

2018 ACCESSORIES & EQUIPMENT

Fixed And Moveable Windows - Equinox & Terrain

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE: <i>All fasteners listed in this table can be reused after removal.</i>	
Application	Specification
	Metric (English)
Front Side Door Window Channel Retainer Bolt	9 N.m (80 lb in)
Front Side Door Window Frame Inner Upper Screw	1.5 N.m (13 lb in)
Front Side Door Window Frame Rear Applique Outer Screw	1.5 N.m (13 lb in)
Front Side Door Window Regulator Guide Bolt	11 N.m (97 lb in)
Front Side Door Window Regulator Nut	11 N.m (97 lb in)
Front Side Door Window Regulator Motor Screw	11 N.m (97 lb in)
Rear Side Door Window Channel Rear Retainer Bolt	11 N.m (97 lb in)
Rear Side Door Window Frame Applique Screw	1.5 N.m (13 lb in)
Rear Side Door Window Regulator Guide Bolt	11 N.m (97 lb in)
Rear Side Door Window Regulator Nut	11 N.m (97 lb in)
Rear Side Door Window Regulator Motor Screw	11 N.m (97 lb in)
Rear Side Door Weatherstrip Bolt	11 N.m (97 lb in)

SCHEMATIC WIRING DIAGRAMS

MOVEABLE WINDOW WIRING SCHEMATICS

Front Doors

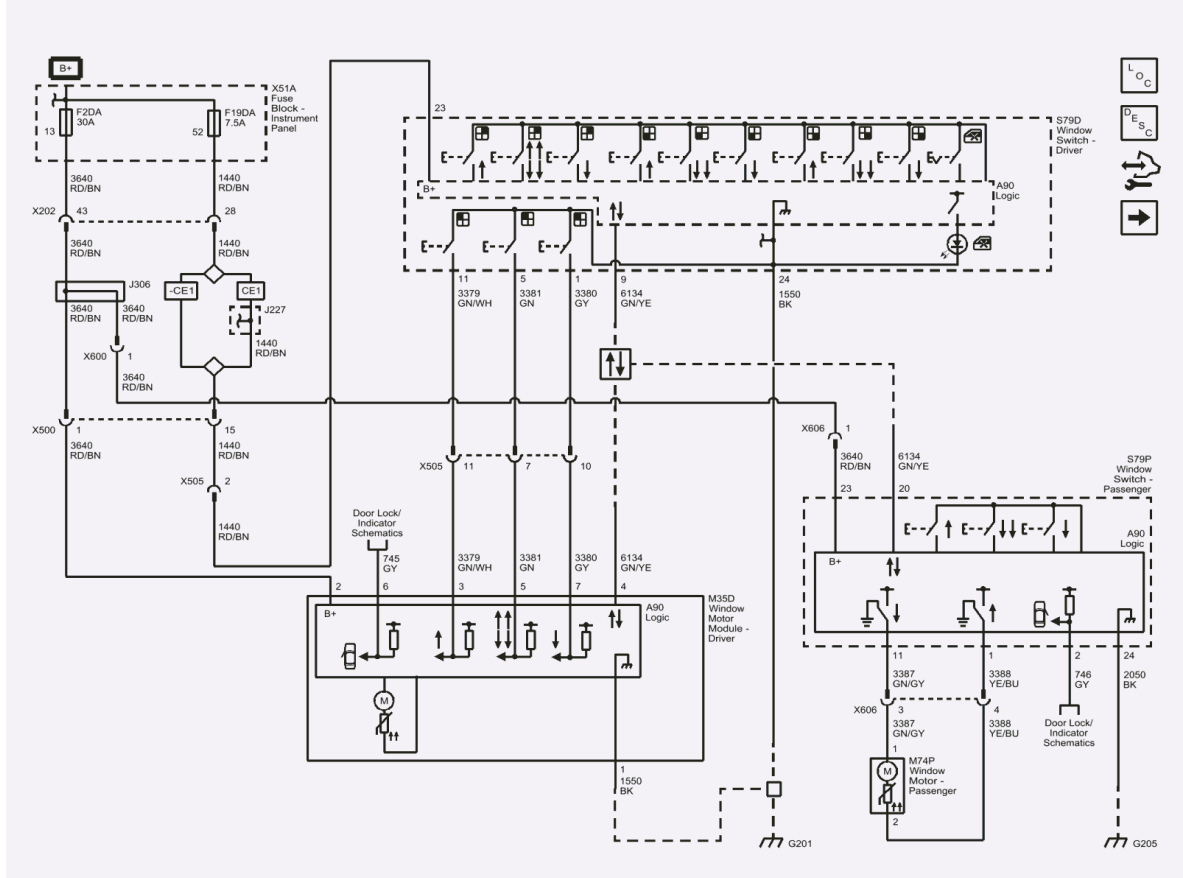


Fig. 1: Front Doors
Courtesy of GENERAL MOTORS COMPANY

Rear Doors

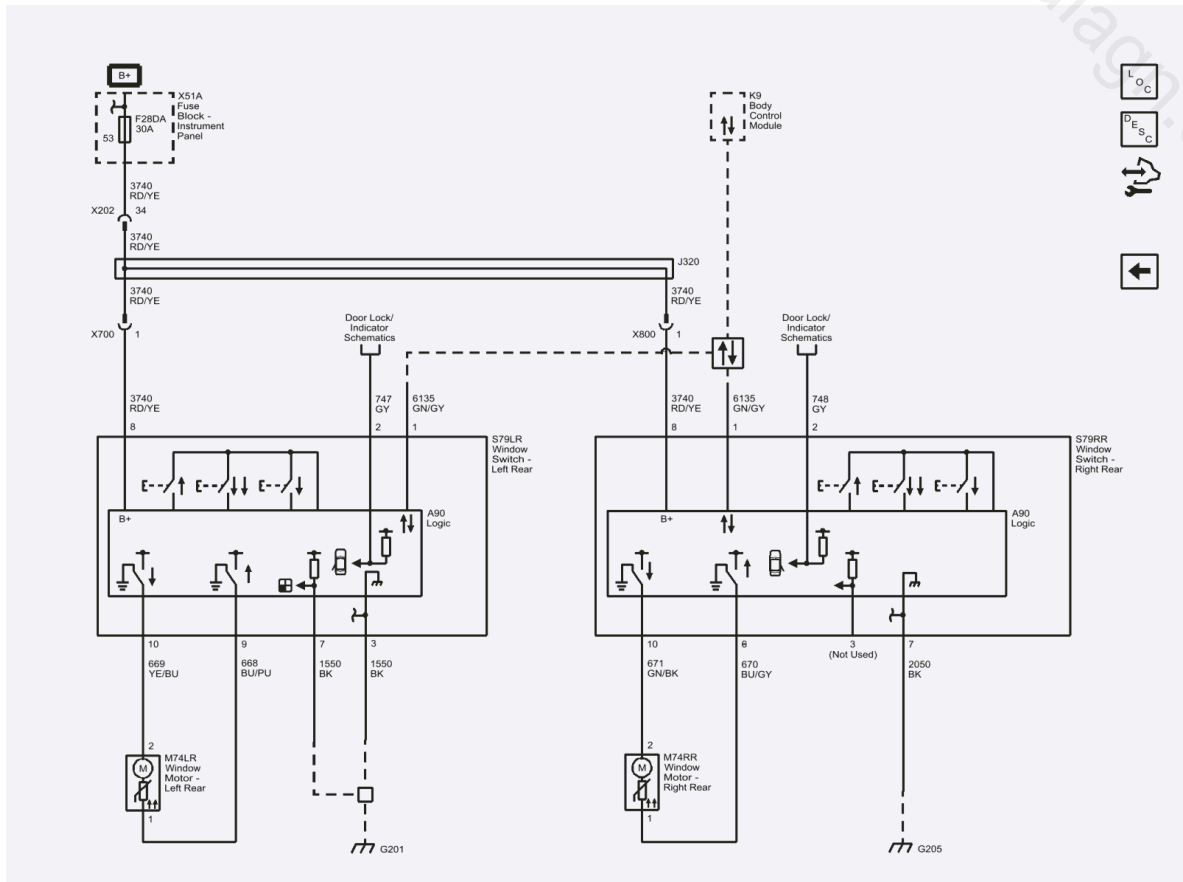


Fig. 2: Rear Doors
Courtesy of GENERAL MOTORS COMPANY

DEFOGGER WIRING SCHEMATICS

Defogger

Circuit	Description
Control - Relay Coil	The output circuit is switched to 12 V to activate the component.
E18 Rear Defogger Grid Ground - Component	Chassis Ground
Ground - Relay Coil	Chassis Ground

Component	Description
KR5 Rear Defogger Relay	A relay is a switch that is actuated by a solenoid.
E18 Rear Defogger Grid	Window defoggers are parallel resistive conductors in or on the glass that heat up when electric power is applied.
K33 HVAC Control Module	The control module controls a series of actuators to ensure optimal heating, ventilation and air conditioning of the passenger compartment. The control module does this by reading values from a variety of sensors and interprets the data and adjusts the actuators accordingly.
A26 HVAC Controls	This device is the user interface to control the HVAC system. Some buttons and indicators are hardwired, some functions use serial data communication.

Conditions for Running the DTC

Ignition - On/Vehicle - In Service Mode

Conditions for Setting the DTC

- B0283 02 Control Circuit = Short to Ground
- B0283 05 Control Circuit = Open or Short to Battery

Actions Taken When the DTC Sets

- B0283 02 E18 Rear Defogger Grid = Disabled
- B0283 05 E18 Rear Defogger Grid = Disabled or Always On

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference

Defogger Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Front of Vehicle/Engine Compartment Component Views

Electrical Information Reference

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

Scan Tool Reference

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Perform the scan tool control function: Rear Defogger - On and Off

Verify the component turns On and Off: E18 Rear Defogger Grid

- **If the component does not turn On and Off**

Refer to: Circuit/System Testing

- **Go to next step: If the component turns On and Off**

3. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Remove the component: KR5 Rear Defogger Relay
3. Test for less than 10 Ω between the test points: Ground circuit terminal 2 & Ground
 - **If 10 Ω or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 2 & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 Ω**
4. Connect a test lamp between the test points: Control circuit terminal 1 & Ground circuit terminal 2
5. Ignition - On/Vehicle - In Service Mode
6. Perform the scan tool control function: Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: K33 HVAC Control Module
3. Test for infinite resistance between the test points: Control circuit terminal 1 @ Relay Socket & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
4. Test for less than 2 Ω between the test points: Control circuit terminal 1 @ Relay Socket & Terminal 19 X2 @ Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K33 HVAC Control Module

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: K33 HVAC Control Module
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Control circuit terminal 1 @ Relay Socket & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K33 HVAC Control Module

- **Go to next step: If the test lamp turns On and Off**

7. Test or replace the component: KR5 Rear Defogger Relay

Component Testing

Relay Test

1. Ignition/Vehicle - Off
2. Remove the component: KR5 Rear Defogger Relay
3. Test for 70 to 110 Ω between the test points: Component terminal 1 & Component terminal 2
 - **If not between 70 and 110 Ω**

Replace the component: KR5 Rear Defogger Relay

- **Go to next step: If between 70 and 110 Ω**
4. Test for infinite resistance between the test points:
 - Component terminal 3 & 1
 - Component terminal 3 & 5
 - Component terminal 3 & 2
 - Component terminal 2 & 5
 - **If less than infinite resistance**

Replace the component: KR5 Rear Defogger Relay

- **Go to next step: If infinite resistance**
5. Connect a 3 A fused jumper wire between the test points: Component terminal 2 & 12 V

Connect a jumper wire between the test points: Component terminal 1 & Ground

6. Test for less than 2 Ω between the test points: Component terminal 3 & Component terminal 5
 - **If 2 Ω or greater**

Replace the component: KR5 Rear Defogger Relay

- **Go to next step: If less than 2 Ω**
7. All OK.

Repair Instructions

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

- Refer to [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#).
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B316B, B317A, B318A OR B319A: WINDOW SWITCHES

Diagnostic Instructions

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

DTC Descriptor

DTC B316B

Driver Window Switch

DTC B317A

Passenger Window Switch

DTC B318A

DTC B319A

Right Rear Window Switch

Symptom Byte Information: [Symptom Byte List](#)**Diagnostic Fault Information**

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Down @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39
Signal - Up @ M35D Window Motor Module - Driver	B316B 02	2	2	B316B 39
Signal - Express @ M35D Window Motor Module - Driver	3	3	3	3
1. Driver Left Front Window Switch - Down = Inoperative 2. Driver Left Front Window Switch - Up = Inoperative 3. Driver Left Front Window Switch - Express = Inoperative				

Circuit/System DescriptionFor an overview of the component/system, refer to [Power Windows Description and Operation](#)

Circuit	Description
B+ - S79D Window Switch - Driver	Supplied from a fuse.
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
B+ - S79P Window Switch - Passenger	Supplied from a fuse.
B+ - S79LR Window Switch - Left Rear	Supplied from a fuse.
B+ - S79RR Window Switch - Right Rear	Supplied from a fuse.
Signal - Down @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Up @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Express @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Control - Up @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.

Component	Description
M35D Window Motor Module - Driver	• Power Window Control • The control module also reads various switches and sensors and makes their values available via serial data.
S79P Window Switch - Passenger	The switch has a normally open contact.
M74P Window Motor - Passenger	An electric DC motor.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
M74LR Window Motor - Left Rear	An electric DC motor.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
M74RR Window Motor - Right Rear	An electric DC motor.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Conditions for Running the DTC

Ignition/Vehicle = On

Conditions for Setting the DTC

B316B 00

- Right Front Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s
- Left Rear Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s
- Right Rear Window Switch @ M35D Window Motor Module - Driver = Switch Stuck - For greater than 60 s

B316B 02

- Signal - Down @ M35D Window Motor Module - Driver = Short to Ground - For greater than 60 s
- Signal - Up @ M35D Window Motor Module - Driver = Short to Ground - For greater than 60 s

B316B 39

S79D Window Switch - Driver = Signal Erratic

B317A 02

S79P Window Switch - Passenger = Switch Stuck - For greater than 60 s

B318A 02

S79LR Window Switch - Left Rear = Switch Stuck - For greater than 60 s

B319A 02

S79RR Window Switch - Right Rear = Switch Stuck - For greater than 60 s

Actions Taken When the DTC Sets

Window Switch - Malfunction

Conditions for Clearing the DTC

B316B 00, B316B 02, B317A 02, B318A 02, B319A 02

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

B316B 39

If set as a current DTC - Replace the component: S79D Window Switch - Driver

Reference Information

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. S79D Window Switch - Driver-Driver Left Front Window Switch - Not Pressed

Verify the scan tool parameter:

- Driver Window Main Control Down Switch = Inactive
- Driver Window Main Control Up Switch = Inactive
- Driver Window Main Control Express Switch = Inactive
- **If not the specified state**

Refer to Circuit/System Testing

- **Go to next step: If the specified state**

3. S79D Window Switch - Driver - No Button Pressed

Verify the scan tool parameter:

- Left Rear Window Main Control Down Switch = Inactive
- Left Rear Window Main Control Express Switch = Inactive
- Left Rear Window Main Control Up Switch = Inactive
- Right Rear Window Main Control Down Switch = Inactive
- Right Rear Window Main Control Express Switch = Inactive
- Right Rear Window Main Control Up Switch = Inactive
- Front Passenger Window Main Control Down Switch = Inactive
- Front Passenger Window Main Control Express Switch = Inactive
- Front Passenger Window Main Control Up Switch = Inactive
- **If not the specified state**

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

4. Operate the component: S79D Window Switch - Driver-Driver Left Front Window Switch - Pressed & Pulled

Verify the scan tool parameter:

- Driver Window Main Control Down Switch = Active

- Driver Window Main Control Up Switch = Active
- Driver Window Main Control Express Switch = Active
- **If not the specified state**

Refer to: Circuit/System Testing

- **Go to next step: If the specified state**

5. Operate the component: S79D Window Switch - Driver-Left Rear Window Switch - Pressed & Pulled

Verify the scan tool parameter:

- Left Rear Window Main Control Down Switch = Active
- Left Rear Window Main Control Express Switch = Active
- Left Rear Window Main Control Up Switch = Active
- **If not the specified state**

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

6. Operate the component: S79D Window Switch - Driver-Right Rear Window Switch - Pressed & Pulled

Verify the scan tool parameter:

- Right Rear Window Main Control Down Switch = Active
- Right Rear Window Main Control Express Switch = Active
- Right Rear Window Main Control Up Switch = Active
- **If not the specified state**

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

7. Operate the component: S79D Window Switch - Driver-Right Front Window Switch - Pressed & Pulled

Verify the scan tool parameter:

- Front Passenger Window Main Control Down Switch = Active
- Front Passenger Window Main Control Express Switch = Active
- Front Passenger Window Main Control Up Switch = Active
- **If not the specified state**

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

8. S79P Window Switch - Passenger - Not Pressed

Verify the scan tool parameter: Passenger Window Switch at Door = Inactive

- **If not the specified state**

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

9. Operate the component: S79P Window Switch - Passenger - Pressed & Pulled

Verify the scan tool parameter:

- Passenger Window Switch at Door = Up
- Passenger Window Switch at Door = Down
- Passenger Window Switch at Door = Express Down
- **If not the specified state**

Test or replace the component: S79P Window Switch - Passenger

- **Go to next step: If the specified state**

10. S79LR Window Switch - Left Rear - Not Pressed

Verify the scan tool parameter: Left Rear Window Switch at Door = Inactive

- **If not the specified state**

Test or replace the component: S79LR Window Switch - Left Rear

- **Go to next step: If the specified state**

11. Operate the component: S79LR Window Switch - Left Rear - Pressed & Pulled

Verify the scan tool parameter:

- Left Rear Window Switch at Door = Up
- Left Rear Window Switch at Door = Down
- Left Rear Window Switch at Door = Express Down
- **If not the specified state**

Test or replace the component: S79LR Window Switch - Left Rear

- **Go to next step: If the specified state**

12. S79RR Window Switch - Right Rear - Not Pressed

Verify the scan tool parameter: Right Rear Window Switch at Door = Inactive

- **If not the specified state**

Test or replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the specified state**

13. Operate the component: S79RR Window Switch - Right Rear - Pressed & Pulled

Verify the scan tool parameter:

- Right Rear Window Switch at Door = Up
- Right Rear Window Switch at Door = Down
- Right Rear Window Switch at Door = Express Down
- **If not the specified state**

Test or replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the specified state**

14. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Test for less than 10 Ω between the test points: Ground circuit terminal 24 & Ground
 - **If 10 Ω or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.

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

- **Go to next step: If less than 10 Ω**

4. Ignition - On/Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground

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

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

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

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

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

2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: S79D Window Switch - Driver

- **Go to next step: If the test lamp turns On**

6. Verify the scan tool parameter: Driver Window Main Control Down Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

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

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

7. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 24

Verify the scan tool parameter: Driver Window Main Control Down Switch = Active

- **If not the specified state**

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

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Ignition - On/Vehicle - In Service Mode

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

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

5. Ignition/Vehicle - Off

6. Test for less than 2 Ω between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 7 @ M35D Window Motor Module - Driver

- If 2 Ω or greater - Repair the open/high resistance in the circuit.
- If less than 2 Ω - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

8. Verify the scan tool parameter: Driver Window Main Control Up Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off

2. Disconnect the electrical connector: M35D Window Motor Module - Driver

3. Test for infinite resistance between the test points: Signal circuit terminal 11 @ Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

9. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 11 & Ground circuit terminal 24

Verify the scan tool parameter: Driver Window Main Control Up Switch = Active

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Signal circuit terminal 11 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2 Ω between the test points: Signal circuit terminal 11 @ Component harness & Signal circuit terminal 3 @ M35D Window Motor Module - Driver
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

10. Test for greater than 10 V between the test points: Signal circuit terminal 5 @ Component harness & Ground

- **If 10 V or less**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Test for infinite resistance between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If less than infinite resistance
4. Test for less than 2 Ω between the test points: Signal circuit terminal 5 @ Component harness & Signal circuit terminal 5 @ M35D Window Motor Module - Driver
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If greater than 10 V**

11. Test or replace the component: S79D Window Switch - Driver

Repair Instructions

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

- Refer to [Front Side Door Window Control Switch Replacement \(Equinox\)Front Side Door Window Control Switch Replacement \(Terrain\)](#).
- Refer to [Front Side Door Window Switch Replacement - Right Side \(Equinox\)Front Side Door Window Switch Replacement - Right Side \(Terrain\)](#).
- Refer to [Rear Side Door Window Switch Replacement \(Equinox\)Rear Side Door Window Switch Replacement \(Terrain\)](#).
- Refer to [Front Side Door Window Regulator Motor Replacement](#)
- Refer to [Rear Side Door Window Regulator Motor Replacement](#)

DTC B3205: DRIVER WINDOW MOTOR

Diagnostic Instructions

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

DTC Descriptor

DTC B3205

Symptom Byte Information: [Symptom Byte List](#)**Circuit/System Description**

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

Circuit	Description
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
Ground	Chassis Ground

Component	Description
M35D Window Motor Module - Driver	- Power Window Control - The control module and the DC motor are one assembly.

Conditions for Running the DTC

Ignition - On/Vehicle - In Service Mode

Conditions for Setting the DTC**B3205 00**

M35D Window Motor Module - Driver = Incompatible Hardware or Equipment

B3205 39

M35D Window Motor Module - Driver = Internal Malfunction

B3205 42

Calibration Update = Failed

B3205 4B

- Battery - Disconnected/Replaced
- Front Side Door Wiring Harness - Disconnected
- M35D Window Motor Module - Driver - Disconnected

Actions Taken When the DTC Sets**B3205 00, B3205 39, B3205 42**

M35D Window Motor Module - Driver = Inoperative

B3205 4B

- Window Express Up System Not Initialized
- Driver Information Display = Open, then Close Driver Window

Conditions for Clearing the DTC**B3205 00**

M35D Window Motor Module - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

B3205 39, B3205 42

M35D Window Motor Module - Driver - Replaced - A current DTC can be cleared after the procedure is performed.

B3205 4B

M35D Window Motor Module - Driver - Normalized - A current DTC can be cleared after the procedure is performed.

Reference Information

Schematic Reference

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Perform the scan tool control function: Driver Window Motor - Up & Down

Verify the component works as specified: M35D Window Motor Module - Driver = Up & Down

- **If not the specified state**

Test or replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

3. Perform the scan tool control function: Driver Window Motor - Down
4. Operate the component: S79D Window Switch - Driver - Pulled = Up & Release

Verify the component works as specified: M35D Window Motor Module - Driver = Express Up

- **If not the specified state**

Use the following procedure: **Window Motor Programming - Express Function**

- **Go to next step: If the specified state**

5. Ignition/Vehicle & All vehicle systems - Off - For greater than 2 min
6. Ignition - On/Vehicle - In Service Mode
7. Perform the scan tool control function: Driver Window Motor - Down
8. Operate the component: S79D Window Switch - Driver - Pulled = Up & Release

Verify the component works as specified: M35D Window Motor Module - Driver = Express Up

- **If not the specified state**

Test or replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

9. All OK.

Repair Instructions

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

Refer to [Front Side Door Window Regulator Motor Replacement](#)

SYMPTOMS - FIXED AND MOVEABLE WINDOWS

Important Preliminary Checks Before Starting

1. Perform the [Diagnostic System Check - Vehicle](#) before using the symptom tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The control modules can communicate via the serial data link.
2. Review the power window system operation or rear window defogger system operation in order to familiarize yourself with the system functions. Refer to the following:
 - [Rear Window Defogger Description and Operation](#)
 - [Power Windows Description and Operation](#)

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the rear window defogger. Refer to [Checking Aftermarket Accessories](#) .
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

NOTE:

- **Inspect for proper installation of electrical components if an intermittent condition exists. Inspect for aftermarket theft deterrent devices, lights, and cellular phones. Ensure that no aftermarket equipment is connected to the class 2 circuit. If you can not locate an intermittent condition, a cellular phone signal may cause the condition. Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#) .**
- **The problem may or may not turn ON the SERVICE VEHICLE SOON indicator or store a DTC. Do not use the symptom tables to diagnose intermittent conditions. The malfunction must be present in order to locate the problem.**

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

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

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

Symptom List

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

- [Rear Window Defogger Malfunction](#)
- [Power Windows Malfunction](#)

REAR WINDOW DEFOGGER MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ - Relay Switch	1	1	-	-
Control - Relay Coil	B0283 02	B0283 05	B0283 05	-
Control - E18 Rear Defogger Grid	1	1	2	-
Ground - Relay Coil	-	B0283 05	-	-
Ground - E18 Rear Defogger Grid	-	1	-	-
1. E18 Rear Defogger Grid - Inoperative 2. E18 Rear Defogger Grid - Always On				

Circuit/System Description

For an overview of the component/system, refer to [Rear Window Defogger Description and Operation](#)

Circuit	Description
B+ - Relay Switch	Supplied from a fuse.
E18 Rear Defogger Grid Control - Component	The output circuit is switched to 12 V to activate the component.
Control - Relay Coil	The output circuit is switched to 12 V to activate the component.
E18 Rear Defogger Grid Ground - Component	Chassis Ground
Ground - Relay Coil	Chassis Ground

Component	Description
KR5 Rear Defogger Relay	A relay is a switch that is actuated by a solenoid.
E18 Rear Defogger Grid	Window defoggers are parallel resistive conductors in or on the glass that heat up when electric power is applied.
K33 HVAC Control Module	The control module controls a series of actuators to ensure optimal heating, ventilation and air conditioning of the passenger compartment. The control module does this by reading values from a variety of sensors and interprets the data and adjusts the actuators accordingly.
A26 HVAC Controls	The position of the defogger switch is read by the control module A26 and, via CAN bus, forwarded to the control module K33, which translates the bus message into a control signal for E18.

Reference Information

Schematic Reference

Defogger Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Operate the component: Rear Defogger Switch - Pressed

Verify the scan tool parameter: Rear Defogger Switch = Off & On

- **If not the specified state**

Replace the component: A26 HVAC Controls

- **Go to next step: If the specified state**

3. Perform the scan tool control function: Rear Defogger - On and Off

Verify the component turns On and Off: E18 Rear Defogger Grid

- **If the component does not turn On and Off**

Refer to Circuit/System Testing below

- **Go to next step: If the component turns On and Off**

4. Operate the component: Rear Defogger Switch - Pressed
5. Verify the component turns On and Off: Rear Defogger Indicator

- **If the component does not turn On and Off**

Replace the component: A26 HVAC Controls

- **Go to next step: If the component turns On and Off**

6. All OK.

Circuit/System Testing

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Remove the component: KR5 Rear Defogger Relay
3. Test for less than 10 Ω between the test points: Ground circuit terminal 2 & Ground
 - **If 10 Ω or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 2 & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 Ω**
4. Connect a test lamp between the test points: Control circuit terminal 1 & Ground circuit terminal 2
5. Ignition - On/Vehicle - In Service Mode

6. Perform the scan tool control function: Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: X2 K33 HVAC Control Module
3. Test for infinite resistance between the test points: Control circuit terminal 1 @ Relay Socket & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
4. Test for less than 2 Ω between the test points: Control circuit terminal 1 @ Relay Socket & Terminal 19 X2 @ Control module harness
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Replace the component: K33 HVAC Control Module

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Disconnect the electrical connector: K33 HVAC Control Module
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Control circuit terminal 1 @ Relay Socket & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K33 HVAC Control Module

- **Go to next step: If the test lamp turns On and Off**

7. Verify a test lamp turns On between the test points: B+ circuit terminal 3 & Ground

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Test for less than 2 Ω between the test points: B+ circuit terminal 3 @ Relay Socket & Output terminal @ Fuse
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Verify the fuse is OK and there is voltage at the fuse.

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

1. Ignition/Vehicle - Off & Remove - Test lamp
2. Test for infinite resistance between the test points: B+ circuit terminal 3 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
3. Disconnect the electrical connector: X1 & X2 E18 Rear Defogger Grid
4. Test for infinite resistance between the test points: Control circuit terminal 5 @ Relay Socket & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance
5. Replace the component: Fuse
6. Install the component: KR5 Rear Defogger Relay
7. Connect a test lamp between the test points: Control circuit terminal 1 X1 & Ground circuit terminal 1 X2
8. Ignition - On/Vehicle - In Service Mode
9. Perform the scan tool control function: Rear Defogger - On and Off

Verify the test lamp turns On and Off.

- If the test lamp does not turn On and Off - Test or replace the component: KR5 Rear Defogger Relay
- If the test lamp turns On and Off - Test or replace the component: E18 Rear Defogger Grid

- **Go to next step: If the test lamp turns On**

8. Momentarily connect a 30 A fused jumper wire between the test points: B+ circuit terminal 3 & Control circuit terminal 5

Verify the component does not turn On and Off when connecting and disconnecting the jumper wire: E18 Rear Defogger Grid

- **If the component turns On and Off**

Test or replace the component: KR5 Rear Defogger Relay

- **Go to next step: If the component does not turn On and Off**

9. Ignition/Vehicle & All vehicle systems - Off
10. Install the component: KR5 Rear Defogger Relay
11. Disconnect the electrical connector: X1 & X2 E18 Rear Defogger Grid
12. Test for less than 10 Ω between the test points: Ground circuit terminal 1 X2 & Ground
 - **If 10 Ω or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 Ω between the test points: Ground circuit terminal 1 X2 @ Component harness & Ground Connection
 - If 2 Ω or greater - Repair the open/high resistance in the circuit.
 - If less than 2 Ω - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 Ω**
13. Connect a test lamp between the test points: Control circuit terminal 1 X1 & Ground circuit terminal 1 X2
14. Ignition - On/Vehicle - In Service Mode
15. Perform the scan tool control function: Rear Defogger - On and Off

Verify the test lamp turns On and Off.

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

Repair the open/high resistance in the circuit: Control circuit

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

Repair the short to voltage on the circuit: Control circuit

- **Go to next step: If the test lamp turns On and Off**

16. Test or replace the component: E18 Rear Defogger Grid

Component Testing

Relay Test

1. Ignition/Vehicle - Off
2. Remove the component: KR5 Rear Defogger Relay
3. Test for 70 to 110 Ω between the test points: Component terminal 1 & Component terminal 2
 - **If not between 70 to 110 Ω**

Replace the component: KR5 Rear Defogger Relay
 - **Go to next step: If between 70 to 110 Ω**
4. Test for infinite resistance between the test points:
 - Component terminal 3 & 1
 - Component terminal 3 & 5
 - Component terminal 3 & 2
 - Component terminal 2 & 5
 - **If less than infinite resistance**

Replace the component: KR5 Rear Defogger Relay
 - **Go to next step: If infinite resistance**
5. Connect a 3 A fused jumper wire between the test points: Component terminal 2 & 12 V

Connect a jumper wire between the test points: Component terminal 1 & Ground

6. Test for less than 2 Ω between the test points: Component terminal 3 & Component terminal 5

- **If 2 Ω or greater**

Replace the component: KR5 Rear Defogger Relay

- **Go to next step: If less than 2 Ω**

7. All OK.

Repair Instructions

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

- Refer to [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)
- Refer to [Rear Window Replacement \(Equinox\)](#) [Rear Window Replacement \(Terrain\)](#)
- For control module replacement, programming and setup, refer to [Control Module References](#)

POWER WINDOWS MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
B+ - S79D Window Switch - Driver	U1538 00	U1538 00	-	-
B+ - M35D Window Motor Module - Driver	U1534 00	U1534 00	-	-
B+ - S79P Window Switch - Passenger	U153A 00	U153A 00	-	-
B+ - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U154A 00	-	-
B+ - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	-	-
Serial Data - S79D Window Switch - Driver	U1534 00, U1538 00, U153A 00	U1538 00	U1538 00	-
Serial Data - M35D Window Motor Module - Driver	U1534 00, U1538 00, U153A 00	U1534 00	U1534 00	-
Serial Data - S79P Window Switch - Passenger	U1534 00, U1538 00, U153A 00	U153A 00	U153A 00	-
Serial Data - S79LR Window Switch - Left Rear	U1534 00, U154A 00	U1534 00	U1534 00	-
Serial Data - S79RR Window Switch - Right Rear	U1534 00, U154A 00	U154A 00	U154A 00	-
Signal - Down @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39
Signal - Express @ M35D Window Motor Module - Driver	1	1	1	B316B 39
Signal - Up @ M35D Window Motor Module - Driver	B316B 02	1	1	B316B 39

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control - M74P Window Motor - Passenger	2	2	2	-
Control - M74LR Window Motor - Left Rear	3	3	3	-
Control - M74RR Window Motor - Right Rear	4	4	4	-
Ground - S79D Window Switch - Driver	-	U1538 00	-	-
Ground - M35D Window Motor Module - Driver	-	U1534 00	-	-
Ground - S79P Window Switch - Passenger	-	U153A 00	-	-
Ground - S79LR Window Switch - Left Rear	-	U1534 00	-	-
Ground - S79RR Window Switch - Right Rear	-	U154A 00	-	-
1. M35D Window Motor Module - Driver = Inoperative 2. M74P Window Motor - Passenger = Inoperative 3. M74LR Window Motor - Left Rear = Inoperative 4. M74RR Window Motor - Right Rear = Inoperative				

Circuit/System Description

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

Circuit	Description
B+ - M35D Window Motor Module - Driver	Supplied from a fuse.
B+ - S79P Window Switch - Passenger	Supplied from a fuse.
B+ - S79LR Window Switch - Left Rear	Supplied from a fuse.
B+ - S79RR Window Switch - Right Rear	Supplied from a fuse.
Signal - Down @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Up @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Signal - Express @ M35D Window Motor Module - Driver	The output circuit is switched to ground to activate the component.
Control - Up @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74P Window Motor - Passenger	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74LR Window Motor - Left Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Up @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Control - Down @ M74RR Window Motor - Right Rear	The output circuit is switched from ground to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
S79D Window Switch - Driver	The S79D sends a serial data message to the K9 indicating the M74 function that has been requested.

Component	Description
M35D Window Motor Module - Driver	- Power Window Control - The control module and the DC motor are one assembly.
S79P Window Switch - Passenger	The switch has a normally open contact.
M74P Window Motor - Passenger	An electric DC motor.
S79LR Window Switch - Left Rear	The switch has a normally open contact.
M74LR Window Motor - Left Rear	An electric DC motor.
S79RR Window Switch - Right Rear	The switch has a normally open contact.
M74RR Window Motor - Right Rear	An electric DC motor.
K9 Body Control Module	The module controls various vehicle functions like lighting, central door locking, power windows, etc.

Reference Information

Schematic Reference

Moveable Window Wiring Schematics

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX

Component View Reference

Door Component Views

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Left Rear Window Switch @ S79D Window Switch - Driver - Pressed & Pulled

Verify the scan tool parameter:

- Left Rear Window Main Control Down Switch = Inactive & Active
- Left Rear Window Main Control Express Switch = Inactive & Active
- Left Rear Window Main Control Up Switch = Inactive & Active
- **If not the specified state**

Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

3. Operate the component: Right Rear Window Switch @ S79D Window Switch - Driver - Pressed & Pulled

Verify the scan tool parameter:

- Right Rear Window Main Control Down Switch = Inactive & Active
- Right Rear Window Main Control Express Switch = Inactive & Active
- Right Rear Window Main Control Up Switch = Inactive & Active

- **If not the specified state**

Replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

4. Operate the component: Right Front Window Switch @ S79D Window Switch - Driver - Pressed & Pulled

Verify the scan tool parameter:

- Front Passenger Window Main Control Down Switch = Inactive & Active
- Front Passenger Window Main Control Express Switch = Inactive & Active
- Front Passenger Window Main Control Up Switch = Inactive & Active
- **If not the specified state**

Test or replace the component: S79D Window Switch - Driver

- **Go to next step: If the specified state**

5. Verify DTC B3205 4B is not set.

- **If DTC B3205 4B is set**

Use the following procedure: Window Motor Programming - Express Function

- **Go to next step: If the DTC is not set**

6. Operate the component: Driver Left Front Window Switch @ S79D Window Switch - Driver - Pressed & Pulled

Verify the component works as specified:

- M35D Window Motor Module - Driver = Up
- M35D Window Motor Module - Driver = Express Up
- M35D Window Motor Module - Driver = Down
- M35D Window Motor Module - Driver = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 1

- **Go to next step: If the component works as specified**

7. Operate the component: S79P Window Switch - Passenger - Pressed & Pulled

Verify the component works as specified:

- M74P Window Motor - Passenger = Up
- M74P Window Motor - Passenger = Down
- M74P Window Motor - Passenger = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 2

- **Go to next step: If the component works as specified**

8. Operate the component: S79LR Window Switch - Left Rear - Pressed & Pulled

Verify the component works as specified:

- M74LR Window Motor - Left Rear = Up
- M74LR Window Motor - Left Rear = Down
- M74LR Window Motor - Left Rear = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 3

- **Go to next step: If the component works as specified**

9. Operate the component: S79RR Window Switch - Right Rear - Pressed & Pulled

Verify the component works as specified:

- M74RR Window Motor - Right Rear = Up
- M74RR Window Motor - Right Rear = Down
- M74RR Window Motor - Right Rear = Express Down
- **If the component does not work as specified**

Refer to: Circuit/System Testing - Test 4

- **Go to next step: If the component works as specified**

10. All OK.

Circuit/System Testing

Test 1

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: S79D Window Switch - Driver
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79D Window Switch - Driver
 - **Go to next step: If the test lamp turns On**
6. Verify the scan tool parameter: Driver Window Main Control Down Switch = Inactive
 - **If not the specified state**
 1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: M35D Window Motor Module - Driver
 3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: M35D Window Motor Module - Driver
 - **Go to next step: If the specified state**
7. When in the following mode/position: M35D Window Motor Module - Driver = Up

8. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 1 & Ground circuit terminal 24

Verify the function: M35D Window Motor Module - Driver = Down

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2 ohms between the test points: Signal circuit terminal 1 @ Component harness & Signal circuit terminal 7 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

9. Verify the scan tool parameter: Driver Window Main Control Up Switch = Inactive

- **If not the specified state**

1. Ignition/Vehicle - Off
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Test for infinite resistance between the test points: Signal circuit terminal 11 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

10. When in the following mode/position: M35D Window Motor Module - Driver = Down
11. Momentarily connect a 3 A fused jumper wire between the test points: Signal circuit terminal 11 & Ground circuit terminal 24

Verify the function: M35D Window Motor Module - Driver = Up

- **If not the specified state**

1. Ignition/Vehicle - Off & Remove - Jumper wire(s)
2. Disconnect the electrical connector: M35D Window Motor Module - Driver
3. Ignition - On/Vehicle - In Service Mode
4. Test for less than 1 V between the test points: Signal circuit terminal 11 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V
5. Ignition/Vehicle - Off
6. Test for less than 2 ohms between the test points: Signal circuit terminal 11 @ Component harness & Signal circuit terminal 3 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver

- **Go to next step: If the specified state**

12. Test for greater than 10 V between the test points: Signal circuit terminal 5 @ Component harness & Ground
 - **If 10 V or less**
 1. Ignition/Vehicle - Off
 2. Disconnect the electrical connector: M35D Window Motor Module - Driver
 3. Test for infinite resistance between the test points: Signal circuit terminal 5 @ Component harness & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
 - If less than infinite resistance
4. Test for less than 2 ohms between the test points: Signal circuit terminal 5 @ Component harness & Signal circuit terminal 5 @ M35D Window Motor Module - Driver
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: M35D Window Motor Module - Driver
 - **Go to next step: If greater than 10 V**
 13. Test or replace the component: S79D Window Switch - Driver

Test 2

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

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the appropriate electrical connector: S79P Window Switch - Passenger
3. Test for less than 10 ohms between the test points: Ground circuit terminal 24 & Ground
 - **If 10 ohms or greater**
 1. Disconnect Ground Connection
 2. Test for less than 2 ohms between the test points: Ground circuit terminal 24 @ Component harness & Ground Connection
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Verify a test lamp turns On between the test points: B+ circuit terminal 23 & Ground
 - **If the test lamp does not turn On and the circuit fuse is OK**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not turn On and the circuit fuse is open**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Test for infinite resistance between the test points: B+ circuit terminal 23 & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: S79 Window Switch - Passenger
 - **Go to next step: If the test lamp turns On**
6. Ignition/Vehicle - Off
7. Connect the electrical connector: S79 Window Switch - Passenger
8. Disconnect the electrical connector: M74 Window Motor - Passenger
9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Perform the scan tool control function: Passenger Window Motor

Verify the test lamp state:

Passenger Window Motor - Stop = Test lamp Off

Passenger Window Motor - Up = Test lamp On

Passenger Window Motor - Down = Test lamp On

- **If not the specified state**
 1. Ignition/Vehicle - Off & Remove - Test lamp
 2. Disconnect the electrical connector: S79 Window Switch - Passenger

3. Ignition - On/Vehicle - In Service Mode

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

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points:

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 11 @ S79P Window Switch - Passenger
- Control circuit terminal 2 @ Component harness & Control circuit terminal 1 @ S79P Window Switch - Passenger
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79 Window Switch - Passenger

• **Go to next step: If the specified state**

12. Test or replace the component: M74 Window Motor - Passenger

Test 3

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

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: S79LR Window Switch - Left Rear

3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground

• **If 10 ohms or greater**

1. Disconnect Ground Connection

2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection

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

• **Go to next step: If less than 10 ohms**

4. Ignition - On/Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground

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

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

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

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

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

2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: S79LR Window Switch - Left Rear

• **Go to next step: If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector: S79LR Window Switch - Left Rear

8. Disconnect the electrical connector: M74LR Window Motor - Left Rear

9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2

10. Ignition - On/Vehicle - In Service Mode

11. Perform the scan tool control function: Left Rear Window Motor

Verify the test lamp state:

Left Rear Window Motor - Stop = Test lamp Off

Left Rear Window Motor - Up = Test lamp On

Left Rear Window Motor - Down = Test lamp On

- **If not the specified state**

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

2. Disconnect the electrical connector: S79LR Window Switch - Left Rear

3. Ignition - On/Vehicle - In Service Mode

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

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points:

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79LR Window Switch - Left Rear
- Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79LR Window Switch - Left Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79LR Window Switch - Left Rear

- **Go to next step: If the specified state**

12. Test or replace the component: M74LR Window Motor - Left Rear

Test 4

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

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: S79RR Window Switch - Right Rear

3. Test for less than 10 ohms between the test points: Ground circuit terminal 7 & Ground

- **If 10 ohms or greater**

1. Disconnect Ground Connection

2. Test for less than 2 ohms between the test points: Ground circuit terminal 7 @ Component harness & Ground Connection

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

- **Go to next step: If less than 10 ohms**

4. Ignition - On/Vehicle - In Service Mode

5. Verify a test lamp turns On between the test points: B+ circuit terminal 8 & Ground

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

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

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

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

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

2. Test for infinite resistance between the test points: B+ circuit terminal 8 & Ground

- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the test lamp turns On**

6. Ignition/Vehicle - Off

7. Connect the electrical connector: S79RR Window Switch - Right Rear

8. Disconnect the electrical connector: M74RR Window Motor - Right Rear

9. Connect a test lamp between the test points: Control circuit terminal 1 & Control circuit terminal 2

10. Ignition - On/Vehicle - In Service Mode

11. Perform the scan tool control function: Right Rear Window Motor

Verify the test lamp state:

Right Rear Window Motor - Stop = Test lamp Off

Right Rear Window Motor - Up = Test lamp On

Right Rear Window Motor - Down = Test lamp On

- **If not the specified state**

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

2. Disconnect the electrical connector: S79RR Window Switch - Right Rear

3. Ignition - On/Vehicle - In Service Mode

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

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If 1 V or greater - Repair the short to voltage on the circuit.
- If less than 1 V

5. Ignition/Vehicle - Off

6. Test for infinite resistance between the test points:

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance

7. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & Control circuit terminal 9 @ S79RR Window Switch - Right Rear
- Control circuit terminal 2 @ Component harness & Control circuit terminal 10 @ S79RR Window Switch - Right Rear
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: S79RR Window Switch - Right Rear

- **Go to next step: If the specified state**

12. Test or replace the component: M74RR Window Motor - Right Rear

Component Testing

M74P Window Motor - Passenger/M74LR Window Motor - Left Rear/M74RR Window Motor - Right Rear

1. Ignition/Vehicle - Off

2. Disconnect the appropriate electrical connector:

- M74P Window Motor - Passenger
- M74LR Window Motor - Left Rear
- M74RR Window Motor - Right Rear

3. Connect a 25 A fused jumper wire between the test points: Control terminal 1 & B+

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

4. Momentarily connect a jumper wire between the test points: Control terminal 2 & Ground

Reverse the jumper wires 2 times between the terminals.

Verify the component works as specified: M74 Window Motor = Up & Down

- **If not the specified state**

Replace the component:

- M74P Window Motor - Passenger
- M74LR Window Motor - Left Rear
- M74RR Window Motor - Right Rear
- **Go to next step: If the specified state**

5. All OK.

Repair Instructions

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

- Refer to [Front Side Door Window Control Switch Replacement \(Equinox\)](#)[Front Side Door Window Control Switch Replacement \(Terrain\)](#).
- Refer to [Front Side Door Window Switch Replacement - Right Side \(Equinox\)](#)[Front Side Door Window Switch Replacement - Right Side \(Terrain\)](#).
- Refer to [Rear Side Door Window Switch Replacement \(Equinox\)](#)[Rear Side Door Window Switch Replacement \(Terrain\)](#).
- Refer to [Front Side Door Window Regulator Motor Replacement](#)
- Refer to [Rear Side Door Window Regulator Motor Replacement](#)

SIDE DOOR WINDOW MECHANICAL DIAGNOSIS

Cause	Correction
DEFINITION: A mechanical condition that requires a correction for proper operation of the side door window. Refer to Symptoms - Fixed and Moveable Windows prior to beginning this table.	
Intermittent Operation	Check proper glass alignment/attachment and door seal installation.
	Check switch and switch bezel to see if sticking.
	Check wire harness for pinched/shorted wire.
	THIS STEP APPLIES TO ALL TWO PIN MOTOR CONNECTORS ONLY. Perform electrical diagnostics, by first applying 12 volt power supply to the regulator motor to verify motor function.
Glass Binds	Check proper glass alignment/attachment.
	Check for defective seal and/or proper seal installation.
	Check for debris in glass run channel.
	Check for glass run channel position.
Regulator/Glass Rattles	Check for loose fasteners and retorque if required.
	Check that the glass is in the channel and reinstall if not positioned correctly.
Noisy Operation	Check for other components in the glass path such as wire harness, impact foam, lock rods, or cables.

