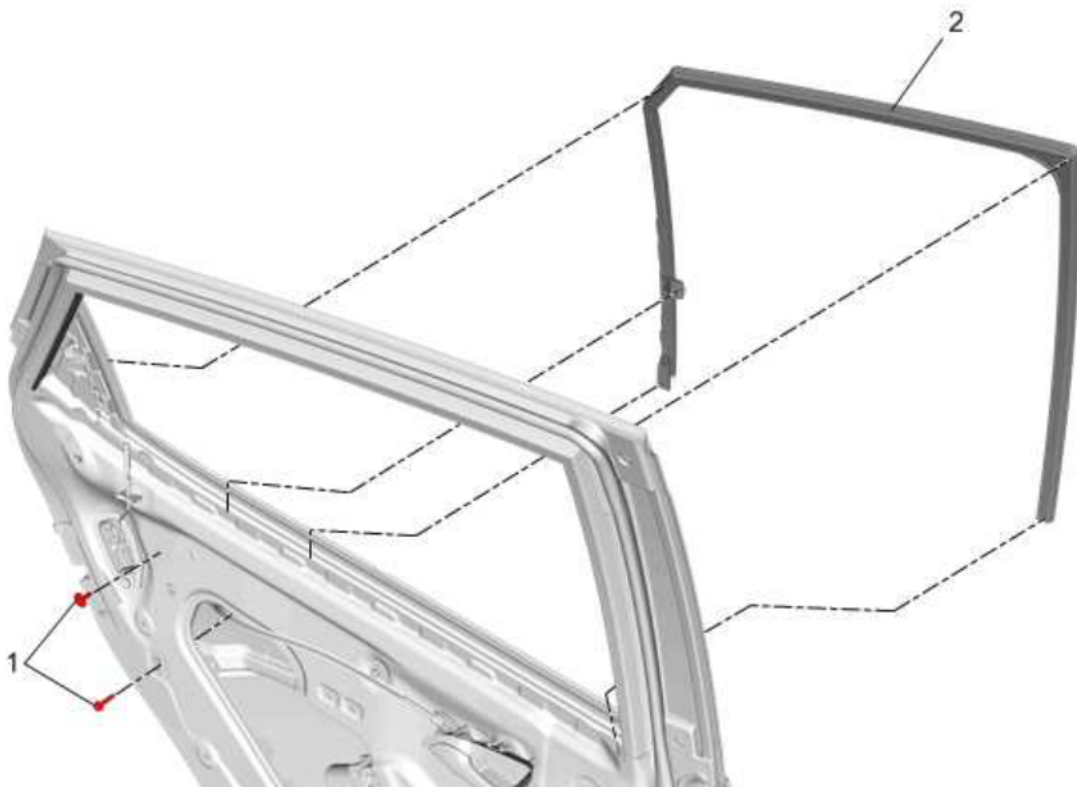


Fig. 81: Rear Side Door Window Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

9. Position channel and install the rear side door window channel rear retainer bolts. [Rear Side Door Window Weatherstrip Replacement](#)

