SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Door Applique Screws - Front	2.2 N.m	20 lb in
Door Applique Screws - Rear	2.2 N.m	20 lb in
Door Check Link to Body Bolt - Front	10 N.m	89 lb in
Door Check Link to Body Bolt - Rear	10 N.m	89 lb in
Door Check Link to Door Frame Nuts - Front	10 N.m	89 lb in
Door Check Link to Door Frame Nuts - Rear	10 N.m	89 lb in
Door Handle Screw - Inside	2.5 N.m	22 lb in
Door Hinge to Door Bolts - Front	25 N.m	18 lb ft
Door Hinge to Door Bolts - Rear	25 N.m	18 lb ft
Door Hinge to Hinge Pillar Bolts - Front	25 N.m	18 lb ft
Door Hinge to Hinge Pillar Bolts - Rear	25 N.m	18 lb ft
Door Latch Bolts - Front	12 N.m	9 lb ft
Door Latch Bolts - Rear	12 N.m	9 lb ft
Door Outer Belt Retaining Screw - Front	2 N.m	18 lb in
Door Outer Belt Retaining Screw - Rear	2 N.m	18 lb in
Door Striker Bolts - Front	25 N.m	18 lb ft
Door Striker Bolts - Rear	25 N.m	18 lb ft
Door Trim Panel Screws - Front	2.5 N.m	22 lb in
Door Trim Panel Screws - Rear	2.5 N.m	22 lb in
Door Window Bolts - Rear	10 N.m	89 lb in
Door Window Regulator Bolts - Front	10 N.m	89 lb in
Door Window Regulator Bolts - Rear	10 N.m	89 lb in
Door Window Run Channel Bolts - Front	10 N.m	89 lb in
Door Window Run Channel Bolts - Rear	10 N.m	89 lb in
Outer Belt Seal Fasteners	2 N.m	18 lb in
Outer Door Panel Bolts - Front	8 N.m	71 lb in
Outer Door Panel Bolts - Rear	8 N.m	71 lb in
Outside Rear View Mirror Attachment Nuts	10 N.m	89 lb in
Power Mirror Switch Assembly Screw	2.5 N.m	22 lb in

SCHEMATIC AND ROUTING DIAGRAMS

POWER WINDOW SCHEMATICS

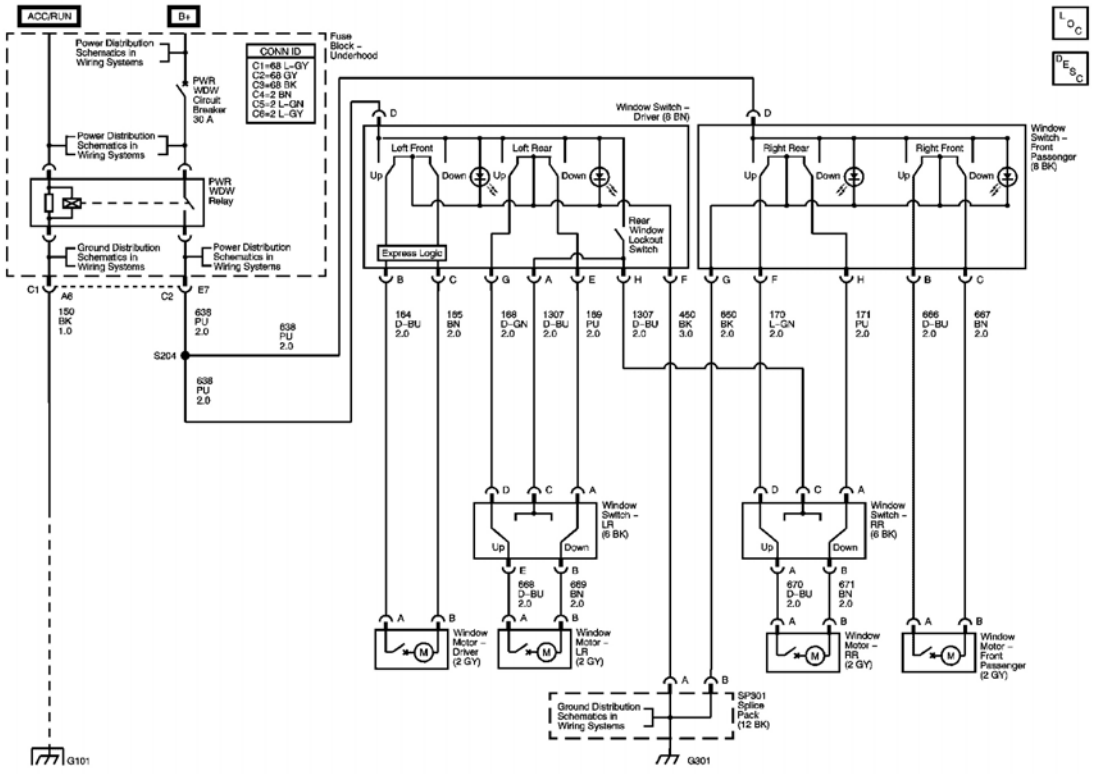


Fig. 1: Power Window Schematic
Courtesy of GENERAL MOTORS CORP.

DOOR LOCK/INDICATOR SCHEMATICS

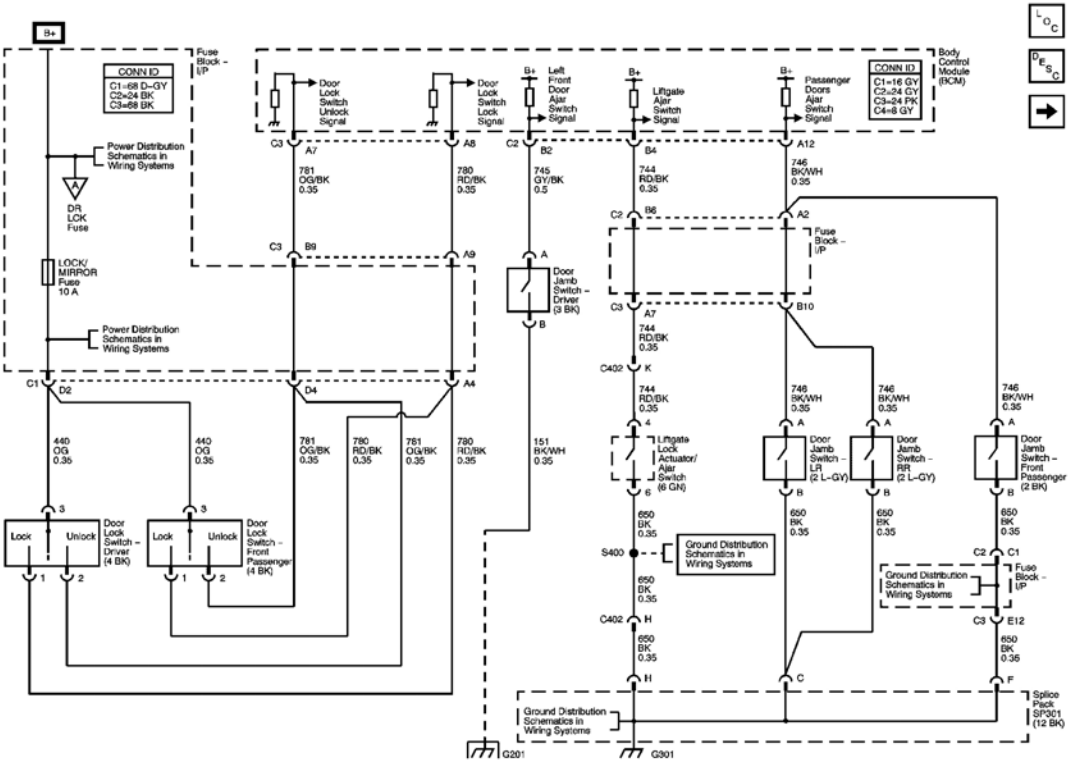


Fig. 2: View Of Door Lock/Indicator Schematic
Courtesy of GENERAL MOTORS CORP.

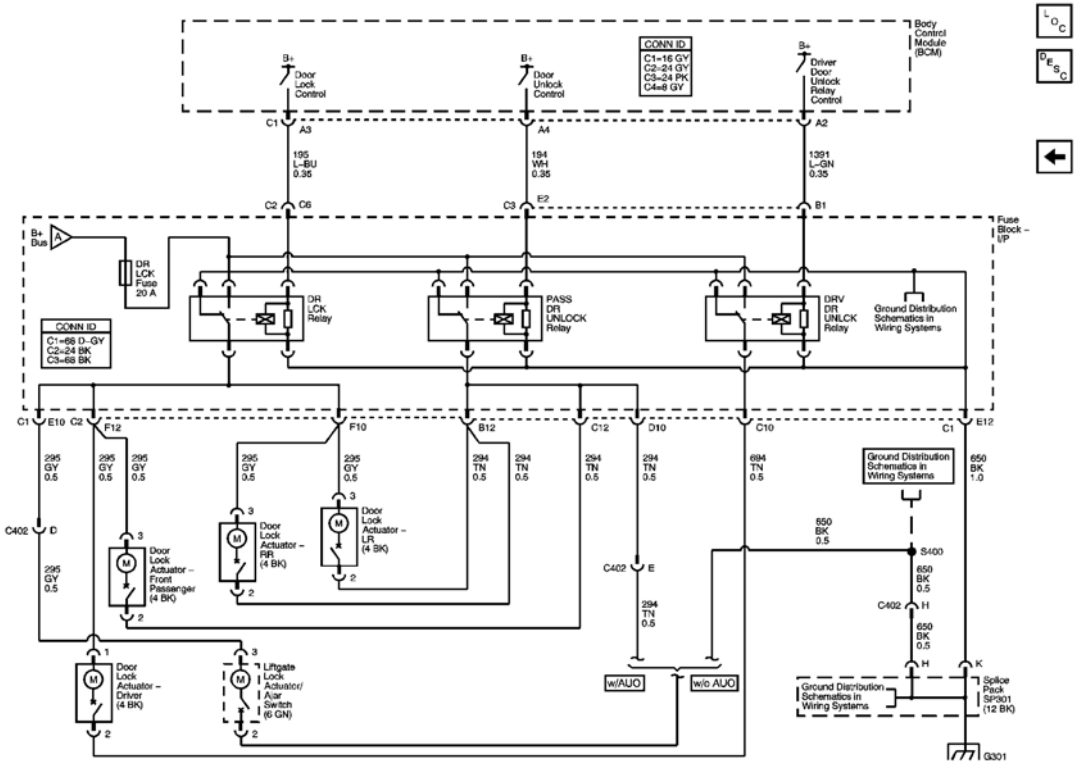


Fig. 3: Door Lock Actuators Schematic
Courtesy of GENERAL MOTORS CORP.

OUTSIDE MIRROR SCHEMATICS

Refer to Power Mirrors in System Wiring Diagrams .

COMPONENT LOCATOR

POWER DOOR SYSTEMS COMPONENT VIEWS

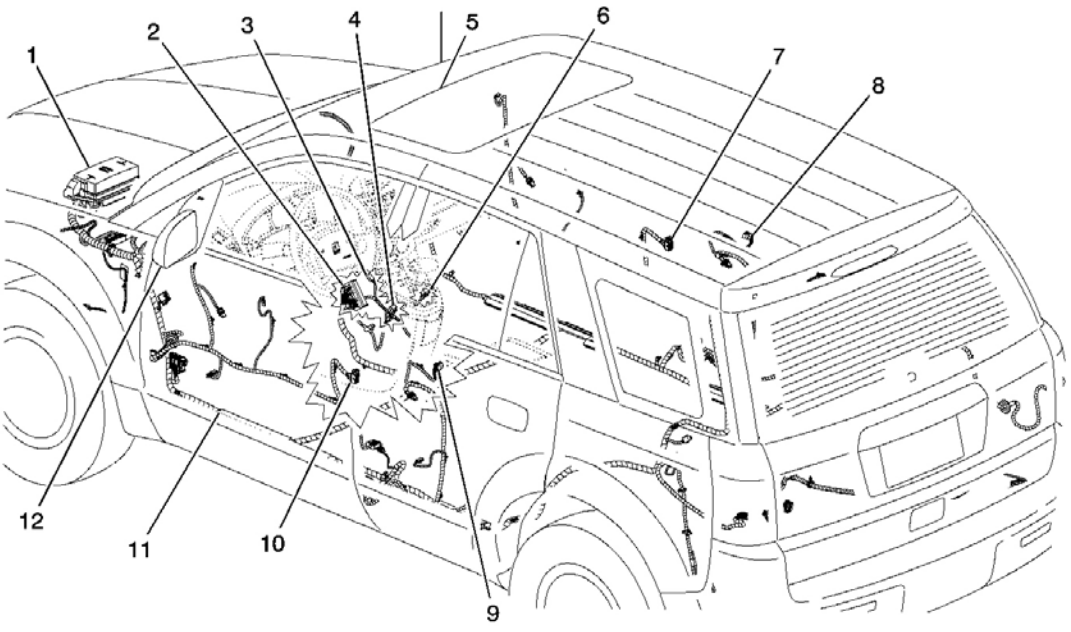


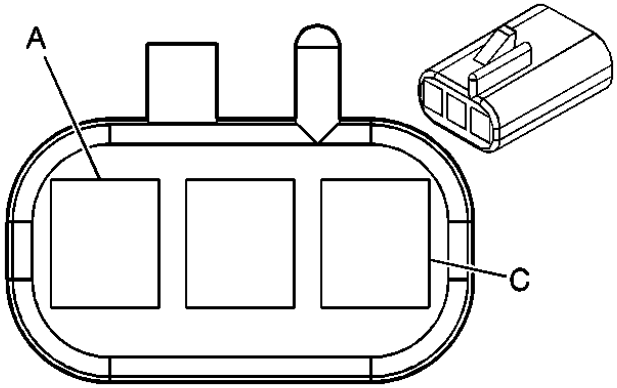
Fig. 4: Power Door Systems Component Views
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 4

Callout	Component Name
1	Fuse Block - Underhood
2	Fuse Block - I/P
3	Body Harness
4	Window Switch - Driver
5	Sunroof Switch
6	Window Switch - Front Passenger
7	Window Motor - RR
8	Window Switch - RR
9	Window Switch - LR
10	Window Motor - LR
11	Body Harness
12	Outside Rearview Mirror - Driver, Passenger Similar

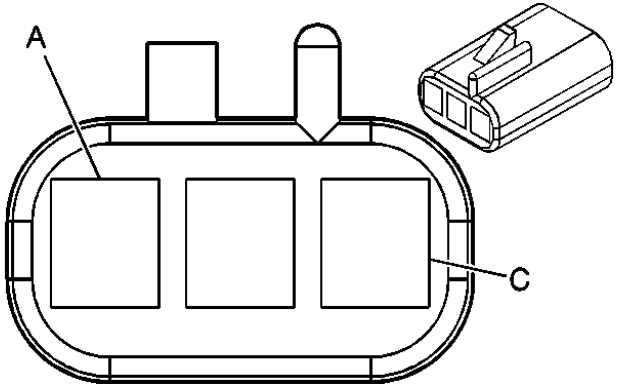
POWER DOOR SYSTEMS CONNECTOR END VIEWS

Door Jamb Switch - LF Connector End View



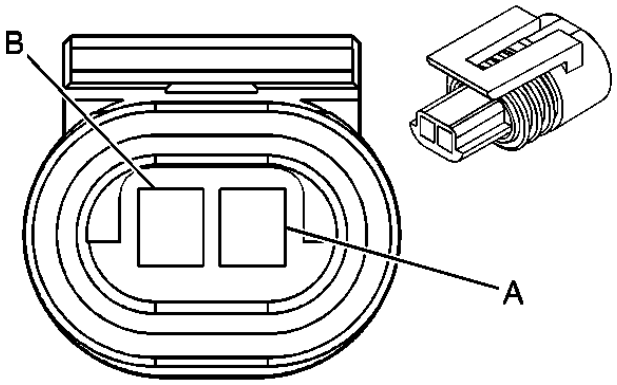
Connector Part Information		• 12047781 • 3-Way F Metri-Pack 150 Series (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	GY/BK	745	Left Front Door Ajar Switch Signal
B	BK/WH	151	Ground
C	-	-	Not Used

Door Jamb Switch - RF Connector End View



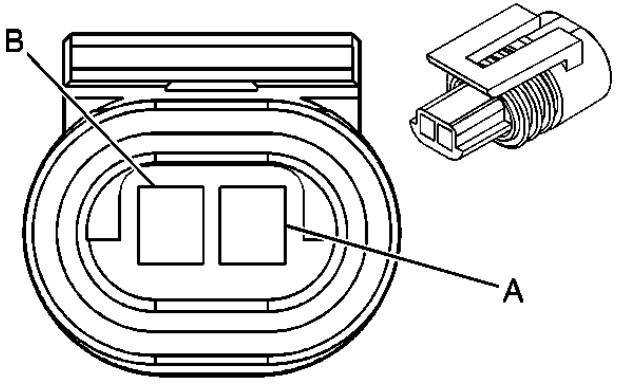
Connector Part Information		• 12047781 • 3-Way F Metri-Pack 150 Series (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	BK/WH	746	Right Front Door Ajar Switch Signal
B	BK	650	Ground
C	-	-	Not Used

Door Jamb Switch - LR Connector End View



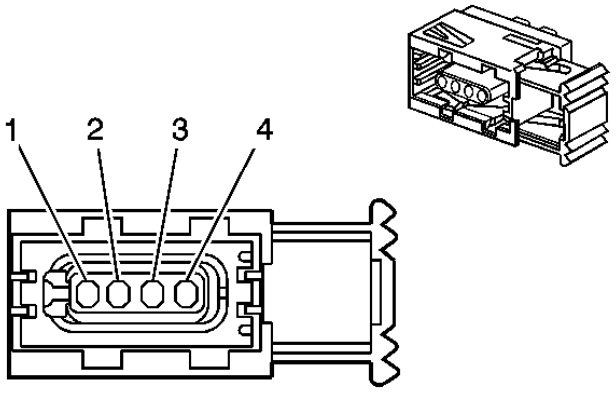
Connector Part Information		• 15304635 • 2-Way F Metri-Pack 150 Series (L-GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	BK/WH	746	Right Front Door Ajar Switch Signal
B	BK	650	Ground

Door Jamb Switch - RR Connector End View



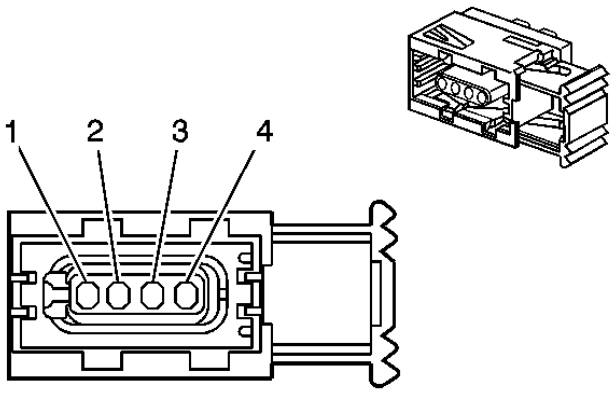
Connector Part Information		• 15304635 • 2-Way F Metri-Pack 150 Series (L-GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	BK/WH	746	Right Front Door Ajar Switch Signal
B	BK	650	Ground

Door Lock Actuator - LF Connector End View



Connector Part Information		• 6-1355678-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	-	-	Not Used
2	TN	694	Driver Door Lock Actuator Unlock Control
3	GY	295	Door Lock Actuator Lock Control
4	-	-	Not Used

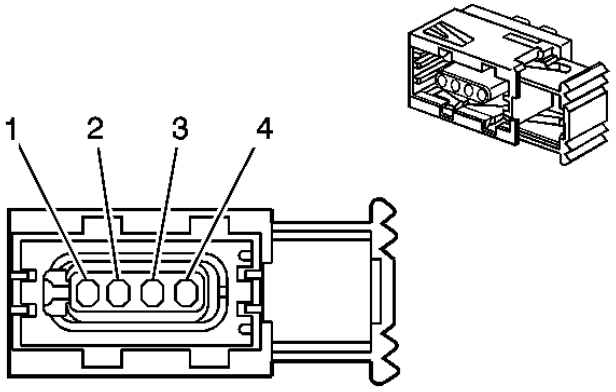
Door Lock Actuator - RF Connector End View



Connector Part Information		• 6-1355678-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	-	-	Not Used

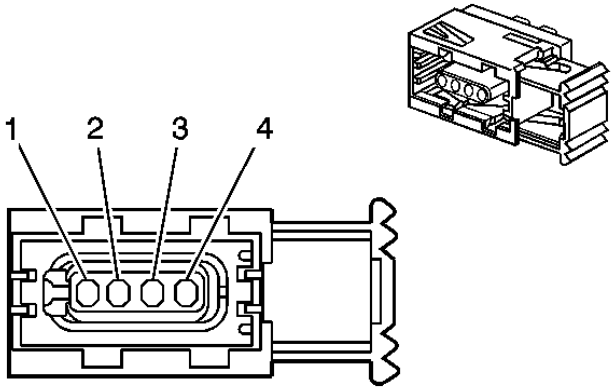
2	TN	294	Door Lock Actuator Unlock Control
3	GY	295	Door Lock Actuator Lock Control
4	-	-	Not Used

Door Lock Actuator - LR Connector End View



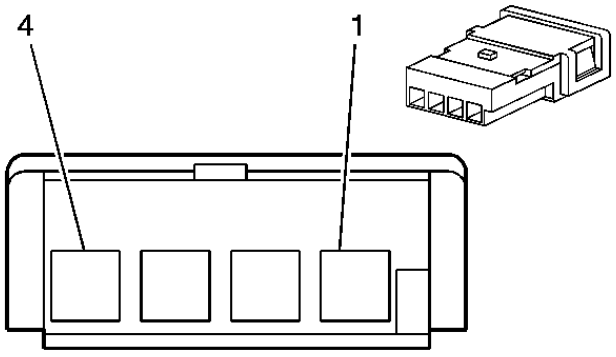
Connector Part Information		• 6-1355678-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	-	-	Not Used
2	TN	294	Door Lock Actuator Unlock Control
3	GY	295	Door Lock Actuator Lock Control
4	-	-	Not Used

Door Lock Actuator - RR Connector End View



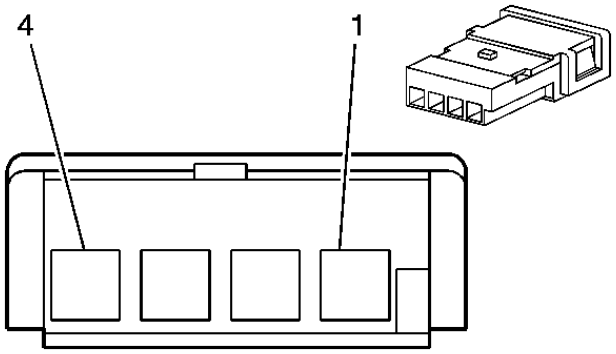
Connector Part Information		• 6-1355678-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	-	-	Not Used
2	TN	294	Door Lock Actuator Unlock Control
3	GY	295	Door Lock Actuator Lock Control
4	-	-	Not Used

Door Lock Switch - Driver Connector End View



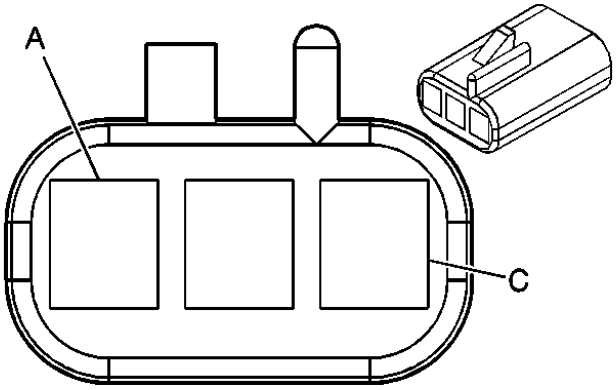
Connector Part Information		• 968943-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	RD/BK	780	Driver Door Lock Switch Lock Signal
2	OG/BK	781	Driver Door Lock Switch Unlock Signal
3	OG	440	Battery Positive Voltage
4	-	-	Not Used

Door Lock Switch - Front Passenger Connector End View



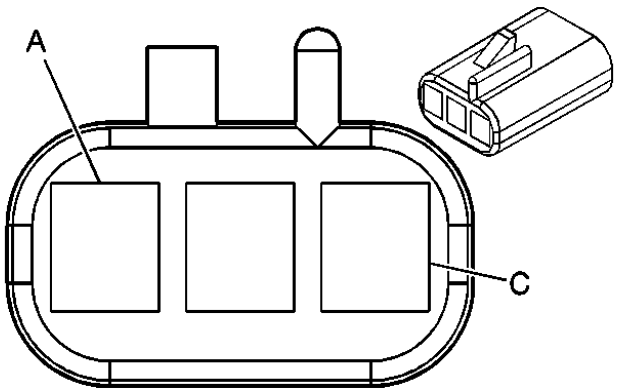
Connector Part Information		• 968943-1 • 4-Way F Housing (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	RD/BK	780	Driver Door Lock Switch Lock Signal
2	OG/BK	781	Driver Door Lock Switch Unlock Signal
3	OG	440	Battery Positive Voltage
4	-	-	Not Used

Outside Rearview Mirror - Driver Connector End View



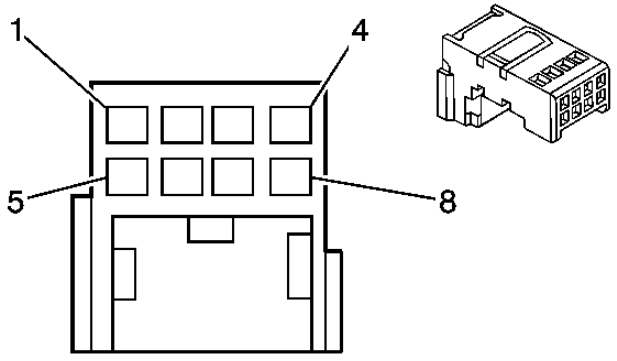
Connector Part Information		• 12047781 • 3-Way F Metri-Pack 150 Series (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	YE	1496	Mirror Switch Control
B	WH	81	Driver Mirror Motor Right Control
C	L-GN	89	Driver Mirror Motor Down Control

Outside Rearview Mirror - Passenger Connector End View



Connector Part Information		• 12047781 • 3-Way F Metri-Pack 150 Series (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	YE	1496	Mirror Switch Control
B	RD/WH	881	Passenger Mirror Motor Right Control
C	PU/WH	889	Passenger Mirror Motor Down Control

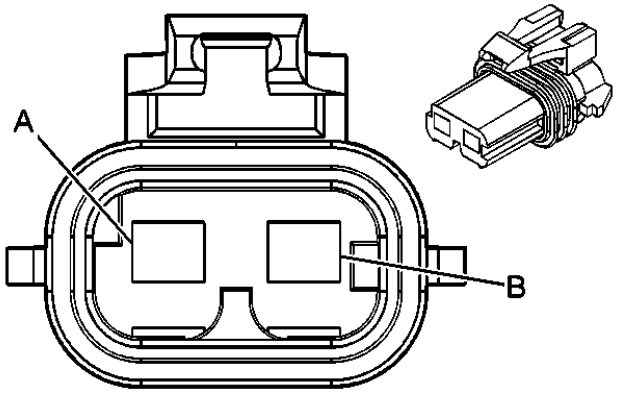
Outside Rearview Mirror Switch Connector End View



Connector Part Information		• 15336862 • 8-Way F (GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
1	OG	440	Battery Positive Voltage
2	BK	650	Ground
3	PU/WH	889	Passenger Mirror Motor Down Control

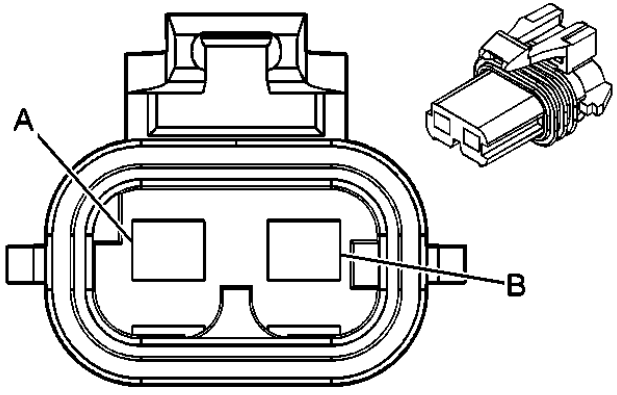
4	WH	81	Driver Mirror Motor Right Control
5	YE	1496	Mirror Switch Control
6	-	-	Not Used
7	L-GN	89	Driver Mirror Motor Down Control
8	RD/WH	881	Passenger Mirror Motor Right Control

Window Motor - Front Passenger Connector End View



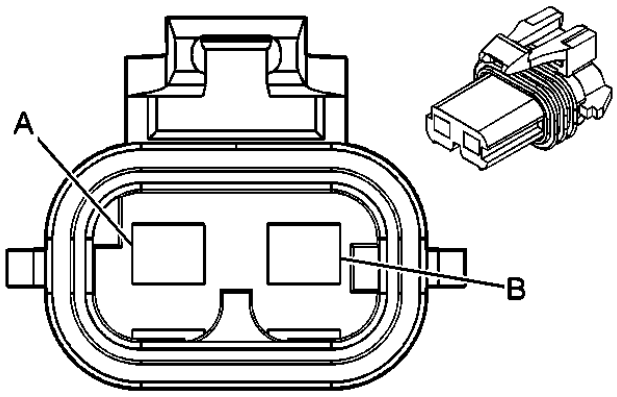
Connector Part Information		• **12129487** • **2-Way F Metri-Pack 280 Series Flexlock, Sealed (GY)**	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	D-BU	666	Power Window Motor Right Front Up Control
B	BN	667	Power Window Motor Right Front Down Control

Window Motor - LR Connector End View



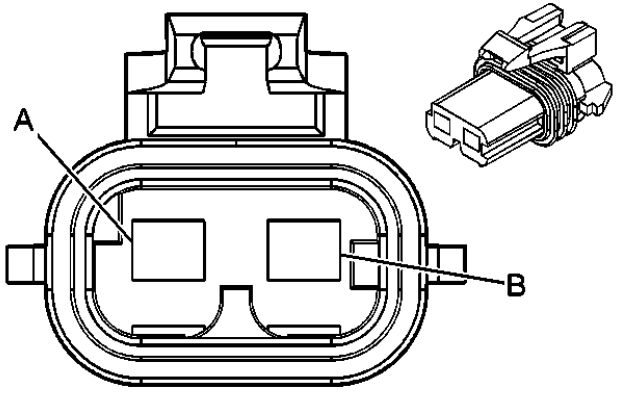
Connector Part Information		• 12129487 • 2-Way F Metri-Pack 280 Series Flexlock, Sealed (GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	D-BU	668	Power Window Motor Left Rear Up Control
B	BN	669	Power Window Motor Left Rear Down Control

Window Motor - RR Connector End View



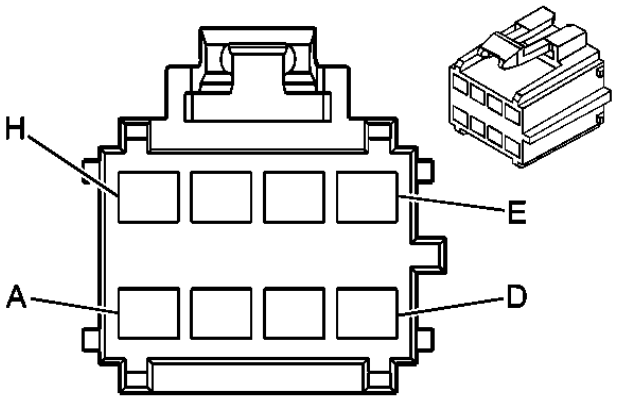
Connector Part Information		• 12129487 • 2-Way F Metri-Pack 280 Series Flexlock, Sealed (GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	D-BU	670	Power Window Motor Right Rear Up Control
B	BN	671	Power Window Motor Right Rear Down Control

Window Motor - Driver Connector End View



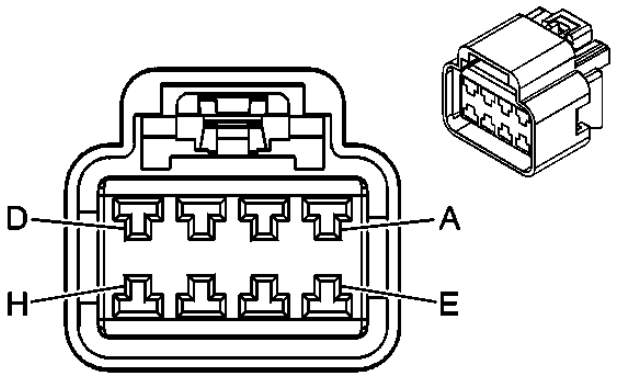
Connector Part Information		• 12129487 • 2-Way F Metri-Pack 280 Series Flexlock, Sealed (GY)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	D-BU	164	Power Window Motor Left Front Up Control
B	BN	165	Power Window Motor Left Front Down Control

Window Switch - Driver Connector End View



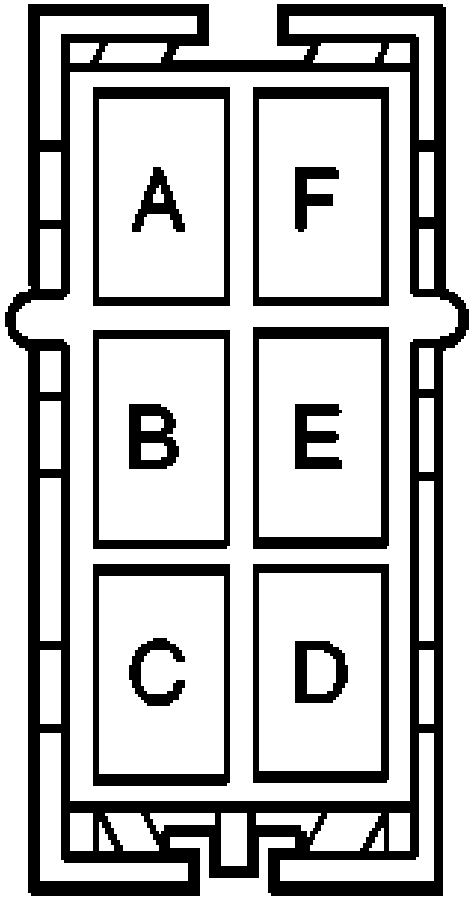
Connector Part Information		• 12191825 • 8-Way Metri-Pack 280 Series (BN)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	D-BU	1307	Power Window Master Switch Lockout Control
B	D-BU	164	Power Window Motor Left Front Up Control
C	BN	165	Power Window Motor Left Front Down Control
D	PU	638	Power Window Motor Driver Down Control
E	PU	169	Power Window Master Switch Left Rear Down Signal
F	BK	650	Ground
G	D-GN	168	Power Window Master Switch Left Rear Up Signal
H	D-BU	1307	Power Window Master Switch Lockout Control

Window Switch - Front Passenger Connector End View



Connector Part Information		• **156326924** • **8-Way F GT 280 (BK)**	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	-	-	Not Used
B	D-BU	666	Power Window Motor Right Front Up Control
C	BN	667	Power Window Motor Right Front Down Control
D	PU	638	Power Window Motor Driver Down Control
E	-	-	Not Used
F	L-GN	170	Power Window Master Switch Right Rear Up Signal
G	BK	650	Ground
H	PU	171	Power Window Master Switch Right Rear Down Signal

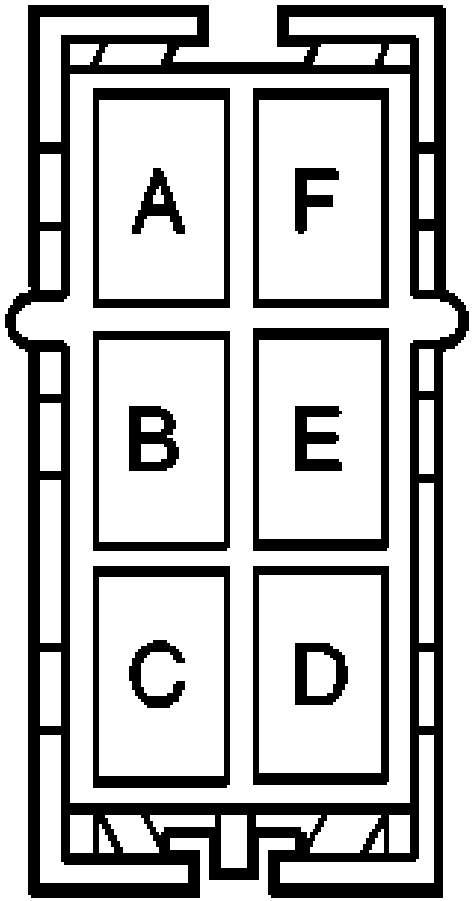
Window Switch - LR Connector End View



Connector Part Information		• 12015344 • 6-Way Metri-Pack 280 Series (BK)	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	PU	169	Power Window Master Switch Left Rear Down Signal
B	BN	669	Power Window Motor Left Rear Down Control
C	D-BU	1307	Power Window Master Switch Lockout Control
D	D-GN	168	Power Window Master Switch Left Rear Up Signal
E	D-BU	668	Power Window Motor Left Rear Up Control

F	-	-	Not Used

Window Switch - RR Connector End View



Connector Part Information		• **12015344** • **6-Way Metri-Pack 280 Series (BK)**	
Pin	**Wire Color**	**Circuit No.**	**Function**
A	PU	171	Power Window Master Switch Right Rear Down Signal
B	BN	671	Power Window Motor Right Rear Down Control

C	D-BU	1307	Power Window Master Switch Lockout Control
D	L-GN	170	Power Window Master Switch Right Rear Up Signal
E	D-BU	670	Power Window Motor Right Rear Up Control
F	-	-	Not Used

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - DOORS

Begin the system diagnosis with the **Diagnostic System Check - Door Systems** . The Diagnostic System Check will provide the following information:

- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored diagnostic trouble codes (DTCs) and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

DIAGNOSTIC SYSTEM CHECK - DOOR SYSTEMS

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Lack of communication may be due to a partial malfunction of the class 2 serial data circuit or due to a total malfunction of the class 2 serial data circuit. The specified procedure will determine the particular condition.

4: The presence of DTCs which begin with U indicate some other module is not communicating. The specified procedure will compile all the available information before tests are performed.

Diagnostic System Check - Door Systems

Step	Action	Yes	No
1	Install a scan tool. Does the scan tool power up?	Go to **Step 2**	Go to **Scan Tool Does Not Power Up** in Data Link Communications
2	1. Turn ON the ignition, with the engine OFF. 2. Attempt to establish communication with the body control module. Does the scan tool communicate with the body control module?	Go to **Step 3**	Go to **Scan Tool Does Not Communicate with Class 2 Device** in Data Link Communications

3	Select the display DTCs function on the scan tool for the following modules: • Body control module (BCM) • Powertrain control module (PCM) Does the scan tool display any DTCs?	Go to **Step 4**	Go to **Symptoms - Doors**
4	Does the scan tool display any DTCs which begin with a U?	Go to **Scan Tool Does Not Communicate with Class 2 Device** in Data Link Communications	Go to **Step 5**
5	Does the scan tool display DTC B1000, B1001, B1004 or B1009?	Go to **Diagnostic Trouble Code (DTC) List** in Body Control System	Go to **Step 6**
6	Does the scan tool display any DTCs which begin with a P?	Go to **Diagnostic Trouble Code (DTC) List** in Engine Controls	Go to **Step 7**
7	Does the scan tool display one of the following DTCs? • DTC B3127 • DTC B3132 • DTC B3137	Go to **Diagnostic Trouble Code (DTC) List**	Go to **Symptoms - Doors**

SCAN TOOL OUTPUT CONTROLS

Scan Tool Output Controls

Scan Tool Output Control	Additional Menu Selection(s)	Description
Door Lock Test	Driver Door Unlock	The BCM actuates the driver door unlock relay when you select UNLOCK. The driver door should unlock. The BCM actuates the door lock relay when you select LOCK. All doors and liftgate should lock.
Door Lock Test	Passenger Door Unlock	The BCM actuates the door unlock relay when you select UNLOCK. All passenger doors and liftgate should unlock. The BCM actuates the door lock relay when you select LOCK. All doors and liftgate should lock.

SCAN TOOL DATA LIST

Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Operating Conditions: Ignition ON, Engine OFF, All doors closed			
Battery 1	Door Locks	Volts	Varies
Driver Door Switch	Switch Inputs	High/Low	High with door closed
Driver Unlock Relay Cmd.	Door Locks	On/Off	Off
Driver Unlock Relay Fdbk.	Door Locks	High/Low	Low
Liftgate Ajar Switch	Switch Inputs	High/Low	High with liftgate closed
Lock All Relay Cmd.	Door Locks	On/Off	Off
Lock All Relay Fdbk.	Door Locks	High/Low	Low
Lock Switch	Door Locks/Switch Inputs	On/Off	Off
Pass Door Switches	Switch Inputs	High/Low	High with doors closed
Pass. Unlock Relay Cmd.	Door Locks	On/Off	Off
Pass. Unlock Relay Fdbk.	Door Locks	High/Low	Low
Remote Lock Cmd.	Door Locks	Yes/No	No
Remote Panic Cmd.	Door Locks	Yes/No	No
Remote Unlock Cmd.	Door Locks	Yes/No	No
Unlock Switch	Door Locks/Switch Inputs	On/Off	Off

SCAN TOOL DATA DEFINITIONS

Battery 1

The scan tool displays 0-25.5 volts. The state of the battery voltage received by the body control module.

Driver Door Switch

The scan tool displays High/Low. Low is displayed when the driver door is open, High is displayed when the driver door is closed.

Driver Unlock Relay Cmd.

The scan tool displays On/Off. This output of the BCM displays the state of the driver door unlock relay control command. On is displayed when the BCM is providing battery voltage to the driver door unlock relay control circuit.

Driver Unlock Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the driver door unlock relay control circuit. High is displayed when the BCM senses the driver door unlock relay control circuit is not open or shorted to ground while battery voltage is applied to the driver door unlock relay control circuit.

Liftgate Ajar Switch

The scan tool displays High/Low. Low is displayed when the liftgate is open, High is displayed when the liftgate is closed.

Lock All Relay Cmd.

The scan tool displays On/Off. This output of the BCM displays the state of the door lock control command. On is displayed when the BCM is providing battery voltage to the door lock control circuit.

Lock All Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the door lock control circuit. High is displayed when the BCM senses the door lock control circuit is not open or shorted to ground while battery voltage is applied to the door lock control circuit.

Lock Switch

The scan tool displays On/Off. This input to the BCM displays the state of the door lock switches. On is displayed when the BCM senses any door lock switch is pressed to the lock position.

Pass Door Switches

The scan tool displays High/Low. Low is displayed when at least one passenger door is open, High is displayed when all passenger doors are closed.

Pass. Unlock Relay Cmd.

The scan tool displays On/Off. This output of the BCM displays the state of the door unlock control command. On is displayed when the BCM is providing battery voltage to the door unlock control circuit.

Pass. Unlock Relay Fdbk.

The scan tool displays High/Low. This input to the BCM displays the state of the door unlock control circuit. High is displayed when the BCM senses the door unlock control circuit is not open or shorted to ground while battery voltage is applied to the door unlock control circuit.

Remote Lock Cmd.

The scan tool displays Yes/No. This input to the BCM displays the state of the door lock request from the remote keyless entry (RKE) transmitter. Yes is displayed when the RKE transmitter lock button is pressed. For more information on the RKE system, refer to **Keyless Entry System Description and Operation** in Keyless Entry.

Remote Panic Cmd.

The scan tool displays Yes/No. This input to the BCM displays the state of the door lock request from the remote keyless entry (RKE) transmitter. Yes is displayed when the RKE transmitter panic button is pressed. For more information on the RKE system, refer to **Keyless Entry System Description and**

Operation in Keyless Entry.

Remote Unlock Cmd.

The scan tool displays Yes/No. This input to the BCM displays the state of the door lock request from the remote keyless entry (RKE) transmitter. Yes is displayed when the RKE transmitter unlock button is pressed. For more information on the RKE system, refer to **Keyless Entry System Description and Operation** in Keyless Entry.

Unlock Switch

The scan tool displays On/Off. This input to the BCM displays the state of the door lock switches. On is displayed when the BCM senses any door lock switch is pressed to the unlock position.

DIAGNOSTIC TROUBLE CODE (DTC) LIST

Diagnostic Trouble Code (DTC) List

DTC	Diagnostic Procedure	Module(s)
B3127	**DTC B3127 or B3128**	Body Control Module
B3128	**DTC B3127 or B3128**	Body Control Module
B3132	**DTC B3132 or B3133**	Body Control Module
B3133	**DTC B3132 or B3133**	Body Control Module
B3137	**DTC B3137 or B3138**	Body Control Module
B3138	**DTC B3137 or B3138**	Body Control Module

DTC B3127 OR B3128

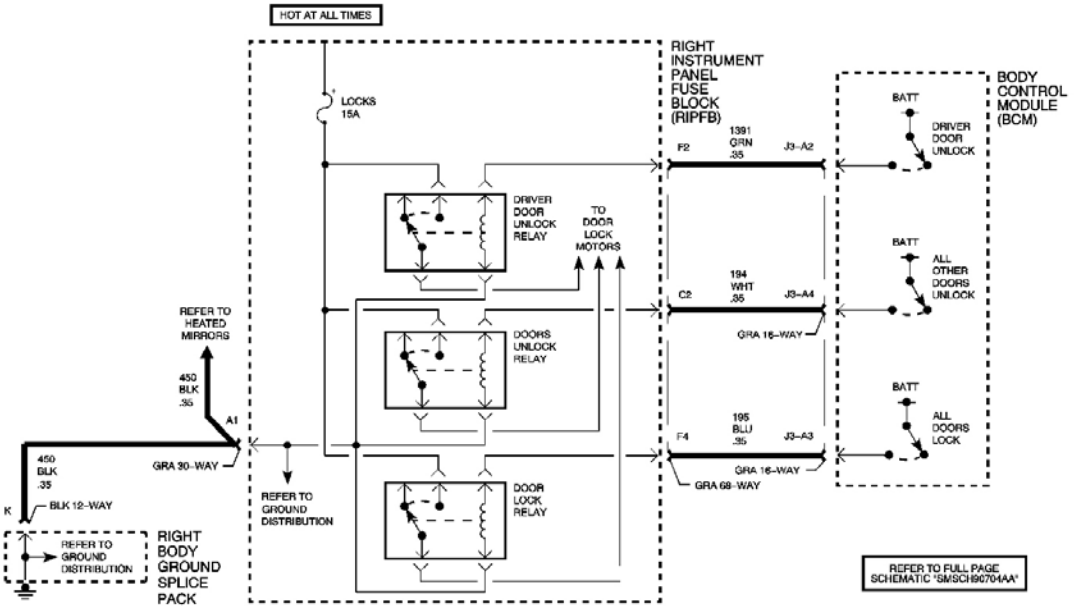


Fig. 5: DTC B3127 or B3128 Circuit
Courtesy of GENERAL MOTORS CORP.

Circuit Description

The body control module (BCM) controls the driver door unlock relay. Voltage is applied to the driver door unlock relay through the driver door unlock relay control circuit when the BCM senses a door unlock switch activation or a keyless entry unlock command.

Conditions for Running the DTC

Battery positive voltage is between 9 and 16 volts.

Conditions for Setting the DTC

- The BCM detects an open in the driver door unlock relay control. This condition must be present for more than 0.3 seconds.
- The BCM detects a short to ground in the driver door unlock relay control while commanding the driver door unlock relay. This condition must be present for more than 0.3 seconds.

Action Taken When the DTC Sets

- The driver door unlock relay will be inoperative.
- The BCM stores either DTC B3127 or DTC B3128 in memory.

Conditions for Clearing the DTC

- A history DTC will clear after 100 consecutive fault free ignition cycles.
- A scan tool may be used to clear the DTC.

Diagnostic Aids

- The following conditions may cause the DTC to set:
  - An open or short to ground in the driver door unlock relay control circuit
  - The a faulty driver door unlock relay
  - The BCM is shorted to ground internally.
- If the DTC's are a history DTC, the fault may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Listen for an audible noise when the driver door unlock relay is commanded. Command the door locks to lock and unlock. Repeat the commands as necessary.

3: Verifies that the BCM is providing voltage to the driver door unlock relay.

4: Tests for an open in the driver door unlock relay ground circuit.

DTC B3127 or B3128 Circuit

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you perform the Diagnostic System Check for the door systems?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the driver door unlock relay ON. Does the driver door lock actuator unlock when commanded?	Go to Diagnostic Aids	Go to **Step 3**
3	1. Turn OFF the ignition. 2. Remove the driver door unlock relay. 3. Turn ON the ignition, with the engine OFF. 4. Probe the driver door unlock relay control circuit with a test lamp connected to a good ground. 5. With a scan tool, command the driver door unlock relay		

	ON. Does the test lamp flash when the driver door unlock relay is commanded ON?	Go to **Step 4**	Go to **Step 5**
4	Connect a test lamp between the driver door unlock relay ground circuit and battery positive voltage. Does the test lamp illuminate?	Go to **Step 7**	Go to **Step 8**
5	Test for an open or short to ground in the driver door unlock relay control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 6**
6	Inspect for poor connections at the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 9**
7	Inspect for poor connections at the driver door unlock relay. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 10**
8	Repair open in the driver door unlock relay ground circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 12**	-
9	1. Replace the body control module. Refer to **Body Control Module Replacement** in Body Control System. 2. Perform the set up procedure for the body control module. Refer to **Body Control Module (BCM) Programming/RPO Configuration** in Body Control System. Did you complete the replacement?	Go to **Step 12**	-
10	Replace the driver door unlock relay. Did you complete the replacement?	Go to **Step 12**	-
12	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to **Step 2**	System OK

DTC B3132 OR B3133

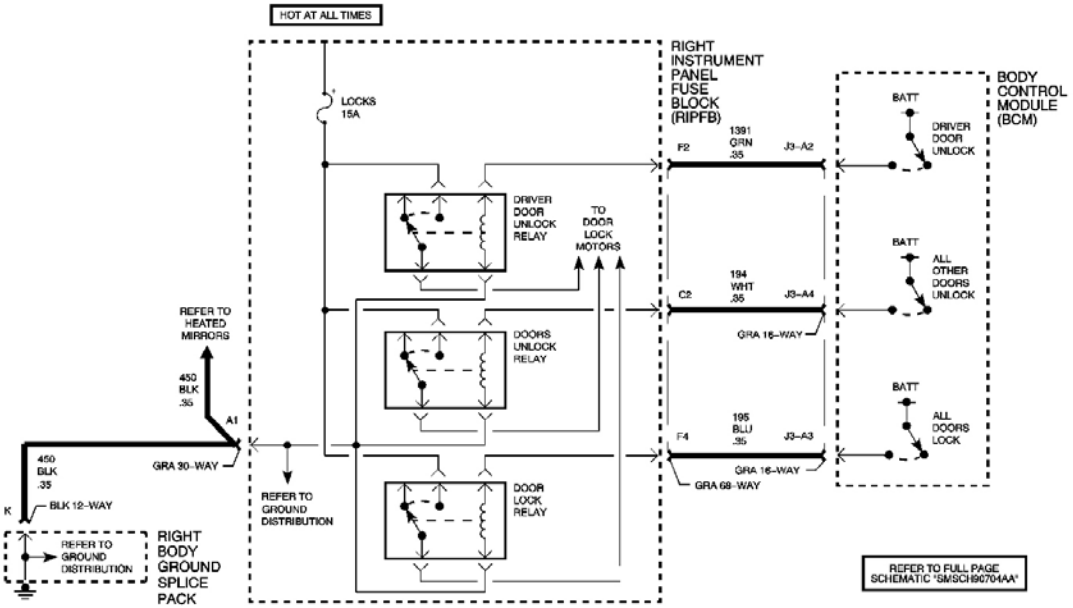


Fig. 6: DTC B3132 or B3133 Circuit
Courtesy of GENERAL MOTORS CORP.

Circuit Description

The body control module (BCM) controls the door unlock relay. Voltage is applied to the door unlock relay through the door unlock relay control circuit when the BCM senses a door unlock switch activation or a keyless entry unlock command.

Conditions for Running the DTC

Battery positive voltage is between 9 and 16 volts.

Conditions for Setting the DTC

- The BCM detects an open in the door unlock relay control. This condition must be present for more than 0.3 seconds.
- The BCM detects a short to ground in the door unlock relay control while commanding the door unlock relay. This condition must be present for more than 0.3 seconds.

Action Taken When the DTC Sets

- The door unlock relay will be inoperative.
- The BCM stores either DTC B3132 or DTC B31233 in memory.

Conditions for Clearing the DTC

- A history DTC will clear after 100 consecutive fault free ignition cycles.
- A scan tool may be used to clear the DTC.

Diagnostic Aids

- The following conditions may cause the DTC to set:
  - An open or short to ground in the door unlock relay control circuit
  - The a faulty door unlock relay
  - The BCM is shorted to ground internally.
- If the DTC's are a history DTC, the fault may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Listen for an audible noise when the door unlock relay is commanded. Command the door locks to lock and unlock. Repeat the commands as necessary.

3: Verifies that the BCM is providing voltage to the door unlock relay.

4: Tests for an open in the door unlock relay ground circuit.

DTC B3132 or B3133 Circuit

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you perform the Diagnostic System Check for the door systems?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the door unlock relay ON. Does the door unlock relay energize when commanded?	Go to Diagnostic Aids	Go to **Step 3**
3	1. Turn OFF the ignition. 2. Remove the door unlock relay. 3. Turn ON the ignition, with the engine OFF. 4. Probe the door unlock relay control circuit with a test lamp connected to a good ground. 5. With a scan tool, command the door unlock relay ON.		

	Does the test lamp flash when the door unlock relay is commanded ON?	Go to **Step 4**	Go to **Step 5**
4	Connect a test lamp between the door unlock relay ground circuit and battery positive voltage. Does the test lamp illuminate?	Go to **Step 7**	Go to **Step 8**
5	Test for an open or short to ground in the door unlock relay control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 6**
6	Inspect for poor connections at the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 9**
7	Inspect for poor connections at the door unlock relay. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 10**
8	Repair open in the door unlock relay ground circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 12**	-
9	1. Replace the body control module. Refer to **Body Control Module Replacement** in Body Control System. 2. Perform the set up procedure for the body control module. Refer to **Body Control Module (BCM) Programming/RPO Configuration** in Body Control System. Did you complete the replacement?	Go to **Step 12**	-
10	Replace the door unlock relay. Did you complete the replacement?	Go to **Step 12**	-
12	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to **Step 2**	System OK

DTC B3137 OR B3138

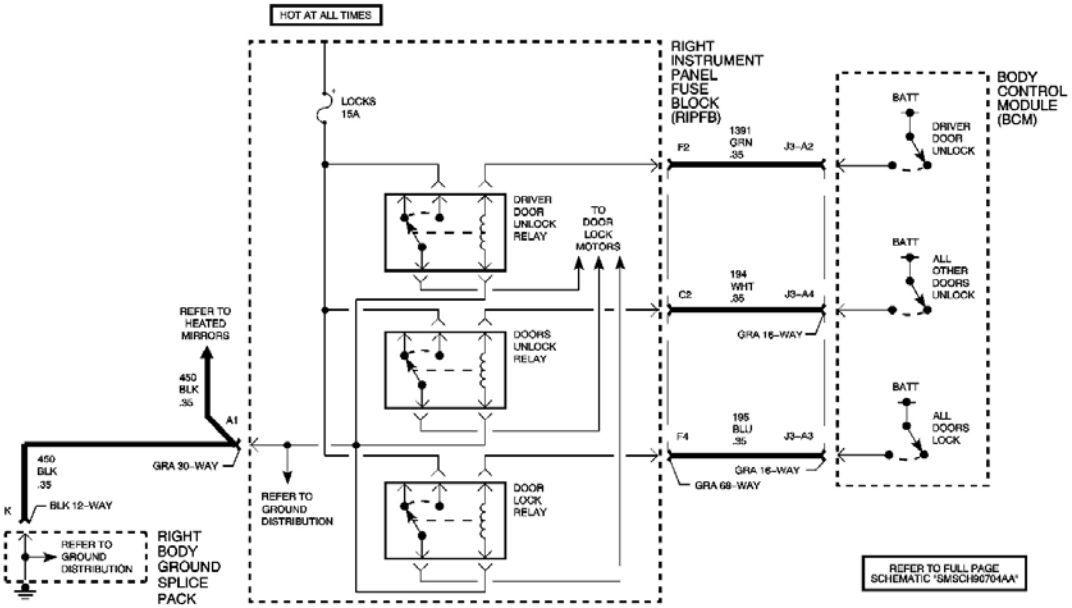


Fig. 7: DTC B3137 or B3138 Circuit
Courtesy of GENERAL MOTORS CORP.

Circuit Description

The body control module (BCM) controls the door lock relay. Voltage is applied to the door lock relay through the door lock relay control circuit when the BCM senses a door lock switch activation or a keyless entry lock command.

Conditions for Running the DTC

Battery positive voltage is between 9 and 16 volts.

Conditions for Setting the DTC

- The BCM detects an open in the door lock relay control. This condition must be present for more than 0.3 seconds.
- The BCM detects a short to ground in the door lock relay control while commanding the door lock relay. This condition must be present for more than 0.3 seconds.

Action Taken When the DTC Sets

- The door lock relay will be inoperative.
- The BCM stores either DTC B3137 or DTC B31238 in memory.

Conditions for Clearing the DTC

- A history DTC will clear after 100 consecutive fault free ignition cycles.
- A scan tool may be used to clear the DTC.

Diagnostic Aids

- The following conditions may cause the DTC to set:
  - An open or short to ground in the door lock relay control circuit
  - The a faulty door lock relay
  - The BCM is shorted to ground internally.
- If the DTC's are a history DTC, the fault may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2: Listen for an audible noise when the door lock relay is commanded. Command the door locks to lock and unlock. Repeat the commands as necessary.

3: Verifies that the BCM is providing voltage to the door lock relay.

4: Tests for an open in the door lock relay ground circuit.

DTC B3137 or B3138 Circuit

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you perform the Diagnostic System Check for the door systems?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the door lock relay ON. Does the door lock relay energize when commanded?	Go to Diagnostic Aids	Go to **Step 3**
3	1. Turn OFF the ignition. 2. Remove the door lock relay. 3. Turn ON the ignition, with the engine OFF. 4. Probe the door lock relay control circuit with a test lamp connected to a good ground. 5. With a scan tool, command the door lock relay ON.		

	Does the test lamp flash when the door lock relay is commanded ON?	Go to **Step 4**	Go to **Step 5**
4	Connect a test lamp between the door lock relay ground circuit and battery positive voltage. Does the test lamp illuminate?	Go to **Step 7**	Go to **Step 8**
5	Test for an open or short to ground in the door lock relay control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 6**
6	Inspect for poor connections at the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 9**
7	Inspect for poor connections at the door lock relay. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 12**	Go to **Step 10**
8	Repair open in the door lock relay ground circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 12**	-
9	1. Replace the body control module. Refer to **Body Control Module Replacement** in Body Control System. 2. Perform the set up procedure for the body control module. Refer to **Body Control Module (BCM) Programming/RPO Configuration** in Body Control System. Did you complete the replacement?	Go to **Step 12**	-
10	Replace the door lock relay. Did you complete the replacement?	Go to **Step 12**	-
12	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to **Step 2**	System OK

SYMPTOMS - DOORS

IMPORTANT:

1. **Perform Diagnostic System Check - Door Systems before using the symptom tables in order to verify that all of the following are true:**
   - **There are no DTCs set.**
   - **The body control module (BCM) 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:**
   - **Power Windows Description and Operation**
   - **Power Door Locks Description and Operation**
   - **Outside Mirror Description and Operation**

Visual/Physical Inspection

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** in Wiring Systems.
- Inspect the easily accessible or visible system components and harness connectors for obvious damage or conditions which could cause the symptom.

Intermittents

IMPORTANT: Check 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 in Wiring Systems.

IMPORTANT: 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 insure 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 a symptom that does not set a DTC:

- **Power Windows Inoperative - All**
- **Power Windows Inoperative - One (Front Power Windows)** or **Power Windows Inoperative - One (Rear Power Windows)**
- **Power Windows Inoperative - Express Down Function**
- **Power Windows Inoperative - Lockout Function**
- **Power Door Locks Inoperative - All Doors and Switches**
- **Power Door Locks Inoperative - One Door or Switch**
- **Power Door Locks Inoperative - Lockout Feature**
- **Power Mirrors Inoperative**

POWER WINDOWS INOPERATIVE - ALL

Power Windows Inoperative - All

Step	Action	Yes	No
Schematic Reference: Power Window Schematics Connector End View Reference: Power Door Systems Connector End Views			
1	Did you perform the Door Systems Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Operate all power windows from all power window switches. Did all the power windows operate from all power window switches correctly?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Did any power window operate from any power window switch?	Go to **Symptoms - Doors**	Go to **Step 4**
4	1. Remove the power window relay. 2. Connect a test lamp to a good ground. 3. Probe the power window relay battery positive voltage circuit at the power window relay harness connector. Does the test lamp illuminate?	Go to **Step 5**	Go to **Step 9**
5	1. Turn ON the ignition, with the engine OFF. 2. Connect a test lamp to a good ground. 3. Probe the power window relay accessory voltage control circuit at the power window relay harness connector.		

	Does the test lamp illuminate?	Go to **Step 6**	Go to **Step 10**
6	With the ignition still ON, connect the test lamp between the power window relay accessory voltage control circuit and the power window relay ground circuit at the relay connector. Does the test lamp illuminate?	Go to **Step 7**	Go to **Step 11**
7	1. Connect a fused jumper harness between the power window relay battery positive voltage circuit and power window switch accessory voltage circuit. 2. Operate the power windows from the power window switches. Did the power windows operate?	Go to **Step 8**	Go to **Step 9**
8	Inspect for a poor connections at the power window relay. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	Go to **Step 12**
9	Repair the open or short to ground in the power window relay battery positive voltage circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	-
10	Repair the open or short to ground in the power window relay accessory voltage circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	-
11	Repair the open in the power window relay ground circuit. Refer to **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	-
12	Replace the power window relay. Is the repair complete?	Go to **Step 13**	-
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 2**

POWER WINDOWS INOPERATIVE - ONE (FRONT POWER WINDOWS)

Test Description

The number below refers to the step number on the diagnostic table.

3: The rear passenger power window switches on the master switch share common accessory voltage and ground circuits with the front windows. If the rear passenger power windows operate properly from the master switch the accessory voltage and ground circuits can be presumed good.

Power Windows Inoperative - One (Front Power Windows)

Step	Action	Yes	No
Schematic Reference:Power Window Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you review the Power Windows Description and Operation?	Go to **Step 2**	Go to **Symptoms - Doors**
2	1. Turn ON the ignition, with the engine OFF. 2. Operate the front power windows from the front power window switch. Do the front power windows operate properly?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Operate the rear passenger windows from the front power window switch. Do the rear passenger windows operate properly?	Go to **Step 4**	Go to **Power Windows Inoperative - All**
4	1. Disconnect the inoperative front power window motor. 2. Connect a test lamp to a good ground. 3. Probe the power window motor up circuit at the power window motor harness connector. 4. Activate the power window switch in the up direction. Does the test lamp illuminate?	Go to **Step 5**	Go to **Step 7**
5	1. With the test lamp still connected to a good ground, prove the power window motor down circuit at the power window motor harness connector. 2. Activate the power window switch in the down direction. Does the test lamp illuminate?	Go to **Step 6**	Go to **Step 8**
6	1. Connect a test lamp between the power window motor up and down circuits at the power window motor harness connector. 2. Activate the power window switch in the up and down directions. Does the test lamp illuminate in both directions?	Go to **Step 10**	Go to **Step 9**
7	Test the power window motor up circuit for an open or short to ground. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	Go to **Step 9**
	Test the power window motor down circuit for an		

8	open or short to ground. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	Go to **Step 10**
9	Inspect for poor connections at the front power window switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	Go to **Step 11**
10	Inspect for poor connections at the power window motor. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 13**	Go to **Step 12**
11	Replace the power window master switch. Refer to **Power Window Switch Replacement** . Did you complete the repair?	Go to **Step 13**	-
12	Replace the power window motor. Did you complete the repair?	Go to **Step 13**	-
13	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 2**

POWER WINDOWS INOPERATIVE - ONE (REAR POWER WINDOWS)

Power Windows Inoperative - One (Rear Power Windows)

Step	Action	Yes	No
Schematic Reference:Power Window Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you review the Power Window Description and Operation?	Go to **Step 2**	Go to **Symptoms - Doors**
2	1. Turn ON the ignition, with the engine OFF. 2. Turn OFF the window lockout switch. 3. Operate the rear passenger windows up and down from both the rear passenger window switch and the master window switch. Do the rear passenger windows operate properly from both switches?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Does the rear passenger window operate from the master window switch and not the rear passenger window switch?	Go to **Step 5**	Go to **Step 4**
4	Does the rear passenger window operate from the rear passenger window switch and not the master window switch?	Go to **Step 6**	Go to **Step 7**
	1. Disconnect the passenger power window		

5	switch. 2. Connect a test lamp between the window lockout control circuit at the passenger power window switch harness connector and a good ground. Does the test lamp illuminate?	Go to **Step 17**	Go to **Step 12**
6	Does the driver window operate from the master switch?	Go to **Step 20**	Go to **Power Windows Inoperative - All**
7	1. Disconnect the passenger power window motor. 2. Connect a test lamp between power window motor up circuit at the passenger power window motor harness connector and a good ground. 3. Operate the passenger power window in the up direction form the power window master switch. Did the test lamp illuminate?	Go to **Step 8**	Go to **Step 10**
8	1. Connect a test lamp between power window motor down circuit at the passenger power window motor harness connector and a good ground. 2. Operate the passenger power window in the down direction from the power window master switch. Did the test lamp illuminate?	Go to **Step 9**	Go to **Step 11**
9	1. Connect a test lamp between power window motor up and down circuits at the passenger power window motor harness connector. 2. Operate the passenger power window in the up and down directions. Did the test lamp illuminate in both directions?	Go to **Step 18**	Go to **Step 19**
10	1. Disconnect the passenger power window switch. 2. Connect a test lamp between the power window master switch up signal circuit at the passenger power window switch harness connector and a good ground.		