Cause	Correction
	Check for proper glass alignment/attachment and door seal installation.
Windnoise	Check seals, mirror patch, and glass alignment.
False glass reversal, the glass goes down unexpectedly.	Check seals, reinitialize the glass and/or realign the glass.
	Check for debris in the glass run channel.

REPAIR INSTRUCTIONS

WINDSHIELD REPLACEMENT (EQUINOX)

Special Tools

- **BO-24402-A** Glass Sealant Remover (Cold Knife).
- **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Equivalent regional tools: [Special Tools](#)

Removal Procedure

NOTE: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the hood.
2. Remove Windshield Wiper Arm. Refer to [Windshield Wiper Arm Replacement](#)
3. Remove Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)
4. Remove Inside Rearview Mirror. Refer to [Inside Rearview Mirror Replacement](#)
5. Remove Inside Air Moisture and Windshield Temperature Sensor. Refer to [Inside Air Moisture and Windshield Temperature Sensor Replacement](#)

WARNING: If broken glass falls into the defroster outlets, it can be blown into the passenger compartment and cause personal injury.

6. Cover to protect the following parts from broken glass:
 - Upper Dash Pad
 - The defroster outlets and A/C outlets
 - The seats and carpeting
7. Remove the lower windshield supports from the cowl panel, if equipped.

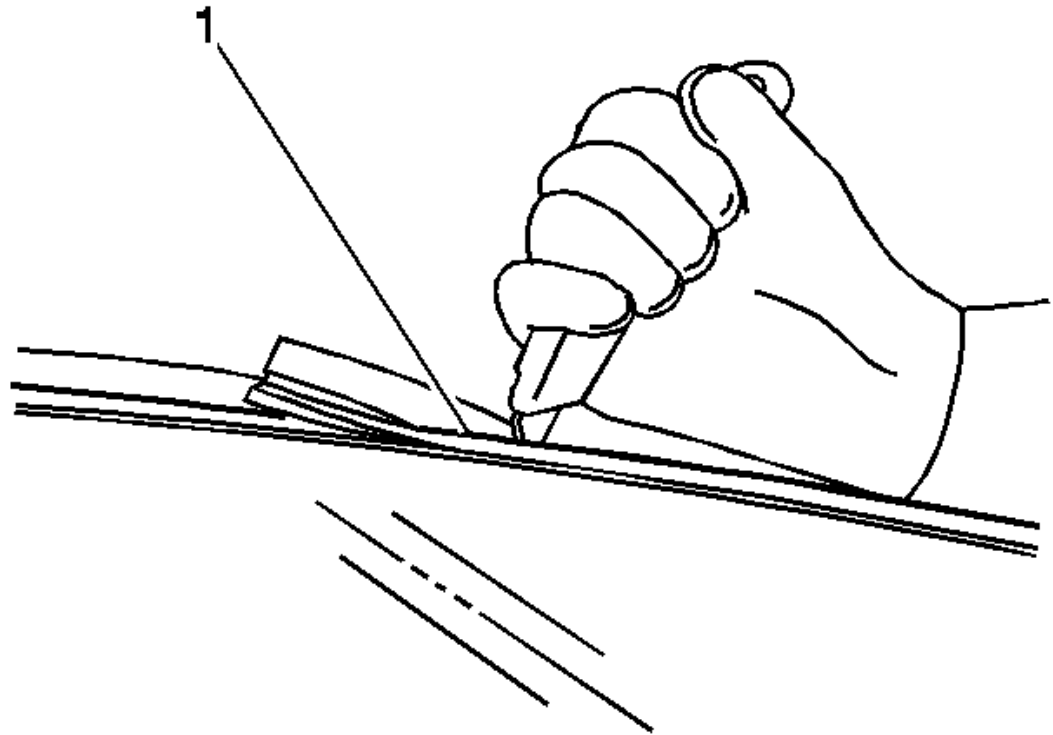


Fig. 4: Cutting Window Lace Molding

Courtesy of GENERAL MOTORS COMPANY

WARNING:

When working with any type of glass or sheet metal with exposed or rough edges, wear approved safety glasses and gloves in order to reduce the chance of personal injury.

8. Using the appropriate tool, carefully cut around the lace (1), start in the center working from side to side of the window to access the urethane adhesive bead, if equipped.

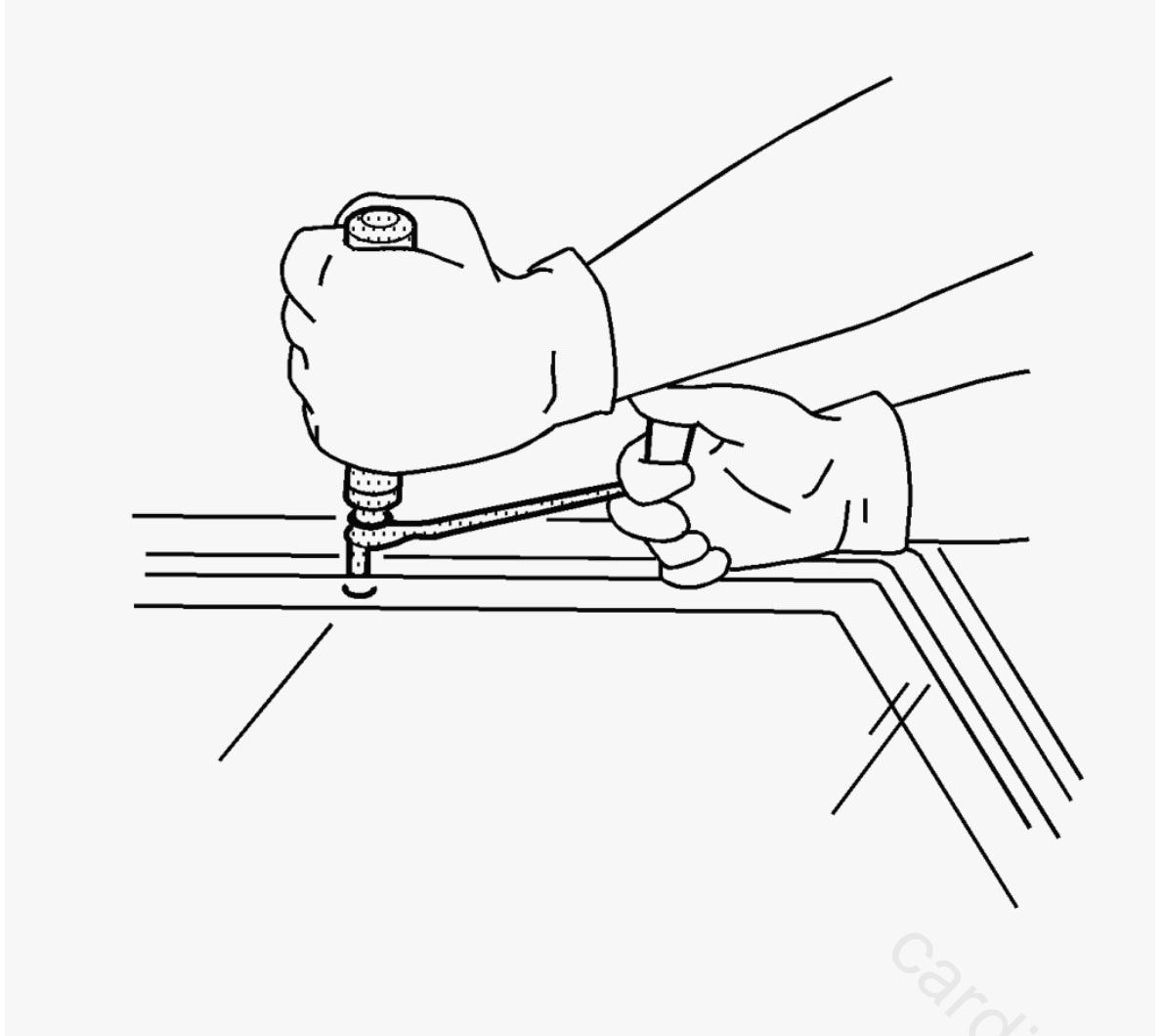


Fig. 5: Separating Urethane Adhesive From Window
 Courtesy of GENERAL MOTORS COMPANY

NOTE: Keep the cutting edge of the tool against the window.

9. This will allow the urethane adhesive to be separated from the windshield.
 - Leave a base of urethane on the pinchweld flange.
 - The only suitable lubrication is clear water.
 - **BO-24402-A** Glass Sealant Remover (Cold Knife).
 - **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.



10. With the aid of an assistant, remove the windshield (1) and locating pin (2) from the vehicle.

Installation Procedure

1. Install Windshield. Refer to [Adhesive Installation of Windshields](#)
2. Install Inside Air Moisture and Windshield Temperature Sensor. Refer to [Inside Air Moisture and Windshield Temperature Sensor Replacement](#)
3. Install Inside Rearview Mirror. Refer to [Inside Rearview Mirror Replacement](#)
4. Install Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)
5. Install Windshield Wiper Arm. Refer to [Windshield Wiper Arm Replacement](#)
6. Close the hood.
7. Remove the double layer of masking tape around the perimeter of the painted surfaces.

WINDSHIELD REPLACEMENT (TERRAIN)

Special Tools

- **BO-24402-A** Glass Sealant Remover (Cold Knife).
- **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Equivalent regional tools: [Special Tools](#)

Removal Procedure

NOTE: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the hood.
2. Remove Windshield Wiper Arm. Refer to [Windshield Wiper Arm Replacement](#)
3. Remove Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)
4. Remove Inside Rearview Mirror. Refer to [Inside Rearview Mirror Replacement](#)
5. Remove Inside Air Moisture and Windshield Temperature Sensor. Refer to [Inside Air Moisture and Windshield Temperature Sensor Replacement](#)

WARNING: If broken glass falls into the defroster outlets, it can be blown into the passenger compartment and cause personal injury.

6. Cover to protect the following parts from broken glass:
 - Upper Dash Pad
 - The defroster outlets and A/C outlets
 - The seats and carpeting
7. Remove the lower windshield supports from the cowl panel, if equipped.

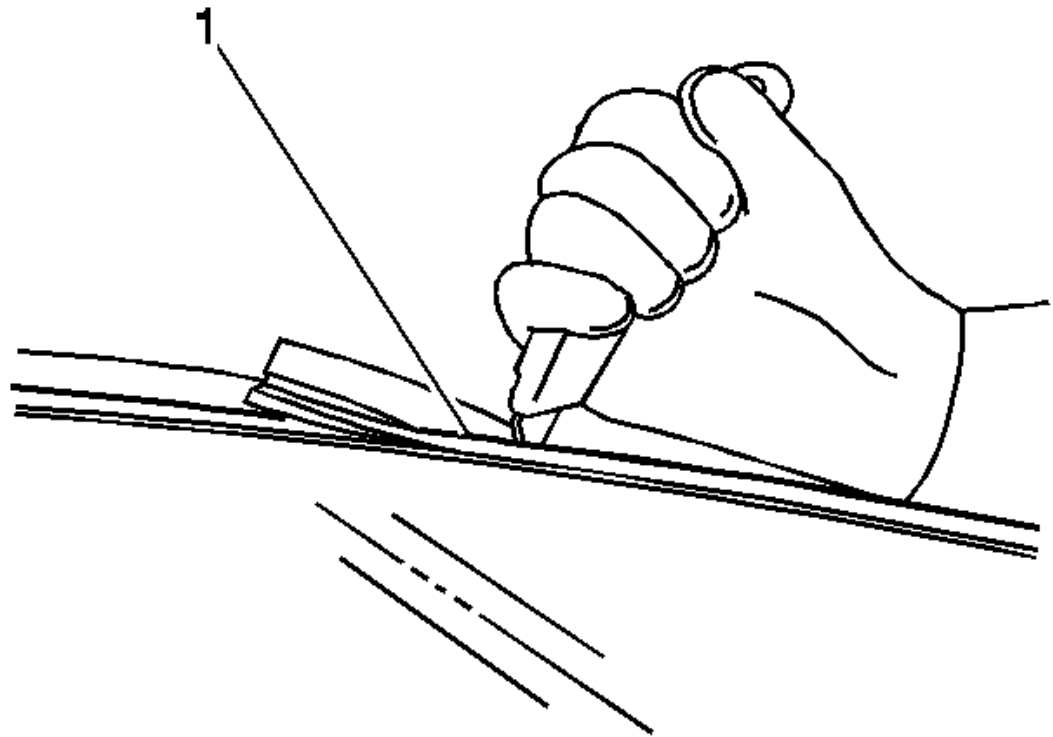


Fig. 7: Cutting Window Lace Molding

Courtesy of GENERAL MOTORS COMPANY

WARNING: When working with any type of glass or sheet metal with exposed or rough edges, wear approved safety glasses and gloves in order to reduce the chance of personal injury.

8. Using the appropriate tool, carefully cut around the lace (1), start in the center working from side to side of the window to access the urethane adhesive bead, if equipped.

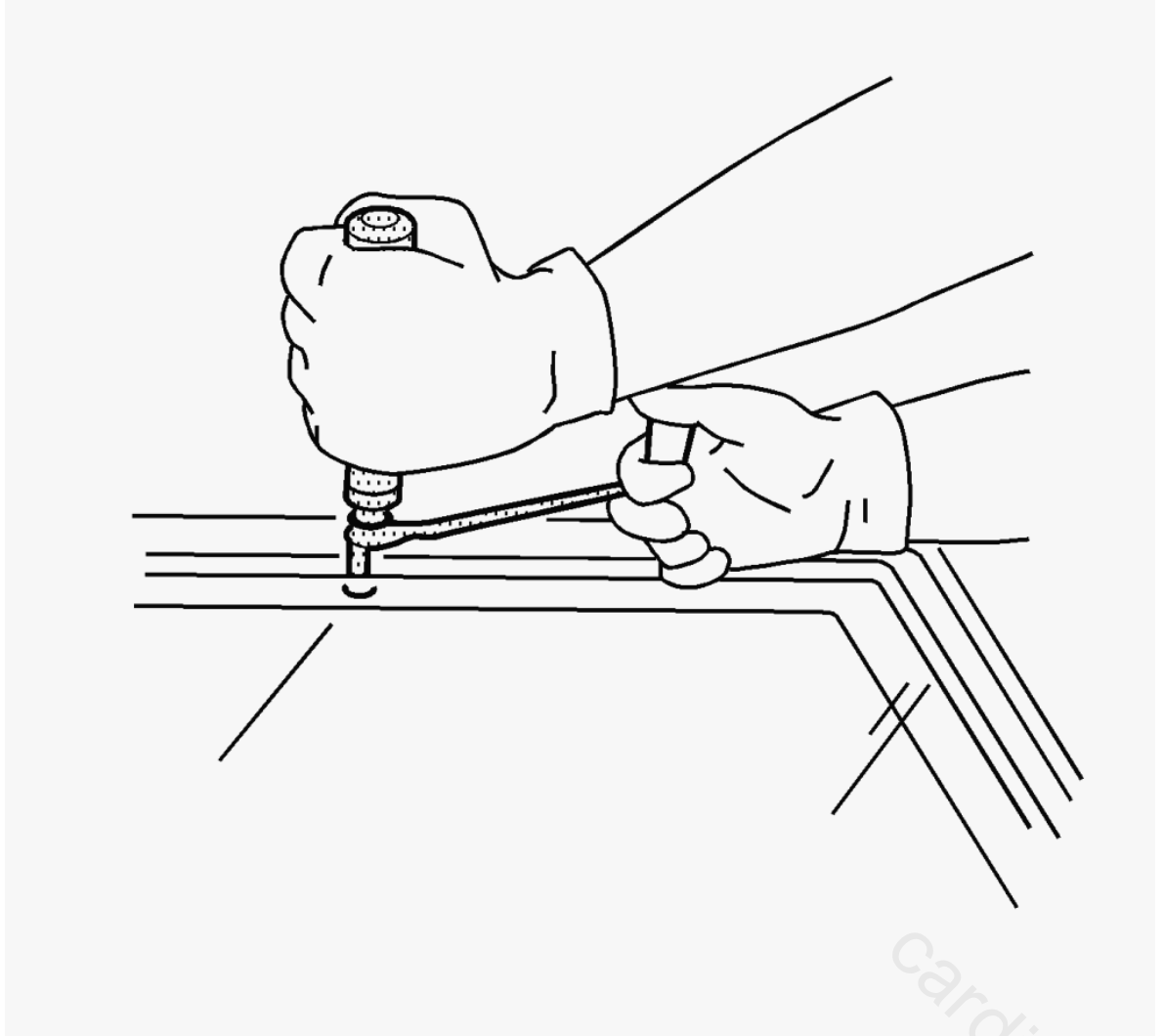
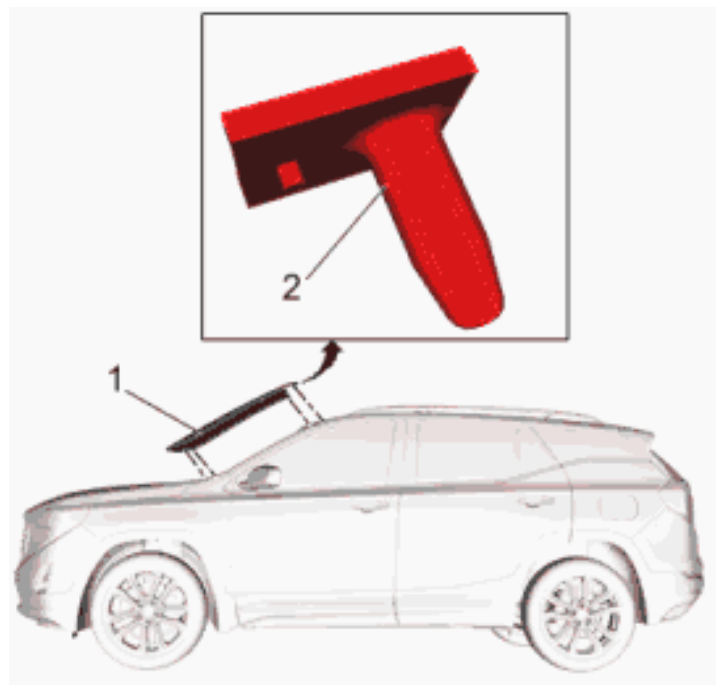


Fig. 8: Separating Urethane Adhesive From Window
 Courtesy of GENERAL MOTORS COMPANY

NOTE: Keep the cutting edge of the tool against the window.

9. This will allow the urethane adhesive to be separated from the windshield.
- Leave a base of urethane on the pinchweld flange.
 - The only suitable lubrication is clear water.
 - **BO-24402-A** Glass Sealant Remover (Cold Knife).
 - **BO-39032** Stationary Glass Removal Tool, or equivalent in order to remove the window.



10. With the aid of an assistant, remove the windshield (1) and locating pin (2) from the vehicle.

Installation Procedure

1. Install Windshield. Refer to [Adhesive Installation of Windshields](#)
2. Install Inside Air Moisture and Windshield Temperature Sensor. Refer to [Inside Air Moisture and Windshield Temperature Sensor Replacement](#)
3. Install Inside Rearview Mirror. Refer to [Inside Rearview Mirror Replacement](#)
4. Install Air Inlet Grille Panel. Refer to [Air Inlet Grille Panel Replacement](#)
5. Install Windshield Wiper Arm. Refer to [Windshield Wiper Arm Replacement](#)
6. Close the hood.
7. Remove the double layer of masking tape around the perimeter of the painted surfaces.

FRONT SIDE DOOR WINDOW REPLACEMENT

Removal Procedure

1. Remove Front Side Door Water Deflector. Refer to [Front Side Door Water Deflector Replacement \(Equinox\)](#) [Front Side Door Water Deflector Replacement \(Terrain\)](#)
2. Remove Front Side Door Window Garnish Molding. Refer to [Front Side Door Window Garnish Molding Replacement \(Equinox\)](#) [Front Side Door Window Garnish Molding Replacement \(Terrain\)](#)

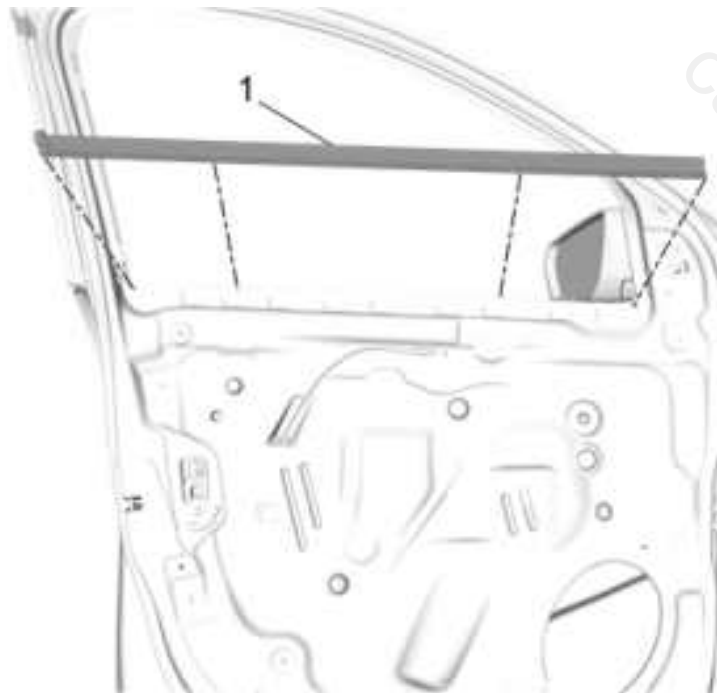


Fig. 10: Front Side Door Window Inner Sealing Strip
Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Side Door Window Inner Sealing Strip (1). Refer to [Front Side Door Window Inner Sealing Strip Replacement](#)



Fig. 11: Front Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

4. Remove Front Side Door Window Belt Reveal Molding (1). Refer to [**Front Side Door Window Belt Reveal Molding Replacement**](#)

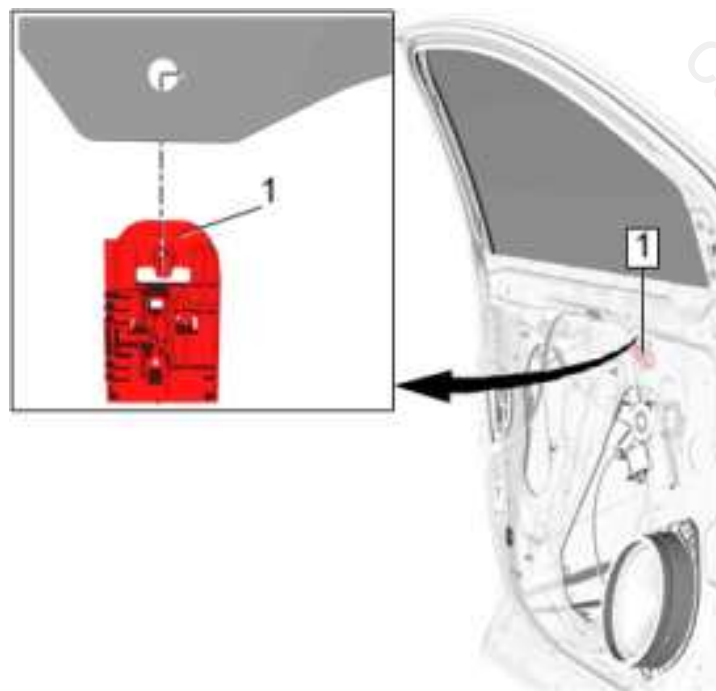


Fig. 12: Front Side Door Window Regulator Sash Retainers
Courtesy of GENERAL MOTORS COMPANY

5. Release Front Side Door Window Regulator Sash Retainers (1) (Qty: 2)
6. Place the window in the full up position and tape in place.
7. Place the window regulator in the full down position.

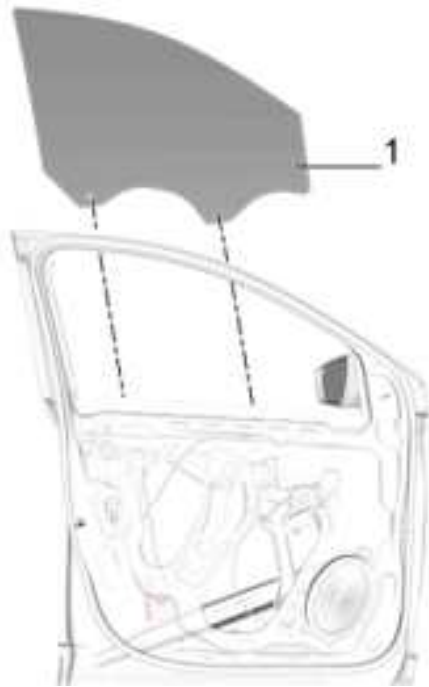


Fig. 13: Front Side Door Window

Courtesy of GENERAL MOTORS COMPANY

8. Remove the masking tape holding the window (1) and lower the window downward while lifting up on the rear to remove the front side door window from the door frame.

Installation Procedure

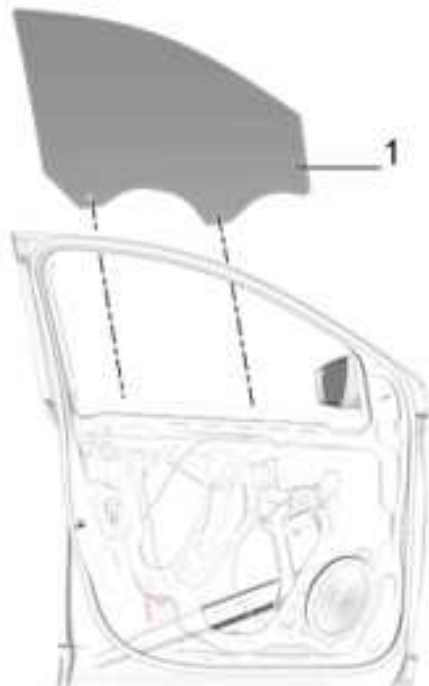


Fig. 14: Front Side Door Window

Courtesy of GENERAL MOTORS COMPANY

1. Place the front side door window (1) into the door frame.
2. Place the window in the full up position and tape in place. (1)

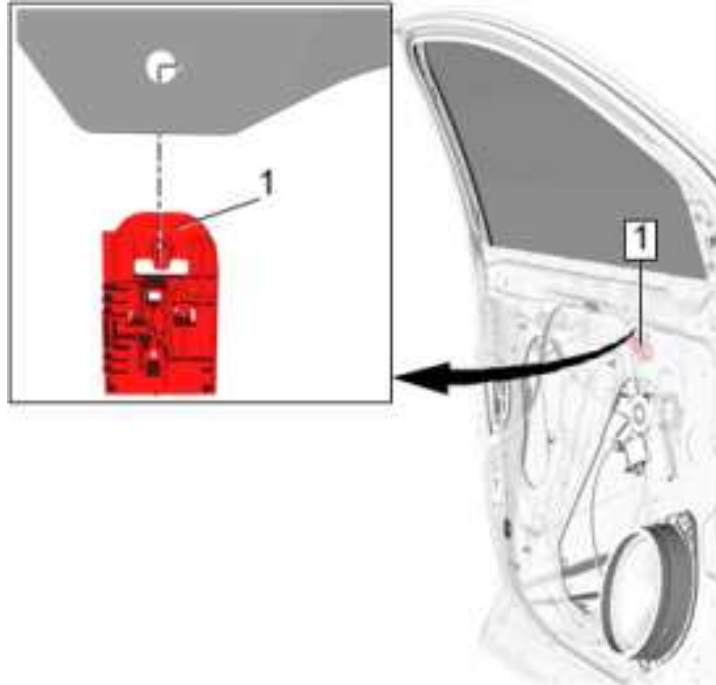


Fig. 15: Front Side Door Window Regulator Sash Retainers
Courtesy of GENERAL MOTORS COMPANY

3. Place the window regulator in the full up position.
4. Remove the tape holding the front side door window in the full up position.
5. Install Front Side Door Window @ Front Side Door Window Regulator Sash Retainers (1) (Qty: 2)

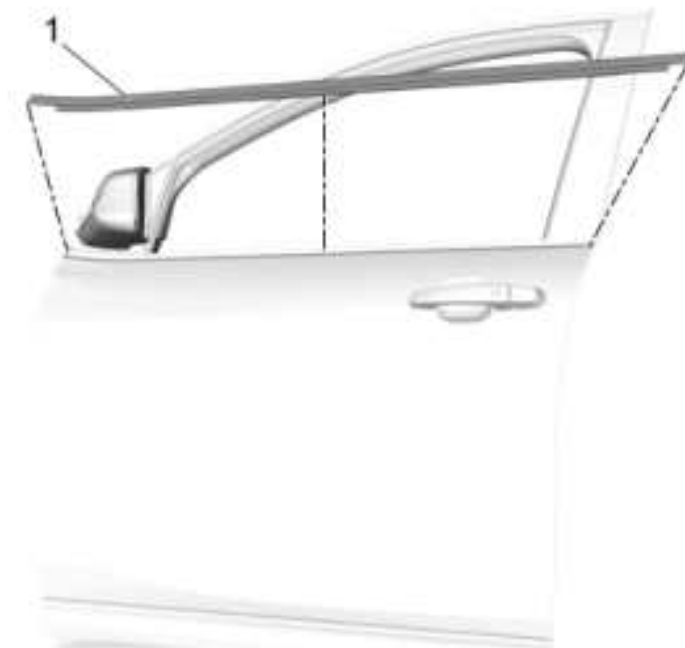


Fig. 16: Front Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

6. Install Front Side Door Window Belt Reveal Molding (1). Refer to [**Front Side Door Window Belt Reveal Molding Replacement**](#)

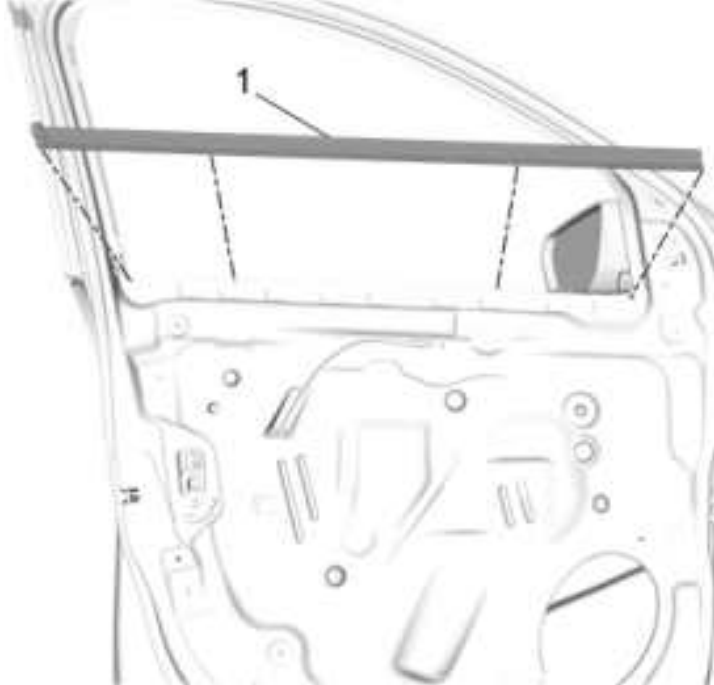


Fig. 17: Front Side Door Window Inner Sealing Strip

Courtesy of GENERAL MOTORS COMPANY

7. Install Front Side Door Window Inner Sealing Strip (1). Refer to [Front Side Door Window Inner Sealing Strip Replacement](#)
8. Install Front Side Door Window Garnish Molding. Refer to [Front Side Door Window Garnish Molding Replacement \(Equinox\)](#) [Front Side Door Window Garnish Molding Replacement \(Terrain\)](#).
9. Install Front Side Door Water Deflector. Refer to [Front Side Door Water Deflector Replacement \(Equinox\)](#) [Front Side Door Water Deflector Replacement \(Terrain\)](#).
10. Ensure the window system operates properly.

REAR SIDE DOOR WINDOW REPLACEMENT (EQUINOX)

Removal Procedure

1. Remove Rear Side Door Water Deflector. Refer to [Rear Side Door Water Deflector Replacement \(Equinox\)](#)
2. Remove Rear Side Door Window Garnish Molding. Refer to [Rear Side Door Window Garnish Molding Replacement \(Equinox\)](#)

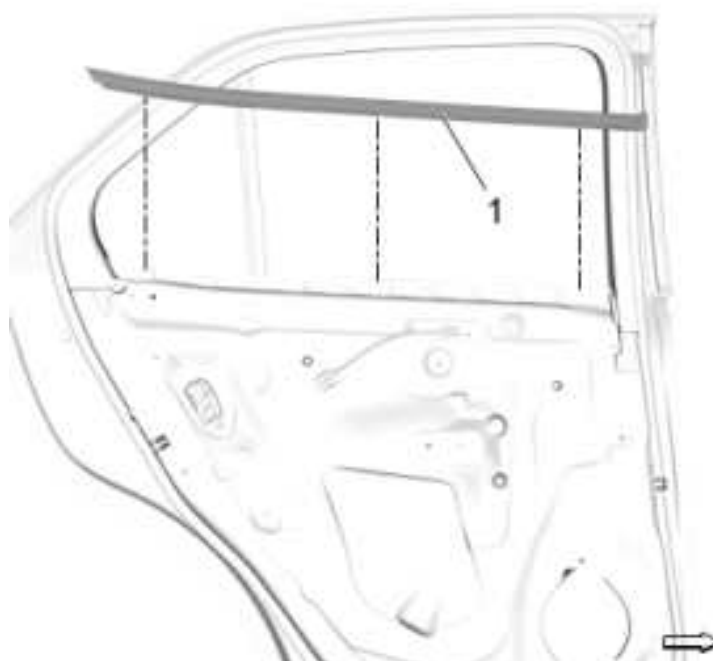


Fig. 18: Rear Side Door Window Inner Sealing Strip

Courtesy of GENERAL MOTORS COMPANY

3. Remove Rear Side Door Window Inner Sealing Strip (1). Refer to [Rear Side Door Window Inner Sealing Strip Replacement \(Equinox\)](#).

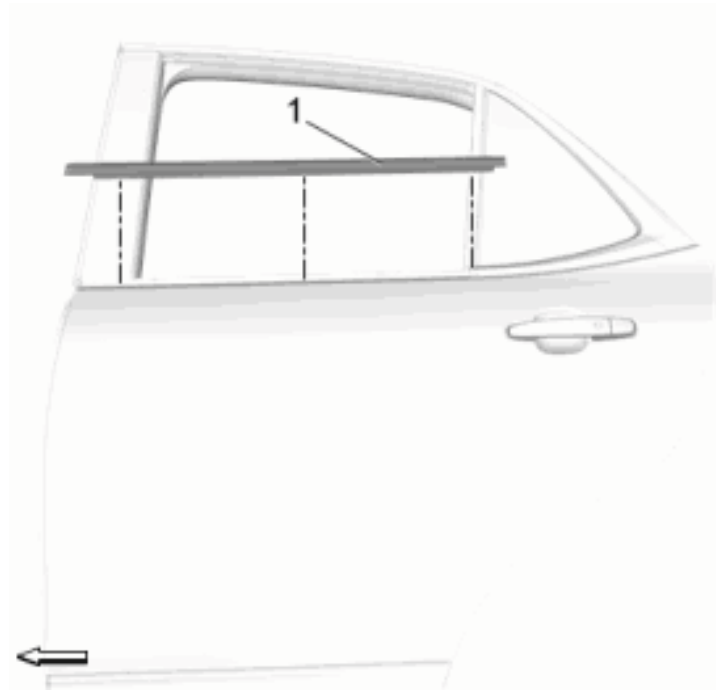


Fig. 19: Rear Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

4. Remove Rear Side Door Window Belt Reveal Molding (1). Refer to [Rear Side Door Window Belt Reveal Molding Replacement \(Equinox\)](#).

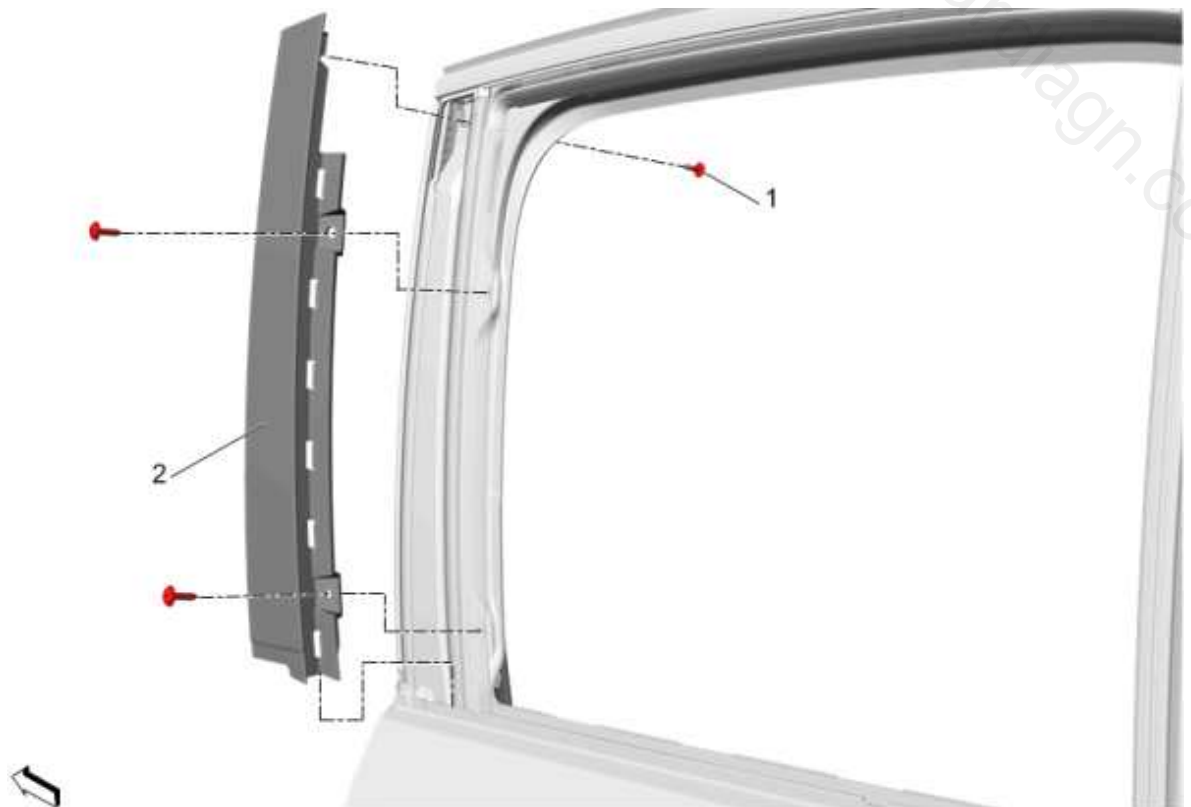


Fig. 20: Rear Side Door Window Frame Front Applique And Screws
Courtesy of GENERAL MOTORS COMPANY

5. Remove Rear Side Door Window Frame Front Applique (2). Refer to [Rear Side Door Window Frame Front Applique Replacement](#)

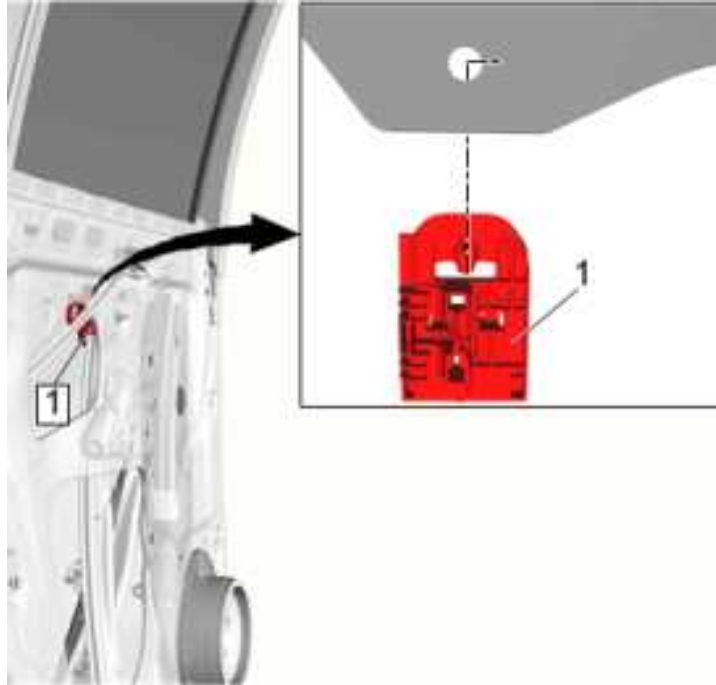


Fig. 21: Rear Side Door Window Regulator Sash Retainer
Courtesy of GENERAL MOTORS COMPANY

6. Release Rear Side Door Window Regulator Sash Retainer (1)
7. Place the window in the full up position and tape in place.
8. Place the window regulator in the full down position.

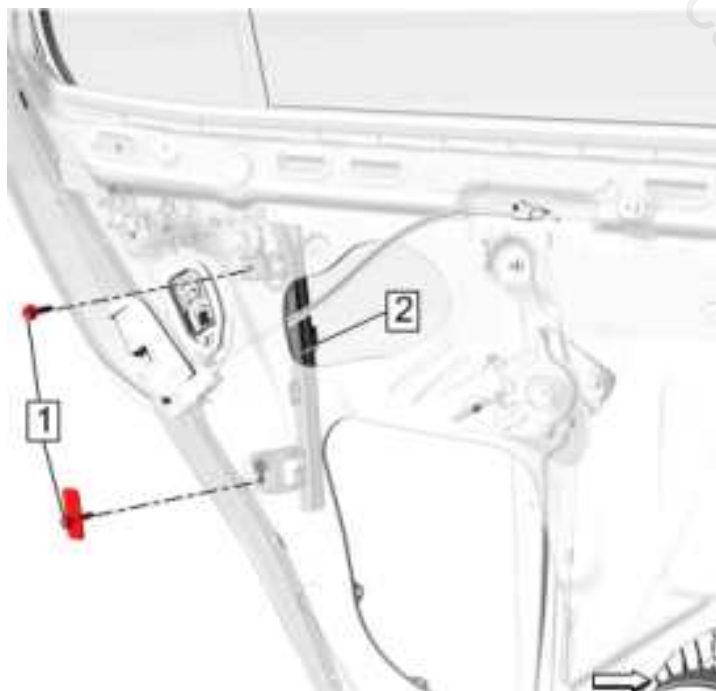


Fig. 22: Rear Side Door Window Channel Rear Retainer And Fasteners
Courtesy of GENERAL MOTORS COMPANY

9. Remove Rear Side Door Window Channel Rear Retainer (2). Refer to [Rear Side Door Window Channel Rear Retainer Replacement](#)



Fig. 23: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

10. Remove the masking tape holding the rear side door window (1) and lower the window downward while pulling up on the front to remove the window from the door frame.