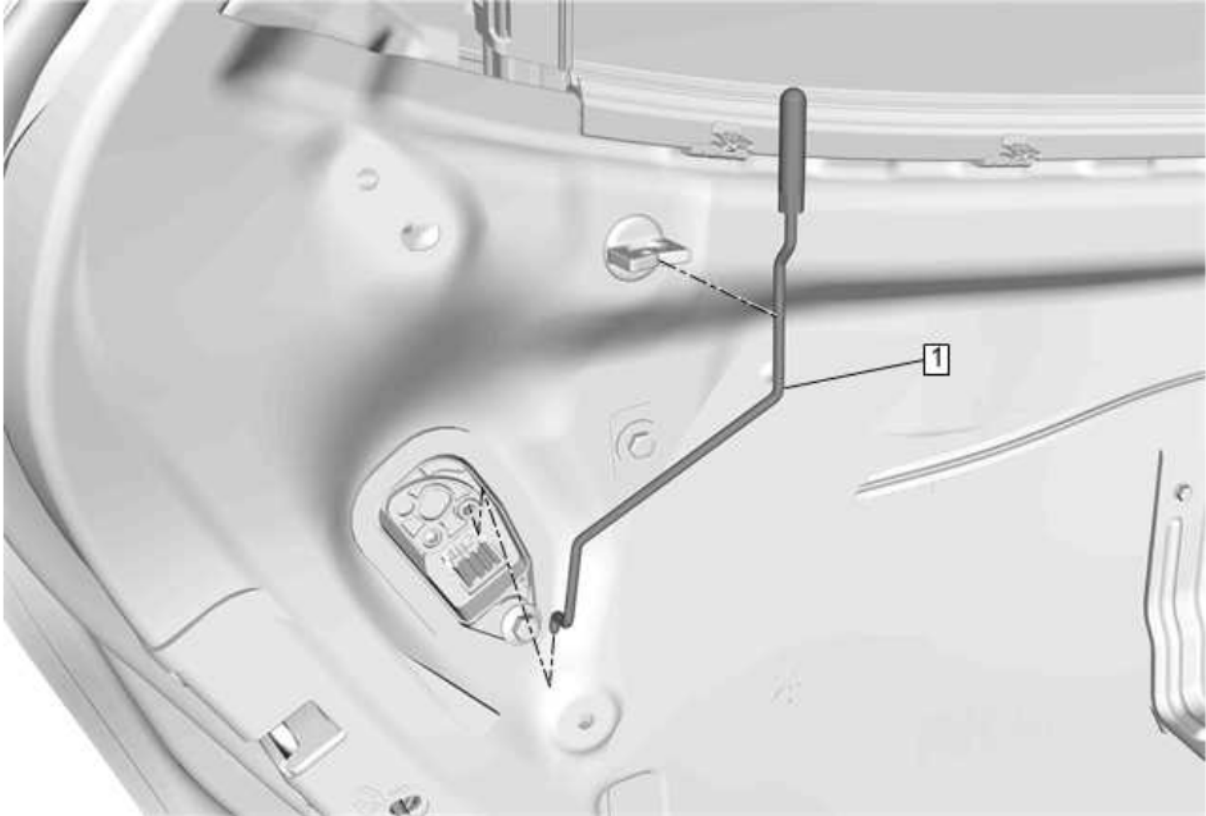


Fig. 82: Rear Side Door Locking Rod Knob

Courtesy of GENERAL MOTORS COMPANY

10. Rear Side Door Locking Rod Knob - Install - [**Rear Side Door Locking Rod Knob Replacement**](#)

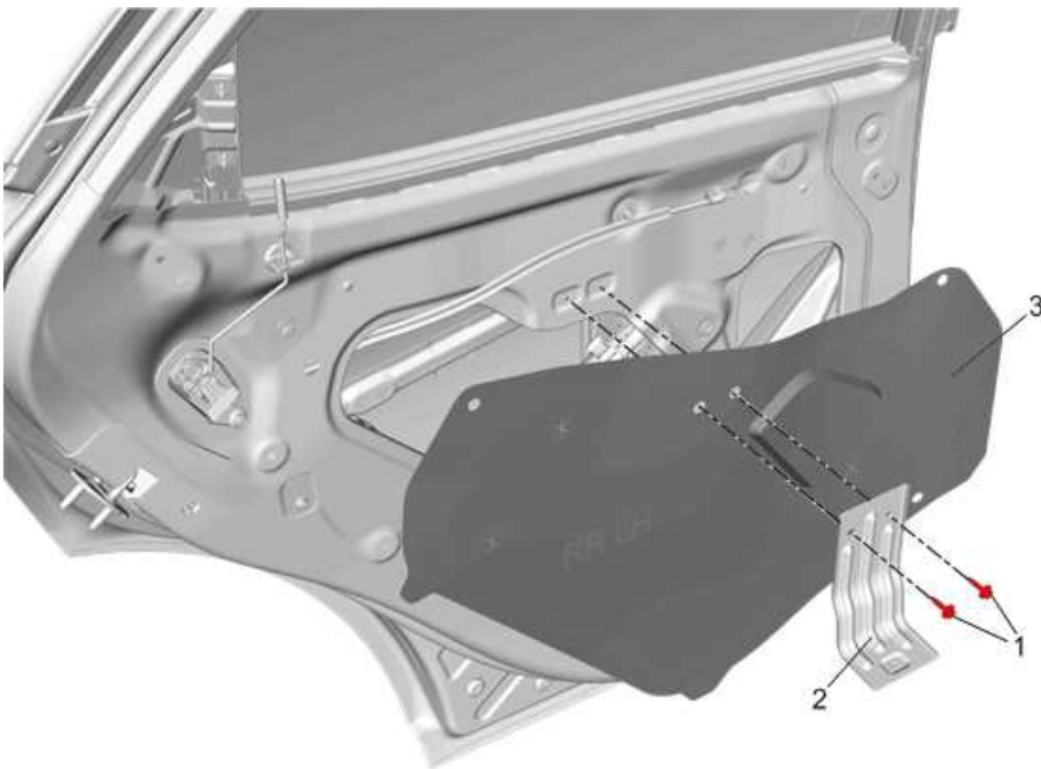


Fig. 83: Rear Side Door Water Deflector

Courtesy of GENERAL MOTORS COMPANY

11. Rear Side Door Water Deflector - Install - [**Rear Side Door Water Deflector Replacement**](#)

NOTE: Ensure that the door lock system operates properly before installing the trim.

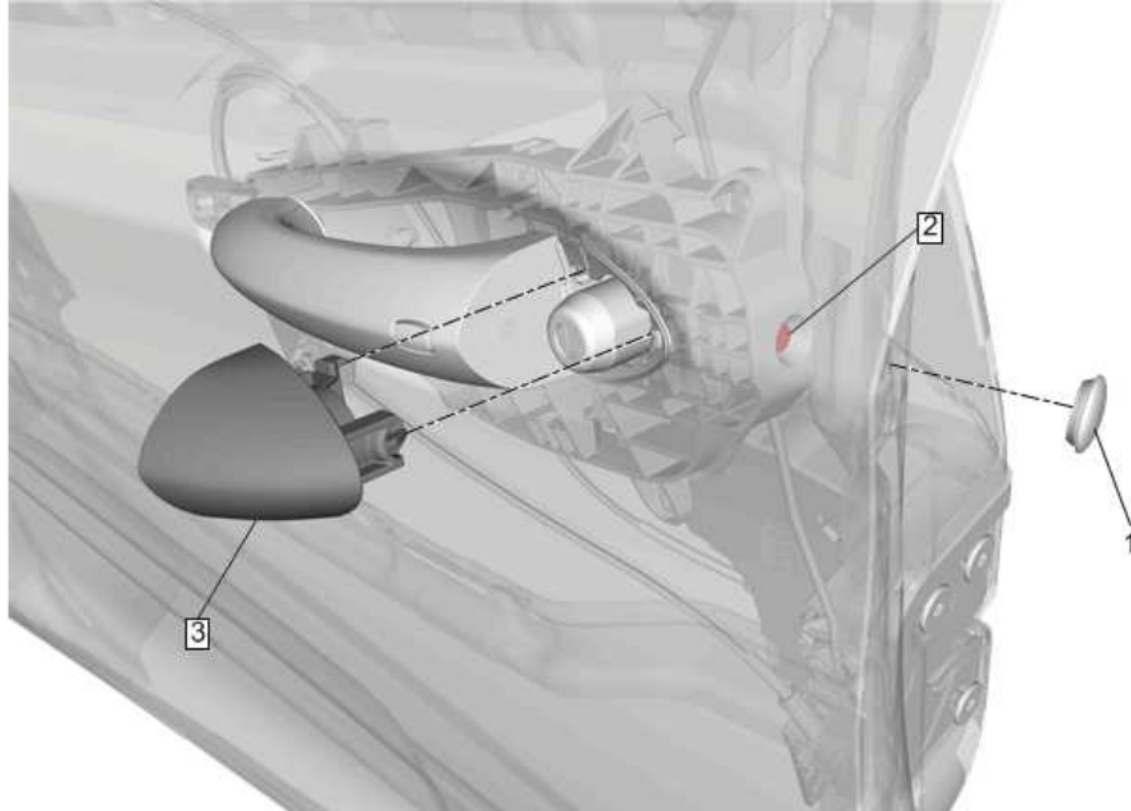


Fig. 84: Front Side Door Lock Cylinder Opening Cover

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Bolt Access Plug Procedure Use a flat bladed plastic tool to remove.
2	Front Side Door Outside Handle Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten 4.5 N.m (40 lb in)
3	Front Side Door Lock Cylinder Opening Cover