	3. Operate the passenger power window in the up direction from the power window master switch. Did the test lamp illuminate?	Go to **Step 15**	Go to **Step 13**
11	1. Disconnect the passenger power window switch. 2. Connect a test lamp between the power window master switch down signal circuit at the passenger power window switch harness connector and a good ground. 3. Operate the passenger power window in the down direction form the power window master switch. Did the test lamp illuminate?	Go to **Step 16**	Go to **Step 14**
12	Test for an open or short to ground in the window lockout control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 20**
13	Test for an open or short to ground in the power window master switch up signal circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 19**
14	Test for an open or short to ground in the power window master switch down signal circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 19**
15	Test for an open or short to ground in the power window motor up control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 17**
16	Test for an open or short to ground in the power window motor down control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 17**
17	Inspect for poor connections at the passenger power window switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 22**
	Inspect for poor connections at the passenger		

18	power window motor. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 21**
19	Inspect for poor connections at the power window master switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 20**
20	Replace the power window master switch. Refer to **Power Window Switch Replacement** . Did you complete the repair?	Go to **Step 23**	-
21	Replace the rear passenger power window motor. Did you complete the repair?	Go to **Step 23**	-
22	Replace the passenger power window switch. Refer to **Power Window Switch Replacement** . Did you complete the repair?	Go to **Step 23**	-
23	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 2**

POWER WINDOWS INOPERATIVE - EXPRESS DOWN FUNCTION

Power Windows Inoperative - Express Down Function

Step	Action	Yes	No
Schematic Reference:Power Window Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you perform the Door Systems Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Operate the driver window. Does the window operate normally with the exception of the express down function?	Go to **Step 3**	Go to **Symptoms - Doors**
3	Replace the driver power window switch. Refer to **Power Window Switch Replacement** . Is the repair complete?	Go to **Step 4**	-
4	Operate the system to verify the repair. Did you correct the condition?	System OK	-

POWER WINDOWS INOPERATIVE - LOCKOUT FUNCTION

Power Windows Inoperative - Lockout Function

Step	Action	Yes	No
Schematic Reference:Power Window Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
	Did you perform the Door Systems Diagnostic		Go to **Diagnostic**

1	System Check?	Go to **Step 2**	**System Check - Door Systems**
2	Verify that the rear window lockout function does not work properly. Does the lockout function operate properly?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	1. Disconnect the driver power window switch. 2. Test the power window master switch lockout signal circuit for an open, short to voltage and short to ground. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 5**	Go to **Step 4**
4	Replace the driver power window switch. Refer to **Power Window Switch Replacement** . Is the repair complete?	Go to **Step 5**	-
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 2**

DOOR AJAR INDICATOR MALFUNCTION

Door Ajar Indicator Malfunction

Step	Action	Yes	No
Schematic Reference: Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you perform the Door Systems Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Open and close the driver and passenger doors one at a time while monitoring the DIC display. Do the door ajar indicators operate properly?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Do the dome lamps operate properly with the opening and closing of each of the doors?	Go to **Step 4**	Go to **Symptoms - Lighting Systems** in Lighting Systems
4	**IMPORTANT:** **Perform the setup procedure for the instrument panel cluster.** Replace the instrument panel cluster. Refer to **Instrument Panel Cluster (IPC) Replacement** in Instrument Panel, Gages and		

	Console.Did you complete the replacement?	Go to **Step 5**	-
5	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 3**

POWER DOOR LOCKS INOPERATIVE - ALL DOORS AND SWITCHES

Power Door Locks Inoperative - All Doors and Switches

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views** , **Body Control System Connector End Views** , or **Electrical Center Identification Views**			
1	Did you perform the Door System Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Verify that all door locks and switches are inoperative. Do the power door locks operate normally?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring System	Go to **Step 3**
3	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the doors to lock and unlock. Do the door lock actuators lock and unlock with each command?	Go to **Step 4**	Go to **Step 7**
4	With the scan tool, monitor the door lock and unlock switch parameters while activating the door lock switches to the lock and unlock positions. Do the scan tool parameters change with each switch activation?	Go to **Step 14**	Go to **Step 5**
5	Is the LOCK/MIRROR fuse open?	Go to **Step 16**	Go to **Step 6**
6	Probe the supply side of the LOCK/MIRROR fuse with a test lamp connected to a good ground. Does the test lamp illuminate?	Go to **Step 12**	Go to **Step 18**
7	Is the DR LCK fuse open?	Go to **Step 17**	Go to **Step 8**
8	Probe the supply side of the DR LCK fuse with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to **Step 9**	Go to **Step 18**
9	Are both lock and unlock functions inoperative?	Go to **Step 19**	Go to **Step 10**
10	1. Remove the appropriate door lock or unlock relay. 2. Connect a test lamp to a good ground. 3. Probe the relay control circuit.		

	4. Activate a door lock switch to the lock or unlock position. Did the test lamp illuminate?	Go to **Step 15**	Go to **Step 20**
11	Test the battery positive voltage circuit from the DR LCK fuse to the door lock relays for an open. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 18**
12	Test the battery positive voltage circuit from the LOCK/MIRROR fuse to the door lock switches for an open. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 11**
13	Inspect for poor connections at the I/P fuse block harness connectors. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 14**
14	Inspect for poor connections at the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 21**
15	Inspect for poor connections at the door lock relay. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	Go to **Step 22**
16	Repair the short to ground in the battery positive voltage circuit from the LOCK/MIRROR fuse to the I/P fuse block. Refer to **Wiring Repairs** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	-
17	Repair the short to ground in the battery positive voltage circuit from the BODY fuse to the door lock switches. Refer to **Wiring Repairs** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	-
18	Repair the open in the battery positive voltage circuit. Refer to **Wiring Repairs** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 23**	-
19	Repair the open in the door lock relay ground circuit. Refer to **Wiring Repairs** and **Connector Repairs** in		

	Wiring Systems. Did you complete the repair ?	Go to **Step 23**	-
20	Repair the open or short to ground in the door lock relay control circuit. Refer to **Wiring Repairs** and **Connector Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 23**	-
21	1. Perform the set-up procedure for the body control module. Refer to **Body Control Module (BCM) Programming/RPO Configuration** in Body Control System. 2. Replace the body control Module. Refer to **Body Control Module Replacement** in Body Control System. Did you complete the replacement?	Go to **Step 23**	-
22	Replace the appropriate door lock relay. Did you complete the repair?	Go to **Step 23**	-
23	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to **Step 2**

POWER DOOR LOCKS INOPERATIVE - ONE DOOR OR SWITCH

Power Door Locks Inoperative - One Door or Switch

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views , Body Control System Connector End Views , or Electrical Center Identification Views**			
1	Did you perform the Door System Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Verify the one door or switch power door locks inoperative fault is present. Do the power door locks operate normally?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring System	Go to **Step 3**
3	Is the door lock switch the inoperative component?	Go to **Step 4**	Go to **Step 6**
4	Are both the LOCK and UNLOCK functions inoperative?	Go to **Step 10**	Go to **Step 5**
5	Is the LOCK function the inoperative function?	Go to **Step 11**	Go to **Step 12**
6	Is the driver door lock actuator the inoperative actuator?	Go to **Step 7**	Go to **Step 8**
	1. Disconnect the driver door lock actuator. 2. Connect a test lamp between the driver door lock actuator unlock control circuit and the door lock actuator lock control circuit of the driver		

7	door lock actuator electrical connector. 3. Activate a door lock switch to the LOCK and UNLOCK positions. Does the test lamp illuminate?	Go to **Step 16**	Go to **Step 13**
8	1. Disconnect the appropriate door lock actuator. 2. Connect a test lamp between the door lock actuator unlock control circuit and the door lock actuator lock control circuit of the appropriate door lock actuator electrical connector. 3. Activate a door lock switch to the LOCK position. Does the test lamp illuminate?	Go to **Step 9**	Go to **Step 14**
9	Activate a door lock switch to the UNLOCK position. Does the test lamp illuminate?	Go to **Step 17**	Go to **Step 15**
10	Test the battery positive voltage circuit from the BODY fuse to the door lock switch for an open. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 18**
11	Test the driver door lock switch lock signal circuit for an open or short to battery. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 19**
12	Test the driver door lock switch unlock signal circuit for an open or short to battery. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 19**
13	Test the driver door lock actuator unlock control circuit for an open or short to battery. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 15**
14	Test the appropriate door lock actuator lock control circuit for an open or short to battery. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 20**
15	Test the appropriate door lock actuator unlock control circuit for an open or short to battery. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 20**
16	Inspect for poor connections at the driver door lock actuator. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems.		

	Did you find and correct the condition?	Go to **Step 25**	Go to **Step 21**
17	Inspect for poor connections at the appropriate door lock actuator. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 21**	Go to **Step 21**
18	Inspect for poor connections at the appropriate door lock switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 22**
19	Inspect for poor connections at the body control module. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 23**
20	Inspect for poor connections at the right I/P fuse block harness connectors. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 25**	Go to **Step 24**
21	Replace the appropriate door lock actuator. Refer to **Latch Replacement - Front Door** or **Latch Replacement - Rear Door** . Did you complete the repair?	Go to **Step 25**	-
22	Replace the appropriate door lock switch. Refer to **Power Door Lock Switch Replacement** . Did you complete the repair?	Go to **Step 25**	-
23	1. Perform the set-up procedure for the body control module. Refer to **Body Control Module (BCM) Programming/RPO Configuration** in Body Control System. 2. Replace the body control Module. Refer to **Body Control Module Replacement** in Body Control System. Did you complete the replacement?	Go to **Step 25**	-
24	Replace the appropriate door lock relay. Did you complete the repair?	Go to **Step 25**	-
25	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to **Step 2**

POWER DOOR LOCKS INOPERATIVE - LOCKOUT FEATURE

Power Door Locks Inoperative - Lockout Feature

Step	Action	Yes	No
Schematic Reference:Door Lock/Indicator Schematics **Connector End View Reference:Power Door Systems Connector End Views** or **Body Control System Connector End Views** in Body Control System.			
1	Did you perform the Door Systems Diagnostic System Check?	Go to **Step 2**	Go to **Diagnostic System Check - Door Systems**
2	Verify that the power door locks lockout feature is inoperative. Does the power door locks lockout feature operate normally?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Are the power door locks inoperative?	Go to **Symptoms - Doors**	Go to **Step 4**
4	1. Close all the doors. 2. Open and close each door while observing the courtesy lamps. Did the courtesy lamps illuminate for each door tested?	Go to **Step 5**	Go to **Courtesy Lamps Inoperative** in Lighting Systems
5	1. Insert the ignition key fully into the ignition cylinder. 2. Open the driver door. Does the chime activate?	Go to **Step 6**	Go to **Chime Inoperative** in Instrument Panel, Gages, and Console
6	**IMPORTANT:** **Perform the set up procedure for the BCM. Refer to Body Control Module (BCM) Programming/RPO Configuration in Body Control System.** Replace the BCM. Refer to **Body Control Module Replacement** in Body Control System.Did you complete the replacement?	Go to **Step 7**	-
7	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to **Step 3**

POWER MIRRORS INOPERATIVE

Diagnostic Aids

- If the power mirror system fuse is open and a short to ground in the battery positive voltage circuit is not detected, the fault could be a short to ground in one of the power mirror control circuits. This would open the power mirror system fuse when the mirror switch is pressed.
- If both power mirrors are inoperative on one or more axis, the most probable cause is a power mirror

switch failure. However the fault could be an open circuit on two or more of the power mirror control circuits.

- The power mirror assembly is equipped with a pigtail harness and is not serviceable. If an internal open or short is detected in the power mirror assembly, replace the power mirror assembly.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

6: This step tests the integrity of both the mirror control circuits and the power mirror switch. If both power mirrors are inoperative on one or more axis, begin testing by disconnecting one of the power mirrors, if an open circuit is detected and repaired for that power mirror, repeat step 6 for the other power mirror.

7: This step tests the integrity of the battery positive voltage circuit not the fuse.

Power Mirrors Inoperative

Step	Action	Yes	No
Schematic Reference:Outside Mirror Schematics **Connector End View Reference:Power Door Systems Connector End Views**			
1	Did you review the Outside Mirror Description and Operation?	Go to **Step 2**	Go to **Outside Mirror Description and Operation**
2	1. Place the mirror selector switch in the left mirror position. 2. Operate the mirror position switch in the up, down, left and right directions and note the operation. 3. Place the mirror selector switch in the right mirror position. 4. Operate the mirror position switch in the up, down, left and right directions and note the operation. Do both power mirrors operate properly?	Go to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems	Go to **Step 3**
3	Are both the left and right power mirrors completely inoperative?	Go to **Step 4**	Go to **Step 6**
4	1. Disconnect the power mirror switch. 2. Probe the battery positive voltage circuit of the power mirror switch harness connector with a test lamp that is connected to ground. Does the test lamp illuminate?	Go to **Step 5**	Go to **Step 7**
	Connect a test lamp between the battery positive		

5	voltage circuit of the power mirror switch harness connector and the ground circuit of the power mirror switch harness connector. Does the test lamp illuminate?	Go to **Step 9**	Go to **Step 15**
6	1. Disconnect the inoperative power mirror. 2. Connect a test lamp between the appropriate mirror motor control circuits of the power mirror harness connector. 3. Place the mirror selector switch to the mirror to be tested. 4. Operate the power mirror switch in both directions for the functions being tested. Does the test lamp illuminate in both directions?	Go to **Step 12**	Go to **Step 8**
7	Test the battery positive voltage circuit of the power mirror switch for a short to ground or an open. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 9**
8	Test the mirror motor control circuits for an open. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 9**
9	1. If the power mirrors were previously disconnected, connect the power mirrors. 2. If the power mirror switch was not previously disconnected, disconnect the power mirror switch. 3. Probe each of the power mirror motor control circuits of the power mirror switch harness connector with a test lamp that is connected to battery positive voltage. Did the test lamp illuminate at any of the power mirror motor control circuits?	Go to **Step 13**	Go to **Step 10**
10	Probe each of the power mirror motor control circuits of the power mirror switch harness connector with a test lamp that is connected to a good ground. Did the test lamp illuminate at any of the power mirror motor control circuits?	Go to **Step 14**	Go to **Step 11**
11	Inspect for poor connections at the harness connector of the power mirror switch. Refer to **Testing for Intermittent Conditions and Poor**		

	Connections and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 16**
12	Inspect for poor connections at the harness connector of the power mirror. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** in Wiring Systems. Did you find and correct the condition?	Go to **Step 18**	Go to **Step 17**
13	Repair the short to ground in the power mirror motor control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 18**	-
14	Repair the short to battery positive voltage in the power mirror motor control circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 18**	-
15	Repair the open in the power mirror switch ground circuit. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems. Did you complete the repair?	Go to **Step 18**	-
16	Replace the power mirror switch. Refer to **Power Mirror Switch Replacement** . Did you complete the replacement?	Go to **Step 18**	-
17	Replace the power mirror. Refer to **Mirror Replacement** . Did you complete the replacement?	Go to **Step 18**	-
18	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to **Step 3**

REPAIR INSTRUCTIONS

POWER WINDOW SWITCH REPLACEMENT

Removal Procedure

1. Remove the console shift lever bezel. Refer to **Console Shift Lever Bezel Replacement** in Instrument Panel, Gages, and Console.

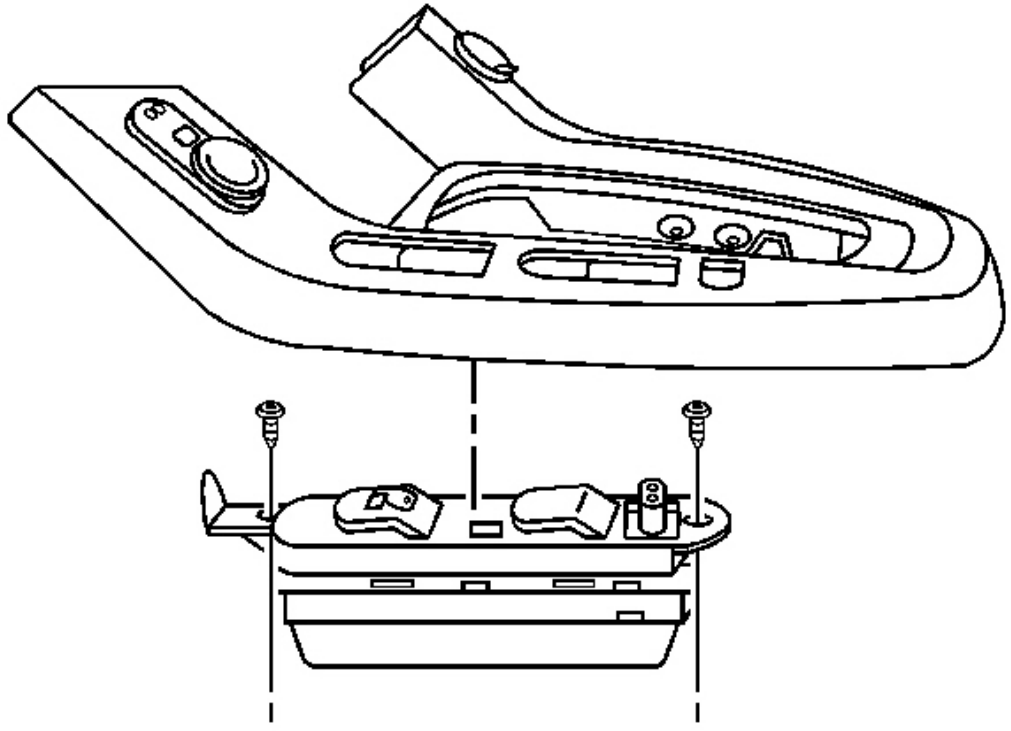


Fig. 8: View Of Power Window Switch
Courtesy of GENERAL MOTORS CORP.

2. Remove the screws from the power window switch assembly.
3. Remove the switch assembly from the bezel.

Installation Procedure

1. Position the switch assembly.

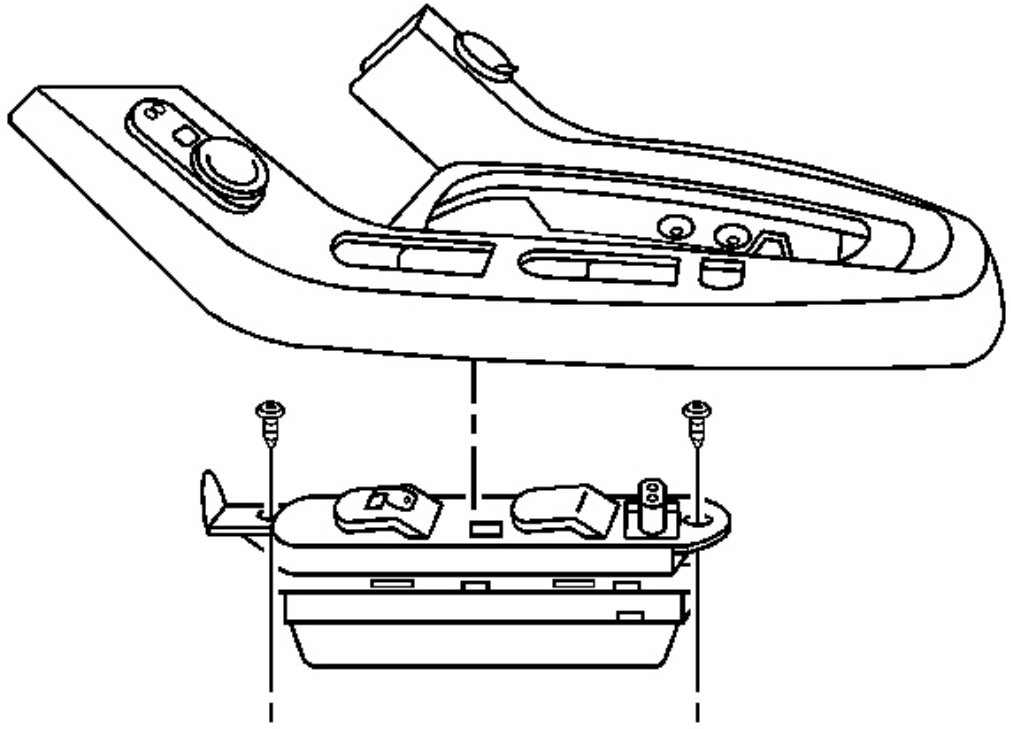


Fig. 9: View Of Power Window Switch
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the screws to the power mirror switch assembly.

   Tighten: Tighten the screws to 2.5 N.m (22 lb in).

3. Install the console shift lever bezel. Refer to **Console Shift Lever Bezel Replacement** in Instrument Panel, Gages, and Console.

POWER DOOR LOCK SWITCH REPLACEMENT

Removal Procedure

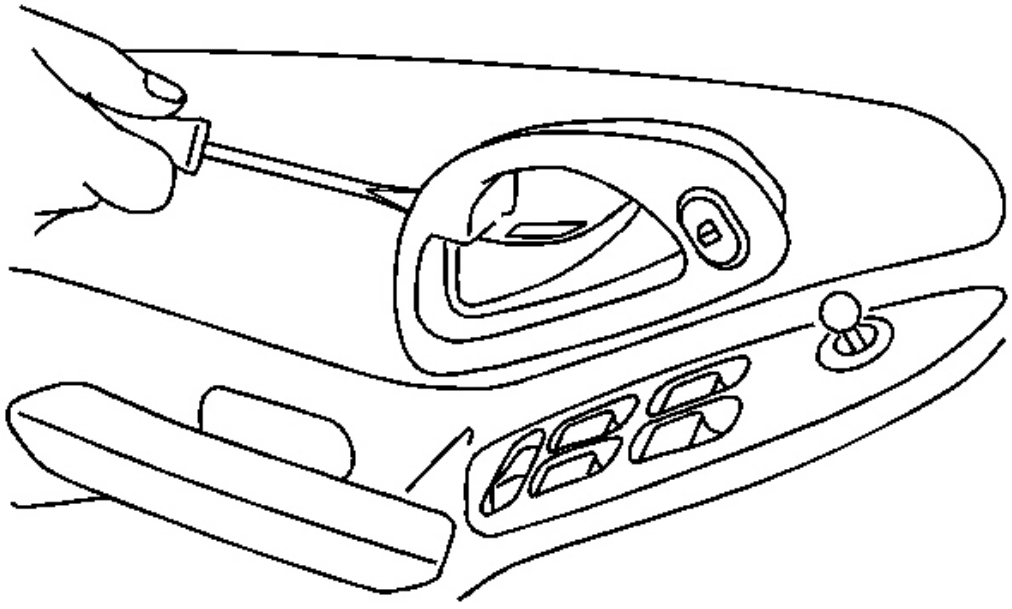


Fig. 10: View Of Power Door Lock Switch
Courtesy of GENERAL MOTORS CORP.

1. Use a flat-bladed tool to pry the switch from the door handle assembly.
2. Disconnect the electrical connector and remove the switch.

Installation Procedure

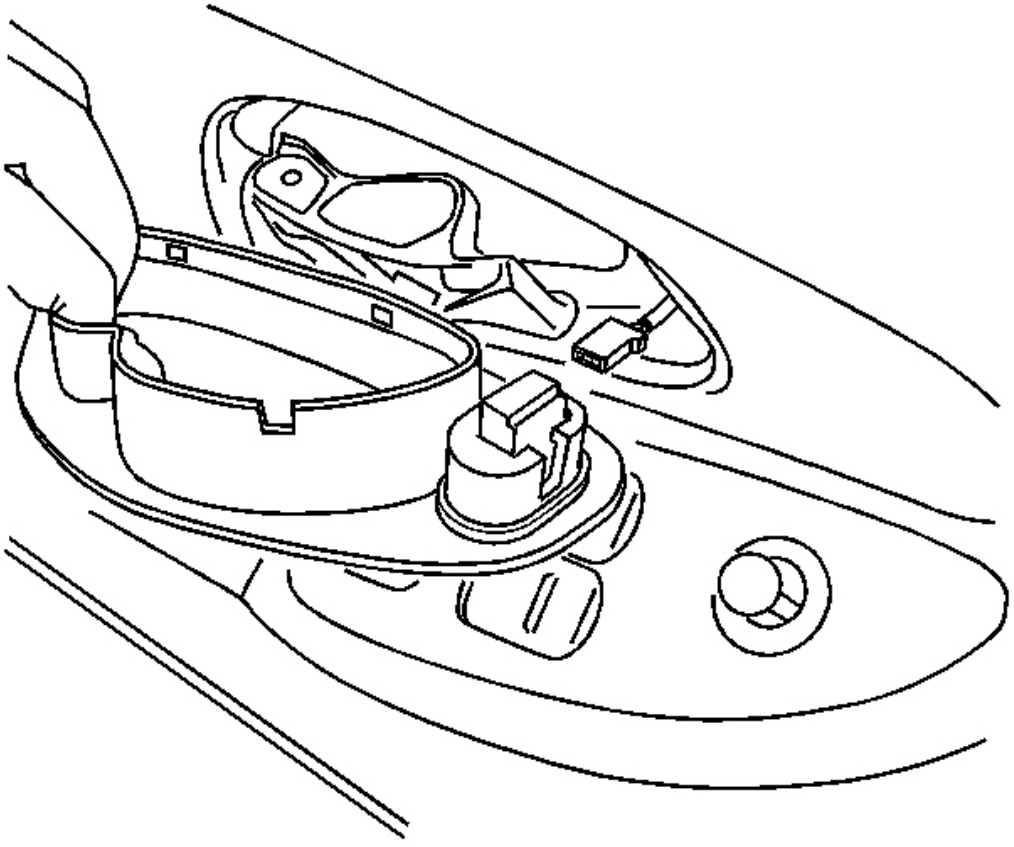


Fig. 11: View Of Switch On The Door Handle Assembly
Courtesy of GENERAL MOTORS CORP.

1. Connect the electrical connector to the switch.
2. Position the switch on the door handle assembly and push inward to seat the switch.

POWER MIRROR SWITCH REPLACEMENT

Removal Procedure

1. Remove the console shift lever bezel. Refer to **Console Shift Lever Bezel Replacement** in Instrument Panel, Gages, and Console.

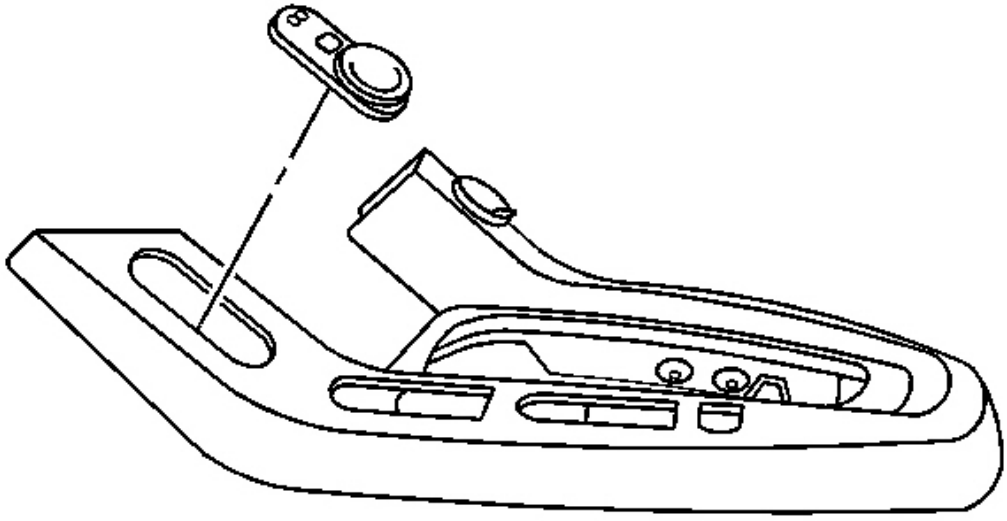


Fig. 12: View Of Power Mirror Switch
Courtesy of GENERAL MOTORS CORP.

2. Press the locking tabs on the rear of the bezel.
3. Remove the switch from the bezel.

Installation Procedure

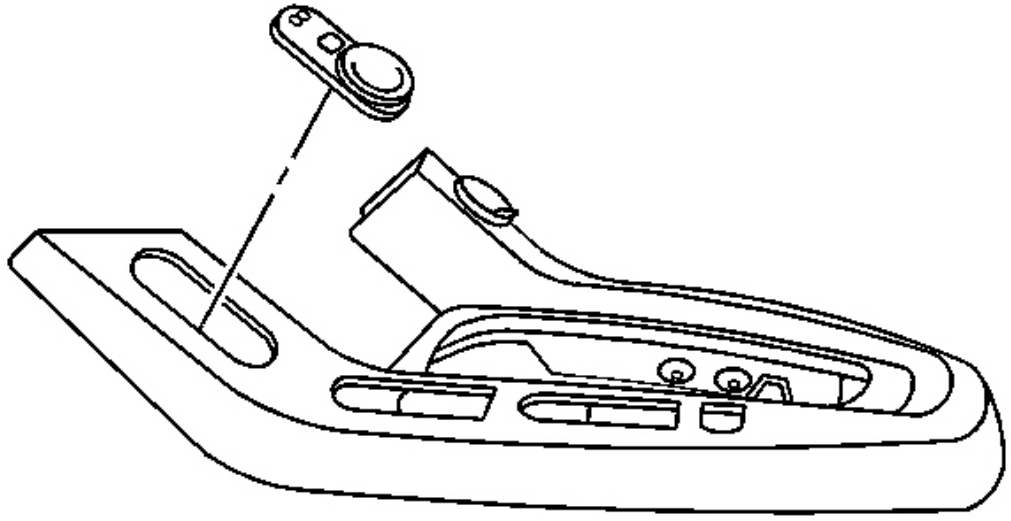


Fig. 13: View Of Power Mirror Switch
Courtesy of GENERAL MOTORS CORP.

1. Align the mirror switch with the shift lever bezel and press into place.
2. Install the bezel. Refer to **Console Shift Lever Bezel Replacement** in Instrument Panel, Gages, and Console.

WINDOW REGULATOR HANDLE REPLACEMENT - DOOR

Removal Procedure

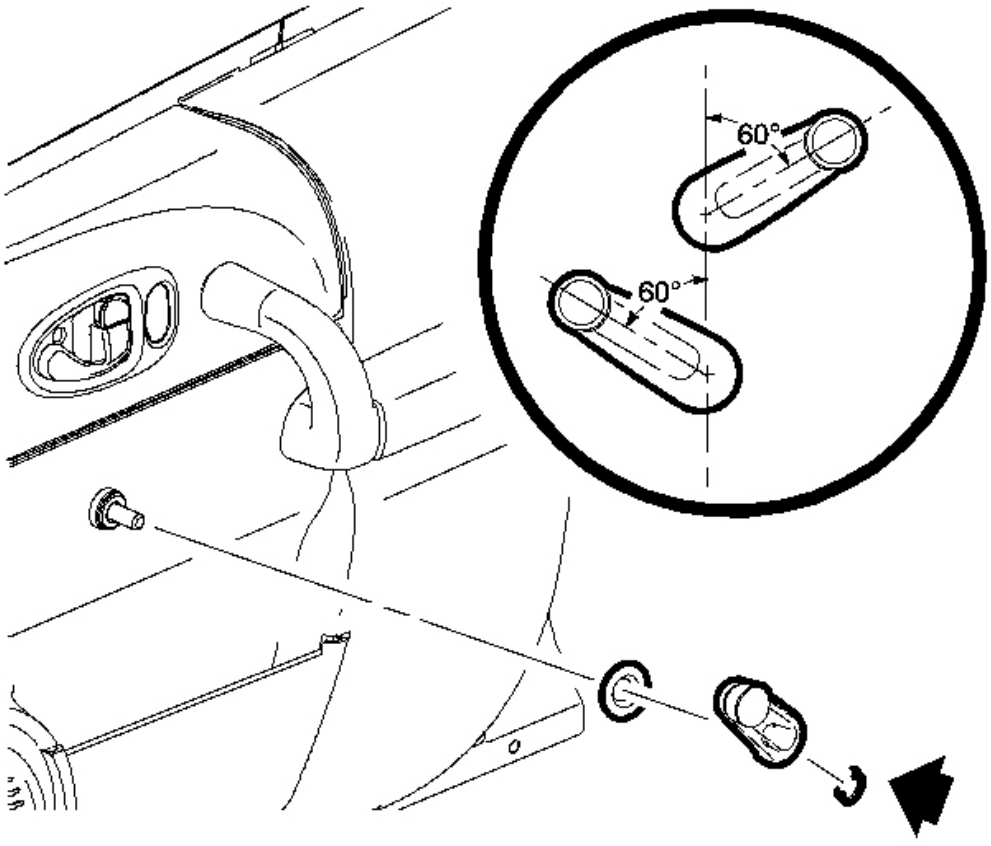


Fig. 14: View Of Window Regulator Handle
Courtesy of GENERAL MOTORS CORP.

1. Using a standard handle tool, disengage the retention spring from the window regulator handle.
2. Remove the handle and the bearing plate.

Installation Procedure

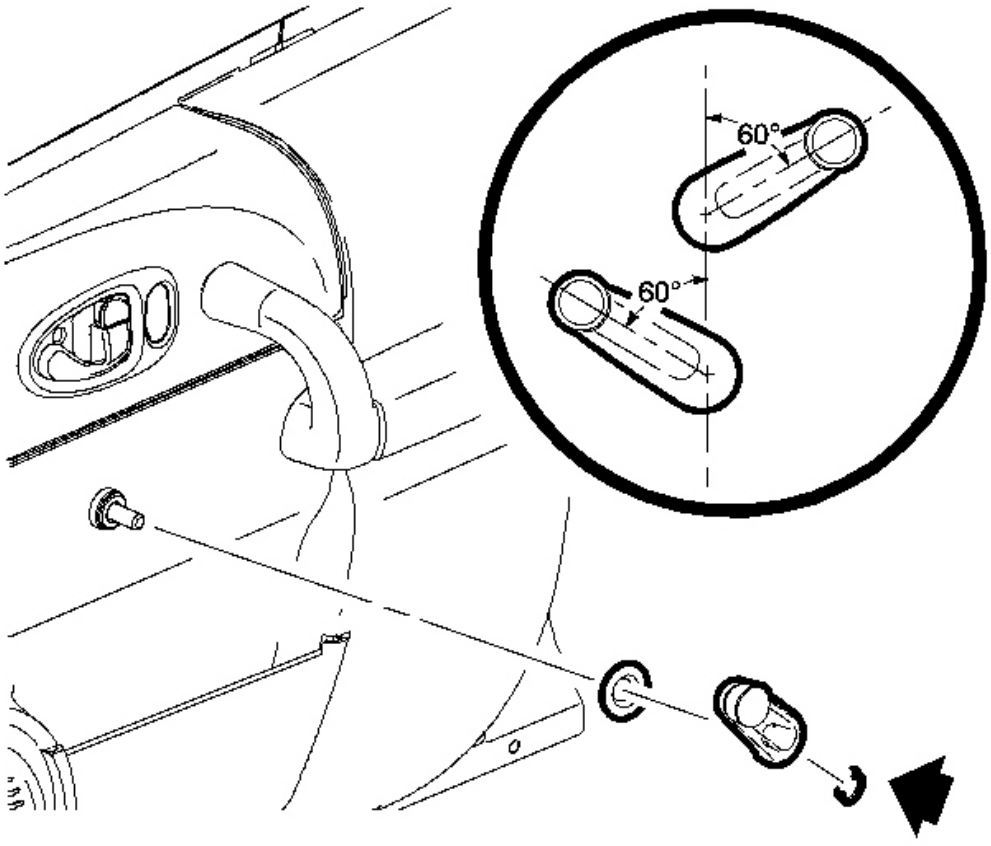


Fig. 15: View Of Window Regulator Handle
Courtesy of GENERAL MOTORS CORP.

1. Install the retention spring on the window regulator handle.
2. Install the bearing plate on the regulator spindle.
3. Install the handle to the regulator spindle at a position 60 degrees forward of the up position. The illustration shows the proper angle for both the right and the left side doors.

TRIM PANEL REPLACEMENT - UPPER EXTENSION

Removal Procedure

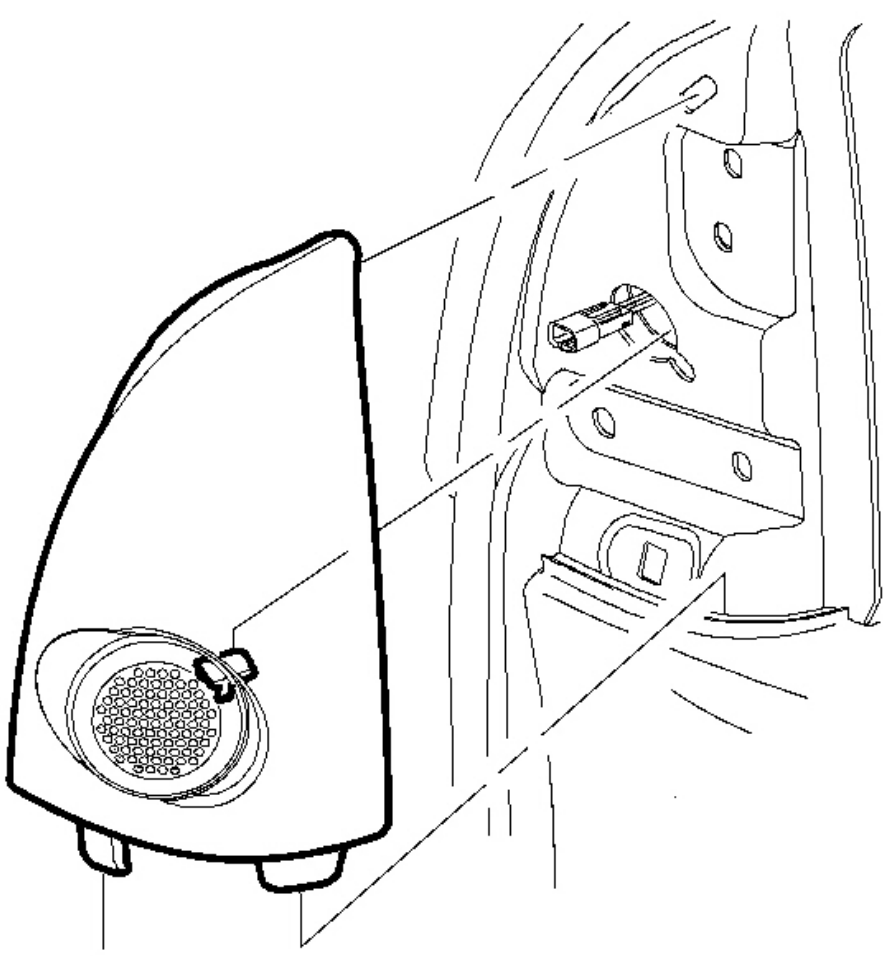


Fig. 16: View Of Upper Extension Trim Panel
Courtesy of GENERAL MOTORS CORP.

1. Gently pull at the top end of the extension panel cover to disengage the attaching clips.
2. Lift the extension panel out from behind the door trim panel.
3. While holding the extension panel, disconnect the electrical connector from the speaker.

Installation Procedure

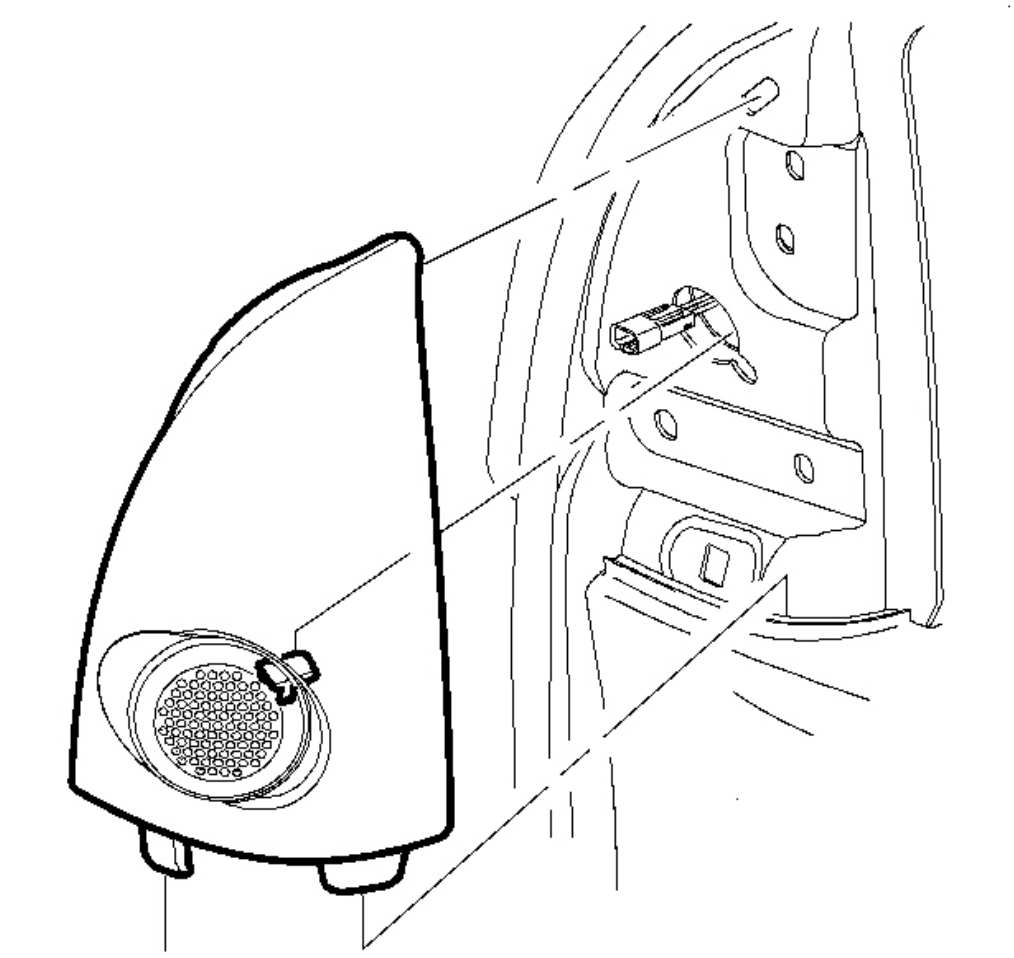


Fig. 17: View Of Upper Extension Trim Panel
Courtesy of GENERAL MOTORS CORP.

1. Connect the electrical connector to the speaker.
2. Position the extension panel over the door trim panel with the extension panel mounting tabs behind the door trim panel.
3. Gently push on the extension panel to engage the attaching clips.

TRIM PANEL REPLACEMENT - SIDE FRONT DOOR (EARLY PRODUCTION)

Removal Procedure

1. Remove the inner door handle. Refer to **Door Handle Replacement - Inside** .

2. Remove the upper extension trim panel. Refer to **Trim Panel Replacement - Upper Extension** .

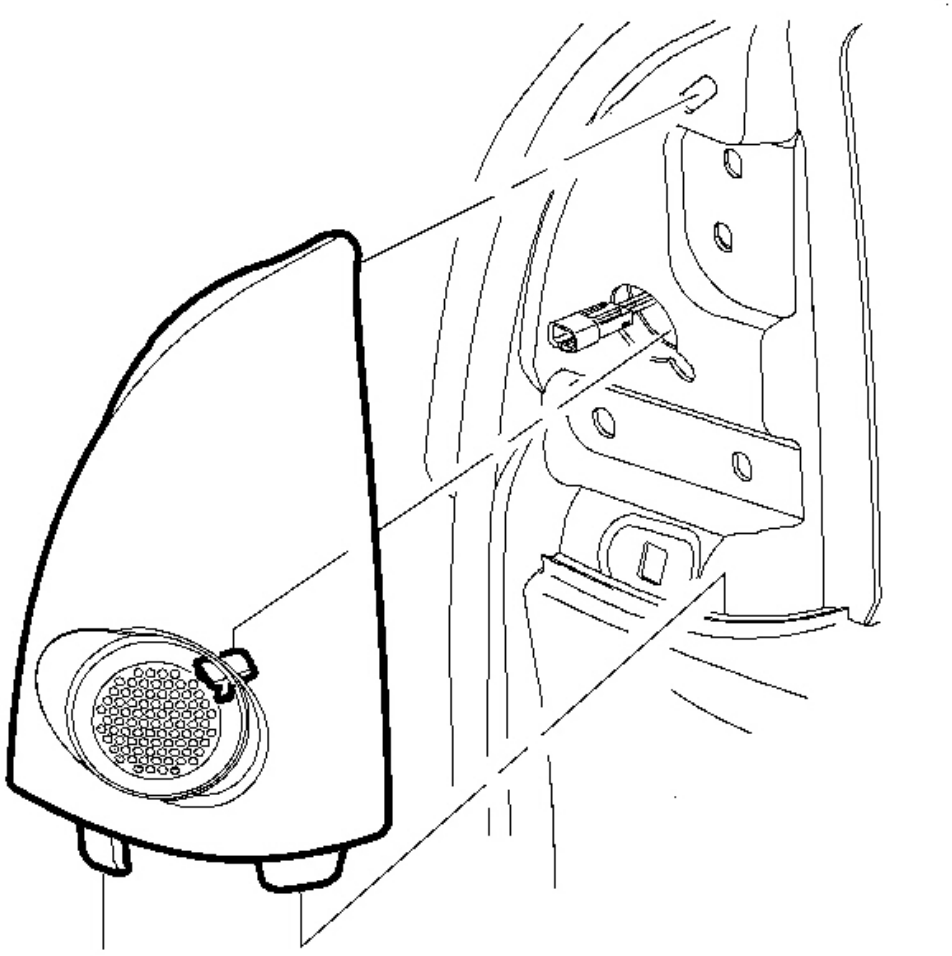


Fig. 18: View Of Upper Extension Trim Panel
Courtesy of GENERAL MOTORS CORP.

3. Remove the screw located behind the trim panel.
4. On vehicles without power windows, remove the window regulator handle. Refer to **Window Regulator Handle Replacement - Door** .

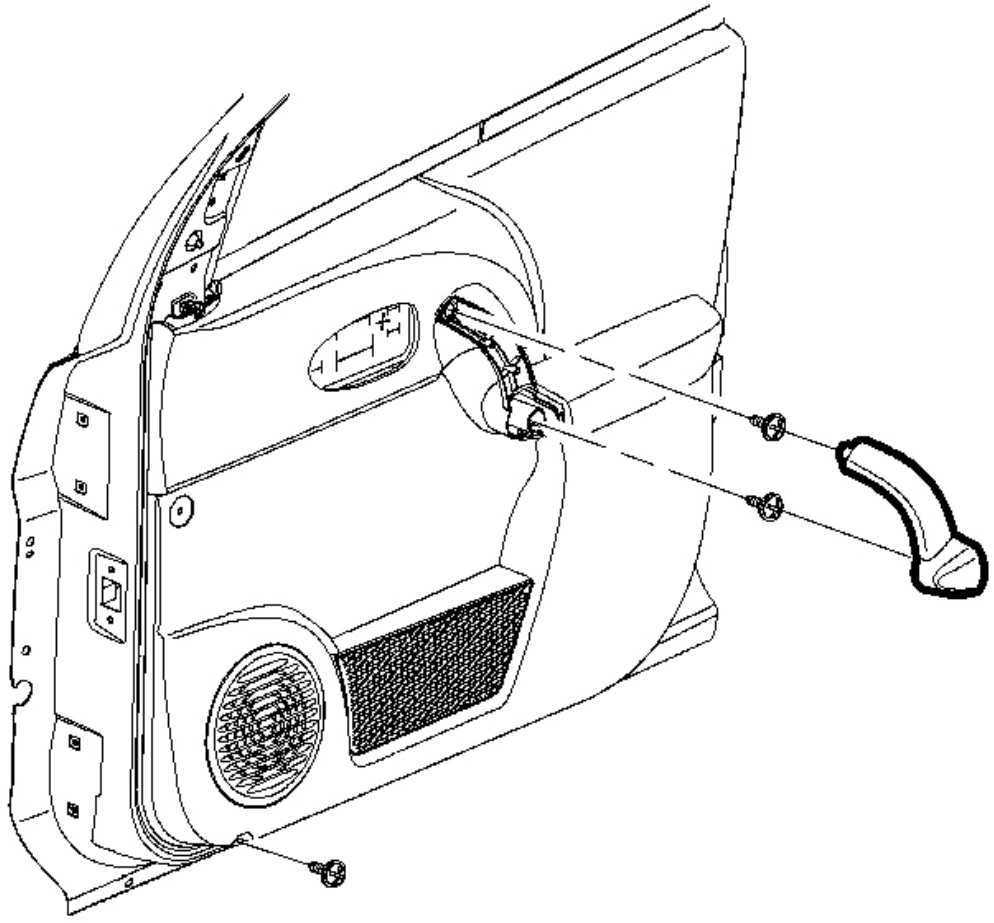


Fig. 19: Removing/Installing Trim Panel Fasteners
Courtesy of GENERAL MOTORS CORP.

5. Using a small flat-bladed tool, remove the pull handle escutcheon from the inside door by disengaging the retaining tab at the bottom of the escutcheon.
6. Remove the trim panel fasteners located behind the escutcheon.
7. Remove the trim panel fasteners located at the bottom of the door.
8. Pull up on the door trim panel to disengage the trim panel hooks from the sheet metal.

Installation Procedure

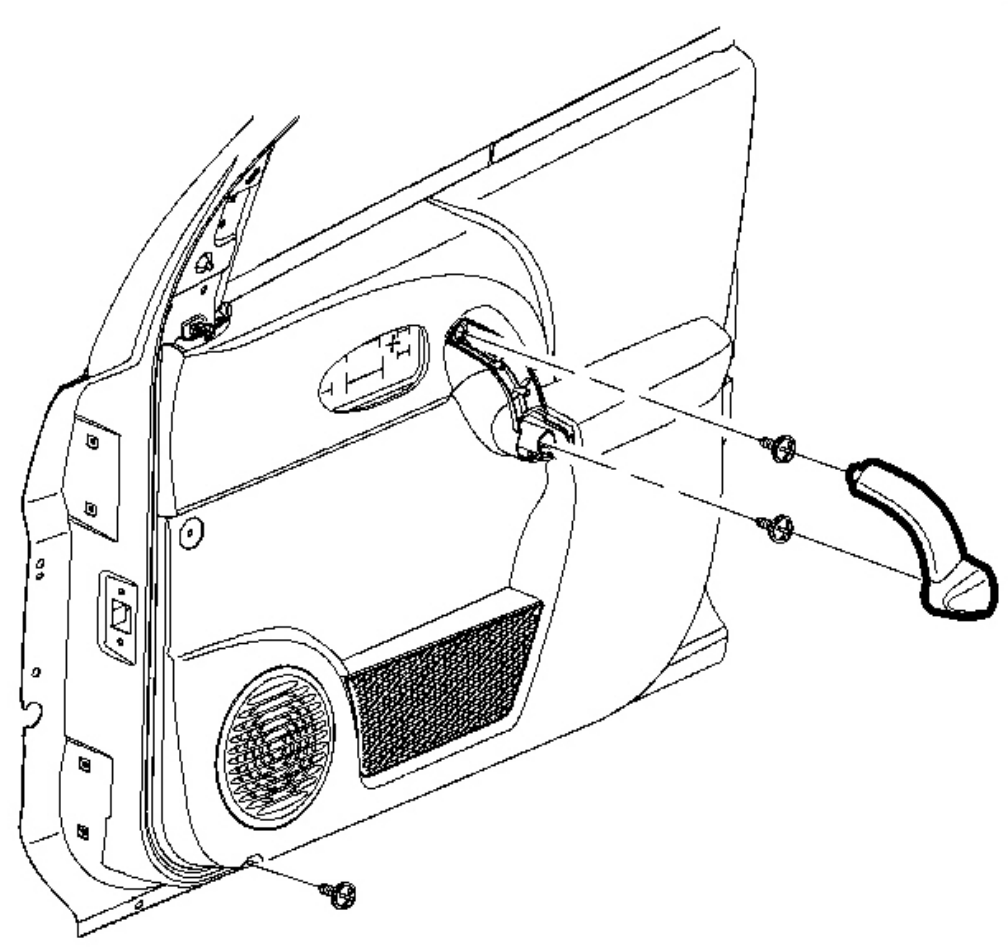


Fig. 20: Removing/Installing Trim Panel Fasteners
Courtesy of GENERAL MOTORS CORP.

1. Position the door trim panel over the top of the door hooks.
2. Push downward to engage the hooks to the structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the fasteners located at the bottom of the door trim panel.

Tighten: Tighten the fasteners to 2.5 N.m (22 lb in).

4. Install the fasteners located behind the door trim pull handle.

   Tighten: Tighten the fasteners to 2.5 N.m (22 lb in).

5. Snap the inside escutcheon into place.

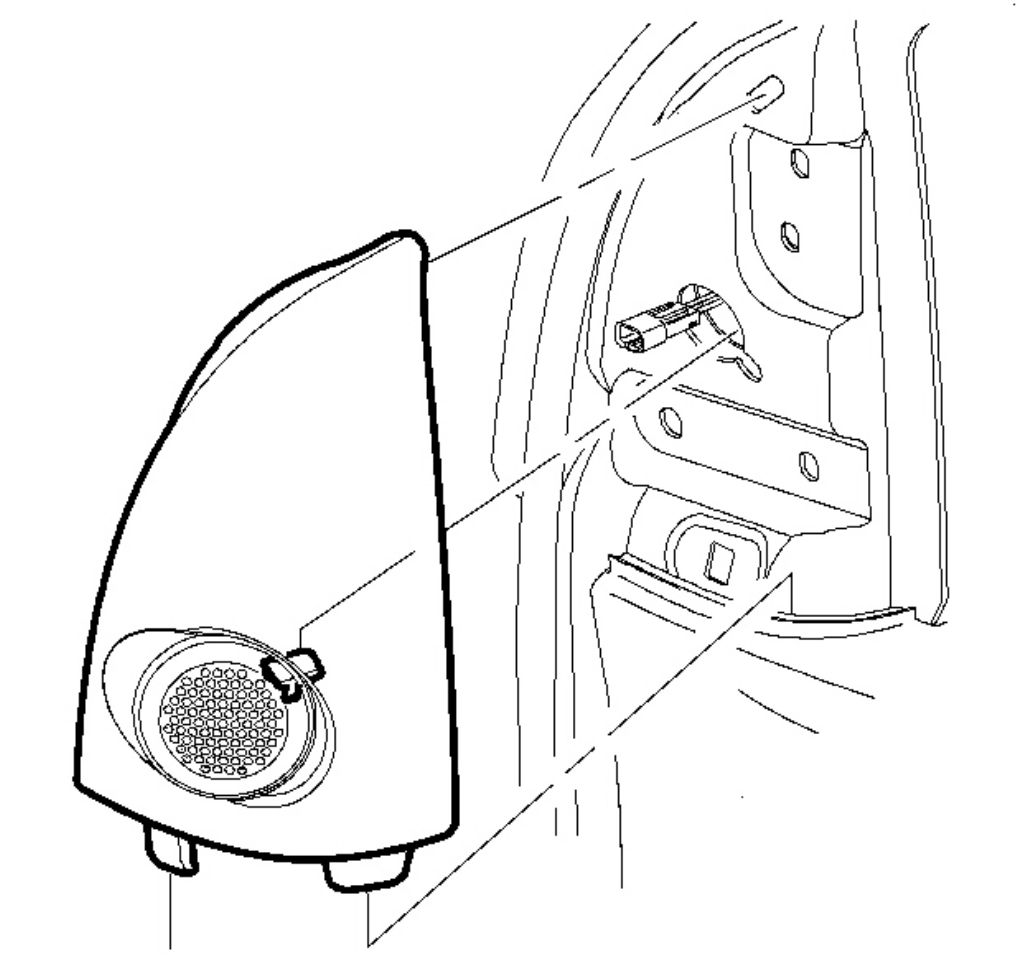


Fig. 21: View Of Upper Extension Trim Panel
Courtesy of GENERAL MOTORS CORP.

6. On vehicles without power windows, install the window regulator handle. Refer to **Window Regulator Handle Replacement - Door** .
7. Install the trim panel fastener located behind the upper extension trim panel.

Tighten: Tighten the fasteners to 2.5 N.m (22 lb in).

8. Install the upper extension trim panel. Refer to **Trim Panel Replacement - Upper Extension** .
9. Install the inside door handle. Refer to **Door Handle Replacement - Inside** .

TRIM PANEL REPLACEMENT - SIDE REAR DOOR

Removal Procedure

1. Remove the inside door handle. Refer to **Door Handle Replacement - Inside** .

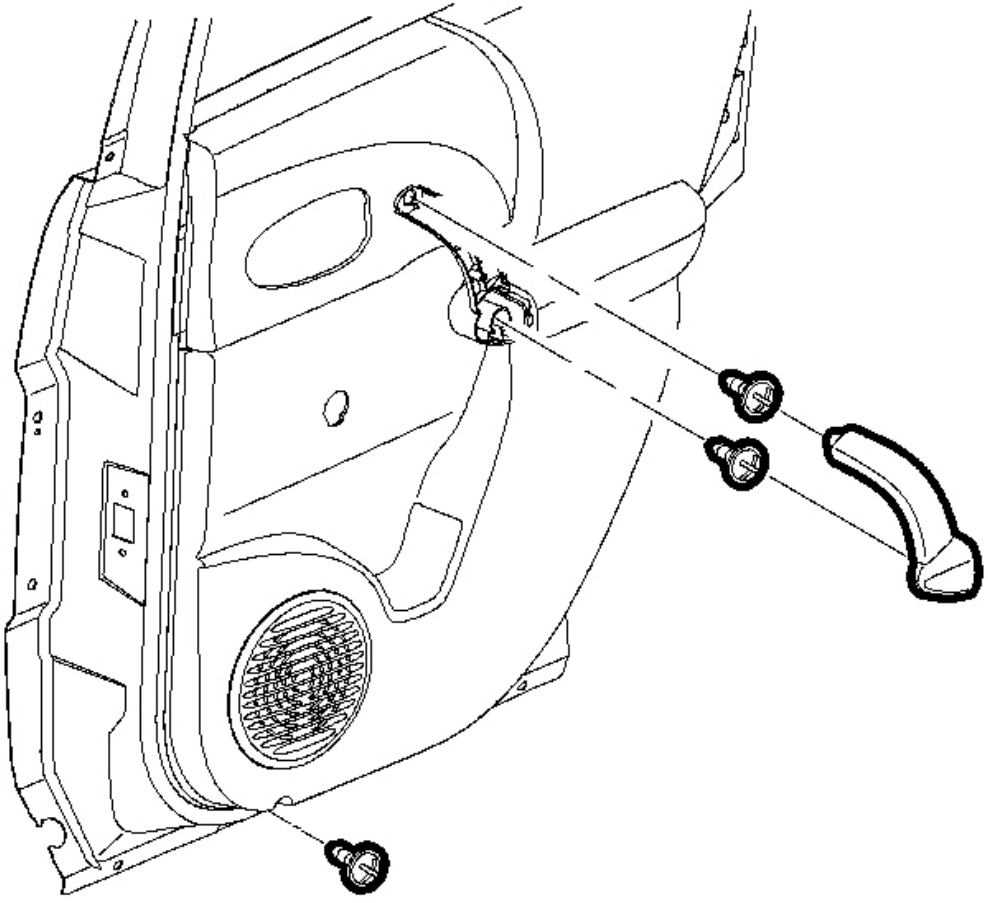


Fig. 22: View Of Side Door Trim Panel
Courtesy of GENERAL MOTORS CORP.

2. Use a small flat-bladed tool to remove the pull handle escutcheon from the inside door by disengaging the retaining tab.
3. Remove the trim panel fasteners located behind the pull handle escutcheon.
4. Remove the trim panel screw at the bottom of the door.

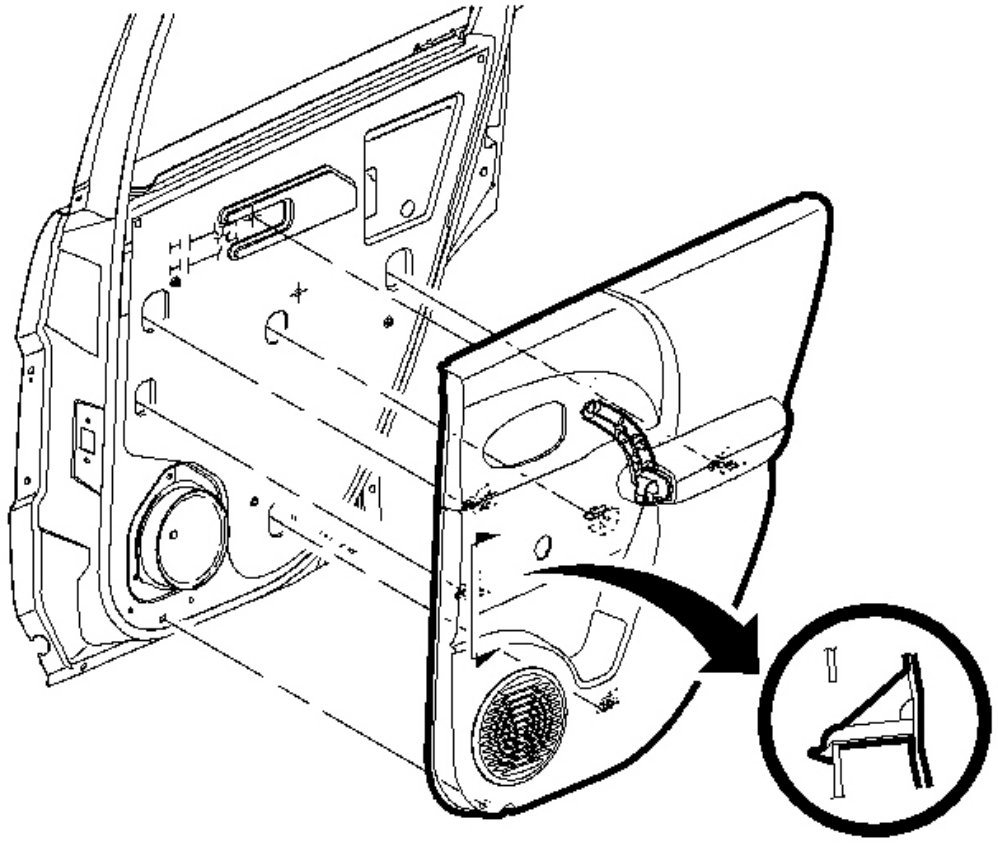


Fig. 23: Removing/Installing Window Regulator Handle
Courtesy of GENERAL MOTORS CORP.

5. On vehicles without power windows, remove the window regulator handle. Refer to **Window Regulator Handle Replacement - Door** .
6. Gently push upward to disengage the trim panel hooks from the door.

Installation Procedure

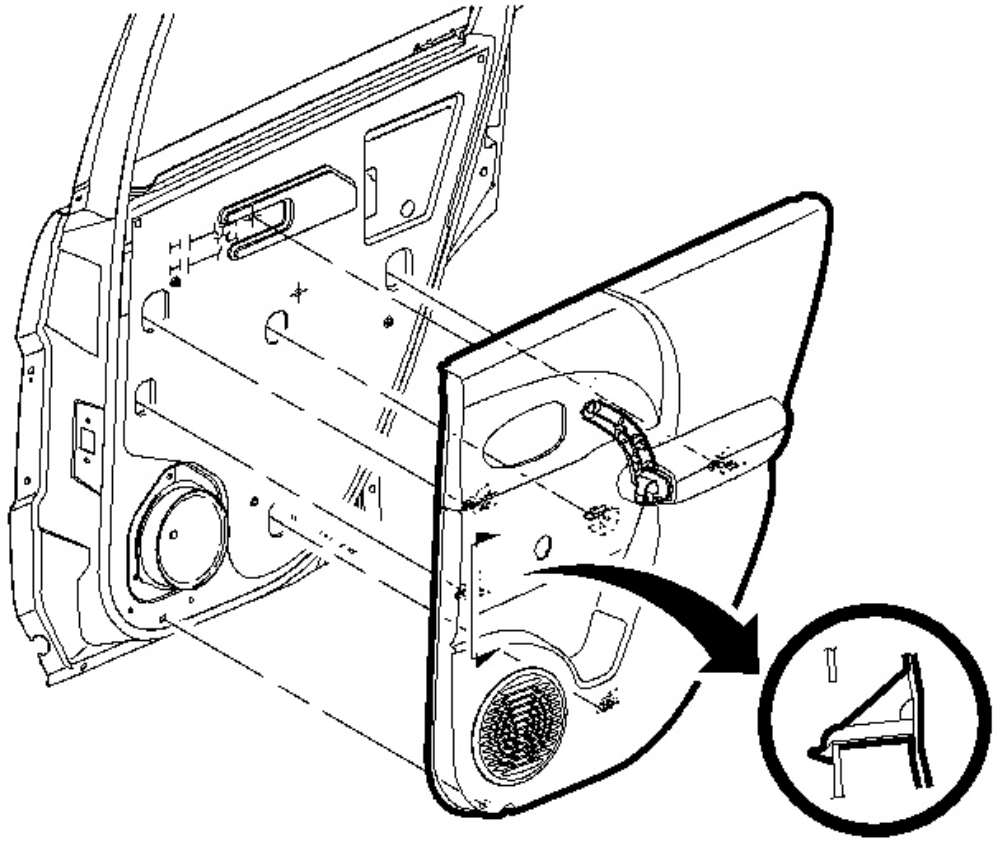


Fig. 24: Removing/Installing Window Regulator Handle
Courtesy of GENERAL MOTORS CORP.