Installation Procedure



Fig. 24: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

1. Place the rear side door window (1) into the door frame.

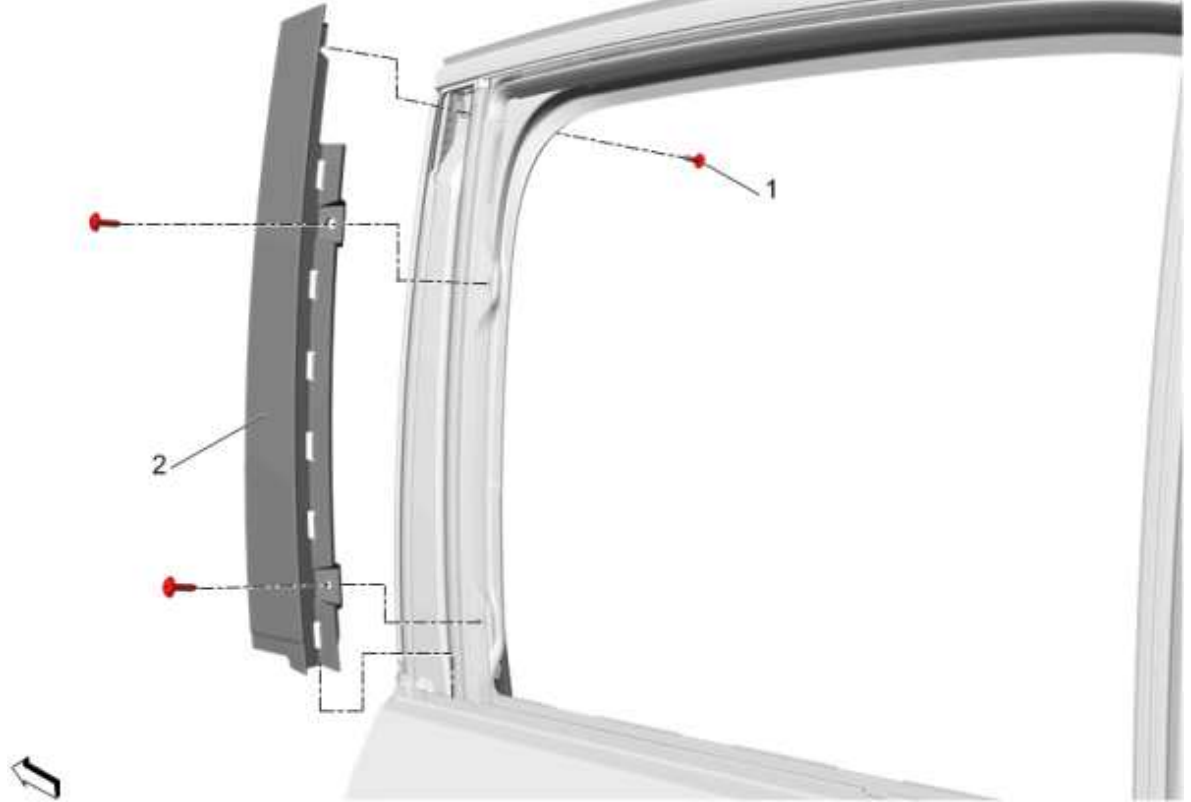


Fig. 25: Rear Side Door Window Frame Front Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

2. Install Rear Side Door Window Frame Front Applique (2). Refer to [Rear Side Door Window Frame Front Applique Replacement](#)
3. Place the window in the full up position and tape in place. (1)

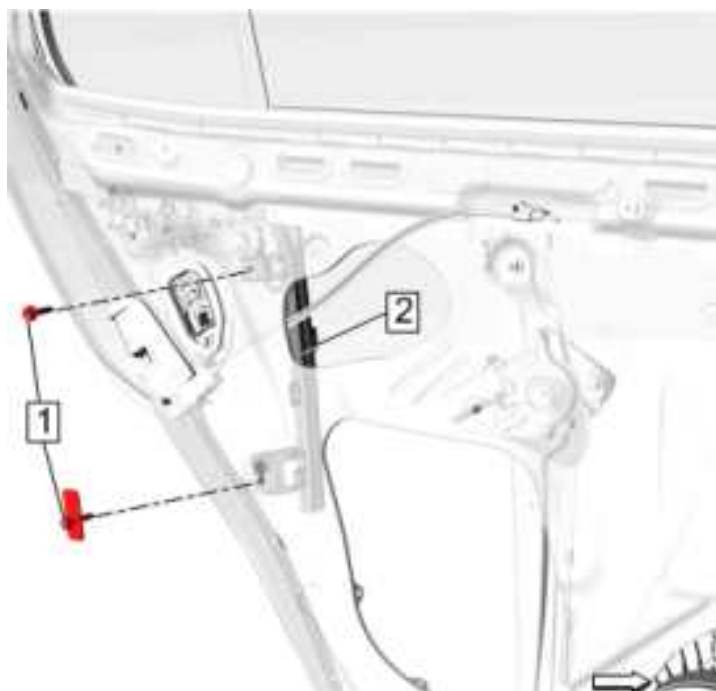


Fig. 26: Rear Side Door Window Channel Rear Retainer And Fasteners

Courtesy of GENERAL MOTORS COMPANY

4. Install Rear Side Door Window Channel Rear Retainer (2). Refer to [Rear Side Door Window Channel Rear Retainer Replacement](#)

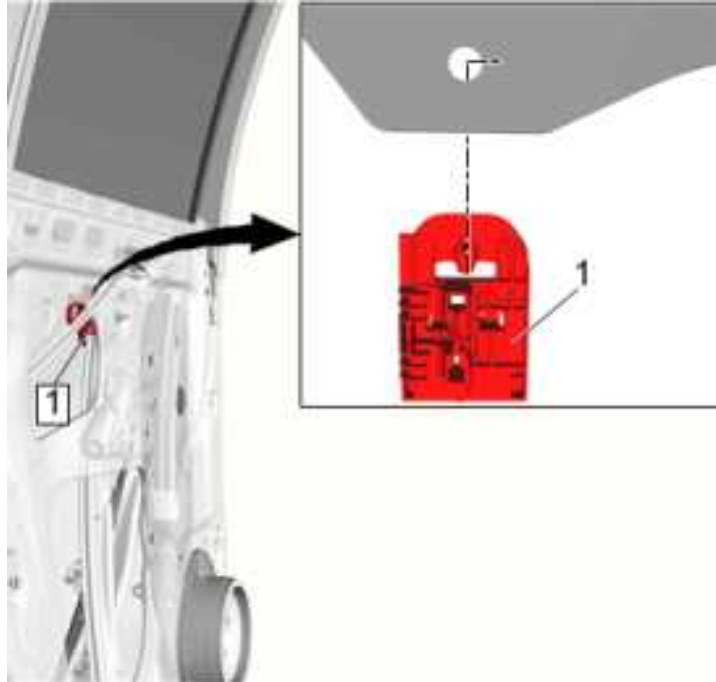


Fig. 27: Rear Side Door Window Regulator Sash Retainer
Courtesy of GENERAL MOTORS COMPANY

5. Place the window regulator in the full up position.
6. Remove the tape holding the rear side door window in the full up position.
7. Install Rear Side Door Window @ Rear Side Door Window Regulator Sash Retainer (1)

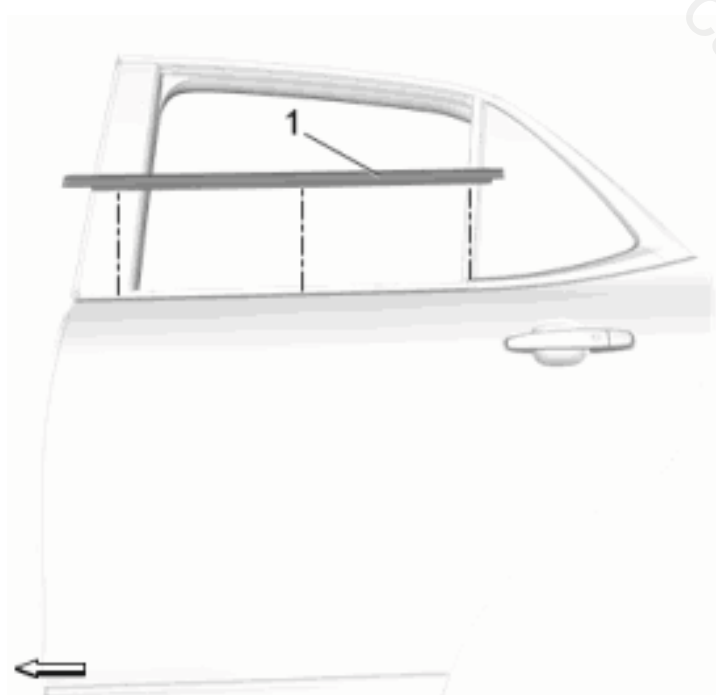


Fig. 28: Rear Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

8. Install Rear Side Door Window Belt Reveal Molding (1). Refer to [Rear Side Door Window Belt Reveal Molding Replacement \(Equinox\)](#)

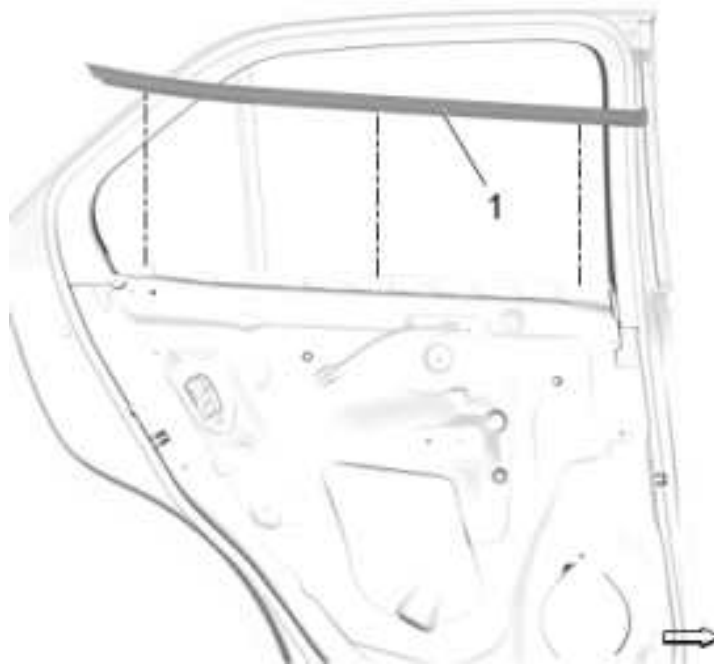


Fig. 29: Rear Side Door Window Inner Sealing Strip
 Courtesy of GENERAL MOTORS COMPANY

9. Install Rear Side Door Window Inner Sealing Strip (1). Refer to [Rear Side Door Window Inner Sealing Strip Replacement \(Equinox\)](#).
10. Install Rear Side Door Window Garnish Molding. Refer to [Rear Side Door Window Garnish Molding Replacement \(Equinox\)](#).
11. Install Rear Side Door Water Deflector. Refer to [Rear Side Door Water Deflector Replacement \(Equinox\)](#).
12. Ensure the window system operates properly.

REAR SIDE DOOR WINDOW REPLACEMENT (TERRAIN)

Removal Procedure

1. Remove Rear Side Door Water Deflector. Refer to [Rear Side Door Water Deflector Replacement \(Terrain\)](#).
2. Remove Rear Side Door Window Garnish Molding. Refer to [Rear Side Door Window Garnish Molding Replacement \(Terrain\)](#).

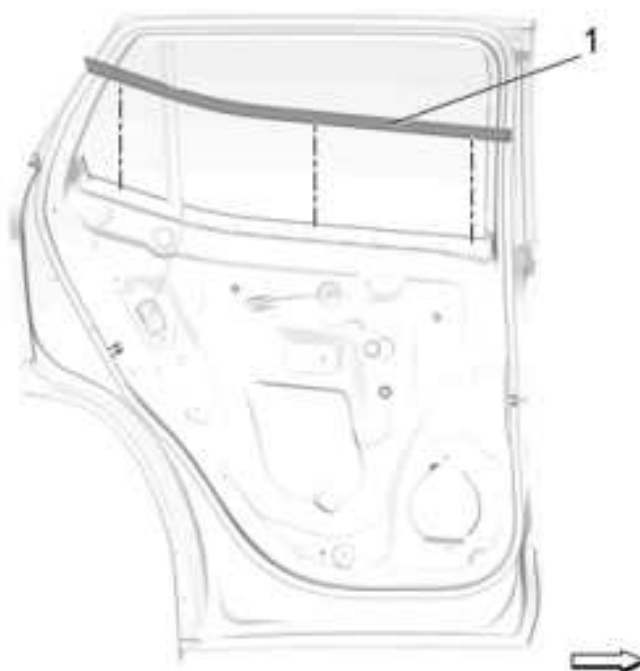


Fig. 30: Rear Side Door Window Inner Sealing Strip
 Courtesy of GENERAL MOTORS COMPANY

3. Remove Rear Side Door Window Inner Sealing Strip (1). Refer to [Rear Side Door Window Inner Sealing Strip Replacement \(Terrain\)](#).

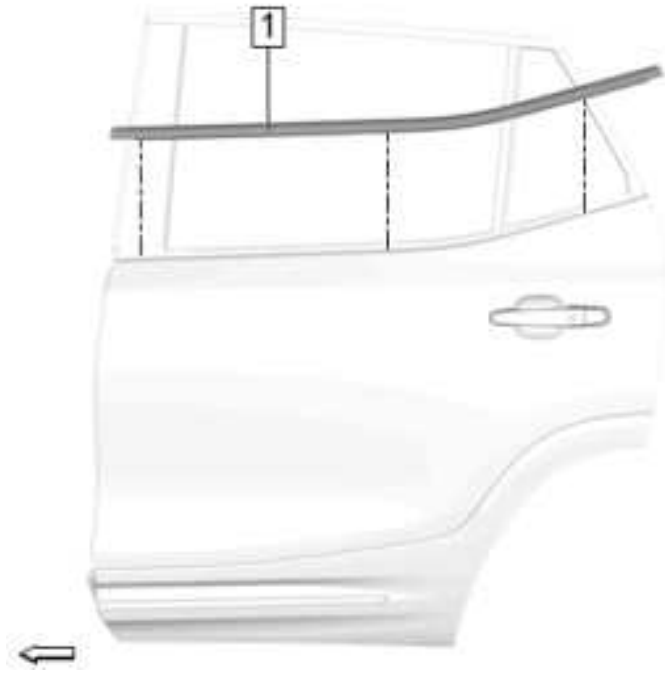


Fig. 31: Rear Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

4. Remove Rear Side Door Window Belt Reveal Molding (1). Refer to [Rear Side Door Window Belt Reveal Molding Replacement \(Terrain\)](#).

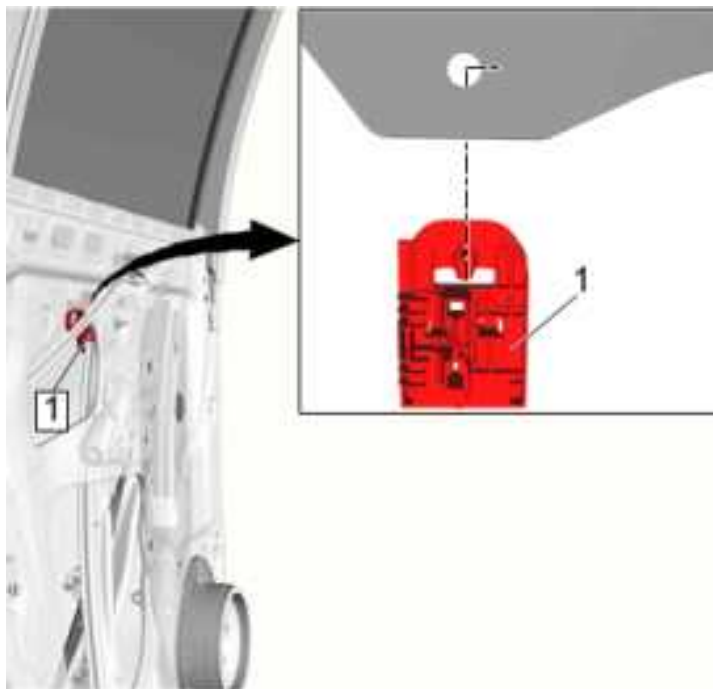


Fig. 32: Rear Side Door Window Regulator Sash Retainer
Courtesy of GENERAL MOTORS COMPANY

5. Release Rear Side Door Window Regulator Sash Retainer (1) (Qty: 2)
6. Place the window in the full up position and tape in place.
7. Place the window regulator in the full down position.

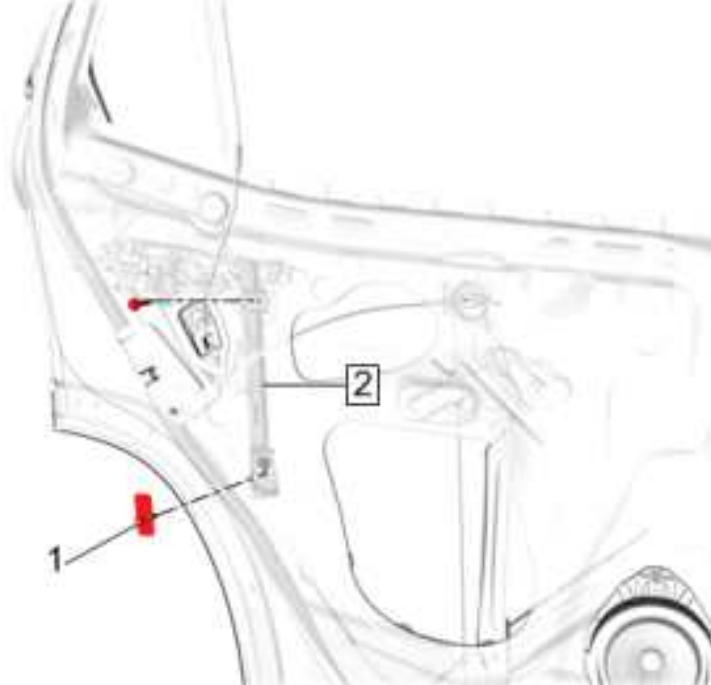


Fig. 33: Rear Side Door Window Channel Rear Retainer And Fasteners

Courtesy of GENERAL MOTORS COMPANY

8. Remove Rear Side Door Window Channel Rear Retainer (2). Refer to [Rear Side Door Window Channel Rear Retainer Replacement](#)

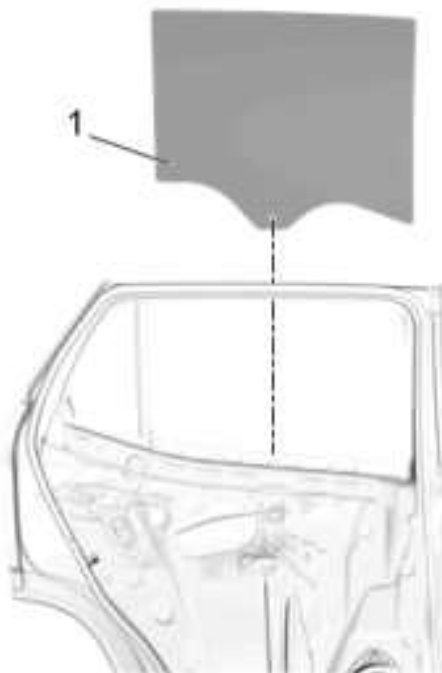


Fig. 34: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

9. Remove the masking tape holding the rear side door window (1) and lower the window downward while pulling up on the front to remove the window from the door frame.

Installation Procedure

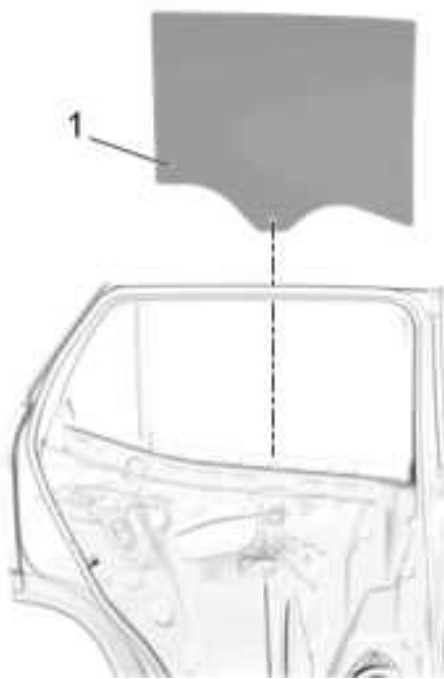


Fig. 35: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

1. Place the rear side door window (1) into the door frame.
2. Place the window in the full up position and tape in place. (1)

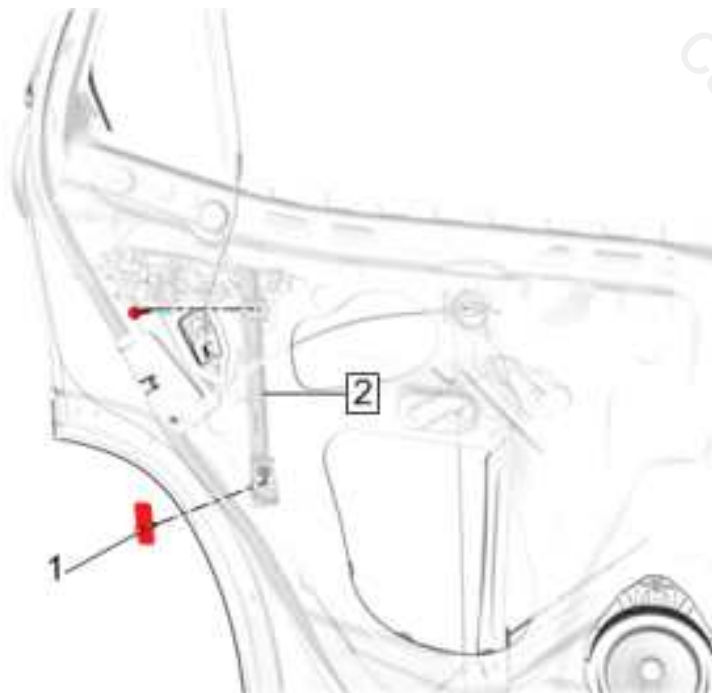


Fig. 36: Rear Side Door Window Channel Rear Retainer And Fasteners

Courtesy of GENERAL MOTORS COMPANY

3. Install Rear Side Door Window Channel Rear Retainer (2). Refer to [Rear Side Door Window Channel Rear Retainer Replacement](#)

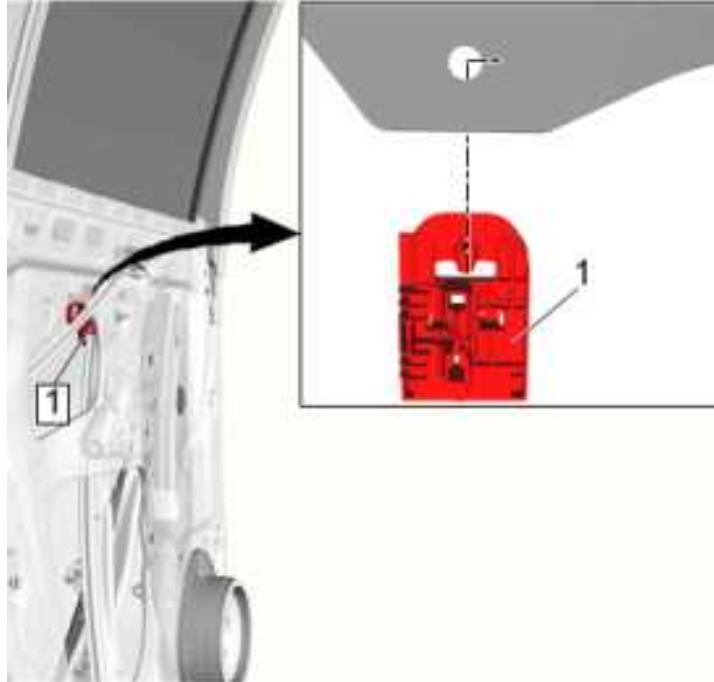


Fig. 37: Rear Side Door Window Regulator Sash Retainer
Courtesy of GENERAL MOTORS COMPANY

4. Place the window regulator in the full up position.
5. Remove the tape holding the rear side door window in the full up position.
6. Install Rear Side Door Window @ Rear Side Door Window Regulator Sash Retainer (1) (Qty: 2)

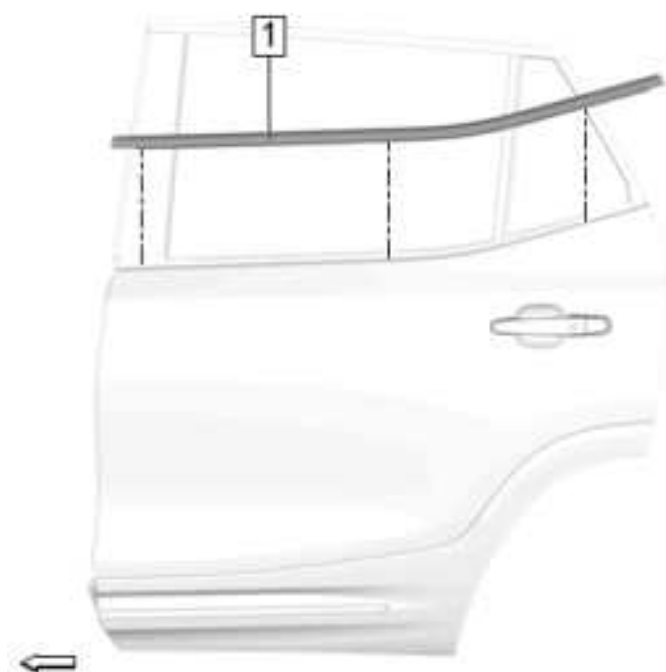


Fig. 38: Rear Side Door Window Belt Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

7. Install Rear Side Door Window Belt Reveal Molding (1). Refer to [Rear Side Door Window Belt Reveal Molding Replacement \(Terrain\)](#).

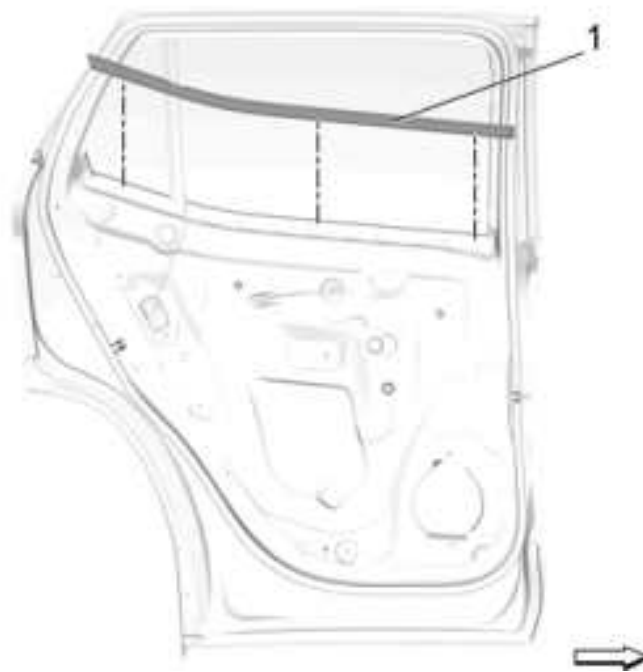


Fig. 39: Rear Side Door Window Inner Sealing Strip

Courtesy of GENERAL MOTORS COMPANY

8. Install Rear Side Door Window Inner Sealing Strip (1). Refer to [Rear Side Door Window Inner Sealing Strip Replacement \(Terrain\)](#).
9. Install Rear Side Door Window Garnish Molding. Refer to [Rear Side Door Window Garnish Molding Replacement \(Terrain\)](#).
10. Install Rear Side Door Water Deflector. Refer to [Rear Side Door Water Deflector Replacement \(Terrain\)](#).
11. Ensure the window system operates properly.

BODY SIDE WINDOW REPLACEMENT (EQUINOX)

Special Tools

- **J 24402-A** Glass Sealant (Cold Knife) Remover
- **J 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Removal Procedure

WARNING: Refer to [Cracked Window Warning](#) .

NOTE: Before cutting out a quarter window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the liftgate.
2. Remove the quarter window trim finish panel. Refer to [Quarter Window Trim Finish Panel Replacement](#) .

WARNING: Refer to [Defroster Outlet Warning](#) .

3. Cover the following parts to protect from broken glass:
 - Upper dash pad
 - Defroster outlets and A/C outlets
 - Seats and carpeting

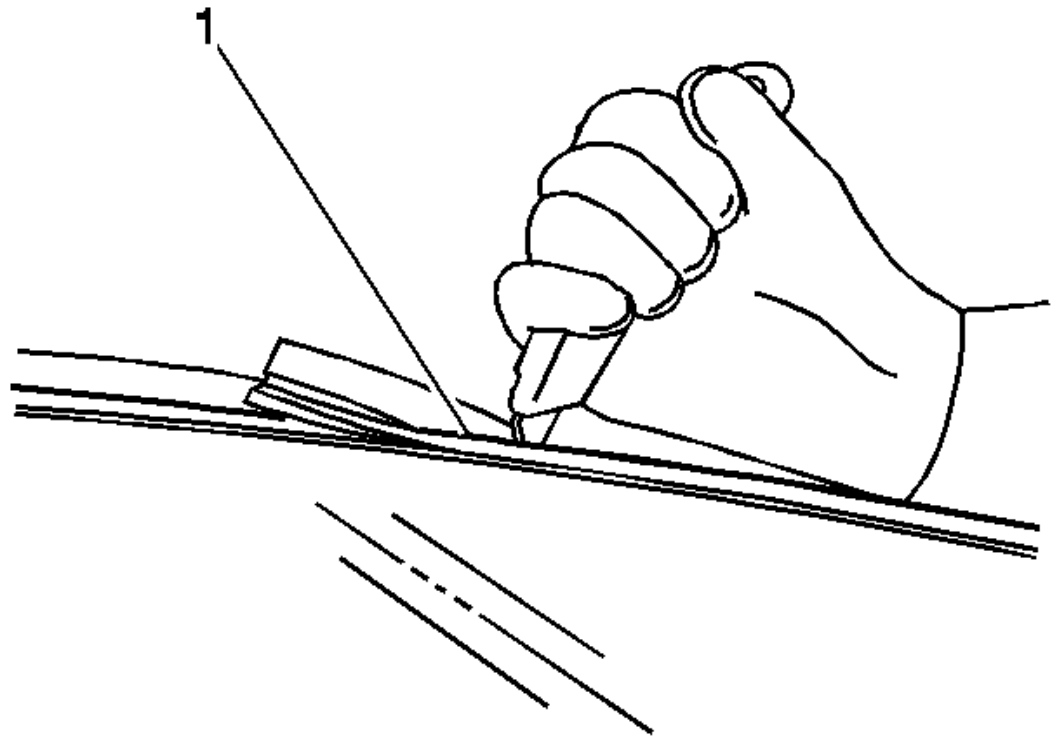


Fig. 40: Cutting Window Lace Molding

Courtesy of GENERAL MOTORS COMPANY

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

4. Using a utility knife, carefully cut the lace (1) from the sides and the top edge of the window to access the urethane adhesive bead, if equipped.

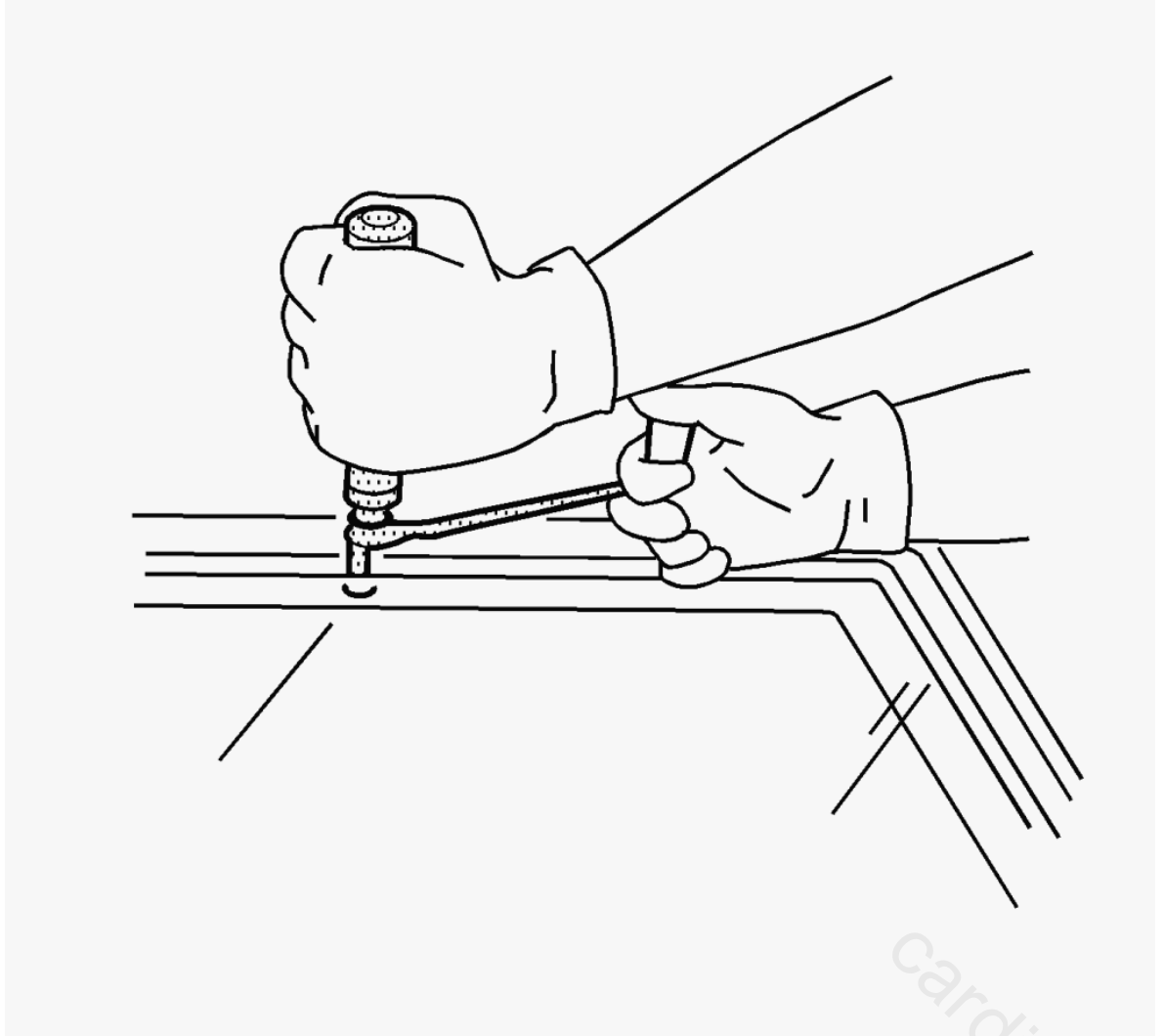


Fig. 41: Separating Urethane Adhesive From Window

Courtesy of GENERAL MOTORS COMPANY

NOTE: Keep the cutting edge of the tool against the window.

5. Remove the window from the urethane adhesive.

- Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
- The only suitable lubrication is clear water.
- Use **J 24402-A** glass sealant (cold knife) remover, **J 39032** stationary glass removal tool, or equivalent to remove the window.

NOTE: Keep the cutting edge of the knife/tool against the window. Do this from inside the vehicle.

6. If necessary, use a long utility knife or similar tool to remove the bottom corners of the window from the urethane adhesive.

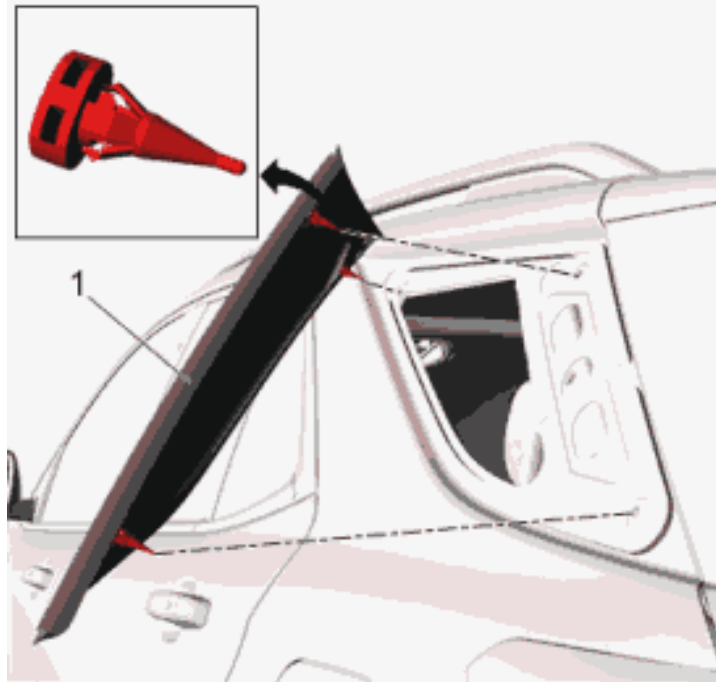


Fig. 42: Body Side Window

Courtesy of GENERAL MOTORS COMPANY

7. Remove the window (1) from the vehicle.

Installation Procedure

1. Install the quarter window into the opening. Refer to [Adhesive Installation of Quarter Windows](#).
2. Install the quarter window trim finish panel. Refer to [Quarter Window Trim Finish Panel Replacement](#).
3. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
4. Close the liftgate.

BODY SIDE WINDOW REPLACEMENT (TERRAIN)

Special Tools

- J 24402-A Glass Sealant (Cold Knife) Remover
- J 39032 Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GM 3651G

Removal Procedure

WARNING: Refer to [Cracked Window Warning](#).

NOTE: Before cutting out a quarter window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the liftgate.
2. Remove the quarter window trim finish panel. Refer to [Quarter Window Trim Finish Panel Replacement](#).

WARNING: Refer to [Defroster Outlet Warning](#).

3. Cover the following parts to protect from broken glass:
 - Upper dash pad
 - Defroster outlets and A/C outlets
 - Seats and carpeting

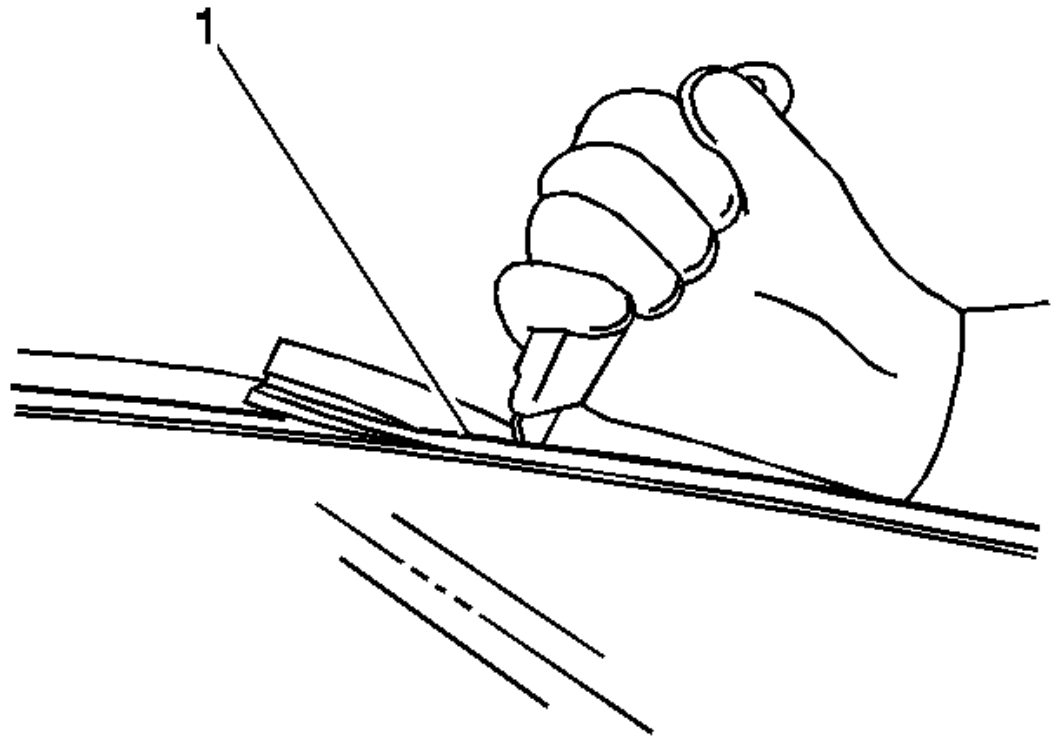


Fig. 43: Cutting Window Lace Molding

Courtesy of GENERAL MOTORS COMPANY

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

4. Using a utility knife, carefully cut the lace (1) from the sides and the top edge of the window to access the urethane adhesive bead, if equipped.

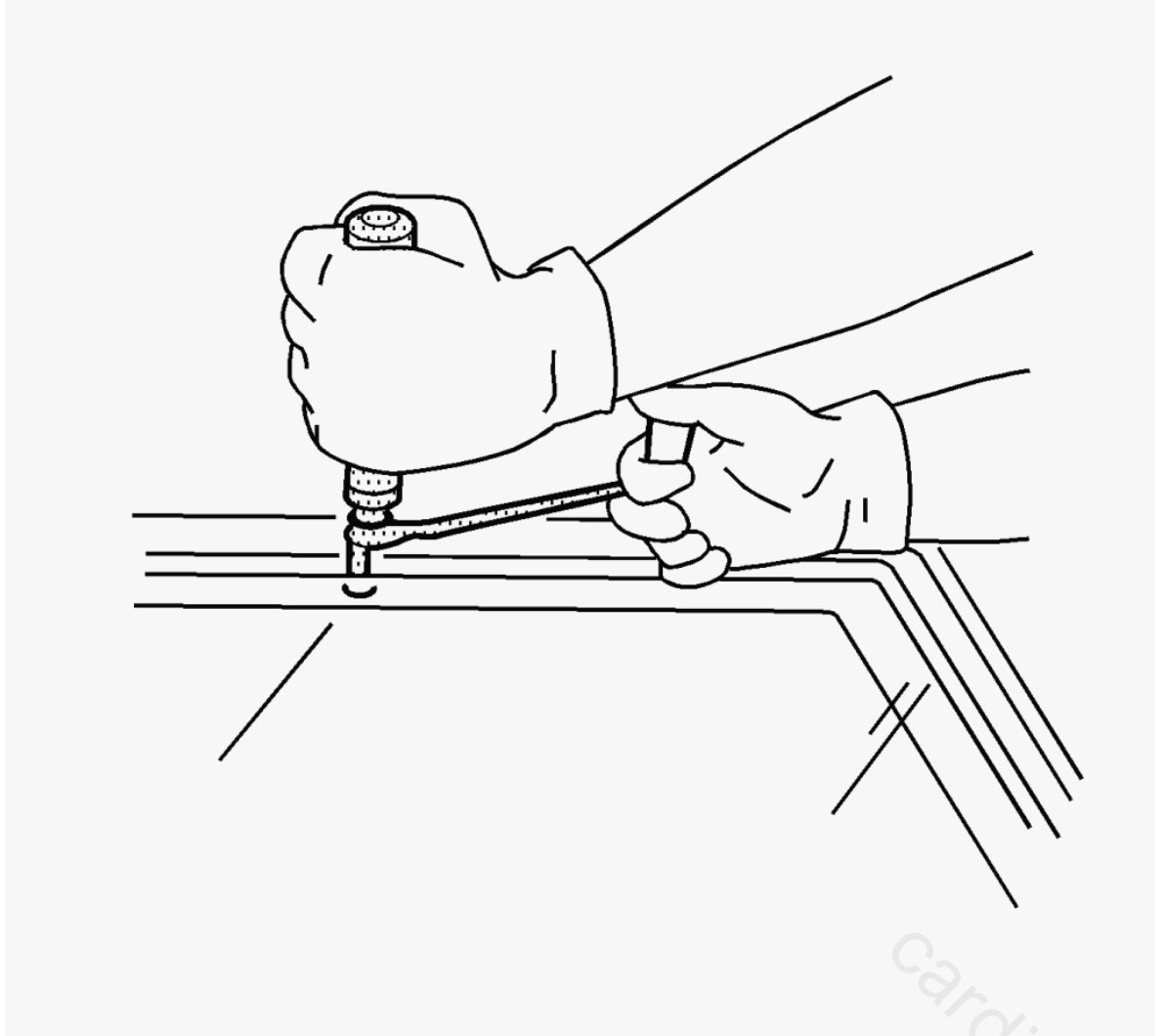


Fig. 44: Separating Urethane Adhesive From Window
Courtesy of GENERAL MOTORS COMPANY

NOTE: Keep the cutting edge of the tool against the window.

5. Remove the window from the urethane adhesive.
 - Leave a base of urethane approximately 2 mm (0.078 in) on the pinch-weld flange.
 - The only suitable lubrication is clear water.
 - Use **J 24402-A** glass sealant (cold knife) remover, **J 39032** stationary glass removal tool, or equivalent to remove the window.

NOTE: Keep the cutting edge of the knife/tool against the window. Do this from inside the vehicle.

6. If necessary, use a long utility knife or similar tool to remove the bottom corners of the window from the urethane adhesive.



Fig. 45: Body Side Window

Courtesy of GENERAL MOTORS COMPANY

7. Remove the window (1) from the vehicle.

Installation Procedure

1. Install the quarter window into the opening. Refer to [Adhesive Installation of Quarter Windows](#).
2. Install the quarter window trim finish panel. Refer to [Quarter Window Trim Finish Panel Replacement](#).
3. Remove the double layer of masking tape around the perimeter of the painted surfaces and the interior trim.
4. Close the liftgate.

REAR WINDOW REPLACEMENT (EQUINOX)

Special Tools

- **BO 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GMW 15672

Removal Procedure

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#).

WARNING: Refer to [Cracked Window Warning](#).

NOTE: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the liftgate.
2. Remove Liftgate Lower Trim Finish Panel. Refer to [Liftgate Lower Trim Finish Panel Replacement](#)
3. Disconnect the electrical connectors.
4. Remove Rear Window Wiper Motor. Refer to [Rear Window Wiper Motor Replacement](#)
5. Remove Rear End Spoiler. Refer to [Rear End Spoiler Replacement \(Equinox\)](#)
6. Cover the seats and carpeting to protect from broken glass.

NOTE: Keep the cutting edge of the tool against the rear window from inside the vehicle. This will allow the urethane adhesive to be separated from the window.

7. Use **BO 39032** stationary glass removal tool or equivalent in order to remove the window.
 - Leave a base of urethane on the pinchweld flange.

- The only suitable lubrication is clear water.

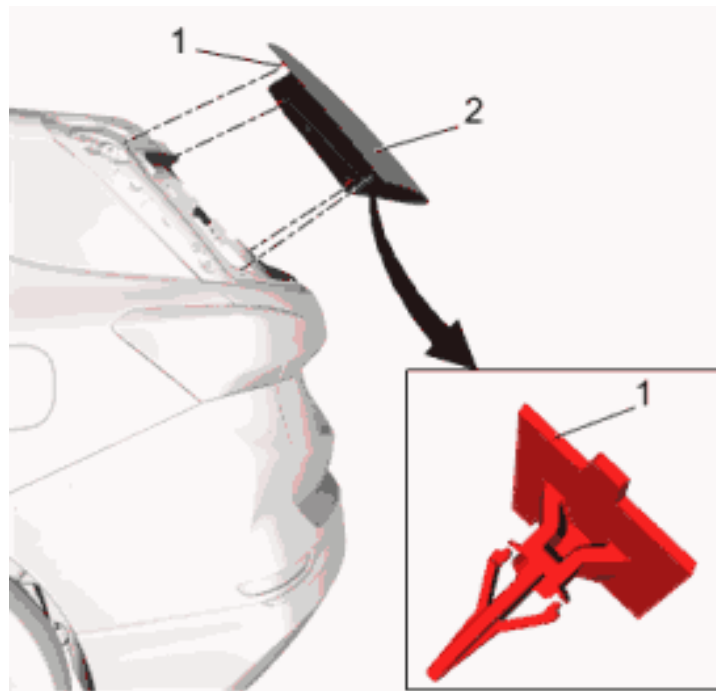


Fig. 46: Rear Window And Locator Pins

Courtesy of GENERAL MOTORS COMPANY

8. With an assistant, remove the locator pins (1) and rear window (2) from the vehicle.

Installation Procedure

1. Transfer components as necessary.
2. Install Rear Window. Refer to [Adhesive Installation of Liftgate Windows](#)
3. Install Rear End Spoiler. Refer to [Rear End Spoiler Replacement \(Equinox\)](#)
4. Install Rear Window Wiper Motor. Refer to [Rear Window Wiper Motor Replacement](#)
5. Connect the electrical connectors.