REAR SIDE DOOR LOCK CYLINDER OPENING COVER REPLACEMENT

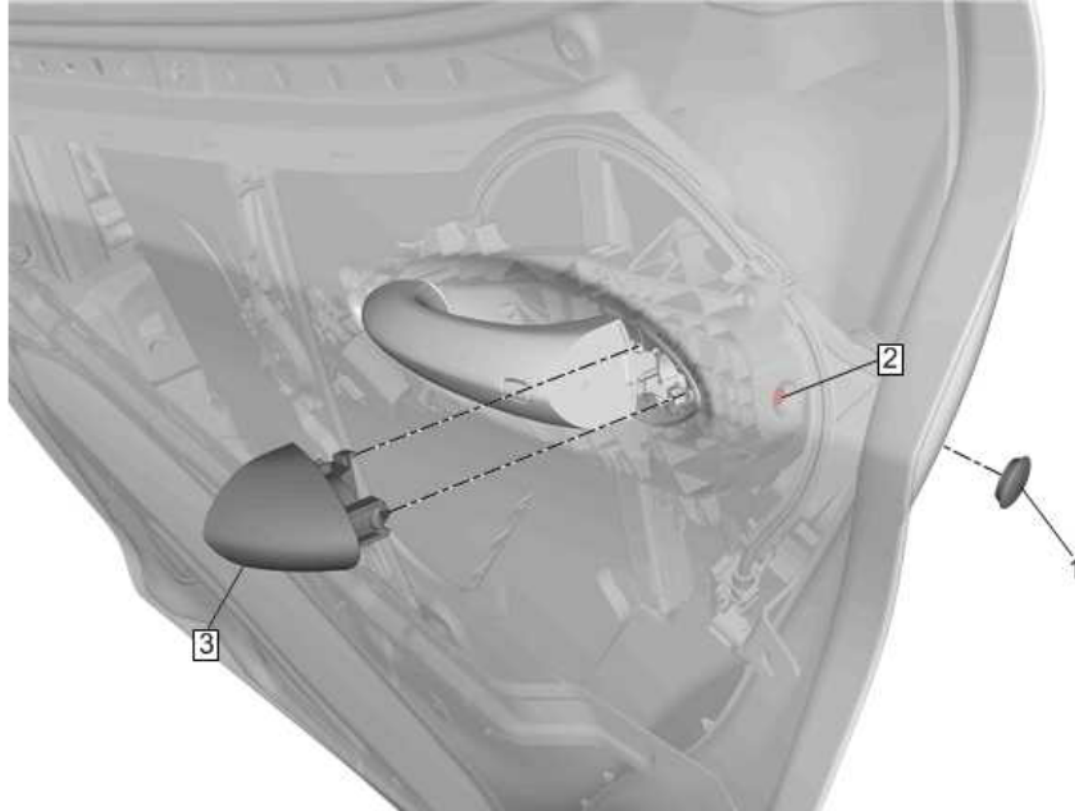


Fig. 85: Rear Side Door Lock Cylinder Opening Cover

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Bolt Access Plug Procedure Use a flat bladed plastic tool to remove.
2	Rear Side Door Outside Handle Bolt CAUTION: Refer to <u>Fastener Caution</u> . Tighten 4.5 N.m (40 lb in)
3	Rear Side Door Lock Cylinder Opening Cover

FRONT SIDE DOOR LOCKING ROD KNOB REPLACEMENT

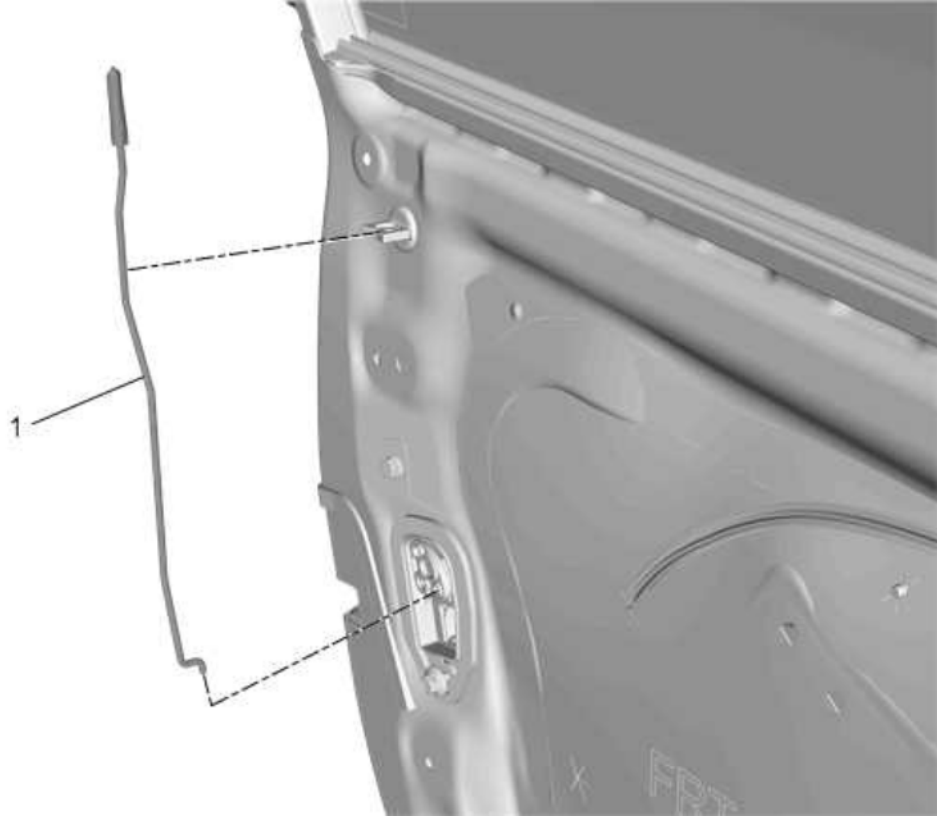


Fig. 86: Front Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure <u>Front Side Door Trim Replacement</u>	
1	Front Side Door Locking Rod Knob NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR LOCK CYLINDER ROD REPLACEMENT

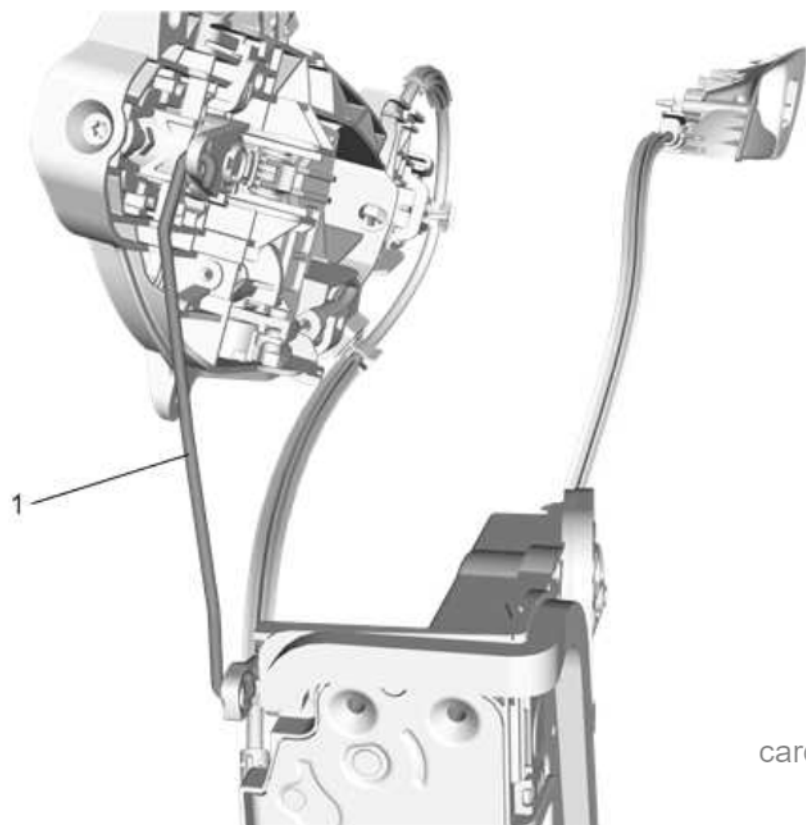


Fig. 87: Front Side Door Lock Cylinder Rod
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Latch Replacement	
1	Front Side Door Lock Cylinder Rod Procedure Front Side Door Lock Cylinder Rod - Remove NOTE: Ensure that the door lock system operates properly before installing the trim.