1. Position the trim panel over the top of the door and push downward to engage the trim panel hooks to the door structure.
2. On vehicles without power windows, install the window regulator handle. Refer to **Window Regulator Handle Replacement - Door** .

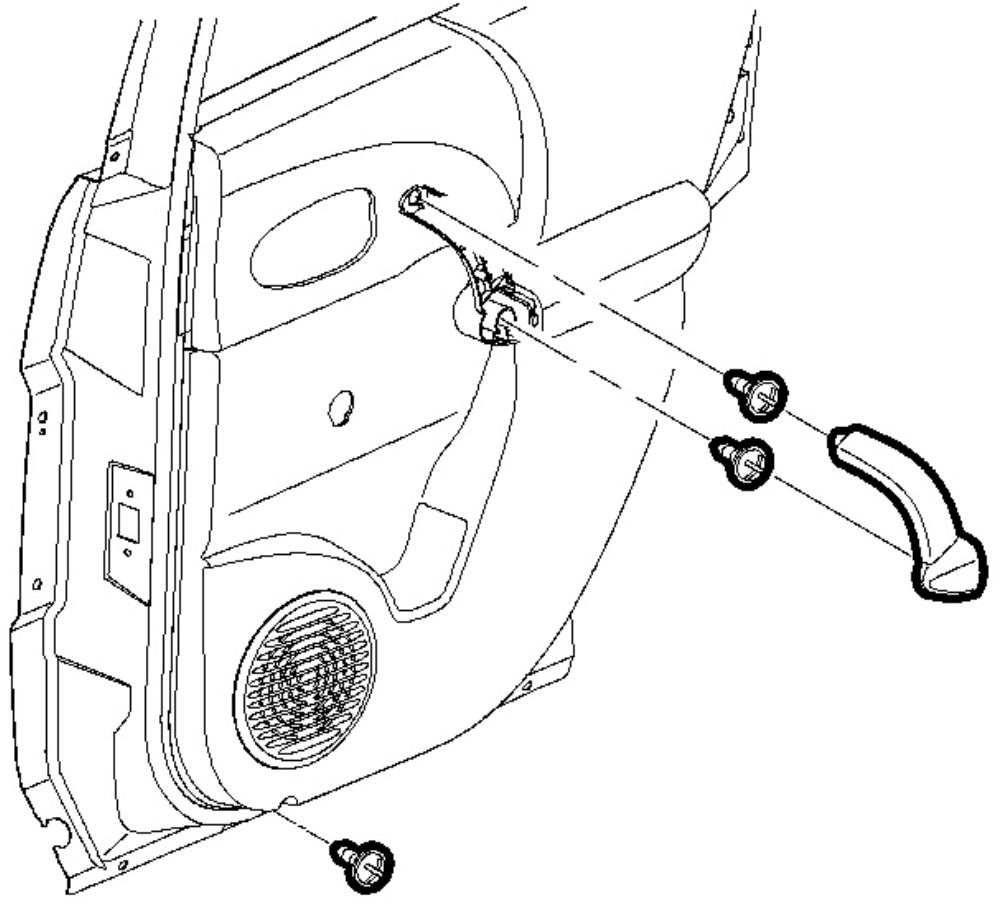


Fig. 25: View Of Side Door Trim Panel
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the screw located at the bottom of the door trim panel

   Tighten: Tighten the screw to 2.5 N.m (22 lb in).

4. Install the fasteners located behind the pull handle escutcheon.

   Tighten: Tighten the screw to 2.5 N.m (22 lb in).

5. Snap the escutcheon into place.
6. Install the inside door handle. Refer to **Door Handle Replacement - Inside** .

SOUND INSULATOR REPLACEMENT - FRONT DOOR

Removal Procedure

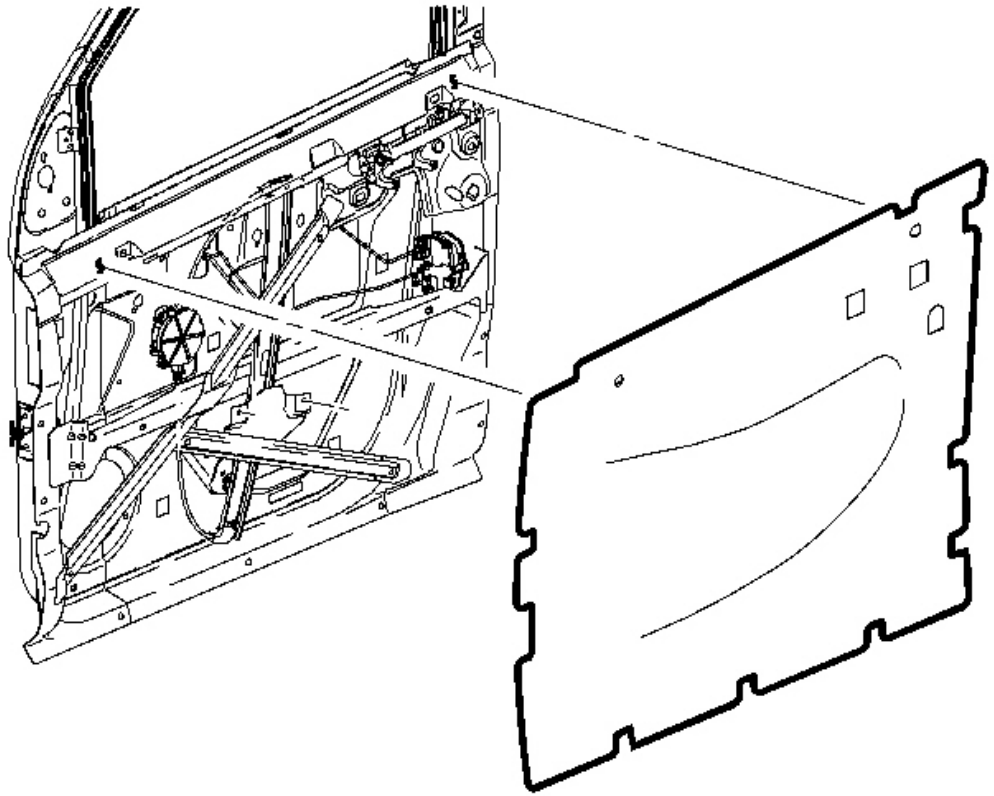


Fig. 26: View Of Front Door Sound Insulator
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .
2. Gently pull at the adhesive locations and remove the door panel insulator.

Installation Procedure

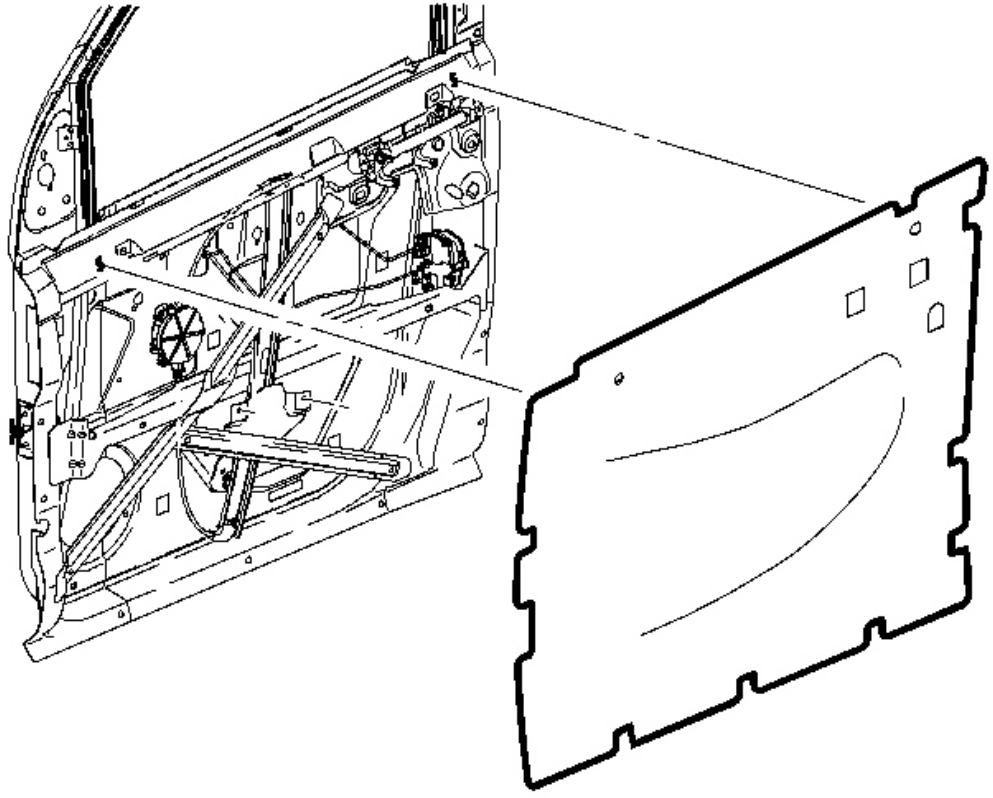


Fig. 27: View Of Front Door Sound Insulator
Courtesy of GENERAL MOTORS CORP.

1. Position the door panel insulation to the door.
2. Rub at the adhesive locations to engage the adhesive.
3. Install the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .

SOUND INSULATOR REPLACEMENT - REAR DOOR

Removal Procedure

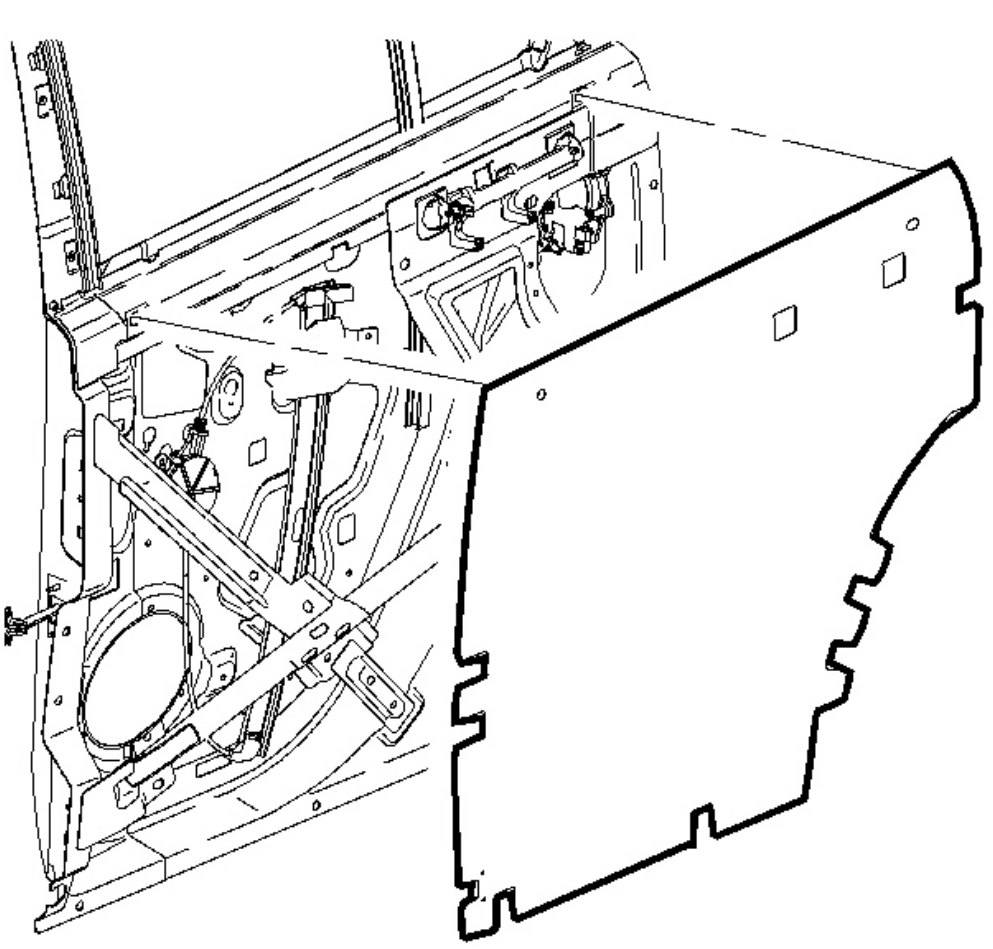


Fig. 28: View Of Rear Door Sound Insulator
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
2. Gently pull at the adhesive locations and remove the door panel insulator.

Installation Procedure

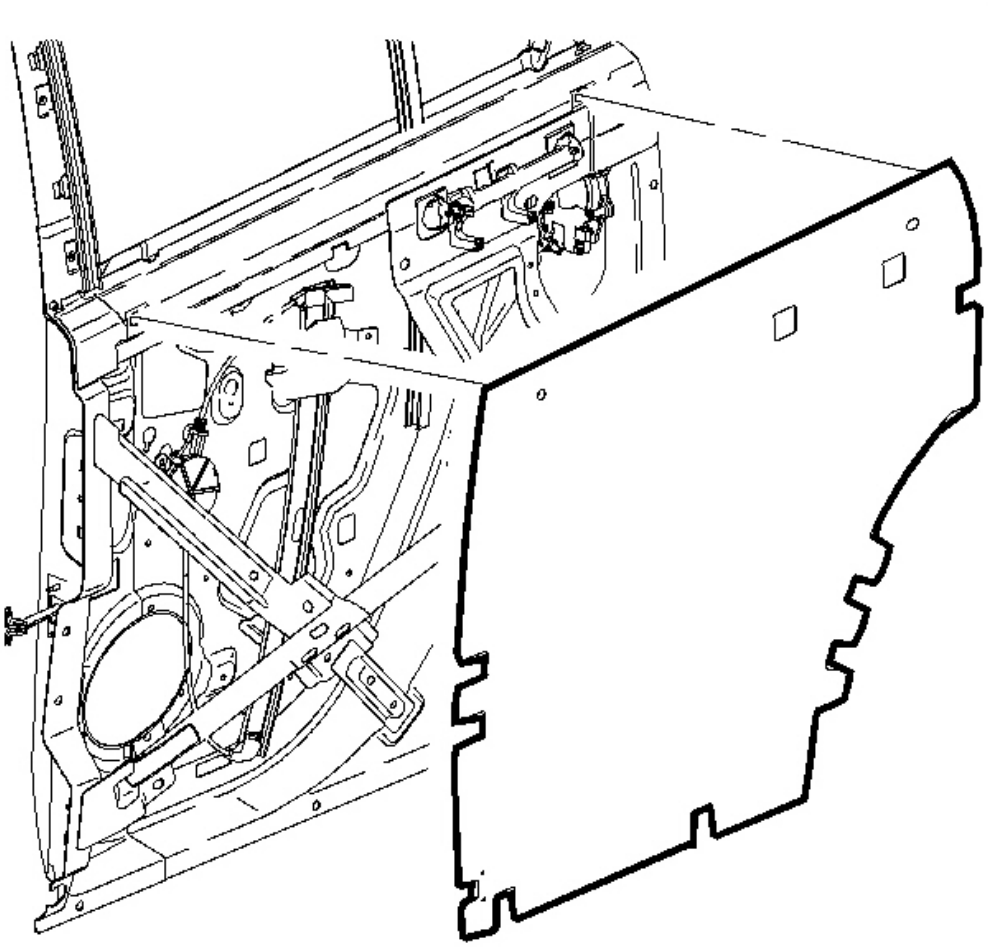


Fig. 29: View Of Rear Door Sound Insulator
Courtesy of GENERAL MOTORS CORP.

1. Position the door panel insulation to the door.
2. Rub at the adhesive locations to engage the adhesive.
3. Install the front door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .

WATER DEFLECTOR REPLACEMENT - FRONT DOOR

Removal Procedure

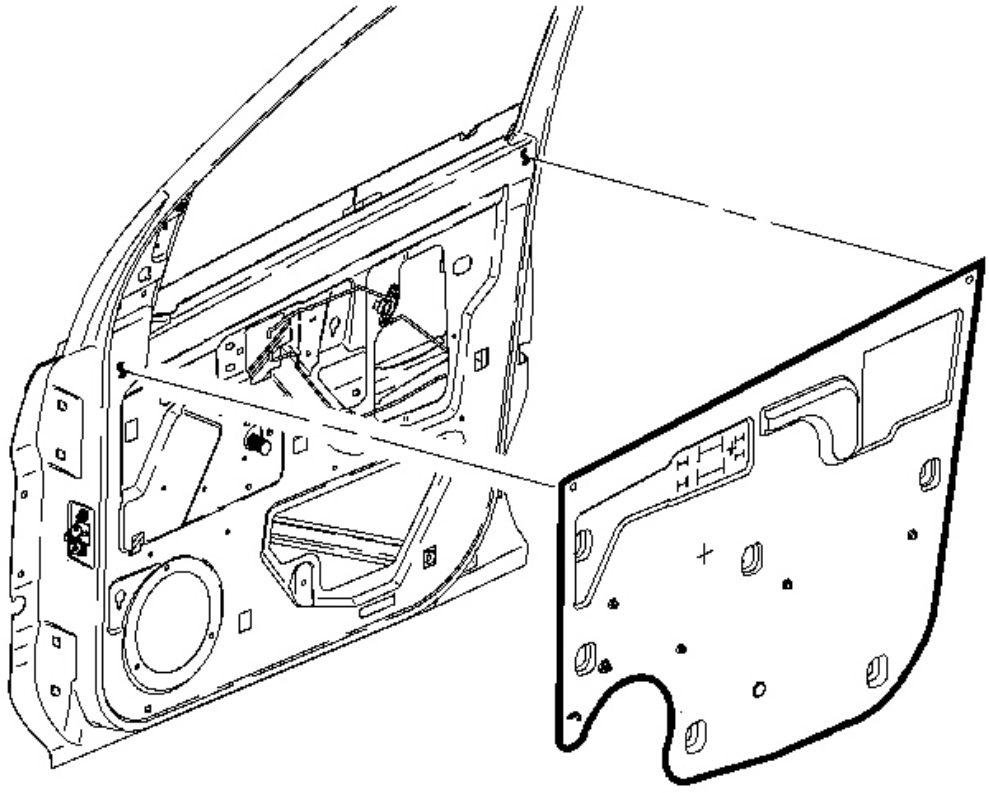


Fig. 30: View Of Front Door Water Deflector
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
2. Remove the front door water deflector, starting at the top rear corner, pull downward.

Installation Procedure

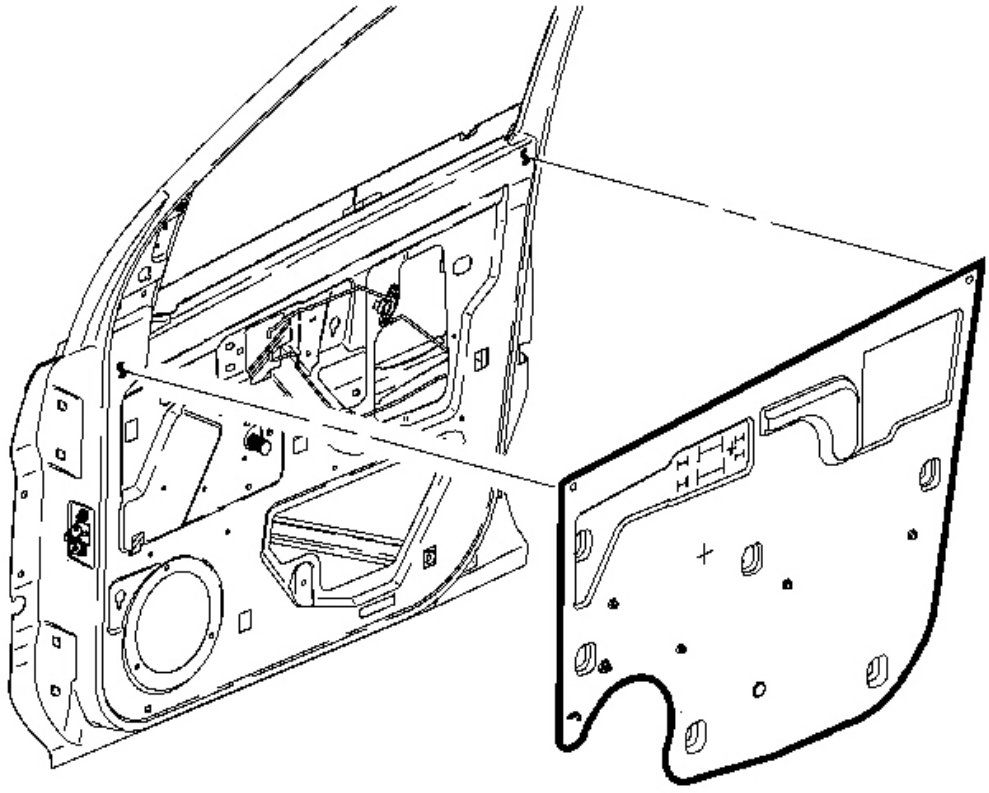


Fig. 31: View Of Front Door Water Deflector
Courtesy of GENERAL MOTORS CORP.

1. Align the locating holes near the top edge of the water deflector to the dimples in the door structure.
2. Stretch the water deflector tight across the top edge and set in place.
3. Wet-out adhesive around the entire perimeter of the water deflector to ensure proper sealing.
4. Install the front door trim panel front. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

WATER DEFLECTOR REPLACEMENT - REAR DOOR

Removal Procedure

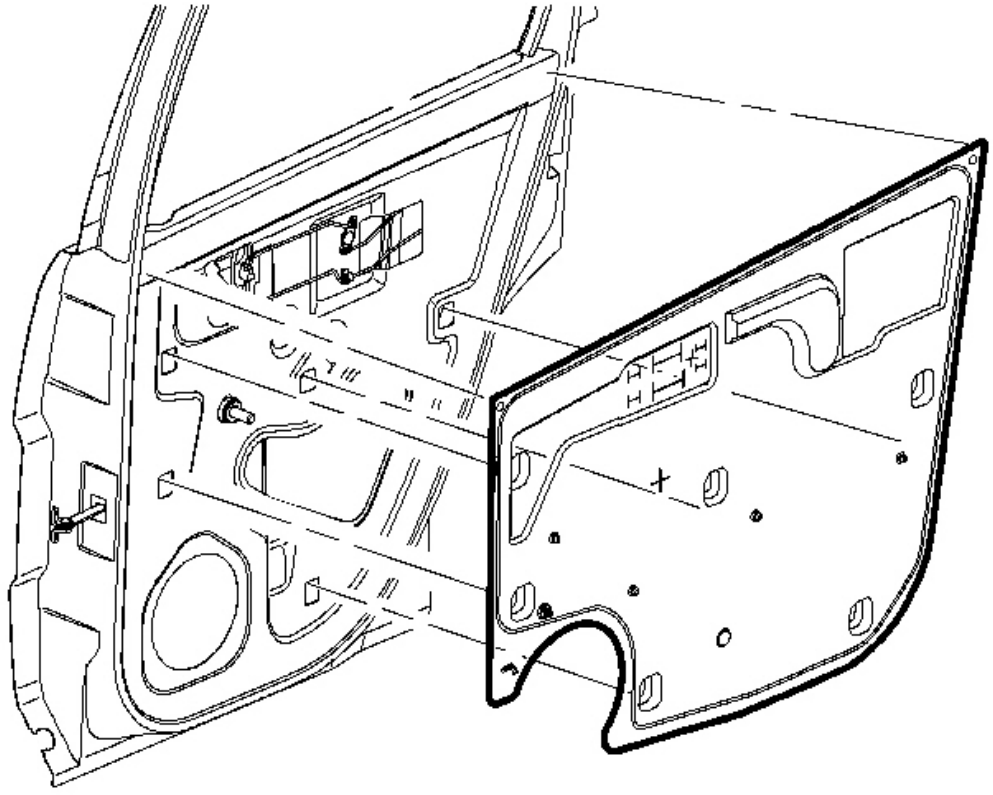


Fig. 32: View Of Rear Door Water Deflector
Courtesy of GENERAL MOTORS CORP.

1. Remove the door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .
2. Remove the front door water deflector, starting at the top rear corner, pull the water deflector away from the door structure.

Installation Procedure

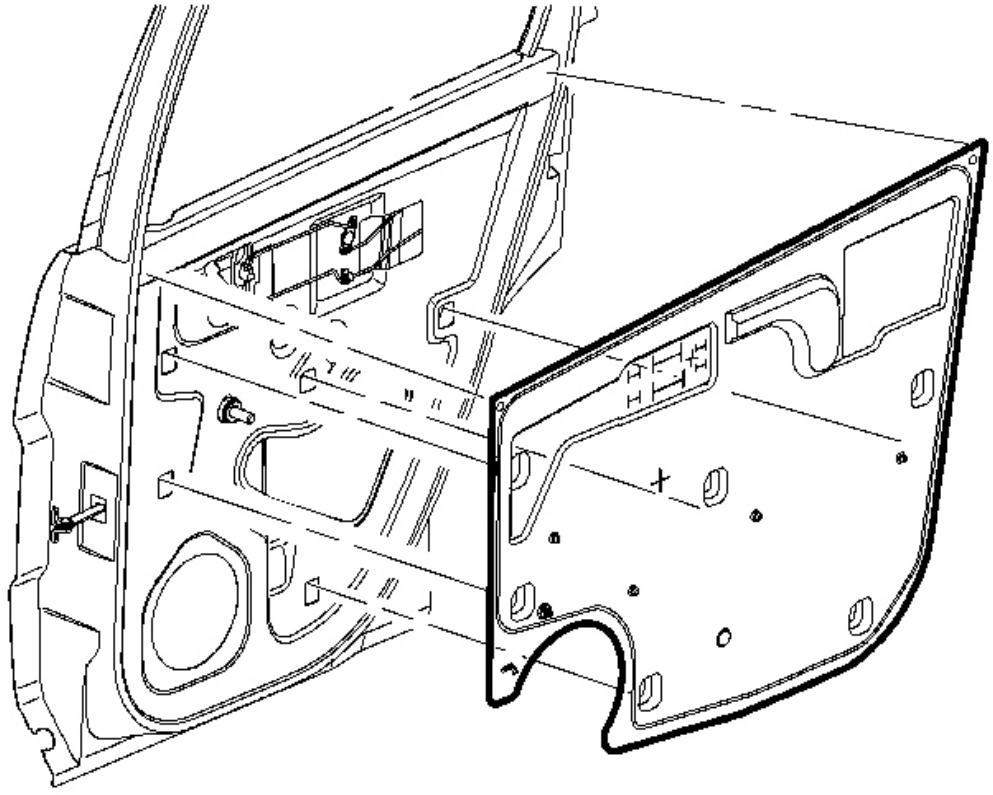


Fig. 33: View Of Rear Door Water Deflector
Courtesy of GENERAL MOTORS CORP.

1. Align the locating holes near the top edge of the water deflector to the dimples in the door structure.
2. Stretch the water deflector tight across the top edge and set in place.
3. Wet-out adhesive around the entire perimeter of the water deflector to ensure proper sealing.
4. Install the door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

DOOR ADJUSTMENT - FRONT

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the

area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

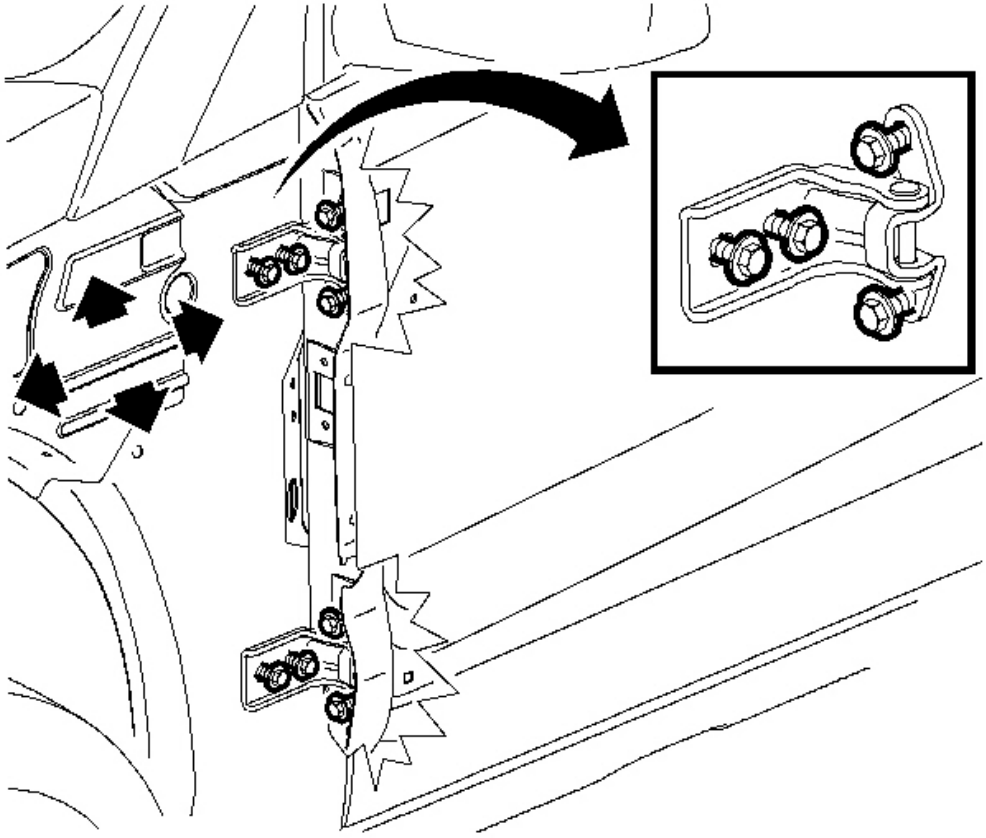


Fig. 34: View Of Front Door
Courtesy of GENERAL MOTORS CORP.

1. Remove the door lock striker. Refer to **Door Striker Replacement - Front Door** .
2. For up, down, forward, or rearward adjustment, loosen the hinge to hinge pillar bolts.
3. Move the door within the door opening to achieve the best alignment and operation.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Tighten all of the hinge fasteners that were loosened.

   Tighten: Tighten the hinge fasteners to 25 N.m (18 lb ft).

5. Install the striker to the approximate proper position.
6. Adjust the door striker. Refer to **Door Striker Adjustment - Front Door** .
7. Inspect the door weather-strips for proper fit.

OUTER DOOR PANEL REPLACEMENT FRONT - BOLT ON

Removal Procedure

1. Remove the front door trim panel upper extension. Refer to **Trim Panel Replacement - Upper Extension** .

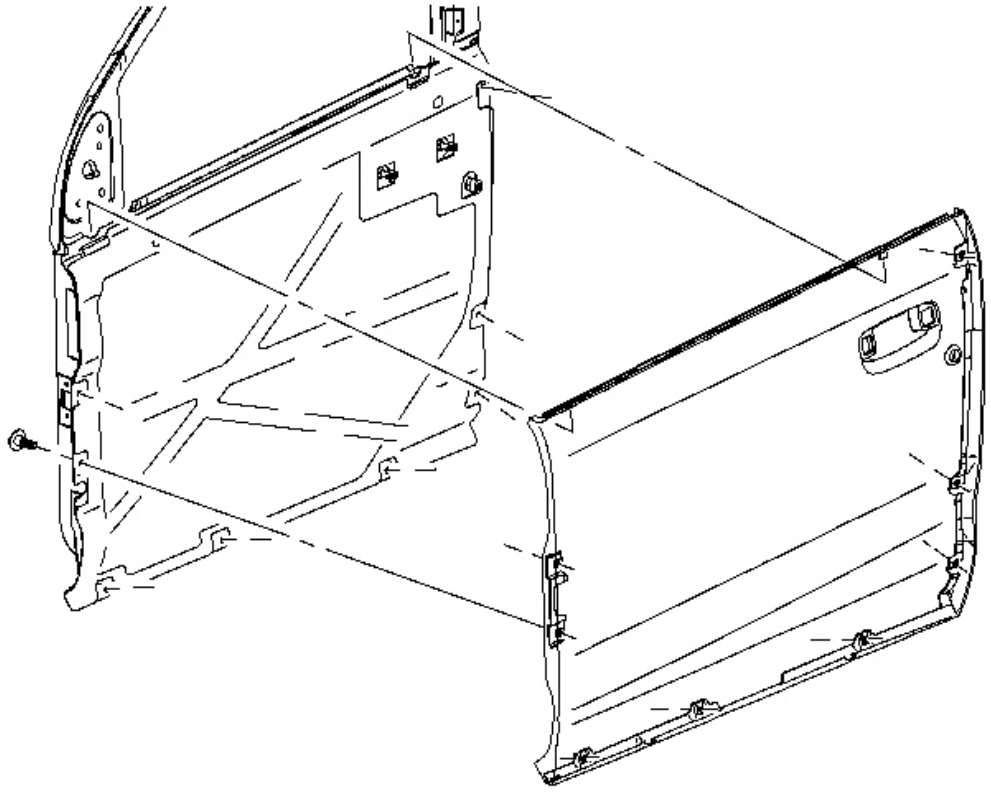


Fig. 35: View Of Front Outer Door Panel
Courtesy of GENERAL MOTORS CORP.

2. Remove the front mirror. Refer to **Mirror Replacement** .
3. Remove the front outside door handle. Refer to **Door Handle Replacement - Front Outside** .
4. Remove the front outer belt sealing strip. Refer to **Sealing Strip Replacement - Front Door Window Belt Outer** .
5. Remove the outer door panel fasteners.
6. Remove the front outer door panel.
7. If the panel is being replaced, remove the door lock cylinder bezel.

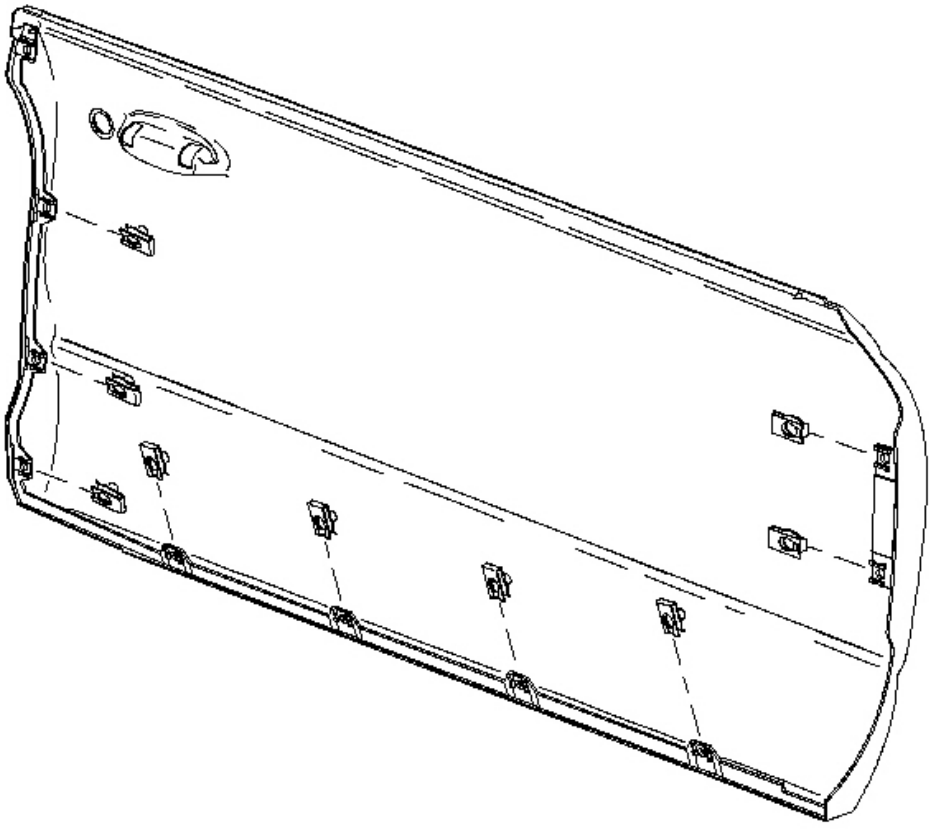


Fig. 36: Installing/Removing U-nuts
Courtesy of GENERAL MOTORS CORP.

8. If the panel is being replaced, remove the U-nuts.

Installation Procedure

1. If the panel is being replaced, Install the door lock cylinder bezel.

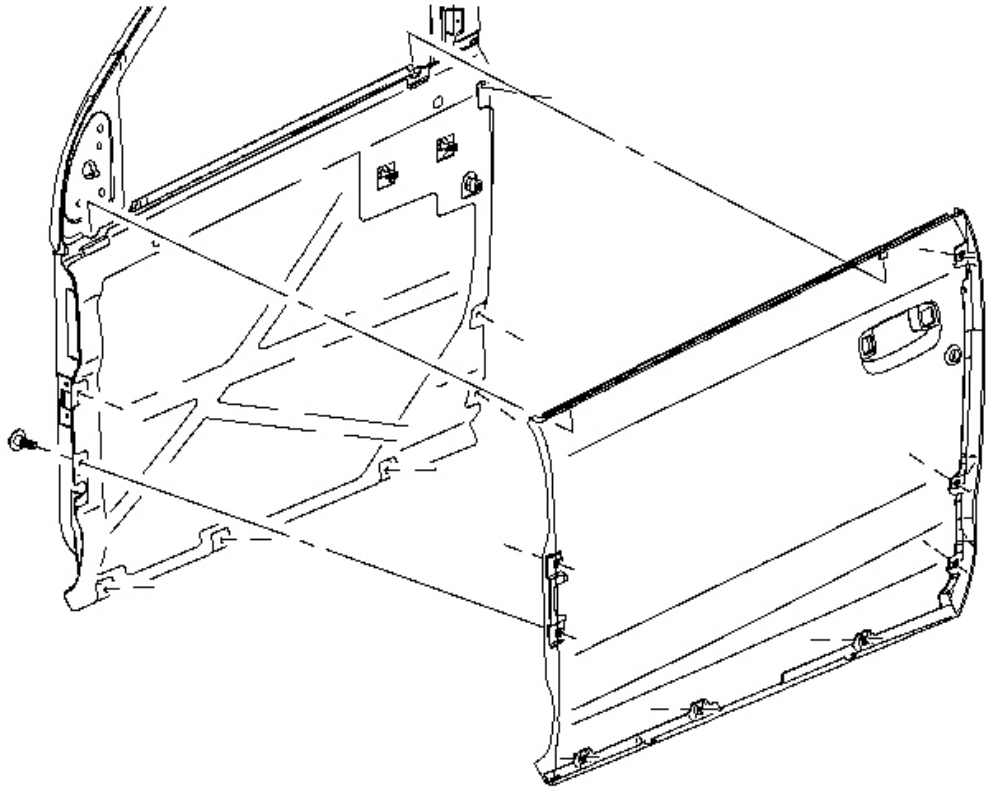


Fig. 37: View Of Front Outer Door Panel
Courtesy of GENERAL MOTORS CORP.

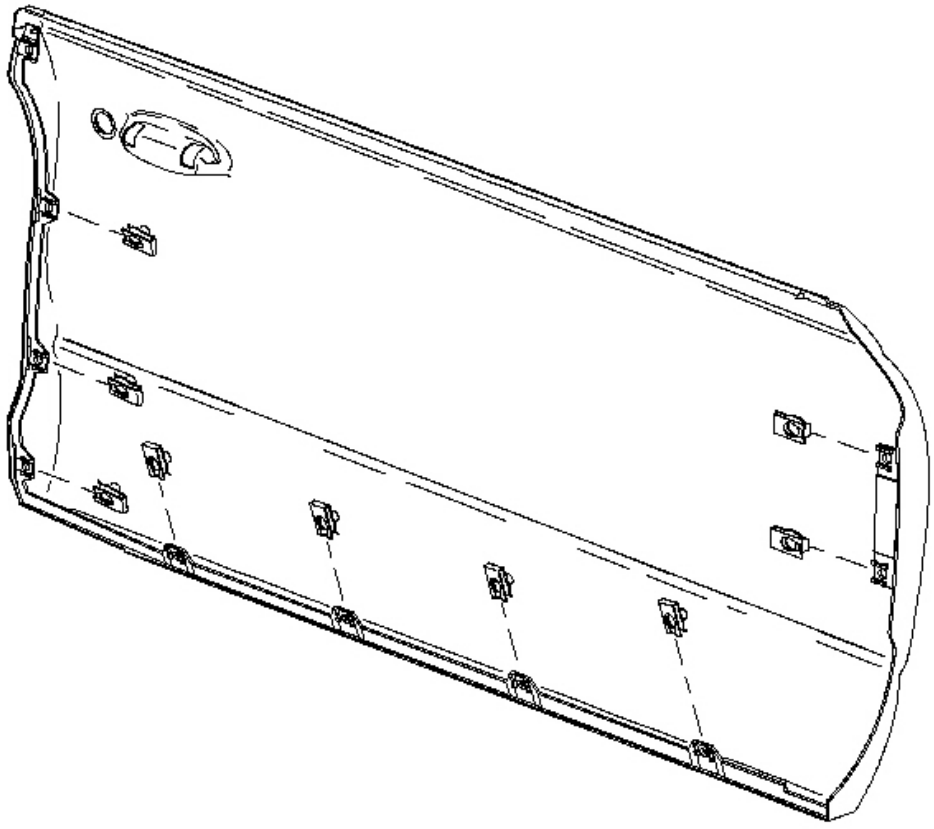


Fig. 38: Installing/Removing U-nuts
Courtesy of GENERAL MOTORS CORP.

2. If the panel is being replaced, Install the U-nuts.
3. Install the outer door panel on the door structure.

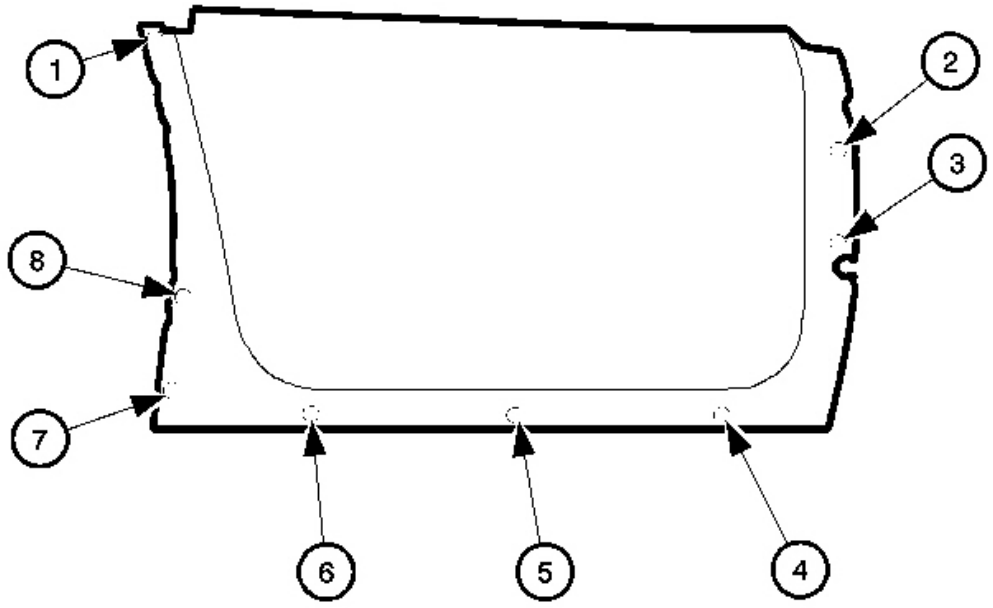


Fig. 39: Installing Outer Door Panel Fasteners
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the outer door panel fasteners. Tighten in the sequence shown.

   Tighten: Tighten the fasteners to 8 N.m (71 lb in).

5. Install the front outer belt sealing strip. Refer to **Sealing Strip Replacement - Front Door Window Belt Outer** .
6. Install the front outside door handle. Refer to **Door Handle Replacement - Front Outside** .

7. Install the front mirror. Refer to **Mirror Replacement** .
8. Install the front door trim panel upper extension. Refer to **Trim Panel Replacement - Upper Extension** .

OUTER DOOR PANEL REPLACEMENT REAR - BOLT ON

Removal Procedure

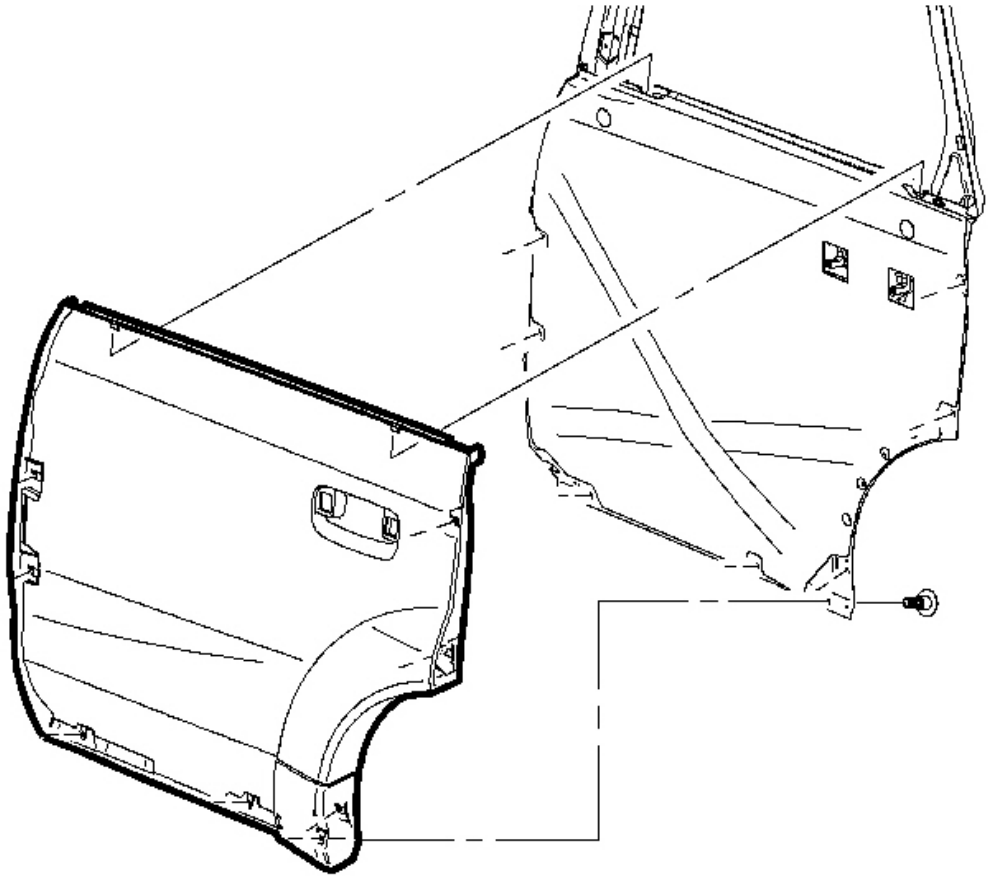


Fig. 40: View Of Outer Door Panel
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear outside door handle. Refer to **Door Handle Replacement - Rear Outside** .
2. Remove the rear outer belt sealing strip. Refer to **Sealing Strip Replacement - Rear Door Window Belt**

Outer .

3. Remove the outer door panel fasteners.
4. Remove the outer door panel from the vehicle.
5. If the panel is being replaced, remove the U-nuts.

Installation Procedure

1. If the panel is being replaced, Install the U-nuts.

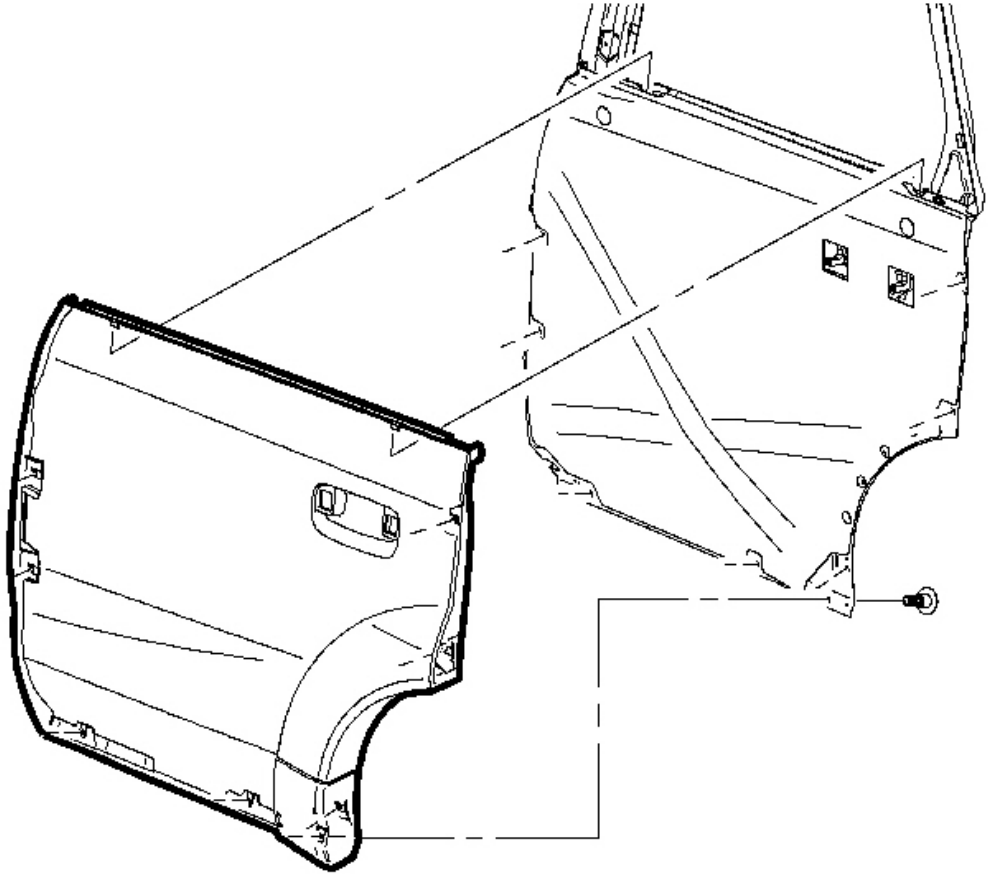


Fig. 41: View Of Outer Door Panel
Courtesy of GENERAL MOTORS CORP.

2. Install the outer door panel on the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

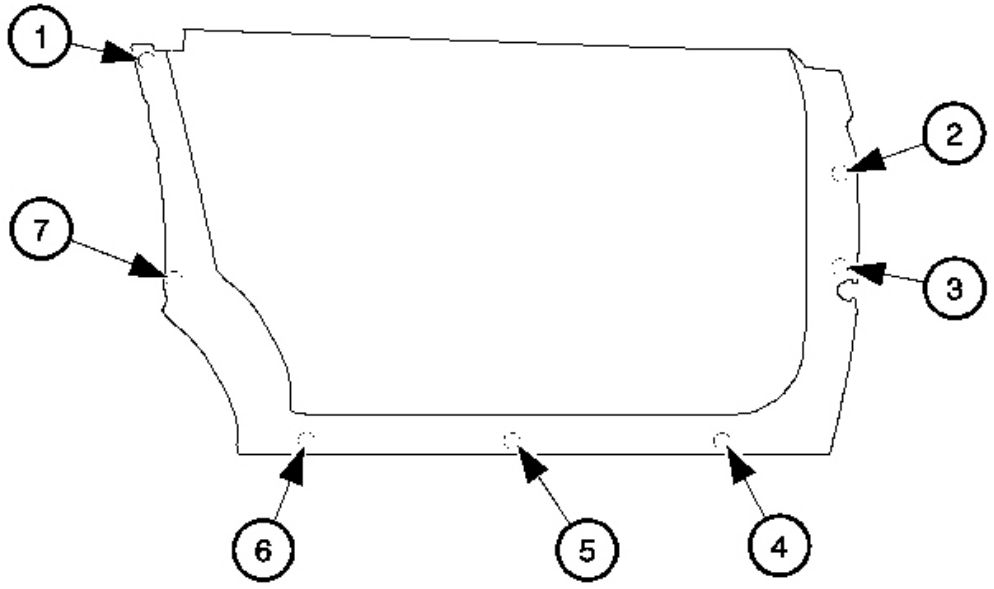


Fig. 42: Installing Outer Door Panel Fasteners
Courtesy of GENERAL MOTORS CORP.

3. Install the outer door panel fasteners. Tighten in the sequence shown.

   Tighten: Tighten the fasteners to 8 N.m (71 lb in).

4. Install the rear outer belt sealing strip. Refer to **Sealing Strip Replacement - Rear Door Window Belt**

Outer .

5. Install the rear outside door handle. Refer to **Door Handle Replacement - Rear Outside** .

DOOR REPLACEMENT - FRONT

Removal Procedure

1. Remove the front fender. Refer to **Fender Replacement - Front** in Body Front End.

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

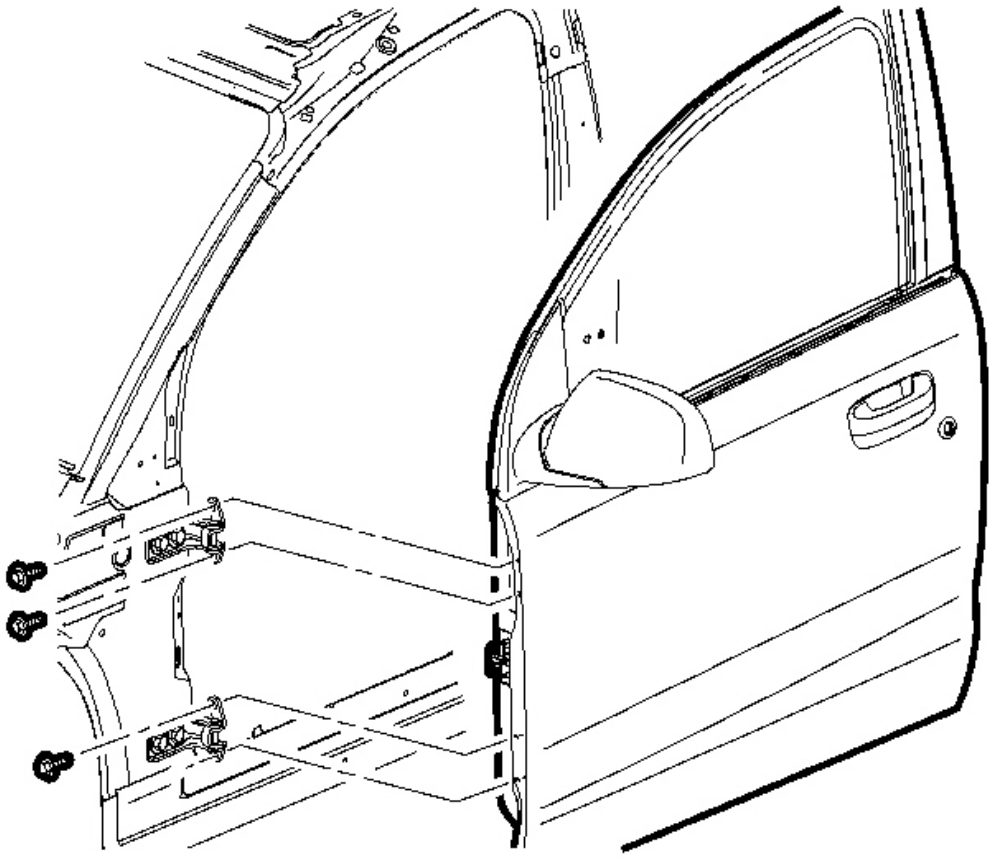


Fig. 43: View Of Front Door
Courtesy of GENERAL MOTORS CORP.

2. Remove the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .
3. Remove the front door sound insulator. Refer to **Sound Insulator Replacement - Front Door** .
4. Disconnect all of the wiring harness connectors inside the door.
5. Disengage the wiring harness grommet from door and remove the harness.
6. Remove the front door check link. Refer to **Door Check Link Replacement - Front** .
7. Support the door.
8. Using a soft marker, mark around the outside of the hinge for installation purposes.
9. Remove the door hinge to body bolts.

10. With an assistant remove the front door from the vehicle.

Installation Procedure

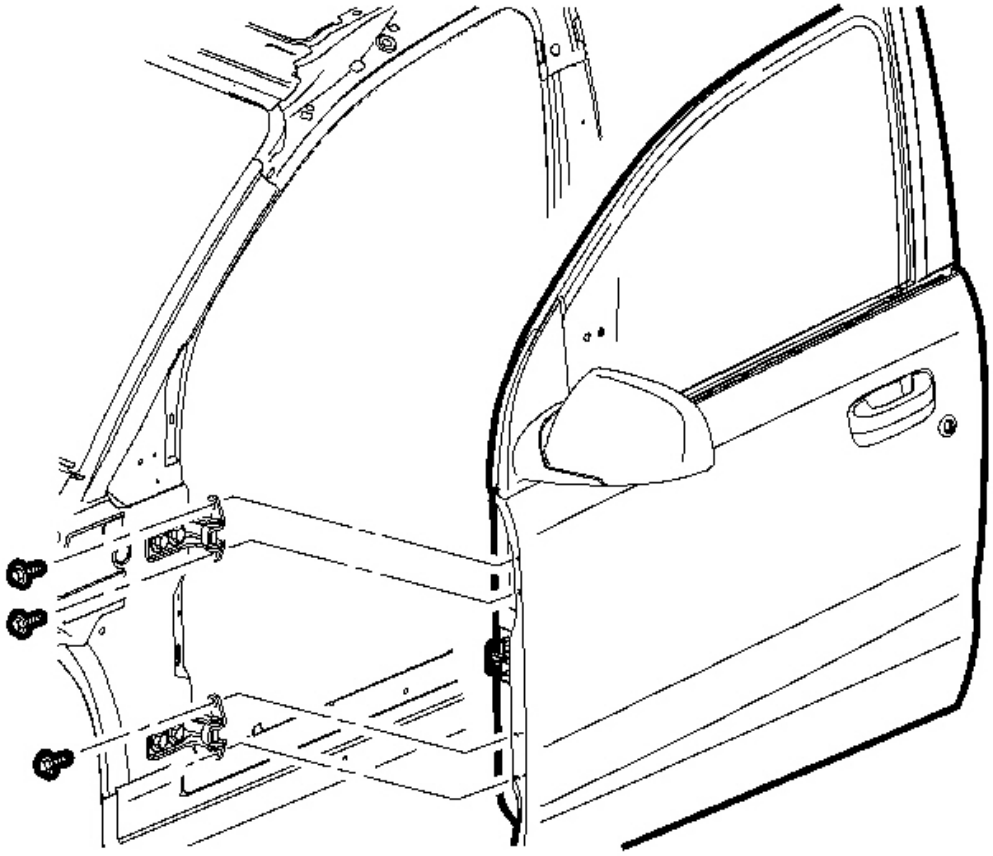


Fig. 44: View Of Front Door
Courtesy of GENERAL MOTORS CORP.

1. With an assistant position the front door and loosely install all hinge to body bolts.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Align the hinge with the marks made during the removal procedure.

Tighten: Tighten the hinge to body bolts to 25 N.m (18 lb ft).

3. Install the front door check link. Refer to **Door Check Link Replacement - Front** .
4. Engage wiring harness grommet into door and install the front door wiring harness.
5. Reconnect all wiring harness connectors inside the door.
6. Verify the door is aligned properly. If door adjustment is required, refer to **Door Adjustment - Front** .
7. Install the front door insulator. Refer to **Sound Insulator Replacement - Front Door** .
8. Install the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .
9. Install the front fender. Refer to **Fender Replacement - Front** in Body Front End.

DOOR ADJUSTMENT - REAR

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

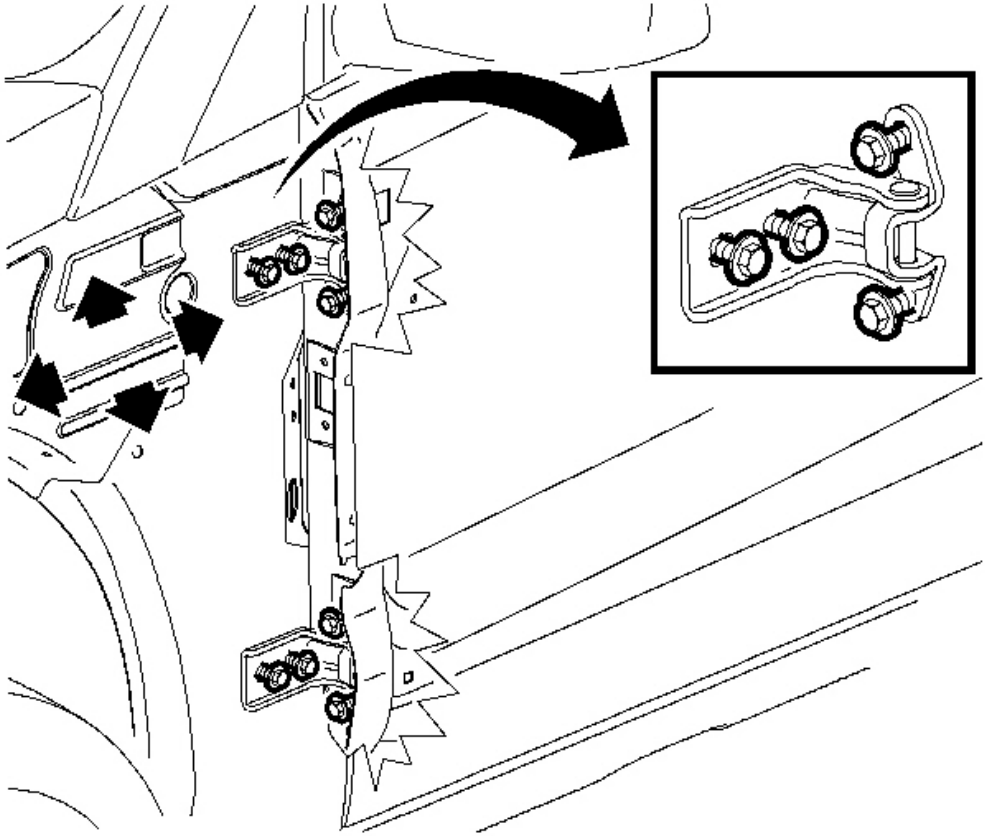


Fig. 45: View Of Rear Door
Courtesy of GENERAL MOTORS CORP.

1. Remove the door lock striker. Refer to **Door Striker Replacement - Front Door** .
2. For up, down, forward, or rearward adjustment, loosen the hinge to hinge pillar bolts.
3. Move the door within the door opening to achieve the best alignment and operation.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Tighten all of the hinge fasteners that were loosened.

Tighten: Tighten the hinge fasteners to 25 N.m (18 lb ft).

5. Install the striker to the approximate proper position.
6. Adjust the door striker. Refer to **Door Striker Adjustment - Front Door** .
7. Inspect the door weather-strips for proper fit.