NOTE: Before installing the liftgate lower trim finish panel check the liftgate cavity for any locating pins that may have dropped inside during glass removal.

6. Install Liftgate Lower Trim Finish Panel. Refer to [Liftgate Lower Trim Finish Panel Replacement](#)
7. Remove the tape.
8. Close the liftgate.

REAR WINDOW REPLACEMENT (TERRAIN)

Special Tools

- **BO 39032** Stationary Glass Removal Tool
- Use a urethane adhesive systems which meet GM Specification GMW 15672

Removal Procedure

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

WARNING: Refer to [Cracked Window Warning](#) .

NOTE: Before cutting out a stationary window, apply a double layer of masking tape around the perimeter of the painted surfaces and the interior trim.

1. Open the liftgate.
2. Remove Liftgate Lower Trim Finish Panel. Refer to [Liftgate Lower Trim Finish Panel Replacement](#)
3. Disconnect the electrical connectors.

4. Remove Rear Window Wiper Motor. Refer to [Rear Window Wiper Motor Replacement](#)
5. Remove Rear End Spoiler. Refer to [Rear End Spoiler Replacement \(Terrain\)](#)
6. Cover the seats and carpeting to protect from broken glass.

NOTE: Keep the cutting edge of the tool against the rear window from inside the vehicle. This will allow the urethane adhesive to be separated from the window.

7. Use **BO 39032** stationary glass removal tool or equivalent in order to remove the window.
 - Leave a base of urethane on the pinchweld flange.
 - The only suitable lubrication is clear water.

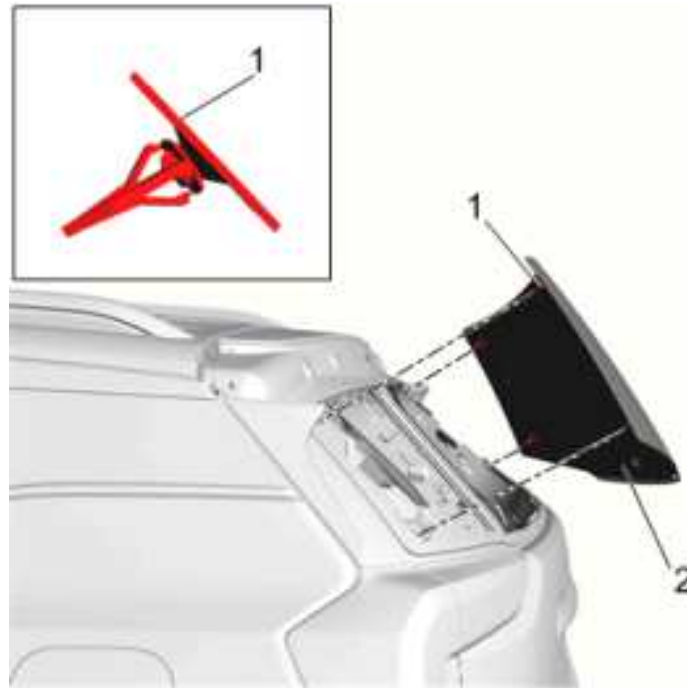


Fig. 47: Rear Window And Locator Pins
Courtesy of GENERAL MOTORS COMPANY

8. With an assistant, remove the locator pins (1) and rear window (2) from the vehicle.

Installation Procedure

1. Transfer components as necessary.
2. Install Rear Window. Refer to [Adhesive Installation of Liftgate Windows](#)
3. Install Rear End Spoiler. Refer to [Rear End Spoiler Replacement \(Terrain\)](#)
4. Install Rear Window Wiper Motor. Refer to [Rear Window Wiper Motor Replacement](#)
5. Connect the electrical connectors.

NOTE: Before installing the liftgate lower trim finish panel check the liftgate cavity for any locating pins that may have dropped inside during glass removal.

6. Install Liftgate Lower Trim Finish Panel. Refer to [Liftgate Lower Trim Finish Panel Replacement](#)
7. Remove the tape.
8. Close the liftgate.

FRONT SIDE DOOR WINDOW FRAME REAR APPLIQUE REPLACEMENT



Fig. 48: Front Side Door Window Frame Rear Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove Front Side Door Window Inner Sealing Strip. Refer to Front Side Door Window Inner Sealing Strip Replacement 2. Remove Front Side Door Window Belt Reveal Molding. Refer to Front Side Door Window Belt Reveal Molding Replacement 3. Remove Front Side Door Window Weatherstrip. Refer to Front Side Door Window Weatherstrip Replacement NOTE: It is not necessary to completely remove the weatherstrip. Reposition the upper rear edge of the front side door weatherstrip.	
1	Front Side Door Window Frame Inner Upper Screw CAUTION: Refer to Fastener Caution . Tighten 1.5 N.m (13 lb in)
2	Front Side Door Window Frame Rear Applique Outer Screw (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 1.5 N.m (13 lb in)

Callout	Component Name
3	Front Side Door Window Frame Rear Applique 1. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 2. Peel the protective film from the foam tape and install the rear applique to the vehicle.

REAR SIDE DOOR WINDOW FRAME FRONT APPLIQUE REPLACEMENT

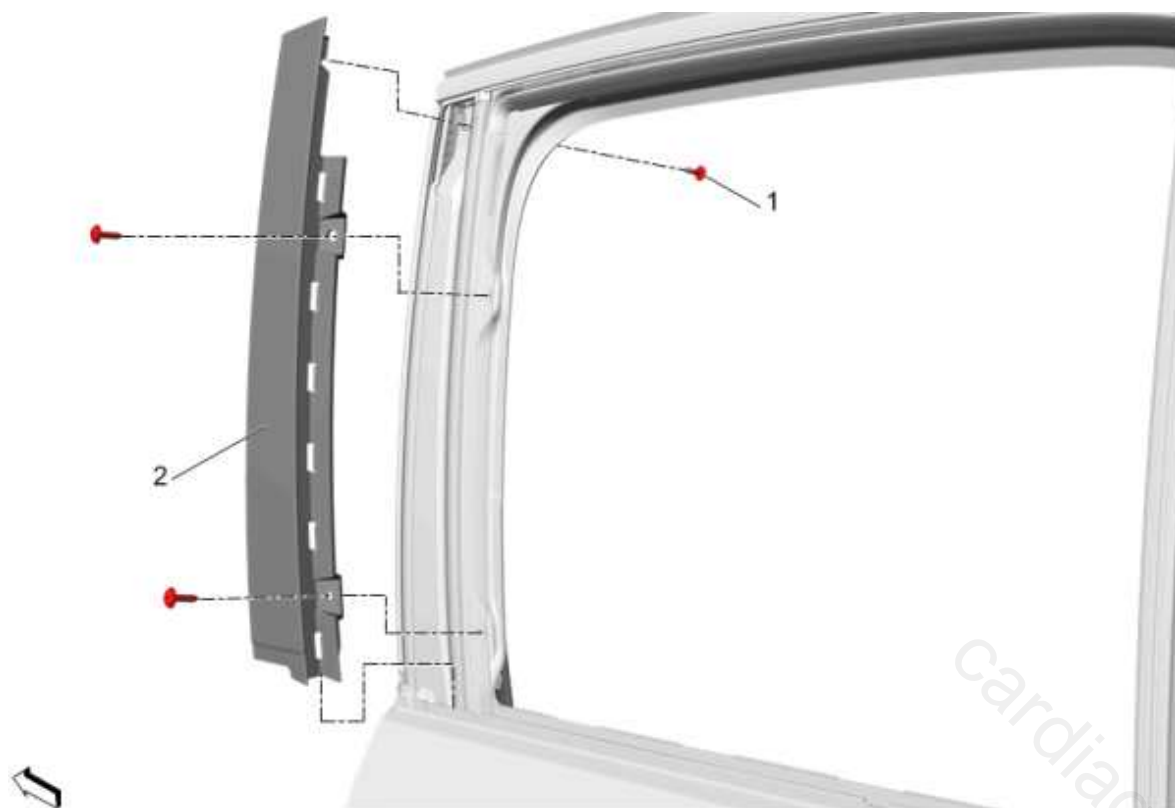


Fig. 49: Rear Side Door Window Frame Front Applique And Screws
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Remove Rear Side Door Window Belt Reveal Molding. Refer to Rear Side Door Window Belt Reveal Molding Replacement (Equinox)Rear Side Door Window Belt Reveal Molding Replacement (Terrain) 2. Remove Rear Side Door Window Inner Sealing Strip. Refer to Rear Side Door Window Inner Sealing Strip Replacement (Equinox)Rear Side Door Window Inner Sealing Strip Replacement (Terrain) 3. It is not necessary to completely remove the weatherstrip. Reposition the upper front edge of the rear side door weatherstrip. Refer to Rear Side Door Window Weatherstrip Replacement (Equinox)Rear Side Door Window Weatherstrip Replacement (Terrain)	
1	Rear Side Door Window Frame Applique Screw (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 1.5 N.m (13 lb in)
2	Rear Side Door Window Frame Front Applique 1. Use a solution of 50/50 isopropyl alcohol and water to clean the adhesive surface. 2. Peel the protective film from the foam tape and install the rear applique to the vehicle.

FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT (EQUINOX)

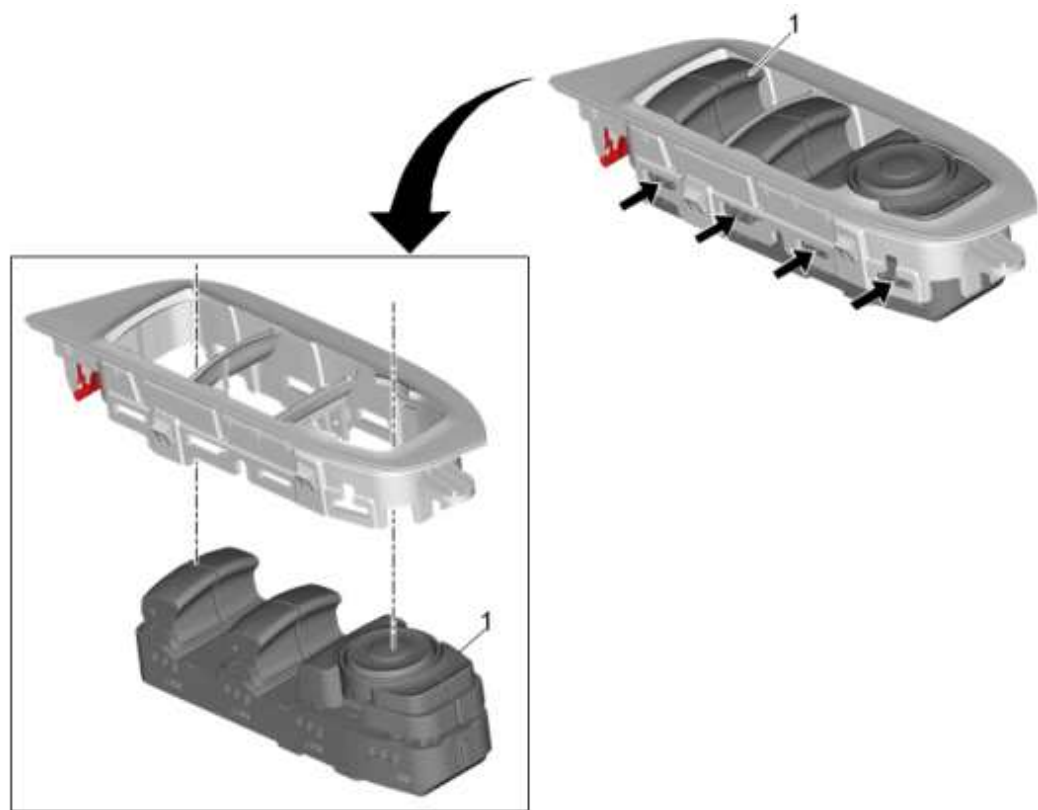


Fig. 50: Front Side Door Window Control Switch (Equinox)
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Front Side Door Armrest Switch Mount Plate. Refer to Front Side Door Armrest Switch Mount Plate Replacement (Driver Side, Equinox)	
1	Front Side Door Window Control Switch
	Procedure 1. Release the front side door window control switch from the front side door armrest switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

FRONT SIDE DOOR WINDOW CONTROL SWITCH REPLACEMENT (TERRAIN)

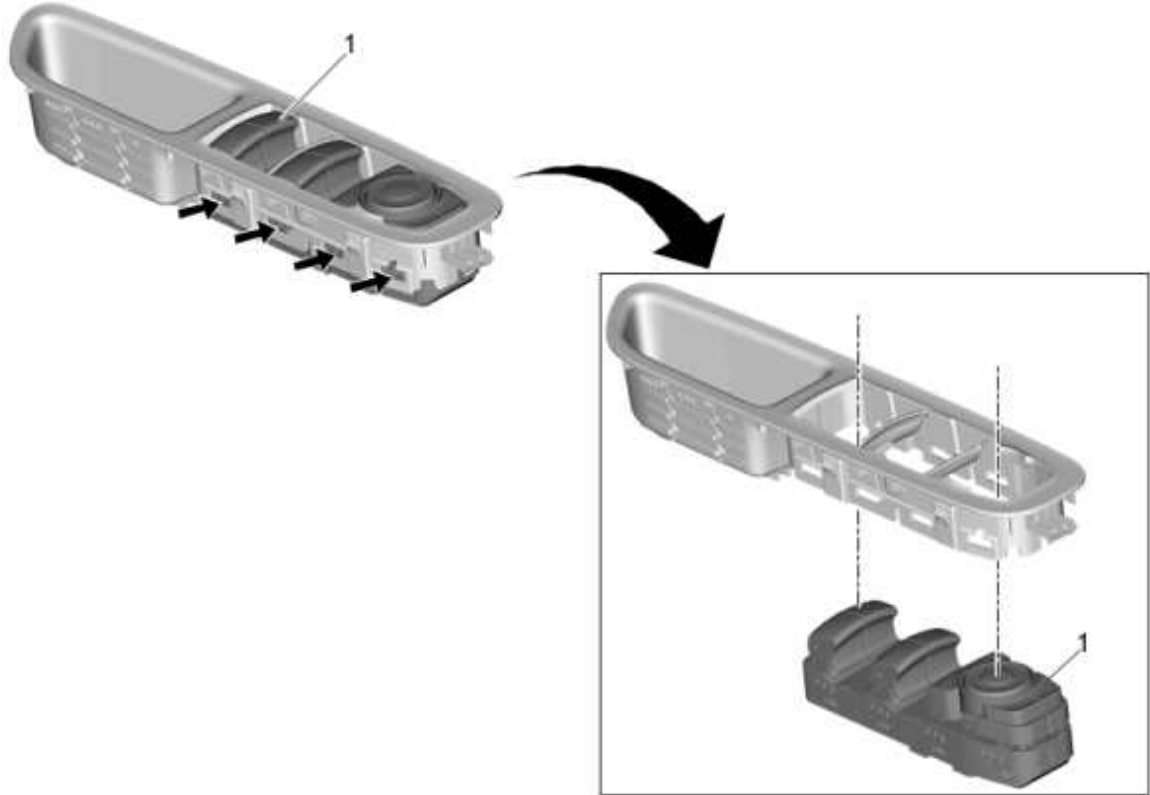


Fig. 51: Front Side Door Window Control Switch (Terrain)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Front Side Door Armrest Switch Mount Plate. Refer to Front Side Door Armrest Switch Mount Plate Replacement (Driver Side, Terrain)	
1	Front Side Door Window Control Switch Procedure 1. Release the front side door window control switch from the front side door armrest switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT - RIGHT SIDE (EQUINOX)

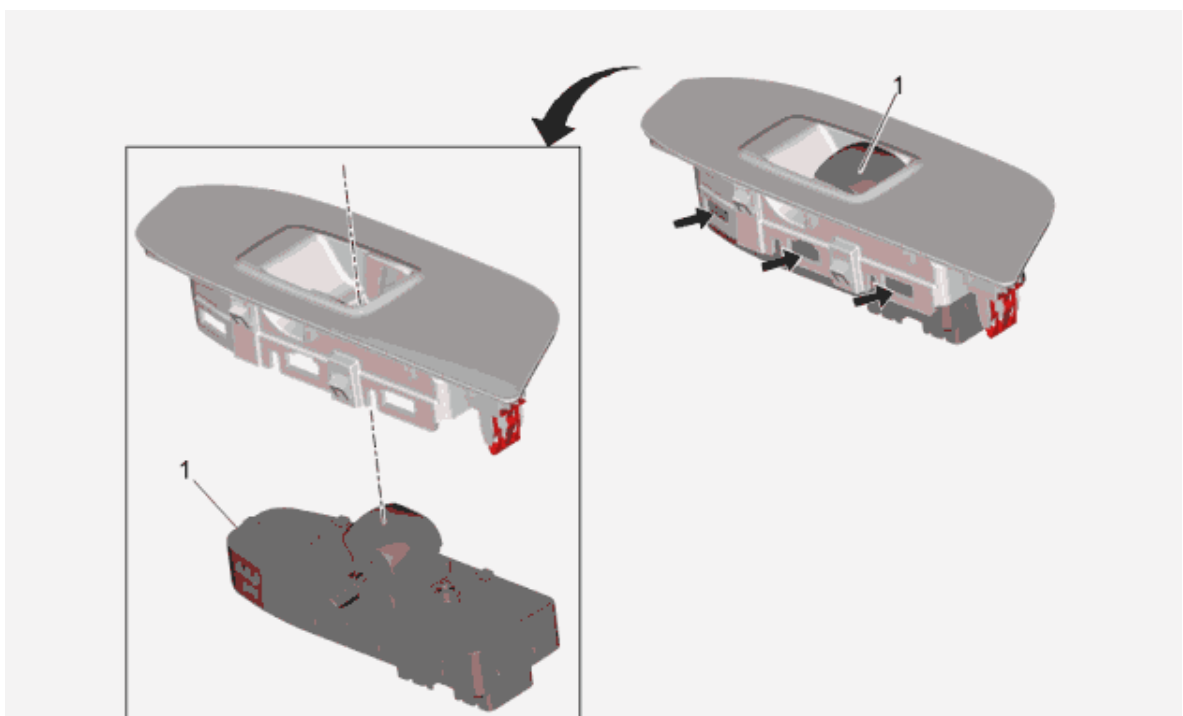


Fig. 52: Front Side Door Window Switch - Right Side (Equinox)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Front Side Door Armrest Switch Mount Plate. Refer to Front Side Door Armrest Switch Mount Plate Replacement (Passenger Side, Equinox)	
1	Front Side Door Window Switch - Right Side Procedure 1. Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

FRONT SIDE DOOR WINDOW SWITCH REPLACEMENT - RIGHT SIDE (TERRAIN)

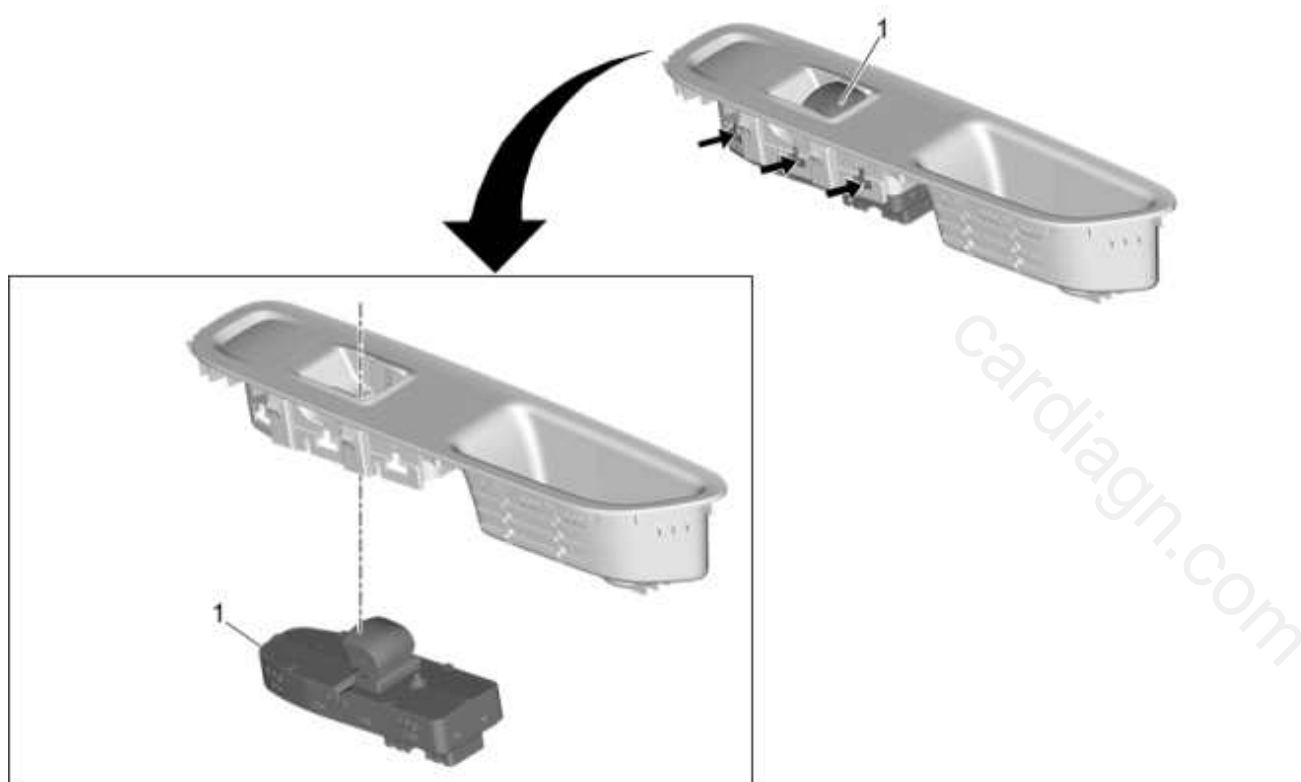


Fig. 53: Front Side Door Window Switch - Right Side (Terrain)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Front Side Door Armrest Switch Mount Plate. Refer to Front Side Door Armrest Switch Mount Plate Replacement (Passenger Side, Terrain)	
1	Front Side Door Window Switch - Right Side Procedure 1. Release the switch assembly from the switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

REAR SIDE DOOR WINDOW SWITCH REPLACEMENT (EQUINOX)

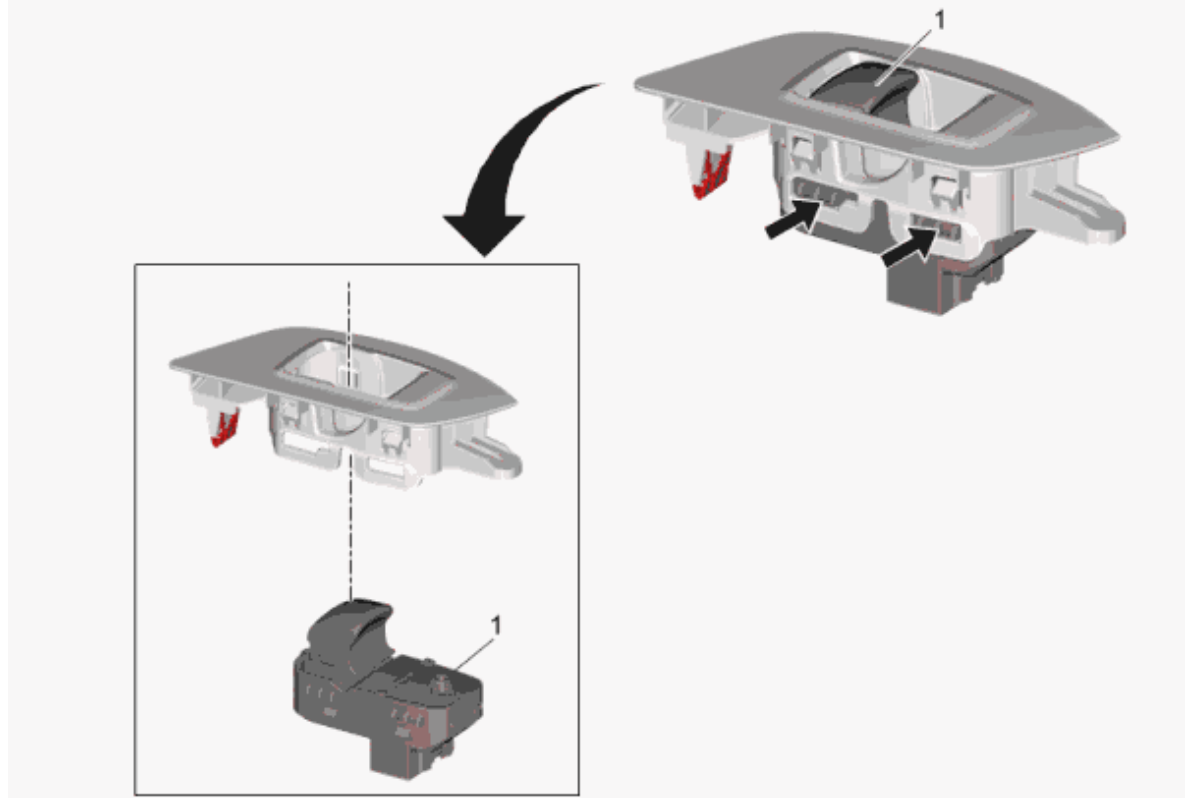


Fig. 54: Rear Side Door Window Switch (Equinox)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Rear Side Door Armrest Switch Mount Plate. Refer to Rear Side Door Armrest Switch Mount Plate Replacement (Equinox)	
1	Rear Side Door Window Switch Procedure 1. Release the switch assembly from the armrest switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

REAR SIDE DOOR WINDOW SWITCH REPLACEMENT (TERRAIN)

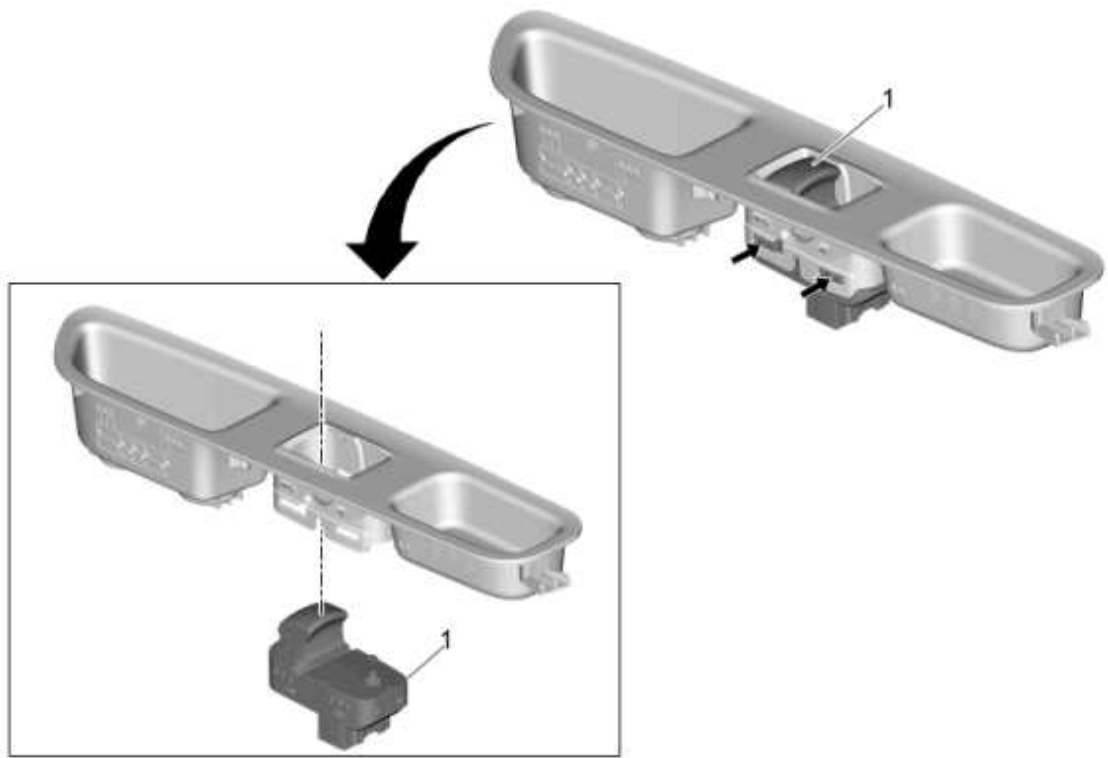


Fig. 55: Rear Side Door Window Switch (Terrain)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Rear Side Door Armrest Switch Mount Plate. Refer to Rear Side Door Armrest Switch Mount Plate Replacement (Terrain) .	
1	Rear Side Door Window Switch Procedure 1. Release the switch assembly from the armrest switch mount plate by depressing the tabs along each side of the switch. 2. Disconnect the electrical connector.

FRONT SIDE DOOR WINDOW REGULATOR REPLACEMENT

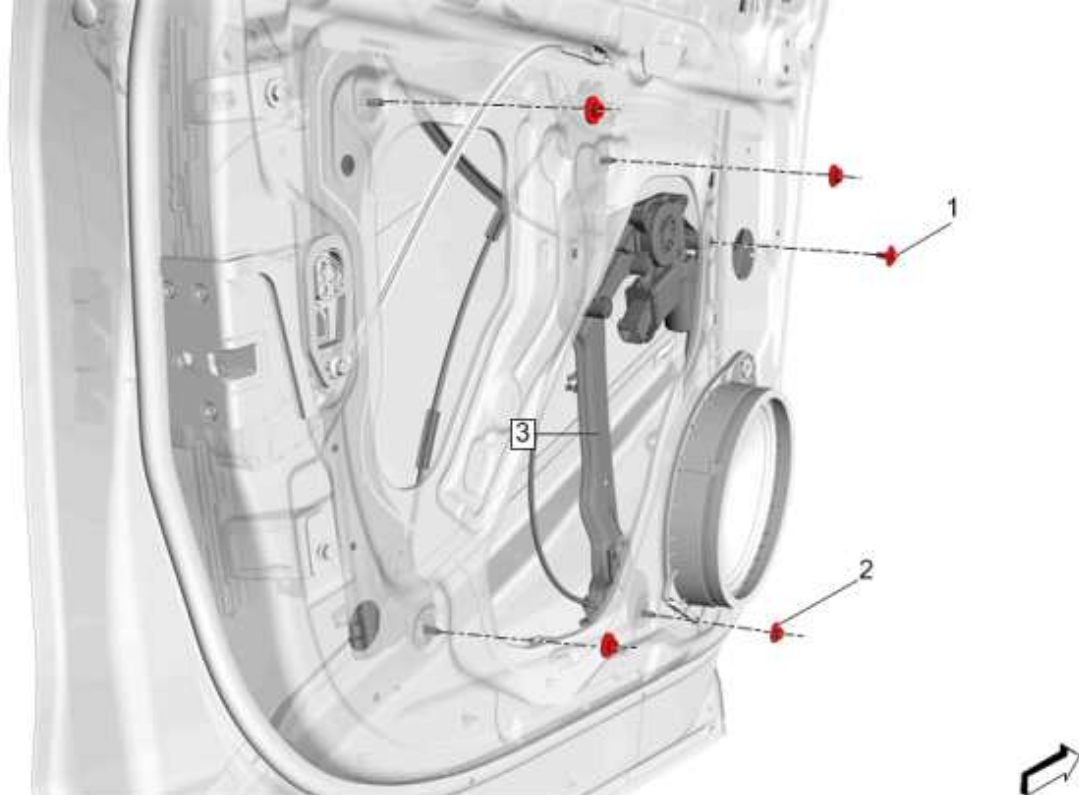


Fig. 56: Front Side Door Window Regulator
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedures 1. Remove Front Side Door Water Deflector. Refer to Front Side Door Water Deflector Replacement (Equinox) Front Side Door Water Deflector Replacement (Terrain) 2. Release the window from the sash retainers.	
1	Front Side Door Window Regulator Guide Bolt CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)
2	Front Side Door Window Regulator Nut (Qty: 4) Tighten 11 N.m (97 lb in)

Callout	Component Name
3	Front Side Door Window Regulator Procedure 1. Transfer components as necessary. 2. Refer to Window Motor Programming - Express Function NOTE: Inspect the door window for proper operation before installing the door trim.

WINDOW MOTOR PROGRAMMING - EXPRESS FUNCTION

Window Motor Normalized Procedure

A window motor that has not been normalized will no longer perform the express up and express down functions, this may occur during the following conditions:

- When a window motor has been disconnected or replaced
- When a door harness has been disconnected
- When the battery has been disconnected or replaced

NOTE: When DTC B3205 4B & 3210 4B are set, the following warnings will be displayed on the driver information center:

Open, then Close Driver Window

Open, then Close Passenger Window

These warnings will clear once the windows have been "Normalized" and the respective DTC will clear.

To normalize the window motor, follow these steps:

NOTE: The doors must be completely closed prior to normalizing the windows, a door that is open or ajar may cause the power window to function abnormally or to become inoperative while performing the normalizing procedure. If this occurs, verify that the door is completely closed then repeat the normalizing procedure.

NOTE: For vehicles equipped with a folding convertible top, the top must be closed and firmly latched prior to normalizing the windows. If attempting to normalize a power window with the folding convertible top not secured, the driver information center may display Top Not Secured and power window normalizing will not be permitted.

1. Ignition ON.
2. Starting with the window completely UP, press and hold the power window switch until the window is fully open and continue holding the switch down for approximately 5 seconds after the window is completely open.
3. Pull the power window switch up until the window is fully closed and continue holding the switch up for approximately 5 seconds after the window is completely closed.

The window should now be normalized and the window should perform the express up and express down functions.

Window Motor Relearn Procedure

A relearn procedure may need to be performed for any Local Interconnect Network (LIN) window motor for the following conditions:

- When the window glass is out of alignment
- When the window glass has been replaced

- When the door has been replaced
- When the window regulator has been replaced

NOTE: Prior to performing the relearn procedure the vehicle must have all 4 wheels properly inflated and mounted, the vehicle must be sitting on a level surface and all doors must be completely closed and for vehicles equipped with a folding convertible top, the top must be closed and firmly latched.

To relearn the window motor, follow these steps:

1. Ignition ON.
2. With a scan tool, select Module Diagnosis, Body Control Module, Configuration/Reset Functions and then select the appropriate Clear Window Learn Values for the window motor requiring the relearn procedure.
3. After the learn procedure, exit the scan tool learn procedure completely, the power window cannot be normalized and will not function until you exit the program.
4. Starting with the window completely UP, press and hold the power window switch until the window is fully open and continue holding the switch down for approximately 5 seconds after the window is completely open.
5. Pull the power window switch up until the window is fully closed and continue holding the switch up for approximately 5 seconds after the window is completely closed.

The window is now reprogrammed.

FRONT SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

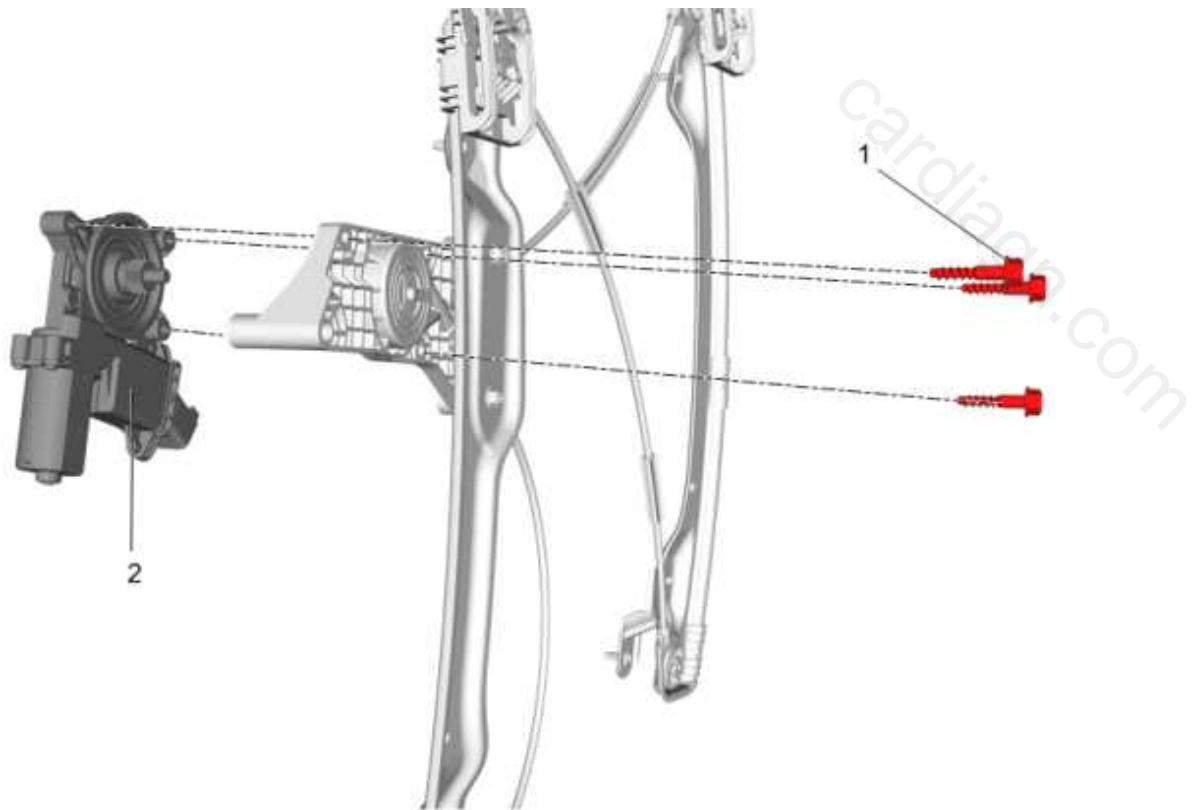


Fig. 57: Front Side Door Window Regulator Motor
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove Front Side Door Window Regulator. Refer to Front Side Door Window Regulator Replacement	
1	Front Side Door Window Regulator Motor Screw (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)

Callout	Component Name
2	Front Side Door Window Regulator Motor Procedure Refer to Window Motor Programming - Express Function NOTE: Inspect the window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW REGULATOR REPLACEMENT

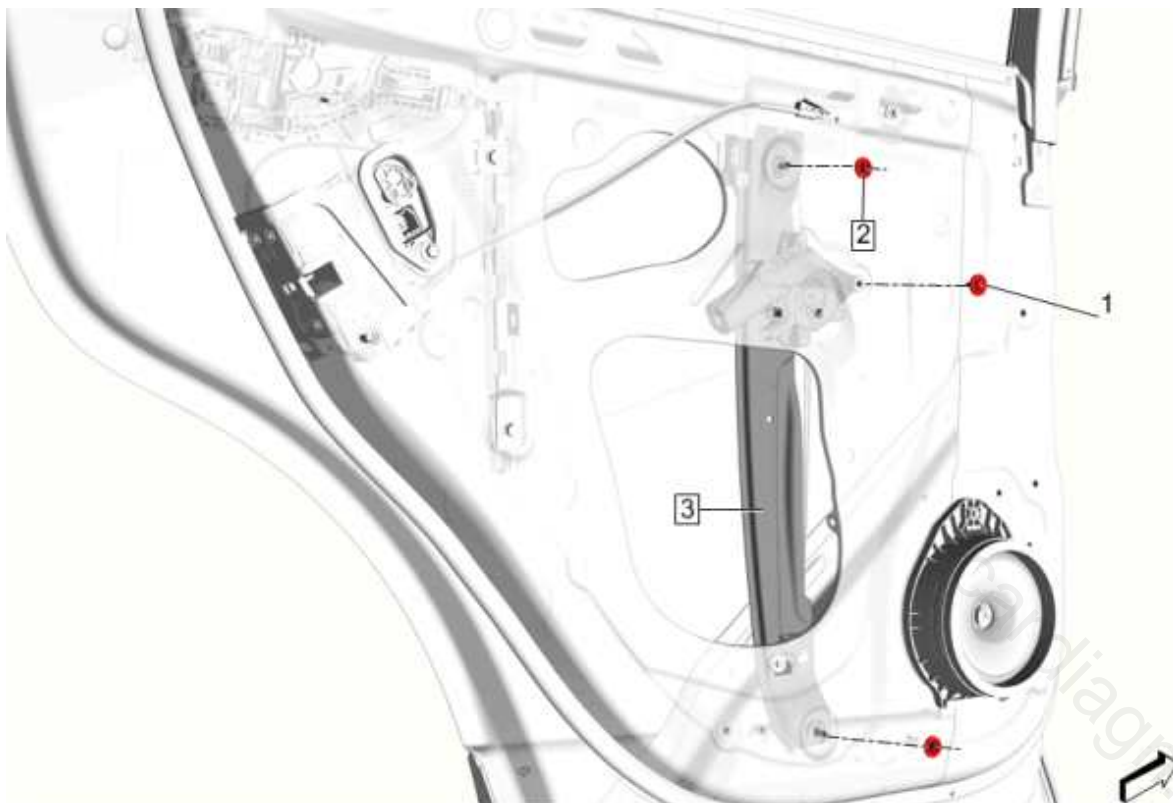


Fig. 58: Rear Side Door Window Regulator
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning . WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury. 1. Remove Rear Side Door Water Deflector. Refer to Rear Side Door Water Deflector Replacement (Equinox) Rear Side Door Water Deflector Replacement (Terrain) 2. Using a suitable flat-bladed tool, release the window from the regulator sash retainer.	
1	Rear Side Door Window Regulator Guide Bolt CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)

Callout	Component Name
2	Rear Side Door Window Regulator Nut (Qty: 2) Tighten 11 N.m (97 lb in)
3	Rear Side Door Window Regulator Procedure 1. Transfer components as necessary. 2. Refer to Window Motor Programming - Express Function NOTE: Inspect the door window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW REGULATOR MOTOR REPLACEMENT

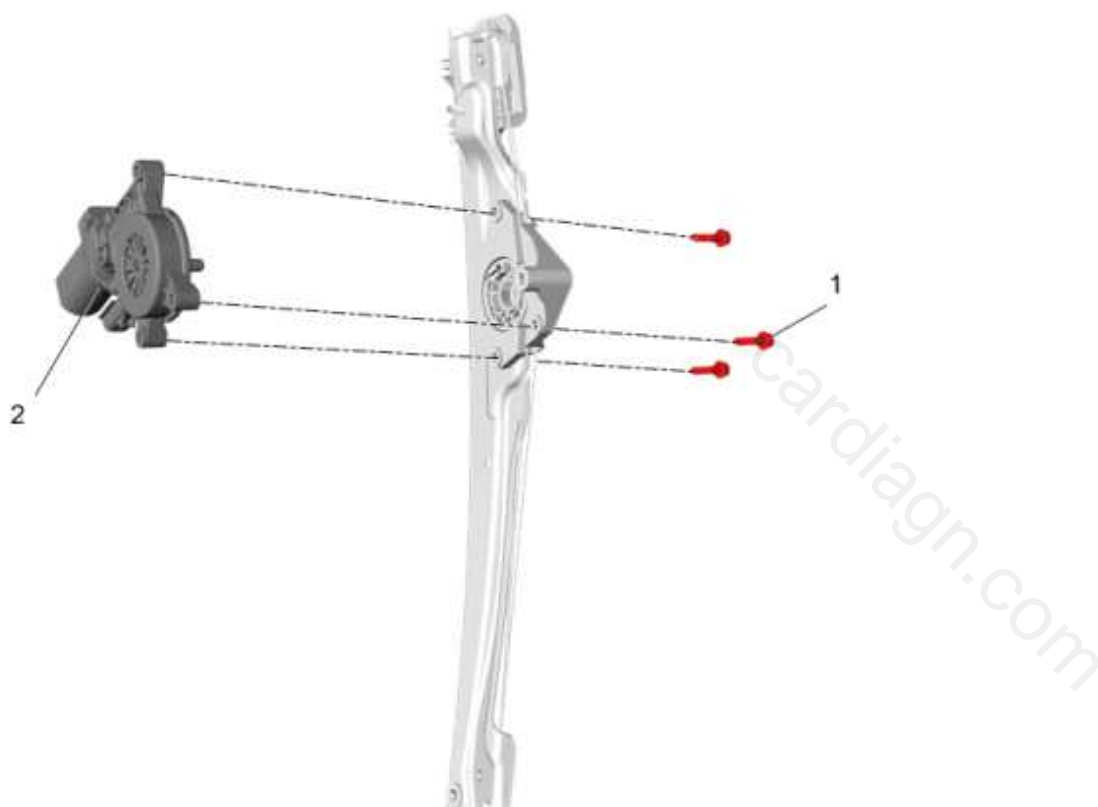


Fig. 59: Rear Side Door Window Regulator Motor

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Rear Side Door Window Regulator. Refer to Rear Side Door Window Regulator Replacement	
1	Rear Side Door Window Regulator Motor Screw (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)
2	Rear Side Door Window Regulator Motor Procedure Refer to Window Motor Programming - Express Function NOTE: Inspect the window for proper operation before installing the door trim.