REAR SIDE DOOR LOCKING ROD KNOB REPLACEMENT



Fig. 88: Rear Side Door Locking Rod Knob
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Rear Side Door Trim Replacement	
1	Rear Side Door Locking Rod Knob NOTE: Ensure that the door lock system operates properly before installing the trim.

FRONT SIDE DOOR LOCK STRIKER ADJUSTMENT

To determine if striker adjustment is required, proceed as follows:

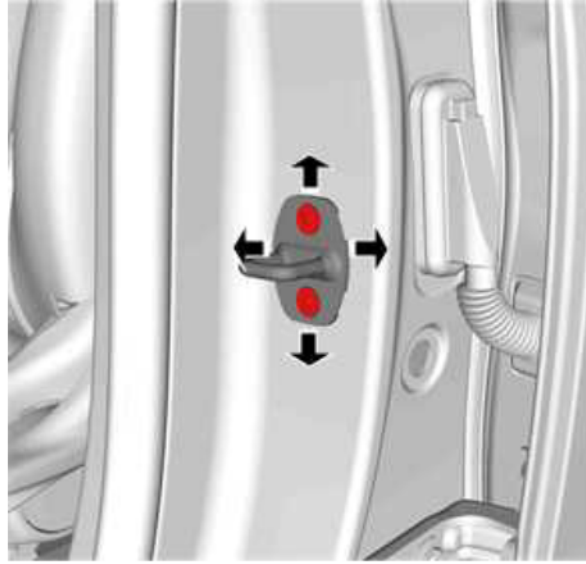


Fig. 89: Adjusting Front Side Door Lock Striker
Courtesy of GENERAL MOTORS COMPANY

1. Ensure the door is properly aligned within the door opening before proceeding with the striker adjustment.
2. Close the door onto the striker and note if the door drags on the striker causing the door to move upward or downward upon contact with the striker. Also note the closing effort to fully engage the lock.
3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker to eliminate drag on the striker and door lock and to achieve the proper door position within the door opening. Start with the up/down position, then position the striker to achieve proper alignment to the door opening. Set the in/out adjustment for the proper door seal engagement making sure the door closing efforts are correct.

CAUTION: Refer to [Fastener Caution](#) .

5. Tighten the striker screws. Tighten the front side door striker screws to 22 N.m (16 lb ft).

FRONT SIDE DOOR LOCK STRIKER REPLACEMENT

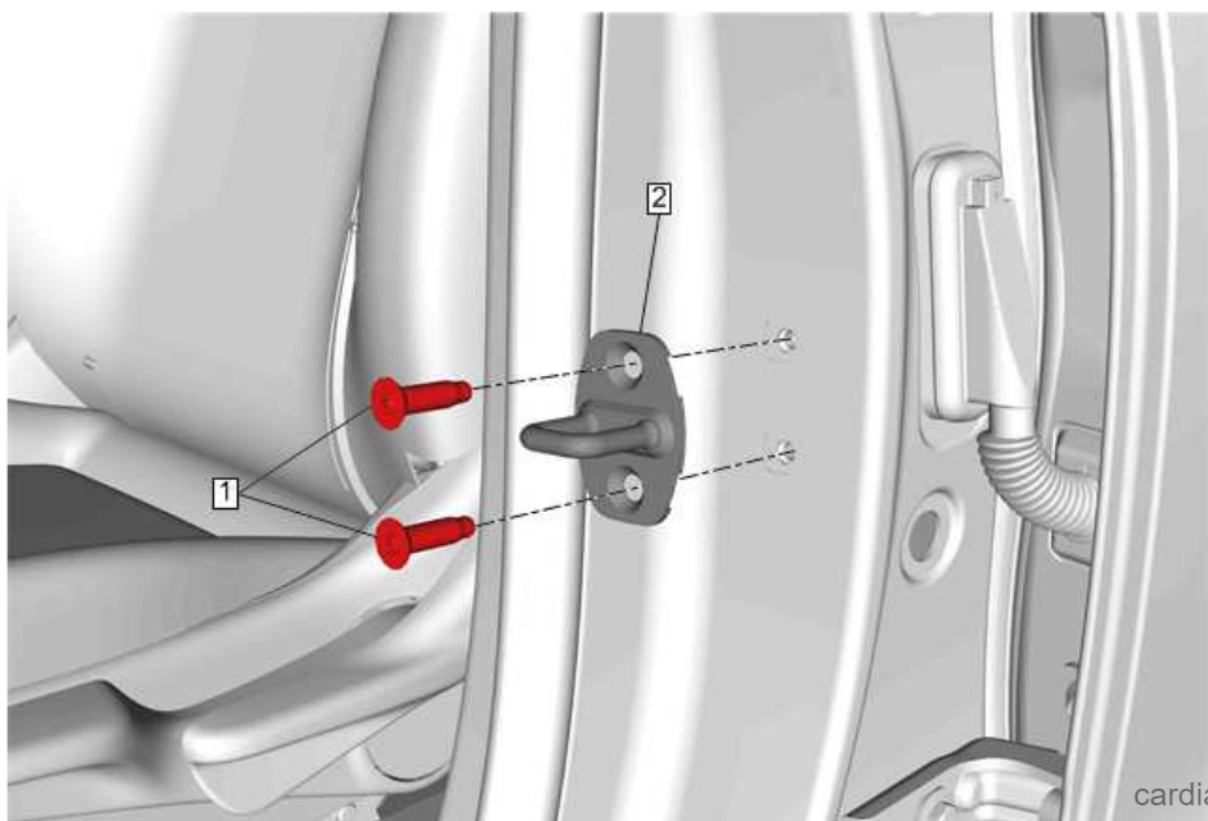


Fig. 90: Front Side Door Lock Striker
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Side Door Lock Striker Screw CAUTION: Refer to Fastener Caution . Tighten 22 N.m (16 lb ft)
2	Front Side Door Lock Striker Procedure Ensure proper alignment after installation. Front Side Door Lock Striker Adjustment