DOOR REPLACEMENT - REAR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

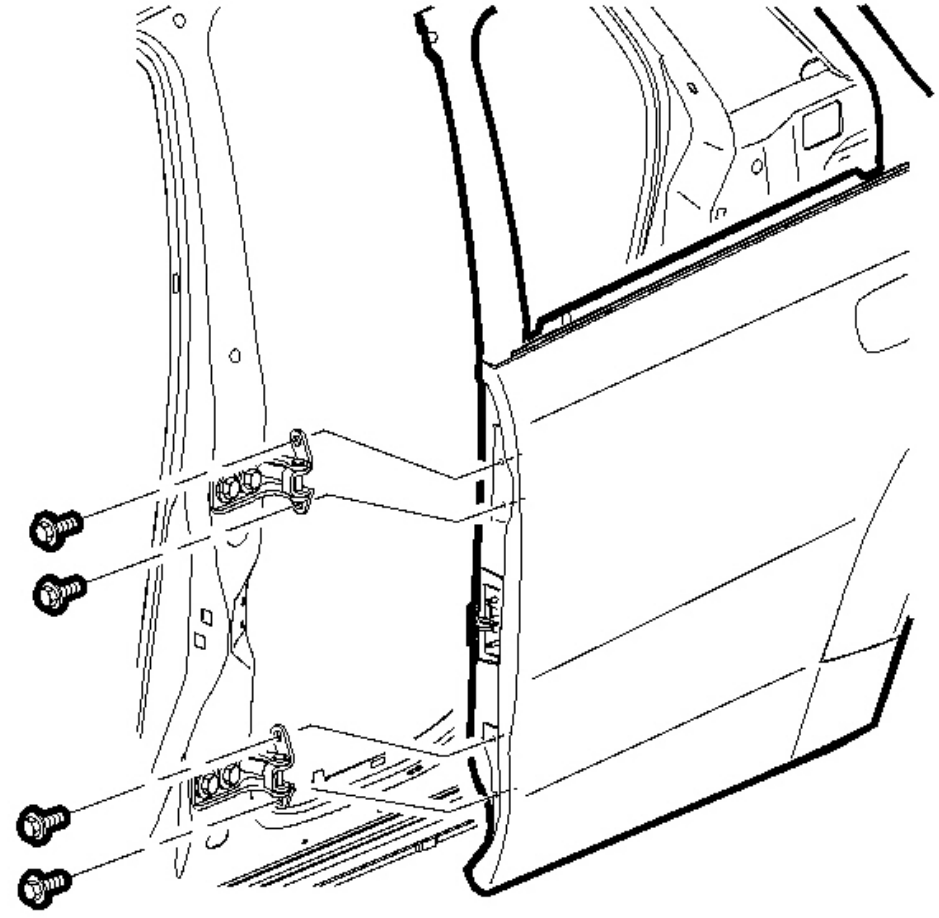


Fig. 46: Removing/Installing Rear Door
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
2. Remove the rear door sound insulator. Refer to **Sound Insulator Replacement - Rear Door** .
3. Disconnect all of the wiring harness connectors inside the door.
4. Disengage the wiring harness grommet from door and remove the harness.
5. Remove the rear door check link. Refer to **Door Check Link Replacement - Rear** .
6. Support the door.
7. Using a soft marker, mark around the outside of the hinge for installation purposes.
8. Remove the door hinge to body bolts.

9. With an assistant remove the rear door from the vehicle.

Installation Procedure

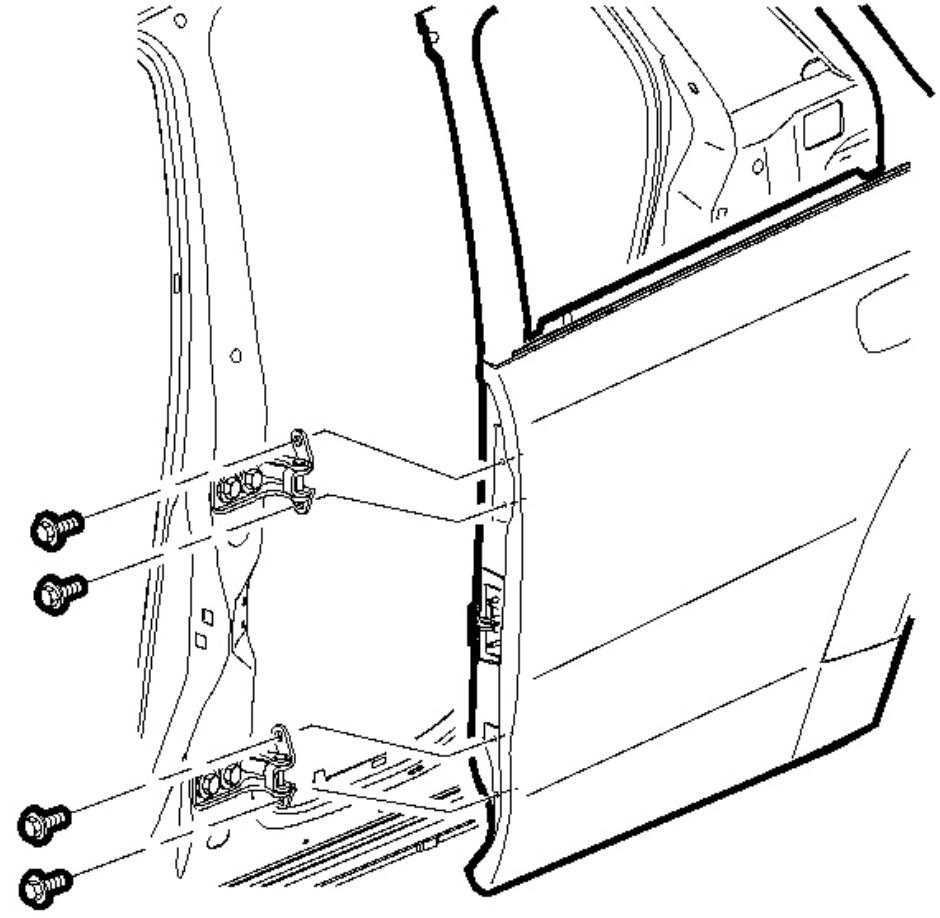


Fig. 47: Removing/Installing Rear Door
Courtesy of GENERAL MOTORS CORP.

1. With an assistant position the rear door and loosely install all hinge to body bolts.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Align the hinge with the marks made during the removal procedure.

Tighten: Tighten the hinge to body bolts to 25 N.m (18 lb ft).

3. Install the rear door check link. Refer to **Door Check Link Replacement - Rear** .
4. Engage wiring harness grommet into door and install the rear door wiring harness.
5. Reconnect all wiring harness connectors inside the door.
6. Verify the door is aligned properly. If door adjustment is required, refer to **Door Adjustment - Rear** .
7. Install the rear door insulator. Refer to **Sound Insulator Replacement - Rear Door** .
8. Install the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .

HINGE REPLACEMENT - FRONT DOOR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

1. Remove the front fender. Refer to **Fender Replacement - Front** in Body Front End.

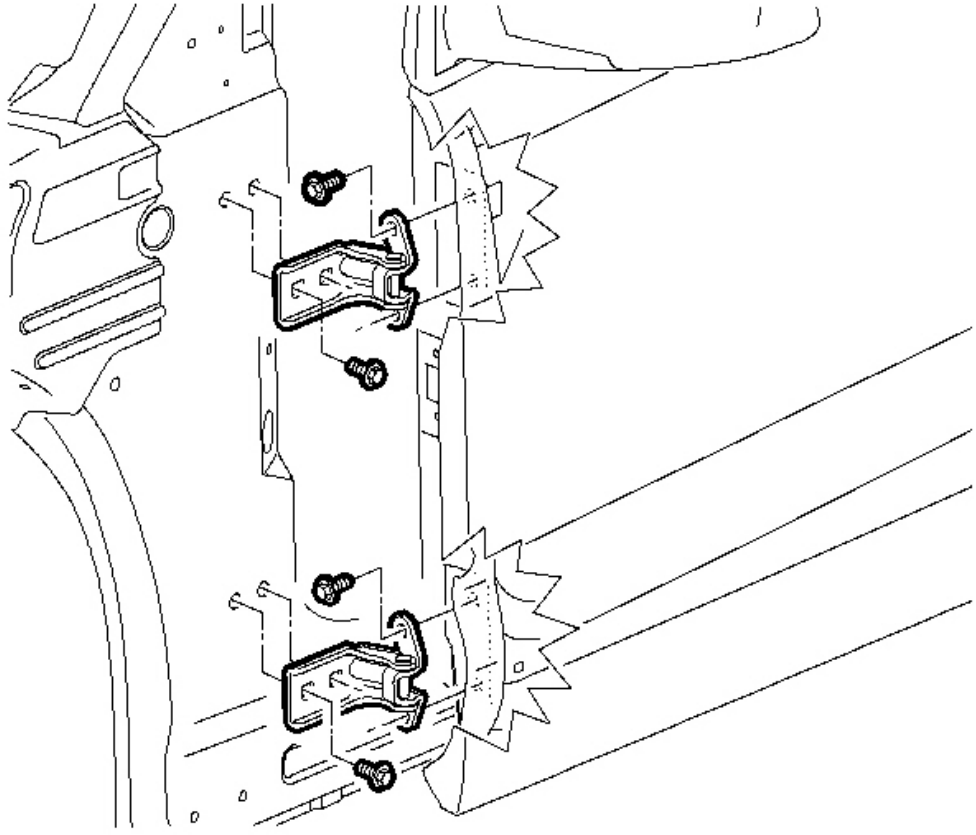


Fig. 48: Removing/Installing Hinge Front Door
Courtesy of GENERAL MOTORS CORP.

2. Mark around the hinge location with a soft marker for installation alignment purposes.
3. Support the door.
4. With the door fully latched on the striker, remove the hinge to door bolts.
5. Remove the hinge to body bolts and remove the hinges one at a time.

Installation Procedure

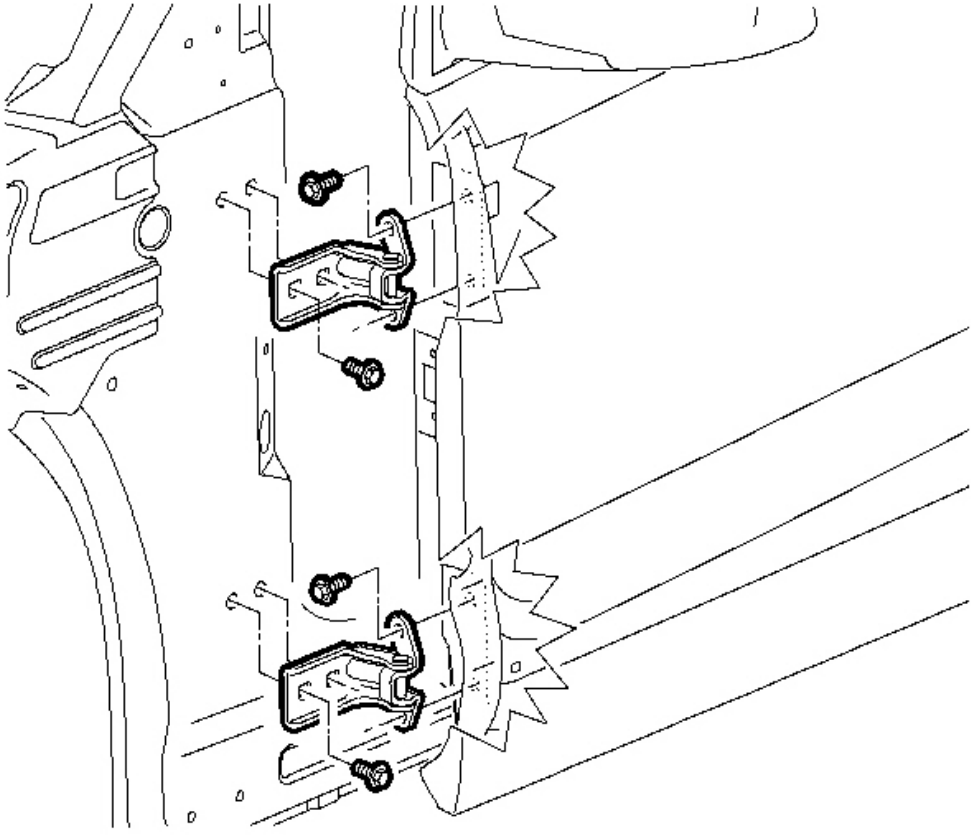


Fig. 49: Removing/Installing Hinge Front Door
Courtesy of GENERAL MOTORS CORP.

1. Position the hinge to the vehicle with the marks made prior to removal.

NOTE: **Refer to Fastener Notice in Cautions and Notices.**

2. Install the hinge to door bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

3. Install the hinge to body bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

4. Inspect the door for proper alignment. Refer to **Door Adjustment - Front** .
5. Install the front fender. Refer to **Fender Replacement - Front** in Body Front End.

HINGE REPLACEMENT - REAR DOOR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

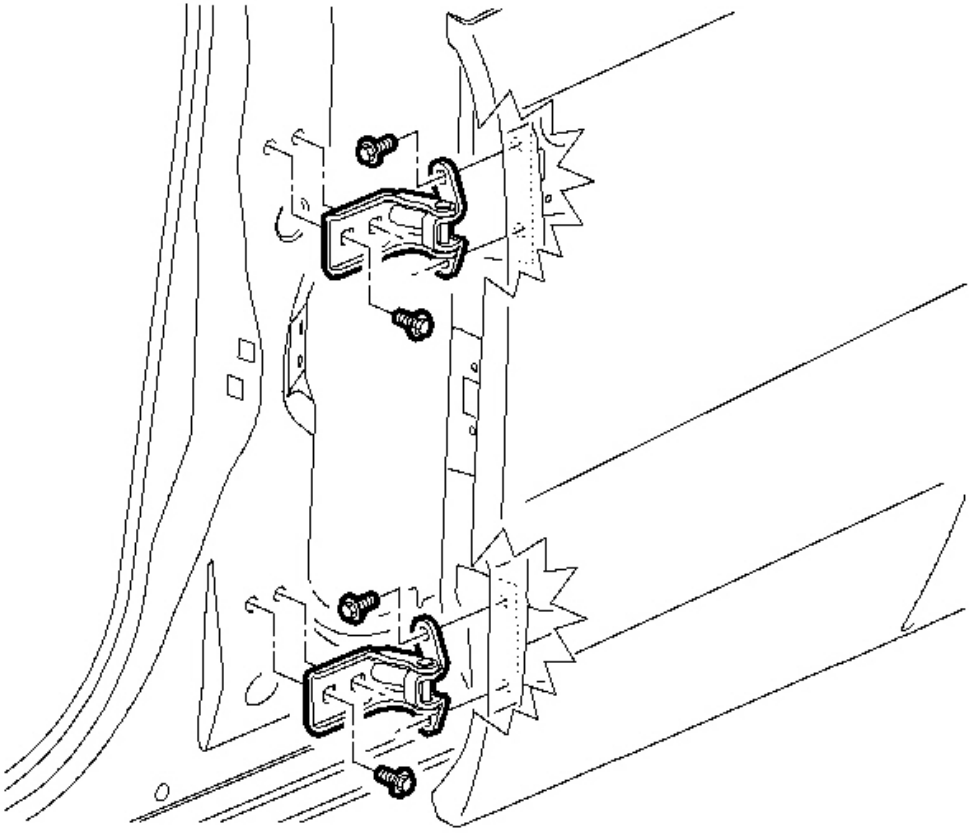


Fig. 50: Removing/Installing Hinge Rear Door
Courtesy of GENERAL MOTORS CORP.

1. Mark around the hinge location with a soft marker for installation alignment purposes.
2. Support the door.
3. With the door fully latched on the striker, remove the hinge to door bolts.
4. Remove the hinge to body bolts and remove the hinges one at a time.

Installation Procedure

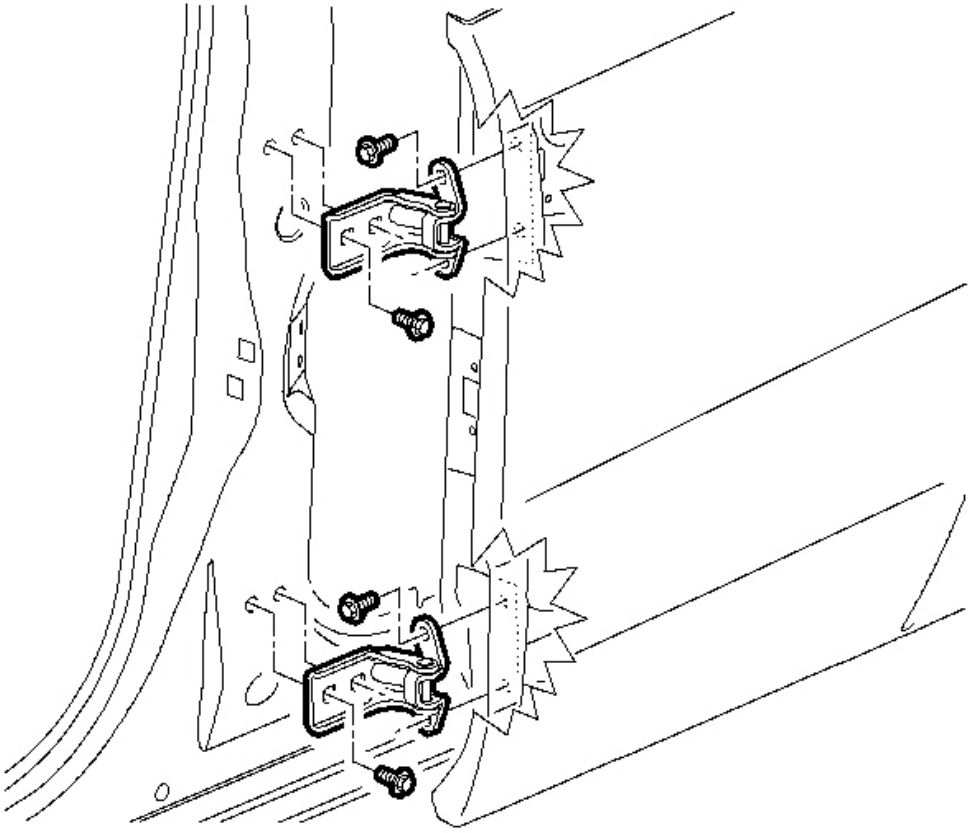


Fig. 51: Removing/Installing Hinge Rear Door
Courtesy of GENERAL MOTORS CORP.

1. Position the hinge to the vehicle with the marks made prior to removal.

   NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the hinge to door bolts.

   Tighten: Tighten the bolts to 25 N.m (18 lb ft).

3. Install the hinge to body bolts.

Tighten: Tighten the bolts to 25 N.m (18 lb ft).

4. Inspect the door for proper alignment. Refer to **Door Adjustment - Rear** .

DOOR CHECK LINK REPLACEMENT - FRONT

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

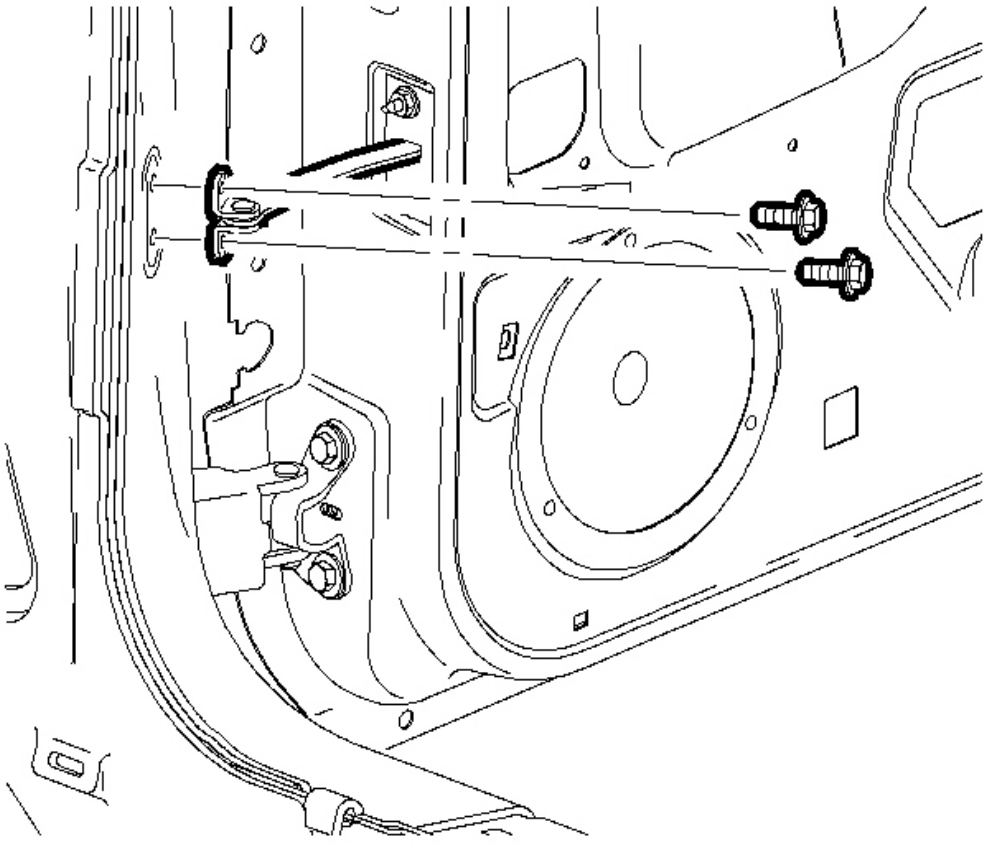


Fig. 52: Removing/Installing Front Door Check Link Bolts
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
2. Remove the front door lower speaker. Refer to **Speaker Replacement - Front Door** in Entertainment.
3. Remove the check link bolts at the hinge pillar.

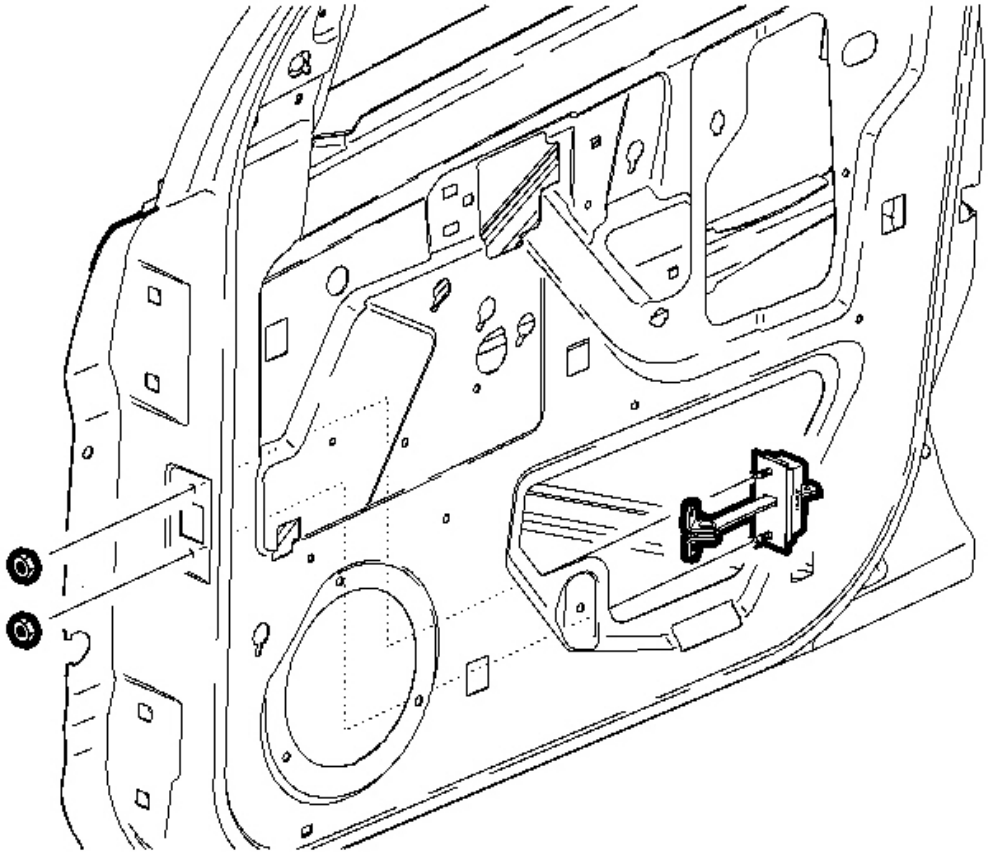


Fig. 53: Removing/Installing Check Link Nuts
Courtesy of GENERAL MOTORS CORP.

4. Remove the check link nuts from the door frame.

5. Remove the check link from the door through the speaker opening.

Installation Procedure

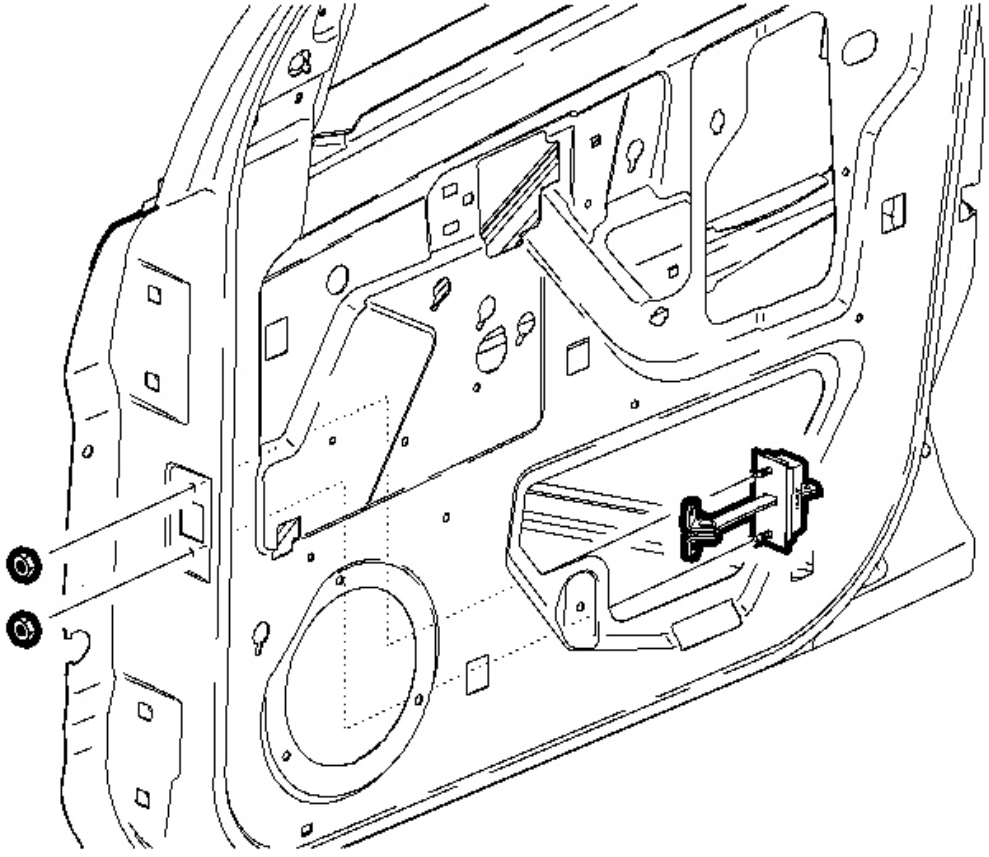


Fig. 54: Removing/Installing Check Link Nuts
Courtesy of GENERAL MOTORS CORP.

1. Install the check link to the door frame.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the nuts to the check link.

Tighten: Tighten the nuts to 10 N.m (89 lb in).

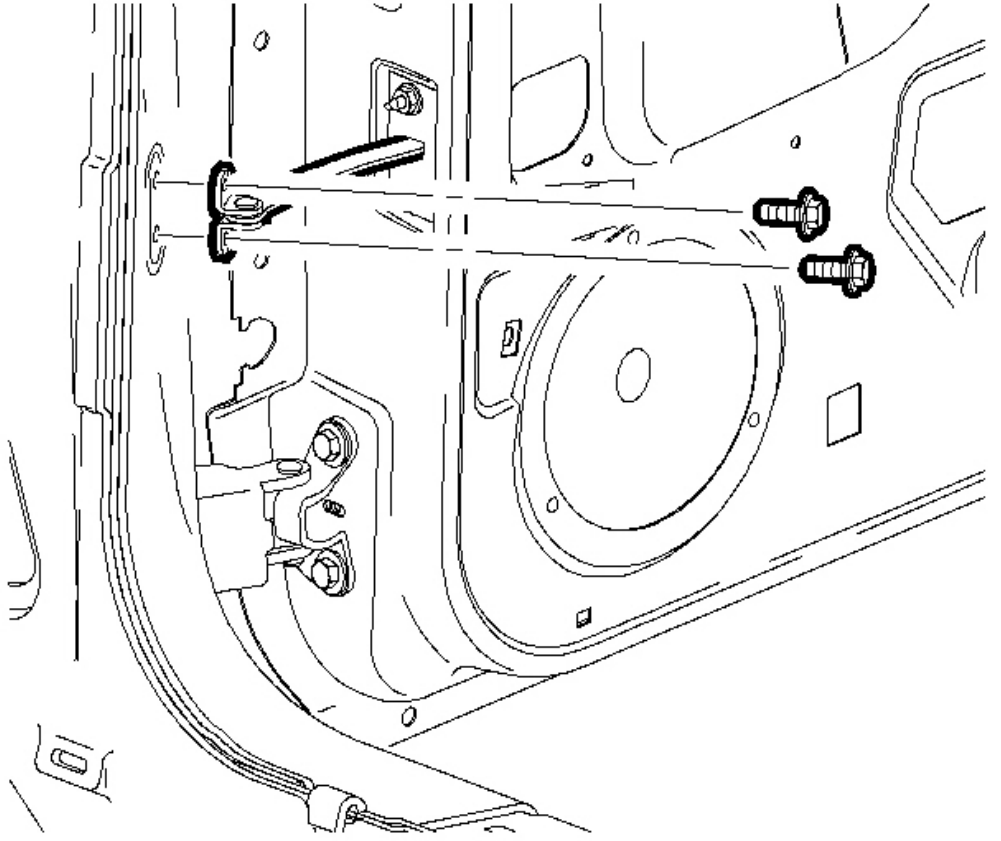


Fig. 55: Removing/Installing Front Door Check Link Bolts
Courtesy of GENERAL MOTORS CORP.

3. Install the check link bolts.

   Tighten: Tighten the bolts to 10 N.m (89 lb in).

4. Install the front door lower speaker. Refer to **Speaker Replacement - Front Door** in Entertainment.
5. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

DOOR CHECK LINK REPLACEMENT - REAR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

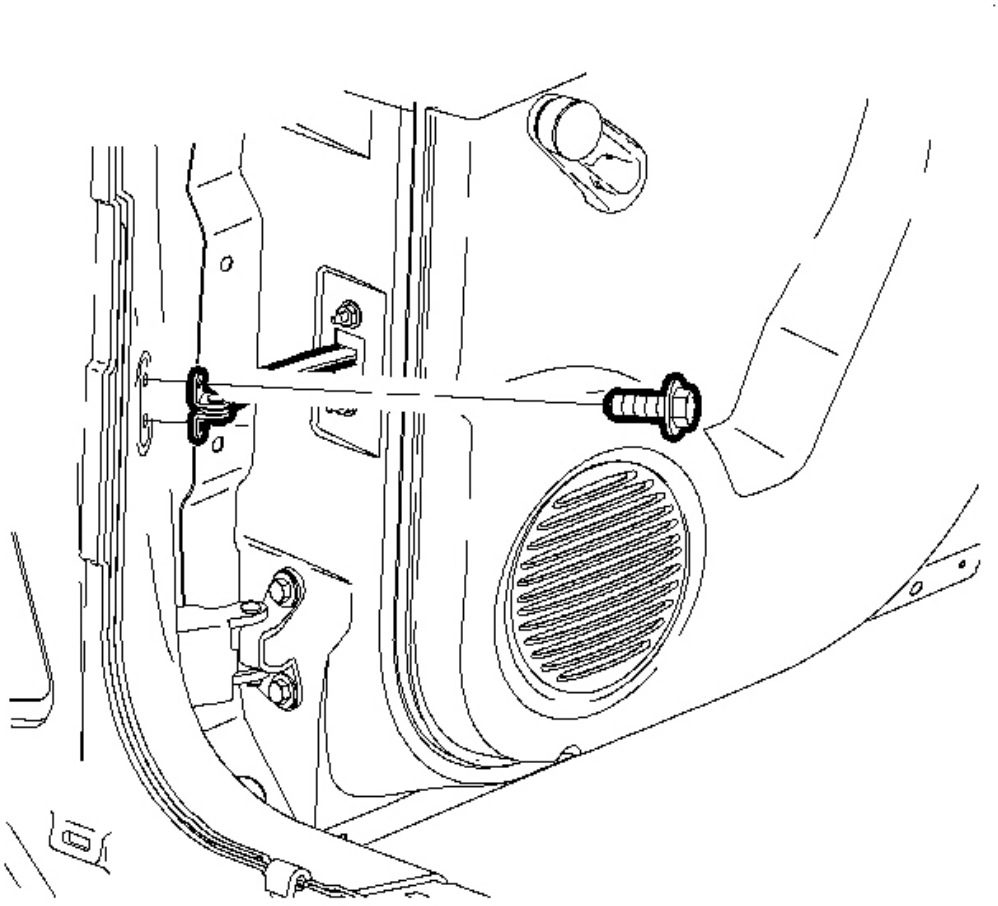


Fig. 56: View Of Rear Door Check Link
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

2. Remove the rear door lower speaker. Refer to **Speaker Replacement - Rear Door** in Entertainment.
3. Remove the check link bolts at the hinge pillar.

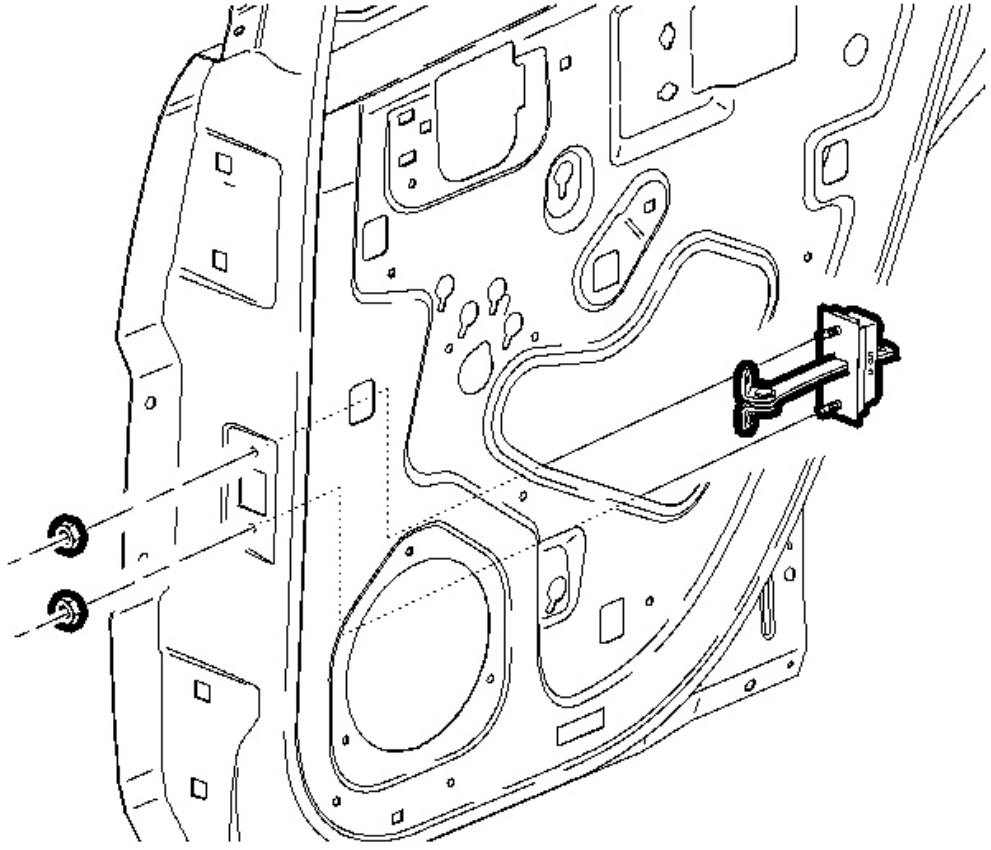


Fig. 57: Removing/Installing Check Link To The Door Frame
Courtesy of GENERAL MOTORS CORP.

4. Remove the check link nuts from the door frame.
5. Remove the check link from the door through the speaker opening.

Installation Procedure

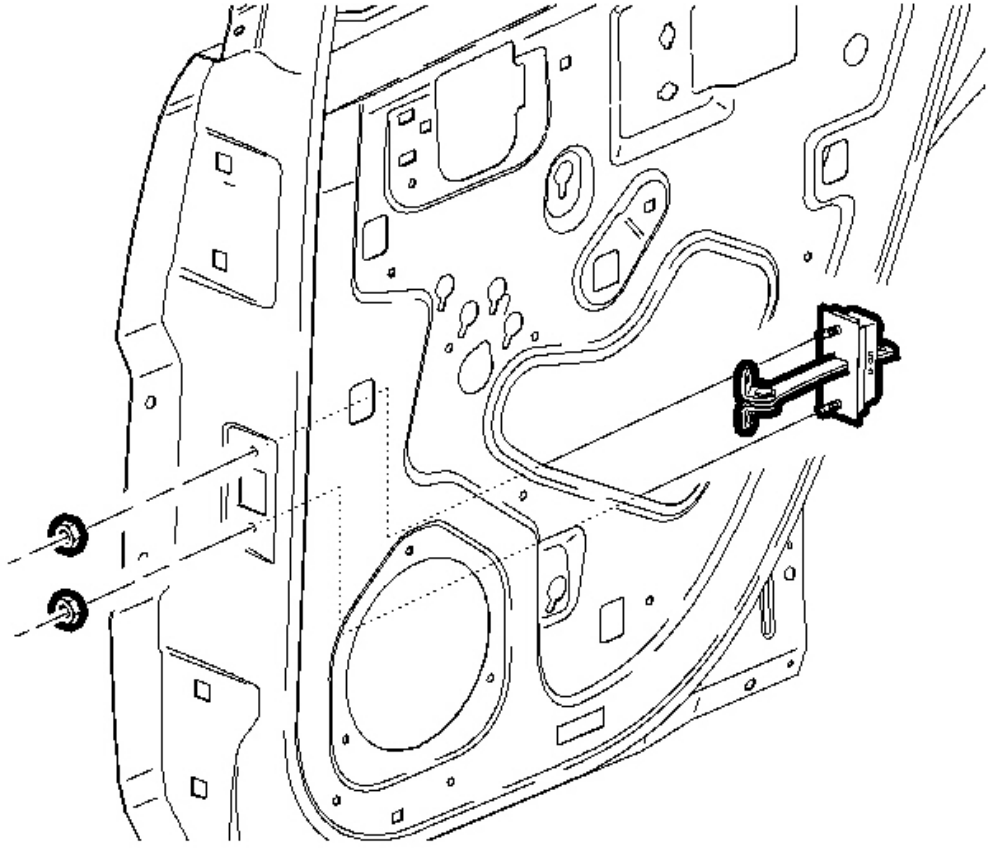


Fig. 58: Removing/Installing Check Link To The Door Frame
Courtesy of GENERAL MOTORS CORP.

1. Install the check link to the door frame.

   NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the nuts to the check link.

   Tighten: Tighten the nuts to 10 N.m (89 lb in).

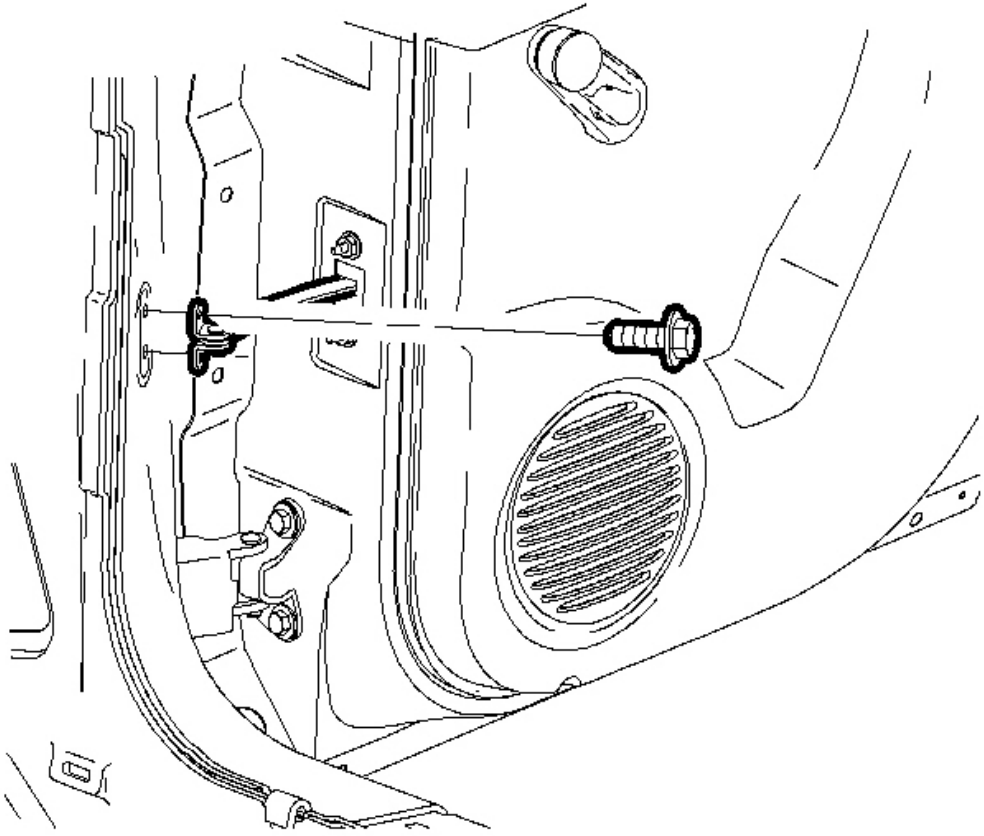


Fig. 59: View Of Rear Door Check Link
Courtesy of GENERAL MOTORS CORP.

3. Install the check link bolts.

   Tighten: Tighten the bolts to 10 N.m (89 lb in).

4. Install the rear door lower speaker. Refer to **Speaker Replacement - Rear Door** in Entertainment.
5. Install the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

DOOR HANDLE REPLACEMENT - FRONT OUTSIDE

Removal Procedure

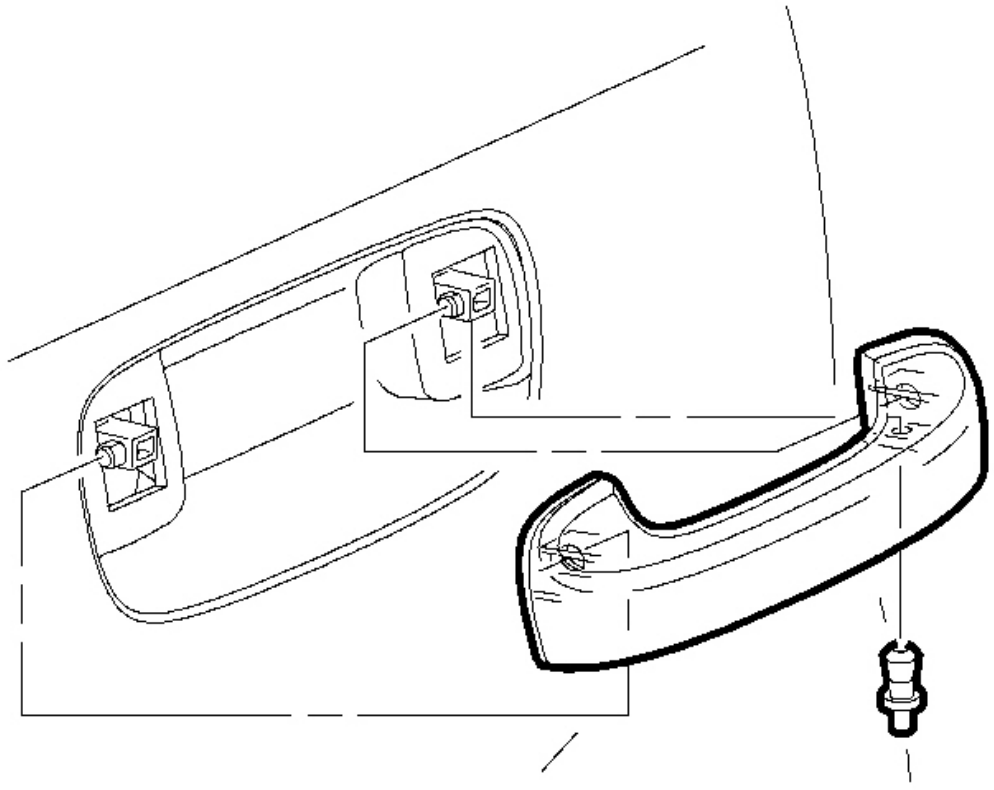


Fig. 60: View Of Front Door Handle
Courtesy of GENERAL MOTORS CORP.

1. Lift the handle and remove the push pin.
2. Slide the door handle rearward to remove from the pivot assembly.

Installation Procedure

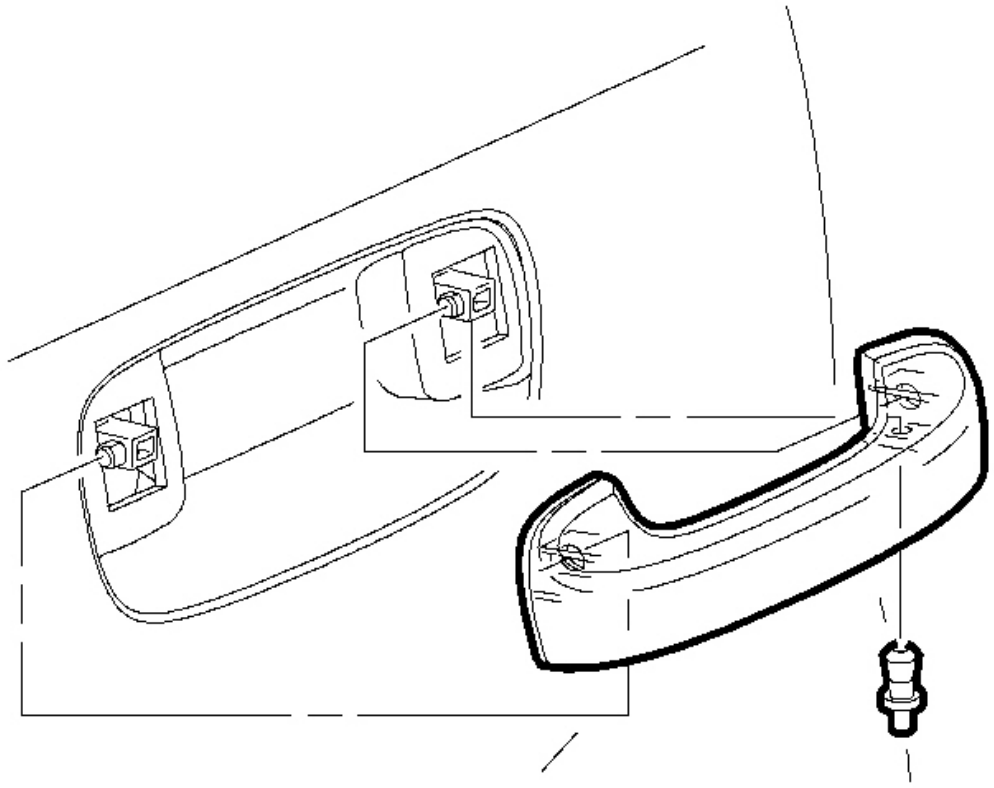


Fig. 61: View Of Front Door Handle
Courtesy of GENERAL MOTORS CORP.

1. Slide the handle forward onto the pivot assembly.
2. Lift the door handle and install the push pin.

DOOR HANDLE REPLACEMENT - REAR OUTSIDE

Removal Procedure

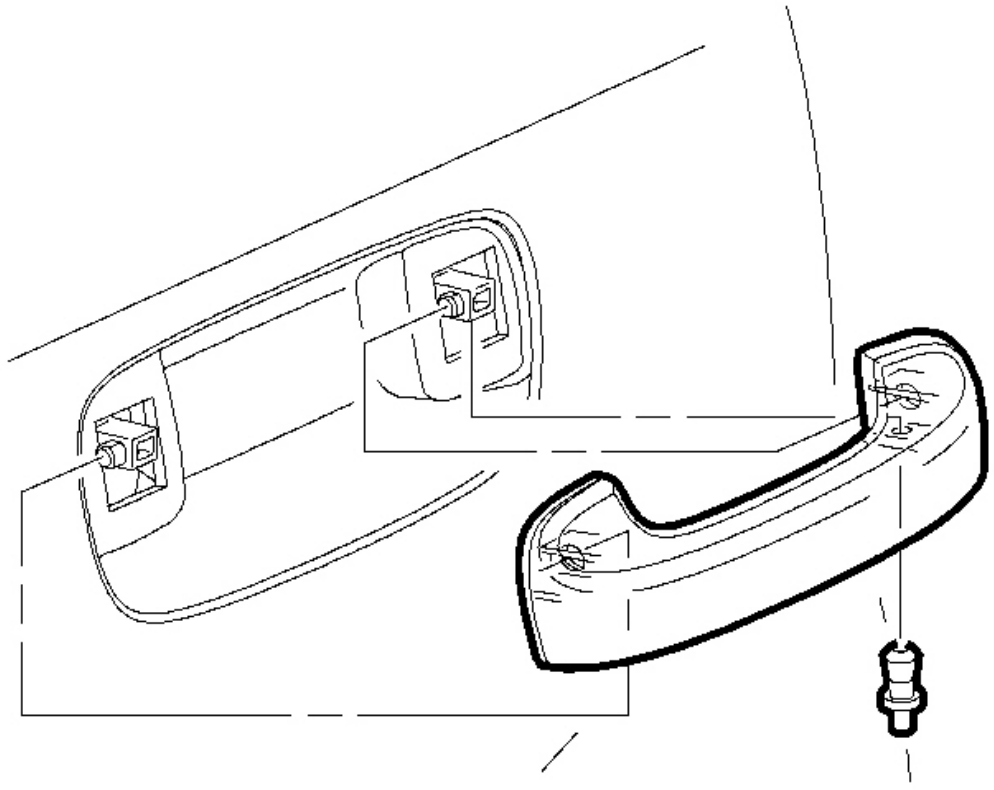


Fig. 62: View Of Rear Door Handle
Courtesy of GENERAL MOTORS CORP.

1. Lift the handle and remove the push pin.
2. Slide the door handle rearward to remove from the pivot assembly.

Installation Procedure

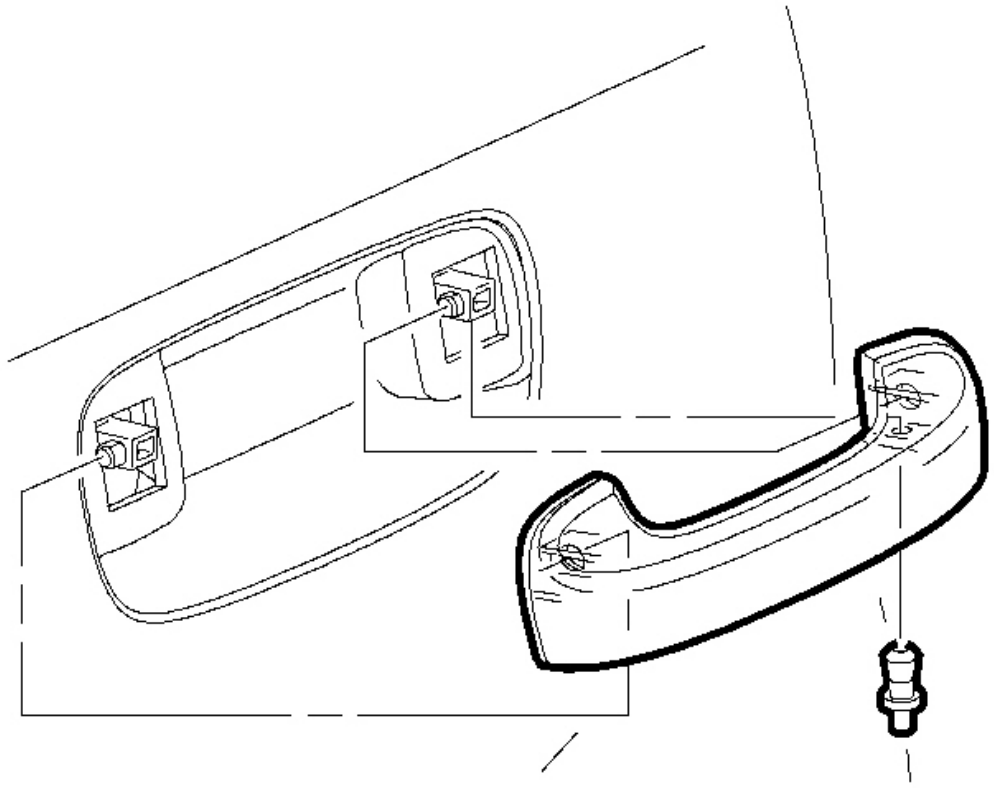


Fig. 63: View Of Rear Door Handle
Courtesy of GENERAL MOTORS CORP.

1. Slide the handle forward onto the pivot assembly.
2. Lift the door handle and install the push pin.

DOOR HANDLE REPLACEMENT - INSIDE

Removal Procedure

1. Remove the screw from the center of the inside handle pocket.

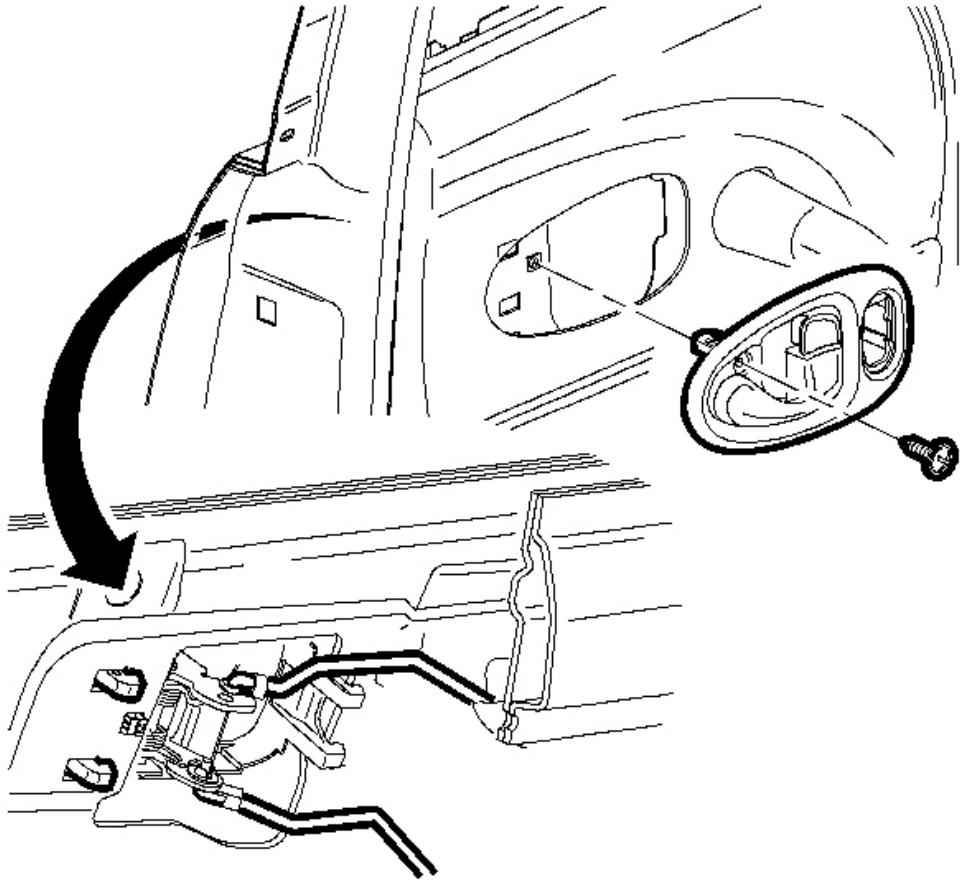


Fig. 64: View Of Inside Door Handle
Courtesy of GENERAL MOTORS CORP.

2. Slide the handle forward and pull outward to expose the lock rods.
3. Using a thin-bladed tool, disengage the rods from the retaining clips.
4. If the vehicle is equipped with power windows, disconnect the electrical connector from the switch by depressing the retaining tabs.

Installation Procedure

1. Connect the electrical connector to the power window switch.

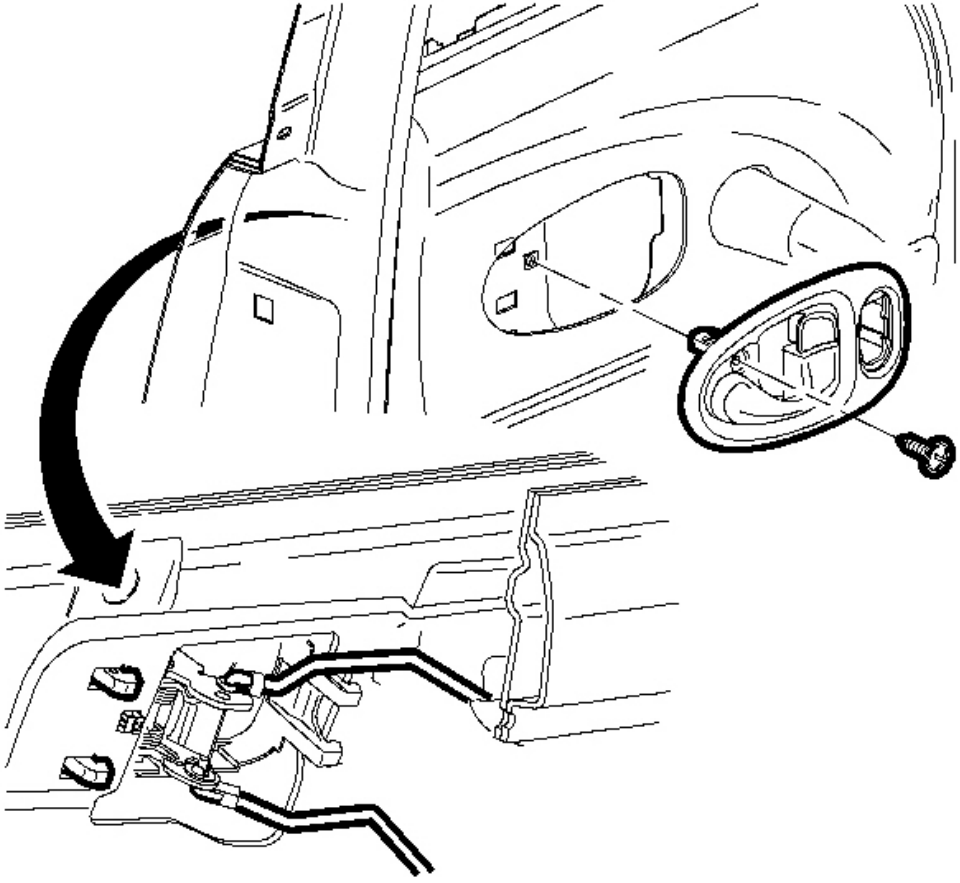


Fig. 65: View Of Inside Door Handle
Courtesy of GENERAL MOTORS CORP.

2. Position the inside handle to the door trim and partially seat the rear tangs.
3. Lift the lock rods into the retaining clips. Secure the rods into the handle by latching the clips over the rods.
4. Push the handle into the trim panel and slide rearward to fully engage the tangs. Verify that the rods clear the water deflector.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Install the screw in the handle.

Tighten: Tighten the screw to 2.5 N.m (22 lb in).

6. Verify the correct installation of the lock rods by testing for smooth movement of the lock button and of the inside handle.

DOOR HANDLE PIVOT REPLACEMENT - OUTSIDE (FRONT DOOR)

Removal Procedure

1. Remove the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .

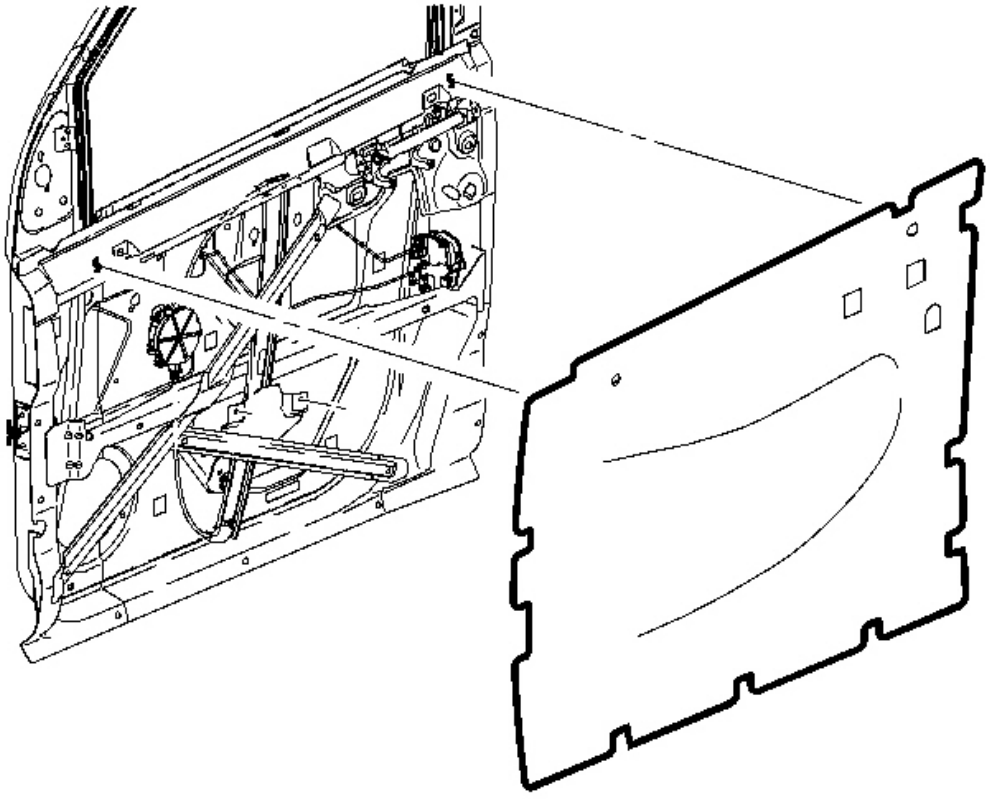


Fig. 66: View Of Front Door Sound Insulator
Courtesy of GENERAL MOTORS CORP.

2. Partially remove the front door sound insulator.

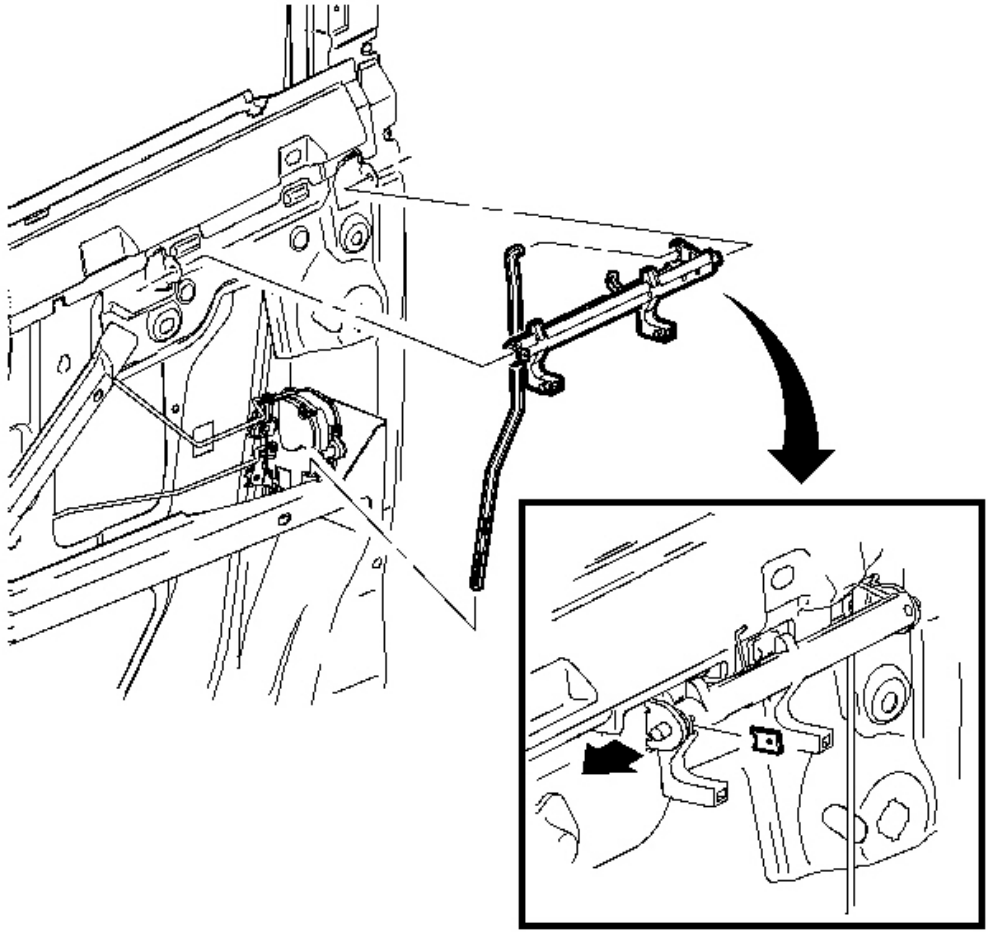


Fig. 67: Removing/Installing Handle Pivot
Courtesy of GENERAL MOTORS CORP.

3. Disconnect the outside handle rod from he door latch clamshell-style clip.
4. Compress the pin on the handle pivot and remove the pivot and outside handle rod assembly.
5. Disconnect the outside handle rod from the pivot and remove.