FRONT SIDE DOOR WINDOW CHANNEL RETAINER REPLACEMENT

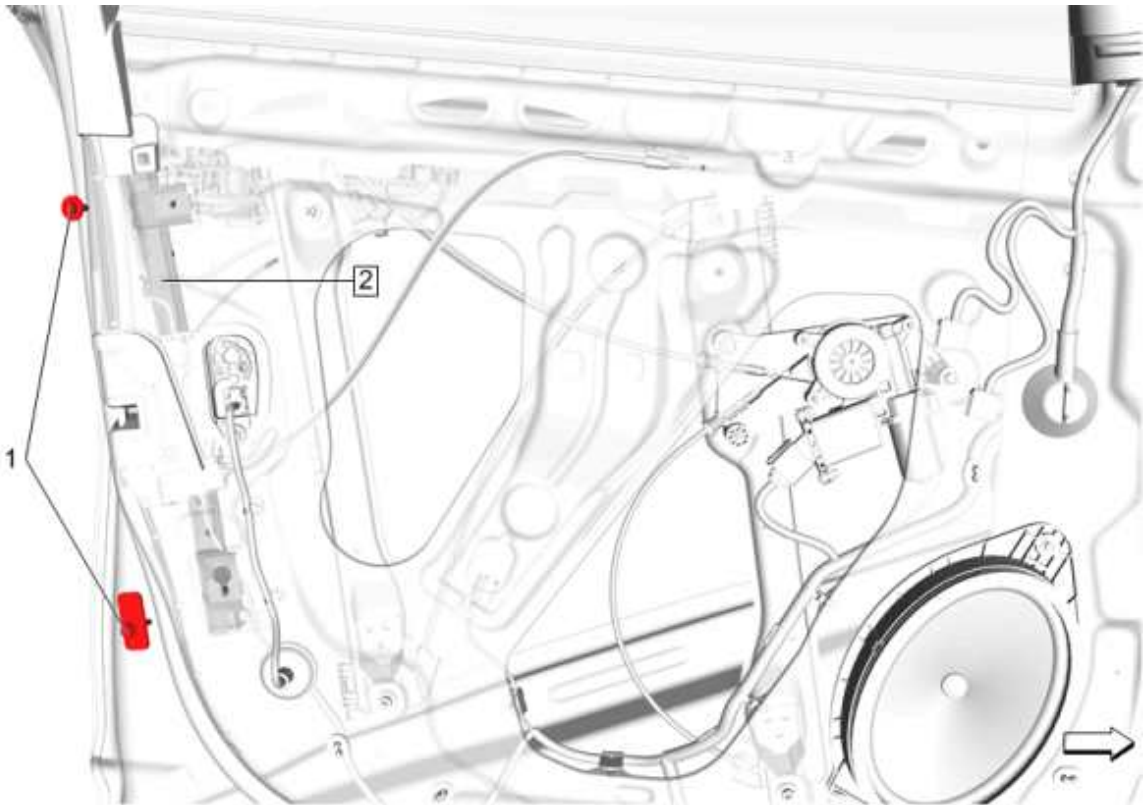


Fig. 60: Front Side Door Window Channel Retainer
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedure Remove Front Side Door Water Deflector. Refer to Front Side Door Water Deflector Replacement (Equinox) Front Side Door Water Deflector Replacement (Terrain)	
1	Front Side Door Window Channel Retainer Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Front Side Door Window Channel Retainer Preliminary Procedure Disconnect and reposition harness as necessary.

REAR SIDE DOOR WINDOW CHANNEL REAR RETAINER REPLACEMENT

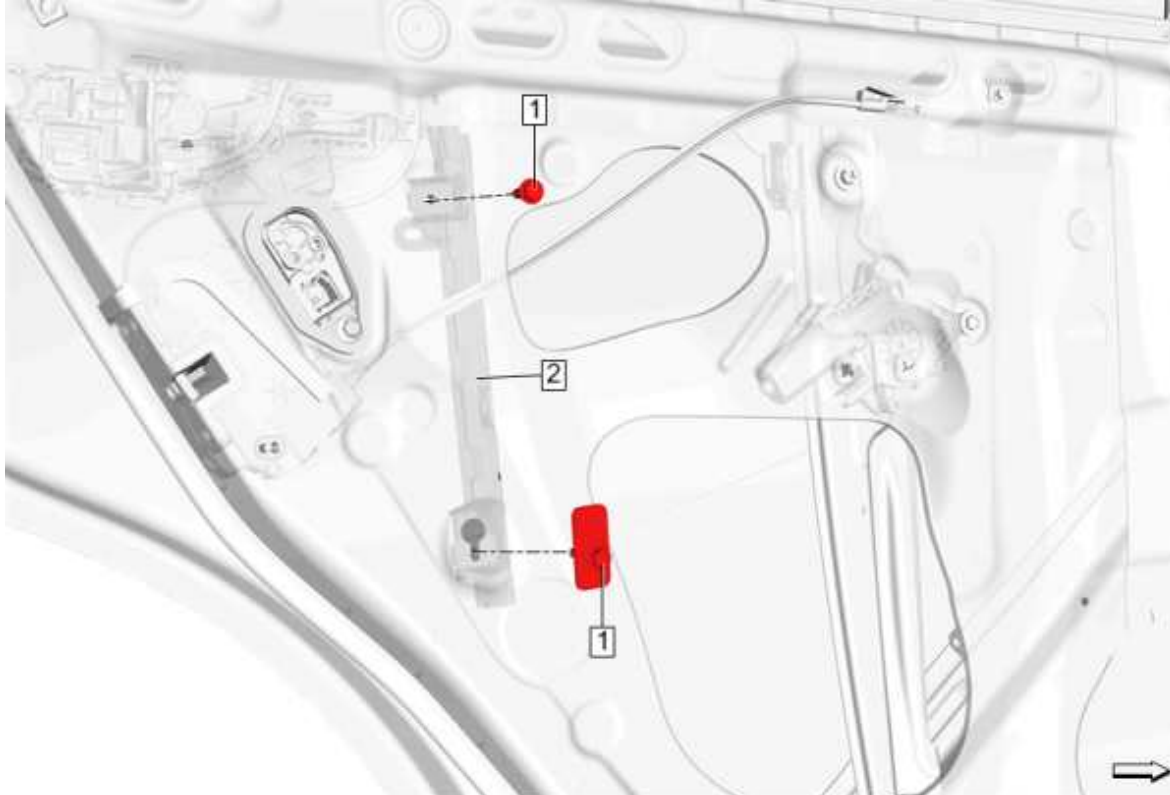


Fig. 61: Rear Side Door Window Channel Rear Retainer

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: Refer to Glass and Sheet Metal Handling Warning .	
WARNING: Disconnect the power window switch when working inside the door. When operated, the Express Up/Down Feature allows the door window to move very quickly, without stopping, which could cause personal injury.	
Preliminary Procedure Remove Rear Side Door Water Deflector. Refer to Rear Side Door Water Deflector Replacement (Equinox) Rear Side Door Water Deflector Replacement (Terrain)	
1	Rear Side Door Window Channel Rear Retainer Bolt (Qty: 2) CAUTION: Refer to Fastener Caution . Tighten 11 N.m (97 lb in)
2	Rear Side Door Window Channel Retainer Procedure 1. Disconnect and reposition harness as necessary. 2. Place the window to the full up position and tape in place. NOTE: Inspect the window for proper operation before installing the trim.

FRONT SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT

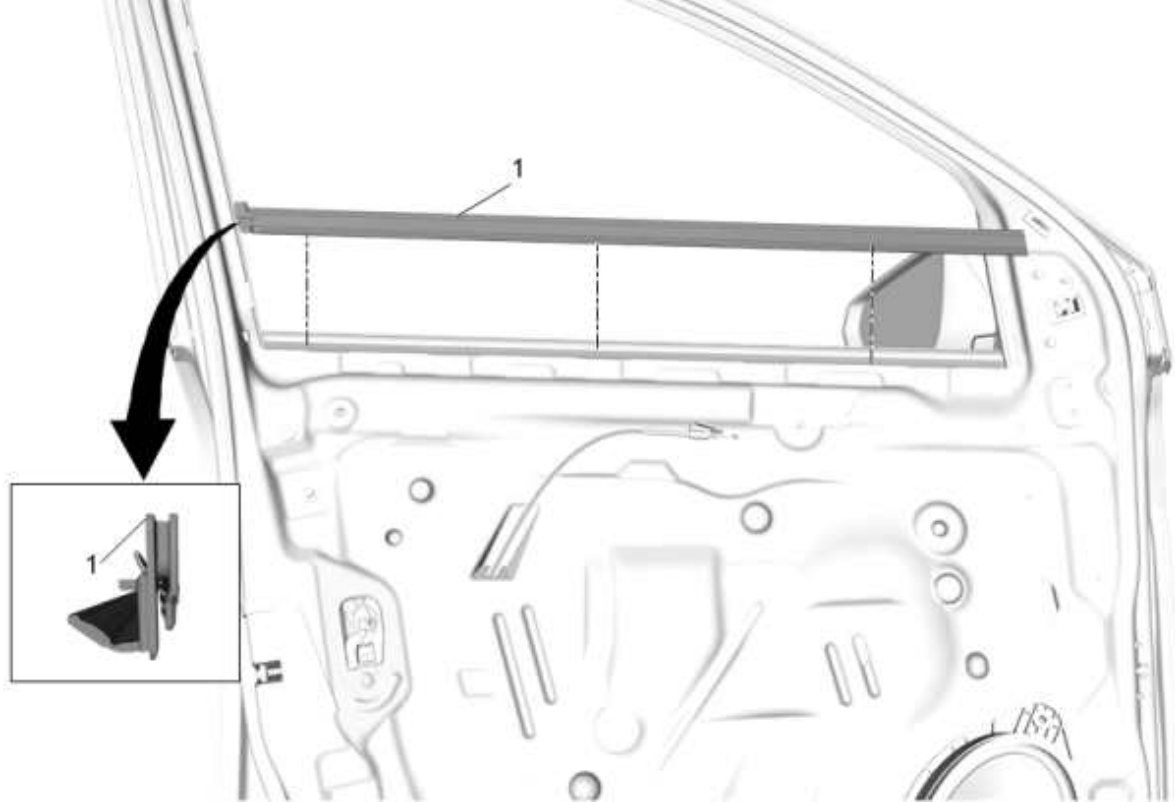


Fig. 62: Front Side Door Window Inner Sealing Strip

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure Remove Front Side Door Window Garnish Molding. Refer to Front Side Door Window Garnish Molding Replacement (Equinox) , Front Side Door Window Garnish Molding Replacement (Terrain) .	
1	Front Side Door Window Inner Sealing Strip Procedure 1. Lift the front side door window inner strip off the pinch-weld flange. 2. Press firmly to insert the front side door window inner strip back on the door flange. NOTE: Inspect the window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

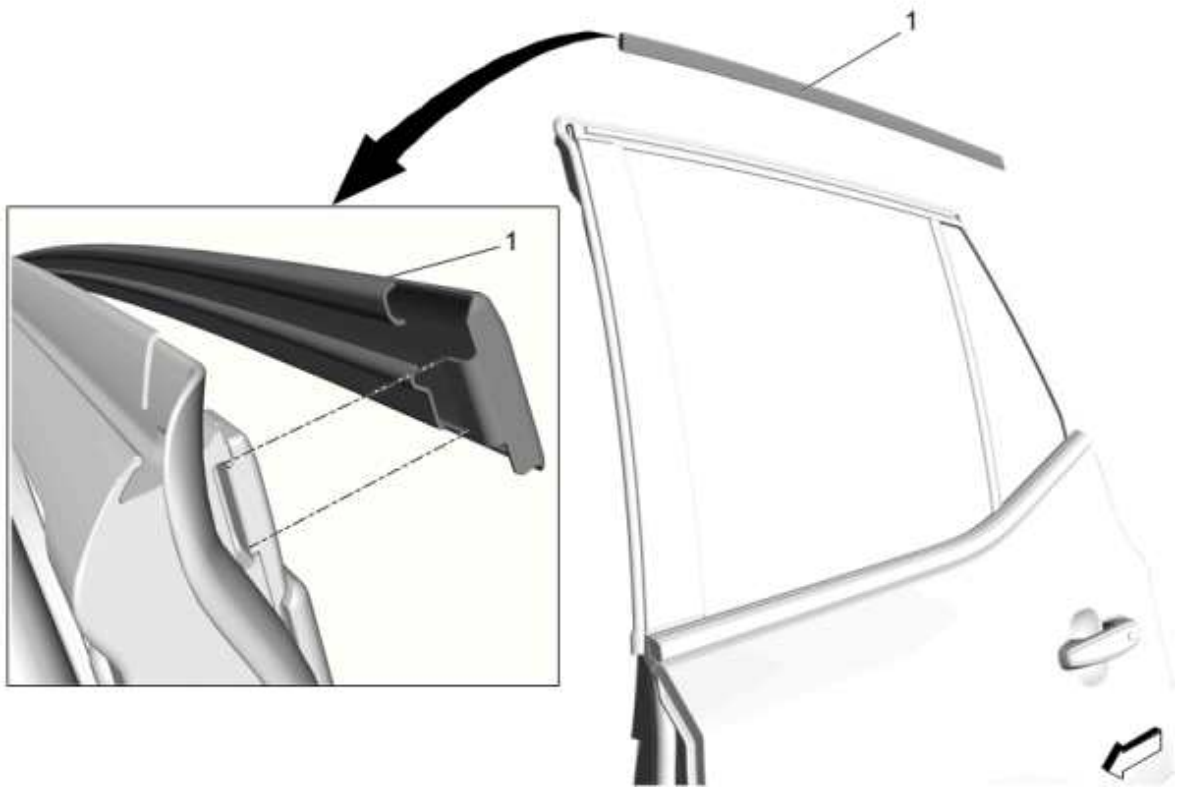


Fig. 63: Rear Side Door Window Upper Reveal Molding
Courtesy of GENERAL MOTORS COMPANY

Callous	Component Name
1	Rear Side Door Window Upper Reveal Molding Procedure 1. Apply masking tape to the outer applique and door frame. 2. Using the appropriate tool, slide upper reveal molding forward and separate the upper reveal molding from the side door window weatherstrip. 3. Use a suitable lubricant to assist in sliding the reveal molding down the center of the weatherstrip.

REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT (EQUINOX)

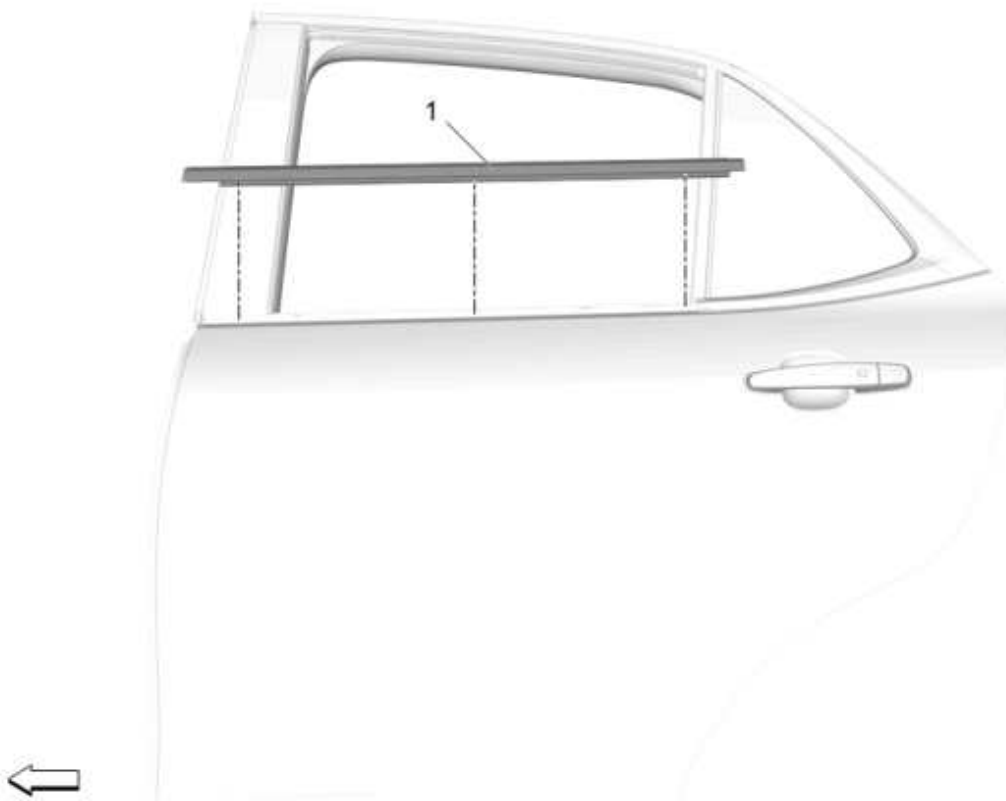


Fig. 64: Rear Side Door Window Belt Reveal Molding (Equinox)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Side Door Window Belt Reveal Molding Procedure 1. Place the rear side door window in the down position. 2. Tape off the lower window frame to prevent damage to the door. 3. Lift the rear side door window belt reveal molding off the pinch-weld flange. 4. Install the sealing strip to the flange of the door and push downward until fully seated. NOTE: Inspect the door window for proper operation.

REAR SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT (TERRAIN)

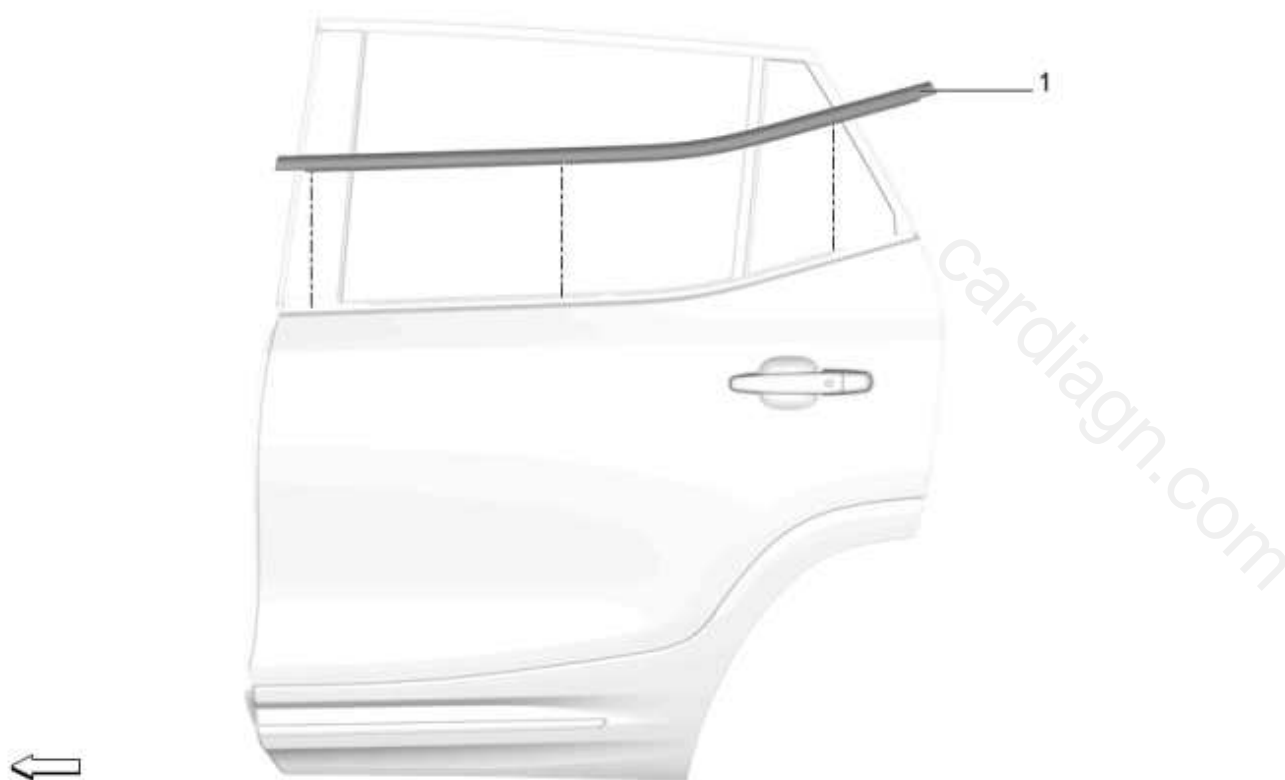


Fig. 65: Rear Side Door Window Belt Reveal Molding (Terrain)
 Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Rear Side Door Window Belt Reveal Molding Procedure 1. Place the rear side door window in the down position. 2. Tape off the lower window frame to prevent damage to the door. 3. Lift the rear side door window belt reveal molding off the pinch-weld flange. 4. Install the sealing strip to the flange of the door and push downward until fully seated. NOTE: Inspect the door window for proper operation.

FRONT SIDE DOOR WINDOW BELT REVEAL MOLDING REPLACEMENT

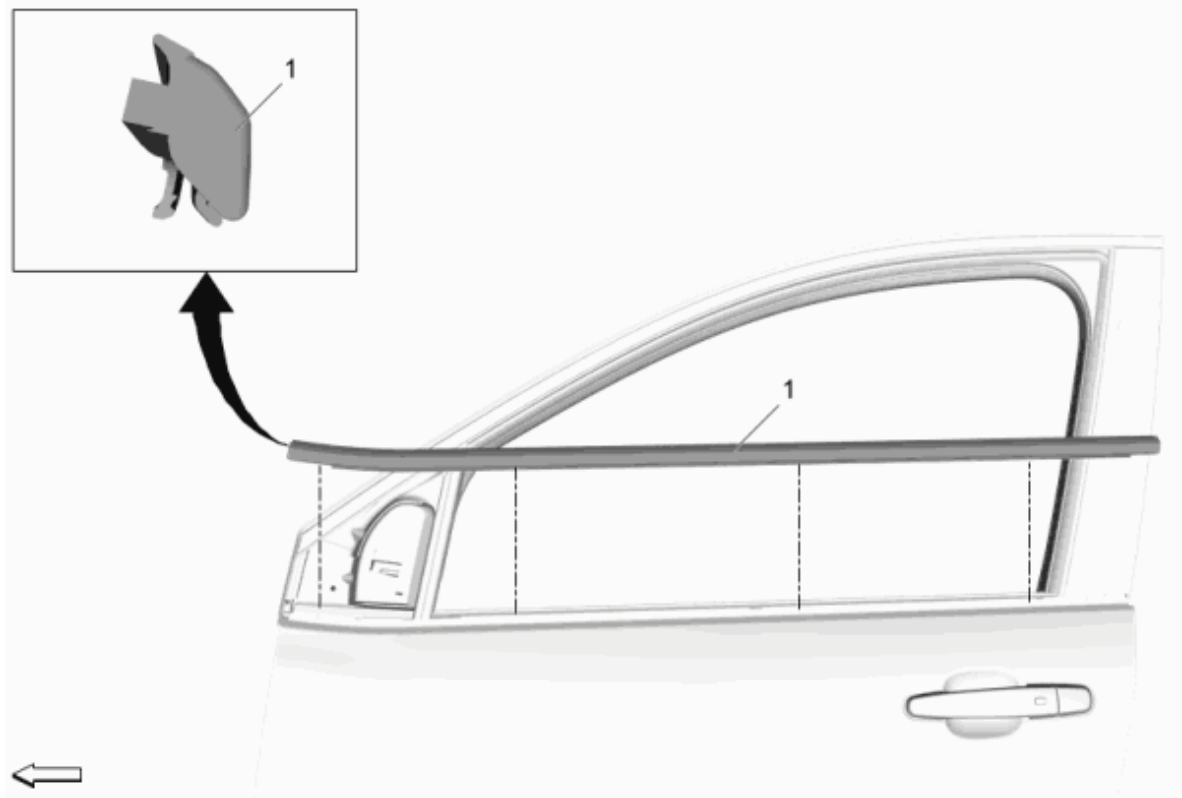


Fig. 66: Front Side Door Window Belt Reveal Molding

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedure	
Remove Outside Rearview Mirror. Refer to Outside Rearview Mirror Replacement	
1	Front Side Door Window Belt Reveal Molding Procedure 1. Tape off the lower window frame to prevent damage to the door. 2. Place the front door window in the full down position. 3. Press firmly to insert the front side door window belt reveal molding back on the door flange. NOTE: Inspect the door window for proper operation.

FRONT SIDE DOOR WINDOW UPPER REVEAL MOLDING REPLACEMENT

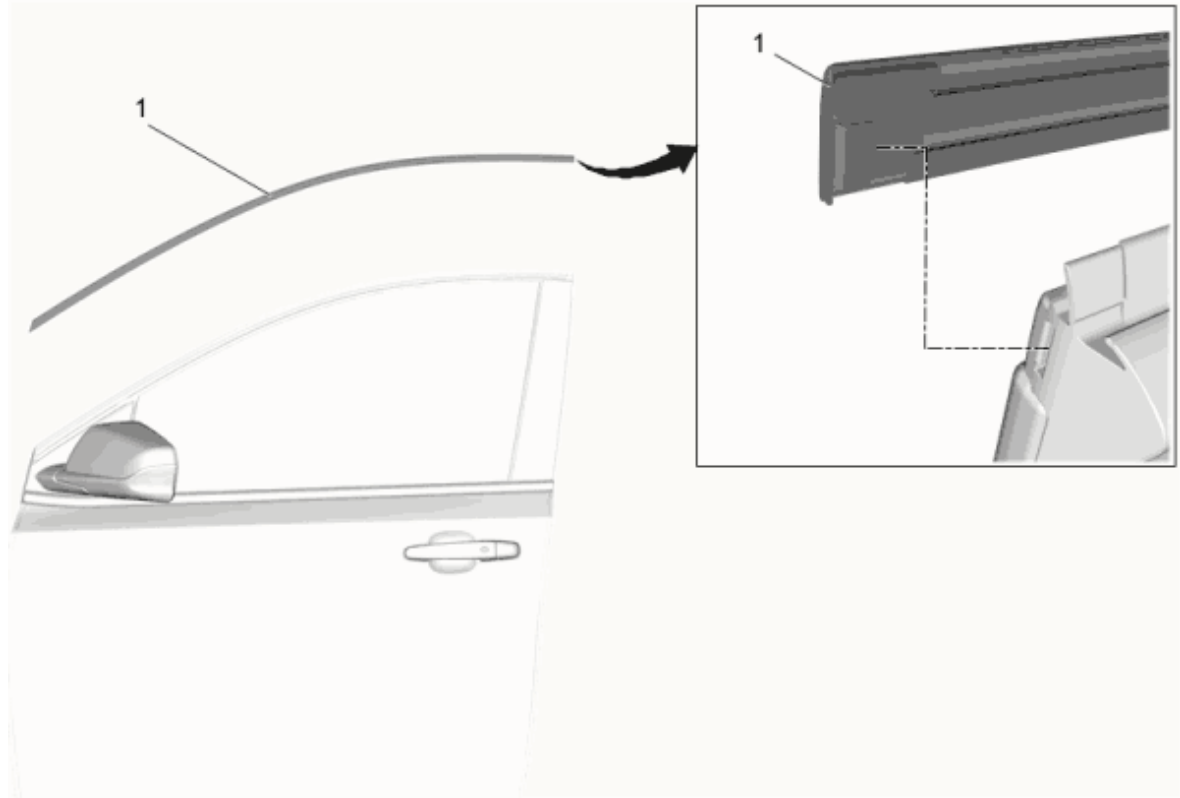


Fig. 67: Front Side Door Window Upper Reveal Molding

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Front Side Door Window Upper Reveal Molding Procedure 1. Open the door and place the window in the full down position. 2. Apply masking tape to the outer applique and door frame. 3. Using the appropriate tool, slide rearward the upper reveal molding and separate from the side door window weatherstrip. 4. Spray the weatherstrip with a suitable lubricant to assist in sliding the reveal molding down the center of the weatherstrip.

REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT (EQUINOX)

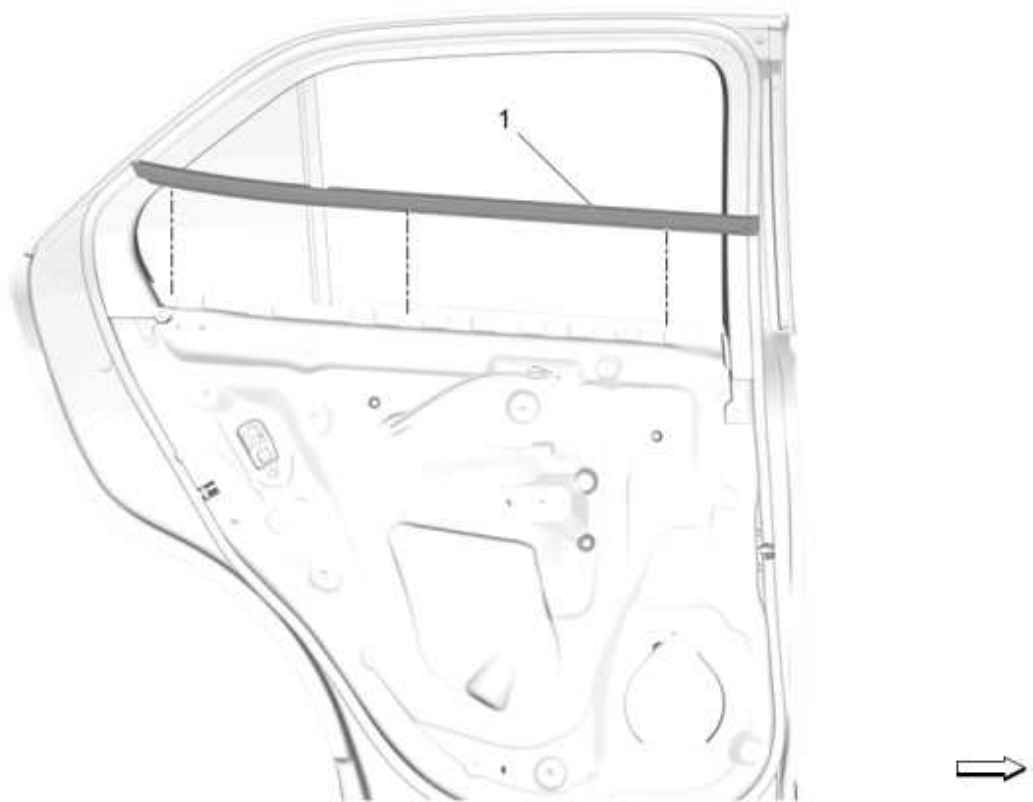


Fig. 68: Rear Side Door Window Inner Sealing Strip (Equinox)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Place the rear door window in the full down position. 2. Remove Rear Side Door Window Garnish Molding. Refer to Rear Side Door Window Garnish Molding Replacement (Equinox)	
1	Rear Side Door Window Inner Sealing Strip Procedure 1. Lift the rear side door window inner strip off the pinch-weld flange. 2. Press firmly to insert the rear side door window inner strip back on the door flange. NOTE: Inspect the window for proper operation before installing the door trim.

REAR SIDE DOOR WINDOW INNER SEALING STRIP REPLACEMENT (TERRAIN)

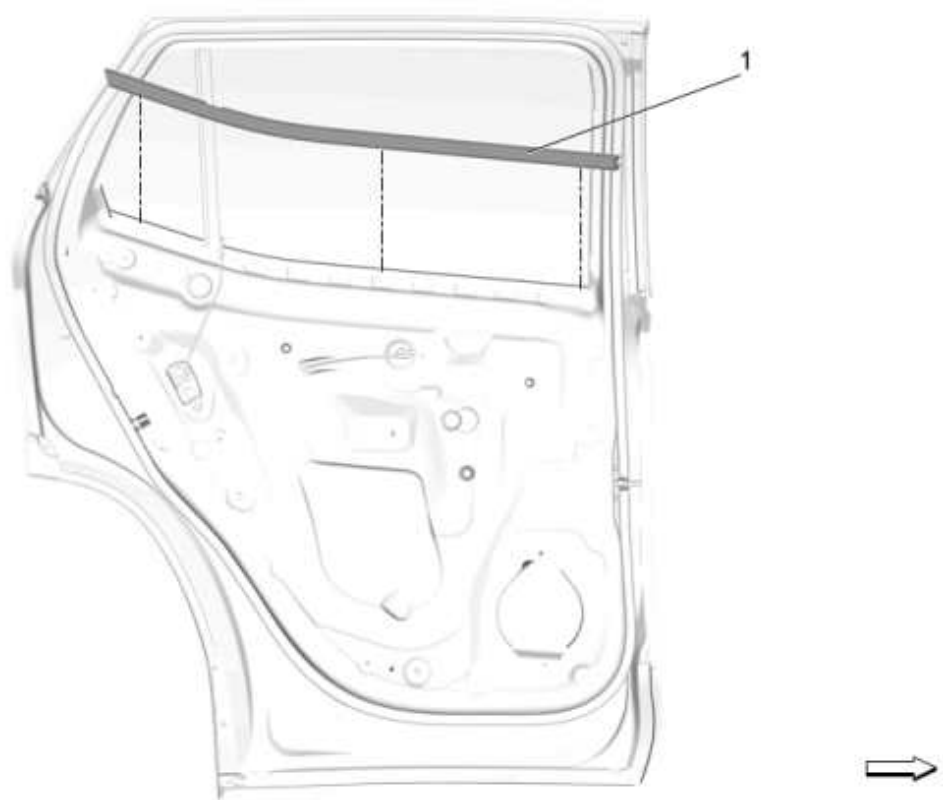


Fig. 69: Rear Side Door Window Inner Sealing Strip (Terrain)

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Place the rear door window in the full down position. 2. Remove Rear Side Door Window Garnish Molding Refer to Rear Side Door Window Garnish Molding Replacement (Terrain)	
1	Rear Side Door Window Inner Sealing Strip Procedure 1. Lift the rear side door window inner strip off the pinch-weld flange. 2. Press firmly to insert the rear side door window inner strip back on the door flange. NOTE: Inspect the window for proper operation before installing the door trim.

FRONT SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT

Removal Procedure

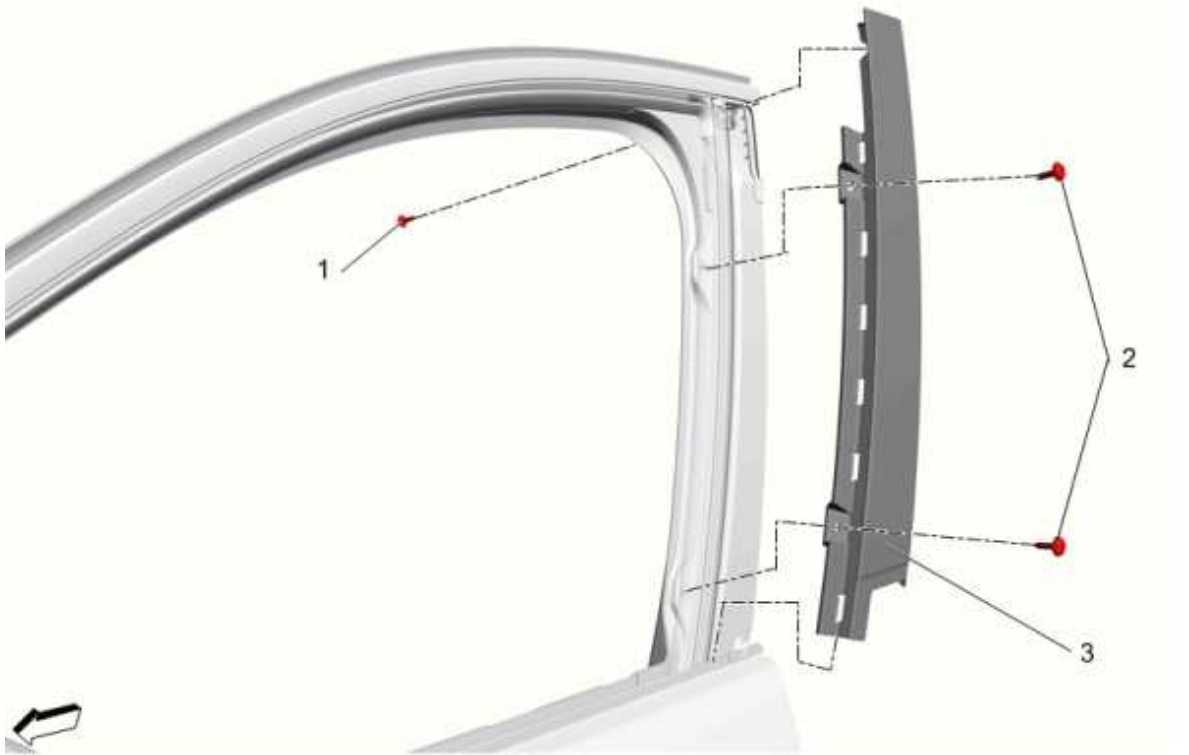


Fig. 70: Front Side Door Window Frame Rear Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

1. Remove Front Side Door Window Frame Rear Applique (3). Refer to [Front Side Door Window Frame Rear Applique Replacement](#)

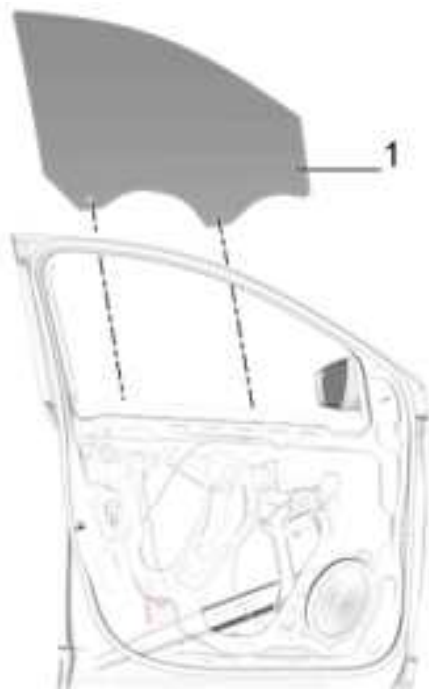


Fig. 71: Front Side Door Window

Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Side Door Window (1). Refer to [Front Side Door Window Replacement](#)

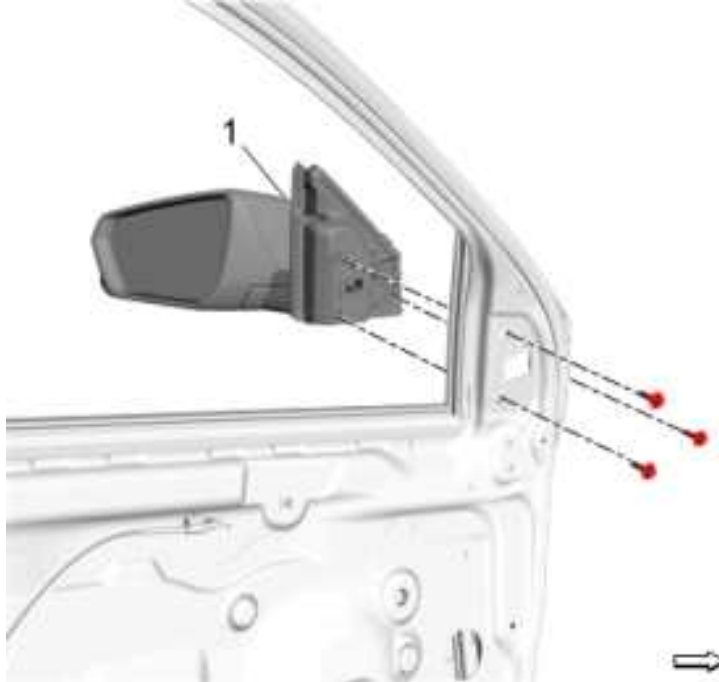


Fig. 72: Outside Rearview Mirror

Courtesy of GENERAL MOTORS COMPANY

3. Remove Outside Rearview Mirror (1). Refer to [Outside Rearview Mirror Replacement](#)

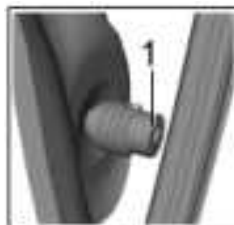


Fig. 73: Front Side Door Window Weatherstrip

Courtesy of GENERAL MOTORS COMPANY

4. Remove Front Side Door Window Weatherstrip (1)

Installation Procedure



Fig. 74: Front Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

1. Install Front Side Door Window Weatherstrip (1)

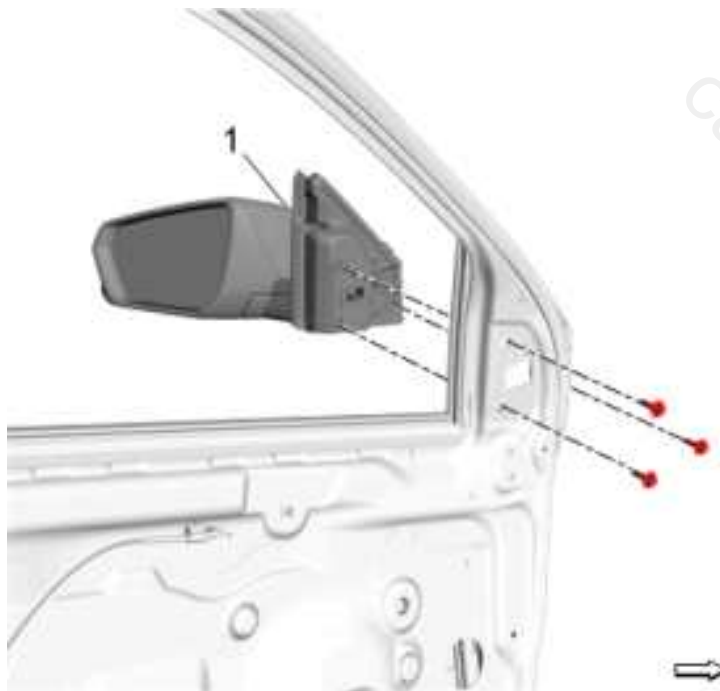


Fig. 75: Outside Rearview Mirror
Courtesy of GENERAL MOTORS COMPANY

2. Install Outside Rearview Mirror (1). Refer to [Outside Rearview Mirror Replacement](#)

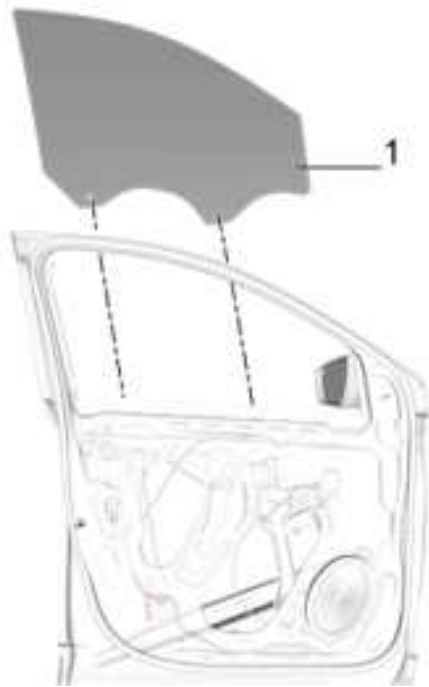


Fig. 76: Front Side Door Window

Courtesy of GENERAL MOTORS COMPANY

3. Install Front Side Door Window (1). Refer to [Front Side Door Window Replacement](#)



Fig. 77: Front Side Door Window Frame Rear Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

4. Install Front Side Door Window Frame Rear Applique (3). Refer to [Front Side Door Window Frame Rear Applique Replacement](#)
5. Ensure the window system operates properly.