LIFTGATE LATCH STRIKER REPLACEMENT

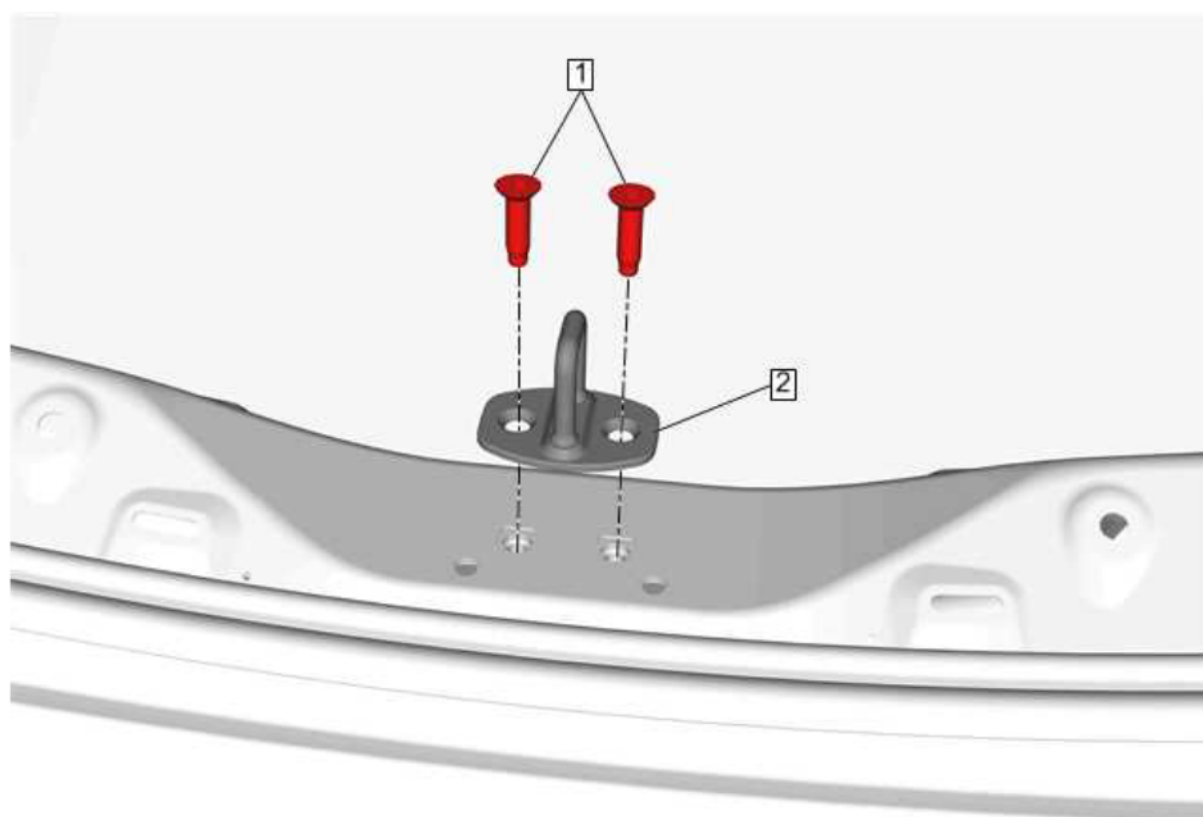


Fig. 91: Liftgate Latch Striker
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Liftgate Sill Garnish Molding Replacement	
1	Liftgate Latch Striker Bolt CAUTION: Fastener Caution Tighten 22 N.m (16 lb ft) Procedure Use a grease pencil to outline the striker before removing the bolts.

Callout	Component Name
2	Liftgate Latch Striker Procedure Adjust the liftgate latch striker after replacing, if needed.

REAR SIDE DOOR LOCK STRIKER ADJUSTMENT

To determine if striker adjustment is required, proceed as follows:

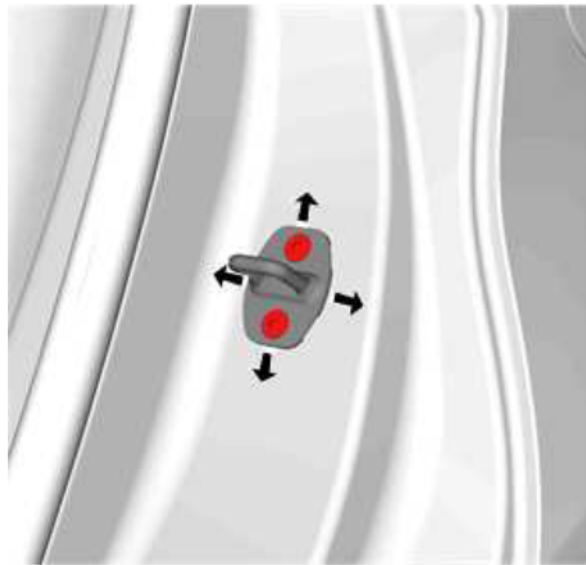


Fig. 92: Adjusting Rear Side Door Lock Striker

Courtesy of GENERAL MOTORS COMPANY

1. Ensure the door is properly aligned within the door opening before proceeding with the striker adjustment.
2. Close the door onto the striker and note if the door drags on the striker causing the door to move upward or downward upon contact with the striker. Also note the closing effort to fully engage the lock.
3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker to eliminate drag on the striker and door lock and to achieve the proper door position within the door opening. Start with the up/down position, then position the striker to achieve proper alignment to the door opening. Set the in/out adjustment for the proper door seal engagement making sure the door closing efforts are correct.

CAUTION: Refer to [Fastener Caution](#) .