Installation Procedure

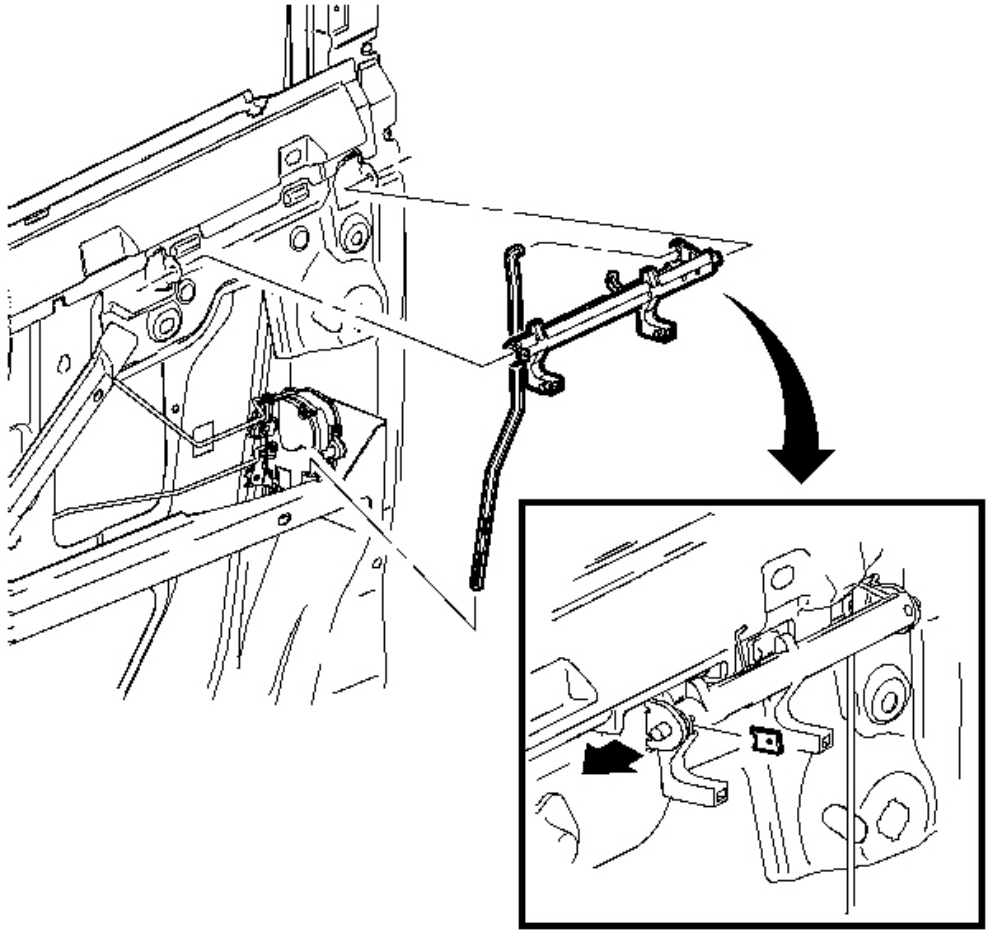


Fig. 68: Removing/Installing Handle Pivot
Courtesy of GENERAL MOTORS CORP.

1. If installing a new handle pivot, remove and discard the shipping retainer (1).
2. Connect the outside handle rod to handle pivot.
3. Insert rear pin of pivot into door structure. Compress front pin and insert into door structure.

IMPORTANT: Check for proper adjustment of outside handle rod. There should be no tension on pivot or door latch.

4. Adjust outside handle rod to freely enter clamshell-style retainer clip in door latch and secure into place.
5. Install door sound insulator. Refer to **Sound Insulator Replacement - Front Door** .

6. Install the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .

LOCKING ROD REPLACEMENT - FRONT DOOR

Removal Procedure

1. Remove the front door latch. Refer to **Latch Replacement - Front Door** .

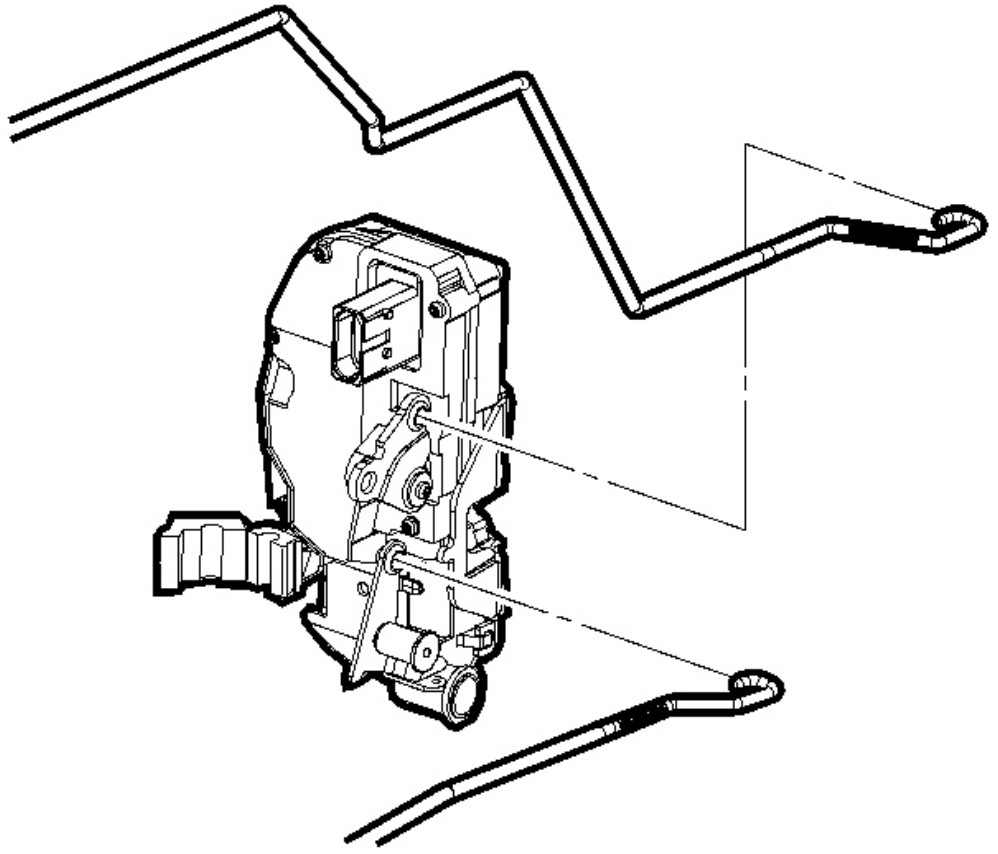


Fig. 69: View Of Front Door Locking Rod
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the lock rod from the latch assembly.

Installation Procedure

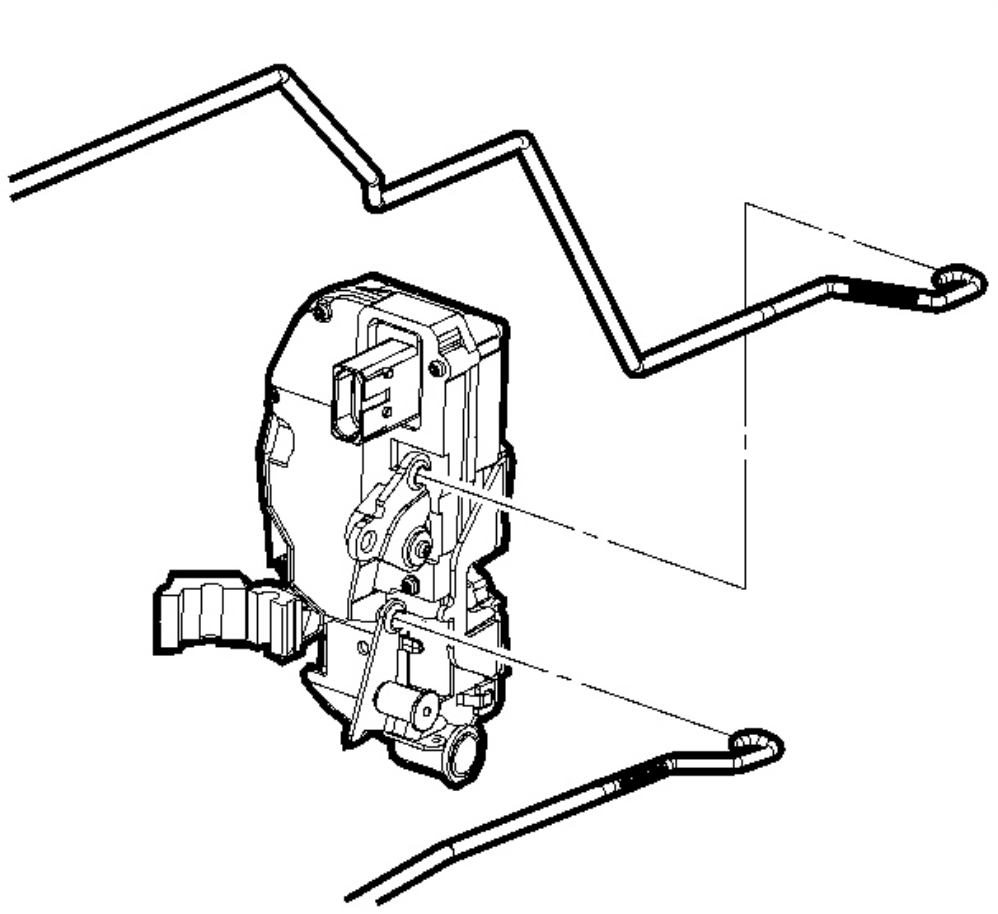


Fig. 70: View Of Front Door Locking Rod
Courtesy of GENERAL MOTORS CORP.

1. Connect the lock rod to the latch assembly.
2. Install the front door latch. Refer to **Latch Replacement - Front Door** .

LOCK CYLINDER REPLACEMENT - DOOR

Removal Procedure

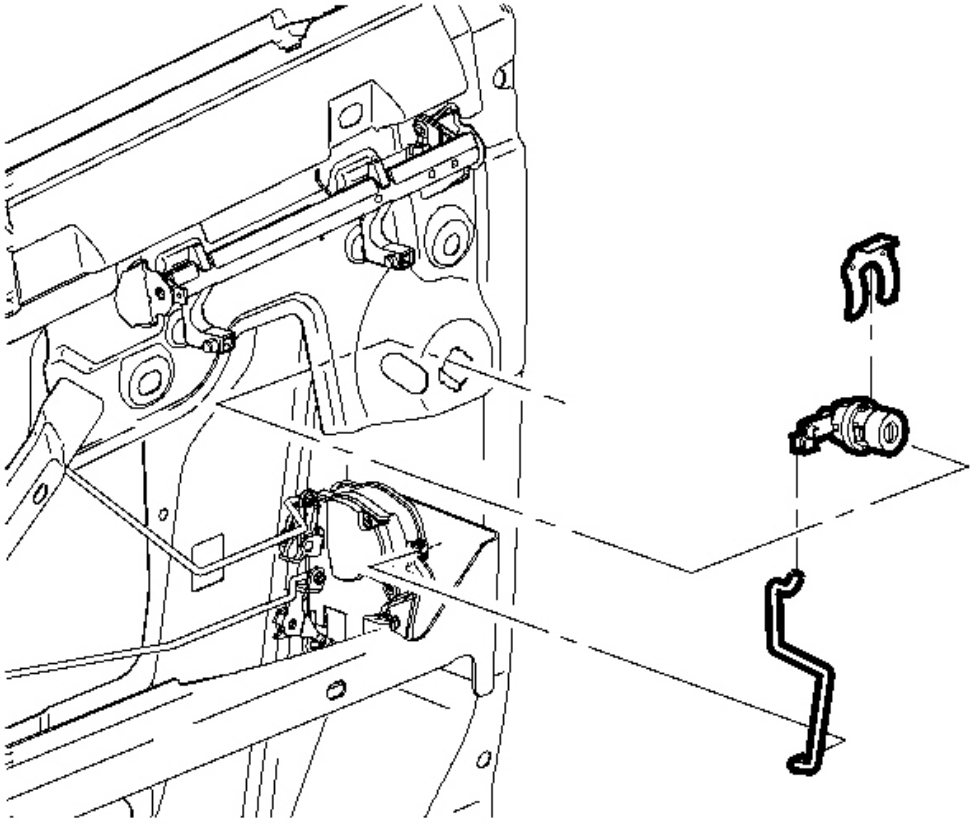


Fig. 71: View Of Door Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

1. Ensure the window is in the full-up position.
2. Remove the outer front door panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .
3. Pull back the front door sound insulator at the rear. Refer to **Sound Insulator Replacement - Front Door** .
4. Remove the C-clip from the lock cylinder, and push the lock cylinder into the door.
5. Disconnect the lock rod from the latch mechanism.
6. Remove the lock cylinder from the outer door panel.

Installation Procedure

IMPORTANT: Incorrect orientation of the lock cylinder retainer will result in improper fit of the outer door panel.

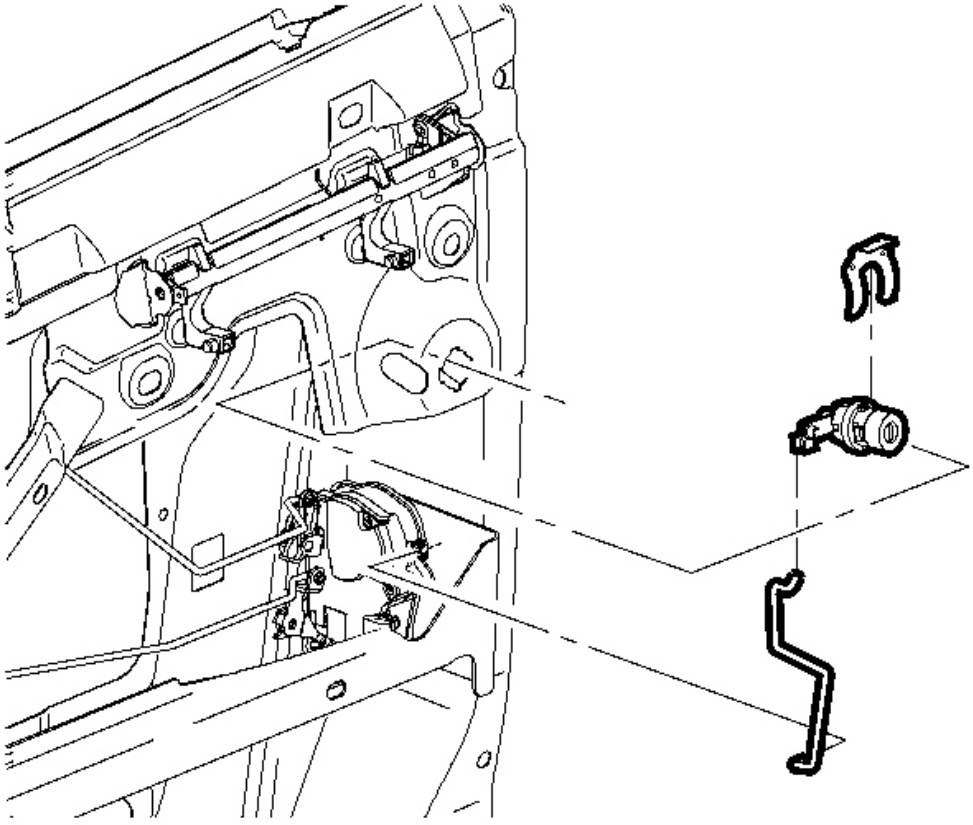


Fig. 72: View Of Door Lock Cylinder
Courtesy of GENERAL MOTORS CORP.

1. Position the lock cylinder to the outer door panel.
2. Connect the lock rod to the latch mechanism.
3. Install the C-clip to the lock cylinder.
4. Pull back the front door sound insulator. Refer to **Sound Insulator Replacement - Front Door** .
5. Install the outer front door panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .

6. Inspect the lock cylinder for proper operation.

LATCH REPLACEMENT - FRONT DOOR

Removal Procedure

1. Move the window into the full up position.
2. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
3. Remove the front door water deflector. Refer to **Water Deflector Replacement - Front Door** .

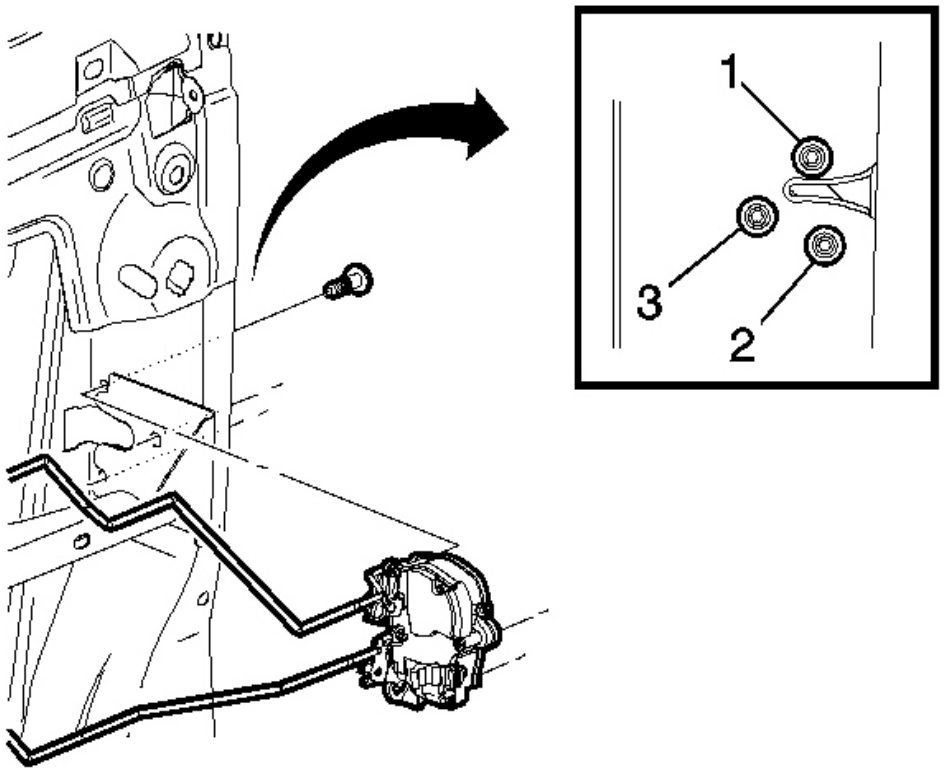


Fig. 73: View Of Front Door Latch Fasteners

Courtesy of GENERAL MOTORS CORP.

4. Disconnect the outside handle rod from the clamshell-style clip. Access the clip through the lower access hole in the door structure.
5. Disconnect the electrical connector from the latch, if equipped.
6. Disconnect the inside handle rod and lock rod from the guide clips in the door structure.
7. Remove the door latch fasteners.
8. Move the latch forward in the door structure. Rotate the latch to disconnect the lock cylinder rod from the latch.
9. Remove the door latch with the inside handle and lock rod still attached through the lock rod pass-through hole in the door structure.

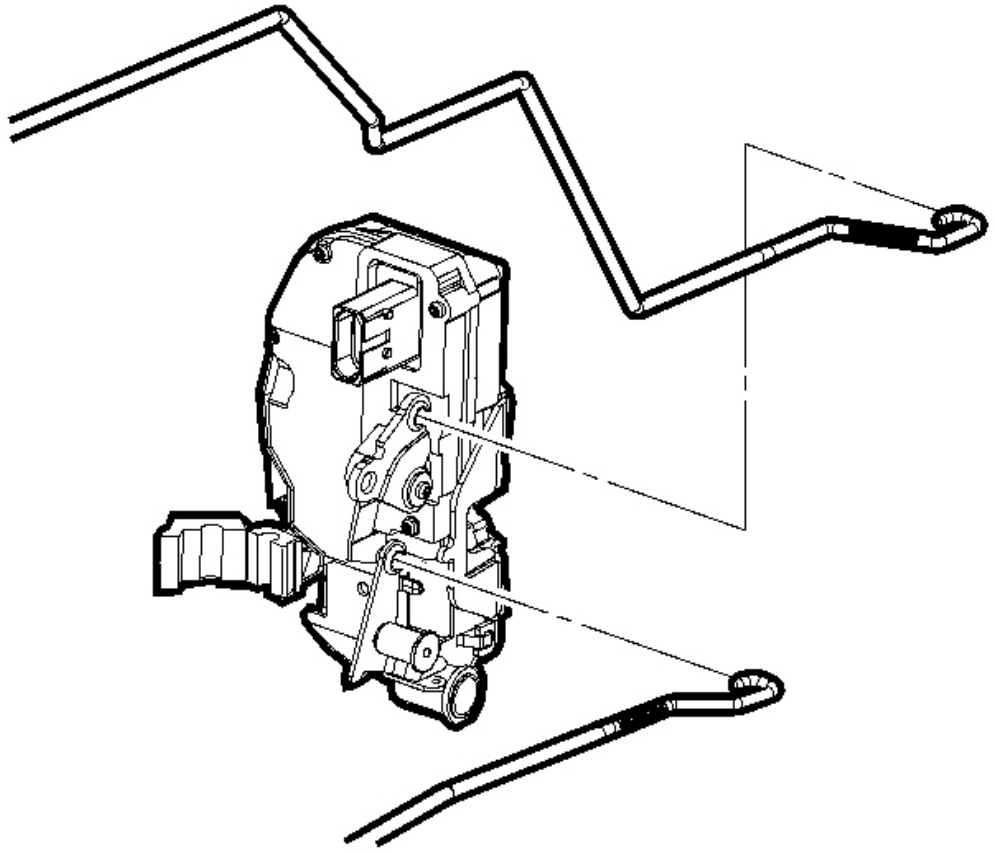


Fig. 74: View Of Front Door Locking Rod
Courtesy of GENERAL MOTORS CORP.

10. Disconnect the inside handle rod and lock rod from the latch.

Installation Procedure

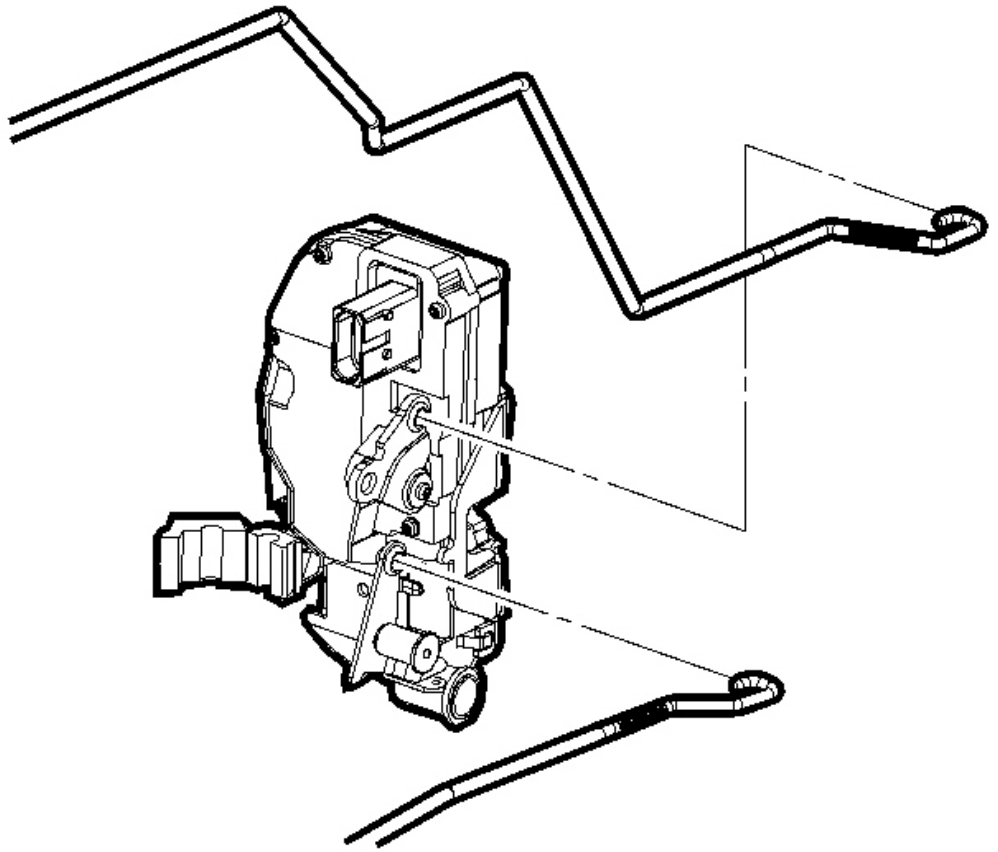


Fig. 75: View Of Front Door Locking Rod
Courtesy of GENERAL MOTORS CORP.

1. Connect the inside handle rod and lock button rod to the latch.

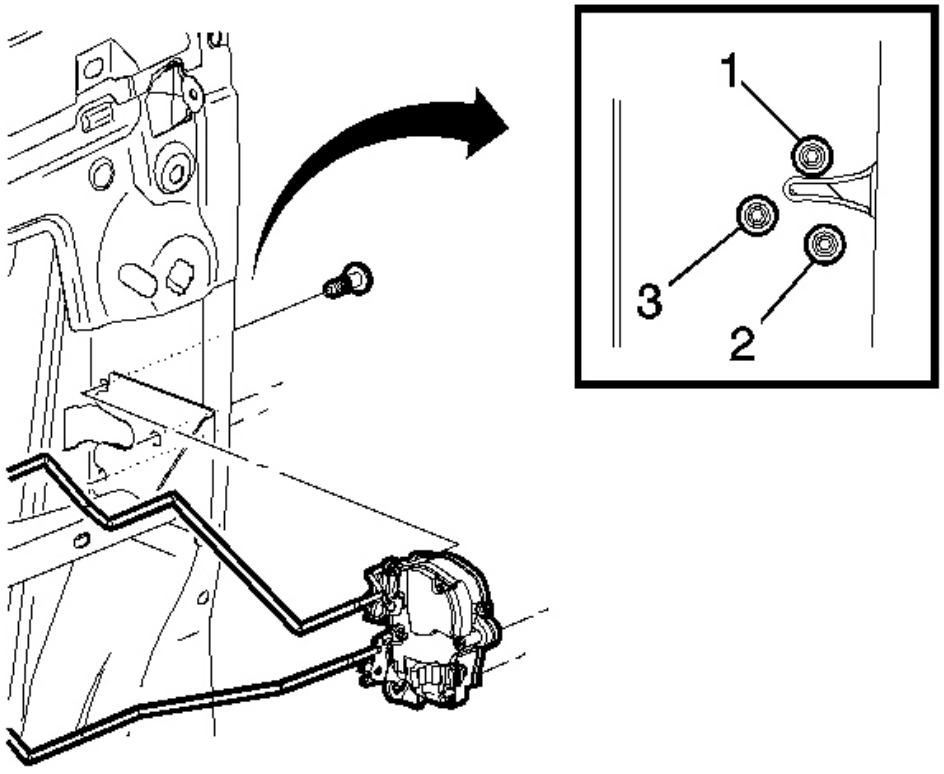


Fig. 76: View Of Front Door Latch Fasteners
Courtesy of GENERAL MOTORS CORP.

2. Position the door latch with the inside handle rod and the lock rod attached through the lock rod pass-through hole into the door structure.
3. Connect the lock cylinder rod into the latch by rotating the latch to engage the rod.
4. Install the door latch screws in the order shown.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the top screw first, the bottom screw second, and the middle screw last.

Tighten: Tighten the screws to 12 N.m (9 lb ft).

6. Adjust the outside handle rod to freely enter the clamshell-style retainer clip in the door latch and secure into place.
7. Connect the inside handle rod and lock rod into the guide clips in the door structure.
8. Connect the door latch electrical connector, if equipped.
9. Install the front door water deflector. Refer to **Water Deflector Replacement - Front Door** .
10. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
11. Inspect the door for proper operation.

LATCH REPLACEMENT - REAR DOOR

Removal Procedure

1. Move the window into the full up position.
2. Remove the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .
3. Remove the rear door water deflector. Refer to **Water Deflector Replacement - Rear Door** .
4. Disconnect the outside handle rod from the clamshell-style clip.
5. Disconnect the latch wiring harness clips from the door structure, if equipped.

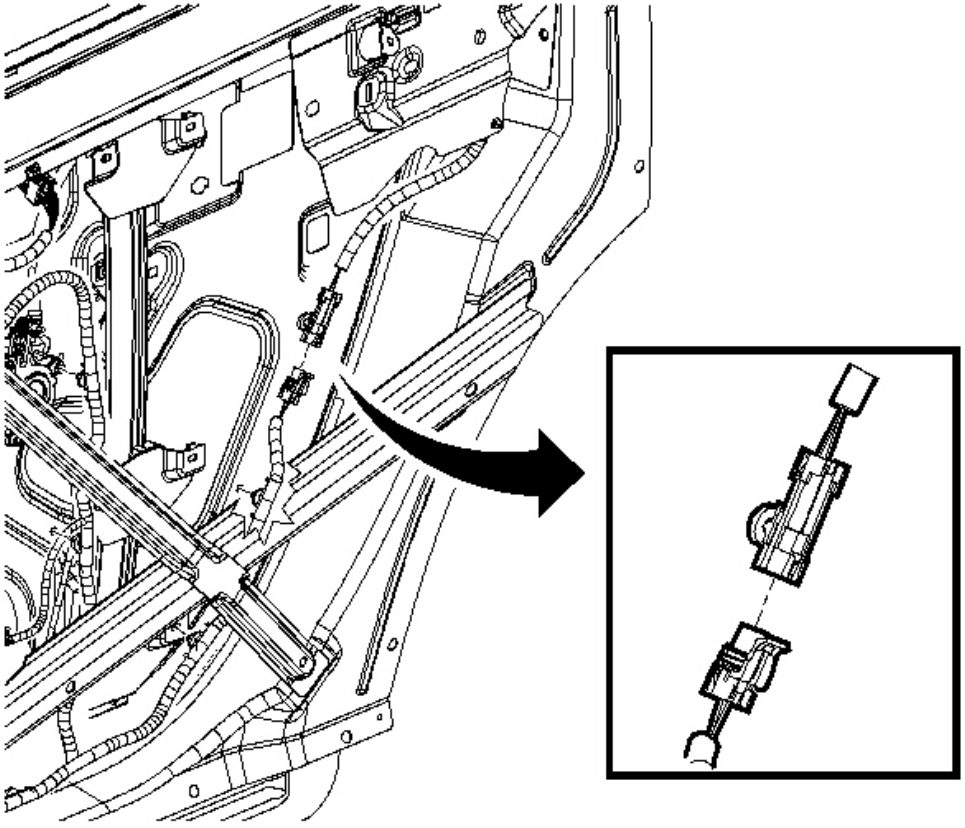


Fig. 77: View Of Rear Door Latch
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the latch wiring pig tail connector from the door wiring harness, if equipped.
7. Disconnect the inside handle rod and lock rod from the guide clips in the door structure.

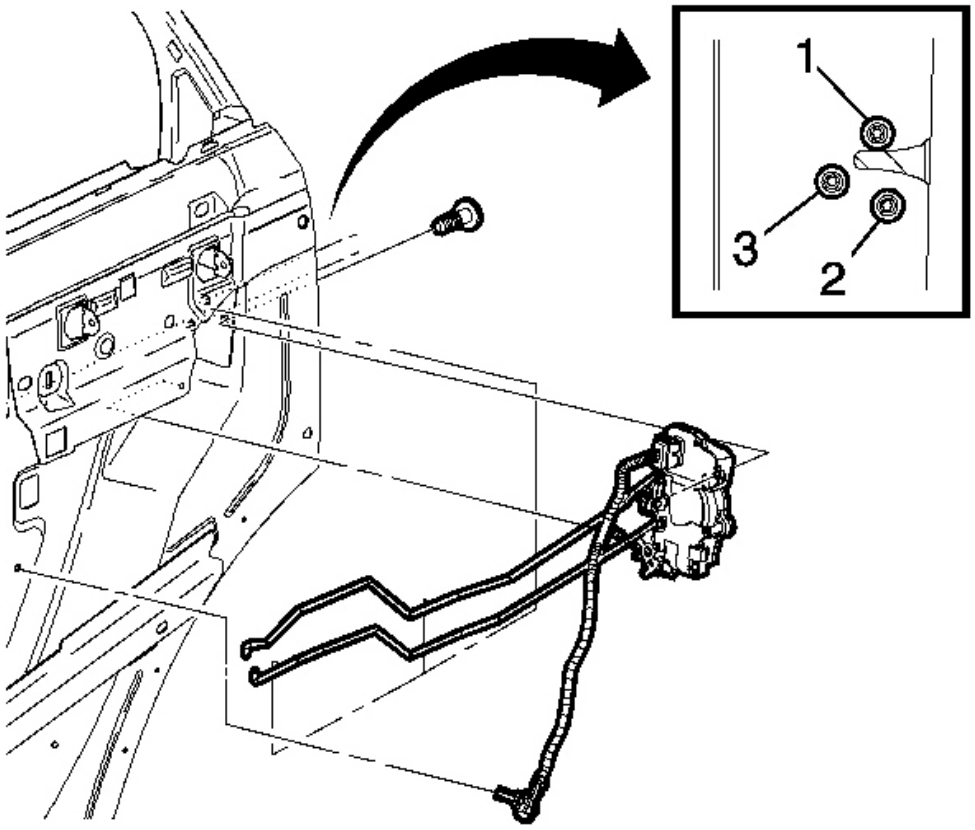


Fig. 78: Removing/Installing Door Latch Bolts
Courtesy of GENERAL MOTORS CORP.

8. Remove the door latch bolts.

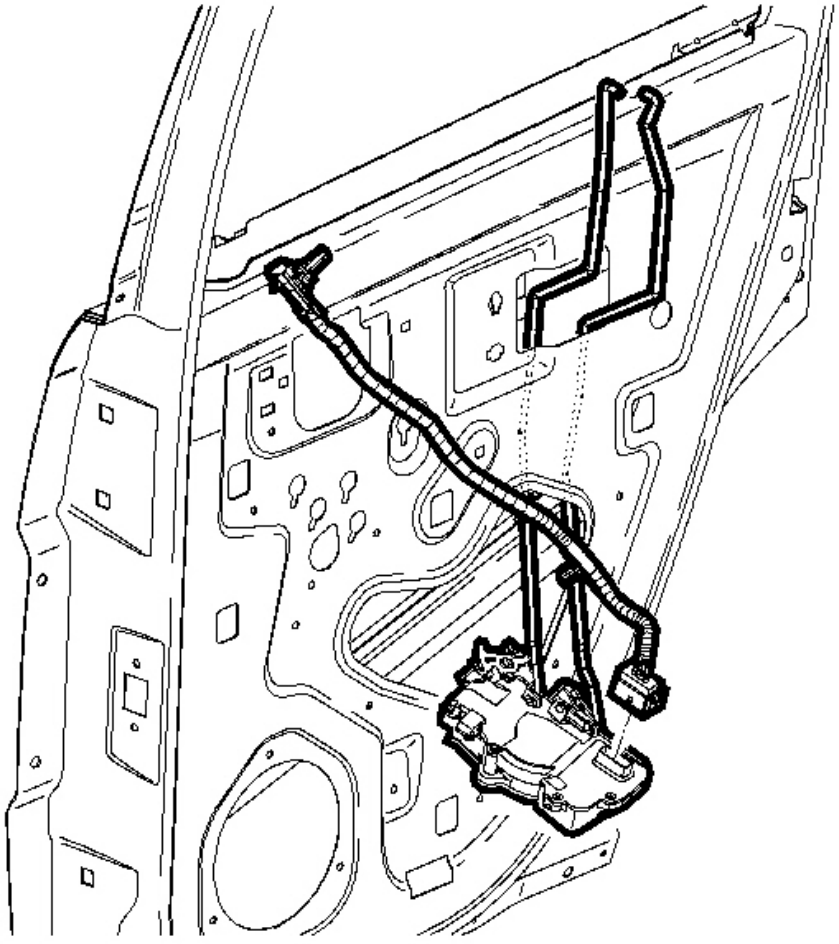


Fig. 79: Removing/Installing Rear Door Latch Assembly With The Inside Handle
Courtesy of GENERAL MOTORS CORP.

9. Disconnect the latch wiring pig tail at the latch, if equipped.
10. Remove the door latch with the inside handle rod and lock rod still attached through the lower opening in the door structure.

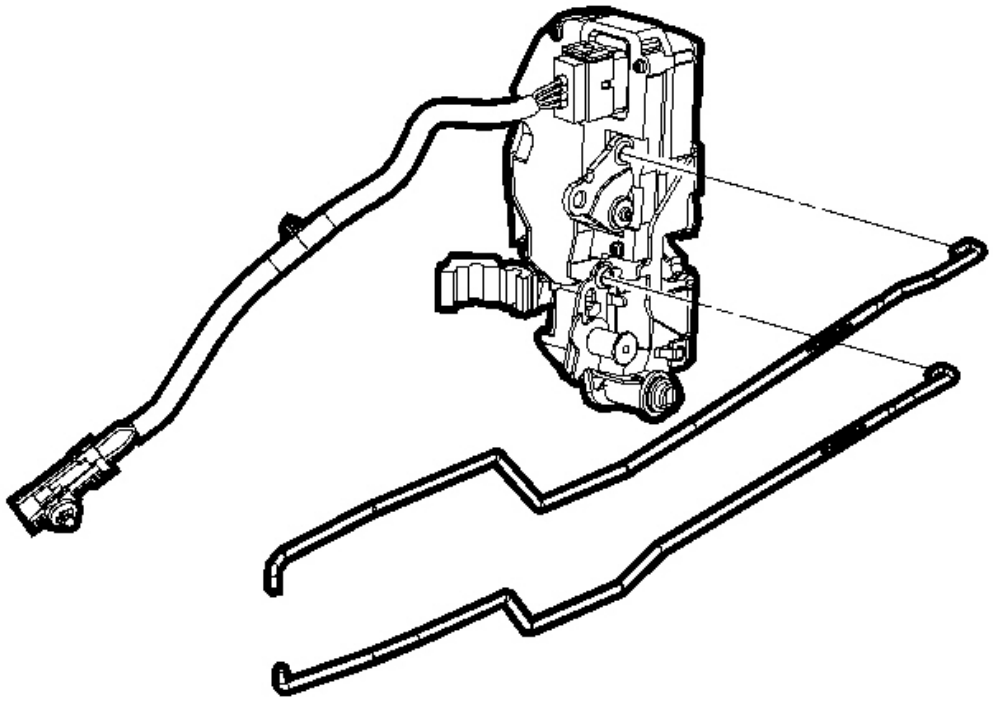


Fig. 80: Disconnect/Connect Inside Handle Rod & Lock Rod From Latch Assembly
Courtesy of GENERAL MOTORS CORP.

11. Disconnect the inside handle rod and lock rod from the latch assembly.

Installation Procedure

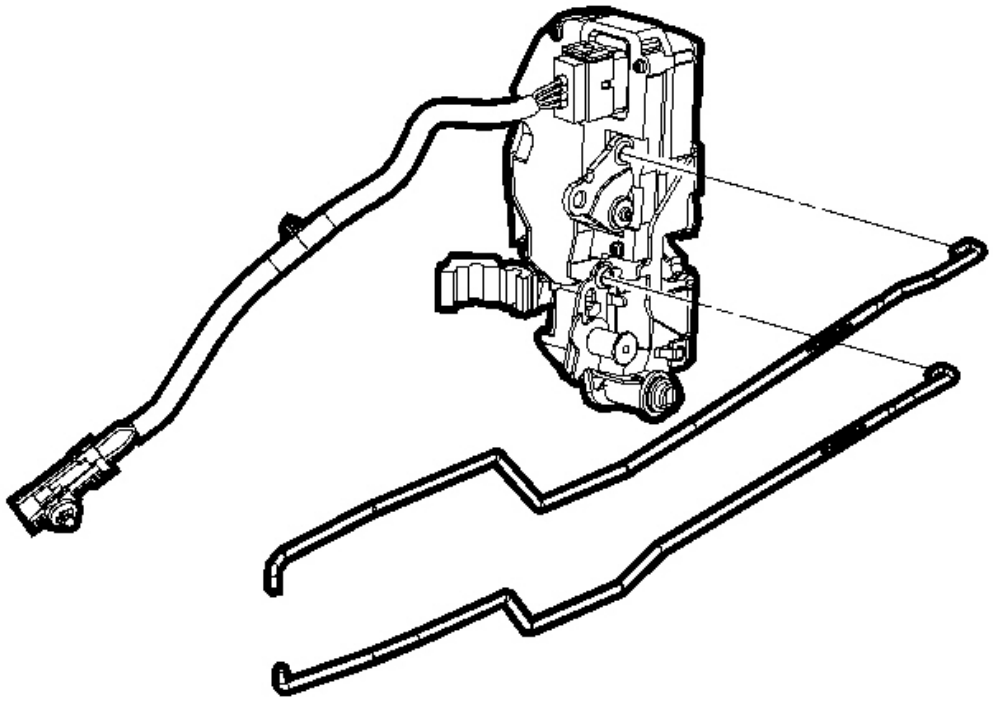


Fig. 81: Disconnect/Connect Inside Handle Rod & Lock Rod From Latch Assembly
Courtesy of GENERAL MOTORS CORP.

1. Connect the inside handle rod and lock rod to the latch assembly.
2. Connect the latch wiring pig tail at the latch, if equipped.

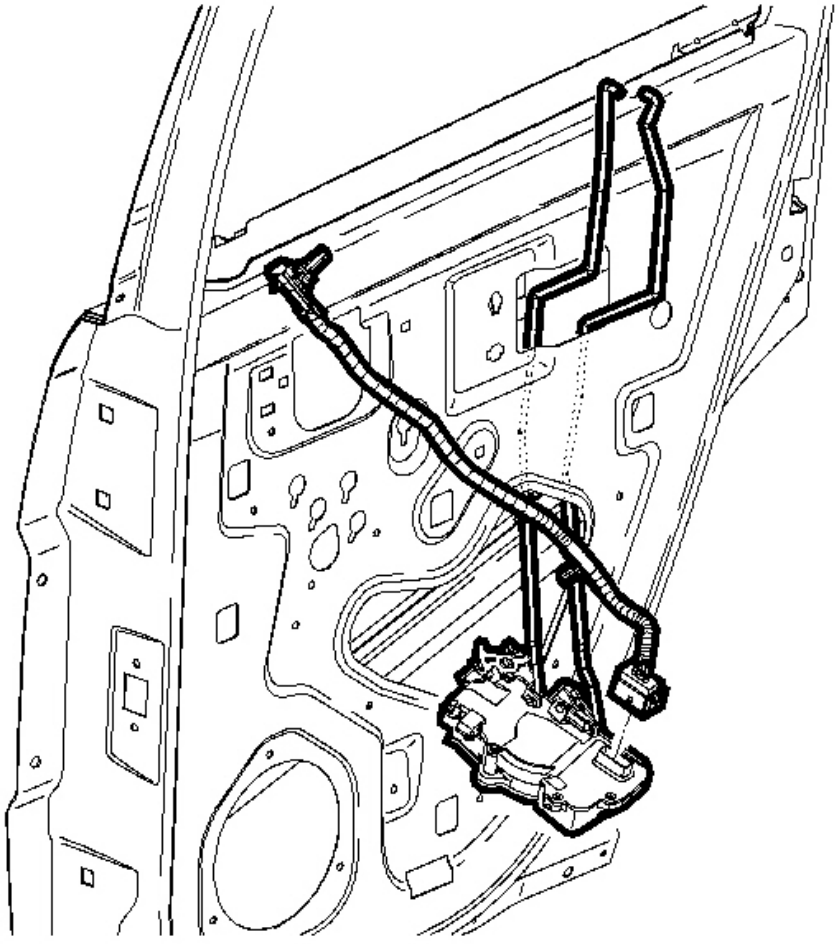


Fig. 82: Removing/Installing Rear Door Latch Assembly With The Inside Handle
Courtesy of GENERAL MOTORS CORP.

3. Install the rear door latch assembly with the inside handle and lock rod attached by doing the following:
    - Position the lock rods into the lower opening in the door structure and out at the lock rod pass through hole.
    - Position the latch into the door structure through the lower opening.
    - Rotate the latch into position.

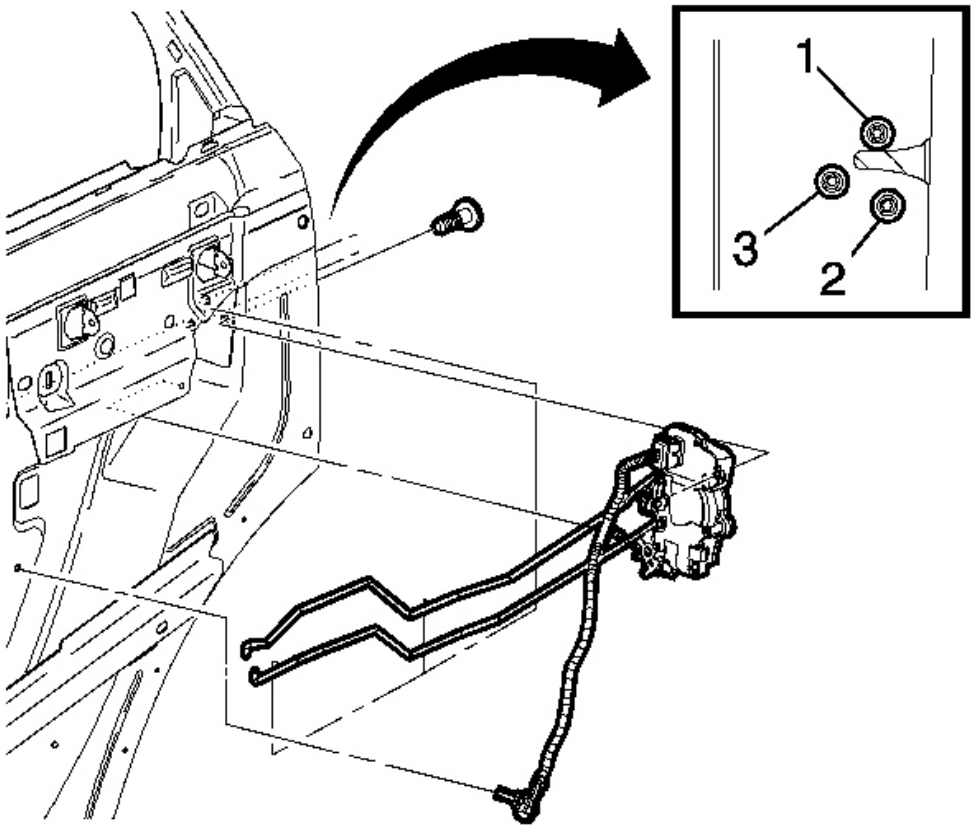


Fig. 83: Removing/Installing Door Latch Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the screws to the latch mechanism.
5. Tighten the top screw first, the bottom screw second, and the middle screw last.

Tighten: Tighten screws to 12 N.m (9 lb ft).

IMPORTANT: Check for proper adjustment of outside handle rod. There should be no tension on pivot or door latch.

6. Adjust the outside handle rod to freely enter the clamshell-style retainer clip door latch and secure into position.
7. Connect the latch wiring harness clips to the door structure, if equipped.

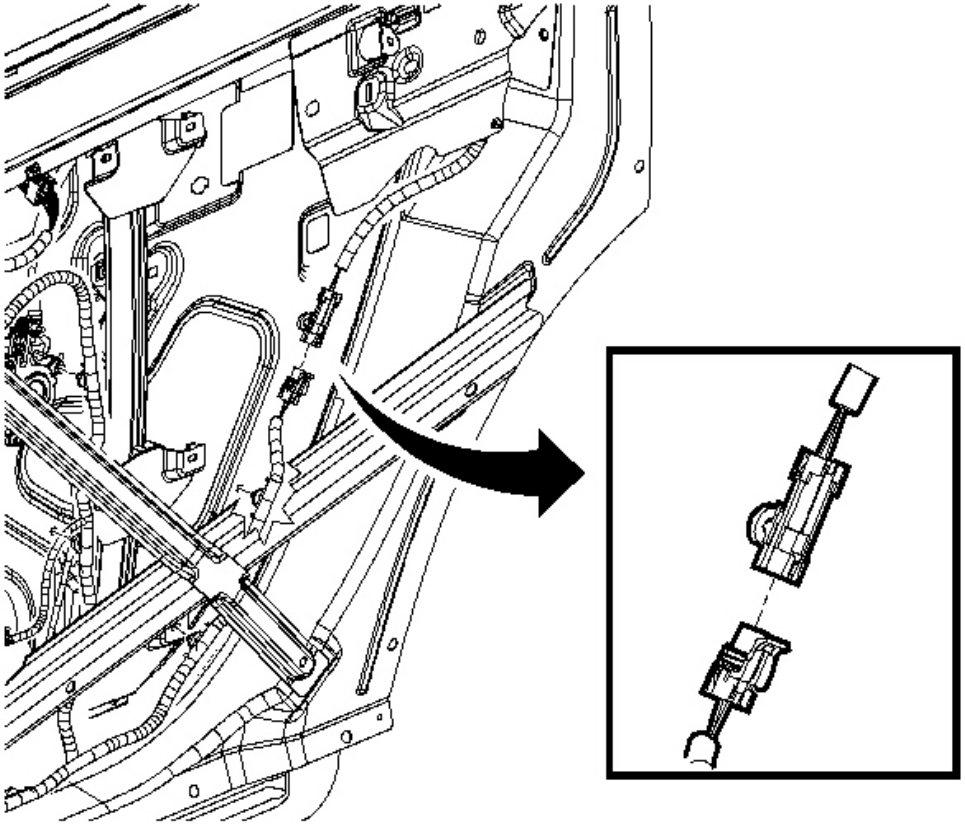


Fig. 84: View Of Rear Door Latch
Courtesy of GENERAL MOTORS CORP.

8. Connect the latch wiring connector to the door wiring harness, if equipped.
9. Install the rear door water deflector. Refer to **Water Deflector Replacement - Rear Door** .
10. Install the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

DOOR STRIKER ADJUSTMENT - FRONT DOOR

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

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

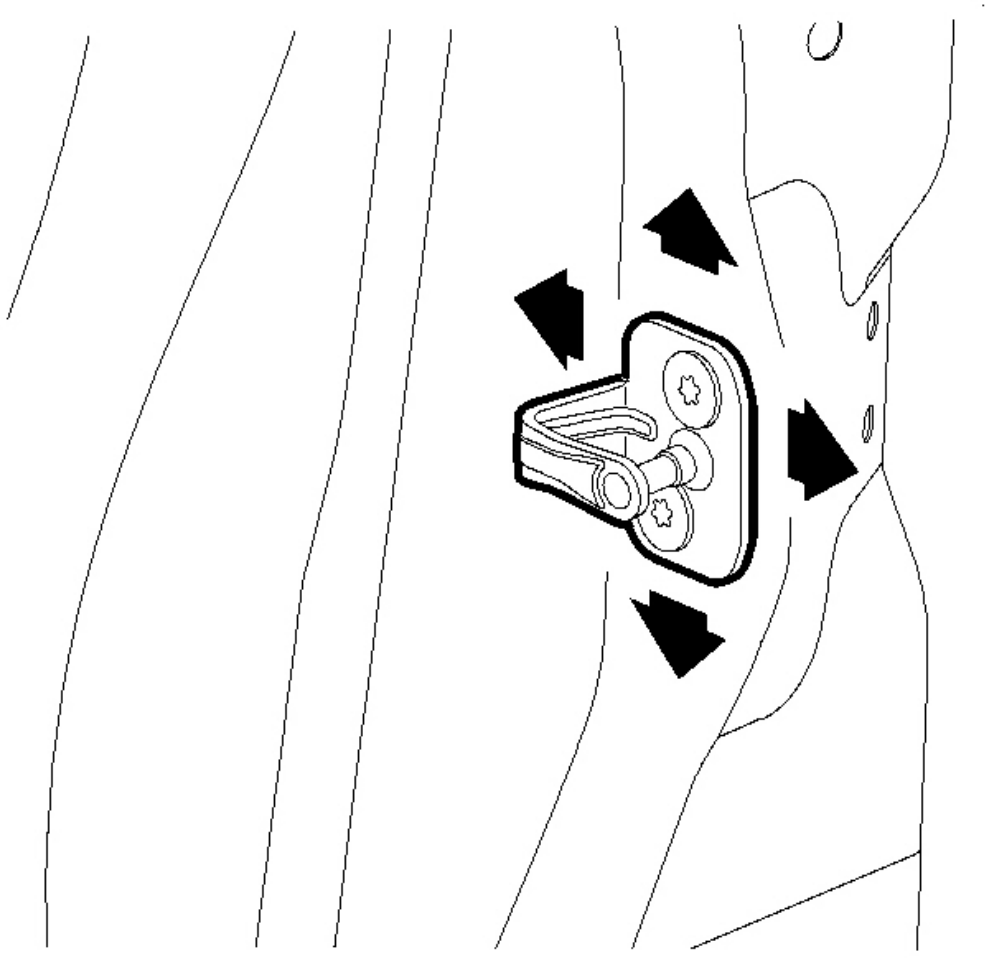


Fig. 85: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

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 latch.

3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker, using a rubber mallet, to eliminate drag on the striker and door latch 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.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

DOOR STRIKER REPLACEMENT - FRONT DOOR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

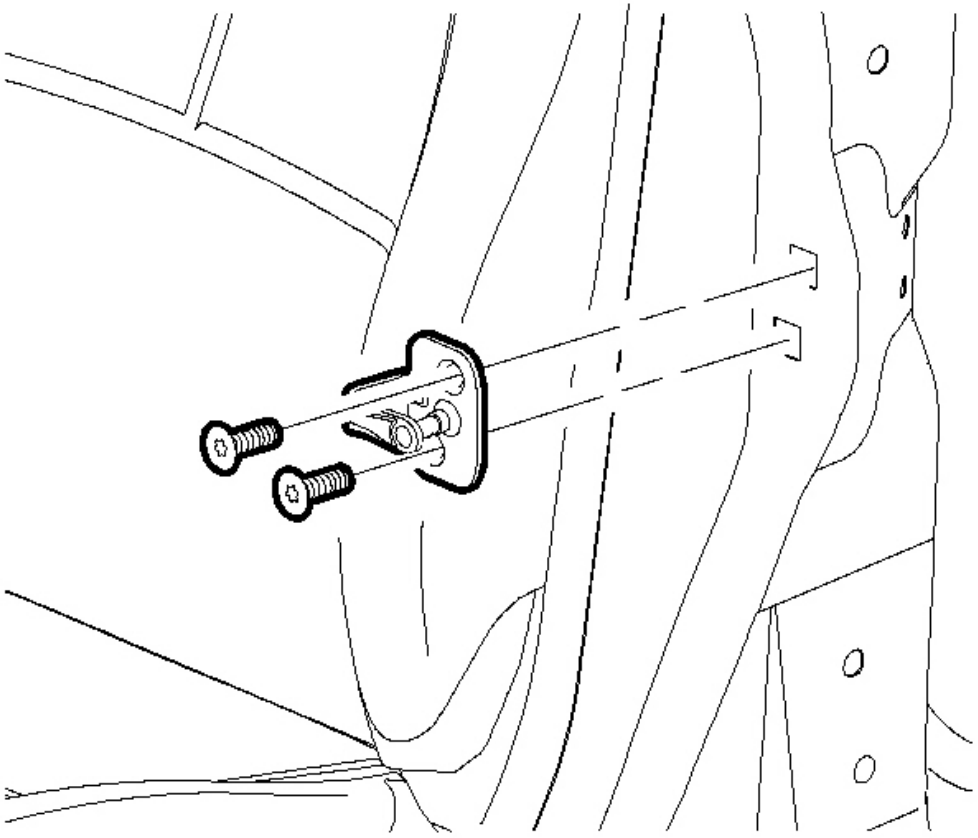


Fig. 86: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Using a grease pencil, mark around the striker for installation purposes.
2. Remove the bolts.
3. Remove the striker.

Installation Procedure

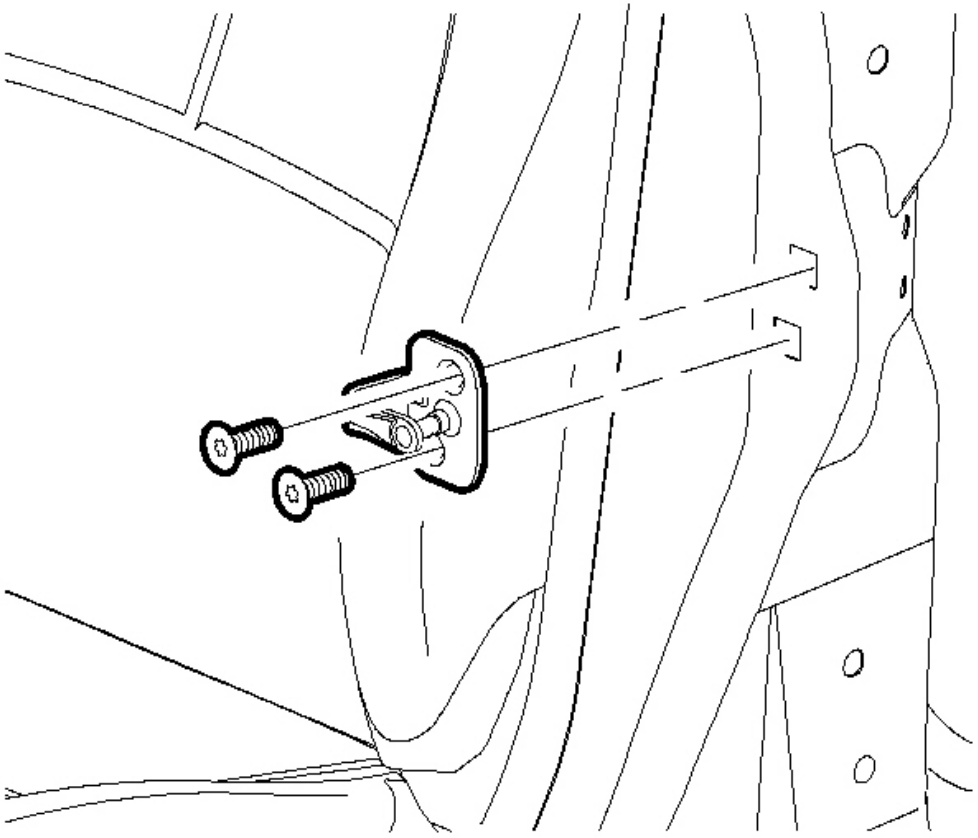


Fig. 87: View Of Front Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Loosely install the striker with the bolts.
2. Align the striker with the marks made prior to removal.
3. Tighten the bolts.
4. Inspect the door closing and align the striker as required.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

DOOR STRIKER ADJUSTMENT - REAR DOOR

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

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

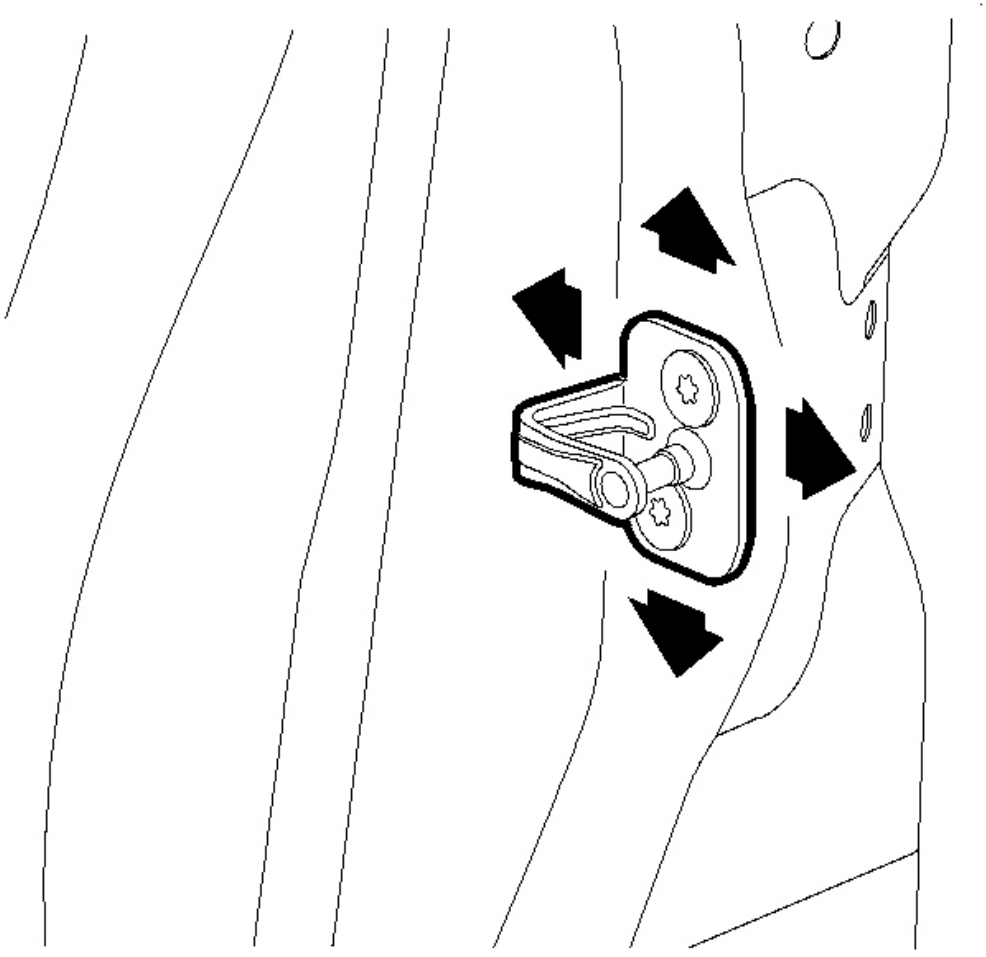


Fig. 88: View Of Rear Door Striker
Courtesy of GENERAL MOTORS CORP.

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 latch.
3. Using a grease pencil, mark around the striker for reference of the original position. Loosen the striker.
4. Move the striker, using a rubber mallet, to eliminate drag on the striker and door latch 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.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

DOOR STRIKER REPLACEMENT - REAR DOOR

Removal Procedure

CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

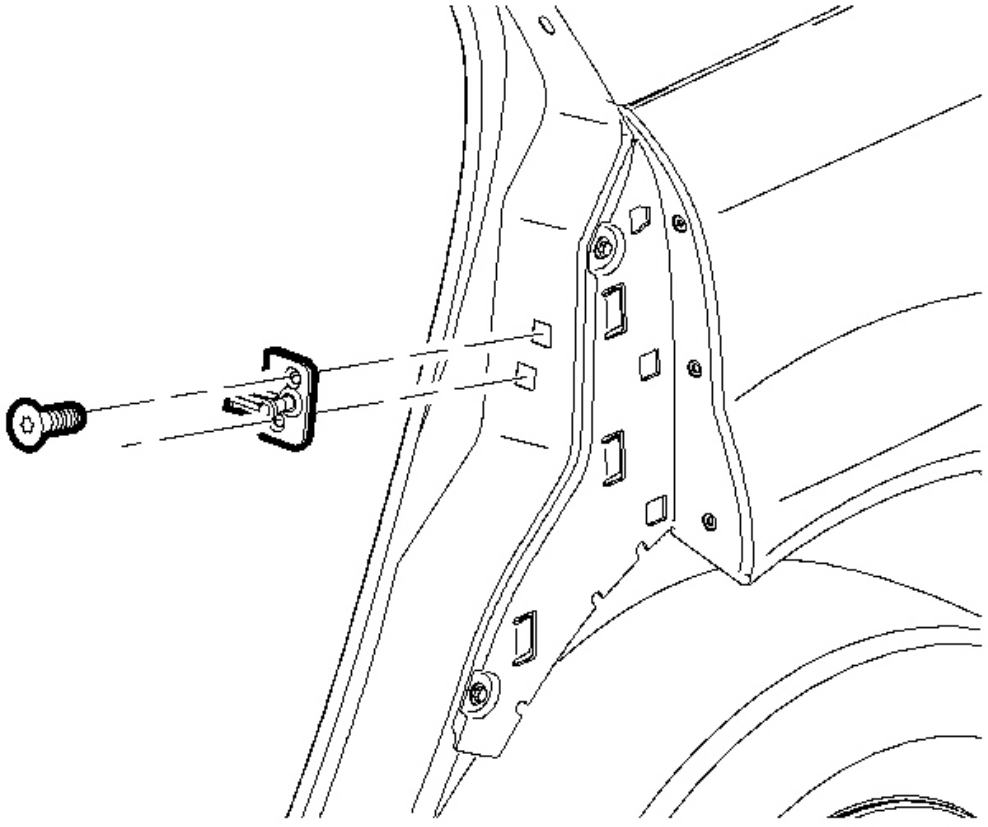


Fig. 89: Removing/Installing Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Using a grease pencil, mark around the striker for installation purposes.
2. Remove the screws.
3. Remove the striker.