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT (EQUINOX)

Removal Procedure



Fig. 78: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

1. Remove Rear Side Door Window (1). Refer to [Rear Side Door Window Replacement \(Equinox\)](#)

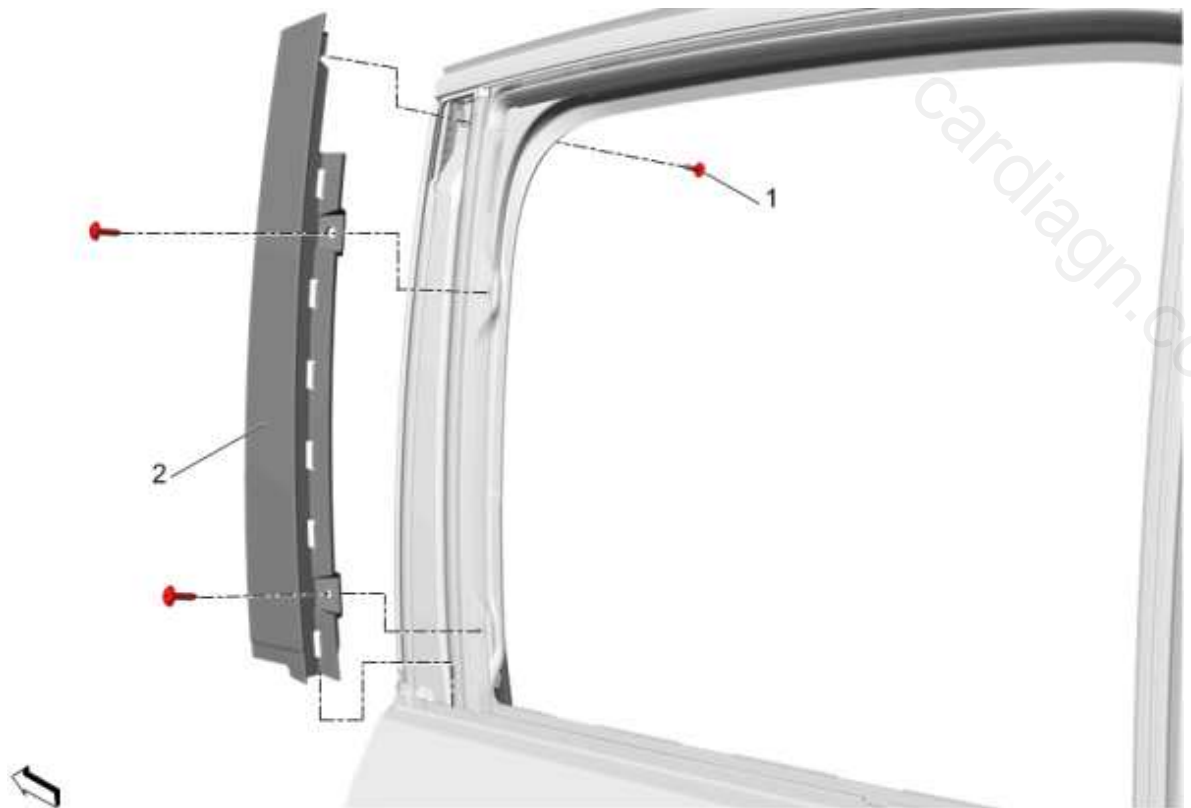


Fig. 79: Rear Side Door Window Frame Front Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

2. Remove Rear Side Door Window Frame Front Applique (2). Refer to [Rear Side Door Window Frame Front Applique Replacement](#)

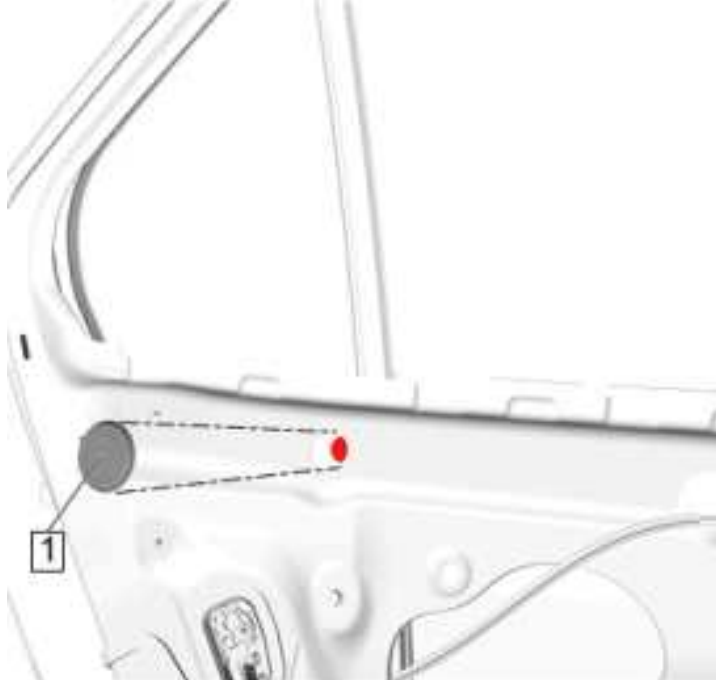


Fig. 80: Rear Side Door Weatherstrip Bolt Plug
Courtesy of GENERAL MOTORS COMPANY

3. Remove Rear Side Door Weatherstrip Bolt Plug (1)

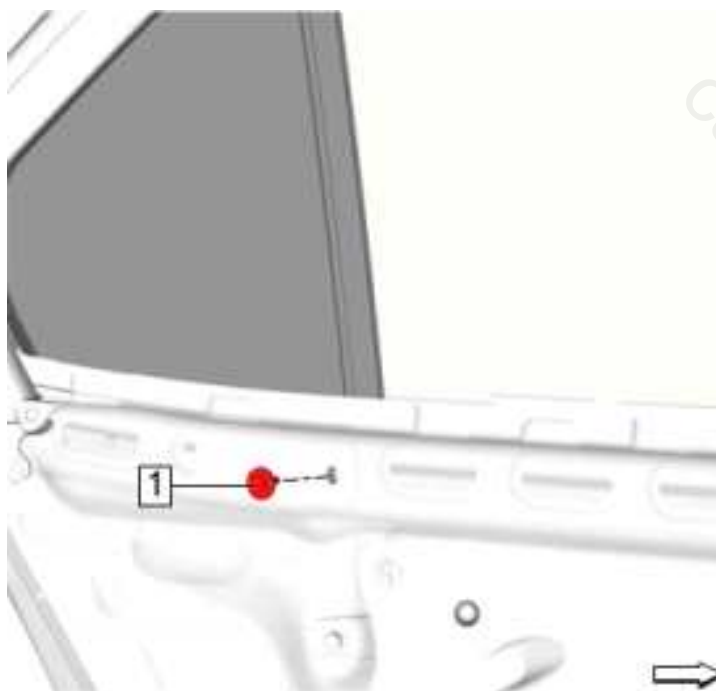


Fig. 81: Rear Side Door Weatherstrip Bolt
Courtesy of GENERAL MOTORS COMPANY

4. Remove Rear Side Door Weatherstrip Bolt (1)



Fig. 82: Rear Side Door Window Weatherstrip Clips
Courtesy of GENERAL MOTORS COMPANY

5. Release Rear Side Door Window Weatherstrip Clips (1) (Qty: 2)

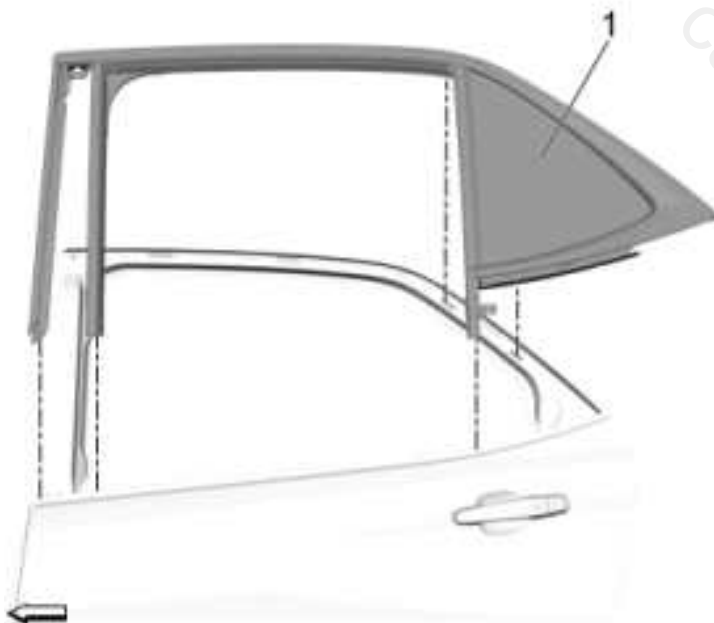


Fig. 83: Rear Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

6. Remove Rear Side Door Window Weatherstrip (1)

Installation Procedure

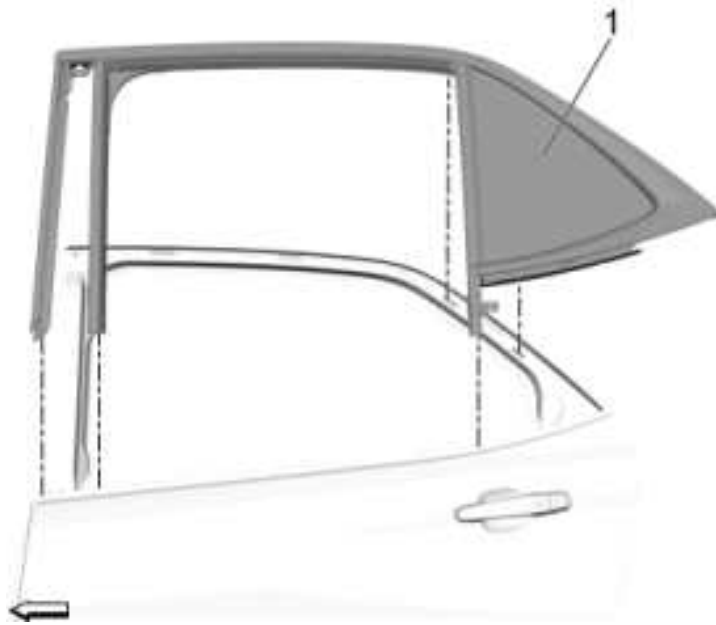


Fig. 84: Rear Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

1. Install Rear Side Door Window Weatherstrip (1)



Fig. 85: Rear Side Door Window Weatherstrip Clips
Courtesy of GENERAL MOTORS COMPANY

2. Install Rear Side Door Window Weatherstrip Clips (1) (Qty: 2)

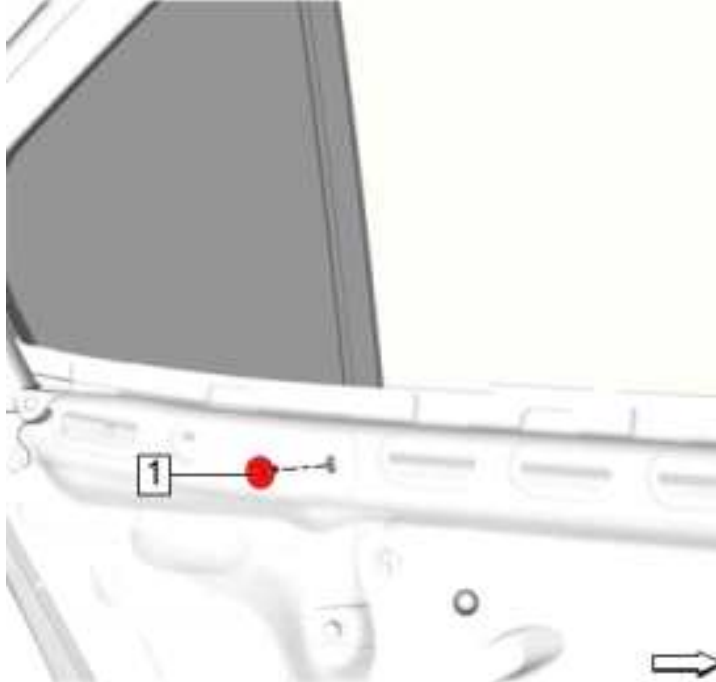


Fig. 86: Rear Side Door Weatherstrip Bolt
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#)

3. Install and tighten Rear Side Door Weatherstrip Bolt (1) to 11 N.m (97 lb in)

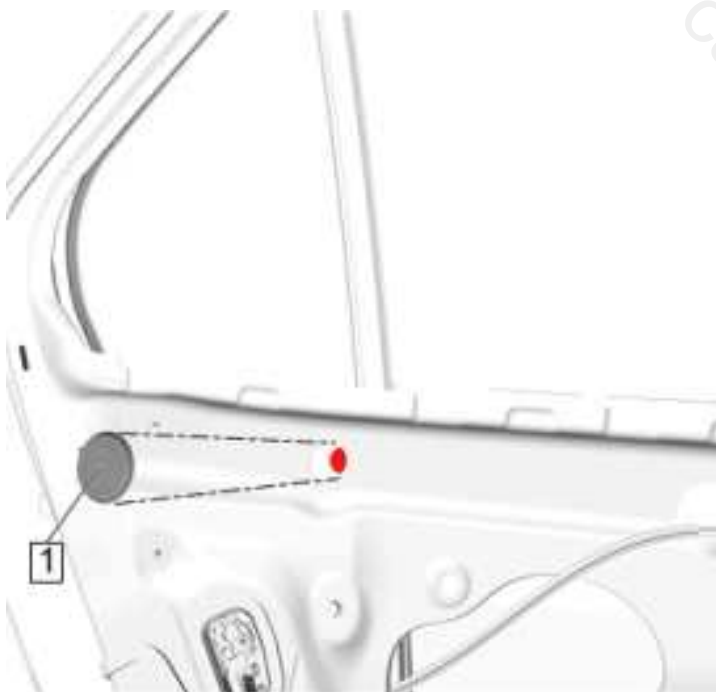


Fig. 87: Rear Side Door Weatherstrip Bolt Plug
Courtesy of GENERAL MOTORS COMPANY

4. Install Rear Side Door Weatherstrip Bolt Plug (1)

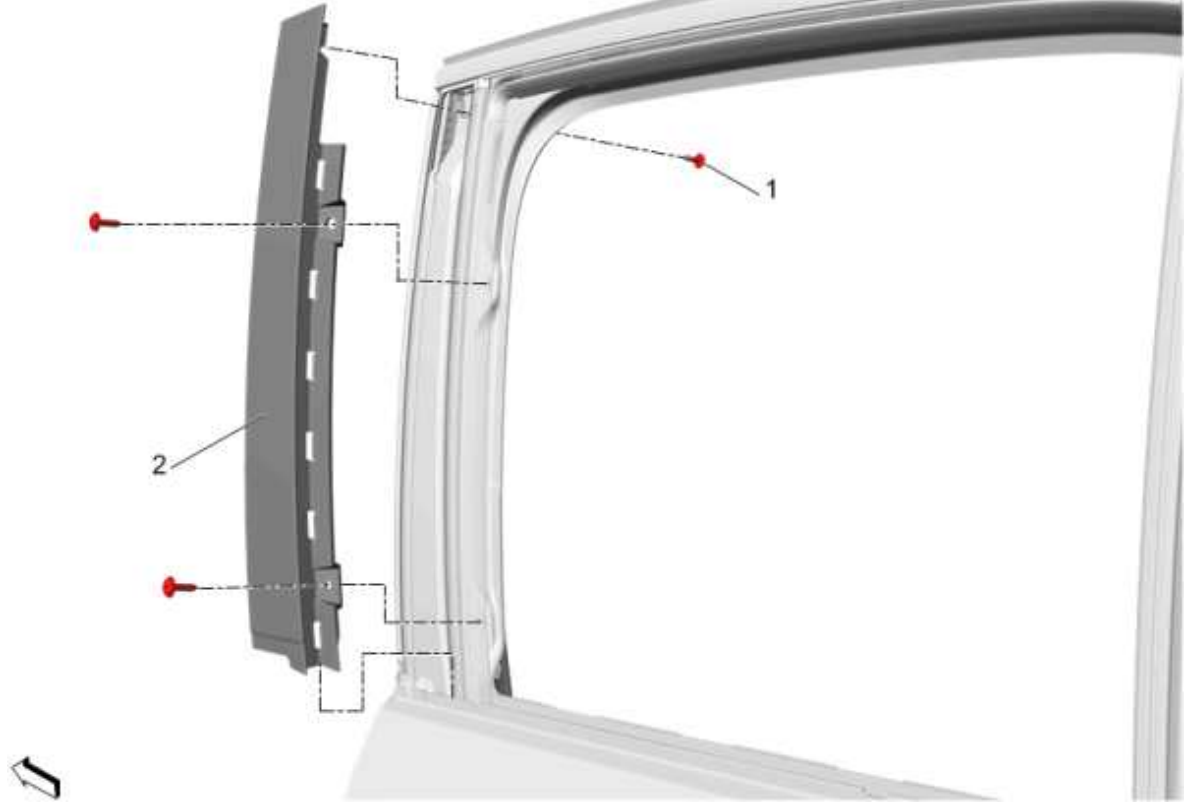


Fig. 88: Rear Side Door Window Frame Front Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

5. Install Rear Side Door Window Frame Front Applique (2). Refer to [**Rear Side Door Window Frame Front Applique Replacement**](#)



Fig. 89: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

6. Install Rear Side Door Window (1). Refer to [**Rear Side Door Window Replacement \(Equinox\)**](#)
7. Ensure the window system operates properly.

REAR SIDE DOOR WINDOW WEATHERSTRIP REPLACEMENT (TERRAIN)

Removal Procedure

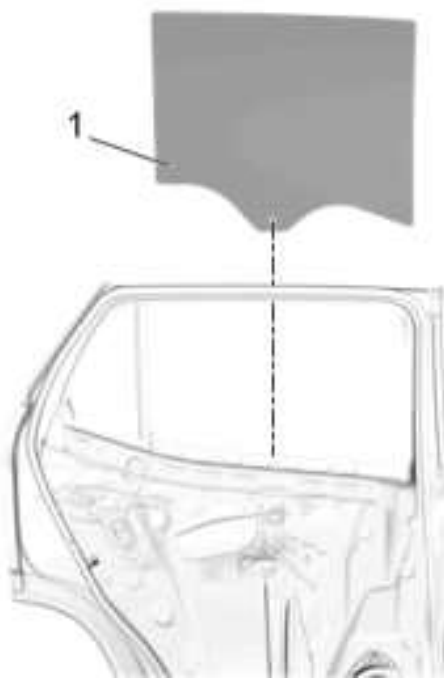


Fig. 90: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

1. Remove Rear Side Door Window (1). Refer to [Rear Side Door Window Replacement \(Terrain\)](#)

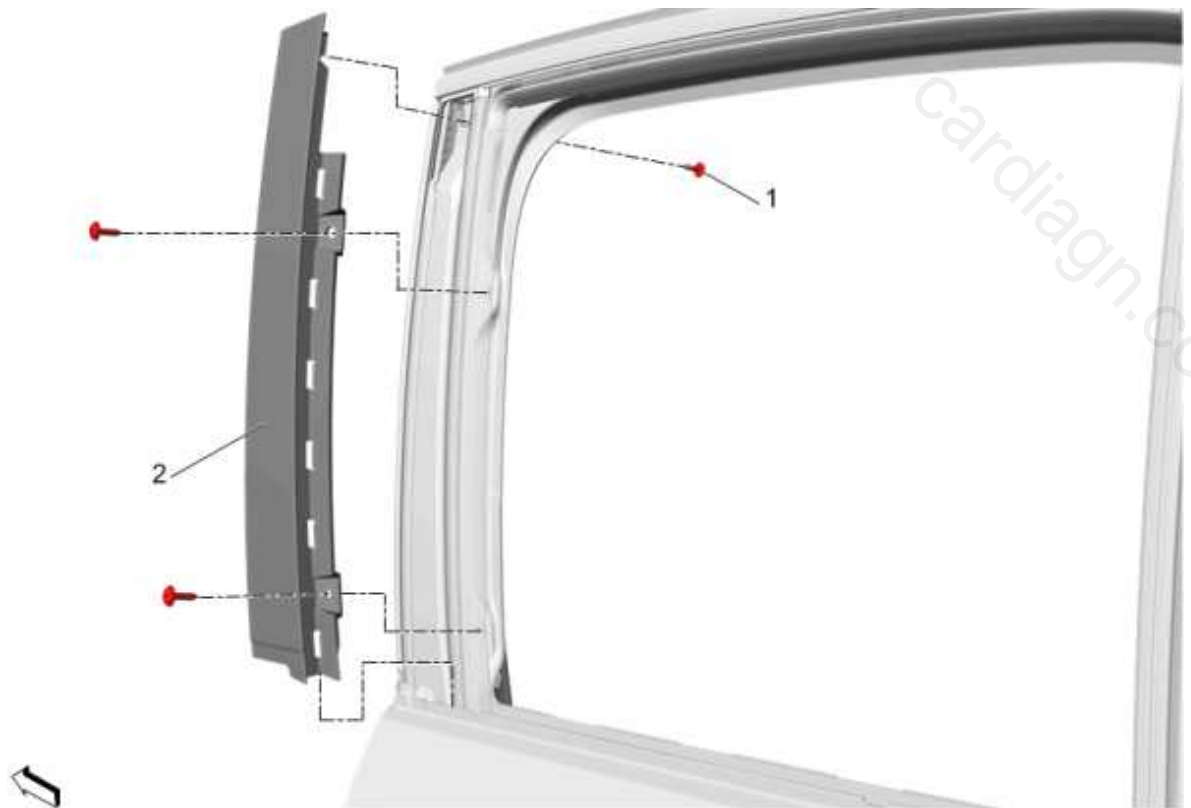


Fig. 91: Rear Side Door Window Frame Front Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

2. Remove Rear Side Door Window Frame Front Applique (2). Refer to [Rear Side Door Window Frame Front Applique Replacement](#)



Fig. 92: Rear Side Door Weatherstrip Bolt Plug
Courtesy of GENERAL MOTORS COMPANY

3. Remove Rear Side Door Weatherstrip Bolt Plug (1)

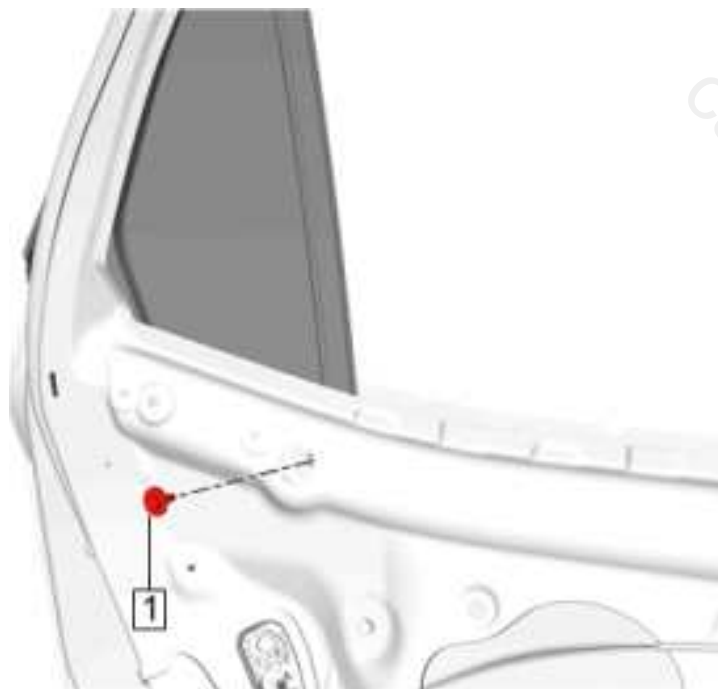


Fig. 93: Rear Side Door Weatherstrip Bolt
Courtesy of GENERAL MOTORS COMPANY

4. Remove Rear Side Door Weatherstrip Bolt (1)

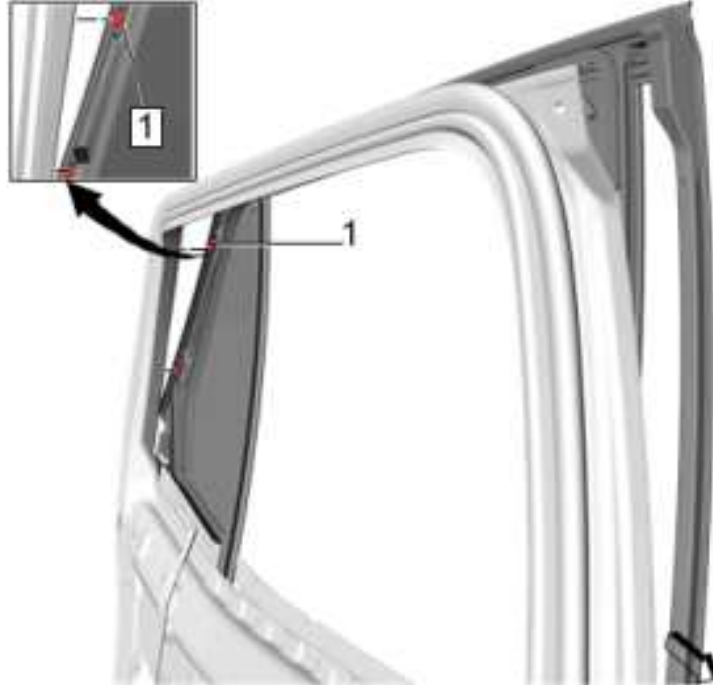


Fig. 94: Rear Side Door Window Weatherstrip Clips
Courtesy of GENERAL MOTORS COMPANY

5. Release Rear Side Door Window Weatherstrip Clips (1) (Qty: 2)

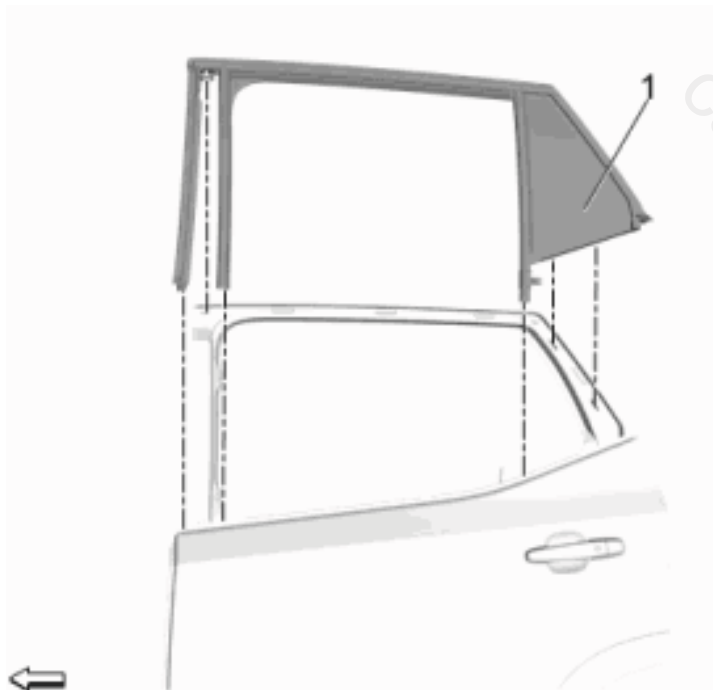


Fig. 95: Rear Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

6. Remove Rear Side Door Window Weatherstrip (1)

Installation Procedure

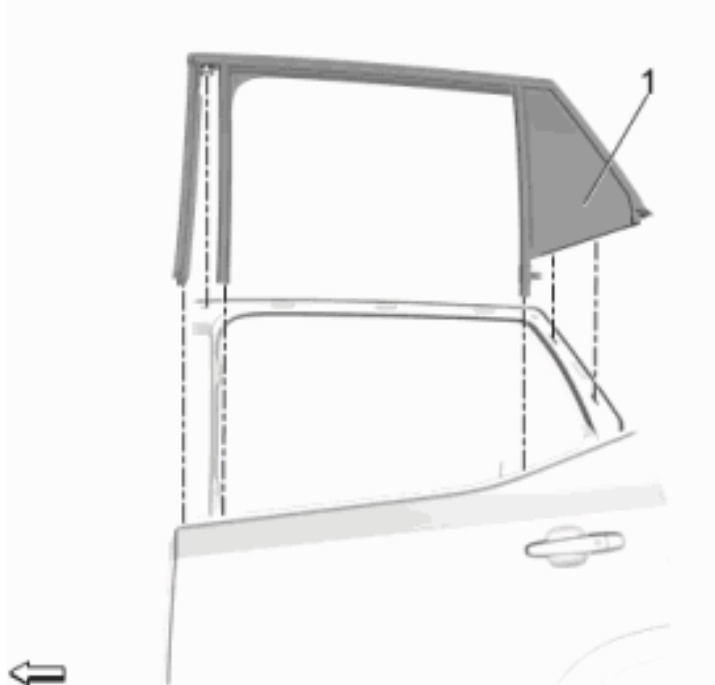


Fig. 96: Rear Side Door Window Weatherstrip
Courtesy of GENERAL MOTORS COMPANY

1. Install Rear Side Door Window Weatherstrip (1)

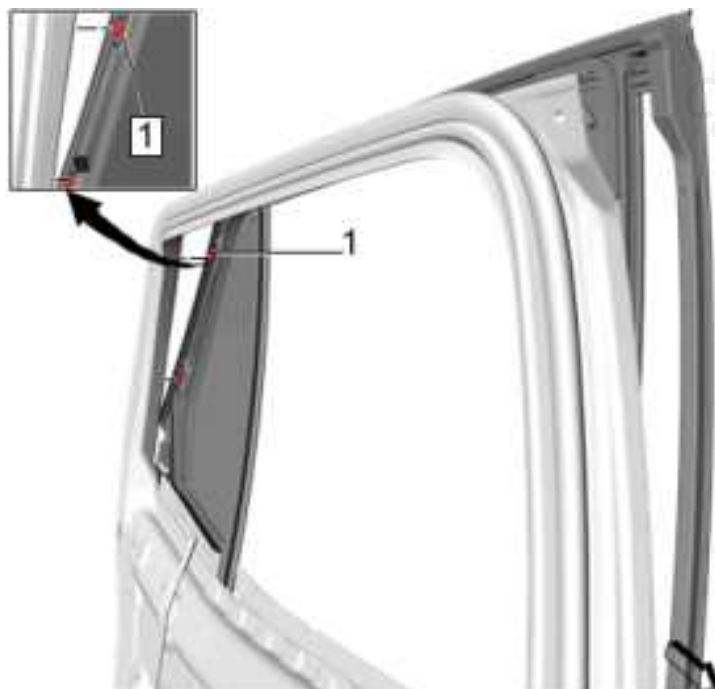


Fig. 97: Rear Side Door Window Weatherstrip Clips
Courtesy of GENERAL MOTORS COMPANY

2. Install Rear Side Door Window Weatherstrip Clips (1) (Qty: 2)

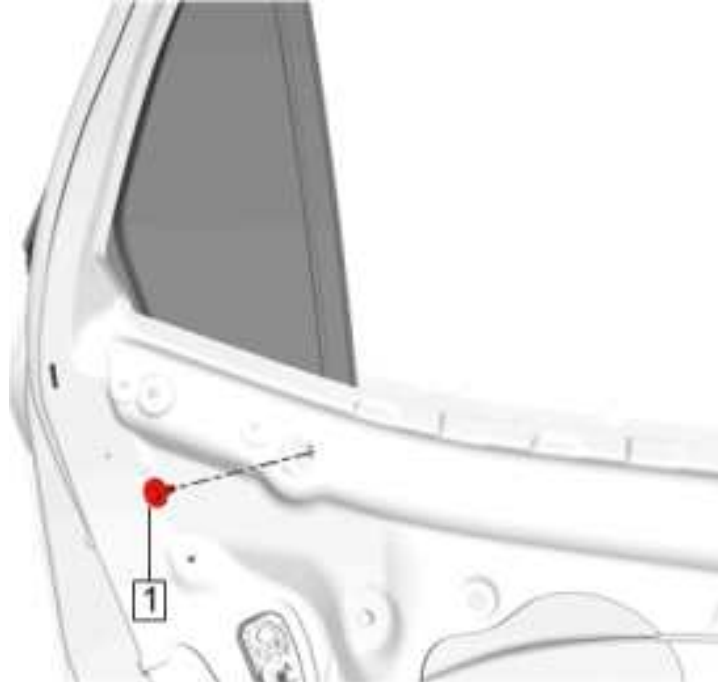


Fig. 98: Rear Side Door Weatherstrip Bolt
Courtesy of GENERAL MOTORS COMPANY

CAUTION: Refer to [Fastener Caution](#)

3. Install and tighten Rear Side Door Weatherstrip Bolt (1) to 11 N.m (97 lb in)



Fig. 99: Rear Side Door Weatherstrip Bolt Plug
Courtesy of GENERAL MOTORS COMPANY

4. Install Rear Side Door Weatherstrip Bolt Plug (1)

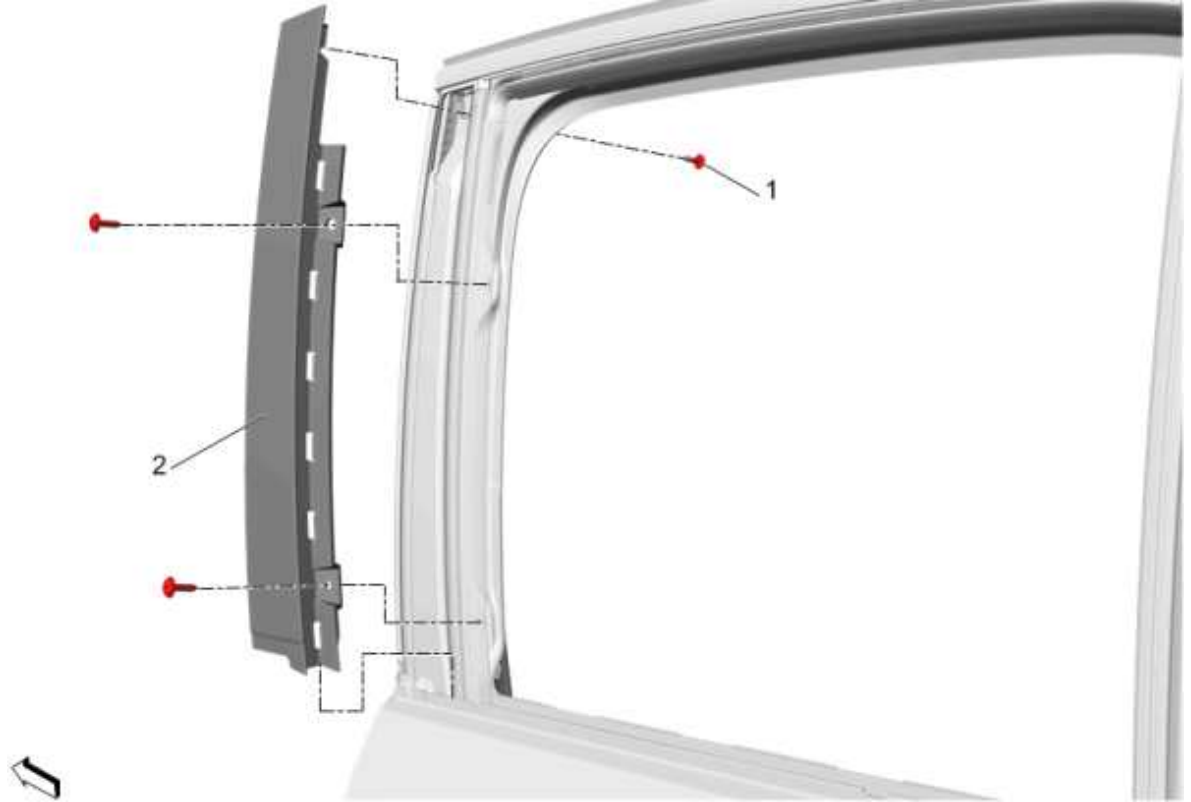


Fig. 100: Rear Side Door Window Frame Front Applique And Screws

Courtesy of GENERAL MOTORS COMPANY

5. Install Rear Side Door Window Frame Front Applique (2). Refer to [Rear Side Door Window Frame Front Applique Replacement](#)

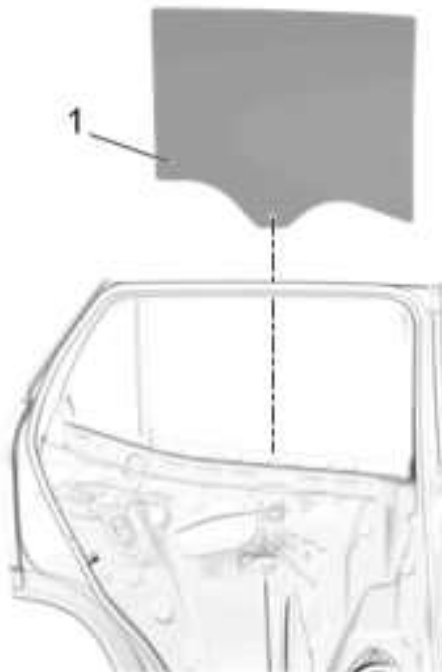


Fig. 101: Rear Side Door Window

Courtesy of GENERAL MOTORS COMPANY

6. Install Rear Side Door Window (1). Refer to [Rear Side Door Window Replacement \(Terrain\)](#)
7. Ensure the window system operates properly.

ADHESIVE INSTALLATION OF WINDSHIELDS

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

1. Use a urethane adhesive systems which meet GM Specification GM 3651G.
2. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.

3. If the original window is being reused, remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinchweld flange by using a clean utility knife or razor blade scraper.
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - The flange of the window opening
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinchweld flange

NOTE: If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, the pinch-weld flange must be refinished in order to restore the bonding area strength. If paint repairs are required, mask the flange bonding area prior to applying the color coat in order to provide a clean primer only surface. Materials such as BASF DE15, DuPont 2610, Sherwin-Williams PSE 4600 and NP70 and Martin-Semour 5120 and 5130 PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

5. After repairing the opening as indicated, perform the following steps:
 1. Remove all traces of broken glass from the outer cowl panel, seats, floor and defroster ducts.
 2. Clean around the edge of the inside surface of the window with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint free cloth.
6. Verify all primers and urethane adhesive are within expiration dates.

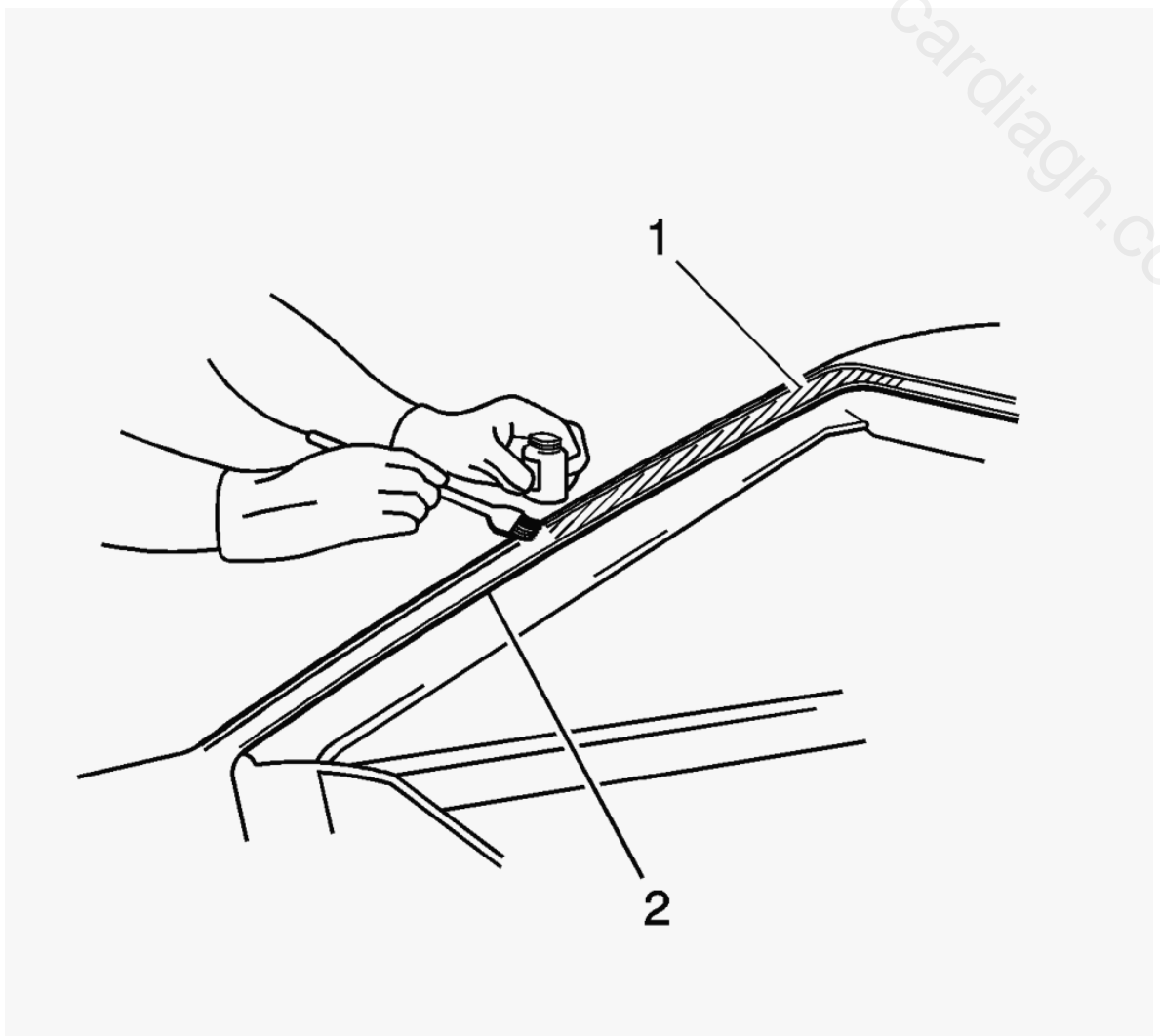


Fig. 102: Applying Pinch-Weld Primer
Courtesy of GENERAL MOTORS COMPANY

WARNING: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane

adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

NOTE: Do not apply the black primer to the existing bead of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

7. Shake the pinch-weld primer for at least 1 minute.
8. Use a new dauber in order to apply the primer to the surface of the pinch-weld flange (1).
9. Allow the pinch-weld primer to dry for approximately 10 minutes.

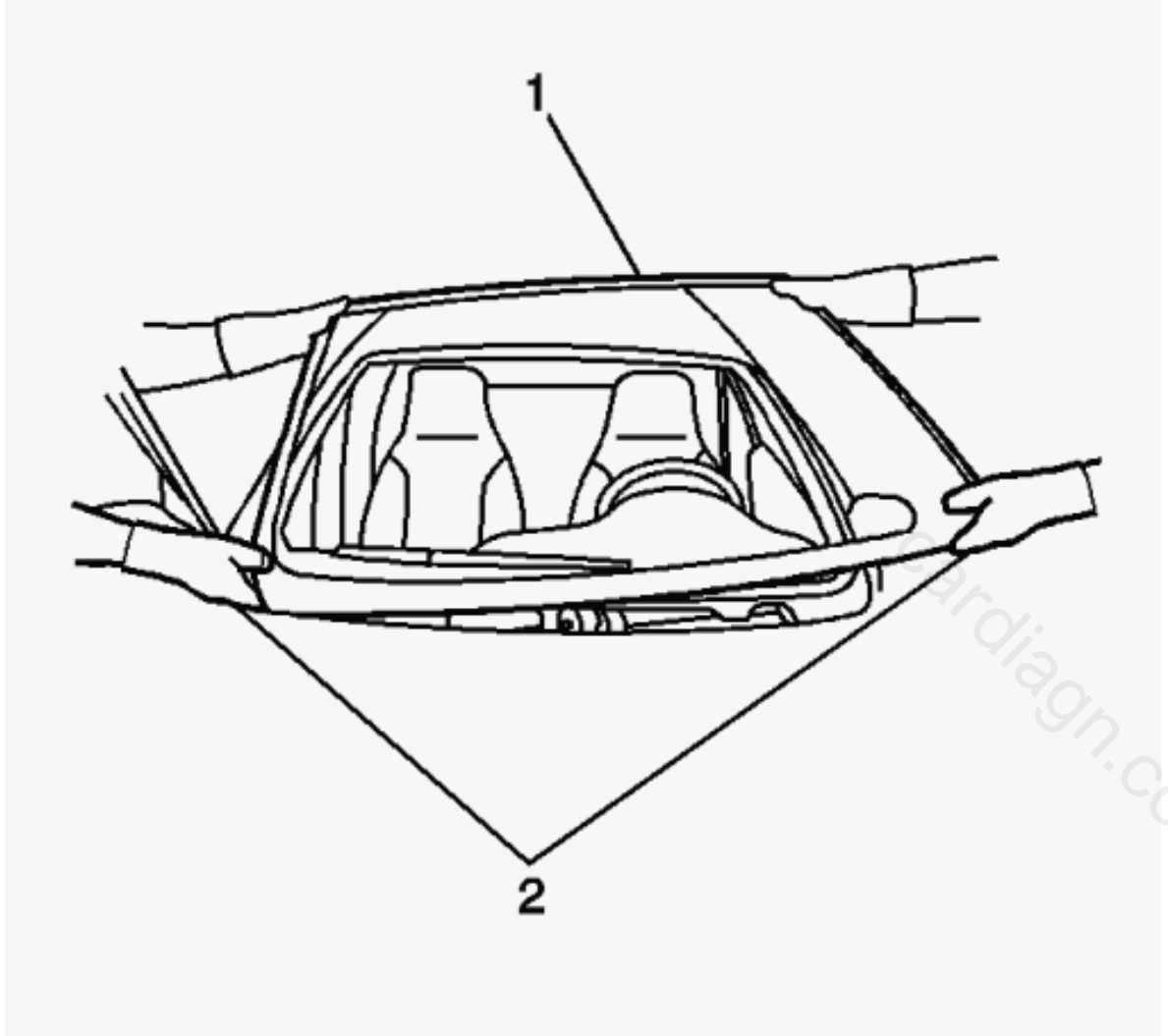


Fig. 103: Dry Fitting Window

Courtesy of GENERAL MOTORS COMPANY

10. With the an assistant, dry fit the window (1) to the opening in order to determine the correct position.

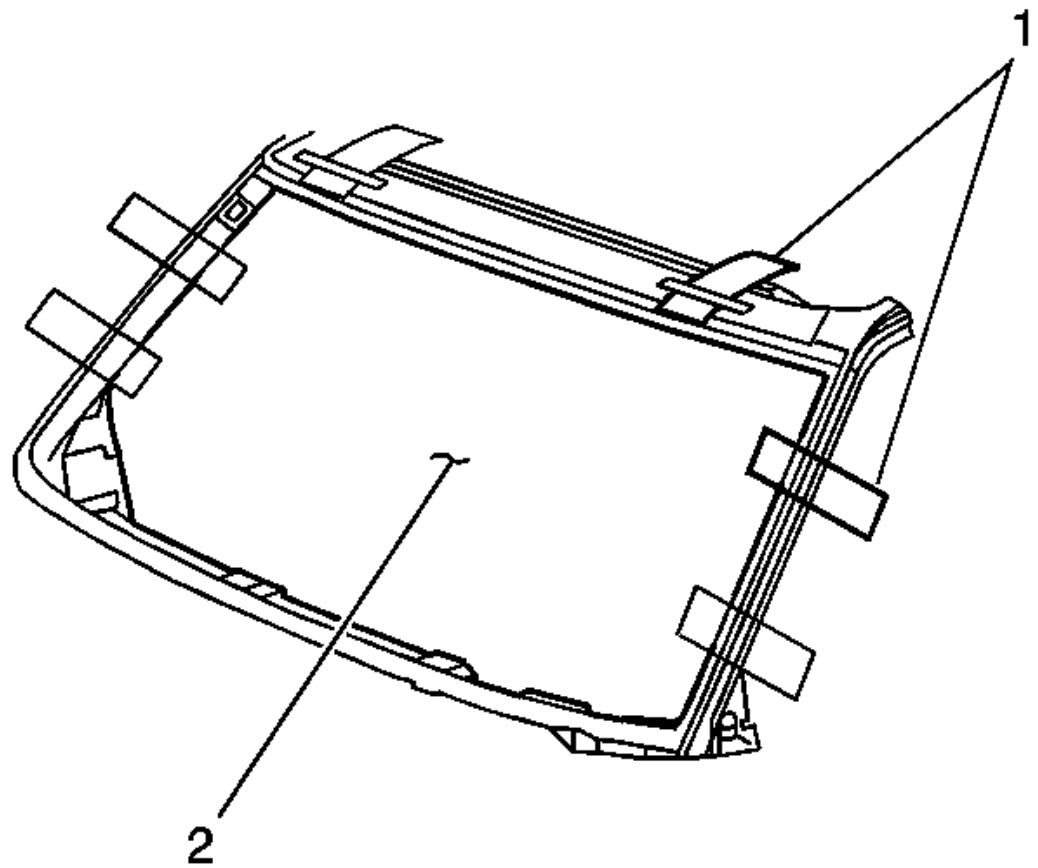


Fig. 104: Marking Location Of Window In Opening
Courtesy of GENERAL MOTORS COMPANY

11. Use masking tape in order to mark the locations (1) of the window (2) in the opening.
12. Cut the masking tape in the center and remove the window from the opening.