5. Tighten the striker screws. Tighten the rear side door striker screws to 22 N.m (16 lb ft).

REAR SIDE DOOR LOCK STRIKER REPLACEMENT

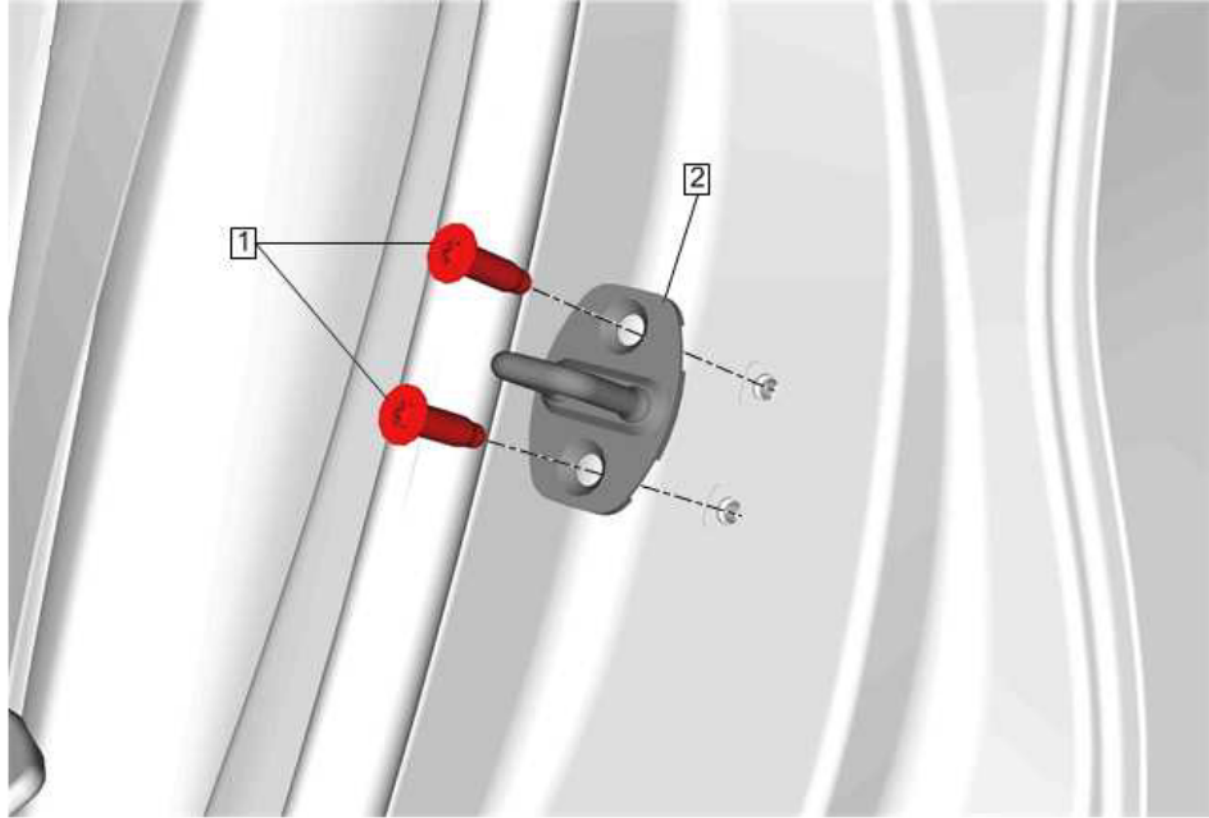


Fig. 93: Rear Side Door Lock Striker
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Side Door Lock Striker Screw CAUTION: Refer to Fastener Caution . Tighten 22 N.m (16 lb ft)
2	Rear Side Door Lock Striker Procedure Ensure proper alignment after installation. Rear Side Door Lock Striker Adjustment

LIFTGATE RELEASE SWITCH REPLACEMENT

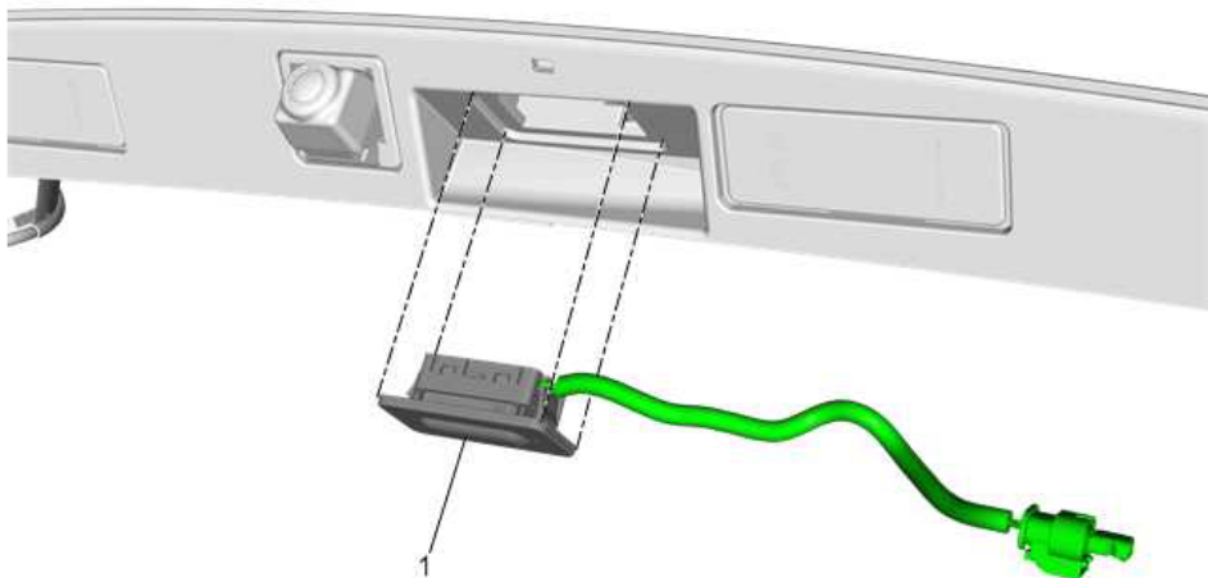


Fig. 94: Liftgate Release Switch

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure <u>Rear Closure Center Applique Replacement</u>	
1	Liftgate Release Switch Procedure Disconnect the electrical connector.

DOOR LOCK SWITCH REPLACEMENT



Fig. 95: Door Lock Switch

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Front Side Door Trim Replacement	
1	Door Lock Switch Procedure Press the retainers to unlock.

DESCRIPTION AND OPERATION

CHARGE PORT DOOR DESCRIPTION AND OPERATION

Charge Port System Components

The charge port system consists of the following components:

- Charge port door position sensor
- Hybrid/EV powertrain control module 2

Charge Port Ajar Message

When the vehicle is in the Service Mode or ON, the hybrid/EV powertrain control module 2 supplies a 5V signal to the charge port door position switch through the charge port door sensor signal circuit. The charge port door position switch contains a resistor ladder interface for switch position between two resistors for sensing used by the hybrid/EV powertrain control module 2 to determine if the charge port door is in the open position or the closed position. The hybrid/EV powertrain control module 2 sends a serial data message to the driver information center in the instrument panel cluster to display the Charge Door Open message.