Installation Procedure

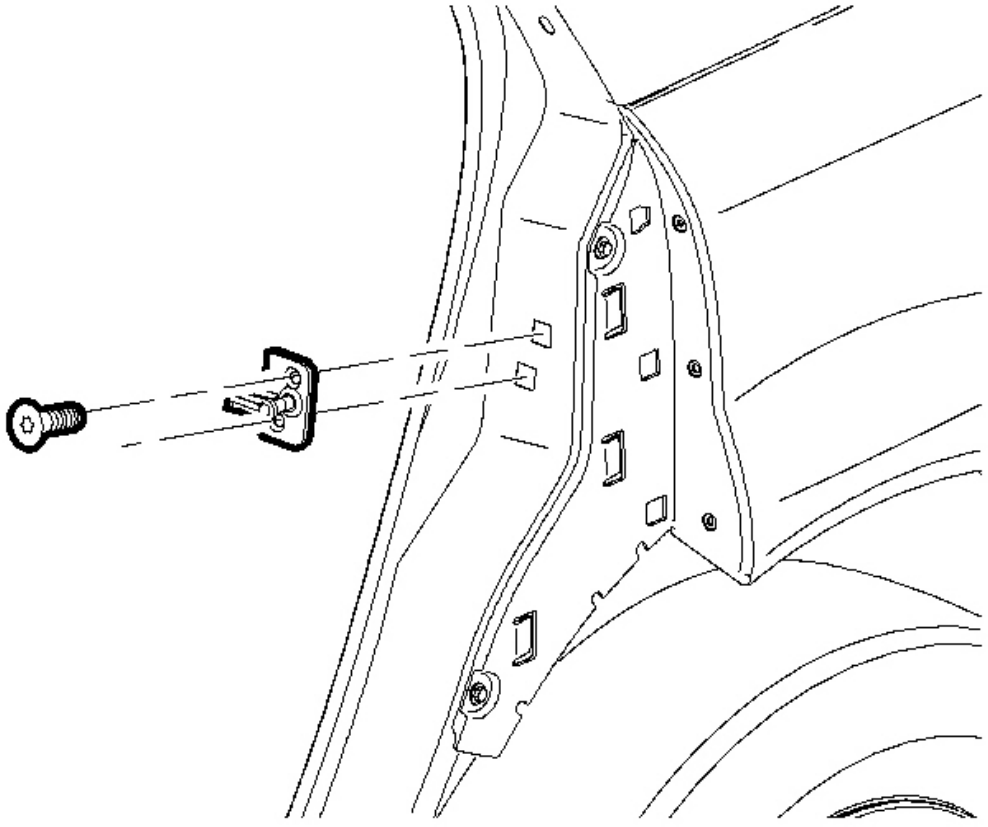


Fig. 90: Removing/Installing Door Striker
Courtesy of GENERAL MOTORS CORP.

1. Install the striker loosely with the bolts.
2. Align the striker with the marks made prior to removal.
3. Tighten the bolts.
4. Inspect the door closing and align the striker as required.

NOTE: Refer to Fastener Notice in Cautions and Notices.

5. Tighten the striker bolts.

Tighten: Tighten the door striker bolts to 25 N.m (18 lb ft).

WINDOW REGULATOR REPLACEMENT - FRONT DOOR (POWER)

Removal Procedure

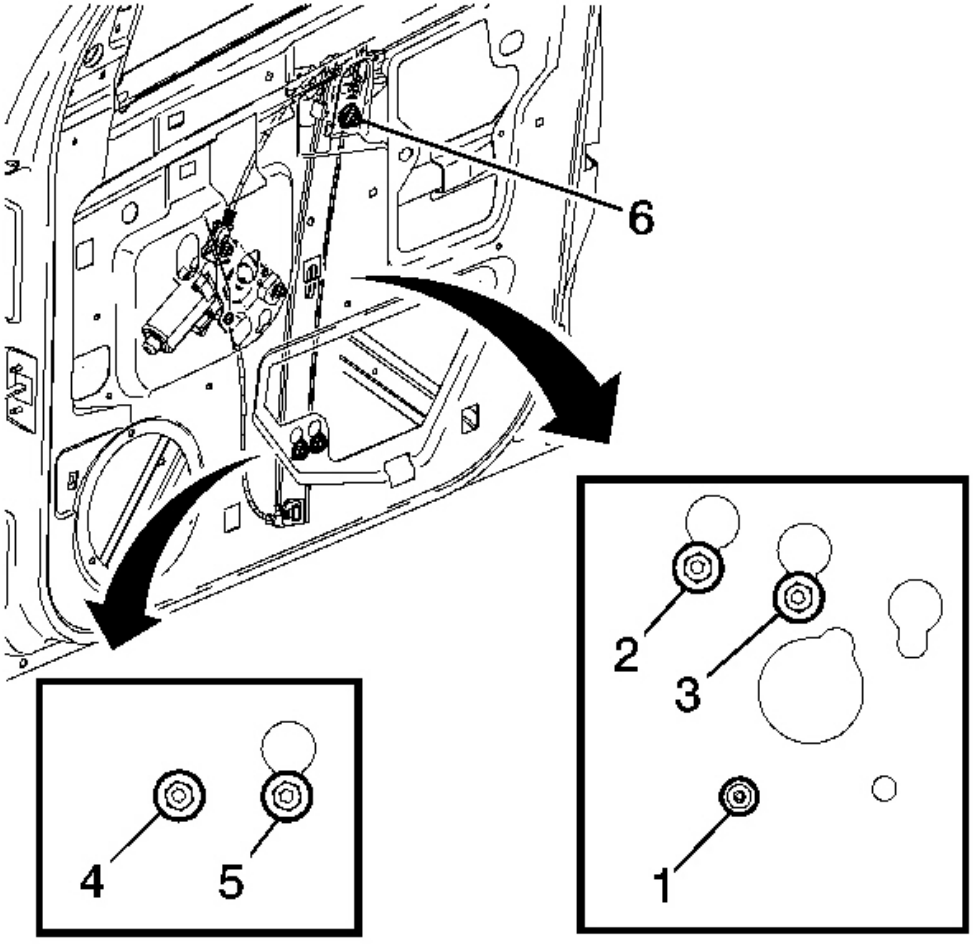


Fig. 91: View Of Front Door Power Window Regulator
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door window. Refer to **Window Replacement - Front Door** .

IMPORTANT: Do not damage sound insulator when removing the regulator.

2. Disconnect the window regulator electrical connector through the belt opening in the door by using a long flat blade screw driver.
3. Remove the net-hole regulator bolts from the regulator (1, 4).
4. Partially remove the keyhole slot bolts (2, 3, 5).

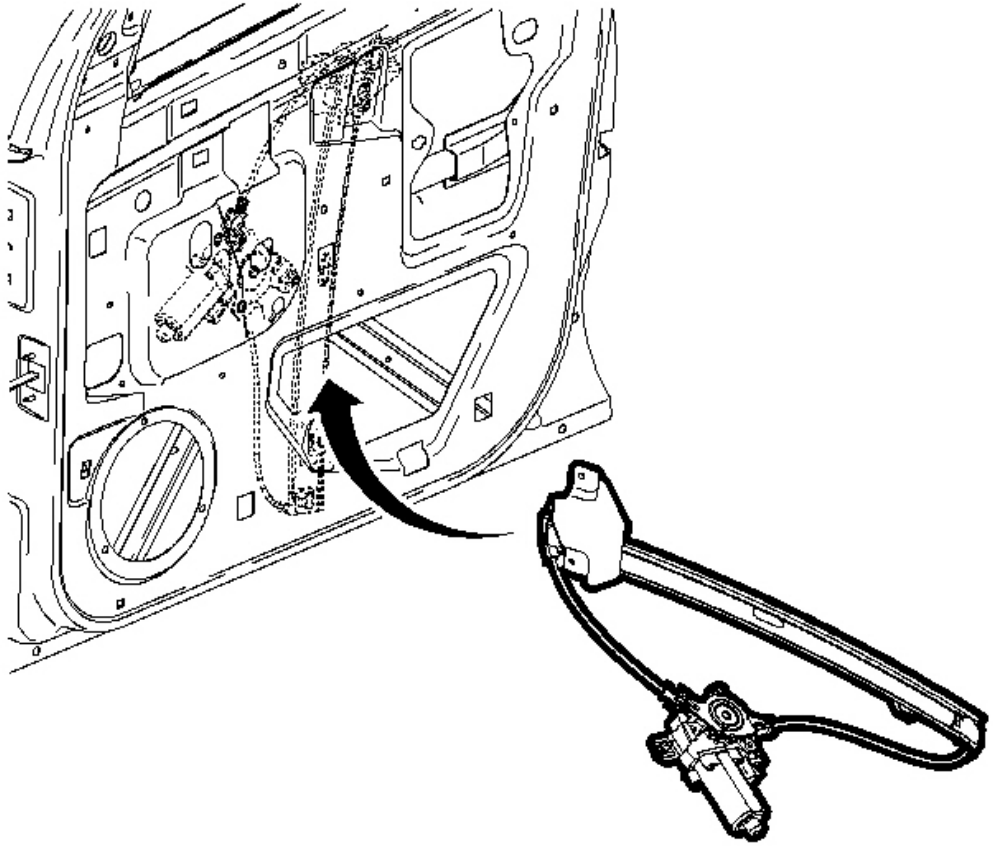


Fig. 92: Removing/Installing Front Door Regulator
Courtesy of GENERAL MOTORS CORP.

5. Remove the front door regulator out through the lower access hole in the door structure.

Installation Procedure

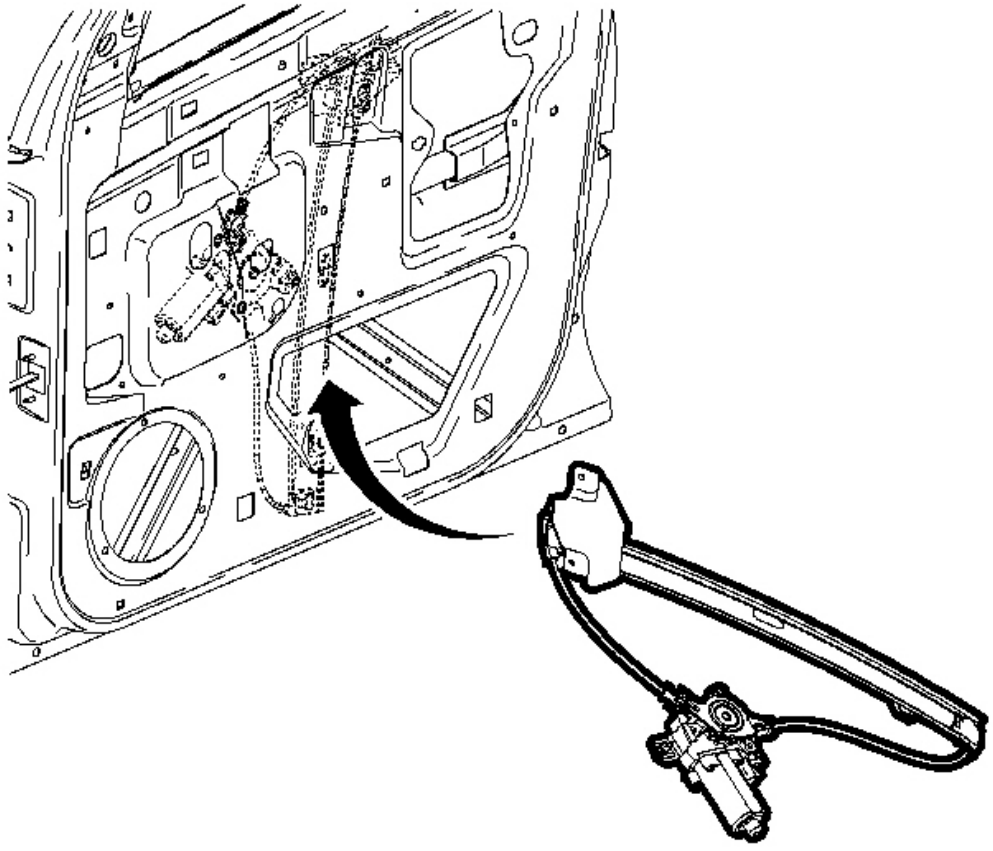


Fig. 93: Removing/Installing Front Door Regulator
Courtesy of GENERAL MOTORS CORP.

1. Install the front door regulator through the lower access hole in the door structure.

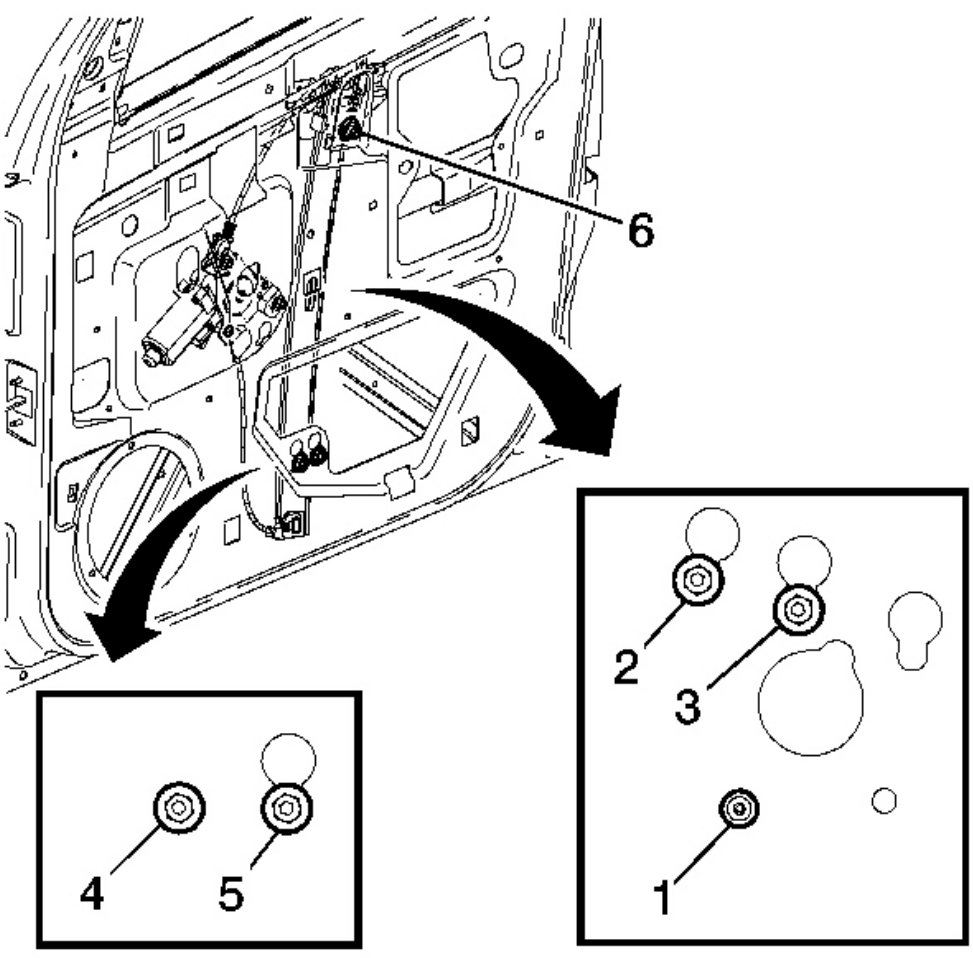


Fig. 94: View Of Front Door Power Window Regulator
Courtesy of GENERAL MOTORS CORP.

2. Position the window regulator on the keyhole slot bolts (2, 3, 5) in the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the net-hole regulator bolts.

Tighten: Tighten all of the bolts in the sequence shown to 10 N.m (89 lb in).

4. Connect the electrical connector to the front door regulator.

5. Install the front door window. Refer to **Window Replacement - Front Door** .

WINDOW REGULATOR REPLACEMENT - FRONT DOOR (MANUAL)

Removal Procedure

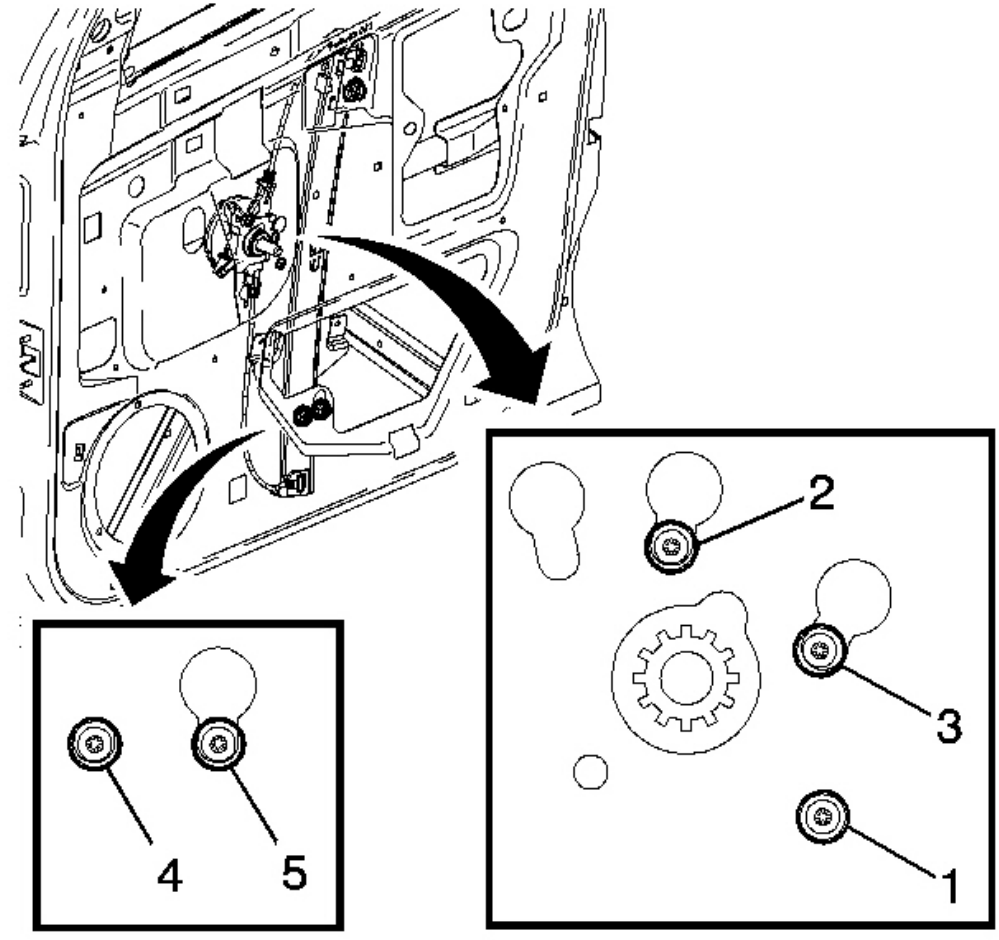


Fig. 95: View Of Front Door Manual Window Regulator (Manual)
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door window. Refer to **Window Replacement - Front Door** .

IMPORTANT: Do not damage sound insulator when removing the regulator.

2. Remove the net-hole regulator bolts from the regulator (1, 4).
3. Partially remove the keyhole slot bolts (2, 3, 5).

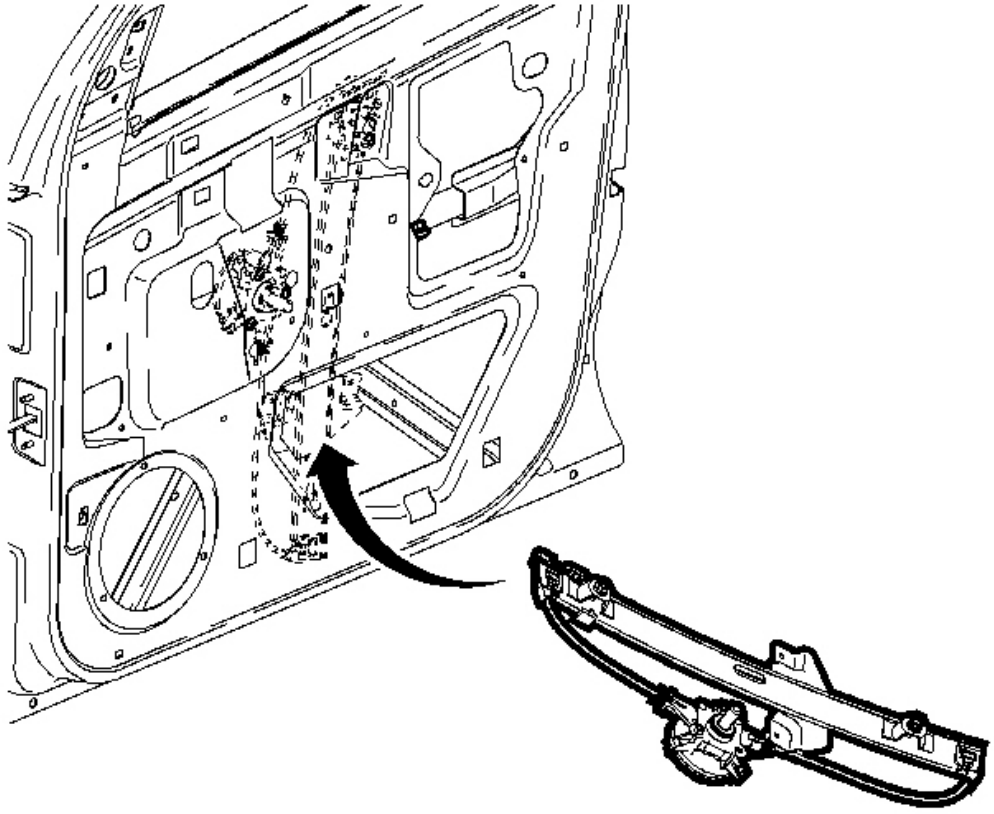


Fig. 96: Removing/Installing Front Door Regulator
Courtesy of GENERAL MOTORS CORP.

4. Remove the front door regulator out through the lower access hole in the door structure.

Installation Procedure

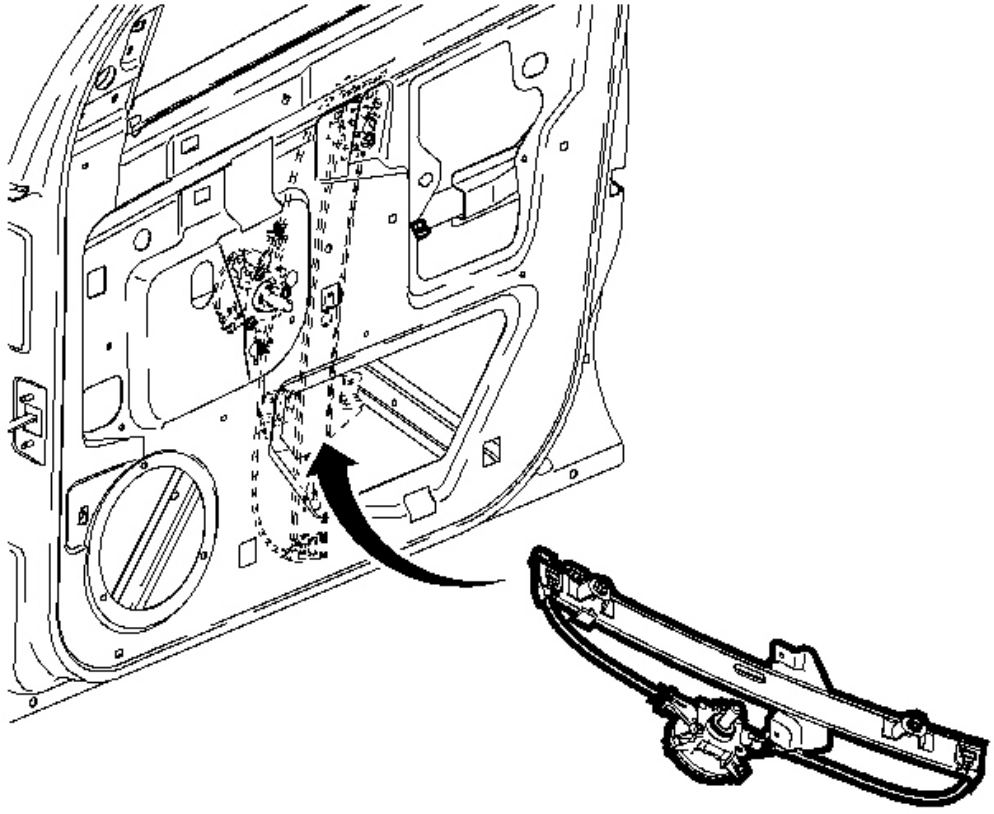


Fig. 97: Removing/Installing Front Door Regulator
Courtesy of GENERAL MOTORS CORP.

1. Install the front door regulator through the lower access hole in the door structure.

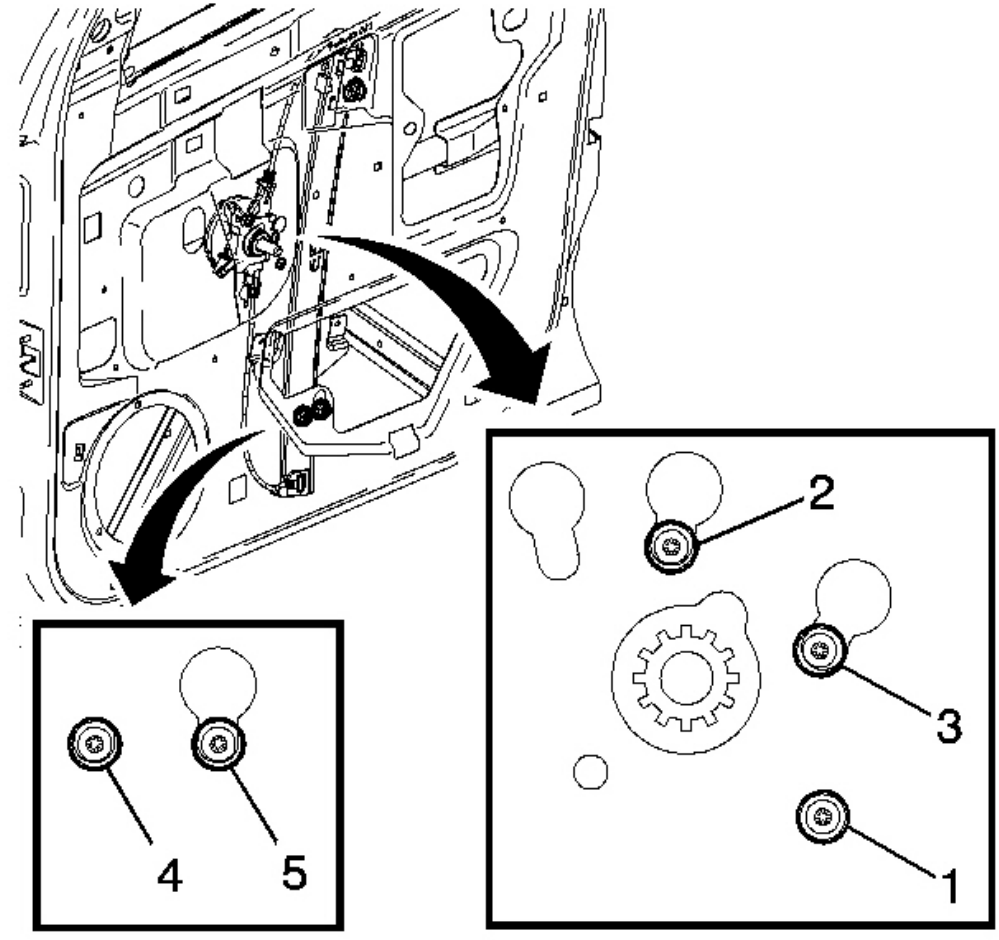


Fig. 98: View Of Front Door Manual Window Regulator
Courtesy of GENERAL MOTORS CORP.

2. Position the window regulator on the keyhole slot bolts (2, 3, 5) in the door structure.

   NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the net-hole regulator bolts.

   Tighten: Tighten all of the bolts in the sequence shown to 10 N.m (89 lb in).

4. Install the front door window. Refer to **Window Replacement - Front Door** .

WINDOW REGULATOR REPLACEMENT - REAR DOOR (POWER)

Removal Procedure

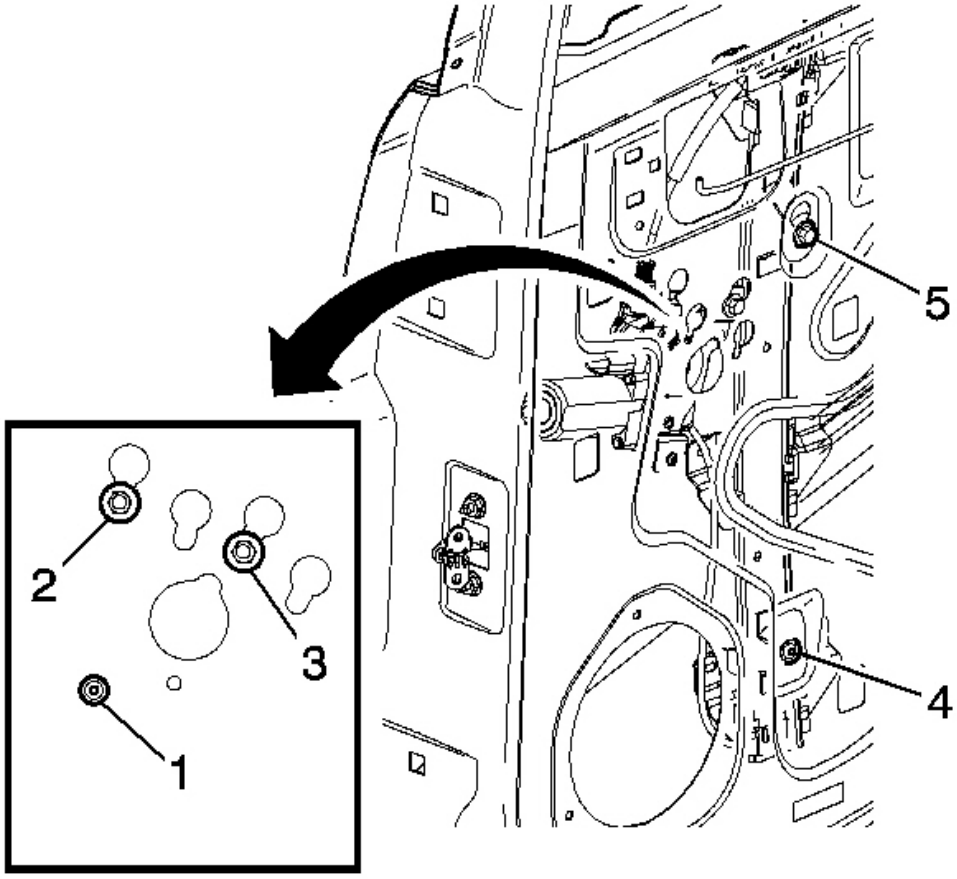


Fig. 99: View Of Rear Door Power Window Regulator
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door window. Refer to **Window Replacement - Rear Door** .
2. Disconnect the window regulator electrical connector through the inside handle hole in the door.

IMPORTANT: Do not damage sound insulator when removing the regulator.

3. Remove the net-hole regulator bolts from the regulator (1, 4).

4. Partially remove the keyhole slot bolts (2, 3, 5).

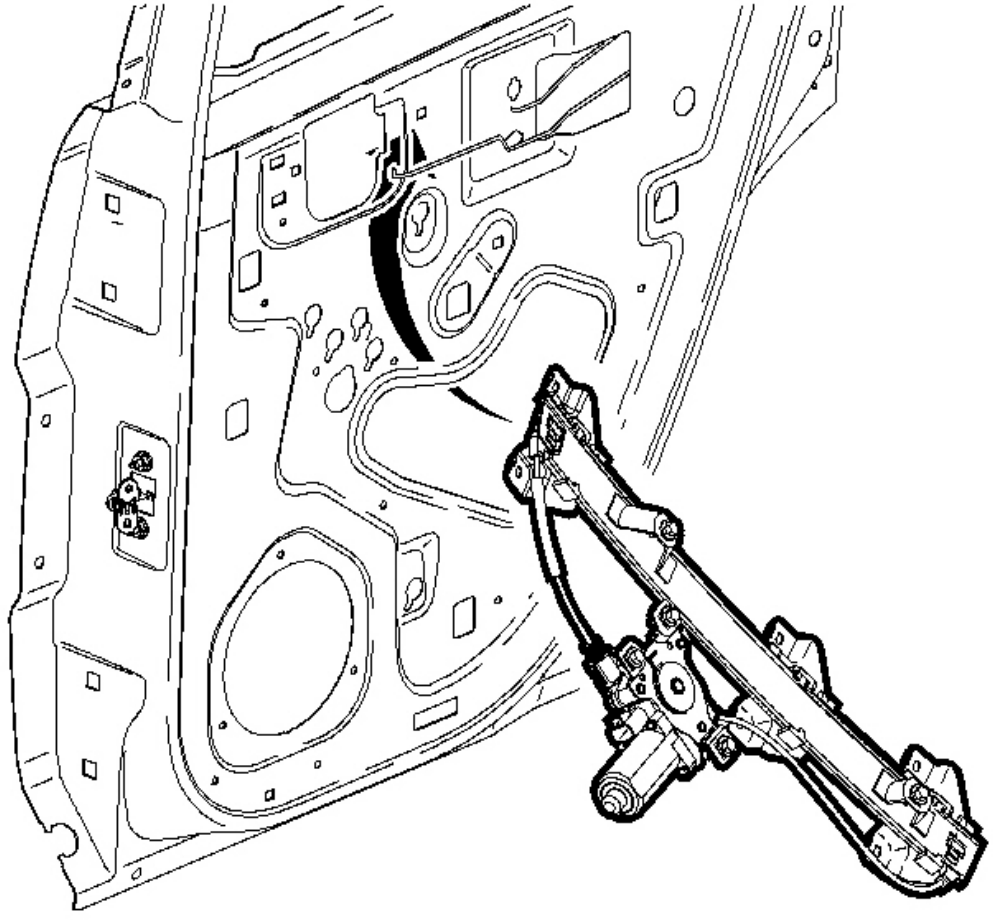


Fig. 100: Removing/Installing Rear Door Regulator
Courtesy of GENERAL MOTORS CORP.

5. Remove the rear door regulator out through the lower access hole in the door structure.

Installation Procedure

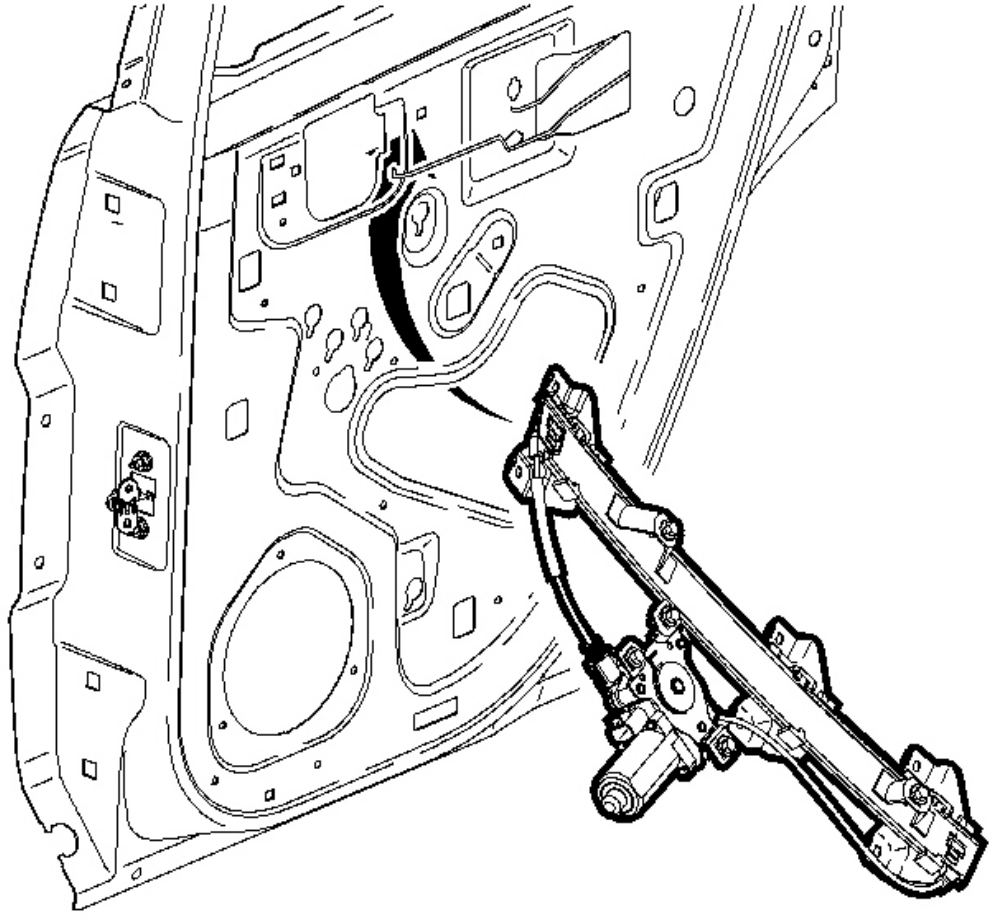


Fig. 101: Removing/Installing Rear Door Regulator
Courtesy of GENERAL MOTORS CORP.

1. Install the rear door regulator through the lower access hole in the door structure.

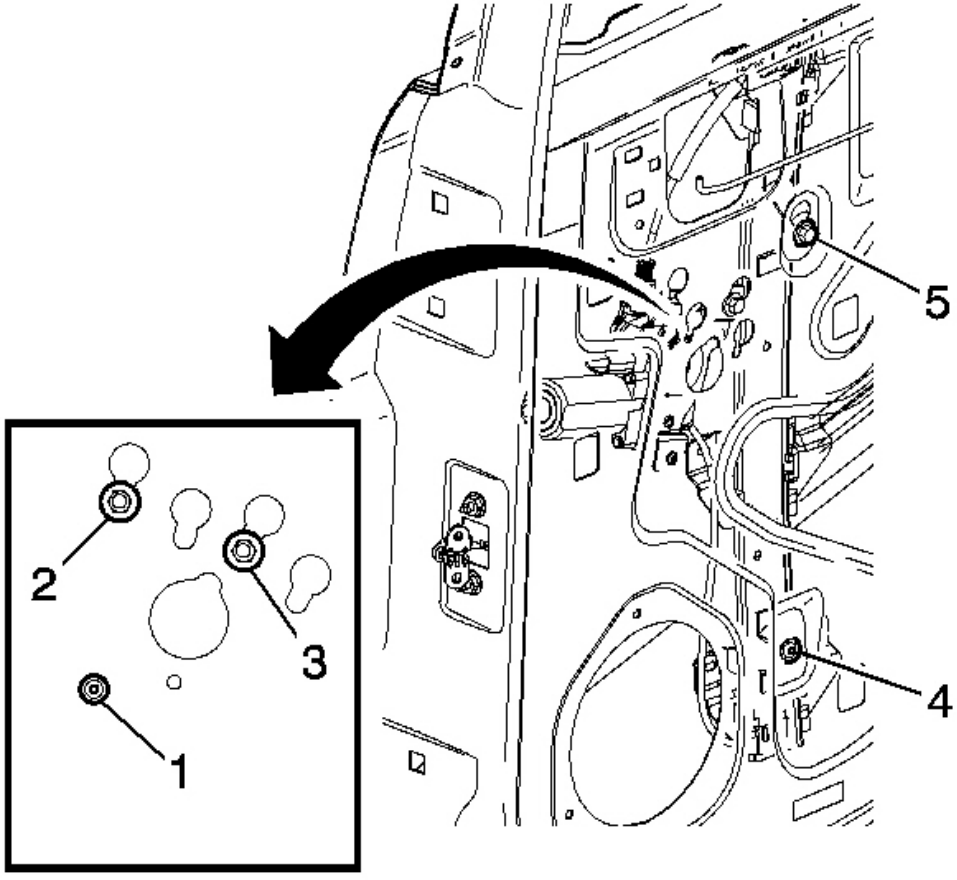


Fig. 102: View Of Rear Door Power Window Regulator
Courtesy of GENERAL MOTORS CORP.

2. Position the window regulator on the keyhole slot bolts (2, 3, 5) in the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the net-hole regulator bolts.

Tighten: Tighten all of the bolts in the sequence shown to 10 N.m (89 lb in).

4. Connect window regulator electrical connector.

5. Install the rear door window. Refer to **Window Replacement - Rear Door** .

WINDOW REGULATOR REPLACEMENT - REAR DOOR (MANUAL)

Removal Procedure

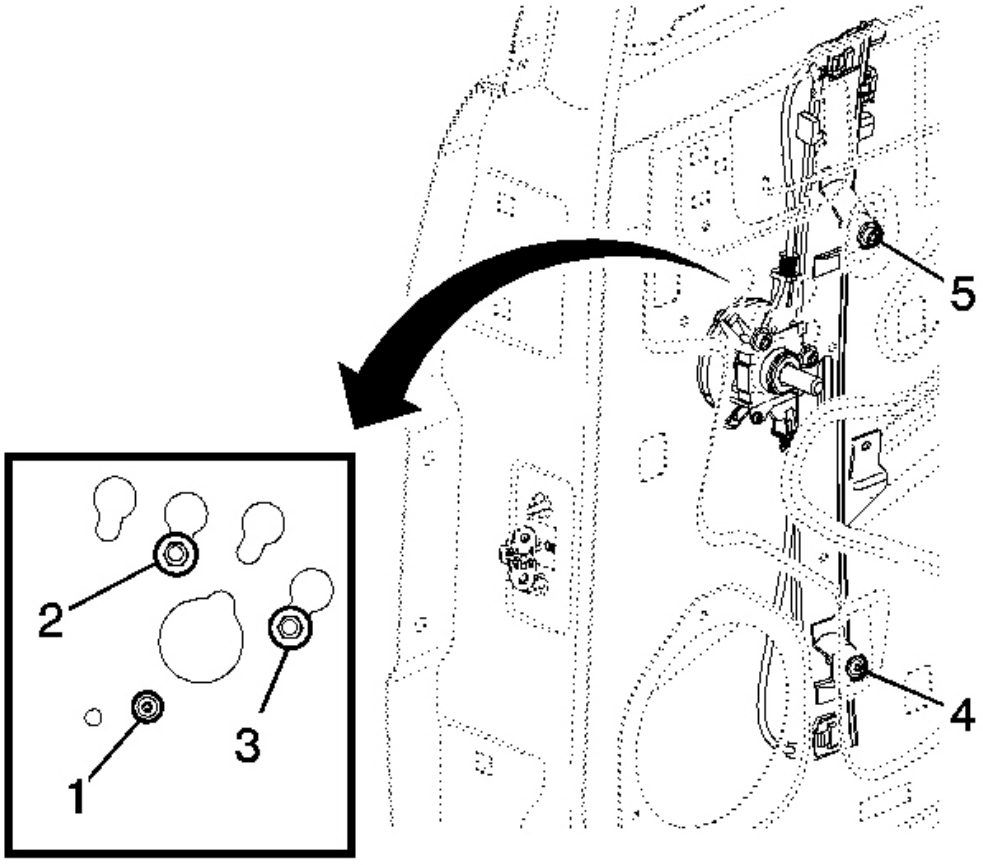


Fig. 103: View Of Rear Door Manual Window Regulator
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door window. Refer to **Window Replacement - Rear Door** .

IMPORTANT: Do not damage sound insulator when removing the regulator.

2. Remove the net-hole regulator bolts from the regulator (1, 4).
3. Partially remove the keyhole slot bolts (2, 3, 5).

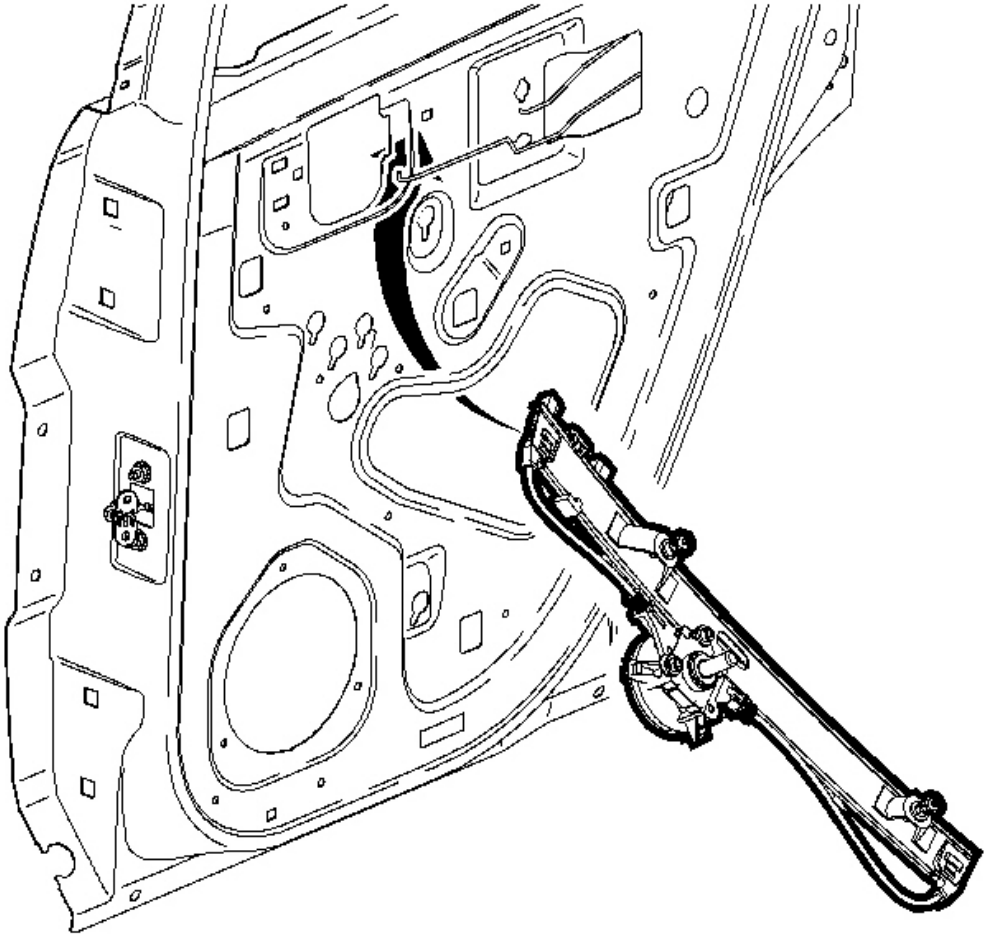


Fig. 104: Removing/Installing Rear Door Regulator
Courtesy of GENERAL MOTORS CORP.

4. Remove the rear door regulator out through the lower access hole in the door structure.

Installation Procedure

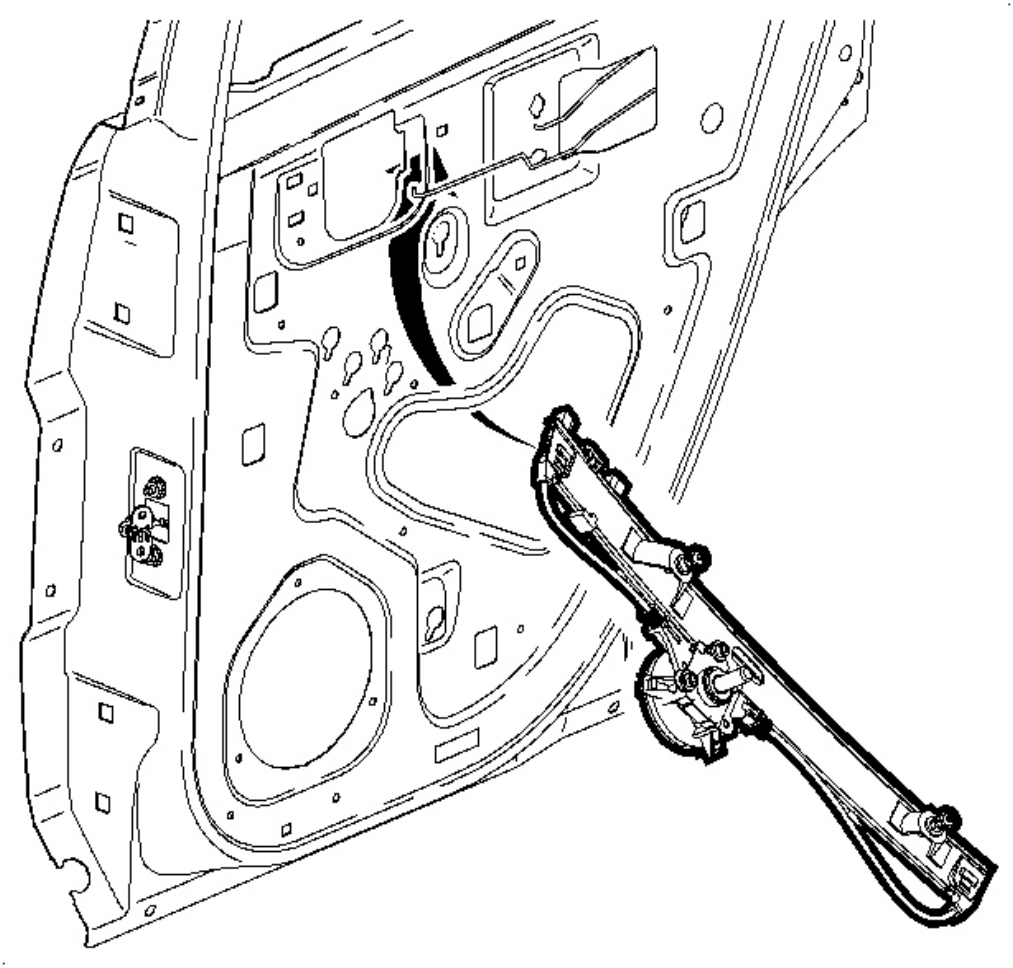


Fig. 105: Removing/Installing Rear Door Regulator
Courtesy of GENERAL MOTORS CORP.

1. Install the rear door regulator through the lower access hole in the door structure.

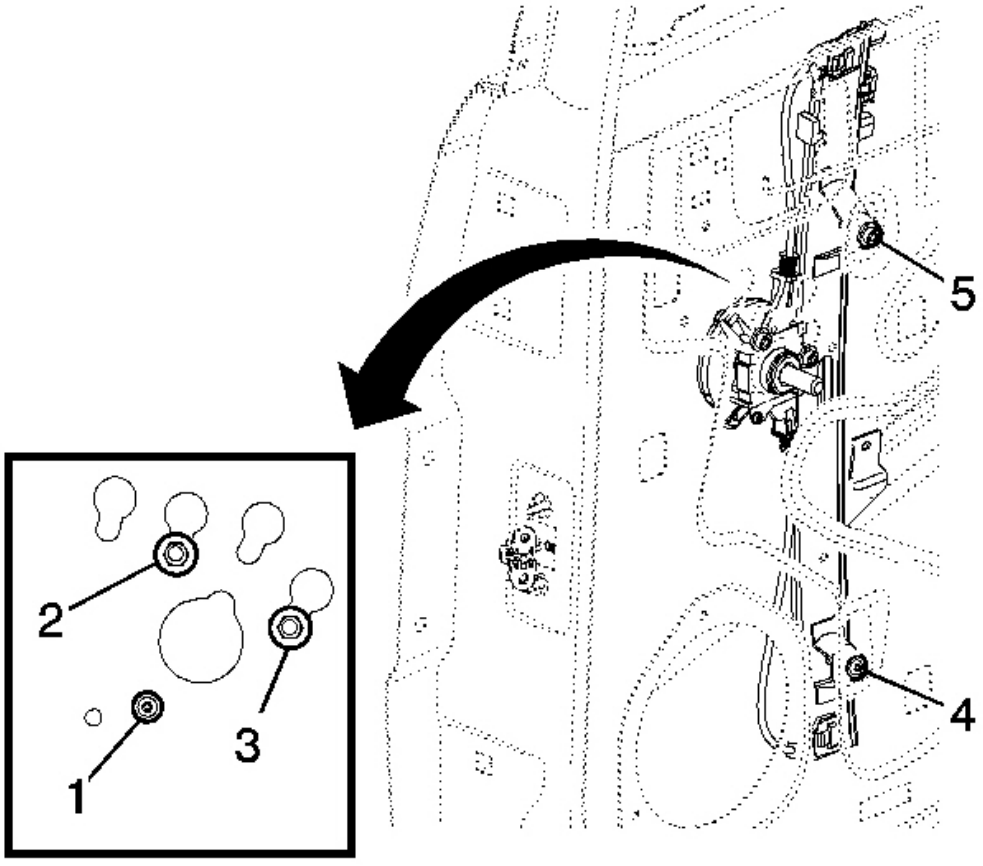


Fig. 106: View Of Rear Door Manual Window Regulator
Courtesy of GENERAL MOTORS CORP.

2. Position the window regulator on the keyhole slot bolts (2, 3, 5) in the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the net-hole regulator bolts.

Tighten: Tighten all of the bolts in the sequence shown to 10 N.m (89 lb in).

4. Install the rear door window. Refer to **Window Replacement - Rear Door** .

WINDOW REPLACEMENT - FRONT DOOR

Removal Procedure

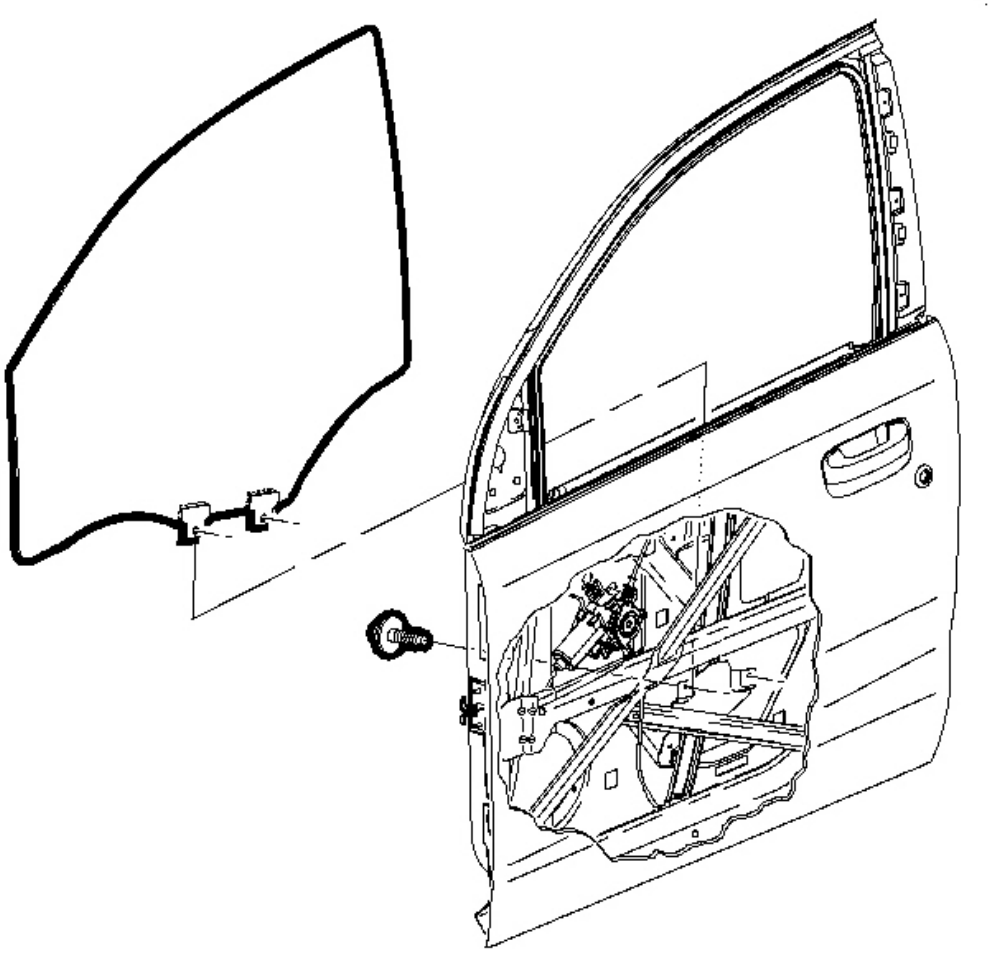


Fig. 107: View Of Front Door Window
Courtesy of GENERAL MOTORS CORP.

1. Remove the inner front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
2. Remove the front door water deflector. Refer to **Water Deflector Replacement - Front Door** .
3. Lower window to access window bolts.
4. Remove the window bolts.

5. Pull the window out of the window regulator guide plate.
6. Slide the window down and out of the primary glass run channels.
7. Remove the window by tilting outboard and pulling the window out of the door through the door belt opening.

Installation Procedure

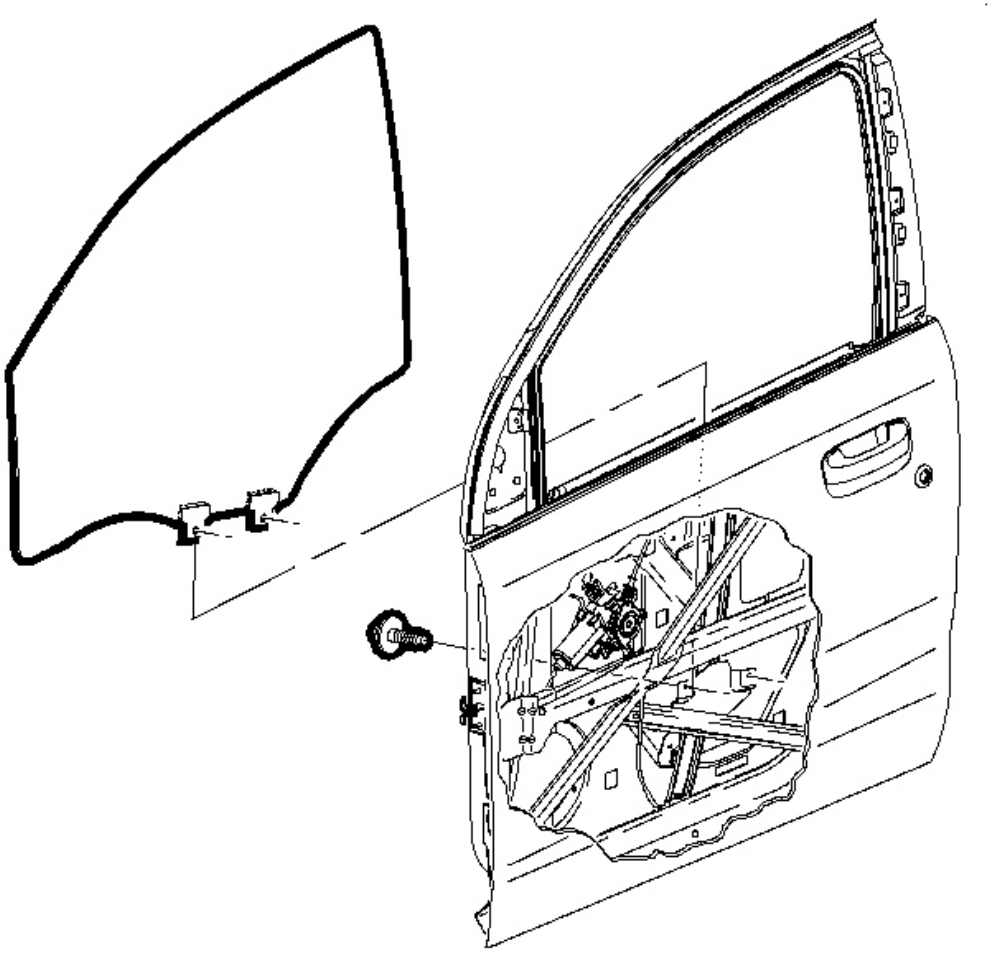


Fig. 108: View Of Front Door Window
Courtesy of GENERAL MOTORS CORP.

1. Install the window by sliding the window into the door through the outside door belt opening.
2. Install the window into the primary glass run channels and rest the window on the regulator guide plate.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the window bolts.

   Tighten: Tighten the bolts to 10 N.m (89 lb in).

4. Install the front door water deflector. Refer to **Water Deflector Replacement - Front Door** .
5. Install the front inner door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
6. Operate the window to inspect the operation.

WINDOW REPLACEMENT - REAR DOOR

Removal Procedure

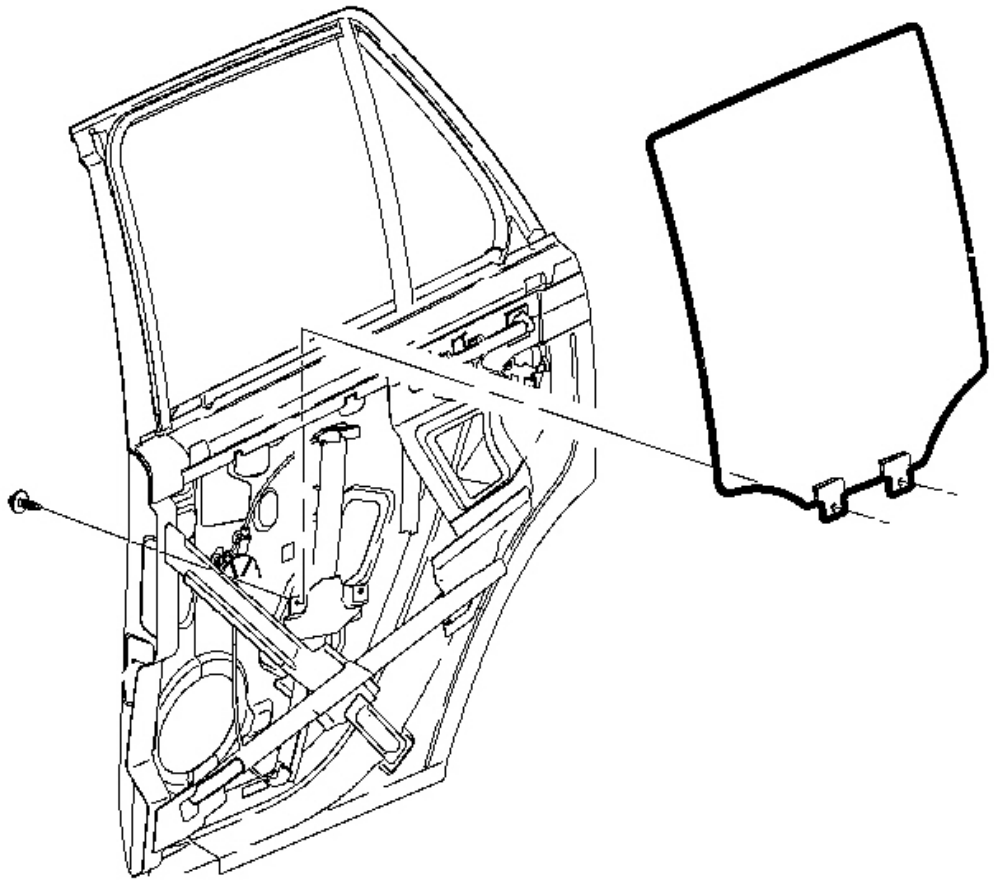


Fig. 109: View Of Rear Door Window
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door outer belt seal. Refer to **Sealing Strip Replacement - Rear Door Window Belt Outer** .
2. Remove the inner rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .
3. Remove the rear door water deflector. Refer to **Water Deflector Replacement - Rear Door** .
4. Remove the rear door lower speaker to access the forward edge of the glass. Refer to **Speaker Replacement - Rear Door** in Entertainment.
5. Lower window to access window bolts.
6. Remove the window bolts.
7. Pull the window out of the window regulator guide plate.

8. Slide the window down and out of the primary glass run channels.
9. Remove the window by tilting outboard and pulling the window out of the door through the door belt opening.

Installation Procedure

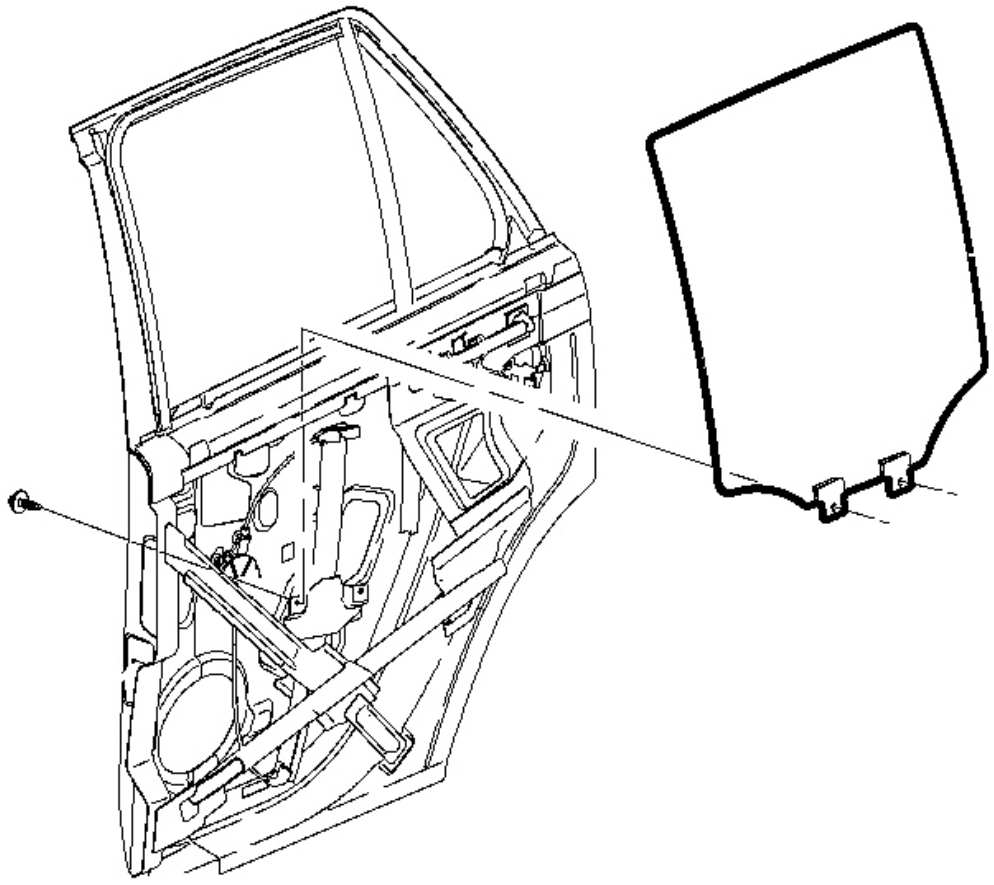


Fig. 110: View Of Rear Door Window
Courtesy of GENERAL MOTORS CORP.