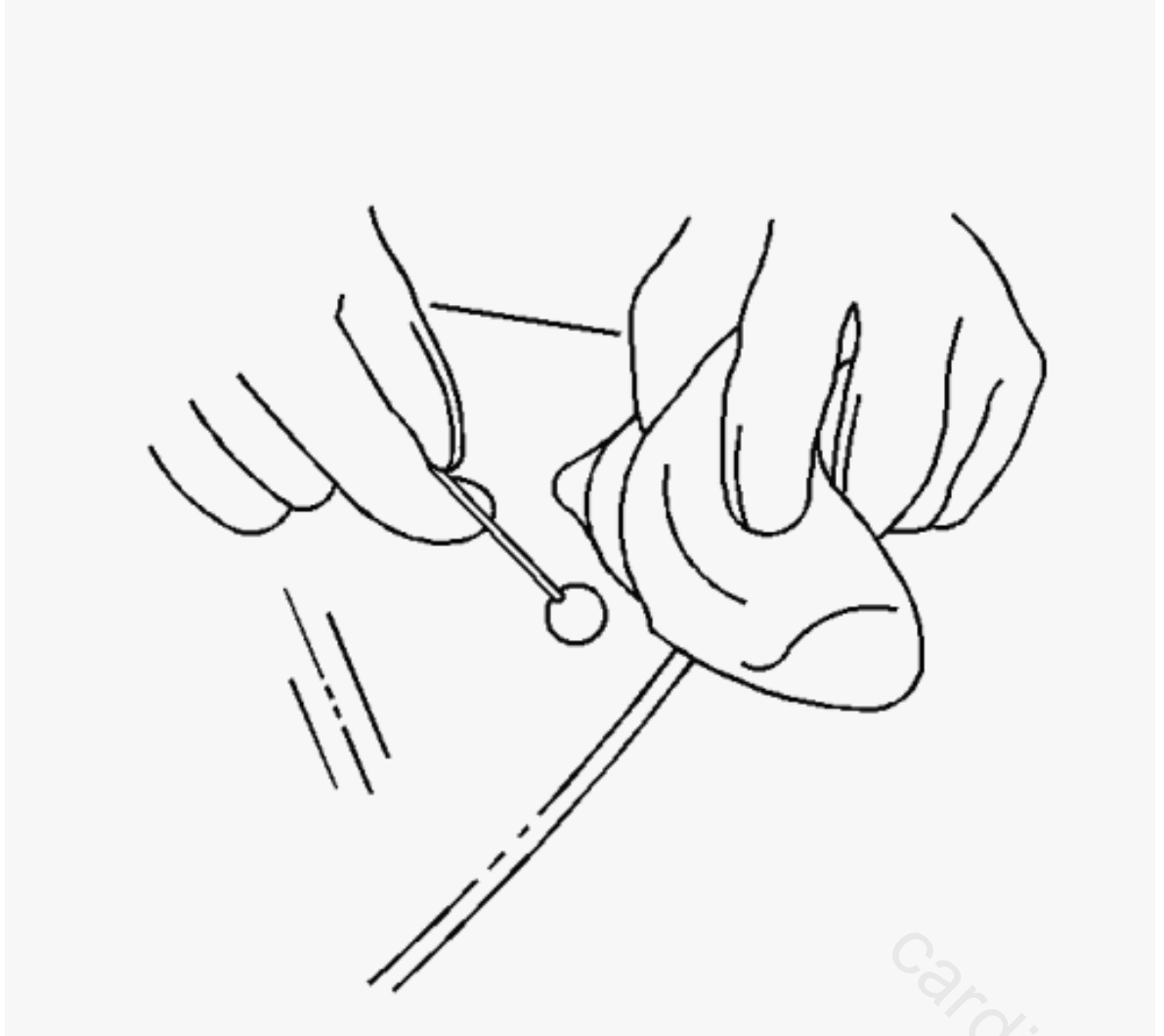


Fig. 105: Applying Glass Prep To Window Inner Surface

Courtesy of GENERAL MOTORS COMPANY

NOTE: Use care when applying glass prep clear on the window. This primer dries almost instantly, and may stain the viewing area of the window if not applied evenly.

13. Use a new dauber in order to apply glass prep clear to the area approximately 10 - 16 mm (3/8 - 5/8 in) around the entire perimeter of the window inner surface.

Immediately wipe the glass primed area using a clean, lint-free cloth.

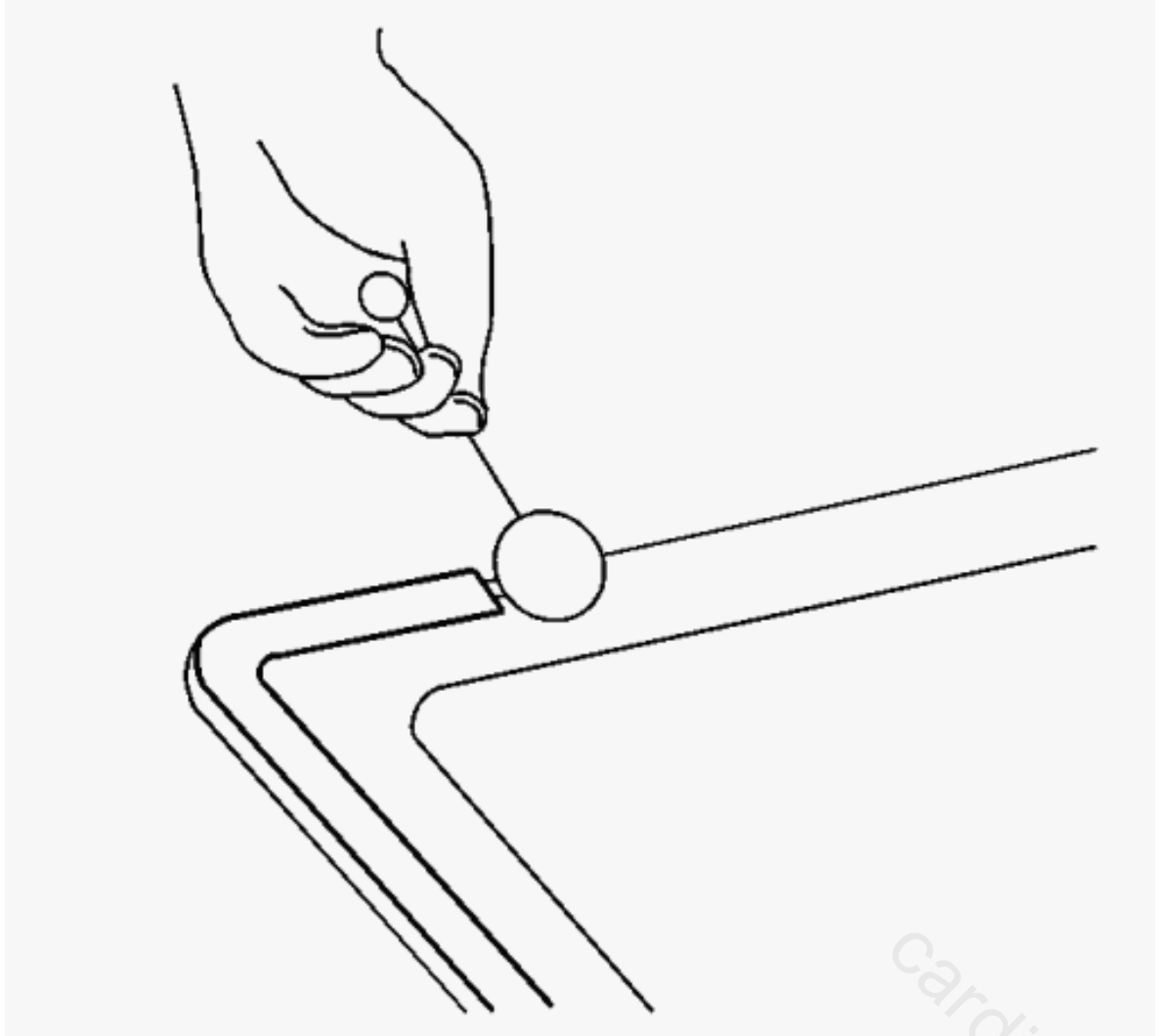


Fig. 106: Applying Second Coat Of Glass Prep
Courtesy of GENERAL MOTORS COMPANY

14. Apply a second coat of the glass prep clear to the same area of the glass.

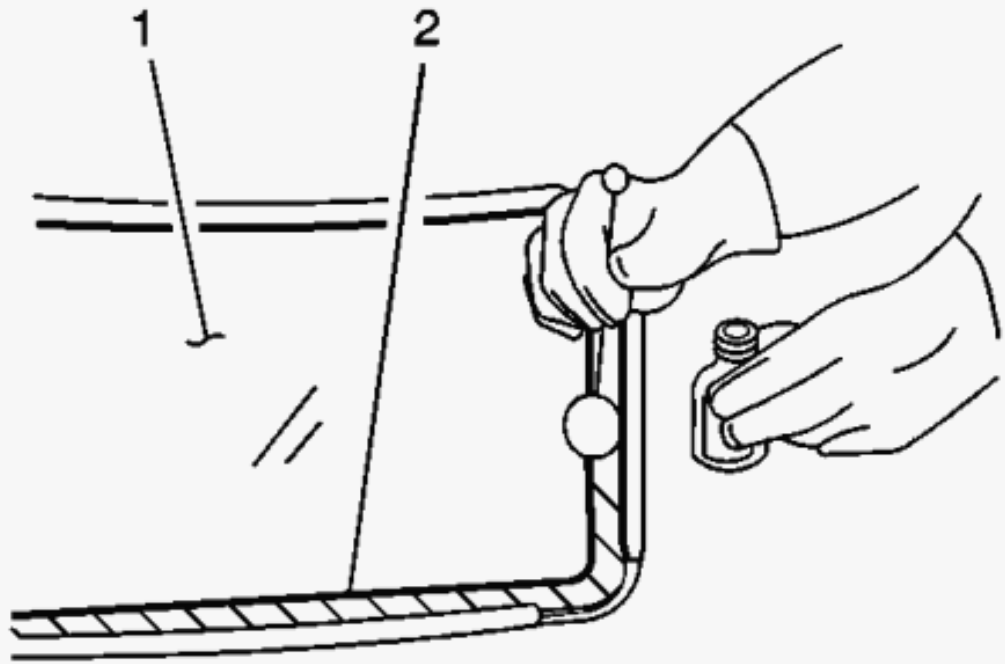


Fig. 107: Applying Glass Primer

Courtesy of GENERAL MOTORS COMPANY

NOTE: The glass primer black is effective up to 8 hours after applying it to the glass. The primed surface of the glass must be kept clean.

15. Shake the glass primer black for at least 1 minute.
16. Use a new dauber in order to apply the glass primer black to the same areas (2) that glass prep clear was applied.
17. Allow the glass primer to dry for approximately 10 minutes.

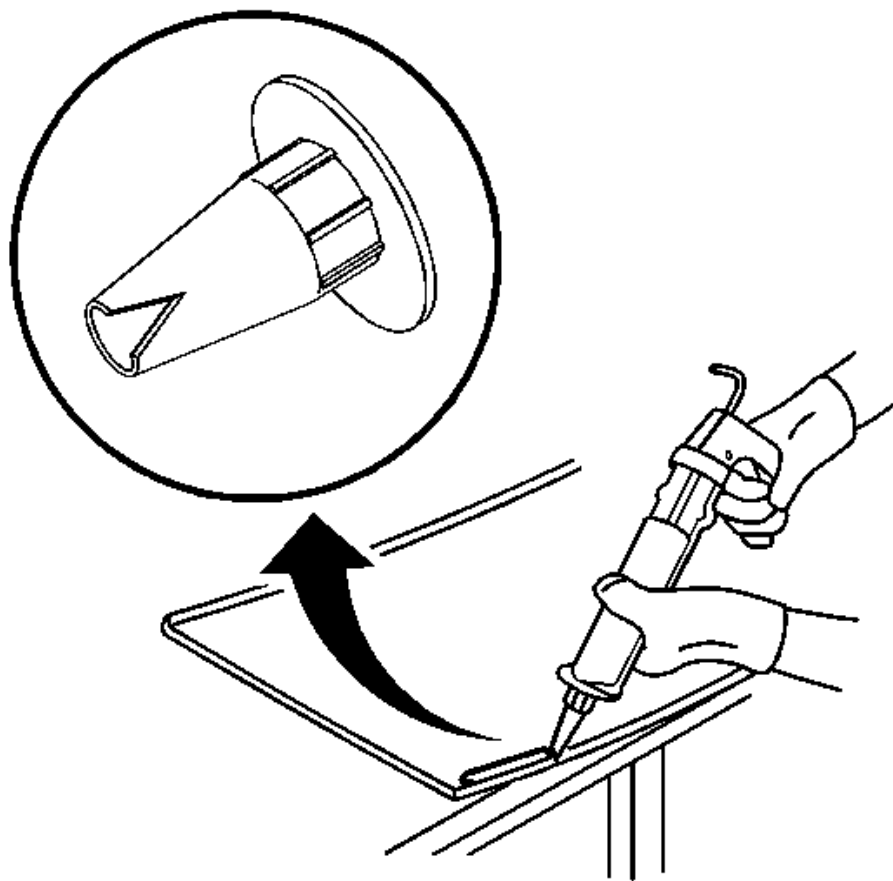


Fig. 108: Modified Applicator Nozzle

Courtesy of GENERAL MOTORS COMPANY

18. Cut the applicator nozzle in order to provide a bead of 12.7 mm (1/2 in) wide and 12.7 mm (1/2 in) high.

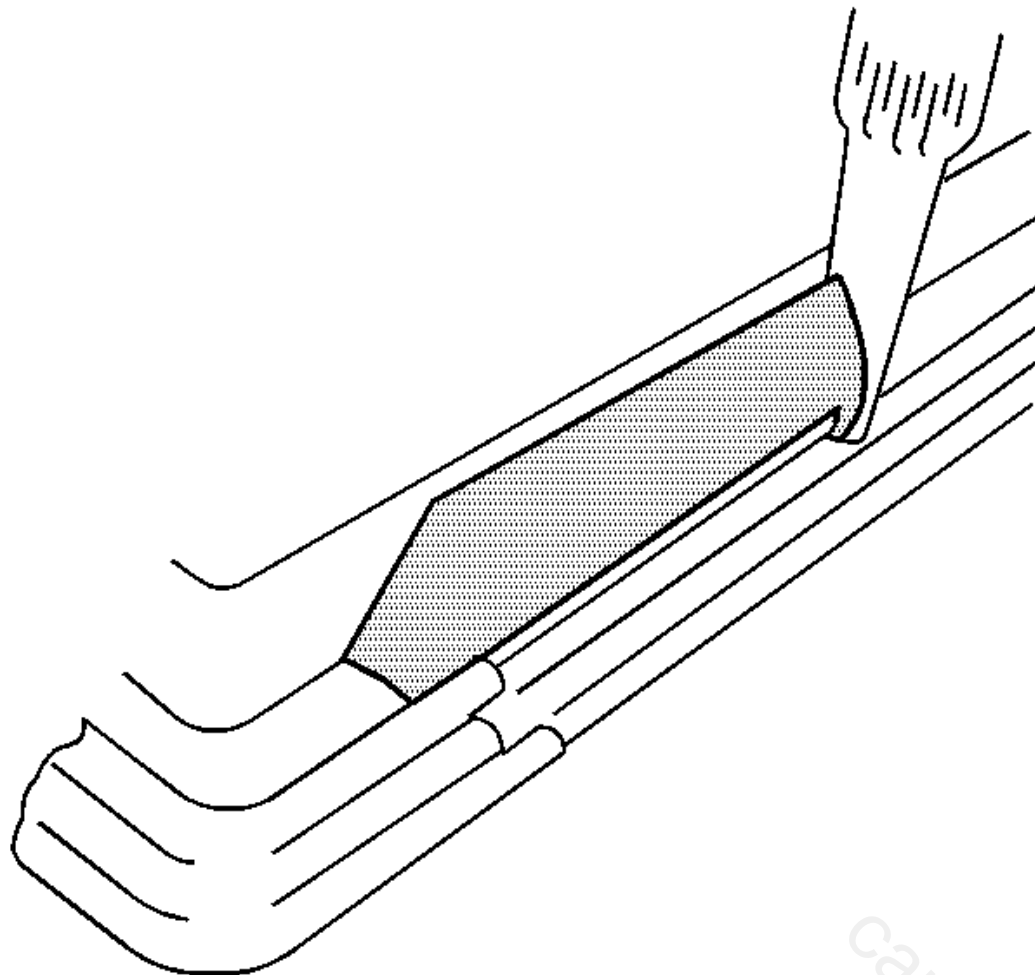


Fig. 109: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

19. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.

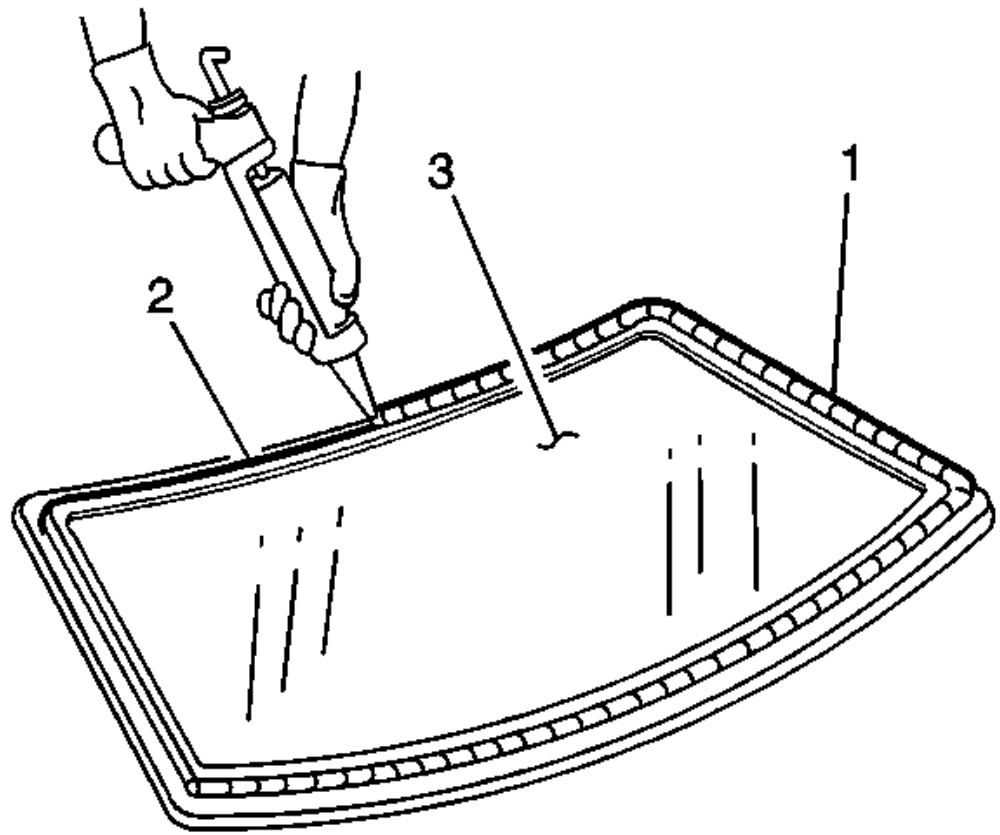


Fig. 110: Applying Urethane Adhesive To Inner Surface Of Window
Courtesy of GENERAL MOTORS COMPANY

20. Use the edge of the window as a guide for the nozzle in order to apply the urethane adhesive (1) to the inner surface of the window (3).

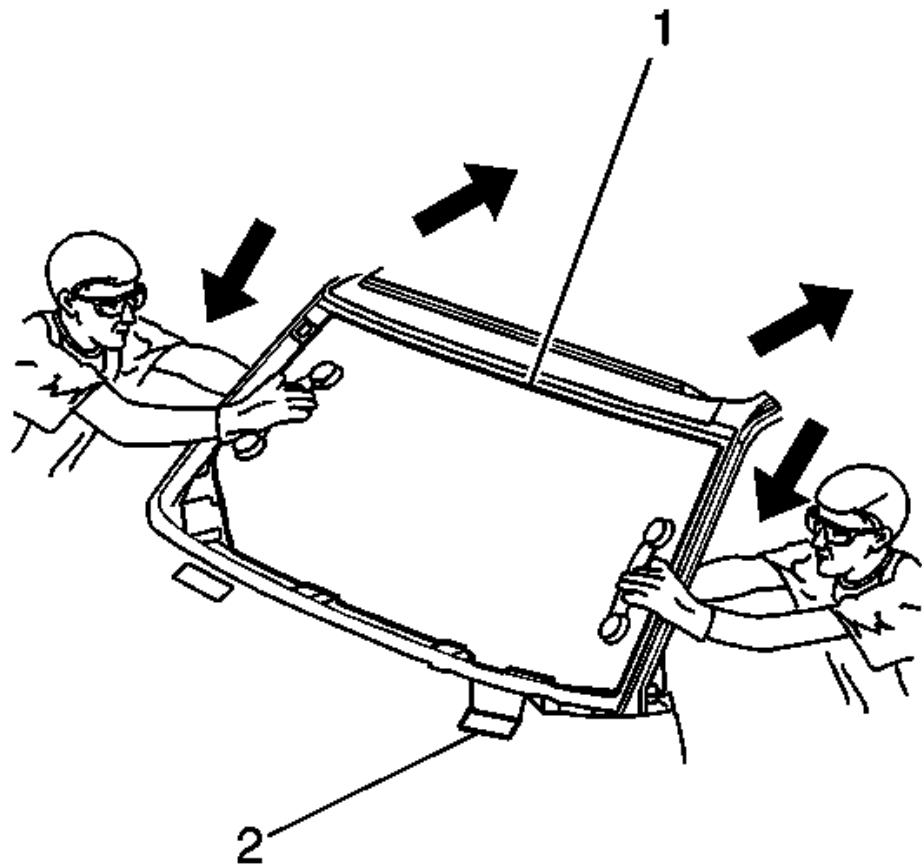


Fig. 111: Installing Windshield

Courtesy of GENERAL MOTORS COMPANY

21. With an assistant, installing the windshield (1) to the locator pins to the slots located in each corner of the upper pinch-weld flange.

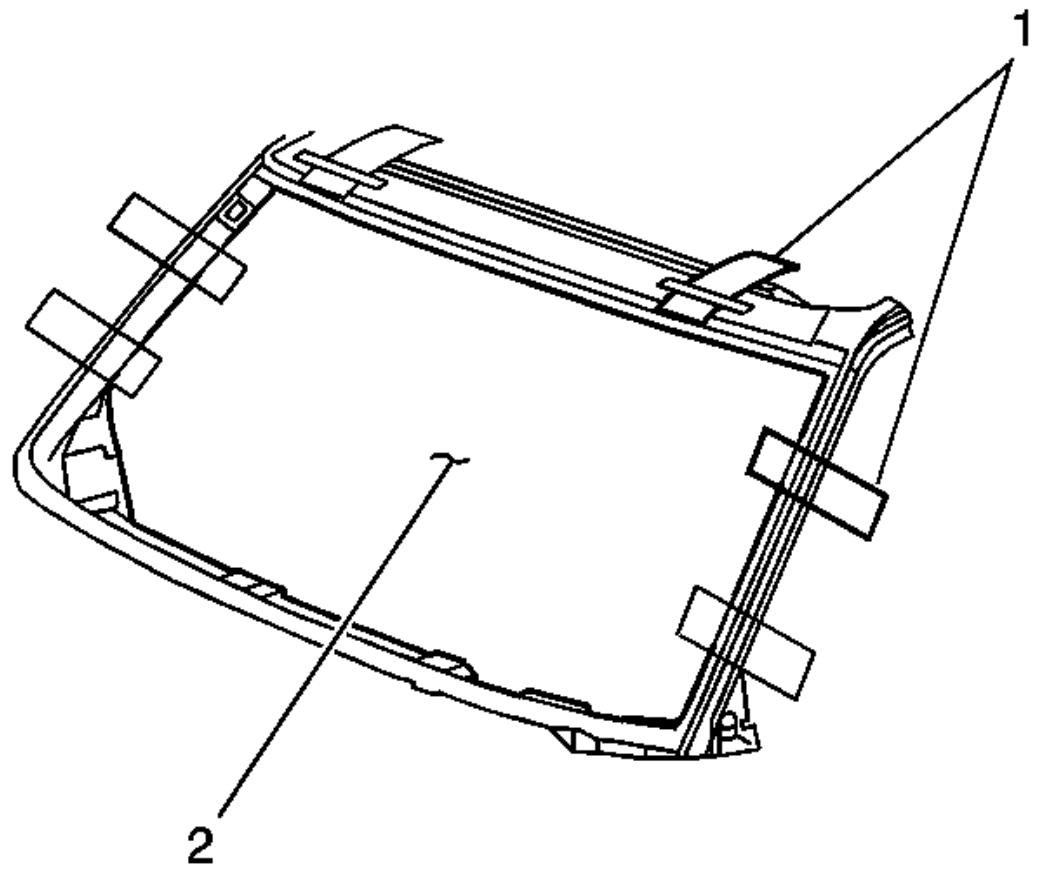


Fig. 112: Aligning Tape Lines On Window To Body.
Courtesy of GENERAL MOTORS COMPANY

22. Align the masking tape (1) lines on the window (2) and the body.

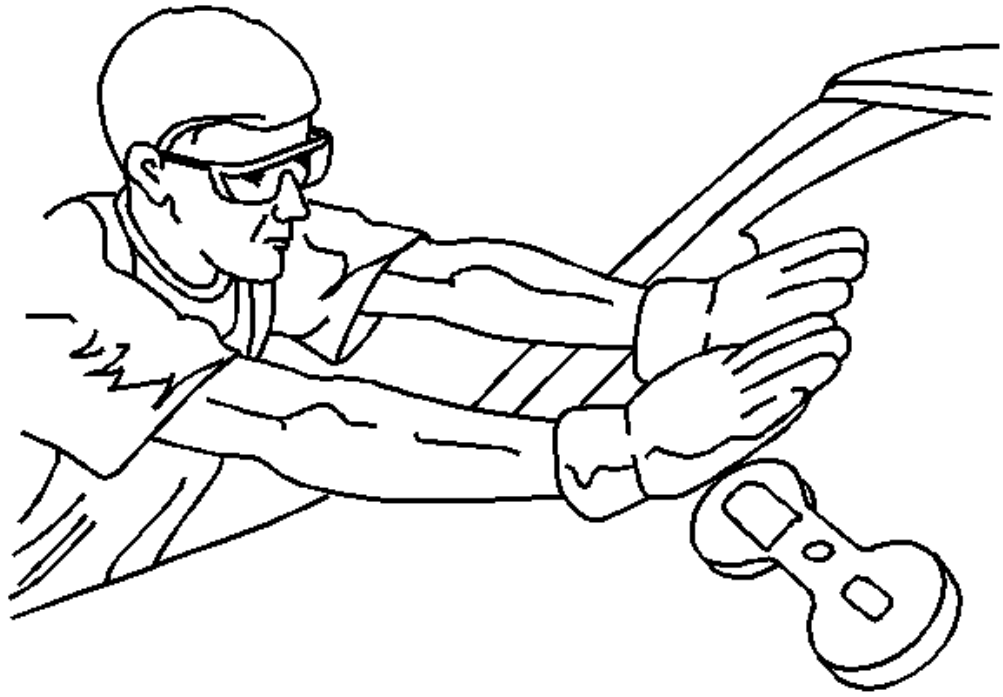


Fig. 113: Pressing Window Into Place

Courtesy of GENERAL MOTORS COMPANY

23. Press the window firmly into place, 1 mm (0.039 in) below surface.
24. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

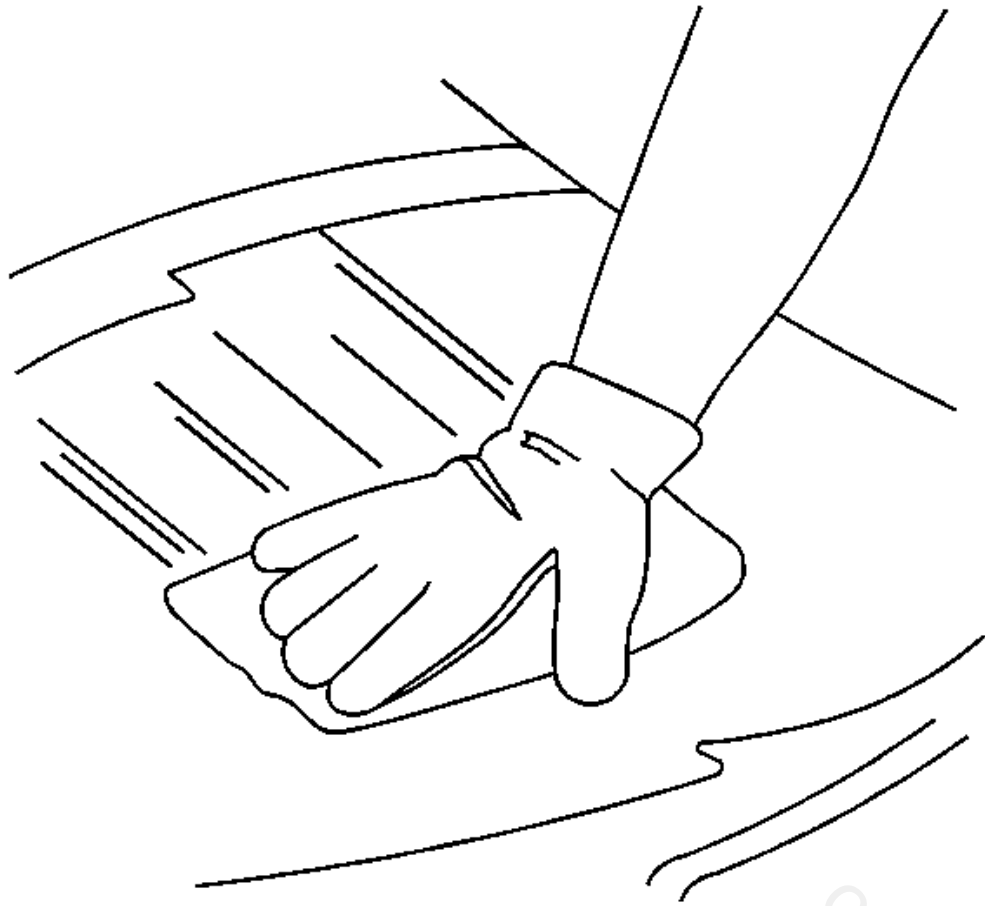


Fig. 114: Cleaning Excess Urethane Adhesive From Body.
Courtesy of GENERAL MOTORS COMPANY

25. Clean any excess urethane adhesive from the body.

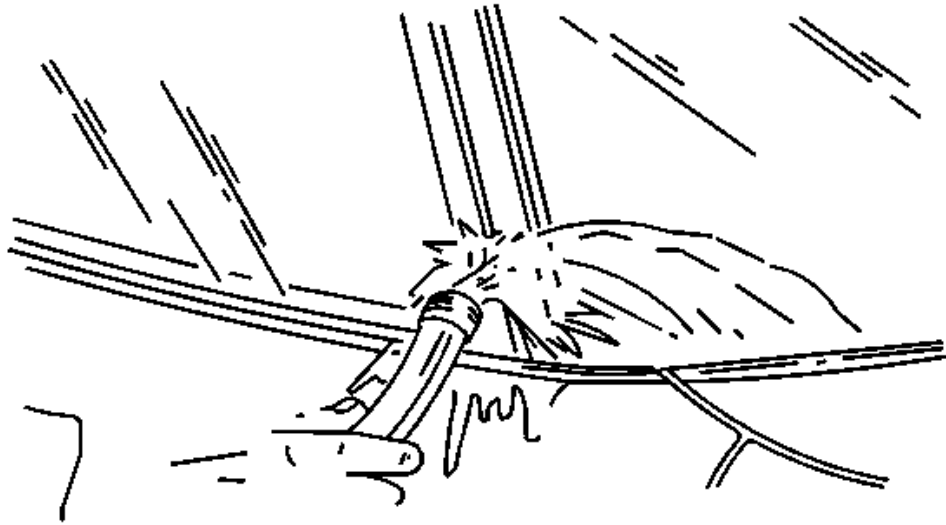


Fig. 115: Performing Water Hose Test
Courtesy of GENERAL MOTORS COMPANY

NOTE: Do not direct a hard stream of high pressure water to the freshly applied urethane adhesive.

26. Use a soft spray of warm water in order to immediately water test the window.
27. Inspect the window for leaks.
28. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
29. Retest the window for leaks.

WARNING: Insufficient curing of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive, allow a minimum of 1 hour.

Do NOT physically disturb the repair area until after these minimum times have elapsed.

30. Maintain the following conditions in order to properly cure the urethane adhesive:
 - Partially lower a door window in order to prevent pressure buildups when closing doors before the urethane adhesive cures.
 - Do not drive the vehicle until the urethane adhesive is cured. Refer to the above curing times.
 - Do not use compressed air in order to dry the urethane adhesive.

31. Complete the window installation.

ADHESIVE INSTALLATION OF QUARTER WINDOWS

WARNING: Refer to [Glass and Sheet Metal Handling Warning](#) .

1. Use a urethane adhesive systems which meet GM Specification GM 3651G
2. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.
3. If the original window is being reused, remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinchweld flange by using a clean utility knife or razor blade scraper.
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - The flange of the window opening
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinchweld flange

NOTE: If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, the pinch-weld flange must be refinished in order to restore the bonding area strength. If paint repairs are required, mask the flange bonding area prior to applying the color coat in order to provide a clean primer only surface. Materials such as BASF DE15, DuPont 2610, Sherwin-Williams PSE 4600 and NP70 and Martin-Semour 5120 and 5130 PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

5. After repairing the opening as indicated, perform the following steps:
6. Use an abrasive pad if necessary to remove mold release buildup from the encapsulated window. Use a dampened lint free cloth to remove any debris remaining on the window.
7. Dry fit the window to the opening in order to determine the correct position.
8. Ensure that the window locator pins are positioned to the pinch-weld flange.
9. Use masking tape to mark the locations of the window in the opening.
10. Cut the masking in the center and remove the window from the opening.
11. Verify all primers and urethane adhesive are within expiration dates.

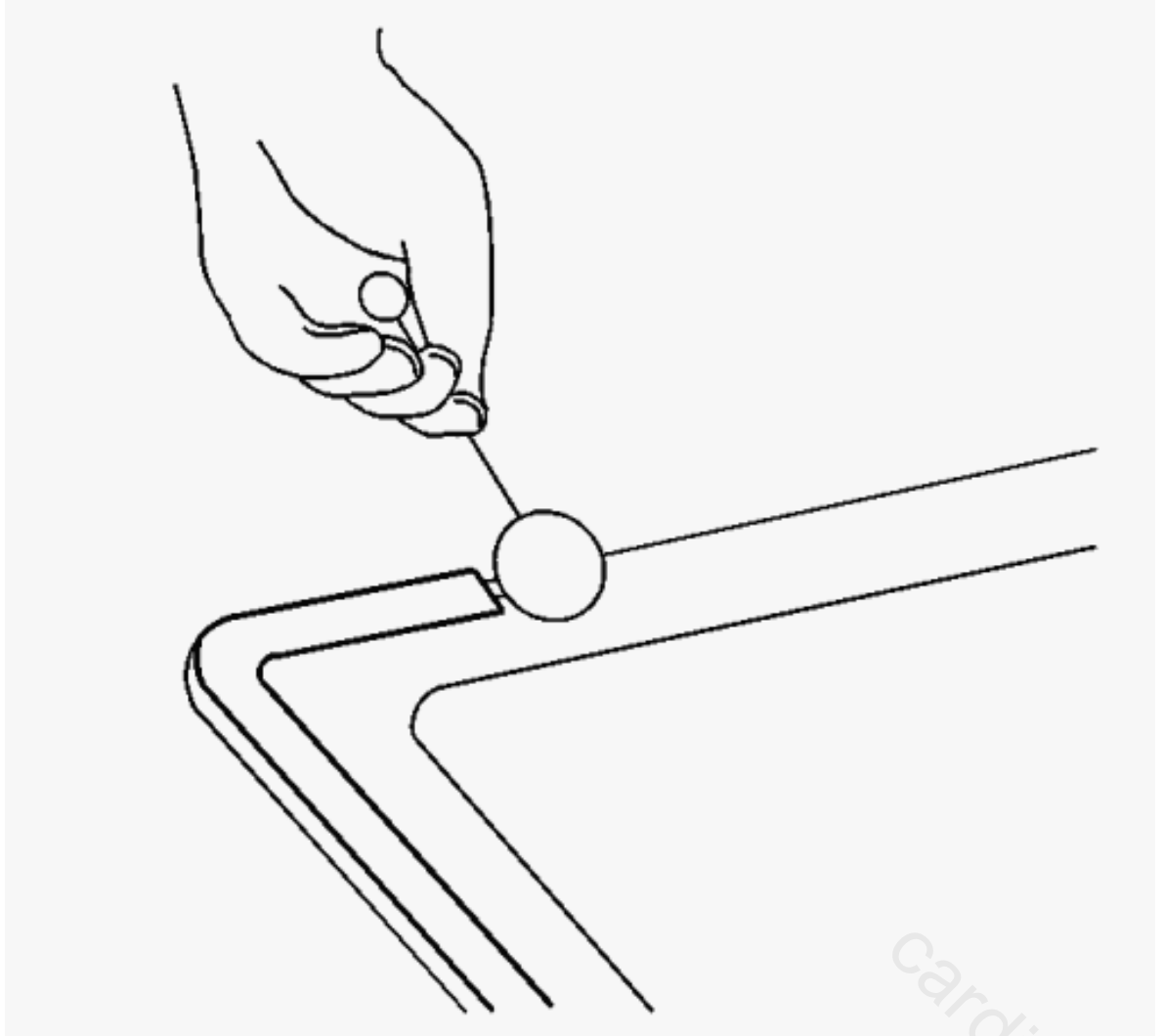


Fig. 116: Applying Glass Primer

Courtesy of GENERAL MOTORS COMPANY

WARNING: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

NOTE: Do not apply the black #3 primer to the existing bead of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

12. Shake the primer clear #4 for at least 1 minute.
13. Use a new dauber in order to apply the primer to the surface of the encapsulated window.
14. Allow the primer to dry for approximately 6 minutes.

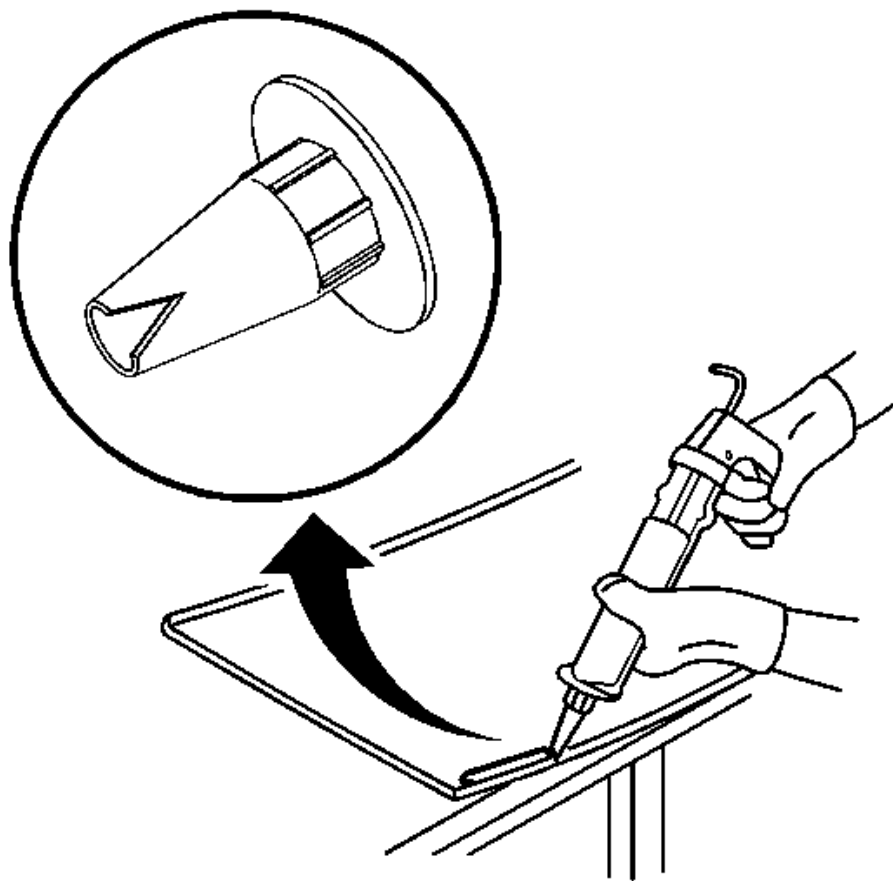


Fig. 117: Modified Applicator Nozzle

Courtesy of GENERAL MOTORS COMPANY

15. Cut the applicator nozzle in order to provide a bead of 8 mm (0.31 in) wide, 12 mm (0.50 in) high.

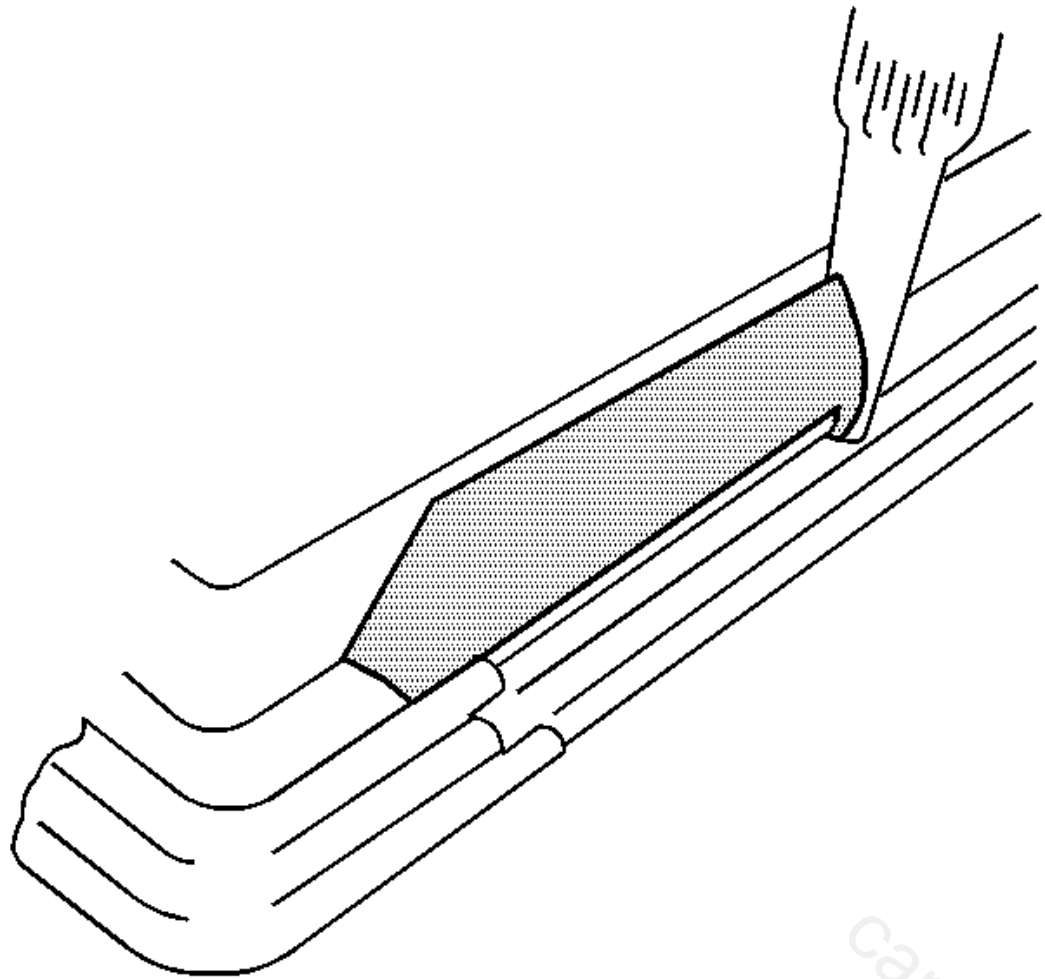


Fig. 118: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

16. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.
17. Use the edge of the inside encapsulated window track as a guide for the nozzle in order to apply the urethane adhesive.