DOOR AJAR INDICATOR DESCRIPTION AND OPERATION

Door Ajar Indicator System Components

The door ajar indicator system consists of the following components:

- Body control module (BCM)
- Instrument cluster
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Driver window motor
- Passenger window switch
- Left rear window switch
- Right rear window switch

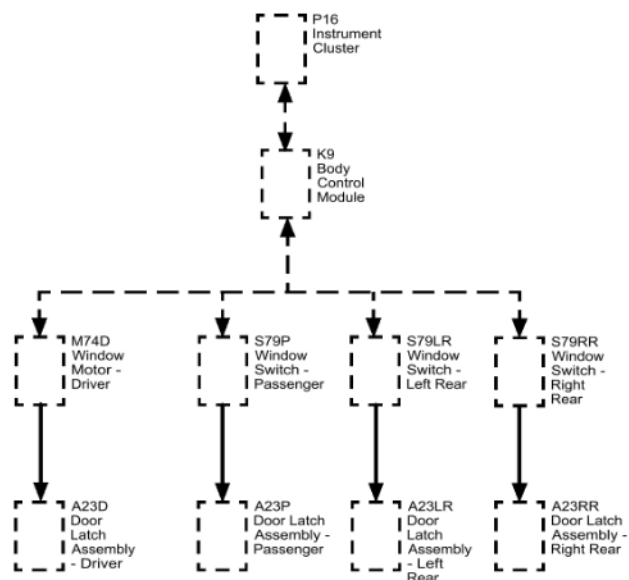


Fig. 96: Door Ajar System Block Diagram
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
P16	P16 Instrument Cluster
M74D	M74D Window Motor - Driver
S79P	S79P Window Switch - Passenger
S79LR	S79LR Window Switch - Left Rear
S79RR	S79RR Window Switch - Right Rear
A23D	A23D Door Latch Assembly - Driver
A23P	A23P Door Latch Assembly - Passenger
A23LR	A23LR Door Latch Assembly - Left Rear
A23RR	A23RR Door Latch Assembly - Right Rear
K9	K9 Body Control Module

Driver Door Ajar

The driver window motor provides a 12V signal to the driver door ajar switch signal circuit. The driver door ajar switch is integral to the driver door latch assembly. When the driver door is opened, the normally open door ajar switch closes. With the door ajar switch closed, ground is provided to the door ajar switch signal circuit and the voltage within the signal circuit drops. The driver window motor will detect the voltage drop and will send a serial data message to the body control module which will then send a message to the instrument panel cluster to command the door ajar message.

Passenger Door Ajar

The passenger window switches each provide a 12 V signal to their respective door ajar switch signal circuits. The door ajar switches are integral to each door latch assembly. When a door is opened, the normally open door ajar switch closes. With the door ajar switch closed, ground is provided to the door ajar switch signal circuit and the voltage within the signal circuit drops. The window switches will detect the voltage drop and will send a serial data message to the body control module which will then send a message to the instrument panel cluster to command the door ajar message.

LIFTGATE AJAR INDICATOR DESCRIPTION AND OPERATION

Hatch Open Indicator

The body control module (BCM) monitors the voltage level of the rear hatch ajar signal circuit which is normally at the system voltage when the hatch is closed. When the hatch is ajar or open, a switch within the rear hatch latch closes providing a path to ground for the hatch ajar signal circuit. The voltage within the signal circuit will then drop to 0 volts, the BCM will then detect the voltage drop and will send a serial data message to the instrument panel cluster (IPC). The IPC will then display an icon of the vehicle with the hatch open.

POWER DOOR LOCKS DESCRIPTION AND OPERATION

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch
- Passenger door lock switch
- Key cylinder switch
- Body control module (BCM)
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Exterior door handle switches
- Keyless entry control module

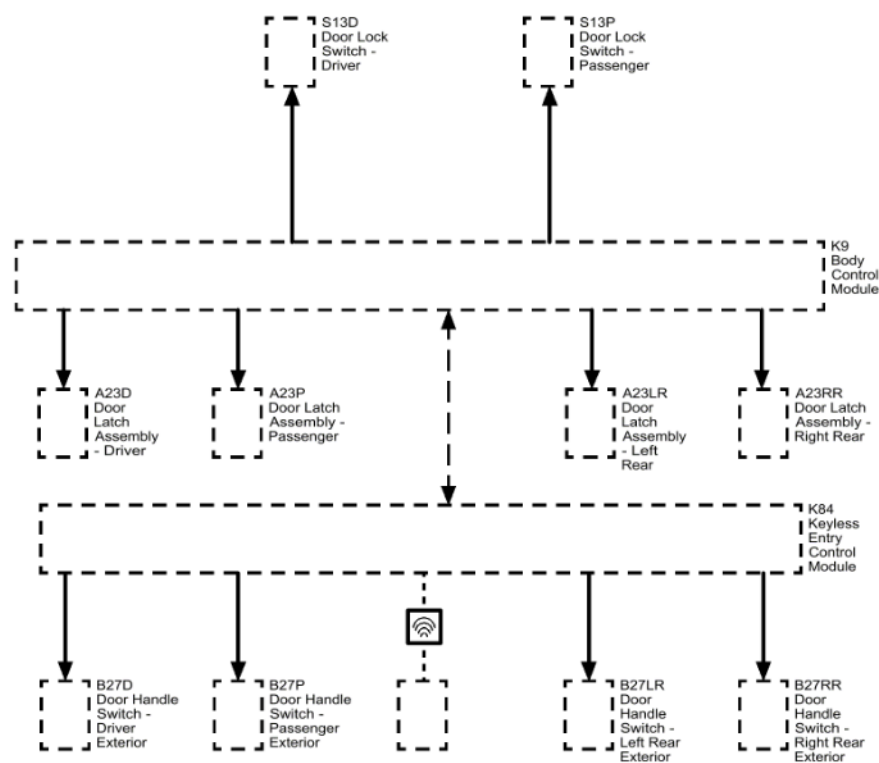


Fig. 97: Power Door Locks System Block Diagram
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name

Callout	Component Name
WL	Wireless
S13D	S13D Door Lock Switch - Driver
S13P	S13P Door Lock Switch - Passenger
K9	K9 Body Control Module
A23RR	A23RR Door Latch Assembly - Right Rear
A23LR	A23LR Door Latch Assembly - Left Rear
A23P	A23P Door Latch Assembly - Passenger
A23D	A23D Door Latch Assembly - Driver
K84	K84 Keyless Entry Control Module
B27RR	B27RR Door Handle Switch - Right Rear Exterior
B27LR	B27LR Door Handle Switch - Left Rear Exterior
B27P	B27P Door Handle Switch - Passenger Exterior
B27D	B27D Door Handle Switch - Driver Exterior

Door Lock and Unlock Operation

When the driver or passenger door lock switch is activated in the lock or unlock position, the BCM will receive a ground signal on either the door lock switch lock or unlock signal circuits.

The BCM, upon receipt of a lock switch lock or unlock signal, will supply battery voltage to the door lock actuator lock or unlock control circuits. Since the opposite side of the lock actuator is connected to ground through the other lock actuator control circuit, the doors will then lock or unlock as commanded.

The following three circuits are used to operate the lock:

- Driver door unlock
- Passenger door unlock
- All door lock

The driver door lock actuator is isolated so it can be unlocked by itself using the keyless entry transmitter.