1. Install the window glass by sliding the window into the door through the outside door belt opening.
2. Install the window into the primary glass run channels and rest the window on the regulator guide plate.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the window bolts.

   Tighten: Tighten the bolts to 10 N.m (89 lb in).

4. Install the rear door lower speaker. Refer to **Speaker Replacement - Rear Door** in Entertainment.
5. Install the rear door water deflector. Refer to **Water Deflector Replacement - Rear Door** .
6. Install the rear inner door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .
7. Install the rear door outer belt seal. Refer to **Sealing Strip Replacement - Rear Door Window Belt Outer** .
8. Operate the window to inspect the operation.

WINDOW WEATHERSTRIP RUN CHANNEL ASSEMBLY REPLACEMENT - FRONT

Removal Procedure

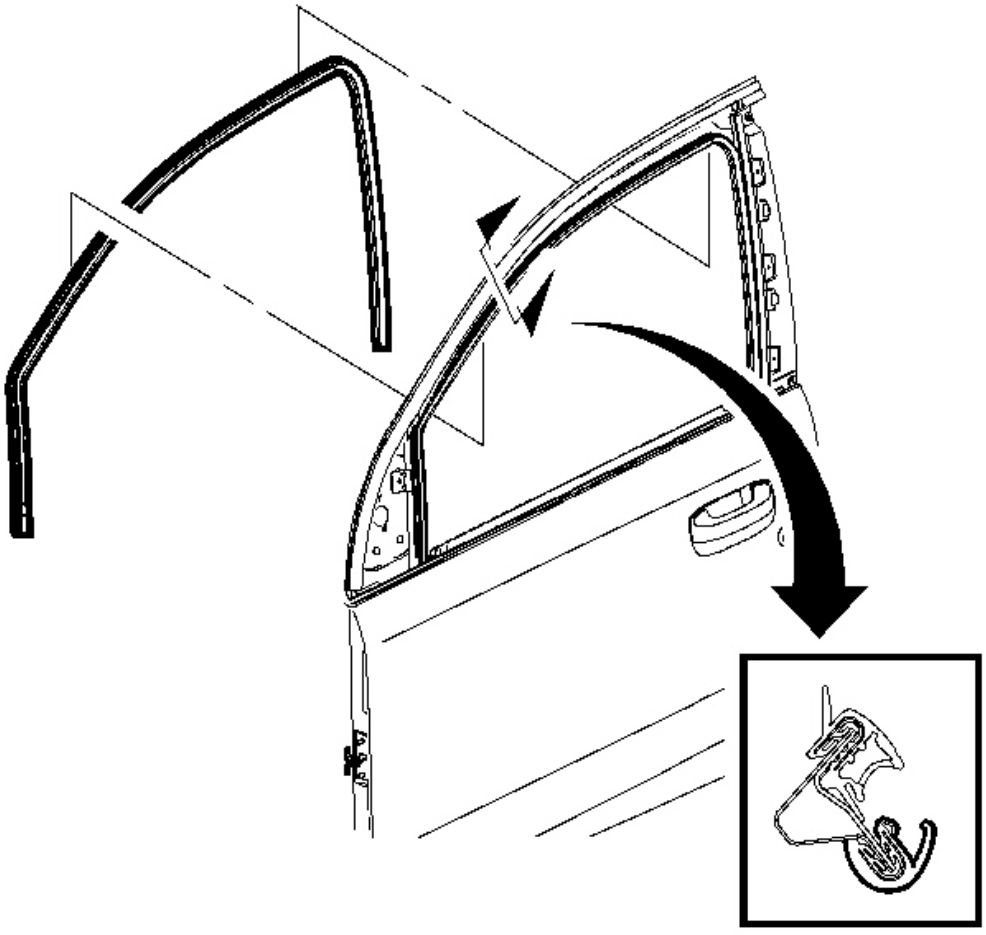


Fig. 111: View Of Front Window Weatherstrip Run Channel Assembly
Courtesy of GENERAL MOTORS CORP.

1. Lower the front door window.
2. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
3. Starting at one end, carefully pull the window weatherstrip run channel assembly from the door frame.

Installation Procedure

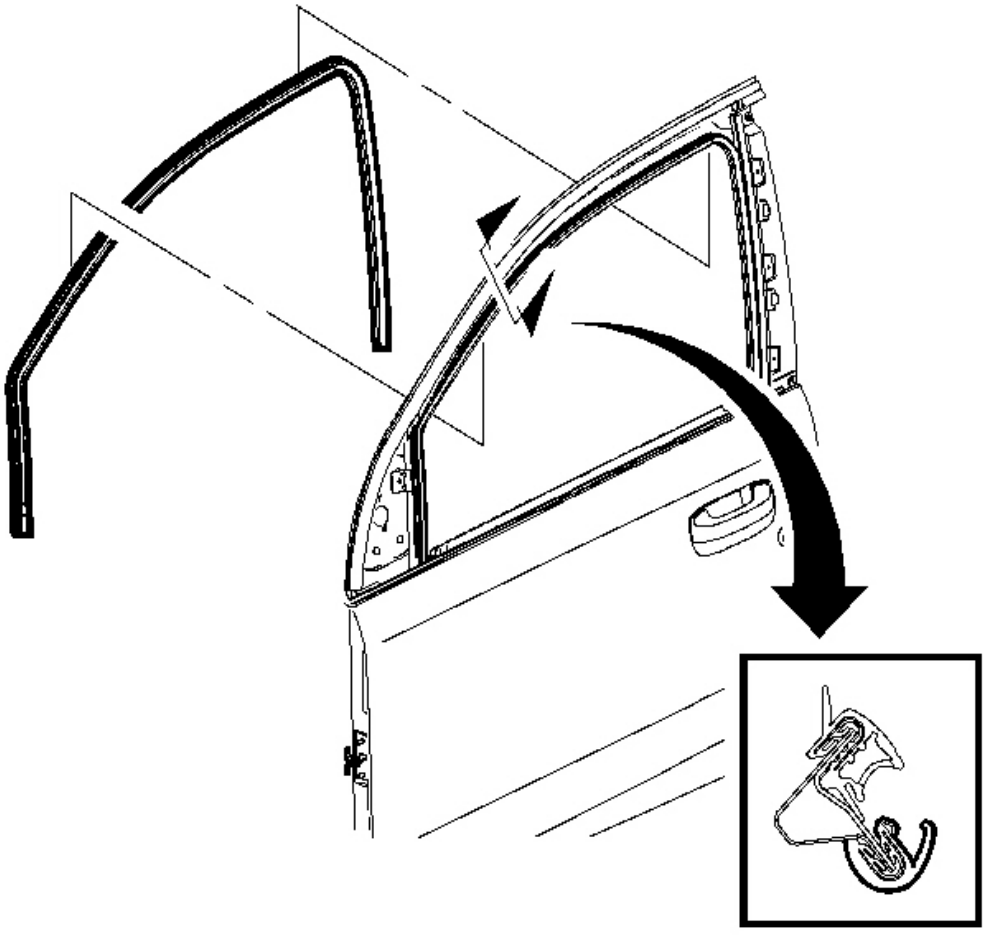


Fig. 112: View Of Front Window Weatherstrip Run Channel Assembly
Courtesy of GENERAL MOTORS CORP.

1. Install the window weatherstrip run channel assembly.
    - Start at the lower rear corner of the window opening.
    - Press the weatherstrip run channel onto the door flange.
    - Check to make sure the channel is fully secured into the upper corners of the door frame.
2. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

WINDOW WEATHERSTRIP RUN CHANNEL ASSEMBLY REPLACEMENT - REAR

Removal Procedure

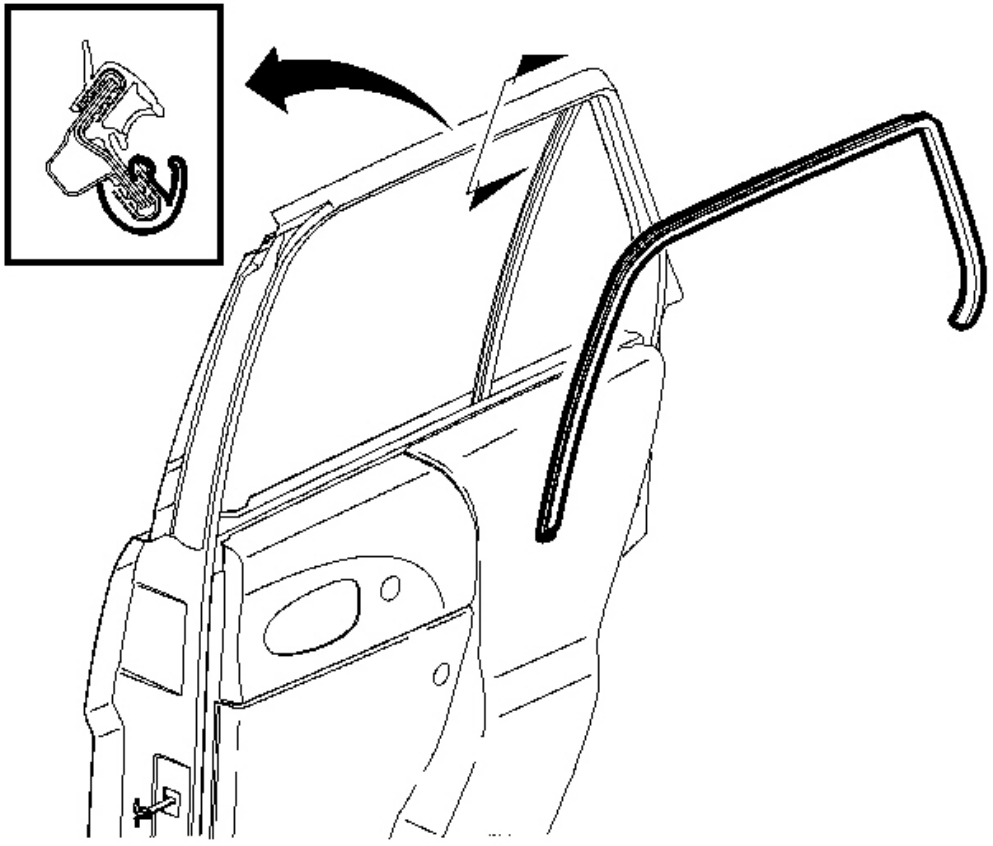


Fig. 113: View Of Rear Window Weatherstrip Run Channel Assembly
Courtesy of GENERAL MOTORS CORP.

1. Lower the rear door window.
2. Remove the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .
3. Starting at one end, carefully pull the window weatherstrip run channel assembly from the door frame.

Installation Procedure

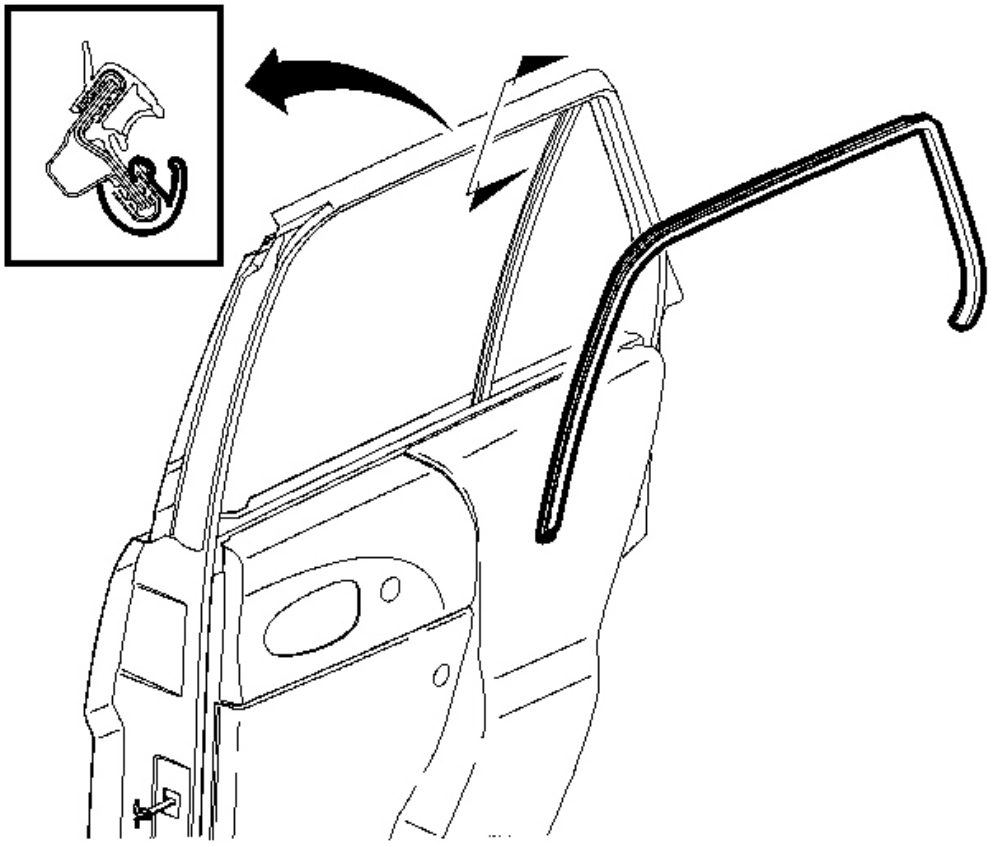


Fig. 114: View Of Rear Window Weatherstrip Run Channel Assembly
Courtesy of GENERAL MOTORS CORP.

1. Align the notch in the window weatherstrip seal to the fixed glass post and press the weatherstrip onto the window flange.
    - Press the weatherstrip run channel onto the door flange.
    - Check to make sure the channel is fully secured into the upper corners of the door frame.
2. Install the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

WINDOW CHANNEL RETAINER REPLACEMENT - FRONT DOOR

Removal Procedure

1. Remove the front door window run channel. Refer to **Window Run Channel Replacement - Front Door** .
2. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

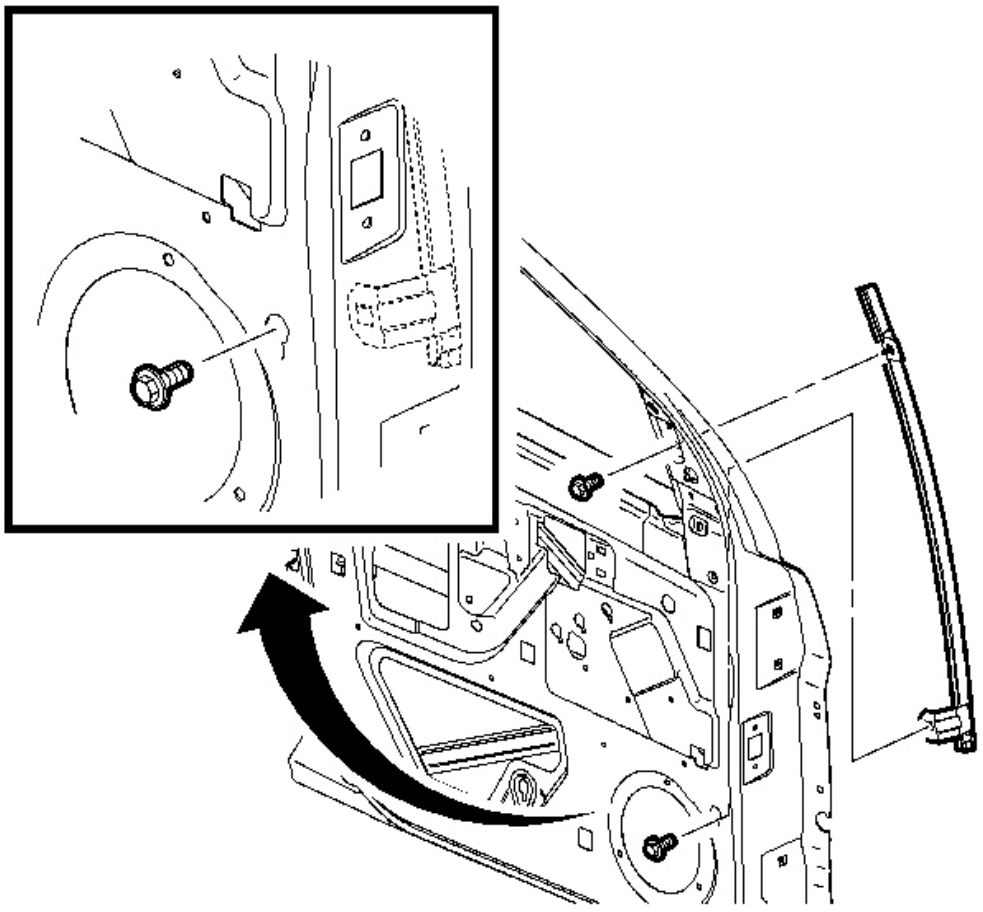


Fig. 115: View Of Front Door Window Channel Retainer
Courtesy of GENERAL MOTORS CORP.

3. Partially remove the water deflector in the front lower corner to access the lower front glass channel bolts.
4. Remove the front glass run channel bolts and remove the channel.

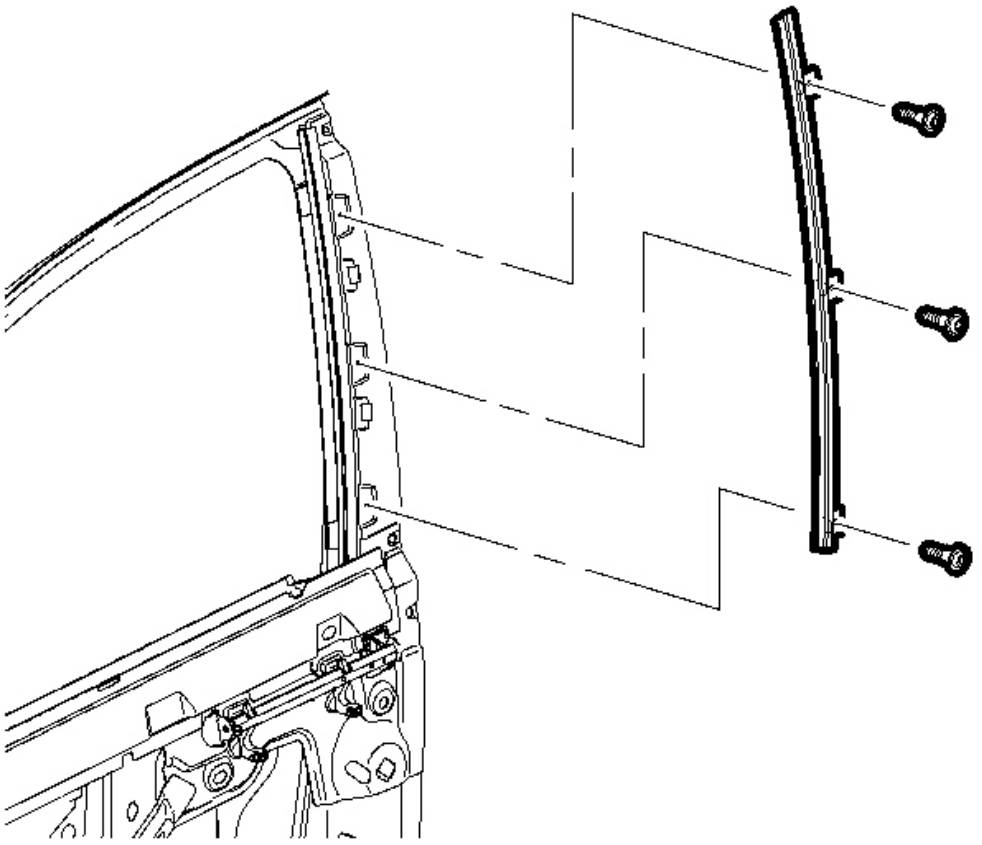


Fig. 116: Removing/Installing Rear Glass Run Channel
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: After drilling out the rivets, remove all rivet debris from the door.

5. Drill out the rivets in the rear glass run channel and remove the channel.

Installation Procedure

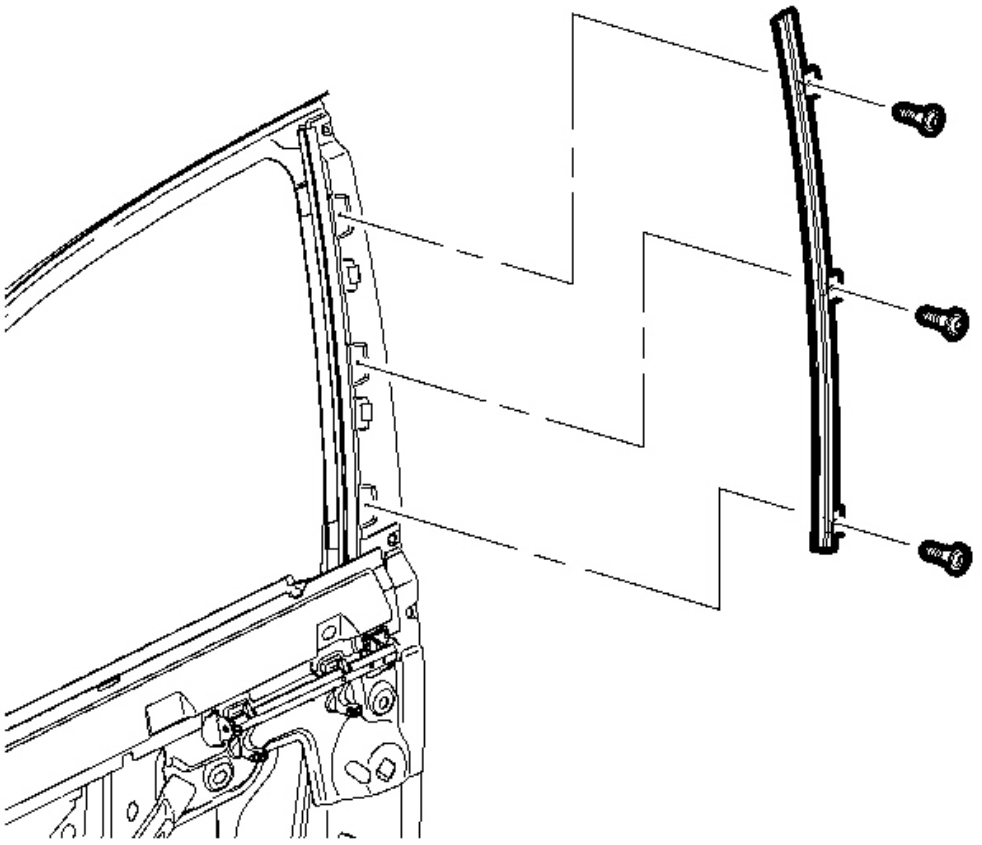


Fig. 117: Removing/Installing Rear Glass Run Channel
Courtesy of GENERAL MOTORS CORP.

1. Install the rear glass run channel with rivets.

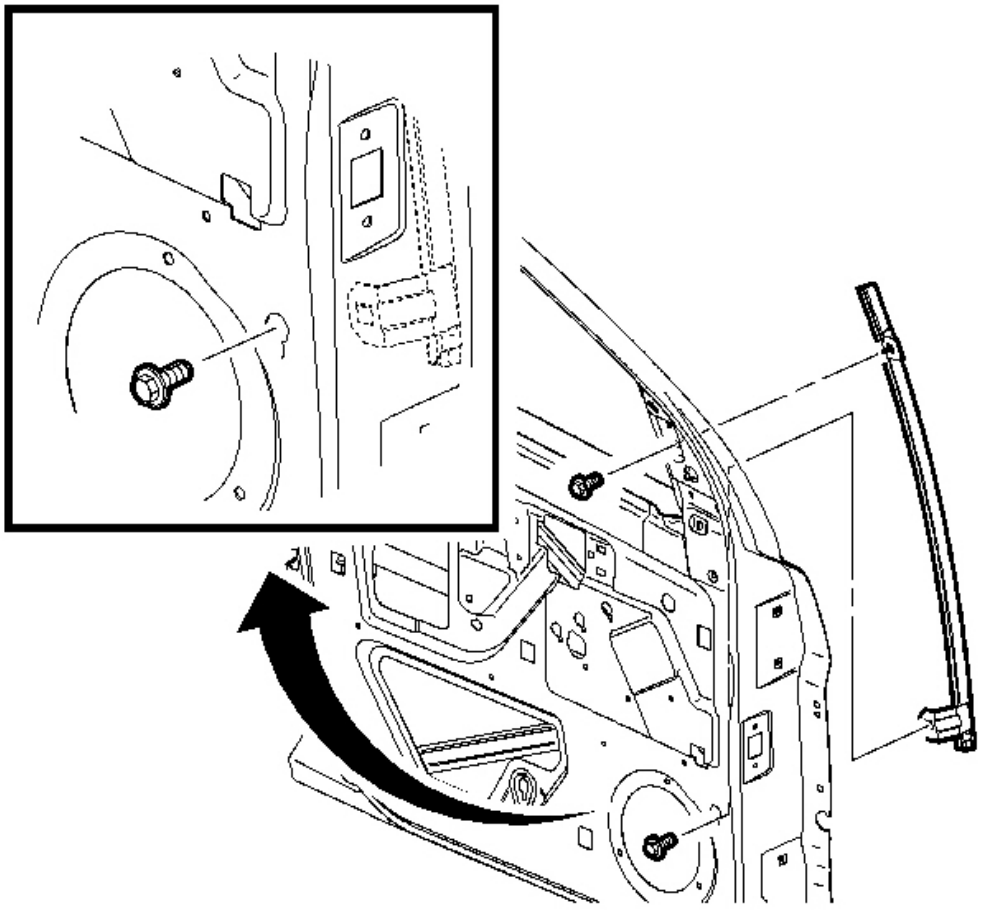


Fig. 118: View Of Front Door Window Channel Retainer
Courtesy of GENERAL MOTORS CORP.

2. Position the front glass run channel retainer.

NOTE: **Refer to Fastener Notice in Cautions and Notices.**

3. Install the retainer bolts.

   Tighten: Tighten the bolts to 10 N.m (88 lb in).

4. Install the portion of the water deflector that was loosened to gain access to the bolts.

5. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .
6. Install the front door window run channel. Refer to **Window Run Channel Replacement - Front Door** .

WINDOW CHANNEL RETAINER REPLACEMENT - REAR DOOR

Removal Procedure

1. Remove the rear door window run channel. Refer to **Window Run Channel Replacement - Rear Door** .

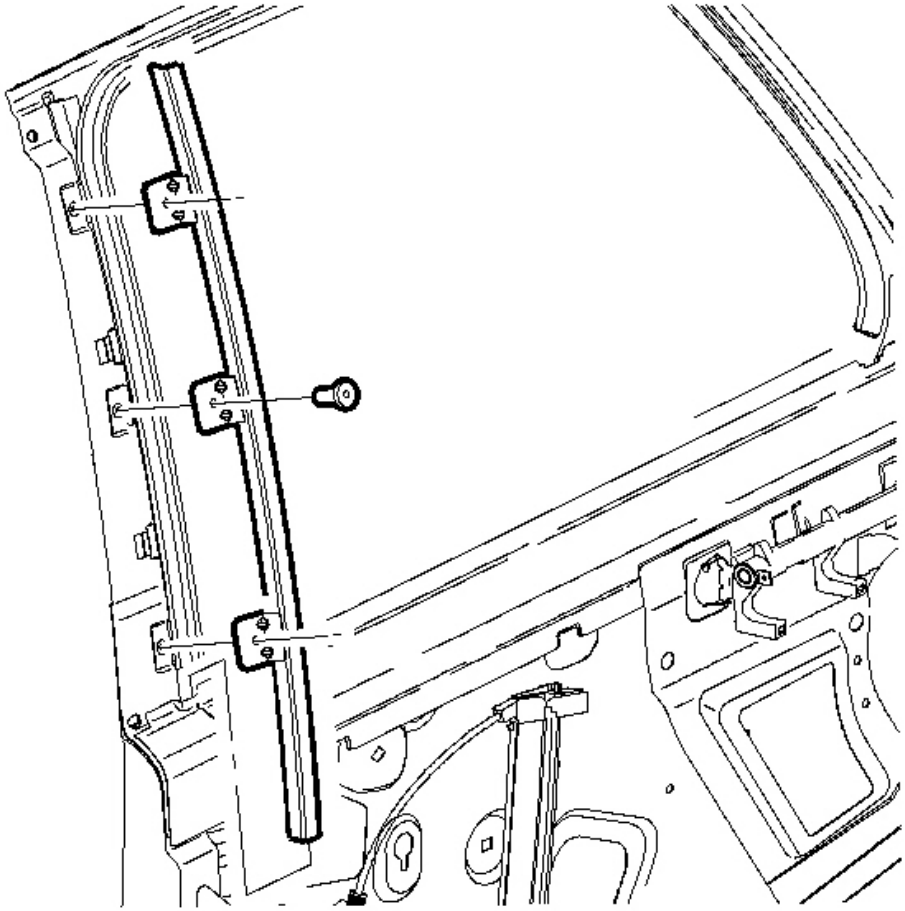


Fig. 119: View Of Rear Door Window Channel Retainer
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: After drilling out the rivets, remove all rivet debris from the door.

2. Drill out the rivets in the rear glass run channel retainer and remove the channel.

Installation Procedure

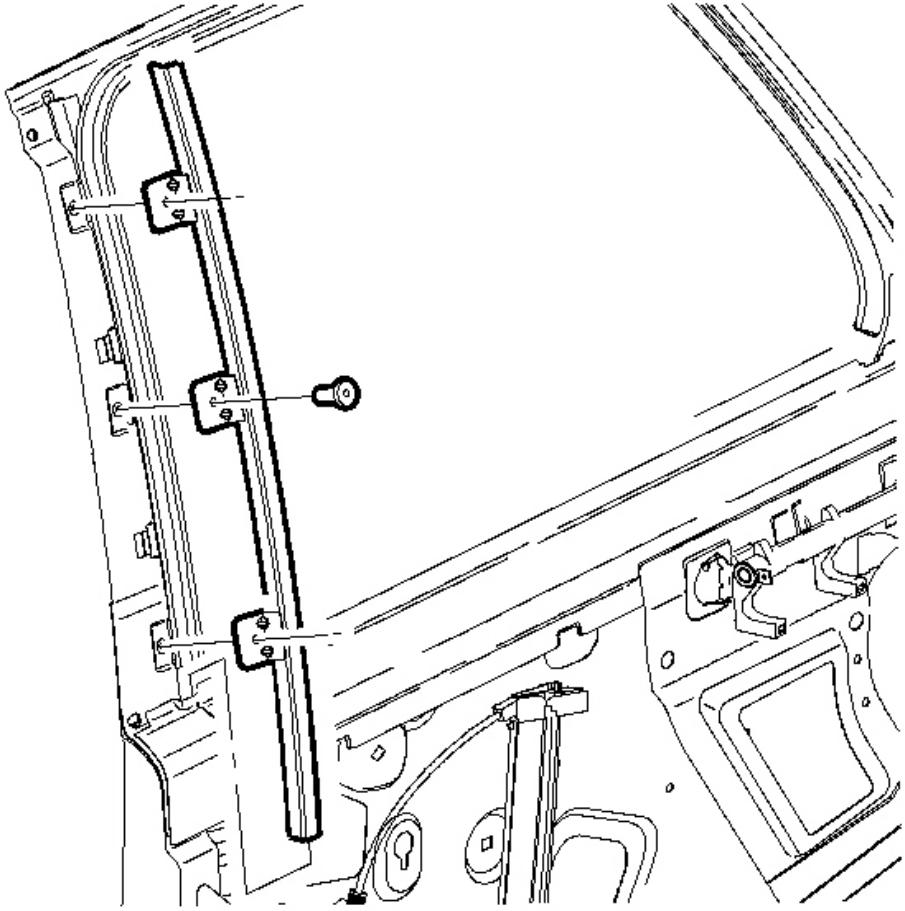


Fig. 120: View Of Rear Door Window Channel Retainer
Courtesy of GENERAL MOTORS CORP.

1. Install the rear glass run channel retainer with rivets.
2. Install the rear door window run channel. Refer to **Window Run Channel Replacement - Rear Door** .

WINDOW RUN CHANNEL REPLACEMENT - REAR DOOR

Removal Procedure

1. Remove the rear door window. Refer to **Window Replacement - Rear Door** .
2. Remove the rear door applique. Refer to **Door Frame Applique Replacement - Rear** .
3. Remove the rear door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Rear** .
4. Remove the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
5. Remove the rear door sound insulator. Refer to **Sound Insulator Replacement - Rear Door** .

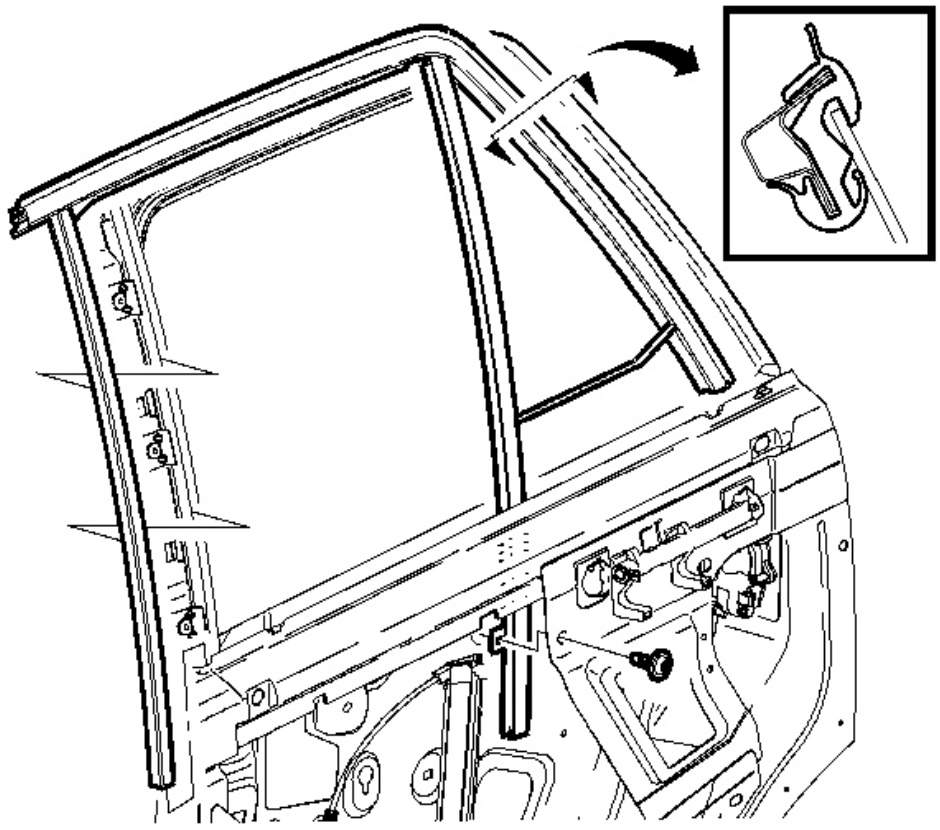


Fig. 121: View Of Rear Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

6. Remove the rear door window run channel and fixed glass assembly.
    - Remove the lower bolt from the fixed glass post.
    - Disengage the fixed glass post upper clip from the door frame by using a small screwdriver to press up on the clip.
    - Depress the mushroom retainers at the top ends of the metal glass run channels.
    - Remove the seal leg from the front metal glass run channel.
    - Starting from the front corner of the door, remove the seal from the door header flange.
    - Remove the seal and fixed glass assembly from the door.

Installation Procedure

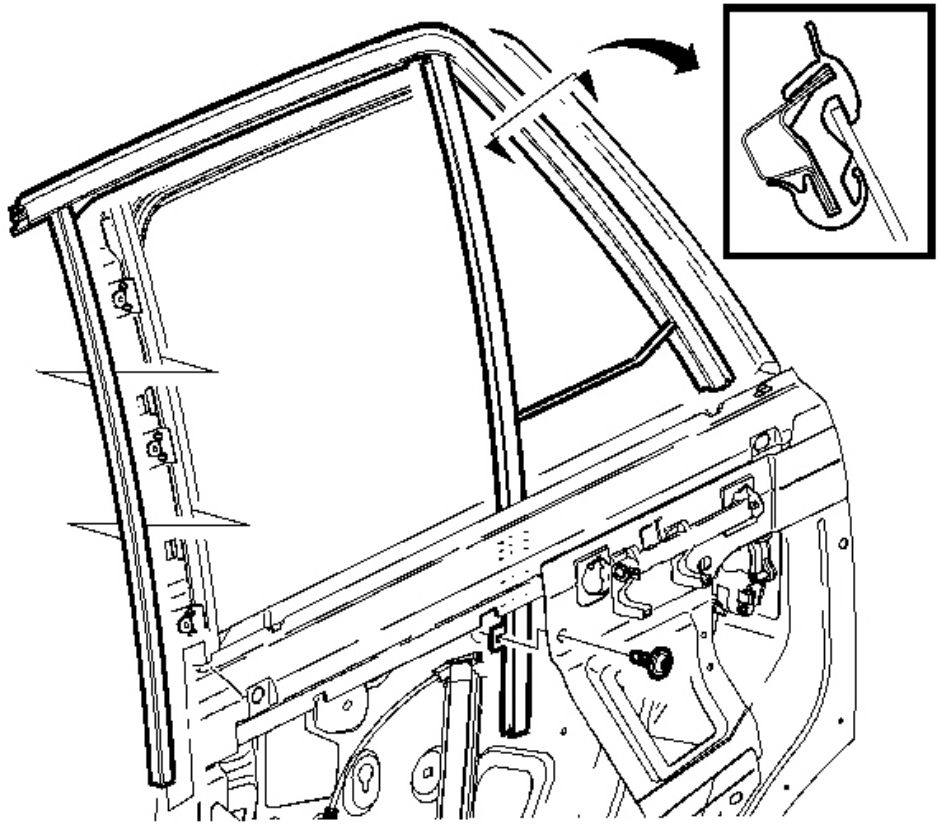


Fig. 122: View Of Rear Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

1. Install the window run channel seal and fixed glass assembly.
   - Place the seal and fixed glass assembly into the door frame.
   - Place the seal assembly on the door header.
   - Install the fixed glass post upper clip to the door frame.
   - Install the front seal leg to the metal glass run channel.
   - Secure the mushroom retainers at the top ends of the metal glass run channels.
   - Install the seal to the door header flange, starting from the front corner.

   NOTE: Refer to Fastener Notice in Cautions and Notices.

   - Install the lower fixed glass post bolt.

     Tighten: Tighten the bolt to 10 N.m (89 lb in).

2. Install the rear door sound insulator. Refer to **Sound Insulator Replacement - Rear Door** .
3. Install the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
4. Install the rear door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Rear** .
5. Install the rear door applique. Refer to **Door Frame Applique Replacement - Rear** .
6. Install the rear door window. Refer to **Window Replacement - Rear Door** .

WINDOW RUN CHANNEL REPLACEMENT - FRONT DOOR

Removal Procedure

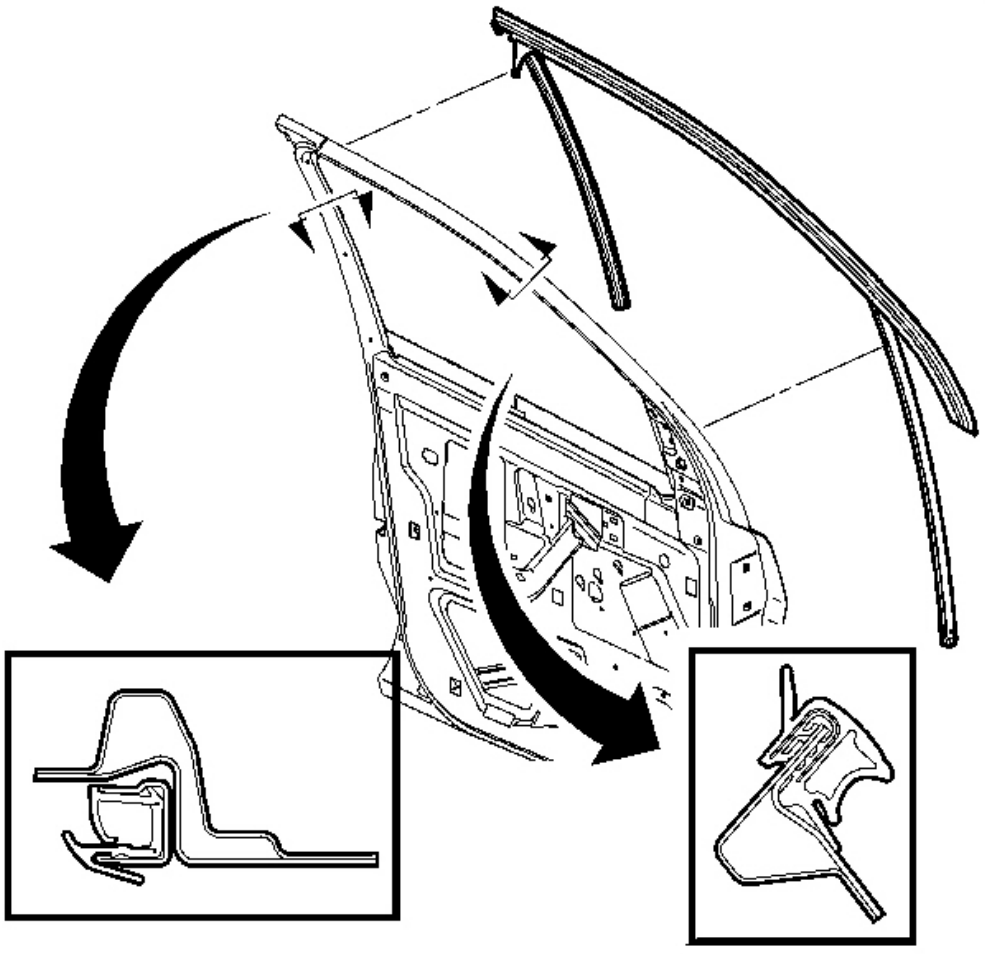


Fig. 123: View Of Front Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .
2. Remove the front door applique. Refer to **Door Frame Applique Replacement - Front** .
3. Remove the front door sound insulator. Refer to **Sound Insulator Replacement - Front Door** .
4. Remove the front door window. Refer to **Window Replacement - Front Door** .
5. Remove the front door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Front** .
6. Remove the front door window run channel.
    - Depress the mushroom retainers at the top ends of the metal glass run channels.

- Remove the seal legs from the metal glass run channels.
- Starting from the rear corner of the door, remove the seal from the door header flange.

Installation Procedure

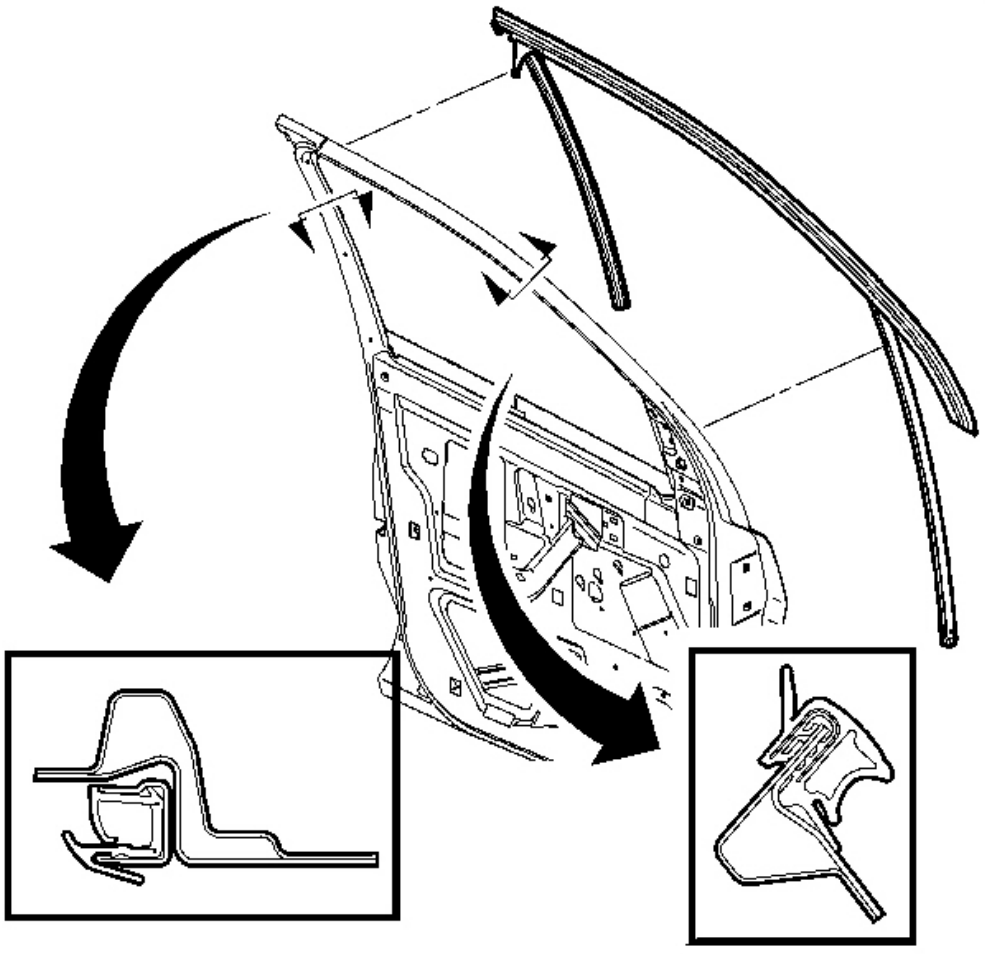


Fig. 124: View Of Front Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

1. Install the window run channel seal.
    - Install the seal to the door header flange, starting from the rear corner.
    - Install the mushroom retainers at the top ends of the metal glass run channels.
    - Install the seal legs to the metal glass run channels.

2. Install the front door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Front** .
3. Install the front door window. Refer to **Window Replacement - Front Door** .
4. Install the front door sound insulator. Refer to **Sound Insulator Replacement - Front Door** .
5. Install the front door applique. Refer to **Door Frame Applique Replacement - Front** .
6. Install the front door outer panel. Refer to **Outer Door Panel Replacement Front - Bolt On** .

WINDOW REPLACEMENT - REAR DOOR STATIONARY

Removal Procedure

1. Remove the rear door window. Refer to **Window Replacement - Rear Door** .
2. Remove the rear door applique. Refer to **Door Frame Applique Replacement - Rear** .
3. Remove the rear door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Rear** .
4. Remove the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
5. Remove the rear door sound insulator. Refer to **Sound Insulator Replacement - Rear Door** .

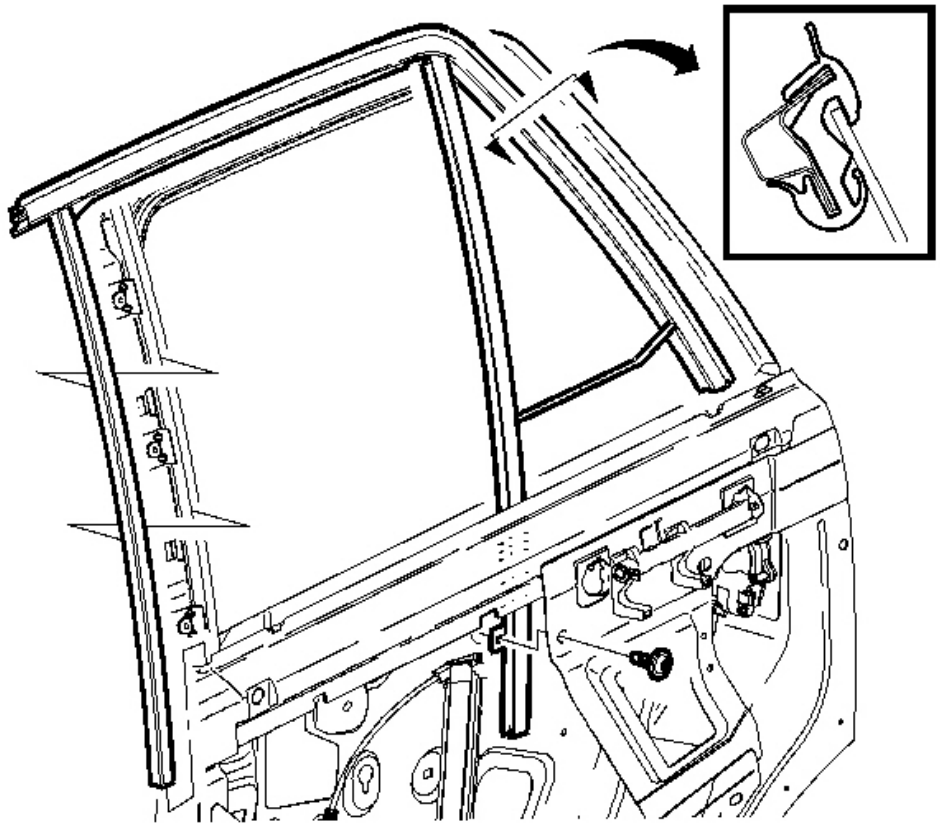


Fig. 125: View Of Rear Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

6. Remove the rear door window run channel and fixed glass assembly.
    - Remove the lower bolt from the fixed glass post.
    - Disengage the fixed glass post upper clip from the door frame by using a small screwdriver to press up on the clip.
    - Depress the mushroom retainers at the top ends of the metal glass run channels.
    - Remove the seal leg from the front metal glass run channel.
    - Starting from the front corner of the door, remove the seal from the door header flange.
    - Remove the seal and fixed glass assembly from the door.

Installation Procedure

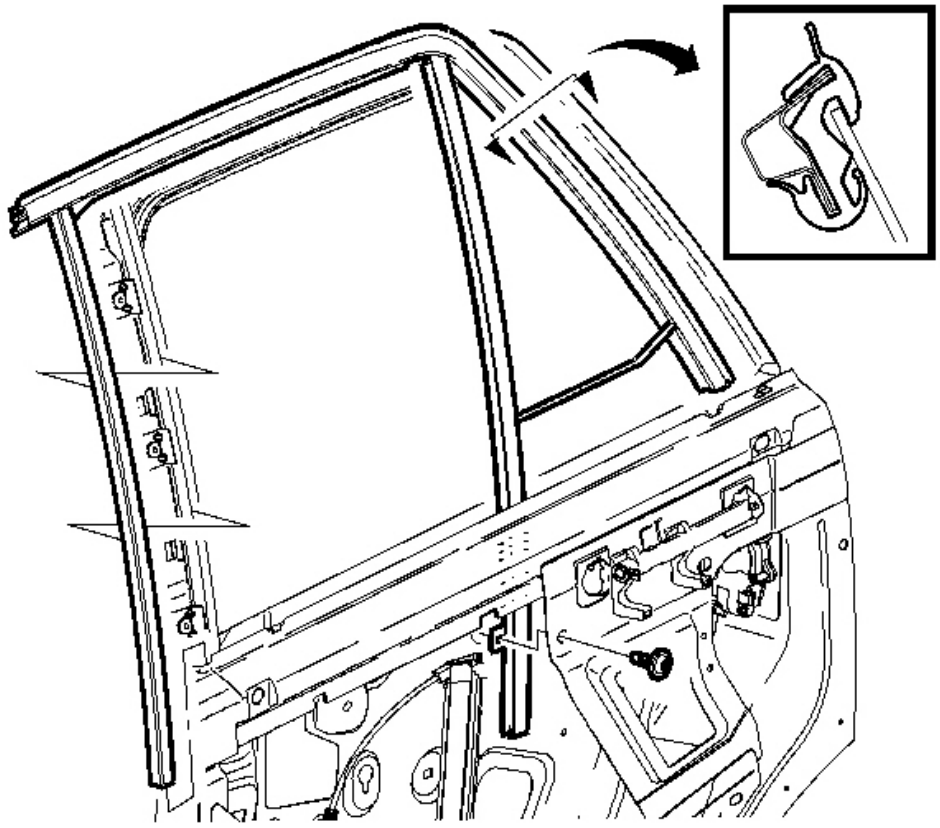


Fig. 126: View Of Rear Door Window Run Channel
Courtesy of GENERAL MOTORS CORP.

1. Install the window run channel seal and fixed glass assembly.
    - Place the seal and fixed glass assembly into the door frame.
    - Place the seal assembly on the door header.
    - Install the fixed glass post upper clip to the door frame.
    - Install the front seal leg to the metal glass run channel.
    - Secure the mushroom retainers at the top ends of the metal glass run channels.
    - Install the seal to the door header flange, starting from the front corner.

NOTE: Refer to Fastener Notice in Cautions and Notices.

- Install the lower fixed glass post bolt.

  Tighten: Tighten the bolt to 10 N.m (89 lb in).

2. Install the rear door sound insulator. Refer to **Sound Insulator Replacement - Rear Door** .
3. Install the rear door outer panel. Refer to **Outer Door Panel Replacement Rear - Bolt On** .
4. Install the rear door window weatherstrip run channel assembly. Refer to **Window Weatherstrip Run Channel Assembly Replacement - Rear** .
5. Install the rear door applique. Refer to **Door Frame Applique Replacement - Rear** .
6. Install the rear door window. Refer to **Window Replacement - Rear Door** .

DOOR FRAME APPLIQUE REPLACEMENT - FRONT

Removal Procedure

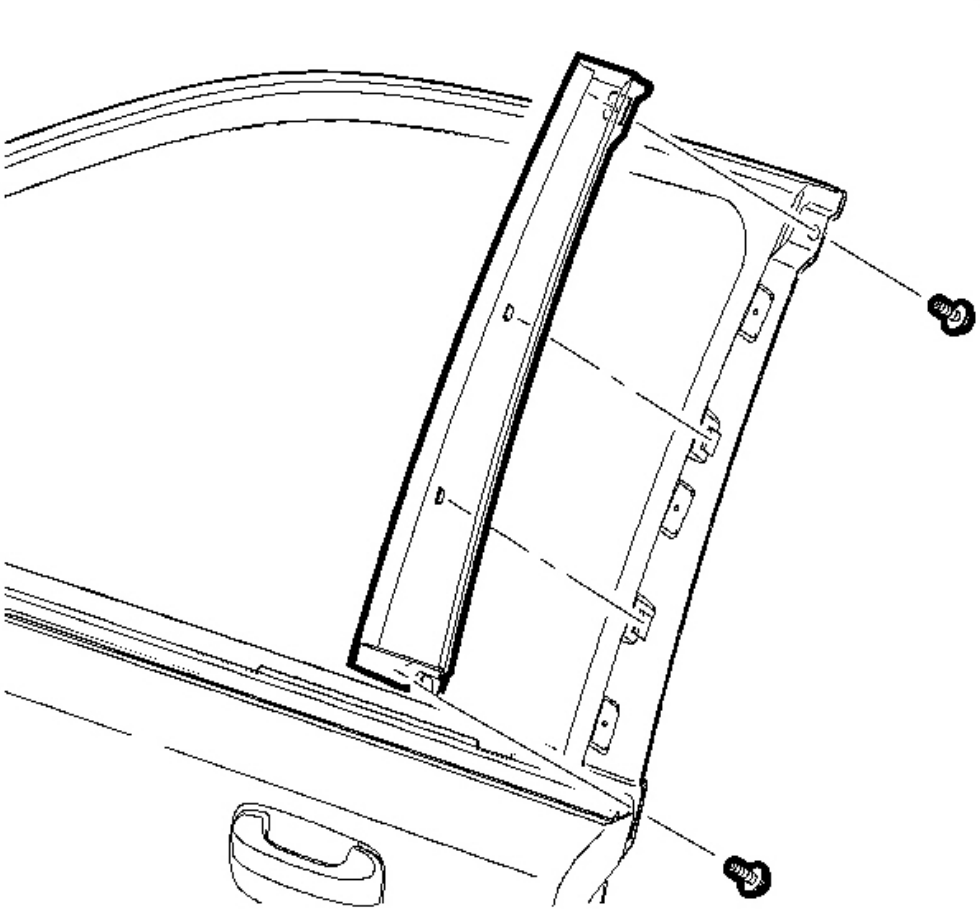


Fig. 127: View Of Front Door Frame Applique
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door applique screws.
2. Remove the front door applique from the door.

Installation Procedure

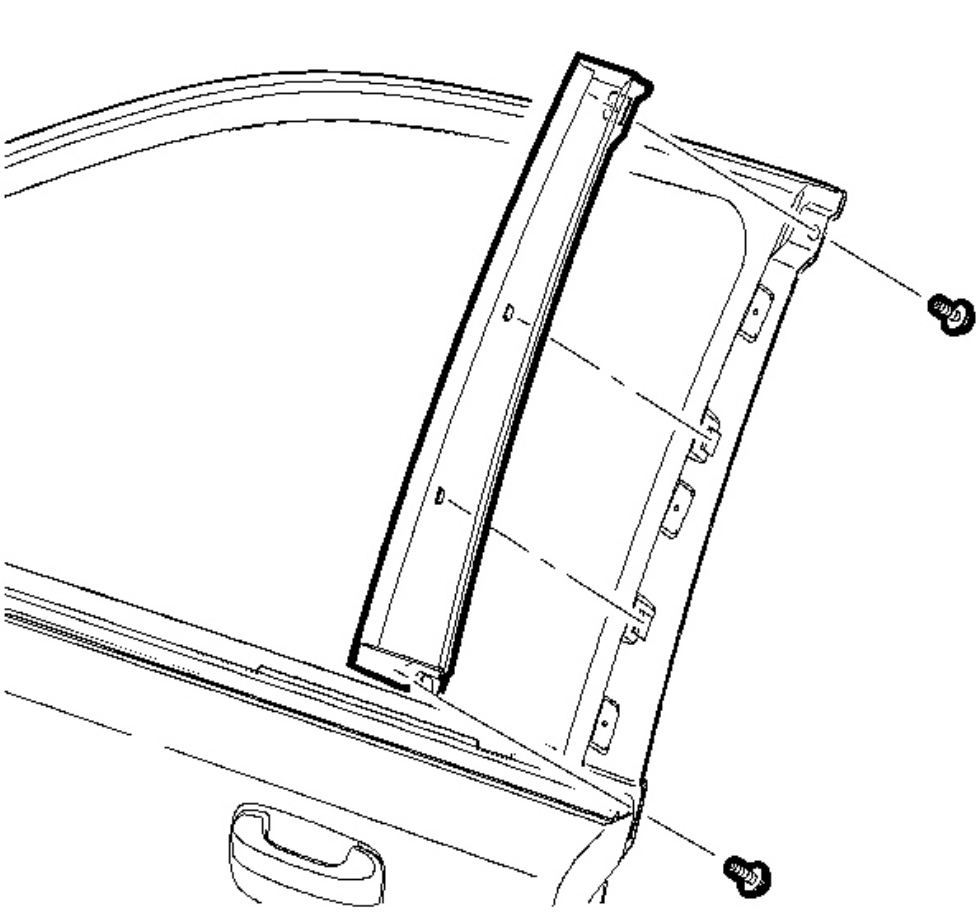


Fig. 128: View Of Front Door Frame Applique
Courtesy of GENERAL MOTORS CORP.

1. Position the applique between the outer belt seal and the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the applique screws.

Tighten: Tighten the screws to 2.2 N.m (20 lb in).

DOOR FRAME APPLIQUE REPLACEMENT - REAR

Removal Procedure

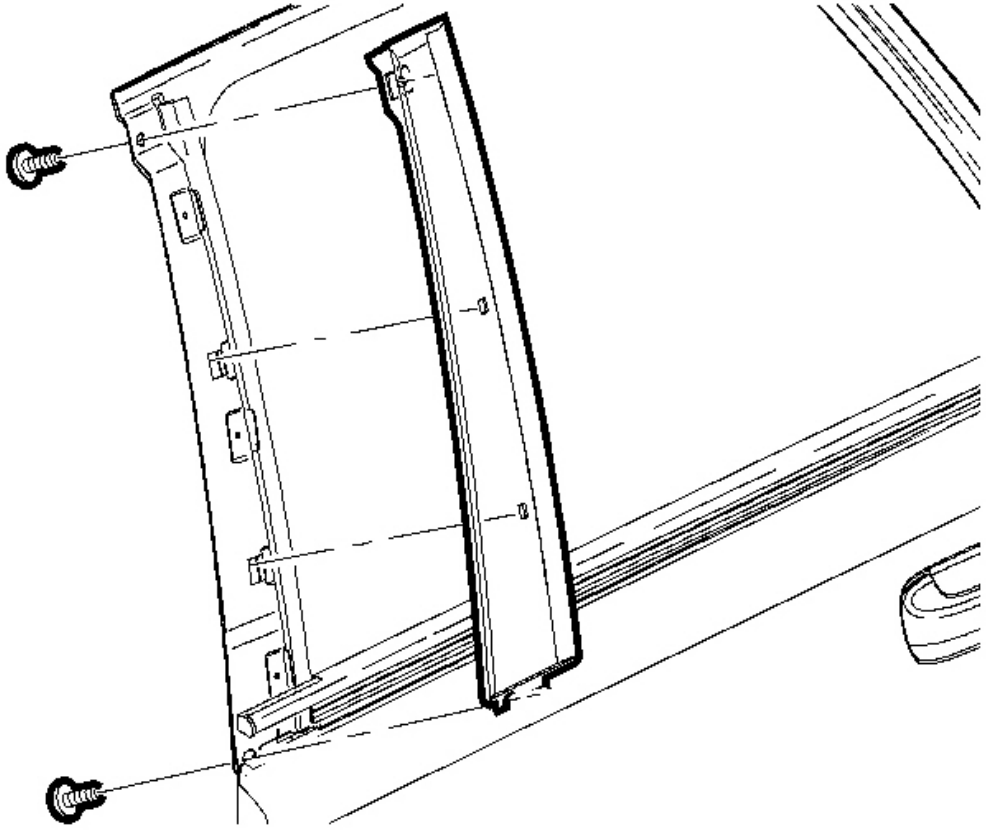


Fig. 129: View of Rear Door Frame Applique
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door applique screws.
2. Remove the rear door applique from the door.

Installation Procedure

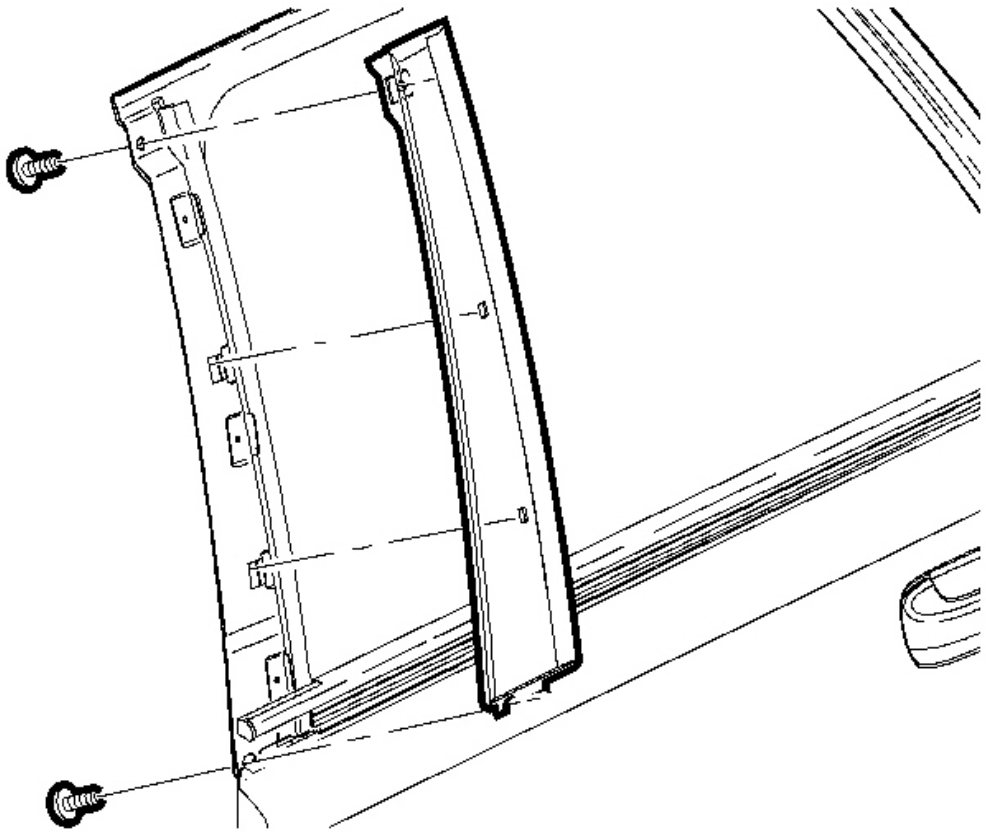


Fig. 130: View Of Rear Door Frame Applique
Courtesy of GENERAL MOTORS CORP.

1. Position the applique between the outer belt seal and the door structure.

NOTE: Refer to Fastener Notice in Cautions and Notices.

2. Install the applique screws.

Tighten: Tighten the screws to 2.2 N.m (20 lb in).