Fig. 119: Placing Window
Courtesy of GENERAL MOTORS COMPANY

18. Place the window (1) in the opening.

19. Align the masking tape lines on the window and the body.
20. Press firmly around the entire periphery of the window in order to wet-out the urethane bead.
21. Tape the window to the body in order to minimize movement until the urethane adhesive cures.
22. Clean any excess urethane adhesive from the body.

NOTE: Do not direct a hard stream of high pressure water to the freshly applied urethane adhesive.

23. Use a soft spray of warm water in order to immediately water test the window.
24. Inspect the window for leaks.
25. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
26. Retest the window for leaks.

WARNING: Insufficient curing of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive, allow a minimum of 1 hour.

Do NOT physically disturb the repair area until after these minimum times have elapsed.

27. Maintain the following conditions in order to properly cure the urethane adhesive:
 - Partially lower a door window in order to prevent pressure buildups when closing doors before the urethane adhesive cures.
 - Do not drive the vehicle until the urethane adhesive is cured. Refer to the above curing times.
 - Do not use compressed air in order to dry the urethane adhesive.
28. Complete the window installation.

ADHESIVE INSTALLATION OF LIFTGATE WINDOWS

WARNING: Refer to [**Glass and Sheet Metal Handling Warning**](#) .

1. Use a urethane adhesive systems which meet GM Specification GM 3651G
2. Remove all mounds or loose pieces of urethane adhesive from the pinchweld area.
3. If the original window is being reused, remove all but approximately 2 mm (3/64 in) of the existing bead of urethane adhesive from the pinchweld flange by using a clean utility knife or razor blade scraper.
4. Inspect for any of the following problems in order to help prevent future breakage of the window:
 - The flange of the window opening
 - High weld
 - Solder spots
 - Hardened sealer
 - Any other obstruction or irregularity in the pinchweld flange

NOTE: If corrosion of the pinch-weld flange is present or if sheet metal repairs or replacements are required, the pinch-weld flange must be refinished in order to restore the bonding area strength. If paint repairs are required, mask the flange bonding area prior to applying the color coat in order to provide a clean primer only surface. Materials such as BASF DE15®, DuPont 2610®, Sherwin-Williams PSE 4600 and NP70® and Martin-Semour 5120 and 5130®, PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application.

5. After repairing the opening as indicated, perform the following steps:
 1. Remove all traces of broken glass from the outer cowl panel, seats, floor and defroster ducts.
 2. Clean around the edge of the inside surface of the window with a 50/50 mixture of isopropyl alcohol and water by volume on a dampened lint free cloth.
6. Verify all primers and urethane adhesive are within expiration dates.

WARNING: Failure to prep the area prior to the application of primer may cause insufficient bonding of urethane adhesive. Insufficient bonding of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

NOTE: Do not apply the black #3 primer to the existing bead of the urethane adhesive on the pinch-weld flange. Apply the primer only to nicks, scratches or the primed surfaces.

7. Shake the pinch-weld primer black #3 for at least 1 minute.
8. Use a new dauber in order to apply the primer to the surface of the pinch-weld flange.
9. Allow the pinch-weld primer to dry for approximately 10 minutes.



Fig. 120: Dry Fit Window

Courtesy of GENERAL MOTORS COMPANY

10. With the aid of an assistant, dry fit the window (1) to the opening in order to determine the correct position.
11. Ensure the window locator pins are positioned into the locator slots in the pinch-weld flange.
12. Use masking tape to mark the locations of the window in the opening.
13. Cut the masking in the center and remove the window from the opening.

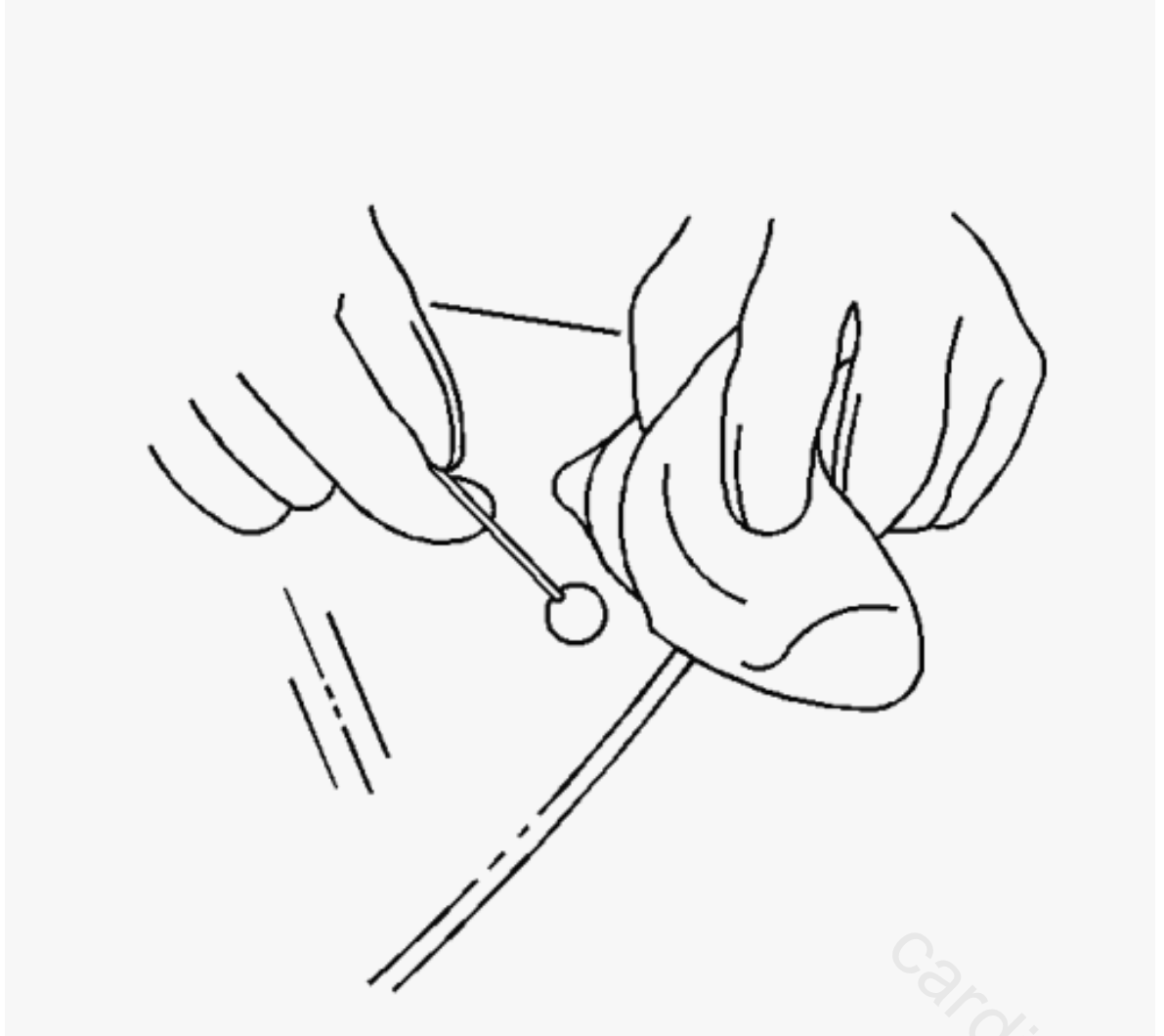


Fig. 121: Applying Glass Prep To Window Inner Surface

Courtesy of GENERAL MOTORS COMPANY

NOTE: Use care when applying glass prep clear #1 on the window. This primer dries almost instantly, and may stain the viewing area of the window if not applied evenly.

14. Use a new dauber in order to apply glass prep clear #1 to the area approximately 18 mm (0.71 in) around the entire perimeter of the window inner surface.

Immediately wipe the glass primed area using a clean, lint-free cloth.

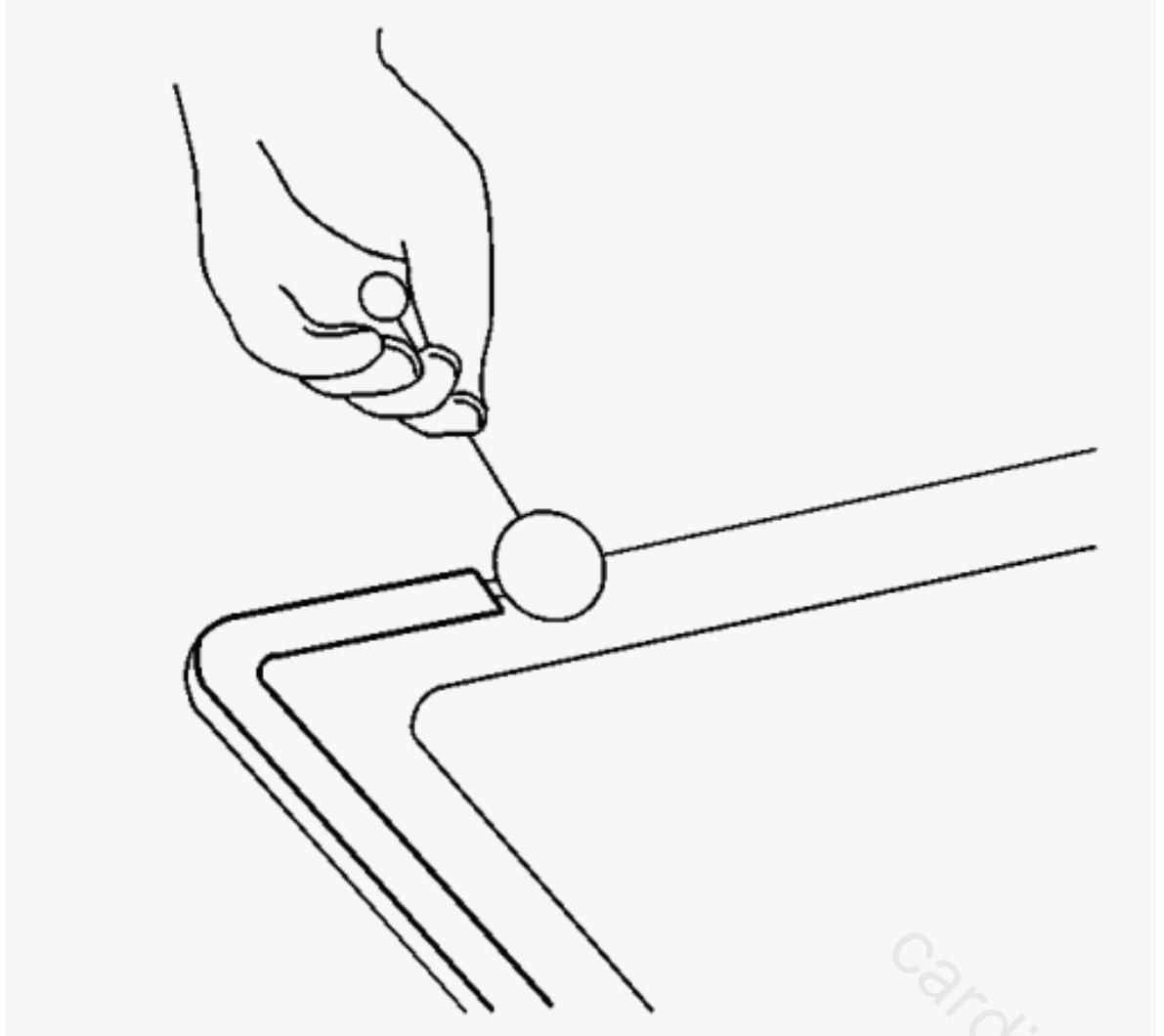


Fig. 122: Applying Second Coat Of Glass Prep
Courtesy of GENERAL MOTORS COMPANY

15. Apply a second coat of the glass prep clear #1 to the same area of the glass.

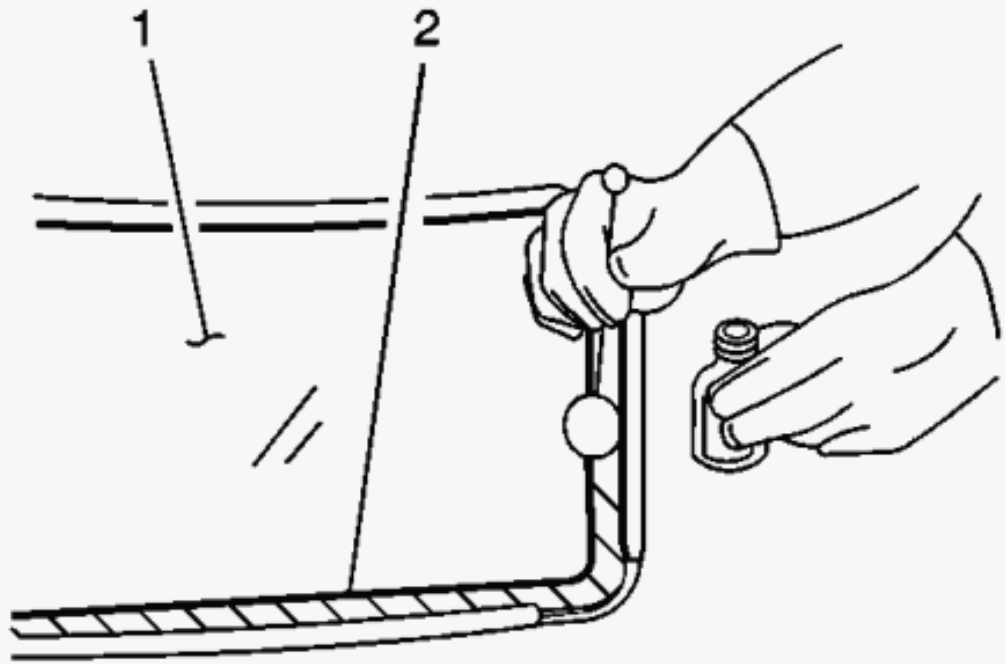


Fig. 123: Applying Glass Primer

Courtesy of GENERAL MOTORS COMPANY

NOTE: The glass primer black #2 is effective up to 8 hours after applying it to the glass. The primed surface of the glass must be kept clean.

16. Shake the glass primer black #2 for at least 1 minute.
17. Use a new dauber in order to apply the glass primer black #2 to the same areas that glass prep clear #1 was applied.
18. Allow the glass primer to dry for approximately 10 minutes.

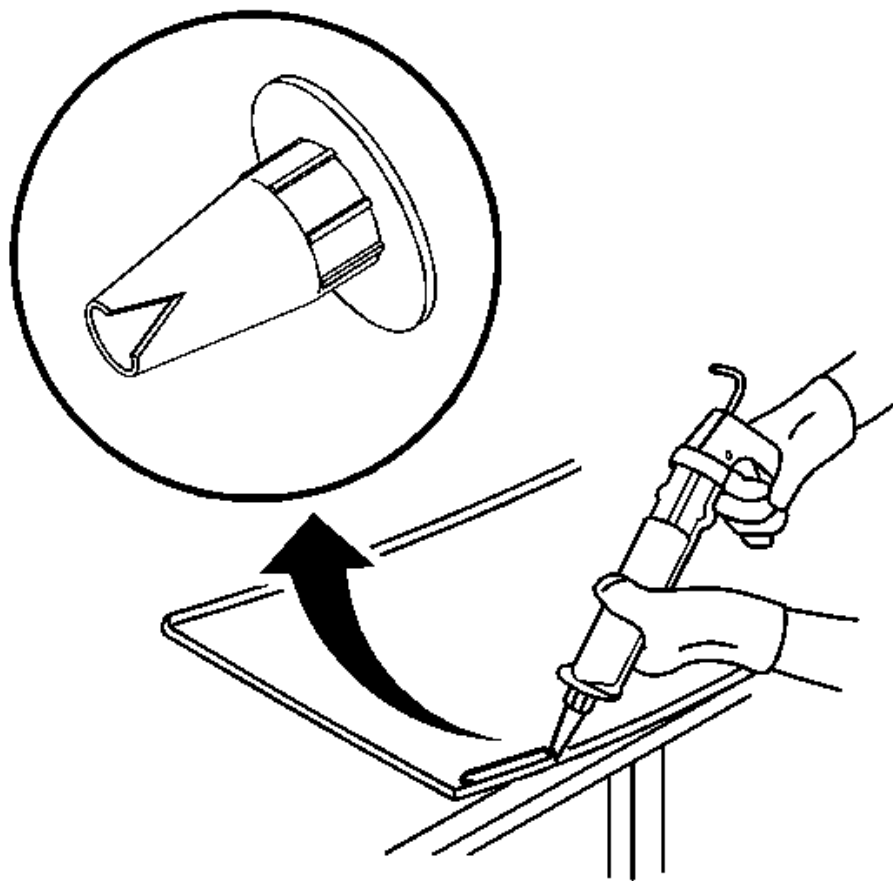


Fig. 124: Modified Applicator Nozzle

Courtesy of GENERAL MOTORS COMPANY

19. Cut the applicator nozzle in order to provide a bead of 12.7 mm (1/2 in) wide and 12.7 mm (1/2 in) high.

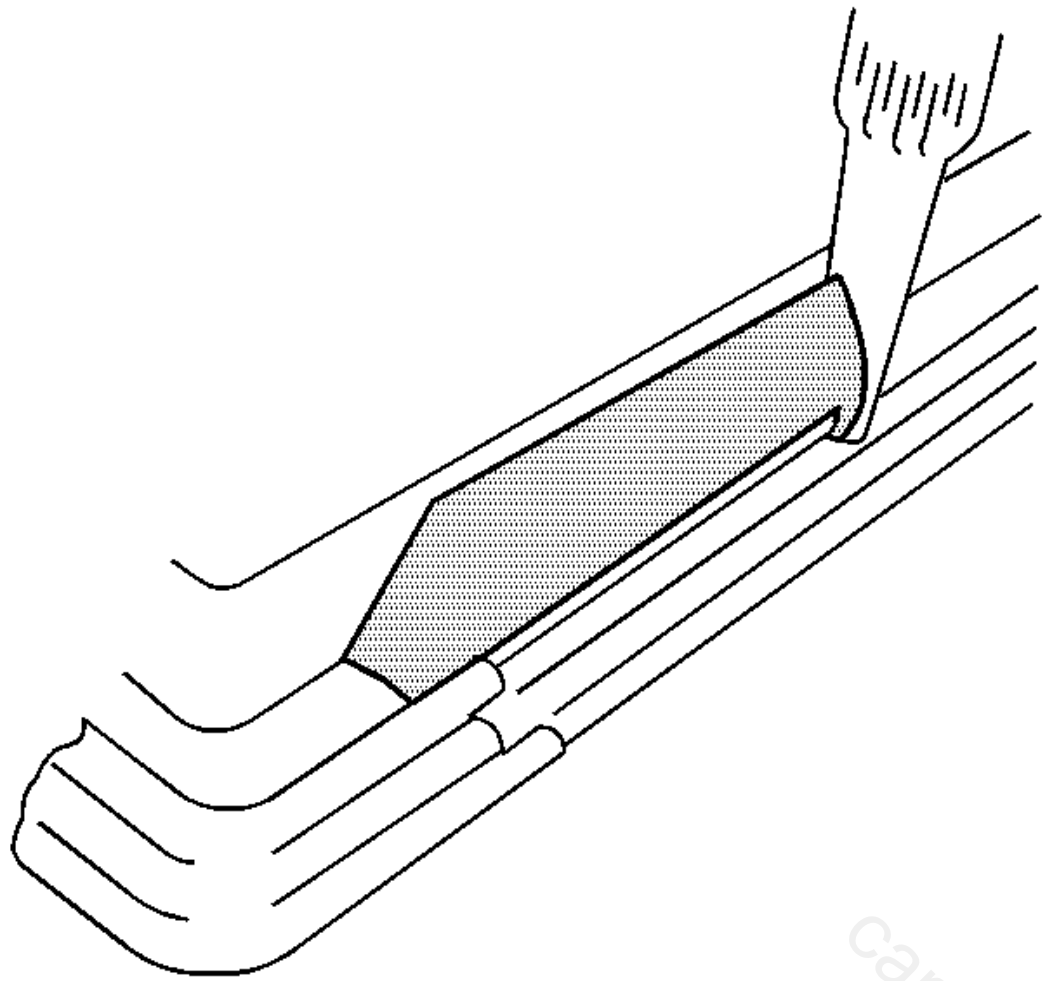


Fig. 125: Applying Continuous Bead Of Urethane Adhesive
Courtesy of GENERAL MOTORS COMPANY

20. Use a cartridge-type caulking gun in order to apply a smooth, continuous bead of urethane adhesive.

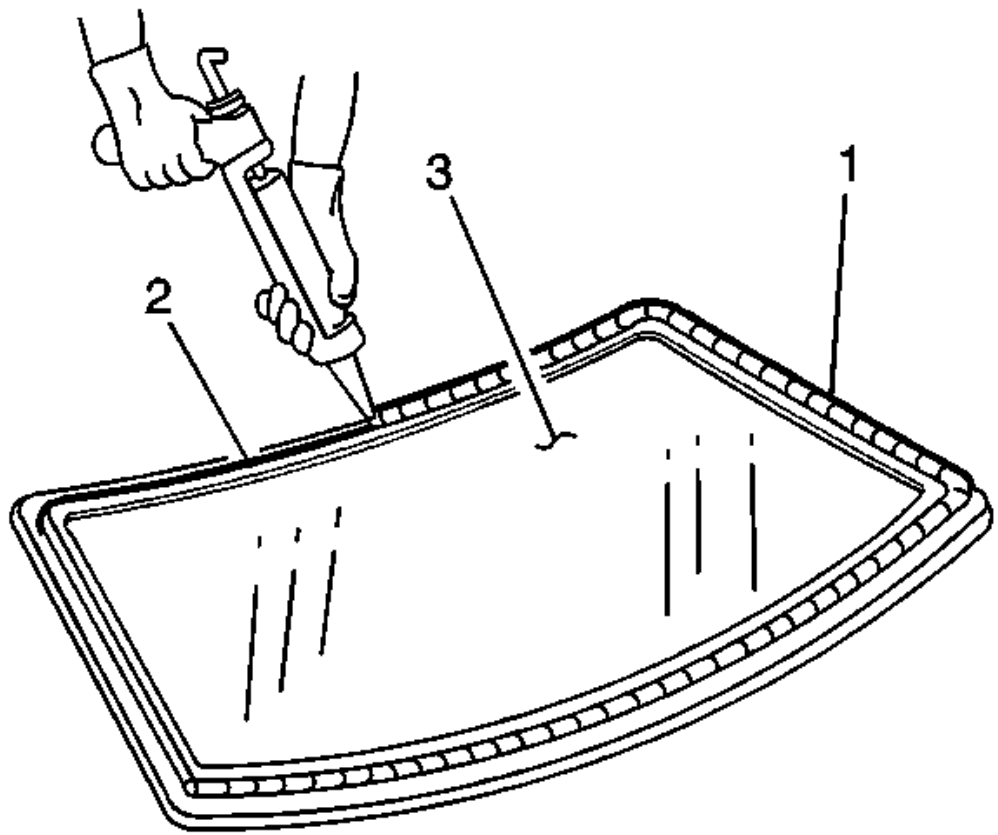


Fig. 126: Applying Urethane Adhesive To Inner Surface Of Window
 Courtesy of GENERAL MOTORS COMPANY

21. Use the edge of the window (2) as a guide for the nozzle in order to apply the urethane adhesive (1) to the inner surface of the window. (3)



Fig. 127: Placing Window
 Courtesy of GENERAL MOTORS COMPANY

22. With the aid of an assistant, place the window (1) in the opening.
23. Align the masking tape lines on the window and the body.

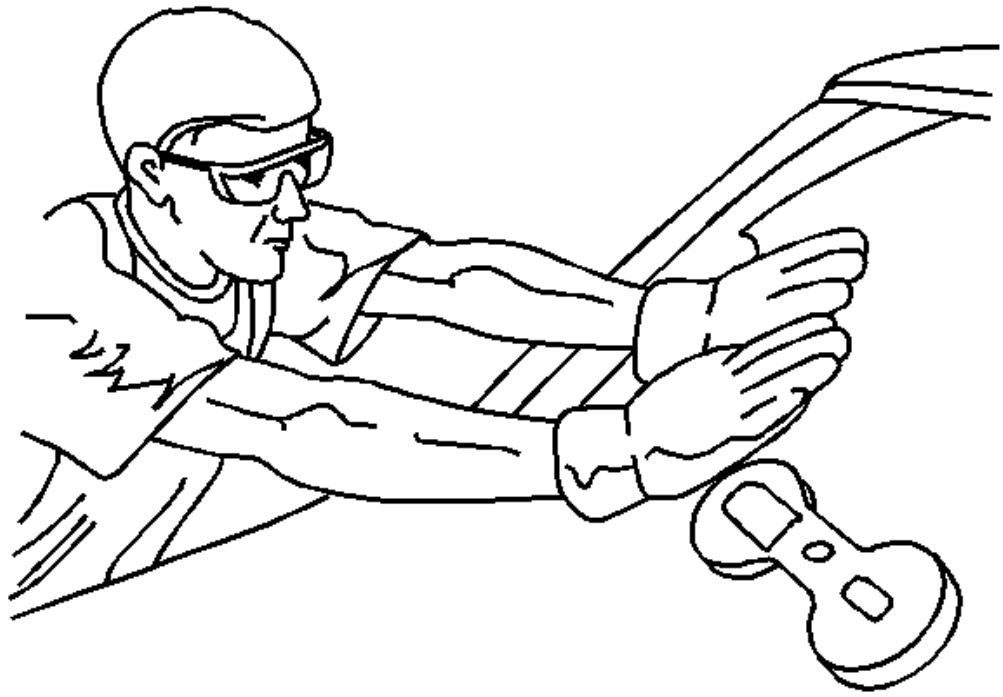


Fig. 128: Pressing Window Into Place

Courtesy of GENERAL MOTORS COMPANY

NOTE: To prevent damage to the window due to objects impacting an exposed edge, upon installation, the window must rest 1 mm (0.040 in) below the surface of the sheet metal.

24. Press firmly around the entire periphery of the window in order to wet-out the urethane bead.
25. Tape the window to the body in order to minimize movement until the urethane adhesive cures.

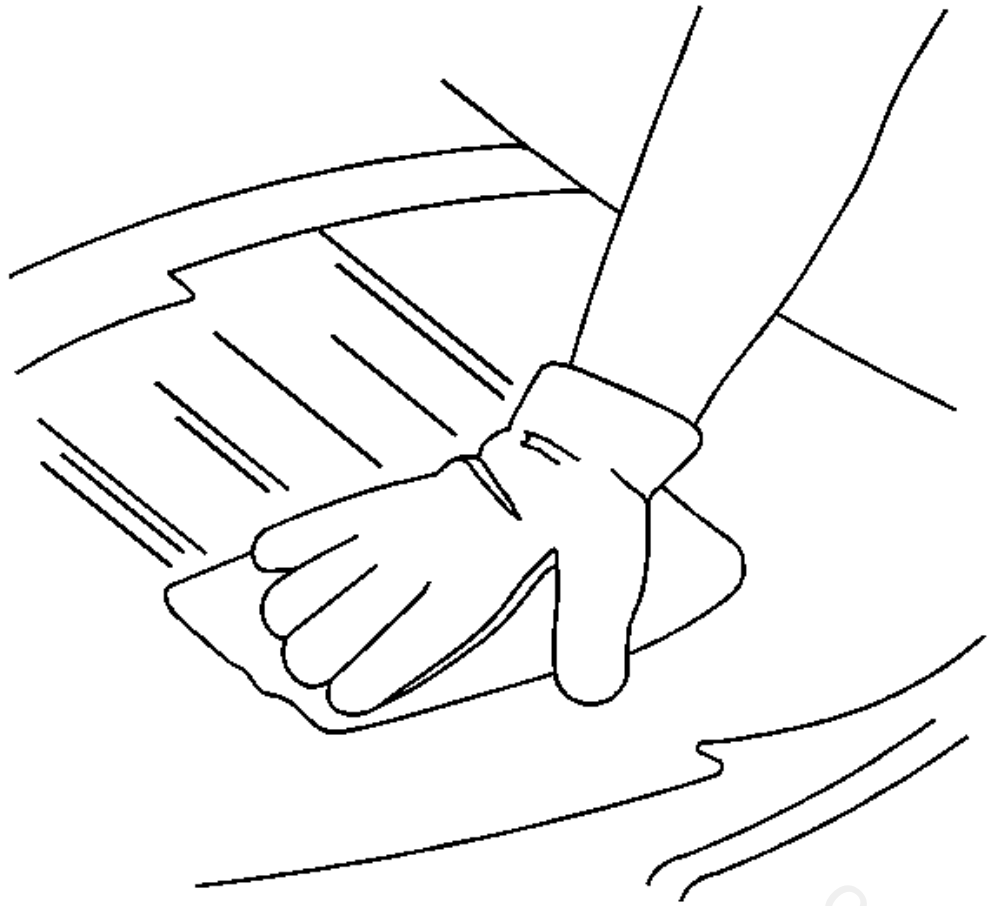


Fig. 129: Cleaning Excess Urethane Adhesive From Body.
Courtesy of GENERAL MOTORS COMPANY

26. Clean any excess urethane adhesive from the body.

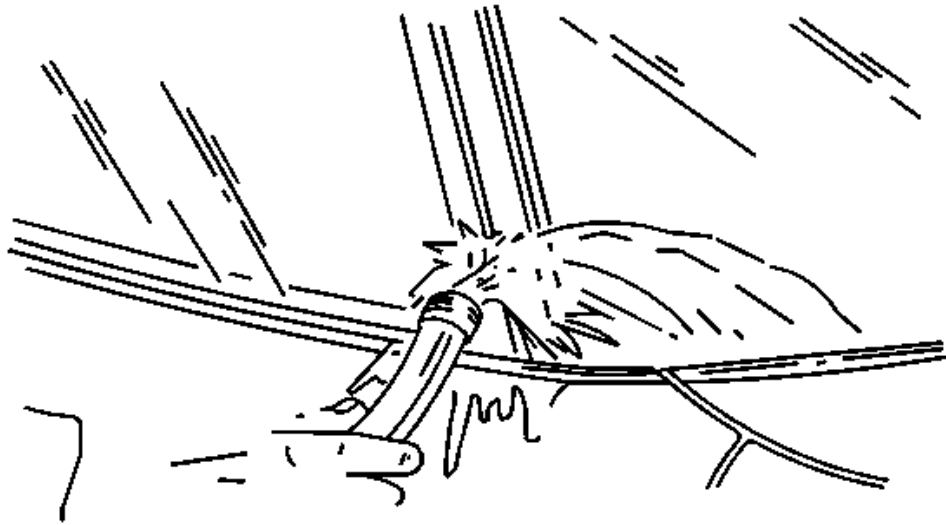


Fig. 130: Performing Water Hose Test
Courtesy of GENERAL MOTORS COMPANY

NOTE: Do not direct a hard stream of high pressure water to the freshly applied urethane adhesive.

27. Use a soft spray of warm water in order to immediately water test the window.
28. Inspect the window for leaks.
29. If any leaks are found, use a plastic paddle in order to apply extra urethane adhesive at the leak point.
30. Retest the window for leaks.

WARNING: Insufficient curing of urethane adhesive may allow unrestrained occupants to be ejected from the vehicle resulting in personal injury.

- For the moisture-curing type of urethane adhesive, allow a minimum of 6 hours at 21°C (70°F) or greater and with at least 30 percent relative humidity. Allow at least 24 hours for the complete curing of the urethane adhesive.
- For the chemical-curing type of urethane adhesive, allow a minimum of 1 hour.

Do NOT physically disturb the repair area until after these minimum times have elapsed.

31. Maintain the following conditions in order to properly cure the urethane adhesive:
 - Partially lower a door window in order to prevent pressure buildups when closing doors before the urethane adhesive cures.
 - Do not drive the vehicle until the urethane adhesive is cured. Refer to the above curing times.
 - Do not use compressed air in order to dry the urethane adhesive.

DESCRIPTION AND OPERATION

FULL-CUT METHOD DESCRIPTION

- IMPORTANT:
- If corrosion of the pinch-weld flange is present, or if sheet metal repairs or replacements are required, refinish the pinch-weld flange in order to present a clean, primer-only surface.
 - If paint repairs are required, mask the flange bonding area, prior to applying the color coat, in order to provide a clean, primer-only surface.
 - Appropriate materials for these primer applications are typically 2 component catalyzed products. Use materials such as BASF DE15[®], DuPont 2610[®], Sherwin-Williams PSE 4600 and NP70[®] and Martin-Semour 5120, 5130[®], PPG DP90LF SPIES/HECKER 3688/8590 - 3688/5150 - 4070/5090 STANDOX 11158/13320 - 14653/14980 products are approved for this application. Follow the manufacturer's directions for the mix, the application, and the drying times.
 - After repairing the opening as indicated, use adhesive systems which meet GM Specification GM 3651G.

Use only the full cut method, also known in the field as full strip method, when installing windows.

This method includes the following:

- The replacement of a majority of the adhesive bead. Remove all but approximately 2 mm (3/64 in) of the existing bead of adhesive from the pinch-weld flange.
- Apply pinch-weld primer to any exposed painted areas on the pinch-weld flange.

No mounds or loose pieces of adhesive should remain on the pinch-weld flange. Do not remove all traces of adhesive.

POWER WINDOWS DESCRIPTION AND OPERATION

Power Windows System Components

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Left rear window switch
- Right rear window switch
- Window motors in each of the doors
- 30A Fuse
- Body control module (BCM)

Power Window System

This vehicle may be equipped with the following power window configurations:

- Driver door with express up and express down window motor
- Driver door with express down only window motor
- Passenger door with express up and express down window motor
- Passenger door with express down only window motor
- Left rear door with express down only window motor
- Right rear door with express down only window motor

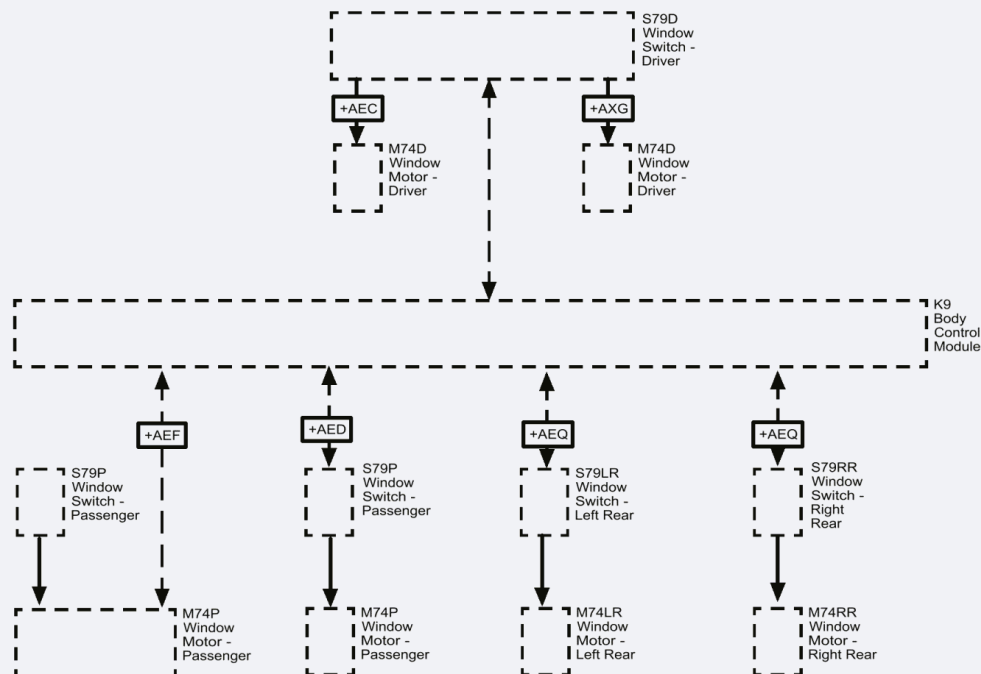


Fig. 131: 14 Power Windows AXG Or AEC-AEF Or AEO-AEQ Block Diagram

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
AEC	WINDOW REG DRVR DR: POWER OPERATED, EXPRESS DOWN
AXG	WINDOW REG DRVR DR: POWER OPERATED, EXPRESS UP/DOWN
AEF	WINDOW REG PASS DR: POWER OPERATED, EXPRESS UP/DOWN
AED	WINDOW REG PASS DR: POWER OPERATED, EXPRESS DOWN
AEQ	WINDOW REG REAR DR: POWER OPERATED, EXPRESS DOWN
AEQ	WINDOW REG REAR DR: POWER OPERATED, EXPRESS DOWN
K9	K9 Body Control Module
S79D	S79D Window Switch - Driver
M74D	M74D Window Motor - Driver
M74D	M74D Window Motor - Driver
S79P	S79P Window Switch - Passenger
S79P	S79P Window Switch - Passenger
S79LR	S79LR Window Switch - Left Rear
S79RR	S79RR Window Switch - Right Rear
M74P	M74P Window Motor - Passenger
M74P	M74P Window Motor - Passenger
M74LR	M74LR Window Motor - Left Rear
M74RR	M74RR Window Motor - Right Rear

Driver and Passenger Express Up and Express Down Power Window Motors

The driver and passenger doors contains a window motor is smart motor that will detect excessive resistance while performing the express up function and automatically reverse direction to prevent injury to any occupants that may become trapped between the closing window and the door frame. The automatic reverse safety feature can be overridden by pulling and holding the window switch.

The logic circuit within the window motor monitors the up, down and express signal circuits which are normally equal to B+ voltage. When a switch is used on the window switch, the contacts close causing a voltage drop within the appropriate signal circuit. The window motor will detect the voltage drop and will command the window to move in the direction requested.

The driver window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger window, the driver will use the appropriate switch on the driver window switch. When this switch is used, a serial data message is sent to the BCM requesting the passenger window motor command, the BCM will then send a serial data message to the passenger window motor which will then move in the direction requested.

Driver, Passenger, Left Rear and Right Rear Express Down Only Window Motors

For the driver, passenger, right rear and left rear doors, when their window switch is pressed in the down position, battery positive voltage is applied to their respective window motor control circuit and ground to the other window motor control circuit causing that window to open. When the individual window switch is pulled in the up position, voltage and ground is applied to the window motor in the opposite direction causing that window to close. The return path to ground is supplied through the inactive control circuit being normally grounded through the window switch.

Each driver, passenger and rear window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger, left rear or right rear window, the driver will use the appropriate switch on the driver window switch. When this switch is used, a serial data message is sent to the BCM requesting a window motor command, the BCM will then send a serial data message to the appropriate door window switch which will then command that window to move in the direction requested.

Lockout Switch Feature

The driver power window switch contains a window lockout switch, when the driver presses the window lockout switch, a serial data message is sent to the BCM which will send a disable command to the rear window switches, deactivating them. The rear windows will still function normally from the switches on the driver window switch.

REAR WINDOW DEFOGGER DESCRIPTION AND OPERATION

Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- HVAC Control Module
- HVAC Controls Switch Assembly
- Rear Defogger Relay
- Rear Defogger Grid
- 40A Fuse

Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. Additionally, up to two outside rear view mirrors can be heated if required. A switch for the customer to control the system is provided within the HVAC controls switch assembly. Also included in the HVAC controls switch assembly is an indicator to inform the customer with the current state of the system. The system is only operational when engine is running or during remote start.

Pressing the heated rear window switch causes the HVAC controls switch assembly to send a serial data message to the HVAC control module requesting rear window defog operation. The HVAC control module upon receipt of the serial data message will provide voltage to the coil side of the rear defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

When the rear heated rear window switch is pressed and the engine is running, the rear window defogger grid will activate and will turn off automatically depending upon the vehicle speed (refer to owner's manual for rear window defogger operation cycles)

STATIONARY WINDOW DESCRIPTION

Most stationary windows, specifically windshields, are retained to the body with adhesive which adheres the window to the body, increasing structural integrity. The reinstallation of the windows with adhesive requires complete replacement of the adhesive bead, and is known as the full cut method. All stationary windows must use a adhesive systems which meet GM Specification GMW-15672.

URETHANE ADHESIVE DESCRIPTION

For replacement of any adhesive-installed window, use the full cut method only.

Use an adhesive that is approved by GM, Specification GMW-15672.

Use these materials based on specific manufacturer. Do NOT intermix primers or adhesives from one manufacturer to another.

Always follow the system manufacturers instructions for application, handling, and curing.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

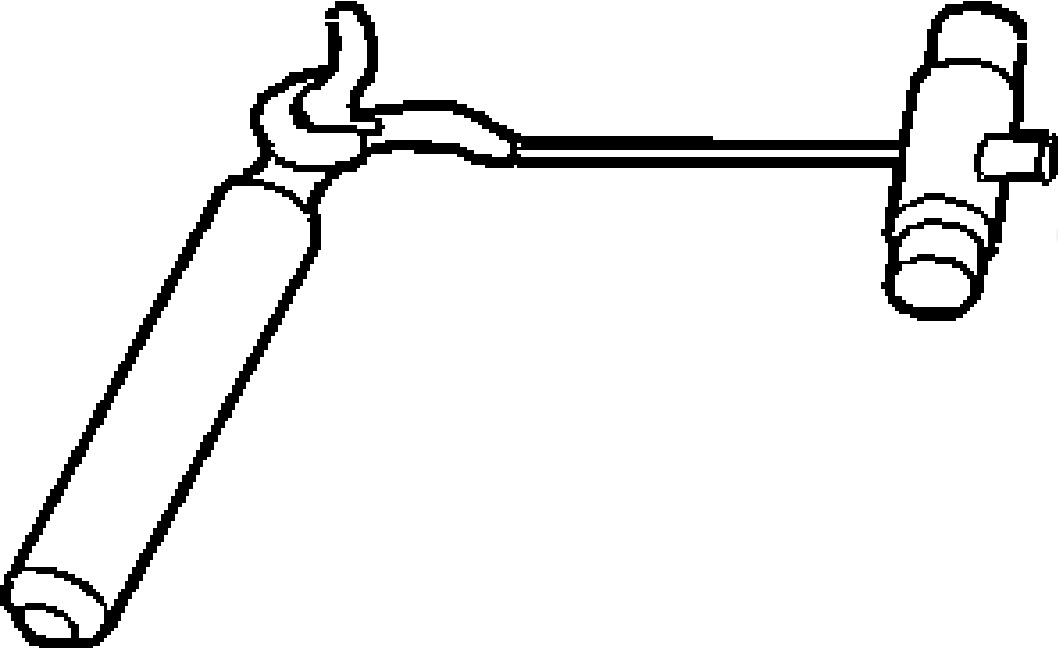
Illustration	Tool Number/Description
	BO-24402-A J-24402-A Glass Sealant Cold Knife Remover

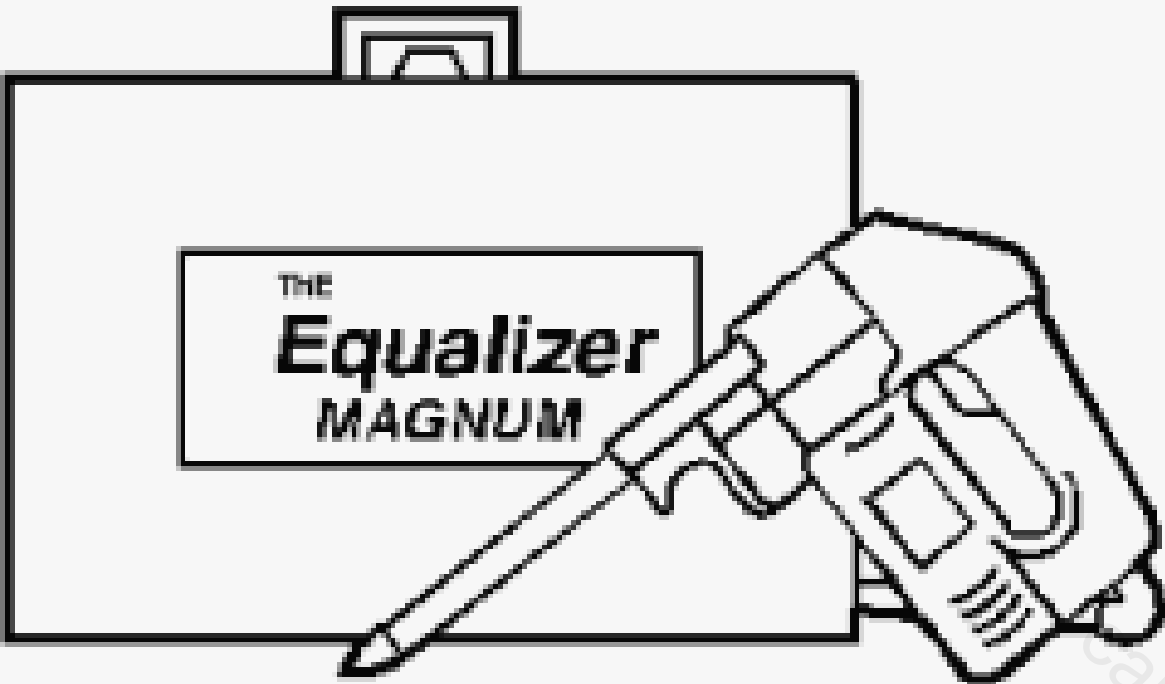
Illustration	Tool Number/Description
 The illustration shows a rectangular carrying case with a handle on top. A label on the front of the case reads "THE <i>Equalizer</i> MAGNUM". A medical tool, which is a stationary glass removal tool, is shown leaning against the case. The tool has a long, thin, tapered shaft with a pointed tip. The handle is complex, featuring a trigger mechanism and a thumb lever. A small, rectangular label is attached to the handle. A faint watermark "cardiagn.com" is visible diagonally across the lower right portion of the illustration.	BO-39032 J-39032 Stationary Glass Removal Tool

Illustration	Tool Number/Description
	BO-39040 J-39040 Quarter Window Remover