Key Cylinder Switch

The driver window switch monitors the voltage level of the driver door lock motor status signal circuit. When the key is inserted into the driver door key cylinder and turned to the Lock position, a switch within the driver door latch closes causing the voltage to drop within the driver door lock motor status signal circuit. The driver window switch will detect the drop in voltage and will send a serial data message to the BCM commanding all the doors to Lock.

The driver key cylinder switch is used by the customer for programming the keyless entry transmitters. The driver window/outside rearview mirror switch monitors the voltage level of the key switch unlock signal circuit and when it detects a reprogramming request, it will send a serial data message to the body control module.

Passive Door Lock/Unlock Operation

The exterior door handle switch signal circuits provide inputs to the keyless entry control module when the exterior door handle switches are activated. These inputs allow the keyless entry control module to detect a door lock or a door unlock request. The keyless entry control module provides a 12 V signal to each exterior door handle switch via the door handle switch signal circuits. When a door handle switch is pressed, the switch closes and the voltage signal within the signal circuit is pulled to ground. The keyless entry control module will detect the voltage drop and a low frequency antenna will transmit a challenge to the keyless entry transmitter. If the challenge is met, the keyless entry transmitter will respond and the keyless entry control module will send a serial data message to the body control module to command the door(s) to be locked or unlocked.

REAR HATCH/GATE DESCRIPTION AND OPERATION

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Liftgate Release System Components

- Body control module (BCM)
- Liftgate unlatch switch
- Liftgate latch assembly
- Liftgate unlatch relay

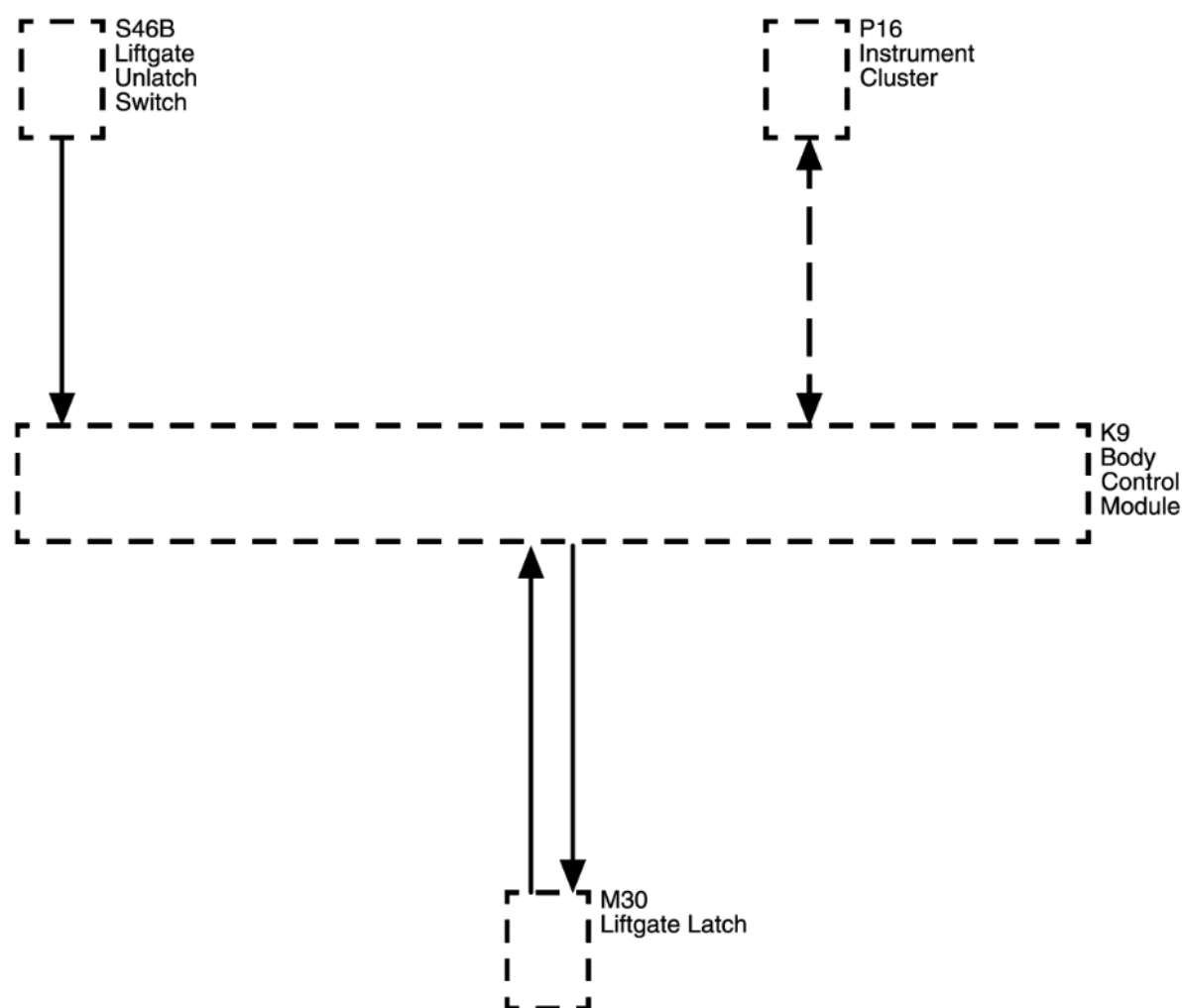


Fig. 98: Liftgate Release Block Diagram
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
P16	P16 Instrument Cluster
K9	K9 Body Control Module
M30	M30 Liftgate Latch
S46B	S46B Liftgate Unlatch Switch

Liftgate Release Operation

Liftgate Unlatch Switch

The BCM monitors supplies a 12 V signal to the liftgate unlatch switch so that when the switch is pressed, the voltage within the signal circuit is pulled low and in response, the BCM will detect the voltage drop and check the status of the door lock system. If the doors are locked, the BCM will ignore the request, if the All Doors Unlock has been commanded, the BCM will recognize the request and will provide voltage to the release relay.

Liftgate Latch Assembly

When BCM receives a liftgate release command from the liftgate unlatch switch, the BCM applies brief pulse of voltage to the liftgate unlatch relay control circuit, which energizes the coil side of the relay. The switch side of the liftgate unlatch relay then momentarily closes, supplying a brief pulse of battery positive voltage to the liftgate latch assembly. The liftgate latch assembly is continuously grounded and when it receives the voltage pulse, it will become energized and the latch will activate releasing the liftgate so that it may be manually raised to an open position.

Keyless Entry Transmitter

All doors of the vehicle must first be commanded to UNLOCK prior to pressing the liftgate unlatch switch. The BCM monitors the status of the vehicle door latches. If the passenger doors are locked, the BCM will ignore the signal from the liftgate unlatch switch. Pressing the appropriate button on the keyless entry transmitter will send a request to the remote control door lock receiver which will in turn send a serial data message to unlock all doors.