SEALING STRIP REPLACEMENT - FRONT DOOR WINDOW BELT OUTER

Removal Procedure

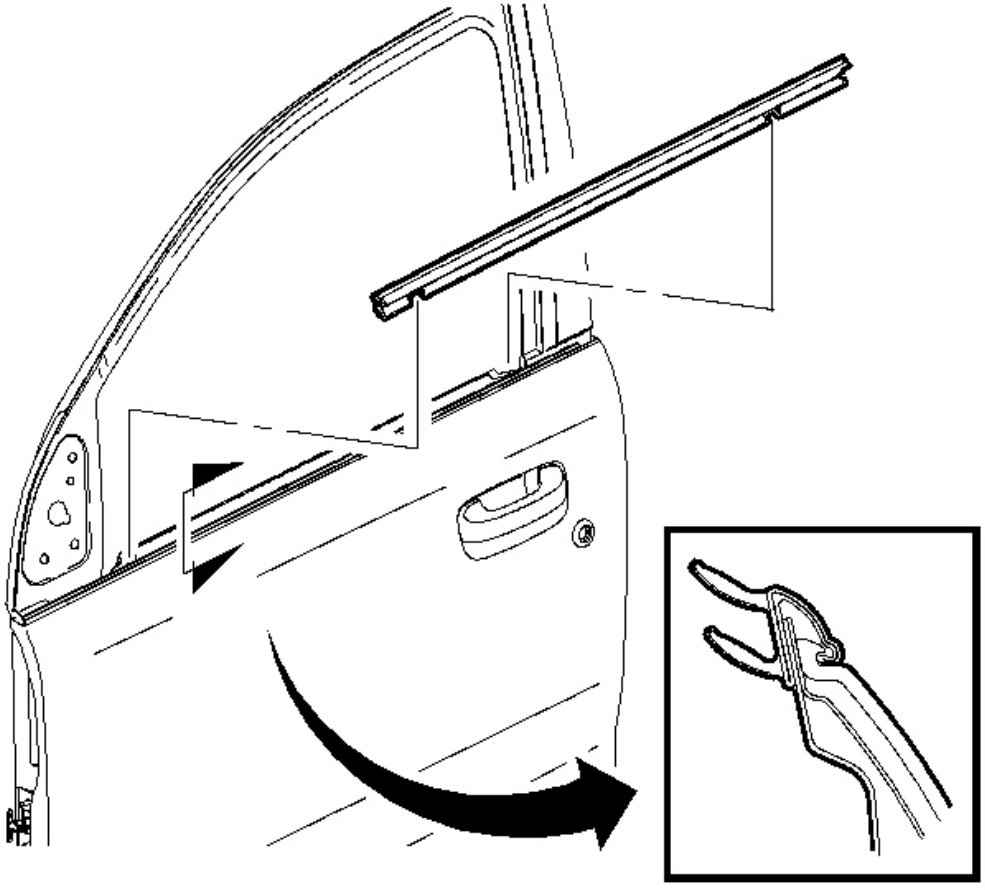


Fig. 131: View Of Front Door Window Outer Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Remove the belt seal retaining screw at the rear edge of the door.
2. Remove the outside rearview mirror. Refer to **Mirror Replacement** .
3. Remove the outer belt seal by lifting up on the seal starting at the rear and working forward.

Installation Procedure

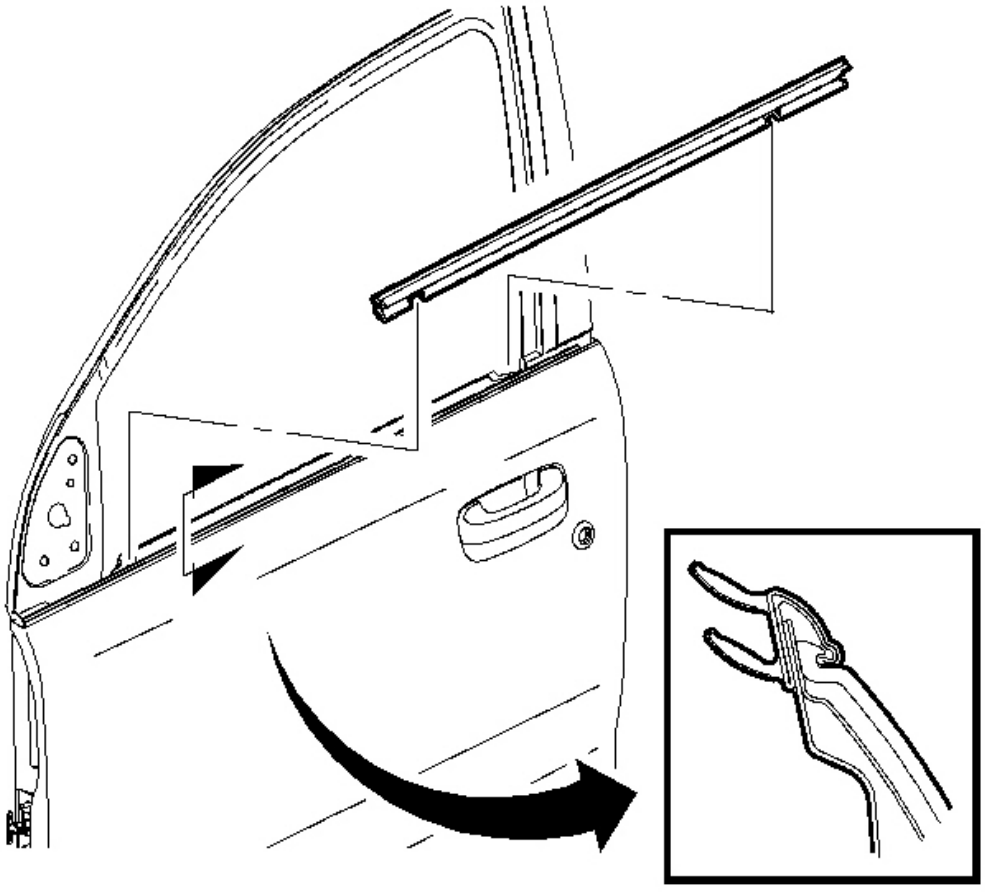


Fig. 132: View Of Front Door Window Outer Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Align the outer belt seal fastener location with the hole in the door structure and outer panel retaining tabs.
2. Starting at the rear of the belt seal, push the belt seal down onto the flange until fully seated.
3. Install the outside rearview mirror. Refer to **Mirror Replacement** .

NOTE: Refer to Fastener Notice in Cautions and Notices.

4. Install the outer belt seal retaining screw.

Tighten: Tighten the screw to 2 N.m (18 lb in).

SEALING STRIP REPLACEMENT - REAR DOOR WINDOW BELT OUTER

Removal Procedure

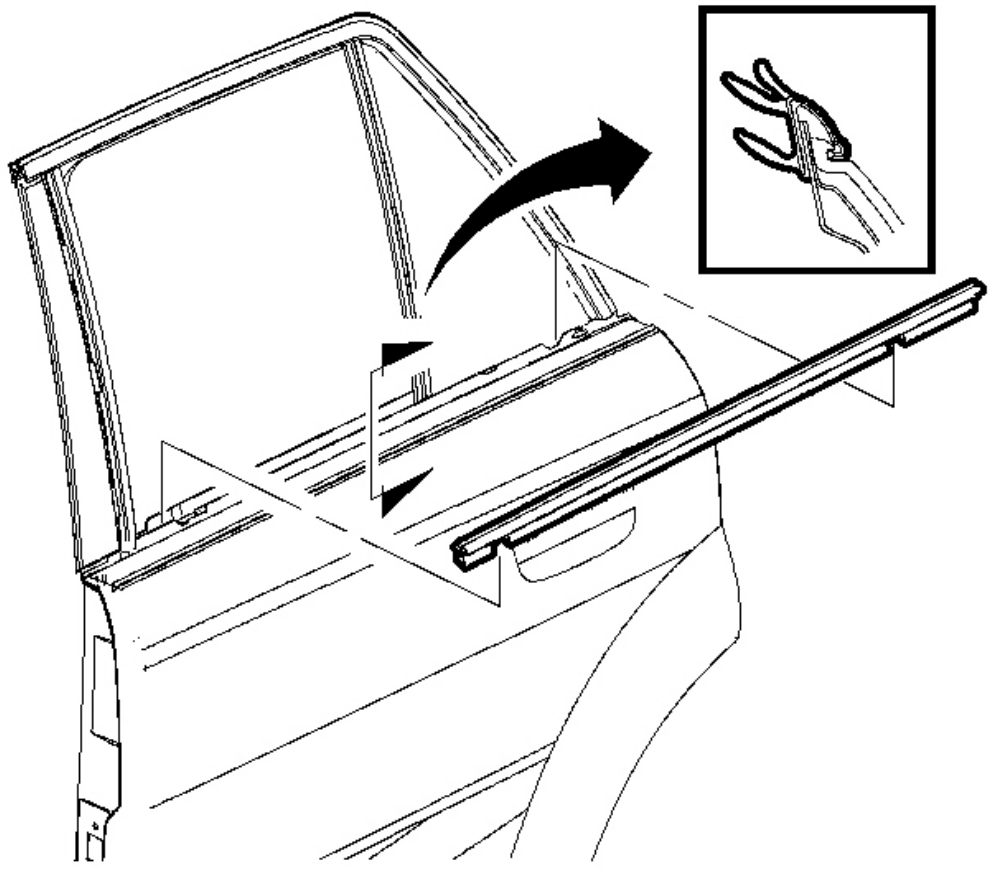


Fig. 133: View Of Rear Door Window Outer Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Remove the belt seal retaining screw at the front edge of the door.
2. Remove the outer belt seal by lifting up on the seal starting at the rear and working forward.

Installation Procedure

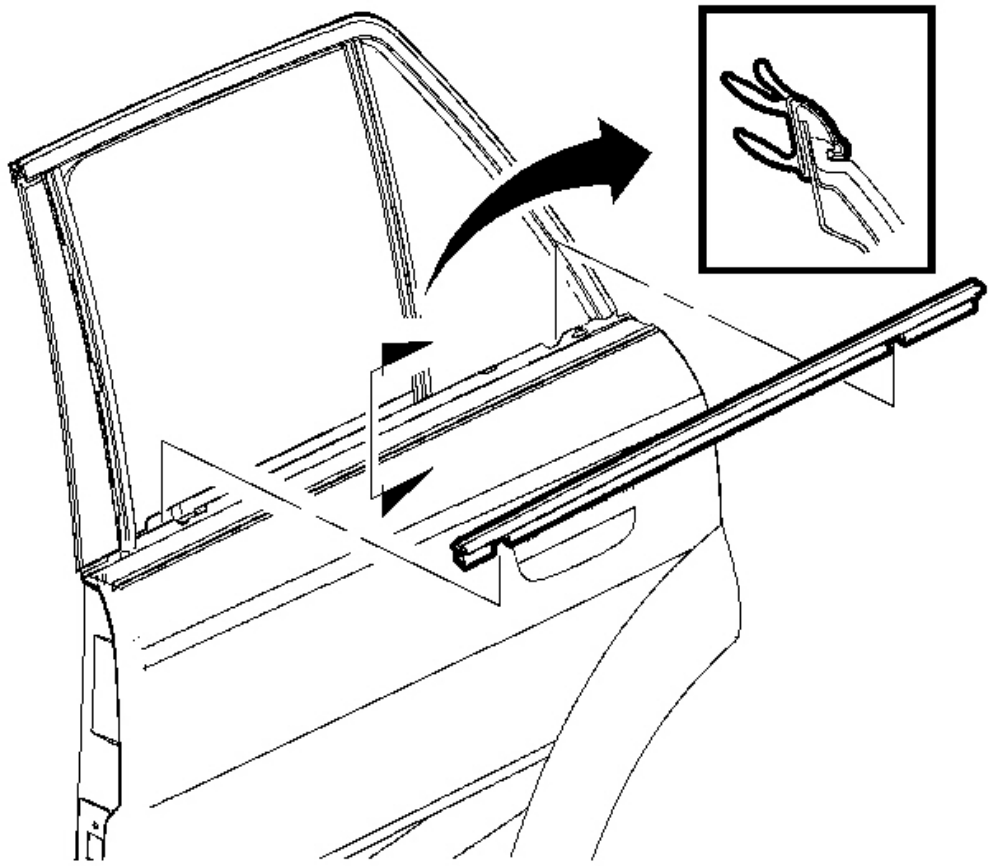


Fig. 134: View Of Rear Door Window Outer Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Align the outer belt seal fastener location with the hole in the door structure and outer panel retaining tabs.
2. Starting at the rear of the belt seal, push the belt seal down onto the flange until fully seated.

NOTE: Refer to Fastener Notice in Cautions and Notices.

3. Install the outer belt seal retaining screw.

Tighten: Tighten the screw to 2 N.m (18 lb in).

SEALING STRIP REPLACEMENT - FRONT DOOR WINDOW BELT INNER

Removal Procedure

1. Remove the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

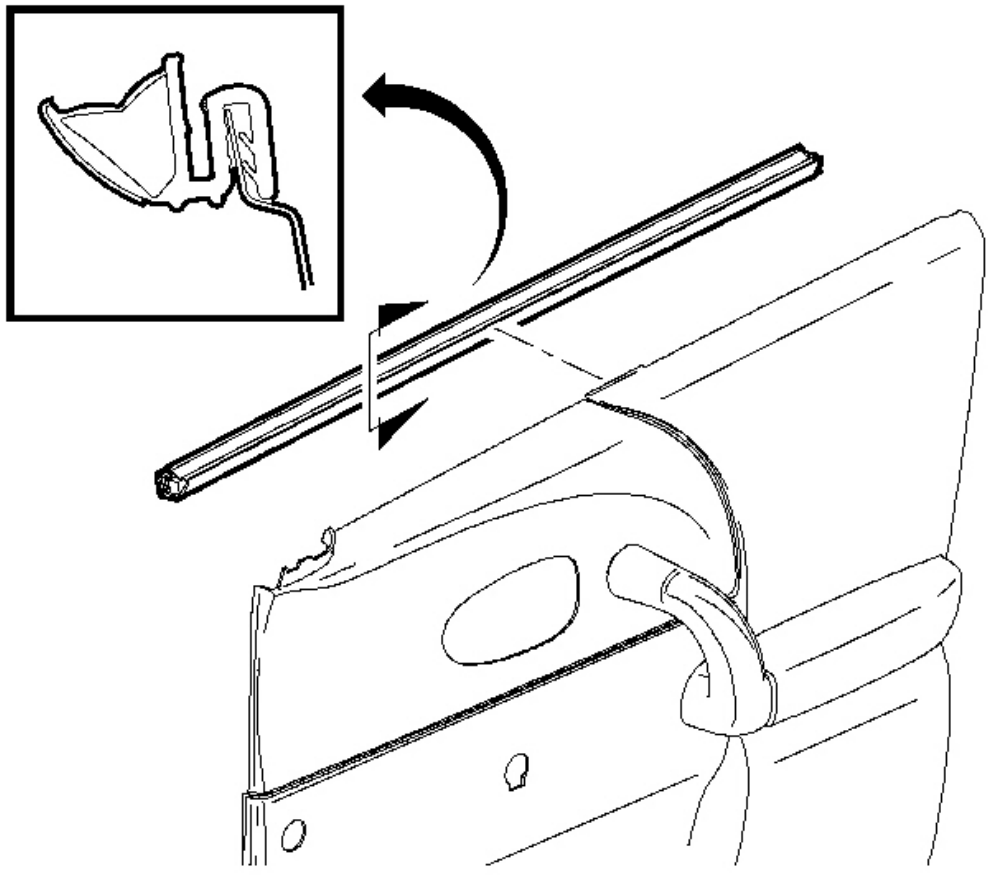


Fig. 135: View Of Front Door Window Inner Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

2. Remove the inner belt seal from the door trim panel by pulling down on seal.

Installation Procedure

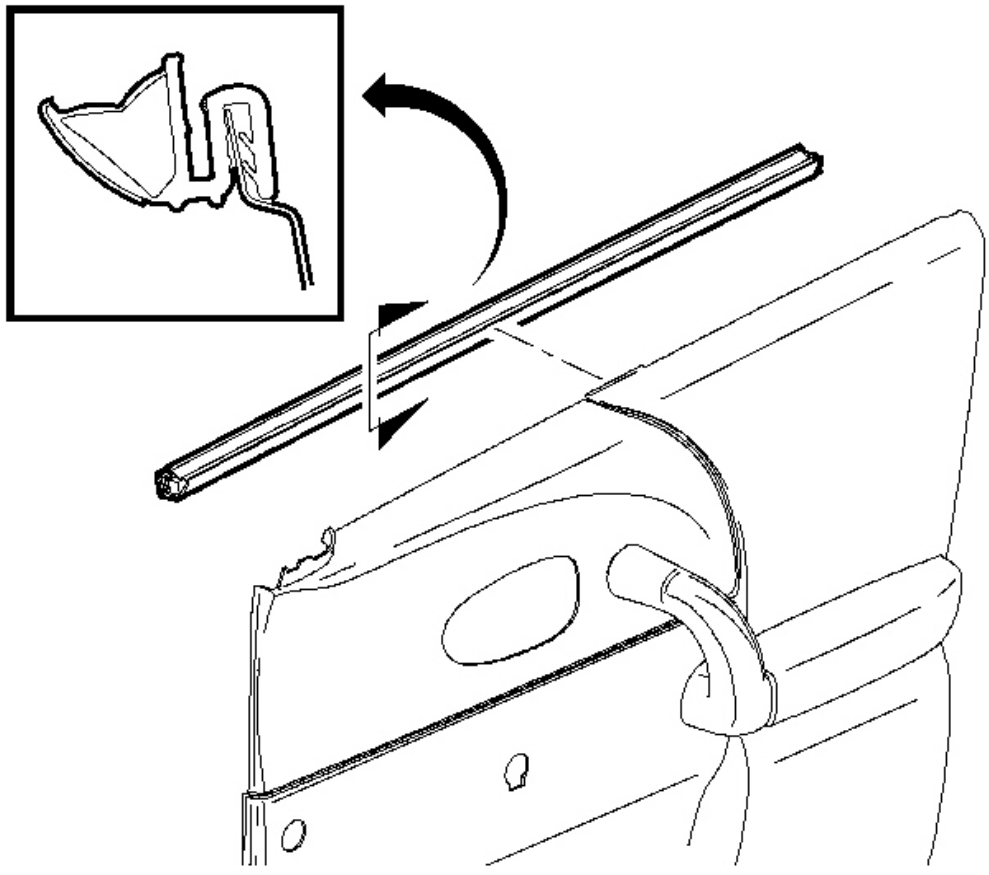


Fig. 136: View Of Front Door Window Inner Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Install the inner belt seal by pushing the seal onto the trim panel flange, starting from the front.
2. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Front Door (Early Production)** .

SEALING STRIP REPLACEMENT - REAR DOOR WINDOW BELT INNER

Removal Procedure

1. Remove the rear door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

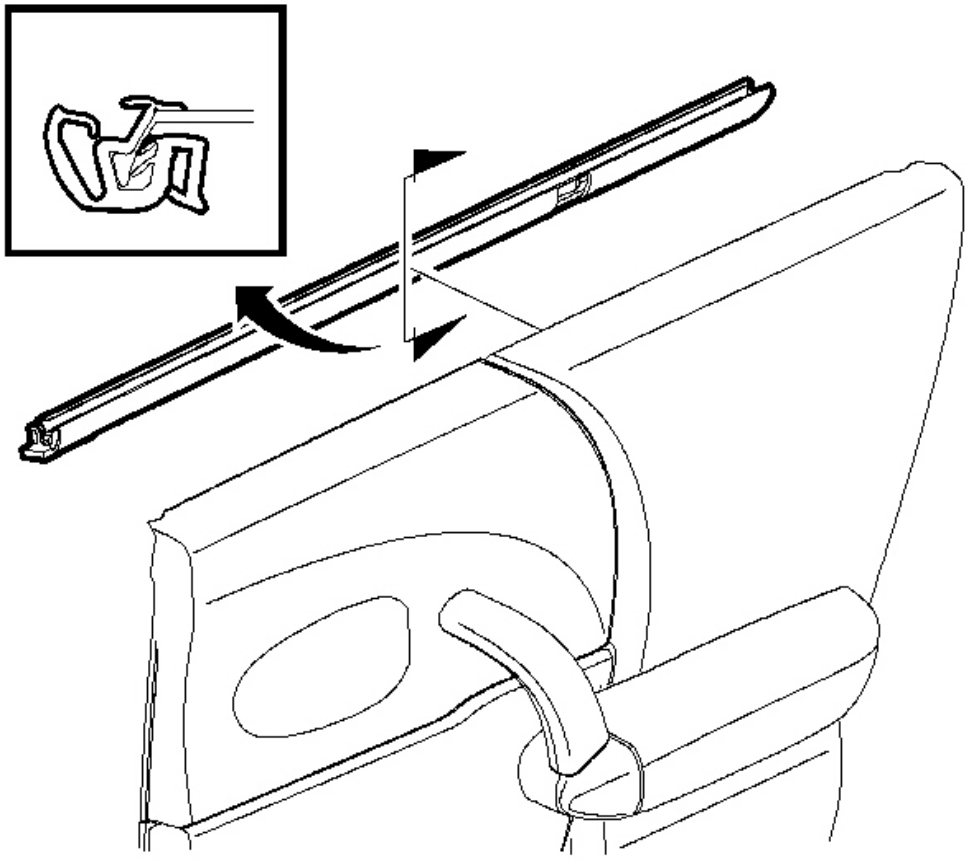


Fig. 137: View Of Rear Door Window Inner Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

2. Remove the inner belt seal from the door trim panel by pulling down on seal.

Installation Procedure

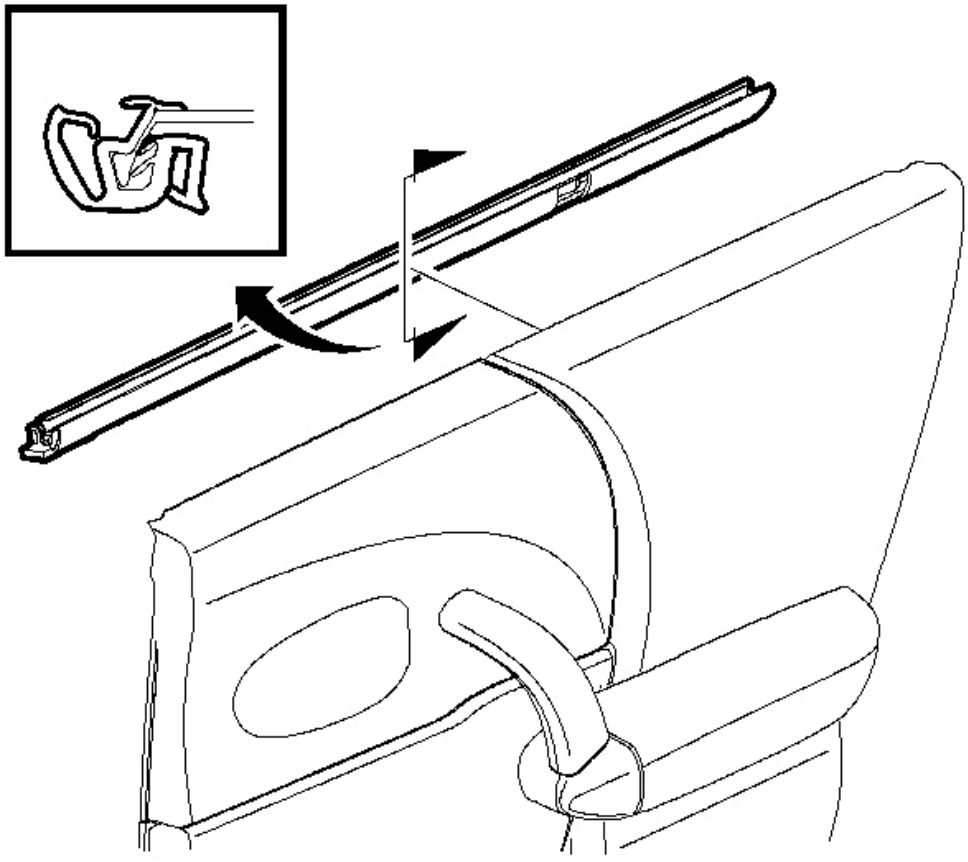


Fig. 138: View Of Rear Door Window Inner Belt Sealing Strip
Courtesy of GENERAL MOTORS CORP.

1. Install the inner belt seal by pushing the seal onto the trim panel flange, starting from the rear.
2. Install the front door trim panel. Refer to **Trim Panel Replacement - Side Rear Door** .

WEATHERSTRIP REPLACEMENT - CENTER PILLAR AUXILIARY

Removal Procedure

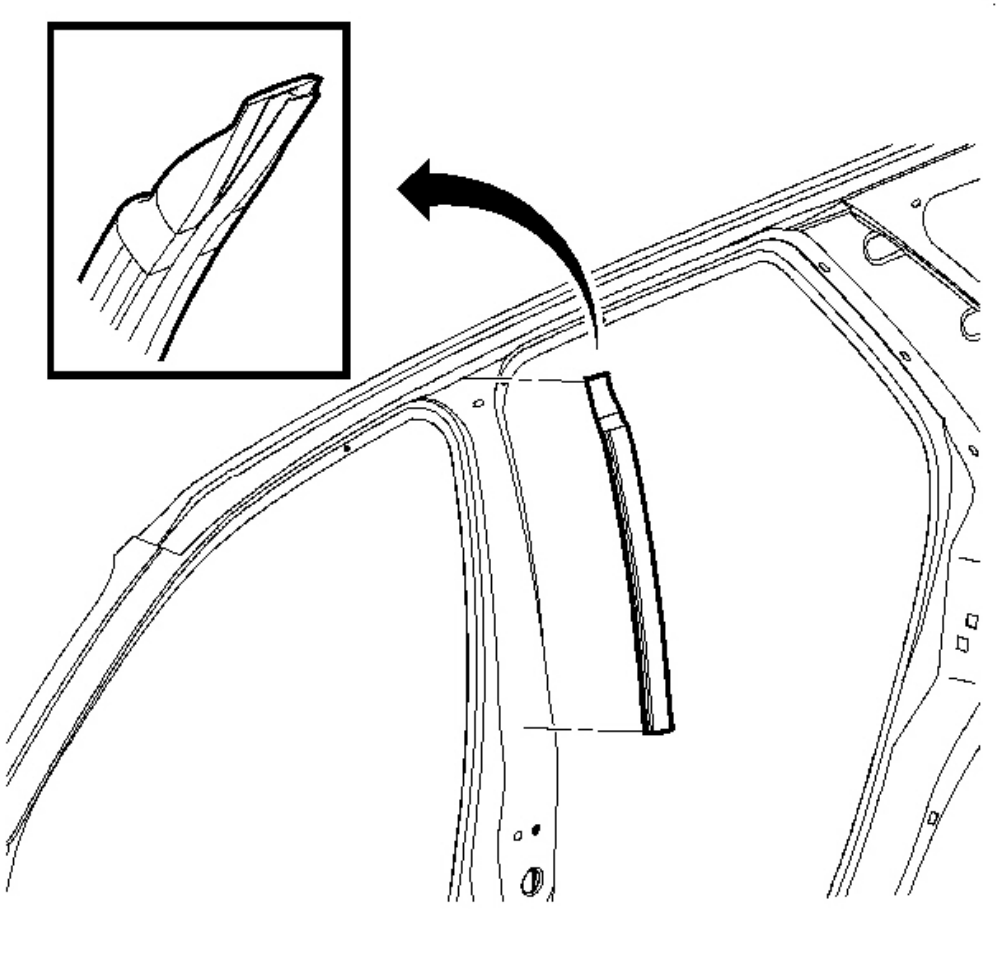


Fig. 139: View Of Center Pillar Auxiliary Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Remove the center pillar auxiliary weatherstrip by pulling the weatherstrip down and away from vehicle.
2. Use a clean rag and 3M General Purpose Adhesive Cleaner 08984 or the equivalent in order to wipe any remaining adhesive from the center pillar.

Installation Procedure

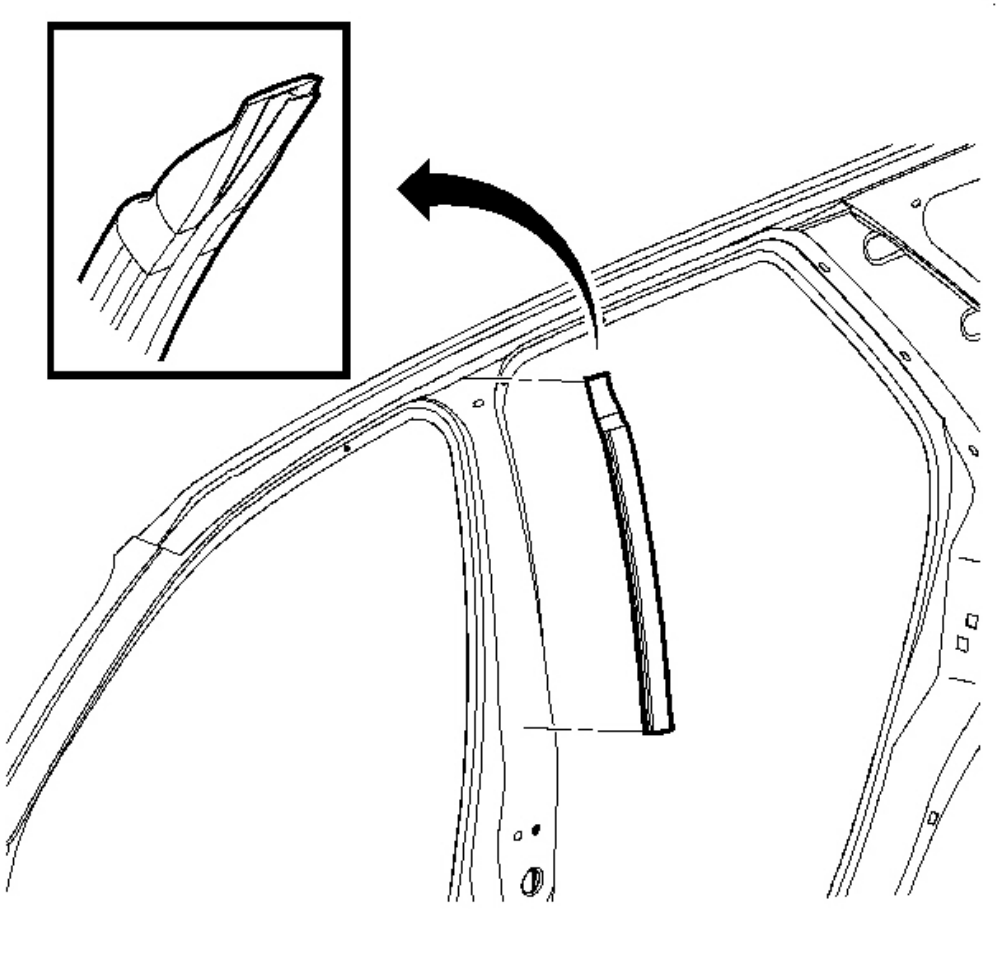


Fig. 140: View Of Center Pillar Auxiliary Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Clean the area where the weatherstrip will be installed.

   Use a lint free cloth and Varnish Makers and Painters (VMP) naphtha or a 50/50 mixture by volume of isopropyl alcohol and water to clean the area.

2. Remove the tape from the weatherstrip to expose the adhesive.
3. Install the center pillar auxiliary weatherstrip to the vehicle.

WEATHERSTRIP REPLACEMENT - FRONT DOOR OPENING

Removal Procedure

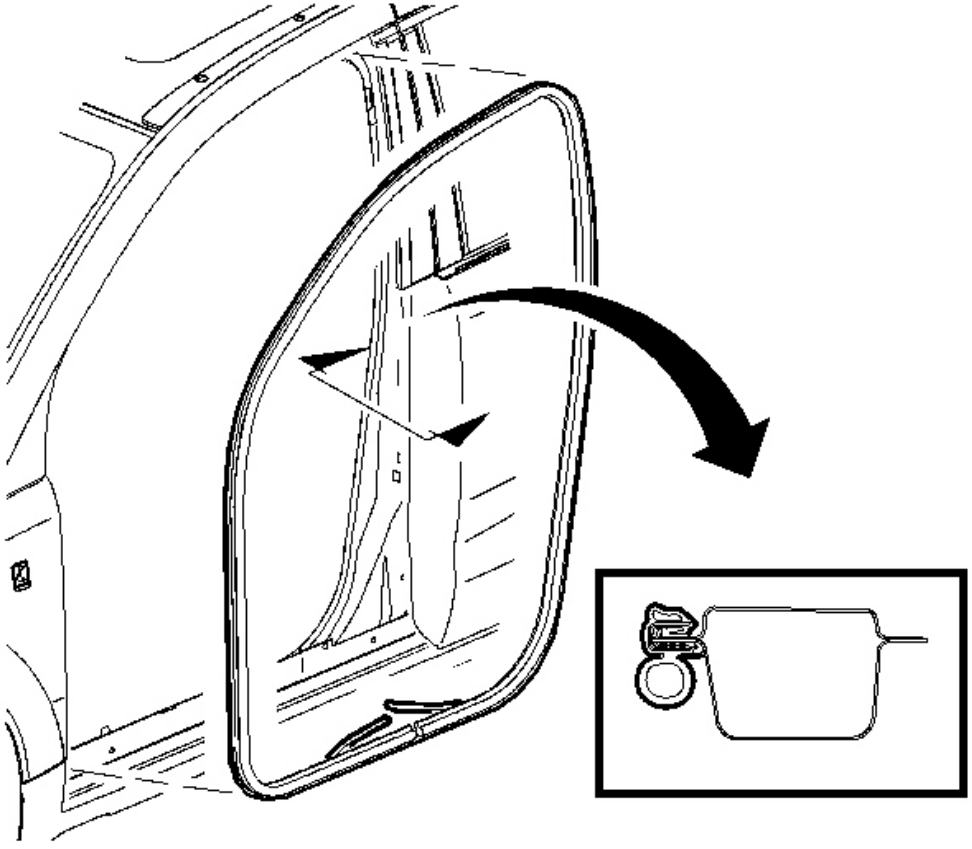


Fig. 141: View Of Front Door Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Remove the front door carpet retainer. Refer to **Carpet Retainer Replacement - Front** .
2. Remove the front door weatherstrip seal from the door flange by starting at the seal joint at the bottom of the door opening.
3. Separate the seal at the joint, note the position for installation.
4. Remove the seal from the door flange.

Installation Procedure

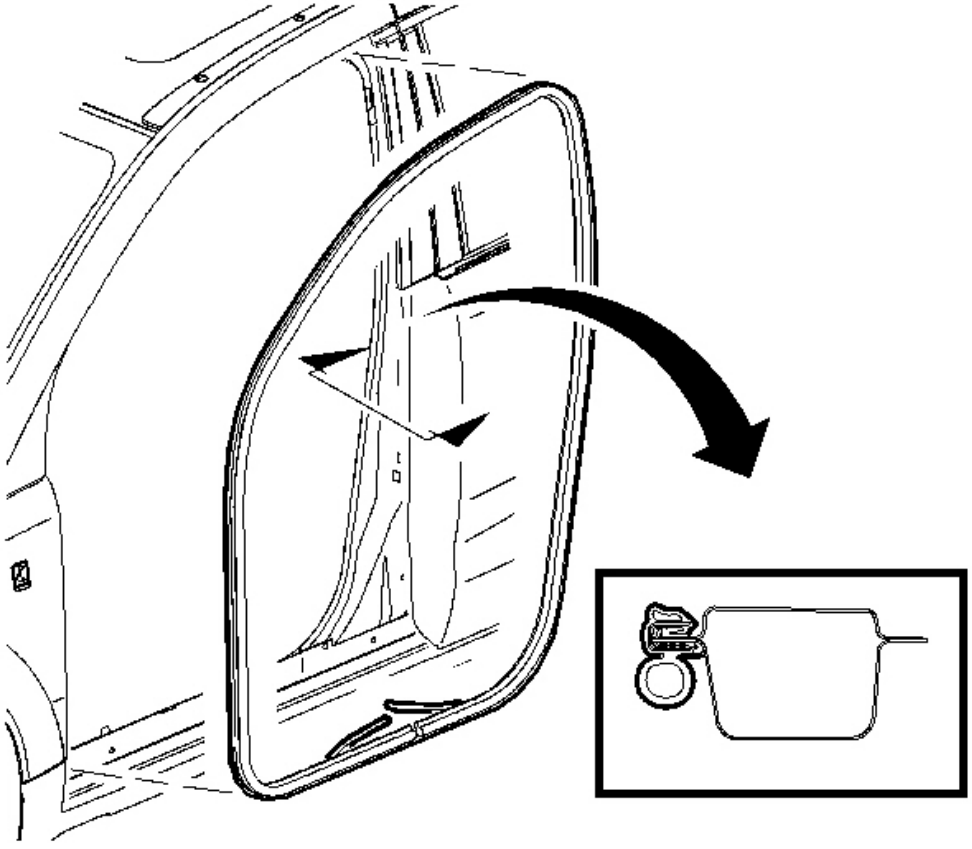


Fig. 142: View Of Front Door Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Position the seal over the flange area in the position noted in the removal procedure.
2. Press the seal over the flange firmly to fully secure.
3. Locate an exposed end of the ripcord at the seal joint and pull the ripcord around the door opening. If the seal lip is tucked under any door trim, this process will bring the seal lip over the door trim and headliner.
4. Secure the seal lip under the end of the instrument panel.
5. Install the front door carpet retainer. Refer to **Carpet Retainer Replacement - Front** .

WEATHERSTRIP REPLACEMENT - REAR DOOR OPENING

Removal Procedure

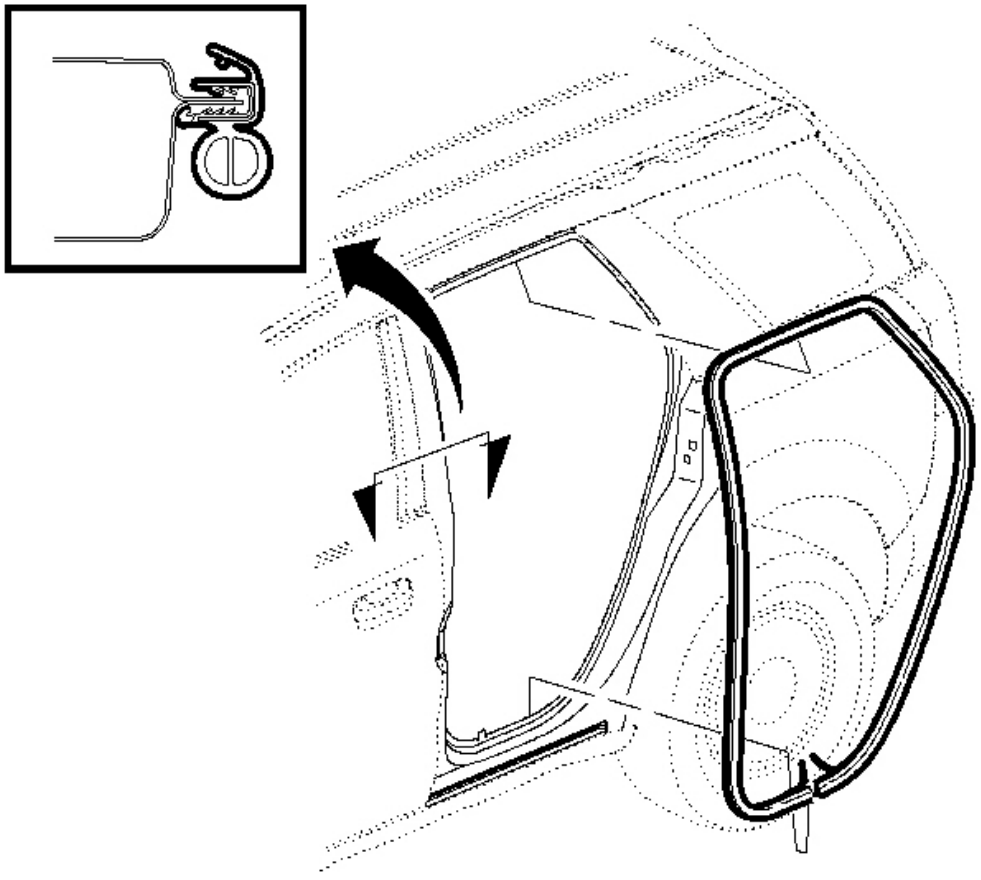


Fig. 143: View Of Rear Door Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Remove the rear door carpet retainer. Refer to **Carpet Retainer Replacement - Rear** .
2. Remove the rear door weatherstrip seal from the door flange by starting at the seal joint at the bottom of the door opening.
3. Separate the seal at the joint, note the position for installation.
4. Remove the seal from the door flange.

Installation Procedure

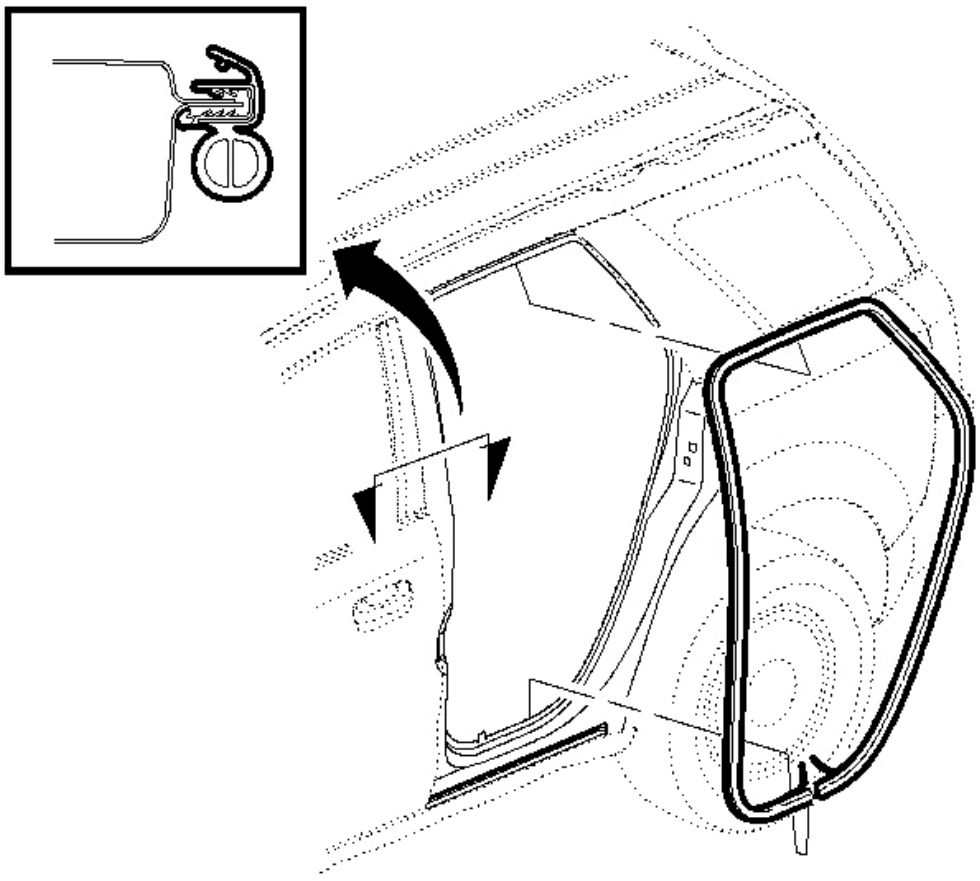


Fig. 144: View Of Rear Door Weatherstrip
Courtesy of GENERAL MOTORS CORP.

1. Position the seal over the flange area in the position noted in the removal procedure.
2. Press the seal over the flange firmly to fully secure.
3. Locate an exposed end of the ripcord at the seal joint and pull the ripcord around the door opening. If the seal lip is tucked under any door trim, this process will bring the seal lip over the door trim and headliner.
4. Install the rear door carpet retainer. Refer to **Carpet Retainer Replacement - Rear** .

MIRROR REPLACEMENT

Removal Procedure

1. Remove the front door upper trim panel extension. Refer to **Trim Panel Replacement - Upper Extension** .

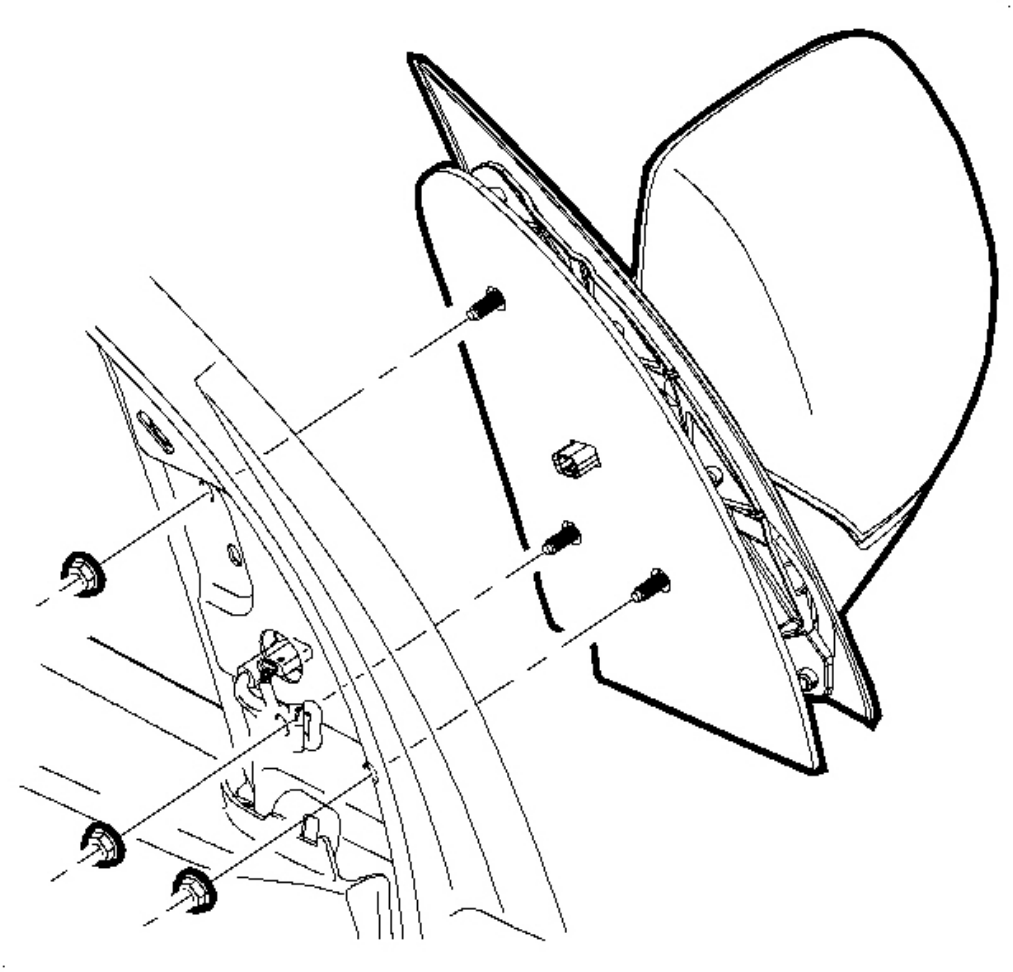


Fig. 145: View Of Mirror
Courtesy of GENERAL MOTORS CORP.

2. Disconnect the mirror electrical connector, if equipped.
3. Remove the mirror to door nuts.
4. Remove the mirror from the door.

Installation Procedure

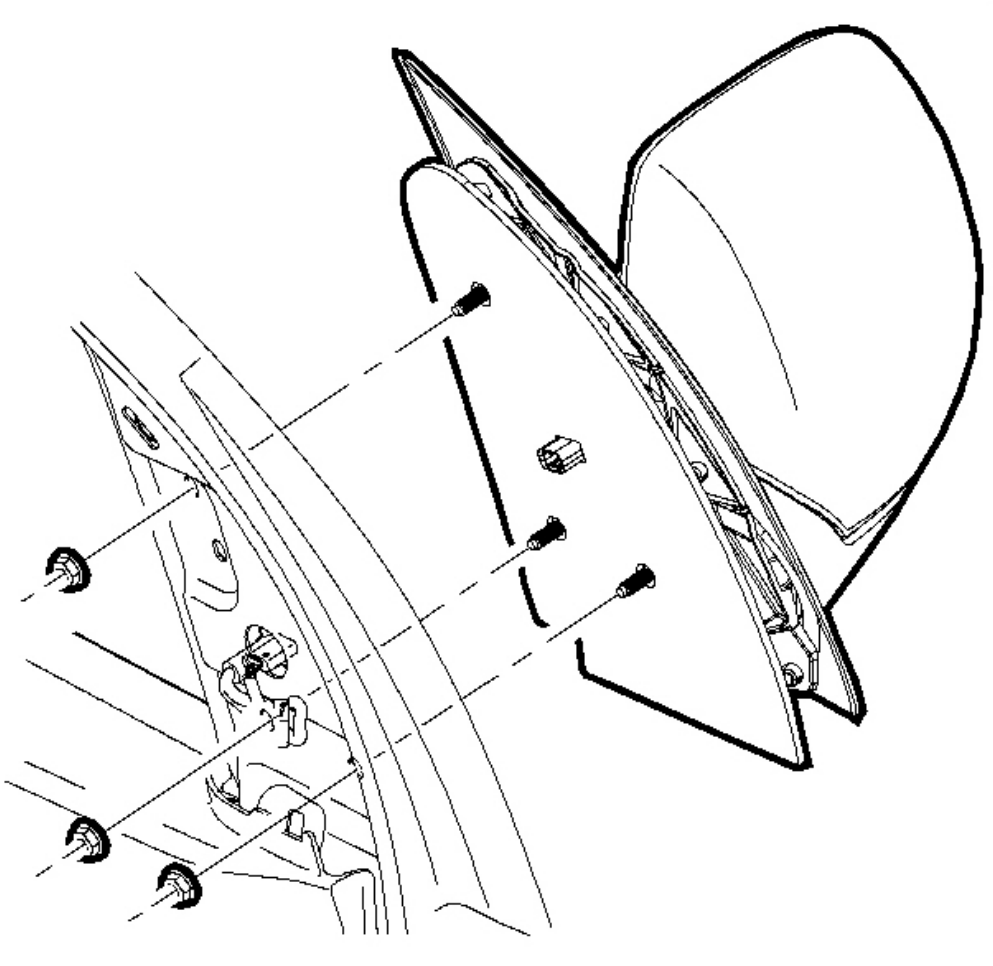


Fig. 146: View Of Mirror
Courtesy of GENERAL MOTORS CORP.

1. Position the mirror to the door.

NOTE: **Refer to Fastener Notice Fastener Notice in Cautions and Notices.**

2. Install the outside rearview mirror nuts.

   Tighten: Tighten the nuts to 10 N.m (89 lb in).

3. Connect the electrical connector to the mirror, if equipped.

4. Inspect the operation of the mirror.
5. Install the front door upper trim panel extension. Refer to **Trim Panel Replacement - Upper Extension** .

GLASS REPLACEMENT - MIRROR

Removal Procedure

CAUTION: Refer to Glass and Sheet Metal Handling Caution in Cautions and Notices.

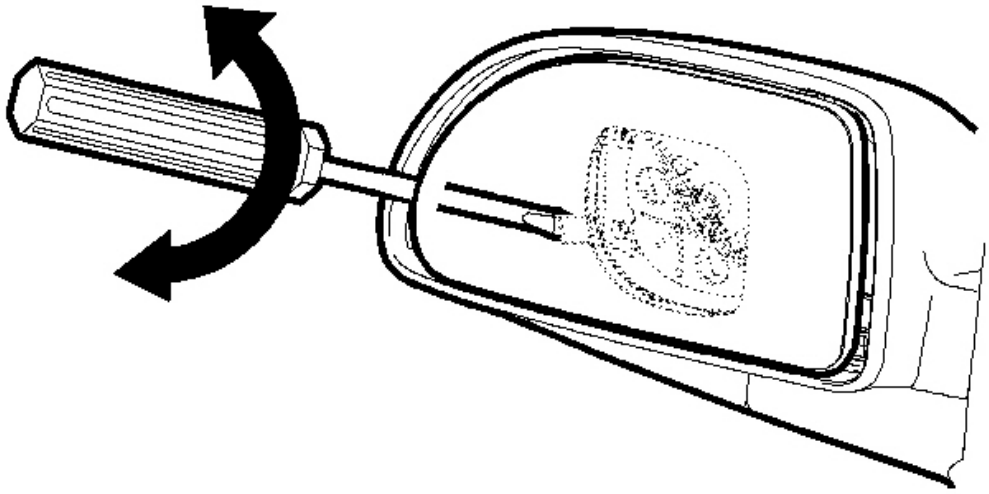


Fig. 147: View Of Glass Mirror
Courtesy of GENERAL MOTORS CORP.

1. Cover the mirror glass with tape.
2. Rotate mirror glass to expose the outer edge.
3. Insert a large flat-bladed tool into the slot between the mirror glass and mounting base.
4. Gently pry the mirror glass until the glass releases off the base.
5. Remove the glass.

Installation Procedure

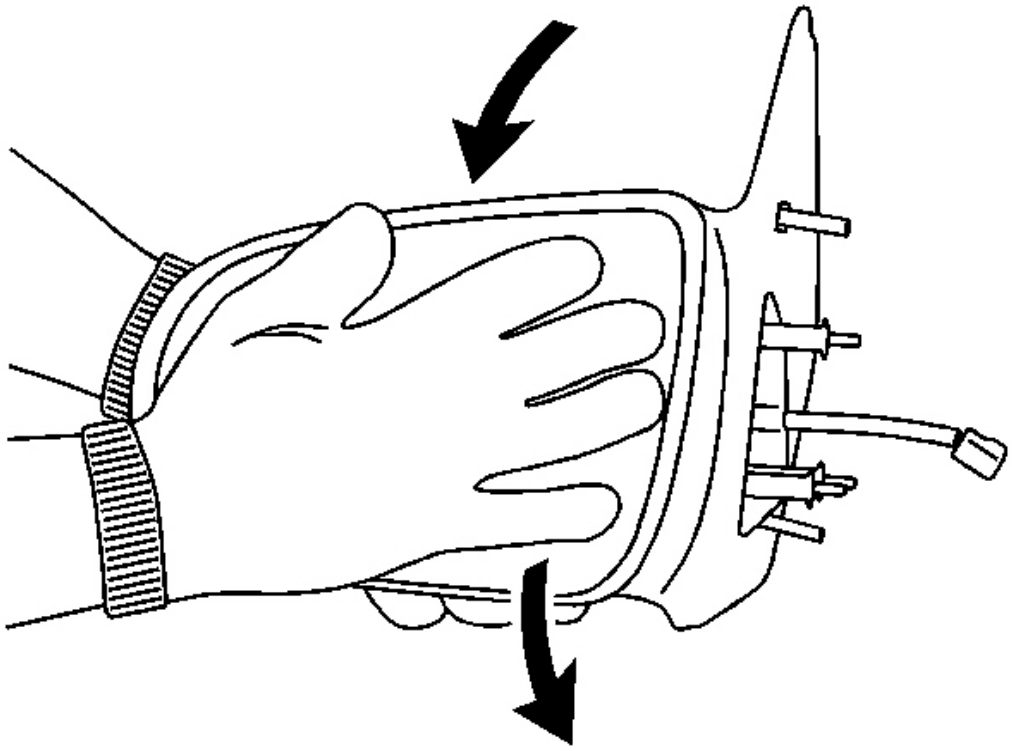


Fig. 148: Installing Mirror Glass Onto Motor
Courtesy of GENERAL MOTORS CORP.

1. Align the new mirror glass with the mounting base.
2. Install the mirror glass to the mirror motor with the palm of the hand on the center of the glass, pressing in until fully seated.
3. Inspect the mirror for proper operation.

DESCRIPTION AND OPERATION

POWER WINDOWS DESCRIPTION AND OPERATION

Power Windows System Components

The power window system consists of the following components:

- Driver power window switch-Controls the up and down operation of the driver and LR passenger power windows
- Front passenger power window switch-Controls the up and down operation of the front passenger and RR passenger power window
- LR power window switch-Controls the up and down operation of the LR power window
- RR power window switch-Controls the up and down operation of the RR power window
- Window lockout switch-Part of the driver power window switch and enables or disables rear power window operation from the rear window switches
- Power window motors in each of the doors
- WDO/SUNROOF/AIR 30A circuit breaker-Located in the underhood fuse block and provides voltage to the power window relay, air pump relay and sunroof system at all times
- Power window relay-Located in the right instrument panel (I/P) fuse block and provides voltage to the power window switches when the ignition is in ACC or RUN or when in retained accessory power (RAP) mode

Power Window System Controls

The power window system will operate any time the ignition is the ACC or RUN position. The power window system will also operate whenever the body control module (BCM) is in retained accessory power (RAP) mode. The power window switches located in the console contain individual window switches for each of power windows. All windows may be controlled up and down from the console power window switches. The individual rear passenger power window switches will only control the up and down operation of their respective power window.

Power Window Motor Operation

Each power window contains a reversible power window motor. The direction the window travels is dependent upon the polarity of the supply voltage. By reversing polarity of the supply voltage the window motor will move up or down. Each power window motor is internally circuit breaker protected.

Driver Power Window Operation

Battery voltage is supplied to the driver power window switch through the accessory voltage supply circuit. The driver power window switch also receives a constant ground source. The power window motor control circuits are connected to ground through the normally closed up and down contacts of the driver power window switch. When the driver power switch is placed in the down position, the power window motor down control circuit is switched to 12 volts and is applied to the down side of the driver power window motor. Since the other side of the driver power motor is connected to ground through the normally closed contacts of the up switch, the driver window travels down. By placing the driver power window switch in the up position, the polarity of the driver power window motor is reversed and the window travels up.

Driver Power Window Express Down Operation

If the driver power window switch is pressed momentarily in the down position past the first detent, the window will travel to the full open position unsupervised. To cancel to express down operation, momentarily press the driver power window up switch.

Front Passenger Power Window Operation

Battery voltage is supplied to the front passenger power window switch through the accessory voltage supply circuit. The passenger window switch also receives a constant ground source. The power window motor control circuits are connected to ground through the normally closed up and down contacts of the front passenger power window switch. When the front passenger power window switch is placed in the down position, the power window motor down control circuit is switched to 12 volts and is applied to the down side of the power window motor. Since the other side of the power motor is connected to ground through the normally closed contacts of the up switch, the window travels down. By placing the front passenger power window switch in the up position, the polarity of the power window motor is reversed and the window travels up.

Rear Passenger Power Window Operation

The rear passenger power window switches receive battery voltage through the window lockout control circuit if the window lockout function is disabled. Ground for the rear passenger power window motors is supplied through normally closed up and down contacts of both the rear passenger power window switches and the console power window switch. When the either rear passenger power window switch is placed in the down position, the power window motor down control circuit is switched to 12 volts and is applied to the down side of the rear passenger power window motor. Since the other side of the rear passenger power motor is connected to ground through the normally closed up contacts of both the rear passenger and console power window switches, the window travels down. By placing the rear passenger power window switch in the up position, the polarity of the power window motor is reversed and the window travels up.

The rear passenger power windows can also be controlled from the console power window switches.

Power Window Lockout Operation

The console power window switch contains a window lockout switch. The window lockout switch completes or interrupts the window lockout control circuit. If the window lockout switch is enabled, there is no voltage available at the rear power window switches and rear power window will not operate from the rear power window switches. The rear power windows will operate from the console power window switches.

POWER DOOR LOCKS DESCRIPTION AND OPERATION

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch-Provides a switched voltage signal to the body control module (BCM) for both lock and unlock switch activations
- Front passenger door lock switch-Provides a switched voltage signal to the BCM for both lock and

unlock switch activations

- Door lock relay-Located in the instrument panel (I/P) fuse block and controls the locking of all doors and liftgate
- Door unlock relay-Located in the I/P fuse block and controls the unlocking of the passenger doors and liftgate
- Driver door unlock relay-Located in the I/P fuse block and controls the unlocking of the driver door
- BCM-Class 2 module which requires programming when replaced
- Reversible door lock actuators in each of the doors
- LOCK/MIRROR 10 A fuse-Located in the I/P fuse block, supplies power for the door lock switches and relays
- DR LCK 20 A fuse-Located in the I/P fuse block, supplies power to the relays

Door Lock System Controls

The power door lock system can be controlled by any of the following:

- Power door lock switch activation
- Keyless entry lock or unlock command
- Delayed locking command
- Automatic door lock command
- Lockout prevention command
- An air bag deployment

Door Lock and Unlock Operation

When a door lock switch is activated in the lock or unlock position the BCM will receive a voltage 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 switch the appropriate lock relay control circuit(s) to battery positive voltage. This will energize the appropriate lock or unlock relay(s). The relay will supply voltage to the door lock actuator lock or unlock control circuits to one side of the lock actuator. Since the opposing side of the lock actuators are connected to ground through the other lock actuator control circuit and the normally closed contacts of the lock or unlock relay, the doors and liftgate will then lock or unlock appropriately.

Three relays are used to operate the lock. Driver door unlock, passenger door unlock and all door lock. This is done to isolate the driver door lock actuator so it can be unlocked by itself using the keyless entry transmitter.

Automatic Door Lock Operation

This body control module (BCM) controlled feature can be personalized to driver preference. Refer to **Power Door Systems Connector End Views** and **Vehicle Personalization** in Personalization.

The BCM will automatically lock the vehicle doors if the following conditions exist:

- All vehicles doors are closed.
- The ignition is in the ON position.
- The vehicle is shifted out of PARK.

The BCM will then unlock the doors when the ignition is placed in the OFF position.

Delayed Locking Operation

With any door open and a door lock switch is activated in the lock position, the body control module (BCM) will give three audible chimes. When the door is closed, the BCM will cycle the internal door lock relay to lock the doors after approximately five seconds. This feature can be overridden by activating the door lock switch a second time and the doors will lock even with a door open.

Lockout Prevention Operation

The body control module (BCM) will lock all doors and unlock the driver door with a door lock switch lock activation if a vehicle door is open and the ignition key is fully inserted in the ignition. The lockout prevention feature can be overridden if a lock command is received from the keyless entry system.

Unlock After Air Bag Deployment

This feature will unlock all of the vehicle doors 15 seconds after an air bag deployment.

DOOR AJAR INDICATOR DESCRIPTION AND OPERATION

Door Ajar Indicator System Components

The door ajar indicator system consists of the following components:

- The body control module (BCM)
- The instrument panel cluster (IPC)
- The driver information center (DIC)
- The driver door jamb switch
- The passenger door jamb switch
- The left rear door jamb switch
- The right rear door jamb switch
- The liftgate actuator/ajar switch

Driver and Passenger Door Ajar Operation

The body control module (BCM) receives a discrete input from the respective jamb switch to indicate the status of the door. The BCM then communicates this status to the instrument panel cluster (IPC) via a class 2 message. The IPC, upon receipt of this class 2 message, will illuminate the appropriate ajar message in the driver information center (DIC) and also send a class 2 message to the radio to activate the door ajar audible warning when the following conditions are met:

- The transmission is removed from PARK.
- The vehicle speed is greater then 8.05 km/h (5 mph).

OUTSIDE MIRROR DESCRIPTION AND OPERATION

Power Mirror System Components

The power mirror system consists of the following components:

- Mirror direction switch-Controls the left, right, up and down movements of the mirrors
- Mirror select switch-Allows the operator to select the mirror to be moved
- Left outside mirror-Contains both the horizontal and vertical mirror motors
- Right outside mirror-Contains both the horizontal and vertical mirror motors
- LOCK/MIRROR 10 A fuse-Located in the instrument panel (I/P) fuse block and supplies power for the power mirror system

Each of the outside power mirrors contains 2 motors. The up-down motor operates the vertical directions and the left-right motor operates the horizontal directions. Each of the power mirror motors are internally circuit breaker protected.

Power Mirror System Controls

The outside mirror switch incorporates a mirror select switch and a 4 position mirror direction switch.

The mirror select switch allows the driver to select the mirror to be moved by pressing the switch to L position enabling the left outside mirror or pressing the switch to R position enabling the right outside mirror.

The mirror direction switch is a 4 position switch that allows the operator to move the selected mirror up, down, left or right.

Power Mirror System Operation

The outside mirror switch receives power through the battery positive voltage circuit from the LOCK/MIRROR 10 A fuse in the instrument panel (I/P) fuse block. The outside mirror switch also receives a constant ground.

The 4 positions of the direction switch have multiple switch contacts. When not in use, the directional contacts are isolated from any circuit. Each of the contacts are connected to opposing sides of the appropriate mirror motors through the selector switch. The selector switch interrupts or completes these circuits depending on the position of the selector switch, L or R.

If the mirror select switch is placed in the L position and the up switch is pressed, battery voltage will be supplied to the driver outside mirror vertical motor through the driver mirror motor up control circuit and return to the mirror switch through the driver mirror motor left/down control circuit, then to ground and the mirror will move up. If the down switch is pressed, the driver mirror motor left/down control circuit supplies battery voltage and the driver mirror motor up control circuit completes the path to the mirror switch, then to ground

and the mirror will move down.

The remainder of the mirror functions operate in the same manner as described above. Placing the mirror direction switch in opposing positions, left/right or up/down, will reverse the voltage polarity to the mirror motor, utilizing the same circuits and the mirror will move accordingly.